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# MGF - upto 2001 Model Year Electrical Library

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#### **ABOUT THIS DOCUMENT**

#### General

This document is intended to assist in diagnosing electrical faults, and should be used in conjunction with the Electrical Circuit Diagrams. The document is divided into the following sections:

- 1. **INTRODUCTION:** Includes Electrical Precautions, a list of Abbreviations and general information on how to use this document.
- 2. **FUSE DETAILS:** Provides details of location, rating in Amperes, and circuit(s) protected.
- 3. **EARTH POINTS AND HEADERS:** Provides details of earth points and earth headers, including a plan view of the vehicle to aid location.
- 4. **DESCRIPTION AND OPERATION:** Provides an explanation of how each of the systems operate.
- 5. **CIRCUIT REFERENCE NUMBERS:** Provides a list of circuit reference numbers against a model or feature to which they apply.
- 6. **CONNECTOR DETAILS:** Details of connectors including a location photograph, face view and pin-out table.

NOTE: Before starting electrical checks on the vehicle, ensure that relevant mechanical functions operate satisfactorily.

#### References

References to the LH or RH side given in this document are made when viewing the vehicle from the rear.

Operations covered in this document do not include reference to testing the vehicle after repair. It is essential that work is inspected and tested after completion and, if necessary, a road test of the vehicle undertaken, particularly where safety related items are concerned.

CAUTION: Before undertaking any electrical work on a vehicle ALWAYS read the ELECTRICAL PRECAUTIONS.

MGF 1.1

## INTRODUCTION

## **Battery voltage**

## Open circuit voltage test

Before commencing diagnosis of electrical problems, verify the condition of the battery is acceptable by using the open circuit voltage test:

- 1. Switch off all electrical loads on the vehicle.
- 2. Adjust digital multimeter to read dc volts on the appropriate scale.
- 3. Connect test probes across battery terminals ensuring that polarity is correct and record the voltage displayed.

A reading of 12.3 V or more is acceptable; any battery which reads less than this will need charging.

NOTE: If the vehicle has been used within a period of 8 hours prior to the test, surface charge must be removed from the battery by switching the headlamps on for approximately 30 seconds. Wait a further 60 seconds before checking the open circuit voltage.

Battery voltage is used as a known reference for ascertaining whether or not circuits are receiving sufficiently high voltage for components to function correctly. This reference is only a guide since most electronic circuits are designed to function over a wide range of voltages. In addition, consideration must be given to readings affected by voltage drop across certain components and fluctuations due to cable lengths.

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## **ELECTRICAL PRECAUTIONS**

#### General

The following guidelines are intended to ensure the safety of the operator whilst preventing damage to the electrical and electronic components fitted to the vehicle. Where necessary, specific precautions are detailed in the relevant sections of this document, reference of which should be made prior to commencing repair operations.

Equipment - Prior to commencing any test procedure on the vehicle, ensure that the relevant test equipment is working correctly and any harness or connections are in good condition. This particularly applies to mains lead or connections.

Polarity - Never reverse connect the vehicle battery and always observe the correct polarity when connecting test equipment.

High voltage circuits - Whenever disconnecting live ht circuits, always use insulated pliers and never allow the open end of the ht lead to come into contact with other components, particularly ECU's. Since high voltage spikes can occur on the terminals of the coil while the engine is running, exercise caution when measuring the voltage at these points.

WARNING: The HT voltage of the ignition system is in excess of 50 kV and the LT voltage is in excess of 400 volts. Voltages this high can cause serious injury and may even be fatal. Never touch any ignition components while the engine is running or being cranked.

WARNING: Before commencing work on an ignition system, all high tension terminals, adapters and diagnostic equipment for testing should be inspected to ensure that they are adequately insulated and shielded to prevent accidental personal contact and to minimise the risk of shock. Wearers of surgically implanted pacemaker devices should not work in close proximity to ignition circuits or diagnostic equipment.

CAUTION: Never crank or run the engine with the HT leads disconnected from the ignition coils; failure of the ECM and/or the coil will result. Always disable the ignition system by disconnecting the LT connectors from the coil.

Connectors and harnesses - The engine compartment of a vehicle is a particularly hostile environment for electrical components and connectors. Always ensure these items are dry and oil free before disconnecting and connecting test equipment. Never force connectors apart either by using tools or by pulling on the wiring harness. Always ensure locking tabs are disengaged before removal and note orientation to enable correct reconnection. Ensure that any protective covers and substances are replaced if disturbed.

Before removing a faulty component, refer to the Workshop Manual for removal procedures. Ensure the ignition switch is turned to the 'OFF' position, the battery is disconnected (see Battery disconnecting) and any disconnected harnesses are supported to avoid any undue strain at the terminals. When replacing the component keep oily hands away from electrical connection areas and push connectors home until any locking tabs fully engage.

MGF 1.3

## INTRODUCTION

## **Battery disconnecting**

Before disconnecting the battery, switch off all electrical equipment. If the radio is to be serviced, ensure the security code has been deactivated. When the battery is disconnected, certain data such as radio code and clock time will be lost. On vehicles with a Battery Backed-Up Sounder (BBUS) fitted, if the battery is disconnected with the alarm armed, the BBUS will sound.

CAUTION: To prevent damage to electrical components, always disconnect the battery when working on the vehicle electrical systems. The earth lead must be disconnected first and reconnected last. Always ensure that battery leads are routed correctly and are not close to any potential chafing points.

## **Battery charging**

Recharge the battery out of the vehicle and keep the top well ventilated. While being charged or discharged, and for approximately fifteen minutes afterwards, batteries emit hydrogen gas. This gas is inflammable.

Always ensure any battery charging area is well ventilated and that every precaution is taken to avoid flames and sparks.

## **Disciplines**

Switch off ignition prior to making any connection or disconnection in the system as electrical surge caused by disconnecting 'live' connections can damage electrical components.

Ensure hands and work surfaces are clean and free of grease, swarf, etc. as grease collects dirt which can cause tracking or high-resistance contacts.

When handling printed circuit boards, treat them as you would a disc – hold by the edges only; note that some electronic components are susceptible to body static.

Connectors should never be subjected to forced removal or refit, especially inter-board connectors. Damaged contacts will cause short-circuit and open-circuit conditions.

Prior to commencing testing, and periodically during testing, touch a good earth, e.g. cigar lighter socket, to discharge body static as some electronic components are vulnerable to static electricity.

#### **Grease for electrical connectors**

Some under bonnet and under body connectors are protected against corrosion by the application of a special grease on production. Should connectors of this type be disturbed, repaired, or replaced, a grease of this type, available under Part No. BAU 5811, should again be applied. Do not apply grease to any connectors that do not have grease applied as standard.

NOTE: The use of other greases must be avoided as they can migrate into relays, switches, etc. contaminating the contacts and leading to intermittent operation or failure.

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## **ABBREVIATIONS**

## General

А	Ampere	
ac	Alternating current	
ABS	Anti-lock braking system	
A/C	Air conditioning	
ATC	Air temperature control	
BBUS	Battery backed-up sounder	
BCU	Body control unit	
BUS	Databus	
CAN	Controller area network	
Cav	Cavity	
Cct	Circuit	
CDL	Central door locking	
Col	Colour	
dc	Direct current	
DCU	Diagnostic control unit	
DDM	Driver door module	
EAT	Electronic automatic transmission	
EBD	Electronic braking force distribution	
ECM	Engine control module	
ECT	Engine coolant temperature	
ECU	Electronic control unit	
EM-CVT	Electro mechanical continuously variable transmission	
EPAS	Electric power assisted steering	
ETC	Electronic traction control	
F	Fuse	
FBH	Fuel burning heater	
FL	Fusible link	
HRW	Heated rear window	
ht	High tension	
ITS	Inflatable tubular structure	
ISO	International Organisation for Standardization	
LH	Left hand	
LHD	Left hand drive	
LSM	Light switch module	
MEMS	Modular engine management system	
MPi	Multi point injection	

MGF 1.5

## INTRODUCTION

PDC	Park distance control	
PWM	Pulse width modulated	
R	Relay	
RF	Radio frequency	
RH	Right hand	
RHD	Right hand drive	
SAE	Society of Automotive Engineers	
SRS	Supplementary restraint system	
V	Volt	
VICS	Vehicle information communication system	
VIN	Vehicle identification number	
VVC	Variable valve control	
W	Watt	

**1.6** MGF

#### **HOW TO USE THIS DOCUMENT**

#### **Fuse details**

Contains information on the fuse functions and values and should be used together with the power distribution circuit diagrams to establish which systems share a common power supply and to ensure that correct value fuses are fitted.

## Earth points and headers

Shows a plan view of the vehicle with location of all earth points. Supporting photographs and connector detail information appears in the Connector section.

## **Description and operation**

Presented in the same order as the circuit diagrams in the Electrical Circuit Diagram folder, each of the descriptions contains a brief overview of the main system functions and includes reference to the appropriate wire colours. Always read this section before starting work on a system so that a good understanding of system functionality is obtained.

#### **Connector details**

This section is effectively an index of every electrical connector on the vehicle, including headers and eyelets. A page is dedicated to each connector, with the information presented in a standard format. The connector number is displayed on each page header to ease reference. Connector information comprises:

- Connector number The assigned number, prefixed 'C'.
- Connector name Usually derived from the component to which the connection is made.
- Male/Female If applicable, identifies the gender of the connector pins (NOT the housing) as Male or Female. Generally, connectors mating directly into a component have Female pins.
- **Colour -** If applicable, the colour of the connector housing is shown. NATURAL is used to describe connectors with a clear/translucent plastic finish.
- Location statement Used in conjunction with the photograph to determine the location of the connector.
- Photograph Shows the location of the subject connector. In most cases the
  photograph will indicate the amount of trim removal necessary to reveal the connector.
   For convenience some photographs identify more than one connector.
- Face view An outline of the connector housing, viewed from the front, showing pin numbers (if applicable).
- Pin-out table A three column table, detailing the colour and position of each wire in the connector:

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Cav	Col	Cct
1	GR	ALL
2	В	ALL

- 1. Cav: The connector pin (cavity) number.
- 2. **Col:** The colour of wire populating the connector pin.
- 3. Cct: Identifies the model or feature which uses the wire.

'ALL' means applicable to all models in the range fitted with the feature or system in question. In instances where different models, features or systems require different colour wires to be fitted in a cavity, each instance of the cavity is included in the Pinout table.

NOTE: Wires may not be fitted to all cavities

Example – 12 pin Connector

Cav	Col	Cct
2	G	ALL
4	GW	3
4	GB	4
5	LGB	ALL
6	GB	6
6	GW	7
6	GB	9
8	В	ALL

A table listing the circuit reference numbers against a description of the model or features which may or may not be fitted can be found at the beginning of the Connector section. A sample of a typical table is shown below:

Cct	Model or feature
1	ABS
2	Japan only
3	With air conditioning
4	Without air conditioning
5	Without ABS
6	VVC
7	EM-CVT
8	Manual gearbox
9	MPi

**1.8** MGF

## **FAULT DIAGNOSIS**

#### General

When diagnosing an electrical fault, follow the steps below:

- 1. Read the circuit description appropriate to the reported fault to ensure a good understanding of circuit operation.
- 2. Study the power distribution, fuse details and earth distribution diagrams and identify other circuits which share fuses and/or earth points. Check whether these circuits operate correctly.
- 3. Using the photographs contained in the Connector section, locate a point on the circuit (approximately half way between supply and earth) which is easily accessible.
- 4. Check that the pin out details of the connector are correct and that the correct signals exist at the correct terminals.
- 5. Using the marker pen supplied (or other suitable non-permanent marker pen), mark the parts of the circuit you have verified.
- 6. Continue to the next point on the circuit which is easiest to access and repeat the above.
- 7. Continue with this approach until a fault is found, rectify the fault and then verify that the circuit operates correctly.

CAUTION: Never probe directly into the front face of a connector. This can damage the terminal and cause a failure. Always probe the back of a terminal, taking care not to damage the terminal or any seals.

Never probe the wire insulation. On small diameter cables this can cut the conductors. It may also allow moisture into the cable, causing corrosion.

MGF 1.9

## **WIRE COLOUR CODES**

## General

The following list contains the wire colour codes used on the vehicle harnesses.

Code	Colour
В	Black
G	Green
K	Pink
LG	Light Green
N	Brown
0	Orange
P	Purple
R	Red
S	Slate (Grey)
U	Blue
W	White
Υ	Yellow

**1.10** MGF

#### Introduction

The majority of the fuses are mounted in three fuse boxes: An under bonnet fuse box attached to the LH inner front wing, a passenger compartment fuse box installed behind a fuse box closing panel on the driver's side of the fascia; a satellite fuse box attached to the side of the passenger compartment fuse box. In addition to the fuse boxes, in-line fuses are installed:

- Near the under bonnet fuse box, for the Electric Power Assisted Steering (EPAS) system.
- Behind the LH side trim of the luggage compartment, for the Electro Mechanical Constantly Variable Transmission (EM-CVT), where fitted.
- On the side of the passenger compartment fuse box, for the SRS system.

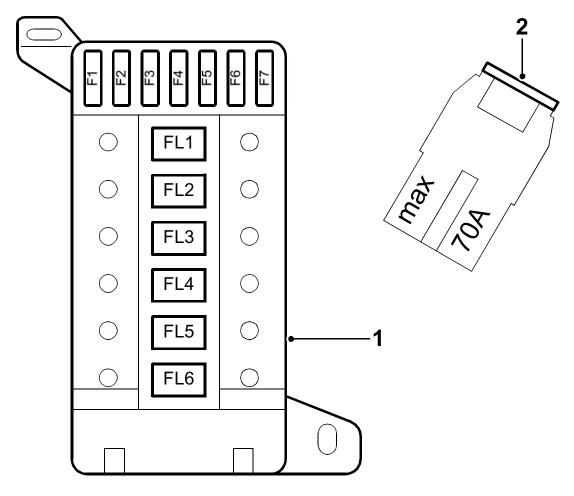
WARNING: Do not carry out any work on the SRS system before reading the SRS WARNINGS, CAUTIONS, and NOTES contained in the Introduction section of the Workshop Manual.

The under bonnet fuse box contains 6 fusible links, each of which is fixed in position with two cross-headed screws, and 7 pull-out fuses. Fusible Link 6 (FL6) is the battery feed and supplies FL3, FL4, FL5 and fuses 5, 6 and 7.

The fuses in the passenger compartment and satellite fuse boxes are all of the pull-out type.

MGF 2.1

## **UNDER BONNET FUSE BOX**



M86 5062

- 1. Under bonnet fuse box
- 2. EPAS in-line fuse

## **Fusible links**

Link	Rating, Amperes	Function
FL1	40	Lighting
FL2	60	ABS modulator
FL3	30	Heated rear window/ engine bay cooling fan
FL4	40	Ignition switch A
FL5	40	Ignition switch B
FL6	60	Battery

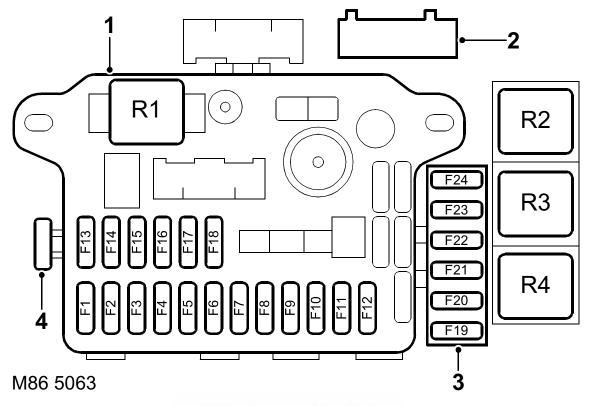
**2.2** MGF

## **Fuses**

Fuse	Rating, Amperes	Function
F1	30	Engine management relay module
F2	30	Engine management relay module/ alarm ECU
F3	15	Alarm ECU
F4	10	Hazard warning lamps/ instrument pack
F5	20	A/C condenser fan and compressor
F6	15	Radiator fan
F7	15	Alarm ECU and horns
In-line	40	Electric power assisted steering

MGF 2.3

## PASSENGER COMPARTMENT AND SATELLITE FUSE BOXES



RHD shown, LHD similar

- 1. Passenger compartment fuse box
- 2. Diagnostic socket (reference)
- 3. Satellite fuse box
- 4. SRS in-line fuse

## **Fuses**

Fuse	Rating, Amperes	Function
F1	10	Instruments, EPAS ECU, indicators
F2	10	Cigar lighter
F3	-	Not used
F4	15	RH window
F5	15	LH window
F6	10	Engine bay cooling fan
F7	10	RH side and tail lamps
F8	10	LH side and tail lamps, switch illumination
F9	10	Rear fog lamp
F10	10	LH headlamp dipped beam
F11	10	RH headlamp dipped beam
F12	15	Clock, radio and interior lamps

**2.4** MGF

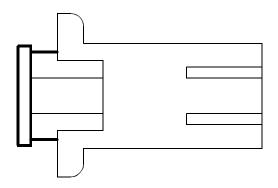
Fuse	Rating, Amperes	Function
F13	20	Windscreen wipers
F14	15	Alarm and engine management
F15	20	Cooling fan
F16	15	Brake and reverse lights
F17	10	Radio
F18	10	Mirrors and windows
F19	10	Starter relay (multi function ECU)
F20	10	Anti-lock brakes
F21	15	RH headlamp main beam and instrument pack
		main beam warning lamp
F22	15	LH headlamp main beam
F23	25	Heated rear window
F24	20	Blower motor
In-line	10	SRS

## Relays

Relay	Function
R1	Cigar lighter
R2	Window lift
R3	Engine bay fan
R4	Heated rear window

MGF 2.5

## **EM-CVT FUSE**



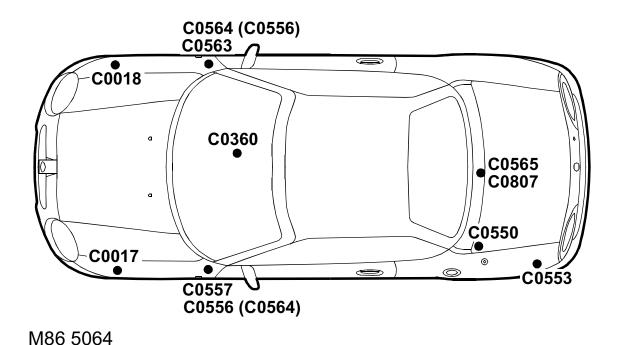
M86 5069

Fuse	Rating, Amperes	Function
In-line	10	EM-CVT

**2.6** MGF

### **GENERAL**

The following Figure indicates the general position of each earth point and earth header on the vehicle. Refer to the Connector section for more information.



The location of all except two earth points/headers are common to LHD and RHD vehicles.

The two exceptions give RHD identifier 1st followed by LHD identifier in parenthesis.

Refer to the Circuit Diagrams for details of electrical components and their associated earth

points and/or earth headers.

MGF 3.1

## EARTH POINTS AND HEADERS

**3.2** MGF

## ANTI-THEFT ALARM AND CENTRAL DOOR LOCKING (CDL)

#### **DESCRIPTION**

#### General

The anti-theft alarm system monitors the vehicle and operates the alarm if unauthorised entry is detected. The central door locking system provides local and remote means of centrally locking and unlocking the doors. The anti-theft alarm system and the central door locking system are both controlled by the alarm Electronic Control Unit (ECU) located on the underside of the heater controls in the fascia. Active and/or passive engine immobilisation, depending on market, is incorporated into the alarm ECU to prevent unauthorised starting of the engine.

## Anti-theft alarm system

The anti-theft alarm system operates in conjunction with the central door locking system and is automatically armed and disarmed when the vehicle is locked and unlocked using either the remote handset or the driver's door lock.

The main features of the system are:

- Perimetric protection that monitors the status of contact switches to detect unauthorised opening of the bonnet, doors and boot lid. This feature arms with all methods of door locking.
- Volumetric protection, where fitted, that uses a sensor, mounted under the rear bulkhead finisher, to monitor for movement in the passenger compartment (with the hood up or down). This feature arms only when the vehicle is locked with the remote handset.
- Engine immobilisation that prevents operation of the starter motor and fuel pump unless the system is disarmed by the remote handset.
- A red alarm Light Emitting Diode (LED) in the instrument pack.
- Indicator lamp flashing to provide visual confirmation of system arming and disarming.

## Central Door Locking (CDL) system

The CDL system uses electric motors to lock and unlock the driver and passenger door locks. The electric motors are connected in parallel to provide simultaneous operation of the two door locks. Locking and unlocking is initiated using the remote handset, the driver's door lock or the driver's door sill button. Two levels of locking are incorporated; locking and superlocking. Each door contains two electric motors, one for locking and one for superlocking.

Locking allows the doors to be unlocked using the door sill button and is intended for use when someone remains in a parked vehicle. The driver's door lock and the driver's door sill button can be used when locking the doors. A single press of the lock button on the remote handset can also be used to lock the doors, but, where fitted, this will also arm the volumetric alarm.

Superlocking isolates the door sill buttons from the door locks. A double press of the lock button on the remote handset is used when superlocking the doors.

#### Handset

The remote handset is a Radio Frequency (RF) transmitter with surface mounted lock and unlock buttons. The remote handset transmits a coded radio signal when either the lock or unlock button is pressed. The button with a padlock symbol is used to lock the doors and arm the anti-theft alarm system. The plain button is used to unlock the doors and disarm the anti-theft alarm system.

Each time a remote handset button is pressed, the radio signal code is changed in a sequence mirrored by a receiver in the alarm ECU. If the sequence is broken (e.g. by remote handset battery renewal, or repeated pressing of the remote handset buttons while away from the vehicle), the remote handset will not operate the alarm system until the system has been re-synchronised.

The remote handset can be re-synchronised to the alarm ECU by ensuring that the driver's door is unlocked with the key and pressing the remote handset lock button at least four times in quick succession. The system will respond by locking the doors, indicating that the remote handset and alarm ECU are now synchronised.

On vehicles with passive immobilisation, the remote handset contains a transponder which works in conjunction with a coil around the ignition switch barrel to automatically mobilise the engine when the key is turned in the ignition switch.

## **OPERATION**

## **Power supplies**

Fuse 2 (C0571) in the under bonnet fuse box supplies a permanent feed to the inertia switch (C0123) on a N wire. The inertia switch (C0123) supplies the feed to the alarm ECU (C0057) and the engine management relay module (C0157) on NS wires.

Fuse 3 (C0571) in the under bonnet fuse box supplies a permanent feed to the alarm ECU (C0061) on a P wire.

Fusible link 4 (C0570) in the under bonnet fuse box supplies a permanent feed to the ignition switch (C0028) on a NP wire. When the ignition switch is in position II, the power is fed to fuse 14 (C0099) in the passenger compartment fuse box on a BY wire. Fuse 14 (C0585) supplies the feed to the alarm ECU (C0061) and the ECM (C0159 on MPi MEMS 1.9 and VVC MEMS 2J models, C0634 on MPi MEMS 3 models) on W wires.

System earths are provided by a B wire connected between the alarm ECU (C0061) and an earth point on the body (C0564) via the passenger compartment fuse box (C0584 and C0583).

**4.2** MGF

## Anti-theft alarm system

To determine when to arm, disarm and activate the anti-theft alarm system, the alarm ECU monitors the ignition feed and inputs from the:

- Remote handset.
- Driver's door lock barrel switch.
- Door, bonnet and load space lamp switches.

Lock and unlock requests from the remote handset are input to the alarm ECU on the Y aerial wire integrated into the vehicle harness between the hazard warning switch (C0096) and the alarm ECU (C0061).

A switch in the driver's door lock barrel connect earths to the alarm ECU to provide lock and unlock position signals, as appropriate. The door lock barrel switch (C1450) is earthed on a B wire connected to an earth point (C0564 on LHD) or earth header (C0018 on RHD). When the door lock is in the locked position, the B wire is connected to a BO wire between the door lock barrel switch (C1450) and the alarm ECU (C0061). When the door lock is in the unlocked position, the B wire is connected to a BK wire between the door lock barrel switch (C1449) and the alarm ECU (C0061).

Each door and the boot incorporate a switch in the latch that closes as the door/boot lid is opened. Opening and closing the bonnet operates a plunger switch that closes when the bonnet is opened. When either the door, bonnet or boot lid opens, an earth is connected to the alarm ECU (C0061):

- On a PW (LHD) or PS (RHD) wire from the driver's door switch (C1449); a B wire connects the driver's door switch (C1450) to an earth point (C0564 on LHD) or earth header (C0018 on RHD).
- On a PS (LHD) or PW (RHD) wire from the passenger door switch (C1451); a B wire connects the passenger's door switch (C1451) to an earth header (C0018 on LHD, C0017 on RHD).
- On a PR wire from the load space lamp switch (C0107); a B wire connects the load space lamp switch (C0110) to an earth header (C0550).
- On a BP wire from the bonnet switch (C0007), which is earthed through the switch fixing.

When the doors open, the door switches also output an earth to the multi function ECU to operate the interior lamps.

## Perimetric protection

When the vehicle is locked or superlocked, provided the ignition is off the alarm ECU arms the perimetric protection system. To indicate that perimetric protection has armed, the alarm ECU (C0061) intermittently earths the UK wire from the alarm LED (C0234) in the instrument pack. The alarm LED flashes rapidly for approximately 10 seconds and then flashes at a slower rate while the system remains armed. The alarm ECU (C0057) also connects momentary feeds to the header (C0287) in the direction indicator circuit, on the GR wire (LH indicators) and the GW wire (RH indicators), to flash all of the direction indicator lamps. The alarm ECU flashes the indicator lamps once if the vehicle is locked and four times if the vehicle is superlocked.

If a door, bonnet or boot lid is open when the vehicle is locked, the alarm ECU withholds the indicator lamp flash and continuously illuminates the alarm LED to indicate that the system is not fully armed. However, perimetric protection will be armed for those doors/ bonnet/ boot lid that are closed and engine immobilisation will be set, but volumetric protection will not be armed. If the open door/ bonnet/ boot lid is subsequently closed, the alarm ECU flashes the direction indicator lamps and proceeds to flash the alarm LED to indicate that the system is now fully armed.

A boot lock switch is installed in order to allow access to the luggage compartment while the alarm is armed. When the key is turned in the boot lock, contacts in the boot lock switch (C0831) close and input an earth to the alarm ECU (C0061) on a BR wire. The boot lock switch (C0831) is earthed by a B wire connected to an earth header (C0550). When the alarm ECU senses the earth it allows the boot lid to open without activating the alarm.

If a door, bonnet or boot lid is opened when perimetric protection is armed, the alarm ECU activates the alarm, which consists of flashing the indicator lamps and sounding the vehicle horns. To sound the vehicle horns the alarm ECU (C0061) earths the PB wire connected to the multi function ECU (C0062). Once triggered, the alarm operates for a period of 25 to 30 seconds and can be triggered up to three times. The alarm can be de-activated by pressing one of the buttons on the remote handset, or operating the driver's door lock (locking or unlocking).

## Volumetric protection (where fitted)

When the vehicle is locked or superlocked using the remote handset, the alarm ECU arms volumetric protection, provided:

- The ignition is off.
- The doors, bonnet and boot lid are all closed.

Volumetric protection is armed by the alarm ECU supplying two feeds to activate the volumetric sensor: One on the SW wire between the alarm ECU (C0057) and the volumetric sensor (C0358); one on the WB wire between the alarm ECU (C0061) and the volumetric sensor (C0358). The volumetric sensor (C0358) is earthed on a B wire via the passenger compartment fuse box (C0584 and C0583) and an earth point on the body (C0564). To minimise false alarms, volumetric protection is not armed until 15 seconds after the alarm has received a lock request. The alarm ECU flashes the indicator lamps once if the vehicle is locked and four times if the vehicle is superlocked.

**4.4** MGF

With volumetric protection armed, if any movement in the passenger compartment is detected the volumetric sensor (C0358) sends a signal to the alarm ECU (C0061) on the NB wire. The alarm ECU then activates the alarm as detailed above.

## **Engine immobilisation**

## Active immobilisation

The engine is immobilised when the perimetric protection function is armed, inhibiting the engine starter and fuel pump circuits. The engine is re-mobilised when the unlock button on the remote handset is pressed.

## Passive immobilisation (where fitted)

If the car is not locked, the engine is immobilised 30 seconds after the ignition is switched off and the driver's door opens. When the engine is immobilised, the LED on the instrument pack flashes.

The engine is re-mobilised when the ignition switch is turned to position II, provided the remote handset is attached to the ignition key. When the ignition switch is turned to position II, the alarm ECU (C0057) activates the passive coil (C0672) on the SR and PK wires. This causes the transponder in the remote handset to transmit a signal containing the ignition key and rolling code data, which is received by the alarm ECU from the passive coil. Provided the data is correct, the alarm ECU then re-mobilises the engine. If the data from the transponder is incorrect or missing, the alarm ECU (C0061) signals the multi function ECU (C0062) on a WG wire to sound a warning buzzer. The alarm ECU also continuously illuminates the alarm LED.

#### Re-mobilisation

When a valid unlock signal is received from the remote handset, the alarm ECU (C0061) connects the BW wire from the engine management relay module (C0154) to earth, to enable the engine starter. The alarm ECU (C0061) also signals the ECM (C0159 on MPi MEMS 1.9 and VVC MEMS 2J models, C0634 on MPi MEMS 3 models) on the YR wire to enable operation of the fuel pump.

If the remote handset fails to operate or is lost while the engine is immobilised, remobilisation can be achieved by using the door key to enter the four digit Emergency Key Access (EKA) code (shown on the security card in the vehicle's literature pack). With the driver's door locked, enter the EKA code as follows:

- 1. Insert the key into the door lock.
- 2. Turn the key to the lock position and release the key.
- 3. Turn the key to the unlock position the number of times indicated by the first digit of the code.
- 4. Turn the key to the lock position the number of times indicated by the second digit of the code.
- 5. Repeat steps 3 and 4 for the third and fourth digits.
- 6. Turn the key to the unlock position to unlock the doors and mobilise the engine.

If the EKA code has been entered successfully, the LED on the instrument pack will stop flashing and the engine can be started. If the operation is unsuccessful, the horns will sound a warning beep when the key is turned to the final unlock position.

If an error is made during the process of entering the EKA code, the act of opening and closing the door will cancel the operation and the EKA code sequence can be re-entered. The system permits three attempts at entering the EKA code, after which a 10 minute lock-out period is initiated.

If the engine is mobilised using the EKA code, the engine immobilisation function is deactivated until the next time the remote handset is used to lock the doors.

## Alarm system test

The alarm system can be tested by following the procedure described below:

- 1. Ensure doors, bonnet and boot lid are closed.
- 2. Sit in the drivers seat and close the door.

NOTE: The next three actions must be carried out within 2 seconds.

- 3. Depress the driver's door sill button.
- 4. Switch the ignition on, off and on again.
- 5. Raise the driver's door sill button.

If the test mode has been entered correctly, the horns will give a short beep and the engine immobilisation buzzer will sound.

Opening either door, the bonnet or the boot lid, or operating the driver's door sill button, will cause the alarm LED to illuminate for approximately one second. If the LED does not illuminate, there is a system fault.

The volumetric sensor can also be tested while in test mode. To test the volumetric sensor, press the unlock button on the remote handset several times. The alarm LED will illuminate for approximately 1 second each time movement is detected in the vehicle.

The test mode is cancelled by switching the ignition OFF.

## Handset battery replacement

Depending on usage, the battery in the remote handset should last for approximately three years. When the battery is near the end of its life, unlocking the doors will result in a rapid flashing of the instrument pack LED until a door is opened. A reduction in operating range may also be noticed.

To change the battery, first carefully prise open the remote handset casing at the key ring end, taking care not to damage the seal. Slide the battery out, without bending the clip or touching any of the contact surfaces. Press and hold each remote handset button for five seconds, to allow residual power to discharge.

Without touching the contact surfaces, carefully slide a new battery into the clip, ensuring that the side marked '+' faces the clip. Close the two halves of the remote handset case.

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Ensure that the vehicle is unlocked using the key. Operate the lock button at least four times, until the vehicle is locked and the remote handset is synchronised to the car. The vehicle can then be unlocked with the remote handset and will operate normally.

## Central Door Locking (CDL) Locking

When the alarm ECU receives a lock signal, from the remote handset or the driver's door lock barrel switch, a feed is connected to the O wire between the alarm ECU (C0061) and the door locking motors (C1449 and C1451). The alarm ECU (C0061) also earths the K wire from the locking/ superlocking motors (C1449 and C1451), the locking motors then lock the doors.

## Superlocking

When the alarm ECU receives two lock signals from the remote handset in quick succession, a feed is connected to the NK wire between the alarm ECU (C0057) and the door superlocking motors (C1449 and C1451). The alarm ECU (C0061) also earths the K wire from the locking/ superlocking motors (C1449 and C1451), the superlocking motors then lock the doors and disengage the door sill buttons.

NOTE: Pressing down the passenger door sill button will lock the passenger door but will not operate the central door locking system.

## Unlocking

The car is unlocked by pressing the unlock button on the remote handset, turning the key in the driver's door in the unlock direction or, provided the vehicle is not superlocked, by raising the driver's door sill button. When an unlock signal is received, from the remote handset or the driver's door lock barrel switch, the alarm ECU reverses the polarity of the locking/ superlocking motor connections and the locking/ superlocking motors unlock the doors. The alarm ECU also operates the direction indicator lamps to give one long flash.

In the event of a severe crash, both doors will be unlocked by the operation of the inertia switch. When the inertia switch opens, the supply to the alarm ECU is disconnected and the alarm ECU operates the locking or superlocking circuit as appropriate.

## **WINDOW LIFT**

## **DESCRIPTION**

#### General

Electrically operated windows are installed in the driver and passenger doors. The driver's window features 'one shot' opening. Operation of the windows is controlled by switches on the centre console and a window lift ECU at the base of the driver's side A post. The windows operate when the ignition switch is in position II provided the driver's door is closed.

## **OPERATION**

## **Power supplies**

Fusible link 3 (C0570) in the under bonnet fuse box supplies a permanent feed to the switch contacts of window lift relay (C0042) and to fuse 6 (C0582) in the passenger compartment fuse box on N wires. Fuse 6 (C0584) supplies the feed to the coil of the window lift relay (C0042), also on a N wire. Fuse 7 (C0572) in the under bonnet fuse box supplies a permanent feed to the multi function ECU (C0016) on a PN wire.

Fusible link 4 (C0570) in the under bonnet fuse box supplies a permanent feed to the ignition switch (C0028) on a NP wire. When the ignition switch is in position II, the feed is connected to fuse 1 in the passenger compartment fuse box by a BY wire. Fuse 1 supplies the feed to the multi function ECU on a G wire. When the driver's door is closed, the multi function ECU (C0062) is connected to earth on a PW (LHD) or PS (RHD) wire to the driver's door switch (C1449), and a B wire from the driver's door switch (C1450) to an earth point (C0564 on LHD) or an earth header (C0018 on RHD). The multi function ECU then connects the BN wire, between the coil of the window lift relay (C0042) and the multi function ECU (C0062), to earth on the B wire between the multi function ECU and an earth header (C0017).

When the window lift relay energises, the feed from fusible link 3 in the under bonnet fuse box is connected to the NU wire between the window lift relay (C0042) and fuses 4 and 5 in the passenger compartment fuse box (C0583). Fuse 4 (C0585) supplies a feed to a SG wire connected to the passenger window switch (C0081 on LHD) or the window lift ECU (C0341 on RHD); fuse 5 (C0585) supplies a feed to a NY wire connected to the window lift ECU (C0341 on LHD) or the passenger window switch (C0081 on RHD).

## Passenger's window

Operating the passenger window switch to lower the window connects the feed from fuse 4 (LHD) or fuse 5 (RHD), in the passenger compartment fuse box, to the SY (LHD) or SB (RHD) wire between the passenger window switch (C0081 on LHD; C0321 on RHD) and the passenger window motor (C0741), which is earthed on a SR (LHD) or SK (RHD) wire from the passenger window motor (C0741) to the passenger window switch (C0081 on LHD; C0321 on RHD), and a B wire between the passenger window switch (C0081 on LHD; C0321 on RHD) and an earth point (C0557). While energised, the passenger window motor runs to lower the window.

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Operating the passenger window switch to the raise the window reverses the polarity of the passenger window motor connections. While energised, the passenger window motor runs to raise the window.

#### **Driver's window**

Operating the driver window switch to lower the window connects the SK (LHD) or SR (RHD) wire, between the window lift ECU (C0341) and the driver window switch (C0321 on LHD; C0081 on RHD), to earth on the B wire between the driver window switch (C0321 on LHD; C0081 on RHD) and an earth point (C0557). When an earth is detected on the SK (LHD) or SR (RHD) wire, the window lift ECU (C0341) powers the driver window motor, via the SW and SU wires, to lower the window. The window lift ECU (C0341) earths the driver window motor on the B wire between the window lift ECU (C0341) and an earth point (C0564).

Operating the driver window switch to raise the window connects the SB (LHD) or SY (RHD) wire, between the window lift ECU (C0341) and the driver window switch (C0321 on LHD; C0081 on RHD), to earth on the B wire between the driver window switch (C0321 on LHD; C0081 on RHD) and an earth point (C0557). When an earth is detected on the SB or SY wire, the window lift ECU powers the driver window motor, via the SW and SU wires, to raise the window.

## **DOOR MIRRORS**

### **DESCRIPTION**

#### General

The door mirrors feature electrical heating and adjustment. Each door mirror incorporates a heating element and two adjustment motors. The heating elements are permanently on when the ignition switch is in position II. Operation of the adjustment motors is controlled by a mirror switch on the inboard side of the instrument pack finisher. Door mirror adjustment is only enabled while the ignition switch is in position II.

## **OPERATION**

## **Power supplies**

Fusible link 4 (C0570) in the under bonnet fuse box supplies a power feed to the ignition switch (C0028) on the NP wire. When the ignition switch (C0028) is in position II, the feed is connected to fuse 18 (C0099) in the passenger compartment fuse box on a Y wire. Fuse 18 (C0585) supplies the feed to the mirror switch (C0066) and the heating element in the LH door mirror (C0352 on LHD; C0353 on RHD) and the RH door mirror (C0353 on LHD; C0352 on RHD) on LG wires.

## **Mirror heaters**

The heating element in the LH door mirror (C0352 on LHD; C0353 on RHD) is earthed by a B wire connected to an earth point (C0564 on LHD) or an earth header (C0017 on RHD). The heating element in the RH door mirror (C0353 on LHD; C0352 on RHD) is earthed by a B wire connected to an earth header (C0018). With the ignition switch in position II the heater elements are energised and heat the mirror glass.

## Mirror adjustment

When the mirror switch is turned to the left, ganged LH/RH contacts in the mirror switch (C0066) connect to BU and BY wires from the adjustment motors in the LH door mirror (C0352 on LHD; C0353 on RHD). When the mirror switch is subsequently tilted to the left, ganged left/ right contacts in the mirror switch connect the feed from fuse 18 to the BU wire and connect the SW wire, from the horizontal adjustment motor (C0352 on LHD; C0353 on RHD), to the B wire between the mirror switch (C0066) and the earth point (C0564). The horizontal adjustment motor then runs to turn the mirror glass to the left. When the mirror switch is tilted to the right, the left/ right ganged contacts reverse the polarity of the horizontal adjustment motor connections, and the mirror glass turns to the right. The LH door mirror vertical adjustment operates the same way as horizontal adjustment, using ganged up/ down contacts in the mirror switch and the BY and SW wires between the mirror switch (C0066) and the vertical adjustment motor in the LH door mirror (C0352 on LHD; C0353 on RHD).

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When the mirror switch is turned to the right, the ganged LH/RH contacts in the mirror switch (C0066) connect to BP and BN wires from the adjustment motors in the RH door mirror (C0353 on LHD; C0352 on RHD). When the mirror switch is subsequently tilted to the left, the ganged left/ right contacts in the mirror switch connect the feed from fuse 18 to the BP wire and connect the SW wire, from the horizontal adjustment motor (C0353 on LHD; C0352 on RHD), to the B wire between the mirror switch (C0066) and the earth point (C0564). The horizontal adjustment motor then runs to turn the mirror glass to the left. When the mirror switch is tilted to the right, the left/ right ganged contacts reverse the polarity of the horizontal adjustment motor connections, and the mirror glass turns to the right. RH door mirror vertical adjustment operates the same way as horizontal adjustment, using the ganged up/ down contacts in the mirror switch and the BN and SW wires between the mirror switch (C0066) and the vertical adjustment motor in the RH door mirror (C0353 on LHD; C0352 on RHD).

## **DIAGNOSTIC SOCKET**

#### **DESCRIPTION**

#### General

The diagnostic socket is located immediately above the passenger compartment fuse box. The socket is constructed to SAE directive J1962 standard and allows attachment of TestBook, or any other SAE standard diagnostic tool, to the vehicle for fault diagnosis checks.

#### **OPERATION**

## **Power supplies**

Fusible link 1 (C0570) of the under bonnet fuse box supplies a permanent feed to fuse 12 (C0582) of the passenger compartment fuse box on a N wire. Fuse 12 supplies the feed to the diagnostic socket (C0040) on a P wire. The diagnostic socket (C0040) is earthed on a B wire connected to an earth point (C0564) via the passenger compartment fuse box (C0584 and C0583).

#### General

The diagnostic socket (C0040) is connected with the following on K wires, which make up the ISO 9141 K line bus:

- The ABS modulator (C0501).
- The EPAS ECU (C0316).
- The ECM (C0158 on VVC MEMS 2J models; C0159 on MPi MEMS 1.9 models; C0634 on MPi MEMS 3 models).

The diagnostic socket (C0040) also communicates with:

- The airbag DCU (C0256) on a YK wire.
- The alarm ECU (C0061) on OU and RU wires.

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## **STARTING AND CHARGING**

#### **DESCRIPTION**

#### General

The starting system on the vehicle comprises a 12 V starter motor which drives the engine to start the combustion process.

The charging system consists of an alternator that contains a rectifier pack and regulator to maintain a constant direct current (dc) voltage in the system. The alternator is belt driven from the crankshaft and cooled by a fan mounted behind the pulley. The alternator has a fixed coil wound stator in which a field coil rotor rotates. Slip rings conduct current to and from the field coils via 2 carbon brushes. The regulator senses output voltage and controls this to 14 volts. The instrument pack incorporates a charge warning lamp which illuminates when there is no output or a low output from the alternator.

## **OPERATION**

## **Power supplies**

The starter motor (C0849) receives a permanent feed direct from the battery (C0631) on a N wire. The starter motor (C0178) supplies the feed to the alternator (C0183) on a N wire.

Fuse 1 (C0571) of the under bonnet fuse box supplies a permanent feed to the switch contacts of the starter relay (C0157), in the engine management relay module, on a N wire.

Fuse 2 (C0571) of the under bonnet fuse box supplies a permanent feed to the inertia switch (C0123) on a N wire. The inertia switch (C0123) supplies the feed to the alarm ECU (C0057) and the switch contacts of the fuel pump relay (C0157), in the engine management relay module, on NS wires.

Fusible link 4 (C0570) of the under bonnet fuse box supplies a permanent feed to the ignition switch (C0028) on a NP wire. When the ignition switch is in position II or III, a power feed is connected from the ignition switch to fuses 1 and 14 (C0099) of the passenger compartment fuse box on a BY wire. Fuse 1 (C0590) supplies the feed to the ignition/no charge warning lamp (C0230) in the instrument pack on a G wire; the opposite side of the ignition/no charge warning lamp (C0230) is connected to the alternator (C0185), via the passenger compartment fuse box (C0590 and C0585) by NY wires. Fuse 14 (C0585) supplies the feed to the coil of the fuel pump relay (C0154) on a W wire. When the ignition switch (C0028) is in position III, a power feed is also connected to fuse 19 (C0595) in the satellite fuse box on a WR wire. Fuse 19 (C0595) supplies the feed to the coil of the starter relay (C0154) on a WR wire.

## **Starting**

Provided that the engine immobiliser has been disarmed, the fuel pump relay is energised by the ECM for a few seconds after the ignition is switched to position II and continuously during cranking and once the engine has started. The ECM energises the fuel pump relay by connecting an earth to the P (VVC MEMS 2J models) or BP wire (MPi MEMS 1.9 and MPi MEMS 3 models) between the fuel pump relay (C0154) and the ECM (C0159 on MPi MEMS 1.9 and VVC MEMS 2J models, C0634 on MPi MEMS 3 models).

When the engine immobiliser is disarmed, the coil of the starter relay (C0154) is earthed through the alarm ECU (C0061) on a BW wire (manual gearbox models), or on a BR wire to the park/neutral switch (C0268) and a BW wire from the park/neutral switch (C0268) to the alarm ECU (EM-CVT models). When the ignition is switched from position II to position III, the power feed from the ignition switch through fuse 19 of the satellite fuse box energises the starter relay. With the starter relay energised, the supply from fuse 1 of the under bonnet fuse box is fed from the starter relay (C0157) to the solenoid in the starter motor (C0179) on a NR wire. The solenoid earths through the starter motor fixings and energises to connect the direct feed from the battery to the starter motor. The starter motor is also earthed through the starter motor fixings.

## Charging

Current flow through the ignition/no charge warning lamp and the field windings partially magnetises the rotor. When the engine is started, the magnetised rotor turns within the stator windings, generating a 3 phase alternating current (ac) and voltage that rises rapidly with rotor speed. The field diodes convert the ac into dc and generated voltage is fed back to the field windings. The fed back voltage causes an increase to the magnetic influence of the rotor, resulting in self-excitation of the rotor. The field current increases with rotor speed and thus increases generated current and voltage until the alternator is fully excited.

When the voltage applied to the alternator side of the ignition/no charge warning lamp exceeds battery voltage, the ignition/no charge warning lamp is extinguished, indicating that the alternator is developing battery charging current. A diode prevents reverse flow through the ignition/no charge warning lamp. The regulator functions as an electronic control switch on the earth side of the field coils, rapidly switching the earth circuit off and on to maintain the maximum voltage and thus the current, to safe limits.

If the battery is in a low state of charge, or current draw from electrical units causes a voltage drop, the alternator automatically charges at its maximum rate until 14 volts is reached. When the demand on the alternator falls, the current output is reduced.

**4.14** MGF

## **FUEL PUMP**

#### **DESCRIPTION**

#### General

The fuel pump is an electric submersible pump located in the fuel tank and controlled by the ECM.

#### **OPERATION**

## **Power supplies**

Fuse 2 of the under bonnet fuse box (C0571) supplies a permanent battery feed to the inertia switch (C0123) on a N wire. A NS wire connects the inertia switch (C0123) to the switch contacts of the fuel pump relay (C0157) in the engine management relay module.

Fusible link 4 (C0570) in the under bonnet fuse box supplies a permanent feed to the ignition switch (C0028) on a NP wire. When the ignition switch is in position II or III, power is supplied from the ignition switch on a BY wire to fuse 14 (C0099) in the passenger compartment fuse box. Fuse 14 (C0585) supplies the feed to the coil of the fuel pump relay (C0154) and to the ECM (C0159 on MPi MEMS 1.9 and VVC MEMS 2J models, C0634 on MPi MEMS 3 models) on W wires.

#### General

The fuel pump relay is energised by the ECM for a few seconds after the ignition is switched to position II and then continuously during cranking and once the engine has started. The ECM energises the fuel pump relay by connecting an earth to the P (VVC MEMS 2J models) or BP wire (MPi MEMS 1.9 and MEMS 3 models) between the fuel pump relay (C0154) and the ECM (C0159 on MPi MEMS 1.9 and VVC MEMS 2J models, C0634 on MPi MEMS 3 models).

When the fuel pump relay is energised, the fuel pump (C0114) is supplied with battery power from the switch contacts of the fuel pump relay (C0157) on a WP wire. The fuel pump (C0114) is earthed on a B wire connected to an earth header (C0550).

In the event of an impact, the inertia switch opens and disconnects the electrical supply to the fuel pump relay to prevent operation of the fuel pump.

# **ENGINE MANAGEMENT - MPI MEMS 1.9/MPI MEMS 3/VVC MEMS 2J**

## **DESCRIPTION**

General

For details of the Engine Management systems, see Workshop Manual.

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## **ELECTRIC POWER ASSISTED STEERING (EPAS)**

#### DESCRIPTION

#### General

Steering power assistance is provided by an electric motor mounted on the steering column which drives the column through a worm gear arrangement. The level of steering assistance is governed by the power output of the motor. The EPAS ECU controls the current to the motor and hence the level of steering assistance. The EPAS ECU measures the steering column torque input from the driver and the road speed of the vehicle, supplying the motor with current to achieve the required level of assistance. The motor is connected to the column via an electromagnetic clutch which is controlled by the EPAS ECU. If the EPAS ECU detects a fault in the system, the motor will be disconnected from the column by disengaging the clutch. The steering reverts to a normal unassisted system with the clutch disengaged.

The driver steering torque input and direction of torque is monitored by a sensor mounted on the steering column. The sensor measures the angular displacement of a torque tube. Outputs from the sensor are processed by two independent systems, these readings being compared by the EPAS ECU for accuracy. A difference in the two calculated values indicates a fault. The road speed signal, from a speed transducer on the gearbox, is also processed by two independent systems.

#### **OPERATION**

## **Power supplies**

Power for the EPAS motor is supplied from the in-line EPAS fuse (C0318) to the EPAS ECU (C0317) on a N wire.

Fusible link 4 (C0570) in the under bonnet fuse box supplies battery power to the ignition switch (C0028) on a NP wire. When the ignition switch is in position II, the power is fed to fuse 1 (C0099) in the passenger compartment fuse box on a BY wire. Fuse 1 (C0585) supplies the feed to the EPAS ECU (C0316) on a G wire.

A system earth is provided by a B wire connected between the EPAS ECU (C0317) and an earth point (C0556).

#### General

When the ignition switch is first turned to position II, the EPAS ECU performs an integrity check to ensure that the system is operating correctly. During the integrity check, the EPAS ECU (C0316) earths the KU wire from the instrument pack (C0234) to illuminate the EPAS warning lamp. The warning lamp remains illuminated until the EPAS ECU (C0316) receives an engine speed signal from the ECM (C0158 on VVC MEMS 2J models, C0159 on MPi MEMS 1.9 models, C0634 on MPi MEMS 3 models) on a WB wire.

The road speed signal is transmitted on a WO wire from the speed transducer (C0195) to the EPAS ECU (C0316).

The EPAS ECU (C0316) outputs a 5 volts supply to the torque sensor (C1326) on an O wire and connects the OY wire to earth to complete the circuit. Two independent torque signals are input from the torque sensor (C1326) to the EPAS ECU (C0316) on the OU and W wires.

NOTE: Although installed in the harness, the UG and OW wires are not used.

When, from the torque sensor signals, the EPAS ECU detects a steering input, it switches the supply from the in-line EPAS fuse to the EPAS motor. For a right turn, the supply is switched to the NU wire between the EPAS ECU (C0317) and the EPAS motor (C1327), and the NR wire is connected to earth. For a left turn the polarity is reversed. The EPAS ECU regulates the supply to the EPAS motor between approximately 0.5 and 12 volts, depending on the level of assistance required.

The clutch in the EPAS motor (C1327) has a power feed from the EPAS ECU (C0316) on a US wire. The earth side of the clutch (C1327) is connected to the EPAS ECU by a UK wire. The EPAS ECU continually monitors the performance of the system. If a fault is detected, the EPAS ECU energises the clutch, to disengage the motor drive from the steering column, and illuminates the EPAS warning lamp in the instrument pack; a fault code is then stored in the memory of the EPAS ECU and the steering operates without power assistance. Fault codes can be read using TestBook, which communicates with the system on the K wire connected between the EPAS ECU (C0316) and the diagnostic socket (C0040). For certain faults, the EPAS ECU may temporarily reduce power to the motor instead of disengaging the clutch.

Possible causes for clutch disengagement or reduced power assistance include:

- Motor overheat Repeated turning of the steering wheel from lock to lock causes a temperature build up in the EPAS motor. The EPAS ECU monitors the power supply to the EPAS motor and, if the level of EPAS motor activity will cause an unacceptable temperature, reduces the current of the power supply. Reducing the current of the power supply limits the power available for steering assistance and prevents permanent damage to the EPAS motor.
- Engine racing If the engine speed is in excess of 2500 rev/min for 30 seconds and no vehicle speed is detected, the EPAS ECU suspects a fault with either the engine speed sensor or the road speed sensor. The EPAS ECU then disengages the clutch and illuminates the warning lamp. If the vehicle subsequently moves off and a road speed signal is received, the warning lamp is extinguished and the clutch engaged.
- Low battery voltage If the battery voltage is below 8.4 volts, the clutch will be disengaged and the warning lamp illuminated.
- Poor power supply A fault in the power supply to the motor may produce poor steering feel. Low battery voltage may cause steering wheel loads to increase as the assistance is impaired. Fluctuating voltage due to poor battery condition or an alternator fault may cause torque fluctuations to be felt through the steering wheel.

**4.18** MGF

## ANTI-LOCK BRAKE SYSTEM (ABS)

#### **DESCRIPTION**

#### General

For a description of the ABS system, see Workshop Manual.

## **OPERATION**

### **Power supplies**

The ABS modulator (C0501) has two permanent feeds from fusible link 2 (C0573) of the under bonnet fuse box on NK wires. The feeds operate the solenoid valves and return pump motor via relays in the ABS modulator.

Fusible link 4 (C0570) in the under bonnet fuse box supplies a permanent feed to the ignition switch (C0028) on a NP wire. When the ignition switch is in position II, the feed is supplied to the passenger compartment fuse box (C0099) on a BY wire. From the passenger compartment fuse box (C0582), a W wire connects the feed to fuse 20 (C0595) in the satellite fuse box. Fuse 20 (C0595) supplies the feed to the ABS modulator on a GK wire.

Earths for system operation are provided by B wires connected between the ABS modulator (C0501) and an earth header (C0018).

#### **General**

The ABS modulator (C0501) is connected to the four ABS sensors by four pairs of wires, as follows:

Sensor (Connector)	Wire colours
LH front (C0516)	U and N
RH front (C0517)	P and O
LH rear (C0502)	W and R
RH rear (C0503)	G and Y

On MPi MEMS 3 models, the ABS modulator (C0501) outputs a rough road signal to the Engine Control Module (ECM) (C0634) on a SB wire.

When the brakes are applied, the ABS modulator (C0501) receives an input from the brake switch (C0029) on a GP wire.

During braking, if the ABS modulator detects that a wheel deceleration indicates imminent wheel lock, the relevant inlet valve is closed, preventing any further increase in hydraulic pressure to the brake caliper (pressure hold). If the wheel speed remains low, the associated outlet valve is opened briefly to allow brake fluid to flow from the caliper to the accumulator (pressure dump), hence reducing brake fluid pressure at the caliper. Brake fluid in the accumulator is pumped back into the pressurised side of the circuit by the return pump, ready for re-application. When the wheel is up to speed, the ABS modulator repeatedly denergises the inlet valve briefly, allowing re-application of fluid pressure to the brake caliper (pressure build up) until excessive wheel deceleration is again detected. The process of pressure hold, pressure dump and pressure build up is repeated until the vehicle speed is below 5 mph (8 km/h), the risk of wheel lock subsides or the brake is released. During ABS operation, it is normal for pulsing to be felt through the brake pedal.

## **Diagnostics**

The ABS modulator has a self diagnosis function which operates whenever the ignition is switched to position II. During the self test, the ABS modulator earths the UR wire from the ABS warning lamp in the instrument pack (C0234) for approximately 3 seconds to illuminate the lamp for a bulb check. When the vehicle moves off and reaches a speed of approximately 5 mph (8 km/h), the ABS modulator carries out a number of dynamic tests which include running the return pump and energising the inlet and outlet valves. If the brake pedal is being pressed at this time, a pulsing of the pedal may be felt.

The ABS modulator continues to monitor system performance while the ignition is in position II. If a fault is detected, the ABS modulator disables the system and illuminates the ABS warning lamp. With the system disabled, normal, non ABS braking is available. The ABS warning lamp remains illuminated until the ignition is switched OFF. If the fault is still detected when the ignition is next switched to position II, the ABS warning lamp remains illuminated after the bulb check. If the fault is not detected, the ABS warning lamp goes off after the bulb check.

If the ABS modulator detects a fault, a code relating to the fault is stored in the ABS modulator memory. If the fault is a temporary one, the code remains in the ABS modulator memory for 20 cycles of the ignition switch, after which the fault code is erased from ABS modulator memory. The ABS modulator memory can be interrogated for fault code retrieval using TestBook. TestBook communicates with the ABS modulator on the K wire between the diagnostic socket (C0040) and the ABS modulator (C0501).

**4.20** MGF

## SUPPLEMENTARY RESTRAINT SYSTEM (SRS)

#### DESCRIPTION

#### General

The Supplementary Restraint System (SRS) provides additional protection for the occupant(s) in the event of a frontal impact.

The system is controlled by the airbag Diagnostic Control Unit (DCU), located between the passenger seats, under the centre console. The airbag DCU checks the integrity of the system when the ignition is switched to position II and illuminates a warning lamp on the instrument pack while the self test is in operation. After approximately 3 seconds, the lamp should be extinguished to indicate that the system is operational. The airbag DCU continues to monitor the SRS during vehicle use and illuminates the warning lamp if any fault is found. A fault code, stored in the airbag DCU memory, can only be cleared using TestBook. The SRS will not function if the warning lamp is illuminated.

The airbag DCU detects frontal impacts within 30° of the vehicle centre line. If the impact is of sufficient severity, the airbag DCU deploys the seat belt pretensioners, drivers airbag and passenger airbag (if fitted). The system has a power backup circuit to ensure that the system operates if the vehicle's battery becomes disconnected during the impact.

The seat belt pretensioners are bolted to the seat base and are designed to retract approximately 75 mm (3 in) to tighten the belt and restrain the occupants securely in their seats. The pretensioners are of the pyrotechnic gas generation type. The airbag DCU fires the pretensioners 0.015 second after detecting an impact.

The driver airbag provides head and upper torso protection by inflating a 30 litres gas filled bag, from the steering wheel, to act as a damper. The airbag uses a double base chemical gas generator. The airbag DCU fires the airbag 0.035 second after the seat belt pretensioners have been fired.

The passenger airbag is optional and operates in a similar manner to the driver airbag. The passenger airbag has a capacity of 80 litres and is fired together with the driver airbag.

#### **OPERATION**

## **Power supplies**

Fusible link 4 (C0570) in the under bonnet fuse box supplies a permanent power supply to the ignition switch (C0028) on a NP wire. When the ignition switch is in position II, the feed is supplied to the passenger compartment fuse box (C0099) on a BY wire. The passenger compartment fuse box (C0582) supplies the feed to the in-line SRS fuse (C0602) on a W wire. The SRS fuse (C0602) supplies the feed to the airbag DCU (C0256) on a G wire.

The airbag DCU (C0256) is connected to an earth point (C0360) by a B wire.

#### **Driver airbag**

The airbag DCU (C0256) provides the driver airbag (C0257) a feed via the rotary coupler (C0545) on a R wire. The earth side of the driver airbag (C0257) is connected to the airbag DCU (C0256) via the rotary coupler (C0545) by a Y wire.

## Passenger airbag

The airbag DCU (C0256) provides the passenger airbag (C0251 and C0261) two feeds on N wires. Two earths for the passenger airbag (C0251 and C0261) are connected to the airbag DCU (C0256) by U wires.

#### **Pretensioners**

The airbag DCU (C0256) is connected to the two pretensioners as follows:

- The LH pretensioner (C0252) is provided a feed by the airbag DCU (C0256) on an O wire. The earth side of the LH pretensioners (C0252) is connected to the airbag DCU (C0256) by an OU wire.
- The RH pretensioner (C0254) is provided a feed by the airbag DCU (C0256) on a N wire. The earth side of the RH pretensioner (C0254) is connected to the airbag DCU by a NR wire.

### **SRS** warning lamp

To illuminate the SRS warning lamp in the instrument pack (C0234), the airbag DCU (C0256) connects an earth to the OP wire. To extinguish the SRS warning lamp, the airbag DCU disconnects the earth.

## **Diagnostics**

The SRS system can be interrogated via the diagnostic socket. The diagnostic socket (C0040) is connected to the airbag DCU (C0256) by a YK wire.

**4.22** MGF

## **AIR CONDITIONING (A/C)**

#### **DESCRIPTION**

#### General

The Air Conditioning (A/C) system provides cooled air for the occupants of the car. The system is sealed and filled with refrigerant R134a.

The compressor, driven by the alternator drive belt, pumps low pressure refrigerant vapour from the evaporator to the condenser. As the refrigerant passes through the condenser, it is cooled by air passing over the outer fins. The vapour reverts to its liquid state as it is cooled. Air flow over the cooling fins is assisted by the cooling fan and the condenser fan.

From the condenser, the refrigerant passes to the receiver-drier which acts as a reservoir and also removes any moisture from the refrigerant.

High pressure liquid refrigerant passes through the thermostatic expansion valve which converts the refrigerant to a low pressure spray as it enters the evaporator. The change in pressure causes the liquid to change to a vapour and as it does so, heat is absorbed from the surrounding air. Air is blown over the evaporator matrix and directed into the passenger compartment. The refrigerant vapour in the evaporator returns to the compressor and continues the cycle.

The system contains a number of safety features which guard against mechanical damage. If the refrigerant pressure is too high or too low, the evaporator matrix is too cold, the compressor becomes too hot or the engine coolant temperature becomes too high, the compressor drive is disengaged.

System operation is controlled by the A/C switch on the centre console and the Engine Control Module (ECM). The system only operates when one of the four blower speeds is selected and the engine is running.

#### **OPERATION**

## Power supplies

Fuse 5 (C0601) and fuse 6 (C0572) of the under bonnet fuse box provide the A/C relay pack (C0172) with permanent feeds on NW and N wires respectively. The A/C relay pack contains relays for the compressor clutch, cooling fan and condenser fan.

Fusible link 4 (C0570) and fusible link 5 (C0573) of the under bonnet fuse box provide the ignition switch (C0028) with permanent feeds on NP and NW wires respectively. When the ignition switch is in position II, feeds are connected from the ignition switch to:

- Fuse 15 (C0099) of the passenger compartment fuse box on a Y wire. From fuse 15 (C0585), the feed is connected to the A/C relay pack (C0173), A/C switch pack (C0275), fresh/ recirculated air switch (C0750) and fresh/ recirculated air mode motor (C0413) on LGS wires.
- Fuse 24 (C0595) of the satellite fuse box on a WLG wire. From fuse 24 (C0595), the feed is connected to the blower motor (C0056) on a LGP wire and from the blower motor (C0056) to the blower motor switch (C0058) by a SB wire. When the blower is selected to positions 1 to 4, the feed is supplied from the blower switch (C0058) to the A/C switch pack (C0275) on a SW wire.

## A/C request

When the A/C switch is pressed, while one of the four blower speeds is selected, SK wires connect the power feed from the A/C switch pack (C0275) to the A/C thermostat (C0422) and from the A/C thermostat (C0423) to the trinary switch (C0279). Provided the high and low temperature switches are closed, the trinary switch (C0279) then supplies the power feed to the ECM (C0159 on MPi MEMS 1.9 and VVC MEMS 2J models, C0634 on MPi MEMS 3 models) on a UR wire. With A/C selected on, the tell tale illumination LED in the A/C switch pack (C0275) is earthed on the B wire, connected to an earth header (C0017), and illuminates.

When the ECM receives an A/C request, it energises the appropriate relays in the A/C relay pack to operate the compressor, cooling fan and condenser fan.

The high and low switches in the trinary switch guard against extremes of pressure in the refrigerant system. If refrigerant system pressure reaches either of the limits, the related switch opens and disconnects the A/C request to the ECM. The air temperature sensor detects evaporator matrix temperature and, if the temperature is less than 2 °C (36 °F), opens and disconnects the A/C request to the ECM.

#### Compressor

To operate the compressor, the ECM earths the UB wire between the ECM (C0159 on MPi MEMS 1.9 and VVC MEMS 2J models, C0634 on MPi MEMS 3 models) and the compressor clutch relay in the A/C relay pack (C0173). The energised compressor clutch relay connects the power feed from fuse 5 in the under bonnet fuse box to the R wire between the A/C relay pack (C0172) and the A/C compressor clutch (C0127). The A/C compressor clutch is earthed through the compressor fixings and energises to transmit drive to the compressor.

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## Cooling and condenser fans

The ECM operates the two fans together at one of two speeds. Low speed is achieved by connecting the fans in series and high speed is achieved by connecting the fans in parallel. The fans operate at low speed when either the compressor clutch is engaged or the engine coolant temperature is between 92 and 99 °C (198 and 210 °F). The fans operate at high speed when either the engine temperature is in excess of 107 °C (225 °F) or the medium pressure switch in the trinary switch detects a system pressure in excess of 18 bar (261 lbf.in²). When refrigerant system pressure exceeds 18 bar (261 lbf.in²), the medium pressure switch closes and connects the UG wire, between the ECM (C0159 on MPi MEMS 1.9 and VVC MEMS 2J models, C0634 on MPi MEMS 3 models) and the trinary switch (C0279), to earth on the B wire between the trinary switch (C0279) and the earth point (C0564 on LHD) or earth header (C0017 on RHD).

On receipt of an A/C request, the ECM (C0159 on MPi MEMS 1.9 and VVC MEMS 2J models, C0634 on MPi MEMS 3 models) earths the US wire from the A/C relay pack (C0173) to energise cooling fan relay 2. The energised cooling fan relay 2 connects the feed from fuse 6 of the under bonnet fuse box to the PS wire between the A/C relay box (C0172) and the cooling fan motor (C0005). The feed passes through the cooling fan motor (C0005) to cooling fan relay 1 in the A/C relay pack (C0172) on the US wire, then from cooling fan relay 1 to the condenser fan relay. The condenser fan relay connects the feed to the SU wire between the A/C relay pack and (C0172) and the condenser fan (C0280). The condenser fan (C0280) is earthed on a B wire connected to an earth header (C0017). With the fans connected in series, they run at slow speed.

If engine temperature or system pressure increase to their respective switching point, the ECM (C0159 on MPi MEMS 1.9 and VVC MEMS 2J models, C0634 on MPi MEMS 3 models) earths the UY wire to energise cooling fan relay 1 and the condenser fan relay in the A/C relay pack (C0173). The energised cooling fan relay 1 switches the feed from the cooling fan motor to earth on the B wire between the A/C switch pack (C0172) and the earth point (C0564 on LHD) or earth header (C0017 on RHD). The energised condenser fan relay switches a feed from fuse 5 in the under bonnet fuse box to the SU wire between the A/C relay pack (C0172) and the condenser fan (C0280). With the fans connected in parallel, they run at high speed.

#### Recirculated air

With the fresh/ recirculated air switch in the fresh air (off) position, current flows from the fresh/ recirculated air mode motor (C0413) to the fresh/ recirculated air switch (C0750) on the Y wire and to earth on a B wire between the fresh/ recirculated air switch (C0750) and an earth header (C0017). With the fresh/ recirculated air switch in the recirculated air (on) position, current flows from the fresh/ recirculated air mode motor (C0413) to the fresh/ recirculated air switch (C0750) on the K wire and to earth on the B wire; the tell tale illumination in the fresh/ recirculated air switch is also earthed on the B wire and illuminates to indicate the position on the fresh/ recirculated air mode motor.

## **HEATER BLOWER**

#### **DESCRIPTION**

#### General

The heater blower is an electric fan that boosts the flow of ventilation air to the vehicle interior. The blower is installed in the heater assembly and controlled by a rotary switch on the heating control panel. The ignition switch must be in position II for the blower to operate.

#### **OPERATION**

## **Power supplies**

Fusible link 5 (C0573) in the under bonnet fuse box supplies battery power to the ignition switch (C0028) on a NW wire. When the ignition switch is in position II, the power is fed from the ignition switch (C0028) to fuse 24 (C0595) in the satellite fuse box on a WLG wire. Fuse 24 (C0595) supplies a feed to the blower motor (C0056) on a LGP wire. The earth side of the blower motor (C0056) is connected to the resistor pack (C0425) and the blower motor switch (C0058) by SB wires.

#### General

Depending on the position of the blower motor switch, the blower motor is off or operates at one of four speeds. In the off position, the earth side of the blower motor is open circuit. In position IV, the blower motor is connected direct to earth on the B wire between the blower motor switch (C0058) and the earth header (C0017). In positions I to III, the blower motor is earthed through the resistor pack, on one of three wires to the blower switch, and the B wire from the blower switch to the earth header:

- With the blower motor switch in position I, the earth is routed through 3 resistors in series in the resistor pack (C0425) and connected to the blower motor switch (C0058) by a KB wire.
- With the blower motor switch in position II, the earth is routed through 2 resistors in series in the resistor pack (C0425) and connected to the blower motor switch (C0058) by a YB wire.
- With the switch in position III, the earth is routed through a single resistor in the resistor pack (C0425) and connected to the blower motor switch (C0058) by a GB wire.

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## **COOLING FANS**

#### **DESCRIPTION**

#### General

The information below is for the cooling fan in models without Air Conditioning (A/C). The information on the engine bay cooling fan is applicable to all models. See the A/C Section for details of the cooling fan in models with A/C.

AIR CONDITIONING (A/C).

The cooling fan boosts the air flow through the radiator matrix to prevent excessive engine coolant temperatures. The fan is installed behind the radiator and is driven by an electric motor which is automatically controlled by the ECM. The temperature of the engine coolant is monitored by the ECM via signals from an Engine Coolant Temperature (ECT) sensor, which is mounted in the cylinder block outlet elbow.

The engine bay cooling fan boosts the air flow through the engine compartment to maintain the temperature at an acceptable level. The fan is installed at the outlet of the engine compartment's RH cooling duct and is driven by an electric motor which is automatically controlled by the ECM. The temperature of the engine compartment is monitored by the ECM via signals from an ambient air temperature sensor, which is mounted on the engine compartment header panel above the inlet manifold. A warning lamp in the instrument pack illuminates if the temperature in the engine compartment is too high.

The fans are operational while the ignition switch is in position II and for a limited time after the engine stops.

#### **OPERATION**

#### **Power supplies**

The switch contacts of cooling fan relay (C0019) have a permanent power supply from fuse 6 (C0572) of the under bonnet fuse box on a N wire. Fusible link 4 (C0570) in the under bonnet fuse box supplies battery power to the ignition switch (C0028) on a NP wire. When the ignition switch is in position II, the power is fed to fuse 15 (C0099) in the passenger compartment fuse box on a Y wire. Fuse 15 (C0585) supplies the power to the coil of cooling fan relay (C0019) on a LGS wire.

Fusible link 3 (C0570) in the under bonnet fuse box supplies battery power to fuse 6 (C0582) in the passenger compartment fuse box on a N wire. From fuse 6 (C0584), N wires feed the power to the switch contacts and coil of the engine bay cooling fan relay (C1448).

### **Cooling fan**

If the engine coolant temperature rises to 102 °C (216 °F), the ECM (C0159 on MPi MEMS 1.9 and VVC MEMS 2J models, C0634 on MPi MEMS 3 models) switches the coil of the cooling fan relay (C0019) to earth via a US wire (MPi MEMS 1.9 and VVC MEMS 2J models) or a US and Y wire (MPi MEMS 3 models). The energised cooling fan relay (C0199) supplies power to the cooling fan motor (C0005) on a UP wire. The cooling fan motor (C0005) is earthed by a B wire connected to an earth header (C0017) and operates to boost the airflow through the radiator.

When the engine coolant temperature falls below 96 °C (205 °F), the ECM disconnects the earth of the cooling fan relay coil and the cooling fan motor is switched off.

### Engine bay cooling fan

The ambient air temperature sensor (C0884) provides an input to the ECM (C0159 on MPi MEMS 1.9 and VVC MEMS 2J models, C0635 on MPi MEMS 3 models) on a SW wire. The earth side of the ambient air temperature sensor (C0884) is connected to the ECM (C0159 on MPi MEMS 1.9 and VVC MEMS 2J models, C0635 on MPi MEMS 3 models) by a KB wire.

If an engine compartment temperature of approximately 85 °C (185 °F) is reached, the ECM earths the NB wire connected between the coil of the engine bay cooling fan relay (C1448) and the ECM (C0159 on MPi MEMS 1.9 and VVC MEMS 2J models, C0634 on MPi MEMS 3 models). The engine bay cooling fan relay (C1448) energises and supplies power to the engine bay cooling fan motor (C1328) on the NY wire. The engine bay cooling fan motor (C1328) is earthed by a B wire connected to an earth header (C0550), and operates to boost the air flow through the engine compartment. If the engine compartment temperature reaches approximately 130 °C (266 °F) the ECM earths the GR wire, between the instrument pack (C0234) and the ECM (C0159 on MPi MEMS 1.9 and VVC MEMS 2J models, C0635 on MPi MEMS 3 models), to illuminate the engine bay fan warning lamp.

When the engine compartment temperature decreases below 110 °C (230 °F), the engine bay fan warning lamp is extinguished. The engine bay cooling fan motor is switched off 1 minute after the engine compartment temperature decreases to 75 °C (167 °F), or immediately the temperature decreases below 60 °C (140 °F).

NOTE: It is normal for the engine bay cooling fan motor to run for up to 8 minutes after the ignition has been switched off.

If the warning lamp is illuminated and the engine bay cooling fan motor runs continuously when the ignition switch is in position II, the probable cause is a faulty ambient air temperature sensor.

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## **HEATED REAR WINDOW (HRW)**

#### **DESCRIPTION**

#### General

Hard tops feature a glass rear window which incorporates a heater element. The heater element will only operate while the engine is running.

#### **OPERATION**

### **Power supplies**

Fusible link 3 (C0570) in the under bonnet fuse box supplies a permanent feed to fuse 23 (C0595) in the satellite fuse box on a N wire. Fuse 23 (C0595) supplies the feed to the switch contacts of the heated rear screen relay (C0044) on a NO wire.

Fusible link 4 (C0570) supplies a permanent feed to the ignition switch (C0028) on a NP wire. When the ignition switch is in position II, the feed is connected to fuse 1 (C0099) in the passenger compartment fuse box on a BY wire. Fuse 1 (C0585) supplies the feed to the multi function ECU (C0016) on a G wire. An earth for the multi function ECU (C0016) is provided by a B wire connected to an earth header (C0017).

#### General

When the engine starts, the contacts of the oil pressure switch (C0187) close and connect a WN wire from the multi function ECU (C0062) to earth. When the heated rear screen switch is pressed, a BO wire, between the multi function ECU (C0062) and the switch (C0072), is also connected to earth, on B wires between the switch (C0072) and an earth point (C0564), via the passenger compartment fuse box (C0584 and C0583). The multi function ECU (C0062) then connects the feed from fuse 1 in the passenger compartment fuse box to the coil of the heated rear screen relay (C0044) on a GO wire. The coil of the heated rear screen relay (C0044) is earthed on a B wire connected to the earth point (C0564 on LHD) or earth header (C0018 on RHD). The heated rear screen relay energises and connects the feed, from fuse 23 of the satellite fuse box, to the BG wires between the relay (C0044), the rear screen heater element (C0381) and the tell tale LED in the heated rear screen switch (C0072). The rear screen heater element (C0381) is earthed on a B wire connected to an earth header (C0550) and energises to heat the rear screen. The tell tale LED is earthed on the B wires, between the heated rear screen switch (C0072) and the earth point (C0564), and illuminates.

## **WIPERS AND WASHERS**

#### **DESCRIPTION**

#### General

The vehicle incorporates 2 speed windscreen wipers with intermittent and flick wipe functions. An electrically operated windscreen washer is also installed. Operation of the wipers and washers is controlled by a windscreen wash/ wipe switch, in the steering column RH stalk, and the multi function ECU.

#### **OPERATION**

## **Power supplies**

Fusible link 4 (C0570) in the under bonnet fuse box supplies a permanent feed to the ignition switch (C0028) on a NP wire. When the ignition switch is in position II, the feed is connected to fuses 1 and 13 (C0099) in the passenger compartment fuse box by a BY wire. Fuse 1 (C0585) supplies the feed to the multi function ECU (C0016) on a G wire. Fuse 13 (C0581 and C0585) supplies the feed to the windscreen wiper motor (C0030) and the windscreen wash/ wipe switch (C0035) on GS wires.

## Intermittent speed

When intermittent wipe is selected, the feed from fuse 13 in the passenger compartment fuse box is connected to a LGG wire between the windscreen wash/ wipe switch (C0035) and the multi function ECU (C0062). The multi function ECU then energises an internal relay to connect the wash/ wipe motor to earth on

- A RLG wire between the wash/ wipe motor (C0030) and the windscreen wash/ wipe switch (C0035).
- A LGP wire between the windscreen wash/ wipe switch (C0035) and the multi function ECU (C0062).
- A B wire between the multi function ECU (C0016) and an earth header (C0017).

The windscreen wiper motor begins to operate at slow speed and closes the windscreen park switch. After 0.85 second the multi function ECU de-energises the internal relay. This transfers the earth for the windscreen wiper motor to a NLG wire between the multi function ECU (C0016) and the windscreen wiper motor (C0030), then through the windscreen park switch to a B wire between the windscreen wiper motor (C0030) and an earth header (C0017 on LHD, C0018 on RHD). The wiper motor continues to operate until the windscreen park switch opens, after one cycle, and breaks the circuit.

While intermittent speed remains selected, the multi function ECU energises the internal relay, for 0.85 second, every 6 seconds.

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### Slow speed

When slow speed wipe is selected, the windscreen wash/ wipe switch (C0035) connects the RLG wire from the windscreen wiper motor (C0030) to earth on a B wire between the windscreen wash/ wipe switch (C0035) and an earth header (C0018). The windscreen wiper motor operates continuously at slow speed. When the windscreen wash/ wipe switch is selected off, the earth path for the windscreen wiper motor is routed through the multi function ECU and the windscreen park switch, and the motor stops when the windscreen park switch opens.

### **Fast speed**

When fast speed wipe is selected, the windscreen wash/ wipe switch (C0035) connects the ULG wire from the windscreen wiper motor (C0030) to earth on the B wire between the windscreen wash/ wipe switch (C0035) and the earth header (C0018). The windscreen wiper motor operates continuously at fast speed. When the windscreen wash/ wipe switch is selected off, the earth path for the windscreen wiper motor is routed through the multi function ECU and the windscreen park switch, and the motor stops when the windscreen park switch opens.

## Flick wipe

When flick wipe is selected, the windscreen wash/ wipe switch (C0035) connects the ULG wire from the windscreen wiper motor (C0030) to earth on the B wire between the windscreen wash/ wipe switch (C0035) and the earth header (C0018). The windscreen wiper motor operates at fast speed while the windscreen wash/ wipe switch is held in the flick wipe position. When the windscreen wash/ wipe switch is released, the earth path for the windscreen wiper motor is routed through the multi function ECU and the windscreen park switch, and the motor stops when the windscreen park switch opens.

#### Windscreen washers

When windscreen wash is selected, the feed from fuse 13 in the passenger compartment fuse box is connected to a LGB wire between the windscreen wash/ wipe switch (C0035) and the windscreen washer pump (C0008). The windscreen washer pump (C0008) is earthed on a B wire connected to an earth header (C0018 on LHD, C0017 on RHD) and operates continuously while windscreen wash is selected.

## **EXTERIOR LAMPS - BRAKE AND REVERSE LAMPS**

#### **DESCRIPTION**

#### General

Brake and reverse lamps are incorporated into the tail lamp units and a high mounted brake lamp is installed in the rear face of the boot lid. The brake and reverse lamps only operate while the ignition switch is in position II.

#### **OPERATION**

## **Power supplies**

Fusible link 4 (C0570) in the under bonnet fuse box supplies a feed to the ignition switch (C0028) on a NP wire. When the ignition switch is in position II, the feed is connected to fuse 16 (C0099) in the passenger compartment fuse box on a Y wire. Fuse 16 (C0585) supplies the feed to the brake pedal switch (C0075) and the reverse lamp switch (C0166, manual gearbox models) or neutral switch (C0268, EM-CVT models) on GY wires.

## **Brake lamps**

When the brake pedal is pressed, the brake pedal switch closes and connects the feed from fuse 16 in the passenger compartment fuse box to the GP wires between the brake pedal switch (C0029) and the brake lamps (C0613, C0121 and C0125). The brake lamps (C0613, C0121 and C0125) are all earthed on B wires connected to an earth header (C0553) and the bulbs illuminate.

#### **Reverse lamps**

When reverse gear is selected, the reverse lamp switch (manual gearbox models) or neutral switch (C0268, EM-CVT models) closes and connects the feed from fuse 16 in the passenger compartment fuse box to the GN wires between the reverse lamp switch (C0163)/ neutral switch (C0268) and the reverse lamps (C0121 and C0125). The reverse lamps (C0121 and C0125) are earthed on the B wires connected to the earth header (C0553) and the bulbs illuminate.

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## **EXTERIOR LAMPS - HEAD, SIDE AND TAIL LAMPS**

#### **DESCRIPTION**

#### General

LH and RH headlamp units contain individual bulbs for headlamp main and dipped beams, and for the side lamps. Tail lamp bulbs are incorporated into the tail lamp units. Rear number plate illumination is provided by two lamps installed in the rear bumper. Operation of the headlamps and side lamps is controlled by a lighting switch in the steering column LH stalk. A 'lights on' alarm is installed to prevent the lights being inadvertently left on when the vehicle is parked.

#### **OPERATION**

## **Power supplies**

Fuse 7 (C0572) in the under bonnet fuse box supplies a permanent feed to the multi function ECU (C0016) on a PN wire.

Fusible link 1 (C0570) in the under bonnet fuse box supplies two permanent feeds to the lighting switch (C0041) on N wires.

Fusible link 4 (C0570) in the under bonnet fuse box supplies a permanent feed to the ignition switch (C0028) on a NP wire. When the ignition switch is turned to position II, the feed is supplied to fuse 1 (C0099) in the passenger compartment fuse box on a BY wire. Fuse 1 (C0585) supplies the feed to the multi function ECU (C0116) on a G wire.

## Side lamps

Turning the lighting switch to the side lamps position connects a feed from the lighting switch (C0041) to fuses 7 and 8 (C0582) of the passenger compartment fuse box on R wires. Fuse 7 (C0581 and C0585) feeds the RH side lamp (C0011) and the RH tail lamp (C0125) on RO wires. Fuse 8 (C0581 and C0585) feeds the LH side lamp (C0009), LH tail lamp (C0121), LH rear number plate lamp (C0139) and RH rear number plate lamp (C0138) on RB wires. All of the lamps are earthed on B wires and illuminate.

## **Headlamps**

## Dipped beam

Turning the lighting switch to the headlamps position operates the side lamps as detailed above and also connects a feed from the lighting switch (C0041) to fuses 10 and 11 (C0582) of the passenger compartment fuse box on a UK wire. Fuse 10 (C0585) feeds the LH headlamp dipped beam (C0009) on a UK wire. Fuse 11 (C0585) feeds the RH headlamp dipped beam (C0011) on a UB wire. Both headlamp dipped beams are earthed on the same B wires as the side lamps and illuminate.

#### Main beam

Selecting main beam connects a feed from the lighting switch (C0041) to fuses 21 and 22 (C0595) of the satellite fuse box on a UW wire. Fuse 21 (C0595) feeds the RH headlamp main beam (C0011) on a UG wire. Fuse 22 (C0595) feeds the LH headlamp main beam (C0009) on a US wire. Both headlamp main beams are earthed on the same B wires as the side lamps and illuminate.

#### Main beam flash

Operating the main beam flash bypasses the main beam contacts in the lighting switch and operates the main beam circuits as detailed above. When the switch is released the circuit is broken and the headlamp main beams are extinguished.

### Lights on alarm

The multi function ECU operates an integral warning sounder if the lights are on with the ignition off and the driver's door open.

When the side lamps or headlamps are on, the multi function ECU (C0062) receives a feed from fuse 8 (C0581) of the passenger compartment fuse box on a RB wire. When the ignition switch is in position II, the multi function ECU (C0116) receives a feed from fuse 1 (C0585) of the passenger compartment fuse box on a G wire. When the driver's door opens, the PW wire (LHD models) or PS wire (RHD models), between the multi function ECU (C0062) and the driver's door lock motor (C1449), is connected to earth on the B wire between the driver's door lock motor (C1450) and an earth point (C0564 on LHD models) or earth header (C0017 on RHD models). While the driver's door is open, if the side lamps or headlamps are on and the ignition switch is not in position II, the multi function ECU (C0116) switches the warning sounder to earth on a B wire connected to an earth header (C0017) and the warning sounder operates.

**4.34** MGF

### **EXTERIOR LAMPS - REAR FOG LAMPS**

#### **DESCRIPTION**

#### General

Rear fog guard lamps are incorporated into the tail lamp units. A warning lamp in the instrument cluster illuminates when the rear fog guard lamps are on. Operation is controlled by a switch on the centre console and the multi function ECU. For the rear fog guard lamps to operate the headlamps must be on and the ignition switch must be in position II. Rear fog guard lamps operation is automatically cancelled at ignition off.

#### **OPERATION**

## **Power supplies**

Fusible link 1 (C0570) in the under bonnet fuse box supplies a permanent feed to the headlamp lighting switch (C0041) on a N wire.

Fusible link 4 (C0570) in the under bonnet fuse box supplies a permanent feed to the ignition switch (C0028) on a NP wire. When the ignition switch is in position II, the feed is connected to fuse 1 (C0099) in the passenger compartment fuse box on a BY wire. Fuse 1 (C0585) supplies the feed to the coil of a fog lamp relay in the multi function ECU (C0062) on a G wire.

#### General

When the headlamps are on, a feed from the lighting switch (C0041) is connected to fuses 9 and 11 (C0582) of the passenger compartment fuse box on UK wires. Fuse 9 (C0585) feeds the switch contacts of the fog lamp relay (C0016) in the multi function ECU on a UR wire. Fuse 11 (C0585) supplies a feed to a switch in the multi function ECU (C0062) on a UB wire. Pressing the rear fog guard lamp switch temporarily earths the switch in the multi function ECU by connecting the RY wire, between the multi function ECU (C0062) and the rear fog guard lamp switch (C0064), to the B wire between the rear fog guard lamp switch (C0064) and an earth point (C0557 on LHD, C0564 on RHD). The switch closes and earths the coil of the fog lamp relay on the B wire between the multi function ECU (C0016) and an earth header (C0017). The fog lamp relay energises and connects the supply, from fuse 9 in the passenger compartment fuse box, to the UY wires between the multi function ECU (C0016) and the:

- LH rear fog guard lamp (C0121); the lamp (C0121) is earthed by a B wire connected to an earth header (C0553) and illuminates.
- RH rear fog guard lamp (C0125); the lamp (C0125) is earthed by a B wire connected to an earth header (C0553) and illuminates.
- Rear fog guard warning lamp (C0233) in the instrument pack; the warning lamp (C0230) is earthed by a B wire connected to an earth point (C0564) via the passenger compartment fuse box (C0590 and C0583) and illuminates.
- Tell tale LED in the rear fog guard lamp switch (C0064); the LED (C0064) is earthed by a B wire connected to an earth point (C0557 on LHD, C0564 via the passenger compartment fuse box on RHD) and illuminates.

Turning the ignition switch off, or pressing the rear fog guard lamp switch again, deenergises the fog lamps relay and extinguishes the rear fog guard lamps. Turning the lighting switch to side lamps or off extinguishes the rear fog guard lamps but, while the ignition switch remains in position II, the fog lamp relay remains energised. If the lighting switch is subsequently turned back to the headlamps position, the rear fog guard lamps illuminate again.

**4.36** MGF

## **EXTERIOR LAMPS - DIRECTION INDICATOR/HAZARD WARNING LAMPS**

#### DESCRIPTION

#### General

Front direction indicator lamps are installed in the front bumper, below the headlamps. Side repeater lamps are installed in each front wing and rear direction indicator lamps are incorporated into the tail lamp units. LH and RH direction indicator warning lamps and a hazard warning lamp are installed in the instrument pack.

The direction indicators are controlled by the direction indicator switch in the steering column LH stalk and operate only when the ignition switch is in position II. The hazard warning system is controlled by the hazard warning switch in the centre console and operates in all ignition switch positions.

#### **OPERATION**

## **Power supplies**

Fuse 4 (C0572) in the under bonnet fuse box supplies permanent feeds on NO wires to the hazard warning switch (C0096) and to the hazard warning lamp (C0233) in the instrument pack.

Fusible link 4 (C0570) in the under bonnet fuse box supplies a permanent feed to the ignition switch (C0028) on a NP wire. When the ignition switch is position II, the feed is supplied to fuse 1 (C0099) in the passenger compartment fuse box on a BY wire. Fuse 1 (C0585) supplies the feed to the hazard warning switch (C0096) on a G wire. When the hazard warning switch is in the off position, the feed flows through the hazard warning switch (C0096) to the hazard warning relay (flasher unit) (C0585) in the passenger compartment fuse box on a LGK wire. The coil of the hazard warning relay (C0583) is earthed on a B wire connected to an earth point (C0564) and energises to connect the feed to the direction indicator switch (C0036) and the hazard warning switch (C0096) on LGN wires.

## **Direction indicating**

#### Left turn

When the direction indicator switch is moved for a left turn, power flows from the switch (C0036) on GR wires to the passenger compartment fuse box (C0581), and from:

- The passenger compartment fuse box (C0585) to the LH front direction indicator lamp (C0001), LH side repeater lamp (C0013) and LH rear direction indicator lamp (C0121).
   The lamps are all earthed on B wires and the bulbs illuminate.
- The passenger compartment fuse box (C0590) to the LH direction indicator warning lamp (C0230) in the instrument pack. B wires between the LH direction indicator warning lamp (C0230) and an earth point (C0564), via the passenger compartment fuse box (C0583 and C0590), complete the circuit and the bulb illuminates.

The current draw of the direction indicator lamps causes the hazard warning relay to constantly de-energise and re-energise, and so flash all the LH direction indicator lamps.

## Right turn

When the direction indicator switch is moved for a right turn, power flows from the switch (C0036) on GW wires to the passenger compartment fuse box (C0581), and from:

- The passenger compartment fuse box (C0585) to the RH front direction indicator lamp (C0002), RH side repeater lamp (C0012) and RH rear direction indicator lamp (C0125).
   The lamps are all earthed on B wires and the bulbs illuminate.
- The passenger compartment fuse box (C0590) to the RH direction indicator warning lamp (C0233) in the instrument pack. B wires between the RH direction indicator warning lamp (C0230) and an earth point (C0564), via the passenger compartment fuse box (C0583 and C0590), complete the circuit and the bulb illuminates.

The current draw of the direction indicator lamps causes the hazard warning relay to constantly de-energise and re-energise, and so flash all the RH direction indicator lamps.

## **Hazard warning**

When the hazard warning switch is selected on, contacts in the switch are mechanically latched closed and connect the feed from fuse 4 in the under bonnet fuse box to an internal relay and electronic switches. The relay energises and disconnects the supply from fuse 1 in the passenger compartment fuse box. The electronic switches close and:

- Earth the GY wire, between the hazard warning lamp (C0233) in the instrument pack and the hazard warning switch (C0096), and illuminate the hazard warning lamp.
- Connect the feed from fuse 4 in the under bonnet fuse box to the LGK wire between the hazard warning switch (C0096) and the hazard warning relay (C0585) in the passenger compartment fuse box. The energised hazard warning relay (C0585) feeds the hazard warning switch (C0096) on the LGN wire.
- Connect the feed, on the LGN wire from the hazard warning relay, to the GR and GW wires between the hazard warning switch (C0096) and the LH and RH indicator lamps. The GR and GW wires also feed the LH and RH direction indicator warning lamps in the instrument pack (C0585). The current draw of the lamps causes the hazard warning relay to operate and flash all the direction indicator lamps.

**4.38** MGF

## **INTERIOR LAMPS**

#### **DESCRIPTION**

#### General

Interior lamps consist of an under bonnet lamp, a load space lamp and passenger compartment lamps. The passenger compartment lamps consist of twin interior lamps in the rear view mirror, ignition switch illumination, a glove box lamp and two footwell lamps. Contact switches control the operation of the under bonnet lamp and the load space lamp. Operation of the passenger compartment lamps is controlled by the glove box switch, door switches, the multi function ECU and integral switches in the interior lamps. Passenger compartment lamp operation incorporates timed and fade off functions.

### **OPERATION**

## **Power supplies**

Fusible link 1 (C0570) in the under bonnet fuse box supplies a permanent feed to the lighting switch (C0041) and fuse 12 (C0582) in the passenger compartment fuse box on N wires. Fuse 12 (C0099) supplies the feed to the ignition switch illumination on a P wire, via a P link wire on the passenger compartment fuse box (C0581). P wires from fuse 12 (C0585) also connect the feed to the:

- Under bonnet lamp (C1329). The earth side of the under bonnet lamp (C1330) is connected to the bonnet switch (C0007) by a BP wire.
- load space lamp (C0119). The earth side of the load space lamp (C0120) is connected to the load space lamp switch (C0107) by a PR wire.
- Front interior lamps (C0355).
- LH front footwell lamp (C0077) and RH front footwell lamp (C0080).

## **Under bonnet lamp**

When the bonnet is opened, the bonnet switch closes and connects to earth via the switch fixing, which illuminates the under bonnet lamp.

## load space lamp

When the boot lid is opened, the load space lamp switch (C0110) closes and connects to an earth header (C0550) on a B wire, which illuminates the load space lamp.

## Passenger compartment lamps Glove box lamp

When the lighting switch is in the side lamps or headlamps position, a feed from the lighting switch (C0041) is connected to fuse 8 (C0582) of the passenger compartment fuse box on a R wire. Fuse 8 (C0581) feeds the glove box lamp (C0227) on a RB wire, and the earth side of the glove box lamp (C0235) is connected to the glove box switch (C0238) by a BY wire. When the glove box opens, the glove box switch (C0222) closes and connects to an earth header (C0018 on LHD) or earth point (C0564, via the passenger compartment fuse box, on RHD) on a B wire to illuminate the glove box lamp.

## Ignition, interior and footwell lamps

The ignition switch illumination (C0028), LH front footwell lamp (C0078), RH front footwell lamp (C0076) and interior lamps (C0355) all have an earth route through the multi function ECU (C0062) on PR wires. The multi function ECU controls the earth connection to automatically operate the lamps together, when the doors open and close and the ignition is switched on. When a door opens, the related door switch closes and connects an earth to the multi function ECU (C0062) via a PS wire from the RH door switch (C1451 on LHD, C1449 on RHD) or a PW wire from the LH door switch (C1449 on LHD, C1451 on RHD).

When either or both of the doors open, the ignition switch illumination, footwell lamps and interior lamps are illuminated. The multi function ECU extinguishes the lamps as follows:

- The lamps will fade out immediately on the first occasion that the last door is closed and the ignition switch is not in position II.
- Subsequent opening and closing of the door(s) will result in the lamps remaining on for approximately 18 seconds, after the last door closes, and then fading out.
- When the lamps are illuminated with both doors closed, turning the ignition switch to position II will cause the lamps to immediately fade out.
- The lamps will immediately fade out when the doors are locked using either the key or the remote handset.
- If a door is left open, the lamps will fade off after approximately 9 minutes.

In addition to automatic operation, each interior lamp (C0355) has a manual switch which provides a route to earth on a B wire connected to an earth header (C0018) and hence illuminates the interior lamp regardless of the door and ignition switch positions.

**4.40** MGF

### INTERIOR ILLUMINATION

#### **DESCRIPTION**

#### General

Instruments, controls and switch graphics are automatically illuminated when the side lamps or headlamps are switched on. The brightness of the instrument pack illumination can be adjusted using an instrument illumination dimmer.

#### **OPERATION**

## **Power supplies**

Fusible link 1 (C0570) in the under bonnet fuse box supplies a permanent feed to the lighting switch (C0041) on a N wire.

#### General

When the lighting switch is in the side lamps or headlamps position, a feed is connected from the lighting switch (C0041) to fuse 8 (C0582) of the passenger compartment fuse box on a R wire. Fuse 8 (C0581 and C0590) feeds all of the interior illumination bulbs/ LED's and the instrument illumination dimmer (C0201) on RB wires. On EM-CVT models, the RB wire for the remote Steptronic switches terminates at the rotary coupler (C0082); G wires then supply the feed from the rotary coupler (C1254) to the up Steptronic remote switch (C1664) and down Steptronic remote switch (C1665). The illumination bulbs/ LED's are connected to earth as follows:

- The rear fog guard lamp switch (C0064) on LHD models/ transmission mode switch (C0985) on Japan EM-CVT models, automatic gearbox selector indicator lamp (C0245), RH window switch (C0081) and LH window switch (C0321) are earthed on B wires connected to an earth point (C0557).
- The up Steptronic remote switch (C1664), down Steptronic remote switch (C1665), heated rear screen switch (C0072), rear fog guard lamp switch (C0064) on RHD models, oil temperature gauge (C0344), analogue clock (C0232) and hazard warning switch (C0096) are earthed on B wires connected to an earth point (C0564) via the passenger compartment fuse box (C0584 and C0583).
- The radio/cassette player (C0098)/ CD player (C1353) is earthed on a B wire connected to an earth point (C0563).
- The instrument pack (C0233) is earthed on a RW wire connected to the instrument illumination dimmer (C0201), then a B wire from the instrument illumination dimmer (C0201) to an earth point (C0564) via the passenger compartment fuse box (C0590 and C0583).
- The A/C switch pack (C0275), fresh/recirculated air switch (C0750) and heater control illumination (C0051) are earthed on B wires connected to an earth header (C0017).

Except for the instrument pack, the interior illumination bulbs/ LED's illuminate at a fixed brightness level. The brightness level of the instrument pack illumination is dependant on the setting of the instrument illumination dimmer. Turning the thumbwheel of the instrument illumination dimmer alters the resistance of the instrument pack's earth path and hence brightness level of the illumination bulbs.

**4.42** MGF

## **INSTRUMENTS**

#### **DESCRIPTION**

#### General

The instrument pack contains a speedometer, tachometer, fuel gauge, coolant temperature gauge and four groups of warning lamps. An oil temperature gauge is located on the centre console.

#### **OPERATION**

## **Power supplies**

Fusible link 1 (C0570) of the under bonnet fuse box supplies a permanent feed to the lighting switch (C0041) on a N wire.

Fusible link 4 (C0570) of the under bonnet fuse box supplies a permanent feed to the ignition switch (C0028) on a NP wire. When the ignition switch is in position II, the feed is connected to fuse 1 (C0099) in the passenger compartment fuse box on a BY wire. Fuse 1 (C0590) supplies the feed to the instrument pack (C0230) on a G wire to power the instruments and, except where stated otherwise, the warning lamps. Except where stated otherwise, the earth connection for the instruments and the warning lamps is provided by a B wire connected between the instrument pack (C0230) and an earth point (C0564), via the passenger compartment fuse box (C0590 and C0583).

## **Speedometer**

The speedometer (C0234) receives a road speed signal from the gearbox mounted speed transducer (C0195) on a WO wire. The instrument pack also uses this signal for the total and trip distances in the odometer display.

#### **Tachometer**

The tachometer (C0230) receives an engine speed signal from the ECM (C0158 on VVC MEMS 2J models, C0159 on MPi MEMS 1.9 models, C0634 on MPi MEMS 3 models) on a WB wire.

## Fuel gauge

The fuel gauge (C0233) receives a contents signal from the fuel tank unit (C0114) on a GB wire.

## **Coolant temperature gauge**

The coolant temperature gauge (C0230) receives a temperature signal from the coolant temperature gauge sensor (C0165) on a GU wire.

## Oil temperature gauge

The oil temperature gauge (C0334) receives a temperature signal from the oil temperature unit (C1666) on a NU wire.

## Warning lamps

## Anti-theft alarm LED

The anti-theft alarm LED (C0233) receives a power supply from fuse 4 of the under bonnet fuse box, via splice SJ21, on a NO wire. The earth for the anti-theft alarm LED (C0234) is controlled by the alarm ECU (C0061) on a UK wire.

## Hazard warning

The hazard warning lamp (C0233) receives a power supply from fuse 4 of the under bonnet fuse box, via splice SJ21, on a NO wire. The earth for the hazard warning lamp (C0233) is controlled by the hazard warning switch (C0096) on a GY wire.

## Electronic Power Assisted Steering (EPAS)

The earth for the EPAS warning lamp (C0234) is controlled by the EPAS ECU (C0316) on a KU wire.

## Supplementary Restraint System (SRS)

The earth for the SRS warning lamp (C0234) is controlled by the airbag DCU (C0256) on a OP wire.

## Seat belt (Australia and Japan only)

The earth for the seat belt warning lamp (C0234) is controlled by the multi function ECU (C0062) on a BR wire.

## Ignition/No charge

When the alternator is not generating a charge, the ignition/no charge warning lamp (C0230) is earthed on the NY wire to the alternator (C0185) via the passenger compartment fuse box (C0590 and C0585). When the engine is running, the alternator applies a voltage to the NY wire to extinguish the lamp.

#### Handbrake/Low brake fluid

The route to earth for the handbrake/low brake fluid warning lamp (C0233) is on BW wires to the handbrake switch (C0091) and the brake fluid level switch (C0026), via the passenger compartment fuse box (C0590, C0581 and C0585). When the handbrake lever is applied, the handbrake switch (C0091) closes and connects the BW wire to earth through a switch fixing. If the fluid in the brake reservoir falls to a low level, the brake fluid level switch (C0026) closes and connects the BW wire to an earth header (C0018) on a B wire.

#### Main beam

When the flash switch is closed, or the lighting switch is selected to the headlamps position and the dip switch is in the main beam position, the feed from fusible link 1 in the under bonnet fuse box is connected to the UW wire between the lighting switch (C0041) and fuse 21 (C0595) in the satellite fuse box. Fuse 21 (C0595) supplies the feed to the main beam warning lamp (C0230) on a UG wire.

**4.44** MGF

#### Direction indicator

The LH direction indicator warning lamp (C0230) receives a feed from the direction indicator switch (C0036) on a GR wire, via the passenger compartment fuse box (C0581 and C0590). The RH direction indicator warning lamp (C0233) receives a feed from the direction indicator switch (C0036) on a GW wire, via the passenger compartment fuse box (C0581 and C0590).

## Oil temperature (all except Japan)

The oil temperature warning lamp (C0234) receives a feed from the oil temperature unit (C1666) on a NU wire.

## Snow mode (Japan only)

Operation of the snow mode warning lamp (C0234) is controlled by a Pulse Width Modulated (PWM) signal from the ECM (C0635), which is input to the instrument pack on a WG wire. This signal also operates the gear ratio indicator in the odometer display and the gearbox fault warning lamp.

## Oil pressure

The earth route for the oil pressure warning lamp (C0230) is through the oil pressure switch (C0187) on a WN wire. When there is no engine oil pressure, the switch is closed and the WN wire is connected to earth through the switch body.

## Anti-lock Brake System (ABS)

The ABS warning lamp (C0234) is operated by the ABS modulator (C0501) connecting a UR wire to earth.

## Engine bay cooling fan

The engine bay cooling fan warning lamp (C0234) is operated by the ECM (C0159 on MPi MEMS 1.9 and VVC MEMS 2J models, C0634 on MPi MEMS 3 models) connecting a GR wire to earth.

## Rear fog guard

When the rear fog guard lamps are illuminated, the rear fog guard warning lamp (C0233) receives a feed from the multi function ECU (C0016) on a UY wire.

## Gearbox fault (EM-CVT models only)

Operation of the gearbox fault warning lamp is controlled by a Pulse Width Modulated (PWM) signal from the ECM (C0635), which is input to the instrument pack (C0234) on a WG wire. This signal also operates the gear ratio indicator in the odometer display. On Japanese EM-CVT models the signal also operates the snow mode warning lamp.

## Boot open

The boot open warning lamp (C0234) is operated by the load space lamp switch (C0107) on a PR wire.

## **HORNS**

#### **DESCRIPTION**

#### General

The vehicle has two horns installed under the bonnet on the RH inner wing. The horns are operated by two horn buttons on the steering wheel, or the Anti-theft Alarm System, via a relay.

#### **OPERATION**

## **Power supplies**

Fuse 7 (C0572) of the under bonnet fuse box supplies a permanent feed to the horn relay (C0016) in the multi function ECU on a PN wire.

#### General

Pressing either of the horn buttons connects the coil of the horn relay to earth on:

- The PB wire from the horn relay (C0062) to the rotary coupler (C).
- R wires from the rotary coupler (C1254) to the horn switches (C1662 and C1663).
- B wires from the horn switches (C1662 and C1663) to the rotary coupler (C1254), and from the rotary coupler (C0082) to a body earth point (C0564) via the passenger compartment fuse box (C0584 and C0583).

When the horn relay energises, the feed from fuse 7 is connected to the PY wires between the horn relay (C0016) and the horns (C0003 and C0004). The horns (C0003 and C0004) are earthed on B wires connected to an earth header (C0018) and sound continuously while the horn relay is energised.

If the alarm is triggered, the alarm ECU (C0061) earths the PB wire from the horn relay (C0062) to sound the horns.

**4.46** MGF

## **CLOCK**

## **DESCRIPTION**

#### General

The analogue clock is installed in the centre console in the fascia.

### **OPERATION**

#### General

Fusible link 1 (C0570) in the under bonnet fuse box supplies a permanent feed to fuse 12 (C0582) in the passenger compartment fuse box on a N wire. Fuse 12 (C0585) supplies the feed to the analogue clock (C0095) on a P wire. The circuit is completed by B wires from the analogue clock (C0232) to an earth point (C0564), via the passenger compartment fuse box (C0584 and C0583).

## **CIGAR LIGHTER**

#### **DESCRIPTION**

#### General

The cigar lighter is located in the centre console and operates only when the ignition switch is in position II.

#### **OPERATION**

## **Power supplies**

Fusible link 1 (C0570) in the under bonnet fuse box supplies a permanent feed to fuse 2 (C0583) in the passenger compartment fuse box on a N wire. Fuse 2 (C0585) supplies the feed to the switch contacts of the cigar lighter relay (C0583) in the passenger compartment fuse box on a PU wire.

Fusible link 4 (C0570) in the under bonnet fuse box supplies a permanent feed to the ignition switch (C0028) on a NP wire. When the ignition switch is in position II, the feed is connected to fuse 1 (C0099) in the passenger compartment fuse box on a BY wire. Fuse 1 (C0590) supplies the feed to the coil of the cigar lighter relay (C0590) on a G wire. The relay is energised by the B wire between the cigar lighter relay coil (C0583) and an earth point (C0564). The energised relay connects the feed from fuse 2 to the PS wire between the passenger compartment fuse box (C0581) and the cigar lighter (C0089).

#### General

Pushing the heating element into the locking clips of the cigar lighter completes the circuit. Current flows through the heating element and is earthed through the cigar lighter casing and the B wire between the cigar lighter (C0089) and the earth point (C0564), via the passenger compartment fuse box (C0584 and C0583). At a pre-determined temperature the locking clips release the heating element from the cigar lighter and the circuit is broken.

**4.48** MGF

## **AUDIO SYSTEMS**

#### **DESCRIPTION**

#### General

The audio system consists of either a radio/ cassette player, or a CD player, driving six speakers. The system operates when the ignition switch is in position I or II. Except where stated, the information detailed below is common to both radio/ cassette player and CD player systems.

#### **OPERATION**

### **Power supplies**

Fusible link 1 (C0570) in the under bonnet fuse box supplies a permanent feed to fuse 12 (C0582) in the passenger compartment fuse box on a N wire. Fuse 12 (C0585) supplies the feed to the radio/ cassette player (C0098), or CD player (C1353), on a P wire. The permanent feed enables the radio presets and security code to be retained while the ignition is off.

Fusible link 5 (C0573) supplies a permanent feed to the ignition switch (C0028) on a NW wire. When the ignition switch is in position I or II, the feed is supplied to fuse 17 (C0099) in the passenger compartment fuse box on a WR wire. Fuse 17 supplies the feed to the radio/cassette player (C0098), or CD player (C1353), on a LGW wire.

The radio/ cassette player (C0098), or CD player (C1353), is earthed on a B wire connected to an earth point (C0563).

#### General

Radio signals are received by the radio/ cassette player (C0366), or CD player (C0366), on a B wire from the aerial (C0611).

The speakers are driven from the radio/ cassette player (C0092), or CD player (C1353), as follows:

- The RH rear speaker (C0445) on SK and SB wires.
- The RH door speaker (C0339) and RH tweeter (C0530) on OK and OB wires.
- The LH door speaker (C0340) and LH tweeter (C0531) on YK and YB wires.
- The LH rear speaker (C0445) on UK and UB wires.

## **DESCRIPTION AND OPERATION**

**4.50** MGF

### **CIRCUIT REFERENCE NUMBERS**

### **CONNECTOR APPLICABILITY**

#### General

The following Table lists the circuit reference numbers against a description of the model or feature to which they apply.

This information should be used in conjunction with the Connector Pin Out Tables, on the following pages, to determine the wire configuration of the vehicle being worked on.

Cct	Model or feature
1	ABS
2	With A/C
3	Japanese specification
4	Without A/C
5	EPAS
6	Without ABS
7	Electrically controlled mirrors
8	With EM-CVT
10	Development
11	Snow mode
12	Without snow mode
13	Japanese and Malaysian specification only
14	Japanese and Australian specification only
15	EM-CVT with A/C
16	EM-CVT without A/C
18	1.8 MPi manual
19	1.8 MPi manual with A/C
20	Manual gearbox
21	1.8 VVC
22	1.8 VVC with A/C
23	Manual gearbox with A/C
24	Manual gearbox without A/C

MGF 5.1

# CONNECTOR

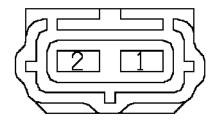
**5.2** MGF



CavColCct1GRALL2BALL

Description: Lamp - Direction indicator / hazard warning - Front - LH

Location: Behind LH front indicator lamp



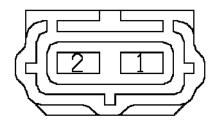
YPC 10070



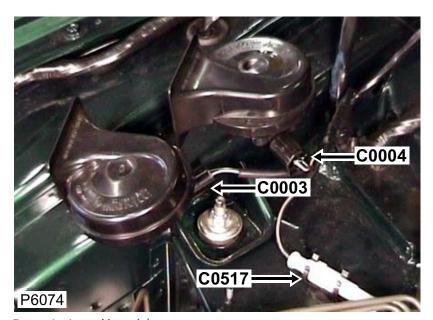
Cav	Col	Cct
1	GW	ALL
2	В	ALL

Description: Lamp - Direction indicator / hazard warning - Front - RH

Location: Behind RH front indicator lamp



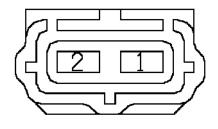
YPC 10070



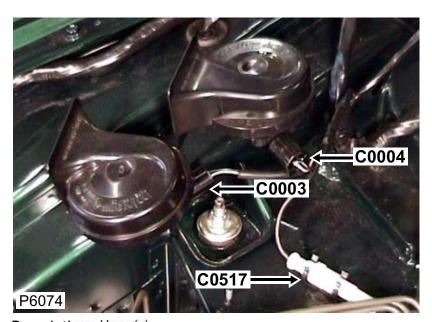
CavColCct1BALL2PYALL

Description: Horn (s)

Location: *Under bonnet, RH side* 



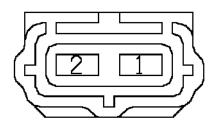
YPC 10070



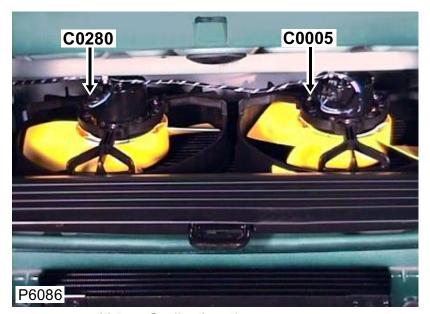
Cav	Col	Cct
1	В	ALL
2	PY	ALL

Description: Horn (s)

Location: Under bonnet, RH side

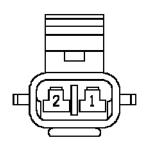


YPC 10070

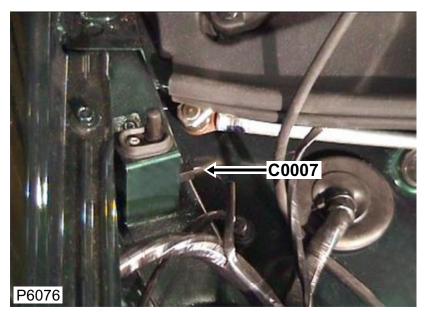


Cav	Col	Cct
1	US	2
1	В	4
2	PS	2
2	UP	4

Description: *Motor - Cooling fan - 1*Location: *Behind radiator* 

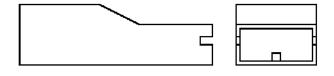


AFU3306

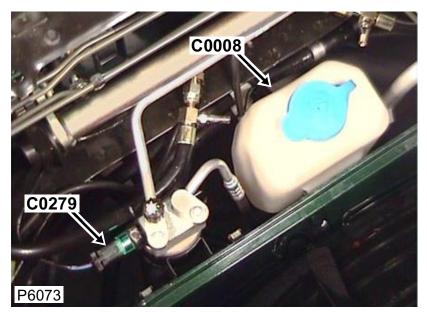


Cav	Col	Cct
1	BP	ALL

Description: Switch - Bonnet Location: Under bonnet, RH side



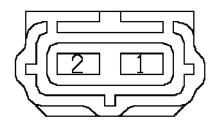
AAU 1010



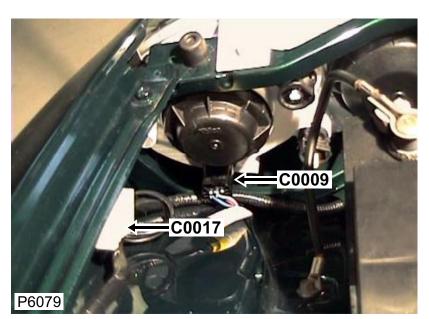
CavColCct1LGBALL2BALL

Description: Pump - Washer - Windscreen

Location: Under bonnet behind closing panel - centre



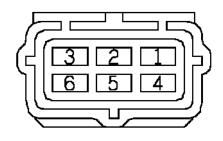
YPC 10070



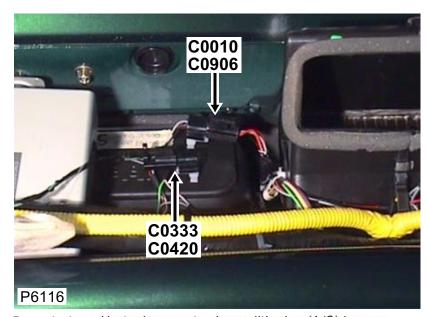
Cav	Col	Cct
2	UK	ALL
4	US	ALL
5	RB	ALL
6	В	ALL

Description: Headlamp - LH

Location: Under bonnet, LH side



YPC 10064



 Cav
 Col
 Cct

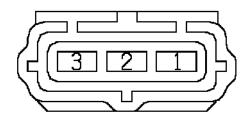
 1
 RB
 ALL

 2
 SW
 ALL

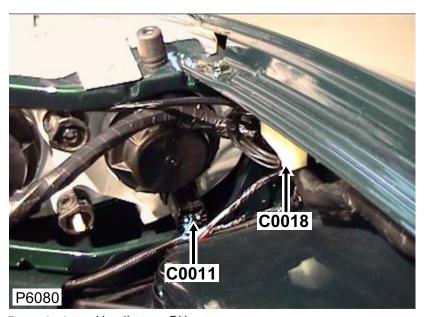
 3
 B
 ALL

Description: Heater harness to air conditioning (A/C) harness

Location: Behind LH side of fascia



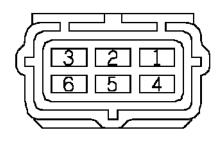
YPC 10067



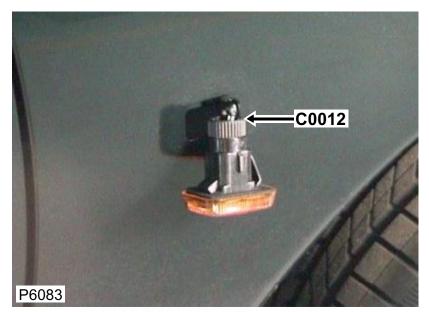
Cav	Col	Cct
2	UB	ALL
4	UG	ALL
5	RO	ALL
6	В	ALL

Description: Headlamp - RH

Location: Under bonnet, RH side

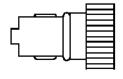


YPC 10064

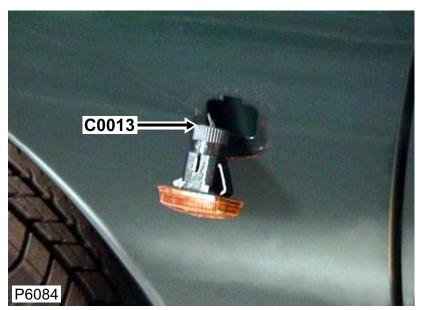


Cav	Col	Cct
1	GW	ALL
2	В	ALL

Description: Lamp - Side repeater - Front - RH Location: Behind RH side repeater lamp

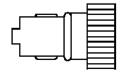


YPY1001/0

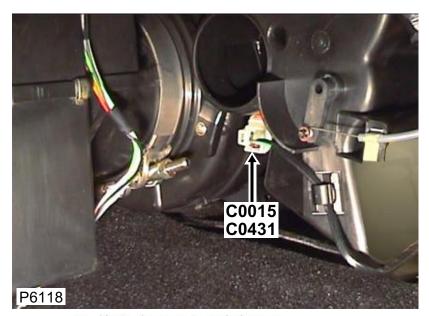


Cav	Col	Cct
1	GR	ALL
2	В	ALL

Description: Lamp - Side repeater - Front - LH Location: Behind LH side repeater lamp



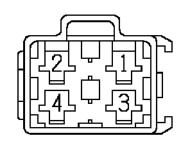
YPY1001/0



CavColCct1RBALL2LGPALL4BALL

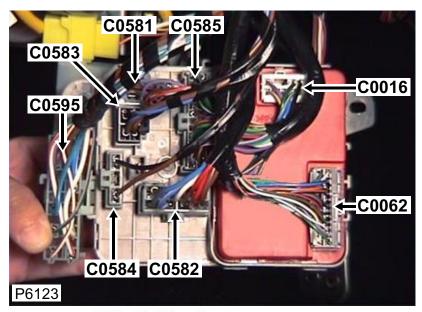
Description: Heater harness to main harness

Location: Under LH side of fascia



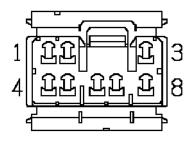
AFU3856

Colour: NATURAL
Gender: Male



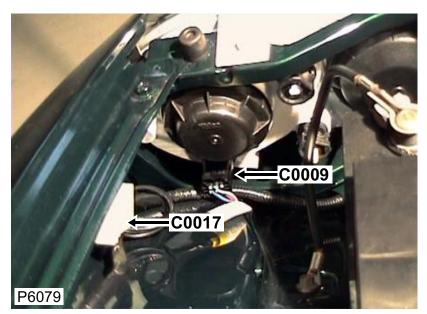
Cav	Col	Cct
1	В	ALL
2	G	ALL
3	PN	ALL
5	UY	ALL
6	UR	ALL
7	NLG	ALL
8	PY	ALL

Description: *ECU - Multi function*Location: *Behind driver side of fascia* 



YPC 10 186

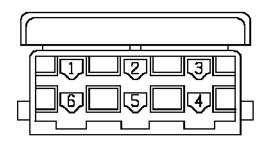
Colour: WHITE Gender: Female



Cav	Col	Cct
1	В	ALL
2	В	ALL
3	В	ALL
4	В	ALL
5	В	ALL
6	В	ALL

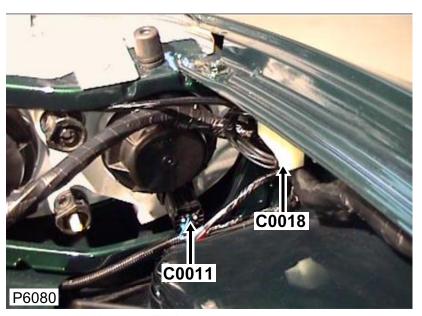
Description: Header - Earth

Location: Under bonnet, LH side



YQC 10030

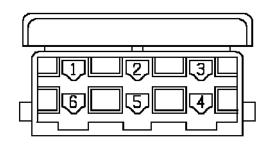
Colour: NATURAL Gender: Female



Cav	Col	Cct
1	В	ALL
2	В	ALL
3	В	ALL
5	В	1
6	В	ALL

Description: Header - Earth

Location: Under bonnet, RH side



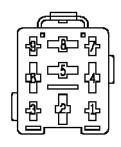
YQC 10030

Colour: NATURAL Gender: Female

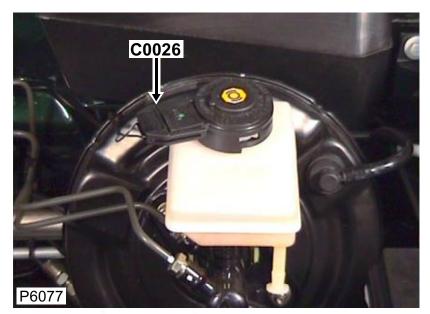


Cav	Col	Cct
2	N	4
4	LGS	4
6	US	4
8	UP	4

Description: *Relay - Cooling fan - 1* Location: *Under bonnet, LH side* 

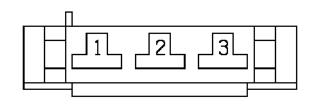


YPP 1000 1

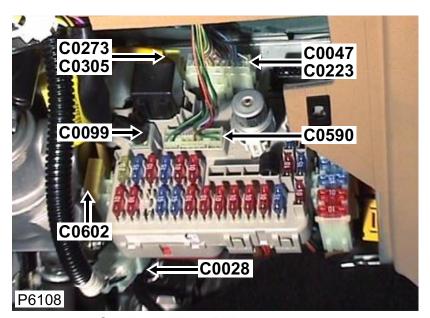


Cav	Col	Cct
1	BW	ALL
3	В	ALL

Description: Switch - Brake fluid level Location: Under bonnet, LH side

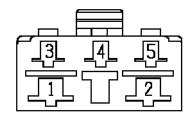


ADU6599



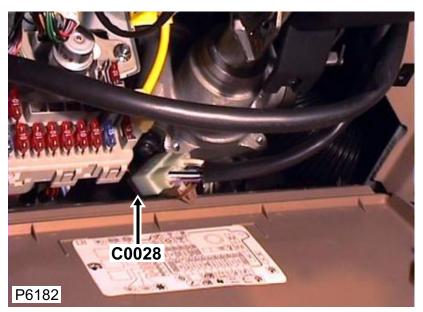
Cav	Col	Cct
1	NP	ALL
2	NW	ALL
3	WR	ALL
4	WLG	ALL
5	PR	ALL

Description: Switch - Ignition - RHD Location: Behind driver side of fascia



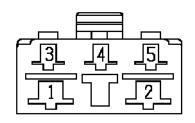
YPC 10047

Colour: NATURAL Gender: Female



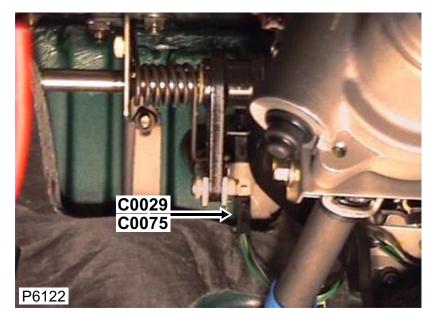
Cav	Col	Cct
1	NP	ALL
2	NW	ALL
3	WR	ALL
4	WLG	ALL
5	PR	ALL

Description: Switch - Ignition - LHD Location: Behind driver side of fascia



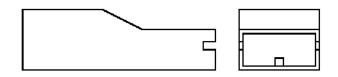
YPC 10047

Colour: NATURAL Gender: Female

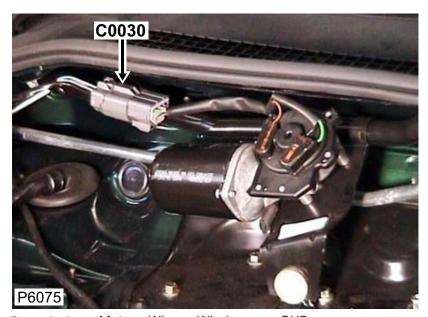


Cav	Col	Cct
1	GP	ALL

Description: Switch - Brake pedal Location: LH side of steering column



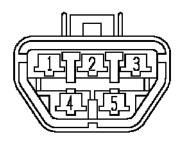
AAU 1010



Col Cct Cav 1 В ALL RLG ALL 2 3 ULG ALL 4 NLG ALL 5 GS ALL

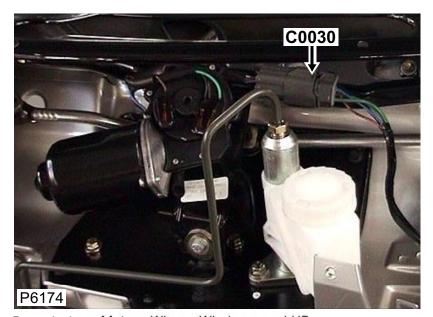
Description: Motor - Wiper - Windscreen - RHD

Location: Under bonnet, RH side



YPC 10505

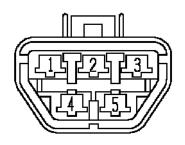
Colour: GREY
Gender: Female



Cav Col Cct 1 В ALL 2 RLG ALL 3 ULG ALL 4 ALL NLG 5 GS ALL

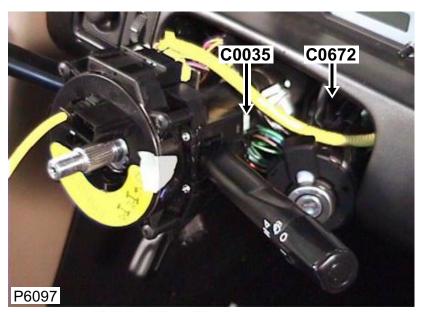
Description: Motor - Wiper - Windscreen - LHD

Location: Under bonnet, LH side



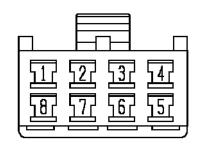
YPC 10505

Colour: *GREY* Gender: *Female* 



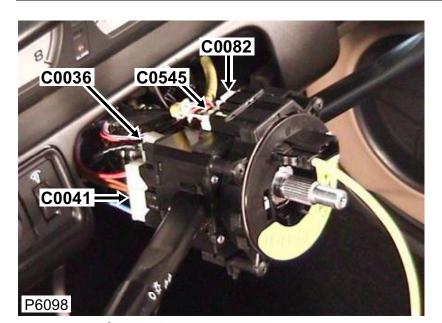
Cav	Col	Cct
1	GS	ALL
2	LGG	ALL
3	ULG	ALL
4	RLG	ALL
5	В	ALL
7	LGP	ALL
8	LGB	ALL

Description: Switch - Wiper - Front Location: RH side of steering column



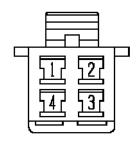
YPC 10006

Colour: NATURAL Gender: Female



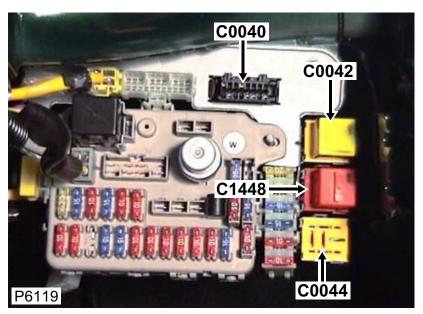
Cav	Col	Cct
1	GR	ALL
2	LGN	ALL
4	GW	ALL

Description: Switch - Direction indicator Location: LH side of steering column



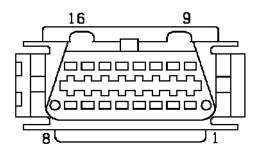
YPC 10002

Colour: NATURAL Gender: Female

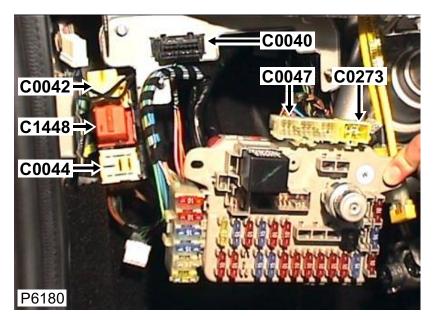


Cav	Col	Cct
1	OU	ALL
3	RU	ALL
4	В	ALL
7	K	5
13	YK	ALL
16	P	ALL

Description: *Diagnostic socket - RHD*Location: *Behind driver side of fascia* 

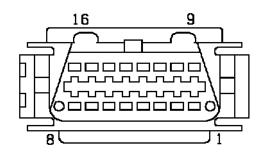


YPC 114600

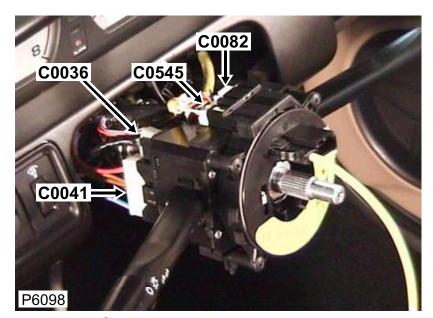


Cav	Col	Cct
1	OU	ALL
3	RU	ALL
4	В	ALL
7	K	5
13	YK	ALL
16	P	ALL

Description: *Diagnostic socket - LHD*Location: *Behind driver side of fascia* 



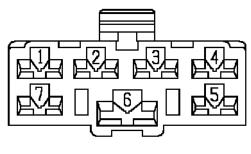
YPC 114600



Cav	Col	Cct
1	UK	ALL
3	N	ALL
4	R	ALL
5	UW	ALL
6	N	ALL

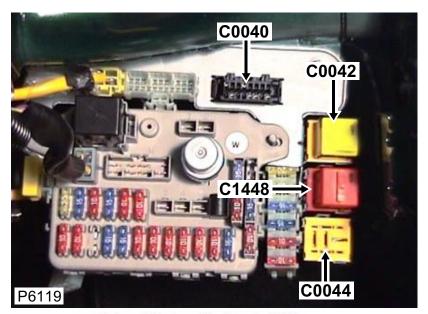
Description: Switch - Lighting

Location: LH side of steering column



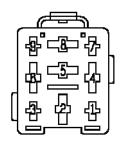
YPC 10008

Colour: NATURAL Gender: Female

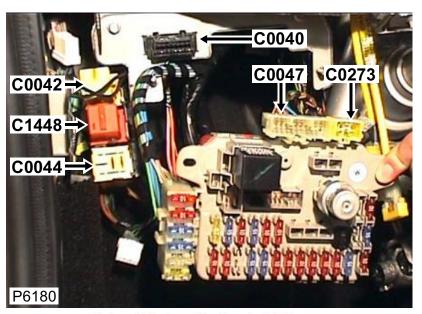


Cav	Col	Cct
2	N	ALL
4	N	ALL
6	BN	ALL
8	NU	ALL

Description: Relay - Window lift - Front - RHD Location: Behind driver side of fascia

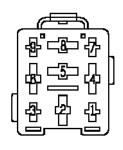


YPP 1000 1

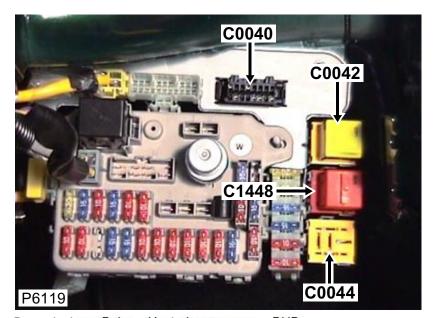


Cav	Col	Cct
2	N	ALL
4	N	ALL
6	BN	ALL
8	NU	ALL

Description: Relay - Window lift - Front - LHD Location: Behind driver side of fascia

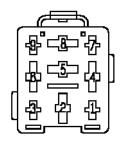


YPP 1000 1

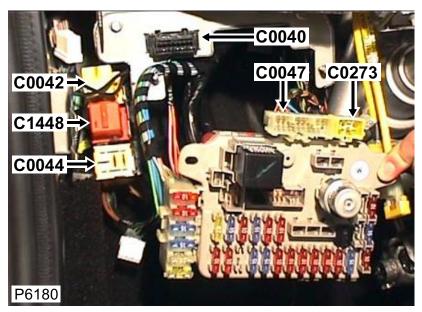


Cav	Col	Cct
2	NO	ALL
4	GO	ALL
6	В	ALL
8	BG	ALL

Description: *Relay - Heated rear screen - RHD*Location: *Behind driver side of fascia* 

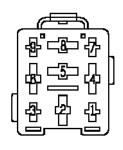


YPP 1000 1

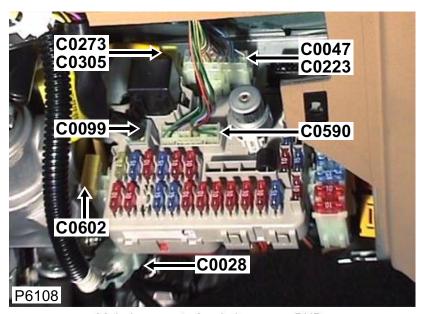


Cav	Col	Cct
2	NO	ALL
4	GO	ALL
6	В	ALL
8	BG	ALL

Description: Relay - Heated rear screen - LHD Location: Behind driver side of fascia

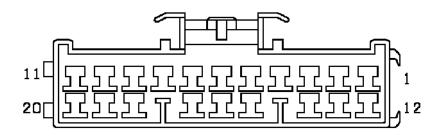


YPP 1000 1



Description: Main harness to fascia harness - RHD

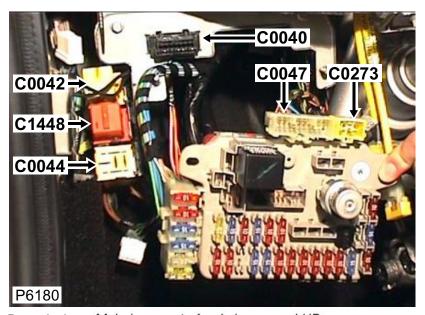
Location: Behind driver side of fascia



YPC 100 10

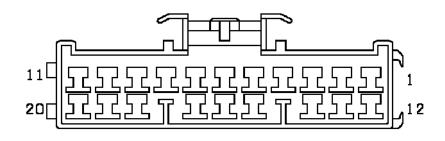
Colour: NATURAL
Gender: Male

Cav	Col	Cct
1	UY	ALL
2	WB	5
3	LGY	ALL
4	WN	ALL
5	NO	ALL
6	GU	ALL
7	UR	1
7	В	6
8	GB	ALL
9	UK	ALL
10	UG	ALL
11	BR	3
13	KU	5
14	GR	ALL
15	WO	ALL
16	OP	ALL
17	NU	ALL
18	WO	5
19	PR	ALL
20	WG	8



Description: Main harness to fascia harness - LHD

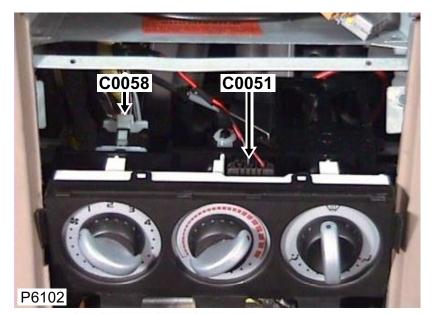
Location: Behind driver side of fascia



YPC 100 10

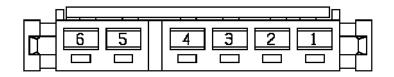
Colour: NATURAL
Gender: Male

Cav	Col	Cct
1	UY	ALL
2	WB	5
3	LGY	ALL
4	WN	ALL
5	NO	ALL
6	GU	ALL
7	UR	1
7	В	6
8	GB	ALL
9	UK	ALL
10	UG	ALL
13	KU	5
14	GR	ALL
15	WO	ALL
16	OP	ALL
17	NU	ALL
18	WO	5
19	PR	ALL
20	WG	8

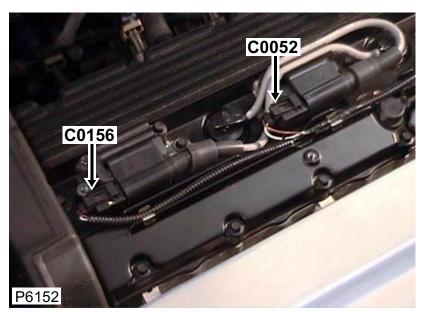


Cav	Col	Cct
1	RB	ALL
4	В	ALL

Description: *Heater switch illumination*Location: *Behind heater control panel* 

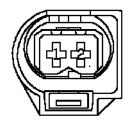


AFU3705

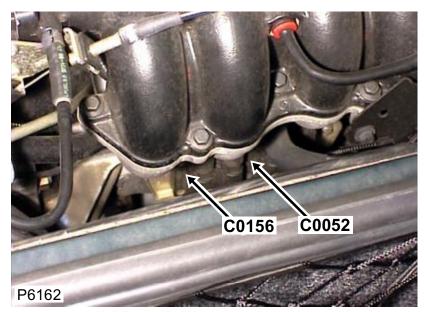


Cav	Col	Cct
1	NK	ALL
2	WB	ALL

Description: *Ignition coil - K1.8* Location: *Top of engine* 

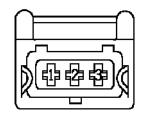


YPC113410

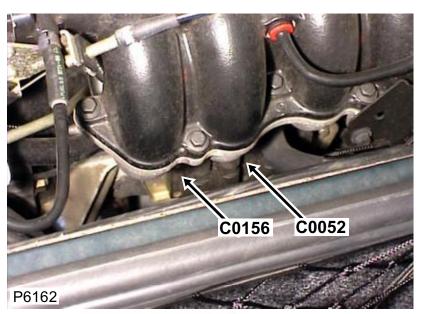


Cav	Col	Cct
1	K	21
3	WB	21

Description: *Ignition coil - Manual gearbox*Location: *Front of engine - centre* 

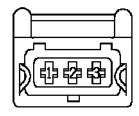


YPC 114930

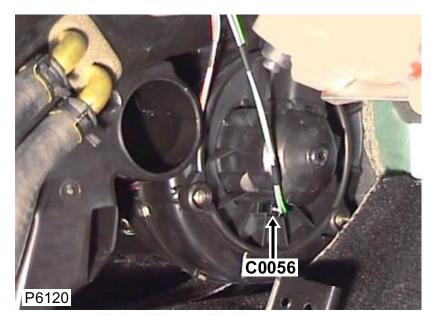


Cav	Col	Cct
1	K	21
3	WB	21

Description: *Ignition coil - K1.8 VVC*Location: *Front of engine - centre* 



YPC 114930

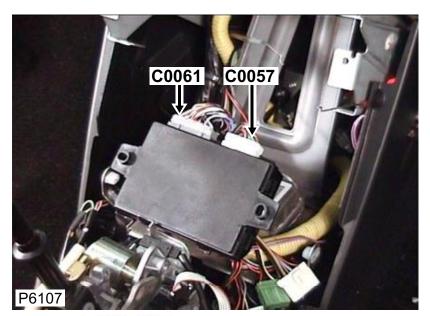


CavColCct1SBALL2LGPALL

Description: *Motor - Blower - Front* Location: *Under RH side of fascia* 

## **NO CONNECTOR FACE**

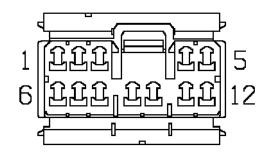
Colour: Gender:



Cav	Col	Cct
1	NK	ALL
6	GW	ALL
7	GR	ALL
8	SW	ALL
9	NS	ALL
11	SR	ALL
12	PK	ALL

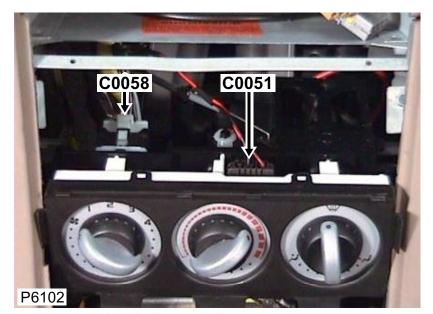
Description: ECU - Alarm

Location: Behind centre console



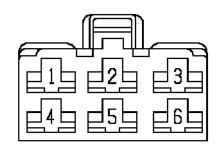
AFU3/54

Colour: WHITE Gender: Female



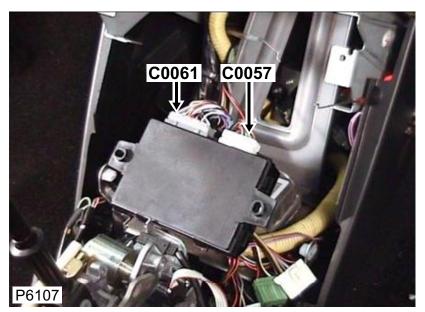
Cav	Col	Cct
1	KB	ALL
2	YB	ALL
3	SB	ALL
4	SW	ALL
5	В	ALL
6	GB	ALL

Description: Switch - Blower motor
Location: Behind heater control panel

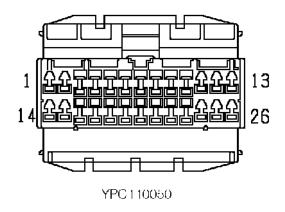


YPC 10004

Colour: NATURAL Gender: Female

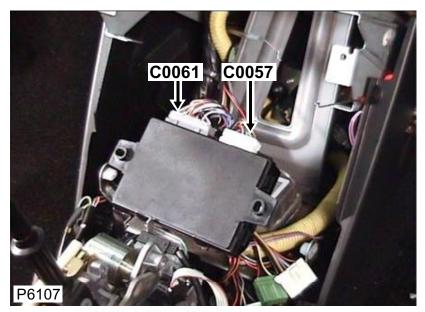


Description: *ECU - Alarm - RHD*Location: *Behind centre console* 

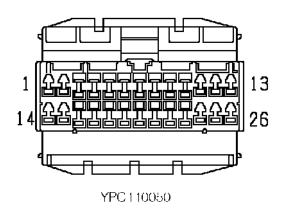


Colour: GREY
Gender: Female

Cav	Col	Cct
1	W	ALL
2	В	ALL
4	BK	10
6	PW	ALL
7	PS	ALL
8	PB	ALL
9	YR	ALL
10	Y	ALL
11	K	ALL
13	О	ALL
14	WB	ALL
16	RU	ALL
17	UK	ALL
18	BP	ALL
19	ВО	ALL
20	NB	ALL
21	PR	ALL
22	BR	ALL
23	BW	ALL
24	OU	ALL
25	WG	ALL
26	P	ALL

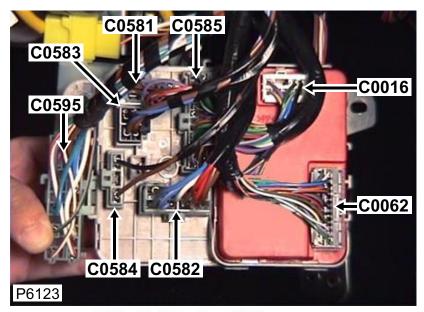


Description: *ECU - Alarm - LHD*Location: *Behind centre console* 

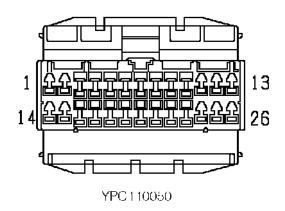


Colour: *GREY* Gender: *Female* 

Cav	Col	Cct
1	W	ALL
2	В	ALL
4	BK	10
6	PS	ALL
7	PW	ALL
8	PB	ALL
9	YR	ALL
10	Y	ALL
11	K	ALL
13	О	ALL
14	WB	ALL
16	RU	ALL
17	UK	ALL
18	BP	ALL
19	ВО	ALL
20	NB	ALL
21	PR	ALL
22	BR	ALL
23	BW	ALL
24	OU	ALL
25	WG	ALL
26	P	ALL

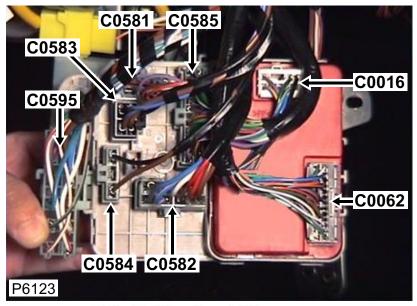


Description: *ECU - Multi function - RHD* Location: *Behind driver side of fascia* 

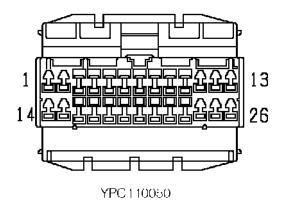


Colour: GREY
Gender: Female

Cav	Col	Cct
1	LGG	ALL
2	PR	ALL
3	WG	ALL
4	GO	ALL
6	PB	ALL
7	BN	ALL
10	BR	3
12	UB	ALL
13	WN	ALL
14	WY	3
18	RB	ALL
20	PS	ALL
21	PW	ALL
22	ВО	ALL
24	RY	ALL
26	LGP	ALL

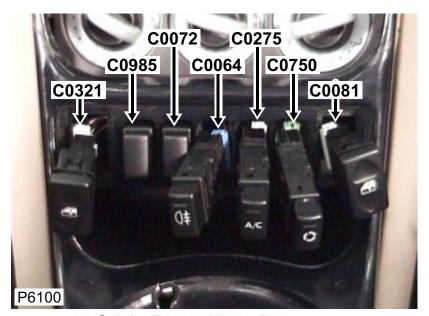


Description: *ECU - Multi function - LHD*Location: *Behind driver side of fascia* 



Colour: *GREY*Gender: *Female* 

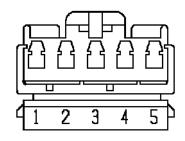
Cav	Col	Cct
1	LGG	ALL
2	PR	ALL
3	WG	ALL
4	GO	ALL
6	PB	ALL
7	BN	ALL
12	UB	ALL
13	WN	ALL
18	RB	ALL
20	PW	ALL
21	PS	ALL
22	ВО	ALL
24	RY	ALL
26	LGP	ALL



Cav	Col	Cct
1	RY	ALL
2	RB	ALL
4	В	ALL
5	UY	ALL

Description: Switch - Fog guard lamp - Rear

Location: Beneath front console



YPC 10525

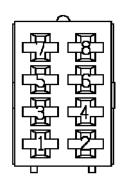
Colour: BLUE Gender: Female



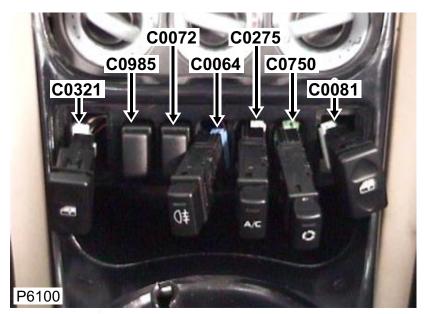
Cav	Col	Cct
1	BY	7
2	BN	7
3	SW	7
4	LG	7
5	BP	7
6	В	7
7	BU	7

Description: Switch - Mirror

Location: Adjacent steering column

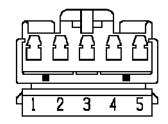


ADU9122

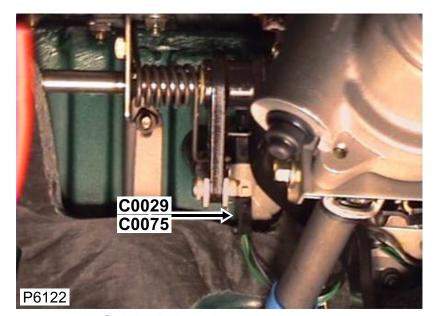


Cav	Col	Cct
1	ВО	ALL
2	RB	ALL
4	В	ALL
5	BG	ALL

Description: Switch - Heated rear screen Location: Beneath front console

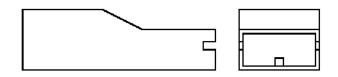


YPC 10523

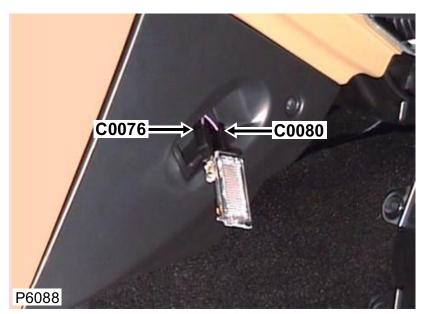


CavColCct1GYALL

Description: Switch - Brake pedal Location: LH side of steering column

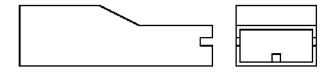


AAU 1010

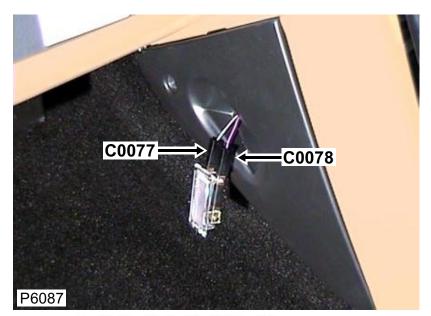


Cav	Col	Cct
1	PR	ALL

Description: Lamp - Footwell - Front - RH Location: Behind footwell trim panel - RH side



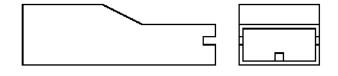
AAU 1010



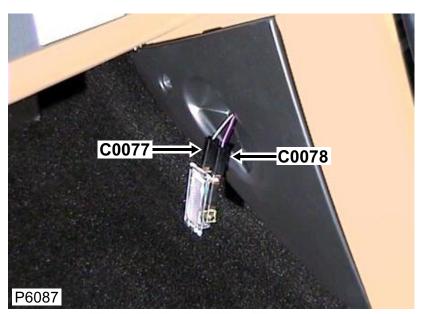
CavColCct1PALL

Description: Lamp - Footwell - Front - LH

Location: Behind footwell trim panel - LH side

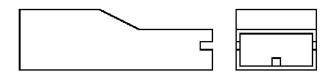


AAU 1010

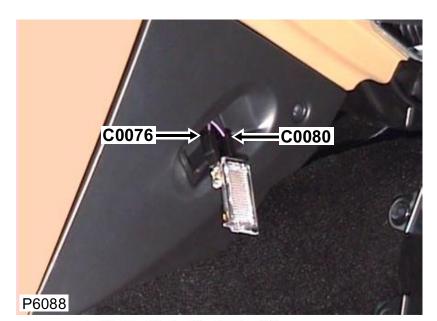


Cav	Col	Cct
1	PR	ALL

Description: Lamp - Footwell - Front - LH Location: Behind footwell trim panel - LH side



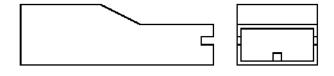
AAU 1010



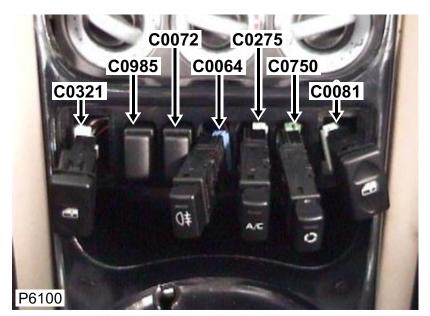
CavColCct1PALL

Description: Lamp - Footwell - Front - RH

Location: Behind footwell trim panel - RH side



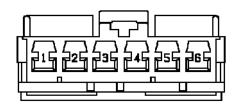
AAU 1010



Cav	Col	Cct
1	В	ALL
2	SG	ALL
3	SY	ALL
4	SR	ALL
6	RB	ALL

Description: Switch - Window - Front - RH

Location: Beneath front console



YPC113220

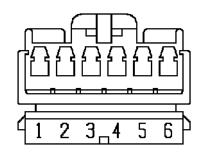
Colour: WHITE Gender: Female



Cav	Col	Cct
1	WR	8
2	R	8
3	RB	8
4	PB	ALL
6	В	ALL

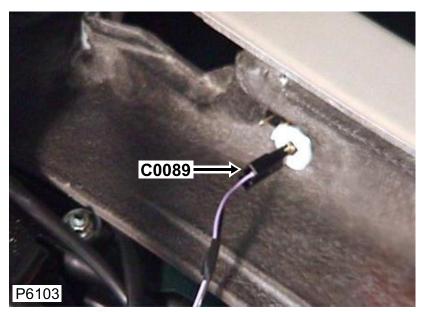
Description: Rotary coupler

Location: LH side of steering column



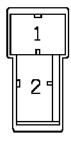
YPC 10270

Colour: WHITE Gender: Female

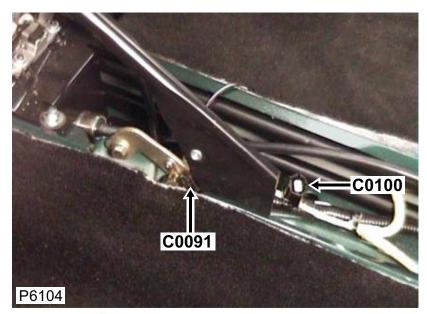


Cav	Col	Cct
1	В	ALL
2	PS	ALL

Description: Cigar lighter - Front Location: Behind centre console

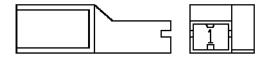


AFU3199

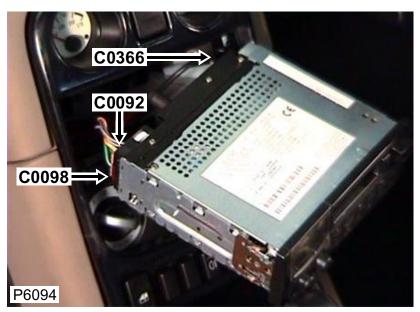


Cav	Col	Cct
1	BW	ALL

Description: *Switch - Handbrake*Location: *Behind centre console* 

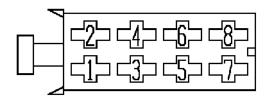


YPC 10 165



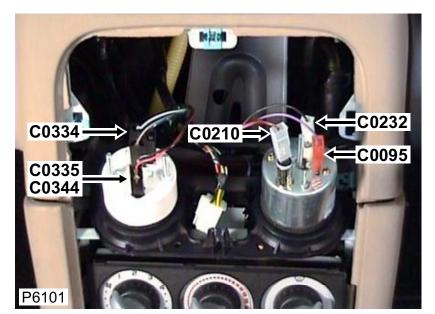
Cav	Col	Cct
1	SK	ALL
2	SB	ALL
3	OK	ALL
4	OB	ALL
5	YK	ALL
6	YB	ALL
7	UK	ALL
8	UB	ALL

Description: *Speakers*Location: *Behind radio* 



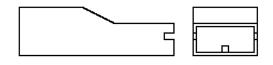
YPC 10 19 1

Colour: BROWN Gender: Female



CavColCct1PALL

Description: *Clock - Analogue*Location: *Beneath front console* 



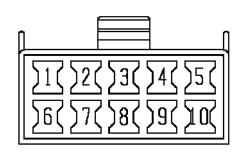
YPC 10245

Colour: *RED*Gender: *Female* 



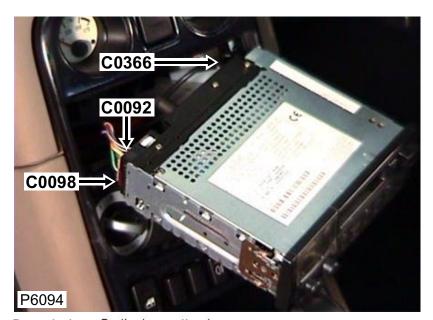
Cav	Col	Cct
1	G	ALL
2	NO	ALL
3	LGK	ALL
4	RB	ALL
5	В	ALL
6	LGN	ALL
7	GR	ALL
8	LGY	ALL
9	GW	ALL
10	Y	ALL

Description: Switch - Hazard warning Location: Beneath front console



AFU3731

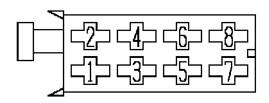
Colour: NATURAL Gender: Female



CavColCct4PALL6RBALL7LGWALL8BALL

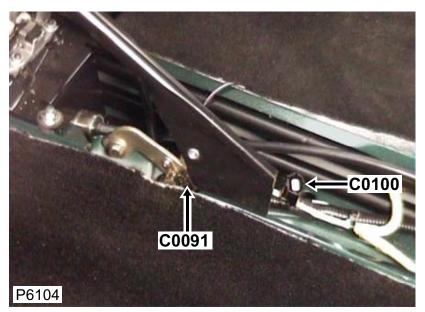
Description: Radio / cassette player

Location: Behind radio



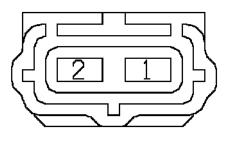
YPC 10 190

Colour: *GREY*Gender: *Female* 

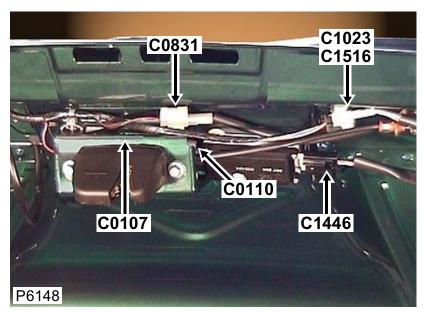


Cav	Col	Cct
1	G	3
2	WY	3

Description: Switch - Seat belt Location: Behind centre console



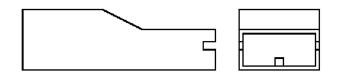
YPC 10069



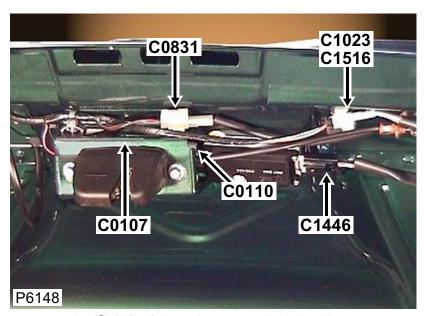
CavColCct1PRALL

Description: Switch - Lamp - Luggage compartment

Location: Boot latch



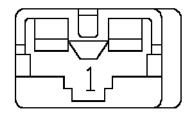
AAU 1010



CavColCct1BALL

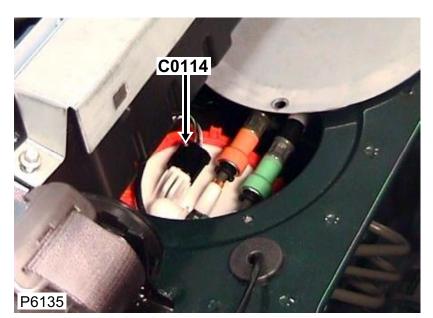
Description: Switch - Lamp - Luggage compartment

Location: Boot latch



AFU4521

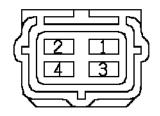
Colour: NATURAL Gender: Female



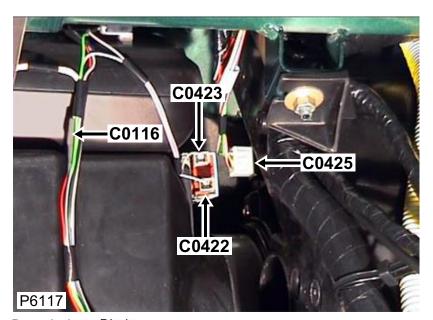
Cav	Col	Cct
1	GB	ALL
2	В	ALL
3	В	ALL
4	WP	ALL

Description: Fuel tank

Location: Parcel shelf - under left hand side



YPC 10065



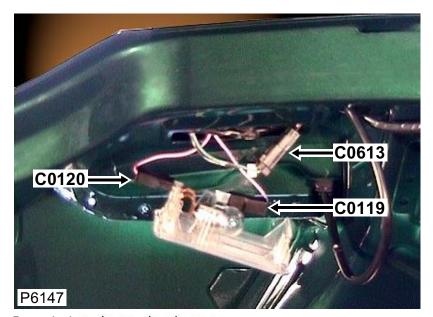
CavColCct1KALL2KALL

Description: Diode

Location: Behind passenger side of fascia

## **NO CONNECTOR FACE**

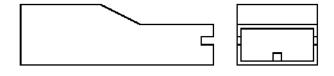
Colour: Gender:



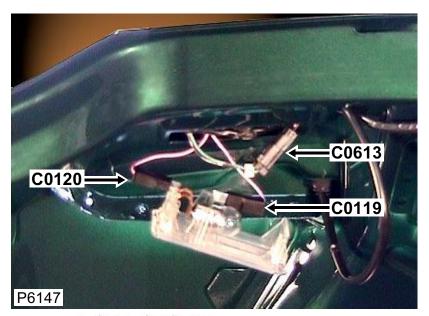
CavColCct1PALL

Description: Lamp - Load space

Location: Behind luggage compartment light



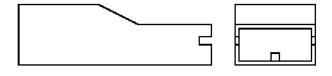
AAU 1010



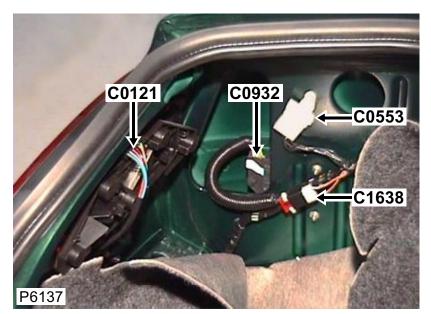
CavColCct1PRALL

Description: Lamp - Load space

Location: Behind luggage compartment light



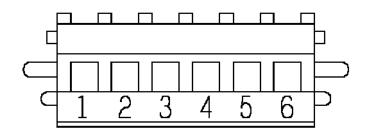
AAU1010



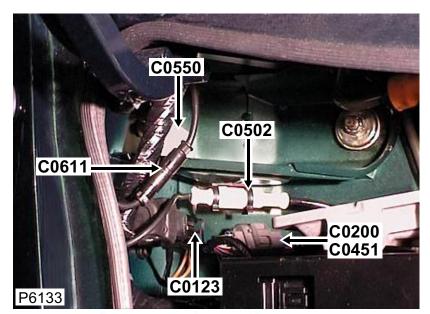
Cav	Col	Cct
1	GN	ALL
2	UY	ALL
3	RB	ALL
4	В	ALL
5	GR	ALL
6	GP	ALL

Description: Lamp - Tail - LH

Location: Behind luggage compartment carpet LH side

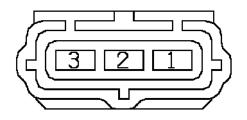


AFU4471

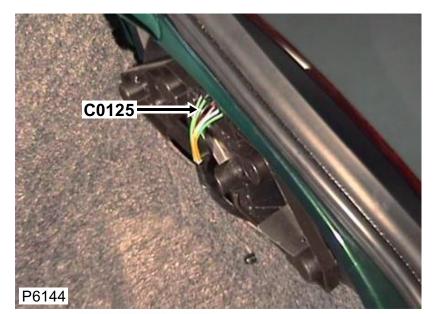


Cav	Col	Cct
1	N	ALL
3	NS	ALL

Description: Switch - Inertia fuel cut-off
Location: LH side of engine compartment



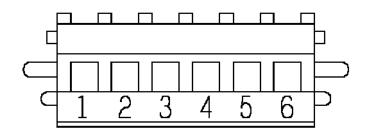
YPC 10068



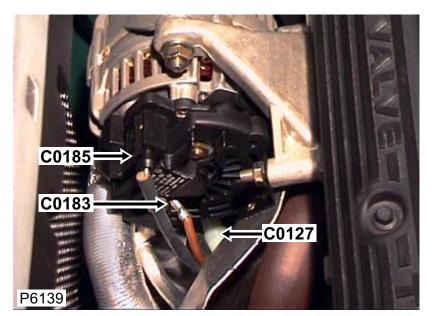
Cav Col Cct 1 GP ALL 2 GW ALL 3 ALL В 4 RO ALL 5 UY ALL 6 GN ALL

Description: Lamp - Tail - RH

Location: Luggage compartment - RH side

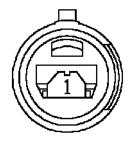


AFU4471



Description: Clutch - Compressor - Air conditioning (A/C) - K1.8

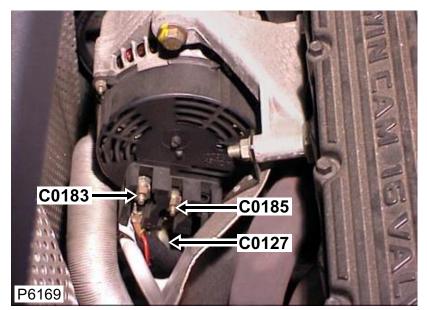
Location: Front RH side of engine



AFU3564

Colour: NATURAL Gender: Female

Cav	Col	Cct
1	R	ALL

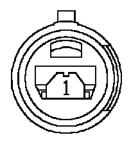


 Cav
 Col
 Cct

 1
 R
 23

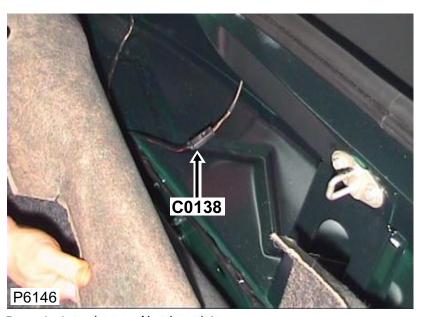
Description: Clutch - Compressor - Air conditioning (A/C) - K1.8 VVC

Location: Front RH side of engine



AFU3564

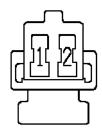
Colour: NATURAL Gender: Female



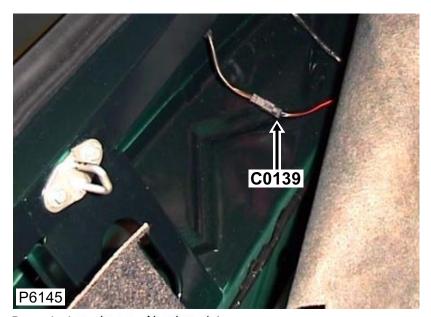
CavColCct1RBALL2BALL

Description: Lamp - Number plate

Location: Behind luggage compartment carpet RH side



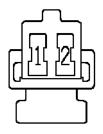
YPC 10225



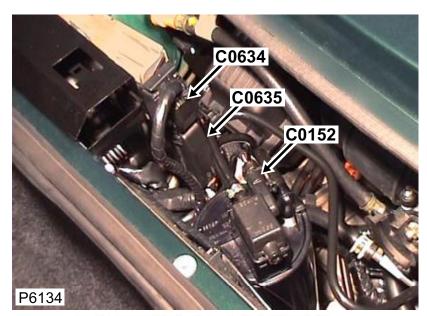
CavColCct1RBALL2BALL

Description: Lamp - Number plate

Location: Behind luggage compartment carpet LH side



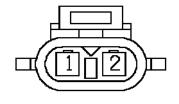
YPC 10225



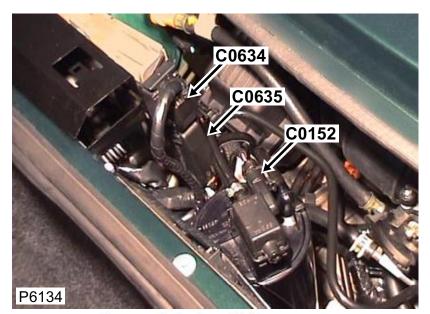
Cav	Col	Cct
1	NK	ALL
2	ВО	ALL

Description: Purge control valve - Automatic gearbox

Location: LH side of engine compartment

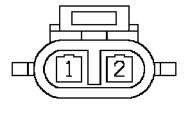


YPC117890

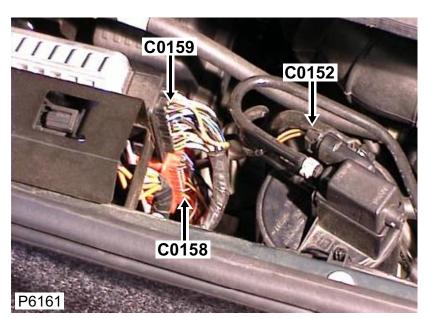


Cav	Col	Cct
1	NK	ALL
2	YO	ALL

Description: *Purge control valve - K1.8*Location: *LH side of engine compartment* 

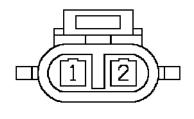


YPC 10568

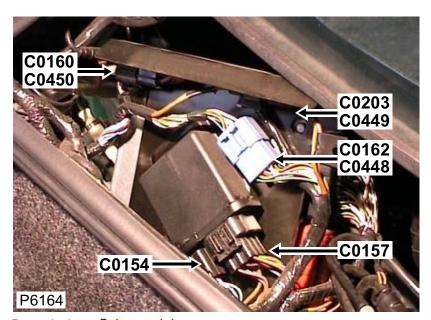


Cav	Col	Cct
1	NK	ALL
2	YO	ALL

Description: *Purge control valve - K1.8 VVC* Location: *LH side of engine compartment* 



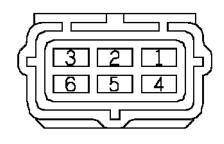
YPC 10568



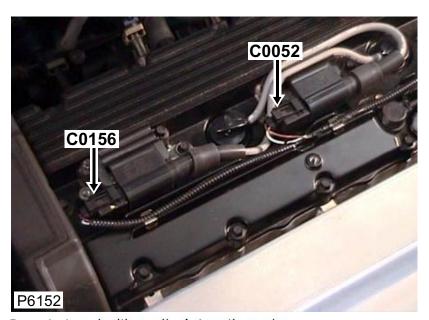
Cav	Col	Cct
1	BP	ALL
2	W	ALL
3	WK	ALL
4	BR	8
4	BW	ALL
5	BG	ALL
6	WR	ALL

Description: Relay module

Location: *LH side of engine compartment* 



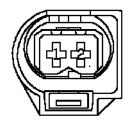
YPC 10064



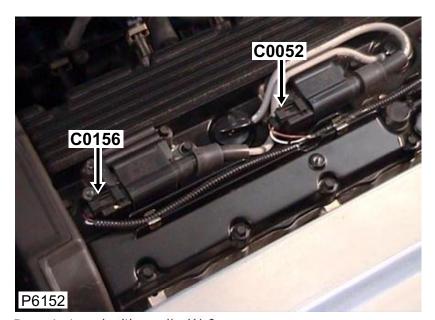
CavColCct1NKALL2WOALL

Description: Ignition coil - Automatic gearbox

Location: Top of engine

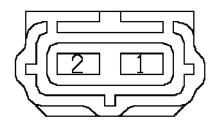


YPC113410

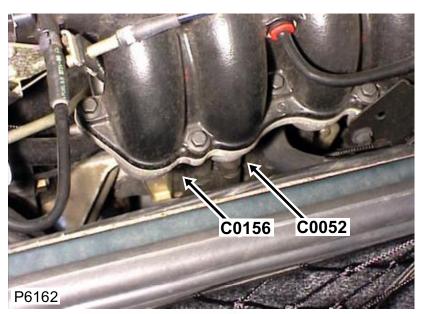


Cav	Col	Cct
1	WB	ALL
2	NK	ALL

Description: *Ignition coil - K1.8* Location: *Top of engine* 

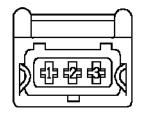


YPC 10070

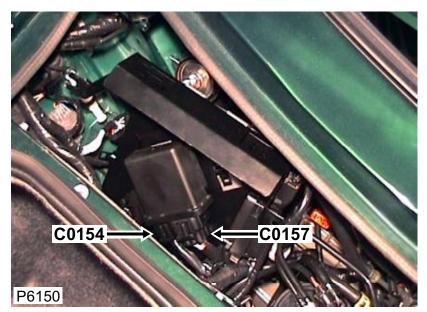


Cav	Col	Cct
1	NK	ALL
2	K	ALL
3	WB	ALL

Description: *Ignition coil - K1.8 VVC*Location: *Front of engine - centre* 



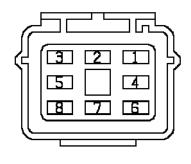
YPC 114930



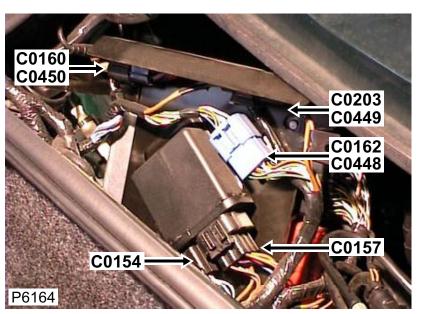
Cav	Col	Cct
1	NS	ALL
3	NK	ALL
4	WP	ALL
5	NR	ALL
6	N	ALL
7	N	ALL
8	NK	ALL

Description: Relay module - K1.8

Location: LH side of engine compartment

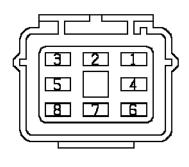


AFU3822

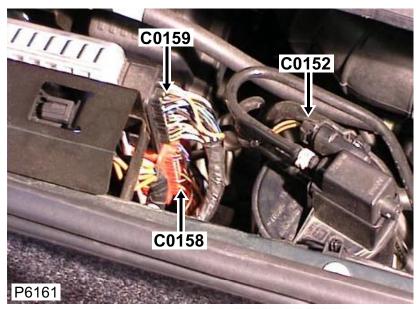


Cav	Col	Cct
1	NS	ALL
2	UR	ALL
3	NK	ALL
4	WP	ALL
5	NR	ALL
6	N	ALL
7	N	ALL
8	NK	ALL

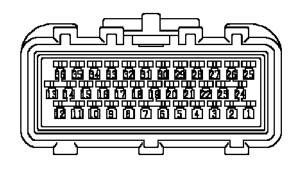
Description: *Relay module - K1.8 VVC*Location: *LH side of engine compartment* 



AFU3822



Description: *Engine control module (ECM) - K1.8 VVC*Location: *Front LH side of engine compartment* 



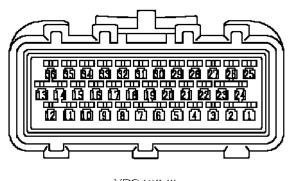
YPC 10530

Colour: *RED*Gender: *Female* 

Cav	Col	Cct
1	RY	21
2	BU	21
9	WB	21
10	OG	21
12	YN	21
13	YR	21
14	YW	21
15	OU	21
16	В	21
17	YO	21
23	В	21
24	В	21
25	UP	21
26	WU	21
27	S	21
28	LGS	21
31	K	21
32	NB	21
33	KU	21
34	OS	21
35	YB	21

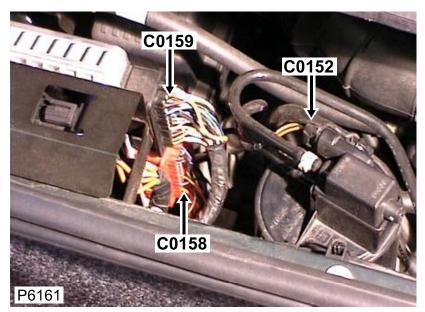
## **NO PHOTO LOCATION**

Description: *Engine control module (ECM) - K1.8*Location: *Front LH side of engine compartment* 

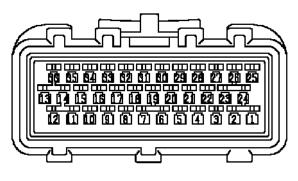


YPC 10073

Cav	Col	Cct
2	KU	ALL
3	OS	ALL
4	WK	ALL
5	UY	19
6	US	ALL
7	S	ALL
8	YG	ALL
9	YP	ALL
10	K	ALL
11	W	ALL
12	WB	ALL
13	YR	ALL
15	UG	19
16	GB	ALL
17	GR	ALL
18	LGS	ALL
19	UB	19
20	BP	ALL
21	YO	ALL
22	OG	ALL
23	YR	ALL
24	YN	ALL
25	WB	ALL
26	NB	ALL
27	OU	ALL
28	NK	ALL
29	В	ALL
30	KB	ALL
31	UP	ALL
32	WU	ALL
33	KG	ALL
34	SW	ALL
35	UR	19
36	BG	ALL

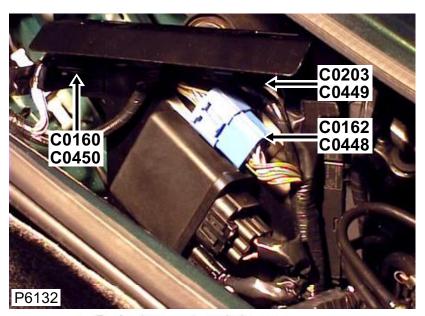


Description: *Engine control module (ECM) - K1.8 VVC*Location: *Front LH side of engine compartment* 



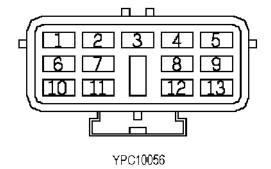
YPC 10073

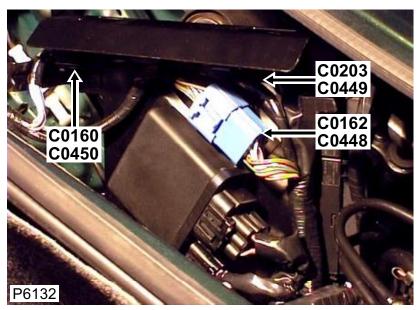
Cav	Col	Cct
2	BN	ALL
4	UY	22
8	YP	ALL
9	UR	22
10	GO	ALL
11	SW	ALL
12	YG	ALL
13	KB	ALL
14	GB	ALL
15	KG	ALL
17	YR	ALL
18	YP	ALL
19	UG	22
20	BG	ALL
21	В	ALL
22	WK	ALL
23	BY	ALL
25	WB	ALL
26	WB	ALL
27	NK	ALL
28	US	ALL
29	UB	22
30	BP	ALL
31	GR	ALL
33	W	ALL
36	RG	ALL



Description: *Engine harness to main harness*Location: *LH side of engine compartment* 

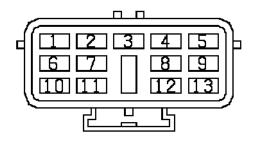
Cav	Col	Cct
1	UY	ALL
2	WP	ALL
3	UR	ALL
4	UB	ALL
5	R	ALL
6	UG	ALL
7	NU	ALL
8	WN	ALL
9	K	ALL
10	KB	ALL
11	SW	ALL
12	WO	ALL





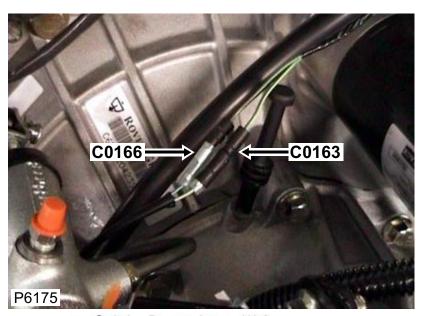
Description: *Engine harness to main harness* Location: *LH side of engine compartment* 

Cav	Col	Cct
1	W	ALL
2	WB	ALL
3	WR	ALL
4	NS	ALL
5	GY	ALL
6	GN	ALL
7	NY	ALL
8	NB	ALL
9	GU	ALL
10	BW	ALL
11	YR	ALL
12	GR	ALL
13	US	ALL
13	Y	16



YPC 10277

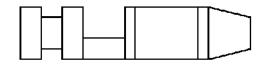
Colour: BLUE Gender: Male



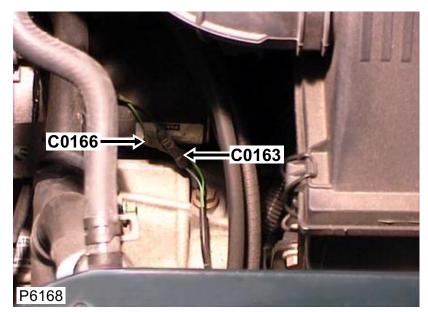
CavColCct1GNALL

Description: Switch - Reverse lamp - K1.8

Location: Above gearbox



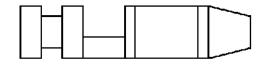
AFU3630



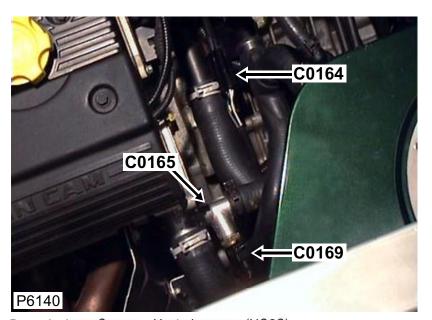
CavColCct1GNALL

Description: Switch - Reverse lamp - K1.8 VVC

Location: Above gearbox



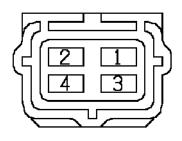
AFU3630



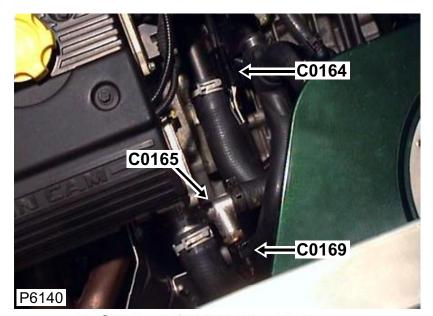
Cav	Col	Cct
1	GY	8
1	S	ALL
2	GN	8
2	LGS	ALL
3	BU	8
3	В	ALL
4	NK	8
4	UR	20

Description: Sensor - Heated oxygen (HO2S)

Location: *Top of engine* 



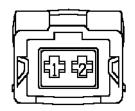
YPC 10066



CavColCct1GUALL

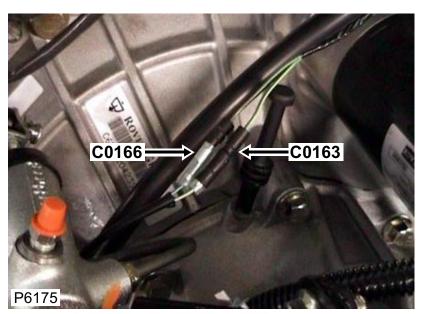
Description: Sensor - coolant temperature gauge

Location: *Top of engine* 



YPC 107800

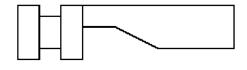
Colour: BLUE Gender: Female



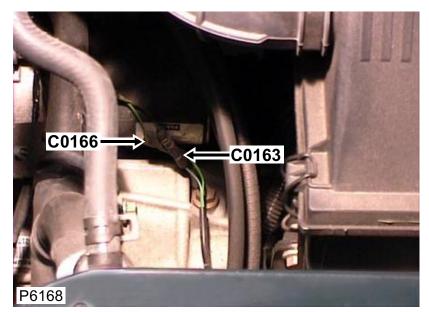
CavColCct1GYALL

Description: Switch - Reverse lamp - K1.8

Location: Above gearbox



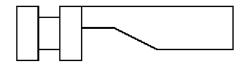
AFU3629



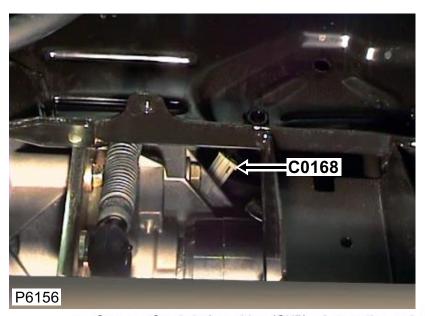
CavColCct1GYALL

Description: Switch - Reverse lamp - K1.8 VVC

Location: Above gearbox



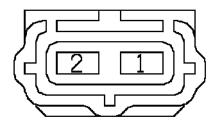
AFU3629



Cav	Col	Cct
1	WU	ALL
2	UP	ALL

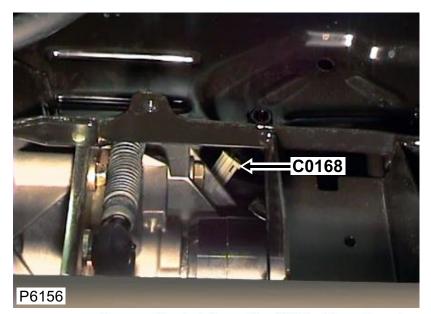
Description: Sensor - Crankshaft position (CKP) - Automatic gearbox

Location: Lower rear of engine - LH side



YPC 10187

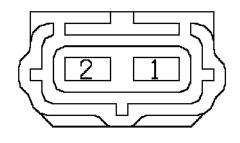
Colour: WHITE Gender: Female



CavColCct1WUALL2UPALL

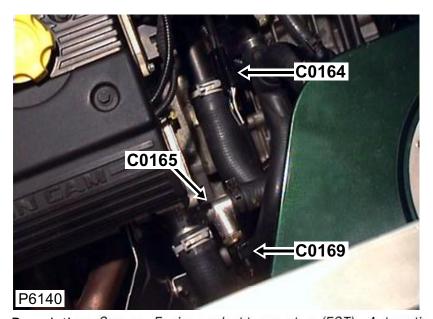
Description: Sensor - Crankshaft position (CKP) - Manual gearbox

Location: Lower rear of engine - LH side



YPC 10208

Colour: BLUE Gender: Female

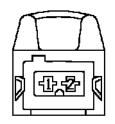


CavColCct1KBALL2KGALL

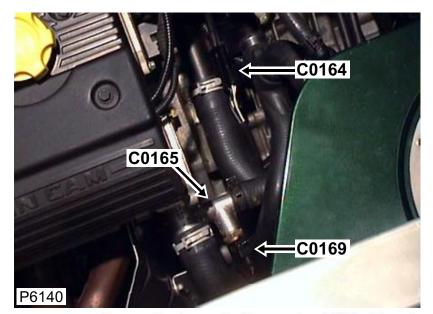
Description: Sensor - Engine coolant temperature (ECT) - Automatic

gearbox

Location: *Top of engine* 



YPC114920

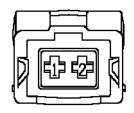


CavColCct1KBALL2KGALL

Description: Sensor - Engine coolant temperature (ECT) - Manual

gearbox

Location: *Top of engine* 



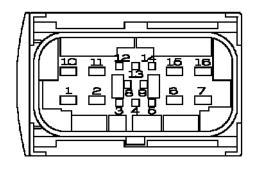
YPC 107780

Colour: *BROWN*Gender: *Female* 



Description: Engine harness to injector harness - Automatic gearbox Location: Below throttle housing, LH side of engine

Cav	Col	Cct
1	NK	ALL
2	YU	ALL
6	YG	ALL
7	YR	ALL
8	KB	ALL
9	YW	ALL
10	YN	ALL
11	NK	ALL
12	YP	ALL
13	RG	ALL
15	WB	ALL
16	WO	ALL



YPC 116590



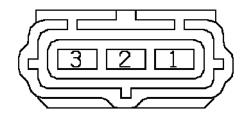
 Cav
 Col
 Cct

 1
 NK
 ALL

 2
 YN
 ALL

 3
 YR
 ALL

Description: *Engine harness to injector harness - K1.8* Location: *Below throttle housing, LH side of engine* 

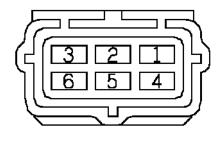


YPC 10068

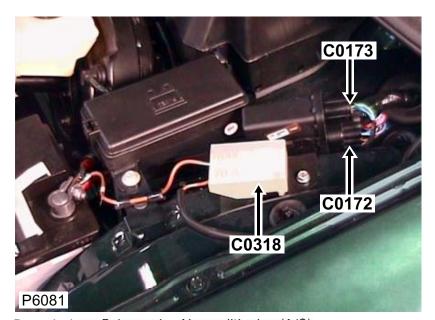


Cav	Col	Cct
1	NK	ALL
2	YB	ALL
3	YW	ALL
4	YR	ALL
5	YN	ALL

Description: *Engine harness to injector harness - K1.8 VVC*Location: *Below throttle housing, LH side of engine* 



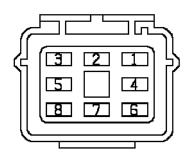
YPC 10064



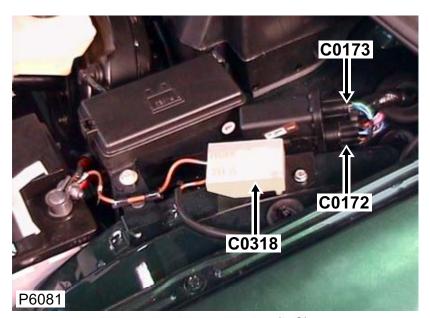
Cav	Col	Cct
2	R	2
3	SU	2
4	В	2
5	PS	2
6	US	2
7	N	2
8	NW	2

Description: Relay pack - Air conditioning (A/C)

Location: Under bonnet, LH side



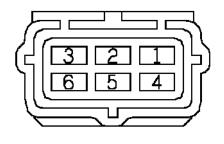
AFU3822



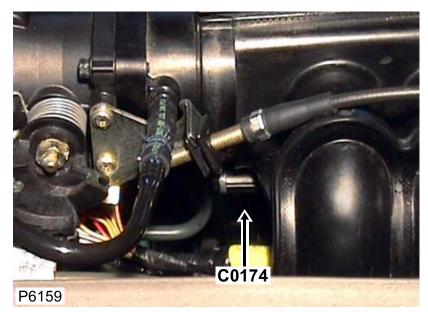
Cav	Col	Cct
1	LGS	2
2	US	2
3	UY	2
4	LGS	2
5	UB	2

Description: Relay pack - Air conditioning (A/C)

Location: Under bonnet, LH side

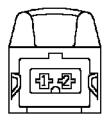


YPC 10064



Cav	Col	Cct
1	KB	ALL
2	YW	8
2	GB	ALL

Description: Sensor - Inlet air temperature (IAT)
Location: Below throttle housing, LH side of engine



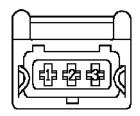
YPC 114900



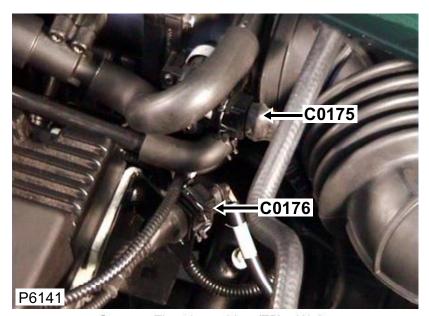
CavColCct1KPALL2GYALL3KBALL

Description: Sensor - Throttle position (TP) - Automatic gearbox

Location: Top of engine



YPC 114930



 Cav
 Col
 Cct

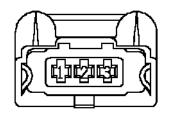
 1
 YP
 ALL

 2
 YG
 ALL

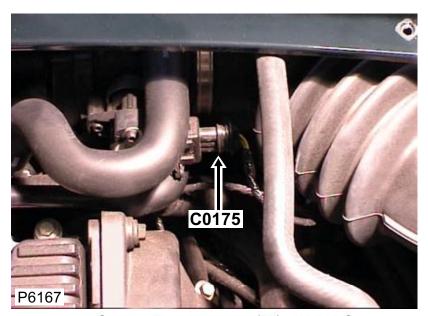
 3
 KB
 ALL

Description: Sensor - Throttle position (TP) - K1.8

Location: Top of engine



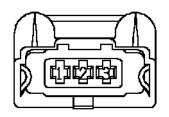
YPC 107900



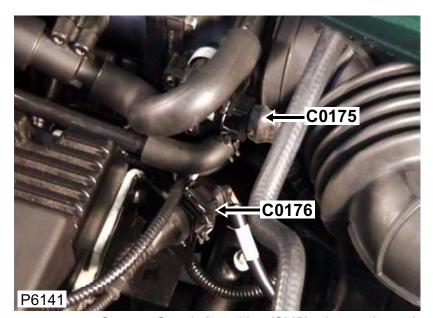
CavColCct1YPALL2YGALL3KBALL

Description: Sensor - Throttle position (TP) - K1.8 VVC

Location: Top of engine - LH side



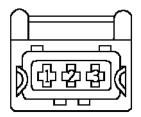
YPC 107900



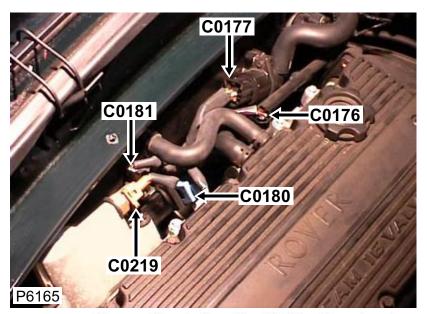
CavColCct1NKALL2YPALL3BSALL

Description: Sensor - Camshaft position (CMP) - Automatic gearbox

Location: Top of engine



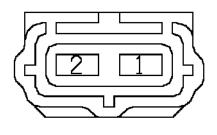
YPC 114950



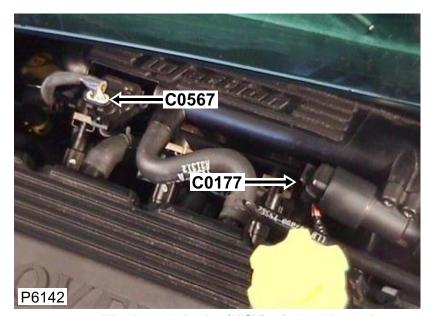
Cav	Col	Cct
1	BU	ALL
2	RY	ALL

Description: Sensor - Camshaft position (CMP) - Manual gearbox

Location: Top of engine



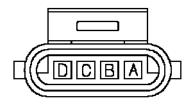
YPC 10070



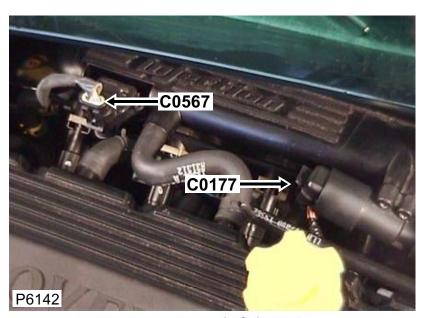
CavColCct1KUALL2OGALL3OSALL4OUALL

Description: Idle air control valve (IACV) - Automatic gearbox

Location: Top of engine



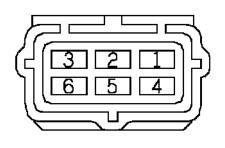
YPC117430



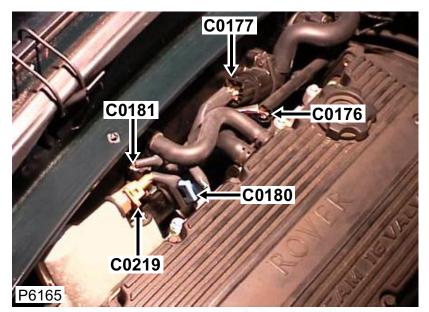
Cav	Col	Cct
1	OS	ALL
2	NK	ALL
3	KU	ALL
4	OU	ALL
6	OG	ALL

Description: Idle air control valve (IACV) - K1.8

Location: *Top of engine* 



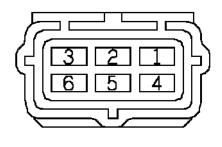
YPC 10064



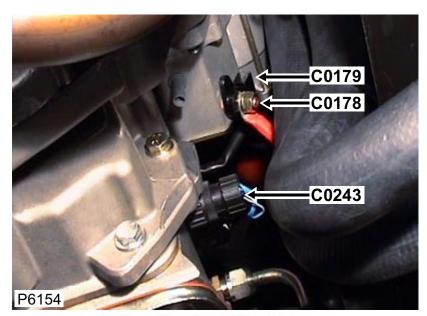
Cct Cav Col OS ALL 1 2 NK ALL ALL 3 KU 4 ALL OU OG ALL 6

Description: Idle air control valve (IACV) - K1.8 VVC

Location: Top of engine

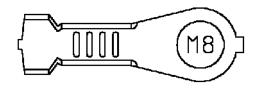


YPC 10064



Description: Starter motor - Automatic gearbox

Location: Above gearbox

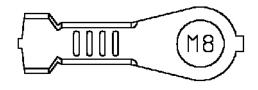


YPG 10016

Colour: *TIN-PLATE* Gender: *Eyelet* 

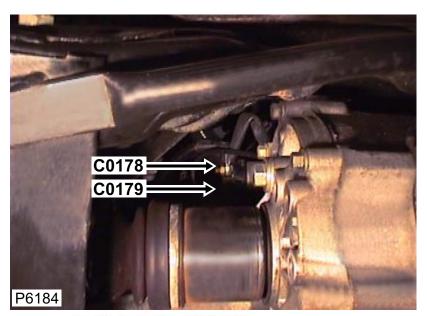


Description: *Starter motor - K1.8* Location: *Above gearbox* 



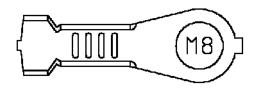
YPG 10016

Colour: TIN-PLATE Gender: Eyelet



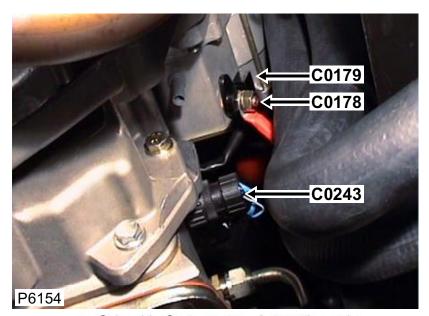
Description: Starter motor - K1.8 VVC

Location: Above gearbox



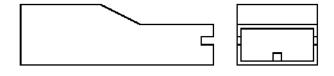
YPG 10016

Colour: TIN-PLATE Gender: Eyelet



Description: Solenoid - Starter motor - Automatic gearbox

Location: Above gearbox

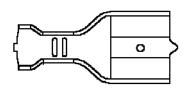


AAU 1010



Description: Solenoid - Starter motor - K1.8

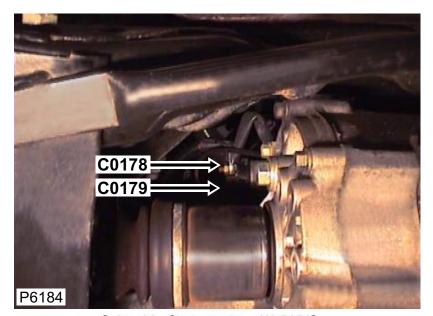
Location: Above gearbox



YPL101320

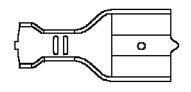
Colour: BRASS, TIN-PLATED

Gender: Female



Description: Solenoid - Starter motor - K1.8 VVC

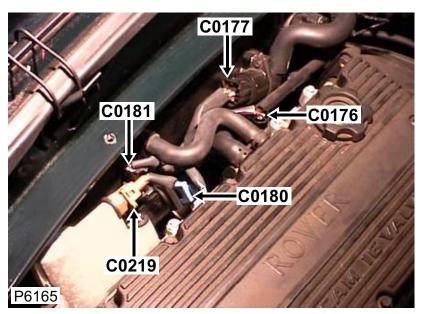
Location: Above gearbox



YPL101320

Colour: BRASS, TIN-PLATED

Gender: Female



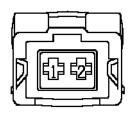
 Cav
 Col
 Cct

 1
 BN
 21

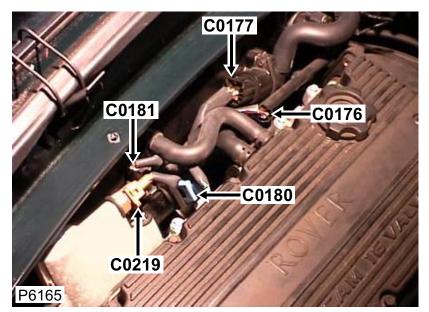
 2
 NK
 21

Description: Solenoid - Valve - Increase - K1.8 VVC

Location: Top of engine



YPC 107800



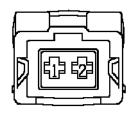
 Cav
 Col
 Cct

 1
 BY
 21

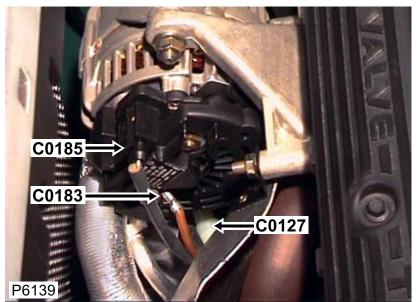
 2
 NK
 21

Description: Solenoid - Valve - Decrease - K1.8 VVC

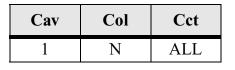
Location: Top of engine

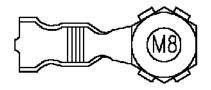


YPC 107790

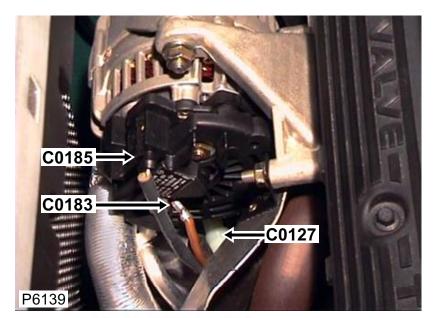


Description: Power - Alternator - Automatic gearbox Location: Behind RH front door trim panel



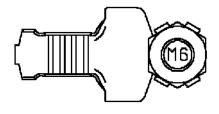


YPG 100700

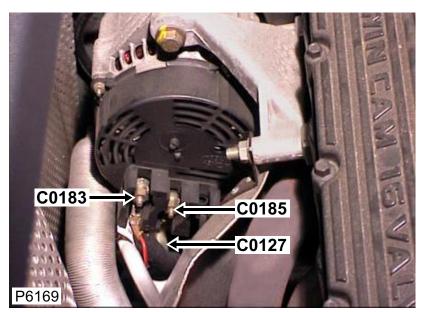


Description: Power - Alternator - K1.8

Location: Behind RH front door trim panel

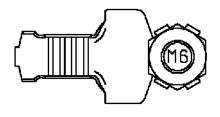


YPG 10042

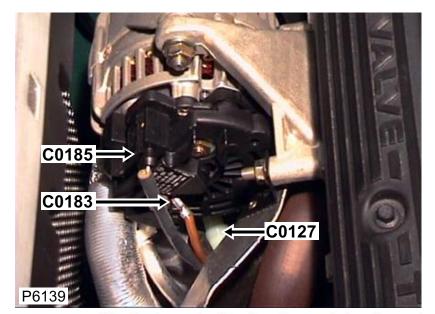


Cav	Col	Cct
1	N	ALL

Description: *Power - Alternator - K1.8 VVC*Location: *Behind RH front door trim panel* 



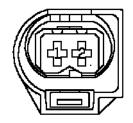
YPG 10042



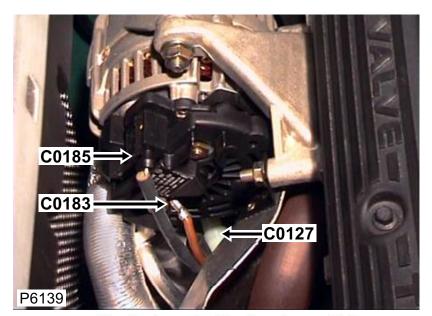
CavColCct1NYALL2WRALL

Description: Warning lamp - Ignition / no charge - Automatic gearbox

Location: Behind RH front door trim panel

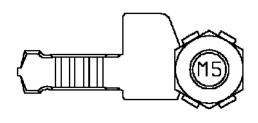


YPC113410

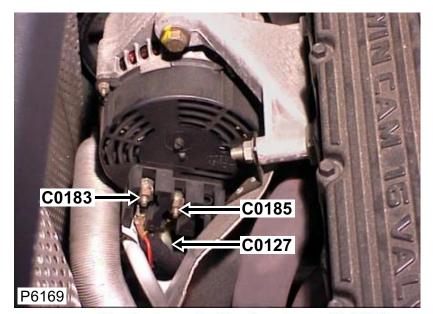


Description: Warning lamp - Ignition / no charge - K1.8

Location: Behind RH front door trim panel

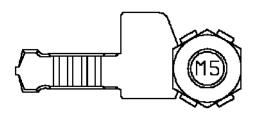


YPG 10044



Description: Warning lamp - Ignition / no charge - K1.8 VVC

Location: Behind RH front door trim panel



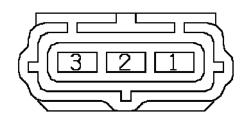
YPG 10044



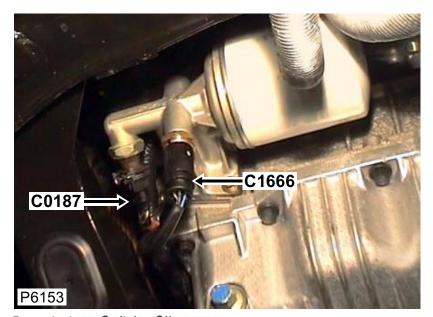
Cav	Col	Cct
1	KB	21
2	RG	21
3	YP	21

Description: Sensor - Manifold Absolute Pressure (MAP)

Location: Top of engine - RH side

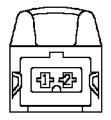


YPC 10068

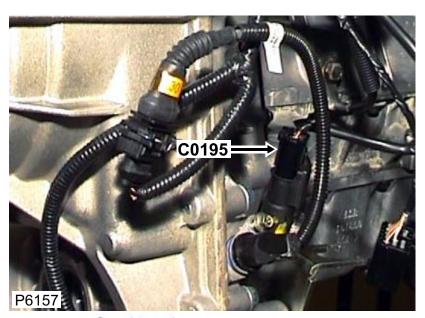


CavColCct1WNALL

Description: Switch - Oil pressure Location: Bottom of engine - RH side



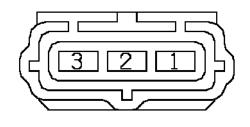
YPC 114900



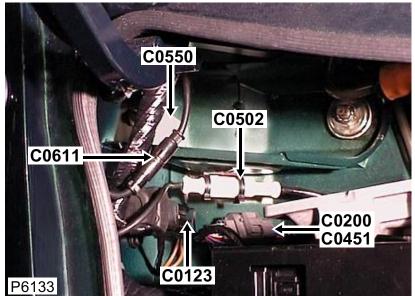
Cav	Col	Cct
1	NK	ALL
2	В	ALL
3	WO	ALL

Description: Speed transducer

Location: Lower rear of engine - LH side



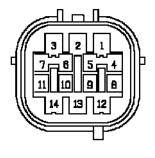
YPC 10068



Description: Engine harness to main harness - Automatic gearbox

LH side of engine compartment

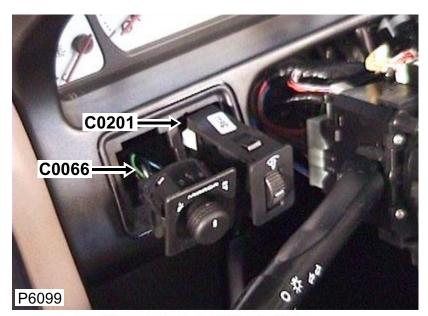
Cav	Col	Cct
1	WG	8
2	SB	8
4	BR	8
5	PW	8
6	NK	8
8	US	8
9	UY	8
10	OW	8
11	UR	8
12	UW	8



YPC 10469

Colour: *GREY* Gender: *Male* 

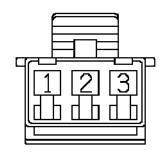
Location:



Cav	Col	Cct
1	RW	ALL
2	В	ALL
3	RB	ALL

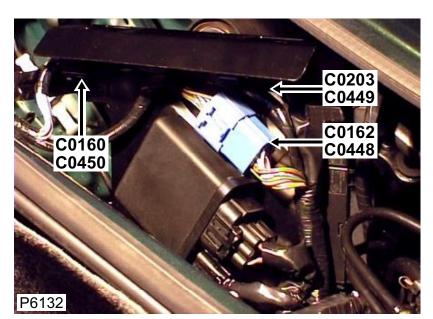
Description: Dimmer - Instrument illumination

Location: Adjacent steering column



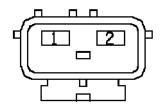
AFU3760

Colour: NATURAL Gender: Female

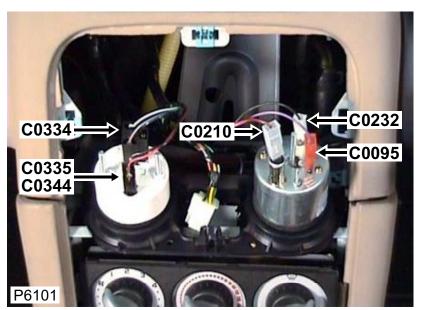


Cav	Col	Cct
1	N	ALL
2	N	ALL

Description: *Engine harness to main harness* Location: *LH side of engine compartment* 

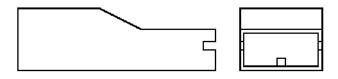


AFU3814



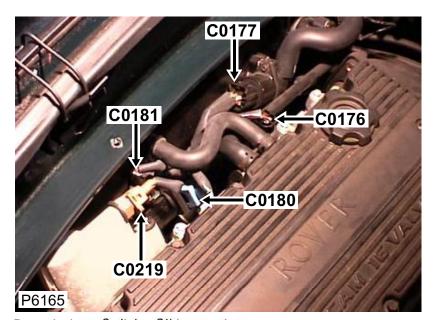
Cav	Col	Cct
1	RB	ALL

Description: Clock - Analogue Location: Beneath front console



ADU8339

Colour: NATURAL Gender: Female



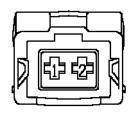
 Cav
 Col
 Cct

 1
 KB
 21

 2
 GO
 21

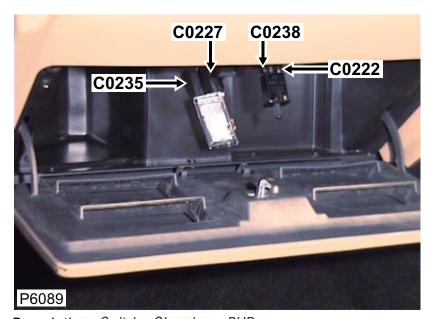
Description: Switch - Oil temperature

Location: *Top of engine* 



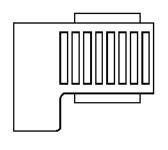
YPC 107780

Colour: BROWN Gender: Female

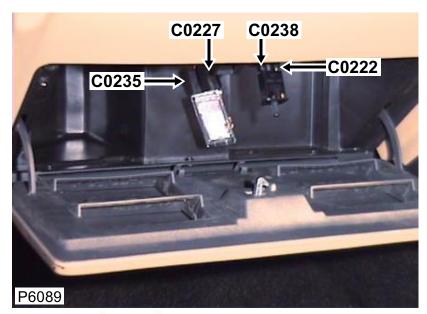


Description: Switch - Glove box - RHD

Location: Glovebox - inside

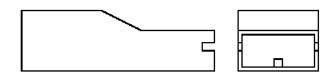


YPC 10510

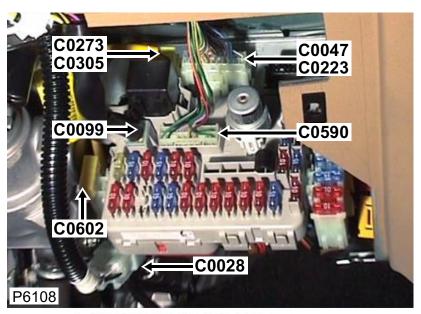


Description: Switch - Glove box - LHD

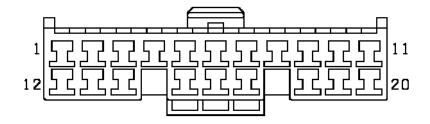
Location: Glovebox - inside



AAU 1010



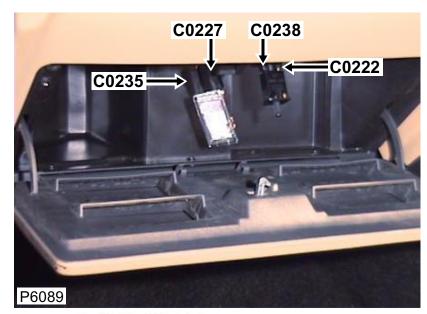
Description: Fascia harness to main harness Location: Behind driver side of fascia



YPC 10022

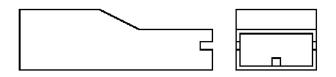
Colour: NATURAL Gender: Female

Cav	Col	Cct
1	UY	ALL
2	WB	ALL
3	LGY	ALL
4	WN	ALL
5	NO	ALL
6	GU	ALL
7	UR	ALL
8	GB	ALL
9	UK	ALL
10	UG	ALL
11	BR	14
12	UO	ALL
13	KU	ALL
14	GR	ALL
15	WO	ALL
16	OP	ALL
17	NU	ALL
18	WO	ALL
19	PR	ALL
20	WG	8

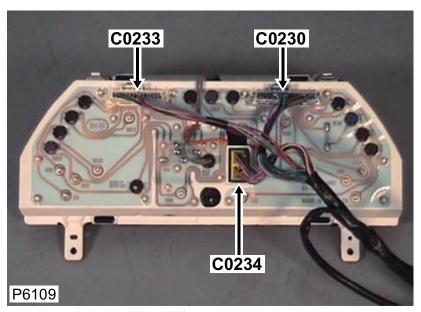


Cav	Col	Cct
1	RB	ALL

Description: Lamp - Glove box Location: Glovebox - inside



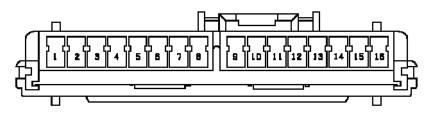
AAU 1010



Cav	Col	Cct
1	GU	ALL
2	WN	ALL
5	NY	ALL
6	UO	ALL
7	G	ALL
9	В	ALL
11	WB	ALL
15	UG	ALL
16	GR	ALL

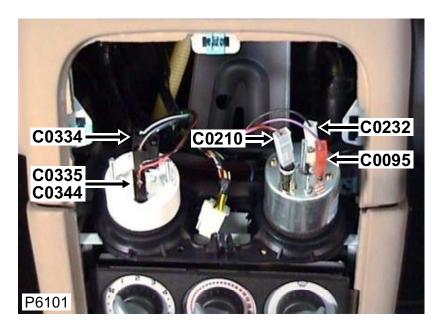
Description: Instrument Pack

Location: Behind instrument pack

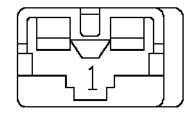


YPC 107670

Colour: LIGHT GREY
Gender: Female

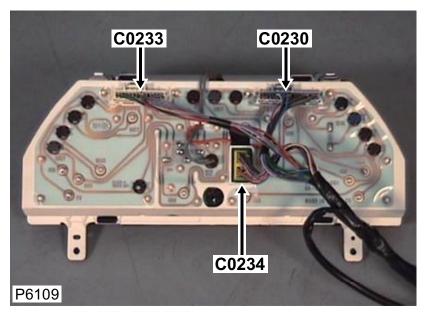


Description: *Clock - Analogue*Location: *Beneath front console* 



AFU4521

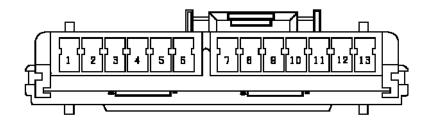
Colour: NATURAL Gender: Female



Cav	Col	Cct
1	GW	ALL
3	RW	ALL
4	RB	ALL
6	UY	ALL
7	NO	ALL
11	LGY	ALL
12	BW	ALL
13	GB	ALL

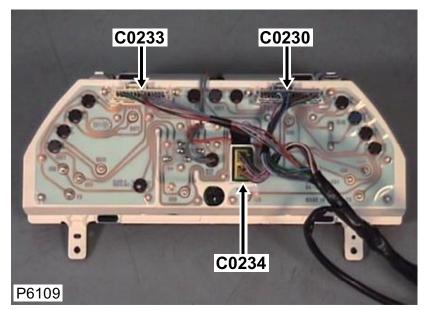
Description: Instrument Pack

Location: Behind instrument pack



YPC 107660

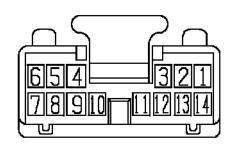
Colour: WHITE Gender: Female



Cav	Col	Cct
1	WG	8
2	WO	ALL
5	UK	ALL
7	UR	ALL
8	OP	ALL
9	NU	ALL
10	BR	14
11	KU	ALL
12	GR	ALL
13	PR	ALL

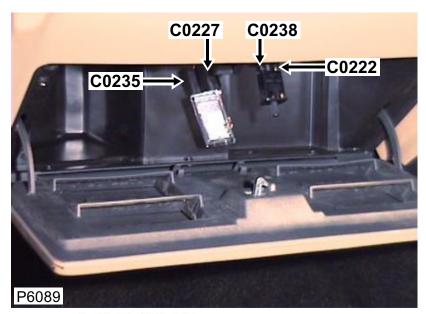
Description: Instrument Pack

Location: Behind instrument pack



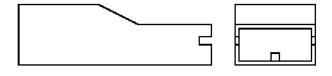
YPC 10119

Colour: *YELLOW* Gender: *Female* 

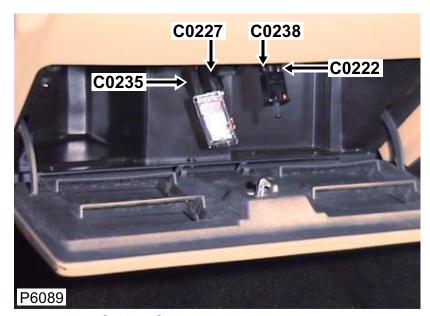


CavColCct1BYALL

Description: Lamp - Glove box Location: Glovebox - inside



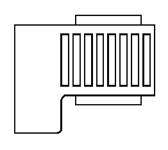
AAU1010



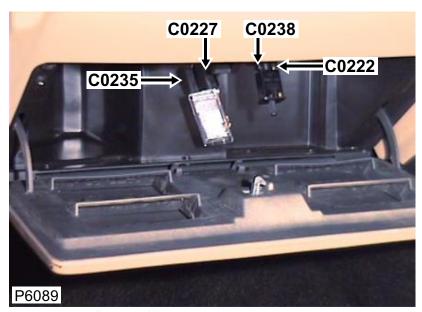
CavColCct1BYALL

Description: Switch - Glove box - RHD

Location: Glovebox - inside



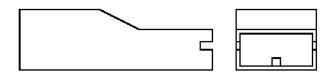
YPC 10510



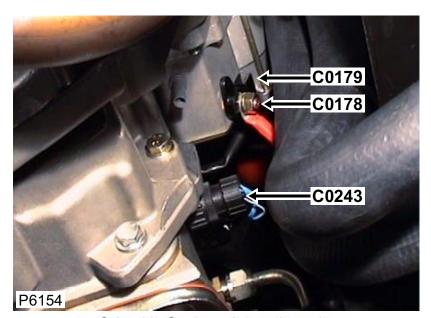
CavColCct1BYALL

Description: Switch - Glove box - LHD

Location: Glovebox - inside



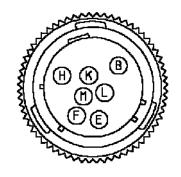
AAU1010



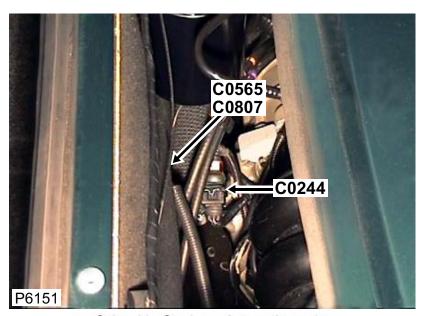
Cav	Col	Cct
В	UW	8
Е	US	8
F	UY	8
Н	UR	8

Description: Solenoid - Gearbox - Automatic gearbox

Location: Front LH side of engine



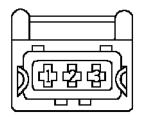
YPC115800



Cav	Col	Cct
1	NK	8
2	K	8
3	В	8

Description: Solenoid - Gearbox - Automatic gearbox

Location: Rear of engine compartment



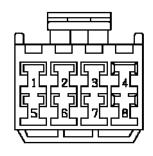
YPC 114950



Cav	Col	Cct
1	RB	8
2	В	8
3	G	8
4	NW	8
5	NR	8
6	NB	8
7	NY	8
8	NG	8

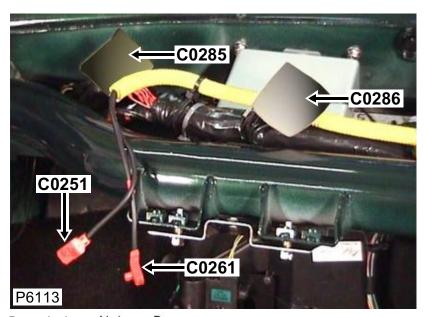
Description: General illumination - Automatic gearbox

Location: Behind gear lever gaiter



AFU3574

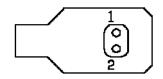
Colour: NATURAL Gender: Female



CavColCct1NALL2UALL

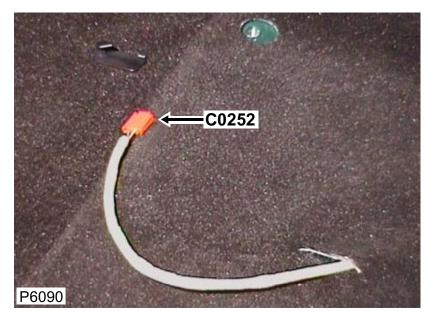
Description: Air bag - Passenger

Location: Behind passenger side of fascia



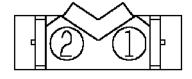
YPC 106920

Colour: RED Gender: Female



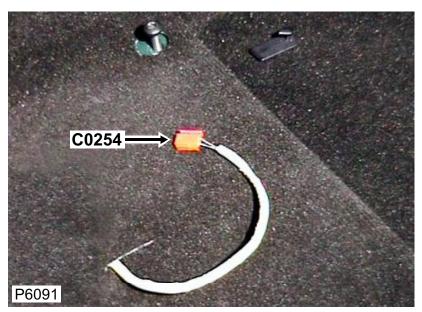
Cav	Col	Cct
1	О	ALL
2	OU	ALL

Description: *Pre-tensioner - LH* Location: *Beneath LH seat* 



YPC 10274

Colour: RED Gender: Female



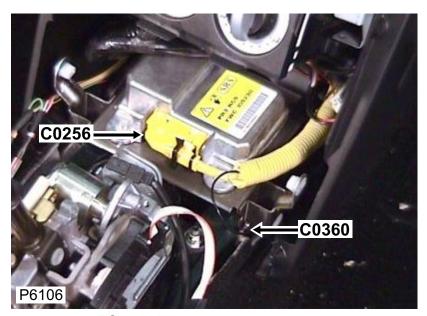
Cav	Col	Cct
1	N	ALL
2	NR	ALL

Description: *Pre-tensioner - RH*Location: *Beneath RH seat* 



YPC 10274

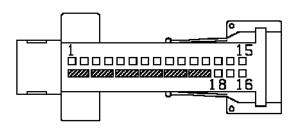
Colour: RED Gender: Female



Description: DCU - Airbag

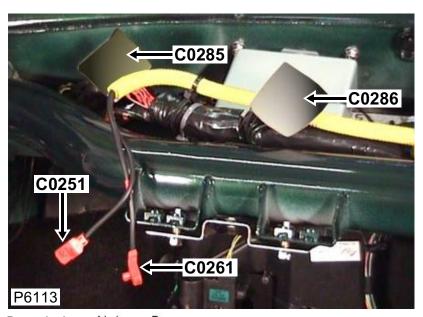
Location: Behind centre console

Cav	Col	Cct
1	В	ALL
2	OP	ALL
3	О	ALL
4	OU	ALL
5	N	ALL
6	NR	ALL
7	N	ALL
8	U	ALL
9	N	ALL
10	U	ALL
11	Y	ALL
12	R	ALL
14	YK	ALL
15	G	ALL



YPC 107520

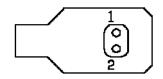
Colour: *YELLOW* Gender: *Female* 



CavColCct1NALL2UALL

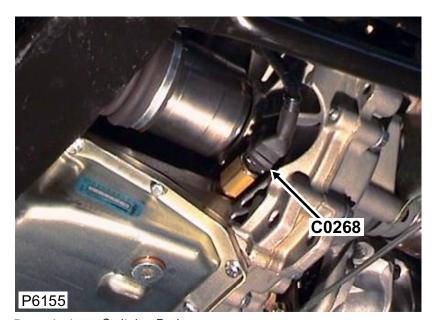
Description: Air bag - Passenger

Location: Behind passenger side of fascia



YPC 106920

Colour: *RED*Gender: *Female* 



 Cav
 Col
 Cct

 1
 BR
 8

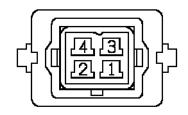
 2
 GY
 8

 3
 BW
 8

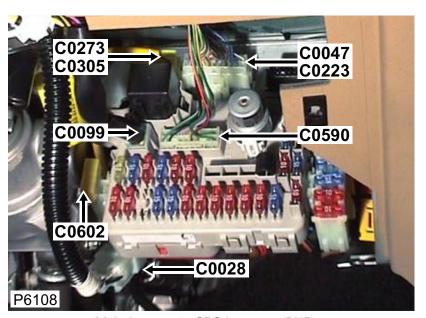
 4
 GN
 8

Description: Switch - Park

Location: Lower rear of engine - LH side



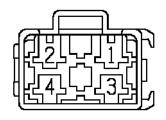
YPC 10259



Cav	Col	Cct
1	W	ALL
2	OP	ALL
3	YK	ALL

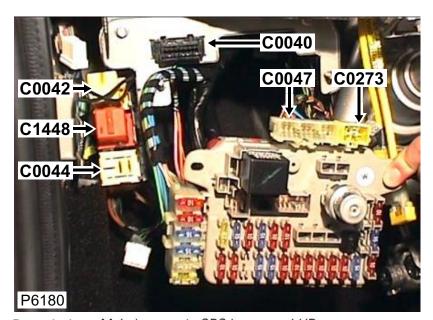
Description: Main harness to SRS harness - RHD

Location: Behind driver side of fascia



YPC 106430

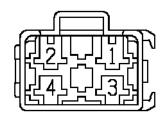
Colour: YELLOW Gender: Male



Cav	Col	Cct
1	W	ALL
2	OP	ALL
3	YK	ALL

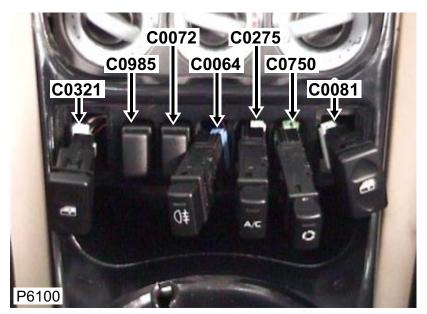
Description: Main harness to SRS harness - LHD

Location: Behind driver side of fascia



YPC 106430

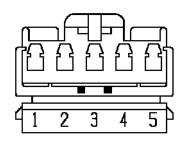
Colour: YELLOW
Gender: Male



Cav	Col	Cct
1	SW	ALL
2	В	ALL
3	RB	ALL
4	SK	ALL
5	LGS	ALL

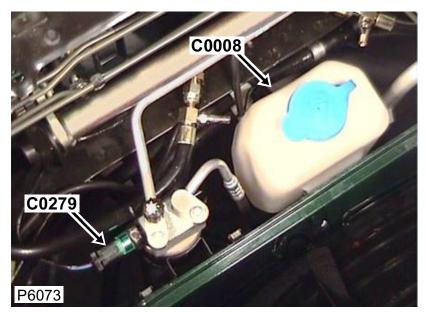
Description: Switch pack - Air conditioning (A/C)

Location: Beneath front console



YPC10524

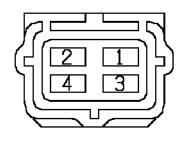
Colour: WHITE Gender: Female



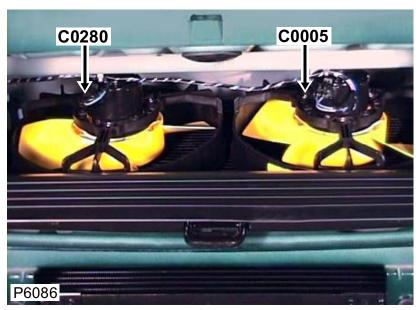
Cav	Col	Cct
1	SK	2
2	UR	2
3	В	2
4	UG	2

Description: Switch - Trinary

Location: Under bonnet behind closing panel - centre



YPC 10066

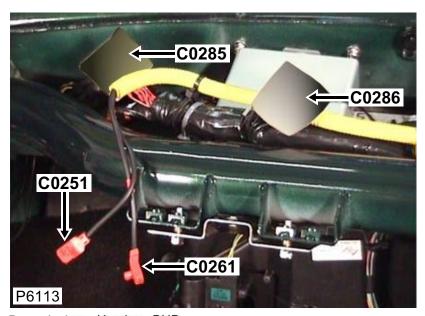


Cav	Col	Cct
1	В	2
2	SU	2

Description: Fan - Condenser Location: Behind radiator

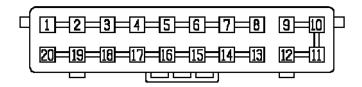


AFU3306



Description: Header - RHD

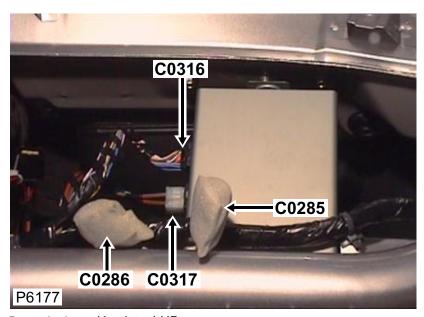
Location: Behind LH side of fascia



YQC10002

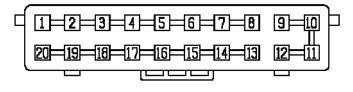
Colour: *GREY*Gender: *Female* 

Cav	Col	Cct
1	RB	ALL
2	RB	ALL
3	RB	ALL
4	RB	ALL
5	RB	ALL
6	RB	ALL
7	RB	ALL
8	RB	ALL
9	BR	ALL
10	BR	ALL
12	BR	ALL
13	RB	8
14	RB	ALL
15	RB	ALL
16	RB	ALL
17	RB	ALL
18	RB	ALL
19	RB	ALL
20	RB	ALL



Description: Header - LHD

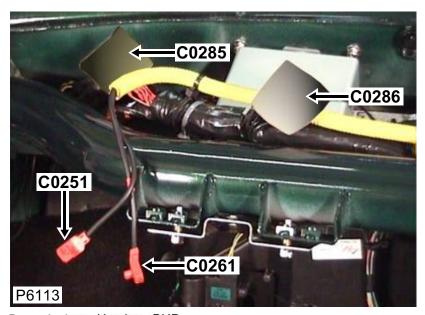
Location: Behind RH side of fascia



YQC10002

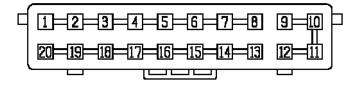
Colour: *GREY* Gender: *Female* 

Cav	Col	Cct
1	RB	ALL
2	RB	ALL
3	RB	ALL
4	RB	12
5	RB	ALL
6	RB	ALL
7	RB	ALL
8	RB	ALL
9	BR	ALL
11	BR	ALL
12	BR	ALL
13	RB	8
14	RB	ALL
15	RB	ALL
16	RB	ALL
17	RB	ALL
18	RB	ALL
19	RB	ALL
20	RB	ALL



Description: Header - RHD

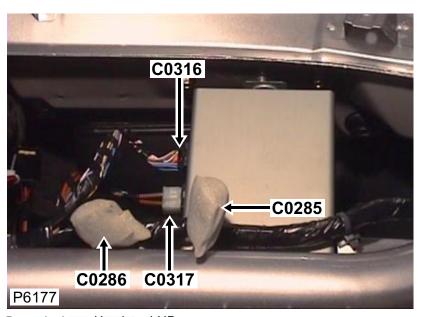
Location: Behind LH side of fascia



YQC10002

Colour: *GREY*Gender: *Female* 

Cav	Col	Cct
1	В	ALL
2	В	ALL
3	В	ALL
4	В	ALL
5	В	ALL
6	В	ALL
8	В	ALL
9	BG	ALL
10	BG	ALL
11	BG	ALL
13	В	ALL
14	В	ALL
15	В	ALL
16	В	ALL
17	В	ALL
18	В	ALL
19	В	ALL
20	В	ALL



Description: Header - LHD

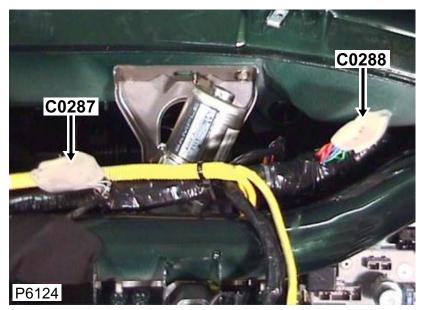
Location: Behind RH side of fascia

Ц	1 2 3 4 5 6 7 8	- <del>  Qp=</del> = 0
	20-19-18-17-16-15-14-13	<u>12</u> ⊨11
,		

YQC10002

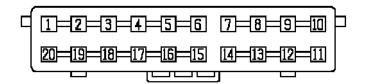
Colour: GREY
Gender: Female

Cav	Col	Cct
1	В	ALL
2	В	ALL
3	В	ALL
4	В	ALL
5	В	ALL
6	В	ALL
8	В	ALL
9	BG	ALL
10	BG	ALL
11	BG	ALL
13	В	ALL
14	В	ALL
15	В	ALL
16	В	ALL
18	В	ALL
19	В	ALL
20	В	ALL



Description: Header - RHD

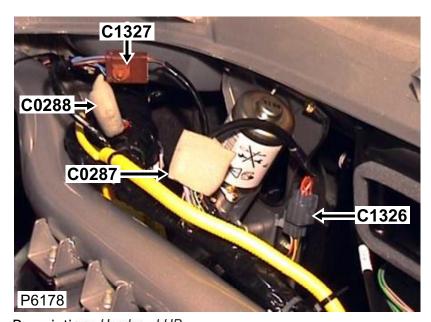
Location: Behind RH side of fascia



YQC 10005

Colour: BLUE Gender: Female

Cav	Col	Cct
1	GW	ALL
2	GW	ALL
3	GW	ALL
4	GW	ALL
5	GW	ALL
6	GW	ALL
7	PS	ALL
8	PS	ALL
9	PS	ALL
12	WN	ALL
13	WN	ALL
14	WN	ALL
15	GR	ALL
16	GR	ALL
17	GR	ALL
18	GR	ALL
19	GR	ALL
20	GR	ALL



Description: Header - LHD

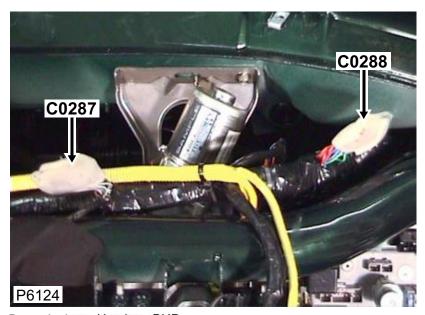
Location: Behind LH side of fascia

þ	1=2=3=4=5=6 7=8=9=10	
	20-19-18-17-16-15 14-13-12-11	
,		

YQC 10005

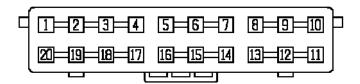
Colour: BLUE Gender: Female

Cav	Col	Cct
1	GW	ALL
2	GW	ALL
3	GW	ALL
4	GW	ALL
5	GW	ALL
6	GW	ALL
7	PS	ALL
8	PS	ALL
9	PS	ALL
12	WN	ALL
13	WN	ALL
14	WN	ALL
15	GR	ALL
16	GR	ALL
17	GR	ALL
18	GR	ALL
19	GR	ALL
20	GR	ALL



Description: Header - RHD

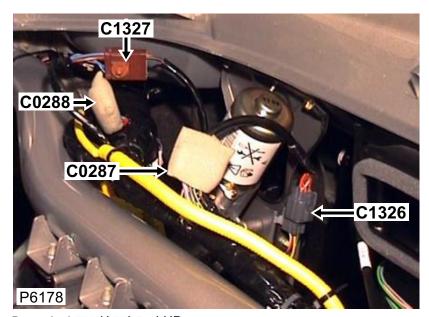
Location: Behind RH side of fascia



YQC10003

Colour: ORANGE Gender: Female

Cav	Col	Cct
1	LG	7
2	LG	7
3	LG	ALL
4	LG	7
5	PB	ALL
6	PB	ALL
7	PB	ALL
8	UG	ALL
9	UG	ALL
10	UG	ALL
11	R	ALL
12	R	ALL
13	R	ALL
14	LGN	ALL
15	LGN	ALL
16	LGN	ALL
17	PY	ALL
18	PY	ALL
19	PY	ALL



Description: Header - LHD

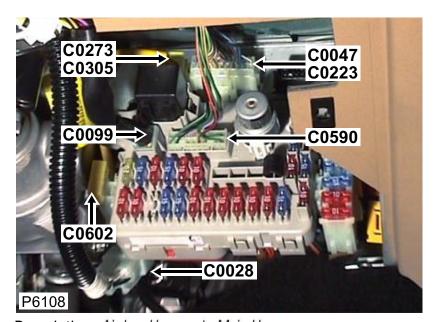
Location: Behind LH side of fascia

'	ب ب			,
	20-19-18-17	16 15 14	13 12 11	
d	1=2=3=4	<b>5=6=7</b>	8=9=10	þ

YQC10003

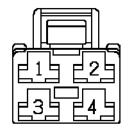
Colour: ORANGE Gender: Female

Cav	Col	Cct
1	LG	7
2	LG	7
3	LG	ALL
4	LG	7
5	PB	ALL
6	PB	ALL
7	PB	ALL
8	UG	ALL
9	UG	ALL
10	UG	ALL
11	R	ALL
12	R	ALL
13	R	ALL
14	LGN	ALL
15	LGN	ALL
16	LGN	ALL
17	PY	ALL
18	PY	ALL
19	PY	ALL



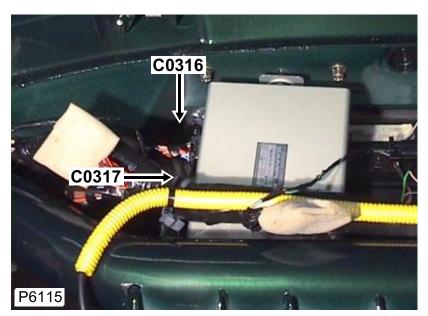
Cav	Col	Cct
1	W	ALL
2	OP	ALL
3	YK	ALL

Description: Air bag Harness to Main Harness Location: Behind driver side of fascia



YPC 10396

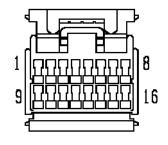
Colour: *YELLOW* Gender: *Female* 



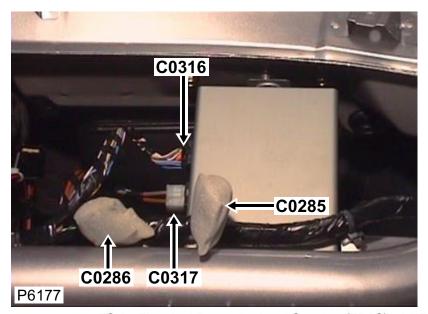
Description: ECU - Electrical Power Assisted Steering (EPAS) - RHD

Location: Behind LH side of fascia

Cav	Col	Cct
1	UK	5
2	KU	5
4	OY	5
5	OU	5
6	О	5
7	WO	5
8	G	5
9	US	5
12	UG	5
13	W	5
14	OW	5
15	WB	5
16	K	5



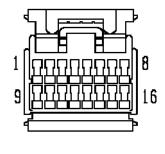
YPC 10174



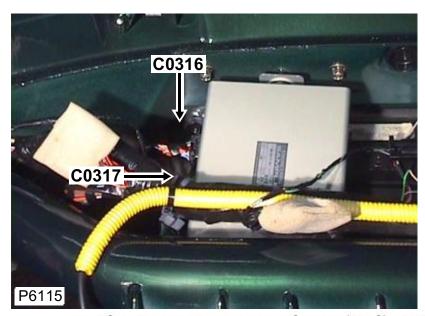
Description: ECU - Electrical Power Assisted Steering (EPAS) - LHD

Location: Behind RH side of fascia

Cav	Col	Cct
1	UK	5
2	KU	5
4	OY	5
5	OU	5
6	О	5
7	WO	5
8	G	5
9	US	5
12	UG	5
13	W	5
14	OW	5
15	WB	5
16	K	5



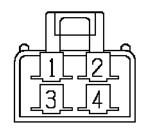
YPC 10174



Cav	Col	Cct
1	N	5
2	NU	5
3	В	5
4	NR	5

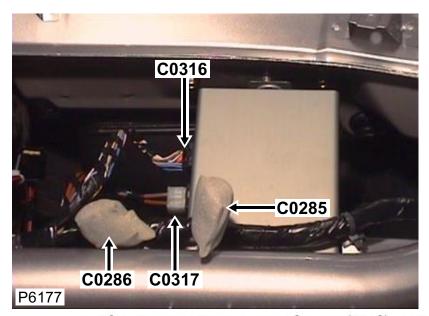
Description: ECU - Electrical Power Assisted Steering (EPAS) - RHD

Location: Behind LH side of fascia



AFU3855

Colour: NATURAL Gender: Female



 Cav
 Col
 Cct

 1
 N
 5

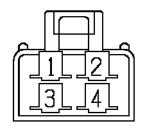
 2
 NU
 5

 3
 B
 5

 4
 NR
 5

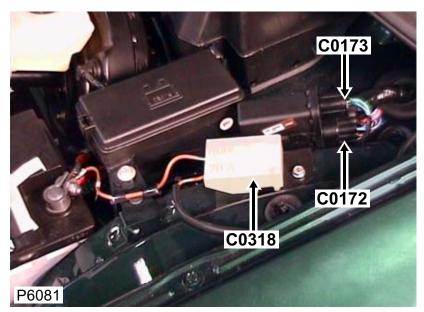
Description: ECU - Electrical Power Assisted Steering (EPAS) - LHD

Location: Behind RH side of fascia



AFU3855

Colour: *NATURAL* Gender: *Female* 



CavColCct1N5

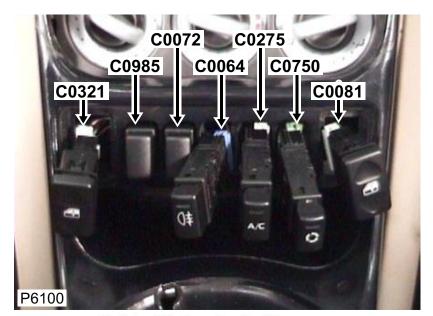
Description: Fuse - Electrical Power Assisted Steering (EPAS)

Location: Under bonnet, LH side

## **NO CONNECTOR FACE**

Colour: BRASS, TIN-PLATED

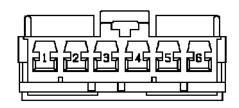
Gender: Female



Cct Col Cav ALL В 1 2 NY ALL 3 SBALL 4 ALL SK ALL 6 RB

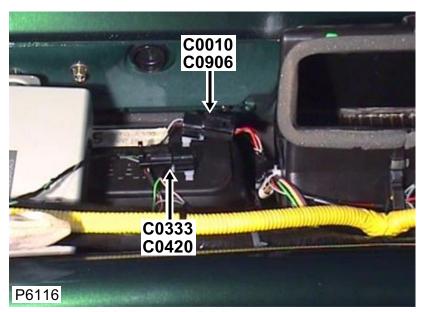
Description: Switch - Window - Front - LH

Location: Beneath front console



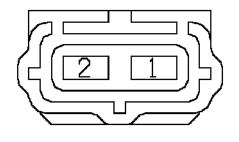
YPC113220

Colour: WHITE Gender: Female

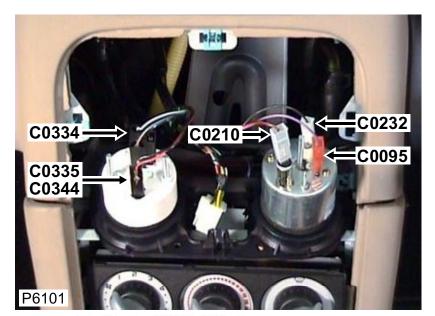


Cav	Col	Cct
1	LGS	2
2	SK	2

Description: *Main harness to link harness*Location: *Behind passenger side of fascia* 

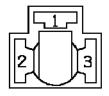


YPC 10069

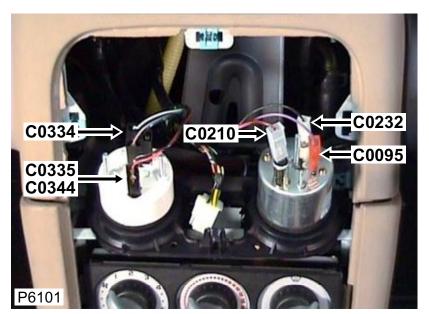


Cav	Col	Cct
1	В	ALL
2	NU	ALL
3	LGW	ALL

Description: *Gauge - Oil temperature* Location: *Beneath front console* 

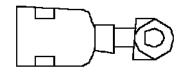


YPC 10505



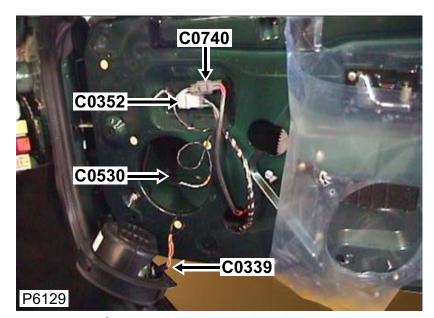
Cav	Col	Cct
1	RB	ALL

Description: Gauge - Oil temperature Location: Beneath front console



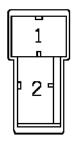
YPL102110

Colour: BRASS Gender: Female



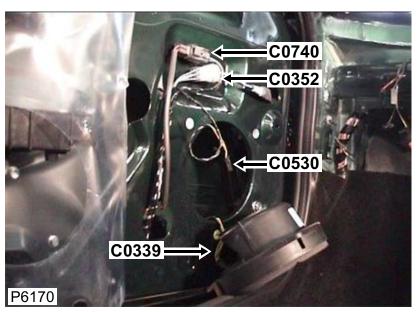
Cav	Col	Cct
1	OK	ALL
2	OB	ALL

Description: *Speaker - Door - Front - RH - RHD*Location: *Behind RH front door trim panel* 



AFU3199

Cav

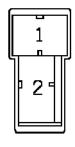


1	OK	ALL
2	OB	ALL
<del>_</del>		

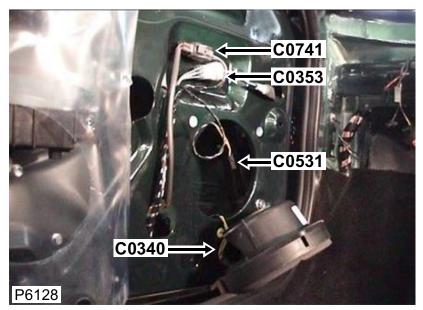
Col

Cct

Description: *Speaker - Door - Front - LH - LHD*Location: *Behind LH front door trim panel* 

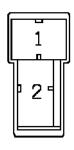


AFU3199

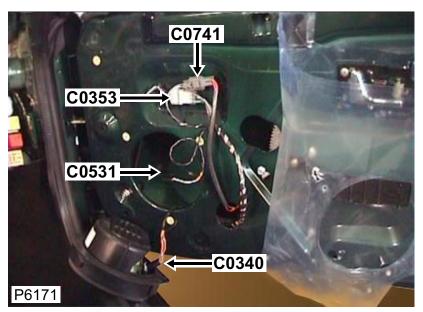


CavColCct1YKALL2YBALL

Description: *Speaker - Door - Front - LH - RHD*Location: *Behind LH front door trim panel* 

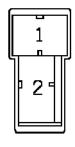


AFU3199

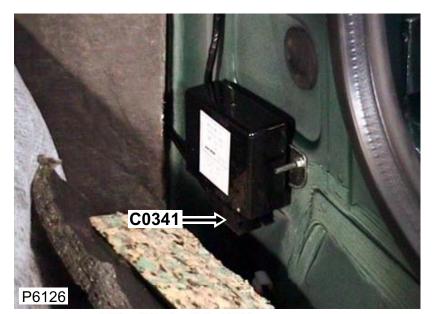


Cav	Col	Cct
1	YK	ALL
2	YB	ALL

Description: *Speaker - Door - Front - RH - LHD*Location: *Behind RH front door trim panel* 

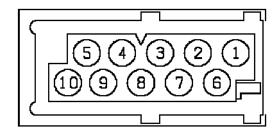


AFU3199



Cav	Col	Cct
2	SY	ALL
4	SR	ALL
5	В	ALL
6	SG	ALL
7	SU	ALL
9	SW	ALL

Description: *ECU - Window lift - RHD* Location: *Base of RH 'A' post* 

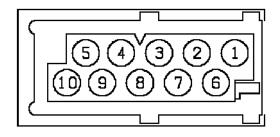


YPC 112620

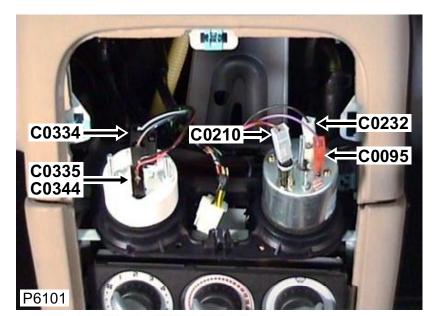


Cav	Col	Cct
2	SB	ALL
4	SK	ALL
5	В	ALL
6	NY	ALL
7	SU	ALL
9	SW	ALL

Description: *ECU - Window lift - LHD* Location: *Base of LH 'A' post* 

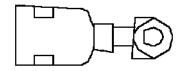


YPC112620



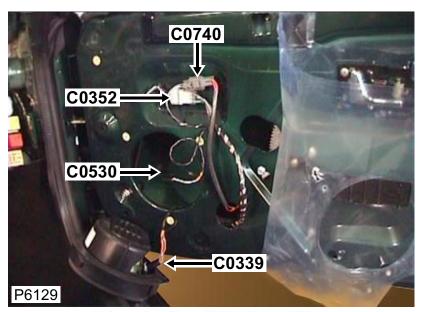
CavColCct1BALL

Description: *Gauge - Oil temperature* Location: *Beneath front console* 



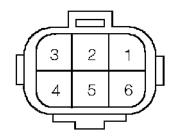
YPL102110

Colour: BRASS Gender: Female

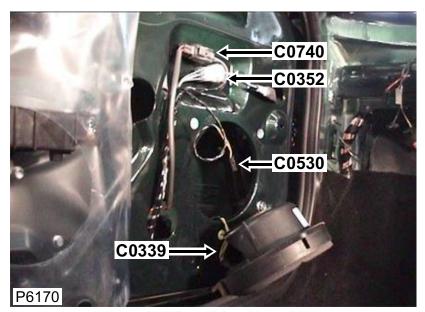


Cav	Col	Cct
1	В	7
2	SW	7
3	SW	7
4	BP	7
5	BN	7
6	LG	7

Description: *Mirror - Folding - Driver Door - RHD*Location: *Behind RH front door trim panel* 

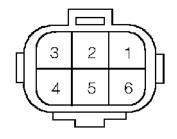


AFU3585

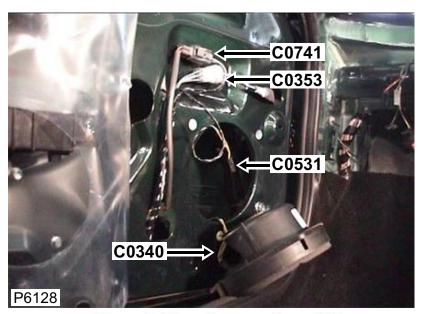


Cav	Col	Cct
1	В	7
2	BY	7
3	BU	7
4	SW	7
5	SW	7
6	LG	7

Description: *Mirror - Folding - Driver Door - LHD*Location: *Behind LH front door trim panel* 



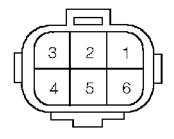
AFU3585



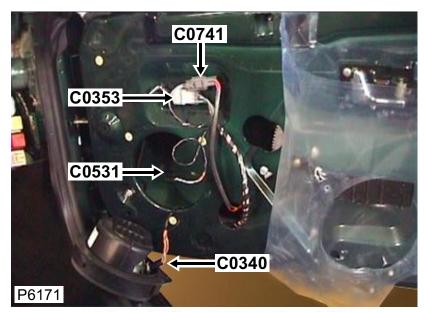
Cav	Col	Cct
1	В	7
2	BY	7
3	BU	7
4	SW	7
5	SW	7
6	LG	7

Description: Mirror - Folding - Passenger Door - RHD

Location: Behind LH front door trim panel



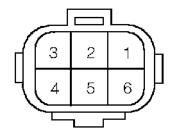
AFU3585



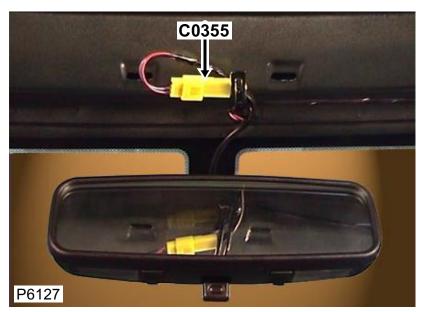
Cav	Col	Cct
1	В	7
2	SW	7
3	SW	7
4	BP	7
5	BN	7
6	LG	7

Description: Mirror - Folding - Passenger Door - LHD

Location: Behind RH front door trim panel

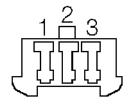


AFU3585



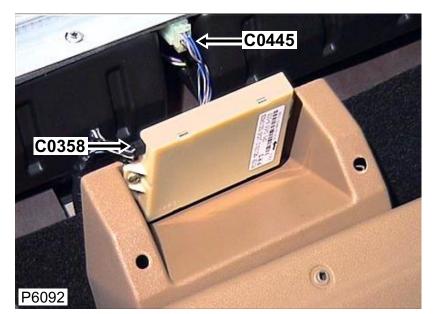
Cav	Col	Cct
1	В	ALL
2	P	ALL
3	PR	ALL

Description: Lamp - Interior - Front Location: Behind header trim



YPC113330

Colour: YELLOW Gender: Female



 Cav
 Col
 Cct

 1
 WB
 ALL

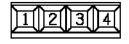
 2
 NB
 ALL

 3
 SW
 ALL

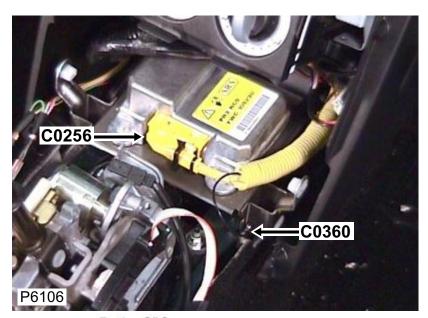
 4
 B
 ALL

Description: Sensor - Volumetric

Location: Beneath rear bulkhead finisher - centre



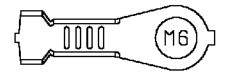
YPC111750



CavColCct1BALL

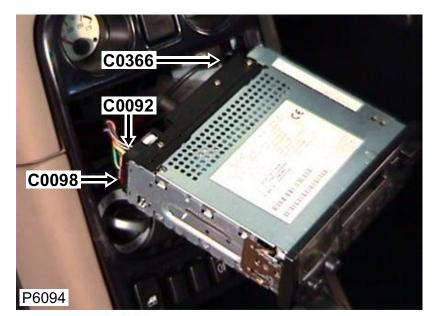
Description: Earth - SRS

Location: Behind centre console



YPG 10003

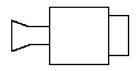
Colour: TIN-PLATE
Gender: Eyelet



CavColCct1BALL

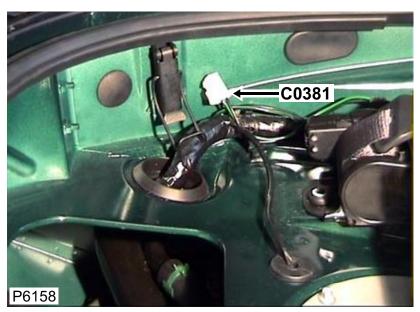
Description: Aerial

Location: Behind radio



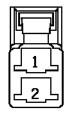
XUD 100430

Colour: Gender:

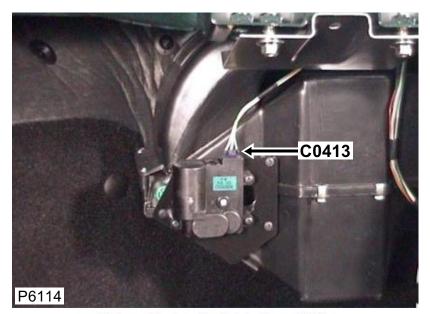


Cav	Col	Cct
1	BG	ALL
2	В	ALL

Description: Heater element - Rear screen Location: Parcel shelf - under left hand side

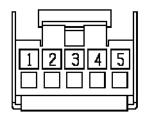


YPC 1004 I



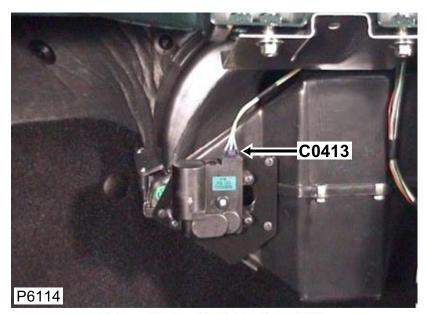
Cav	Col	Cct
1	Y	ALL
3	K	ALL
5	LGS	ALL

Description: *Motor - Mode - Air distribution - RHD*Location: *Behind passenger side of fascia* 



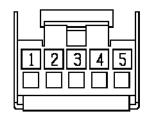
YPC 10001

Colour: *YELLOW* Gender: *Female* 



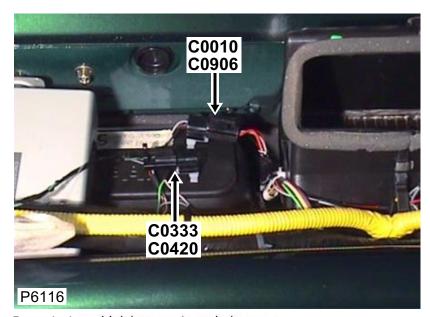
Cav	Col	Cct
1	K	ALL
3	Y	ALL
5	LGS	ALL

Description: *Motor - Mode - Air distribution - LHD*Location: *Behind passenger side of fascia* 



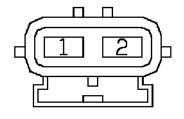
YPC 1000 I

Colour: YELLOW Gender: Female

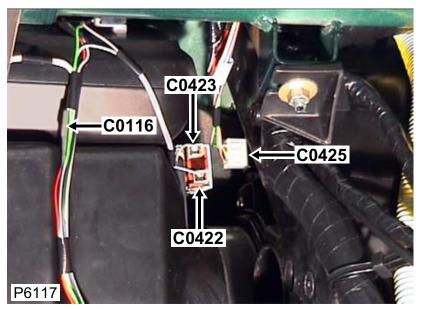


Cav	Col	Cct
1	LGS	ALL
2	SK	ALL

Description: *Link harness to main harness*Location: *Behind passenger side of fascia* 

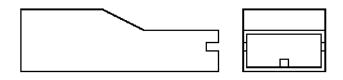


YPC 10060

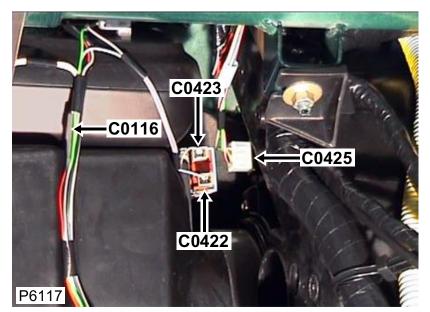


Cav	Col	Cct
1	SK	ALL

Description: *Thermostat - Air conditioning (A/C)*Location: *Behind passenger side of fascia* 

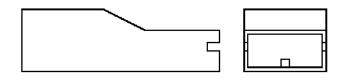


ADU8339

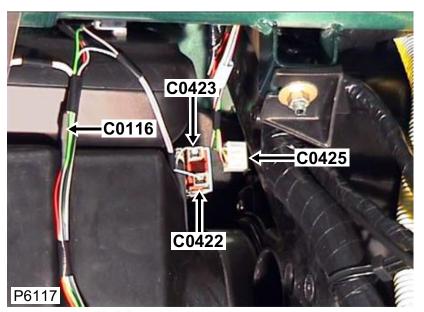


Cav	Col	Cct
1	SK	ALL

Description: *Thermostat - Air conditioning (A/C)*Location: *Behind passenger side of fascia* 



ADU8339



 Cav
 Col
 Cct

 1
 GB
 ALL

 2
 KB
 ALL

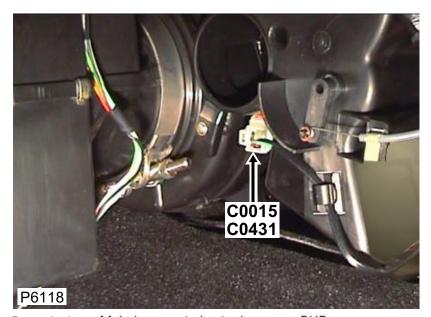
 3
 YB
 ALL

 4
 SB
 ALL

Description: Resistor pack

Location: Behind LH side of fascia

## **NO CONNECTOR FACE**



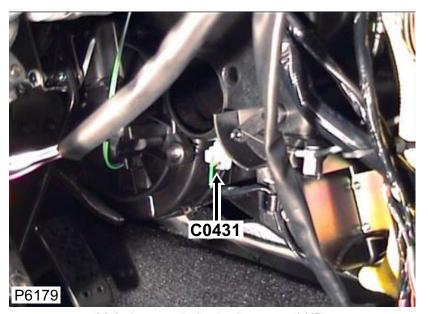
CavColCct1LGPALL2RBALL4BALL

Description: Main harness to heater harness - RHD

Location: Under LH side of fascia



AFU3855



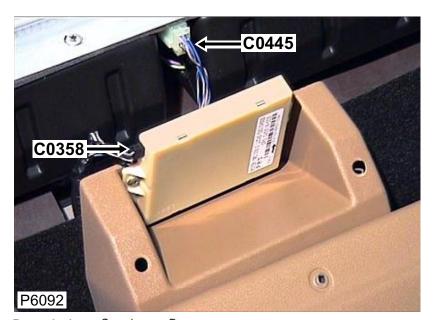
CavColCct1LGPALL2RBALL4BALL

Description: Main harness to heater harness - LHD

Location: Under LH side of fascia



AFU3855



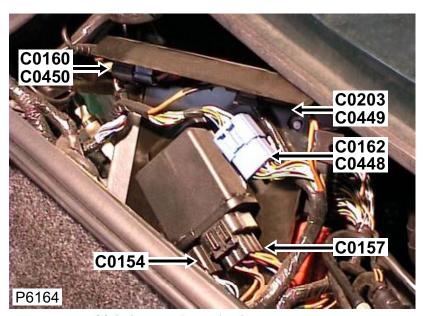
CavColCct1SKALL2SBALL3UKALL4UBALL

Description: Speakers - Rear

Location: Beneath rear bulkhead finisher - centre

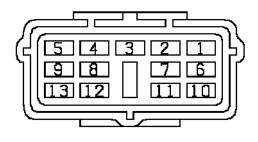


AFU3561



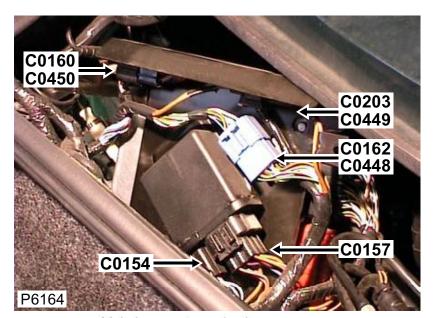
Description: *Main harness to engine harness*Location: *LH side of engine compartment* 

Cav	Col	Cct
1	W	ALL
2	WB	5
3	WR	ALL
4	NS	ALL
5	GY	ALL
6	GN	ALL
7	NY	ALL
8	NB	ALL
9	GU	ALL
10	BW	ALL
11	YR	ALL
12	GR	ALL
13	US	ALL



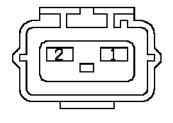
YPC 10276

Colour: BLUE Gender: Female

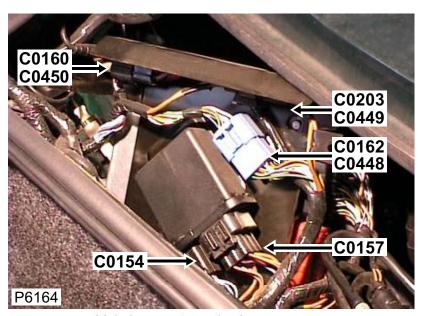


Cav	Col	Cct
1	N	ALL
2	N	ALL

Description: *Main harness to engine harness* Location: *LH side of engine compartment* 

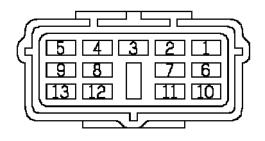


AFU3820

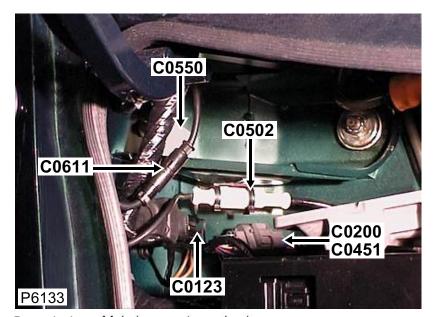


Description: *Main harness to engine harness*Location: *LH side of engine compartment* 

Cav	Col	Cct
1	UY	2
2	WP	ALL
3	UR	2
4	UB	2
5	R	2
6	UG	2
7	NU	ALL
8	WN	ALL
9	K	5
10	KB	ALL
11	SW	ALL
12	WO	ALL

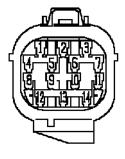


YPC 10062



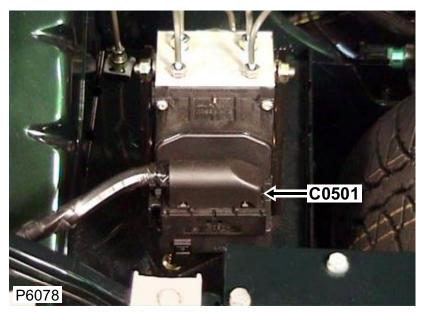
Cav	Col	Cct
1	WG	8
2	SB	8
4	BR	13
5	PW	8
6	NK	8
8	US	8
9	UY	8
10	OW	8
11	UR	8
12	UW	8

Description: *Main harness to engine harness* Location: *LH side of engine compartment* 

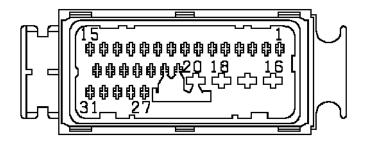


YPC 10549

Colour: *GREY* Gender: *Female* 

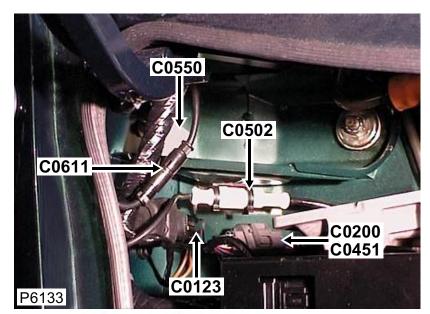


Description: *Modulator - ABS*Location: *Under bonnet, RH side* 



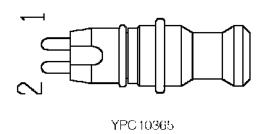
YPC116780

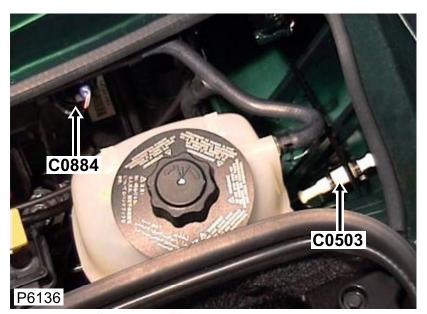
Cav	Col	Cct
1	G	1
2	Y	1
4	P	1
5	О	1
6	U	1
7	N	1
8	W	1
9	R	1
11	K	1
14	GP	1
15	GK	1
16	В	1
17	NK	1
18	NK	1
19	В	1
21	UR	1
23	SB	8



Cav	Col	Cct
1	W	1
2	R	1

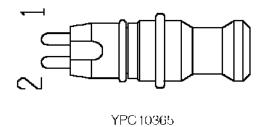
Description: Sensor - ABS - Rear - LH Location: LH side of engine compartment

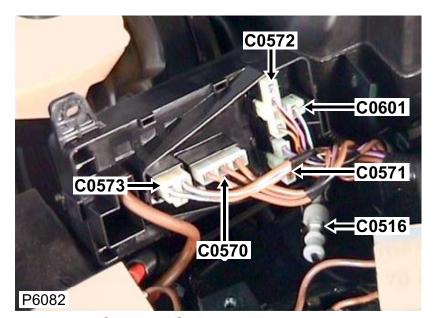




Cav	Col	Cct
1	G	1
2	Y	1

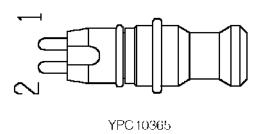
Description: Sensor - ABS - Rear - RH Location: RH side of engine compartment

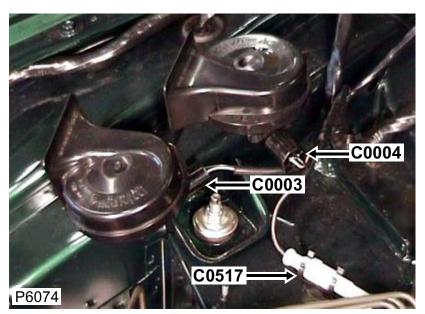




Cav	Col	Cct
1	U	1
2	N	1

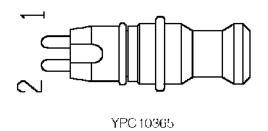
Description: Sensor - ABS - Front - LH Location: Under bonnet, LH side





Cav	Col	Cct
1	P	1
2	О	1

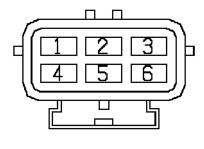
Description: Sensor - ABS - Front - RH Location: Under bonnet, RH side





Col Cct Cav 1 NK ALL 2 YB ALL 3 YW ALL 4 YG ALL 5 YU ALL

Description: *Engine harness to injector harness - K1.8 VVC*Location: *Below throttle housing, LH side of engine* 

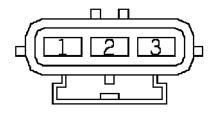


YPC 10057



Cav	Col	Cct
1	NK	ALL
2	YU	ALL
3	YG	ALL

Description: *Engine harness to injector harness - K1.8* Location: *Below throttle housing, LH side of engine* 

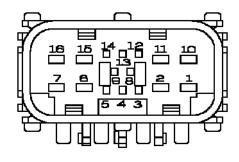


YPC 10059

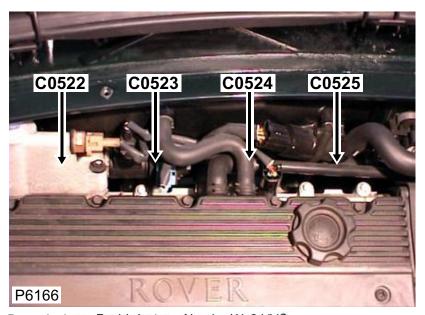


Description: *Engine harness to injector harness - Automatic gearbox*Location: *Below throttle housing, LH side of engine* 

Cav	Col	Cct
1	NK	ALL
2	YU	ALL
6	YG	ALL
7	YR	ALL
8	KB	ALL
9	YW	ALL
10	YN	ALL
11	NK	ALL
12	YP	ALL
13	RG	ALL
15	WB	ALL
16	WO	ALL

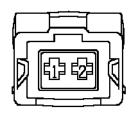


YPC 116610

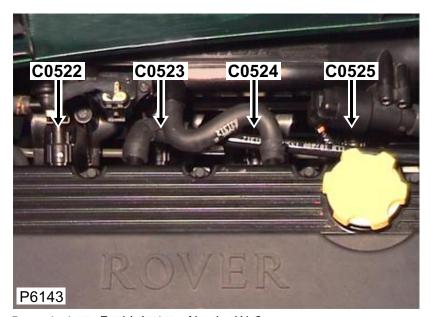


Description: Fuel injector - No. 1 - K1.8 VVC

Location: Top of engine

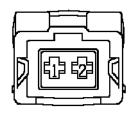


YPC 107790

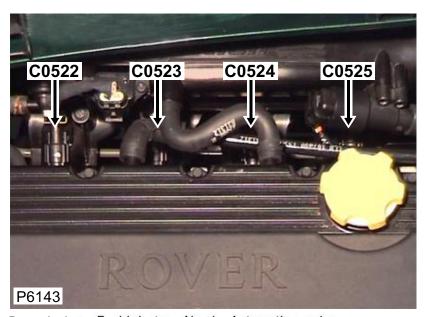


Description: Fuel injector - No. 1 - K1.8

Location: Top of engine

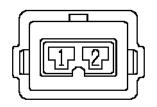


YPC 107790

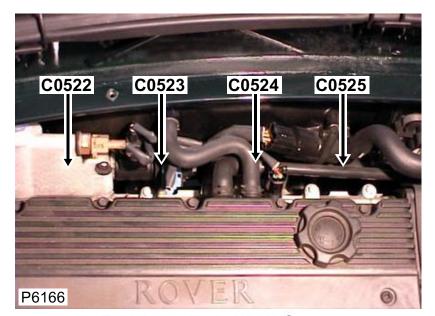


Description: Fuel injector - No. 1 - Automatic gearbox

Location: Top of engine

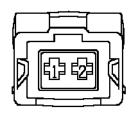


YPC115270

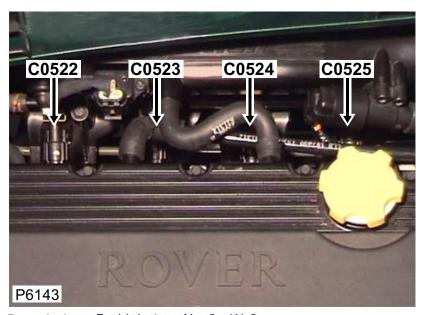


Description: Fuel injector - No. 2 - K1.8 VVC

Location: Top of engine

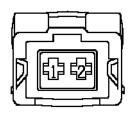


YPC 107790

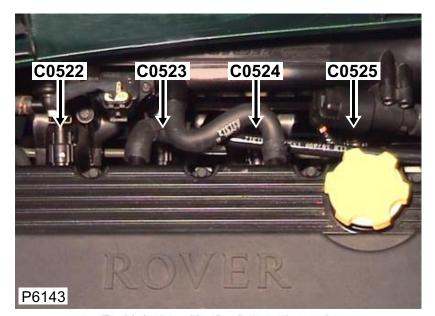


Description: Fuel injector - No. 2 - K1.8

Location: Top of engine

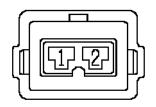


YPC 107790

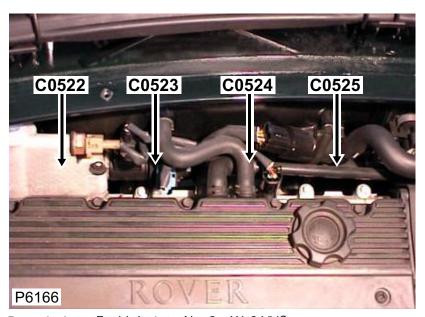


Description: Fuel injector - No. 2 - Automatic gearbox

Location: Top of engine

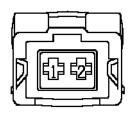


YPC115270

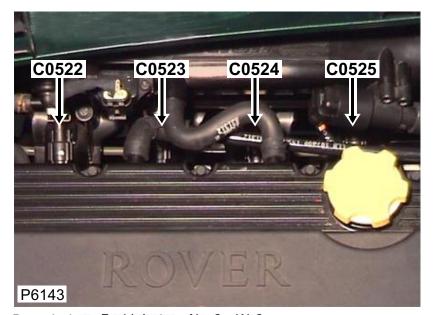


Description: Fuel injector - No. 3 - K1.8 VVC

Location: Top of engine

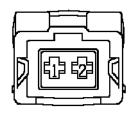


YPC 107790

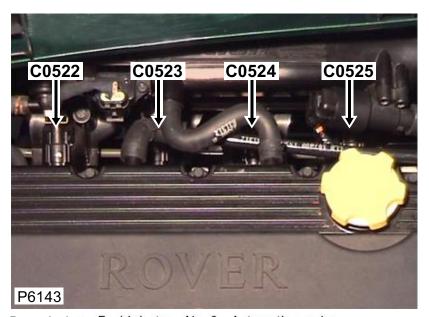


Description: Fuel injector - No. 3 - K1.8

Location: Top of engine

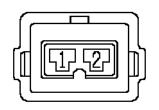


YPC 107790

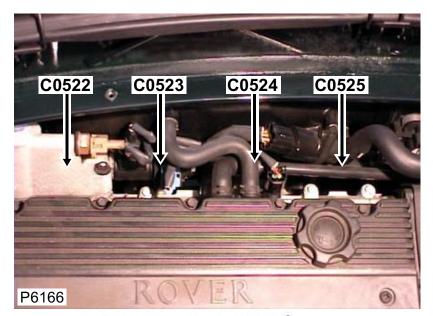


Description: Fuel injector - No. 3 - Automatic gearbox

Location: Top of engine

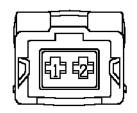


YPC115270

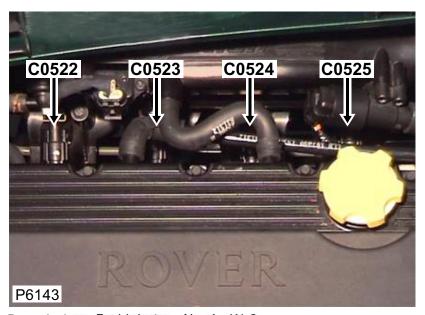


Description: Fuel injector - No. 4 - K1.8 VVC

Location: Top of engine

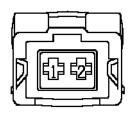


YPC 107790

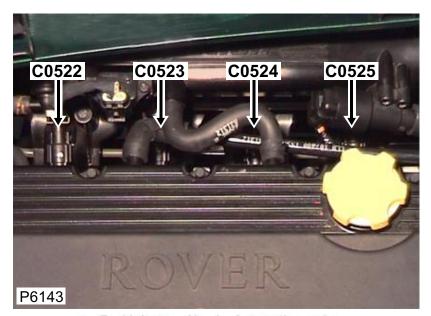


Description: Fuel injector - No. 4 - K1.8

Location: Top of engine

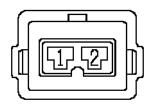


YPC 107790

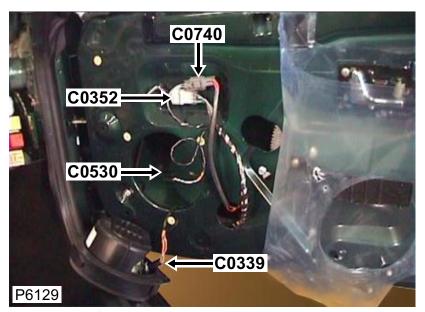


Description: Fuel injector - No. 4 - Automatic gearbox

Location: Top of engine

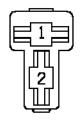


YPC115270

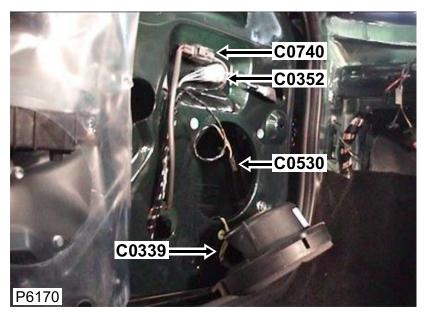


Cav	Col	Cct
1	OK	ALL
3	OB	ALL

Description: *Speakers - High Range - RHD*Location: *Behind RH front door trim panel* 

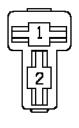


YPC 109010

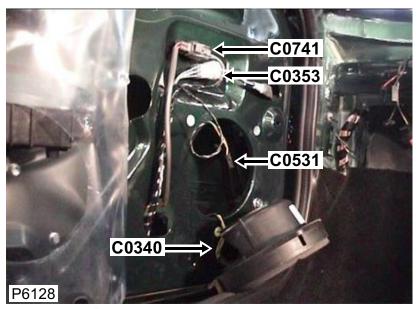


Cav	Col	Cct
1	OK	ALL
3	OB	ALL

Description: *Speakers - High Range - LHD*Location: *Behind LH front door trim panel* 

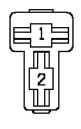


YPC 109010

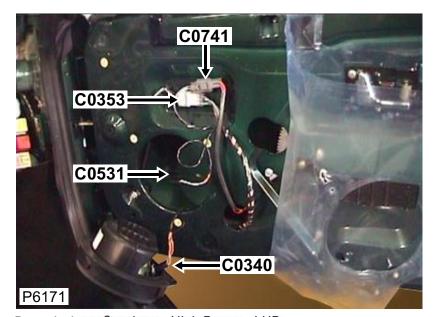


Cav	Col	Cct
1	YK	ALL
3	YB	ALL

Description: *Speakers - High Range - RHD*Location: *Behind LH front door trim panel* 

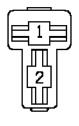


YPC 109010

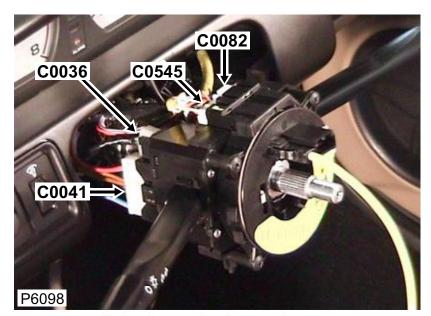


Cav	Col	Cct
1	YK	ALL
3	YB	ALL

Description: *Speakers - High Range - LHD*Location: *Behind RH front door trim panel* 

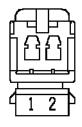


YPC 109010



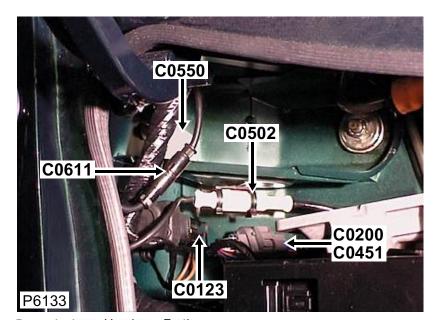
Cav	Col	Cct
1	R	ALL
2	Y	ALL

Description: Air bag harness to rotary coupler Location: LH side of steering column



YPC 106880

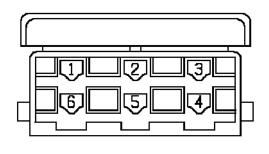
Colour: YELLOW Gender: Female



Cav	Col	Cct
1	В	ALL
2	В	ALL
3	В	ALL
4	В	ALL
5	В	ALL
6	В	ALL

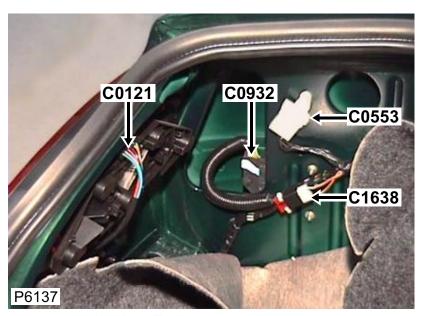
Description: Header - Earth

Location: LH side of engine compartment



YQC 10030

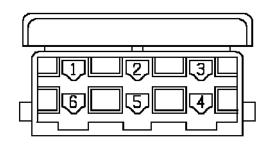
Colour: NATURAL Gender: Female



Cav	Col	Cct
1	В	ALL
2	В	ALL
3	В	ALL
4	В	ALL
5	В	ALL
6	В	ALL

Description: Header - Earth

Location: Behind luggage compartment carpet LH side



YQC 10030

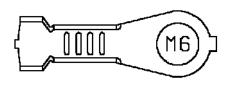
Colour: NATURAL Gender: Female



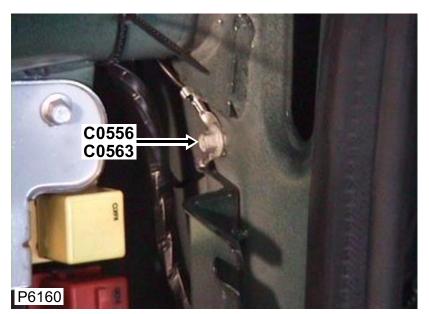
 Cav
 Col
 Cct

 1
 B
 5

Description: Earth - RHD Location: LH 'A' post

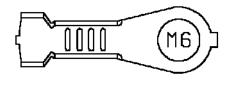


YPG 10013



Cav	Col	Cct
1	В	5

Description: Earth - LHD Location: RH 'A' post

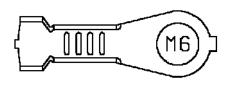


YPG 10013

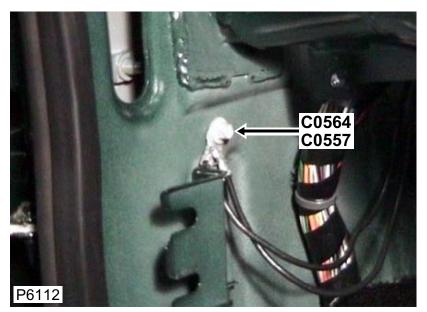


CavColCct1BALL

Description: Earth - RHD Location: LH 'A' post

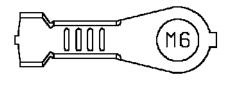


YPG 10013

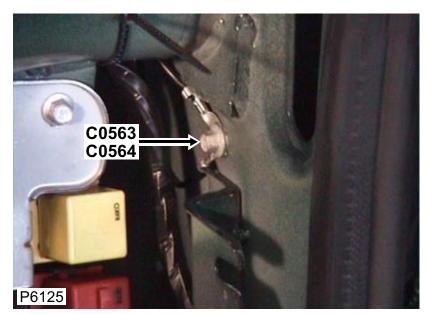


Cav	Col	Cct
1	В	ALL

Description: Earth - LHD Location: LH 'A' post

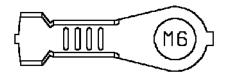


YPG 10013

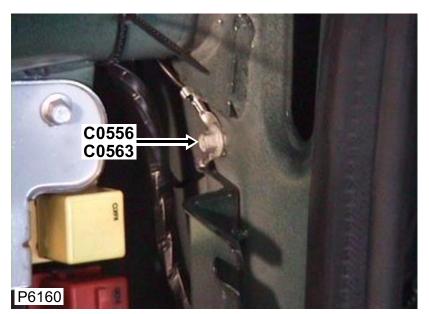


CavColCct1BALL

Description: Earth - RHD Location: RH 'A' post

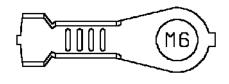


YPG 10014

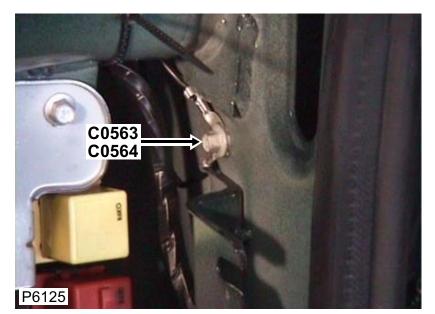


Cav	Col	Cct
1	В	ALL

Description: Earth - LHD Location: RH 'A' post

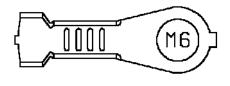


YPG 10014

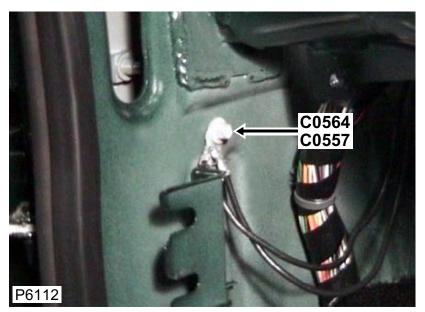


CavColCct1BALL

Description: Earth - RHD Location: RH 'A' post

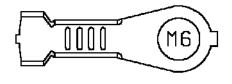


YPG 10013

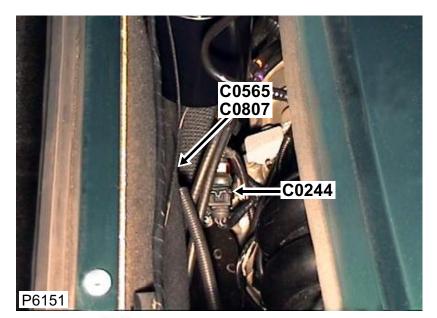


Cav	Col	Cct
1	В	ALL

Description: Earth - LHD Location: LH 'A' post



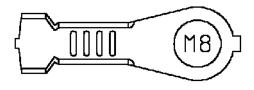
YPG 10013



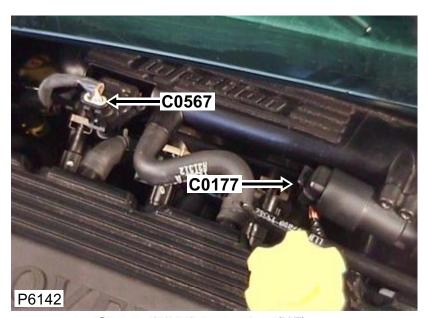
CavColCct1BALL

Description: Earth

Location: Rear of engine compartment



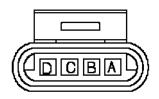
YPG 10016



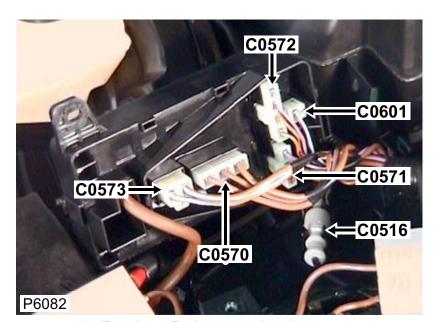
CavColCctAKBALLBYWALLCYPALLDRGALL

Description: Sensor - Inlet air temperature (IAT)

Location: Top of engine



YPC117460



 Cav
 Col
 Cct

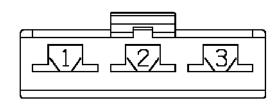
 1
 NP
 ALL

 2
 N
 ALL

 3
 N
 ALL

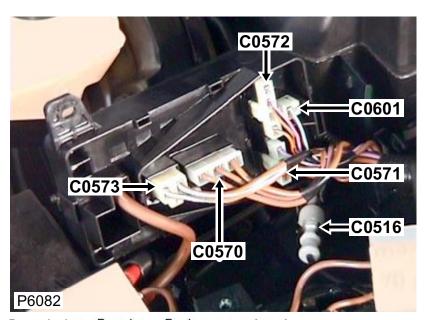
Description: Fuse box - Engine compartment

Location: Under bonnet, LH side



YPC10052

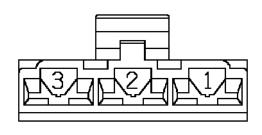
Colour: NATURAL Gender: Female



Cav	Col	Cct
1	N	ALL
2	N	ALL
3	P	ALL

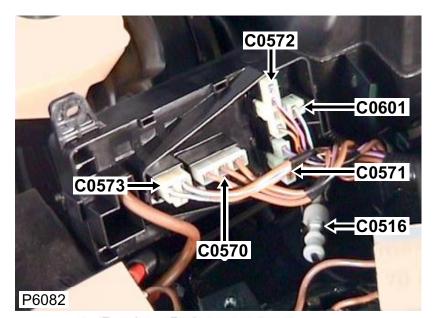
Description: Fuse box - Engine compartment

Location: Under bonnet, LH side



YPC 10085

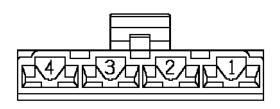
Colour: NATURAL Gender: Female



CavColCct1NOALL3NALL4PNALL

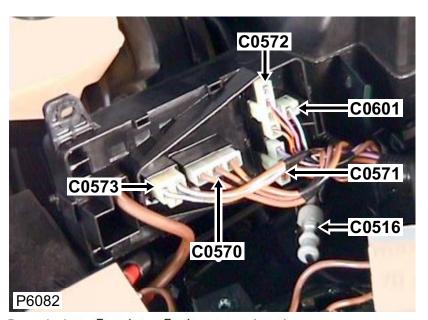
Description: Fuse box - Engine compartment

Location: Under bonnet, LH side



YPC 10053

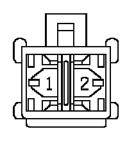
Colour: NATURAL Gender: Female



Cav	Col	Cct
1	NW	ALL
2	NK	1

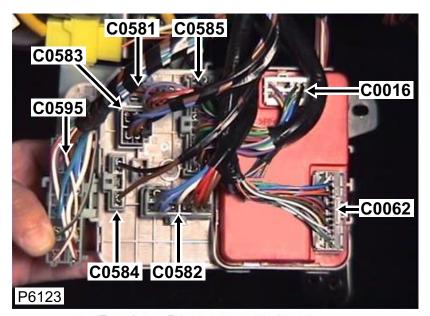
Description: Fuse box - Engine compartment

Location: Under bonnet, LH side



YPC 10135

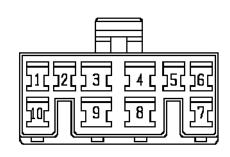
Colour: NATURAL Gender: Female



Cav	Col	Cct
1	GW	ALL
2	GR	ALL
3	BW	ALL
4	P	ALL
5	P	ALL
6	GS	ALL
7	RB	ALL
9	PS	ALL
10	RO	ALL

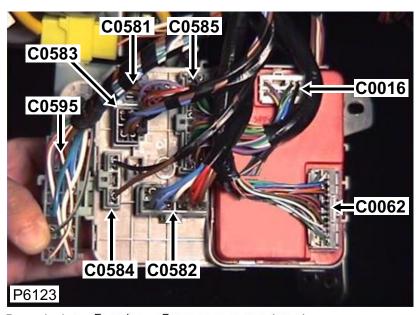
Description: Fuse box - Passenger compartment

Location: Behind driver side of fascia



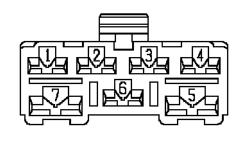
YPC 10048

Colour: NATURAL Gender: Female



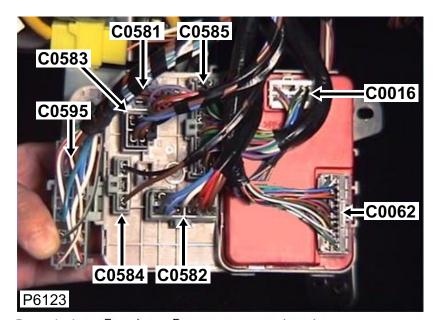
Cav	Col	Cct
1	UK	ALL
2	UK	ALL
3	R	ALL
4	R	ALL
5	N	ALL
6	W	ALL
7	N	ALL

Location: Behind driver side of fascia



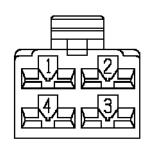
YPC 10087

Colour: NATURAL Gender: Female



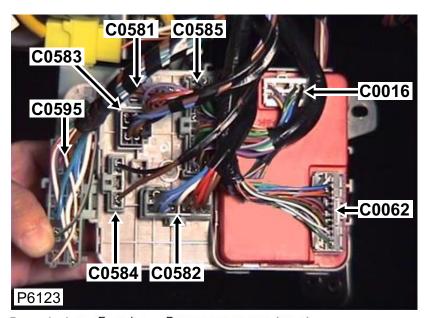
Cav	Col	Cct
1	N	ALL
2	PU	ALL
3	В	ALL
4	NU	ALL

Location: Behind driver side of fascia



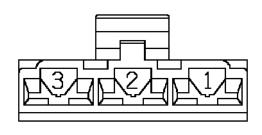
YPC 10012

Colour: *NATURAL* Gender: *Female* 



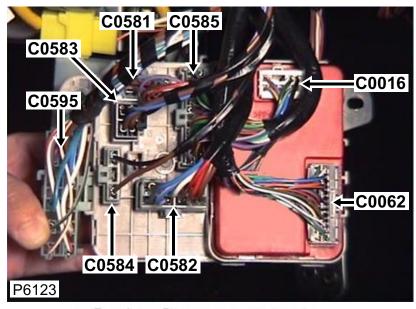
Cav	Col	Cct
1	N	ALL
3	В	ALL

Location: Behind driver side of fascia

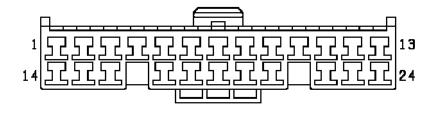


YPC 10085

Colour: NATURAL Gender: Female



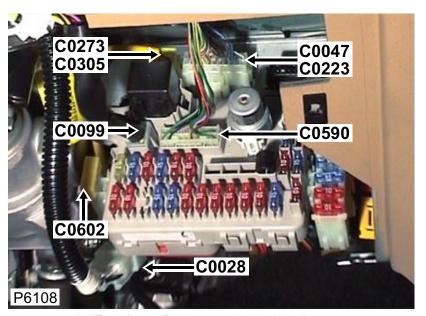
Location: Behind driver side of fascia



YPC 10013

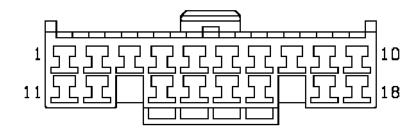
Colour: NATURAL Gender: Female

Cav	Col	Cct
1	UB	ALL
2	GS	ALL
3	GW	ALL
4	GR	ALL
5	BW	ALL
6	UR	ALL
8	RO	ALL
9	LGW	ALL
10	G	ALL
11	SG	ALL
12	RB	ALL
13	UK	ALL
14	LGK	ALL
15	LGN	ALL
16	NY	ALL
17	P	ALL
18	LG	ALL
20	W	ALL
21	PU	ALL
22	LGS	ALL
23	GY	ALL
24	NY	ALL



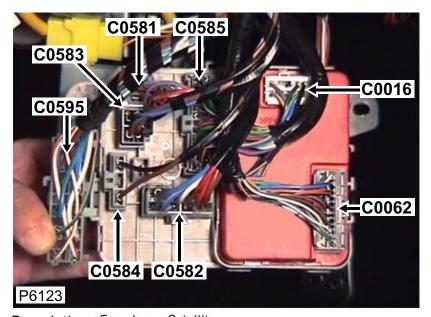
Cav	Col	Cct
1	G	ALL
6	NY	ALL
9	В	ALL
11	G	ALL
13	GR	ALL
14	RB	ALL
17	BW	ALL
18	GW	ALL

Description: Fuse box - Passenger compartment Location: Behind driver side of fascia



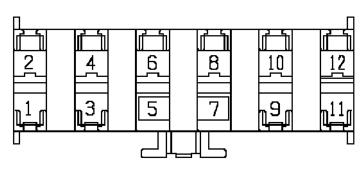
YPC 10014

Colour: NATURAL Gender: Female



Cav	Col	Cct
1	WLG	ALL
2	LGP	ALL
3	N	ALL
4	NO	ALL
5	UW	ALL
6	US	ALL
8	UG	ALL
9	W	1
10	GK	1
11	WR	ALL
12	WR	ALL

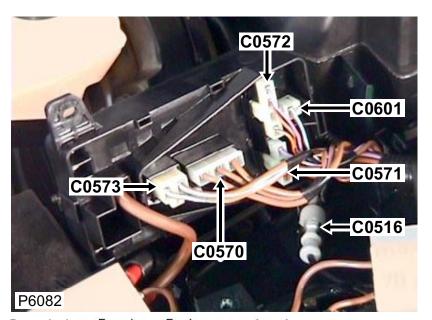
Description: Fuse box - Satellite
Location: Behind driver side of fascia



YQE102050

Colour: NATURAL

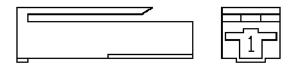
Gender:



Cav	Col	Cct
1	NW	2

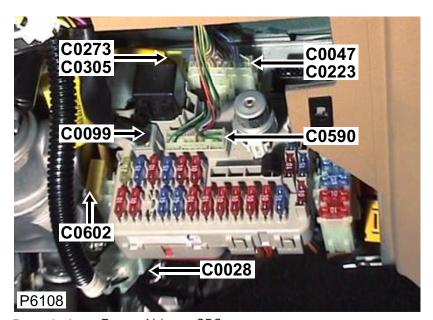
Description: Fuse box - Engine compartment

Location: Under bonnet, LH side



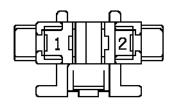
YPC10007

Colour: NATURAL Gender: Female



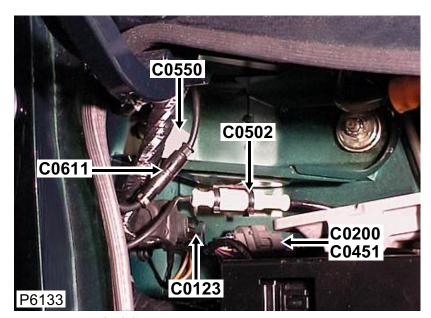
Cav	Col	Cct
1	W	ALL
2	G	ALL

Description: Fuse - Airbag - SRS Location: Behind driver side of fascia



YQE 10001

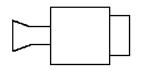
Colour: NATURAL Gender: Female



CavColCct1BALL

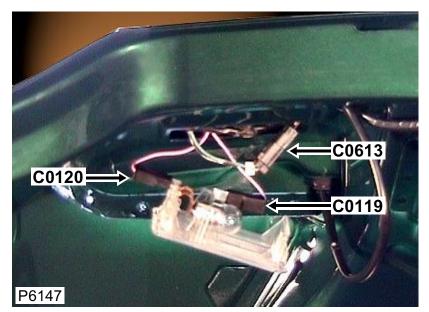
Description: Aerial

Location: LH side of engine compartment



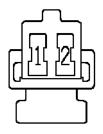
XUD100430

Colour: Gender:

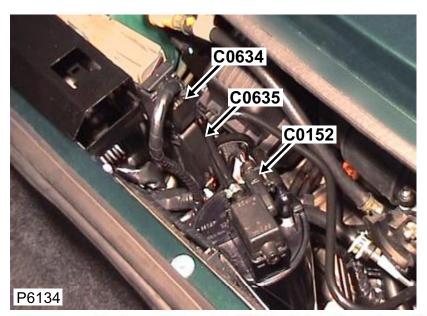


Cav	Col	Cct
1	GP	ALL
2	В	ALL

Description: Lamp - brake - high mounted
Location: Behind luggage compartment light



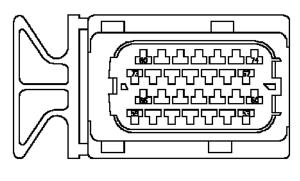
YPC 10225



Description: Engine control module (ECM) - Automatic gearbox with

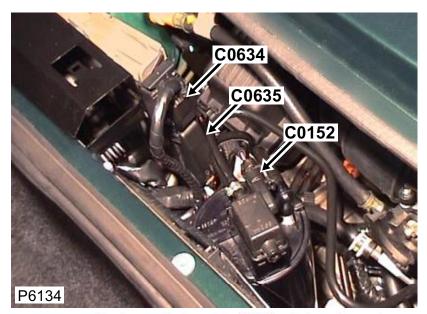
air conditioning

Location: LH side of engine compartment



YPC114540

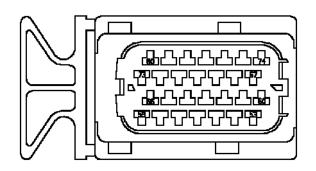
Cav	Col	Cct
53	UB	15
54	WK	8
55	WB	8
56	UR	15
58	K	8
59	В	8
60	UY	15
61	W	8
62	GR	8
63	BR	8
66	В	8
67	US	15
68	BP	8
70	UG	15
71	KB	8
72	YR	8
73	В	8
74	NB	8
75	OW	8
77	PW	8
78	SB	8
80	N	8



Description: Engine control module (ECM) - Automatic gearbox

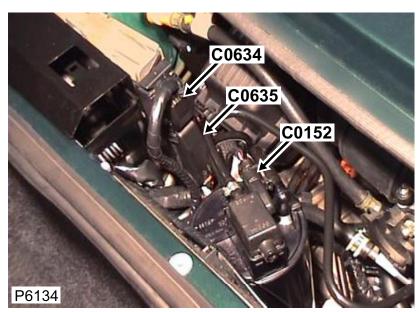
without air conditioning

Location: LH side of engine compartment



YPC114540

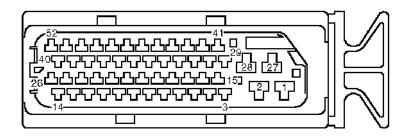
Cav	Col	Cct
54	WK	8
55	WB	8
58	K	8
59	В	8
61	W	8
62	GR	8
63	BR	8
66	В	8
67	Y	16
68	BP	8
71	KB	8
72	YR	8
73	В	8
74	NB	8
75	OW	8
77	PW	8
78	SB	8
80	N	8



Description: Engine control module (ECM) - Automatic gearbox with

air conditioning

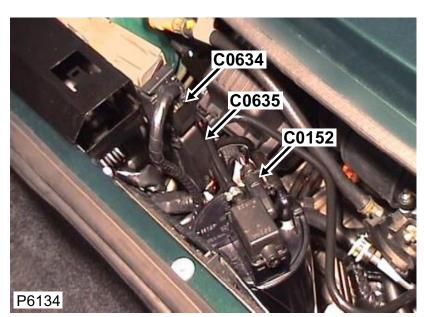
Location: LH side of engine compartment



YPC114550

Cav	Col	Cct
1	BU	8
4	UP	8
6	U	8
7	KB	8
8	YP	8
9	K	8
10	YW	8
13	OS	8
14	YR	8
15	GY	8
16	YP	8
17	BS	8
18	KB	8
19	NK	8
20	GY	8
21	SW	8
24	OU	8
25	YU	8
26	WB	8
28	BK	8
30	WU	8
31	KB	8
32	GO	8
33	KG	8
34	KB	8
35	WR	15
38	ВО	8
39	OG	8
40	YN	8
41	GN	8
42	BS	8
44	YW	8
45	RG	8
46	KP	8
48	WG	8
50	KU	8
51	YG	8

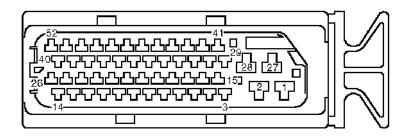
Cav	Col	Cct
52	WO	8



Description: Engine control module (ECM) - Automatic gearbox

without air conditioning

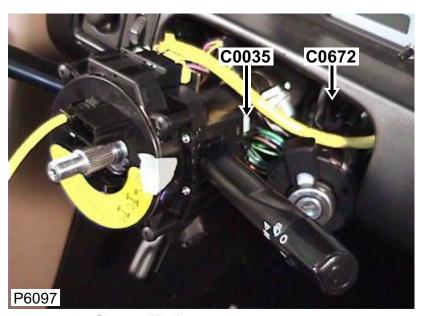
Location: LH side of engine compartment



YPC114550

T		
Cav	Col	Cct
1	BU	8
4	UP	8
6	U	8
7	KB	8
8	YP	8
9	K	8
10	YW	8
13	OS	8
14	YR	8
15	GY	8
16	YP	8
17	BS	8
18	KB	8
19	NK	8
20	GY	8
21	SW	8
24	OU	8
25	YU	8
26	WB	8
28	BK	8
30	WU	8
31	KB	8
32	GO	8
33	KG	8
34	KB	8
35	WR	16
38	ВО	8
39	OG	8
40	YN	8
41	GN	8
42	BS	8
44	YW	8
45	RG	8
46	KP	8
48	WG	8
50	KU	8
51	YG	8

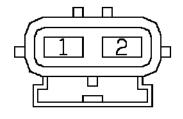
Cav	Col	Cct
52	WO	8



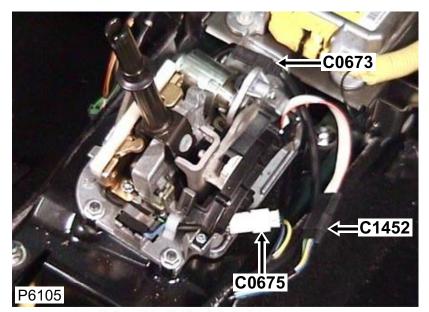
CavColCct1SRALL2PKALL

Description: Sensor - Key in

Location: RH side of steering column

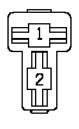


YPC 10060

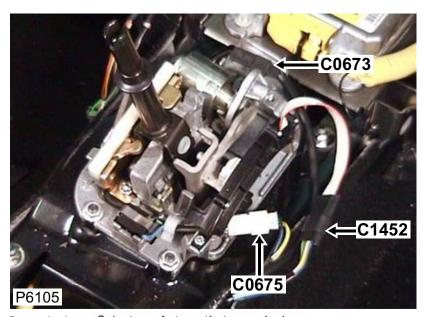


Cav	Col	Cct
1	G	13
3	В	13

Description: Solenoid - Shift - Interlock Location: Behind centre console



YPC 109010



 Cav
 Col
 Cct

 1
 B
 8

 2
 YG
 8

 3
 UB
 8

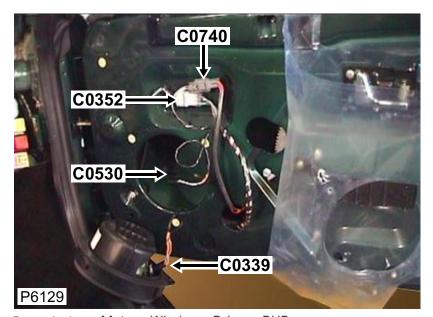
 4
 YS
 8

Description: Selector - Automatic transmission

Location: Behind centre console

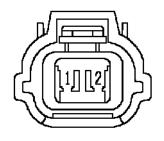


YPC111750



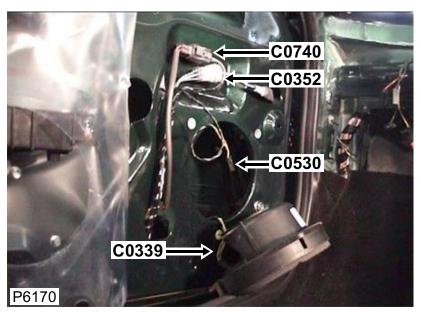
Cav	Col	Cct
1	SW	ALL
2	SU	ALL

Description: *Motor - Window - Driver - RHD*Location: *Behind RH front door trim panel* 



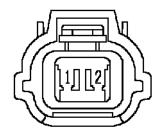
YPC 10 180

Colour: *GREY* Gender: *Female* 



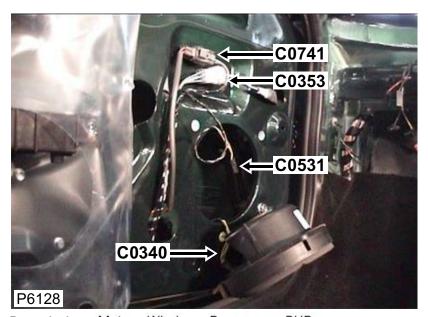
Cav	Col	Cct
1	SW	ALL
2	SU	ALL

Description: *Motor - Window - Driver - LHD*Location: *Behind LH front door trim panel* 



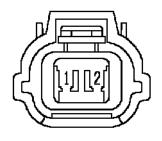
YPC 10 180

Colour: GREY
Gender: Female



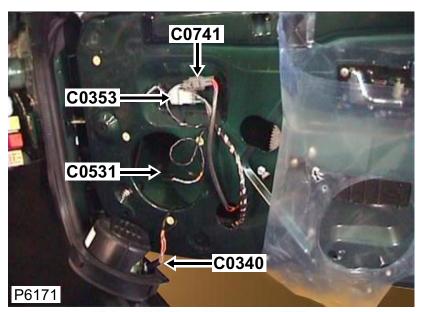
Cav	Col	Cct
1	SK	ALL
2	SB	ALL

Description: *Motor - Window - Passenger - RHD*Location: *Behind LH front door trim panel* 



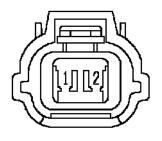
YPC 10 180

Colour: *GREY* Gender: *Female* 



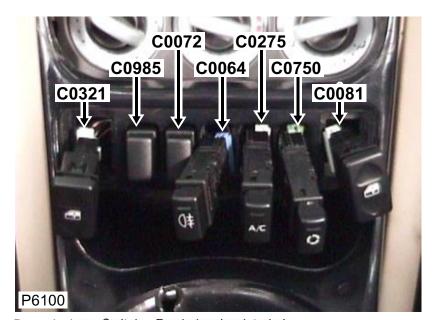
Cav	Col	Cct
1	SR	ALL
2	SY	ALL

Description: *Motor - Window - Passenger - LHD*Location: *Behind RH front door trim panel* 



YPC 10 180

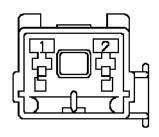
Colour: GREY
Gender: Female



Cct Col Cav ALL В 1 2 RB ALL 3 Y ALL 4 K ALL 5 ALL LGS

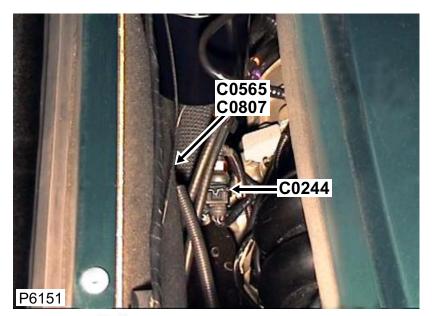
Description: Switch - Fresh / recirculated air

Location: Beneath front console



YPC10526

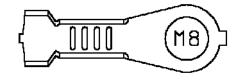
Colour: *GREEN* Gender: *Female* 



CavColCct1BALL

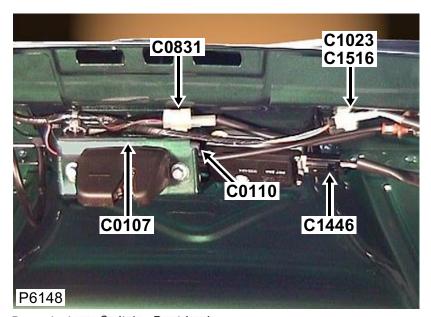
Description: Earth

Location: Rear of engine compartment



YPG 10015

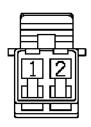
Colour: TIN-PLATE Gender: Eyelet



CavColCct1BRALL2BALL

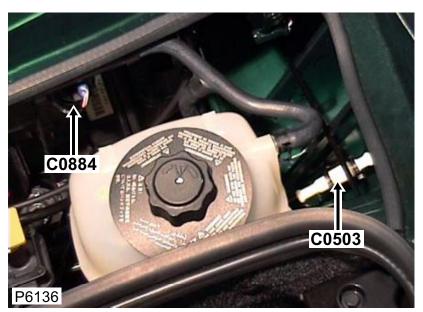
Description: Switch - Boot Lock

Location: Boot latch



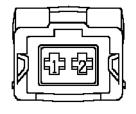
AFU35/3

Colour: NATURAL Gender: Female

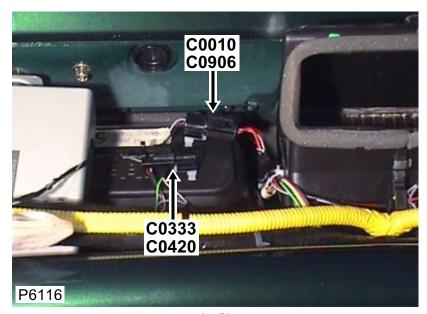


Cav	Col	Cct
1	KB	ALL
2	SW	ALL

Description: Sensor - Ambient air temperature Location: RH side of engine compartment



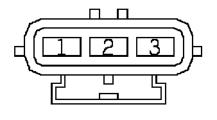
YPC 107790



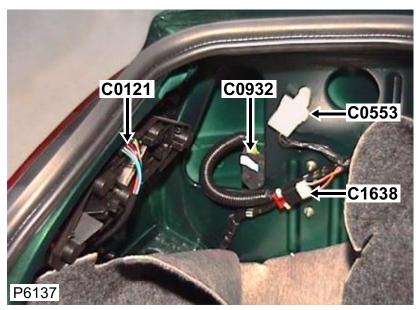
CavColCct1RBALL2SWALL3BALL

Description: Air conditioning (A/C) harness to heater harness

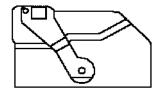
Location: Behind passenger side of fascia



YPC 10059



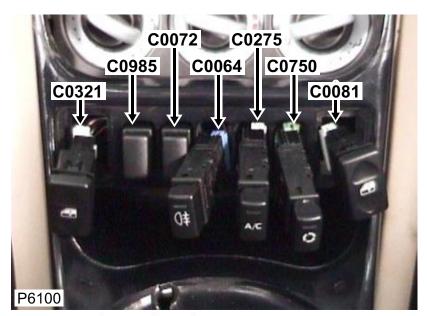
Description: *ECU - Electronic automatic transmission*Location: *Behind luggage compartment carpet LH side* 



YPC113440

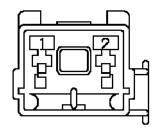
Colour: LIGHT BLUE Gender: Female

Cav	Col	Cct
1	G	13
3	NK	8
4	В	8
5	US	8
6	UY	8
7	UR	8
8	UW	8
13	GP	13
14	BR	13
17	PW	8
18	OW	8
19	KB	8
26	NW	8
27	NR	8
28	NB	8
29	NY	8
30	NG	8
31	U	8
32	Y	8
33	UG	8
34	GY	8
35	YS	8
36	UB	8
37	WR	8
38	YG	8
39	R	8
40	WY	11



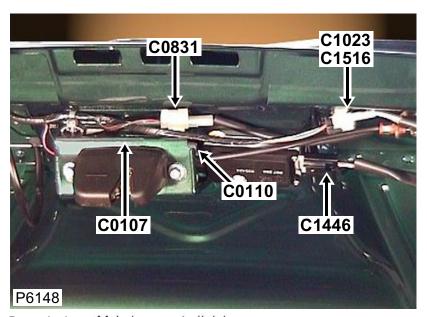
Cav	Col	Cct
1	WY	11
2	В	11
4	В	11
5	RB	11

Description: Switch - Sport/Snow Location: Beneath front console



YPC10526

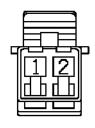
Colour: *GREEN* Gender: *Female* 



Cav	Col	Cct
1	BK	10
2	NR	10

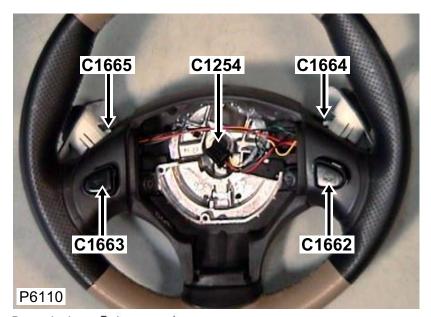
Description: Main harness to link harness

Location: Boot latch



AFU35/3

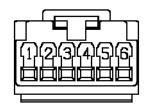
Colour: NATURAL Gender: Female



Col Cct Cav Y 1 ALL 2 ALL O 3 ALL  $\mathbf{G}$ 4 R ALL 6 В ALL

Description: Rotary coupler

Location: In centre of steering wheel



YPC 107610



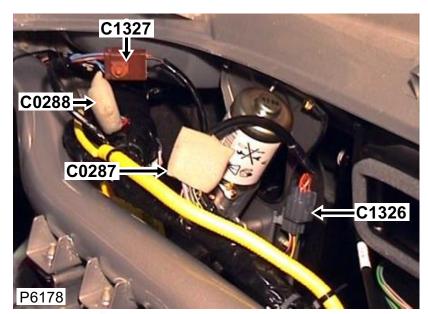
Cav	Col	Cct
1	O	5
2	OU	5
3	OY	5
4	UG	5
5	W	5
6	OW	5
7	SCR	5

Description: Sensor - Torque - RHD Location: Behind RH side of fascia



YPC 10542

Colour: GREY
Gender: Female



Cav	Col	Cct
1	О	5
2	OU	5
3	OY	5
4	UG	5
5	W	5
6	OW	5
7	SCR	5

Description: Sensor - Torque - LHD Location: Behind LH side of fascia



YPC 10542

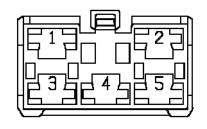
Colour: *GREY* Gender: *Female* 



Cav	Col	Cct
1	NU	5
2	US	5
3	NR	5
5	UK	5

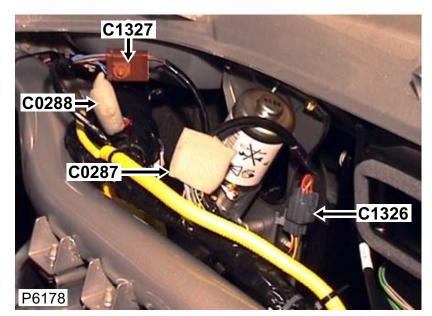
Description: Clutch - Electrical Power Assisted Steering (EPAS) - RHD

Location: Behind RH side of fascia



YPC 10462

Colour: BROWN Gender: Female



 Cav
 Col
 Cct

 1
 NU
 5

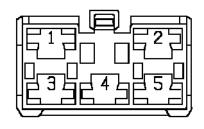
 2
 US
 5

 3
 NR
 5

 5
 UK
 5

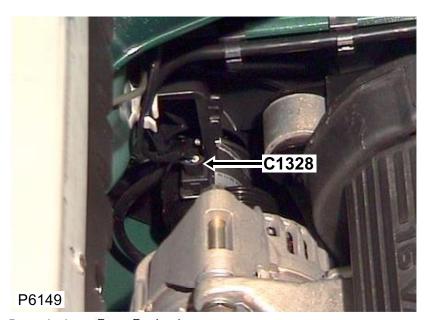
Description: Clutch - Electrical Power Assisted Steering (EPAS) - LHD

Location: Behind LH side of fascia



YPC 10462

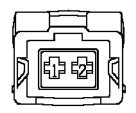
Colour: BROWN Gender: Female



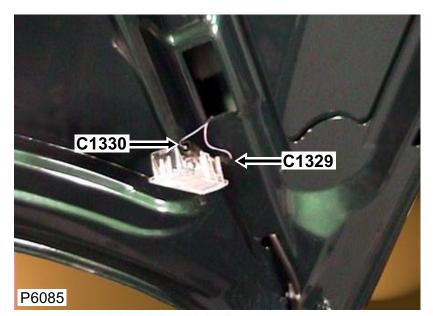
CavColCct1BALL2NYALL

Description: Fan - Engine bay

Location: RH side of engine compartment

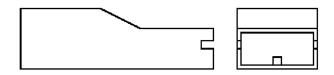


YPC 107790

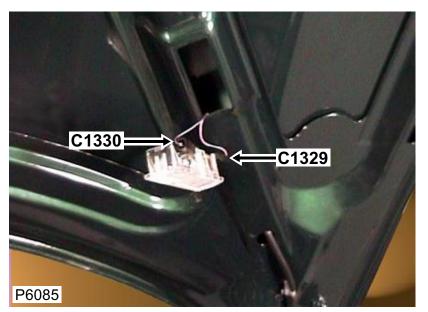


Cav	Col	Cct
1	P	ALL

Description: Lamp - Under bonnet Location: Behind bonnet lamp

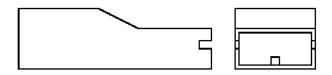


AAU 1010

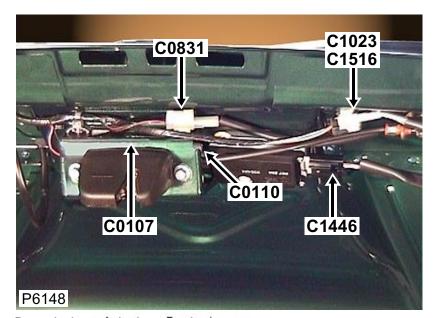


Cav	Col	Cct
1	BP	ALL

Description: Lamp - Under bonnet Location: Behind bonnet lamp



AAU 1010



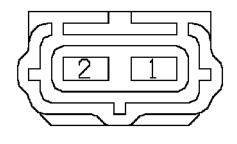
 Cav
 Col
 Cct

 1
 NR
 10

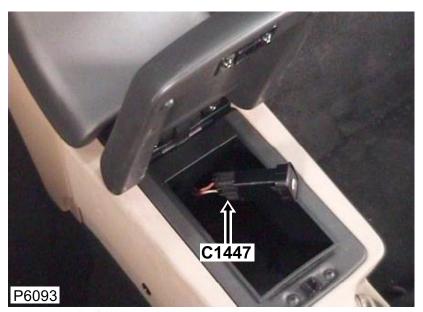
 2
 BK
 10

Description: Actuator - Boot release

Location: Boot latch

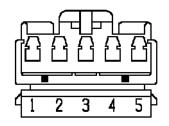


YPC 10069

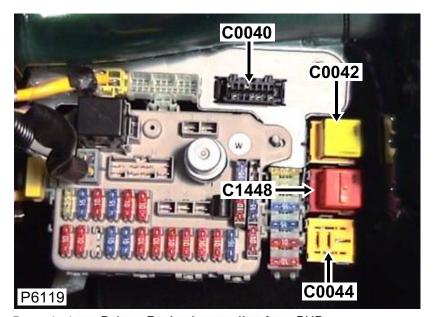


Cav	Col	Cct
1	N	10
4	NR	10

Description: Switch - Boot / tail door Location: In rear of centre console



YPC 10523



 Cav
 Col
 Cct

 2
 N
 ALL

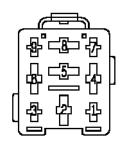
 4
 N
 ALL

 6
 NB
 ALL

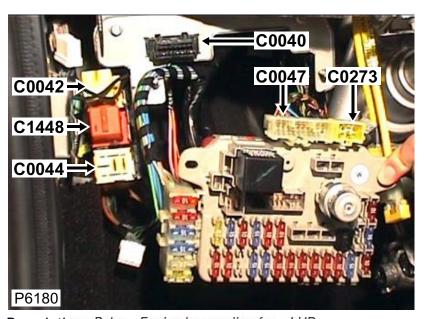
 8
 NY
 ALL

Description: Relay - Engine bay cooling fan - RHD

Location: Behind driver side of fascia



YPP 1000 1



 Cav
 Col
 Cct

 2
 N
 ALL

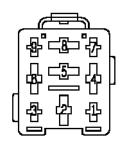
 4
 N
 ALL

 6
 NB
 ALL

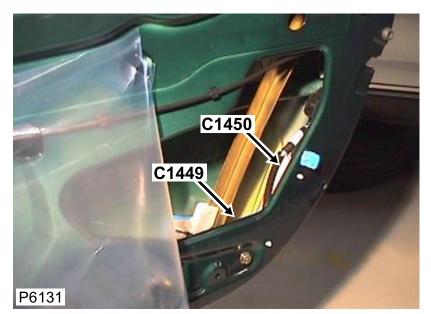
 8
 NY
 ALL

Description: Relay - Engine bay cooling fan - LHD

Location: Behind driver side of fascia

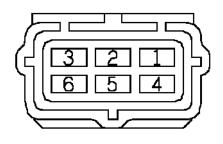


YPP 1000 1

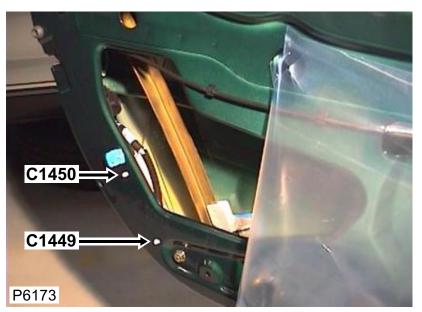


Cav	Col	Cct
1	О	ALL
2	BR	ALL
3	BK	10
4	K	ALL
5	NK	ALL
6	PS	ALL

Description: Assembly - Door lock - Drivers - RHD Location: Behind RH front door trim panel

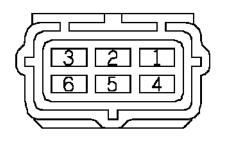


YPC 10064

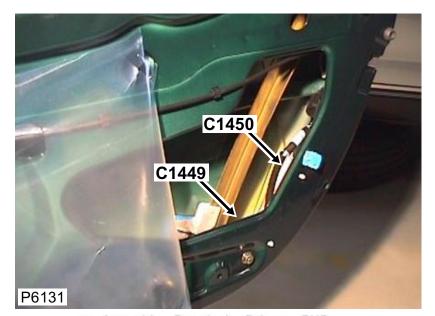


Cav	Col	Cct
1	BK	10
2	BR	ALL
3	О	ALL
4	PW	ALL
5	NK	ALL
6	K	ALL

Description: Assembly - Door lock - Drivers - LHD Location: Behind LH front door trim panel

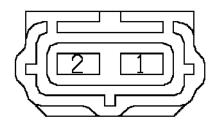


YPC 10064

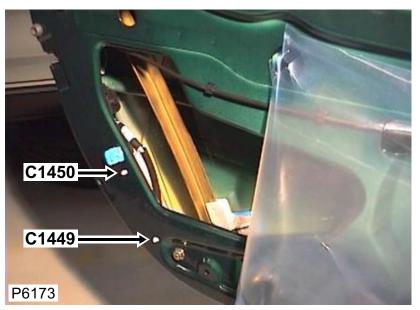


CavColCct1BOALL2BALL

Description: Assembly - Door lock - Drivers - RHD Location: Behind RH front door trim panel

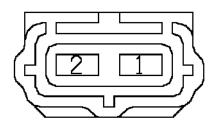


YPC 10070



Cav	Col	Cct
1	ВО	ALL
2	В	ALL

Description: Assembly - Door lock - Drivers - LHD Location: Behind LH front door trim panel



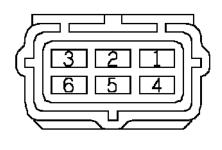
YPC 10070



Col Cct Cav 1 В ALL 3 O ALL 4 PW ALL 5 ALL NK 6 K ALL

Description: Assembly - Door lock - Passenger - RHD

Location: Behind LH front door trim panel



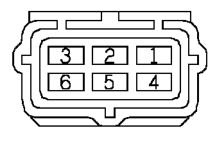
YPC 10064



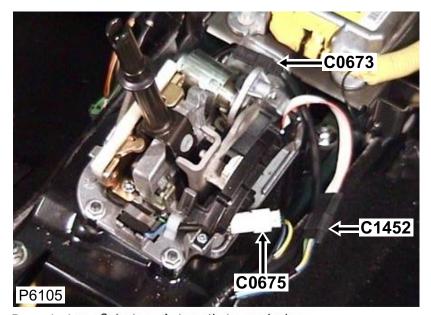
Cav	Col	Cct
1	О	ALL
3	В	ALL
4	K	ALL
5	NK	ALL
6	PS	ALL

Description: Assembly - Door lock - Passenger - LHD

Location: Behind RH front door trim panel



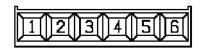
YPC 10064



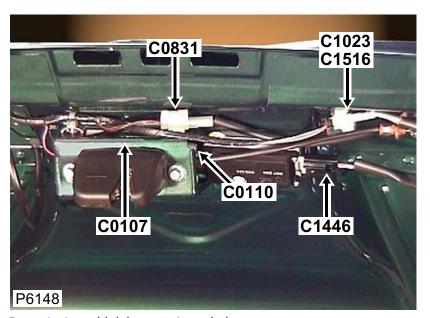
Cct Cav Col 1 В 8 2 U 8 Y 3 8 4 UG 8 5 GY 8

Description: Selector - Automatic transmission

Location: Behind centre console



YPC111760



 Cav
 Col
 Cct

 1
 BK
 10

 2
 NR
 10

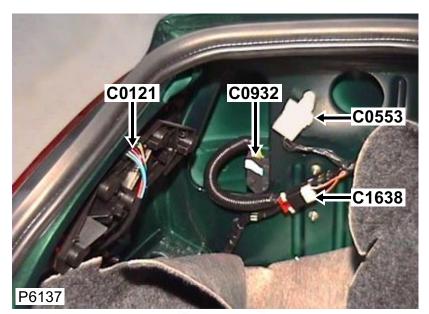
Description: Link harness to main harness

Location: Boot latch



YPC 10071

Colour: NATURAL Gender: Male



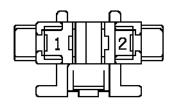
 Cav
 Col
 Cct

 1
 NK
 8

 2
 NK
 8

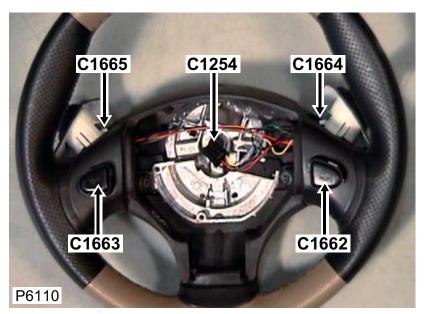
Description: Fuse - Unit - Gearbox interface

Location: Behind luggage compartment carpet LH side



YQE 10001

Colour: NATURAL Gender: Female

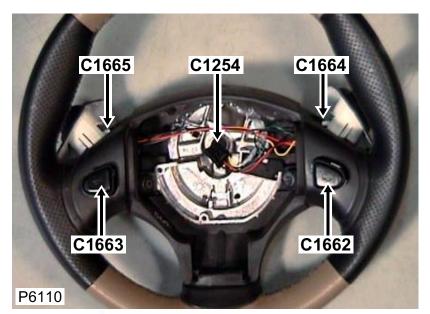


CavColCct1BALL2RALL

Description: Switch - Horn - RH

Location: In centre of steering wheel

## **NO CONNECTOR FACE**

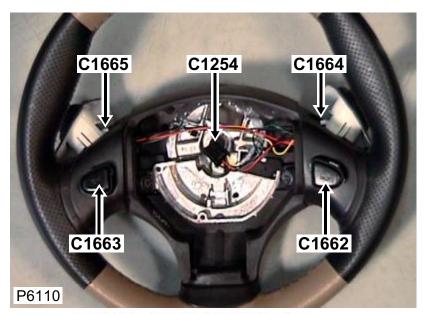


CavColCct1BALL2RALL

Description: Switch - Horn - LH

Location: In centre of steering wheel

## **NO CONNECTOR FACE**



 Cav
 Col
 Cct

 1
 G
 ALL

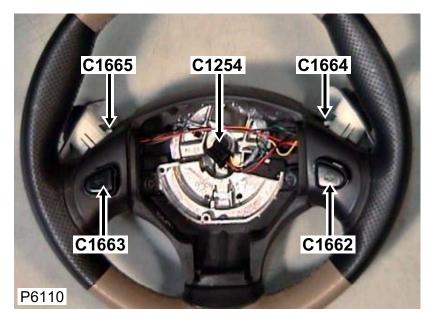
 2
 B
 ALL

 3
 Y
 ALL

Description: Switch - Remote - Steptronic - Up

Location: In centre of steering wheel

## **NO CONNECTOR FACE**



 Cav
 Col
 Cct

 1
 O
 ALL

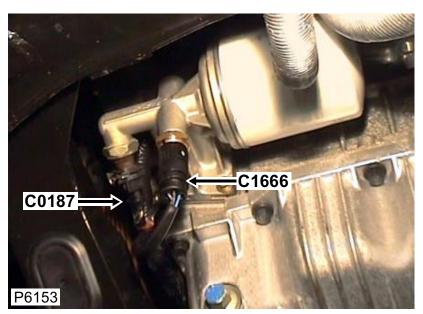
 2
 B
 ALL

 3
 G
 ALL

Description: Switch - Remote - Steptronic - Down

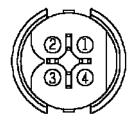
Location: In centre of steering wheel

## **NO CONNECTOR FACE**



Cav	Col	Cct
1	NU	ALL
2	В	ALL
3	U	8
4	GO	8

Description: Sensor - Oil temperature Location: Bottom of engine - RH side



YPC 113850