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This Manual should be used in conjunction with the following publications:

LRL 0097ENG	Workshop Manual
LRL 0125ENG	Electrical Circuit Diagrams

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INTRODUCTION

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 the document.
2. **FUSE DETAILS** - provides details of location, rating in Amps, wire colour and circuit(s) protected.
3. **EARTH POINTS AND HEADER JOINTS** - provides details of earth points, earth and power header joints, 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. **CONNECTOR** - details of connectors including a location photograph, face view and pin-out table.



NOTE: Before starting electrical checks on the vehicle, ensure that the 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 detailed on the next page.

INTRODUCTION

Battery Voltage

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

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 12.3V 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.

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 to 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 connectors are in good condition. This particularly applies to mains lead and connections.



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 minimize the risk of shock. Wearers of surgically implanted pacemaker devices should not work in close proximity to ignition circuits or diagnostic equipment.

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 ECUs. 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.

INTRODUCTION

Connectors and Harness - 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 starter 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 terminals. When replacing the component keep oily hands away from electrical connection areas and push connectors home until any locking tabs fully engage.

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.



CAUTION: To prevent damage to electrical components ALWAYS disconnect the battery when working on the vehicle electrical system. 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 naked 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 electronic 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 brake 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 test, and periodically during test, touch a good earth, i.e. cigar lighter socket, to discharge body static as some electronic components are vulnerable to static electricity.

Grease for electrical connectors

All under bonnet and under body connectors are protected against corrosion by the application of a special grease on production. Should connectors be disturbed in service or repaired or replaced, a grease of this type, available under Part No. BAU 5811, should again be applied.



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.

INTRODUCTION

ABBREVIATIONS

A	- Amps
ac	- Alternating current
A/C or Aircon	- Air conditioning
BBUS	- Battery backed up sounder
Cav	- Cavity
Cct	- Model or feature applicability
Col	- Colour
dc	- Direct current
ECU	- Electronic control unit
ECM	- Engine control module
EGR	- Exhaust gas recirculation
EKA	- Emergency key access
HRW	- Heated rear window
IACV	- Idle air control valve
ICE	- In-car entertainment
LED	- Light emitting diode
LH	- Left hand
LHD	- Left hand drive
Link	- Fusible link
MFi	- Multiport fuel injection
RF	- Radio frequency
RH	- Right hand
RHD	- Right hand drive
RWW	- Rear wash wipe
SFi	- Sequential fuel injection
TP	- Throttle position sensor
V	- Volts

HOW TO USE THIS DOCUMENT

Fuse details

Contains information on 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 joints

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

Description and Operation

Presented in the same order as the circuit diagrams are displayed in the Electrical Circuit Diagram folder, each of the descriptions contains a brief overview of the main system functions and includes operating parameters for sensors and switches and 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

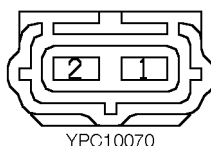
This section is effectively an index of every electrical connector on the vehicle, including header joints and eyelets. A page is dedicated to each connector, with the information presented in a standard format including display of the connector number on each page header to ease reference. Some derivatives within the model range may have connectors which have been allocated identical numbers to those already used, but are located in a different position on the vehicle. Where possible these connectors are displayed on adjacent pages together with an alternative location statement, a qualifying statement and an accompanying photograph.

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 to a component have Female pins.

INTRODUCTION

- **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.
- **Derivatives** - Unless specified otherwise, location statements and photographs relate to all models. Model specific connectors are identified by a qualifying statement which follows the location statement. e.g. 300 TDi LHD.
- **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:

Cav	Col	CCT
1	GR	ALL
2	B	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 vehicles in the range.

INTRODUCTION

Where necessary 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	V8
2	300 TDi
3	Air Conditioning
5	Military
8	Hard Top
9	Station Wagon
10	EGR
12	Diesel Turbo Station Wagon
13	Lo-Line Radio
14	Diesel Turbo
15	Diesel Non Turbo
16	130"
17	90" / 110"
18	90" / 110" with HRW and RWW
20	Diesel Immobilisation
21	Diesel Non-immobilisation

INTRODUCTION

WIRE COLOUR CODES

The following list contains the wire colour codes used on the vehicle harnesses and is intended to give an indication of the function or feature for which a particular colour of wire is normally used. These guidelines do not always apply to the wiring between components and the main harness.

Code	Colour	Function
B	Black	Earth wire from a component to an earth tag.
G	Green	Ignition fused supply from passenger compartment fuse box: clock, instrument, indicators, electric mirrors
K	Pink	Fused supply: central door locking
LG	Light Green	Ignition auxiliary fused supply from passenger compartment fuse box: reverse lamps, brake lamps
N	Brown	Battery supply - to ignition switch from fusible link 3 and 5
O	Orange	Fused supply: central locking
P	Purple	Fused permanent supply - to interior lamps, radio cassette, clock, anti-theft alarm, electric aerial
R	Red	Fused supply: sidelamps
S	Slate (grey)	Fused supply: electric windows
U	Blue	Fused supply: headlamps, cooling fans
W	White	Ignition switched supply to passenger compartment fuse box
Y	Yellow	Ignition switched supply to passenger compartment fuse box

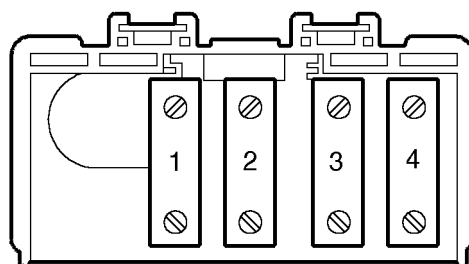
Fault diagnosis

When diagnosing an electrical fault follow the steps below:

1. Read the circuit description and study the circuit diagram 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 this approach until a fault is found, rectify the fault and then verify that the circuit operates correctly.

INTRODUCTION

Engine Compartment Fuse Box

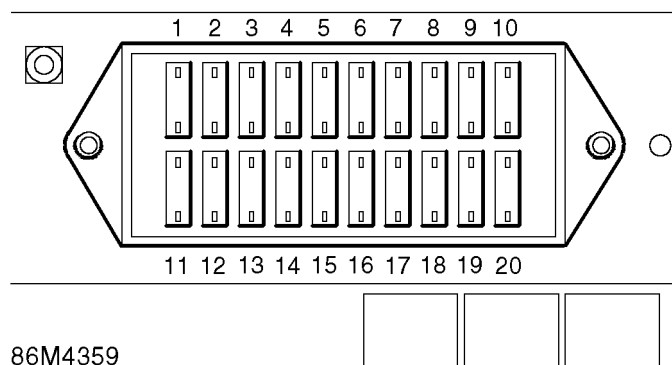


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Link	Rating	Wire Colour	Function
1	30 Amp	N	Lighting switch, dim dip resistor, BBUS, alarm sounder relay, anti-theft alarm LED, fuse 21.
2	60 Amp	N	Ignition switch, starter relay, fuses 1 and 2.
3	60 Amp	N	Glow plug timer.
4	20 Amp	N	Heated rear screen relay, fuses 18 and 19 (non A/C vehicles only).
4	60 Amp	N	Heated rear screen relay, main A/C, fuses 18 and 19.

FUSE DETAILS

Passenger Compartment Fuse Box



Fuse	Rating	Wire Colour	Function
1	15 Amp	N	Alarm ECU, hazard warning switch.
2	20 Amp	N	Trailer pick-up, column switch, interior lamp unit, clock, radio/cassette player.
3	15 Amp	W	Coolant temperature gauge, fuel gauge, rear screen wash/wipe switch, hazard warning switch, rear wiper park switch, fuel gauge relay.
4	15 Amp	W	Windscreen wiper motor, windscreen wiper delay unit, windscreen wash/wipe switch.
5	15 Amp	WO	Blower motor.
6	7.5 Amp	OU	Fog guard lamp ECU.
7	5 Amp	WO	Radio/cassette player, air conditioning.
8	15 Amp	RO	Heated rear screen warning lamp, heated rear screen element.
9	10 Amp	W	Cigar lighter.

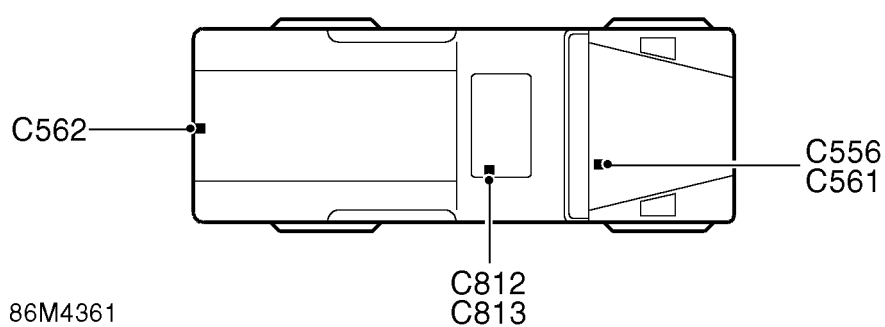
FUSE DETAILS

10	20 Amp	PB	Alarm sounder relay.
11	7.5 Amp	UR	RH headlamp.
12	7.5 Amp	UR	LH headlamp.
13	7.5 Amp	UW	RH headlamp.
14	7.5 Amp	UW	LH headlamp.
15	5 Amp	R	Trailer pick-up, LH front side lamp.
16	5 Amp	R	Trailer pick-up, RH front side lamp, instrument pack, dim dip relay, cigar lighter, in-line resistor, coolant temperature gauge, speedometer, fuel gauge.
17	15 Amp	W	Brake pedal switch, reverse lamp switch, EGR ECU, EGR modulator.
18	20 Amp	N	Air conditioning.
19	5 Amp	N	Air conditioning.
20	5 Amp	W	Alarm ECU, engine immobilisation warning lamp, BBUS.
21	15 Amp	N	Alarm ECU.
22	7.5 Amp	BN	Diagnostic socket.

EARTH POINTS AND HEADER JOINTS

Earth Points

The following illustration indicates the general position of each Earth Point on the vehicle.



Connector No	Title	Location
C556	Earth eyelet	Centre of engine compartment bulkhead.
C561	Earth eyelet	Centre of engine compartment bulkhead. (A/C only)
C562	Earth eyelet	Adjacent rear screen wiper motor.
C812	Earth eyelet	Side of gearbox.
C813	Earth eyelet	Side of gearbox.



NOTE: The earth points listed above, will not necessarily be fitted to all versions of the vehicle.

EARTH POINTS AND HEADER JOINTS

Earth Headers

Connector No	Title	Location
C287	Earth header	Behind centre of fascia.

DESCRIPTION AND OPERATION

ENGINE IMMOBILISATION AND ALARM SYSTEM (IF FITTED)

DESCRIPTION

Although a key is used in the normal way to lock and unlock the vehicle, this will not fully arm the engine immobilisation/alarm system. The system is fully armed with an RF handset, which transmits a rolling code. This code is received by the alarm ECU. If a door is opened without the alarm ECU receiving the correct signal from the handset, the alarm will sound.

The alarm ECU also informs the engine immobilisation ECU if an incorrect signal is received. In this case, the immobilisation ECU would fail to provide a feed to the starter relay, immobilising the engine.

Passive immobilisation (if fitted) is also a feature, with a passive coil fitted around the ignition barrel. This will activate 30 seconds after the ignition is turned off and the drivers door is opened. Alternatively, passive immobilisation will occur 5 minutes after the vehicle is unlocked, or the ignition is turned off. When attempting to restart the vehicle, passive immobilisation can be switched off using either the RF handset or the EKA code.

The EKA code is entered by the following process;

1. With the drivers door closed, insert the key into the ignition switch, turn to position "II" and hold in this position for 5 seconds. Then switch off.
2. Turn the ignition switch to position "II" the required number of times to enter the first digit of the code (if the first digit is 4, turn the key to position "II" and then back to "0" four times).
3. Open the drivers door (to enter the first digit) and then close the door again.
4. Turn the starter switch to position "II" and back to "0" the required number of times to enter the SECOND digit of the code.
5. Open the drivers door (to enter the second digit) and then close the door again.
6. Turn the starter switch to position "II" and back to "0" the required number of times to enter the THIRD digit of the code.
7. Open the drivers door (to enter the third digit) and then close the door again.
8. Turn the starter switch to position "II" and back to "0" the required number of times to enter the FOURTH digit of the code.

DESCRIPTION AND OPERATION

9. Finally, OPEN and CLOSE the drivers door. If the code has been entered correctly, the anti-theft indicator lamp will extinguish and the engine can be started.



NOTE: If the vehicle has been previously armed, and the handset is inoperative, the alarm will sound throughout the EKA entering process.

OPERATION

Feed from the positive battery terminal is connected to the engine compartment fuse box (C632-1) by a brown wire. Current flows through fusible link 1 and fusible link 2 of the engine compartment fuse box, which are connected in parallel. Fusible link 1 (C907-1) supplies a constant battery feed to;

- The BBUS (C666-2) on a black wire,
- Fuse 21 (C965-1) on a brown wire,
- Pin 86 (C964-30) of the alarm sounder relay on a brown wire,
- Pin 30 (C964-30) of the alarm sounder relay on a brown wire,
- The anti-theft alarm LED (C240-2) on a brown wire.

Fusible link 2 (C907-2) supplies a feed to;

- The ignition switch (C028-1) on a brown wire,
- The starter relay (C151-87) on a brown wire,
- Fuse 1 (C580-1) of the passenger compartment fuse box on a brown wire,
- Fuse 2 (C580-3) of the passenger compartment fuse box on a brown wire.

ALARM

Fuse 21 (C965-2) supplies a constant battery feed to the alarm ECU (C061-25) on a brown wire. The alarm ECU is supplied a permanent earth (C057-11) by a black wire. The alarm ECU (C057-8) also receives a constant battery feed from fuse 1 of the passenger compartment fuse box (C580-2) on a purple wire. This feed is then used to power the hazard warning lamps (C057-1 & C057-6).

When the vehicle alarm has been armed, the alarm ECU receives a number of inputs. The RH door switch (C054-1) is connected to the alarm ECU (C061-5) by a slate/white wire. When the door is closed, the switch is open. In this condition, the alarm ECU (C057-5) supplies the BBUS (C666-3) with battery voltage. When the door is opened, the door switch closes, providing a short to earth. The alarm ECU responds by supplying the BBUS with a reduced voltage. Sensing this drop in voltage, the BBUS sounds.

DESCRIPTION AND OPERATION

The same principle is true of the LH door switch and the bonnet switch. The LH door switch (C033-1) is connected to the alarm ECU (C061-16) by a purple/blue wire, and the bonnet switch (C007-2) is connected to the alarm ECU (C061-9) by an orange/blue wire. The bonnet switch is earthed (C007-1) on a black wire. Both interact with the BBUS in exactly the same way as the RH door switch.

In addition to being supplied with a constant battery feed (C666-2), the BBUS also has its own internal power supply, and is earthed (C666-4) on a black wire.

The alarm ECU (C061-20) also provides a feed for the ultrasonic modules (C359-1 & C889-1) on black/brown wires. The modules are earthed (C359-2 & C889-2) on black wires. When the modules detect movement, they supply the alarm ECU (C061-3) with a short series of pulses on a white/black wire. Once the alarm ECU detects these pulses, the BBUS is again sounded.

To disarm the alarm system, the RF handset is used. The signal transmitted by the handset is received by the aerial. The aerial is connected to the alarm ECU (C061-26) by an orange/slate wire.

The anti-theft alarm LED is used as a visual deterrent and is connected to the alarm ECU (C057-4) by a pink wire. To illuminate the LED, the alarm ECU provides a path to earth (C057-11). To extinguish the LED, the ECU provides it (C240-1) with a voltage equal to that provided by fusible link 1. As the potential difference across the LED is now 0 volts, the LED is extinguished. In this way, the ECU can control the flashing sequence of the LED.

The alarm ECU also controls the interior lamps. The ECU (C061-1) provides a feed to the interior lamp unit (C357-1) on a purple/white wire. This informs the lamp unit to extinguish the interior lamps. When the interior lamp unit receives a reduced feed from the alarm ECU, it illuminates the interior lamps.

The alarm and immobilisation systems can be interrogated through the diagnostic socket (C040-8), which is connected to the alarm ECU (C061-17) by an orange/light green wire.

DESCRIPTION AND OPERATION

IMMOBILISATION

With the ignition switch in position "II", power flows across the switch (C094-1) and supplies a feed to fuse 20 of the passenger compartment fuse box (C580-39) on a white wire, and to the engine immobilisation ECU (C868-8 & C863-5) on a black wire.

The immobilisation ECU is provided with a permanent earth (C863-1) on a black wire.

Fuse 20 of the passenger compartment fuse box (C580-40) is connected to the alarm ECU (C061-10) by a green wire, the engine immobilisation warning lamp (C961-1) on a green wire, and the BBUS (C666-1) on a black wire. The warning lamp and the BBUS are connected to parallel.

The engine immobilisation warning lamp (C962-1) is connected to the alarm ECU (C057-9) by an orange wire. To illuminate the lamp, the ECU provides an earth (C057-11). To extinguish the lamp, the ECU provides a feed equal to that provided by fuse 20. As the potential difference across the lamp is now 0 volts, the lamp is extinguished. In this way, the alarm ECU can control the flashing sequence of the lamp.

The alarm ECU (C061-14) is connected to the immobilisation ECU (C863-9) by a black wire. The alarm ECU will inform the immobilisation ECU that the alarm system is armed.

When the ignition switch is turned to the "crank" position (C090-1), power flows across the switch to the starter relay (C151-85) on a white/red wire. With the engine immobilised, the alarm ECU (C057-10) provides a feed equal to the ignition feed to the starter relay (C151-86) on a black/orange wire. As the potential difference across the relay coil is 0 volts, the relay fails to energise.

If the engine is mobilised, the alarm ECU withdraws this feed and provides an earth path for the relay. This energises the relay and allows the ignition feed from fusible link 2 of the engine compartment fuse box to flow across the relay (C151-87 & C151-30) and onto the immobilisation ECU (C863-6) on a brown/red wire. When the immobilisation ECU receives an input from the starter relay, it in turn provides a feed to the starter motor solenoid (C179-1) on a black wire. The engine will now start.

DESCRIPTION AND OPERATION

The immobilisation ECU also controls the fuel cut-off solenoid (C198-1), which is connected (C863-4) by a black wire. The immobilisation ECU fails to provide the solenoid a feed if the vehicle has been immobilised.

In addition to the features directly controlled by the immobilisation ECU, a passive coil is fitted around the ignition barrel. This is a user friendly way of re-mobilising the engine. The passive coil (C663-1) receives a power supply from the alarm ECU (C057-7) on an orange/green wire.

The passive coil is only energised when the ignition switch is in position "II" and the engine is in an immobilised state. The coil creates a magnetic field that excites a coil in the RF handset. This causes the handset to transmit a code to the alarm ECU to mobilise the engine.



NOTE: For the passive coil to operate correctly, the ignition key and the RF handset must be on the same key ring.



NOTE: Passive immobilisation is not fitted in all markets. Check vehicle specification.

DESCRIPTION AND OPERATION

CHARGING AND STARTING - DIESEL

DESCRIPTION

The charging system consists of an alternator containing 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 approximately 14 volts.

CHARGING - OPERATION

Feed from the positive battery terminal is connected to the engine compartment fuse box (C632-1) by a brown wire. Current passes through fusible link 2 and fusible link 3, which are connected in parallel. Fusible link 2 (C907-2) is connected to the ignition switch (C028-1) by a brown wire. With the ignition switch in position "II" (C094-1), a feed is supplied to the ignition/no charge warning lamp (C230-5) on a white wire.

The warning lamp (C230-5) is earthed via the diode (C118-1) on a yellow/brown wire and through the alternator field windings (C185-1) on a brown/yellow wire. The flow of current through the warning lamps and field windings partially magnetises the rotor. A resistor (C037-1 & C038-1) is wired in parallel with the warning lamps to ensure continued exciter voltage in the event of bulb failure.

When the engine starts, the magnetised rotor rotates within the stator windings, generating a 3 phase alternating current (ac) and voltage which rises rapidly with rotor speed. The field diodes convert the ac current to direct current (dc) and the generated voltage is fed back to the field windings. As the feed back voltage increases, the magnetic influence of the rotor also increases, resulting in self-excitation of the rotor. Generated current and voltage increases with rotor speed until the alternator is fully excited.

DESCRIPTION AND OPERATION

When the alternator outputs a voltage equal to that supplied by the battery, the warning lamp is extinguished as the potential difference across the lamp is 0 volts. The diode between the alternator and warning lamp prevents reverse flow.

The regulator functions as an electronic control switch on the earth side of the field coils. The regulator rapidly switches the earth circuit off and on to control the generated voltage and current to safe limits.

If the battery is in a low state of charge or current draw from the electrical system is high and causes a voltage drop, the alternator charges at its maximum rate until 14 volts is generated. As battery voltage rises, the generator current output reduces.

STARTING - OPERATION

Feed from the positive battery terminal is connected to the engine compartment fuse box (C632-1) by a brown wire. Current passes through fusible link 2 and fusible link 3, which are connected in parallel. Fusible link 2 (C907-2) is connected to the ignition switch (C028-1) by a brown wire.

When the ignition switch is turned to the "crank" position, power flows across the switch (C090-1) to the starter relay coil (C151-85) on a white/red wire. Current then flows from the starter relay (C151-86) to the alarm ECU (C057-10) on a black/orange wire. Assuming the alarm ECU has received the correct code from the RF handset, it will complete the path to earth (C057-11) on a black wire and energize the starter relay.

Power from fusible link 2 (C907-2) can now flow across the starter relay switch and onto the engine immobilisation ECU (C863-6). Again, assuming the alarm ECU has received the correct code from the RF handset, it will inform the engine immobilisation ECU (C863-10) to provide a feed to the starter motor solenoid (C179-1) on a black wire. This feed will energize the solenoid, allowing a positive feed from the battery to flow across the solenoid (C178-1) and power the starter motor. An earth is provided by the starter motor.

DESCRIPTION AND OPERATION

Glow Plugs

Glowplugs are fitted to the TDi engine to assist starting. A constant battery feed is supplied by fusible link 3 (C907-3) to the glow plug timer (C189-5) on a brown wire. When the ignition switch is turned to position "II", a second feed is supplied to the glow plug timer (C189-3). This triggers a feed (C189-6) to the glow plugs.

With the ignition switch in position "II", the glow plug warning lamp (C230-4) is provided a feed via fuse 17 (C580-33) of the passenger compartment fuse box on a white wire. The warning lamp (C233-10) is connected to the glow plug timer (C189-2) by a yellow/black wire.

When the glow plug timer provides a feed for the glow plugs (C189-6), it simultaneously provides an earth path (C189-4) for the warning lamp. After a set period, feed to the glow plugs, and the earth path for the warning lamp are cut; extinguishing the warning lamp.

DESCRIPTION AND OPERATION

CHARGING AND STARTING - V8

DESCRIPTION

The charging system consists of an alternator containing 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 approximately 14 volts.

CHARGING - OPERATION

Feed from the positive battery terminal is connected to fusible link 2 (C632-1) of the engine compartment fuse box by a brown wire. Fusible link 2 (C907-2) supplies a feed to the ignition switch (C28-1) on a brown wire and the starter relay (C151-87), also on a brown wire.

With the ignition switch in position "II" (C094-1), a feed is supplied to the ignition coil (C156-1) and the ignition amplifier module (C633-3) on white wires.

The ignition switch also provides a feed to the ignition/no charge warning lamp (C230-4) on a white wire. The warning lamp is earthed (C230-5) via the diode (C118-1) on a yellow/brown wire and through the alternator field windings (C185- 1) on a brown/yellow wire. The flow of current through the warning lamp and field windings partially magnetises the rotor. A resistor (C038-1 & C037-1) is wired in parallel with the warning lamp to ensure continued exciter voltage in the event of bulb failure.

When the engine starts, the magnetised rotor rotates within the stator windings, generating a 3 phase alternating current (a.c.) and voltage which rises rapidly with rotor speed. The field diodes convert the a.c. current to direct current (d.c.) and the generated voltage is fed back to the field windings. As the feed back voltage increases, the magnetic influence of the rotor also increases, resulting in self-excitation of the rotor. Generated current and voltage increases with rotor speed until the alternator is fully excited.

DESCRIPTION AND OPERATION

When the alternator outputs a voltage equal to that supplied by the battery, the warning lamp is extinguished as the potential difference across the lamp is 0 volts. The diode between the alternator and warning lamp prevents reverse flow.

The regulator functions as an electronic control switch on the earth side of the field coils. The regulator rapidly switches the earth circuit off and on to control the generated voltage and current to safe limits.

If the battery is in a low state of charge or current draw from the electrical system is high and causes a voltage drop, the alternator charges at its maximum rate until 14 volts is generated. As battery voltage rises, the generator current output reduces.

STARTING - OPERATION

Feed from the positive battery terminal is connected to the engine compartment fuse box (C632-1) by a brown wire. Fusible link 2 (C907-2) then provides a constant battery feed to the ignition switch (C028-1) and the starter relay (C151-87). Both are connected by brown wires.

Fuel Supply

With the ignition switch in position "II" (C094-1), a feed is supplied to the fuel pump relay (C298-85) on a white wire. The relay is connected (C298-86) on a white/brown wire to the oil pressure switch (C187-1). When the engine is not turning over, there is no oil pressure. In this condition, the oil pressure switch is in the "closed" position. This provides an earth path and energises the fuel pump relay.

The ignition switch (C094-1) also provides a feed to pin 87A of the fuel pump relay (C298-87A) on a white wire. With the oil pressure switch in the "closed" position, the energised fuel pump relay is unable to provide a feed to the fuel pump (C115-2)

DESCRIPTION AND OPERATION

When the ignition switch is turned to the "crank" position (090-1), it provides a feed to the starter relay coil (C151-85) on a white/red wire. The relay is earthed (C151-86) on a black wire. Feed from fusible link 2 (C907-2) of the engine compartment fuse box can now flow across the starter relay (C151-87 & C151-30). Current flows from the starter relay (C151-30) to the similarly energised fuel pump relay (C298-87) on a white/red wire. The fuel pump relay (C2298-30) then provides a feed to the fuel pump (C115-2) on a white/purple wire. The fuel pump is earthed (C115-3) on a black wire.

With the engine running, and the ignition switch turned back to position "II" (C094-1), the oil pressure switch will sense oil pressure. This opens the switch and de-energises the fuel pump relay. Feed to the fuel pump is now provided solely by the fuel pump relay.

Ignition

With the ignition switch in position "II", a feed is supplied to the ignition coil (C156-1) and the ignition amplifier module (C633-3). Both are supplied current on white wires and are connected in parallel. An earth path is provided by the ignition amplifier module fixings.

When the ignition switch is turned to the "crank" position, power flows across the switch (C090-1) to the starter relay (C151-85) on a white/red wire. The relay is earthed (C151-86) on a black wire. This flow of current energizes the relay coil and allows a battery feed to flow across the relay (C151-87 & C151-30) and onto the starter motor (C179-1) on a white/red wire. This feed energizes the starter solenoid, and allows a feed from the alternator (C178-1) on a brown wire to operate the starter motor. An earth is provided by the starter motor.

DESCRIPTION AND OPERATION

HEATER BLOWER

DESCRIPTION

The heater is operated by three sliding controls attached to the instrument binnacle. Two of the controls regulate the temperature and air flow distribution. The third control operates the two speed heater blower. The heater blower operates with the ignition switch in position "I".

OPERATION

Feed from the positive battery terminal is connected to the engine compartment fuse box (C632-1) by a brown wire. Current passes through fusible link 2. Fusible link 2 (C907-2) is connected to the ignition switch (C028-1) by a brown wire.

With the ignition switch in position "I", power flows through the ignition switch (C099-1) to fuse 5 (C580-9) of the passenger compartment fuse box by a white/orange wire. Fuse 5 (C580-10) of the passenger compartment fuse box is connected to the blower fan motor (C846-3) by a purple/green wire. When the blower control is in the off position, the blower motor has no route to earth and does not run.

Moving the blower control to position "I", connects the blower motor (C846-2) to the blower switch (C058-2) on a green/yellow wire. Power flows through the blower motor and resistor to the blower switch (C058-2) and to earth (C058-3) on a black wire. The blower fan operates at low speed.

Moving the blower control to position 2, connects the blower motor (C846-1) directly to the blower switch (C058-1) on a green/slate wire, and to earth (C058-3) on a black wire. The blower fan now operates at high speed.

DESCRIPTION AND OPERATION

HEATED REAR WINDOW (HRW)

DESCRIPTION

The heated rear window (HRW) is operated by a latching switch mounted on the dash panel. When the switch is set to the "On" position, the instrument panel warning lamp will illuminate to indicate the HRW is operating. The HRW only operates when the ignition switch is turned to position "II".

OPERATION

Feed from the positive battery terminal is connected to the engine compartment fuse box (C632-1) by a brown wire. Current passes through fusible link 2 and fusible link 4 of the engine compartment fuse box, which are connected in parallel. Fusible link 2 (C907-2) is connected to the ignition switch (C028-1) by a brown wire.

With the ignition switch in position "II" (C094-1), current flows to the HRW switch (C381-2) on a white wire. The switch controls the HRW relay coil.

When the switch is depressed, current flows from the switch (C381-4) to the relay coil (C044-85) on a white/green wire. Current flows across the coil and is earthed (C044-86) by a black wire via the earth header joint (C287-2).

With the relay coil energised, battery feed via fusible link 4 (C906-1) is able to flow across the HRW relay main terminals (C044-87 & C044-30). The energised relay now supplies a feed to fuse 8 of the passenger compartment fuse box (C580-15) on a brown/white wire.

Fuse 8 of the passenger compartment fuse box (C580-16) supplies current to the HRW element (C382-1) on a brown/white wire, and the HRW warning lamp (C929-1), also on a white/brown wire. The warning lamp and heater element are connected in parallel.

DESCRIPTION AND OPERATION

WIPERS AND WASHERS

DESCRIPTION

The front windscreen wipers are controlled from the column switch and operate when the ignition switch is in position "II". The wipers have 2 speed settings, along with a flick wipe and single wipe facility. An intermittent wipe function and programmed wash wipe facility is controlled by the front wiper delay unit.

Moving the wiper switch down from the off position initiates the intermittent wipe function. Moving the wiper switch up one position from the off position, operates the wipers at slow speed. Moving the wiper switch up two positions from the off position, operates the wipers at fast speed. Pushing the wiper switch up from the off position, not allowing it to latch, and then releasing it causes the wipers to perform a single wipe cycle at slow speed. Pushing and holding the wiper switch up from the off position, not allowing it to latch, causes the wipers to operate at slow speed until the wiper switch is released.

Pressing the end of the wiper switch, initiates the programmed wash wipe sequence. The windscreen washers operate while the switch is pressed and the wipers continue to operate for a number of cycles after the switch is released.

The rear screen wiper and wash facilities are controlled by a switch mounted on the dash panel. Pressing the switch causes the rear washer to operate until the switch is released. The rear wiper does not operate automatically with the rear wiper. Turning the switch clockwise causes the rear wiper to operate until the switch is turned back to the off position.

DESCRIPTION AND OPERATION

OPERATION

Feed from the positive battery terminal is connected to the engine compartment fuse box (C632-1) by a brown wire. Current passes through fusible link 2 (C907-2) which is connected to the ignition switch (C028-1) by a brown wire. With the ignition switch in position "II", power flows across the switch (C094-1) to fuse 3 (C580-5) and fuse 4 (C580-7) of the passenger compartment fuse box, which are connected in parallel. Both are fed by white wires. Fuse 3 supplies the rear wash/wiper circuit, and fuse 4 the front wash/wipe circuit.

Front Wipers and Washers

Fuse 4 of the passenger compartment fuse box (C580-8) supplies the front wiper delay unit (C303-8) a 12 volt feed on a green wire when the ignition switch is in position "II".

Slow and Fast Speeds

Fuse 4 also provides a feed to the wash/wipe switch (C278-6) on a green wire. Moving the switch to the slow speed position allows power to flow across the switch (C278-1), to the wiper motor (C030-3) on a blue/light green wire. This feed into the wiper motor does not energize all the motor windings, therefore the motor operates at slow speed. The wiper motor is earthed (C030-1) on a black wire. Moving the wiper switch to the fast position allows power to flow through the switch (C278-5) to the wiper motor (C030-5) on a red/light green wire. This time, all motor windings are energized and the motor operates at fast speed. Again, the wiper motor (C030-1) is earthed on a black wire.

Operating the flick wipe function outputs a feed from the wash/wipe switch (C278-5), and onto the wiper motor (C030-5) for as long as the switch is held against spring pressure. The wipers operate at fast speed.

DESCRIPTION AND OPERATION

Park Circuit

Positioning the wash/wipe switch to the "off" position cuts power to the wiper motor on the blue/light green or red/light green wire. The park circuit operates to return the wipers to their park position. The park switch (C030-4), integral to the wiper motor unit, receives a 12 volt supply from fuse 4 of the passenger compartment fuse box (C580-6) on a green wire. The park switch is closed with the wipers in any position other than their park position.

With the park switch closed, power flows across the switch (C030-2) to the front wiper delay unit (C303-5) on a brown/light green wire. The front wiper delay unit (C303-2) is connected to the wash/wipe switch (C278-4) by a yellow/light green wire. Power flows through the wash/wipe switch (C278-1) to the wiper motor (C030-3) on a blue/light green wire. The wiper motor is earthed on a black wire. The wipers operate until their park position is reached and the park switch opens, cutting power supply to the wiper motor.

Intermittent Wiper Function

Moving the wiper switch to the intermittent wipe position allows power to flow across the switch (C278-3) to the front wiper delay unit (C303-1) on a white/green wire. With a 12 volt signal applied to the delay unit from the wiper switch, the delay unit switches the route to earth (C303-4) on and off approximately every 5 seconds on a black wire.

Programmed Wash/Wipe Function

Depressing the end of the wiper switch operates the programmed wash/wipe function. The washer switch (C278-6) is supplied from fuse 4 of the passenger compartment fuse box (C580-8) on a green wire. When the switch is closed, power flows through the switch (C278-2) to the front wiper delay unit (C303-6) on a green/black wire, and to the windscreen washer pump (C008-2) on another green/black wire. The washer pump is earthed (C008-1) on a black wire.

DESCRIPTION AND OPERATION

When the delay unit (C303-6) receives a feed from the washer switch (C278-2), it outputs a feed (C303-2) to the wash/wipe switch (C278-4) on a yellow/light green wire. Power flows out through the wash/wipe switch (C278-1) and onto the wiper motor (C030-3), which operates at slow speed. When the washer switch is released, the delay unit will operate the wipers for a further 3 cycles. Once this has been completed, feed to the wash/wipe switch is cut by the delay unit and the park circuit is initiated.

Rear Wiper

The rear wiper switch (C918-1) is supplied by fuse 3 of the passenger compartment fuse box on a green wire. When the switch is in the "on" position (C915-1), power is fed to the rear screen wiper motor (C388-2) on a red/light green wire. The wiper motor (C388-1) is earthed on a black wire.

Park Circuit

Positioning the wiper switch to the "off" position cuts power to the wiper motor on the red/light green wire. The park circuit operates to return the wiper to its park position. The park switch (C079-2), integral to the wiper motor unit, receives a 12 volt supply from fuse 3 of the passenger compartment fuse box (C580-6) on a green wire. The park switch is closed with the wiper in any position except its park position.

With the park switch closed, power flows across the park switch (C079-1) to the wiper switch (C916-1) on a brown/light green wire. Power flows through the wiper switch (C915-1) to the wiper motor (C388-2) on a red/light green wire. The wiper motor is earthed (C388-1) on a black wire.

Rear Wash

The rear wash switch (C918-1) is supplied by fuse 3 of the passenger compartment fuse box on a green wire. When the switch is closed (C917-1), power is fed to the rear screen washer pump (C021-2) on a black/light green wire. The washer pump (C021-1) is earthed on a black wire. The rear screen wash does not operate the rear wiper.

DESCRIPTION AND OPERATION

EXTERIOR LAMPS - Brake and Reverse Lamps

DESCRIPTION

The brake lamps illuminate when the ignition is in position "II" and the brake pedal is depressed. The reverse lamps illuminate when the ignition is in position "II" and reverse gear is selected.

OPERATION

Feed from the positive battery terminal is connected to the engine compartment fuse box (C632-1) by a brown wire. Current passes through fusible link 2 (C907-2) and is connected to the ignition switch (C028-1) by a brown wire. When the ignition switch is in position "II", power flows across the switch (C094-1) and is connected to fuse 17 of the passenger compartment fuse box (C580-33) by a white wire. Current flows across the fuse (C580-34) and feeds the brake pedal switch (C075-1) and the reverse lamp switch (C167-2), which are connected in parallel. Both switches are fed by green wires.

Brake Lamps

When the brake pedal is depressed, the brake pedal switch closes and power flows through the switch. The brake pedal switch (C029- 1) is connected to the LH tail lamp (C404-2), the trailer pick-up (C416-1), and the RH tail lamp (C401-2) by green/purple wires. All brake lamps are earthed on black wires.

Reverse Lamps

When reverse gear is selected, the reverse lamp switch is closed. Current flows across the reverse lamp switch (C167-1) to the RH reverse lamp (C455-2), and the LH reverse lamp (C490-1) on green/brown wires. Both reverse lamps are earthed on black wires.

DESCRIPTION AND OPERATION

EXTERIOR LAMPS - Head, Side and Number Plate Lamps

DESCRIPTION

The lights are operated from the lighting switch located on the steering column. The lighting switch has two positions. Position 1 switches on the tail lamps, the number plate lamps, and front side lamps. Position 2 additionally switches on the front headlamps. When the headlamps are on, the column switch can be used to switch between main beam and dipped beam.

The headlamps can be flashed with the lights on or off, by pulling the column switch towards the driver.

OPERATION

Feed from the positive battery terminal is connected to the engine compartment fuse box (C632-1) by a brown wire. Current passes through fusible link 1 and fusible link 2, which are connected in parallel. Power from fusible link 1 (C907-1) feeds the lighting switch (C041-1) on a brown wire.

Side Lamps

With the lighting switch in the side lamps position, power flows through the light switch (C041-2) to fuse 16 (C580-31) and fuse 15 (C580-29) of the passenger compartment fuse box on red wires. Fuses 16 and 15 are connected in parallel, fuse 16 feeding the RH lamps, fuse 15 the LH lamps.

Fuse 16 of the passenger compartment fuse box (C580-32) is connected to the RH front side lamp (C537-2) by a red/orange wire. The lamp is then earthed (C537-1) on a black wire. Fuse 16 also feeds the RH trailer pick-up (C418-1) on a red/orange wire. This is connected in series with the RH tail lamp (C401-3). The tail lamp is earthed (C401-1) on a black wire. Also connected in parallel with the RH front side lamp is the side lamp instrument pack warning lamp (C233-5), which is fed by a red/orange wire. The warning lamp is earthed (C233-2) by a black wire.

DESCRIPTION AND OPERATION

Fuse 15 of the passenger compartment fuse box (C580-30) is connected to the LH front side lamp (C538-2) by a red/black wire. The lamp is then earthed (C538-1) on a black wire. Connected in parallel with the LH front side lamp is the LH trailer pick-up (C877-1), which is also fed by a red/black wire. The trailer pick-up (C877-2) is connected in series to the LH tail lamp (C404-3) by a red/black wire. The tail lamp is earthed (C404-1) on a black wire.

Headlamps

With the lighting switch in the main beam position, power flows through the switch (C041-4) to the headlamp relay (C282-87) on a blue wire. The relay coil (C282-85) is energized when the ignition switch is in position "II", and is earthed (C282-86) on a black wire.

Dipped beam

When the relay coil is energized, it allows current to flow across the relay (C282-30) to the column switch (C036-1) on a blue wire. The column switch (C036-6) is connected to the dim dip relay (C048-8) by a blue/red wire. As the dim dip relay is not energized, current is allowed to flow from the relay (C048-2) to fuses 11 and 12 of the passenger compartment fuse box. Both fuses are fed by blue/red wires, and are connected in parallel. Fuse 11 feeds the RH headlamp, fuse 12 the LH headlamp.

Fuse 11 of the passenger compartment fuse box (C580-22) is connected to the RH headlamp (C011-2) by a blue/black wire. This illuminates the headlamp dipped beam and is earthed (C011-3) on a black wire.

Fuse 12 of the passenger compartment fuse box (C580-24) is connected to the LH headlamp (C009-2) by a blue/black wire. This illuminates the headlamp dipped beam and is earthed (C009-3) on a black wire.

DESCRIPTION AND OPERATION

Full Beam

When the column switch is moved to the main beam position (C036-5), current is supplied to fuse 13 (C580-25) and fuse 14 (C580-27) of the passenger compartment fuse box. Both are connected by blue/white wires. A feed is also supplied to the main beam warning lamp (C233-5) on a blue/white wire.

Fuse 13 (C580-26) supplies a feed to the RH headlamp (C011-1) on a blue/orange wire. The headlamp is earthed (C011-3) on a black wire.

Similarly, fuse 14 (C580-28) supplies a feed to the LH headlamp (C009-1) on a blue/slate wire. The headlamp is earthed (C009-3) on a black wire.

Headlamp Flash

Fusible link 2 (C907-2) of the engine compartment fuse box supplies a constant battery feed to fuse 2 (C580-3) of the passenger compartment fuse box. Fuse 2 (C580-4) is connected to the column switch (C036-7) by a purple wire.

When the column switch is pulled back to the flash position, current flows across the switch (C036-5) and provides a feed to fuse 13 (C580-25), fuse 14 (C580-27) and the instrument pack warning lamp (C233-5) on blue/white wires. All 3 are earthed on black wires as described in the 'Full Beam' description.

DESCRIPTION AND OPERATION

EXTERIOR LAMPS - Rear Fog Lamps

DESCRIPTION

The rear fog lamps only operate when the headlamps are illuminated and the ignition switch is in position "II". The non-latching switch is positioned in the centre of the dash panel. When the rear fog lamps are switched on, the instrument pack warning lamp also illuminates. The fog lamps are automatically switched off every time the ignition is turned off.

OPERATION

Feed from the positive battery terminal is connected to the engine compartment fuse box (C632-1) by a brown wire. Current flows through fusible link 1 and fusible link 2 of the engine compartment fuse box, which are connected in parallel.

Fusible link 1 of the engine compartment fuse box (C907-1) is connected to the lighting switch (C041-1) by a brown wire. With the lighting switch in either the side or main lamp position, current flows across the switch (C041-4) to the headlamp relay (C282-87) on a blue wire. As the relay is not energized, the relay switch is open, preventing current flow.

Fusible link 2 of the engine compartment fuse box (C907-2) is connected to the ignition switch (C026-1) by a brown wire. With the ignition switch in position "II" (C094-1), current flows to the headlamp relay coil (C282-85) on a white wire. The relay coil is earthed (C282-86) on a black wire.

With the relay coil energized, the relay switch closes, allowing current to flow from the headlamp relay (C282-30) to fuse 6 of the passenger compartment fuse box (C580-11). Fuse 6 of the passenger compartment fuse box (C580-12) is connected to the rear fog guard lamp ECU (C543-2) by a blue/purple wire.

The rear fog guard lamp ECU (C543-4) is connected to the rear fog guard lamp switch (C064-2) by a red/slate wire. When the switch is depressed momentarily, it provides an earth (C064-3) on a black wire. The fog guard lamp ECU is also earthed (C543-1) directly on a black wire. When the ECU senses the second earth via the switch, it provides a feed (C543-3) to the instrument pack warning lamp (C233-4), the RH rear fog guard lamp (C512-1), and the LH rear fog guard lamp (C515-1). All three are connected in parallel by red/yellow wires, and earthed on black wires.

DESCRIPTION AND OPERATION

INDICATORS / HAZARD WARNING LAMPS

DESCRIPTION

The indicators are controlled from the steering column switch and operate when the ignition switch is in position "II".

The hazard lamp switch is located towards the right hand side of the dash panel. Hazard operation is not dependent on the position of the ignition switch. When the hazard switch is depressed, both left and right hand indicator lights flash.

OPERATION

Feed from the positive battery terminal is connected to the engine compartment fuse box (C632-1) by a brown wire. Power flows through fusible link 2 (C907-2) and feeds both the ignition switch (C028-1) and fuse 1 (C580-1) of the passenger compartment fuse box on brown wires. The ignition switch and the fuse 1 of the passenger compartment fuse box are connected in parallel. Fuse 1 (C580-2) is connected to the hazard warning lamp switch (C096-7) by a purple wire.

Indicators

With the ignition switch in position "II", power flows across the ignition switch (C094-1) to fuse 3 of the passenger compartment fuse box (C580-5) by a white wire. Fuse 3 of the passenger compartment fuse box (C580-6) is connected to the hazard warning switch (C096-8) by a green wire. With the hazard warning switch in the off position, power flows through the switch (C096-5) and up to the flasher unit (C547-85) on a light green wire. The flasher unit is earthed (C547- 86) on a black wire. With the flasher unit energized, a feed (C547-87) is sent to the column switch (C036-3) on a green/brown wire.

DESCRIPTION AND OPERATION

Left Turn

Moving the column switch to the left turn position allows power to flow through the switch (C036-4) to the LH rear direction indicator lamp (C403-2), the LH front direction indicator lamp (C001-2), and the LH side repeater lamp (C013-1). These 3 lamps are connected in parallel and are all fed by green/red wires. Power is also supplied to the instrument pack warning lamp (C230-10) on a green/red wire. All lamps are earthed on black wires. With the circuit complete, the flasher unit commences opening and closing the circuit, causing the LH indicator lamps to flash.

Right Turn

Moving the column switch to the right turn position allows power to flow through the switch (C036-2) to the RH rear direction indicator lamp (C402-2), the RH front direction indicator lamp (C002-2), and the RH side repeater lamp (C012-1). These 3 lamps are connected in parallel and are all fed by green/white wires. Power is also supplied to the instrument pack warning lamp (C230-9) on a green/white wire. All lamps are earthed on black wires. With the circuit complete, the flasher unit commences opening and closing the circuit, causing the RH indicator lamps to flash.

DESCRIPTION AND OPERATION

Hazards

The hazard warning switch (C096-7) is supplied with a permanent feed from fuse 1 (C580-2) of the passenger compartment fuse box on a purple wire. Pressing the switch to the on position allows power to flow through the switch (C096-5) to the flasher unit (C547-85) on a light green wire. The flasher unit (C547-87) is connected to the following via the hazard warning switch (C096-2).

- Hazard warning lamp tell tale (C913-1) by a brown/red wire.
- RH front direction indicator lamp (C002-2) by a green/white wire.
- RH rear direction indicator lamp (C402-2) by a green/white wire.
- Instrument pack RH indicator warning lamp (C230-9) by a green/white wire.
- LH front direction indicator lamp (C001-2) by a green/red wire.
- LH rear direction indicator lamp (C403-2) by a green/red wire.
- Instrument pack LH indicator warning lamp (C230-10) by a green/red wire.

With the flasher unit energized, the circuit is repeatedly open and closed, causing all indicator lamps to flash.

DESCRIPTION AND OPERATION

INTERIOR LAMPS

DESCRIPTION

Dependant on model, the Defender is provided with either one or two interior lamps. One in the front, and one in the rear of the vehicle (if fitted). Both lamps can be switched on manually using their integral switches. If any door, including the tail door, are opened, the lamp(s) will illuminate.

If an immobilisation system is fitted to the vehicle, the lamps are controlled by the Alarm ECU. The ECU contains a time out feature which switches off the interior lamps after eight minutes if any door is left open, thus preventing unnecessary battery drain.

OPERATION

Non - immobilisation (Defender 90 Hard Top only)

Feed from the positive battery terminal is connected to fusible link 2 (C632-1) of the engine compartment fuse box by a brown wire. Fusible link 2 (C907-2) is connected to fuse 2 (C580-3) of the passenger compartment fuse box by a brown wire.

Fuse 2 of the passenger compartment fuse box (C580-4) supplies a current to both the front (C317-3) and rear (C356-3) interior lamps on purple wires. Both lamps are connected in parallel. The front interior lamp has an integral switch. With this switch in the off (normal) position (C317-1) the lamp can only be earthed by the LH (C266-1) and RH (C265-1) door switches. Both switches are connected in parallel by purple/blue wires. With the front doors in the closed position both door switches are open, failing to provide a route to earth. Therefore the lamp does not illuminate. If either the LH or RH door is opened, the circuit is completed and the front interior lamp will illuminate.

With the integral switch in the on position (C318-1) a direct route to earth is provided on a black wire, illuminating the lamp.

The rear interior lamp (C356-1) is connected to the tail door switch (C751-1) by a purple/blue wire. If the tail door is opened, the circuit is completed and the rear interior lamp will illuminate.

DESCRIPTION AND OPERATION

Immobilisation (Defender 90 & 110 Hard Top only)

Feed from the positive battery terminal is connected to fusible link 2 (C632-1) of the engine compartment fuse box by a brown wire. Current flows through fusible link 2 (C907-2) to fuse 2 (C580-3) of the passenger compartment fuse box on a brown wire.

Fuse 2 of the passenger compartment fuse box (C580-4) is connected to the front interior lamp (C317-2) by a purple wire. The interior lamp has an integral switch. With this switch in the off (normal) position (C317-1), a feed is sent to the alarm ECU (C061-1). The Alarm ECU is connected (C061-16) to the tail door switch (C751-1) and the LH door switch (C033-1), which are wired in parallel. Both are connected by purple/blue wires. With both of these doors closed, the door switches are open, and fail to provide a route to earth for the ECU. If either door is opened, the switch is closed, providing a route to earth and illuminating the interior lamp.

The alarm ECU (C061-5) is also connected to the RH door switch (C054-1) on a slate/white wire. With the door closed, the door switch is open, and fails to provide a route to earth for the ECU. If the door is opened, the switch is closed, providing a route to earth and illuminating the interior lamp.

With the interior lamp switch in the on position (C318-1), a direct route to earth is provided on a black wire, illuminating the lamp.

The alarm ECU also receives a signal from the RF handset (see engine immobilisation). When the correct signal is received, the alarm ECU will illuminate the interior lamp. The lamp will remain illuminated until either the alarm is re-armed using the handset, the ignition is switched to position "II", or the time out period elapses.

DESCRIPTION AND OPERATION

Immobilisation (Defender 110 Truck Cab only)

Feed from the positive battery terminal is connected to fusible link 2 of the engine compartment fuse box (C632-1) by a brown wire. Fusible link 2 (C907-2) is connected to fuse 2 (C580-3) of the passenger compartment fuse box by a brown wire.

Fuse 2 of the passenger compartment fuse box (C580-4) supplies a current to the interior lamp (C357-3) on a purple wire. The interior lamp has an integral switch. With this switch in the off (normal) position (C357-1) the only earth path is via the alarm ECU (C061-1) on a purple/white wire.

The alarm ECU (C061-16) is connected to the LH door switch (C033-1) by a purple/blue wire. If the LH door is closed, the door switch is open, and fails to provide a route to earth for the ECU. If the door is opened, the switch is closed, providing a route to earth and illuminating the interior lamp. The alarm ECU (C061-5) is also connected to the RH door switch (C054- 1), this time by a slate/white wire. The RH door switch operates in the same way as the LH door switch.

With the interior lamp integral switch in the on position (C563-1), a direct route to earth is provided on a black wire, illuminating the lamp.

The alarm ECU also receives a signal from the RF handset (see engine immobilisation). When the correct signal is received, the alarm ECU will illuminate the interior lamp. The lamp will remain illuminated until either the alarm is re- armed using the handset, the ignition is switched to position "II", or the time out period elapses.

DESCRIPTION AND OPERATION

Immobilisation (Defender 90 / 110 Station Wagon, & Crew Cab)

Feed from the positive battery terminal is connected to fusible link 2 (C632-1) of the engine compartment fuse box by a brown wire. Fusible link 2 (C907-2) is connected to fuse 2 (C580-3) of the passenger compartment fuse box by a brown wire. Fuse 2 of the passenger compartment fuse box (C580-4) supplies a current to the front interior lamp (C357-3) and the rear interior lamp (C925-3), which are connected in parallel. Both lamps are fed by purple wires.

The front interior lamp has an integral switch. With this switch in the off (normal) position (C357-1), the only earth path is via the alarm ECU (C061-1) on a purple/white wire.

The alarm ECU (C061-5) is connected to the RH front door switch (C054-1) by a slate/white wire. If the RH front door is closed, the door switch is open, and fails to provide a route to earth for the ECU. If the door is opened, the switch is closed, providing a route to earth and illuminating the interior lamp. The alarm ECU (C061-16) is also connected to the LH front door switch (C033-1), this time by a purple/blue wire. The LH front door switch operates in the same way as the RH door switch.

Connected in parallel with the LH front door switch is the tail door switch (C751-1), the RH rear door switch (C930-1), and the LH rear door switch (C930-1). All three switches are connected by purple/blue wires and work in the same way as the RH front door switch.

With the front interior lamp integral switch in the on position (C563-1), a direct route to earth is provided on a black wire, illuminating the lamp.

DESCRIPTION AND OPERATION

The rear interior lamp operates in the same way as the front interior lamp. When the integral switch is in the off (normal) position (C925-1), the only earth path is via the alarm ECU (C061-1) on a purple/white wire. The door switches are fed by the alarm ECU as before.

With the rear interior lamp integral switch in the on position (C563-1), a direct route to earth is provided on a black wire, illuminating the lamp.

The alarm ECU also receives a signal from the RF handset (see engine immobilisation). When the correct signal is received, the alarm ECU will illuminate the interior lamp. The lamp will remain illuminated until either the alarm is re-armed using the handset, the ignition is switched to position "II", or the time out period elapses.

DESCRIPTION AND OPERATION

INTERIOR ILLUMINATION

DESCRIPTION

When the side lamps are switched on, the interior controls and gauges are illuminated so they can be easily located during night driving. Interior illumination is not controlled by the ignition switch.

OPERATION

Feed from the positive battery terminal is connected to fusible link 1 (C632-1) of the engine compartment fuse box by a brown wire. Current flows through fusible link 1 (C907-1) and onto the lighting switch (C041-1) on a brown wire. With the lighting switch in either the side or head lamp position (C041-2), current will flow to fuse 16 of the passenger compartment fuse box (C580-31) on a red wire. Fuse 16 of the passenger compartment fuse box (C580-32) supplies a feed to the following;

- Speedometer (C927-1 & C926-1) on a red/white wire.
- Fuel gauge (C924-1) on a red/white wire.
- Engine coolant temperature gauge (C735-1) on a red/white wire.
- Cigar lighter (C074-1) on a red/orange wire.
- Clock (C095-1) on a red/white wire.

All of the above are connected in parallel and are earthed on black wires.

DESCRIPTION AND OPERATION

INSTRUMENTS

DESCRIPTION

The vehicle relays information to the driver via the instrument pack. The instrument pack contains lamps and analogue gauges. The colour of the lamp denotes the severity of the information. Warning lamps are red, caution lamps are orange, green and blue lamps indicate that a system is operating.

The analogue gauges relay information to the driver such as engine speed and engine temperature.

OPERATION

Feed from the positive battery terminal is connected to the engine compartment fuse box (C632-1) by a brown wire. Current passes through fusible link 1 and fusible link 2 of the engine compartment fuse box, which are connected in parallel. Fusible link 1 (C907-1) is connected to the lighting switch (C041-1) by a brown wire, and fusible link 2 (C907-2) to the ignition switch (C028-1). Fusible link 2 is also connected to fuse 2 (C580-3) of the passenger compartment fuse box. Both are connected by brown wires.

With the lighting switch in either the side or main lamp position (C041-2), current will flow to fuse 16 (C580-31) of the passenger compartment fuse box on a red wire. Fuse 16 of the passenger compartment fuse box (C580-32) is connected to the instrument pack (C233-3) by a red/orange wire and supplies a feed to the side lamp warning lamp.

A permanent battery feed is also supplied from fusible link 2 of the engine compartment (C907-2) to fuse 2 (C580-3) of the passenger compartment fuse box. Fuse 2 (C580-4) is connected to the column switch (C036-7) by a purple wire. When the column switch is closed (C036-5) a feed is sent to the main beam warning lamp (C233-5) within the instrument pack on a blue/white wire. The warning lamp (C233-2) is earthed on a black wire.

DESCRIPTION AND OPERATION

With the ignition switch in position "II" (0C94-1), power is supplied to fuse 3 (C580-5) of the passenger compartment fuse box on a white wire. Fuse 3 of the passenger compartment fuse box (C580-6) is connected to the instrument pack. Current is supplied to the fuel gauge (C922-1) and the coolant temperature gauge (C196-1) on green wires, which are connected in parallel. The fuel gauge (C816-1) and the coolant temperature gauge (C815-1) are both earthed on black wires.

With the ignition switch in position "II" (C094-1), power is also supplied to header joint K109 (C285-17) on a white wire. Header joint K109 feeds the following warning lamps;

- The glow plug warning lamp (C233-9) is fed by a white wire, and earthed (C233-10) on a yellow/black wire via the glow plug ECU (C189-2).
- The diff lock warning lamp (C230-4) is fed by a white wire, and earthed (C233-8) on a black/blue wire via the diff lock unit (C306-1).
- The ignition/no charge warning lamp (C230-4) is fed by a white wire, and earthed (C230-5) on a yellow/brown wire via the alternator (C185-1).
- The low brake fluid warning lamp (C230-4) is fed by a white wire, and is connected (C230-6) to the brake fluid level switch (C026-1) on a black/white wire. When the switch is closed (C031-1) a path to earth is supplied on a black wire.
- The transmission oil warning lamp (C687-1) is fed by a white wire, and is earthed (C686-1) via the oil temperature switch (C219-1) on a slate/red wire.

DESCRIPTION AND OPERATION

CLOCK

DESCRIPTION

The analogue clock is located towards the centre of the dash panel. The clock is illuminated when the side lamps are switched on.

OPERATION

Feed from the positive battery terminal is connected to the engine compartment fuse box (C632-1) by a brown wire. Current flows through both fusible link 1 and fusible link 2 of the engine compartment fuse box which are connected in parallel.

Fusible link 2 (C907-2) is connected to fuse 2 (C580-3) of the passenger compartment fuse box by a brown wire. Current flows through fuse 2 (C580-4) to the clock (C232-1) on a purple wire. The clock is earthed (C210-1) on a black wire.

Fusible link 1 (C907-1) is connected to the lighting switch (C041-1) by a brown wire. When the lighting switch is in the side or main lamp position, current flows through the switch (C041-2) and onto the clock (C095-1). This second feed to the clock illuminates the integral bulb. The bulb is earthed (C210-1) on a black wire.

DESCRIPTION AND OPERATION

IN-CAR ENTERTAINMENT

DESCRIPTION

The radio/cassette player operates when the ignition switch is in position "I" or "II". Signal output from the radio/cassette player is relayed to two loud speakers. The radio/cassette display is illuminated when the unit is switched on.

OPERATION

Feed from the positive battery terminal is connected to the engine compartment fuse box (C632-1) by a brown wire. Current passes through fusible link 2 of the passenger compartment fuse box (C907-2) and supplies the ignition switch (C028-1) and fuse 2 of the passenger compartment fuse box (C580-3) with current. Both are supplied by brown wires.

Fuse 2 of the passenger compartment fuse box (C580-4) supplies a constant battery feed to the radio/cassette (C098-4) on a purple wire.

With the ignition switch in position "I" or "II", current is supplied to fuse 7 (C580-13) of the passenger compartment fuse box on a white/orange wire. Fuse 7 (C580-134) is connected to the radio/cassette (C098-7) by a white/orange wire, and supplies an ignition feed. The radio is earthed (C098-8) on a black wire.

The radio cassette player is connected to the speakers as follows;

- RH front door speaker by black/white (C092-5) and black/brown (C092-6) wires.
- LH front door speaker by brown/black (C092-3) and white/black (C092-4) wires.

DESCRIPTION AND OPERATION

CIGAR LIGHTER

DESCRIPTION

The cigar lighter is located towards the centre of the dash panel. Pressing the centre of the cigar lighter latches the heater element into the holder. With the ignition in position "II", power flows through the heating element of the cigar lighter, causing it to heat up. When the heating element reaches a sufficient temperature, the holder automatically releases the cigar lighter which can then be removed for use.

The location of the cigar lighter holder is illuminated when the side lamps are switched on.

OPERATION

Feed from the positive battery terminal is connected to the engine compartment fuse box (C632-1) by a brown wire. Current passes through fusible link 1 and fusible link 2 of the engine compartment fuse box, which are connected in parallel.

Fusible link 1 of the engine compartment fuse box (C907-1) supplies a constant battery feed to the lighting switch (C041-1) on a brown wire. When the lighting switch is in the side or main lamp position, current flows through the switch (C041-2) to fuse 16 of the passenger compartment fuse box (C580-31) on a red wire. Fuse 16 (C580-32) is connected the cigar lighter illumination bulb (C074-1) by a red/orange wire. The bulb is earthed (C089-1) on a black wire.

Fusible link 2 of engine compartment fuse box (C907-2) is connected to the ignition switch (C028-1) by a brown wire. When the ignition switch is in position "II", current flows from the ignition switch (C094-1) to fuse 9 of the passenger compartment fuse box (C580-17) on a white wire. Fuse 9 (C580-16) is connected to the cigar lighter (C086-1) by a green wire. The cigar lighter is earthed (C089-1) on a black wire.

CONNECTOR

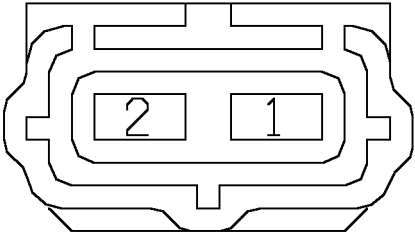
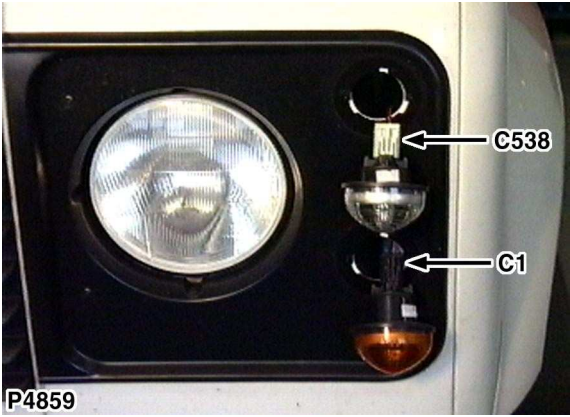
C001



Lamp - Direction indicator / hazard warning - Front - LH

Female
BLACK

Behind LH front indicator lamp



YPC10070

Cav	Col	CCT
1	B	ALL
2	GR	ALL

C002

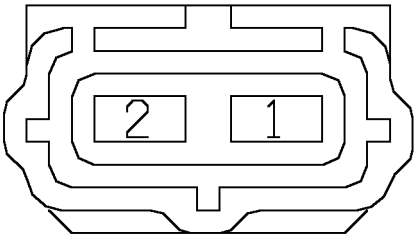
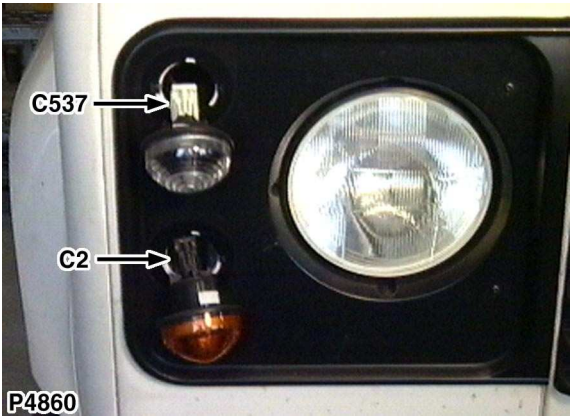
CONNECTOR



Lamp - Direction indicator / hazard warning - Front - RH

Female
BLACK

Behind RH front indicator lamp



YPC10070

Cav	Col	CCT
1	B	ALL
2	GW	ALL

CONNECTOR

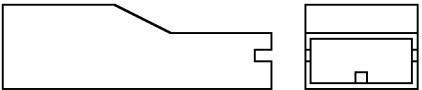
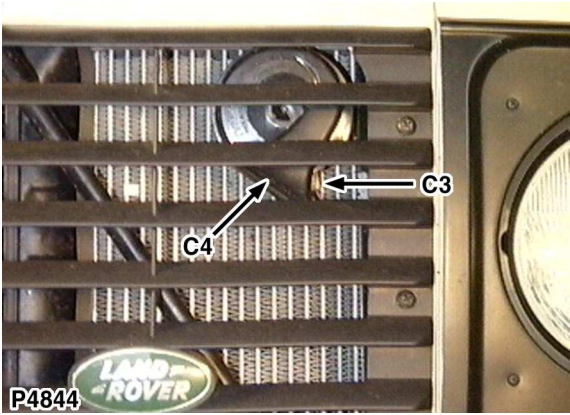
C003



Horn (s)

Female
NATURAL

Behind the front grille



YPC10386

Cav	Col	CCT
1	PB	ALL

C004

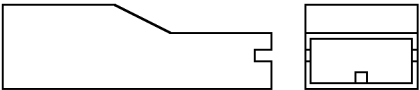
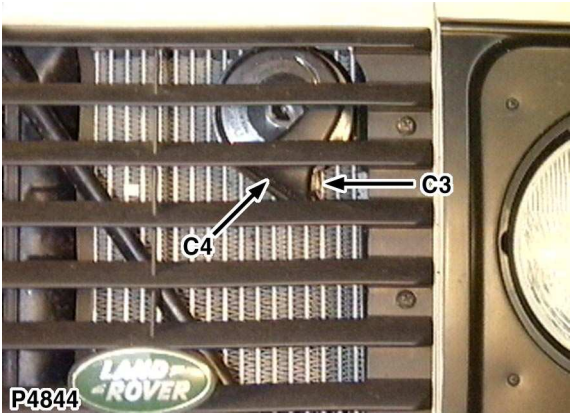
CONNECTOR



Horn (s)

Female
NATURAL

Behind the front grille



YPC10386

Cav	Col	CCT
1	B	ALL

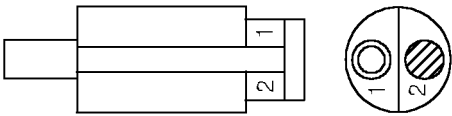
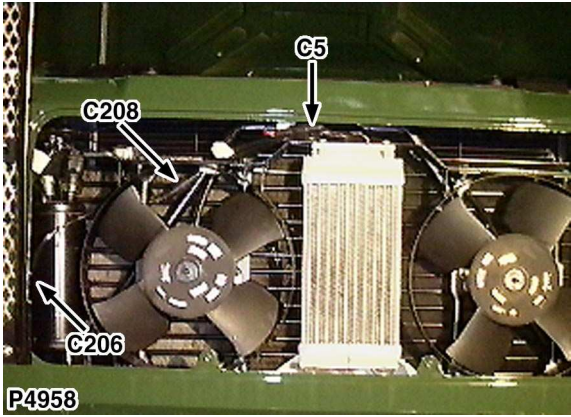
CONNECTOR

C005



Motor - Cooling fan - 1

Behind the front grille



AAU9844

Cav	CoI	CCT
1	NP	ALL
2	B	ALL

C007

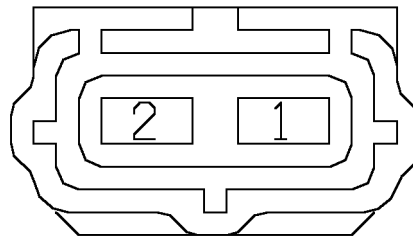
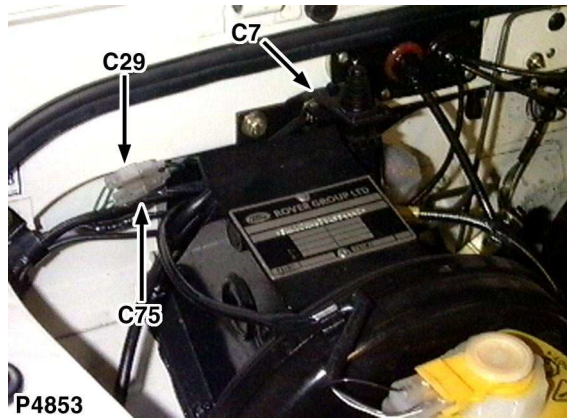
CONNECTOR



Switch - Bonnet

Female
BLACK

RH side of bulkhead



YPC10070

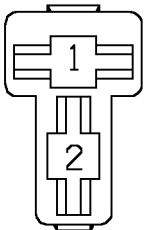
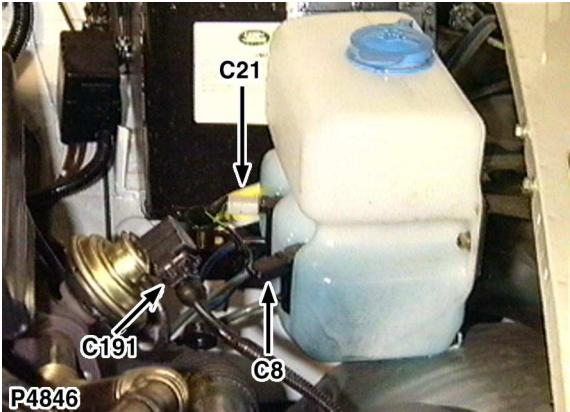
Cav	Col	CCT
1	B	20
2	OU	20



Pump - Washer -
Windscreen

Female
BLACK

Rear LH side of engine
compartment



ACU3172

Cav	CoI	CCT
1	B	ALL
2	LGB	ALL

C009

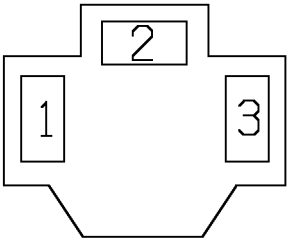
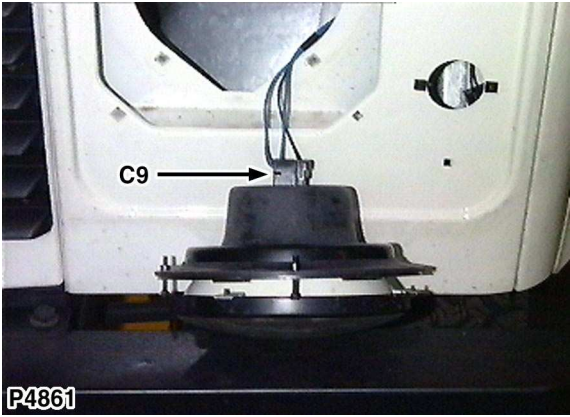
CONNECTOR



Headlamp - LH

Female
BLACK

Behind LH headlamp



AFU3113

Cav	CoI	CCT
1	US	ALL
2	UK	ALL
3	B	ALL

CONNECTOR

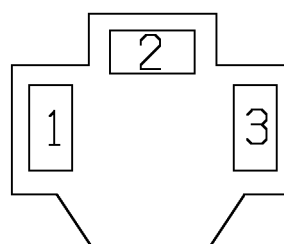
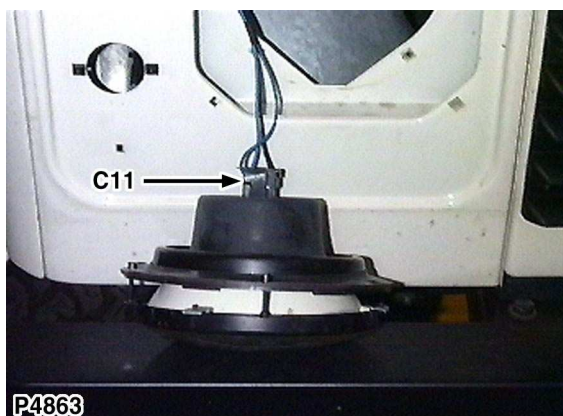
C011



Headlamp - RH

Female
BLACK

Behind RH headlamp



AFU3113

Cav	Col	CCT
1	UO	ALL
2	UB	ALL
3	B	ALL

DEFENDER 97 MY

C012

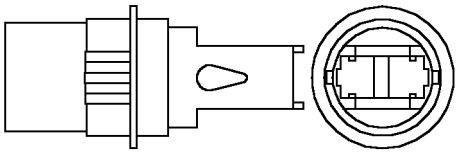
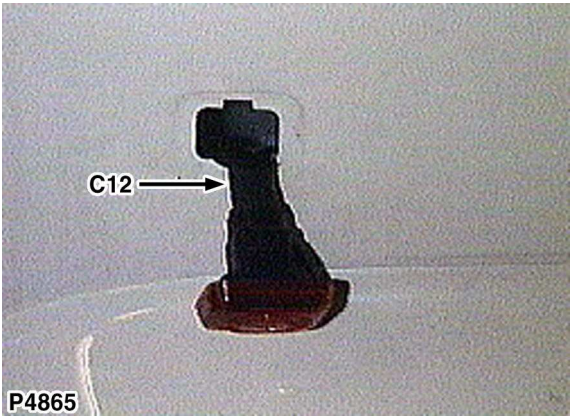
CONNECTOR



Lamp - Side repeater - Front
- RH

Female
BLACK

Behind RH side repeater
lamp



AFU3698

Cav	Col	CCT
1	GW	ALL
2	B	ALL

CONNECTOR

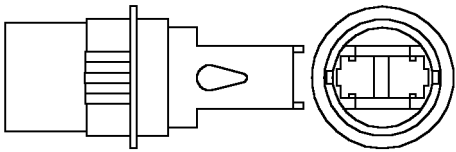
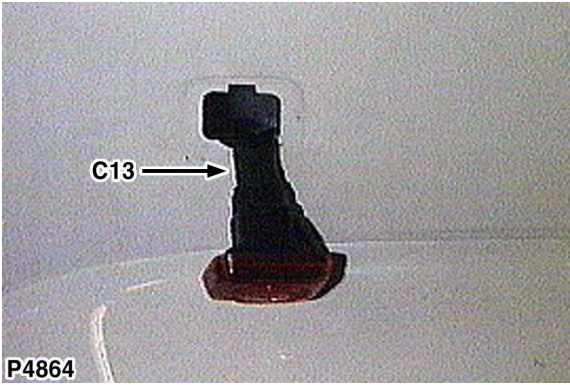
C013



Lamp - Side repeater - Front
- LH

Female
BLACK

Behind LH side repeater
lamp



AFU3698

Cav	CoI	CCT
1	GR	ALL
2	B	ALL

C014

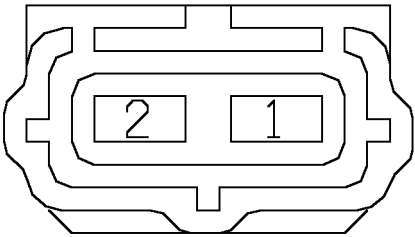
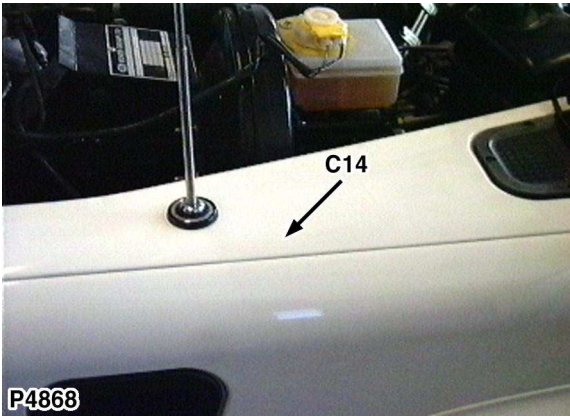
CONNECTOR



Resistor - Dim dip

Female
BLACK

Rear RH side of engine
compartment



YPC10070

Cav	Col	CCT
1	N	ALL
2	NG	ALL

CONNECTOR

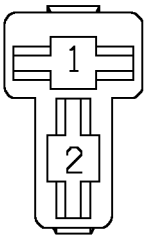
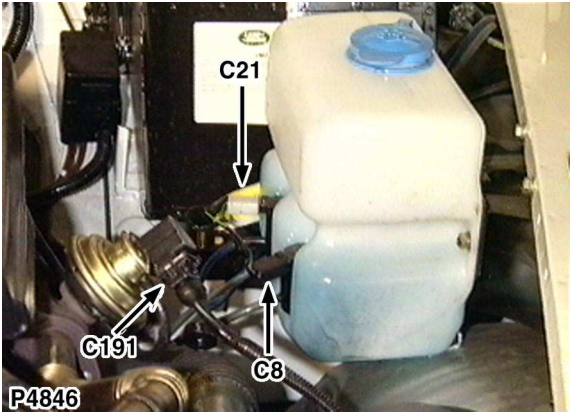
C021



Pump - Washer - Rear screen

Female
NATURAL

Rear LH side of engine compartment



AAU1939

Cav	CoI	CCT
1	B	ALL
2	BLG	ALL

C026

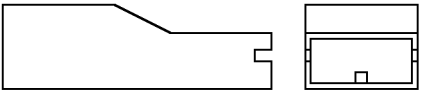
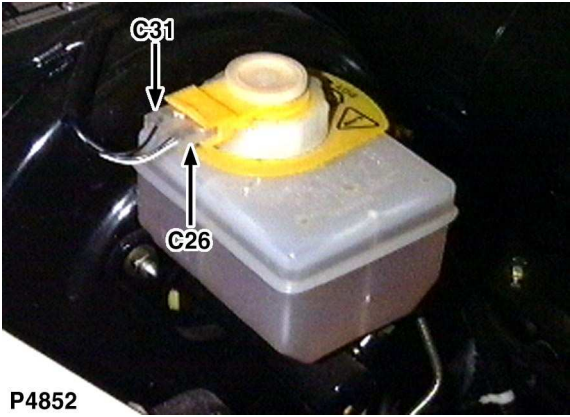
CONNECTOR



Switch - Brake fluid level

Female
NATURAL

Rear RH side of engine
compartment



YPC10386

Cav	Col	CCT
1	BW	ALL

CONNECTOR

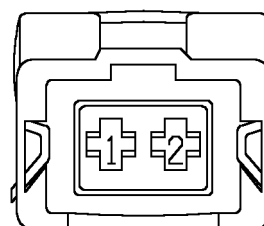
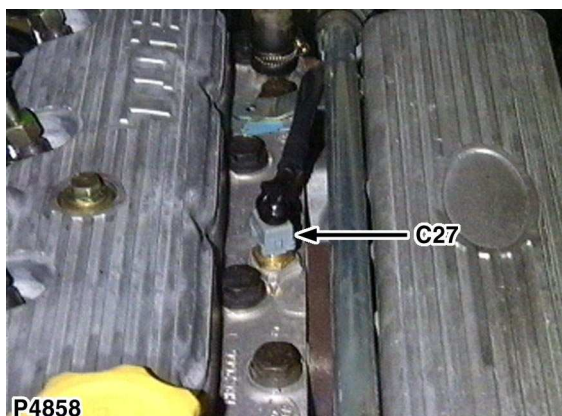
C027



Sensor - Temperature -
EGR

Female
GREY

Top of engine



YPC107820

Cav	Col	CCT
1	GU	10
2	KB	10

DEFENDER 97 MY

C028

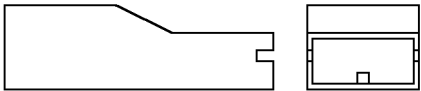
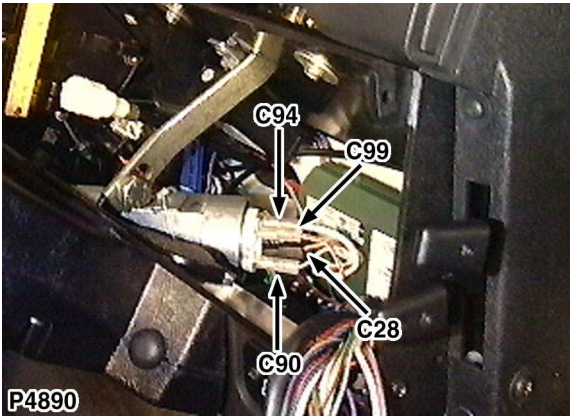
CONNECTOR



Switch - Ignition

Female
BLACK

Behind instrument pack



AAU1010

Cav	Col	CCT
1	N	ALL

CONNECTOR

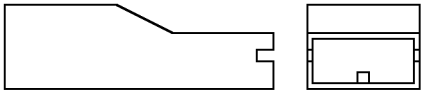
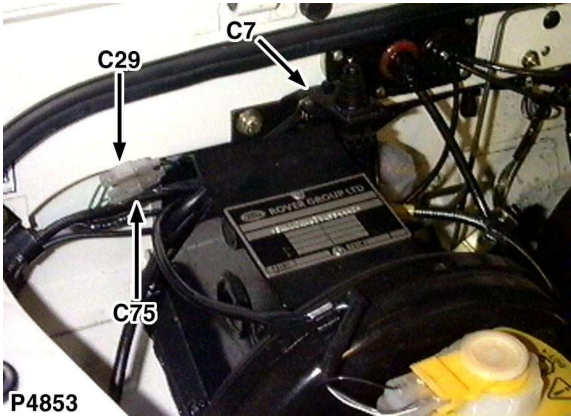
C029



Switch - Brake pedal

Female
NATURAL

RH side of bulkhead



YPC10386

Cav	CoI	CCT
1	GP	ALL

C030

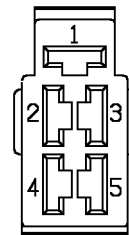
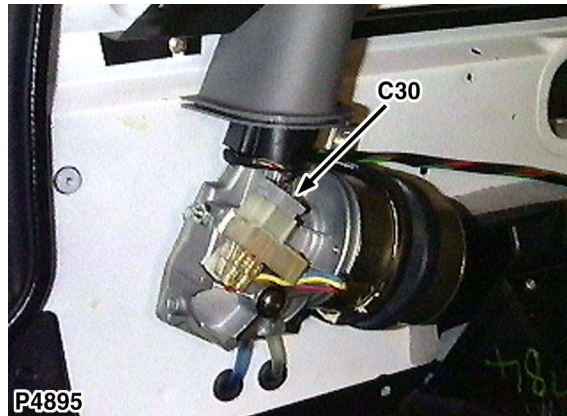
CONNECTOR



Motor - Wiper - Windscreen

Female
GREY

Behind LH side of fascia



13H4576

Cav	Col	CCT
1	B	ALL
2	NLG	ALL
3	ULG	ALL
4	G	ALL
5	RLG	ALL

DEFENDER 97 MY

CONNECTOR

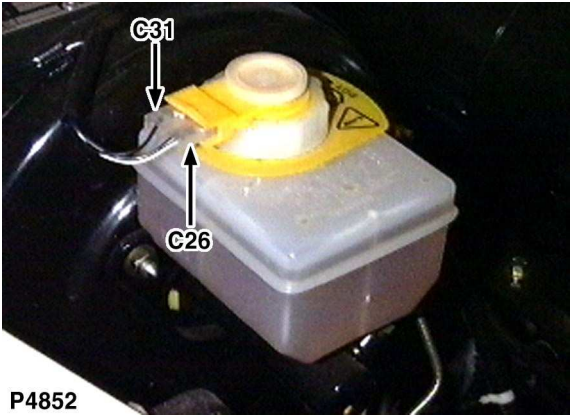
C031



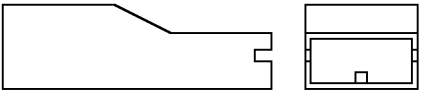
Switch - Brake fluid level

Female
NATURAL

Rear RH side of engine
compartment



P4852



YPC10386

Cav	Col	CCT
1	B	ALL

C033

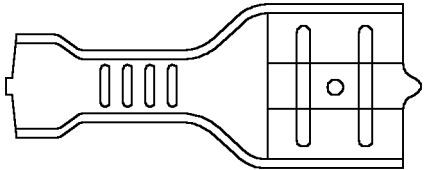
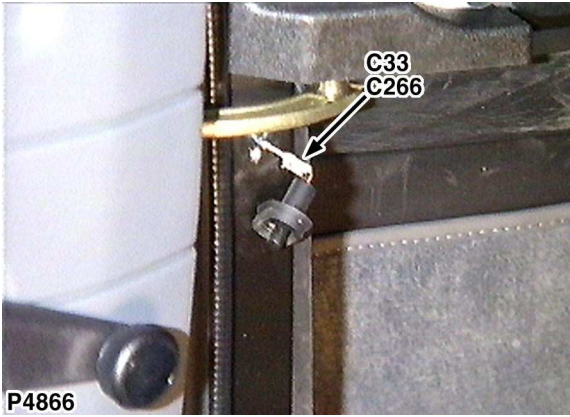
CONNECTOR



Switch - Door - LH

Female
BRASS, TIN-PLATED

LH 'A' post



AFU3262

Cav	Col	CCT
1	PU	ALL

CONNECTOR

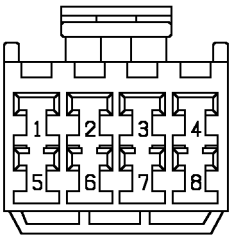
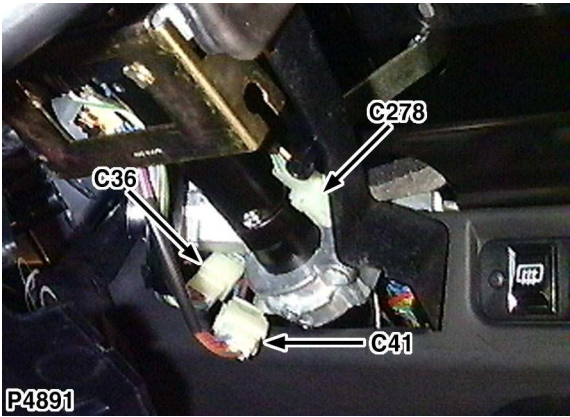
C036



Switch - Horn

Female
NATURAL

Behind steering column
cowl LH side



AFU3574

Cav	Col	CCT
1	U	ALL
2	GW	ALL
3	LGN	ALL
4	GR	ALL
5	UW	ALL
6	UR	ALL
7	P	ALL
8	PB	ALL

C037

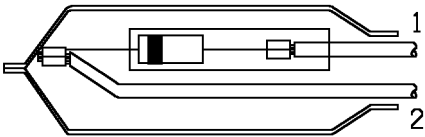
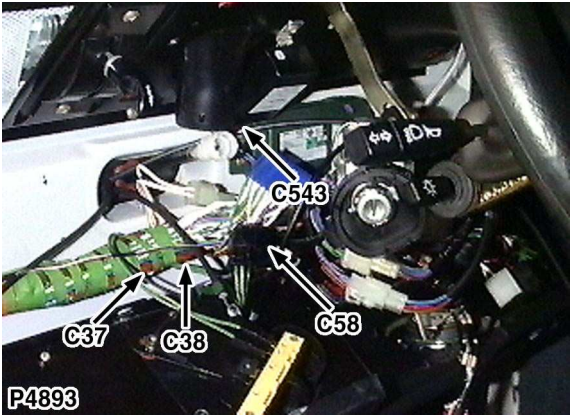
CONNECTOR



Resistor - In-line

Female
BRASS

Behind RH side of fascia



YPF10024

Cav	Col	CCT
1	W	1
1	NLG	5
1	W	14
1	WB	15
2	YN	20

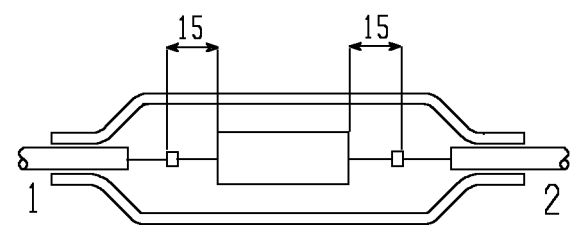
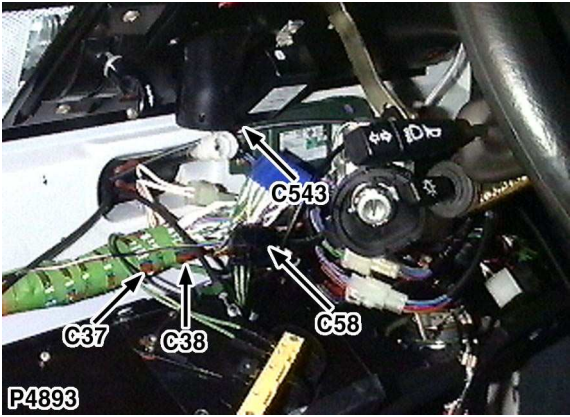
CONNECTOR

C038



Resistor - In-line

Behind RH side of fascia



51400036

Cav	CoI	CCT
1	NLG	5
1	W	20
2	YN	ALL

C040

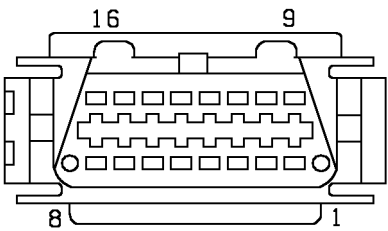
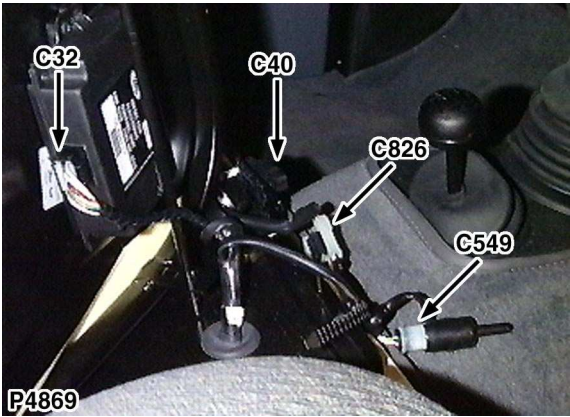
CONNECTOR



Diagnostic socket

Female
BLACK

Beneath centre console



YPC107920

Cav	Col	CCT
4	B	ALL
8	B	ALL
16	B	ALL

CONNECTOR

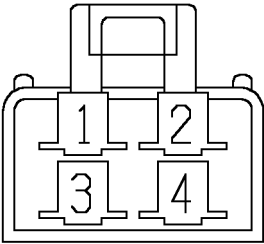
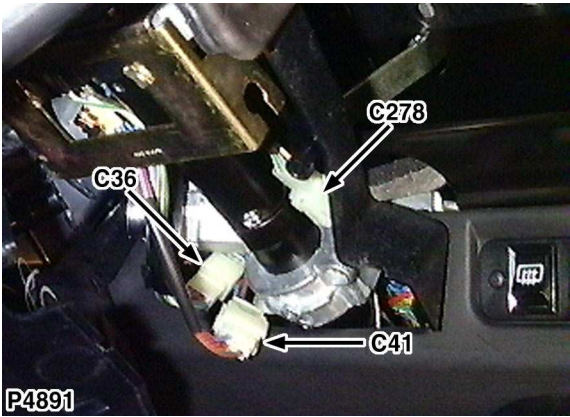
C041



Switch - Lighting

Female
NATURAL

Behind steering column
cowl LH side



AFU3855

Cav	Col	CCT
1	N	ALL
2	R	ALL
4	U	ALL

C044

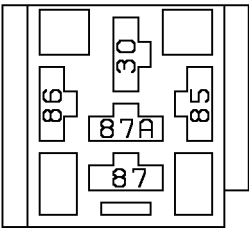
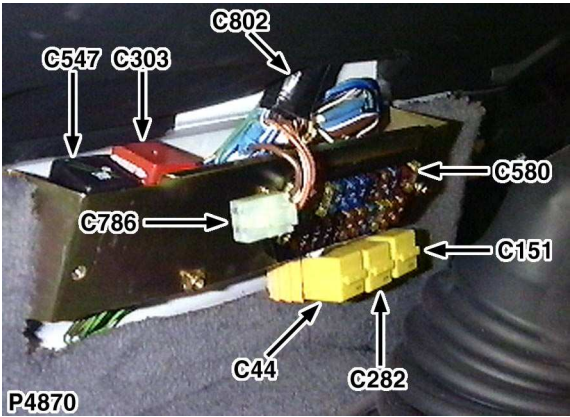
CONNECTOR



Relay - Heated rear screen

Female
YELLOW

Behind passenger
compartment fusebox cover



YPP100090

Cav	Col	CCT
30	NW	ALL
85	WG	ALL
86	B	ALL
87	N	ALL

CONNECTOR

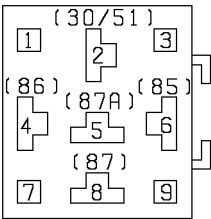
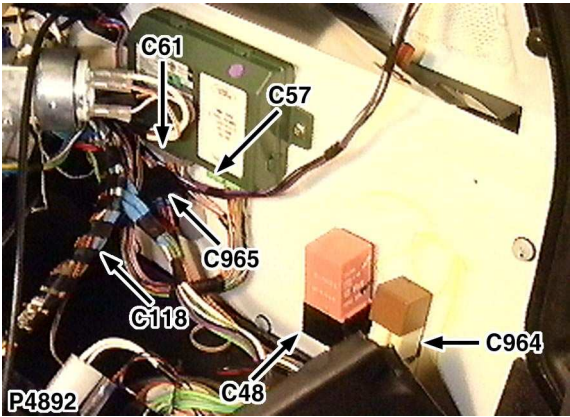
C048



Relay - Dim dip

Female
BLACK

Behind RH side of fascia



AFU4177

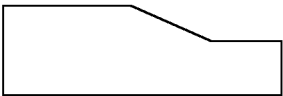
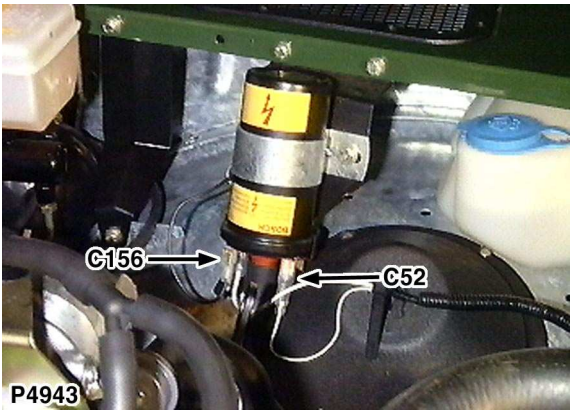
Cav	Col	CCT
1	W	ALL
2	UR	ALL
4	NG	ALL
5	U	ALL
6	B	ALL
7	RO	ALL
8	UR	ALL

C052

CONNECTOR



Ignition coil
Male
NATURAL
LH side of engine compartment



BMK1886

Cav	Col	CCT
1	WB	ALL

CONNECTOR

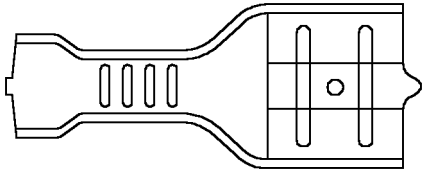
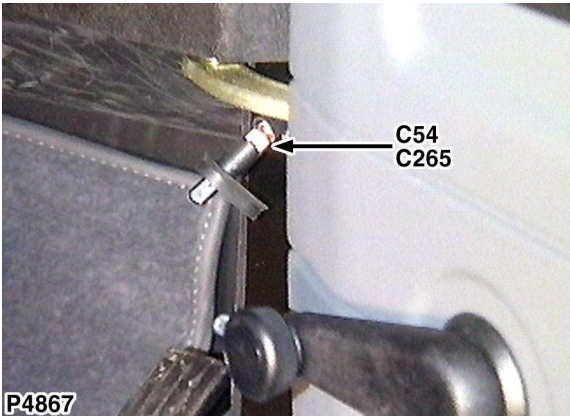
C054



Switch - Door - RH

Female
BRASS, TIN-PLATED

RH 'A' post



AFU3262

Cav	Col	CCT
1	SW	20

C057

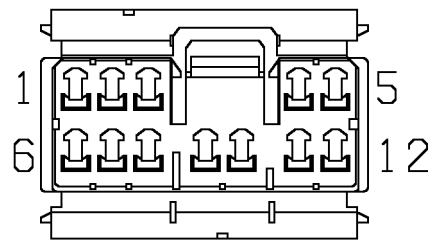
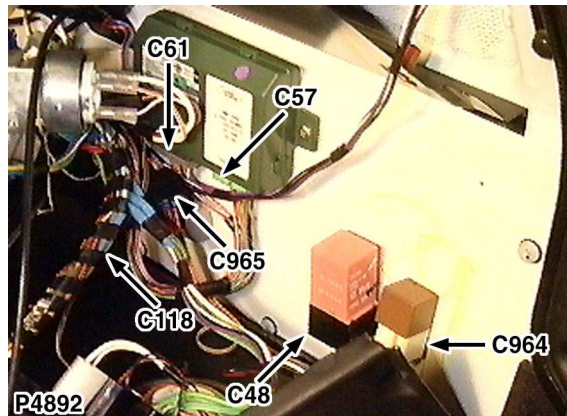
CONNECTOR



ECU - Alarm

Female
GREEN

Behind RH side of fascia



YPC10531

Cav	Col	CCT
1	GW	20
4	K	20
5	OW	20
6	GR	20
7	OG	20
8	P	20
9	O	20
10	BO	20
11	B	20
12	OP	20

CONNECTOR

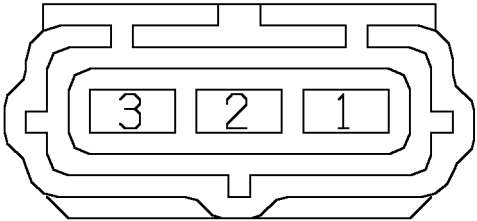
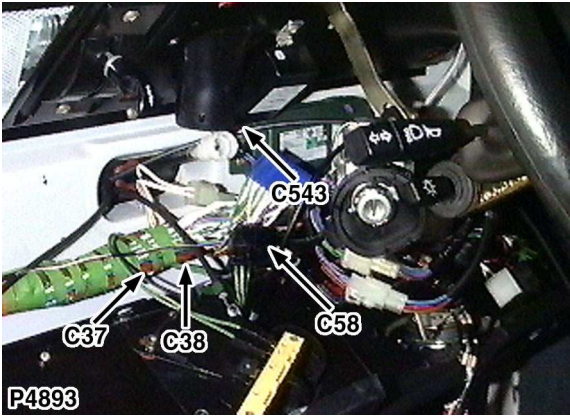
C058



Switch - Blower motor

Female
BLACK

Behind RH side of fascia



YPC10067

Cav	Col	CCT
1	GS	ALL
2	GY	ALL
3	B	ALL

C061

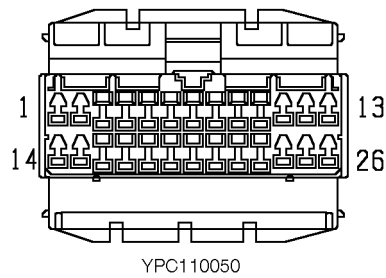
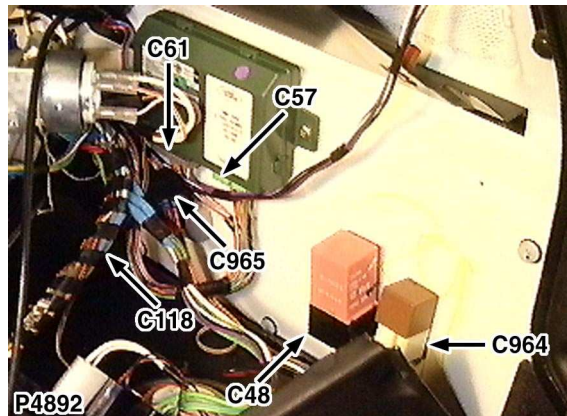
CONNECTOR



ECU - Alarm

Female
GREY

Behind RH side of fascia



Cav	CoI	CCT
1	PW	20
3	WB	20
5	SW	20
9	OU	20
10	G	20
14	ON	20
16	PU	20
17	OLG	20
20	BN	20
25	N	20
26	OS	20

CONNECTOR

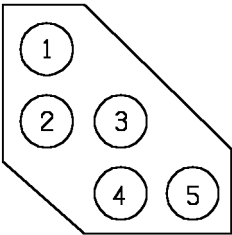
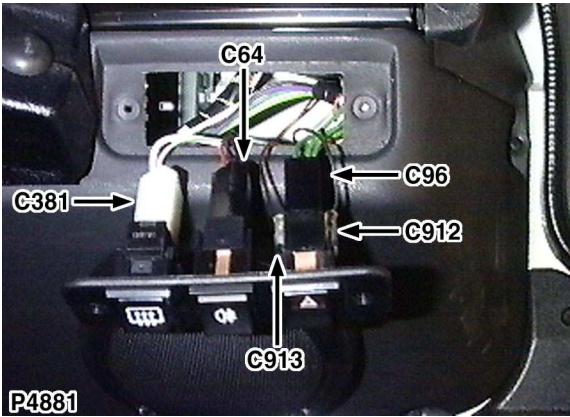
C064



Switch - Fog guard lamp - Rear

Female
BLACK

Behind RH side of fascia



YPC107950

Cav	CoI	CCT
2	RS	ALL
3	B	ALL

C074

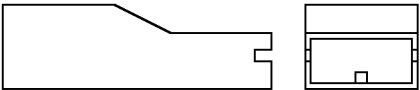
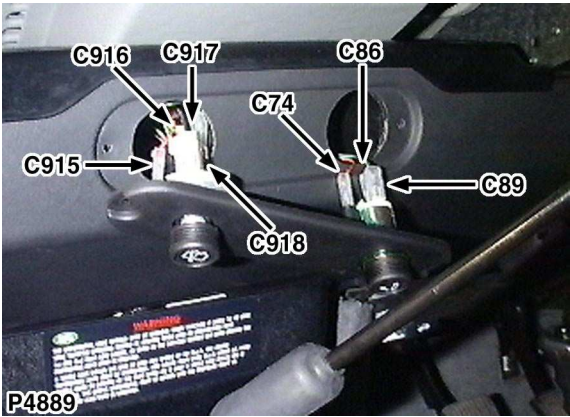
CONNECTOR



Cigar lighter illumination

Female
NATURAL

Behind centre of fascia



YPC10386

Cav	Col	CCT
1	RO	ALL

CONNECTOR

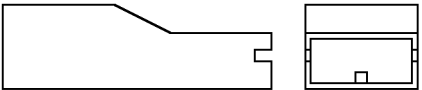
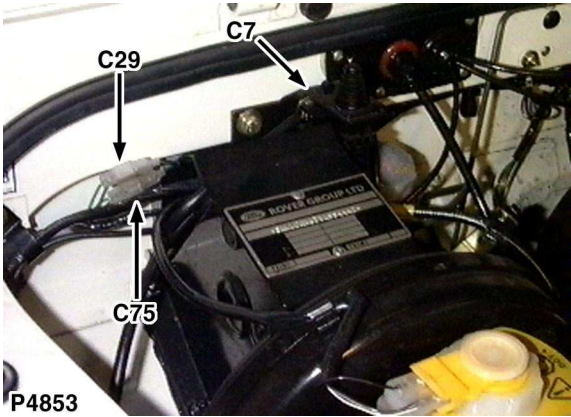
C075



Switch - Brake pedal

Female
NATURAL

RH side of bulkhead



YPC10386

Cav	Col	CCT
1	G	ALL

C079

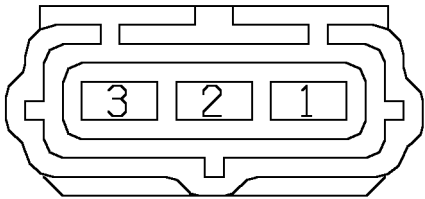
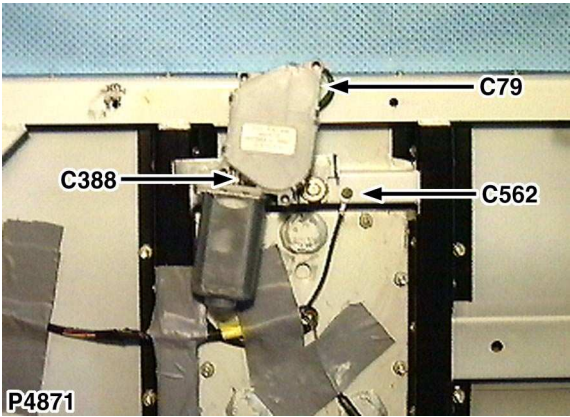
CONNECTOR



Switch - Park - Rear wiper

Female
BLACK

Behind rear door trim panel



YPC10068

Cav	Col	CCT
1	NLG	ALL
2	G	ALL
3	B	ALL

CONNECTOR

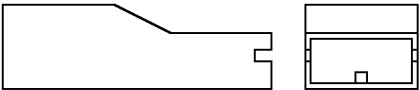
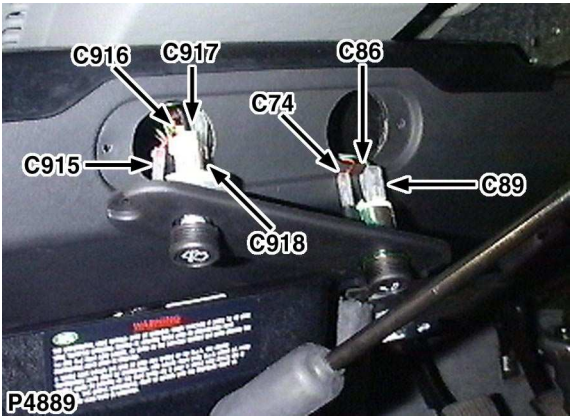
C086



Cigar lighter - Front

Female
NATURAL

Behind centre of fascia



YPC10386

Cav	Col	CCT
1	B	1
1	B	2
1	G	20

C089

CONNECTOR

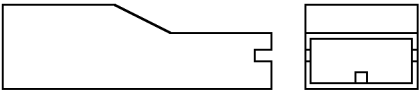
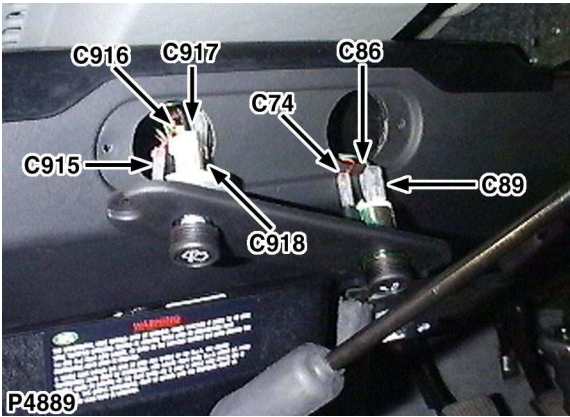


Cigar lighter - Front

Female

NATURAL

Behind centre of fascia



YPC10386

Cav	Col	CCT
1	G	1
1	G	2
1	B	20

CONNECTOR

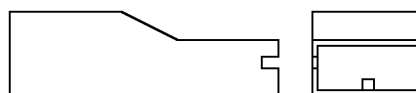
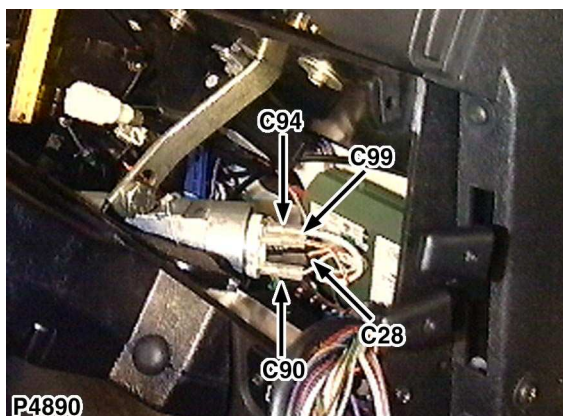
C090



Switch - Ignition

Female
NATURAL

Behind instrument pack



YPC10386

Cav	Col	CCT
1	WR	1
1	WB	15
1	WR	20

DEFENDER 97 MY

C091

CONNECTOR

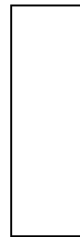
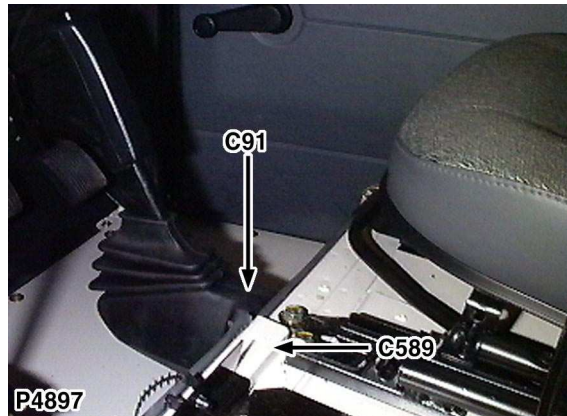


Switch - Handbrake

Female

BLACK

Base of handbrake lever



13H5155

Cav	Col	CCT
1	WY	ALL

CONNECTOR

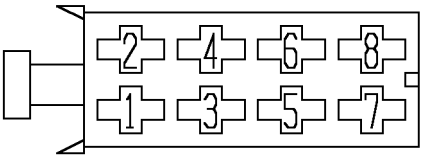
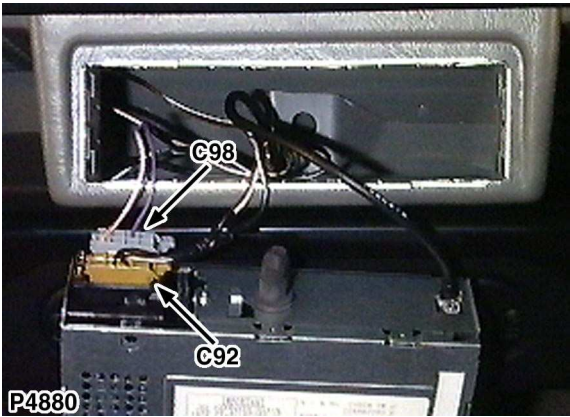
C092



Speakers - Front

Female
BROWN

Behind radio



YPC10191

Cav	CoI	CCT
3	NB	ALL
4	WB	ALL
5	BW	ALL
6	BN	ALL

C094

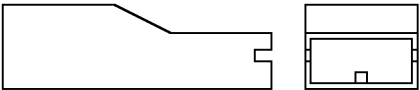
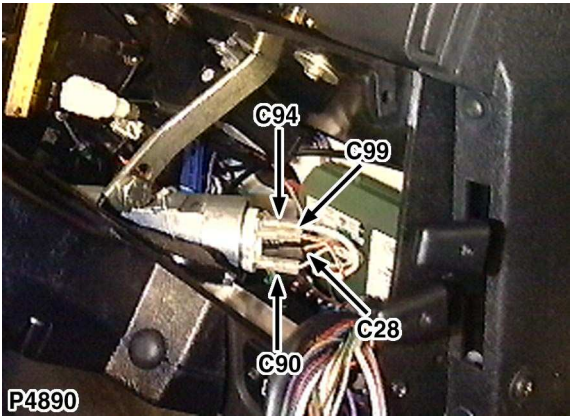
CONNECTOR



Switch - Ignition

Female
NATURAL

Behind instrument pack



YPC10386

Cav	Col	CCT
1	W	ALL

CONNECTOR

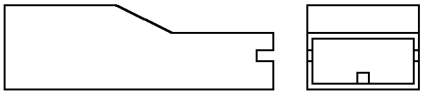
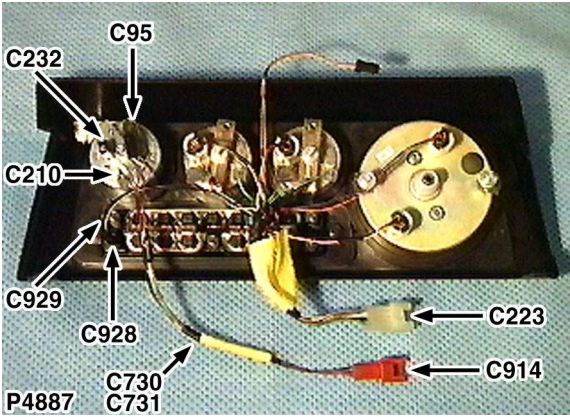
C095



Clock - Analogue

Female
BLACK

Behind instrument pack



AAU1010

Cav	Col	CCT
1	RW	ALL

C096

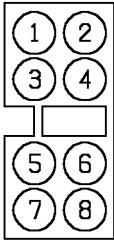
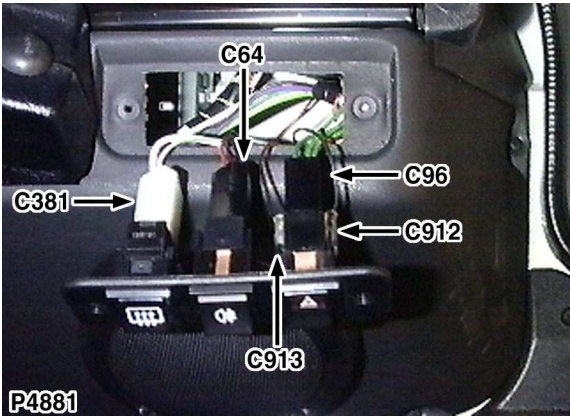
CONNECTOR



Switch - Hazard warning

Female
NATURAL

Behind RH side of fascia



13H9237

Cav	CoI	CCT
1	BR	ALL
2	LGN	ALL
3	GR	ALL
4	GW	ALL
5	LG	ALL
7	G	1
7	P	2
7	P	20
8	P	1
8	G	2
8	G	20

CONNECTOR

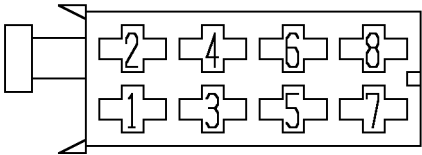
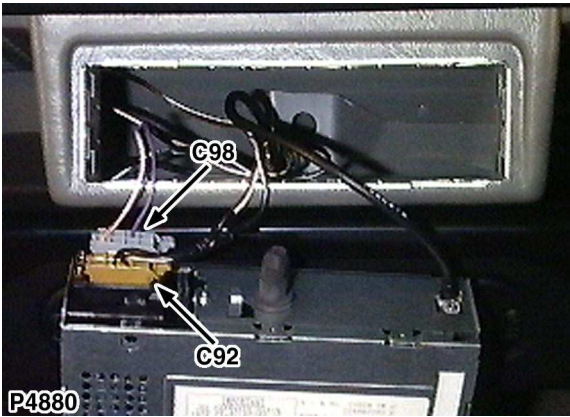
C098



Radio / cassette player

Female
GREY

Behind radio



YPC10190

Cav	Col	CCT
4	P	ALL
7	WO	ALL
8	B	ALL

C099

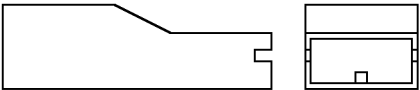
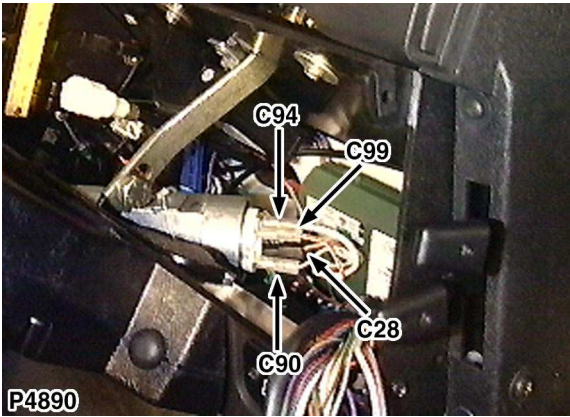
CONNECTOR



Switch - Ignition

Female
NATURAL

Behind instrument pack



YPC10386

Cav	CoI	CCT
1	WO	1
1	N	15
1	WO	20

CONNECTOR

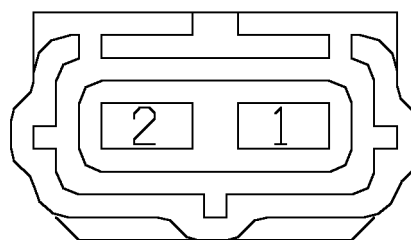
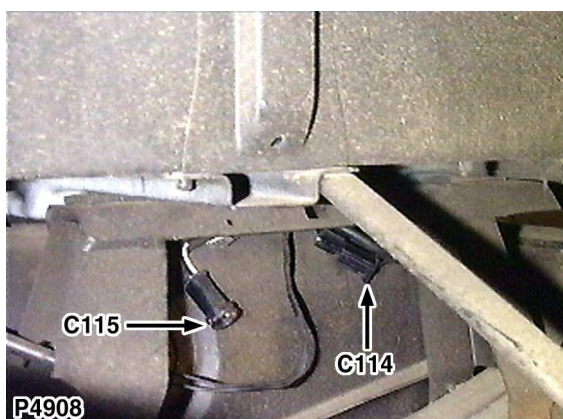
C114



Fuel tank

300 TDi
(Non-immobilisation)
Female
BLACK

LH side of fuel tank



YPC10070

Cav	Col	CCT
1	GB	21
2	B	21

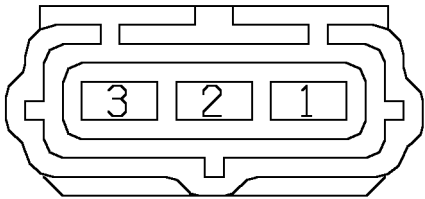
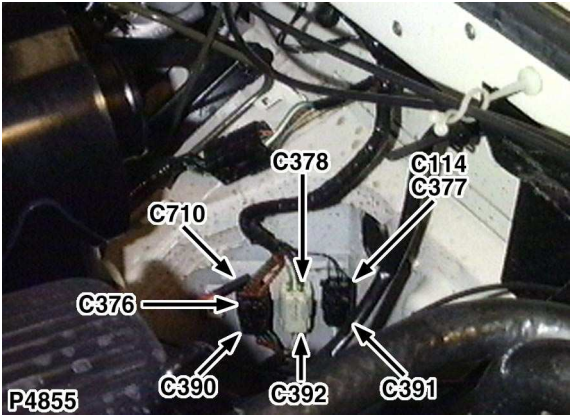
DEFENDER 97 MY

C114

CONNECTOR



Fuel tank
300 TDi (Immobilisation)
Female
BLACK
RH side of bulkhead



YPC10068

Cav	Col	CCT
1	GB	20
2	B	20

CONNECTOR

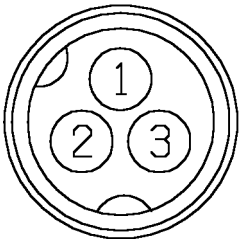
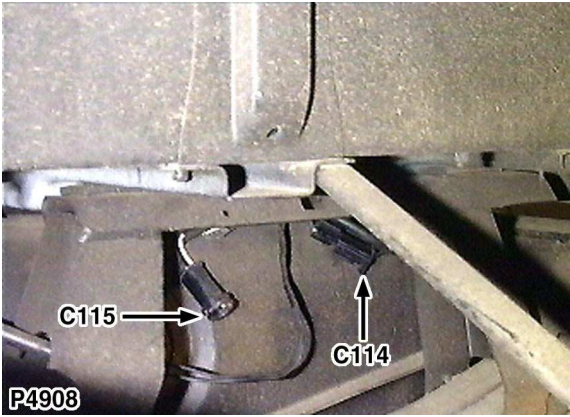
C115



Fuel tank

Male
BLACK

LH side of fuel tank



AJU1976

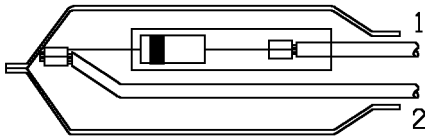
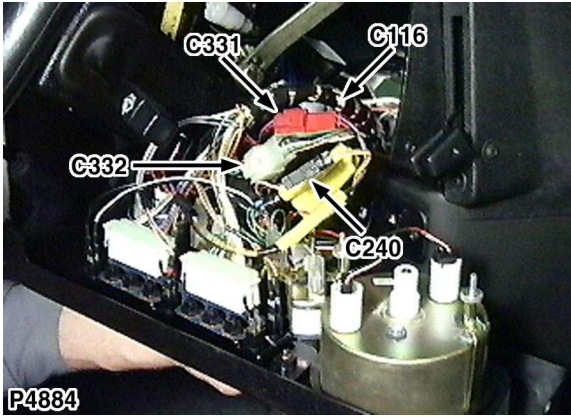
Cav	CoI	CCT
2	WP	ALL
3	B	ALL

C116

CONNECTOR



Diode
BLACK
Behind instrument pack



YQP10003

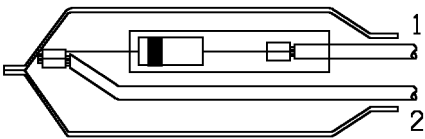
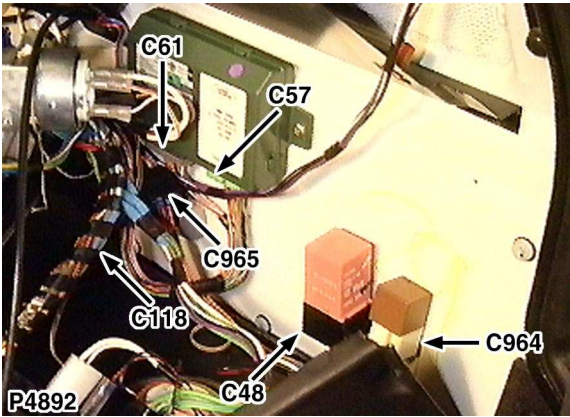
Cav	Col	CCT
1	SR	1
1	W	3
1	SR	12
1	WY	20
2	WY	1
2	WY	12
2	SR	20

CONNECTOR

C118



Diode
BLACK
Behind RH side of fascia



YQP10003

Cav	CoI	CCT
1	YN	ALL
2	NY	1
2	NY	2
2	WO	3
2	NY	20

C121

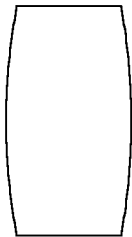
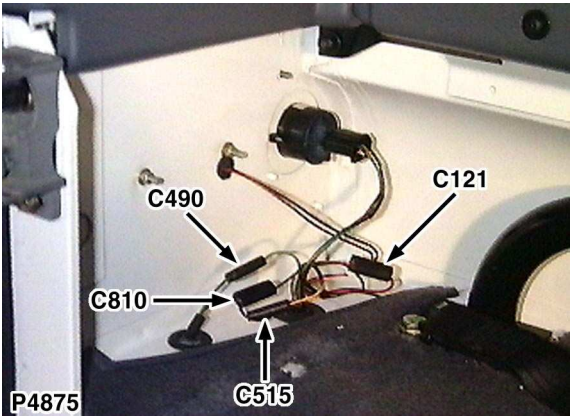
CONNECTOR



Lamp - Tail - LH

Male
BLACK

Behind RH rear trim panel



YPQ10010

Cav	Col	CCT
1	RB	ALL
2	RB	16

CONNECTOR

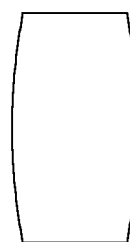
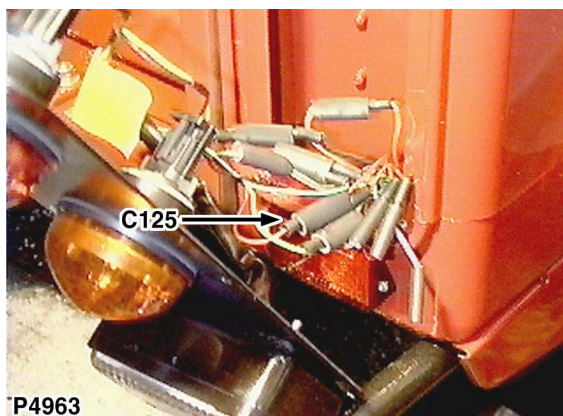
C125



Lamp - Tail - RH

Female
BLACK

Behind lamp



YPQ10010

Cav	Col	CCT
1	RO	16
1	RO	16

DEFENDER 97 MY

C127

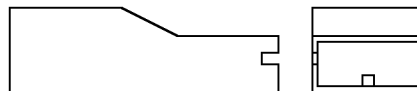
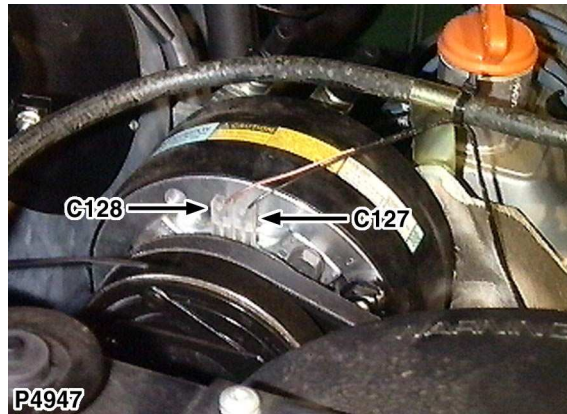
CONNECTOR



Clutch - Compressor - Air
conditioning (A/C)

Female
NATURAL

Front RH side of engine



YPC10386

Cav	Col	CCT
1	B	3

CONNECTOR

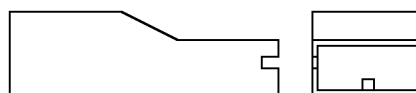
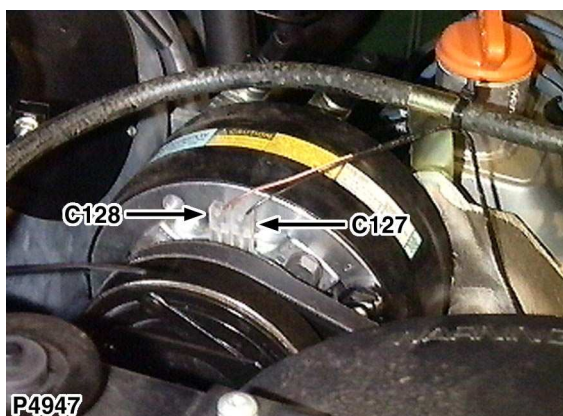
C128



Clutch - Compressor - Air
conditioning (A/C)

Female
NATURAL

Front RH side of engine



YPC10386

Cav	Col	CCT
1	NK	3

DEFENDER 97 MY

C151

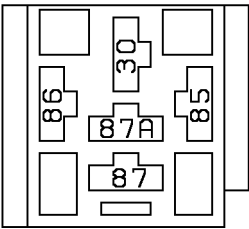
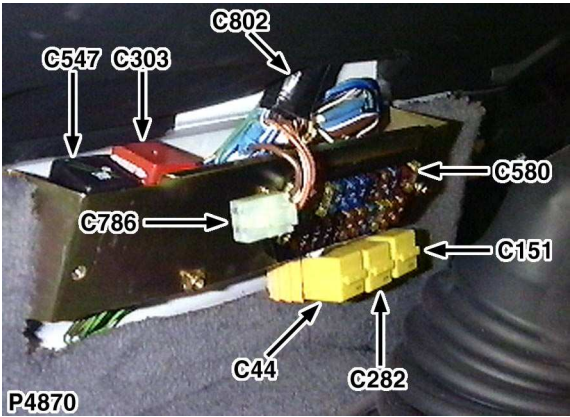
CONNECTOR



Relay - Starter

Female
YELLOW

Behind passenger
compartment fusebox cover



YPP100090

Cav	CoI	CCT
30	NR	ALL
85	WR	ALL
86	B	1
86	B	2
86	BO	20
87	N	ALL

CONNECTOR

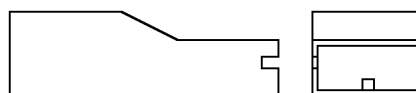
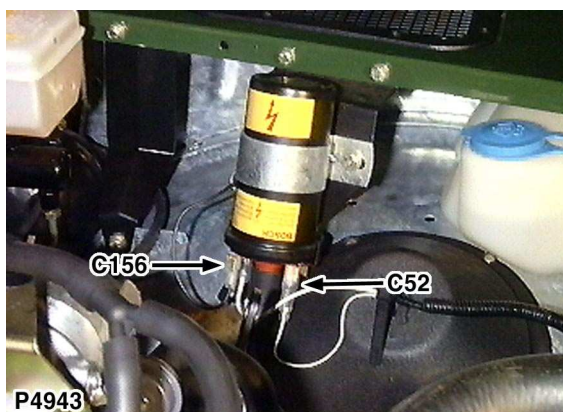
C156



Ignition coil

Female
NATURAL

LH side of engine
compartment



YPC10386

Cav	Col	CCT
1	W	ALL

DEFENDER 97 MY

C162

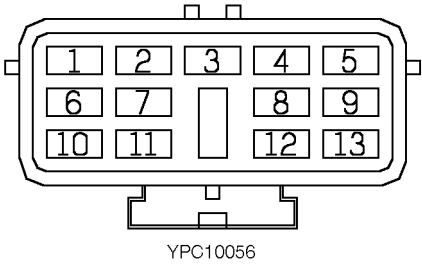
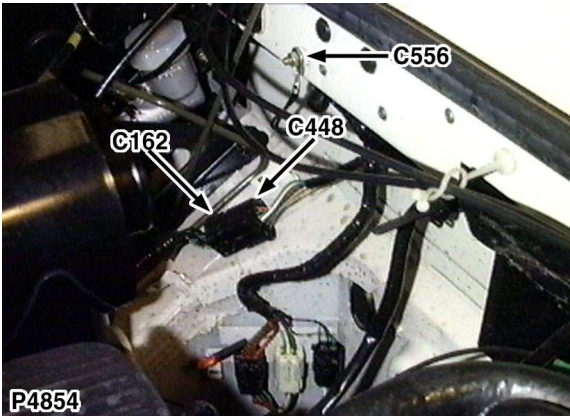
CONNECTOR



Main harness to engine harness

Male
BLACK

RH side of bulkhead



Cav	Col	CCT
1	WN	ALL
2	GU	ALL
3	NY	ALL
4	W	3
4	W	4
4	W	5
4	B	ALL
5	G	ALL

Cav	Col	CCT
6	GN	ALL
7	BU	ALL
8	B	ALL
9	SR	ALL
10	WY	ALL
11	NY	5
11	B	ALL
13	B	ALL

CONNECTOR

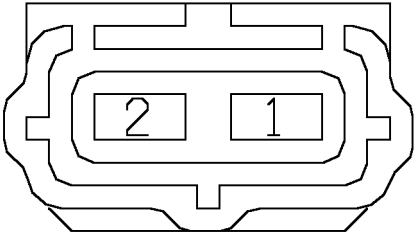
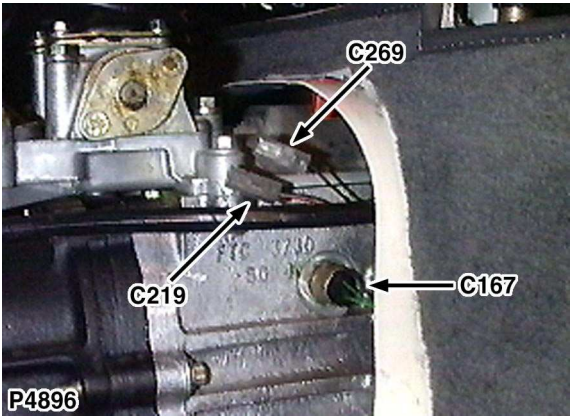
C167



Switch - Reverse lamp

Female
BLACK

Beneath centre console LH
side



YPC10070

Cav	Col	CCT
1	GN	ALL
2	G	ALL

C169

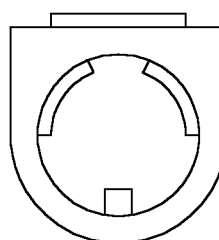
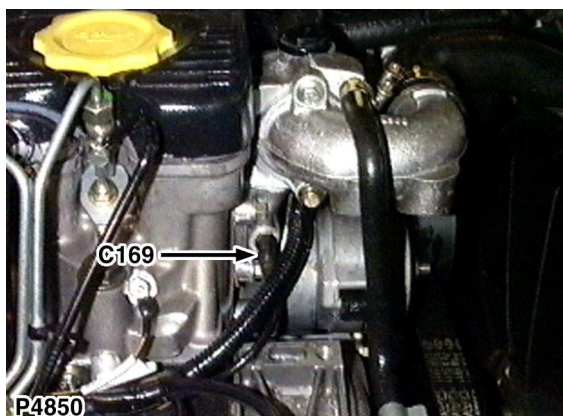
CONNECTOR



Sensor - Engine coolant
temperature (ECT)

300 TDi
Female
NATURAL

Front of engine - centre



YPC10132

Cav	Col	CCT
1	GU	2

CONNECTOR

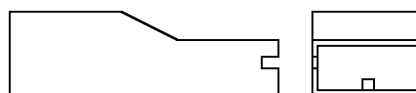
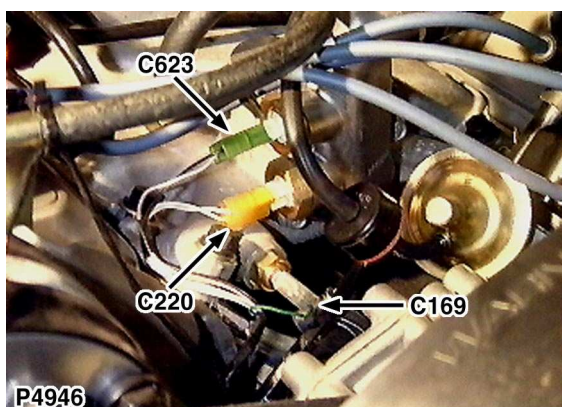
C169



Sensor - Engine coolant
temperature (ECT)

V8
Female
NATURAL

Front of engine - centre



YPC10386

Cav	Col	CCT
1	GU	1

DEFENDER 97 MY

C175

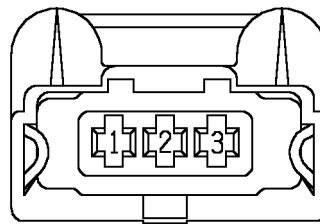
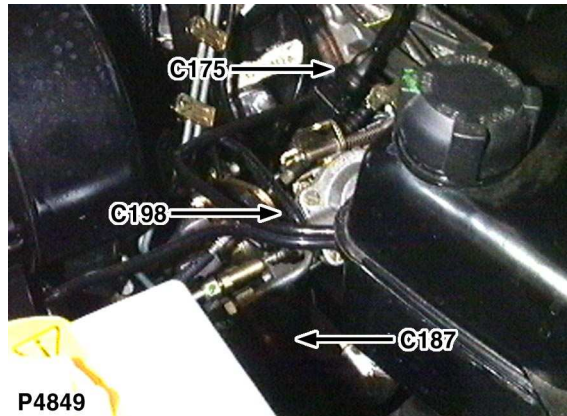
CONNECTOR



Sensor - Throttle position
(TP)

Female
BLACK

RH side of engine



YPC107900

Cav	Col	CCT
1	KB	10
2	R	10
3	RB	10

CONNECTOR

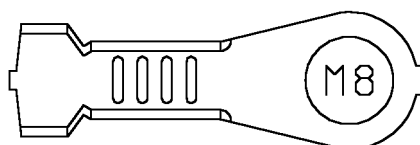
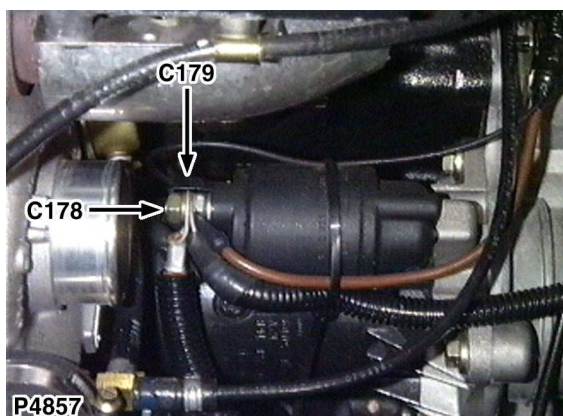
C178



Solenoid - Starter motor

Eyelet
TIN-PLATE

LH side of engine



YPG10018

Cav	Col	CCT
1	N	ALL

DEFENDER 97 MY

C179

CONNECTOR



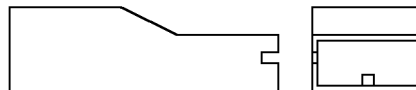
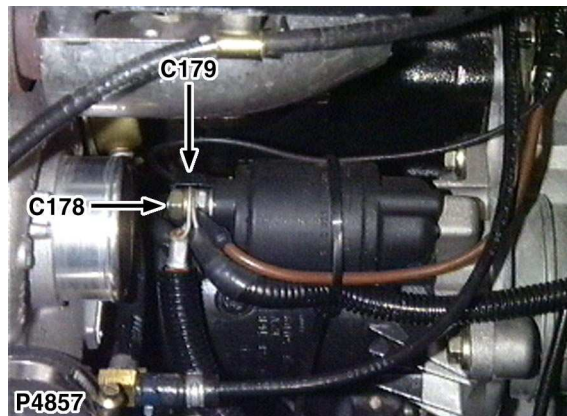
Solenoid - Starter motor

300 TDi

Female

BLACK

LH side of engine



AAU1010

Cav	Col	CCT
1	N	3
1	N	4
1	WR	4
1	WR	5
1	NR	15
1	B	ALL

DEFENDER 97 MY

CONNECTOR

C179



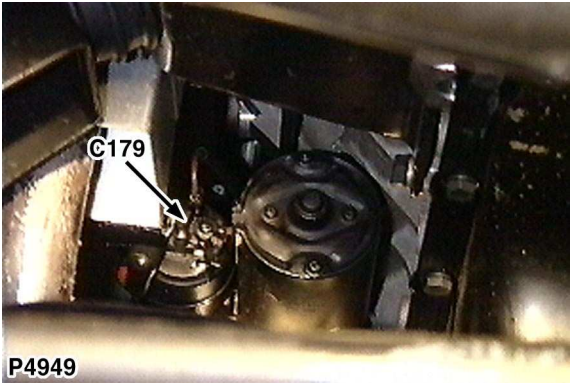
Solenoid - Starter motor

V8

Eyelet

TIN-PLATE

Lower rear of engine - RH side



Cav	Col	CCT
1	NR	1

C182

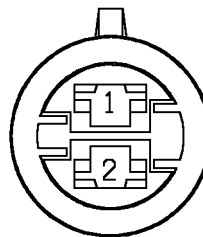
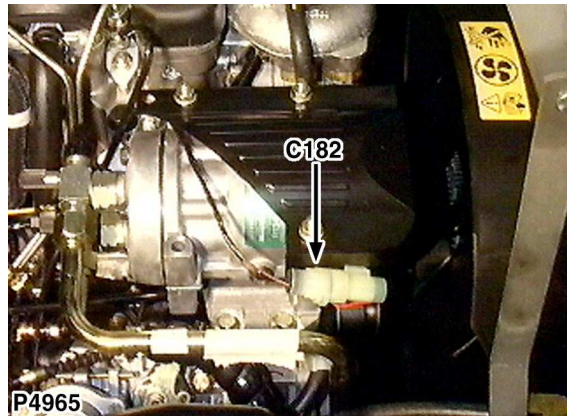
CONNECTOR



Clutch - Compressor - Air
conditioning (A/C)

Female
NATURAL

Front RH side of engine



AFU3692

Cav	Col	CCT
1	BS	1
1	NK	3
2	B	3

CONNECTOR

C183



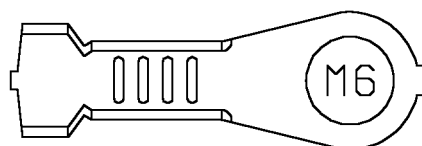
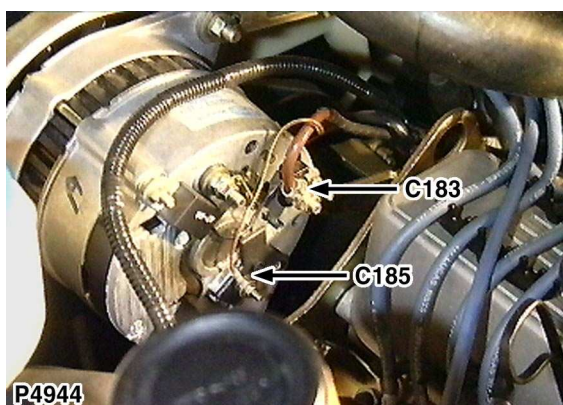
Alternator / generator

V8

Eyelet

BRONZE

Front LH side of engine



YPG10031

Cav	Col	CCT
1	N	1

DEFENDER 97 MY

C183

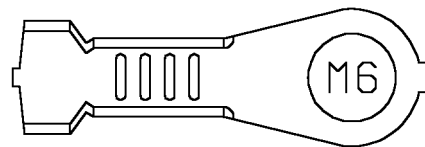
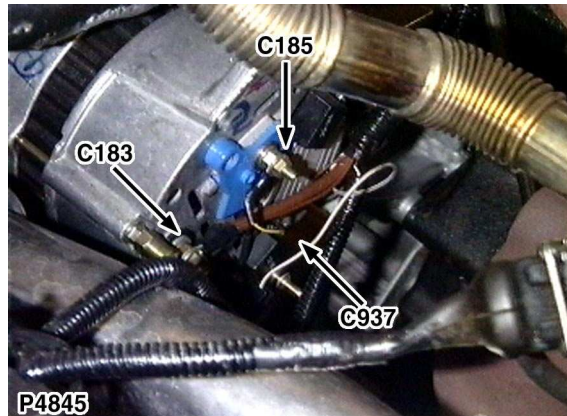
CONNECTOR



Alternator / generator

300 TDi
Eyelet
BRONZE

LH side of engine



YPG10031

Cav	Col	CCT
1	N	2

CONNECTOR

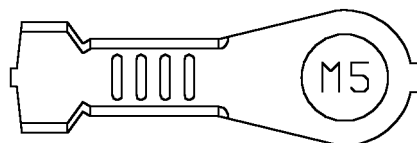
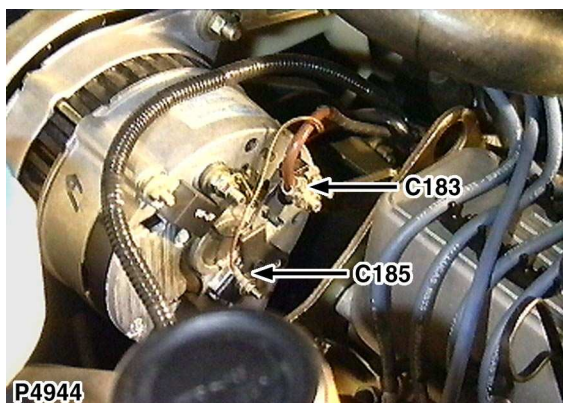
C185



Warning lamp - Ignition / no charge

V8
Eyelet
TIN-PLATE

Front LH side of engine



YPG10002

Cav	Col	CCT
1	NY	1

DEFENDER 97 MY

C185

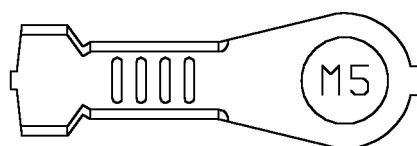
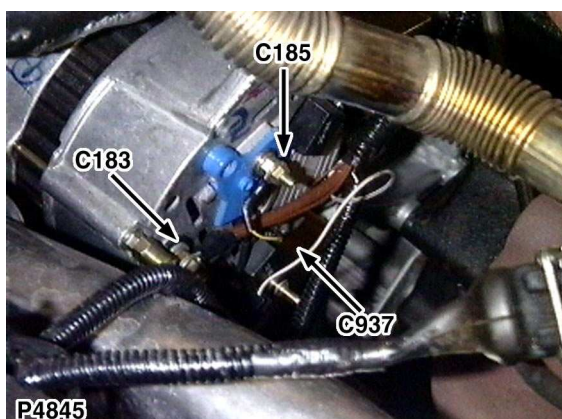
CONNECTOR



Warning lamp - Ignition / no charge

300 TDi
Eyelet
TIN-PLATE

LH side of engine



YPG10002

Cav	Col	CCT
1	NY	2

CONNECTOR

C187



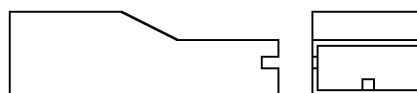
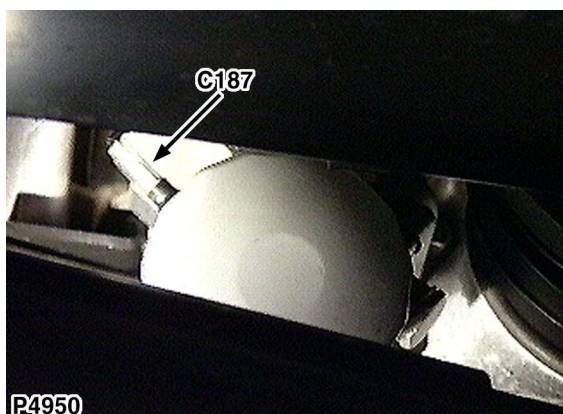
Switch - Oil pressure

V8

Female

NATURAL

RH side of engine



YPC10386

Cav	Col	CCT
1	WN	1

DEFENDER 97 MY

C187

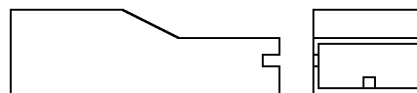
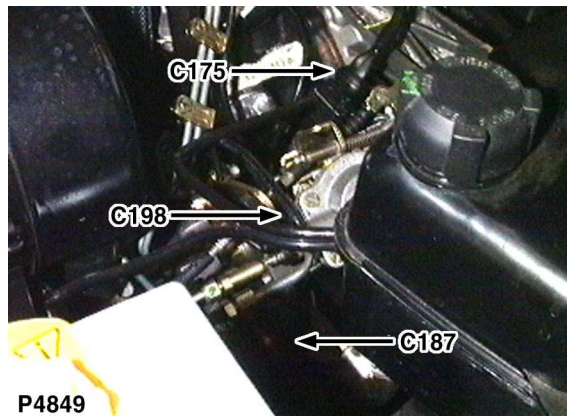
CONNECTOR



Switch - Oil pressure

300 TDi
Female
NATURAL

Bottom of engine - RH side



YPC10386

Cav	Col	CCT
1	WN	2

CONNECTOR

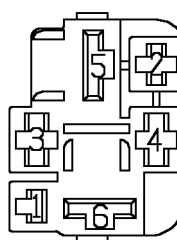
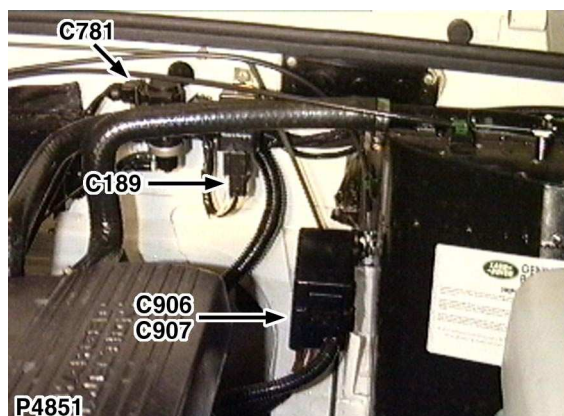
C189



Unit - Timer - Glow plug

Female
BLACK

LH side of bulkhead



YPP10006

Cav	Col	CCT
1	WR	ALL
2	YB	ALL
3	W	ALL
4	B	ALL
5	N	ALL
6	BY	ALL

DEFENDER 97 MY

C191

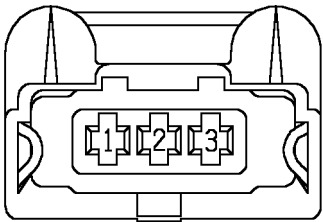
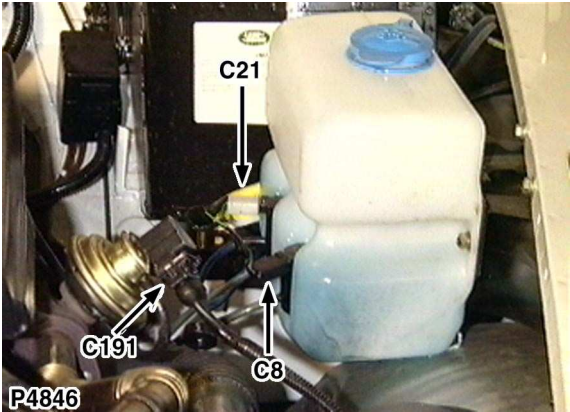
CONNECTOR



Solenoid - EGR

Female
BLACK

Rear LH side of engine
compartment



YPC107900

Cav	Col	CCT
1	RB	10
2	KB	10
3	RU	10

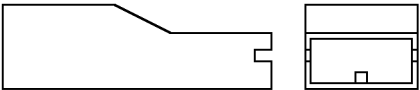
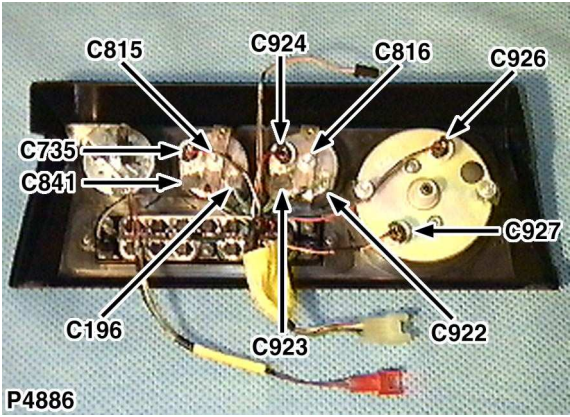
CONNECTOR

C196



Gauge - Coolant
temperature

Behind instrument pack



YPC10386

Cav	Col	CCT
1	G	ALL

C198

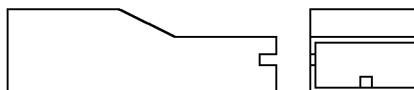
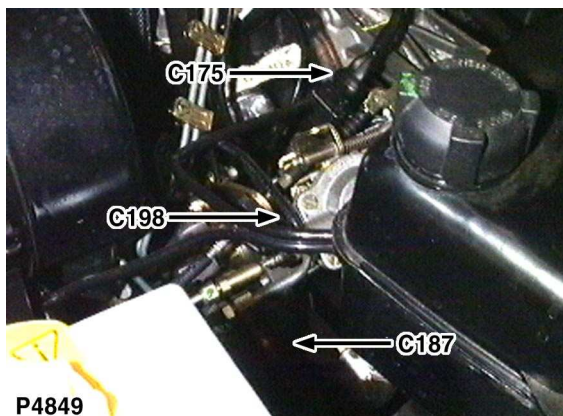
CONNECTOR



Solenoid - Fuel cut-off

Female
BLACK

RH side of engine



AAU1010

Cav	Col	CCT
1	B	20
1	W	21

CONNECTOR

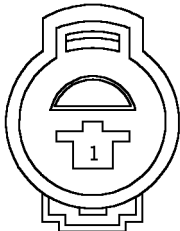
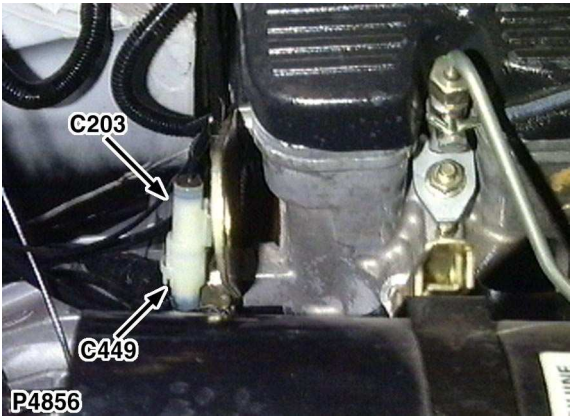
C203



Main harness to engine
harness

Male
NATURAL

Centre rear of engine



AFU3347

Cav	Col	CCT
1	WR	4
1	WR	5
1	B	ALL

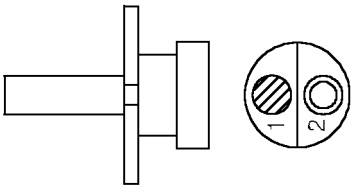
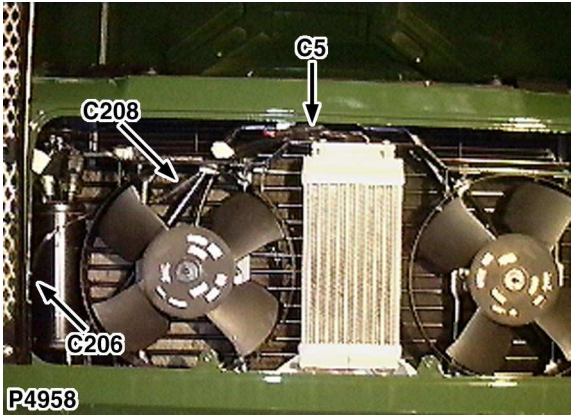
C206

CONNECTOR



Switch - High pressure

Behind the front grille



AAU9841

Cav	Col	CCT
1	WK	ALL
2	WS	ALL

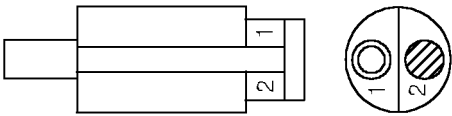
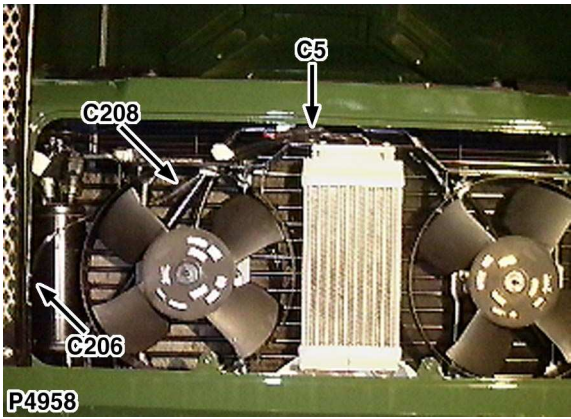
CONNECTOR

C208



Motor - Cooling fan - 1

Behind the front grille



AAU9844

Cav	CoI	CCT
1	NP	ALL
2	B	ALL

C210

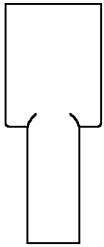
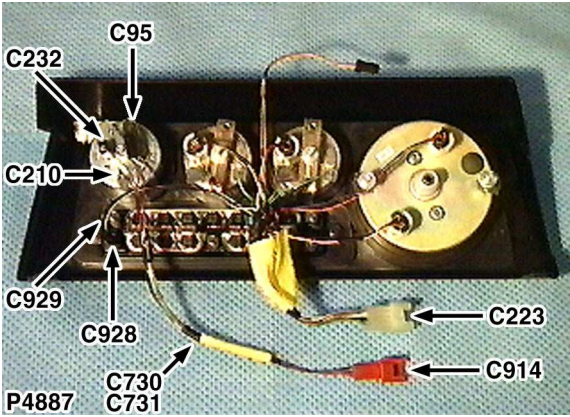
CONNECTOR



Clock - Analogue

Female
NATURAL

Behind instrument pack



37H3684

Cav	Col	CCT
1	B	ALL

CONNECTOR

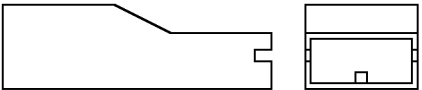
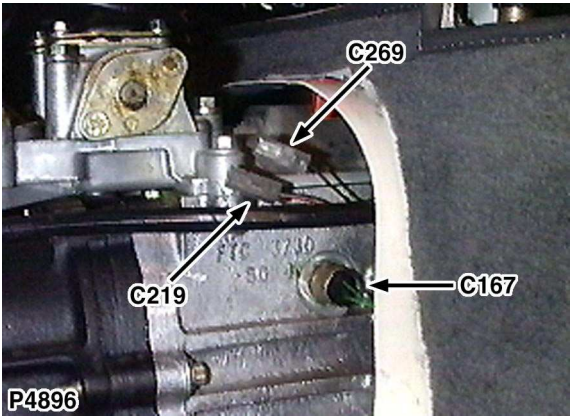
C219



Switch - Oil temperature

Female
NATURAL

Beneath centre console LH
side



YPC10386

Cav	Col	CCT
1	SR	ALL

C220

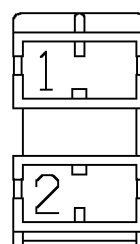
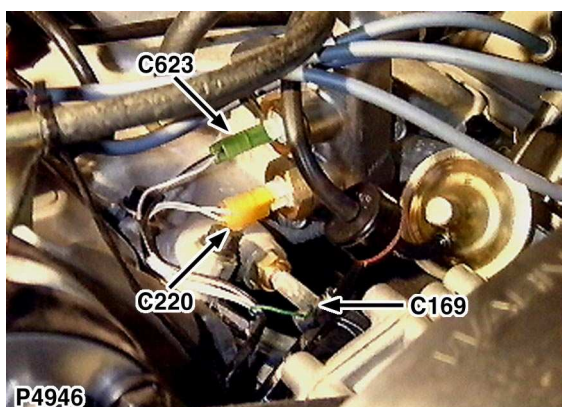
CONNECTOR



Switch - Cut-off - Air
conditioning (A/C)

Female
YELLOW

Front of engine - centre



YPC107200

Cav	Col	CCT
1	G	1
1	G	2
1	WO	3
2	WG	3

CONNECTOR

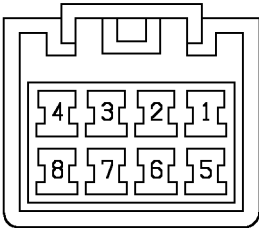
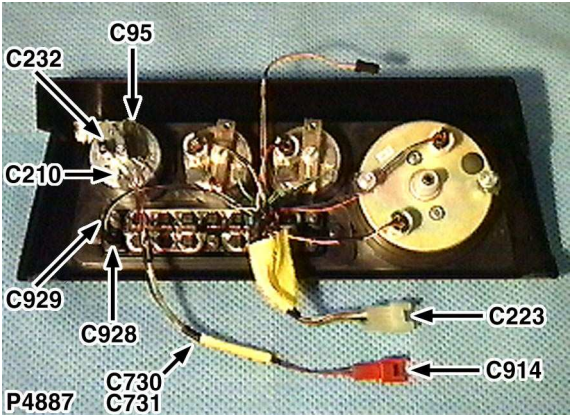
C223



Main harness to instrument
pack harness

Male
NATURAL

Behind instrument pack



YPC10055

Cav	CoI	CCT
1	GU	ALL
2	WB	ALL
3	B	ALL
4	G	ALL
5	RW	ALL
7	GB	ALL
8	P	ALL

C230

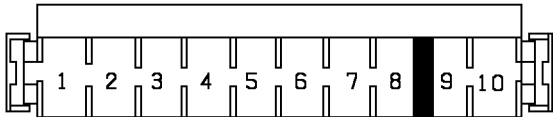
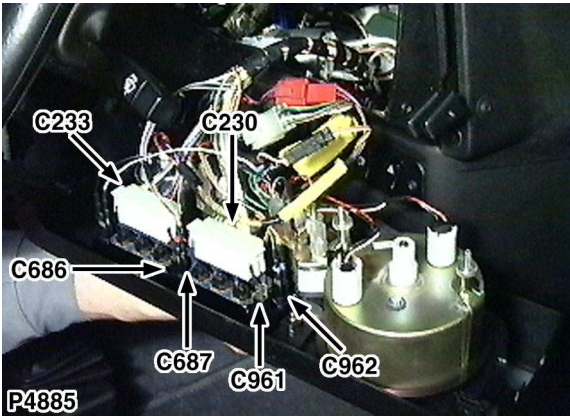
CONNECTOR



Instrument Pack

Female
NATURAL

Behind instrument pack



AAU8172

Cav	Col	CCT
3	WN	ALL
4	W	1
4	W	2
4	WB	15
4	W	20
5	YN	ALL
6	BW	ALL
8	WY	ALL
9	GW	ALL
10	GR	ALL

CONNECTOR

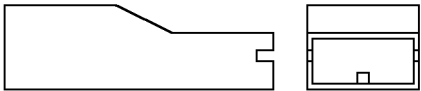
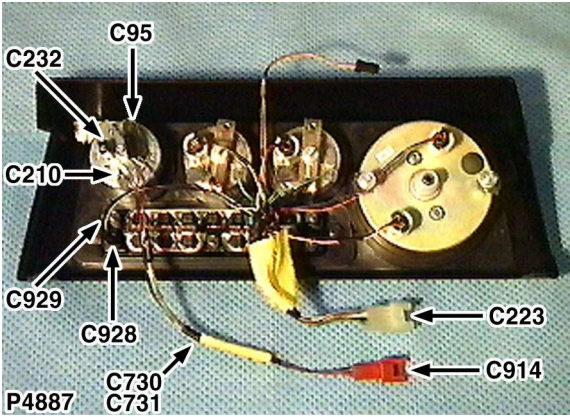
C232



Clock - Analogue

Female
BLACK

Behind instrument pack



AAU1010

Cav	Col	CCT
1	P	ALL

C233

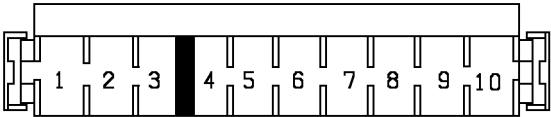
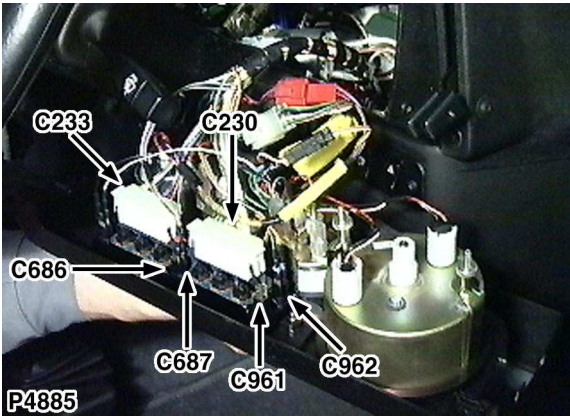
CONNECTOR



Instrument Pack

Female
NATURAL

Behind instrument pack



AAU8171

Cav	Col	CCT
1	LGP	ALL
2	B	ALL
3	RO	ALL
4	RY	ALL
5	UW	ALL
8	BU	ALL
9	W	1

Cav	Col	CCT
9	W	2
9	NR	15
9	W	20
10	YB	1
10	YB	2
10	B	15
10	YB	20

CONNECTOR

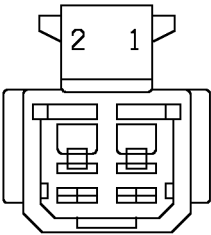
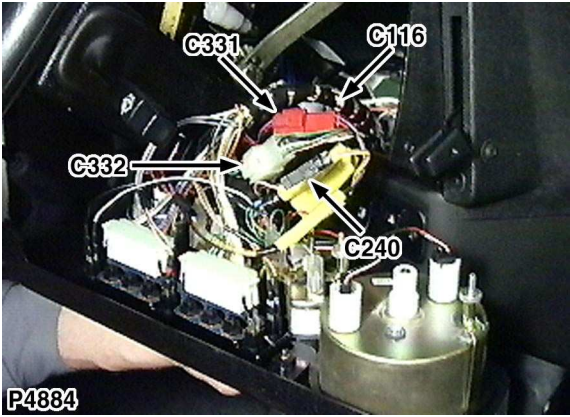
C240



LED - Anti-theft alarm

Male
BLACK

Behind instrument pack



YPC10520

Cav	Col	CCT
1	K	20
2	N	20

C260

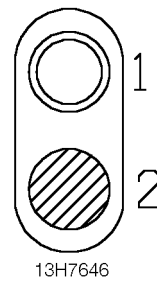
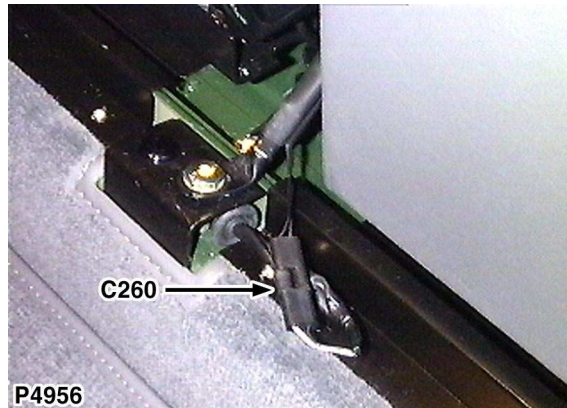
CONNECTOR



Switch - Seat belt

Female
BLACK

Beneath driver's seat



Cav	Col	CCT
1	WP	ALL
2	B	ALL

CONNECTOR

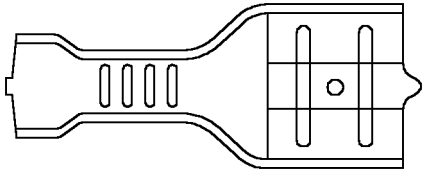
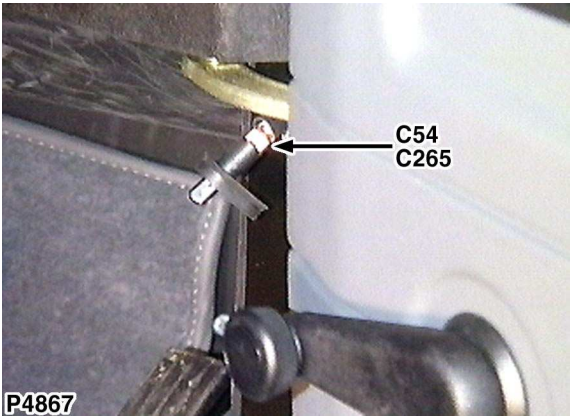
C265



Switch - Door - RH

Female
BRASS

RH 'A' post



AFU3262

Cav	Col	CCT
1	PU	ALL

C266

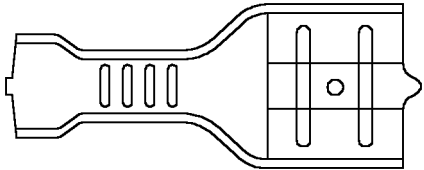
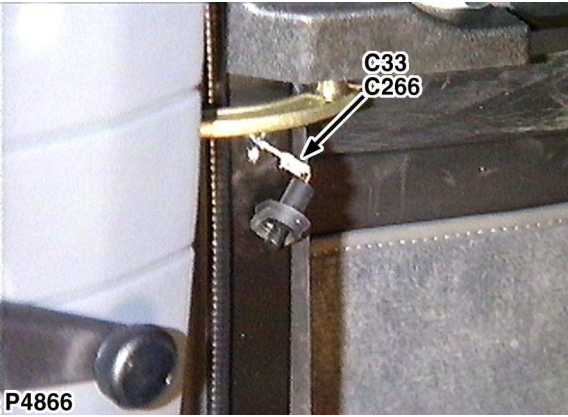
CONNECTOR



Switch - Door - LH

Female
BRASS

LH 'A' post



AFU3262

Cav	Col	CCT
1	PU	ALL

CONNECTOR

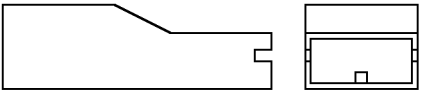
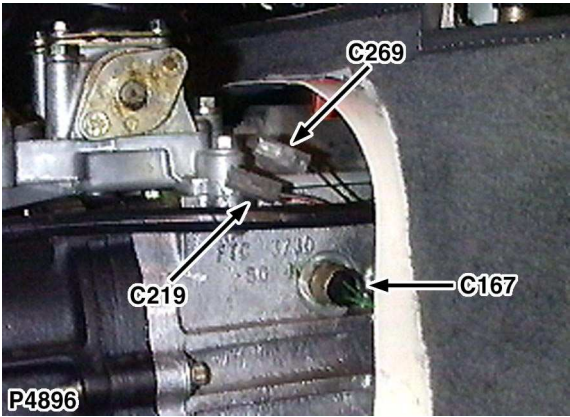
C269



Switch - Oil temperature

Female
NATURAL

Beneath centre console LH
side



YPC10386

Cav	Col	CCT
1	B	ALL

C278

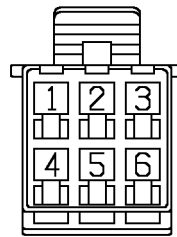
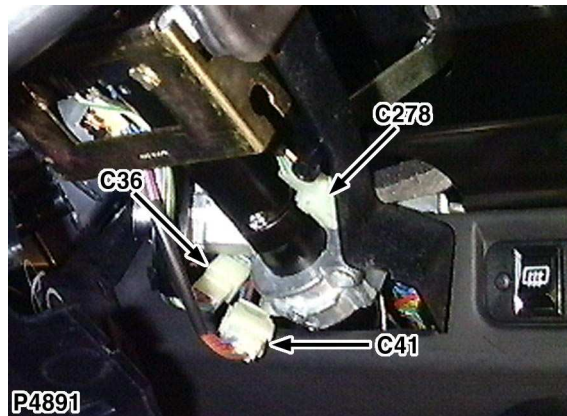
CONNECTOR



Switch - Wash / wipe -
Windscreen

Female
NATURAL

Behind steering column
cowl - RH side



YPC10038

Cav	Col	CCT
1	ULG	ALL
2	LGB	ALL
3	WG	ALL
4	YLG	ALL
5	RLG	ALL
6	G	ALL

CONNECTOR

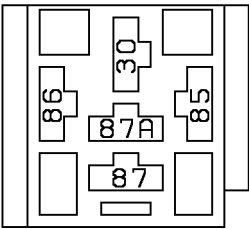
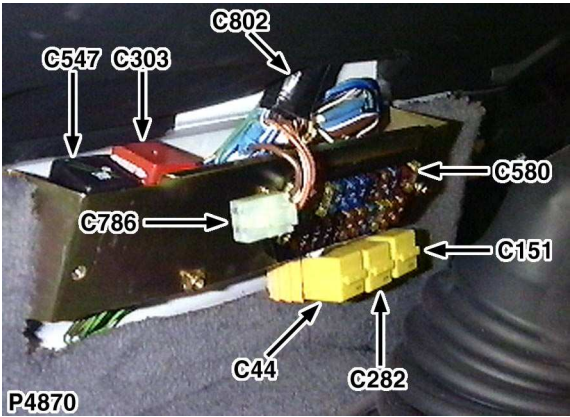
C282



Relay - Headlamp

Female
YELLOW

Behind passenger
compartment fusebox cover



YPP100090

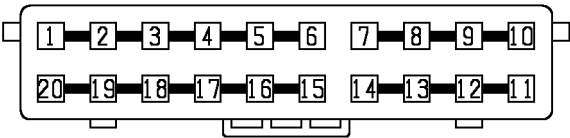
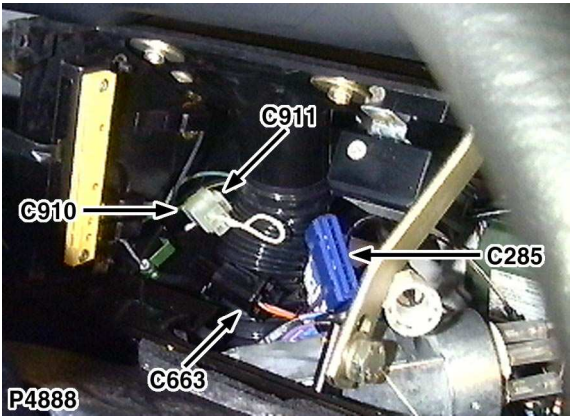
Cav	Col	CCT
30	U	ALL
85	W	ALL
86	B	ALL
87	U	ALL

C285

CONNECTOR



Header joint
Female
BLUE
Behind instrument pack



YQC10005

Cav	Col	CCT
1	G	ALL
2	G	ALL
3	G	ALL
4	G	ALL
5	G	ALL
7	P	ALL
8	P	ALL
9	P	ALL
10	P	ALL
11	W	ALL

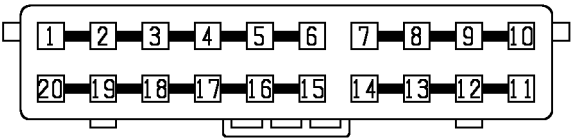
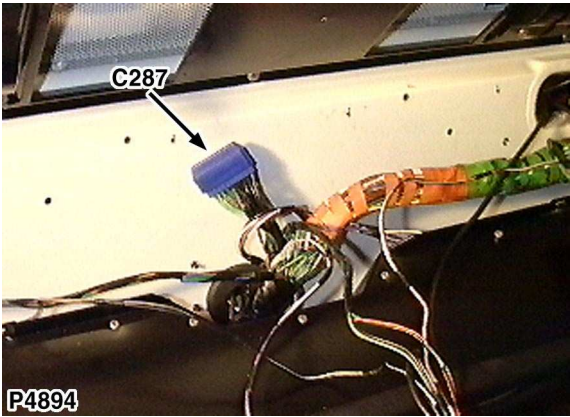
Cav	Col	CCT
12	W	ALL
13	W	ALL
14	W	ALL
15	W	ALL
16	W	ALL
17	W	ALL
18	W	ALL
19	W	ALL
20	W	ALL

CONNECTOR

C287



Header joint
Female
BLUE
Behind centre of fascia



YQC10005

Cav	Col	CCT
1	B	20
2	B	20
3	B	20
4	B	20
5	B	20
6	B	20
7	GW	20
8	GW	20
9	GW	20
10	GW	20

Cav	Col	CCT
11	GR	20
12	GR	20
13	GR	20
14	GR	20
15	B	20
16	B	20
17	B	20
18	B	20
19	B	20
20	B	20

C303

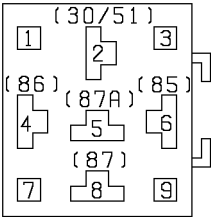
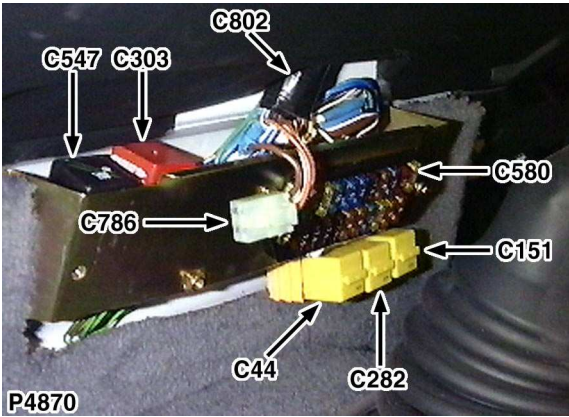
CONNECTOR



ECU - Delay - Windscreen wiper

Female
BLACK

Behind passenger compartment fusebox cover



AFU4177

Cav	Col	CCT
1	WG	ALL
2	YLG	ALL
4	B	ALL
5	NLG	ALL
6	LGB	ALL
8	G	ALL

CONNECTOR

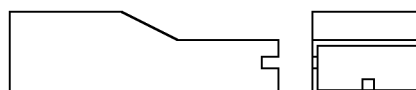
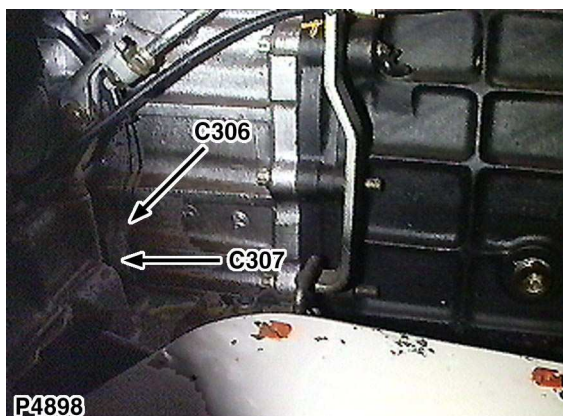
C306



Differential lock unit

Female
NATURAL

Beneath centre console RH
side



YPC10386

Cav	Col	CCT
1	BU	ALL

C307

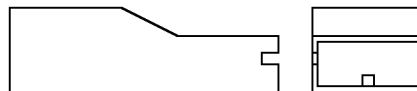
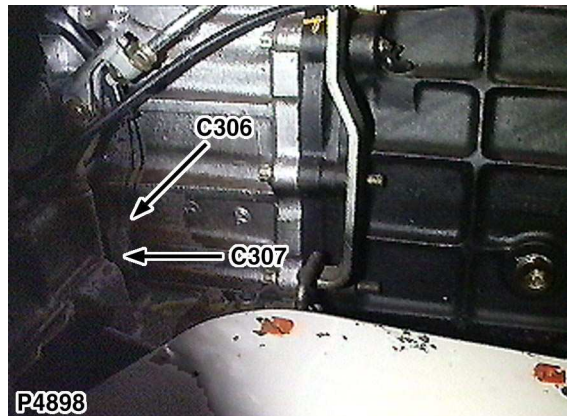
CONNECTOR



Differential lock unit

Female
NATURAL

Beneath centre console RH
side



YPC10386

Cav	Col	CCT
1	B	ALL

CONNECTOR

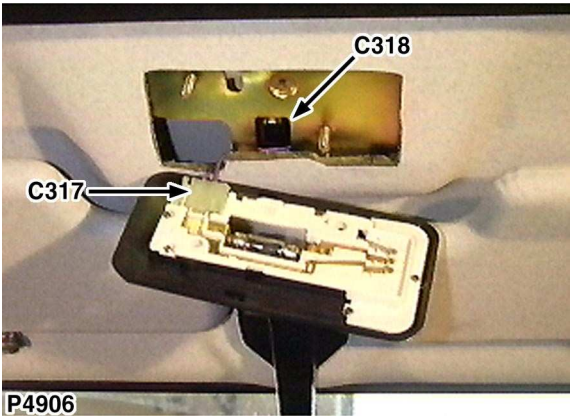
C317



Lamp - Interior - Front

Female
NATURAL

Behind interior light



YPC10026

Cav	Col	CCT
1	PU	ALL
3	P	ALL

C318

CONNECTOR

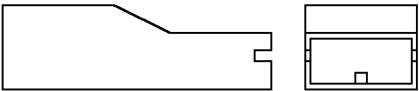
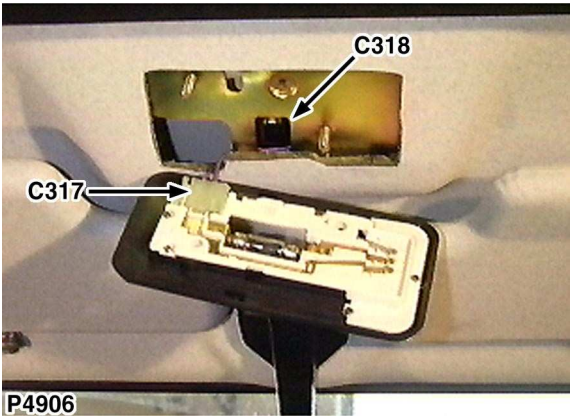


Behind interior light

Female
BLACK

Earth

Behind interior light



AAU1010

Cav	Col	CCT
1	B	ALL

CONNECTOR

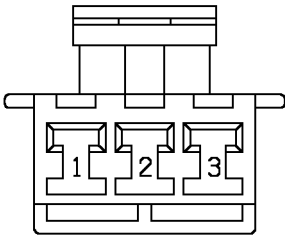
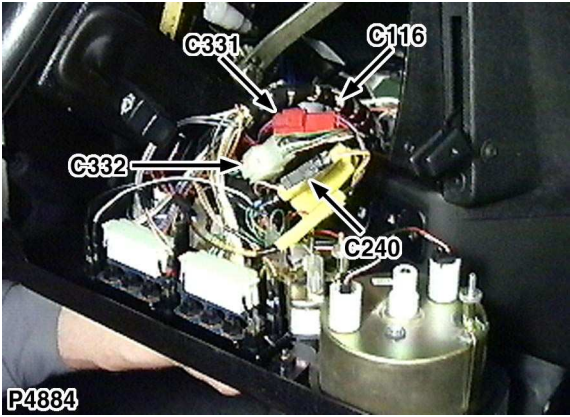
C331



Main harness to clock
harness

Female
RED

Behind instrument pack



YPC10414

Cav	Col	CCT
1	B	ALL
2	RO	ALL
3	P	ALL

C332

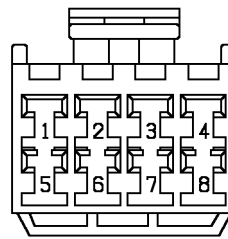
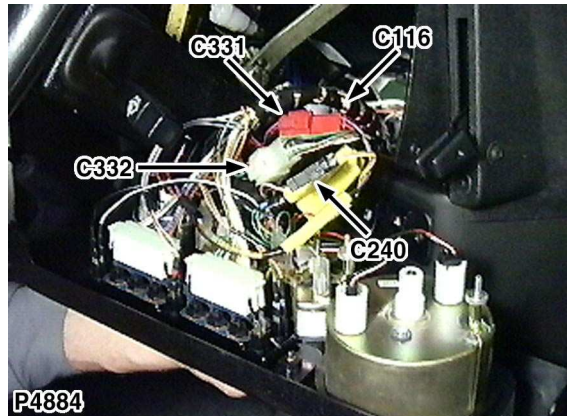
CONNECTOR



Instrument pack harness to
main harness

Female
NATURAL

Behind instrument pack



AFU3574

Cav	Col	CCT
1	GU	ALL
2	WB	ALL
3	B	ALL
4	G	ALL
5	RO	ALL
7	GB	ALL

CONNECTOR

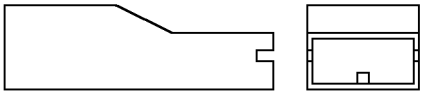
C339



Speaker - Door - Front - LH

Female
BLACK

Behind front speaker



AAU1010

Cav	Col	CCT
1	WB	ALL

C340

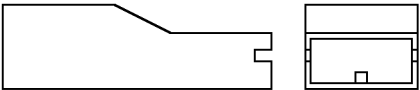
CONNECTOR



Speaker - Door - Front - RH

Female
NATURAL

Behind front speaker



YPC10386

Cav	Col	CCT
1	NB	ALL

CONNECTOR

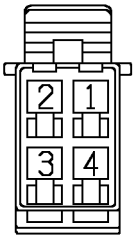
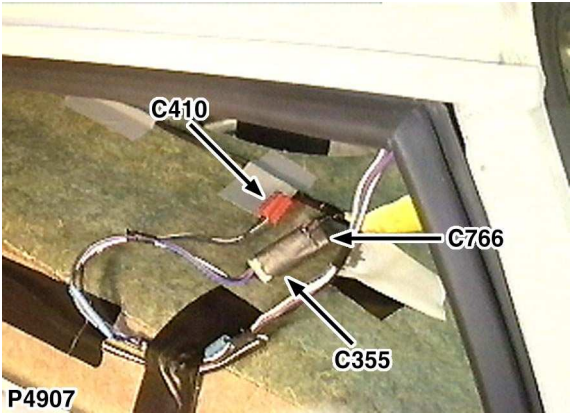
C355



Main harness to interior lamp harness

Female
NATURAL

Headlining - Front RH side



AFU3561

Cav	Col	CCT
1	B	20
2	PW	20
3	P	20
4	PU	20

C357

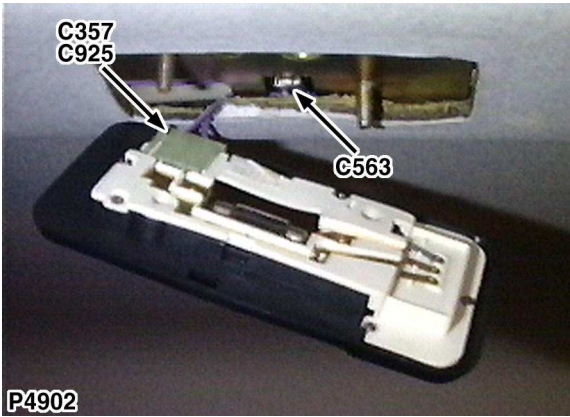
CONNECTOR



Lamp - Interior - Front

Female
NATURAL

Rear of headlining



YPC10026

Cav	Col	CCT
1	PW	ALL
3	P	ALL

CONNECTOR

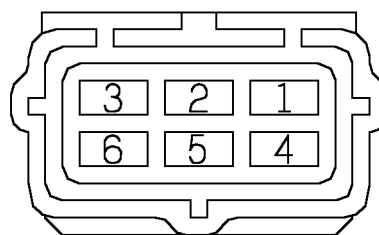
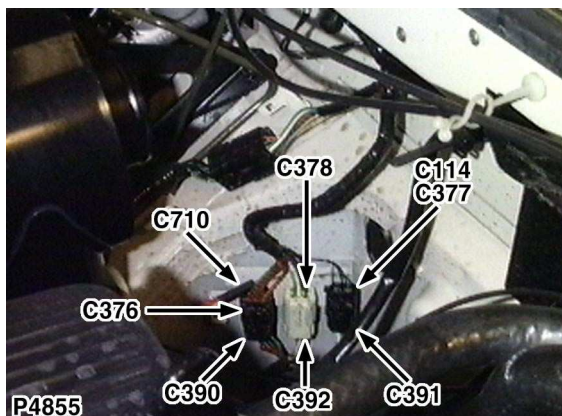
C376



Main harness to chassis
harness

Female
BLACK

RH side of bulkhead



YPC10064

Cav	Col	CCT
1	RO	ALL
2	RB	ALL
3	RY	ALL
4	GR	ALL
5	GW	ALL
6	GP	ALL

DEFENDER 97 MY

C377

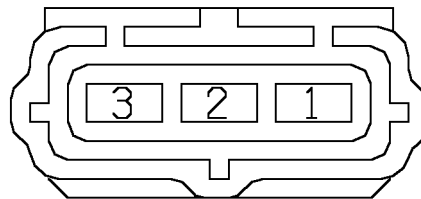
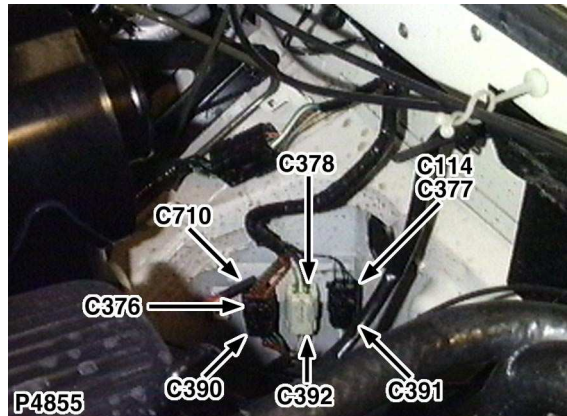
CONNECTOR



Main harness to chassis
harness

Female
BLACK

RH side of bulkhead



YPC10068

Cav	Col	CCT
1	GB	ALL
2	B	ALL
3	WP	1

CONNECTOR

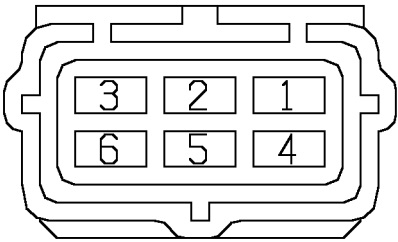
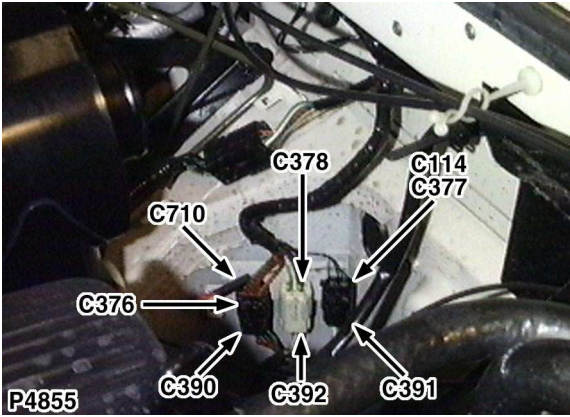
C378



Main harness to chassis harness

Female
WHITE

RH side of bulkhead



YPC10197

Cav	Col	CCT
1	GN	ALL
2	WB	ALL
3	G	ALL
4	NLG	ALL
5	RLG	ALL
6	P	ALL

C381

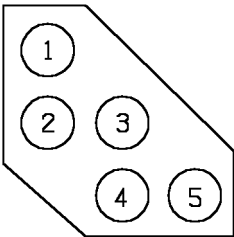
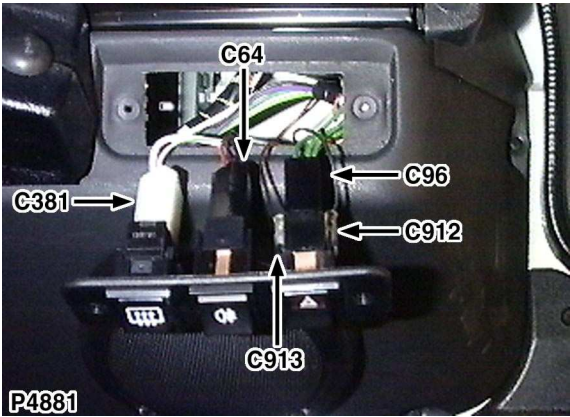
CONNECTOR



Heater element - Rear screen

Female
NATURAL

LH side of taildoor



13H9236

Cav	CoI	CCT
2	W	ALL
4	WG	ALL

CONNECTOR

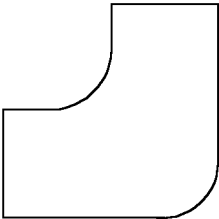
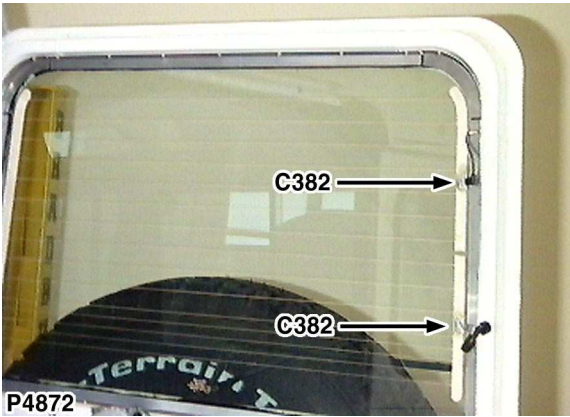
C382



Heater element - Rear
screen

Male
SILVER

LH side of taildoor



ADU3052

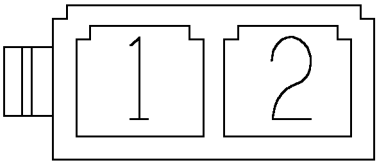
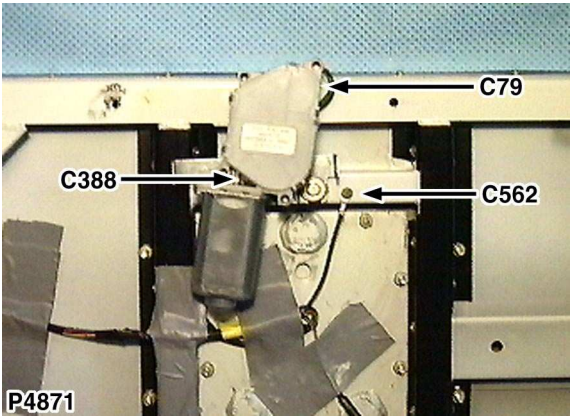
Cav	Col	CCT
1	WB	ALL

C388

CONNECTOR



Motor - Wiper - Rear screen
Female
BLACK
Behind rear door trim panel



YPC106820

Cav	Col	CCT
1	B	ALL
2	RLG	ALL

CONNECTOR

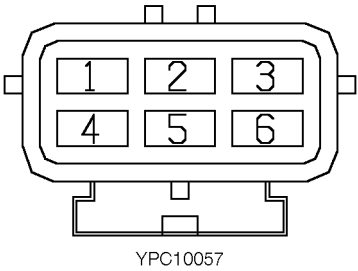
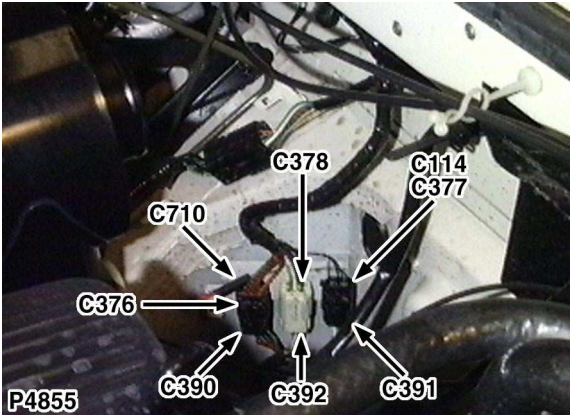
C390



Chassis harness to main harness

Male
BLACK

RH side of bulkhead



Cav	Col	CCT
1	RO	ALL
2	RB	ALL
3	RY	ALL
4	GR	ALL
5	GW	ALL
6	GP	ALL

C391

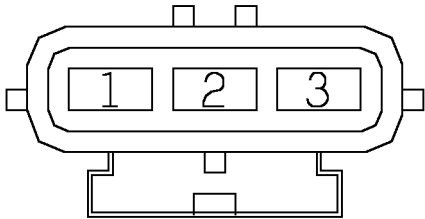
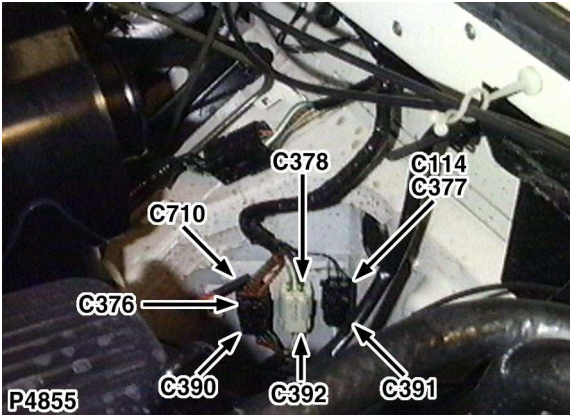
CONNECTOR



Chassis harness to main harness

Male
BLACK

RH side of bulkhead



YPC10059

Cav	Col	CCT
1	GB	ALL
3	WP	ALL

CONNECTOR

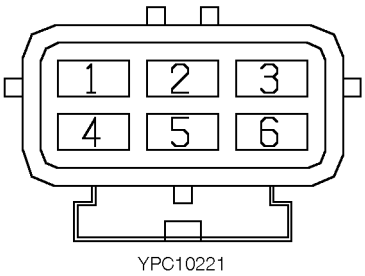
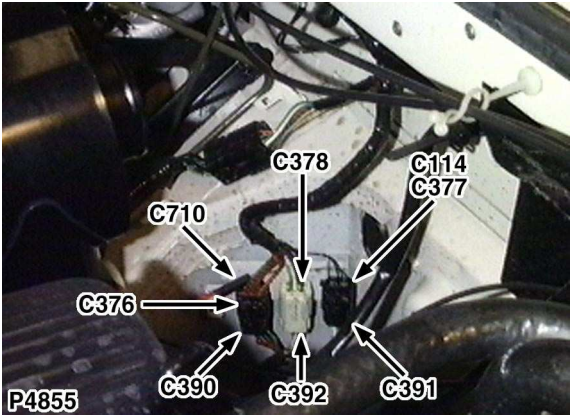
C392



Chassis harness to main harness

Male
WHITE

RH side of bulkhead



Cav	Col	CCT
1	GN	ALL
2	WB	18
3	G	18
4	NLG	18
5	RLG	18
6	P	ALL

C394

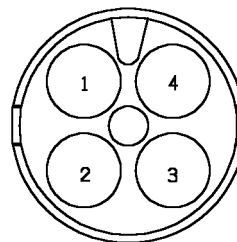
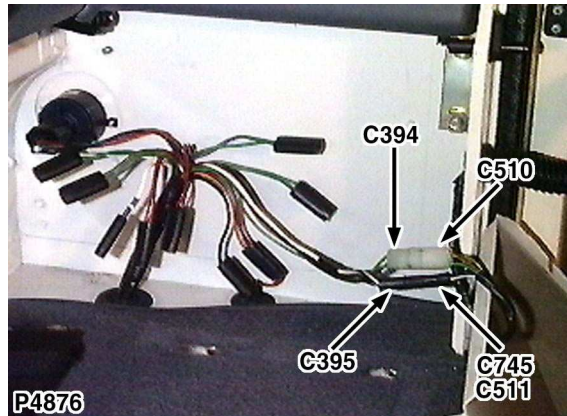
CONNECTOR



Chassis harness to tail door
harness

Female
WHITE

Behind RH rear trim panel



ADU6789

Cav	Col	CCT
1	G	18
2	NLG	18
3	RLG	18

CONNECTOR

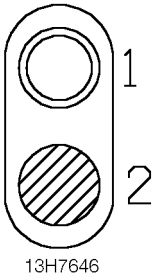
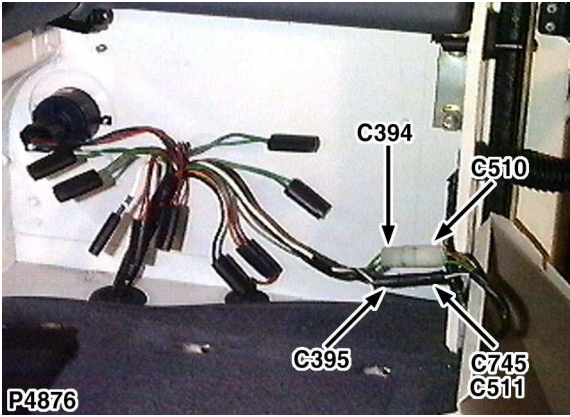
C395



Heater element - Rear
screen

Female
BLACK

LH side of taildoor



Cav	Col	CCT
1	WB	18
2	B	18

C401

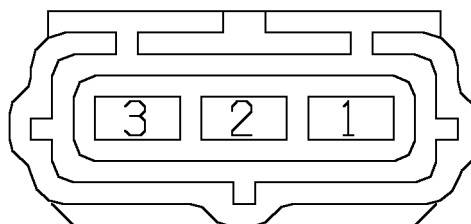
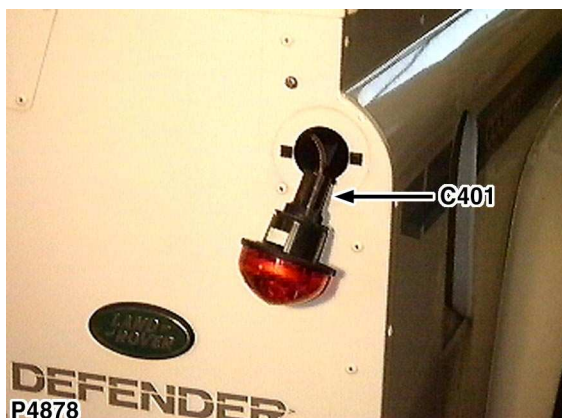
CONNECTOR



Lamp - Tail - RH

Female
BLACK

Behind lamp



YPC10067

Cav	Col	CCT
1	B	17
2	GP	17
3	RO	17

CONNECTOR

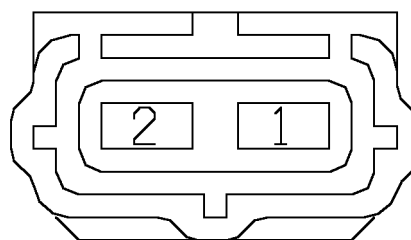
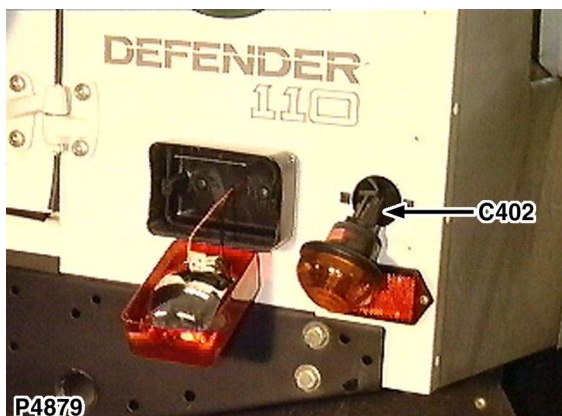
C402



Lamp - Direction indicator /
hazard warning - Rear - RH

Female
BLACK

Behind lamp



YPC10070

Cav	Col	CCT
1	GW	16
1	B	17
2	GW	17

DEFENDER 97 MY

C403

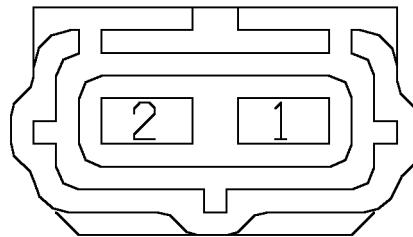
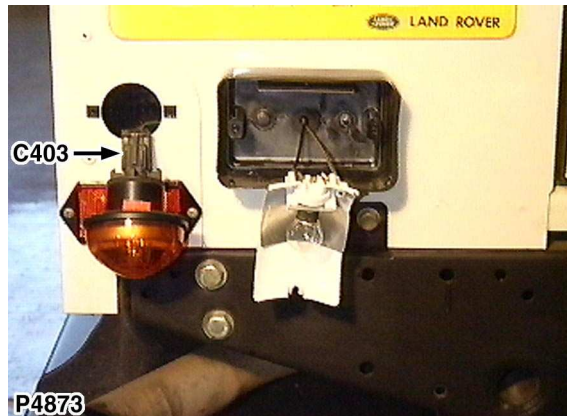
CONNECTOR



Lamp - Direction indicator /
hazard warning - Rear - LH

Male
BLACK

Behind lamp



YPC10070

Cav	Col	CCT
1	GR	16
1	B	17
2	GR	17

CONNECTOR

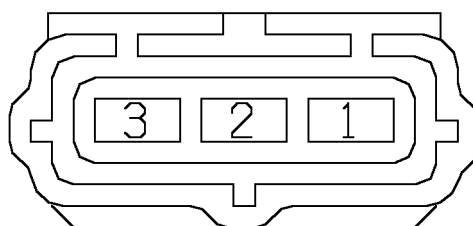
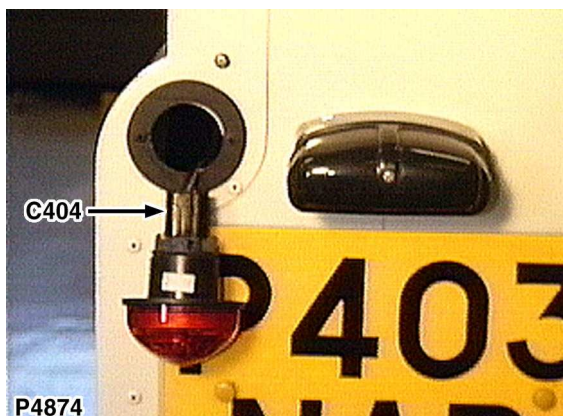
C404



Lamp - Tail - LH

Female
BLACK

Behind lamp



YPC10067

Cav	Col	CCT
1	B	17
2	GP	17
3	RB	17

DEFENDER 97 MY

C410

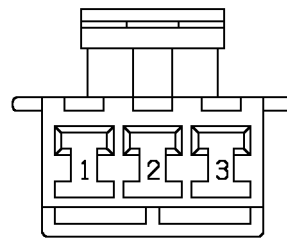
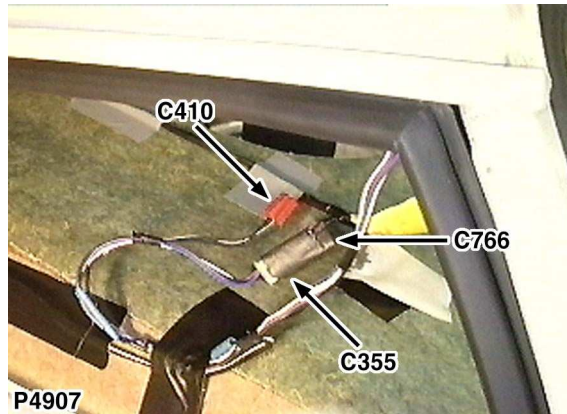
CONNECTOR



Main harness to interior
lamp harness

Female
RED

Headlining - Front RH side



YPC10414

Cav	Col	CCT
1	WB	20
2	BN	20
3	B	20

CONNECTOR

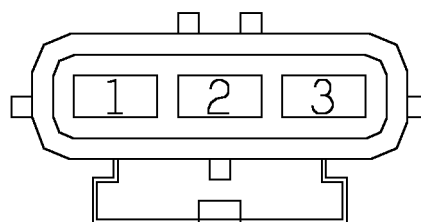
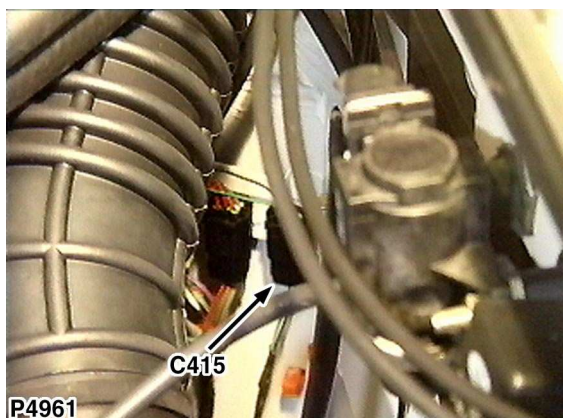
C415



Main harness to fuel tank
harness

Male
BLACK

RH side of bulkhead



YPC10059

Cav	Col	CCT
1	GB	ALL
2	B	ALL
3	WP	1

C416

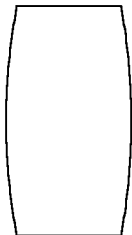
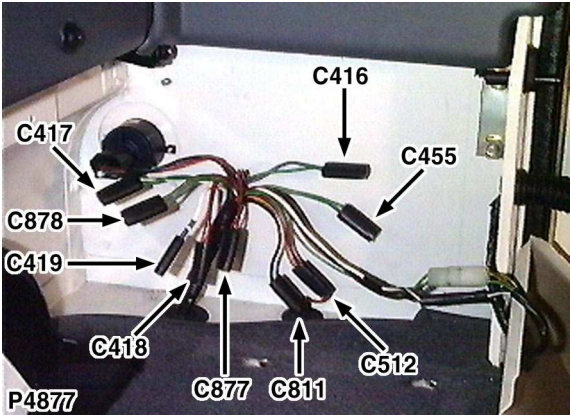
CONNECTOR



Trailer pick-up

Male
BLACK

Behind RH rear trim panel



YPQ10010

Cav	Col	CCT
1	GP	17
2	GP	17

CONNECTOR

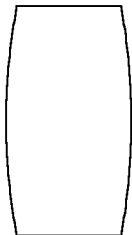
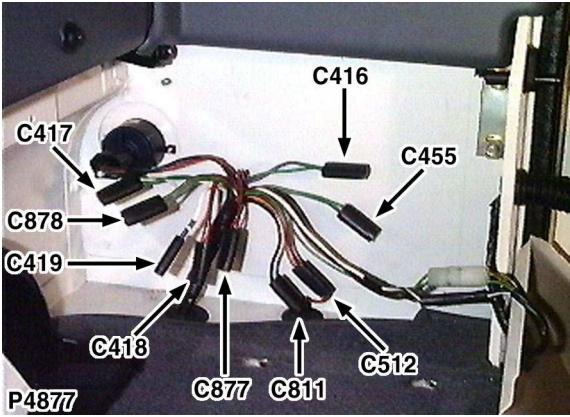
C417



Lamp - Direction indicator /
hazard warning - Trailer -
RH

Male
BLACK

Behind RH rear trim panel



YPQ10010

Cav	Col	CCT
1	GW	17
2	GW	17

C418

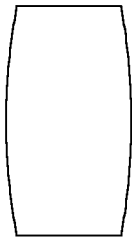
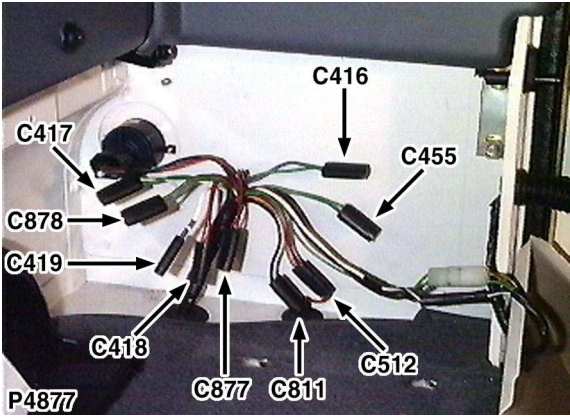
CONNECTOR



Trailer pick-up

Male
BLACK

Behind RH rear trim panel



YPQ10010

Cav	Col	CCT
1	RO	17
2	RO	17

CONNECTOR

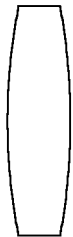
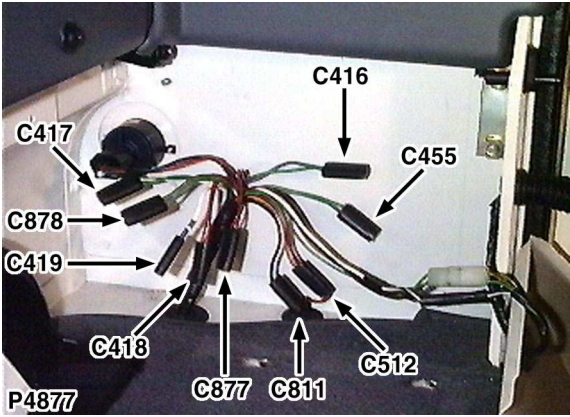
C419



Trailer pick-up

Male
BLACK

Behind RH rear trim panel



YPQ10008

Cav	Col	CCT
1	P	ALL

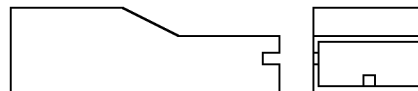
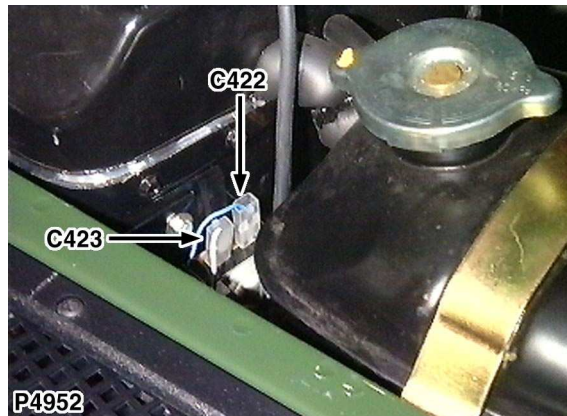
C422

CONNECTOR



Thermostat - Air
conditioning (A/C)

RH side of engine
compartment



YPC10386

Cav	Col	CCT
1	UP	ALL

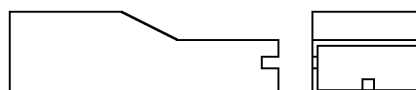
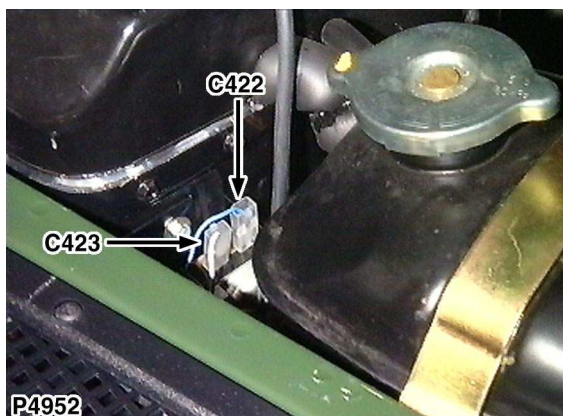
CONNECTOR

C423



Thermostat - Air
conditioning (A/C)

RH side of engine
compartment



YPC10386

Cav	Col	CCT
1	WP	ALL

DEFENDER 97 MY

C439

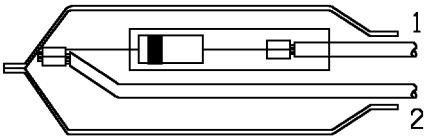
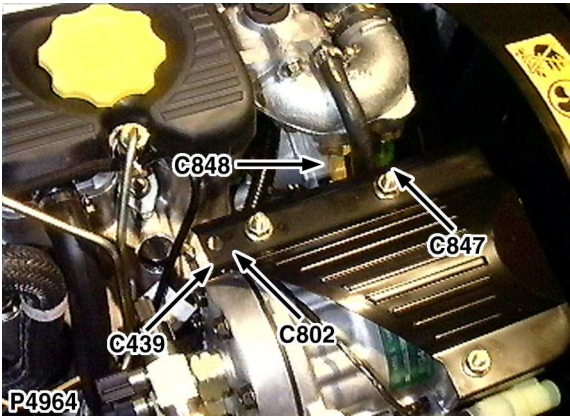
CONNECTOR



Diode

BRASS

Front RH side of engine



YPF10024

Cav	CoI	CCT
2	WO	3

CONNECTOR

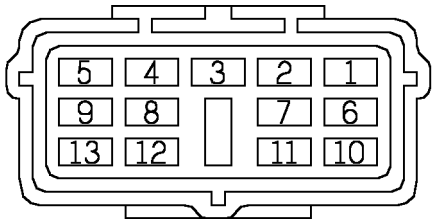
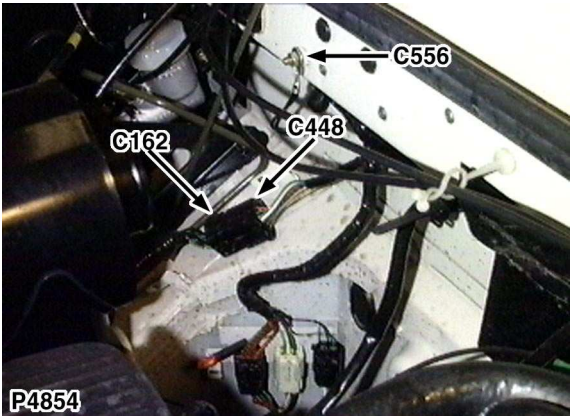
C448



Engine harness to main harness

Female
BLACK

RH side of bulkhead



YPC10062

Cav	Col	CCT
1	WN	ALL
2	GU	ALL
3	NY	ALL
4	W	1
4	W	2
4	WB	15
4	W	20
5	G	ALL

Cav	Col	CCT
6	GN	ALL
7	BU	ALL
8	B	ALL
9	SR	ALL
10	WY	ALL
11	OLG	20
13	ON	20

C449

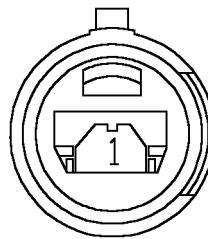
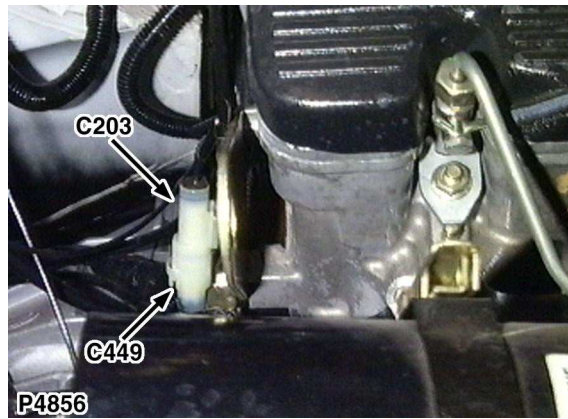
CONNECTOR



Engine harness to main
harness

Female
NATURAL

Centre rear of engine



AFU3564

Cav	Col	CCT
1	NR	ALL

CONNECTOR

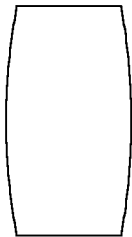
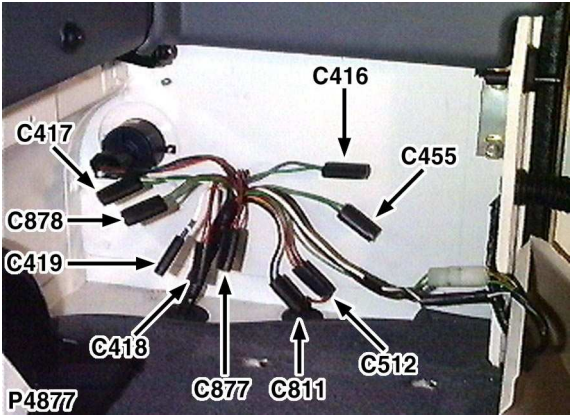
C455



Lamp - Reverse - RH

Male
BLACK

Behind RH rear trim panel



YPQ10010

Cav	Col	CCT
1	GN	ALL
2	GN	ALL

C476

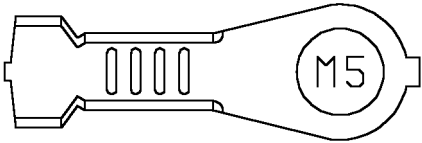
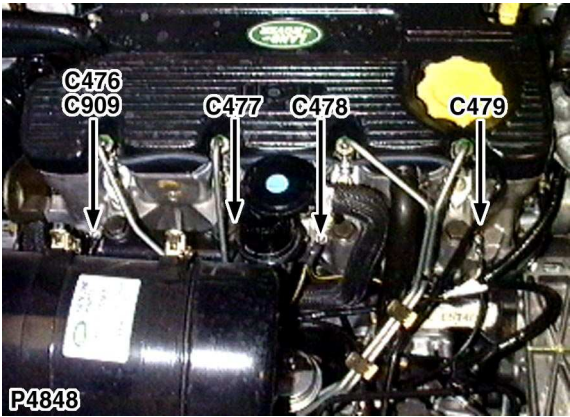
CONNECTOR



Glow plug

Eyelet
SILVER

RH side of engine



YPG10012

Cav	Col	CCT
1	YB	ALL

CONNECTOR

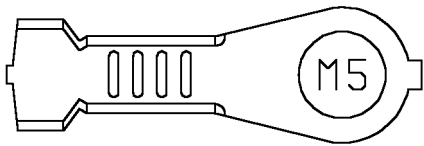
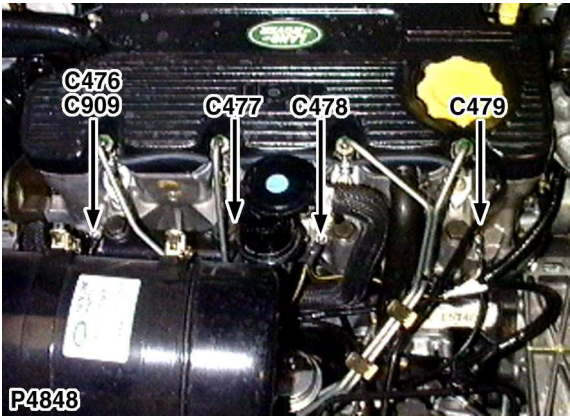
C477



Glow plug

Eyelet
SILVER

RH side of engine



YPG10012

Cav	Col	CCT
1	YB	ALL

C478

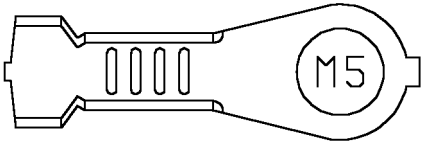
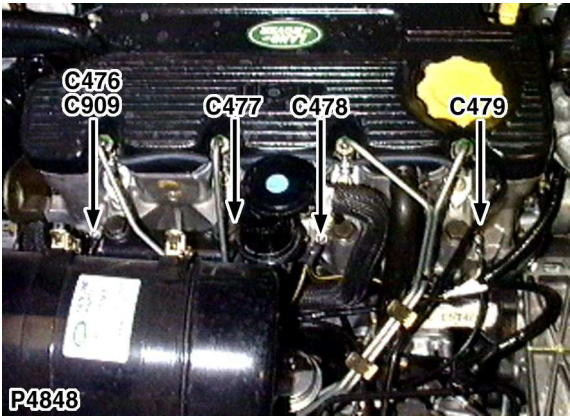
CONNECTOR



Glow plug

Eyelet
SILVER

RH side of engine



YPG10012

Cav	Col	CCT
1	YB	ALL

CONNECTOR

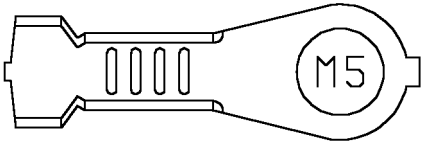
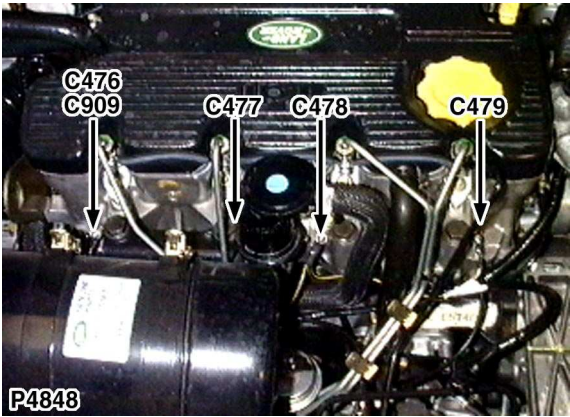
C479



Glow plug

Eyelet
SILVER

RH side of engine



YPG10012

Cav	Col	CCT
1	YB	ALL

C483

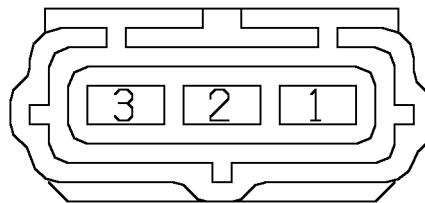
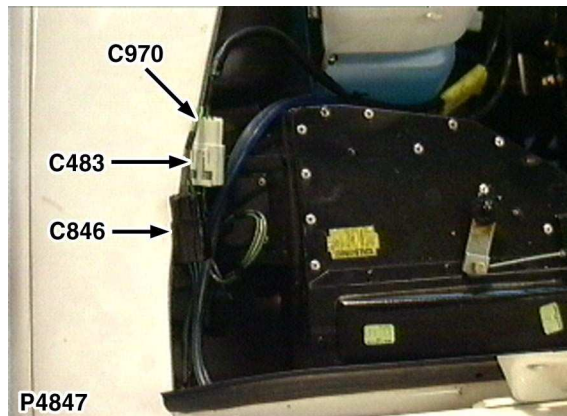
CONNECTOR



Main harness to front wash /
wipe harness

Female
WHITE

Rear LH side of engine
compartment



YPC10296

Cav	Col	CCT
1	BLG	ALL
2	LGB	ALL
3	B	ALL

CONNECTOR

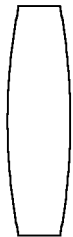
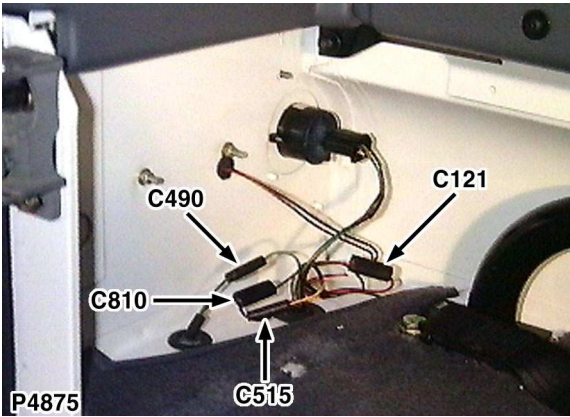
C490



Lamp - Reverse - LH

Male
BLACK

Behind LH rear trim panel



YPQ10008

Cav	Col	CCT
1	GN	ALL

C510

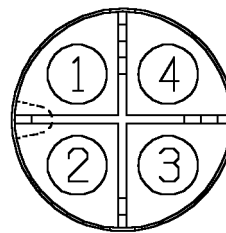
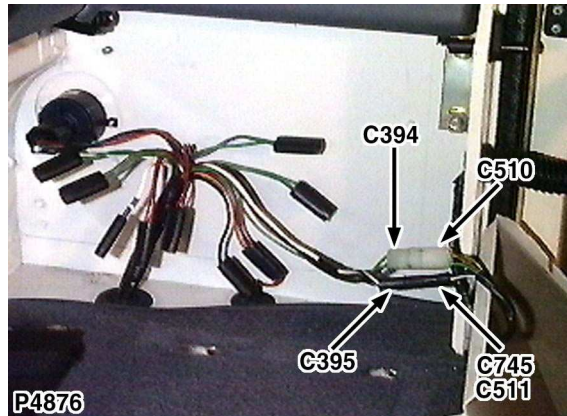
CONNECTOR



Tail door harness to chassis harness

Male
WHITE

Behind RH rear trim panel



ADU6788

Cav	Col	CCT
1	G	ALL
2	RLG	ALL
3	NLG	ALL

CONNECTOR

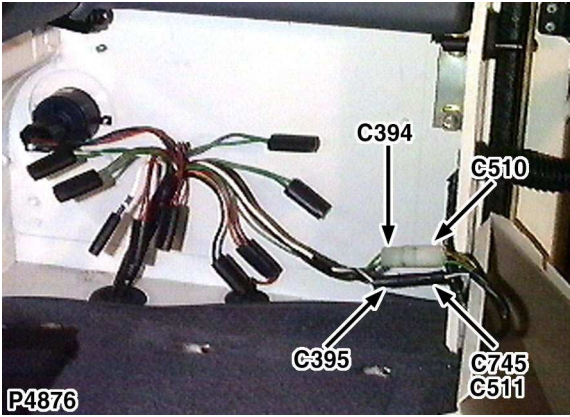
C511



Tail door harness to chassis harness

Female
BRASS

Behind RH rear trim panel



YPE10022

Cav	Col	CCT
1	B	ALL

C512

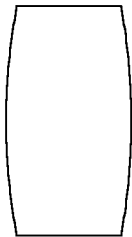
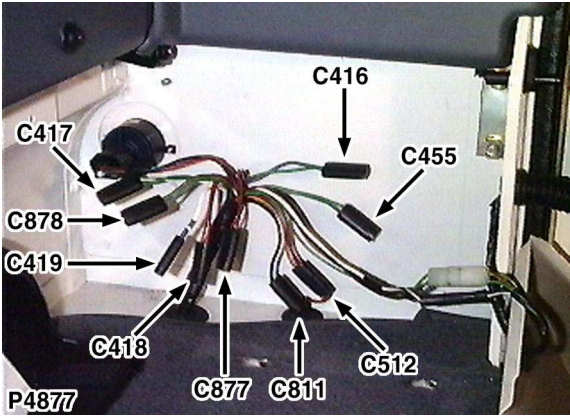
CONNECTOR



Lamp - Fog guard - Rear - RH

Male
BLACK

Behind RH rear trim panel



YPQ10010

Cav	Col	CCT
1	RY	ALL
2	RY	ALL

CONNECTOR

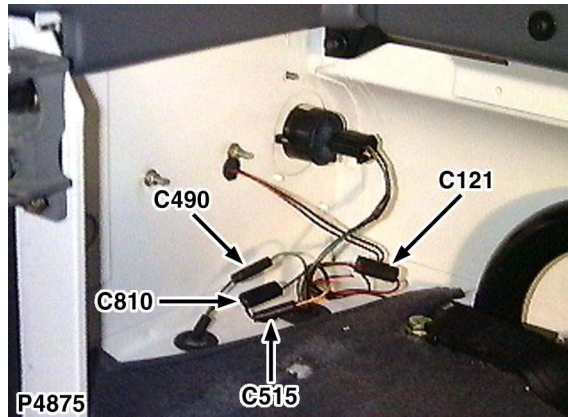
C515

GB

Lamp - Fog guard - Rear -
LH

Male
BLACK

Behind LH rear trim panel



YPQ10008

Cav	Col	CCT
1	RY	ALL
2	WG	1
3	B	1

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C537

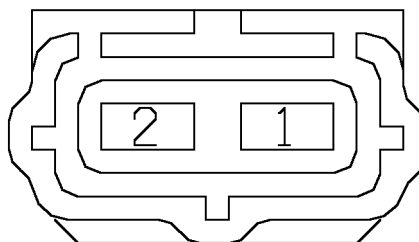
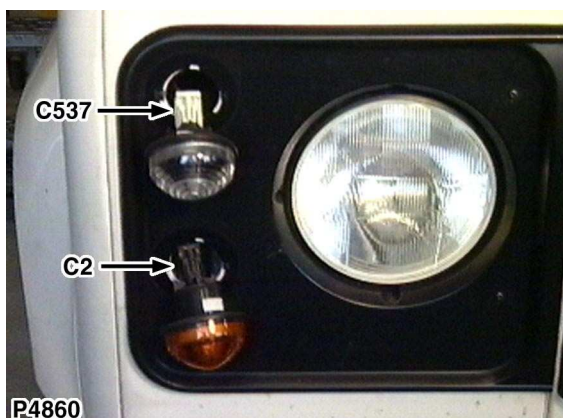
CONNECTOR



Lamp - Side - Front - RH

Female
WHITE

Behind RH front side lamp



YPC10187

Cav	Col	CCT
1	B	ALL
2	RO	ALL

CONNECTOR

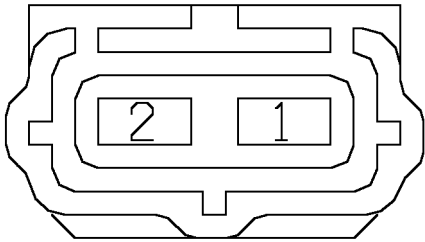
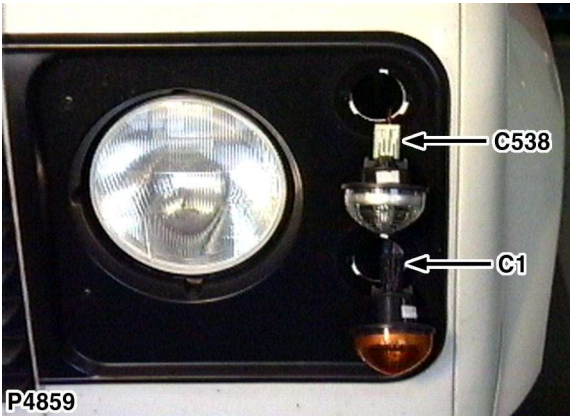
C538



Lamp - Side - Front - LH

Female
WHITE

Behind LH front side lamp



YPC10187

Cav	Col	CCT
1	B	ALL
2	RB	ALL

C543

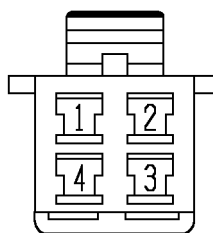
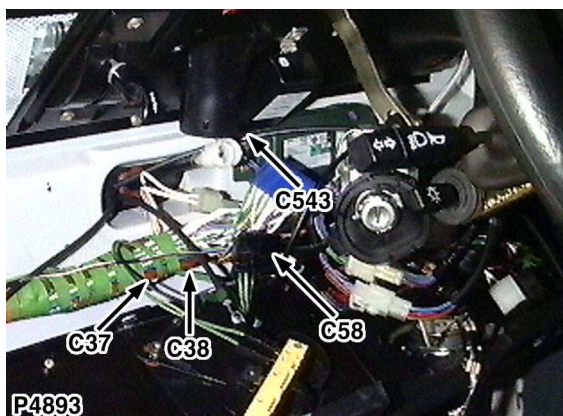
CONNECTOR



ECU - Lamp - Fog guard -
Rear

Female
NATURAL

Behind RH side of fascia



YPC10002

Cav	Col	CCT
1	B	ALL
2	UP	ALL
3	RY	ALL
4	RS	ALL

CONNECTOR

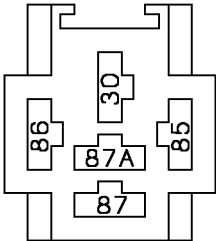
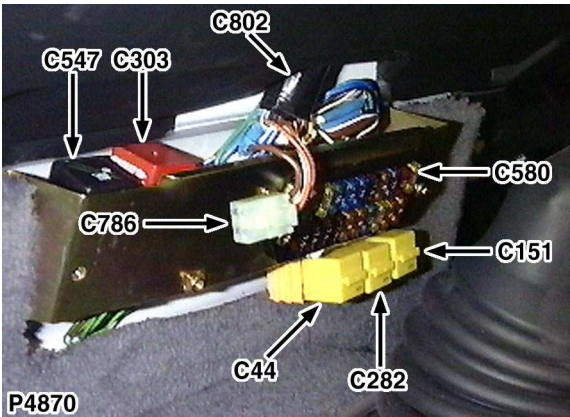
C547



Relay - Hazard warning

Female
BLACK

Behind passenger
compartment fusebox cover



AAU1006

Cav	Col	CCT
30	LGP	ALL
85	LG	ALL
86	B	ALL
87	LGN	ALL

C549

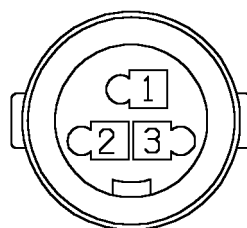
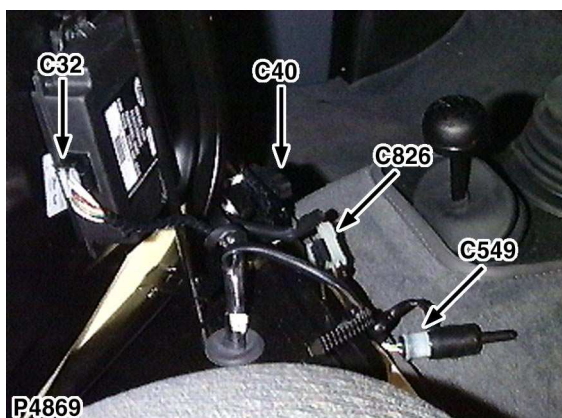
CONNECTOR



Diagnostic socket - 3 way

Male
NATURAL

Beneath centre console



ACU5364

Cav	Col	CCT
1	B	10
2	WLG	10
3	WK	10

CONNECTOR

C556



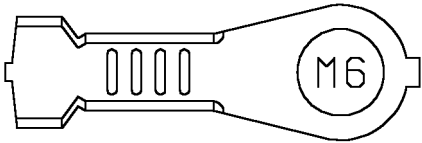
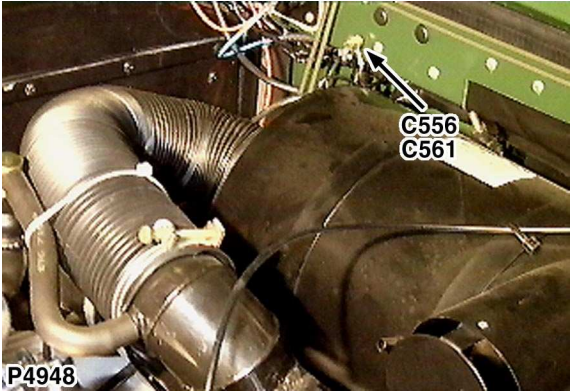
Earth

V8

Eyelet

TIN-PLATE

RH side of bulkhead



YPG10013

Cav	Col	CCT
1	B	1

C556

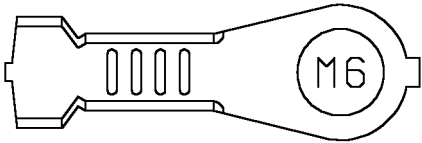
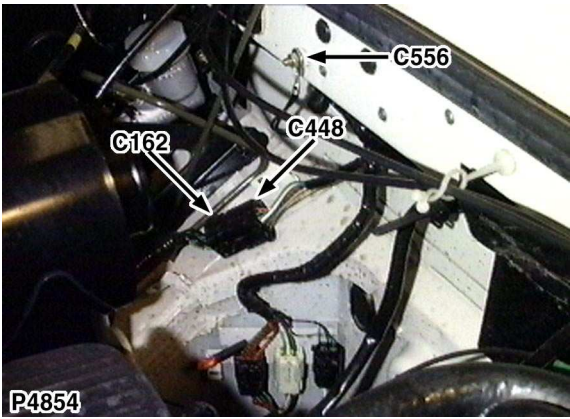
CONNECTOR



Earth

300 TDi
Eyelet
TIN-PLATE

RH side of bulkhead



YPG10013

Cav	Col	CCT
1	B	2

CONNECTOR

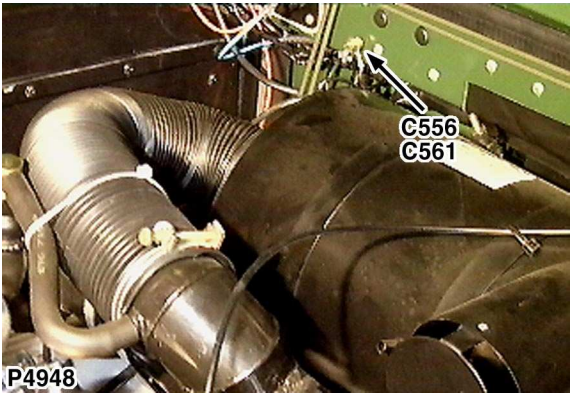
C561



Earth

Eyelet
SILVER

RH side of bulkhead



Cav	Col	CCT
1	B	ALL

C562

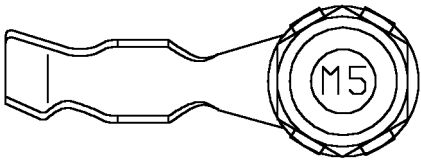
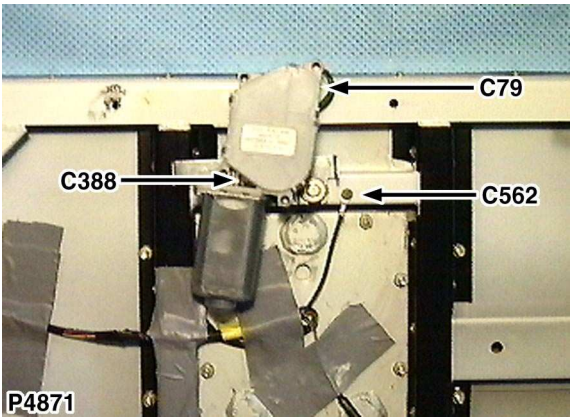
CONNECTOR



Earth

Eyelet
TIN-PLATE

Behind rear door trim panel



YPG10046

Cav	Col	CCT
1	B	ALL

CONNECTOR

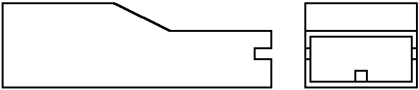
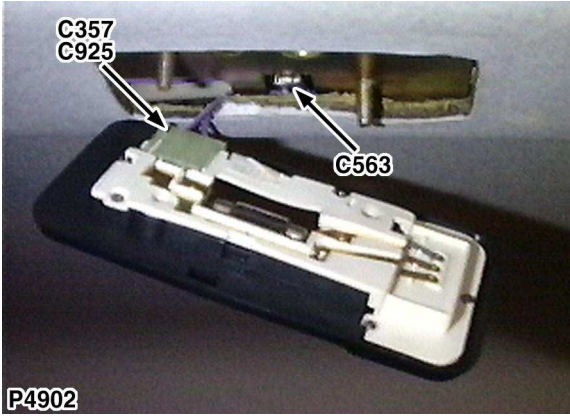
C563



Earth

Female
BLACK

Rear of headlining



AAU1010

Cav	Col	CCT
1	B	ALL

C580

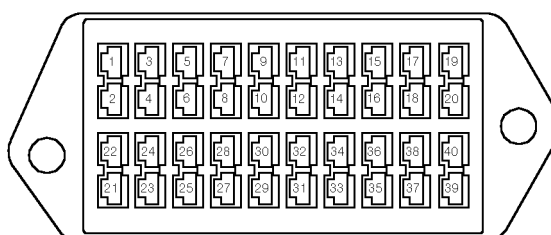
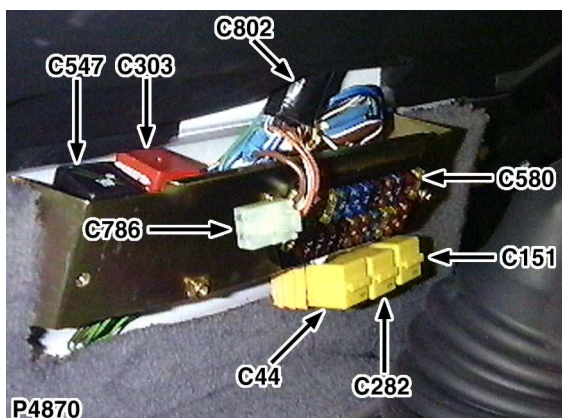
CONNECTOR



Fuse box - Passenger compartment

Male
BLACK

Behind passenger compartment fusebox cover



PRC4826

CONNECTOR

C580

Cav	Col	CCT
1	N	ALL
2	P	ALL
3	N	ALL
4	P	ALL
5	W	ALL
6	G	ALL
7	W	ALL
8	G	ALL
9	WO	1
9	WO	14
9	W	15
9	WO	20
10	PG	ALL
11	U	ALL
12	UP	ALL
13	WO	1
13	WO	14
13	W	15
13	WO	20
14	WO	ALL
15	NW	ALL
16	WB	ALL
17	W	ALL
18	G	ALL

Cav	Col	CCT
19	PB	20
20	OR	20
21	UR	ALL
22	UB	ALL
23	UR	ALL
24	UK	ALL
25	UW	ALL
26	UO	ALL
27	UW	ALL
28	US	ALL
29	R	ALL
30	RB	ALL
31	R	ALL
32	RO	ALL
33	W	ALL
34	G	ALL
35	N	ALL
36	NO	ALL
37	N	ALL
38	NS	ALL
39	W	20
40	G	20

DEFENDER 97 MY

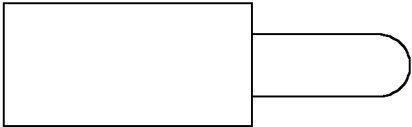
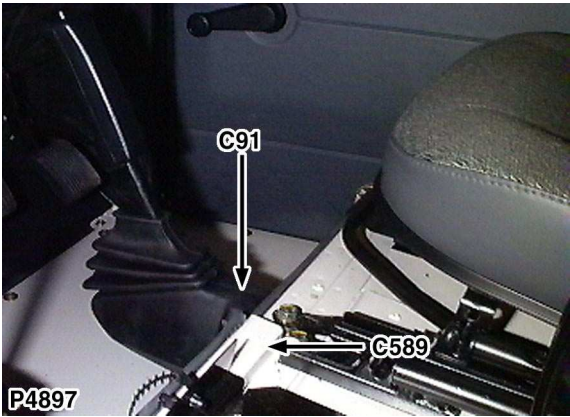
C589

CONNECTOR



Hand brake harness to main harness

Base of handbrake lever



51101239

Cav	Col	CCT
1	WY	ALL

CONNECTOR

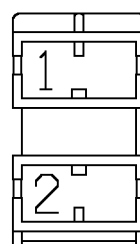
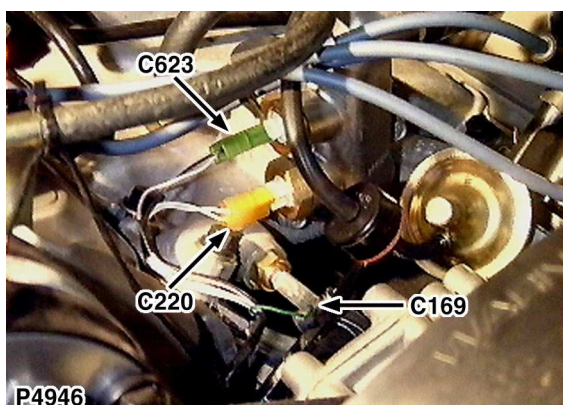
C623



Switch - Clutch - Air
conditioning (A/C)

Female
GREEN

Front of engine - centre



YPC107190

Cav	Col	CCT
1	WK	3
2	B	3

DEFENDER 97 MY

C624

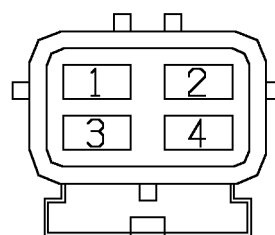
CONNECTOR



Engine harness to air
conditioning (A/C) harness

Male
BLACK

Centre rear of engine



YPC10058

Cav	Col	CCT
1	WK	3
2	B	3
3	NK	3
4	WG	3

CONNECTOR

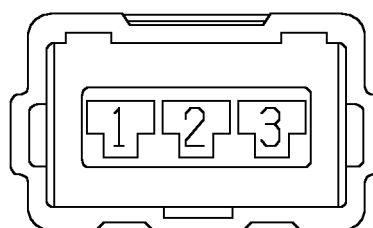
C633



Module - Ignition amplifier

Female
BLACK

Front of engine - centre



YPC10104

Cav	Col	CCT
1	WB	ALL
3	W	ALL

DEFENDER 97 MY

C660

CONNECTOR

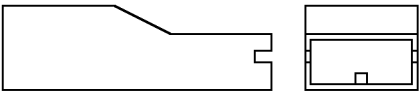
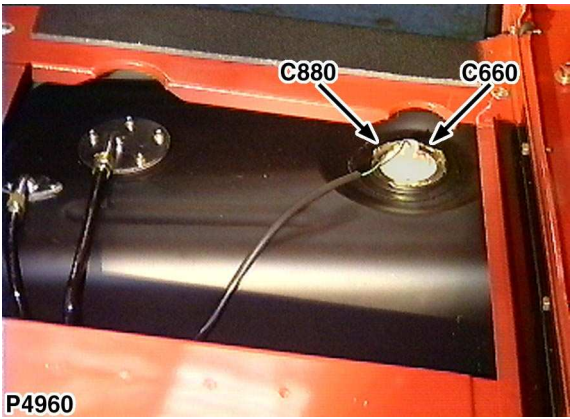


Fuel tank

Female

NATURAL

Above fuel tank



YPC10386

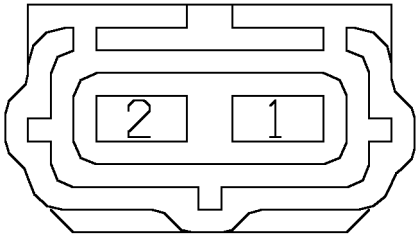
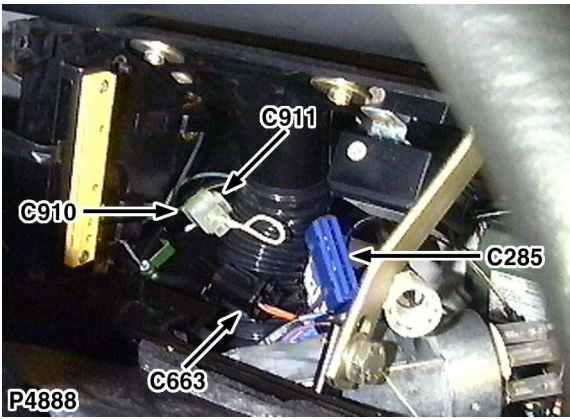
Cav	Col	CCT
1	B	ALL

CONNECTOR

C663



Passive coil
Female
BLACK
Behind instrument pack



YPC10069

Cav	Col	CCT
1	OG	20
2	OP	20

C666

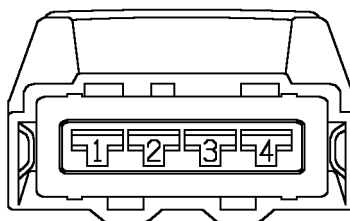
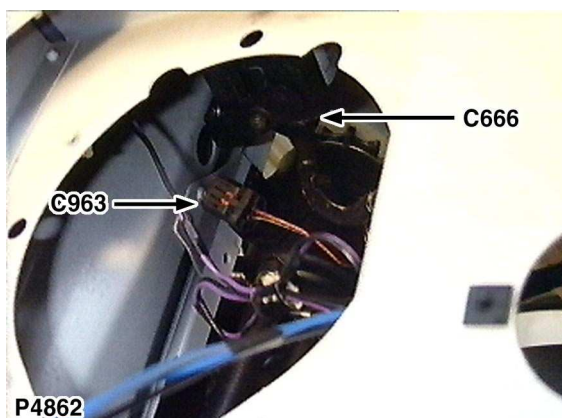
CONNECTOR



Sounder - Alarm - Battery backed up

Female
BROWN

Behind LH headlamp



YPC108930

Cav	Col	CCT
1	B	20
2	B	20
3	B	20
4	B	20

CONNECTOR

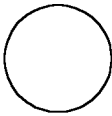
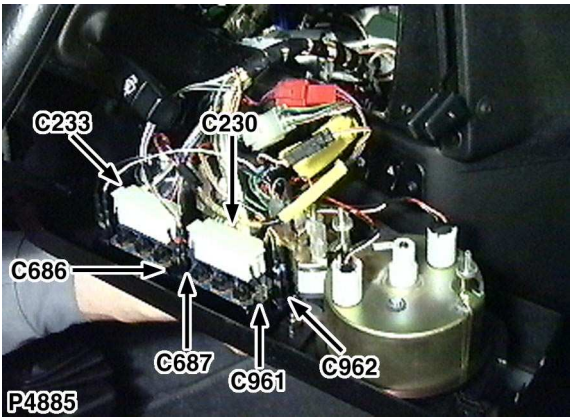
C686



Sensor - Temperature -
Transmission oil

Female
BRASS

Behind instrument pack



YPL102170

Cav	Col	CCT
1	SR	ALL

C688

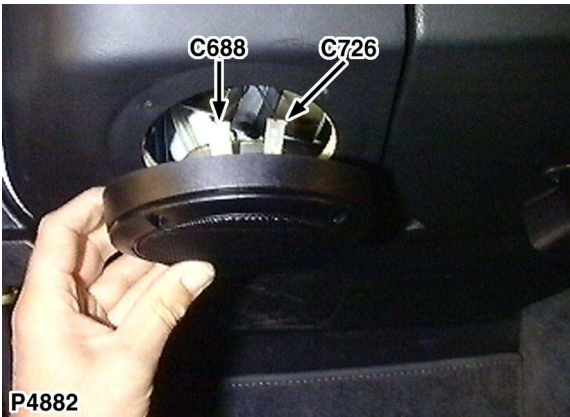
CONNECTOR



Speaker - Door - Front - RH

Female
NATURAL

Behind front speaker



ADU8339

Cav	Col	CCT
1	BN	ALL

CONNECTOR

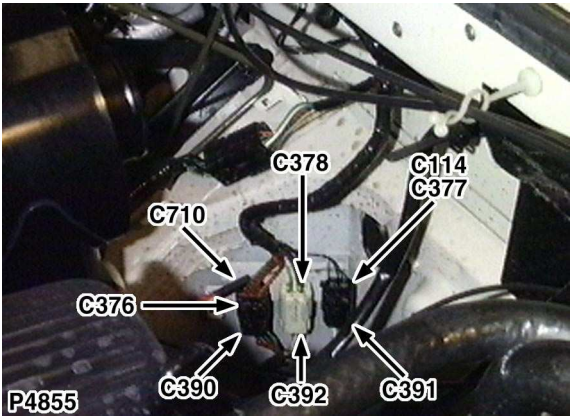
C710



Diagnostic socket

Female
BLACK

RH side of bulkhead



13H5155

Cav	Col	CCT
1	G	ALL

C726

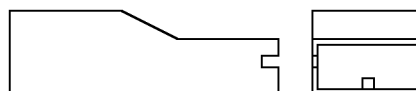
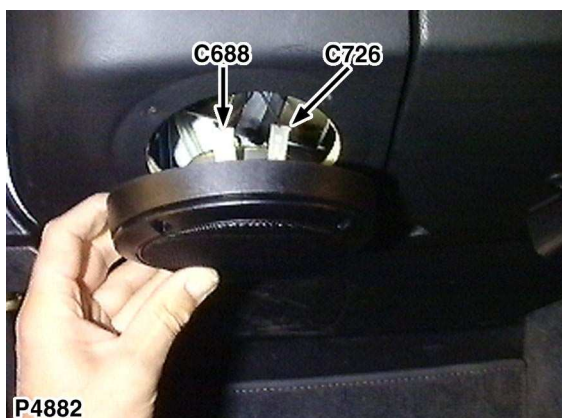
CONNECTOR



Speaker - Door - Front - RH

Female
NATURAL

Behind front speaker



YPC10386

Cav	Col	CCT
1	BW	ALL

CONNECTOR

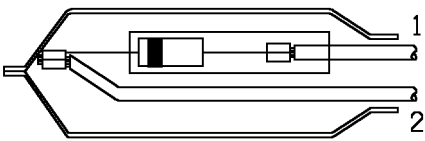
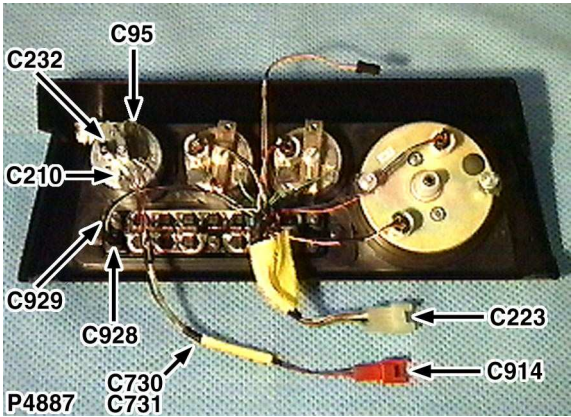
C730



Fuse - Clock

Female
BRASS

Behind instrument pack



YPF10024

Cav	Col	CCT
1	RW	ALL

C731

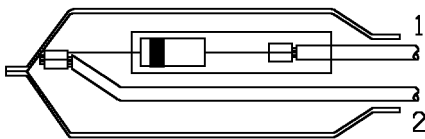
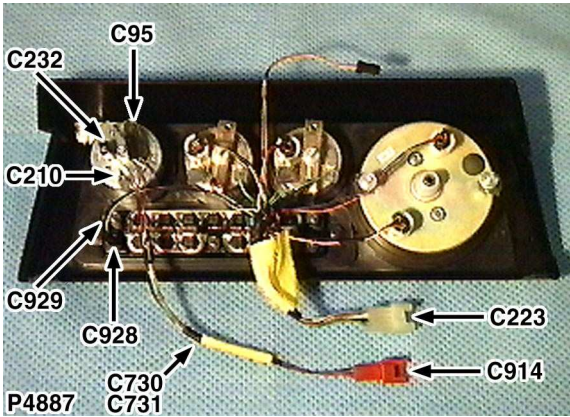
CONNECTOR



Fuse - Clock

Female
BRASS

Behind instrument pack



YPF10024

Cav	Col	CCT
1	RW	ALL

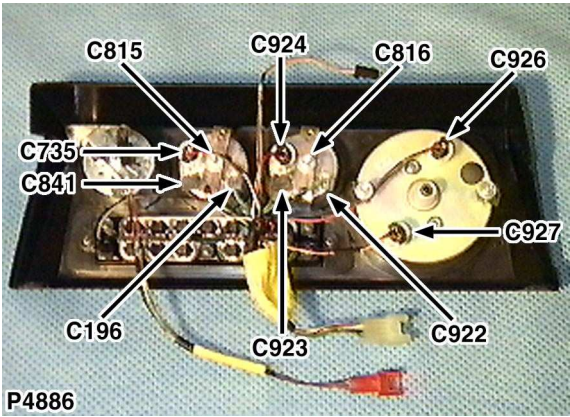
CONNECTOR

C735



Gauge - Coolant temperature

Behind instrument pack



Cav	Col	CCT
1	RW	ALL
2	B	ALL

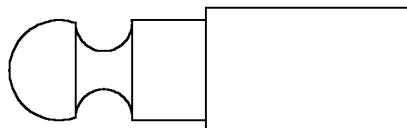
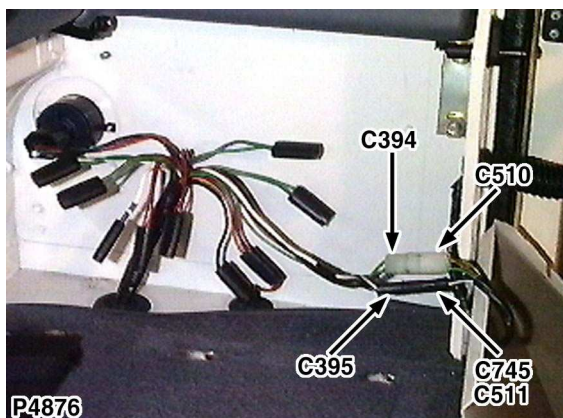
C745

CONNECTOR



Tail door harness to chassis harness

Behind RH rear trim panel



13H4716

Cav	Col	CCT
1	WB	ALL

CONNECTOR

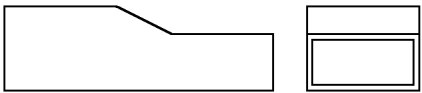
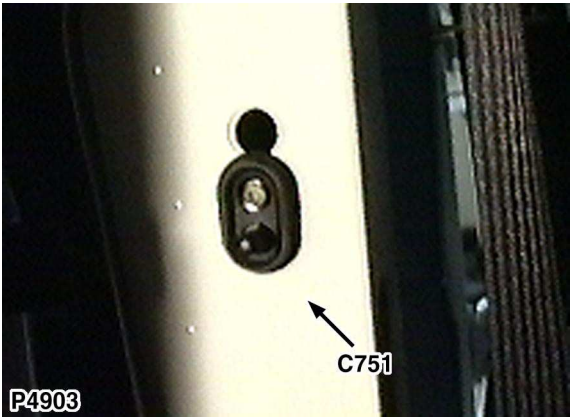
C751



Switch - Door - Rear

All except Station Wagon
Female
NATURAL

'C' post



ADU1790

Cav	Col	CCT
1	PU	ALL

C751

CONNECTOR



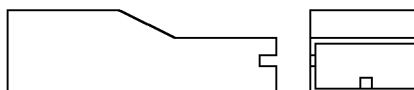
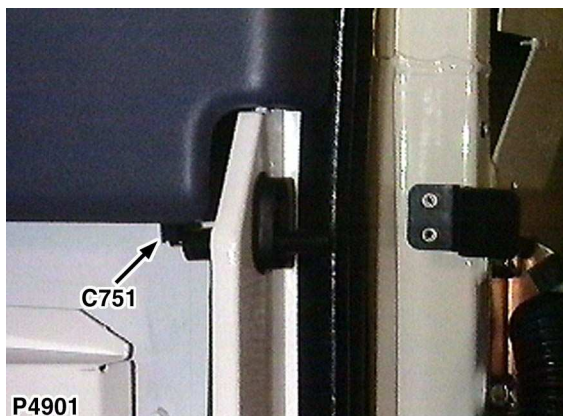
Switch - Boot / taildoor

Station Wagon only

Female

BLACK

Behind RH rear trim panel



AAU1010

Cav	Col	CCT
1	PU	9

CONNECTOR

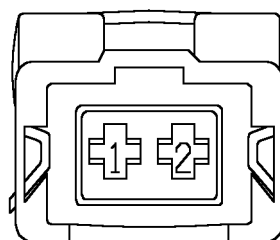
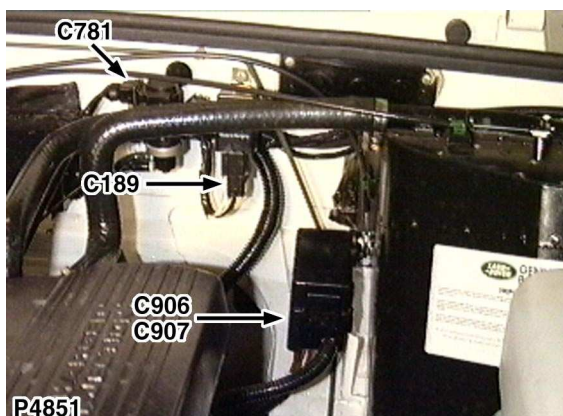
C781



Modulator - EGR

Female
BLACK

LH side of bulkhead



YPC107790

Cav	Col	CCT
1	G	10
2	BO	10

DEFENDER 97 MY

C786

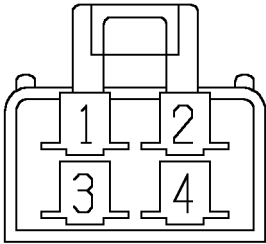
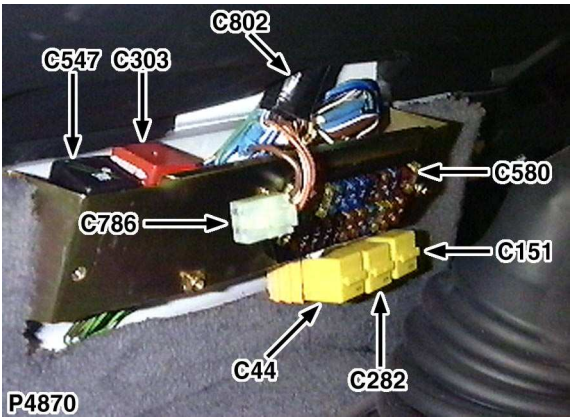
CONNECTOR



Main harness to air conditioning (A/C) harness

Female
NATURAL

Behind passenger compartment fusebox cover



AFU3855

Cav	Col	CCT
1	NS	ALL
2	NO	ALL
3	N	ALL
4	WO	ALL

CONNECTOR

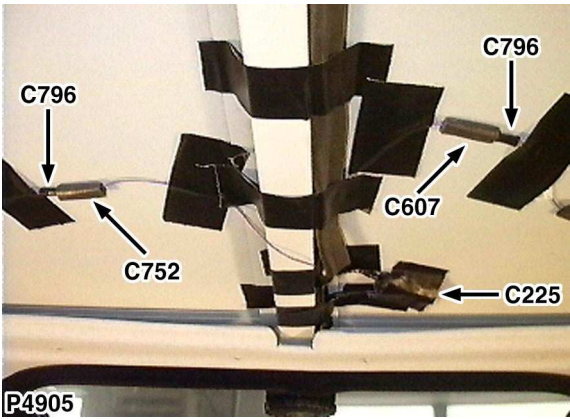
C796



Link - Door switch

Female
BLACK

Behind centre headlining



YPC10450

Cav	Col	CCT
1	PU	ALL

C802

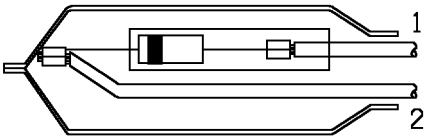
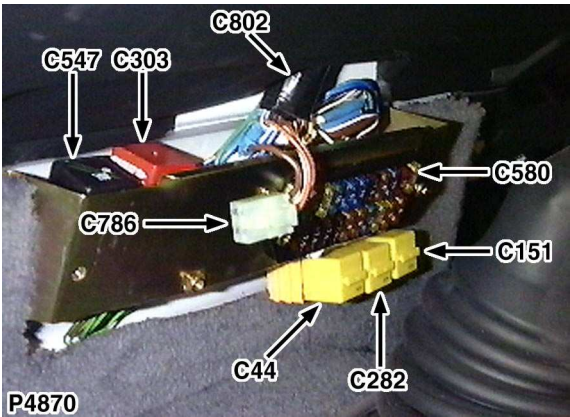
CONNECTOR



Diode

BLACK

Behind passenger compartment fusebox cover



YQP10003

Cav	Col	CCT
1	W	3
1	BW	20
2	WO	3
2	WY	20

CONNECTOR

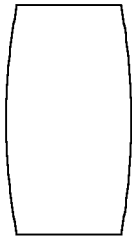
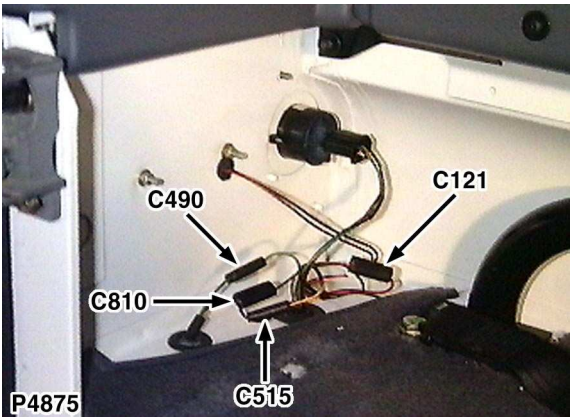
C810



Earth

Male
BLACK

Behind LH rear trim panel



YPQ10010

Cav	Col	CCT
1	B	ALL

C811

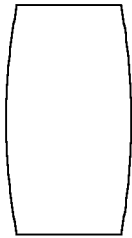
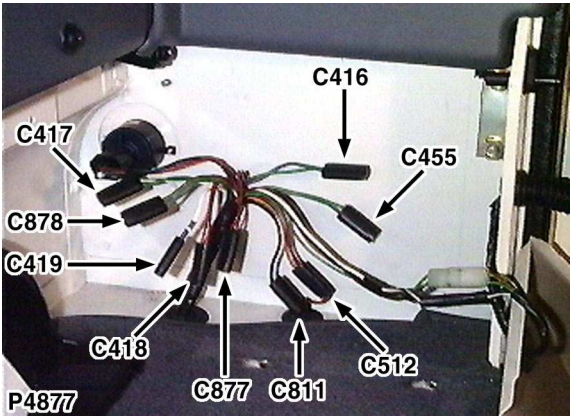
CONNECTOR



Earth

Male
BLACK

Behind RH rear trim panel



YPQ10010

Cav	Col	CCT
1	B	ALL

CONNECTOR

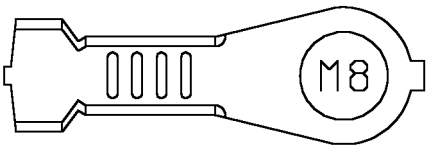
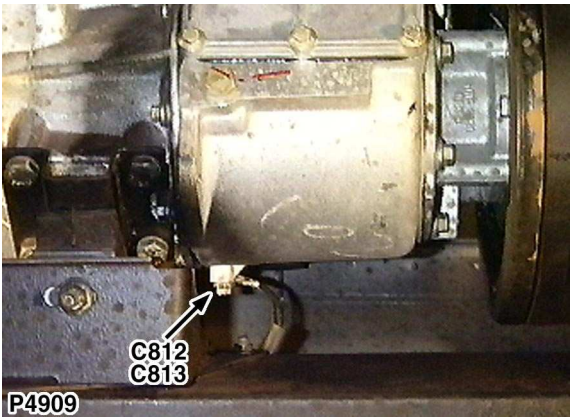
C812



Earth - Gearbox

Eyelet
TIN-PLATE

RH side of gearbox



YPG10015

Cav	Col	CCT
1	B	ALL

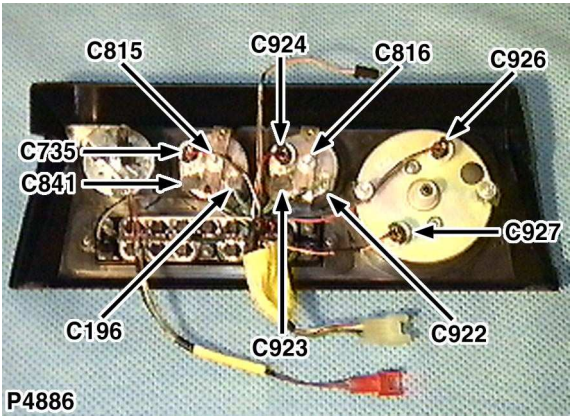
C815

CONNECTOR



Earth

Behind instrument pack



NO CONNECTOR FACE

Cav	Col	CCT
1	B	ALL

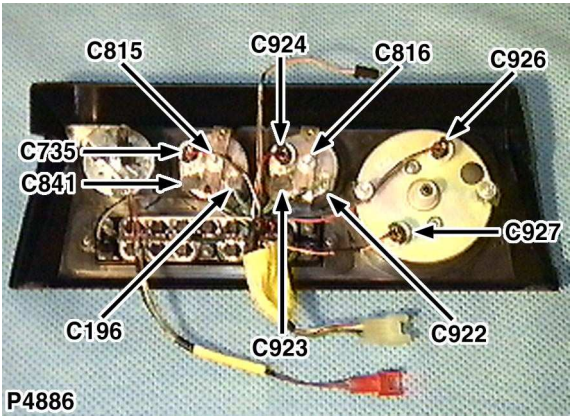
CONNECTOR

C816



Earth

Behind instrument pack



Cav	Col	CCT
1	B	ALL

C826

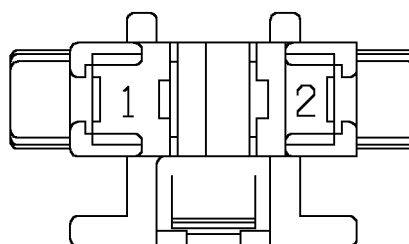
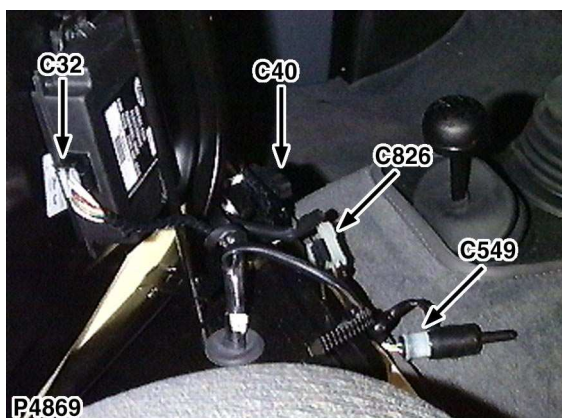
CONNECTOR



Fuse - Alternator

Female
NATURAL

Beneath centre console



YQE10001

Cav	Col	CCT
1	N	ALL
2	B	ALL

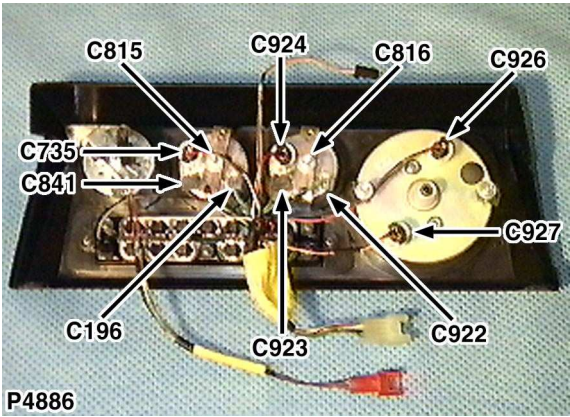
CONNECTOR

C841



Gauge - Coolant
temperature

Behind instrument pack



Cav	Col	CCT
1	GU	ALL

C846

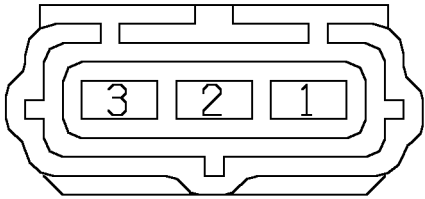
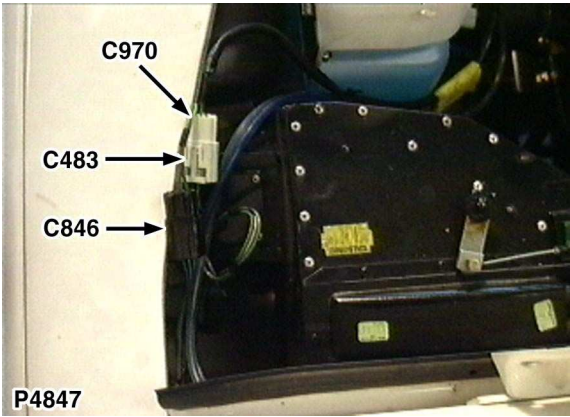
CONNECTOR



Motor - Blower - Front

Female
BLACK

Rear LH side of engine
compartment



YPC10068

Cav	Col	CCT
1	GS	1
1	GS	2
1	N	3
1	GS	20
2	GY	ALL
3	PG	ALL

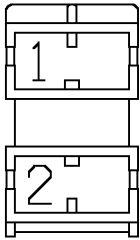
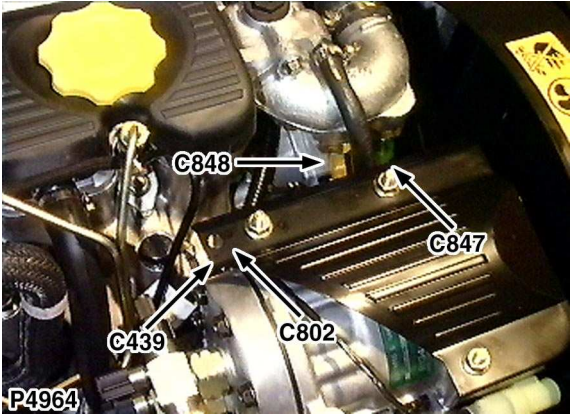
CONNECTOR

C847



Switch - Clutch - Air
conditioning (A/C)
GREEN

Front RH side of engine



YPC107190

Cav	Col	CCT
1	WK	3
2	B	3

C848

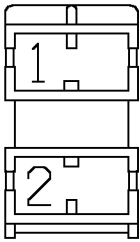
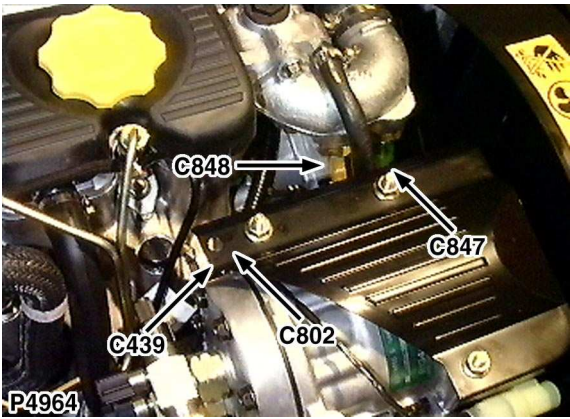
CONNECTOR



Switch - Fan - Air conditioning (A/C)

YELLOW

Front RH side of engine



YPC107200

Cav	Col	CCT
1	WO	3
2	WG	3

CONNECTOR

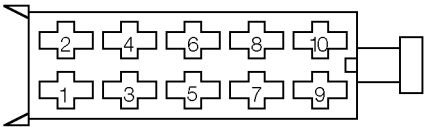
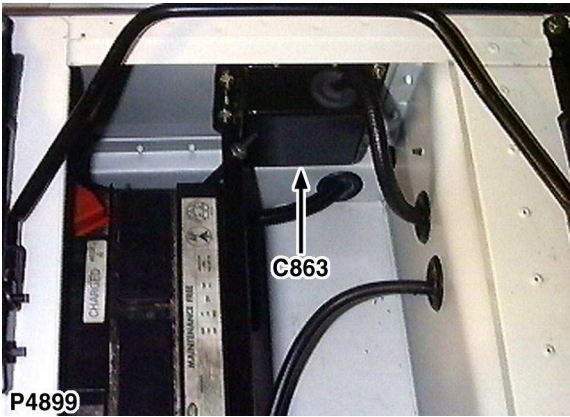
C863



ECU - Engine
Immobilisation

Female
BLACK

Beneath LH seat



YPC108020

Cav	Col	CCT
1	B	ALL
4	B	ALL
5	B	ALL
6	B	ALL
8	B	ALL
9	B	ALL
10	B	ALL

C877

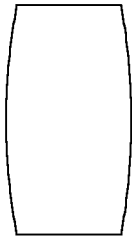
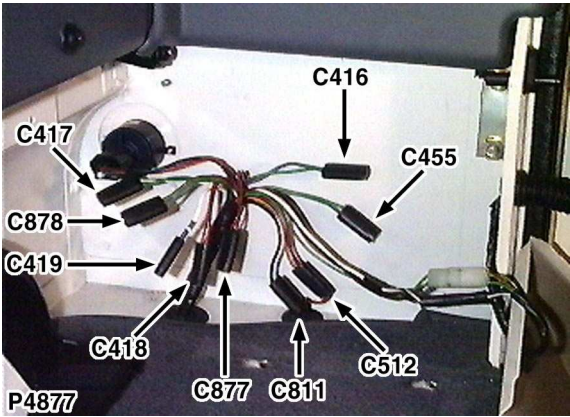
CONNECTOR



Trailer pick-up

Male
BLACK

Behind RH rear trim panel



YPQ10010

Cav	Col	CCT
1	RB	ALL
2	RB	17

CONNECTOR

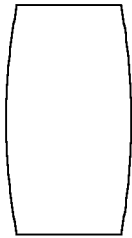
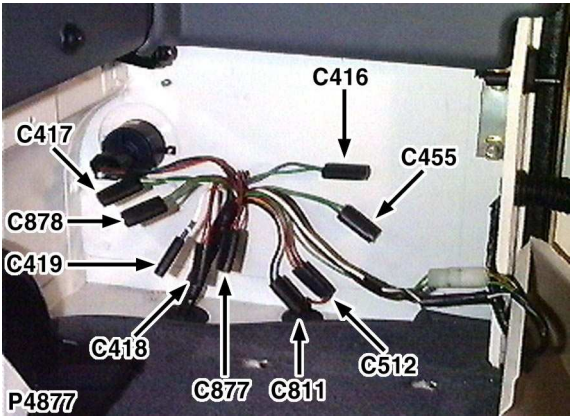
C878



Lamp - Direction indicator /
hazard warning - Trailer - IH

Male
BLACK

Behind RH rear trim panel



YPQ10010

Cav	Col	CCT
1	GR	ALL
2	GR	17

C879

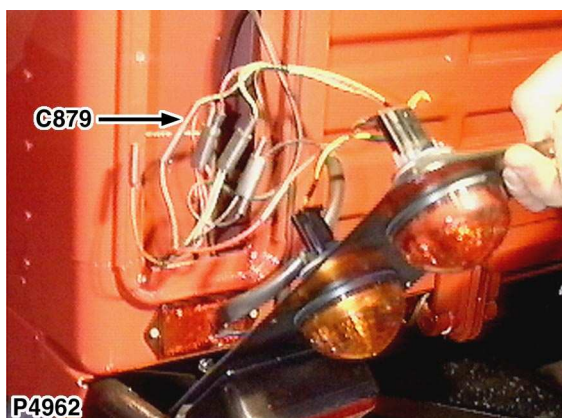
CONNECTOR



Lamp - Tail - LH

Male
BLACK

Behind lamp



YPQ10008

Cav	Col	CCT
1	GP	16

CONNECTOR

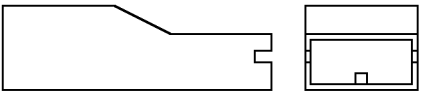
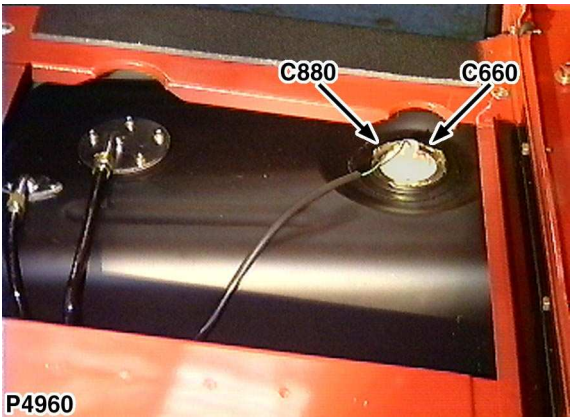
C880



Fuel tank

Female
NATURAL

Above fuel tank



YPC10386

Cav	Col	CCT
1	GB	ALL

C889

CONNECTOR

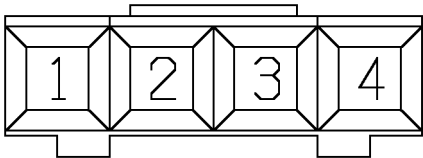


Module - Ultrasonic

Female

BLACK

Behind ultrasonic sensor



YPC10199

Cav	Col	CCT
1	BN	20
2	B	20
3	WB	20

CONNECTOR

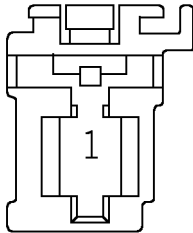
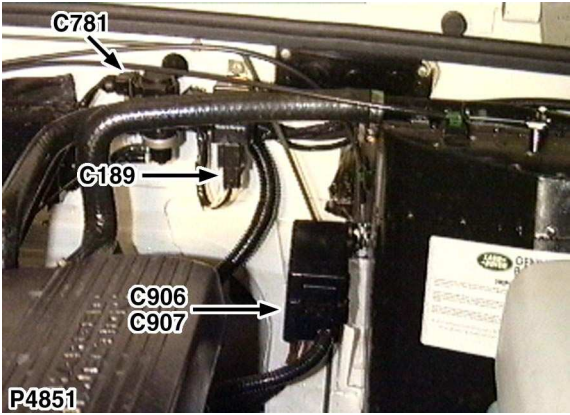
C906



Fuse

Female
BLACK

LH side of bulkhead



YPC10142

Cav	Col	CCT
1	N	ALL

C907

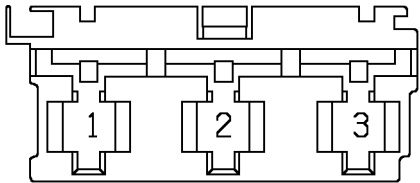
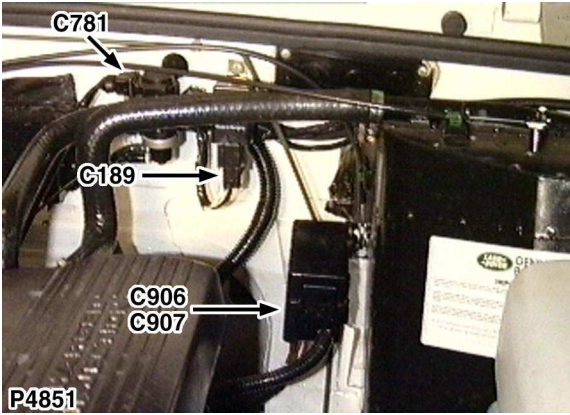
CONNECTOR



Fuse

Female
BLACK

LH side of bulkhead



YPC10143

Cav	Col	CCT
1	N	ALL
2	N	ALL
3	N	ALL

CONNECTOR

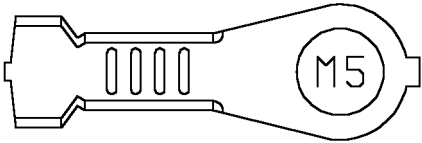
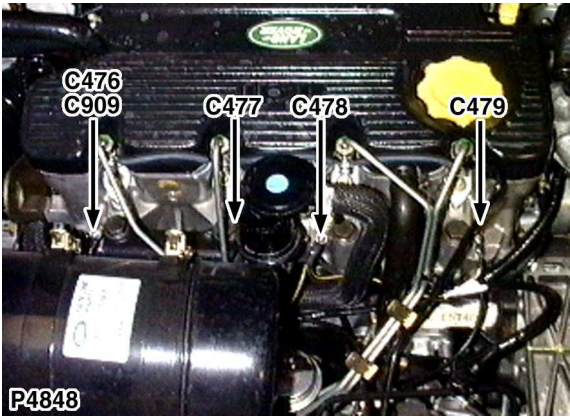
C909



Glow plug

Eyelet
TIN-PLATE

RH side of engine



YPG10012

Cav	CoI	CCT
1	BY	14
1	NR	15

C910

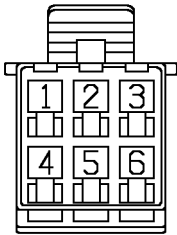
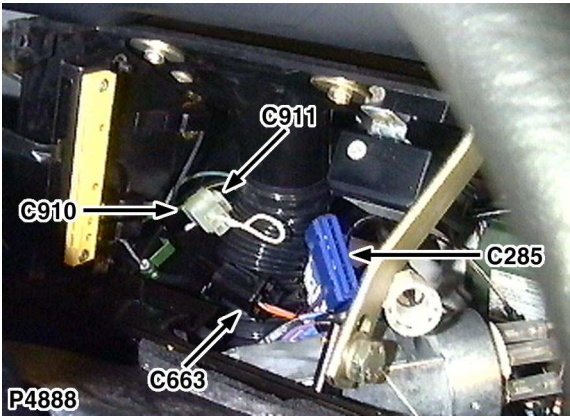
CONNECTOR



Bulb check (Saudi)

Female
NATURAL

Behind instrument pack



YPC10038

Cav	Col	CCT
1	W	ALL
2	B	ALL
3	WY	ALL
4	WY	ALL
5	WR	ALL
6	WY	12

CONNECTOR

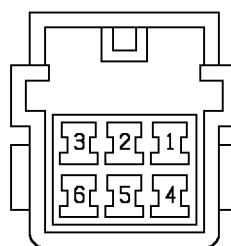
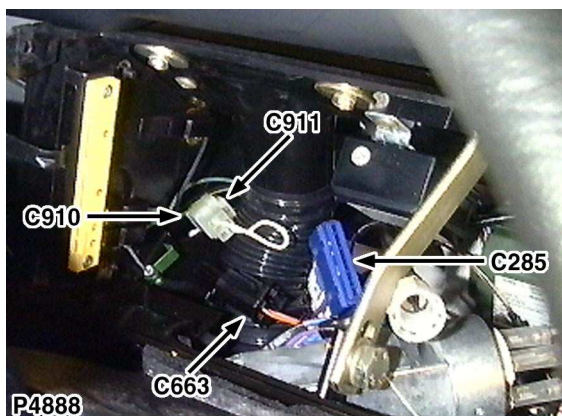
C911



Shorting link (Saudi)

Male
NATURAL

Behind instrument pack



YPC10018

Cav	Col	CCT
3	WY	ALL
4	WY	ALL
6	WY	12

DEFENDER 97 MY

C913

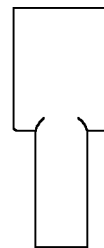
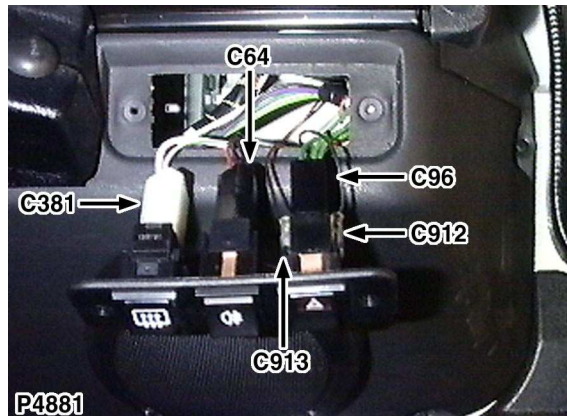
CONNECTOR



Warning lamp - Hazard

Female
NATURAL

Behind RH side of fascia



37H3684

Cav	Col	CCT
1	BR	ALL

CONNECTOR

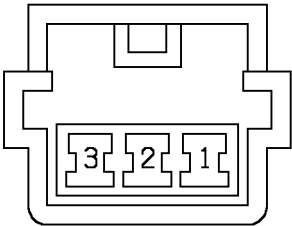
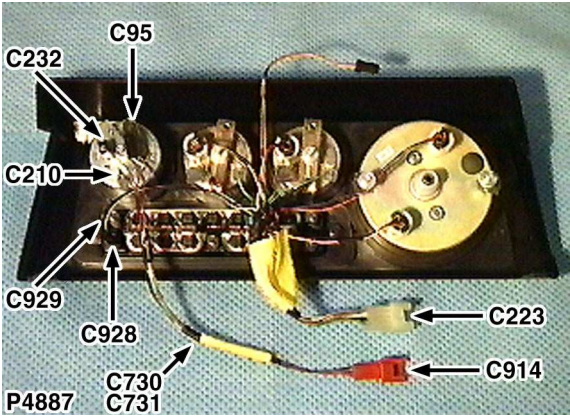
C914



Clock harness to main harness

Male
RED

Behind instrument pack



YPC10422

Cav	Col	CCT
1	B	ALL
2	RW	ALL
3	P	ALL

C915

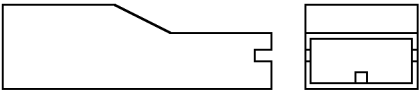
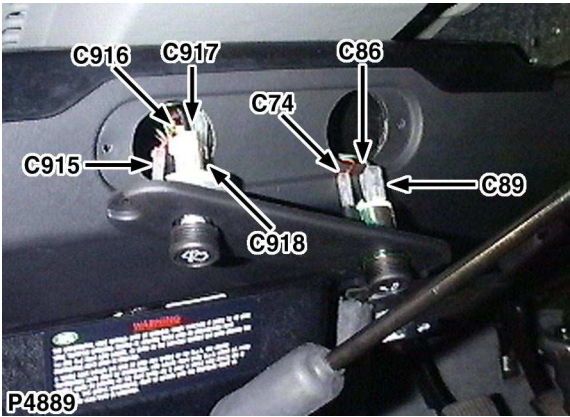
CONNECTOR



Switch - Wash / wipe - Rear screen

Female
NATURAL

Behind centre of fascia



YPC10386

Cav	Col	CCT
1	RLG	ALL

CONNECTOR

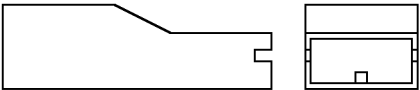
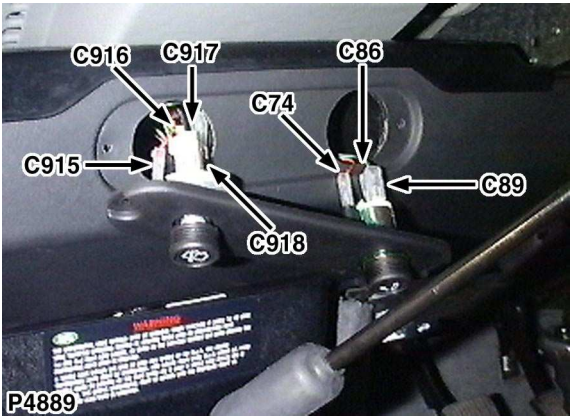
C916



Switch - Wash / wipe - Rear screen

Female
NATURAL

Behind centre of fascia



YPC10386

Cav	CoI	CCT
1	NLG	ALL

C917

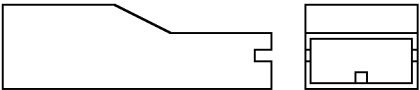
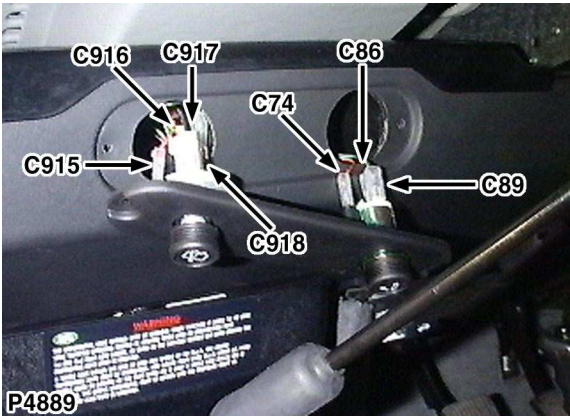
CONNECTOR



Switch - Wash / wipe - Rear screen

Female
NATURAL

Behind centre of fascia



YPC10386

Cav	Col	CCT
1	BLG	ALL

CONNECTOR

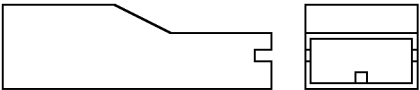
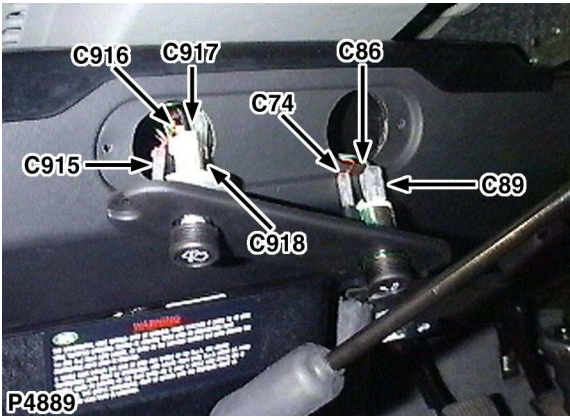
C918



Switch - Wash / wipe - Rear screen

Female
NATURAL

Behind centre of fascia



YPC10386

Cav	Col	CCT
1	G	ALL

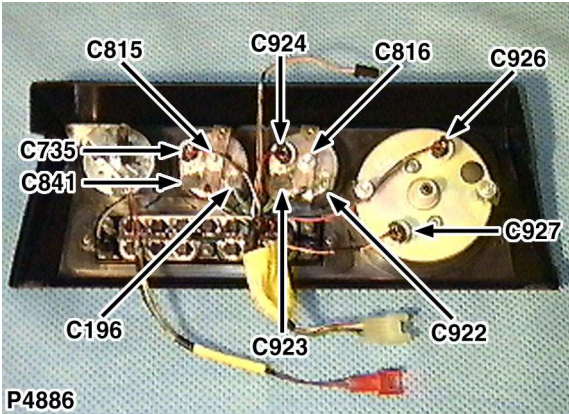
C923

CONNECTOR



Gauge - Fuel

Behind instrument pack



Cav	Col	CCT
1	GB	ALL

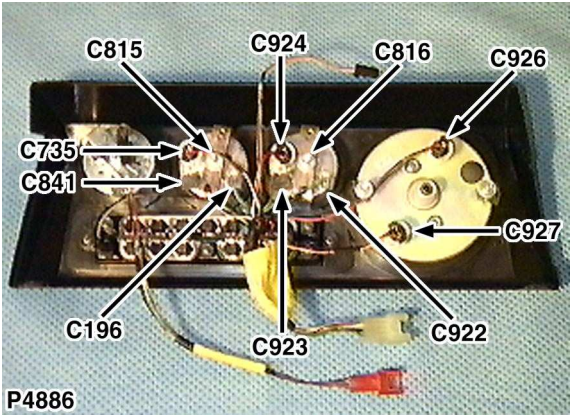
CONNECTOR

C926



Speedometer

Behind instrument pack



Cav	Col	CCT
1	RW	ALL
2	B	ALL

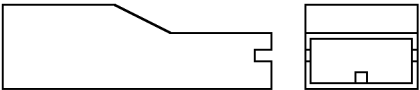
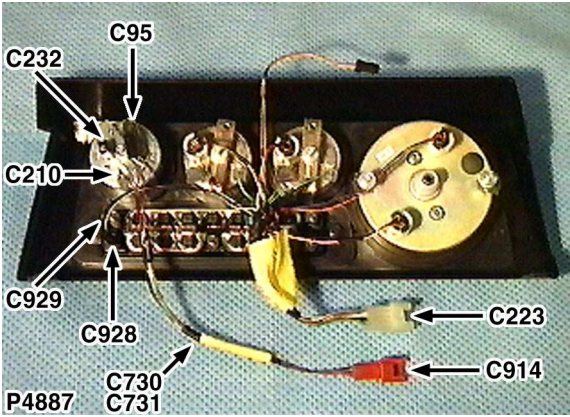
C928

CONNECTOR



Instrument Pack

Behind instrument pack



YPC10386

Cav	Col	CCT
1	B	ALL

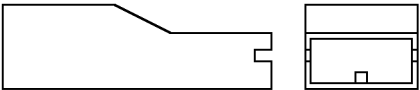
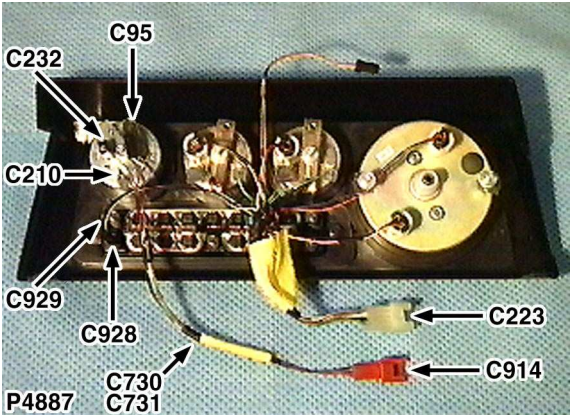
CONNECTOR

C929



Instrument Pack

Behind instrument pack



YPC10386

Cav	Col	CCT
1	WB	ALL

C937

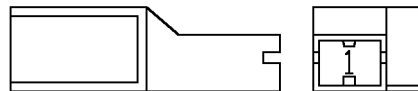
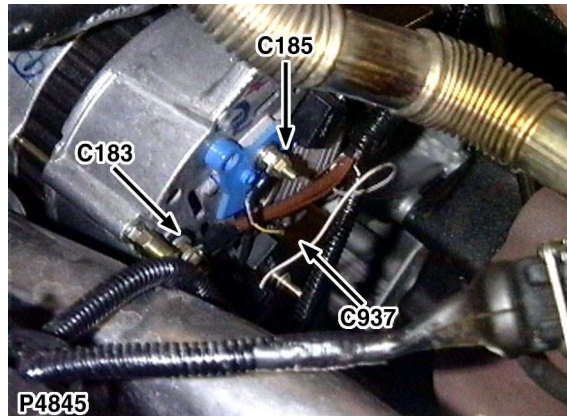
CONNECTOR



Tachometer

Female
BLACK

LH side of engine



YPC10165

Cav	Col	CCT
1	WS	10

DEFENDER 97 MY

CONNECTOR

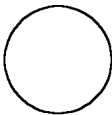
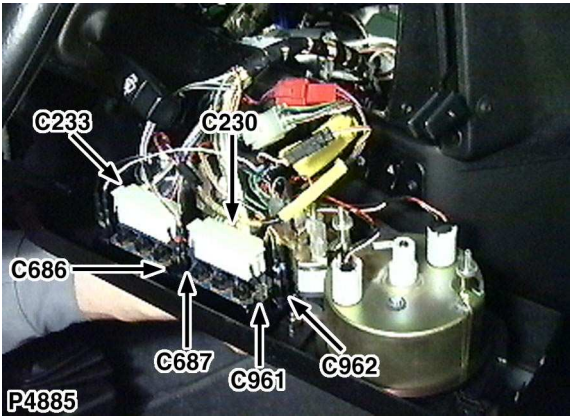
C961



Warning lamp - Engine

Female
BRASS

Behind instrument pack



51100465

Cav	Col	CCT
1	G	20

C962

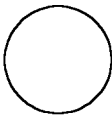
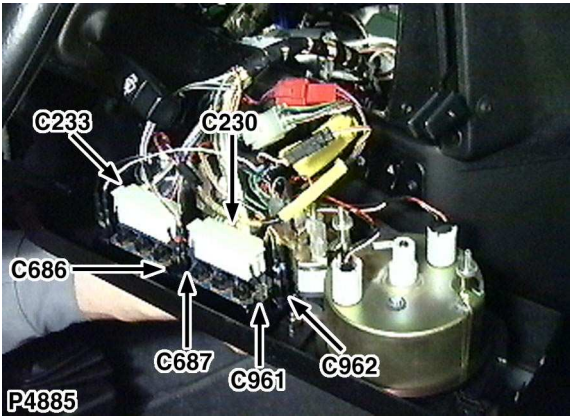
CONNECTOR



Warning lamp - Engine

Female
BRASS

Behind instrument pack



51100465

Cav	Col	CCT
1	O	20

CONNECTOR

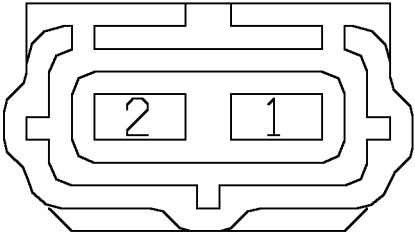
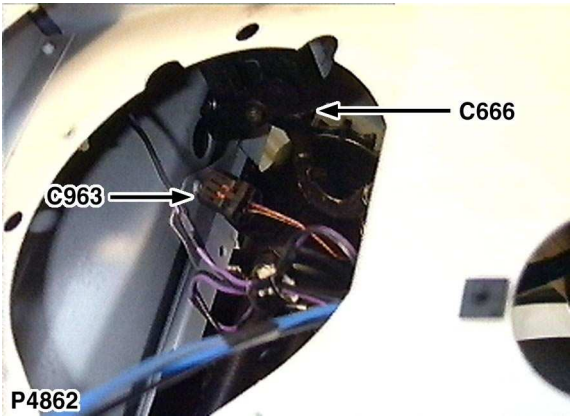
C963



Sounder - Alarm - Battery backed up

Female
BLACK

Behind LH headlamp



YPC10070

Cav	Col	CCT
1	B	20
2	OB	20

C964

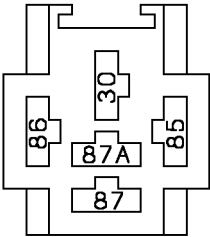
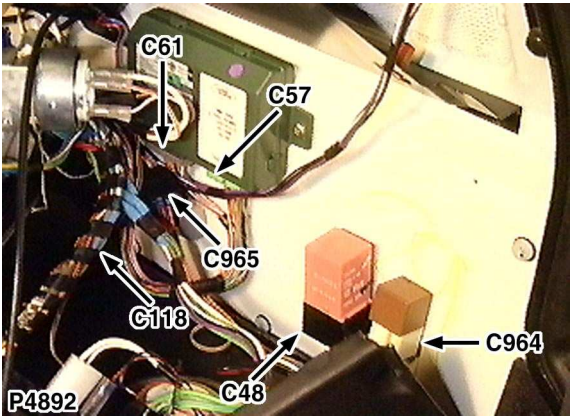
CONNECTOR



Relay - Sounder - Alarm

Female
NATURAL

Behind RH side of fascia



ACU5115

Cav	CoI	CCT
30	N	20
85	OW	20
86	N	20
87	OB	20
87A	OR	20

CONNECTOR

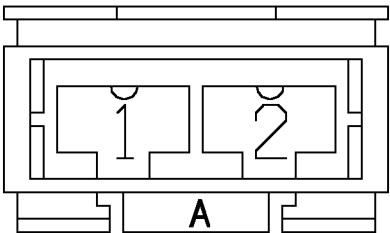
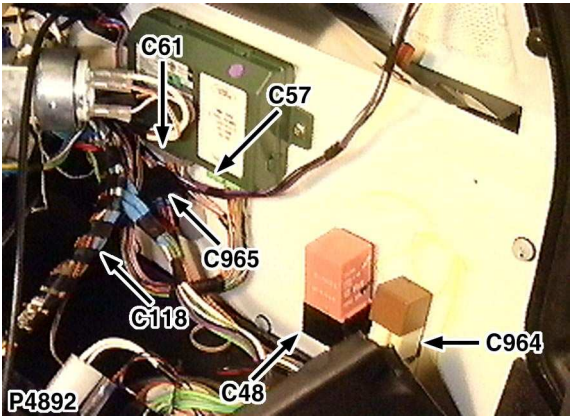
C965



Fuse - Alarm

Female
BLACK

Behind RH side of fascia



ADU7900

Cav	Col	CCT
1	N	20
2	N	20

C970

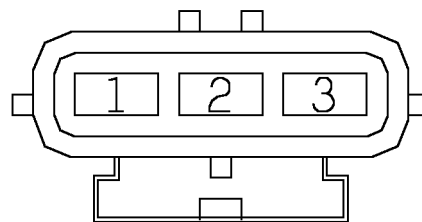
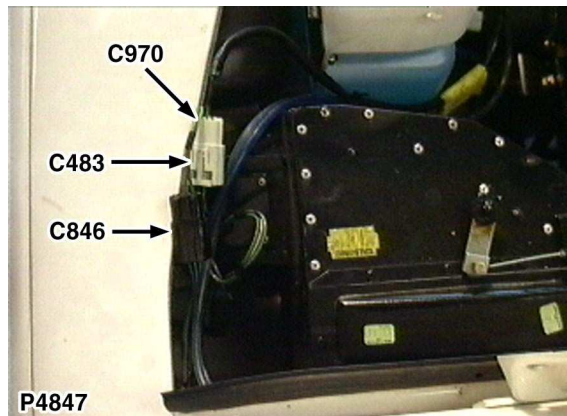
CONNECTOR



Front wash / wipe harness
to main harness

Male
BLACK

Rear LH side of engine
compartment



YPC10059

Cav	Col	CCT
1	BLG	ALL
2	LGB	ALL
3	B	ALL