

TESTBOOK



User Manual

Gebruikershandboek

Manuel d'Utilisation

Benutzerhandbuch

Manuale dell'Utente

Manual del Usuario

Manual do Utilizador

TESTBOOK

User Manual

This manual will aid you in the correct maintenance and usage of your TestBook, from unpacking and getting started, to assisting during Fault Diagnosis.

It is recommended that you use this manual in conjunction with your TestBook unit.

This book contains the following sections:

Introduction

Hardware

Diagnostics

Help Desk

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INTRODUCTION

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INTRODUCTION 1



INTRODUCTION

Rover Group's TestBook programme has successfully applied modern Information Technology to the servicing and repair of its vehicles.

TestBook is a portable computer designed to help a service technician diagnose electrical systems, engine systems, and transmission systems in Rover Group vehicles.

TestBook can draw current from a 12 volt vehicle battery or from an AC/DC power supply. It prompts the service technician to enter commands for selecting self tests, retrieving diagnostic information, or running vehicle diagnostics.

TestBook has already made a major contribution to raising standards of customer satisfaction and promoting the business success of dealerships and their staff.

As with any progressive activity, TestBook benefits from continuous improvement to all its support facilities, based on the real -life experience that we have all gained so far.

For example, it was felt that the number of separate publications that technicians might need to refer to when using TestBook had become excessive, and difficult to manage in a workshop situation.

So this Technician's Handbook has been designed to consolidate all the information and guidance that used to exist in a variety of publications, within this single easy-reference book. Virtually everything that you need to know is in this handbook - including details of what to do if you can't find the answer you need !

Although much of the information given here is similar to that previously published, many items have been updated, extra information has been added and efforts have been made to clarify certain parts of the text.

Rover Group is constantly seeking ways to improve the specification and design of its vehicles and alterations take place continually.

Whilst every effort is made to produce upto date literature, this User Manual should not be regarded as an infallible guide to current specification, nor does it constitute an offer for the fitment of any particular system or component.

HARDWARE

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TESTBOOK INSTALLATION GUIDE

Unpacking Your TestBook equipment

Remember, before unpacking and using your TestBook, that you are dealing with a complex and expensive piece of electronic equipment. Although it has been designed to be reasonably robust for workshop use, it still needs to be handled with rather more care than most other workshop equipment.

Look after your TestBook, and it will look after you !

Remove the equipment carefully from its packaging, setting it out in a clean, dry area such as a clear bench or table, so that you can check the individual items off the checklist supplied with each TestBook. If any items are missing, please contact your Help Desk.

There are several different "packages" of TestBook equipment, with contents dependent on the requirements of your particular workshop; the following table gives an outline of typical contents.



NOTE: This is for general information - your contents inspection should only be against the checklist included with your equipment.

Full TestBook Packages (e.g.UK market)

	Joint - Cars + Land Rover	Land Rover only	Cars only
TestBook	x	x	x
Trolley	x	x	x
Printer	x	x	x
Generic Cables	x	x	x
Land Rover Cables	x	x	
Old * Land Rover Cables	x	x	
Cars Cables	x		x
Old * Cars Cables	x		x
Pressure/Vacuum kit	x	x	x
EGR Break-out Box	x	x	
Transfer Break-out Box	x	x	
TIM unit	x		x
Cable Cabinets	x	x	x
Cars Cable Cases			x
L R Cable Cases		x	
Joint Cable Cases	x		

* "Old" in this context means cables to suit those models that do not have a J1962 diagnostic connector, which was introduced at different Model Years for different models - one of the last being Mini, at 1997 MY.

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Basic TestBook Packages (e.g. some export markets)

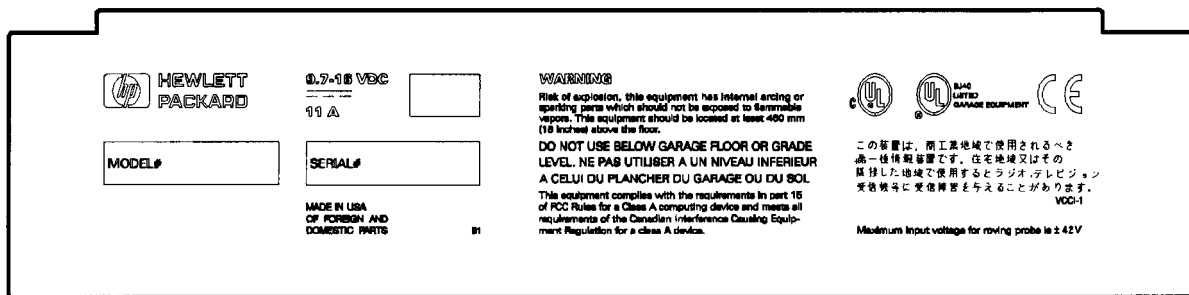
	Basic Joint LR/Cars	Basic Land Rover	Basic Cars
TestBook	X	X	X
Generic Cables	X	X	X
Land Rover Cables	X	X	
Cars Cables	X		X

Identifying the Product

The model, option, and serial numbers are located on the Serial/Agency label, which is located on the back of TestBook.

The TestBook Agency/Regulatory label is shown below.

Please ensure that you read the Serial / Agency label for product warnings.




FURTHER DETAILS OF TESTBOOK EQUIPMENT

This explains the contents of some of the items listed on the tables on the previous page.

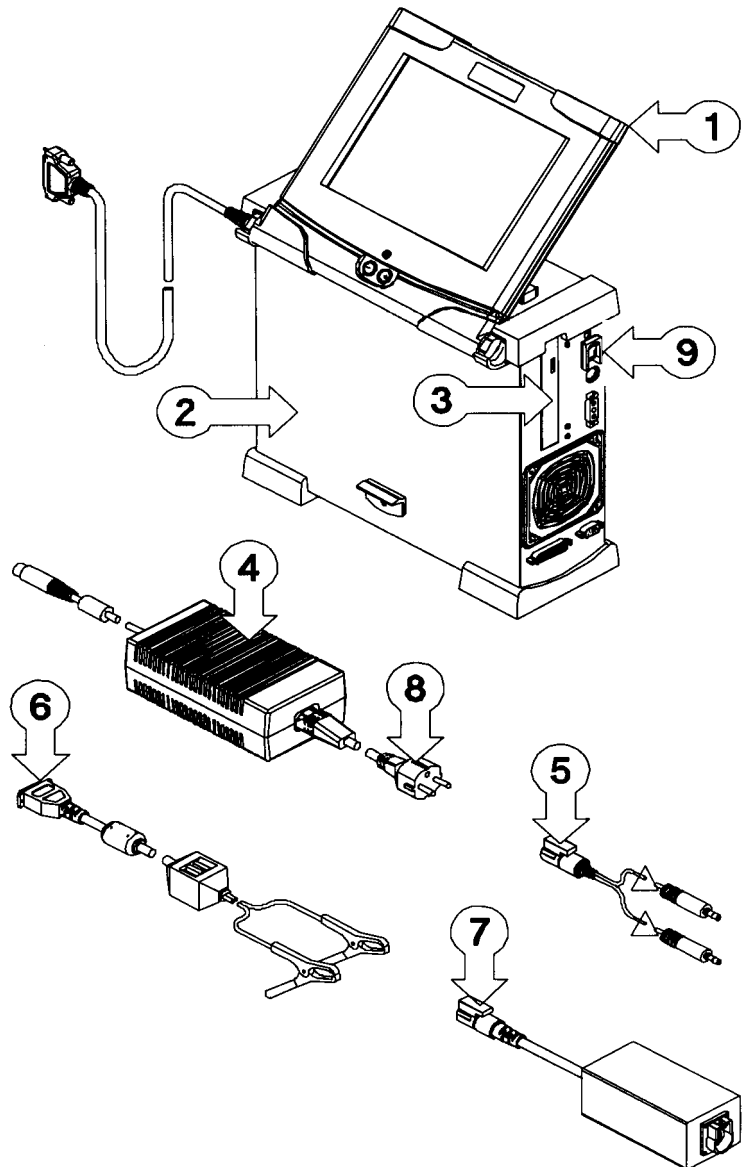


NOTE: Again, the following is for general information, and is NOT a substitute for the checklist included with your TestBook "package".

TestBook	For "Full Packages", this means a TestBook unit and a road test power supply. However, for "Basic Packages", this also includes a mains supply power unit, (which on "Full Packages" is included with the Trolley).
Trolley	The mobile stand that holds the TestBook at a comfortable working height, and makes it easy to position it alongside vehicles in the workshop. It is fitted with the mains power supply transformer unit, printer power supply transformer unit and also provides a convenient mounting for the Printer and CD storage.
Printer	Printer.
Generic Cables	These include: Roving probe, 20ft (6.1m); Port 1 loopback cable; VCSI (Vehicle Communication Serial Interface) cable; 500A current clamp/transducer; VCSI extension cable; Transducer extension cable. J1962#2 (blue) cable J1962#3 (green) cable J1962#5 (grey) cable Probe Kit  NOTE: "#" or "hash" is an American symbol for "number".
Land Rover Cables	J1962#4 (black) cable; 4x4 J1962 Airbag adaptor
Old Land Rover Cables	14 CUX adaptor; ABS adaptor; Air Suspension adaptor; Airbag Adaptor.
Cars Cables	J1962#1 (yellow); Cars J1962 Airbag adaptor
Old Cars Cables	Power lead extension cable; ABS 2-E Adaptor; CCU adaptor; EFC; MicroCheck EFC diesel EGR; MEMS; 5AS; SPi; 3AS.
TIM Unit	TestBook Interface Module (TIM) cables; TIM to Microcheck; TIM to Microcheck extension; Battery adaptor.

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Identifying TestBook Components

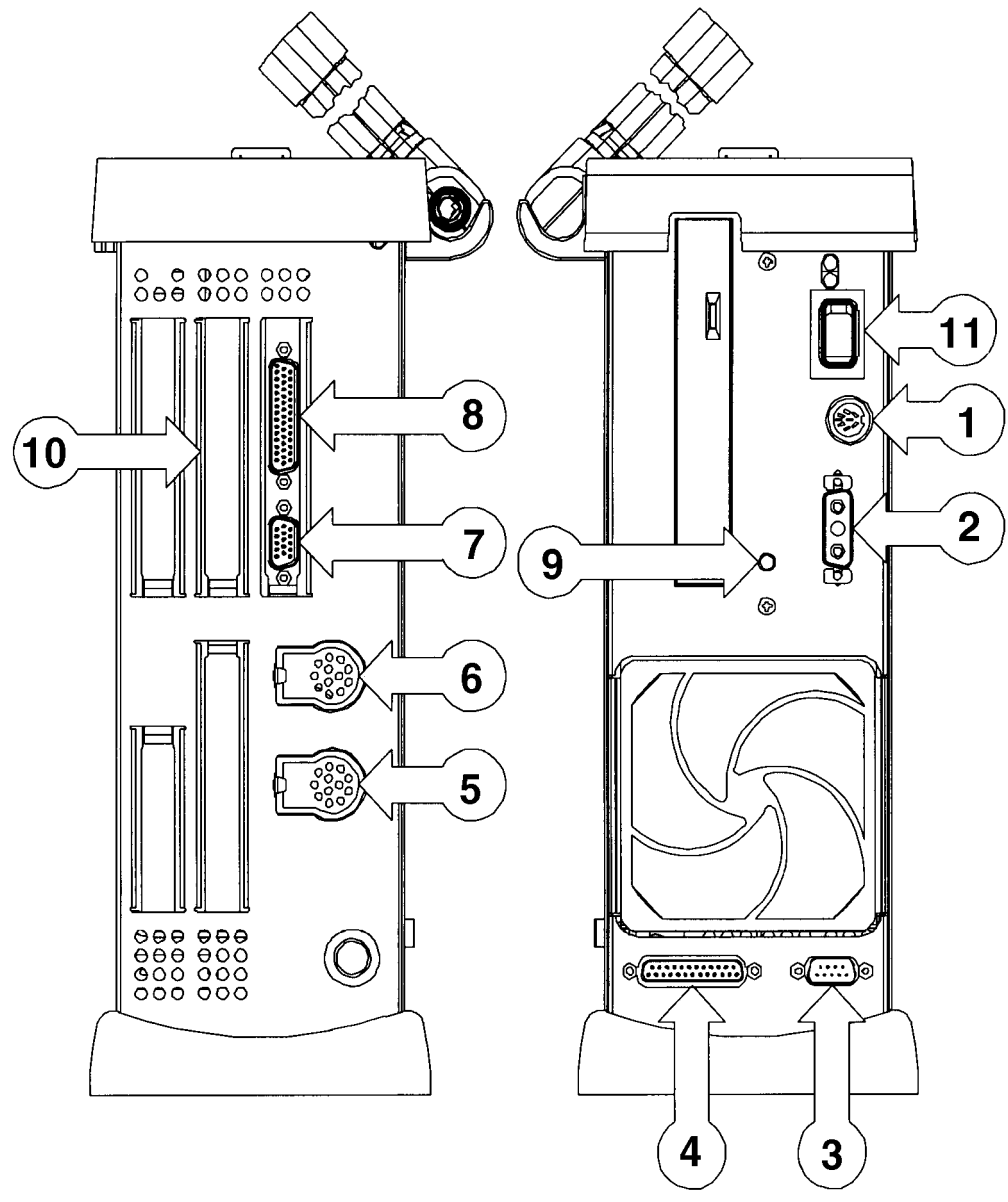


External Parts

- | | |
|--------------------------|------------------------|
| 1. Display and Cable | 6. Battery Power Cable |
| 2. Base Unit | 7. VCSI Cable |
| 3. CD-ROM Drive | 8. AC Power Cord |
| 4. AC/DC Power Converter | 9. On / Off Switch |
| 5. VOM Cable | |

Identifying the External Connectors

TestBook contains connectors for AC/DC power converter, battery power cable, VOM (volt ohmmeter), VCSI (vehicle communication serial interface), VGA (video graphics adapter), parallel (LPT1), serial (COM1), keyboard and display.



Connectors

- 1. AC/DC Power Converter
- 2. 12v Vehicle Battery Power
- 3. Serial (COM1)
- 4. Parallel (LPT1)
- 5. Port 1 - VCSI
- 6. Port 2 - VOM
- 7. VGA
- 8. Display Connectors
- 9. Audio Level Output
- 10. Expansion Slot
- 11. On/Off Switch

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TestBook Specifications

The TestBook motherboard contains a PC-AT compatible board. The main system processor for TestBook is a 486 DX/2 - 50 MHz microprocessor with 20MB of system RAM. The internal hard disk supports the operating system, applications and data. The CD-ROM allows the dealership technician to upgrade the software. A separate, light weight display module with integrated touch screen makes TestBook easy to use.

There is an external AC to DC power supply, and an internal DC to DC power converter system. TestBook contains an internal rechargeable battery which eases the transition from the trolley to the road test power supply.

Interface

TestBook user interface consists of a display, touch screen, audio transducer and membrane keypad for contrast control and two LED indicators for power and self-test.

TestBook display is a monochrome LCD panel with the following specifications:

- VGA compatible resolution of 640 x 480
- Display modes including graphic as well as text modes
- Display contrast control via the keypad
- Up to 64 shades of grey TestBook includes a touch screen input device with a resistive touch system. TestBook includes an audio speaker which is controlled by software.

TestBook includes a Power On Self Test PASSED indicator LED light and a Battery/External Power indicator LED. The Power On LED is a single colour, green. The external/battery LED is single colour, yellow.

Volts Ohm Measurement Capabilities

The roving probe connects to TestBook via a high cycle-life Burndy connector. The vehicle connection is made with two probes. All functions are measured with these probes. All mode switching takes place internally. The Roving probe contains an ID resistor to allow for hardware verification of the proper cable connection.

TestBook is configurable to either 50 or 60 Hz. The ranges of accuracy for TestBook are listed in the table below:

VOM Specification

Function	Range	Accuracy
DC volts (+ and -)	400 m volts - 4 volts - 40 volts	1% of full scale
AC volts - RMS	400 m volts - 4 volts - 40 volts	1% of full scale
Resistance	800 ohms	1% of reading or 2 ohms whichever is greater
Resistance	80 ohms	+ or - 0.2 ohms
Current	1 amp	1% of full scale

Vehicle Communication Serial Interface (VCSI)

The vehicle communication serial interface (VCSI) allows TestBook to communicate with specified electronic control units (ECUs) and other devices that follow the ISO9141 standard. This international standard specifies the requirements for setting up the interchange of digital information between on-board ECUs of road vehicles and diagnostic testers.

The ISO 9141 support consists of three main functional blocks: the asynchronous serial receiver/transmitter, counter/timers and the ISO 9141 physical interface. The asynchronous serial receiver/transmitter and counter/timer logic are implemented using a field programmable gate array (FPGA). The physical interface is electrically isolated from TestBook. TestBook VCSI can achieve a baud rate synchronization from 10 to 10K baud.

Power Sources

TestBook can be connected directly across the vehicle battery terminals. In this mode of operation the VCSI and VOM isolations will keep the vehicle battery ground isolated from the signal ground. The isolated DC to DC converter will provide the ground isolation for the peripheral connectors such as the parallel and serial ports. The peripheral signals are not isolated. TestBook can also be powered from an external AC to DC power supply. This mode is especially useful to recharge TestBook internal battery while not in use.

When connected to the vehicle TestBook uses DC power from the vehicle, with a voltage range of 9.7 V DC to 16V DC. If the vehicle power is lost or TestBook is disconnected from the vehicle, TestBook operates from its internal battery pack.

TestBook is capable of operating, while not connected to a vehicle, for no more than 15 minutes based on a fully charged new battery. The system clock and configuration RAM on the system board in TestBook is battery backed up with a NiCAD (nickel-cadmium) battery.

Mechanical Design

TestBook is composed of two separate enclosures, a display unit and a base unit. The display unit houses the display, speaker and touch screen. The base unit houses all other electronics. The display unit is attached to the base unit through a pivot mechanism which allows it to be angled for normal use, folded down for transporting or removed for remote usage. The display unit is tethered to the base unit with one thin cable, allowing it to be easily moved around the vehicle.

Base Unit Enclosure

The base unit enclosure consists of sheet metal parts that form a protective environment for the main electronics. The enclosure has rubber bumpers at strategic points to absorb shock from accidental drops. There is a handle at the top of the unit for transporting it. The display module has a storage location on the base unit. The display can be stored with the LCD facing the base unit. This configuration will protect the LCD during transportation. The display module can also be placed so the LCD faces away from the base unit to allow the user to interface with the tester without hand holding the display.

Cables and Adapters

The TestBook package contains the road test power supply. This cable has been designed to operate in the harsh automotive garage environment. The road test power supply connects TestBook to the vehicle battery. This cable is 4.2 metres long. It has red and black battery clamps at one end and a sub-miniature D power connector at the other. A black PVC molded fuse box is located near the clamp end.

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PHYSICAL SPECIFICATIONS

Dimensions

Base Unit:	Height Width Length	109 mm (4.30 in) 318 mm (12.5 in) 333 mm (13.12/12.6 in)
Display Unit:	Height Width Length	27 mm (1.06 in) 279 mm (10.98 in) 264 mm (10.39 in)

Connectors

An Input/Output connector area is provided at the front and rear of TestBook. All connectors follow industry standards.

ENVIRONMENTAL SPECIFICATIONS

Conditions		Specifications
Temperature	Operating: Non-operating:	0° to 40°C (32° to 104°F) -40° to 70°C (-40° to 158°F)
Humidity	Operating: Non-operating:	15% to 95% RH at 40°C (non-condensing) 90% RH at 65°C (non-condensing)
Vibration	Operating: Non-operating:	0.30 G RMS, 5 to 500 Hz 2.41 G RMS, 5 to 500 Hz
Drop	Non-operating	Drop of 36" may cause superficial damage
Shock	Operating: Transportation:	velocity change of 350cm/s, half-sine wave form, duration - 3 ms trapezoidal wave form velocity change of 742 cm/s. Minimum acceleration, 30g
ESD	Operating: Survival:	0 - 15KV Air discharge excluding connectors ± 4KV contrast discharge excluding connectors 15 - 25KV Air discharge excluding connectors
Electromagnetic Susceptibility	Conducted: Radiated: Magnetic:	3 V over frequency range of 30 Hz to 50 Hz 1 V over frequency range of 50kHz to 400 MHz 10 V/m over frequency range of 14kHz to 1 GHz 1 gauss over frequency range of 47.5 Hz to 198 Hz
AC Line Transients	Low Energy Pulse: High Energy Pulse: Line Surge: Line Sag: Line Drop-out:	3 KV/100kHz Ring Wave 1 KV at 1.2 ms. rise by 50 ms. decay to half peak +25% for 500 ms +25% for 500 ms 0V for 10 ms
DC Input		Reverse Bias

PREPARING A SITE FOR TESTBOOK

(If you have a TestBook trolley, go on to the next section).

If you are not using a TestBook Trolley, then you need to meet the following requirements in siting the TestBook for use :

The surface must be firm, flat and reasonably level - (this is particularly important for satisfactory operation of the CD disc drive), and any risks of TestBook falling or being knocked over should obviously be avoided.

The TestBook mains power supply transformer unit also needs to be securely positioned near to the TestBook and the power cables protected from workshop traffic, to prevent accidental disconnection or damage.

Position TestBook so that you have convenient access to the cable ports (and with sufficient room to avoid sharp bends on the connecting cables), as well as to the touch screen and the CD disc drive.

Take the power lead from the separate mains power transformer unit and plug it into the power input port on TestBook, marked by the symbol:



You can then plug the transformer feed cable into the mains socket to start using TestBook.

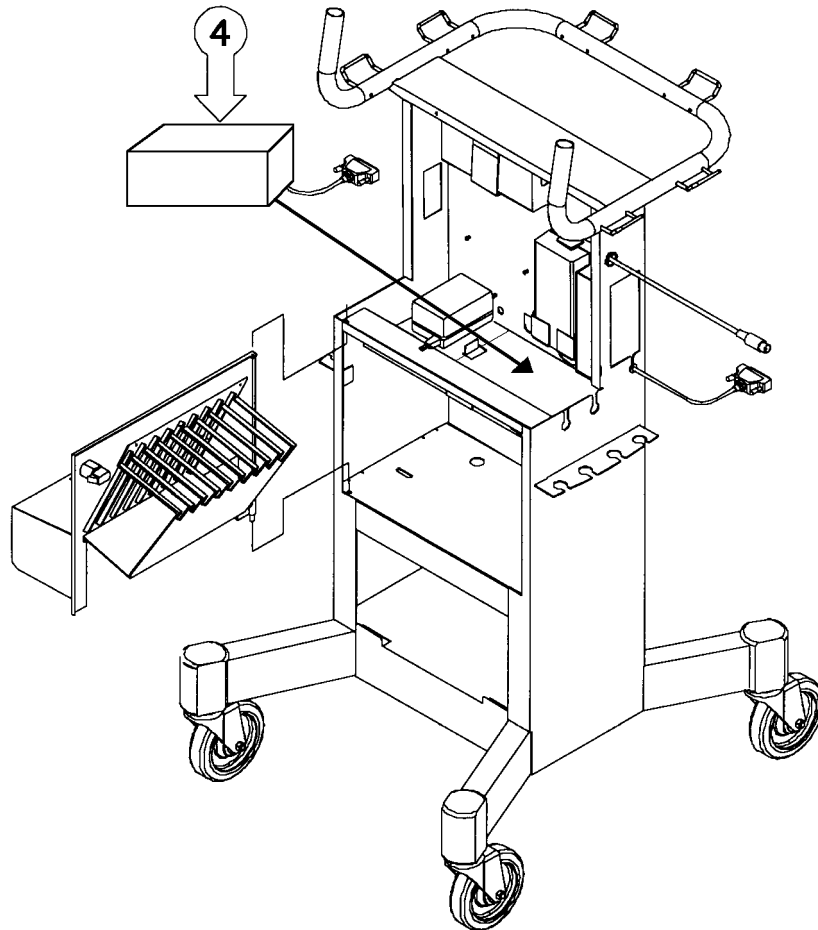
TROLLEY INSTALLATION GUIDE

If you are using a TestBook Trolley, this gives a convenient, purpose-designed location for your TestBook.

The Trolley is delivered to you as a virtually complete assembly - you only need to fit the TestBook, its printer, the trolley door (and the TIM unit, where applicable), and you will be ready to begin using TestBook.

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Installing the TIM unit (Cars Dealers only)



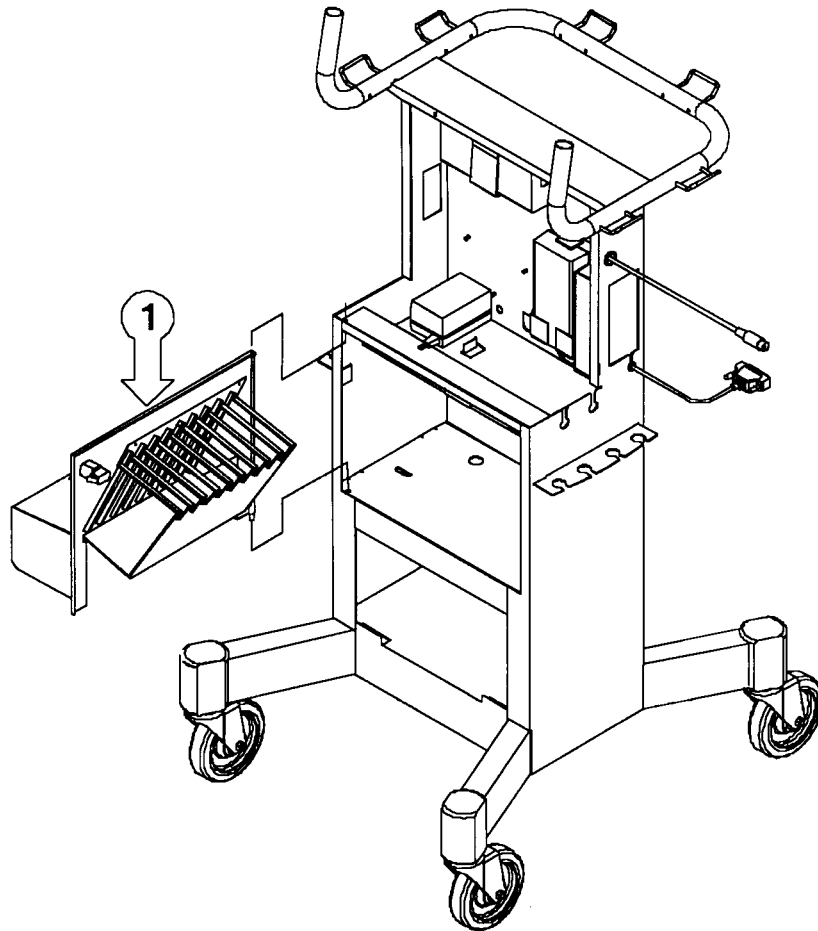
Fitting

1. Remove the TestBook shelf.
2. Remove the blanking plate from the rear centre of the trolley.
3. Place the TIM unit (DTC 0001C) serial cable through the centre hole of the trolley (where the blanking plate was originally located).
4. Slide the TIM unit into position.
5. Refit the TestBook shelf.

Removal

6. Remove the TestBook shelf.
7. Remove the TIM unit.
8. Refit the TestBook shelf.

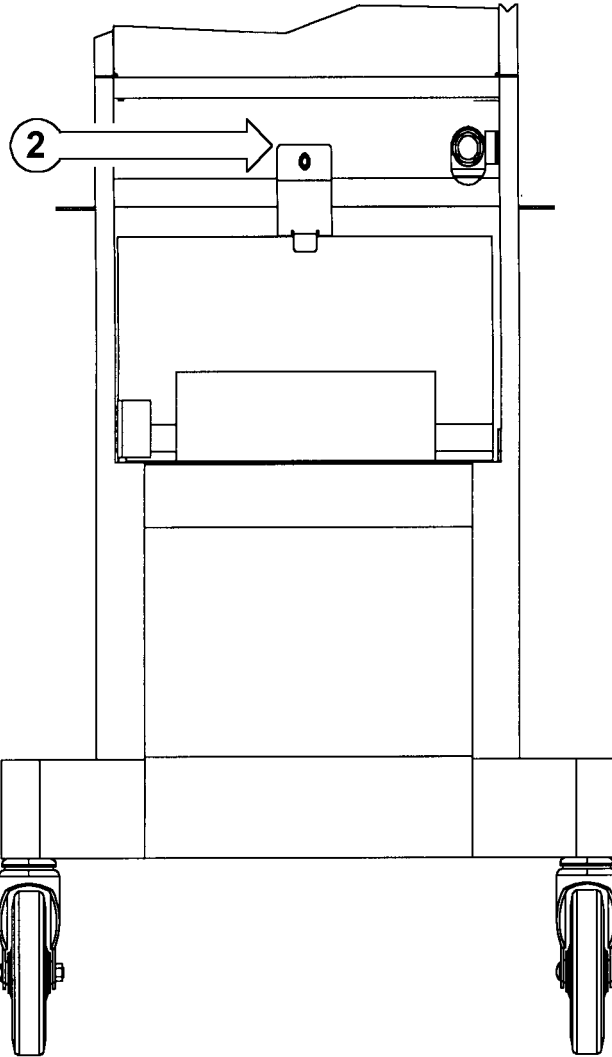
Installing The Trolley Door



1. Put hinge into securing hole.

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Installing the Printer



Installation

1. Remove printer door from the TestBook trolley.
2. Remove the screw and bracket from the trolley.
3. Remove the printer from the cardboard box.
4. Place the printer into the trolley, connecting the power lead and centronics cable first.
5. Locate the printer into the holes in the printer shelf.
6. Refit the screw and bracket.
7. Open the printer paper feed, and insert the printer cartridge.
8. Refit the printer door to the trolley.



IMPORTANT: PROTECTING YOUR TESTBOOK

Whether using a Trolley or other location for your TestBook, you need to protect it from the following common workshop hazards:

- Avoid extremes of temperature - the safe operating range is 0° - 40° Centigrade/Celsius, and there should always be adequate ventilation around the TestBook - do not operate it within any kind of enclosing container. Do not leave TestBook inside a vehicle in a hot environment e.g. parked in the sun. When TestBook is out of use or in storage, the acceptable temperature range is from - 10° to 60° Centigrade/Celsius.
- TestBook is not proof against water or other fluid spillages - keep it dry and clean.
- Avoid exposing TestBook to direct sunlight, as this may fade the screen display.
- Powerful magnetic fields are bad for any computer - keep TestBook well away from any heavy electrical workshop equipment, such as large electric motors, generators, electrical welding equipment etc.
- Don't let dust from grinding or resurfacing equipment get on or into the TestBook.
- Keep TestBook away from sources of chemical contamination such as paint booths or degreasing plant, and avoid conditions of excessive moisture.
- As the screen is made of conventional (not toughened) glass, avoid any kind of impact. If it should ever be accidentally broken, beware of glass shards.

HARDWARE

CLEANING TESTBOOK

Before you clean TestBook, follow these steps:

1. Shut off the power to TestBook by toggling the power button to "0" and unplugging the power cord from its power source and the TestBook.
2. Inspect TestBook cables, connectors and power cord for any damage or corrosion. If damaged, replace them immediately.
3. Inspect the display window, cable assemblies and connectors for any contaminants.



CAUTION: Do not use chlorinated solvents to clean TestBook.



NOTE: Although TestBook is moisture resistant, it is not moisture proof. Dry TestBook off thoroughly after cleaning it.

Cleaning the Base Unit

Wipe the top and bottom covers clean using a soft cloth and mild detergent or hand soap. Avoid using petroleum based solvents such as acetone, benzene or trichloroethylene. They contain chemicals that can etch plastic surfaces.

Cleaning the Display Window

The display window collects grime during normal use. Touch the top left hand corner of the touch screen to "freeze" the screen. Wipe the screen with a clean, soft, static free cloth. Use a non-abrasive plastic cleaner and a soft cloth to wipe the display area. Place a small amount of plastic cleaner on a soft cloth and wipe clean. Again, avoid using petroleum based solvents such as acetone, benzene or trichloroethylene. They contain chemicals that can etch plastic surfaces.

POWERING TESTBOOK

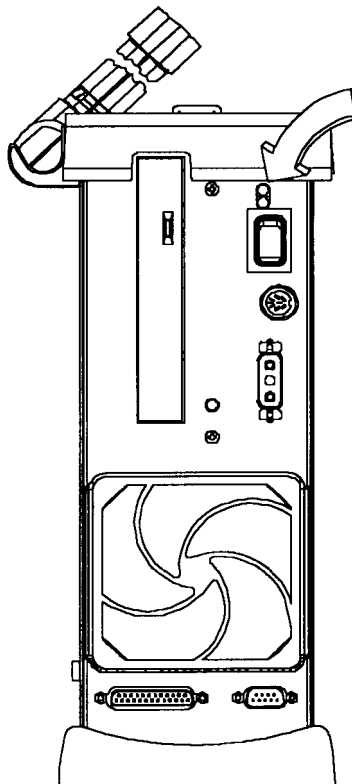
TestBook normally gets power from its own power supply transformer when it is plugged into a mains power supply. This is called "EXTERNAL POWER", because the power is being supplied from outside TestBook. It also has an internal battery that prevents the unit from shutting off for short periods of time when you need to disconnect it from external power.

INTERNAL POWER

To provide brief "stopgap" power while unplugged, TestBook has an internal nicad battery. It will provide fifteen minutes of use on a full charge. It is only meant to provide power when moving TestBook into and out of a vehicle before and after a road test. During the road test itself, you must use the Road Test Power Supply - which is described on the following page.

Interpreting the Indicator Lights

The indicator lights located on the side panel show that TestBook is operating as designed. The green light specifies whether TestBook passed the Power On Self Test (POST), a diagnostic test that evaluates system hardware. The yellow light indicates that TestBook is connected to a power source other than the internal battery.



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ROAD TEST POWER SUPPLY

One of the major advantages of TestBook is that it can be taken out in a vehicle to carry out diagnostic work during a road test. To do this, you must use the Road Test Power Supply. Carry out the following steps when using the Road Test Power Supply. You do not need to turn TestBook OFF.

1. Connect the Road Test power Supply to the battery of the vehicle to be road tested. Connect the red cable to the battery "+" post. Always double check that you have connected the red cable to the correct, positive terminal before going on to connect the black cable to the battery "-" post. This is very important, as the polarity must NOT be reversed.
2. Switch off TestBook's power supply at the power point on the side of the trolley.
3. Unplug the power supply from TestBook.
4. Plug the other end of the Road Test Power supply into TestBook's power port.
5. Return TestBook to a mains power point as soon as you finish the road test.
6. When transferring TestBook to and from the Road Test Supply, remember the limited time available on the internal battery - don't let anything else distract you while doing this !
7. Allow at least two hours to fully recharge the internal nicad battery. The battery recharges as long as TestBook is plugged in, even when the unit is switched OFF.

USING THE TOUCH SCREEN

TestBook has been designed for ease of use. Instead of an external keyboard, all user input is given to the TestBook by touching the screen.



NOTE: The Touch screen is made of standard glass, not safety glass. In the event that the glass should break, extreme caution should be taken as long shards may fall out of the TestBook.

TestBook actually responds at the moment that you lift your finger away from the screen, not at the moment you touch it. If you slide your finger off the selected 'button' as you lift away from the screen, TestBook will not respond.

The best way to make a selection is to pay attention to the pointer (small crosshair or clock) on the screen. After lifting your finger, make sure the pointer is on top of the button you are selecting. If it is not, try touching again.

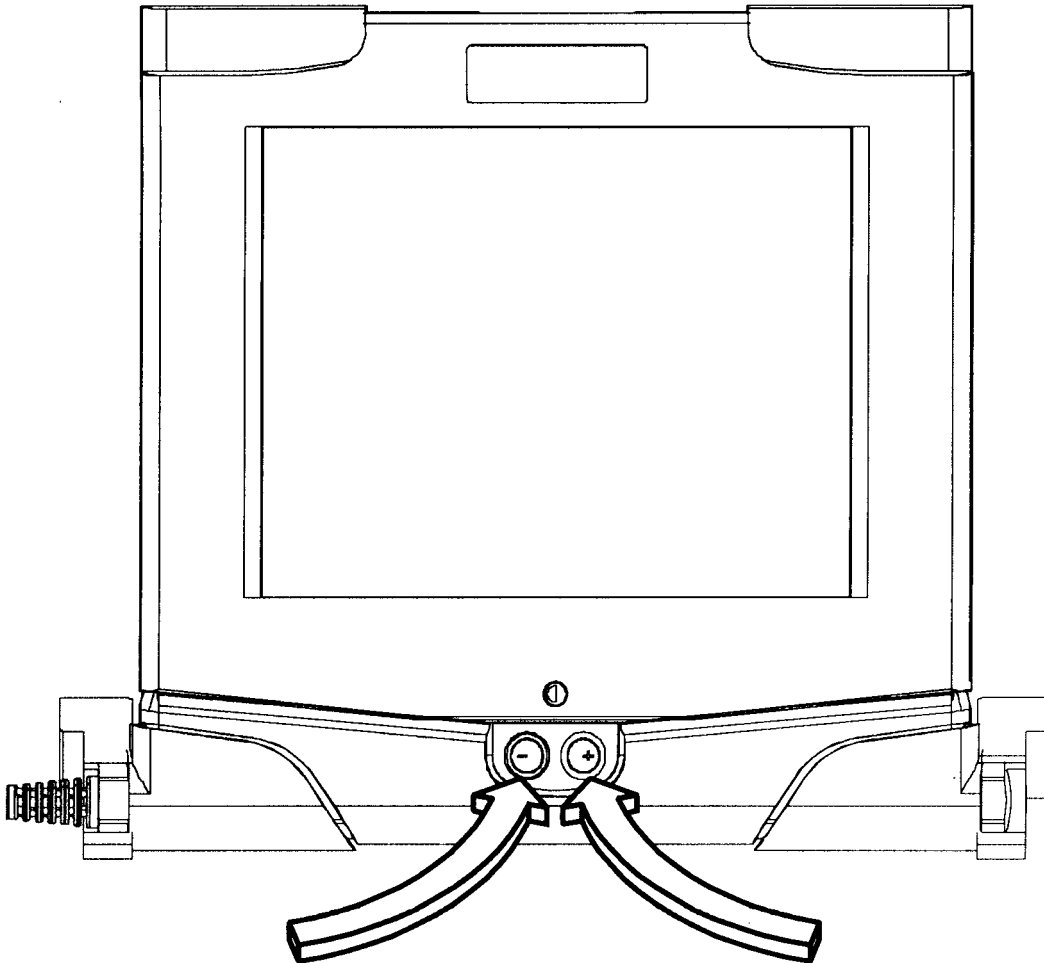
When the pointer turns into a clock, it means that TestBook is busy working on your selection. Wait until the clock disappears before touching another button.

If the pointer does not line up with your finger touch to the screen, there is an easy way to correct it. At the Welcome screen, touch the button labelled Configuration on the Control Panel. Enter the Configuration password if one is set. Then press Align Touch. See the Touch Screen Calibration section for more detail.

If using the "ALIGN TOUCH" facility does not correct the problem, please ask someone else to try it before condemning the TestBook. Sometimes a user can become **STATICALLY CHARGED** and the cursor will not respond.

ADJUSTING THE DISPLAY

To adjust the contrast, press the button near the bottom of the display. Select + (plus) for more or - (minus) for less contrast.



NOTE: Regular use of contrast control over time and temperature range is normal for this kind of display.

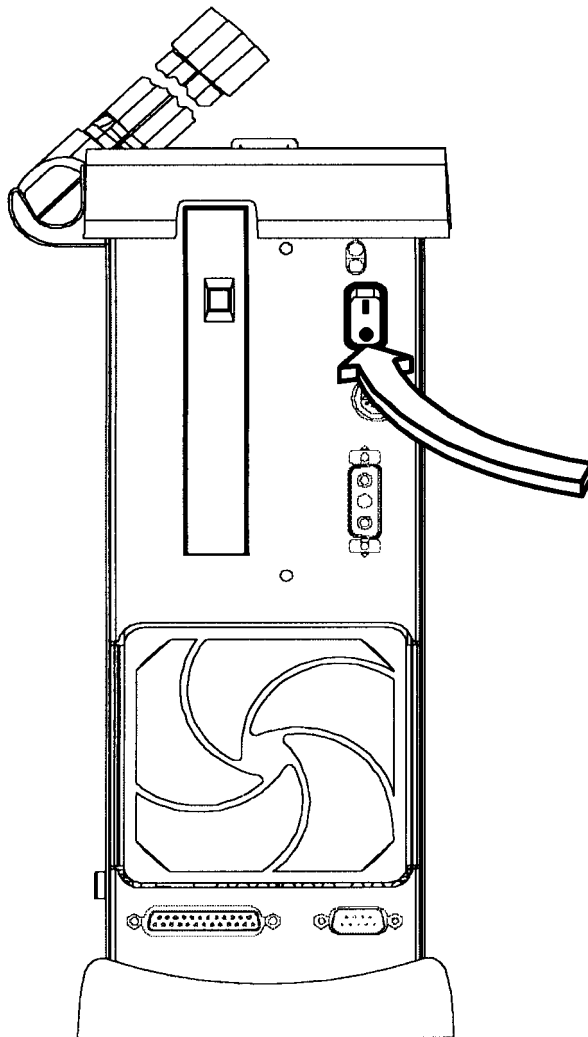
HARDWARE

TURNING TESTBOOK "OFF"

To turn testbook off, first return to the Welcome screen. At the Welcome screen, touch the "Shutdown" button. Wait until the message "please turn off TestBook now" appears on the screen. Then, and not before, press the POWER button. If TestBook is switched off without going through this shutdown procedure, the software files on its memory may be "scrambled", and prevent TestBook from working correctly next time.

When turning OFF TestBook before moving it, be sure to eject the CD first. This procedure is described under "Using Compact Discs".

Turning off the TestBook



BATTERY CHECKING AND REPLACEMENT

Internal Battery

The rechargeable battery in TestBook will not normally need to be serviced. It allows a technician to disconnect TestBook from one vehicle and reconnect it to another without the loss of data. When TestBook draws power from an energy source other than the internal battery, the yellow indicator light is on.

However, if the battery life drops below five minutes, it is possible to extend it. This is described later in this section.

Battery Operation

TestBook's internal nicad battery is designed to power TestBook only when moving it between a power point and a vehicle. It will normally provide fifteen minutes of power when fully charged. For power within the vehicle, use the Road Test Power Supply provided. Never attempt a road test using only TestBook's internal battery.

The nicad battery recharges whenever TestBook is plugged into an external power supply. Return the unit to the external power supply as soon as possible after a road test so that it can begin recharging for the next road test.

The time needed to re-charge a fully drained battery varies with ambient temperature:-
Two to three hours if temperature is less than 30° Centigrade/Celsius.

Overnight if warmer than 30° Centigrade/Celsius.

The battery despatched in new TestBook units is uncharged. They must to be fully charged before they will provide power. This simply means leaving them in TestBook overnight while it is plugged into an external power supply. TestBook does not need to be turned ON during recharging.

After a while, it may be noticed that TestBook's battery does not last as long as when it was new. To extend the charge life of the battery the following steps should be carried out.

BATTERY RESTORATION PROCEDURE

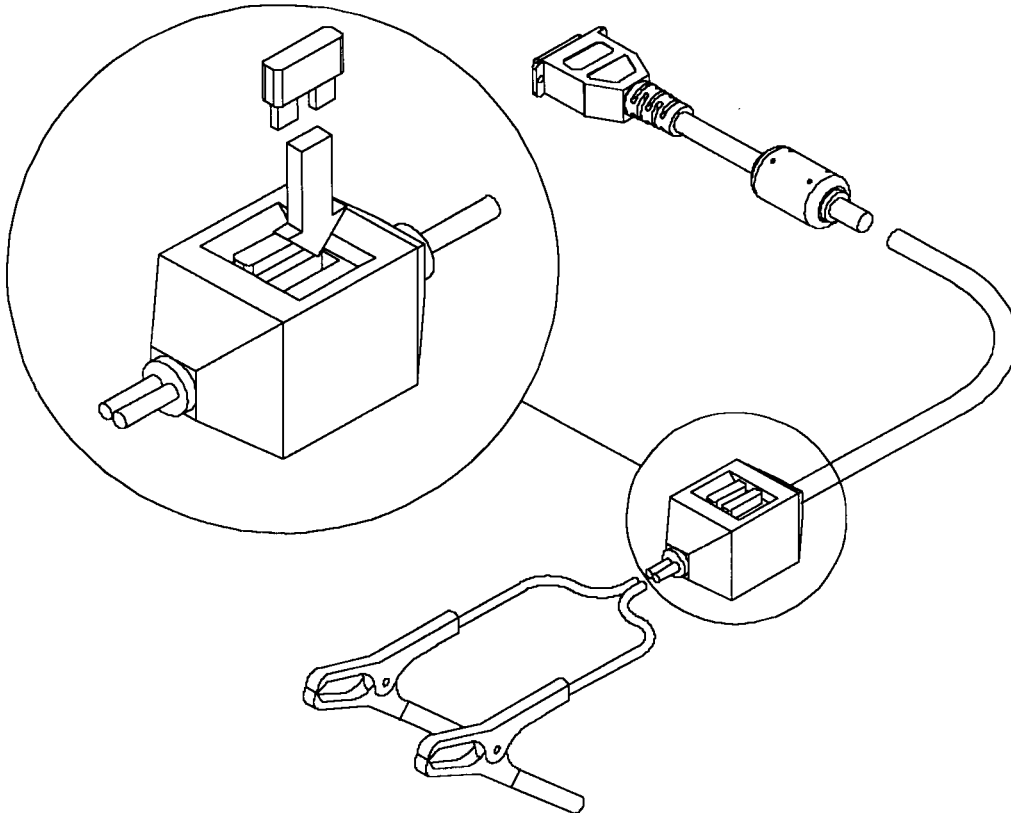
Perform this procedure at the end of the working day. It should take less than fifteen minutes. If it takes longer, the battery didn't need restoration.

1. Leave TestBook "ON" at the Welcome screen.
2. Without turning TestBook off, unplug the external power supply.
3. Wait for the internal battery to discharge completely.
4. Plug TestBook back into an external power supply.
5. Leave TestBook plugged in overnight. The TestBook itself does not need to be left switched ON.
6. The battery should last longer the following day. If the battery life is still less than five minutes, please telephone the Helpdesk for a replacement TestBook.

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FUSE REPLACEMENT

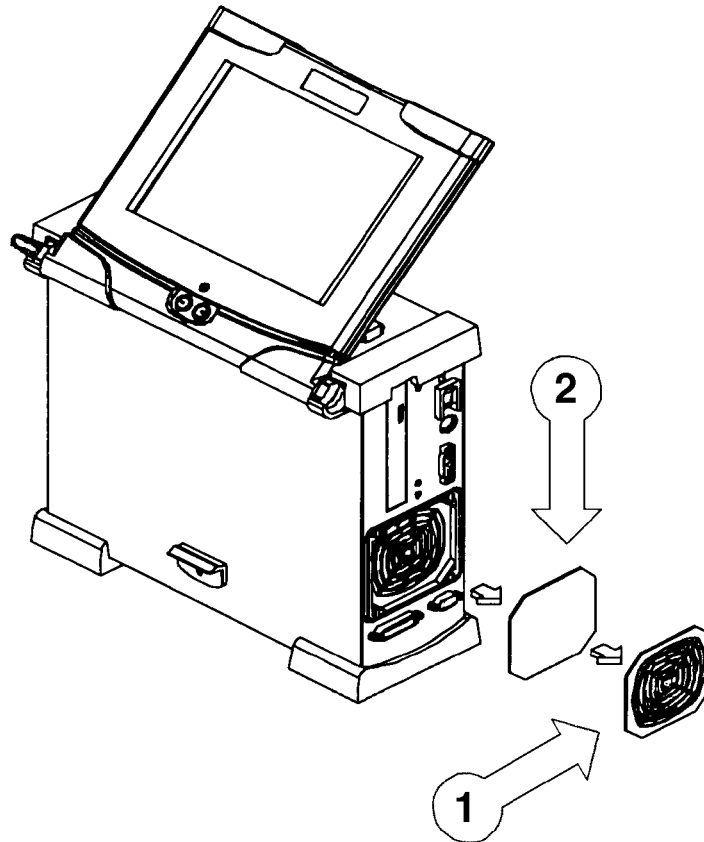
The TestBook 12 volt power circuit is protected by a 15 amp fuse to prevent internal circuitry from being damaged. The fuse will not burn out under normal operation. You can cause the fuse to blow by connecting the TestBook to a power source with a higher voltage than a standard vehicle battery.



1. Pull 15 amp fuse from battery power cable.
2. Snap new 15 amp fuse into place.

TESTBOOK FAN FILTER

Technicians should inspect the fan filter on a regular basis. If it is dirty or blocked it will need cleaning. If the following procedure doesn't cure the problem, then the filter must be replaced.



1. Remove the snap cover.
2. Remove filter pad from assembly.
3. Clean filter by passing dry compressed air over the filter pad.



CAUTION: Ensure that Safety Regulations are met.

4. Place clean filter pad into the snap cover and remount assembly.

HARDWARE

USING COMPACT DISCS (CDs)

TestBook reads vehicle repair information from Compact Discs. These are referred to as CD's. TestBook can only read information from the CD, it is not able to modify or save any information on the CD. TestBook has an internal hard disc drive for saving information.

TestBook must be resting on it's rubber feet when using CD's. Always remove the CD from the disc drive before moving TestBook long distances. This is done by pressing the eject button on the CD drive while the Welcome screen is being displayed on TestBook.



NOTE: TestBook must be displaying the Welcome screen before the eject button on the drive will eject the CD. The eject button will not operate at any other screen, nor will it eject with TestBook switched off.

The top side of the CD is the side with labelling. The digital information, however, is on the under side of the CD, the shiny side without any words or graphics printed on it. Therefore, it is very important that the under side of the CD is kept clean.

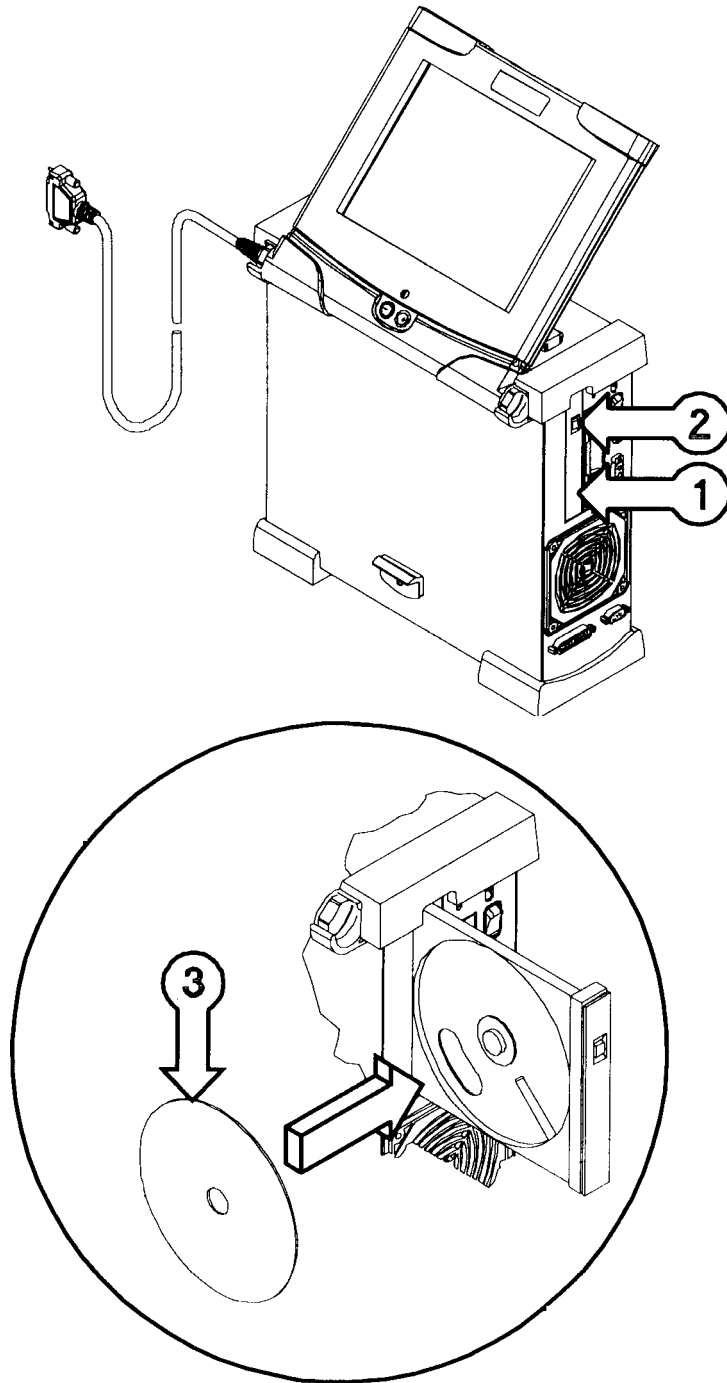
CD's must be kept away from heat. High temperatures will damage them. Be sure to store them appropriately.



NOTE: Handle Compact Disc's by their edges only! if the bottom (non-label) side of the CD has visible dirt or fingerprints, it will require careful cleaning before you can use it. See CD Cleaning Procedure in a later section.

Remove any previous CD and, holding it by the edges only, place it in a protective case.

Operating the CD-ROM Drive



1. CD-ROM Drive
2. CD-ROM Ejector Button
3. CD-ROM Disk

HARDWARE

CD CLEANING PROCEDURE

TestBook reads information from the bottom of the CD, the side without any labelling printed on it.

If the bottom side of a CD should become soiled by fingerprints, dirt or dust, the following cleaning procedure will be necessary.

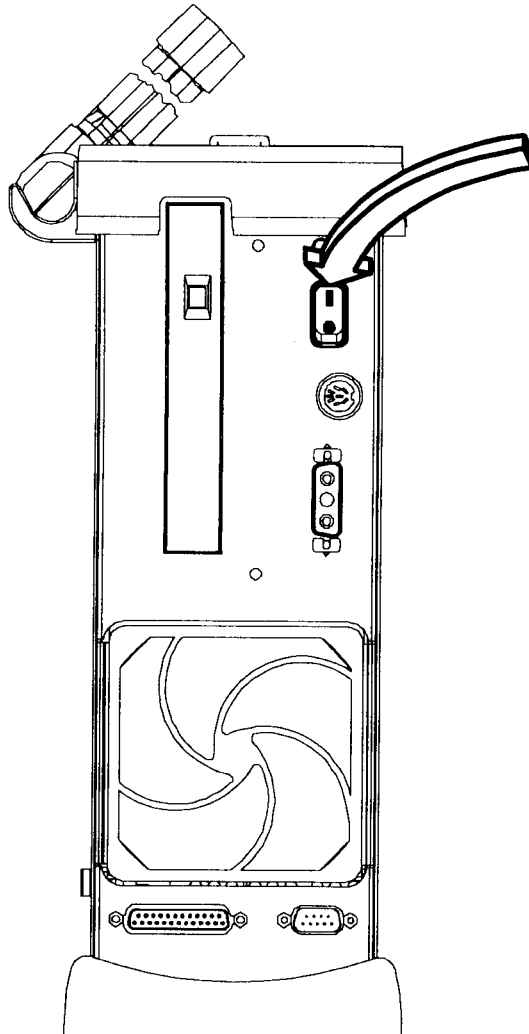


NOTE: Never use any type of solvent or cleaner when cleaning a CD !

1. If the CD is in TestBook, press the eject button and remove the CD, holding it by the edges. This requires TestBook to be at the Welcome Screen.
2. If the CD is not in TestBook, remove it from its case and hold it by the edges only.
3. Find a clean, lint - free soft cloth. It must be dry!
4. Wipe the CD only in a straight line, moving from the centre to the edge.
5. Promptly return the cleaned CD to a protective case or back into TestBook.

BEGINNING WORK WITH TESTBOOK

Turning on TestBook




Turn on power by toggling the power button to "I".

Verifying Correct Operation

After you power up TestBook, check the following to determine if it is functioning properly:

1. Green indicator light positioned above the on/off switch comes on.
2. Power up sequence appears on the screen.
3. TestBook main screen appears on the display.

The Welcome screen displays the four key TestBook function buttons and the Control Panel at the bottom of the screen containing a number of smaller buttons.

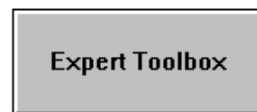
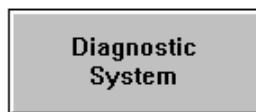
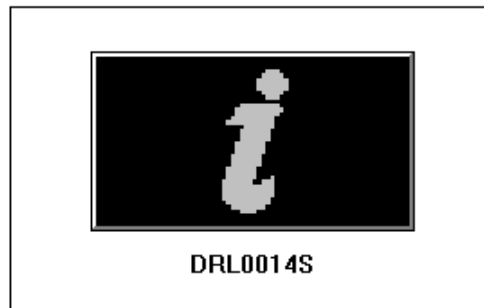
 **NOTE:** If TestBook is not connected to a mains supply, it will start up from its internal battery. This battery will not last for the duration of most diagnostics. It is important to check that the yellow LED is illuminated, confirming connection to a mains power supply.

HARDWARE

The four key function or mode buttons are as follows:

TECHNICAL INFORMATION	When servicing Rover or Land Rover vehicles, this module provides repair documents. In order to activate this function the relevant Technical Information CD covering the vehicle that you are working on must be installed in the TestBook CD drive.
DIAGNOSTIC SYSTEM	TestBook provides a range of diagnostic routines to guide you to a technical solution. Touch this button to enter the booking and job control (BJC) module. This is where you "register" the vehicle you are working on by entering the vehicle identification number (VIN). The vehicle diagnostics CD must be installed in TestBook to activate this button.
TOOLBOX	The Toolbox provides various measurement tools, such as engine analyser and a range of meters.
EXPERT TOOLBOX	Displays live monitor readings from ECU's and other special tests specific to the vehicle model.

SWEL0000	Rover Group Diagnostic System 17 June 1997	3.10
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Shut-down	Integrity Test	Network Connect	TestBook Tutorial	Help		Help Desk	Config-uration
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The highlighted Control Panel buttons at the bottom of the Welcome screen work as follows:

SHUTDOWN	Touch this button when finished using TestBook. You should always touch this, and await the "please turn off TestBook now" message on screen, before turning OFF TestBook.
INTEGRITY TEST	Use this button only when you suspect a problem with TestBook. It allows you to run tests on some of the TestBook hardware and software to make sure it is operating properly.
TESTBOOK TUTORIAL	This button is used when running AutoCourse.
HELP	Allows you to view helpful documents with information about the current screen or vehicle diagnostics.
HELP DESK	Pressing this button automatically prints a Help Desk Information Sheet with certain sections already completed (See Help Desk Section).
CONFIGURATION	This button allows you to customise TestBook with personal preferences and information about your dealership. It also allows you to set up additional hardware as well as install new versions of RDS software.

HARDWARE

CONFIGURATION

This illustration shows the screen that TestBook gives you in response to touching the Configuration button. The buttons on this screen are as follows :



NOTE: the non-active (faded) buttons are for future applications.

COLUMN 1

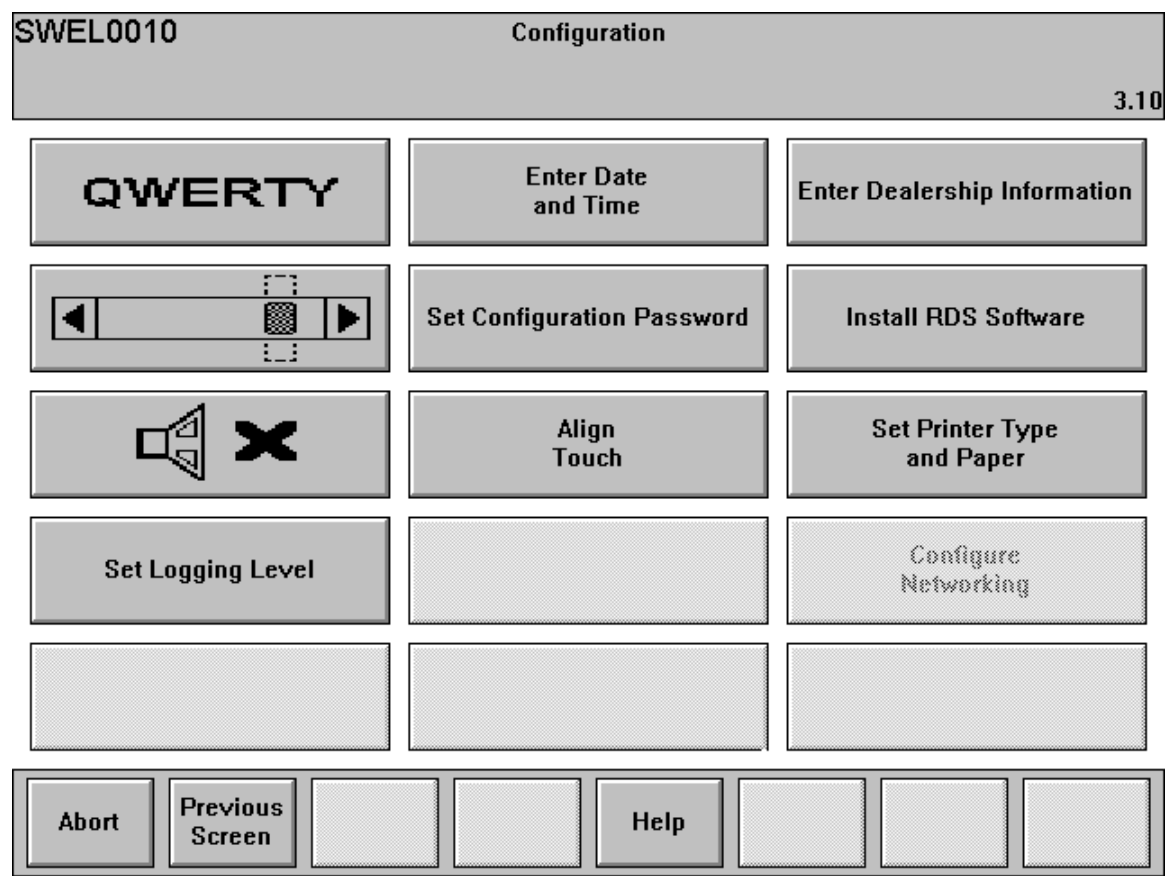
QWERTY	Touch this button to change between the conventional keyboard layout - (known as QWERTY after its first six letters) - or a keyboard based on alphabetical order. Choose whichever you find easiest to use. This keyboard will appear automatically on screen whenever TestBook requires you to input information, such as a VIN.
Size	This "slider" control varies the size of the touch-sensitive area within each button on the screen. (For example, if you have very large fingers, you may find it helpful to reduce this size to avoid overlapping onto the adjacent buttons).
Sound	On or off.
Set Logging Level	TestBook activities can be recorded, or logged, at different levels of detail. This is pre-set at minimum to avoid filling the memory, which would slow down the operation of TestBook.

COLUMN 2

Enter Date and Time	TestBook needs to know the current date and time. If it is incorrect, this is where it is adjusted. Do not, however, make adjustments without first consulting the Help Desk; it is easy to damage the age-protected software !
Set Configuration Password	An option to install security codes to prevent unauthorised re-setting of TestBook configurations.
Align Touch	If the screen cursor doesn't align with the area you touch, this facility allows re-calibration to correct this.

COLUMN 3

<p>Enter Dealership Information</p>	<p>A facility for putting the dealership information into the TestBook memory. Pressing this button brings up spaces numbered from one to six. These relate to the following boxes on the Help Desk Information Sheet.</p> <p>Dealer Name Corporate ID Telephone Number Fax Number Contact 1 TestBook Serial/Model Number</p> <p>This information is used when TestBook automatically prints a Helpdesk form.</p>
<p>Install RDS Software</p>	<p>For the installation and updating of RDS software from the RDS CD.</p>
<p>Set Printer Type and Paper</p>	<p>Do not adjust these settings</p>
<p>Configure Network</p>	<p>Do not use unless you have the appropriate network in your dealership</p>



HARDWARE

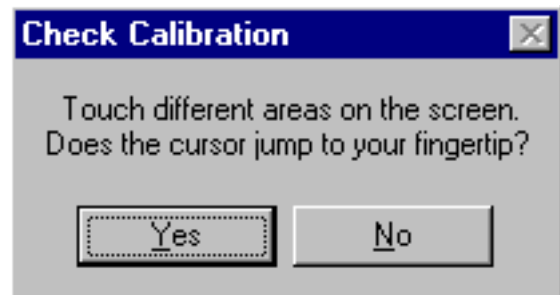
Touch Screen Calibration

Select the Align Touch button to recalibrate the touch screen. TestBook instructs you to touch two targets which will appear on the screen. Upon completion of the calibration test, the new calibration constants are stored on the hard disk. To ensure that these new constants are deployed the TestBook should be switched off (in the correct manner) and restarted.



Select the **calibrate** option.

The following figure then appears on the display:



Several targets such as the following appear on your screen.

Select Yes to save the screen coordinates as chosen. Select No to repeat the touch screen calibration.



Touch each of the targets that show on the display.

HOW TO INSTALL TESTBOOK SOFTWARE

TestBook software is updated periodically to include new features. If you receive a new TestBook software CD, it will need to be "installed" as follows. ("Install" means copying the software programs from the compact disc onto TestBook's internal hard disc).

TestBook Software Installation Procedure - (for Rover Diagnostic System (RDS) CD's)

1. Place the new RDS software CD into TestBook. For help with using CD's, see earlier section "Using Compact Discs".
2. From the Welcome screen, touch the button labelled "Configuration"
3. At the Configuration screen, touch "Install RDS Software".
4. You will see a pop - up window with a button that reads "Install". Touch this button.



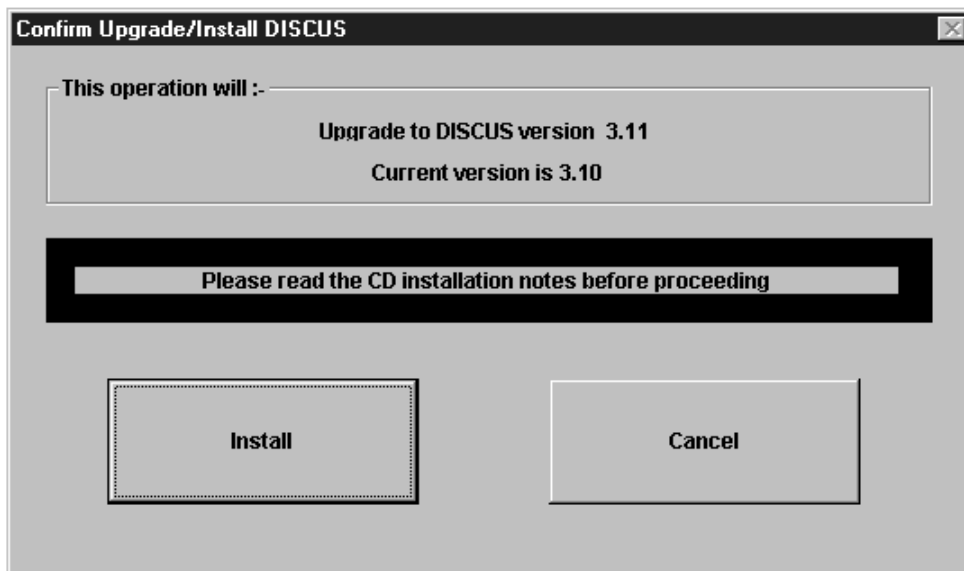
NOTE: TestBook is programmed to only accept installation of either the current or a numerically higher version of the RDS software. You can not install obsolete software.

5. The software will automatically start copying from the CD to TestBook's internal hard disc. A status indicator will monitor the progress of the install, from 0 to 100%. The CD can not be ejected during this process.
6. When the process is finished you will see the message: "RDS set-up complete. The system will now reboot to run the new version".
7. Touch OK.

The system will automatically restart with the new software running.



NOTE: The current RDS version number is displayed in the top right hand corner of the Welcome screen.



HARDWARE

SCREEN FORMAT

Most screens displayed on TestBook have three main sections; the **TITLE AREA** (top band), the **VIEW AREA** (middle area), and the **CONTROL PANEL** (bottom band).

TITLE AREA - this is the top portion of the screen. It includes the Screen Title, displayed in the middle, and the Screen Number, which is displayed at the upper left-hand corner of the screen.

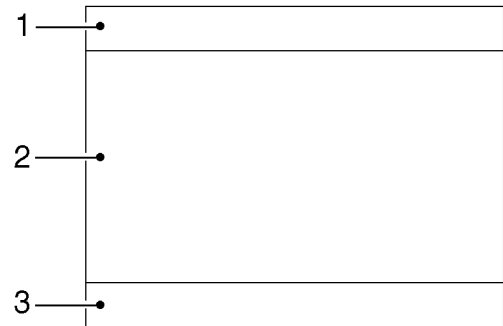


NOTE: Screen Numbers are needed to identify screens if you have to call the Help Desk.

The **VIEW AREA** is the middle area of the screen where the technical information and other documents are displayed.

The **CONTROL PANEL** at the bottom of the screen contains eight buttons. These buttons change somewhat from screen to screen. The fifth button is always "HELP". Touch it at any time to get a description of the current screen. If no help is available for this specific screen, a standard RDS help page will appear.

Screen Format

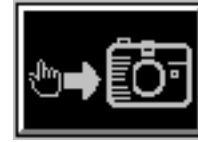


RLB1271

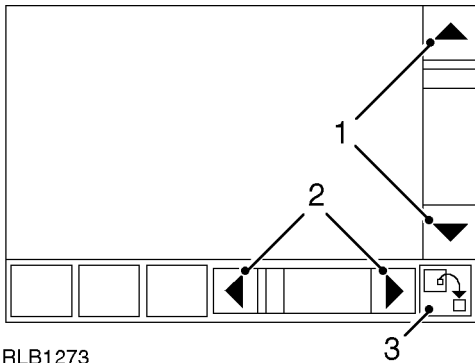
1. Title Area
2. Viewing Area
3. Control Panel

HOW TO VIEW PICTURES

Some documents include pictures or illustrations, sometimes on the same screen as text. If the picture is too large to fit on the screen along with the text, a "camera" icon will appear instead of the picture. In this case, if you touch this camera icon, TestBook will then display the missing picture on its own.



There is a special picture viewing screen that will appear when you touch a picture or camera icon.



RLB1273

1. Use these buttons to move picture UP and down
2. Use these buttons to move picture LEFT and RIGHT
3. When a picture has been enlarged using the "ZOOM" facility, press this button to return it to its original size.

You can "Zoom In" to see a picture in greater detail. Simply touch the area of the picture that you would like to see close-up.



NOTE: You cannot "zoom" a second time.


The buttons when viewing a picture are as follows:-

PREVIOUS SCREEN	Returns you to the document you were viewing before you selected the picture.
PRINT	When a printer is connected to TestBook, this prints the portion of the picture displayed on the screen.
DETAILS	When active, it allows you to view related documents. If the button is shaded grey (inactive), it means that there are no related documents available. If the button is active and you touch it, a Pop-up window with a list of related documents will appear. A pop-up is a smaller screen that displays over the top of the current screen. You can then scroll up and down using the arrow buttons. Touch the CONTINUE button in the pop-up to view the highlighted document or touch CANCEL to return to the picture you were viewing.

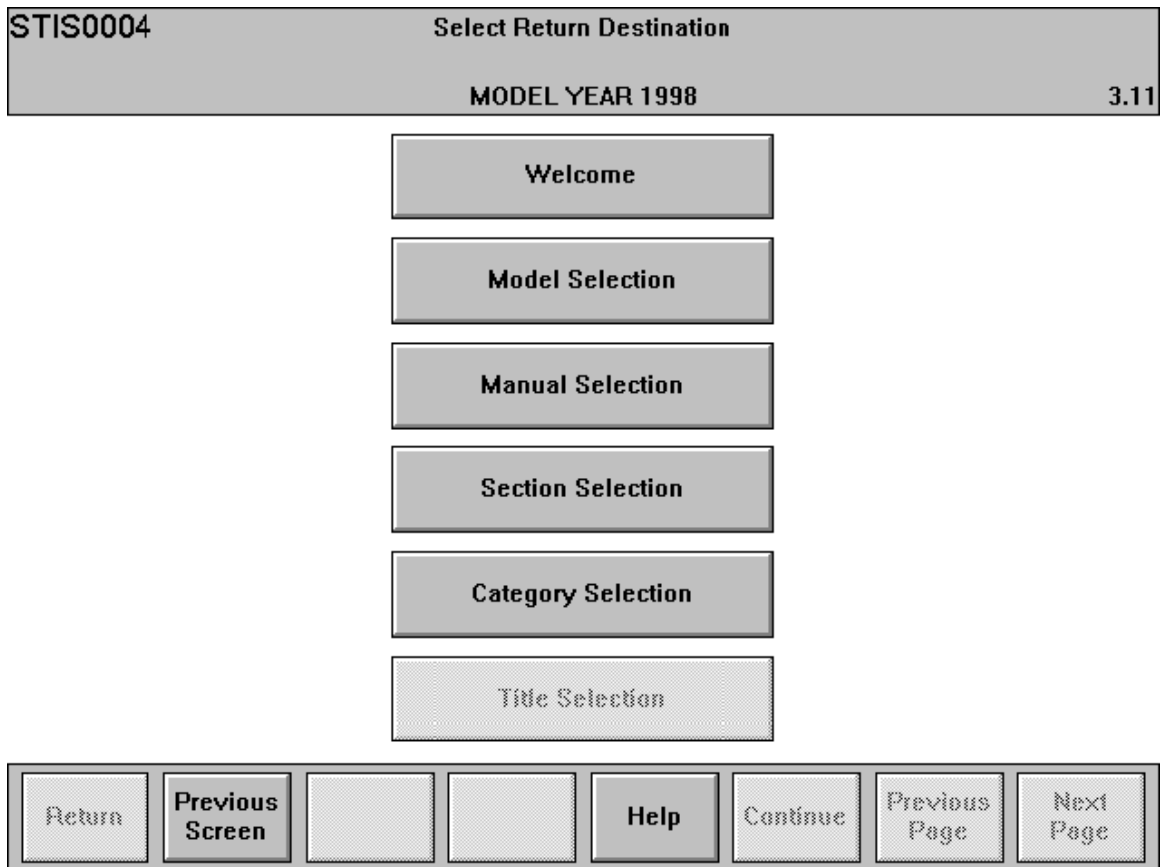
HARDWARE



The eight Control Panel buttons displayed when viewing Technical Information documents (derived from the Tech. Info. CD), are as follows:

RETURN	This button returns you to the Select Return Destination menu. (Described in the next section)
PREVIOUS SCREEN	Touching this button returns you to the previously displayed screen or document.
CAMERA	Touching this button turns pictures on and off. TestBook navigates through the software much faster with the pictures switched off. If you are searching for a particular item, it may be worthwhile to turn the pictures off until you find it, then turn them back on to study the item.
PRINT	This button allows you to print the current document. The option is given to print now, which requires that a printer is connected, or save the document to print it later.
HELP	Provides helpful information to assist with the current screen.
DETAILS	<p>The details button when active, allows related documents to be viewed (if the button is faded grey and inactive, it means that there are no related documents available). When the button is active and touched, a Pop-up window with a list of related documents will appear. (A pop-up is a smaller screen that displays over part of the current screen). The information can then be scrolled up or down using the arrow buttons. Touch the CONTINUE button in the pop-up to view the highlighted document or touch CANCEL to return to the document that was being viewed.</p> <p> NOTE: Pop-up windows, such as the details Pop-up, disable the rest of the screen until you touch a selection within the pop-up.</p>
PREVIOUS PAGE	An alternative to the up arrow on the side of the screen, this button will scroll backwards within the document by one page rather than moving just one line as the arrow does. One page is equal to the size of the View Area.
NEXT PAGE	Allows you to scroll forward in the document by one page. Along with these buttons on the control panel, HOT SPOTS within document can be touched to find more information. Any text or graphic with a shaded box around it is a HOT SPOT .

THE RETURN DESTINATION MENU




This is the screen provided if you use the 'return' button on the Technical Information control panel. It provides a menu to move you quickly around TestBook functions. The buttons on this screen are as follows.

Welcome

This takes you back to the original Welcome screen with its choice of Technical Information, Diagnostic System, Toolbox and Expert Toolbox.

Model Selection

Takes you to a menu of models so that you can select Technical Information about the model you are working on.

 **NOTE: The following selection options are only available on a Technical Information disc.**

Manual Selection

Takes you to a menu of Workshop Manuals, Bulletins and other documents relevant to the vehicle you are working on, all available on screen.

Section Selection

Takes you to a choice of sections within the Manual you are using.

Category selection

Takes you to a menu of available categories within the section of the Manual you are using.

Title Selection

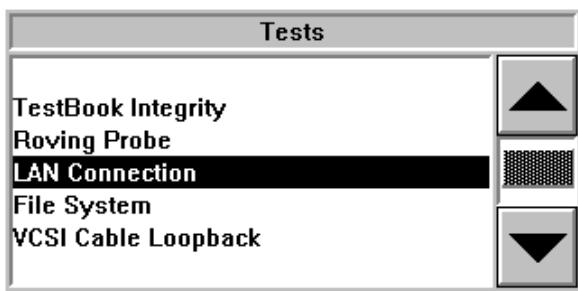
Takes you to a menu of titles within the category you are using.

HARDWARE

INTEGRITY TESTS

If a problem is suspected with TestBook equipment the Integrity Tests allow you to make sure your equipment is working properly. Always run these tests before calling the help line. They will allow TestBook to determine if something is wrong with the equipment. The Integrity Tests can only be selected from the Welcome screen. If you are having trouble getting back to the Welcome screen, you can turn TestBook OFF, then back ON.

At the Welcome Screen, Integrity Test will appear as a button on the control panel.



Touch the Integrity Tests button to view the Integrity Tests menu. Use the up and down arrows on the right - hand side of the scroll box to highlight your selection. Then touch Continue on the control panel to run the selected test. A new screen will appear and the test that you selected will begin automatically.

When running these tests, keep in mind that electronic equipment can be affected by many factors, including temperature and voltage spikes. If any test appears to fail, always repeat it a second or third time to make sure that it was not just a one - time problem.

How to Interpret the Results of the TestBook Integrity Test

A series of diagnostics will be run to test the integrity of TestBook hardware. A result will appear after each test is finished. The tests are described as follows:

<p>Testing CD Drive</p>	<p>This test attempts to read from the compact disc that is currently in the drive. If the CD can be read, the message "PASSED" will appear. If "Fail or No CD Found" appears, this may be caused by one of the following conditions.</p> <ul style="list-style-type: none"> • There is no CD in the drive (press the eject button to make sure). • The CD is upside down in the caddy. (The label side should be facing outwards). • The CD is dirty or scratched. (see "CD Cleaning Procedure"). • The CD is defective. (Try using another CD. If it works, replace the defective CD). • OR, the drive may be malfunctioning. Check all the above and retry the test.
<p>Testing LAN Card</p>	<p>For units containing a correctly operating LAN card, the message "Present" will appear.</p> <p>Some units do not have a LAN Card, so that message is "Not Present". This does not indicate an error if your unit does not include the LAN card.</p> <p>The LAN (Local Area Network) facility is intended for potential future developments in dealership systems, and is not currently in use.</p>
<p>Checking for Parallel Device</p>	<p>This test will verify the connection to a printer. In many cases, no printer will be connected and the message off-line or "Not Connected" will appear. This is the normal message for a TestBook without a printer. If a printer is present, properly plugged into TestBook, powered OFF and On- Line, then the message "connected" will appear.</p> <p>If you have a printer plugged into TestBook, and the message "Off Line or Not Connected" appears, check the following:</p> <ul style="list-style-type: none"> • Is the printer On-Line? The light on the printer labelled "On-Line" should be lit. If not, press the On - Line button (on the printer). • If the printer does not become on - line, try resetting the printer by turning it OFF and then back ON. Touch BLACK or WHITE to TEST LCD DISPLAY. • If an error code appears on the printer, see the User's Manual that came with the printer for an explanation of the message. • Check the cable between TestBook and the printer to make sure it is plugged in securely. • Check the Configuration Module to make sure TestBook is set up to use the printer. The configuration screen is reached by touching Configuration at the Welcome screen. See "Set Printer/Paper" in the TestBook Configuration Section of details.
<p>Touch BLACK or WHITE to TEST LCD DISPLAY</p>	<p>After the above tests are complete, two new buttons will appear on the control panel. These buttons, labelled Black and White, test that the LCD screen is able to display all black or all white. When touched, a solid black screen or a solid white screen will appear for a few seconds and then go away.</p> <p>BLACK- Displays a solid black screen WHITE- Displays a solid white screen</p>

If service appears necessary after repeating the test, contact the Testbook Help Desk to verify the problem.

HARDWARE

ROVING PROBE TEST

The Roving Probe Test will help uncover problems with TestBook hardware. Run this test whenever you suspect a problem with the Roving Probes.

Before running this test, make sure the Roving Probes are plugged into the back of TestBook. Hold both of the individual probes in your hands, disconnected from any power source.

To run the test, move the scroll box at the RDS Integrity Tests screen until Roving Probe is selected. Then touch Continue. The Roving Probe Test screen will appear and the test begins automatically.

How To Interpret the Results of the Roving Probe Test

Two tests will be run to test the Roving Probe hardware. A result will appear after each test is finished. The tests are described as follows:

Touch Roving Probes Together	<p>This test makes sure that the Roving Probes can complete a closed circuit. you must hold the probes together for at least ten full seconds. If either of the probes has an open circuit, it will appear during this test.</p> <p>Touch the Roving Probes together as instructed. You should see the "PASSED" message appear.</p> <p>If there is no response. check the following:</p> <ul style="list-style-type: none">• Make sure the Roving Probes are securely plugged into the back of TestBook.• Check the cables for cracks or cuts.• Check the fuse in the back of TestBook. Replace the fuse if necessary with a 1 amp fuse of the same size. See "Fuse Replacement" in the TestBook Installation Guide section.
Connect Roving Probes to a Battery (1.5 to 12 Volts)	<p>This test verifies that TestBook can measure voltage When you make the connection to any battery rated between 1.5 and 12 Volts, a readout of the voltage will appear in a box near the middle of the screen. Be sure to connect the red probe to the battery " +" and the black probe to the battery " -". When the voltage is measured steady for ten seconds, the test will respond "PASSED". (To account for strong or worn batteries, the test will PASS with any steady voltage of between 1 and 18 Volts).</p> <p>If your test battery does not have between 1.5 to 12 volts, or TestBook cannot read the voltage, the message "FAILED" will appear. Check the following:</p> <p>Check that the Roving Probes are still securely plugged into TestBook.</p> <p>Check the fuse in the back of TestBook. Replace the fuse if necessary with a 1 Amp fuse of the same size. See "Fuse Replacement" in the TestBook Installation Guide section.</p> <p>Check the battery using another tool to make sure that the voltage is between 1.5 to 12 volts.</p>

If service appears necessary, contact the Testbook HelpDesk to verify the problem.



LAN CONNECTION TEST

The LAN (Local Area Network) Connection Test is not available yet. It will be added in a future revision of the RDS software.

FILE SYSTEM

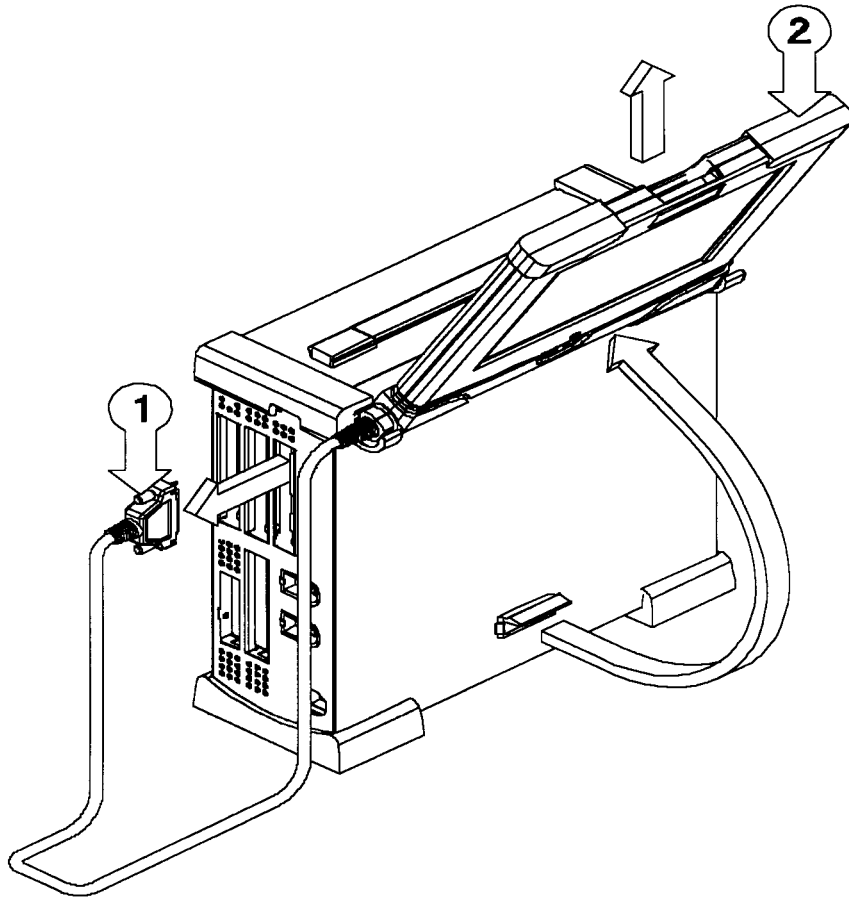
The File System Test checks for the presence of the important RDS system files, and checks that they are the correct size and date.

Errors here may sometimes be corrected by re-installing the RDS software from the RDS CD, but the errors may indicate a more significant underlying problem. Contact Help Desk if re-installing the RDS software fails to correct the error.

HARDWARE

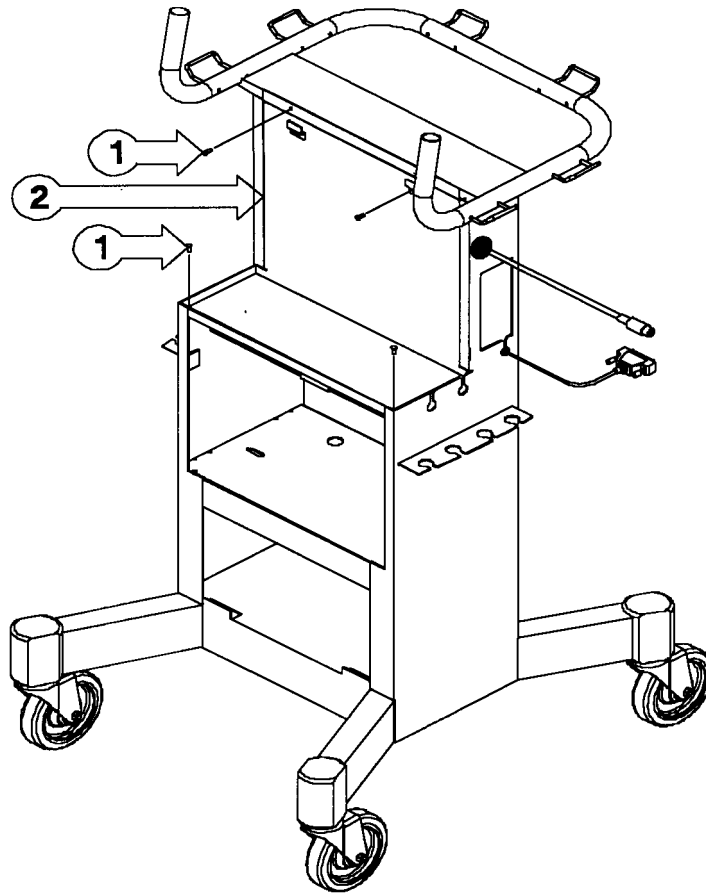
SERVICING TESTBOOK

Display Panel



1. Disconnect cable from base unit.
2. Rotate display until you can remove it from the hooks.

TestBook Shelf



1. Remove screws from shelf.
2. Remove panel from the trolley.



NOTE: The shelf covers the power supplies, and the TIM unit (where applicable). You must remove it to service these items.

DIAGNOSTICS

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HOW TO GET STARTED

Turn on TestBook, and wait for the Welcome screen to appear after TestBook has automatically run through a number of set up and self-test screens.

Select Disc for vehicle.

Locate the current compact disc for the vehicle you are working on and insert into TestBook.

Select "Diagnostic System" from the Welcome screen.

Select Vehicle and model year and touch "Continue"

Enter VIN: key in the full Vehicle Identification Number and touch **CONTINUE**. Check that all the information on screen is correct for the vehicle and touch **CONTINUE** again.

Select the Diagnostic Required

Touch the icon that relates to the vehicle system that you wish to investigate.

Connect TestBook to vehicle - TestBook will tell you on screen which connectors and cables you need to connect it to the vehicle. For each item, you will be given both the Hewlett Packard part number (e.g. 29053-60006) and the Rover part number (e.g. DTC0007A). Use whichever of the two numbers you prefer to locate each item on the cable illustration poster. This will show you what the item looks like and will tell you which box of the storage system (e.g. A1) it is kept in. When you have gathered all the required connectors and cables, connect them to the TestBook as instructed, and plug into the relevant diagnostic connector. (If you do not know where this is located on the vehicle, use the 'HELP' screen facility).

Once all connections have been made correctly, you can then follow the diagnostic instructions on screen.

DIAGNOSTICS

DIAGNOSTIC CONTROL PANEL BUTTONS



These are the buttons displayed beneath the diagnostic screens. As usual, if a button is shown in faded grey, it is inactive. Note that the two buttons on the right hand end of the panel vary according to the diagnostic routine being followed.

The buttons are used as described below.

Abort

Retains the information associated with the current document; gives you the choice of either cancelling the operation or of temporarily suspending it and returning to the Welcome screen.

Back Track

This button should NEVER be pressed.

Print

This button prints the screen you are viewing (assuming printer installed and on-line).

Help

This button provides information to assist you with the current screen or diagnosis.

Continue

This button will take you to the next screen in the diagnostic procedure or test sequence. At the end of a diagnostic/test procedure, the Continue button will allow you to exit from the procedure, taking you to what TestBook determines to be the next logical point. This may be another diagnostic area or the Welcome screen. It is important to be aware that this need not be the end of your diagnostic options. You are in control of the diagnostic procedure, TestBook is only your servant. You may decide to continue with other diagnostic activities, such as additional TestBook testing, Sub-System Test, Real Time Monitor, Toolbox, Toolbox meters, Engine System Analyser or mechanical tests.



For diagnostic routines requiring you to give Yes/No answers to questions put up on screen, the two right hand buttons appear as shown. Since "Continue" would not satisfy the query, it is inactive (faded grey).



When toolbox meters are being used, one of the right hand buttons becomes a "Change Range" control.



NOTE: Sometimes during diagnostic routines, TestBook loses communication with the vehicle for no apparent reason. If this happens, check the voltage of the vehicle battery. TestBook will not work if the voltage is NOT 11.7V OR ABOVE. Some diagnostics involve leaving the ignition on for a long period of time. This may cause the vehicle battery to drop below the 11.7v working threshold.

DIAGNOSTICS

MODEL YEAR VIN CHANGE POINTS - ROVER

Virtually all technical improvements made from time to time to Rover Group vehicles are grouped with general Model Year changes. This means that it is important to know the Model Year status of any vehicle on which TestBook is being used, so that the correct diagnostic and repair routines can be selected to match the vehicles technical specification.

The following tables give the nominal VINs (Vehicle Identification Numbers), less their prefix codes, for the first examples of each Model Year.

Using this VIN cut-off information in conjunction with the Marque/Model prefix, allows you to identify exactly the Model and Model Year of the vehicle.

Very occasionally, you may have to deal with a vehicle which has a VIN just below the change point, but which has the new Model Year specification.

An Example of a standard Vehicle Identification Number with Marque/Model prefix underlined:

S A R RH Y L A B A M 000001

ROVER 1993 - 1996

	1993	1994	1994 ¹ / ₂	1995	1996
Mini	058747	064959	-	103248	-
Metro	816849	-	-	-	-
Rover 100	-	-	-	001001	099571
Rover 200/400 (R8)	605482	798420		127065	911248
Rover 200 Cabriolet, Coupe	-	-	900001	-	911248
Rover 400 Tourer (Estate)	-	-	-	248562	
New Rover 200	-	-	-	-	-
New Rover 400	-	-	-	052970	-
Rover 600	-	-	144845	-	246797
Rover 800	152091	194917	-	-	230967
MGF	-	-	-	-	-

ROVER 1996¹/₂ - 1999

	1996 ¹ / ₂	1997	1997 ¹ / ₂	1998	1999
Mini	-	134455	-	-	-
Metro	-	-	-	-	
Rover 100	110566	-	-	-	-
Rover 200/400 (R8)	-	-	-	-	
Rover 200 Cabriolet, Coupe	-	-	-	-	-
Rover 400 Tourer (Estate)	-	-	-	-	-
New Rover 200	-	-	-	267264	-
New Rover 400	-	-	250029	-	-
Rover 600	-	-	-	-	-
Rover 800	-	242827	-	-	-
MGF	-	-	-	-	-

VIN PREFIX

XN	Mini
XB	1.0 & 1.3 Metro upto 1985
XF	1.0 & 1.3 Metro 1985 to 1991
XP	1.1 & 1.4 Metro 1991 Onwards
XP (Model year B)	Rover 111, 114 & 115
XC	Maestro
XE	Montego
XH	Rover 200 upto 1989
XW	Rover 200/400 1990 onwards
RF	Rover 200 1995 onwards
RT	Rover 400 1995 onwards
RH	Rover 600
XS	Rover 800 upto 1991
RS	Rover 800 1991 onwards
RD	MGF
RA	MGR V8
LD	Land Rover Defender
LJ	Land Rover Discovery
LH	Range Rover Classic
LP	New Range Rover
LN	Freelander
LT	Discovery Series II

DIAGNOSTICS

MODEL YEAR VIN CHANGE POINTS - LANDROVER

	1993	1994	1995	1996	1997	1998	1999
MODEL YEAR VIN PREFIX	K	L	M	N or T	V	W	X
Freelander - 3 door - Petrol	-	-	-	-	-	601802	636916
Freelander - 3 Door - Diesel	-	-	-	-	-	602838	636953
Freelander - 5 door - Petrol	-	-	-	-	-	600477	636912
Freelander - 5 Door - Diesel	-	-	-	-	-	601683	636914
Defender 90 - V8	925128	933174	941071	974052	104631	145661	-
Defender 90 - Diesel	921214	930479	939976	969104	999222	138510	159810
Defender 90 - NAS	-	932712	954528	-	995321	-	-
Defender 100 -V8	921563	930494	940670	969174	999300	138869	159821
Defender 100 - Diesel	921221	930494	939977	969103	999226	138480	159811
Defender 130	922169	930546	940050	969105	999375	138525	159831
Discovery 3-door - TDi	034314	064760	081993	163105	703237	746567	-
Discovery 3-door - Tdi Auto	-	067271	081991	163290	703764	746945	-
Discovery 3-door - V8	034611	064773	082059	163115	704470	748516	-
Discovery 5-door - TDi	034315	064756	082004	163104	703238	746542	-
Discovery 5-door - Tdi Auto	-	065253	082025	163176	703243	746566	-
Discovery 5-door - V8	034325	064755	082066	163112	703248	746545	-
Discovery 5-door - T16 MPi	055086	064757	083136	163257	703312	746590	-
Discovery 5-door - NAS	-	-	081994	166228	703241	746549	792672
Discovery Series II - 5 Door - Tdi	-	-	-	-	-	-	200412 900012
Discovery Series II - 5 Door - Tdi Auto	-	-	-	-	-	-	200430 900055
Discovery Series II - 5 Door - V8	-	-	-	-	-	-	200420 900069
Discovery Series II - 5 Door - NAS	-	-	-	-	-	-	200507 900000

**MODEL YEAR VIN CHANGE POINTS -
LANDROVER**

	1993	1994	1995	1996	1997	1998	1999
MODEL YEAR VIN PREFIX	K	L	M	N or T	V	W	X
Range Rover Classic - V8	624781	-	647645	-	-	-	-
Range Rover Classic - 2-door	624826	-	-	-	-	-	-
Range Rover Classic - Diesel - Gemini	624826	-	647654	-	-	-	-
Range Rover Classic - LSe	625164	-	647703	-	-	-	-
Range Rover Classic - NAS	624881	640266	657356	-	-	-	-
Range Rover Classic - NAS LSe	624756	639964	647650	-	-	-	-
New Range Rover - 4.0	-	-	300190	316180	346796	376582	410484
New Range Rover - 4.6	-	-	300450	316182	346802	576871	410483
New Range Rover - Diesel	-	-	300699	316176	346749	376598	410482
New Range Rover - NAS	-	-	302054	318243	346800	377955	403796

CABLING GUIDE

TOOLBOX	FUNCTION	DRAWING REFERENCE
	Microcheck DRX3 (Cars Dealers ONLY) Engine & 4 Gas Analyser - Bear Engine & 4 Gas Analyser - Crypton Diesel & Smoke Meter - Crypton Volt Meter AC Volt Meter Ohm Meter Pressure Vacuum Current	Drawing J Drawing J Drawing J Drawing H Drawing G Drawing K

MINI	FUNCTION	MODEL YEAR	DRAWING REFERENCE
VIN prefix XN or XL	Technical Information Repair Manual Technical Bulletins		
	Diagnostic System MEMS SPi MEMS MPi Security SRS	94 ⇔ 97 97 ⇔ 97 ⇔ 97 ⇔	Drawing C Drawing X Drawing P Drawing AA
	Expert Toolbox MEMS Data Monitor MEMS Clear Fault Flags	94 ⇔ 97 94 ⇔ 97	Drawing C Drawing C
	Toolbox - Microcheck MEMS SPi Burglar Alarm / CDL Transmitter Reprogramming Transmitter MEMS	⇔ 95 ⇔ 95 93 ⇔ 97 95 ⇔ 97	Drawing 1 Drawing 17 Drawing 17 Drawing 1

DIAGNOSTICS

METRO	FUNCTION	MODEL YEAR	DRAWING REFERENCE
VIN prefix XP	Technical Information Repair Manual Technical Bulletins K Series Overhaul Manual R65 Overhaul Manual		
	Diagnostic System MEMS MPi / SPi	94 ⇔	Drawing C
	Expert Toolbox MEMS Data Monitor MEMS Clear Fault Flags	94 ⇔ 94 ⇔	Drawing C Drawing C
	Toolbox - Microcheck MEMS MPi / SPi Burglar Alarm / CDL Transmitter Reprogramming Transmitter	⇔ 95 ⇔ 95 93 ⇔	Drawing 1 Drawing 17 Drawing 17

ROVER 100	FUNCTION	MODEL YEAR	DRAWING REFERENCE
VIN prefix XP	Technical Information Repair Manual Technical Bulletins K Series Overhaul Manual R65 Overhaul Manual		
	Diagnostic System MEMS MPi / SPi Security Airbag SRS	95 ⇔ 97 97 ⇔ 95 ⇔ 97 97 ⇔ 95 ⇔	Drawing C Drawing X Drawing L Drawing P No cables required
	Expert Toolbox MEMS Data Monitor MEMS Clear Fault Flags	95 ⇔ 97 97 ⇔ 95 ⇔ 97 97 ⇔	Drawing C Drawing X Drawing C Drawing X
	Toolbox - Microcheck Transmitter Reprogramming. Transmitter MEMS	95 ⇔ 97 95 ⇔ 97	Drawing 17 Drawing 1

MAESTRO	FUNCTION	MODEL YEAR	DRAWING REFERENCE
VIN prefix XC	Technical Information Repair Manual (English only) Technical Bulletins		
1.3 & 1.6 1.6 & 2.0 Diesel Turbo	Toolbox - Microcheck Serial Electronic Fuel Control Programmed Ignition Diesel Exhaust Gas Recirculation		Drawing 14 Drawing 13 Drawing 15

MONTEGO	FUNCTION	MODEL YEAR	DRAWING REFERENCE
VIN prefix XE	Technical Information Repair Manual Technical Bulletins		
1.6 & 2.0 1.6 & 2.0 2.0 EFi - not closed loop catalyst 2.0 EFi - closed loop catalyst Diesel Turbo.	Toolbox - Microcheck E.R.I.C. Programmed Ignition MEMS MPi. Lucas MPi Diesel Exhaust Gas Recirculation	89 ⇔ 89 ⇔ 89 ^{1/2} ⇔	Drawing 1 Drawing 13 Drawing 1 Drawing 14 Drawing 15

ROVER 200 4 DOOR	FUNCTION	MODEL YEAR	DRAWING REFERENCE
VIN prefix XH	Toolbox - Microcheck Serial Electronic Fuel Control Programmed Ignition		Drawing 14 Drawing 13

DIAGNOSTICS

ROVER 200/400	FUNCTION	MODEL YEAR	DRAWING REFERENCE
VIN prefix XW	Technical Information Repair Manual Technical Bulletins D Series Overhaul Manual K Series Overhaul Manual T16 Overhaul Manual R65 Overhaul Manual Airbag Overhaul Manual		
214/414 & 220/420 214/414 & 218/418 & 220/420	Diagnostic System Security SRS MEMS MPi / SPi Anti - lock braking ABS 2e Anti - lock braking ABS 5	94 ¹ / ₂ ⇔ 96 96 ⇔ 94 ¹ / ₂ ⇔ 94 ⇔ 96 96 ⇔ 94 ⇔ 96 96 ⇔	Drawing L Drawing P No cables required Drawing C Drawing X Drawing B Drawing Q
	Expert Toolbox MEMS Data Monitor MEMS Clear Fault Flags Transmitter Reprogramming	94 ⇔ 96 96 ⇔ 94 ⇔ 96 96 ⇔ 96 ⇔	Drawing C Drawing Q Drawing C Drawing Q Drawing P
	Toolbox - Microcheck Instruments Burglar Alarm / CDL	⇔ 96 93 ⇔ 94 ¹ / ₂ ⇔ 96	Drawing 4 Drawing 6 Drawing 17.
214/414 & 220/420 216 / 416 214/414 & 218/418 & 220/420 216 / 416	Transmitter Reprogramming Transmitter Codes MEMS MEMS MPi / SPi PGM-Fi Anti - lock braking ABS 2e Anti - lock braking Honda System Test Simulation	93 ⇔ 94 ¹ / ₂ ⇔ 96 94 ¹ / ₂ ⇔ 96 94 ¹ / ₂ ⇔ 96 ⇔ 96 ⇔ 96 ⇔ 96	Drawing 6 Drawing 17 Drawing 17 Drawing 1 Drawing 1 Drawing 7 Drawing 3 Drawing 8 Drawing 5

NEW ROVER 200	FUNCTION	MODEL YEAR	DRAWING REFERENCE
VIN prefix RF	Technical Information Repair Manual Electrical Reference Library K Series (Damp liners) Overhaul Manual K Series (Wet liners) Overhaul Manual		
Diesel	Diagnostic System Security Airbag SRS (Single Airbag) Airbag SRS (Twin Airbag) In Car Entertainment Charging Window lift MEMS Anti - lock braking ABS 5 TCIE "L" Series MEMS		Drawing P Drawing AA Drawing AA No cables required No cables required No cables required Drawing X Drawing Q Drawing Q Drawing Q
	Expert Toolbox MEMS Data Monitor MEMS Clear Fault Flags Transmitter Reprogramming		Drawing Q Drawing Q Drawing P

DIAGNOSTICS

NEW ROVER 400	FUNCTION	MODEL YEAR	DRAWING REFERENCE
VIN prefix RT	Technical Information Repair Manual Electrical Reference Library K Series (Damp liners) Overhaul Manual K Series (Wet liners) Overhaul Manual L Series Overhaul Manual T Series Overhaul Manual		
Diesel 416 SLi automatic	Diagnostic System MEMS Security Anti - lock braking ABS 5/5.3 Airbag SRS (Single Airbag) Airbag SRS (Twin Airbag) In Car Entertainment Charging Window lift Wipers & Washers TCIE "L" Series MEMS PGM-Fi	95 ⇔ 95 ⇔ 95 ⇔ 95 ⇔ 95 ⇔ 95 ⇔ 95 ⇔ 95 ⇔ 95 ⇔ 95 ⇔ 95 ⇔ 95 ⇔ 95 ⇔ 96 ⇔	Drawing X Drawing P Drawing Q No cables required Drawing AA No cables required No cables required No cables required No cables required Drawing Q Drawing Q Drawing C
	Expert Toolbox MEMS Data Monitor MEMS Clear Fault Flags Transmitter Reprogramming	95 ⇔ 95 ⇔ 95 ⇔	Drawing Q Drawing Q Drawing P

ROVER 600	FUNCTION	MODEL YEAR	DRAWING REFERENCE
VIN prefix RH	Technical Information Repair Manual Technical Bulletins Electrical Trouble Shooting		
620 Turbo 620 Diesel Turbo	Diagnostic System PGM-Fi Security MEMS MPI TCIE	96 ⇔ 96 ⇔ 94 ¹ / ₂ ⇔ 96 96 ⇔ 95 ⇔	Drawing C Drawing Q Drawing C Drawing X Drawing Q
Automatic. 620 Turbo 620 Turbo / Diesel Turbo 620 / 623 620 / 623. 620 / 623	Toolbox - Microcheck Instruments Burglar Alarm / CDL Transmitter Reprogramming Codes MEMS Electronic Automatic Transmission MEMS MPI Anti - lock braking ABS 2e PGM-Fi Oxy - Sensor Test Anti - lock braking Honda System Test Simulation Anti - lock braking B.Y.4 System Test Simulation	⇔ 96 ⇔ 96 ⇔ 96 ⇔ 96 ⇔ 96 ⇔ 96 ⇔ 96 ⇔ 96 ⇔ 96 ⇔ 94 ¹ / ₂ ⇔ 94 ¹ / ₂ 94 ¹ / ₂ ⇔ 96 94 ¹ / ₂ ⇔ 96	Drawing 4 Drawing 11 Drawing 19 Drawing 1 Drawing 11 Drawing 1 Drawing 2 Drawing 12 Drawing 4 Drawing 8 Drawing 5 Drawing 18 Drawing 5
	Expert Toolbox MEMS Data Monitor MEMS Clear Fault Flags	94 ¹ / ₂ ⇔ 96 96 ⇔ 94 ¹ / ₂ ⇔ 96 96 ⇔	Drawing C Drawing Q Drawing C Drawing Q

DIAGNOSTICS

ROVER 800	FUNCTION	MODEL YEAR	DRAWING REFERENCE
VIN prefix XS	Technical Information Repair Manual Technical Bulletins		
820 Carb 820 E / SE / SLE 820 I / SI / SLI 820 I / SI / SLI 827 827 Automatic.	Toolbox - Microcheck Anti - lock braking ABS 2e C.C.U. (No probe Corrective Service.) Transmitter Reprogramming Serial Electronic Fuel Control Single Point Injection Programmed Ignition Lucas MPI 2.7 PGM-Fi Electronic Automatic Transmission	91 91 91	Drawing 2 Drawing 2 Drawing 2 Drawing 14 Drawing 16 Drawing 13 Drawing 14 Drawing 9 Drawing 10

ROVER 800	FUNCTION	MODEL YEAR	DRAWING REFERENCE
VIN prefix RS	Technical Information Repair Manual Technical Bulletins T16 Overhaul Manual Airbag Overhaul Manual		
Diesel	Diagnostic System MEMS MPi Anti - lock braking ABS 5 Airbag SRS <div style="text-align: right;">Test Load Box Simulation</div> Security Security Wipers Exterior Lights Window Lift & Sunroof Electric Seats In Car Entertainment Transmitter Reprogramming CCU Reprogramming EDC	93 ⇔ 96 96 ⇔ 96 ⇔ 96 ⇔ 96 ⇔ 94 ⇔ 96 96 ⇔ 93 ⇔ 93 ⇔ 93 ⇔ 96 ⇔ 94 ⇔ 96 ⇔ 96 ⇔ 96 ⇔	Drawing C Drawing X Drawing Q Drawing Q Drawing W (Phone HelpDesk) Drawing A Drawing R No cables required No cables required No cables required Drawing Q No cables required Drawing R Drawing R Drawing Q
	Expert Toolbox MEMS Data Monitor MEMS Clear Fault Flags	93 ⇔ 96 96 ⇔ 93 ⇔ 96 96 ⇔	Drawing C Drawing Q Drawing C Drawing Q
	Toolbox - Microcheck Anti - lock braking ABS 2e C.C.U.2. (No probe Corrective Service.) Instruments Airbag SRS	⇔ 96 ⇔ 96 ⇔ 96 ⇔ 96	Drawing 2 Drawing 2 Drawing 4 Drawing 2
820 827 827 Automatic	Transmitter Reprogramming <div style="text-align: right;">Transmitter Codes MEMS</div> MEMS MPi 2.7 PGM-Fi Electronic Automatic Transmission	⇔ 96 94 ⇔ 96 ⇔ 96 ⇔ 96 ⇔ 96	Drawing 2 Drawing 2 Drawing 1 Drawing 1 Drawing 9 Drawing 10

DIAGNOSTICS

MGF	FUNCTION		DRAWING REFERENCE
VIN prefix RD	Technical Information Repair Manual Electrical Reference Library		
	Diagnostic System MEMS Security Anti - lock braking ABS 5 EPAS Airbag SRS Wash / Wipe In Car Entertainment Charging Window lift		Drawing X Drawing P Drawing Q Drawing Q Drawing T No cables required No cables required No cables required No cables required
	Expert Toolbox MEMS Data Monitor MEMS Clear Fault Flags Transmitter Reprogramming		Drawing Q Drawing Q Drawing P

MGR V8	FUNCTION		DRAWING REFERENCE
VIN prefix RA	Technical Information Repair Manual Technical Bulletins		
	Toolbox - Microcheck Lucas MPi Burglar Alarm / CDL Transmitter Reprogramming Transmitter Sensitivity		Drawing 14 Drawing 17 Drawing 17 Drawing 17

DEFENDER	FUNCTION	MODEL YEAR	DRAWING REFERENCE
	Technical Information Technical Bulletins		
300 TDi TD5	Diagnostic System MEMS GEMS Security Exhaust Gas Recirculation ABS TD5	96 ⇔ 95 ⇔ 99 ⇔ 99 ⇔	Drawing C Drawing X Drawing R Drawing N Drawing Q Drawing Q

FREELANDER	FUNCTION	MODEL YEAR	DRAWING REFERENCE
	Technical Information Rave	98 ⇔	
	Diagnostic System ABS EDC Front Wash Wipe Heated Rear Window Lighting MEMS 1.9 PDI Power Distribution Rear Wash Wipe Security SRS Tail Door Vehicle Config. Warning Sounders	98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔	Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q

DIAGNOSTICS

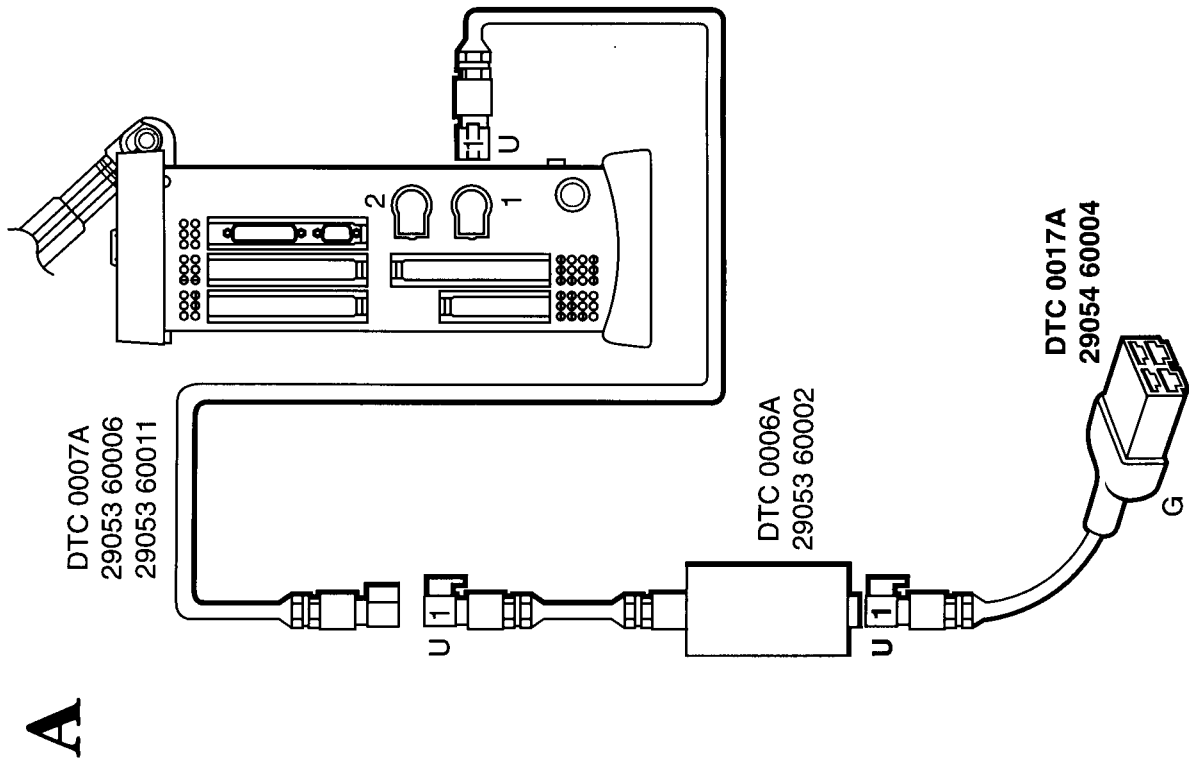
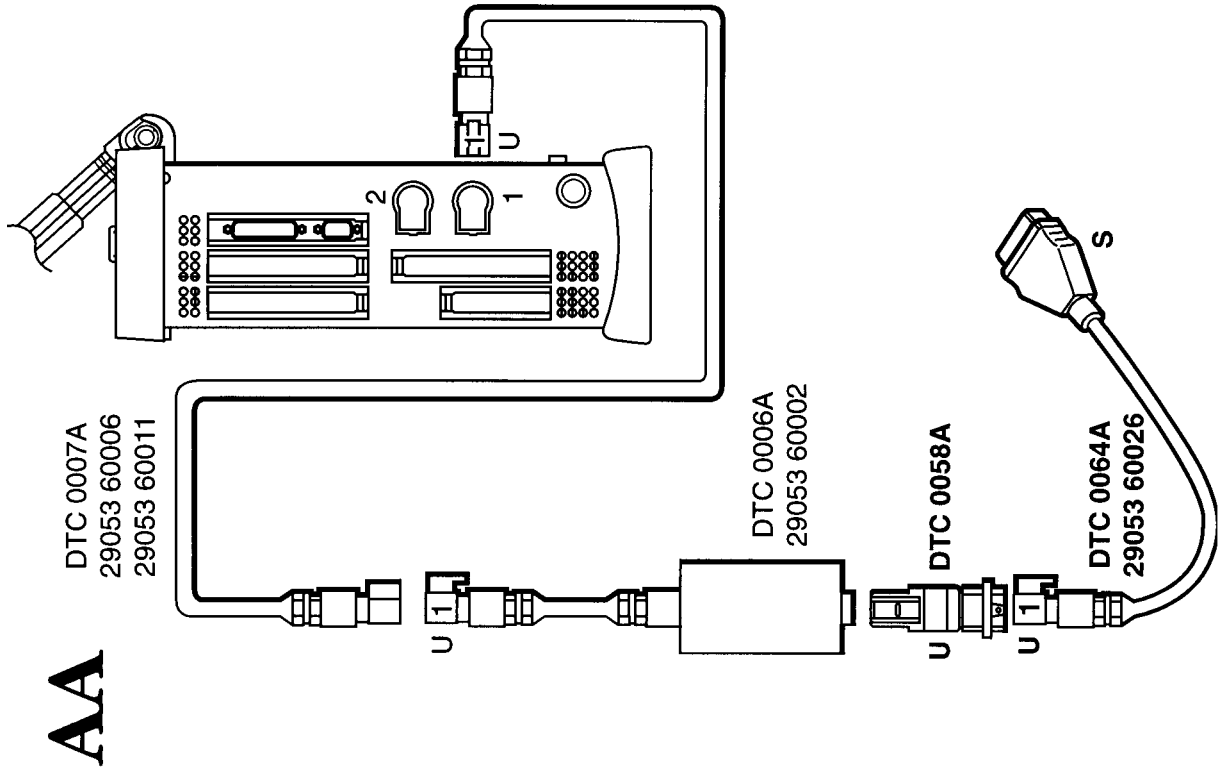
DISCOVERY	FUNCTION	MODEL YEAR	DRAWING REFERENCE
	Technical Information Repair Manual Technical Bulletins Electrical Trouble Shooting Manual Connector Library	95 ⇔ 95 ⇔ 96 ⇔	
Multi Point sensing Single Point Sensing 2.0 V8 V8 300 TDi	Diagnostic System Airbag SRS <div style="text-align: right;">Test</div> Load Box Simulation Airbag SRS <div style="text-align: right;">Test</div> Load Box Simulation <div style="text-align: right;">Test</div> Load Box Simulation Anti - lock Braking System Security MEMS MPi Engine Management 14CUX GEMS <div style="text-align: right;">Break out box</div> Exhaust Gas Recirculation Electronic EDC	95 95 ⇔ 97 ⇔ 97 97 ⇔ 97 ⇔ 95 ⇔ 96 ⇔ 96 ⇔ 95 ⇔ 96 96 ⇔ 96 ⇔ 95 95 ⇔ 96 96 ⇔	Drawing M Drawing V Drawing M Drawing Z (Phone HelpDesk) Drawing T Drawing Z (Phone HelpDesk) Drawing D Drawing Q Drawing R Drawing C Drawing F Drawing Q Drawing U Drawing N Drawing Y Drawing Q
	Expert Toolbox Market Programming Transmitter Reprogramming	96 ⇔ 96 ⇔	Drawing R Drawing R

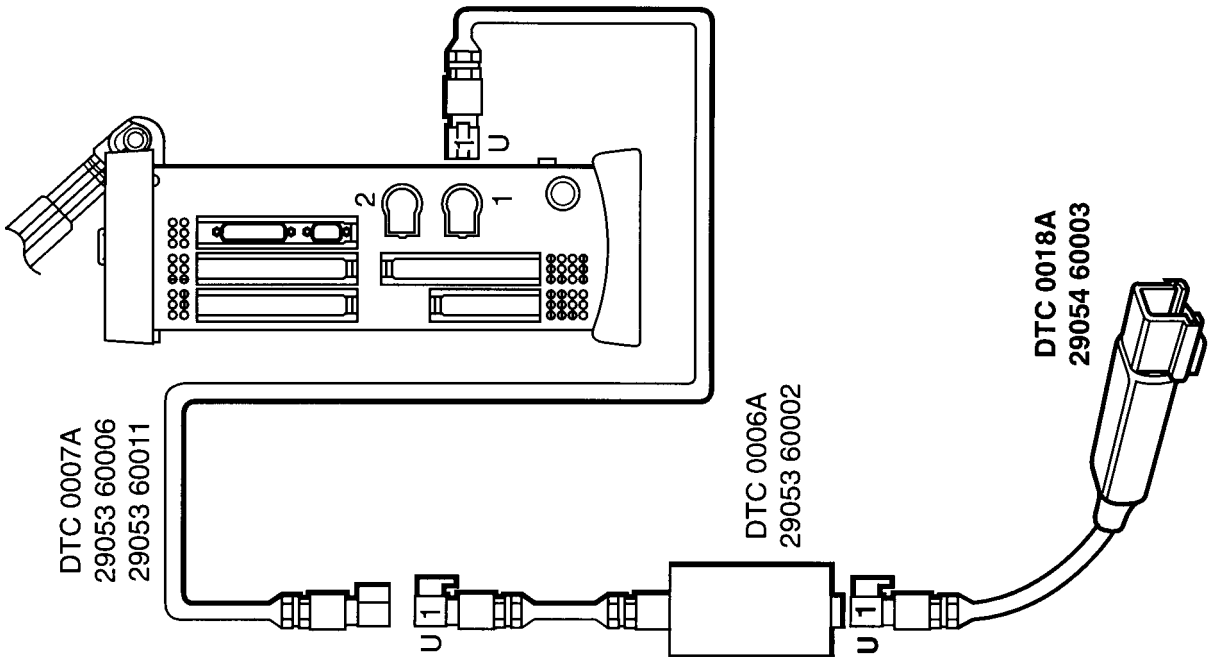
DISCOVERY SERIES II	FUNCTION	MODEL YEAR	DRAWING REFERENCE
	Technical Information Rave	98 ⇔	
	Diagnostic System ACE ATC Auto GearBox BCU & Transmission Cruise Control Diesel Engine Gauges Heated Screens Lighting PDI Petrol Engine Power Distribution Security SLS & ABS SRS Vehicle Configuration Warnings & Sounders Washers & Wipers Windows & Sunroof	98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔ 98 ⇔	Drawing Q No Cables Required Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q

DIAGNOSTICS

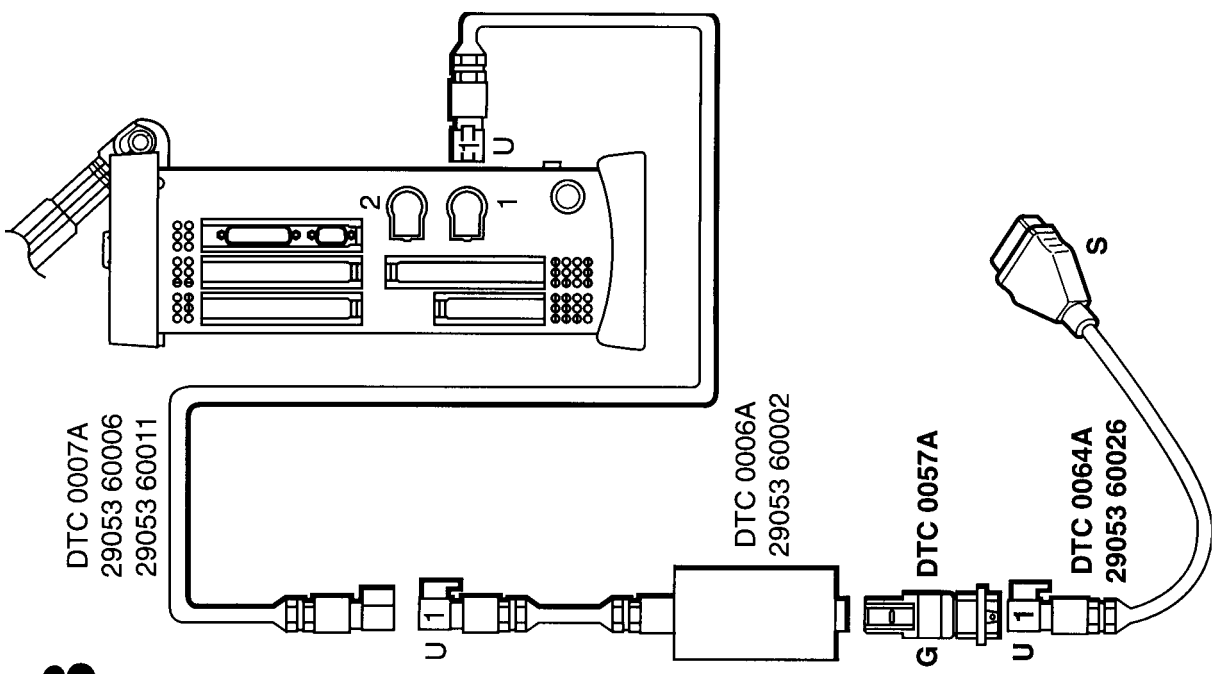
RANGE ROVER CLASSIC	FUNCTION	MODEL YEAR	DRAWING REFERENCE
	Technical Information Repair Manual Technical Bulletins Electrical Trouble Shooting Manual	93 ⇔ 93 ⇔ 96 (UK only)	
3.9 & 4.2 Diesel Turbo	Diagnostic System Anti - lock Braking System Air Suspension Airbag SRS Test Load Box Simulation Engine Management 14CUX Exhaust Gas Recirculation	95 95 95 ⇔	Drawing D Drawing E Drawing M Drawing V Drawing F Drawing N

NEW RANGE ROVER	FUNCTION	MODEL YEAR	DRAWING REFERENCE
	Technical Information Repair Manual Technical Bulletins Electrical Trouble shooting Manual Connector Library	95 ⇔ 95 96	
	Diagnostic System Air Suspension Airbag SRS Load Box Simulation Airbag SRS ABS ABS Auto Gearbox BeCM Cruise Control GEMS Breakout Box Electronic Diesel Control EMS 5.2.1 Heating, Ventilation and Air conditioning Horn Instrument pack Lighting Mirrors Seats Security Transfer Gearbox Wash / Wipe Windows	95 ⇔ 95 ⇔ 99 95 ⇔ 99 99 ⇔ 95 ⇔ 99 99 ⇔ 95 ⇔ 99 ⇔ 95 ⇔ 99 ⇔ 95 ⇔ 99 95 ⇔ 99 95 ⇔ 99 ⇔ 95 ⇔ 95 ⇔ 95 ⇔ 95 ⇔ 95 ⇔ 95 ⇔ 95 ⇔ 95 ⇔ 95 ⇔ 95 ⇔ 95 ⇔	Drawing S Drawing AB Drawing Z (Phone HelpDesk) Drawing AB Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q Drawing Q

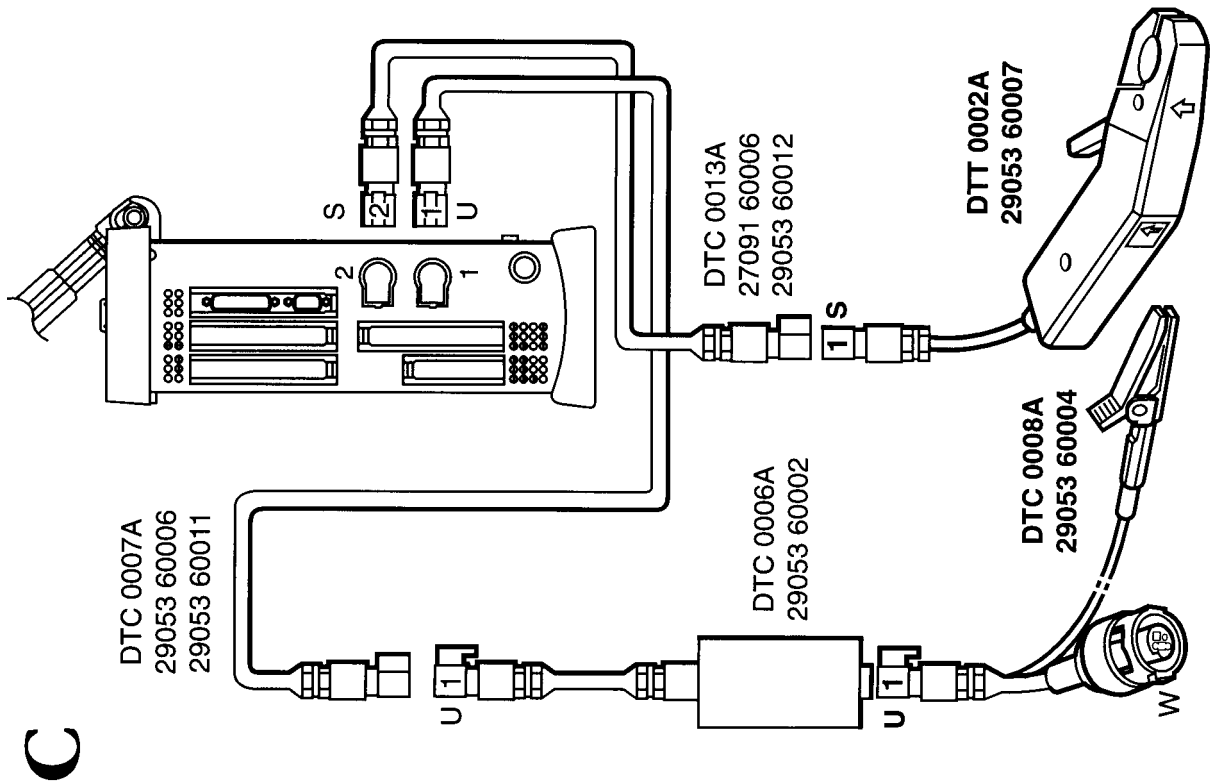
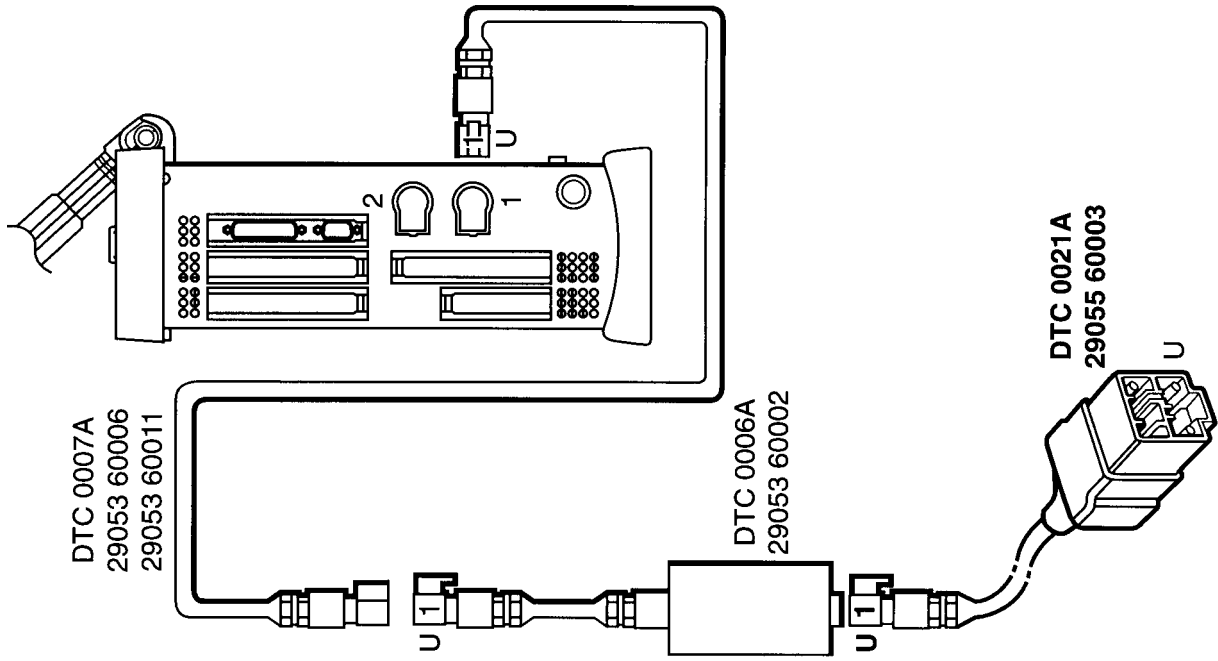


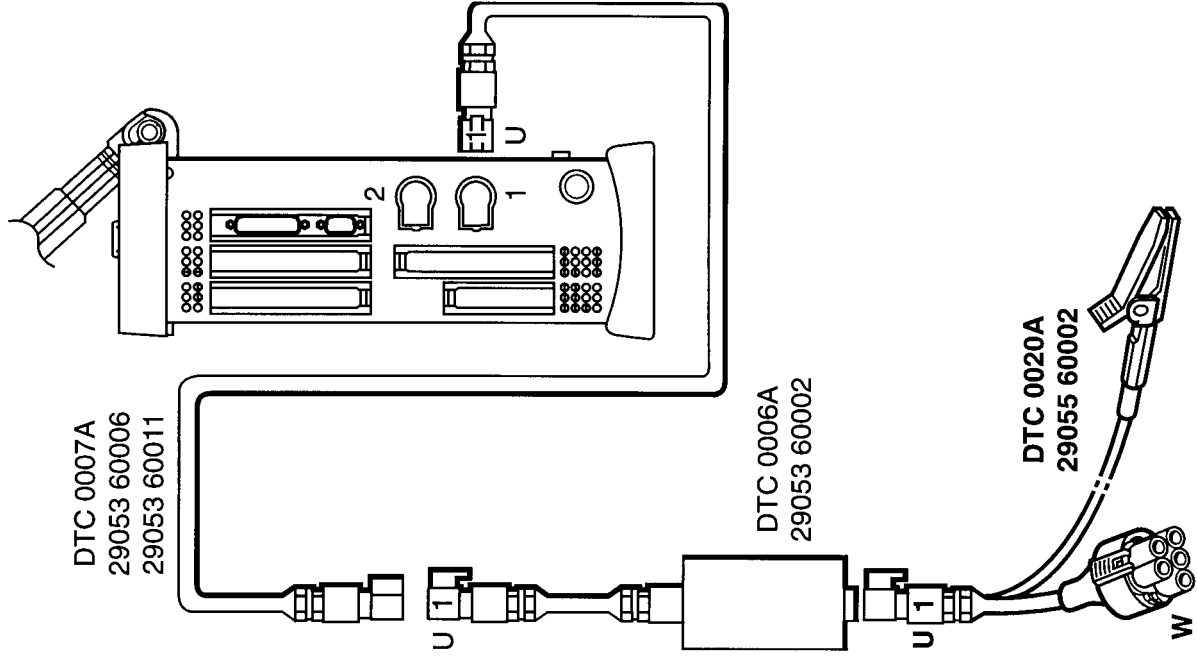


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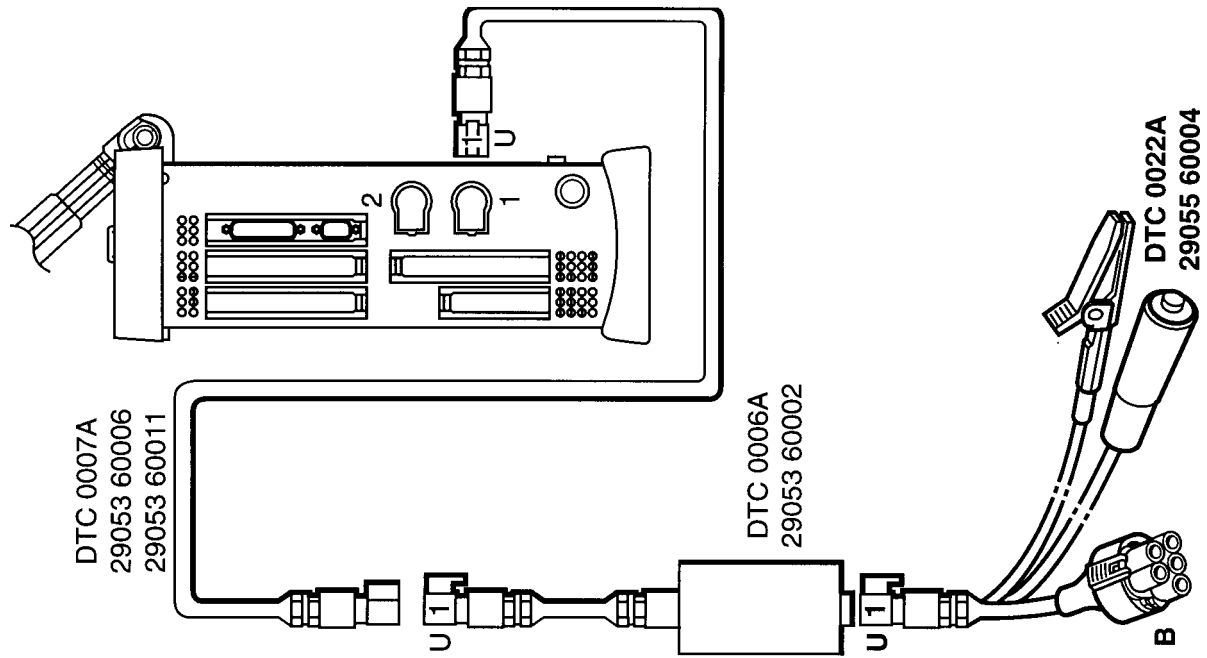


AB

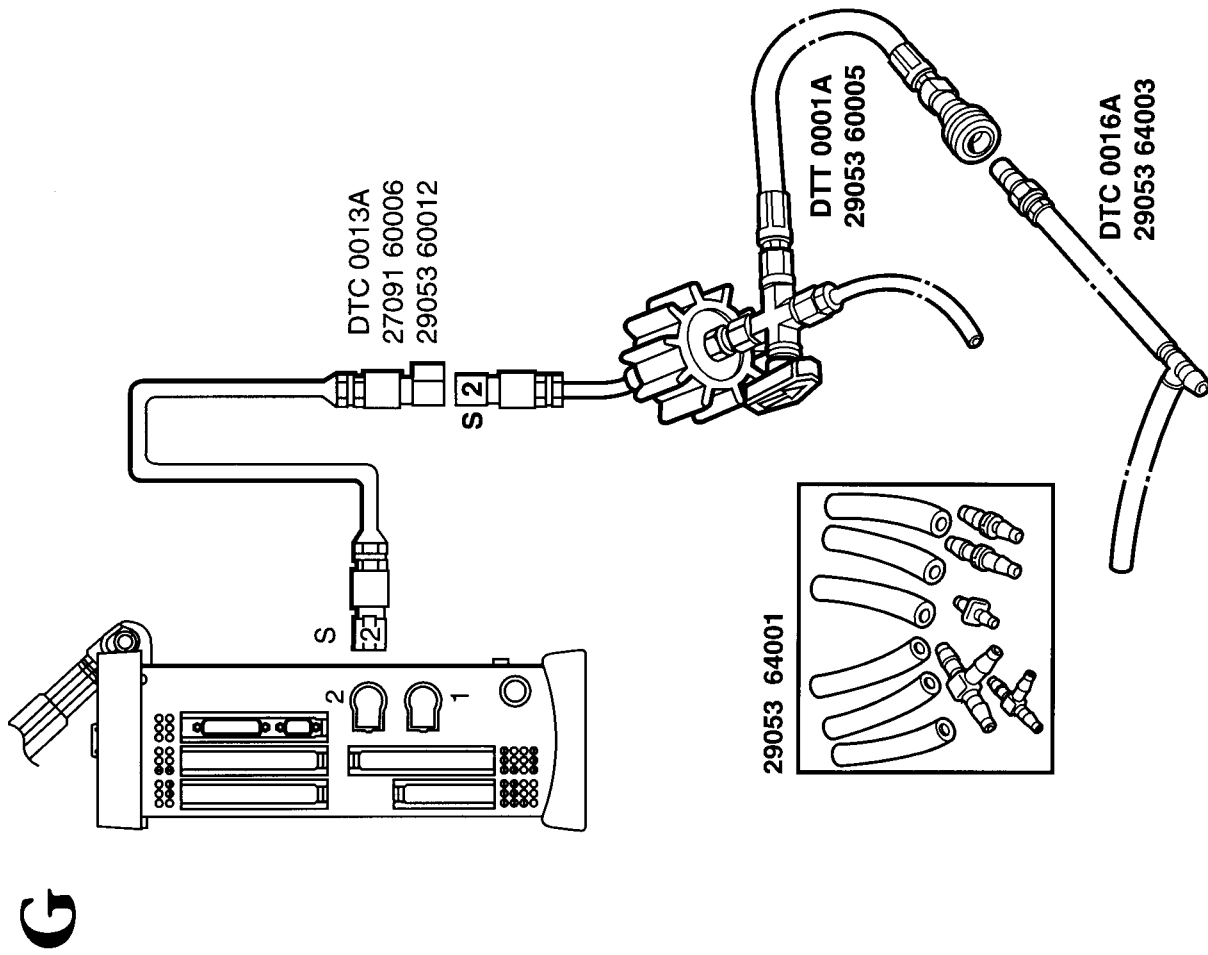




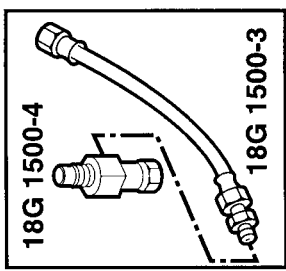
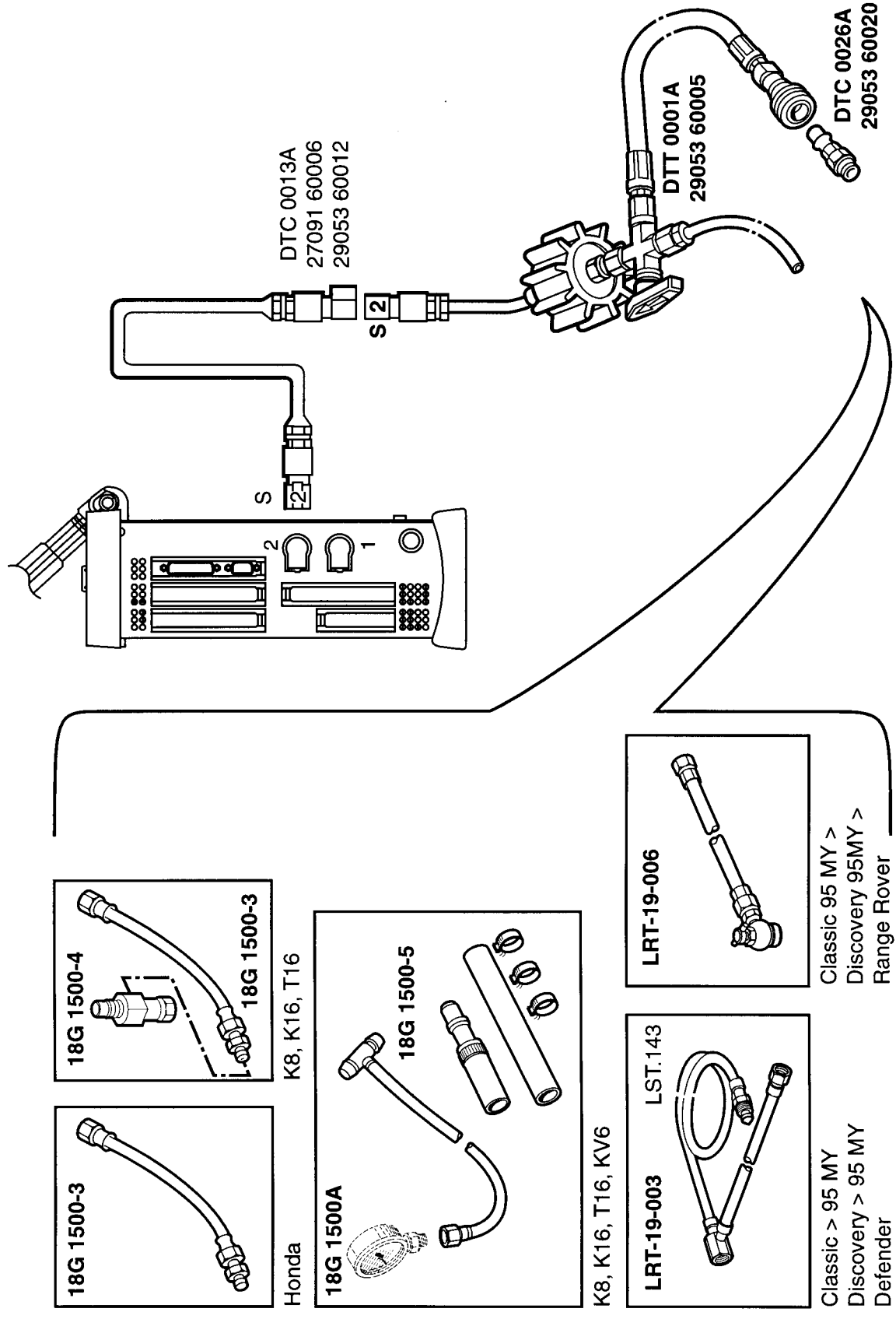
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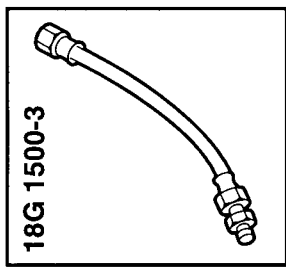
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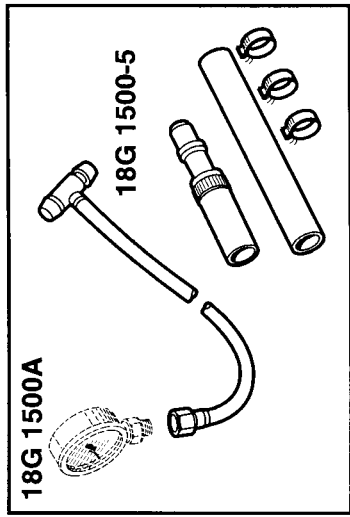
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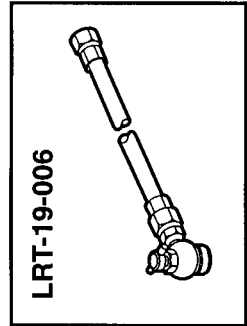
K8, K16, T16



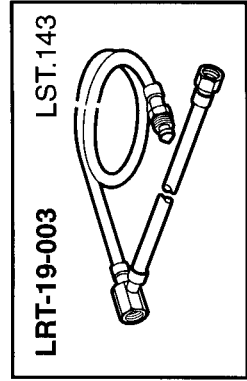
Honda



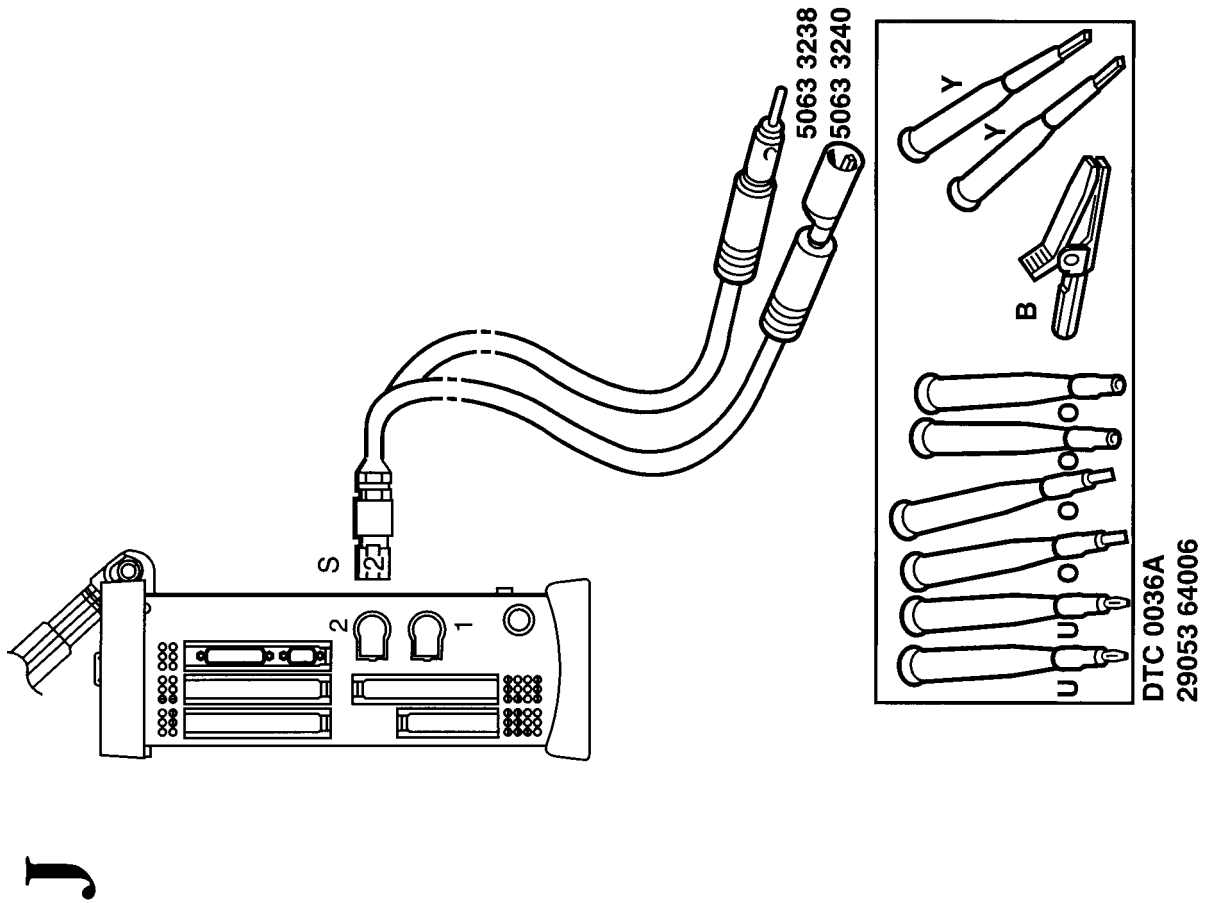
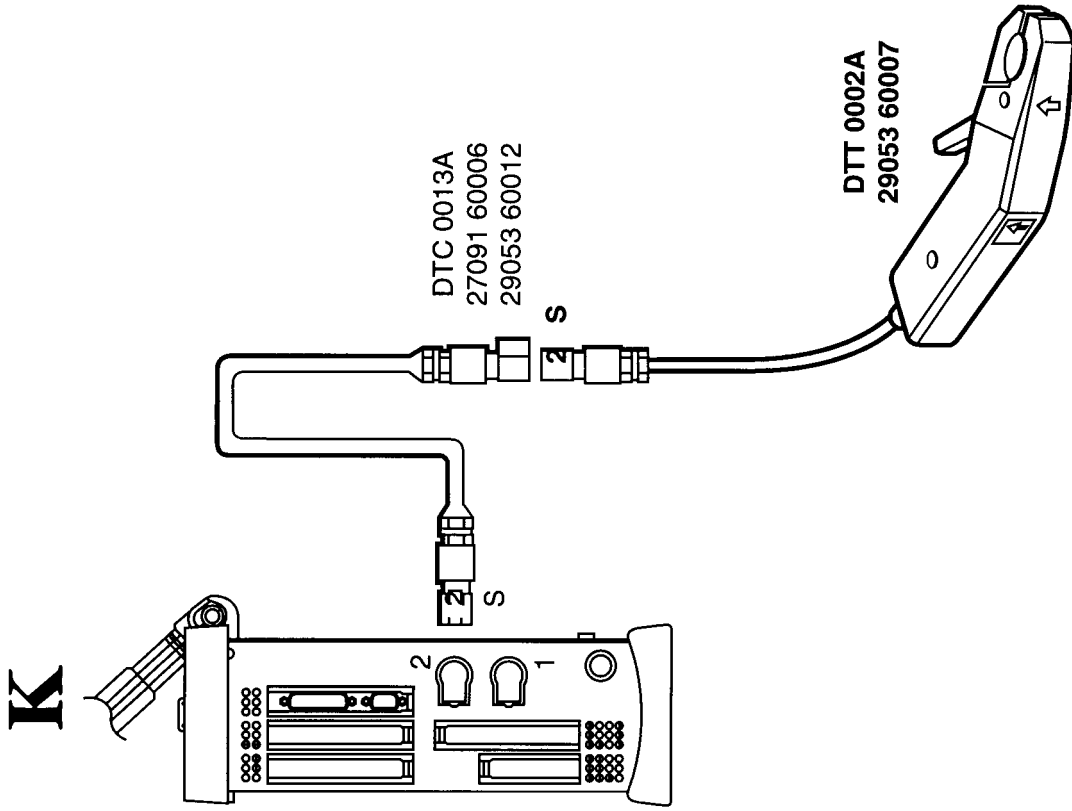
K8, K16, T16, KV6



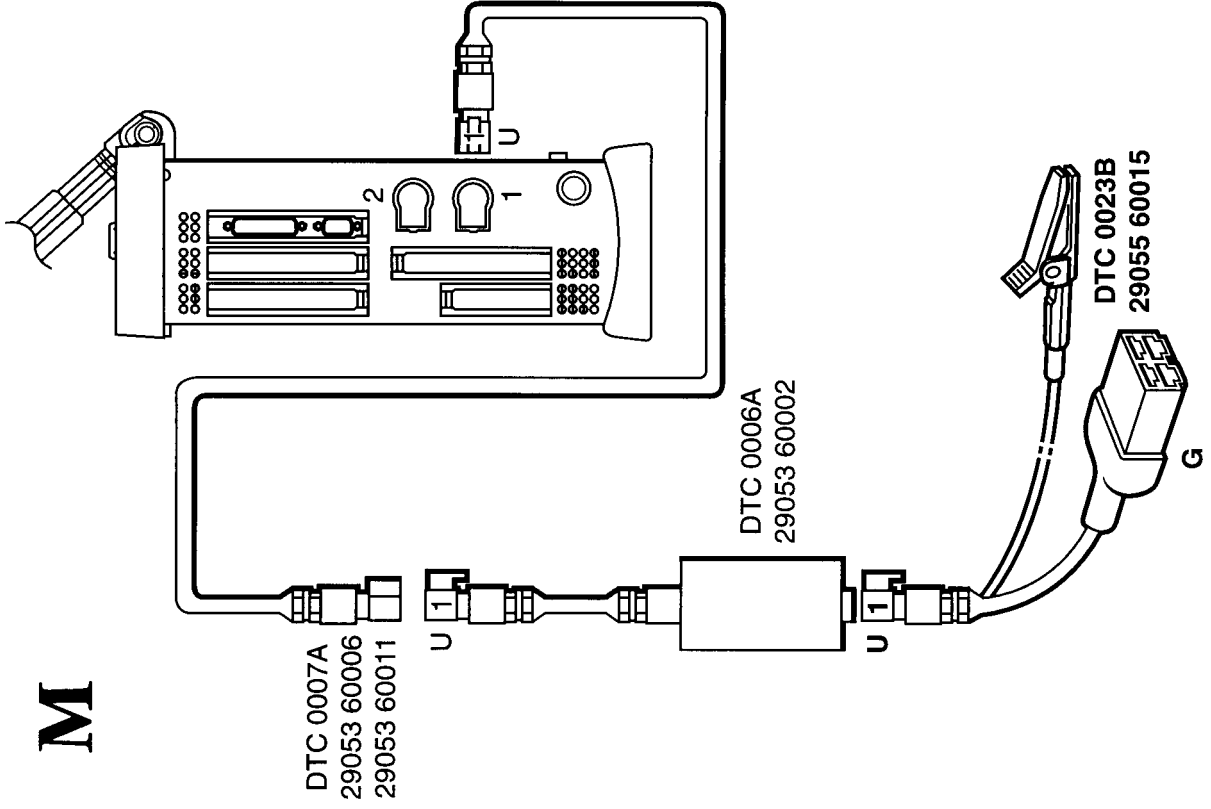
Classic 95 MY >
Discovery 95MY >
Range Rover



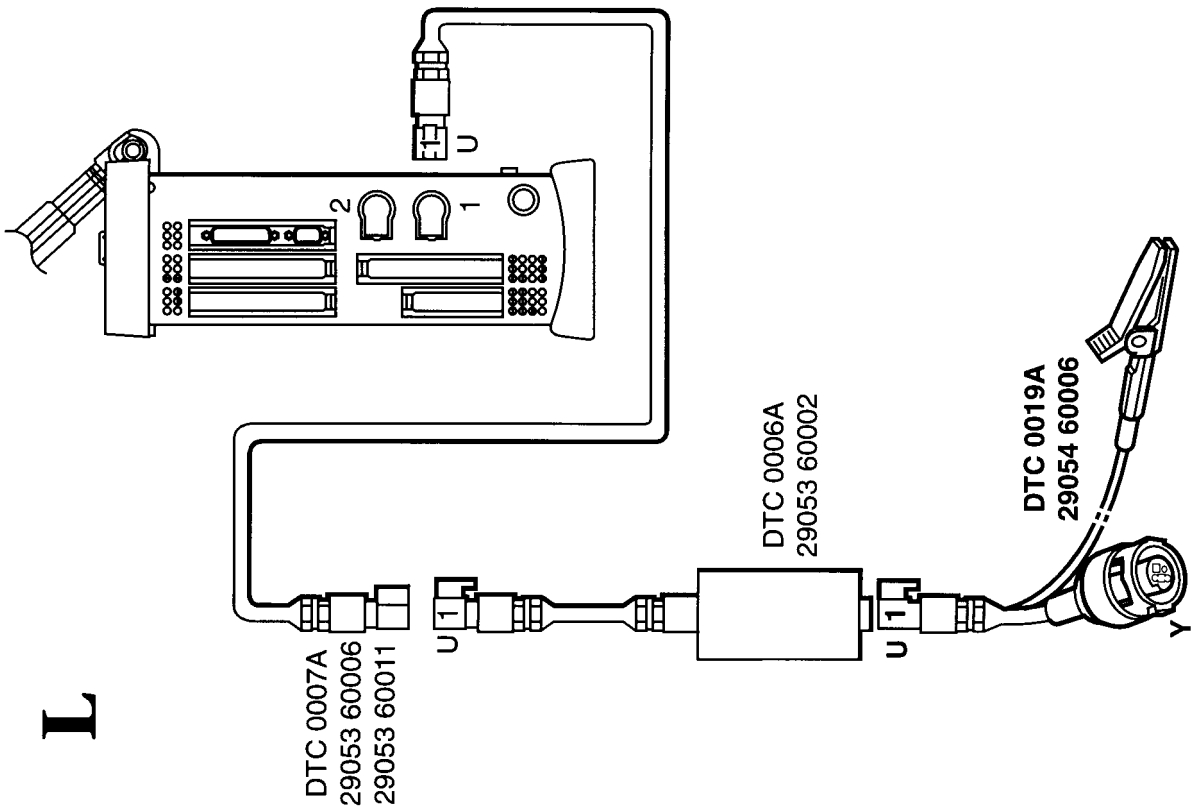
Classic > 95 MY
Discovery > 95 MY
Defender

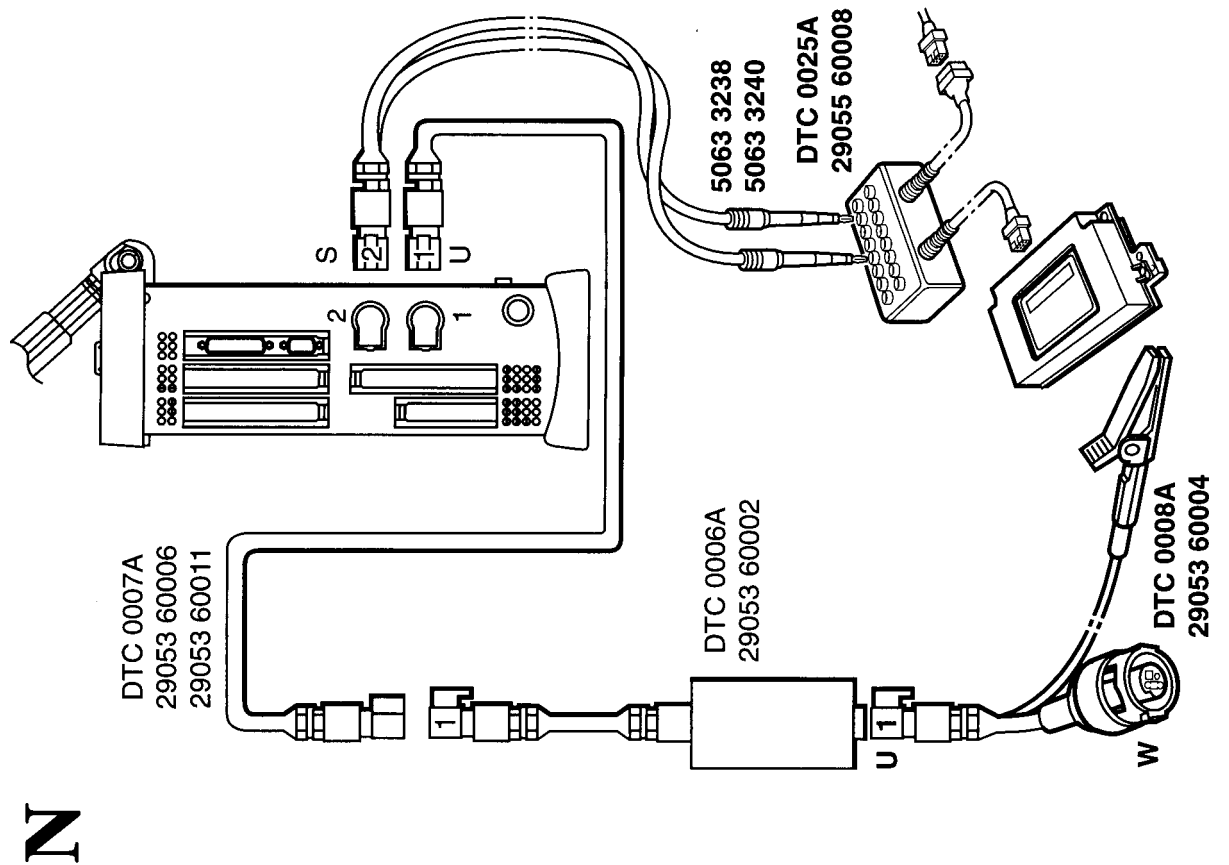
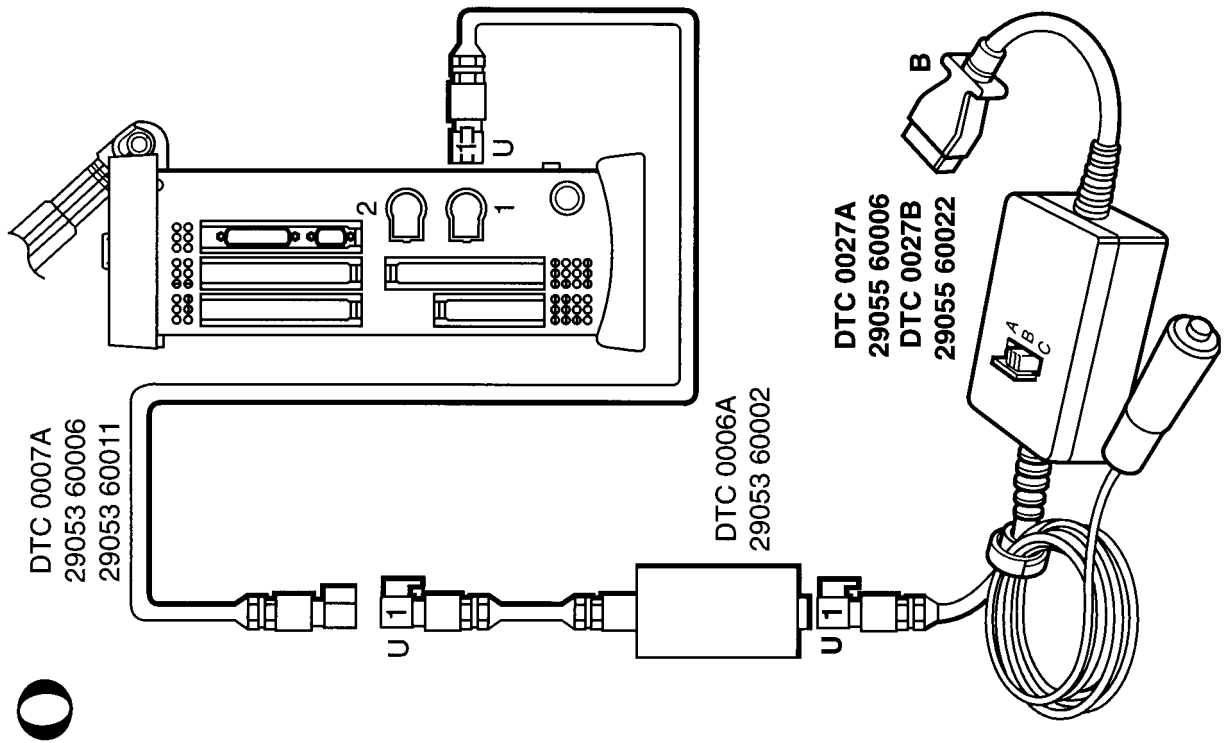


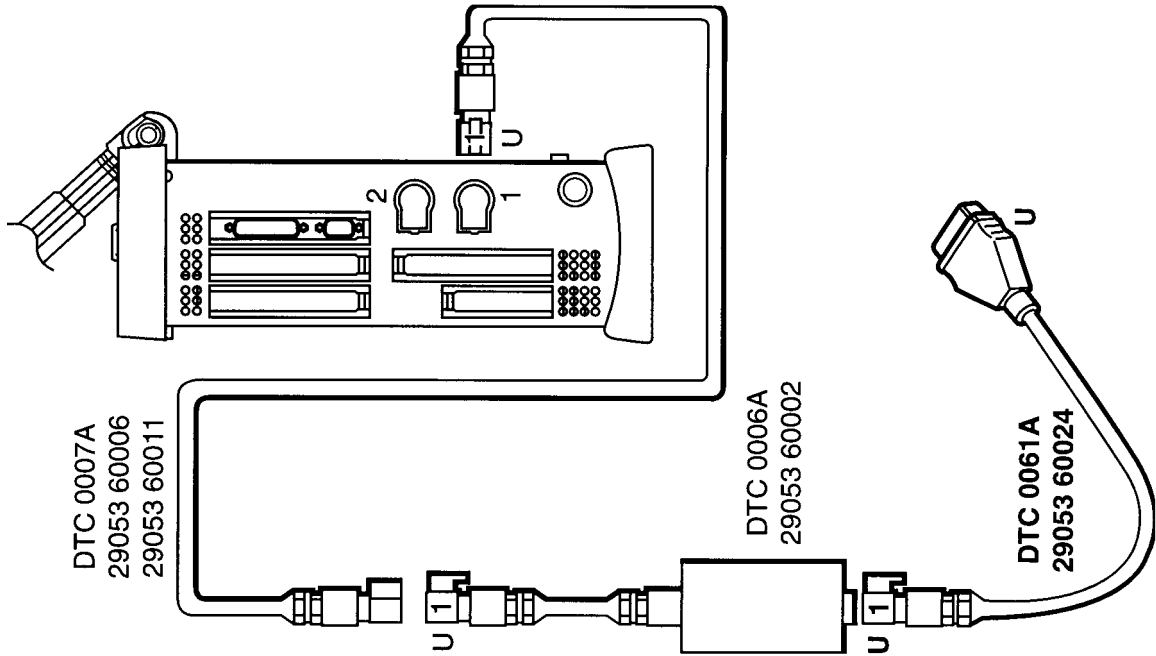
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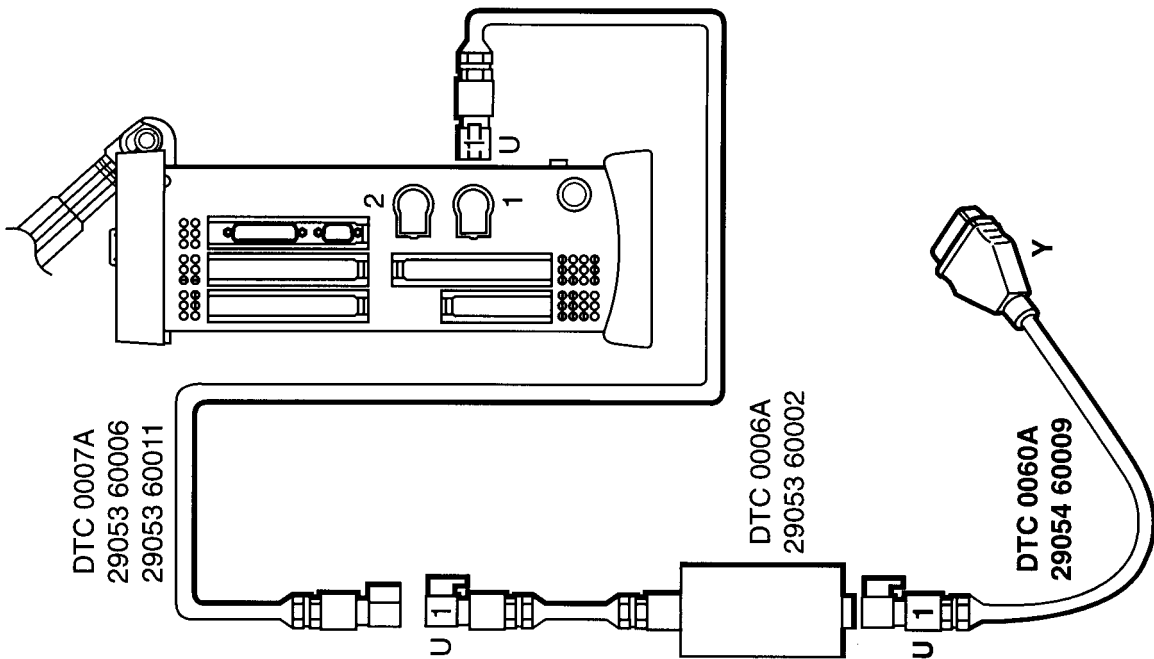
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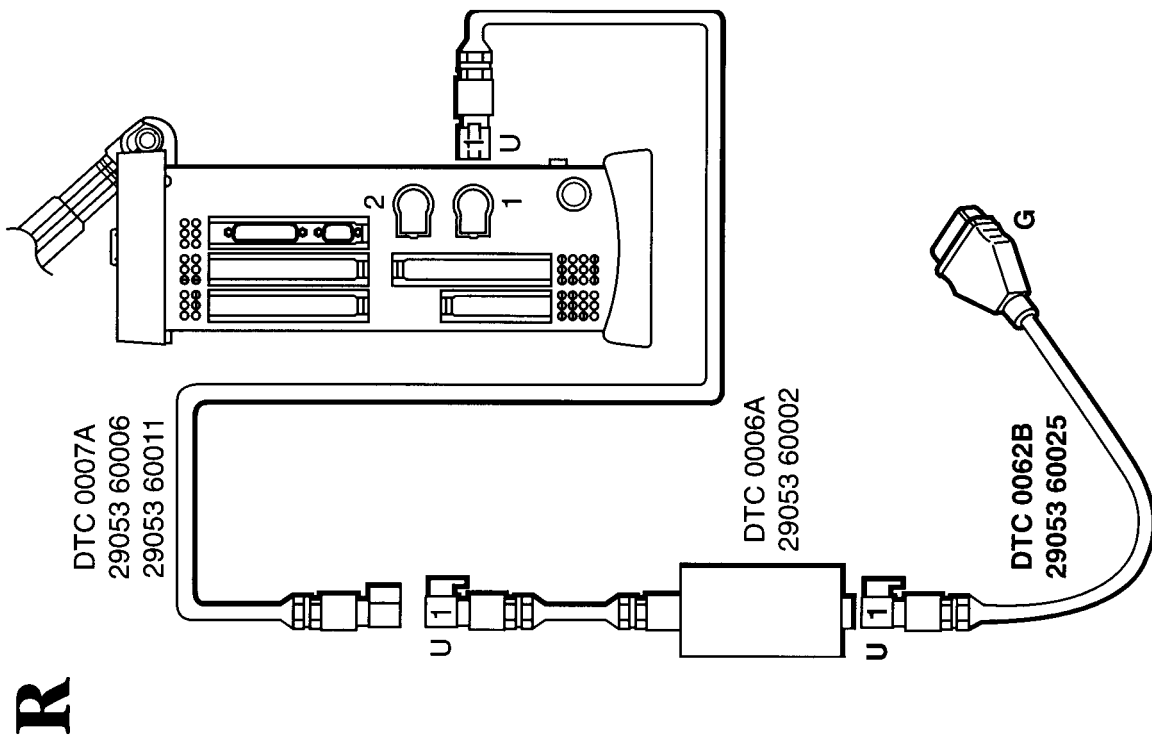
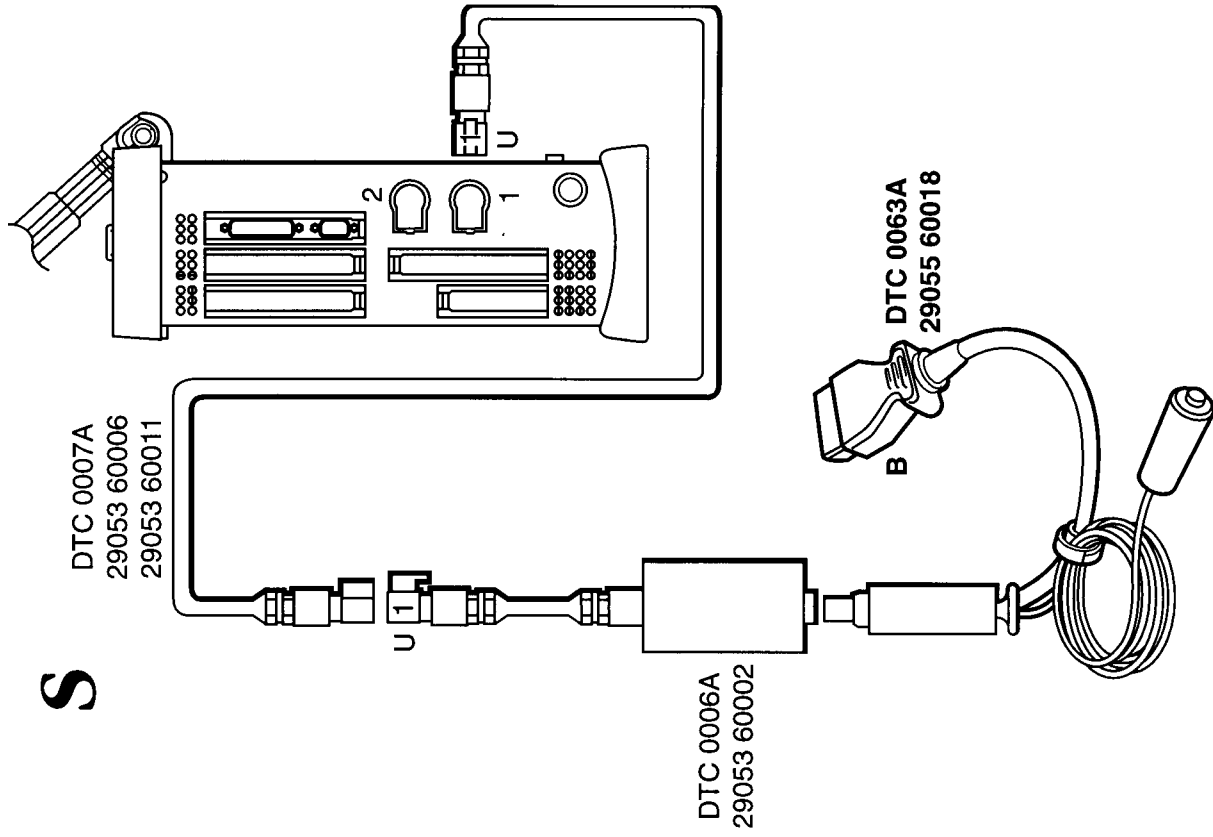


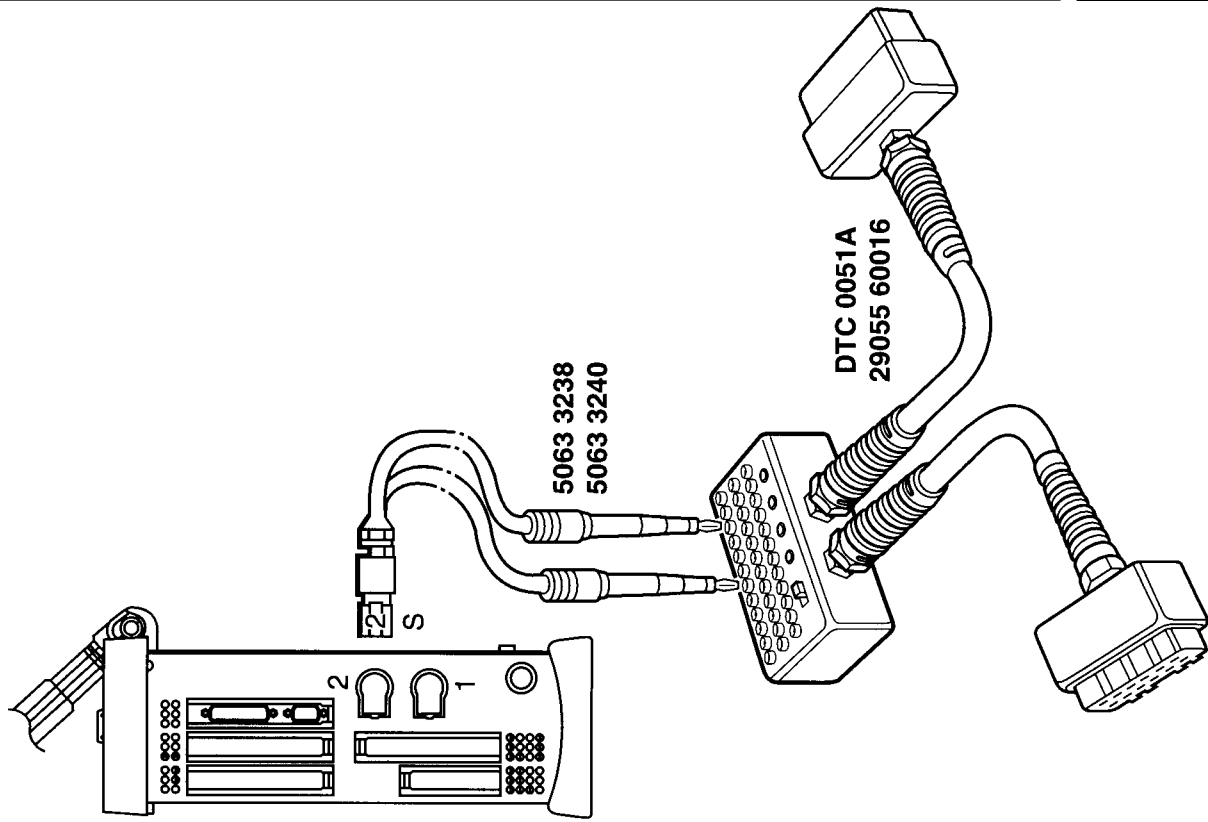


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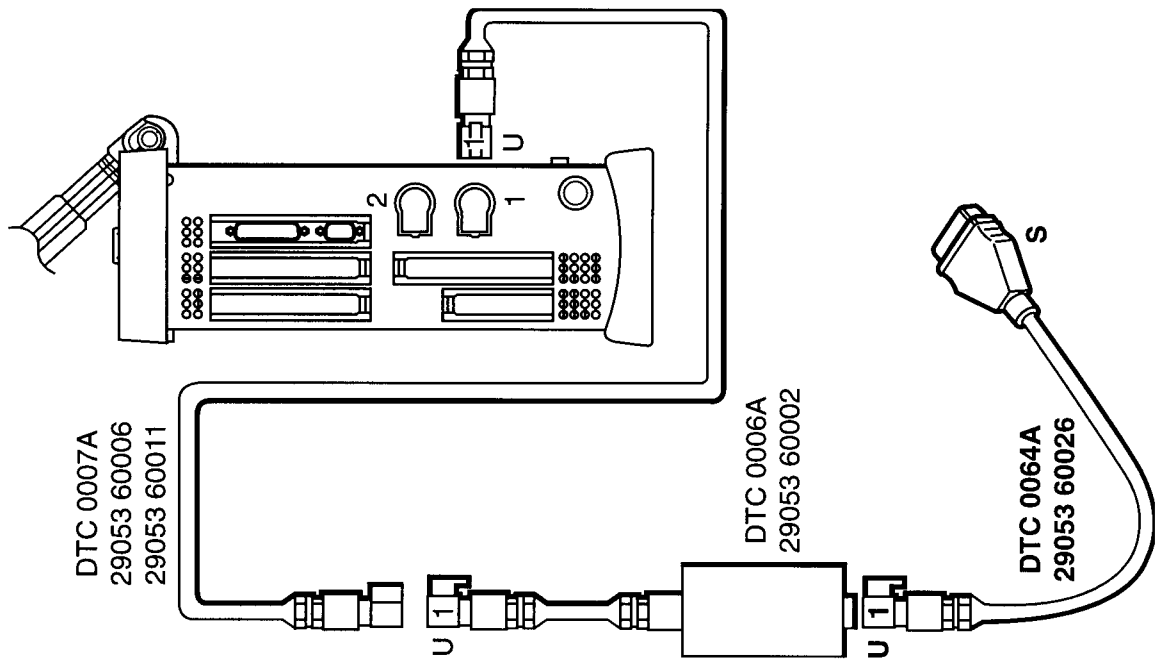


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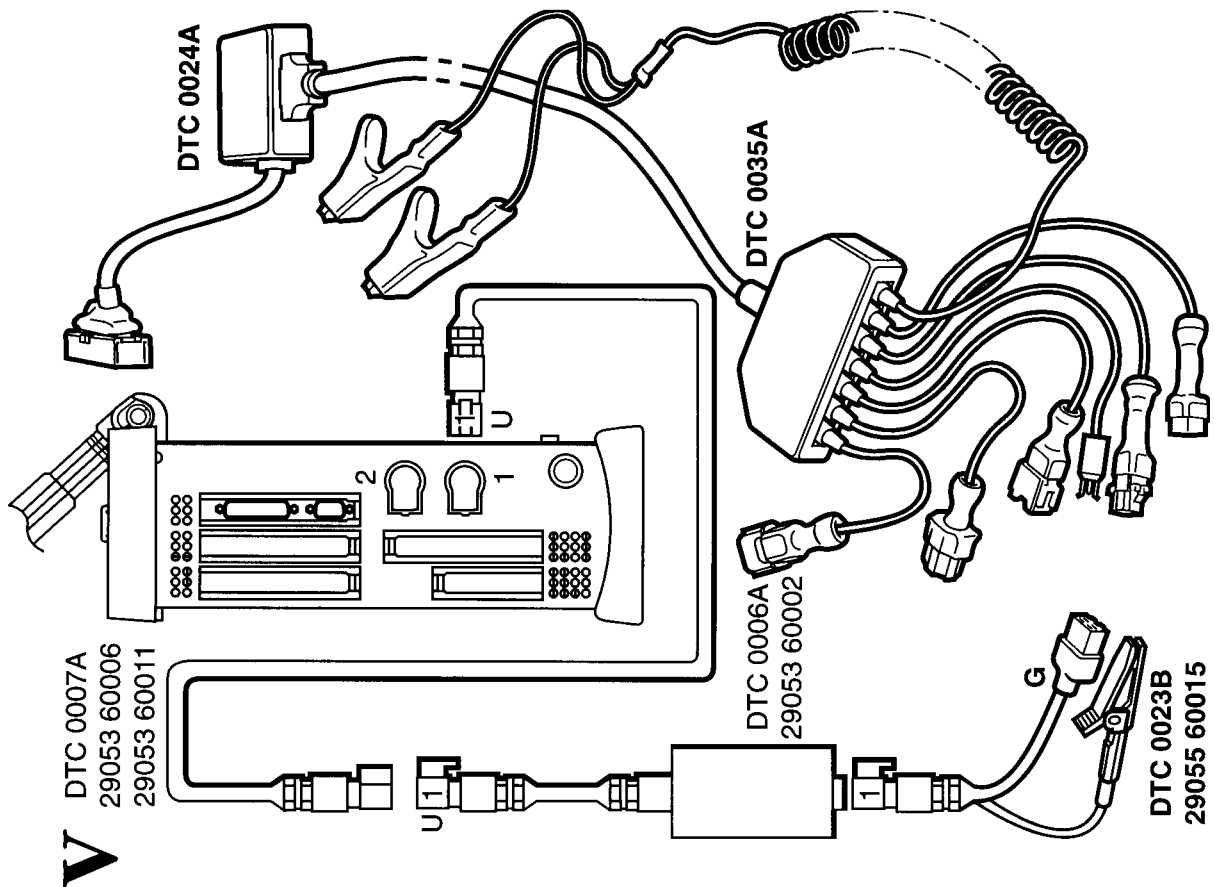
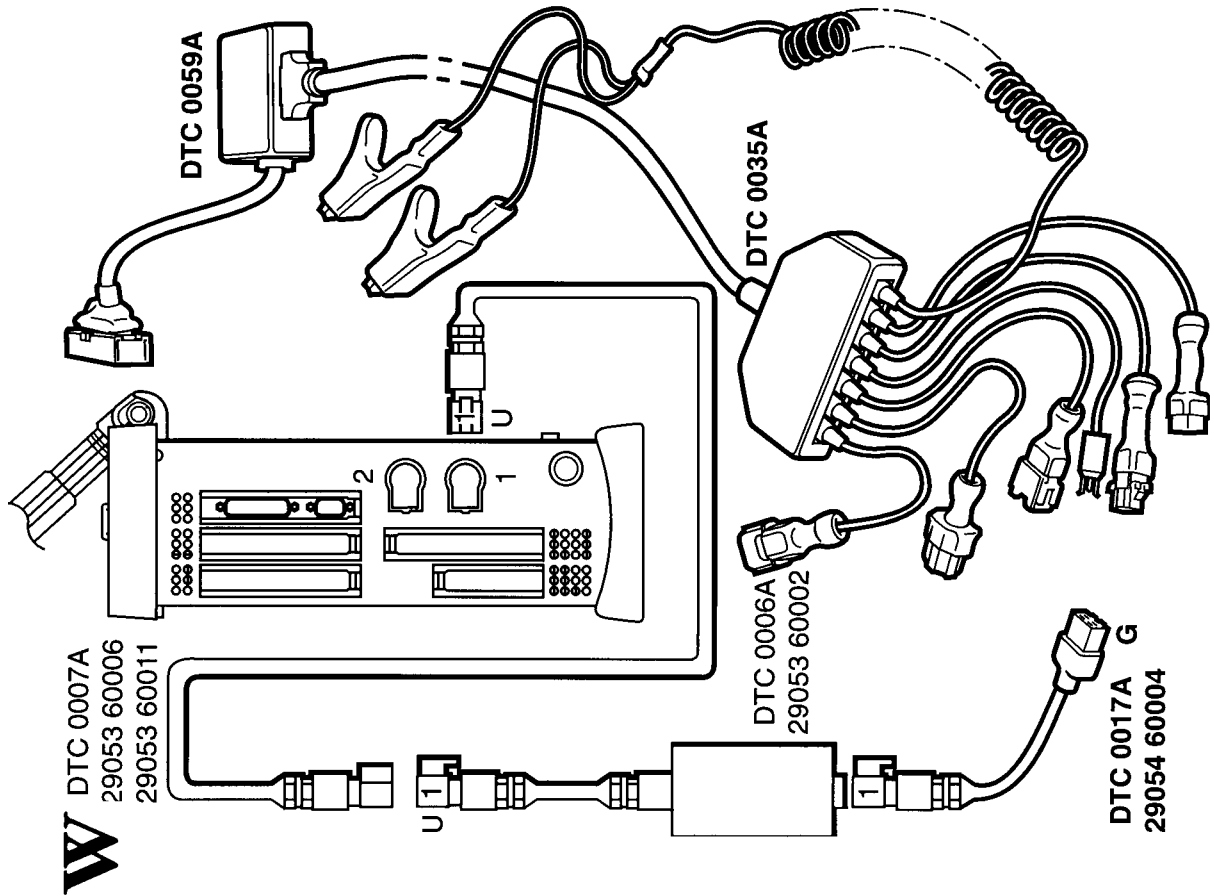


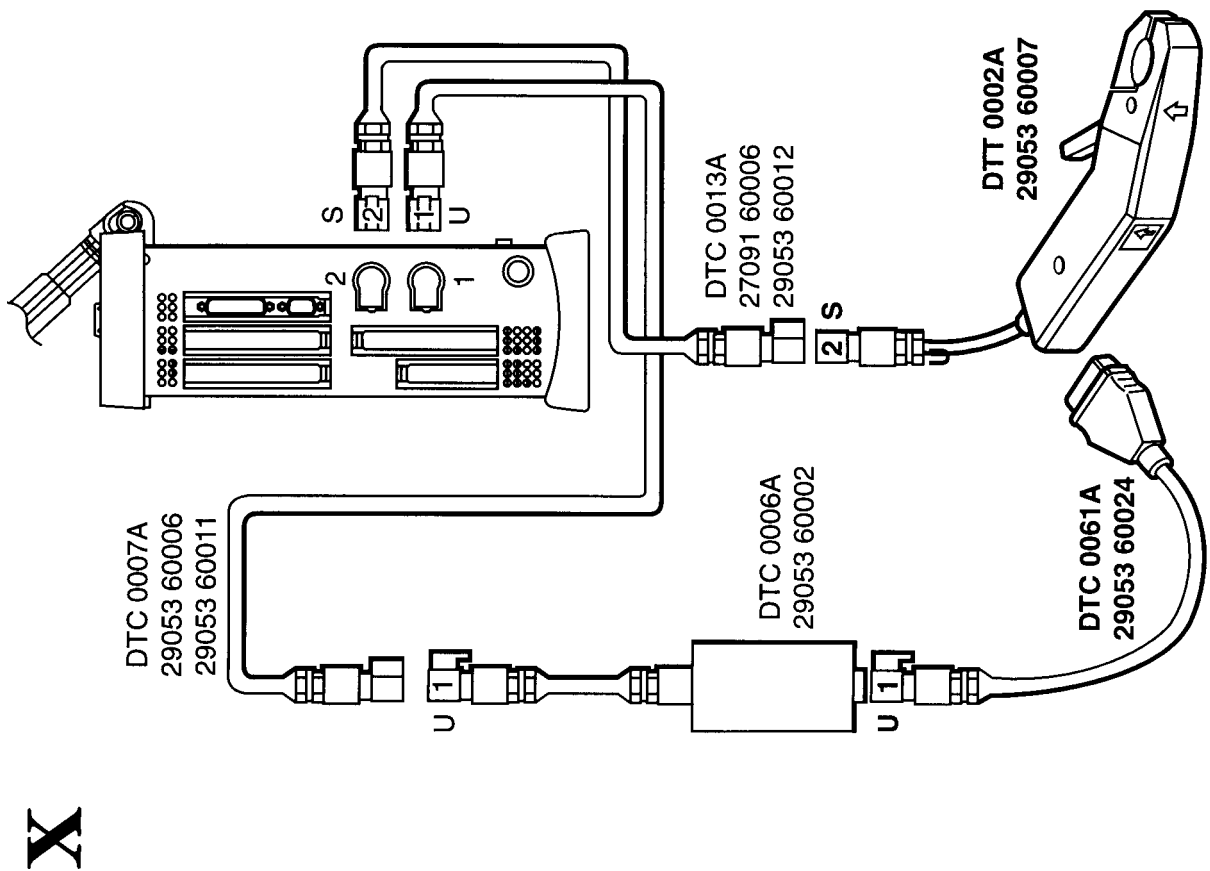
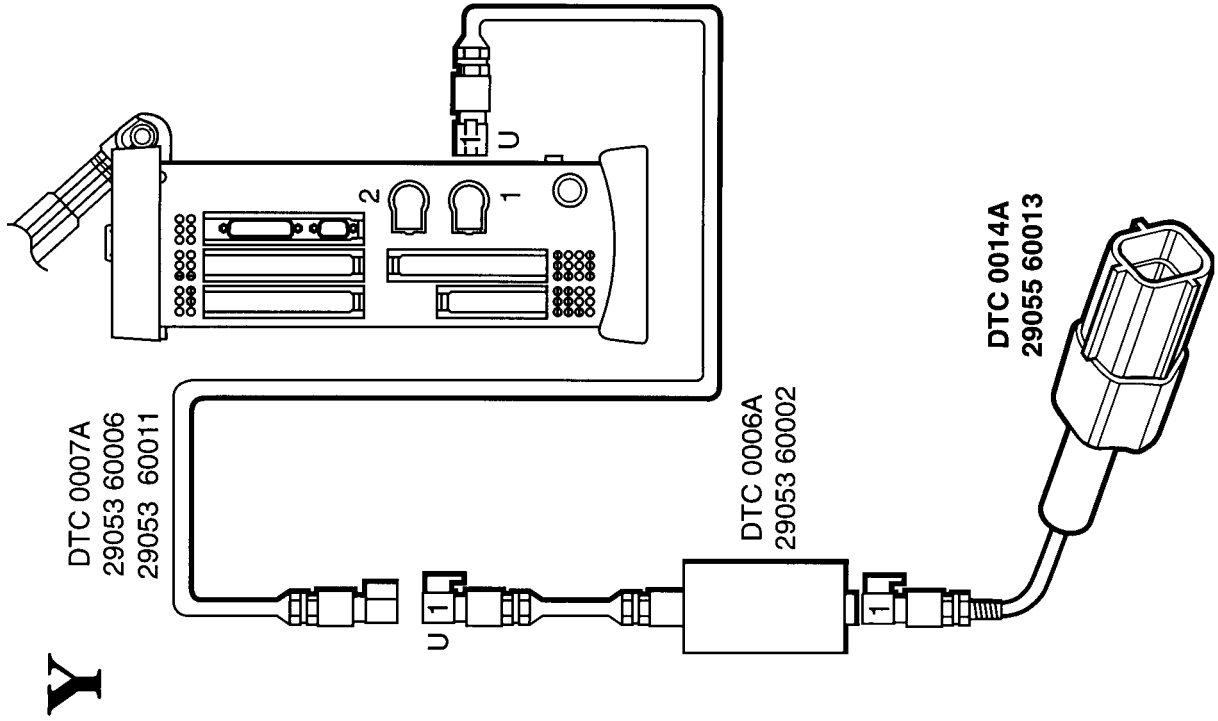


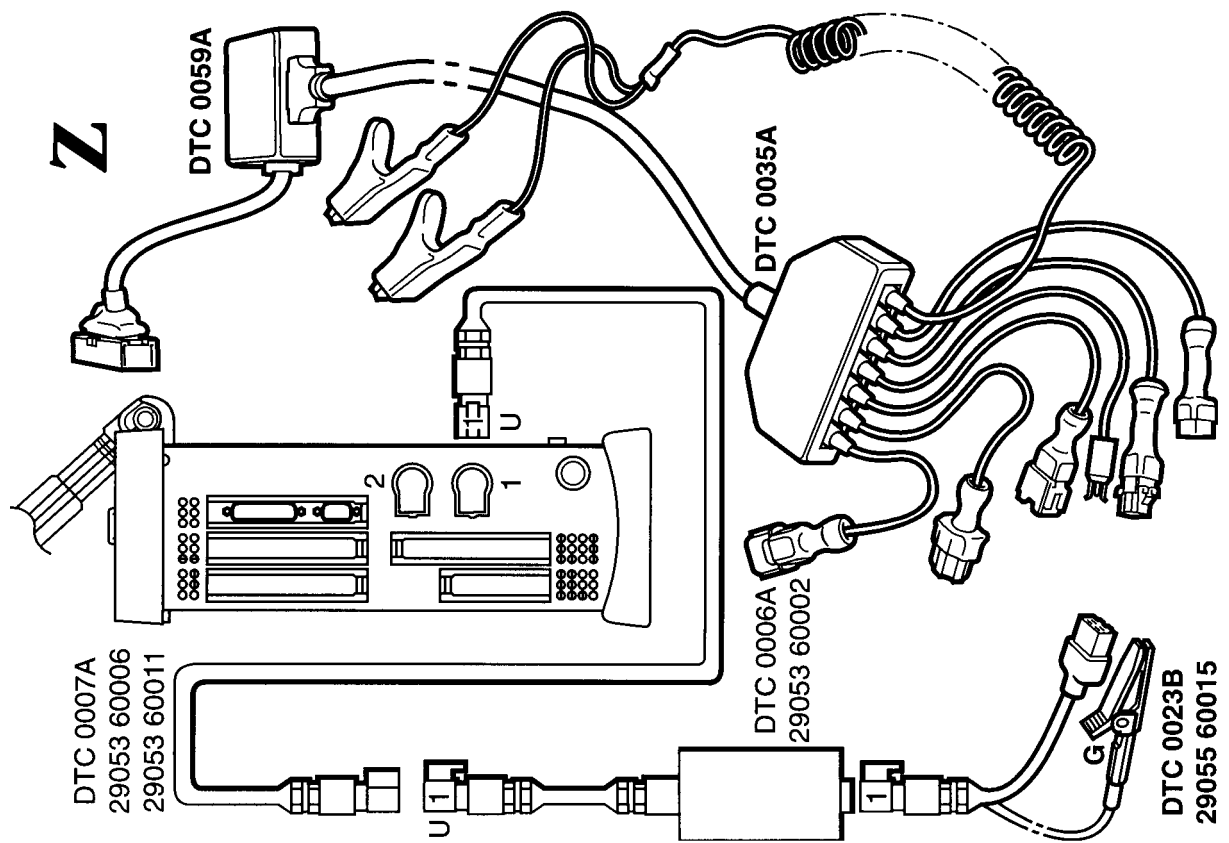
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T





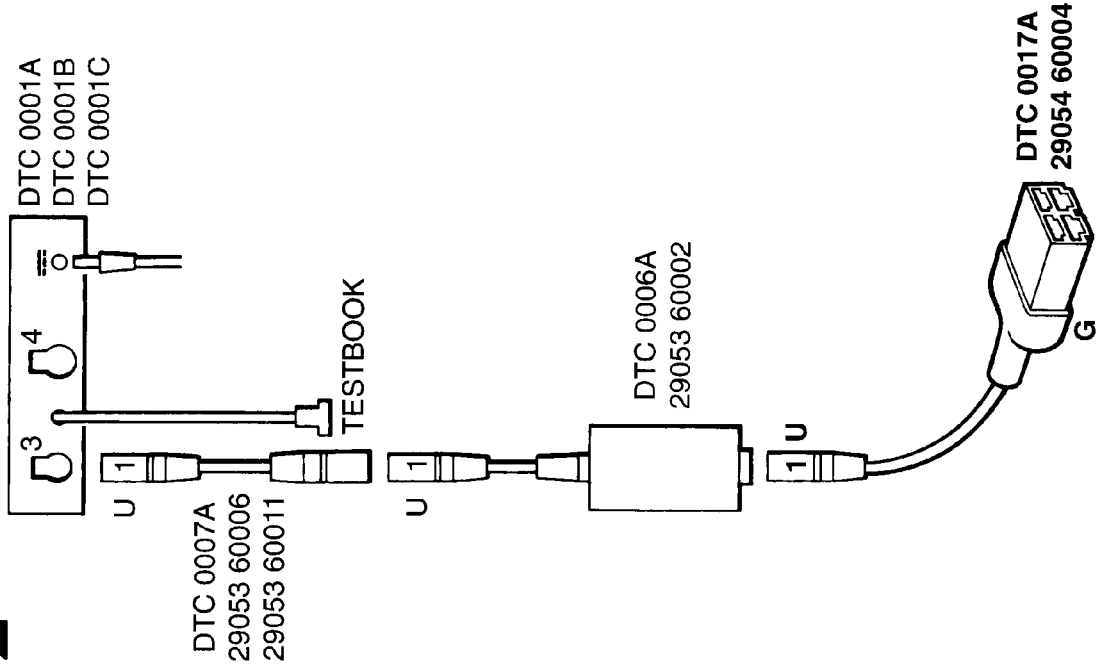


MICROCHECK

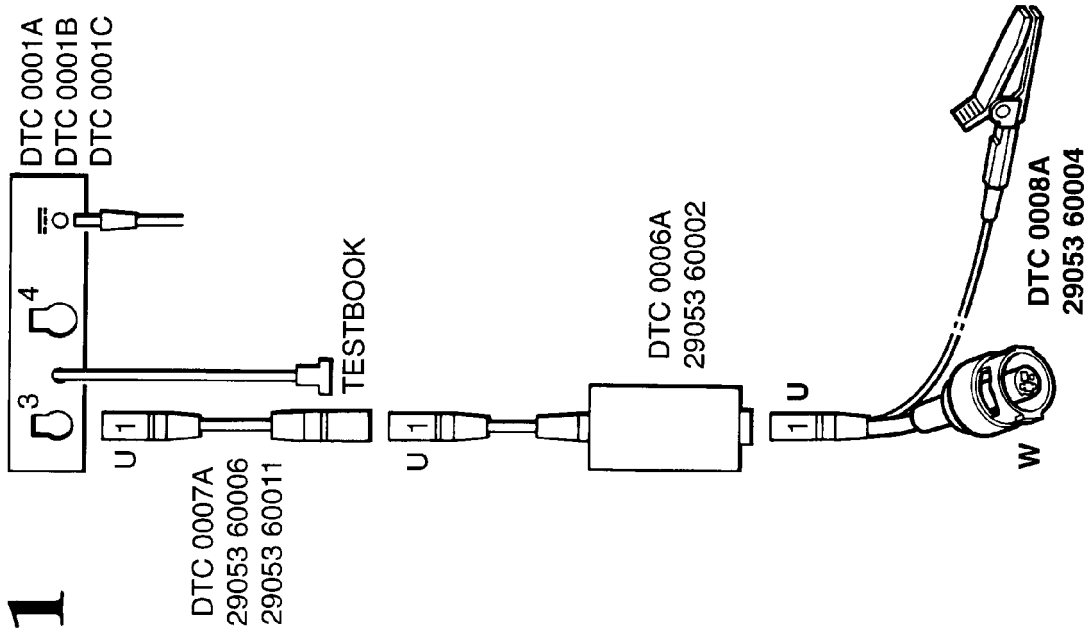


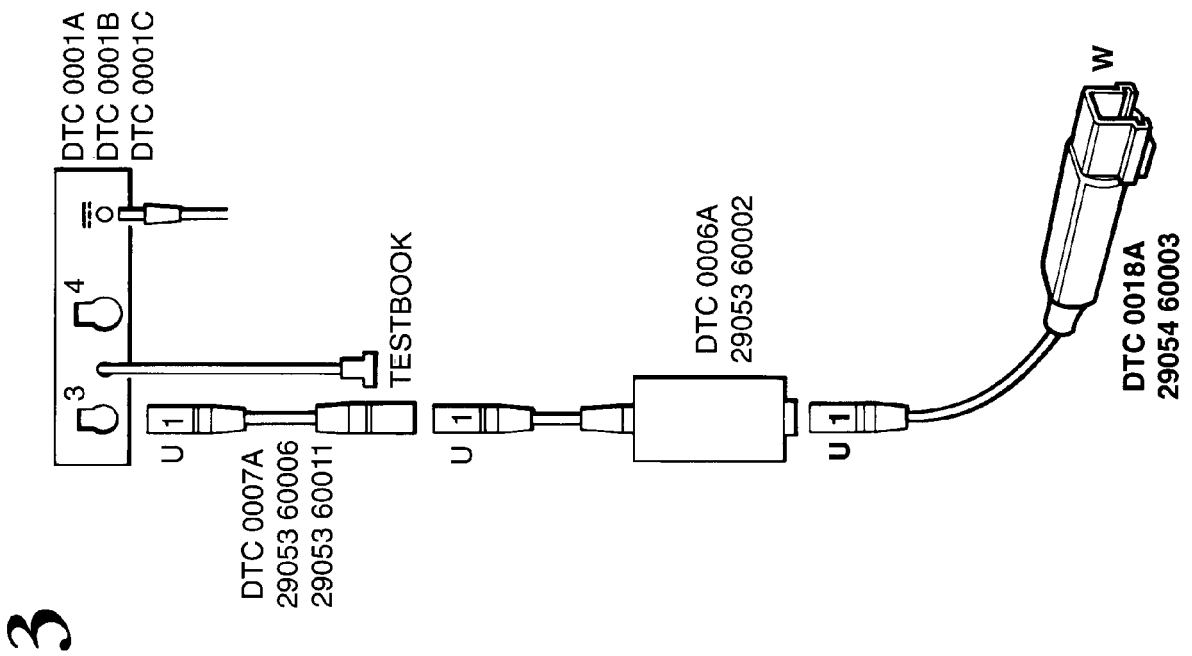
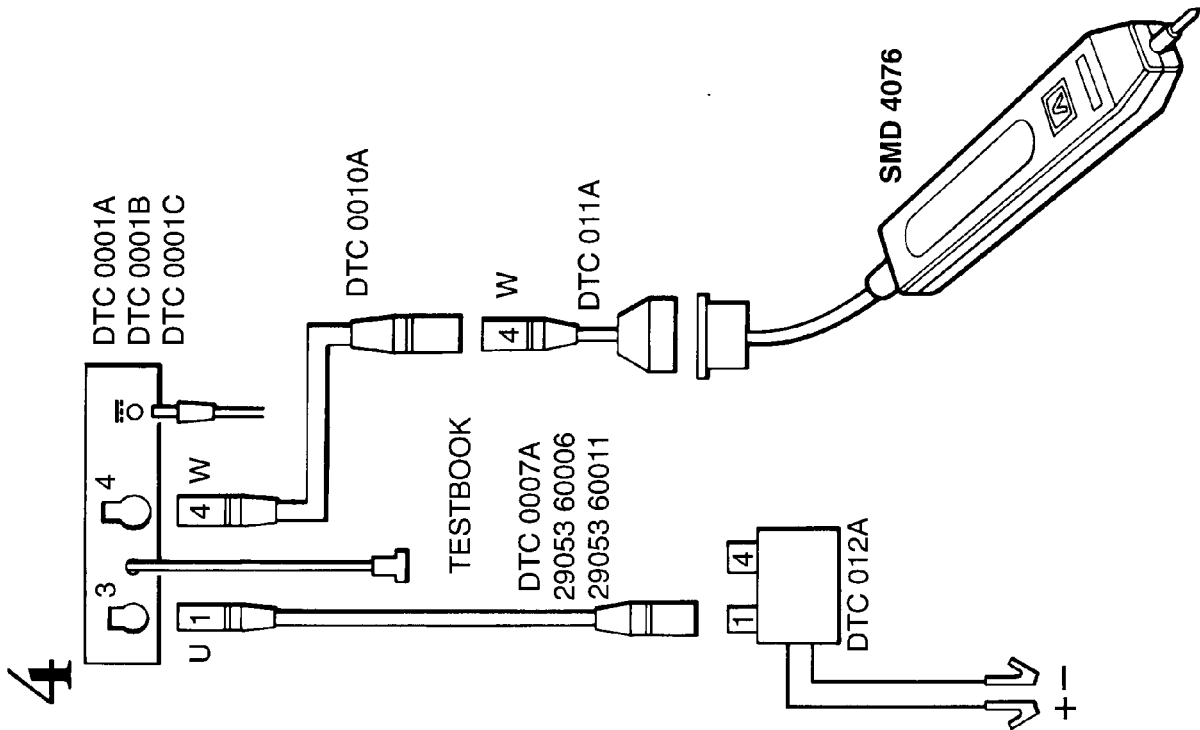
NOTE: TIM unt should **ONLY** be connected when TestBook asks for it.

2

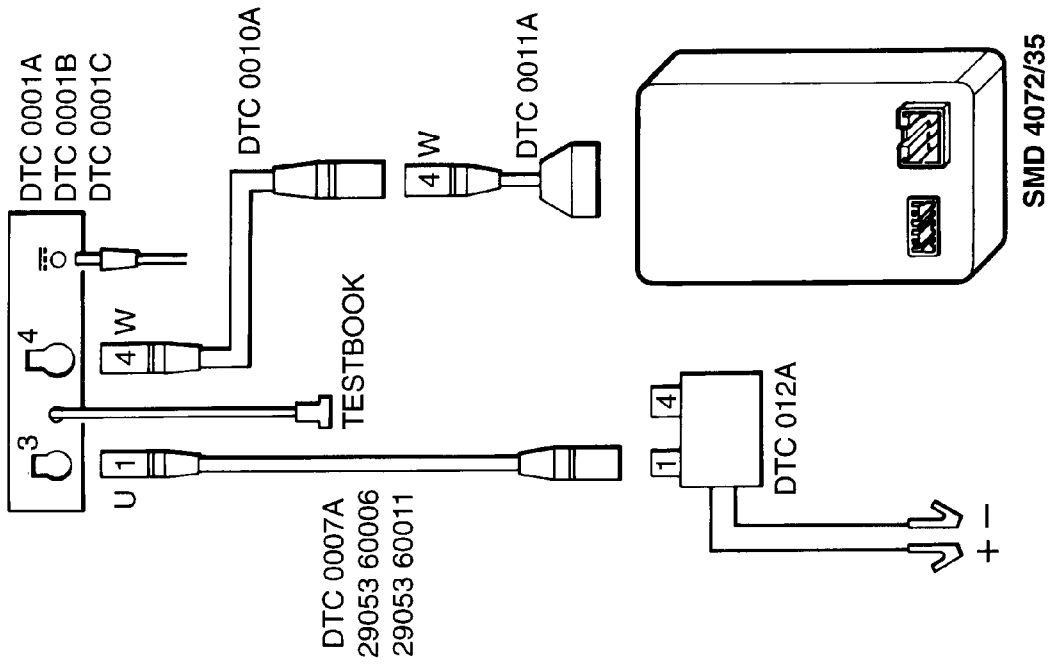


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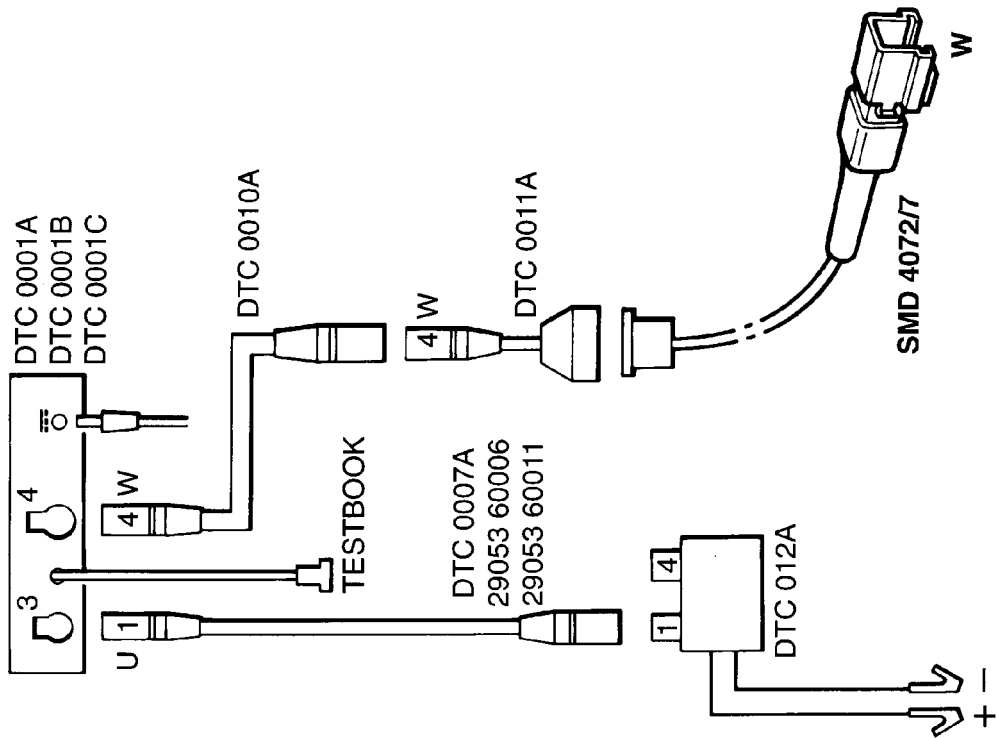




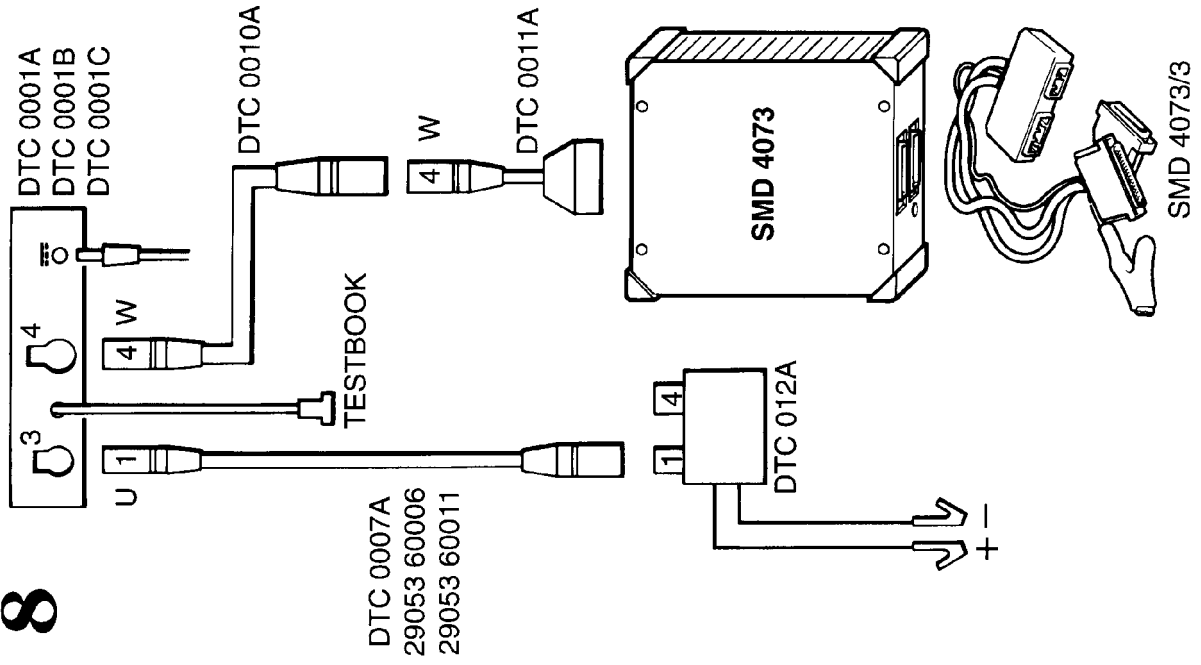
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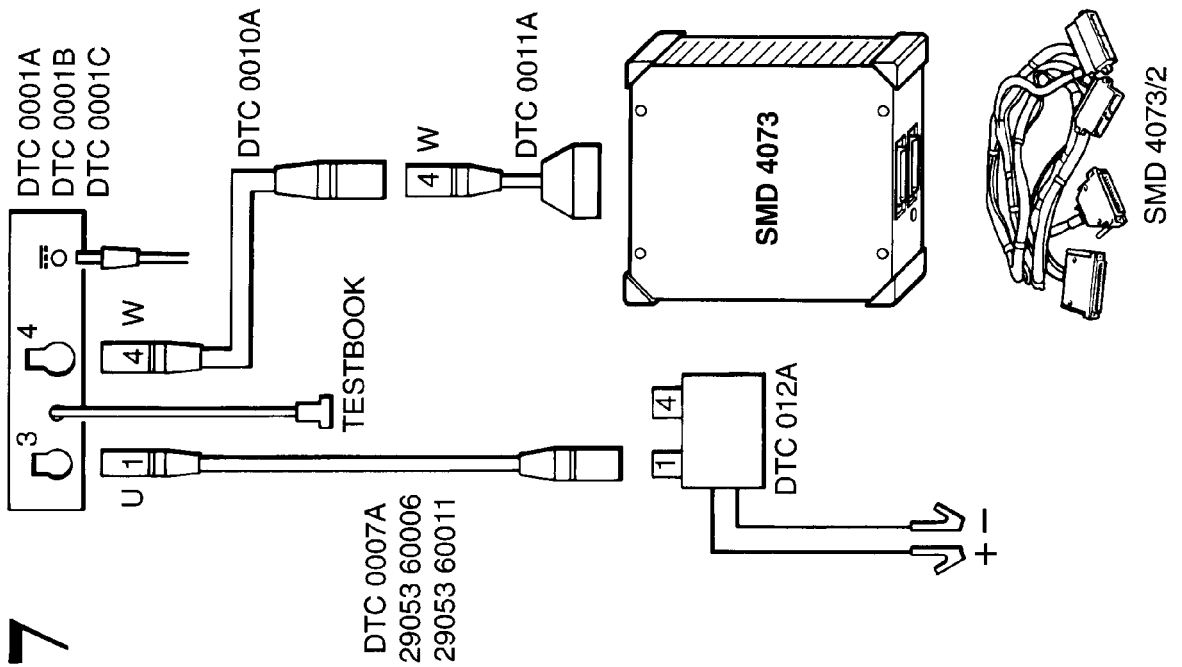
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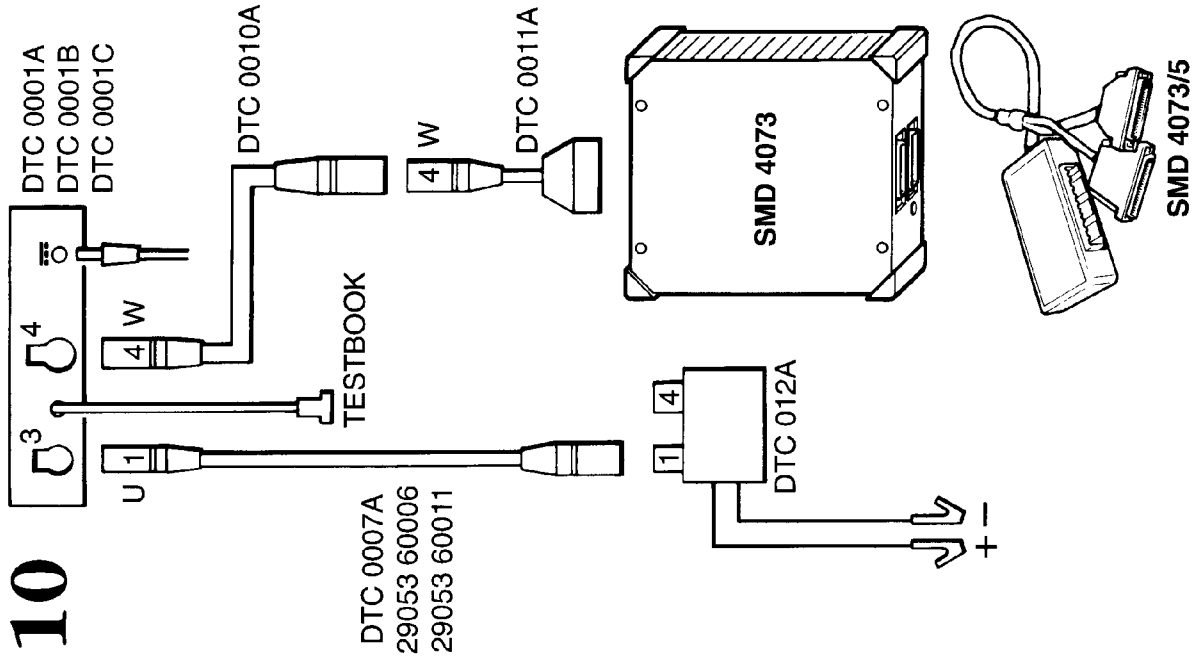
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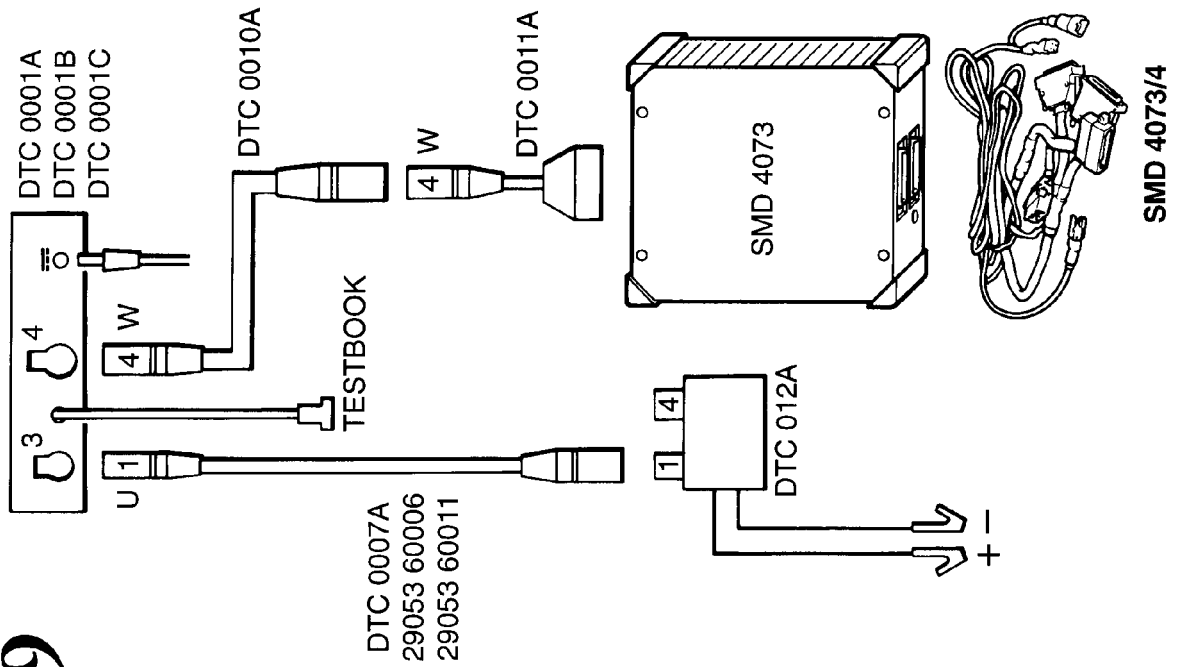
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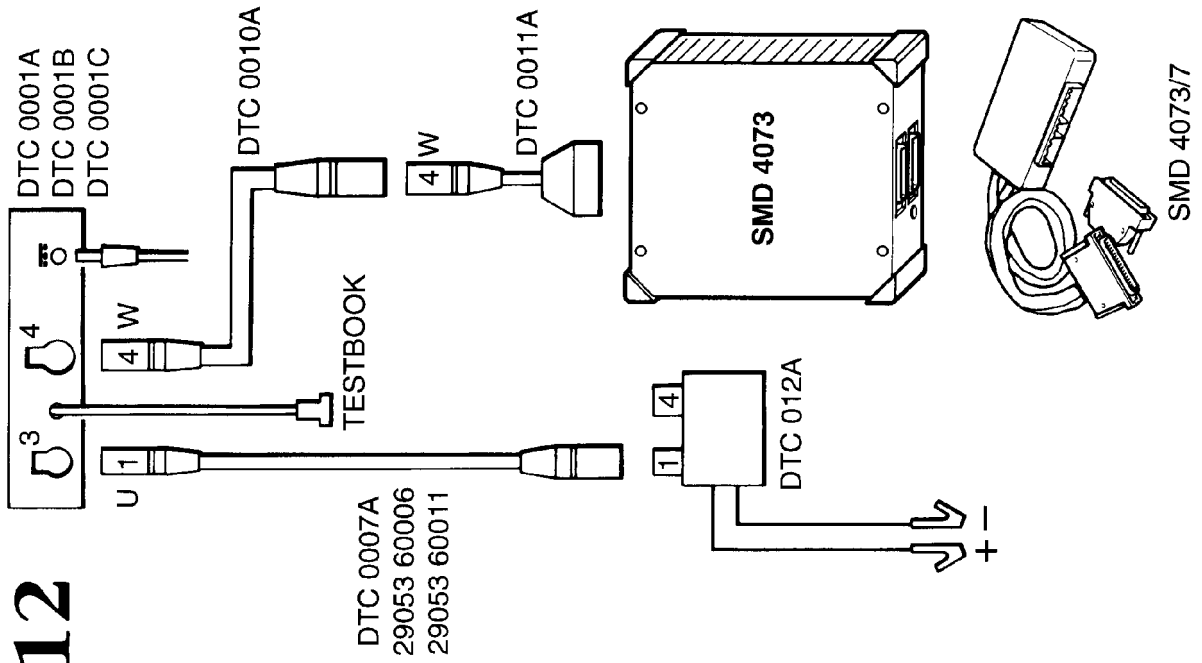
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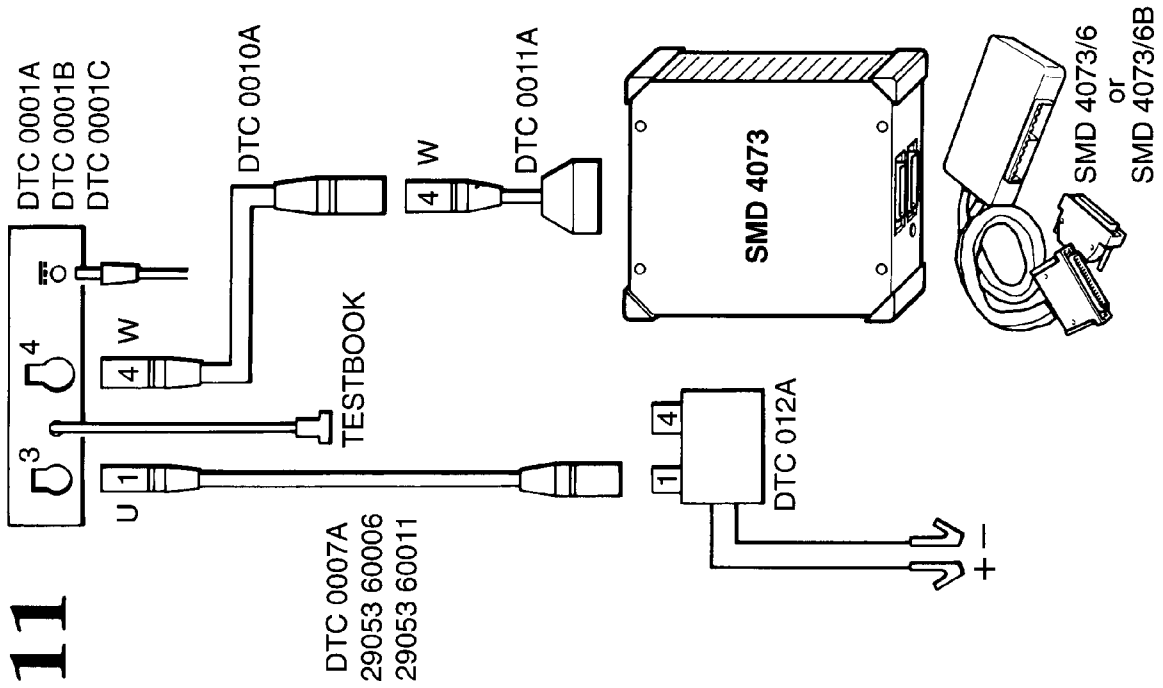
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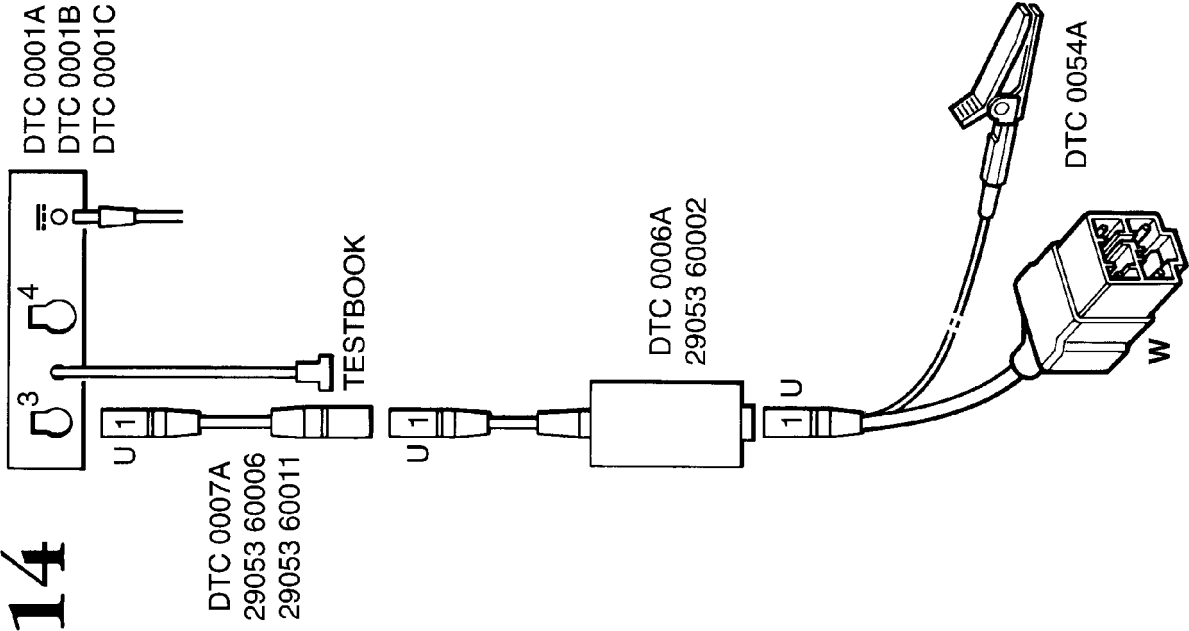
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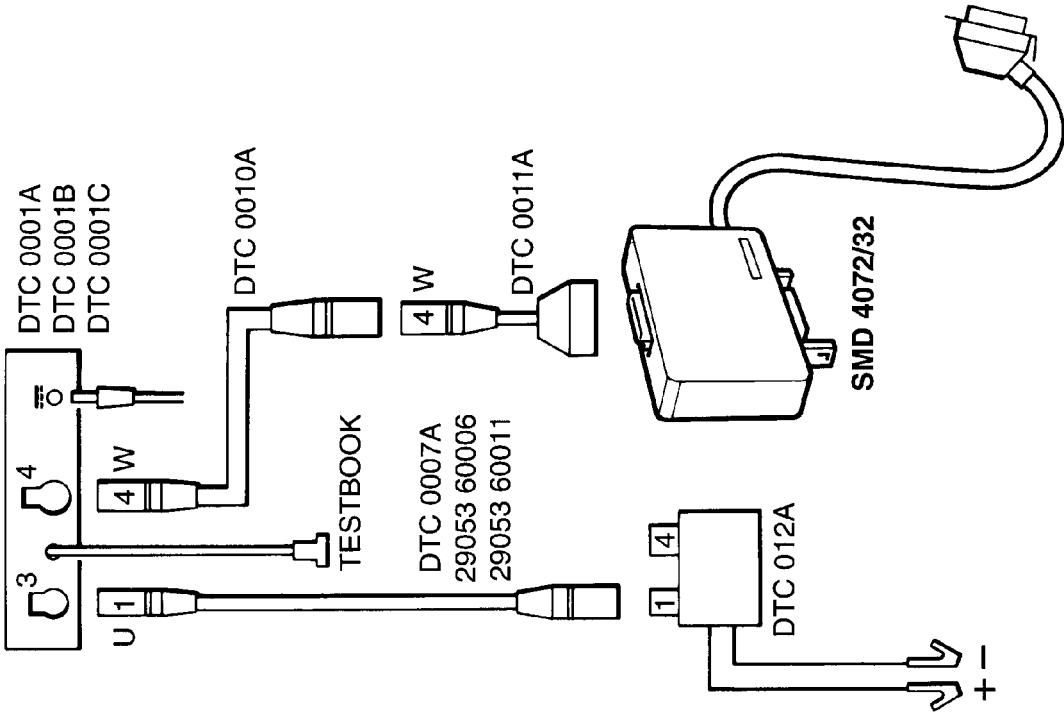
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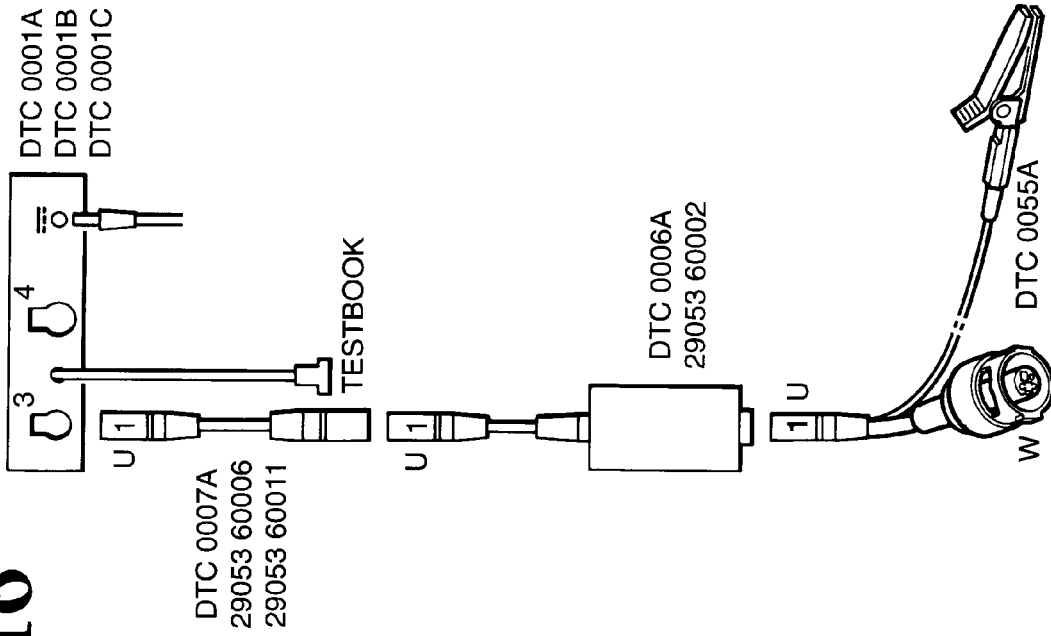
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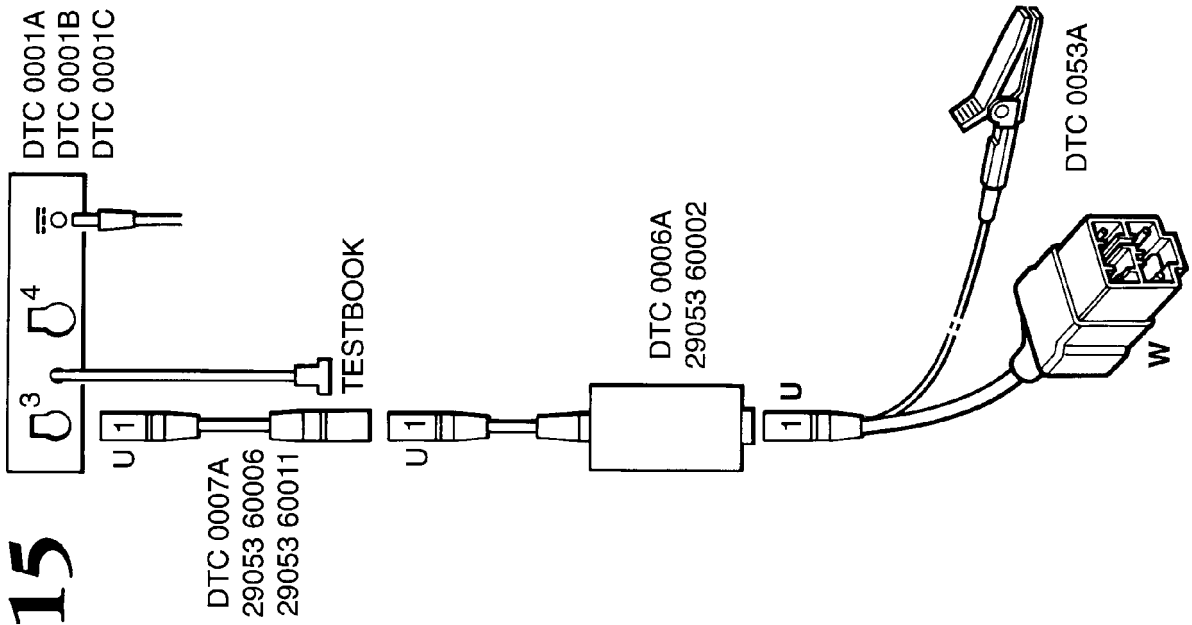
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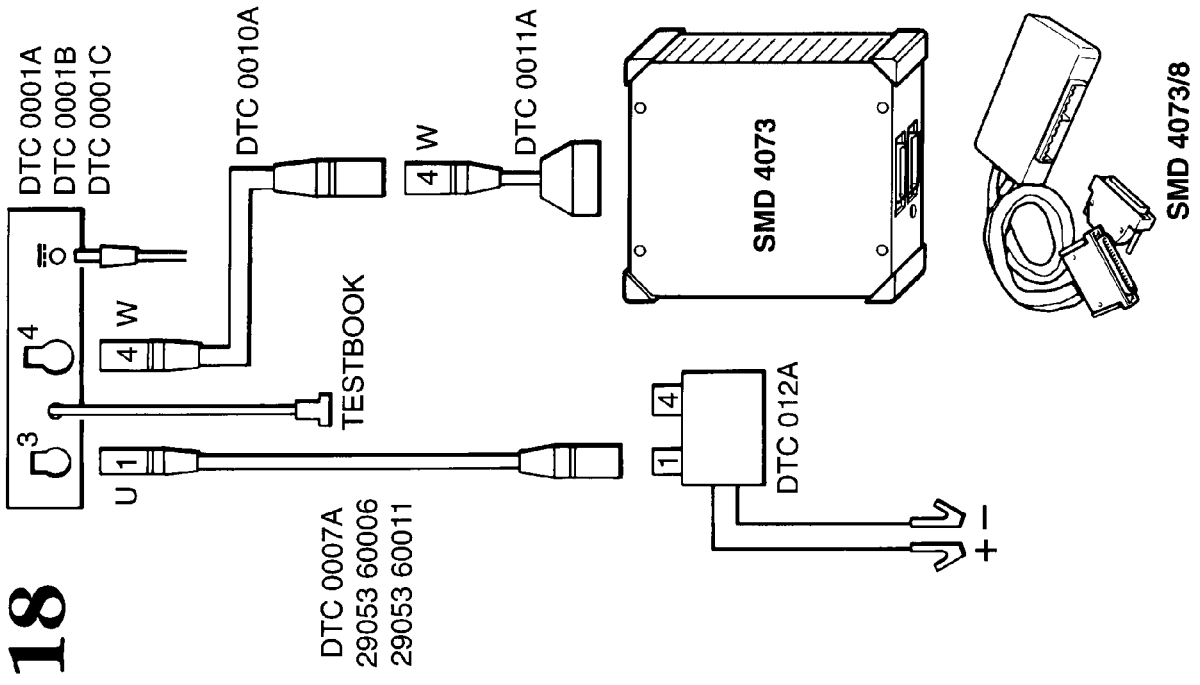
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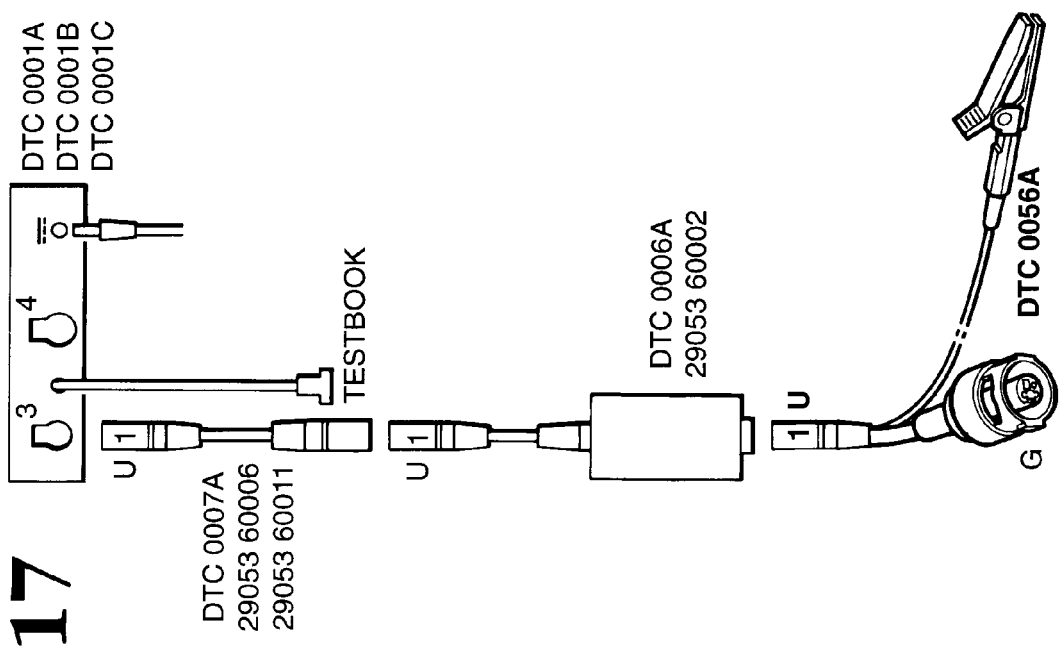
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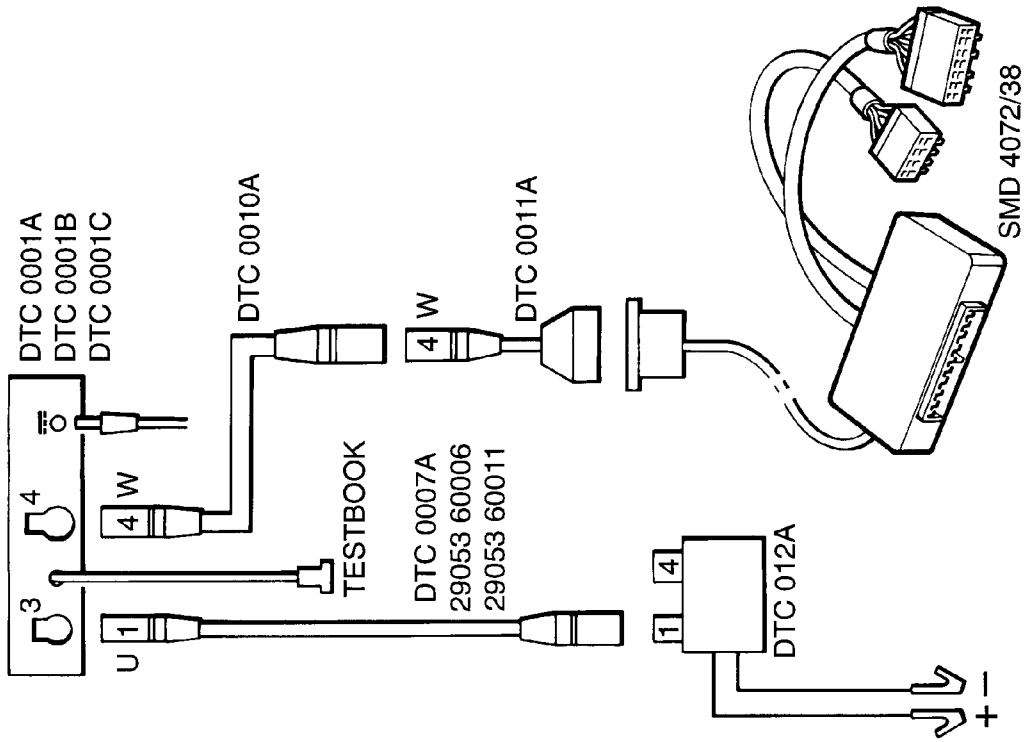
18



17



19



TESTBOOK ERROR CODES

When using TestBook, you may occasionally experience a situation where its operation is interrupted by some kind of internal "hiccup", and an "Error Code" appears on screen.

There are two groups of error code, one for RDS (Rover Diagnostic System) problems, and the other for TIM (Technical Interface for Microcheck) problems.

The following tables tell you how to respond to each error code.

Error code number	Action
1	3
2	3
3	3
4	1
5	1
6	1
7	2
8	2
9	2
10	2
11	3
12	3
13	1
14	3
15	1
16	1
17	3
18	3
19	2
20	2

TestBook RDS Error Codes

The Error code will appear in the format : DTOOxxMX, where "xx" represents the number of the code from 1 to 41; for example DTOO15MX is shown on the table as error code 15. Against each error code number there is a matching Action instruction or instruction key number - refer to the key below for details of the action to take.

21	3
22	3
23	3
24	Printer; check paper, cables etc.
25	3
26	3
27	3
28	3
29	3
30	3
31	3
32	3
33	3
34	3
35	3
36	3
37	3
38	3
39	3
40	3
41	3

Action Key :

1. Restart TestBook and try operation again. If this fails, try the operation on another vehicle. If this still does not work, retry using a different TestBook.
2. First, try operation again, without rebooting. If this fails, reboot and try again. If this in turn fails, try another CD. If this clears the problem, then the original CD was causing the fault. If the fault remains, then the problems in the TestBook.
3. Fill in a Help Desk Information Sheet with all details including the error code and contact the Help Desk.

DIAGNOSTICS

TIM ERROR CODES

TIM Download TACTIC

Error No.	Action
301	3
302	3
303	3
304	3
305	3
306	3
307	3
308	3
309	3
310	3
311	3
312	3
313	3
314	3
315	3
316	3
317	3
318	3
319	3
320	3
321	3
322	3
323	3
324	3
325	3

TIM Emulator TACTIC

Error no	Action
101	3
102	3
103	3
104	3
105	3
106	Replace TIM unit.
107	3
108	3
109	3
110	3
111	3
112	3

The Error code for TIM Problems appears as a three digit number, as shown in the above table. The number in the Action column relates to the Action key below.

Action Key :

1. Restart TestBook and try operation again. If this fails, try the operation on another vehicle. If this still does not work, retry using a different TestBook.
2. First, try operation again, without rebooting. If this fails, reboot and try again. If this in turn fails, try another CD. If this clears the problem, then the original CD was causing the fault. If the fault remains, then the problems in the TestBook.
3. Fill in a Help Desk Information Sheet with all details including the error code and contact the Help Desk.

HELP DESK

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DEALER CHECK LIST (BEFORE YOU RING)

HELP US TO HELP YOU

If you have run into a problem when using TestBook, and you are unable to resolve it by repeating the procedure or by consulting TestBook literature and/or the Help screens, the next stage is :

Fill in a Help Desk Information Sheet (an example is shown on a following page)

Telephone the Helpdesk using the information sheet for reference

The Helpdesk may request you to fax this sheet to them, therefore, it is vital that every section of the Information Sheet is filled in accurately before it is transmitted. If just one small detail is missed out or changed slightly, it could make the difference between getting a solution to your problem in minutes - or days !

TestBook has the capability to print a Help Desk information sheet with certain sections automatically completed. Pressing the Help Desk button on the Welcome Screen automatically prints a Help Desk sheet with six sections filled in. These six sections are the ones taken from the Dealer Information entered in Configuration.

They are :

1. Dealer Name
2. Corporate ID
3. Telephone Number
4. Fax Number
5. Contact 1
6. TestBook Serial/Model Number

If an RDS error occurs, the Fault Notification box has a Help Desk button on it. Pressing this completes the six sections mentioned previously and the following sections aswell :

Data CD Reference Number
RDS Release Number
Screen Reference/Node ID
Error Message Displayed

The following sections **MUST** also be completed.

Vehicle Details and Reported Fault

This should include the exact vehicle model, derivative, model year and VIN, plus any component numbers or codes relevant to the area of the vehicle being worked on. When combined with details of the reported fault that you are trying to diagnose, this may give TestBook engineers a short cut to a solution based on previous experience.

Full details of Test being used

This information is vital to a TestBook engineer who is trying to reproduce and solve the problem.

Some diagnostics can be reached via several different paths. It is vital that the TestBook engineers follow exactly the same diagnostic trail as you. It would help a great deal if you made a note of each screen where you made a decision, so the engineer can follow exactly the same path.

For example:

Select "Diagnostic System"
Select "Security"
Select "Locking/Unlocking"

Continue the path until you reach the screen with the fault.

Full details of any difficulties you've had using TestBook

It may be useful to TestBook engineers to know of any difficulties that you have experienced when using your TestBook.

Cabling Drawing Reference used

It is essential to use the right cables for a given test procedure. By giving the details of the Cabling Drawing Reference (e.g. A, AA etc. to Z, or 1 to 19) that you used to assemble the TestBook connecting cables, you will enable the TestBook engineers to check that these are correct before looking for other problems.



NOTE: If the TestBook screen on which your problem occurred is one of those that can be printed, please print it off and fax it through to the Help Desk with your Information Sheet . The more information you can give the Help Desk, the faster they can help you.

HELP DESK

LOCAL TELEPHONE NUMBERS

COUNTRY	HELPDESK	TRAINING	AFTER SALES TECHNICAL SUPPORT
Australia Fax	0417-270271 02-96872180	02-95855116 02-96872180	
Belgium Fax	02-7239911 02-7239926	02-7239911	02-7239911
France Fax	01-39984077 01-39984072		
Germany (Rover) or Fax	02131-938239 02131-938218 02131-938318	02131-938203 02131-938218 02131-938227	02131-938239
Germany (Land Rover) or fax	02131-938235 02131-938234 02131-938318	02131-938203 02131-938227	02131-938235 02131-938234
Greece or	01-5912102 01-5912103	01-5912102 01-5912103	01-5912102 01-5912103
Italy or (Flying Doctor) Fax	06-65771028 06-65771144 06-65771285 06-50085228	06-65771028 06-65771144 06-65771285 06-50085228	06-65771028 06-65771144 06-65771285 06-50085228
Japan Fax	81-35478-6663 81-35478-7519		
Land Rover (North America) Fax	1-800-5625824 301-731-9814	1-800-5625824 714-362-2713	714-448-8795 301-731-9814
Netherlands Fax	0347-366650 0347-376611	0347-366678	0347-366650
Portugal Fax	01-940-6000 01-940-6092		
South Africa Fax	0027-11-3153314 0027-11-8052558		
Spain	91-678-9068	91-678-9011	91-677-1386
U.K. Fax	01865-746699 01865-746653	01926-647200 01926-647247	01865-745333

HELP DESK

In the event that you experience a problem with the performance of your TestBook you should report this to the TestBook Help Desk. The Help Desk will carry out a call qualification check, as per the TestBook pro-forma, before recommending any exchange. Replacement items that are covered by this support agreement are:

- TestBook
- Printer
- Cables
- TestBook Interface Module (TIM) - Cars dealers only.
- Trolley - power supplies only
- Compact Discs (Diagnostic, TIS and RDS)

No items will be accepted for exchange without the prior authorisation of the appropriate TestBook Help Desk. The relevant TestBook Help Desk is as listed below:

Area/Dealership	First line	Back-up
U.K. Rover Cars	Cowley, Oxford	
U.K. Land Rover	Cowley, Oxford	
European	N.S.C./ Distributor	Cowley, Oxford
North America	LRNA	Cowley, Oxford
Latin & South America, Caribbean.	N.S.C./ Distributor	Cowley, Oxford
Japan	Rover Japan	Cowley, Oxford
Australia	Rover Australia	Cowley, Oxford
Rest of World	N.S.C./ Distributor	Cowley, Oxford

HELP DESK

EXCHANGE TIMES

The exchange service is currently contracted to Hewlett Packard and depending on your country of location exchanges will take place in the following timescales:

TestBooks, Printers and T.I.M. Units

For calls received by the relevant Help Desk by 14.30 (local time) Dealerships in the countries of the European Union, Austria, Switzerland, Norway, U.S.A. and Australia will receive a replacement unit by 12.00 on the following Hewlett Packard working day.

For calls received by the relevant Help Desk by 14.30 (local time) Dealerships in the countries of Eastern Europe will receive a replacement unit within 48 hours of the following H.P. working day.

For other countries Hewlett Packard will use its best endeavours to provide replacement units within 2/3 days from the date of the original request. The expected exchange time will be given at the time of authorising the exchange.

The only exception to the times quoted above is where delays are caused by circumstances which are beyond the control of Hewlett Packard.



NOTE: These exchange times are subject to clearance through local custom control.

Cables, Power Supplies and CD's

All the above will be despatched by first class post on the next working day following receipt of request. The faulty part should be returned to the appropriate service centre within 14 days of receipt of the new part.

DEALER RESPONSIBILITIES

To ensure the smooth operation of this process and the effective management of the limited TestBook stocks there are a number of responsibilities that must be observed by the dealer:

1. The instrument should be removed from the trolley and available for the exchange.
2. Ensure that any C.D.'s are removed prior to the receipt of the exchange unit.
3. If you wish to identify the TestBook in some way use an adhesive label but do not mark or etch the bodywork of the TestBook or its peripheral equipment in any way.
4. The instrument should be in a safe and clean condition for the H.P. engineers to work on.
5. When a fault is reported to the Help Desk please report the fault as accurately as possible and provide all the data required by the pro-forma TestBook fault report form.
6. In the case of a printer exchange the inkjet cartridge should be removed as the replacement unit is not supplied with one.



NOTE: Observing these responsibilities will ensure that we maintain a speedy exchange time, reduce stock shortages and avoid potential increases in cost.

SERVICE LEVEL

TestBook and TIM units

TestBooks and TIM units that become in-operable due to hardware or software failure will be exchanged under the support agreement.

Hardware will be exchanged when the unit fails to meet any area of the operating specification as determined by the TestBook Help Desk.

Software failures will be in the following circumstances:

- i) The TestBook fails to reach the "Welcome" screen.
- ii) The TestBook persistently fails to load and execute data from the compact disc.
- iii) Failures caused by the RDS operating system.

TestBook exchanges will not be covered by this agreement where the software error is found to have been caused by unauthorised attempts to modify TestBook software, or loading of unauthorised software.

Exclusions

Repair work resulting from the causes detailed below are not covered by this exchange contract:

- i) Repairs or modifications, including the removal or damaging of integrity seals, that has not been undertaken by Hewlett Packard. The only exception to this will be where any such work has been authorised in writing by Hewlett Packard.
- ii) Damage caused by the improper use of TestBook including unreasonable cosmetic damage.
- iii) Usage of the unit outside the agreed environmental conditions. (a copy of which can be made available upon request).

In such cases Hewlett Packard will advise Rover of the cost of repair and the repair will only be undertaken with the prior written approval of Rover. In these circumstances Rover reserves the right to pass this cost onto the respective dealer.

Printer

The printer is covered by the support agreement. In the event of failure you should report it through your relevant TestBook Help Desk and they will arrange a replacement.

It does not, however, cover the inkjet printer cartridge and it is recommended, therefore, that you remove the cartridge prior to the exchange as the replacement printer is not supplied with an inkjet cartridge. New cartridges should be sourced locally.

Printer damage caused by the use of a non-HP or "refilled" inkjet cartridges is specifically excluded from the exchange service. Replacement units provided under these circumstances will be chargeable.

Cables

All TestBook cables are covered under this agreement. Cables which fail should be immediately reported through your TestBook Help Desk who will arrange the replacement.

Exceptions

Where new cables are being supplied due to them being reported as missing, lost or damaged through mis-use then these will become a chargeable item.

HELP DESK

Trolley and Associated Power Supplies

The electrical and electronic parts of the trolley's are covered by this agreement i.e.

- 2 x power supplies
- 1 x printer power supply
- 1 x mains distribution point

Replacement parts will be shipped directly to the dealer and the faulty parts should be returned by the dealer to Hewlett Packard within 14 days of the receipt of the new part.

Mechanical parts are not covered and will only be repaired subject to an additional charge.

Compact Discs

Damaged discs due to normal wear and tear can be replaced through a request to the Help Desk.



TESTBOOK EXCHANGE MATRIX

Item	Contact	Delivery Method	Return Method	Notes
TestBook	Help Desk	Courier	Courier	Courier will deliver and collect at the same time.
Printer	Help Desk	Courier	Courier	Courier will deliver and collect at the same time.
T.I.M. unit (Cars only)	Help Desk	Courier	Courier	Courier will deliver and collect at the same time.
Cables	Help Desk	Post	Post	Dealer must return the faulty cable within 14 days of the receipt of the new cable
Adapters	Help Desk	Post	Post	Dealer must return the faulty adapter within 14 days of the receipt of the new adapter.
Trolley Power Supplies	Help Desk	Post	Post	Dealer must return the faulty part within 14 days of the receipt of the new one.
Compact Discs	Help Desk	Post	Post	Dispose of safely, locally or return to the TestBook Help Desk

HELP DESK

HEWLETT PACKARD SERVICE CENTRES

Country	Service Centre
North America	Hewlett Packard Golden Corridor Place 545 East Alongquin Road Arlington Heights IL 60005 U.S.A.
Australia	Hewlett Packard 31-41 Joseph Street Blackburn Melbourne Victoria 3130 Australia
U.K. Europe and Rest of the World	Hewlett Packard Eskdale Road Winnersh Triangle Wokingham Berks RG11 5DZ



TESTBOOK CABLES

Rover Group Part No.	Supplier Part No.
DTC0006A	29053 - 60002
DTC0007A	29053 - 60006 or 29053 - 60011
DTC0008A	29053 - 60004
DTC0013A	27091 - 60006 or 29053 - 60012
DTC0010A	
DTC0011A	
DTC0012A	
DTC0051A	29055 - 60016
DTC0063A	29055 - 60018 5063 - 3238 or 5063 - 3240
DTT0002A	29053 - 60007
DTC0033A	29053 - 60019
DTC0036A	29053 - 64006
DTC0057A	
DTC0058A	
DTC0061 A	29053 - 60024
DTC0062 B	29053 - 60025
DTC0064 A	29053 - 60026
DTC0017A	29054 - 60004
DTC0018A	29054 - 60003
DTC0019A	29054 - 60006
DTC0055A	
DTC0056A	
DTC0053A	
DTC0054A	
DTC0060 A	29054 - 60009
DTC0020A	29055 - 60002
DTC0021A	29055 - 60003
DTC0022A	29055 - 60004
DTC0023B	29055 - 60015
DTC0025A	29055 - 60008 29053 - 64001
DTC0016A	29053 - 64003
DTC0026A	29053 - 60020
DTT0001A	29053 - 60005



**NOTE: FOR CARS DEALERS WITH A TIM
UNIT PROBLEM:**

Anything with a SMD reference requiring
repair should be forwarded directly to:

Omitec Instrumentation Ltd.
Hopton Industrial Estate
London Road
Devizes
WILTS
SN10 2EU

TEL: (*44) 01380 729256

FAX: (*44) 01380 729277

HELP DESK

NOTES

TESTBOOK

HELP DESK

Tel: *44 (0) 1865 746699

Fax: *44 (0) 1865 746653

HELP US TO HELP YOU

Please ensure you have the following information to hand BEFORE you contact the Help Desk.

Dealer Name: (1)		Date:
Corporate ID: (2)	Telephone No: (including area code) (3)	Fax No: (including area code) (4)
Contact 1: (5)	Contact 2:	
TestBook Serial/Model No: (located on rear of screen) (6)	Screen Reference/Node ID: (alpha-numeric data displayed top left hand corner of the screen).	
Data CD Ref No: (printed on CD/displayed on welcome screen under "i" button).	RDS Release No: (displayed top right of screen)	
Vehicle details: (including model/engine/transmission/derivative)	Model Year:	VIN:
Reported fault with the vehicle:		
Full details of test being used:	Error message displayed:	
Full details of problems encountered using TestBook:	Cabling diagram used:	
Other Comments:		