

Workshop manual  
95MY on  
**RANGE ROVER**



**Werkplaatshandboek**  
**Manuel D'Atelier**  
**Werkstatthandbuch**  
**Manuale D'Officina**  
**Manual De Taller**  
**Manual de Oficina**


















# Workshop manual

# RANGE ROVER



This manual covers vehicles from  
1995 model year

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# 01 - INTRODUCTION

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## INTRODUCTION

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**This workshop manual covers vehicles from 1995 model year onwards. Amendments and additional pages will be issued to ensure that the manual covers latest models. Amendments and additions will be identified by the addition of a dated footer at the bottom of the page.**

This Workshop Manual is designed to assist skilled technicians in the efficient repair and maintenance of Land Rover vehicles.

**Individuals who undertake their own repairs should have some skill and training, and limit repairs to components which could not affect the safety of the vehicle or its passengers. Any repairs required to safety critical items such as steering, brakes, suspension or supplementary restraint system should be carried out by a Land Rover Dealer. Repairs to such items should NEVER be attempted by untrained individuals.**

**WARNINGS, CAUTIONS and NOTES** are given throughout this Manual in the following form:



**WARNING: Procedures which must be followed precisely to avoid the possibility of personal injury.**



**CAUTION: This calls attention to procedures which must be followed to avoid damage to components.**



**NOTE: This calls attention to methods which make a job easier or gives helpful information.**

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## DIMENSIONS

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The dimensions quoted are to design engineering specification. Alternative unit equivalents, shown in brackets following the dimensions, have been converted from the original specification.

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## REFERENCES

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References to the left or right hand side in the manual are made when viewing the vehicle from the rear. With the engine and gearbox assembly removed, the water pump end of the engine is referred to as the front.

To reduce repetition, some operations covered in this Manual do not include reference to testing the vehicle after repair.

It is essential that work is inspected and tested after completion and if necessary a road test of the vehicle is carried out particularly where safety related items are concerned.

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## REPAIRS AND REPLACEMENTS

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When replacement parts are required it is essential that Land Rover parts are used.

Attention is particularly drawn to the following points concerning repairs and the fitting of replacement parts and accessories: Safety features embodied in the vehicle may be impaired if other than Land Rover parts are fitted. In certain territories, legislation prohibits the fitting of parts not to the vehicle manufacturer's specification. Torque spanner values given in the Workshop Manual must be strictly adhered to. Locking devices, where specified, must be fitted. If the efficiency of a locking device is impaired during removal it must be replaced with a new one. Certain fasteners must not be re-used. These fasteners are specified in the Workshop Manual.

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## POISONOUS SUBSTANCES

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Many liquids and other substances used are poisonous and therefore must not be consumed. It is also advisable to keep all substances away from open wounds. These substances among others include anti-freeze, brake fluid, fuel, windscreen washer additives, air conditioning refrigerant, lubricants and various adhesives.

## FUEL HANDLING PRECAUTIONS

The following information provides basic precautions which must be observed if fuel is to be handled safely. It also outlines the other areas of risk which must not be ignored.

This information is issued for basic guidance only, and in any case of doubt, appropriate enquiries should be made of your local Fire Officer or Fire Department.

Fuel vapour is highly flammable and in confined spaces is also very explosive and toxic.

When fuel evaporates it produces 150 times its own volume in vapour, which when diluted with air becomes a readily ignitable mixture. The vapour is heavier than air and will always fall to the lowest level. It can readily be distributed throughout a workshop by air current, consequently, even a small spillage of fuel is very dangerous.

Always have a fire extinguisher containing **FOAM CO<sup>2</sup> GAS**, or **POWDER** close at hand when handling fuel, or when dismantling fuel systems and in areas where fuel containers are stored.



**WARNING: It is imperative that the battery is not disconnected during fuel system repairs as arcing at the battery terminal could ignite fuel vapour in the atmosphere. Always disconnect the vehicle battery BEFORE carrying out work on the fuel system.**

**Whenever fuel is being handled, transferred or stored, or when fuel systems are being dismantled all forms of ignition must be extinguished or removed, any leadlamps used must be flame proof and kept clear of spillage.**

**No one should be permitted to repair components associated with fuel without first having had fuel system training.**

## Hot fuel handling precautions



**WARNING: Before commencing any operation requiring fuel to be drained from the fuel tank, the following procedure must be adhered to:**

1. Allow sufficient time for the fuel to cool, thus avoiding contact with hot fuels.
2. Vent the system by removing the fuel filler cap in a well ventilated area. Refit the filler cap until the commencement of fuel drainage.

## Fuel transfer



**WARNING: Fuel must not be extracted or drained from any vehicle while it is standing over a pit.**

The transfer of fuel from the vehicle fuel tank must be carried out in a well ventilated area. An approved transfer tank must be used according to the transfer tank manufacturer's instructions and local regulations, including attention to grounding of tanks.

## Fuel tank removal

A **FUEL VAPOUR** warning label must be attached to the fuel tank upon removal from the vehicle.

## Fuel tank repair

Under no circumstances should a repair to any tank be attempted.




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## SYNTHETIC RUBBER

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Many 'O' ring seals, flexible pipes and other similar items which appear to be natural rubber are made of synthetic materials called Fluoroelastomers. Under normal operating conditions this material is safe, and does not present a health hazard. However, if the material is damaged by fire or excessive heat, it can break down and produce highly corrosive Hydrofluoric acid which can cause serious burns on contact with skin. Should the material be in a burnt or overheated condition handle only with seamless industrial gloves. Decontaminate and dispose of the gloves immediately after use.

If skin contact does occur, remove any contaminated clothing immediately and obtain medical assistance without delay. In the meantime, wash the affected area with copious amounts of cold water or limewater for fifteen to sixty minutes.

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## RECOMMENDED SEALANTS

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A number of branded products are recommended in this manual for use during maintenance and repair work.

These items include:

**HYLOMAR GASKET AND JOINTING COMPOUND**  
and  
**HYLOSIL RTV SILICON COMPOUND.**

They should be available locally from garage equipment suppliers. If there is any problem obtaining supplies, contact the following company for advice and the address of the nearest supplier.

### **MARSTON LUBRICANTS LTD.**

Hylo House,  
Cale Lane,  
New Springs,  
Wigan WN2 1JR

Tel 01942 824242

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## USED ENGINE OIL

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**WARNING: Prolonged and repeated contact with engine or motor oil will result in the removal of natural fats from the skin, leading to dryness, irritation and dermatitis.**

**Used engine oil contains potentially harmful contaminants which may cause skin cancer. Adequate means of skin protection and washing facilities should be provided.**

### Handling precautions

1. Avoid prolonged and repeated contact with oils, particularly used engine oils.
2. Wear protective clothing, including impervious gloves where applicable.
3. Do not put oily rags in pockets.
4. Avoid contaminating clothes, particularly underwear, with oil.
5. Overalls must be cleaned regularly. Discard unwashable clothing and oil impregnated footwear.
6. First aid treatment must be obtained immediately for open cuts and wounds.
7. Use barrier creams, before each work period, to help the removal of oil from the skin.
8. Wash with soap and water to ensure all oil is removed (skin cleansers and nail brushes will help). Preparations containing lanolin replace the natural skin oils which have been removed.
9. Do not use gasoline, kerosene, diesel fuel, petrol, thinners or solvents for washing the skin.
10. If skin disorders develop, obtain medical advice.
11. Where practicable, degrease components prior to handling.
12. Where there is a risk of eye contact, eye protection should be worn, for example, goggles or face shields; in addition an eye wash facility should be provided.

### Disposing of used oils

#### Environmental protection precaution

It is illegal to pour used oil onto the ground, down sewers or drains, or into waterways.

Dispose of used oil through authorised waste disposal contractors. If in doubt contact your Local Authority for advice on disposal facilities.

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## ACCESSORIES AND CONVERSIONS

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**DO NOT FIT** unapproved accessories or conversions, as they could affect the safety of the vehicle. Land Rover will not accept liability for death, personal injury, or damage to property which may occur as a direct result of the fitting of non-approved conversions to the vehicle.

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## WHEELS AND TYRES

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**WARNING: DO NOT** replace the road wheels with any type other than genuine Land Rover wheels which are designed for multi-purpose on and off road use and have very important relationships with the proper operation of the suspension system and vehicle handling. Replacement tyres must be of the make and sizes recommended for the vehicle, and all tyres must be the same make, ply rating and tread pattern.

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## STEAM CLEANING

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To prevent consequential rusting, any steam cleaning within the engine bay **MUST** be followed by careful re-waxing of the metallic components affected. Particular attention must be given to the steering column, engine water pipes, hose clips and ignition coil clamp.

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## SPECIFICATION

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The specification details and instructions set out in this Manual apply only to a range of vehicles and not to any one. For the specification of a particular vehicle purchasers should consult their Dealer

The Manufacturer reserve the right to vary their specifications with or without notice, and at such times and in such manner as they think fit. Major as well as minor changes may be involved in accordance with the Manufacturer's policy of constant product improvement.

Whilst every effort is made to ensure the accuracy of the particulars contained in this Manual, neither the Manufacturer or Dealer, by whom this Manual is supplied, shall in any circumstances be held liable for any inaccuracy or the consequences thereof.

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## SPECIAL SERVICE TOOLS

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The use of approved special service tools is important. They are essential if service operations are to be carried out efficiently, and safely. Where special tools are specified, **only these tools should be used to avoid the possibility of personal injury or damage to the components.** Also the amount of time which they save can be considerable.

Every special tool is designed with the close co-operation of Land Rover, and no tool is put into production which has not been tested and approved by us. New tools are only introduced where an operation cannot be satisfactorily carried out using existing tools or standard equipment. The user is therefore assured that the tool is necessary and that it will perform accurately, efficiently and safely.

Special tools bulletins will be issued periodically giving details of new tools as they are introduced.

All orders and enquiries from the United Kingdom should be sent direct to V. L. Churchill. Overseas orders should be placed with the local V. L. Churchill distributor, where one exists. Countries where there is no distributor may order direct from:

V. L. Churchill Limited,  
PO Box 3,  
Daventry, Northants,  
England, NN11 4NF.

The tools recommended in this Workshop Manual are listed in a multi-language illustrated catalogue, obtainable from:

Messers. V. L. Churchill at the above address,  
or from:

Land Rover Merchandising Service,  
PO Box 534,  
Erdington,  
Birmingham, B24 0Q5,

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## COPYRIGHT

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**JACKING**

The following instructions must be carried out before raising the vehicle off the ground.

1. Use a solid level ground surface.
2. Apply parking brake.
3. Select 'P' or 1st gear in main gearbox.
4. Select Low range in transfer gearbox.



**CAUTION:** To avoid damage occurring to the under body components of the vehicle the following jacking procedures must be adhered to.

**DO NOT POSITION JACKS OR AXLE STANDS UNDER THE FOLLOWING COMPONENTS.**

- Body structure
- Bumpers
- Fuel lines
- Brake lines
- Front radius arms
- Panhard rod
- Steering linkage
- Rear Trailing links
- Fuel tank
- Engine sump
- Gearbox bell housing

Jack or support vehicle by axles only.

**Vehicle jack**

The jack provided with the vehicle is only intended to be used in an emergency, for changing a tyre. Do **NOT** use the jack for any other purpose. Refer to Owner's Manual for vehicle jack location points and procedure. Never work under a vehicle supported by the vehicle jack.

**Hydraulic jack**

A hydraulic jack with a minimum 1500 kg, 3,300 lbs load capacity must be used.



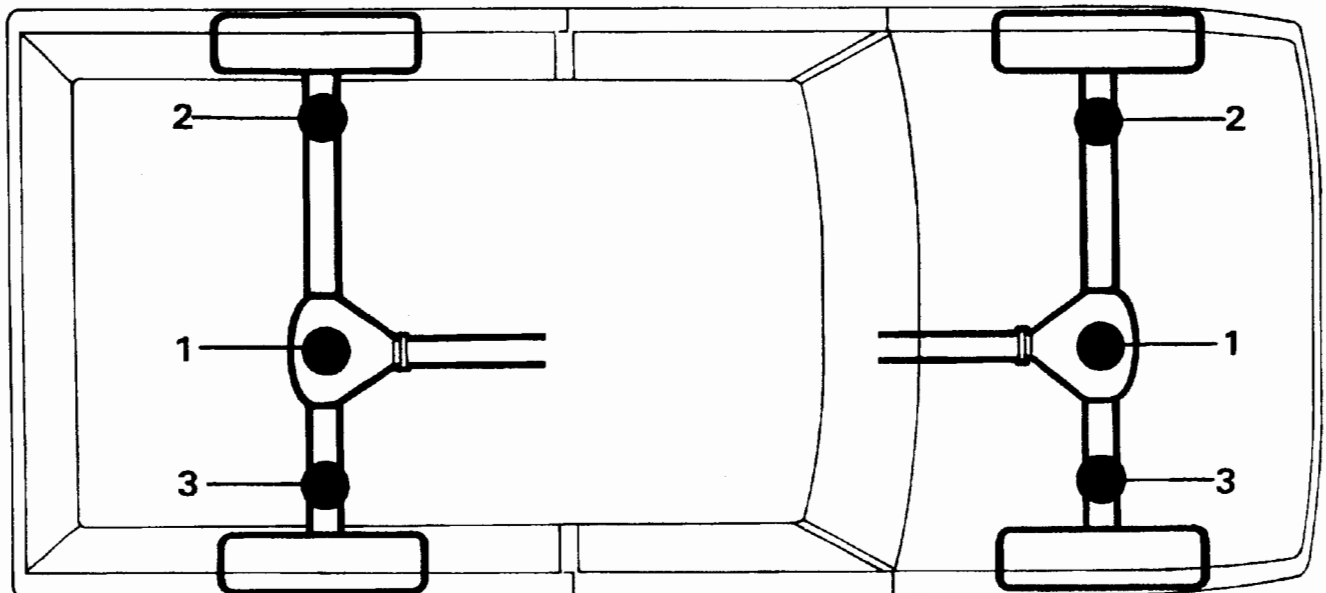
**CAUTION:** Do not commence work on the underside of the vehicle until suitable axle stands have been positioned under the axle.

**Raise the front of the vehicle**

1. Position cup of hydraulic arm under differential casing.



**NOTE:** The differential casing is not central to the axle. Care should be taken when raising the front road wheels off the ground as the rear axle has less sway stiffness.



RR1839E



2. Raise front road wheels to enable an axle stand to be installed under left hand axle tube.
3. Position an axle stand under right hand axle tube, carefully lower jack until axle sits securely on both axle stands, remove trolley jack.
4. Before commencing work on underside of vehicle re-check security of vehicle on stands.
5. Reverse procedure when removing vehicle from stands.

## Raise rear of vehicle

1. Position cup of hydraulic arm under differential casing.
2. Raise vehicle to enable axle stands to be installed under left and right hand axle tubes.
3. Lower jack until axle sits securely on axle stands, remove trolley jack.
4. Before commencing work on underside of vehicle re-check security of vehicle on stands.
5. Reverse procedure when removing vehicle from stands.

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## HYDRAULIC VEHICLE RAMP (FOUR POST)

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Use only a 'drive on' type ramp which supports vehicle by its own road wheels. If a 'wheel-free' condition is required, use a 'drive on' ramp incorporating a 'wheel-free' system that supports under axle casings. Alternatively, place vehicle on a firm, flat floor and support on axle stands.

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## TWO POST VEHICLE RAMPS

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The manufacturer of **LAND ROVER VEHICLES** **DOES NOT** recommend using 'Two Post' ramps that employ four adjustable support arms. These are **NOT** considered safe for Land Rover vehicles. If vehicle is installed on a Two Post ramp responsibility for safety of vehicle and personnel performing service operations is in the hands of the Service Provider.

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## DYNAMOMETER TESTING - NON ANTI-LOCK BRAKE VEHICLES

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### Viscous coupling

The front and rear axles cannot be driven independently due to the viscous coupling. This eliminates the need for differential lock by progressively locking the centre differential automatically if slip occurs at any wheel.



**WARNING: DO NOT attempt to drive individual wheels with vehicle supported on floor jacks or stands.**

### Four wheel dynamometers

Provided that front and rear dynamometer rollers are rotating at identical speeds and that normal workshop safety standards are applied, there is no speed restriction during testing except any that may apply to the tyres.

### Two wheel dynamometers

**IMPORTANT: Use a four wheel dynamometer for brake testing if possible.**

If brake testing on a single axle rig is necessary it must be carried out with propeller shaft to rear axle removed, **AND** neutral selected in **BOTH** main gearbox and transfer gearbox. When checking brakes, run engine at idle speed to maintain servo vacuum. If checking engine performance, the transfer box must be in high range and propeller shaft to stationary axle must be removed.

2. Raise front road wheels to enable an axle stand to be installed under left hand axle tube.
3. Position an axle stand under right hand axle tube, carefully lower jack until axle sits securely on both axle stands, remove trolley jack.
4. Before commencing work on underside of vehicle re-check security of vehicle on stands.
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## DYNAMOMETER TESTING - VEHICLES WITH ANTI-LOCK BRAKES (ABS)



**WARNING:** Do not attempt to test ABS function on a dynamometer

### Four wheel dynamometers



**NOTE:** Before testing a vehicle on a four wheel dynamometer disconnect the valve relay. See *Electrical Trouble Shooting Manual*.

#### Manual.

The ABS function will not work, the ABS warning light will illuminate. Normal braking will be available.

Provided that front and rear rollers are rotating at identical speeds and that normal workshop safety standards are applied, there is no speed restriction during testing except any that may apply to the tyres.

### Two wheel dynamometers

**IMPORTANT:** Use a four wheel dynamometer for brake testing if possible.



**NOTE:** ABS will not function on a two wheel dynamometer. The ABS light will illuminate during testing. Normal braking will be available.

If brake testing on a single rig is necessary it must be carried out with propeller shaft to the rear axle removed, AND neutral selected in BOTH main and transfer boxes.

If checking engine performance, the transfer box must be in high range and drive shaft to stationary axle removed.

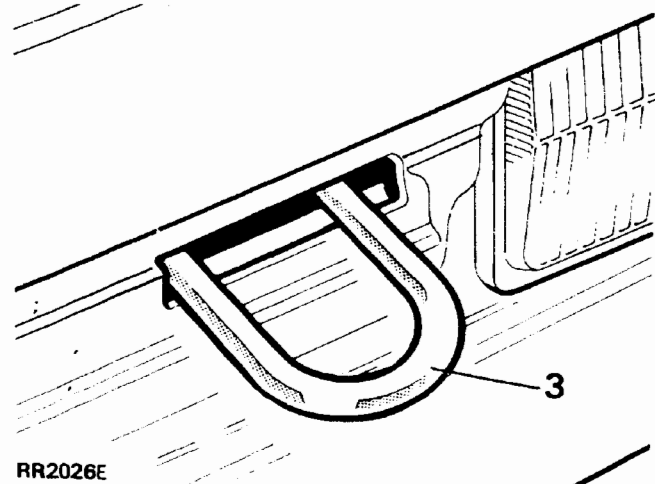
## TOWING



**CAUTION:** The vehicle has permanent four-wheel drive. The following towing instructions must be adhered to:

Towing the vehicle on all four wheels with driver operating steering and brakes.

1. Turn ignition key turn to position '1' to release steering lock.
2. Select neutral in main gearbox and transfer gearbox.



RR2026E

3. Secure tow rope, chain or cable to towing eye.
4. Release the parking brake.



**CAUTION:** The brake servo and power assisted steering system will not be functional without the engine running. Greater pedal pressure will be required to apply the brakes, the steering system will require greater effort to turn the front road wheels. The vehicle tow connection should be used only in normal road conditions, 'snatch' recovery should be avoided.

### Suspended tow by breakdown vehicle



**CAUTION:** To prevent vehicle damage, front or rear propeller shaft **MUST BE** removed, dependent upon which axle is being trailed.

1. Mark propeller shaft drive flanges at transfer gearbox and axles with identification lines to enable the propeller shaft to be refitted in its original position.
2. Remove the propeller shaft fixings, remove the shaft from the vehicle.
3. If the front axle is to be trailed turn ignition key to position '1' to release steering lock.



**CAUTION:** The steering wheel and/or linkage must be secured in a straight ahead position. **DO NOT** use the steering lock mechanism for this purpose.

## TRANSPORTING THE VEHICLE BY TRAILER

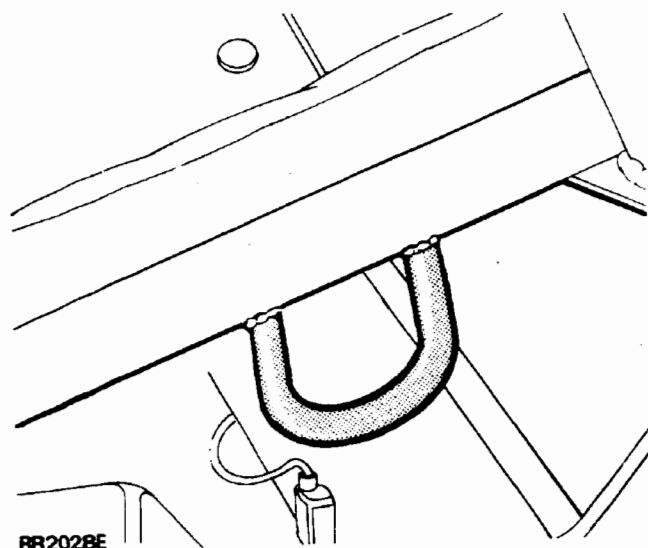
Lashing eyes are provided on front and rear of the chassis side members, to facilitate the securing of the vehicle to a trailer or other means of transportation.



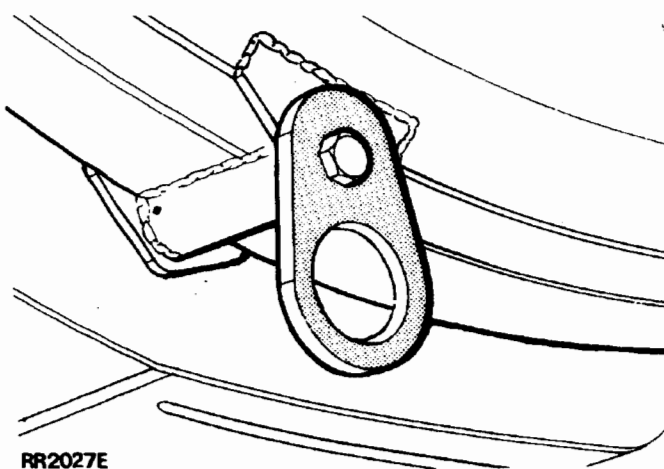
**CAUTION:** Underbody components must not be used as lashing points.

Install vehicle on trailer and apply park brake. Select neutral in main gearbox. Selecting 'N' will prevent damage to parking pawl of the automatic gearbox.

### FRONT OF CHASSIS



### REAR OF CHASSIS



## JUMP STARTING



**WARNING:** Hydrogen and oxygen gases are produced during normal battery operation. This gas mixture can explode if flames, sparks or lighted tobacco are brought near battery. When charging or using a battery in an enclosed space, always provide ventilation and shield your eyes.

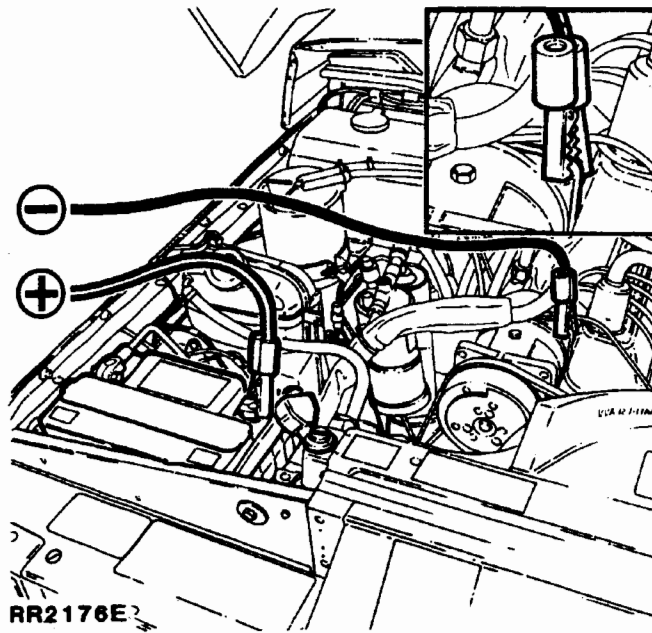
Keep out of reach of children. Batteries contain sulphuric acid. Avoid contact with skin, eyes, or clothing. Also, shield eyes when working near battery to protect against possible splashing of acid solution. In case of acid contact with skin, eyes, or clothing, flush immediately with water for a minimum of fifteen minutes. If acid is swallowed, drink large quantities of milk or water, followed by milk of magnesia, a beaten egg, or vegetable oil. **SEEK MEDICAL AID IMMEDIATELY.**

### To Jump Start - Negative Ground Battery



**WARNING:** To avoid any possibility of injury use particular care when connecting a booster battery to a discharged battery.

1. Position vehicles so that jump leads will reach, ensuring that vehicles **DO NOT TOUCH**, alternatively a fully charged slave battery may be positioned on floor adjacent to vehicle.
2. Ensuring that ignition and all electrical accessories are switched off, that parking brake is applied and neutral is selected on a manual gearbox, with an automatic gearbox select neutral (N) or park (P) and then connect the jump leads as follows;
  - A. Connect one end of first jumper cable to positive (+) terminal of booster battery.
  - B. Connect other end of first jumper cable to positive (+) terminal of discharged battery.
  - C. Connect one end of second jumper cable to negative terminal of booster battery.



- D. Connect other end of second jumper cable to a good earth point on the engine, **NOT TO NEGATIVE TERMINAL OF DISCHARGED BATTERY**. Keep jumper lead away from moving parts, pulleys, drive belts and fan blade assembly.



**WARNING: Making final cable connection could cause an electrical arc which if made near battery could cause an explosion.**

3. If booster battery is installed in another vehicle, start engine and allow to idle.
4. Start engine of vehicle with discharged battery, following starting procedure in Owners' Manual.



**CAUTION: If vehicle fails to start within a maximum time of 12 seconds, switch ignition off and investigate cause. Failing to follow this instruction could result in irreparable damage to catalyts.**

5. Remove negative (-) jumper cable from the engine and then terminal of booster battery.
6. Remove positive (+) jumper cable from positive terminals of booster battery and discharged battery.

## ABBREVIATIONS AND SYMBOLS USED IN THIS MANUAL

Across flats (bolt size) .....	AF	Low tension .....	l.t.
After bottom dead centre .....	ABDC	Maximum .....	max.
After top dead centre .....	ATDC	Metre .....	m
Alternating current .....	a.c.	Millilitre .....	ml
Ampere .....	amp	Millimetre .....	mm
Ampere hour .....	amp hr	Miles per gallon .....	mpg
Before bottom dead centre .....	BBDC	Miles per hour .....	mph
Before top dead centre .....	BTDC	Minute (angle) .....	'
Bottom dead centre .....	BDC	Minus (of tolerance) .....	-
Brake horse power .....	bhp	Negative (electrical) .....	-
British Standards .....	BS	Newton metres (torque) .....	Nm
Carbon monoxide .....	CO	Number .....	No.
Centimetre .....	cm	Ohms .....	ohm
Centigrade (Celsius) .....	C	Ounces (force) .....	ozf
Cubic centimetre .....	cm <sup>3</sup>	Ounces (mass) .....	oz
Cubic inch .....	in <sup>3</sup>	Ounce inch (torque) .....	ozf.in.
Degree (angle) .....	deg or °	Outside diameter .....	O.D.
Degree (temperature) .....	deg or °	Part number .....	Part No.
Diameter .....	dia.	Percentage .....	%
Direct current .....	d.c.	Pints .....	pt
Electronic Control Unit .....	ECU	Pints (US) .....	US pt
Electronic Fuel Injection .....	EFI	Plus (tolerance) .....	+
Fahrenheit .....	F	Positive (electrical) .....	+
Feet .....	ft	Pound (force) .....	lbf
Feet per minute .....	ft/min	Pounds inch (torque) .....	in.lbf.
Fifth .....	5th	Pound (mass) .....	lb
First .....	1st	Pounds per square inch .....	P.S.I.
Fluid ounce .....	fl oz	Ratio .....	:
Foot pounds (torque) .....	lbf ft	Reference .....	ref.
Fourth .....	4th	Revolution per minute .....	rev/min
Gramme (force) .....	gf	Right-hand .....	RH
Gramme (mass) .....	g	Second (angle) .....	"
Gallons .....	gal	Second (numerical order) .....	2nd
Gallons (US) .....	US gal	Specific gravity .....	sp.gr.
High tension (electrical) .....	H.T.	Square centimetres .....	cm <sup>2</sup>
Internal diameter .....	I.D.	Square inches .....	in <sup>2</sup>
Inches of mercury .....	in. Hg	Standard wire gauge .....	s.w.g.
Inches .....	in	Synchroniser/Synchromesh .....	synchro.
Kilogramme (force) .....	kgf	Third .....	3rd
Kilogramme (mass.) .....	kg	Top dead centre .....	TDC
Kilogramme centimetre (torque) .....	kgf.cm	United Kingdom .....	UK
Kilogramme per square millimetre .....	kgf/mm <sup>2</sup>	Vehicle Identification Number .....	VIN
Kilogramme per square centimetre .....	kgf/cm <sup>2</sup>	Volts .....	V
Kilogramme metres (torque) .....	kgf.m	Watts .....	W
Kilometres .....	km		
Kilometres per hour .....	km/h		
Kilovolts .....	kV		
Left-hand .....	LH		
Left-hand steering .....	LHStg		
Left-hand thread .....	LHThd		
Litres .....	litre		

### SCREW THREADS

American Standard Taper Pipe .....	NPTF
British Standard Pipe .....	BSP
Unified Coarse .....	UNC
Unified Fine .....	UNF

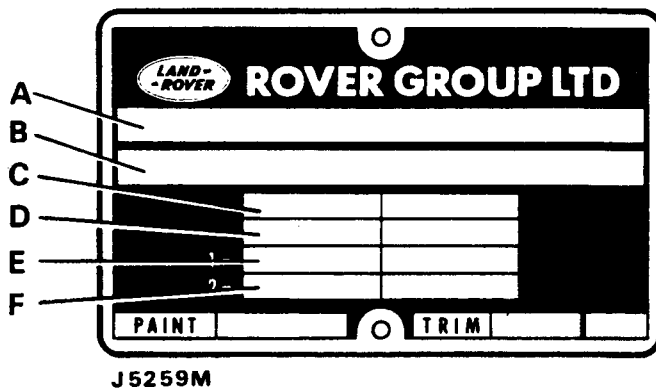
**CROSS REFERENCE OF EMISSION SYSTEM  
TERMINOLOGY**

<b>NEW TERM</b>	<b>(ACRONYM)</b>	<b>OLD TERM</b>	<b>(ACRONYM)</b>
Accelerator pedal .....	(AP)	Throttle pedal .....	(-)
Air cleaner .....	(ACL)	Air cleaner .....	(-)
Air conditioning .....	(AC)	Air conditioning .....	(AC)
Battery positive voltage .....	(B+)	Battery plus, bat +, bat feed .....	(B+)
Closed loop .....	(CL)	Closed loop .....	(-)
Closed throttle position .....	(CTP)	Closed throttle, idle position .....	(-)
Canister purge valve .....	(CANPV)	Charcoal canister purge valve .....	(-)
Data link connector .....	(DLC)	Serial link .....	(-)
Diagnostic trouble code .....	(DTC)	Fault code .....	(-)
Distributor ignition .....	(DI)	Electronic ignition .....	(-)
Engine control module .....	(ECM)	Electronic control unit .....	(ECU)
Engine coolant level .....	(ECL)	Coolant level .....	(-)
Engine coolant temperature .....	(ECT)	Coolant temperature .....	(temp)
Engine coolant temperature sensor .....	(ECTS)	Coolant temperature thermistor .....	(-)
Engine speed .....	(RPM)	Engine speed .....	(rev/min)
Evaporative emission system .....	(EVAP)	Evaporative loss system .....	(ELC)
Engine fuel temperature sensor .....	(EFTS)	Fuel temperature thermistor .....	(-)
4th gear, 3rd gear etc. ....	(4GR, 3GR)	Fourth gear, 3rd gear .....	(-)
Fuel pump .....	(FP)	Fuel pump .....	(-)
Fan control module .....	(FCM)	Condenser fan timer .....	(-)
Generator .....	(GEN)	Alternator .....	(-)
Ground .....	(GND)	Ground, earth .....	(B-)
Heated oxygen sensor .....	(H02S)	Lambda (O <sub>2</sub> ) sensor .....	(-)
Idle air control .....	(IAC)	Idle speed control .....	(ISC)
Idle air control valve .....	(IACV)	Stepper motor .....	(-)
Ignition control module .....	(ICM)	Ignition module .....	(-)
Inertia fuel shutoff .....	(IFS)	Inertia switch .....	(-)
Inertia fuel shutoff switch .....	(IFSS)	Inertia switch .....	(-)
Intake air temperature .....	(IAT)	Intake temperature/ambient temperature .....	(-)
Malfunction indicator lamp .....	(MIL)	EFI warning lamp .....	(-)
Manifold vacuum zone .....	(MVZ)	Manifold depression, vacuum .....	(-)
Mass air flow sensor .....	(MAFS)	Air flow meter .....	(-)
Multiport fuel injection .....	(MFI)	Electronic fuel injection .....	(EFI)
On board diagnostic .....	(OBD)	Fault code display unit .....	(-)
Open loop .....	(OL)	Open loop .....	(-)
Park/neutral position .....	(PNP)	Park or neutral .....	(-)
Park/neutral position switch .....	(PNPS)	Start inhibit switch .....	(-)
Programmable read only memory .....	(PROM)	Chip, PROM .....	(PROM)
Relay module .....	(RM)	Relay .....	(-)
Service reminder indicator .....	(SRI)	Check engine light .....	(-)
Solid state relay module .....	(SSRM)	Control unit .....	(-)
Three way catalytic converter .....	(TWC)	Catalyst, catalytic converter .....	(CAT)
Throttle body .....	(TB)	Throttle housing .....	(-)
Throttle position sensor .....	(TPS)	Throttle potentiometer .....	(-)
Torque converter clutch .....	(TCC)	Direct drive clutch .....	(DDC)
Transmission range .....	(TR)	Transmission gear .....	(-)
Transmission range selector .....	(TRS)	Shift lever, shifter .....	(-)
Vehicle speed sensor .....	(VSS)	Road speed transducer .....	(-)
Wide open throttle .....	(WOT)	Full throttle, wide open throttle .....	(WOT)

### VEHICLE IDENTIFICATION NUMBER (VIN)

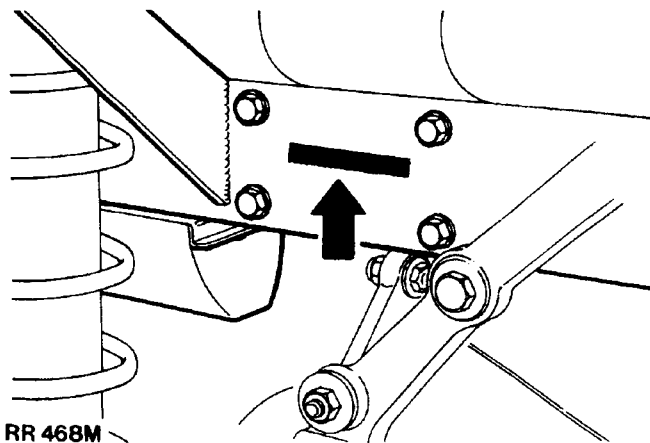
The Vehicle Identification Number and the recommended maximum vehicle weights are stamped on a plate located under the bonnet [hood] riveted to the front of the engine compartment.

#### Vehicle Identification Number Plate (UK, Australia, R.O.W., Europe)

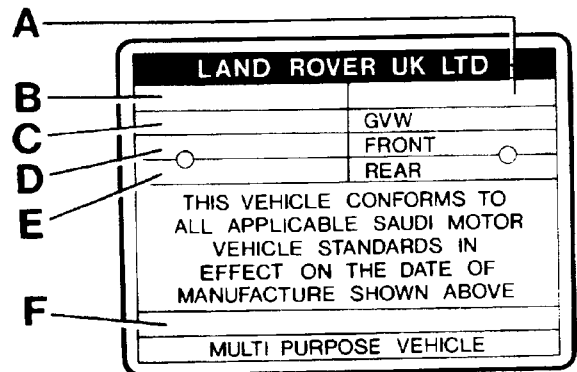


- A. Build date (Australia). Type approval
- B. VIN (17 digits)
- C. Maximum permitted laden weight for vehicle
- D. Maximum vehicle and trailer weight
- E. Maximum road weight-front axle
- F. Maximum road weight-rear axle

The number is also stamped on the right side of the chassis forward of the spring mounting turret.



### Vehicle Identification Number Plate (Saudi Arabia)



- A. Year of manufacture
- B. Month of manufacture
- C. Maximum vehicle weight
- D. Maximum road weight-front axle
- E. Maximum road weight-rear axle
- F. VIN (17 digits)

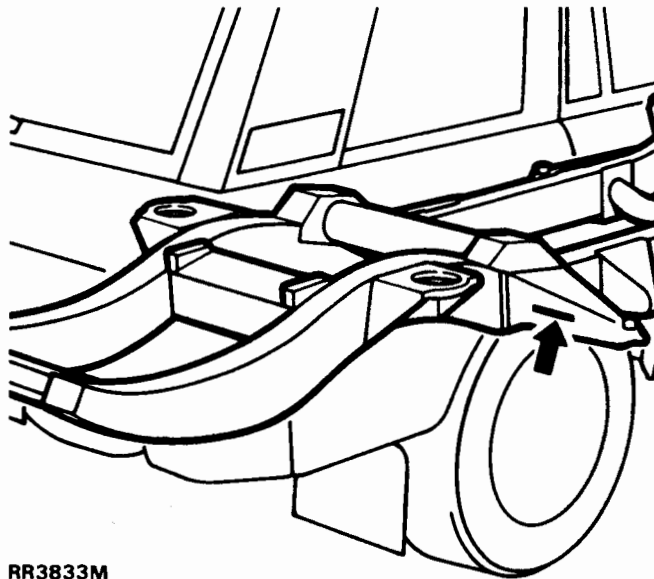
The vehicle identification number identifies the manufacturer, model range, wheel base, body type, engine, steering, transmission, model year and place of manufacture. The following example shows the coding process.

- SAL World manufacturer identifier
- LH Range Rover or
- LJ Discovery
- G Class 100 inch
- B 2 door
- F 300 Tdi or
- V V8i Petrol
- 8 5 speed LHD or
- 7 5 speed RHD
- M 1995 MY
- A Solihull site





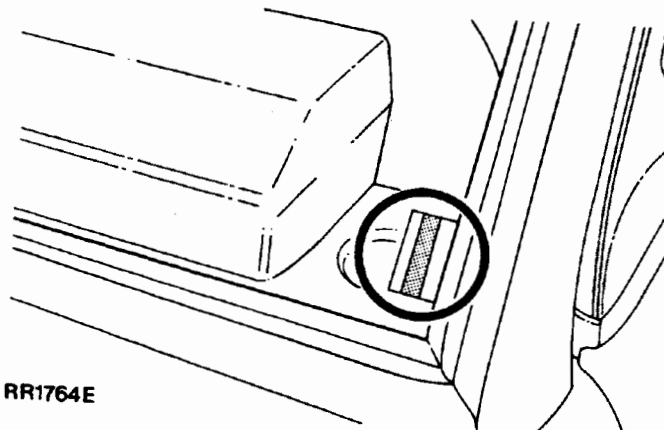
**European vehicle identification number (VIN)**



RR3833M

Stamped on the right hand side chassis forward of rear wheel.

**Federal (USA) vehicle identification number**

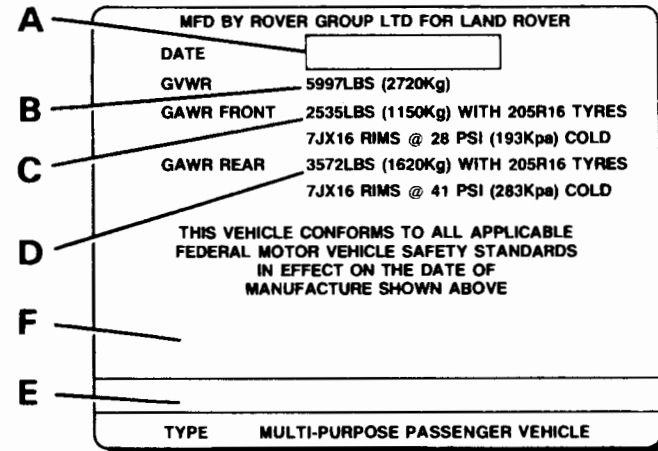


RR1764E

Stamped on a plate rivetted to the upper left hand 'A' - post, visible through the front screen of the vehicle.

**Vehicle identification number (VIN)**

An adhesive label containing the Vehicle Identification Number, date of manufacture and gross axle weight ratings is fixed to the lock face of the front left hand door. The information includes wheel and tyre sizes and tyre pressures at gross axle weight ratings.



RR2944E

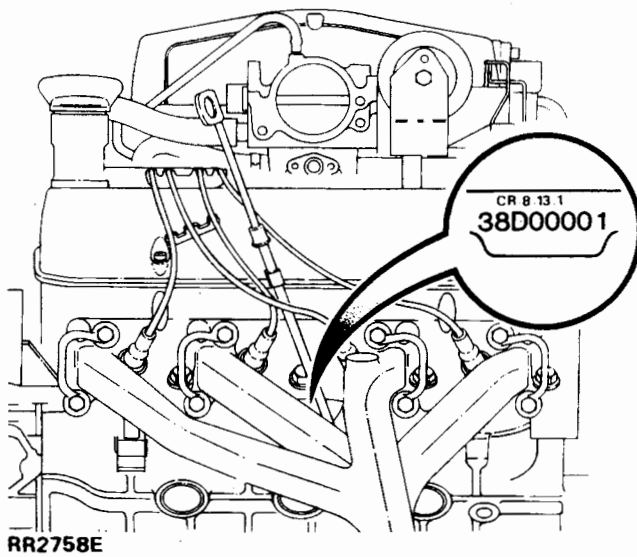
**Key to vehicle identification label**

- A. Month and year of manufacture
- B. Gross vehicle weight rating
- C. Gross axle weight rating for front axle
- D. Gross axle weight rating for rear axle
- E. Vehicle identification number (17 digits)
- F. Vehicle identification number - bar code

## LOCATION OF IDENTIFICATION NUMBERS

### Engine serial number - V8i engine

Stamped on a cast pad on the cylinder block, between numbers 3 and 5 cylinders.



### Engines are identified by the prefix:

#### 3.9 Litre:

- 35D. - 9.35:1 compression, manual transmission
- 36D. - 9.35:1 compression, automatic transmission
- 37D. - 8.13:1 compression, manual transmission
- 38D. - 8.13:1 compression, automatic transmission

#### 4.2 Litre:

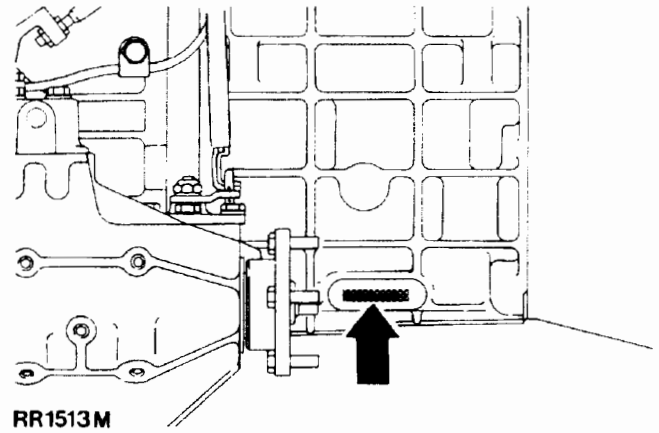
- 40D. - 8.94:1 compression, automatic transmission

### Engine serial number - Diesel engine

Stamped on the RH side of cylinder block above the camshaft front cover plate.

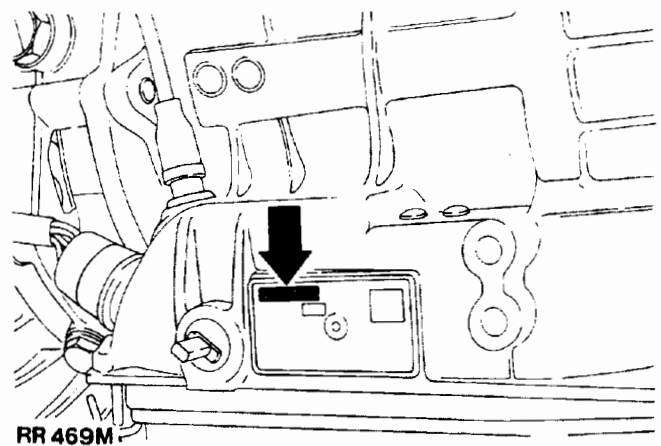
### Main gearbox R380

Stamped on a cast pad on the bottom right hand side of the gearbox.



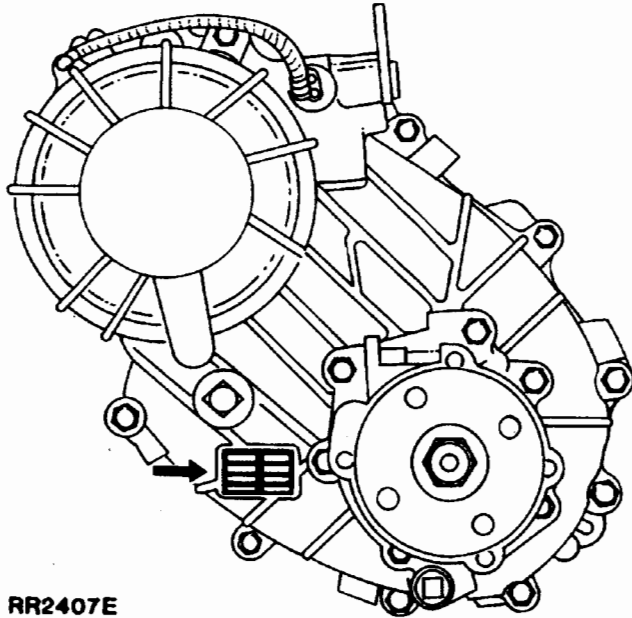
### Automatic gearbox

Stamped on a plate riveted to the bottom left hand side of the gearbox casing.



**Transfer gearbox-Borg Warner**

Stamped on a plate attached to the gearbox casing,  
between filler/level and drain plug.



RR2407E

**Front and rear axle**

Stamped on the top of the left hand axle tubes.

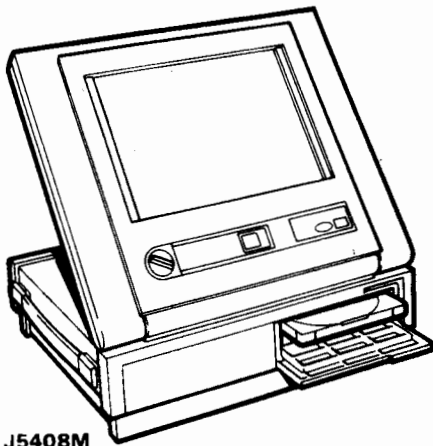
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**FAULT DIAGNOSTIC EQUIPMENT**


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**TESTBOOK**

Today's Land Rover Vehicles are equipped with a large amount of electronics to provide the best performance of the vehicles systems. Diagnostic equipment named TESTBOOK is available to expand the diagnostic abilities of the dealer workshop. This repair manual is produced with Testbook in mind. Features of Testbook include: - Fully upgradable support for the technician. Structured diagnostics to accommodate all skill levels. Touch screen operation. Direct print out of screen information and test results.



J5408M

**ELECTRICAL TROUBLESHOOTING MANUAL**

The Electrical Troubleshooting Manual is a separate publication that is intended for use by trained Land Rover technicians as an aid to diagnosing electrical concerns.

It provides circuit diagrams, system diagnosis flow charts, electrical component location tables, electrical component location views, and circuit operation details.

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**READING THIS MANUAL**


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This manual is divided into sections shown on the contents page, alongside a range of icons, familiar to service technicians.

Relevant information is contained within each of these sections. These are further divided into the following sub-sections which appear at the foot of each page:

**Description and operation.**

**Fault diagnosis.**

**Adjustment.**

**Repair.**

**Overhaul.**

**Specifications, Torque.**

**Service tools.**

To avoid repeating information through the sections, where part of the repair operation impacts on another section, a cross reference is given to direct the reader to where the information is sited.

For example:

The maintenance section states the need to renew V8i drive belt. A cross reference sites this information in:

Section: V8i Engine

- Sub-section: Repairs

- Heading: Drive belt renew

Sections that contain derivatives such as engines are further separated into within that section.

**American terminology**

A few words used in this manual differ to words used in America. Where this occurs the American word is placed inside brackets. For example: bonnet [hood], wing [fender], ramp [hoist].