



Workshop Manual
Werkplaatshandboek
Manual d'Atelier
Werkstatthandbuch
Manuale d'Officina
Manual de Taller
Manual de Oficina





DEFENDER 1999 & 2002 MY

WORKSHOP MANUAL SUPPLEMENT & BODY REPAIR MANUAL

This Supplement supersedes Workshop Manual VDR 100250 and should be used in conjunction with the following Manuals:

Workshop Manual - Defender 300 Tdi LRL 0097
Overhaul Manual - R380 gearbox LRL 0003 3rd edition
Overhaul Manual - LT230T Transfer gearbox LRL 0081 3rd edition

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INTRODUCTION

This Workshop Manual Supplement covers vehicles from 1999 and 2002 model year onwards. The Body Repair Manual has also been incorporated into this supplement. Amendments and additional pages will be issued, when necessary, to ensure that the supplement covers latest models.

This Supplement is designed to assist skilled technicians in the efficient repair and maintenance of Land Rover Defender 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.

DIMENSIONS

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

REFERENCES

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 crankshaft end of the engine is referred to as the front.

To reduce repetition, some operations covered in this Supplement 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.

REPAIRS AND REPLACEMENTS

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 Supplement 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 Supplement.

POISONOUS SUBSTANCES

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.

01 INTRODUCTION

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 and 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 CO² 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.



SYNTHETIC RUBBER

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.

RECOMMENDED SEALANTS

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 SILICONE 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

USED ENGINE OIL



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.