

RECOMMENDED LUBRICANTS, FLUIDS AND CAPACITIES

These recommendations apply to temperate climates where operational temperatures may vary between
-10°C (14°F) and 35°C (95°F)

COMPONENTS	BP	CASTROL	DUCKHAMS	ESSO	MOBIL	PETROFINA	SHELL	TEXACO
Engine V8 Sump Dashpots (Carburetter models only)	BP Super Viscostatic (20/50) or BP VF7 (10W/30)	Castrol GTX (15W/50) or Castrolite (10W/40)	Duckhams 15W/50 Hypergrade Motor Oil	Esso Superlube (15W/40)	Mobil Super 10W/40 or Mobil 1 Rally Formula 5W/50	Fina Supergrade Motor Oil 15W/40 10W/40	Shell Super Motor Oil 15W/40 or 10W/40	Havoline Motor Oil 15W/40 or Eurotex HC (10W/30)
LT77—five- speed gearbox ZF4HP22 Automatic Gearbox	BP Aurtran DX2D	Castrol TQ Dexron IID	Duckhams Fleetmatic CD or Duckhams D-Matic	Esso ATF Dexron IID	Mobil ATF 220D	Fina Dexron IID	Shell ATF Dexron IID	Texamatic Fluid 9226
Front differential Rear differential Swivel pin housings and LT230T Transfer box*	BP Gear Oil SAE 90EP	Castrol Hypoy SAE 90EP	Duckhams Hypoid 90	Esso Gear Oil GX 85W/90	Mobil Mobilube HD90	Fina Pontonic MP SAE 80W/90	Shell Spirax 90 EP	Texaco Multigear Lubricant EP 85W/90
Brake and clutch reservoirs	Brake Fluids having a minimum boiling point of 260°C (500°F) and complying with FMVSS 116 DOT3 or DOT4							
Prop. shaft Front and rear	BP Energrease L2	Castrol LM Grease	Duckhams LB 10	Esso Multi- purpose Grease H	Mobil- grease MP	Fina Marson HTL 2	Shell Retinax A	Marfak All purpose Grease
Power steering box and fluid reservoir as applicable	BP Aurtran DX2D	Castrol TQ Dexron IID	Duckhams Fleetmatic CD or Duckhams D-Matic	Esso ATF Dexron IID	Mobil ATF 220D	Fina Dexron II	Shell ATF Dexron IID	Texamatic Fluid 9226
Lubrication nipples (hubs, ball joints, etc.)	BP Energrease L2	Castrol LM Grease	Duckhams LB 10	Esso Multi- purpose Grease H	Mobil- grease MP	Fina Marson HTL 2	Shell Retinax A	Marfak All purpose Grease
Ball joint assembly Top link	Dexragrease Super GP							
Seat slides Door lock striker	BP Energrease L2	Castrol LM Grease	Duckhams LB 10	Esso Multi- purpose Grease H	Mobil Mobil- grease MP	Fina Marson HTL2	Shell Retinax A	Marfak All purpose Grease
Engine cooling system	Use an ethylene glycol based anti-freeze (containing no methanol) with non-phosphate corrosion inhibitors suitable for use in aluminium engines to ensure the protection of the cooling system against frost and corrosion in all seasons Use one part anti-freeze to one part water for protection down to -36°C (-65°F) IMPORTANT: Coolant solution must not fall below proportions one part anti-freeze to three parts water, i.e. minimum 25% anti-freeze in coolant otherwise damage to engine is liable to occur. When anti-freeze is not required, the cooling system must be flushed out with clean water and refilled with a solution of one part Marstons SQ36 inhibitor to nine parts water, i.e. minimum 10% inhibitor in coolant							

* Engine oil or gearbox oil or a mixture of both may be used as an alternative to the gear oil specified for the transfer box.

RECOMMENDED LUBRICANTS AND FLUIDS SERVICE INSTRUCTIONS ALL MARKETS

COMPONENTS	BP	CASTROL	DUCKHAMS	ESSO	MOBIL	PETROFINA	SHELL	TEXACO	SPEC. REF. ALL BRANDS
Seat slides Door lock striker	BP Energrease L2	Castrol LM Grease	Duckhams LB 10	Esso Multi- purpose Grease H	Mobil Mobil- grease MP	Fina Marson HTL2	Shell Retinax A	Marfak All purpose Grease	NGLI-2 Multi-purpose Lithium based Grease
Windscreen Washers	Screen Washer Fluid								
Bonnet pintle	Graphite Lock Grease Type 'B'								
Door locks (anti-burst) Inertia reels	DO NOT LUBRICATE. These components are 'life' lubricated at the manufacturing stage								
	NOTE: The above lubricants are considered to be suitable for ambient temperatures in the range of -40°C to +35°C. For extreme ambient temperatures, outside the above range, refer to local Distributor.								
Battery lugs Earthing surfaces Where paint has been removed	Petroleum jelly. NOTE: Do not use Silicone Grease								
Air Conditioning System Refrigerant Compressor Oil	METHYLCHLORIDE REFRIGERANTS MUST NOT BE USED Use only with refrigerant 12. This includes 'Freon 12' and 'Arcton 12' Shell Clavus 68 BP Energol LPT 68 Sunisco 4GS Texaco Capella E Wax Free 68								

RECOMMENDED LUBRICANTS AND FLUIDS
SERVICE INSTRUCTIONS FOR AMBIENT CONDITIONS OUTSIDE TEMPERATE CLIMATE LIMITS
OR FOR MARKETS WHERE THE PRODUCTS LISTED ARE NOT AVAILABLE

	Service Classification		Ambient Temperature °C									
	Specification	SAE Classification	-30	-20	-10	0	10	20	30	40	50	
Engine sump Dashpots (carburettor models only) oil can	Oils must meet BLS.22.OL.07 or	5W/30 5W/40 } 5W/50 }	←									
	CCMCG3 or API service levels SF	10W/30 10W/40 } 10W/50 }		←								
	Oils must meet BLS.22.OL.02	15W/40 } 15W/50 }			←							
	or CCMCG1 or G2	20W/40 } 20W/50 }				←						
or API service levels SE or SF	25W/40 } 25W/50 }					←						
Main gearbox, manual or automatic	ATF Dexron IID		←									
Transfer gearbox Final drive units Swivel pin housings Steering box	API GL4 or GL5 MIL-L-2105 or MIL-L-2105B	90 EP		←								
		80W EP	←									
Power steering	ATF M2C 33 (F or G) ATF Dexron II D		←									
Brake and clutch reservoirs	Brake fluid must have a minimum boiling point of 260°C (500°F) and comply with FMVSS 116 DOT 3		←									
Lubrication nipples (hubs, ball joints, etc.)	NLGI-2 multipurpose lithium based grease		←									
Engine cooling system	Use an ethylene glycol based anti-freeze (containing no methanol) with non-phosphate corrosion inhibitors suitable for use in aluminium engines to ensure the protection of the cooling system against frost and corrosion in all seasons. Use one part anti-freeze to one part water for protection down to -36°C (-65°F). IMPORTANT: Coolant solution must not fall below proportions one part anti-freeze to three parts water, i.e. minimum 25% anti-freeze in coolant otherwise damage to engine is liable to occur. When anti-freeze is not required, the cooling system must be flushed out with clean water and refilled with a solution of one part Marstons SQ36 inhibitor to nine parts water, i.e. minimum 10% inhibitor in coolant.											

ANTI-FREEZE

ENGINE	MIXTURE	PERCENTAGE CONCENTRATION	PROTECTION
V8 (aluminium)	One part anti-freeze One part water	50%	
Complete protection Vehicle may be driven away immediately from cold			-33°C -36°C
Safe limit protection Coolant in mushy state. Engine may be started and driven away after short warm-up period			-41°C -42°F
Lower protection Prevents frost damage to cylinder head, block and radiator. Thaw out before starting engine			-47°C -53°F

RECOMMENDED FUEL

With the exception of the 9.35:1 high compression (emission) engine which is designed to operate on 97 octane fuel (British 4-star rating) all other Range Rover engines are designed for fuel having a minimum octane rating of 91 to 93 (the British 2-star rating).

Where these fuels are not available and it is necessary to use fuels of lower or unknown rating, the ignition timing must be retarded from the specified setting, just sufficiently to prevent audible detonation (pinking) under all operating conditions, otherwise damage to the engine may occur. Use exhaust gas analysis equipment to check the final engine exhaust emissions after resetting. (See 'Engine Tuning' data).

The use of lower octane fuels will result in the loss of engine power and efficiency.

CAUTION: Do not use oxygenated fuels such as blends of methanol/gasolene or ethanol/gasolene (e.g. 'GASOHOL').

In the interests of public health, and to assist in keeping undesirable exhaust emissions as low as possible, fuels of an octane rating higher than that recommended should not be used.

NOTE: Vehicles fitted with 8.13 :1 low compression engines will operate on unleaded fuel with an octane rating of 91 octane without any engine tune adjustments.

Capacities (approx.)*	Litres	Imperial unit	US unit
Engine sump and filter from dry	5.66	10 pints	12.8 pints
Gearbox from dry—manual LT77	2.7	4.7 pints	5.9 pints
Gearbox from dry—automatic ZF	9.1	16 pints	20 pints
Transfer gearbox from dry	2.5	4.4 pints	5.5 pints
Front axle from dry	1.7	3.0 pints	3.75 pints
Front axle swivel pin housing (each)	0.35	0.6 pints	0.75 pints
Rear axle from dry	1.7	3.0 pints	3.75 pints
Power steering box and reservoir	2.9	5.0 pints	6.25 pints
Cooling system	11.4	20 pints	24 pints
Fuel tank	80.0	17.5 gallons	22 gallons

NOTE: * All levels must be checked by dipstick or level plugs as applicable.

When draining oil from the ZF automatic gearbox, oil will remain in the torque converter, refill to high level on dipstick only.

