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# RECOMMENDED LUBRICANTS AND FLUIDS - NAS VEHICLES

|                        |   |                            | AMBIENT TEMPERATURE °C |     |       |       |    |    |    |    |    |  |  |
|------------------------|---|----------------------------|------------------------|-----|-------|-------|----|----|----|----|----|--|--|
| COMPONENT              | SPECIFICATION   | VISCOSITY                  | -30                    | -20 | -10   | 0     | 10 | 20 | 30 | 40 | 50 |  |  |
| Engine                 | Use oils to API service level SG, SH or SJ or ILSAC GF2 or ACEA A2:96 | 5W/20                      | _____                  |     |       |       |    |    |    |    |    |  |  |
|                        |   | 5W/30                      | _____                  |     |       |       |    |    |    |    |    |  |  |
|                        |   | 5W/40                      | _____                  |     |       |       |    |    |    |    |    |  |  |
|                        |   | 5W/50                      | _____                  |     |       |       |    |    |    |    |    |  |  |
|                        |   | 10W/30                     |                        |     | _____ |       |    |    |    |    |    |  |  |
|                        |   | 10W/40<br>10W/50<br>10W/60 |                        |     | _____ |       |    |    |    |    |    |  |  |
|                        |   | 15W/40<br>15W/50           |                        |     |       | _____ |    |    |    |    |    |  |  |
|                        |   | 20W/40<br>20W/50           |                        |     |       | _____ |    |    |    |    |    |  |  |
| Final drive units      | Texaco Multigear  | 75W 90R                    |                        |     | _____ |       |    |    |    |    |    |  |  |
| Main Gearbox Automatic | ATF Dexron III  |                            | _____                  |     |       |       |    |    |    |    |    |  |  |
| Main Gearbox Manual    | Texaco MTF 94   |                            | _____                  |     |       |       |    |    |    |    |    |  |  |
| Transfer box           | ATF Dexron III  |                            | _____                  |     |       |       |    |    |    |    |    |  |  |
| Power steering         | ATF Dexron III or Texamatic 9226                                      |                            | _____                  |     |       |       |    |    |    |    |    |  |  |

### RECOMMENDED LUBRICANTS AND FLUIDS - ALL EXCEPT NAS VEHICLES

## All climates and conditions

|   |  |                            | AMBIENT TEMPERATURE °C |     |     |   |    |    |    |    |    |  |
|---|--|----------------------------|------------------------|-----|-----|---|----|----|----|----|----|--|
| COMPONENT                               | SPECIFICATION  | VISCOSITY                  | -30                    | -20 | -10 | 0 | 10 | 20 | 30 | 40 | 50 |  |
| Petrol models<br>Engine sump<br>Oil can | Use oils to API service level SG or SH or ACEA A2:96 | 5W/30                      |                        |     |     |   |    |    |    |    |    |  |
|   |  | 5W/40<br>5W/50             |                        |     |     |   |    |    |    |    |    |  |
|   |  | 10W/30                     |                        |     |     |   |    |    |    |    |    |  |
|   |  | 10W/40<br>10W/50<br>10W/60 |                        |     |     |   |    |    |    |    |    |  |
|   |  | 15W/40<br>15W/50           |                        |     |     |   |    |    |    |    |    |  |
|   |  | 20W/40<br>20W/50           |                        |     |     |   |    |    |    |    |    |  |
|   |  | 25W/40<br>25W/50           |                        |     |     |   |    |    |    |    |    |  |
| Diesel models<br>Engine sump            | ACEA A3:96<br>ACEA B3:96                             | 5W/30                      |                        |     |     |   |    |    |    |    |    |  |
|   |  | 5W/40<br>5W/50             |                        |     |     |   |    |    |    |    |    |  |
|   |  | 10W/30                     |                        |     |     |   |    |    |    |    |    |  |
|   |  | 10W/40<br>10W/50           |                        |     |     |   |    |    |    |    |    |  |
| Final drive units                       | Texaco Multigear                                     | 75W 90R                    |                        |     |     |   |    |    |    |    |    |  |
| Main Gearbox Automatic                  | ATF Dexron III                                       |                            |                        |     |     |   |    |    |    |    |    |  |
| Main Gearbox Manual                     | Texaco MTF 94  |                            |                        |     |     |   |    |    |    |    |    |  |
| Transfer box                            | ATF Dexron III                                       |                            |                        |     |     |   |    |    |    |    |    |  |
| Power steering                          | ATF Dexron III or Texamatic 9226                     |                            |                        |     |     |   |    |    |    |    |    |  |

|  |  |
|--|--|
| Propeller shaft Front and Rear Lubrication nipples .....           | NLGI - 2 Multi-purpose Lithium based GREASE  |
| Door check straps .....  | Rocol SM500 molygrease   |
| Door locks .....   | Fuchs Renocal FN745  |
| Brake and clutch reservoirs .....                                  | Brake fluids having a minimum boiling point of 260°C (500 °F) and complying with FMVSS 116 DOT4  |
| 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. |
| Battery lugs, earthing surfaces where paint has been removed ..... | Petroleum jelly.<br><b>NOTE: Do not use Silicone Grease</b>  |
| Air conditioning system refrigerant .....                          | Refrigerant R134a<br><b>CAUTION: DO NOT use any other type of refrigerant.</b>   |
| Air conditioning compressor oil                                    |  |
| V8 up to 99MY .....  | Sanden SP10  |
| V8 from 99MY and diesel .....                                      | Nippon Denso ND-OIL 8  |
| ABS sensor bush .....  | Silicone grease: Staborags NBU - Wabco 830 502,0634<br>Wacker chemie 704 - Wabco 830 502,0164<br>Kluber GL301  |

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## LUBRICATION PRACTICE

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Use a high quality oil of the correct viscosity range and service classification in the engine during maintenance and when topping up. The use of oil not to the correct specification can lead to high oil and fuel consumption and ultimately to damaged components.

Oil to the correct specification contains additives which disperse the corrosive acids formed by combustion and prevent the formation of sludge which can block the oilways. Additional oil additives should not be used. Always adhere to the recommended servicing intervals.



**WARNING:** Many liquids and other substances used in motor vehicles are poisonous. They must not be consumed and must be kept away from open wounds. These substances, among others, include anti-freeze windscreen washer additives, lubricants and various adhesives.

## CAPACITIES

The following capacity figures are approximate and provided as a guide only. Refer to Section 10 for correct checking procedure for powertrain oil levels.

### Engine sump and filter - Petrol

|                |            |               |
|----------------|------------|---------------|
| From dry ..... | 6.6 litres | 14.0 US pints |
| Refill .....   | 5.8 litres | 12.3 US pints |

### Engine sump and filter - Diesel

|                |            |               |
|----------------|------------|---------------|
| From dry ..... | 9.5 litres | 20 US pints   |
| Refill .....   | 8.7 litres | 18.4 US pints |

### Manual gearbox

|                |            |              |
|----------------|------------|--------------|
| From dry ..... | 2.7 litres | 5.7 US pints |
| Refill .....   | 2.2 litres | 4.6 US pints |

### Automatic gearbox

|                                    |            |               |
|------------------------------------|------------|---------------|
| 4.6 V8 up to '99MY .....           | 11 litres  | 23.2 US pints |
| 4.0 V8 (& 4.6 V8 from '99MY) ..... | 9.7 litres | 20.5 US pints |
| Diesel .....                       | 9.7 litres | 20.5 US pints |

### Transfer box

|                |            |              |
|----------------|------------|--------------|
| From dry ..... | 2.4 litres | 5.0 US pints |
| Refill .....   | 2.0 litres | 4.2 US pints |

### Front axle

|                |            |              |
|----------------|------------|--------------|
| From dry ..... | 1.7 litres | 3.6 US pints |
| Refill .....   | 1.6 litres | 3.4 US pints |

### Rear axle

|                |            |              |
|----------------|------------|--------------|
| From dry ..... | 1.7 litres | 3.6 US pints |
| Refill .....   | 1.6 litres | 3.4 US pints |

### Power steering box and reservoir

|       |            |              |
|-------|------------|--------------|
| ..... | 1.7 litres | 3.6 US pints |
|-------|------------|--------------|

### Cooling system

|       |             |             |
|-------|-------------|-------------|
| ..... | 11.3 litres | 24 US pints |
|-------|-------------|-------------|

### Fuel tank

|              |            |                 |
|--------------|------------|-----------------|
| Petrol ..... | 100 litres | 26.4 US gallons |
| Diesel ..... | 90 litres  | 24 US gallons   |

### Air conditioning system

#### Refrigerant charge weight

|                     |                   |           |
|---------------------|-------------------|-----------|
| V8 up to 99MY ..... | 1250 grammes      | 44 oz     |
| V8 from 99MY .....  | 1380 ± 25 grammes | 49 ± 1 oz |
| Diesel .....        | 1100 grammes      | 39 oz     |

#### Refrigerant oil in system

|                     |                     |              |
|---------------------|---------------------|--------------|
| V8 up to 99MY ..... | 150 cm <sup>3</sup> | 0.32 US pint |
| V8 from 99MY .....  | 180 cm <sup>3</sup> | 0.38 US pint |
| Diesel .....        | 140 cm <sup>3</sup> | 0.30 US pint |

**ANTI-FREEZE**

| ENGINE TYPE  | MIXTURE STRENGTH                       | PERCENTAGE CONCENTRATION | PROTECTION LOWER TEMPERATURE LIMIT |
|--|--|--------------------------|------------------------------------|
| V8 Engine<br>Diesel Engine   | One part anti-freeze<br>One part water | 50%                      |                                    |
| <b>Complete protection</b><br>Vehicle may be driven away immediately from cold   |  |                          | - 33°F<br>- 36°C                   |
| <b>Safe limit protection</b><br>Coolant in mushy state. Engine may be started and driven away after warm-up period     |  |                          | - 41°C<br>- 42°F                   |
| <b>Lower protection</b><br>Prevents frost damage to cylinder head, block and radiator. Thaw out before starting engine |  |                          | - 47°C<br>- 53°F                   |



**CAUTION:** Anti-freeze content must never be allowed to fall below 25% otherwise damage to the engine is liable to occur. Also, anti-freeze content should not exceed 60% as this will greatly reduce the cooling effect of the coolant.

## FUEL REQUIREMENTS

### Catalyst vehicles

Vehicles equipped with catalytic converter are designed to use **ONLY** unleaded fuel. Unleaded fuel must be used for the emission control system to operate properly. Its use will also reduce spark plug fouling, exhaust system corrosion and engine oil deterioration.

Using fuel that contains lead will result in damage to the emission control system and could result in loss of warranty coverage. The effectiveness of the catalysts in the catalytic converters will be seriously impaired if leaded fuel is used. The vehicle is equipped with an electronic fuel injection system, which includes two oxygen sensors (4 oxygen sensors on NAS vehicles). Leaded fuel will damage the sensors, and will deteriorate the emission control system.

Regulations require that pumps delivering unleaded fuel be labelled **UNLEADED**. Only these pumps have nozzles which fit the filler neck of the vehicle fuel tank.

## RECOMMENDED FUEL

### Petrol engines

Use petrol conforming to European standard EN228

#### Low compression engines

|                                |  |
|--------------------------------|--|
| With catalytic converter ..... | 91 RON minimum unleaded                          |
| Without catalytic converter    |  |
| 4.0 litre .....                | 91 RON minimum unleaded or 91 RON minimum leaded |
| 4.6 litre .....                | 91 RON minimum unleaded or 91 RON minimum leaded |

High compression engines ..... 95 RON minimum unleaded



**NOTE:** It is possible to use unleaded fuel with a 91 RON minimum octane rating for high compression engines, but performance will be adversely affected.

Using fuel with an octane rating lower than stated above could seriously impair vehicle performance.

### Diesel engines

Diesel fuel to European standard EN 590; minimum  
Cetane No. 45

In the interests of optimum vehicle performance, the use of oxygenated fuels such as blends of methanol/gasoline or ethanol/gasoline (e.g. 'Gasohol') is not recommended. If oxygenated fuels are to be used, be aware of the following maximum limits for the percentage of fuel additive that is allowed in the relevant markets:

#### NAS specification:

|  |     |
|--|-----|
| Methyl Tertiary Butyl Ether (MTBE) ..... | 15% |
| Ethyl Tertiary Butyl Ether (ETBE) .....  | 15% |
| Ethanol (Ethyl or grain alcohol) .....   | 10% |



**CAUTION:** Wherever possible, avoid using fuel containing Methanol

**European specification (EN 228):**

|   |     |
|---|-----|
| Methyl Tertiary Butyl Ether (MTBE) .....        | 15% |
| Ethyl Tertiary Butyl Ether (ETBE) .....         | 15% |
| Ethanol (Ethanol (Ethyl or grain alcohol) ..... | 5%  |
| Methanol with co-solvents .....                 | 3%  |



**CAUTION:** Take care not to spill fuel during refuelling.