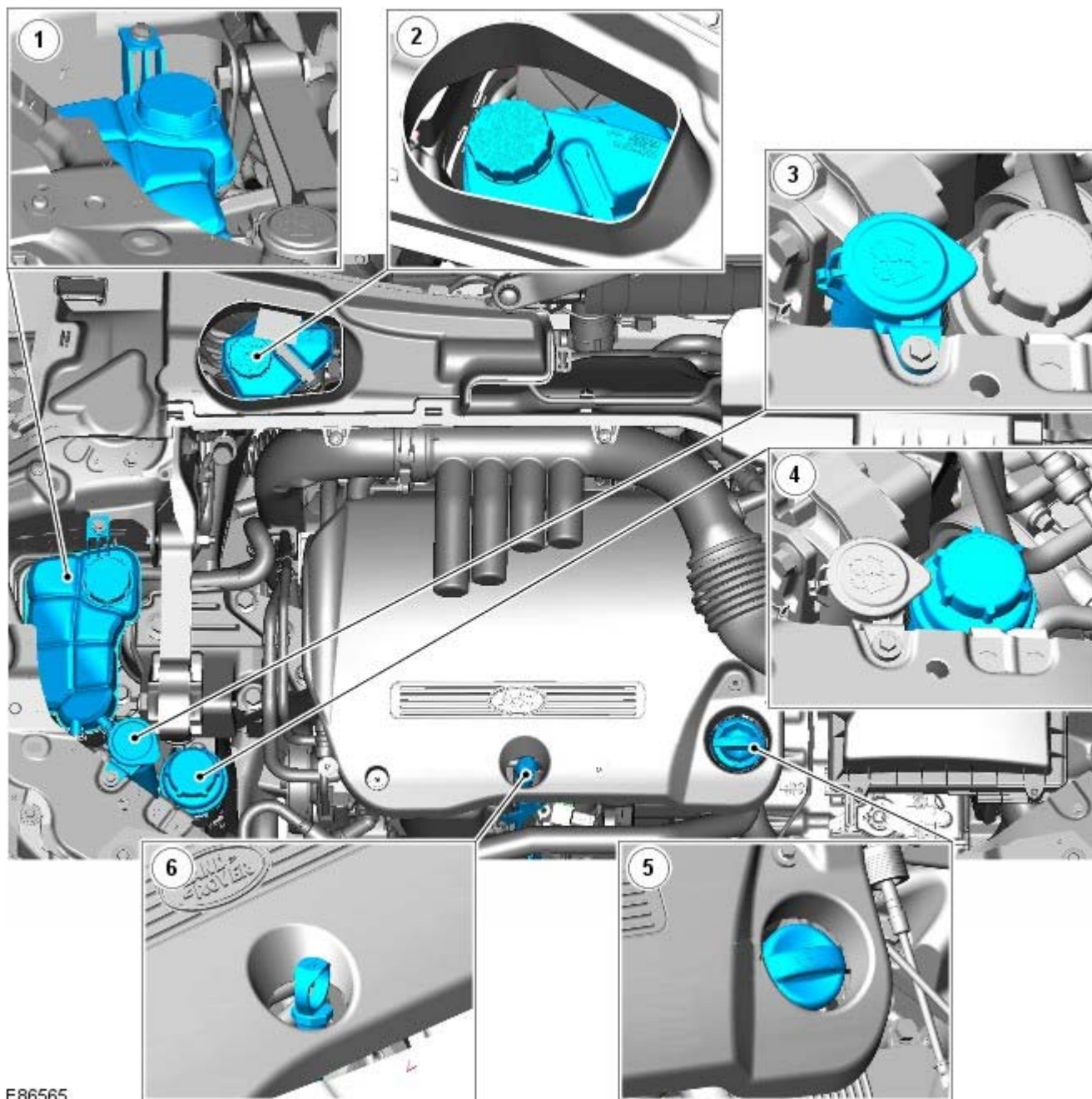


Maintenance Schedules - Maintenance Schedules - Diesel Engines

Description and Operation

Under Bonnet View



E86565

Item	Part Number	Description
1	-	Coolant expansion tank
2	-	Brake fluid reservoir (RH drive illustrated - LH drive on opposite side)
3	-	Windshield washer reservoir
4	-	Power steering fluid reservoir
5	-	Engine oil filler cap
6	-	Engine oil level indicator

Maintenance Operations



CAUTION: Note that the A and B Services listed on the Maintenance Check Sheet, applicable to vehicles operating under arduous conditions, vary both in period and mileage (kilometres) to the intervals specified for those vehicles operating under normal conditions. Reference must therefore, always be made to the 'Arduous Conditions section' for vehicles operating under

[these conditions.](#)

Unless stated otherwise, the following operations must be carried out at every service interval.

Battery

- Check condition of battery.
- Check/top up battery electrolyte level.

Front seats

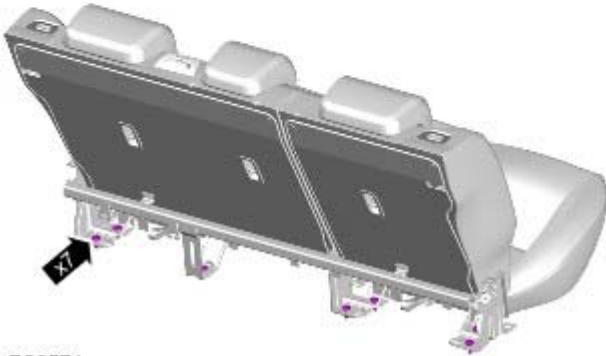
Front seat frame fixings - Every 2 years or 30,000 miles (48,000 km)



- Carefully remove the trim panels covering the seat frame fixing Torx screws.
- Check that the front seat frame fixing Torx screws are secure and that the seat frames show no signs of movement.
- Install the trim panels on completion.

Rear Seats

Rear seat frame fixings - Every 2 years or 30,000 miles (48,000 km)



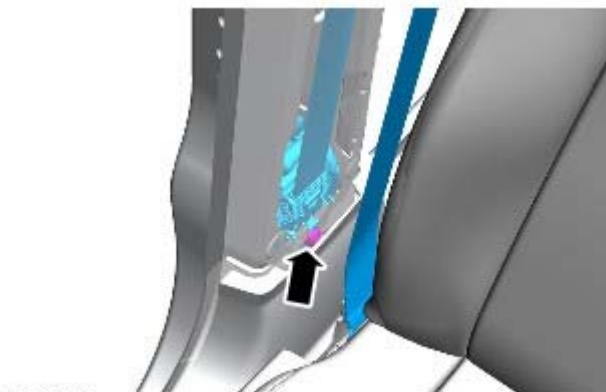
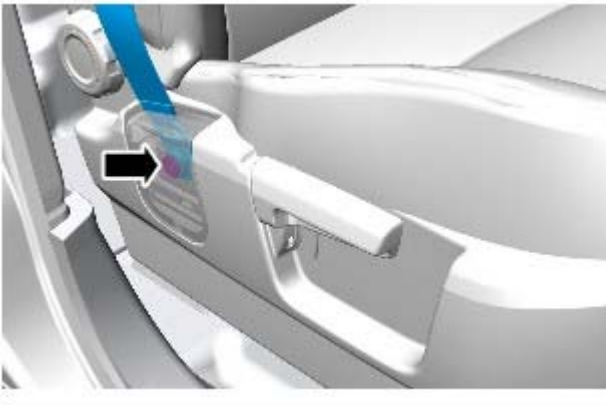
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- Check that the seat frame fixings are secure and that the seat frames show no signs of movement.

Safety Belts

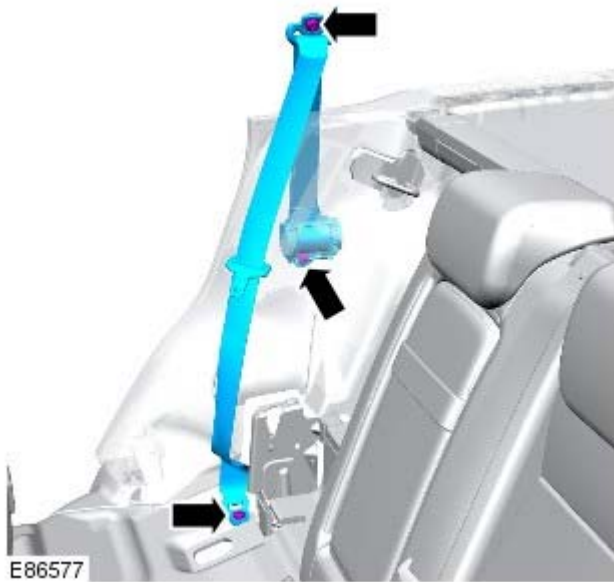
Safety belts - Every 2 years or 30,000 miles (48,000 km)

Front Seat Belt Mountings

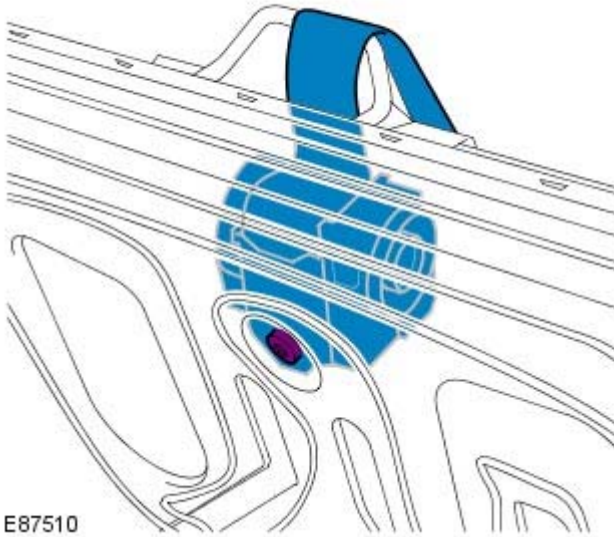


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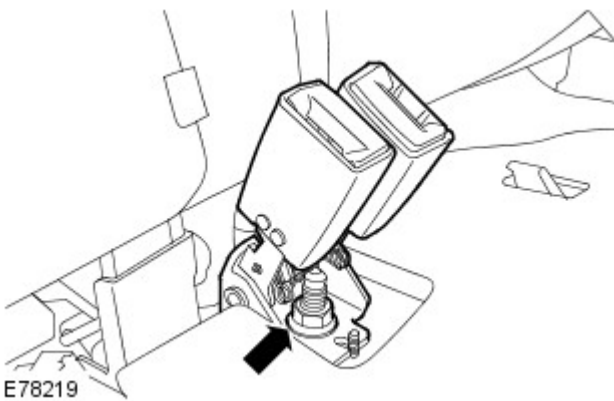
Rear Seat Belt Mountings



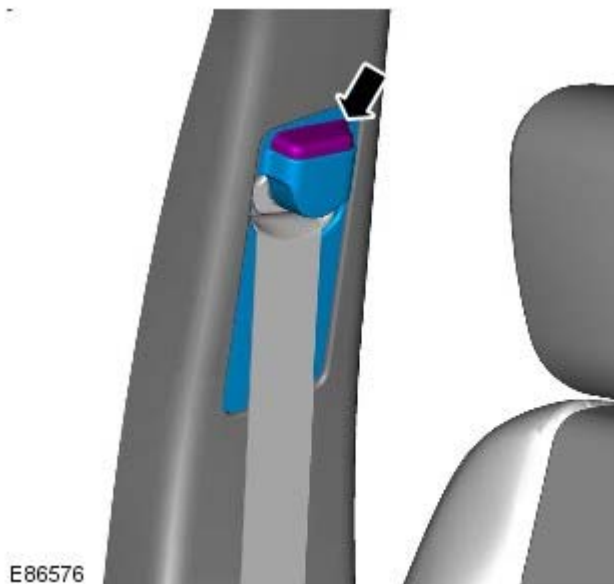
Reel Mounting - Center Rear Seat Belt



Buckle Mounting - Center Rear seat Belt



1. Fully extend each safety belt and check that it returns unassisted; repeat for all belts.
2. Check entire length of safety belt webbing for signs of fraying or damage: repeat for all belts.
3. Connect each safety belt to the correct buckle, check safety belt buckle and tongue are secure; check that buckle releases tongue correctly.
4. Check all safety belt and buckle mountings and fixings for security.



5. Check front safety belt height adjusters for correct operation.

Lamps, Horns and Warning Indicators

- Check side, head, fog, reversing and tail lamps for correct operation.
- Check operation of headlamp automatic levelling system - if installed.
- Check turn signals and hazard warning lamps for correct operation.
- Check brake (stop) lamps for correct operation.
- Check all exterior lamp lenses for clarity and condition; pay particular attention to headlamp and fog lamp lenses for stone chips or damage.
- Check horn for loud, clear sound.
- Switch on headlamps and check that side/headlamp reminder warning sounds when door is opened.
- Check operation of interior courtesy lamps.
- Check operation of all instrument pack warning and indicator lamps.

Washers and Wipers



E86578

- Check all wiper blades for condition and signs of splits or damage.
- Check security of wiper arms.
- Operate front and rear screen washers, check that jets are clear and correctly aimed.
- Operate front and rear wipers at all speeds and check for smooth, smear free operation.

Pollen Filter

- Replace pollen filter.
For additional information, refer to: [Pollen Filter](#) (412-01 Climate Control, Removal and Installation).

Corrosion/Cosmetic Inspection

- Carry out the annual corrosion/cosmetic inspection using the Annual Corrosion Inspection Sheet.

Wheels and Tires

- Check that tires comply with manufacturer's specification.
For additional information, refer to: [Specifications](#) (204-04 Wheels and Tires, Specifications).

- Check/adjust tire pressures including spare.
For additional information, refer to: [Specifications](#) (204-04 Wheels and Tires, Specifications).
- **Vehicle fitted with Uni-directional tires:** Mark the wheel to stud relationship of each road wheel and note location of each road wheel to its respective hub.
- Loosen road wheel nuts. Raise vehicle to a wheel free condition.
For additional information, refer to: [Lifting](#) (100-02 Jacking and Lifting, Description and Operation).
- Remove the road wheels.
- Visually check tires for condition, lumps or bulges. Check tread depth across the width of the tire and around the circumference; ensure that remaining tread depth does not contravene local legislative requirements.

NOTE: Do not install wheels at this stage.

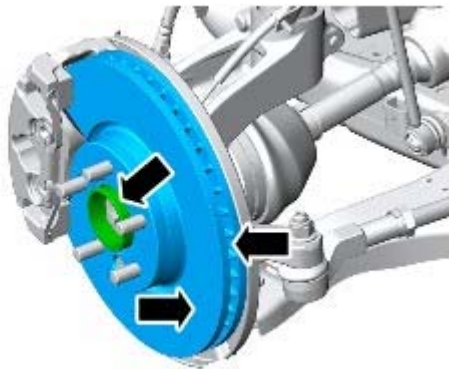
Braking System



CAUTION: For vehicles operating under arduous conditions see relevant section.

1. Inspect front brake pads for wear.
For additional information, refer to: [Specifications](#) (206-03 Front Disc Brake, Specifications).
2. Inspect rear brake pads for wear.
For additional information, refer to: [Specifications](#) (206-04 Rear Disc Brake, Specifications).
3. Check brake calipers for signs of fluid leaks.

Front brakes



E86579

Rear brakes



E86580

4. Check brake discs for condition.
5. Check all brake booster and brake system pipes and hoses for condition, chafing and leaks.
6. Clean road wheel hub spigots and apply grease, Land Rover Part Number RYL 105020 to the wheel mating surface of each spigot.
7. **Every 3 years:** Replace brake fluid. For additional information, refer to: [Brake System Bleeding](#) (206-00 Brake System - General Information, General Procedures).
8. **Every 6 years:** Replace all flexible brake hoses.
9. **Vehicles fitted with Uni-directional tires:** Install road wheels on their respective hubs ensuring that stud to wheel relationship is maintained.

10. Vehicles fitted with NON Uni-directional tires: Install wheels on the opposite side of the vehicle but ensure that they are on the same axle as they were originally installed.

11. Install road wheel nuts and tighten to 133 Nm (98 lb-ft).

Parking brake

With the vehicle stationary, apply the parking brake and check for correct operation.

For additional information, refer to: [Parking Brake Cable Adjustment](#) (206-05 Parking Brake and Actuation, General Procedures).

Door Locks and Hinges

1. Check operation of all door locks, bonnet lock and fuel filler flap.
2. Lubricate all door check straps, bonnet catch and fuel filler flap catch.

Cooling System



CAUTION: Anti-freeze concentration must be maintained at 50%.

1. Check specific gravity of coolant using a hydrometer.

NOTE: A suitable hydrometer is available from the Equipment Programme under Part Number 511 3302 001 00.

2. Top-up cooling system if necessary.

For additional information, refer to: [Specifications](#) (303-03B Engine Cooling - TD4 2.2L Diesel, Specifications).

Cooling system - Check/Top-up



WARNING: Since injury such as scalding could be caused by escaping steam or coolant, do not remove the filler cap from the coolant expansion tank whilst the system is hot.

CAUTIONS:



Engine coolant will damage the paint finished surfaces. If coolant is spilled, immediately remove the coolant and wash the area with water.



Always top-up with a 50% mixture of anti-freeze and water.

- Check the level of coolant in the expansion tank. With the engine cold, the coolant level must be to the **UPPER LEVEL** indicator mark above the **COLD FILL RANGE** text on the side of the expansion tank. Ignore any coolant which may be visible in the top section of the tank.
- If topping-up is required, remove expansion tank filler cap and top-up coolant level to the **UPPER LEVEL** indicator mark.
For additional information, refer to: [Specifications](#) (303-03B Engine Cooling - TD4 2.2L Diesel, Specifications).
- Install expansion tank filler cap, tighten cap until ratchet is heard to 'click'.

Coolant - Replace

Every 10 years: Replace the coolant.

For additional information, refer to: [Cooling System Draining, Filling and Bleeding](#) (303-03B Engine Cooling - TD4 2.2L Diesel, General Procedures).

Accessory Drive Belt



CAUTION: For vehicles operating under arduous conditions see relevant section.

- Check the condition of the accessory drive belt.
- Remove all traces of mud and dirt from the drive belt and pulleys.
- Check the drive belt for signs of splitting and wear.
- **Every 150,000 miles (240,000 km): Replace the accessory drive belt.** For additional information, refer to: [Accessory Drive Belt](#) (303-05A Accessory Drive - I6 3.2L Petrol, Removal and Installation).

Camshaft Timing Belt, Tensioner and Pulley

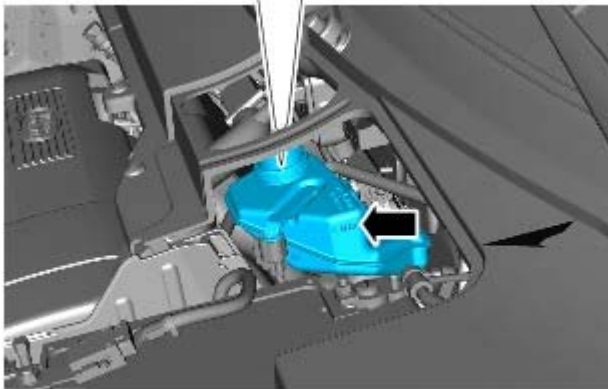
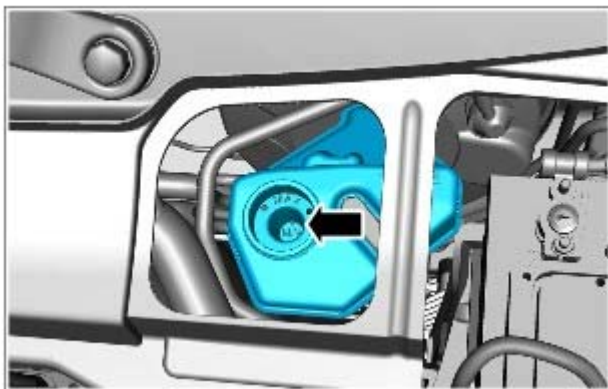


CAUTION: For vehicles operating under arduous conditions see relevant section.

1. **Every 10 years or 150,000 miles (240,000 km):** Replace the camshaft timing belt, tensioner and pulley. For additional information, refer to: [Timing Belt](#) (303-01B Engine - TD4 2.2L Diesel, Removal and Installation).

Fluid levels

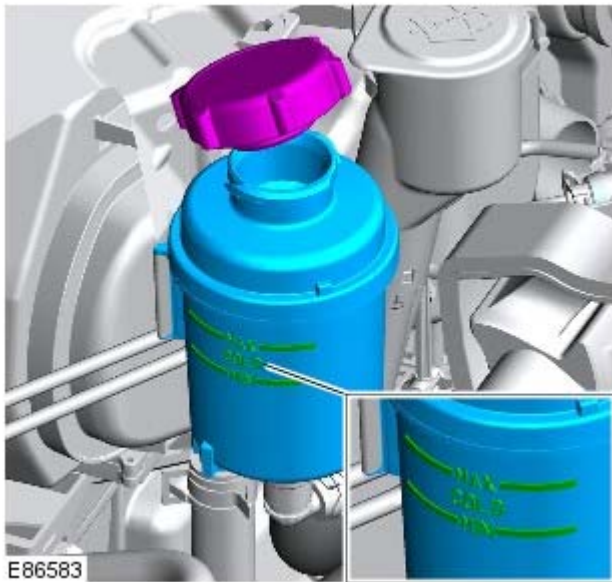
Brake Fluid Reservoir



E79236

- Remove the brake fluid reservoir cover.
- Check the fluid level in the brake fluid reservoir, the level must be to the **MAX** mark on the reservoir; top-up if necessary.
- Clean the area around the reservoir filler cap, remove cap.
- If necessary, top-up using the recommended fluid to the **MAX** mark on the reservoir. For additional information, refer to: [Specifications](#) (206-00 Brake System - General Information, Specifications).
- Install the reservoir filler cap.
- Install the brake fluid reservoir cover.

Power Steering Fluid Reservoir



CAUTION: To prevent over filling, check/top-up the system with the engine switched off and the system cold. Ensure that the steering wheel is in the straight ahead position, do not turn the steering wheel prior to checking the fluid level.

- Check that the fluid level is to the mid-way mark between the **MAX** and **MIN** marks on the fluid reservoir, top-up if necessary.
- Clean the area around the reservoir filler cap, remove cap.



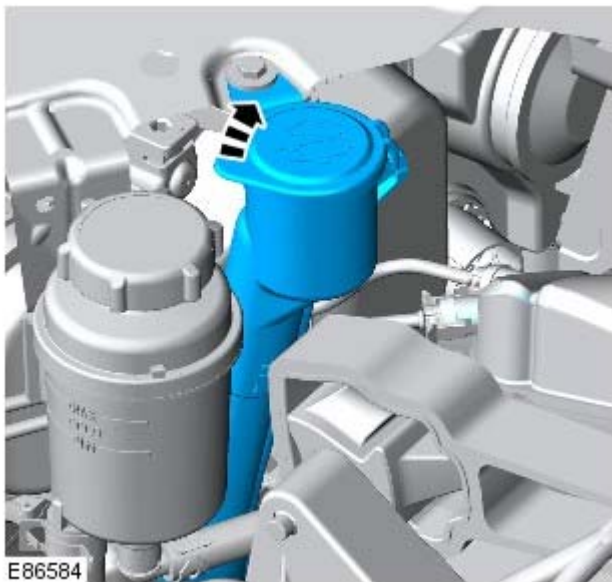
CAUTION: Do not fill reservoir above the **MAX** mark.

If necessary, top-up using the recommended fluid to the mid-way mark on the reservoir.

For additional information, refer to: [Specifications](#) (211-02 Power Steering, Specifications).

- Install the reservoir filler cap.

Windshield Washer Reservoir



- Remove the windshield washer reservoir filler cap.
- Top-up the reservoir using a mixture of an approved windshield washer fluid and water until the level is to the bottom of the gauze filter in the reservoir filler neck.
- Install the reservoir filler cap.

Engine Oil and Filter

CAUTIONS:



For vehicles operating under arduous conditions see relevant section.



Vehicles operating on high sulphur content fuel - above 0.7%, the oil and filter change period MUST NOT exceed 3 months or 3,750 miles (6,000 km).



Vehicles operating on moderate sulphur content fuel - 0.3 to 0.7%, the oil and filter change period MUST NOT exceed 6 months or 7,500 miles (12,000 km).

- Renew engine oil and filter.
For additional information, refer to: [Oil Filter Element](#) (303-01A Engine - I6 3.2L Petrol, Removal and Installation).

Air Filtering



CAUTION: For vehicles operating under arduous conditions see relevant section.

1. Every 2 years or 30,000 miles (48,000 km): Replace the air cleaner element.

For additional information, refer to: [Air Cleaner](#) (303-12B Intake Air Distribution and Filtering - TD4 2.2L Diesel, Removal and Installation).

Fuel Filter

1. Every year or 15,000 miles (24,000 km): Drain water from the fuel filter.

1. Every 2 years or 30,000 miles (48,000 km): Replace fuel filter element.

For additional information, refer to: [Fuel Filter](#) (310-01B Fuel Tank and Lines - TD4 2.2L Diesel, Removal and Installation).

Automatic Transmission

Every 10 years or 150,000 miles (240,000 km): Renew automatic transmission fluid.

For additional information, refer to: [Specifications](#) (307-01 Automatic Transmission/Transaxle, Specifications).

Manual Transmission

Every 10 years or 150,000 miles (240,000 km): Renew manual transmission fluid.

For additional information, refer to: [Specifications](#) (308-00 Manual Transmission/Transaxle and Clutch - General Information, Specifications).

Power Transfer Unit

Every 10 years or 150,000 miles (240,000 km): Renew power transfer unit oil. For additional information, refer to: (308-07B Transfer Case)

[Power Transfer Unit - TD4 2.2L Diesel, Vehicles With: M66 6-Speed Manual Transmission AWD](#) (Removal and Installation),

[Power Transfer Unit - TD4 2.2L Diesel, Vehicles With: M66 6-Speed Manual Transmission AWD](#) (Removal and Installation).

Differential Assembly - Rear

Every 10 years or 150,000 miles (240,000 km): Renew rear differential oil.

For additional information, refer to: [Specifications](#) (205-02 Rear Drive Axle/Differential, Specifications).

Suspension and Body Mountings

- Check for free play in all suspension and body mounting rubbers.
- Check condition of suspension rubber boots and gaiters.

Fuel System

- Check fuel system pipes, hoses and unions for chafing, leaks and corrosion.

Electrical Harnesses

- Check all electrical harnesses for chafing.

Oil/Fluid Leaks

- Check for oil/fluid leaks.

Power Steering

- Check power steering rod ball joint fixings, gaiters and condition of ball joints and dust covers.
- Check power steering pipes, hoses and unions for chafing, leaks and corrosion.

Exhaust System

- Check exhaust system for leaks, security and damage.

Clutch

1. Check clutch pipes and unions for chafing, leaks and corrosion.

Fault Lamp(s)

- If fault lamp(s) are illuminated, test the associated system using Land Rover approved diagnostic equipment and report findings.

Road Test

- Carry out road test of vehicle.
For additional information, refer to: [Road/Roller Testing](#) (100-00 General Information, Description and Operation).

General

- Endorse Service Record.
- Report any unusual features of vehicle condition and any additional work required.

Vehicles Operating Under Arduous Conditions

Recommended service intervals for vehicles operating under arduous conditions are detailed below.

Braking System



CAUTION: When vehicles are operating under arduous conditions, the following service items must be carried out every 3 months or 3,750 miles (6,000 km).

- Inspect front brake pads for wear.
- Inspect rear pads for wear.
- Check brake calipers for signs of fluid leaks.
- Check brake discs for condition.
- Check all brake booster and brake system pipes and hoses for condition, chafing and leaks.
- Clean road wheel hub spigots and apply grease, Land Rover Part Number RYL 105020 to the wheel mating surface of each spigot.

Brake Fluid Replacement



CAUTION: When vehicles are operating under arduous conditions, the following service item must be carried out every 2 Years or 30,000 miles (48,000 km).

- Replace brake fluid.

Road Wheel Speed Sensors



CAUTION: When vehicles are operating under arduous conditions, the following service item must be carried out every 3 months or 3,750 miles (6,000 km).

- Inspect the road wheel speed sensor harnesses for damage.

Engine Oil and Filter

CAUTIONS:



When vehicles are operating under arduous conditions, the following service item must be carried out every 3 months or 3,750 miles (6,000 km).



Vehicles operating on high sulphur content fuel - above 0.7%, the oil and filter change period MUST NOT exceed 3 months or 3,750 miles (6,000 km).



Vehicles operating on moderate sulphur content fuel - 0.3 to 0.7%, the oil and filter change period MUST NOT exceed 6 months or 7,500 miles (12,000 km).

- Renew engine oil and filter.

Air Filtering



CAUTION: When vehicles are operating under arduous conditions, the following service item must be carried out every 12 months or 15,000 miles (24,000 km).

- Replace the air filter element.
For additional information, refer to: [Air Cleaner](#) (303-12A Intake Air Distribution and Filtering - I6 3.2L Petrol, Removal and Installation).

Accessory Drive Belt



CAUTION: When vehicles are operating under arduous conditions, the following service item must be carried out every 5 years or 75,000 miles (120,000 km).

- Replace the accessory drive belt. For additional information, refer to: [Accessory Drive Belt](#) (303-05A Accessory Drive - I6 3.2L Petrol, Removal and Installation).

Camshaft Timing Belt, Tensioner and Pulley



CAUTION: When vehicles are operating under arduous conditions, the following service item must be carried out every 4 years or 60,000 miles (96,000 km).

- Replace the camshaft timing belt, tensioner and pulley.
For additional information, refer to: [Timing Belt](#) (303-01B Engine - TD4 2.2L Diesel, Removal and Installation).

Radiator/Charge Air Cooler and Cooling Fan



CAUTION: When vehicles are operating under arduous conditions, the following items must be carried out.

- Visually check the radiator/charge air cooler for external obstructions, check cooling fan blades for damage.
- Remove any debris from the charge air cooler using a low pressure hose.

Continuous Use In Severe Off-Road Conditions



CAUTION: After 50 miles (80 km) continuous use in severe off-road conditions i.e. wading, deep mud and abrasive grit/slurry, the following items must be cleaned and inspected.

- The parking brake.
- The accessory drive belt.

Vehicles used in dusty or field conditions or deep wading:

- More frequent attention to the air cleaner will be required.

Fuel Filter



CAUTION: When vehicles are operating under arduous conditions, the following service item must be carried out every 3 months or 3,750 miles (6,000 km).

- Drain water from the fuel filter.

Poor Fuel Quality



CAUTION: When vehicles are operating under arduous conditions, the following service item must be carried out every 3 months or 3,750 miles (6,000 km).

- Where vehicles are used in these areas, the fuel filter may require draining at more frequent intervals.

Additional Items That May Require Attention

1. Every 6 years: It is recommended that all brake fluid hydraulic seals are replaced.

NOTE: This is in addition to the maintenance requirement that flexible brake hoses **MUST** be replaced at this service interval.