Front and centre differential oil - To fill, check and top-up.

This document describes two individual procedures:

- 1. To refill the front and centre differential (transfer box), after any part of the system has been removed or replaced, refer to **Front and centre differential oil - To fill**.

Important:
Removal and refit, or replacement of the transmission will result in loss of fluid from the automatic transmission fluid (ATF) cooling circuit. Therefore, procedure "Transmission fluid level -To renew" must also be performed at the same time.

- 2. To check and top-up the front and centre differential oil level, in situations where the system hasn't been drained and no components have been removed, refer to **Front and centre differential oil - To check and top-up**.

In all cases of oil loss or disassembly of components of the differentials, the oil level MUST be checked and adjusted.

Note:
The oil chambers in the front and centre (transfer box) differentials are joined by connecting pipes, and therefore must always be checked and topped up together. Both overfilling and underfilling impair the function of the differentials.

Position the car on a ramp, shift the transmission to the P-park range and apply the electro-mechanical parking brake.

Remove the front and rear engine underbody "screening panels". (refer to bin: 0825)

Always use new fluid to top-up the front and centre differentials. (refer to table: cons_03_by614_01)

Vehicle must be level when checking and adjusting the differential oil levels.

Caution:
The vehicle must not be started or towed without oil in the front and centre differentials.

Front and centre differential oil - To fill

Important:
Twin differential cooler system Total capacity 3,0 litres (5.28 pints; 6.34 US pints) (refer to table: cons_03_by614_01) **Single differential cooler system** Total capacity 2,5 litres (4.4 pints; 5.3 US pints) (refer to table: cons_03_by614_01) **Adjustments must be made between 20°C and 30°C (68°F and 86°F), 50°C (122°F) MAX in hot climates.**

Note:
If either or both of the coolers have been removed/replaced, or the engine removed for any reason then the cooler system must be filled with an external oil pump or syringe.

Caution:
Ensure an adequate oil drainage tray is placed beneath the relevant apertures and pipe openings.

This procedure describes how to bleed the oil pipes and then fill the differentials.

Applicable to Flying Spur, prior to VIN 48816 and GT / GTC, prior to VIN 48818;-

Disconnect both pipes (1) and (2) from the right-hand thermostatic valve.

Installation:

Torque tighten pipe screw fittings to thermostat housing. (refer to table: torq_031701_by614_01)

Remove the o-ring from each pipe. Connect a slave hose to pipe (1). Connect the other end of the slave hose to a suitable oil supply, i.e. an oil pump or syringe.

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Applicable to Flying Spur, from VIN 48816 and GT / GTC, from VIN 48818;-

Remove the clamp screw (A) and fixing screw (B) retaining the cooler pipes (1) and (2) to the right hand thermostatic valve.

Installation:

Torque tighten pipe and clamp fixings. (refer to table: torq_031701_by614_01)

Withdraw both pipes (1) and (2) from the right-hand thermostatic valve.

Connect a slave hose to pipe (1). Connect the other end of the slave hose to a suitable oil supply, i.e. an oil pump or syringe.

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Continuation - All variants;-

Pump oil into pipe (1) until it flows out of pipe (2), continue to feed oil through the pipes until the oil flows with no sign of air bubbles.

Stop the supply of oil to pipe (1).

Reconnect the pipes (1) and (2) to the thermostat housing with as little oil loss as possible.

Installation:

Renew o-rings on pipes (1) and (2).

Remove the oil level plug (1) from **both** differentials (see following graphics).

Use an angled pipe or syringe to top-up the front differential slowly and evenly over at least a 5 minute period until oil emerges from the bore (1).

Note:
A filling period of at least 5 minutes is necessary so that the internal oil level in the system has time to equalise.

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Use a syringe with an extension hose to top-up the centre differential slowly and evenly over at least a 5 minute period until oil emerges from the bore (1).

Note:
A filling period of at least 5 minutes is necessary so that the internal oil level in the system has time to equalise.

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A small quantity of gear oil always emerges initially from the oil channel above the plug when the hose is removed.

If gear oil subsequently emerges slowly from the opening, the oil level in the transfer centre differential has been pre-filled correctly.

If no gear oil emerges, continue to top-up until excess oil emerges from the filler hole.

Refit the old filler / inspection plugs and torque tighten. (refer to table: torq_030100_by614_01)

Caution:
The transmission will be damaged if the gear oil level is too high or too low. Follow all specified procedures exactly. Before "checking" the oil level, it is necessary to briefly test drive the vehicle to allow air to escape from the oil system. **Ensure the automatic transmission fluid (ATF) has been filled before road testing. (refer to bin: 0301) The differential and ATF fluids are not compatible, ensure the correct fluids are used !**

Road test vehicle.

Drive vehicle for 5 minutes at approximately 40 km/h (25 miles/h) over a distance of at least 4 km (2.5 miles).

Note:
A short test drive is necessary because the oil pump for the centre differential is operated only when the vehicle is driven.

After test drive, perform procedure **Front and centre differential oil - To check and top-up**.

Front and centre differential oil - To check and top-up.

In all cases of oil loss or disassembly of components of the centre differentials, the oil level MUST be checked and adjusted.

Important:
Twin differential cooler system Total capacity 3,0 litres (5.28 pints; 6.34 US pints) (refer to table: cons_03_by614_01) **Single differential cooler system** Total capacity 2,5 litres (4.40 pints; 5.28 US pints) (refer to table: cons_03_by614_01) **Adjustments must be made between 20°C and 30°C (68°F and 86°F), 50°C (122°F) MAX in hot climates.**

Remove both oil level plugs (1) from the front and centre differentials (see later graphics).

Top-up the front differential slowly, until oil flows out of the bore (1).

Note:
Use an angled pipe and syringe/pump to fill the front differential.

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Top-up the centre differential slowly, until oil flows out of the bore (1).

Note:
Use a syringe with extended hose to fill the centre differential.

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A small quantity of gear oil always emerges initially from the oil channel above the plug when the hose is removed.

If gear oil subsequently emerges slowly from the opening, the oil level in the transfer centre differential has been filled correctly.

If no gear oil emerges, continue to top-up until excess oil emerges from the filler hole.

Allow the oil to overflow from both bores until the continuous flow ceases.

Important:
To ensure there is a sufficient oil level, oil must seep from BOTH bores.

Note:
The oil level does not need to be rechecked after this step.

Installation:

Renew the oil level plugs and tighten to the specified torque. (refer to table: torq_030100_by614_01)