

Replacing the coolant

Modern smart service schedules list replacement of the coolant every three years. This is to ensure that the anti-corrosion and anti-freeze properties remain effective. The Roadster engines take 4.2 litres of pre-mixed coolant.

Unlike for the engine oil, smart have very kindly provided a drain-off point for the coolant. You can find this just above the oil filter on the engine block. Ensure that the car is parked level.

Warning: The anti-freeze in coolant is highly toxic for animals who are attracted to its sweet smell. Try to contain the coolant mixture as much as possible - we find that an old washing up bowl is most effective. Ensure that any spilt coolant is hosed away - do not leave it exposed overnight.



Use a 6mm hex key to loosen the drain-off point - ensure your bowl is underneath.



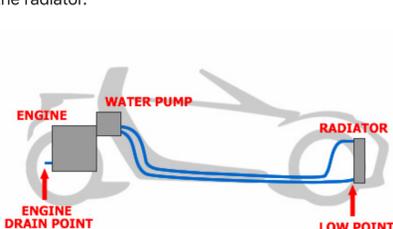
Coolant will start to gently run out of the engine and all over the drive shafts. Don't worry, it won't do them any harm, just clean them up afterwards. If you have help, your assistant can try and hold a short piece of guttering to 'channel' the coolant into the bowl.



As air needs to replace the coolant in the system, open the engine cover and remove the coolant reservoir cap. More coolant will run out of the engine.



Due to the way the coolant lines are installed, you will never drain the whole system this way. In the following diagram, you can see that the water pipes from the front radiator rise up to the water pump. Coolant will be trapped in these pipes and in the radiator.



Now for the poor design element. You need to undo the lower water pipe from the radiator shown here:



The jubilee clip on the hose will probably be pointing down making it really hard to access. This is because the official smart workshop method involves working on the car when it is lifted in the air and the undertray is removed. This is clearly not ideal for the home worker!



Jack the front of the car up and unclip the undertray. You may also want to remove the 10mm rubber nuts to give yourself some more space. With the undertray lowered, you can now access the jubilee clip. Loosen the clip but do not pull off the hose just yet!



Lower the car and push the undertray down in the front corner. Ensure that you have a bowl underneath.

Pull the water pipe free from the radiator. A lot of coolant will flood out of the radiator and water pipe onto the undertray. With a bit of luck, this will run into the bowl. This is a very messy exercise but seems to work!



You may choose to remove the top water pipe and drain the small amount that will be trapped in this pipe but it is not critical.

Clean up the pipes, undertray, radiator and reassemble. Ensure the jubilee clip is tight.



The coolant system will now be drained!

To refill, refit and tighten the engine drain plug. Now pour in some fresh coolant mixture to the reservoir. Check that there are no leaks and fill the reservoir up to MAX. Given that the reservoir is the highest point, you will not get an airlock within the engine in the same way as the fortwos. Therefore, you do not need to remove the thermostat temperature sensor.



To bleed the system, smart have kindly provided a valve on the top right hand side of the radiator. Unscrew the valve and you should be able to hear the trapped air 'hiss' out. While you are doing this, it is important not to let the reservoir drain empty. Therefore, this job is easier with two people - one person to bleed the radiator and the other to keep topping up the coolant.



When the radiator system is bled, coolant will start leaking from the radiator valve. Tighten the valve and top the reservoir up to MAX.



Start the car and allow it to get warm. You could go for a quick drive to help bring the car up to normal operating temperature.

There might be some residual trapped air which will have been moved by the water pump. In order to free this, carefully unscrew the radiator valve and allow this to escape. The coolant will now be very hot so it is important to take care. Check the reservoir and top up if necessary. Again, take care when releasing the cap.