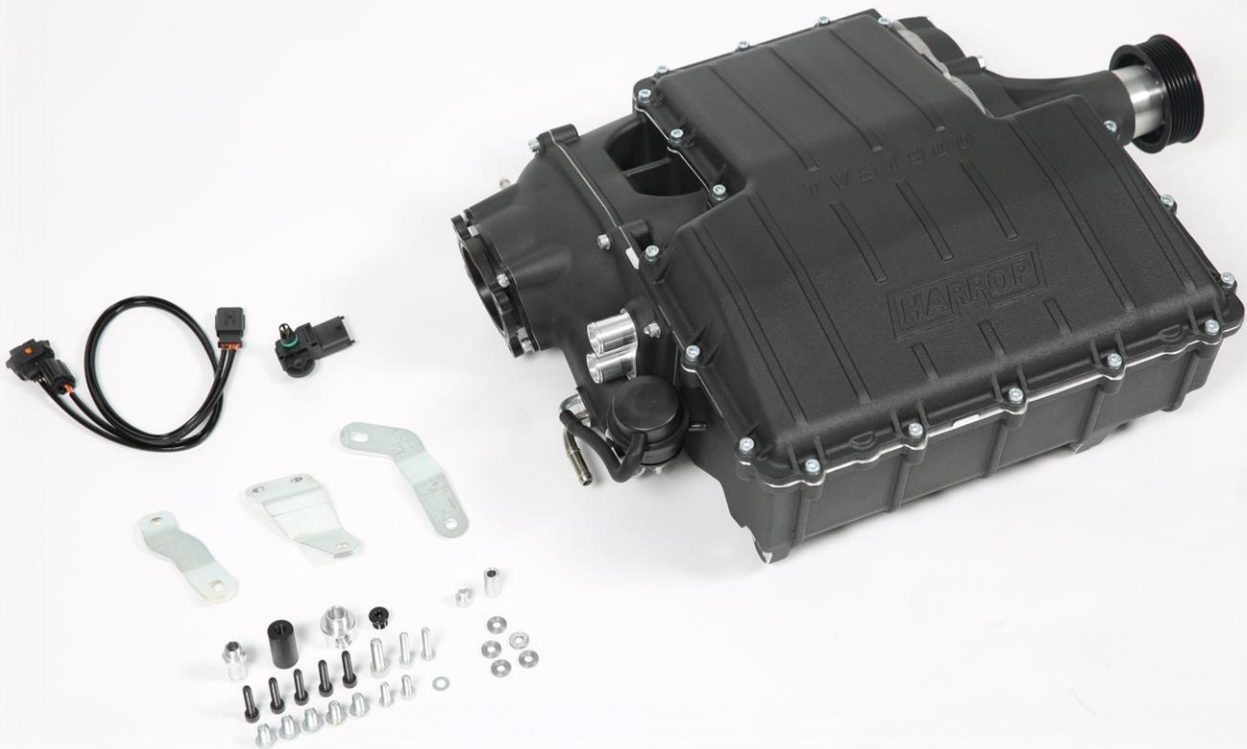




## Installation Guide

**Front Drive Rear Inlet TVS1900**

**Lotus 2GR-FE**



## Important Information

Installing the supercharger indicates your acceptance of the responsibility and liability associated with the fitment and use of this product. Please ensure the owner and drivers of the supercharged vehicle are aware of their responsibilities and liabilities as indicated below.

Thank you for purchasing this supercharger which has been designed and made with pride. The owner and drivers of the enhanced vehicle must be aware that fitment of a supercharger may affect:

- The vehicle's factory warranty.
- Insurance cover and associated liabilities.
- Compatibility with emission and roadworthy certification.
- The validity of a driver's license for a supercharged vehicle.
- The handling & braking capability of the vehicle due to increased engine power & torque characteristics.
- The longevity of the engine.
- The vehicle will need to use premium unleaded fuel only (98 RON).

It is the owner's/driver's responsibility to accept any consequences and liabilities of using the supercharger and any subsequent effect it may have. Harrop Engineering shall not be liable and shall be 'Held Harmless' for any direct and/or indirect/consequential losses, costs, damages, expenses, injuries or liabilities whatsoever incurred by the owner/driver of the vehicle or other parties arising from this supercharger, its installation and/or its operation. It is recommended that vehicles have completed 1,500 km and have been driven, serviced and maintained in accordance with the vehicle manufacturer's handbook before fitting a supercharger. An engine should be deemed reliable and have delivered all reasonable expectations in line with the vehicle manufacturer's specifications prior to fitting a supercharger.

### Warranty.

This supercharger is covered by a limited warranty on components and workmanship for a period of 36 months from the date of purchase, subject to the following:

- Installation must be completed by a qualified motor mechanic or technician who has undertaken appropriate training in fitting Harrop superchargers.
- The supercharger has not been modified or "overdriven" by fitting alternative drive pulleys.
- The supercharged vehicle has been tuned by an appropriately qualified and experienced technician.
- The supercharged vehicle has been driven in accordance with the conditions specified by the vehicle manufacturer's normal use of operation, driving care and vehicle service program.
- The supercharged vehicle has not been used for competitive racing.

No warranty shall apply where Harrop have determined improper fitment or handling, misuse in operation, neglect, or accident damage. Engine modifications made prior to or in conjunction with the supercharger fitment may invalidate the Harrop limited warranty. Any warranty claims must be made immediately & directly in writing to Harrop Engineering so that a determination can be made promptly. Involvement of a third party or an attempt to repair a perceived/actual fault may invalidate the warranty. To the extent of the law, the determination on any warranty claim & associated costs will be at the sole discretion of Harrop Engineering.

By installing the supercharger you acknowledge that all conditions pertaining to this supercharger and its operation have been read, understood and accepted

For 60 years Harrop Engineering has been at the forefront of designing, developing and manufacturing precision performance components. Today our innovative and logical approach is applied to low volume automotive OEMs and the performance aftermarket through a dedicated team of 65 staff. Core performance products include Superchargers, Engine Components, Brakes, Differentials and we are also the exclusive Australian Distributor for Forgeline Motorsport Wheels.

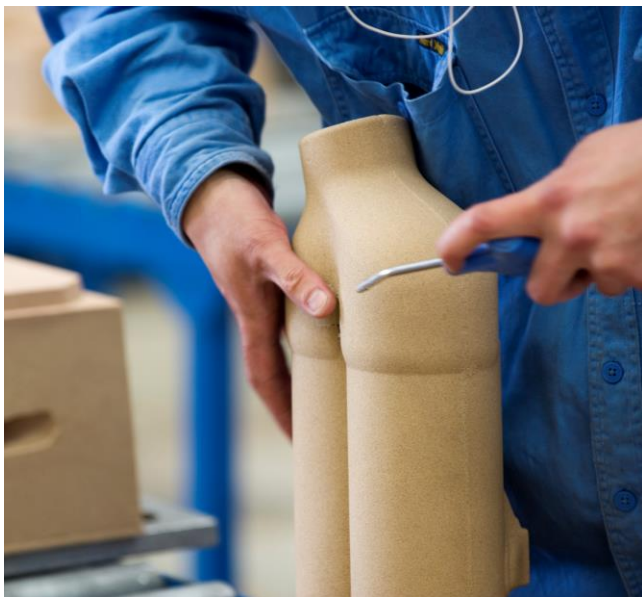
Harrop are also the preferred supplier of Eaton Supercharger and Traction Control technology including dual branded product designed and manufactured in-house. There are currently over 4,000 components in our portfolio and this is growing daily as we continually develop more Harrop Performance Products. Our high profile car manufacturing customers have included Holden, HSV, FPV, Ford, Roush, Toyota, TRD and Lotus.

We also supply to race teams from categories including F1, NASCAR and V8 Supercars and an extensive range of drag, circuit and off-road competitors. Just as importantly, a large portion of our customers are performance enthusiasts and weekend warriors who are highly passionate about their ride.

Please take a moment to review the following pages and learn why Harrop is the first choice in Superchargers.

Thank you for choosing Harrop and enjoy your Harrop Enhanced ride.

- Team **HARROP**



## Contents

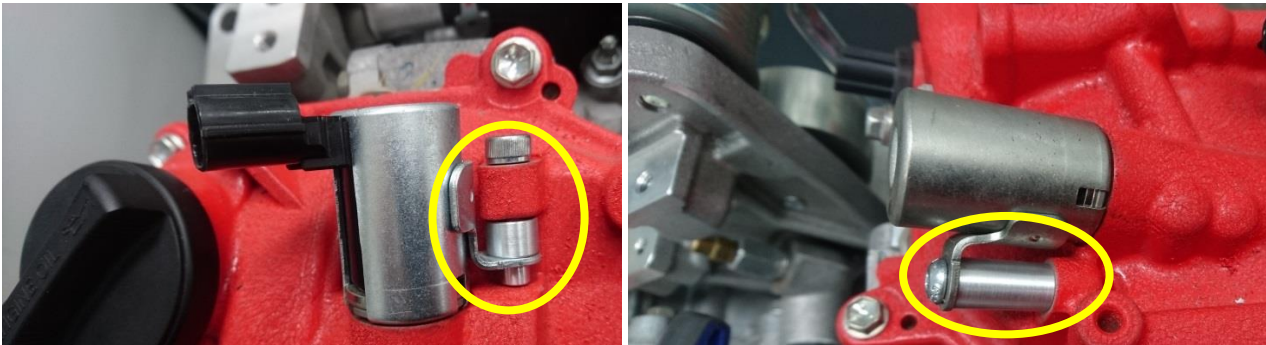
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**Before you begin the install make sure you have a standard NA manifold to suit the 2GR-FE engine.**

Remove the existing intake system and install the standard NA manifold.

Remove the inner variable valve actuator on both banks and swap then from one side to the other. On the front bank you will need to fit the actuator in behind the normal mounting point and fit the spacer as per image below (actuator will need to be inserted and rotated behind the normal mount) which will enable you to lock it down. On the rear bank simply fit the long spacer and use the new screw supplied to screw it into position.



On the front valve cover remove the existing PCV valve and install the supplied 90 degree hose connection. Use Loctite 567 on the thread to seal off into the valve cover. Screw the main fitting in until it becomes tight and the openings align with the valve cover. Install the tail piece fitting on the opening pointing towards the left hand side of the car using Loctite 567 on the thread and in the other end screw in the plug.



Remove the engine wire harness brackets and tuck/sit the loom on the front cam cover, this will then just sit under the supercharger housing. Remove all spigots for the original engine cover.

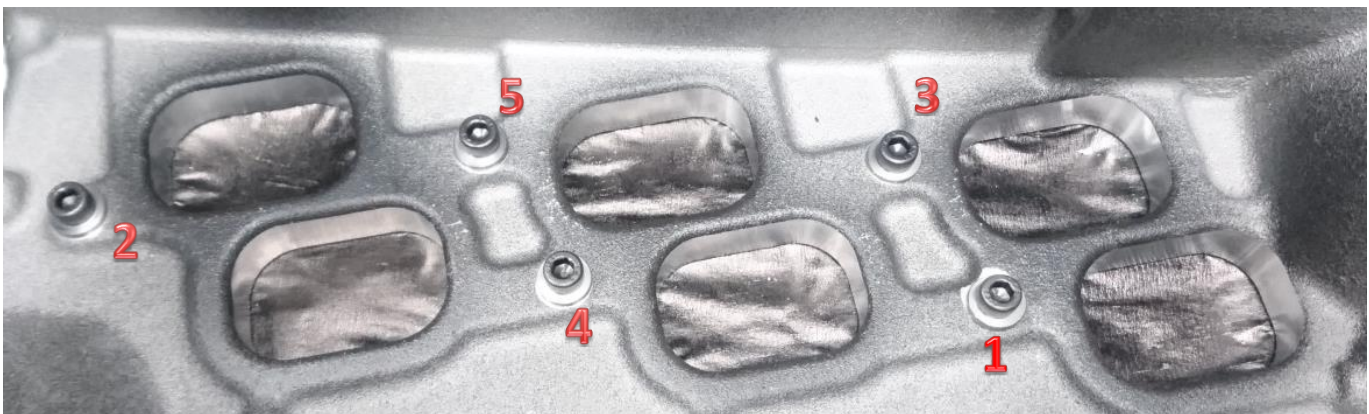


Remove the intercooler fitting from the supercharger assembly by unscrewing the 2xM6 screws using a 10mm socket. This should be removable by using fingers only, if you find that they are too tight then clamp a hose on the fitting to assist removal and provide something to pull on.



Remove the upper manifold lid, 20 x M6 socket head cap screws. Remove the 3 screws from the intercooler, lift the intercooler core out from the manifold by grabbing the 2 lifting tabs.

Install/fit the supercharger to the NA manifold using an OEM seal, use the 5 x M6 un-plated screws and the 5 thick washers, note use Loctite 263 on the threads and being very careful not to drop any screws down the ports (taping of the ports inside the manifold may assist in not dropping screws down the ports) screw the manifold finger tight. Check to make sure that no hoses or looms are preventing the supercharger manifold from sitting flat on the NA manifold, once clear torque the 5 screws in two stages following the sequence below.

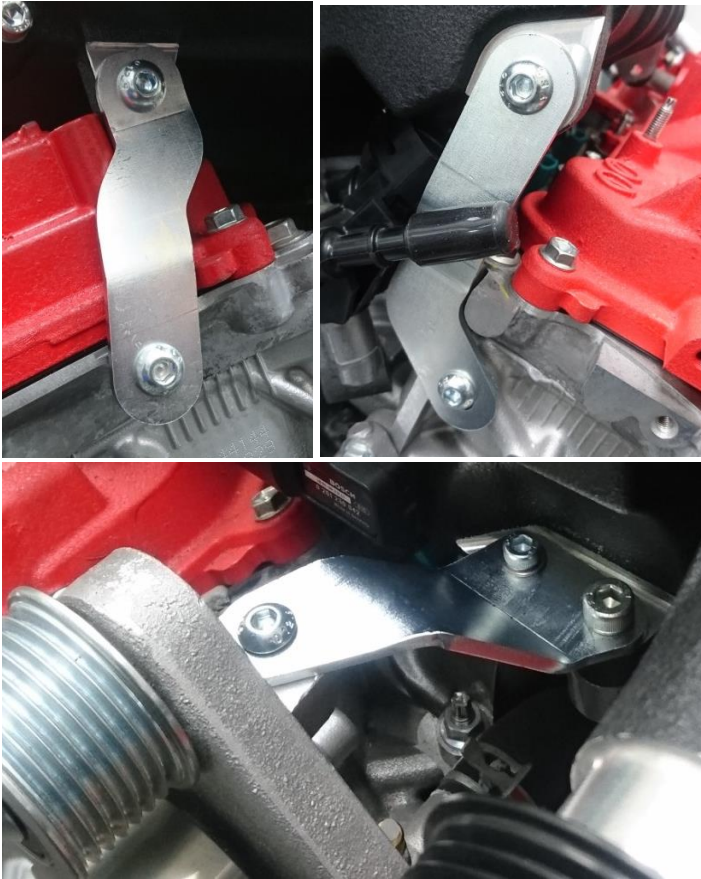


**First stage, 8Nm**

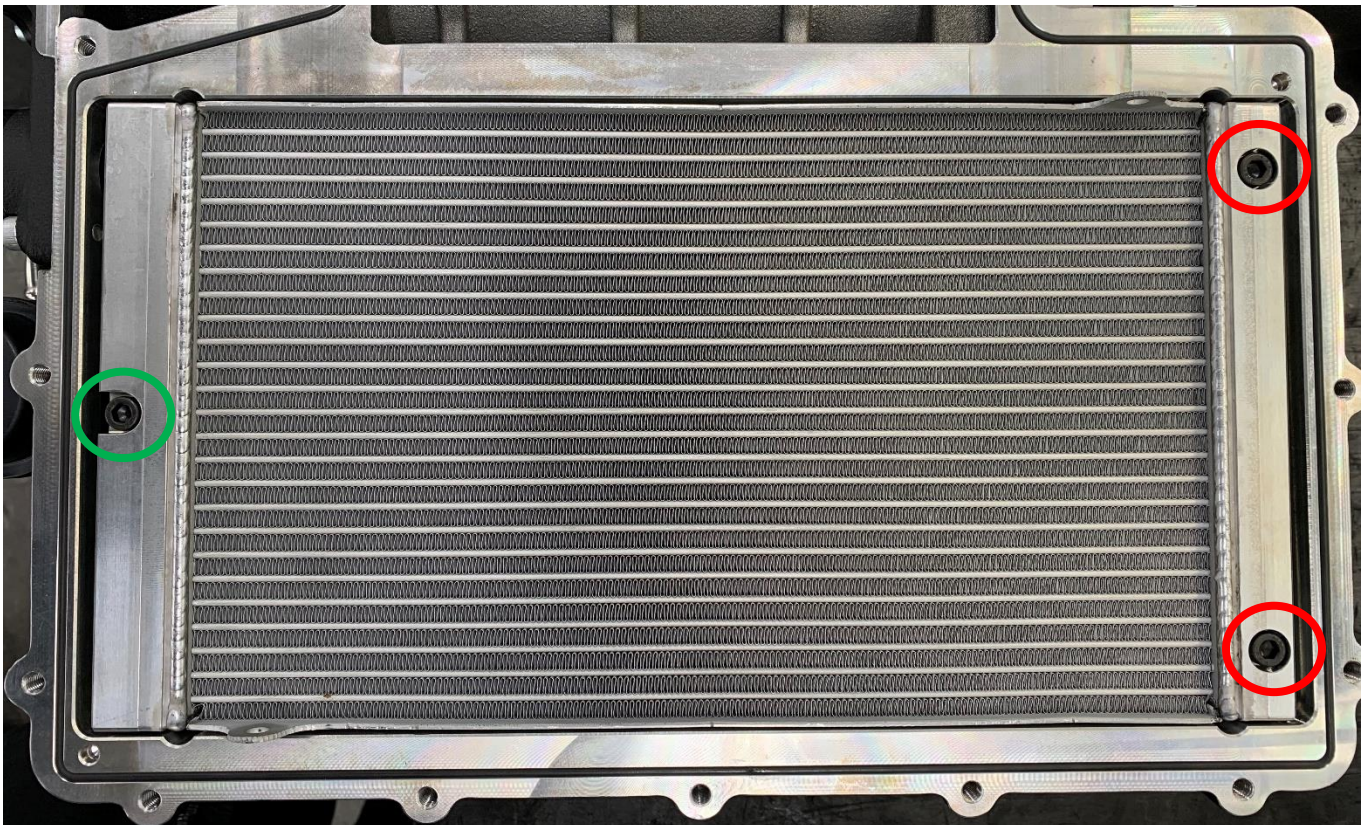
**Second stage, 11Nm**



Fit the supercharger support brackets as per images below. Torque all M6 to 11Nm and M8 screws to 18Nm.



Reinstall the intercooler core into the manifold making sure there is no foreign material inside any ports or manifold, use Loctite 263 on all the screws as a thread locker. Torque the red encircled screws to 10-11Nm and the green encircled screw to 7-8Nm.

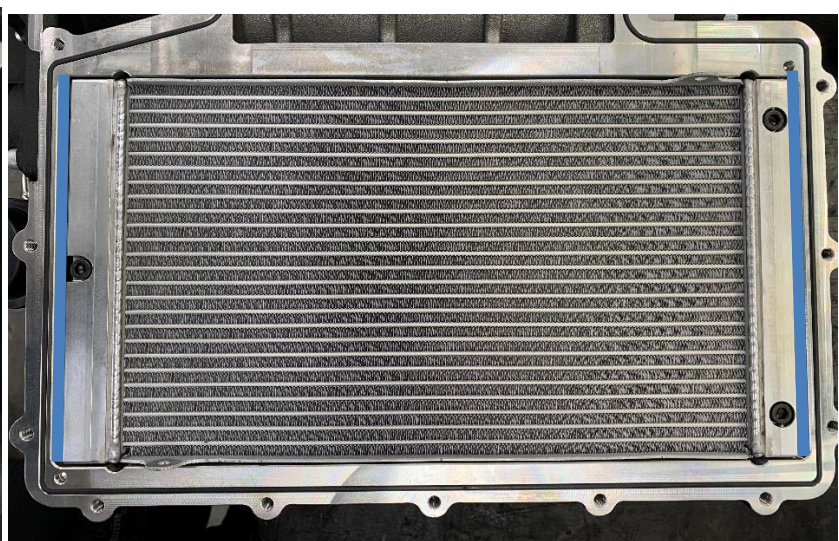
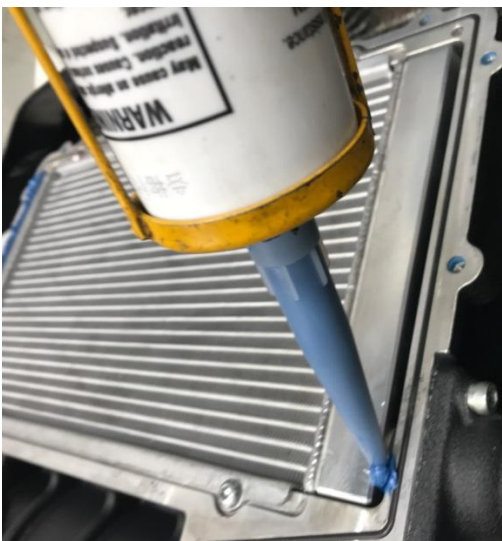




Check that there are 'O'-rings fitted inside the intercooler and ensure the 'O' ring is installed on the throttle adaptor. Once you have checked for the 'O'-rings ensure the intercooler fitting has some assembly lubricant on them and insert the fitting into the intercooler. Tighten the 2 screws up evenly in particular once the O ring is being loaded up to ensure the fitting stays central in the intercooler. Torque these screws to 10-11Nm.

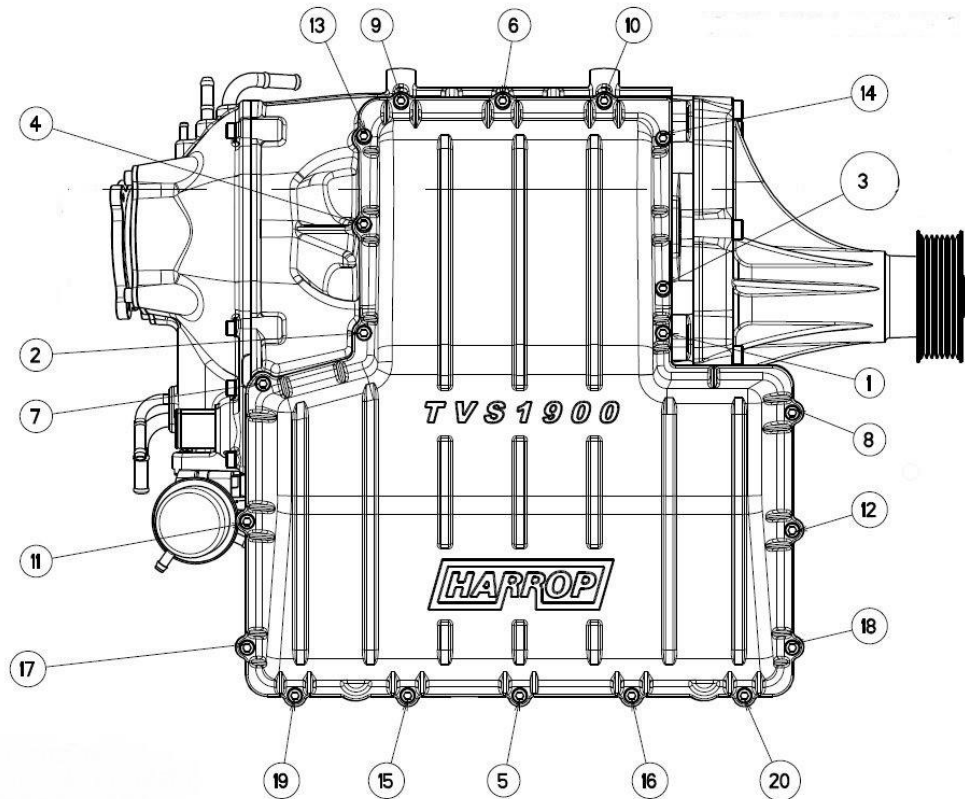


Once the intercooler fitting is installed you will now need to pack in 2 beads of silicone, Loctite SI 587 flange sealant as per images below, it needs to go down about 10mm. Note this is an RTV and will need time to cure.



Assemble the upper manifold lid to the supercharger manifold. There is one screw shorter than the others this screw must be fitted in the position marked with the arrow below.

Torque all 20 screws to  
11Nm



### Coolant

Once the complete install has been carried out the supercharger intercooler system needs to be filled with one of the following coolants to ensure the intercooler will not corrode.

Coolant to be used is either Ford **WSS-M97B44-D** and/or **GMW3420**, mixed with distilled or deionised water in a 50% concentrate. **Note filling with a noncompliant coolant will void warranty.**