

Installation Guide

TVS2300 Holden 5.0L V8 Supercharger





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

TVS2300 Holden 5.0L V8 Supercharger

INSTALLATION GUIDE



For 65 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

1)	Removal Of Existing Inlet Manifold	7
2)	Installation of Harrop Supercharger Manifold – Non-Intercooled	7
3)	Installation of Harrop Supercharger Manifold	8
4)	Installation of the Idler/Alternator Bracket	9
5)	Installation of the Crank Pulley and Water-pump Pulley	10
6)	Assemble Ancillaries	11
7)	Install the Intercooler system	12
8)	Install throttle, airbox tube	13
9)	Finalise Installation	13



The Harrop Supercharger should only be fitted to an engine in good mechanical condition. All ancillary systems such as the Fuel and Ignition system should be capable of supporting the extra Power/Torque capability of the supercharger. Likewise, the suitability of the Transmission, Driveshaft, Differential, Cooling system and Brakes should also be assessed prior to installing the Supercharger.

The Fuel-tank should contain fuel with a minimum of 98 RON. Lower Octane fuels are not compatible with a supercharged engine.

The Engine control Unit will need to be re-calibrated before any load is applied to the engine.

This is a guide only as there are many variations in engine accessories and configuration. The installer is responsible for ensuring correct alignment of drive pulleys and belts.

This guide is for installation to a VT Commodore 5 Litre Holden engine with EFI heads.

Engine mounted fans are not suitable for use with the Supercharged engine. The engine fan should be replaced with suitable electric fan and shroud pack.

Dis-connect the vehicle Battery.

References to left and right in the instructions are made to the vehicles side and NOT the installer



1) Removal Of Existing Inlet Manifold

Follow the Holden service manual and standard maintenance procedures to remove the OE inlet manifold, Alternator, Crank and Water-pump pulley, and all associated ancillaries.

Clean the manifold faces of all old gasket and sealant and ensure the heads are in good condition.

2) Installation of Harrop Supercharger Manifold – Non-Intercooled

This step is for non-intercooled versions. Skip this step and continue from step 3 if you have an intercooled version.

a) Remove the supercharger from the manifold assembly by unscrewing the 10-ea M6 flange head screws shown in Red. Look for 2-ea Ø5 dowels in the supercharger to ensure they are not lost.



b) Remove the upper manifold plate by unscrewing the 6-ea M8x30 socket head screws shown in yellow, and the 5-ea M8x25 shown in Green. Take note of the position and different lengths of these screws to ensure they go back in the correct place. Look for the 2-ea tube dowels that locate the upper manifold to ensure they are not lost.





3) Installation of Harrop Supercharger Manifold

This step applies to both Intercooled and non-intercooled versions. For non-intercooled versions, first Follow step 2.

Temporarily fit the Supercharger manifold onto the engine and check that the faces on the heads match the Manifold. There should be a small gap of 0.5-1.5mm between the manifold valley end surfaces and the Block. This is especially important when aftermarket or machined heads are used.

New manifold bolts (3/8" UNC x 2.0" long Flange head) and gaskets are recommended, these are OE Holden parts.

- a) Install the Harrop Supercharger manifold using a suitable sealant on the manifold gasket faces, and RTV Silicone on the Valley ends.
- b) Torque the 14-ea manifold bolts in two stages in the order shown below. First stage Torque is 12-17Nm, Final Torque is 34-41Nm.



c) Fit a thermostat and housing to the manifold. These are standard OE Holden parts.



TVS2300 Holden 5.0L V8 Supercharger

INSTALLATION GUIDE



- d) For non-intercooled versions, re-assemble the upper manifold top plate ensuring the O-ring is in place. Torque M8 screws to 22-24Nm. Ensure the tube dowels and screw lengths are in the correct location. Refer to step 2b.
- e) For non-intercooled versions, re-assemble the Supercharger to the manifold, ensuring the O-ring and dowels are in place and torque the M6 screws to 15-16Nm.

4) Installation of the Idler/Alternator Bracket

The supplied Idler bracket bolts to the front LH cylinder head and incorporates the Alternator mounting.

a) Use 3-ea 3/8" UNC x 5.5" long bolts and 1-ea 5/16" UNC x 4.0" long bolts, and the supplied alternator bracket and spacer to mount the idler bracket.



- b) Using an impact gun, remove the Alternator Pulley and replace with the supplied 8 groove Pulley.
- c) Install the Alternator as shown using suitable fasteners not supplied.
- d) Install the supplied spacer at the front of the top Alternator mounting lug. This is to provide some adjustment to account for variations in Alternator design. If necessary, it can be moved to the rear of the lug, which will move the Alternator forward by 1 belt rib.



5) Installation of the Crank Pulley and Water-pump Pulley

The supplied 8 Rib crank and water-pump pulleys bolt to the OE Crank Balancer and Water-pump.

- a) Measure the distance from the Balancer face to the water-pump flange. The dimension should be 71.1mm.
 If this is more than 0.5mm out, you will need to take this into account when checking the pulley alignment.
 The water-pump gasket and backing plate, as well as the timing cover gasket thickness all affect the final position of the water-pump pulley.
- b) Install the crank pulley to the balancer using the 4-ea OE bolts. Torque to 22-28Nm.
- c) Install the water-pump pulley to the water-pump using the OE bolts. Torque to 22-28Nm.



d) Check the alignment of all the pulleys using a straight edge or Laser aligner. Install the Supercharger belt, routing as shown.



e) Check that the Belt Tensioner is approximately in the middle of its travel. There should be equal space on both sides of the stops.

INSTALLATION GUIDE

6) Assemble Ancillaries

a) Connect the hoses for the vehicle heater to the Supercharger manifold



- b) Install the coolant temp sensors to the Supercharger manifold. 1-ea is for the Engine temp gauge and 1-ea is for the ECU.
- c) Connect the Brake Booster hose to the Ø9.5 elbow at the side of the inlet cover.
- d) Connect any required Vacuum hoses to the Supercharger inlet. These could be for HVAC, PCV or Emissions equipment.



INSTALLATION GUIDE



- e) At the rear of the Supercharger manifold, connect the GM style MAP sensor.
- f) Also at the rear, connect the GM style IAT sensor.
- g) A 1/8" hose barb is provided for Fuel pressure regulator reference.



7) Install the Intercooler system

This step is for Intercooled versions only

- a) The following is a generic coolant circuit diagram. The actual position and hose lengths will vary depending on the vehicle.
- b) Wire the intercooler pump so that it is on when the ignition is on. The intercooler pump must be operated through a relay rated to at least 20A.



INTERCOOLER COOLANT CIRCUIT DIAGRAM



8) Install throttle, airbox tube

a) Depending on the application, install a throttle to the supercharger inlet, and connect it to the vehicle airbox. Make any cable or electric connections as required. Non intercooled versions will accept the standard Holden 2-bolt Throttle.

9) Finalise Installation

- a) Ensure appropriate injectors are installed and connect the fuel-rail inlet to the vehicle fuel supply.
- b) Connect the top radiator hose and Re-install the A/C belt if required.
- c) Ensure all coolant hoses are connected and have a clamp at each end.
- d) Re-fill the Engine radiator and reservoir with coolant as specified in the vehicle's service manual.
- e) Fill the supercharger intercooler system if fitted with GM6277M, mixed with distilled or deionised water in a 50% concentrate. Note: Filling with a noncompliant coolant will void warranty. Fill until the level covers the upper fitting, allow some time for the coolant to completely fill the intercooler radiator.
- f) Make sure any components that were removed to aid installation have been re-fitted where necessary.
- g) Re-connect the Battery and switch the ignition on without starting the engine.
- h) If fitted, check that the intercooler pump is running. The coolant should be visibly flowing through the reservoir. Let the pump run for a minute and then switch off and re-fill the reservoir. Repeat until the coolant level is constant.
- i) Check that all hoses and wiring looms are secured and cannot come into contact with any pulley, fan or belt.
- j) Start the engine and allow to idle only. Do not race and load, or rev the engine until re-calibration has been performed.
- k) Check that the supercharger belt is running correctly and that the belt tensioner is approximately half way along its total travel.
- I) Check for fuel, coolant and vacuum leaks.
- m) The ECU requires calibration to ensure high performance and safe operation.