

# Tech Guide

## Holden 5.0L V8 Supercharger



23-Nov-2023

Harrop Engineering develops and manufactures premium supercharger kits in Melbourne, Australia. Through 60 years of automotive performance Engineering, Harrop Engineering have successfully manufactured and supplied Superchargers to Automotive OEM programmes including TRD, Lotus Cars and Ford Australia.

Harrop Engineering is certified to meet ISO 9001 standards of quality. OEM Quality, performance and vehicle integration are the foundation of Harrop Supercharger kits.

### Overview:

Harrop TVS2300 & TVS2650 Supercharger Kit for Holden '5.0L' V8 engines with EFI heads. This is an engine hardware kit only. Ancillaries such as airbox, throttle and throttle cables/wiring, manifold fasteners, hoses, gaskets and sensors are not included.

### Includes:

- Supercharger intake manifold including charge-air intercooler, MAP sensor and Fuel-rails.
  - Harrop TVS2300 FDFI Supercharger with LH inlet, Forward inlet or RH inlet options.
  - Supplied with Ø80mm Supercharger pulley. Optional pulleys are Ø85, Ø75 and Ø70mm
  - 8PK FEAD drive system including automatic tensioner, Crank Pulley, Alternator Pulley, Water-pump Pulley, P/S pulley and Supercharger drive belt
- \*NOTE: Supercharger drive system requires late VT 5L Commodore spec A/C compressor and alternator. Pre-VT A/C compressor and alternator are not supported.**

### Options:

- VT-VZ intercooler kit, including Front-mount intercooler radiator, Electric Intercooler pump and Coolant Reservoir (#A7594). This kit will need modifications to fit any non-VT installations
- Injectors: Bosch EV14 Long
- Overdrive crank pulleys. 10%: 99-14494 and 15%: 99-14496
- High mount Alternator bracket 99-A14559. Not compatible with LH inlet options

### Exclusions:

- Injectors. These can be ordered separately.
- Bolt-on components that are part of the OE engine (alternator, water-pump, distributor, thermostat and neck, coolant temp sensors, gaskets)
- Throttle body (suits GM L76 bolt pattern, Ø90mm)
- Air-box/intake tube
- Ancillary items such as hoses and brackets that are vehicle specific

### Technical specifications:

- Eaton TVS2300 supercharger technology
- Integrated Supercharger Bypass system which relieves boost under light load conditions, reducing drive loss and improving fuel economy
- High density water to air in-manifold dual pass Intercooler: 4.9mm high, 28FPI, 36mm thick

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- 12+ psi of boost is achievable
- Supercharger utilises factory offset front drive system, keeping the drive short and direct

### Additional information:

- Retains all factory ancillaries including A/C (with VT 4PK pulley), Power Steering, distributor, heater, thermostat, Coolant temp sensors etc.
- Not intended for use with Water-pump mounted engine fans. Replace with electric Fan and Shroud pack such as the VT Commodore unit.
- “Long” and “Short” Water-pumps can be used – a spacer is provided for short pumps.
  - Measure from the Crank Balancer face with Crank pulley removed to the water-pump pulley flange. The long Water-pump will measure approximately 71.1mm and the short pump 55.3mm.
  - Water-pump and timing cover gasket thickness will affect these dimensions.
  - Aftermarket Water-pumps and Crank balancers may have different dimensions.



- Early (V-belt) and late (4PK belt) Alternators can be used – Late is preferred, but early Alternators can be used with minor modifications to the supplied bracket
- Suits late (VN onwards) style electronic distributors
- Optional Injectors: Bosch EV14 Long (60.65mm between O-ring shoulders)
- MAP sensor is 2.7 Bar and has Chevy LS3 plug

### Performance:

- 700-800 hp is achievable with a 355ci engine. Results will vary with engine specification and calibration
  - Refer to case study overleaf
- Re-calibration of the ECU is required

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Harrop Engineering tested a 355 Stroker development engine with the Harrop 2300 Supercharger Kit with the following specs:

- Harrop TVS2300 Supercharger Kit
- Harrop 355 Crank-shaft
- Harrop 4-Bolt Mains Cap Conversion
- Ported Holden EFI Iron Heads
- 9.5:1 Compression ratio
- Re-calibrated OE ECU using Kalmaker
- Ø65mm Supercharger pulley, Ø160mm crank pulley
- Harrop Supercharged Performance: 606 kW (813hp)@ 7000 RPM and 923Nm (681ft-lb) @ 5450 RPM, 12psi boost on 98 RON fuel (development calibration for maximum power – results will vary)



**99-EK-A14349-HOLD5L** (S/C Eng Kit FDFI2300 Holden 5.0L LH Bias)



**99-EK-A13351-HOLD5L** (S/C Eng Kit FDFI2300 Holden 5.0L FW Bias)



**99-EK-A14848-HOLD5L** (S/C Eng Kit FDFI2300 Holden 5.0L RH Bias)

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Available Supercharger drive pulleys:

	PART NUMBER	DIAMETER (mm)
8PK SUPERCHARGER PULLEYS	13771	Ø70
	14013	Ø75
	14014	Ø80
	14015	Ø85

8PK CRANK PULLEYS	99-13772	Ø160 USE WATERPUMP PULLEY 99-13770
	99-14494	Ø176 REQUIRES WATERPUMP PULLEY 99-14495
	99-14496	Ø184 REQUIRES WATERPUMP PULLEY 99-14495

8PK WATERPUMP PULLEYS	99-14495	Ø115
	99-13770	Ø130 FOR Ø160 CRANK PULLEY ONLY

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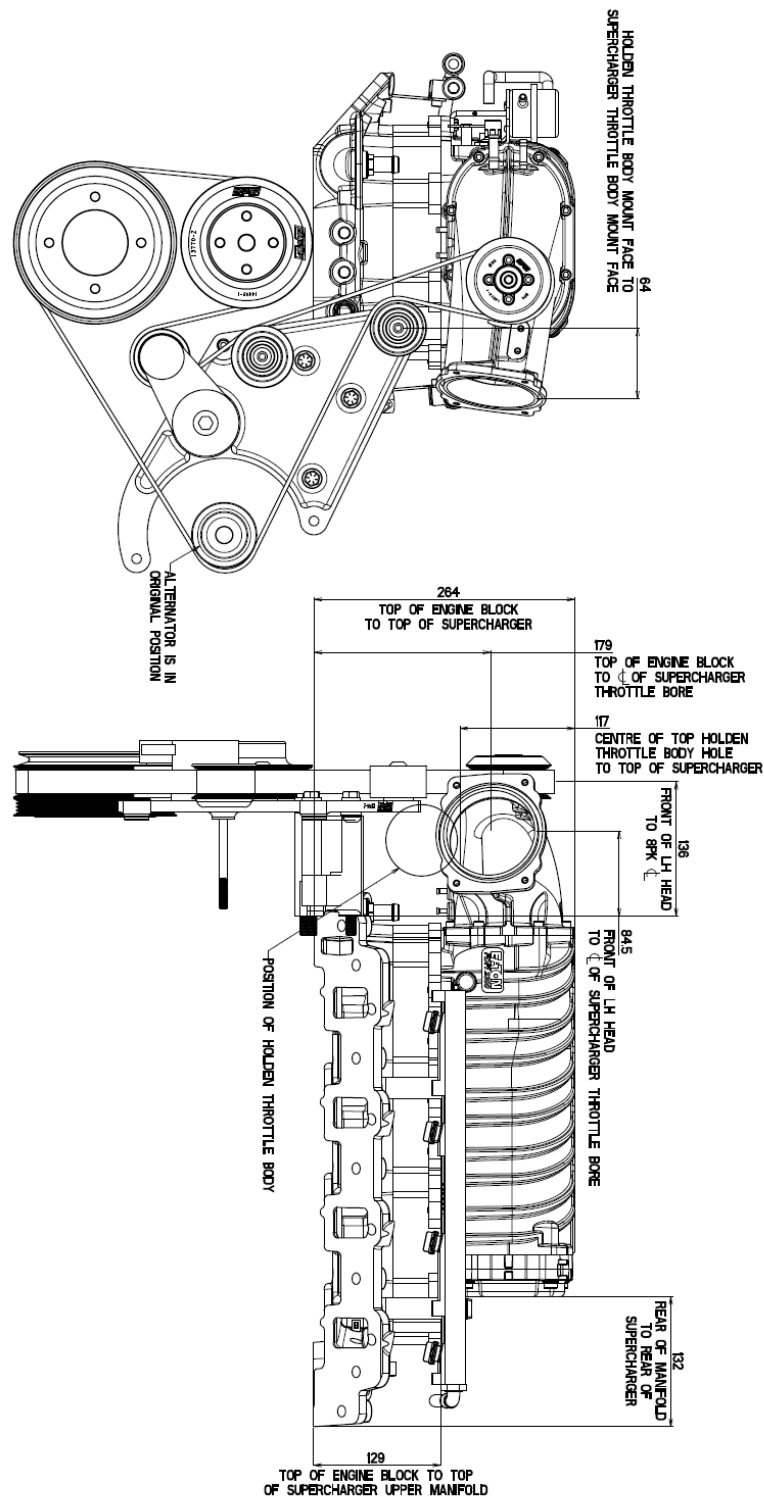


**99-EK-A14349-HOLD5L** (S/C Eng Kit FDFI2300 Holden 5.0L LH Bias)

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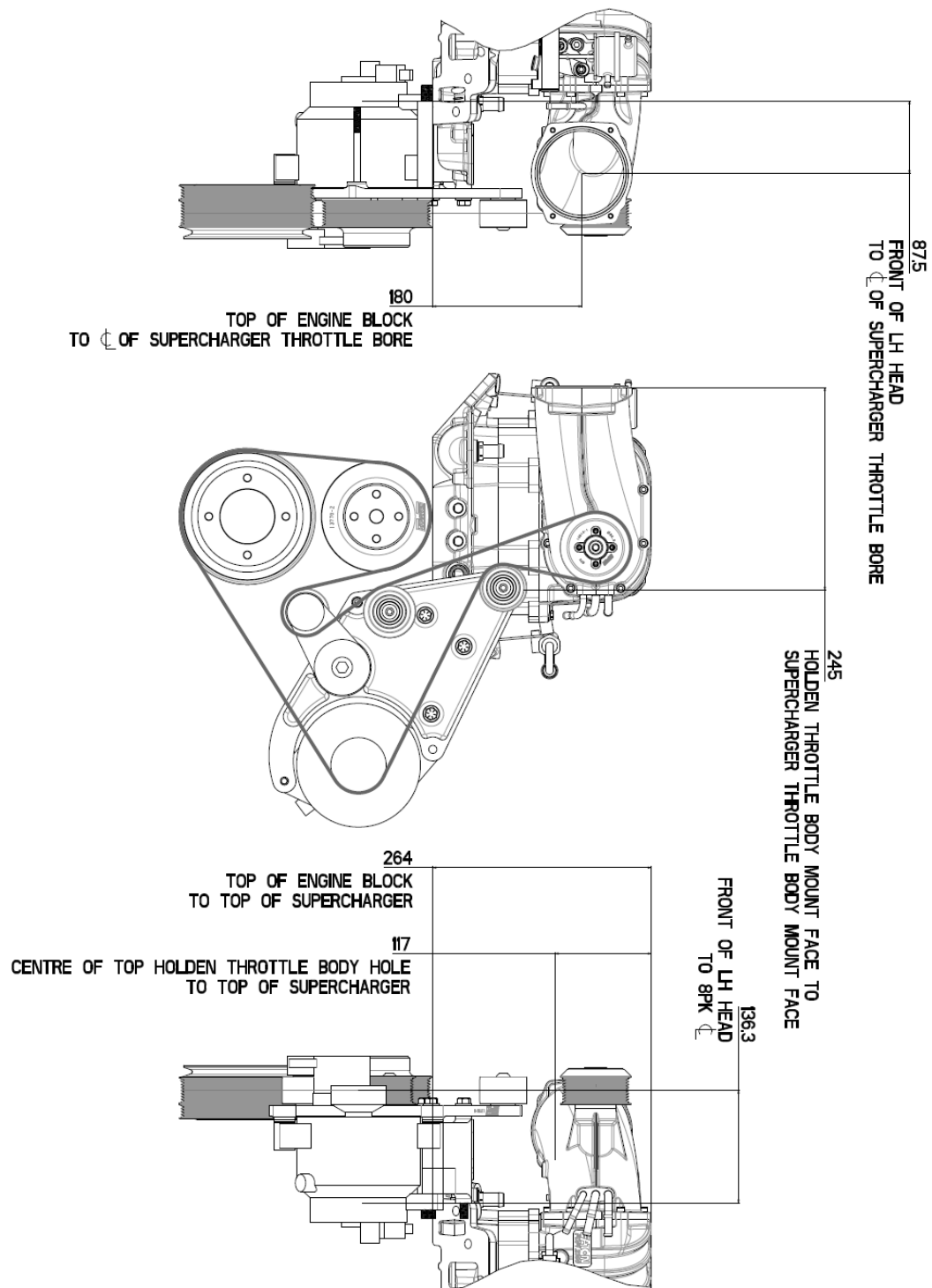


2300 - Left hand inlet option with VT alternator position - reference dimensions

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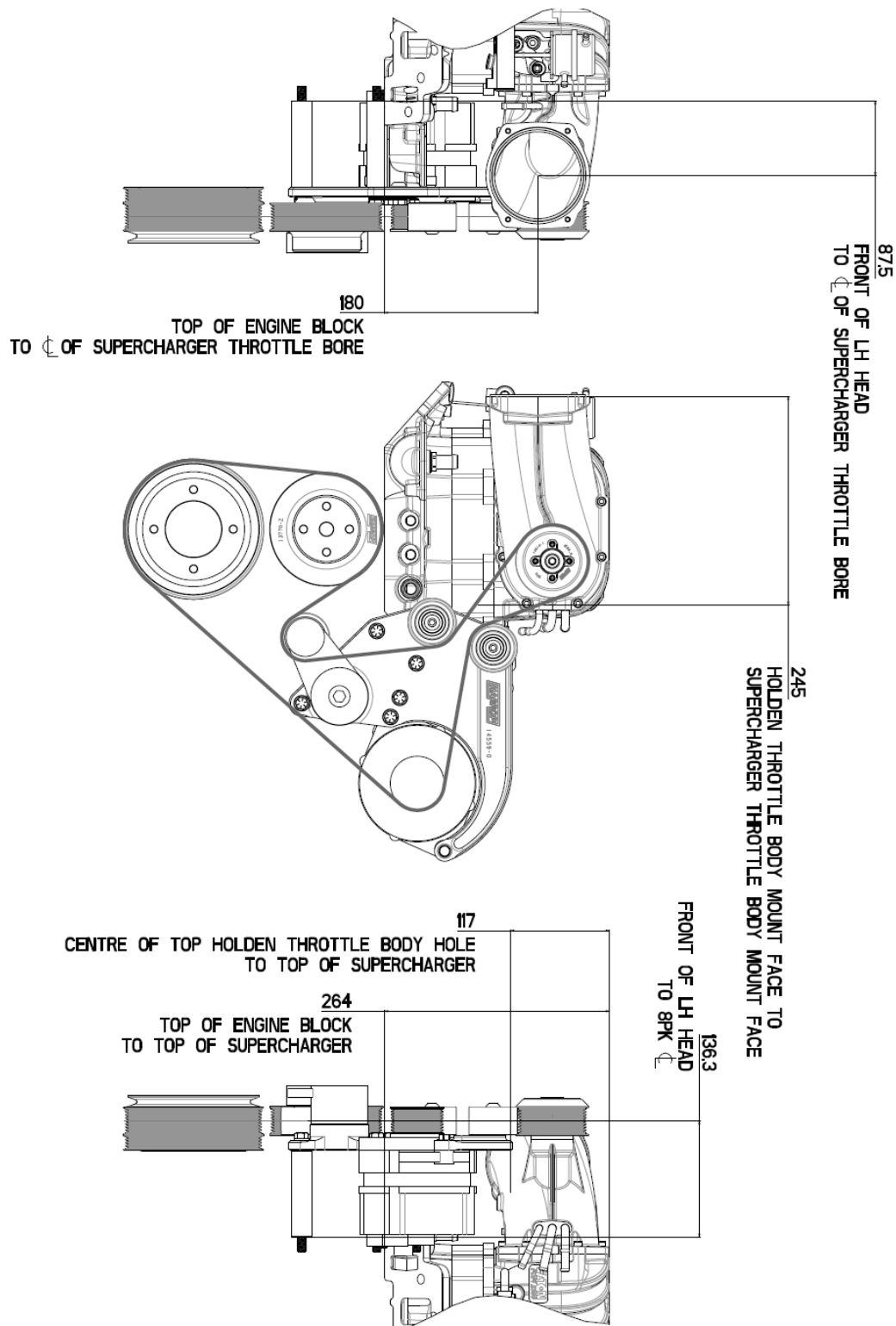


2300 - Right hand inlet option with VT alternator position - reference dimensions

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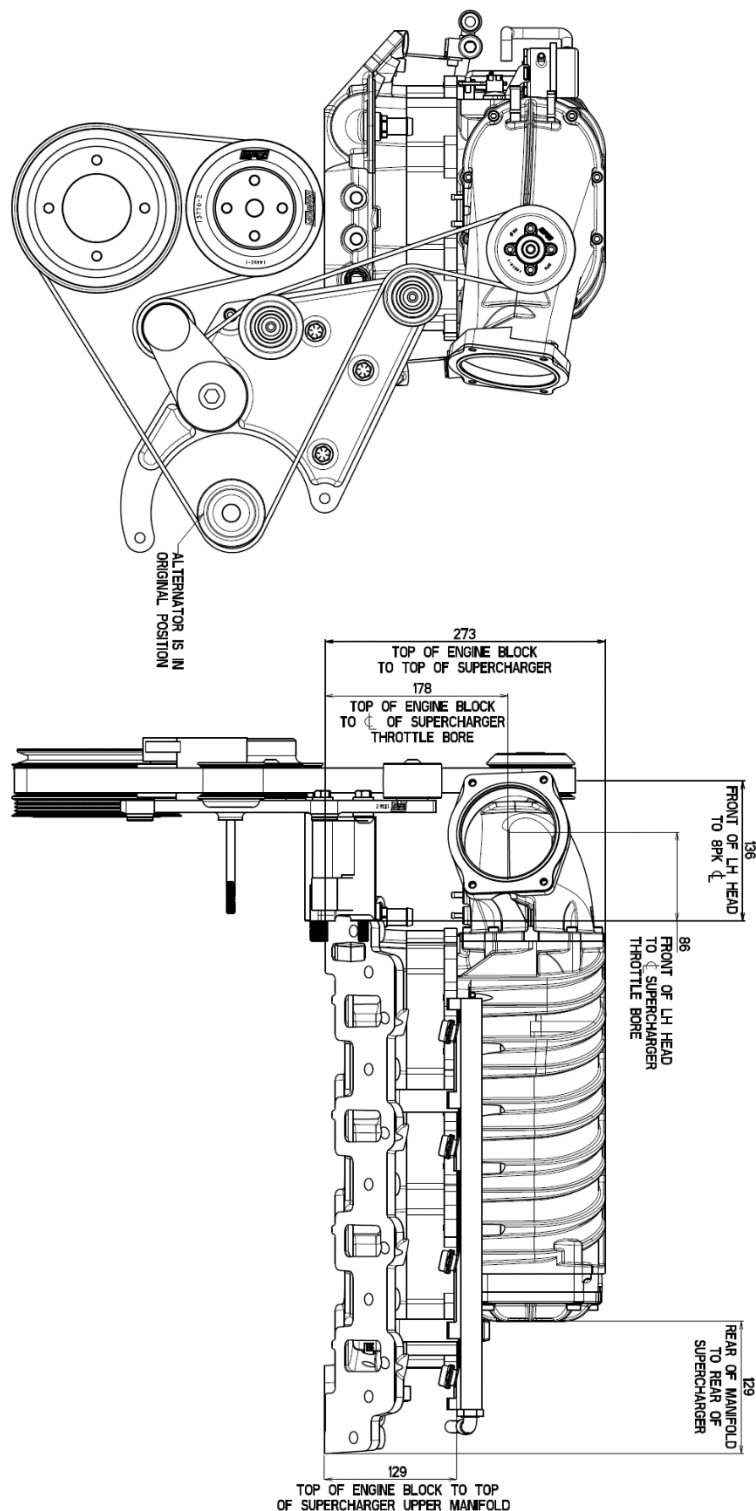
2300 - Right hand inlet option with HIGH alternator position - reference dimensions

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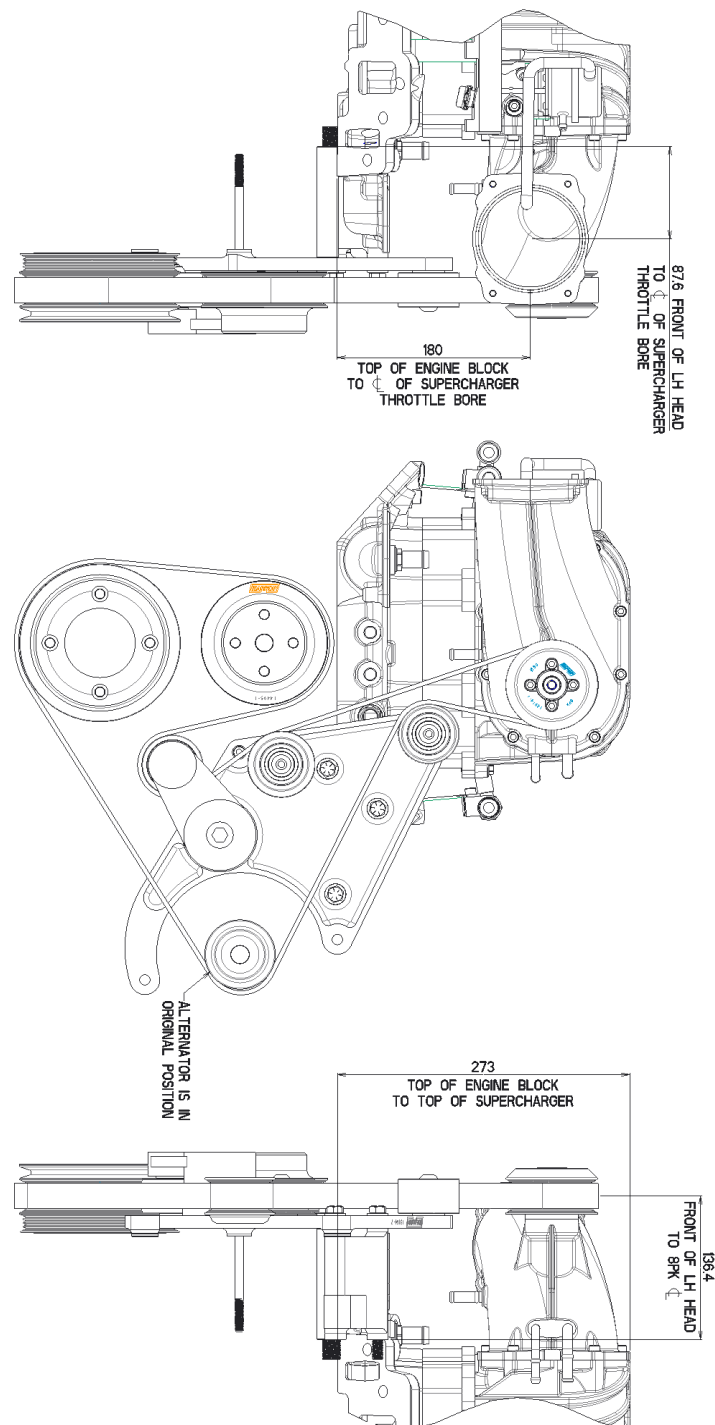


2650 - Left hand inlet option with VT alternator position - reference dimensions

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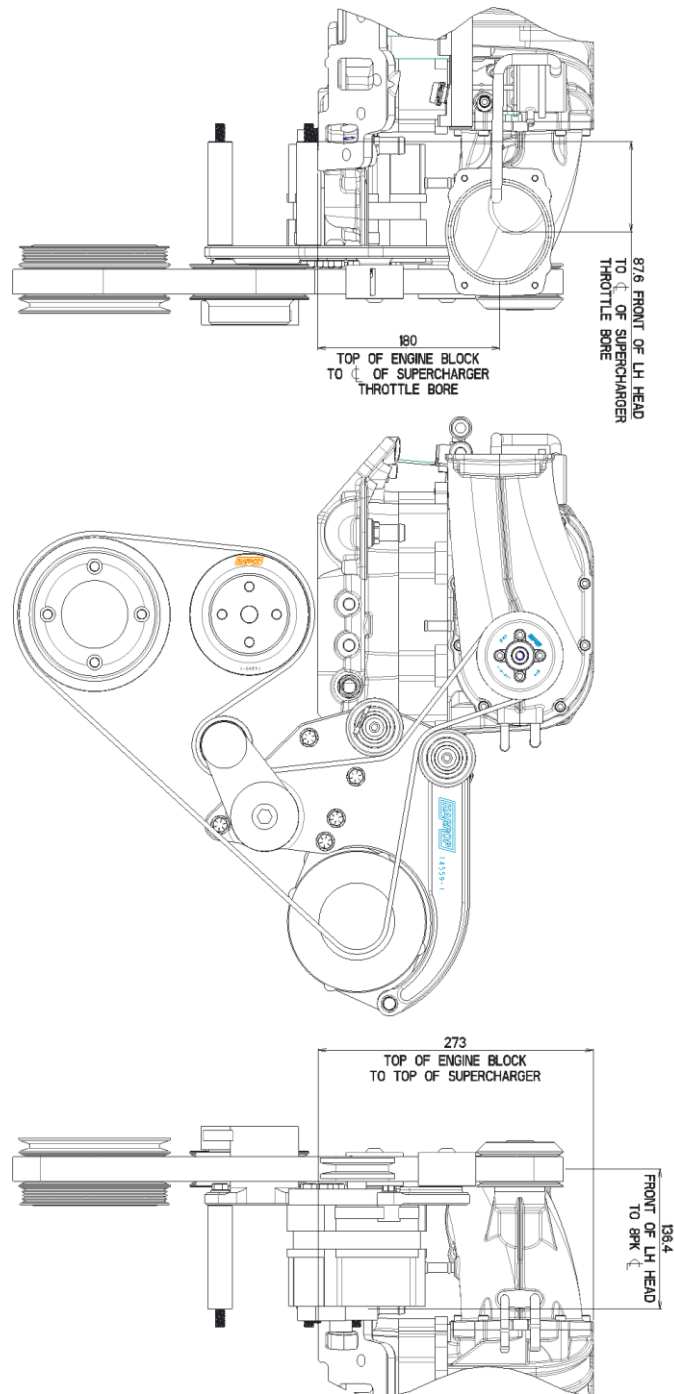


2650 - Right hand inlet option with VT alternator position - reference dimensions

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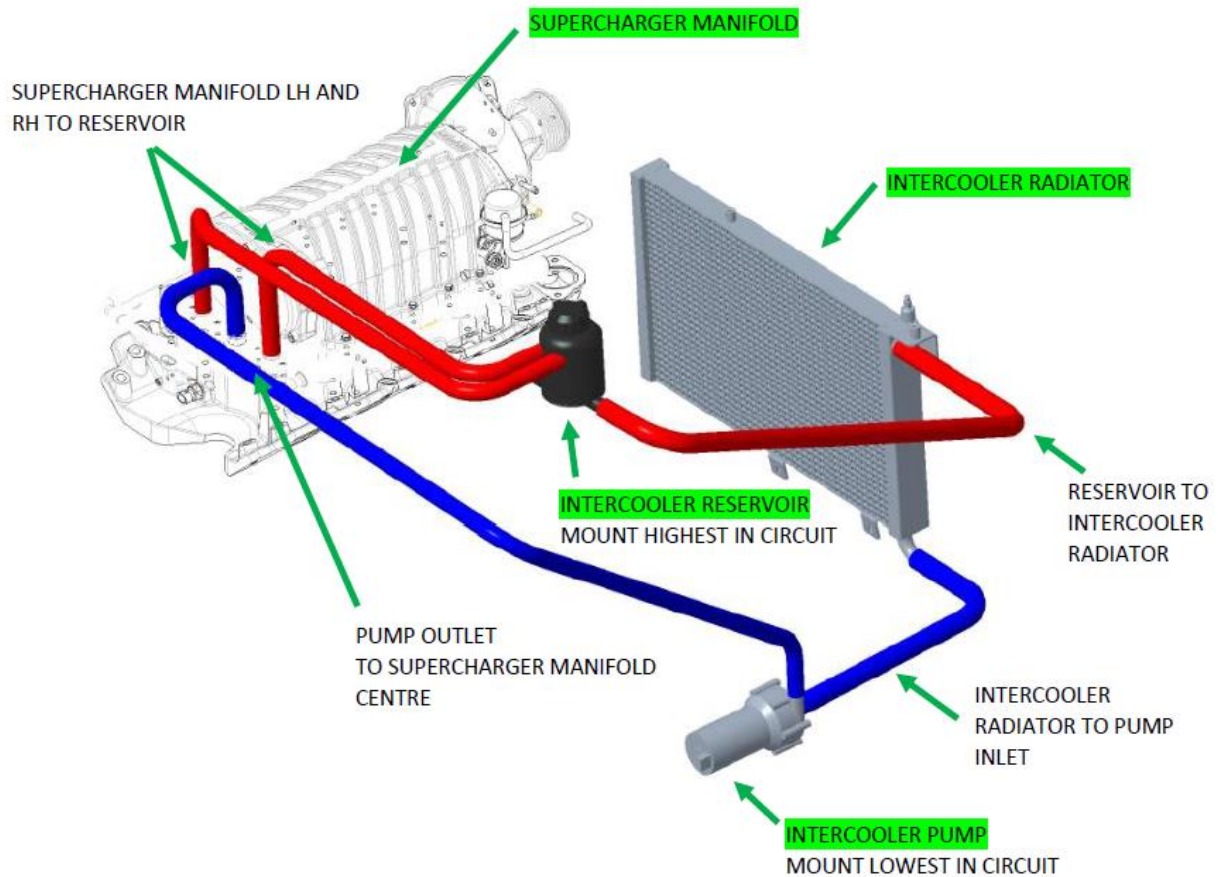


2650 - Right hand inlet option with HIGH alternator position - reference dimensions

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INTERCOOLER COOLANT CIRCUIT DIAGRAM

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DESCRIPTION	PART NUMBER	VT ALT/IDLER BRACKET - A13766 USE FOR COMMODORE	HIGH ALT/IDLER BRACKET - A14559 USE FOR TORANA	ELECTRIC WATER PUMP	IS CABLE THROTTLE	THROTTLE DIAMETER	SUPERCHARGER PULLEY DIAMETERS	CRANK PULLEY DIAMETERS
2300 LH INLET	A14349	USE ALTERNATOR BXH1253A WITH HARROP #13769 PULLEY	NO - CANT USE	USE HIGH ALT/IDLER BRACKET	REQUIRES TPS MOD	90	70, 75, 80, 85	160, 176, 184
2300 FORWARD INLET	A13351	USE ALTERNATOR BXH1253A WITH HARROP #13769 PULLEY	USE ALTERNATOR BXH1238A WITH HARROP #8272 PULLEY	USE HIGH ALT/IDLER BRACKET	REQUIRES TPS MOD	90	70, 75, 80, 85	160, 176, 184
2300 FORWARD INLET Ø110	*	USE ALTERNATOR BXH1253A WITH HARROP #13769 PULLEY	USE ALTERNATOR BXH1238A WITH HARROP #8272 PULLEY	USE HIGH ALT/IDLER BRACKET	N/A	110		
2300 RH INLET	A14848	USE ALTERNATOR BXH1253A WITH HARROP #13769 PULLEY	USE ALTERNATOR BXH1238A WITH HARROP #8272 PULLEY	USE HIGH ALT/IDLER BRACKET	YES	92/102		
2650 LH INLET	A14641	USE ALTERNATOR BXH1253A WITH HARROP #13769 PULLEY	NO - CANT USE	USE HIGH ALT/IDLER BRACKET	REQUIRES TPS MOD	92/102	70, 75, 80, 85	160, 176, 184
2650 FORWARD INLET	A14456	USE ALTERNATOR BXH1253A WITH HARROP #13769 PULLEY	USE ALTERNATOR BXH1238A WITH HARROP #8272 PULLEY	USE HIGH ALT/IDLER BRACKET	REQUIRES TPS MOD	92/102	70, 75, 80, 85	160, 176, 184
2650 FORWARD INLET Ø110	*	USE ALTERNATOR BXH1253A WITH HARROP #13769 PULLEY	USE ALTERNATOR BXH1238A WITH HARROP #8272 PULLEY	USE HIGH ALT/IDLER BRACKET	N/A	110		
2650 RH INLET	A14640	USE ALTERNATOR BXH1253A WITH HARROP #13769 PULLEY	USE ALTERNATOR BXH1238A WITH HARROP #8272 PULLEY	USE HIGH ALT/IDLER BRACKET	YES	92		

\*Ø110 Inlet versions are  
special build and under  
development

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### Belt lengths

Low mount alternator position

		Crank pulley diameter		
		160mm	176mm	184mm
Supercharger pulley diameter	70mm	8PK2025	8PK2036	8PK2036
	75mm	8PK2025	8PK2036	8PK2036
	80mm	8PK2036	8PK2036	8PK2036
	85mm	8PK2036	8PK2036	8PK2047

High mount alternator position

		Crank pulley diameter		
		160mm	176mm	184mm
Supercharger pulley diameter	70mm	8PK1907	8PK1917	8PK1927
	75mm	8PK1917	8PK1917	8PK1927
	80mm	8PK1917	8PK1917	8PK1927
	85mm	8PK1917	8PK1927	8PK1943

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