

# Tech Guide

## VK56 V8 Y62 Patrol Supercharger



19/03/2020



2010-Present Nissan Patrol Y62 (Armada Y62 in development)



In development: 2016 – Present Nissan Titan



In development: 2010 – Present Infiniti QX80

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### Harrop Supercharger Kit – VK56 V8 - Y62 Nissan Patrol

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 FDFI Supercharger Kit for Nissan 5.6 Litre VVEL V8 VK56VD and VK56DE petrol engines.

VK56VD:

TVS2300 Series 1-2: 99-KSM43K24

TVS2300 Series 3-5: 99-KSM43K26

TVS2650 Series 1-2: 99-KSM53K24

TVS2650 Series 3-5: 99-KSM53K26

Includes all components required for installation onto a standard Y62 Patrol:

- Supercharger intake manifold including charge-air intercooler
- Harrop TVS2300 or TVS2650 FDFI Supercharger with Y62 specific inlet cover
- FEAD idler brackets, Supercharger drive belt
- Plug-in wiring looms for all necessary engine sensors – IAT breakout from MAF sensor, Throttle loom extension and Intercooler pump loom
- Front-mount intercooler radiator, Electric Intercooler pump, Coolant Reservoir and moulded hoses
- Interfaces with OE throttle body, intake tube and FEAD
- Retains all factory ancillaries including A/C, Viscous engine fan, Power Steering etc.
- Detailed installation instructions – for Y62 Patrol with VK56VD engines only.

Continued overleaf...

VK56DE (Port injection):

TVS2300: 99-KSM48K27

- Important – Installation in vehicles with the Port injected engine (VK56DE) has not been verified. Fuel injector sizing, fuel pump upgrade, Airbox interface including MAF sensor and calibration will all need to be determined by the installer for port injected engines (VK56DE).
- Kits for Port injected engines (VK56DE) include Fuel Rails and mounts. Compact EV14 Bosch injectors with conical spray pattern are suitable and not included.



EV 14K  
Compact

Recalibration of the ECU is necessary for all versions and not included.

### Technical specifications:

- Eaton TVS Supercharger technology.
- Integrated Supercharger Bypass system which relieves boost under light load conditions.
- High density water to air intercooler system:
  - Front mount Radiator: 6.0mm high fin, 16 Fin-Per-Inch (FPI), 36mm thick
  - In-manifold Intercooler: 4.9mm high fin, 28FPI, 36mm thick
- Supercharger Pulleys are specified at time of order. They are available from Ø70 to Ø90 to provide a range of boost levels. Some Pulleys diameters require the Tensioner Pulley to be changed to maintain the same belt length.

7PK3525 BELT	VK56VD, Y62 SERIES 3-5, TVS2300 & TVS2650			
	Supercharger pulley		Tensioner pulley	
	Diameter (mm)	Harrop part number	Diameter (mm)	Part number
	70	99-PLY13363	82	DAYCO EP001
	75	99-PLY13362	76 - STD	-
	80	99-PLY13024	76 - STD	-
	85	99-PLY14269	65	DAYCO EP257
	90	99-PLY14270	65	DAYCO EP257

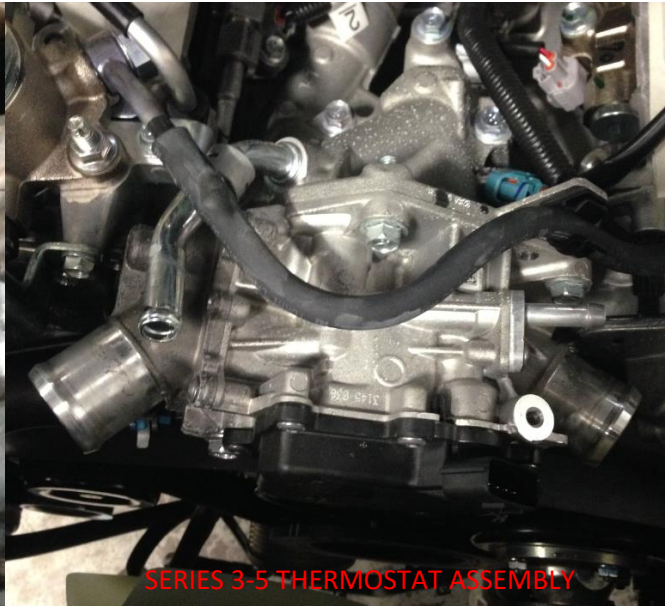
7PK3215 BELT	VK56DE TVS2650 & TVS2300			
	Supercharger pulley		Tensioner pulley	
	Diameter (mm)	Harrop part number	Diameter (mm)	Part number
	65	99-PLY13364	TVS2650: 82	DAYCO EP001
			TVS2300: 102(STD)	-
	70	99-PLY13363	82	DAYCO EP001
	75	99-PLY13362	82	DAYCO EP001
	80	99-PLY13024	82	DAYCO EP001
	85	99-PLY14269	65	DAYCO EP257
	90	99-PLY14270	65	DAYCO EP257

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Use the following images to identify the Series of the Engine. The later Series 3-5 have an electronically controlled thermostat assembly.



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### Performance:

Stock naturally aspirated VK56VD: 348 hp

**Power and Torque gains of around 25% are typical for the standard HTV2300 kit, with a boost pressure of 6.0 psi with Ø85 Drive Pulley.**

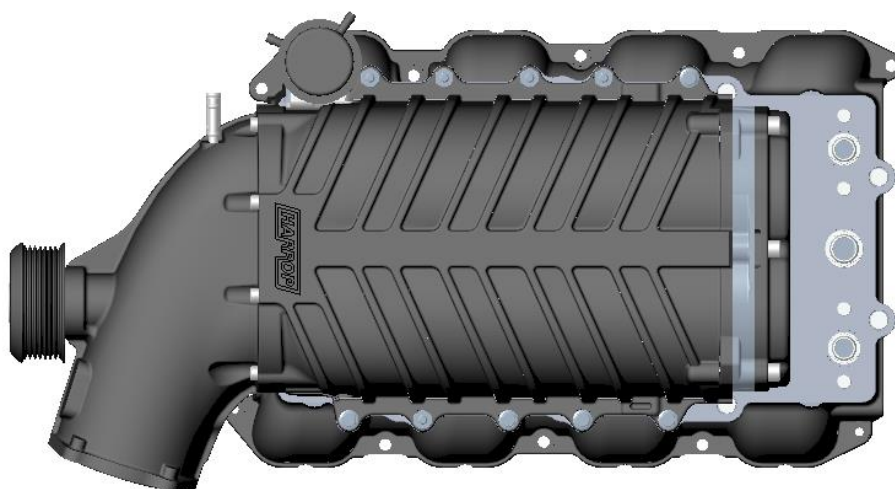
\*Boost pressure can vary 1.0-1.5 PSI depending on ambient conditions and other modifications including air intakes.

The TVS2650 supercharger is capable of over 1000 hp with additional supporting upgrades like built engines, high capacity air intakes and fuel systems.

Power figures were measured on a Dynapack Hub Dyne.



Harrop TVS2300 Supercharger kit installed on a 2016 Y62 Nissan Patrol



CAD image of the HTV2300 Supercharger manifold assembly

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