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# Vulcan VN2000



## KEY POINTS:

- The largest motorcycle engine Kawasaki has ever produced
- 2053 cc, liquid cooled, V-twin, OHV
- Electronic Fuel Injection (EFI)
- Direct action single rear shock absorber
- Large projector type headlamp
- Belt drive
- Long, low chassis
- Lowest seat height in class
- Genuine Kawasaki accessories available

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## SPECIFICATIONS VN2000-A2

Engine type	4-stroke, liquid cooled, V-twin
Displacement	2,053 cc
Bore & stroke	108 x 123.2 mm
Compression ratio	9.5:1
Valve system	OHV, 4 valves per cylinder
Maximum power	76 kW (103 PS) / 4,800 rpm
Maximum torque	177 N.m (18 kgf.m) / 3,200 rpm
Fuel system	EFI with 2 x 46 mm Keihin throttle bodies
Ignition	digital TCBI (ECU controlled)
Starting	electric
Transmission	5-speed, belt drive
Frame type	steel double cradle
Rake / trail	32° / 182 mm
Suspension, front	49 mm fork
Suspension, rear	swingarm with single direct action shock absorber
Wheel travel, front / rear	150 / 100 mm
Tyre, front	150/80-R16
Tyre, rear	200/60-R16
Brake, front	300 mm dual discs with 4-piston calipers
Brake, rear	320 mm disc with dual piston caliper
L x W x H	2,535 x 1,025 x 1,155 mm
Wheelbase	1735 mm
Seat height	680 mm
Fuel capacity	21 litres
Dry weight	340 kg
Colours	Metalic Ocean Blue, Metalic Dark Green

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# Vulcan VN2000

# (VN2000-A2)

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## FEATURES AND BENEFITS

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### ENGINE

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#### 2053 cc, V-twin, OHV engine

- 2053 cc, V-twin is the largest Kawasaki motorcycle engine ever produced.
- Despite its large displacement, the engine's dimensions are only marginally bigger than the VN1600 engine.
- Supersport design forged pistons and alloy connecting rods are lightweight and along with the primary engine balancers reduce vibration.
- Iridium single centre spark plug has a long service life and improves combustion efficiency.
- Hydraulic valve lash adjusters keep valves quiet with no adjustment required.
- A damper on the left crankshaft protects the drive train from large torque fluctuations while enhancing torque feel.
- Semi-dry sump stores oil in the transmission case eliminating the need for a separate oil tank.
- Large 220 mm flywheels enhance very low rpm torque.
- Oil and water pumps are built into the crankcase reducing the number of parts.
- The top of the cylinders are liquid cooled while the less critical lower portion is air cooled giving an attractive tapered shape to the cylinders.

#### Fuel system

- Electronic fuel injection feeds the engine exactly the right amount of fuel.
- Airflow is controlled by 2 x 46 mm Keihin throttle bodies.
- A honeycomb type catalyser is used to reduce exhaust emissions while allowing full power and torque output.

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### TRANSMISSION

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#### 5-speed transmission

- A gear position sensor is used to provide ignition timing and injection information to the ECU.

#### Belt drive

A reliable, quiet and low-maintenance system.

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### CHASSIS

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#### Double cradle high tensile steel frame

- The steel double cradle frame uses a cast steering head mated to a large diameter, box section backbone.
- A 32° rake and 10 mm fork offset deliver very balanced handling characteristics, making the VN2000 both highly manoeuvrable at low speeds and very stable on the highway.

#### 49 mm front fork

Large diameter inner tubes are rigid for excellent stability.

#### Rear suspension

- A direct action single shock gives the appearance of a solid frame while delivering high ride comfort and absorption qualities.
- The steel pipe construction of the triangular rear swingarm is rigid for excellent handling and traction.

#### Front and rear disc brakes

- Dual 300 mm front discs with 4 piston calipers and a rear 320 mm disc with a dual piston caliper ensure excellent stopping power and feel.

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### DETAIL FEATURES

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- The large, stretched, seamless fuel tank has a 21 litre capacity.
- A long and low frame for minimal seat height and maximum visual impact.
- The near horizontal rear shock absorber system is compact and allows for the very low seat height.
- Digital odometer, trip meter and clock.
- New design cast wheels give the machine a luxurious look.
- The 200 mm rear tyre provides high stability and enhances the image.
- The large headlamp has 3 small projector type lenses for low beam in the top of the lamp and a single main beam bulb in the bottom of the lamp giving a superb broad spread of light for maximum visibility.



# VN2000 TECHNICAL SUMMARY

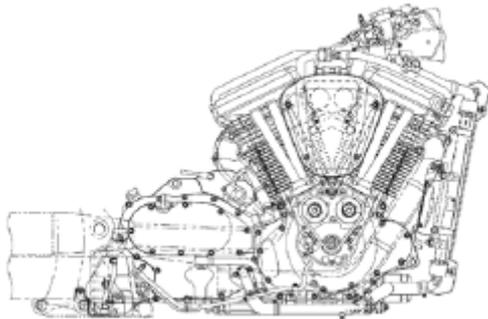
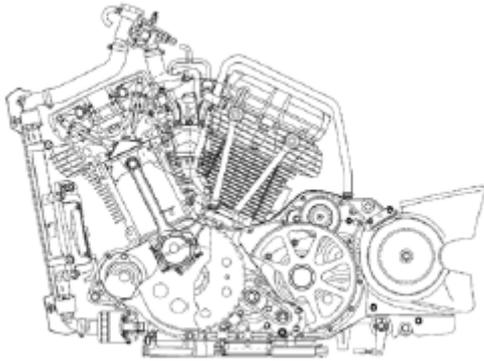
The VN2000 is unlike any cruiser on the market, yet its traditional styling elements give it a certain familiarity.

Its all-new 2,053cc V-twin engine is the biggest production V-Twin offered by any major manufacturer, but its pushrod design helps keep the VN2000 low and long for confidence-inspiring handling and unmistakable cruiser styling. From its unique quad beam headlight at the front to its 200 mm rear tyre, the VN2000 is obviously big, bad and oozing with style.

## ENGINE

### CYLINDERS

■ Huge 103 mm bores are both liquid and air cooled. Water jackets surround only the top quarter of the cylinders and the polished-edge fins match the cylinder heads while attractively tapering to the cylinder bases.



### 4-VALVE CYLINDER HEADS

■ Large 35° valve angle and pushrod valve actuation help minimise engine height. Despite its 25% increase in displacement, overall engine height is only 2 mm higher than the VN1600 engine.

Since cruiser engines aren't designed to produce high revs, pushrod valve actuation is ideal to achieve the desired power characteristics.

■ Big 40 mm intake and 36 mm exhaust valves help produce big power and torque.

■ One rocker arm operates 2 valves. Hydraulic lash adjusters are located on the rocker arms to automatically adjust valve clearance.

■ A single iridium spark plug is located in the centre of each cylinder head. Because the iridium spark plug burns fuel more efficiently and works with leaner mixtures it makes the VN2000 engine more resistant to detonation and helps provide better low end response. The single plug also allows for a more functional and attractive cooling fin arrangement.

### PISTONS

■ High-performance forged pistons are lightweight to help reduce vibration, plus they are stronger and more heat resistant than cast versions. Oil jets help cool the pistons for added durability.



### CRANKCASES

■ Large 1-piece case halves allow the engine to be used as a stressed frame member for increased chassis rigidity. The oil and water pumps are built into the cases to reduce the number of parts.

■ A semi-dry sump keeps excess oil away from the crank to prevent power-robbing stirring loss. Oil is



# VN2000 TECHNICAL SUMMARY

stored in the transmission, which eliminates the need for an oil tank. There are three oil pumps in the lubrication system: a main feed pump; a scavenge pump for the crankcase; and another for the clutch housing which prevents oil flooding the clutch.



## CRANKSHAFT

■ Huge 220 mm flywheels enhance low-end torque pulse while reducing vibration.



■ Lightweight alloy steel connecting rods help reduce vibration.



■ A cam damper on the left crank half protects the drive train by damping large torque fluctuations yet helps emphasise the pleasant torque pulse.



■ Dual balancers harmonise primary balance and reduce secondary vibration that occurs due to the use of lightweight pistons and connecting rods.

## ELECTRONIC FUEL INJECTION

■ Dual 46 mm Keihin throttle bodies with sub throttles provide optimum performance, rideability and fuel consumption. The sub throttles, located behind the main throttle valve, are controlled by the ECU so that the EFI system retains more precise throttle response, similar to a constant velocity carburettor.



■ High atomising fuel injectors produce a fine fuel mist for better combustion, fuel consumption and low emissions.



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# VN2000 TECHNICAL SUMMARY

## EXHAUST

■ Big slash-cut mufflers look great and contain honeycomb catalysers to reduce emissions. A pair of balance pipes improves torque output.



## ELECTRIC SOLENOID OPERATED DECOMPRESSOR

■ An automatic decompression system is activated by an electric solenoid to make starting the big engine easy.

When the ignition is switched on and the starter button depressed, the solenoid pulls a fulcrum-mounted link that depresses push rods in each camshaft.

The push rods activate the decompression mechanism to partially open the exhaust valves as the piston nears top dead centre, releasing some of the cylinder compression that can cause resistance during starting.

Releasing the starter button de-activates the solenoid and a spring returns the push rods to their normal operating position.

## CHASSIS

### FRAME

■ Large steel box-section backbone frame is very rigid and helps contribute to high stability and lightweight handling at low speeds. A solid rear engine mount contributes to the frame's rigidity.



■ A cast steering head and one-piece cast frame rails at the swingarm pivot require fewer welds and parts for a clean appearance.

■ Triangular swingarm appears to be a hard-tail design, but acts on a single shock with adjustable preload and rebound damping.

## BELT DRIVE

■ Belt drive has a lower unsprung weight than shaft drive to improve ride quality and suspension action.

■ The wide belt enhances the machine's performance image.



■ More efficient so more power reaches the rear wheel.

■ Low maintenance and low noise.

## HEADLIGHT

■ Unique four-beam design provides more even light dispersion than a reflector-beam headlight. Low beam is three small projector lenses in the upper portion of the round headlight, with a single high beam bulb at the bottom.

