Let’s first take a look at how the 650 V-Strom evolved into the great motorcycle that it is today.
Suzuki’s first adventure touring motorcycle, the DR750 (DR BIG) was introduced in 1988. It’s displacement was upped to 800 cc’s in 1990.

The first V-Strom was introduced in 2002 with a 1000 cc 90° V-twin engine.
That was followed up by the DL650 V-Strom in 2004. ABS became available in 2007 (DL650A) and in 2009 an SE model became available with touring side bags and top case.
The second generation V-Strom was introduced in 2012 in a standard model, SE model and Expedition model. The Expedition model is equipped with aluminum bags and top case, engine guards, hand guards, engine under cowling and Vario windscreen.
In 2015, a new X model was introduced with wire spoke wheels and revised styling. It is also available in an Expedition version.
The 2\textsuperscript{nd} generation DL650A V-Strom is shown.

ABS is standard on all 2\textsuperscript{nd} generation models.
Model Selection

- The SE model adds touring side bags and top case

DL650ASE
The Expedition model adds aluminum bags and top case, engine guards, hand guards, engine under cowling and Vario windscreen.

DL650AEXP
The DL650AX features wire spoke wheels and styling which includes the distinctive beak design.
Model Selection

- The DL650AXEXP features the same wheels and styling as the DL650AX plus Expedition equipment.
- Expedition equipment includes aluminum bags and top case, engine guards, hand guards, engine under cowling and Vario windscreen.
Comfortable Adventure Tourer

- Class Leading Touring Comfort:
  - Class-leading, long riding range between refueling stops
  - Comfortable riding position (seat, foot rest, handlebar position)
  - Newly-designed seat for increased comfort
  - Excellent wind protection
  - Rear suspension equipped with spring preload adjuster
  - Convenient instrument cluster
  - Smooth gearshift operation
  - Available accessories
Comfortable Adventure Tourer

- Easy to handle, well balanced design for riding comfort:
  - Powerful and easy-to-handle V-Twin engine (improved feel in low-to-mid rpm range)
  - Suzuki Dual Throttle Valve (SDTV) delivering smooth throttle response
  - Lightweight aluminum twin-spar frame and swingarm
  - Long stroke front and rear suspension for riding on varying road surfaces
  - Cast-aluminum wheels for sporty and agile handling
  - Compact and lightweight Antilock Brake System
  - Chassis designed for mounting 3 bags
Comfortable Adventure Tourer

- Adventurous styling:
  - Sporty and dynamic front fairing
  - Horizontally arranged dual headlights inherits V-Strom identity
  - Compact fuel tank
  - Newly designed muffler with an adventurous appearance
  - Slim, compact front and rear fenders
  - Sporty design frame covers

Comparison to 1st generation model
Comfortable Adventure Tourer

- Improvement in environmental performance and fuel economy (10% increase), essential for long distance tourers:
  - Twin iridium spark plug
  - Throttle-body integrated Idle Speed Control (TI-ISC)
  - 10-hole fine atomization fuel injector
  - Large, 300-cell catalyst
  - Engine Control Unit (ECU) powered by high performance 32-bit CPU

Comparison to 1st generation model
Windscreen

- Newly designed to reduce wind noise and rider fatigue during long distance tours
- Upper edge of windscreen set back 30 mm to reduce turbulence
- Adjustable in 3 positions
  - Standard position
  - Up 24 mm, rearward 18 mm
  - Down 18 mm, forward 18 mm
- Simplified windscreen locking mechanism
- Windscreen mount with textured finish and Suzuki logo

Comparison to 1st generation model
Seat shape makes it easier to touch the ground

- Embossed logo with red stitching and touch finish to prevent slipping
- 15 mm higher seat height for an ideal handlebar-seat-foot peg relationship
- Optional 20 mm lower seat and 20 mm higher seat
Bodywork Shape

- Narrower fuel tank and frame covers improves riding position and reduces foot reach to ground
- Black textured resin side cowlings and frame covers
- 20 L fuel tank capacity for long range (5% less capacity from previous generation but 10% better fuel economy)
Muffler moved forward to reduce overhang and to follow the seat rail line for improved appearance

Buff finish end cap and silver metallic cover for enhanced texture quality

Comparison to 1st generation model
Carrier

- Lighter weight resin carrier with integrated hand rails
- Resin grab rails not affected by ambient temperature as much as aluminum and when combined with a contoured shape, passenger comfort is improved
- Non-slip dots on rubber mat improves luggage mounting security
Fenders

- Front fender has integrated fork tube guards and is shaped for smooth air flow to radiator
- Seat key cylinder moved to left side of rear fender for easy access to under seat storage and license plate bracket moved upward
Engine

- Mid range and maximum power increased
- Reduced mechanical noise conveys a sense of quality
- Improved fuel economy

Comparison to 1st generation model
Engine

- Camshaft profiles changed to improve low to mid range torque
- Intake camshaft timing changed (Opens 20° BTDC and closes 72° ABDC)

Comparison to 1st generation model
Engine

- Valve springs changed from double type to single type to lower mechanical loss and improve valve control.
- Dual spark plugs per cylinder changed to iridium type for improved throttle response, fuel economy and idle stability.

Comparison to 1st generation model
Engine

- New design pistons and rings
- New SCEM plated cast aluminum cylinder provides excellent heat dissipation, reduced friction, improved resistance to abrasion and better sealing performance
Engine

- Redesigned crankshaft enhances beat feel of V-twin engine and improves torque
- Scissors type primary drive gear mounted to right side of crankshaft reduces mechanical noise caused by variations in engine rpm inherent in V-twin engines

Comparison to 1st generation model
39 mm throttle bodies with Suzuki Dual Throttle Valve system (one throttle valve controlled by cable and the other controlled by computer)

Idle speed control changed from ISC valve to Throttle-body Integrated ISC (TI-ISc) system (idle speed controlled by secondary throttle valve stepper motor)

New TI-ISc lowers emissions, provides faster start-up and improves stability in cold weather
Engine

■ Oil cooler type changed from air cooled to liquid cooled
■ Radiator size changed (320 x 188 x 24 $\rightarrow$ 300 x 197 x 22 mm)
■ Wind directing plates improve cooling performance
■ Holes in wind directing plates also allows heat at rider’s foot area escape

Comparison to 1st generation model
Engine Control

- ECM powered by high performance 32-bit CPU
- Basic fuel injection volume calculated according to engine rpm, intake pressure and throttle position
- Final fuel injection volume corrected according to O2 feedback system
Clutch & Transmission

- Clutch release mechanism changed from ball screw type to cam type for a more direct operating feel.
- Double layer clutch cover reduces clutch operating sound.
- Primary, transmission and final gear ratios unchanged.

Comparison to 1st generation model.
Twin Spar Frame

- Aluminum alloy twin spar frame and swing arm
- Compared to competitors with a steel frame, the V-Strom frame provides superior rigidity and lighter weight
ABS

- Antilock brake system provides stable braking on different road surfaces
- Compact ABS hydraulic unit reduces weight (weight reduced from 1.5 kg to 0.7 kg)
Suspension

- Front fork with 43 mm diameter inner tubes and 5-way spring pre-load adjuster provides high rigidity and smooth operation
- New design fork upper bracket with silver metallic handlebars improves look of quality
- Rear suspension with easy to use spring pre-load adjuster located below right frame cover and a damping force adjuster
Wheels & Tires

- Light weight aluminum 3-spoke front wheel with 110/80R19M/C radial tire
- Light weight aluminum 3-spoke rear wheel with 150/70R17M/C radial tire
Wheels & Tires (X-Model)

- Light weight wire spoke front wheel with 110/80R19M/C tubeless radial tire
- Light weight wire spoke rear wheel with 150/70R17M/C tubeless radial tire
Multi-Function Instrument Cluster

- Analog tachometer and large LCD speedometer with the following new features:
  - Fuel consumption indicator (switchable between average fuel economy, odometer and trip meters)
  - Freeze indicator (lights below 3° and turns OFF at 5° C)
  - Ambient temperature
  - 6-way brightness adjustment
  - Gear position
Multi-Function Instrument Cluster

- Meter select switch located on left handlebar allows rider to change meter settings without releasing the handlebar.
Headlights

- Dual multi-reflector horizontally arranged headlights produces the same high level of light distribution as current model and superior visibility than competitors.
- Both 60/55 watt halogen bulbs illuminated on low and high beam.
Accessories

- Touring bag set
Contents of Touring Bag Set

- Top case 42L (990D0-TC420-NAR)
- Top case mount (990D0-11J00-061)
- Top case liner (990D0-TC42I)
- Backrest pad (990D0-TC420-005)
- Side cases 30/40L (990D0-SCNAR-YUS)
- Side case mount (990D0-11J00-066)
- Side case liner (990D0-SC00I)
- 2 pc lock set (990D0-HBLOK-002)
- 6 pc lock set (990D0-HBLOK-006)
- 8 pc lock set (990D0-HBLOK-008)
- Top case plate (990D0-11J00-060)
- Side case plate (990D0-11J00-065)
Accessories

- Aluminum cases
Accessories

- Aluminum case parts
  - Top case 38L (990D0-ALTCS-NAR)
  - Top case mount (990D0-11J00-060)
  - Top case liner (990D0-ALTCI-038)
  - Backrest pad (990D0-ALTCE-005)
  - Side cases 37/45L (990D0-ALSCE-NAR)
  - Side case mount (990D0-11J00-067)
  - Right case liner (990D0-ALSCI-037)
  - Left case liner (990D0-ALSCI-045)
  - 4 pc lock set (990D0-ALLOK-0A2)
  - 4 pc lock set (990D0-ALLOK-0A4)
  - 6 pc lock set (990D0-ALLOK-0A6)
  - Silver graphic sticker set (990D0-ALSTK)
Accessories

- Vario screen (990D0-11J51-CLE)
Accessories

- Engine guard (990D0-11J00-031)
Accessories

- GPS mount (990D0-17HNB)
Accessories

- 12 volt electric socket (38800-09811)
Accessories

- 20 mm higher seat (45100-11J60-KCJ)
- 20 mm lower seat (45100-11J50-KCJ)
Hand guards (57300-27831-291)
Heated grips (57100-27832)
Accessories

- Center stand (42100-06861)
Accessories

- Engine under cowling (94400-11820-291)
## Specifications

### DIMENSIONS & CURB MASS

<table>
<thead>
<tr>
<th></th>
<th>1st Generation DL650A V-Strom</th>
<th>2nd Generation DL650A V-Strom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall length</td>
<td>2290 mm (90.2 in)</td>
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</tr>
<tr>
<td>Overall Width</td>
<td>840 mm (33.1 in)</td>
<td>835 mm (32.9 in)</td>
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<tr>
<td>Overall height</td>
<td>1420 mm (55.9 in)</td>
<td>1405 mm (55.3 in)</td>
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<tr>
<td>Wheelbase</td>
<td>1555 mm (61.2 in)</td>
<td>1560 mm (61.4 in)</td>
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<tr>
<td>Ground clearance</td>
<td>165 mm (6.5 in)</td>
<td>175 mm (6.9 in)</td>
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<tr>
<td>Seat height</td>
<td>820 mm (32.3 in)</td>
<td>835 mm (32.9 in)</td>
</tr>
<tr>
<td>Curb mass</td>
<td>220 kg (485 lbs)</td>
<td>214 kg (472 lbs)</td>
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</tbody>
</table>

Curb mass is the weight of the motorcycle as you would ride it with all fluids including a full tank of fuel.
## Specifications

### DRIVE TRAIN

<table>
<thead>
<tr>
<th></th>
<th>1st Generation DL650A V-Strom</th>
<th>2nd Generation DL650A V-Strom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clutch</td>
<td>Wet multi-plate</td>
<td></td>
</tr>
<tr>
<td>Transmission</td>
<td>6-speed constant mesh</td>
<td></td>
</tr>
<tr>
<td>Primary reduction ratio</td>
<td>2.088</td>
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<tr>
<td>Final reduction ratio</td>
<td>3.133</td>
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<tr>
<td>Gear ratio (Low)</td>
<td>2.461</td>
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<tr>
<td>2nd</td>
<td>1.777</td>
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</tr>
<tr>
<td>3rd</td>
<td>1.380</td>
<td></td>
</tr>
<tr>
<td>4th</td>
<td>1.125</td>
<td></td>
</tr>
<tr>
<td>5th</td>
<td>0.961</td>
<td></td>
</tr>
<tr>
<td>Top</td>
<td>0.851</td>
<td></td>
</tr>
<tr>
<td>Drive chain</td>
<td>DID 525 V8, 116 links</td>
<td>RK525 M0Z8, 118 links</td>
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</tbody>
</table>

### CHASSIS

<table>
<thead>
<tr>
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<th>1st Generation DL650A V-Strom</th>
<th>2nd Generation DL650A V-Strom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front suspension</td>
<td>Telescopic, coil spring, oil damped</td>
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</tr>
<tr>
<td>Rear suspension</td>
<td>Link type, coil spring, oil damped</td>
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</tr>
<tr>
<td>Front fork stroke</td>
<td>150 mm (5.9 in)</td>
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<tr>
<td>Rear wheel travel</td>
<td>150 mm (5.9 in)</td>
<td>159 mm (6.3 in)</td>
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<tr>
<td>Caster</td>
<td>26°</td>
<td></td>
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<tr>
<td>Trail</td>
<td>110 mm (4.33 in)</td>
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<tr>
<td>Steering angle</td>
<td>40° (right and left)</td>
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</tr>
<tr>
<td>Turning radius</td>
<td>2.6 m (8.5 ft)</td>
<td>2.7 m (8.9 ft)</td>
</tr>
<tr>
<td>Front brake</td>
<td>Disc brake (twin)</td>
<td></td>
</tr>
<tr>
<td>Rear brake</td>
<td>Disc brake</td>
<td></td>
</tr>
<tr>
<td>Front tire size</td>
<td>110/80R19 M/C 59H</td>
<td></td>
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<tr>
<td>Rear tire size</td>
<td>150/70R17 M/C 69H</td>
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</table>
### Specifications

#### ELECTRICAL

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<tr>
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<th>1st Generation DL650A V-Strom</th>
<th>2nd Generation DL650A V-Strom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ignition type</td>
<td>Electronic ignition (Transistorized)</td>
<td>←</td>
</tr>
<tr>
<td>Spark plug</td>
<td>NGK CR8E or Denso U24ESR-N</td>
<td>NGK CR8EIA-9 or Denso IU24D</td>
</tr>
<tr>
<td>Battery</td>
<td>12V 36.0 kC (10Ah)/10HR</td>
<td>←</td>
</tr>
<tr>
<td>Generator</td>
<td>Three-phase AC generator</td>
<td>←</td>
</tr>
<tr>
<td>Headlight</td>
<td>12 V 60/55 W x 2 (H4)</td>
<td>←</td>
</tr>
<tr>
<td>Brake light/Tail light</td>
<td>12 V 21/5 W x 2</td>
<td>←</td>
</tr>
<tr>
<td>License plate light</td>
<td>12 V 5 W</td>
<td>←</td>
</tr>
<tr>
<td>Turn signal light</td>
<td>12 V 21 W x 4</td>
<td>←</td>
</tr>
<tr>
<td>Indicator lights</td>
<td>LED</td>
<td>←</td>
</tr>
</tbody>
</table>

#### CAPACITIES

<table>
<thead>
<tr>
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<th>1st Generation DL650A V-Strom</th>
<th>2nd Generation DL650A V-Strom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel tank</td>
<td>22 L (4.8 imp gal)</td>
<td>20 L (4.4 imp gal)</td>
</tr>
<tr>
<td>Engine oil</td>
<td>3100 ml (2.7 imp qt)</td>
<td>3000 ml (2.6 imp qt)</td>
</tr>
<tr>
<td>Coolant</td>
<td>1.9 L (1.7 imp qt)</td>
<td>1.95 L (1.72 imp qt)</td>
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</tbody>
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