

# Features & Specifications

## 2017 Boulevard S40



**LS650BL7**

*YUK: Metallic Fox Orange*

### Overview

The Suzuki Boulevard S40 takes a timeless single-cylinder design, a new blacked-out treatment, and adds a shot of advanced Suzuki technology to create a bike that combines exciting performance and a bold appearance with rock-solid reliability. It features a strong, rigid chassis for agile handling and lightweight responsiveness that makes it great for cruising down the boulevard or beyond the city limits. Best of all, one twist of the throttle rewards you with a strong blast torque from the 40-cubic-inch engine.

### New Features

- Eye-catching Metallic Fox Orange or Glass Sparkle Black colors.
- Blacked-out engine with highlighted cylinder head cooling fins.
- Blacked-out handlebars, upper fork clamp, headlight shell and other components deliver a bold, custom look.
- Shiny black finish on the wheel rims is set off by bright, stainless steel spokes.
- Black lower fork legs and rear fender stays match the wheels' black rims, further impressing the S40's strong style.

### Engine Features

- A 652cc, SOHC, single-cylinder, air-cooled four-stroke engine with TSCC (Twin Swirl Combustion Chambers) cylinder head and high mass crankshaft produces strong low-end power and torque.
- An electric starter with automatic decompression system provides quick, easy engine starting.
- Precise electronic ignition system with maintenance-free battery.
- A smooth-shifting 5-speed transmission is complemented by a low-maintenance belt-drive system that's quiet, durable, and simple to adjust and clean.
- Sculpted engine features a rich, blacked-out treatment with a large, visually striking cylinder and head with highlighted cooling fins.



## LS650BL7

YVB: Gloss Sparkle Black

### Chassis Features

- Strong steel frame with tubular backbone that supports the chopper-style chassis.
- Black-finish drag-style handlebar with upper fork clamp and custom-style rear view mirrors provide a striking appearance (similar to the larger Suzuki Boulevard models).
- Attractive tear drop-shaped fuel tank (2.8 gal capacity) with flush-mounted speedometer.
- Neatly painted steel front/rear fenders and side covers complement the fuel tank.
- One-piece saddle adds to streamlined appearance. The deeply cushioned seat has a low 27.6 inches seat height that's great for smaller or entry-level riders.
- A wide 15" rear tire and slim 19" front tire provide a classic cruiser look.
- Light weight (381 lbs.) for easy maneuverability.
- A hydraulic front disc brake and drum-type rear brake provide strong, reliable braking performance.
- The rear reflector is integrated with the taillight for a clean, finished appearance to the rear section of the bike.
- Convenient hazard and passing light switches.

### Additional Features

- A variety of Genuine Suzuki Accessories for Boulevard owners are available including a large selection of Suzuki logo apparel.
- 12-month, unlimited mileage, limited warranty.
- Longer warranty coverage period and other benefits are available through the Suzuki Extended Protection Plan (SEP).
- For more details, please visit [www.suzukicycles.com](http://www.suzukicycles.com).

# Specifications LS650BL7

E-03: USA, E-33: California

## DIMENSIONS AND CURB MASS

Overall length.....	2 180 mm (85.8 in)
Overall width.....	720 mm (28.3 in)
Overall height.....	1 105 mm (43.5 in)
Wheelbase.....	1 480 mm (58.3 in)
Ground clearance.....	135 mm (5.3 in)
Seat height.....	700 mm (27.6 in)
Curb mass.....	173 kg (381 lbs)

## ENGINE

Type.....	4-stroke, air-cooled, OHC
Number of cylinders.....	1
Bore.....	94.0 mm (3.701 in)
Stroke.....	94.0 mm (3.701 in)
Displacement.....	652 cm <sup>3</sup> (39.8 cu. in)
Compression ratio.....	8.5 : 1
Carburetor.....	MIKUNI BS40, single
Air cleaner.....	Non-woven fabric element
Starter system.....	Electric
Lubrication system.....	Wet sump
Idle speed.....	1100 ± 100 r/min

## DRIVE TRAIN

Clutch.....	Wet multi-plate type
Transmission.....	5-speed constant mesh
Gearshift pattern.....	1-down, 4-up
Primary reduction ratio.....	1.810 (67/37)
Gear ratios, Low.....	2.333 (35/15)
2nd.....	1.578 (30/19)
3rd.....	1.142 (24/21)
4th.....	0.956 (22/23)
Top.....	0.884 (23/26)
Final reduction ratio.....	2.956 (68/23)
Drive system.....	Belt drive

# Specifications LS650BL7

E-03: USA, E-33: California

## CHASSIS

Front suspension .....	Telescopic, coil spring, oil damped
Rear suspension .....	Swingarm type, coil spring, oil damped
Front suspension stroke .....	140 mm (5.5 in)
Rear wheel travel .....	80 mm (3.1 in)
Caster .....	35°
Trail .....	147 mm (5.79 in)
Steering angle .....	42° (right & left)
Turning radius .....	2.6 m (8.5 ft)
Front brake .....	Disc brake
Rear brake .....	Drum brake
Front tire size .....	100/90-19 M/C 57H, tube type
Rear tire size .....	140/80-15 M/C 67H, tube type

## ELECTRICAL

Ignition type .....	Electronic ignition (Transistorized)
Ignition timing .....	5° B.T.D.C. at 1 100 r/min
Spark plug .....	NGK DPR8EA-9 or DENSO X24EPR-U9
Battery .....	12V 50.4 kC (14 Ah)/10 HR
Generator .....	Three-phase A.C. generator
Fuse .....	20/20A
Headlight .....	12V 60/55W
Turn signal light Front .....	12V 21/5W
Rear .....	12V 21W
Brake light/Taillight .....	12V 21/5W
License plate light .....	12V 8W
Speedometer light .....	12V 3W
Neutral indicator light .....	12V 3W
High beam indicator light .....	12V 1.7W
Turn signal indicator light .....	12V 3W × 2

## CAPACITIES

Fuel tank including reserve .....	10.5 L (2.8/2.3 US/Imp gal) .....	E-03
	10.0 L (2.6/2.2 US/Imp gal) .....	E-33
Reserve .....	2.5 L (0.6/0.5 US/Imp gal)	
Engine oil , oil change .....	1 800 ml (1.9/1.6 US/Imp qt)	
With filter change .....	2 000 ml (2.1/1.8 US/Imp qt)	
Overhaul .....	2 400 ml (2.5/2.1 US/Imp qt)	

# Service Data LS650BL7

## E-03: USA, E-33: California

### VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	33 (1.3)	—
	EX.	28 (1.1)	—
Valve lift	IN.	8.5 (0.33)	—
	EX.	8.5 (0.33)	—
Valve clearance (when cold)	IN. & EX.	0.08 – 0.13 (0.003 – 0.005)	—
Valve guide to valve stem clearance	IN.	0.025 – 0.055 (0.0010 – 0.0022)	—
	EX.	0.040 – 0.070 (0.0016 – 0.0028)	—
Valve stem deflection	IN. & EX.	—	0.35 (0.014)
Valve guide I.D.	IN. & EX.	7.000 – 7.015 (0.2756 – 0.2762)	—
Valve stem O.D.	IN.	6.960 – 6.975 (0.2740 – 0.2746)	—
	EX.	6.945 – 6.960 (0.2734 – 0.2740)	—
Valve stem runout	IN. & EX.	—	0.05 (0.002)
Valve head thickness	IN. & EX.	—	0.5 (0.02)
Valve stem end length	IN. & EX.	—	2.9 (0.11)
Valve seat width	IN. & EX.	1.0 – 1.2 (0.039 – 0.047)	—
Valve head radial runout	IN. & EX.	—	0.03 (0.001)
Valve spring free length (IN. & EX.)	INNER	—	35.6 (1.40)
	OUTER	—	40.4 (1.59)
Valve spring tension (IN. & EX.)	INNER	68 – 83 N (6.9 – 8.5 kgf, 15.2 – 18.7 lbs) at length 31.0 mm (1.2 in)	—
	OUTER	160 – 184 N (16.4 – 18.8 kgf, 36.2 – 41.4 lbs) at length 33.0 mm (1.3 in)	—



## CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	36.174 – 36.228 (1.4242 – 1.4263)	35.880 (1.4126)
	EX.	36.419 – 36.473 (1.4338 – 1.4359)	36.120 (1.4220)
Camshaft journal oil clearance	0.032 – 0.066 (0.0013 – 0.0026)		0.150 (0.0060)
Camshaft journal holder I.D.	Left	20.012 – 22.025 (0.7879 – 0.7884)	—
	Right & Center	25.012 – 25.025 (0.9847 – 0.9852)	—
Camshaft journal O.D.	Left	19.959 – 19.976 (0.7858 – 0.7865)	—
	Right & Center	24.959 – 24.976 (0.9826 – 0.9833)	—
Camshaft runout	—		0.10 (0.004)
Rocker arm I.D.	IN. & EX.	12.000 – 12.018 (0.4724 – 0.4731)	—
Rocker arm shaft O.D.	IN. & EX.	11.966 – 11.984 (0.4711 – 0.4718)	—
Cylinder head distortion	—		0.05 (0.002)
Cylinder head cover distortion	—		0.05 (0.002)
De-comp. cable play	3 – 5 (0.12 – 0.20)		—

## CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD		LIMIT
Compression pressure	1 000 – 1 400 kPa (10 – 14 kgf/cm <sup>2</sup> , 142 – 200 psi)		800 kPa (8 kgf/cm <sup>2</sup> , 114 psi)
Piston to cylinder clearance	0.050 – 0.060 (0.0020 – 0.0024)		0.120 (0.0047)
Cylinder bore	94.000 – 94.015 (3.7008 – 3.7014)		94.080 (3.7039)
Piston diam.	93.945 – 93.960 (3.6986 – 3.6992) Measure at 20 mm (0.8 in) from the skirt end.		93.880 (3.6961)
Cylinder distortion	—		0.05 (0.002)
Piston ring free end gap	1st	T	Approx. 11.5 (0.45)
	2nd	T	Approx. 14.0 (0.55)
Piston ring end gap	1st	0.30 – 0.45 (0.012 – 0.018)	
	2nd	0.25 – 0.40 (0.010 – 0.016)	
Piston ring to groove clearance	1st	—	
	2nd	—	

ITEM	STANDARD		LIMIT
Piston ring groove width	1st	1.23 – 1.25 (0.0484 – 0.0492)	—
	2nd	1.21 – 1.23 (0.0476 – 0.0484)	—
	Oil	2.81 – 2.83 (0.1106 – 0.1114)	—
Piston ring thickness	1st	1.175 – 1.190 (0.0463 – 0.0469)	—
	2nd	1.175 – 1.190 (0.0463 – 0.0469)	—
Piston pin bore	23.000 – 23.006 (0.9055 – 0.9057)		23.030 (0.9067)
Piston pin O.D.	22.996 – 23.000 (0.9054 – 0.9055)		22.980 (0.9047)

## CONROD + CRANKSHAFT + BALANCER

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	23.006 – 23.014 (0.9057 – 0.9061)	23.040 (0.9071)
Conrod deflection	—	3.0 (0.12)
Conrod big end side clearance	0.10 – 0.65 (0.004 – 0.026)	1.0 (0.039)
Conrod big end width	24.95 – 25.00 (0.982 – 0.984)	—
Crank web to web width	70.0 ± 0.1 (2.756 ± 0.004)	—
Crankshaft runout	—	0.05 (0.002)
Balancer spring free length	—	10.0 (0.39)

## OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	2.203 (68/36 × 35/30)	—
Oil pressure (at 60 °C, 140 °F)	Above 50 kPa (0.50 kgf/cm <sup>2</sup> , 7.1 psi) Below 75 kPa (0.75 kgf/cm <sup>2</sup> , 10.7 psi) at 3 000 r/min	—

## CLUTCH

Unit: mm (in)

ITEM	STANDARD		LIMIT
Clutch lever play	10 – 15 (0.4 – 0.6)		—
Drive plate thickness	No. 1	2.92 – 3.08 (0.115 – 0.121)	2.62 (0.103)
	No. 2	3.45 – 3.55 (0.136 – 0.140)	3.15 (0.124)

ITEM	STANDARD		LIMIT
Drive plate claw width	No. 1	15.8 – 16.0 (0.622 – 0.630)	15.0 (0.591)
	No. 2	15.9 – 16.0 (0.626 – 0.630)	15.1 (0.594)
Driven plate distortion	—		0.1 (0.004)
Clutch spring free length	—		33.0 (1.30)

## DRIVE TRAIN

Unit: mm (in) Except ratio

ITEM	STANDARD		LIMIT
Primary reduction ratio	1.810 (67/37)		—
Final reduction ratio	2.956 (68/23)		—
Gear ratios	Low	2.333 (35/15)	—
	2nd	1.578 (30/19)	—
	3rd	1.142 (24/21)	—
	4th	0.956 (22/23)	—
	Top	0.884 (23/26)	—
Shift fork to groove clearance	0.10 – 0.30 (0.004 – 0.012)		0.50 (0.020)
Shift fork groove width	3rd drive gear	5.50 – 5.60 (0.217 – 0.220)	—
	4th driven gear	5.50 – 5.60 (0.217 – 0.220)	—
	Top driven gear	5.50 – 5.60 (0.217 – 0.220)	—
Shift fork thickness	No. 1, No. 2 & No. 3	5.30 – 5.40 (0.209 – 0.213)	—
Drive belt	Type	BANDO: 133U-14M 40.0	—
	Number of teeth	133	—
Gearshift lever height	60 (2.4)		—



## CARBURETOR

ITEM	SPECIFICATION	
	E-03	E-33
Carburetor type	MIKUNI BS40SS	←
Bore size	40 mm	←
I.D. No.	24C4	24C5
Idle r/min	1 100 ± 100 r/min	←
Float height	27.95 ± 1.0 mm (1.1 ± 0.04 in)	←
Main jet (M.J.)	#145	←
Jet needle (J.N.)	5C39	5C39
Needle jet (N.J.)	X-7M	←
Throttle valve (Th.V.)	#120	←
Pilot jet (P.J.)	#52.5	←
Pilot screw (P.S.)	PRE-SET (1 and 1/8 turns back)	PRE-SET (1 and 1/8 turns back)
Throttle cable play	2.0 – 4.0 mm (0.08 – 0.16 in)	←

## ELECTRICAL

Unit: mm (in)

ITEM		SPECIFICATION		NOTE
Spark plug	Type	NGK: DPR8EA-9 N.D.: X24EPR-U9		
	Gap	0.8 – 0.9 (0.031 – 0.035)		
Spark performance		Over 8 (0.3) at 1 atm.		
Solenoid resistance		0.1 – 1.0 Ω		
Pick-up coil resistance		170 – 270 Ω		O/G
Ignition coil resistance	Primary	1 – 7 Ω		O/W – Ground
	Secondary	10 – 25 kΩ		Plug cap – Ground
Generator no-load voltage		More than 100 V (AC) at 5 000 r/min		
Regulated voltage		14.0 – 15.5 V at 5 000 r/min		
Starter relay resistance		2 – 6 Ω		
Battery	Type designation	YB14L-B2		
	Voltage	12 V		
	Capacity	50.4 kC (14 Ah)/10 HR		
	Standard electrolyte S.G.	1.28 at 20 °C (68 °F)		
Fuse size		20 A		

## WATTAGE

Unit: W

ITEM		SPECIFICATION
		E-03, 33
Headlight	HI	60
	LO	55
Brake light/Taillight		21/5
Turn signal light		21
Running light (within front turn signal light)		5
Speedometer light		3
Turn signal indicator light		3
High beam indicator light		1.7
Neutral indicator light		3
License light		8

## BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD		LIMIT
Rear brake pedal free travel	20 – 30 (0.8 – 1.2)		—
Rear brake pedal height	60 (2.4)		—
Brake drum I.D.	Rear	—	160.7 (6.33)
Brake lining thickness	Rear	—	1.5 (0.06)
Brake disc thickness	Front	4.5 ± 0.2 (0.18 ± 0.01)	4.0 (0.16)
Brake disc runout	Front	—	0.30 (0.012)
Master cylinder bore	Front	12.700 – 12.743 (0.4999 – 0.5017)	—
Master cylinder piston diam.	Front	12.657 – 12.684 (0.4983 – 0.4994)	—
Brake caliper cylinder bore	Front	42.850 – 42.926 (1.6870 – 1.6900)	—
Brake caliper piston diam.	Front	42.770 – 42.820 (1.6839 – 1.6858)	—
Wheel rim runout	Axial	—	2.0 (0.08)
	Radial	—	2.0 (0.08)
Wheel axle runout	Front	—	0.25 (0.010)
	Rear	—	0.25 (0.010)
Wheel rim size	Front	19 × 2.15	—
	Rear	15M/C × 2.75	—
Tire size	Front	100/90-19M/C 57H	—
	Rear	140/80-15 M/C 67H	—

ITEM	STANDARD		LIMIT
Tire tread depth	Front	—	1.6 (0.06)
	Rear	—	2.0 (0.08)

## SUSPENSION

Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	140 (5.5)	—	
Front fork spring free length	—	401 (15.79)	
Front fork oil level	75.0 (2.95)	—	
Rear wheel travel	80 (3.1)	—	
Swingarm pivot shaft runout	—	0.3 (0.001)	

## TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	SOLO RIDING			DUAL RIDING		
	kPa	kgf/cm <sup>2</sup>	psi	kPa	kgf/cm <sup>2</sup>	psi
FRONT	200	2.00	29	200	2.00	29
REAR	225	2.25	33	250	2.50	36

## FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Use only unleaded gasoline of at least 87 pump octane (R/2 + M/2) or 91 octane or higher rated by the research method. Gasoline containing MTBE (Methyl Tertiary Butyl Ether), less than 10% ethanol, or less than 5% methanol with appropriate cosolvents and corrosion inhibitor is permissible.		
Fuel tank capacity	Including reserve	10.5 L (2.8/2.3 US/Imp gal)	E-03
		10.0 L (2.6/2.2 US/Imp gal)	E-33
	Only reserve	2.5 L (0.66/0.55 US/Imp gal)	
Engine oil type	SAE 10W-40, API SF/SG or SH/SJ with JASO MA		
Engine oil capacity	Oil change	1 800 ml (1.9/1.6 US/Imp qt)	
	Oil and filter change	2 000 ml (2.1/1.8 US/Imp qt)	
	Engine overhaul	2 400 ml (2.5/2.1 US/Imp qt)	
Front fork oil type	Fork oil #15		
Front fork oil capacity (each leg)	447 ml (15.11/15.74 US/Imp oz)		Spacer
Brake fluid type	DOT 4		L: 135 mm

# TIGHTENING TORQUE

## ENGINE

ITEM	N-m	kgf-m	lbf-ft
Cylinder head cover bolt	8 – 12	0.8 – 1.2	6.0 – 8.5
Camshaft sprocket bolt	14 – 16	1.4 – 1.6	10.0 – 11.5
Cylinder head nut 9 mm Diam.	29 – 33	2.9 – 3.3	21.0 – 24.0
Cylinder head nut 8 mm Diam.	23 – 27	2.3 – 2.7	16.5 – 19.5
Cylinder base nut	8 – 12	0.8 – 1.2	6.0 – 8.5
Cam drive chain tensioner set bolt	20 – 25	2.0 – 2.5	14.5 – 18.0
Generator rotor bolt	140 – 160	14.0 – 16.0	101.5 – 115.5
Primary drive gear nut	90 – 110	9.0 – 11.0	65.0 – 79.5
Clutch spring mounting bolt	11 – 13	1.1 – 1.3	8.0 – 9.5
Clutch sleeve hub nut	50 – 70	5.0 – 7.0	36.0 – 50.5
Gearshift arm stopper	15 – 23	1.5 – 2.3	11.0 – 16.5
Oil filter cap nut and oil sump filter cap bolt	6 – 8	0.6 – 0.8	4.5 – 6.0
Engine pulley nut	100 – 130	10.0 – 13.0	72.5 – 94.0
Engine mounting nut (cylinder head)	37 – 45	3.7 – 4.5	27.0 – 32.5
Engine mounting nut	70 – 88	7.0 – 8.8	50.5 – 63.5
Engine mounting bracket bolt	20 – 30	2.0 – 3.0	14.5 – 21.5
Exhaust pipe bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Muffler mounting nut	18 – 28	1.8 – 2.8	13.0 – 20.0
Crankcase bolt 6 mm	9 – 13	0.9 – 1.3	6.5 – 9.5
Oil gallery plug 14 mm	20 – 25	2.0 – 2.5	14.5 – 18.0
Oil gallery plug 10 mm	12 – 18	1.2 – 1.8	8.5 – 13.0
Crankshaft hole plug 36 mm	12 – 18	1.2 – 1.8	8.5 – 13.0
Engine oil drain plug 12 mm	18 – 23	1.8 – 2.3	13.0 – 16.5
Starter clutch Allen bolt	23 – 28	2.3 – 2.8	16.5 – 20.0
Flywheel nut	140 – 160	14.0 – 16.0	101.5 – 115.5
Counter balancer set bolt	40 – 50	4.0 – 5.0	29.0 – 36.0
Crankshaft right end oil seal retainer bolt	5 – 6	0.5 – 0.6	3.5 – 4.5
Cam chain tensioner plate bolt	8 – 12	0.8 – 1.2	6.0 – 8.5
Exhaust rocker arm shaft set bolt	8 – 10	0.8 – 1.0	6.0 – 7.0
Cylinder head cover plug	25 – 30	2.5 – 3.0	18.0 – 21.5
De-comp lever nut	15 – 20	1.5 – 2.0	11.0 – 14.5
Tappet adjuster lock-nut	13 – 16	1.3 – 1.6	9.5 – 11.5
Driveshaft oil seal retainer bolt	9 – 13	0.9 – 1.3	6.5 – 9.5

## CHASSIS

ITEM	N-m	kgf-m	lbf-ft
Front axle	44	4.4	32.0
Front axle pinch bolt	23	2.3	16.5
Front axle clamp bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Front fork damper rod bolt	30	3.0	21.5
Front fork lower clamp bolt	33	3.3	24.0
Front fork cap bolt	45	4.5	32.5
Steering stem head nut	65	6.5	47.0
Handlebar clamp bolt	23	2.3	16.5
Handlebar holder bolt	20 – 30	2.0 – 3.0	14.5 – 21.5
Handlebar holder nut	25	2.5	18.0
Front brake master cylinder mounting bolt	5 – 8	0.5 – 0.8	3.5 – 6.0
Front brake master cylinder mounting nut	10	1.0	7.0
Front brake caliper mounting bolt	25 – 40	2.5 – 4.0	18.0 – 29.0
Front brake caliper mounting nut	35	3.5	25.5
Front brake pad mounting bolt	18	1.8	13.0
Brake hose union bolt	23	2.3	16.5
Air bleeder valve	6	0.6	4.5
Front disc mounting bolt	23	2.3	16.5
Swingarm pivot nut	78	7.8	56.5
Front footrest bolt (6 mm)	10	1.0	7.3
Front footrest mounting bolt	65	6.5	47.0
Rear shock absorber mounting nut (Upper & Lower)	29	2.9	21.0
Rear axle nut	72	7.2	52.0
Rear pulley mounting nut	60	6.0	43.5
Rear pulley plate bolt	11	1.1	8.0
Rear brake cam lever bolt	7	0.7	5.0
Spoke nipple	5	0.5	3.7
Muffler stay bolt	31	3.1	22.5
Muffler stay mounting bolt	28 – 33	2.8 – 3.3	20.0 – 24.0
Front footrest mounting nut	50 – 80	5.0 – 8.0	36.0 – 58.0