

0C



Service Data

Engine General Information and Diagnosis

Item	Standard / Specification		Limit / Note
IAP sensor power supply voltage (#1 & #2)	4.5 – 5.5 V		—
IAP sensor output voltage (#1 & #2)	Idle speed at 1 atm.	Approx. 2.5 V	—
IAT sensor input voltage	4.5 – 5.5 V		—
IAT sensor output voltage	0.15 – 4.85 V		—
IAT sensor resistance	0 °C (32 °F)	5400 – 6600 Ω	—
ECT sensor input voltage	4.5 – 5.5 V		—
ECT sensor output voltage	0.15 – 4.85 V		—
ECT sensor resistance	20 °C (68 °F)	2320 – 2590 Ω	—
TP sensor power supply voltage	4.5 – 5.5 V		—
TP sensor output voltage	Closed	Approx. 1.1 V	—
	Opened	Approx. 4.3 V	—
HO2 sensor output voltage (#1 & #2)	Idle speed	Approx. 0.6 V or less	—
	6000 r/min	Approx. 0.6 V or more	—
HO2 sensor heater power supply voltage (#1 & #2)	Battery voltage		—
HO2 sensor heater resistance (#1 & #2)	23 °C (73 °F)	6.7 – 9.5 Ω	—
Injector power supply voltage	Battery voltage		—
Injector resistance	20 °C (68 °F)	11.5 – 12.5 Ω	—
Continuity between each injector terminal and ground	∞ Ω (Infinity)		—
FP relay power supply voltage	Battery voltage		—
CKP sensor resistance	145 – 225 Ω		—
Continuity between each CKP sensor terminal and ground	∞ Ω (Infinity)		—
CKP sensor peak voltage	4.5 V or more		When cranking
EVAP system purge control solenoid valve power supply voltage	Battery voltage		If equipped
EVAP system purge control solenoid valve resistance	20 °C (68 °F)	30 – 34 Ω	If equipped
Cooling fan relay power supply voltage	Battery voltage		—
Immobilizer antenna power supply voltage	Battery voltage		If equipped
TO sensor power supply voltage	4.5 – 5.5 V		—
TO sensor voltage	Normal	0.4 – 1.4 V	—
	Leaning 65°	3.7 – 4.4 V	—
TO sensor resistance	16.5 – 22.3 kΩ		—
STP sensor power supply voltage	4.5 – 5.5 V		—
STP sensor output voltage	Closed	Approx. 0.6 V	—
	Opened	Approx. 4.5 V	—
STVA resistance	Approx. 7 Ω		—
ECM power supply voltage	Battery voltage		—

Emission Control Devices

Item	Standard / Specification		Limit / Note
EVAP system purge control solenoid valve resistance	20 °C (68 °F)	30 – 34 Ω	If equipped

Engine Electrical Devices

Item	Standard / Specification		Limit / Note
Throttle cable play	2.0 – 4.0 mm (0.08 – 0.16 in)		—
Idle speed (When engine is warmed)	1100– 1300 r/min		—
Fast idle speed	1500 r/min		—
IAT sensor resistance	0 °C (32 °F)	5400 – 6600 Ω	—
	80 °C (176 °F)	290 – 390 Ω	—
ECT sensor resistance	–20 °C (–4 °F)	13840 – 16330 Ω	—
	20 °C (68 °F)	2320 – 2590 Ω	—
	80 °C (176 °F)	310 – 326 Ω	—
GP switch voltage	0.6 V or more		From 1st to Top
Throttle body I.D. No.	31J1		For Thailand, California (U.S.A) and China
	31J0		For others
Throttle body bore size	45 mm (1.8 in)		—

Engine Mechanical

Item	Standard / Specification		Limit / Note
Compression pressure (Automatic de-comp. actuated)	1000 – 1400 kPa (10 – 14 kgf/cm ² , 142 – 199 psi)		800 kPa (8 kgf/cm ² , 114 psi)
Compression pressure difference	—		200 kPa (2 kgf/cm ² , 28 psi)
Cam height	IN.	36.28 – 36.32 mm (1.428 – 1.430 in)	35.98 mm (1.417 in)
	EX.	35.68 – 35.72 mm (1.405 – 1.406 in)	35.38 mm (1.393 in)
Camshaft journal oil clearance	IN. & EX.	0.019 – 0.053 mm (0.0007 – 0.0021 in)	0.150 mm (0.0059 in)
Camshaft journal holder I.D.	IN. & EX.	22.012 – 22.025 mm (0.8666 – 0.8671 in)	—
Camshaft journal O.D.	IN. & EX.	21.972 – 21.993 mm (0.8650 – 0.8659 in)	—
Camshaft runout	IN. & EX.	—	0.10 mm (0.004 in)
Valve clearance (When engine is cold)	IN.	0.10 – 0.20 mm (0.004 – 0.008 in)	—
	EX.	0.20 – 0.30 mm (0.008 – 0.012 in)	—
Valve diameter	IN.	36 mm (1.4 in)	—
	EX.	33 mm (1.3 in)	—
Valve stem runout	IN. & EX.	—	0.05 mm (0.002 in)
Valve head radial runout	IN. & EX.	—	0.03 mm (0.001 in)
Valve head thickness	IN. & EX.	—	0.5 mm (0.02 in)

Valve stem deflection	IN. & EX.	—	0.35 mm (0.014 in)
Valve stem O.D.	IN.	5.475 – 5.490 mm (0.2156 – 0.2161 in)	—
	EX.	5.455 – 5.470 mm (0.2148 – 0.2154 in)	—
Valve seat width	IN.	1.17 – 1.37 mm (0.046 – 0.054 in)	—
	EX.	1.31 – 1.51 mm (0.052 – 0.059 in)	—
Valve guide I.D.	IN. & EX.	5.500 – 5.512 mm (0.2165 – 0.2170 in)	—
Valve guide to valve stem clearance	IN.	0.010 – 0.037 mm (0.0004 – 0.0015 in)	—
	EX.	0.030 – 0.057 mm (0.0012 – 0.0022 in)	—
Valve spring free length	IN. & EX.	—	39.6 mm (1.56 in)
Valve spring preload when compressed to 35.6 mm (1.40 in)	IN. & EX.	197 – 227 N (20.1 – 23.1 kgf, 44.3 – 51.0 lbf)	—
Cylinder head distortion	—		0.05 mm (0.002 in)
Cylinder distortion	—		0.05 mm (0.002 in)
Cylinder bore	100.000 – 100.015 mm (3.9370 – 3.9376 in)		No nicks or Scratches
Piston diameter	99.980 – 99.995 mm (3.9362 – 3.9368 in) Measure at 10 mm (0.4 in) from the skirt end.		99.880 mm (3.9323 in)
Piston to cylinder clearance	0.015 – 0.025 mm (0.0006 – 0.0010 in)		0.120 mm (0.0047 in)
Piston ring to groove clearance	1st	—	0.180 mm (0.0071 in)
	2nd	—	0.150 mm (0.0059 in)
Piston ring groove width	1st	0.83 – 0.85 mm (0.0327 – 0.0335 in) 1.25 – 1.27 mm (0.0492 – 0.0500 in)	—
	2nd	1.01 – 1.03 mm (0.0398 – 0.0406 in)	—
	Oil	2.01 – 2.03 mm (0.0791 – 0.0799 in)	—
Piston ring thickness	1st	0.76 – 0.81 mm (0.0299 – 0.0319 in) 1.08 – 1.10 mm (0.0425 – 0.0433 in)	—
	2nd	0.97 – 0.99 mm (0.0382 – 0.0390 in)	—
Piston ring free end gap	1st	Approx. 11.0 mm (0.43 in)	8.8 mm (0.35 in)
	2nd	Approx. 13.9 mm (0.55 in)	11.1 mm (0.43 in)
Piston ring end gap	1st	0.10 – 0.25 mm (0.004 – 0.010 in)	0.50 mm (0.020 in)
	2nd	0.30 – 0.45 mm (0.012 – 0.018 in)	0.70 mm (0.028 in)
Piston pin bore I.D.	22.002 – 22.008 mm (0.8662 – 0.8665 in)		22.030 mm (0.8673 in)
Piston pin O.D.	21.995 – 22.000 mm (0.8659 – 0.8661 in)		21.980 mm (0.8654 in)
Conrod small end I.D.	22.010 – 22.018 mm (0.8665 – 0.8668 in)		22.040 mm (0.8677 in)
Conrod big end side clearance	0.17 – 0.32 mm (0.007 – 0.013 in)		0.50 mm (0.020 in)
Conrod big end width	21.95 – 22.00 mm (0.864 – 0.866 in)		—
Crank pin width	44.17 – 44.22 mm (1.739 – 1.741 in)		—
Conrod big end oil clearance	0.032 – 0.056 mm (0.0013 – 0.0022 in)		0.080 mm (0.0031 in)
Conrod big end I.D.	48.000 – 48.016 mm (1.8898 – 1.8904 in)		—
Crank pin O.D.	44.976 – 45.000 mm (1.7707 – 1.7717 in)		—
Crank pin bearing thickness	1.480 – 1.496 mm (0.0583 – 0.0589 in)		—

Crankshaft journal O.D.	47.985 – 48.000 mm (1.8892 – 1.8898 in)	—
Crankshaft journal oil clearance	0.023 mm (0.0009 in) or less	0.080 mm (0.0031 in)
Crankcase journal I.D.	52.000 – 52.018 mm (2.0472 – 2.0479 in)	—
Crankcase journal bearing thickness	1.999 – 2.008 mm (0.0787 – 0.0791 in)	—
Crankshaft journal holder width	25.2 – 25.4 mm (0.99 – 1.00 in)	—
Crankshaft journal width	25.50 – 25.55 mm (1.004 – 1.006 in)	—
Crankshaft runout	—	0.05 mm (0.002 in)

Engine Lubrication System

Item	Standard / Specification		Limit / Note
Oil pressure (at 60 °C, 140 °F)	3000 r/min	400 – 700 kPa (4 – 7 kgf/cm ² , 57 – 100 psi)	—
Necessary amount of engine oil	Oil change	2700 ml (2.9 US qt, 2.4 Imp qt)	—
	Oil and filter change	3100 ml (3.3 US qt, 2.7 Imp qt)	—
	Engine overhaul	3500 ml (3.7 US qt, 3.1 Imp qt)	—

Engine Cooling System

Item	Standard / Specification		Limit / Note
Engine coolant	Reservoir tank side	Approx. 230 ml (0.24 US qt, 0.20 Imp qt)	—
	Engine side	Approx. 1900 ml (2.0 US qt, 1.6 Imp qt)	—
Radiator cap valve opening pressure	108 – 137 kPa (1.1 – 1.4 kgf/cm ² , 15.4 – 19.5 psi)		—
Cooling fan operating temperature	ON→OFF	Approx. 100 °C (212 °F)	—
	OFF→ON	Approx. 105 °C (221 °F)	—
Thermostat valve opening temperature	86.5 – 89.5 °C (188 – 193 °F)		—
Thermostat valve lift	Over 8 mm (0.31 in) at 100 °C (212 °F)		—

Fuel System

Item	Standard / Specification	Limit / Note
Fuel pressure	Approx. 300 kPa (3.0 kgf/cm ² , 43 psi)	—
Fuel pump discharge amount per 10 seconds	167 ml (5.6 US oz, 5.9 Imp oz) or more	—

Ignition System

Item	Standard / Specification		Limit / Note
Firing order	1.2		—
Spark plug	Type	NGK: LMAR8BI-9	—
	Gap	0.8 – 0.9 mm (0.031 – 0.035 in)	—
Spark performance	Over 8 mm (0.3 in) at 1 atm.		—
Ignition coil primary peak voltage	150 V or more		—
Ignition coil resistance	Primary	3.06 – 4.14 Ω	(+) Terminal – (–) Terminal

Secondary	24 – 36 kΩ	(+) Terminal – Plug cap
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Starting System

Item	Standard / Specification		Limit / Note
Starter motor brush length	12 mm (0.47 in)		6.5 mm (0.26 in)
Starter relay resistance	3 – 6 Ω		—
Side-stand switch voltage	ON (Side-stand retracted)	0.4 – 0.6 V	—
	OFF (Side-stand on the ground)	1.4 V or more	—
Starter torque limiter slip torque	20 – 45 N·m (2.0 – 4.5 kgf-m, 14.5 – 32.5 lbf-ft)		—

Charging System

Item	Standard / Specification		Limit / Note
Battery leakage current	3 mA or less		—
Regulated voltage (charging output)	5000 r/min	13.5 – 15.0 V	—
Generator coil resistance	0.21 – 0.27 Ω		Y – Y
Generator no-load voltage (When engine is cold)	5000 r/min	75 V (AC) or more	—
Recharging time	1.4 A for 5 to 10 hours or 6 A for 1 hour		—
Generator maximum output	5000 r/min	Approx. 490 W	—
Battery	Type designation	FTX14-BS	—
	Capacity	12 V 43.2 kC (12 Ah)/10 HR	—

Exhaust System

Item	Standard / Specification		Limit / Note
EXCVA position sensor power supply voltage	4.5 – 5.5 V		—
EXCVA position sensor output voltage	Closed	0.45 – 1.40 V	—
	Opened	3.60 – 4.55 V	—
EXCVA position sensor resistance	Approx. 3.1 kΩ		At adjustment position

Front Suspension

Item	Standard / Specification		Limit / Note
Front fork inner tube O.D.	43 mm (1.7 in)		—
Front fork oil level (Without spring, inner tube fully compressed)	120 mm (4.7 in)		—
Front fork spring free length	328 mm (12.9 in)		321 mm (12.6 in)
Front fork oil capacity (Each leg)	569 ml (19.2 US oz, 20.0 Imp oz)		—
Front fork spring adjuster	11 mm (0.4 in)		—
Front fork damping force adjuster	Rebound	8 clicks counterclockwise from stiffest position	—

Compression	8 clicks counterclockwise from stiffest position	—
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Rear Suspension

Item	Standard / Specification		Limit / Note
Rear shock absorber spring pre-load	11th clicks clockwise from softest position		—
Rear shock absorber damping force adjuster	Rebound	1.25 turns counterclockwise from stiffest position	—
Swingarm pivot shaft runout	—		0.3 mm (0.01 in)

Wheels and Tires

Item	Standard / Specification			Limit / Note
Wheel rim runout	Front & Rear	Axial	—	2.0 mm (0.08 in)
		Radial	—	2.0 mm (0.08 in)
Wheel axle runout	Front & Rear	—		0.25 mm (0.010 in)
Tire size	Front	110/80R19M/C 59V		—
	Rear	150/70R17M/C 69V		—
Tire type	Front	BRIDGESTONE: BW-501 RADIAL J		—
	Rear	BRIDGESTONE: BW-502 RADIAL J		—
Tire tread depth (Recommended depth)	Front	—		1.6 mm (0.06 in)
	Rear	—		2.0 mm (0.08 in)
Cold inflation tire pressure (Solo riding)	Front	250 kPa (2.50 kgf/cm ² , 36 psi)		—
	Rear	290 kPa (2.90 kgf/cm ² , 42 psi)		—
Cold inflation tire pressure (Dual riding)	Front	250 kPa (2.50 kgf/cm ² , 36 psi)		—
	Rear	290 kPa (2.90 kgf/cm ² , 42 psi)		—
Wheel rim size	Front	19 M/C x MT 2.50		—
	Rear	17 M/C x MT 4.00		—

Drive Chain / Drive Train / Drive Shaft

Item	Standard / Specification		Limit / Note
Drive chain	Type	RK525SMOZ8	—
	Links	116 links	—
	20-pitch length	—	319.4 mm (12.57 in)
Drive chain slack (on side-stand)	20 – 30 mm (0.8 – 1.2 in)		—

Brake Control System and Diagnosis

Item	Standard / Specification		Limit / Note
Rear brake pedal height	20 – 30 mm (0.8 – 1.2 in)		—
Master cylinder bore / piston diameter	Front & Rear	Approx. 14.0 mm (0.55 in)	—

Front Brakes

Item	Standard / Specification		Limit / Note
Brake disc thickness	4.8 – 5.2 mm (0.19 – 0.20 in)		4.5 mm (0.18 in)

Brake disc runout	—	0.30 mm (0.012 in)
Brake caliper cylinder bore / piston diameter	Approx. 30.3 mm (1.19 in) Approx. 32.1 mm (1.26 in)	—

Rear Brakes

Item	Standard / Specification	Limit / Note
Brake disc thickness	4.8 – 5.2 mm (0.19 – 0.20 in)	4.5 mm (0.18 in)
Brake disc runout	—	0.30 mm (0.012 in)
Brake caliper cylinder bore / piston diameter	Approx. 38.2 mm (1.50 in)	—

ABS

Item	Standard / Specification		Limit / Note
Wheel speed sensor – Sensor rotor clearance	Front	0.46 – 1.67 mm (0.018 – 0.066 in)	—
	Rear	0.51 – 1.62 mm (0.020 – 0.064 in)	—

Manual Transmission

Item		Standard / Specification	Limit / Note
Primary reduction ratio		1.838 (57/31)	—
Final reduction ratio		2.411 (41/17)	—
Gear ratios	Low	3.000 (36/12)	—
	2nd	1.933 (29/15)	—
	3rd	1.500 (27/18)	—
	4th	1.227 (27/22)	—
	5th	1.086 (25/23)	—
	Top	1.000 (24/24)	—
Gearshift fork to groove clearance	No.1, 2	0.1 – 0.3 mm (0.004 – 0.012 in)	0.50 mm (0.020 in)
Gearshift fork groove width	No.1, 2	5.0 – 5.1 mm (0.197 – 0.201 in)	—
Gearshift fork thickness	No.1, 2	4.8 – 4.9 mm (0.189 – 0.193 in)	—
Gearshift lever height	20 – 30 mm (0.8 – 1.2 in)		—

Clutch

Item	Standard / Specification		Limit / Note
Drive plate thickness	No.1, 2	3.72 – 3.88 mm (0.146 – 0.153 in)	3.42 mm (0.135 in)
Drive plate claw width	No.1, 2	13.90 – 14.00 mm (0.547 – 0.551 in)	13.10 mm (0.516 in)
Driven plate distortion	No.1, 2, 3, 4	—	0.10 mm (0.004 in)
Clutch spring free length	45.7 mm (1.80 in)		43.5 mm (1.71 in)
Master cylinder bore / piston diameter	Approx. 14.0 mm (0.55 in)		—
Release cylinder bore / piston diameter	Approx. 35.7 mm (1.41 in)		—

Steering / Handlebar

Item	Standard / Specification	Limit / Note
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Steering tension initial force	2 – 5 N (0.2 – 0.5 kgf, 0.4 – 1.1 lbf)	—
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Wiring Systems

Item			Standard / Specification	Limit / Note
Fuse size	Headlight	Hi	15 A	—
		Lo	15 A	—
	Fuel		10 A	—
	Ignition		10 A	—
	Signal		15 A	—
	Fan		15 A	—
	Main		30 A	—
	P-source		3 A	—
	ABS motor		25 A	—
	ABS valve		15 A	—

Lighting Systems

Item	Standard / Specification		Limit / Note
Headlight	Hi	12 V 65 W (H9)	—
	Lo	12 V 55 W (H7)	—
Position light	12 V 5 W		—
Front turn signal light	12 V 21 W × 2		—
Rear turn signal light	12 V 21 W × 2		—
Brake light/Tail light	LED		—
License plate light	12 V 5 W		—

Combination Meter / Fuel Meter / Horn

Item	Standard / Specification		Limit / Note
Ambient air temperature sensor resistance	-20 °C (-4 °F)	13779 – 19083 Ω	—
	-10 °C (14 °F)	8100 – 10609 Ω	—
	0 °C (32 °F)	4928 – 6125 Ω	—
	10 °C (50 °F)	3089 – 3656 Ω	—
	20 °C (68 °F)	1992 – 2251 Ω	—
	25 °C (77 °F)	1615 – 1785 Ω	—
	30 °C (86 °F)	1290 – 1456 Ω	—
	40 °C (104 °F)	838 – 986 Ω	—
Combination meter light	LED		—
Turn signal indicator light	LED		—
High beam indicator light	LED		—
Neutral position indicator light	LED		—
ABS indicator light	LED		—
Oil pressure/Engine coolant temp. indicator light	LED		—
FI indicator light	LED		—
TC indicator light	LED		—
Immobilizer indicator light	LED		If equipped

Freeze indicator light	LED	—
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