

Service Data

Specifications

Service Data

B705H20307001

Valve + Valve Guide

Unit: mm (in)

Item		Standard	Limit
Valve diam.	IN.	31.0 (1.22)	—
	EX.	27.0 (1.06)	—
Tapet clearance (when cold)	IN.	0.10 – 0.20 (0.003 – 0.008)	—
	EX.	0.20 – 0.30 (0.008 – 0.009)	—
Valve guide to valve stem clearance	IN.	0.10 – 0.37 (0.004 – 0.015)	—
	EX.	0.30 – 0.57 (0.012 – 0.022)	—
Valve guide I.D.	IN. & EX.	4.500 – 4.512 (0.1772 – 0.1776)	—
Valve stem O.D.	IN.	4.475 – 4.490 (0.1762 – 0.1768)	—
	EX.	4.455 – 4.470 (0.1754 – 0.1760)	—
Valve stem deflection	IN. & EX.	—	0.35 (0.014)
Valve stem runout	IN. & EX.	—	0.05 (0.002)
Valve head thickness	IN. & EX.	—	0.5 (0.02)
Valve seat width (30°, 45°, 60°)	IN. & EX.	0.9 – 1.1 (0.035 – 0.043)	—
Valve head radial runout	IN. & EX.	—	0.03 (0.001)
Valve spring free length	IN. & EX.	—	38.6 (1.52)
Valve spring tension	IN. & EX.	137.3 N (14.0 kgf, 30.1 lbs) at length 33.35 mm (1.313 in)	—

Camshaft + Cylinder Head

Unit: mm (in)

Item		Standard	Limit
Cam height	IN.	36.61 – 36.66 (1.441 – 1.443)	36.31 (1.430)
	EX.	35.94 – 35.99 (1.415 – 1.417)	35.64 (1.403)
Camshaft journal oil clearance	IN. & EX.	0.019 – 0.053 (0.0007 – 0.0021)	0.15 (0.006)
Camshaft journal holder I.D.	IN. & EX.	22.012 – 22.025 (0.8666 – 0.8671)	—
Camshaft journal O.D.	IN. & EX.	21.972 – 21.993 (0.8650 – 0.8659)	—
Camshaft runout	IN. & EX.	—	0.10 (0.004)
Cam chain pin (at arrow "3")		15th pin	—
Cylinder head distortion		—	0.05 (0.002)

0C-2 Service Data:**Cylinder + Piston + Piston Ring**

Unit: mm (in)

Item	Standard		Limit
Compression pressure (Automatic de-comp. actuated)	E-02, 19, 24, 54	1 060 – 1 140 kPa (10.6 – 11.4 kgf/cm ² , 151 – 162 psi)	660 kPa (6.0 kgf/cm ² , 94 psi)
	E-03, 28, 33	1 000 – 1 080 kPa (10.0 – 10.8 kgf/cm ² , 142 – 154 psi)	620 kPa (6.2 kgf/cm ² , 88 psi)
Piston to cylinder clearance	0.025 – 0.035 (0.0010 – 0.0014)		0.120 (0.005)
Cylinder bore	81.000 – 81.015 (3.1890 – 0.1896)		No nicks or scratches
Piston diam.	80.970 – 80.985 (3.1878 – 3.1884) (Measure at 15 mm (0.6 in) from the skirt end.)		80.880 (3.1842)
Cylinder distortion	—		0.05 (0.002)
Piston ring free end gap	1st IT	Approx. 7.5 (0.30)	6.0 (0.24)
	2nd 2T	Approx. 11.5 (0.45)	9.2 (0.36)
Piston ring end gap	1st	0.06 – 0.21 (0.002 – 0.008)	0.5 (0.02)
	2nd	0.06 – 0.18 (0.002 – 0.007)	0.5 (0.02)
Piston ring to groove clearance	1st	—	0.18 (0.007)
	2nd	—	0.15 (0.006)
Piston ring groove width	1st	1.21 – 1.23 (0.0476 – 0.0484)	—
	2nd	1.01 – 1.03 (0.0398 – 0.0406)	—
	Oil	2.01 – 2.03 (0.0791 – 0.0799)	—
Piston ring thickness	1st	1.17 – 1.19 (0.461 – 0.469)	—
	2nd	0.97 – 0.99 (0.0382 – 0.0390)	—
Piston pin bore	20.002 – 20.008 (0.7874 – 0.7877)		20.030 (0.789)
Piston pin O.D.	19.996 – 20.000 (0.7872 – 0.7874)		19.980 (0.787)

Conrod + Crankshaft

Unit: mm (in)

Item	Standard	Limit
Conrod small end I.D.	20.006 – 20.014 (0.7876 – 0.7880)	20.040 (0.789)
Conrod deflection	—	3.0 (0.12)
Conrod big end side clearance	0.10 – 0.65 (0.004 – 0.026)	1.0 (0.04)
Conrod big end width	21.95 – 22.00 (0.864 – 0.866)	—
Width between crankshaft webs	59.9 – 60.1 (2.358 – 2.366)	—
Crankshaft runout	—	0.08 (0.003)

Oil Pump

Item	Standard	Limit
Oil pressure (at 60 °C, 140 °F)	Above 30 kPa (0.3 kgf/cm ² , 4.27 psi) Below 110 kPa (1.1 kgf/cm ² , 15.64 psi) at 3 000 r/min	—

Clutch

Unit: mm (in)

Item	Standard	Limit
Clutch wheel I.D.	160.0 – 160.2 (6.30 – 6.31)	160.5 (6.32)
Clutch shoe thickness	3.0 (0.12)	2.0 (0.08)
Engage r/min	2 100 – 2 700 r/min	—
Lock-up r/min	4 000 – 5 000 r/min	—

Transmission

Unit: mm (in) Except ratio

Item	Specification	Note
Primary reduction ratio	1.000	—
Reduction ratio	2.200 – 0.839	—
Secondary reduction ratio	2.214	—
Final reduction ratio	2.666	—
Drive V-belt width	25.1 (0.99)	24.1 (0.95)
Movable driven face spring free length	150.0 (5.90)	142.5 (5.61)
Movable drive face roller O.D.	26.00 – 26.16 (1.024 – 1.030)	—
Drive/driven face ware	—	0.4 (0.02)

Injector + Fuel Pump + Fuel Pressure Regulator

Item	Specification	Note
Injector resistance	Approx. 10.3 Ω at 20 °C (68 F°)	—
Fuel pump discharge amount	35 ml and more For 10 sec., at 300 kPa (3.0 kgf/cm ² , 43 psi)	—
Fuel pressure regulator operating set pressure	Approx. 300 kPa (3.0 kgf/cm ² , 43 psi)	—

FI Sensors

Item	Specification	Note
CKP sensor resistance	190 – 290 Ω	
CKP sensor peak voltage	4.5 V and more (When cranking)	(+) probe: G/W, (-) probe: BI
IAP sensor input voltage	4.5 – 5.5 V	
IAP sensor output voltage	Approx. 1.5 – 3.5 V at idle speed	
TP sensor input voltage	4.5 – 5.5 V	
TP sensor output voltage	Closed	Approx. 0.6 V
	Opened	Approx. 3.8 V
ECT sensor input voltage	4.5 – 5.5 V	
ECT sensor resistance	Approx. 2.58 k Ω at 20 °C (68 °F)	
IAT sensor input voltage	4.5 – 5.5 V	
IAT sensor resistance	Approx. 2.58 k Ω at 20 °C (68 °F)	
TO sensor resistance	16.5 – 22.3 k Ω	
TO sensor output voltage	Normal	0.4 – 1.4 V
	Leaning	3.7 – 4.4 V
Injector voltage	Battery voltage	
Ignition coil primary peak voltage	150 V and more (When cranking)	(+) probe: W, (-) probe: Ground
HO2 sensor resistance	11.5 – 14.5 Ω at 23 °C (73.4 °F)	
HO2 sensor output voltage	Idle speed	0.3 V and less
	3 000 r/min	0.7 V and more
STP sensor input voltage	4.5 – 5.5 V	
STP sensor output voltage	Closed	Approx. 0.5 V
	Opened	Approx. 3.9 V
STP actuator resistance	Approx. 6.5 Ω	

0C-4 Service Data:

Throttle Body

Item	Specification	
	E-02, 03, 19, 24, 28, 54	E-33
ID No.	05H0	05H1
Bore size	38 mm (1.5 in)	←
Fast idle r/min	1 500 – 2 000 r/min	←
Idle r/min	1 450 ± 100 r/min	←
Throttle cable play	2.0 – 4.0 mm (0.08 – 0.16 in)	←

Thermostat + Radiator + Fan + Coolant

Item	Standard / specification		Limit
Thermostat valve opening temperature	Approx. 82 °C (180 °F)		—
Thermostat valve lift	Over 3 mm (0.12 in) at 95 °C (203 °F)		—
Engine coolant temperature sensor resistance	20 °C (68 °F)	Approx. 2.58 kΩ	—
	50 °C (122 °F)	Approx. 0.77 kΩ	—
	80 °C (176 °F)	Approx. 0.28 kΩ	—
	110 °C (230 °F)	Approx. 0.12 kΩ	—
Radiator cap valve opening pressure	93.3 – 122.7 kPa (0.93 – 1.23 kgf/cm ² , 13.3 – 17.4 psi)		—
Cooling fan thermo-switch operating temperature	OFF → ON	Approx. 98 °C (208 °F)	—
	ON → OFF	Approx. 92 °C (198 °F)	—
Engine coolant type	Use an anti-freeze/coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50:50.		—
Engine coolant including reserve	Reserve tank side	Approx. 250 ml (0.3/0.2 US/Imp oz)	—
	Engine side	Approx. 1 700 ml (1.8/1.5 US/Imp oz)	—

Electrical

Unit: mm (in)

Item	Standard / specification		Note
Spark plug	Type	NGK: CR7E DENSO: U22ESR-N	
	Gap	0.7 – 0.8 (0.28 – 0.03)	
Spark performance	Over 8.0 (0.3) at 1 atm.		
CKP sensor resistance	190 – 290 Ω		G – BI
CKP sensor peak voltage	4.5 V and more		(+) probe: G/W, (-) probe: BI
Ignition coil resistance	Primary	1.2 – 3.5 Ω	
	Secondary	15 – 30 kΩ	
Ignition coil primary peak voltage	150 V and more (When cranking)		(+) probe: W, (-) probe: Ground
Generator coil resistance	Charging	0.1 – 1.0 Ω	Y – Y
Generator no-load voltage (When engine is cold)	55 V and more at 5 000 r/min		
Generator Max. output	Approx. 400 W at 5 000 r/min		
Starter motor bursh length	Standard	7 (0.28)	
	Limit	3.5 (0.14)	
Regulated voltage	14.0 – 15.5 V at 5 000 r/min		
Starter relay resistance	3 – 6 Ω		
Battery	Type designation	FTZ9-BS	
	Capacity	12 V 32.4 kC (9 Ah)/10 HR	
Fuse size	Headlight	HI	10 A
		LO	10 A
	Meter	15 A	
	Ignition	10 A	
	Signal	15 A	
	Power source	10 A	
		Main	30 A

Wattage

Unit: W

Item		Standard / specification	
		E-02, 19, 24, 54	E-03, 28, 33
Headlight	HI	60/55	←
	LO	55	←
Parking/position light		5 x 2	←
Brake light/Taillight		21/5 x 2	←
Turn signal light		21 x 2 (Front), 21 x 2 (Rear)	27/8 x 2 (Front), 21 x 2 (Rear)
License plate light		5	←
Speedometer/tachometer light		LED	←
Engine coolant temp. gauge light		LED	←
Fuel level gauge light		LED	←
Immobilizer indicator light		LED	←
Oil change indicator		LCD	←
FI indicator light		LED	←
Brake-lock indicator light		LED	←
High beam indicator light		LED	←
Turn signal indicator light		LED x 2	←
Trunk light		5	←

Brake + Wheel

Unit: mm (in)

Item		Standard	Limit
Brake disc thickness	Front	4.5 ± 0.2 (0.18 ± 0.008)	4.0 (0.16)
	Rear	5.0 ± 0.2 (0.20 ± 0.008)	4.5 (0.18)
Brake disc runout		—	0.30 (0.01)
Master cylinder bore	Front & Rear	12.700 – 12.743 (0.500 – 0.502)	—
Master cylinder piston diameter	Front & Rear	12.657 – 12.684 (0.498 – 0.499)	—
Brake caliper cylinder bore	Front	25.400 – 25.450 (1.000 – 1.002)	—
	Rear	27.00 – 27.05 (1.063 – 1.065)	—
Brake caliper piston diameter	Front	25.318 – 25.368 (0.997 – 0.999)	—
	Rear	26.918 – 26.968 (1.060 – 1.062)	—
Brake fluid type		DOT 4	—
Wheel rim runout	Axial	—	2.0 (0.08)
	Radial	—	2.0 (0.08)
Wheel axle runout	Front	—	0.25 (0.01)
	Rear	—	0.25 (0.01)
Wheel rim size	Front	14 M/C x MT3.00	—
	Rear	13 M/C x MT4.00	—

Suspension

Unit: mm (in)

Item	Standard	Item
Front fork stroke	110 (4.33)	—
Front fork spring free length	347.6 (13.69)	340
Front fork oil type	G-10	—
Front fork oil capacity (each leg)	301 ml (10.17/10.60 US/Imp oz)	—
Front fork oil level	87 (3.43) (without spring, inner/outer tube fully pressed)	—
Front fork inner tube O.D.	41 (1.61)	—
Rear wheel travel	100 (3.94)	—
Rear shock absorber spring adjuster	3rd position	—

0C-6 Service Data:
Tire

Item		Standard		Limit
Cold inflation tire pressure	Solo riding	Front	175 kPa (1.75 kgf/cm ² , 25 psi)	—
		Rear	200 kPa (2.00 kgf/cm ² , 29 psi)	—
	Dual riding	Front	175 kPa (1.75 kgf/cm ² , 25 psi)	—
		Rear	250 kPa (2.50 kgf/cm ² , 36 psi)	—
Tire size		Front	120/80-14M/C 58S	—
		Rear	150/70-13M/C 64S	—
Tire type		Front	BRIDGESTONE HOOP B03G	—
		Rear	BRIDGESTONE HOOP B02G	—
Tire tread depth (Recommended depth)		Front	—	1.6 mm (0.06 in)
		Rear	—	2.0 mm (0.08 in)

Fuel + Oil

Item	Specification		Note
Fuel type	Use only unleaded gasoline of at least 87 pump octane or 91 octane (R/2 + M/2) 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.		E-03, 28, 33
	Gasoline used should be graded 91 octane or higher. An unleaded gasoline type is recommended.		
Fuel tank capacity	Including reserve	13.5 L (3.6/3.0 US/Imp gal)	
	Reserve	4.0 L (3.17/2.64 US/Imp gal)	
Engine oil and final gear oil type	SAE 10W-40, API SF/SG or SH/SJ with JASO MA		
Engine oil capacity	Oil change	1 200 ml (1.3/1.0 US/Imp qt)	
	Filter change	1 300 ml (1.4/1.1 US/Imp qt)	
	Overhaul	1 500 ml (1.6/1.3 US/Imp qt)	
Final gear oil capacity	Oil change	180 ml (6.1/6.3 US/Imp oz)	
	Overhaul	190 ml (6.4/6.7 US/Imp oz)	

Tightening Torque Specifications

B705H20307002

Engine

Item		N·m	kgf·m	lb·ft
Cam chain tensioner bolt		23	2.3	16.5
Cam chain guide No.1 bolt		23	2.3	16.5
Camshaft journal holder bolt		10	1.0	7.0
Engine oil drain plug		23	2.3	16.5
Final gear oil drain plug	M8	12	1.2	8.5
Final gear oil level bolt	M10	16	1.6	11.5
Final gear oil filler bolt	M16	23	2.3	16.5
Starter clutch bolt		26	2.6	19.0
Generator stator bolt		11	1.1	8.0
CKP sensor bolt		6	0.6	4.5
Crankcase bolt	8 mm	22	2.2	16.0
	6 mm	11	1.1	8.0
Balancer drive gear nut		150	15.0	108.5
Balancer driven gear nut		50	5.0	36.0
Oil pump mounting bolt		10	1.0	7.0
Generator rotor nut		160	16.0	115.5
Final gear cover bolt		22	2.2	16.0
Clutch housing nut		85	8.5	61.5
Clutch shoe nut		105	10.5	76.0
Fixed drive face nut		105	10.5	76.0
Inner clutch cover bolt		11	1.1	8.0
Generator cover bolt		11	1.1	8.0
Oil filter cap bolt		10	1.0	7.0
Cylinder head bolt	L130	25	2.5	18.0
	L190	Initial	25	2.5
		Final	42	4.2
Cam chain tension adjuster mounting bolt		10	1.0	7.0
Cam chain tension adjuster cap bolt		23	2.3	16.5
Cylinder head cover bolt		14	1.4	10.0
Starter motor mounting bolt		7	0.7	5.0
Starter motor lead wire bolt		3	0.3	2.0
Starter motor housing bolt		4	0.4	3.0
Spark plug		11	1.1	8.0
Oil sump filter cover bolt		10	1.0	7.0
Oil gallery plug (cylinder head)		10	1.0	7.0
Main gallery plug	M8	12	1.2	8.5
	M10	16	1.6	11.5
	M14	23	2.3	16.5
TDC inspection plug		23	2.3	16.5
Water jacket plug		40	4.0	29.0
Exhaust pipe bolt		23	2.3	16.5
Muffler connecting bolt		23	2.3	16.5
Muffler mounting bolt		23	2.3	16.5

Cooling System

Item		N·m	kgf·m	lb·ft
Cooling fan mounting bolt		7	0.7	5.0
Radiator mounting bolt		10	1.0	7.0
Cooling fan thermo-switch		17	1.7	12.5
ECT sensor		12	1.2	8.5
Thermostat case bolt		10	1.0	7.0
Thermostat case air bleeder bolt		5.5	0.6	4.3
Water pump mounting bolt		10	1.0	7.0

0C-8 Service Data:**FI System and Intake Air System**

Item	N·m	kgf-m	lb-ft
Fuel cut valve bolt	3.5	0.35	2.5
Fuel pump mounting bolt	4.5	0.45	3.3
Fuel tank mounting bolt	10	1.0	7.0
Fuel hose bolt	10	1.0	7.0
IAT sensor mounting screw	3.5	0.35	2.5
Speed sensor bolt	10	1.0	7.0

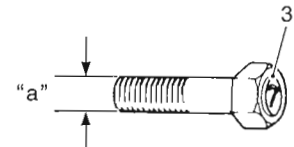
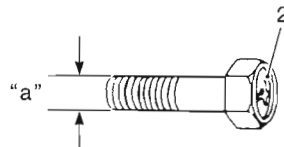
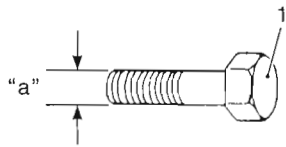
Chassis

Item	N·m	kgf-m	lb-ft
Pillion rider handle bolt	23	2.3	16.5
Front axle	65	6.5	47.0
Front axle pinch bolt	23	2.3	16.5
Front brake caliper pad pin	18	1.8	13.0
Front brake caliper mounting bolt	35	3.5	25.5
Front brake caliper bracket pin bolt	18	1.8	13.0
Front brake caliper air bleeder valve	6	0.6	4.5
Brake disc bolt	23	2.3	16.5
Brake hose union bolt	23	2.3	16.5
Master cylinder mounting bolt	10	1.0	7.0
Handlebar clamp bolt	23	2.3	16.5
Front fork cylinder bolt	30	3.0	21.5
Front fork clamp bolt	23	2.3	16.5
Front fork cap bolt	45	4.5	32.5
Steering stem nut	30	3.0	21.5
Steering stem lock-nut	30	3.0	21.5
Handlebar holder set bolt	23	2.3	16.5
Handlebar holder clamp bolt	55	5.5	40.0
Rear axle nut	120	12.0	87.0
Rear brake caliper mounting bolt	23	2.3	16.5
Rear brake caliper pad pin	18	1.8	13.0
Brake-lock housing bolt	23	2.3	16.5
Brake-lock cable lock-nut	16	1.6	11.5
Crankcase bracket mounting nut	85	8.5	61.5
Crankcase bracket rubber damper bolt	85	8.5	61.5
Engine mounting nut	93	9.3	67.5
Rear shock absorber mounting bolt	50	5.0	36.0
Cushion lever mounting nut	80	8.0	58.0
Rear cushion rod nut	50	5.0	36.0
Swingarm bolt	50	5.0	36.0
Center stand pivot bolt	50	5.0	36.0
Brake lever pivot bolt	1	0.1	0.5
Brake lever pivot bolt lock-nut	6	0.6	4.5

Tightening Torque Chart

For other bolts and nuts not listed in the preceding page, refer to this chart:

Bolt Diameter "a" (mm)	Conventional or "4" marked bolt			"7" marked bolt		
	N·m	kgf·m	lb·ft	N·m	kgf·m	lb·ft
4	1.5	0.15	1.0	2.3	0.23	1.5
5	3	0.3	2.0	5	0.5	3.5
6	5.5	0.55	4.0	10	1.0	7.0
8	13	1.3	9.5	23	2.3	16.5
10	29	2.9	21.0	50	5.0	36.0
12	45	4.5	32.5	85	8.5	61.5
14	65	6.5	47.0	135	13.5	97.5
16	105	10.5	76.0	210	21.0	152.0
18	160	16.0	115.5	240	24.0	173.5



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1. Conventional bolt	2. "4" marked bolt	3. "7" marked bolt
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