

YAMAHA SERVICE DATA

MOTORCYCLE

FS50
(FOR EUROPE)



YAMAHA MOTOR CO., LTD.

NOTE:

- © for W. Germany
- © for Denmark
- © for Belgium
- © for Austria
- © for Switzerland
- © for Holland
- © for France

Specifications are subject to change without notice, and these will be supplied for your use in Technical Service Information as they are changed.

ITEMS		REQUIRED < ALLOWABLE >
A. MODEL		
1	Model & I.B.M. Number	FS50 (474)
2	Frame I.D. & Starting Number	*FS1-650101*
3	Engine I.D. & Starting Number	*FS1-650101*
4	Net Weight	70 kgs.
B. ENGINE		
1	Engine Type	Air cooled 2 stroke, forward - incline, single
2	Maximum Horsepower	4.75 HP / 8,500 r.p.m.
3	Maximum Torque	0.4 kgs-m / 8,500 r.p.m.
4	Bore x Stroke x Cylinders	40.0 mm. x 39.7 mm. x 1
5	Displacement	49 c.c.
6	Starting System	Kick starter
7	Compression Ratio	6.8 : 1
8	Combustion Chamber Volume	5.1 c.c.
9	Piston Skirt Clearance	0.035 - 0.040 mm.
10	Cylinder Bore Size	40.0 mm. < 40.10 mm. >
	Taper / Out of Round	< 0.05 mm. > / < 0.01 mm. >

90894-47402

ITEMS	REQUIRED < ALLOWABLE >
11 Piston Ring Design (Top & 2nd Ring)	Keystone ring / Keystone ring
12 Ring End Gap (Top & 2nd Ring)	0.15 - 0.35 mm. / 0.15 - 0.35 mm.
13 Ring Groove Side Gap (Top & 2nd Ring)	0.03 - 0.07 mm. < 0.08 mm. >
14 Piston Pin Outside Diameter x Length	12 mm. x 33 mm.
15 Crankshaft Dimention & Deflection Width of Crankshaft Ass'y Connecting Rod Side Clearance (Big End) Connecting Rod Free Play (Small End) Crankshaft Deflection	38 $\pm$ 0.05 mm. 0.1 - 0.3 mm. 0.8 - 1.0 mm. < 2 mm. > 0.03 mm. or less
16 Clutch Type Friction Plate Thickness x Quantity Clutch Plate Thickness x Quantity Clutch Spring Free Length x Quantity Spring Constant	Wet, multiple disc type 3.5 mm. x 2 pcs. < 3.2 mm. > 1.6 mm. x 1 pc. 34.0 mm. x 4 pcs. < 33.0 mm. > 1.31 kgs/mm.
17 Primary Reduction Ratio & Method	74/19 3.894 Gear
18 Primary Drive & Driven Gear's "Lash Number"	136 $\pm$ 1
19 Transmission Gear Oil Capacity & Type	600 650 c.c., SAE10W/30
20 Transmission Gear Ratio 1st (No. of Teeth) (Internal) 2nd (No. of Teeth) (Internal) 3rd (No. of Teeth) (Internal) 4th (No. of Teeth) (Internal) 5th (No. of Teeth) (Internal)	41/12 3.417 35/17 2.059 31/21 1.476 28/24 1.167 26/26 1.000
21 Secondary Reduction Ratio & Method	39/13 3.000 Chain
22 Carburetor Type & Manufacturer I.D. mark & Quantity Main Jet (M.J) Air Jet (A.J) Jet Needle-clip position Needle Jet Cutaway Pilot Jet Air Screw Starter Jet Float Level Idling Engine Speed (r.p.m.)	VM16SC MIKUNI 47491 x 1 pc. #180 2.5 3G9-3 E-4 1.5 #25 1 1/4 #50 — 1,500 $\pm$ 50 r.p.m.
23 Induction System	Reed Valve System
24 Air Cleaner Type	Dry, paper filter

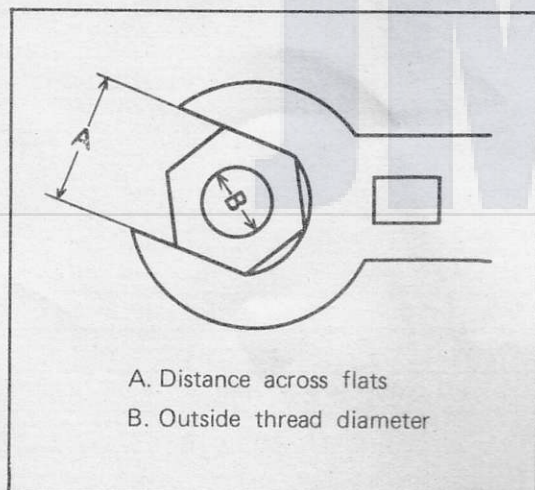
ITEMS	REQUIRED < ALLOWABLE >
25 Lubrication System Autolube Minimum Pump Stroke Autolube Maximum Pump Stroke Autolube Cable Adjustment (Throttle Position) Autolube Pump Plunger Diameter Autolube Pump Color Code Autolube Pump Reduction Ratio	Yamaha Autolube System 0.30 - 0.35 mm. 1.45 - 1.70 mm. at half throttle 4 mm. Brown $30/19 \times 62/1 = 97.8$
26 Big End Bearing Size Outside Diameter x Length Needle Diameter x Quantity	24 mm. x 11.6 mm. 3 mm. x 13 pcs.
27 Small End Bearing Size Outside Diameter x Length Needle Diameter x Quantity	15 mm. x 16.5 mm. 1.5 mm. x 13 pcs.
28 Bearing Type Crankshaft (Left) " (Right) Main Axle (Right) Drive Axle (Left)	B6204C3 B6303C3 B6203Z B6303
29 Oil Seal Type Crankshaft (Left) Clutch Push Lever Drive Axle (Sprocket Side) Kick Axle Change Shaft	SD-20-35-7 OSO-15.3-22-7 SD-25-40-5 SDO-15-26-6 S-12-22-5
C. CHASSIS	
1 Frame Design	Steel plate back-bone frame
2 Front Suspension Description	Telescopic fork
3 Front Fork Spring Free Length Spring Constant Wire Diameter x Winding Diameter	153 mm. ⒹⒷⒶⵎⒽⒺ 0.46 kgs/mm., Ⓒ 0.40 kg/mm. 3.8 mm. x 40.1 mm.
4 Front Fork Cushion Stroke	85 mm.
5 Front Fork Oil Quantity	130 c.c., SAE 10W/30
6 Number & Size of Balls in Steering Head Upper Race / Lower Race	19 pcs., ¼ in. / 19 pcs., ¼ in.
7 Caster	63.5°
8 Trail	ⒹⒷⒶⵎⒽⒺ 75 mm., Ⓒ 81 mm.
9 Rear Suspension Description	Swing arm

ITEMS	REQUIRED < ALLOWABLE >
10 Rear Cushion Spring Free Length Spring Constant Wire Diameter x Winding Diameter	208.5 mm. k = 2.85 kgs/mm. 6.0 mm. x 34 mm.
11 Rear Cushion Stroke	65 mm.
12 Tire Size & Tire Pressure (Front) " (Rear)	DBAWHF 2.25-17-4PR, @ 2.50-17-4PR 1.6 kgs/cm. ² DBAWHF 2.50-17-4PR, @ 2.75-17-6PR 2.0 kgs/cm. ²
13 Front Brake Type Shoes Diameter x Width Shoes Spring Free Length Lining Thickness	Drum brake (Leading trailing) 110 mm. x 25 mm. 34.5 mm. 4 mm. < 2 mm. >
14 Rear Brake Type Shoes Diameter x Width Shoes Spring Free Length Lining Thickness	Drum brake (Leading trailing) 110 mm. x 25 mm. 34.5 mm. 4 mm. < 2 mm. >
15 Secondary Drive Chain Type & Number of Links " Free Play	DK420 / DBAWHF 95L, @ 99L 20 mm.
16 Fuel Tank Capacity	7.0 lits.
17 Oil Tank Capacity	1.4 lits.
18 Bearing Type Front Wheel (Left) " (Right) Rear Wheel (Left) " (Right) Clutch Hub	B6202Z B6202Z B6301Z B6301 B6004
19 Oil Seal Type Front Wheel (Left) " (Right) Rear Wheel (Left) " (Right)	DD-20-35-7 OS-42-52.5-7 DD-30-42-8 SO-21-37-7

ITEMS	REQUIRED < ALLOWABLE >
D. ELECTRICAL	
1 Dynamo or magneto Type Model & Manufacturere Voltage Source Coil Resistance Lighting Coil Resistance (Yellow - Earth) (Green - Earth)	Flywheel magneto F130-05 HITACHI 6V $2.35\Omega \pm 10\%/20^{\circ}\text{C}$ $0.33\Omega \pm 10\%/20^{\circ}\text{C}$ $0.35\Omega \pm 10\%/20^{\circ}\text{C}$
2 Ignition System	Magneto ignition
3 Ignition Timing (mm. B.T.D.C.)	1.8 ± 0.15 mm. < 1.8 ± 0.2 mm.>
4 Spark Plug Type & Gap	NGK B-9HS, 0.5 - 0.6 mm.
5 Contact Breaker Point Gap	0.3 - 0.4 mm.
6 Contact Breaker Spring Pressure	650 - 850 g.
7 Condenser Capacity " Insulation Resistance	$0.3 \mu\text{F.} \pm 10\%$ 3 M Ω or more
8 Ignition Coil Type & Manufacturer Spark Gap Test Primary Winding Resistance Secondary "	CM61-20F HITACHI 6 mm. or more/500 r.p.m. $1.7\Omega \pm 10\%$ at 20°C $6.0\text{K}\Omega \pm 20\%$ at 20°C
9 Battery Type & Manufacturer Capacity (V-AH) Charging Rate	6N4A-4D G.S. or F.B. 6V4AH 0.4A x 10 Hour
10 Rectifier Type & Manufacturer Description (half or full wave) Resistance	DE2304 STANLEY Half wave 9 - 10 Ω
11 Head Light Wattage (High/Low Beam)	6V 25W/25W
12 Marker Light Wattage	6V 4W
13 Tail Light/Stop Light Wattage	6V 5W/21W
14 Flasher Light Wattage	ⒺⓂⓓⓕ 6V 21W, ⒶⒷ 6V 8W
15 Neutral Light Wattage	6V 3W
16 Meter Light Wattage	6V 3W
17 Fuse Rating / Horn Type	10A / ⒺⓂⓓ MF2-6, ⓓⒷⒶⓕ YF6

TORQUE SPEC.

Part to be tightened	Nut or Bolt Size	Tightening Torque
Cylinder Head	6 mm. Nut	0.8 - 1.0 m-kgs.
Flywheel	12 mm. Nut	5.0 - 7.0 m-kgs.
Clutch Boss	12 mm. Nut	5.0 - 7.0 m-kgs.
Primary Drive Gear	12 mm. Nut	5.0 - 8.0 m-kgs.
Spark Plug	14 mm.	2.5 - 3.0 m-kgs.
Front Fork Cap Bolt	10 mm. Cap Bolt	3.5 - 4.0 m-kgs.
Inner Tube and Under Bracket	10 mm. Bolt	2.0 - 3.0 m-kgs.
Steering Shaft and Handle Crown	10 mm. Bolt	3.5 - 4.0 m-kgs.
Front Wheel Shaft	10 mm. Nut	5.0 - 6.0 m-kgs.
Rear Wheel Shaft	10 mm. Nut	5.0 - 6.0 m-kgs.
Pivot Shaft	10 mm. Nut	2.0 - 3.0 m-kgs.
Drive Sprocket	12 mm. Nut	4.0 - 4.5 m-kgs.
Sprocket Wheel	8 mm. Nut	2.0 m-kgs.

The Other Torque Spec.

A	B	TORQUE SPECIFICATION		
		m-kgs.	ft-lbs.	in-lbs.
10mm.	6mm.	1.0	7.2	85
12(13)mm.	8mm.	2.0	15	175
(14)mm.	(8)mm.	2.0	15	175
14(17)mm.	10mm.	3.5 - 4.0	25 - 29	300 - 350
17(19)mm.	12mm.	4.0 - 4.5	29 - 33	350 - 400
19(22)mm.	14mm.	4.5 - 5.0	33 - 36	400 - 440
22mm.	16mm.	5.5 - 6.5	41 - 49	480 - 570
(26)mm.	17mm.	5.8 - 7.0	42 - 50	500 - 600
24(27)mm.	18mm.	5.8 - 7.0	42 - 50	500 - 600
27(30)mm.	20mm.	7.0 - 8.3	50 - 60	600 - 700