YAMAHA

FZR600R '94

4JH-SE1

SERVICE INFORMATION

FOREWORD

This Service Information has been prepared to introduce new service and data for the FZR600R '94. For complete service information procedures it is necessary to use this publication together with the following microfiche service manual.

FZR600R '94 SERVICE MANUAL: 4JH-ME1

FZR600R '94
SERVICE INFORMATION

1st Edition, November 1993

Printed in Japan

NOTICE

This manual was written by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to put an entire mechanic's education into one manual, so it is assumed that persons using this book to perform maintenance and pepairs on Yamaha motorcycles have a basic understanding of the mechanical concepts and procedures inherent in motorcycle repair technology. Without such knowledge, attempted repairs or service to this model may render it unfit to use and/or unsafe.

Yamaha Motor Company, Ltd. is continually striving to improve all models manufactured by Yamaha. Modifications and significant changes in specifications or procedures will be forwarded to all Authorized Yamaha dealers and will, where applicable, appear in future editions of this manual.

HOW TO USE THIS MANUAL

PARTICULARY IMPORTANT INFORMATION

This material is distinguished by the following notation.

⚠ — The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

⚠ WARNING — Failure to follow WARNING instructions could result in severe injury or death to the motorcycle operator, a bystander, or a person inspecting or repairing the motorcycle.

CAUTION: — A CAUTION indicates special precautions that must be taken to avoid damage to the motorcycle..

NOTE: — A NOTE provides key information to make procedures easier or clearer.

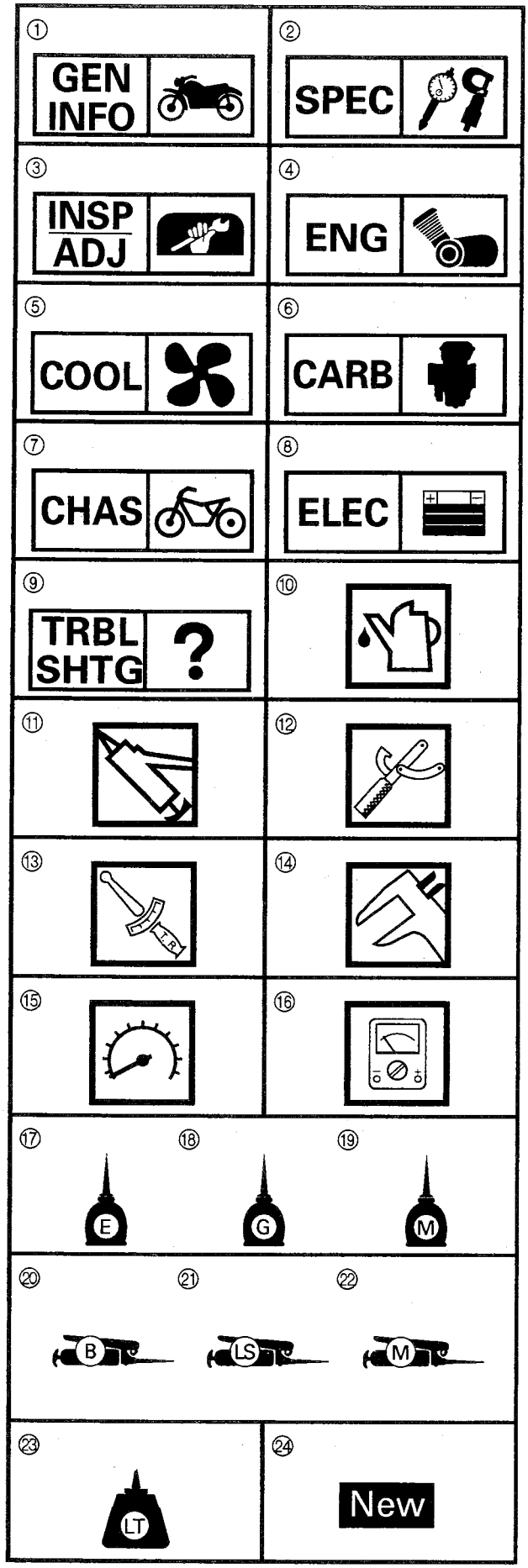
MANUAL FORMAT

All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, and assembly, inspection operations.
In this revised format, the condition of a faulty component will precede an arrow symbol and the course of action required will follow the symbol, e.g.,

- Bearings
  Pitting/Damage → Replace.

EXPLODED DIAGRAM

Each chapter provides exploded diagrams before each disassembly section for ease in identifying correct disassembly and assembly procedures.



ILLUSTRATED SYMBOLS
(Refer to the illustration)

Illustrated symbols ① to ⑨ are designed as thumb tabs to indicate the chapter's number and content.

① General information
② Specifications
③ Periodic inspection and adjustment
④ Engine
⑤ Cooling system
⑥ Carburetion
⑦ Chassis
⑧ Electrical
⑨ Troubleshooting

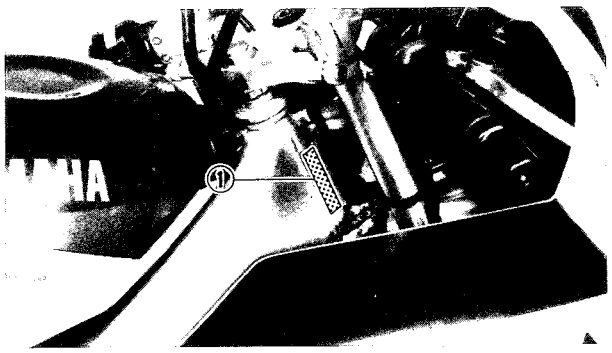
Illustrated symbols ⑩ to ⑯ are used to identify the specifications appearing in the text.

⑩ Filling fluid
⑪ Lubricant
⑫ Special tool
⑬ Tightening
⑭ Wear limit, clearance
⑮ Engine speed
⑯ Ω,V,A

Illustrated symbols ⑰ to ㉔ in the exploded diagram indicate grade of lubricant and location of lubrication point.

⑰ Apply engine oil
⑱ Apply gear oil
⑲ Apply molybdenum disulfide oil
⑳ Apply wheel bearing grease
㉑ Apply lightweight lithium-soap base grease
㉒ Apply molybdenum disulfide grease
㉓ Apply locking agent (LOCTITE®)
㉔ Use new one

CONTENTS



GENERAL INFORMATION

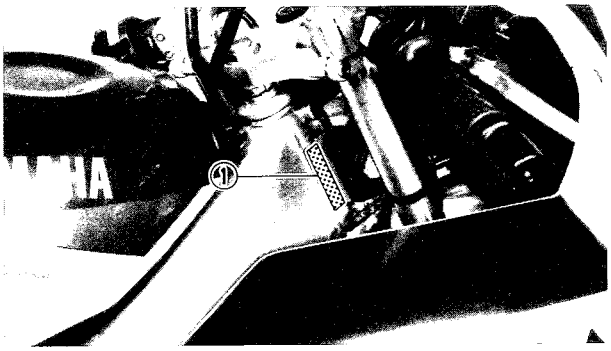
MOTORCYCLE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER (For E)

The vehicle identification number ① is stamped into the right side of the steering head.

Starting serial number:
JYA4JHS0✳RA016101 (for E)

NOTE:
The vehicle identification number is used to identify your motorcycle and may be used to register your motorcycle with the licensing authority in your state.

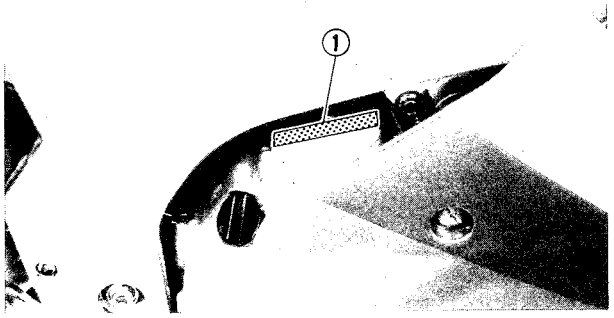


FRAME SERIAL NUMBER (Except for E)

The frame serial number ① is stamped into the right side of the steering head.

Starting serial number:
4JH-000101 (for D, B, DK, SF, GB, N, NL, F, GR, I and PRT)
4JH-021101 (for D)
4MH-000101 (for D)

NOTE:
The first three digits of these numbers are for model identifications; the remaining digits are the unit production number.



ENGINE SERIAL NUMBER

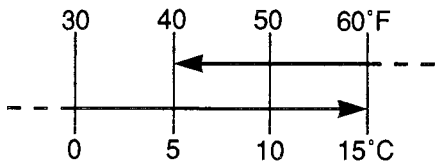
The engine serial number ① is stamped into crankcase.

Starting serial number:
4JH-016101 (for E)
4JH-000101 (for D, B, DK, SF, GB, N, NL, F, GR, I and PRT)
4JH-021101 (for D)
4MH-000101 (for D)

NOTE:
- The first three digits of these numbers are for model identification; the remaining digits are the unit production number.
- Designs and specifications are subject to change without notice.

SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	FZR600R
Model code:	4JH1
Engine starting number:	4JH-000101
Frame starting number:	4JH-000101
Dimensions:	
Overall length	2,145 mm (84.4 in)
Overall width	725 mm (28.5 in)
Overall height	1,180 mm (46.5 in)
Seat height	795 mm (31.3 in)
Wheelbase	1,415 mm (55.7 in)
Minimum ground clearance	135 mm (5.31 in)
Minimum turning radius	3,200 mm (126.0 in)
Basic weight:	
With oil and full fuel tank	206 kg (454 lb)
Engine:	
Engine type	Liquid-cooled 4-stroke, DOHC
Cylinder arrangement	Forward-inclined parallel 4-cylinder
Displacement	599 cm^3
Bore × stroke	62.0 × 49.6 mm (2.44 × 1.95 in)
Compression ratio	12:1
Compression pressure (STD)	1,550 kPa (15.5 kg/cm^2, 220 psi) at 400 r/min
Starting system	Electric starter
Lubrication system:	Wet sump
Oil type or grade:	
Engine oil	 SAE20W40 type SE motor oil SAE10W30 type SE motor oil
Oil capacity:	
Engine oil	
Periodic oil change	2.6 L (2.3 Imp qt, 2.7 US qt)
With oil filter replacement	2.9 L (2.6 Imp qt, 3.1 US qt)
Total amount	3.5 L (3.1 Imp qt, 3.7 US qt)
Oil cooler capacity (including all routes)	0.3 L (0.3 Imp qt, 0.3 US qt)
Radiator capacity (including all routes):	1.8 L (1.58 Imp qt, 1.90 US qt)
Air filter:	Dry type element
Fuel:	
Type	Regular unleaded gasoline
Fuel tank capacity	19 L (4.18 Imp gal, 5.02 US gal)
Fuel reserve amount	3.5 L (0.77 Imp gal, 0.92 US gal)

GENERAL SPECIFICATIONS

SPEC

Model		FZR600R
Carburetor:		
Type / quantity		CVKD34/4
Manufacturer		KEIHIN
Spark plug:		
Type		CR9E/U27ESR-N
Manufacturer		NGK/NIPPONDENSO
Spark plug gap		0.7 ~ 0.8 mm (0.028 ~ 0.031 in)
Clutch type:		Wet, multiple-disc
Transmission:		
Primary reduction system		Spur gear
Primary reduction ratio		82/48(1.708)
Secondary reduction system		Chain drive
Secondary reduction ratio		47/15(3.133)
Transmission type		Constant mesh 6-speed
Operation		Left foot operation
Gear ratio	1st	37/13(2.846)
	2nd	37/19(1.947)
	3rd	34/22(1.545)
	4th	28/21(1.333)
	5th	25/21(1.190)
	6th	29/27(1.074)
Chassis:		
Frame type		Diamond
Caster angle		25°
Trail		97 mm (3.82 in)
Tire:		
Type		Tubeless
Size	front	120/60ZR17
	rear	160/60ZR17
Manufacturer	front	BRIDGESTONE/DUNLOP/MICHELIN/METZELER
	rear	BRIDGESTONE/DUNLOP/MICHELIN/METZELER
Type	front	BT50F/D202F/A89X/MEZ1 FRONT
	rear	BT50R/D202/M89X/MEZ1
Tire pressure (cold tire):		
Maximum load-except motorcycle		174 kg (384 lb)
Loading condition A *		0 ~ 90 kg (0 ~ 198 lb)
	front	225 kPa (2.25 kg/cm^2, 32 psi)
	rear	250 kPa (2.5 kg/cm^2, 36 psi)
Loading condition B *		90 ~ 174 kg (198 ~ 384 lb)
	front	250 kPa (2.5 kg/cm^2, 36 psi)
	rear	290 kPa (2.9 kg/cm^2, 41 psi)
High-speed riding		
	front	250 kPa (2.5 kg/cm^2, 36 psi)
	rear	290 kPa (2.9 kg/cm^2, 41 psi)

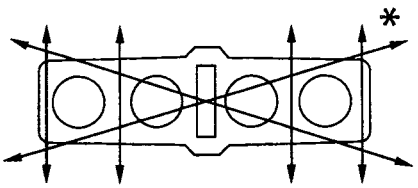
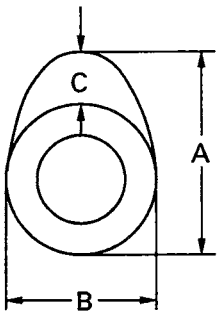
GENERAL SPECIFICATIONS

SPEC

Model		FZR600R
Brake:		
Front brake	type	Dual disc brake
	operation	Right hand operation
Rear brake	type	Single disc brake
	operation	Right foot operation
Suspension:		
Front suspension		Telescopic fork
Rear suspension		Swingarm (link suspension)
Shock absorber:		
Front shock absorber		Coil spring / Oil damper
Rear shock absorber		Coil-gas spring / Oil damper
Wheel travel:		
Front wheel travel		130 mm (5.1 in)
Rear wheel travel		120 mm (4.7 in)
Electrical:		
Ignition system		T.C.I. (Digital)
Generator system		A.C. magneto generator
Battery type		YTX-12BS
Battery capacity		12 V 10 AH
Headlight type:		Quartz bulb (Halogen)
Bulb wattage × quantity:		
Headlight		12 V 60 W / 55 W × 2
Auxiliary light		12 V 5 W × 1
Tail / brake light		12 V 5 W / 21 W × 2
Flasher light		12 V 21 W × 4
Meter light		12 V 1.7 W × 4
Indicator light		
NEUTRAL		12 V 3.4 W × 1
TURN		12 V 3.4 W × 1
OIL LEVEL		12 V 3.4 W × 1
HIGH BEAM		12 V 3.4 W × 1
FUEL		12 V 3.4 W × 1

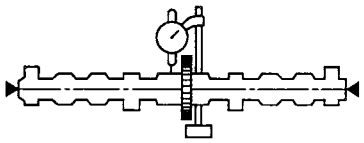
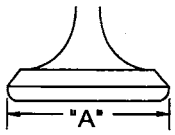
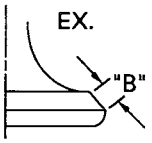
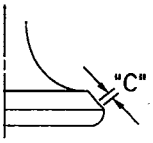
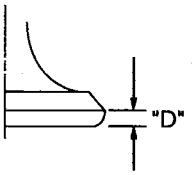
MAINTENANCE SPECIFICATIONS

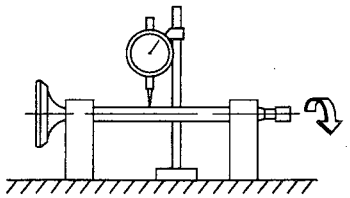
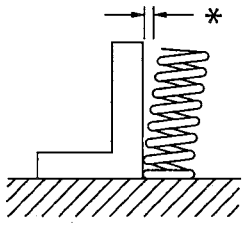
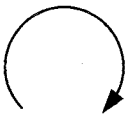
ENGINE

Model		FZR600R
Cylinder head:		
Warp limit		0.05 mm (0.0020 in)
		
Cylinder:		
Bore size		62.00 ~ 62.01 mm (2.4409 ~ 2.4413 in)
Taper limit		0.09 mm (0.004 in)
Out of round limit		0.07 mm (0.0028 in)
Camshaft:		
Drive method		Chain drive (Center)
Cam cap inside diameter		23.000 ~ 23.021 mm (0.9055 ~ 0.9063 in)
Camshaft outside diameter		22.967 ~ 22.980 mm (0.9042 ~ 0.9047 in)
Shaft-to-cap clearance		0.020 ~ 0.054 mm (0.0008 ~ 0.0021 in)
<Limit>		<0.08 mm (0.0031 in)>
Cam dimensions		
		
Intake	"A"	32.75 ~ 32.85 mm (1.289 ~ 1.293 in)
	<limit>	<32.7mm (1.287 in)>
	"B"	24.998 ~ 25.098 mm (0.984 ~ 0.988 in)
	<limit>	<24.95 mm (0.982 in)>
	"C"	7.652 ~ 7.852 mm (0.301 ~ 0.309 in)
	<limit>	<7.5 mm (0.295 in)>
Exhaust	"A"	32.55 ~ 32.65 mm (1.281 ~ 1.285 in)
	<limit>	<32.5 mm (1.280 in)>
	"B"	24.998 ~ 25.098 mm (0.984 ~ 0.988 in)
	<limit>	<24.95 mm (0.982 in)>
	"C"	7.452 ~ 7.652 mm (0.293 ~ 0.301 in)

MAINTENANCE SPECIFICATIONS

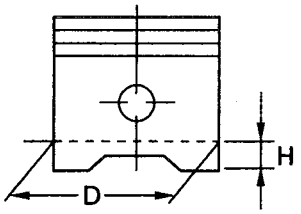
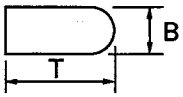
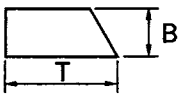
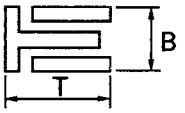
SPEC

Model		FZR600R
Camshaft runout limit	<limit>	<7.3 mm (0.287 in)> 0.06 mm (0.0024 in)
		
Cam chain:		
Cam chain type / No. of links		DID215F/118
Cam chain adjustment method		Automatic
Valve, valve seat, valve guide:		
Valve clearance (cold)	IN	0.11 ~ 0.20 mm (0.004 ~ 0.008 in)
	EX	0.21 ~ 0.30 mm (0.008 ~ 0.012 in)
Valve dimensions:		
 Head Dia		
 Face Width		
 Seat Width		
 Margin Thickness		
"A" head diameter	IN	23.9 ~ 24.1 mm (0.941 ~ 0.949 in)
	EX	20.9 ~ 21.1 mm (0.823 ~ 0.831 in)
"B" face width	IN	1.56 ~ 2.40 mm (0.061 ~ 0.094 in)
	EX	1.56 ~ 2.40 mm (0.061 ~ 0.094 in)
"C" seat width	IN	0.9 ~ 1.1 mm (0.035 ~ 0.043 in)
	EX	0.9 ~ 1.1 mm (0.035 ~ 0.043 in)
<Limit>	IN	<1.6 mm (0.06 in)>
	EX	<1.6 mm (0.06 in)>
"D" margin thickness	IN	0.6 ~ 0.8 mm (0.024 ~ 0.031 in)
	EX	0.6 ~ 0.8 mm (0.024 ~ 0.031 in)
<Limit>	IN	<0.5 mm (0.020 in)>
	EX	<0.5 mm (0.020 in)>
Stem outside diameter	IN	3.975 ~ 3.990 mm (0.1565 ~ 0.1571 in)
	EX	3.960 ~ 3.975 mm (0.1559 ~ 0.1565 in)
<Limit>	IN	<3.95 mm (0.156 in)>
	EX	<3.935 mm (0.155 in)>
Guide inside diameter	IN	4.000 ~ 4.012 mm (0.1575 ~ 0.1580 in)
	EX	4.000 ~ 4.012 mm (0.1575 ~ 0.1580 in)
<Limit>	IN	<4.042 mm (0.159 in)>
	EX	<4.042 mm (0.159 in)>
Stem-to-guide clearance	IN	0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in)
	EX	0.025 ~ 0.052 mm (0.0010 ~ 0.0020 in)
<Limit>	IN	<0.08 mm (0.003 in)>
	EX	<0.1 mm (0.004 in)>

Model		FZR600R
Stem runout limit		0.04 mm (0.0016 in)
		
Valve seat width	IN	0.9 ~ 1.1 mm (0.0354 ~ 0.0433in)
	EX	0.9 ~ 1.1 mm (0.0354 ~ 0.0433 in)
<Limit>	IN	<1.6 mm (0.06 in)>
	EX	<1.6 mm (0.06 in)>
Valve spring:		
Inner spring		
Free length	IN	39.17 mm (1.54 in)
	EX	39.17 mm (1.54 in)
<Limit>	IN	<37.5 mm (1.48 in)>
	EX	<37.5 mm (1.48 in)>
Set length (valve closed)	IN	34.5 mm (1.4 in)
	EX	34.5 mm (1.4 in)
Compressed pressure (installed)	IN	11.0 ~ 13.2 kg (24.25 ~ 29.10 lb)
	EX	11.0 ~ 13.2 kg (24.25 ~ 29.10 lb)
Tilt limit	IN	2.5°/1.7 mm (2.5°/0.067 in)
	EX	2.5°/1.7 mm (2.5°/0.067 in)
		
Direction of winding (top view)	IN	Clockwise
	EX	Clockwise
		
Piston:		
Piston to cylinder clearance		0.025 ~ 0.050 mm (0.0010 ~ 0.0020 in)
<Limit>		<0.07 mm (0.0028 in)>

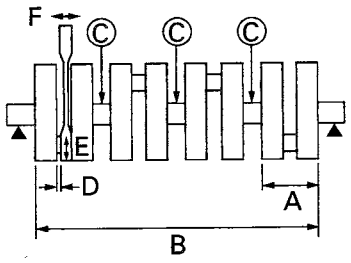
MAINTENANCE SPECIFICATIONS

SPEC

Model	FZR600R
Piston size "D"	61.960 ~ 61.975 mm (2.439 ~ 2.440 in)
	
Measuring point "H"	5 mm (0.197 in)
Piston off-set	0.5 mm (0.02 in)
Piston off-set direction	IN side
Piston pin bore inside diameter	17.002 ~ 17.013 mm (0.6694 ~ 0.6698 in)
Piston pin outside diameter	16.991 ~ 17.000 mm (0.6689 ~ 0.6693 in)
Piston rings:	
Top ring:	
	
Type	Barrel
Dimensions (B × T)	0.8 × 2.2 mm (0.031 × 0.087 in)
End gap (installed)	0.15 ~ 0.30 mm (0.006 ~ 0.012 in)
<Limit>	<0.6 mm (0.024 in)>
Side clearance (installed)	0.020 ~ 0.075 mm (0.001 ~ 0.003 in)
<Limit>	<0.1 mm (0.004 in)>
2nd ring:	
	
Type	Taper
Dimensions (B × T)	0.8 × 2.3 mm (0.031 × 0.091 in)
End gap (installed)	0.25 ~ 0.40 mm (0.010 ~ 0.016 in)
<Limit>	<0.7 mm (0.028 in)>
Side clearance	0.020 ~ 0.055 mm (0.001 ~ 0.002 in)
<Limit>	<0.1 mm (0.004 in)>
Oil ring:	
	
Dimensions (B × T)	1.5 × 2.3 mm (0.059 × 0.091 in)
End gap (installed)	0.10 ~ 0.35 mm (0.004 ~ 0.014 in)
Connecting rod:	
Oil clearance	0.043 ~ 0.066 mm (0.002 ~ 0.003 in)
<Limit>	<0.08 mm (0.003 in)>
Color code (corresponding size)	① Blue ② Black ③ Brown ④ Green

MAINTENANCE SPECIFICATIONS

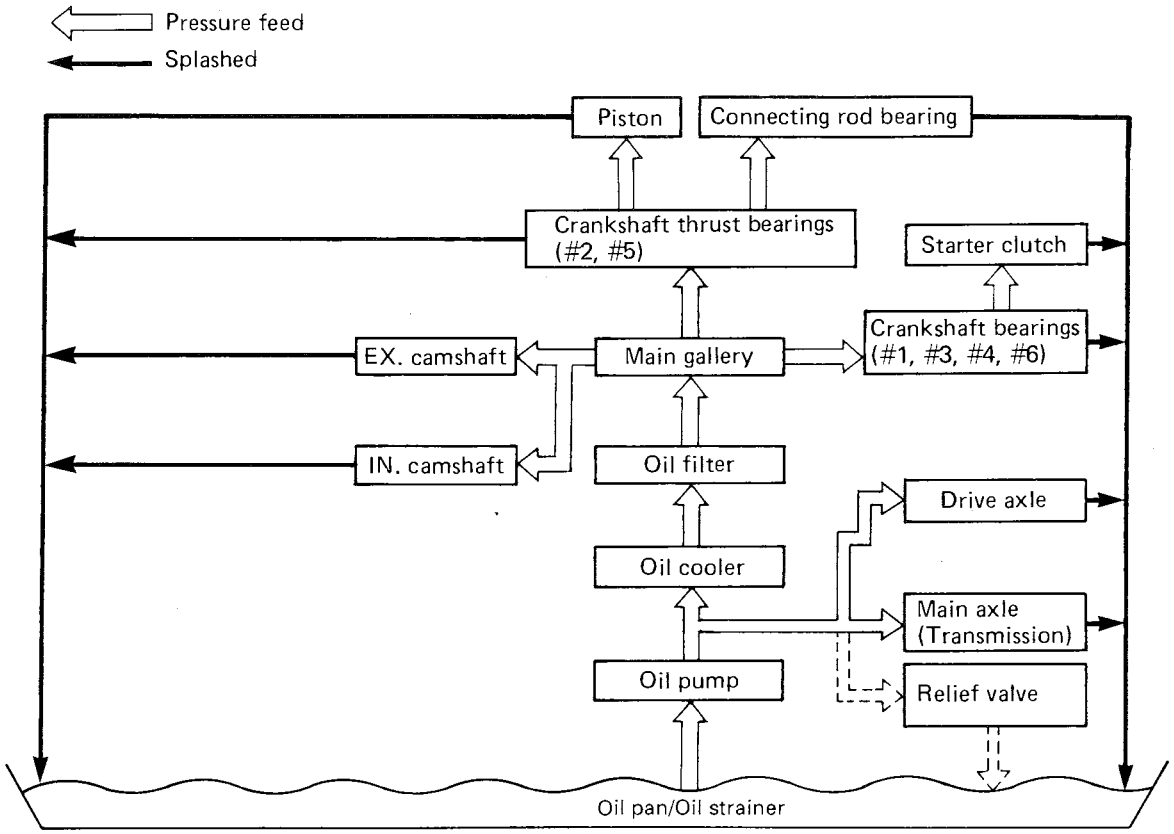
SPEC

Model	FZR600R
Crankshaft:	
	
Crank width "A"	48.4 mm (1.906 in)
Assembly width "B"	296.8 ~ 298.0 mm (11.685 ~ 11.732 in)
Runout limit "C"	0.03 mm (0.0012 in)
Big end side clearance "D"	0.160 ~ 0.262 mm (0.006 ~ 0.010 in)
<Limit>	<0.5 mm (0.020 in)>
Big end radial clearance "E"	0.043 ~ 0.066 mm (0.0017 ~ 0.0026 in)
<Limit>	<0.08 mm (0.003 in)>
Small end free play "F"	0.32 ~ 0.50 mm (0.0126 ~ 0.0197 in)
<Limit>	<0.8 mm (0.0315 in)>
Journal oil clearance	0.005 ~ 0.035 mm (0.0002 ~ 0.0014 in)
<Limit>	<0.08 mm (0.0031 in)>
Color code (corresponding size)	① Blue ② Black ③ Brown ④ Green ⑤ Yellow ⑥Pink
Clutch:	
Friction plate thickness	2.92 ~ 3.08 mm (0.115 ~ 0.121 in)
Quantity	9
Friction plate wear limit	2.8 mm (0.11 in)
Clutch plate thickness	1.90 ~ 2.10 mm (0.075 ~ 0.083 in)
Quantity	8
Warp limit	0.1 mm (0.004 in)
Clutch spring free length	40.4 mm (1.59 in)
Quantity	6
Minimum length	39.3 mm (1.55 in)
Clutch housing thrust clearance	0.05 ~ 0.13 mm (0.002 ~ 0.005 in)
<Limit>	<0.2 mm (0.008 in)>
Clutch housing radial clearance	0.005 ~ 0.041 mm (0.0002 ~ 0.0016 in)
Clutch release method	Inner push, screw push
Push rod bending limit	0.3 mm (0.012 in)
Transmission:	
Main axle deflection limit	0.02 mm (0.001 in)
Drive axle deflection limit	0.02 mm (0.001 in)
Shifter:	
Shifter type	Cam drum
Guide bar bending limit	0.05 mm (0.002 in)
Carburetor:	
I. D. mark	4JH 00
Main jet (M.J)	#118

Model		FZR600R
Main air jet	(M.A.J)	#80
Jet needle	(J.N)	N1YA
Needle jet	(N.J)	2.6
Pilot air jet	(P.A.J.1)	#100
Pilot outlet	(P.O)	0.9
Pilot jet	(P.J)	#35
Bypass 1	(B.P.1)	0.8
Bypass 2	(B.P.2)	0.8
Bypass 3	(B.P.3)	0.8
Bypass 4	(B.P.4)	0.8
Pilot screw	(P.S)	1-3/4 turns out
Valve seat size	(V.S)	1.2
Starter jet	(G.S.1)	#45
Starter jet	(G.S.2)	0.6
Throttle valve size	(Th.V)	#110
Fuel level	(F.L)	11.5 ~ 12.5 mm (0.45 ~ 0.49 in)
Engine idle speed		1,250 ~ 1,350 r/min
Intake vacuum		29.6 kPa (225 mmHg, 8.858 inHg)
Fuel pump:		
Type		Electrical type
Model / manufacturer		4FM/NIPPONDENSO
Consumption amperage	<max>	1 A
Output pressure		20 kPa (0.2 kg/cm^2, 3 psi)
Lubrication system:		
Oil filter type		Paper type
Oil pump type		Trochoid type
Tip clearance "A" or "B"		0.03 ~ 0.09 mm (0.001 ~ 0.004 in)
<Limit>		<0.15 mm (0.006 in)>
Side clearance		0.03 ~ 0.08 mm (0.001 ~ 0.003 in)
<Limit>		<0.15 mm (0.006 in)>
Bypass valve setting pressure		80 ~ 120 kPa (0.8 ~ 1.2 kg/cm^2, 11.38 ~ 17.07 psi)
Relief valve operating pressure		450 ~ 550 kPa (4.5 ~ 5.5 kg/cm^2, 64.00 ~ 78.23 psi)
Oil pressure (hot)		80 kPa (0.8 kg/cm^2, 11.38 psi) at 1,300 r/min
Pressure check location		MAIN GALLERY
Cooling system:		
Radiator core size		
Width		320 mm (12.6 in)
Height		218 mm (8.58 in)
Thickness		24 mm (0.94 in)
Radiator cap opening pressure		110 ~ 140 kPa (1.1 ~ 1.4 kg/cm^2, 15.65 ~ 19.91 psi)
Reservoir tank capacity		0.55 L (0.48 Imp qt, 0.58 US qt)
<From low to full level>		<0.25 L (0.22 Imp qt, 0.26 US qt)>
Water pump		
Type		Single suction centrifugal pump
Reduction ratio		82/48X48/49(1.673)

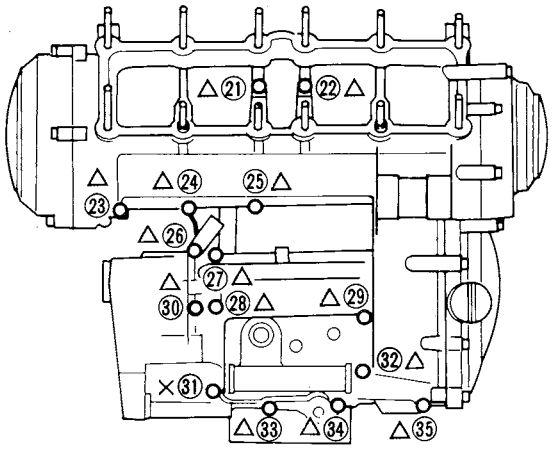
Model	FZR600R

Lubrication chart:

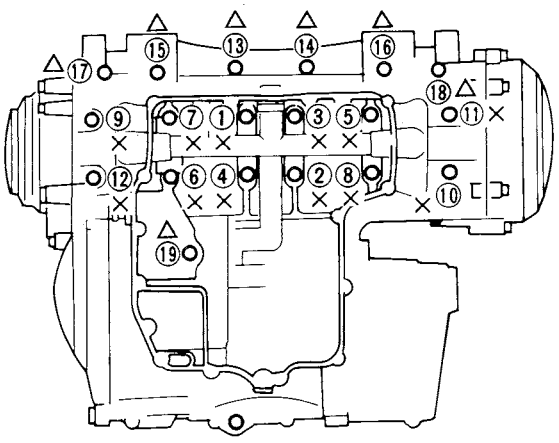


Crankcase tightening sequence:

Crankcase (Upper)



Crankcase (Lower)



×: M8: 24 Nm (2.4 m • kg, 17 ft • lb)
△: M6: 12 Nm (1.2 m • kg, 8.7 ft • lb)

Tightening torques

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m·kg	ft·lb	
Camshaft cap	Bolt	M6	24	10	1.0	7.2	
Cylinder head (exhaust pipe)	Stud bolt	M6	8	10	1.0	7.2	E
Cylinder head	Nut	M8	12	35	3.5	25	E
Spark plug	–	M10	4	12.5	1.25	9.0	
Cylinder head cover	Bolt	M6	8	10	1.0	7.2	
Connecting rod	Nut	M7	8	See NOTE			M
Timing chain sprocket	Bolt	M7	4	24	2.4	17	
Timing chain tensioner	Bolt	M6	2	10	1.0	7.2	
Timing chain tensioner end	Cap bolt	M11	1	20	2.0	14	
Chain guide (intake side)	Bolt	M6	2	10	1.0	7.2	LT
Oil filter	–	M20	–	17	1.7	12	E
Oil cooler	–	M20	–	63	6.3	45	E
Oil pan	Bolt	M6	14	10	1.0	7.2	
Drain bolt	–	M14	1	43	4.3	31	
Oil delivery pipe	Bolt	M6	1	10	1.0	7.2	
	Union bolt	M10	2	20	2.0	14	
Oil pump cover	Screw	M6	1	7	0.7	5.1	
Oil pump assembly	Bolt	M6	3	10	1.0	7.2	LT
Oil strainer housing	Bolt	M6	2	10	1.0	7.2	LT
Water pipe 1	Bolt	M6	2	10	1.0	7.2	
Water pipe 2	Bolt	M6	2	10	1.0	7.2	
Thermostatic valve cover	Bolt	M6	2	10	1.0	7.2	
Conduction	Bolt	M6	2	7	0.7	5.1	
Radiator	Bolt	M6	3	7	0.7	5.1	
Joint	Bolt	M6	4	10	1.0	7.2	
Water pump	Bolt	M6	2	10	1.0	7.2	
Water pump cover	Bolt	M6	2	10	1.0	7.2	
Carburetor joint	Bolt	M6	8	10	1.0	7.2	
Air filter case cover	Screw	M5	2	5	0.5	3.6	
Exhaust pipe	Nut	M6	8	10	1.0	7.2	
Muffler and stay	Flange bolt	M8	1	20	2.0	14	
Exhaust pipe blind plug (CO test)	Bolt	M6	4	10	1.0	7.2	
Exhaust pipe and stay	Bolt	M8	1	20	2.0	14	
Exhaust pipe and muffler	Bolt	M8	1	20	2.0	14	
Crankcase	Stud bolt	M8	12	12.5	1.25	9.0	E
Crankcase	Bolt	M8	12	24	2.4	17	M
Crankcase	Bolt	M6	21	12	1.2	8.7	E
Crankcase	Bolt	M8	1	24	2.4	17	E
Oil baffle plate	Screw	M6	2	7	0.7	5.1	LT
Oil baffle plate	Screw	M6	4	7	0.7	5.1	LT

MAINTENANCE SPECIFICATIONS

SPEC 

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m·kg	ft·lb	
Bearing retainer	Bolt	M6	2	10	1.0	7.2	LT
AC magneto cover	Bolt	M6	5	10	1.0	7.2	
Crankcase cover (left)	Bolt	M6	5	10	1.0	7.2	
	Screw	M5	4	4	0.4	2.9	LT
Starter clutch cover	Bolt	M6	7	10	1.0	7.2	
Crankcase plug	–	M16	2	8	0.8	5.8	E
Crankcase cover (right)	Bolt	M6	10	10	1.0	7.2	
	Screw	M5	4	4	0.4	2.9	LT
Lead holder	Screw	M6	1	7	0.7	5.1	
Starter clutch	Bolt	M10	1	80	8.0	58	
Starter wheel	Bolt	M8	3	30	3.0	22	LT
Clutch spring	Screw	M6	6	8	0.8	5.8	
Clutch boss	Nut	M18	1	70	7.0	50	Use lock washer
Push lever	Screw	M5	2	4.5	0.45	3.3	LT
Push rod adjuster	Nut	M8	1	16	1.6	12	
Drive sprocket	Nut	M18	1	70	7.0	50	Use lock washer
Stopper plate	Bolt	M6	1	10	1.0	7.2	LT
Spring stopper	Screw	M8	1	22	2.2	16	LT
Shift arm	Bolt	M6	1	10	1.0	7.2	
Shift cam stopper lever	Bolt	M6	1	10	1.0	7.2	LT
Shift pedal adjuster	Nut	M8	2	10	1.0	7.2	
Guide bar stopper	Bolt	M6	1	10	1.0	7.2	LT
Side plate	Screw	M5	1	4	0.4	2.9	LT
AC magneto rotor	Bolt	M10	1	85	8.5	62	
Stator coil	Bolt	M6	3	10	1.0	7.2	LT
Pickup coil	Screw	M5	2	5	0.5	3.6	
Starter motor	Bolt	M6	2	10	1.0	7.2	
Neutral switch	Screw	M6	2	4	0.4	2.9	
Oil level switch	Bolt	M6	2	7	0.7	5.1	
Thermo switch	–	M16	1	23	2.3	17	
Thermo switch	–	–	1	15	1.5	11	

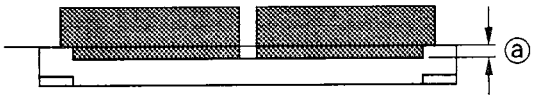
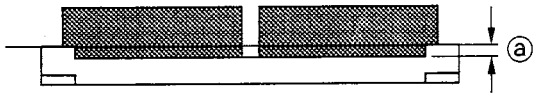
NOTE:
After tightening to 15 Nm (1.5 m • kg, 11 ft • lb), tighten another 90°.

CHASSIS

Model		FZR600R
Steering system:		
Steering bearing type		Taper roller bearing
Front suspension:		
Front fork travel		130 mm (5.12 in)
Fork spring free length		377 mm (14.8 in)
<Limit>		<372 mm (14.6 in)>
Collar length		150 mm (5.9 in)
Spring rate	(K1)	8.0 N/mm (0.8 kg/mm, 44.8 lb/in)
Stroke	(K1)	0 ~ 130 mm (0.00 ~ 5.12 in)
Optional spring		No
Oil capacity		503 cm^3 (17.7 Imp oz, 17.0 US oz)
Oil level		133 mm (5.24 in)
Oil grade		Fork oil 10 WT or equivalent
Rear suspension:		
Shock absorber travel		64 mm (2.52 in)
Spring free length		238 mm (9.37 in)
Fitting length		220 mm (8.66 in)
Spring rate	(K1)	85.0 N/mm (8.5 kg/mm, 476.0 lb/in)
Stroke	(K1)	0 ~ 64 mm (0.00 ~ 2.52 in)
Optional spring		No
Enclosed gas / air pressure (STD)		1,200 kPa (12 kg/cm^2, 171 psi)
Swingarm:		
Free play limit	end	1 mm (0.04 in)
	side	1 mm (0.04 in)
Front wheel:		
Type		Cast wheel
Rim size		17 X MT3.50
Rim material		Aluminum
Rim runout limit	radial	1 mm (0.04 in)
	lateral	0.5 mm (0.02 in)
Rear wheel:		
Type		Cast wheel
Rim size		17 X MT5.00
Rim material		Aluminum
Rim runout limit	radial	1 mm (0.04 in)
	lateral	0.5 mm (0.02 in)
Drive chain:		
Type / manufacturer		50VA7/DAIDO
No. of links		108
Chain free play		20 ~ 30 mm (0.8 ~ 1.2 in)
Front disc brake:		
Type		Dual

MAINTENANCE SPECIFICATIONS

SPEC

Model	FZR600R
Disc outside diameter × thickness	298 × 4 mm (11.7 × 0.16 in)
Pad thickness inner	5 mm (0.20 in)
<Limit>	<0.5 mm (0.02 in)>
Pad thickness outer	5 mm (0.20 in)
<Limit>	<0.5 mm (0.02 in)>
	
Master cylinder inside diameter	15.87 mm (0.62 in)
Caliper cylinder inside diameter	33.96 mm (1.34 in)
Caliper cylinder inside diameter	30.23 mm (1.19 in)
Brake fluid type	DOT #4
Rear disc brake:	
Type	Single
Disc outside diameter × thickness	245 × 5 mm (9.6 × 0.20 in)
Pad thickness inner	5.5 mm (0.22 in)
<Limit>	<0.5 mm (0.02 in)>
Pad thickness outer	5.5 mm (0.22 in)
<Limit>	<0.5 mm (0.02 in)>
	
Master cylinder inside diameter	14 mm (0.55 in)
Caliper cylinder inside diameter	42.85 mm (1.69 in)
Brake fluid type	DOT #4
Brake lever & brake pedal:	
Brake pedal position	42 mm (1.7 in)
Clutch lever free play (at pivot)	2 ~ 3 mm (0.08 ~ 0.12 in)

Tightening torques

Part to be tightened	Thread size	Tightening torque			Remarks
		Nm	m·kg	ft·lb	
Upper bracket and inner tube	M8	30	3.0	22	
Upper bracket and steering shaft	M22	110	11.0	80	
Handle boss and inner tube	M6	13	1.3	9.4	
Handle boss and upper bracket	M6	13	1.3	9.4	
Ring nut (steering shaft)	M25	3	0.3	2.2	See NOTE
Inner tube and lower bracket	M10	38	3.8	27	
Union bolt (brake hose)	M10	26	2.6	19	
Master cylinder (front brake)	M6	10	1.0	7.2	
Handle boss and handlebar	M8	28	2.8	20	
Engine mounting:					
Mounting bolt (front)	M10	40	4.0	29	
Mounting bolt (rear upper)	M10	48	4.8	35	
Mounting bolt (rear lower)	M10	48	4.8	35	
Pinch bolt (front left)	M10	64	6.4	46	
Exhaust pipe bracket	M10	40	4.0	29	
Frame and side cover stay	M8	30	3.0	22	
Swingarm pivot shaft	M16	90	9.0	65	
Relay arm and frame	M10	48	4.8	35	
Relay arm and connecting rod	M10	48	4.8	35	
Connecting rod and swingarm	M10	48	4.8	35	
Rear shock absorber and relay arm	M10	40	4.0	29	
Rear shock absorber and bracket	M10	40	4.0	29	
Fuel pump and fuel tank	M5	3	0.3	2.2	
Fuel pump and fuel cock	M6	7	0.7	5.1	
Footrest bracket and frame	M8	30	3.0	22	
Rear footrest and frame	M8	30	3.0	22	
Rear master cylinder and footrest bracket	M8	23	2.3	17	
Rear brake reservoir tank	M6	5	0.5	3.6	
Union bolt (rear brake hose)	M10	26	2.6	19	
Sidestand bolt and nut	M10	39	3.9	28	
Sidestand bolt and frame	M10	46	4.6	33	
Front wheel axle	M14	59	5.9	43	
Rear wheel axle	M18	117	11.7	85	
Front brake caliper	M10	35	3.5	25	
Rear brake caliper	M10	35	3.5	25	
Brake disc and wheel	M8	20	2.0	14	
Driven sprocket and clutch hub	M10	60	6.0	43	
Tension bar	M8	30	3.0	22	
Caliper breed screw	M8	6	0.6	4.3	
Pinch bolt (front axle)	M8	40	4.0	29	

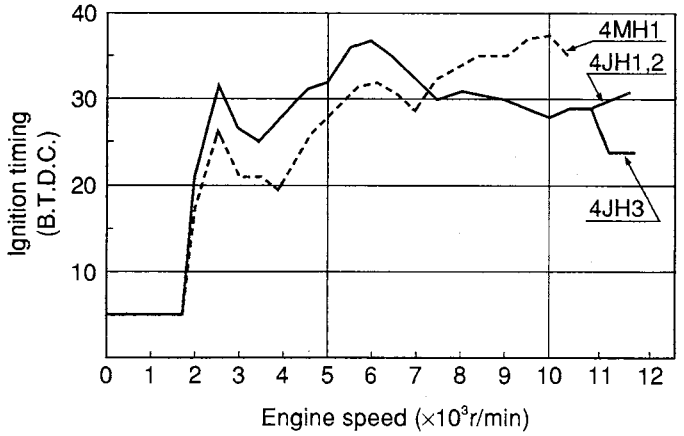
NOTE:

1.First, tighten the ring nut approximately 52 Nm (5.2 m • kg, 38 ft • lb) by using the torque wrench, then loosen the ring nut completely.

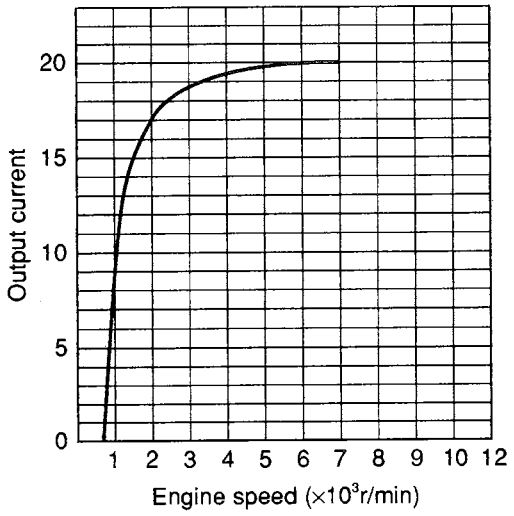
2.Retighten the ring nut to specification.

ELECTRICAL

Model	FZR600R
Voltage:	12 V
Ignition system:	
Ignition timing (B.T.D.C.)	5° at 1,300 r/min
Advancer type	Electrical type



T.C.I.:	
Pickup coil resistance / color	189 ~ 231 Ω at 20°C (68°F) / Yellow – Blue
T.C.I. unit model / manufacturer	J4T-045/MITSUBISHI
Ignition coil:	
Model / manufacturer	83R/YAMAHA
Minimum spark gap	6 mm (0.24 in)
Primary winding resistance	2.2 ~ 2.6 Ω at 20°C (68°F)
Secondary winding resistance	10.7 ~ 13.1 kΩ at 20°C (68°F)
Spark plug cap:	
Type	Resin type
Resistance	10 kΩ
Charging system:	
Type	A.C. magneto generator
Model / manufacturer	F4T-353/MITSUBISHI
Nominal output	12 V 21 A at 5,000 r/min

Model	FZR600R
	
Stator coil resistance / color	0.45 ~ 0.55 Ω at 20°C (68°F) / White – White
Voltage regulator: Type Model / manufacturer	 Semi-conductor, short-circuit type SH650A/SHINDENGEN
Rectifier: Model / manufacturer Capacity Withstand voltage	 SH650A/SHINDENGEN 25 A 240 V
Battery: Specific gravity	 1.320
Electric starter system: Type Starter motor: Model / manufacturer Output Brush overall length <Limit> Commutator diameter <Wear limit> Mica undercut Starter switch: Model / manufacturer Amperage rating Coil winding resistance	 Constant mesh type SM-13/MITSUBA 0.7 kW 12.5 mm (0.49 in) <4 mm (0.16 in)> 28 mm (1.10 in) <27 mm (1.06 in)> 0.7 mm (0.03 in) MS5F/JIDECO 100 A 4.0 ~ 4.8 Ω at 20°C (68°F)
Horn: Type Quantity Model / manufacturer Maximum amperage	 Plane type 1 YF-12/NIKKO 2.5 A
Flasher relay: Type	 Full transistor type

Model	FZR600R
Model / manufacturer	FE246BH/NIPPONDENSO
Self cancelling device	No
Flasher frequency	60 ~ 120 cycle/min
Wattage	21 W × 2 + 3.4 W
Starting circuit cut off relay:	
Model / manufacturer	G8R-30Y-B/OMRON
Coil winding resistance	203 ~ 248 Ω at 20°C (68°F)
Fuel pump relay:	
Model / manufacturer	G8R-30Y-B/OMRON
Coil winding resistance	225 Ω ± 10% at 20°C (68°F)
Thermostatic switch:	
Model / manufacturer	2EL/NIHON THERMOSTAT
Thermo unit:	
Model / manufacturer	11H/NIPPON SEIKI
Circuit breaker:	
Type	Fuse
Amperage for individual circuit	
MAIN	30 A × 1
HEAD	20 A × 1
SIGNAL	15 A × 1
IGNITION	7.5 A × 1
FAN	7.5 A × 1
Reserve	30 A × 1
Reserve	20 A × 1
Reserve	7.5 A × 1

FZR600R EXCLUSIVE SPECIFICATION

The following specifications are exclusive for the below listed countries.

For specifications other than below, please refer to the General and maintenance specifications.

For England

Bulb wattage × quantity:	
Headlight	12V 35/35W × 2

For Spain

Model code:	4JH2
Engine starting number:	4JH-016101
Vehicle identification number:	JYA4JHS0✳RA016101
Dimensions:	
Overall length	2,060 mm (81.1 in)

For Italy

Dimensions:	
Overall length	2,060 mm (81.1 in)
Bulb wattage × quantity:	
Headlight	12V 35/35W × 2

For Greece, France, Portugal

Dimensions:	
Overall length	2,060 mm (81.1 in)

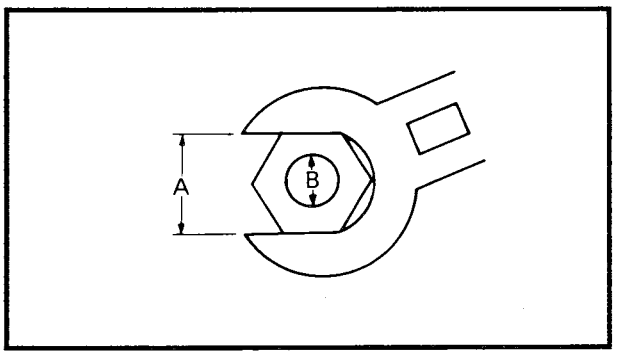
For Germany

Model code:		4MH1, 4JH3
Engine starting number:		4MH-000101, 4JH-021101
Frame starting number:		4MH-000101, 4JH-021101
Tire pressure (cold tire):		
Maximum load - except motorcycle		209 kg (461 lb)
Carburetor: (4MH1)		
I.D. mark		4MH1 00
Main jet	(M.J)	#110
Jet needle	(J.N)	N1YB
Pilot screw	(P.S)	1-7/8 turns out
T.C.I.:		
T.C.I. unit model/manufacturer		J4T-047 / MITSUBISHI (4MH1) J4T-046 / MITSUBISHI (4JH3)

GENERAL TORQUE SPECIFICATIONS

This chart specifies torque for standard fasteners with standard I.S.O. pitch threads. Torque specifications for special components or assemblies are included in the applicable sections of this book. To avoid warpage, tighten multi-fastener assemblies in a crisscross fashion, in progressive stages, until full torque is reached. Unless otherwise specified, torque specifications call for clean, dry threads. Components should be at room temperature.

A (Nut)	B (Bolt)	General torque specifications		
		Nm	m•kg	ft•lb
10 mm	6 mm	6	0.6	4.3
12 mm	8 mm	15	1.5	11
14 mm	10 mm	30	3.0	22
17 mm	12 mm	55	5.5	40
19 mm	14 mm	85	8.5	61
22 mm	16 mm	130	13.0	94



A: Distance across flats
B: Outside thread diameter

LUBRICATION POINT AND GRADE OF LUBRICANT

ENGINE

Lubrication Point	Symbol
Oil seal lips	LS
O-ring	LS
Bearing	E
Piston surface	E
Piston pin	E
Crankshaft pin	E
Crankshaft journal	E
Connecting rod bolt/nut	M
Camshaft cam lobe	M
Valve stem (IN, EX)	M
Valve stem end (IN, EX)	E
Cylinder head bolt/nut	E
Valve lifter	E
Camshaft cap bolt	E
Water pump impeller shaft	LS
Oil pump rotor (inner/outer), housing	E
Oil strainer assembly	LS
Idle gear inner surfaces	E
Transmission gear(wheel/pinion)	M
Axle (main/drive)	M
Push rod (bearing/washer) and ball	LS
Shift cam	E
Shift fork/guide bar	E
Shift shaft assembly	E
Shift pedal	LS
Push lever assembly	LS
Starter idle gear shaft	M

LUBRICATION POINT AND GRADE OF LUBRICANT

SPEC

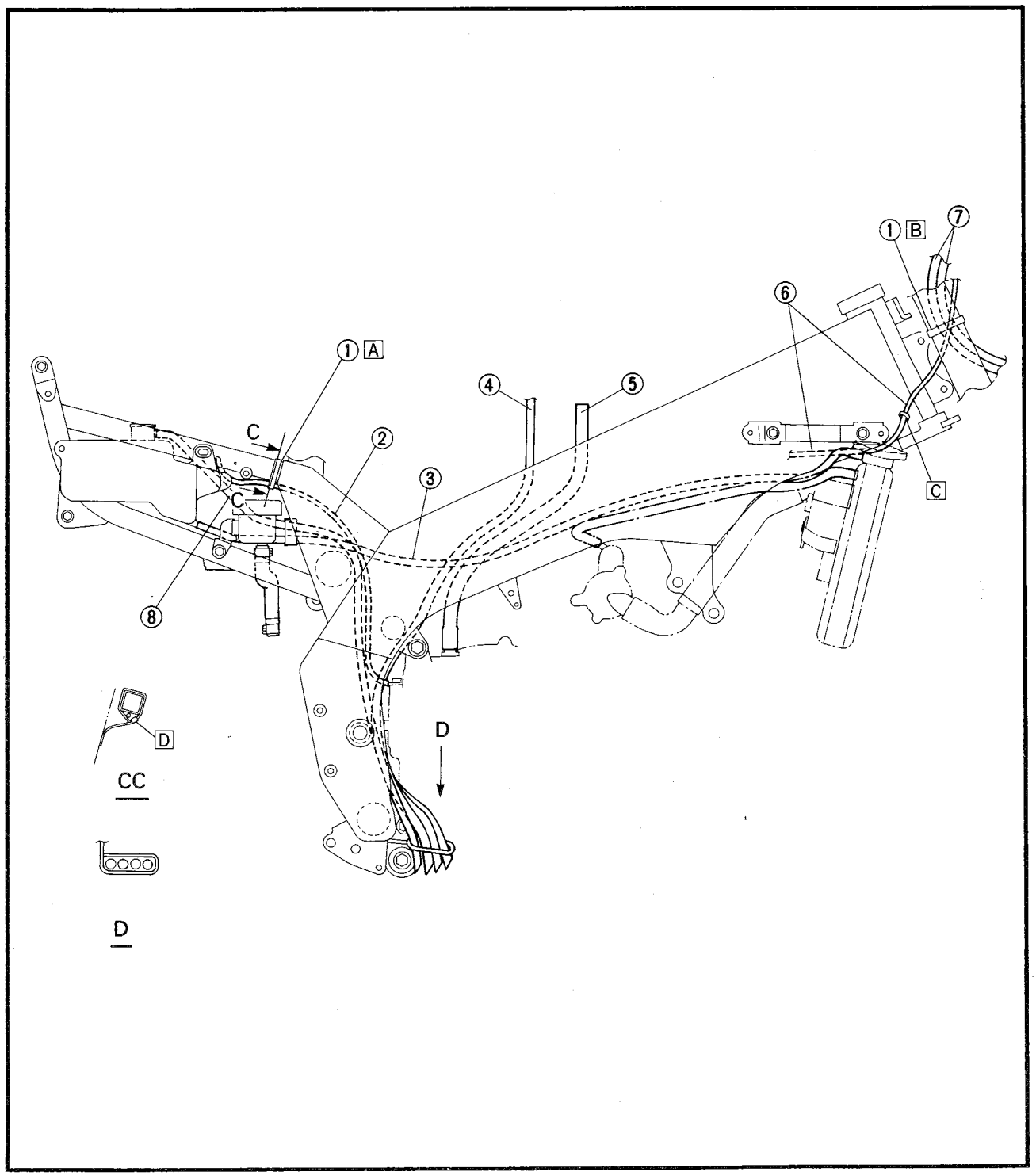
CHASSIS

Lubrication Point	Symbol
Steering bearing and bearing race (upper/lower)	LS
Front wheel oil seal (right/left)	LS
Rear wheel oil seal	LS
Clutch hub oil seal	LS
Clutch hub fitting area	LS
Rear brake pedal shaft	LS
Change pedal	LS
Side stand sliding surface	LS
Tube guide (throttle grip) inner surface	LS
Brake lever bolt, sliding surface	LS
Clutch lever bolt, sliding surface	LS
Rear shock absorber (upper/lower)	M
Swingarm pivot collar	M
Pivot shaft	M
Connecting rod bearing (on the swingarm)	M
Thrust cover (inner)	M
Relay arm bearing (inner)	M
Relay arm oil seal	M
Rear footrest pivot	LS

CABLE ROUTING

① Clamp
② Ground lead
③ Reservoir tank hose
④ Fuel tank breather hose
⑤ Crankcase breather hose
⑥ Handlebar switch lead (right)
⑦ Front brake hose
⑧ Reservoir tank breather hose

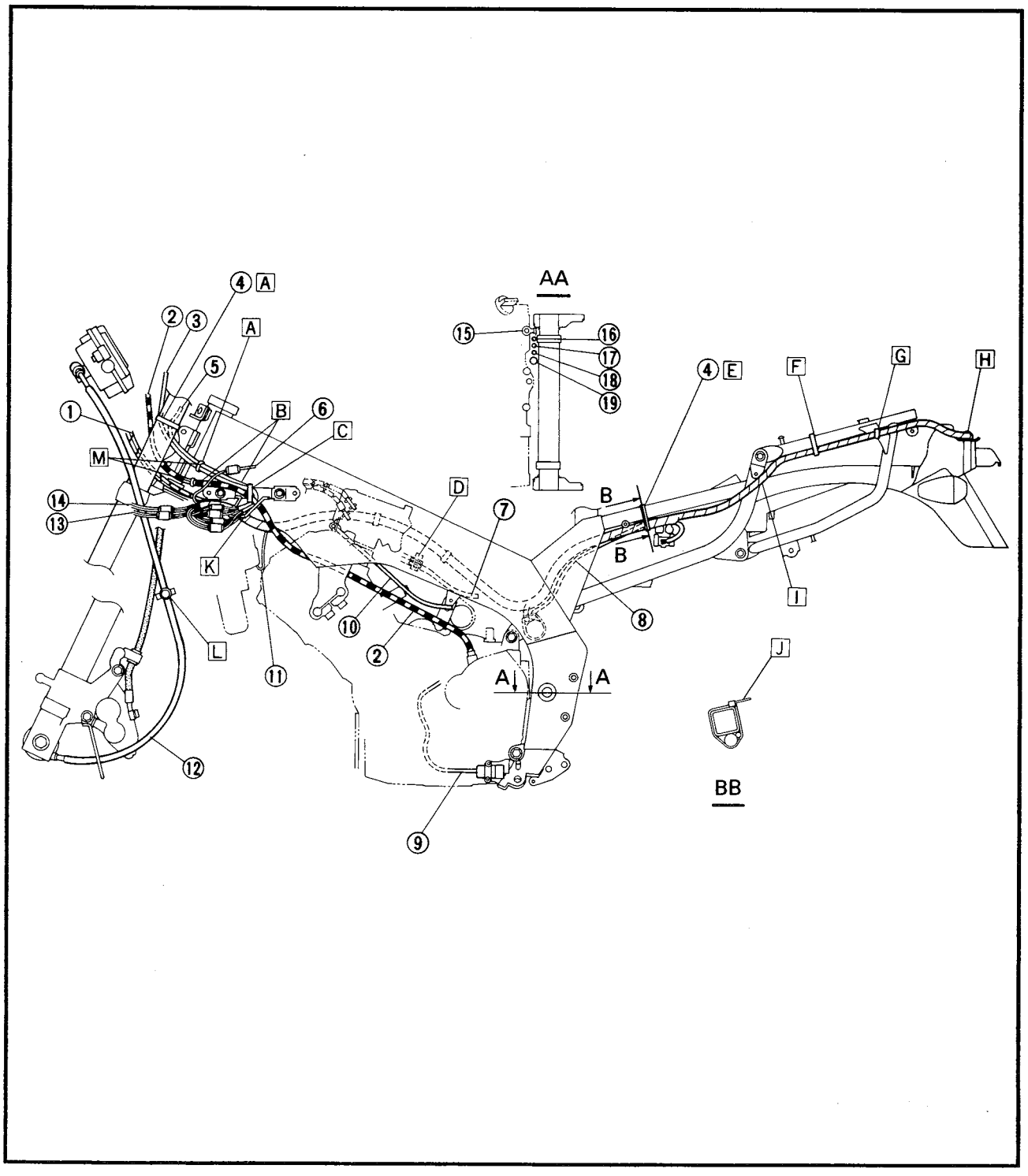
[A] Clamp the ground lead more than 30 mm in front of the side cover installation screw.
[B] Clamp the handlebar switch lead (right) and front brake hoses.
[C] Insert the clamp to the frame.
[D] Place the ends of the clamp on the side with the wire along the bottom of the frame.



CABLE ROUTING

SPEC

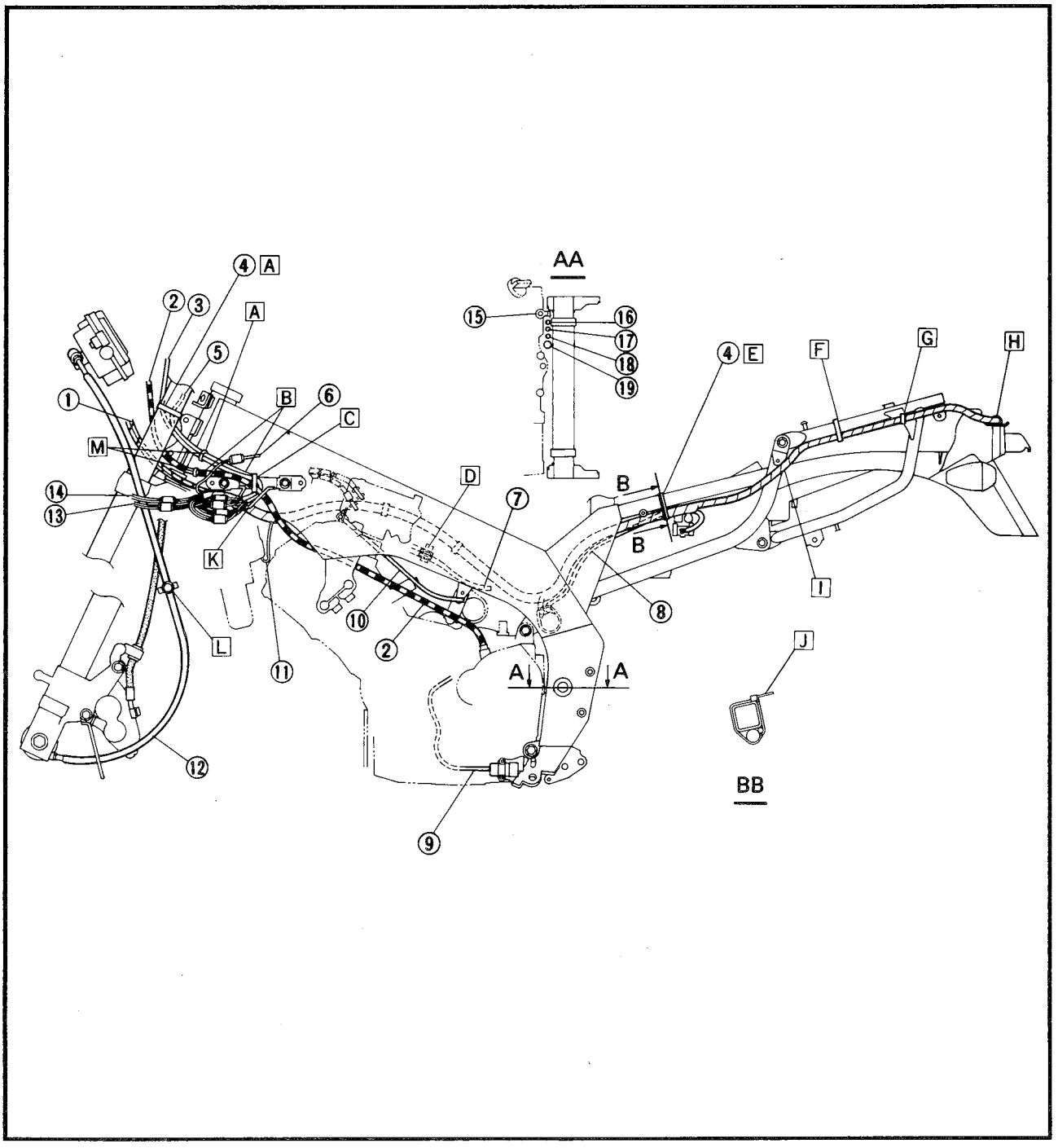
① Throttle cable
② Clutch cable
③ Handlebar switch lead (left)
④ Clamp
⑤ Main switch lead
⑥ Fuel reserve switch lead
⑦ Vacuum hose (#4)
⑧ Starter motor lead
⑨ Sidestand switch lead
⑩ Starter cable
⑪ Fan motor lead
⑫ Speedometer cable
⑬ Headlight lead
⑭ Meter light lead
⑮ Ground lead
⑯ Reservoir tank breather hose
⑰ Roll over hose
⑱ Fuel tank breather hose
⑲ Air filter case breather hose



CABLE ROUTING

SPEC

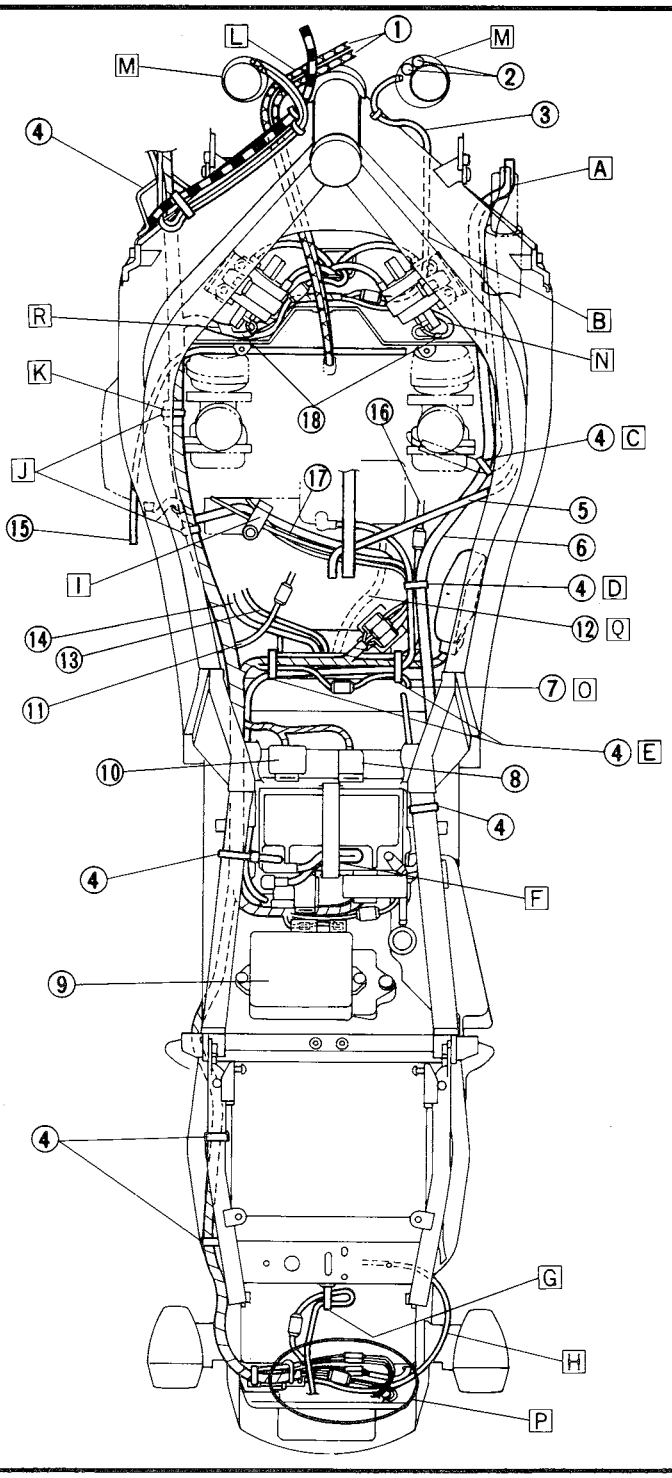
[A] Clamp the main switch lead and handlebar switch lead (left).
[B] Pass the clutch cable along the outside of the bracket and the main switch lead along the inside of the bracket.
[C] Clamp the main switch lead, handlebar switch lead (left) and clutch cable to the bracket.
[D] Clamp the vacuum hose plug onto the inside of the frame and plug hoses #1 ~ #3.
[E] Clamp the main harness and starter motor lead behind the side cover installation screw.
[F] Place the end of the clamp downward.
[G] Insert the clamp into the hole in the rear flame.
[H] Insert the clamp into the seat lock stay.
[I] Pass the main harness to the inside of the rear fender from the outside of the frame.
[J] Place the ends of the clamp on the battery box with the wire along the bottom of the frame.
[K] Pass the main harness, main switch lead, handlebar switch lead (left) and clutch cable through the guide.
[L] Install the clamp to the center cowling.
[M] Insert the clamp to the frame.



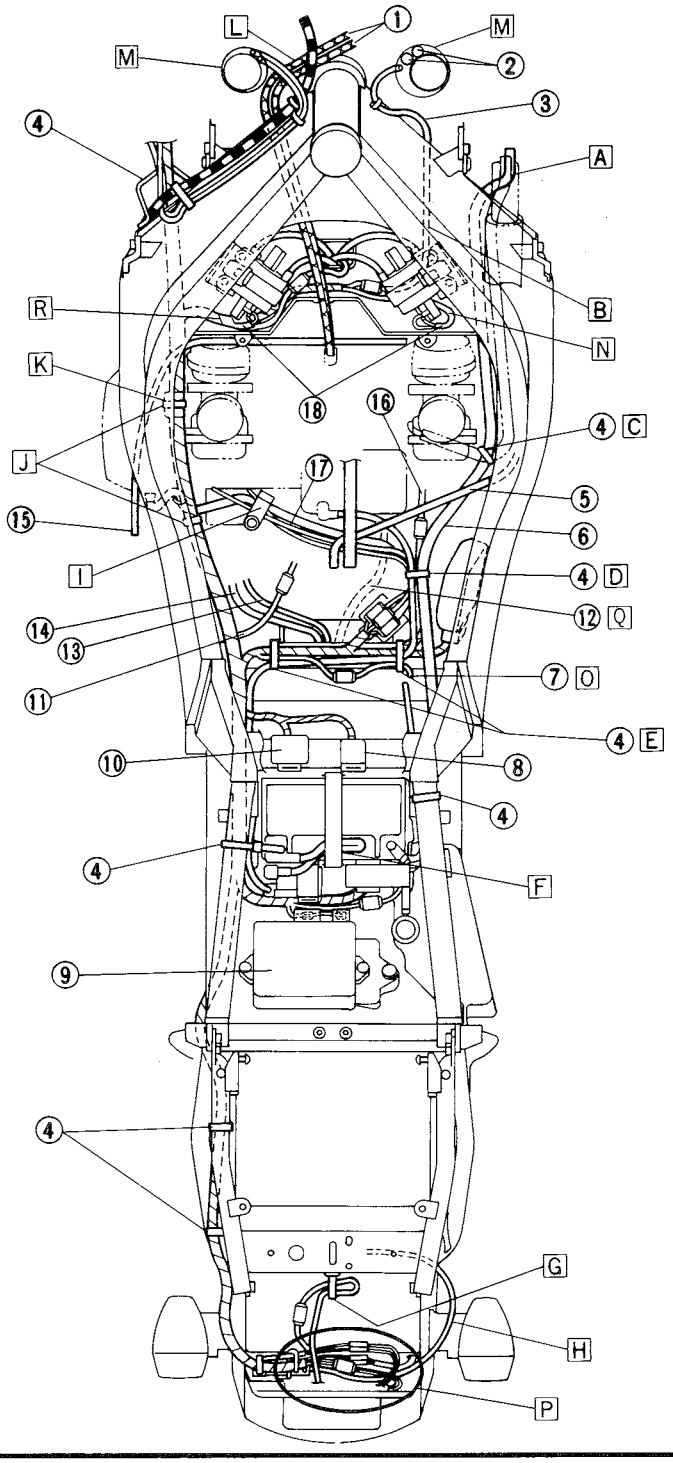
CABLE ROUTING

SPEC

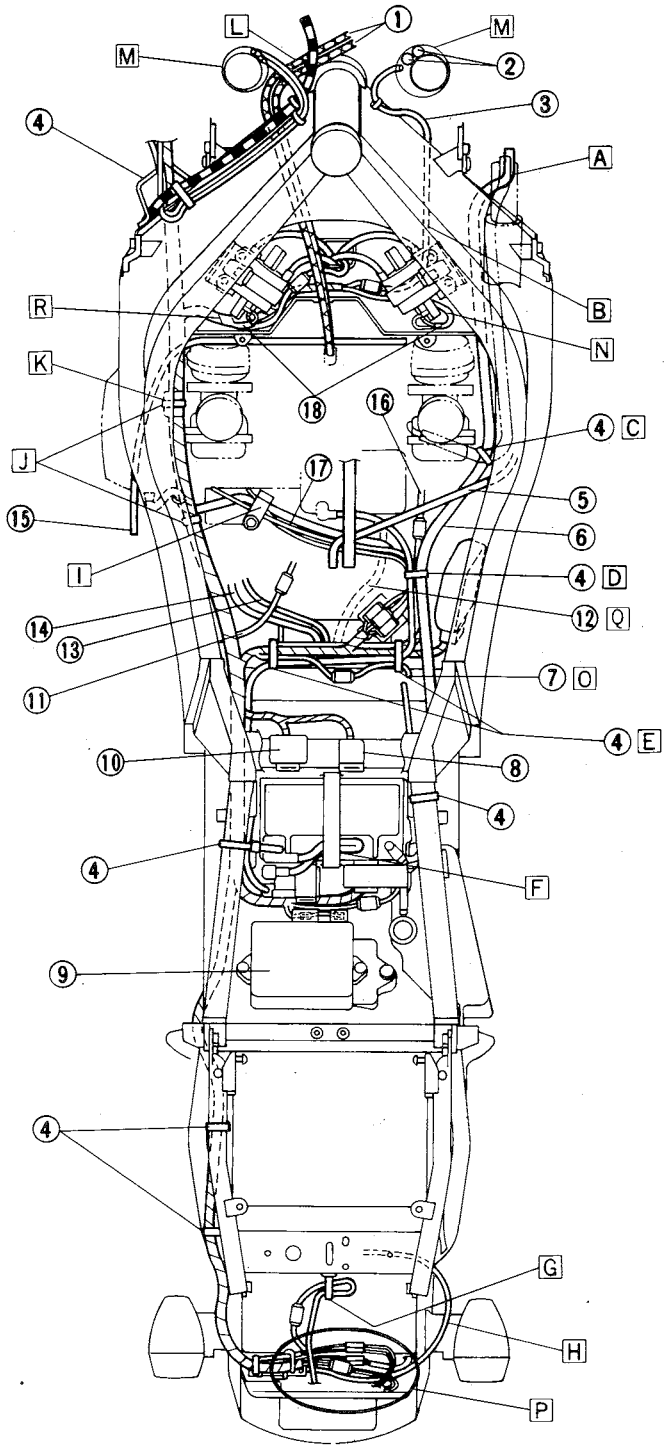
① Throttle cable
② Front brake hose
③ Handlebar switch lead (right)
④ Clamp
⑤ Vacuum hose (#4)
⑥ Reservoir tank hose
⑦ Rear brake switch lead
⑧ Flasher relay
⑨ Ignitor
⑩ Starting circuit cut-off relay
⑪ Fuel pump lead
⑫ Roll over hose (for D)
⑬ Fuel tank breather hose
⑭ Air filter case breather hose
⑮ Starter cable
⑯ Thermo unit lead
⑰ Sidestand switch lead
⑱ Ignition coil lead



[A] Pass the reservoir tank hose through the innermost part of the frame.
[B] Pass the handlebar switch lead (right) between the radiator cover and frame and place it outside only after it is connected.
[C] Clamp the reservoir tank hose and air breather hose.
[D] Clamp the reservoir tank hose and all leads.
[E] Clamp the main harness, rear brake switch lead and starter motor lead to the cross tube.
[F] Hold down the positive lead with the battery band.
[G] Insert the clamp to the fender stay.
[H] Insert the seat lock cable from the rear fender from the outside.
[I] Clamp the sidestand switch lead, AC generator lead and neutral switch lead.



[J] Insert the clamp to the inside of the frame.
[K] Clamp the main harness at the white tape position.
[L] Pass the throttle cable below the lead and clutch cable and above the cowling stay.
[M] Cut the spare band.
[N] The ignition coil lead passes below and outside the ignition coil.
[O] The rear brake switch lead passes in front of the negative lead.
[P] Insert the flasher lead and license lead between the rear fender and seat lock.
[Q] The roll over hose passes to the right and below the vacuum hose and fuel hose (for D).
[R] The wireharness passes below the ignition coil lead.



PERIODIC INSPECTION AND ADJUSTMENT

INTRODUCTION

This chapter includes all information necessary to perform recommended inspections and adjustments. These preventive maintenance procedures, if followed, will ensure more reliable vehicle operation and a longer service life. The need for costly overhaul work will be greatly reduced. This information applies to vehicles already in service as well as new vehicles that are being prepared for sale. All service technicians should be familiar with this entire chapter.

PERIODIC MAINTENANCE/LUBRICATION INTERVALS

Unit: Km (mi)

ITEM	REMARKS	BREAK-IN 1,000 (600)	EVERY	
			6,000 (4,000) or 6 months	12,000 (8,000) or 12 months
Valve(s)*	Check valve clearance. Adjust if necessary.	EVERY 24,000 (16,000)		
Spark plug(s)	Check condition. Clean or replace if necessary.	○	○	○
Air filter	Clean. Replace if necessary.		○	○
Carburetor*	Check idle speed/synchronization/starter operation. Adjust if necessary.	○	○	○
Fuel line*	Check fuel hose for cracks or damage. Replace if necessary.		○	○
Fuel filter*	Check condition. Replace if necessary.			○
Engine oil	Replace (warm engine before draining).	○	○	○
Engine oil filter*	Replace.	○		○
Brake*	Check operation/fluid leakage (see NOTE). Correct if necessary.		○	○
Clutch	Check operation. Adjust if necessary.		○	○
Rear arm pivot*	Check rear arm assembly for looseness. Correct if necessary. Moderately repack every 24,000 (16,000) or 24 months.***			○
Rear suspension link pivots*	Check operation. Apply grease lightly every 24,000 (16,000) or 24 months. ***			○
Wheels*	Check balance/damage/runout. Repair if necessary.		○	○
Wheel bearings*	Check bearing assembly for looseness/damage. Replace if damaged.		○	○
Steering bearings*	Check bearing assembly for looseness. Correct if necessary. Moderately repack every 24,000 (16,000) or 24 months.**	○		○
Front forks*	Check operation/oil leakage. Repair if necessary.		○	○
Rear shock absorber*	Check operation/oil leakage. Repair if necessary.		○	○
Cooling system	Check coolant leakage. Repair if necessary. Replace coolant every 24,000 (16,000) or 24 months.		○	○
Drive chain	Check chain slack/alignment. Adjust if necessary. Clean and lube.	EVERY 500 (300)		
Fittings/Fasteners*	Check all chassis fittings and fasteners. Correct if necessary.	○	○	○
Sidestand*	Check operation. Repair if necessary.	○	○	○
Sidestand switch*	Check operation. Clean or replace if necessary.	○	○	○

PERIODIC MAINTENANCE/LUBRICATION INTERVALS

INSP ADJ 

*: It is recommended that these items be serviced by a Yamaha dealer.
**: Medium weight wheel bearing grease.
***: Molybdenum disulfide grease.

NOTE:

Brake fluid replacement:

1. When disassembling the master cylinder or caliper cylinder, replace the brake fluid. Normally check the brake fluid level and add the fluid as required.
2. On the inner parts of the master cylinder and caliper cylinder, replace the oil seals every two years.
3. Replace the brake hoses every four years, or if cracked or damaged.

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