

SERVICE INFORMATION







This Service in the new has been prepared to introduce new service and data for the ZR 1000(F) '94. For complete service information procedures it is necessary to use this publication together with the following microfiche service manual.



SERVICE INFORMATION

1st Edition, December 1993 All rights reserved. Any reprinting or unauthorized use without the written permission of Yamaha Motor Co., Ltd is expressly prohibited. Printed in Janad

FOREWORD

This Service Information has been prepared to introduce new service and data for the FZR1000(F) '94. For complete service information procedures it is necessary to use this publication together with the following microfiche service manual.

FZR1000(W ~ F) '89 ~ '94 SERVICE MANUAL: 3GM-ME4 FZR1000 '89(W) SERVICE INFORMATION: 3GM-SE1 FZR1000 '90(A) SERVICE INFORMATION: 3GM-SE2 FZR1000 '91(B) SERVICE INFORMATION: 3GM-SE3



FZR1000(F) '94 SERVICE INFORMATION ©1993 by Yamaha Motor Co. Ltd. 1st Edition, December 1993 All rights reserved. Any reprinting or unauthorized use without the written permission of Yamaha Motor Co., Ltd. is expressly prohibited. 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.

 \triangle

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

A 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.

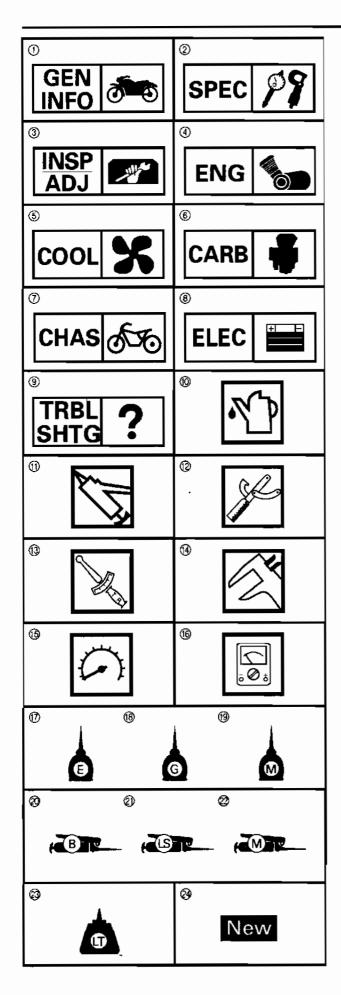
In this revised format, the condition of a faulty component will precede an arrow symbol and the course of action required will follow the symbol, e.g.,

Bearings

 $\label{eq:pitting} \ensuremath{\text{Pitting}}\xspace/\ensuremath{\text{Damage}}\xspace \to \ensuremath{\text{Replace}}\xspace.$

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.

- () General information
- ② Specifications
- ③ Periodic inspection and adjustment
- ④ Engine
- 6 Cooling system
- ⑥ Carburetion
- ⑦ Chassis
- Electrical
- ③ Troubleshooting

Illustrated symbols (1) to (16) are used to identify the specifications appearing in the text.

- 🔞 Filling fluid
- ① Lubricant
- ③ Special tool
- () Tightening
- Wear limit, clearance
- B Engine speed
- 16 Ω,V,A

Illustrated symbols 0 to 2 in the exploded diagram indicate grade of lubricant and location of lubrication point.

- ⑦ Apply engine oil
- (B) Apply gear oil
- Apply molybdenum disulfide oil
- ② Apply wheel bearing grease
- ② Apply lightweight lithium-soap base grease
- Ø Apply molybdenum disulfide grease
- Apply locking agent (LOCTITE[®])
- Ose new one

CONTENTS

GENERAL INFORMATION	1
MOTORCYCLE IDENTIFICATION	1
VEHICLE IDENTIFICATION NUMBER (For AUS, NZ and E)	1
FRAME SERIAL NUMBER (Except for AUS, NZ and E)	
ENGINE SERIAL NUMBER	2
SPECIFICATIONS	2
GENERAL SPECIFICATIONS	
MAINTENANCE SPECIFICATIONS	
ENGINE	
CHASSIS	
ELECTRICAL	
LUBRICATION POINT AND GRADE OF LUBRICANT	
ENGINE	
CABLE ROUTING	13
EXPLODED DIAGRAM	15
COWLINGS	15
FRONT AND REAR BRAKE	17
FRONT FORK	18

MOTORCYCLE IDENTIFICATION



GENERAL INFORMATION MOTORCYCLE IDENTIFICATION VEHICLE IDENTIFICATION NUMBER

GEN

INFO

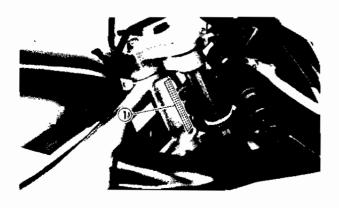
(For AUS, NZ and E)

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

Starting serial number: JYA3LJT0 * RA007101 (AUS)(NZ) JYA3GMS0 * RA055101 (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.



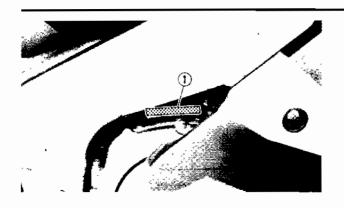
FRAME SERIAL NUMBER (Except for AUS, NZ and E)

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

Starting serial number: 3GM-049101 (B)(NL)(N)(PRT)(GR)(DK) 3LE-038101 (D)(S)(SF) 3LF-034101 (F) 3LG-019101 (GB) 3LH-019101 (CH)(A)

NOTE: .

The first three digits of these numbers are for model identifications; the remaining digits are the unit production number. **MOTORCYCLE IDENTIFICATION**



ENGINE SERIAL NUMBER

The engine serial number (1) is stamped into crankcase.

Starting serial number: 3LJ-007101 (AUS)(NZ) 3GM-055101 (E) 3GM-049101 (B)(NL)(N)(PRT)(GR)(DK) 3LE-038101 (D)(S)(SF) 3LF-034101 (F) 3LG-019101 (GB) 3LH-019101 (CH)(A)

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.

GENERAL SPECIFICATIONS

SPEC P

SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	FZR1000				
Model code number:	3GME (B)(NL)(N)(PRT)(GR)(DK)				
	3GMF (E)				
	3LE6 (D)(S)(SF)				
	3LF6 (F)				
	3LG6 (GB)				
	3LH6 (CH)(A)				
	3LJ6 (AUS)(NZ)				
Engine starting number:	3GM-049101 (B)(NL)(N)(PRT)(GR)(DK)				
	3GM-055101 (E)				
	3LE-038101 (D)(S)(SF)				
	3LF-034101 (F)				
	3LG-019101 (GB)				
	3LH-019101 (CH)(A)				
	3LJ-007101 (AUS)(NZ)				
Frame starting number:	3GM-049101 (B)(NL)(N)(PRT)(GR)(DK)				
	3LE-038101 (D)(S)(SF)				
	3LF-034101 (F)				
	3LG-019101 (GB)				
	3LH-019101 (AUS)(NZ)				
Vehicle identification number:	JYA3GMS0 * RA055101 (E)				
	JYA3LJT0 * RA007101 (AUS)(NZ)				
Dimensions:					
Overall length	2,205 mm (86.8 in)				
Overall width	775 mm (30.5 in)				
Overall height	1,165 mm (45.9 in)				
Seat height	780 mm (30.7 in)				
Wheel base	1,470 mm (57.9 in)				
Minimum ground clearance	135 mm (5.3 in)				
Engine:					
Engine type	Liquid cooled 4-stroke, gasoline, DOHC				
Cylinder arrangement	4-cylinder parallel				
Displacement	1,002 cm ³				
Bore $ imes$ Stroke	75.5 × 56.0 mm (2.972 × 2.205 in)				
Compression ratio	12:1				
	10.8:1 (F)				
Compression pressure (STD)	1,400 kPa (14 kg/cm², 199 psi)				
	1,350 kPa (13.5 kg/cm ² , 192 psi) (F)				
Starting system	Electric starter				
Radiator capacity (including all routes):	2.4 L (2.11 lmp qt, 2.54 US qt)				
Spark plug:					
Туре	DR8EA-L / X24ESR-U				
Manufacturer	NGK / NIPPON-DENSO				
Spark plug gap	0.6 ~ 0.7 mm (0.024 ~ 0.028 in)				

- 4 -

GENERAL SPECIFICATIONS SPEC

Model		FZR1000
Chassis:		
Frame type		Diamond
Caster angle		26.4°
Trail		108 mm (4.25 in)
Tire:		
Туре		Tubeless
Size	front	130/60 ZR 17
		130/60 VR 17-V280 (E)(DK)
	rear	170/60 ZR 17
		170/60 VR 17-V280 (E)(DK)
Manufacturer / Type	front	MICHELIN / A59X
		BRIDGESTORNE / CY17
		PIRELLE / MP7S
		DUNLOP / K510F (E)(DK)
	rear	MICHELIN / M59X
		BRIDGESTORNE / CY20
		PIRELLE / MP7S
		DUNLOP / K510 (E)(DK)
Maximum load:		174 kg (384 lb)
Bulb wattage × quantity:		
Headlight		12 V 60 W / 55 W + 60 W
		12 V 35 W / 35 W × 2 (GB)(AUS)(NZ)
Auxiliary light		12 V 5 W \times 1 (for Europe)
Tail/brake light		12 V 5 W / 21 W
Flasher light		12 V 21 W × 4
Licence light		12 V 5 W×2
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

MAINTENANCE SPECIFICATIONS

- 5 -



MAINTENANCE SPECIFICATIONS

ENGINE

Model	FZR 1000
Camshaft:	
Drive method	Chain drive (Center)
Cam cap inside diameter (I1, I4, E1, E4)	24.470 ~ 24.491 mm (0.9634 ~ 0.9642 in)
Cam cap inside diameter (I2, I3, E2, E3)	24.500 ~ 24.521 mm (0.9646 ~ 0.9654 in)
Camshaft outside diameter	24.437 ~ 24.450 mm (0.9621 ~ 0.9626 in)
Shaft-to-cap clearance (I1, I4, E1, E4)	0.020 ~ 0.054 mm (0.0008 ~ 0.0021 in)
Shaft-to-cap clearance (I2, I3, E2, E3)	0.050 ~ 0.084 mm (0.0020 ~ 0.0033 in)
Cam dimensions	
Intake "A"	32.55 ~ 32.65 mm (1.281 ~ 1.285 in)
1.1	30.20 ~ 30.30 mm (1.189 ~ 1.193 in) (F)
<limit></limit>	
"B"	<30.10 mm (1.185 in)> (F)
ھ <limit></limit>	24.95 ~ 25.05 mm (0.982 ~ 0.986 in) <24.85 mm (0.978 in)>
*C"	7.5 ~ 7.7 mm (0.295 ~ 0.303 in)
C	5.15 ~ 5.35 mm (0.203 ~ 0.211 in) (F)
Exhaust "A"	32.95 ~ 33.05 mm (1.297 ~ 1.301 in)
	30.20 ~ 30.30 mm (1.189 ~ 1,193 in) (F)
<limit></limit>	
	<30.10 mm (1.185 in)> (F)
"B"	24.95 ~ 25.05 mm (0.982 ~ 0.986 in)
- <limit></limit>	· ·
"C"	7.75 ~ 7.95 mm (0.305 ~ 0.313 in)
	5.15 ~ 5.35 mm (0.203 ~ 0.211 in) (F)

-

MAINTENANCE SPECIFICATIONS

- 6 -

SPEC

CHASSIS

Model		FZR1000							
Front suspension:									
Front fork travel		120 mm (4.72 in)							
Fork spring free length		340 mm (13.4 in)							
<limit></limit>		<335 mm (13.2 in)>							
Spring rate	(K1)	8.0 N/mm (0.80 kg/mm, 44.8 lb/in)							
Stroke	(K1)	$0 \sim 120 \text{ mm} (0.00 \sim 4.72 \text{ in})$							
Optional spring		No							
Oil capacity		470 cm ³ (16.5 lmp oz, 15.9 US oz)							
Oil level		78 mm (3.07 in)							
Oil grade		Suspension oil "01" or equivalent							
Adjustment									
STD		HARD STD SOFT							
		Adjusting 1 2 3 4 5							
Rear suspension:									
Shock absorber travel		70 mm (2.76 in)							
Spring free length		218 mm (8.58 in)							
Fitting length		200 mm (7.87 in)							
Spring rate	(K1)	70 N/mm (7.0 kg/mm, 392 lb/in)							
Stroke	(K1)	0 ~ 70 mm (0.00 ~ 2.76 in)							
Optional spring	-	No							
Enclosed gas / Air pressure	(STD)	1,200 kPa (12 kg/cm ² , 171 psi)							
Front disc brake:									
Туре		Dual							
Disc outside diameter × thickness		320 × 4 mm (12.6 × 0.16 in)							
Pad thickness	inner	5 mm (0.20 in)							
<limit></limit>		<0.5 mm (0.20 in)>							
Pad thickness	outer	5 mm (0.20 in)							
<limit></limit>		<0.5 mm (0.20 in)>							
	*								
Restored Protocology Protocol									
Master cylinder inside diameter		15.87 mm (0.62 in)							
Caliper cylinder inside diameter		26.9 mm (1.06 in) + 26.9 mm (1.06 in) + 25.4 mm (1.00 in)							
Brake fluid type		DOT #4							
Rear disc brake:									
Туре		ingle							
Disc outside diameter × thickness	6	$267 \times 5 \text{ mm} (10.51 \times 0.20 \text{ in})$							
Pad thickness	inner	5.5 mm (0.22 in)							
<limit></limit>	_	<0.5 mm (0.02 in)>							
Pad thickness	outer	5.5 mm (0.22 in)							
<limit></limit>		<0.5 mm (0.02 in)>							

MAINTENANCE SPECIFICATIONS SPEC

Model	FZR1000
Master cylinder inside diameter	14 mm (0.55 in)
Caliper cylinder inside diameter	42.85 mm (1.69 in)
Brake fluid type	DOT #4
Clutch:	
Master cylinder inside diameter	15.87 mm (0.62 in)
Release cylinder inside diameter	38.1 mm (1.50 in)
Brake fluid type	DOT #4

MAINTENANCE SPECIFICATIONS SPEC

Tightening torques

	Thread	Tighte	ening t	orque	D tu
Part to be tightened	size	Nm	m∙kg	ft lb	Remarks
Front axle	M18	150	15.0	110	
Front axle pinch	M8	20	2.0	14	
Front fender	M6	6	0.6	4.3	
Under bracket and outer tube	M8	23	2.3	17	
Handle crown and outer tube	M8	26	2.6	19	
Handle crown and steering stem	M22	110	11.0	80	
Lower ring nut (steering shaft)	M22	-	_	-	Refer to "NOTE"
Brake caliper (front/rear)	M10	35	3.5	25	
Brake disc and wheel (front)	M8	20	2.0	14	-0
Master cylinder and holder (front brake)	M6	13	1.3	9.4	
Master cylinder cap (front brake)	M5	2	0.2	1.4	
Bleed screw (brake caliper/clutch release cylinder)	M8	6	0.6	4.3	
Brake (clutch) hose	M10	26	2.6	19	
Handlebar and handle boss	M8	28	2.8	20	
Handlebar boss and handle crown	M8	28	2.8	20	
Grip end (handlebar)	M16	30	3.0	22	
Engine mounting:					
Pinch bolt (cylinder head side)	M8	22	2.2	16	
Pinch bolt (cylinder side)	M8	22	2.2	16	
Pinch bolt (rear)	M8	15	1.5	11	
Mounting bolt (cylinder head)	M10	40	4.0	29	
Mounting bolt (cylinder)	M10	40	4.0	29	
Mounting bolt (rear – upper)	M10	55	5.5	40	
Mounting bolt (rear – lower)	M10	55	5.5	40	
Footrest bracket and frame (front)	M8	28	2.8	20	
Footrest and footrest bracket (front)	M10	55	5.5	40	
Pivot axle and locknut	M18	130	13.0	94	
Relay arm and frame	M10	48	4.8	35	
Arm and swingarm	M12	74	7.4	53	
Arm and relay arm	M12	74	7.4	53	
Rear shock absorber and frame	M10	40	4.0	29	
Rear shock absorber and relay arm	M10	40	4.0	29	
Footrest bracket and frame (rear)	M8	28	2.8	20	
Master cylinder and frame (rear)	M8	23	2.3	17	
Rear frame and frame	M10	55	5.5	40	-6
Compression bar (front and rear)	M8	60	6.0	43	
Brake disc and clutch hub	M8	20	2.0	14	
Sprocket and hub (rear)	M10	60	6.0	43	
Rear axle and nut	M18	150	15.0	110	
Side stand bracket and frame	M8	28	2.8	20	
Side stand pivot bolt	M10	46	4.6	33	

MAINTENANCE SPECIFICATIONS



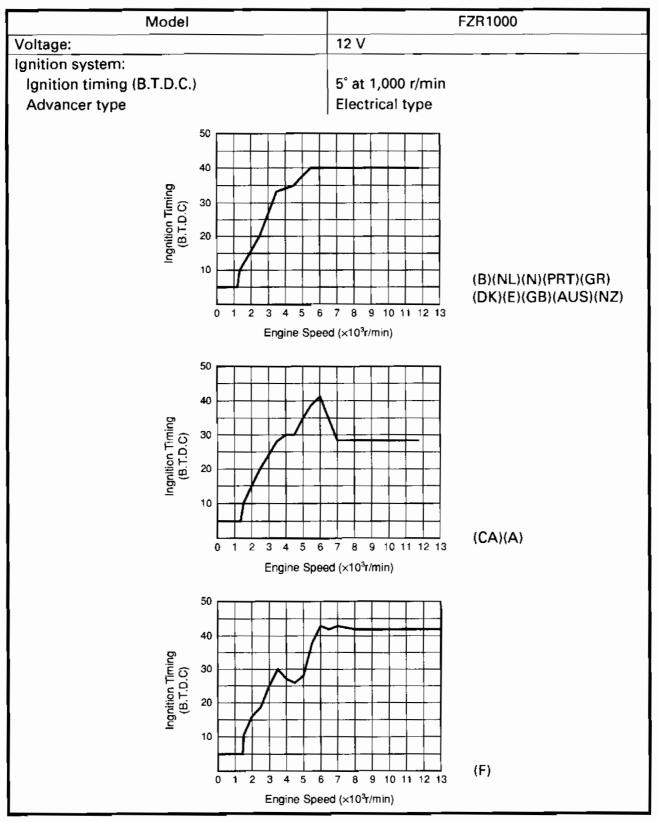
Part to be tightened	Thread	Tightening torque			Pomorka
	size	Nm	m∙kg	ft∙lb	Remarks
Side stand pivot nut	M10	39	3.9	28	
Fuel cock and fuel tank	M6	7	0.7	5.1	
Fuel sender and fuel tank	M6	7	0.7	5.1	

NOTE: .

1. Tighten the lower ring nut 52 Nm (5.2 m \cdot kg, 37 ft \cdot lb) by using the torque wrench. 2. Loosen the lower ring nut completely and retighten it 3 Nm (0.3 m \cdot kg, 2.2 ft \cdot lb). 3. Install the upper ring nut, and then align the slots of both ring nut.

MAINTENANCE SPECIFICATIONS

ELECTRICAL

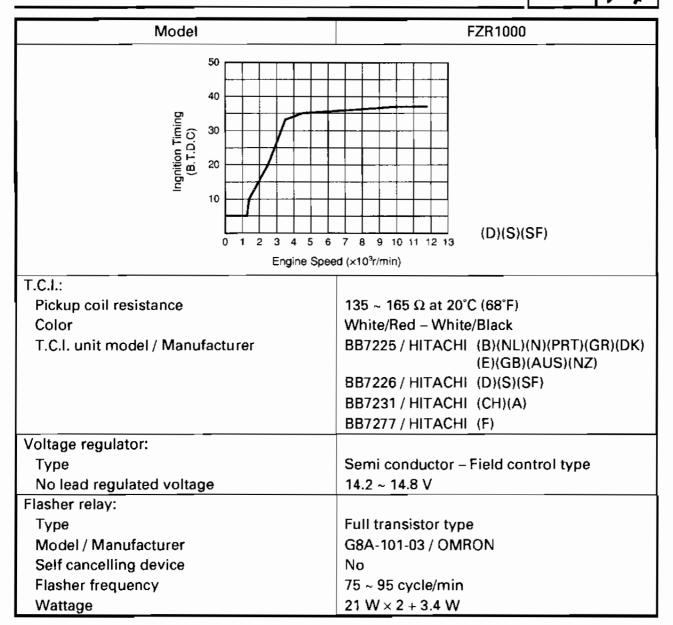




— 11 **—**

MAINTENANCE SPECIFICATIONS

SPEC



.....

- 12 -

SPEC

LUBRICATION POINT AND GRADE OF LUBRICANT

LUBRICATION POINT AND GRADE OF LUBRICANT ENGINE

Lubrication Point	Symbol	Grade of Lubricant
Oil seal lip	9	Lithium-soap base
O-Ring		Lithium-soap base
Bearing	••	Engine oil
Piston surface	Ð	Engine oil
Piston pin	•€	Engine oil
Crankshaft pin		Engine oil
Crankshaft journal		Engine oil
Connecting rod bolt/Nut	•	Molybdenum disulfide oil
Camshaft cam lode/Journal	•	Molybdenum disulfide oil
Valve stem (IN, EX)	9	Molybdenum disulfide oil
Valve stem end (IN, EX)		Engine oil
Water pump impeller shaft	9	Engine oil
Oil pump rotor (Inner/Outer), housing		Engine oil
Oil strainer assembly		Engine oil
Outer starter clutch surface		Engine oil
Idle gear surface/Bearing	ē	Engine oil
Starter clutch ball	9	Engine oil
Primary driven gear	•0	Engine oil
Transmission gear (Wheel/Pinion)	-0	Molybdenum disulfide oil
Axle (Main/Drive)	0	Molybdenum disulfide oil
Shift cam	0	Engine oil
Shift fork/Guide bar	0	Engine oil
Shift shaft assembly		Engine oil

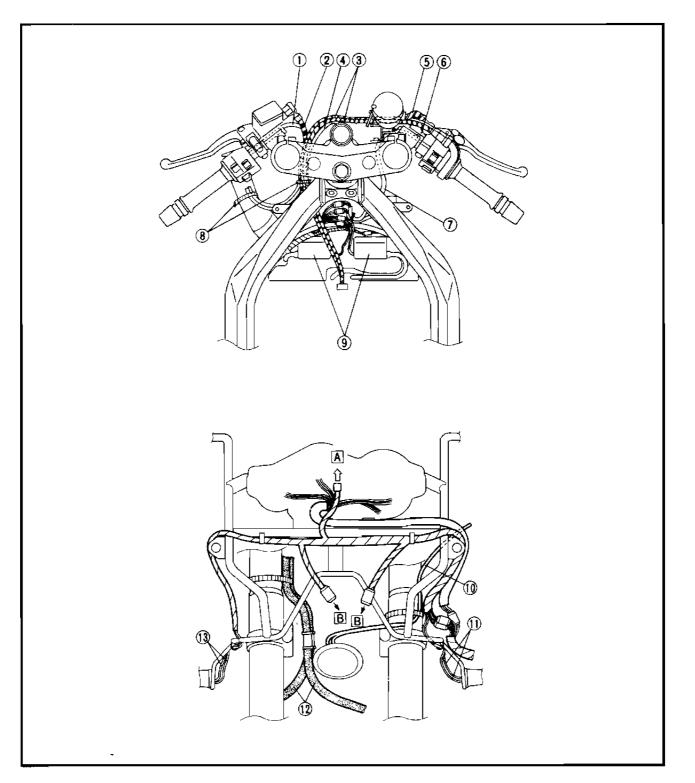
CABLE ROUTING

SPEC

CABLE ROUTING

- (1) Handlebar switch leads (left)
- 2 Clutch hose
- (3) Throttle cables
- ④ Main switch lead
- ⑤ Front brake hoses
- 6 Front brake switch lead
- ⑦ Handlebar switch leads (right)
- (8) Band
- (9) Ignition coil

- 1 Horn lead
- () Front flasher light leads (left)
- 1 Front brake hose
- (i) Front flasher light leads (right)
- A To auxiliary light
- I To headlight

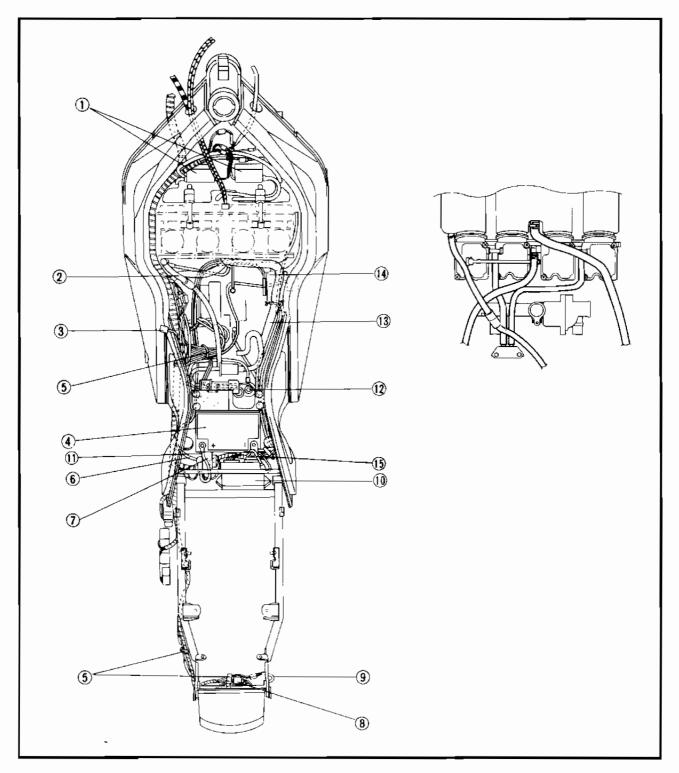


CABLE ROUTING

SPEC

- (1) Ignition coil
- ② Ventilation hose (air filter case)
- ③ Fuel sender
- ④ Battery
- ⑤ Band
- 6 Starter motor lead
- ⑦ Starter relay

- ⑧ Tail/brake light coupler
- (9) Rear flasher light leads
- Digital ignitor unit
- (1) Battery positive lead
- ③ Sub tank (rear shock absorber)
- (3) Ventilation hose (crankcase)
- EXUP servo motor

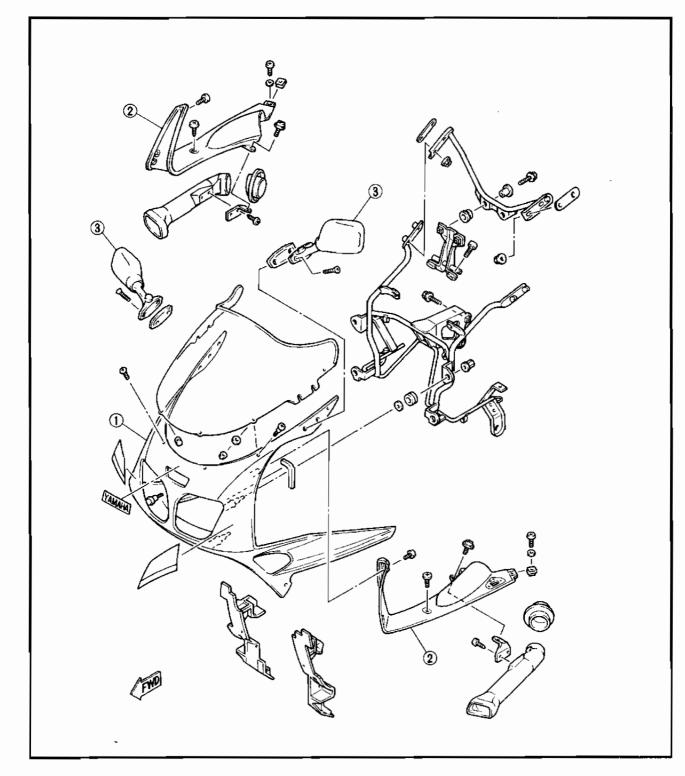


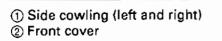


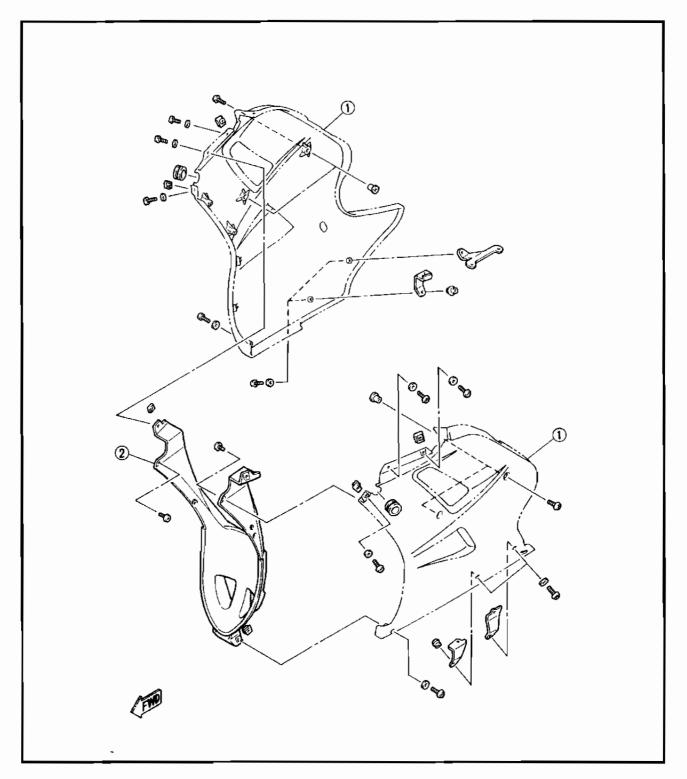
EXPLODED DIAGRAM

COWLINGS

Upper cowling
 Inner cover (left and right)
 Rear view mirror (left and right)







– 16 –

FRONT AND REAR BRAKE

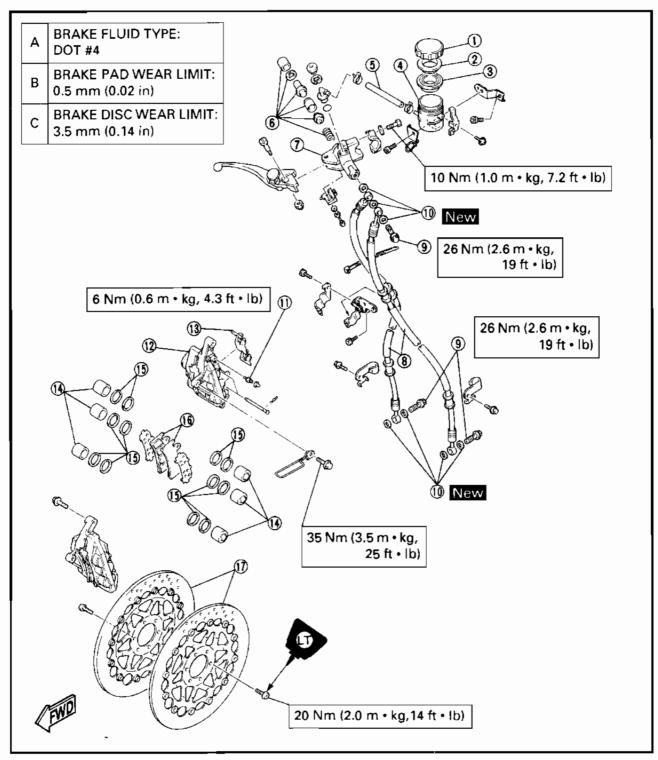
FRONT AND REAR BRAKE

- Reservoir tank cap
- ② Holder (diaphragm)
- ③ Diaphragm
- (4) Reservoir tank
- 5 Reservoir hose
- 6 Master cylinder kit
- D Master cylinder
- (8) Brake hose

- (9) Union bolt
 (10) Copper washer
 (11) Bleed screw
- 12 Brake caliper
- 13 Pad spring
- 🚯 Piston
- 15 Piston seal
- 🔞 Brake pad

17 Brake disc

CHAS of



FRONT FORK CHAS

FRONT FORK

- (1) Spring preload adjuster
- 2 Cap bolt
- ③ Outer fork tube
- ④ Plain washer
- ⑤ Oil seal
- 6 Circlip
- ⑦ Dust seal
- 6 Lock nut
- ④ Circlip

- (1) Spring seat
 (1) Spring guide
 (2) Fork spring
- 1 Dumper rod assembly
- (Inner fork tube
- B Dumper rod bolt
- FORK OIL (EACH): А CAPACITY: в 470 cm³ 25 Nm (2.5 m • kg, 18 ft • lb) (16.5 Imp oz, 15.9 US oz) OIL LEVEL: 78 mm (3.07 in) С From top of outer fork (8) 25 Nm (2.5 m • kg, 18 ft • lb) tube Fully compression ③ New without spring 10 1(12) 23 Nm (2.3 m • kg, 17 ft • lb) GRADE: D Suspension oil "01" or equivalent 3 FORK SPRING FREE Ε LENGTH: <LIMIT> 335 mm (13.2 in) 1 4 (5) 6 New (13) 23 Nm (2.3 m • kg, 17 ft • lb) New () LIM (15) Ē 30 Nm (3.0 m • kg, 22 ft • lb) J



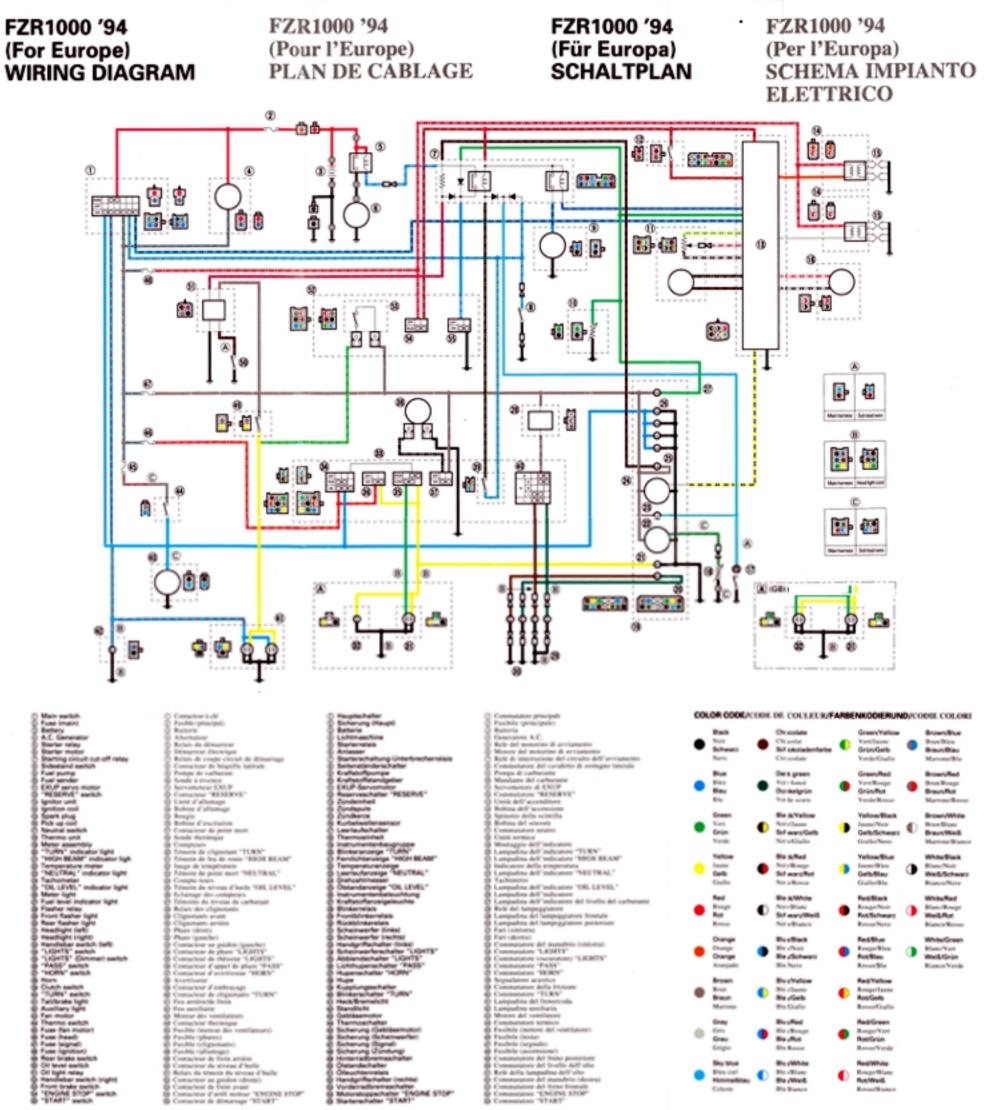
YAMAHA MOTOR CO., LTD.

PRINTED ON RECYCLED PAPER

PRINTED IN JAPAN 93 • 12 - 1.5 × 1 CR (英)

~ 、

· -·--



Na (crigonolamic) Na (adformign) acturar de Daries activités estreur de Daries d'Itolité estreur au galadies colonies) actures de Daries actualités actures de Daries actualités actures de Daries actualités actures d'actualités actualités actures d'actualités actualités actures d'actualités actures d'actualités actures d'actualités actures d'actualités actures de dormanique "EESART"

Bramaschalter spechalter "ENGINE STOP" after "START"

ž

Paulhie (serencine) Commutator Ad Status protectore Commutator Ad Swith AdV die Krit Adris Languellas del Teler Commutator Ad manderic (doorna) Commutator Ad manderic (doorna) Commutatore Ad manderic (doorna) Commutatore (SMCM) STOP¹¹ Commutatore (SMCM)

FZR1000 '94 (Except for Europe) WIRING DIAGRAM

FZR1000 '94 (Excepte pour l'Europe) PLAN DE CABLAGE FZR1000 '94 (Ausgenommen Europa) SCHALTPLAN

