YAMAHA

XJ700S/SC

SUPPLEMENTALY Service Manual

LIT-11616-05-04

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and new data for the XJ700S/SC. For complete information on service procedures, it is necessary to use this Supplementary Service Manual together with following manual:

XJ700N/XJ700NC Service Manual LIT-11616-04-85

XJ700S/XJ700SC
SUPPLEMENTARY SERVICE MANUAL

1st Edition, June 1985

Printed in U.S.A.
P/N LIT-11616-05-04

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 repairs 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.
This model has been disgned and manufactured to perform within certain specifications in regard to performance and emissions. Proper service with the correct tools is necessary to ensure that the motorcycle will operate as designed. If there is any question about a service procedure, it is imperative that you contact a Yamaha dealer for any service information changes that apply to this model. This policy is intended to provide the customer with the most satisfaction from his motorcycle and to conform with federal environmental quality objectives.

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.

NOTE:
This Service Manual contains information regarding periodic maintenance to the emission control system for the XJ700S/XJ700SC. Please read this material carefully.

TECHNICAL PUBLICATIONS
SERVICE DEVISION
MOTORCYCLE OPERATIONS
YAMAHA MOTOR CO., LTD.

HOW TO USE THIS MANUAL

PARTICULARLY IMPORTANT INFORMATION

This material is distinguished by the following notation.

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

CAUTION: **A CAUTION** indicates special procedures that must be followed to avoid damage to the motorcycle.

WARNING: **A WARNING** indicates special procedures that must be followed to avoid injury to a motorcycle operator or person inspecting or repairing the motorcycle.

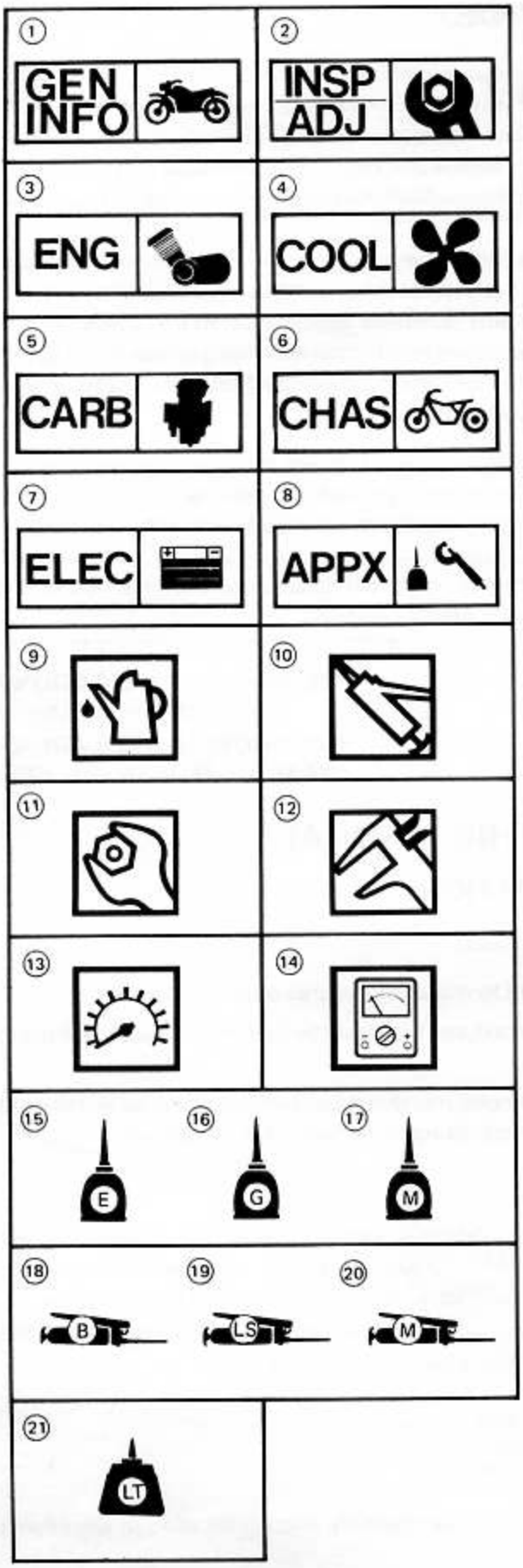
MANUAL FORMAT

All of the procedures in this manual are organized in 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, assembly, and inspection operations.
In this revised format, the condition of a faulty component will precede an arrow symbol and the cource of action required will follow the cymbol, e.g.,

- Bearings
  Pitting/Damage → Replace.

EXPOLODED 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 ⑧ are designed as thumb tabs to indicate the chapter's number and content.

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

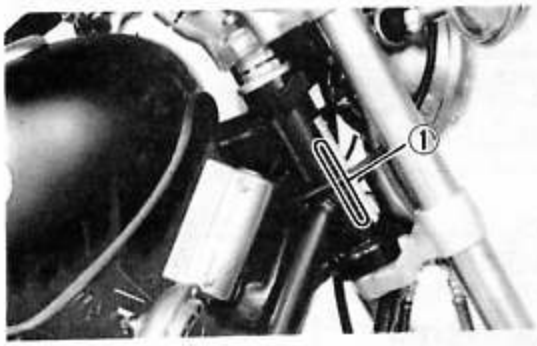
Illustrated symbols ⑨ to ⑭ are used to identify the specifications appearing in the text.

⑨ Filling fluid
⑩ Lubricant
⑪ Tightening
⑫ Wear limit, clearance
⑬ Engine speed
⑭ Ω, V, A

Illustrated symbols ⑮ to ㉑ in the exploded diagram indicate grade of lubricant and location of lubrication point.

⑮ Apply engine oil
⑯ Apply gear oil
⑰ Apply molybdenum disulfide oil
⑱ Apply wheel bearing grease
⑲ Apply lightweight lithium-soap base grease
⑳ Apply molybdenum disulfide grease
㉑ Apply locking agent (LOCTITE®)

CONTENTS



GENERAL INFORMATION

MOTORCYCLE IDENTIFICATION

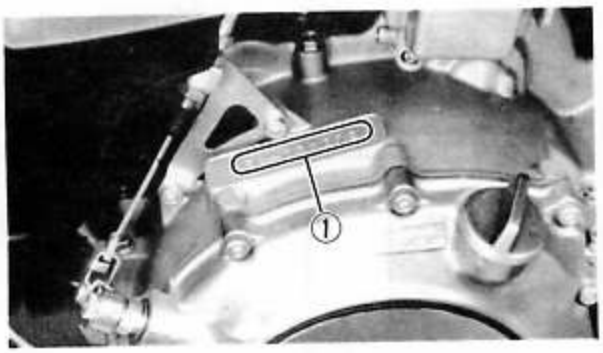
VEHICLE IDENTIFICATION NUMBER

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

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.

Vehicle Identification Number:
XJ700S (Except for California):
JYA1NH00 * GA000101
XJ700SC (For California):
JYA1NK00 * GA000101



ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the elevated part of the left rear section of the engine.

NOTE:

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

Stating Serial Number:
XJ700S (Except for California)
..... 1NH-000101
XJ700SC (For California)
..... 1NK-000101

NOTE:

Designs and specifications are subject to change without notice.

PERIODIC INSPECTIONS AND ADJUSTMENTS

INTRODUCTION

This chapter includes all information necessary to perfrom 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.

MAINTENANCE INTERVALS CHARTS

Proper periodic maintenance is important. Especially important are the maintenance services related to emissions control. These controls not only function to ensure cleaner air but are also vital to proper engine operation and maximum performance. In the following maintenance tables, the services related to emissions control are grouped separately.

PERIODIC MAINTENANCE EMISSION CONTROL SYSTEM

ITEM	REMARKS	INITIAL	ODOMETER READING				
		1,000 km (600 mi) or 1 month	**1 7,000 km (4,400 mi) or 7 months	**2 13,000 km (8,200 mi) or 13 months	19,000 km (12,000 mi) or 19 months	25,000 km (15,800 mi) or 25 months	31,000 km (19,600 mi) or 31 months
Valve clearance	Check and adjust valve clearance when engine is cold.					○	
Spark plug	Check condition. Adjust gap and clean. Replace at 13,000 km (or 13 months) and thereafter every 12,000 km (or 12 months).		○	Replace	○	Replace	○
Crankcase ventilation system	Check ventilation hose for cracks or damage. Replace if necessary.		○		○		○
Fuel line	Check fuel hose and vacuum pipe for cracks or damage. Replace if necessary.		○	○	○	○	○
Exhaust system	Check for leakage. Retighten if necessary. Replace gasket(s) if necessary.		○	○	○	○	○
Idle speed	Check and adjust engine idle speed. Adjust cable free play.		○	○	○	○	○
Carburetor synchronization	Adjust synchronization of carburetors.	○	○	○	○	○	○

* It is recommended that these items be serviced by a Yamaha dealer or other qualified mechanic.

NOTE:

For farther odometer reading, repeat the above maintenance at the period establish; **1: Every 6,000 km (3,800 mi) **2: Every 12,000 km (7,600 mi) intervals.

GENERAL MAINTENANCE/LUBRICATION

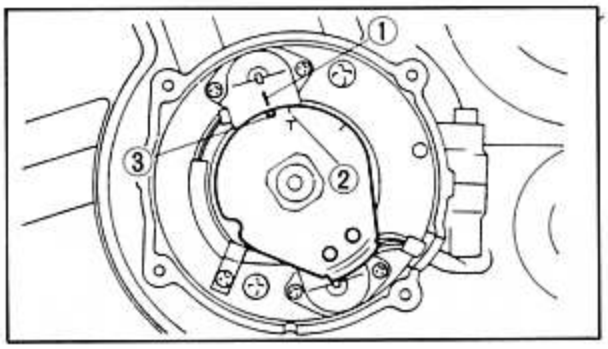
No.	ITEM	REMARKS	TYPE	INITIAL	ODOMETER READINGS				
				1,000 km (600 mi) or 1 month	**1 7,000 km (4,400 mi) or 7 months	**2 13,000 km (8,200 mi) or 13 months	**3 19,000 km (12,000 mi) or 19 months	**4 25,000 km (15,800 mi) or 25 months	31,000 km (19,600 mi) or 31 months
1	Engine oil	Warm-up engine before draining.		○	○	○	○	○	○
2	Oil filter	Replace.	—	○		○		○	
3*	Air filter	Clean with compressed air. Replace if necessary.	—		○	○	○	○	○
4*	Brake system	Adjust free play. Replace pads if necessary. (Front) Replace shoes if necessary (Rear)	—	○	○	○	○	○	○
5*	Clutch	Adjust free play.	—	○	○	○	○	○	○
6	Final gear oil	Check oil level and leakage. Replace every 24,000 km (15,000 mi) or 24 months.	SAE80 API GL-4 hypoid gear oil	Replace		○		Replace	
7*	Control and meter cable	Apply chain lube thoroughly.	Yamaha chain and cable lube or SAE 10W30 motor oil.	○	○	○	○	○	○
8*	Rear arm pivot shaft	Check bearings assembly for looseness. Moderately repack every 24,000 km (15,200 mi)	Medium weight wheel bearing grease					○	
9	Brake/ Clutch lever pivot shaft.	Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
10	Brake pedal and change pedal shaft	Lubricate Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
11*	Center/Side stand pivots	Check operation and lubricate. Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
12*	Front fork oil	Check operation and leakage.	—		○	○	○	○	○

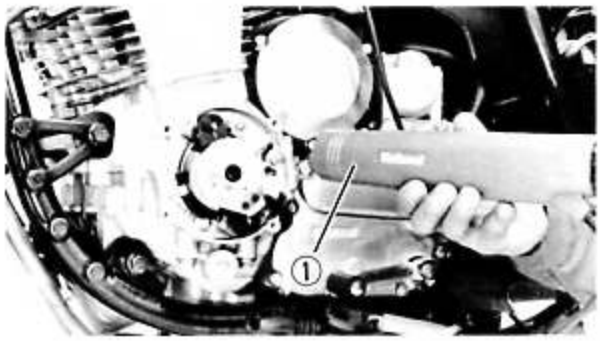
No.	ITEM	REMARKS	TYPE	INITIAL	ODOMETER READINGS				
				1,000 km (600 mi) or 1 month	**1 7,000 km (4,400 mi) or 7 months	**2 13,000 km (8,200 mi) or 13 months	**3 19,000 km (12,000 mi) or 19 months	**4 25,000 km (15,800 mi) or 25 months	31,000 km (19,600 mi) or 31 months
13*	Steering bearings	Check bearings assembly for looseness. Moderately repack every 24,000 km (15,000 mi)	Medium weight wheel bearing grease		○	○	○	○	○
14*	Wheel bearings	Check bearings for smooth rotation.	—		○	○	○	○	○
15	Battery	Check specific gravity and breather pipe for proper operation.	—		○	○	○	○	○
16*	A.C. Generator	Replace generator brushes.	—			○		○	
17	Sidestand switch	Check and clean or replace if necessary.	—	○	○	○	○	○	○

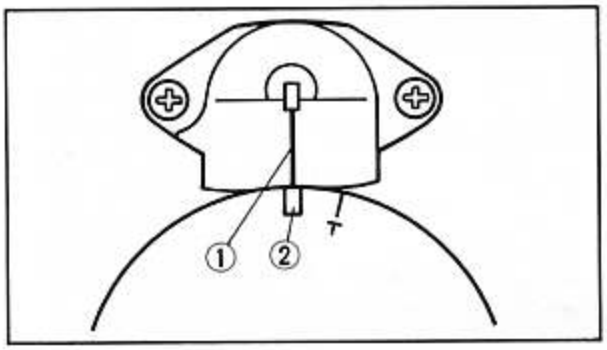
* It is recommended that these items be serviced by a Yamaha dealer or other qualified mechanic.

NOTE:

For farther odometer reading repeat the above maintenance at the period established; **1: Every 6,000 km (3,800 mi), **2: Every 12,000 km (7,600 mi), **3: Every 18,000 km (11,400 mi), **4: Every, 24,000 km (15,200 mi) intervals.







IGNITION TIMING CHECK

Flywheel is marked as follows:

① Pickup coil mark
② TDC for No. 1 cylinder
③ Firing range for the No. 1 cylinder

1. Check:
   - Ignition timing

Ignition timing check steps:
- Remove the cover.
- Connect the Timing Light (YU-08037) ① to No. 1 cylinder spark plug lead.
- Warm up the engine and let it idle at the specified idle speed of 1,050 ± 50 r/min.
- Visually check the upper pickup coil mark ① is within the firing range ② indicated on timing plate.

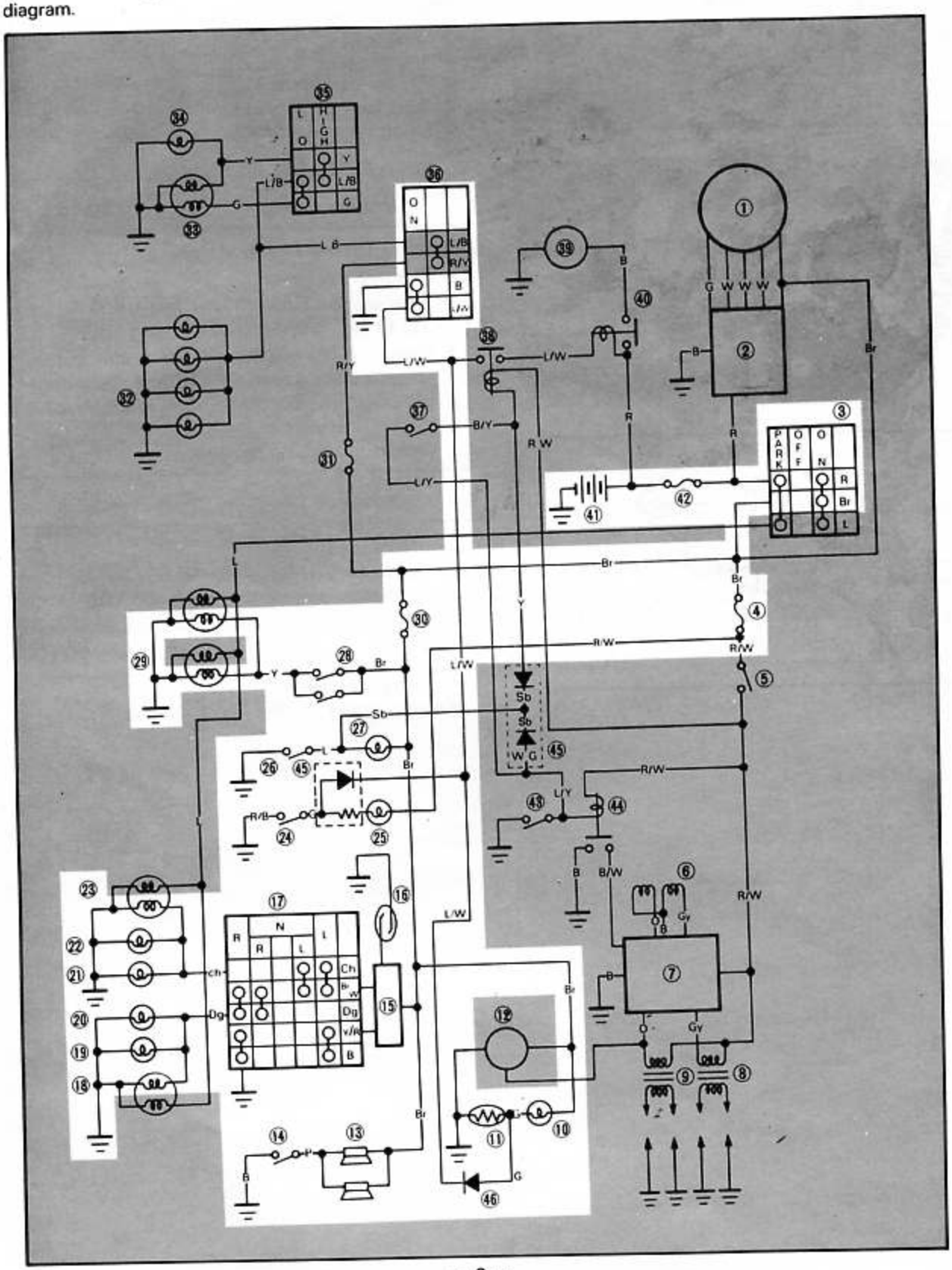
Incorrect firing → Check timing plate and/or pickup assembly (tightness damage)
Refer to CHARTER 6, "ELECTRICAL" for further information.

① Pickup coil mark.
② Firing range for the No. 1 cylinder

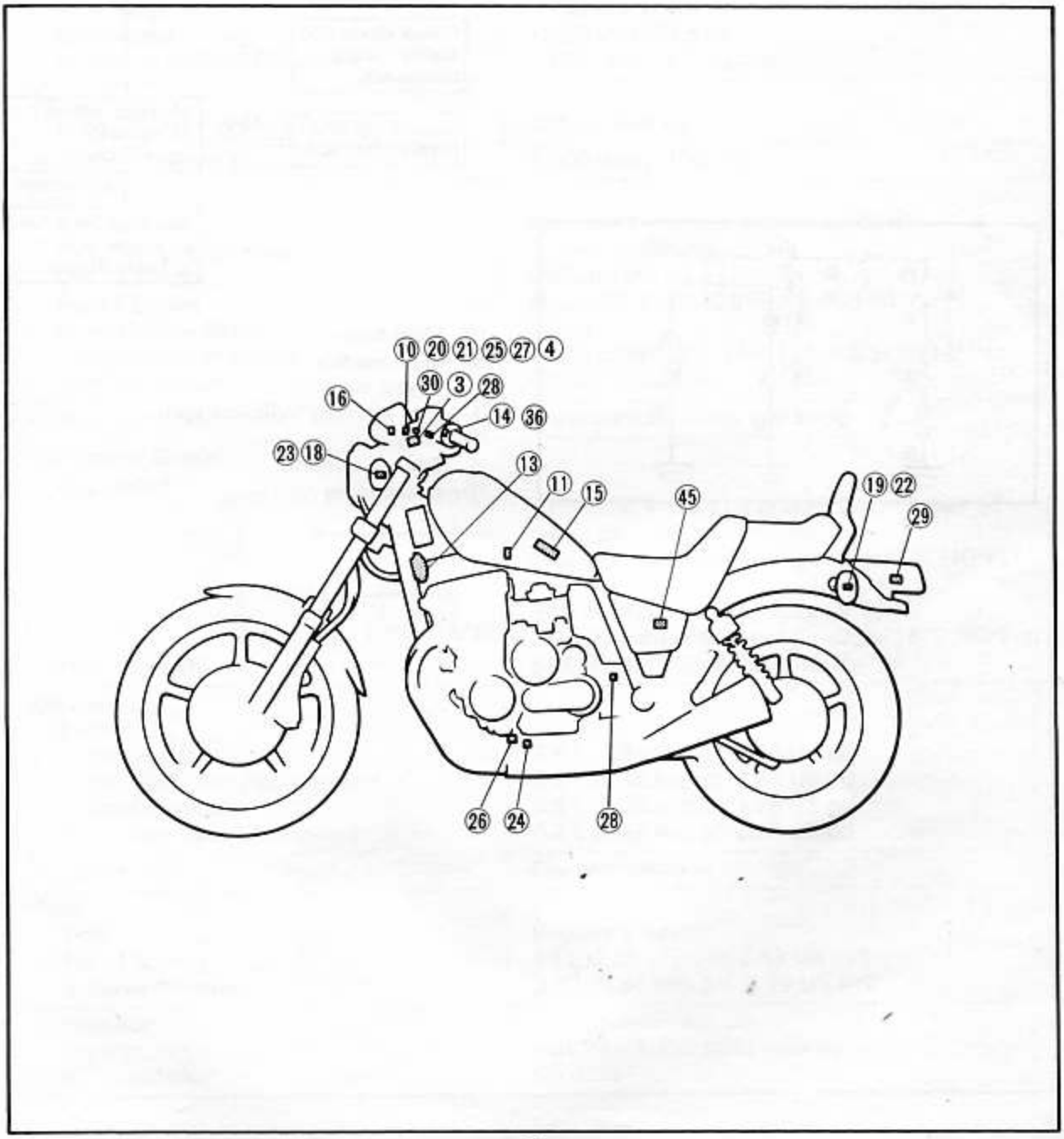
SIGNAL SYSTEM

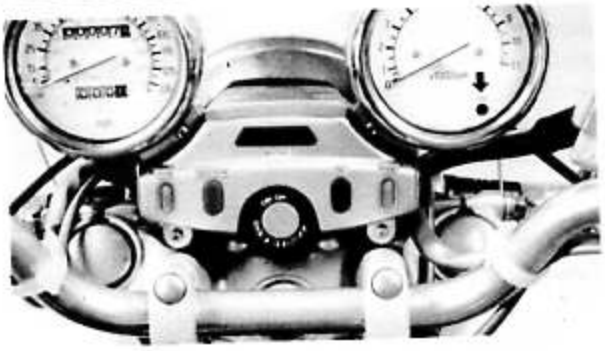
CIRCUIT DIAGRAM

Below circuit diagram shows signal circuit in wiring diagram.



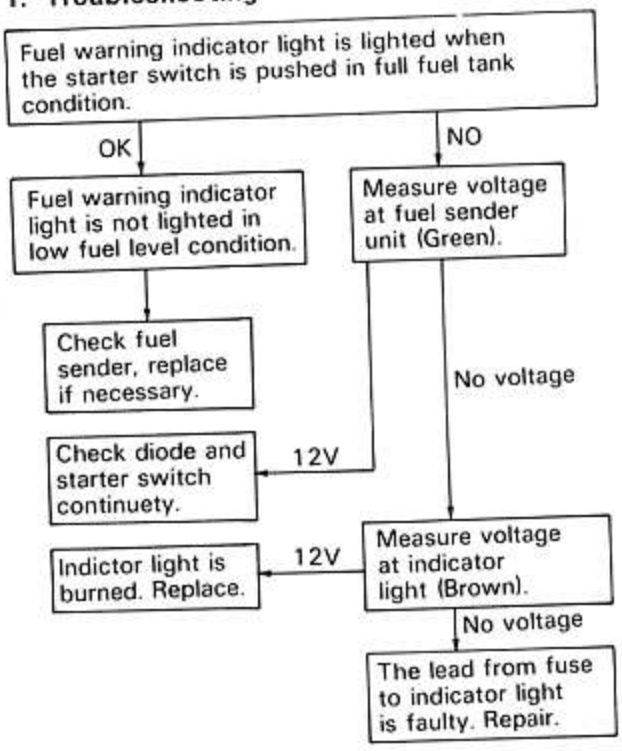
③ Main switch
④ Fuse "IGNITION" (10A)
⑩ "FUEL" indicator light
⑪ Fuel sender
⑬ Horn
⑭ Horn switch
⑮ Flasher relay (Relay assembly)
⑯ Reed switch
⑱ Flasher light (Front, Right)
⑲ Flasher light (Rear, Right)
⑳ "TURN" indicator light (Right)
㉑ "TURN" indicator light (Left)
㉒ Flasher light (Rear, Left)
㉓ Flasher light (Front, Left)
㉔ Oil level switch
㉕ "OIL" indicator light
㉖ Neutral switch
㉗ "NEUTRAL" indicator light
㉘ Brake switch
㉙ Tail/Brake light
㉚ Fuse "SIGNAL" (15A)
㊱ Sta ter switch
㊺ Diode assembly
㊻ Diode (Included in wire harness)

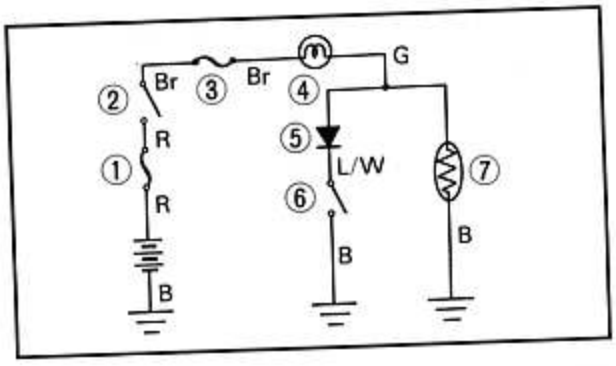




FUEL WARNING INDICATOR LIGHT

1. Troubleshooting

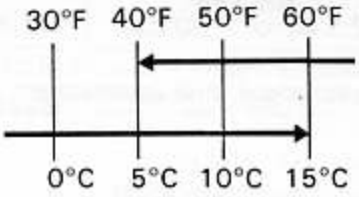




① Main fuse
② Main switch
③ Signal fuse
④ Fuel warning indicator lgiht
⑤ Diode
⑥ Starter switch
⑦ Fuel sender

SPECIFICATIONS

GENERAL SPECIFICATIONS

Item \ Model	XJ700S/SC	
Model:	XJ700S	XJ700SC
Model Code Number	1NH	1NK
Federal V.I.N. Number	JYA1NH00*GA000101	JAY1NK*GA000101
Engine Starting Number	1NH-000101	1NK-000101
Dimensions:		
Overall Length	2,235 mm (88.0 in)	
Overall Width	775 mm (30.5 in)	
Overall Height	1,160 mm (45.7 in)	
Seat Height	750 mm (29.5 in)	
Wheelbase	1,520 mm (59.8 in)	
Minimum Ground Clearance	145 mm (5.7 in)	
Basic Weight:		
With Oil and Full Fuel Tank	224 kg (494 lb)	
Minimum Turning Radius:	2,800 mm (110.2 in)	
Engine:		
Engine Type	Air cooled 4-stroke, gasoline, DOHC	
Cylinder Arrangement	4-cylinder parallel	
Displacement	696 cm³ (42.47 cu.in)	
Bore × Stroke	65.0 × 52.4 mm (2.559 × 2.063 in)	
Compression Ratio	9.5 : 1	
Compression Pressure	1,078 kPa (11 kg/cm², 156 psi) at 300 r/min	
Starting System	Electric starter	
Lubrication System:	Pressure lubricated, wet sump	
Oil Type or Grade:		
Engine Oil	 Yamalube 4-cycle oil or SAE 20W40 type SE motor oil (If temperature does not go below 5°C (40°F).) SAE 10W30 type SE motor oil (If temperature does not go above 15°C (60°F).)	
Final Gear Oil	SAE 80 API "GL-4" Hypoid gear oil	
Oil Capacity:		
Engine Oil:		
Periodic Oil Change	2.5 L (3.20 Imp qt, 2.64 US qt)	
With Oil Filter Replacement	2.8 L (2.46 Imp qt, 2.96 US qt)	
Total Amount	3.5 L (3.08 Imp qt, 3.70 US qt)	
Final Gear Case Oil Amount	0.2 L (0.18 Imp qt, 0.22 US qt)	
Air Filter:	Dry type element	
Fuel:		
Type	Regular gasoline	
Tank Capacity	13 L (2.86 Imp gal, 3.43 US gal)	
Reserve Amount	3.0 L (0.66 Imp gal, 0.79 US gal)	
Carburetor:		
Type	HSC33 × 4, Constant velocity	
Manufacturer	HITACHI	

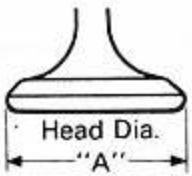
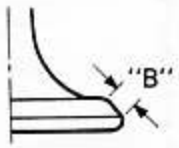
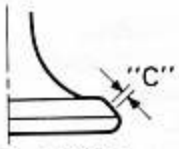
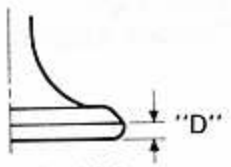
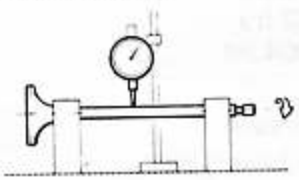
Item \ Model	XJ700S/SC	
Spark Plug:		
Type/Manufacturer	BP8ES/NGK or W24EP-U/NIPPONDENSO	
Gap	0.7 ~ 0.8 mm (0.028 ~ 0.031 in.)	
Clutch Type:	Wet, multiple-disc	
Transmission:		
Primary Reduction System	Spur gear	
Primary Reduction Ratio	97/58 (1.672)	
Secondary Reduction System	Shaft drive	
Secondary Reduction Ratio	49/36 × 19/18 × 32/11 (4.179)	
Transmission Type	Constant- mesh, 5-speed	
Operation	Left foot operation	
Gear Ratio 1st	35/16 (2.188)	
2nd	30/20 (1.500)	
3rd	30/26 (1.154)	
4th	28/30 (0.933)	
5th	26/32 (0.813)	
Chassis:		
Frame Type	Tubular steel, double cradle	
Caster Angle	31.5°	
Trail	120 mm (4.72 in)	
Tire:		
Type	Tubeless	
Size (F)	100/90-19 57H	
Size (R)	130/90-16 67H	
Tire Pressurer (Cold Tire):	FRONT	REAR
Up to 90 kg (198 lb) load*	177 kPa (1.8 kg/cm², 26 psi)	196 kPa (2,0 kg/cm², 28 psi)
90 kg (198 lb) load~246 kg (542 lb) load*	196 kPa (2.0 kg/cm², 28 psi)	274 kPa (2.8 kg/cm², 40 psi)
High Speed Riding	206 kPa (2.1 kg/cm², 30 psi)	226 kPa (2.3 kg/cm², 32 psi)
	*Load is the total weight of cargo, rider, passenger, and accessories.	
Brake:		
Front Brake Type	Dual disc brake	
Operation	Right hand operation	
Rear Brake Type	Drum brake	
Operation	Right foot operation	
Suspension:		
Front Suspension	Telescopic fork	
Rear Suspension	Swingarm	
Shock Absorber:		
Front Shock Absorber	Coil spring, oil damper	
Rear Shock Absorber	Coil spring, oil damper	
Wheel Travel:		
Front Wheel Travel	150 mm (5.9 in)	
Rear Wheel Travel	99 m m(3.9 in)	
Electrical:		
Ignition System	T.C.I.	
Generator System	A.C. Generator	
Battery Type or Model	YB14L	
Battery Capacity	12V 14AH	

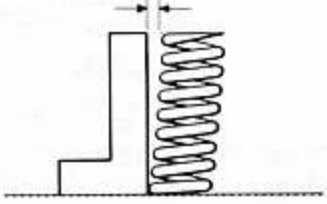
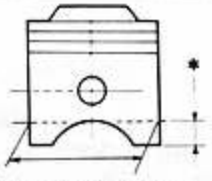
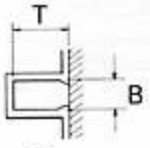
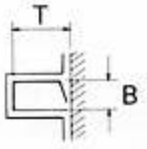
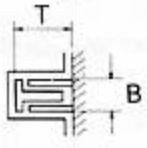
Item \ Model	XJ700S/SC
Headlight Type:	Semi-sealed beam, (Quartz bulb)
Bulb Wattage/Quantity:	
Headlight	60W/55W
Tail/Brake Light	8W/27W × 2
Flasher Light	27W × 4
Indicator Light:	
Meter Light	3W × 4
Wattage/Quantity: "NEUTRAL"	3W × 1
"HIGH BEAM"	3W × 1
"TURN"	3W × 2
"OIL LEVEL"	3W × 1
"FUEL LEVEL"	3W × 1

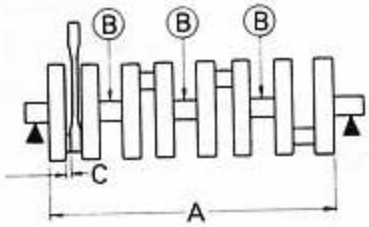
MAINTENANCE SPECIFICATIONS

ENGINE

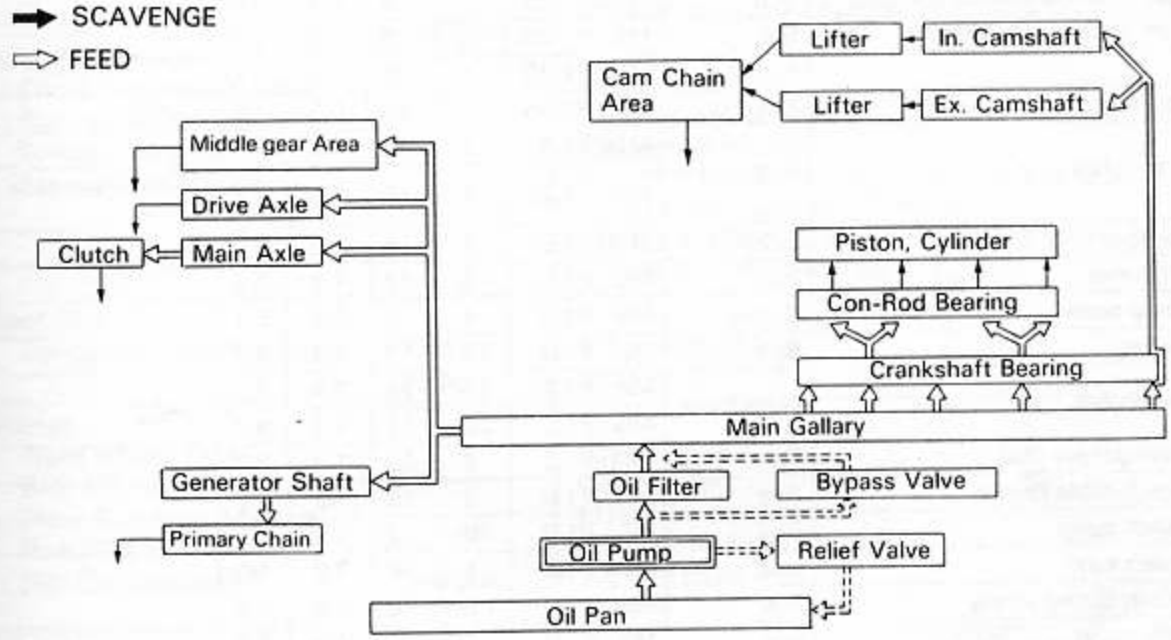
Item \ Model	XJ700S/SC
Cylinder Head:	
Warp Limit	0.03 mm (0.001 in) *Lines indicate straightedge measurement.
Cylinder:	
Bore Size	65.0 mm (2.559 in)
Taper Limit	0.05 mm (0.002 in)
Out-of Round Limit	0.01 mm (0.0004 in)
Camshaft:	
Drive Method	Chain drive (Center)
Cam Cap Inside Diameter	$25^{+0.021}_{0}$ mm ($0.9448^{+0.0008}_{0}$ in)
Camshaft Outside Diameter	$25^{-0.020}_{-0.033}$ mm ($0.9448^{-0.0008}_{-0.0013}$ in)
Shaft to Cap Clearance	0.020 ~ 0.054 mm (0.0008 ~ 0.0021 in)
Cam Dimensions:	
Intake "A"	36.80 mm (1.449 in)
<Limit>	36.65 mm (1.443 in)
"B"	28.10 mm (1.106 in)
<Limit>	27.85 mm (1.096 in)
"C"	8.80 mm (0.346 in)
Exhaust "A"	36.30 mm (1.429 in)
<Limit>	35.65 mm (1.404 in)
"B"	28.06 mm (1.105 in)
<Limit>	27.85 mm (1.096 in)
"C"	8.3 mm (0.327 in)

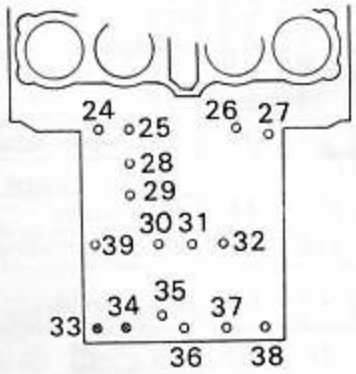
Item	Model	XJ700S/SC
Camshaft Runout Limit		0.06 mm (0.0024 in)
Cam Chain Type/Number of Links		Bush chain/120
Cam Chain Adjustment Method		Automatic
Valve, Valve Seat, Valve Guide:		
Valve Clearance (Cold)	IN.	0.11 ~ 0.15 mm (0.0043 ~ 0.0059 in)
	EX.	0.16 ~ 0.20 mm (0.0063 ~ 0.0099 in)
Valve Dimensions		
		
 Face Width		
 Seat Widthe		
 Margin thickness		
"A" Head Dia.	IN.	34 ± 0.1 mm (1.339 ± 0.004 in)
	EX.	28 ± 0.1 mm (0.1024 ± 0.004 in)
"B" Face Width	IN.	2.3 mm (0.0906 in)
	EX.	2.3 mm (0.0906 in)
"C" Seat Width	IN.	1.0 ± 0.1 mm (0.0394 ± 0.004 in)
	EX.	1.0 ± 0.1 mm (0.0394 ± 0.004 in)
"D" Margin Thickness Limit	IN.	1.2 ± 0.2 mm (0.0472 ± 0.008 in)
	EX.	1.0 ± 0.2 mm (0.0394 ± 0.008 in)
Stem Outside Diameter	IN.	$7^{-0.010}_{-0.025}$ mm ($0.2756^{-0.0004}_{-0.0010}$ in)
	EX.	$7^{-0.025}_{-0.040}$ mm ($0.2756^{-0.0010}_{-0.0016}$ in)
Guide Inside Diameter	IN.	$7^{+0.012}_{0}$ mm ($0.2756^{+0.0005}_{0}$ in)
	EX.	$7^{+0.012}_{0}$ mm ($0.2756^{+0.0005}_{0}$ 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)
Stem Runout Limit		0.03 mm (0.001 in)
		
Valve Spring:		
Free Length		
Inner Spring	IN.	35.9 mm (1.413 in)
	EX.	35.9 mm (1.413 in)
Outer Spring	IN.	39.5 mm (1.555 in)
	EX.	39.5 mm (1.555 in)
Installed Length (Valve Closed)		
Inner Spring	IN.	31.0 mm (1.220 in)
	EX.	31.0 mm (1.220 in)
Outer Spring	IN.	34.0 mm (1.339 in)
	EX.	34.0 mm (1.339 in)

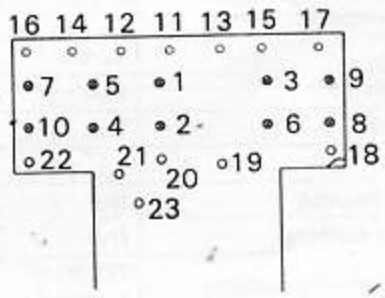
Item	Model	XJ700S/SC
Tilt Limit		
Inner Spring	IN. & EX.	2.5°, 1.6 mm (0.063 in)
Outer Spring	IN. & EX.	2.5°, 1.6 mm (0.063 in)
		
Direction of Winding		Inner Spring: IN — Left; EX — Left Outer Spring: IN — Right; EX — Right
Piston:		
Piston Size/ Measuring Point*		$65.00^{-0.030}_{-0.045}$ mm ($2.5591^{-0.0012}_{-0.0018}$ in) 7.5 mm (0.295 in) (From bottom line of piston skirt)
Clearance Between Piston & Cylinder		0.030 ~ 0.050 mm (0.0012 ~ 0.0020 in)
	<Limit>	0.1 mm (0.004 in)
Oversize:	2nd	65.50 mm (2.58 in)
	4th	66.00 mm (2.60 in)
Piston Ring:		
Sectional Sketch		
	Top Ring	Barrel B = 1.0 mm (0.039 in) T = 2.6 mm (0.102 in)
	2nd Ring	Taper B = 1.0 mm (0.039 in) T = 2.6 mm (0.102 in)
	Oil Ring	Expander B = 2.5 mm (0.098 in) T = 2.8 mm (0.110 in)
End Gap (Installed):	Top Ring	0.15 ~ 0.30 mm (0.0059 ~ 0.0118 in)
	<Limit>	1.0 mm (0.039 in)
	2nd Ring	0.15 ~ 0.30 mm (0.0059 ~ 0.0118 in)
	<Limit>	1.0 mm (0.039 in)
	Oil Ring	0.2 ~ 0.7 mm (0.008 ~ 0.028 in)
	<Limit>	1.5 mm (0.059 in)
Side Clearance:	Top Ring	0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in)
	<Limit>	0.15 mm (0.0059 in)
	2nd Ring	0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)
	<Limit>	0.15 mm (0.0059 in)
	Oil Ring	0 mm (0 in)

Item \ Model	XJ700S/SC
Connecting Rod: Oil Clearance Color Code (Corresponding Size)	0.016 ~ 0.058 mm (0.0006 ~ 0.0023 in) 1. Blue: $1.5^{+0.006}_{+0.002}$ mm ($0.0591^{+0.00024}_{+0.00007}$ in) 2. Black: $1.5^{+0.002}_{-0.002}$ mm ($0.0591^{+0.00007}_{-0.00007}$ in) 3. Brown: $1.5^{-0.002}_{-0.006}$ mm ($0.0591^{-0.00007}_{-0.00024}$ in) 4. Green: $1.5^{-0.006}_{-0.010}$ mm ($0.0591^{-0.00024}_{-0.00039}$ in)
Crankshaft:  Crank Width "A" Runout Limit "B" Big End Side Clearance "C" Journal Clearance	341.4 ± 0.6 mm (13.441 ± 0.024 in) 0.03 mm (0.0002 in) 0.160 ~ 0.262 mm (0.0063 ~ 0.0103 in) 0.016 ~ 0.058 mm (0.0006 ~ 0.0023 in)
Clutch: Friction Plate Thickness/Quantity Wear Limit Clutch Plate Thickness/Quantity Warp Limit Clutch Spring Free Length/Quantity Clutch Spring Minimum Length Clutch Release Method	3.0 mm (0.12 in) × 8 2.8 mm (0.11 in) 2.0 mm (0.079 in) × 7 0.05 mm (0.0020 in) 51.6 mm (2.031 in) × 6 50.0 mm (1.969 in) Outer Pull
Transmission: Main Axle Deflection Limit Drive Axle Deflection Limit	0.08 mm (0.0031 in) 0.08 mm (0.0031 in)
Shifter: Shifter Type	Guide bar
Carburetor: Type/Manufacturer/Quantity I.D. Mark Main Jet (M.J.) Main Air Jet (M.A.J.) Jet Needle-clip Position (J.N.) Throttle Valve (Th.V.) Pilot Jet (P.J.) Pilot Outlet Size (P.O.) Pilot Air Jet (P.A.J.) Pilot Screw (P.S.) Valve Seat Size (V.S.) Starter Jet (G.S.) Bypath Size (B.P.) Fuel Level (F.L.)	HSC33/HITACHI/4 1FG-00 (XJ700S) 1JJ-00 (XJ700SC) # 107 # 70 Y-20 12.5° # 36.5 ϕ0.9 # 210 Preset ϕ2.0 # 36 ϕ0.9 1.0 ± 1.0 mm (0.039 ± 0.039 in) below from the carburetor mixing chamber body edge.

Item \ Model	XJ700S/SC
Engine Idling Speed	1.050 ± 50 r/min
Vacuum Pressure at Idling Speed	24.7 ± 1.3 kPa (180 ± 5 mmHg, 7.09 ± 0.2 inHg)
Vacuum Synchronous Difference	Below 10 kPa (5 mmHg, 0.2 inHg)
Lubrication System:	
Oil Filter Type	Paper
Oil Pump Type	Trochoid pump
Tip Clearance	0.03 ~ 0.09 mm (0.0012 ~ 0.0035 in)
Side Clearance	0.03 ~ 0.08 mm (0.0012 ~ 0.0031 in)
Bypass Valve Setting Pressure	98.0 ± 20 kPa (1.0 ± 0.2 kg/cm², 14.2 ± 2.8 psi)
Relief Valve Operating Pressure	490 ± 49 kPa (5.0 ± 0.5 kg/cm², 71 ± 7.1 psi)
Lubrication Chart	
Middle Gear Backlash:	0.1 ~ 0.2 mm (0.004 ~ 0.008 in)
Final Gear Backlash:	0.1 ~ 0.2 mm (0.004 ~ 0.008 in)
Crankcase Tightening Sequence:	
Upper case	Lower case





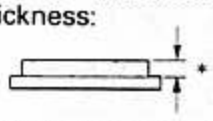


⊗ 8 mm bolt
○ 6 mm bolt

Tightening torque

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m-kg	ft-lb	
Cylinder head	Nut	M10 P1.25	12	35	3.5	25	ⓔ
	Nut	M8 P1.25	2	20	2.0	14	
	Nut	M6 P1.0	4	10	1.0	7.2	
Cylinder head cover	Bolt	M6 P1.0	12	10	1.0	7.2	
Spark plug	—	M14 P1.25	4	20	2.0	14	
Cylinder	Nut	M8 P1.25	1	10	1.0	7.2	Cam chain case Front & Rear
Y.I.C.S. Plug	Plug	M12 P1.25	2	22	2.2	16	
Cam shaft cap	Bolt	M6 P1.0	24	10	1.0	7.2	Tighten in 3-stages.
Cam sprocket	Bolt	M7 P1.0	4	20	2.0	14	
Cam chain tensioner body	Bolt	M6 P1.0	2	12	1.2	8.7	
Cam chain tensioner end plug	Bolt	M8 P1.25	1	9	0.9	6.5	
Cam chain guide stopper	Bolt	M8 P1.25	1	3	0.3	2.2	
	Nut	M10 P1.25	1	15	1.5	11	
Connecting rod	Nut	M7 P0.75	8	25	2.5	18	ⓜ
Drain plug	Bolt	M14 P1.5	1	43	4.3	31	
		M8 P1.25	1	16	1.6	17	Middle gear case drain
Oil filter	Bolt	M20 P1.5	1	15	1.5	11	
Oil pump	Bolt	M6 P1.0	3	12	1.2	8.7	
Pump cover	Screw	M6 P1.0	4	7	0.7	5.1	
Oil pan	Bolt	M6 P1.0	13	12	1.2	8.7	
Crankcase	Flange bolt	M8 P1.25	19	24	2.4	17	ⓔ
		M6 P1.0	20	12	1.2	8.7	
Main gallary plug	Plug	M20 P1.5	2	12	1.2	8.7	
Clutch cable holder	Bolt	M6 P1.0	2	12	1.2	8.7	
Clutch cover	Bolt	M6 P1.0	10	12	1.2	8.7	
Clutch boss	Nut	M20 P1.0	1	70	7.0	50	
Clutch spring screw	Bolt	M6 P1.0	5	8	0.8	5.8	
Shift pedal	Bolt	M6 P1.0	1	8	0.8	5.8	
Stopper plate	Bolt	M6 P1.0	2	8	0.8	5.8	Shift cam, Starter idle gear
Neutral switch	—	M10 P1.25	1	20	2.0	14	
Exhaust pipe	Nut	M6 P1.0	8	10	1.0	7.2	
Generator cover	Bolt	M6 P1.0	3	12	1.2	8.7	
Generator (rotor)	Bolt	M10 P1.25	1	55	5.5	40	
Generator bearing housing	Screw	M6 P1.0	3	10	1.0	7.2	
Pickup base	Screw	M6 P1.0	2	8	0.8	5.8	
Timing plate	Bolt	M8 P1.25	1	24	2.4	17	
Starter motor	Bolt	M6 P1.0	2	7	0.7	5.1	Apply liquid gasket
Middle gear:							
Drive shaft bearing	Nut	M36 P1.5	1	110	11	80	Stake
Driven shaft bearing	Nut	M65 P1.5	1	110	11	80	
Drive shaft bearing retainer	TORX screw	M8 P1.25	4	25	2.5	18	Stake
Flange	UBS nut	M14 P1.5	1	90	9.0	65	Stake
Driven-gear housing	Bolt	M8 P1.25	4	25	2.5	18	

CHASSIS

Item \ Model		XJ700S/SC
Steering System:		
Steering Bearing Type		Taper Roller Bearing
Front Suspension:		
Front Fork Travel		150 mm (5.9 in)
Fork Spring Free Length		521 mm (20.51 in)
Spring Rate/Stroke		K_1 = 3.7 N/mm (0.38 kg/mm, 21.3 lb/in) 0 ~ 100 mm (0 ~ 3.94 in) K_2 = 5.4 N/mm (0.55 kg/mm, 30.8 lb/in) 100 ~ 150 mm (3.94 ~ 5.90 in)
Optional Spring		No
Oil Capacity		383 cm³ (13.51 Imp oz, 12.95 US oz)
Oil Grade		YAMAHA Fork & Shock Oil 10wt or equivalent fork oil
Rear Suspension:		
Shock Absorber Travel		70 mm (2.76 in)
Spring Free Length		243.5 mm (9.59 in)
Spring Fitting Length		220 mm (8.66 in)
Spring Rate/Stroke		K_1 = 21.6 N/mm (2.2 kg/mm, 123.2 lb/in) 0 ~ 46.5 mm (0 ~ 1.83 in) K_2 = 28.4 N/mm (2.9 kg/mm, 162.3 lb/in) 46.5 ~ 70 mm (1.83 ~ 2.76 in)
Rear Arm:		
Swingarm Free Play Limit:	End	1.0 mm (0.04 in)
	Side	1.0 mm (0.04 in)
Wheel:		
Front Wheel Type		Cast Wheel
Rear Wheel Type		Cast Wheel
Front Rim Size/Material		MT2.15 × 19/Aluminum
Rear Rim Size/Material		MT3.00 × 16/Aluminum
Rim Runout Limit:	Vertical	2.0 mm (0.08 in)
	Lateral	2.0 mm (0.08 in)
Disc Brake:		
Type	Front	Dual disc
Outside Dia. × Thickness		267 × 5 mm (10.5 × 0.2 in)
Pad Thickness:	Inner	5.5 mm (0.22 in)
	<Limit>*	0.5 mm (0.02 in)
	Outer	5.5 mm (0.22 in)
	<Limit>*	0.5 mm (0.02 in)
Master Cylinder Inside Dia.		15.87 mm (0.62 in)
Caliper Cylinder Inside Dia.		38.18 mm (1.50 in)
Brake Fluid Type		DOT # 3
Drum Brake:		
Type	Rear	Leading trailing
Drum Inside Dia.		200 mm (7.87 in)
	<Limit>	201 mm (7.91 in)
Lining Thickness		4 mm (0.16 in)
	<Limit>	2 mm (0.08 in)
Shoe Spring Free Length		68 mm (2.7 in)

Item \ Model	XJ700S/SC
Brake Lever & Brake Pedal: Brake Lever Free Play Brake Pedal Position Brake Pedal Free Play	 2 ~ 5 mm (0.08 ~ 0.20 in)/at lever end 10 mm (0.4 in) below the top of the footrest 20 ~ 30 mm (0.8 ~ 0.12 in)
Clutch Lever Free Play:	2 ~ 3 mm (0.08 ~ 0.12 in)/at lever pivot

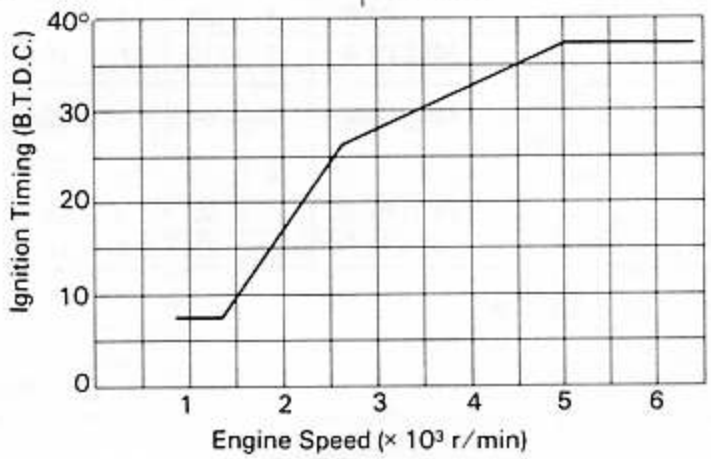
Tightening torque

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m-kg	ft-lb	
Engine mounting bolt: Front, upper	Nut	M10 P1.25	1	42	4.2	30	
Front, lower	Nut	M10 P1.25	2	42	4.2	30	
Rear	Nut	M12 P1.25	2	90	9.0	65	
Engine mounting stay	Nut	M8 P1.25	4	33	3.3	24	
Downtube	Bolt	M8 P1.25	4	33	3.3	24	
Downtube & Cross pipe	Nut	M8 P1.25	2	33	3.3	24	
Handle crown & Steering shaft	Nut	M20 P1.0	1	110	11	80	
Ring nut (Lower)	Nut	M22 P1.0	1	6	0.6	4.3	
Handle crown & Inner tube	Nut	M8 P1.25	2	20	2.0	14	
Handle crown & Handle holder	Bolt	M8 P1.25	4	20	2.0	14	
Front fork:							
Under bracket & Inner tube	Bolt	M8 P1.25	4	23	2.3	17	
Front wheel axle	Nut castle	M14 P1.5	1	105	10.5	75	
Front wheel axle pinch bolt	Nut salf locking	M8 P1.25	1	20	2.0	14	
Pivot shaft (Right)	Bolt	M22 P1.5	1	5.5	0.55	4.0	Taper roller bearing
Pivot shaft (Left and Right)	Bolt	M22 P1.5	1	100	10.0	72	
Rear wheel axle	Nut castle	M14 P1.5	1	105	10.5	75	
Rear wheel axle pinch bolt	Bolt	M8 P1.25	1	20	2.0	14	
Rear shock absorber (Upper)	Nut cap	M8 P1.25	2	20	2.0	14	
Rear shock absorber (Lower)	L Nut cap R Bolt	M10 P1.25	2	30	3.0	22	
Footrest	Bolt	M8 P1.25	4	29	2.9	21	
Tension bar & Brake plate	Bolt	M8 P1.25	1	20	2.0	14	
Tension bar & Rear arm	Bolt	M8 P1.25	1	20	2.0	14	
Camshaft lever & Camshaft	Bolt	M6 P1.0	1	9	0.9	6.5	
Disc brake section:							
Brake disc & Hub (Front)	Bolt	M8 P1.25	12	20	2.0	14	
Master cylinder & Brake hose (Front)	Bolt union	M10 P1.25	1	26	2.6	19	
Brake hose & Joint	Bolt union	M10 P1.25	1	26	2.6	19	
Caliper & Brake hose	Bolt union	M10 P1.25	2	26	2.6	19	
Caliper & Front fork (Front)	Bolt	M10 P1.25	4	35	3.5	25	
Caliper bleed screw (Front)		M8 P1.25	2	6	0.6	4.3	
Front fender	Bolt	M6 P1.0	4	9	0.9	6.5	

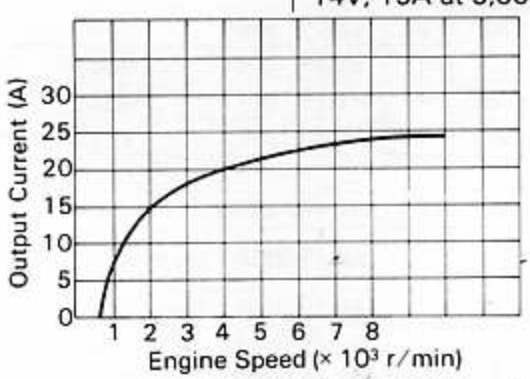
Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m-kg	ft-lb	
Final gear & Rear arm	Nut	M10 P1.25	4	42	4.2	30	
Final gear:							
Drive shaft	Nut	M14 P1.5	1	110	11	80	●
Bearing housing	Flange bolt	M8 P1.25	4	25	25	18	
Bearing housing	Nut	M8 P1.25	6	23	2.3	17	
Oil filler cap	Plug	M14 P1.5	1	23	2.3	17	
Oil drain screw	Plug	M14 P1.5	1	23	2.3	17	
Bearing retainer	—	M65 P1.5	1	110	11	80	Left-hand screw
Cross joint	Hexagon bolt with washer	M8 P1.25	4	44	4.4	32	
Muffler bracket & Frame	Bolt	M8 P1.25	4	23	2.3	17	
Rear fender	Bolt	M10 P1.25	2	32	3.2	23	
Muffler bracket & Muffler	Bolt	M10 P1.25	2	25	2.5	18	

ELECTRICAL

Item \ Model	XJ700S/SC
Voltage:	12V
Ignition System:	
Ignition Timing (B.T.D.C.)	7° at 1,050 r/min
Advanced Timing (B.T.D.C.)	37.5° at 6,000 r/min
Advancer Type	Electrical



T.C.I.:	
Pickup Coil Resistance (Color)	120Ω ± 10% at 20°C (68°F) (Black — Gray) (Black — Orange)
T.C.I. Unit — Manufacturer	TID14-44/HITACHI
Ignition Coil:	
Model/Manufacturer	CM12-26/HITACHI
Minimum Spark Gap	6 mm (0.24 in) or more at 500 r/min
Primary Winding Resistance	2.7Ω ± 10% at 20°C (68°F)
Secondary Winding Resistance	12 kΩ ± 20% at 20°C (68°F)
Charging System:	
Type	A.C. Generator
A.C. Generator:	
Model/Manufacturer	LD119-08/HITACHI
Nominal Output	14V, 19A at 5,000 r/min



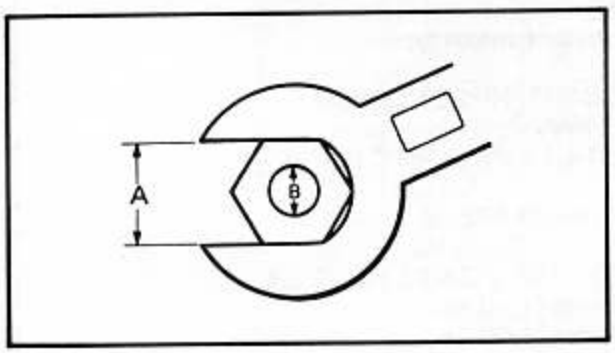
Field Coil Resistance		4.0Ω ± 10% at 20°C (68°F)
Armature Coil Resistance		0.46Ω ± 10% at 20°C (68°F) (White — White)
Brush Overall Length		17 mm (0.67 in)
	<Limit>	10 mm (0.39 in)
Brush Spring Pressure		190 ~ 360 g (6.7 ~ 12.7 oz)

Item \ Model	XJ700S/SC
Voltage Regulator:	
Type	Semi conductor, Field control
Model/Manufacturer	SH233-12/SHINDENGEN
No Load Regulated Voltage	14.5 ± 0.3V
Rectifier:	
Model/Manufacturer	SH233-12/SHINDENGEN
Capacity	35A
Battery:	
Capacity	12V 14 AH
Specific Gravity	1.280
Electric Starter System:	
Type	Constant-mesh type
Starter Motor:	
Model/Manufacturer	ADB4D2/NIPPONDENSO
Output	0.6 kW
Armature Coil Resistance	0.014Ω ± 6% at 20°C (68°F)
Brush:	
Overall Length	12 mm (0.472 in)
<Limit>	8.5 mm (0.335 in)
Spring Pressurer	800 ± 150 g (28.22 ± 5.29 oz)
Commutator Dia.	28 mm (1.10 in)
Wear Limit	27 mm (1.06 in)
Mic Undercut	0.6 ± 0.2 mm (0.024 ± 0.008 in)
Starter Switch:	
Amperage Rating	150A
Horn:	
Type/Quantity	Plane type × 2
Model/Manufacturer	CFL/NIKKO
Maximum Amperage	2.5A
Relay Assembly:	
Model/Manufacturer	FX257NZ/NIPPONDENSO
Flasher Relay	
Type	Semi transistor
Self Cancelling Device	Yes
Flasher Frequency	85 ± 10 cycle/min
Wattage	27W × 2 pcs + 3.4W
Starting-Circuit Cut-off Relay	
Color Code	No.
Sidestand Relay	
Model/Manufacturer	G2MW-D-3636/TATEISHI
Coil Winding Resistance	100Ω ± 10% at 20°C (68°F)
Color Code	Blue
Oil Level Switch:	
Model/Manufacturer	10L/NIPPONDENSO
Circuit Breaker:	
Type	Fuse
Amperage for Individual Circuit/Quantity:	
MAIN	30A × 1
HEADLIGHT	15A × 1
SIGNAL	15A × 1
IGNITION	10A × 1

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 criss-cross 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	51
22 mm	16 mm	130	13.0	94



DEFINITION OF UNITS

Unit	Read	Definition	Measure
mm cm	millimeter centimeter	10^{-3} meter 10^{-2} meter	Length Length
kg	kilogram	10^{3} gram	Weight
N	Newton	1 kg × m/sec^2	Force
Nm m·kg	Newton meter Meter kilogram	N × m m × kg	Torque Torque
Pa N/mm	Pascal Newton per millimeter	N/m^2 N/mm	Pressure Spring rate
L cm^3	Liter Cubic centimeter		Volume or Capacity
r/min	Rotation per minute		Engine Speed

CONVERSION TABLES

Metric to inch system		
Known	Multiplier	Result
m·kg	7.233	ft·lb
m·kg	86.80	in·lb
cm·kg	0.0723	ft·lb
cm·kg	0.8680	in·lb
kg	2.205	lb
g	0.03527	oz
km/lit	2.352	mpg
km/hr	0.6214	mph
km	0.6214	mi
m	3.281	ft
m	1.094	yd
cm	0.3937	in
mm	0.03937	in
cc (cm^3)	0.03382	oz (US liq)
cc (cm^3)	0.06102	cu in
lit (liter)	2.1134	pt (US liq)
lit (liter)	1.057	qt (US liq)
lit (liter)	0.2642	gal (US liq)
kg/mm	56.007	lb/in
kg/cm	14.2234	psi (lb/in)
centigrade (°C)	9/5 (°C) + 32	Fahrenheit (°F)

Inch to metric system		
Known	Multiplier	Result
ft·lb	0.13826	m·kg
in·lb	0.01152	m·kg
ft·lb	13.831	cm·kg
in·lb	1.1521	cm·kg
lb	0.4535	kg
oz	28.352	g
mpg	0.4252	km/lit
mph	1.609	km/hr
mi	1.609	km
ft	0.3048	m
yd	0.9141	m
in	2.54	cm
in	25.4	mm
oz (US liq)	29.57	cc (cm^3)
cu in	16.387	cc (cm^3)
pt (US liq)	0.4732	lit (liter)
qt (US liq)	0.9461	lit (liter)
gal (US liq)	3.785	lit (liter)
lb/in	0.017855	kg/mm
psi (lb/in)	0.07031	kg/cm
Fahrenheit (°C)	5/9 (° – 32)	Centigrade (°F)

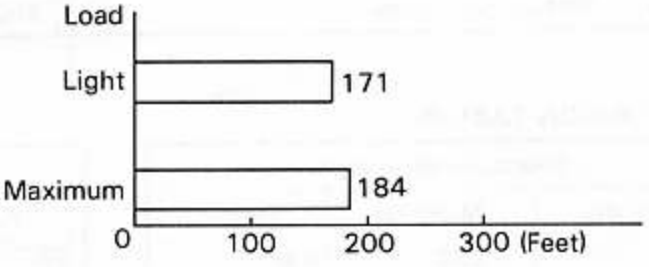
CONSUMER INFORMATION

STOPPING DISTANCE

These figures indicate braking performance that can be met or exceeded by the vehicles to which they apply, without locking the wheels, under different conditions of loading and with partial failures of the braking system. The information presented represents results obtainable by skilled drivers under controlled road and vehicle conditions and the information may not be correct under other conditions.

Description of vehicles to which this table applies: Yamaha motorcycle XJ700S/SC

A. Fully Operational Service Brake



Stopping distance in feet from 60 mi/h

NOTE:
The statement above is required by U.S. Federal law. "Partial failures" of the braking system do not apply to this chart.