YAMAHA

TRX850H

4XG-SE1

SERVICE INFORMATION

FOREWORD

This Service Information has been prepared to introduce new service and data for the TRX850H. For complete service information procedures it is necessary to use this publication together with the following microfiche service manual.

TRX850H SERVICE MANUAL: 4XG-ME1

TRX850H
SERVICE INFORMATION

1st Edition, March 1996

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 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.

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.

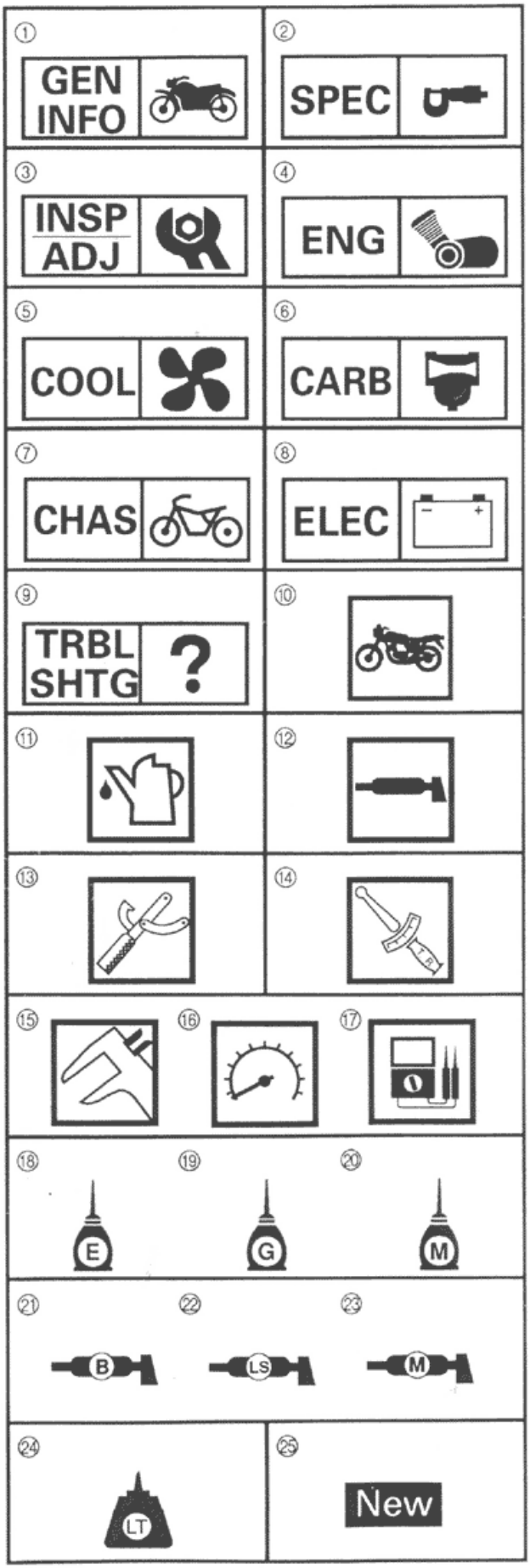
⚠	The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!
⚠ WARNING	Failure to follow WARNING instructions could result in severe injury or death to the motorcycle operator, a bystander, or a person inspecting or repairing the motorcycle.
CAUTION:	A CAUTION indicates special precautions 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.



EB003000

ILLUSTRATED SYMBOLS

Illustrated symbols ① to ⑨ are printed on top right of each page and indicate the subject of each chapter.

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

Illustrated symbols ⑩ to ⑰ are used to identify the specifications appearing in the text.

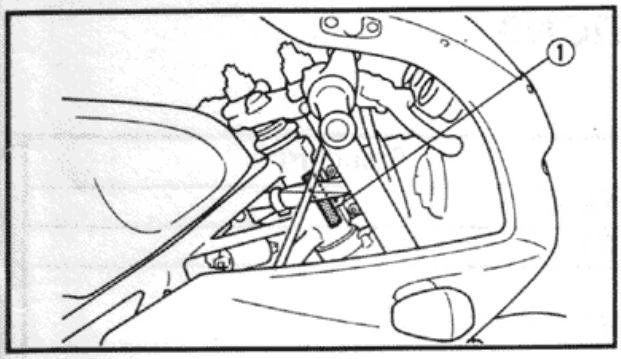
⑩ Can be serviced with engine mounted
⑪ Filling fluid
⑫ Lubricant
⑬ Special tool
⑭ Torque
⑮ Wear limit, clearance
⑯ Engine speed
⑰ Ω, V, A

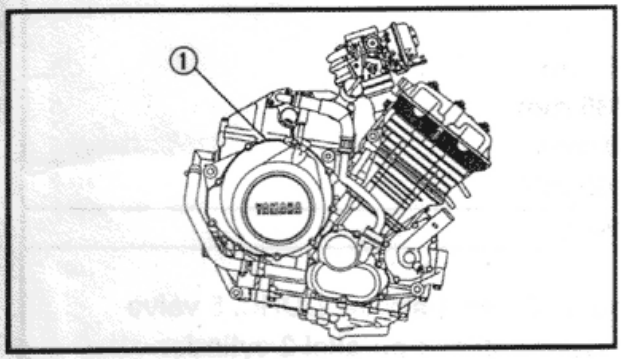
Illustrated symbols ⑱ to ㉓ in the exploded diagrams indicate the types of lubricants and lubrication points.

⑱ Apply engine oil
⑲ Apply gear oil
⑳ Apply molybdenum disulfide oil
㉑ Apply wheel bearing grease
㉒ Apply lightweight lithium soap base grease
㉓ Apply molybdenum disulfide grease

Illustrated symbols ㉔ to ㉕ in the exploded diagrams indicate where to apply a locking agent ㉔ and when to install new parts ㉕.

㉔ Apply locking agent (LOCTITE®)
㉕ Replace





GENERAL INFORMATION

MOTORCYCLE IDENTIFICATION

FRAME SERIAL NUMBER

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

NOTE:

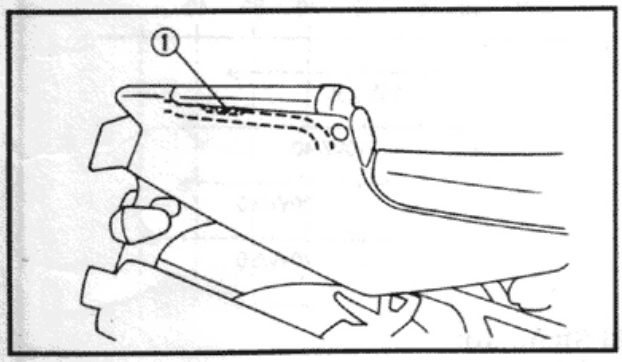
The first three digits of these numbers are for model identifications; the remaining digits are the unit production number.

ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the crankcase.

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.

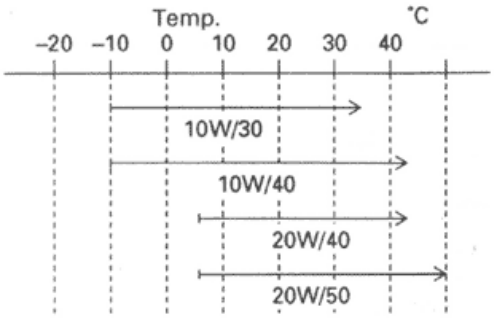


MODEL LABEL

The model label ① is affixed to the frame. This information will be needed to order spare parts.

SPECIFICATIONS

GENERAL SPECIFICATIONS

Item	Standard
Model	TRX850
Model code:	4XG1
Dimensions:	
Overall length	2,070 mm
Overall width	700 mm
Overall height	1,155 mm
Seat height	795 mm
Wheelbase	1,435 mm
Minimum ground clearance	140 mm
Minimum turning radius	3,000 mm
Basic weight (With oil and full fuel tank):	209 kg
Engine:	
Engine type	Liquid-cooled 4-stroke, DOHC, 5 valve
Cylinder arrangement	Forward-inclined parallel 2-cylinder
Displacement	0.849 L
Bore × stroke	89.5 × 67.5 mm
Compression ratio	10.5:1
Compression pressure (STD)	1,200 kPa (12 kg/cm², 12 bar) at 300 r/min
Starting system	Electric starter
Lubrication system:	Dry sump
Oil type or grade:	
Engine oil	 API Standard: API SE or higher grade
Oil capacity:	
Engine oil	
Periodic oil change	3.5 L
With oil filter replacement	3.6 L
Total amount	4.2 L
Radiator capacity (including all routes):	1.7 L

GENERAL SPECIFICATIONS

SPEC

Item		Standard
Air filter:		Dry type element
Fuel:		
Type		Unleaded fuel only
Fuel tank capacity		18 L
Fuel reserve amount		3.5 L
Carburetor:		
Type / quantity		BDST38/2
Manufacturer		MIKUNI
Spark plug:		
Type		DPR8EA-9/X24EPR-U9
Manufacturer		NGK/NIPPONDENSO
Spark plug gap		0.8 ~ 0.9 mm
Clutch type:		Wet, multiple-disc
Transmission:		
Primary reduction system		Spur gear
Primary reduction ratio		67/39 (1.718)
Secondary reduction system		Chain drive
Secondary reduction ratio		39/17 (2.294)
Transmission type		Constant mesh 5-speed
Operation		Left foot operation
Gear ratio	1st	36/14 (2.571)
	2nd	37/20 (1.850)
	3rd	30/21 (1.429)
	4th	27/23 (1.174)
	5th	28/27 (1.037)
Chassis:		
Frame type		Diamond
Caster angle		25°
Trail		97 mm
Tire:		
Type		Tubeless
Size	front	120/60 ZR17
	rear	160/60 ZR17
Manufacturer	front	MICHELIN
	rear	MICHELIN
Type	front	90X
	rear	90X
Tire pressure (cold tire):		
Maximum load-except motorcycle		211 kg
Loading condition A*		0 ~ 90 kg
	front	225 kPa (2.25 kg/cm², 2.25 bar)
	rear	250 kPa (2.5 kg/cm², 2.5 bar)
Loading condition B*		90 ~ 211 kg
	front	250 kPa (2.5 kg/cm², 2.5 bar)
	rear	280 kPa (2.8 kg/cm², 2.8 bar)

*Load is total weight of cargo, rider, passenger and accessories

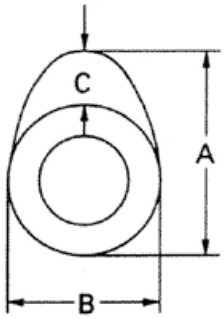
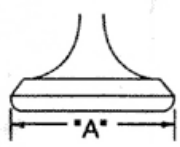
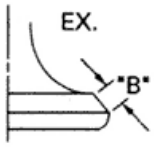
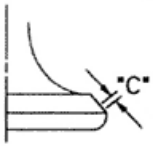
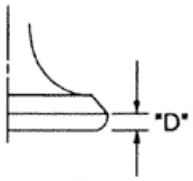
GENERAL SPECIFICATIONS

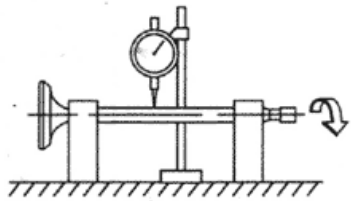
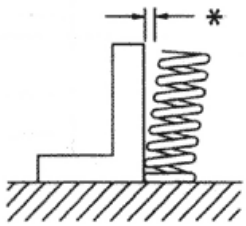
SPEC

Item		Standard
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 spring / Gas-oil damper
Wheel travel:		
Front wheel travel		120 mm
Rear wheel travel		130 mm
Electrical:		
Ignition system		T.C.I. (digital)
Generator system		A.C. magneto
Battery type		YTX12-BS
Battery capacity		12 V 10 AH
Headlight type:		Quartz bulb (halogen)
Bulb wattage × quantity:		
Headlight		12 V 60 W / 55 W × 1
Auxiliary light		12 V 4 W × 1
Tail / brake light		12 V 5 / 21 W × 2
Flasher light		12 V 21 W × 4
Licence light		12 V 5 W × 2
Meter light		12 V 1.7 W × 4
Indicator lights		
Neutral		12 V 3.4 W × 1
Turn		12 V 3.4 W × 2
High beam		12 V 3.4 W × 1

MAINTENANCE SPECIFICATIONS

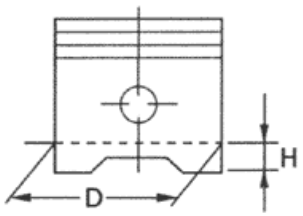
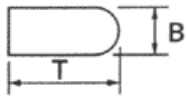
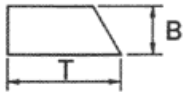
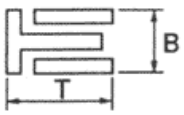
ENGINE

Item		Standard	Limit
Cylinder head:			
Warp limit		----	0.03 mm
Cylinder:			
Bore size		89.500 ~ 89.505 mm	89.6 mm
Taper limit		----	0.05 mm
Out of round limit		----	0.03 mm
Camshaft:			
Drive method		Timing chain (right)	----
Camshaft cap inside diameter		25.000 ~ 25.021 mm	----
Camshaft outside diameter		24.967 ~ 24.980 mm	----
Shaft-to-cap clearance		0.020 ~ 0.054 mm	----
Cam dimensions			
			
Intake	"A"	35.95 ~ 36.05 mm	35.85 mm
	"B"	27.95 ~ 28.05 mm	27.85 mm
	"C"	7.9 ~ 8.1 mm	----
Exhaust	"A"	35.95 ~ 36.05 mm	35.85 mm
	"B"	27.95 ~ 28.05 mm	27.85 mm
	"C"	7.9 ~ 8.1 mm	----
Camshaft runout limit		----	0.03 mm
Cam chain:			
Cam chain type / No. of links		82RH2015/138	----
Cam chain adjustment method		Automatic	----
Valve, valve seat, valve guide:			
Valve clearance (cold)	IN	0.15 ~ 0.20 mm	----
	EX	0.25 ~ 0.30 mm	----
Valve dimensions:			
 Head Dia		 Face Width	 Seat Width
 Margin Thickness			
"A" head diameter	IN	25.9 ~ 26.1 mm	----
	EX	27.9 ~ 28.1 mm	----

Item		Standard	Limit
"B" face width	IN	2.06 ~ 2.46 mm	----
	EX	2.06 ~ 2.46 mm	----
"C" seat width	IN	0.9 ~ 1.1 mm	----
	EX	0.9 ~ 1.1 mm	----
"D" margin thickness	IN	0.8 ~ 1.2 mm	----
	EX	0.8 ~ 1.2 mm	----
Stem outside diameter	IN	5.475 ~ 5.490 mm	5.445 mm
	EX	5.460 ~ 5.475 mm	5.43 mm
Guide inside diameter	IN	5.500 ~ 5.512 mm	5.55 mm
	EX	5.500 ~ 5.512 mm	5.55 mm
Stem-to-guide clearance	IN	0.010 ~ 0.037 mm	0.08 mm
	EX	0.025 ~ 0.052 mm	0.10 mm
Stem runout limit		----	0.01 mm
			
Valve seat width	IN	0.9 ~ 1.1 mm	1.6 mm
	EX	0.9 ~ 1.1 mm	1.6 mm
Valve spring:			
Free length	IN	37.29 mm	35.2 mm
	EX	37.29 mm	35.2 mm
Set length (valve closed)	IN	30.39 mm	----
	EX	30.39 mm	----
Compressed pressure (installed)	IN	10.0 ~ 11.6 kg	----
	EX	10.0 ~ 11.6 kg	----
Tilt limit	IN	----	2.5°/1.7 mm
	EX	----	2.5°/1.7 mm
			
Direction of winding (top view)	IN	Clockwise	----
	EX	Clockwise	----
			

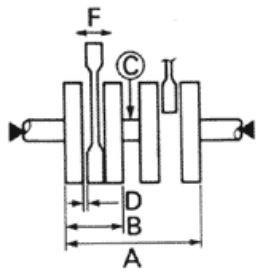
MAINTENANCE SPECIFICATIONS

SPEC

Item	Standard	Limit
Piston:		
Piston to cylinder clearance	0.065 ~ 0.085 mm	0.15 mm
Piston size "D"	89.420 ~ 89.435 mm	----
		
Measuring point "H"	4.5 mm	----
Piston off-set	1 mm	----
Piston off-set direction	IN side	----
Piston pin bore inside diameter	20.002 ~ 20.013 mm	20.043 mm
Piston pin outside diameter	19.991 ~ 20.000 mm	19.975 mm
Piston rings:		
Top ring:		
		
Type	Barrel	----
Dimensions (B × T)	1.0 × 3.5 mm	----
End gap (installed)	0.30 ~ 0.45 mm	0.7 mm
Side clearance (installed)	0.020 ~ 0.055 mm	0.12 mm
2nd ring:		
		
Type	Taper	----
Dimensions (B × T)	1.0 × 3.5 mm	----
End gap (installed)	0.30 ~ 0.45 mm	0.8 mm
Side clearance (installed)	0.020 ~ 0.055 mm	0.12 mm
Oil ring:		
		
Dimensions (B × T)	2.00 × 2.85 mm	----
End gap (installed)	0.2 ~ 0.7 mm	----
Connecting rod:		
Oil clearance	0.026 ~ 0.050 mm	0.09 mm

MAINTENANCE SPECIFICATIONS

SPEC

Item		Standard	Limit
Crankshaft:			
			
Assembly width "A"		153.6 ~ 154.4 mm	----
Crank width "B"		64.75 ~ 65.25 mm	----
Runout limit "C"		----	0.035 mm
Big end side clearance "D"		0.160 ~ 0.272 mm	0.5 mm
Small end free play "F"		0.8 ~ 1.0 mm	----
Journal oil clearance		0.020 ~ 0.038 mm	0.1 mm
Balancer:			
Balancer drive method		Gear	----
Clutch:			
Friction plate thickness		2.9 ~ 3.1 mm	2.8 mm
Quantity		9	----
Clutch plate thickness		1.9 ~ 2.1 mm	----
Quantity		8	----
Warp limit		----	0.1 mm
Clutch spring free length		55 mm	53 mm
Quantity		6	----
Clutch release method		Outer pull, rack & pinion pull	
Transmission:			
Main axle deflection limit		----	0.08 mm
Drive axle deflection limit		----	0.08 mm
Shifter:			
Shifter type		Guide bar	----
Guide bar bending limit		----	0.1 mm
Carburetor:			
I. D. mark		4UN 00	----
Main jet	(M.J)	#142.5	----
Main air jet	(M.A.J)	#60	----
Jet needle	(J.N)	5EI85-2/5	----
Needle jet	(N.J)	Y-2	----
Pilot air jet 1	(P.A.J.1)	#70	----
Pilot air jet 2	(P.A.J.2)	1.4	----
Pilot outlet	(P.O)	0.9	----
Pilot jet	(P.J)	#45	----
Bypass 1	(B.P.1)	0.8	----
Bypass 2	(B.P.2)	0.9	----
Bypass 3	(B.P.3)	0.8	----
Pilot screw	(P.S)	2.0	----

MAINTENANCE SPECIFICATIONS

SPEC

Item		Standard	Limit
Valve seat size	(V.S)	1.7	----
Starter jet 1	(G.S.1)	#75	----
Starter jet 2	(G.S.2)	0.8	----
Throttle valve size	(Th.V)	#130	----
Fuel level	(F.L)	4.6 ~ 5.6 mm	----
Engine idle speed		1,050 ~ 1,250 r/min	----
Intake vacuum		32.0 ~ 34.7 kPa (240 ~ 260 mmHg)	----
Fuel pump:			
Type		Vacuum type	----
Model/manufacturer		4NX/MIKUNI	----
Output pressure		10 kPa (0.1 kg/cm^2, 0.1 bar)	----
Lubrication system:			
Oil filter type		Paper type	----
Oil pump type		Trochoid type	----
Tip clearance		0 ~ 0.12 mm	0.17 mm
Side clearance		0.03 ~ 0.08 mm	0.15 mm
Bypass valve setting pressure		39 ~ 78 kPa (0.4 ~ 0.8 kg/cm^2, 0.4 ~ 0.8 bar)	----
Relief valve operating pressure		343 ~ 441 kPa (3.5 ~ 4.5 kg/cm^2, 3.5 ~ 4.5 bar)	----
Cooling system:			
Radiator core size			
Width/height/thickness		300 mm/185 mm/32 mm	----
Radiator cap opening pressure		75 ~ 105 kPa (0.75 ~ 1.05 kg/cm^2, 0.75 ~ 1.05 bar)	----
Reservoir tank capacity		0.3 L	----
<From low to full level>		0.2 L	----
Water pump			
Type		Single suction centrifugal pump	----
Reduction ratio		44/44 × 38/27 (1.407)	----

Tightening torques

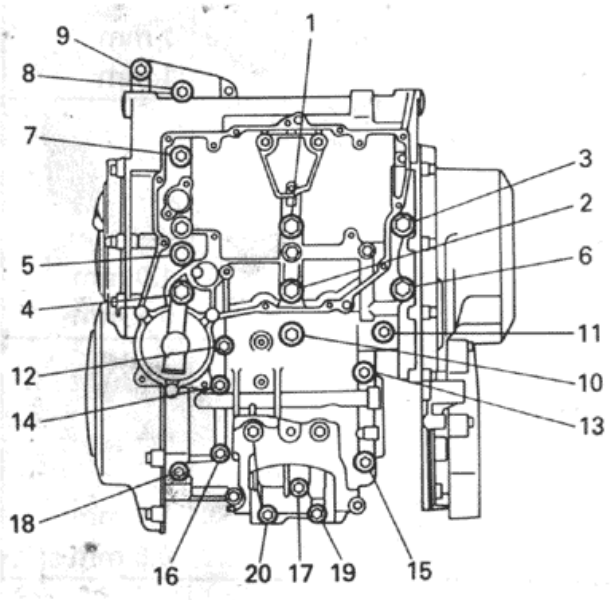
Part to be tightened	Part name	Thread size	Q'ty	Tightening torque		Remarks
				Nm	m·kg	
Camshaft cap	Flange bolt	M6	16	10	1.0	
Cylinder head	Nut	M10	6	40	4.0	E
	Bolt	M6	2	10	1.0	
Cylinder head cover	Bolt	M6	8	10	1.0	
Coolant drain bolt (cylinder body)	Bolt	M6	1	10	1.0	
Spark plug	—	M12	2	18	1.8	
Connecting rod	Nut	M9	4	48	4.8	M
Rotor	Flange bolt	M12	1	130	13.0	
Camshaft sprocket	Flange bolt	M7	4	24	2.4	
Timing chain tentioner	Bolt	M6	2	10	1.0	
Radiator	Flange bolt	M6	4	7	0.7	
Delivery hose (crankcase-cylinder)	Bolt	M10	2	21	2.1	
	Bolt	M6	2	10	1.0	
Oil pump assembly	Screw	M6	6	6	0.6	
Oil baffle plate	Flange bolt	M6	2	10	1.0	
Drain bolt (oil pan)	Bolt	M14	1	35	3.5	
Oil strainer	Screw	M6	4	7	0.7	Stake L1
Stay (relief valve)	Flange bolt	M6	1	10	1.0	L1
Oil filter cover	Flange bolt	M10	1	30	3.0	
	Flange bolt	M6	1	10	1.0	
Ring nut (exhaust pipe)	Nut	M8	4	20	2.0	
Exhaust pipe (CO test)	Bolt	M6	2	10	1.0	
Exhaust pipe and frame	Flange bolt	M8	1	24	2.4	
Exhaust pipe and muffler	Screw	M8	1	20	2.0	
Muffler	Bolt	M10	2	24	2.4	
Crankcase	Flange bolt	M10	6	40	4.0	M
	Flange bolt	M6	12	12	1.2	E
	Flange bolt	M8	11	24	2.4	E
Balancer shaft	Screw	M6	2	12	1.2	
Balancer holder	Flange bolt	M6	4	10	1.0	
Chain cover	Flange bolt	M6	2	5	0.5	
Drive sprocket cover	Flange bolt	M6	5	5	0.5	
Oil tank case 2	Flange bolt	M6	2	10	1.0	
Engine bracket	Flange bolt	M8	2	24	2.4	
Crankcase cover (left)	Flange bolt	M6	1	10	1.0	
Starter clutch	Bolt	M6	3	10	1.0	L1
Clutch spring	Screw	M6	6	8	0.8	
Clutch boss	Nut	M20	1	70	7.0	Use lock washer
Main axle bearing housing	Screw	M6	3	12	1.2	
Drive sprocket	Nut	M18	1	70	7.0	Use lock washer
Drive axle cover plate	Bolt	M6	5	10	1.0	
Shift cam stopper lever	Bolt	M6	1	10	1.0	L1
Shift fork guide	Flange bolt	M6	2	12	1.2	
Shift arm	Flange bolt	M6	1	12	1.2	
Shift rod	Nut	M6	2	8	0.8	
Shift pedal	Bolt	M8	1	22	2.2	
Stopper bolt	Bolt	M8	1	22	2.2	

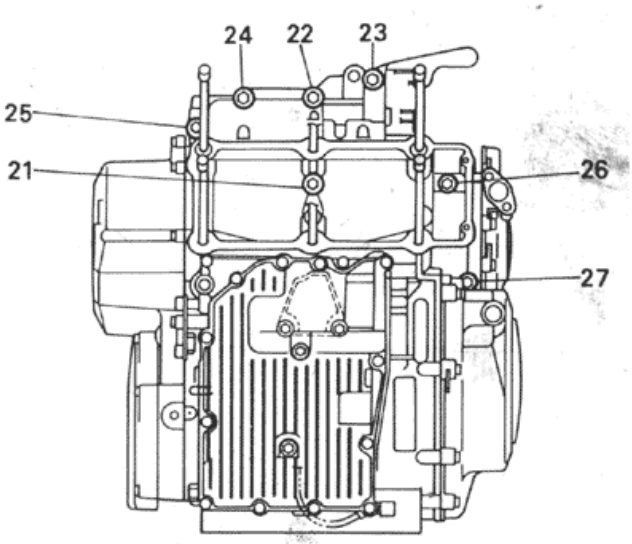
MAINTENANCE SPECIFICATIONS

SPEC

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque		Remarks
				Nm	m·kg	
Stator coil	Screw	M6	3	7	0.7	⑤
Pickup coil	Screw	M5	2	4	0.4	
Ignition coil	Screw	M6	4	10	1.0	
Neutral switch	Screw	M6	2	4	0.4	
Starter motor	Flange bolt	M6	2	10	1.0	
Thermo switch	—	M6	1	28	2.8	
Thermo switch housing	—	PT1/8	1	15	1.5	

Crankcase tightening sequence:





CHASSIS

Item		Standard	Limit
Steering system:			
Steering bearing type		Angular bearing	----
Front suspension:			
Front fork travel		120 mm	----
Fork spring free length		385 mm	381 mm
Fitting length		359.8 mm	----
Collar length		130 mm	----
Spring rate	(K1)	7.4 N/mm (0.75 kg/mm)	----
Stroke	(K1)	0 ~ 120 mm	----
Optional spring		No	----
Oil capacity (per fork tube)		0.483 L	----
Oil level		130 mm	----
Oil grade		Fork oil 10 W or equivalent	----
Rear suspension:			
Shock absorber travel		62 mm	----
Spring free length		220.5 mm	----
Fitting length		202 mm	----
Spring rate	(K1)	88.3 N/mm (9.0 kg/mm)	----
Stroke	(K1)	0 ~ 62 mm	----
Optional spring		No	----
Enclosed gas/air pressure (STD)		1,200 kPa (12 kg/cm^2, 12 bar)	----
Swingarm:			
Free play limit	end	----	1 mm
	side	----	1 mm
Front wheel:			
Type		Cast wheel	----
Rim size		17 × MT3.50	----
Rim material		Aluminum	----
Rim runout limit	radial	----	1.0 mm
	lateral	----	0.5 mm
Rear wheel:			
Type		Cast wheel	----
Rim size		17 × MT5.00	----
Rim material		Aluminum	----
Rim runout limit	radial	----	1.0 mm
	lateral	----	0.5 mm
Drive chain:			
Type/manufacturer		525HV/DAIDO	----
No. of links		110	----
Chain slack		20 ~ 30 mm	----

MAINTENANCE SPECIFICATIONS

SPEC

Item	Standard	Limit
Front disc brake:		
Type	Dual	----
Disc outside diameter × thickness	298 × 4 mm	----
Disc deflection limit	----	0.3 mm
Pad thickness inner	5.5 mm	0.5 mm
Pad thickness outer	5.5 mm	0.5 mm
Master cylinder inside diameter	15.8 mm	----
Caliper cylinder inside diameter	32.1 + 32.1 mm	----
Brake fluid type	DOT #4	----
Rear disc brake:		
Type	Single	----
Disc outside diameter × thickness	245 × 5 mm	----
Disc deflection limit	----	0.15 mm
Pad thickness inner	5.5 mm	0.5 mm
Pad thickness outer	5.5 mm	0.5 mm
Master cylinder inside diameter	14 mm	----
Caliper cylinder inside diameter	42.8 mm	----
Brake fluid type	DOT 4	----
Controls:		
Brake pedal height	57 mm	----
Clutch lever slack (at lever end)	10 ~ 15 mm	----
Throttle cable slack	3 ~ 7 mm	----

Tightening torques

Part to be tightened	Thread size	Tightening torque		Remarks
		Nm	m·kg	
Handle crown and inner tube	M8	23	2.3	
Handle crown and steering stem	M22	110	11.0	
Handlebar boss and inner tube	M8	17	1.7	
Handlebar boss and handle crown	M6	10	1.0	
Steering stem and ring nut	M25	16	1.6	See "NOTE".
Inner tube and under bracket	M10	23	2.3	
Front brake hose union bolt	M10	30	3.0	
Front master cylinder and bracket	M6	10	1.0	
Front cowling stay and frame	M8	23	2.3	
Front cowling bracket and frame	M6	7	0.7	
Handlebar boss and handlebar	M8	23	2.3	
Frame and engine (left and right)	M10	55	5.5	
Frame and rear arm bracket	M10	55	5.5	
Rear arm bracket and engine (upper and lower)	M10	75	7.5	
Frame and engine stay (left)	M10	55	5.5	
Engine and engine stay (left)	M8	30	3.0	
Frame and engine stay (right)	M8	30	3.0	
Engine and engine stay (right)	M10	55	5.5	
Pivot shaft and rear arm bracket	M16	125	12.5	
Relay arm and rear arm bracket	M10	48	4.8	
Relay arm and connecting rod	M10	48	4.8	
Connecting rod and rear arm	M10	48	4.8	
Rear shock absorber and relay arm	M10	40	4.0	
Rear shock absorber and rear arm bracket	M10	40	4.0	
Fuel tank (front) and frame	M10	7	0.7	
Fuel tank (rear) and frame	M6	13	1.3	
Side cover and frame	M6	7	0.7	
Taillight	M6	7	0.7	
Rear fender and frame	M6	7	0.7	
Sidestand	M8	23	2.3	①
Sidestand bracket and frame	M10	63	6.3	
Sidestand mount bracket and frame	M10	61	6.1	
Footrest bracket and frame	M8	30	3.0	
Rear footrest and frame	M8	30	3.0	
Rear master cylinder and footrest bracket	M8	23	2.3	
Rear brake hose union bolt	M10	30	3.0	
Shift pedal and footrest bracket	M8	28	2.8	
Brake pedal and footrest bracket	M10	35	3.5	
Front wheel axle and front fork	M14	65	6.5	
Rear wheel axle and nut	M18	117	11.7	
Front brake caliper and front fork	M10	40	4.0	
Rear brake caliper and caliper bracket	M10	40	4.0	
Brake disc and wheel (front and rear)	M8	23	2.3	①
Driven sprocket and rear hub	M10	60	6.0	
Tension bar	M8	26	2.6	
Bleed screw and caliper	M8	6	0.6	
Front wheel axle pinch bolt	M8	20	2.0	

NOTE:

1. First, tighten the ring nut approximately 48 Nm (4.8 m • kg) by using the torque wrench, then loosen the ring nut completely.
2. Retighten the ring nut to specification.

MAINTENANCE SPECIFICATIONS

SPEC

ELECTRICAL

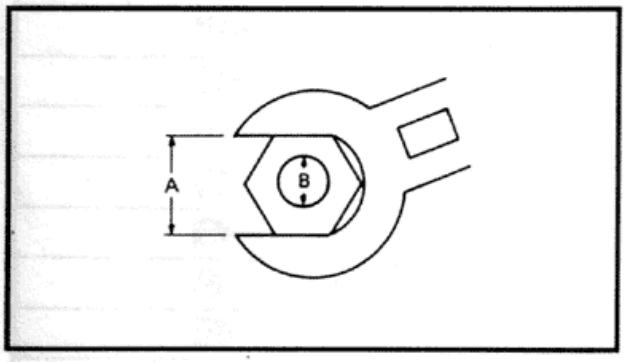
Item	Standard	Limit
Voltage:	12 V	----
Ignition system:		
Ignition timing (B.T.D.C.)	10° at 1,150 r/min	----
Advancer type	Electrical type	----
T.C.I.:		
Pickup coil resistance / color	192 ~ 288 Ω at 20°C / Blue/Yellow – Green/White	----
T.C.I. unit model / manufacturer	TNDF32/NIPPONDENSO	----
Ignition coil:		
Model / manufacturer	J0226/NIPPONDENSO	----
Minimum spark gap	6 mm	----
Primary winding resistance	3.4 ~ 4.6 Ω at 20°C	----
Secondary winding resistance	10.4 ~ 15.6 kΩ at 20°C	----
Spark plug cap:		
Type	Resin type	----
Resistance	10 kΩ	----
Charging system:		
Type	A.C. magneto	----
Model / manufacturer	TLNZ47/NIPPONDENSO	----
Nominal output	14 V 23.5 A at 5,000 r/min	----
Stator coil resistance	0.22 ~ 0.32 Ω at 20°C	----
Rectifier:		
Model / manufacturer	SH650-12/SHINDENGEN	----
Capacity	25 A	----
Withstand voltage	200 V	----
Battery:		
Specific gravity	1.320	----
Electric starter system:		
Type	Constant mesh type	----
Starter motor:		
Model / manufacturer	SM-13/MITSUBA	----
Output	0.8 kW	----
Armature coil resistance	0.01 Ω at 20°C	----
Brush overall length	12.5 mm	5 mm
Spring force	570 ~ 920 g	----
Commutator diameter	28 mm	27 mm
Mica undercut	0.7 mm	----
Starter relay:		
Model / manufacturer	MS5S-421/JIDECO	----
Amperage rating	100 A	----
Coil winding resistance	4.2 ~ 4.6 Ω at 20°C	----

MAINTENANCE SPECIFICATIONS SPEC

Item	Standard	Limit
Horn:		
Type	Plane type	----
Quantity	1	----
Model / manufacturer	YF-12/NIKKO	----
Maximum amperage	2.5 A	----
Flasher relay:		
Type	Full transistor type	----
Model / manufacturer	FE246BH/NIPPONDENSO	----
Self cancelling device	No	----
Flasher frequency	60 ~ 120 cycle/min	----
Wattage	21 W × 4 + 3.4 W	----
Starting circuit cut off relay:		
Model / manufacturer	G8R-30Y-F/OMRON	----
Coil winding resistance	180 ~ 270 Ω at 20°C	----
Diode	No	----
Thermostatic switch:		
Model / manufacturer	3LN/NIHON THERMOSTAT	----
Thermo unit:		
Model / manufacturer	11H/NIPPON SEIKI	----
Circuit breakers:		
Type	Fuse	----
Amperage for individual circuits		
Main fuse	30 A × 1	----
Headlight fuse	15 A × 1	----
Signal system fuse	15 A × 1	----
Ignition fuse	7.5 A × 1	----
Radiator fan fuse	7.5 A × 1	----
Reserve fuse	30 A × 1	----
Reserve fuse	15 A × 1	----
Reserve fuse	7.5 A × 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 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: Distance across flats
B: Outside thread diameter

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

LUBRICATION POINT AND GRADE OF LUBRICANT

ENGINE

Lubrication point	Lubricant type
Oil seal lips	LS
O-ring	LS
Bearing	E
Crankshaft (big end)	E
Piston surface	E
Piston pin	E
Cylinder	E
Piston ring, oil ring	E
Connecting rod bolt	M
Crankshaft journal	E
Balancer (bearing/shaft)	E
Camshaft, camshaft cap	M
Valve stem (IN/EX)	M
Valve stem end	E
Water pump impeller shaft	E
Oil pump assembly (inner)	E
Oil strainer assembly	E
Push rod	M
Idle gear surface	E
Starter clutch ball	E
Primary driven gear	E
Transmission gear (wheel/pinion)	M
Axle (main/drive)	M
Shift cam	E
Shift fork, guide bar	E
Shift shaft assembly	E
Shift boss (inner)	LS

LUBRICATION POINT AND GRADE OF LUBRICANT

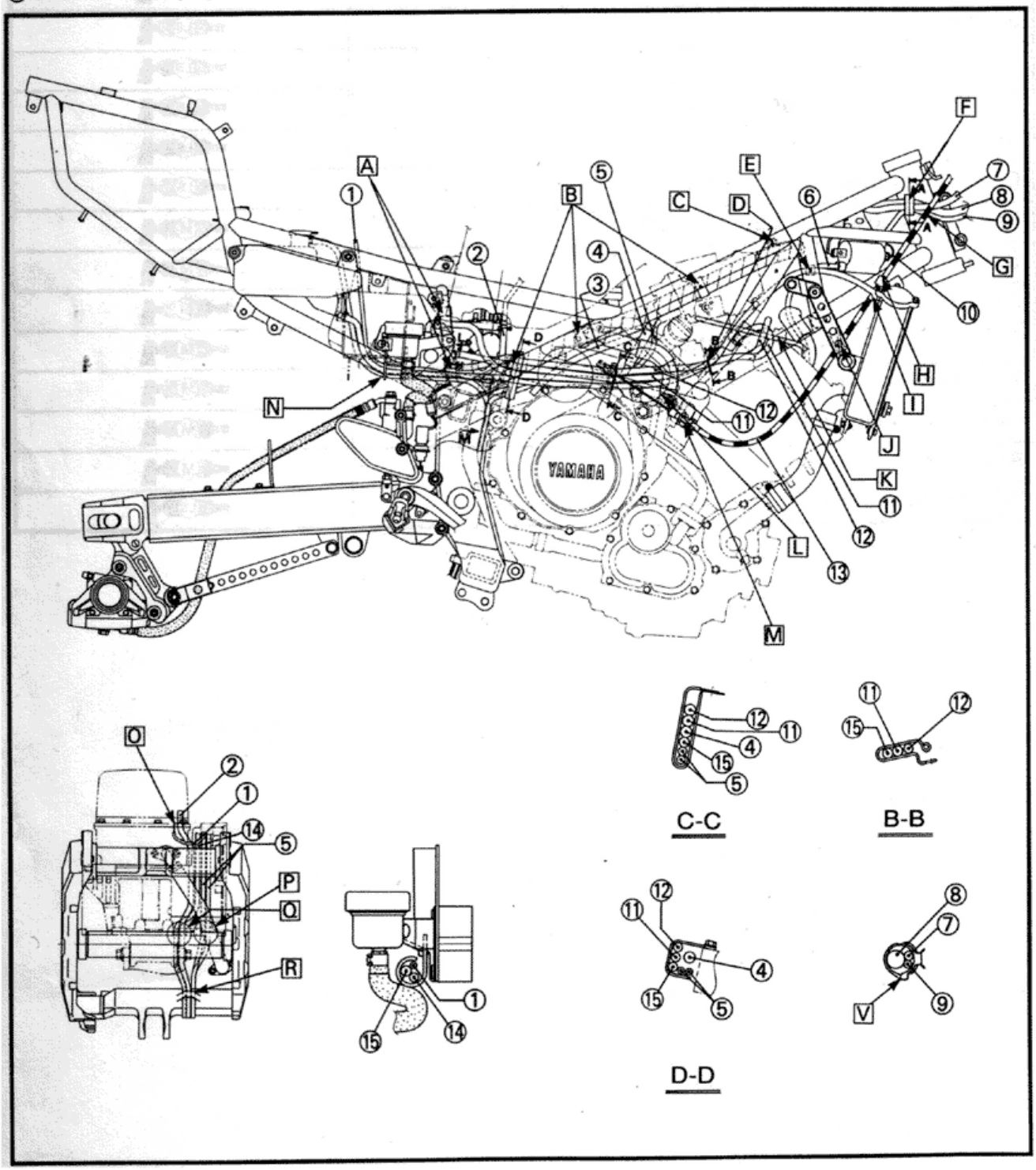
CHASSIS

Lubrication point	Lubricant type
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
Shift pedal	LS
Sidestand 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

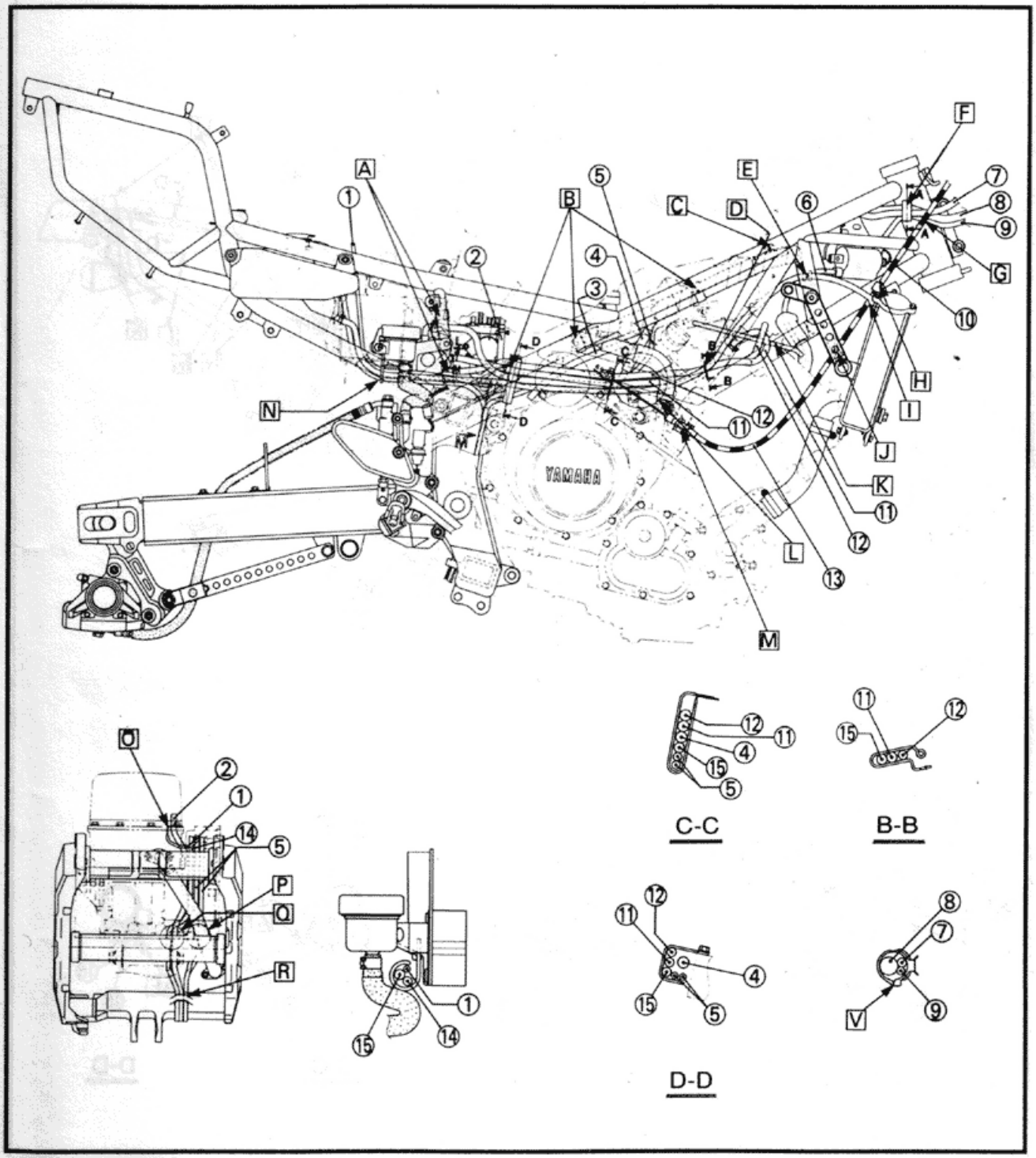
CABLE ROUTING

① Battery negative lead
② Fuel tank breather hose
③ Air vent hose
④ Fuel hose
⑤ Carburetor breather hose
⑥ Spark plug lead
⑦ Handlebar switch lead (right)
⑧ Sub wireharness
⑨ Meter lead
⑩ Ignition coil earth lead
⑪ Vacuum hose (#2)
⑫ Vacuum hose (#1)
⑬ Clutch cable
⑭ Coolant reservoir breather hose
⑮ Coolant reservoir hose

[A] Fasten the wireharness with plastic clamps (with the opening seam facing forward).
[B] Fasten the wireharness with plastic clamps (with the opening seam facing down).
[C] Fasten the wireharness to the frame with a plastic band.
[D] Attach the metal clip (with the tabs facing up) at the white dots on vacuum hoses #1 and #2.
[E] Fasten the reservoir tank hose with a plastic clamp (with the opening seam facing upward).
[F] Fasten the sub wireharness, handlebar switch lead (right) and meter lead with a plastic clamp (with the opening seam facing down).



G Pass the clutch cable in front of the handlebar switch lead (right) and meter lead.
H Fasten the clutch cable with a plastic clamp (with the opening seam facing down).
I Pass the clutch cable behind the coolant reservoir hose.
J Pass the clutch cable through the guide on the back of the bracket.
K Pass the radiator inlet hose behind vacuum hoses #1 and #2.
L Check that the hose is not twisted.
M After tightening the clutch cable locknut, install the rubber cover.
N Pass the battery negative lead, coolant reservoir hose and coolant reservoir breather hose through the guide.
O Check that the ground lead connector is bent 90°.
P Pass the carburetor breather hose to the right of the projection on the crankcase.
Q Pass the fuel tank breather hose and coolant reservoir breather hose to the left of the projection on the crankcase.
R Pass the fuel tank breather hose, coolant reservoir breather hose and both carburetor breather hoses through the guide. Each hose should stick out more than 20 mm.
S Follow the order of the hoses shown in C-C.
T Follow the order of the hoses shown in D-D.
U Follow the order of the hoses shown in E-E.
V Opening seam

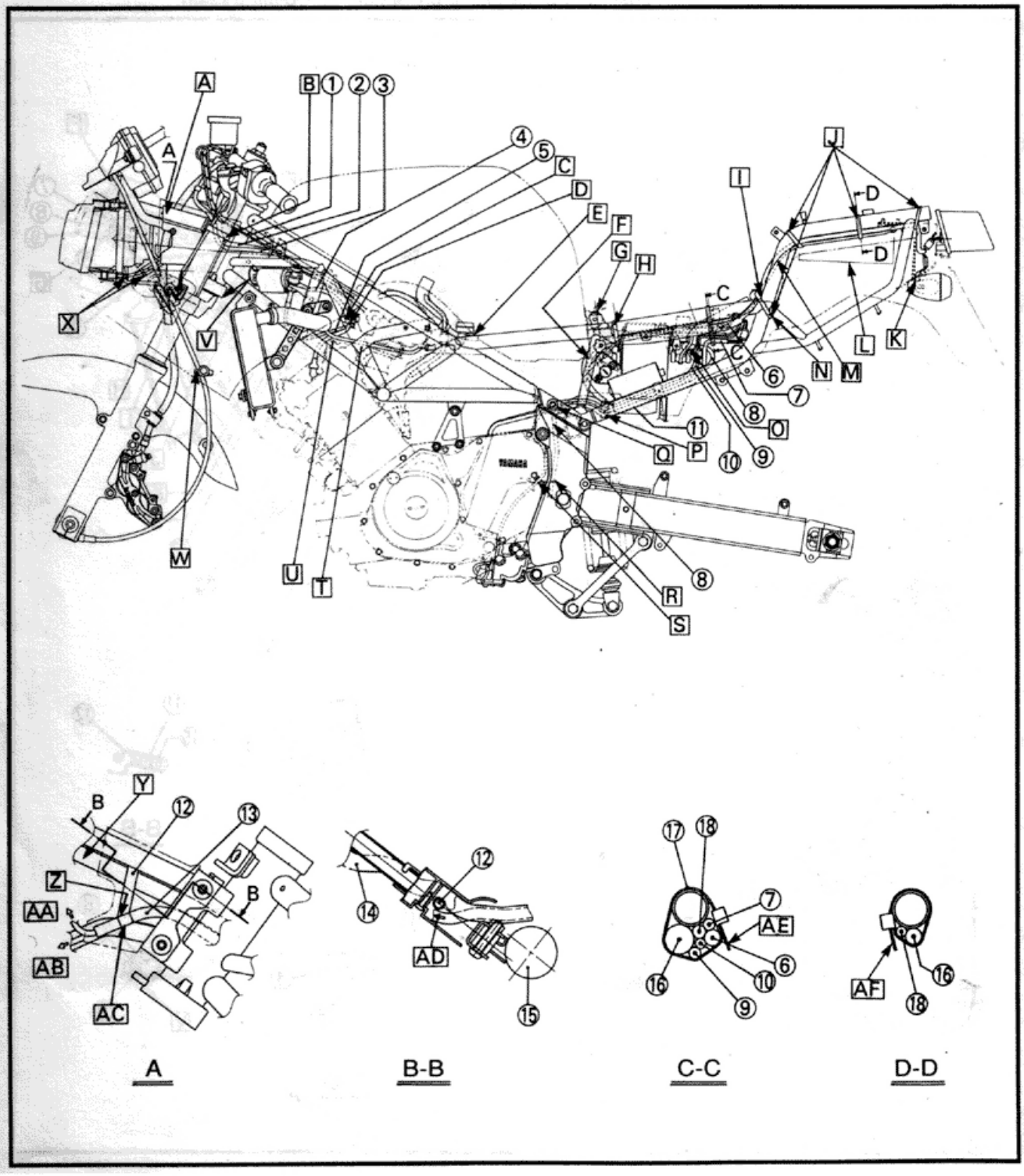


CABLE ROUTING

SPEC

① Throttle cables
② Handlebar switch lead (left)
③ Main switch lead
④ Spark plug lead
⑤ Starter cable
⑥ Rectifier/regulator lead
⑦ A.C. magneto lead
⑧ Starter motor lead
⑨ Neutral switch lead
⑩ Sidestand switch lead
⑪ Rectifier/regulator
⑫ Headlight stay cross pipe
⑬ Sub wireharness
⑭ Meter lead
⑮ Frame
⑯ Wireharness
⑰ Clamp
⑱ Seat lock cable

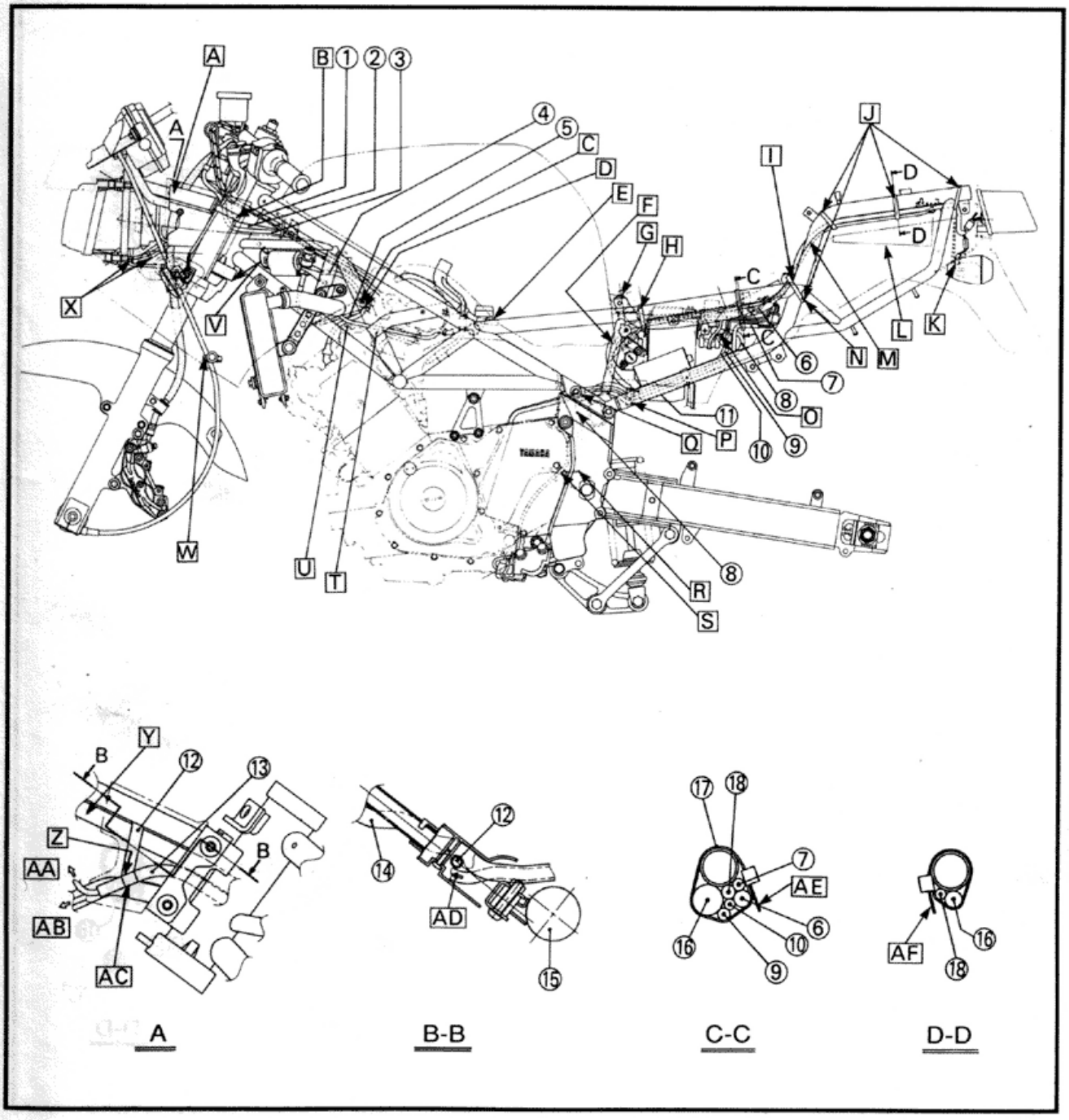
[A] Clamp the wireharness. The clamp taps face forward.



CABLE ROUTING

SPEC

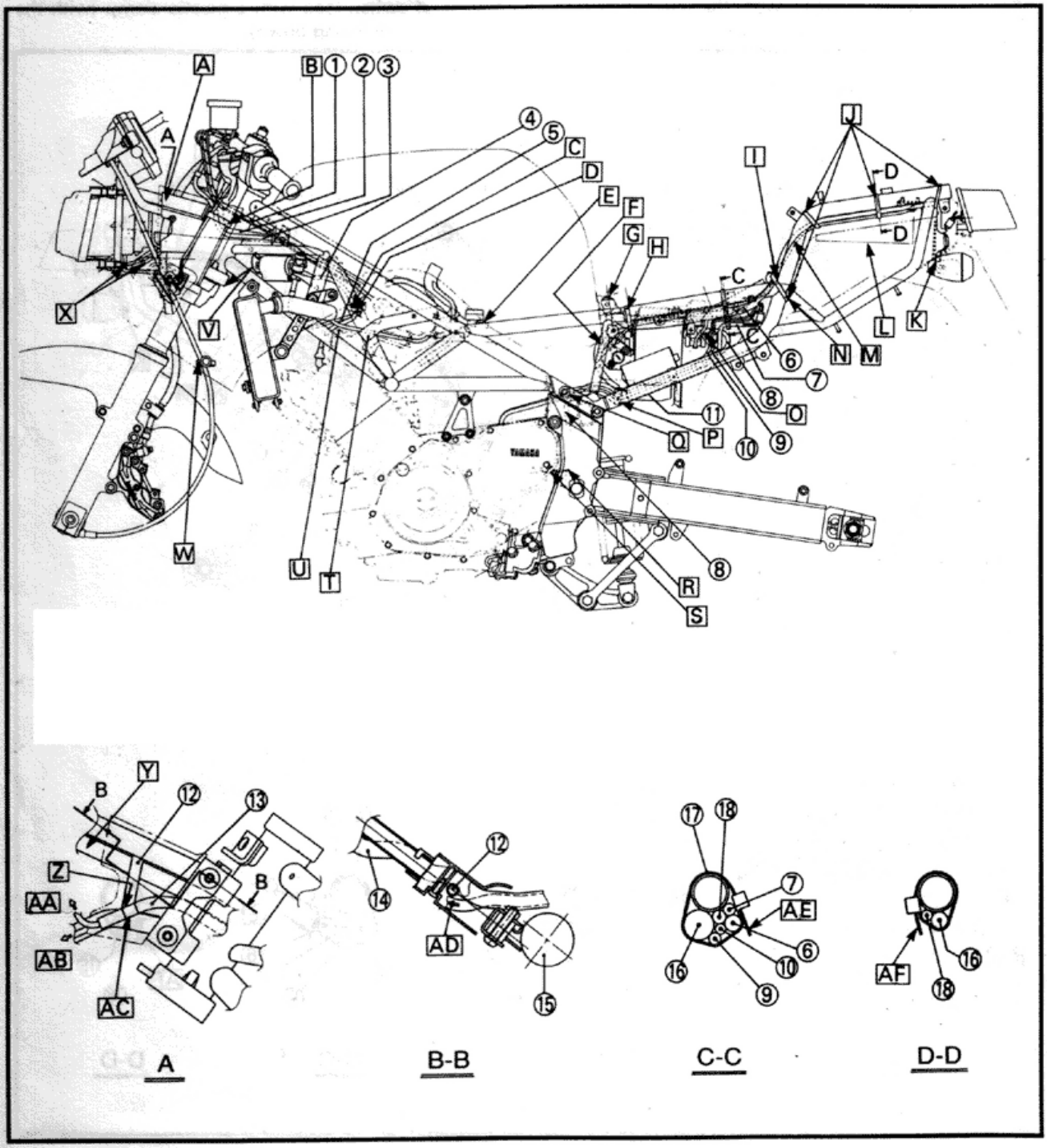
[A] Pass the two sub wireharnesses through the plastic headlight stay cover.
[B] Fasten the horn lead, handlebar switch lead (left) and main switch lead to the inner tube with a plastic locking tie.
[C] Fasten the spark plug lead with a plastic clamp (with the opening seam facing forward).
[D] Pass the spark plug lead in front of the starter cable.
[E] Pass one carburetor breather hose between the cross pipe and either the left or right bracket, then pass the other hose between the cross pipe and the other bracket.
[F] Check that there is no slack in the rectifier/regulator lead.
[G] Fasten the wireharness with the plastic clamp below the tank mounting bracket.
[H] Fasten the wireharness, rectifier/regulator lead and seat lock cable with a plastic band.
[I] 100 ~ 110 mm
[J] Fasten the wireharness and seat lock cable with four plastic bands.
[K] Pass the rear flasher light lead through the hole in the rear fender.
[L] Do not allow the seat lock cable to hang down in this area.
[M] Pass the main harness and seat lock cable behind the frame.
[N] The end of the plastic band should face downward.
[O] Pass the starter motor lead around the back and connect it to the side of the starter relay.
[P] Fasten the starter motor lead, A.C. magneto lead and sidestand switch lead with a plastic clamp (with the opening seam facing down).



CABLE ROUTING

SPEC

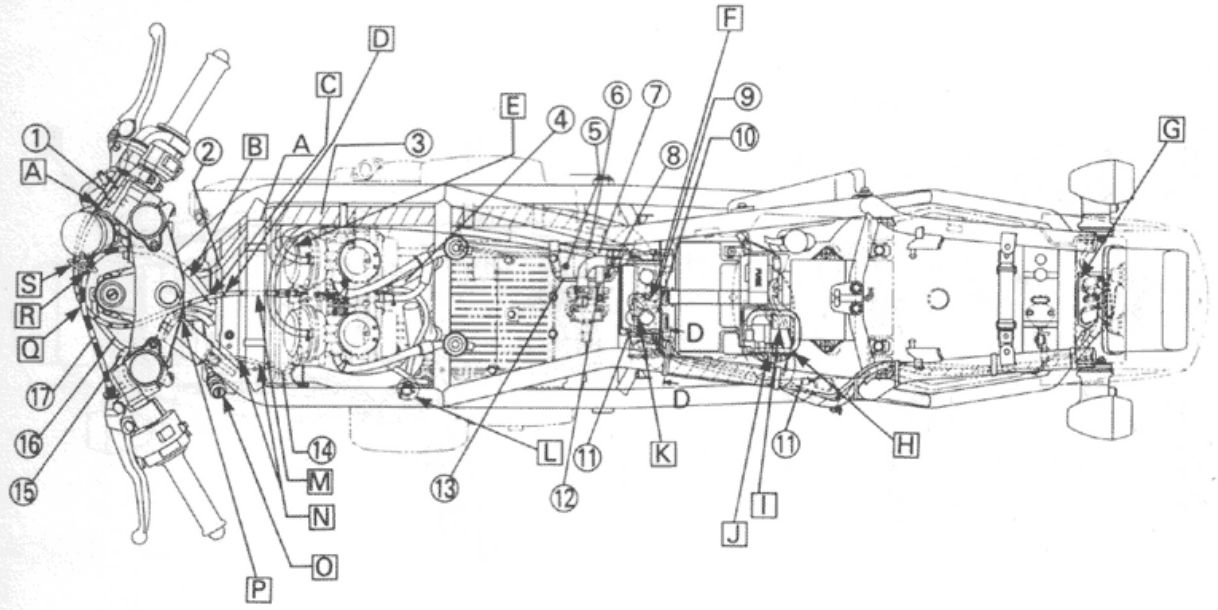
[Q] Fasten the A.C. magneto lead, sidestand switch lead and neutral switch lead with a plastic band in front of the cross tube (with the end of the band facing in and down).
[R] Pass the starter motor lead through the guide.
[S] Pass the sidestand switch lead through the guide.
[T] Pass the radiator inlet hose in front of the blow-by exhaust hose.
[U] Pass the radiator inlet hose in front of the blow-by exhaust hose and starter cable.
[V] Left: orange ignition coil lead; Right: gray ignition coil lead
[W] Attach the metal guide to the upper cowling, then pass the speedometer cable (left side only) through it.
[X] Attach the plastic guide to the headlight stay, then pass the front flasher light leads, headlight lead and auxiliary light lead through it.
[Y] Pass the meter lead to the right of the headlight stay.
[Z] Align the white tape on the sub wireharness with the headlight stay cross pipe.
[AA] To the headlight
[AB] To the front flasher light
[AC] Pass the sub wireharness to the left of the headlight stay cross pipe.
[AD] To the headlight and front flasher light
[AE] The end of the plastic band should face in.
[AF] The ends of the three plastic bands should face outward and should stay outside the rear fender.

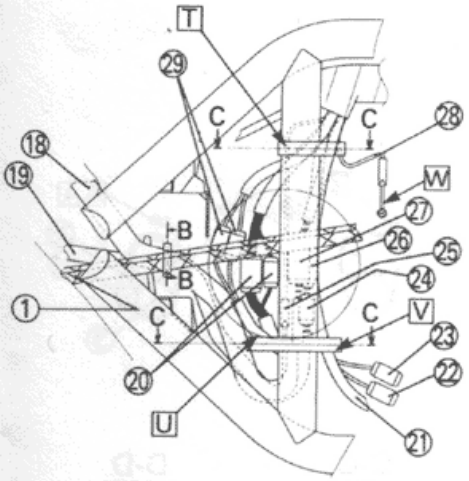


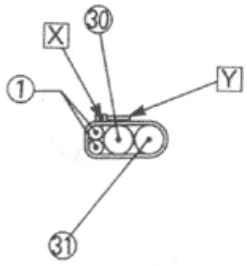
CABLE ROUTING

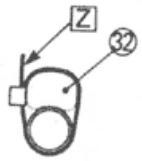
SPEC

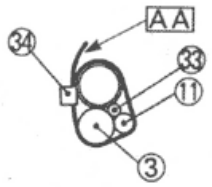
① Throttle cables
② Ignition coil lead
③ Wireharness
④ Air vent hose
⑤ Fuel tank breather hose
⑥ Fuel hose
⑦ Vacuum hose (#2)
⑧ Reserve tank breather hose
⑨ Flasher relay
⑩ Starter circuit cut-off relay
⑪ Rectifier/regulator lead
⑫ Vacuum hose (#1)
⑬ Battery negative lead
⑭ Starter cable
⑮ Handlebar switch lead (left)
⑯ Main switch lead
⑰ Clutch cable
⑱ Headlight lead, meter lead and handlebar switch lead (right)
⑲ Main switch lead and handlebar switch lead (left)
⑳ Handlebar switch lead coupler (left)
㉑ T.P.S. (throttle position sensor) lead
㉒ Thermo unit lead connector
㉓ Thermo switch lead connector
㉔ Handlebar switch lead coupler (right)
㉕ Fan lead coupler
㉖ Headlight lead coupler
㉗ Main switch lead coupler
㉘ Thermo unit ground lead
㉙ Meter lead coupler
㉚ Meter lead, headlight lead and handlebar switch lead (left)
㉛ Handlebar switch lead (right) and main switch lead
㉜ Leads
㉝ Seat lock cable
㉞ Plastic band







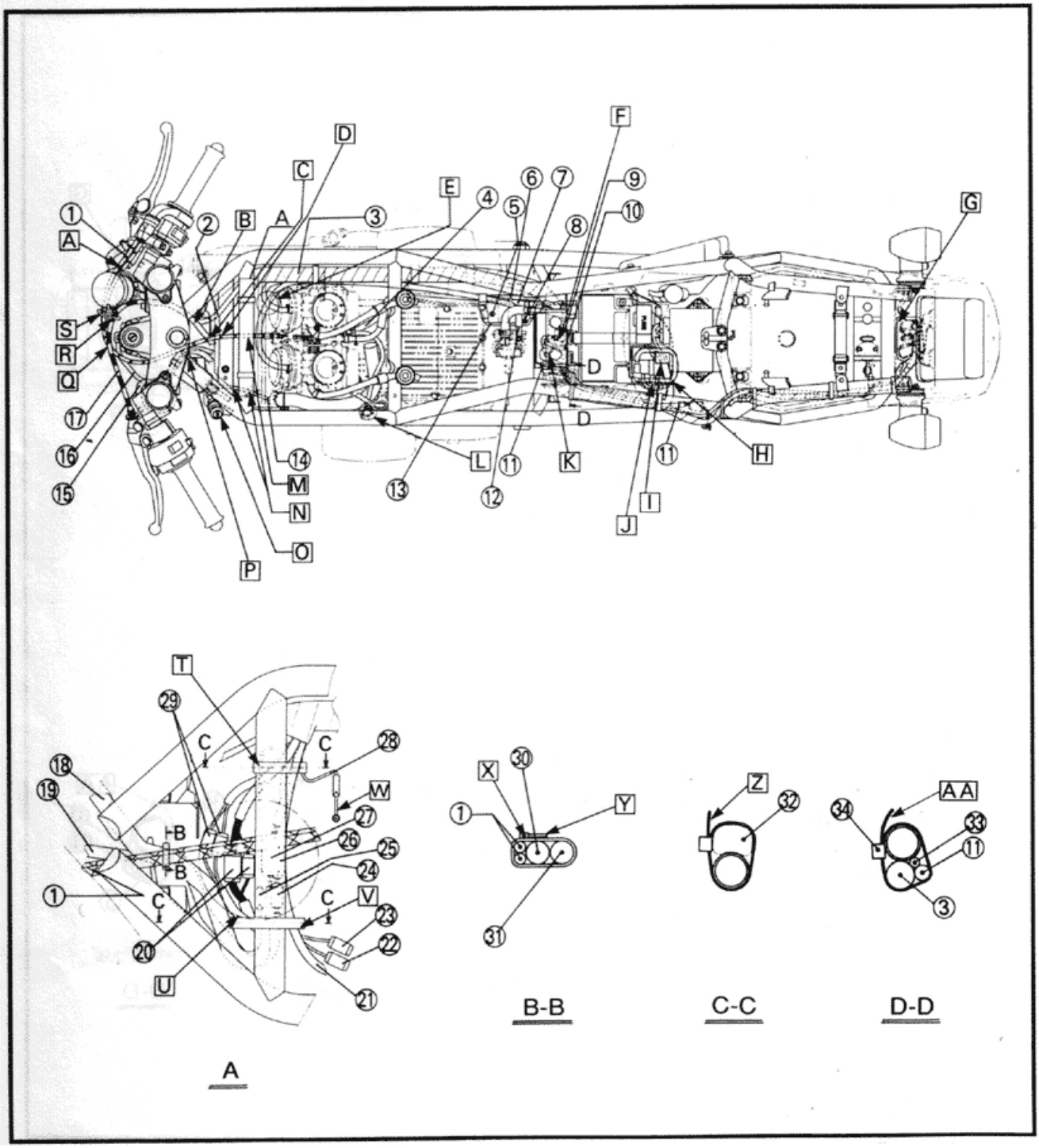




CABLE ROUTING

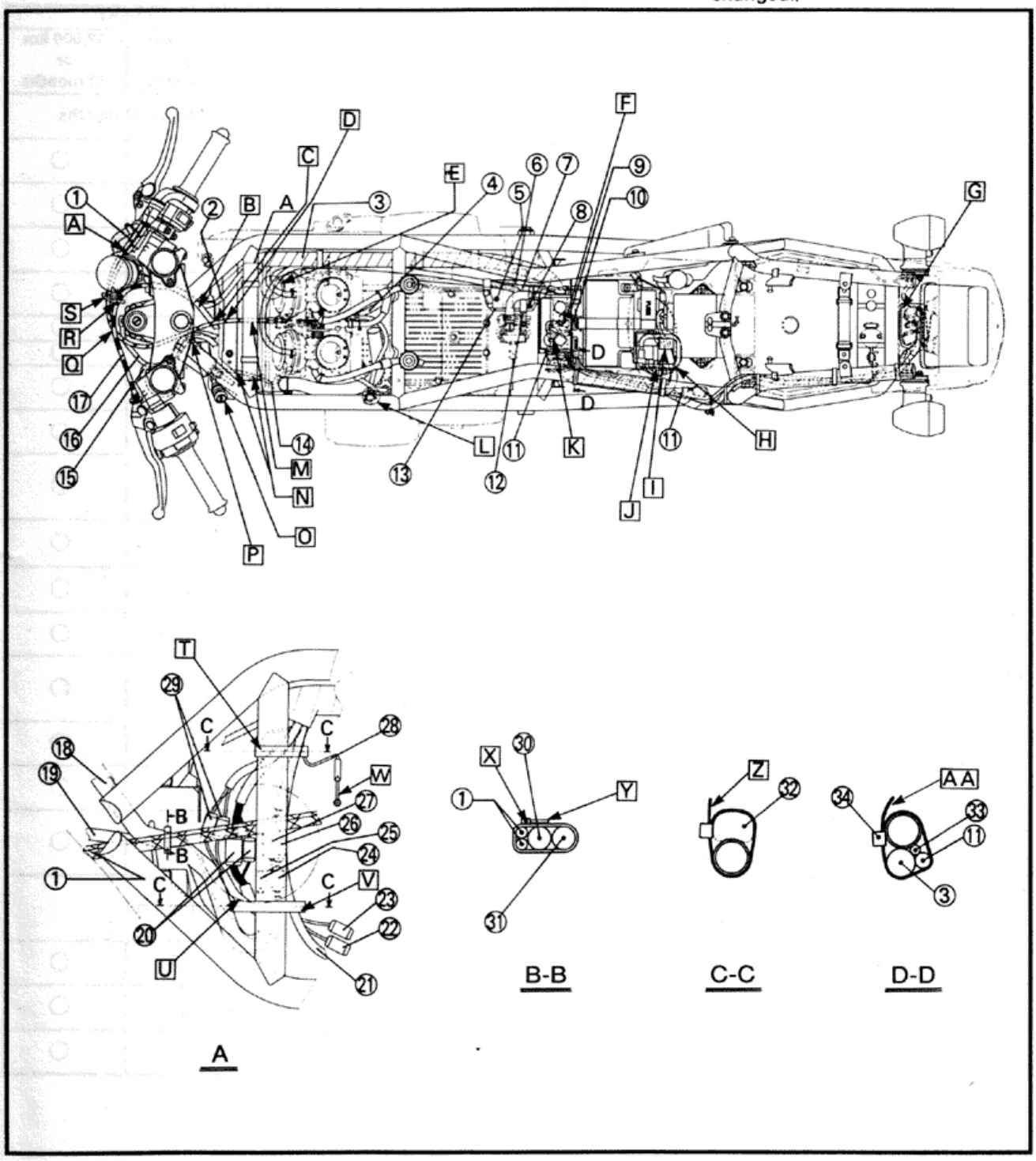
SPEC

[A] Pass the throttle cables through the top of the guide.
[B] Pass the handlebar switch lead (right), meter lead and headlight lead over the ignition coil lead.
[C] Pass the handlebar switch lead (right), meter lead and headlight lead below the throttle cable.
[D] Press the couplers down far enough so that they do not interfere with the throttle cables.
[E] Pass vacuum hose #1 over vacuum hose #2.
[F] Fasten the wireharness with a plastic clamp.
[G] Cover the tail/brake light lead coupler and rear flasher light lead couplers (left and right) with the rubber boot and insert them into the rear fender.
[H] Pass the battery positive lead over the wireharness.
[I] Pass the wireharness below the ignitor unit coupler.
[J] Pull the battery band over the battery positive lead.
[K] Be sure to fasten the clamp on the taped section of the leads before they separate.
[L] The bracket should keep touching the frame while the bolt is being tightened.
[M] Pass the throttle cables below the cross pipe.
[N] Pass the starter cable below the cross pipe.
[O] The symbol on the starter knob should face up.
[P] Pass the main switch lead, handlebar switch lead (left) and throttle cable through the guide.
[Q] Pass the clutch cable over the throttle cables.
[R] Pass the clutch cable through the bottom of the guide.



[S] Pass the throttle cables through the top of the guide.
[T] Fasten the wireharness with a plastic band.
[U] Push the couplers down and in front of the cross pipe.
[V] Fasten the meter lead, sub wireharness, main switch lead, T.P.S. lead, handlebar switch leads (left and right), thermo switch lead, thermo unit lead and radiator fan lead with a plastic band.
[W] Connect the thermo unit ground lead to the thermostatic valve housing from the right.
[X] Fasten the throttle cables, speedometer lead, headlight lead and handlebar switch leads (left and right) with a plastic band behind the guide attached to the frame.
[Y] The end of the plastic band should face down and to the right.
[Z] The end of the plastic band should face down and forward.
[AA] The end of the plastic band should be above the battery box.

[Order of wire connections - Fig. A]
1. Radiator fan lead coupler
2. Main switch lead coupler and handlebar switch lead coupler (left) (This order can be changed.)
3. Sub wireharness coupler, speedometer lead coupler and handlebar switch lead coupler (right) (This order can be changed.)
4. Thermo unit ground coupler, thermo switch lead coupler, T.P.S. lead coupler (This order can be changed.)



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

ITEM	ROUTINE	BREAK-IN 1,000 km	EVERY 6,000 km or 6 months	EVERY 12,000 km or 12 months
Valves*	• Check valve clearance. • Adjust if necessary.	EVERY 42,000 km or 42 months		
Spark plugs	• 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 and vacuum pipe for cracks or damage. • Replace if necessary.		○	○
Engine oil	• Replace (Warm engine before draining).	○	○	○
Engine oil filter*	• Replace.	○		○
Brakes*	• Check operation/fluid leakage. (see NOTE) • Correct if necessary.		○	○
Clutch	• Check operation. • Adjust if necessary.		○	○
Swingarm pivot*	• Check swingarm assembly for looseness. • Correct if necessary. • Moderately repack every 24,000 km or 24 months.***			○
Rear suspension link pivots*	• Check operation. • Apply grease lightly every 24,000 km or 24 months.***			○
Wheels*	• Check balance/damage/runout. • Replace 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 km 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 km or 24 months.		○	○
Drive chain	• Check chain slack/alignment. • Adjust if necessary. • Clean and lube.	EVERY 500 km		
Fittings/Fasteners*	• Check all chassis fittings and fasteners. • Correct if necessary.	○	○	○
Sidestand*	• Check operation. • Repair if necessary.	○	○	○
Sidestand switch*	• Check operation. • Replace if necessary.	○	○	○

* : It is recommended that these items be serviced by a Yamaha dealer.
** : Lithium soap base grease.
*** : Molybdenum disulfide grease.

PERIODIC MAINTENANCE/LUBRICATION INTERVALS

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NOTE:

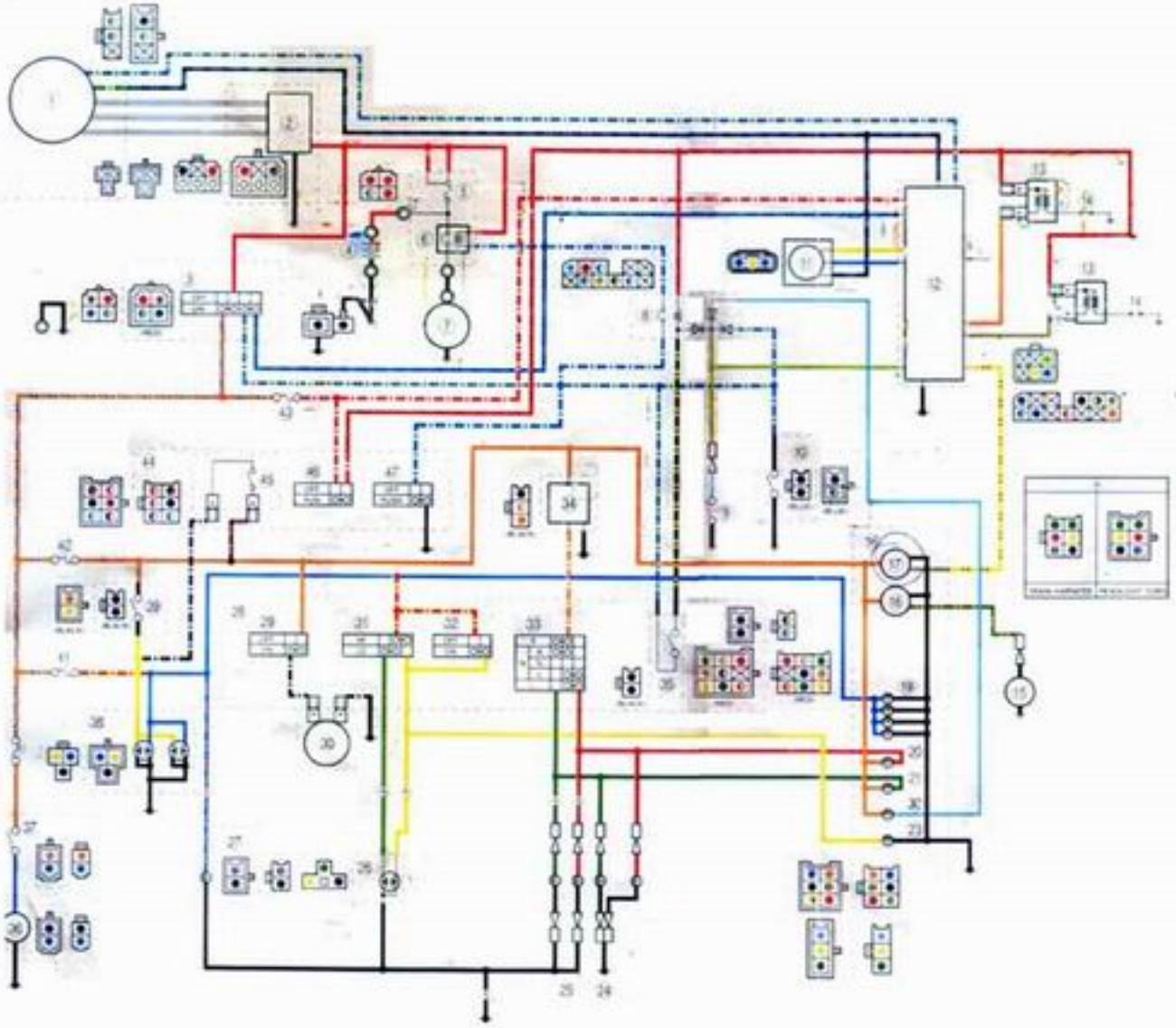
Brake fluid replacement:

1. When disassembling the master cylinder or caliper cylinder, replace the brake fluid. Normally check the brake fluid level and fill the master cylinder with 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.

CONTENTS

TRX850H WIRING DIAGRAM

① A.C. magneto/pickup coil
② Rectifier/regulator
③ Main switch
④ Battery
⑤ Main fuse
⑥ Starter relay
⑦ Starter motor
⑧ Starting circuit cut-off relay
⑨ Neutral switch
⑩ Sidestand switch
⑪ T.P.S. (throttle position sensor)
⑫ Ignitor unit
⑬ Ignition coil
⑭ Spark plug
⑮ Thermo unit
⑯ Meter assembly
⑰ Tachometer
⑱ Water temperature meter
⑲ Meter light
⑳ Turn indicator light (left)
㉑ Turn indicator light (right)
㉒ Neutral indicator light
㉓ High beam indicator light
㉔ Rear flasher light
㉕ Front flasher light
㉖ Headlight
㉗ Auxiliary light
㉘ Handlebar switch (left)
㉙ Horn switch
㉚ Horn
㉛ Dimmer switch
㉜ Pass switch
㉝ Turn switch
㉞ Flasher relay
㉟ Clutch switch
㊱ Fan motor
㊲ Thermo switch
㊳ Tail/brake light
㊴ Rear brake switch
㊵ Radiator fan fuse
㊶ Headlight fuse
㊷ Signal system fuse
㊸ Ignition fuse
㊹ Handlebar switch (right)
㊺ Front brake switch
㊻ Engine stop switch
㊼ Start switch



COLOR CODE

Black	Black/White
Blue	Black/Yellow
Brown	Blue/Black
Chocolate	Blue/Red
Dark green	Blue/White
Gray	Blue/Yellow
Green	Brown/Blue
Light green	Brown/White
Orange	Green/Red
Red	Green/White
Sky blue	Green/Yellow
White	Red/Black
Yellow	Red/White
Black/Blue	Red/Yellow
Black/Red	Yellow/Black

YAMAHA

YAMAHA MOTOR CO., LTD.
2500 SHINGAI IWATA SHIZUOKA JAPAN

PRINTED ON RECYCLED PAPER

PRINTED IN JAPAN
96 • 3 - 0.3 × 1 CR
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