











YFM50S

SERVICE MANUAL

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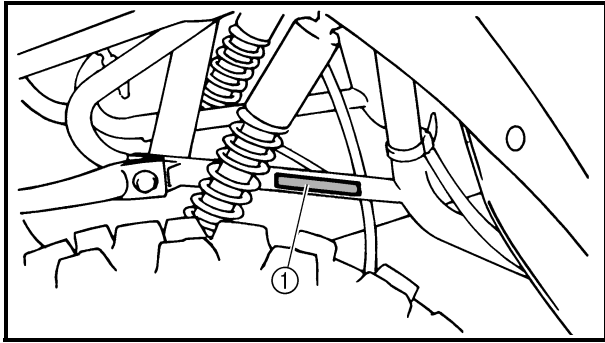
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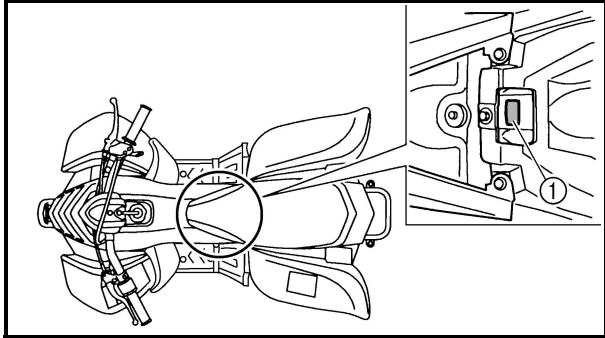
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GENERAL INFORMATION MACHINE IDENTIFICATION

EBS00010

VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the left side of the frame.



EBS00011

MODEL LABEL

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

EBS00013

IMPORTANT INFORMATION PREPARATION FOR REMOVAL AND DISASSEMBLY

1. Before removal and disassembly remove all dirt, mud, dust and foreign material.
2. Use only the proper tools and cleaning equipment.
Refer to “SPECIAL TOOLS”.
3. When disassembling always keep mated parts together. This includes gears, cylinders, pistons and other parts that have been “mated” through normal wear. Mated parts must always be reused or replaced as an assembly.
4. During disassembly, clean all of the parts and place them in trays in the order of disassembly. This will speed up assembly and allow for the correct installation of all parts.
5. Keep all parts away from any source of fire.

1

EBS00014

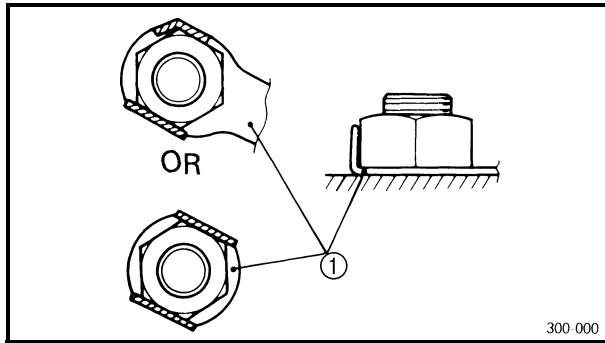
REPLACEMENT PARTS

1. Use only genuine Yamaha parts for all replacements. Use oil and grease recommended by Yamaha for all lubrication jobs. Other brands may be similar in function and appearance, but inferior in quality.

EBS00015

GASKETS, OIL SEALS AND O-RINGS

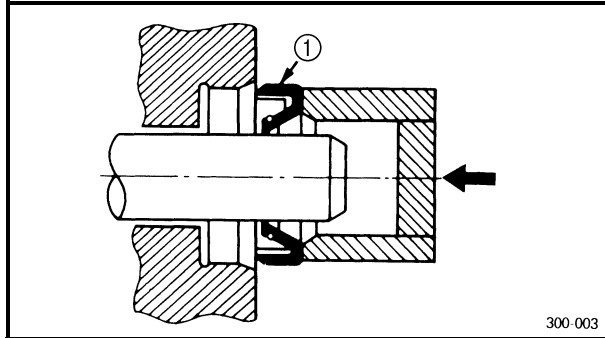
1. When overhauling the engine, replace all gaskets, seals and O-rings. All gasket surfaces, oil seal lips and O-rings must be cleaned.
2. During reassembly properly oil all mating parts and bearings, and lubricate the oil seal lips with grease.



EBS00016

LOCK WASHERS/PLATES AND COTTER PINS

After removal, replace all lock washers/plates ① and cotter pins. After the bolt or nut has been tightened to specification, bend the lock tabs along a flat of the bolt or nut.



EBS00017

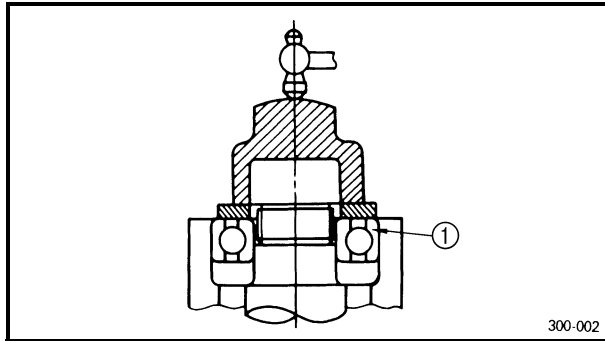
BEARINGS AND OIL SEALS

Install bearings and oil seals so that the manufacturer's marks or numbers are visible. When installing oil seals, lubricate the oil seal lips with a light coat of lithium-soap-based grease. Oil bearings liberally when installing, if appropriate.

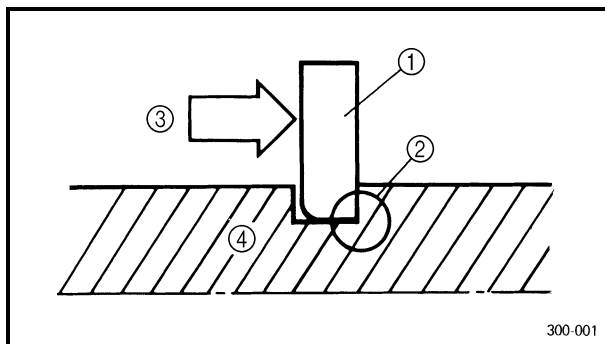
① Oil seal

CAUTION:

Do not spin the bearing with compressed air because this will damage the bearing surfaces.



① Bearing

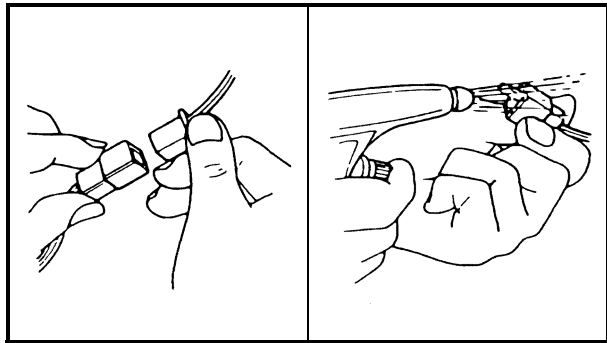


EBS00018

CIRCLIPS

Before reassembly, check all circlips carefully and replace damaged or distorted circlips. Always replace piston pin clips after one use. When installing a circlip ①, make sure the sharp-edged corner ② is positioned opposite the thrust ③ that the circlip receives.

④ Shaft



EBS00019

CHECKING THE CONNECTIONS

Check the leads, couplers, and connectors for stains, rust, moisture, etc.

1. Disconnect:

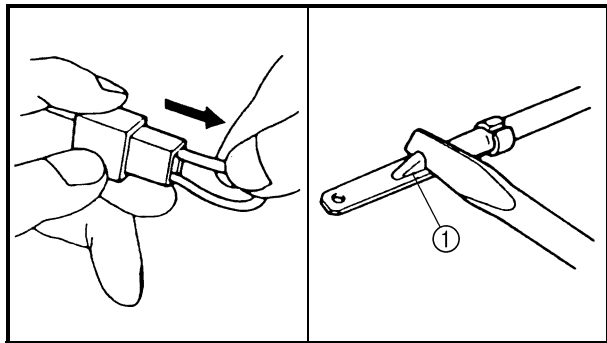
- lead
- coupler
- connector

2. Check:

- lead
- coupler
- connector

Moisture → Dry with an air blower.

Rust/stains → Connect and disconnect several times.



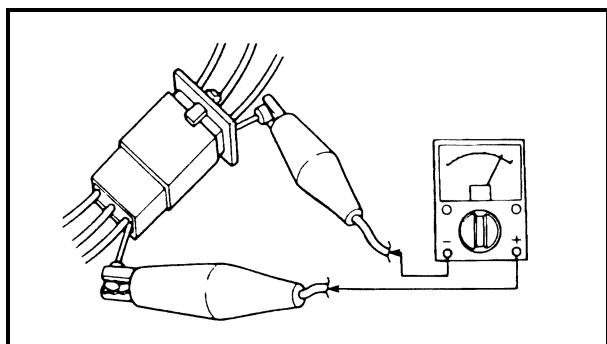
3. Check:

- all connections

Loose connection → Connect properly.

NOTE: _____

If the pin ① on the terminal is flattened, bend it up.



4. Connect:

- lead
- coupler
- connector

NOTE: _____

Make sure all connections are tight.

5. Check:

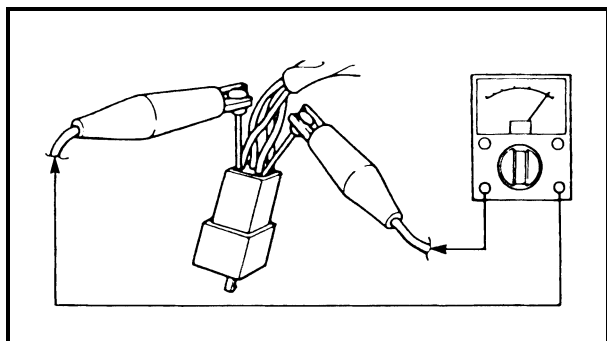
- continuity (with the pocket tester)



Pocket tester
P/N. YU-03112-C, 90890-03112

NOTE: _____

- If there is no continuity, clean the terminals.
- When checking the wire harness, perform steps (1) to (3).
- As a quick remedy, use a contact revitalizer available at most part stores.



EBS00021

SPECIAL TOOLS

The following special tools are necessary for complete and accurate tune-up and assembly. Use only the appropriate special tools; this will help prevent damage caused by the use of inappropriate tools or improvised techniques. Special tools may differ by shape and part number from country to country. In such a case, two types are provided.

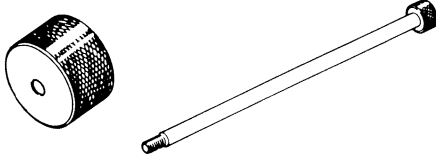
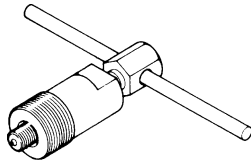
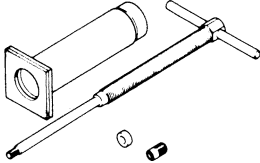
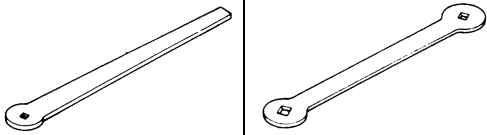


When placing an order, refer to the list provided below to avoid any mistakes.

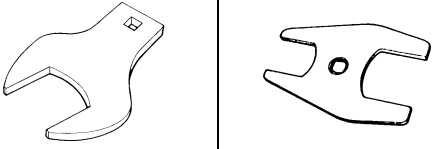
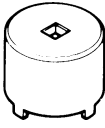
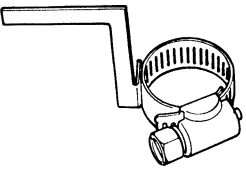
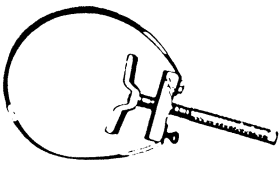
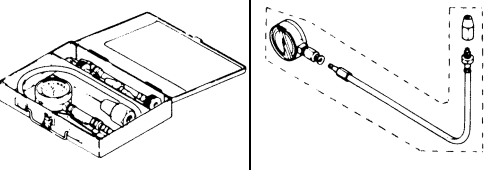
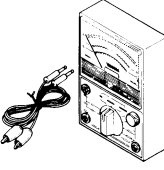
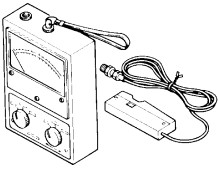
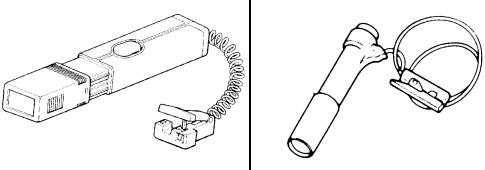
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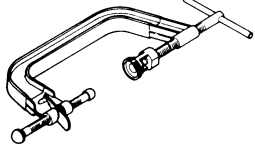
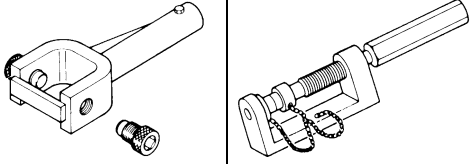
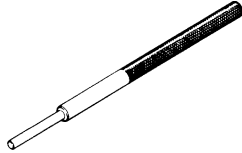
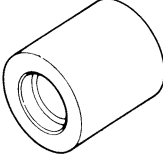
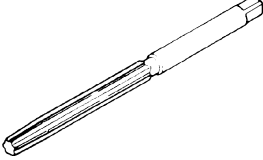
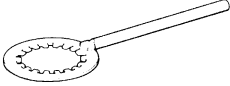
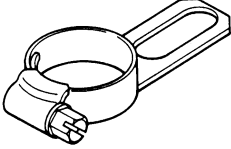
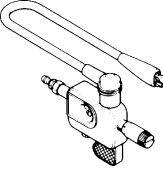
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Except for US and CDN


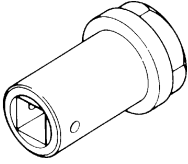
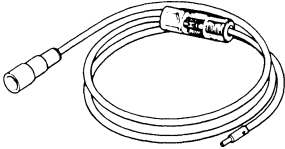
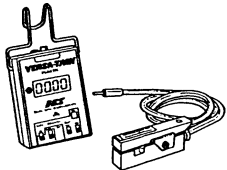
P/N. 90890-

Tool No.	Tool name/Function	Illustration
Bolt 90890-01085 Weight 90890-01084 Set YU-01083-A	Slide hammer bolt (M8)/weight/set These tools are used to remove the rocker arm shaft.	
90890-01189 YM-01189	Flywheel puller This tool is needed to remove the rotor.	
90890-01304 YU-01304	Piston pin puller set This tool is used to remove the piston pin.	
90890-01311 YM-08035	Tappet adjusting tool (3 mm) This tool is necessary for adjusting the valve clearance.	
90890-01312 YM-01312-A	Fuel level gauge This gauge is used to measure the fuel level in the float chamber.	
90890-01388	Damper rod holder (27 mm) This tool is needed to loosen and tighten the middle driven pinion gear bearing retainer.	

Tool No.	Tool name/Function	Illustration	
90890-01422 YM-37132	<p>Axle nut wrench (36 mm)</p> <p>This tool is needed to loosen or tighten the rear axle nut.</p>		
90890-01430 YM-38404	<p>Ring nut wrench</p> <p>This tool is needed to loosen and tighten the final gear case bearing retainer.</p>		
90890-01467 YM-01467	<p>Gear lash measurement tool</p> <p>This tool is used to measure the middle gear backlash.</p>		
90890-01701 YS-01880-A	<p>Sheave holder</p> <p>This tool is needed to hold the rotor when removing or installing the rotor nut.</p>		
<p>Gauge 90890-03081 YU-33223 Adapter 90890-04082</p>	<p>Compression gauge Adapter</p> <p>These tools are needed to measure engine compression.</p>		
90890-03112 YU-03112-C	<p>Pocket tester</p> <p>This instrument is needed for checking the electrical system.</p>		
90890-03113	<p>Engine tachometer</p> <p>This tool is needed for observing engine rpm.</p>		
90890-03141 YM-33277-A	<p>Timing light</p> <p>This tool is necessary for checking ignition timing.</p>		

Tool No.	Tool name/Function	Illustration
Compressor 90890-04019 YM-04019 Attachment 90890-04108 YM-04108	Valve spring compressor Valve spring compressor attachment This tool is needed to remove and install the valve assemblies.	
Holder 90890-04062 YM-04062 Attachment 90890-04096	Universal joint holder Universal joint holder attachment This tool is needed when removing or installing the universal joint yoke nut.	
90890-04097 YM-04097	Valve guide remover (5 mm) This tool is needed to remove and install the valve guide.	
90890-04098 YM-04098	Valve guide installer (5 mm) This tool is needed to install the valve guide.	
90890-04099	Valve guide reamer (5 mm) This tool is needed to rebore the new valve guide.	
90890-04100	Clutch holder This tool is needed to hold the clutch boss when removing or installing the clutch boss nut.	
90890-04129 YM-04129	Pinion gear fix clamp This tool is used to hold the drive axle/middle drive pinion gear assembly.	
90890-06754	Ignition checker This instrument is necessary for checking the ignition system components.	



Tool No.	Tool name/Function	Illustration
Bond 90890-85505 Sealant ACC-11001-05-01	Yamaha bond No. 1215 Sealant (Quick Gasket®) This sealant (bond) is used on crankcase mating surfaces, etc.	
YM-01363	27-mm hexagon wrench This tool is needed to loosen and tighten the middle driven pinion gear bearing retainer.	
YM-34487	Dynamic spark tester This instrument is necessary for checking the ignition system components.	
YU-8036-B	Inductive self-powered tachometer This tool is needed for observing engine rpm.	



EBS01001

SPECIFICATIONS

GENERAL SPECIFICATIONS

Item	Standard
Model code	5YF1
Dimensions	
Overall length	1,537 mm (60.5 in)
Overall width	825 mm (32.5 in)
Overall height	915 mm (36.0 in)
Seat height	618 mm (24.3 in)
Wheelbase	1,030 mm (40.6 in)
Minimum ground clearance	70 mm (2.76 in)
Minimum turning radius	2,300 mm (90.6 in)
Basic weight	
With oil and full fuel tank	115 kg (253 lb)
Engine	
Engine type	Air-cooled 4-stroke, SOHC
Cylinder arrangement	Forward-inclined single cylinder
Displacement	49 cm ³
Bore × stroke	39.0 × 41.4 mm (1.54 × 1.63 in)
Compression ratio	10.0 : 1
Standard compression pressure (at sea level)	1,200 kPa (12.0 kg/cm ² , 170.6 psi) at 1,000 r/min
Starting system	Electric starter
Lubrication system	Wet sump
Oil type or grade	
Engine oil	API service SE, SF, SG type or higher
Final gear oil	SAE 80API "GL-4" Hypoid gear oil
Oil capacity	
Engine oil	
Periodic oil change	0.80 L (0.70 Imp qt, 0.85 US qt)
Total amount	0.95 L (0.84 Imp qt, 1.00 US qt)
Final gear case oil	
Total amount	0.12 L (0.11 Imp qt, 0.13 US qt)
Air filter	Wet type element

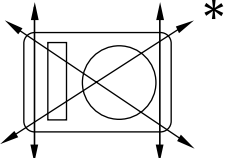
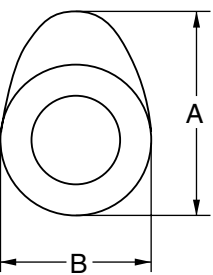
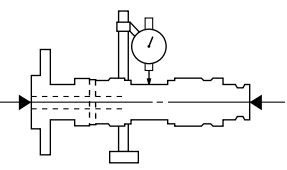


Item	Standard
Fuel Type Fuel tank capacity Fuel reserve amount	Unleaded gasoline only 6.8 L (1.50 Imp gal, 1.80 US gal) 0.9 L (0.20 Imp gal, 0.24 US gal)
Carburetor Type/quantity Manufacturer	VM16SH/1 MIKUNI
Spark plug Type/manufacturer Spark plug gap	CR7HS/NGK 0.6 ~ 0.7 mm (0.024 ~ 0.028 in)
Clutch type	Wet, multiple-disc automatic
Transmission Primary reduction system Primary reduction ratio Secondary reduction system Secondary reduction ratio Operation Gear ratio 1st gear	Spur gear 65/20 (3.250) Shaft drive 19/18 × 34/10 (3.588) Left hand operation 38/14 (2.714)
Chassis Frame type Caster angle Camber angle Kingpin angle Trail Tread (STD) front rear Toe-in	Steel tube frame 1.0° 2.0° 10° 3.4 mm (0.13 in) 630 mm (24.80 in) 665 mm (26.18 in) 0 ~ 10 mm (0 ~ 0.39 in)
Tire Type Size front rear Manufacturer front rear Type front rear	Tubeless AT16 × 7-7 AT16 × 8-7 DUNLOP DUNLOP KT145 KT145
Tire pressure (cold tire) Maximum load* Off-road riding front rear *Load in total weight of rider accessories	40 kg (88 lb) 17 ~ 23 kPa (0.17 ~ 0.23 kgf/cm ² , 2.5 ~ 3.3 psi) 17 ~ 23 kPa (0.17 ~ 0.23 kgf/cm ² , 2.5 ~ 3.3 psi)

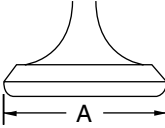
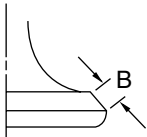
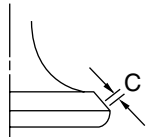
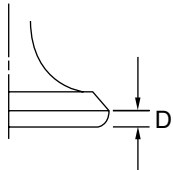


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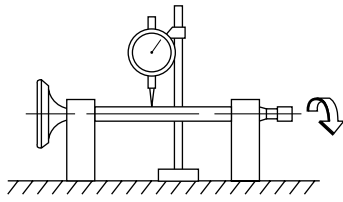
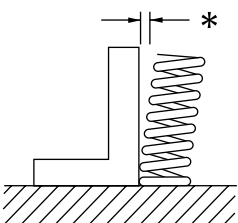
ENGINE SPECIFICATIONS

Item	Standard	Limit
<p>Cylinder head Warp limit *</p> 	<p>----</p>	<p>0.05 mm (0.002 in)</p>
<p>Cylinder Bore size Taper limit Maximum out-of-round</p>	<p>39.000 ~ 39.005 mm (1.5354 ~ 1.5356 in) ---- ----</p>	<p>39.105 mm (1.5396 in) 0.05 mm (0.002 in) 0.01 mm (0.0004 in)</p>
<p>Camshaft Drive method Cam dimensions</p>  <p>Intake "A" "B"</p> <p>Exhaust "A" "B"</p> <p>Camshaft runout limit</p> 	<p>Chain drive (Left)</p> <p>25.300 ~ 25.310 mm (0.9961 ~ 0.9965 in) 20.994 ~ 21.094 mm (0.8265 ~ 0.8305 in) 25.301 ~ 25.311 mm (0.9961 ~ 0.9965 in) 21.021 ~ 21.121 mm (0.8276 ~ 0.8315 in) ----</p>	<p>----</p> <p>25.200 mm (0.9921 in) 20.894 mm (0.8226 in) 25.201 mm (0.9922 in) 20.921 mm (0.8237 in) 0.03 mm (0.0012 in)</p>
<p>Timing chain Timing chain type/No. of links Timing chain adjustment method</p>	<p>Bush chain/82 Manual</p>	<p>---- ----</p>



Item		Standard	Limit
Rocker arm/rocker arm shaft			
Rocker arm inside diameter		10.000 ~ 10.015 mm (0.3937 ~ 0.3943 in)	----
Rocker arm shaft outside diameter		9.981 ~ 9.991 mm (0.3930 ~ 0.3933 in)	----
Rocker-arm-to-rocker-arm-shaft clearance		0.009 ~ 0.034 mm (0.0004 ~ 0.0013 in)	0.08 mm (0.0031 in)
Valve, valve seat, valve guide			
Valve clearance (cold)	IN	0.05 ~ 0.10 mm (0.002 ~ 0.004 in)	----
	EX	0.075 ~ 0.125 mm (0.003 ~ 0.005 in)	----
Valve dimensions			
			
Head Diameter	Face Width	Seat Width	Margin Thickness
"A" head diameter	IN	19.9 ~ 20.1 mm (0.7835 ~ 0.7913 in)	----
	EX	16.7 ~ 16.9 mm (0.6575 ~ 0.6654 in)	----
"B" face width	IN	1.10 ~ 2.30 mm (0.0433 ~ 0.0906 in)	----
	EX	1.30 ~ 2.40 mm (0.0512 ~ 0.0945 in)	----
"C" seat width	IN	0.9 ~ 1.1 mm (0.0354 ~ 0.0433 in)	1.6 mm (0.0630 in)
	EX	0.9 ~ 1.1 mm (0.0354 ~ 0.0433 in)	1.6 mm (0.0630 in)
"D" margin thickness	IN	0.5 ~ 0.9 mm (0.0197 ~ 0.0354 in)	1.6 mm (0.0630 in)
	EX	0.6 ~ 1.0 mm (0.0236 ~ 0.0394 in)	1.6 mm (0.0630 in)
Stem outside diameter	IN	4.975 ~ 4.990 mm (0.1959 ~ 0.1965 in)	4.950 mm (0.1949 in)
	EX	4.960 ~ 4.975 mm (0.1953 ~ 0.1959 in)	4.953 mm (0.1950 in)
Guide inside diameter	IN	5.000 ~ 5.012 mm (0.1969 ~ 0.1973 in)	5.030 mm (0.1980 in)
	EX	5.000 ~ 5.012 mm (0.1969 ~ 0.1973 in)	5.030 mm (0.1980 in)

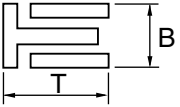
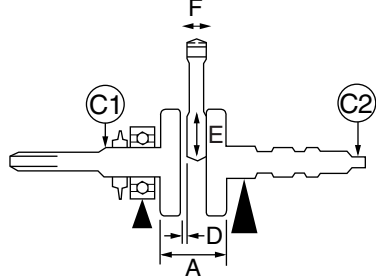


Item		Standard	Limit
Stem-to-guide clearance	IN	0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in)	0.08 mm (0.0031 in)
	EX	0.025 ~ 0.052 mm (0.0010 ~ 0.0020 in)	0.10 mm (0.0039 in)
Stem runout limit		----	0.02 mm (0.0008 in)
	IN	0.9 ~ 1.1 mm (0.0354 ~ 0.0433 in)	1.6 mm (0.0630 in)
	EX	0.9 ~ 1.1 mm (0.0354 ~ 0.0433 in)	1.6 mm (0.0630 in)
Valve spring			
Free length	IN	32.00 mm (1.26 in)	30.40 mm (1.20 in)
	EX	32.00 mm (1.26 in)	30.40 mm (1.20 in)
Compressed pressure (installed)	IN	136 ~ 158 N at 24.6 mm (13.87 ~ 16.11 kg, 30.57 ~ 35.52 lb at 0.97 in)	----
	EX	136 ~ 158 N at 24.6 mm (13.87 ~ 16.11 kg, 30.57 ~ 35.52 lb at 0.97 in)	----
Tilt limit *	IN		2.5°/1.4 mm (2.5°/0.06 in)
	EX		2.5°/1.4 mm (2.5°/0.06 in)
	IN		
	EX		
Direction of winding (top view)	IN	Clockwise	----
	EX	Clockwise	----



Item	Standard	Limit
Piston		
Piston to cylinder clearance	0.025 ~ 0.045 mm (0.0010 ~ 0.0018 in)	0.15 mm (0.0059 in)
Piston size "D"	38.960 ~ 38.975 mm (1.5339 ~ 1.5344 in)	----
Measuring point "H"	5.0 mm (0.20 in)	----
Oversize	2nd 4th	----
	39.5 mm (1.56 in)	----
	40.0 mm (1.57 in)	----
Piston off-set	0.5 mm (0.02 in)	----
Piston off-set direction	Intake side	----
Piston pin bore inside diameter	13.002 ~ 13.013 mm (0.5119 ~ 0.5123 in)	13.043 mm (0.5135 in)
Piston pin outside diameter	12.996 ~ 13.000 mm (0.5117 ~ 0.5118 in)	12.976 mm (0.5109 in)
Piston rings		
Top ring		
Type	Barrel	----
Dimensions (B × T)	1.0 × 1.7 mm (0.0394 × 0.0669 in)	----
End gap (installed)	0.08 ~ 0.20 mm (0.0031 ~ 0.0079 in)	0.45 mm (0.0177 in)
Side clearance (installed)	0.030 ~ 0.065 mm (0.0012 ~ 0.0026 in)	0.12 mm (0.0047 in)
2nd ring		
Type	Taper	----
Dimensions (B × T)	1.0 × 1.7 mm (0.0394 × 0.0669 in)	----
End gap (installed)	0.05 ~ 0.20 mm (0.0020 ~ 0.0079 in)	0.55 mm (0.0217 in)
Side clearance	0.020 ~ 0.055 mm (0.0008 ~ 0.0022 in)	0.12 mm (0.0047 in)



Item	Standard	Limit
<p>Oil ring</p>  <p>Dimensions (B × T)</p> <p>End gap (installed)</p>	<p>2.0 × 2.0 mm (0.0787 × 0.0787 in)</p> <p>0.20 ~ 0.70 mm (0.0079 ~ 0.0276 in)</p>	<p>----</p> <p>----</p>
<p>Crankshaft</p>  <p>Crank width “A”</p> <p>Runout limit C1</p> <p>C2</p> <p>Big end side clearance “D”</p> <p>Big end radial clearance “E”</p> <p>Small end free play “F”</p>	<p>40.20 ~ 40.25 mm (1.5827 ~ 1.5846 in)</p> <p>----</p> <p>----</p> <p>0.10 ~ 0.40 mm (0.0039 ~ 0.0157 in)</p> <p>0.004 ~ 0.019 mm (0.0002 ~ 0.0007 in)</p> <p>0.80 ~ 1.00 mm (0.0315 ~ 0.0394 in)</p>	<p>----</p> <p>0.05 mm (0.0020 in)</p> <p>0.04 mm (0.0016 in)</p> <p>0.50 mm (0.0197 in)</p> <p>----</p> <p>1.50 mm (0.0591 in)</p>
<p>Clutch</p> <p>Friction plate 1 (with black color marking)</p> <p>Thickness</p> <p>Quantity</p> <p>Friction plate 2</p> <p>Thickness</p> <p>Quantity</p>	<p>2.92 ~ 3.08 mm (0.115 ~ 0.121 in)</p> <p>4</p> <p>2.92 ~ 3.08 mm (0.115 ~ 0.121 in)</p> <p>1</p>	<p>2.90 mm (0.114 in)</p> <p>----</p> <p>2.90 mm (0.114 in)</p> <p>----</p>

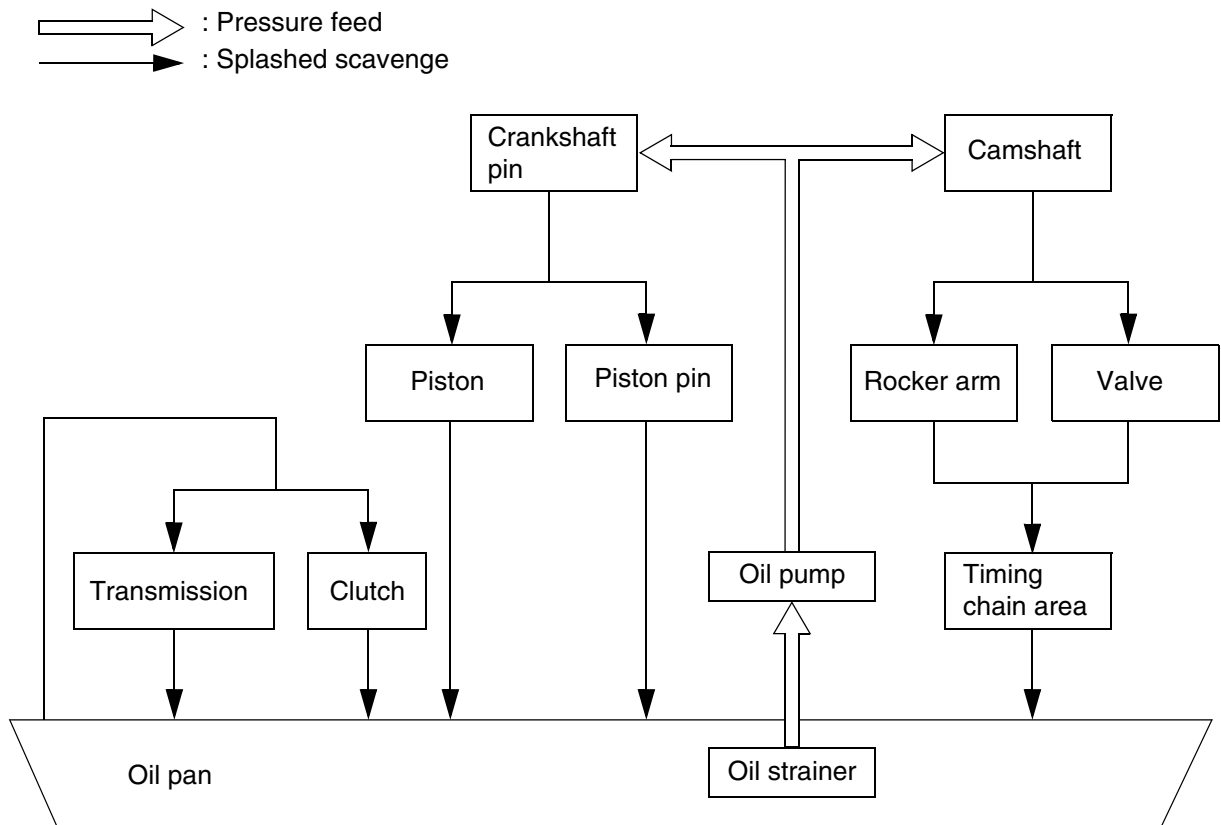


Item	Standard	Limit
Clutch plate 1		
Thickness	1.4 mm (0.055 in)	----
Quantity	1	----
Maximum warpage	----	0.06 mm (0.002 in)
Clutch plate 2		
Thickness	1.2 ~ 1.6 mm (0.047 ~ 0.063 in)	----
Quantity	3	----
Maximum warpage	----	0.06 mm (0.002 in)
Clutch spring		
Free length	31.9 mm (1.26 in)	30.3 mm (1.19 in)
Quantity	8	----
Automatic centrifugal clutch		
Clutch-in revolution	2,300 ~ 2,500 r/min	----
Clutch-stall revolution	3,000 ~ 3,200 r/min	----
Transmission		
Main axle deflection limit	----	0.08 mm (0.0031 in)
Drive axle deflection limit	----	0.08 mm (0.0031 in)
Shifter		
Shifter type	Shift drum and guide bar	----
Carburetors		
I. D. mark	5YF1 00	----
Main jet (M.J)	#72.5	----
Air jet (A.J)	1.2	----
Jet needle (J.N)	3PZ13-2	----
Needle jet (N.J)	D-8M	----
Cutaway (C.A)	3	----
Pilot outlet (P.O)	0.7	----
Pilot jet (P.J)	#15	----
Valve seat size (V.S)	1.2	----
Fuel level (F.L)	4.0 ~ 5.0 mm (0.16 ~ 0.20 in)	----
	Below the float chamber mating surface	
Engine idle speed	1,750 ~ 1,850 r/min	----
Intake vacuum	30 kPa (225 mmHg, 8.9 inHg)	----



Item	Standard	Limit
Oil pump		
Oil pump type	Trochoid	----
Inner-rotor-to-outer-rotor-tip clearance	0.05 ~ 0.07 mm (0.002 ~ 0.003 in)	0.15 mm (0.006 in)
Outer-rotor-to-oil-pump-housing clearance	0.013 ~ 0.036 mm (0.0005 ~ 0.0014 in)	0.106 mm (0.0042 in)
Oil-pump-housing-to-inner-rotor-and-outer-rotor clearance	0.06 ~ 0.10 mm (0.0024 ~ 0.0039 in)	0.17 mm (0.0067 in)
Shaft drive		
Middle gear backlash	0.17 ~ 0.31 mm (0.007 ~ 0.012 in)	----
Final gear backlash	0.17 ~ 0.31 mm (0.007 ~ 0.012 in)	----

Lubrication chart





EBS01003

CHASSIS SPECIFICATIONS

Item	Standard	Limit
Front suspension		
Shock absorber travel	60 mm (2.36 in)	----
Optional spring	No	----
Rear suspension		
Shock absorber travel	58 mm (2.28 in)	----
Optional spring	No	----
Front wheel		
Type	Panel wheel	----
Rim size	7 × 5.5 AT	----
Rim material	Steel	----
Rim runout limit	radial	2.0 mm (0.08 in)
	lateral	2.0 mm (0.08 in)
Rear wheel		
Type	Panel wheel	----
Rim size	7 × 6.5 AT	----
Rim material	Steel	----
Rim runout limit	radial	2.0 mm (0.08 in)
	lateral	2.0 mm (0.08 in)
Front drum brake		
Type	Leading, trailing	----
Brake drum inside diameter	110.0 mm (4.33 in)	110.5 mm (4.35 mm)
Lining thickness	4.0 mm (0.16 in)	2.0 mm (0.08 in)
Shoe spring free length	54.0 mm (2.13 in)	----
Rear drum brake		
Type	Leading, trailing	----
Brake drum inside diameter	130.0 mm (5.12 in)	130.5 mm (5.14 in)
Lining thickness	4.0 mm (0.16 in)	2.0 mm (0.08 in)
Shoe spring free length	36.5 mm (1.44 in)	----
Brake lever and brake pedal		
Brake lever free play (pivot)	front	10 ~ 12 mm (0.39 ~ 0.47 in)
	rear	7 ~ 10 mm (0.28 ~ 0.39 in)
Throttle lever free play		1.5 ~ 5.0 mm (0.06 ~ 0.20 in)



EBS01004

ELECTRICAL SPECIFICATIONS

Item	Standard	Limit
Voltage	12 V	----
Ignition system		
Ignition timing (B.T.D.C.)	10°/1,700 r/min	----
Advanced timing (B.T.D.C.)	30°/5,000 r/min	----
Advancer type	Electrical (analogue)	----
C.D.I.		
Magneto model/manufacturer	F2FM/YAMAHA	----
Pickup coil resistance/color	264 ~ 396 Ω at 20 °C (68 °F)/ White/Red—White/Blue	----
Source coil resistance/color	304 ~ 456 Ω at 20 °C (68 °F)/ Black/Red—Green/White	----
C.D.I. unit model/manufacturer	5YF/YAMAHA	----
Ignition coil		
Model/manufacturer	2JN/YAMAHA	----
Minimum spark gap	6 mm (0.24 in)	----
Primary winding resistance	0.18 ~ 0.28 Ω at 20 °C (68 °F)	----
Secondary winding resistance	6.32 ~ 9.48 kΩ at 20 °C (68 °F)	----
Spark plug cap		
Type	Resin	----
Resistance	10 kΩ	----
Charging system		
Type	A.C. magneto	----
Model/manufacturer	F2FM/YAMAHA	----
Nominal output	14 V 45 W at 5,000 r/min	----
Charging coil resistance/color	0.72 ~ 1.08 Ω at 20 °C (68 °F)/ White—Black	----
Lighting coil resistance	0.32 ~ 0.48 Ω at 20 °C (68 °F)/ Yellow/Red—Black	----
Rectifier/regulator		
Regulator type	Semi conductor-short circuit	----
No-load regulated voltage (DC)	14.0 ~ 15.0 V	----
No-load regulated voltage (AC)	13.0 ~ 14.0 V	----
Model/manufacturer	SH704-12/SHINDENGEN	----
Capacity (DC)	5 A	----
Capacity (AC)	8 A	----
Withstand voltage	200 V	----

ELECTRICAL SPECIFICATIONS

SPEC









Item	Standard	Limit
Electric starter system		
Type	Constant mesh	----
Starter motor		
Model/manufacture	ADB4A5/DENSO	----
Output	0.2 kW	----
Armature coil resistance	0.029 ~ 0.035 Ω at 20 °C (68 °F)	----
Brush overall length	6.0 mm (0.24 in)	3.5 mm (0.14 in)
Spring force	3.24 ~ 4.22 N (330 ~ 430 gf, 11.66 ~ 15.19 oz)	----
Commutator diameter	16.5 mm (0.65 in)	15.5 mm (0.61 in)
Mica undercut	1 mm (0.04 in)	----
Starter relay		
Model/manufacture	MS5E-661/JIDECO	----
Amperage rating	100 A	----
Coil winding resistance	4.18 ~ 4.62 Ω at 20 °C (68 °F)	----
Starting circuit cut-off relay		
Model/manufacture	ACA12115-3/MATSUSHITA	----
Coil resistance	72 ~ 88 Ω at 20 °C (68 °F)	----
Diode	Yes	----
Circuit breakers		
Type	Fuse	----
Amperage for individual circuit		
Main fuse	5 A × 1	----
Reserve	5 A × 1	----



EBS01005

TIGHTENING TORQUES

ENGINE TIGHTENING TORQUES

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m · kg	ft · lb	
Cylinder head (exhaust pipe)	Stud bolt	M6	2	7	0.7	5.1	
Intake and exhaust tappet cover	—	M45	2	18	1.8	13	
Camshaft sprocket cover	Screw	M6	2	7	0.7	5.1	
Cylinder head	Nut	M6	4	12	1.2	8.7	
	Bolt	M6	2	10	1.0	7.2	
Spark plug	—	M10	1	13	1.3	9.4	
C.D.I. magneto rotor	Nut	M10	1	40	4.0	29	
Valve adjuster	Nut	M5	2	7	0.7	5.1	
Camshaft sprocket	Bolt	M8	1	20	2.0	14	
Timing chain tensioner	—	M18	1	18	1.8	13	
Timing chain tension adjuster locknut	Nut	M6	1	7	0.7	5.1	
Oil pump	Screw	M6	2	7	0.7	5.1	
Engine oil drain bolt	Bolt	M12	1	20	2.0	14	
Intake manifold	Screw	M6	2	7	0.7	5.1	
Carburetor	Screw	M6	2	7	0.7	5.1	
Exhaust pipe	Nut	M6	2	10	1.0	7.2	
Muffler	Bolt	M8	2	25	2.5	18	
Spark arrester	Screw	M6	2	8	0.8	5.8	
Muffler purging bolt	Bolt	M6	1	10	1.0	7.2	
Crankcase	Screw	M6	9	7	0.7	5.1	
Crankcase (cylinder head)	Stud bolt	M6	4	10	1.0	7.2	
Main axle bearing retainer	Screw	M6	2	8	0.8	5.8	
Drive axle/middle drive pinion gear assembly plate	Bolt	M6	3	10	1.0	7.2	
Clutch cover	Screw	M6	3	7	0.7	5.1	
C.D.I. magneto cover	Screw	M6	9	7	0.7	5.1	
Starter clutch	Screw	M6	3	10	1.0	7.2	Stake 
Primary drive gear	Nut	M12	1	50	5.0	36	
Clutch boss	Nut	M14	1	60	6.0	43	
Push plate	Screw	M6	4	8	0.8	5.8	
Middle driven shaft bearing retainer	—	M42	1	60	6.0	43	Stake 
Universal joint yoke	Nut	M12	1	90	9.0	65	Stake 
Middle driven shaft bearing housing	Bolt	M6	3	10	1.0	7.2	
Shift drum retainer	Screw	M6	2	8	0.8	5.8	
Shift shaft spring stopper	Bolt	M8	1	25	2.5	18	
Shift drum stopper lever	Bolt	M6	1	10	1.0	7.2	
Shift lever	Bolt	M6	1	10	1.0	7.2	
Stator assembly	Screw	M6	2	7	0.7	5.1	
Starter motor	Bolt	M6	2	10	1.0	7.2	

TIGHTENING TORQUES

SPEC



Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m · kg	ft · lb	
Neutral switch	—	M10	1	20	2.0	14	
Spark arrester tailpipe	Screw	M6	2	8	0.8	5.8	
Purging bolt	Bolt	M6	1	10	1.0	7.2	

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CHASSIS TIGHTENING TORQUES

Part to be tightened	Thread size	Tightening torque			Remarks
		Nm	m · kg	ft · lb	
Engine and frame	M8	33	3.3	24	
Rear swingarm and frame	M12	85	8.5	61	
Rear swingarm and swingarm guard	M8	23	2.3	17	
Rear shock absorber and frame	M10	45	4.5	32	
Rear shock absorber and rear axle housing	M10	45	4.5	32	
Front swingarm and frame	M12	60	6.0	43	
Front shock absorber and frame	M10	45	4.5	32	
Front shock absorber and front swingarm	M12	45	4.5	32	
Steering knuckle and front swingarm	M10	30	3.0	22	
Steering knuckle and tie-rod ball joint	M10	40	4.0	29	
Steering stem and tie-rod ball joint	M10	40	4.0	29	
Tie-rod locknut	M10	15	1.5	11	
Steering stem and frame	M10	35	3.5	25	
Steering stem bushing and frame	M8	23	2.3	17	
Handlebar holder and steering stem	M8	20	2.0	14	
Throttle lever and housing	M8	8	0.8	5.8	
Front wheel and brake drum	M8	28	2.8	20	
Front axle and brake drum	M14	70	7.0	50	
Front brake camshaft and camshaft lever	M6	9	0.9	6.5	
Rear brake camshaft and camshaft lever	M6	9	0.9	6.5	
Rear axle and nut	M28				See NOTE.
Rear wheel and wheel hub	M8	28	2.8	20	
Rear axle and wheel hub	M12	70	7.0	50	
Rear brake drum boss and brake drum	M8	21	2.1	15	
Rear axle housing and rear swingarm	M10	40	4.0	29	
Footrest board bracket and frame	M12	85	8.5	61	
Front bumper and frame	M8	23	2.3	17	
Front bumper and dummy headlight	M6	7	0.7	5.1	
Front bumper and front fender	M6	7	0.7	5.1	
Front fender and frame	M6	7	0.7	5.1	
Front fender stay and frame	M6	7	0.7	5.1	
Footrest board and bracket	M6	7	0.7	5.1	
Rear fender and frame	M6	7	0.7	5.1	
Rear swingarm and final gear case	M8	20	2.0	14	
Final gear case and rear axle housing	M6	20	2.0	14	

TIGHTENING TORQUES

SPEC

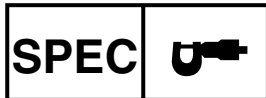


Part to be tightened	Thread size	Tightening torque			Remarks
		Nm	m · kg	ft · lb	
Final gear oil drain plug	M14	23	2.3	17	
Final gear case bearing retainer	M55	80	8.0	58	
Final drive pinion gear and bearing	M20	12	1.2	8.7	
Rear axle housing bearing retainer	M58	110	11.0	80	

NOTE:

1. Before tightening the nuts, apply locking agent (LOCTITE®) to rear axle threads.
2. Tighten the inside nut to 110 Nm (11.0 m · kg, 80 ft · lb).
3. Tighten the outside nut to 130 Nm (13.0 m · kg, 94 ft · lb) while holding the inside nut.
4. Loosen the inside nut to 160 Nm (16.0 m · kg, 115 ft · lb) while holding the outside nut.

HOW TO USE THE CONVERSION TABLE/ GENERAL TIGHTENING TORQUE SPECIFICATIONS



EBS00022

HOW TO USE THE CONVERSION TABLE

All specification data in this manual are listed in SI and METRIC UNITS.

Use this table to convert METRIC unit data to IMPERIAL unit data.

Ex.

METRIC		MULTIPLIER	=	IMPERIAL
** mm	×	0.03937	=	** in
2 mm	×	0.03937	=	0.08 in

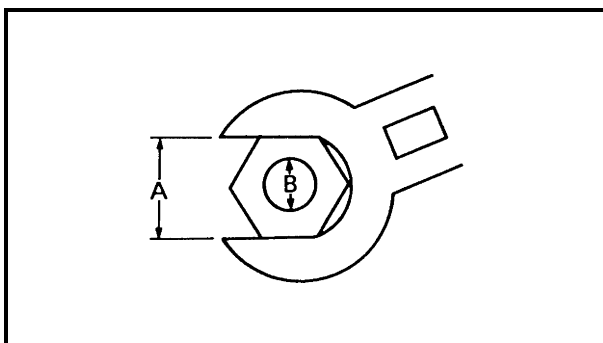
CONVERSION TABLE

METRIC TO IMPERIAL			
	Metric unit	Multiplier	Imperial unit
Torque	m · kg	7.233	ft · lb
	m · kg	86.794	in · lb
	cm · kg	0.0723	ft · lb
	cm · kg	0.8679	in · lb
Weight	kg	2.205	lb
	g	0.03527	oz
Speed	km/h	0.6214	mph
Distance	km	0.6214	mi
	m	3.281	ft
	m	1.094	yd
	cm	0.3937	in
	mm	0.03937	in
Volume/ Capacity	cc (cm ³)	0.03527	oz (Imp liq.)
	cc (cm ³)	0.06102	cu · in
	lt (liter)	0.8799	qt (Imp liq.)
	lt (liter)	0.2199	gal (Imp liq.)
Misc.	kg/mm	55.997	lb/in
	kg/cm ²	14.2234	psi (lb/in ²)
	Centigrade (°C)	9/5+32	Fahrenheit (°F)

EBS00023

GENERAL TIGHTENING TORQUE SPECIFICATIONS

This chart specifies tightening torques for standard fasteners with a standard ISO thread pitch. Tightening torque specifications for special components or assemblies are provided for each chapter of this manual. To avoid warpage, tighten multi-fastener assemblies in a crisscross pattern and progressive stages until the specified tightening torque is reached. Unless otherwise specified, tightening torque specifications require clean, dry threads. Components should be at room temperature.



A: Distance between flats

B: Outside thread diameter

A (nut)	B (bolt)	General tightening torques		
		Nm	m · kg	ft · lb
10 mm	6 mm	6	0.6	4.3
12 mm	8 mm	15	1.5	11
14 mm	10 mm	30	3.0	22
17 mm	12 mm	55	5.5	40
19 mm	14 mm	85	8.5	61
22 mm	16 mm	130	13.0	94



EBS00024

LUBRICATION POINTS AND LUBRICANT TYPES

ENGINE

Lubrication points	Lubricant
Oil seal lips	
Bearings	
O-rings	
Tappet cover thread	
Crankshaft pin	
Connecting rod (bearing)	
Crankshaft, oil seal	
Piston, piston ring	
Piston pin	
Valve stem	
Valve stem end	
Rocker arm	
Rocker arm shaft	
Camshaft lobe	
Camshaft sprocket	
Timing chain tensioner	
Intake side timing chain guide	
Oil pump assembly	
Starter idle gear shaft	
Starter wheel gear	
Primary driven gear, spacer	
Clutch push rod, oil seal	
Drive axle, 1st wheel gear	
Drive axle dog splines	
Drive axle dog shift fork groove	
Middle drive/driven pinion gear	
Shift drum	
Shift fork guide bar, O-ring	
Shift shaft	
Shift shaft washer	
Middle driven pinion gear, universal joint yoke, drive shaft, coupling gear, final drive pinion gear splines	
Final drive pinion gear, ring gear	
Crankcase mating surface	Sealant (Quick Gasket®) Yamaha Bond No.1215

LUBRICATION POINTS AND LUBRICANT TYPES

SPEC



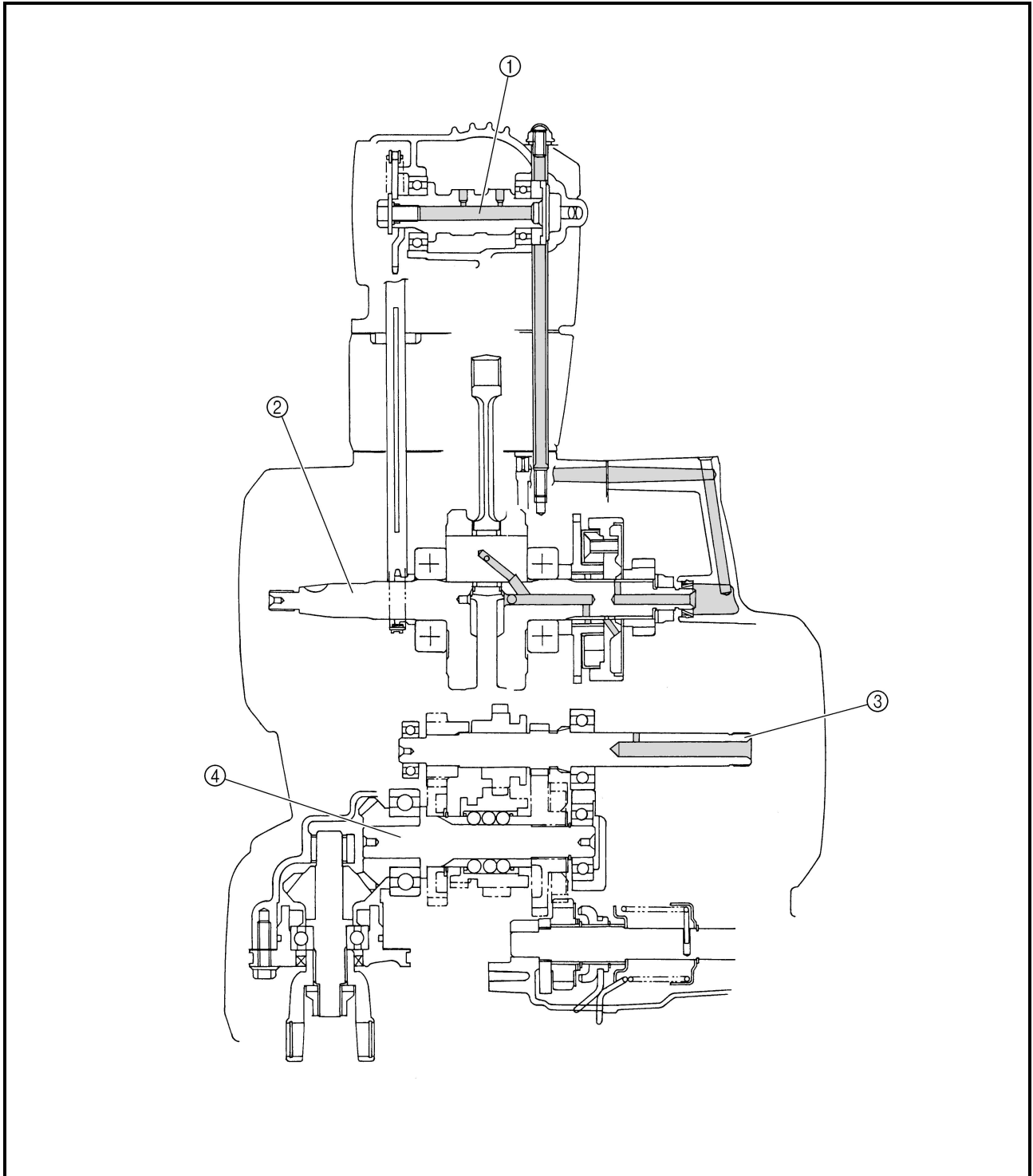
Lubrication points	Lubricant
Final gear case and rear axle housing mating surface	Sealant (Quick Gasket®) Yamaha Bond No.1215



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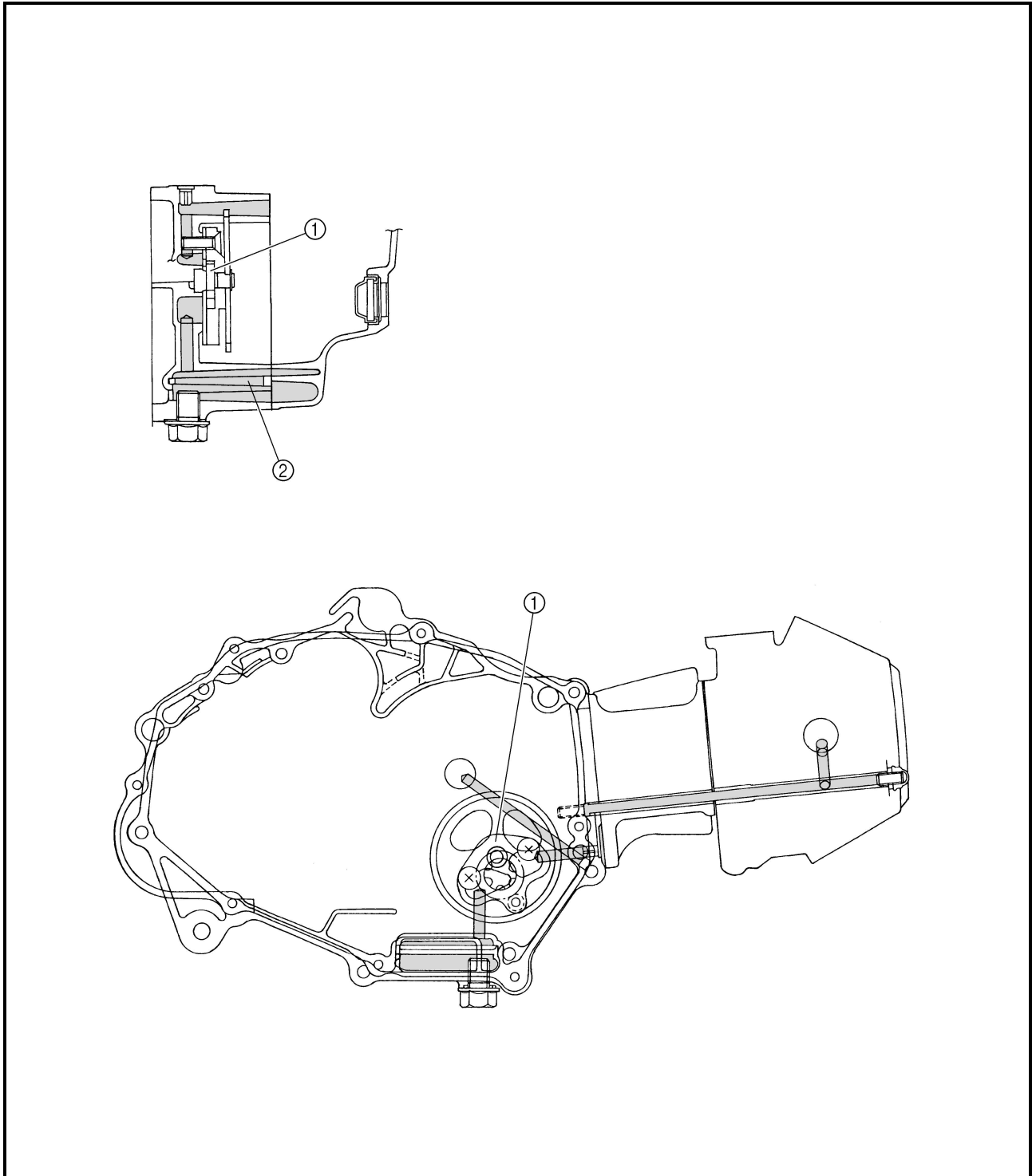
OIL FLOW DIAGRAMS

- ① Camshaft
- ② Crankshaft
- ③ Main axle
- ④ Drive axle





- ① Oil pump
- ② Oil strainer

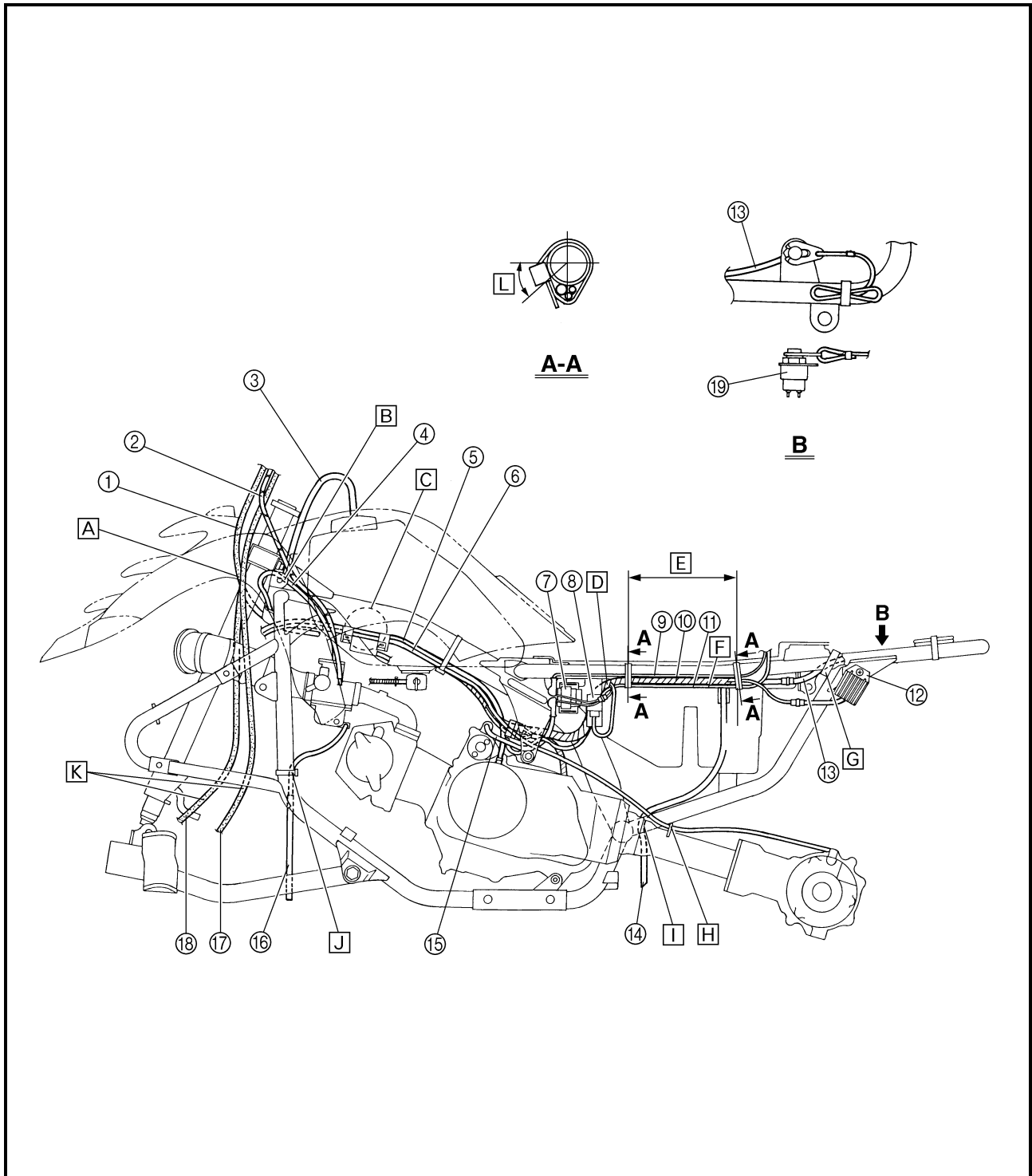




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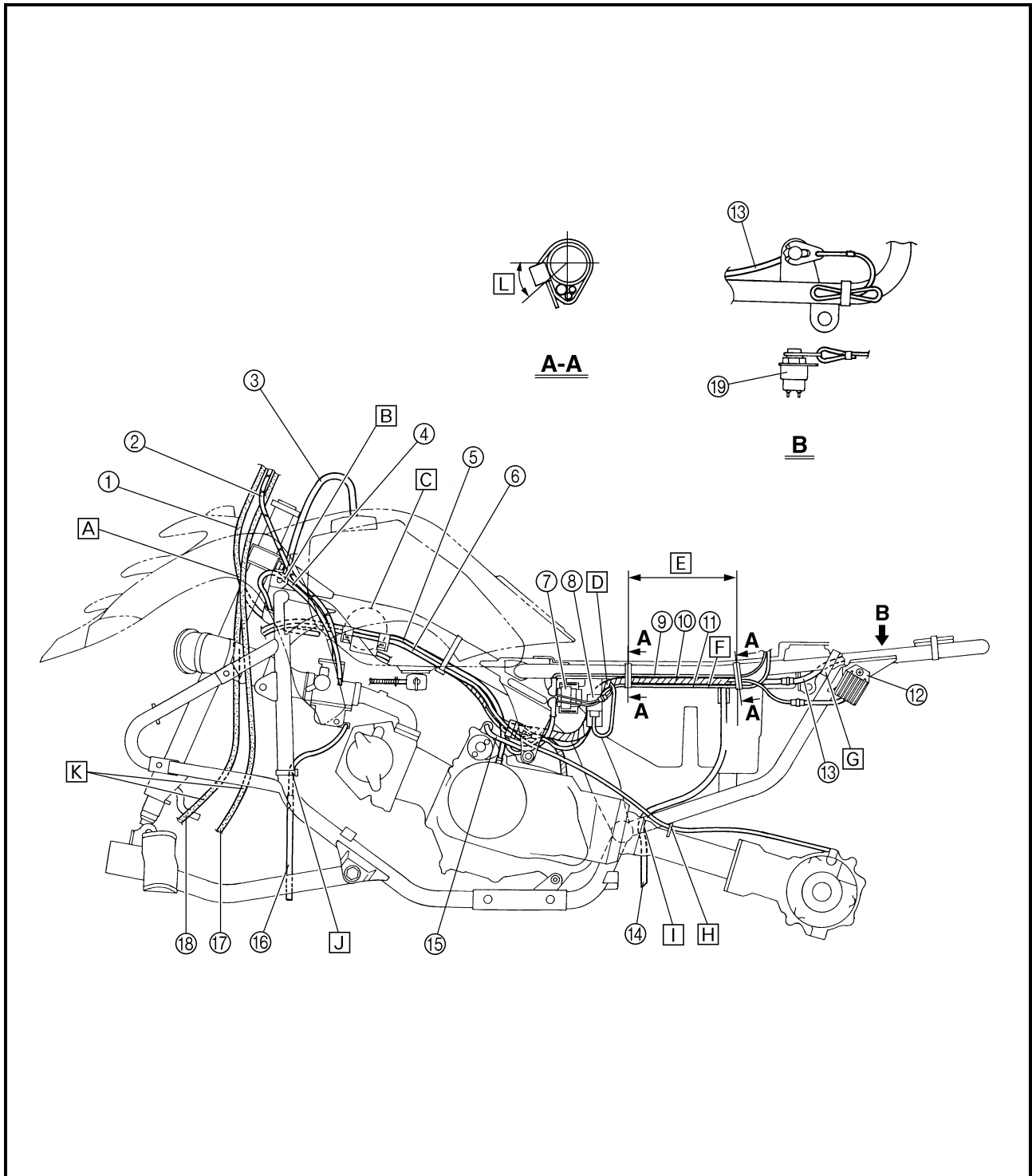
CABLE ROUTING

- | | | |
|----------------------------------|---------------------------------------|------------------------------|
| ① Rear brake cable | ⑩ Wire harness | ⑱ Left front brake cable |
| ② Throttle cable | ⑪ Negative battery lead | ⑲ Engine stop switch (frame) |
| ③ Fuel tank breather hose | ⑫ Rectifier/regulator | |
| ④ Carburetor air vent hose | ⑬ Engine stop switch lead (frame end) | |
| ⑤ Final gear case breather hose | ⑭ Battery breather hose | |
| ⑥ Crankcase breather hose | ⑮ Starter motor lead | |
| ⑦ Starter relay | ⑯ Fuel overflow hose | |
| ⑧ Starting circuit cut-off relay | ⑰ Right front brake cable | |
| ⑨ Positive battery lead | | |



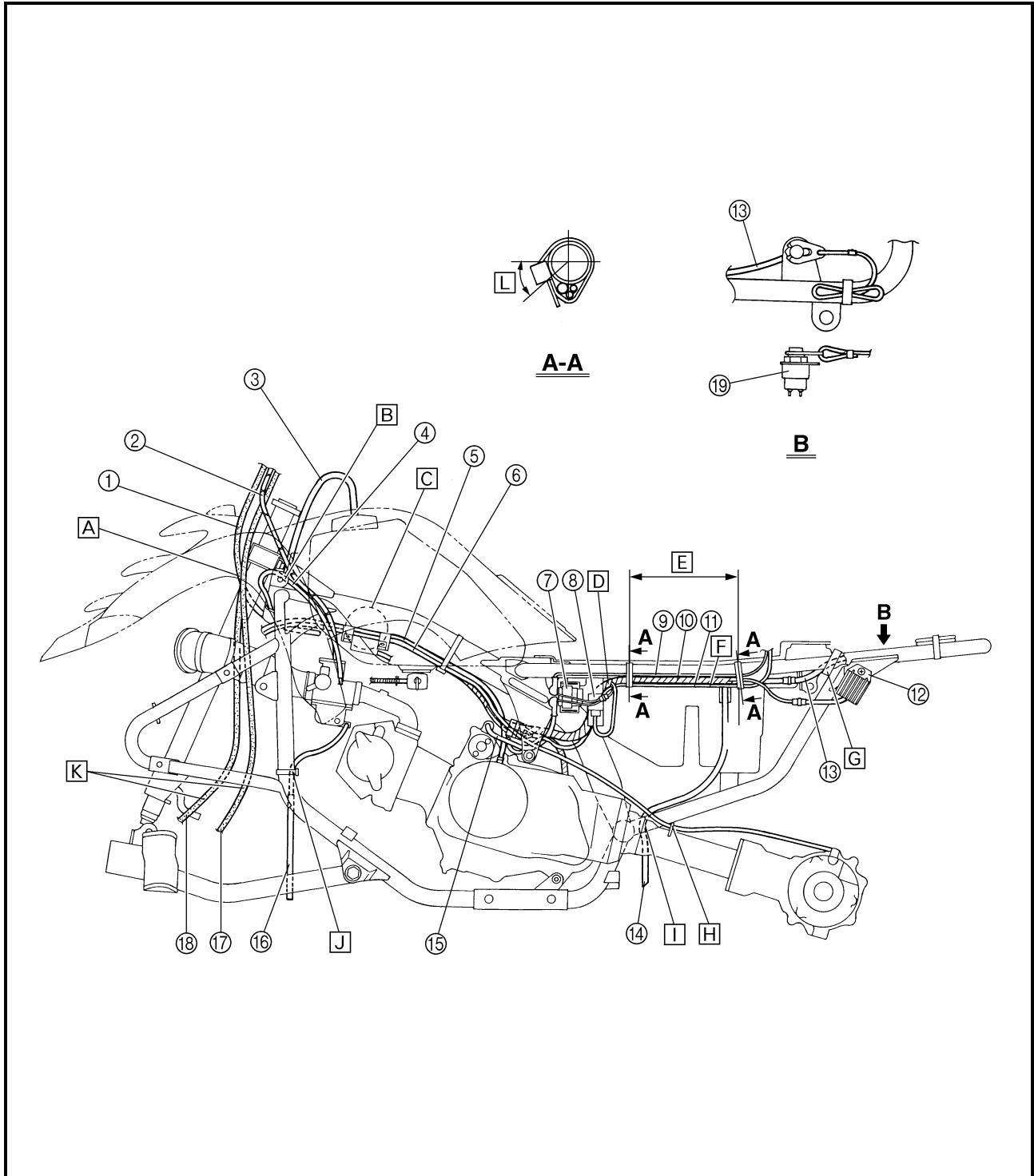


- A** Route the rear brake cable to the right of the steering stem.
- B** Pass the carburetor air vent hose through the hole on the left side of the steering stem bracket and then insert the hose between the bracket and frame. Make sure that there is no slack or bends in the hose. Do not route the hose over the throttle cable.
- C** Route the final gear case breather hose and crankcase breather hose to the right of the ignition coil.
- D** Align the white tape of the wire harness with the bracket.
- E** 200 mm (7.87 in)
- F** To starter motor
- G** Fasten the engine stop switch lead (frame end) to the frame with a plastic band.
- H** Pass the final gear case breather hose through the hose guide.
- I** Pass the battery breather hose through the hole.



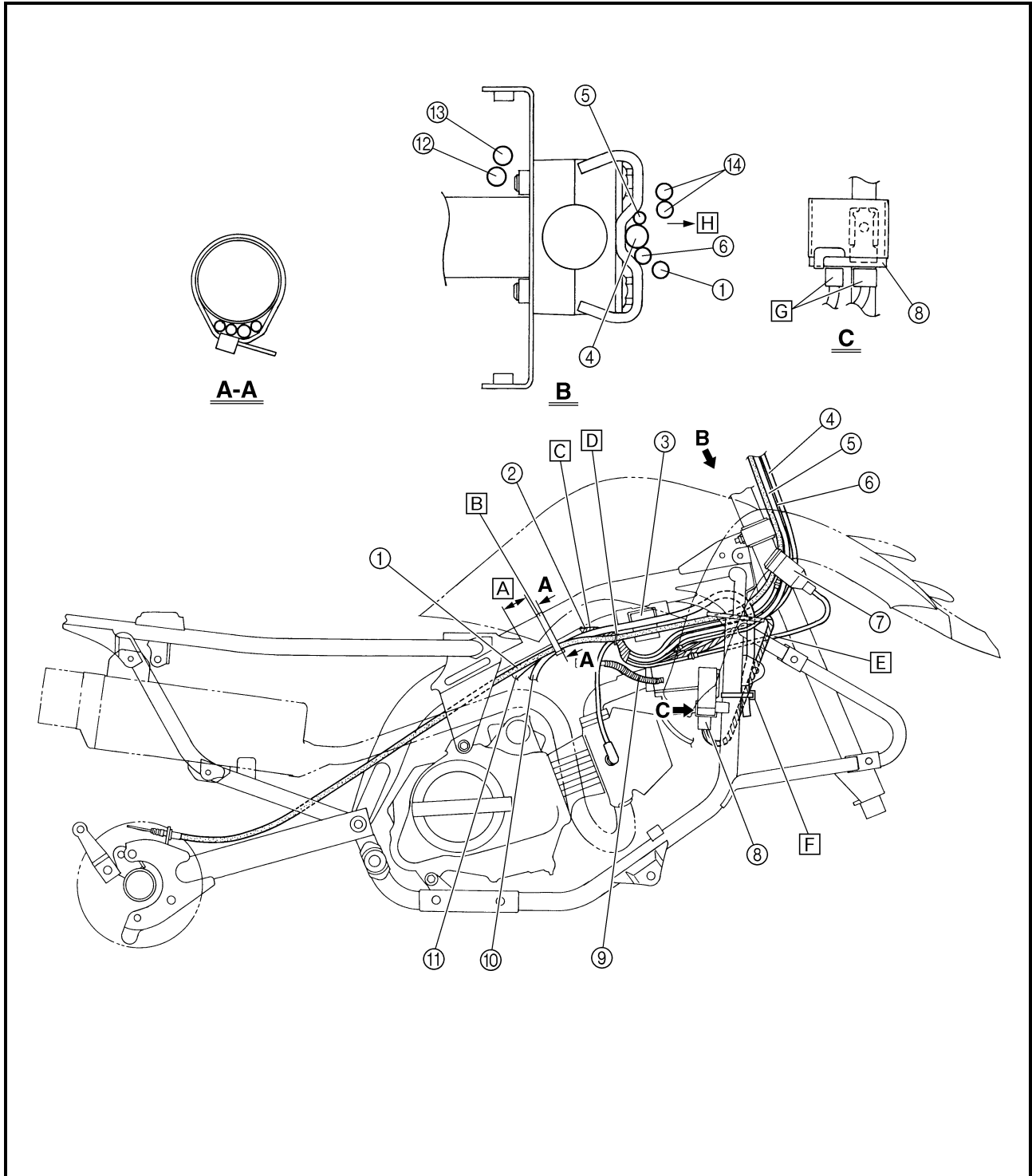


- J** Fasten the carburetor air vent hose with a plastic band. Be sure to not pinch the hose. Install the plastic band with the buckle facing backward and the end inward.
- K** Route the cables under the frame.
- L** 45°



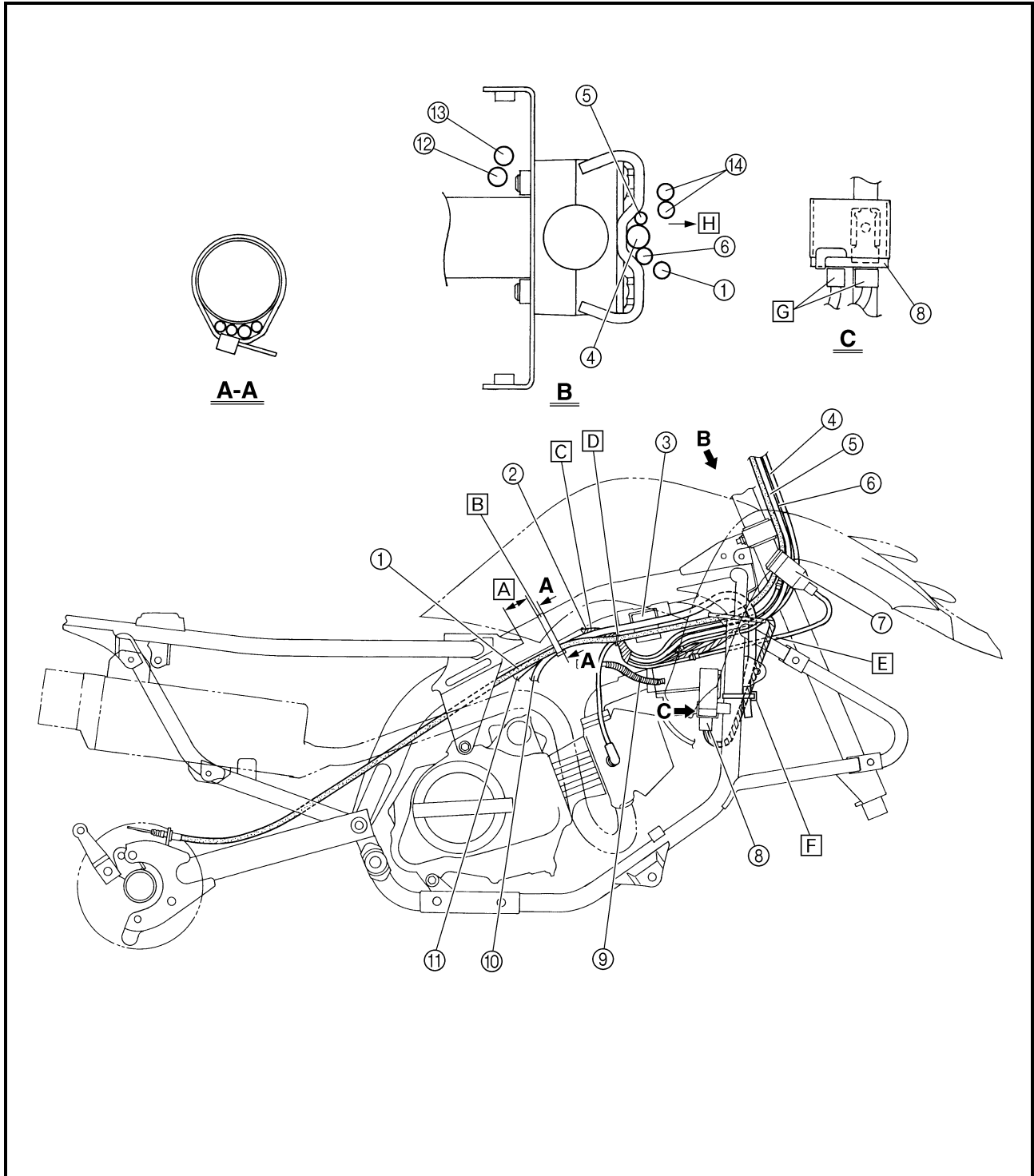


- ① Rear brake cable
- ② Wire harness
- ③ Ignition coil
- ④ Handlebar switch lead
- ⑤ Rear brake switch lead
- ⑥ Neutral indicator light lead
- ⑦ Main switch
- ⑧ C.D.I. unit
- ⑨ Fuel hose
- ⑩ Crankcase breather hose
- ⑪ Final gear case breather hose
- ⑫ Fuel tank breather hose
- ⑬ Throttle cable
- ⑭ Front brake cables



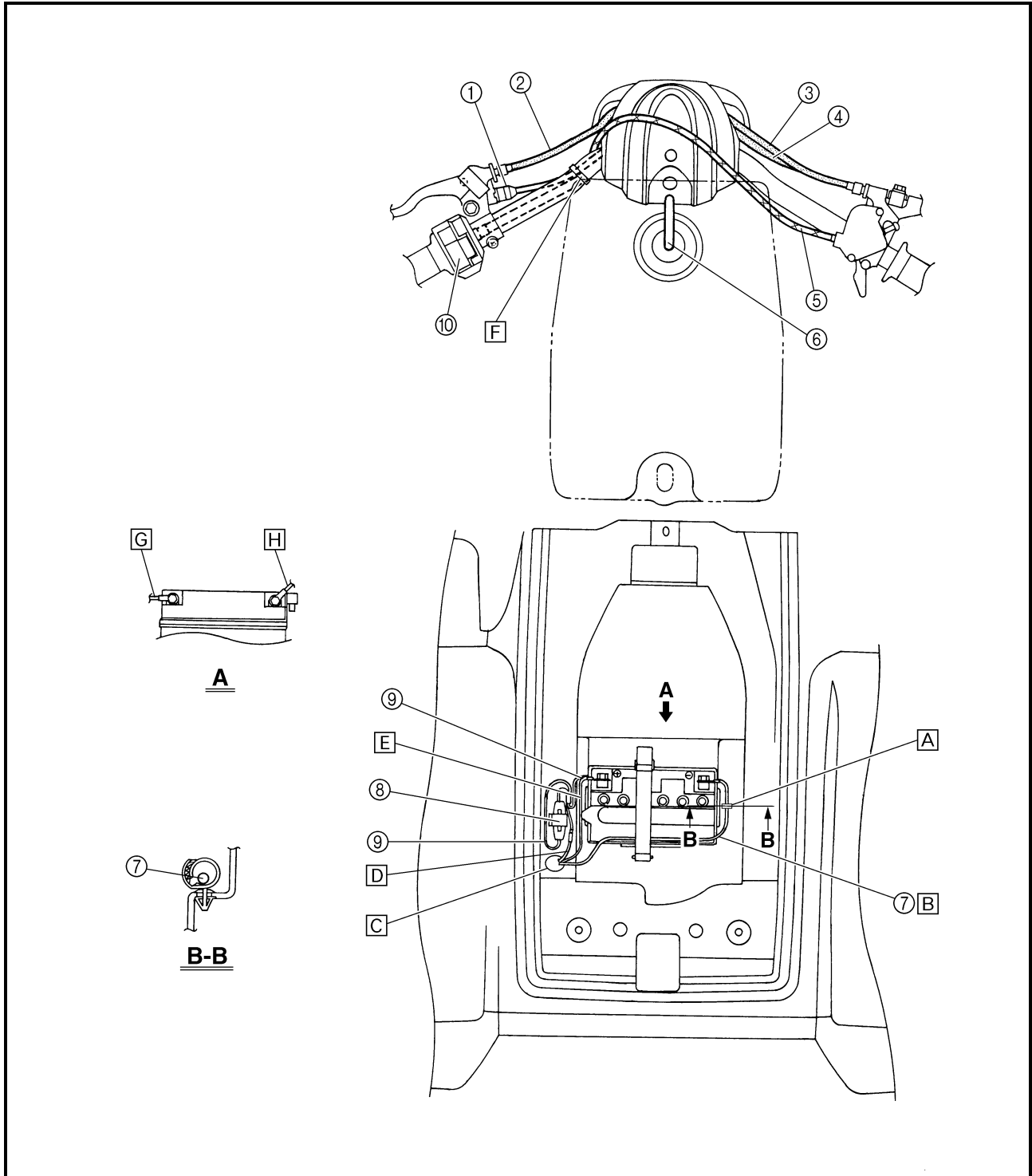


- A** 80 mm (3.15 in)
- B** Fasten the rear brake cable, wire harness, crankcase breather hose, and final gear case breather hose with a plastic band. Be sure to not pinch the hoses.
- C** Route the final gear case breather hose and crankcase breather hose over the wire harness. Fasten the hoses with a plastic band. Be sure to not pinch the hoses. Pass the ends of the hoses between the frame and bracket.
- D** Fasten the rear brake cable and wire harness near the ignition coil with a plastic locking tie.
- E** Do not fasten the main switch lead.
- F** Fasten the crankcase breather hose and final gear case breather hose with a plastic band.
- G** Face the coupler release tabs backward.
- H** Forward



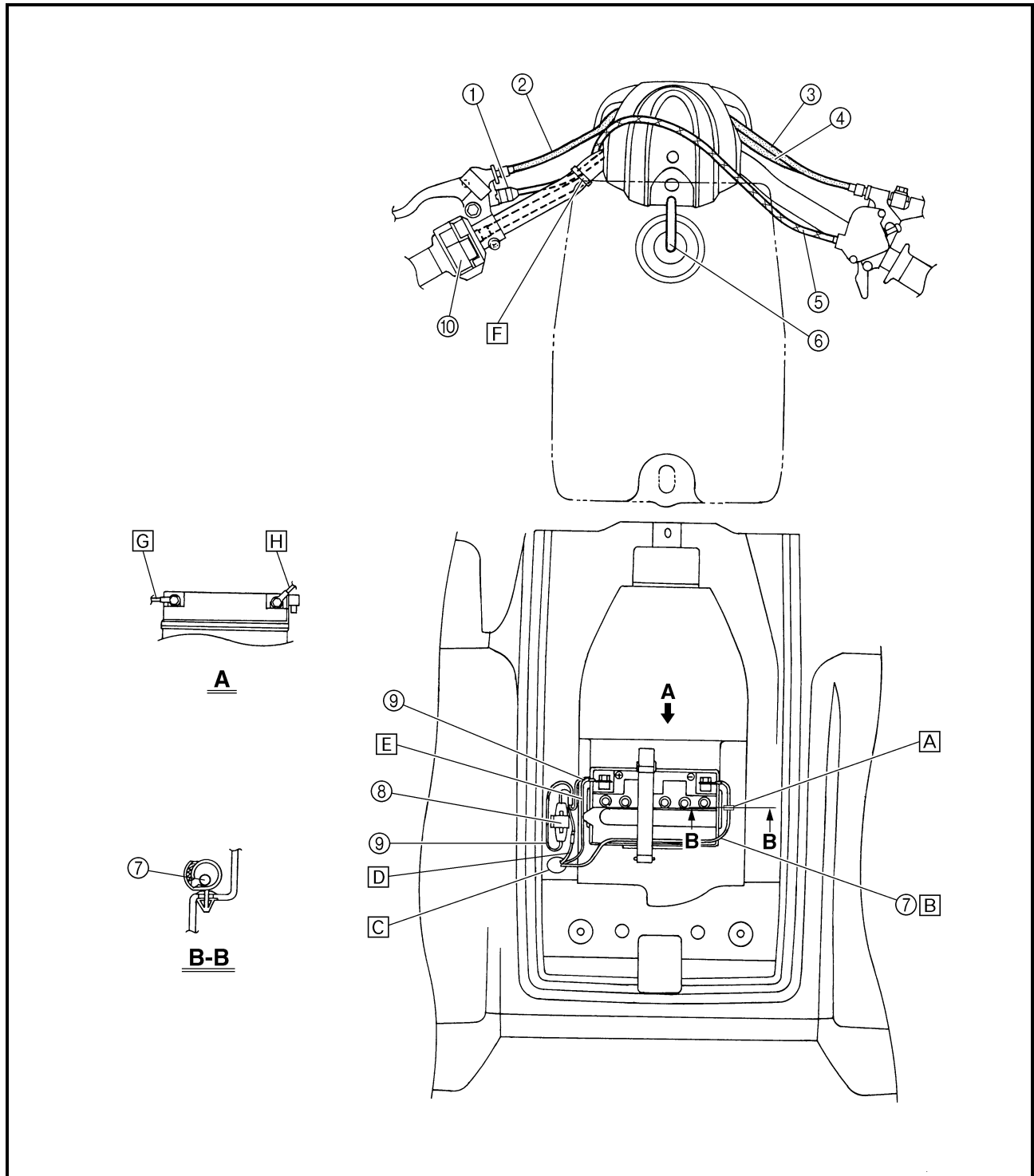


- ① Rear brake switch
- ② Rear brake cable
- ③ Left front brake cable
- ④ Right front brake cable
- ⑤ Throttle cable
- ⑥ Fuel tank breather hose
- ⑦ Negative battery lead
- ⑧ Main fuse
- ⑨ Positive battery lead
- ⑩ Handlebar switch





- A** Fasten the negative battery lead with the plastic holder.
- B** To starter motor
- C** Pass the leads through the hole.
- D** To wire harness
- E** To starter relay
- F** Fasten the handlebar switch lead and rear brake switch lead with a plastic band.
- G** Connect the negative battery lead to the battery so that the lead is routed to the side of the battery.
- H** Connect the positive battery lead to the battery so that the lead contacts the battery case.





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