











**YAMAHA**

**YFZ450S**

**SERVICE MANUAL**

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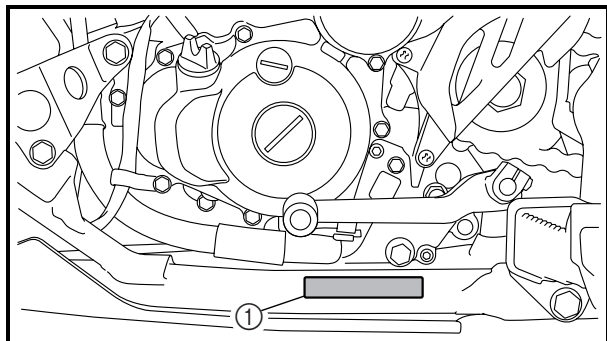
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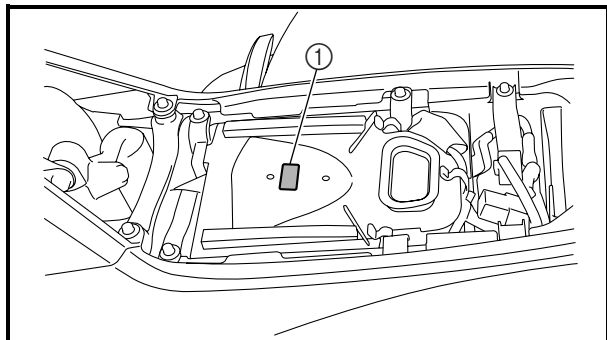
EBS00009

## GENERAL INFORMATION MACHINE IDENTIFICATION

EBS00010

### VEHICLE IDENTIFICATION NUMBER

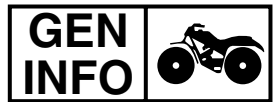
The vehicle identification number ① is stamped into the left side of the frame.



EBS00011

### MODEL LABEL

The model label ① is affixed to the air filter case cover. 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.

EBS00014

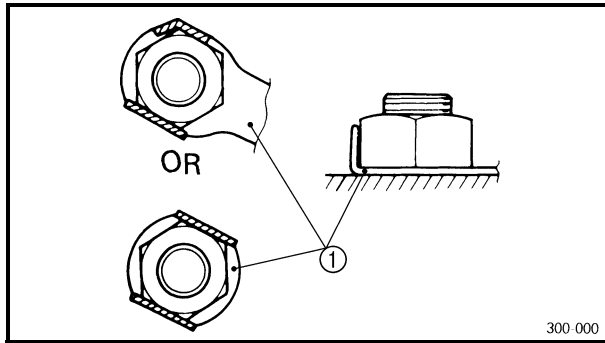
## **REPLACEMENT PARTS**

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.

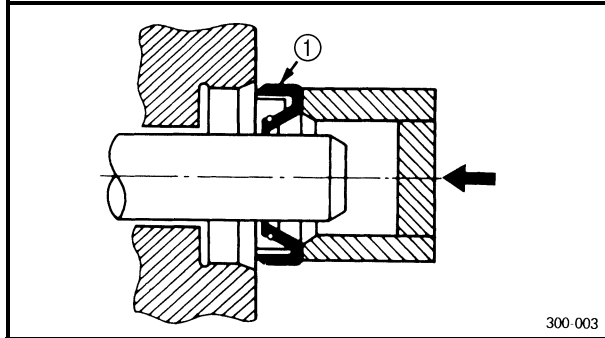


EBS00016

## 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.

300-000



EBS00017

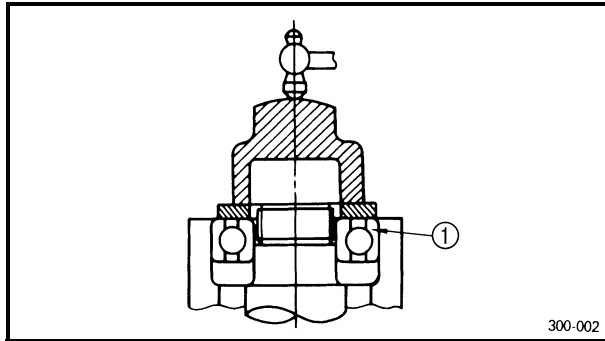
## BEARINGS AND OIL SEALS

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

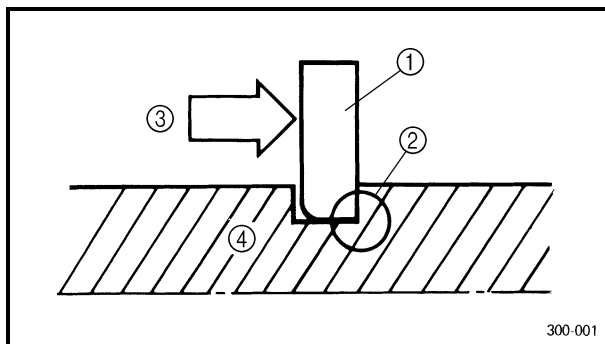
### CAUTION:

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



① Bearing

300-002



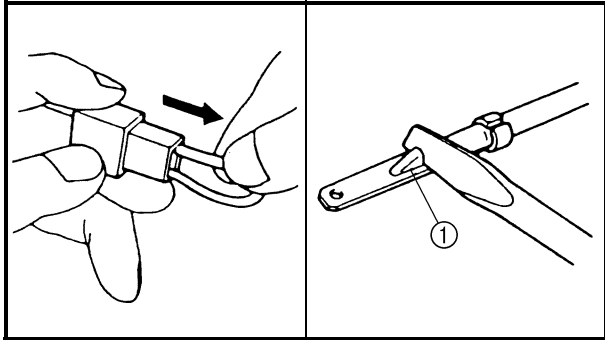
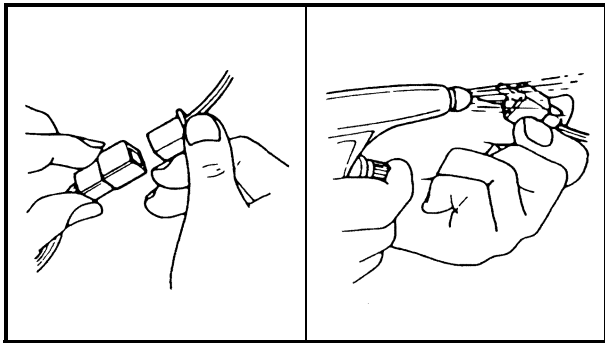
EBS00018

## 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

300-001



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:** \_\_\_\_\_

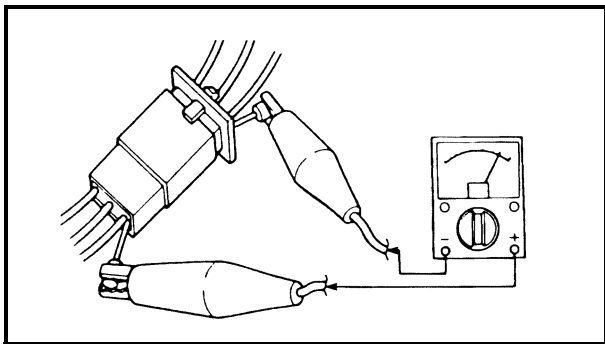
If the pin ① on the terminal is flattened, bend it up.

4. Connect:

- lead
- coupler
- connector

**NOTE:** \_\_\_\_\_

Make sure all connections are tight.



5. Check:

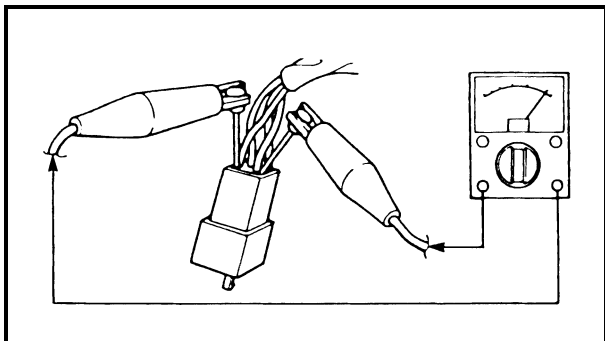
- continuity (with the pocket tester)



**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.

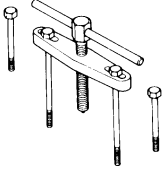
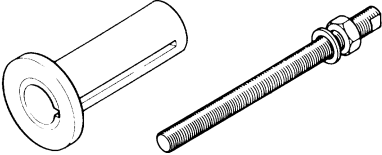
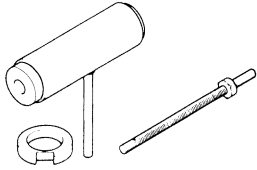
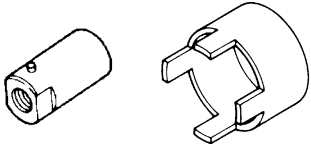
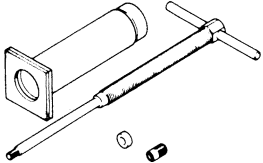
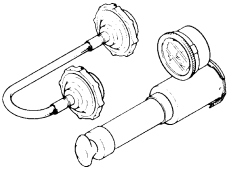
When placing an order, refer to the list provided below to avoid any mistakes.

For US and CDN

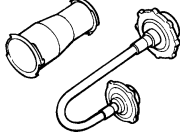

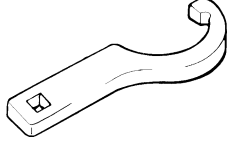
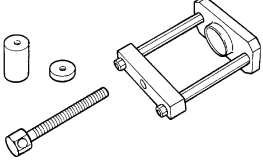
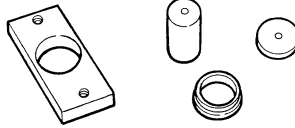
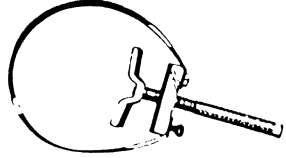
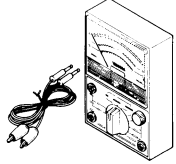
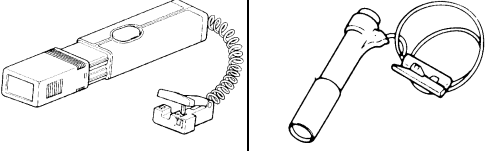
P/N. YM-, YU-, YS-, YK-, ACC-

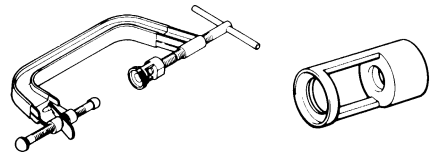
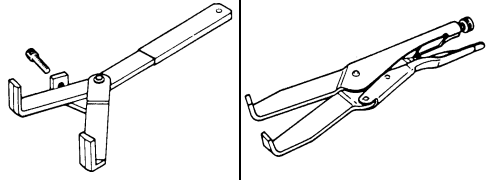
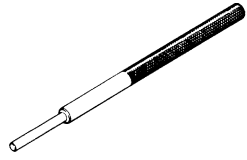
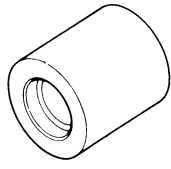
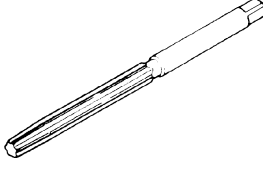
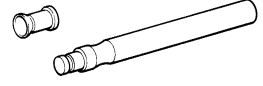


Except for US and CDN

P/N. 90890-

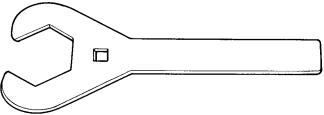
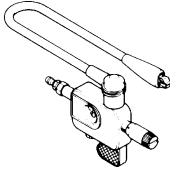
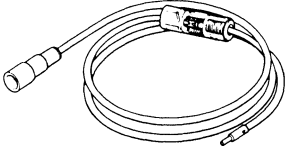

Tool No.	Tool name/Function	Illustration
90890-01135 YU-01135-A	Crankcase separating tool  This tool is used to separate the crankcase.	
Pot 90890-01274 Bolt 90890-01275	Crankshaft installer pot Crankshaft installer bolt  These tools are used to install the crankshaft.	
YU-90050	Crankshaft installer set  These tools are used to install the crankshaft.	
Adapter 90890-01278 YM-90063 Spacer 90890-04081 YM-91044	Adapter Spacer (crankshaft installer)  These tools are used to install the crankshaft.	
90890-01304 YU-01304	Piston pin puller  This tool is used to remove the piston pin.	
90890-01325 YU-24460-01	Radiator cap tester  This tool is used to check the cooling system.	



Tool No.	Tool name/Function	Illustration
90890-01352 YU-33984	Radiator cap tester adapter  This tool is used to check the cooling system.	
90890-01327 YM-01327	Damper rod holder (30 mm)  This tool is needed to loosen and tighten the steering stem bearing retainer.	
90890-01443 YU-33975	Steering nut wrench  This tool is needed to loosen and tighten the front shock absorber and rear shock absorber locknuts.	
90890-01474 YM-01474	Ball joint remover/installer set  These tools are used to removing or installing the ball joints.	
90890-01480 YM-01480	Ball joint remover/installer attachment set  These tools are used to removing or installing the ball joints.	
90890-01701 YS-01880-A	Sheave holder  This tool is needed to hold the A.C. magneto rotor when loosen or tighten the A.C. magneto rotor nut.	
90890-03112 YU-03112-C	Pocket tester  This instrument is needed for checking the electrical system.	
90890-03141 YM-33277-A	Timing light  This tool is necessary for checking ignition timing.	

Tool No.	Tool name/Function	Illustration
Compressor 90890-04019 YM-04019 Attachment 90890-04114 YM-04114	Valve spring compressor Valve spring compressor attachment  This tool is needed to remove and install the valve assemblies.	
90890-04086 YM-91042	Universal clutch holder  This tool is needed to hold the clutch carrier when removing or installing the carrier nut.	
90890-04097 YM-04097 90890-04116 YM-04116	Valve guide remover (ø 5) Valve guide remover (ø 4.5)  This tool is needed to remove and install the valve guides.	
90890-04098 YM-04098 90890-04117 YM-04117	Valve guide installer (ø 5) Valve guide installer (ø 4.5)  This tool is needed to install the valve guides.	
90890-04099 YM-04099 90890-04118 YM-04118	Valve guide reamer (ø 5) Valve guide reamer (ø 4.5)  This tool is needed to rebore the new valve guides.	
90890-04101	Valve lapper  This tool is needed to remove and install the valve lifters.	
90890-04142 YM-04142	Rotor puller  These tools are needed to remove the A.C. magneto rotor.	
90890-06588	PTT wrench 46  This tool is needed to loosen or tighten the rear axle nut.	



Tool No.	Tool name/Function	Illustration
YM-37134	<p>Axle nut wrench (46 mm)</p> <p>This tool is needed to loosen or tighten the rear axle nut.</p>	
90890-06754	<p>Ignition checker</p> <p>This instrument is necessary for checking the ignition system components.</p>	
YM-34487	<p>Dynamic spark tester</p> <p>This instrument is necessary for checking the ignition system components.</p>	
<p>Bond 90890-85505 Sealant ACC-11001-05-01</p>	<p>Yamaha bond No. 1215 Sealant (Quick Gasket®)</p> <p>This sealant (bond) is used on crankcase mating surfaces, etc.</p>	



EBS01001

## SPECIFICATIONS

## GENERAL SPECIFICATIONS

Item	Standard
<b>Model code</b>	5TG1
<b>Dimensions</b>	
Overall length	1,840 mm (72.4 in)
Overall width	1,170 mm (46.1 in)
Overall height	1,090 mm (42.9 in)
Seat height	800 mm (31.5 in)
Wheelbase	1,280 mm (50.4 in)
Minimum ground clearance	255 mm (10.04 in)
Minimum turning radius	3,500 mm (137.8 in)
<b>Basic weight</b>	
With oil and full fuel tank	169 kg (373 lb)
<b>Engine</b>	
Engine type	Liquid-cooled 4-stroke, DOHC
Cylinder arrangement	Forward-inclined single cylinder
Displacement	439 cm <sup>3</sup> (26.79 cu in)
Bore × stroke	95.0 × 62.0 mm (3.74 × 2.44 in)
Compression ratio	11.9:1
Starting system	Electric starter
<b>Lubrication system</b>	Dry sump
<b>Oil type or grade</b>	
Engine oil	API service SE, SF, SG type or higher
<p>The chart shows temperature ranges in Fahrenheit (0° to 130°) and Celsius (-20° to 50°). SAE 5W30 is suitable for temperatures down to -20°C. YAMALUBE4 (10W30) or SAE 10W30 is suitable for temperatures down to -10°C. YAMALUBE4 (20W40) or SAE 20W40 is suitable for temperatures down to 0°C.</p>	
<b>Oil capacity</b>	
Engine oil	
Periodic oil change	1.75 L (1.54 Imp qt, 1.85 US qt)
With oil filter replacement	1.85 L (1.63 Imp qt, 1.96 US qt)
Total amount	1.95 L (1.72 Imp qt, 2.06 US qt)
<b>Radiator capacity (including all routes)</b>	1.3 L (1.14 Imp qt, 1.37 US qt)
<b>Air filter</b>	Wet type element
<b>Fuel</b>	
Type	Premium unleaded gasoline only
Fuel tank capacity	10.0 L (2.20 Imp gal, 2.64 US gal)
Fuel reserve amount	1.9 L (0.42 Imp gal, 0.50 US gal)



Item	Standard
<b>Carburetor</b> Type/quantity Manufacturer	5TG1 00 × 1 KEIHIN
<b>Spark plug</b> Type/manufacturer Spark plug gap	CR8E/NGK 0.7 ~ 0.8 mm (0.028 ~ 0.031 in)
<b>Clutch type</b>	Wet, multiple disc
<b>Transmission</b> Primary reduction system Primary reduction ratio Secondary reduction system Secondary reduction ratio Transmission type Operation Gear ratio 1st gear 2nd gear 3rd gear 4th gear 5th gear	Spur gear 62/22 (2.818) Chain drive 38/14 (2.714) Constant mesh, 5-speed Left foot operation  29/12 (2.416) 27/14 (1.928) 25/16 (1.562) 23/18 (1.277) 21/20 (1.050)
<b>Chassis</b> Frame type Caster angle Camber angle Kingpin angle Kingpin offset Trail Tread (STD)                      front rear Toe-in (with tires touching the ground)	Steel tube frame 5° -1.5° 15.4° 1.0 mm (0.04 in) 21.0 mm (0.83 in) 950 mm (37.40 in) 900 mm (35.43 in) 2 ~ 12 mm (0.08 ~ 0.47 in)
<b>Tire</b> Type Size                                      front rear Manufacturer                      front rear Type                                      front rear	Tubeless AT21 × 7-10 AT20 × 10-9 DUNLOP DUNLOP KT331A Radial KT355 Radial
<b>Tire pressure (cold tire)</b> Maximum load* Off-road riding                      front rear *Load in total weight of cargo, rider and accessories	100 kg (220 lb) 30 kPa (0.30 kg/cm <sup>2</sup> , 4.4 psi) 35 kPa (0.35 kg/cm <sup>2</sup> , 5.0 psi)

# GENERAL SPECIFICATIONS

**SPEC**

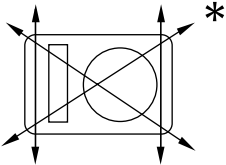
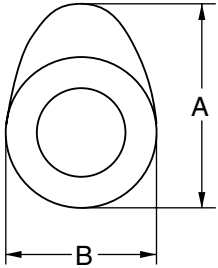
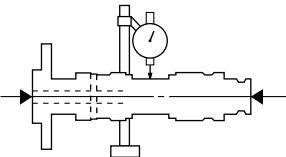


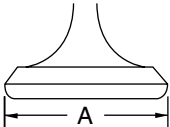
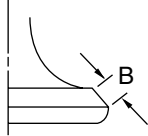
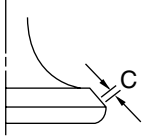
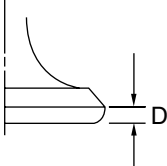
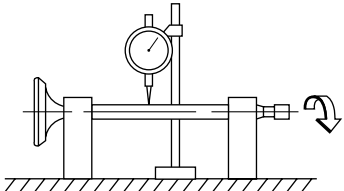
Item	Standard
<b>Brake</b>	
Front brake	type operation
Rear brake	type operation
<b>Suspension</b>	
Front suspension	Double wishbone
Rear suspension	Swingarm (link suspension)
<b>Shock absorber</b>	
Front shock absorber	Coil spring/gas-oil damper
Rear shock absorber	Coil spring/gas-oil damper
<b>Wheel travel</b>	
Front wheel travel	230 mm (9.06 in)
Rear wheel travel	256 mm (10.08 in)
<b>Electrical</b>	
Ignition system	DC-C.D.I.
Generator system	A.C. magneto
Battery type	GT7B-4
Battery capacity	12 V 12 Ah
<b>Headlight type</b>	
Krypton bulb	
<b>Bulb voltage/wattage × quantity</b>	
Headlight	12 V 30 W/30 W × 2
Tail/brake light	12 V 5 W/21 W × 1
Indicator and warning lights	
Neutral	12 V 1.7 W × 1
Coolant temperature	12 V 1.7 W × 1



EBS01002

ENGINE SPECIFICATIONS

Item	Standard	Limit
<p><b>Cylinder head</b> Warp limit *</p> 	<p>----</p>	<p>0.05 mm (0.002 in)</p>
<p><b>Cylinder</b> Bore size</p>	<p>95.00 ~ 95.01 mm (3.7402 ~ 3.7406 in)</p>	<p>----</p>
<p><b>Camshaft</b> Drive method Camshaft cap inside diameter Camshaft journal diameter Camshaft-journal-to-camshaft-cap clearance Camshaft lobe dimensions</p>  <p>Intake "A" "B"</p> <p>Exhaust "A" "B"</p> <p>Camshaft runout limit</p> 	<p>Chain drive (Left) 22.000 ~ 22.021 mm (0.8661 ~ 0.8670 in) 21.967 ~ 21.980 mm (0.8648 ~ 0.8654 in) 0.020 ~ 0.054 mm (0.0008 ~ 0.0021 in)</p> <p>31.200 ~ 31.300 mm (1.2283 ~ 1.2323 in) 22.550 ~ 22.650 mm (0.8878 ~ 0.8917 in) 30.950 ~ 31.050 mm (1.2185 ~ 1.2224 in) 22.494 ~ 22.594 mm (0.8856 ~ 0.8895 in)</p> <p>----</p>	<p>---- ---- 0.080 mm (0.0032 in)</p> <p>31.100 mm (1.2244 in) 22.450 mm (0.8839 in) 30.850 mm (1.2146 in) 22.394 mm (0.8817 in)</p> <p>0.03 mm (0.0012 in)</p>
<p><b>Timing chain</b> Timing chain type/No. of links Timing chain adjustment method</p>	<p>98XRH2010-118M Automatic</p>	<p>---- ----</p>

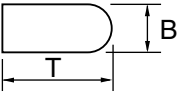
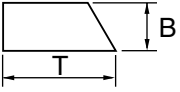

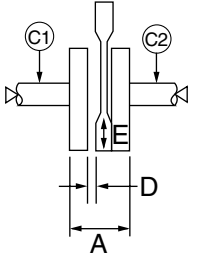
Item		Standard	Limit
<b>Valve, valve seat, valve guide</b>			
Valve clearance (cold)	IN	0.10 ~ 0.15 mm (0.0039 ~ 0.0059 in)	----
	EX	0.20 ~ 0.25 mm (0.0079 ~ 0.0098 in)	----
Valve dimensions			
			
			
		Head Diameter	Face Width
		Seat Width	Margin Thickness
"A" head diameter	IN	26.9 ~ 27.1 mm (1.0591 ~ 1.0669 in)	----
	EX	27.9 ~ 28.1 mm (1.0984 ~ 1.1063 in)	----
"B" face width	IN	2.26 mm (0.0890 in)	----
	EX	2.26 mm (0.0890 in)	----
"C" seat width	IN	0.9 ~ 1.1 mm (0.0354 ~ 0.0433 in)	1.6 mm (0.06 in)
	EX	0.9 ~ 1.1 mm (0.0354 ~ 0.0433 in)	1.6 mm (0.06 in)
"D" margin thickness	IN	1.0 mm (0.0394 in)	0.85 mm (0.033 in)
	EX	1.0 mm (0.0394 in)	0.85 mm (0.033 in)
Stem outside diameter	IN	4.475 ~ 4.490 mm (0.1762 ~ 0.1768 in)	4.445 mm (0.175 in)
	EX	4.965 ~ 4.980 mm (0.1955 ~ 0.1961 in)	4.935 mm (0.194 in)
Guide inside diameter	IN	4.500 ~ 4.512 mm (0.1772 ~ 0.1776 in)	4.550 mm (0.179 in)
	EX	5.000 ~ 5.012 mm (0.1969 ~ 0.1973 in)	5.050 mm (0.199 in)
Stem-to-guide clearance	IN	0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in)	0.080 mm (0.003 in)
	EX	0.020 ~ 0.047 mm (0.0008 ~ 0.0019 in)	0.100 mm (0.004 in)
Valve stem runout		----	0.01 mm (0.0004 in)
Valve seat width	IN	0.9 ~ 1.1 mm (0.0354 ~ 0.0433 in)	1.6 mm (0.06 in)
	EX	0.9 ~ 1.1 mm (0.0354 ~ 0.0433 in)	1.6 mm (0.06 in)
			





Item	Standard	Limit
<b>Valve spring</b>		
Free length	IN	37.03 mm (1.46 in)
	EX	37.68 mm (1.48 in)
Set length (valve closed)	IN	27.87 mm (1.10 in)
	EX	27.38 mm (1.08 in)
Compressed pressure (installed)	IN	111.3 ~ 127.9 N (11.35 ~ 13.04 kg, 25.02 ~ 28.75 lb)
	EX	127.4 ~ 146.4 N (12.99 ~ 14.93 kg, 28.64 ~ 32.91 lb)
Tilt limit *	IN	----
	EX	----
Direction of winding (top view)	IN	Clockwise
	EX	Clockwise
		2.5°/1.61 mm (2.5°/0.063 in)
		2.5°/1.65 mm (2.5°/0.065 in)
<b>Piston</b>		
Piston to cylinder clearance	0.040 ~ 0.065 mm (0.0016 ~ 0.0026 in)	0.10 mm (0.004 in)
Piston size "D"	94.945 ~ 94.960 mm (3.7380 ~ 3.7386 in)	----
Measuring point "H"	10 mm (0.39 in)	----
Piston off set	1.0 mm (0.0394 in)	----
Offset direction	Intake side	----
Piston pin bore inside diameter	20.004 ~ 20.015 mm (0.7876 ~ 0.7880 in)	20.045 mm (0.789 in)
Piston pin outside diameter	19.991 ~ 20.000 mm (0.7870 ~ 0.7874 in)	19.971 mm (0.786 in)
Piston-pin-to-piston-pin-bore clearance	0.004 ~ 0.024 mm (0.0002 ~ 0.0009 in)	0.074 mm (0.0029 in)



Item	Standard	Limit
<b>Piston rings</b>		
Top ring 		
Type	Barrel	----
Dimensions (B × T)	1.2 × 3.5 mm (0.047 × 0.138 in)	----
End gap (installed)	0.20 ~ 0.30 mm (0.008 ~ 0.012 in)	0.55 mm (0.022 in)
Side clearance	0.030 ~ 0.065 mm (0.0012 ~ 0.0026 in)	0.12 mm (0.0047 in)
2nd ring 		
Type	Taper	----
Dimensions (B × T)	1.00 × 3.35 mm (0.039 × 0.132 in)	----
End gap (installed)	0.35 ~ 0.50 mm (0.014 ~ 0.020 in)	0.85 mm (0.034 in)
Side clearance	0.020 ~ 0.055 mm (0.0008 ~ 0.0022 in)	0.12 mm (0.0047 in)
Oil ring 		
Dimensions (B × T)	2.0 × 2.9 mm (0.079 × 0.114 in)	----
End gap (installed)	0.20 ~ 0.50 mm (0.008 ~ 0.020 in)	----
<b>Crankshaft</b>		
		
Crank width "A"	61.95 ~ 62.00 mm (2.439 ~ 2.441 in)	----
Runout limit C1	0.03 mm (0.0012 in)	0.05 mm (0.002 in)
C2	0.03 mm (0.0012 in)	0.05 mm (0.002 in)
Big end side clearance "D"	0.15 ~ 0.45 mm (0.0059 ~ 0.0177 in)	0.50 mm (0.0197 in)
Big end radial clearance "E"	0.010 ~ 0.025 mm (0.0004 ~ 0.0010 in)	----



Item	Standard	Limit
<b>Balancer</b>		
Balancer drive method	Gear	----
<b>Clutch</b>		
Friction plate 1 (inside dia.: 120 mm)		
Thickness	2.9 ~ 3.1 mm (0.114 ~ 0.122 in)	2.8 mm (0.110 in)
Quantity	7	----
Friction plate 2 (inside dia.: 128 mm)		
Thickness	2.9 ~ 3.1 mm (0.114 ~ 0.122 in)	2.8 mm (0.110 in)
Quantity	1	----
Clutch plate		
Thickness	1.5 ~ 1.7 mm (0.059 ~ 0.067 in)	----
Quantity	7	----
Max. warpage	----	0.2 mm (0.0079 in)
Clutch spring		
Free length	51.8 mm (2.04 in)	50.0 mm (1.97 in)
Quantity	6	----
Clutch housing thrust clearance	0.10 ~ 0.35 mm (0.0039 ~ 0.0138 in)	----
Clutch housing radial clearance	0.010 ~ 0.044 mm (0.0004 ~ 0.0017 in)	----
Clutch release method	Inner push, cam push	----
Push rod 2 bending limit	0.1 mm (0.004 in)	----
<b>Transmission</b>		
Main axle deflection limit	----	0.08 mm (0.0031 in)
Drive axle deflection limit	----	0.08 mm (0.0031 in)
<b>Shifter</b>		
Shifter type	Shift drum and guide bar	----
Max. shift fork guide bar bending	----	0.05 mm (0.002 in)
<b>Decompression device</b>		
Device type	Auto decomp	----
<b>Air filter oil grade</b>	Engine oil	----

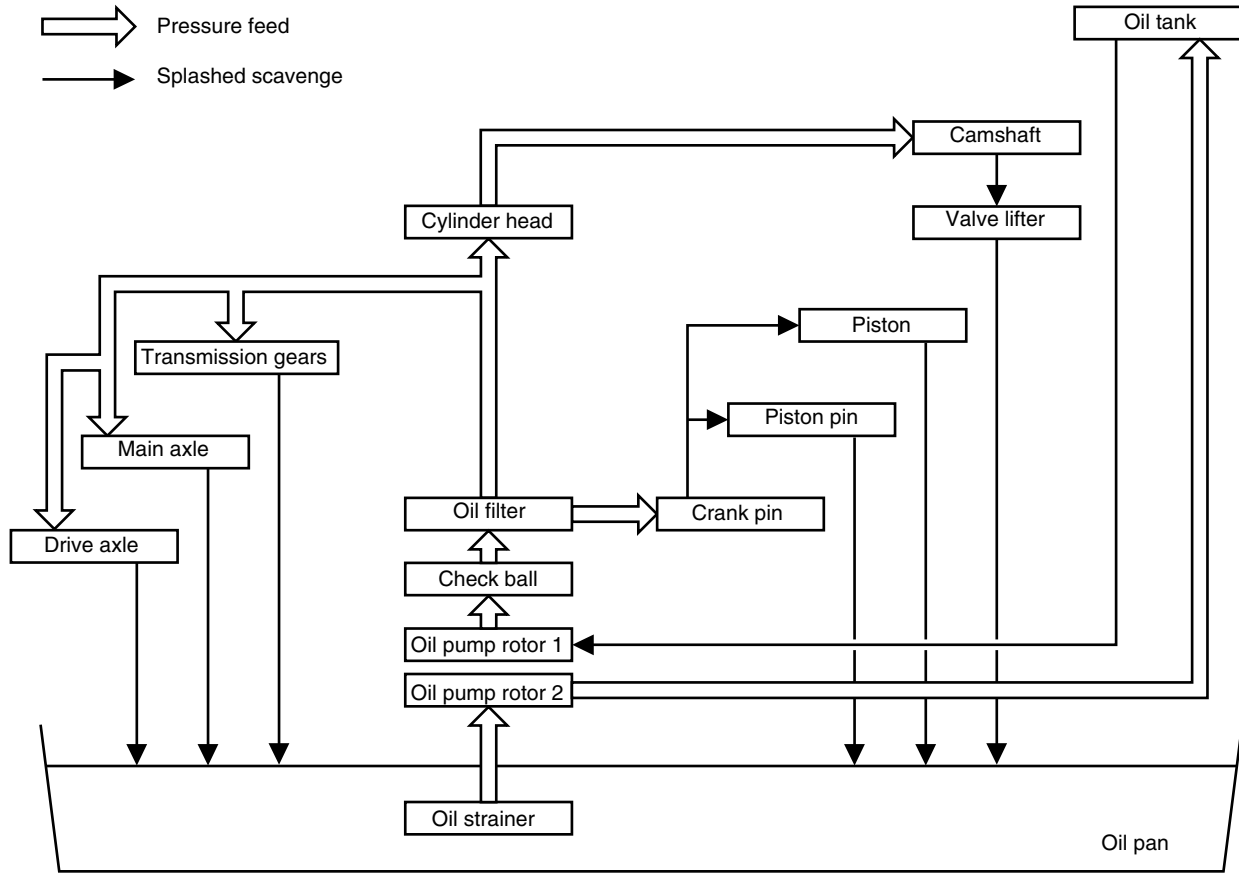


Item	Standard	Limit
<b>Carburetor</b>		
I. D. mark	5TG1 00	----
Main jet (M.J)	#158	----
Main air jet (M.A.J)	ø1.0	----
Jet needle/clip position (J.N)	NDSR/4	----
Cutaway (C.A)	1.5	----
Pilot air jet (P.A.J.1)	#100	----
Pilot outlet (P.O)	ø0.9	----
Pilot jet (P.J)	#42	----
Bypass 1 (B.P.1)	ø1.0	----
Valve seat size (V.S)	ø3.8	----
Starter jet (G.S.1)	#90	----
Float height (F.H)	8 mm (0.31 in)	----
Engine idle speed	1,750 ~ 1,850 r/min	----
Intake vacuum	34.7 ~ 37.3 kPa (260 ~ 280 mmHg, 10.2 ~ 11.0 inHg)	----
<b>Throttle position sensor</b>		
Resistance	4 ~ 6 kΩ at 20 °C	----
<b>Oil filter type</b>		
	Paper	----
<b>Oil pump</b>		
Oil pump type	Trochoid	----
Inner-rotor-to-outer-rotor-tip clearance	0.07 ~ 0.12 mm (0.0028 ~ 0.0047 in)	0.20 mm (0.0079 in)
Outer-rotor-to-oil-pump-housing clearance	0.09 ~ 0.17 mm (0.0035 ~ 0.0067 in)	0.24 mm (0.0094 in)
Bypass valve setting pressure	40.0 ~ 80.0 kPa (300 ~ 602 mmHg, 11.8 ~ 23.7 inHg)	----
<b>Cooling system</b>		
Radiator core		
Width	300 mm (11.8 in)	----
Height	188 mm (7.4 in)	----
Depth	24 mm (0.94 in)	----
Radiator cap opening pressure	107.9 ~ 137.3 kPa (1.079 ~ 1.373 kg/cm <sup>2</sup> , 15.35 ~ 19.53 psi)	----
Radiator capacity	0.58 L (0.51 Imp qt, 0.61 US qt)	----
Coolant reservoir		
Capacity	0.29 L (0.26 Imp qt, 0.31 US qt)	----
From low to full level	0.16 L (0.14 Imp qt, 0.17 US qt)	----
<b>Water pump</b>		
Type	Single-suction centrifugal pump	----



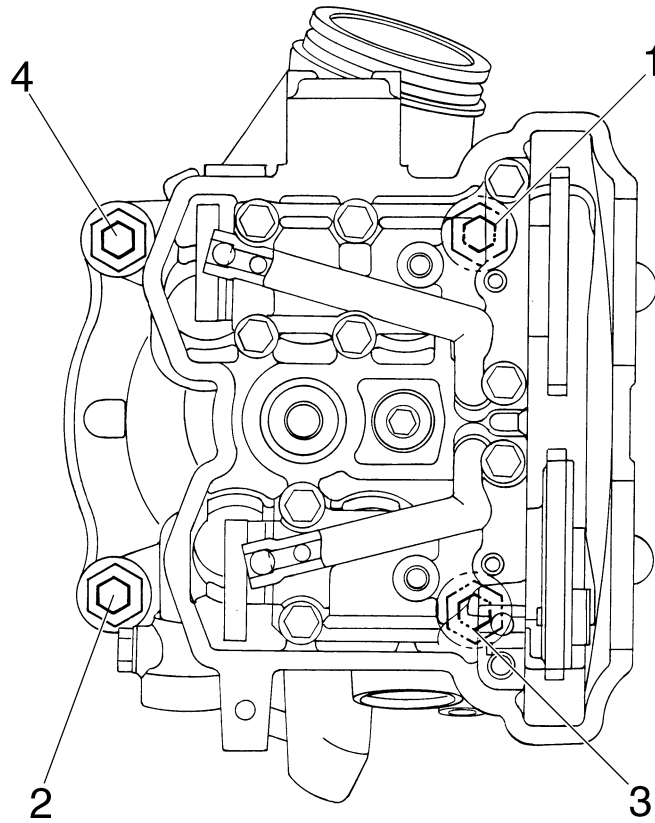
Lubrication chart

- ➡ Pressure feed
- ➡ Splashed scavenge





Cylinder head tightening sequence



EBS01003

**CHASSIS SPECIFICATIONS**

Item	Standard	Limit
<b>Steering system</b>		
Steering bearing type	Ball and race bearing	----
<b>Front suspension</b>		
Shock absorber travel	110 mm (4.33 in)	----
Fork spring free length	265 mm (10.43 in)	----
Spring fitting length	255 mm (10.04 in)	----
Spring rate (K1)	19.6 N/mm (2.00 kg/mm, 112 lb/in)	----
Spring rate (K2)	39.2 N/mm (4.00 kg/mm, 224 lb/in)	----
Optional spring	No	----
<b>Rear suspension</b>		
Shock absorber travel	116.0 (4.57 in)	----
Spring free length	259 mm (10.20 in)	----
Spring fitting length	244 mm (9.61 in)	----
Spring rate (K1)	46.0 N/mm (4.69 kg/mm, 263 lb/in)	----
Stroke (K1)	0 ~ 116.0 mm (0 ~ 4.57 in)	----
Optional spring	No	----
<b>Swingarm</b>		
Free play limit	end	----
	side	----
		1 mm (0.04 in)
		1 mm (0.04 in)
<b>Front wheel</b>		
Type	Panel wheel	----
Rim size	10 × 5.5 AT	----
Rim material	Aluminum	----
Rim runout limit	radial	----
	lateral	----
		2.0 mm (0.08 in)
		2.0 mm (0.08 in)
<b>Rear wheel</b>		
Type	Panel wheel	----
Rim size	9 × 8.5 AT	----
Rim material	Aluminum	----
Rim runout limit	radial	----
	lateral	----
		2.0 mm (0.08 in)
		2.0 mm (0.08 in)
<b>Drive chain</b>		
Type/manufacturer	520MXV/DAIDO	----
Link quantity	96	----
Drive chain slack	25 ~ 35 mm (0.98 ~ 1.38 in)	----

# CHASSIS SPECIFICATIONS

**SPEC**



Item	Standard	Limit
<b>Front disc brake</b>		
Type	Dual	----
Disc outside diameter × thickness	161.0 × 3.5 mm (6.34 × 0.14 in)	----
Pad thickness inner	4.5 mm (0.18 in)	1.0 mm (0.04 in)
Pad thickness outer	4.5 mm (0.18 in)	1.0 mm (0.04 in)
Master cylinder inside diameter	12.7 mm (0.50 in)	----
Caliper cylinder inside diameter	27 mm (1.06 in)	----
Brake fluid type	DOT 4	----
<b>Rear disc brake</b>		
Type	Single	----
Disc outside diameter × thickness	200.0 × 3.6 mm (7.87 × 0.14 in)	----
Pad thickness inner	4.5 mm (0.18 in)	1.0 mm (0.04 in)
Pad thickness outer	4.5 mm (0.18 in)	1.0 mm (0.04 in)
Master cylinder inside diameter	12.7 mm (0.50 in)	----
Caliper cylinder inside diameter	33.96 mm (1.34 in)	----
Brake fluid type	DOT 4	----
<b>Brake lever and brake pedal</b>		
Brake pedal position	11.7 mm (0.46 in)	----
Parking brake cable end length	56 ~ 60 mm (2.20 ~ 2.36 in)	----
Clutch lever free play (lever end)	8 ~ 13 mm (0.31 ~ 0.51 in)	----
Throttle lever free play	2 ~ 4 mm (0.08 ~ 0.16 in)	----
Speed limiter length	Less than 12 mm (0.47 in)	----
Shift pedal height	25 mm (0.98 in)	----





EBS01004

## ELECTRICAL SPECIFICATIONS

Item	Standard	Limit
<b>Voltage</b>	12 V	----
<b>Ignition system</b>		
Ignition timing (B.T.D.C.)	7.5°/1,800 r/min	----
Advancer type	Digital type	----
<b>C.D.I.</b>		
C.D.I. unit model/manufacturer	5TG/MORIC	----
Pickup coil resistance/color	248 ~ 372 Ω at 20 °C (68 °F) red–white	----
<b>Ignition coil</b>		
Model/manufacturer	J0474/DENSO	----
Minimum ignition spark gap	6 mm (0.24 in)	----
Primary winding resistance	0.08 ~ 0.10 Ω at 20 °C (68 °F)	----
Secondary winding resistance	4.56 ~ 6.84 kΩ at 20 °C (68 °F)	----
<b>Charging system</b>		
Type	A.C. magneto	----
Model/manufacturer	F5TG/MORIC	----
Nominal output	14 V 120 W at 5,000 r/min	----
Lighting coil resistance/color	0.224 ~ 0.336 Ω at 20 °C (68 °F) yellow–ground	----
Charging coil resistance/color	0.288 ~ 0.432 Ω at 20 °C (68 °F) white–ground	----
<b>Rectifier/regulator</b>		
Type	Semi conductor-short circuit	----
Model/manufacturer	SH712AB/SHINDENGEN	----
No load regulated voltage (DC)	14.1 ~ 14.9 V	----
(AC)	13.0 ~ 14.0 V	----
Rectifier capacity (DC)	8.0 A	----
(AC)	12.0 A	----
<b>Electric starter system</b>		
Type	Constant mesh type	----
<b>Starter motor</b>		
Model/manufacturer	SM-14/MITSUBA	----
Output	0.5 kW	----
Armature coil resistance	0.004 ~ 0.005 Ω at 20 °C (68 °F)	----
Brush overall length	10 mm (0.39 in)	3.5 mm (0.14 in)
Spring force	7.16 ~ 9.52 N (730 ~ 971 gf, 25.77 ~ 34.27 oz)	----
Commutator diameter	28 mm (1.10 in)	27 mm (1.06 in)
Mica undercut	0.7 mm (0.03 in)	----

# ELECTRICAL SPECIFICATIONS

**SPEC**



Item	Standard	Limit
<b>Starter relay</b>		
Model/manufacturer	2768079-A/JIDECO	----
Amperage rating	180 A	----
Coil winding resistance	4.18 ~ 4.62 Ω	----
<b>Thermo switch</b>		
Thermo switch 1		
Model/manufacturer	5GH/NIPPON THERMOSTAT	----
Opening temperature	95 ~ 101 °C (203.0 ~ 213.8 °F)	----
Closing temperature	89 ~ 95 °C (192.2 ~ 203.0 °F)	----
Thermo switch 2		
Model/manufacturer	5LP/NIPPON THERMOSTAT	----
Opening temperature	117 ~ 123 °C (242.6 ~ 253.4 °F)	----
Closing temperature	112 ~ 118 °C (233.6 ~ 244.4 °F)	----
<b>Circuit breaker</b>		
Type	Fuse	----
Amperage for individual circuit		
Fuse	15 A × 1	----
Reserve	15 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	
Spark plug	—	M10S	1	13	1.3	9.4	
Cylinder head cover	Bolt	M6	2	10	1.0	7.2	
Camshaft cap	Bolt	M6	10	10	1.0	7.2	
Cylinder head blind plug screw	Screw	M12	1	37	3.7	27	
Timing chain tensioner	Bolt	M6	2	10	1.0	7.2	
Timing chain tensioner cap	Bolt	M6	1	7	0.7	5.1	
Timing chain guide (intake)	Bolt	M6	2	10	1.0	7.2	
Cylinder head (exhaust pipe)	Stud bolt	M8	1	15	1.5	11	
Cylinder head (timing chain side)	Stud bolt	M6	2	7	0.7	5.1	
Cylinder head	Bolt	M10	4	See NOTE. *			
	Nut	M6	2	10	1.0	7.2	
Parking brake cable and clutch cable holder	Bolt	M6	1	10	1.0	7.2	
Cylinder	Bolt	M6	1	10	1.0	7.2	
Engine oil drain bolt (oil tank)	Bolt	M8	1	19	1.9	13	
Engine oil drain bolt (engine)	Bolt	M10	1	20	2.0	14	
Oil pump	Bolt	M6	3	10	1.0	7.2	
Oil pump housing cover	Screw	M4	1	2	0.2	1.4	
Engine oil drain bolt (oil filter)	Bolt	M6	1	10	1.0	7.2	
Oil filter cover	Bolt	M6	2	10	1.0	7.2	
Oil delivery pipe 1	Union bolt	M10	1	20	2.0	14	
	Union bolt	M8	2	18	1.8	13	
Oil delivery pipe 2	Bolt	M6	1	10	1.0	7.2	
Oil pipe 1 and crankcase cover	Bolt	M6	1	8	0.8	8	
Oil pipe 2 and left crankcase	Bolt	M6	1	8	0.8	8	
Oil pipe 2 and oil tank	Bolt	M6	1	10	1.0	7.2	
Oil gallery bolt	Bolt	M6	1	10	1.0	7.2	
Exhaust pipe	Bolt	M8	1	24	2.4	17	
	Nut	M8	1	13	1.3	9.4	
Exhaust pipe protector	Screw	M6	2	7	0.7	5.1	
Muffler protector	Screw	M6	2	7	0.7	5.1	
Muffler	Bolt	M8	2	34	3.4	24	
Muffler and exhaust pipe	Bolt	M8	1	20	2.0	14	
Spark arrester	Bolt	M6	1	10	1.0	7.2	
Silencer cap	Bolt	M6	1	10	1.0	7.2	
Radiator	Bolt	M6	4	7	0.7	5.1	
Radiator fan	Bolt	M6	3	9	0.9	6.5	
Coolant drain bolt	Bolt	M6	1	10	1.0	7.2	
Impeller	—	M8	1	14	1.4	10	
Water pump inlet pipe	Bolt	M6	1	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	
Cylinder head water jacket	Bolt	M6	1	10	1.0	7.2	
Water pump housing cover	Bolt	M6	4	10	1.0	7.2	
Coolant reservoir	Bolt	M6	2	7	0.7	5.1	
Clutch cover	Bolt	M6	7	10	1.0	7.2	
Clutch spring	Bolt	M6	6	8	0.8	8	
Clutch boss	Nut	M20	1	75	7.5	54	Use a lock washer.
Push lever shaft plate	Bolt	M6	1	10	1.0	7.2	
Clutch cable holder	Bolt	M6	1	10	1.0	7.2	
Crankcase cover	Bolt	M6	8	10	1.0	7.2	
Parking brake cable holder and crankcase cover	Bolt	M6	2	10	1.0	7.2	
Left crankcase	Bolt	M6	11	12	1.2	8.7	
Oil strainer	Bolt	M6	2	10	1.0	7.2	
Crankcase bearing retainer	Screw	M6	3	12	1.2	8.7	
	Screw	M6	4	12	1.2	8.7	
Primary drive gear	Bolt	M6	7	10	1.0	7.2	
	Nut	M20	1	75	7.5	54	Use a lock washer.
Balancer driven gear	Nut	M14	1	50	5.0	36	Use a lock washer.
Drive sprocket	Nut	M20	1	75	7.5	54	Use a lock washer.
Drive axle oil seal retainer	Bolt	M6	2	10	1.0	7.2	
Torque limiter cover	Bolt	M6	2	10	1.0	7.2	
A.C. magneto cover	Bolt	M6	9	10	1.0	7.2	
A.C. magneto rotor	Nut	M12	1	65	6.5	47	
Stator coil	Bolt	M5	2	7	0.7	5.1	
A.C. magneto lead holder	Bolt	M5	2	7	0.7	5.1	
Pickup coil	Bolt	M6	2	10	1.0	7.2	
Starter clutch	Bolt	M6	6	16	1.6	11	
Shift drum segment	Bolt	M8	1	30	3.0	22	
Shift guide	Bolt	M6	2	10	1.0	7.2	
Stopper lever	Bolt	M6	1	10	1.0	7.2	
Shift pedal	Bolt	M6	1	12	1.2	8.7	
Throttle cable cover (carburetor)	Bolt	M5	2	4	0.4	2.9	
Carburetor joint clamp screw (carburetor side)	Screw	M5	1	3	0.4	2.9	
Carburetor joint clamp screw (cylinder head side)	Screw	M4	1	3	0.3	2.2	
Carburetor clamp screw (air intake duct side)	Screw	M6	1	3	0.3	2.2	
Neutral switch	—	M10	1	20	2.0	14	
Thermo switch 1	—	M18	1	28	2.8	20	

# TIGHTENING TORQUES

**SPEC**

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m · kg	ft · lb	
Thermo switch 2	—	M18	1	28	2.8	20	
Starter motor	Bolt	M6	2	10	1.0	7.2	
Starter motor lead	Nut	M6	1	7	0.7	5.1	
Bush holder assembly and rear bracket nut	Nut	M6	1	7	0.7	5.1	


**NOTE:**

\*1: Tighten the cylinder head bolts to 30 Nm (3.0 m · kg, 22 ft · lb) in the proper tightening sequence, remove and retighten the cylinder head bolts to 20 Nm (2.0 m · kg, 14 ft · lb) in the proper tightening sequence, and then tighten the cylinder head bolts further in two steps of 90° to reach the specified angle of 180° in the proper tightening sequence.



EBS01006









## CHASSIS TIGHTENING TORQUES

Part to be tightened	Thread size	Tightening torque			Remarks
		Nm	m · kg	ft · lb	
Engine stay and frame	M8	33	3.3	24	
Engine stay and engine upper bracket	M8	26	2.6	19	
Engine upper bracket and engine	M10	40	4.0	29	
Engine lower bracket and engine	M10	66	6.6	48	
Engine and frame	M10	66	6.6	48	
Engine lower bracket and frame	M8	38	3.8	27	
Swingarm pivot shaft, engine, and frame	M16	100	10	72	
Rear shock absorber and frame	M12	80	8.0	58	
Rear shock absorber locknut	M50	45	4.5	32	
Relay arm and swingarm	M12	55	5.5	40	
Connecting arm and frame	M12	55	5.5	40	
Relay arm and rear shock absorber	M12	43	4.3	31	
Relay arm and connecting arm	M12	55	5.5	40	
Hub, brake caliper bracket, and swingarm	M12	85	8.5	61	
Drive chain adjusting bolt and locknut	M8	16	1.6	11	
Front shock absorber and frame	M10	45	4.5	32	
Front shock absorber and lower front arm	M10	45	4.5	32	
Front shock absorber locknut	M50	30	3.0	22	
Upper front arm and frame	M10	38	3.8	27	
Lower front arm and frame	M10	55	5.5	40	
Steering stem, pitman arm, and frame	M14	180	18	130	
Steering stem bushing and frame	M8	23	2.3	17	Use a lock washer.
Steering stem and handlebar holder	M8	23	2.3	17	
Tie-rod end and locknut	M10	15	1.5	11	
Steering knuckle and front wheel hub	M14	70	7.0	50	
Steering knuckle and front arm (upper and lower)	M10	25	2.5	18	
Steering knuckle and tie-rod ball joint	M10	25	2.5	18	
Pitman arm and tie-rod ball joint	M10	25	2.5	18	
Frame and bearing retainer	M42	65	6.5	47	
Fuel tank and fuel cock	M6	4	0.4	2.9	
Fuel tank and frame	M6	7	0.7	5.1	
Front wheel and front wheel hub	M10	45	4.5	32	
Steering knuckle and front brake caliper bracket	M8	28	2.8	20	
Front brake disc and front wheel hub	M8	28	2.8	20	
Rear axle and rear wheel hub	M14	120	12	85	
Rear brake caliper and brake caliper bracket	M8	31	3.1	22	
Rear wheel and rear wheel hub	M10	45	4.5	32	
Driven sprocket and sprocket bracket	M10	55	5.5	40	
Front brake pipe nut	M10	19	1.9	13	
Front brake master cylinder and handlebar	M6	7	0.7	5.1	
Parking brake lever and clutch lever	M6	7	0.7	5.1	

# TIGHTENING TORQUES

**SPEC**



Part to be tightened	Thread size	Tightening torque			Remarks
		Nm	m · kg	ft · lb	
Front brake master cylinder and brake lever	M6	6	0.6	4.3	
Front brake master cylinder and brake hose	M10	27	2.7	19	
Brake hose joint and frame	M6	10	1.0	7.2	
Bleed screw	M8	6	0.6	4.3	
Front brake pad retaining bolt	M10	18	1.8	13	
Front brake caliper and brake hose	M10	27	2.7	19	
Rear brake caliper retaining bolt	M8	23	2.3	17	
Parking brake case bracket and parking brake case	M8	23	2.3	17	
Rear axle ring nut	M36	100	10.0	72	
Rear axle ring nut set bolt	M6	7	0.7	5.1	
Rear brake pad retaining bolt	M8	18	1.8	13	Use a lock washer.
Rear brake caliper and brake hose	M10	30	3.0	22	
Rear brake master cylinder and frame	M8	20	2.0	14	
Rear brake master cylinder and brake hose	M10	30	3.0	22	
Parking brake adjusting bolt and locknut	M8	16	1.6	11	
Rear brake disc and brake disc bracket	M8	28	2.8	20	
Rear brake fluid reservoir cover and bracket	M6	11	1.1	8	
Rear brake fluid reservoir and bracket	M6	4	0.4	2.9	
Front bumper and frame	M8	31	3.1	22	
Front fender and frame	M6	7	0.7	5.1	
Side cover and frame	M6	7	0.7	5.1	
Side cover, rear fender, and frame	M6	7	0.7	5.1	
Rear fender and frame	M6	7	0.7	5.1	
Rear fender stay and rear fender	M6	7	0.7	5.1	
Front fender stay and front fender	M6	7	0.7	5.1	
Rear carrier bar and frame	M8	33	3.3	24	
Footrest and frame	M10	65	6.5	48	
Foot protector and footrest	M6	13	1.3	9.4	
Foot protector and footrest	M8	16	1.6	11	
Foot protector and frame	M8	16	1.6	11	
Battery holding bracket and frame	M6	7	0.7	5.1	
Air filter case and frame	M6	7	0.7	5.1	
Carburetor joint clamp screw	M4	3	0.3	2.2	
Headlight and frame	M6	7	0.7	5.1	
Tail/brake light bracket and frame	M6	7	0.7	5.1	
Tail/brake light bracket and tail/brake light	M6	7	0.7	5.1	
Drive chain guide roller and frame	M8	19	1.9	13	
Engine skid plate and frame	M6	7	0.7	5.1	
Main frame and rear frame	M10	54	5.4	39	

# 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

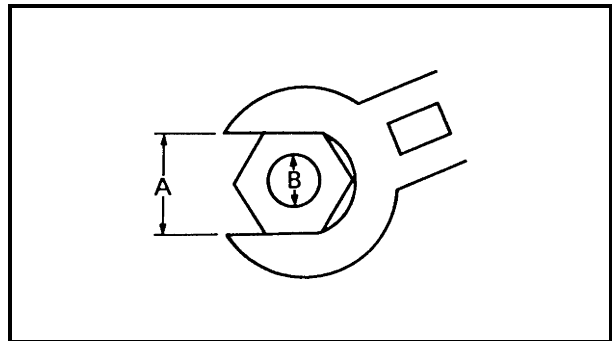
### CONVERSION TABLE

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/hr	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 <sup>3</sup> )	0.03527	oz (IMP liq.)
	cc (cm <sup>3</sup> )	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 <sup>2</sup>	14.2234	psi (lb/in <sup>2</sup> )
	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 point	Lubricant
Oil seal lips	
O-rings	
Bearings	
Crankshaft pins	
Valve stems (intake and exhaust)	
Valve stem ends (intake and exhaust)	
Valve lifters (intake and exhaust)	
Camshafts (intake and exhaust)	
Camshaft cap bolt	
Cylinder head bolt	
Piston surfaces	
Piston pins	
Auto decomp	
Auto decompression lever	
Water pump impeller shaft	
Oil pump rotors (inner and outer) and oil pump housing	
Oil pump drive gear	
Connecting rod (bearing)	
Torque limiter	
Starter idle gear inner surface and shaft	
Starter clutch inner surface	
Primary driven gear	
Push rod 1, 2 and ball	
Push lever shaft	
Push rod bearing and plane washer	
Transmission gears (wheel and pinion)	
Shift forks and shift fork guide bars	
Transmission gears (wheel and pinion) splines	
Shift drum shaft	
Shift shaft	
Shift shaft assembly	
Cylinder head cover mating surface	Sealant (Quick Gasket®) Yamaha bond No.1215

## LUBRICATION POINTS AND LUBRICANT TYPES

**SPEC**

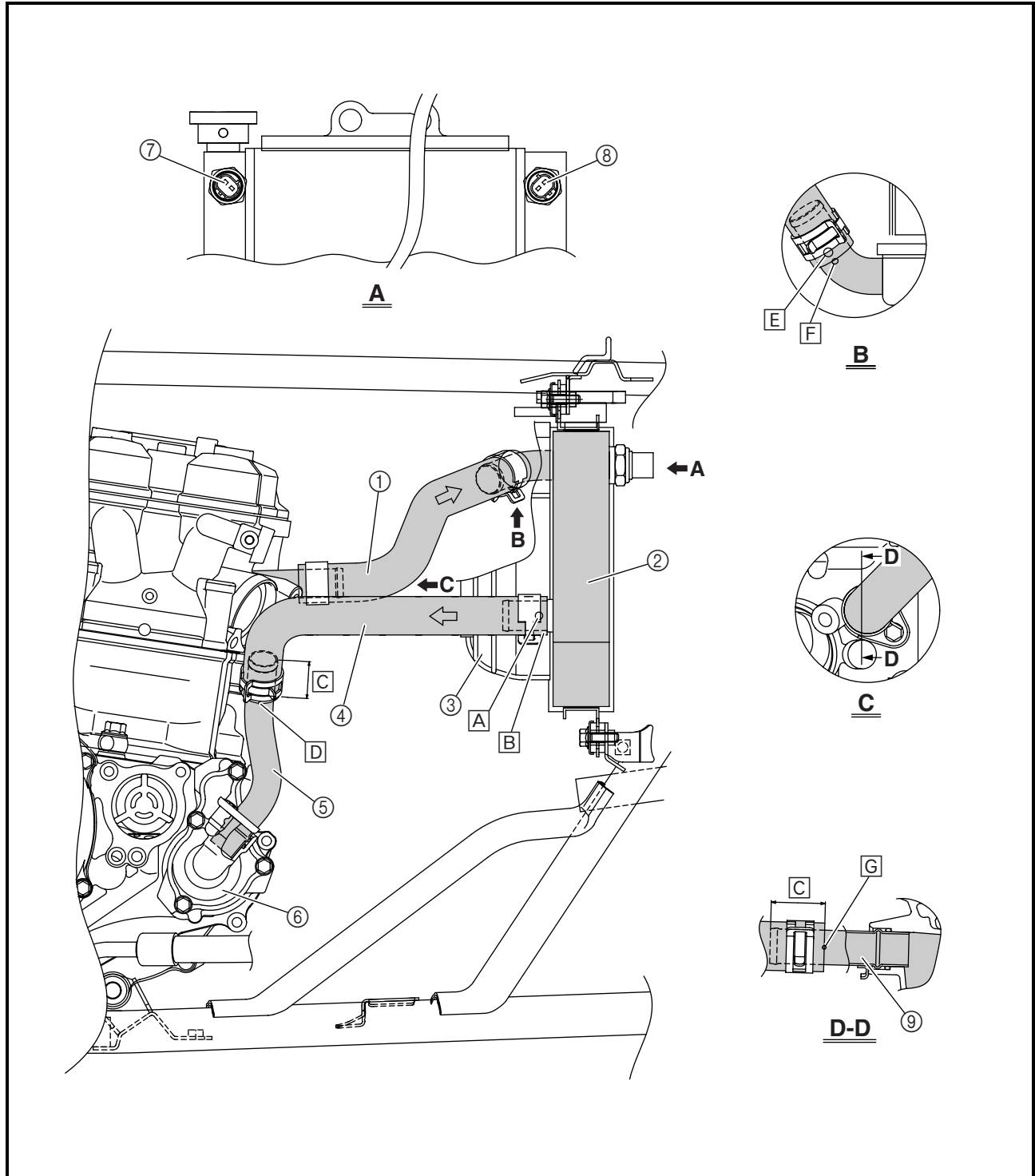
Lubrication point	Lubricant
Crankcase mating surfaces	Sealant (Quick Gasket®) Yamaha bond No.1215
Cylinder head and cylinder head cover mating surfaces	Sealant (Quick Gasket®) Yamaha bond No.1215
AC magneto lead grommet (AC magneto cover)	Sealant (Quick Gasket®) Yamaha bond No.1215



EBS00025

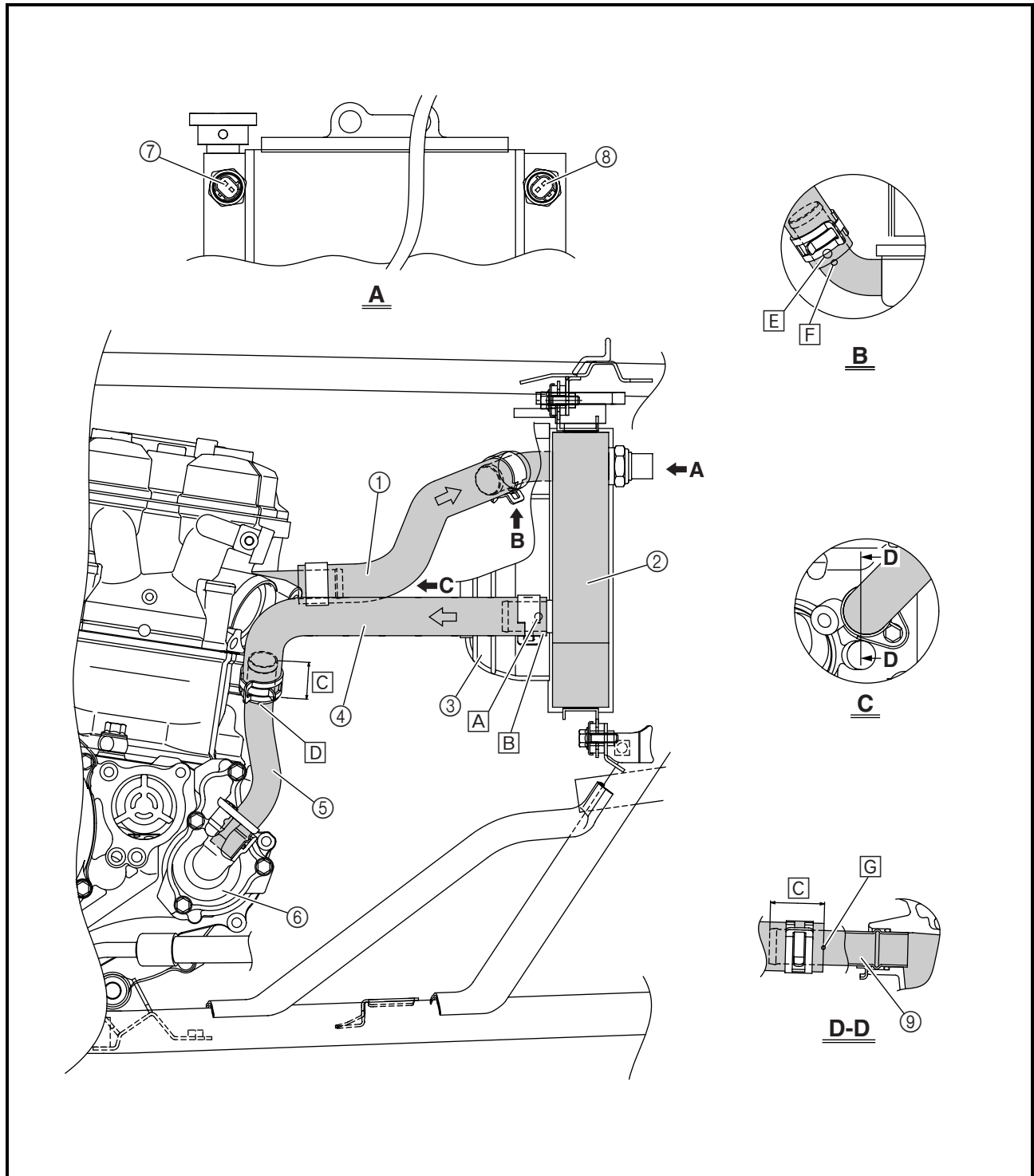
**COOLANT FLOW DIAGRAMS**

- ① Radiator inlet hose
- ② Radiator
- ③ Radiator fan
- ④ Radiator outlet hose
- ⑤ Water pump inlet pipe
- ⑥ Water pump
- ⑦ Thermo switch 1
- ⑧ Thermo switch 2
- ⑨ Cylinder head water jacket





- A** Install the radiator outlet hose with the white paint mark parallel to the ground as shown.
- B** Install the radiator outlet hose completely on the radiator pipe until the hose contacts the flange of the pipe.
- C** 30 mm (1.18 in)
- D** Install the radiator outlet hose onto the water pump inlet pipe until the end of the hose reaches the middle of the blue paint mark on the pipe.
- E** Align the white paint mark on the radiator inlet hose with the projection on the radiator pipe.
- F** Install the radiator inlet hose onto the radiator pipe until the end of the hose contacts the projection of the pipe.
- G** Install the radiator inlet hose onto the outlet pipe of the cylinder head water jacket until the end of the hose reaches the middle of the blue paint mark on the pipe.



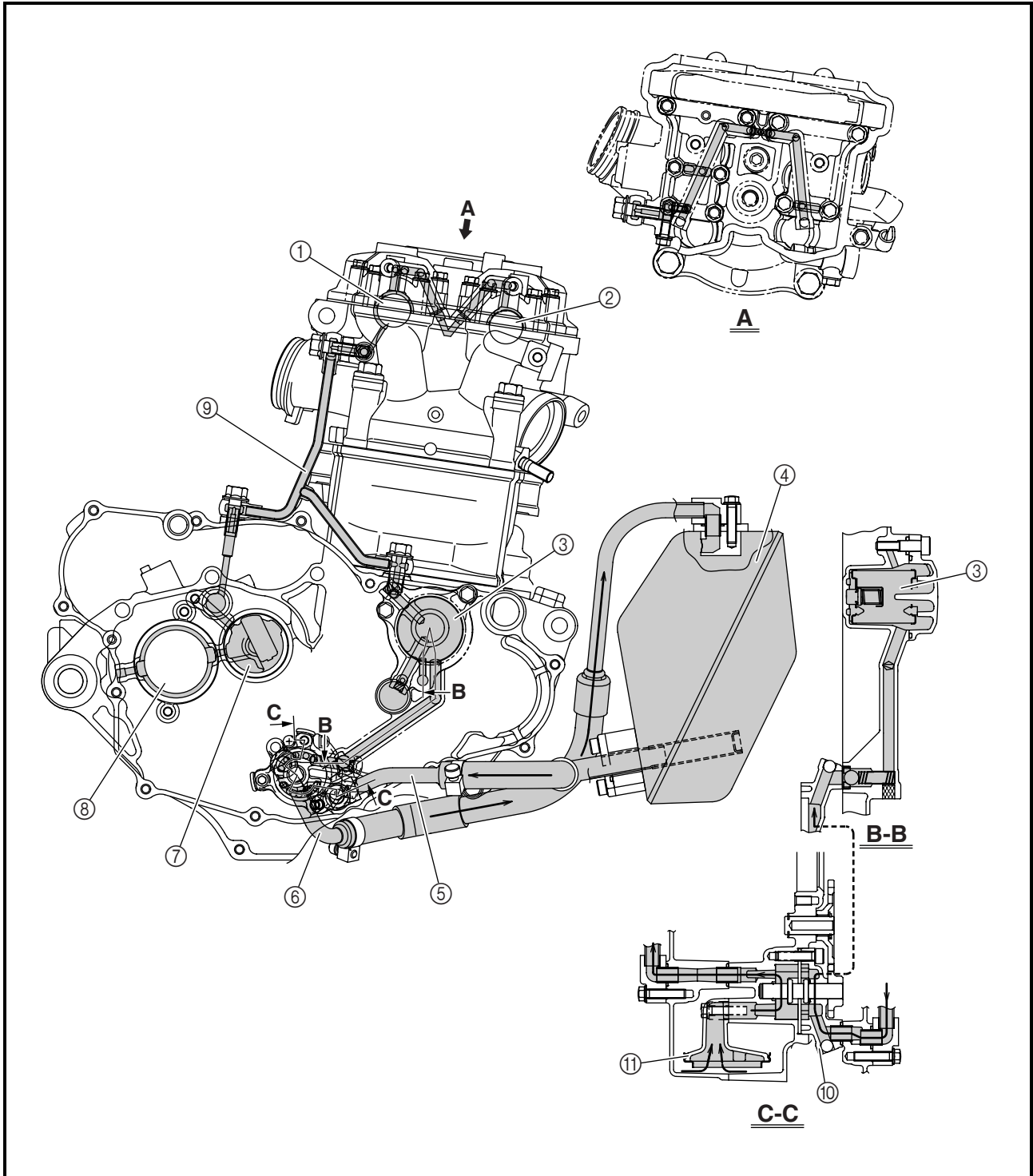


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**OIL FLOW DIAGRAMS**

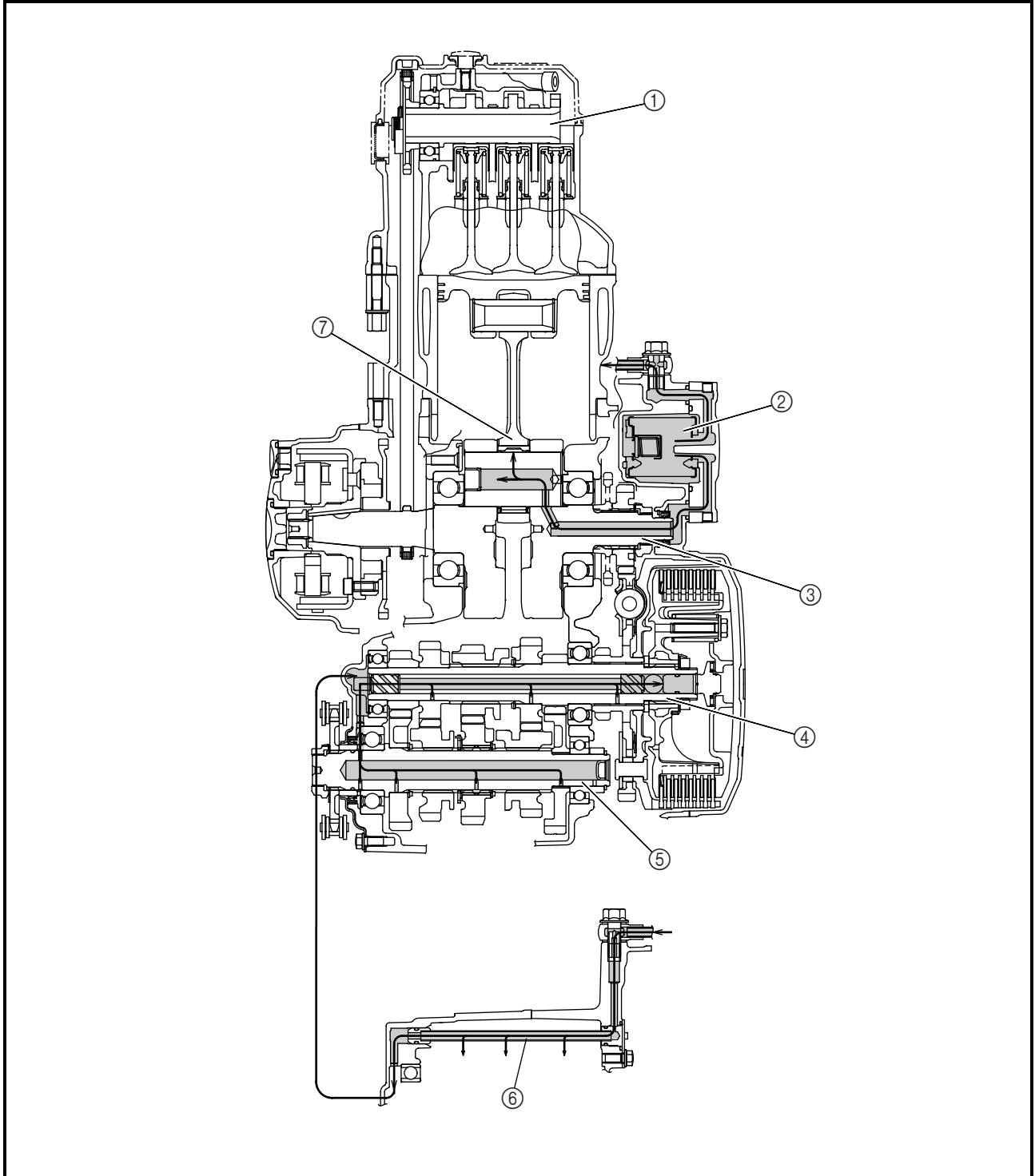
- ① Intake camshaft
- ② Exhaust camshaft
- ③ Oil filter element
- ④ Oil tank
- ⑤ Oil pipe 1
- ⑥ Oil pipe 2
- ⑦ Main axle
- ⑧ Drive axle
- ⑨ Oil delivery pipe 1

- ⑩ Oil pump
- ⑪ Oil strainer





- ① Camshaft
- ② Oil filter element
- ③ Crankshaft
- ④ Main axle
- ⑤ Drive axle
- ⑥ Oil delivery pipe 2
- ⑦ Connecting rod

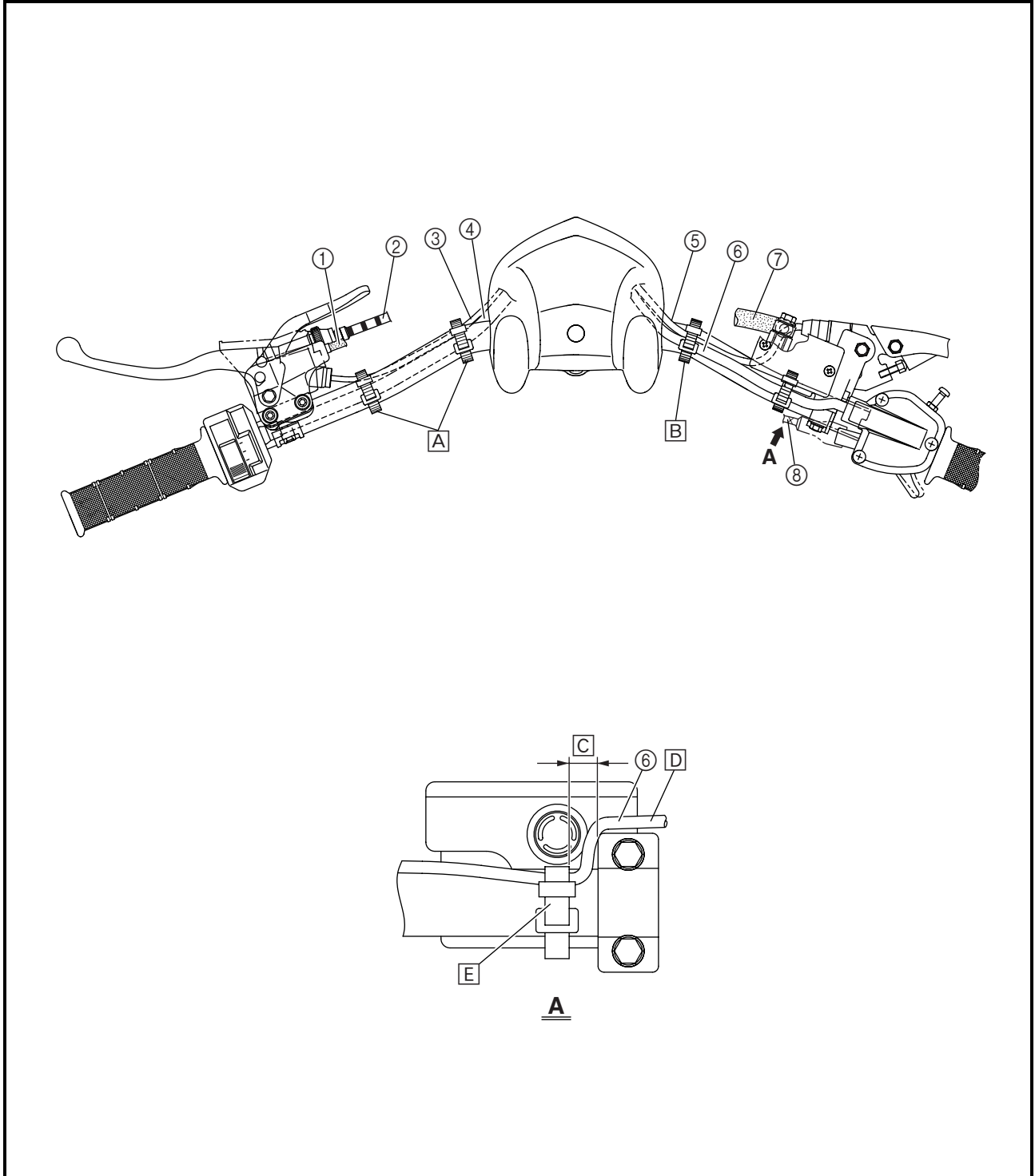




EBS00028

**CABLE ROUTING**

- ① Parking brake cable
- ② Clutch cable
- ③ Clutch switch lead
- ④ Handlebar switch lead
- ⑤ Front brake light switch lead
- ⑥ Throttle switch lead
- ⑦ Front brake hose
- ⑧ Throttle cable





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