











TTR250L(C)

300+1+1color

SERVICE MANUAL

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
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


GEN INFO 1

SPEC 2

INSP ADJ 3

ENG 4

CARB 5

CHAS 6

ELEC 7
?
TRBL SHTG 8

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
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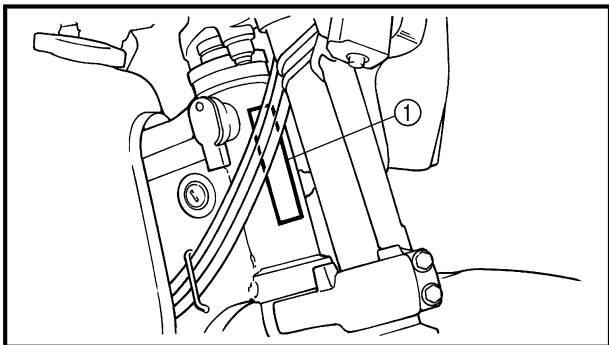
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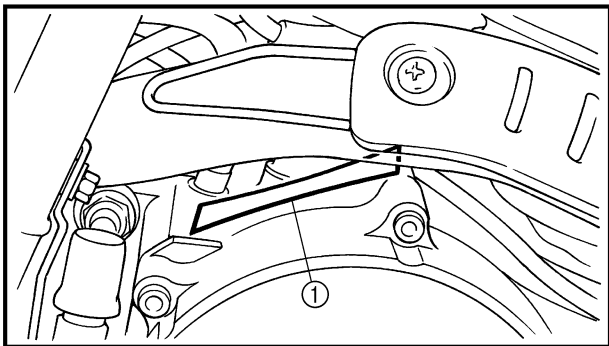
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GENERAL INFORMATION
MOTORCYCLE IDENTIFICATION
VEHICLE IDENTIFICATION NUMBER

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

NOTE: _____
The vehicle identification number is used to identify your motorcycle and may be used to register your motorcycle with the licensing authority in your state.



ENGINE SERIAL NUMBER

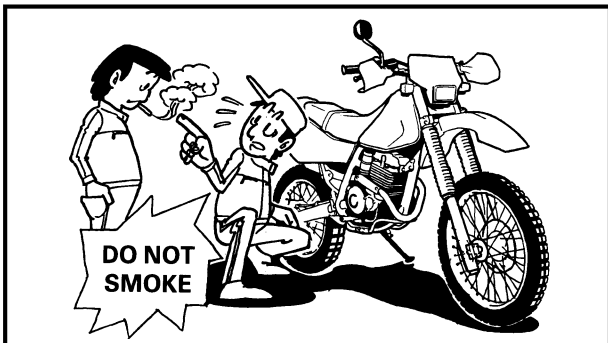
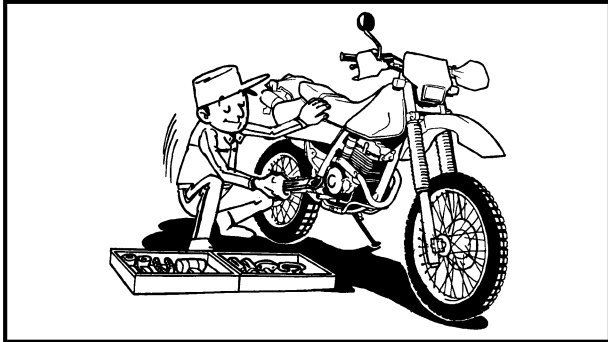
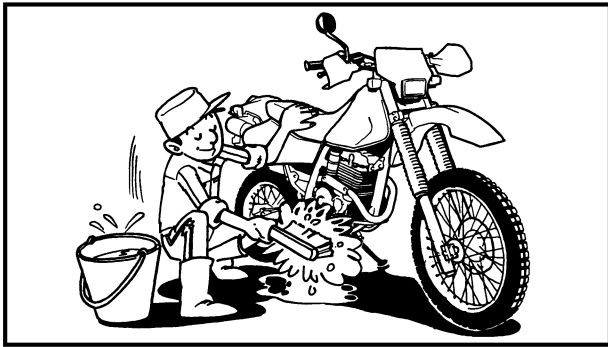
The engine serial number ① is stamped into the elevated part of the right rear section of the engine.

NOTE: _____

- The first three digits of these numbers are for model identifications; the remaining digits are the unit production number.
- Designs and specifications are subject to change without notice.



1



**IMPORTANT INFORMATION
PREPARATION FOR REMOVAL AND
DISASSEMBLY**

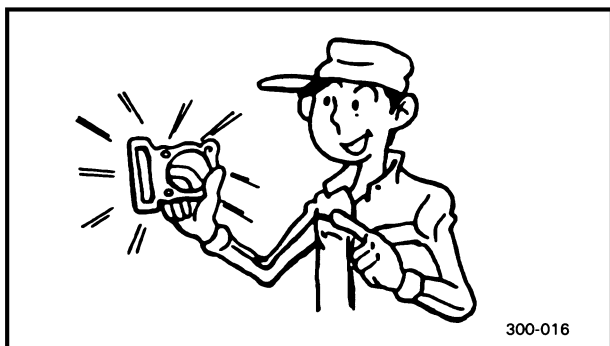
1. Remove all dirt, mud, dust, and foreign material before removing and disassembling.

2. Use proper tools and cleaning equipment. Refer to "SPECIAL TOOLS".

3. When disassembling the motorcycle keep mated parts together. This includes gears, cylinder, piston and other mated parts that have been "mated" through normal wear. Mated parts must be reused as an assembly or replaced.

4. During the motorcycle disassembly, clean all parts and place them in trays in the order of disassembly. This will speed up assembly time and help assure that all parts are correctly reinstalled.

5. Keep away from fire.



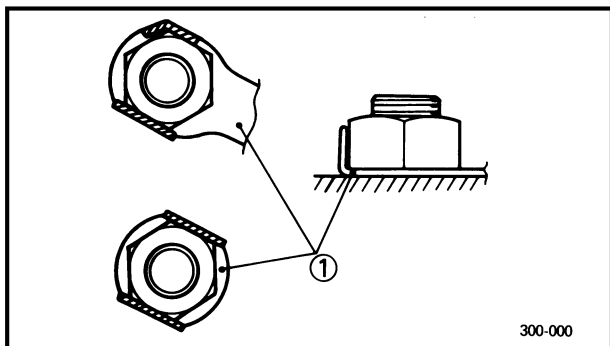
ALL REPLACEMENT PARTS

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

GASKETS, OIL SEALS, AND O-RINGS

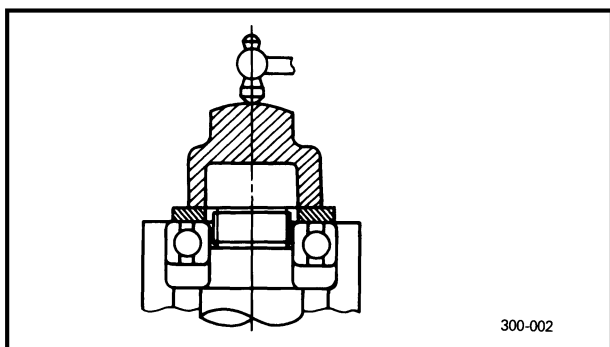
1. All gaskets, seals and O-rings should be replaced when an engine is overhauled. All gasket surfaces oil seal lips and O-rings must be cleaned.

2. Properly oil all mating parts and bearings during reassembly. Apply grease to the oil seal lips.



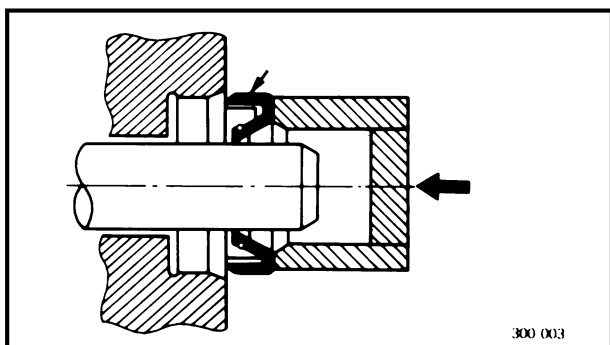
LOCK WASHERS/PLATES AND COTTER PINS

1. All lock washers/plates ① and cotter pins must be replaced when they are removed. Lock tab(s) should be bent along the bolt or nut flat(s) after the bolt or nut has been properly tightened.



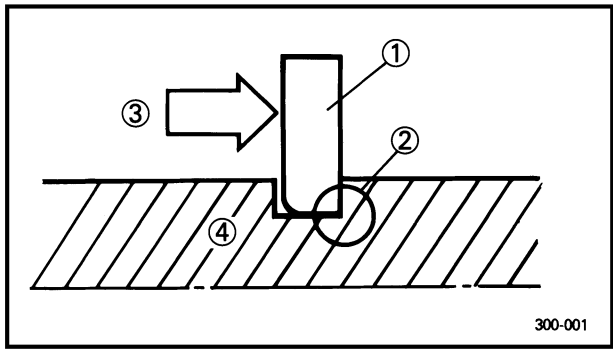
BEARINGS AND OIL SEALS

1. Install the bearing(s) ① and oil seal(s) ② with their manufacturer's marks or numbers facing outward. (In other words, the stamped letters must be on the side exposed to view.) When installing oil seal(s), apply a light coating of light-weight lithium base grease to the seal lip(s). Oil the bearings liberally when installing.



CAUTION:

Do not use compressed air to spin the bearings dry. This causes damage to the bearing surfaces.



CIRCLIPS

1.All circlips should be inspected carefully before reassembly. Always replace piston pin clips after one use. Replace distorted circlips. When installing a circlip ①, make sure that the sharp-edged corner ② is positioned opposite to the thrust ③ it receives. See the sectional view.

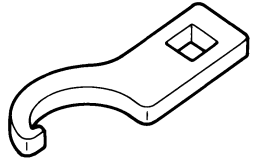
④ Shaft

SPECIAL TOOLS

The proper special tools are necessary for complete and accurate tune-up and assembly. Using the correct special tool will help prevent damage caused by the use of improper tools or improvised techniques.

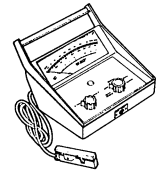
FOR TUNE UP

1
Steering nut wrench
P/N. YU-33975



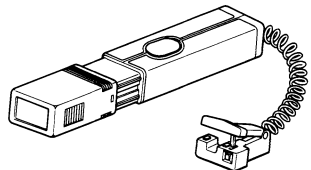
This tool is used to adjust the spring preload of rear shock absorber.

2
Inductive tachometer
P/N. YU-8036-A



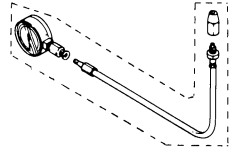
This tool is needed for detecting engine r/min.

3
Inductive timing light
P/N. YM-33277-A



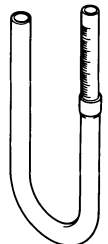
This tool is necessary for checking ignition timing.

4
Compression gauge
P/N. YU-33223
Adapter (M12)
P/N. YU-33223-3



These gauges are used to measure the engine compression.

5
Fuel level gauge
P/N. YM-01312-A



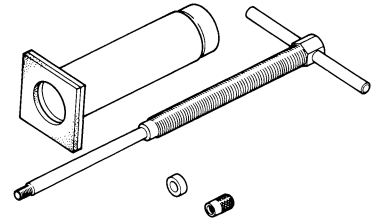
This gauge is used to measure the fuel level in the float chamber.



FOR ENGINE SERVICE

1

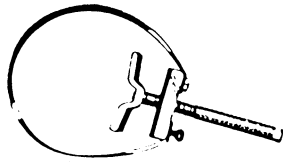
Piston pin puller
P/N. YU-01304



This tool is used to remove the piston pin.

2

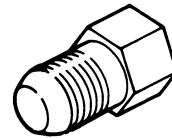
Sheave holder
P/N. YS-01880



This tool is used to hold the rotor when removing or installing the rotor securing nut.

3

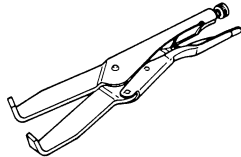
Rotor puller
P/N. 2K7-85555-00



This tool is used to remove the rotor.

4

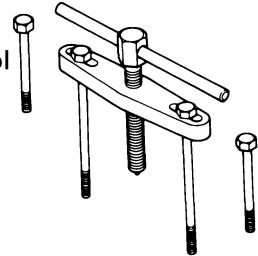
Universal clutch holder
P/N. YM-91042



This tool is used to hold the clutch when removing or installing the clutch boss locknut.

5

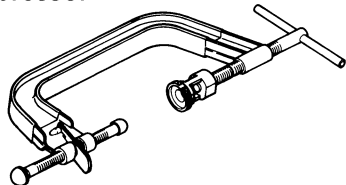
Crankcase separating tool
P/N. YU-01135-A



This tool is necessary to remove the crankshaft.

6

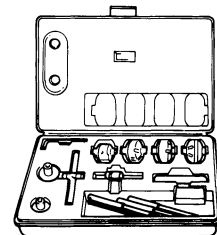
Valve spring compressor
P/N. YM-04019



This tool is needed to remove and install the valve assemblies.

7

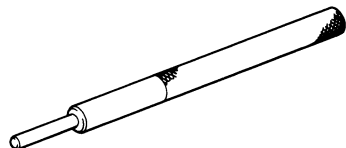
Valve seat cutter set
P/N. YM-91043



This tool is needed to resurface the valve seat.

8

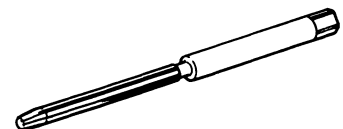
Valve guide remover 5 mm (0.20 in)
P/N. YM-04097



This tool is used to remove the valve guides.

9

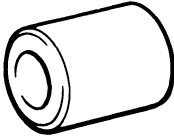
Valve guide reamer 5 mm (0.20 in)
P/N. YM-04099



This tool is used to rebore the new valve guide.

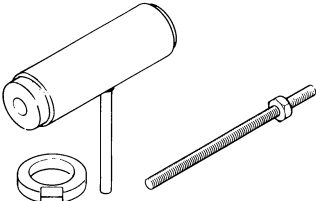


10
Valve guide installer 5 mm (0.20 in)
P/N. YM-04098



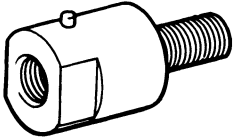
This tool is needed to install the valve guides properly.

11
Crankshaft installing set
P/N. YU-90050



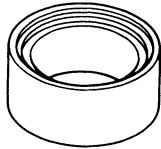
These tools are used to install the crankshaft.

12
Adapter (M10)
P/N. YU-90062



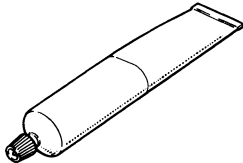
This tool is used to install the crankshaft.

13
Crank pot spacer
P/N. YU-01202



This tool is used to install the crankshaft.

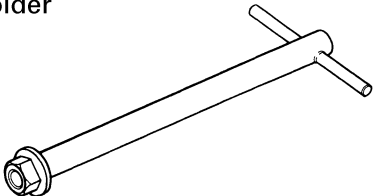
14
Quick Gasket®
P/N. ACC-11001-05-01



This sealant (bond) is used for crankcase mating surfaces, etc.

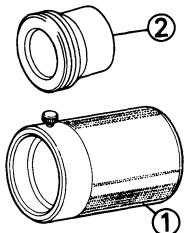
FOR CHASSIS SERVICE

1
Damper rod holder
P/N. YM-01418



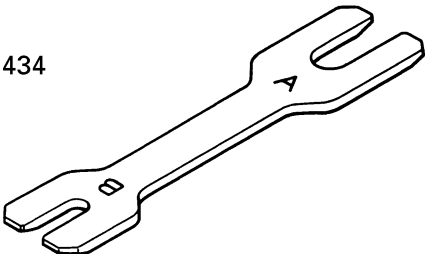
This tool is used to loosen and tighten the damper rod holding bolt.

2
Front fork seal drive weight
P/N. YM-33963-①
Adapter 43 mm (1.69 in)
P/N. YM-8020-②



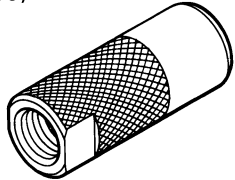
These tools are used when installing the fork oil seal.

3
Rod holder
P/N. YM-01434



This tool is used to hold the fork spring.

4
Rod puller attachment (M10)
P/N. 90890-01436

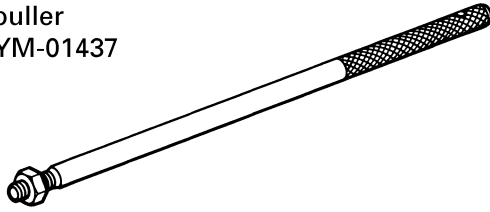


This tool is used to pull up the fork damper rod.



5

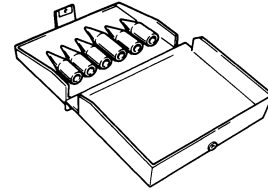
Rod puller
P/N. YM-01437



This tool is used to pull up the fork damper

6

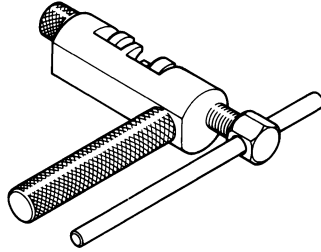
Cylinder cup installer
P/N. 90890-01996



This tool is used to install the master cylinder kit.

7

Drive chain cutter
P/N. YM-33858

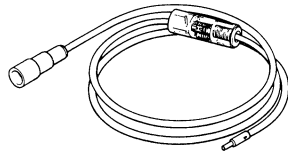


This tool is used to cut and join the drive chain.

FOR ELECTRICAL COMPONENTS

1

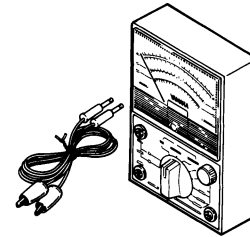
Dynamic spark tester
P/N. YM-34487



This instrument is necessary for checking the ignition system components.

2

Pocket tester
P/N. YU-03112



This instrument is used for checking the electrical system.



SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	TTR250L(C)
Model code:	5GF1 5GF2
Dimensions:	
Overall length	2,095 mm (82.5 in)
Overall width	835 mm (32.9 in)
Overall height	1,260 mm (49.6 in)
Seat height	915 mm (36.0 in)
Wheelbase	1,405 mm (55.3 in)
Minimum ground clearance	305 mm (12.0 in)
Minimum turning radius	2,200 mm (86.6 in)
Basic weight:	
With oil and full fuel tank	124 kg (273 lb)
Engine:	
Engine type	Air-cooled 4-stroke, DOHC
Cylinder arrangement	Forward-inclined single cylinder
Displacement	249 cm ³
Bore × stroke	73.0 × 59.6 mm (2.87 × 2.35 in)
Compression ratio	10.2 : 1
Compression pressure (STD)	1,200 kPa (12 kg/cm ² , 174 psi) at 300 r/min
Starting system	Electric starter
Lubrication system	Wet sump
Oil type or grade:	
Engine oil	
	SAE 20W40 type SE motor oil SAE 10W30 type SE motor oil
Oil capacity:	
Engine oil	
Periodic oil change	1.10 L (0.97 Imp qt, 1.16 US qt)
With oil filter replacement	1.20 L (1.06 Imp qt, 1.27 US qt)
Total amount	1.45 L (1.28 Imp qt, 1.53 US qt)
Air filter:	Wet type element
Fuel:	
Type	Unleaded fuel only
Fuel tank capacity	10 L (2.20 Imp gal, 2.64 US gal)
Fuel reserve amount	2 L (0.44 Imp gal, 0.53 US gal)

GENERAL SPECIFICATIONS

SPEC

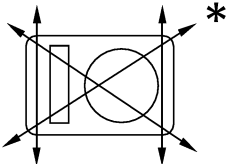
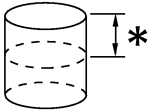
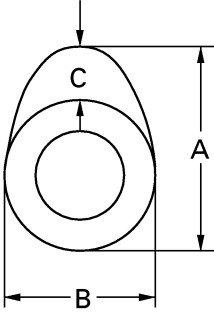
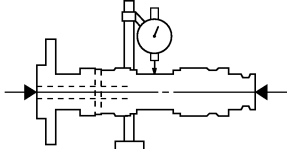


Model	TTR250L(C)
Carburetor: Type / quantity Manufacturer	Y30P/1 TEIKEI
Spark plug: Type Manufacturer Spark plug gap	CR9E/U27ESR-N NGK/DENSO 0.7 ~ 0.8 mm (0.028 ~ 0.031 in)
Clutch type:	Wet, multiple-disc
Transmission: Primary reduction system Primary reduction ratio Secondary reduction system Secondary reduction ratio Transmission type Operation Gear ratio	Spur gear 74/24 (3.083) Chain drive 52/13 (4.000) Constant mesh 6-speed Left foot operation 1st 37/15 (2.466) 2nd 29/16 (1.812) 3rd 30/22 (1.363) 4th 27/25 (1.080) 5th 24/27 (0.888) 6th 22/29 (0.758)
Chassis: Frame type Caster angle Trail	Semi double cradle 26° 108 mm (4.25 in)
Tire: Type Size Manufacturer Type	With tube front 80/100-21 51M rear 100/100-18 59M front DUNLOP rear DUNLOP front D739F rear D739
Tire pressure (cold tire): Maximum load-except motorcycle* Off-road riding*	90 kg (198 lb) front 100 kPa (1 kg/cm ² , 14.5 psi) rear 100 kPa (1 kg/cm ² , 14.5 psi)
*Load is total weight of rider, and accessories.	

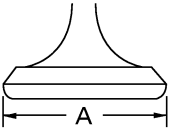
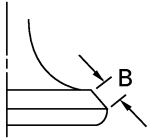
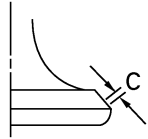
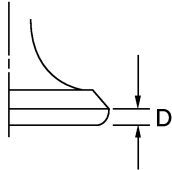
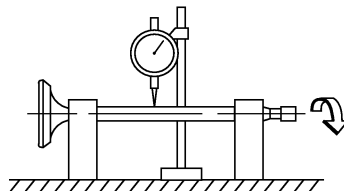
2




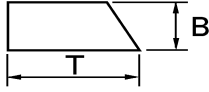
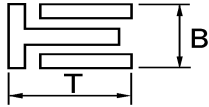
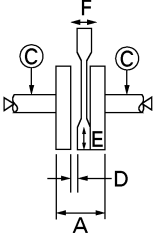
**MAINTENANCE SPECIFICATIONS
ENGINE**

Model	TTR250L(C)
<p>Cylinder head: Volume <Warp limit></p> 	<p>21.6 ~ 22.2 cm³ <0.03 mm (0.0012 in)> *Lines indicate straightedge measurement.</p>
<p>Cylinder: Material Sleeve type Bore size *Measuring point <Wear limit> <Warp limit></p> 	<p>Aluminum alloy Sleeveless, surface honing 72.97 ~ 73.02 mm (2.8728 ~ 2.8748 in) 40 mm (1.57 in) <73.1 mm (2.8779 in)> <0.03 mm (0.0012 in)></p>
<p>Camshaft: Drive method Cam cap inside diameter Camshaft outside diameter Shaft-to-cap clearance Cam dimensions Intake Exhaust Camshaft runout limit Camshaft oil clearance <Limit></p>  	<p>Chain drive (right) 24.500 ~ 24.521 mm (0.9646 ~ 0.9654 in) 24.467 ~ 24.480 mm (0.9633 ~ 0.9638 in) 0.020 ~ 0.054 mm (0.0008 ~ 0.0021 in) 32.75 ~ 32.85 mm (1.2894 ~ 1.2933 in) <32.7 mm (1.287 in)> 25.0 ~ 25.1 mm (0.9843 ~ 0.9882 in) <24.96 mm (0.983 in)> 7.8 mm (0.3071 in) 32.75 ~ 32.85 mm (1.2894 ~ 1.2933 in) <32.7 mm (1.287 in)> 25.0 ~ 25.1 mm (0.9843 ~ 0.9882 in) <24.96 mm (0.983 in)> 7.8 mm (0.3071 in) 0.03 mm (0.0012 in) 0.020 ~ 0.054 mm (0.0008 ~ 0.0021 in) <0.08 mm (0.0031 in)></p>
<p>Cam chain: Cam chain type / No. of links Cam chain adjustment method</p>	<p>82RH2010-122M/122 Automatic</p>



Model		TTR250L(C)	
Valve, valve seat, valve guide:			
Valve clearance (cold)	IN	0.09 ~ 0.19 mm (0.004 ~ 0.007 in)	
	EX	0.19 ~ 0.27 mm (0.007 ~ 0.011 in)	
Valve dimensions:			
			
Head Diameter	Face Width	Seat Width	Margin Thickness
"A" head diameter	IN	28.4 ~ 28.6 mm (1.118 ~ 1.126 in)	
	EX	23.9 ~ 24.1 mm (0.941 ~ 0.949 in)	
"B" face width	IN	2.26 mm (0.089 in)	
	EX	2.26 mm (0.089 in)	
"C" seat width	IN	0.9 ~ 1.1 mm (0.035 ~ 0.043 in)	
	EX	0.9 ~ 1.1 mm (0.035 ~ 0.043 in)	
"D" margin thickness	IN	0.6 ~ 1.0 mm (0.024 ~ 0.039 in)	
	EX	0.8 ~ 1.2 mm (0.031 ~ 0.047 in)	
Stem outside diameter	IN	4.975 ~ 4.990 mm (0.1959 ~ 0.1965 in)	
	EX	4.960 ~ 4.975 mm (0.1953 ~ 0.1959 in)	
<Limit>	IN	<4.95 mm (0.195 in)>	
	EX	<4.94 mm (0.194 in)>	
Guide inside diameter	IN	5.000 ~ 5.012 mm (0.1969 ~ 0.1973 in)	
	EX	5.000 ~ 5.012 mm (0.1969 ~ 0.1973 in)	
<Limit>	IN	<5.03 mm (0.198 in)>	
	EX	<5.03 mm (0.198 in)>	
Stem-to-guide clearance	IN	0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in)	
	EX	0.025 ~ 0.052 mm (0.0010 ~ 0.0020 in)	
<Limit>	IN	<0.08 mm (0.003 in)>	
	EX	<0.1 mm (0.004 in)>	
<Stem runout limit>		<0.01 mm (0.0004 in)>	
			
Valve face material		Stellite	
Valve seat width	IN	0.9 ~ 1.1 mm (0.0354 ~ 0.0433 in)	
	EX	0.9 ~ 1.1 mm (0.0354 ~ 0.0433 in)	
<Limit>	IN	<1.6 mm (0.06 in)>	
	EX	<1.6 mm (0.06 in)>	



Model	TTR250L(C)
<p>Piston rings:</p> <p>Top ring</p> <p>Type </p> <p>Dimensions (B × T)</p> <p>End gap (installed)</p> <p><Limit></p> <p>Side clearance (installed)</p> <p><Limit></p> <p>Plating/coating</p> <p>2nd ring:</p> <p>Type </p> <p>Dimensions (B × T)</p> <p>End gap (installed)</p> <p><Limit></p> <p>Side clearance</p> <p><Limit></p> <p>Plating/coating</p> <p>Oil ring:</p> <p>Dimensions (B × T) </p> <p>End gap (installed)</p> <p>Side clearance</p> <p>Plating/coating</p>	<p>Barrel</p> <p>1.0 × 3.1 mm (0.039 × 0.122 in)</p> <p>0.20 ~ 0.35 mm (0.008 ~ 0.014 in)</p> <p><0.4 mm (0.016 in)></p> <p>0.04 ~ 0.08 mm (0.0016 ~ 0.0031 in)</p> <p><0.12 mm (0.005 in)></p> <p>Chrome plated/parkerizing</p> <p>Taper</p> <p>1.0 × 3.1 mm (0.039 × 0.122 in)</p> <p>0.20 ~ 0.35 mm (0.008 ~ 0.014 in)</p> <p><0.4 mm (0.016 in)></p> <p>0.03 ~ 0.07 mm (0.001 ~ 0.003 in)</p> <p><0.12 mm (0.005 in)></p> <p>Parkerizing</p> <p>2.0 × 2.5 mm (0.079 × 0.098 in)</p> <p>0.2 ~ 0.7 mm (0.008 ~ 0.028 in)</p> <p>0.060 ~ 0.155 mm (0.002 ~ 0.006 in)</p> <p>Chrome plated/parkerizing</p>
<p>Connecting rod:</p> <p>Connecting rod length</p>	<p>102.4 ~ 102.6 mm (4.03 ~ 4.04 in)</p>
<p>Crankshaft:</p> <p>Crank width "A"</p> <p><Runout limit "C"></p> <p>Big end side clearance "D"</p> <p>Big end radial clearance "E"</p> <p>Small end free play "F"</p> 	<p>60.25 ~ 60.30 mm (2.372 ~ 2.374 in)</p> <p><0.03 mm (0.0012 in)></p> <p>0.35 ~ 0.85 mm (0.014 ~ 0.033 in)</p> <p>0.010 ~ 0.025 mm (0.0004 ~ 0.0010 in)</p> <p>0.8 mm (0.0315 in)</p>
<p>Balancer:</p> <p>Balancer drive method</p>	<p>Gear</p>
<p>Clutch:</p> <p>Friction plate thickness</p> <p>Quantity</p> <p><Friction plate wear limit></p> <p>Clutch plate thickness</p> <p>Quantity</p> <p><Warp limit></p> <p>Clutch spring free length</p> <p>Quantity</p> <p>Minimum length</p> <p>Clutch housing thrust clearance</p> <p>Clutch housing radial clearance</p>	<p>2.9 ~ 3.1 mm (0.114 ~ 0.122 in)</p> <p>7 pcs</p> <p><2.7 mm (0.11 in)></p> <p>1.5 ~ 1.7 mm (0.059 ~ 0.067 in)</p> <p>6 pcs</p> <p><0.05 mm (0.002 in)></p> <p>42.8 mm (1.69 in)</p> <p>5 pcs</p> <p>40.8 mm (1.61 in)</p> <p>0.08 ~ 0.33 mm (0.003 ~ 0.013 in)</p> <p>0.010 ~ 0.044 mm (0.0004 ~ 0.0017 in)</p>



Model	TTR250L(C)
Clutch release method <Push rod bending limit>	Inner push, cam push <0.5 mm (0.020 in)>
Transmission: <Main axle deflection limit> <Drive axle deflection limit>	<0.08 mm (0.003 in)> <0.08 mm (0.003 in)>
Shifter: Shifter type Shift fork thickness	Cam drum and guide bar 4.76 ~ 4.89 mm (0.1874 ~ 0.1925 in)
Air filter oil grade:	Foam-air-filter oil or SAE 10W30 type SE motor oil
Carburetor: I.D. mark Main jet (M.J) Main air jet (M.A.J) Jet needle (J.N) Needle jet (N.J) Cutaway (C.A) Pilot air jet (P.A.J.1) Pilot outlet (P.O) Pilot jet (P.J) Bypass 1 (B.P.1) Pilot screw (P.S) Valve seat size (V.S) Starter jet (G.S.1) Starter jet (G.S.2) Float height (F.H) Fuel level (F.L) Engine idle speed Intake vacuum Oil temperature	5GF1 00 #137 1.0 5C9C-3/5 2.595 (V95) 4.0 1.2 0.8 #52 1.0 × 2 1-1/2 2.0 #66 2.0 26.5 ~ 27.5 mm (1.04 ~ 1.08 in) 7.5 ~ 9.5 mm (0.30 ~ 0.37 in) 1,250 ~ 1,350 r/min 24.0 ~ 29.3 kPa (180 ~ 220 mmHg, 7.087 ~ 8.652 inHg) 55 ~ 65 °C (131 ~ 149 °F)
Lubrication system: Oil filter type Oil pump type Tip clearance "A" or "B" <Limit> Side clearance <Limit> Housing and rotor clearance <Limit> Oil pressure (hot) Pressure check location	Wire mesh type Trochoid type 0.15 mm (0.006 in) <0.2 mm (0.008 in)> 0.10 ~ 0.15 mm (0.004 ~ 0.006 in) <0.2 mm (0.008 in)> 0.04 ~ 0.09 mm (0.002 ~ 0.004 in) <0.15 mm (0.006 in)> 100 kPa (1 kg/cm ² , 14.22 psi) at 1,300 r/min Crankcase cover 3



TIGHTENING TORQUES

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m·kg	ft·lb	
Cylinder head (camshaft cap)	Flange bolt	M6	8	10	1.0	7.2	
Spark plug	-	M10S	1	13	1.3	9.4	
Cylinder head (exhaust pipe)	Stud bolt	M10	2	20	2.0	14	
Cylinder head	Flange bolt	M10	4	40	4.0	29	
Cylinder head	Flange bolt	M6	2	10	1.0	7.2	
Cylinder head	Nut	M8	2	20	2.0	14	
Cylinder head cover	Bolt	M6	3	10	1.0	7.2	
Flywheel magneto	Flange bolt	M10	1	60	6.0	43	
Camshaft sprocket	Flange bolt	M7	4	24	2.4	17	
Camshaft cap	Flange bolt	M6	8	8	0.8	5.8	
Timing chain damper 2	Bolt	M6	2	8	0.8	5.8	
Stopper guide	Panhead screw	M6	1	7	0.7	5.1	
Oil pump assembly	Panhead screw	M6	3	6	0.6	4.3	
Drain bolt (oil filter)	Bolt	M6	1	10	1.0	7.2	
Oil check bolt	Bolt	M6	1	7	0.7	5.1	
Plug (oil cooler)	Plug	M12	3	32	3.2	23	
Oil delivery pipe	Union bolt	M10	2	20	2.0	14	
Oil delivery pipe	Union bolt	M8	1	18	1.8	13	
Relief valve stay	Flange bolt	M6	1	10	1.0	7.2	
Carburetor joint (front)	Hose clamp	M4	1	2	0.2	1.4	
Carburetor joint (air filter assembly)	Hose clamp	M5	1	5	0.5	3.6	
Air filter case assembly	Bolt with washer	M6	3	5	0.5	3.6	
Exhaust pipe (cylinder head)	Nut	M8	2	7	0.7	5.1	
Exhaust pipe (muffler)	Flange bolt	M8	1	20	2.0	14	
Muffler	Bolt	M8	2	40	4.0	29	
Spark arrester	Bolt	M6	3	7	0.7	5.1	
Muffler purging bolt	Bolt	M8	1	20	2.0	14	
Muffler protector	Screw	M6	2	7	0.7	5.1	
Crankcase assembly	Bolt	M6	11	10	1.0	7.2	
Crankcase cover 1	Bolt	M6	8	10	1.0	7.2	
Crankcase cover 2 (starter motor cover)	Bolt	M6	5	10	1.0	7.2	
Crankcase cover 3	Bolt	M6	10	10	1.0	7.2	
One-way clutch	Bolt	M6	6	10	1.0	7.2	
Primary drive gear	Nut	M16	1	80	8.0	58	
Clutch boss	Nut	M16	1	75	7.5	54	
Pressure plate	Screw with washer	M6	5	8	0.8	5.8	

MAINTENANCE SPECIFICATIONS

SPEC



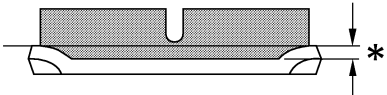
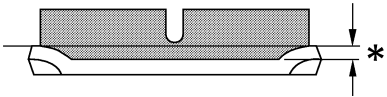
Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m·kg	ft·lb	
Push rod 2	Nut	M6	1	8	0.8	5.8	
Push lever	Screw	M8	1	12	1.2	8.7	
Clutch cable holder	Flange bolt	M6	2	10	1.0	7.2	
Drive sprocket	Nut	M18	1	110	11.0	80	
Lever stopper	Bolt	M6	1	10	1.0	7.2	
Shift pedal	Bolt	M6	1	10	1.0	7.2	
Starter motor	Flange bolt	M6	2	10	1.0	7.2	
Drain plug	Straight screw plug	M12	1	20	2.0	14	
Stator coil	Bolt	M5	3	7	0.7	5.1	



CHASSIS

Model	TTR250L(C)
Steering system: Steering bearing type	Taper roller bearing
Front suspension: Front fork travel Fork spring free length <Limit> Spring rate (K1) Stroke (K1) Optional spring Oil capacity Oil level Oil grade Enclosed gas / air pressure (STD) <Min. ~ max.> Inner tube outer diameter	280 mm (11.02 in) 472 mm (18.6 in) <462 mm (18.2 in)> 4 N/mm (0.41 kg/mm 22.8 lb/in) 0 ~ 280 mm (0.00 ~ 11.02 in) No 555 cm ³ (19.6 Imp oz, 18.8 US oz) 130 mm (5.12 in) Suspension oil "01" or equivalent 0 kPa (0 kg/cm ² , 0 psi) 0 ~ 40 kPa (0 ~ 0.4 kg/cm ² , 0~5.8 psi) 43 mm (1.69 in)
Rear suspension: Shock absorber travel Spring free length Fitting length Spring rate (K1) Stroke (K1) Optional spring Enclosed gas / air pressure (STD)	105 mm (4.13 in) 246 mm (9.69 in) 228 mm (8.98 in) 58.8 N/mm (6 kg/mm 335.8 lb/in) 0 ~ 105 mm (0.00 ~ 4.13 in) No 1,000 kPa (10 kg/cm ² , 145 psi)
Swingarm: <Free play limit> end side	<1 mm (0.04 in)> <1 mm (0.04 in)>
Front wheel: Type Rim size Rim material <Rim runout limit> radial lateral	Spoke wheel 1.60 × 21 Aluminum <2 mm (0.08 in)> <2 mm (0.08 in)>
Rear wheel: Type Rim size Rim material <Rim runout limit> radial lateral	Spoke wheel 2.15 × 18 Aluminum <2 mm (0.08 in)> <2 mm (0.08 in)>



Model	TTR250L(C)
<p>Drive chain:</p> <p>Type / manufacturer</p> <p>No. of links</p> <p>Chain free play</p> <p>Sealed type chain</p>	<p>520V2 / DAIDO</p> <p>110</p> <p>35 ~ 50 mm (1.4 ~ 2.0 in)</p> <p>Yes</p>
<p>Front disc brake:</p> <p>Type</p> <p>Disc outside diameter × thickness</p> <p><Disc thickness limit></p> <p>Pad thickness inner</p> <p><Limit></p> <p>Pad thickness outer</p> <p><Limit></p>  <p>Master cylinder inside diameter</p> <p>Caliper cylinder inside diameter</p> <p>Brake fluid type</p>	<p>Single</p> <p>245.0 × 3.5 mm (9.65 × 0.14 in)</p> <p><3 mm (0.12 in)></p> <p>4.2 mm (0.17 in)</p> <p><1 mm (0.04 in)></p> <p>4.2 mm (0.17 in)</p> <p><1 mm (0.04 in)></p> <p>11 mm (0.43 in)</p> <p>27 mm (1.06 in)</p> <p>DOT #4</p>
<p>Rear disc brake:</p> <p>Type</p> <p>Disc outside diameter × thickness</p> <p><Disc thickness limit></p> <p>Pad thickness inner</p> <p><Limit></p> <p>Pad thickness outer</p> <p><Limit></p>  <p>Master cylinder inside diameter</p> <p>Caliper cylinder inside diameter</p> <p>Brake fluid type</p>	<p>Single</p> <p>220.0 × 4.5 mm (8.66 × 0.18 in)</p> <p><4 mm (0.16 in)></p> <p>5.6 mm (0.22 in)</p> <p><1 mm (0.04 in)></p> <p>5.6 mm (0.22 in)</p> <p><1 mm (0.04 in)></p> <p>12.7 mm (0.50 in)</p> <p>30.23 mm (1.19 in)</p> <p>DOT #4</p>
<p>Brake lever and brake pedal:</p> <p>Brake lever free play (at lever end)</p> <p>Brake pedal position</p> <p>Clutch lever free play (at lever end)</p>	<p>2 ~ 5 mm (0.08 ~ 0.20 in)</p> <p>10 mm (0.39 in)</p> <p>10 ~ 15 mm (0.39 ~ 0.59 in)</p>



TIGHTENING TORQUES

Part to be tightened	Thread size	Tightening torque			Remarks
		Nm	m·kg	ft·lb	
Engine (front upper) and engine stay	M10	64	6.4	46	Refer to NOTE.
Engine stay (front upper) and frame	M8	30	3.0	22	
Engine (front under) and frame	M10	64	6.4	46	
Engine (rear under) and frame	M10	64	6.4	46	
Engine (rear middle) and frame	M10	64	6.4	46	
Engine stay (rear middle) and frame	M8	23	2.3	17	
Engine (rear upper) and engine stay	M10	64	6.4	46	
Engine stay (rear upper) and frame	M8	30	3.0	22	
Engine guard and frame	M6	7	0.7	5.1	
Chain tensioner (upper) and frame	M8	19	1.9	13	
Chain tensioner (under) and frame	M6	10	1.0	7.2	
Main switch and frame	M6	7	0.7	5.1	
Back stay and frame	M8	35	3.5	25	
Pivot shaft and frame	M16	105	10.5	75	
Rear suspension (upper) and frame	M10	46	4.6	33	
Relay arm and frame	M10	46	4.6	33	
Relay arm and connecting rod	M14	59	5.9	43	
Relay arm and rear suspension	M10	40	4.0	29	
Connecting rod and swingarm	M12	59	5.9	43	
Chain protector and chain	M6	4	0.4	2.9	
Chain guide and swingarm	M6	7	0.7	5.1	
Chain protector and swingarm	M6	7	0.7	5.1	
Chain case and swingarm	M6	7	0.7	5.1	
Rear brake hose (front) and swingarm	M6	7	0.7	5.1	
Rear brake hose (rear) and swingarm	M5	4	0.4	2.9	
Swingarm and end 3	M5	4	0.4	2.9	
Swingarm and bracket	M5	4	0.4	2.9	
Handle crown and inner tube	M8	23	2.3	17	
Handle crown and steering shaft	M24	120	12.0	85	
Steering shaft and ring nut	M28	5	0.5	3.6	
Handle under holder and handle crown	M12	40	4.0	29	
Front master cylinder cap	M4	2	0.2	1.4	
Front master cylinder and handlebar	M6	7	0.7	5.1	
Front fender and front fork	M6	7	0.7	5.1	
Speedometer and handle crown	M6	7	0.7	5.1	
Headlight and headlight stay	M6	7	0.7	5.1	
Headlight under stay and under bracket	M6	7	0.7	5.1	
Base valve and outer tube	M22	55	5.5	40	
Cap nut and inner tube	M40	28	2.8	20	
Fuel tank bracket and frame	M6	10	1.0	7.2	
Fuel tank and fuel cock	M6	7	0.7	5.1	
Rectifier/regulator and frame	M6	7	0.7	5.1	



MAINTENANCE SPECIFICATIONS

SPEC



Part to be tightened	Thread size	Tightening torque			Remarks
		Nm	m·kg	ft·lb	
Ignition coil and frame	M6	7	0.7	5.1	
Battery box and frame	M6	7	0.7	5.1	
Side cover and frame	M6	7	0.7	5.1	
Seat and frame	M6	7	0.7	5.1	
Rear fender and frame	M6	7	0.7	5.1	
Helmet holder and frame	M6	7	0.7	5.1	
Taillight and rear fender	M6	6	0.6	4.3	
Front hub and front disk	M6	12	1.2	8.7	
Front wheel shaft and front fork	M14	58	5.8	42	
Axle holder and front fork	M6	10	1.0	7.2	
Front brake caliper and front fork	M10	30	3.0	22	
Union bolt (front)	M10	30	3.0	22	
Rear wheel shaft and nut	M18	105	10.5	75	
Rear hub and sprocket	M8	35	3.5	25	
Rear hub and rear disk	M6	12	1.2	8.7	
Union bolt (rear)	M10	30	3.0	22	
Rear caliper and protector	M6	7	0.7	5.1	
Sidestand and nut	M10	64	6.4	46	
Rear footrest and frame	M8	23	2.3	17	
Rear master cylinder and frame	M8	23	2.3	17	
Rear reservoir tank and frame	M6	7	0.7	5.1	
Rear brake pedal and frame	M8	19	1.9	13	
Footrest bracket and frame	M10	64	6.4	46	

NOTE: _____

1. First tighten the ring nut approximately 38 Nm (3.8 m · kg, 27 ft · lb) by using the torque wrench, then loosen the ring nut one turn.
2. Retighten the ring nut to specification.



ELECTRICAL

Model	TTR250L(C)
Voltage:	12 V
Ignition system: Ignition timing (B.T.D.C.) Advanced timing (B.T.D.C.) Advancer type	10° at 1,300 r/min 31° at 8,500 r/min Digital type
C.D.I.: Pickup coil resistance / color C.D.I. unit model / manufacturer	190 ~ 230 Ω at 20 °C (68 °F) / Yellow – Blue F8T31871 / MITSUBISHI
Ignition coil: Model / manufacturer Primary winding resistance Secondary winding resistance	F6T535 / MITSUBISHI 0.36 ~ 0.48 Ω at 20 °C (68 °F) 5.44 ~ 7.36 kΩ at 20 °C (68 °F)
Spark plug cap: Type Resistance	Resin type 10 kΩ
Charging system: Type Model / manufacturer Standard output Stator coil resistance / color	A.C. magneto generator F4T250 / MITSUBISHI 14 V 13.5 A at 5,000 r/min 1.0 ~ 1.2 Ω at 20 °C (68 °F) / White – White
Rectifier regulator: Type Model / manufacturer No load regulated voltage (DC) Capacity Withstand voltage	Semi-conductor, short-circuit type SH629A-12 / SHINDENGEN 14.1 ~ 14.9 V 10 A 200 V
Battery: Manufacturer Specific gravity	GS 1.320
Electric starter system: Type Starter motor Model / manufacturer Output Armature coil resistance Brush overall length <Limit> Brush spring pressure Commutator diameter <Wear limit> Mica undercut	Constant mesh type SM-13 / MITSUBA 0.65 kW 0.0017 ~ 0.0027 Ω 10 mm (0.39 in) <4 mm (0.16 in)> 8.82 N (889 gf, 31.75 oz) 28 mm (1.10 in) <27 mm (1.06 in)> 0.7 mm (0.03 in)

MAINTENANCE SPECIFICATIONS

SPEC

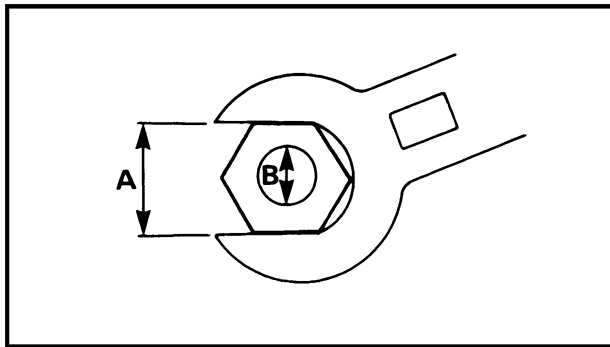


Model	TTR250L(C)
Starter relay: Model / manufacturer Amperage rating Coil winding resistance	MS5D-361 / JIDECO 100 A 3.9 ~ 4.7 Ω at 20 °C (68 °F)

GENERAL TORQUE SPECIFICATIONS

This chart specifies torque for standard fasteners with standard I.S.O. pitch threads. Torque specifications for special components or assemblies are included in the applicable sections of this book. To avoid warpage, tighten multi-fastener assemblies in a crisscross fashion, in progressive stages, until full torque is reached. Unless otherwise specified, torque specifications call for clean, dry threads. Components should be at room temperature.

A (Nut)	B (Bolt)	General torque specifications		
		Nm	m • kg	ft • lb
10 mm	6 mm	6	0.6	4.3
12 mm	8 mm	15	1.5	11
14 mm	10 mm	30	3.0	22
17 mm	12 mm	55	5.5	40
19 mm	14 mm	85	8.5	61
22 mm	16 mm	130	13.0	94



A: Distance across flats
B: Outside thread diameter



LUBRICATION POINTS AND LUBRICANT TYPES

ENGINE

Lubrication Point	Lubricant Type
Oil seal lips	
O-ring	
Bearing	
Piston surface	
Piston pin	
Crankshaft journal	
Balancer (bearing / shaft / gear)	
Buffer boss	
Camshaft cam lobe / journal	
Valve stem (IN, EX)	
Valve stem end (IN, EX)	
Valve lifter (IN, EX)	
Oil pump rotor (inner / outer) shaft	
Oil pump gasket	
Push lever assembly	
Idle gear (1, 2) surface	
Push rod assembly	
Primary driven gear	
Transmission gear (wheel / pinion)	
Axle (main / drive)	
Shift cam	
Shift fork / guide bar	
Shift shaft (1, 2)	
Matching surface (cylinder head and cylinder head cover)	Yamaha Bond No. 1215®
Crankcase matching surface	Yamaha Bond No. 1215®

LUBRICATION POINTS AND LUBRICANT TYPES

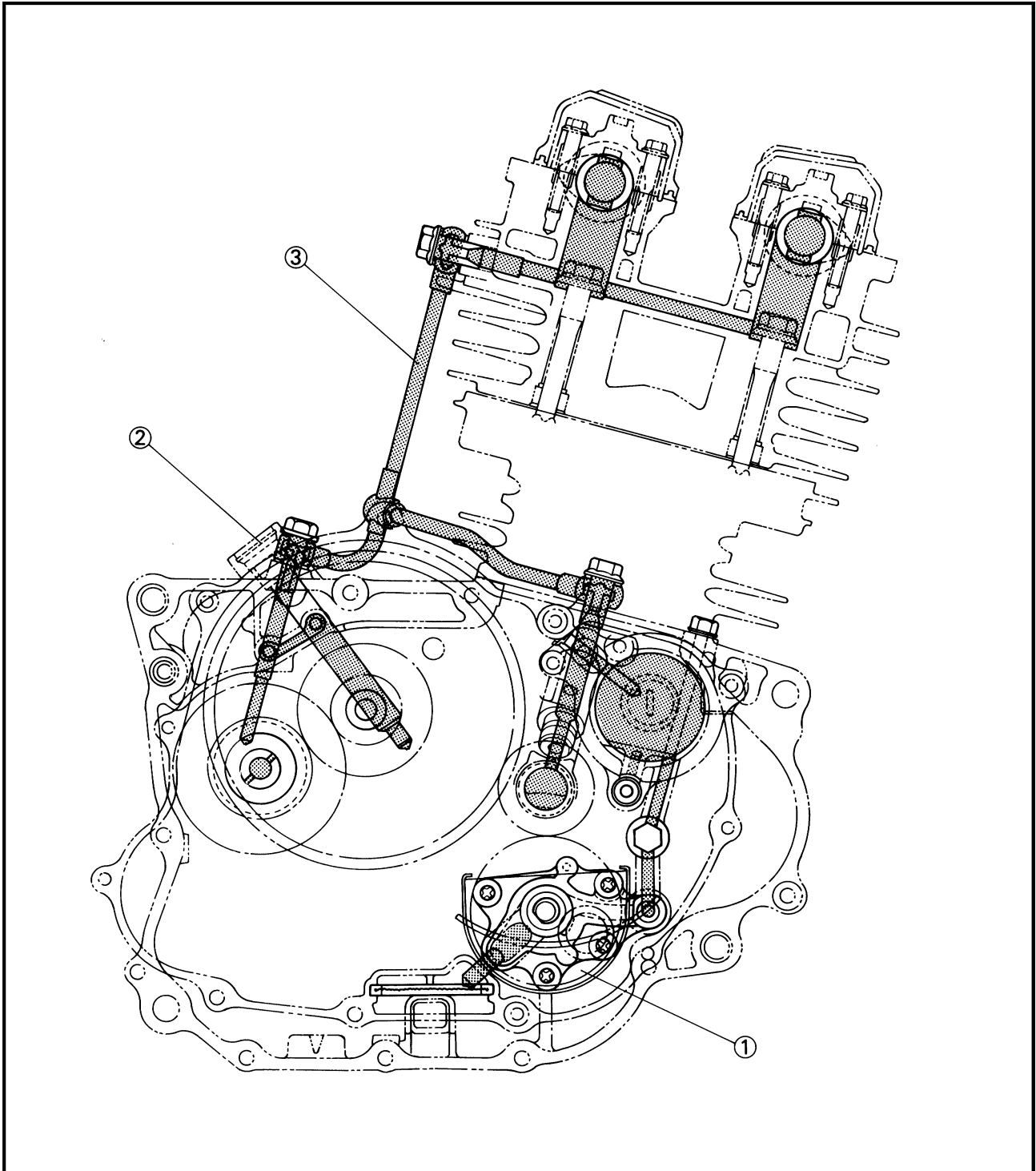


CHASSIS

Lubrication Point	Lubricant Type
Front wheel oil seal lips	
Rear wheel oil seal lips	
Bearing, oil seal lips (connecting rod)	
Oil seal lips, bearings (relay arm and frame)	
Pivot shaft (swingarm)	
Bearing (relay arm and rear shock absorber)	
Bolts, collars, seal lips (relay arm and frame)	
Bolt, collars (relay arm and connecting rod)	
Bolt (connecting rod and swingarm)	
Brake pedal shaft	
Bearings (steering head pipe)	
Tube guide (throttle grip) inner surface	
Brake lever, sliding surface	
Clutch lever, sliding surface	
Clutch cable end	
Sidestand bolt, sliding surface	
Bush (chain tensioner)	

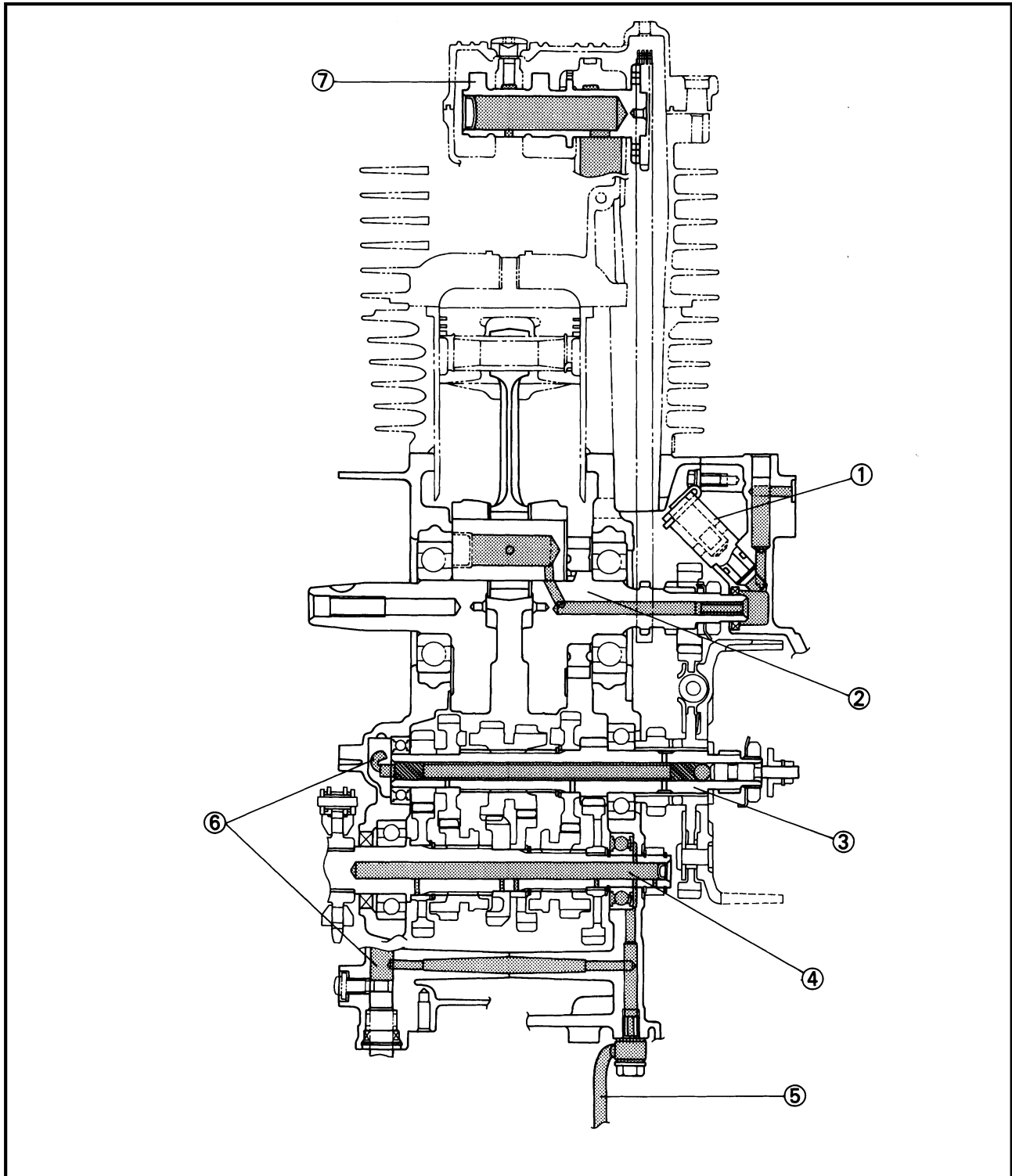
**LUBRICATION DIAGRAM**

- ① Oil pump
- ② Push lever
- ③ Delivery pipe



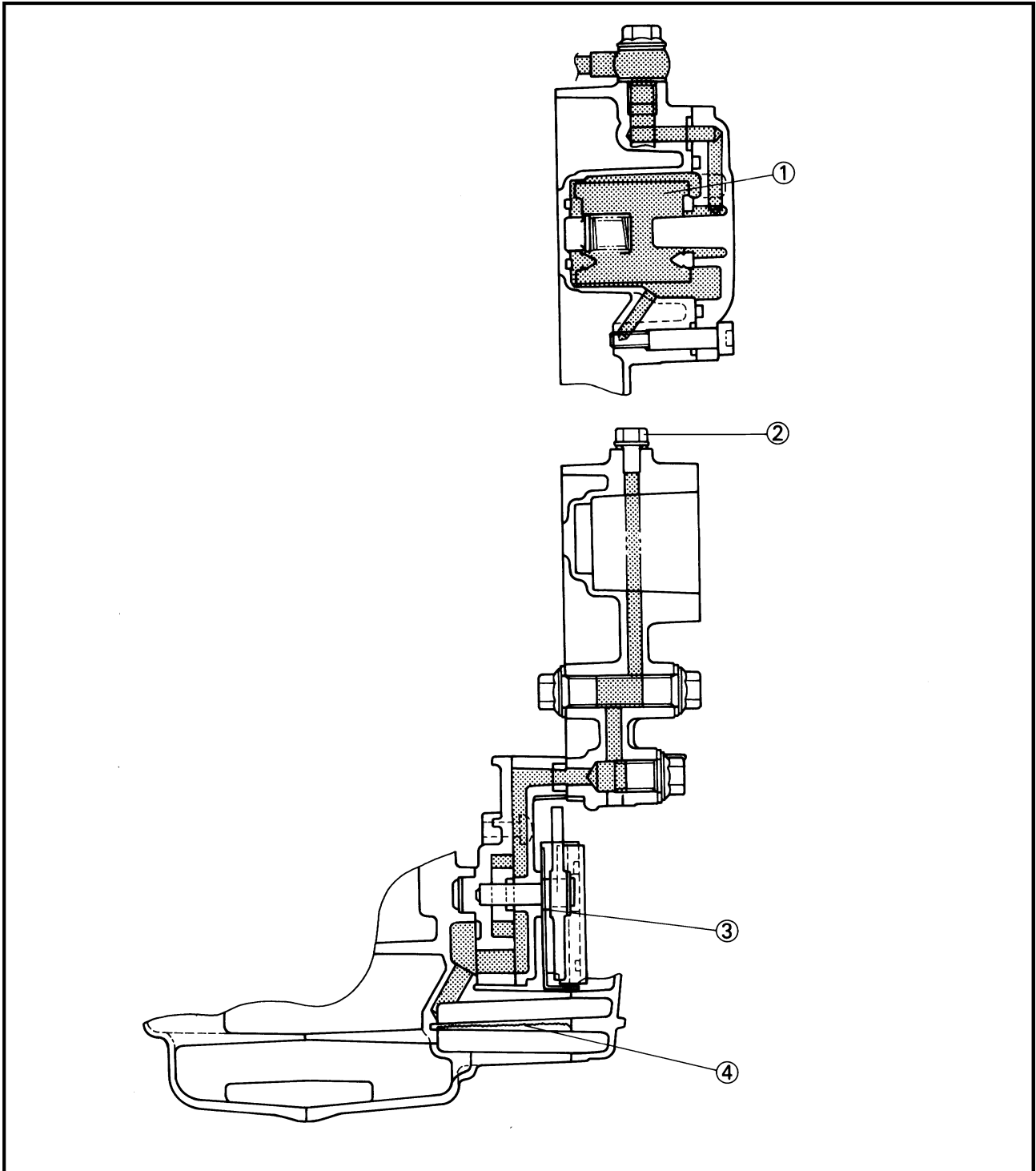


- ① Relief valve
- ② Crankshaft
- ③ Main axle
- ④ Drive axle
- ⑤ Delivery pipe
- ⑥ Push lever
- ⑦ Camshaft





- ① Oil cleaner
- ② Check bolt
- ③ Oil pump
- ④ Oil strainer



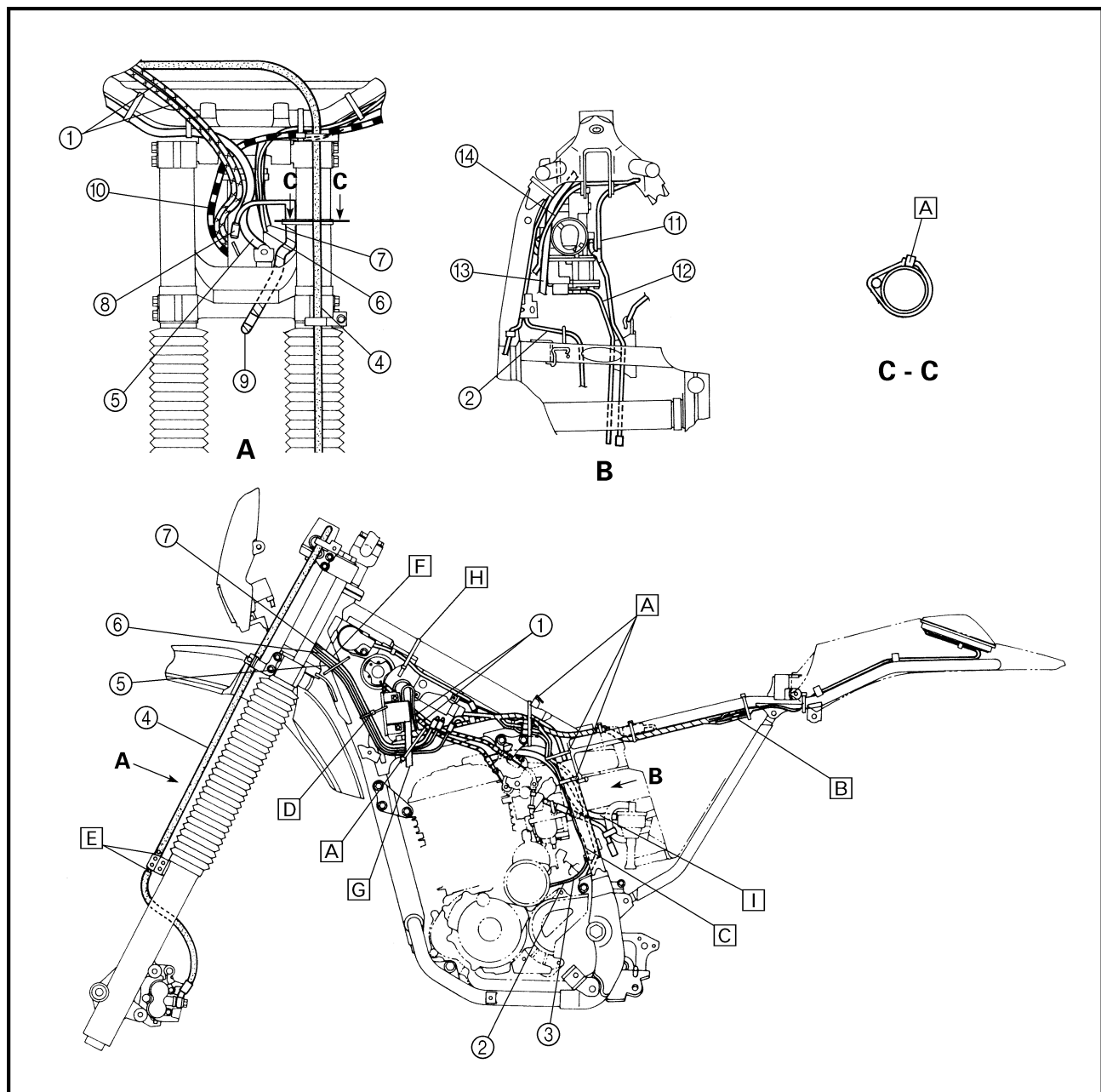


CABLE ROUTING

- ① Throttle cable
- ② Wire sub lead
- ③ A.C. magneto lead
- ④ Front brake hose
- ⑤ Handlebar switch lead (right)
- ⑥ Clutch switch lead
- ⑦ Handlebar switch lead (left)
- ⑧ Headlight lead
- ⑨ Wireharness
- ⑩ Clutch cable
- ⑪ Air vent hose (right)
- ⑫ Drain hose
- ⑬ Breather hose
- ⑭ Air vent hose (left)

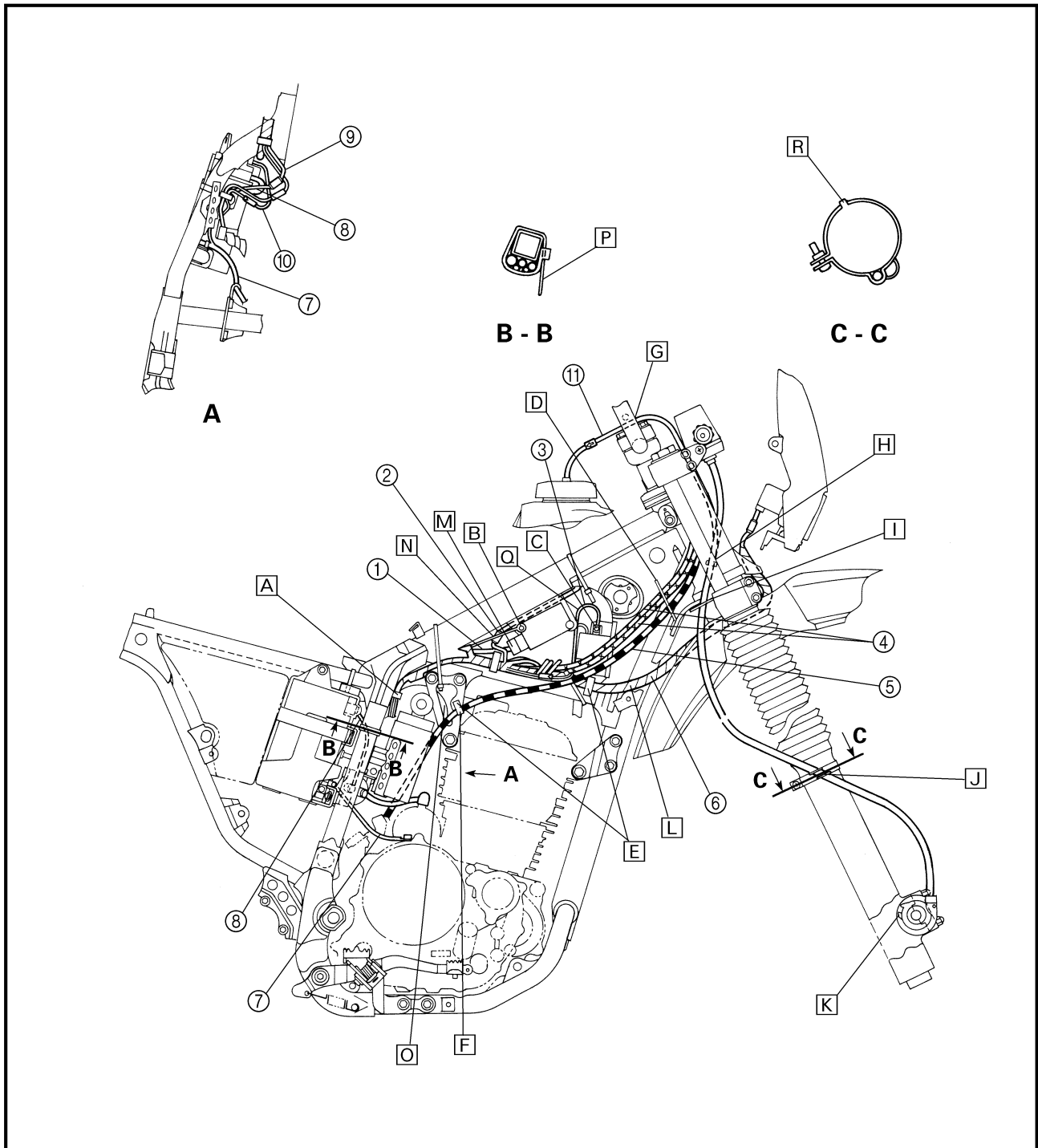
- Ⓐ Cut the end of the band after tightening.
- Ⓑ Do not put this portion of the harness on the frame after connection.
- Ⓒ Install the clamp with its open side facing forward.
- Ⓓ Install the band, making sure its end faces backward.
- Ⓔ Clamp the front brake hose between its white mark and the slot.
- Ⓕ Put the handlebar switch (left) lead on top of the leads.

- Ⓖ Pass the spark plug lead over the leads.
- Ⓗ Install the clamp with its end facing downward.
- Ⓘ Pass the breather hose on the inside of the leads that run side by side, but do not clamp it with a band or other clamping device.



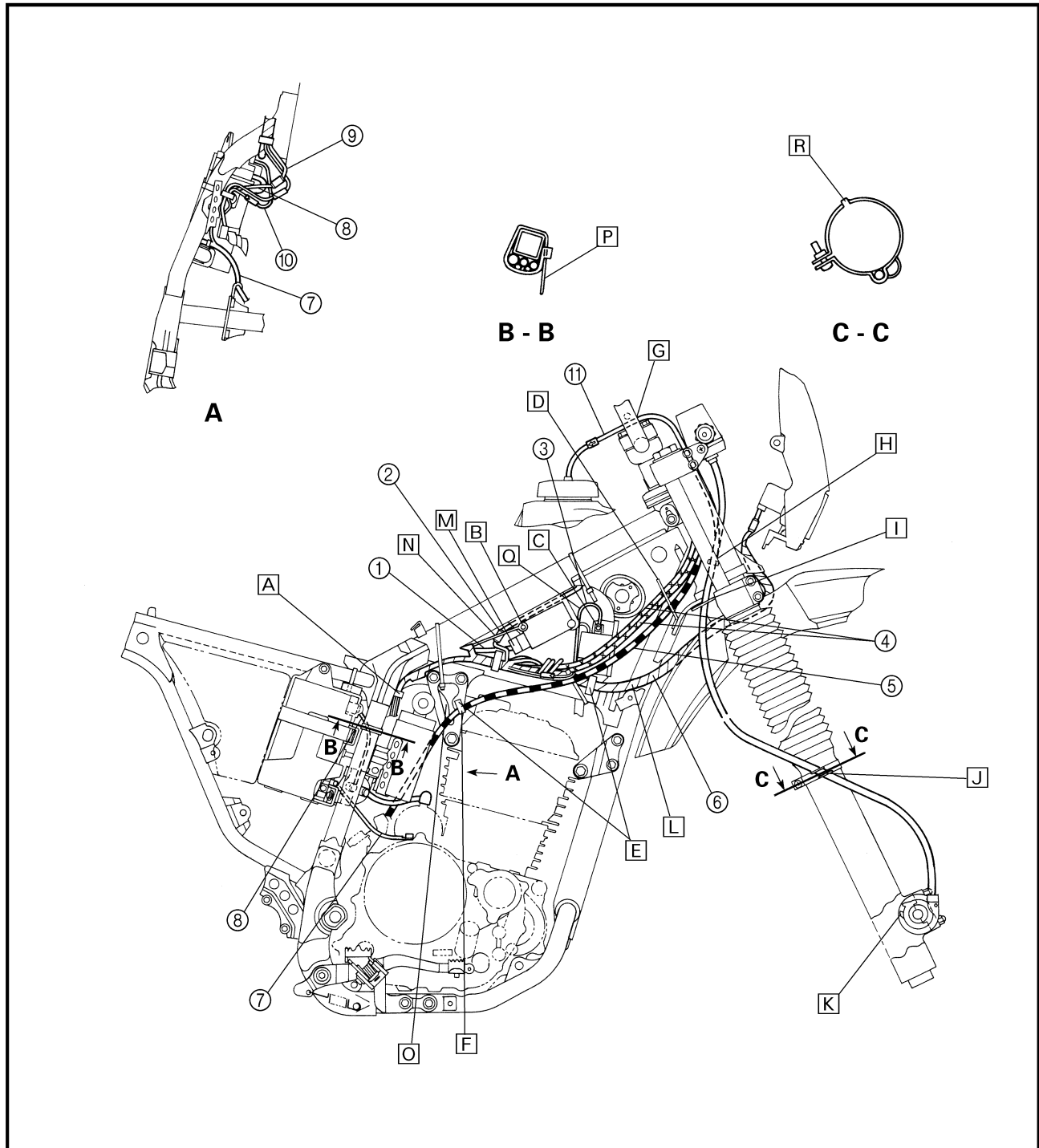


- | | |
|----------------------------|---|
| ① Rectifier/regulator lead | A Install the clamp with its open side facing outward. |
| ② Main switch lead | B Tighten the main switch lead to the rectifier/regulator. |
| ③ Ignition coil lead | C Tighten the ignition coil lead to the ignition coil. |
| ④ Throttle cable | D Pass the throttle cable 1 over the throttle cable 2. |
| ⑤ Clutch cable | E Install the clamp with its open side facing upward. |
| ⑥ Wireharness | F Fasten the clutch cable at the white tape marker with a clamp. |
| ⑦ Battery (-) lead | G Pass the fuel tank breather hose under the handle tension bar. |
| ⑧ Battery (+) lead | H Affix the fuel tank breather hose and speedometer cable to the clamp. |
| ⑨ Starter relay lead | I Pass the fuel tank breather hose and speedometer cable through the wire guide. |
| ⑩ Fuse (main) lead | J Fasten the speedometer cable at the white tape marker with a clamp. |
| ⑪ Fuel tank breather hose | |





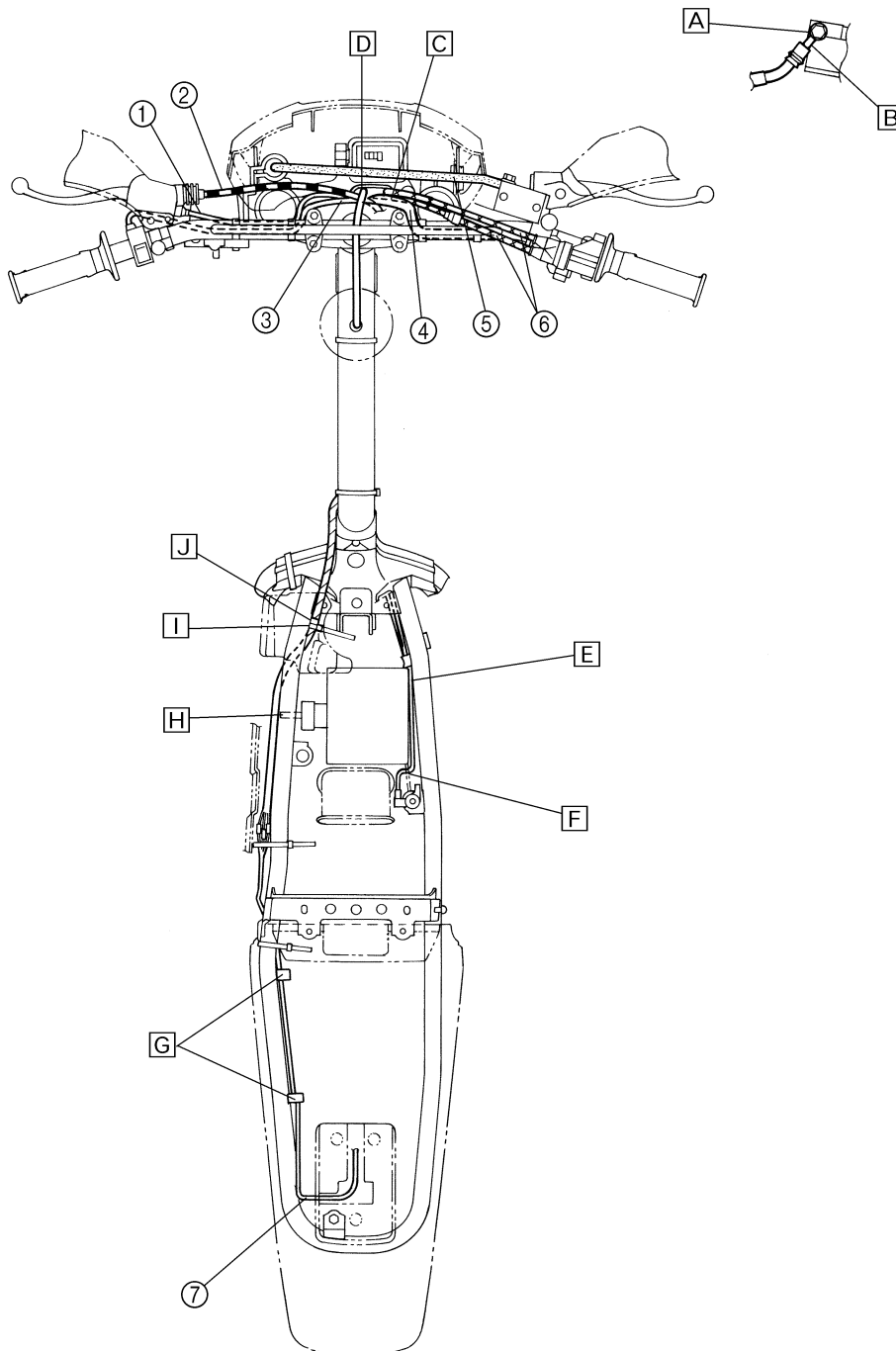
- K** Make sure the projection on the front fork is placed in the slot in the speedometer gear unit.
- L** Pass the wireharness over the fuel tank bracket.
- M** Pass the wireharness under the regulator lead coupler. Make sure the coupler does not go over the right side.
- N** Insert the coupler on the inside of the ground lead.
- O** Pass the clamp through the right engine stay.
- P** Face the band end to the inside of the vehicle.
- Q** Pass the ignition coil lead on the inside of the throttle cable.
- R** Align the slot and the projection on the front fork.





- ① Clutch switch lead
- ② Clutch cable
- ③ Handlebar switch (left) lead
- ④ Handlebar switch (right) lead
- ⑤ Front brake hose
- ⑥ Throttle cable
- ⑦ Taillight lead

- [A] The pipe portion of the brake hose should touch the projection on the master cylinder.
- [B] Install the brake hose with its white mark facing forward.
- [C] Pass the throttle cable 1 to the inside of the throttle cable 2.
- [D] Pass the handlebar switch (right) lead to the front of the clutch cable.
- [E] Do not allow the air ventilation hose to go over the frame.
- [F] Pass the air ventilation hose through the guide near the air filter intake.
- [G] Install the clamp with its open side facing inward.
- [H] Pass the lead under the frame.
- [I] Fasten the wireharness to the guide on the frame with a plastic band.
- [J] Pass the wireharness through the guide.





PERIODIC INSPECTION AND ADJUSTMENT

INTRODUCTION

This chapter includes all information necessary to perform recommended inspections and adjustments. These preventive maintenance procedures, if followed, will ensure more reliable vehicle operation and a longer service life. The need for costly overhaul work will be greatly reduced. This information applies to vehicles already in service as well as new vehicles that are being prepared for sale. All service technicians should be familiar with this entire chapter.

PERIODIC MAINTENANCE/LUBRICATION

	No.	ITEM	CHECKS AND MAINTENANCE JOBS	INITIAL	EVERY	
				100 mi (150 km) or 1 month	600 mi (1,000 km) or 6 months	1,200 mi (2,000 km) or 12 months
Emission Items	1	* Fuel line	<ul style="list-style-type: none"> • Check fuel hoses for cracks or damage. • Replace if necessary. 		√	√
	2	Spark plug	<ul style="list-style-type: none"> • Check condition. • Clean, regap or replace if necessary. 		√	√
	3	* Valves	<ul style="list-style-type: none"> • Check valve clearance. • Adjust if necessary. 			√
	4	Air filter	<ul style="list-style-type: none"> • Clean or replace if necessary. 		√	√
	5	* Crankcase breather system	<ul style="list-style-type: none"> • Check ventilation hose for cracks or damage and drain any deposit. • Replace if necessary. 		√	√
	6	* Carburetor	<ul style="list-style-type: none"> • Check engine idling speed and starter operation. • Adjust if necessary. 	√	√	√
	7	Exhaust system	<ul style="list-style-type: none"> • Check for leakage. • Retighten if necessary. • Replace gasket if necessary. 		√	√
	8	Engine oil	<ul style="list-style-type: none"> • Check oil level and vehicle for oil leakage. • Correct if necessary. • Change. (Warm engine before draining.) 	√	√	√
	9	Engine oil filter element	<ul style="list-style-type: none"> • Clean. 	√	√	√
General Items	10	Clutch	<ul style="list-style-type: none"> • Check operation. • Adjust or replace cable. 	√	√	√
	11	* Front brake	<ul style="list-style-type: none"> • Check operation, fluid level and vehicle for fluid leakage. • Correct accordingly. • Replace brake pads if necessary. 	√	√	√
General Items	12	* Rear brake	<ul style="list-style-type: none"> • Check operation, fluid level and vehicle for fluid leakage. • Correct accordingly. • Replace brake pads if necessary. 	√	√	√
	13	* Wheels	<ul style="list-style-type: none"> • Check balance, runout, spoke tightness and for damage. • Tighten spokes and rebalance, replace if necessary. 	√	√	√
	14	* Tires	<ul style="list-style-type: none"> • Check tread depth and for damage. • Replace if necessary. • Check air pressure. • Correct if necessary. 		√	√
	15	* Wheel bearings	<ul style="list-style-type: none"> • Check bearing looseness or damage. • Replace if necessary. 		√	√

PERIODIC MAINTENANCE/LUBRICATION



	No.	ITEM	CHECKS AND MAINTENANCE JOBS	INITIAL	EVERY	
				100 mi (150 km) or 1 month	600 mi (1,000 km) or 6 months	1,200 mi (2,000 km) or 12 months
General Items	16	Drive chain	<ul style="list-style-type: none"> • Check chain slack. • Adjust if necessary. Make sure that the rear wheel is properly aligned. • Clean and lubricate. 	Every ride		
	17	* Steering bearings	<ul style="list-style-type: none"> • Check bearing play and steering for roughness. • Correct accordingly. • Lubricate with lithium soap base grease every 1,200 mi (2,000 km) or 12 months (whichever comes first). 	√		√
	18	* Chassis fasteners	<ul style="list-style-type: none"> • Make sure that all nuts, bolts and screws are properly tightened. • Tighten if necessary. 	√	√	√
	19	Sidestand	<ul style="list-style-type: none"> • Check operation. • Lubricate and repair if necessary. 	√		√
	20	* Spark arrester	<ul style="list-style-type: none"> • Clean. 			√
	21	* Front fork	<ul style="list-style-type: none"> • Check operation and for oil leakage. • Correct accordingly. 		√	√
	22	* Rear shock absorber assembly	<ul style="list-style-type: none"> • Check operation and shock absorber for oil leakage. • Replace shock absorber assembly if necessary. 		√	√
	23	* Rear shock absorber pivoting point	<ul style="list-style-type: none"> • Check operation. • Lubricate with molybdenum disulfide grease. 			√

* : Since these items require special tools, data and technical skills, they should be serviced by a Yamaha dealer.

NOTE: _____

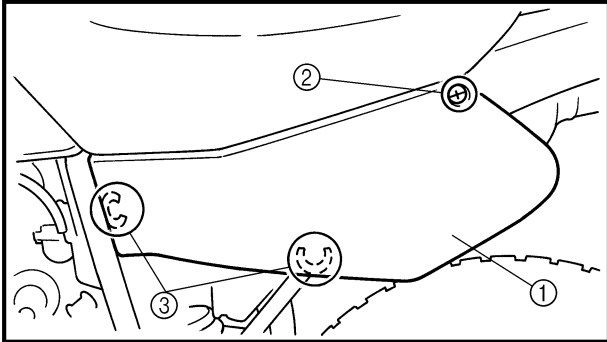
- The air filter needs more frequent service if you are riding in unusually wet or dusty areas.
- Hydraulic brake system
 - When disassembling the master cylinder or caliper cylinder, always replace the brake fluid. Check the brake fluid level regularly and fill as required.
 - Replace the oil seals on the inner parts of the master cylinder and caliper cylinder every two years.
 - Replace the brake hoses every four years, or if cracked or damaged.

3

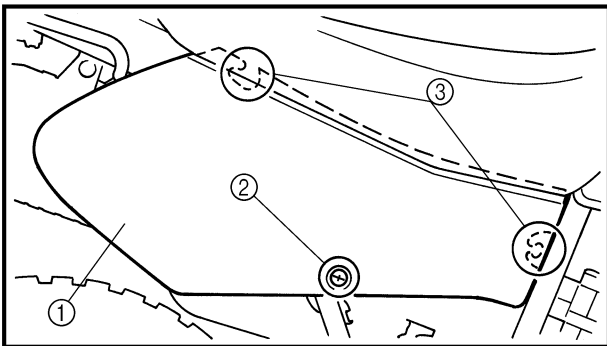
SEAT, FUEL TANK AND COVERS REMOVAL

⚠ WARNING

Securely support the motorcycle so there is no danger of it falling over.

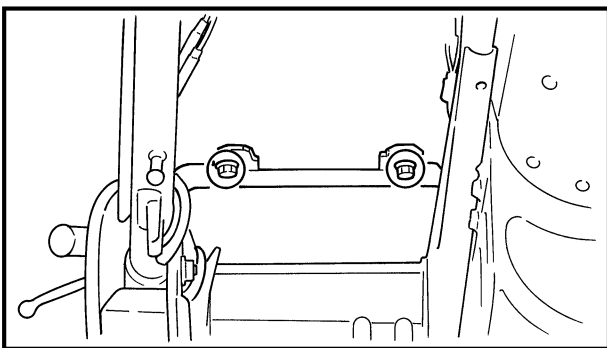


- 1.Remove:
● Side cover (left) ①

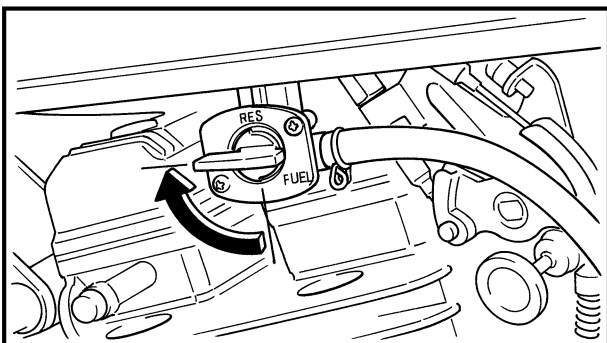


- 2.Remove:
● Side cover (right) ①

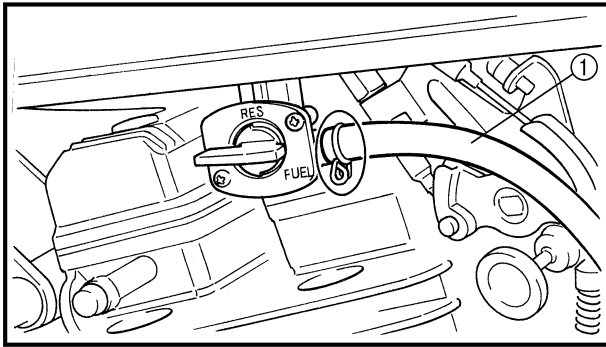
NOTE:
When removing the side covers (left and right), remove the bolt ②. Then pull the front and rear portion of the side cover outward to remove the projection ③ from the grommet.



- 3.Remove:
● Seat



- 4.Turn the fuel cock to "OFF".



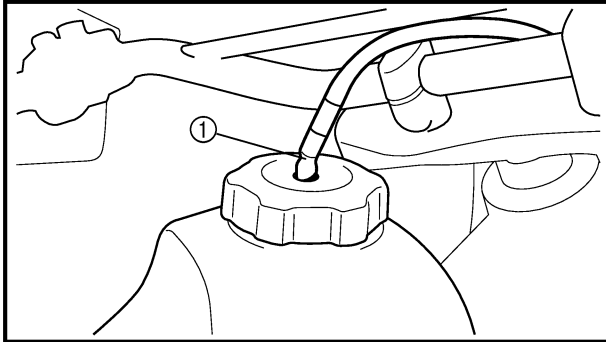
5. Disconnect:
- Fuel hose ①

NOTE:

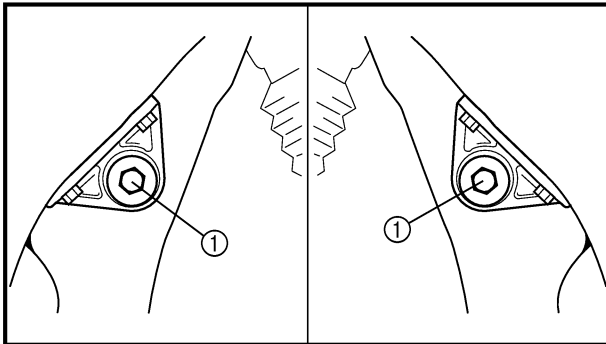
Place a rag on the engine to absorb any spill fuel.

⚠ WARNING

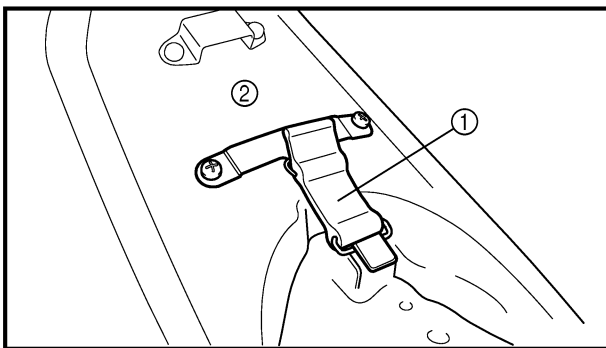
Gasoline is highly flammable.
Avoid spilling fuel on the hot engine.



6. Disconnect:
- Fuel tank breather hose ①



7. Remove:
- Fuel tank bracket bolts ①



8. Remove:
- Band ①
 - Fuel tank ②

INSTALLATION

Reverse the "REMOVAL" procedure. Note the following points.

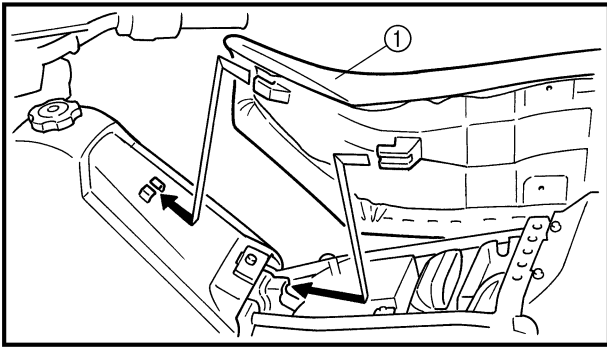
1. Install:
- Fuel tank



Bolts (fuel tank bracket):
10 Nm (1.0 m • kg, 7.2 ft • lb)

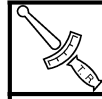
SEAT, FUEL TANK AND COVERS

CHK
ADJ



2. Install:

- Seat ①
- Side covers (left and right)



Bolt (seat):

7 Nm (0.7 m • kg, 5.1 ft • lb)

Bolt (side cover):

7 Nm (0.7 m • kg, 5.1 ft • lb)



ENGINE VALVE CLEARANCE ADJUSTMENT

NOTE:

- The valve clearance must be adjusted when the engine is cool to the touch.
- Adjust the valve clearance when the piston is at the Top Dead Center (T.D.C.) on compression stroke.

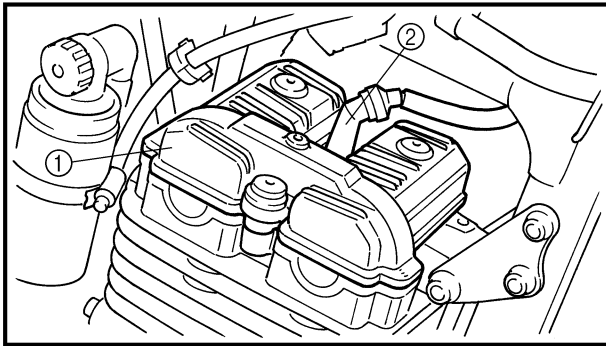
⚠ WARNING

Securely support the motorcycle so there is no danger of it falling over.

1.Remove:

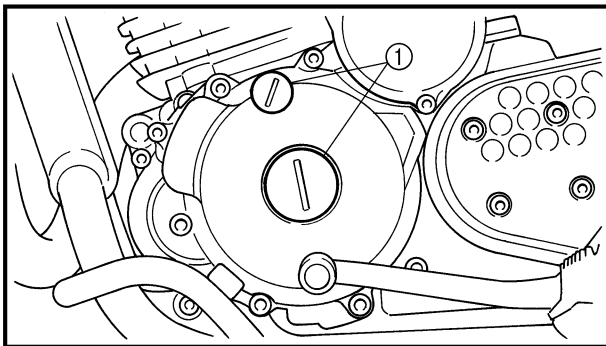
- Side covers
- Seat
- Fuel tank

Refer to "SEAT, FUEL TANK AND COVERS".



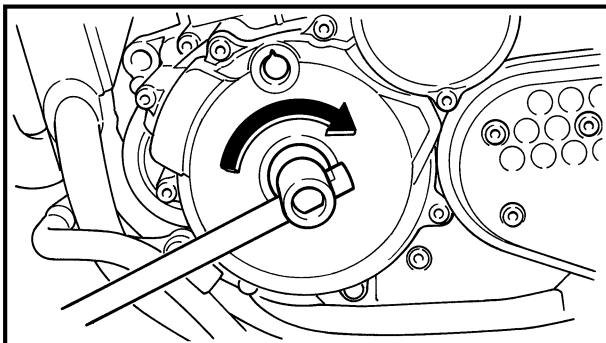
2.Remove:

- Cylinder head cover ①
- Spark plug ②



3.Remove:

- Plugs ① (with O-ring)

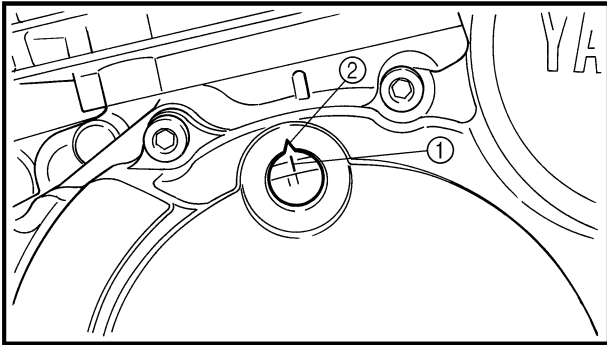


4.Align:

- "T" mark on the rotor
With the stationary pointer on the crankcase cover.

T.D.C. alignment steps:

- Turn the crankshaft clockwise with a wrench.



- Align the "T" mark ① on the rotor with stationary pointer ② on the crankcase cover. When the "T" mark is aligned with the stationary pointer, the piston is at Top Dead Center (T.D.C.).

NOTE: _____

T.D.C. on compression stroke check:

- Both cam lobes must have a valve clearance when the rotor match mark ① is aligned with the stationary pointer match mark ②.
- If not, give the crankshaft one counter-clockwise turn to meet above condition.

5.Check:

- Valve clearance
Measure the valve clearance using a feeler gauge.
Out of specification → Adjust.



Valve clearance (cold):

Intake:

0.09 ~ 0.19 mm
(0.004 ~ 0.007 in)

Exhaust:

0.19 ~ 0.27 mm
(0.007 ~ 0.011 in)

Checking steps:

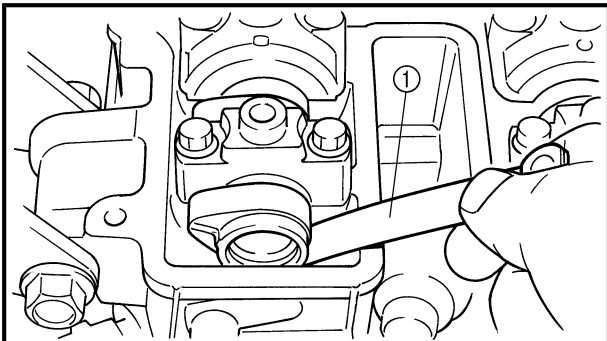
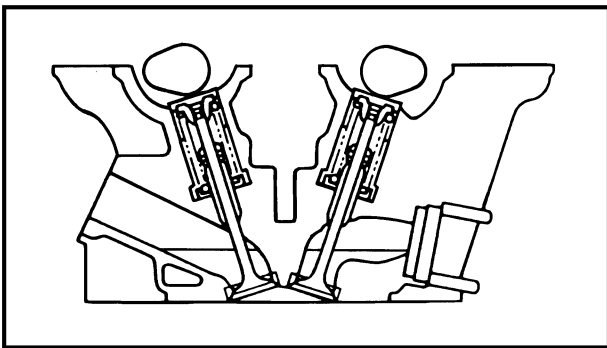
NOTE: _____

TDC on compression stroke can be found when the cam lobes are opposite each other as shown.

- Measure the valve clearance using a feeler gauge ①.

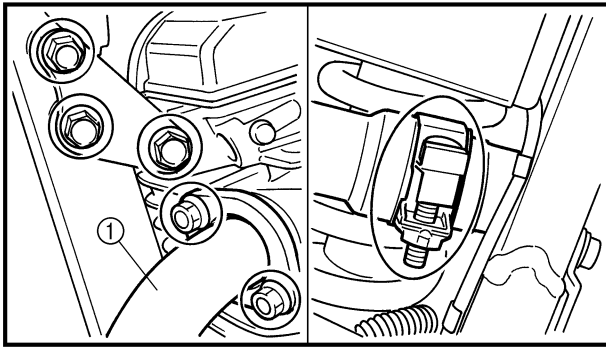
NOTE: _____

Record the measured reading if the clearance is incorrect.

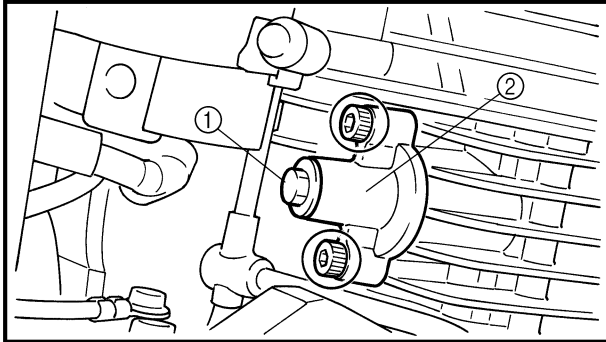


VALVE CLEARANCE ADJUSTMENT

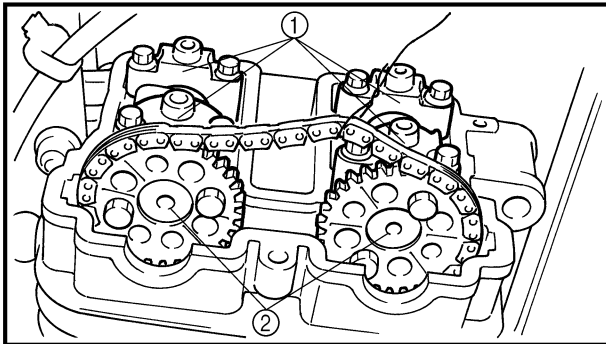
CHK
ADJ



- 6.Remove:
- Exhaust pipe ①



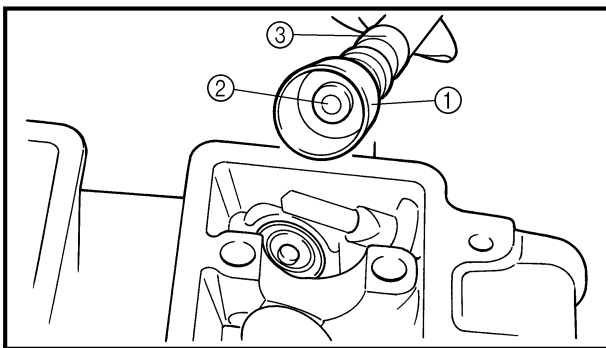
- 7.Loosen:
- Cap bolt ①
- 8.Remove:
- Cam chain tensioner ②



- 9.Remove:
- Camshaft caps ①
 - Camshafts ②

NOTE:

- Refer to "ENGINE DISASSEMBLY-CYLINDER HEAD, CAMSHAFTS, CYLINDER AND PISTON" in CHAPTER 4.
- Fasten a wire to the cam chain to prevent it from falling into the crankcase.



- 10.Adjust:
- Valve clearance

Adjustment steps:

- Remove the valve lifter ① and pad ② using the valve lapper ③.

NOTE:

- Place a piece of rag in the cam chain room to prevent the pad from falling into the crankcase.
- Remove the rag after adjustment.
- Select the proper valve adjusting pad from the following chart.

VALVE CLEARANCE ADJUSTMENT



INTAKE

[B] MEASURED CLEARANCE	[A] INSTALLED PAD NUMBER																								
	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240
0.00 ~ 0.04				120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225
0.05 ~ 0.08			120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230
0.09 ~ 0.17	RECOMMENDED CLEARANCE																								
0.18 ~ 0.20	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240
0.21 ~ 0.25	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	
0.26 ~ 0.30	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240		
0.31 ~ 0.35	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240			
0.36 ~ 0.40	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240				
0.41 ~ 0.45	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240					
0.46 ~ 0.50	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240						
0.51 ~ 0.55	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240							
0.56 ~ 0.60	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240								
0.61 ~ 0.65	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240									
0.66 ~ 0.70	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240										
0.71 ~ 0.75	175	180	185	190	195	200	205	210	215	220	225	230	235	240											
0.76 ~ 0.80	180	185	190	195	200	205	210	215	220	225	230	235	240												
0.81 ~ 0.85	185	190	195	200	205	210	215	220	225	230	235	240													
0.86 ~ 0.90	190	195	200	205	210	215	220	225	230	235	240														
0.91 ~ 0.95	195	200	205	210	215	220	225	230	235	240															
0.96 ~ 1.00	200	205	210	215	220	225	230	235	240																
1.01 ~ 1.05	205	210	215	220	225	230	235	240																	
1.06 ~ 1.10	210	215	220	225	230	235	240																		
1.11 ~ 1.15	215	220	225	230	235	240																			
1.16 ~ 1.20	220	225	230	235	240																				
1.21 ~ 1.25	225	230	235	240																					
1.26 ~ 1.30	230	235	240																						
1.31 ~ 1.35	235	240																							
1.36 ~ 1.40	240																								

VALVE CLEARANCE (cold):
 0.09 ~ 0.17 mm (0.004 ~ 0.007 in)
 Example: Installed is: 170
 Measured clearance is:
 0.27 mm (0.011 in)
 Replace 170 pad with 180 pad

EXHAUST

[B] MEASURED CLEARANCE	[A] INSTALLED PAD NUMBER																								
	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240
0.00 ~ 0.04						120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215
0.05 ~ 0.09					120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220
0.10 ~ 0.14				120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225
0.15 ~ 0.18			120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230
0.19 ~ 0.27	RECOMMENDED CLEARANCE																								
0.28 ~ 0.30	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240
0.31 ~ 0.35	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	
0.36 ~ 0.40	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240		
0.41 ~ 0.45	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240			
0.46 ~ 0.50	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240				
0.51 ~ 0.55	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240					
0.56 ~ 0.60	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240						
0.61 ~ 0.65	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240							
0.66 ~ 0.70	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240								
0.71 ~ 0.75	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240									
0.76 ~ 0.80	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240										
0.81 ~ 0.85	175	180	185	190	195	200	205	210	215	220	225	230	235	240											
0.86 ~ 0.90	180	185	190	195	200	205	210	215	220	225	230	235	240												
0.91 ~ 0.95	185	190	195	200	205	210	215	220	225	230	235	240													
0.96 ~ 1.00	190	195	200	205	210	215	220	225	230	235	240														
1.01 ~ 1.05	195	200	205	210	215	220	225	230	235	240															
1.06 ~ 1.10	200	205	210	215	220	225	230	235	240																
1.11 ~ 1.15	205	210	215	220	225	230	235	240																	
1.16 ~ 1.20	210	215	220	225	230	235	240																		
1.21 ~ 1.25	215	220	225	230	235	240																			
1.26 ~ 1.30	220	225	230	235	240																				
1.31 ~ 1.35	225	230	235	240																					
1.36 ~ 1.40	230	235	240																						
1.41 ~ 1.45	235	240																							
1.46 ~ 1.50	240																								

VALVE CLEARANCE (cold):
 0.19 ~ 0.27 mm (0.007 ~ 0.011 in)
 Example: Installed is: 180
 Measured clearance is:
 0.34 mm (0.013 in)
 Replace 180 pad with 185 pad

Pad range		Pad availability: 25 increments
No. 120 ~ No. 240	1.20 mm (0.047 in) ~ 2.40 mm (0.094 in)	Pads are stepped in 0.05 mm (0.002 in) increments

NOTE: Thickness of each pad is marked on the pad face that contacts the valve lifter (not the cam).

- Round off the hundredths digit of the original pad number to the nearest 0.05 mm increment.

Last digit of pad number	Rounded value
0 or 2	0
5	(NOT ROUNDED OFF)
8	10

EXAMPLE:

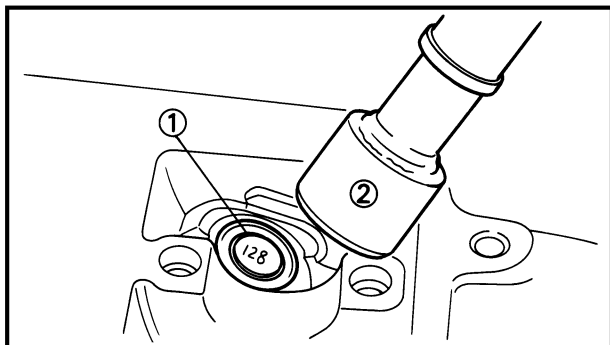
Original pad number = 178 (1.78 mm)
Rounded off digit = 180

NOTE: Pads can only be selected in 0.05 mm (0.002 in) increments.

- Locate the previously installed pad number on the chart. Locate the measured valve clearance on the chart. The point where these coordinates intersect is the new pad number.
- Install the new pad ① and valve lifter ②.
- Recheck the valve clearance and adjust it if necessary.

NOTE:

- Apply molybdenum disulfide grease to the pad.
- Use your finger to rotate the valve lifter smoothly.





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