



## CHAPTER 2. SPECIFICATIONS

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## SPECIFICATIONS

## GENERAL SPECIFICATIONS

Item	Standard	Limit
<b>Model code</b>	YZF-R6L: 5GV1 (U.S.A.)	...
	YZF-R6CL: 5GV2 (California)	...
	YZF-R6L: 5GV3 (Canada)	...
<b>Dimensions</b>		
Overall length	2025 mm (79.7 in)	...
Overall width	690 mm (27.2 in)	...
Overall height	1105 mm (43.5 in)	...
Seat height	820 mm (32.3 in)	...
Wheelbase	1380 mm (54.3 in)	...
	1385 mm (54.5 in) (California)	...
Minimum ground clearance	135 mm (5.3 in)	...
Minimum turning radius	3400 mm (133.9 in)	...
<b>Weight</b>		
Wet (with oil and a full fuel tank)	188 kg (415 lb)	...
	189 kg (417 lb) (California)	...
Dry (without oil and fuel)	169 kg (373 lb)	...
	170 kg (375 lb) (California)	...
Maximum load (total of cargo, rider, passenger, and accessories)	375 kg (827 lb)	...



## ENGINE SPECIFICATIONS

Item	Standard	Limit
<b>Engine</b>		
Engine type	Liquid-cooled, 4-stroke, DOHC	...
Displacement	600 cm <sup>3</sup> (36.61 cu.in)	...
Cylinder arrangement	Forward-inclined parallel 4-cylinder	...
Bore × stroke	65.5 × 44.5 mm (2.58 × 1.75 in)	...
Compression ratio	12.4 : 1	...
Engine idling speed	1,250 ~ 1,350 r/min	...
Vacuum pressure at engine idling speed	24.0 kPa (180 mmHg, 7.0866 in Hg)	...
Standard compression pressure (at sea level)	1550 kPa (15.5 kg/cm <sup>2</sup> , 224.75 psi) at 400 r/min	...
<b>Fuel</b>		
Recommended fuel	Regular gasoline	...
Fuel tank capacity		
Total (including reserve)	17 L (3.74 Imp gal, 4.49 US gal)	...
Reserve only	3.5 L (0.77 Imp gal, 0.93 US gal)	...
<b>Engine oil</b>		
Lubrication system	Wet sump	...
Recommended oil		...
<p> <b>A</b> : Yamalube 4 (10 W 30) or SAE 10 W 30 type SE motor oil (−10°C (10°F) or higher)  <b>B</b> : Yamalube 4 (20 W 40) or SAE 20 W 40 type SE motor oil (5°C (40°F) or higher) </p>		
<b>Quantity</b>		
Total amount	3.5 L (3.08 Imp qt, 3.70 US qt)	...
Without oil filter cartridge replacement	2.5 L (2.20 Imp qt, 2.64 US qt)	...
With oil filter cartridge replacement	2.7 L (2.38 Imp qt, 2.85 US qt)	...
Oil pressure (hot)	80 kPa (0.8 kg/cm <sup>2</sup> , 11.6 psi) at 1300 r/min	...
Relief valve opening pressure	450 ~ 550 kPa (4.5 ~ 5.5 kg/cm <sup>2</sup> , 65.3 ~ 79.8 psi)	...

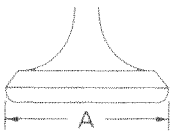
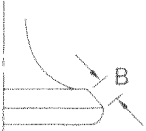
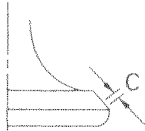

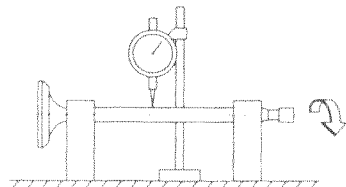


Item	Standard	Limit
<b>Oil filter</b>		
Oil filter type	Cartridge (paper)	...
Bypass valve opening pressure	80 ~ 120 kPa (0.8 ~ 1.2 kg/cm <sup>2</sup> , 11.6 ~ 17.4 psi)	...
<b>Oil pump</b>		
Oil pump type	Trochoidal	...
Inner-rotor-to-outer-rotor-tip clearance	0.03 ~ 0.09 mm (0.0012 ~ 0.0035 in)	0.15 mm (0.0059 in)
Outer-rotor-to-oil-pump-housing clearance	0.03 ~ 0.08 mm (0.0012 ~ 0.0031 in)	0.15 mm (0.0059 in)
<b>Cooling system</b>		
Radiator capacity	2.15 L (2.27 US qt)	
Radiator cap opening pressure	110 ~ 140 kPa (1.10 ~ 1.40 kg/cm <sup>2</sup> , 16.0 ~ 20.3 psi)	...
Radiator core		
Width	320 mm (12.6 in)	...
Height	258 mm (10.2 in)	...
Depth	24 mm (0.94 in)	...
Coolant reservoir		
Capacity	0.44 L (0.47 US qt)	...
Water pump		
Water pump type	Single-suction centrifugal pump	...
Reduction ratio	86/44 × 31/31 (1.955)	...
<b>Starting system type</b>	Electric starter	
<b>Spark plugs</b>		
Model (manufacturer) × quantity	CR10EK/NGK × 4	...
	CR9EK/NGK × 4 (California)	...
Spark plug gap	0.6 ~ 0.7 mm (0.02 ~ 0.03 in)	...
<b>Cylinder head</b>		
Max. warpage	...	0.05 mm (0.002 in)



Item	Standard	Limit
<b>Camshafts</b>		
Drive system	Chain drive (right)	...
Camshaft cap inside diameter	23.000 ~ 23.021 mm (0.9055 ~ 0.9063 in)	...
Camshaft journal diameter	22.967 ~ 22.980 mm (0.9042 ~ 0.9047 in)	...
Camshaft-journal-to-camshaftcap clearance	0.020 ~ 0.054 mm (0.0008 ~ 0.0021 in)	0.08 mm (0.0031 in)
Intake camshaft lobe dimensions		
Measurement A	33.05 ~ 33.15 mm (1.3012 ~ 1.3051 in)	33.0 mm (1.3 in)
Measurement B	25.14 ~ 25.24 mm (0.9898 ~ 0.9937 in)	25.09 mm (0.99 in)
Measurement C	7.81 ~ 8.01 mm (0.3075 ~ 0.3154 in)	...
Exhaust camshaft lobe dimensions		
Measurement A	32.55 ~ 32.65 mm (1.2815 ~ 1.2854 in)	32.50 mm (1.28 in)
Measurement B	25.07 ~ 25.17 mm (0.9870 ~ 0.9909 in)	25.02 mm (0.99 in)
Measurement C	7.38 ~ 7.58 mm (0.2906 ~ 0.2984 in)	...
Max. camshaft runout	...	0.06 mm (0.0024 in)

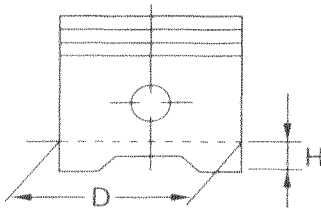





Item	Standard	Limit
<b>Timing chain</b> Model/number of links Tensioning system	RH2015/120 Automatic	... ...
<b>Valves, valve seats, valve guides</b> Valve clearance (cold) Intake Exhaust Valve dimensions	0.11 ~ 0.20 mm (0.0043 ~ 0.0079 in) 0.21 ~ 0.30 mm (0.0083 ~ 0.0118 in)	... ...
   		
Head Diameter		
Valve head diameter A		
Intake	24.9 ~ 25.1 mm (0.9803 ~ 0.9882 in)	...
Exhaust	21.9 ~ 22.1 mm (0.8622 ~ 0.8701 in)	...
Valve face width B		
Intake	1.14 ~ 1.98 mm (0.0449 ~ 0.0780 in)	...
Exhaust	1.14 ~ 1.98 mm (0.0449 ~ 0.0780 in)	...
Valve seat width C		
Intake	0.9 ~ 1.1 mm (0.0354 ~ 0.0433 in)	1.6 mm (0.06 in)
Exhaust	0.9 ~ 1.1 mm (0.0354 ~ 0.0433 in)	1.6 mm (0.06 in)
Valve margin thickness D		
Intake	0.6 ~ 0.8 mm (0.0236 ~ 0.0315 in)	0.5 mm (0.02 in)
Exhaust	0.6 ~ 0.8 mm (0.0236 ~ 0.0315 in)	0.5 mm (0.02 in)
Valve stem diameter		
Intake	3.975 ~ 3.990 mm (0.1565 ~ 0.1571 in)	3.950 mm (0.1555 in)
Exhaust	3.960 ~ 3.975 mm (0.1559 ~ 0.1565 in)	3.935 mm (0.1549 in)
Valve guide inside diameter		
Intake	4.000 ~ 4.012 mm (0.1575 ~ 0.1580 in)	4.042 mm (0.1591 in)
Exhaust	4.000 ~ 4.012 mm (0.1575 ~ 0.1580 in)	4.042 mm (0.1591 in)
Valve-stem-to-valve-guide clearance		
Intake	0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in)	0.08 mm (0.0031 in)
Exhaust	0.025 ~ 0.052 mm (0.001 ~ 0.002 in)	0.1 mm (0.0039 in)
Valve stem runout	...	0.04 mm (0.0016 in)
		
Valve seat width		
Intake	0.9 ~ 1.1 mm (0.0354 ~ 0.0433 in)	1.6 mm (0.06 in)
Exhaust	0.9 ~ 1.1 mm (0.0354 ~ 0.0433 in)	1.6 mm (0.06 in)

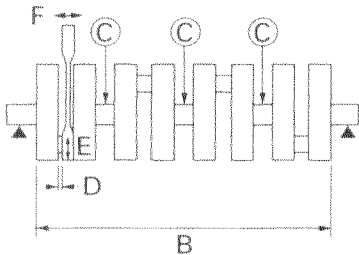


Item	Standard	Limit
Valve springs		
Free length		
Intake (inner)	37.0 mm (1.46 in)	35 mm (1.38 in)
(outer)	38.4 mm (1.51 in)	36.5 mm (1.44 in)
Exhaust	41.7 mm (1.64 in)	39.5 mm (1.56 in)
Installed length (valve closed)		
Intake (inner)	30.0 mm (1.18 in)	...
(outer)	32.5 mm (1.28 in)	...
Exhaust	36.1 mm (1.42 in)	...
Compressed spring force (installed)		
Intake (inner)	69 ~ 79 N (15.51 ~ 17.76 lb, 7.04 ~ 8.06 kg)	...
(outer)	114 ~ 132 N (25.63 ~ 29.67 lb, 11.62 ~ 13.46 kg)	...
Exhaust	160 ~ 184 N (35.97 ~ 41.36 lb, 16.32 ~ 18.76 kg)	...
Spring tilt		
Intake (inner)	...	2.5°/1.6 mm (0.06 in)
(outer)	...	2.5°/1.7 mm (0.07 in)
Exhaust	...	2.5°/1.8 mm (0.07 in)
Winding direction (top view)		
Intake (inner)	Counter clockwise	...
(outer)	Clockwise	...
Exhaust	Clockwise	...
<b>Cylinders</b>		
Cylinder arrangement	Forward-inclined, parallel 4-cylinder	...
Bore × stroke	65.5 × 45.5 mm (2.58 × 1.75 in)	...
Compression ratio	12.4 : 1	...
Bore	65.50 ~ 65.51 mm (2.5787 ~ 2.5791 in)	...
Max. taper	...	0.05 mm (0.002 in)
Max. out-of-round	...	0.05 mm (0.002 in)



Item	Standard	Limit
<b>Pistons</b>		
Piston-to-cylinder clearance	0.025 ~ 0.050 mm (0.001 ~ 0.002 in)	0.07 mm (0.0028 in)
Diameter D	65.460 ~ 65.475 mm (2.5772 ~ 2.5778 in)	...
		
Height H	4 mm (0.16 in)	...
Piston pin bore (in the piston)		
Diameter	16.002 ~ 16.013 mm (0.6300 ~ 0.6304 in)	...
Offset	0.5 mm (0.0197 in)	...
Offset direction	Intake side	...
Piston pins		
Outside diameter	15.991 ~ 16.000 mm (0.6296 ~ 0.6299 in)	...
Piston-pin-to-piston-pin-bore clearance	0.002 ~ 0.022 mm (0.00008 ~ 0.0009 in)	0.072 mm (0.0028 in)
Piston rings		
Top ring		
		
Ring type	Barrel	...
Dimensions (B × T)	0.80 × 2.45 mm (0.03 × 0.10 in)	...
End gap (installed)	0.15 ~ 0.25 mm (0.006 ~ 0.009 in)	0.50 mm (0.02 in)
Ring side clearance		0.115 mm (0.05 in)
2nd ring	0.030 ~ 0.065 mm (0.0012 ~ 0.0026 in)	
		
Ring type	Taper	...
Dimensions (B × T)	0.8 × 2.5 mm (0.03 × 0.10 in)	...
End gap (installed)	0.40 ~ 0.50 mm (0.016 ~ 0.020 in)	0.85 mm (0.033 in)
Ring side clearance		0.115 mm (0.05 in)
Oil ring	0.020 ~ 0.055 mm (0.0008 ~ 0.0022 in)	
		
Dimensions (B × T)	1.5 × 2.3 mm (0.06 × 0.09 in)	...
End gap (installed)	0.10 ~ 0.35 mm (0.004 ~ 0.014 in)	...



Item	Standard	Limit
<b>Connecting rods</b>		
Crankshaft-pin-to-big-end-bearing clearance	0.028 ~ 0.052 mm (0.0011 ~ 0.0020 in)	...
Bearing color code	1 = Blue 2 = Black 3 = Brown 4 = Green	...
<b>Crankshaft</b>		
 <p>Width B Max. runout C</p> <p>Big end side clearance D Crankshaft-journal-to-crankshaft-journal-bearing clearance Bearing color code</p>	<p>268.8 ~ 270.0 mm (10.58 ~ 10.63 in)</p> <p>0.160 ~ 0.262 mm (0.0063 ~ 0.0103 in) 0.034 ~ 0.058 mm (0.0013 ~ 0.0023 in)</p> <p>0 = White 1 = Blue 2 = Black 3 = Brown 4 = Green</p>	<p>...</p> <p>0.03 mm (0.0012 in)</p> <p>...</p> <p>...</p>
<b>Clutch</b>		
Clutch type	Wet, multiple disc	...
Clutch release method	Rack and pinion (pull rod type)	...
Clutch release method operation	Cable operation	...
Operation	Left hand operation	...
Clutch cable free play (at the end of the clutch lever)	10 ~ 15 mm (0.39 ~ 0.59 in)	...
Friction plates		
Thickness	2.9 ~ 3.1 mm (0.11 ~ 0.12 in)	2.8 mm (0.1102 in)
Plate quantity	8	...
Clutch plates		
Thickness	1.9 ~ 2.1 mm (0.07 ~ 0.08 in)	...
Plate quantity	7	...
Max. warpage	...	0.1 mm (0.0039 in)
Clutch plate		
Thickness	2.2 ~ 2.4 mm (0.087 ~ 0.094 in)	
Plate quantity	1	
Max. warpage	...	0.1 mm (0.0039 in)
Clutch springs		
Free length	55 mm (2.17 in)	54 mm (2.13 in)
Spring quantity	6	...



Item	Standard	Limit
<b>Transmission</b>		
Transmission type	Constant mesh, 6-speed	...
Primary reduction system	Spur gear	...
Primary reduction ratio	86/44 (1.9545)	...
Secondary reduction system	Chain drive	...
Secondary reduction ratio	48/16 (3.000)	...
Operation	Left-foot operation	...
Gear ratios		
1st gear	37/13 (2.846)	...
2nd gear	37/19 (1.947)	...
3rd gear	28/18 (1.555)	...
4th gear	32/24 (1.333)	...
5th gear	25/21 (1.190)	...
6th gear	26/24 (1.083)	...
Max. main axle runout	...	0.02 mm (0.0008 in)
Max. drive axle runout	...	0.02 mm (0.0008 in)
<b>Shifting mechanism</b>		
Shift mechanism type	Cam drum	...
Max. shift fork guide bar bending	...	0.05 mm (0.002 in)
installed shift rod length	242 mm (9.52 in)	...
<b>Air filter type</b>		
	Wet element	...
<b>Fuel pump</b>		
Pump type	Electrical	...
Model (manufacturer)	5EB (MITSUBISHI)	...
Output pressure	15 ~ 20 kPa (0.15 ~ 0.2 kg/cm <sup>2</sup> , 2.2 ~ 2.9 psi)	...
<b>Carburetors</b>		
Model (manufacturer) × quantity	CVRD37 (KEIHIN) × 4	...
Throttle cable free play (at the flange of the throttle grip)	6 ~ 8 mm (0.24 ~ 0.31 in)	...
ID mark	5GV101, 5GV210 (California)	...
Main jet	Carburetors 1 and 4: #152, #148 (California)	...
	Carburetors 2 and 3: #148	...
Main air jet	#110	...
Jet needle	Carburetors 1 and 4: N7SB	...
	Carburetors 2 and 3: N7SA	...
Needle jet	2.6	...
Pilot air jet	Carburetors 1 and 4: #105	...
	Carburetors 2 and 3: #110	...
Pilot outlet	0.9	...
Pilot jet	#38, #35 (California)	...
Bypass 1	0.8	...
Bypass 2	0.8	...
Bypass 3	0.8	...
Valve seat size	1.2	...

## ENGINE SPECIFICATIONS

SPEC





Item	Standard	Limit
Starter jet 1	#50	...
Starter jet 2	0.6	...
Butterfly valve size	#110	...
Fuel level (below the line on the float chamber)	17.5 ~ 18.5 mm (0.69 ~ 0.73 in)	...



## CHASSIS SPECIFICATIONS

Item	Standard	Limit
<b>Frame</b>		
Frame type	Diamond	...
Caster angle	24°	...
Trail	81 mm (3.19 in)	...
<b>Front wheel</b>		
Wheel type	Cast wheel	...
Rim		
Size	17 × MT3.50	...
Material	Aluminum	...
Wheel travel	130 mm (5.12 in)	...
Wheel runout		
Max. radial wheel runout	...	1 mm (0.04 in)
Max. lateral wheel runout	...	0.5 mm (0.02 in)
<b>Rear wheel</b>		
Wheel type	Cast wheel	...
Rim		
Size	17 × MT5.50	...
Material	Aluminum	...
Wheel travel	120 mm (4.72 in)	...
Wheel runout		
Max. radial wheel runout	...	1 mm (0.04 in)
Max. lateral wheel runout	...	0.5 mm (0.02 in)
<b>Front tire</b>		
Tire type	Tubeless	...
Size	120/60ZR17 (55W)	...
Model (manufacturer)	BRIDGESTON BT56FE DUNLOP D207F-J	...
Tire pressure (cold)		
0 ~ 90 kg (0 ~ 198 lb)	250 kPa (2.5 kg/cm <sup>2</sup> , 36.3 psi)	...
90 ~ 187 kg (198 ~ 412 lb)	250 kPa (2.5 kg/cm <sup>2</sup> , 36.3 psi)	...
High-speed riding	250 kPa (2.5 kg/cm <sup>2</sup> , 36.3 psi)	...
Min. tire tread depth	...	1.6 mm. (0.06 in)



Item	Standard	Limit
<b>Rear tire</b>		
Tire type	Tubeless	...
Size	180/55 ZR17 (73 W)	...
Model (manufacturer)	BRIDGESTON BT56R-E DUNLOP D207-N	...
Tire pressure (cold)		
0 ~ 90 kg (0 ~ 198 lb)	250 kPa (2.5 kg/cm <sup>2</sup> , 36.3 psi)	...
90 ~ 187 kg (198 ~ 412 lb)	290 kPa (2.9 kg/cm <sup>2</sup> , 42.1 psi)	...
High-speed riding	250 kPa (2.5 kg/cm <sup>2</sup> , 36.3 psi)	...
Min. tire tread depth	...	1.6 mm (0.06 in)
<b>Front brakes</b>		
Brake type	Dual-disc brake	...
Operation	Right-hand operation	...
Recommended fluid	DOT 4	...
Brake discs		
Diameter × thickness	298 × 5 mm (11.73 × 0.20 in)	...
Min. thickness	...	4.5 mm (0.18 in)
Max. deflection	...	0.1 mm (0.0039 in)
Brake pad lining thickness	5.5 mm (0.22 in)	0.5 mm (0.02 in)
		
Master cylinder inside diameter	14 mm (0.55 in)	...
Caliper cylinder inside diameter	30.2 mm (1.19 in) and 27 mm (1.06 in)	...
<b>Rear brake</b>		
Brake type	Single-disc brake	...
Operation	Right-foot operation	...
Brake pedal position (from the top of the brake pedal to the bottom of the rider footrest bracket bolt center.)	4.3 ~ 9.3 mm (0.17 ~ 0.37 in)	...
Recommended fluid	DOT 4	...
Brake discs		
Diameter × thickness	220 × 5 mm (8.66 × 0.20 in)	...
Min. thickness	...	4.5 mm (0.18 in)
Max. deflection	...	0.1 mm (0.0039 in)
Brake pad lining thickness	5 mm (0.2 in)	0.8 mm (0.03 in)
		
Master cylinder inside diameter	12.7 mm (0.5 in)	...
Caliper cylinder inside diameter	27.0 mm (1.06 in) and 22.2 mm (0.87 in)	...



Item	Standard	Limit
<b>Front suspension</b>		
Suspension type	Telescopic fork	...
Front fork type	Coil spring/oil damper	...
Front fork travel	130 mm (5.12 in)	...
Spring		
Free length	251.8 mm (9.91 in)	246 mm (9.69 in)
Spacer length	125 mm (4.92 in)	...
Installed length	247.8 mm (9.76 in)	...
Spring rate (K1)	7.5 N/mm (0.75 kg/mm, 42.83 lb/in)	
Spring stroke (K1)	0 ~ 130 mm (0.00 ~ 5.12 in)	...
Optional spring available	No	...
Fork oil		
Recommended oil	Suspension oil "01" or equivalent	...
Quantity (each front fork leg)	476 cm <sup>3</sup> (16.09356 US oz)	...
Level (from the top of the innertube, with the inner tube fully compressed, and without the fork spring)	107 mm (4.21 in)	...
Damper adjusting rod locknut distance	25 mm (0.98 in)	...
Spring preload adjusting positions		
Minimum	8	...
Standard	7.5	...
Maximum	1	...
Rebound damping adjusting positions		
Minimum*	9	...
Standard*	6	...
Maximum*	1	...
Compression damping adjusting positions		
Minimum*	10	...
Standard*	6	...
Maximum*	1	...
*from the fully turned-in position		



Item	Standard	Limit
<b>Steering</b>		
Steering bearing type	Angular ball bearings	...
<b>Rear suspension</b>		
Suspension type	Swingarm (link suspension)	...
Rear shock absorber assemblytype	Coil spring/gas-oil damper	...
Rear shock absorber assemblytravel	60 mm (2.36 in)	...
Spring		
Free length		
Installed length	169.5 mm (6.67 in)	...
Spring rate (K1)	159 mm (6.26 in)	...
Spring stroke (K1)	95.1 N/mm (9.51 kg/mm, 543.02 lb/in)	...
Optional spring available	0 ~ 60 mm (0.00 ~ 2.36 in)	...
Standard spring preload gas/air pressure	No	...
	1,200 kPa (12 kg/cm <sup>2</sup> , 174 psi)	...
Spring preload adjusting positions		
Minimum	1	...
Standard	4	...
Maximum	9	...
Rebound damping adjusting positions		
Minimum*	25	...
Standard*	9	...
Maximum*	1	...
Compression damping adjusting positions		
Minimum*	13	...
Standard*	7	...
Maximum*	1	...
*from the fully turned-in position		
<b>Swingarm</b>		
Free play (at the end of the swingarm)		
Radial	...	1 mm (0.04 in)
Axial	...	1 mm (0.04 in)
<b>Drive chain</b>		
Model (manufacturer)	532ZLV KAI (DID)	...
Link quantity	116	...
Drive chain slack	40 ~ 50 mm (1.57 ~ 1.97 in)	...
Maximum ten-link section	149 mm (5.87 in)	...



## ELECTRICAL SPECIFICATIONS

Item	Standard	Limit
<b>System voltage</b>	12 V	...
<b>Ignition system</b>		
Ignition system type	C.D.I.	...
Ignition timing	10° BTDC at 1300 r/min	...
	5° BTDC at 1300 r/min (California)	...
Advanced timing	55° BTDC at 5250 r/min	...
Advancer type	Throttle position sensor and electrical	...
Pickup coil resistance/color	248 ~ 372 Ω/Gy-B	...
Transistorized coil ignition unit model (manufacturer)	F8T362 (MITSUBISHI)	...
<b>Ignition coils</b>		
Model (manufacturer)	F6T549 (MITSUBISHI)	...
Minimum ignition spark gap	6 mm (0.24 in)	...
Primary coil resistance	0.204 ~ 0.276 Ω	...
Secondary coil resistance	8.5 ~ 11.5 kΩ	...
<b>Throttle position sensor standard resistance</b>	4 ~ 6 kΩ	...
<b>Charging system</b>		
System type	AC magneto	...
Model (manufacturer)	F4T366 (MITSUBISHI)	...
Nominal output	14 V/320W at 5,000 r/min	...
Stator coil resistance	0.27 ~ 0.33 Ω at 20°C (68°F)	...
<b>Voltage regulator</b>		
Regulator type	Semiconductor, short circuit type	...
Model (manufacturer)	SH650A-12 (SHINDENGEN)	...
No-load regulated voltage	14.1 ~ 14.9 V	...
<b>Rectifier</b>		
Model	SH650A-12	...
Rectifier capacity	18 A	...
Withstand voltage	200 V	...
<b>Battery</b>		
Battery type	GT12B-4	...
Battery voltage/capacity	12 V/10 AH	...
<b>Headlight type</b>	Halogen bulb	
<b>Indicator light type × quantity</b>	LED × 6	
<b>Bulbs (voltage/wattage × quantity)</b>		
Headlight	12 V 60 W/55 W × 2	...
Tail/brake light	12 V 21 W/5 W × 2	...
Turn signal/position light	12 V 27 W/8 W × 2 (front)	...
	12 V 27 W × 2 (rear)	...



Item	Standard	Limit
Meter light	12 V 1.4 W × 2	...
<b>Electric starting system</b>		
System type	Constant mesh	...
Starter motor		
Model (manufacturer)	SM-14 (MITSUBA)	...
Power output	0.6 kW	...
Brushes		
Overall length	10 mm (0.39 in)	3.5 mm (0.14 in)
Spring force	7.16 ~ 9.52 N (730 ~ 970 g, 25.77 ~ 34.27 oz)	...
Commutator resistance	0.012 ~ 0.022 Ω	...
Commutator diameter	28 mm (1.1 in)	27 mm (1.06 in)
Mica undercut	0.7 mm (0.03 in)	...
<b>Starter relay</b>		
Model (manufacturer)	MS5F-631 (JIDECO)	...
Amperage	180 A	...
Coil resistance	4.18 ~ 4.62 Ω	...
<b>Horn</b>		
Horn type	Plain	...
Model (manufacturer) × quantity	YF-12 (NIKKO) × 1	...
Max. amperage	3 A	...
<b>Flasher relay</b>		
Relay type	Full-transistor	...
Model (manufacturer)	FE246BH (DENSO)	...
Self-cancelling device built-in	No	...
Turn signal blinking frequency	75 ~ 95 cycles/min.	...
Wattage	27 W × 2 + 3.4 W	...
<b>Oil level switch model (manufacturer)</b>	5EB (DENSO)	...
<b>Fuel sender</b>		
Model (manufacturer)	1UF (NIPPON SEIKI)	...
Resistance	0.7 ~ 1.1 kΩ GW-B	...
<b>Sidestand relay</b>		
Model	G8R-30Y-K	...
Coil resistance	162 ~ 198 Ω	...
<b>Fuel pump maximum amperage</b>	1 A	...
<b>Fuel pump relay model (manufacturer)</b>	G8R-30Y-K (OMRON)	...
<b>Resistance</b>	162 ~ 198 Ω	
<b>Radiator fan model (manufacturer)</b>	4XV (TOYO RADIATOR)	...
<b>Thermo switch model (manufacturer)</b>	5EB (NIPPON THERMOSTAT)	...
<b>Headlight relay (manufacturer)</b>	ACA12115 (MATSUSHITA)	...
<b>Resistance</b>	72 ~ 88 Ω	

## ELECTRICAL SPECIFICATIONS

SPEC



Item	Standard	Limit
<b>Temperature sender</b>		
Model (manufacturer)	11H (NIPPON SEIKI)	...
Resistance	50.6 ~ 64.2 $\Omega$ at 80°C (176°F) 16.1 ~ 17.3 $\Omega$ at 120°C (248°F)	...
<b>Fuses (amperage × quantity)</b>		
Main fuse	30 A × 1	...
Headlight fuse	20 A × 1	...
Signaling system fuse	20 A × 1	...
Ignition fuse	15 A × 1	...
Radiator fan fuse	7.5 A × 1	...
Backup fuse (odometer)	7.5 A × 1	...



EB201000

EB202001

## 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

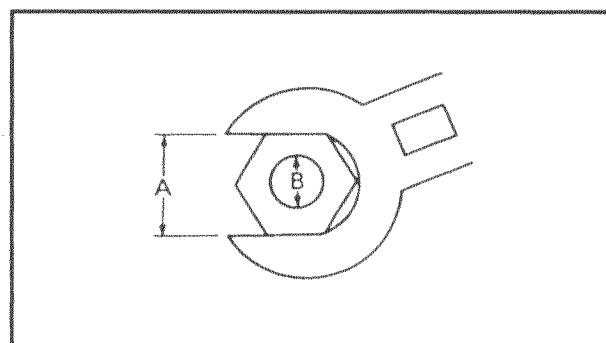
## CONVERSION TABLE

METRIC TO IMPERIAL			
	Metric unit	Multiplier	Imperial unit
Tightening 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)

## TIGHTENING TORQUES

### GENERAL TIGHTENING TORQUES

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: Width across flats

B: 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
18 mm	12 mm	55	5.5	40
19 mm	14 mm	85	8.5	61
22 mm	16 mm	130	13.0	94



## ENGINE TIGHTENING TORQUES

Item	Fastener	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m•kg	ft•lb	
Spark plugs	—	M10	4	13	1.3	9.4	
Cylinder head	Bolt	M10	10	51	5.1	37	
Cylinder head	Bolt	M6	2	10	1.0	7.2	
Camshaft caps	Bolt	M6	20	10	1.0	7.2	
Cylinder head cover	Bolt	M6	6	10	1.0	7.2	
Oil passage check bolt	Bolt	M8	1	20	2.0	14	
Cylinder head (exhaust pipe)	Stud bolt	M8	8	15	1.5	11	
Connecting rod caps	Nut	M7		See NOTE			
Generator rotor	Bolt	M12	1	65	6.5	47	
Pickup rotor	Bolt	M8	1	35	3.5	25	
Cap bolt (timing chain tensioner)	Bolt	M6	1	10	1.0	7.2	
Timing chain tensioner bolt	Bolt	M6	2	12	1.2	8.7	
Camshaft sprocket	Bolt	M7	4	24	2.4	17	
Oil pump	Bolt	M6	3	12	1.2	8.7	
Oil cooler	Bolt	M20	1	63	6.3	46	
Engine oil drain bolt	—	M14	1	43	4.3	31	
Oil pump assembly driven sprocket cover	Bolt	M6	2	10	1.0	7.2	
Oil pipe	Bolt	M6	2	15	1.5	11	
Oil filter bolt	Bolt	M20	1	80	8.0	58	
Oil filter cartridge	—	M20	1	17	1.7	12	
Exhaust pipes	Nut	M8	8	20	2.0	14	
Muffler clamp	Bolt	M8	1	20	2.0	14	
Exhaust pipe emission check bolts	Bolt	M6	4	10	1.0	7.2	
Exhaust pipe bracket	Bolt	M8	1	20	2.0	14	
Crankcase	Bolt	M6	2	14	1.4	10	
Crankcase	Bolt	M6	12	12	1.2	8.7	
Crankcase	Bolt	M8	12	24	2.4	17	
Generator rotor cover	Bolt	M6	9	12	1.2	8.7	
Drive sprocket cover	Bolt	M6	5	10	1.0	7.2	

**NOTE:**

After tightening to 15 Nm (1.5 m•kg, 11 ft•lb), tighten another 90°

# TIGHTENING TORQUES

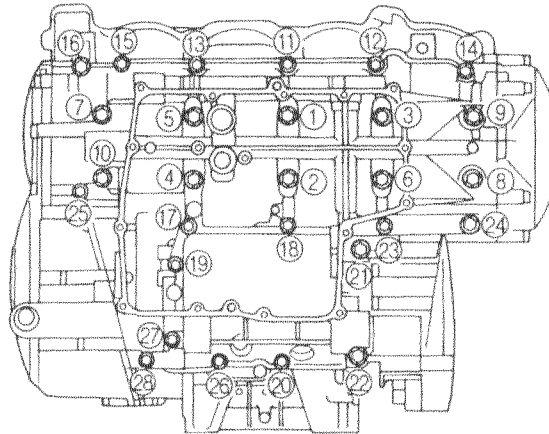
SPEC



Item	Fastener	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m•kg	ft•lb	
Clutch cover	Bolt	M6	10	12	1.2	8.7	 Use a lock washer.
Pickup coil rotor cover	Bolt	M6	5	12	1.2	8.7	
Shift shaft cover	Bolt	M6	6	12	1.2	8.7	
Breather plate 2	—	M6	3	12	1.2	8.7	
Starter clutch	Bolt	M8	3	32	3.2	23	
Clutch boss	Nut	M20	1	70	7.0	51	
Clutch springs	Bolt	M6	6	8	0.8	5.8	 Use a lock washer.
Drive sprocket	Nut	M18	1	70	7.0	51	
Main axle bearing housing	Screw	M6	3	12	1.2	8.7	  
Shift bar stopper	Bolt	M6	2	10	1.0	7.2	
Shift shaft spring stopper	Bolt	M8	1	22	2.2	16	
Shift rod locknut	Nut	M6	1	7	0.7	5.1	
		M8	1	10	1.0	7.2	
Oil level switch	Bolt	M6	2	10	1.0	7.2	
Shift arm	Bolt	M6	1	10	1.0	7.2	
Stator coil	Bolt	M6	3	10	1.0	7.2	
Ignitor unit	Bolt	M6	1	10	1.0	7.2	
Neutral switch	Screw	M6	2	4.0	0.4	2.9	
Pickup coil	Bolt	M5	2	10	1.0	7.2	
Thermo unit	—	PT1/8	1	15	1.5	11	
Thermo switch	—	M18 × 1.5	1	28	2.8	20	



Crankcase tightening sequence:





## CHASSIS TIGHTENING TORQUES

Item	Thread size	Tightening torque			Remarks
		Nm	m•kg	ft•lb	
Upper bracket pinch bolts	M8	26	2.6	19	See NOTE.
Steering stem nut	M28	115	11.5	83	
Handlebar pinch bolts	M8	33	3.3	24	
Lower ring nut	M30	9	0.9	6.5	
Lower bracket pinch bolts	M8	23	2.3	17	
Brake fluid reservoir cap stopper	M4	12	1.2	8.7	
Front brake hose union bolts	M10	30	3.0	22	
Front brake master cylinder	M6	13	1.3	9.4	
Engine mounting					
Front mounting bolts	M12	55	5.5	40	
	M12	55	5.5	40	
Rear mounting bolts	M10	45	4.5	33	
Pinch bolts	M8	24	2.4	17	
	M6	13	1.3	9.4	
Button head bolt	M10	39	3.9	28	
Exhaust pipe bracket	M8	20	2.0	14	
Pivot shaft nut	M18	95	9.5	69	
Connecting arms	M10	40	4.0	29	
Relay arm and connecting arms	M10	40	4.0	29	
Relay arm	M10	40	4.0	29	
Rear shock absorber and relay arm	M10	55	5.5	40	
Fuel cock	M6	7	0.7	5.1	
Fuel sender and fuel tank	M6	7	0.7	5.1	
Coolant reservoir and radiator	M6	5	0.5	3.6	
Rider footrest bracket	M8	28	2.8	20	
Passenger footrest bracket	M8	28	2.8	20	
Rear master cylinder	M8	23	2.3	17	
Rear brake hose union bolts	M10	30	3.0	22	
Sidestand	M10	60	6.0	43	
Front wheel axle	M18	72	7.2	52	
Rear wheel axle nut	M24	150	15.0	108	
Front brake caliper and front fork	M10	40	4.0	29	
Rear brake caliper and bracket	M10	27	2.7	20	
Brake disc and wheel	M6	18	1.8	13	
Rear wheel sprocket and rear wheel drive hub	M10	69	6.9	50	
Brake caliper and bleed screw	M8	6	0.6	4.3	
Pinch bolt (front wheel axle)	M8	23	2.3	17	

## NOTE:

1. First, tighten the ring nut to approximately 17 Nm (1.7 m•kg, 12 ft•lb) with a torque wrench, then loosen the ring nut completely.
2. Retighten the ring nut to specification.



EB202000

# LUBRICATION POINTS AND LUBRICANT TYPES

## ENGINE LUBRICATION POINTS AND LUBRICANT TYPES

Lubrication point	Lubricant
Oil seal lips	
O-rings	
Bearings	
Crankshaft pins	
Piston surfaces	
Piston pins	
Connecting rod bolts and nuts	
Crankshaft journals	
Camshaft lobes	
Camshaft journals	
Valve stems (intake and exhaust)	
Valve stem ends (intake and exhaust)	
Water pump impeller shaft	
Oil pump rotors (inner and outer)	
Oil pump housing	
Oil strainer	
Starter clutch idle gear inner surface	
Starter clutch assembly	
Primary driven gear	
Transmission gears (wheel and pinion)	
Main axle and drive axle	
Shift drum	
Shift forks and shift fork guide bars	
Shift shaft	
Shift shaft boss	
Engine mounting bolts (rear)	
Cylinder head cover mating surface	Yamaha bond No.1215
Crankcase mating surface	Yamaha bond No.1215
Clutch cover (crankcase mating surface)	Yamaha bond No.1215
Generator rotor cover (crankcase mating surface)	Yamaha bond No.1215
Cylinder head cover	Yamaha bond No.1215



EB202010

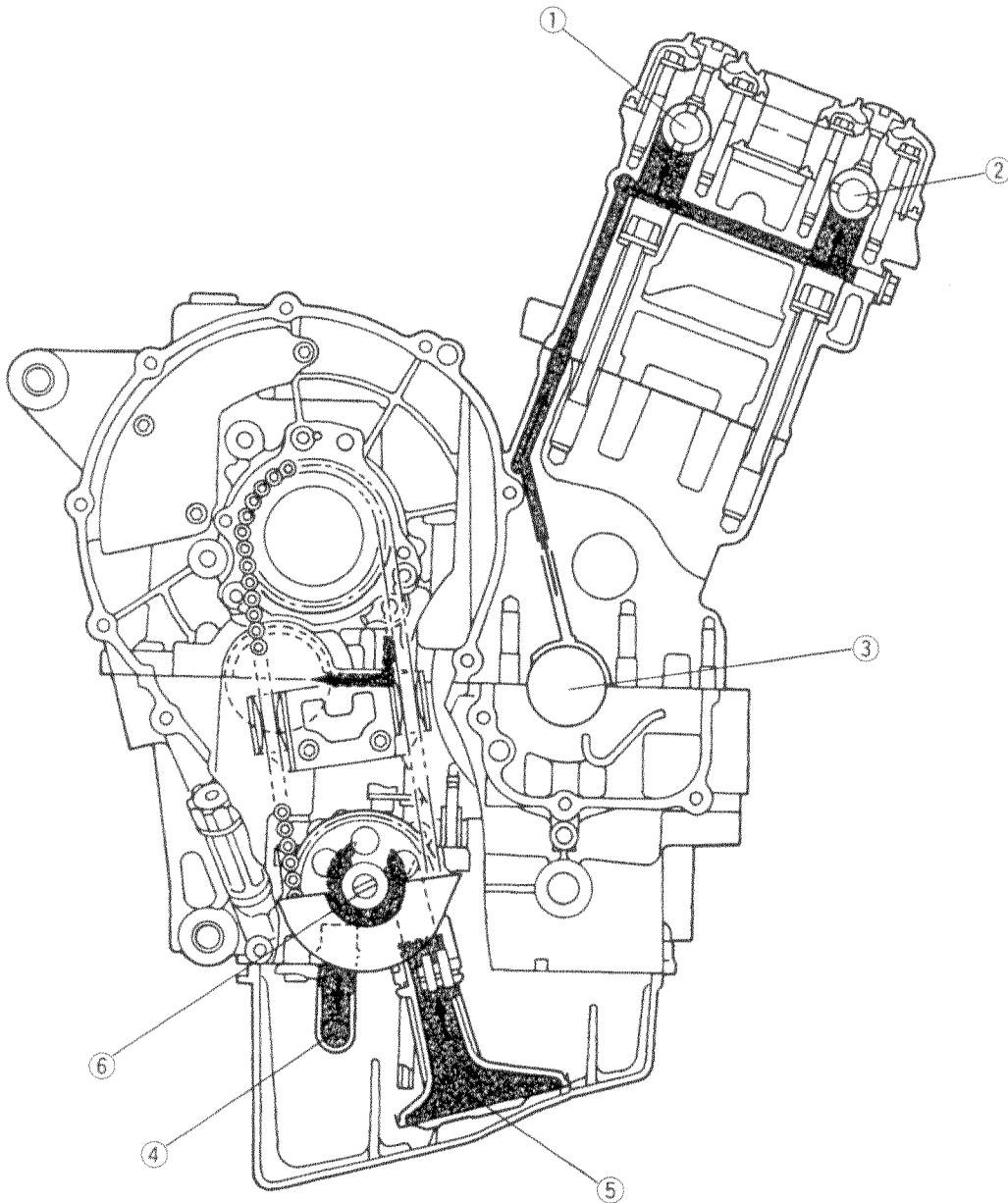
## CHASSIS LUBRICATION POINTS AND LUBRICANT TYPES

Lubrication	Lubricant
Steering bearings and bearing races (upper and lower)	
Front wheel oil seal (right and left)	
Rear wheel oil seal	
Rear wheel drive hub oil seal	
Rear wheel drive hub mating surface	
Rear brake pedal	
Sidestand pivoting point and metal-to-metal moving parts	
Throttle grip inner surface	
Brake lever pivoting point and metal-to-metal moving parts	
Clutch lever pivoting point and metal-to-metal moving parts	
Rear shock absorber assembly oil seal	
Rear shock absorber assembly bearing	
Rear shock absorber assembly spacer	
Pivot shaft	
Connecting arm bearing (left and right)	
Spacer (relay arm and connecting arm)	
Oil seal (relay arm and connecting arm)	



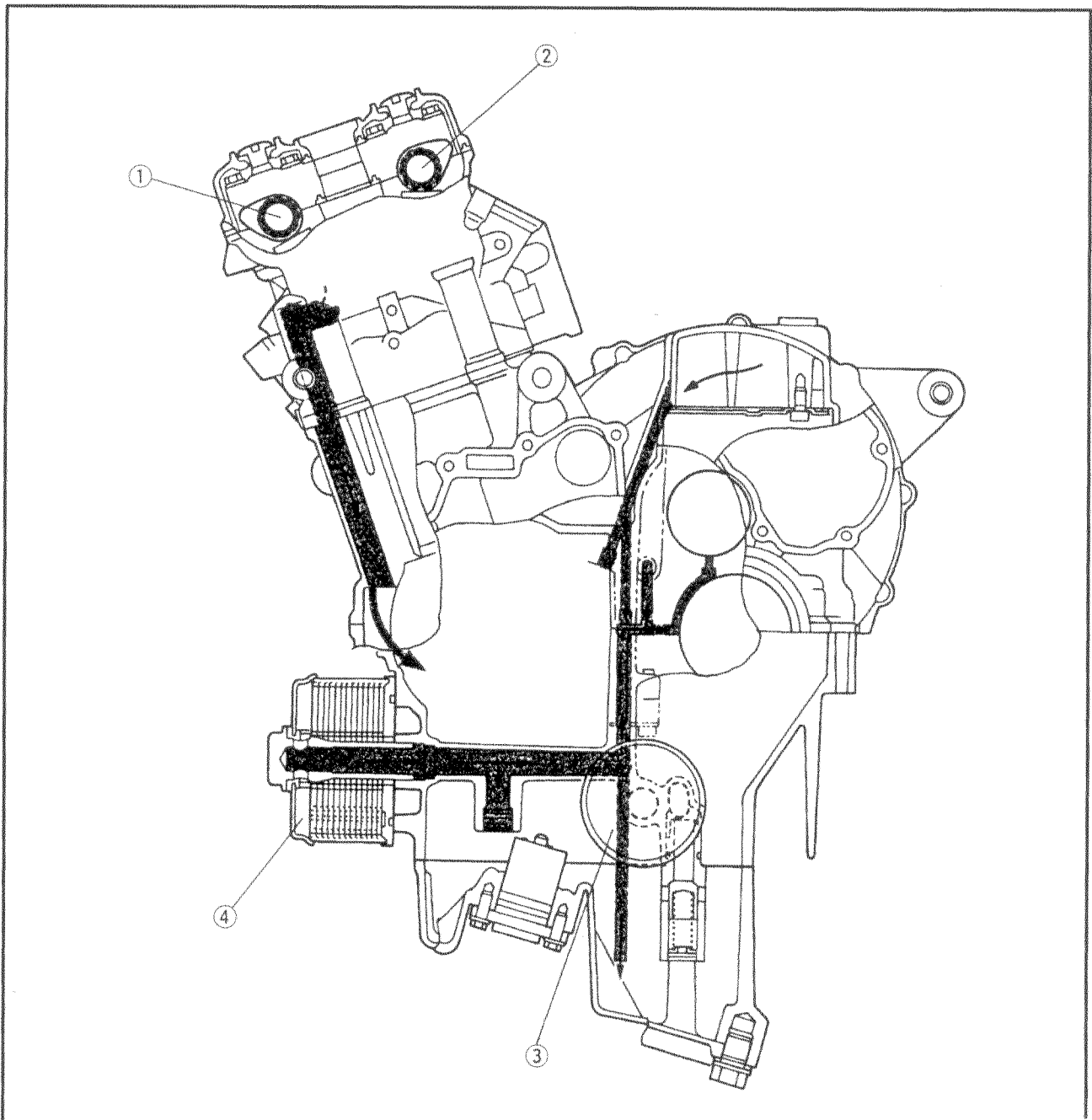
## OIL FLOW DIAGRAMS

- ① Intake camshaft
- ② Exhaust camshaft
- ③ Crankshaft
- ④ Oil pipe
- ⑤ Oil strainer
- ⑥ Oil pump



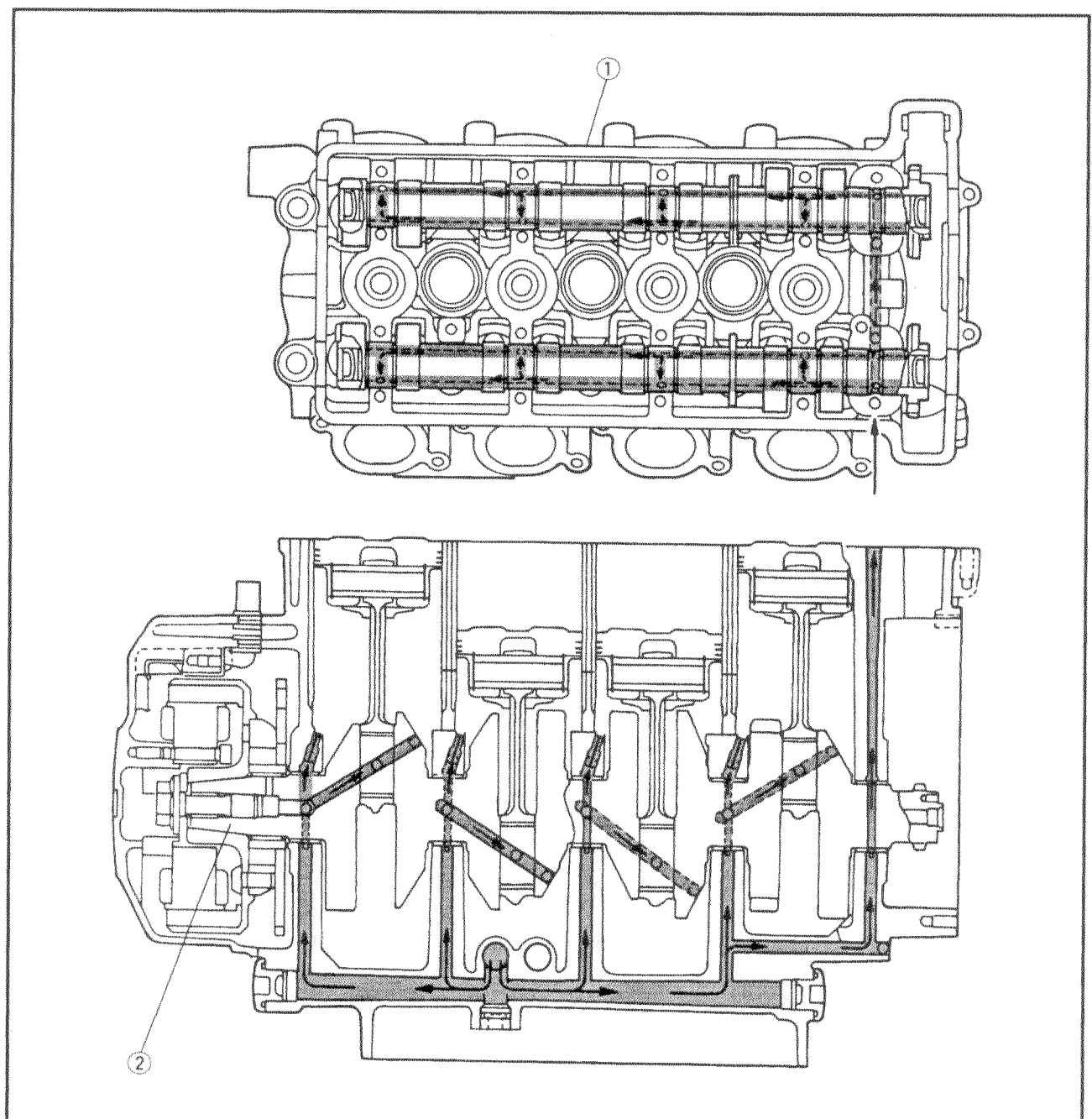


- ① Exhaust camshaft
- ② Intake camshaft
- ③ Oil filter
- ④ Oil cooler



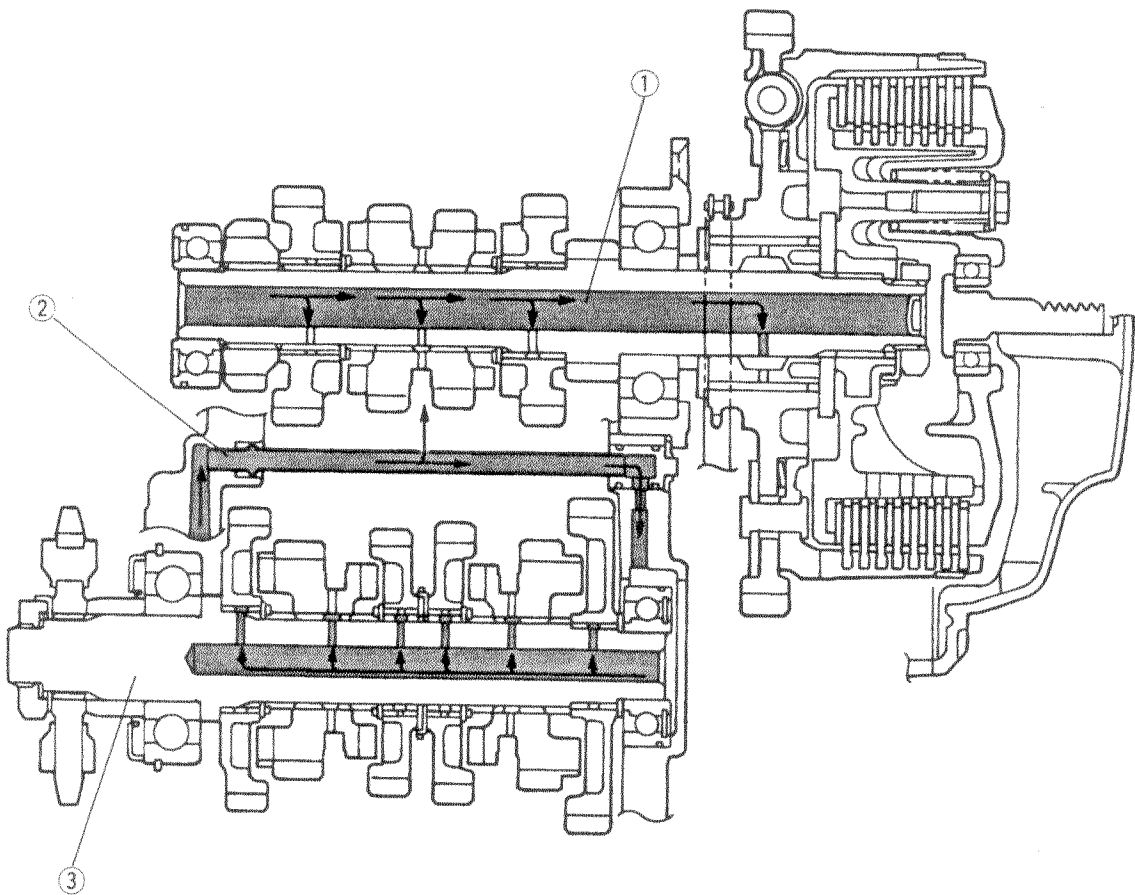


- ① Cylinder head
- ② Crankshaft



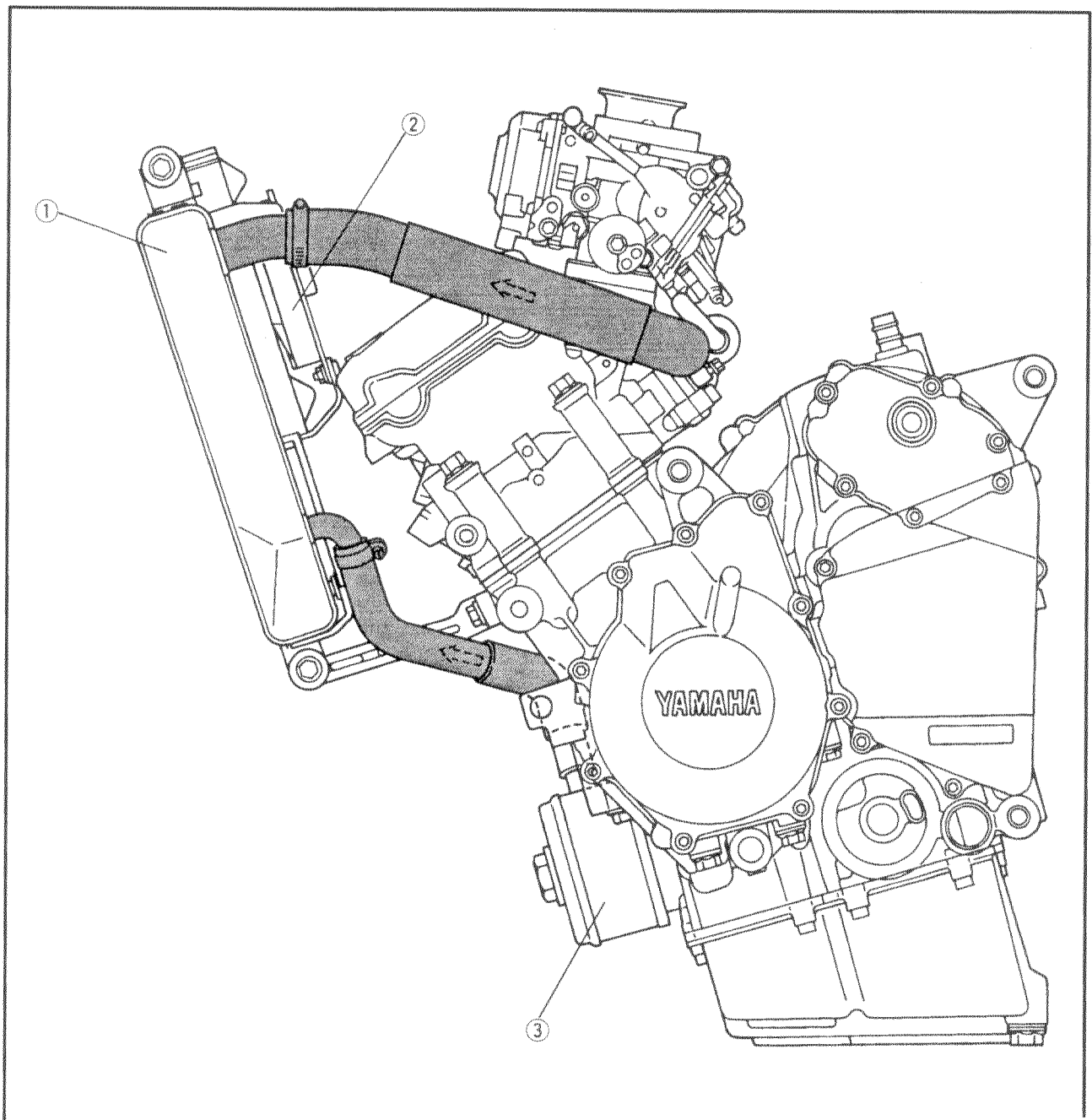


- ① Main axle
- ② Oil delivery pipe
- ③ driveaxle



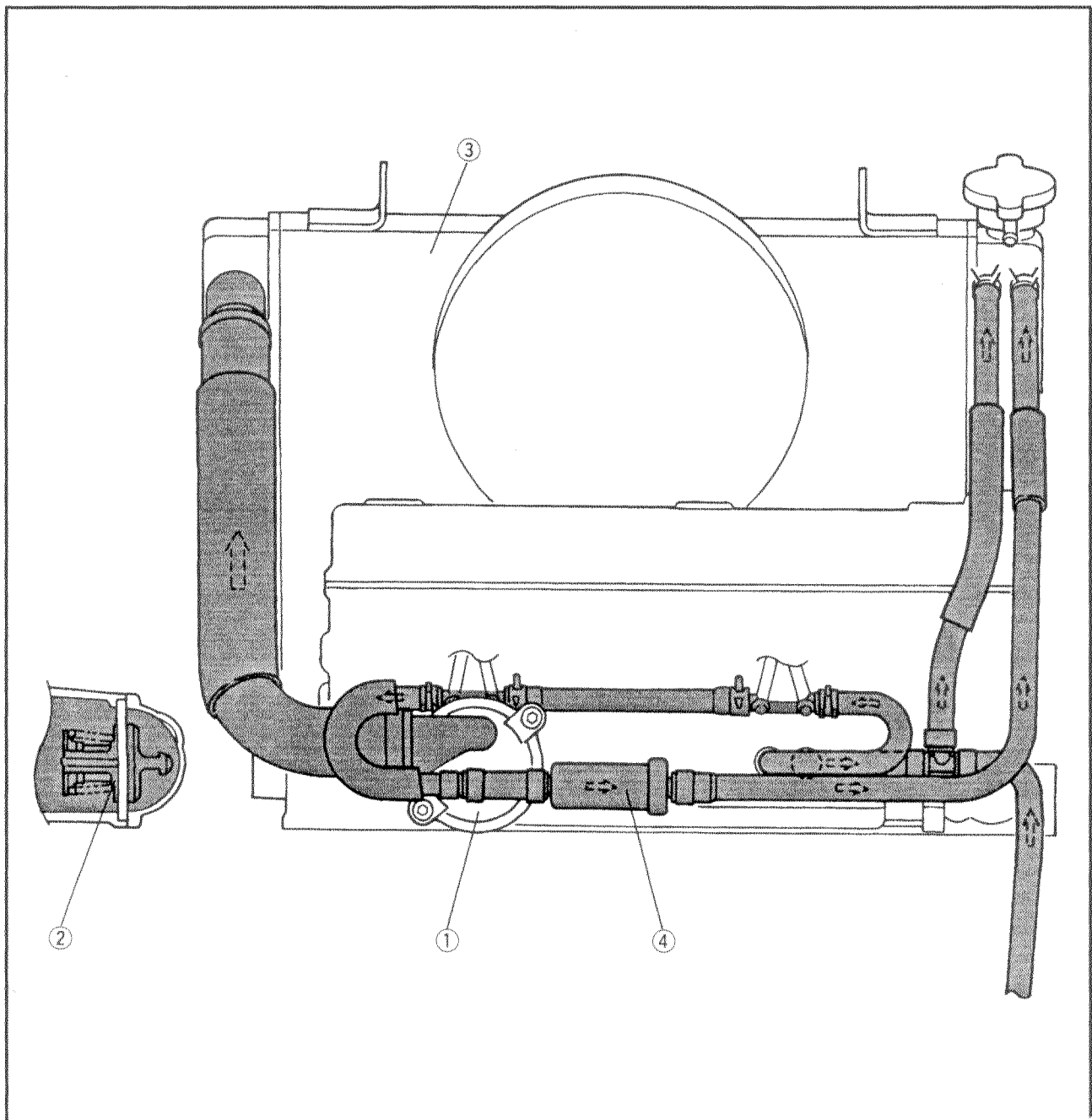
**COOLANT FLOW DIAGRAMS**

- ① Radiator
- ② Radiator fan
- ③ Oil cooler



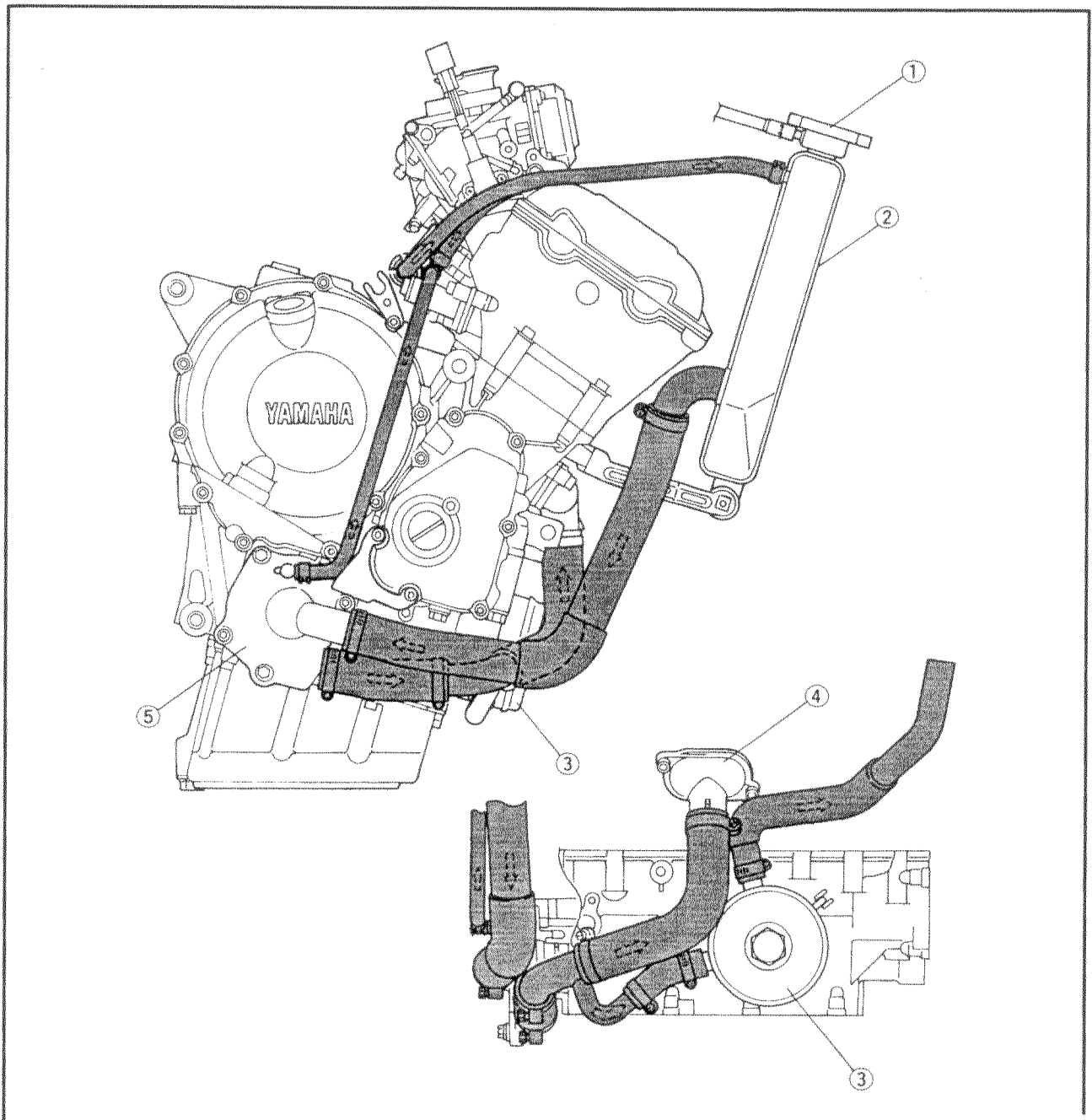


- ① Thermostat housing
- ② Thermostat
- ③ Radiator
- ④ Therm



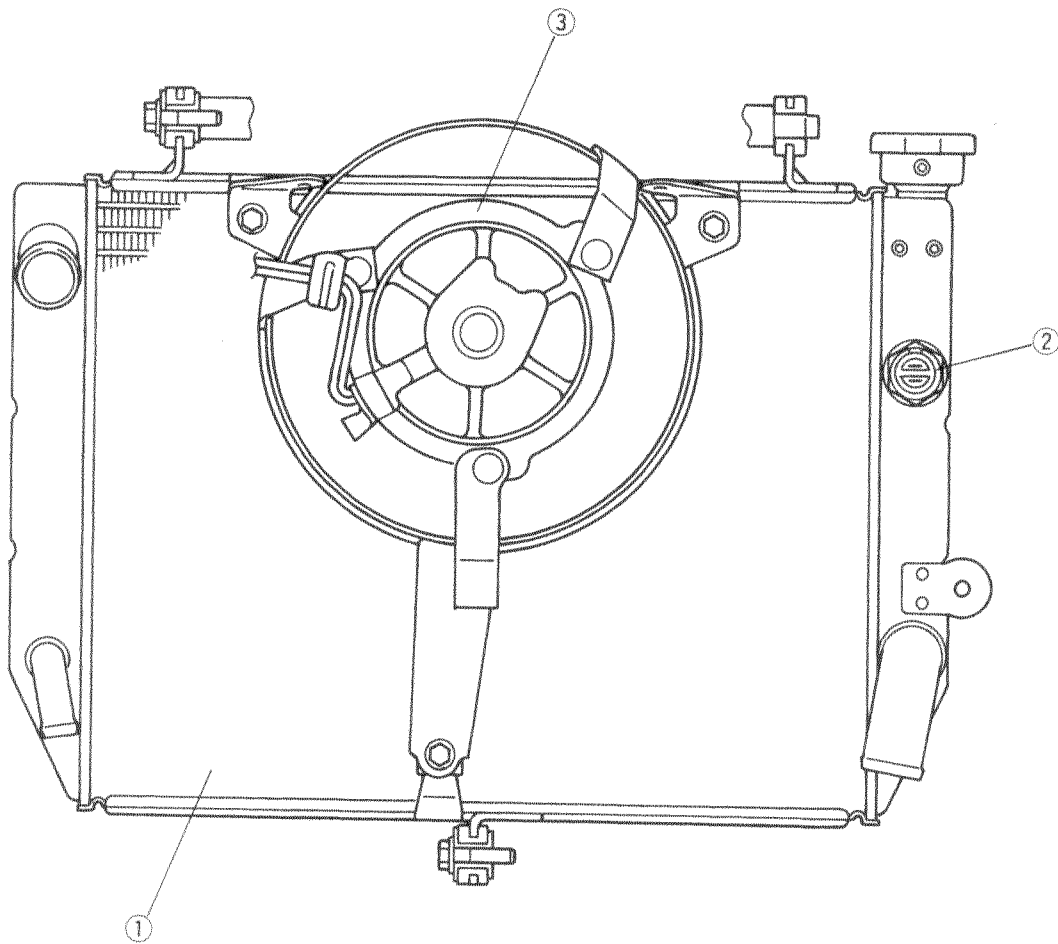


- ① Radiator cap
- ② Radiator
- ③ Oil cooler
- ④ Water jacket joint
- ⑤ Water pump





- ① Radiator
- ② Radiator fan switch
- ③ Radiator fan



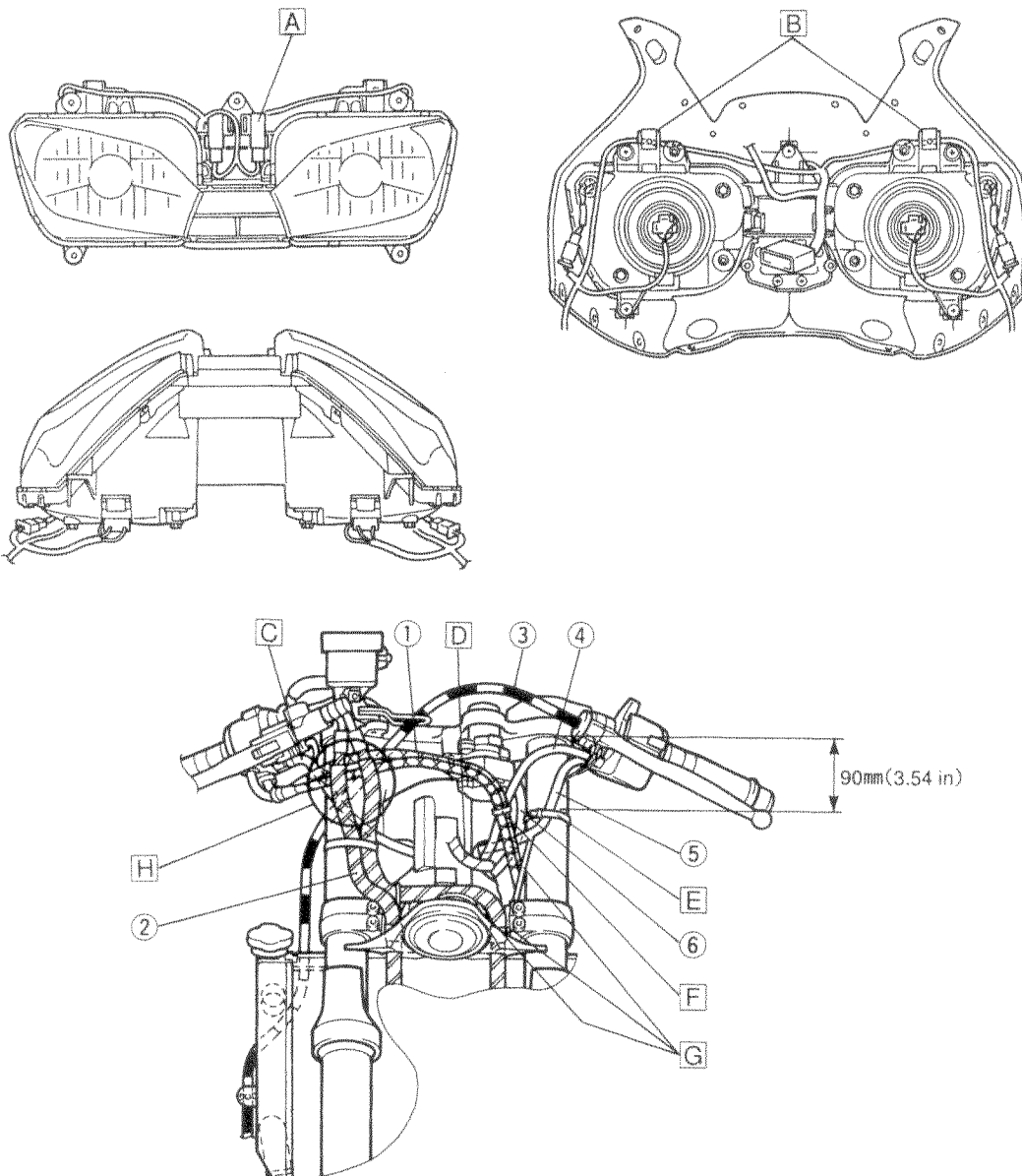


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## CABLE ROUTING

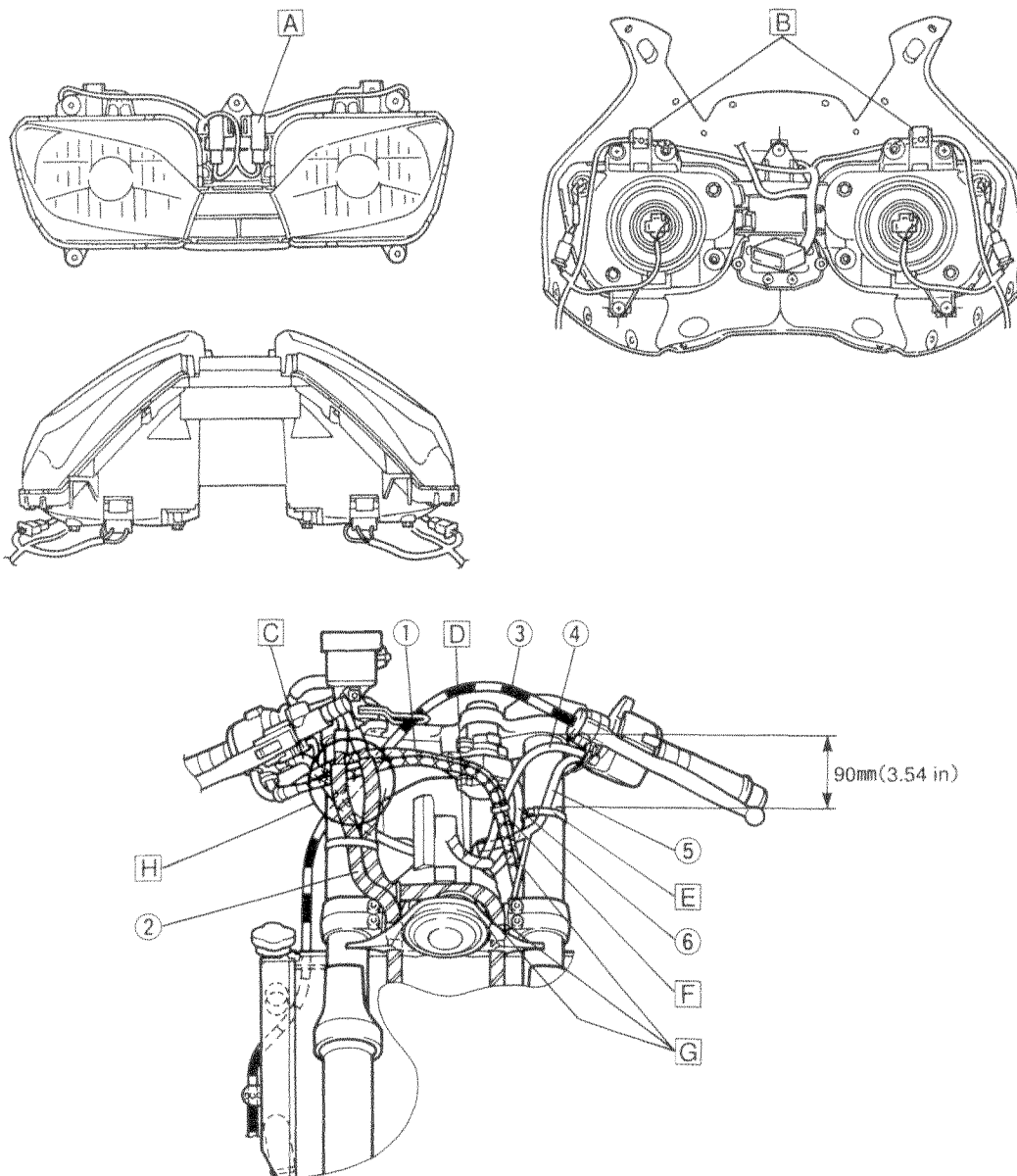
- ① Throttle cables
- ② Front brake hose
- ③ Clutch cable
- ④ Starter cable
- ⑤ Left handlebar switch lead
- ⑥ Main switch lead

- A Install the headlight relays onto the headlight housing bridge.
- B Route the headlight lead through the plastic guide.
- C Route the right handlebar switch lead in front of the front fork inner tube.
- D Route the wire harness through under the left handlebar switch lead and starter cable.
- E Fasten the left handlebar switch lead to the front fork with a plastic locking tie and cut the end of locking tie.
- F Fasten the throttle cables and starter cable with a band. Locate the end of band to forward.





- G** Route the horn lead outside the throttle cables and fasten it to the under bracket with a plastic locking tie. Cut the end of locking tie. And then, route the horn lead under the brake hose and clamp it to the under cover.
- H** Route the throttle cables between the brake hose and right handlebar switch lead.

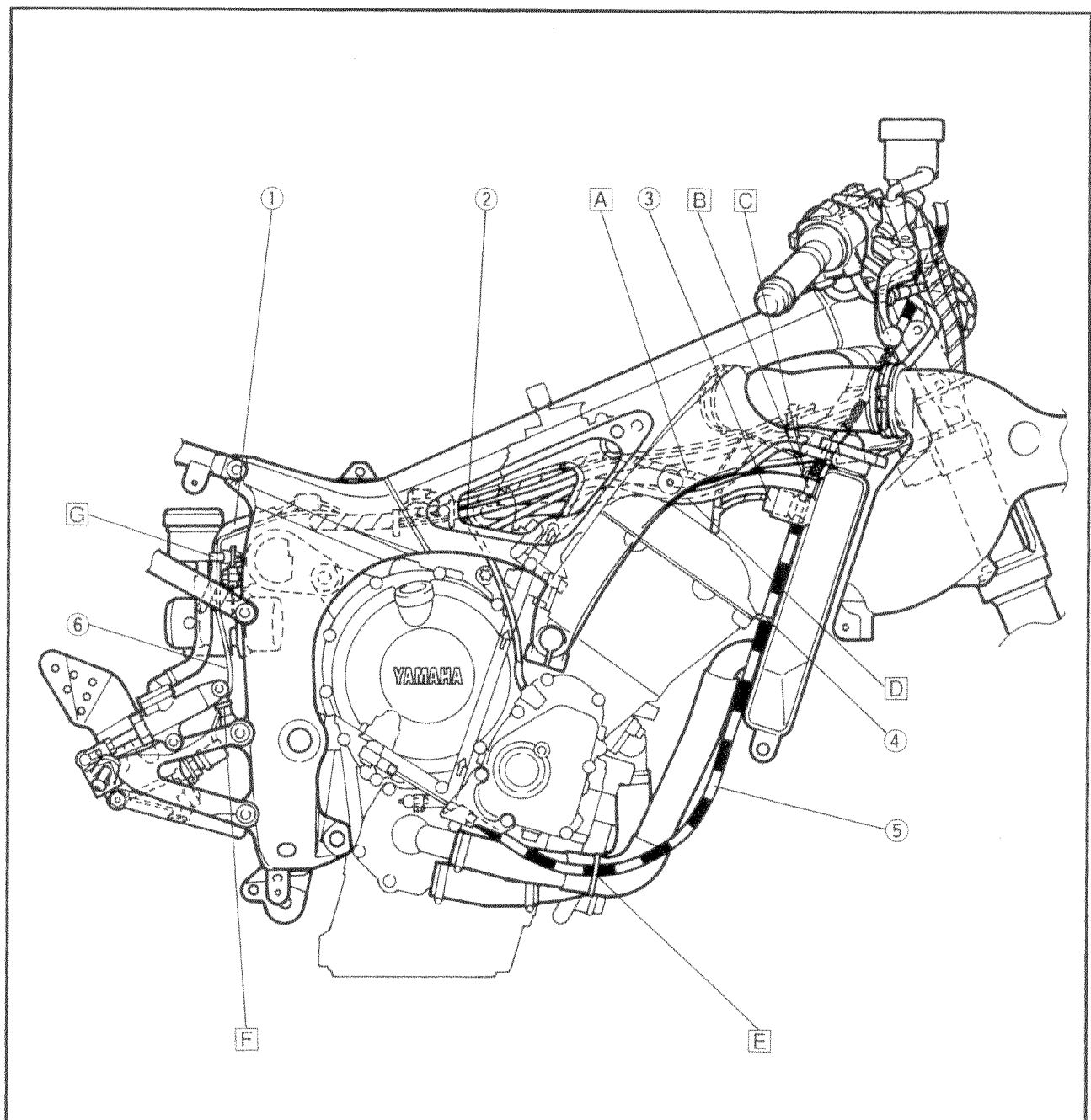




- ① Fuel pump lead
- ② Pickup coil lead
- ③ Thermo switch
- ④ Plastic clamp
- ⑤ Clutch cable
- ⑥ Rear brake switch lead

- Ⓔ Fasten the clutch cable to the coolant hose protector with a plastic band.
- Ⓕ Fasten the rear brake switch lead to the footrest bracket with a plastic locking tie and cut the end of locking tie.
- Ⓖ Fasten the fuel pump lead and rear brake switch lead with a plastic band on the fuel pump bracket.

- Ⓐ Route the ignition coil lead and thermo switch lead over the heat protector plate.
- Ⓑ Position the face of steel clip up ward.
- Ⓒ Route the clutch cable through the guide on the frame.
- Ⓓ Route the coolant hose under the heat protector plate.





- ① Oil lever switch lead
- ② Sidestand switch lead
- ③ Reservoir tank breather hose
- ④ AC magneto lead
- ⑤ Neutral switch lead
- ⑥ Fuel pump lead
- ⑦ Speed sensor lead

**A** Route the throttle cable through inside of the radiator bracket and outside of the wireharness.

**B** Fasten the wireharness, radiator hose and fan motor lead with a plastic band.

**C** Do not touch the wireharness with the throttle cable pulley.

Route the wireharness under the radiator hose.

**D** Pass the fuel tank drain hose and the fuel tank breather hose between the reservoir tank breather hose and the coolant breather hose, and kept outside the leads.

**E** Route the wireharness through the slit of rear fender.

**F** Pass the fuel tank drain hose and the fuel tank breather hose inside the curved under cowling.

**G** Put the fuel tank drain hose and fuel tank breather hose into the reservoir tank by passing through the tank holder.

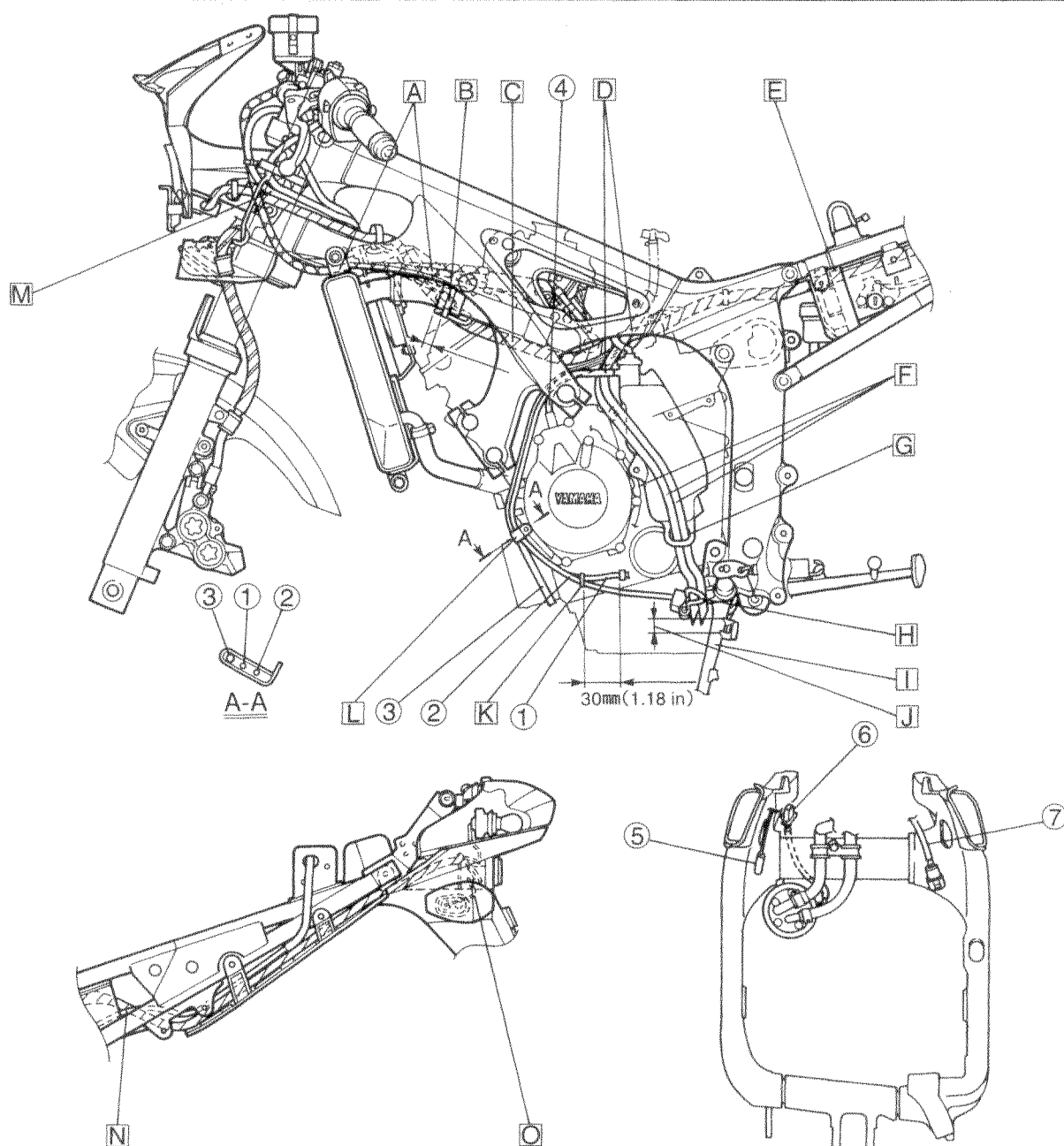
No fixed order required.

Do not twist the hoses.

**H** Put the fuel tank drain hose and the fuel tank breather hose through the hook and the side stand's holder.

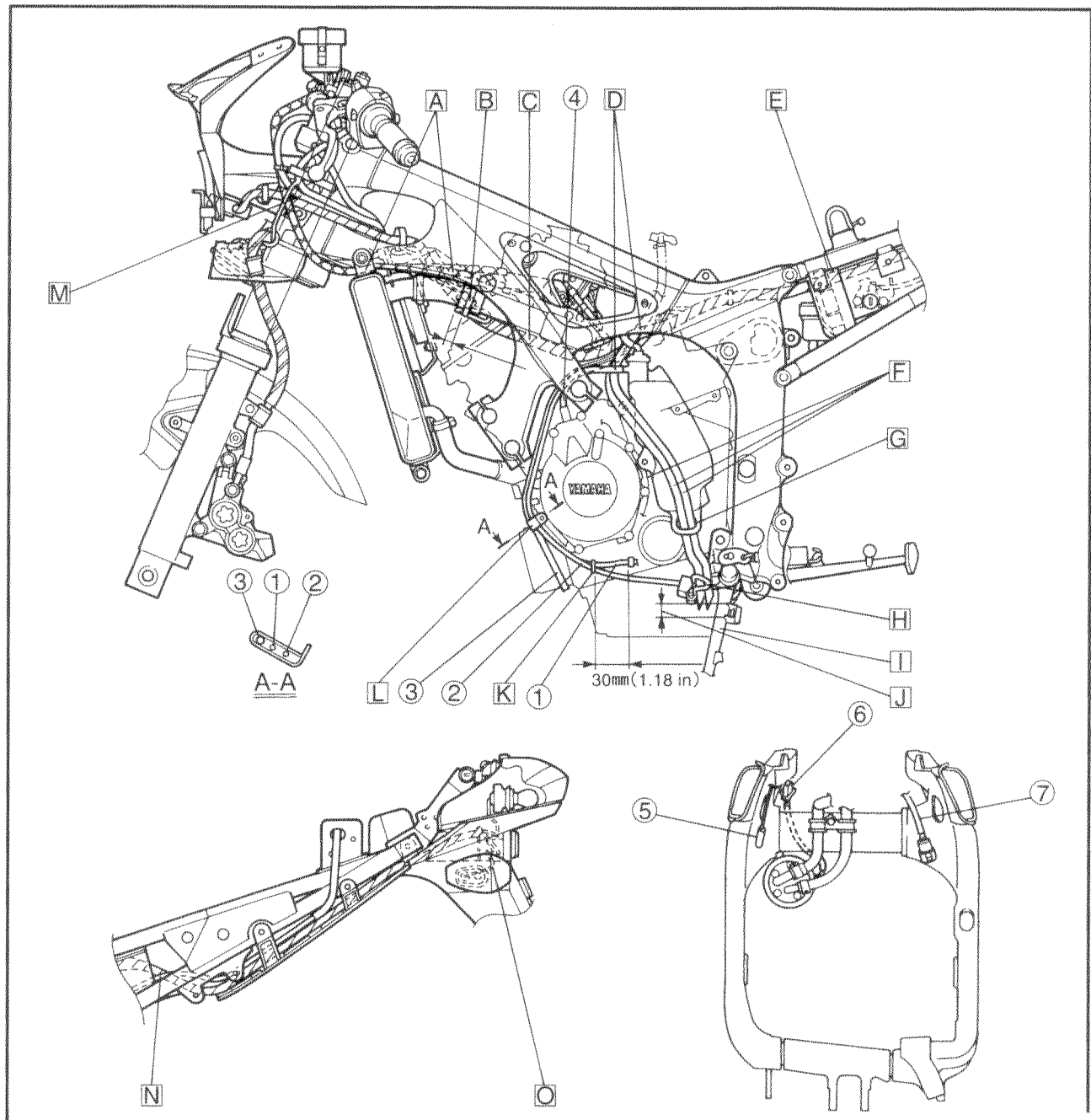
No fixed order required.

Do not twist the hoses.





- ☐ I When the sidestand is down.
- ☐ J The end of the drain hose must be located in between.
- ☐ K Fasten the sidestand switch lead and oil level sensor lead with a band.
- ☐ L Route the fuel tank drain hose, fuel tank breather hose, reservoir tank breather hose, oil level switch lead and sidestand switch lead through the guide on the frame.
- ☐ M Route the starter cable between the main switch lead and left handlebar switch lead.
- ☐ N Route the seat lock cable outside of the wireharness.
- ☐ O Route the rear turn signal light leads (left and right) through the hole of rear fender.



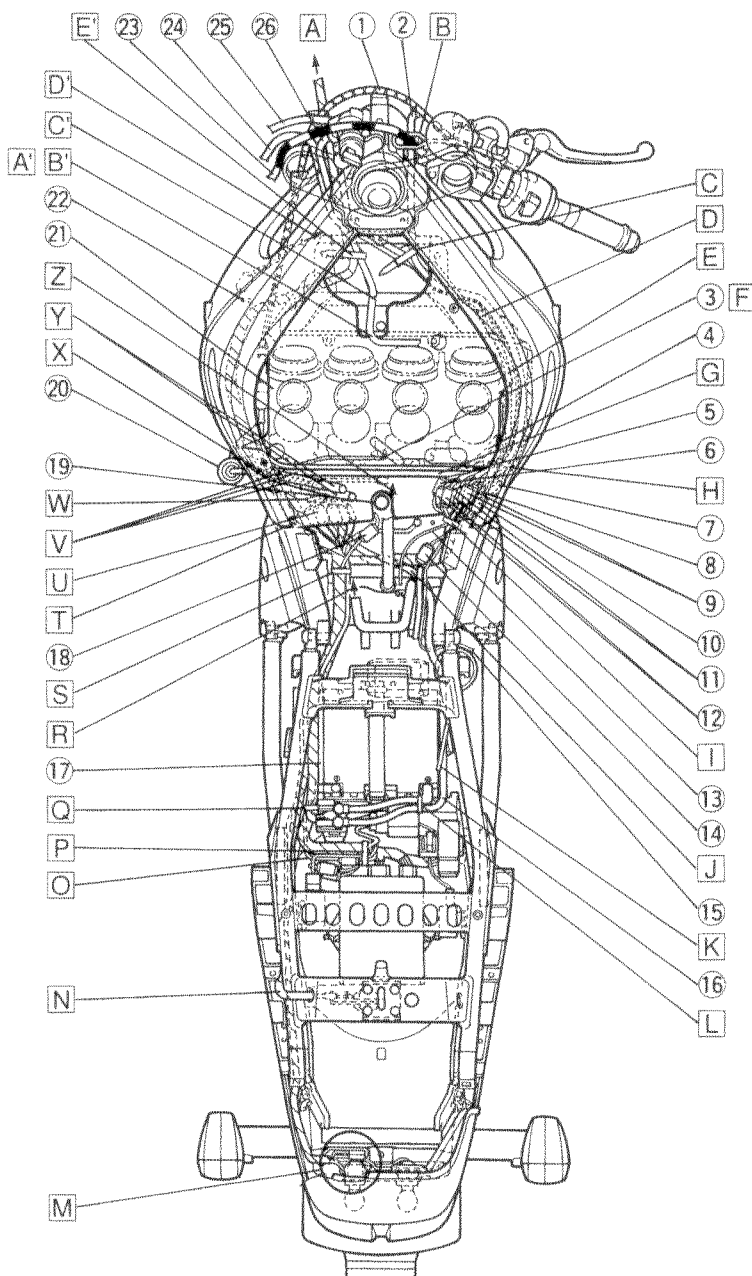


- ① Throttle cable
- ② Handlebar switch lead (right)
- ③ Coolant temperature sensor lead
- ④ Coolant reservoir breather hose
- ⑤ Idle adjust screw
- ⑥ Pickup coil connector
- ⑦ Neutral switch connector
- ⑧ Rear brake switch connector
- ⑨ Handlebar switch (right) connectors
- ⑩ Throttle position sensor connector
- ⑪ Main switch connectors
- ⑫ Handlebar switch (left) connectors
- ⑬ Neutral switch lead
- ⑭ Fuel pump connector
- ⑮ Rear brake switch lead

- ⑯ Starter motor lead
- ⑰ Battery negative (–) cable
- ⑱ Fuel sender connector
- ⑲ Crankcase breather hose
- ⑳ Coolant reservoir tank cap
- ㉑ Heat protector
- ㉒ Fan motor lead connector
- ㉓ Clutch cable
- ㉔ Handlebar switch lead (left)
- ㉕ Starter cable
- ㉖ Main switch lead

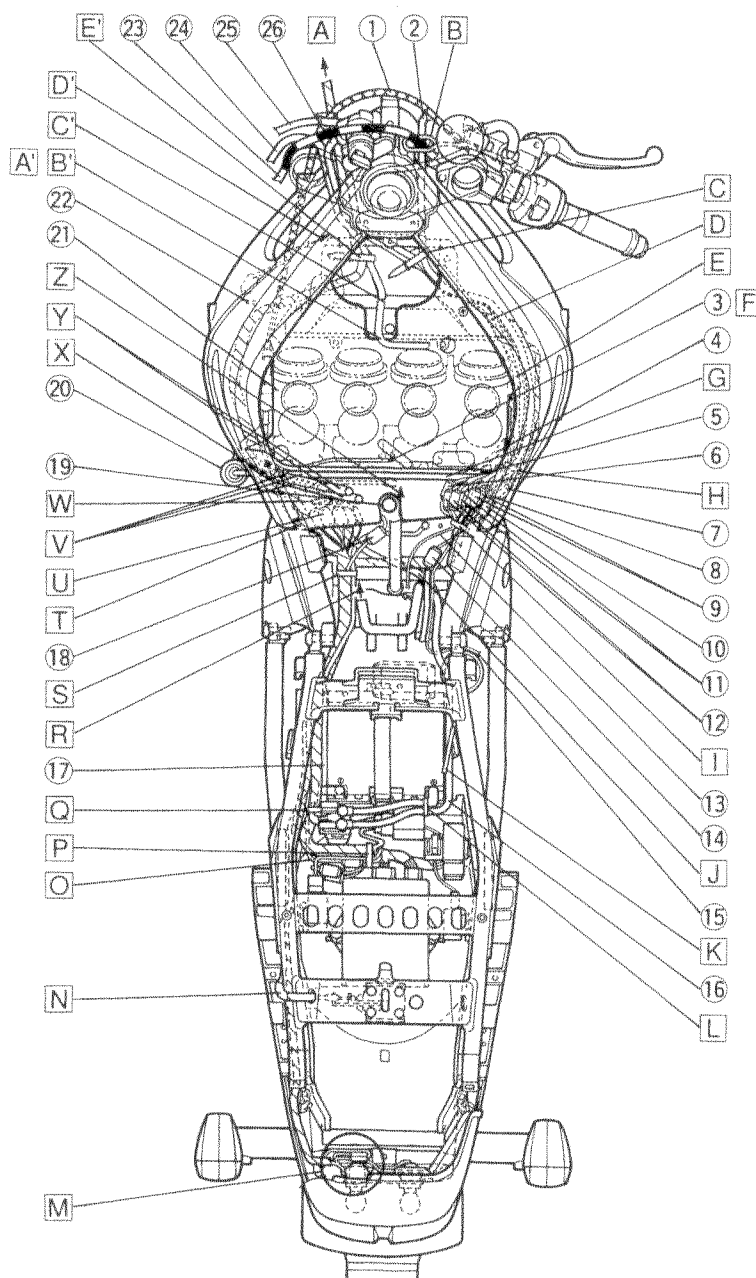
A To headlight lead

B Route the clutch cable through the guide.





- C** Fasten the handlebar switch leads (left and right) and main switch lead with a band.
- D** Route the ignition coil lead and handlebar switch leads (left and right) over the heat protection plate.
- E** Route the reservoir tank hose, carburetor heater hoses under the heat protector plate.
- F** Route the coolant temperature lead upper the heat protection plate.
- G** Route the coolant breather hose upper the heat protection plate.
- H** Fasten the neutral switch lead, right handlebar switch lead, main switch lead, TPS lead, left handlebar switch lead, pickup coil lead and main harness with a band.
- I** Insert the projection of the band to the hole of the frame and fasten the wireharness, neutral switch lead, handlebar switch leads (left and right), main switch lead, throttle position sensor lead, rear brake switch lead and pickup coil lead with them.
- J** Route the starter motor lead under the wireharness.
- K** Fasten the starter motor to the rear fender with a band.
- L** Fasten the battery positive (+) cable and starter motor cable with a plastic band.
- M** Position the rear turn signal light connectors (left and right) and taillight connector between the rear fender and taillight bracket.
- N** Install the seat lock cable to the frame bracket with protector side.





- ☐ O Fasten the battery negative lead after passing under the main harness and oil level sensor lead.
- ☐ P Fasten the main harness, oil level sensor lead and ground lead with a band.
- ☐ Q Fasten the starter relay lead and battery negative (-) lead to the wireharness with a plastic band.
- ☐ R To fuel filter
- ☐ S Fasten the battery negative (-) lead and wireharness with a plastic band.
- ☐ T Insert the projection of the band (wireharness) into the hole of the frame.
- ☐ U 1: Speed sensor connector  
2: AC magneto connector  
3: Sidestand switch connector  
4: Oil level switch connector  
5: Meter ground lead
- ☐ V The fuel tank drain hose, coolant temperature lead and the coolant breather hose must be located over the groove.
- ☐ W Fasten the leads (above 1 – 5) and starter motor lead with a steel band on the engine.
- ☐ X Route the coolant breather hose upper the main harness.
- ☐ Y Route the fuel tank breather hose and fuel tank drain hose over the wireharness.
- ☐ Z To carburetor
- ☐ A' The starter cable must not be out off the guide groove of the cover.
- ☐ B' Route the starter cable upper the heat protection plate.
- ☐ C' Insert the starter cable to the guide.
- ☐ D' To fan motor
- ☐ E' Route the starter cable and main harness through the guide of the heat protection plate.

