

SERVICING INFORMATION

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TROUBLESHOOTING ENGINE

Complaint	Symptom and possible causes	Remedy
Engine will not start or is hard to start.	Compression too low 1. Worn cylinder. 2. Worn piston ring. 3. Worn valve guide or improper valve seating. 4. Loose spark plug. 5. Broken, cracked or damaged piston. 6. Slow cranking starter motor. 7. Mistimed valves. 8. Tappet clearance out of adjustment.	Replace. Replace. Repair or replace. Tighten. Replace. See electrical section. Adjust. Adjust.
	Spark plug not sparking 1. Damaged spark plug. 2. Damaged spark plug cap. 3. Fouled spark plug. 4. Wet spark plug. 5. Defective ignition coil. 6. Open or short in high-tension cord. 7. Defective generator. 8. Defective CDI unit.	Replace. Replace. Clean or replace. Clean and dry or replace. Replace. Replace. Replace. Replace.
	No fuel reaching the carburetor 1. Clogged fuel tank vent hose. 2. Clogged or defective fuel valve. 3. Defective carburetor needle valve. 4. Clogged fuel hose. 5. Clogged fuel filter.	Clean or replace. Clean or replace. Replace. Clean or replace. Clean or replace.
Engine stalls easily.	1. Fouled spark plug. 2. Defective generator. 3. Defective CDI unit. 4. Clogged or defective fuel valve. 5. Clogged carburetor jet. 6. Tappet clearance out of adjustment.	Clean or replace. Replace. Replace. Clean or replace. Clean. Adjust.

Complaint	Symptom and possible causes	Remedy
Engine is noisy.	Excessive valve chatter 1. Excessive tappet clearance. 2. Weak or broken valve spring. 3. Worn camshaft. 4. Worn or burnt camshaft journal.	Adjust. Replace. Replace. Replace.
	Noise seems to come from the piston 1. Worn piston. 2. Worn cylinder. 3. Carbon buildup in combustion chamber. 4. Worn piston pin or piston pin bore. 5. Worn piston ring or ring groove.	Replace. Replace. Clean. Replace. Replace.
	Noise seems to come from the cam chain 1. Stretched cam chain. 2. Worn cam chain sprocket. 3. Improperly working cam chain tensioner.	Replace cam chain and sprockets. Replace cam chain and sprockets. Repair or replace.
	Noise seems to come from the clutch 1. Worn countershaft spline. 2. Worn clutch hub spline. 3. Worn clutch plate teeth. 4. Distorted clutch plate. 5. Weak clutch damper. 6. Weak clutch spring.	Replace countershaft. Replace clutch hub. Replace clutch plate. Replace. Replace primary driven gear. Replace.
	Noise seems to come from the crankshaft 1. Rattling bearing. 2. Worn or burnt crank pin bearing. 3. Worn or burnt journal bearing. 4. Excessive thrust clearance.	Replace. Replace. Replace. Replace thrust bearing.
	Noise seems to come from the transmission 1. Worn or rubbing gear. 2. Worn countershaft spline. 3. Worn driveshaft spline. 4. Worn or rubbing primary gear. 5. Worn bearing.	Replace. Replace countershaft. Replace driveshaft. Replace. Replace.
Clutch slips.	1. Clutch cable out of adjustment. 2. Weak or broken clutch spring. 3. Worn or distorted clutch pressure plate. 4. Distorted clutch plate.	Adjust. Replace. Replace. Replace.
Clutch drags.	1. Clutch cable out of adjustment. 2. Some clutch springs are weak, while others are not. 3. Worn or distorted clutch pressure plate. 4. Distorted clutch plate.	Adjust. Replace. Replace. Replace.
Transmission will not shift.	1. Broken gearshift cam. 2. Distorted gearshift fork. 3. Worn gearshift pawl. 4. Clutch cable out of adjustment.	Replace. Replace. Replace. Adjust.
Transmission will not shift back.	1. Broken gearshift shaft return spring. 2. Rubbing or stuck gearshift shaft. 3. Worn or distorted gearshift fork. 4. Clutch cable out of adjustment.	Replace. Repair or replace. Replace. Adjust.

Complaint	Symptom and possible causes	Remedy
Transmission jumps out of gear.	1. Worn gear. 2. Worn or distorted gearshift fork. 3. Weakened gearshift stopper spring. 4. Worn gearshift pawl.	Replace. Replace. Replace. Replace.
Engine idles poorly.	1. Tappet clearance out of adjustment. 2. Improper valve seating. 3. Worn valve guide. 4. Worn camshaft. 5. Excessive spark plug gap. 6. Defective ignition coil. 7. Defective generator. 8. Defective CDI unit. 9. Incorrect float chamber fuel level. 10. Clogged carburetor jet.	Adjust. Repair or replace. Replace. Replace. Adjust or replace. Replace. Replace. Replace. Adjust float height. Clean.
Engine runs poorly in high-speed range.	1. Weak valve spring. 2. Worn camshaft. 3. Insufficient spark plug gap. 4. Mistimed valves. 5. Ignition not advanced sufficiently due to poorly working timing advance circuit. 6. Defective ignition coil. 7. Defective generator. 8. Defective CDI unit. 9. Low float chamber fuel level. 10. Dirty air cleaner element. 11. Clogged fuel hose, resulting in inadequate fuel supply to carburetor.	Replace. Replace. Regap or replace. Adjust. Replace CDI unit. Replace. Replace. Replace. Adjust float height. Clean or replace. Clean and prime.
Exhaust smoke is dirty or thick.	1. Excessive amount of engine oil. 2. Worn cylinder. 3. Worn piston ring. 4. Worn valve guide. 5. Scored or scuffed cylinder wall. 6. Worn valve stem. 7. Defective valve stem oil seal. 8. Worn oil ring side rail.	Check level and drain. Rebore or replace. Replace. Replace. Replace. Replace valve. Replace. Replace oil ring.
Engine lacks power.	1. Insufficient tappet clearance. 2. Weak valve spring. 3. Mistimed valves. 4. Worn cylinder. 5. Worn piston ring. 6. Improper valve seating. 7. Fouled spark plug. 8. Incorrect spark plug. 9. Clogged carburetor jet. 10. Incorrect float chamber fuel level. 11. Dirty air cleaner element. 12. Air leakage from intake pipe. 13. Excessive amount of engine oil.	Adjust. Replace. Adjust. Replace. Replace. Repair or replace. Clean or replace. Replace. Clean. Adjust float height. Clean or replace. Tighten or replace. Check level and drain.

Complaint	Symptom and possible causes	Remedy
Engine overheats.	1. Carbon buildup on piston crown. 2. Insufficient amount of engine oil. 3. Defective oil pump. 4. Clogged oil circuit. 5. Float chamber fuel level too low. 6. Air leakage from intake pipe. 7. Incorrect engine oil. 8. Defective cooling system.	Clean. Check level and add. Replace. Clean. Adjust float height. Tighten or replace. Change. See radiator section.

RADIATOR

Complaint	Symptom and possible causes	Remedy
Engine overheats.	1. Not enough engine coolant. 2. Radiator core clogged. 3. Defective temperature switch. 4. Clogged engine coolant passage. 5. Air trapped in the cooling circuit. 6. Defective water pump. 7. Incorrect engine coolant. 8. Defective cooling fan thermo-switch. 9. Defective thermostat.	Add coolant. Clean. Replace. Clean. Bleed out air. Replace. Replace. Replace. Replace.
Engine overcools.	1. Extremely low ambient temperature. 2. Defective cooling fan thermo-switch. 3. Defective thermostat.	Install radiator cover. Replace. Replace.

CARBURETOR

Complaint	Symptom and possible causes	Remedy
Starting difficulty.	1. Clogged starter jet. 2. Clogged starter jet passage. 3. Air leaking from joint between starter body and carburetor. 4. Air leaking from carburetor joint or vacuum hose joint. 5. Improper working starter (enricher) plunger.	Clean. Clean. Tighten, adjust, or replace gasket. Tighten or replace defective part. Adjust.
Idling or low-speed trouble.	1. Clogged or loose pilot jet. 2. Clogged or loose pilot air jet. 3. Air leaking from carburetor joint, vacuum pipe joint, or starter. 4. Clogged pilot outlet port. 5. Clogged bypass port. 6. Starter (enricher) plunger not fully closed.	Clean or tighten. Clean or tighten. Tighten or replace defective part. Clean. Clean. Adjust.
Medium or high-speed trouble.	1. Clogged main jet. 2. Clogged main air jet. 3. Clogged needle jet. 4. Improper working throttle valve. 5. Clogged fuel filter.	Clean. Clean. Clean. Adjust. Clean or replace.
Overflow and fuel level fluctuations.	1. Worn or damaged needle valve. 2. Broken needle valve spring. 3. Improper working float. 4. Foreign matter on the needle valve. 5. Incorrect float chamber fuel level.	Replace. Replace. Adjust or replace. Clean or replace with needle valve seat. Adjust float height.

CHASSIS

Complaint	Symptom and possible causes	Remedy
Handling is too heavy or stiff.	1. Improper front wheel alignment. 2. Insufficiently lubricated. 3. Low air pressure in front tires. 4. Tie rod ends tending to seize. 5. Linkage connections tending to seize.	Adjust. Lubricate. Adjust. Replace. Repair or replace.
Steering wobbles.	1. Unequally inflated tires. 2. Loose front wheel hub nuts. 3. Damaged or worn front wheel hub bearings. 4. Worn or loose tie rod ends. 5. Defective or incorrect front tires. 6. Damaged or worn wishbone arms and related bearings. 7. Distorted front wheels. 8. Loose chassis nuts and bolts.	Regulate. Tighten. Replace. Replace or tighten. Replace. Replace. Replace. Tighten.
Steering pulls to one side.	1. Unequally inflated tires. 2. Improper front wheel alignment. 3. Worn front wheel hub bearings. 4. Distorted frame or wishbone. 5. Defective shock absorber.	Regulate. Adjust. Replace. Repair or replace. Replace.
Shocks felt in the steering.	1. High tire pressure. 2. Worn steering linkage connections. 3. Loose suspension system bolts.	Regulate. Replace. Tighten.
Tires rapidly or unevenly wear.	1. Worn or loose front wheel hub bearings. 2. Improper front wheel alignment.	Replace. Adjust.
Steering too noisy.	1. Loose nuts and bolts. 2. Damaged or worn front wheel hub bearings. 3. Insufficiently lubricated.	Tighten. Replace. Lubricate.
Front suspension too soft.	1. Weakened spring. 2. Shock absorber leaks oil.	Replace. Replace.
Front suspension too stiff.	1. Worn upper or lower wishbone arms and related bearings. 2. Bent shock absorber rod.	Tighten. Replace.
Suspension too noisy.	1. Loose suspension system bolts. 2. Worn wishbone arms and related bearings. 3. Worn swingarm and suspension bearings.	Tighten. Replace. Replace.
Rear suspension too soft.	1. Weakened spring of shock absorber. 2. Leakage oil or gas of shock absorber. 3. Improperly set rear spring pre-load adjuster. 4. Improperly set damping force adjuster.	Replace. Replace. Adjust. Adjust.
Rear suspension too stiff.	1. Bend shock absorber rod. 2. Bent swingarm. 3. Worn swingarm and rear suspension bearings. 4. Improperly set rear spring pre-load adjuster. 5. Improperly set damping force adjuster. 6. Improper chain adjustment.	Replace. Replace. Replace. Adjust. Adjust. Adjust.

Complaint	Symptom and possible causes	Remedy
Rear wheels wobble.	1. Distorted rear wheel rims. 2. Damage or worn rear axle housing bearings. 3. Defective or incorrect rear tires. 4. Loose rear wheel hub nuts. 5. Distorted rear axle. 6. Loosen rear axle housing mounting bolts. 7. Improper rear brake adjustment. 8. Damaged or worn rear swingarm and related bearings. 9. Rear shock absorber leaks oil. 10. Loose rear swingarm nut.	Replace. Replace. Replace. Tighten. Replace. Tighten. Adjust. Replace. Replace. Tighten.

BRAKES

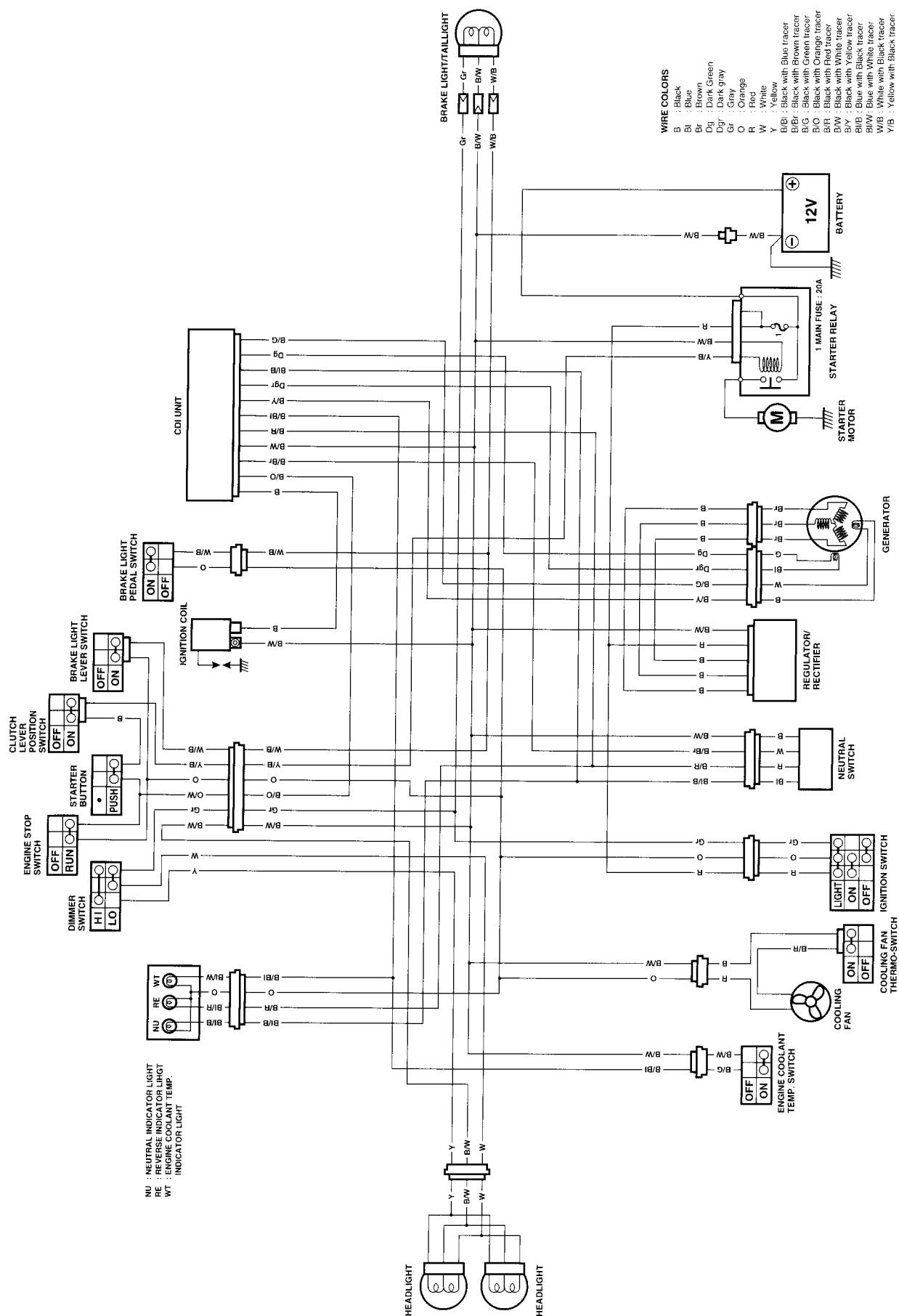
Complaint	Symptom and possible causes	Remedy
Poor braking.	1. Insufficient brake fluid. 2. Air in brake fluid circuit. 3. Worn pads. 4. Worn disc. 5. Improper parking brake adjustment.	Refill to level mark. Bleed air out. Replace. Replace. Adjust.
Insufficient brake power.	1. Leakage of brake fluid from hydraulic system. 2. Worn pads. 3. Oil adhesion on engaging surface of pads. 4. Worn disc. 5. Air in hydraulic system.	Repair or replace. Replace. Clean disc and pads. Replace. Bleed.
Brake squeaks.	1. Carbon adhesion on pad surface. 2. Titled pad. 3. Loose front wheel axle or rear wheel axle. 4. Worn brake pads. 5. Foreign material in brake fluid. 6. Clogged return port of master cylinder. 7. Caliper binding on caliper axles.	Repair surface with emery paper. Modify pad fitting or replace. Tighten to specified torque. Replace. Replace brake fluid. Disassemble and clean master cylinder. Clean and lubricate.
Excessive brake lever stroke.	1. Air in hydraulic system. 2. Insufficient brake fluid. 3. Improper quality of brake fluid.	Bleed. Replenish fluid to specified level and bleed air. Replace with correct fluid.
Brake fluid leakage.	1. Insufficient tightening of connection joints. 2. Cracked hose. 3. Worn piston and/or cup.	Tighten to specified torque and add brake fluid. Replace. Replace piston and/or cup.
Brake drags	1. Rusty part. 2. Insufficient brake lever or brake pedal pivot lubrication. 3. Improper parking brake adjustment.	Clean and lubricate. Lubricate. Adjust.

ELECTRICAL

Complaint	Symptom and possible causes	Remedy
No sparking or poor sparking.	1. Defective ignition coil. 2. Defective spark plug. 3. Defective generator. 4. Defective CDI unit. 5. Defective pickup coil.	Replace. Replace. Replace. Replace. Replace.
Spark plug is wet or quickly becomes fouled with carbon.	1. Excessively rich air/fuel mixture. 2. Excessively high idling speed. 3. Incorrect gasoline. 4. Dirty air cleaner element. 5. Incorrect spark plug (cold type).	Adjust carburetor. Adjust carburetor. Change. Clean or replace. Change to standard spark plug.
Spark plug quickly becomes fouled with oil or carbon.	1. Worn piston ring. 2. Worn piston. 3. Worn cylinder. 4. Excessive valve-stem-to-valve-guide clearance. 5. Worn valve stem oil seal.	Replace. Replace. Replace. Replace. Replace.
Spark plug electrodes overheat or burn.	1. Incorrect spark plug. 2. Overheated engine. 3. Loose spark plug. 4. Excessively lean air/fuel mixture.	Change to cold type spark plug. Turn-up. Tighten. Adjust carburetor.
Generator does not charge.	1. Open or short in lead wires, or loose lead connections. 2. Shorted, grounded or open generator coil. 3. Shorted or punctured regulator/rectifier.	Repair, replace or connect properly. Replace. Replace.
Generator charges but charging rate is below specification.	1. Lead wires tend to get shorted, open-circuited, or loosely connected at terminal. 2. Grounded or open-circuited stator coils or generator. 3. Defective regulator/rectifier.	Repair or tighten. Replace. Replace.
Generator over-charges.	1. Internal short-circuit in the battery. 2. Damaged or defective regulator/rectifier.	Replace battery. Replace.
Unstable charging.	1. Lead wire insulation frayed due to vibration, resulting in intermittent shorting. 2. Internally shorted generator. 3. Defective regulator/rectifier.	Repair or replace. Replace. Replace.
Starter button does not work.	1. Run down battery. 2. Defective switch contact. 3. Brushes do not seat properly on the commutator in the starter motor. 4. Defective starter relay. 5. Defective neutral relay. 6. Defective engine stop switch. 7. Defective neutral switch. 8. Defective clutch lever position switch. 9. Wiring connections loose or disconnected.	Recharge or replace. Replace. Repair or replace. Replace. Replace. Replace. Replace. Replace. Connect, tighten or repair.

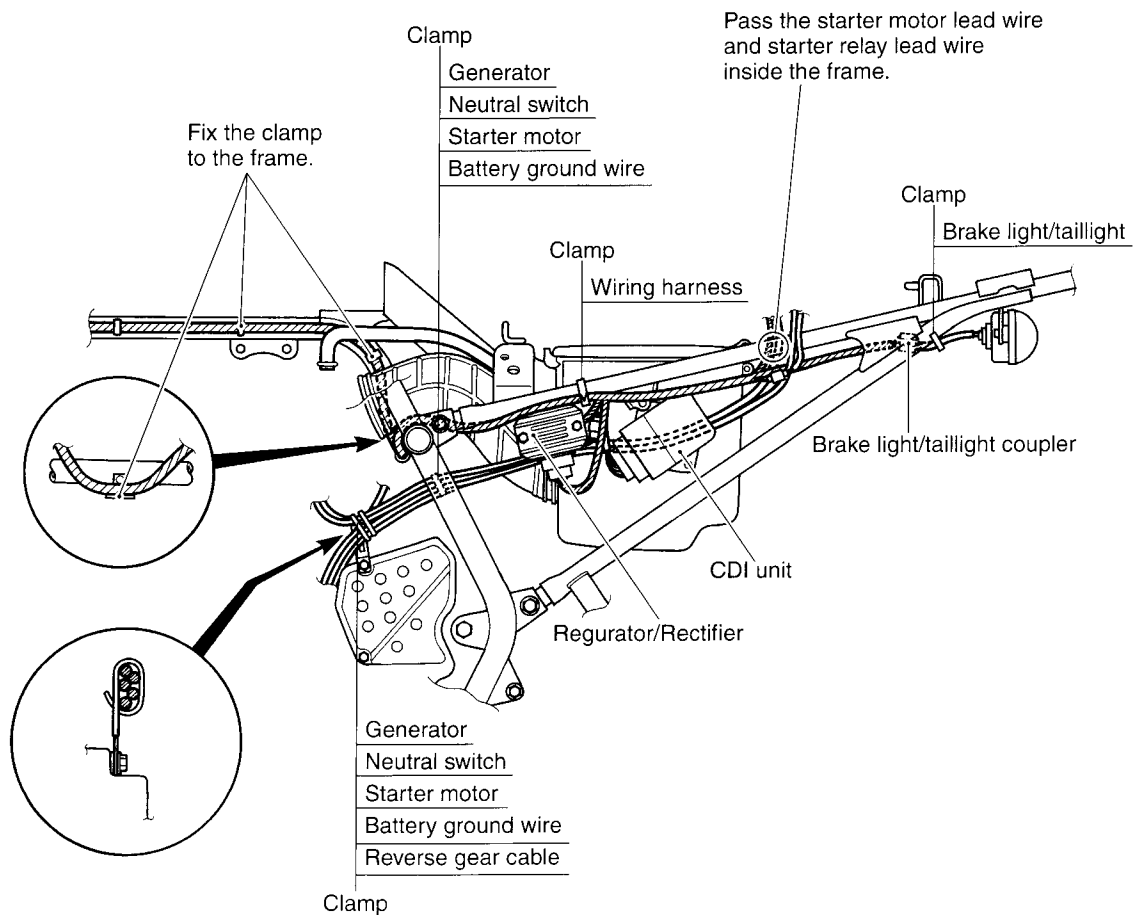
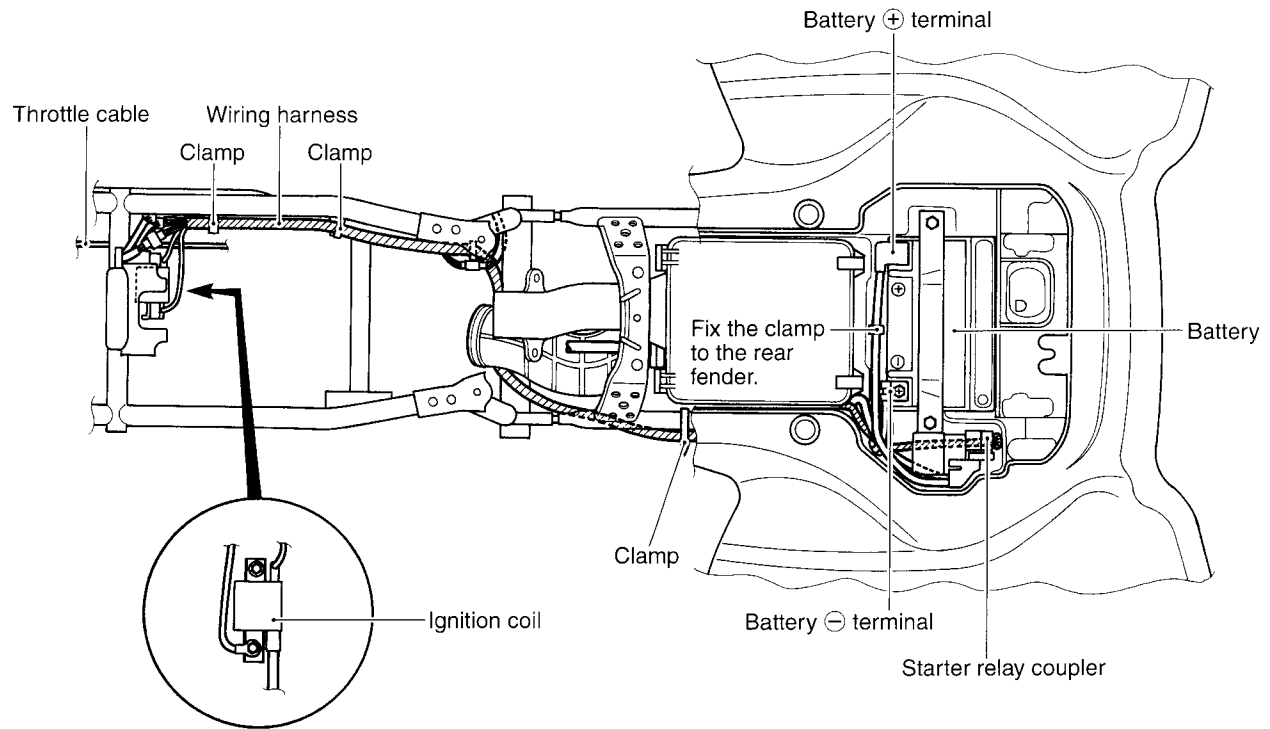
BATTERY

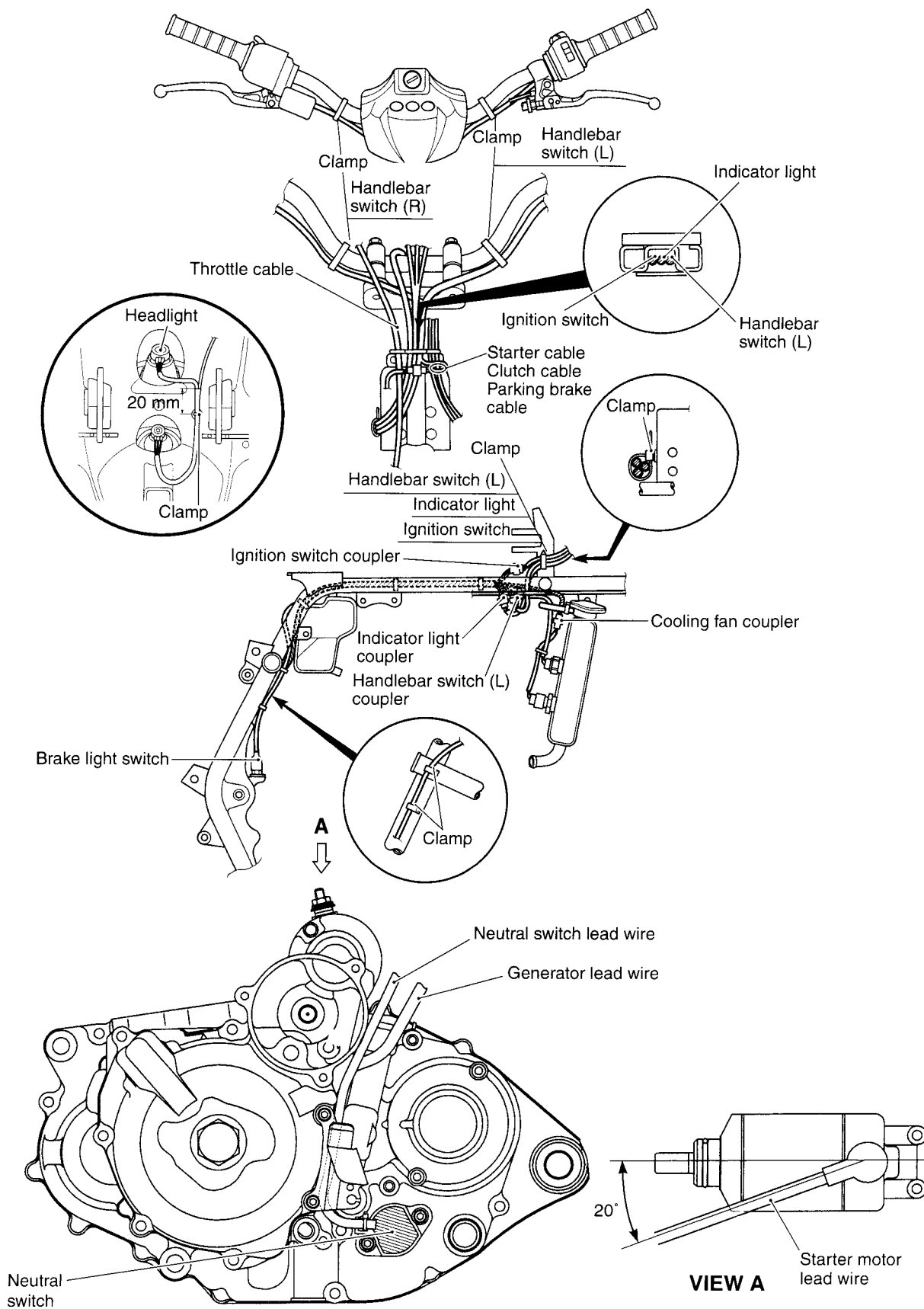
Complaint	Symptom and possible causes	Remedy
Sulfation or spots on surfaces of cell plates.	1. Cracked battery case. 2. Battery has been left in a run-down condition for a long time.	Replace. Replace.
Battery runs down quickly.	1. Incorrect charging method. 2. Battery cell plates have lost much of their active material as a result of overcharging. 3. Internally shorted battery. 4. Old battery.	Check the generator, and regulator/rectifier circuit connections, and make necessary adjustments to obtain specified charging operation. Replace the battery and correct the charging system. Replace. Replace.
Reversed battery polarity.	1. Improperly connected battery leads. (i.e., $\ominus$ to $\oplus$ and $\oplus$ to $\ominus$)	Replace the battery and be sure to connect it properly.
Battery discharged too rapidly.	1. Dirty container top and sides. 2. Old battery.	Clean. Replace.
Battery sulfation.	1. Incorrect charging rate. (When not in use, the battery should be checked at least once a month and properly charged if necessary, to avoid sulfation.) 2. The battery was left unused in a cold climate for too long.	Replace. Replace the battery if badly sulfated.



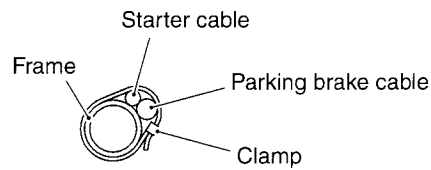
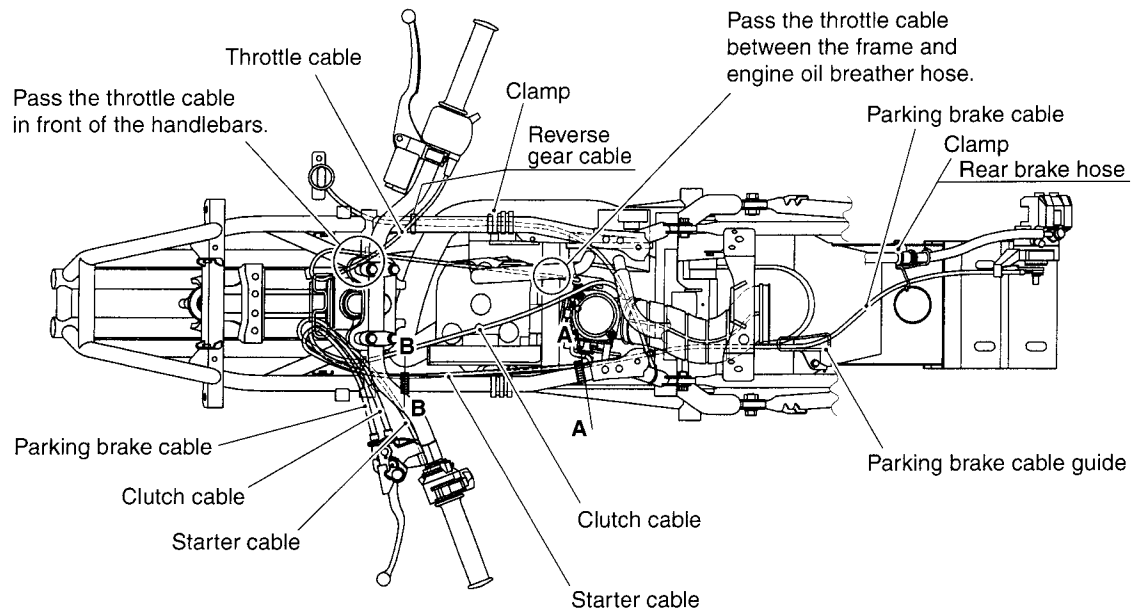
WIRING HARNESS, CABLE AND HOSE ROUTING

WIRING HARNESS ROUTING

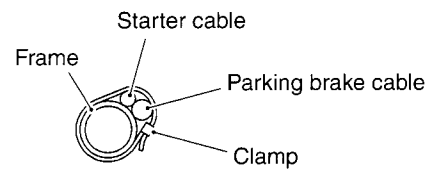




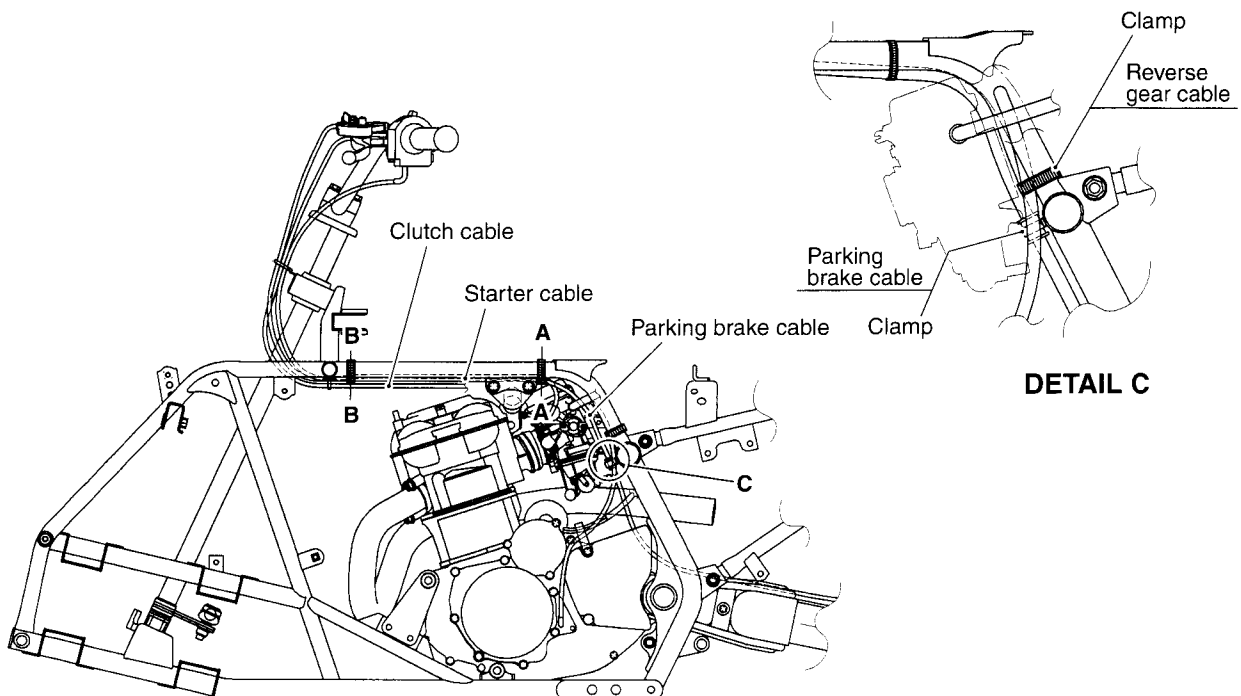
CABLE ROUTING



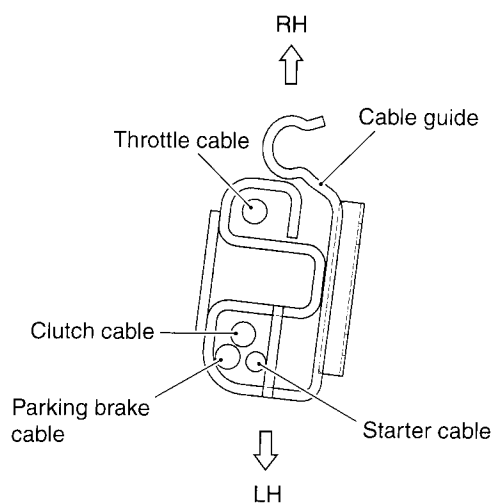
SECT A - A



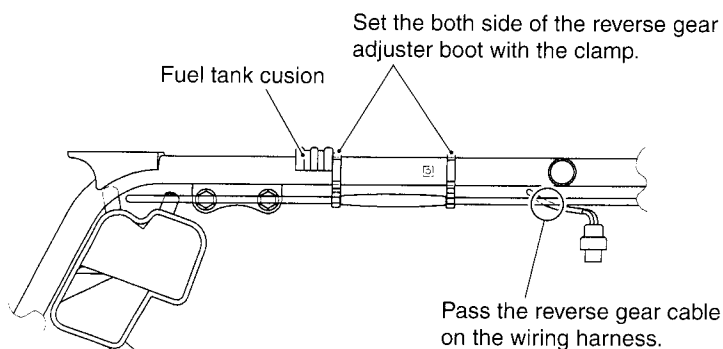
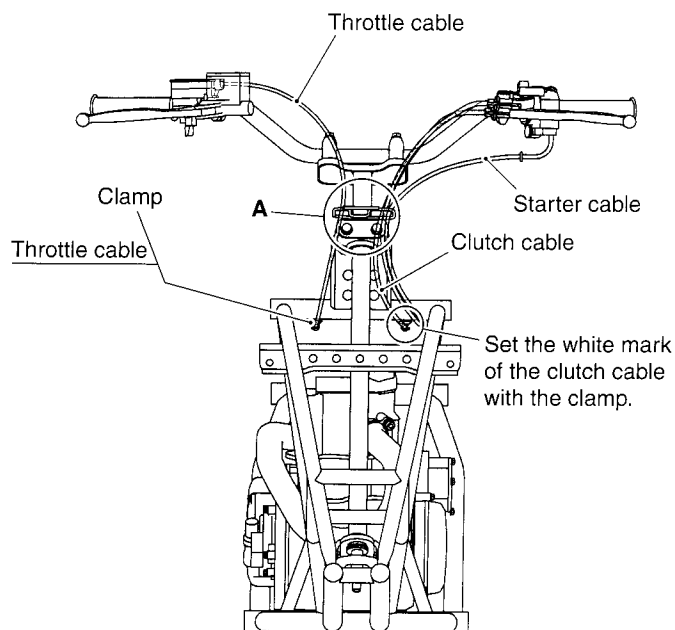
SECT B - B



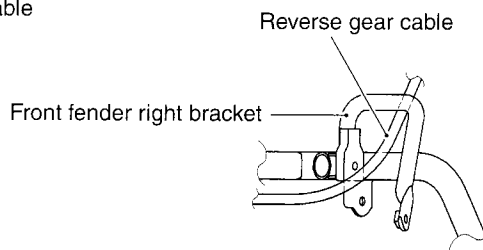
DETAIL C



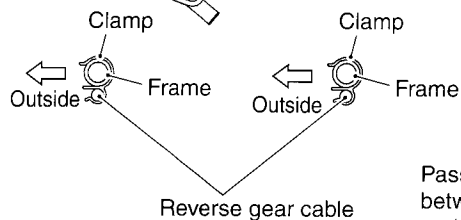
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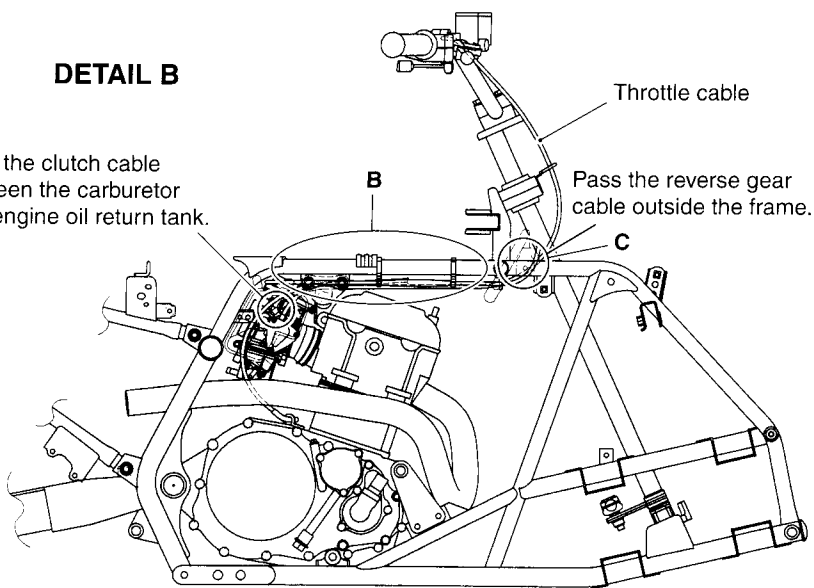
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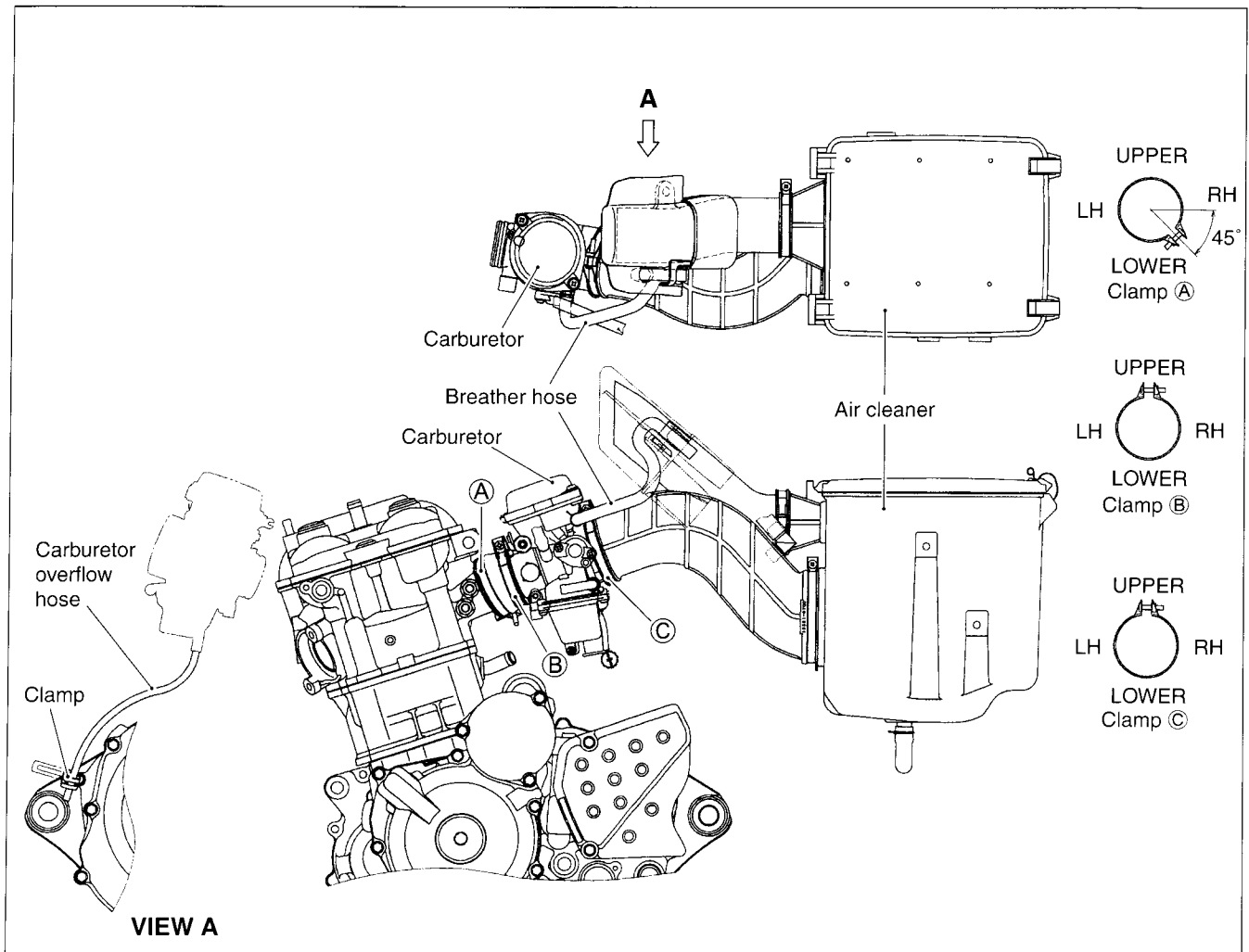
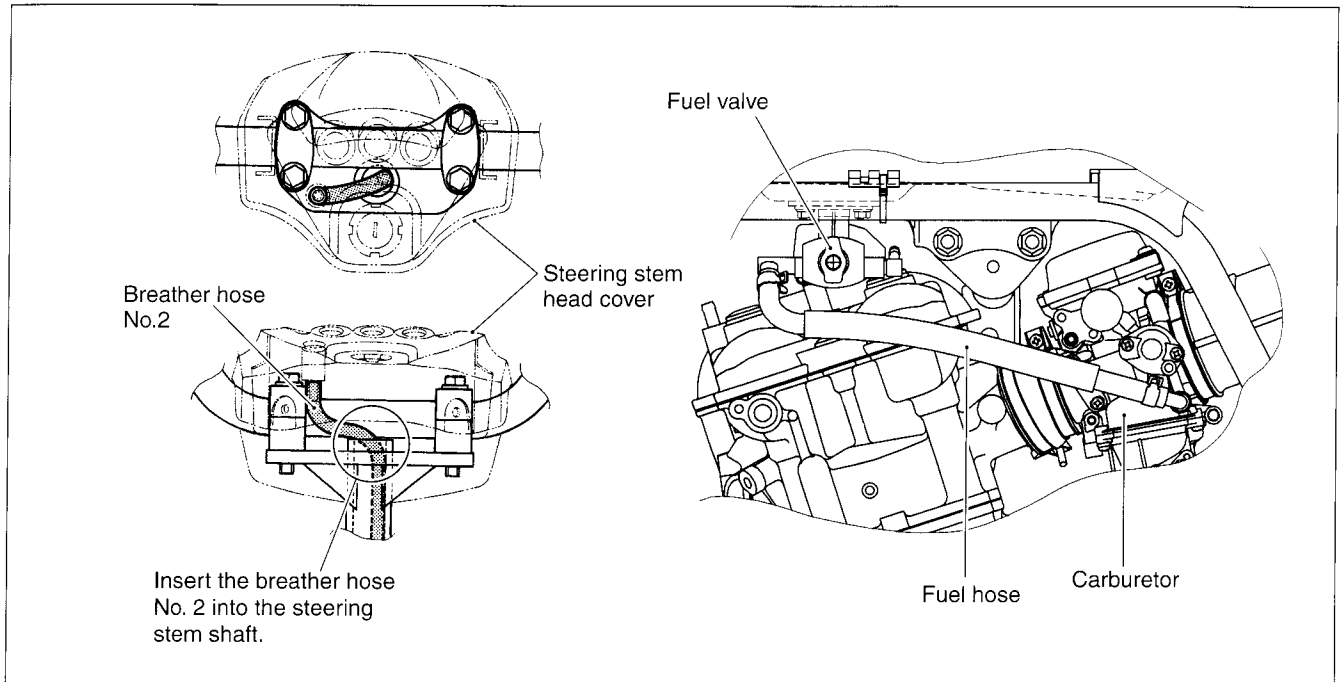
DETAIL C



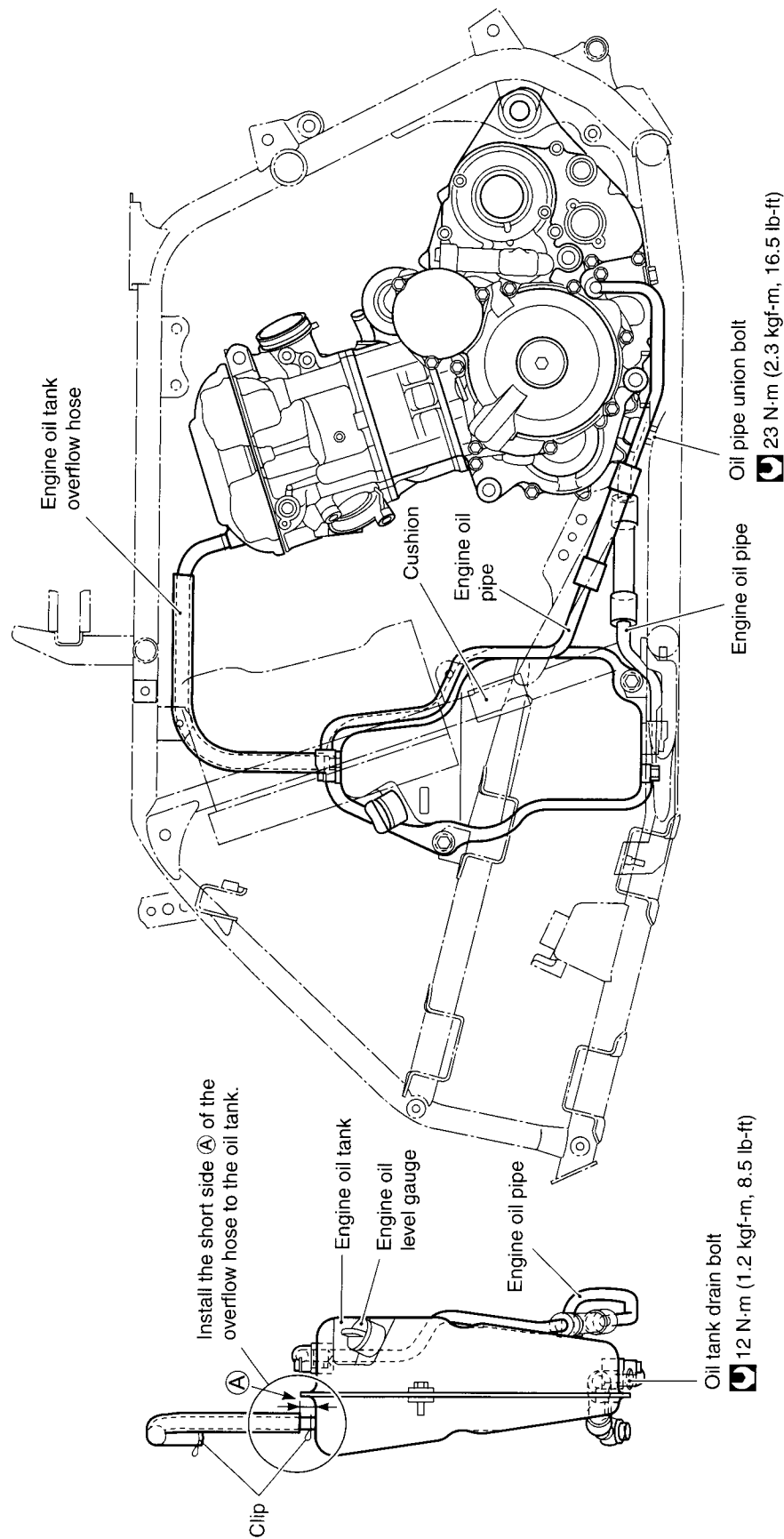
Pass the clutch cable between the carburetor and engine oil return tank.

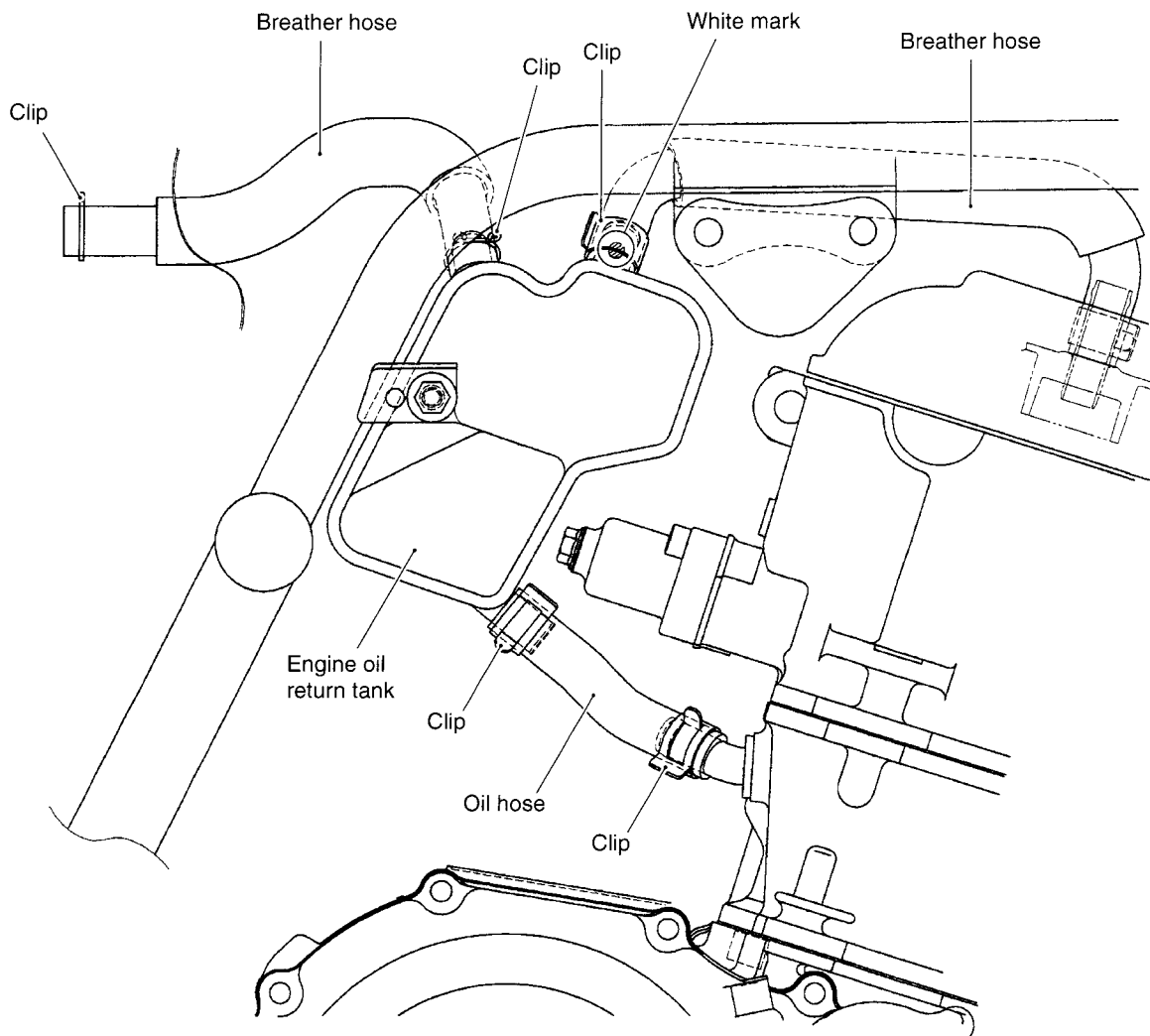


FUEL HOSE ROUTING

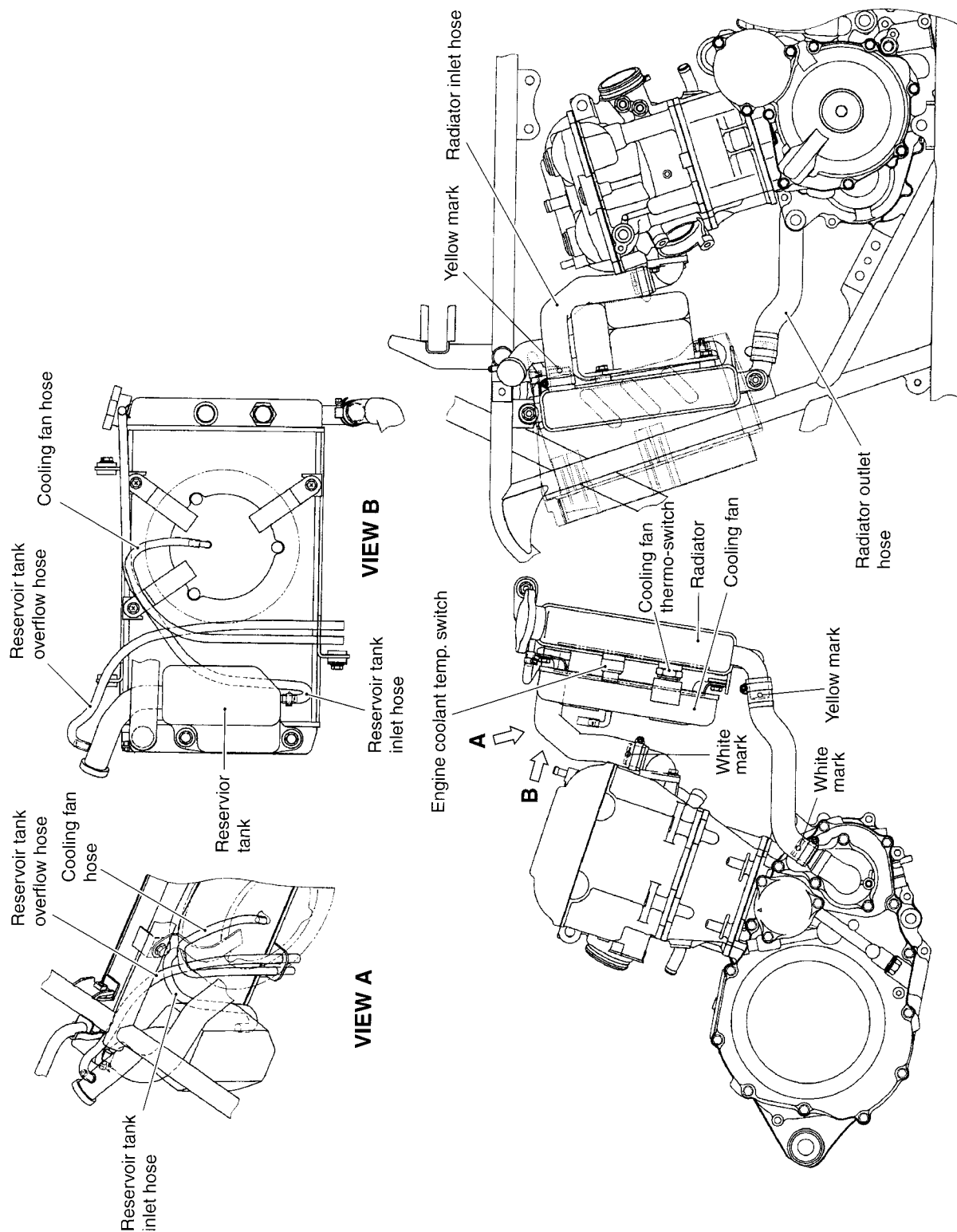


ENGINE OIL HOSE AND PIPE ROUTING

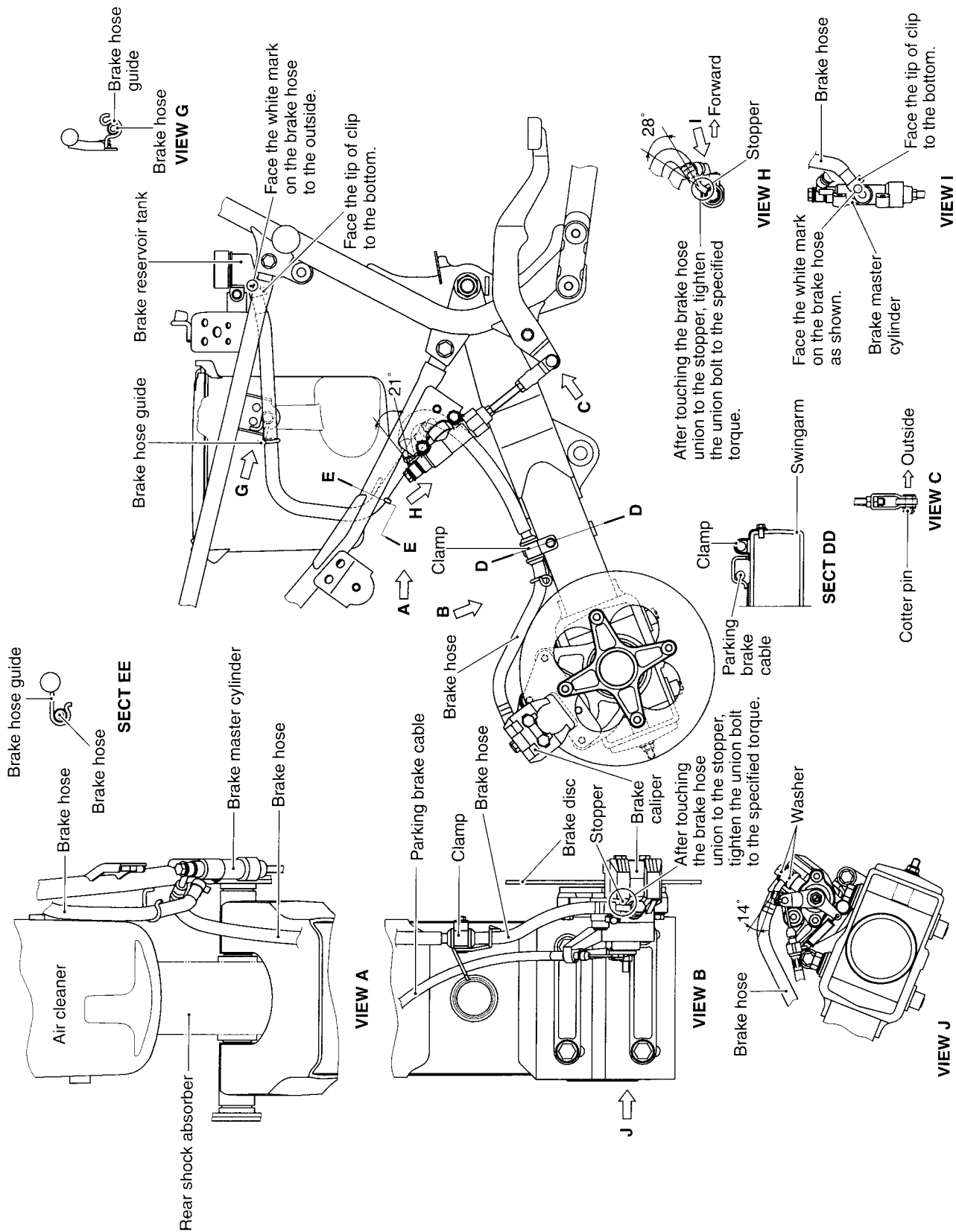




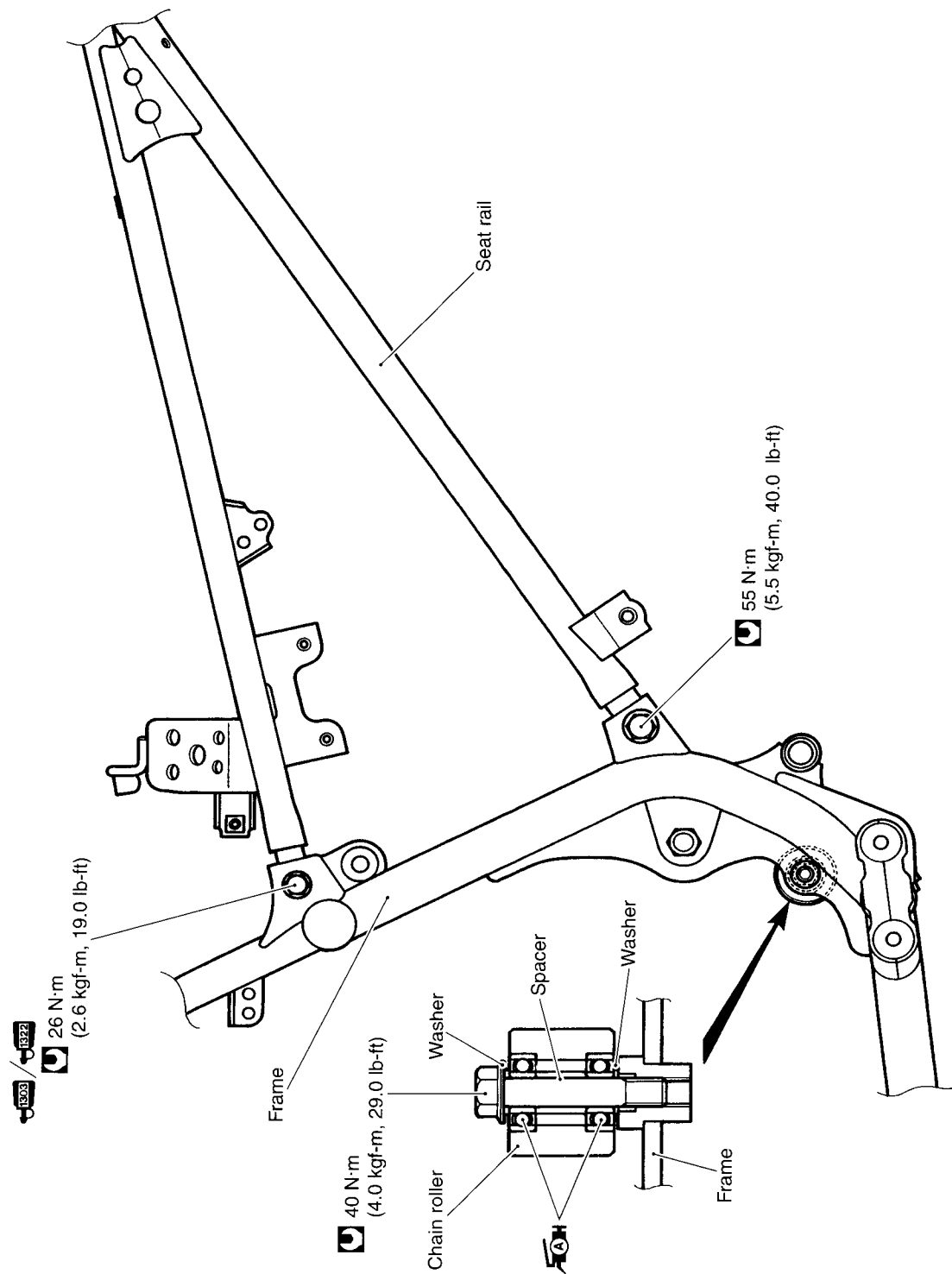
COOLING SYSTEM HOSE ROUTING



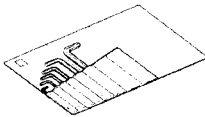
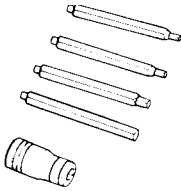
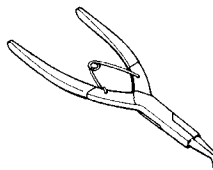
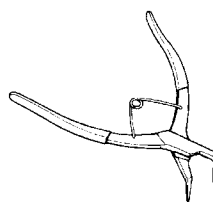
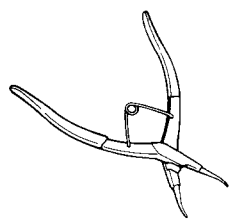
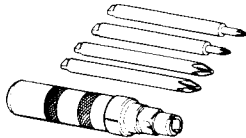
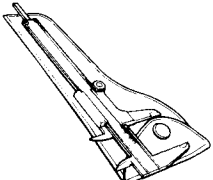
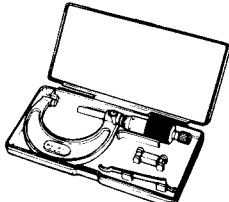
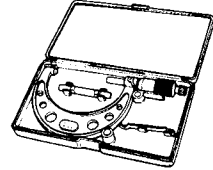
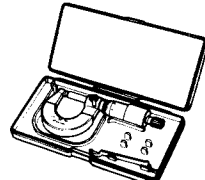
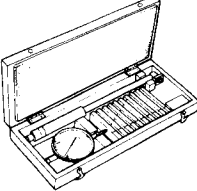
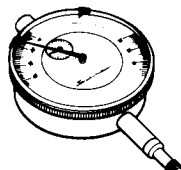
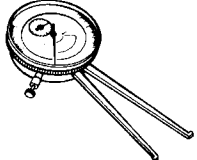
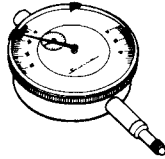
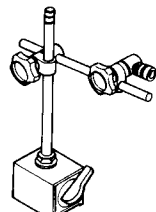
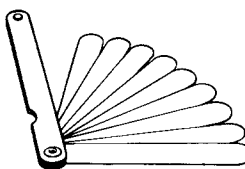
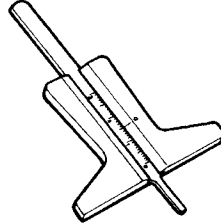
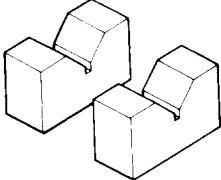
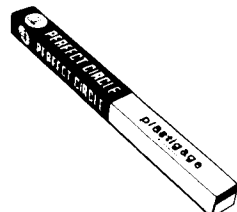
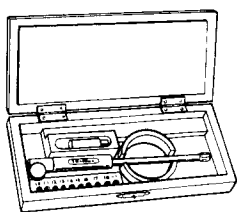
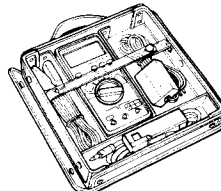
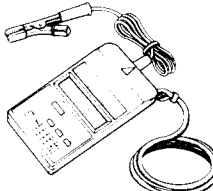
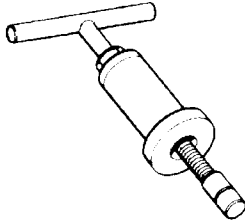
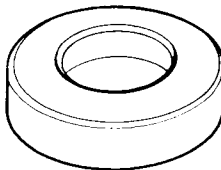
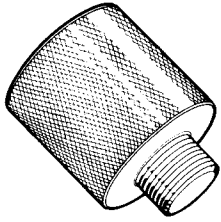
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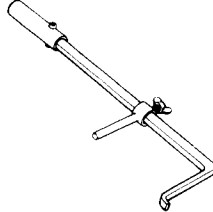
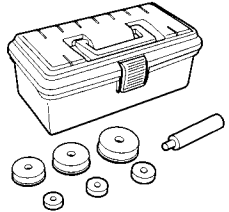
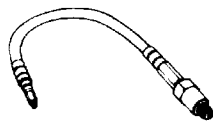
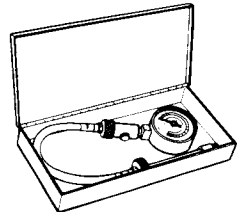
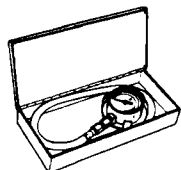
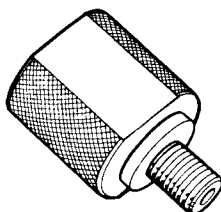
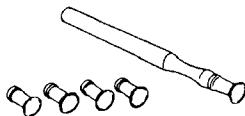
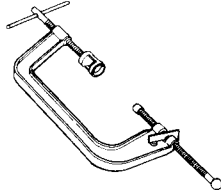
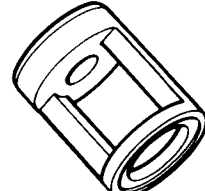
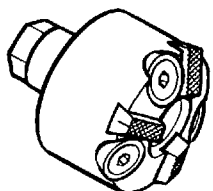
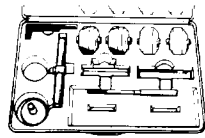
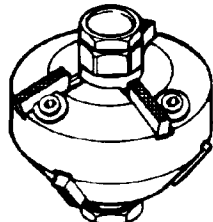
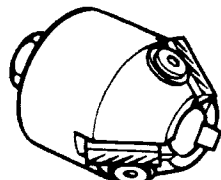
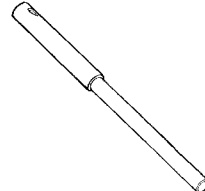
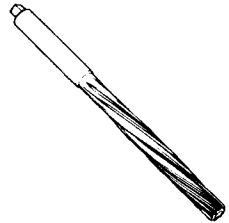
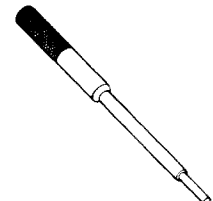
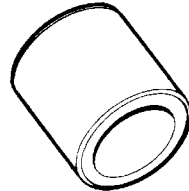
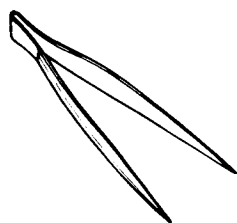
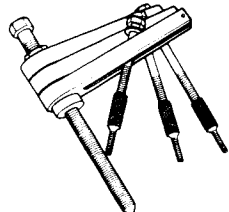
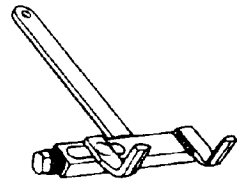
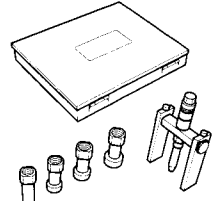
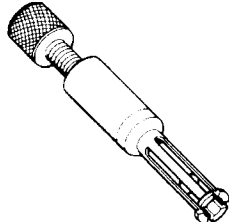


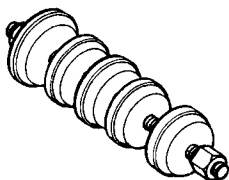
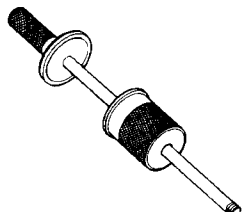
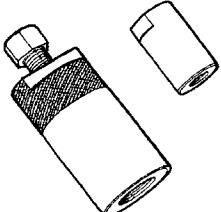
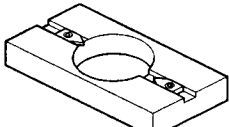
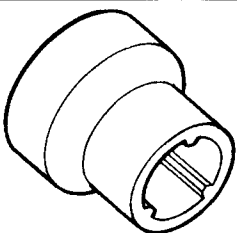
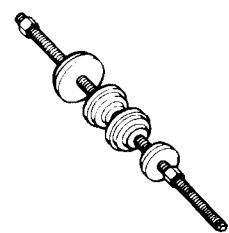
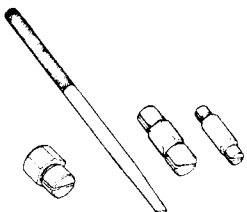
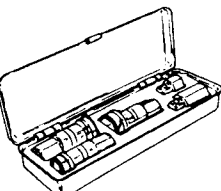
SEAT RAIL AND CHAIN ROLLER INSTALLATION



SPECIAL TOOLS

				
09900-00401 Hexagon wrench set	09900-00410 Hexagon wrench set	09900-06104 Snap ring pliers	09900-06105 Snap ring pliers	09900-06108 Snap ring pliers
				
09900-09004 Impact driver set	09900-20101 Vernier calipers	09900-20202 Micrometer (25 – 50 mm)	09900-20204 Micrometer (75 – 100 mm)	09900-20205 Micrometer (0 – 25 mm)
				
09900-20508 Cylinder gauge set	09900-20602 Dial gauge (1/1000 mm)	09900-20605 Dial calipers (1/100 mm, 10 – 34 mm)	09900-20606 Dial gauge (1/100 mm)	09900-20701 Magnetic stand
				
09900-20803 Thickness gauge	09900-20805 Tire depth gauge	09900-21304 V-block set (100 mm)	09900-22301 09900-22302 Plastigauge	09900-22403 Small bore gauge (18 – 35 mm)
				
09900-25008 Multi circuit tester set	09900-26006 Tachometer	09910-32812 Crankshaft installer	09910-32820 Universal clamp wrench	09911-11310 Attachment

 09913-50121 Oil seal remover	 09913-70210 Bearing installer set	 09915-63310 Adaptor	 09915-64512 Compression gauge set	 09915-74511 Oil pressure gauge set
 09915-74532 Adaptor	 09916-10911 Valve lapper set	 09916-14510 Valve lifter	 09916-14910 Attachment	 09916-20610 Seat cutter (N-121)
 09916-21111 Valve seat cutter set	 09916-22420 Valve seat cutter (N-128)	 09916-22430 Valve seat cutter (N-114)	 09916-24311 Solid pilot (N-100-5.0)	 09916-34542 Reamer handle
 09916-34570 Valve guide reamer (5.0 mm)	 09916-34580 Valve guide reamer (10.8 mm)	 09916-44310 Valve guide remover	 09916-53360 Valve guide installer attachment	 09916-84511 Tweezers
 09920-13120 Crankcase separating tool	 09920-53740 Clutch sleeve hub holder	 09921-20240 Bearing remover set	 09921-74511 Bearing remover	 09923-73210 Bearing remover

 09924-84510 Bearing installer set	 09930-30104 Sliding hammer	 09930-31921 Rotor remover set	 09930-73170 Starter torque limiter holder	 09930-73180 Starter torque limiter socket
 09941-34513 Bearing installer	 09941-50111 Bearing remover	 09930-10121 Spark plug wrench set	 09940-92450 Rear axle nut holder	

TIGHTENING TORQUE

ENGINE

ITEM	N·m	kgf-m	lb-ft
Cylinder head cover bolt	14	1.4	10.0
Spark plug	11	1.1	8.0
Cylinder head bolt (M10)	46	4.6	33.5
(M6)	10	1.0	7.0
Cylinder head side bolt	14	1.4	10.0
Cylinder nut	10	1.0	7.0
Camshaft journal holder bolt	10	1.0	7.0
Balancer driven gear nut	50	5.0	36.0
Primary drive gear nut	140	14.0	101.5
Generator rotor nut	120	12.0	87.0
Clutch sleeve hub nut	70	7.0	50.5
Gearshift arm stopper	19	1.9	13.5
Gearshift cam driven gear bolt	24	2.4	17.5
Cam chain tension adjuster bolt	10	1.0	7.0
Cam chain tensioner mounting bolt	10	1.0	7.0
Cam chain tension spring holder bolt	30	3.0	21.5
Engine oil drain plug (on the crankcase)	21	2.1	15.0
Engine oil drain bolt (on the oil tank)	12	1.2	8.5
Engine oil level bolt	5.5	0.55	4.0
Crankcase bolt	11	1.1	8.0
Neutral switch bolt	6.5	0.65	4.7
Oil hose union bolt (on the crankcase)	23	2.3	16.5
Starter motor lead wire nut	6	0.6	4.5
Starter motor ground wire bolt	10	1.0	7.0
TDC plug	23	2.3	16.5
Engine mounting nut and bolt	66	6.6	47.5
Engine mounting bracket bolt	26	2.6	19.0
Exhaust pipe nut	23	2.3	16.5
Muffler connection bolt	23	2.3	16.5
Muffler mounting bolt	23	2.3	16.5
Engine sprocket bolt	10	1.0	7.0
Fuel valve mounting bolt	4.6	0.46	3.3
Cooling fan thermo-switch	20	2.0	14.5
Engine coolant temp. switch	13	1.3	9.5

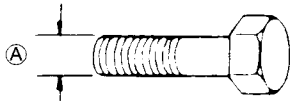
CHASSIS

ITEM	N·m	kgf-m	lb-ft
Handlebar clamp bolt	23	2.3	16.5
Steering shaft holder bolt	23	2.3	16.5
Steering shaft nut	49	4.9	35.5
Steering knuckle nut (Upper & Lower)	43	4.3	31.0
Tie rod end nut	60	6.0	43.5
Tie rod locknut	29	2.9	21.0
Front shock absorber mounting nut (Upper & Lower)	60	6.0	43.5
Wishbone arm pivot nut	65	6.5	47.0
Wheel hub nut (Front)	65	6.5	47.0
(Rear)	100	10.0	72.5
Wheel set nut (Front & Rear)	50	5.0	36.0
Brake hose union bolt	23	2.3	16.5
Brake disc bolt (Front & Rear)	23	2.3	16.5
Brake air bleeder valve	7.5	0.75	5.5
Brake caliper mounting bolt (Front & Rear)	26	2.6	19.0
Brake master cylinder mounting bolt (Front & Rear)	10	1.0	7.0
Front brake caliper holder pin	18	1.8	13.0
Front brake caliper holder slide pin	23	2.3	16.5
Front brake pipe nut	16	1.6	11.5
Front brake pad mounting pin	18	1.8	13.0
Rear brake master cylinder rod locknut	18	1.8	13.0
Rear brake pedal nut	11	1.1	8.0
Rear brake pad mounting pin	18	1.8	13.0
Rear brake caliper holder pin	18	1.8	13.0
Rear brake caliper holder slide pin	23	2.3	16.5
Parking brake bolt	28	2.8	20.5
Parking brake adjuster locknut	18	1.8	13.0
Footrest mounting bolt	55	5.5	40.0
Seat rail mounting bolt (M8)	26	2.6	19.0
(M10)	55	5.5	40.0
Rear sprocket mounting bolt	54	5.4	39.0
Rear axle nut	180	18.0	130.0
Rear axle housing bolt (M10)	73	7.3	53.0
(M12)	100	10.0	72.5
Rear swingarm pivot nut	84	8.4	61.0
Rear shock absorber mounting nut (Upper)	60	6.0	43.5
(Lower)	55	5.5	40.0
Cushion lever nut	78	7.8	56.5
Cushion rod nut	78	7.8	56.5

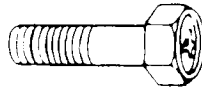
TIGHTENING TORQUE CHART

For other nuts and bolts not listed in the preceding page, refer to this chart:

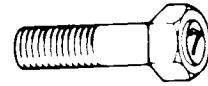
Bolt Diameter Ⓐ (mm)	Conventional or "4" marked bolt			"7" marked bolt		
	N·m	kgf-m	lb-ft	N·m	kgf-m	lb-ft
4	1.5	0.15	1.0	2.3	0.23	1.5
5	3	0.3	2.0	4.5	0.45	3.0
6	5.5	0.55	4.0	10	1.0	7.0
8	13	1.3	9.5	23	2.3	16.5
10	29	2.9	21.0	50	5.0	36.0
12	45	4.5	32.5	85	8.5	61.5
14	65	6.5	47.0	135	13.5	97.5
16	105	10.5	76.0	210	21.0	152.0
18	160	16.0	115.5	240	24.0	173.5



Conventional bolt



"4" marked bolt



"7" marked bolt

SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	36 (1.42)	—
	EX.	29 (1.14)	—
Tappet clearance (when cold)	IN.	0.10 – 0.20 (0.0039 – 0.0078)	—
	EX.	0.20 – 0.30 (0.0078 – 0.0118)	—
Valve guide to valve stem clearance	IN.	0.010 – 0.037 (0.0004 – 0.0015)	—
	EX.	0.030 – 0.057 (0.0012 – 0.0022)	—
Valve stem deflection	IN. & EX.	—	0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.000 – 5.012 (0.1969 – 0.1973)	—
Valve stem O.D.	IN.	4.975 – 4.990 (0.1959 – 0.1965)	—
	EX.	4.955 – 4.970 (0.1951 – 0.1957)	—
Valve stem runout	IN. & EX.	—	0.05 (0.002)
Valve head thickness	IN. & EX.	—	0.5 (0.02)
Valve seat width	IN. & EX.	0.9 – 1.1 (0.035 – 0.043)	—
Valve head radial runout	IN. & EX.	—	0.03 (0.001)
Valve spring free length	IN. & EX.	—	38.8 (1.53)
Valve spring tension	IN. & EX.	182 – 210 N (18.6 – 21.4 kgf, 41.0 – 47.2 lbs) at length 31.5 mm (1.24 in)	—

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	36.320 – 36.370 (1.4299 – 1.4319)	36.020 (1.4181)
	EX.	35.200 – 35.250 (1.3858 – 1.3878)	34.900 (1.3740)
Camshaft journal oil clearance	IN. & EX.	0.019 – 0.053 (0.0007 – 0.0021)	0.150 (0.0059)
Camshaft journal holder I.D.	IN. & EX.	22.012 – 22.025 (0.8666 – 0.8671)	—
Camshaft journal O.D.	IN. & EX.	21.972 – 21.993 (0.8653 – 0.8659)	—
Camshaft runout	—		0.10 (0.004)
Cam chain pin (at arrow “3”)	15th pin		—
Cylinder head distortion	—		0.05 (0.002)
Cylinder head cover distortion	—		0.05 (0.002)

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD		LIMIT
Compression pressure (Automatic de-comp. actuated)	1 000 kPa (10.0 kgf/cm ² , 142 psi)		—
Piston to cylinder clearance	0.030 – 0.040 (0.0012 – 0.0016)		0.120 (0.0047)
Cylinder bore	90.000 – 90.015 (3.5433 – 3.5439)		Nicks or Scratches
Piston diam.	89.965 – 89.980 (3.5419 – 3.5425) Measure at 15 mm (0.6 in) from the skirt end.		89.880 (3.5386)
Cylinder distortion	—		0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 6.9 (0.27)
	2nd	R	Approx. 11.5 (0.45)
Piston ring end gap	1st	0.08 – 0.20 (0.003 – 0.008)	
	2nd	0.08 – 0.20 (0.003 – 0.008)	
Piston ring to groove clearance	1st	—	
	2nd	—	
Piston ring groove width	1st	0.78 – 0.80 (0.0307 – 0.0315)	
		1.30 – 1.32 (0.0512 – 0.0520)	
	2nd	0.81 – 0.83 (0.0319 – 0.0327)	
	Oil	2.01 – 2.03 (0.0791 – 0.0799)	

ITEM	STANDARD		LIMIT
Piston ring thickness	1st	0.71 – 0.76 (0.0280 – 0.0299)	—
		1.08 – 1.10 (0.0425 – 0.0433)	—
	2nd	0.77 – 0.79 (0.0303 – 0.0311)	—
Piston pin bore	20.002 – 20.008 (0.7875 – 0.7877)		20.030 (0.7886)
Piston pin O.D.	19.995 – 20.000 (0.7872 – 0.7874)		19.980 (0.7866)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	20.010 – 20.018 (0.7878 – 0.7881)	20.040 (0.7890)
Conrod deflection	—	3.0 (0.12)
Conrod big end side clearance	0.30 – 0.65 (0.012 – 0.026)	1.0 (0.04)
Conrod big end width	21.95 – 22.00 (0.864 – 0.866)	—
Crank web to web width	62.0 ± 0.1 (2.441 ± 0.004)	—
Crankshaft runout	—	0.08 (0.003)
Balancer spring free length	—	10.3 (0.41)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pressure (at 60°C, 140°F)	Above 20 kPa (0.2 kgf/cm ² , 2.8 psi) Below 60 kPa (0.6 kgf/cm ² , 8.5 psi) at 3 000 r/min.	—

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	10 – 15 (0.4 – 0.6)	—
Drive plate thickness (No. 1 & No. 2)	2.92 – 3.08 (0.115 – 0.121)	2.62 (0.103)
Drive plate claw width (No. 1 & No. 2)	13.7 – 13.8 (0.539 – 0.543)	13.2 (0.520)
Driven plate distortion	—	0.10 (0.004)
Clutch spring free length	—	49.9 (1.96)

DRIVE TRAIN + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Primary reduction ratio		2.960 (74/25)	—
Final reduction ratio		2.857 (40/14)	—
Gear ratios	Low	2.538 (33/13)	—
	2nd	1.666 (30/18)	—
	3rd	1.238 (26/21)	—
	4th	1.000 (23/23)	—
	Top	0.846 (22/26)	—
	Reverse	2.153 (28/13)	—
Shift fork to groove clearance		0.1 – 0.3 (0.004 – 0.012)	0.5 (0.020)
Shift fork groove width	No.1, No.2 & No.3	5.0 – 5.1 (0.197 – 0.201)	—
Shift fork thickness	No.1, No.2 & No.3	4.8 – 4.9 (0.189 – 0.193)	—
Drive chain	Type	RK520KZO	—
	Links	96	—
	20-pitch length	—	319.4 (12.57)
Drive chain slack		30 – 40 (1.2 – 1.6)	—

CARBURETOR

ITEM	SPECIFICATION	
	E-03, 28	E-33
Carburetor type	MIKUNI BSR36	←
Bore size	36 mm	←
I.D. No.	07G0	07G1
Idle r/min.	1 500 ± 100 r/min.	←
Float height	13.0 ± 1.0 mm (0.51 ± 0.04 in)	←
Main jet (M.J.)	#130	# 130
Jet needle (J.N.)	5E26-1	←
Needle jet (N.J.)	P-0M	P-0M
Pilot jet (P.J.)	#22.5	# 22.5
Pilot screw (P.S.)	2¼ turns back	PRE-SET
Throttle cable play	3 – 5 mm (0.12 – 0.20 in)	←
Starter (enricher) cable play	0.5 – 1.0 mm (0.02 – 0.04 in)	←

THERMOSTAT + RADIATOR + FAN + COOLANT

ITEM	STANDARD/SPECIFICATION		LIMIT
Thermostat valve opening temperature	73.5 – 76.5 °C (164 – 170 °F)		—
Thermostat valve lift	Over 6 mm (0.24 in) at 90°C (194 °F)		—
Radiator cap valve opening pressure	108 – 137 kPa (1.1 – 1.4 kgf/cm ² , 15.6 – 19.9 psi)		—
Engine coolant temp. indicator light switch operating temperature	ON→OFF	Approx. 120 °C (248 °F)	—
	ON→OFF	Approx. 113 °C (235 °F)	—
Cooling fan thermo-switch operating temperature	ON→OFF	Approx. 88 °C (190 °F)	—
	ON→OFF	Approx. 82 °C (180 °F)	—
Engine coolant type	Use an anti-freeze/coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50:50.		—
Engine coolant including reserve	1 200 ml (1.3/1.1 US/Imp qt)		—

ELECTRICAL

Unit: mm (in)

ITEM		SPECIFICATION	NOTE
Spark plug	Type	NGK: CR7E DENSO: U22ESR-N	
	Gap	0.7 – 0.8 (0.028 – 0.031)	
Spark performance	Over 8 mm (0.3) at 1 atm.		
Ignition coil resistance	Primary	0.1 – 1.0 Ω	Terminal – Ground
	Secondary	12 – 20 kΩ	Plug cap – Terminal
Ignition coil primary peak voltage	More than 130 V		⊕: B/W, ⊖: B
Generator coil resistance	Pick-up	350 – 670 Ω	G – BI
	Signal	0.09 – 0.50 Ω	W – B
	Charging	0.1 – 1.5 Ω	Br – Br
Pick-up coil peak voltage	More than 2.0 V		⊕: G, ⊖: BI
Generator no-load voltage (When engine is cold)	More than 65 V (AC)		
Generator Max. output	Approx. 150 W at 5 000 r/min		
Regulated voltage	14.0 – 15.5 V at 5 000 r/min		
Starter relay resistance	3 – 6 Ω		
Battery	Type designation	YTX9-BS	
	Capacity	12 V 28.8 kC (8 Ah)/10 HR	
Fuze size	20 A		

WATTAGE

Unit: W

ITEM		SPECIFICATION
Headlight	HI	30 × 2 pcs.
	LO	30 × 2 pcs.
Brake light/Taillight		21/5
Reverse indicator light		3
Neutral indicator light		3
Engine coolant temp. indicator light		3

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION		LIMIT
Rear brake pedal height	0 – 10 (0 – 0.4)		—
Brake caliper cylinder bore	Front	32.03 – 32.08 (1.2610 – 1.2630)	—
	Rear	33.96 – 34.01 (1.3370 – 1.3390)	—
Brake caliper piston diam.	Front	31.948 – 31.998 (1.2578 – 1.2598)	—
	Rear	33.878 – 33.928 (1.3338 – 1.3357)	—
Brake fluid type	DOT 4		—
Brake disc thickness	Front	2.8 – 3.2 (0.110 – 0.126)	2.5 (0.098)
	Rear	3.8 – 4.2 (0.150 – 0.165)	3.5 (0.138)
Brake disc runout (Front & Rear)	—		0.30 (0.012)
Master cylinder bore	Front	12.700 – 12.743 (0.5000 – 0.5017)	—
	Rear	14.000 – 14.043 (0.5512 – 0.5529)	—
Master cylinder piston diam.	Front	12.657 – 12.684 (0.4983 – 0.4994)	—
	Rear	13.957 – 13.984 (0.5495 – 0.5506)	—
Turning radius	3.1 m (10.2 ft)		
Toe-in (with 75 kg, 165 lbs)	5 ± 4 (0.20 ± 0.16)		
Chamber	– 0.9°		
Caster	8.5°		

ITEM		STANDARD/SPECIFICATION	LIMIT
Wheel rim size	Front	10 × 5.5 AT	—
	Rear	9 × 8.0 AT	—
Tire size	Front	AT22 × 7R10 ☆☆	—
	Rear	AT20 × 10R9 ☆☆	—
Tire type	Front	DUNLOP: KT331	—
	Rear	DUNLOP: KT335	—
Tire tread depth	Front	—	4.0 (0.16)
	Rear	—	4.0 (0.16)
Wheel axle runout	Rear	—	6.0 (0.24)

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	kPa	kgf/cm ²	psi
FRONT	30	0.30	4.4
REAR	27.5	0.275	4.0

VEHICLE LOAD CAPACITY LIMIT: 110 kg (243 lbs)

FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Use only unleaded gasoline of at least 87 pump octane ($\frac{R+M}{2}$) or 91 octane or higher rated by the research method. Gasoline containing MTBE (Methyl Tertiary Butyl Ether), less than 10 % ethanol, or less than 5 % methanol with appropriate cosolvents and corrosion inhibitor is permissible.		
Fuel tank including reserve	10.0 L (2.6/2.2 US/Imp qt)		
reserve	2.7 L (0.7/0.6 US/Imp qt)		
Engine oil type	SAE 10W-40, API SF or SG		
Engine oil capacity	Change	2 000 ml (2.1/1.8 US/Imp qt)	
	Filter change	2 100 ml (2.2/1.8 US/Imp qt)	
	Overhaul	2 200 ml (2.3/1.9 US/Imp qt)	