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**CF500-5 SERVICE
CF500-5A MANUAL**

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Zhejiang CFMOTO Power Co., Ltd.

Apr. 2009

FOREWORD

This manual contains an introductory description of procedures for inspection maintenance, overhaul, disassembly & assembly, removal and installation of components and parts, troubleshooting and service data together with illustrations of our All Terrain Vehicle Model CF500-5 and CF500-5A

Chapter 1 general service information, tools, vehicle structure and technical data.

Chapter 2: key points for inspection and adjusting, service guide.

Chapter 2 and after Chapter 3 disassembly of parts and components, installation, overhaul and troubleshooting.

The manufacturer reserves the right to make improvements or modifications to the products without prior notice. Overhaul and maintenance should be done according to the actual state and condition of the ATV.

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Converion table

Item	Example	Conversion
Pressure	200 kPa(2.00kgf/cm ²) 33kPa (250mmHg)	1kgf/cm ² =98.0665kPa 1kpa=1000Pa 1mmHg=133.322Pa=0.133322kPs
Torque	18N.m(1.8kgf-m)	1kgf.m=9.80665N.m
Volume	419ml	1ml=1cm ³ =1cc 1l=1000cm ³
Force	12N(1.2kgf)	1kgf=9.80665N

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Cautions

Safety Cautions

1. Hazardous components in exhaust. Do not run the engine in a enclosed or poorly ventilated place for long time.
2. Do not touch the engine or muffler with bare hands after the engine has just stopped to avoid scalding. Wear long-sleeve work clothes and gloves for operation.
3. Battery liquid (dilute sulfuric acid) is highly caustic and may cause burns to skin and eyes. Flush with water if splashed to skin and get immediate medical attention. Flush with water if splashed to clothes to avoid burns. Keep battery and liquid away from reach of children
4. Coolant is poisonous. Do not drink or splash to skin, eyes or clothes. Flush with plenty of soap water if splashed to skin. If splashed into eyes, flush with water and consult the doctor. If drinking the coolant, induce vomit and consult the doctor. Keep coolant away from reach of children.
5. Wear proper work clothes, cap and boots. If necessary, wear dust-glass, gloves and mask.
6. Gasoline is highly flammable. No smoking or fire. Also keep against sparks. Vaporized gasoline is also explosive. Operate in a well-ventilated place.
7. When charged, Battery may generate hydrogen which is explosive. Charge the battery in a well-ventilated place.
8. Be careful not to get clamped by the turning parts like wheels and clutch.
9. When more than two people are operating, keep reminding each other for safety purpose.

Cautions for Disassembling and Assembling

1. Use genuine CFMOTO parts, lubricants and grease
2. Clean the mud, dust before overhauling
3. Store the disassembled parts separately in order for correct assemble.
4. Replace the disassembled washers, o-rings, piston pin retainer, cotter pin with new ones.
5. Elastic retainers might get distorted after disassembled. Do not use the loosened retainers.
6. Clean and blow off the detergent after disassembling the parts. Apply lubricants on the surface of moving parts. Measure the data during disassembly for correct assembling.
7. If you do not know the length of screws, install the screws one by one and make sure they are screwed in with same depth.

14. Turn the inner and outer rings of ball bearing to make sure the bearing will turn smoothly.
 - Replace if the axial or radial play is too big.
 - If the surface is uneven, clean with oil and replace if the cleaning does not help. When pressing the bearing into the machine or to the shaft

15. Install the one-side dust-proof bearing in the right direction. When assembling the open type or double-side dustproof bearing, install with manufacturer's mark outward.
16. Keep the bearing block still when blowing dry the bearing after washing clean. Apply oil or lubricant before assembling.
17. Install the elastic circlip properly. Turn the circlip after assembling to make sure it has been installed into the slot.
18. After assembling, check if all the tightened parts are properly tightened and can move smoothly.
19. Brake fluid and coolant may damage coating, plastic and rubber parts. Flush these parts with water if splashed.
20. Install oil seal with the side of manufacturer's mark outward.
 - Do not fold or scratch the oil seal lip.
 - Apply grease to the oil seal lip before assembling
21. When installing pipes, insert the pipe till the end of joint. Fit the pipe clip, if any, into the groove. Replace the pipes or hoses that cannot be tightened.
22. Do not mix mud or dust into engine and/or the hydraulic brake system.
23. Clean the gaskets and washers of the engine casing before assembling. Remove the scratches on the joint faces by polishing evenly with an oilstone.
24. Do not twist or bend the cables too much. Distorted or damaged cables may cause poor
25. When assembling the parts of protection caps, insert the caps to the grooves, if any.

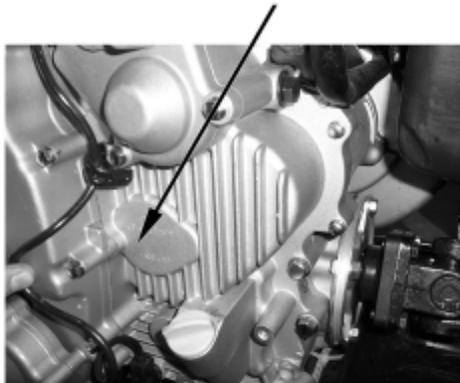
VIN Number and Engine Number

CF500-5/CF500-5A
VIN Number: LCELDTZ~
Engine Number:CF188~

1



Location of Engine Number



Location of VIN Number



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Main Data Table

Item		Parameter
Model		CF500-5/CF500-5A
Length		CF500-5: 2100mm CF500-5A: 2300mm
Width		1180mm
Height		1230mm
Wheel base		CF500-5: 1290mm CF500-5A: 1490mm
Engine type		CF188
Displacement		493Cm ³
Fuel type		Unleaded gasoline RQ-90or above
Dry weight		CF500-5: 344 kg CF500-5A: 358 kg
Number of Passengers		CF500-5:2 (Include driver)
Max. Load		210 kg
Tire	Front Tire	25×8-12 40J
		185/80-12 40J
	Rear Tire	25×10-12 47J
		270/60-12 47J
Min. Ground Clearance		Min. Ground Clearance
Turning Diameter		Turning Diameter
Engine	Starting	Electrical starting, Manual Starting
	Engine Type	Single cylinder, 4-stroke, Liquid-cooled, 4 valves, OHC
	Combustion Chamber Type	Triangle
	Valve Driving Type	SOHC /Chain Drive
	Bore × Stroke	87.5mm×82.0mm
	Compression Ratio	10.2:1
	Lubrication Type	Pressure & Splash
	Oil Pump Type	Rotor
	Lubricant Filter Type	Full flow filter screen
	Oil Type	SAE15W-40/SF
	Cooling Type	Closed coolant circulation
Coolant Type	-35℃ anti-rust coolant	

1 Maintenance Information

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Item		Parameter		
Fuel Device	Air Filter type	Sponge element filter		
	Carburetor	Type	Vacuum Diaphragm type MIKUNI BSR36-89	
		Diameter of mixing valve	36mm	
Gearing	Clutch	Wet, Auto-Centrifugal		
	Operation Mode	Automatic (CVT) +Parking & Gear Shifting		
	Gears Shift	Low Gear, High Gear & Reverse Gear		
	Shift Mode/order (CVT)	Manual /L-H-N-R		
	Transmission Ratio	2.88 ~ 0.70		
	Gear Ratio	Final Ratio	1.333 (24/18, Bevel Gear)	
		Secondary Ratio	1.952 (41/21)	
		Gears	Low Gear : 2.25(36/16); High Gear : 1.350(27/20) ; Reverse Gear : 1.471(25/17)	
		Total	Low Gear 5.857 ; High Gear : 3.514 ; Reverse Gear: 3.828	
	Axle Ratio	Front Axle	33 / 9 = 3.667	
		Rear Axle	33 / 9 = 3.667	
Engine Output Mode	Front/Rear Shaft			
Direction of Output Rotation	Clockwise on forward shift			
Steering Device	Steering Angle	Inner	31°	
		Outer	31°	
Brake Type	Front	Hydraulic Disc		
	Rear	Hydraulic Disc		
Bumper Device	Suspension	Swing Arm		
Frame Type	Welded Steel Tube and Plate			

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Maintenance Data Table

Lubrication System

Item		Standard	Service Limit
Engine Oil Capacity	Volume when replacing	1900mL	—
	Volume when replacing filter	2200mL	—
Recommended Oil (See Original)		Specially for 4-stroke motorcycle SAE-15W-40 Substitutes must be used in the following range. API type: SE or SF grade SAE type: Choose from the left chart according to the environmental temperature	
Oil Pump Rotor	Gap between Inner and Outer Rotors	0.03~0.1mm	0.15mm
	Gap between Outer rotor and body	0.03~0.1mm	0.12mm
	Oil pressure	130-170KPa at 3000r / min	

Fuel System

Item		Standard
Fuel Tank Capacity	Full capacity	19L
Carburetor	Type	MIKUNI BSR36-89
	Jet Number	07G0
	Mixing Valve Diameter (mm)	36mm
	Main Jet	N102221-130#
	Main air Jet	MD 13/24 -35#
	Needle	J8-5E26
	Main Nozzle	785-401011-P-0M
	Idle Jet	N224103-22.5#
	Idle Adjusting Screw	604-16013-1A
	Idle Speed	1300±100r / min

Cooling System

Item		Standard/ Parameter	Service Limit	Remark
Coolant Capacity	Full Capacity	2000ml		
	Reservoir tank capacity	300ml		
	Standard Density	50%		
Opening pressure of radiator cap				
Thermostat	Initial Temperature	72±2℃		
	Full opening Temperature	88℃		
	Full opening lift range	3.5~4.5mm/95°		
Temperature and Resistance of Water Temperature Sensor	Temperature(℃)	Resistance (Ω)		
	50	154±16		
	80	52±4		
	100	27±3		
Temperature of Thermostat	Close-Open	88℃Round		
	Open-Close	82℃Round		
Coolant Type	-35℃ anti-frozen, antiseptis, high-boil coolant			

Front Wheel

Item		Standard	Operation Limit
Front Wheel	Play of wheel rim	Vertical	1.0mm
		Horizontal	1.0mm
	Tire	Groove	—
		Pressure	35kPa (0.35kgf / cm ²)
			2.0mm
			2.0mm
			3.0mm
			—

Rear Wheel

Item		Standard	Operation Limit
Rear Wheel	Play of wheel rim	Vertical	1.0mm
		Horizontal	1.0mm
	Tire	Groove	—
		Pressure	30kPa (0.30kgf / cm ²)
			2.0mm
			2.0mm
			3.0mm
			—

Brake System

Item		Standard	Operation Limit
Front Brake	Brake End Play	0mm	—
	Brake Disc Thickness	3.5mm	2.5mm
Rear Brake	Brake End Play	5-10 mm	—
	Brake Pedal Play	0mm	—
	Brake Disc Thickness	7.5mm	6.5mm

Battery, Charging Device, Pickup Coil

1

Item		Standard	
AC Magneto Motor	Model	Permanent magnet AC Type	
	Output	3-phase AC	
	Charging Coil Resistance (20°)	0.2Ω-0.3Ω	
	Pickup Coil Resistance	110Ω-140Ω	
	Magneto without Load Voltage/(Idle Speed)	> 100V (AC), 5000r/min	
	Max. Output Power	300W, 5000r/min	
	Rated Voltage	13.5V-15.0V, 5000r/min	
	Peak Voltage of Pickup Coil	> 120V	
Rectifier		Three-phase annular rectification, Silicon controlled parallel-connected regulated voltage	
Battery	Capacity	Capacity	
	Terminal Point Voltage	Fully Charged	12.8V
		Insufficient Charged	<11.8V
	Charging Current/time	Standard	0.9A / 5~10H
Quick		4A / 1H	

Ignition Device

Item		Standard
Ignition		CDI ignition
Spark Plug	Type	Resistance Spark plug
	Standard	DPR7EA-9(NGK)
	Optional	DR8EA、D7RTC
	Spark plug gap	0.8-0.9mm
	Spark Characteristic	>8mm, 1mpa
Ignition Timing	BTDC10°CA 1500r/min	
Ignition Coil Resistance	Initial	0.1Ω-0.5Ω
	Secondary	12KΩ-22KΩ
Peak Voltage	Ignition Coil	> 150V
	Pulse Generator	2V
Starter Relay Coil Resistance		3Ω-5Ω
Secondary Starter Relay Coil Resistance		90Ω-100Ω

Lights Dashboard, Switch

Item		Standard
Fuse	Main	20A
	Auxiliary	10A×2 15A×2
Light, Bulb Fuse	Head Light (Hi / Lo)	12V—35W/35W×2
	Brake Light/ Tail Light	12V—5W×2
	Turning Light	12V—21W/5W
	Dashboard Indicator Light	12V—10W×4
	Indicators	φ5 LED
	Main	LCD

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Valve System + Cylinder Head

(mm)

Item	Standard		Operation Limit
Valve Diameter	Intake	30.6	——
	Exhaust	27.0	——
Valve Clearance(Idle Speed)	Intake	0.05-0.10	——
	Exhaust	0.17-0.22	——
Fit Clearance between Valve Guide and Valve Stem	Intake	0.010-0.037	——
	Exhaust	0.030-0.057	——
Internal dia. of Valve Guide	Intake & Exhaust	5.000-5.012	——
Exterior dia. of Valve Stem	Intake	4.975-4.990	——
	Exhaust	4.955-4.970	——
Valve Stem Run-out	Intake & Exhaust	——	0.05
Length of Valve Stem End	Intake & Exhaust	2.9-3.1	2.3
Thickness of Valve Head	Intake & Exhaust	——	0.5
Valve Head Seal Run-out	Intake & Exhaust	——	0.03
Width of Valve Seats Seal	Intake & Exhaust	0.9-1.1	——
Length of Valve Spring	Intake & Exhaust	40	38.8
Valve Spring Tension	Intake & Exhaust	Tension182-210N /Length31.5mm	——
Cam Height	Intake	33.430-33.490	33.130
	Exhaust	33.500-33.560	33.200
Fit Clearance between Camshaft Exterior dia. & Bore.	φ22	0.032-0.066	0.150
	φ17.5	0.028-0.059	0.150
Camshaft Exterior dia.	φ22	21.959-21.980	——
	φ17.5	17.466-17.484	——
Camshaft Bore Internal dia.	φ22	22.012-22.025	——
	φ17.5	17.512-17.525	——
Camshaft Run-out	——	——	0.10
Rocker Arm Internal dia.	Intake & Exhaust	12.000-12.018	——
Rocker Arm Shaft Exterior dia.	Intake & Exhaust	11.973-11.984	——
Plainness of Cylinder Head Adjoining Plant	0.03		0.05
Plainness of Cylinder Head Cover Adjoining Plant	0.03		0.05

1 Maintenance Information

Cylinder + Piston + Piston Ring+ Crankshaft

(mm)

Item	Standard		Operation Limit	Remark
Cylinder Pressure	1000kPa		————	
Fit Clearance between Piston and Cylinder	0.030-0.051		0.15	
Piston Skirt dia.	87.460-87.480 Testing the point away skirt end 10mm		87.380	
Internal dia. of Cylinder	87.500-87.522		————	
Plainness of Cylinder Adjoining Plant	0.015		0.05	
Piston Ring Free Gap	Top Ring	R	11.7 round	8.9
	2 nd Ring	R	12 round	9.5
Piston Ring Closed Gap	Top Ring		0.15-0.30	0.60
	2 nd Ring		0.15-0.30	0.60
Piston Annular Fit Clearance	Top Ring		0.04-0.08	0.180
	2 nd Ring		0.03-0.07	0.150
Thickness Piston Ring	Top Ring		0.97-0.99	————
	2 nd Ring		1.17-1.19	————
Piston Annular Width	Top Ring		1.03-1.05	————
	2 nd Ring		1.22-1.24	————
	Oil Ring		2.51-2.53	————
Internal dia. of Piston Pin Bore	23.002-23.008		23.030	
Exterior dia. Piston Pin	22.995-23.000		22.980	
Rod Small End Inner dia.	23.006-23.014		23.040	
Rod Big End Gap	0.10-0.55		1.0	
Rod Big End Thickness	24.95-25.00			
Crankshaft Run-out	0.03		0.08	

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Clutch + Transmission

(mm)

Item	Standard	Limit	Remark
Clutch Friction plate inner dia.	140.00-140.15	140.50	
Clutch Joint Rotation	1800-2400r/min	————	
Clutch lock-up Rotation	3300-3900r/min	————	
Drive Belt Width	35.2	33.5	
Driven Disc Spring Free Length	168	160	
Shifter and fit flute gap	0.10-0.40	0.50	
Left Shifter Sliding Thickness	5.8-5.9	————	
Right Shifter Sliding Thickness	5.8-5.9	————	
Plunging Flute Width	6.0-6.2	————	
Driven Output Gear Sliding Width	6.0-6.2	————	

1 Maintenance Information

1

Tightening Torque

Item	Torque N·m(kgf·m)	Item	Torque N·m(kgf·m)
5mm Bolt, nut	5(0.5)	5mm Screw	4(0.4)
6mm Bolt, nut	10(1.0)	6mm Screw	9(0.9)
8mm Bolt, nut	22(2.2)	6mmSH Bolt with flange,	10(1.0)
10mm Bolt, nut	34(3.5)	6mm Bolt with flange, nut	12(1.2)
12mm Bolt, nut	54(5.5)	8mm Bolt with flange, nut	26(2.7)
		10mm Bolt with flange, nut	39(4.0)

For others not listed in the chart, refer to the standard tightening torque.

Notes: Apply some engine oil on the part of screw thread and adjoining surface.

Item	Thread Dia. (mm)	Quantity	Torque N·m(kgf·m)	Remark
Upper Front Mounting Bolt, Engine	M8×60	1	35~45	
Upper Rear Mounting Bolt, Engine	M10×1.25×110	1	40~50	
Upper Rear Mounting Bracket Bolt, Engine	M8×14	1	35~45	
Upper Front Mounting Bracket Bolt, Engine	M8×14	1	35~45	
Low Mounting Bolt, Engine	M12×1.25×140	2	50~60	
Bolt, Swing Arm	M10×1.25×70	16	40~50	
Bolt, Rear Absorber	M10×1.25×50	4	40~50	
Bolt, Front Absorber	M10×1.25×50	4	40~50	
Bolt, Rear Wheel Shaft Holder	M10×1.25×100	4	40~50	
Mounting Nut, Rim	901-07.00.02 M20	16	50~60	
Nut, Rim Shaft	901-07.00.03 M10	4	110~130	
Mounting Screw, Rear Brake Caliper	M6×25	2	18~22	
Bolt, Rear Brake Caliper	M10×1.25×20	2	40~50	
Bolt, Front Brake Disc	901-08.00.03 M8×	8	25~30	
Bolt, Front Brake Caliper	M8×14	4	35~45	
Locknut, Steering Stem	M8×55	4	20~30	
Nut, Steering Stem	M10×1.25	4	40~50	
Locknut, Steering Shaft	M14×1.5	1	100~120	
Rear Mounting Bolt, Muffler	M8×30	1	30~35	
Bolt, Exhaust Pipe	M8×14	1	30~35	
Mounting Bolt, Exhaust Pipe	M8×40	1	30~35	
Mounting Bolt, Rear Axle	M10×1.25×110	2	40~50	
Mounting Bolt, Front Axle	M10×1.25×90	1	40~50	
Mounting Bolt, Front Axle	M10×1.25×25	2	40~50	
Back End Bolt, Rear Trans Shaft	901-30.00.01	6	40~50	
Front End Bolt, Rear Trans Shaft	901-29.00.01	4	35~45	
Bolt, Front Trans Shaft	901-29.00.01	8	35~45	
Thermo Switch	CF250T-420500	1	9~12	
Mounting Bolt 1, Front Rack	M8×14	2	35~45	
Mounting Bolt 2, Front Rack	M6×12	2	25~30	
Mounting Bolt, Rear Rack	M8×14	4	35~45	

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Engine Tightening Torque Table

Item	Q'ty	Screw dia. (mm)	Torque (N.m)	Remark
Sensor, Reverse Gear	1	M10×1.25	20	
Spark Plug	1	M12×1.25	18	
Water Temperature Sensor	1	Rc1/8	8	Apply screw thread sealant
Valve Clearance Adjusting Nut	4	M5	10	
Drive Disc Nut	1	M20×1.5	115	
Driven Disc Nut	1	M20×1.5	115	
Circle Nut, Driving Disc	1	M30×1	100	
Nut, Front Output Shaft	1	M14×1.5	97	
Nut, Drive Bevel Gear	1	M22×1	145	
Nut, Driven Bevel Gear	1	M16×1.5	150	
Fixing Nut, Clutch	1	M18×1.5	70	Left handed
Limiting Nut, Driven Bevel Gear Shaft	1	M60	110	Apply screw thread sealant
Limiting Nut, Front Output Shaft	1	M55	80	Apply screw thread sealant, left handed
Bolt, Swing Arm Shaft	2	M14×1.25	28	
Drain Bolt	1	M12×1.5	30	
Mounting Bolt, Overriding Clutch	6	M8	26	Apply screw thread sealant
Mounting Bolt, Magneto Stator	3	M6	10	Apply screw thread sealant
Bolt, CVT Windshield	3	M6	10	Apply screw thread sealant
Link Bolt, Oil Pipe	2	M14×1.5	18	
Mounting, Oil Pump	3	M6	10	
Mounting Bolt, Pressure Limiting Valve	2	M6	10	
Bolt, Drive Bevel Gear Cover	4	M8	32	
Bolt, Driven Bevel Gear Cover	4	M8	25	
Locating Bolt, Shift	1	M14×1.5	18	
Flange Bolt, Fan	1	M10×1.25	55	

1 Maintenance Information

1

Item	Quantity	Diameter (mm)	Torque (N.m)	Remark
Bolt, Crankcase	14	M6	10	
	3	M8	25	
Bolt, Driven Sector Gear	1	M6	12	
Mounting Bolt, Oil Filter	1	M20×1.5	63	
Oil Filter	1	3/4" (16 / in)	18~20	
Bolt, Starting Motor	2	M6	10	
Bolt, Cylinder Head	4	M10	38	
Bolt, Cylinder Head(2 sides)	2	M6	10	
	1	M8	25	
Upper and Lower Bolt, Cylinder	4	M6	10	
Bolt, Cylinder Head Cover	12	M6	10	
Bolt, Chain Tensioner	2	M6	10	
Nut, Chain Tensioner	1	M8	8	
Bolt, Radiator Fan	3	M6	10	
Thermostat Bolt	2	M6	10	
Bolt, Water Pump Cover	3	M6	6	
Mounting Bolt, Water Pump	2	M6	10	
Fixed Bolt, Timing Sprocket	2	M6	15	Apply screw thread sealant
Bolt without remarks		M5	4.5-6	
		M6	8-12	
		M8	18-25	

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Engine Tools

Measuring Tools				
No	Name	Type	Function	Remark
1	Vernier Calipers	0-150mm	measure length and thickness	
2	Micrometers	0-25mm	measure the outer diameters of swing arm, valve rod and camshaft	
3	Dial gauge	25-50mm	Measure max. lift range of camshaft	
4	Dial gauge	75-100mm	Measure piston skirt	
5	Inner dia. Gauge, Cylinder		Measure inner dia. of cylinder head	
6	Inner dia. Gauge,	10-34mm	Inner dia. of swing arm, piston pin hole, and rod head hole	
7	Dial Test Indicator	1/100	Run-out	
8	Knife Straight Edge		plainness	
9	Feeler Gauge		Plainness, adjusting valve clearance	
10	Fuel Level Gauge		Fuel level length of carburetor	
11	Plastic gauge		Fit clearance	
12	pull tension gauge		Spring bounce	
13	Tachometer		Engine rotation rate	
14	Cylinder Pressure Meter		pressure in cylinder	
15	Oil Pressure Gage		Oil pressure	
16	Barometer		Opening pressure of radiator cover	
17	Ohmmeter		Resistance and voltage	
18	Amperemeter		Opening of currency / switch	
19	Thermometer		Liquid temperature	
20	Timing Lights		Test spark timing	
21	Torque Tester	One Set	Tightening torque	
Auxiliary Measuring Instrument				
22	Alcohol Burner		Warming up	
23	Magnet Stand		Install dialgauge	
24	Slab		Auxiliary measure supplementary	
25	V-Block		Run-out supplementary	
26	Forcep		Install valve clip	
27	Plier		Disassemble and install circlip	
28	Joint Plier		Disassemble and install flange	
29	Impact Driver		Disassemble cross recessed bolt	
30	Slot Type Driver			
31	Cross Type Driver			

1 Maintenance Information

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Special Purpose Tools				
No	Name	Type	Function	Remark
1	Spark Plug Wrench	172MM-022400-922-004	Disassemble/ install spark plug	
2	CVT Wrench	CF 188-051000-922-001 CF 188-052000-922-001	Disassemble/install CVT drive/driven disc nut	
3	Oil Filter Wrench	CF 188-011300-922-001	Disassemble/ install oil filter	
4	Piston Pin Remover	CF 188-040004-922-002	Disassemble piston pin	
5	Magneto stator Remover	CF 188-031000-922-001	Disassemble magneto stator	
6	Crankcase Dissociator		Divide L/R crank case	
7	Crank Remover		Disassemble crank shaft from left crankcase	
8	Crank Tool		Install crank shaft on left crankcase	
9	Valve Spring Compressor	CF 188-022006-922-001	Disassemble/ install valve spring	
10	Valve Former	CF 188-022004-922-001	Grind valve	
11	Circle Nut Wrench	CF 188-052000-922-003	Disassemble CVT driven disc	
12	Driven Disc Clamp	CF 188-052000-922-004	Disassemble CVT driven disc	
13	Driven Disc Former	CF 188-052000-922-002	Disassemble CVT driven disc	
14	Limiting nut Wrench	CF 188-062204-922-001	Disassemble driven bevel gear bearing limiting nut	
15	Bearing Tool	One full set	Install bearing and oil ring	
16	Bearing Remover	One full set	Disassemble bearing	
17	Oil Ring Remover		Disassemble bearing	
18	Limiting Nut Wrench	CF 188-060008-922-001	Disassemble front output shaft bearing limiting nut	
19	Fixing Wrench	CF 188-A-180003-922-003	Disassemble fan connector flange, adjust valve clearance	

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Lubricant goose, Sealing Oil

Coated Section	Attention	Grease
Turning Bearings Throttle Cable Connecting Portion Throttle Pedal Movable Parts Brake Pedal Movable Parts Swing Arm Movable Parts Steering Inner Circle Surface Seat Lock Movable Parts Transmission Movable Parts		Multi-purpose grease

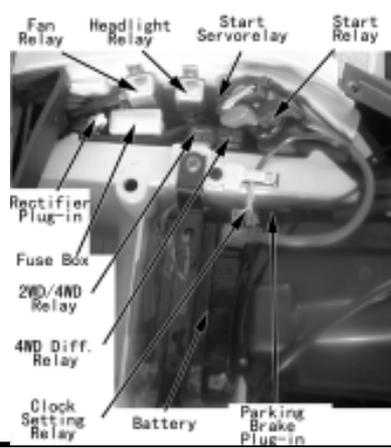
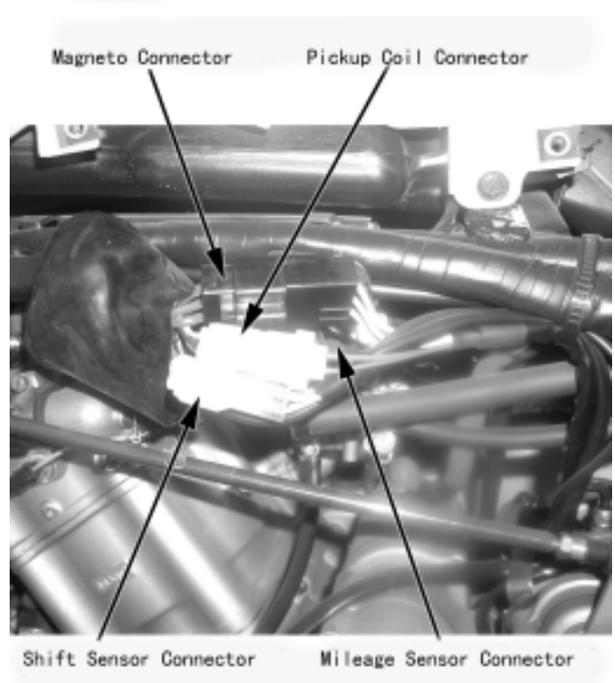
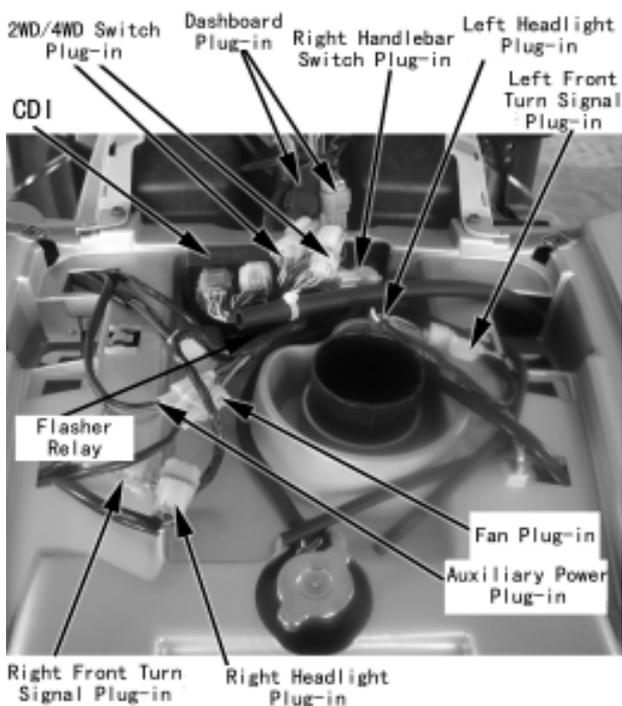
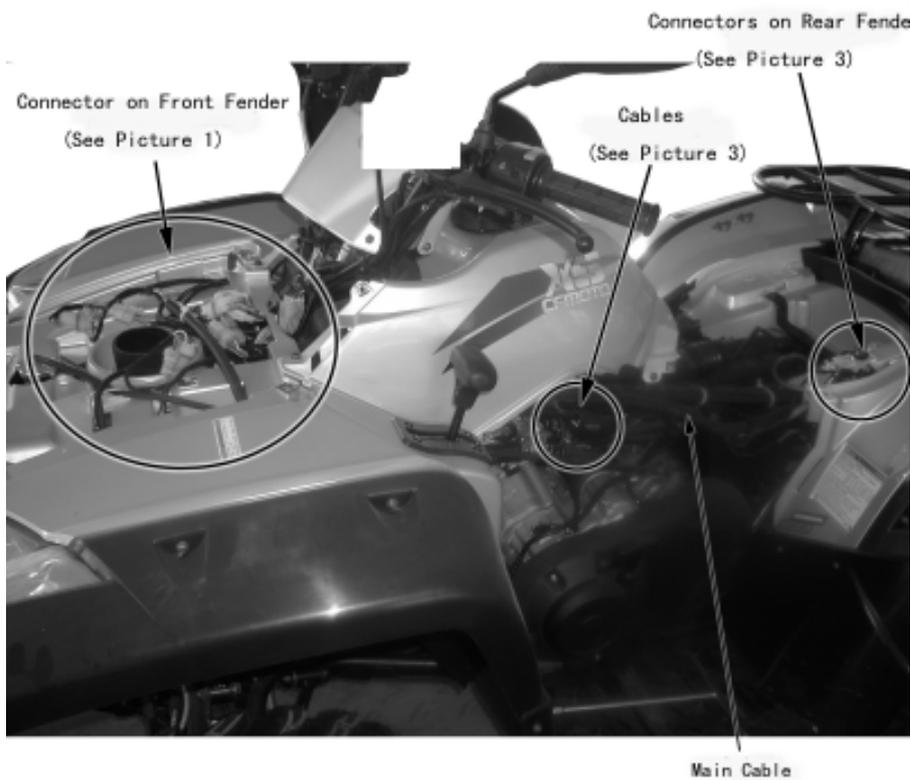
Operation Material and Installment Supplementary of Engine

Engine operation materials include lubricant (oil), grease (lubricant grease) and coolant, installment supplementary includes plane sealant and screw thread sealant.

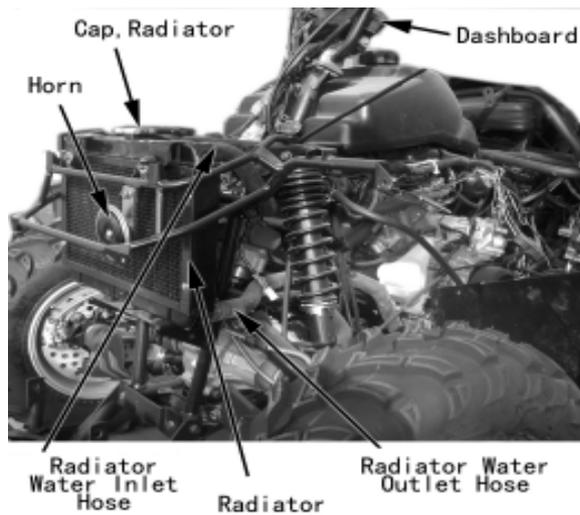
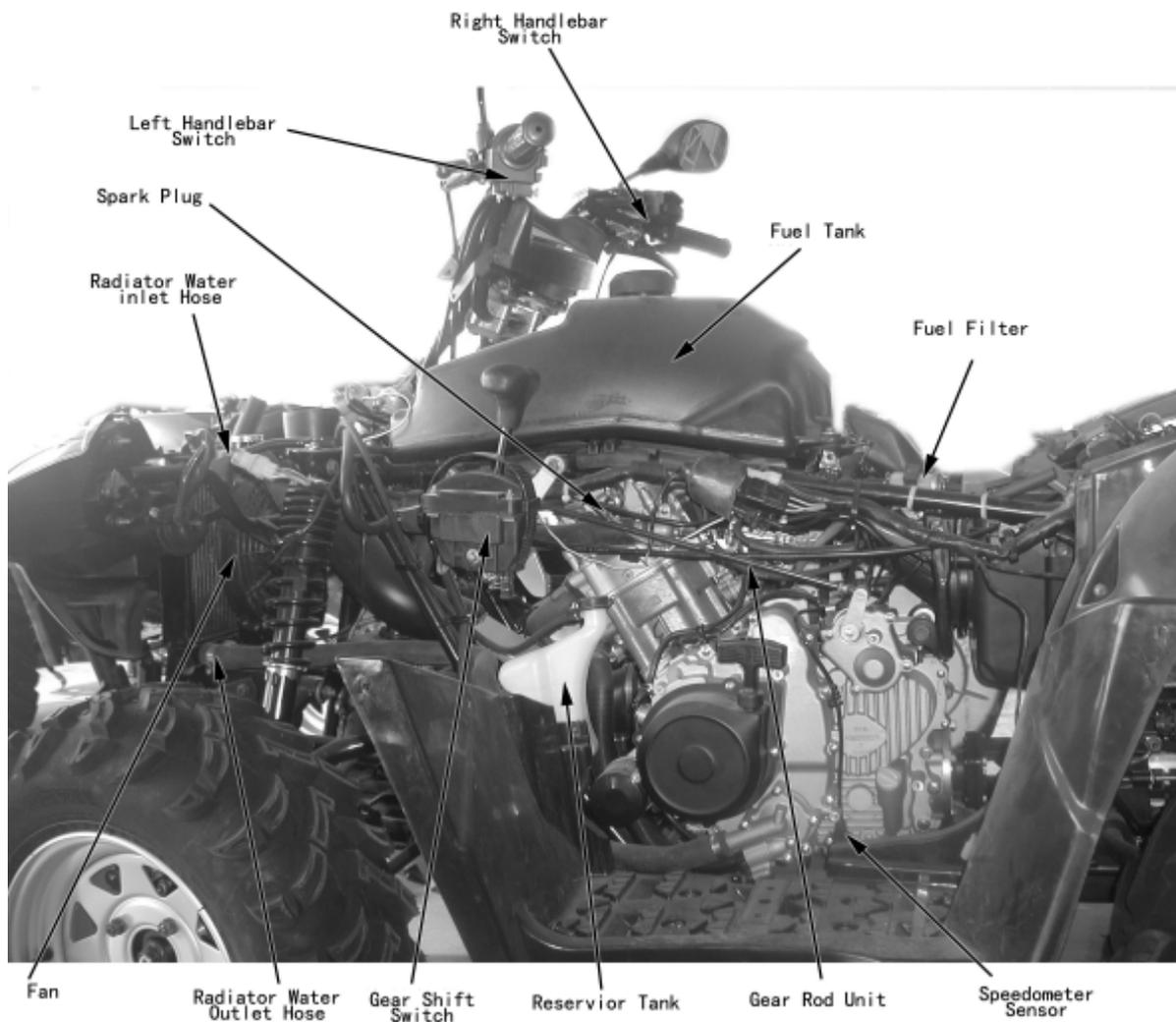
Name	Type	Parts	Remark
lubricant /oil	Specially for 4-stroke motorcycle SAE-10W-40、20W-50 Substitutes must be used in the following range. API type: SE or SG grade (Replacement see 1-3)	Rotating section and carriage in cylinder, Rotating section and carriage in crankcase Rotating section and carriage in cylinder head See Lubrication Systems Diagram (5-14)	capacity 2200m L (replace oil) 2300 m L (replace oil filter) 2600 m L (engine overhaul)
Lubricant with molybdenum		Piston pin, valve rod part, valve ring, cam shaft	
Grease/lubricant grease	# 3 MoS ₂ lithium based grease	Oil seal lip, O ring and other latex sealing, bearing with seals, and CVT bearing/housing	
Coolant	-35℃ anti-frozen, anti-rust, high-boiled coolant	Cooling system, water seals	Capacity based on radiator pipe system
Plane sealant		Coupling surfaces of cases, cases and cylinder, cylinder head and cylinder head cover	
Screw thread sealant		Some screw thread	

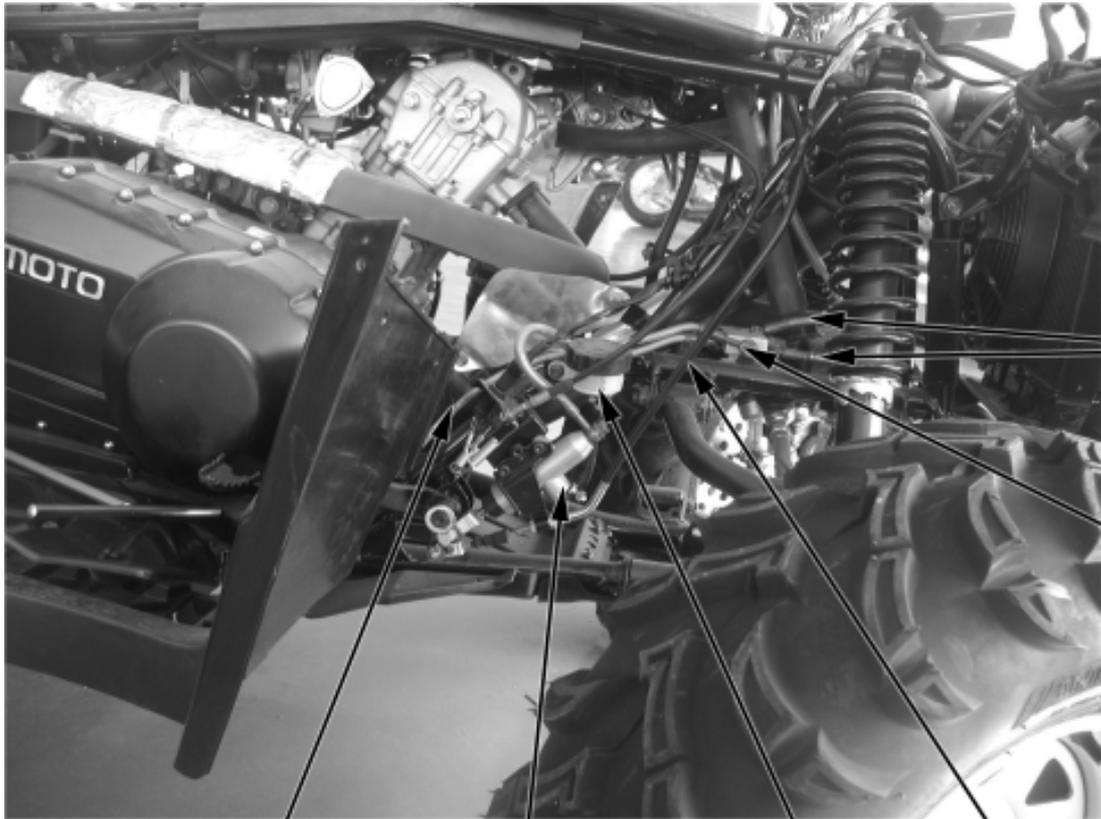
1 Maintenance Information

1



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Hose,
Front
Brake

Cross
Joint

Hose, Rear Brake

Brake Caliper

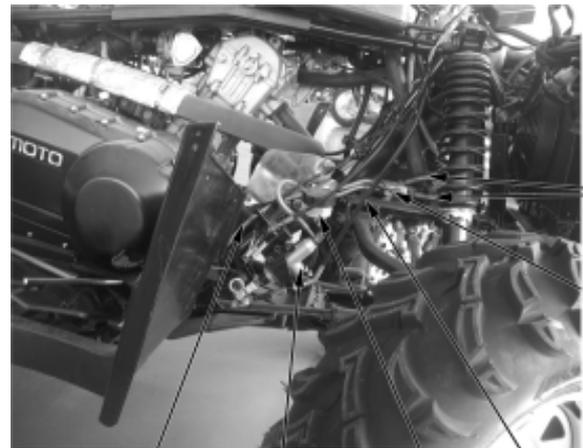
Brake Fluid Reservoir

Brake Cable



Ignition Switch

Subsidiary Power Connector



Hose,
Front
Brake

Cross
Joint

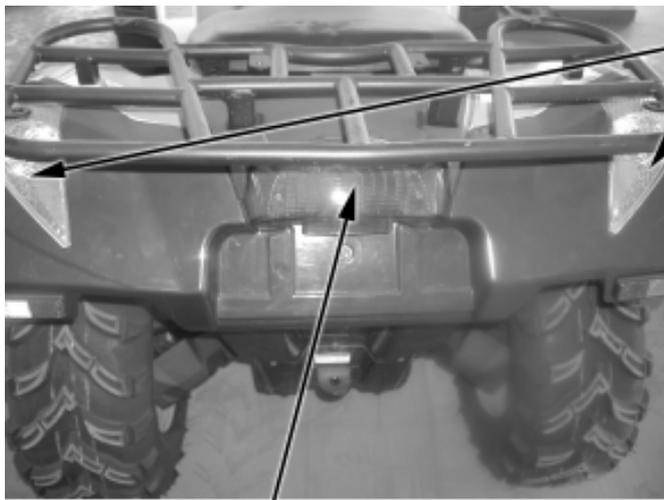
Hose, Rear Brake

Brake Caliper

Brake Fluid Reservoir

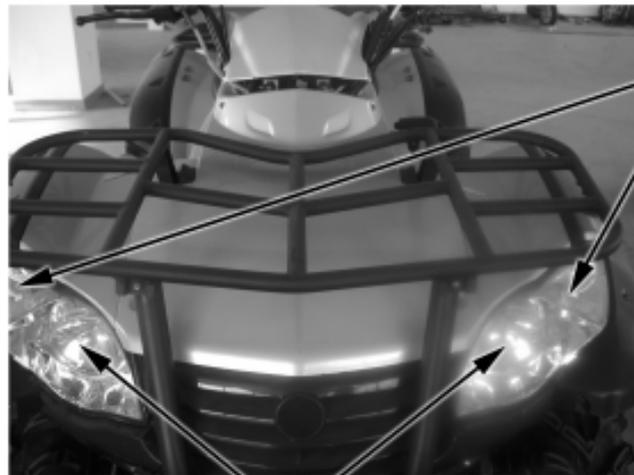
Brake Cable

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Rear Signal Light

Tail Light



Front Position Light

Head Light



Carbu-
retor

Air Cleaner Intake Pipe, Air Cleaner

Valve System + Cylinder Head

(mm)

Item	Standard		Operation Limit
Valve Diameter	Intake	30.6	——
	Exhaust	27.0	——
Valve Clearance(Idle Speed)	Intake	0.05-0.10	——
	Exhaust	0.17-0.22	——
Fit Clearance between Valve Guide and Valve Stem	Intake	0.010-0.037	——
	Exhaust	0.030-0.057	——
Internal dia. of Valve Guide	Intake & Exhaust	5.000-5.012	——
Exterior dia. of Valve Stem	Intake	4.975-4.990	——
	Exhaust	4.955-4.970	——
Valve Stem Run-out	Intake & Exhaust	——	0.05
Length of Valve Stem End	Intake & Exhaust	2.9-3.1	2.3
Thickness of Valve Head	Intake & Exhaust	——	0.5
Valve Head Seal Run-out	Intake & Exhaust	——	0.03
Width of Valve Seats Seal	Intake & Exhaust	0.9-1.1	——
Length of Valve Spring	Intake & Exhaust	40	38.8
Valve Spring Tension	Intake & Exhaust	Tension182-210N /Length31.5mm	——
Cam Height	Intake	33.430-33.490	33.130
	Exhaust	33.500-33.560	33.200
Fit Clearance between Camshaft Exterior dia. & Bore.	φ22	0.032-0.066	0.150
	φ17.5	0.028-0.059	0.150
Camshaft Exterior dia.	φ22	21.959-21.980	——
	φ17.5	17.466-17.484	——
Camshaft Bore Internal dia.	φ22	22.012-22.025	——
	φ17.5	17.512-17.525	——
Camshaft Run-out	——	——	0.10
Rocker Arm Internal dia.	Intake & Exhaust	12.000-12.018	——
Rocker Arm Shaft Exterior dia.	Intake & Exhaust	11.973-11.984	——
Plainness of Cylinder Head Adjoining Plant	0.03		0.05
Plainness of Cylinder Head Cover Adjoining Plant	0.03		0.05

Engine Tightening Torque Table

Item	Q'ty	Screw dia. (mm)	Torque (N.m)	Remark
Sensor, Reverse Gear	1	M10×1.25	20	
Spark Plug	1	M12×1.25	18	
Water Temperature Sensor	1	Rc1/8	8	Apply screw thread sealant
Valve Clearance Adjusting Nut	4	M5	10	
Drive Disc Nut	1	M20×1.5	115	
Driven Disc Nut	1	M20×1.5	115	
Circle Nut, Driving Disc	1	M30×1	100	
Nut, Front Output Shaft	1	M14×1.5	97	
Nut, Drive Bevel Gear	1	M22×1	145	
Nut, Driven Bevel Gear	1	M16×1.5	150	
Fixing Nut, Clutch	1	M18×1.5	70	Left handed
Limiting Nut, Driven Bevel Gear Shaft	1	M60	110	Apply screw thread sealant
Limiting Nut, Front Output Shaft	1	M55	80	Apply screw thread sealant, left handed
Bolt, Swing Arm Shaft	2	M14×1.25	28	
Drain Bolt	1	M12×1.5	30	
Mounting Bolt, Overriding Clutch	6	M8	26	Apply screw thread sealant
Mounting Bolt, Magneto Stator	3	M6	10	Apply screw thread sealant
Bolt, CVT Windshield	3	M6	10	Apply screw thread sealant
Link Bolt, Oil Pipe	2	M14×1.5	18	
Mounting, Oil Pump	3	M6	10	
Mounting Bolt, Pressure Limiting Valve	2	M6	10	
Bolt, Drive Bevel Gear Cover	4	M8	32	
Bolt, Driven Bevel Gear Cover	4	M8	25	
Locating Bolt, Shift	1	M14×1.5	18	
Flange Bolt, Fan	1	M10×1.25	55	

2 Vehicle Body and Muffler

Overhaul Info	2-1	Footrest Board (LH, RH)	2-10
Troubleshooting	2-1	Rear Fender, Engine Skid Plate (Front, Center, Rear), Double Seat, Protection Plate	2-11
Front Rack, Bolt Cap	2-2	Front Inner Fender (R&H), Front Protector (RH, LH)	2-13
Seat, Seat Support & Rear Rack	2-3	Rear Protector (RH,LH), Bumper, Bumper Protector	2-14
Front Top cover, Dashboard Cover	2-4	Bumper Cap	2-15
Side Support (LH&RH)	2-5	Front Vent Grille, Fuel Tank	2-16
Rear Top Cover	2-6	Bottom Plate, Fuel Tank	2-17
Left Side Panel	2-7	Muffler	2-18
Right Side Panel	2-8	Description of Visible Parts	2-19
Fuel Tank Top Cover, Front Fender	2-9		

Overhaul Information

Operation Cautions

Warning

Gasoline is highly flammable, therefore smoke and fire are strictly forbidden in the work place. Special attention should also be paid to sparks. Gasoline may also be explosive when it is vaporized, so operation should be done in a well-ventilated place.

Remove and Install muffler after it is fully cold.

- This chapter is on the disassembly and installation of rack, visible parts, exhaust pipe, muffler and fuel tank.
- Hoses, cables and wiring should be routed properly.
- Replace the gasket with a new one after muffler is removed.
- After muffler is installed, check if there is any exhaust leakage.

Tightening torque

Muffler Rear Fixing Bolt: 35-45N.m

Muffler Exhaust Pipe Bolt: 35-45N.m

Muffler Body Fixing Bolt: 35-45N.m

Troubleshooting

- Loud exhaust noise
 - Broken muffler
 - Exhaust leakage

Insufficient power

- Distorted muffler
- Exhaust leakage
- Muffler clogged

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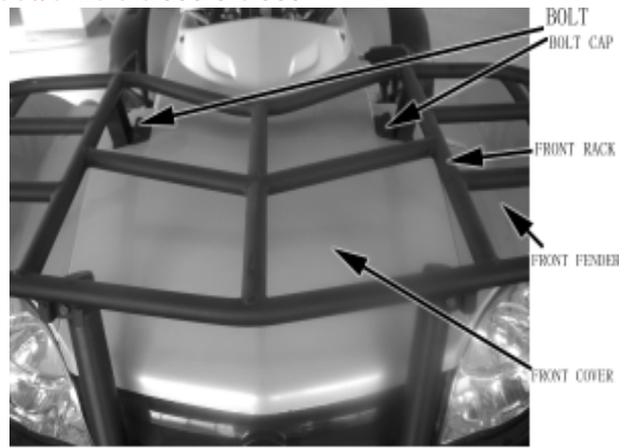
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Front Rack Bolt Cap

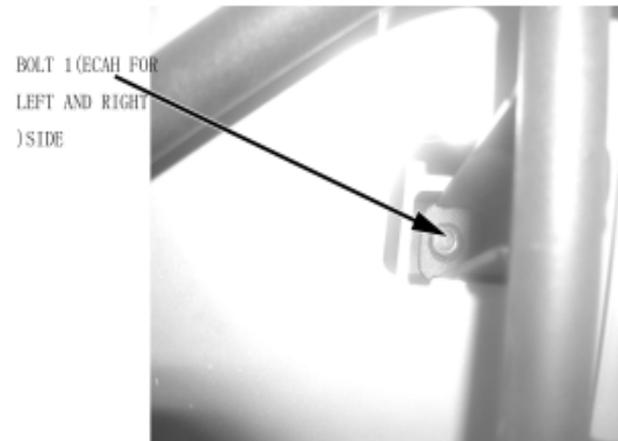
Remove:

Upwardly remove Bolt cap hard; two assembly bolts of front rack shall be seen.



Remove fixing Bolt 1

(one for each on the left and right)



Remove fixing Bolt 2

Remove front rack

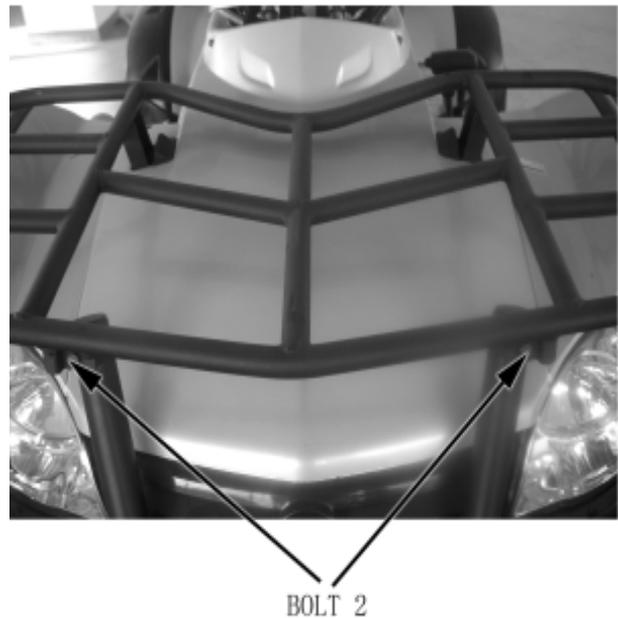
Installation:

Reverse the removal procedure for installation

Tightening Torque:

Fixing Bolt 1, Bolt 2 35 N.m -45N.m

Fixing Bolt 3, Bolt 4 25 N.m -30N.m



Sample of manual. Download All 254 pages at:

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