

SECTION 10 - AIDS FOR MAINTENANCE

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Torque Specifications (250/300)

DRIVE TRAIN COMPONENTS			
Part	Part Bolted To	Torque	
		kg-m	ft-lb
Front Driveshaft (Coupler)**	Flange	4.2	30
Engine	Sub-Frame (Front/Rear)	5.5	40
Engine/Sub-Frame	Frame	5.5	40
Frame*	Front Diff Bracket/Upper	4.2	30
Front Differential*	Frame/Diff Bracket/Lower	5.5	40
Diff Housing Cover***	Diff Housing	2.6	19
Drive Bevel Gear Nut***	Shaft	11-13	79.5-94
Differential Gear Case***	Hub	2.3-3	16.5-22
Hub Nut	Front/Rear Shaft/Axle (max)	10.4	75
Oil Drain Plug	Front Diff	0.5	3.5
Oil Fill Plug	Front Diff	2.2	16
Oil Drain Plug	Engine	2.2	16
Oil Fittings*	Engine	1.1	8
Shift Arm	Engine	1.4	10
High/Low Shift Arm	Engine	1.1	8
2W/4W Shift Arm	Front Diff	1.1	8
Wheel	Hub	5.5	40
EXHAUST COMPONENTS			
Part	Part Bolted To	Torque	
		kg-m	ft-lb
Header Pipe	Engine	1.1	8
ELECTRICAL COMPONENTS			
Part	Part Bolted To	Torque	
		kg-m	ft-lb
Ground Cable	Engine	1.1	8
STEERING COMPONENTS			
Part	Part Bolted To	Torque	
		kg-m	ft-lb
Handlebar Block	Steering Post	2.8	20
Steering Post Bearing Housings	Frame	2.8	20
Steering Post Bearing Flange	Frame	2.8	20
Lower Steering Bearing Washer Cap Screw***	Steering Post	5.5	40
Tie Rod End	Knuckle/Steering Post	4.2	30
BRAKE COMPONENTS			
Part	Part Bolted To	Torque	
		kg-m	ft-lb
Brake Disc*	Hub	2.1	15
Brake Hose	Caliper	4.2	30
Brake Hose	Master Cylinder	0.8	6
Auxiliary Brake Lever	Frame	9.7	70
Master Cylinder Cover	Master Cylinder	.03	10 in.-lb
Brake Pressure Switch	Front Brake Block	2.1	15
Hydraulic Caliper	Knuckle	2.8	20
Auxiliary Caliper	Knuckle	2.1	15

CHASSIS COMPONENTS			
Part	Part Bolted To	Torque	
		kg-m	ft-lb
Sub-Frame	Frame	5.5	40
Footrest	Frame (8 mm)	2.8	20
Footrest	Frame (10 mm)	5.5	40
Foot Shift Lever	Footrest	9.7	70
Gas Tank Valve	Gas Tank	0.1	1
Reverse Shift Lever *	Frame	2.8	20
SUSPENSION COMPONENTS (Front)			
Part	Part Bolted To	Torque	
		kg-m	ft-lb
A-Arm (All)	Frame	4.8	35
Ball Joint Cap Screw	Knuckle	4.8	35
Shock Absorber	Frame	4.8	35
Shock Absorber	Upper A-Arm	4.8	35
SUSPENSION COMPONENTS (Rear)			
Part	Part Bolted To	Torque	
		kg-m	ft-lb
Rear Shock	Sub-Frame	4.8	35
Rear Shock	Lower A-Arm	2.8	20
A-Arms (All)	Sub-Frame	4.8	35
Rear Knuckles	A-Arms	4.8	35
ENGINE/TRANSMISSION			
Part	Part Bolted To	Torque	
		kg-m	ft-lb
Air Cleaner Assy	Frame	1.1	8
Clutch Shoe	Crankshaft	11	79.5
Clutch Sleeve Hub	Countershaft	8	58
Crankcase Half (6 mm)	Crankcase Half	0.9-1.3	6.5-9.5
Crankcase Half (8 mm)	Crankcase Half	2-2.4	14.5-17
Cylinder Head Cap Nuts/Nut	Cylinder	2.5	18
Cylinder Head/Crankcase	Cylinder	1.1	8
Hi/Lo Shifter Arm	Shifter Arm Shaft	1.1	8
Left-Side Cover	Crankcase Half	0.9-1.3	6.5-9.5
Oil Pump*	Crankcase	1	7
Recoil Starter	Left-Side Cover	0.8	6
Reverse Gear Shaft	Reverse Shift Shaft	1.1	8
Right-Side Cover	Crankcase Half	0.9-1.3	6.5-9.5
Magneto Rotor Nut	Crankshaft	16	116
Shifter Arm	Shifter Arm Shaft	1.1	8
Cam Sprocket	Camshaft	1.15	8.5
Starter Cup	Crankshaft	3.5	25
Valve Cover	Cylinder	1	7
Spark Plug	Engine	1.7	12

* w/Blue Loctite #243

** w/Red Loctite #271

*** w/Green Loctite #609

Torque Specifications (400/500 - Manual Transmission)

DRIVE TRAIN COMPONENTS			
Part	Part Bolted To	Torque	
		kg-m	ft-lb
Front Driveshaft (Coupler)**	Rubber Coupler	5.5	40
Rubber Coupler**	Front Diff/Drive Flange	5.5	40
Engine (Lower Rear/Front)	Frame	5.5	40
Engine (Upper Front Inside Bracket/Topside)	Frame Bracket	2.8	20
Engine Mount (Left-Side Upper Rear)	Frame	1.7	12
Engine (Left-Side Upper Rear)	Mount	5.5	40
Front Differential*	Frame/Diff Bracket	5.5	40
Bearing Housing/Axle Assy	Axle Housing	5.5	40
Diff Housing Cover***	Diff Housing	2.6	19
Drive Bevel Gear Nut***	Shaft	11-13	79.5-94
Differential Gear Case***	Hub	2.3-3	16.5-22
Hub Nut	Front/Rear Shaft/Axle (max)	10.4	75
Oil Drain Plug	Front Diff/Rear Dr	0.5	3.5
Oil Fill Plug	Front Diff/Rear Dr	2.2	16
Oil Drain Plug	Engine	2.2	16
Inspection Plug	Rear Dr	0.5	3.5
2W/4W Shift Arm	Front Diff	1.1	8
Wheel	Hub	5.5	40
EXHAUST COMPONENTS			
Part	Part Bolted To	Torque	
		kg-m	ft-lb
Exhaust Pipe	Engine/Frame	2.8	20
ELECTRICAL COMPONENTS			
Part	Part Bolted To	Torque	
		kg-m	ft-lb
Coil*	Head Bracket	1.7	12
Ground Wire	Engine	1.1	8
STEERING COMPONENTS			
Part	Part Bolted To	Torque	
		kg-m	ft-lb
Handlebar Block	Steering Post	2.8	20
Steering Post Bearing Housings	Frame	2.8	20
Steering Post Bearing Flange	Frame	2.8	20
Lower Steering Bearing Washer Cap Screw***	Steering Post	5.5	40
Tie Rod End	Knuckle/Steering Post	4.2	30
BRAKE COMPONENTS			
Part	Part Bolted To	Torque	
		kg-m	ft-lb
Brake Disc*	Hub	2.1	15
Brake Hose	Caliper	4.2	30
Brake Hose	Master Cylinder	0.8	6
Master Cylinder Cover	Master Cylinder	.03	10 in.-lb
Brake Pressure Switch	Front Brake Block	2.1	15
Auxiliary Brake Lever	Footrest	9.7	70
Hydraulic Caliper	Knuckle/Axle Retainer Assy	2.8	20
Auxiliary Caliper	Knuckle/Axle Retainer Assy	2.1	15

CHASSIS COMPONENTS			
Part	Part Bolted To	Torque	
		kg-m	ft-lb
Footrest	Frame (8 mm)	2.8	20
Footrest	Frame (10 mm)	5.5	40
Gas Tank Valve	Gas Tank	0.1	1
Reverse Shift Lever*	Frame	2.8	20
SUSPENSION COMPONENTS (Front)			
Part	Part Bolted To	Torque	
		kg-m	ft-lb
A-Arm (All)	Frame	4.8	35
Ball Joint Cap Screw	Knuckle	4.8	35
Shock Absorber	Frame	4.8	35
Shock Absorber	Upper A-Arm	4.8	35
SUSPENSION COMPONENTS (Rear)			
Part	Part Bolted To	Torque	
		kg-m	ft-lb
Axle Retainer Assy	Axle Housing	5.5	40
Axle Housing/Hitch	Rear Gear Case	4.8	35
Axle Housing/Hitch	Rear Gear Case (New)	5.5	40
Shock Absorber	Axle Housing/Frame	4.8	35
Swing Arms	Axle Housing	4.8	35
Swing Arms **	Frame	4.8	35
ENGINE/TRANSMISSION			
Part	Part Bolted To	Torque	
		kg-m	ft-lb
Clutch Shoe	Crankshaft	13	94
Clutch Sleeve Hub	Countershaft	10	72
Crankcase Half (6 mm)	Crankcase Half	0.9-1.3	6.5-9.5
Crankcase Half (8 mm)	Crankcase Half	2-2.4	14.5-17
Cylinder Head (Cap Screws)	Cylinder	3.8	27.5
Cylinder Head (6 mm Nuts)	Cylinder	1.1	8
Cylinder Head (8 mm Nut)	Cylinder	2.5	18
Left-Side Cover	Crankcase Half	0.9-1.3	6.5-9.5
Mechanical Water Pump Impeller	Pump Shaft	1.05	7.5
Oil Pump Drive Gear	Crank Balancer Shaft	8	58
Oil Pump*	Crankcase	1	7
Output Shaft Gear	Output Shaft	10	72
Rear Output Shaft	Output Joint	2.8	20
Recoil Starter	Left-Side Cover	0.8	6
Reverse Cam Stopper Housing	Crankcase	2.3	16.5
Right-Side Cover	Crankcase	0.9-1.3	6.5-9.5
Magneto Rotor Nut	Crankshaft	16	116
Shift Stop Housing	Crankcase	2.3	16.5
Cam Sprocket	Camshaft	1.5	11
Starter Cup	Crankshaft	3.5	25
Spark Plug	Engine	1.7	12

* w/Blue Loctite #243

** w/Red Loctite #271

*** w/Green Loctite #609

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Torque Specifications (400/500 - Automatic Transmission)

DRIVE TRAIN COMPONENTS			
Part	Part Bolted To	Torque kg-m	Torque ft-lb
Front Driveshaft (Coupler)**	Rubber Coupler	5.5	40
Rubber Coupler**	Front Diff/Drive Flange	5.5	40
Engine Mount (Front Upper)	Frame	2.8	20
Engine Bracket (Upper)	Engine	2.8	20
Engine Mounting Through-Bolts	Frame	5.5	40
Engine Mount (Upper Rear)	Frame	1.7	12
Front Differential*	Frame/Diff Bracket	5.5	40
Rear Output Joint Assy	Engine	2.8	20
Bearing Housing/Axle Assy	Axle Housing	5.5	40
Diff Housing Cover***	Diff Housing	2.6	19
Drive Bevel Gear Nut***	Shaft	11-13	79.5-94
Differential Gear Case***	Hub	2.3-3	16.5-22
Hub Nut	Front/Rear Shaft/Axle (max)	10.4	75
Oil Drain Plug	Front Diff/Rear Dr	0.5	3.5
Oil Fill Plug	Front Diff/Rear Dr	2.2	16
Oil Drain Plug	Engine	2.2	16
Inspection Plug	Rear Drive	0.5	3.5
2W/4W Shift Arm	Front Diff	1.1	8
Wheel	Hub	5.5	40
EXHAUST COMPONENTS			
Part	Part Bolted To	Torque kg-m	Torque ft-lb
Exhaust Pipe	Engine/Frame	2.8	20
ELECTRICAL COMPONENTS			
Part	Part Bolted To	Torque kg-m	Torque ft-lb
Coil*	Head Bracket	1.7	12
Ground Wire	Engine	1.1	8
STEERING COMPONENTS			
Part	Part Bolted To	Torque kg-m	Torque ft-lb
Handlebar Block	Steering Post	2.8	20
Steering Post Bearing Housings	Frame	2.8	20
Steering Post Bearing Flange	Frame	2.8	20
Lower Steering Bearing Washer Cap Screw***	Steering Post	5.5	40
Tie Rod End	Knuckle/Steering Post	4.2	30

BRAKE COMPONENTS			
Part	Part Bolted To	Torque kg-m	Torque ft-lb
Brake Disc*	Hub	2.1	15
Brake Hose	Caliper	4.2	30
Brake Hose	Master Cylinder	0.8	6
Master Cylinder Cover	Master Cylinder	.03	10 in.-lb
Brake Pressure Switch	Front Brake Block	2.1	15
Auxiliary Brake Lever	Footrest	9.7	70
Hydraulic Caliper	Axle Retainer Assy	2.8	20
Auxiliary Caliper	Axle Retainer Assy	2.1	15
CHASSIS COMPONENTS			
Part	Part Bolted To	Torque kg-m	Torque ft-lb
Footrest	Frame (8 mm)	2.8	20
Footrest	Frame (10 mm)	5.5	40
Gas Tank Valve	Gas Tank	0.1	1
Reverse Shift Lever*	Frame	2.8	20
SUSPENSION COMPONENTS (Front)			
Part	Part Bolted To	Torque kg-m	Torque ft-lb
A-Arm (All)	Frame	4.8	35
Ball Joint Cap Screw	Knuckle	4.8	35
Shock Absorber	Frame	4.8	35
Shock Absorber	Upper A-Arm	4.8	35
SUSPENSION COMPONENTS (Rear)			
Part	Part Bolted To	Torque kg-m	Torque ft-lb
Axle Retainer Assy	Axle Housing	5.5	40
Axle Housing/Hitch	Rear Gear Case	4.8	35
Axle Housing/Hitch	Rear Gear Case (New)	5.5	40
Swing Arms	Axle Housing	4.8	35
Swing Arms**	Frame	4.8	35
Shock Absorber	Axle Housing/Frame	4.8	35
SUSPENSION COMPONENTS (Rear) TBX Model			
Part	Part Bolted To	Torque kg-m	Torque ft-lb
Axle Retainer Assy	Axle Housing	5.5	40
Axle Housing	Rear Gear Case	4.8	35
Axle Housing	Rear Gear Case (New)	5.5	40
Swing Arm	Frame	5.5	40
Shock Absorber	Frame	4.8	35
Shock Absorber	Swing Arm	4.8	35
Cargo Box Frame	ATV Frame	4.8	35
Cargo Box (Plastic)	Cargo Box Frame	1.7	12
Axle Housing	Swing Arm	4.8	35
Side Box (Upper)	Frame	2.8	20
Side Box (Lower)	Frame	2.5	18
Rear Gear Case U-Joint**	Driveshaft	5.5	40

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** w/Red Loctite #271

*** w/Green Loctite #609

ENGINE/TRANSMISSION			
Part	Part Bolted To	Torque	
		kg-m	ft-lb
Clutch Shoe	Crankshaft	13	94
Clutch Cover/ Housing Assy	Crankcase	1.1	8
Crankcase Half (6 mm)	Crankcase Half	0.9-1.3	6.5-9.5
Crankcase Half (8 mm)	Crankcase Half	2-2.4	14.5-17
Cylinder Head (Cap Screws)	Crankcase	3.8	27.5
Cylinder Head (6 mm)	Cylinder	1.1	8
Cylinder Head (8 mm)	Cylinder	2.5	18
Fixed Driven	Clutch Shaft	10.4-11.8	75-85
Ground Wire	Engine	1.1	8
Magneto Cover	Crankcase	1.1	8
Mechanical Water Pump Impeller	Pump Shaft	1.05	7.5
Movable Drive Face	Driveshaft	10.4-11.8	75-85
Oil Pump Drive Gear	Crank Balancer Shaft	5	36
Output Shaft Gear	Output Shaft	10	72
Recoil Starter	Left-Side Cover	0.8	6
Magneto Rotor Nut	Crankshaft	16	116
Cam Sprocket	Camshaft	1.5	11
Starter Cup	Crankshaft	3.5	25
V-Belt Cover	Crankcase	1.1	8
Plenum***	Engine	1.1	8
Spark Plug	Engine	1.7	12

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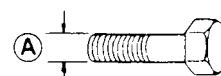
*** w/Green Loctite #609

Torque Conversions

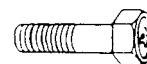
ft-lb	kg-m	ft-lb	kg-m	ft-lb	kg-m	ft-lb	kg-m	ft-lb	kg-m
1	0.1	21	2.9	41	5.7	61	8.4	81	11.2
2	0.3	22	3.0	42	5.8	62	8.6	82	11.3
3	0.4	23	3.2	43	5.8	63	8.7	83	11.5
4	0.6	24	3.3	44	6.1	64	8.9	84	11.6
5	0.7	25	3.5	45	6.2	65	9.0	85	11.8
6	0.8	26	3.6	46	6.4	66	9.1	86	11.9
7	1.0	27	3.7	47	6.5	67	9.3	87	12.0
8	1.1	28	3.9	48	6.6	68	9.4	88	12.2
9	1.2	29	4.0	49	6.8	69	9.5	89	12.3
10	1.4	30	4.2	50	6.9	70	9.7	90	12.5
11	1.5	31	4.3	51	7.1	71	9.8	91	12.6
12	1.7	32	4.4	52	7.2	72	10.0	92	12.8
13	1.8	33	4.6	53	7.3	73	10.1	93	12.9
14	1.9	34	4.7	54	7.5	74	10.2	94	13.0
15	2.1	35	4.8	55	7.6	75	10.4	95	13.1
16	2.2	36	5.0	56	7.7	76	10.5	96	13.3
17	2.4	37	5.1	57	7.9	77	10.7	97	13.4
18	2.5	38	5.3	58	8.0	78	10.8	98	13.6
19	2.6	39	5.4	59	8.2	79	10.9	99	13.7
20	2.8	40	5.5	60	8.3	80	11.1	100	13.8

Tightening Torque (General Bolts)

Type of Bolt	Thread Diameter (A) (mm)	Tightening Torque	
		kg-m	ft-lb
(Conventional or 4 Marked Bolt)	5	0.2-0.4	1.5-3.0
	6	0.4-0.7	3.0-5.0
	8	1.0-1.6	7.0-11.5
	10	2.2-3.5	16.0-25.5
(7 Marked Bolt)	5	0.3-0.6	2.0-4.5
	6	0.8-1.2	6.0-8.5
	8	1.8-2.8	13.0-20.0
	10	4.0-6.0	29.0-43.5



Conventional Bolt



4 Marked Bolt



7 Marked Bolt