

# Specifications\*

## (500 cc - Manual Transmission)

VALVES AND GUIDES	
Valve Face Diameter (intake)	30.6 mm (1.20 in.)
(exhaust)	27.0 mm (1.06 in.)
Valve/Tappet Clearance (cold engine) (intake)	0.05-0.10 mm (0.002-0.004 in.)
(exhaust)	0.17-0.22 mm (0.007-0.009 in.)
Valve Guide/Stem Clearance (intake)	0.010-0.037 mm (0.0004-0.0015 in.)
(exhaust)	0.030-0.057 mm (0.0012-0.0022 in.)
Valve Guide/Valve Stem Deflection (max) (wobble method)	0.35 mm (0.014 in.)
Valve Guide Inside Diameter	5.000-5.012 mm (0.1969-0.1973 in.)
Valve Stem Outside Diameter (intake)	4.975-4.990 mm (0.1959-0.1965 in.)
(exhaust)	4.955-4.970 mm (0.1951-0.1957 in.)
Valve Stem Runout (max)	0.05 mm (0.002 in.)
Valve Head Thickness (max)	0.5 mm (0.02 in.)
Valve Stem End Length (max)	1.8 mm (0.07 in.)
Valve Face/Seat Width	0.9-1.1 mm (0.035-0.043 in.)
Valve Seat Angle (intake)	45°
(exhaust)	45°
Valve Face Radial Runout (max)	0.03 mm (0.001 in.)
Valve Spring Free Length (max) (inner)	35 mm (1.38 in.)
(outer)	37.8 mm (1.49 in.)
Valve Spring Tension @ 28 mm (1.10 in.) (inner)	5.3-6.5 kg (11.7-14.3 lb)
Valve Spring Tension @ 31.5 mm (1.24 in.) (outer)	13.1-15.1 kg (28.9-33.3 lb)
CAMSHAFT AND CYLINDER HEAD	
Cam Lobe Height (min) (intake)	33.150 mm (1.305 in.)
(exhaust)	33.220 mm (1.308 in.)
Camshaft Journal Oil Clearance (max)	0.15 mm (0.0059 in.)
Camshaft Journal (right & center) Holder Inside Diameter (left)	22.012-22.025 mm (0.8666-0.8671 in.)
(right)	17.512-17.525 mm (0.6894-0.6900 in.)
Camshaft Journal (right & center) Outside Diameter (left)	21.959-21.980 mm (0.8645-0.8654 in.)
(right)	17.465-17.484 mm (0.6876-0.6883 in.)
Camshaft Runout (max)	0.10 mm (0.004 in.)
Rocker Arm Inside Diameter	12.000-12.018 mm (0.472-0.473 in.)
Rocker Arm Shaft Outside Diameter	11.973-11.984 mm (0.4714-0.4718 in.)
Cylinder Head Distortion (max)	0.05 mm (0.002 in.)
Cylinder Head Cover Distortion (max)	0.05 mm (0.002 in.)

CYLINDER, PISTON, AND RINGS	
Piston Skirt/Cylinder Clearance	0.038-0.076 mm (0.0015-0.0030 in.)
Cylinder Bore	87.500-87.515 mm (3.4448-3.4454 in.)
Piston Diameter 15 mm (0.6 in.) from Skirt End	87.465-87.470 mm (3.4435-3.4437 in.)
Piston Ring Free End Gap (max) (1st Ring)	11.3 mm (0.4448 in.)
(2nd Ring)	9.7 mm (0.3818 in.)
Bore x Stroke	87.5 x 82 mm (3.40 x 3.22 in.)
Cylinder Trueness (max)	0.05 mm (0.002 in.)
Ring End Gap-Installed (max)	0.70 mm (0.0275 in.)
Piston Ring to Groove Clearance (max) (1st)	0.180 mm (0.0071 in.)
(2nd)	0.150 mm (0.0059 in.)
Piston Ring Groove Width (1st)	1.01-1.03 mm (0.0397-0.0405 in.)
(2nd)	1.21-1.23 mm (0.0476-0.0484 in.)
(oil)	2.51-2.53 mm (0.0988-0.0996 in.)
Piston Ring Thickness (1st)	0.97-0.99 mm (0.0382-0.0389 in.)
(2nd)	1.17-1.19 mm (0.046-0.047 in.)
Piston Pin Bore (max)	23.03 mm (0.907 in.)
Piston Pin Outside Diameter (min)	22.98 mm (0.905 in.)
CRANKSHAFT	
Connecting Rod (small end inside diameter) (max)	23.04 mm (0.9070 in.)
Connecting Rod (big end side-to-side) (max)	0.1-1.0 mm (0.004-0.039 in.)
Connecting Rod (big end width)	24.95-25 mm (0.9822-0.9842 in.)
Connecting Rod (small end deflection) (max)	3 mm (0.12 in.)
Crankshaft (web-to-web)	70.9-71.1 mm (2.796-2.804 in.)
Crankshaft Runout (max)	0.08 mm (0.003 in.)
Oil Pump Reduction Ratio	1.45 (29/20)
Oil Pressure at 60°C (above) (140°F) @ 3000 RPM (below)	1.3 kg/cm <sup>2</sup> (18 psi)
	1.7 kg/cm <sup>2</sup> (24 psi)

# Periodic Maintenance Chart

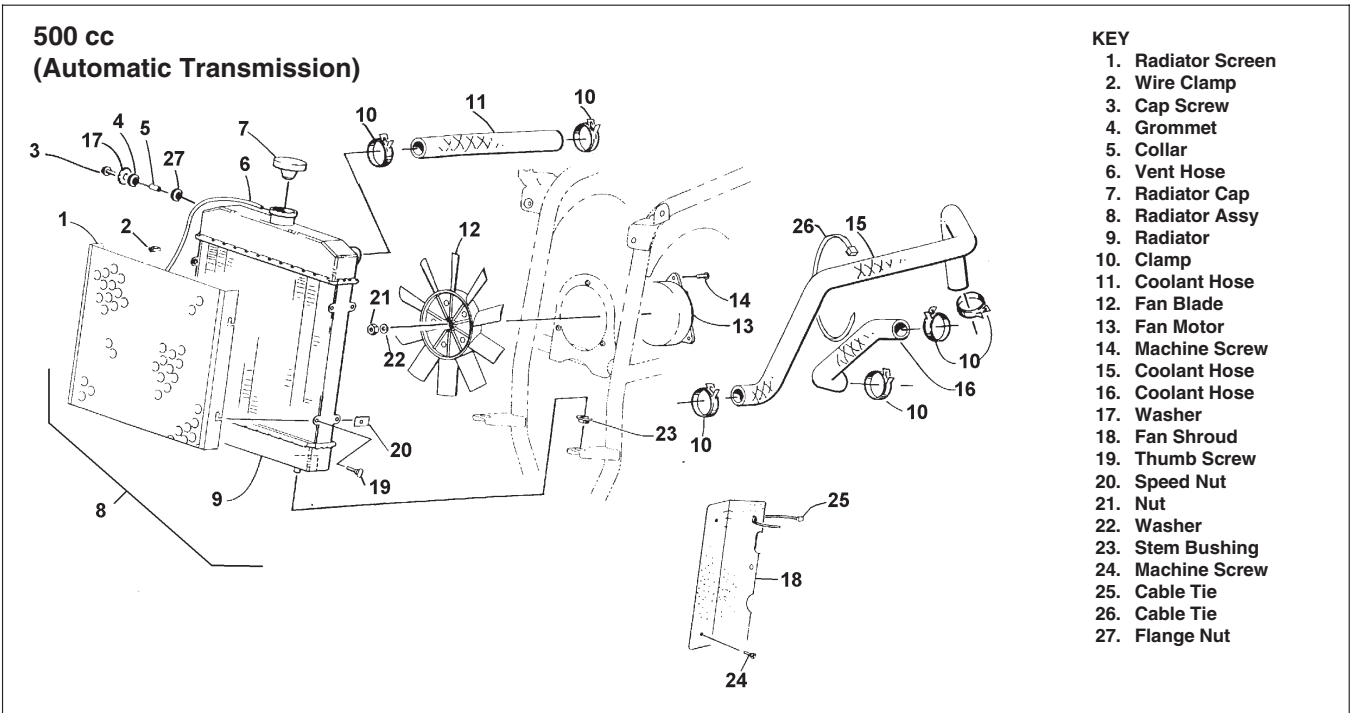
A = Adjust  
C = Clean  
D = Drain

I = Inspect  
L = Lubricate  
R = Replace

Item	Initial Service After Break-In (First Mo or 200 Mi)	Every Day	Every Month or Every 100 Miles	Every 3 Months or Every 300 Miles	Every 6 Months or Every 500 Miles	Every Year or Every 1500 Miles	As Needed
Battery	I		I				C
Fuses				I			R
Air Filter/Drain Tube	I	I	C*				R
Valve/Tappet Clearance	I				I		A
Engine Compression						I	
Spark Plug				I			R (4000 Mi or 18 Mo)
Muffler/Spark Arrester						C	R
Gas/Vent Hoses		I					C
Gas Tank Valve						I	C
Throttle Cable	I	I			C, L		A, R
Carb Float Chamber				D*			
Engine RPM (Idle)	I				I		A
Engine-Transmission Oil Level		I					A
Engine-Transmission Oil/Filter	R		I		R*		R
Oil Strainer	I				I		C
Front Differential/Rear Drive Lubricant	I		I	I	I	R	
Clutch	I				I		A
Tires				I			R
Steering Components	I	I		I			R
V-Belt	I				I		R
Suspension (Ball joint boots, drive axle boots front and rear, tie rods, differential and rear drive bellows)				I*			R
Nuts/Cap Screws/Screws	I			I	I		A
Ignition Timing						I	
Headlight/Taillight-Brakelight	I	I					R
Switches		I					R
Reverse Shift Lever					I		A, L
Choke Cable				I	C,L		R
Recoil Starter		I					C/R
Handlebar Grips		I					R
Handlebars		I					R
Gauges/Indicators		I					R
Frame/Welds/Racks			I		I		
Electrical Connections					I		C
Complete Brake System (Hydraulic & Mechanical)	I	I		C			L, R
Brake Pads	I			I*			R
Brake Fluid	I			I			R (2 Yrs)
Brake Hoses	I			I			R (4 Yrs)
Coolant/Cooling System	I		I				R (2 Yrs)
Coolant/Cooling System	I		I				R (2 Yrs)

\* Service/Inspect more frequently when operating in adverse conditions.

Fig. 4-118



0735-528

The cooling system capacity is approximately 2.9 L (3 U.S. qt). The cooling system should be inspected daily for leakage and damage. Also, the coolant level should be checked periodically.

When filling the cooling system, use premixed Arctic Cat Antifreeze (p/n 0638-395). While the cooling system is being filled, air pockets may develop; therefore, run the engine for five minutes after the initial fill, shut the engine off, and then fill the cooling system to 1/2 in. above the radiator core.

Fig. 4-119



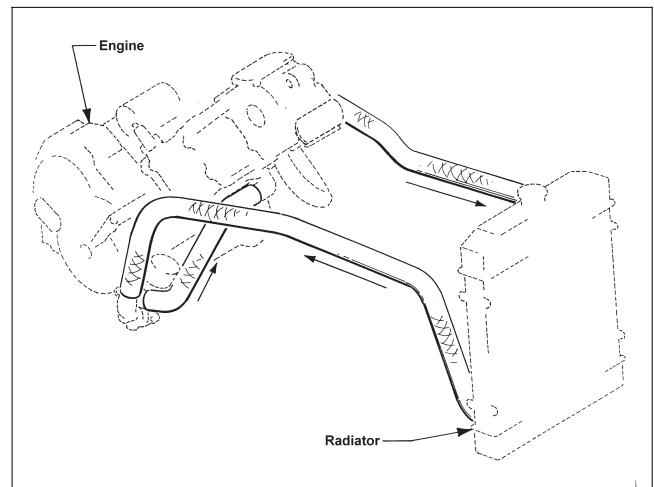
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**CAUTION**

After operating the ATV for the initial 5-10 minutes, stop the engine, allow the engine to cool down, and check the coolant level. Add coolant as necessary.

**Radiator**

Fig. 4-120



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**REMOVING**

1. Drain the coolant at the engine.
2. Remove the front rack (see Section 8).
3. Remove the front fenders (see Section 8).
4. Remove the four machine screws securing the fender panels to the radiator.