




FOREWORD

This Arctic Cat Service Manual contains service, maintenance, and troubleshooting information for the 2009 Arctic Cat 366 ATV. The complete manual is designed to aid service personnel in service-oriented applications.

This manual is divided into sections. Each section covers a specific ATV component or system and, in addition to the standard service procedures, includes disassembling, inspecting, and assembling instructions. When using this manual as a guide, the technician should use discretion as to how much disassembly is needed to correct any given condition.

The service technician should become familiar with the operation and construction of each component or system by carefully studying the complete manual. This manual will assist the service technician in becoming more aware of and efficient with servicing procedures. Such efficiency not only helps build consumer confidence but also saves time and labor.

All Arctic Cat ATV publications and decals display the words Warning, Caution, Note, and At This Point to emphasize important information. The symbol  **WARNING** identifies personal safety-related information. Be sure to follow the directive because it deals with the possibility of severe personal injury or even death. The symbol  **CAUTION** identifies unsafe practices which may result in ATV-related damage. Follow the directive because it deals with the possibility of damaging part or parts of the ATV. The symbol  **NOTE:** identifies supplementary information worthy of particular attention. The symbol  **AT THIS POINT** directs the technician to certain and specific procedures to promote efficiency and to improve clarity.

At the time of publication, all information, photographs, and illustrations were technically correct. Some photographs used in this manual are used for clarity purposes only and are not designed to depict actual conditions. Because Arctic Cat Inc. constantly refines and improves its products, no retroactive obligation is incurred.

All materials and specifications are subject to change without notice.

Keep this manual accessible in the shop area for reference.

**Product Service and
Warranty Department
Arctic Cat Inc.**

SECTION 1 - GENERAL INFORMATION/ SPECIFICATIONS

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General Specifications*

CHASSIS	
Brake Type	Hydraulic w/Brake Lever Lock and Auxiliary Brake
Tire Size	Front - 24 x 8-12 Rear - 24 x 10-12
Tire Inflation Pressure	0.28 kg/cm ² (4 psi)
MISCELLANY	
Gas Tank Capacity (rated)	15.1 L (4.0 U.S. gal.)
Rear Drive Capacity	250 ml (8.5 fl oz)**
Front Differential Capacity	275 ml (9.3 fl oz)***
Engine Oil Capacity	3.3 L (3.5 U.S. qt) - Overhaul 2.8 L (3.0 U.S. qt) - Change
Gasoline (recommended)	87 Octane Regular Unleaded
Engine Oil (recommended)	Arctic Cat ACX All Weather (Synthetic)
Differential/Rear Drive Lubricant	SAE Approved 80W-90 Hypoid
Drive Belt Width (minimum)	28.5 mm (1.12 in.)
Brake Fluid	DOT 4
Taillight/Brakelight	12V/5W/21W
Headlight	12V/35W (4)

* Specifications subject to change without notice.

** One inch below plug threads.

*** At the plug threads.

Torque Specifications

EXHAUST COMPONENTS			
Part	Part Bolted To	Torque	
		ft-lb	N-m
Exhaust Pipe	Engine	20	27
Spark Arrester	Muffler	48 in.-lb	5.5
ELECTRICAL COMPONENTS			
Coil	Frame	12	16
Starter Motor Positive Cable	Starter Motor	8	11
STEERING COMPONENTS			
Steering Post Bearing Housing	Frame	20	27
Handlebar Cap	Steering Post	20	27
Lower Steering Post Bearing Cap Screw	Steering Post	40	54
Tie Rod End**	Steering Post Arm	30	41
BRAKE COMPONENTS			
Brake Disc*	Hub	15	20
Brake Hose	Caliper	20	27
Brake Hose	Master Cylinder	20	27
Brake Hose	Auxiliary Brake Cylinder	20	27
Master Cylinder (Rear)	Frame	8	11
Master Cylinder Clamp Screws (Front)	Master Cylinder	5.5	8
Hydraulic Caliper	Knuckle	20	27
CHASSIS COMPONENTS			
Footrest	Frame (8 mm)	20	27
Bumper	Frame (10 mm)	35	47

SUSPENSION COMPONENTS (Rear)			
Part	Part Bolted To	Torque	
		ft-lb	N-m
A-Arm	Frame	35	47
Knuckle	Ball Joint	35	47
Shock Absorber	Frame	35	47
Shock Absorber	Upper A-Arm	35	47
Knuckle	A-Arm	35	47
SUSPENSION COMPONENTS (Rear)			
Shock Absorber (Upper)	Frame	35	47
Shock Absorber (Lower)	Lower A-Arm	35	47
A-Arm	Frame	35	47
Knuckle	A-Arm	35	47
ENGINE/TRANSMISSION			
Clutch Shoe**	Crankshaft	147	199
Clutch Cover/Housing Assembly	Crankcase	8	11
Left-Side Cover	Crankcase	8	11
Crankcase Half (6 mm)	Crankcase Half	10	13.5
Crankcase Half (8 mm)	Crankcase Half	21	28
Cylinder Nut	Crankcase Half	8	11
Cylinder Head (Cap Screw)	Crankcase	28	38
Cylinder Head (6 mm)	Cylinder	8	11
Cylinder Head (8 mm)	Cylinder	20	27
Cylinder Head Cover	Cylinder Head	8	11
Crankshaft Balancer Drive Gear**	Crankshaft	63	86
Driven Pulley Nut**	Driveshaft	147	199
Ground Cable	Engine	8	11
Output Shaft Flange Nut	Output Shaft	74	101
Magneto Rotor Nut	Crankshaft	107	146
Cam Sprocket**	Camshaft	11	15
V-Belt Cover	Crankcase	8	11
Valve Adjuster Jam Nut	Valve Adjuster	7	9.5
Oil Fitting	Engine	8	11
Oil Pump*	Crankcase	8	11
Movable Drive Face Nut**	Clutch Shaft	147	199
Oil Cooler Hose Clamps	Engine/Oil Cooler	30 in.-lb	3.4
DRIVE TRAIN COMPONENTS			
Engine Mounting Through-Bolt	Frame	38	52
Front Differential*	Frame/Differential Bracket	38	52
Output Flange	Rear Flange Output Joint	20	27
Input Shaft Housing	Differential Housing	23	31
Differential Housing Cover***	Differential Housing	23	31
Drive Bevel Gear Nut**	Shaft	59	80
Driven Bevel Gear Nut**	Driven Shaft	59	80
Hub Nut	Shaft/Axle (max)	200	272
Oil Drain Plug	Front Differential/Rear Drive	45 in.-lb	5
Oil Fill Plug	Front Differential/Rear Drive	16	22
Oil Drain Plug	Engine	20	27
Wheel	Hub	40	54
Rear Drive Gear Case	Frame	38	52
Engine Output Flange	Rear Gear Case Input Flange	20	27

* w/Blue Loctite #243



** w/Red Loctite #271

*** w/Green Loctite #609

Torque Conversions (ft-lb/N-m)

ft-lb	N-m	ft-lb	N-m	ft-lb	N-m	ft-lb	N-m
1	1.4	26	35.4	51	69.4	76	103.4
2	2.7	27	36.7	52	70.7	77	104.7
3	4.1	28	38.1	53	72.1	78	106.1
4	5.4	29	39.4	54	73.4	79	107.4
5	6.8	30	40.8	55	74.8	80	108.8
6	8.2	31	42.2	56	76.2	81	110.2
7	9.5	32	43.5	57	77.5	82	111.5
8	10.9	33	44.9	58	78.9	83	112.9
9	12.2	34	46.2	59	80.2	84	114.2
10	13.6	35	47.6	60	81.6	85	115.6
11	15	36	49	61	83	86	117
12	16.3	37	50.3	62	84.3	87	118.3
13	17.7	38	51.7	63	85.7	88	119.7
14	19	39	53	64	87	89	121
15	20.4	40	54.4	65	88.4	90	122.4
16	21.8	41	55.8	66	89.8	91	123.8
17	23.1	42	57.1	67	91.1	92	125.1
18	24.5	43	58.5	68	92.5	93	126.5
19	25.8	44	59.8	69	93.8	94	127.8
20	27.2	45	61.2	70	95.2	95	129.2
21	28.6	46	62.6	71	96.6	96	130.6
22	29.9	47	63.9	72	97.9	97	131.9
23	31.3	48	65.3	73	99.3	98	133.3
24	32.6	49	66.6	74	100.6	99	134.6
25	34	50	68	75	102	100	136

Tightening Torque (General Bolts)

Type of Bolt	Thread Diameter A (mm)	Tightening Torque
(Conventional or 4 Marked Bolt) 	5	12-36 in.-lb
	6	36-60 in.-lb
	8	7-11 ft-lb
	10	16-25 ft-lb
(7 Marked Bolt) 	5	24-48 in.-lb
	6	6-8 ft-lb
	8	13-20 ft-lb
	10	29-43 ft-lb

Break-In Procedure

A new ATV and an overhauled ATV engine require a “break-in” period. The first 10 hours (or 200 miles) are most critical to the life of this ATV. Proper operation during this break-in period will help assure maximum life and performance from the ATV.

During the first 10 hours (or 200 miles) of operation, always use less than 1/2 throttle. Varying the engine RPM during the break-in period allows the components to “load” (aiding the mating process) and then “unload” (allowing components to cool). Although it is essential to place some stress on the engine components during break-in, care should be taken not to overload the engine too often. Do not pull a trailer or carry heavy loads during the 10-hour break-in period.

When the engine starts, allow it to warm up properly. Idle the engine several minutes until the engine has reached normal operating temperature. Do not idle the engine for excessively long periods of time.

During the break-in period, a maximum of 1/2 throttle is recommended; however, brief full-throttle accelerations and variations in driving speeds contribute to good engine break-in.

After the completion of the break-in period, the engine oil and oil filter should be changed. Other maintenance after break-in should include checking of all prescribed adjustments and tightening of all fasteners.

Gasoline - Oil - Lubricant

RECOMMENDED GASOLINE

The recommended gasoline to use is 87 minimum octane regular unleaded. In many areas, oxygenates (either ethanol or MTBE) are added to the gasoline. Oxygenated gasolines containing up to 10% ethanol, 5% methane, or 5% MTBE are acceptable gasolines.

When using ethanol blended gasoline, it is not necessary to add a gasoline antifreeze since ethanol will prevent the accumulation of moisture in the fuel system.

CAUTION

Do not use white gas. Only Arctic Cat approved gasoline additives should be used.

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for your reading.**

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