




FOREWORD

This Arctic Cat Service Manual contains service, maintenance, and troubleshooting information for the 2008 Arctic Cat 700 Diesel 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 specific symbols 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.**

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ATV
SERVICE MANUAL



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General Specifications*

FUEL INJECTION	
Type	Lombardini Unit Injectors
Idle RPM (engine warm)	800-900
Throttle Cable Free-Play (at lever)	1/4 in.
ELECTRICAL	
Glow Plug Type	Lombardini
Alternator	Denso 12V/40 Amp
CHASSIS	
Brake Type	Hydraulic w/Brake Lever Lock and Auxiliary Brake
Tire Size	Front - 25 x 8-12 Rear - 25 x 10-12
Tire Inflation Pressure	0.35 kg/cm ² (5 psi)
MISCELLANY	
Fuel Tank Capacity (rated)	20.81 L (5.5 U.S. gal.)
Coolant Capacity	5.6 L (5.9 U.S. qt)
Differential Capacity	275 ml (9.3 fl oz)**
Rear Drive Capacity	250 ml (8.5 fl oz)**
Engine Oil Capacity (with filter)	2.0 L (2.1 U.S. qt)
Engine Oil Capacity (without filter)	1.9 L (2.0 U.S. qt)
Transmission Capacity	600 ml (20.3 fl oz)
Fuel (recommended)	Biodiesel Blend up to 20% (B20)/42-50 Cetane Diesel - #1 or #2/JP 5 or JP 8 Turbine
Engine Oil (recommended)	SAE 10W-40
Differential/Rear Drive Lubricant	SAE Approved 80W-90 Hypoid
Transmission Lubricant	SAE Approved 80W-90 Hypoid
Drive Belt Width (minimum)	31.25 mm (1.23 in.)
Brake Fluid	DOT 4
Taillight/Brakelight	12V/8W/27W
Headlight	12V/27W (2)

* Specifications subject to change without notice.

** One inch below plug threads.

Torque Specifications

DRIVE TRAIN COMPONENTS			
Part	Part Bolted To	Torque	
		ft-lb	N-m
Engine Mount (Top)**	Frame	35	48
Engine Mount (Front/Rear)	Frame	20	27
Front Differential***	Frame/Differential Bracket	38	52
Rear Drive Gear Case	Frame	38	52
Input Housing	Gear Case Housing	23	31
Output Drive Nut	Output Driveshaft	72	98
Differential Housing Cover**	Differential Housing	23	31
Drive Bevel Gear Retaining Nut**	Secondary Output Shaft	87	118
Lock Collar	Differential Housing	125	170
Hub Nut	Shaft/Axle (min)	200	272
Drain Plug	Front Differential/ Rear Drive	42 in.-lb	5
Fill Plug	Front Differential/ Rear Drive	16	22
Oil Drain Plug	Engine	18	24
Wheel	Hub	45	61
EXHAUST COMPONENTS			
Exhaust Pipe	Cylinder Head	14	19
ELECTRICAL COMPONENTS			
Ground Wire	Transmission	8	11
STEERING COMPONENTS			
Handlebar Cap	Steering Post	20	27
Steering Post Bearing Housing	Frame	20	27
Steering Post Bearing Flange	Frame	20	27
Tie Rod End	Knuckle/Steering Post	30	41
BRAKE COMPONENTS			
Brake Disc***	Hub	15	19
Brake Hose	Caliper	20	27
Brake Hose	Master Cylinder	20	27
Brake Hose	Auxiliary Brake Cylinder	20	27
Auxiliary Brake Pedal	Lever Axle	25	34
Auxiliary/Hydraulic Caliper	Knuckle	20	27
CHASSIS COMPONENTS			
Shift Lever***	Shift Axle	8	11
SUSPENSION COMPONENTS (Front)			
A-Arm	Frame	35	48
Ball Joint Cap Screw	Knuckle	35	48
Shock Absorber	Frame	35	48
Shock Absorber	Upper A-Arm	35	48
Knuckle	A-Arm	35	48
SUSPENSION COMPONENTS (Rear)			
A-Arm	Frame	40	54
Shock Absorber (Upper)	Frame	35	48
Shock Absorber (Lower)	Lower A-Arm	20	27
Knuckle	A-Arm	35	48


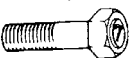
ENGINE/TRANSMISSION			
Part	Part Bolted To	Torque	
		ft-lb	N-m
Transmission Mounting Plate	Crankcase/Transmission	35	48
Connecting Rod Cap	Connecting Rod	29	40
Main Bearing Cap	Engine Block	44	60
Rocker Arm Support	Cylinder Head	29	40
Valve Cover	Cylinder Head	6.5	9
Driven Pulley Nut	Fixed Face	125	170
Drive Clutch	Flywheel/PTO Shaft	40	54
Movable Drive Face*	Fixed Drive Hub	85	116
Oil Pump	Engine Block	22	30
Output Shaft	Output Shaft Coupler	20	27
Starter	V-Belt Housing	35	48
Flywheel/PTO Shaft	Crankshaft	40	54
Crankshaft Pulley	Timing Belt Drive Pulley	9	12
Glow Plug	Cylinder Head	18	24
Crankshaft Pulley	Crankshaft	260	354
Timing Belt Idler Nut	Engine Block	29	39
V-Belt Cover	V-Belt Housing	9	12
V-Belt Housing	Crankcase/Transmission	25	34
Fuel Rail	Unit Injectors	36 in.-lb	4
Gear Case (Left)	Gear Case (Right)	8	11
Oil Pan	Crankcase	7	10
Oil Pan Cover	Oil Pan	7	10
Crankshaft Seal/Flange	Engine Block	9	12
Camshaft Support Housing	Cylinder Head	7	10
Fuel Injector Control Rack	Unit Injector	11 in.-lb	1.2
Unit Injector Retainer Nut	Cylinder Head (4 Steps)	15	20
Camshaft Drive Pulley	Camshaft	59	80
Lift Pump Eccentric	Camshaft	59	80
Water Pump	Engine Block	22	30

* w/Red Loctite #271

** w/Green Loctite #609

*** w/Blue Loctite #243

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

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

1

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.

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.

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