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

## FOREWORD

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This Arctic Cat Service Manual contains service, maintenance, and troubleshooting information for the 2009 Arctic Cat ATV 150. This 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 this 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.**

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# ATV SERVICE MANUAL

# SECTION 1 - GENERAL INFORMATION

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# General Specifications\*

CHASSIS	
Dry Weight (approx)	157.9 kg (349 lb)
Length (overall)	177.8 cm (69.9 in.)
Height (overall)	103.8 cm (40.9 in.)
Width (overall)	95.0 cm (37.4 in.)
Brake Type	Double Drum w/Parking Brake (Front) Hydraulic Disc (Rear)
Tire Size	(Front) AT21 x 7-10 (Rear) AT22 x 10-10
Tire Inflation Pressure	(Front) 27.6 kPa (4 psi) (Rear) 24.1 kPa (3.5 psi)
MISCELLANY	
Gas Tank Capacity (rated)	8.0 L (2.14 U.S. gal.)
Engine Oil Capacity	1.0 L (1.06 U.S. qt)
Transmission Lubricant Capacity	(Overhaul) 400 ml (13.5 fl/oz) (Change) 200 ml (6.7 fl/oz)
Gasoline (recommended)	87 Octane Regular Unleaded
Engine Oil (recommended)	Arctic Cat ACX All Weather (Synthetic)
Brake Fluid	DOT 4
Taillight/Brakelight	12V/5W/21W (2)
Parking Lights	12V/5W (2)
Headlight	12V/35W/35W (2)
Starting System	Electric w/Kick Start (Emergency)

\* Specifications subject to change without notice.

# Torque Specifications

DRIVE TRAIN COMPONENTS			
Part	Part Bolted To	Torque	
		ft-lb	N-m
Engine Mounting Through Bolt	Frame	29	39
Engine Mounting Bracket Cap Screw	Frame	29	39
Gear Case	Swing Arm	50	68
Wheel Lug Nut	Hub	32	44
Hub Nut	Axle	50	68
Rear Axle Nut*	Axle	86	117
EXHAUST COMPONENTS			
Exhaust Pipe	Cylinder Head	25	34
ELECTRICAL COMPONENTS			
Starter Motor Lead Nut	Starter	36 in.-lb	5
Starter Motor Mounting Cap Screw	Crankcase	7	10



STEERING COMPONENTS			
Part	Part Bolted To	Torque	
		ft-lb	N-m
Handlebar Clamp Cap Screw	Steering Head	15	20
Steering Post Support Block	Frame	15	20
Steering Post Nut	Steering Post	50	68
Steering Knuckle	Steering Knuckle	32	44
Tie Rod End Nut	Steering Arm	29	40
Tie Rod End Nut	Steering Knuckle	32	44
Tie Rod Lock Nut	Tie Rod	22	30
BRAKE COMPONENTS			
Brake Hose Union Bolt	Master Cylinder	24	33
Brake Bleed Screw	Caliper	56 in.-lb	5
Brake Caliper Mounting Cap Screw	Swing Arm Housing	24	33
Master Cylinder	Handlebar	9	12
Brake Pad Alignment Pin (Rear)	Brake Caliper	13	18
Brake Caliper (Rear)	Swing Arm Housing	24	33
SUSPENSION COMPONENTS (Front)			
A-Arm Pivot Nut	Frame	32	44
Front Shock Absorber Mounting Nut* (Upper/Lower)	Frame/A-Arm	29	39
SUSPENSION COMPONENTS (Rear)			
Swing Arm Pivot Nut	Frame	50	68
Rear Shock Absorber Mounting Nut (Upper/Lower)	Frame/Swing Arm	29	39
Axle Housing Cap Screw	Swing Arm	50	68
ENGINE/TRANSMISSION			
Cylinder Head Nut	Cylinder	14	19
Cylinder Head Cap Screw	Crankcase	7	10
Rotor/Flywheel Nut	Crankshaft	40	55
Drive Sprocket Lock Plate	Driveshaft	40	55
Crankcase Cap Screw	Crankcase	7	10
Engine Oil Screen/Filter Cap	Crankcase	11	15
Shift Detent Bolt	Transmission Case	35	48
Camshaft Chain Tensioner Cover Bolt	Cam Chain Tensioner	36 in.-lb	4
Camshaft Chain Tensioner Mount	Cylinder Head	9	12
Centrifugal Clutch Housing*	Driveshaft	40	54
Driven Pulley Retaining Nut	Driven Shaft (Transmission)	43	59
Drive Plate Nut*	Fixed Drive Face	43	59
Drive Pulley Nut	Crankshaft	43	59
Transmission Drain Plug	Transmission	21	29
Balancer Nut*	Balancer Shaft	32	45
Oil Pump	Crankcase	7	10
Oil Pump Baffle	Crankcase	7	10
Oil Pump Driven Gear*	Oil Pump	7	10
Starter One-Way Drive Nut*	Crankshaft	68	92
Magneto Cover	Crankcase	7	10
Outer Magneto Cover	Magneto Cover	7	10
CVT Cover Cap Screw	Crankcase	7	10

\* w/Red Loctite #271

## 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

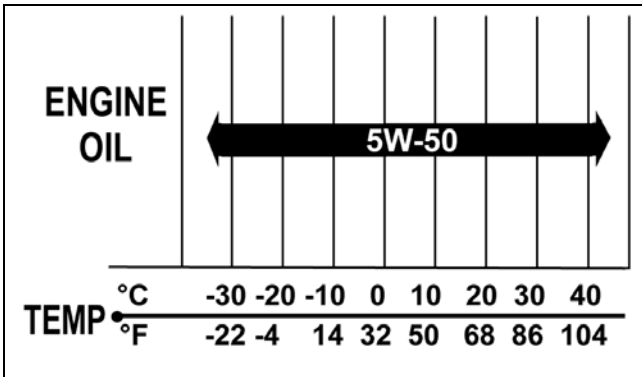
**Do not use white gas. Only Arctic Cat approved gasoline additives should be used.**

## RECOMMENDED ENGINE OIL

### **⚠ CAUTION**

Any oil used in place of the recommended oil could cause serious engine damage. Do not use oils which contain graphite or molybdenum additives. These oils can adversely affect clutch operation. Also, not recommended are racing, vegetable, non-detergent, and castor-based oils.

The recommended oil to use is Arctic Cat ACX All Weather synthetic engine oil, which has been specifically formulated for use in this Arctic Cat engine. Although Arctic Cat ACX All Weather synthetic engine oil is the only oil recommended for use in this engine, use of any API certified SM 5W-50 oil is acceptable.



OILCHART1

## RECOMMENDED TRANSMISSION LUBRICANT

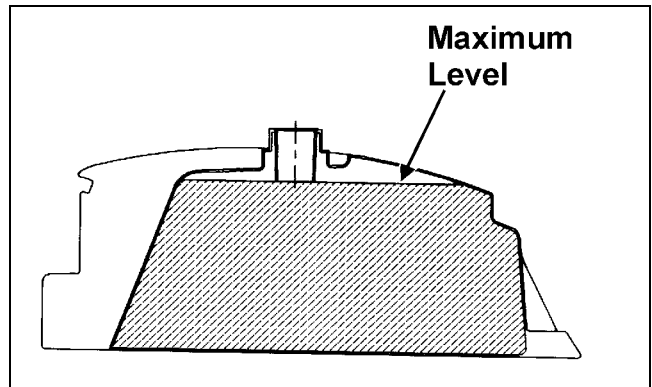
The recommended lubricant is Arctic Cat Gear Lube or an equivalent gear lube which is SAE approved 80W-90 hypoid. This lubricant meets all the lubrication requirements of the Arctic Cat ATV front differential and rear drive.

## FILLING GAS TANK

### **⚠ WARNING**

Always fill the gas tank in a well-ventilated area. Never add fuel to the ATV gas tank near any open flames or with the engine running. DO NOT SMOKE while filling the gas tank.

Since gasoline expands as its temperature rises, the gas tank must be filled to its rated capacity only. Expansion room must be maintained in the tank particularly if the tank is filled with cold gasoline and then moved to a warm area.



ATV0049B

### **⚠ WARNING**

Do not overflow gasoline when filling the gas tank. A fire hazard could materialize. Always allow the engine to cool before filling the gas tank.

### **⚠ WARNING**

Do not over-fill the gas tank.

Tighten the gas tank cap securely after filling the tank.

## Genuine Parts

When replacement of parts is necessary, use only genuine Arctic Cat ATV parts. They are precision-made to ensure high quality and correct fit. Refer to the appropriate Illustrated Parts Manual for the correct part number, quantity, and description.

## Preparation For Storage

### **⚠ CAUTION**

Prior to storing the ATV, it must be properly serviced to prevent rusting and component deterioration.

Arctic Cat recommends the following procedure to prepare the ATV for storage.

1. Clean the seat cushion (cover and base) with a damp cloth and allow it to dry.
2. Clean the ATV thoroughly by washing dirt, oil, grass, and other foreign matter from the entire ATV. Allow the ATV to dry thoroughly. DO NOT get water into any part of the engine or air intake.

3. Either drain the gas tank or add Fuel Stabilizer to the gas in the gas tank. Remove the air filter housing cover and air filter. Start the engine and allow it to idle; then using Arctic Cat Engine Storage Preserver, slowly inject the preserver into the air filter opening for a period of 10 to 20 seconds; then stop the engine. Install the air filter and housing cover.

**⚠ CAUTION**

**Rapid induction of oil or any liquid into a four-cycle engine can cause “hydraulic-lock” resulting in severe engine damage.**

**⚠ CAUTION**

**If the interior of the air filter housing is dirty, clean the area before starting the engine.**

4. Drain the carburetor float chamber.
5. Plug the exhaust hole in the exhaust system with a clean cloth.
6. Apply light oil to the upper steering post bushing and plungers of the shock absorbers.
7. Tighten all nuts, bolts, cap screws, and screws. Make sure rivets holding components together are tight. Replace all loose rivets. Care must be taken that all calibrated nuts, cap screws, and bolts are tightened to specifications.
8. Disconnect the battery cables; then remove the battery, clean the battery posts and cables, and store in a clean, dry area.

**⚠ CAUTION**

**This maintenance-free battery should be charged at the recommended rate every 30 days or permanent damage may occur if the battery completely discharges.**

9. Store the ATV indoors in a level position.

**⚠ CAUTION**

**Avoid storing outside in direct sunlight and avoid using a plastic cover as moisture will collect on the ATV causing rusting.**

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## Preparation After Storage

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Taking the ATV out of storage and correctly preparing it will assure many miles and hours of trouble-free riding. Arctic Cat recommends the following procedure to prepare the ATV.

1. Clean the ATV thoroughly.
2. Clean the engine. Remove the cloth from the exhaust system.
3. Check all control wires and cables for signs of wear or fraying. Replace if necessary.
4. Change the engine oil and filter.
5. Charge the battery; then install. Connect the battery cables.

**⚠ CAUTION**

**The ignition switch must be in the OFF position prior to installing the battery or damage may occur to the ignition system.**

**⚠ CAUTION**

**Connect the positive battery cable first; then the negative.**

6. Check the entire brake systems (fluid level, pads, etc.), all controls, headlights, taillight, brakelight, and headlight aim; adjust or replace as necessary.
7. Tighten all nuts, bolts, cap screws, and screws making sure all calibrated nuts, cap screws, and bolts are tightened to specifications.
8. Check tire pressure. Inflate to recommended pressure as necessary.
9. Make sure the steering moves freely and does not bind.
10. Check the spark plug. Clean or replace as necessary.

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# SECTION 2 - PERIODIC MAINTENANCE/TUNE-UP

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# Periodic Maintenance Chart

A = Adjust    I = Inspect  
 C = Clean    L = Lubricate  
 D = Drain    R = Replace  
 T = Tighten

Item	Initial Service After Break-In (First Mo or 100 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
Air Filter/Drain Tube	I	I	C*				R
Valve/Tappet Clearance	I				I		A
Spark Plug	I			I			R (4000 Mi or 18 Mo)
Muffler/Spark Arrester					C		R
Gas/Vent Hoses	I	I					R (2 Yrs)
Gas Tank Valve						I	C
Throttle Cable	I	I			C-L		A-R
Carb Float Chamber				D*			
Engine RPM (Idle)	I				I		A
Engine Oil Level		I					A
Engine Oil - Screen	C				C*		C
Drive Chain	I	I					C-L
Transmission Lubricant	I			I		R	A
Tires/Air Pressure	I	I					A-R
Steering Components	I	I		I			R
V-Belt	I					I	R
Suspension (Ball joint boots, tie rods)	I	I		I*			R
Nuts/Cap Screws/Screws	I		I				T
Ignition Timing						I	
Headlight/Taillight-Brakelight	I	I					R
Switches	I	I					R
Shift Lever					I		A-L
Choke Cable		I			C-L		R
Handlebar Grips		I					R
Handlebar	I	I					R
Gauges/Indicators	I	I					R
Frame/Welds/Racks	I		I		I		
Electrical Connections					I		C
Complete Brake System	I	I		C			L-R
Brake Pads/Shoes	I			I*			R
Brake Fluid	I			I			R (2 Yrs)
Brake Hoses	I			I			R (4 Yrs)

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

## Periodic Maintenance

This section has been organized into sub-sections which show common maintenance procedures for the Arctic Cat ATV.

■**NOTE:** Arctic Cat recommends the use of new gaskets, lock nuts, and seals and lubricating all internal components when servicing the engine/transmission.

■**NOTE:** Some photographs and illustrations used in this section are used for clarity purposes only and are not designed to depict actual conditions.

■**NOTE:** Critical torque specifications are located in Section 1.

### SPECIAL TOOLS

A number of special tools must be available to the technician when performing service procedures in this section. Refer to the current Special Tools Catalog for the appropriate tool description.

Description	p/n
Compression Tester Kit	0444-213
Tappet Adjuster	0444-189

■**NOTE:** Special tools are available from the Arctic Cat Service Parts Department.

## Lubrication Points

It is advisable to lubricate certain components periodically to ensure free movement. Apply light oil to the components using the following list as reference.

- A. Throttle Lever Pivot/Cable Ends
- B. Brake Lever Pivot
- C. Front Brake Pivot/Clevis
- D. Choke Cable Upper End
- E. Shift Lever/Ball Joints
- F. Idle RPM Screw (Carburetor)

## Air Filter

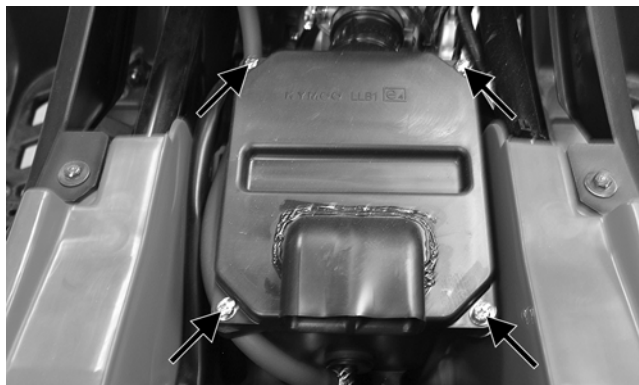
Use the following procedure to remove the filter and inspect and/or clean it.

## CLEANING AND INSPECTING FILTER

### ⚠ CAUTION

Failure to inspect the air filter frequently if the vehicle is used in dusty, wet, or muddy conditions can damage the engine.

1. Remove the seat.
2. Remove the cap screws securing the air filter housing cover.



TR003A

3. Remove the filter element and screens from the filter housing.



TR020A

4. Fill a wash pan larger than the filter with a non-flammable cleaning solvent; then dip the filter in the solvent and wash it.

■**NOTE:** Foam Filter Cleaner and Foam Filter Oil are available from Arctic Cat.

5. Dry the filter.
6. Put the filter in a plastic bag; then pour in air filter oil and work the filter.

### ⚠ CAUTION

A torn air filter can cause damage to the ATV engine. Dirt and dust may get inside the engine if the element is torn. Carefully examine the element for tears before and after cleaning it. Replace the element with a new one if it is torn.

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