



FOREWORD

This Arctic Cat Service Manual contains service, maintenance, and troubleshooting information for the 2011 Arctic Cat 350/425 ATV models. 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. A **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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General Specifications

| CHASSIS | |
|-----------------------------------|--|
| Brake Type | Hydraulic w/Brake Lever Lock and Auxiliary Brake |
| Tire Size | (350) Front - 24 x 8-12 Rear - 24 x 10-12 (425) Front - 25 x 8-12 Rear - 25 x 10-12 |
| Tire Inflation Pressure | 27.6 kPa (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)** |
| Coolant Capacity (425) | 2.9 L (3.0 U.S. qt) |
| 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 |
| CHASSIS COMPONENTS | | | |
| Footrest | Frame (8 mm) | 20 | 27 |
| Bumper | Frame (8 mm) | 20 | 27 |

| ENGINE/TRANSMISSION | | | |
|---------------------------------|---------------------|-----------|------|
| Part | Part Bolted To | Torque | |
| | | ft-lb | N-m |
| 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 Nut | Cylinder | 20 | 27 |
| Cylinder Head (6 mm) (350) | Cylinder | 8 | 11 |
| Cylinder Head (8 mm) (350) | Cylinder | 20 | 27 |
| Cylinder Head Cover (350) | Cylinder Head | 8 | 11 |
| Oil Pump Drive Gear** | Crankshaft | 63 | 86 |
| Driven Pulley Nut** | Driveshaft | 147 | 199 |
| Ground Cable | Engine | 8 | 11 |
| Output Shaft Flange Nut (350) | 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 |
| Starter Motor | Crankcase | 8 | 11 |
| Valve Cover | Crankcase | 8 | 11 |
| 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 |
| Output Shaft Flange Nut (425) | Output Shaft | 59 | 80 |
| Cam Chain Tensioner Guide (425) | Cylinder | 11 | 15 |
| Tappet Cover (425) | Valve Cover | 8 | 11 |
| Cam Chain Tensioner (425) | Cylinder | 10 | 13.5 |
| Magneto Cover (425) | Crankcase | 8 | 11 |
| Rear Driveline (425) | Output Drive Flange | 20 | 27 |
| Water Pump Cover/Housing (425) | Magneto Cover | 8 | 11 |
| Water Pump Drive Gear (425) | Crankshaft | 28 | 38 |
| SUSPENSION COMPONENTS (Front) | | | |
| 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 |

* w/Blue Loctite #243

** w/Red Loctite #271

*** w/Green Loctite #609

| DRIVE TRAIN COMPONENTS | | | |
|--------------------------------|-------------------------------|---------------------|-----|
| Part | Part Bolted To | Torque ft-lb N-m | |
| 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 | 18 | 25 |
| Pinion Housing | Gear Case Housing | 18 | 25 |
| Differential Housing Cover*** | Differential Housing | 18 | 25 |
| Drive Bevel Gear Nut** | Shaft | 59 | 80 |
| Driven Bevel Gear Nut** | Driven Shaft | 59 | 80 |
| Thrust Button | Gear Case Cover | 8 | 11 |
| 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 |
| Rear Drive Input Shaft Housing | Differential Housing | 23 | 31 |
| Lock Collar | Differential Housing | 125 | 169 |
| Wheel | Hub | 40 | 54 |
| Rear Drive Gear Case | Frame | 38 | 52 |
| Engine Output Flange | Rear Gear Case Input Flange | 20 | 27 |
| 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 (Front) | Master Cylinder | 5.5 | 8 |
| Hydraulic Caliper | Knuckle | 20 | 27 |
| Auxiliary Brake Pedal | Pivot | 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 |

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. 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

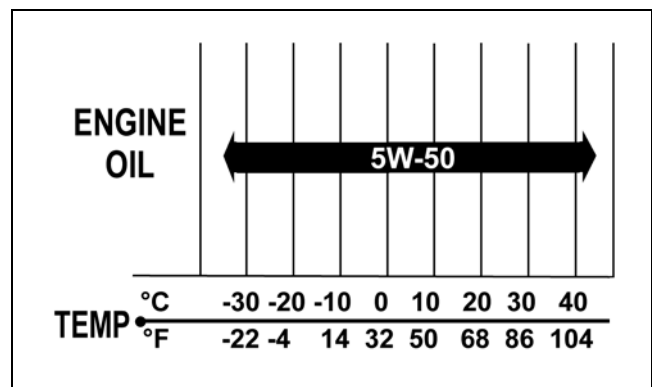
Do not use white gas. Only Arctic Cat approved gasoline additives should be used.

RECOMMENDED ENGINE/ TRANSMISSION 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 FRONT DIFFERENTIAL/REAR DRIVE 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 of the lubrication requirements of the Arctic Cat ATV front differentials and rear drives.

CAUTION

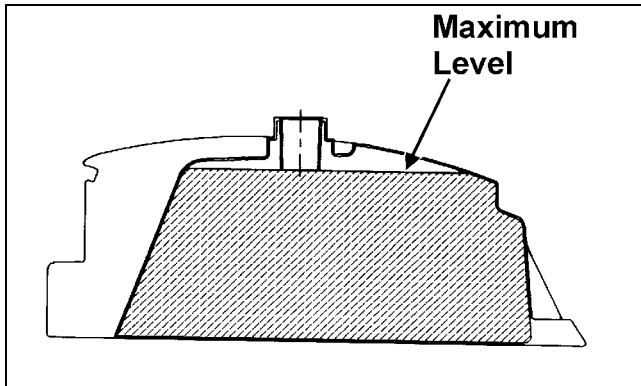
Any lubricant used in place of the recommended lubricant could cause serious front differential/rear drive damage.

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.

Tighten the gas tank cap securely after filling the tank.

⚠ WARNING

Do not over-fill the gas 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 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, rapidly 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

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

4. On the 350, drain the carburetor float chamber.
5. Plug the exhaust outlet on the muffler 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. On the 425, fill the cooling system to the bottom of the stand pipe in the radiator neck with properly mixed coolant.
9. On the 350, turn the gas tank valve to the OFF position.
10. Disconnect the battery cables; then remove the battery, clean the battery posts and cables, and store in a clean, dry area.
11. 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.

Preparation After Storage

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 muffler.
3. Check all control cables for signs of wear or fraying. Replace if necessary.
4. Change the engine/transmission oil and filter.

5. On the 425, check the coolant level and add properly mixed coolant as necessary.
6. 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, lights, 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.

SECTION 2 - PERIODIC MAINTENANCE

2

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Periodic Maintenance

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

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 |
| Oil Filter Wrench | 0644-389 |
| Tachometer | 0644-275 |
| Timing Light | 0644-296 |
| Valve Clearance Adjuster | 0444-078 |

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

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 100 Miles | Every 3 Months or 300 Miles | Every 6 Months or 500 Miles | Every Year or 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 | | | I | | | R (4000 Mi or 18 Mo) |
| Muffler/Spark Arrester | | | | | C | | R |
| Gas/Vent Hoses | I | I | | | | | R (2 Yrs) |
| Throttle Cable | I | I | | | C-L | | A-R |
| Carburetor Float Chamber (350) | | | | D* | | | |
| Engine Idle RPM (350) | I | | | | I | | A |
| Engine-Transmission Oil Level | | I | | | | | A |
| Engine-Transmission Oil/Filter | R | | | R*/R**/R*** | | | |
| Front Differential/Rear Drive Lubricant | I | | I | | | | R (4 Yrs) |
| Tires/Air Pressure | I | 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 | I | | | | | R |
| Nuts/Cap Screws/Screws | I | | I | | | | A |
| Ignition Timing | | | | | | I | |
| Lights | I | I | | | | | R |
| Switches | I | I | | | | | R |
| Shift Lever | | | | | I | | A-L |
| Handlebar Grips | | I | | | | | R |
| Handlebar | I | I | | | | | R |
| Gauges/Indicators | I | I | | | | | R |
| Frame/Welds/Racks | I | | | | I | | |
| Electrical Connections | I | | | | I | | C |
| Complete Brake System (Hydraulic & Auxiliary) | 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/Coolant System (425) | I | | I | | | | R (2 Yrs) |

* Service/Inspect more frequently when operating in adverse conditions. ** When using an API certified SM 5W-50 oil.

*** When using Arctic Cat ACX All Weather synthetic oil, oil change interval can be increased to every 1,000 miles or every year.

www.mymowerparts.com