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

# FOREWORD

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This Arctic Cat Service Manual contains service, maintenance, and troubleshooting information for the 2006 Arctic Cat ATV 250 models. 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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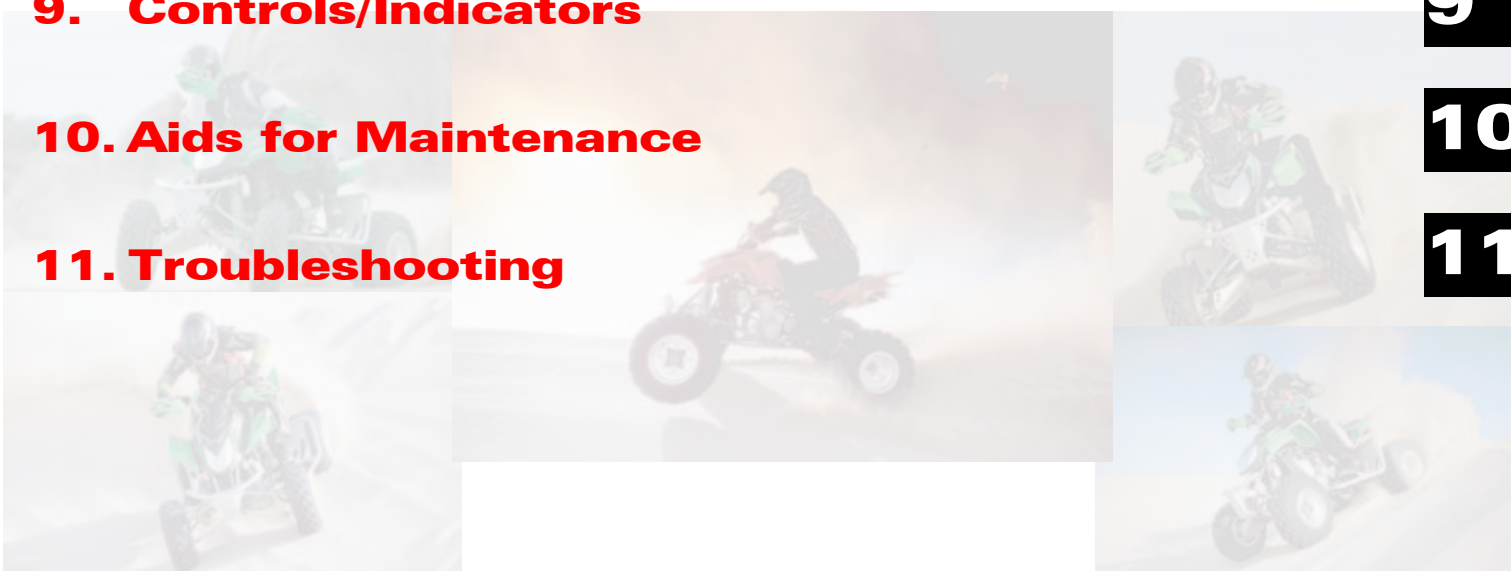
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2006

DVX/Utility 250

Service Manual



# SECTION 1 - GENERAL INFORMATION

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# General Specifications\*

## (DVX Model)

CARBURETOR	
Type	Keihin PTG-22
Main Jet	95
Slow Jet	35
Pilot Screw Setting (turns)	1 1/2
Jet Needle	NBSD-3
Needle Jet	3.6/2.5
Idle RPM	1250-1350
Float Arm Height	14.8 mm (0.58 in.)
Throttle Cable Free-Play (at lever)	1-4 mm (1/16-3/16 in.)
ELECTRICAL	
Ignition Timing	5° BTDC ("F" mark) @ 1000 RPM
Spark Plug Type	NGK DPR7EA-9
Spark Plug Gap	0.6-0.7 mm (0.024-0.028 in.)
Spark Plug Cap	4500-6150 ohms
Ignition Coil Resistance (primary)	2.4-3.0 ohms (terminal to terminal)
(secondary)	12,300-16,600 ohms (high tension - plug cap removed - to ground)
Ignition Coil Peak Voltage (primary/CDI)	14.0 DC volts (black/white to green/gray)
Magneto Coil Resistance (trigger)	105-110 ohms (black/yellow to green/white)
(charging)	Less than 1 ohm (yellow to yellow)
Stator Coil Peak Voltage (trigger)	1.1-1.4 DC volts (blue/yellow to green/white)
Magneto Output (approx)	220W @ 5000 RPM
Stator Coil Output (no load)	40-60 AC volts @ 3000 RPM (yellow to yellow)

CHASSIS	
Dry Weight (approx)	186 kg (410 lb)
Length (overall)	168.3 cm (66.25 in.)
Height (overall)	114.9 cm (45.25 in.)
Width (overall)	106.0 cm (41.75 in.)
Suspension Travel (Front)	15.5 cm (6.1 in.)
(Rear)	16.5 cm (6.5 in.)
Brake Type	Hydraulic w/Brake Lever Lock and Auxiliary Brake
Wheelbase	117.9 cm (46.4 in.)
Tire Size (Front)	AT21 x 7-10
(Rear)	AT20 x 11-9
Tire Inflation Pressure (Front)	0.28 kg/cm <sup>2</sup> (4 psi)
(Rear)	0.25 kg/cm <sup>2</sup> (3.5 psi)
Turning Radius	2.95 m (9.7 ft)
MISCELLANY	
Gas Tank Capacity (rated)	13 L (3.43 U.S. gal.)
Reserve Capacity	4.54 L (1.2 U.S. gal.)
Engine Oil Capacity	1.6 L (1.7 U.S. qt)
Gasoline (recommended)	87 Octane Regular Unleaded
Engine Oil (recommended)	SAE 5W-30
Cooling System Capacity	1.6 L (1.7 U.S. qt)
Brake Fluid	DOT 4
Taillight/Brakelight	12V/5W/21W
Headlight	12V/35W (2)
Starting System	Electric

\* Specifications subject to change without notice.

# General Specifications\*

## (Utility Model)

CARBURETOR	
Type	Keihin PTG-22
Main Jet	95
Slow Jet	35
Pilot Screw Setting (turns)	1 1/2
Jet Needle	NBSD-3
Needle Jet	3.6/2.5
Idle RPM	1250-1350
Float Arm Height	14.8 mm (0.58 in.)
Throttle Cable Free-Play (at lever)	1-4 mm (1/16-3/16 in.)
ELECTRICAL	
Ignition Timing	5° BTDC ("F" mark) @ 1000 RPM
Spark Plug Type	NGK DPR7EA-9
Spark Plug Gap	0.6-0.7 mm (0.024-0.028 in.)
Spark Plug Cap	4500-6150 ohms
Ignition Coil Resistance (primary)	2.4-3.0 ohms (terminal to terminal)
(secondary)	12,300-16,600 ohms (high tension - plug cap removed - to ground)
Ignition Coil Peak Voltage (primary/CDI)	14.0 DC volts (black/white to green/gray)
Magneto Coil Resistance (trigger)	105-110 ohms (black/yellow to green/white)
(charging)	Less than 1 ohm (yellow to yellow)
Stator Coil Peak Voltage (trigger)	1.1-1.4 DC volts (blue/yellow to green/white)
Magneto Output (approx)	220W @ 5000 RPM
Stator Coil Output (no load)	40-60 AC volts @ 3000 RPM (yellow to yellow)

CHASSIS	
Dry Weight (approx)	216 kg (477 lb)
Length (overall)	187 cm (73.6 in.)
Height (overall)	111.8 cm (44.0 in.)
Width (overall)	105.1 cm (41.40 in.)
Suspension Travel	12.7 cm (5.0 in.)
Brake Type	Hydraulic w/Brake Lever Lock and Auxiliary Brake
Wheelbase	117.9 cm (46.4 in.)
Tire Size (Front)	AT22 x 7-10
(Rear)	AT22 x 10-10
Tire Inflation Pressure (Front)	0.28 kg/cm <sup>2</sup> (4 psi)
(Rear)	0.25 kg/cm <sup>2</sup> (3.5 psi)
Turning Radius	2.95 m (9.7 ft)
MISCELLANY	
Gas Tank Capacity (rated)	13 L (3.43 U.S. gal.)
Reserve Capacity	4.54 L (1.2 U.S. gal.)
Engine Oil Capacity	1.6 L (1.7 U.S. qt)
Gasoline (recommended)	87 Octane Regular Unleaded
Engine Oil (recommended)	SAE 5W-30
Cooling System Capacity	1.6 L (1.7 U.S. qt)
Rear Drive Capacity	150 ml (5 fl oz)
Rear Drive Lubricant	SAE Approved 80W-90 Hypoid
Brake Fluid	DOT 4
Taillight/Brakelight	12V/5W/21W
Headlight	12V/35W (2)
Starting System	Electric w/Manual Recoil (Emergency)

\* Specifications subject to change without notice.

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## Break-In Procedure

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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.

During the break-in period (or whenever the brake pads are replaced), the hydraulic brake pads must be burnished. Slow disc-speed hydraulic brakes must be properly burnished in order to achieve maximum stopping power.

### CAUTION

**BRAKE PADS MUST BE BURNISHED TO ACHIEVE FULL BRAKING EFFECTIVENESS.** Braking distance will be extended until brake pads are properly burnished.

**TO PROPERLY BURNISH THE BRAKES, USE FOLLOWING PROCEDURE:**

- Choose an area sufficiently large to safely accelerate ATV to 30 mph and to brake to a stop.
- Accelerate to 30 mph; then compress brake lever to decelerate to 0-5 mph.
- Repeat procedure five times until brakes are burnished.
- This procedure burnishes the brake pads, stabilizes the pad material, and extends the life of the brake pads.

### WARNING

**Do not attempt sudden stops or put the ATV into a situation where a sudden stop will be required until the brake pads are properly burnished.**

■ **NOTE: Do not be reluctant to heat up the brake pads during the burnishing procedure.**

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.

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## Gasoline - Oil - Lubricant

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### 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

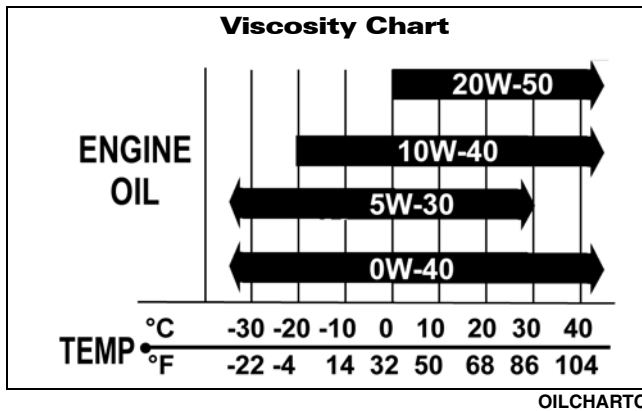
**Do not use white gas. Only Arctic Cat approved gasoline additives should be used.**

### 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 4-Cycle Engine Oil (p/n 0436-005) or an equivalent oil which is rated SE, SF, or SG under API service classification. These oils meet all of the lubrication requirements of the Arctic Cat ATV engine. The recommended engine oil viscosity is SAE 5W-30. Ambient temperature should determine the correct weight of oil. See the following viscosity chart for details.



### RECOMMENDED REAR DRIVE LUBRICANT (Utility)

The recommended lubricant is Arctic Cat Gear Lube (p/n 0436-007) 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 rear drives.

**⚠ CAUTION**

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

### RECOMMENDED TRANSMISSION LUBRICANT

The recommended lubricant is Arctic Cat Gear Lube (p/n 0436-007) 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 differentials and rear drives.

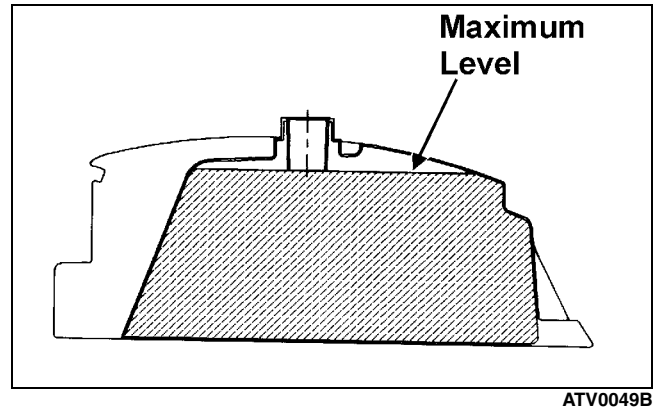
**⚠ CAUTION**

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.



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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.

**⚠ 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 appropriate Illustrated Parts Manual for the correct part number, quantity, and description.

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## Preparation For Storage

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### 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 (p/n 0638-165) 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 (p/n 0636-177), 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. 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. Fill the cooling system to the FULL line in the cooling system reservoir with properly mixed coolant.

9. 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.

10. 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. 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.

7. Check the entire brake systems (fluid level, pads, etc.), all controls, headlights, taillight, brakelight, and headlight aim; adjust or replace as necessary.



8. Tighten all nuts, bolts, cap screws, and screws making sure all calibrated nuts, cap screws, and bolts are tightened to specifications.
9. Check tire pressure. Inflate to recommended pressure as necessary.

10. Make sure the steering moves freely and does not bind.
11. Check the spark plug. Clean or replace as necessary.

# 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

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
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)
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 - Filter	R				R*		R
Drive Chain (DVX Model)	I	I					C-L
Rear Drive Lubricant (Utility Model)	I					R	R
Transmission Lubricant	I					R	
Tires/Air Pressure	I			I			R
Steering Components	I	I		I			R
V-Belt	I					I	R
Suspension (Ball joint boots, tie rods, differential and rear drive bellows)	I			I*			R
Nuts/Cap Screws/Screws	I			I	I		A
Ignition Timing						I	
Headlight/Taillight-Brakelight	I	I					R
Switches	I	I					R
Shift Lever					I		A-L
Choke Cable		I			C-L		R
Recoil Starter (Utility Model)		I					C-R
Handlebar Grips		I					R
Handlebars	I	I					R
Gauges/Indicators	I	I					R
Frame/Welds/Racks	I		I		I		
Electrical Connections					I		C
Complete Brake System (Hydraulic and 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/Cooling System	I		I				R (2 Yrs)

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

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## Lubrication Points

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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. Auxiliary Brake Pivot/Clevis
- D. Choke Cable Upper End
- E. Shift Lever/Ball Joints
- F. Idle RPM Screw (Carburetor)

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## Battery

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The battery is located under the seat.

The battery in this ATV is a “sealed” type and does not require any maintenance unless discharged. Distilled water and/or electrolyte cannot be added to the battery.

### **WARNING**

Anytime service is performed on a battery, the following must be observed: Keep sparks, open flame, cigarettes, or any other flame away. Always wear safety glasses. Protect skin and clothing when handling batteries. When servicing battery in enclosed space, keep the area well-ventilated.

This maintenance-free battery requires periodic charging to prevent sulfiding. If the ATV will be idle for extended periods of time, trickle charge the battery every 30 days. If the battery completely discharges, permanent damage will occur requiring replacement.

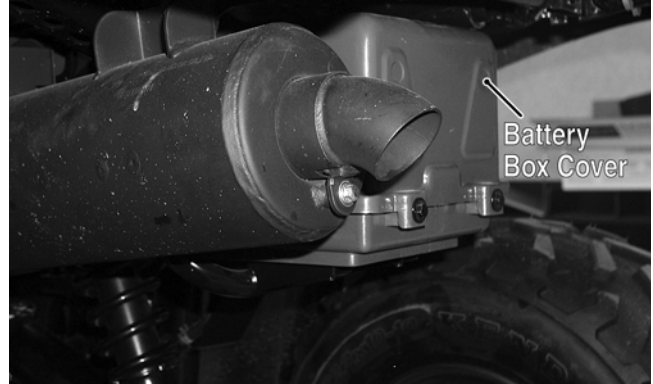
### **CAUTION**

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

If the battery is discharged, remove the battery from the ATV and charge the battery at the standard charging rate of 1.5 amps for 5-10 hours.

To remove/charge the battery, use the following procedure.

1. Remove the seat. On the DVX model, remove the battery hold-down strap. On the Utility model, remove the battery box cover from the rear of the ATV; then remove the battery hold-down strap.



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2. Remove the negative battery cable; then remove the positive cable. Remove the battery from the ATV.

### **WARNING**

Avoid spillage and contact with skin, eyes, and clothing.

### **CAUTION**

Do not charge the battery while it is in the ATV with the battery terminals connected.

3. Trickle charge the battery at 1.5 amps for 5-10 hours.

### **CAUTION**

Never exceed the standard charging rate.

### **CAUTION**

Before installing the battery, make sure the ignition switch is in the OFF position.

4. Place the battery into position in the ATV; then secure the battery with the hold-down strap.

5. Connect the cables to the proper terminals: positive cable to the positive terminal (+) and negative cable to the negative terminal (-). Connect the negative cable last.

### **CAUTION**

Connecting cables in reverse (positive to negative and negative to positive) can cause serious damage to the electrical system.

- On the DVX model, install the seat making sure it locks securely. On the Utility model, install the battery box cover; then install the seat making sure it locks securely.

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## Fuses

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The fuses are located in a fuse block under the seat.

If there is any type of electrical system failure, always check the fuses first.

■ **NOTE:** To remove a fuse, compress the locking tabs on either side of the fuse case and lift out.



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## Air Filter

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The air filter inside the air filter housing must be kept clean to provide good engine power and gas mileage. If the ATV is used under normal conditions, service the filter at the intervals specified. If operated in dusty, wet, or muddy conditions, inspect and service the filter more frequently. Use the following procedure to remove the filter and inspect and/or clean it.

### CLEANING AND INSPECTING FILTER

**⚠ CAUTION**

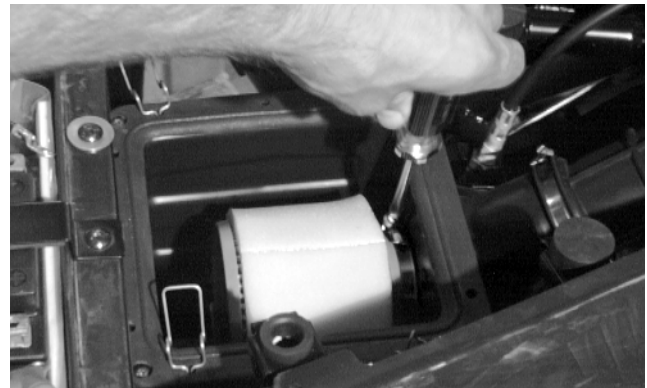
Failure to inspect the air filter frequently if the vehicle is used in dusty, wet, or muddy conditions can damage the engine.

- Remove the seat.
- Remove the air filter housing cover from the retaining clips.



KM095A

- Loosen the clamp; then remove the filter.



AF640DA

- 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 (p/n 0436-194) and Foam Filter Oil (p/n 0436-195) are available from Arctic Cat.

- Dry the filter.
- 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.

- Clean any dirt or debris from inside the air cleaner. Make sure no dirt enters the carburetor.
- Place the filter in the air filter housing making sure it is properly seated and secure with the clamp.
- Install the air filter housing cover and secure with the retaining clips; then install the seat making sure it locks securely.

## CHECKING/DRAINING DRAIN TUBE

Periodically check the drain tube for gasoline or oil accumulation. If noticed, remove the drain tube cap from beneath the housing and drain the gasoline or oil into a suitable container; then install and secure the tube cap.



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## Valve/Tappet Clearance

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To check and adjust valve/tappet clearance, use the following procedure.

■ **NOTE:** The seat assembly, side panels, and gas tank must be removed for this procedure.

1. Remove the timing inspection plug; then remove the cylinder head cover (see Section 3 - Removing Top-Side Components).
2. Rotate the crankshaft so the “T” mark on the fly-wheel aligns with the index mark on the right-side crankcase cover.

■ **NOTE:** At this point, the round hole in the camshaft gear should be up.

■ **NOTE:** Use Valve Clearance Adjuster (p/n 0444-178) for this procedure.

3. Place the valve adjuster onto the jam nut securing the tappet adjuster screw; then rotate the valve adjuster dial clockwise until the end is seated in the tappet adjuster screw.
4. While holding the valve adjuster dial in place, use the valve adjuster handle and loosen the jam nut; then rotate the tappet adjuster screw clockwise until friction is felt.
5. Align the valve adjuster handle with one of the marks on the valve adjuster dial.

6. While holding the valve adjuster handle in place, rotate the valve adjuster dial counter-clockwise until proper valve/tappet clearance is attained.

■ **NOTE:** Refer to the appropriate specifications in Section 3 for the proper valve/tappet clearance.

■ **NOTE:** Rotating the valve adjuster dial counter-clockwise will open the valve/tappet clearance by 0.05 mm (0.002 in.) per mark.

7. While holding the adjuster dial at the proper clearance setting, tighten the jam nut securely with the valve adjuster handle.
8. Place the cylinder head cover with a new O-ring into position; then tighten the cover securely.

2



KM703

9. Install the spark plug; then install the timing inspection plug.

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## Testing Engine Compression

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To test engine compression, use the following procedure.

1. Remove the high tension lead from the spark plug.
2. Using compressed air, blow any debris from around the spark plug.

### **WARNING**

**Always wear safety glasses when using compressed air.**

3. Remove the spark plug; then attach the high tension lead to the plug and ground the plug on the cylinder head well away from the spark plug hole.

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