FOREWORD

This Arctic Cat Service Manual contains service, maintenance, and troubleshooting information for the 2012 Arctic Cat Prowler HDX. The complete manual is designed to aid service personnel in service-oriented applications.

This manual is divided into sections. Each section covers a specific vehicle 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 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 serious personal injury or even death. A **CAUTION** identifies unsafe practices which may result in vehicle-related damage. Follow the directive because it deals with the possibility of damaging part or parts of the vehicle. 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.

December 2011

Table of Contents

General Information

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

General Specifications

CHASSIS		
Dry Weight (approx)		618 kg (1363 lb)
ROPS Tested Curb Weight		680 kg (1500 lb)
Length (overall)		327.6 cm (129 in.)
Height (overall)		193.3 cm (76.5 in.)
Width (overall)		153 cm (60.25 in.)
Suspension Travel		25.4 cm (10 in.)
Brake Type		Hydraulic
Tire Size	(front) (rear)	26 x 10R-14 26 x 12R-14
Tire Inflation Pressure		1.41 kg/cm² (20 psi)
MISCELLANY		
Spark Plug Type		NGK CPR8E
Spark Plug Gap		0.5-0.6 mm (0.019-0.024 in.)
Gas Tank Capacity		31 L (8.2 U.S. gal.)
Coolant Capacity		2.9 L (3.0 U.S. qt)
Front Differential Capacity		275 ml (9.3 fl oz)*
Rear Drive Capacity		250 ml (8.5 fl oz)*
Engine Oil Capacity (approx)		2.5 L (2.6 U.S. qt) - Overhaul 1.9 L (2.0 U.S. qt) - Change
Gasoline (recommended)		87 Octane Regular Unleaded
Engine Oil (recommended)		Arctic Cat ACX All Weather Synthetic
Front Differential/Rear Drive Lubricant		SAE Approved 80W-90 Hypoid
Belt Width		35.0 mm (1.38 in.)
Brake Fluid		DOT 4
Taillight/Brakelight		12V/8W/27W
Headlight		12V/27W (4)
IGNITION		
Spark Plug Cap		5000 ohms
Ignition Coil Resistance	(primary) (secondary)	Less than 1 ohm (terminal (+) to ground (-)) 12k-19k ohms (high tension - plug cap to terminal (+))
Ignition Coil Primary Voltage		Battery Voltage (orange (+) to blue/white (-))
MAGNETO		
Stator Coil Resistance	(crankshaft position sensor) (AC generator)	150-250 ohms (blue to green) Less than 1 ohm (yellow to yellow)
Crankshaft Position Sensor AC Voltage		2.0 or more (blue to green)
AC Generator Output	(no load)	60 AC volts @ 5000 RPM (yellow to yellow)
Ignition Timing		10° BTDC @ 1500 RPM

Specifications subject to change without notice.

* One in. below plug threads.

VALVES AND GUIDES		
Valve Face Diameter	(intake) (exhaust)	31.6 mm 27.9 mm
Valve/Tappet Clearance (cold engine)	(intake) (exhaust)	0.1016 mm 0.1524 mm
Valve Guide/Stem Clearance		0.013 mm
Valve Guide/Valve Stem Deflection (wobble method)	(max)	0.35 mm
Valve Guide Inside Diameter		5.000-5.012 mm
Valve Stem Outside Diameter		4.972-4.987 mm
Valve Stem Runout	(max)	0.1 mm
Valve Head Thickness	(min)	2.3 mm
Valve Face/Seat Width (min)	(intake) (exhaust)	2.25 mm 2.60 mm
Valve Seat Angle		45° +15'/+30'
Valve Face Radial Runout	(max)	0.2 mm
Valve Spring Free Length	(min)	38.7 mm
Valve Spring Tension @ 31.5 mm		19.0 kg (42 lb)
CAMSHAFT AND CYLINDER HEAD		
Cam Lobe Height	(min)	33.53 mm
Camshaft Journal Oil Clearance	(max)	0.04 mm
Camshaft Runout	(max)	0.05 mm
Rocker Arm Inside Diameter	(max)	12.018 mm
Rocker Arm Shaft Outside Diameter	(min)	11.97 mm
Cylinder Head/Cover Distortion	(max)	0.05 mm
CYLINDER, PISTON, AND RINGS		
Piston Skirt/Cylinder Clearance	(min)	0.06 mm
Cylinder Bore		101.992-102.008 mm
Piston Diameter 15 mm from Skirt End		101.930-101.949 mm
Piston Ring Free End Gap	(1st/2nd)	12.5 mm
Bore x Stroke		102 x 85 mm
Cylinder Trueness	(max)	0.01 mm
Piston Ring End Gap - Installed	(min)	0.38 mm
Piston Ring to Groove Clearance (1st/2nd)	(max)	0.03 mm
Piston Ring Groove Width	(1st/2nd) (oil)	1.202-1.204 mm 2.01-2.03 mm
Piston Ring Thickness	(1st/2nd)	1.970-1.990 mm
Piston Pin Bore	(max)	23.0 mm
Piston Pin Outside Diameter	(min)	22.99 mm
CRANKSHAFT		
Connecting Rod (small end inside diameter)	(max)	23.021 mm
Connecting Rod (big end side-to-side)	(min)	0.6 mm
Connecting Rod @ 150 mm (small end deflection)	(max)	0.3 mm
Crankshaft (web-to-web)	(min)	71 mm
Crankshaft Runout	(max)	0.03 mm

Torque Specifications

■NOTE: Torque specifications have the following tolerances:

Torque (ft-lb)	Tolerance
0-15	±20%
16-39	±15%
40+	±10%

EXHAUST COMPONENTS			
Part	Part Bolted To	Torque ft-lb	Torque N-m
Exhaust Pipe	Cylinder Head	20	27
Spark Arrester	Muffler	48 in.-lb	5
CHASSIS/ROPS ASSEMBLY			
Shift Axle Support	Frame	48 in.-lb	5
Front/Rear ROPS Tube	Arm Rest/Steering Post Support	20	27
Top ROPS Support	Front/Rear ROPS Tubes	8	11
Rear ROPS Tube	Lower ROPS Support	8	11
Shift Cable	Shift Arm Stud	8	11
Shift Cable Mounting/Adjuster	Shift Cable	20	27
Cargo Box Hinge	Cargo Box Frame	20	27
Side Panel/Spacer	Cargo Box Frame	25	34
Tilt Pivot Bushing	Cargo Box Frame	15	20
Latch Striker	Cargo Box Liner	60 in.-lb	7
STEERING COMPONENTS			
Steering Wheel**	Steering Wheel Shaft	25	34
Steering Wheel Shaft***	Intermediate Shaft (Upper)	36	49
Intermediate Shaft (Lower)***	Steering Pinion Shaft	36	49
Rack and Pinion Assembly	Frame	35	48
Tie Rod	Rack	37	50
Tie Rod End**	Knuckle	30	41
Jam Nut	Tie Rod End	10	14
Steering Shaft Coupler	EPS Input Shaft	11	15
EPS Cradle Bracket	Frame	20	27
EPS Assembly	Frame	35	48
EPS Assembly	Rack Coupler	11	15
Intermediate Shaft Coupler	Intermediate Shaft	31	42
Steering Shaft Housing (6 mm)	Frame	8	11
Steering Shaft Housing (8 mm)	Frame	20	27
SUSPENSION COMPONENTS (Front)			
A-Arm	Frame	33	45
Knuckle	Ball Joint	35	48
Shock Absorber	Frame/Upper A-Arm	33	45
Shock Absorber	Lower A-Arm	20	27
Knuckle	A-Arm	35	48
SUSPENSION COMPONENTS (Rear)			
Sway Bar Bracket	Frame	33	45
A-Arm	Frame	33	45
Shock Absorber	Lower A-Arm	33	45
Shock Absorber	Frame	33	45
Knuckle	A-Arm	35	48
BRAKE COMPONENTS			
Brake Disc**	Hub	15	20
Brake Hose	Caliper	20	27
Brake Hose	Master Cylinder	20	27
Master Cylinder	Frame	25	34
Caliper****	Knuckle	20	27
Driveline	Rear Drive Input Flange	20	27

DRIVE TRAIN COMPONENTS			
Part	Part Bolted To	Torque ft-lb	Torque N-m
Rear Differential/Gear Case	Frame	38	48
Drive Coupler (Front)	Front Drive Flange	40	54
Front Engine Mounting Bracket	Frame	45	61
Rear Engine Mounting Bracket	Frame	45	61
Engine Mounting Through-Bolt	Frame	40	54
Front Differential	Frame/Differential Bracket	38	52
Rear Output Flange	Rear Driven Flange	40	54
Input Shaft Assembly	Gear Case Housing	23	31
Pinion Housing	Differential Housing	23	31
Secondary Shaft Bearing Housing	Crankcase	28	38
Rear Cradle	Frame	25	34
Driveshaft (Front/Rear)	Engine	20	27
Shift Cable Bracket	Engine	8	11
Front Input Drive Flange	Front Drive Yoke Flange	20	27
Differential Housing Cover***	Differential Housing	23	31
Thrust Button**	Gear Case Cover	8	11
Drive Bevel Gear Nut***	Shaft	87	118
Lock Collar	Differential Housing	125	170
Hub Nut	Front/Rear Shaft/Axle (min)	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	16	22
Wheel	Hub	80	108
ELECTRICAL COMPONENTS			
Coil*	Frame	8	11
Ground Wire	Engine	8	11
ENGINE/TRANSMISSION			
Clutch Shoe**	Crankshaft	221	300
Clutch Cover/Housing Assembly	Crankcase	8	11
Crankcase Half (6 mm)	Crankcase Half	10	14
Crankcase Half (8 mm)	Crankcase Half	20	27
Cylinder Head (Cap Screw)	Crankcase	40	54
Cylinder Head Nut (6 mm)	Cylinder	8	11
Cylinder Head Nut (8 mm)	Cylinder	18	24
Valve Cover	Cylinder Head	8.5	11.5
Driven Pulley Nut	Driveshaft	80	109
Movable Drive Face Nut**	Driveshaft	165	224
Ground Wire	Engine	8	11
Magneto Cover	Crankcase	8	11
Tappet Cover	Valve Cover	9	12
Crankshaft Spacer	Crankshaft	28	38
Oil Pump Cover**	Crankcase	8	11
Oil Pump Drive Gear**	Crank Balancer Shaft	62	84
Output Shaft Flange Nut**	Output Shaft	62	84
One-Way Clutch**	Rotor/Flywheel	26	35
Outer Magneto Cover	Side Cover	8	11
Magneto Rotor Nut**	Crankshaft	105	143
Cam Sprocket**	Camshaft	11	15
Speed Sensor Housing	Crankcase	8	11
V-Belt Cover	Crankcase	8	11
Output Yoke Nut**	Secondary Driven Output Shaft	74	100
Ouput Shaft Flange Yoke/Nut**	Output Shaft	59	80
Secondary Shaft Bearing Housing	Crankcase Half	28	38
Stator Coil*	Magneto Cover	13	18
Intake Manifold Boot Clamp	Intake Boot	30 in.-lb	3.4

* w/Blue Loctite #243 ** w/Red Loctite #271

*** w/Green Loctite #270 **** w/"Patch-Lock"

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

Break-In Procedure

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

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 (see Periodic Maintenance Chart in the Periodic Maintenance section).

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

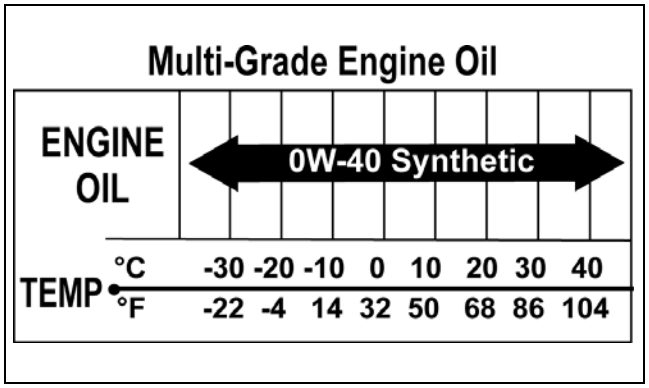
Do not use white gas. Only Arctic Cat approved gasoline additives should be used.

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 0W-40 oil is acceptable.



OILCHARTJ

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 vehicle front differential and rear drive.

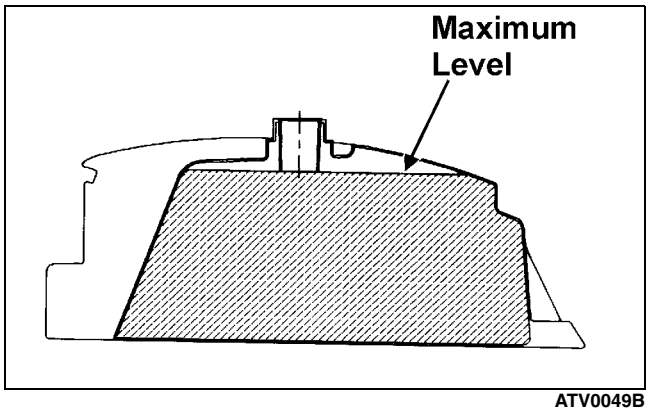
CAUTION

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 gas tank near any open flames or with the engine running. DO NOT SMOKE while filling the gas tank.



ATV0049B

Since gasoline expands as its temperature rises, the gas tank must be filled to its specified 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 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 vehicle, it must be properly serviced to prevent rusting and component deterioration.

1. Clean the seat cushion (cover and base) with a damp cloth and allow it to dry.
2. Clean the vehicle thoroughly by washing dirt, oil, grass, and other foreign matter from the entire vehicle. Allow it 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. 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. Plug the exhaust hole in the exhaust system with a clean cloth.
5. Apply light oil to the plungers of the shock absorbers.
6. 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.
7. Fill the cooling system to the bottom of the stand pipe in the radiator neck with properly mixed coolant.
8. Disconnect the battery cables; then remove the battery, clean the battery posts and cables, and store in a clean, dry area.
9. Store the vehicle indoors in a level position.

CAUTION

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

Preparation After Storage

Taking the vehicle out of storage and correctly preparing it will assure many miles and hours of trouble-free riding.

1. Clean the vehicle 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/transmission 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.

Periodic Maintenance

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

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
Timing Light	0644-296
Valve Clearance Adjuster	0444-255

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

Periodic Maintenance Chart

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

Item	Initial Service After Break-In (First Month or 100 Miles)	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	I			I*			R
Valve/Tappet Clearance	I				I		A
Engine Compression						I	
Spark Plug	I			I	I		R (4000 Mi or 18 Mo)
Muffler/Spark Arrester					C		R
Gas Hoses	I	I					R (2 Yrs)
Throttle Cable Ends/Accelerator Pedal Pivot	I	I			C-L		A-R
Engine-Transmission Oil Level		I					A
Engine-Transmission Oil/Filter	R			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/Bolts/Cap Screws	T		T				A
Ignition Timing						I	
Headlight/Taillight-Brakelight	I	I					R
Switches	I	I					R
Shift Lever					I		A-L
Gauges/Indicators	I	I					R
Frame/Welds	I		I		I		
Electrical Connections					I		C
Complete Brake System (Hydraulic)	I	I					
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)
Wheel Lug Nuts	T			T			

* 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 and strainer inspection interval can be increased to every 1,000 miles or every year.

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. Accelerator Pedal Pivot/Cable Ends

B. Brake Pedal Pivot

C. Shift Cable

Air 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. Raise the cargo box; then remove any dust and debris from around the filter housing.
2. Unsnap the four spring-clip fasteners and remove the cover.

HDX050A

3. Fill a wash pan larger than the element with a nonflammable cleaning solvent; then dip the element in the solvent and wash it.

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

4. Dry the element.
5. Put the element in a plastic bag; then pour in air filter oil and work the element. Reattach the filter to the filter screen.

■NOTE: Carefully squeeze excess oil from the element.

CAUTION

A torn air filter can cause damage to the vehicle 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.

6. Clean any dirt or debris from inside the filter housing. Be sure no dirt enters the throttle body.
7. Install the air filter and cover and lower the cargo box.

CHECKING AND CLEANING DRAINS

1. Inspect the "duck-bill" drain beneath the main housing for debris and for proper sealing.
2. Remove the drain tube and clean out any water, oil, or debris. Reinstall and secure with the clamp.

Valve/Tappet Clearance

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

■NOTE: The engine must be cold for this procedure.

■NOTE: The seat, seat back, seat base, and spark plug must be removed for this procedure.

1. Remove the spark plug and timing inspection plug; then remove the tappet covers (for more detailed information, see the Engine/Transmission section - Servicing Top-Side Components).
2. Rotate the crankshaft to the TDC position on the compression stroke.

■NOTE: At this point, the rocker arms and adjuster screws must not have pressure on them.

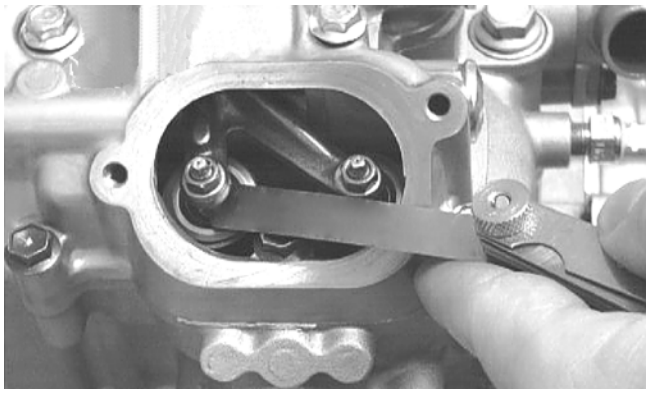
Feeler Gauge Procedure

Using a feeler gauge, check each valve/tappet clearance. If clearance is not within specifications, loosen the jam nut and rotate the tappet adjuster screw until the clearance is within specifications. Tighten each jam nut securely after completing the adjustment.

CAUTION

The feeler gauge must be positioned at the same angle as the valve and valve adjuster for an accurate measurement of clearance. Failure to measure the valve clearance accurately could cause valve component damage.

VALVE/TAPPET CLEARANCE	
Intake	0.1016 mm (0.004 in.)
Exhaust	0.1524 mm (0.006 in.)



CC007D

Valve Adjuster Procedure

A. Place the Valve Clearance 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.

B. 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.

C. Align the valve adjuster handle with one of the marks on the valve adjuster dial.

D. While holding the valve adjuster handle in place, rotate the valve adjuster dial counterclockwise until proper valve/tappet clearance is attained.

■NOTE: Refer to the specifications in Feeler Gauge Procedure sub-section for the proper valve/tappet clearance.

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

E. While holding the adjuster dial at the proper clearance setting, tighten the jam nut securely with the valve adjuster handle.

3. Install the spark plug; then install the timing inspection plug.
4. Place the two tappet covers with O-rings into position. Tighten the cap screws to 9 ft-lb.

Testing Engine Compression

To test engine compression, use the following procedure.

■NOTE: The engine should be warm (operating temperature) and the battery fully charged for an accurate compression test. The throttle must be in the wide-open throttle (WOT) position. In the event the engine cannot be run, cold values are included.

■NOTE: The seat, seat back, and seat base must be removed for this 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.
4. Attach the Compression Tester Kit.
5. While holding the throttle in the full-open position, crank the engine over with the electric starter until the gauge stops climbing (five to 10 compression strokes).

PSI Hot (WOT)	PSI Cold (WOT)
125-145	100-140

6. If compression is abnormally low, inspect the following items.

A. Starter cranks engine over.

B. Gauge is functioning properly.

C. Throttle in the full-open position.

D. Valve/tappet clearance correct.

E. Engine warmed up.

F. Intake obstructed.

■NOTE: To service top-side components, see the Engine/Transmission section.

7. Pour approximately 30 ml (1 fl oz) of oil into the spark plug hole, reattach the gauge, and retest compression.
8. If compression is now evident, service the piston rings (see the Engine/Transmission section).

Spark Plug

A light brown insulator indicates that the plug is correct. A white or dark insulator indicates that the engine may need to be serviced. To maintain a hot, strong spark, keep the plug free of carbon.