FOREWORD

This manual contains service, maintenance, and troubleshooting information for the 2011 Arctic Cat Y-12+ Youth ATV. The manual is designed to aid service personnel in service-oriented applications and may be used as a text-book for service training.

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. A troubleshooting section is also included in this manual.

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. 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 photo-graphs 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.

August 2010

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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.

Specifications

CHASSIS		
Length (Overall)		146.8 cm (57.8 in.)
Height (Overall)		96.2 cm (37.9 in.)
Width (Overall)		87.6 cm (34.5 in.)
Suspension Travel	(Front) (Rear)	71.00 mm (2.8 in.) 73.66 mm (2.9 in.)
Tire Size	(Front) (Rear)	AT20 x 7-8 AT19 x 8-8
Tire Inflation Pressure		0.21 kg-cm^2 (3.0 psi)
MISCELLANY		
Dry Weight (Approx)		118 kg (260 lb) - DVX 120.2 kg (265 lb) - Utility
Gas Tank Capacity		5.7 L (1.5 U.S. gal.)
Reserve Capacity		1.3 L (0.34 U.S. gal.)
Transmission Lubricant (Recommended)		SAE 80W-90 Hypoid
Transmission Lubricant Capacity		250 ml (8.4 fl oz)
Engine Oil Capacity		0.8 L (0.84 U.S. qt)
Gasoline (Recommended)		87 Octane Regular Unleaded
Engine Oil (Recommended)		Arctic Cat ACX All Weather (Synthetic)
Brake Type		Front Double Drum/Rear Hydraulic Disc w/Brake Lever Locks
Headlight		12V/35W
Brakelight		12V/5W
Starting System		Electric w/Kick Start (Emergency)

Specifications subject to change without notice.

Torque Specifications

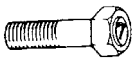
EXHAUST COMPONENTS Part	Part Bolted To	Torque ft-lb
Exhaust Pipe	Cylinder Head	7
Muffler	Frame	32
BRAKE SYSTEM COMPONENTS		
Brake Banjo-Fitting	Caliper	25
Brakeline Hose	Master Cylinder	20
Rear Brake Caliper	Rear Axle Housing	22
ELECTRICAL COMPONENTS		
Stator*	Stator Plate	8
STEERING COMPONENTS		
Wheel	Front/Rear Hub	30
Front Wheel Hub	Spindle Axle	45
Handlebar Cap	Lower Clamp	10
Steering Post Outer Bearing Cap	Inner Bearing Clamp	20
Steering Post	Frame	51
Tie Rod End	Steering Post	20
SUSPENSION COMPONENTS		
Front Shock Absorber	Frame/A-Arm	29
Rear Shock Absorber	Frame/Swing Arm	29
Swing Arm	Frame	50
Swing Arm	Rear Axle Housing	29
A-Arm	Frame	29
Knuckle	A-Arm	29
Tie Rod End	Knuckle	25
ENGINE COMPONENTS		
Oil Drain Plug	Crankcase	18
Spark Plug	Cylinder Head	9
Cylinder Head (Nut)	Cylinder	15
Crankcase Half*	Crankcase Half	8
Flywheel*	Crankshaft	30
Camshaft Holder	Cylinder	15
Stationary Drive Sheave*	Crankshaft	27.5
Centrifugal Clutch Housing*	Driven Pulley/Centrifugal Clutch	40
Oil Pump	Crankcase	7
Oil Pump Gear	Oil Pump	7
Oil Screen/Filter Cap	Crankcase	10
Cam Chain Tensioner	Cylinder	7
Transmission Drain Plug	Transmission	18
Cylinder Head (Cap Screw)	Crankcase	7
Valve Cover	Cylinder Head	7
Spline-Lock	Drive Sprocket	8
Engine Mount	Engine/Frame	32.5
Intake Pipe	Cylinder Head	7
DRIVE TRAIN COMPONENTS		
Rear Hub	Rear Axle Shaft	58
Rear Axle Nut (Inner/Outer)*	Rear Axle	86
V-Belt Cover	Crankcase	7
Transmission Case Cover	Transmission	22
Rear Sprocket	Sprocket Retainer	20

* 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 month is 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 three hours 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.

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.

After the completion of the break-in period, the engine lubricant 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 MTBE are acceptable gasolines.

CAUTION

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

RECOMMENDED ENGINE OIL

The recommended oil to use is Arctic Cat ACX All Weather (Synthetic).

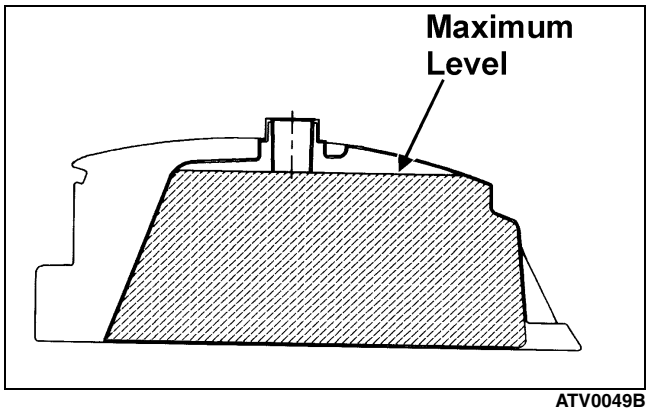
RECOMMENDED TRANSMISSION LUBRICANT

The recommended transmission lubricant to use is SAE 80W-90 hypoid.

FILLING GAS TANK

⚠ WARNING

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



ATV0049B

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 over-fill or 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.

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 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 Preserver, rapidly inject the preserver into the air filter opening for a period of 10 to 20 seconds. 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 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 (negative cable first); 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 will result 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.

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.
3. Remove the cloth from the exhaust system.
4. Check all control wires and cables for signs of wear or fraying. Replace if necessary.
5. Change the transmission lubricant.
6. Charge the battery; then install. Connect the battery cables making sure to connect the positive cable first.
7. Check the entire brake system (cables, shoes, etc.), and all controls. Adjust or replace if necessary.
8. Check the tire pressure. Inflate to recommended pressure as necessary.
9. Tighten all nuts, bolts, cap screws, and screws making sure all calibrated nuts, cap screws, and bolts are tightened to specifications.
10. Make sure the steering moves freely and does not bind.
11. Check the spark plug. Clean or replace as necessary.

Periodic Maintenance/ Tune-Up

Tighten all nuts, bolts, and cap screws. Make sure rivets holding components together are tight. Replace all loose rivets. Care must be taken that all calibrated nuts, bolts, and cap screws are tightened to specifications.

Periodic Maintenance Chart

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

Item	Initial Service After Break-In (First Mo)	Every Day	Every Month	Every 3 Months	Every 6 Months	Every Year	As Needed
Battery	I		CH			I	C
Fuse				I			R
Air Filter	I		C*				R
Engine Compression						I	
Spark Plug				I/C			R (4000 Mi or 18 Mo)
Chassis				C*/L*		I	
Gas/Vent Hoses		I					C, R (2 Years)
Gas Tank Valve						I	C
Throttle Cable	I	I			C/L		A, R
Carburetor	I			D*		D*	
Engine RPM (Idle)	I					I	I/A
Engine Oil	R	I		R			
Valve/Tappet Clearance	A					A	
Transmission Lubricant/ Level	R						I
Fuel Filter	I			I			R
Tires/Air Pressure/Wear	I	I					I/R
Steering Components	I	I					R
Drive Chain	I			C*/L*			R
Suspension (Tie Rods, Protective Boots)	I	I					R
Nuts/Bolts/Cap Screws	I		I/T				T
Ignition Timing							I
Brakelight	I	I					R
Switches		I					R
Kick Starter		I					C
Handlebar/Grips		I					R
Frame/Welds			I				
Electrical Connections	I					I	C
Complete Brake Systems	I	I		C*			L, R
Brake Fluid	I		I				R (2 Years)
Shock Absorbers			I				R

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

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

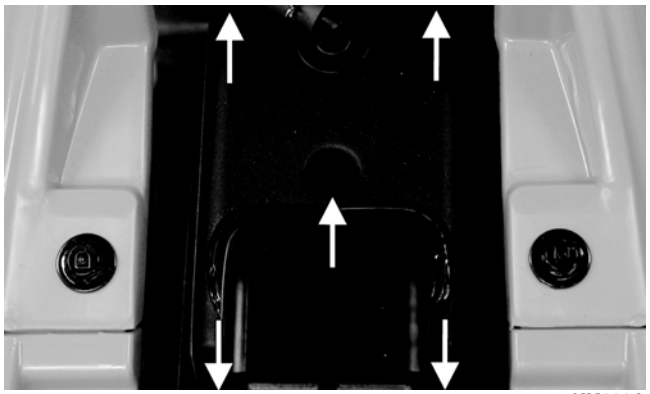
B. Brake Lever Pivot/Cable Ends

C. Brake Cable Ends

D. Idle RPM Adjustment Screw (Carburetor)

Air Filter

1. Remove the seat; then remove five screws securing the air filter housing cover.



KM032A

2. Remove the air filter housing cover; then pull the filter out of the housing.
3. Fill a wash pan larger than the element with a non-flammable 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. Compress the element by pressing it between the palms of both hands to remove excess solvent. Do not twist or wring the element or it will develop cracks.
5. Dry the element.
6. Put the element in a plastic bag; then pour in air filter oil and work the oil into the element.
7. Compress the element to remove excess oil.

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.

8. Clean any dirt or debris from inside the air cleaner. Make sure no dirt enters the carburetor.
9. Install the air filter. Install air filter housing cover and secure with the five screws.

Valve/Tappet Clearance

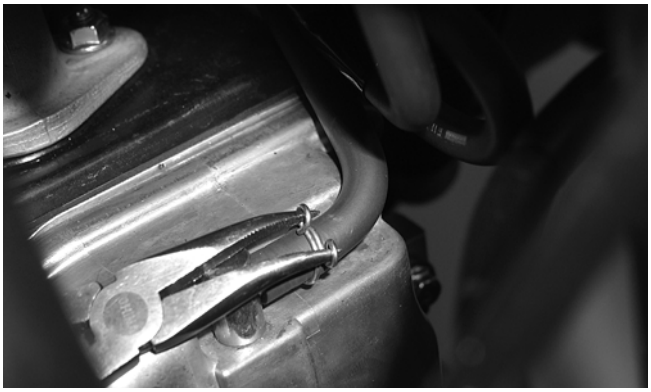
To check and adjust valve/tappet clearance, use the following procedure.

■NOTE: Valve/tappet clearance specifications are for room temperature (approximately 68° F).

1. Remove the two cap screws and the two self-tapping screws securing the fan shroud; then remove the fan shroud.

CD651

2. Remove the breather tube from the valve cover; then remove the four cap screws and remove the valve cover. Account for the O-ring seal and the valve cover.



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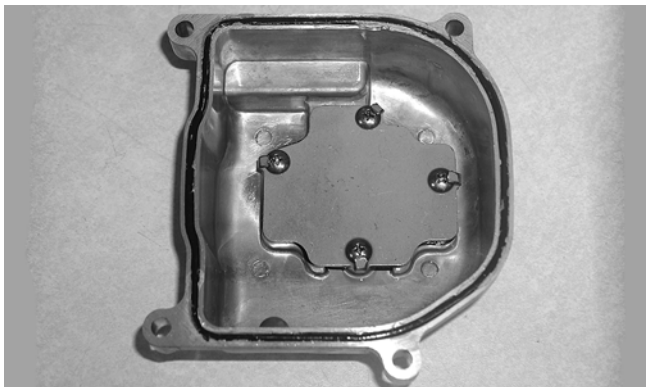
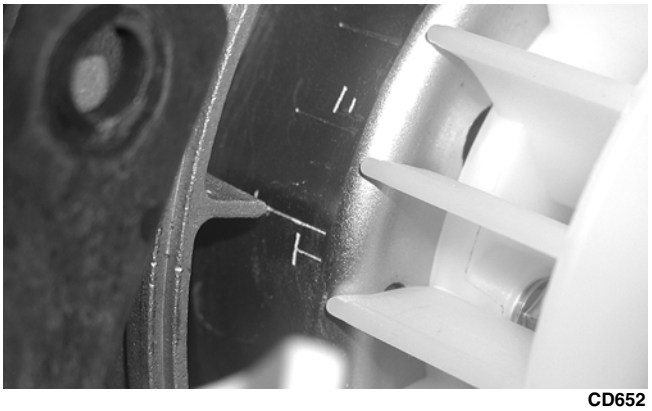


CD655

3. Remove the spark plug wire and the spark plug; then rotate the engine clockwise to the TDC position on the compression stroke.

■NOTE: The "T" mark on the rotor/flywheel is aligned with the timing pointer on the crankcase, and intake and exhaust valve adjuster screws must not have pressure on them. The two punch marks on the camshaft gear are aligned with the valve cover surface, and the hole in the timing gear points away from the engine.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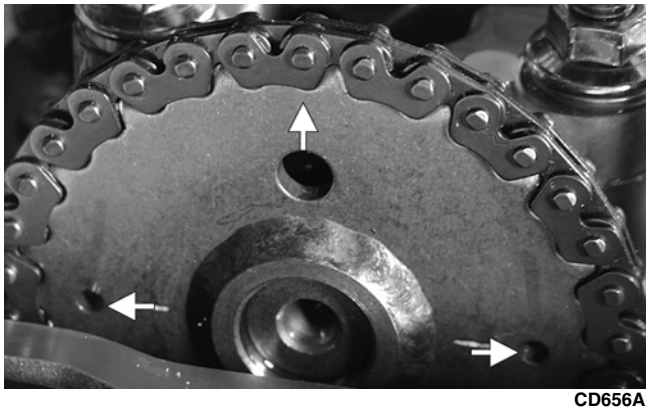
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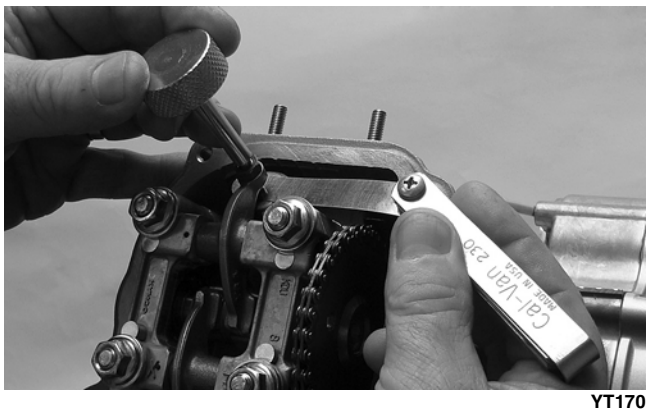
4. Using a feeler gauge, check each valve tappet clearance. If the clearance is not within 0.1 mm, loosen the jam nut and rotate the tappet adjuster screw until the clearance is within specifications. Tighten each jam nut securely after completing the adjustment.


CD659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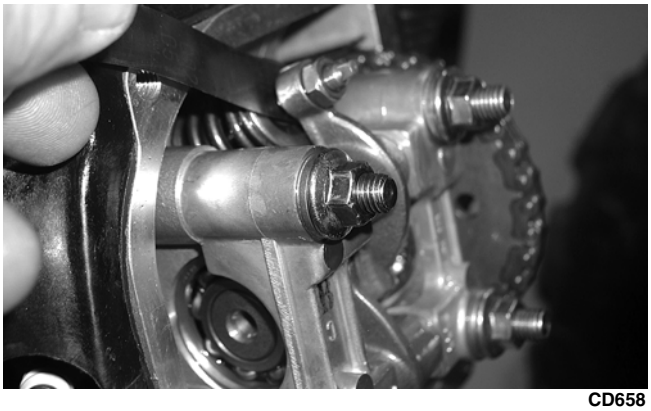
5. Check the valve/tappet clearance after the jam nut has been tightened to ensure the clearance did not change.


CD658

6. Install the valve cover and tighten the four cap screws to 7 ft-lb using a crisscross pattern; then install the breather tube.
7. Install the fan shroud and tighten the two cap screws securely. Tighten the self-tapping screws snug taking care not to strip the plastic cover.
8. Install the spark plug and tighten to 9 ft-lb; then install the spark plug wire.

Testing Engine Compression

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.
4. Attach the Compression Tester Kit (p/n 0444-213).

■NOTE: The engine must be warm and the battery must be fully charged for this test.

5. While holding the throttle lever in the full-open position, crank the engine over with the electric starter until the gauge shows a peak reading (five to 10 compression strokes).

■NOTE: Compression should be within a range of 195-230 psi in the full-open throttle position.

6. If compression is abnormally low, inspect the following items.
   A. Verify starter cranks engine over.
   B. Gauge is functioning properly.
   C. Throttle lever in the full-open position.
7. Pour 29.5 ml (1 fl oz) of oil into the spark plug hole, reattach the gauge, and retest compression.