FOREWORD

This Arctic Cat Service Manual contains service, maintenance, and troubleshooting information for the 2010 Arctic Cat ATV 150. This manual is designed to aid service personnel in service-oriented applications.

This manual is divided into sections. Each section covers a specific ATV component or system and, in addition to the standard service procedures, includes disassembling, inspecting, and assembling instructions. When using this manual as a guide, the technician should use discretion as to how much disassembly is needed to correct any given condition.

The service technician should become familiar with the operation and construction of each component or system by carefully studying this manual. This manual will assist the service technician in becoming more aware of and efficient with servicing procedures. Such efficiency not only helps build consumer confidence but also saves time and labor.

All Arctic Cat ATV publications and decals display the words Warning, Caution, Note, and At This Point to emphasize important information. The symbol ⚠ **WARNING** identifies personal safety-related information. Be sure to follow the directive because it deals with the possibility of severe personal injury or even death. 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.

August 2009

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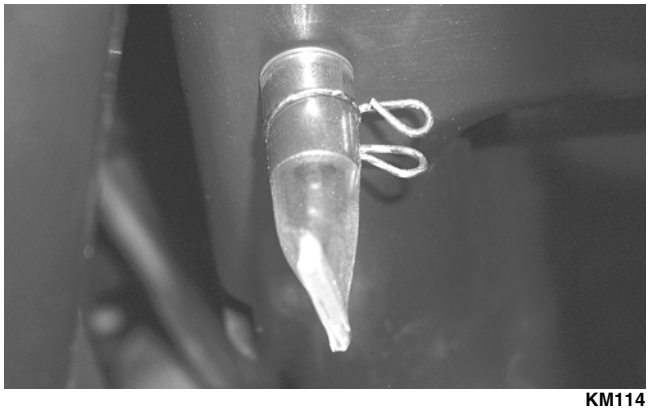
7. Clean any dirt or debris from inside the air cleaner. Make sure no dirt enters the carburetor.

8. Place the filter in the air filter housing making sure it is properly seated and secure with the clamp.

9. 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.



KM114

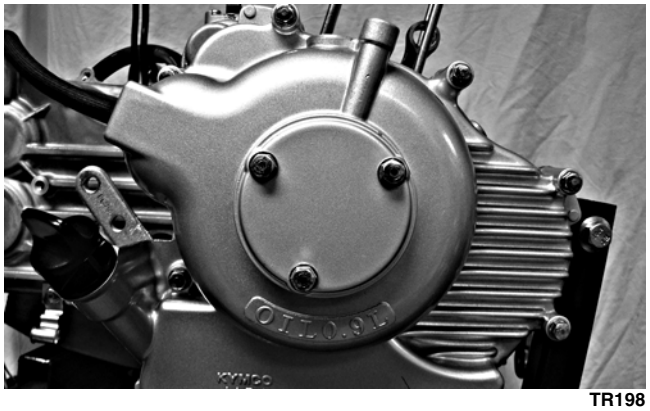
Valve/Tappet Clearance

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. Remove the outer magneto cover from the right side; then remove the oil through and spring.



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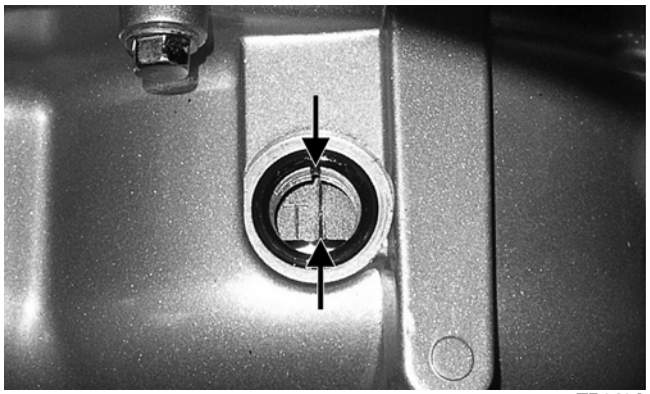
TR047

3. Using a socket and ratchet on the flywheel nut, rotate the crankshaft so the "T" mark on the flywheel aligns with the index mark on the right-side crankcase cover.



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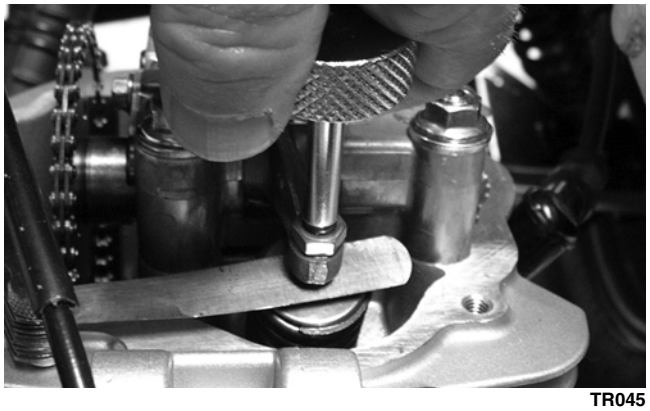
■NOTE: At this point, the round hole in the camshaft gear should be up.

4. Check intake and exhaust tappets for proper clearance using an appropriate thickness gauge. If clearance is within specifications, proceed to step 7.

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

5. On the tappet to be adjusted, loosen the jam nut; then using Tappet Adjuster, turn the tappet to obtain the specified clearance (clockwise to decrease, counterclockwise to increase).



TR045

SECTION 3 - ENGINE/TRANSMISSION

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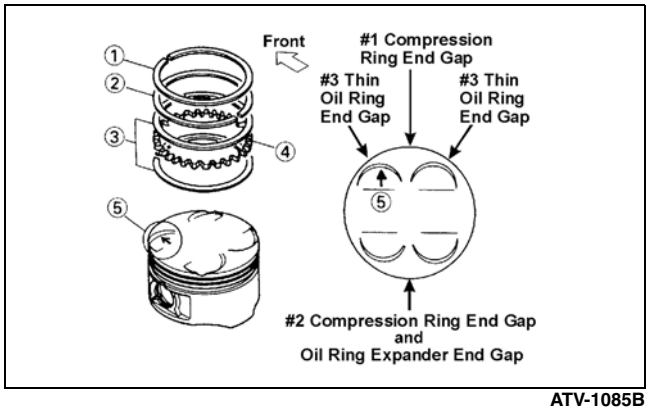
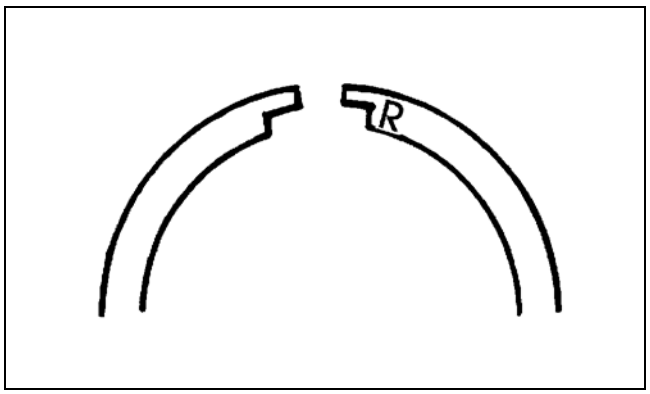


ATV-1085B

2. Install the compression rings (1 and 2) so the letter on the top surface of each ring faces the dome of the piston. Rotate the rings until the ring end gaps are on directly opposite sides of the piston according to the illustration.



726-306A

CAUTION

Incorrect installation of the piston rings will result in engine damage.

CYLINDER ASSEMBLY

■NOTE: If the cylinder cannot be trued, it must be replaced.

Cleaning/Inspecting Cylinder

1. Wash the cylinder in parts-cleaning solvent.
2. Inspect the cylinder for pitting, scoring, scuffing, warpage, and corrosion. If marks are found, repair the surface using a cylinder hone (see Honing Cylinder in this sub-section).
3. Place the cylinder on the surface plate covered with #400 grit wet-or-dry sandpaper. Using light pressure, move the cylinder in a figure eight motion. Inspect the sealing surface for any indication of high spots. A high spot can be noted by a bright metallic finish. Correct any high spots before assembly by continuing to move the cylinder in a figure eight motion until a uniform bright metallic finish is attained.

CAUTION

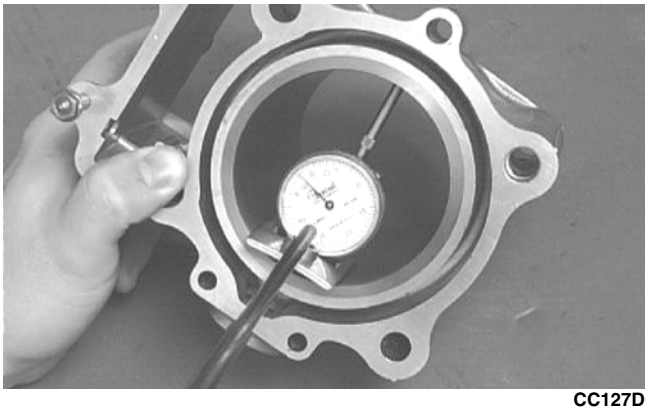
Water or parts-cleaning solvent must be used in conjunction with the wet-or-dry sandpaper or damage to the sealing surface may result.

Inspecting Cam Chain Guide

1. Inspect cam chain guide for cuts, tears, breaks, or chips.
2. If the chain guide is damaged, it must be replaced.

Honing Cylinder

1. Using a slide gauge and a dial indicator or a snap gauge, measure the cylinder bore diameter in three locations from top to bottom and again from top to bottom at 90° from the first measurements for a total of six measurements. The trueness (out-of-roundness) is the difference between the highest and lowest reading. Maximum trueness (out-of-roundness) must not exceed specifications.



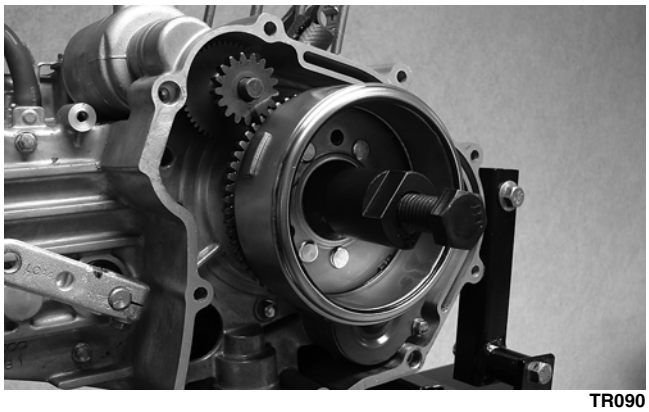
CC127D

2. Wash the cylinder in parts-cleaning solvent.
3. Inspect the cylinder for pitting, scoring, scuffing, and corrosion. If marks are found, repair the surface using a #320 grit ball hone.

■NOTE: To produce the proper 60° cross-hatch pattern, use a low RPM drill (600 RPM) at the rate of 30 strokes per minute. If honing oil is not available, use a lightweight petroleum-based oil. Thoroughly clean cylinder after honing using soap and hot water. Dry with compressed air; then immediately apply oil to the cylinder bore. If the bore is severely damaged or gouged, replace the cylinder.

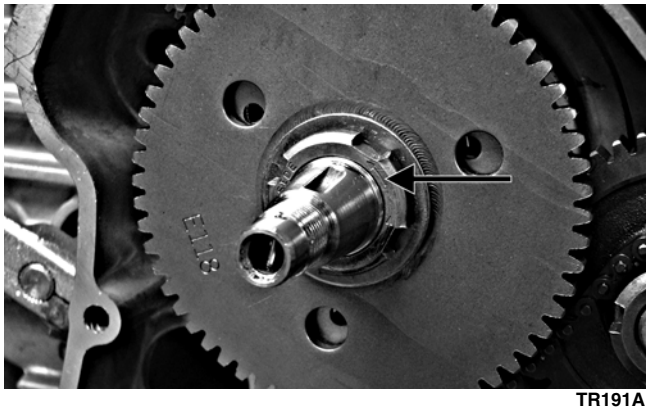
2. Remove the rotor/flywheel nut. Account for a flat washer.

3. Using the appropriate rotor/flywheel puller, remove the rotor/flywheel. Account for the key.



TR090

4. Using a spanner wrench or appropriate socket, remove the nut (left-hand thread) securing the starter gear and starter one-way clutch assembly to the crankshaft. Account for stepped washer noting that the word INSIDE is directed toward the clutch assembly.



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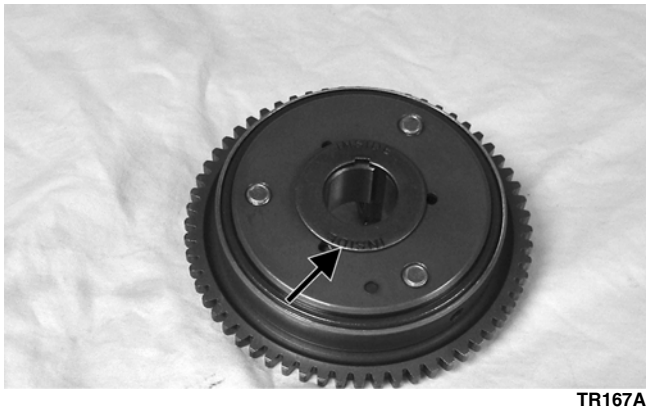
TR144

5. Remove the starter gear/starter one-way clutch assembly. Account for a key and stepped washer noting that the word INSIDE is directed toward the crankcase and the washer has a keyway.



TR167A

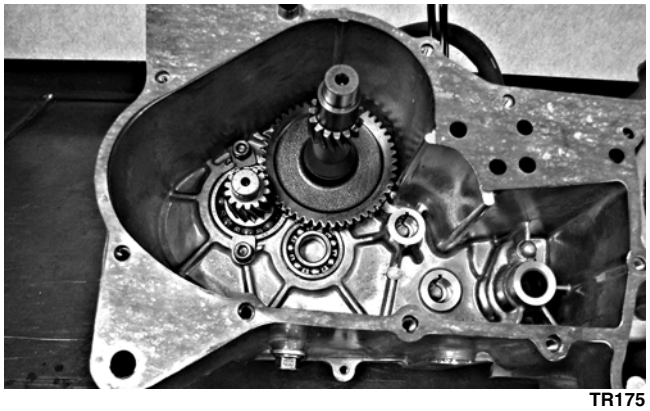
TR096

6. Remove the starter countershaft gears; then remove the countershaft.

7. Remove the balancer shaft drive gear nut (left-hand thread). Account for a stepped washer with the stepped side directed toward the drive gear.

TR094

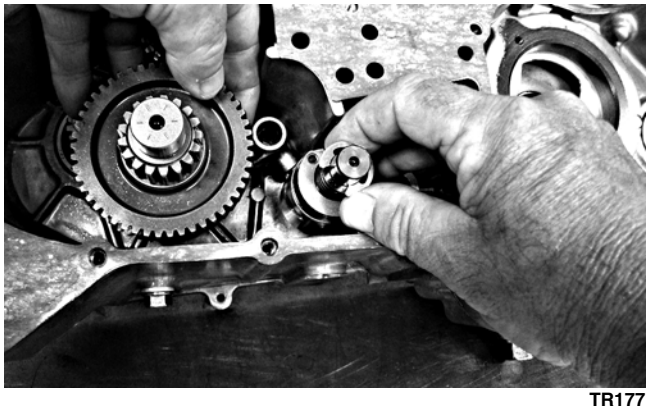
8. Remove the oil pump driven gear nut; then remove the oil pump drive gear, drive chain, and driven gear. Account for a key and spacer.



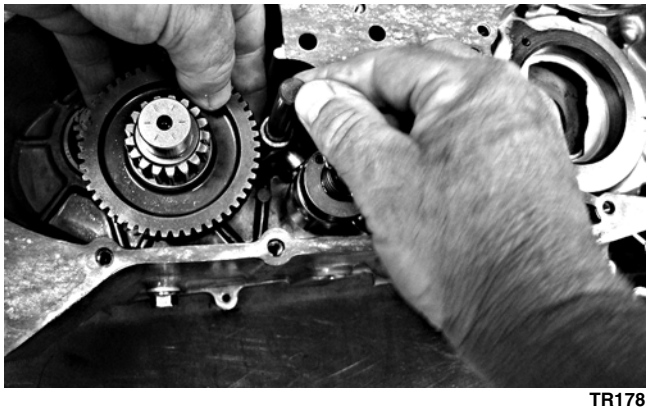
TR175

TR176

4. Install the shift fork; then install the shift cam and shift fork shaft.

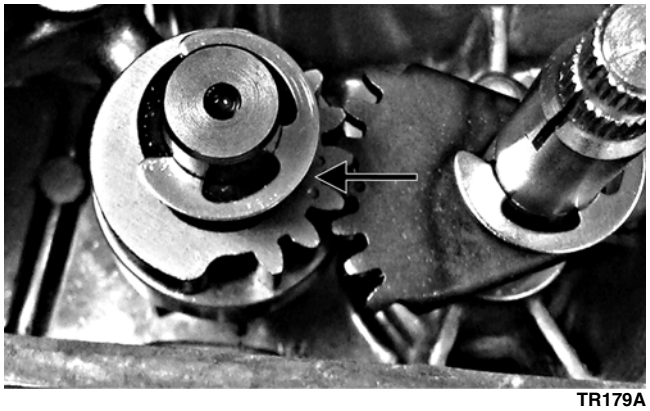


TR177



TR178

5. Install the shift shaft making sure the timing marks are matched.



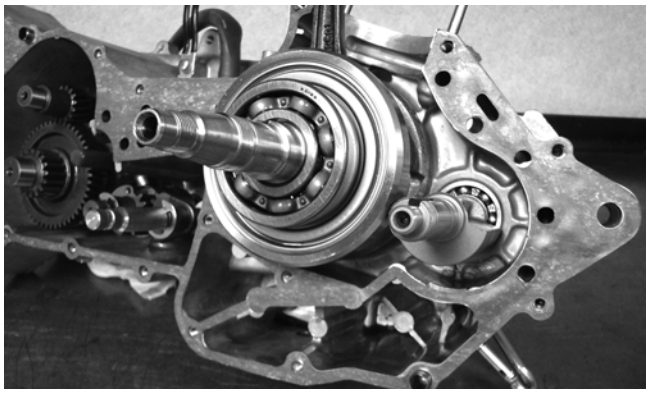
TR179A

6. Install the timing chain into the case; then apply grease to the lips of the crankshaft seal and install the crankshaft.

TR180

■NOTE: To simplify holding the timing chain in position on the lower end, pack a small amount of all-purpose grease into the case and "stick" the chain in place.

7. Install the balancer shaft; then install the right-side crankcase half with a new gasket.



TR181

8. Lightly tap the case halves together until fully seated; then secure with nine right-side cap screws and one left-side cap screw.

CAUTION

DO NOT place any non-metallic components in parts-cleaning solvent because damage or deterioration will result.

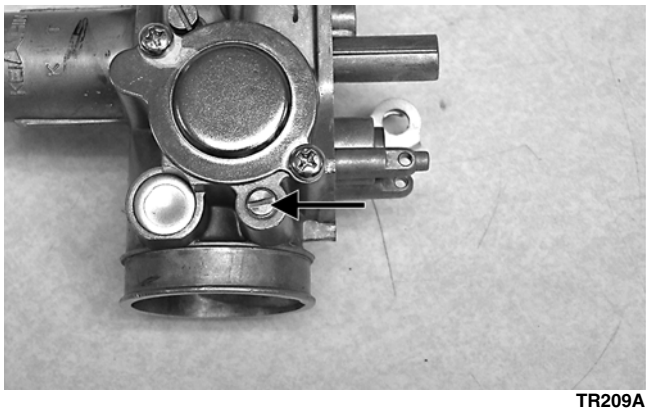
1. Place all metallic components in a wire basket and submerge in carburetor cleaner.
2. Soak for 30 minutes; then rinse with clean, hot water.
3. Wash all non-metallic components with soap and water. Rinse thoroughly.
4. Dry all components with compressed air only making sure all holes, orifices, and channels are unobstructed.
5. Inspect the carburetor body for cracks, nicks, stripped threads, and any imperfections in the casting.
6. Inspect float for damage.
7. Inspect gasket and O-rings for distortion, tears, or noticeable damage.
8. Inspect tips of the jet needle, pilot screw, and the needle jet for wear, damage, or distortion.
9. Inspect the slow jet and main jet for obstructions or damage.

■NOTE: If the slow jet is obstructed, the mixture will be extremely lean at idle and part-throttle operation.

10. Inspect the float valve for wear or damage.
11. Inspect the carburetor mounting flange for damage and tightness.

ASSEMBLING

1. Install the pilot screw, spring, washer, and O-ring.



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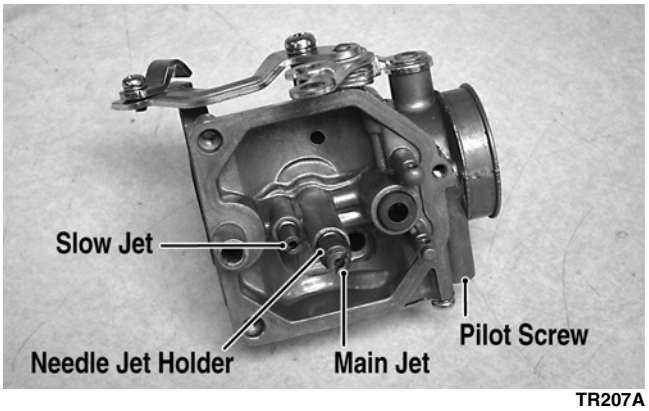
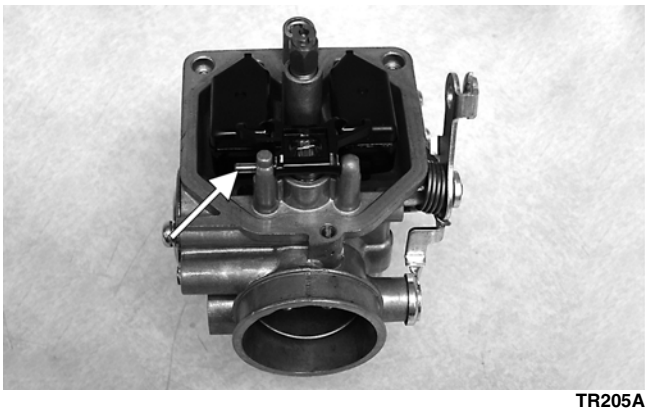
■NOTE: Turn the pilot screw clockwise until it is lightly seated; then turn it counterclockwise the recommended number of turns as an initial setting.

■NOTE: Note the locations of the jets and holder during assembling procedures.



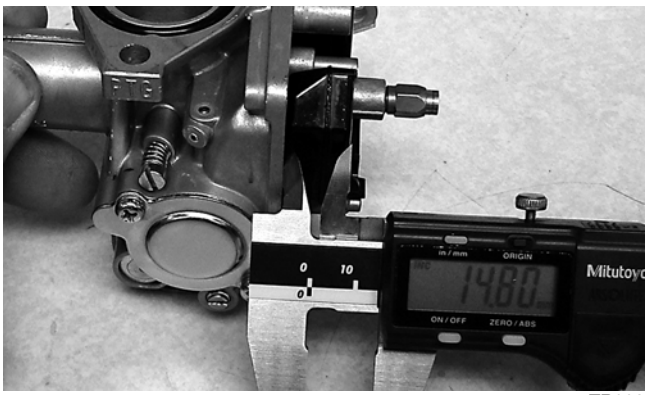
TR207A

2. Install the slow jet. Tighten securely.
3. Install the main jet into the needle jet holder and tighten securely; then install the needle jet holder assembly into the carburetor and tighten securely.
4. Place the float assembly (with float valve) into position and secure to the carburetor with the float pin.



TR205A

■NOTE: Check float arm height by placing the carburetor on its side w/float contacting the needle; then measure with a caliper the height when the float arm is in contact with the needle valve. Float arm height should be 14.8 mm.



TR220

5. Place the float chamber into position making sure the O-ring is properly positioned; then secure with the Phillips-head screws.

If the fuse is blown, the fuse element will be visibly burned and separated. Attempt to determine the cause of the blown fuse and install a new fuse of the same amperage.

CAUTION

Always replace a blown fuse with a fuse of the same type and rating. Replacing a blown fuse with a different rating can cause severe electrical wiring damage or fire could occur.

Ignition Coil

The ignition coil is on the right side of the frame in front of the engine.

PEAK VOLTAGE (Primary/CDI Side)

■NOTE: All of the peak voltage tests should be made using the Fluke Model 77 Multimeter with Peak Voltage Reading Adapter. If any other type of tester is used, readings may vary due to internal circuitry.

■NOTE: The battery must be at full charge for these tests.

■NOTE: The ignition switch must be in the ON position; the emergency stop switch must be in the RUN position. Also, the black wire must be disconnected from the coil.

1. Set the meter selector to the DC Voltage position.
2. Connect the red tester lead to the black/white wire; then connect the black tester lead to the green/gray wire.
3. The meter reading must show greater then 85 volts.

■NOTE: If the voltage is not as specified in the above test, inspect the main wiring harness, main fuse, ignition switch, or engine stop switch.

RESISTANCE

CAUTION

Always disconnect the battery when performing resistance tests to avoid damaging the multimeter.

■NOTE: For these tests, the meter selector must be set to the OHMS position.

Primary Winding

1. Remove the primary connector from the coil; then connect the red tester lead to the primary terminal and the black tester lead to ground.
2. The meter reading must be within specification.

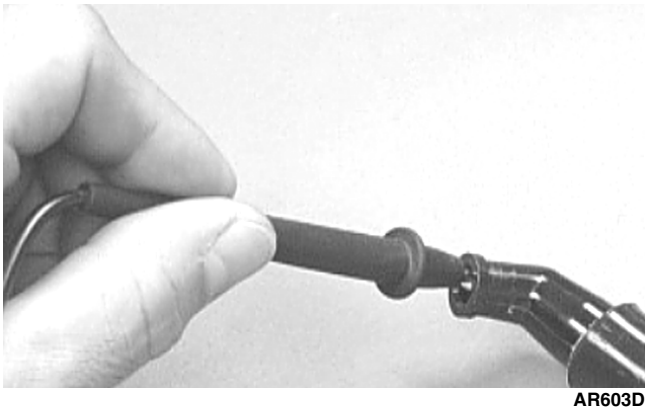
Secondary Winding

1. Connect the red tester lead to the high tension lead; then connect the black tester lead to ground.
2. The meter reading must be within specification.

■NOTE: If the meter does not show as specified, replace ignition coil.

Spark Plug Cap

1. Connect the red tester lead to one end of the cap; then connect the black tester lead to the other end of the cap.



AR603D

2. The meter reading must be within specification.

■NOTE: If the meter does not read as specified, replace the spark plug cap.

LCD Gauge Assembly

REMOVING

To remove the LCD gauge assembly, see Section 8 of this manual.

TESTING

■NOTE: If any functions (segments or displays) are not normal or do not display as indicated, the LCD gauge must be replaced.

1. Remove the instrument pod. Leave the gauge connected to the wiring harness.

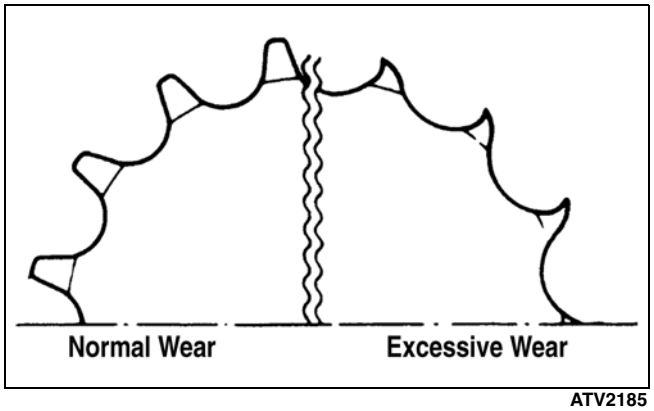
■NOTE: To perform the following tests, two MaxiClips and one jumper wire will be required.

2. Connect the black MaxiClip to the green wire.
3. Connect the red MaxiClip to the light green/red wire; then connect the jumper between the MaxiClips and turn the ignition switch to the ON position. The neutral indicator light (7) must illuminate.

KM477

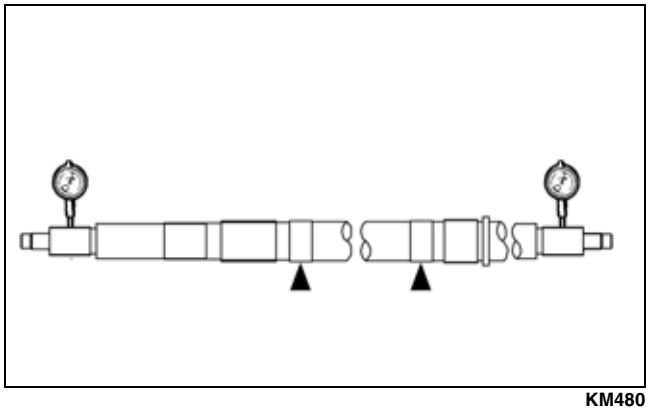
CLEANING AND INSPECTING

1. Inspect the sprocket teeth for wear. If they are worn as shown, replace the engine sprocket, rear sprocket, and drive chain as a set.



ATV2185

2. Measure the rear axle runout as shown using V blocks and a dial indicator. If the axle runout exceeds 1.5 mm (0.06 in.), the axle must be replaced.



KM480

3. Inspect the dust seals for wear or damage. If any defect is found, replace the dust seal.

4. Inspect the axle bearings by rotating them by hand. If any roughness, binding, or excessive looseness is found, replace the axle bearings.

■NOTE: If the axle bearings are replaced, replace the dust seals with new ones. Always pack the bearings with a good quality wheel bearing grease.

Removing Bearings

1. Remove the dust seals using an appropriate seal removal tool; then using an appropriate driver, drive the bearings out of the axle housing.

■NOTE: Do not reuse bearings after removal.

2. Clean the axle housing and inspect for cracks, elongated holes, and wear in bearing bores.

Installing Bearings

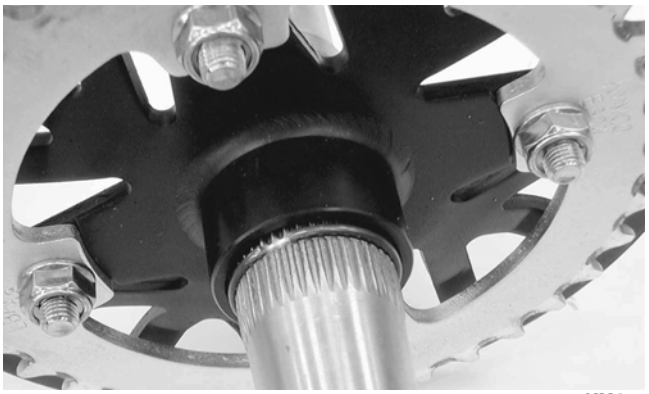
1. Pack the new bearings with a good quality wheel bearing grease; then install the right bearing first using an appropriate bearing installer.

2. Install the left bearing; then install new dust seals and lightly coat the lips with grease.

INSTALLING

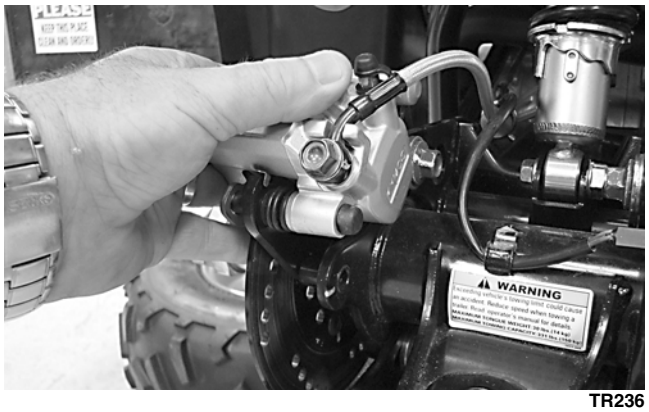
1. Slide the axle into the axle housing from the right side; then apply multipurpose grease to all splined areas of the axle.

2. Install the sprocket and sprocket hub on the axle and secure with the nuts; then tighten securely. Install the drive chain.



KM477

3. On the left side, install the brake disc assembly; then install the brake caliper and secure with the two cap screws. Tighten to 24 ft-lb.



TR236

■NOTE: It is necessary to calculate the torque value using the following formula due to the offset of the special tool used to tighten the axle nuts.

SECTION 8 - STEERING/FRAME

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