FOREWORD

This Arctic Cat Service Manual contains service, maintenance, and troubleshooting information for the 2010 Arctic Cat ATV 300 Utility/DVX 300. 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.

Periodic Maintenance

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

■NOTE: Arctic Cat recommends the use of new gaskets, lock nuts, and seals and lubricating all internal components when servicing the engine/transmission.

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

■NOTE: Critical torque specifications are located in Section 1.

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
Tappet Adjuster	0444-189

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

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. 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)

Air Filter

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.

1. Remove the seat.
2. Remove the air filter housing cover from the retaining clips.

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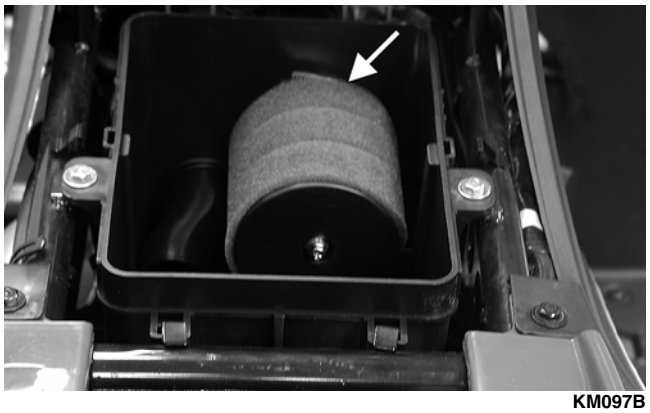
3. Loosen the clamp; then remove the filter.



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4. Fill a wash pan larger than the filter with a non-flammable cleaning solvent; then dip the filter in the solvent and wash it.

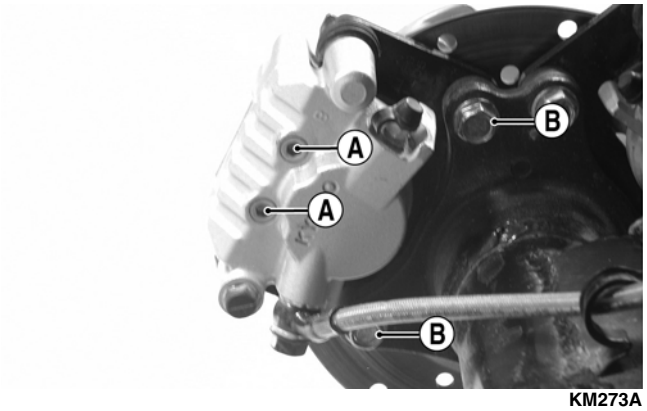
■NOTE: Foam Filter Cleaner and Foam Filter Oil are available from Arctic Cat.

5. Dry the filter.
6. 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.

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



KM273A

3. Install the wheel and secure. Tighten to 32 ft-lb.
4. Remove the ATV from the support stand.

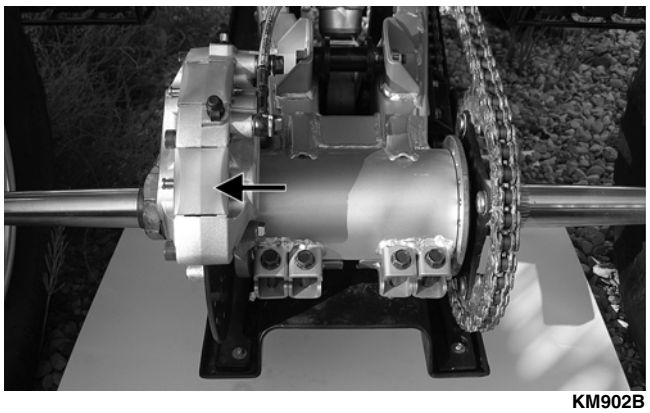
■NOTE: Whenever installing new pads, the new pads must be burnished (see Burnishing Brake Pads in this section).

MEASURING/REPLACING REAR/AUXILIARY BRAKE PADS (DVX)

Removing

■NOTE: The brake caliper on the DVX contains two sets of brake pads. The front pads are controlled by the main brake lever and the rear pads are controlled by the auxiliary brake pedal.

1. Remove the brake pad dust cover; then remove the clip pin and pull the brake pad retaining pin out of the caliper.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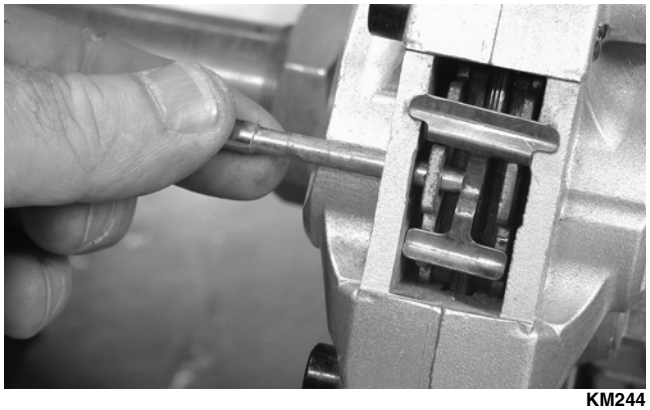
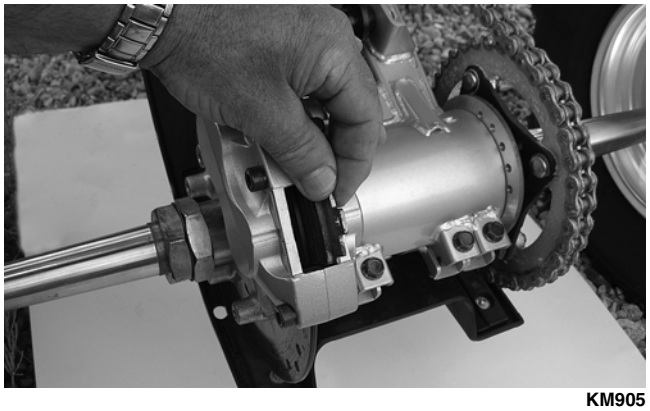

KM244

2. Remove the brake spring plate; then remove the brake pads.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Inspecting and Measuring

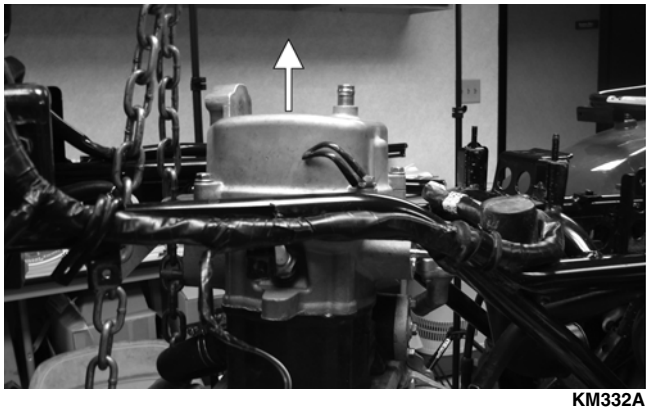
1. Inspect the pads for gouges, chips, or wear.
2. Inspect the disc for gouges, grooves, cracks, and warpage.
3. Using a calipers, measure the thickness of each brake pad.
4. If the thickness of any brake pad is less than 1.0 mm (0.039 in.), the brake pad must be replaced.

■NOTE: The brake pads should be replaced as a set.

5. Using a calipers, measure the thickness of the disc. If any portion of the disc is less than 3.00 mm (0.12 in.), the disc must be replaced (see Section 6).

Installing

1. Install the brake pads in the caliper; then insert the brake spring plate.



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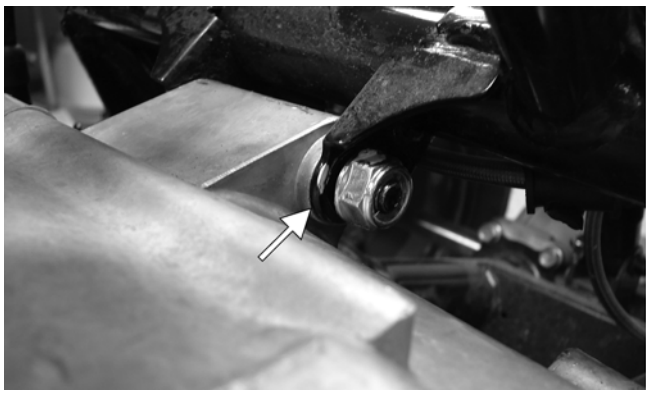
18. Remove the upper rear and lower rear engine through-bolts to free the engine/transmission; then raise the front of the engine/transmission sufficiently to allow the engine assembly to be moved forward enough to disengage the driveshaft.



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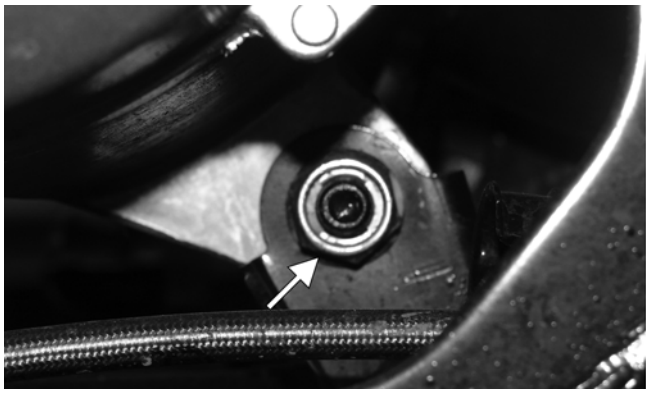

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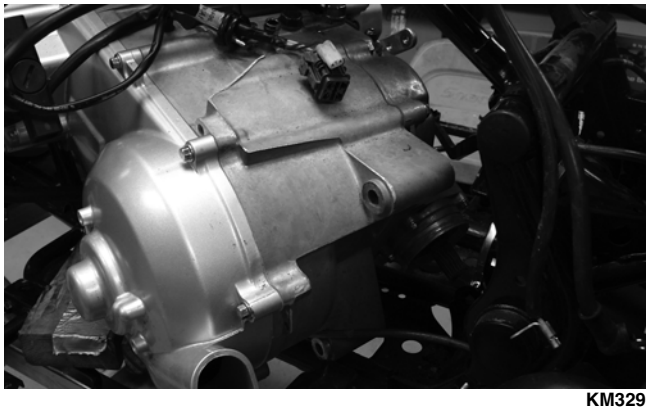
19. Swing the rear of the engine/transmission to the left; then slide the engine out of the left-side of the frame.



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Top-Side Components

■NOTE: For efficiency, it is preferable to remove and disassemble only those components which need to be addressed and to service only those components. The technician should use discretion and sound judgment.

☞ AT THIS POINT
To service any one specific component, only limited disassembly of components may be necessary. Note the AT THIS POINT information in each sub-section.

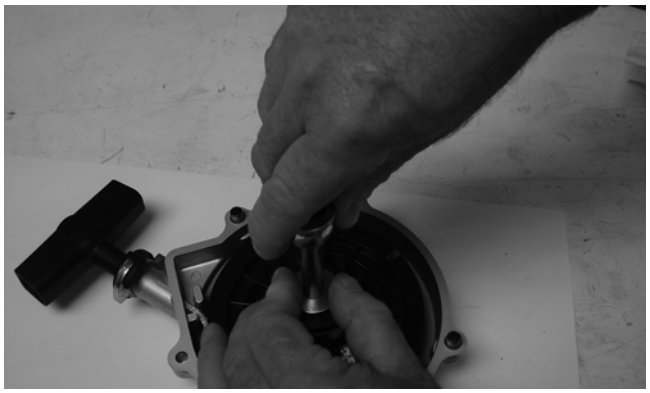
■NOTE: The engine/transmission does not have to removed from the frame for this procedure.

Removing Top-Side Components

A. Valve Cover
B. Cylinder Head

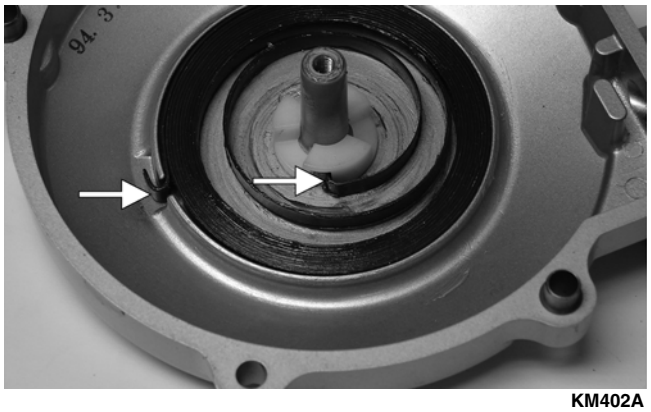
■NOTE: Remove the spark plug and timing inspection plug; then rotate the crankshaft to top-dead-center of the compression stroke.

3. Remove the cap screw. Account for the ratchet guide, spacer, and spring.



KM411

4. Carefully lift the reel free of the case making sure the spiral spring does not accidentally disengage from the case.

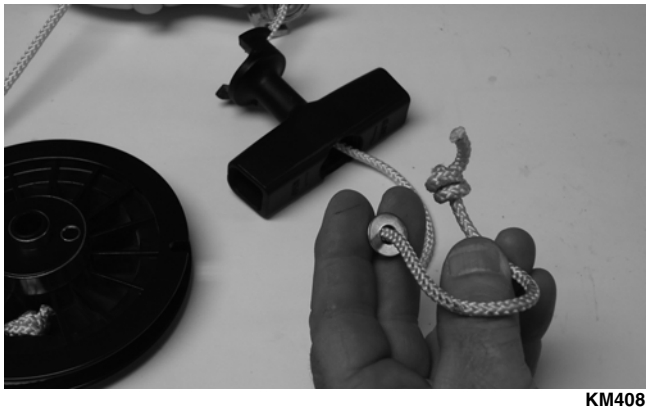


KM402A

⚠ WARNING

Care must be taken when lifting the reel free of the case. Wear safety glasses to avoid injury.

5. Remove the protective cover from the starter handle and pull the rope out of the handle; then untie the knot in the rope and remove the handle. Account for a flat washer.



KM408

■NOTE: Do not remove the spiral spring unless replacement is necessary. It should be visually inspected in place to save time. If replacement is necessary, follow steps 6-7.

6. Remove the spiral spring from the case by lifting the spring end up and out. Hold the remainder of the spring with thumbs and alternately release each thumb to allow the spring to gradually release from the case.

7. Unwind the rope from the reel and remove the rope.

Cleaning and Inspecting

■NOTE: Whenever a part is worn excessively, cracked, or damaged in any way, replacement is necessary.

1. Clean all components.
2. Inspect the springs and ratchet for wear or damage.
3. Inspect the reel and case for cracks or damage.
4. Inspect the shaft for wear, cracks, or damage.
5. Inspect the rope for breaks or fraying.
6. Inspect the spiral spring for cracks, crystallization, or abnormal bends.
7. Inspect the handle for damage, cracks, or deterioration.

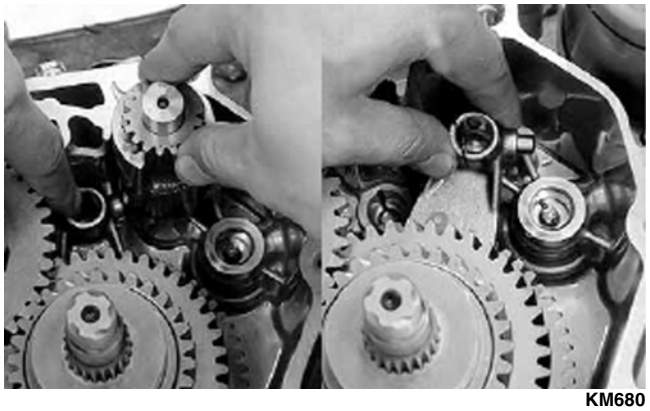
Assembling/Installing

1. If removed, insert the spiral spring into the case with the outer end of the spring around the mounting lug in the case; then wind it in a counterclockwise direction until the complete spring is installed.

■NOTE: The spiral spring must seat evenly in the recoil case.

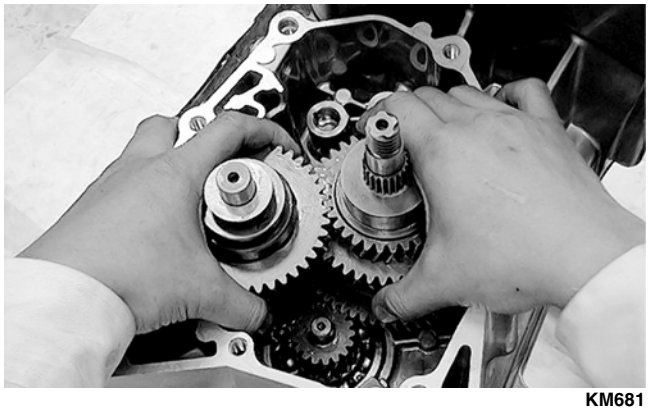
KM402

2. Insert the rope through the hole in the reel and tie a knot in the end; then wrap the rope clockwise around the reel leaving approximately 50 cm (20 in.) of rope free of the reel.
3. Apply low-temperature grease to the spring and hub.
4. Thread the end of the rope through the guide hole of the case; then thread the rope through the handle and washer and secure it with a double knot. Install the protective cover into the handle.



KM680

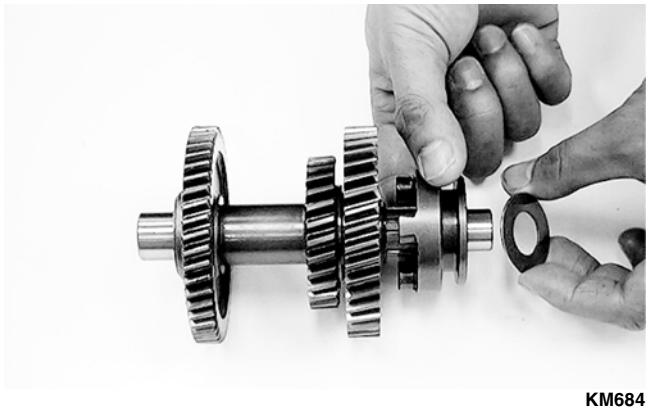
10. Remove the countershaft and driveshaft as an assembly.



KM681

11. To disassemble the countershaft, use the following procedure.

A. Remove the thrust washer and high gear clutch dog.



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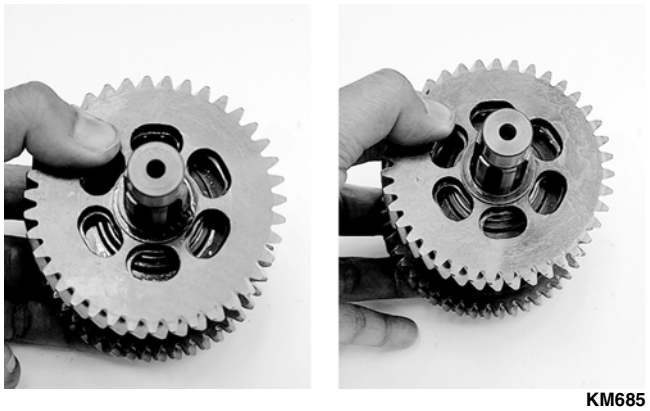
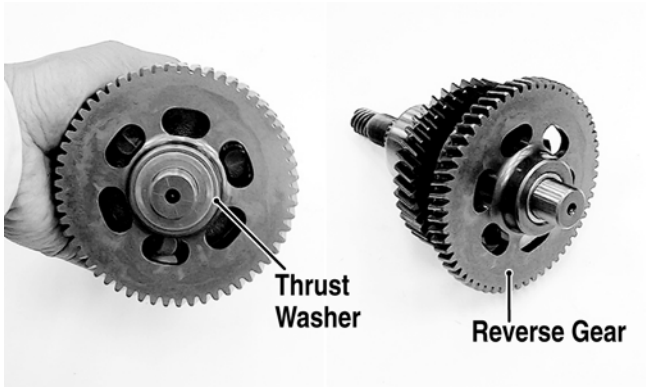
B. Remove the high drive gear circlip and washer; then remove the high drive gear and thrust washer.



KM685

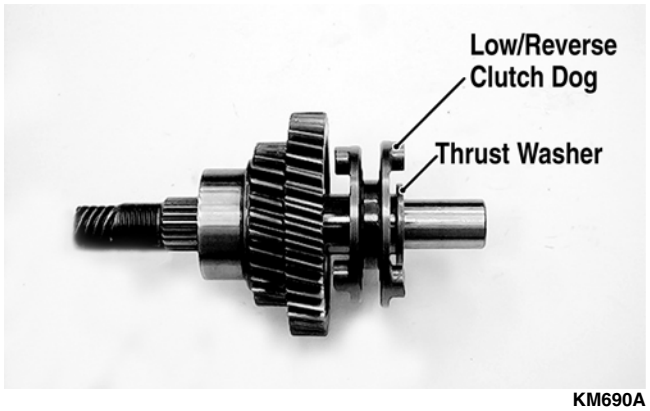
12. To disassemble the driveshaft, use the following procedure.

A. Remove the thrust washer; then remove the reverse gear.



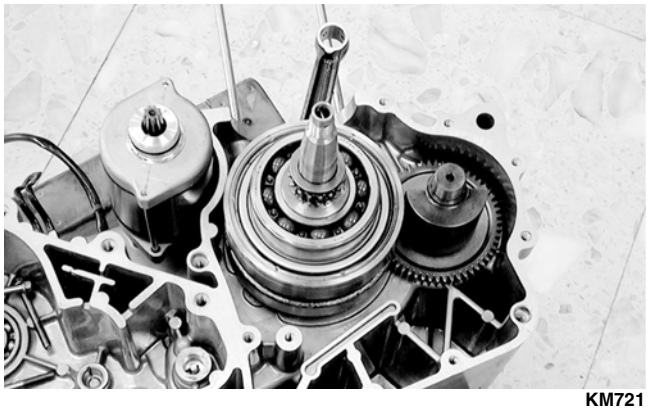
KM689A

B. Remove a thrust washer and the low/reverse clutch dog.



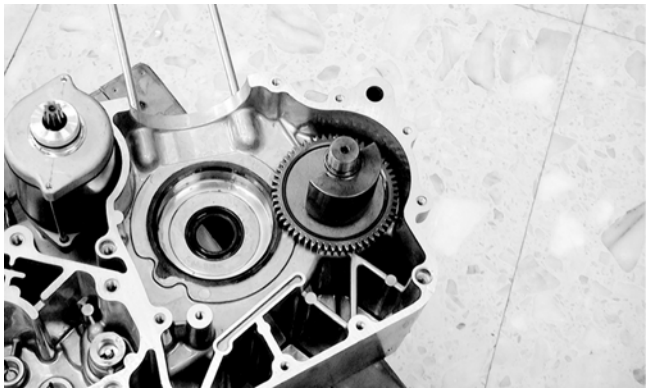
KM690A

C. Remove the low driven gear snap ring and washer; then remove the low driven gear and thrust washer.



KM721

2. Remove the balancer shaft from the left crankcase half.



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☞ AT THIS POINT

To service crankshaft assembly, see Servicing Center Crankcase Components sub-section.

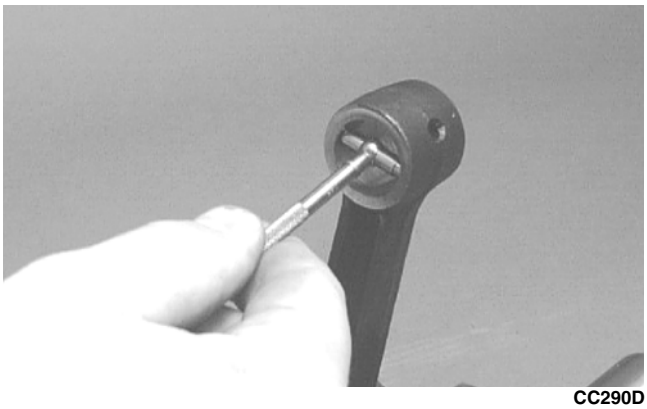
Servicing Center Crankcase Components

■NOTE: Whenever a part is worn excessively, cracked, damaged in any way, or out of tolerance, replacement is necessary.

CRANKSHAFT ASSEMBLY

Measuring Connecting Rod (Small End Inside Diameter)

1. Insert a snap gauge into the upper connecting rod small end bore; then remove the gauge and measure it with micrometer.



CC290D

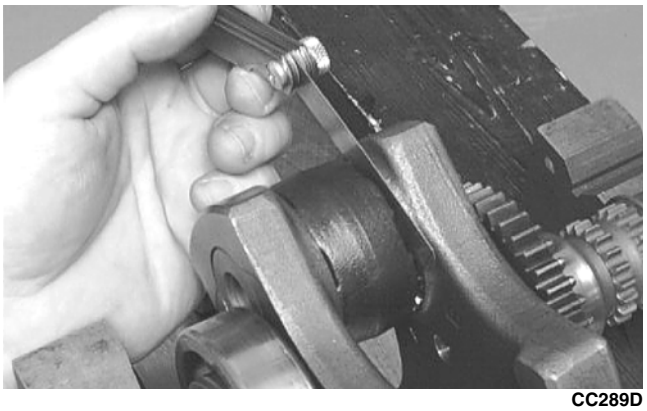
2. Maximum diameter must not exceed specifications.

Measuring Connecting Rod (Small End Deflection)

1. Place the crankshaft on a set of V-blocks and mount a dial indicator and base on the surface plate. Position the indicator contact point against the center of the connecting rod small end journal.
2. Zero the indicator and push the small end of the connecting rod away from the dial indicator.
3. Maximum deflection must not exceed specifications.

Measuring Connecting Rod (Big End Side-to-Side)

1. Push the lower end of the connecting rod to one side of the crankshaft journal.
2. Using a feeler gauge, measure the gap between the connecting rod and crankshaft journal.

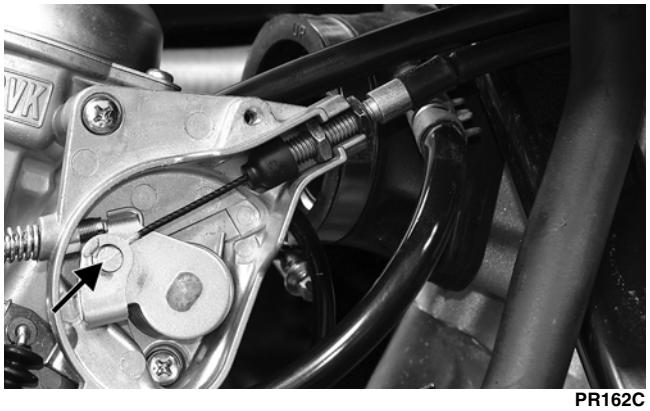


CC289D

3. Acceptable gap range must be within specifications.

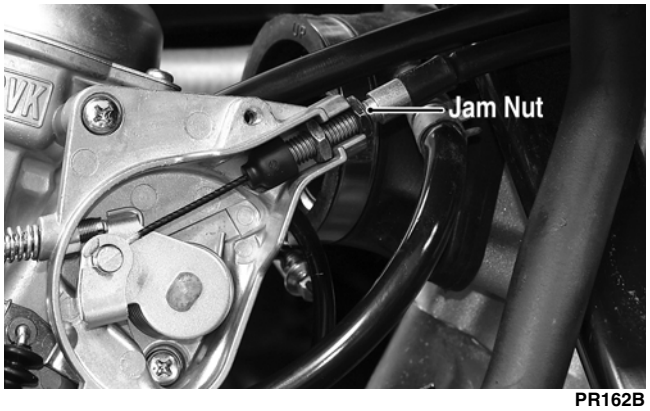
Measuring Crankshaft (Runout)

1. Place the crankshaft on a set of V blocks.
2. Mount a dial indicator and base on the surface plate. Position the indicator contact at point 1 of the crankshaft.



PR162C

6. Loosen the outer jam nut securing the throttle cable to the carburetor body; then route the cable out of the way.

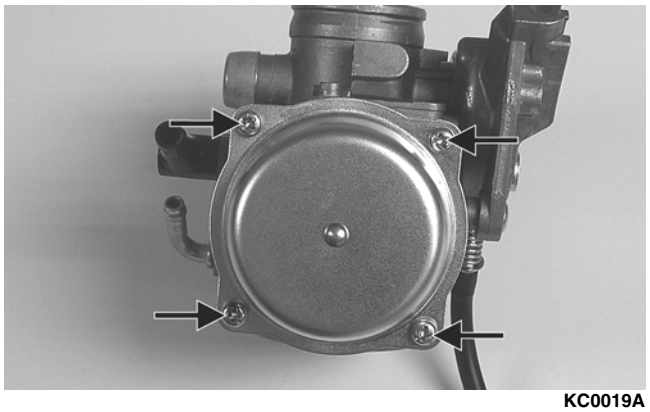


PR162B

7. Disconnect the vent hose; then remove the carburetor.

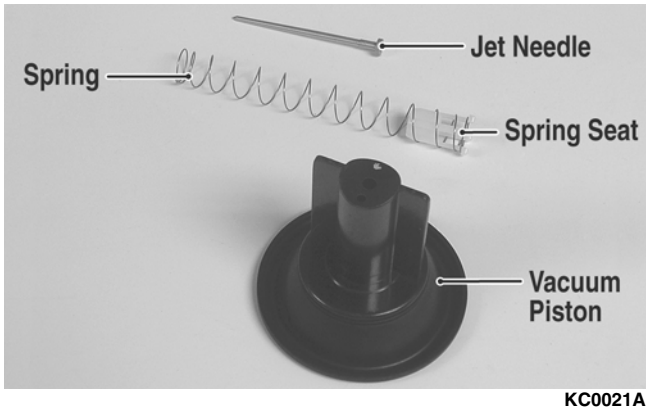
DISASSEMBLING

1. Remove the four Phillips-head screws securing the top cover; then remove the cover.



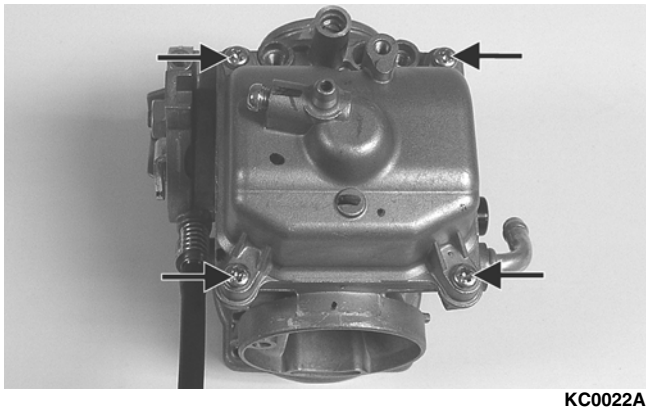
KC0019A

2. Remove the vacuum piston assembly from the carburetor body. Account for a spring, spring seat, and the jet needle.



KC0021A

3. Remove the Phillips-head screws securing the float chamber; then remove the chamber. Account for the O-ring.



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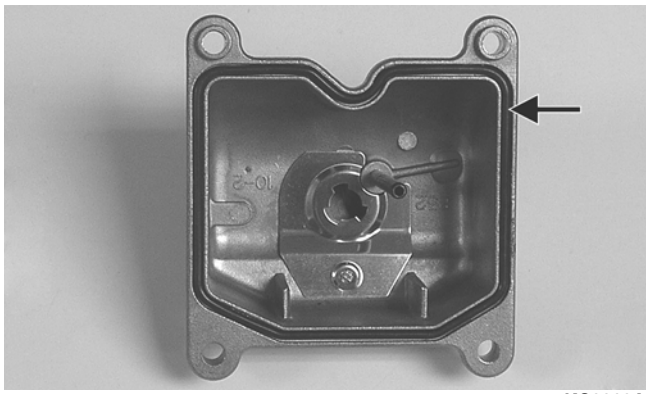
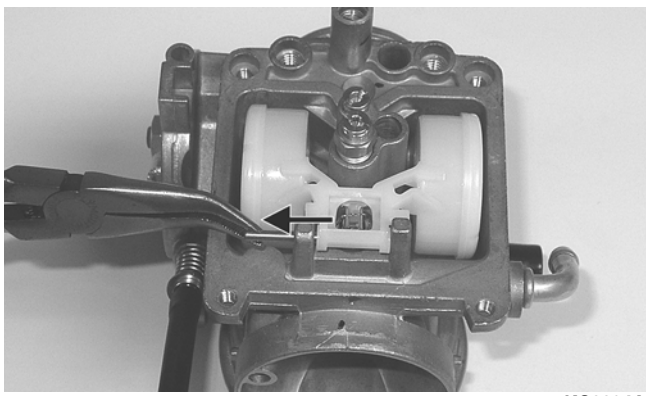


KC0063A

4. Remove the float pin.



KC0024A

5. Lift the float assembly from the carburetor. Account for the float valve.

4

SECTION 5 - ELECTRICAL SYSTEM

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The CDI is rarely the cause for electrical problems; however, if the CDI is suspected, substitute another CDI unit to verify the suspected one is defective.

■NOTE: Prior to replacing the CDI unit to assure the CDI unit is defective, it is advisable to perform a CDI peak voltage test (see Ignition Coil in this section) and/or perform a continuity test of the wiring harness from the CDI connector to the CDI unit.

Regulator/Rectifier

The regulator/rectifier is located on the right side of the frame. Verify all other charging system components before the regulator/rectifier is replaced.

TESTING

1. Start the engine and warm up to normal operating temperature; then connect a multimeter to the battery as follows.
2. Select the DC Voltage position; then connect the red tester lead to the positive battery post and the black tester lead to the negative battery post.
3. Start the engine and slowly increase RPM. The voltage should increase with the engine RPM to a maximum of 15.5 DC volts.

■NOTE: If voltage rises above 15.5 DC volts, the regulator is faulty or a battery connection is loose or corroded. Clean and tighten battery connections or replace the regulator/rectifier. If voltage does not rise, check Voltage (Stator Coil - No Load) sub-section. If charging coil voltage is normal, replace the regulator/rectifier.

Start-in-Gear Relay

■NOTE: The relay schematic is embossed on the relay housing for testing continuity.

■NOTE: The module and wiring harness are not a serviceable component and must be replaced as an assembly.

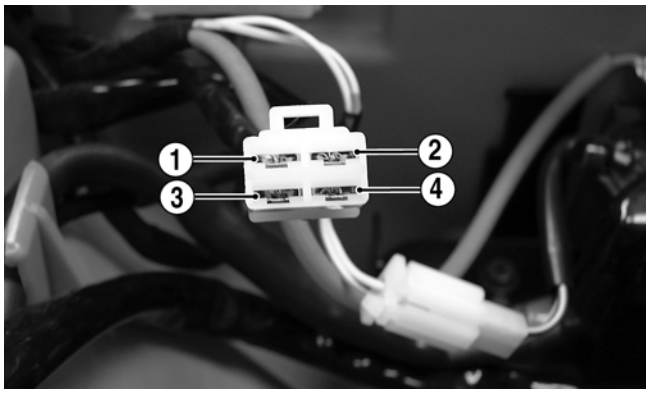
TESTING

The start-in-gear relay is located under the seat below the fuse block. To test the relay, use the following procedure.

1. Turn the ignition switch to the ON position; then compress the brake lever or depress the auxiliary brake pedal. There should be an audible "click" from the start-in-gear relay.

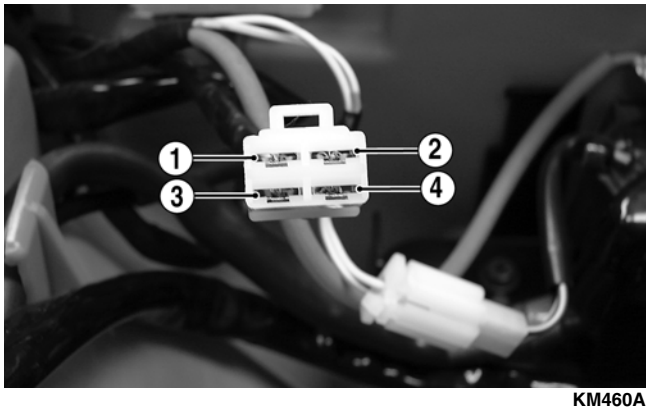
■NOTE: The brakelight should illuminate whenever either brake is applied. If the brakelight does not illuminate, troubleshoot the respective brakelight switch.

2. Apply the opposite brake from step 1. There should be an audible "click" from the start-in-gear relay.
3. Disconnect the four-wire connector from the start-in-gear relay; then using a voltmeter, connect the red tester lead to the green/yellow wire (1) and the black tester lead to the green wire (3).



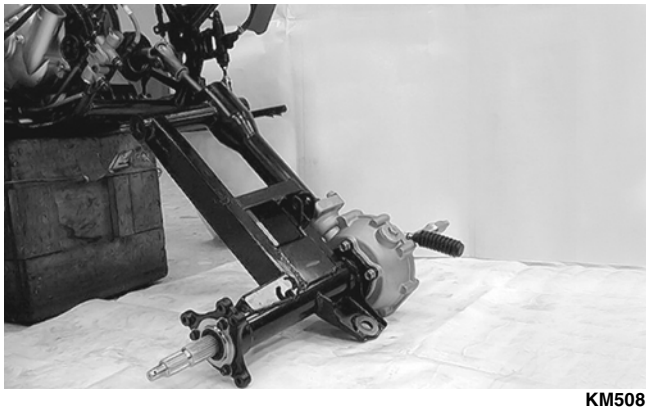
KM460A

4. With the ignition switch in the ON position, select the DC volts position on the tester; then apply either brake. The meter must read battery voltage. If battery voltage is observed and no audible "click" was heard in step 1 or 2, remove the tester leads and replace the start-in-gear relay.
5. Shift the gear selector out of neutral and connect a jumper wire between the yellow/green wire (2) and the green wire (4).



KM460A

6. Momentarily depress the starter button. The starter should engage. If the starter engages, replace the start-in-gear relay. If the starter does not engage, troubleshoot the battery connections, starter relay, or starter connections.

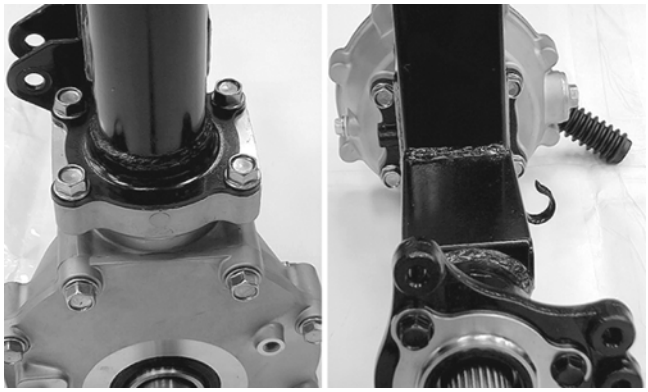


KM508

11. Disengage the universal joint from the transmission output shaft splines and set the driveshaft aside.

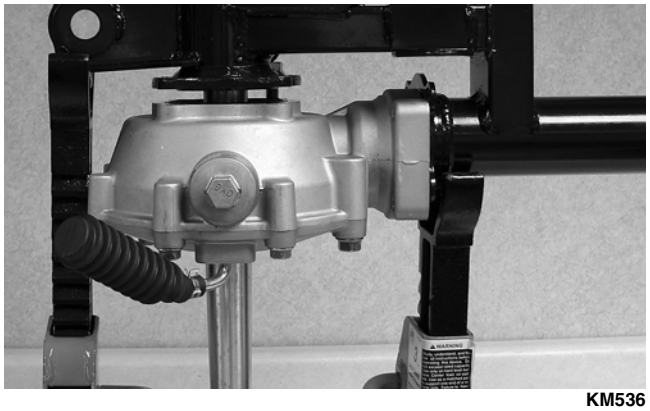
KM509

12. Remove the eight cap screws securing the swing arm to the final drive gear case.



KM513

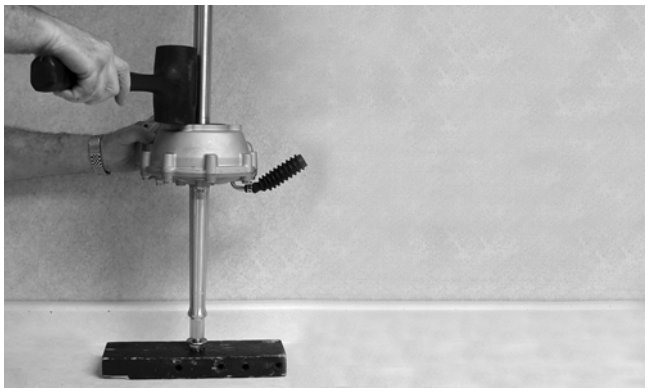
13. Support the swing arm from the right side; then using a rubber mallet, drive the axle shaft from the swing arm tube. Account for two O-rings.



KM536

KM537

14. Place the right end (shorter length) of the axle on a wood block; then using a rubber mallet, drive the gear case from the axle.



KM538

CAUTION

Support the gear case by hand or damage to the gear case could occur as it will fall free once it clears the splined portion of the axle.

CLEANING AND INSPECTING

■NOTE: Whenever a part is worn excessively, cracked, or damaged in any way, replacement is necessary.

1. Clean all parts with parts-cleaning solvent and dry with compressed air.
2. Inspect all seals for nicks, tears, or deterioration.

Suspension

The following suspension system components should be inspected periodically to ensure proper operation.

A. Shock absorber rods not bent, pitted, or damaged.

B. Rubber damper not cracked, broken, or missing.

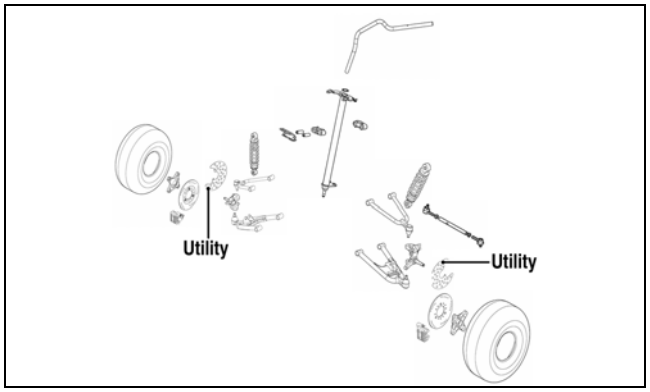
C. Shock absorber body not damaged, punctured, or leaking.

D. Shock absorber eyelets not broken, bent, or cracked.

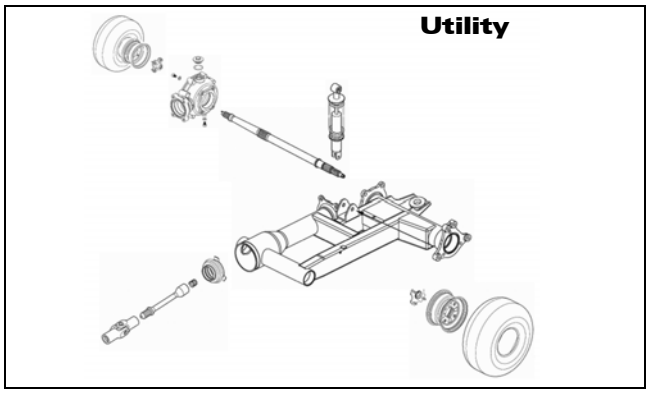
E. Shock absorber eyelet bushings not worn, deteriorated, cracked, or missing.

F. Shock absorber spring not broken or sagging.

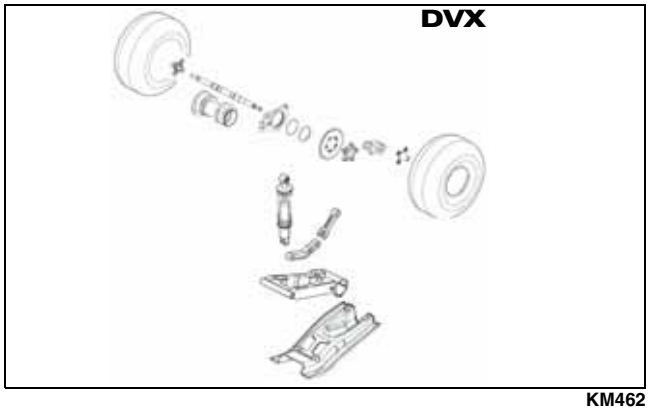
Front and Rear Suspension Assembly Schematics



KM598E



KM463



KM462

Front Shock Absorbers

■NOTE: Critical torque specifications are located in Section 1.

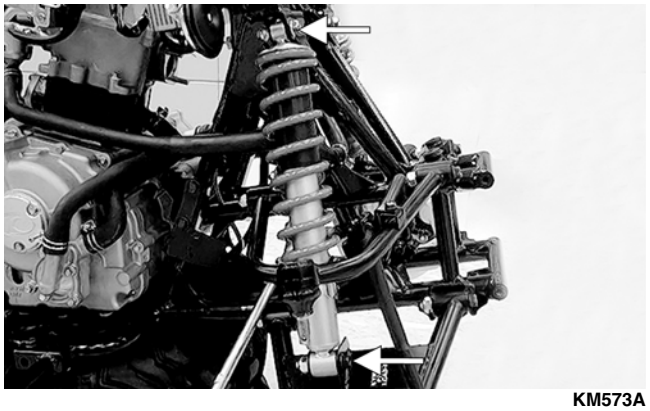
REMOVING

1. Secure the ATV on a support stand to elevate the wheels and to release load on the suspension.

⚠ WARNING

Make sure the ATV is solidly supported on the support stand to avoid injury.

2. Remove the cap screws and nuts securing each shock absorber to the A-arm and frame.



KM573A

CLEANING AND INSPECTING

■NOTE: Whenever a part is worn excessively, cracked, or damaged in any way, replacement is necessary.

1. Clean the shock absorbers in parts-cleaning solvent.
2. Inspect each shock rod for nicks, pits, bends, and oily residue.
3. Inspect the springs, spring retainers, shock rods, shock bodies, and eyelets for cracks, leaks, and bends.

SECTION 8 - STEERING/FRAME

8

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