2017

Service Manual

ARCTIC CAT®
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ALTERRA 90
DVX™ 90

⚠ WARNING

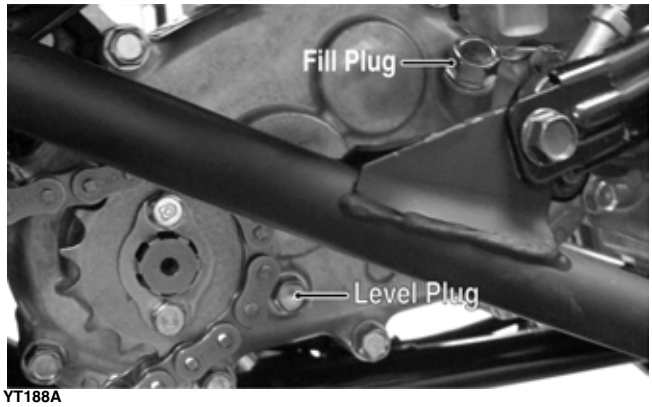
Before installing the spark arrester, wait for the muffler to cool to avoid burns.

3. Install the spark arrester in the muffler and secure with the cap screw. Tighten securely.

KM139

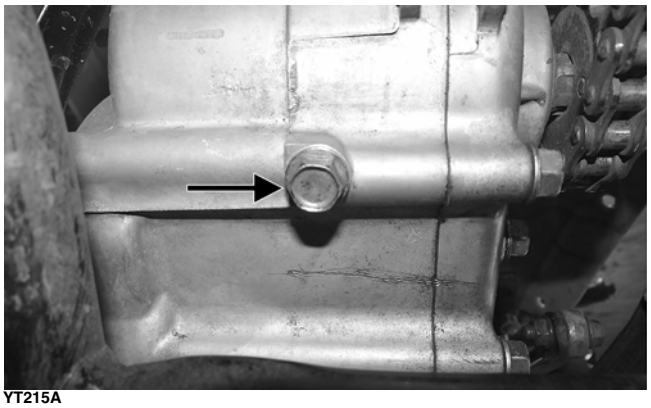
Transmission Lubricant

1. Park the ATV on level ground.
2. Remove the level plug from the lower-right side of the transmission; then remove the fill plug from the upper-right side of the transmission. Be careful not to allow contaminates to enter the opening.



YT188A

3. Remove the drain plug from the bottom of the transmission and drain the lubricant into a drain pan.

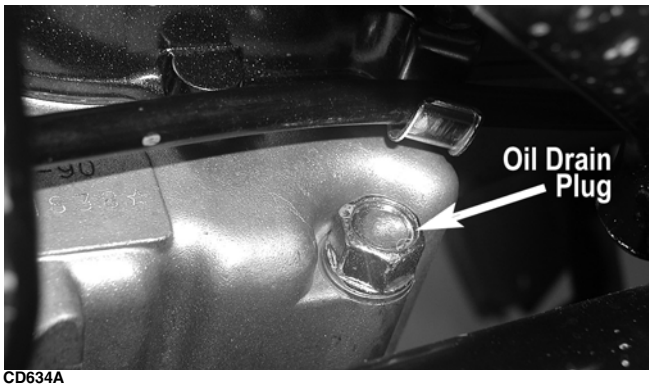


YT215A

4. Install the drain plug and tighten to 18 ft-lb. Pour the recommended lubricant in the fill hole while observing the oil level hole. Stop pouring if oil is observed at the threads of the oil level hole. Install and tighten the oil level plug.
5. Start the engine (while the ATV is outside on level ground) and drive it a short distance.
6. Turn the engine off and wait approximately one minute. Remove the level plug and recheck the lubricant level. The level should be visible at the level hole. If lubricant is not visible, add recommended lubricant until the level is visible at the level hole.
7. Inspect the area around the drain plug for leaks.

Engine Oil

1. Move the ATV outdoors and start and warm up the engine. Shut the engine off; then place a drain pan under the engine oil drain plug located on the left-side of the engine under the kick starter.



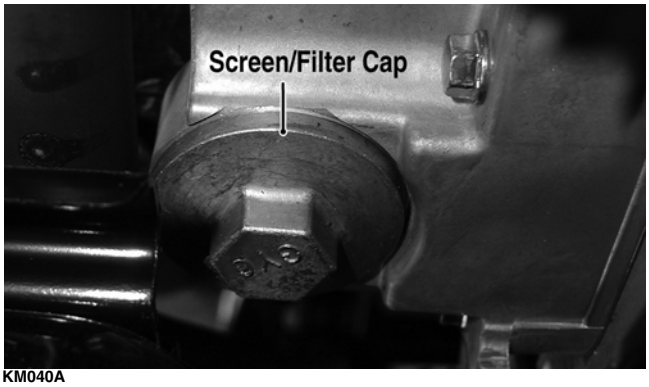
CD634A

2. Remove the oil drain plug and drain the engine oil into the pan; then install the oil drain plug and tighten to 18 ft-lb.

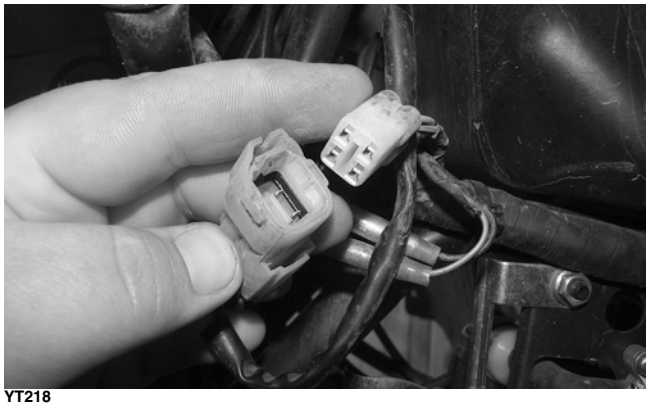
⚠ WARNING

Use extreme caution when removing the oil drain plug. Hot oil can cause severe injury and skin burns.

3. Move the drain pan to the right-front of the engine and remove the oil screen/filter cap. Account for a screen, spring, and O-ring. Discard the O-ring.



KM040A


YT218

5. On the DVX, remove the cap screws securing the body panel. On the Alterra, remove the front and rear racks.
6. Remove the gas tank cap and lift off the main body panel (see Steering/Body/Controls).

YT239

7. Remove the cotter pins; then remove the two inner tie rod ends from the steering post.

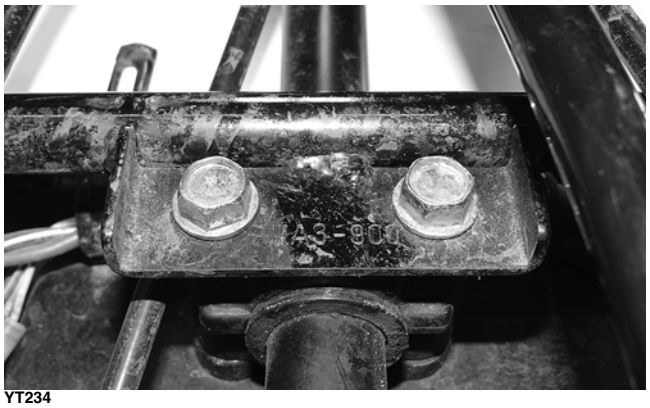

MD2136

8. Remove the cotter pin; then remove the steering post nut.


MD2417

9. Remove the front support bracket, steering post outer bearing cap, and the steering post assembly. Account for the two cap screws, the outer and inner bearing caps, and the two-piece plastic bearing.

■**NOTE: The inner bearing cap and the two spacers do not need to be removed.**


YT234

CLEANING AND INSPECTING

1. Wash the tie rod ends in parts-cleaning solvent. Dry with compressed air. Inspect the pivot area for wear. Apply a low-temperature grease to the ends.

⚠ WARNING

Always wear safety glasses when using compressed air.

2. Inspect the tie rods for damaged threads or wear.
3. Inspect the tie rods for cracks or unusual bends.
4. Inspect all welded areas for cracks or deterioration.
5. Inspect the steering post and brackets for cracks, bends, or wear.
6. Inspect the plastic bearing halves and bearing caps for cracks or wear.
7. Inspect the handlebar tube for cracks, wear, or unusual bends.

INSTALLING

1. Place the steering post into position. Tighten the two cap screws on the front support bracket making sure the two-piece plastic bearing and the inner and outer bearing caps are in place. Tighten the cap screws to 20 ft-lb.

10. Remove the gasline hose from the carburetor. Remove the cap screws securing the carburetor to the intake manifold. Account for the spacer and o-rings. Remove the carburetor.
11. Remove the nuts from the one rear and two front through bolts. Do not remove the bolts at this time.
12. Remove the cooling duct from the front of the V-belt housing; then disconnect the gear shift position switch connectors.


YT256

13. Remove the cap screws securing the front engine mounting brackets to the frame; then remove the through bolts and brackets.
14. Slide the engine/transmission forward sufficiently to clear the rear mounting brackets; then swing the rear of the assembly out the left side and remove the engine/transmission from the frame.

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 need to be removed from the frame for this procedure.

Removing Top-Side Components

A. CAMSHAFT HOLDER/ROCKER ARMS
B. CYLINDER HEAD/CAMSHAFT

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

1. Remove the intake pipe. Account for an O-ring between the intake pipe and cylinder head.
2. Remove the cap screws securing the AIS reed valve and reed valve cover to the valve cover. Note the different length cap screws and orientation of the reed valve as shown.


YT257

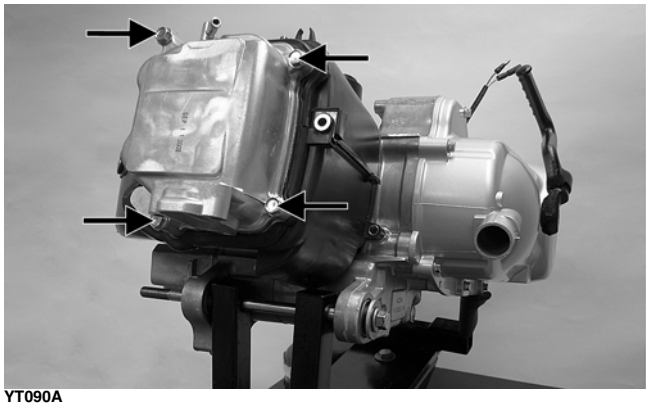

YT258

3. Remove the two chrome-plated cap screws securing the fresh air pipe to the cylinder head. Account for the gaskets at each end.


YT259

4. Remove the fan shroud; then remove the cylinder/cylinder head shroud. Note the location of the carburetor float bowl drain hose clip.

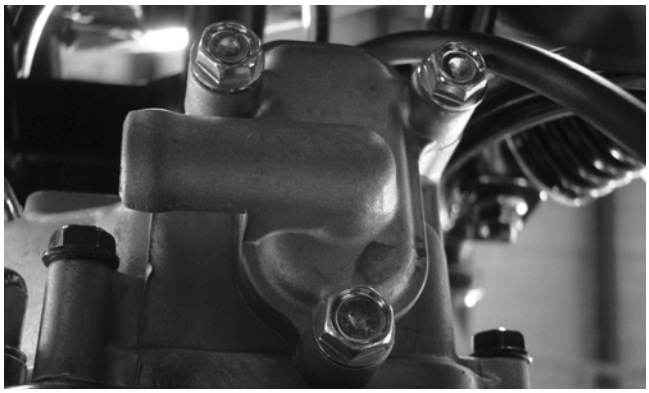
YT170


YT090A

13. With new gaskets in place on each end of the AIS fresh air pipe, set the AIS fresh air pipe into position. Loosely thread the chrome-plated nuts to the cylinder head.


YT259

14. Place the AIS reed valve and reed valve cover onto the valve cover; then secure with the three cap screws. Tighten the nuts (from step 13) to 84 in.-lb.


YT257

15. Install the intake pipe/carburetor assembly onto the cylinder head using a new O-ring. Tighten the flange nuts to 7 ft-lb.

Left-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.

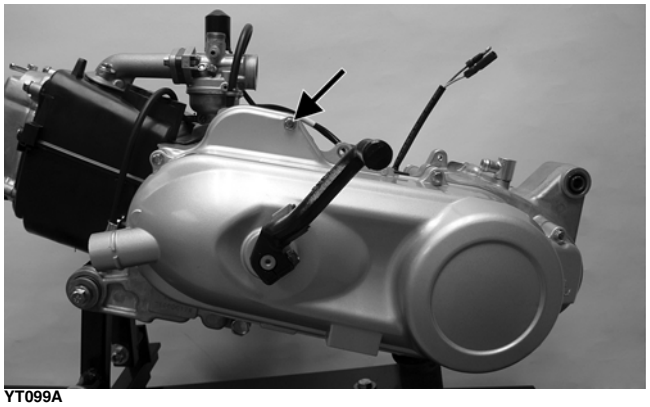
☞ AT THIS POINT
To service any one specific component, only limited disassembly of components may be necessary. Note the AT THIS POINT information in each sub-section.

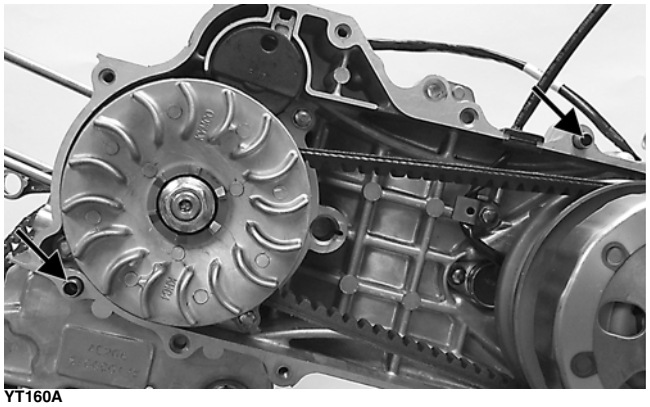
■NOTE: The engine/transmission does not have to be removed from the frame for this procedure.

Removing Left-Side Components

A. V-BELT COVER
B. V-BELT/DRIVE CLUTCH/DRIVEN PULLEY
C. CENTRIFUGAL CLUTCH
D. GEAR POSITION SWITCH
E. STARTER ONE-WAY CLUTCH

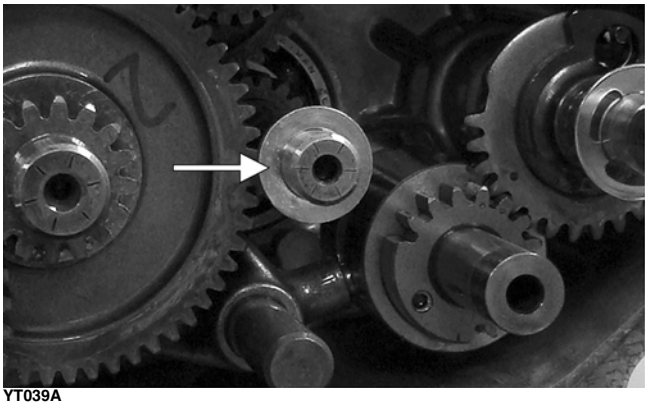
1. Remove the V-belt cover noting the location of the different-lengthed cap screw and the location of the alignment pins. Account for a gasket.


YT099A


YT160A

YT041A

9. Making sure the input driveshaft thrust washer is installed, carefully install the transmission case cover.



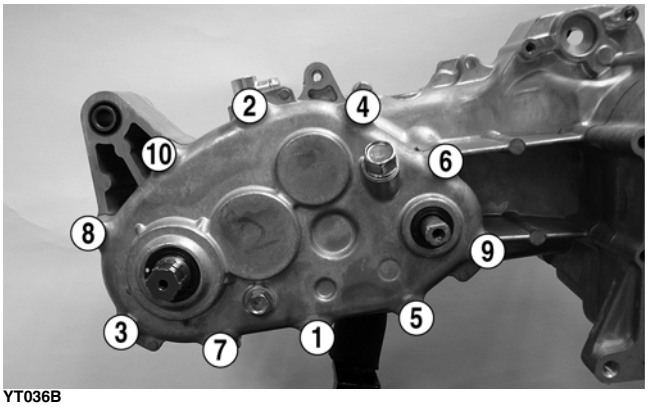
YT039A

YT078

CAUTION

Care must be taken to protect the lips of the shift shaft seal when installing the cover or seal damage may occur.

10. Secure the cover with the cap screws and tighten using the pattern shown to 22 ft-lb; then install the shift detent ball, spring, and plug and tighten securely.



YT036B

YT220A

11. Install the shift arm on the shift shaft and secure with the cap screw. Tighten securely.

YT035

Center Crankcase Components

■NOTE: This procedure cannot be done with the engine/transmission in the frame. Complete Removing procedures for Top-Side, Left-Side, and Right-Side must precede this procedure.

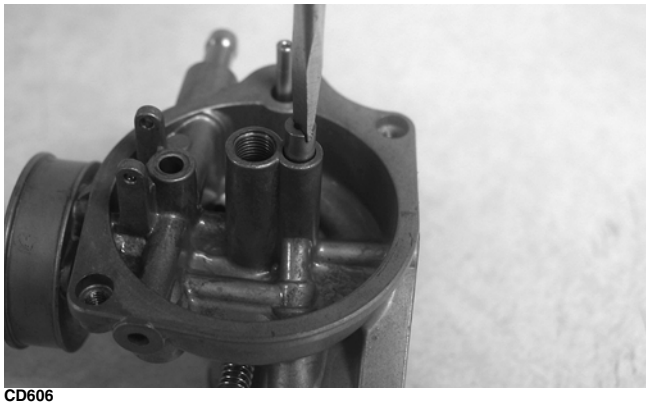
■NOTE: For efficiency, it is preferable to remove and disassemble only those components which need to be addressed and to service only those components. The technician should use discretion and sound judgment.

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

10. Inspect the choke assembly for wear or damage.

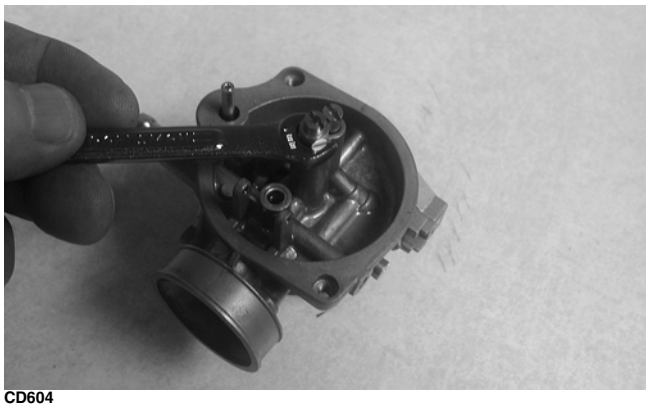
ASSEMBLING

1. Install the slow jet.



CD606

2. Install the main jet by threading it into the jet holder; then install the jet holder into the carburetor. Tighten both components securely.



CD604

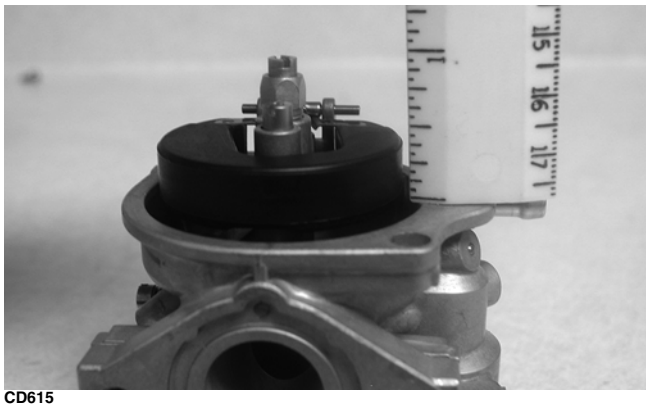
3. Install the idle adjustment screw with the spring.

■NOTE: Turn the idle adjustment screw clockwise until lightly seated; then turn it counterclockwise 2 ½ turns out.

4. Install the float and needle valve assembly into the carburetor; then install the float pin.

CD763

■NOTE: Check float height by inverting the carburetor freeing the float arm; then measure with a ruler the height when the float arm is in contact with the needle valve. Float height should be 10.2 mm (0.40 in.). To adjust, bend the actuator arm tab.

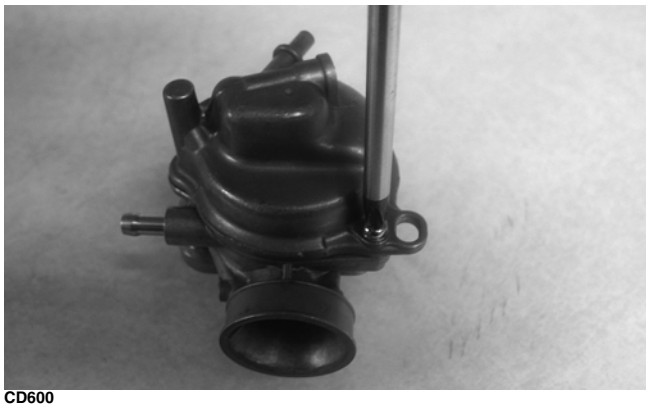


CD615

5. Install the float chamber seal.

CD601

6. Place the float chamber into position making sure the seal is properly seated; then secure with the Phillips-head screws and washers.



CD600

7. Install the choke assembly. Tighten the two Phillips-head screws (with washers) securely.

Troubleshooting

Problem: Spark absent or weak	
Condition	**Remedy**
1. **Ignition coil** defective 2. **Spark plug** defective 3. **Magneto** defective 4. **CDI unit** defective	1. Replace ignition coil 2. Replace plug 3. Replace magneto 4. Replace CDI unit
Problem: Spark plug fouled with carbon	
Condition	**Remedy**
1. **Idle RPM** too high 2. **Gasoline** incorrect 3. **Air filter elemen**t dirty 4. **Spark plug** incorrect (too cold)	1. Adjust carburetor 2. Change to correct gasoline 3. Clean element 4. Replace plug with proper heat range
Problem: Spark plug electrodes overheat or burn	
Condition	**Remedy**
1. **Spark plug** incorrect (too hot) 2. **Engine** overheats 3. **Spark plug** loose	1. Replace plug 2. Check cooling fan air intake blockage - damage to fan - cooling shroud 3. Tighten plug
Problem: Magneto does not charge	
Condition	**Remedy**
1. **Lead wires - connections** shorted - loose - open 2. **Magneto coils** shorted - grounded - open 3. **Regulator/rectifier** shorted - punctured	1. Repair - replace - tighten lead wires 2. Replace magneto coils 3. Replace regulator/rectifier
Problem: Magneto charges, but charging rate is below the specification	
Condition	**Remedy**
1. **Lead wires** shorted - open - loose (at terminals) 2. **Stator coils (magneto)** grounded - open 3. **Regulator/rectifier** defective 4. **Cell plates (battery)** defective	1. Repair - tighten lead wires 2. Replace stator coils 3. Replace regulator/rectifier 4. Replace battery
Problem: Magneto overcharges	
Condition	**Remedy**
1. **Internal battery** short circuited 2. **Regulator/rectifier resistor** damaged - defective 3. **Regulator/rectifier** poorly grounded	1. Replace battery 2. Replace resistor 3. Clean - tighten ground connection
Problem: Charging unstable	
Condition	**Remedy**
1. **Lead wire** intermittently shorting 2. **Magneto** internally shorted 3. **Regulator/rectifier** defective	1. Replace lead wire 2. Replace magneto 3. Replace regulator/rectifier

Suspension

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

A. Shock absorber rods bent, pitted, or damaged.

B. Rubber damper cracked, broken, or missing.

C. Shock absorber body damaged, punctured, or leaking.

D. Shock absorber eyelets broken, bent, or cracked.

E. Shock absorber eyelet bushings worn, deteriorated, cracked, or missing.

F. Shock absorber spring broken or sagging.

Shock Absorbers

REMOVING FRONT SHOCK ABSORBERS

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

⚠ WARNING

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

2. Remove the cap screw and self-locking nut securing each front shock absorber to the frame.

MD2131

3. Remove the cap screw and self-locking nut securing each front shock to the A-arms.

MD2132

4. Remove the front shock absorbers.

REMOVING REAR SHOCK ABSORBER

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

⚠ WARNING

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

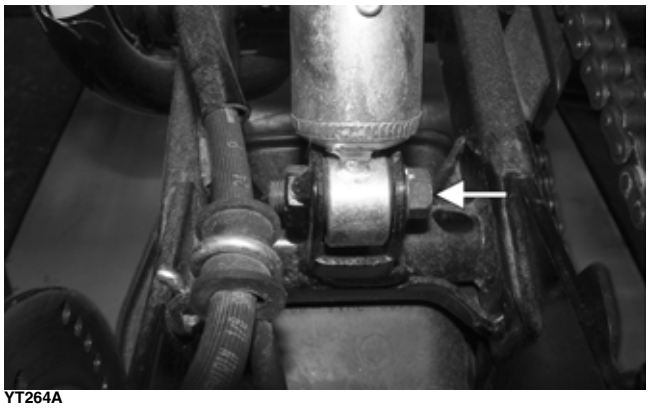
CAUTION

Additional support stands are necessary to support the rear axle when the shock absorbers are removed or damage may occur.

2. Remove the cap screw securing the rear shock absorber to the frame.

MD2314

3. Remove the cap screw securing the rear shock absorber to the swing arm; then remove the rear shock absorber.



YT264A

4. Compress the shock absorber spring and remove the spring retainer. Remove the spring and spring preload adjuster.

CLEANING AND INSPECTING

1. Clean all shock absorber components.

2. Inspect each shock rod for nicks, pits, rust, bends, and oily residue.

3. Inspect all springs, spring retainers, shock rods, dampers, bushings, shock bodies, and eyelets for cracks, leaks, and bends.