

700 DIESEL



2014

SERVICE MANUAL

[ATV]



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DE025A

3. Remove the drain plug from the bottom of the engine and drain the oil into a drain pan.



DE017A

4. Remove the right-side engine cover.
5. Using a suitable filter wrench, remove the oil filter.

■NOTE: Clean up any excess oil after removing the filter.

6. Apply oil to a new filter O-ring and check to make sure it is positioned correctly; then install the new oil filter. Tighten until contact is made; then tighten an additional 3/4 turn.



DE018

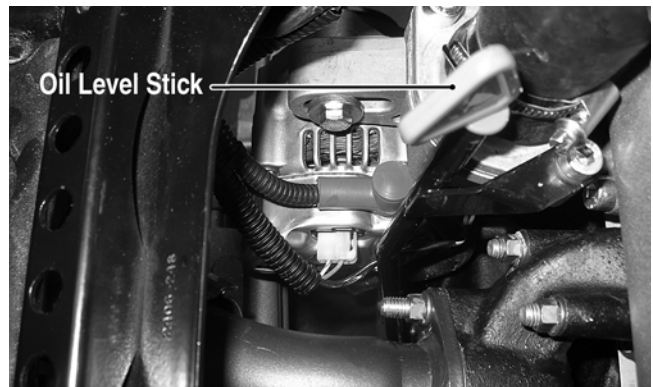
■NOTE: Install a new O-ring each time the filter is replaced.

7. Install the engine drain plug and tighten to 18 ft-lb. Pour the specified amount of the recommended oil in the filler hole. Install the oil filler cap.

CAUTION

Any oil used in place of the recommended oil could cause serious engine damage. Do not use racing, vegetable, non-detergent, and castor-based oils.

8. Start the engine (while the ATV is outside on level ground) and allow it to idle for a few minutes.
9. Turn the engine off and wait approximately three minutes.
10. Remove the oil level stick and wipe it with a clean cloth.

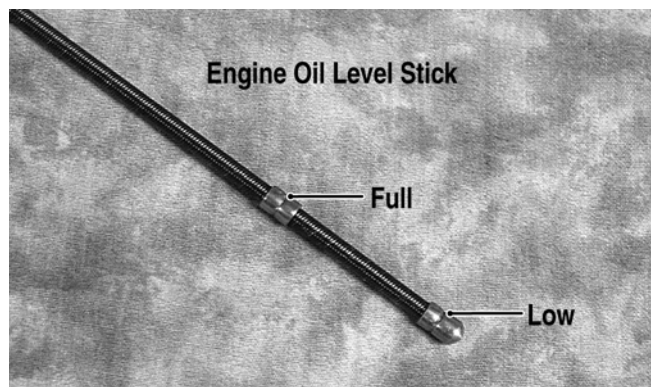


DE519D

11. Install the oil level stick and push in firmly.
12. Remove the oil level stick; the engine oil level should be above the illustrated "L" mark but not higher than the illustrated "F" mark.

CAUTION

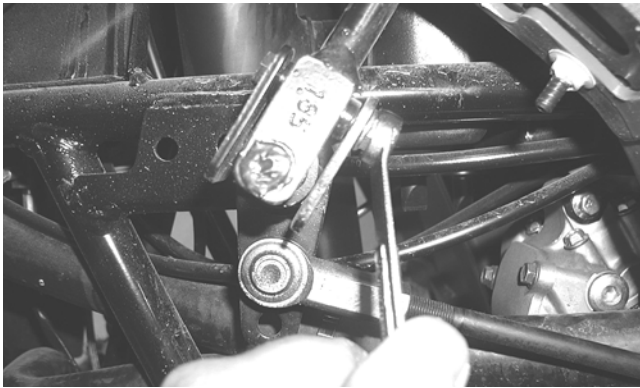
Do not over-fill the engine with oil. Always make sure that the oil level is above the "L" mark but not higher than the "F" mark.



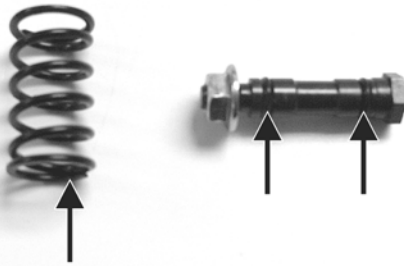
DE024A

13. Inspect the area around the drain plug and oil filter for leaks.
14. Install the right-side engine cover.

- Remove the shift knob retaining pin and remove the shift knob; then remove the shift lever pivot axle nut and remove the axle and shift lever. Account for a spring and two O-rings.



CD779



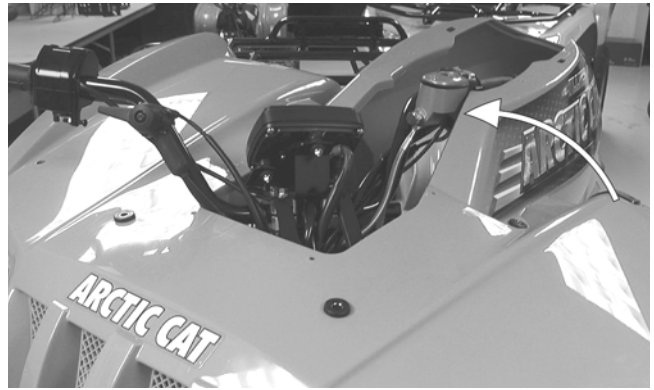
CD780A

- Disconnect four headlight connectors and secure the wires out of the way; then disconnect the wires to the front accessory plug.



CD681

- Rotate the handlebar to the full-left position; then lift and slide the panel to the rear and lift the rear up to clear the handlebar.



CD765A

■NOTE: It may be necessary to rotate the body panel to the right to align the opening with the handlebar.

CLEANING AND INSPECTING

- Clean all fender components with a warm soap and water solution.
- Inspect fenders for cracks and/or loose rivets.
- Inspect for any missing decals.

INSTALLING

- Rotate the handlebar to the full-left position; then place the front body panel over the handlebar and rotate and lower into position.

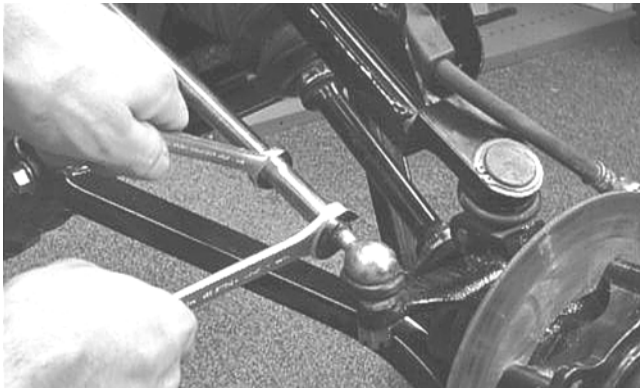


CD765

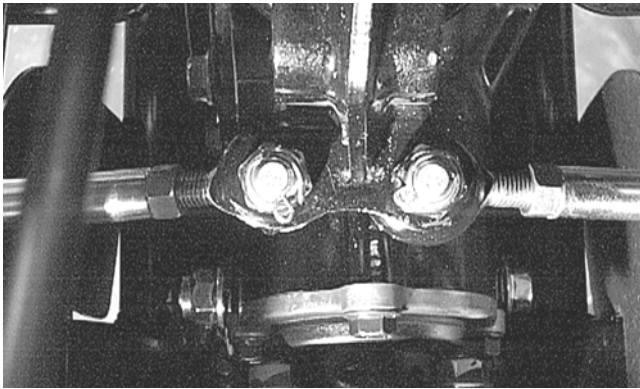
- Connect the headlight connectors to the appropriate headlights and the front accessory plug wires to the accessory plug.



CD681



AF617D



AF778D

■NOTE: The front wheels do not have to be removed to adjust the tie rod. Also, care should be taken not to disturb the handlebar position.

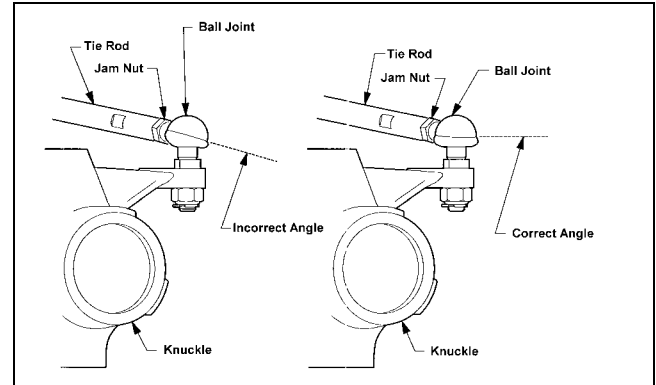
- Using a permanent marker of some type, mark the center of each front tire (at a height parallel to the belly panel).



AF789D

- Measure the distance between the marks (at a height parallel to the belly panel) at the front side; then record the measurement.
- Push the ATV forward until the marks are parallel to the belly panel on the back side; then measure the distance between the marks.
- The difference in the measurements must show 3.2-6.4 mm (1/8-1/4 in.) toe-in (the front measurement 3.2-6.4 mm (1/8-1/4 in.) less than the rear measurement).
- If the difference in the measurements is not within specifications, adjust both tie rods equally until within specifications.

■NOTE: Prior to locking the jam nuts, make sure the ball joints are at the center of their normal range of motion and at the correct angle.



733-559A

Front Rack

REMOVING

- Remove the two shoulder screws and lock nuts securing the front fender panel.
- Remove the cap screws and lock nuts securing the rack to the frame.
- Remove the front rack from the ATV.

CLEANING AND INSPECTING

- Clean all rack components.
- Inspect all welds for cracking or bending.
- Inspect threaded areas of all mounting bosses for stripping.
- Inspect for missing decals and/or reflectors.

INSTALLING

- Place the rack into position on the frame and front fender panel. Install the cap screws and lock nuts and finger-tighten only.
- Install the two shoulder screws and lock nuts securing the rack to the fenders. Tighten all hardware securely.

Front Bumper Assembly

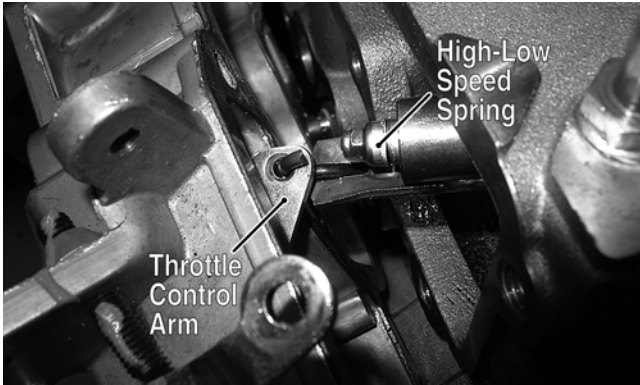
REMOVING

- Remove the two flange bolts and lock nuts securing the upper bumper supports to the bumper.
- Remove the through-bolt and lock nut securing the bumper to the frame; then remove the bumper.

CLEANING AND INSPECTING

- Clean all bumper components.
- Inspect all welds for cracking or bending.

- Disconnect the high-low speed spring assembly from the throttle control arm; then remove the intake manifold/throttle control housing. Account for a gasket.



DE258A

- Rotate the crankshaft in the direction of rotation approximately 90° from TDC.

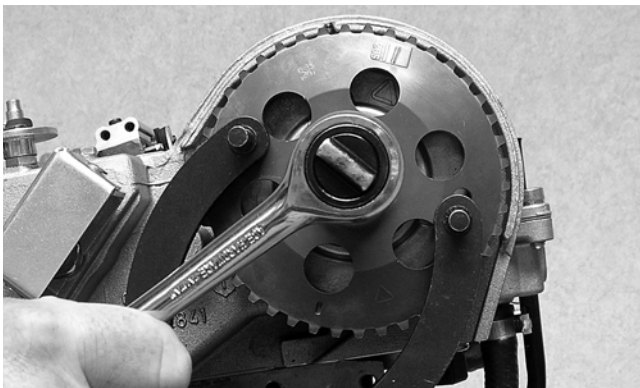


DE275A

CAUTION

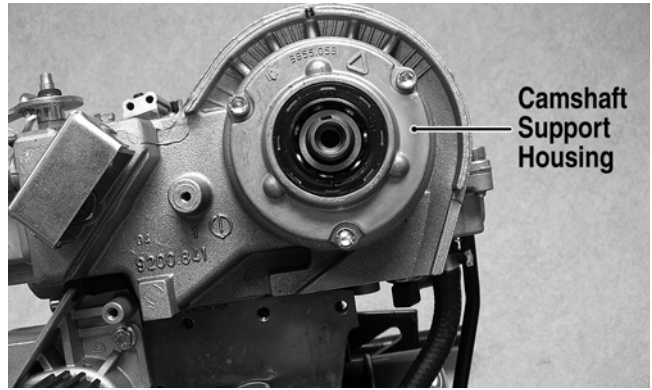
Failure to rotate the engine away from TDC will leave the flywheel-side piston in close proximity to the valves. If the camshaft is rotated while attempting to remove the camshaft drive pulley, severe valve damage WILL occur.

- Using a suitable holding tool, remove the cap screw securing the camshaft drive pulley; then remove the pulley.

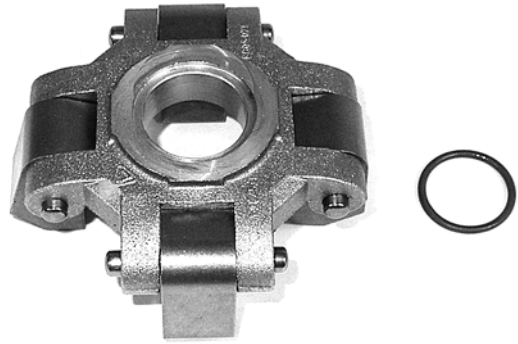


DE276

- Remove the front camshaft support housing; then remove the governor flyweight assembly. Account for a small O-ring.

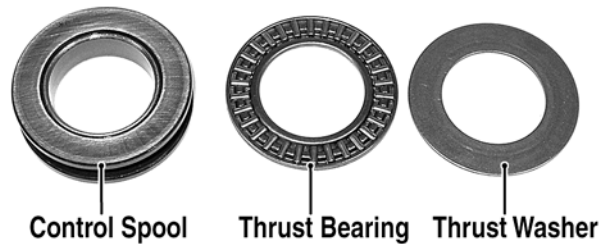


DE245A



DE277

- Remove the control spool, thrust bearing, and thrust washer. Note the order of disassembly and keep together and in order for assembling purposes.

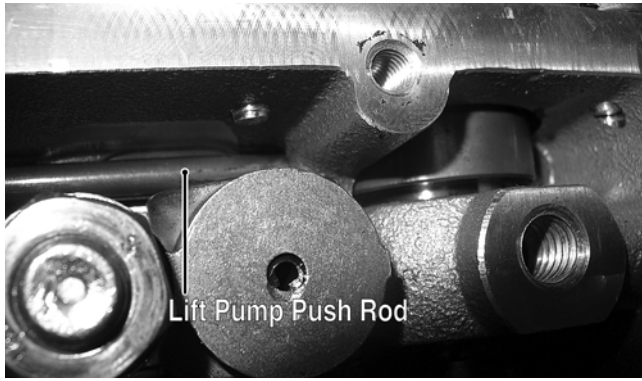


DE278A

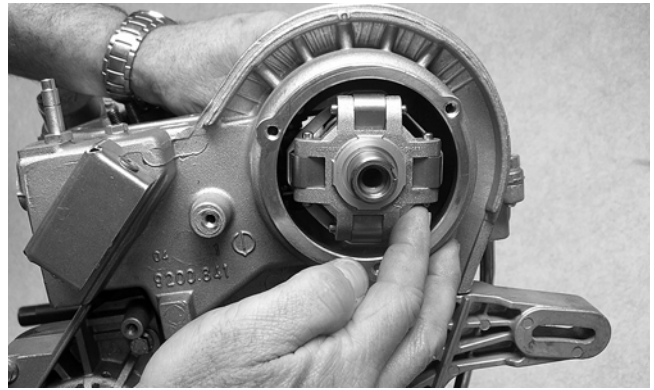


DE279

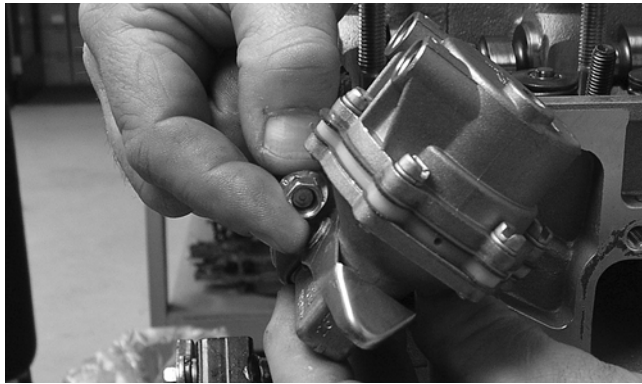
- Remove the torque limiter safety cover; then remove the torque limiter assembly. Account for a copper washer.



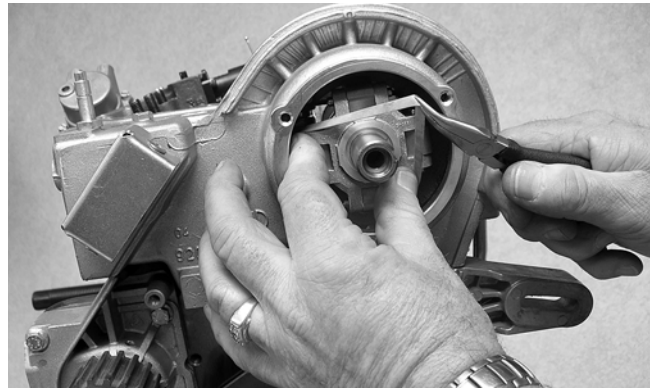
DE540B



DE535

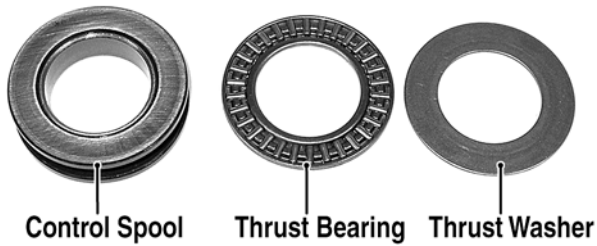


DE530

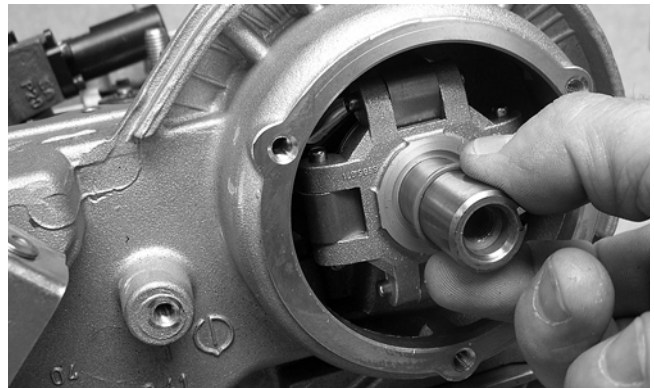


DE536

4. Place the control spool, thrust bearing, and thrust washer into the governor flyweight assembly; then using a rubber band, secure the weights around the control spool.

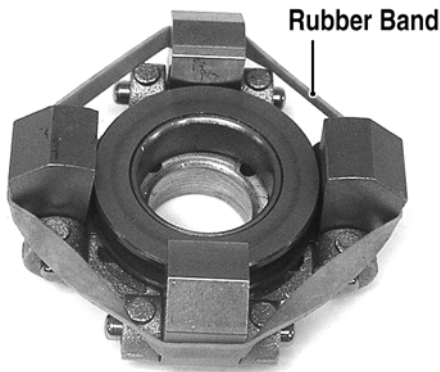


DE278A



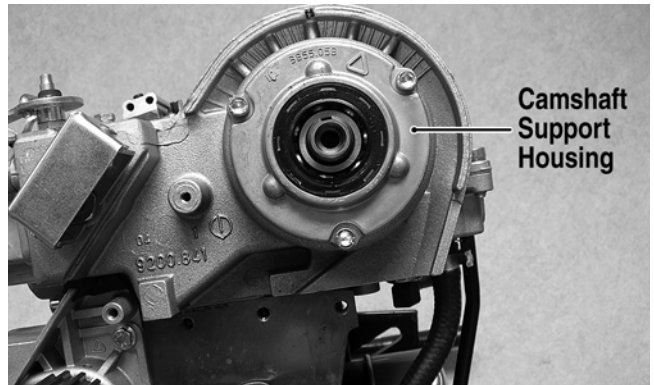
DE537

6. Using a new O-ring, install the camshaft support housing and tighten the cap screws to 7 ft-lb.



DE531A

5. Apply clean engine oil to the governor assembly and install on the camshaft; then hold the flyweight assembly and remove the rubber band. Install a new O-ring on the camshaft.



DE245A

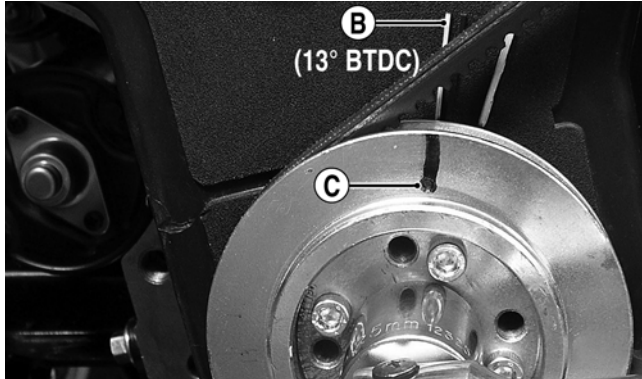
7. Install the camshaft drive pulley and cap screw; then using a suitable holding tool, tighten the cap screw to 59 ft-lb.

D. Hold the adjustment screw and tighten the jam nut securely; then check the injector timing by repeating steps 5-7.

9. Remove the Fuel Injector Timing Tool and install on the second injector; then rotate the engine 180° clockwise using reference mark (C) and repeat steps 4-8.

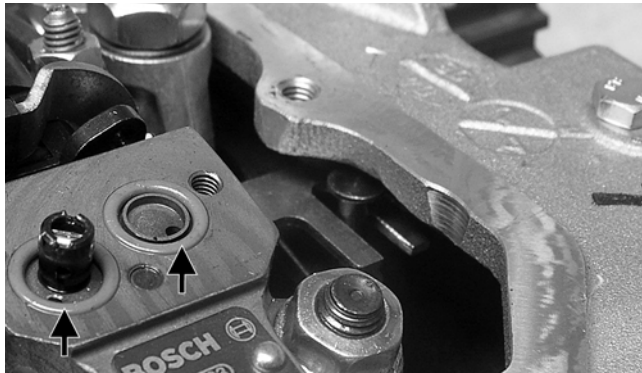
AT THIS POINT

If timing is correct for both injectors, proceed to step 10.

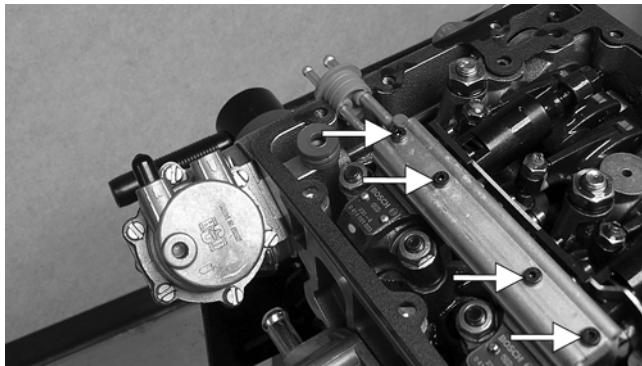


DE563A

10. Remove the Fuel Injector Timing Tool and eccentric gaskets; then install the fuel rail with four new O-rings and tighten the mounting screws to 36 in.-lb.



DE534B



DE405A

11. Install the valve cover using a new gasket and new oil return boot. Tighten the Allen-head cap screws to 6.5 ft-lb using a crisscross pattern; then tighten the “tamper-proof” cap screws to 6.5 ft-lb.

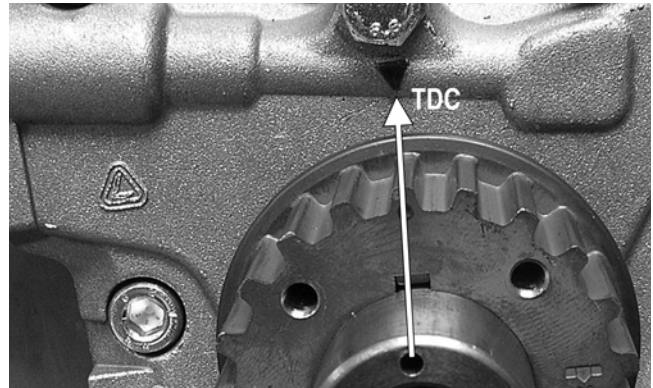
CYLINDER HEAD ASSEMBLY

AT THIS POINT

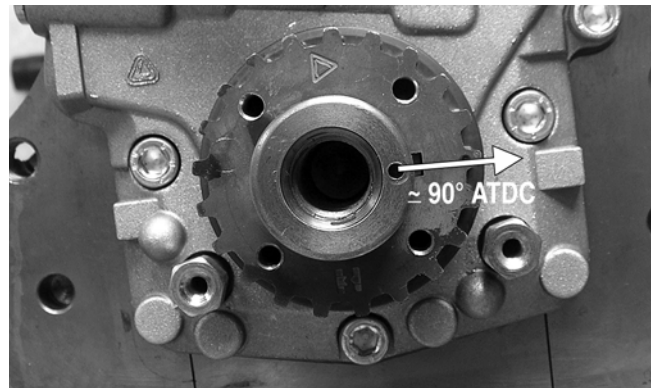
If the cylinder head or components require servicing, the engine/transmission must be removed.

Removing

1. Remove the engine and transmission (see Removing Engine/Transmission in this section).
2. Secure the engine on a suitable stand.
3. Remove the timing belt (see Left-Side Components in this section).
4. Remove the unit injectors (see Top-Side Components in this section).
5. Remove the lift pump and lift pump push rod (see Fuel/Lubrication/Cooling).
6. Rotate the crankshaft to approximately 90° after top-dead-center (ATDC).



DE240A



DE275A

7. Turn the camshaft drive pulley until the camshaft and rocker arms are “unloaded” (all rocker arms in “valve-closed” position).

CAUTION

Do not rotate camshaft with the crankshaft in the TDC position or severe engine damage will occur.

8. Remove the three nuts securing the rocker arm shaft; then using rubber bands or a large O-ring secure the rocker arms together.

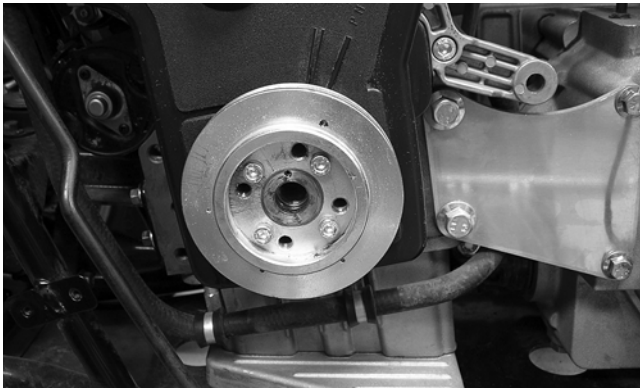
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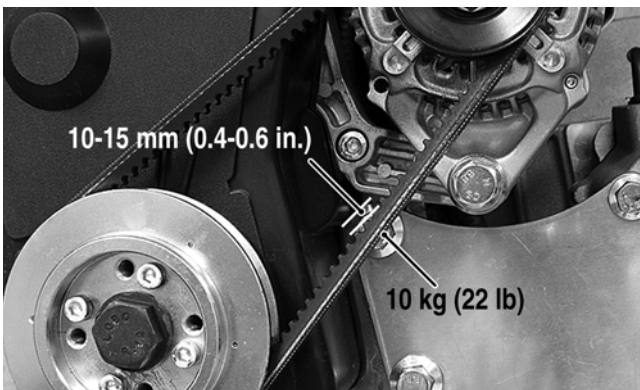
DE213

- Apply blue Loctite #243 to the crankshaft pulley retaining cap screw and tighten to 260 ft-lb.



DE212

- Tighten the four cap screws from step 7 to 9 ft-lb.
- Install the alternator belt and tighten so that 10 kg (22 lb) of force at the belt midpoint results in 10-15 mm (0.4-0.6 in.) of deflection; then tighten the mounting cap screws securely.



DE103B

- Connect the shift linkage to the shift arm and secure with the E-clip.
- Install the front body panel; then install the front rack. Tighten the existing hardware securely.

WATER PUMP

Removing

- Remove the timing belt (see Left-Side Components in this section).
- Drain the coolant (see Fuel/Lubrication/Cooling).

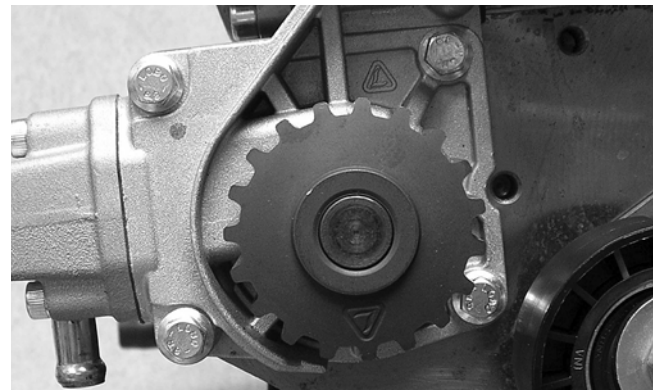
- Remove the lower radiator hose and the coolant bypass hose from the water pump; then remove four cap screws securing the water pump and remove the water pump.
- Thoroughly clean all gasket material from the engine block and water pump.

Servicing

■NOTE: The water pump is not a serviceable component. If it is defective, it must be replaced as an assembly.

Installing

- Make sure all mating surfaces are free of any gasket material, sealant, or residue.
- Using a new gasket, install the water pump onto the engine and secure with the four cap screws. Tighten to 22 ft-lb.



DE267

- Install the timing belt (see Left-Side Components in this section).
- Fill the cooling system with coolant (see Fuel/Lubrication/Cooling).
- Check for coolant leaks and proper coolant level.

OIL PUMP/CRANKSHAFT SEAL

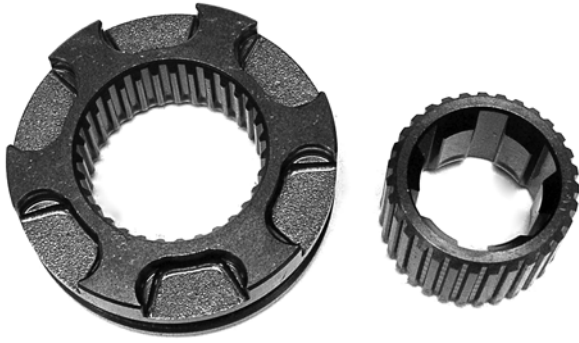
Removing

- Remove the timing belt (see Left-Side Components in this section).
- Remove the timing belt drive pulley. Account for a key.



DE226

2. Inspect all shift dogs for chips, rounded dogs, worn splines, or discoloration.



DE162

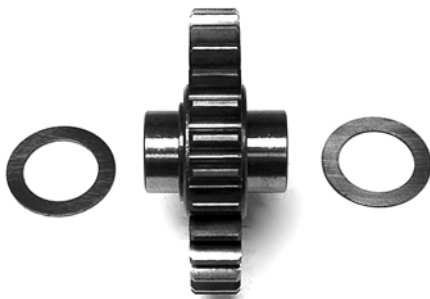


DE177

3. Inspect all idler gears, bushings, thrust washers, and shafts for abnormal wear, discoloration, chipping, or galling.

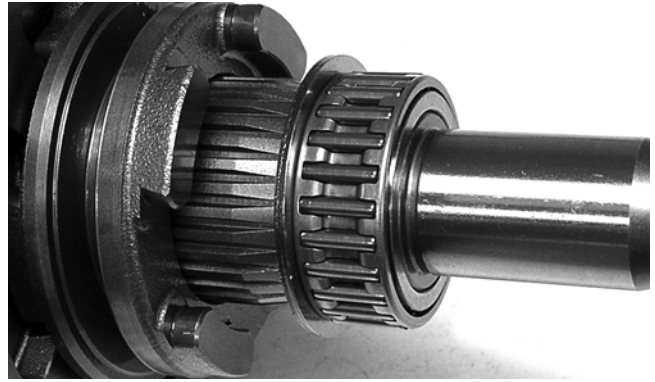


DE143



DE179

4. Inspect roller bearings for chipping, missing rollers, or discoloration.



DE178



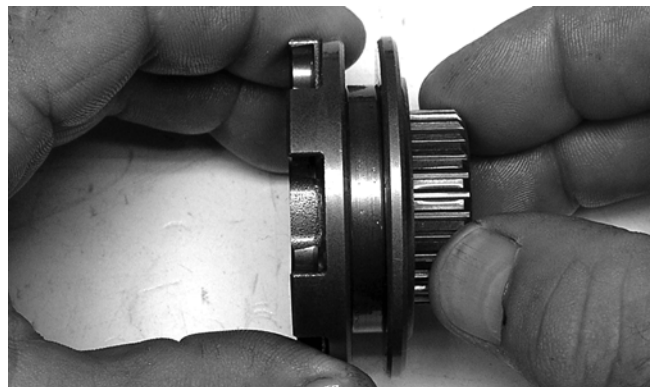
DE185

5. Inspect drive and driven bevel gears for proper tooth contact, chipping or discoloration of gear teeth, worn or chipped splines, and bearing smoothness.



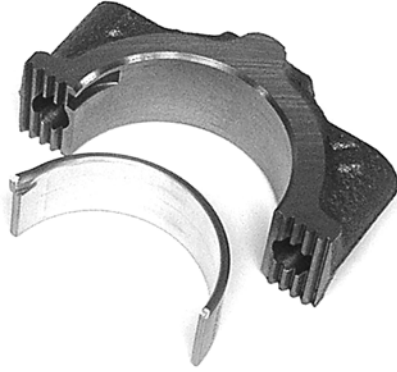
DE657

6. Inspect sliding shift dogs for binding on splines, chipped or distorted splines, or discoloration.



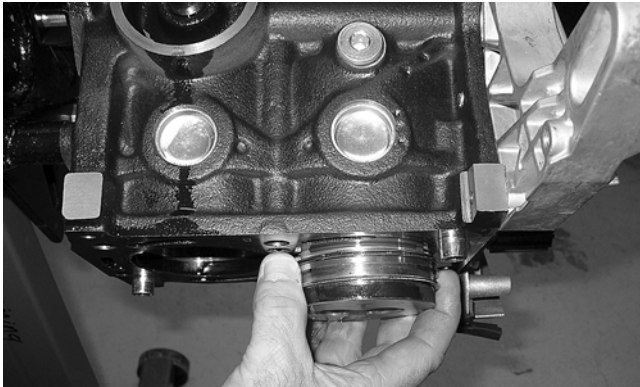
DE160

13. Remove the two cap screws from the second connecting rod cap and remove the cap. Account for one bearing insert.



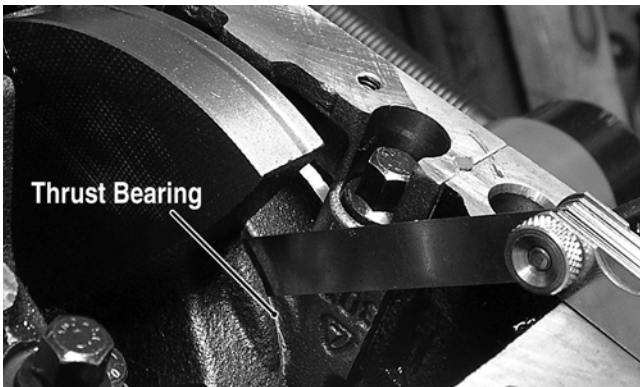
DE600

14. Carefully rotate the crankshaft 180°; then gently push the piston/connecting rod assembly from the cylinder bore.



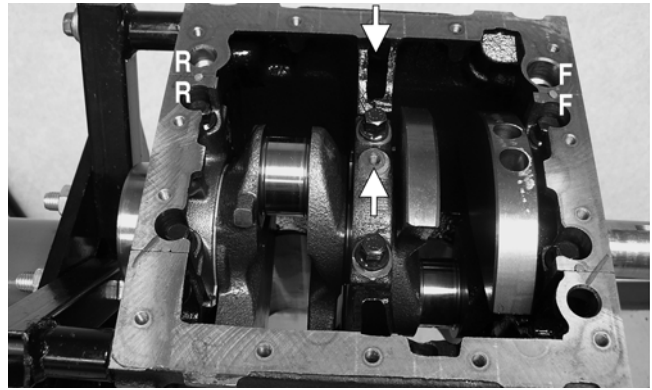
DE629

15. Attach the connecting rod cap with bearing inserts and loosely install cap screws keeping the assemblies together.
16. Use an appropriate thickness gauge to measure the crankshaft end play at the thrust bearing surface. Record this measurement.



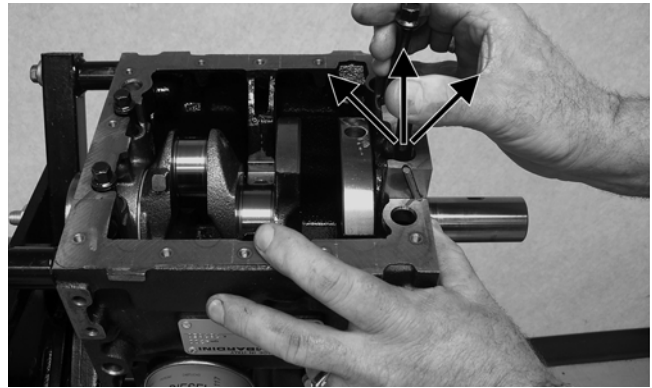
DE435A

17. Mark the main bearing caps and engine block for proper orientation; then remove the cap screws securing the main bearing caps to the main bearing saddles in the engine block.

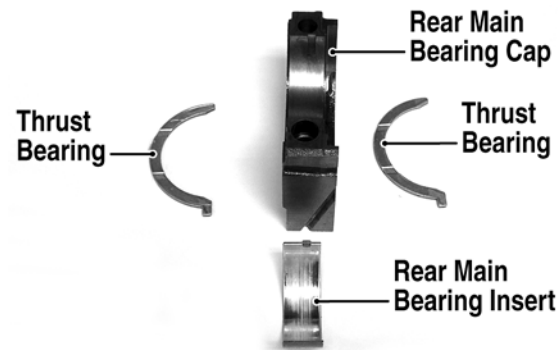


DE335C

18. Lightly rock the bearing caps in the saddles while applying pressure away from the crankshaft until the bearing cap is free of the engine block. Account for a bearing insert for each cap and two thrust bearing inserts for the flywheel-end bearing cap.

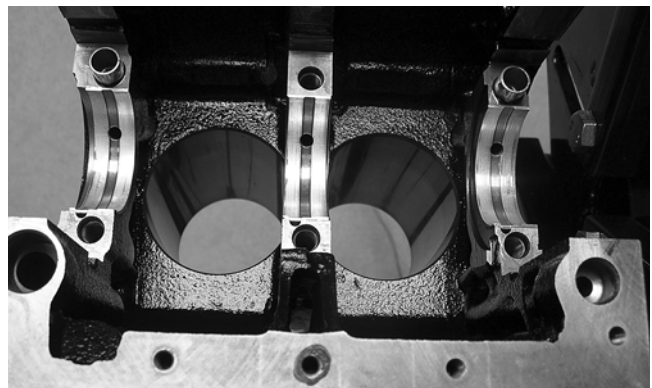


DE336A

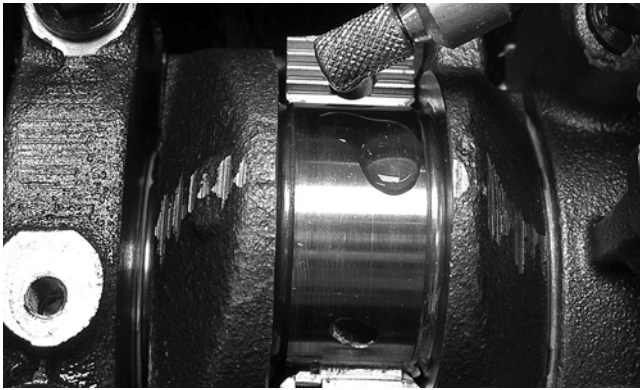


DE346A

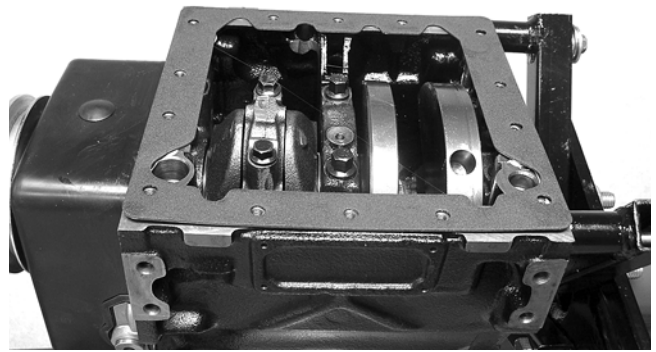
19. Carefully lift the crankshaft from the main bearing saddles and set the crankshaft aside.



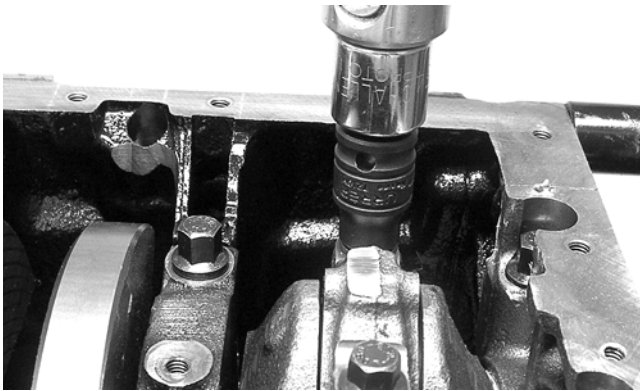
DE376



DE437



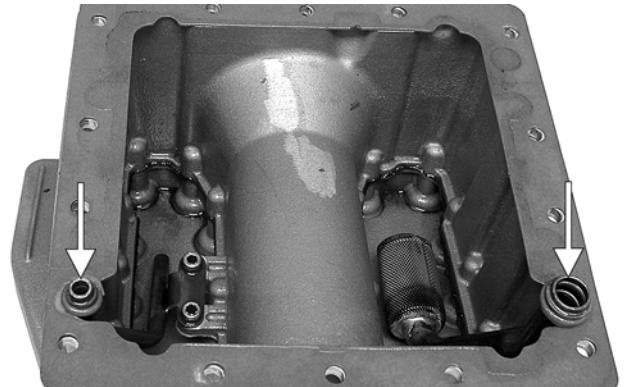
DE410



DE439

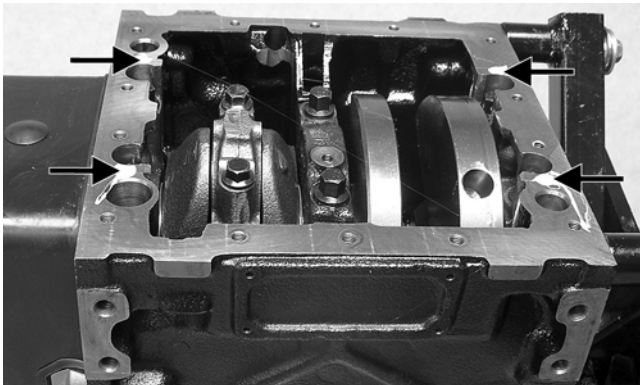
22. Repeat steps 15-21 for the second piston.
23. Install the oil pump (see Fuel/Lubrication/Cooling).
24. Install the water pump (see Fuel/Lubrication/Cooling).
25. Install the cylinder head (see Top-Side Components in this section).
26. Trim off the excessive material and cover the ends of the lateral seals with RTV Silicone; then place a new oil pan gasket in place making sure to properly align the gasket with the oil sump and return galley.

27. Install new O-rings on the oil sump and return pipes; then apply oil-soluble grease on the O-rings and place the oil pan into position.



DE596A

28. Secure the oil pan with the Allen-head cap screws and the two hollow studs and spacers making sure to install the two hollow studs at the outside corners on the crankshaft pulley side; then using a crisscross pattern, tighten to 7 ft-lb.

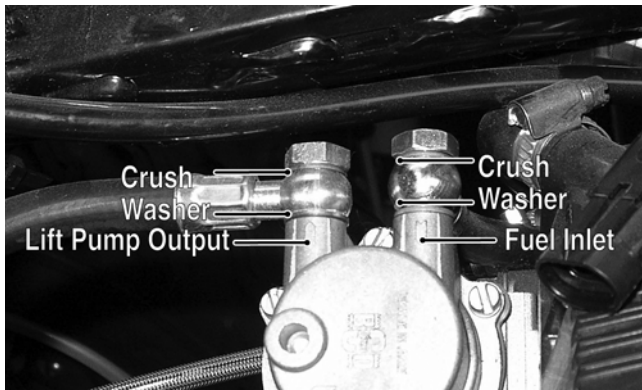


DE440B



DE442A

29. If the oil pan cover was removed, place two new gaskets onto the oil pan; then install the oil pan cover and secure with the Allen-head cap screws. Tighten in a crisscross pattern to 7 ft-lb.



DE078A

Unit Injectors

To service the unit injectors, see Top-Side Components in Engine/Transmission.

Injector Timing

■NOTE: For injector timing instructions, see Top-Side Components in Engine/Transmission.

Fuel Filter

To replace the fuel filter, see Periodic Maintenance/Tune-Up.

Fuel Solenoid Assembly

■NOTE: After troubleshooting the fuel solenoid (see Electrical System) if it is determined that replacement is necessary, use the following procedure.

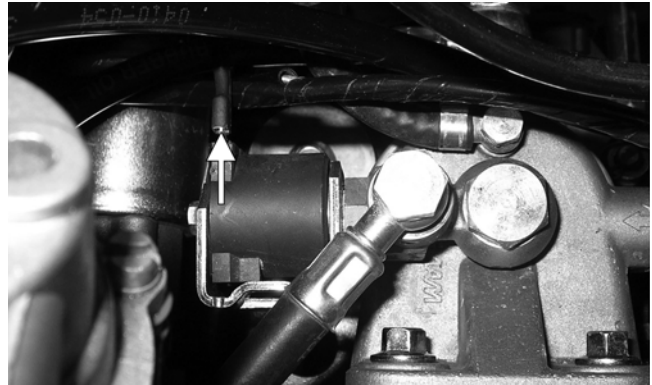
REMOVING

1. Remove the right-front inner splash panel; then remove the V-belt cooling boot from the V-belt housing.



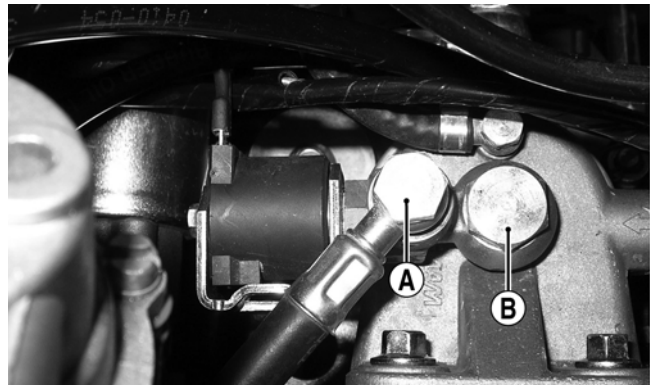
DE061A

2. Locate the fuel solenoid mounted on top of the fuel filter head; then disconnect the spade connector from the solenoid.



DE647B

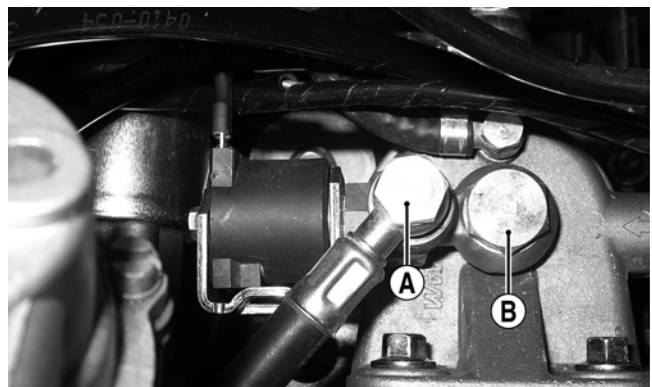
3. Remove the banjo-fitting bolts (A) and (B) and remove the fuel solenoid. Account for four crush washers.



DE647A

INSTALLING

1. Using new crush washers, secure the fuel solenoid to the filter housing with banjo-fitting bolt (B) and tighten securely.



DE647A

2. Secure the fuel hose to the fuel solenoid with new crush washers and banjo-fitting bolt (A).
3. Connect the spade connector to the solenoid.

- The meter must show battery voltage from one side of the connector terminal ends.

■NOTE: Battery voltage will be indicated from only one side of the fuse holder connector terminal; the other side will show no voltage.

■NOTE: When testing the HI fuse holder, the headlight dimmer switch must be in the HI position; when testing the LIGHTS fuse holder, the headlight dimmer switch can be in either position.

■NOTE: If the meter shows no battery voltage, troubleshoot the battery, switches, distribution module, or the main wiring harness.

FUSES

- Set the meter selector to the OHMS position.
- Connect the red tester lead to one spade end of the fuse; then connect the black tester lead to the other spade end.
- The meter must show less than 1 ohm resistance. If the meter reads open, replace the fuse.

■NOTE: Make sure the fuses are returned to their proper position according to amperage. Refer to the fuse block cover for fuse placement.

RELAYS

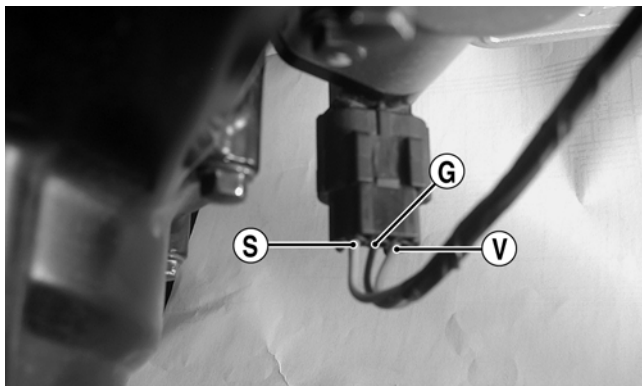
The relays are identical plug-in type located on the power distribution module. Relay function can be checked by switching relay positions. The relays are interchangeable.

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

Speed Sensor

■NOTE: Prior to testing the speed sensor, inspect the three-wire connector on the speed sensor for contamination, broken pins, and/or corrosion.

- Set the meter selector to the DC Voltage position.
- With appropriate needle adapters on the meter leads, connect the red tester lead to the voltage lead (V); then connect the black tester lead to the ground lead (G).



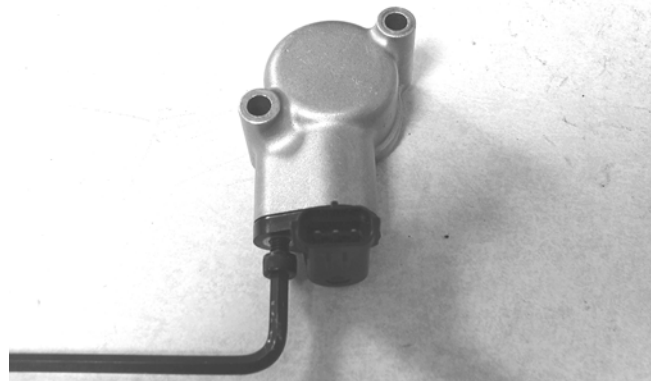
CD885A

- Turn the ignition switch to the ON position.
- The meter must show 6 DC volts.
- Leave the black tester lead connected; then connect the red tester lead to the signal lead (S) pin.
- Slowly move the ATV forward or backward; the meter must show 0 and 6 DC volts alternately.

■NOTE: If the sensor tests are within specifications, the speedometer must be replaced (see Steering/Frame/Controls).

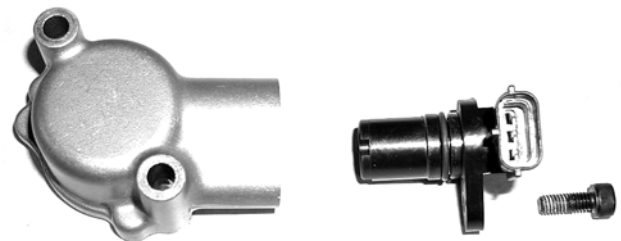
To replace a speed sensor, use the following procedure.

- Disconnect the three-wire connector from the speed sensor harness or from the speed sensor; then remove the Allen-head cap screw securing the sensor to the sensor housing.
- Remove the sensor from the sensor housing accounting for an O-ring.



CD070

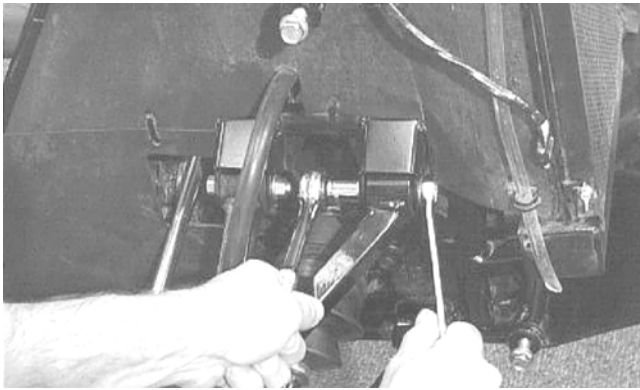
- Install the new speed sensor into the housing with new O-ring lightly coated with multi-purpose grease; then secure the sensor with the Allen-head cap screw (threads coated with blue Loctite #242). Tighten securely.



CD071

Ignition Switch

The connector is a four-wire one. To access the connector, the cover must be removed.

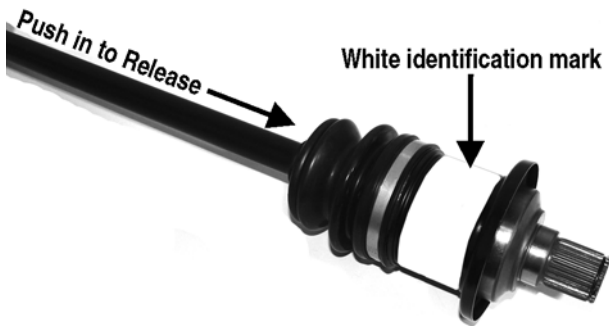


AF610D

15. Push the axle shaft firmly toward the differential to release the internal lock; then while holding the axle in, pull the CV cup from the differential.

CAUTION

Do not attempt to use a slide hammer or differential/axle damage will occur.

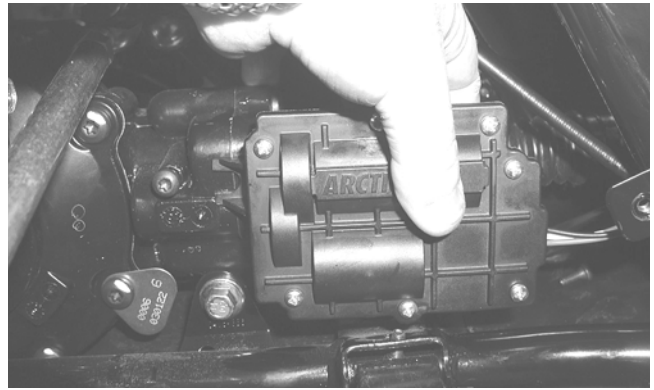


PR729B



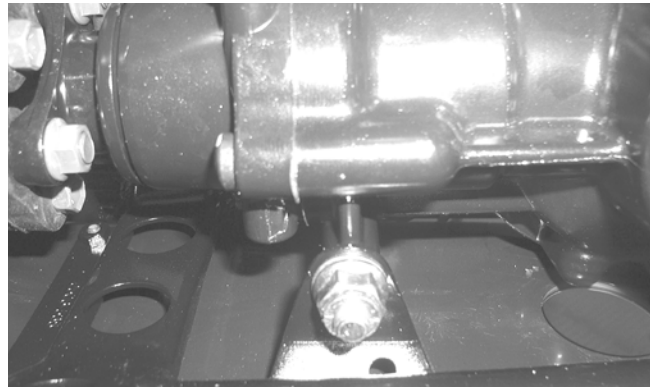
PR725A

16. Remove the inner fender panels.
 17. Using a T-30 torx wrench, remove the three screws securing the front drive actuator to the gear case; then remove the actuator.



AG925

18. Remove the lower differential mounting cap screw. Account for a lock nut and washers.



CD026

19. Remove the upper differential mounting cap screws.

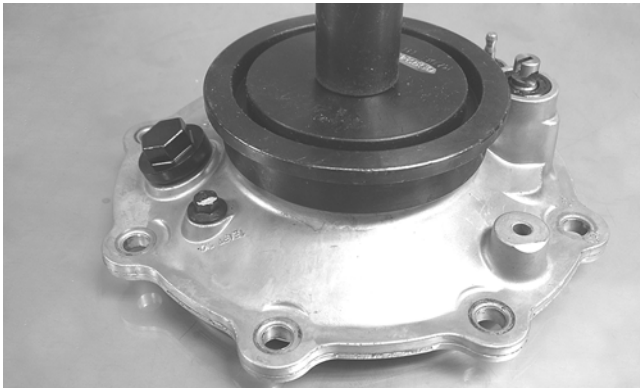


CD016

20. Free the differential assembly from the frame mountings; then shift the differential assembly forward enough to disengage the front driveshaft from the output yoke.



KX161

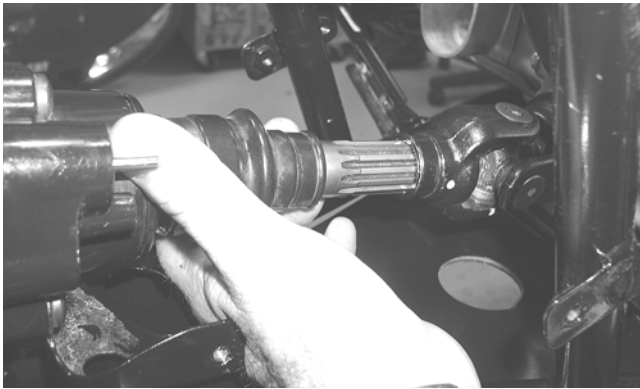


CF278

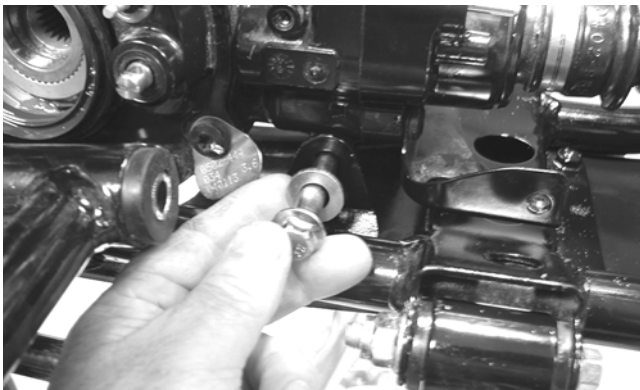
3. Repeat steps 1-2 for the opposite side.

INSTALLING DIFFERENTIAL

1. Align the splined input yoke with the front output splines; then place the differential into position on the frame and install the cap screws, washers, and flex-lock nuts. Tighten to 38 ft-lb. Make sure the rubber boot is properly seated on the input yoke.



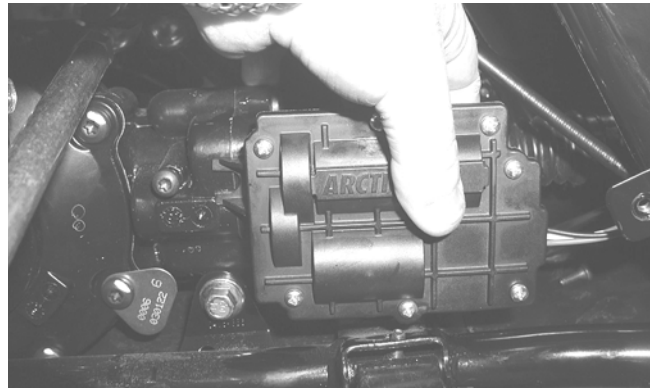
CD857



CD859

2. Pour 275 ml (9.3 fl oz) of SAE 80W-90 hypoid gear lubricant into the differential and install the fill plug. Tighten to 16 ft-lb.

3. Install the front drive actuator with the three torx-head cap screws; then connect the wire connector to the main wiring harness.

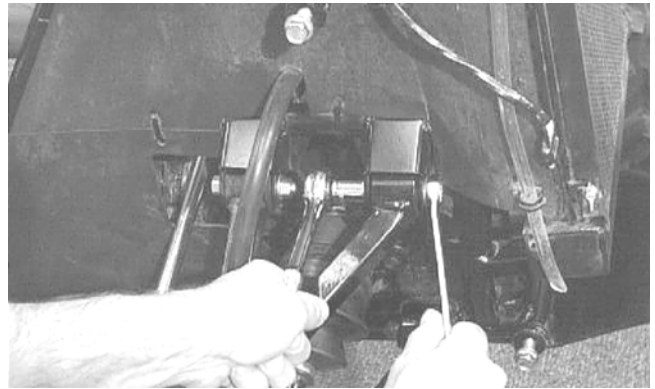


AG925

4. Install the inner fender panels.

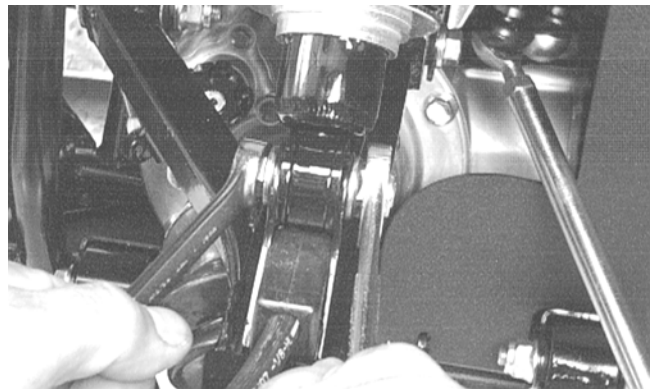
5. Install the front axles (see Drive Axles in this section).

6. Secure the upper A-arms with cap screws and lock nuts. Tighten to 50 ft-lb.



AF610D

7. Secure the lower shock eyelets with cap screws and lock nuts. Tighten to 50 ft-lb.



AF897D

8. Secure the tie rods with the lock nuts. Tighten to 35 ft-lb; then install and spread the cotter pins.

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