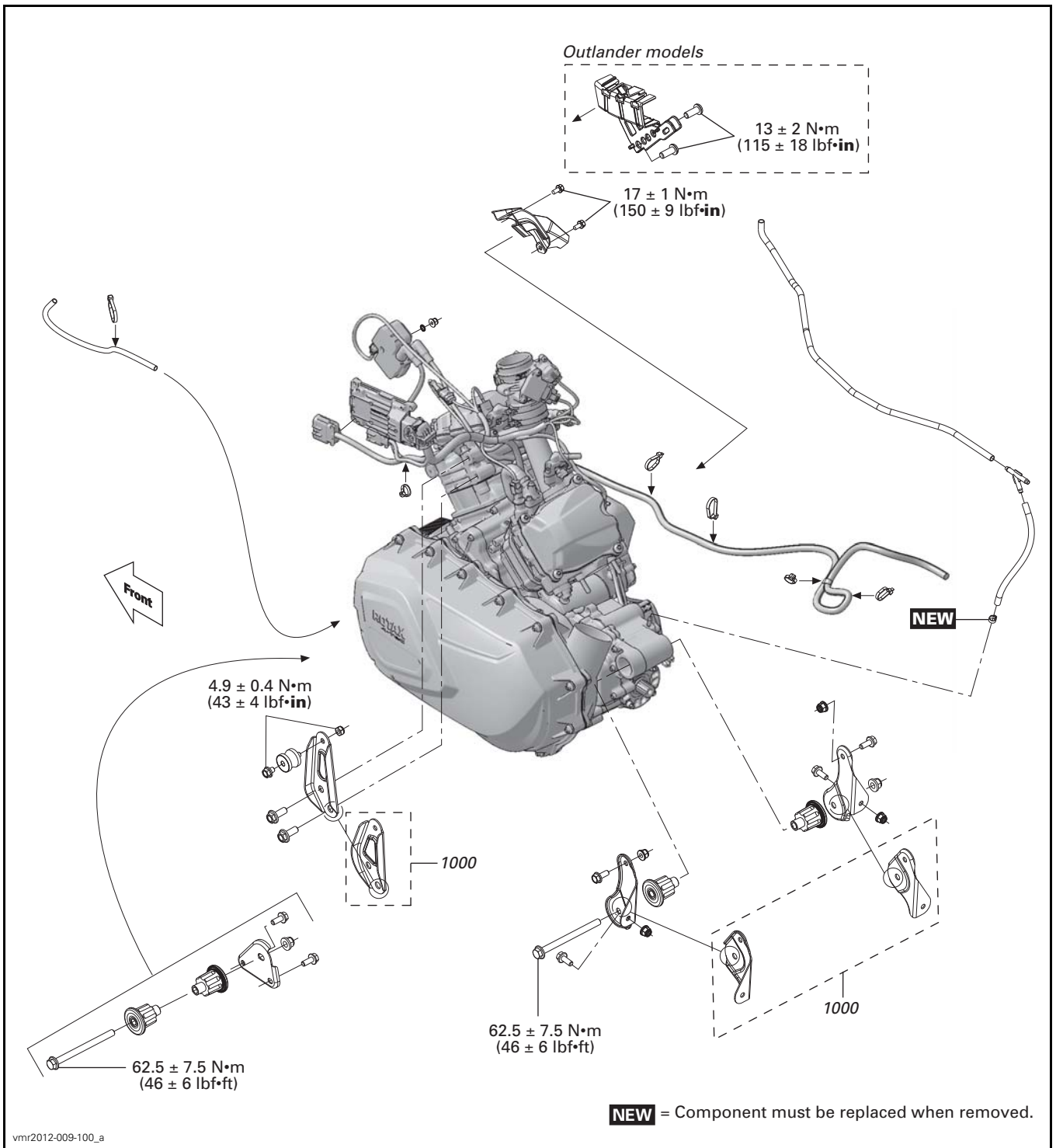


# ENGINE REMOVAL AND INSTALLATION

## SERVICE TOOLS

Description	Part Number	Page
ENGINE LIFTING TOOL .....	529 036 022 .....	5



## GENERAL

### **⚠ WARNING**

To avoid potential burns, let engine and exhaust system cool down before servicing.

During assembly/installation, use the torque values and service products as in the exploded view.

Clean threads before applying a threadlocker. Refer to *SELF-LOCKING FASTENERS* and *LOCTITE APPLICATION* at the beginning of this manual for complete procedure.

### **⚠ WARNING**

Torque wrench tightening specifications must strictly be adhered to.

Locking devices when removed must be replaced (e.g.: locking tabs, elastic stop nuts, self-locking fasteners, cotter pin, etc.).

**NOTICE** Hoses, cables or locking ties removed during a procedure must be reinstalled as per factory standards.

## PROCEDURES

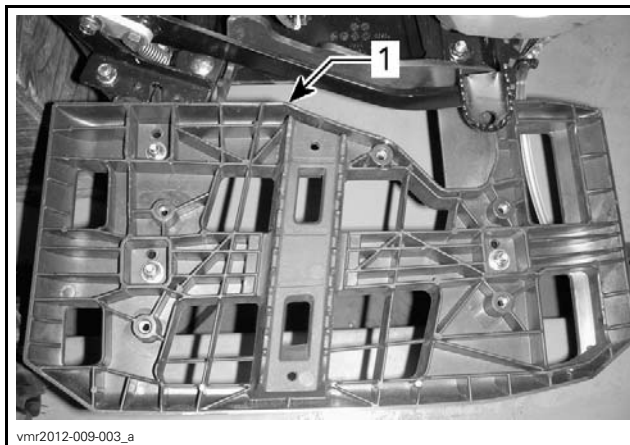
### ENGINE REMOVAL

1. Place vehicle on a workstation equipped with an engine-lifting hoist.
2. Disconnect negative (-) cable from battery.
3. Carry out the following operations. Refer to table.

OPERATIONS	REFERENCES (SUBSECTION)
Safely lift and support the vehicle	<i>INTRODUCTION</i>
Release fuel pressure	<i>FUEL TANK AND FUEL PUMP</i>
Drain engine coolant	<i>PERIODIC MAINTENANCE PROCEDURES</i>
Remove front body module	<i>BODY</i>
Remove RH footrest panel	
Remove air filter housing	<i>AIR INTAKE SYSTEM</i>
Remove muffler	<i>EXHAUST SYSTEM</i>
Remove exhaust pipes	

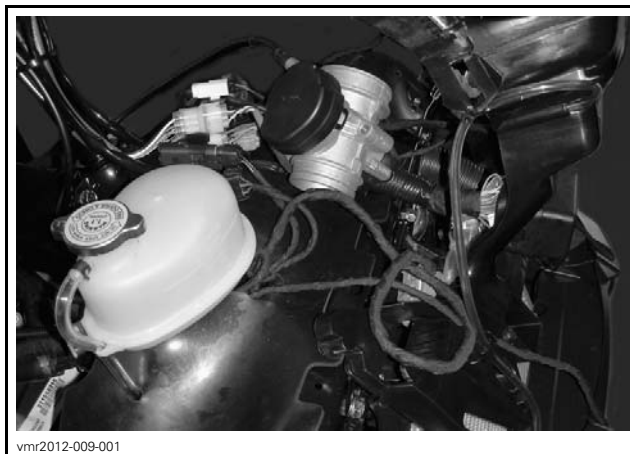
OPERATIONS	REFERENCES (SUBSECTION)
Remove CVT air inlet	<i>CONTINUOUSLY VARIABLE TRANSMISSION (CVT)</i>
Remove CVT air outlet	
Disconnect positive (+) starter cable	<i>STARTING SYSTEM</i>
Disconnect TPS connector	<i>ELECTRONIC FUEL INJECTION (EFI)</i>
Disconnect MAPTS connector	
Remove intake manifold	<i>TOP END</i>
Remove spark plug cables	<i>IGNITION SYSTEM</i>

4. Remove RH footrest support.



TYPICAL - OUTLANDER SHOWN  
1. RH footrest support

5. Move throttle body aside to make room.



TYPICAL - THROTTLE BODY ATTACHED ON FRAME

6. Move master cylinder aside to make room.



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TYPICAL - MASTER CYLINDER ATTACHED ON REAR FENDER



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TYPICAL

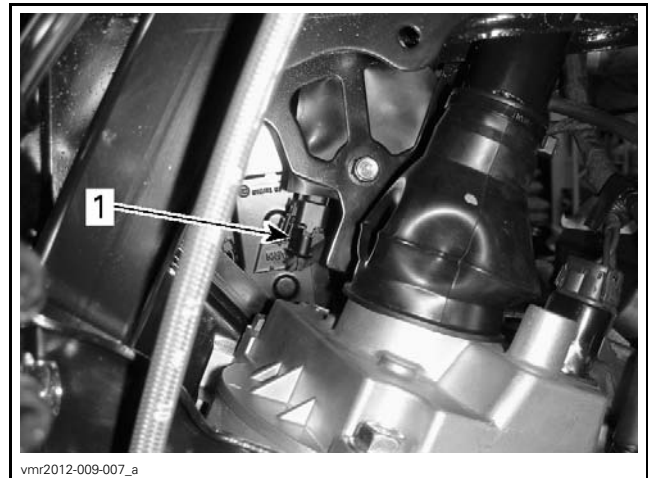
7. Move crankcase vent hose as illustrated.



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TYPICAL

1. Crankcase vent hose

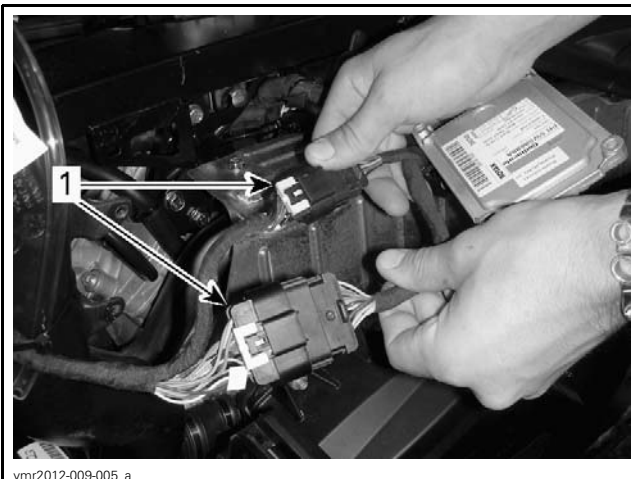


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TYPICAL - FROM LH SIDE

1. Ignition coil connector

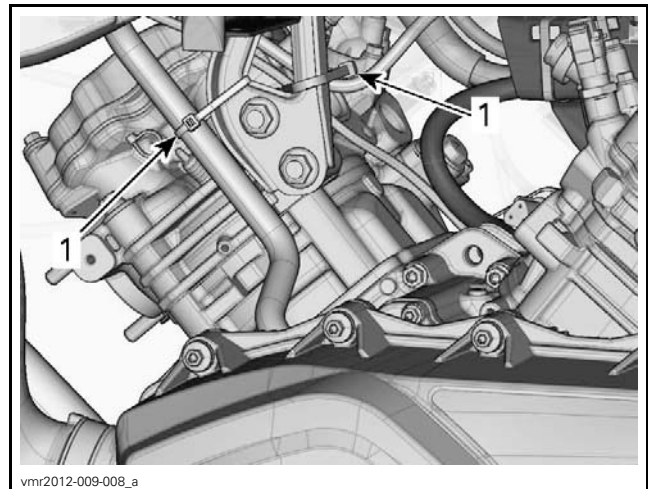
8. Disconnect both engine harness connectors (HIC).



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TYPICAL

1. Engine harness connectors (HIC)



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TYPICAL

1. Locking ties

9. Move ECM as illustrated.

10. Cut locking ties from ignition coil harness.

11. Disconnect ignition coil connector.

12. Remove the following locking ties.

## Subsection XX (ENGINE REMOVAL AND INSTALLATION)

13. Remove plastic cover from engine.



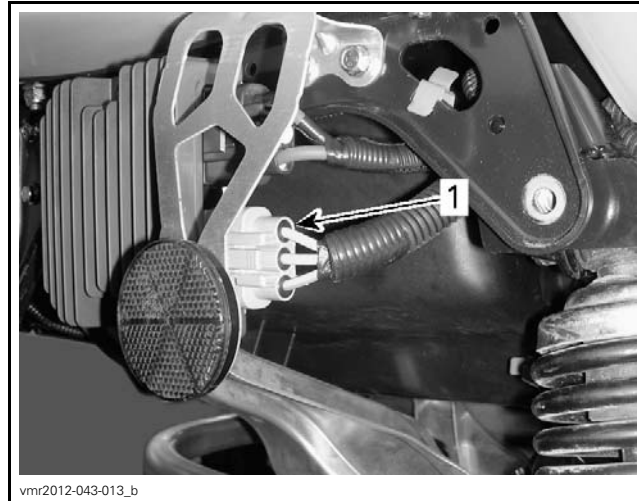
**TYPICAL**  
1. Plastic cover

14. Remove harnesses support from engine.



**TYPICAL**  
1. Harnesses support

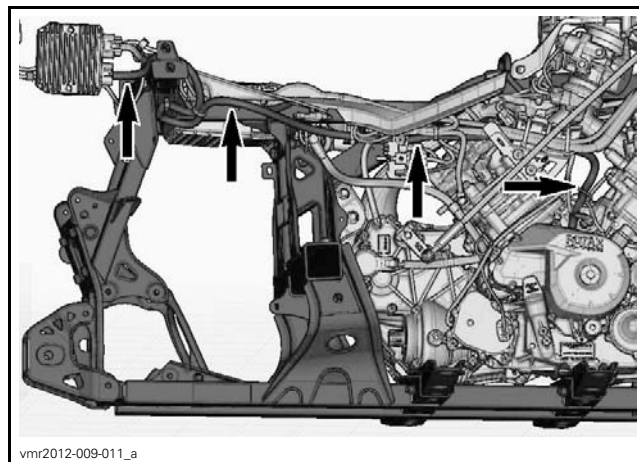
15. Disconnect magneto connector from voltage regulator rectifier.



**TYPICAL - OUTLANDER SHOWN**  
1. Magneto connector

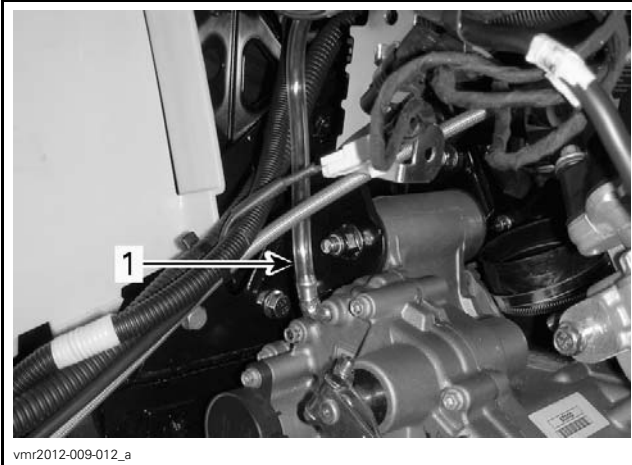
16. Remove magneto harness from its location along vehicle and gather it in a bundle near engine.

**NOTE:** It may be necessary to slightly lift the rear body module to ease magneto harness removal. Refer to *BODY* subsection.

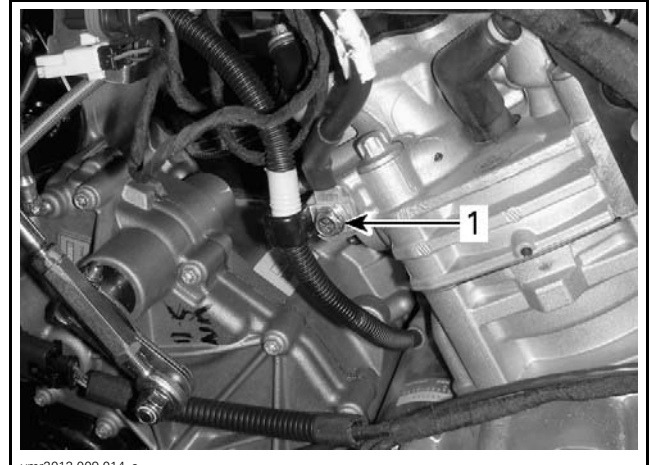


**MAGNETO HARNESS (SOME PARTS REMOVED FOR CLARITY)**

17. Disconnect vent hose from gearbox.

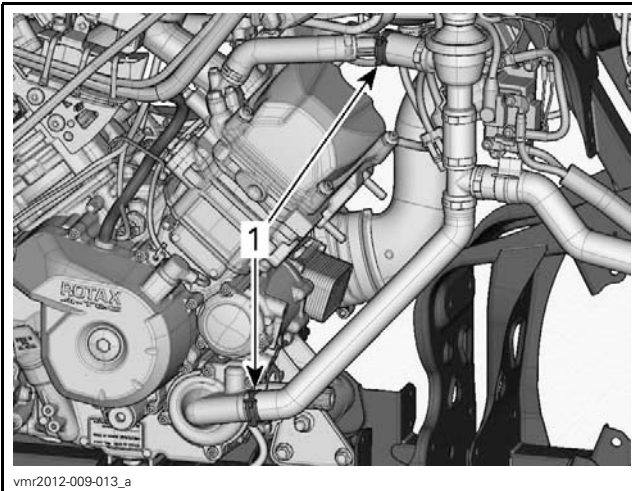


*TYPICAL - OUTLANDER SHOWN*  
1. Vent hose

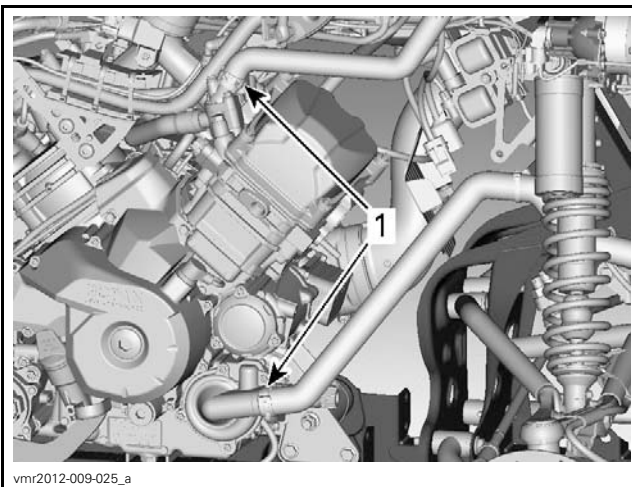


*TYPICAL - OUTLANDER SHOWN*  
1. Main ground wire

18. Disconnect coolant hoses as illustrated.



*OUTLANDER - SOME PARTS REMOVED FOR CLARITY*  
1. Disconnect the following coolant hoses

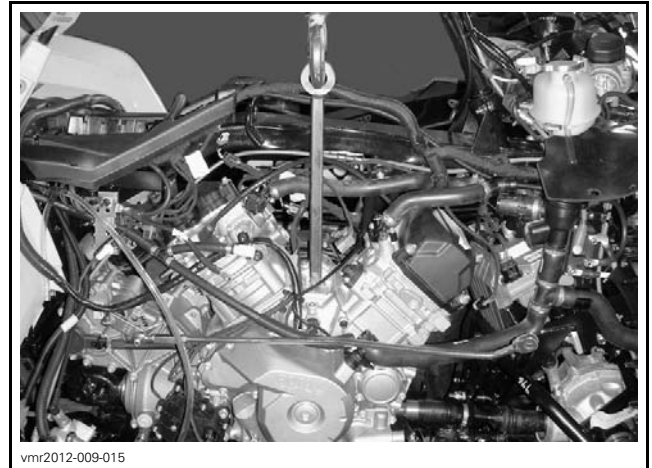


*RENEGADE - SOME PARTS REMOVED FOR CLARITY*  
1. Disconnect the following coolant hoses

19. Remove main ground wire from engine.

### Engine Lifting

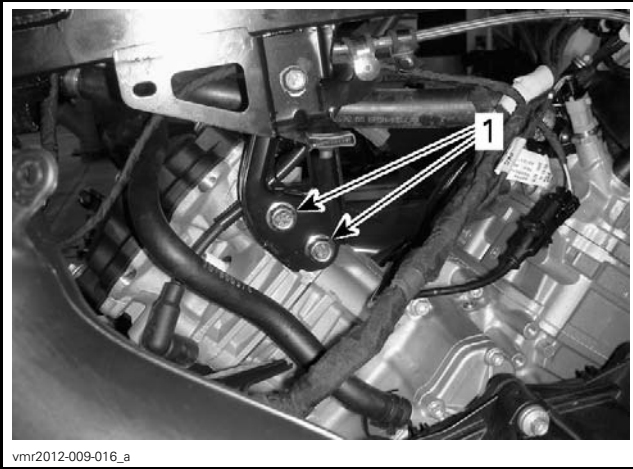
1. Install the ENGINE LIFTING TOOL (P/N 529 036 022) on engine.



*TYPICAL*

2. Remove upper retaining screws from engine.

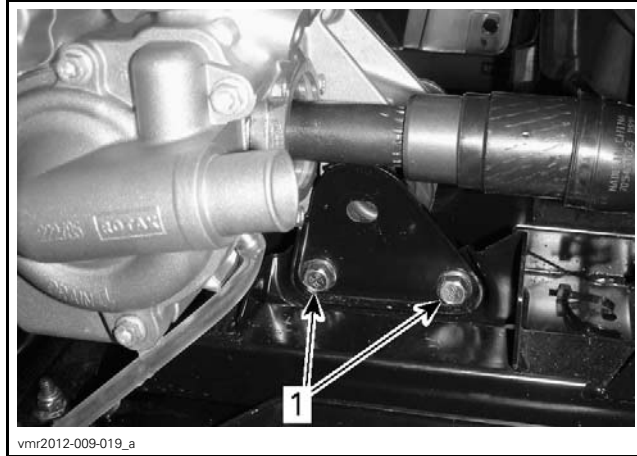
## Subsection XX (ENGINE REMOVAL AND INSTALLATION)



**LH SIDE**

1. Upper retaining screws

3. Remove rear retaining bolt from engine.



**RH SIDE**

1. Engine support plate screws

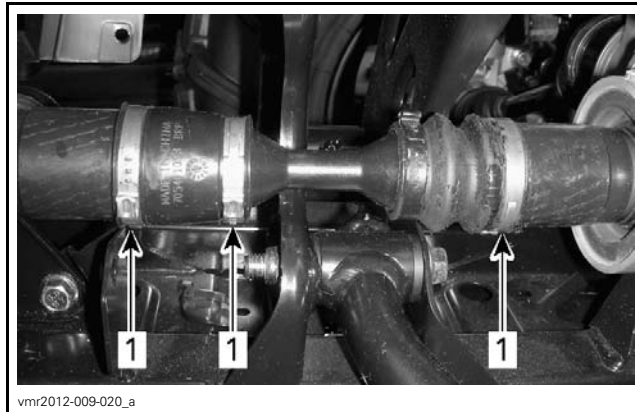
6. Remove the following Oetiker clamps from front propeller shaft.



**LH SIDE**

1. Rear retaining bolt

4. Remove front retaining bolt from engine.



1. Oetiker clamps

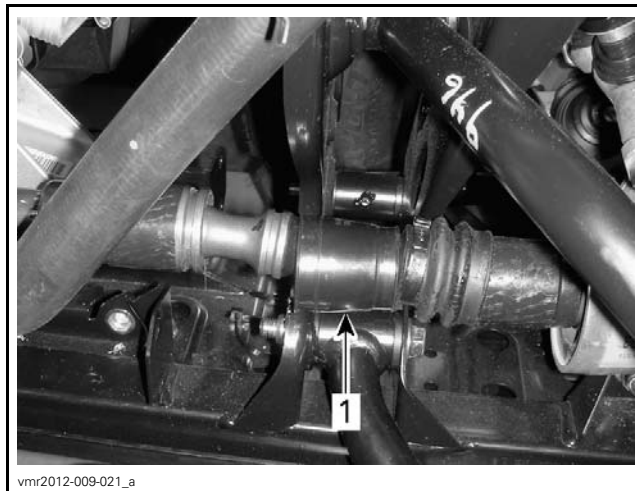
7. Move front propeller shaft bellows forward.



**LH SIDE**

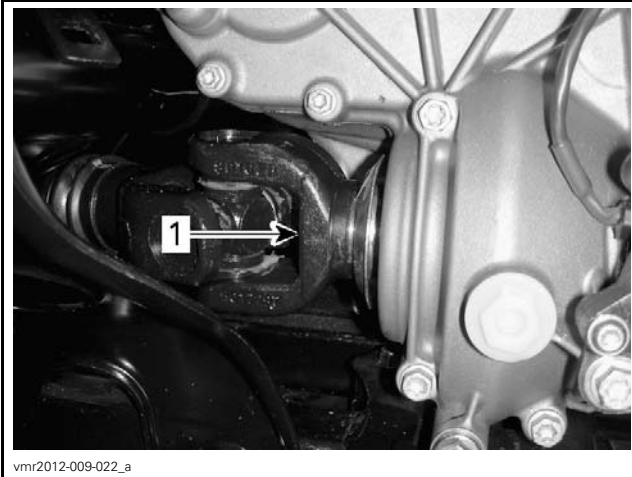
1. Front retaining bolt

5. Remove engine support plate from frame.



1. Front propeller shaft bellows

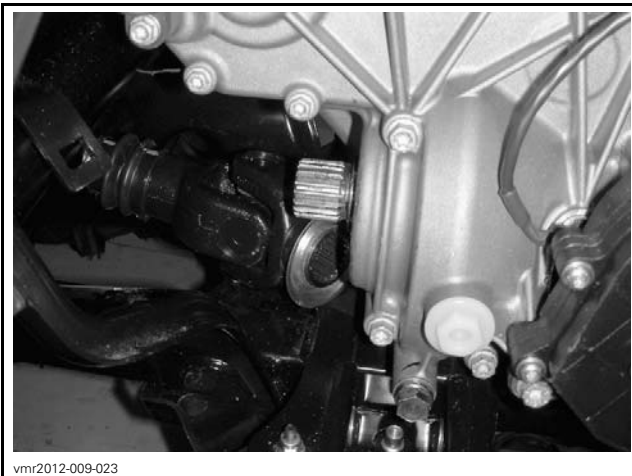
8. Remove propeller shaft screw from gearbox output shaft.



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1. Rear propeller shaft screw

9. Slightly lift engine and move it forward to disconnect rear propeller shaft from engine.
10. Move propeller shaft yoke downwards to make room.



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TYPICAL

11. Move engine rearward to disconnect front propeller shaft from engine.
12. Remove engine by the RH side.



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TYPICAL

## ENGINE INSTALLATION

The installation is the reverse of the removal procedure. However, pay attention to the following.

1. Inspect condition of engine mounts.
2. Install engine on vehicle.
3. Install all engine retaining bolts loosely.
4. Install and tighten propeller shaft screw. Refer to *REAR DRIVE* subsection.
5. Tighten engine retaining bolts to specification.

TORQUE	
Engine retaining bolts	62.5 N•m ± 7.5 N•m (46 lbf•ft ± 6 lbf•ft)

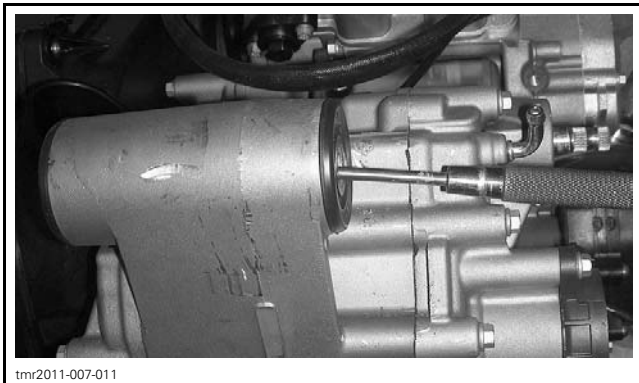
6. If applicable, fill engine as per specification. Refer to *LUBRICATION SYSTEM* subsection.
7. Fill and bleed cooling system. Refer to *PERIODIC MAINTENANCE PROCEDURE* subsection.
8. Check for any leaks.
9. Reinstall all the remaining parts as the reverse of removal procedure. Refer to exploded views and proper subsections.
10. Test drive vehicle to confirm proper operation.

## ENGINE MOUNTS REPLACEMENT

**NOTE:** Use the same procedure for the front and rear engine mounts.

### Engine Mount Removal

Insert a punch into engine mount bushing and push the opposite engine mount out.



*TYPICAL*

### **Engine Mount Installation**

The installation is the reverse of the removal procedure.