

Campaign no.: 2009-0005

December 5, 2008 Subject: **Flywheel Bolts & Engine Mount.**

No. **2009-4**

YEAR	MODEL	MODEL NUMBER	SERIAL NUMBER
2009	DS 450 CE (European Community) only	3F9G	See attached List
	DS 450 X CE (European Community) only	3G9D	

NOTE: Repair all vehicles in stock prior to selling and/or delivering to retail purchaser or using as a demo.

## SITUATION

Under frequent engine starting conditions, the flywheel bolts may lose torque, potentially causing **major engine damage**. Installing new bolt type with increased torque will prevent this situation.

Also, while developing the DS 450 X mx and X xc, and through subsequent race testing, it has been found that aggressive riding can result in failure of the rear engine mount. While under normal riding conditions this type of failure would only occur after a significant amount of time, given the "aggressive and intense sport usage" of the DS 450; it is mandatory to update all crankcases with the racing rear engine mount sleeve.

## PARTS REQUIRED

### Flywheel Bolts

ITEM	P/N	DESCRIPTION	QTY
P1	293 600 039	Oil XPS 5W40 Synthetic, 946ml	1 *
P2	420 430 980	Magneto Cover Gasket	1
P3	420 640 980	Bolts	6

\* Sold in qty of 12.

## Engine Mount

ITEM	P/N	DESCRIPTION	QTY
P4	293 900 093	Sleeve	1
P5	709 000 089	O-ring	2
P6	420 245 650	Front sprocket circlip	1
P7	232 571 436	Elastic Nut M14	1
P8	233 201 434	Elastic Nut M10	1
P9	233 281 434	Elastic Nut M8	1
P10	233 251 434	Elastic Nut M5	1

## Engine Mount Special Tool

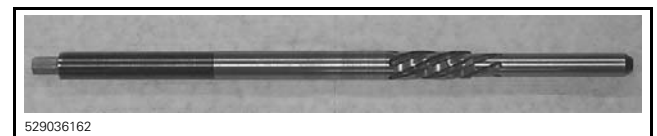
A special drill bit tool (P/N 529 036 162) must be used to enlarge the rear engine mount hole for the sleeve to be added.

### North America:

Not applicable to North American vehicles.

### All other countries:

For CE (European Community) vehicles only: **do not order special drill bit tool**; it will auto-shipped at no charge.



This tool can be used at least 100 times, so 1 tool per dealership should be sufficient to complete all repairs.

# REPAIR PROCEDURE

## Flywheel Bolts

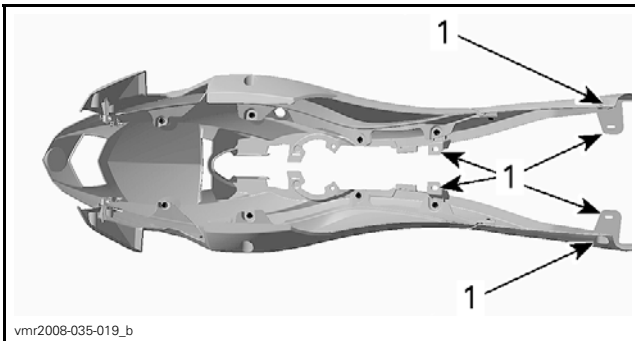
### Flywheel Bolts Removal

1. Pull seat latch rearward while gently lifting rear and remove seat.



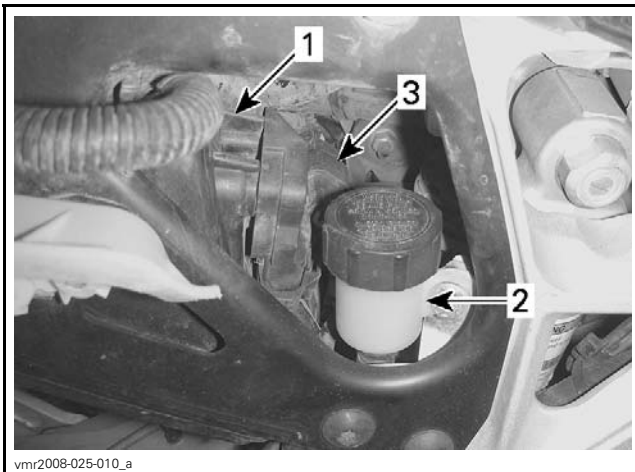
1. Seat latch

2. Loosen screws securing side panels.



1. Screws

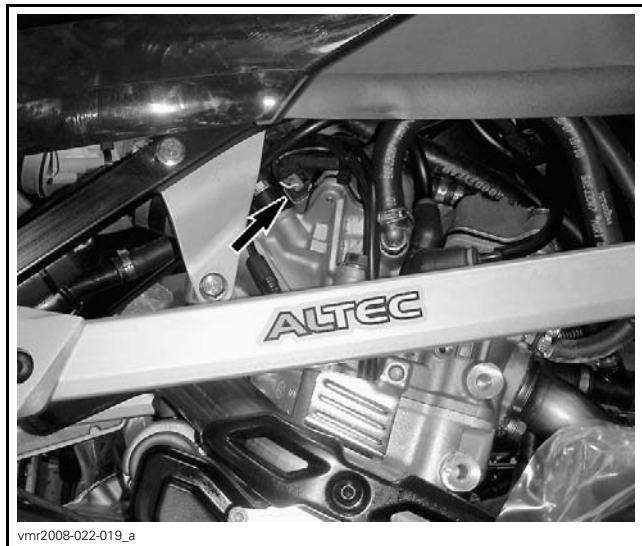
3. Disconnect stator connector.



RIGHT SIDE VIEW

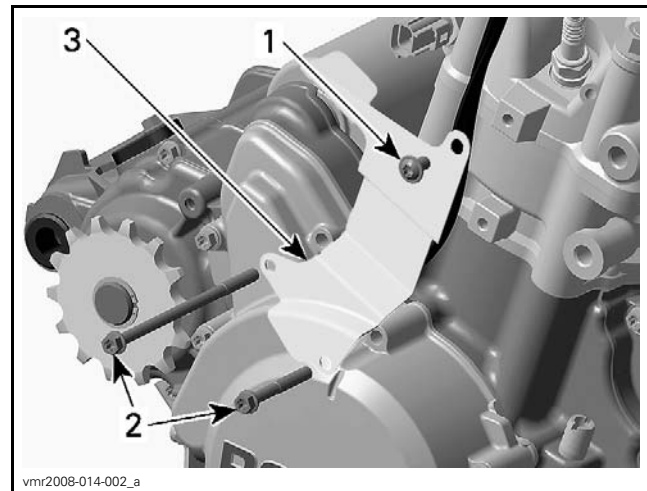
1. Air inlet silencer
2. Brake fluid reservoir
3. Stator connector

4. Disconnect CPS connector.



RH SIDE OF VEHICLE

5. Safely lift RH side to tilt vehicle as much as possible. This will minimize oil loss.
6. Remove protection shield screws.



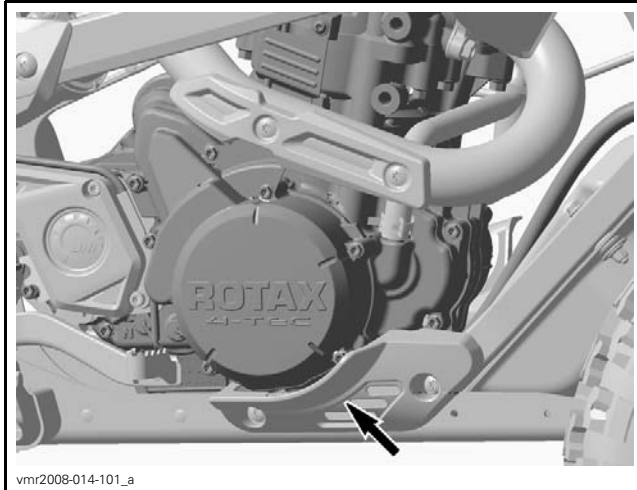
1. Top screw
2. Bottom screws
3. Protection shield

7. Slide out shield towards bottom as shown.



vmr2008-014-100\_A

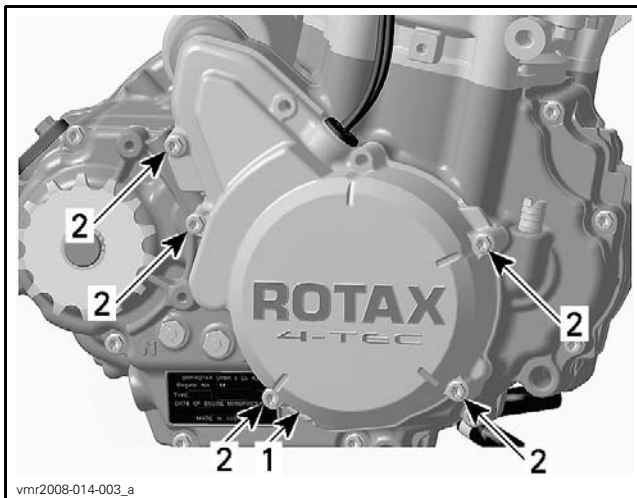
8. Remove bottom protector.



9. Ensure magneto cover area is clean.

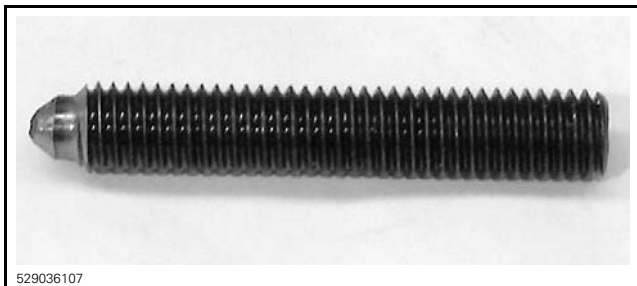
10. Place an oil pan under magneto area to catch oil spillage.

11. Remove magneto cover.



1. Magneto cover
2. Retaining screws

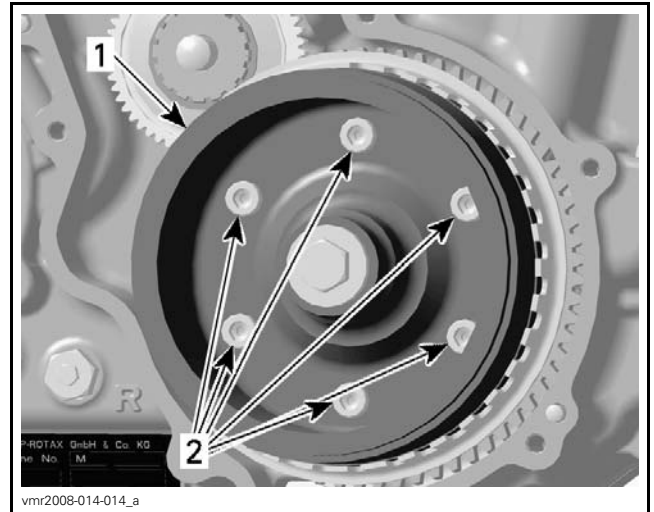
12. Lock crankshaft with CRANKSHAFT LOCKING SCREW (P/N 529 036 107) at TDC.



13. The screws of flywheel assembly are mounted with Loctite 648 and will be stuck. Proceed as follows to remove them.

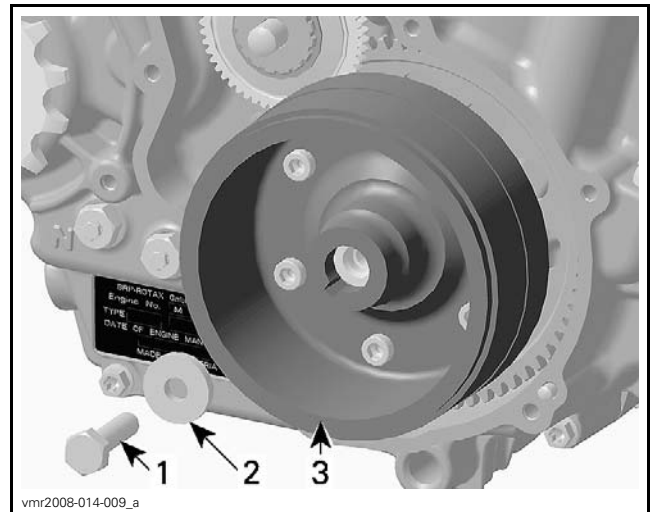
13.1 Use a heat gun and heat screw heads.

13.2 Gently tap screw heads with a hammer.  
14. Loosen flywheel assembly screws. **Do not remove now.**



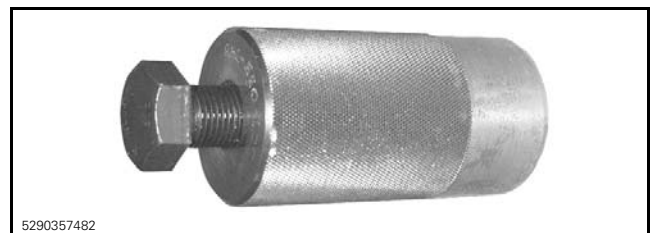
1. Flywheel
2. Flywheel assembly screws

15. Remove flywheel assembly to crankshaft retaining screw.



1. Screw M8
2. Washer
3. Flywheel

16. Install **only** the bolt of the MAGNETO PULLER (P/N 529 035 748) into the flywheel assembly to crankshaft threaded hole.



**NOTE:** Apply grease on screw threads and screw tip to prevent damage to the threads during removal.

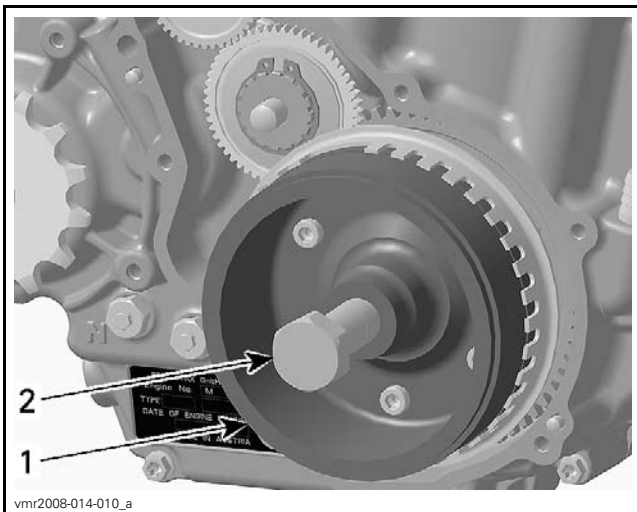
17. The flywheel assembly is mounted with LOCTITE 648 (GREEN) (P/N 413 711 400) and will be stuck on the crankshaft. Proceed as follows to release flywheel assembly.

17.1 Use a heat gun and heat flywheel.

17.2 Tighten puller screw. Do not overtighten to avoid damaging threads.

17.3 Tap the head of puller screw with a hammer. Flywheel assembly should pop out.

17.4 Continue tightening puller screw to remove flywheel assembly from crankshaft.

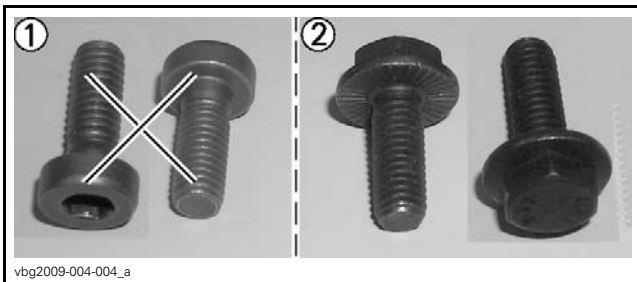


1. Flywheel  
2. Screw of magneto puller (P/N 529 035 748)

18. Remove and discard original flywheel assembly bolts. **These should be replaced one at the time.**

### Flywheel Assembly Bolts Installation

The new flywheel assembly bolts [P3] are different from the original ones.



1. Original bolts  
2. New bolts [P3]

1. Clean flywheel assembly threaded holes with PULLEY FLANGE CLEANER (P/N 413 711 809) and some paper towel or compressed air.

2. Apply LOCTITE 648 (GREEN) (P/N 413 711 400) on threads of new flywheel assembly bolts.

3. Screw in the flywheel assembly bolts. **Do not torque yet.**

4. Clean the flywheel housing for Loctite debris.

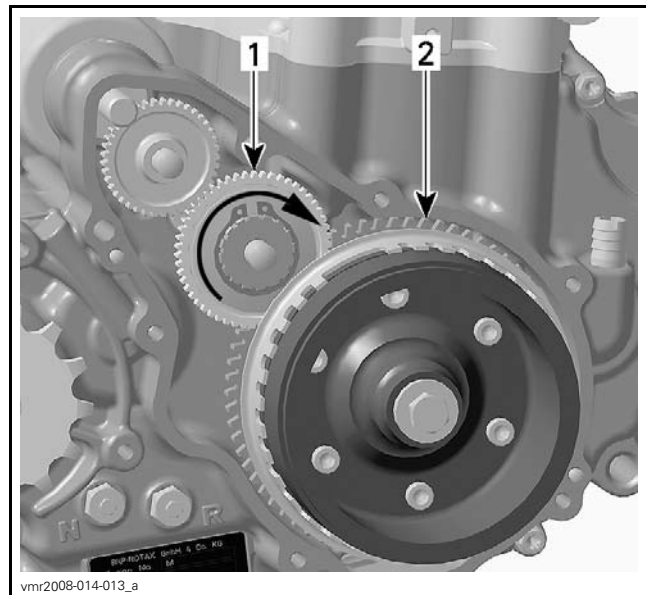
5. Clean crankshaft and flywheel assembly taper with PULLEY FLANGE CLEANER (P/N 413 711 809).

**NOTICE** Taper on crankshaft and flywheel assembly must be free of grease.

6. Apply a light coat of LOCTITE 648 (GREEN) (P/N 413 711 400) to taper on flywheel assembly.

7. Slide flywheel assembly onto crankshaft. The woodruff key and groove must be aligned.

8. Rotate friction clutch clockwise to enable the flywheel assembly to slide on the bushing of sprag clutch gear.



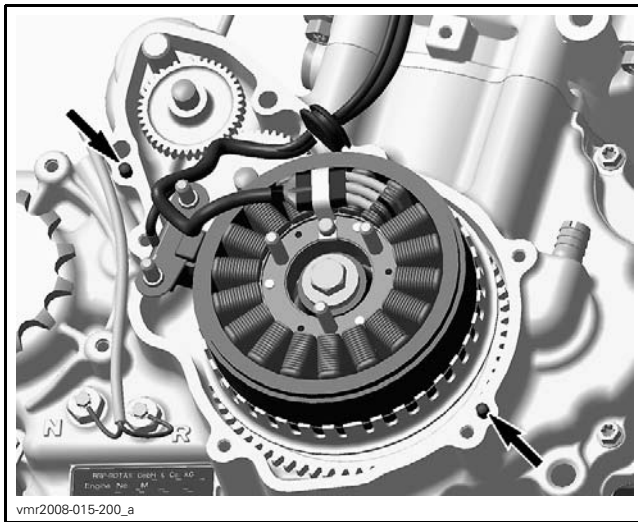
1. Friction clutch  
2. Flywheel assembly gear

9. Apply LOCTITE 243 (BLUE) (P/N 293 800 060), screw in and torque flywheel assembly to crankshaft bolt to 40 N•m (30 lbf•ft).

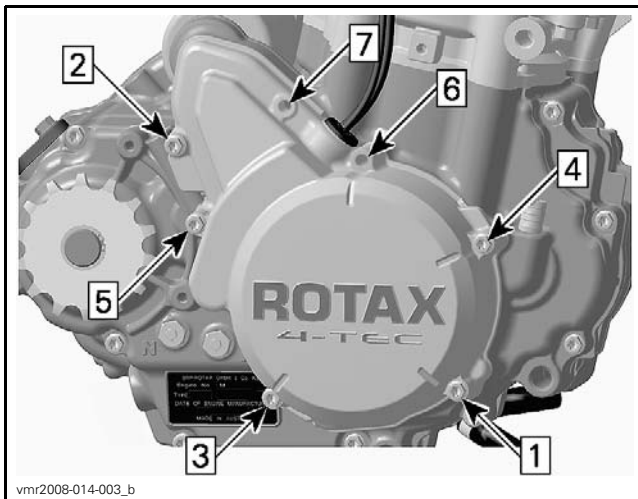
10. Torque flywheel assembly bolts to 22 N•m (16 lbf•ft).

11. For the remaining installation, reverse the removal procedure. However, pay attention to the following.

11.1 Ensure dowel pins are in place.



- 11.2 Replace magneto cover gasket [P2].
- 11.3 Apply LOCTITE 5910 (P/N 293 800 081) on stator cable grommet.
- 11.4 Follow the shown tightening sequence for the magneto cover screws. Torque screws to 10 N•m (89 lbf•in).

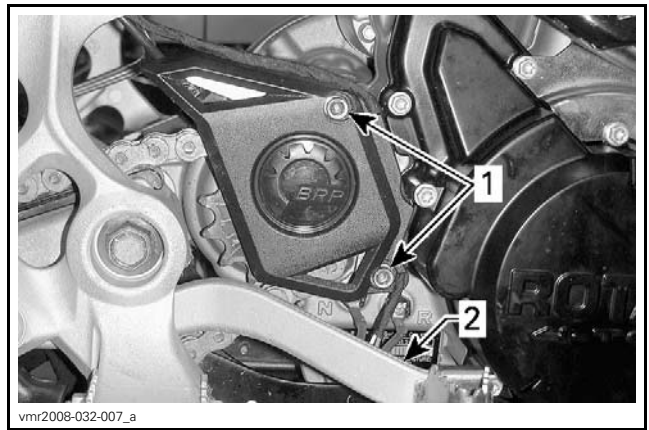


- 11.5 Top up engine with recommended engine oil [P1].

## Rear Engine Mount Sleeve

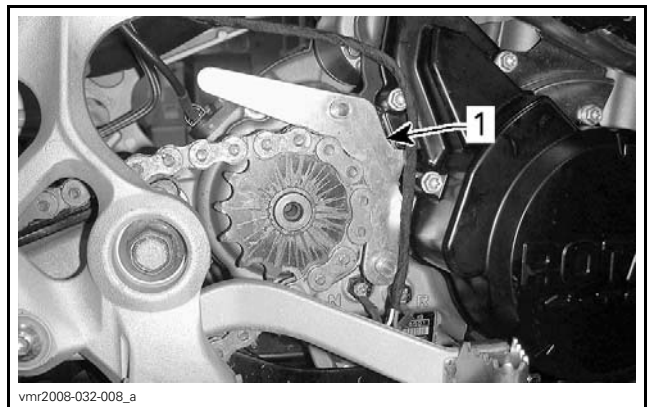
### Rear Engine Mount Sleeves Removal

1. Remove front sprocket protector.



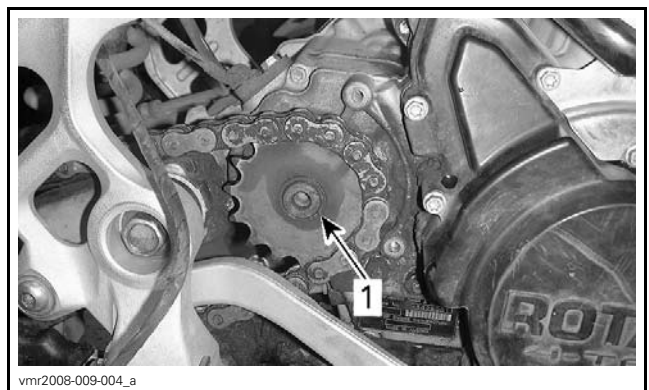
1. Protector screws
2. Brake pedal

2. Remove chain guard.



1. Chain guard

3. Remove the front sprocket and discard the circlip.



1. Circlip securing front sprocket

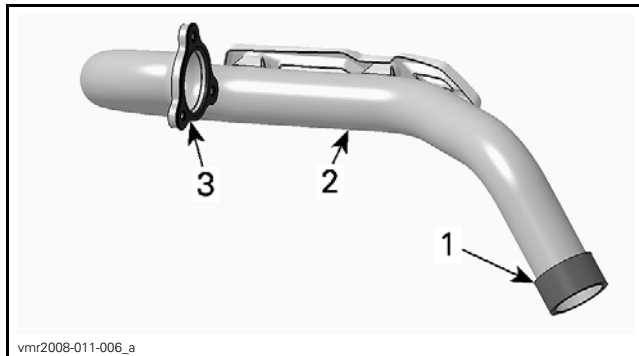
NOTE: There is no need to loosen drive chain adjustment.

4. Remove the LH lower engine protector.



vmr2008-009-101\_a

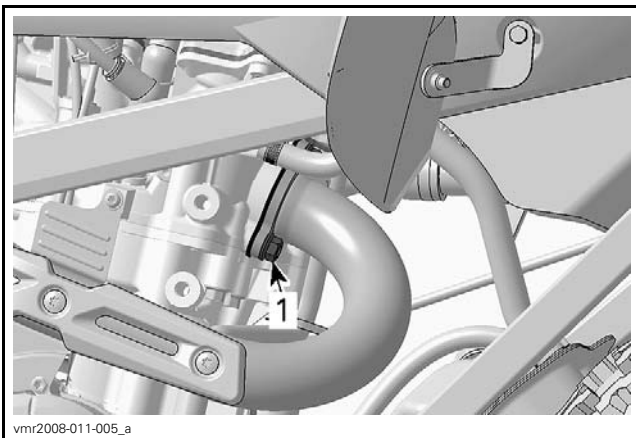
5. Unscrew nuts securing exhaust pipe to exhaust port.



vmr2008-011-006\_a

1. Muffler gasket
2. Exhaust pipe
3. Exhaust gasket

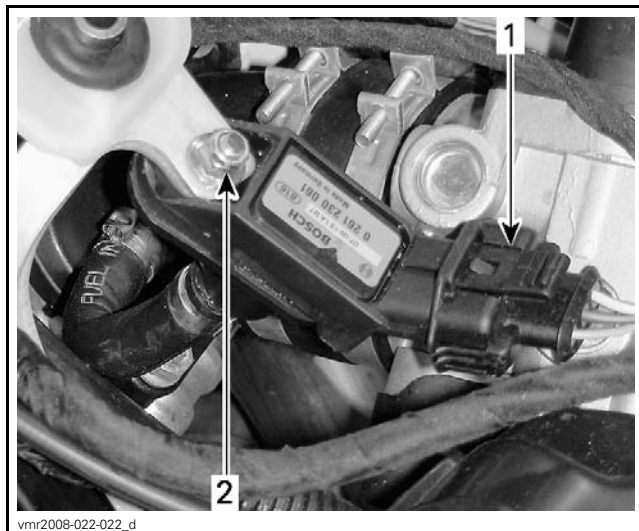
8. Disconnect the electrical connector and unscrew the MAP sensor. Discard nut.



vmr2008-011-005\_a

1. Exhaust pipe nut (2 other nuts not shown)

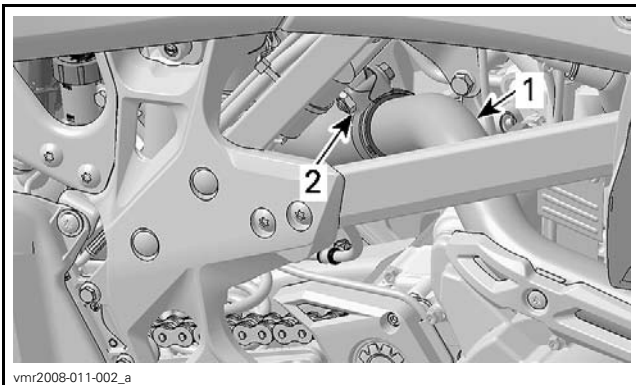
6. Loosen muffler clamp.



vmr2008-022-022\_d

1. MAP sensor electrical connector
2. MAP sensor mounting bolt

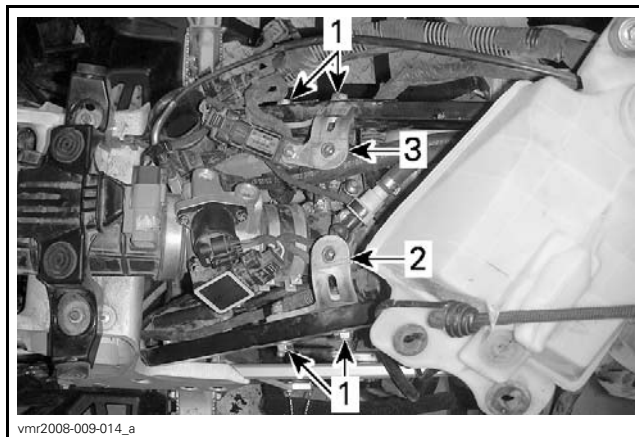
9. Loosen bolts securing upper engine supports to frame.



vmr2008-011-002\_a

1. Exhaust pipe
2. Muffler clamp

7. Pull exhaust pipe forward to remove it.

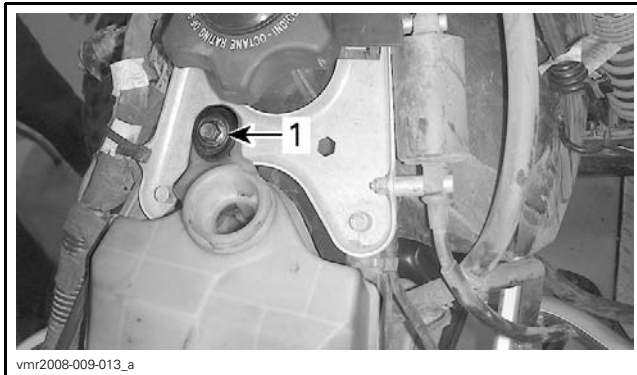


vmr2008-009-014\_a

1. Engine support bolts
2. RH upper engine support
3. LH upper engine support

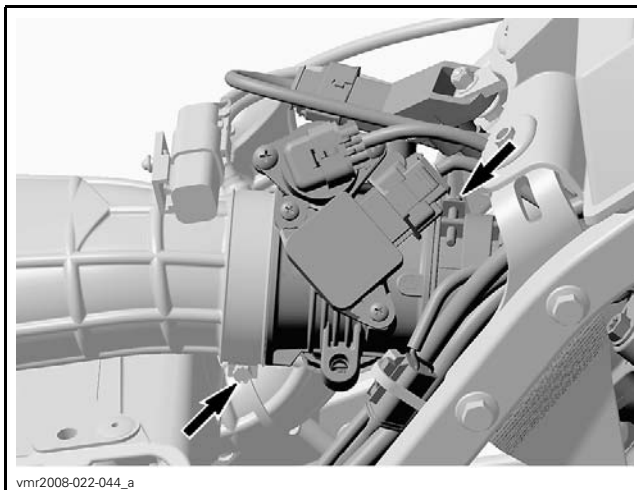
10. Unscrew and remove upper engine support bolt (M8x130) with Sleeves. Discard nut.

11. Remove the coolant reservoir bolt and move reservoir aside to make room.



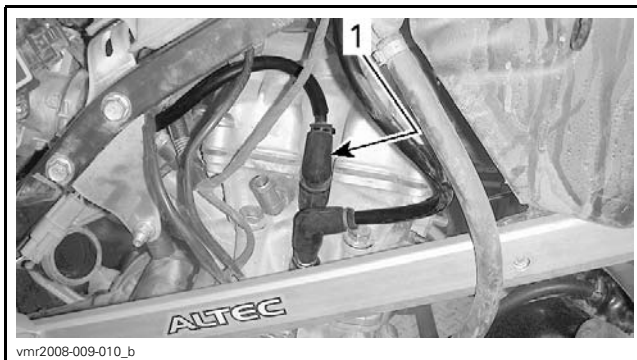
1. Coolant reservoir bolt

12. Loosen throttle body clamps and pull out from cylinder head.



#### THROTTLE BODY CLAMPS

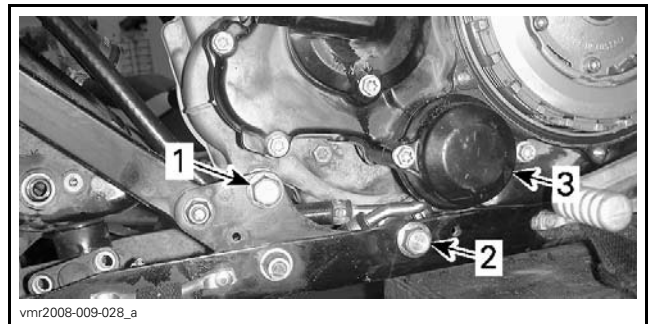
13. Remove upper spark plug cap.



1. Upper spark plug cap

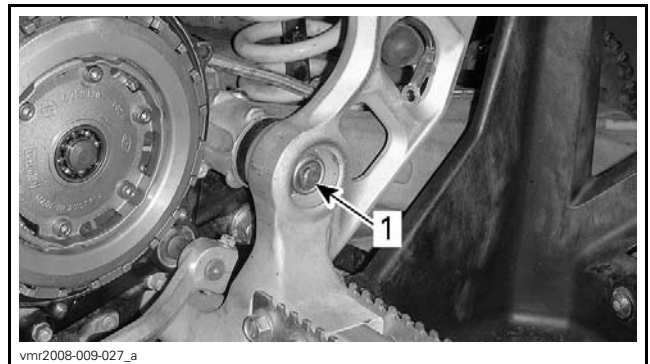
14. Loosen front engine support bolt (M10x130).

15. Remove lower engine support bolt (M10x135). Discard nut.



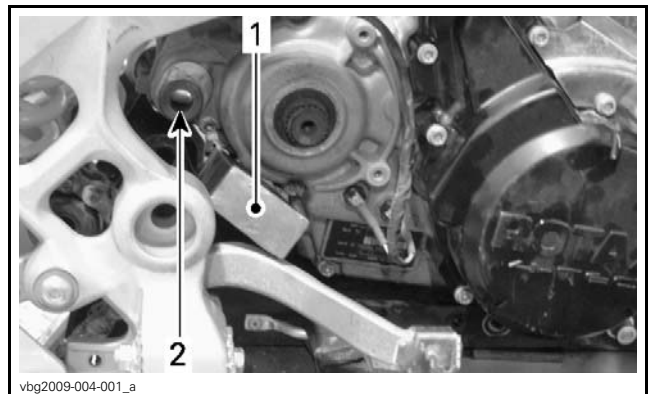
1. Front engine bolt
2. Lower engine bolt
3. Oil filter cover

16. Unscrew and remove the swing arm bolt (M14x287) and move swing arm slightly backward. Discard nut.



1. Nut securing swing arm bolt

17. Tilt engine toward front and wedge with a 25 mm (1 in) block.



1. 25 mm (1 in) block
2. Hole to be milled

**NOTICE** Be careful not to kink, stretch or jam any wires or hoses while tilting engine.

18. Plug intake and exhaust ports with clean rags.

19. Remove the original sleeves (2) from the crankcase swing arm pivot using punch and hammer or a puller.

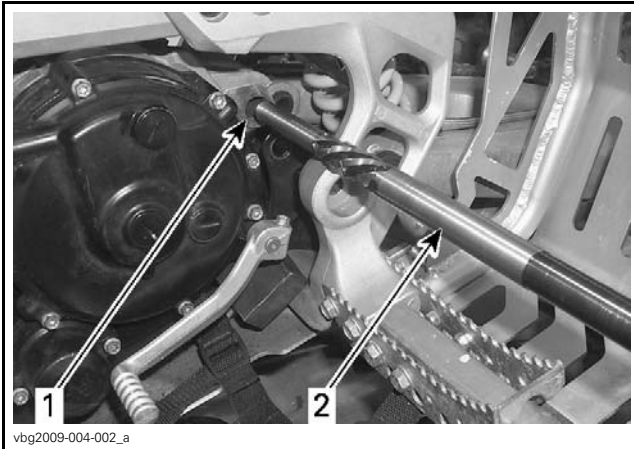
**NOTE:** The existing sleeves are really thin and are flush with the inside wall of the crankcase. Extreme care must be used when removing them to prevent any damage to the casting.

## New Sleeve Installation Procedure

1. Drill the crankcase swing arm pivot hole using the drill bit.

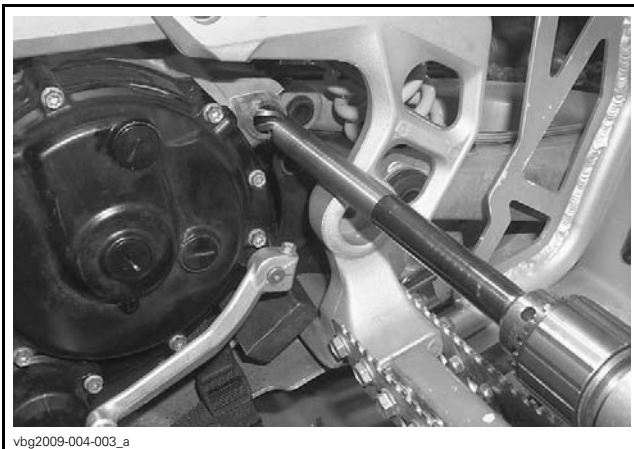
### Set-up:

- 1.1 Drill from the left side of the vehicle.
- 1.2 Drill speed should be approximately 500 RPM.
- 1.3 Use drilling oil liberally during process.



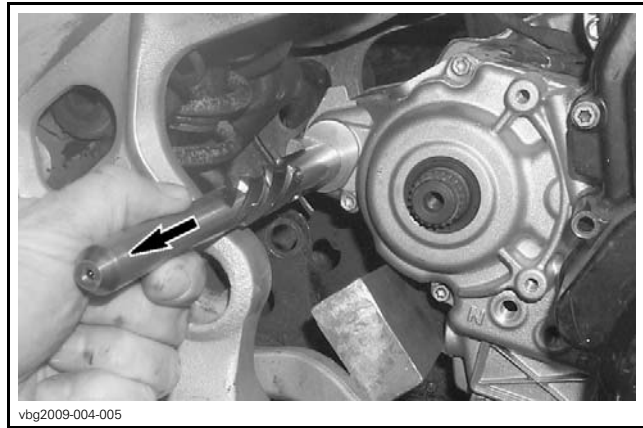
1. Crankcase swing arm pivot hole
2. Drill bit

**NOTE:** The first part of the drill is a guide.



**NOTICE** NEVER pull back drill bit tool to avoid damaging tool and casting hole.

2. Drill the left casting wall applying light and constant pressure.
3. Continue drilling through the right crankcase half the same way.
4. When right side hole is done, undo drill bit from drill and pull it out from right side of the vehicle.



**PULL THE DRILL BIT OUT FROM RIGHT SIDE**

**NOTICE** NEVER pull back drill bit tool to avoid damaging tool and casting hole.

5. Remove sharp edges and metal chips from both side of hole in crankcase.
6. Clean the holes and the new sleeve [P4] using PULLEY FLANGE CLEANER (P/N 413 711 809).
7. Apply LOCTITE 648 (GREEN) (P/N 413 711 400) into hole and on sleeve, using a clean applicator.
8. Insert sleeve into crankcase hole, center and let cure for at least 5 minutes.
9. Place a new O-ring [P5] each side of the sleeve.

## Vehicle Reassembly

Reverse steps to reassemble

Torque swing arm to rear motor mount nut [P7] to 135 N•m (100 lbf•ft).

Torque lower and front engine support nut [P8] to 48 N•m (35 lbf•ft).

Torque throttle body clamp to 2.5 N•m (22 lbf•in).

Torque upper engine supports to frame bolts to 25 N•m (18 lbf•ft).

Torque upper engine support bolt and nut [P9] to 25 N•m (18 lbf•ft).

Torque MAP sensor nut [P10] to 5 N•m (44 lbf•in).

Torque muffler clamp to 25 N•m (18 lbf•ft).

Torque exhaust pipe nuts to 25 N•m (18 lbf•ft).

Install new front sprocket circlip [P6].

**NOTE:** Check that swing arm moves freely.

**NOTICE** The engine and vehicle shall not be use for 24 hours following this procedure.



---

# WARRANTY

## Involved Vehicles Claiming

Submit a warranty claim using the following tables.

Click in the *REPAIR BOX* while completing your claim on BOSSWeb.

MY 2009 CE VEHICLES	
Campaign Number	2009-0005
Claim Type	Campaign Claim
Action	Repair
Flat Rate Time	1.6 hour

---

# SERIAL NUMBER LISTING OF MY 2009 INVOLVED VEHICLES

## ***Model: 3F9G***

From 000001 to 000007  
From 000009 to 000014  
From 000016 to 000021  
From 000023 to 000026  
From 000028 to 000029  
From 000032 to 000037  
From 000039 to 000041  
000044  
000046  
000051  
From 000054 to 000056  
From 000058 to 000060  
From 000062 to 000063  
From 000065 to 000148  
000150  
000153  
From 000155 to 000159  
From 000162 to 000170  
From 000173 to 000179  
From 000181 to 000202  
From 000204 to 000265  
From 000267 to 000270  
From 000272 to 000307  
From 000309 to 000324

## ***Model: 3G9D***

From 002932 to 003243  
From 003245 to 003285  
From 003287 to 003296  
From 003298 to 003308  
From 003310 to 003318  
From 003320 to 003361  
From 003363 to 003368  
From 003375 to 003376  
003393  
From 003395 to 003397  
From 003399 to 003402  
From 003404 to 003406  
From 003408 to 003409  
From 003411 to 003413  
From 003415 to 003420