

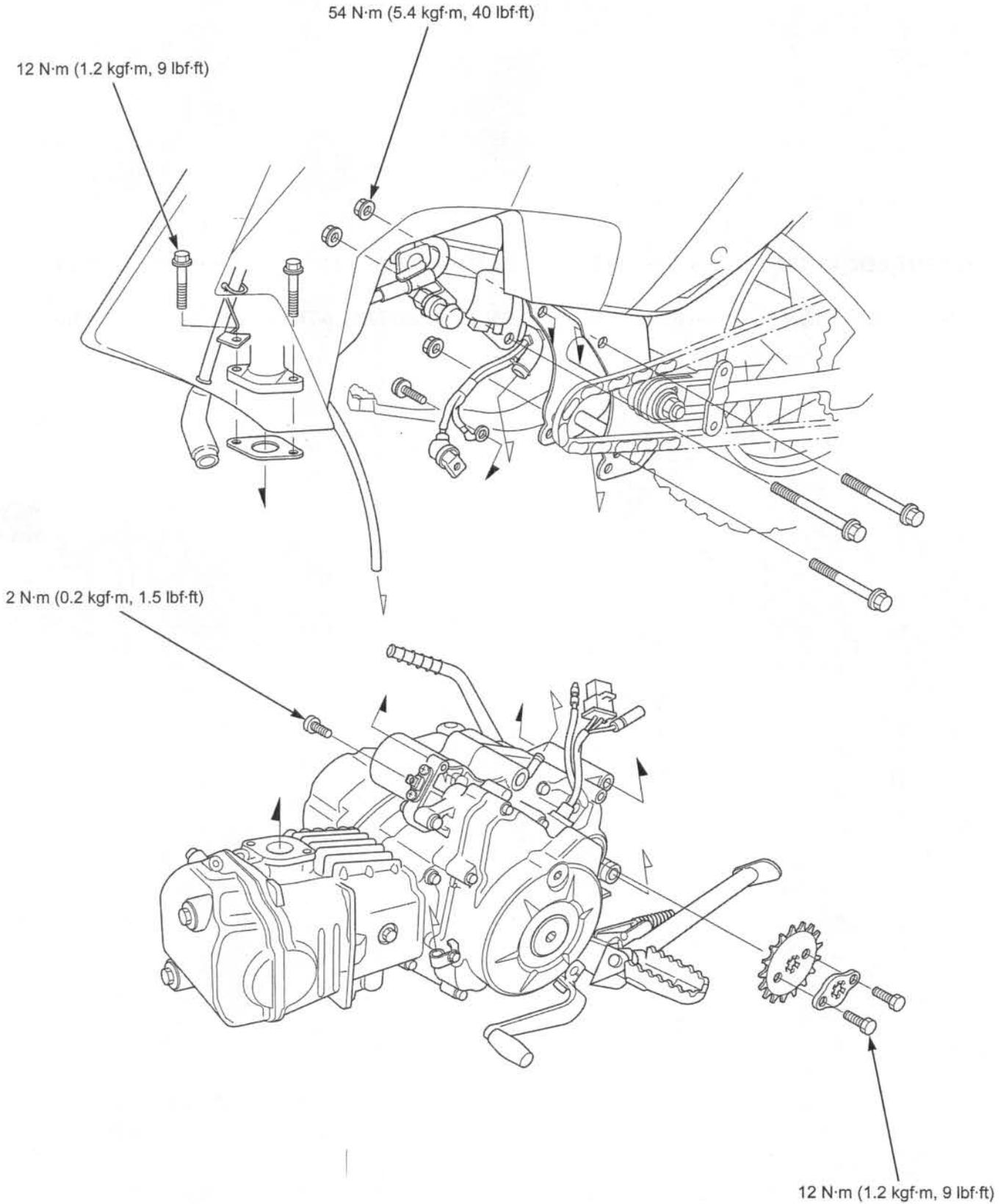
# 13. ENGINE REMOVAL/INSTALLATION

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# ENGINE REMOVAL/INSTALLATION

## COMPONENT LOCATION



## SERVICE INFORMATION

### GENERAL

- When removing/installing the engine, tape the frame around the engine beforehand for frame protection.
- The following components require engine removal for service.
  - Crankshaft (page 12-7)
  - Transmission (page 12-9)
  - Kickstarter (page 12-19)
  - Cam chain guide sprocket (page 12-16)

Other components can be serviced with the engine installed in the frame.

### SPECIFICATIONS

ITEM		SPECIFICATIONS
Engine oil capacity	After draining	1.0 liter (1.1 US qt, 0.9 Imp qt)
	After disassembly	1.15 liter (1.22 US qt, 1.01 Imp qt)
Engine dry weight		22.3 kg (49.2 lbs)

### TORQUE VALUES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Engine hanger nut	3	10	54 (5.5, 40)	
Drive sprocket fixing plate bolt	2	6	12 (1.2, 9)	
Intake pipe mounting bolt	2	6	12 (1.2, 9)	
Starter motor cable screw	1	4	2 (0.2, 1.5)	

## ENGINE REMOVAL/INSTALLATION

### ENGINE REMOVAL

Drain the engine oil (page 3-10).

Remove the following.

- Left crankcase rear cover (page 2-7)
- Drive chain cover (page 2-7)
- Exhaust pipe/muffler (page 2-8)

Disconnect the following:

- Alternator 2P connector [1]
- Ignition pulse generator wire connector [2]
- Neutral switch wire connector [3]
- Crankcase breather hose [4]

Release the carburetor drain hose [5] from the hose guide [6].

Remove the starter motor cable screw [1] and disconnect the starter motor cable [2] from the starter motor.

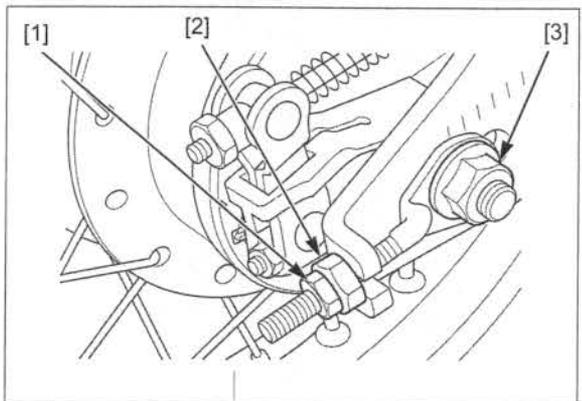
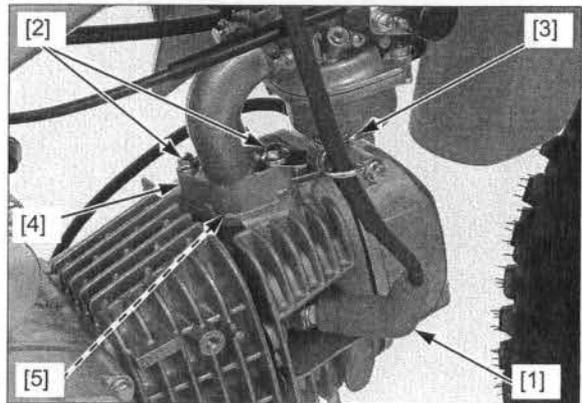
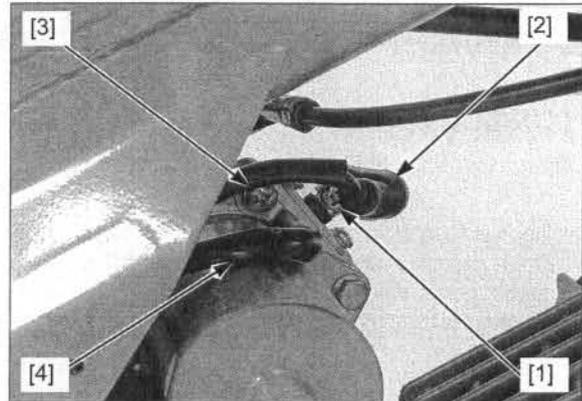
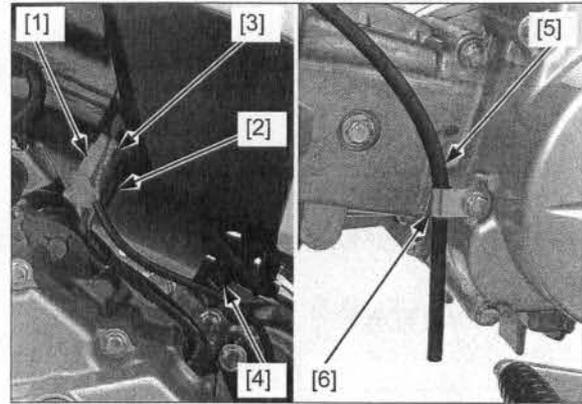
Remove the screw [3] and disconnect the ground cable [4] from the starter motor.

Disconnect the spark plug cap [1].

Remove the two bolts [2] and wire guide [3], then release the intake pipe [4] from the cylinder head.

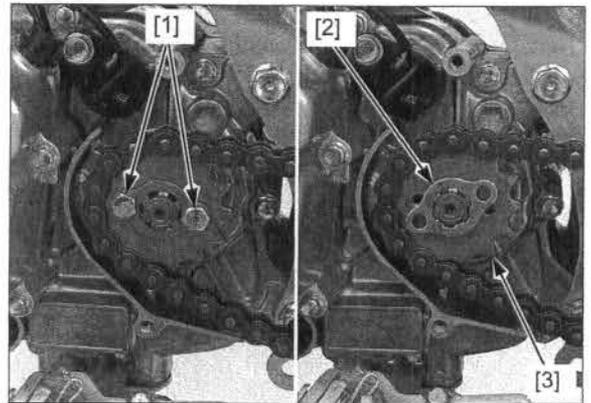
Remove the gasket [5].

Loosen the lock nuts [1], drive chain adjusting nuts [2] and axle nut [3].  
Push the rear wheel forward.



Remove the drive sprocket fixing plate bolts [1].  
Turn and remove the fixing plate [2].

Remove the drive sprocket [3] from the countershaft and drive chain.



Support the motorcycle securely and raise the rear wheel off the ground with a hoist or equivalent.

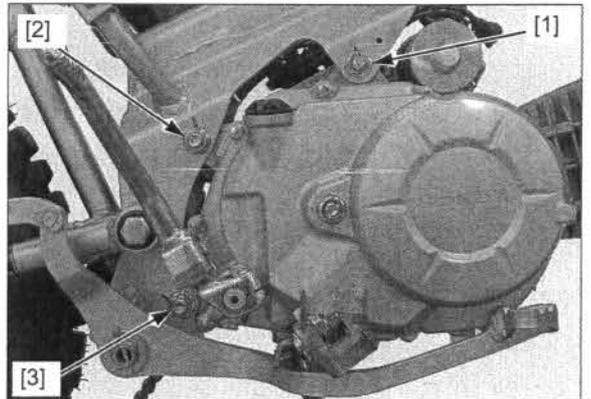
Support the engine using a jack or other adjustable support.

Remove the front engine hanger nut [1].

Remove the rear upper engine hanger nut [2] and rear lower engine hanger nut [3].

Remove the engine hanger bolts and engine from the frame.

- Wrap the intake manifold port with a shop towel or cover it with a piece of tape to prevent any foreign material from dropping into the engine.



## ENGINE INSTALLATION

### NOTE:

- Note the direction of the hanger bolts.
- Use a floor jack or other adjustable support, carefully place the engine into the frame and maneuver it into place.
- Route the wires and hoses properly (page 1-14).

*During engine installation, hold the engine securely and be careful not to damage the frame and engine.*

Place the engine into the frame and support the engine using a jack or other adjustable support.

Install the engine hanger bolts and nuts.

Tighten the rear upper engine hanger nut [1] to the specified torque.

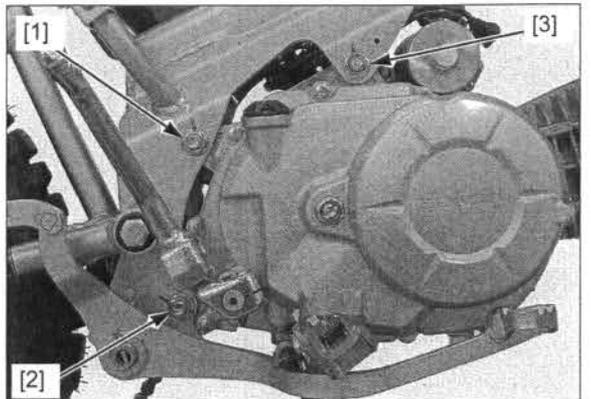
**TORQUE: 54 N·m (5.5 kgf·m, 40 lbf·ft)**

Tighten the rear lower engine hanger nut [2] to the specified torque.

**TORQUE: 54 N·m (5.5 kgf·m, 40 lbf·ft)**

Tighten the front engine hanger nut [3] to the specified torque.

**TORQUE: 54 N·m (5.5 kgf·m, 40 lbf·ft)**



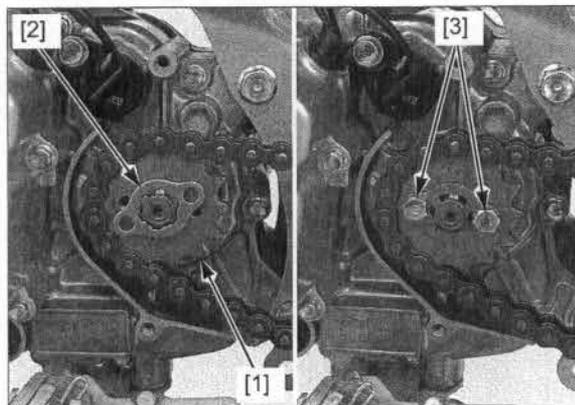
## ENGINE REMOVAL/INSTALLATION

Install the drive chain onto the drive sprocket [1].  
Install the drive sprocket onto the countershaft.

Install the fixing plate [2] to the countershaft while aligning their teeth.  
Rotate the fixing plate and align their bolt holes.

Install and tighten the drive sprocket fixing plate bolts [3] alternately to the specified torque.

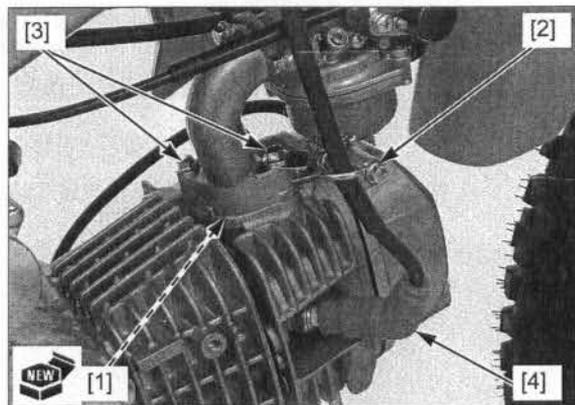
**TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)**



Install a new gasket [1] onto the cylinder head.  
Set the wire guide [2] to the intake pipe and tighten the two bolts [3] to the specified torque.

**TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)**

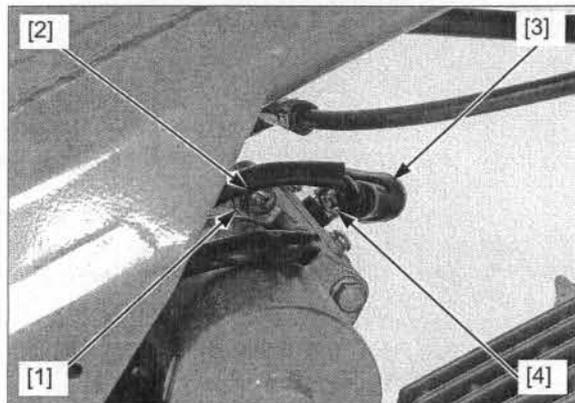
Connect the spark plug cap [4].



Set the ground cable terminal [1] against the starter motor case and tighten the screw [2].

Connect the starter motor cable [3] to the starter motor and tighten the screw [4] to the specified torque.

**TORQUE: 2 N·m (0.2 kgf·m, 1.5 lbf·ft)**



Connect the following:

- Alternator 2P connector [1]
- Ignition pulse generator wire connector [2]
- Neutral switch wire connector [3]
- Crankcase breather hose [4]

Install the carburetor drain hose [5] into the hose guide [6].

Fill the recommended engine oil up to the proper level (page 3-10).

Adjust the drive chain slack (page 3-13).

Adjust the brake pedal freeplay (page 3-16).

Install the following.

- Exhaust pipe/muffler (page 2-8)
- Left crankcase rear cover (page 2-7)
- Drive chain cover (page 2-7)

