

# **7. ENGINE REMOVAL/INSTALLATION**

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## **ENGINE REMOVAL/INSTALLATION**

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## 7. ENGINE REMOVAL/INSTALLATION

### SERVICE INFORMATION

#### GENERAL INSTRUCTIONS

- During engine removal and installation, support the scooter on its main stand.
- Support the frame using a jack or other adjustable support to ease of engine hanger bolt removal.
- The following components require engine removal for serviced with the engine installed in the frame.
  - Oil pump (Section 4)
  - Water pump (Section 6)
  - Cylinder head (Section 8)
  - Cylinder/Piston (Section 9)
  - Drive and driven pulleys/clutch (Section 10)
  - Final reduction (Section 11)
  - Alternator/Starter clutch (Section 12)
- The following components require engine removal for service.
  - Crankshaft/Crankcase/Balancer (Section 13)

#### SPECIFICATIONS

ITEM		SPECIFICATIONS
Engine dry weight		66 kg (145.2 lbs)
Engine oil capacity	At draining	2.0 liter (2.1 US qt, 1.8 lmp qt)
	At disassembly	2.5 liter (2.7 US qt, 2.2 lmp qt)
	At oil filter cartridge change	2.1 liter (2.2 US qt, 1.9 lmp qt)

#### TORQUE VALUES

Engine mounting bolt	80 N•m (8 kgf•m, 58 lbf•ft)
Engine mounting nut	80 N•m (8 kgf•m, 58 lbf•ft)
Rear shock absorber lower mounting bolt	40 N•m (4 kgf•m, 29 lbf•ft)
Rear/parking brake caliper mounting bolt	32 N•m (3.2 kgf•m, 23 lbf•ft)
	ALOCK bolt: replace with a new one
Engine hanger mounting bolt	50 N•m (5 kgf•m, 36 lbf•ft)
Engine hanger rod nut	35 N•m (3.5 kgf•m, 25 lbf•ft)

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### **ENGINE REMOVAL**

Remove the following:

Luggage box (page 2-3)

Floorboard (page 2-6)

Rear fender (page 2-7)

Side/rear body cover (page 2-8)

Exhaust muffler (page 2-15)

Drain the coolant from the system (page 6-6).

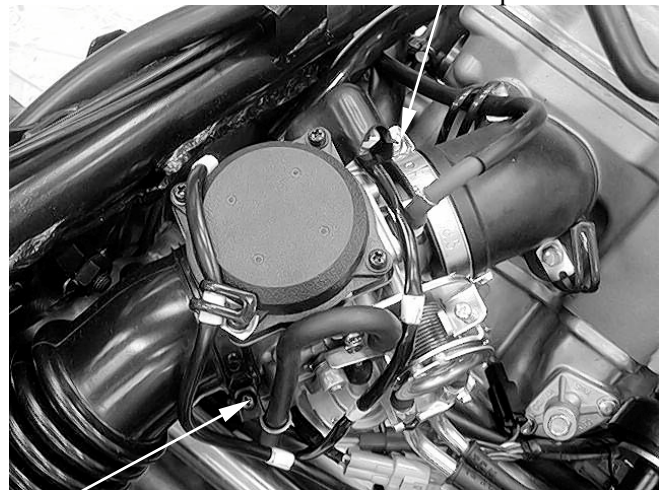
Support the scooter on its main stand.

Loosen the air cleaner clamp screw.

Loosen the carburetor clamp screw.

Remove the carburetor.

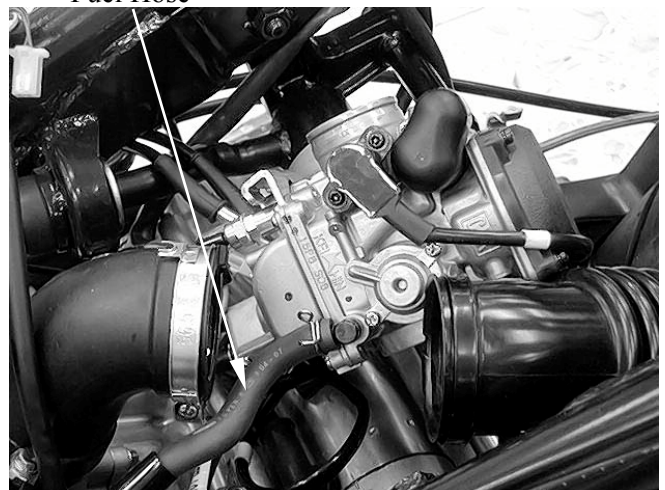
Air Cleaner Clamp Screw



Carburetor Clamp Screw

Disconnect the fuel hose from the carburetor.

Fuel Hose



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Disconnect the water temperature sensor connector.  
Disconnect AICV air supply hose from the AICV check valve.

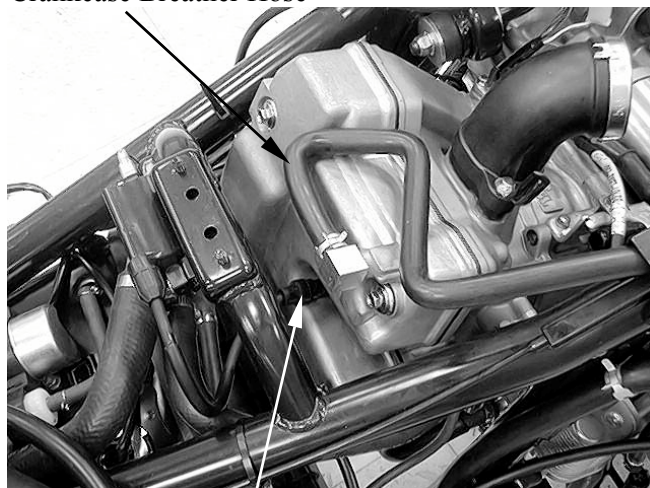
AICV air Supply Hose



Water Temperature Sensor Connector

Disconnect the spark plug cap from the cylinder head.  
Disconnect the crankcase breather hose from the cylinder head cover.

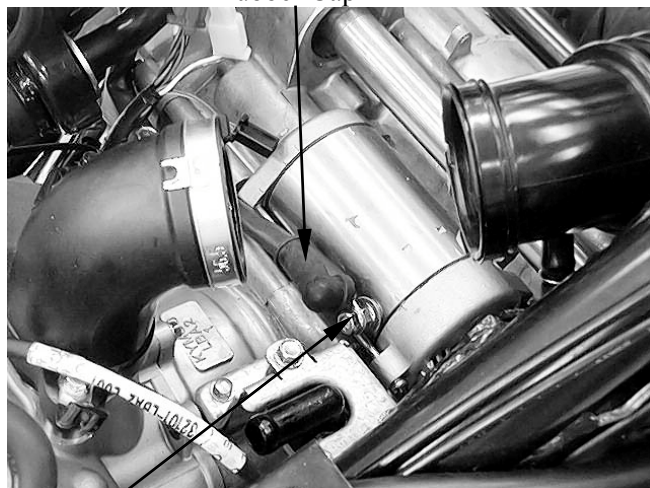
Crankcase Breather Hose



Spark Plug Cap

Release the rubber cap and remove the terminal nut to disconnect the starter motor cable.

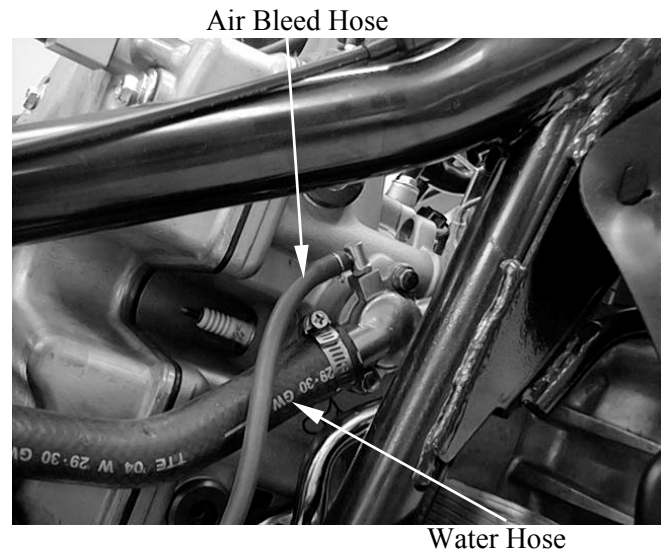
Rubber Cap



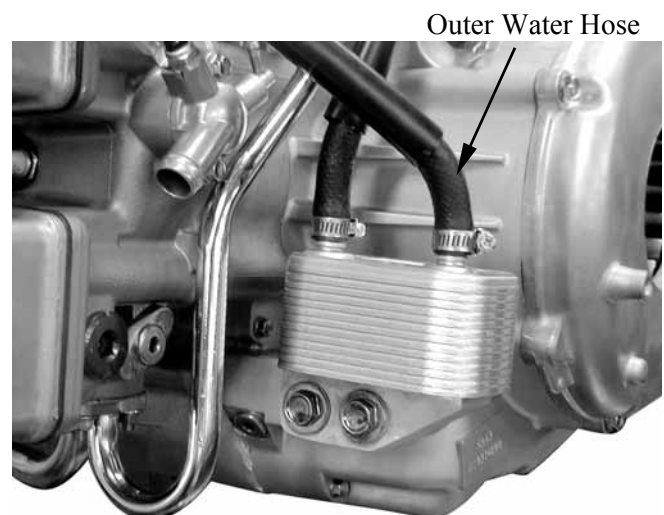
Nut

## 7. ENGINE REMOVAL/INSTALLATION

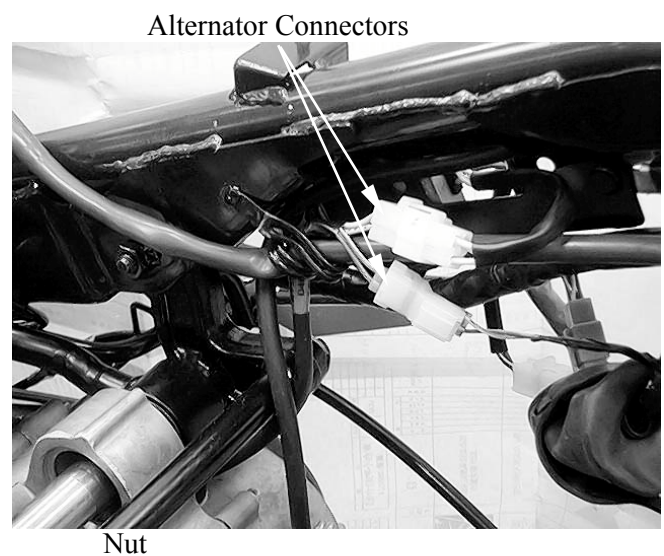
Disconnect the air bleed hose and water hose from the water joint.



Disconnect the outer water hose from the oil cooler.



Loosen the wire bands and disconnect the alternator connectors.

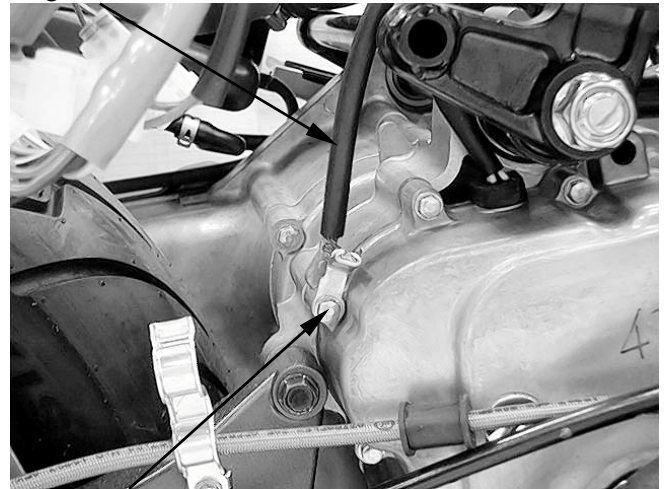




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Remove the bolt and engine ground cable.

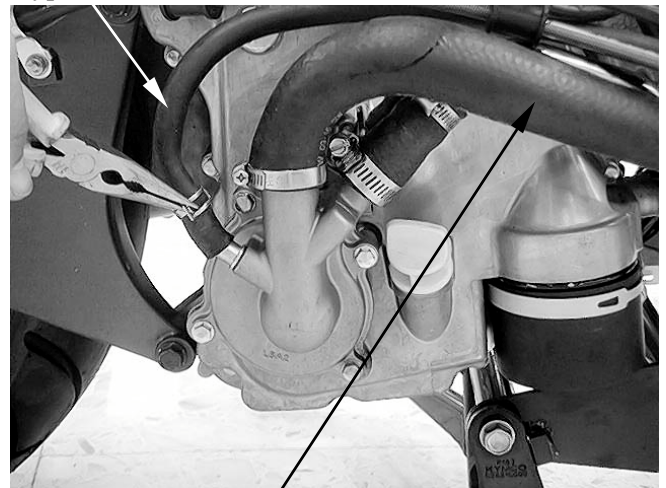
Engine Ground Cable



Bolt

Loosen the hose bands and disconnect the bypass hose and water hose

Bypass Hose



Water Hose

Disconnect the oil pressure switch connector.

Oil Pressure Switch

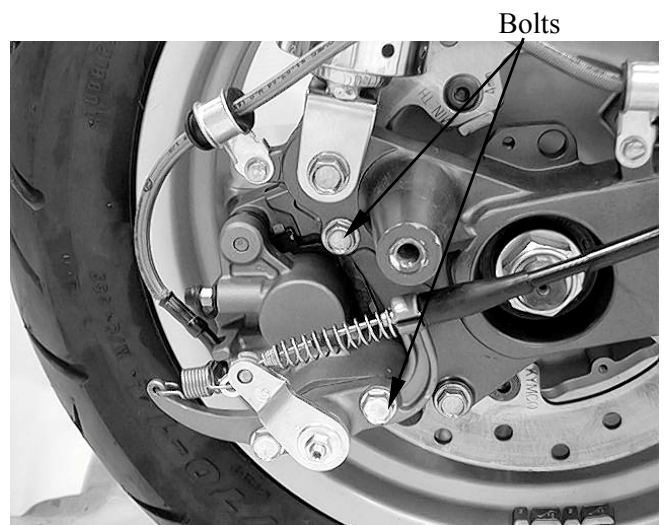


Oil Pressure Switch Connector

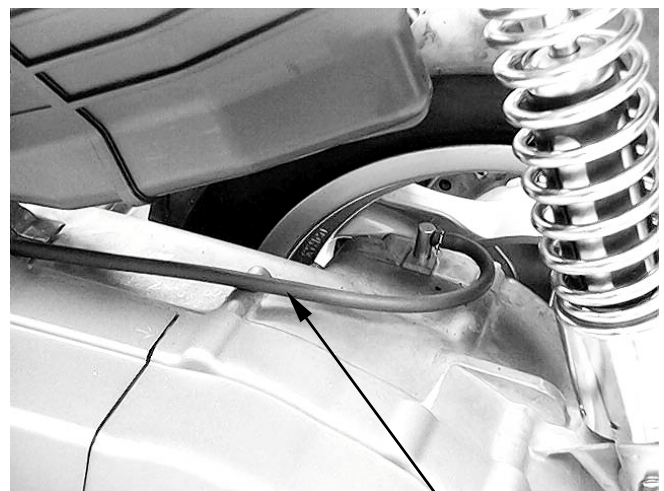
## 7. ENGINE REMOVAL/INSTALLATION

Remove the bolts and rear/parking brake caliper.

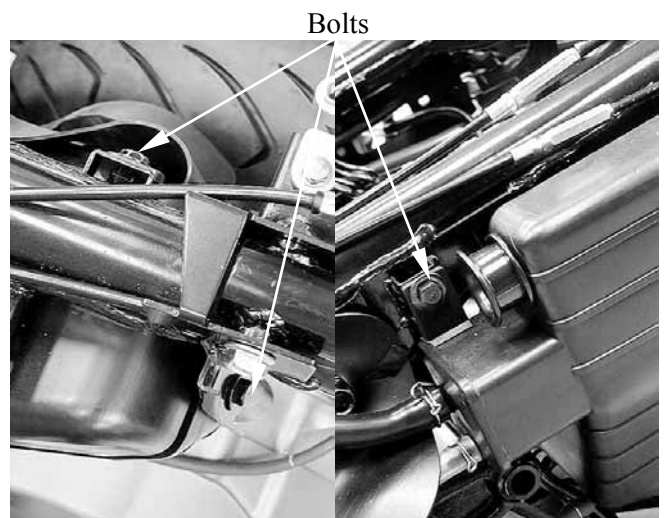
Remove the brake hose from clamps.



Disconnect the transmission case breather hose from transmission case.

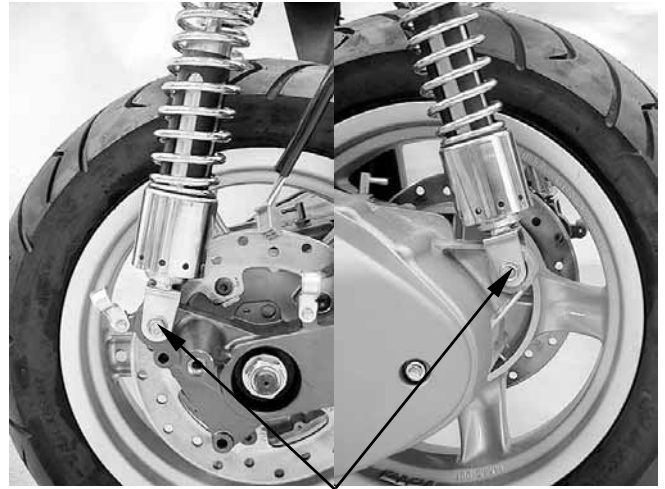


Remove the bolts and air cleaner.



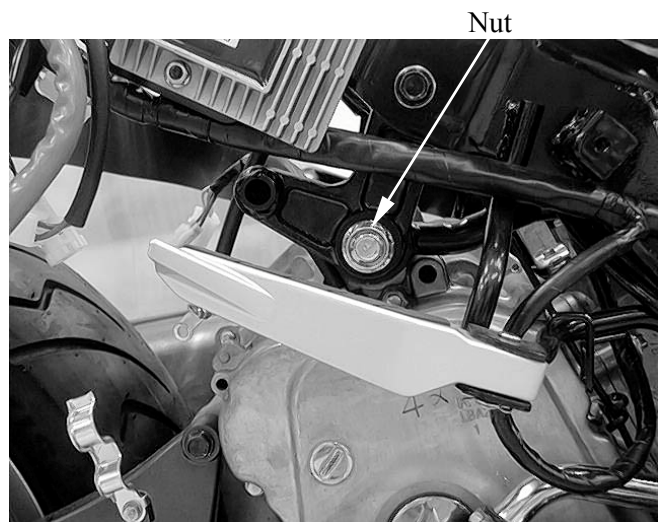
## 7. ENGINE REMOVAL/INSTALLATION

Remove the rear cushion lower mount bolts



Lower Mount Bolts

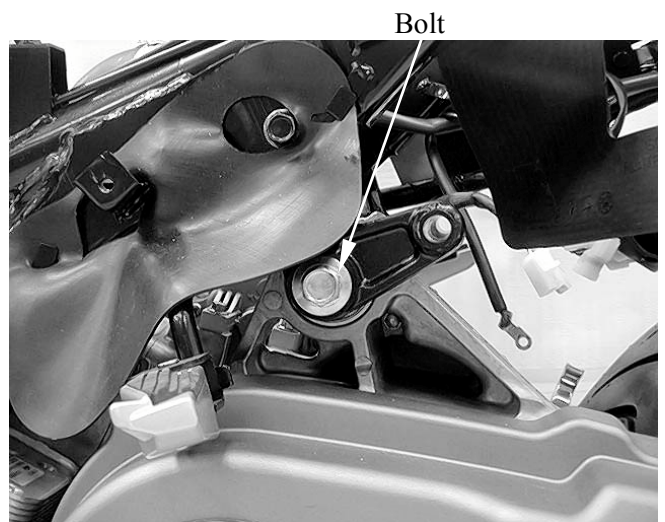
Remove the engine mount nut.



Nut

Turn the engine mount bolt counterclockwise and loosen it.

Pull out the engine mount bolt then removes the engine from the frame.



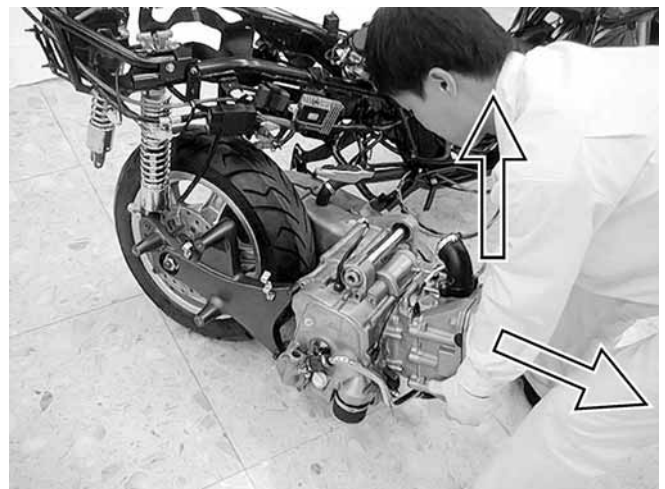
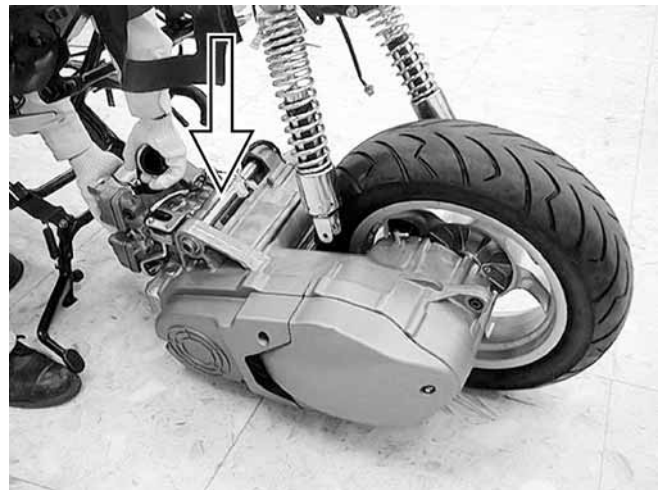
Bolt



## 7. ENGINE REMOVAL/INSTALLATION

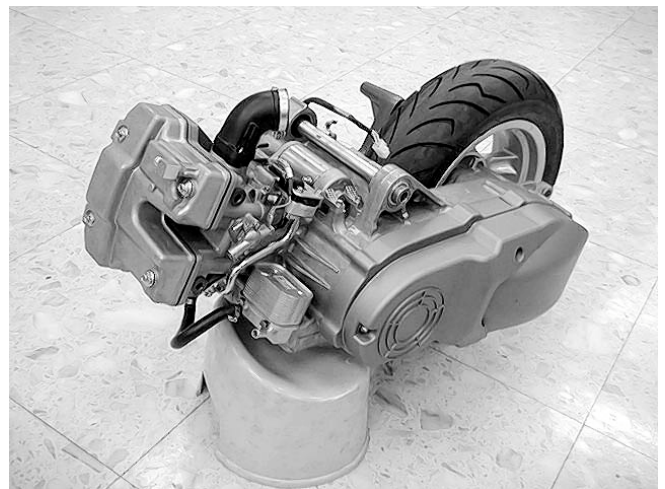
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At removing the engine, be careful not to catch your hand or finger between the engine hanger and crankcase.



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Remove the collar.



Collar

## 7. ENGINE REMOVAL/INSTALLATION

Pull out the long engine collar.

### INSTALLATION

Installation is in the reverse order of removal.

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- At installing the engine, be careful not to catch your hand or finger between the engine hanger and crankcase.
- Check for leakage of the engine oil and engine coolant.

### Torque:

**Engine mounting bolt:**

**80 N•m (8 kgf•m, 58 lbf•ft)**

**Engine mounting nut:**

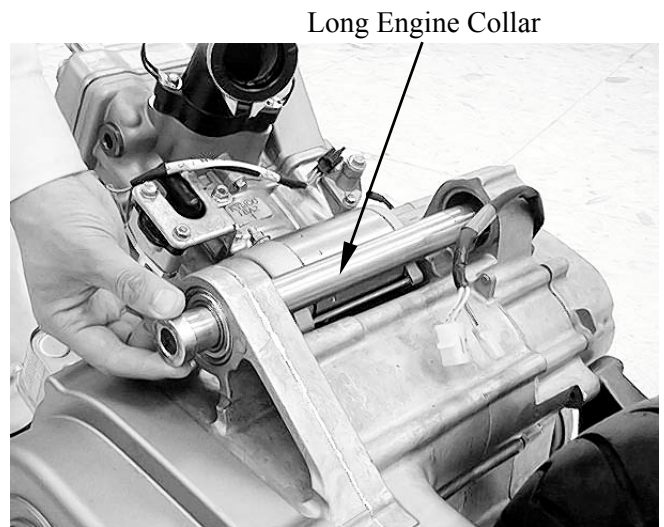
**80 N•m (8 kgf•m, 58 lbf•ft)**

Route the brake hoses and wires properly (page 1-12).

### INSPECTION

Inspect the bearing:

Bearings allow play in the right/left crankcase or the bearing turns roughly → Replace.

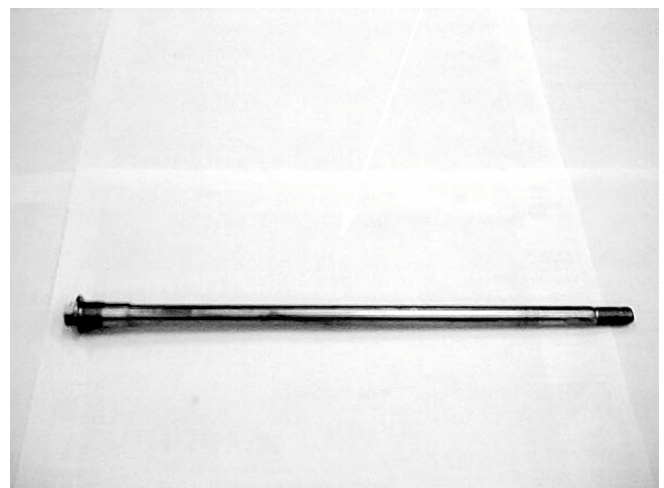


Inspect the engine mount bolt:

Band/Damage → Replace

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Do not attempt to straighten a bent engine mount bolt.



## 7. ENGINE REMOVAL/INSTALLATION

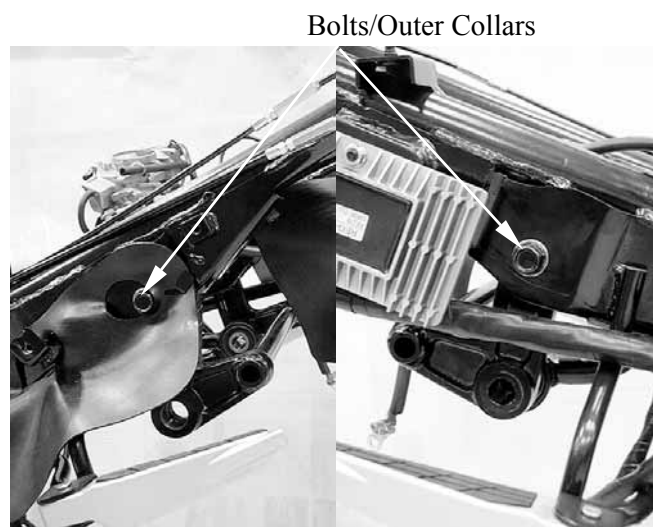
### ENGINE HANGER

#### REMOVAL

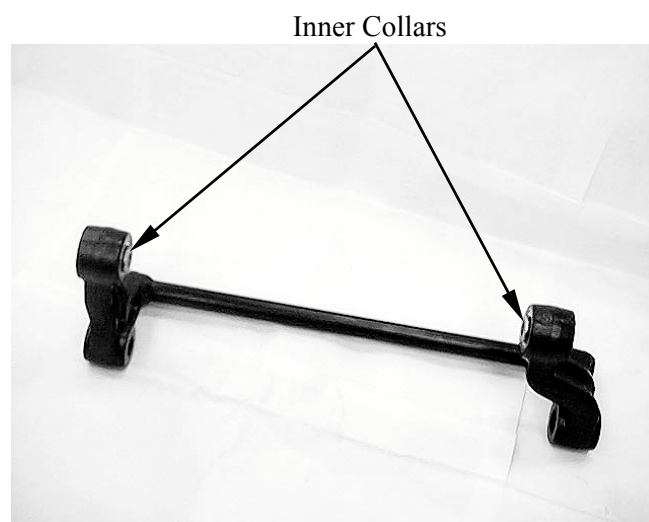
Loosen and remove the engine mount nut (page 7-7).

Loosen and remove the engine mount bolt (page 7-7).

Remove the engine hanger mount bolts and outer collars.



Remove the engine hanger and inner collars.



Remove the nut, washers, rubber washers and engine hanger rod.

#### INSTALLATION

Installation is in the reverse order of removal.

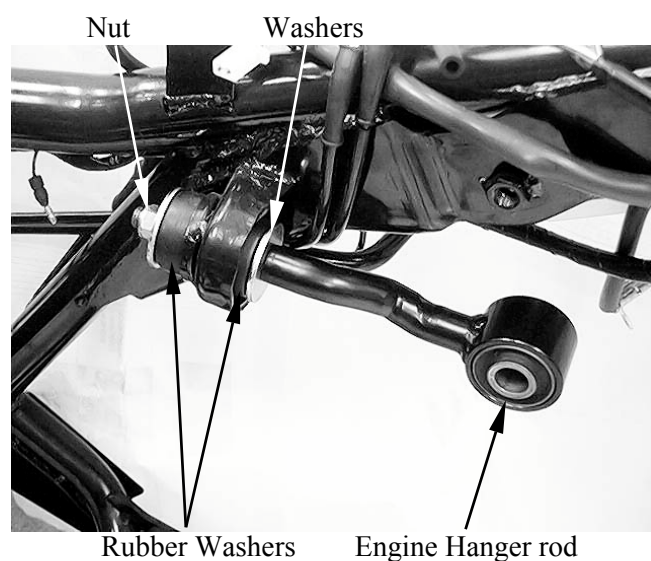
#### Torque:

##### Engine hanger mounting bolt:

**50 N•m (5 kgf•m, 36 lbf•ft)**

##### Engine hanger rod nut:

**35 N•m (3.5 kgf•m, 25 lbf•ft)**



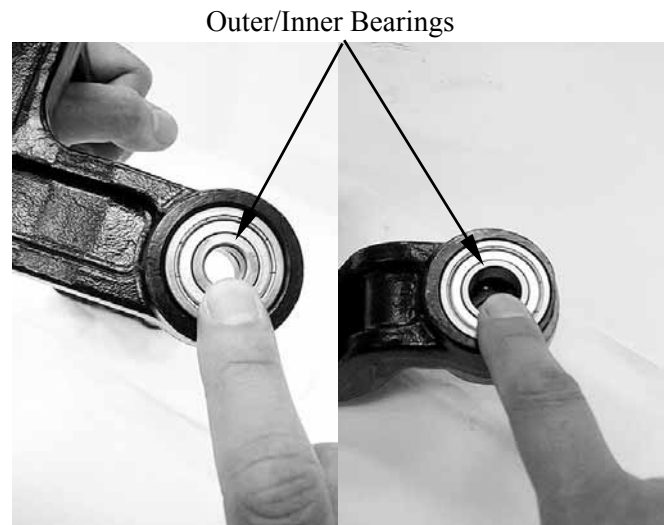


## 7. ENGINE REMOVAL/INSTALLATION

### INSPECTION

Inspect the bearing:

Bearings allow play in the engine hanger or the bearing turns roughly → Replace.



Inspect the bush:

Wear/Damage → Replace.

