

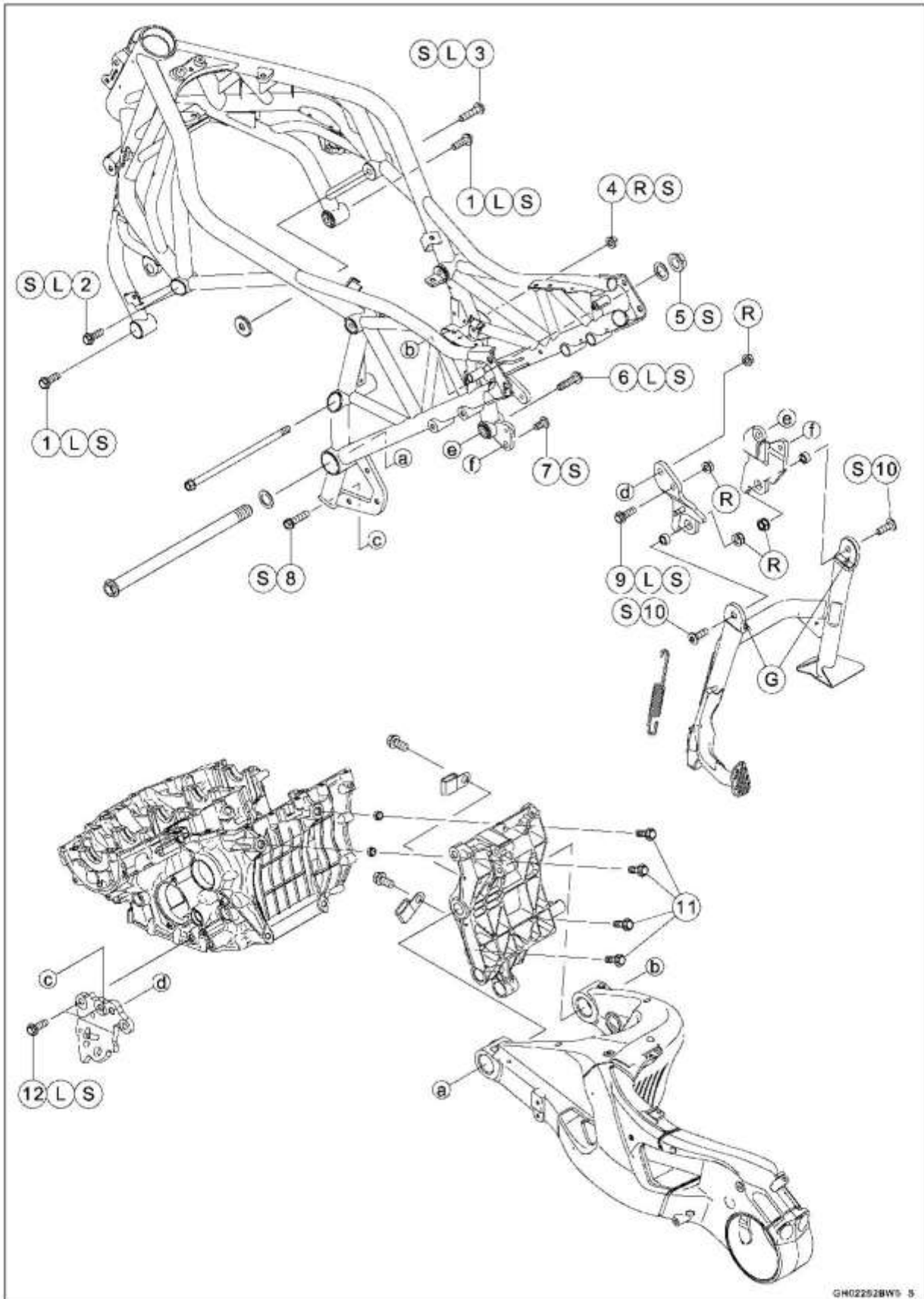
Engine Removal/Installation

Table of Contents

Exploded View.....	8-2
Engine Removal/Installation.....	8-4
Engine Removal.....	8-4
Engine Installation.....	8-10
Swingarm Mounting Plate Removal.....	8-12
Swingarm Mounting Plate Installation.....	8-12

8-2 ENGINE REMOVAL/INSTALLATION

Exploded View



ENGINE REMOVAL/INSTALLATION 8-3

Exploded View

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Front Engine Mounting Bolts (Front)	45	4.6	33	L, S
2	Front Engine Mounting Bolt (Rear, L= 30 mm)	45	4.6	33	L, S
3	Front Engine Mounting Bolt (Rear, L= 40 mm)	45	4.6	33	L, S
4	Swingarm Mounting Plate Nut (Upper)	45	4.6	33	R, S
5	Swingarm Pivot Shaft Nut	110	11.2	81.1	S
6	Swingarm Mounting Plate Bolt (Lower)	45	4.6	33	L, S
7	Center Stand Bracket Bolt (L = 20 mm)	50	5.1	37	S
8	Side Stand Bracket Bolt (Rear)	50	5.1	37	S
9	Center Stand Bracket Bolt (L = 30 mm)	50	5.1	37	L, S
10	Center Stand Bolts	45	4.6	33	S
11	Rear Engine Mounting Bolts	45	4.6	33	
12	Side Stand Bracket Bolts	50	5.1	37	L, S

G: Apply grease.

L: Apply a non-permanent locking agent.

R: Replacement Parts

S: Follow the specified tightening sequence.

8-4 ENGINE REMOVAL/INSTALLATION

Engine Removal/Installation

Engine Removal

- Support the front of the motorcycle with the stand.

 WARNING
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Motorcycle may fall over unexpectedly resulting in an accident or injury. Be sure to use the front and rear stands when removing the engine.

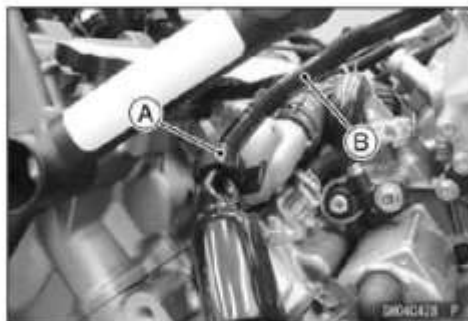
NOTICE

Be sure to use the front and rear stands when removing the engine, or the motorcycle may fall over. The engine or the motorcycle could be damaged.

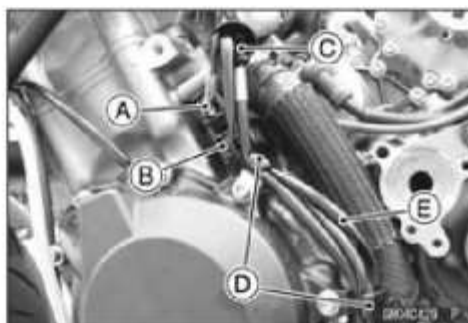
- Drain:
 - Engine Oil (see [Engine Oil Change\(2-40\)](#))
 - Coolant (see [Coolant Change\(2-28\)](#))
- Remove:
 - Throttle Body Assy (see [Throttle Body Assy Removal\(3-59\)](#))
 - Air Cleaner Housing (see [Air Cleaner Housing Removal\(3-66\)](#))
 - Air Switching Valve (see [Air Switching Valve Removal\(5-12\)](#))
 - Air Suction Valves (see [Air Suction Valve Removal\(5-11\)](#))
 - Knock Sensor (see [Knock Sensor Removal\(17-110\)](#))
 - Coolant Reserve Tank (see [Coolant Reserve Tank Removal\(4-10\)](#))
 - Exhaust Pipe (see [Exhaust Pipe Removal\(5-38\)](#))
 - Clutch Slave Cylinder (see [Clutch Slave Cylinder Removal\(6-9\)](#))
 - Shift Lever (see [Shift Pedal Removal\(9-48\)](#))
 - Engine Sprocket (see [Engine Sprocket Removal\(11-10\)](#))
 - Oil Pressure Switch Terminal (see [Oil Pressure Switch Removal\(7-18\)](#))
 - Center Stand (see [Center Stand Removal\(15-39\)](#))
- Disconnect:
 - Camshaft Position Sensor Connector (see [Camshaft Position Sensor Removal\(16-41\)](#))
 - Stick Coil Connectors (see [Stick Coil Removal\(16-44\)](#))
 - Purge Valve Connector (Other than US and CA Models) (see [Purge Valve Removal\(17-79\)](#))
 - Purge Valve (for Supercharger) Connector (see [Purge Valve \(for Supercharger\) Removal\(17-112\)](#))

Engine Removal/Installation

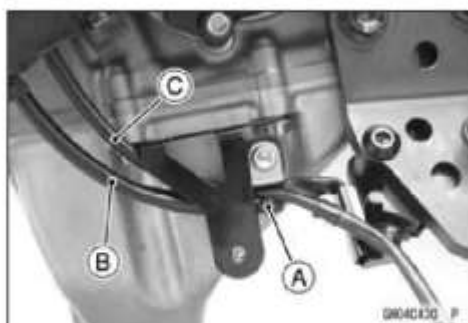
- Open the clamp [A] and free the main harness [B].



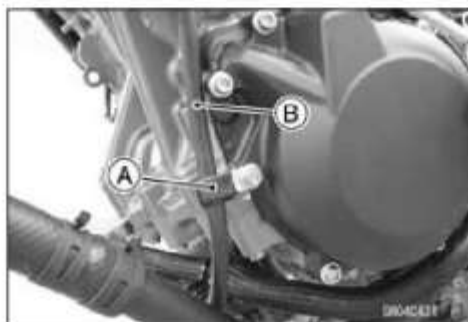
- Disconnect:
 Gear Position Sensor Lead Connector [A]
 Quick Shifter Sensor Lead Connector [B]
 Side Stand Switch Lead Connector [C]
- Open the clamps [D] and free the oil pressure switch lead [E], side stand switch lead and quick shifter sensor lead.



- Open the clamp [A] and free the side stand switch lead [B] and quick shifter sensor lead [C].



- Open the clamp [A] and free the breather hose [B].



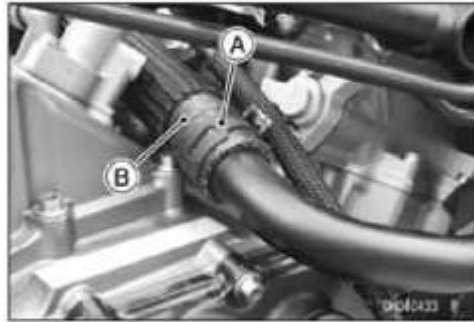
- Disconnect the crankshaft sensor lead connector [A], and remove the connector from the bracket.



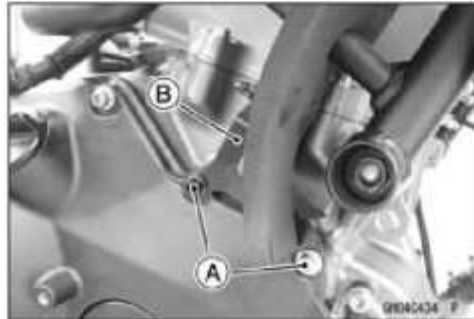
8-6 ENGINE REMOVAL/INSTALLATION

Engine Removal/Installation

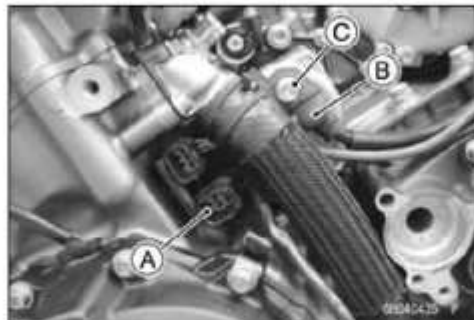
- Slide the clamp [A], and disconnect the water hose [B].



- Remove the clutch cover bolts [A], and free the bracket [B].



- Remove the quick shifter sensor connector [A] from the bracket.
- Slide out the rubber cap [B].
- Remove the starter motor cable terminal nut [C].



- Remove the engine ground cable terminal bolt [A].

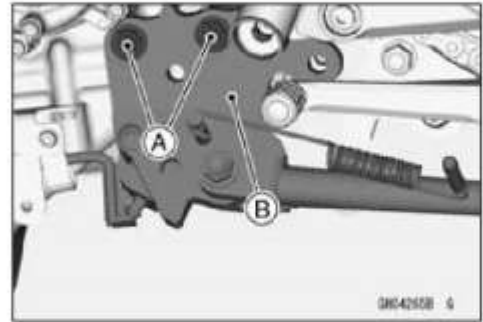


- Open the clamps [A] and free the lead.

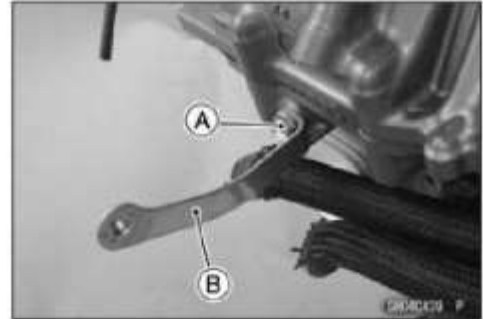


Engine Removal/Installation

- Remove:
 - Side Stand Bracket Bolts (Front) [A] and Washers
 - Side Stand Bracket [B]



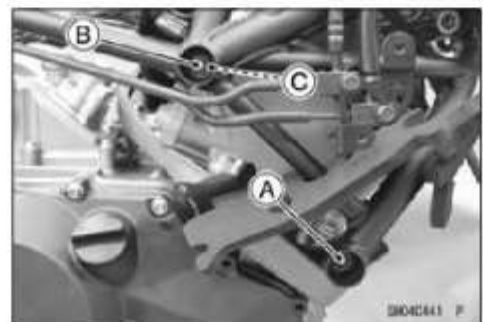
- Remove :
 - Radiator Stay Bolt [A]
 - Radiator Stay [B]



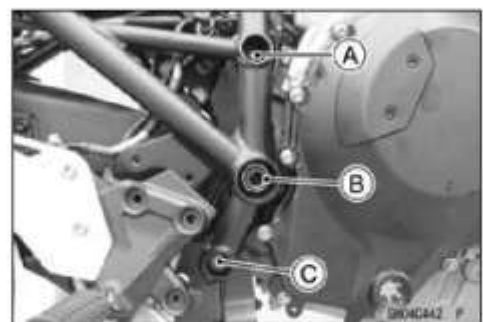
- Install the webbing sling [A] as shown.
- Do not hold the crankshaft sensor lead [B], alternator lead [C] and clutch hose [D] with the webbing sling.



- Remove (Both Sides):
 - Front Engine Mounting Bolt (Front) [A]
 - Front Engine Mounting Bolt (Rear) [B]
 - Collar [C] (Right Side)



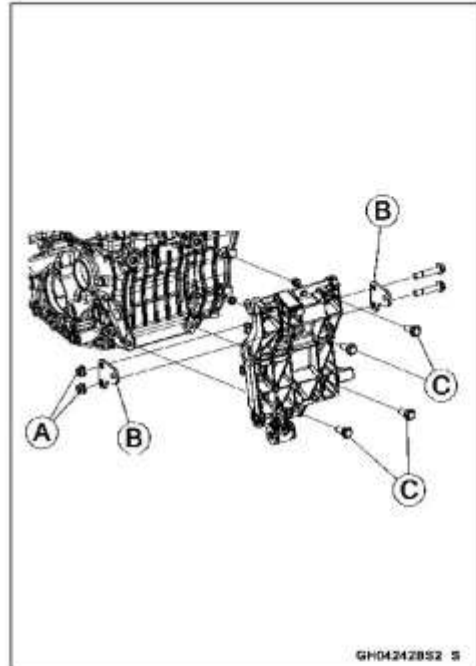
- Loosen:
 - Swingarm Mounting Plate Nut (Upper) [A]
 - Swingarm Pivot Shaft Nut [B]
 - Swingarm Mounting Plate Bolt (Lower) [C]



8-8 ENGINE REMOVAL/INSTALLATION

Engine Removal/Installation

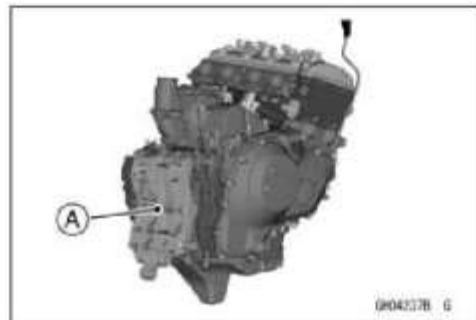
- Remove:
 - Rear Shock Absorber (see [Rear Shock Absorber Removal\(13-24\)](#))
 - Rear Shock Absorber Bracket Nuts [A] and Bolts
 - Rear Shock Absorber Brackets [B]
 - Rear Engine Mounting Bolts [C]



- Remove the engine [A] as shown.



- If necessary, prepare a new swingarm mounting plate [A] to hold the engine with the engine stand.
 - Swingarm Mounting Plate (Part Number: 32036-0353)



Engine Removal/Installation

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8-10 ENGINE REMOVAL/INSTALLATION

Engine Removal/Installation

Engine Installation

- Support the front of the motorcycle with the stand.
- Install the dowel pins [A].
- Install the engine to the swingarm mounting plate [B] on the frame.
- Hang the drive chain to the output shaft.

NOTE

○ After installing the engine, the drive chain cannot be hung to the output shaft.

- Tighten:

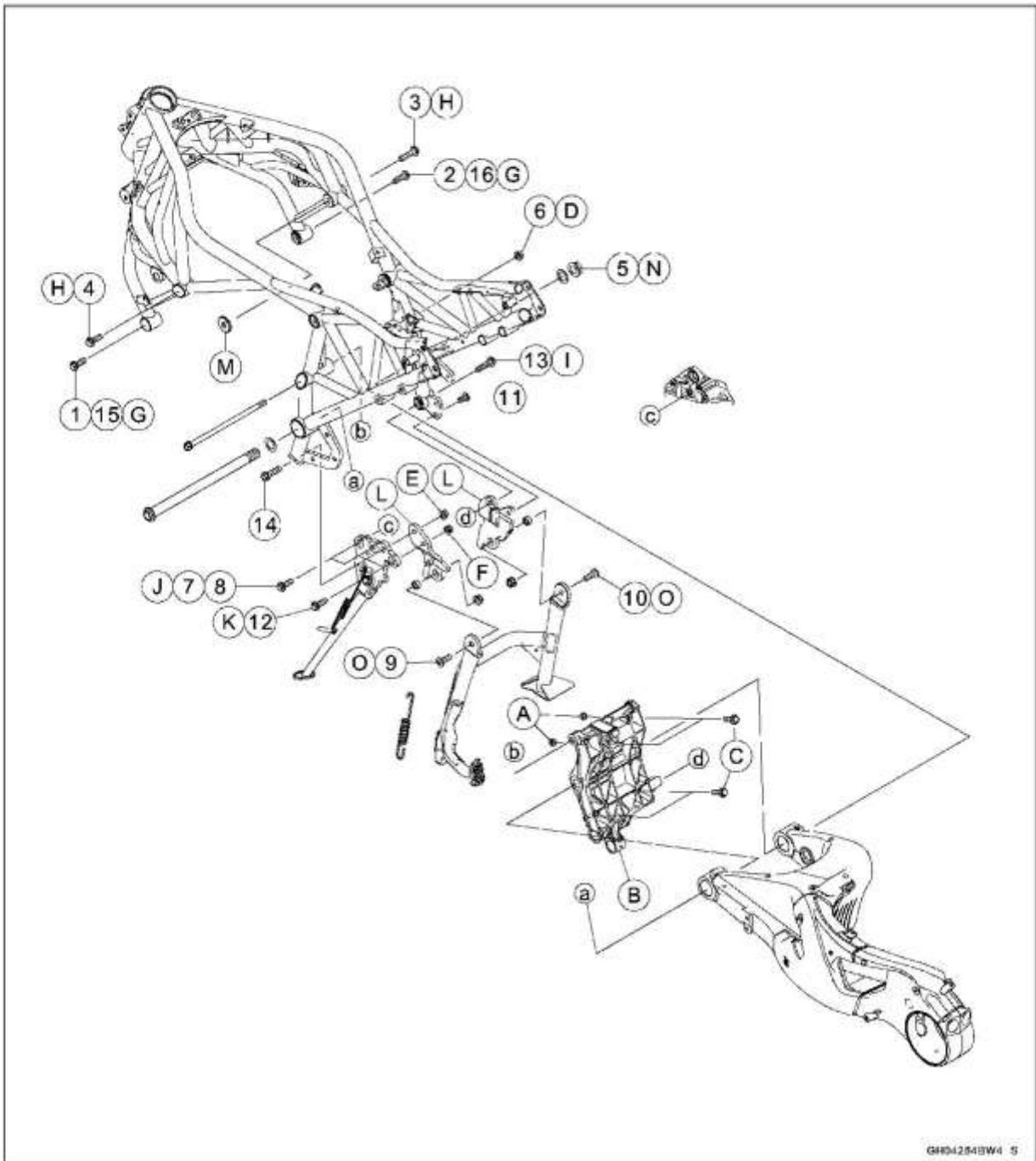
Torque - Rear Engine Mounting Bolts [C]: 45 N·m (4.6 kgf·m, 33 ft·lb)

- Replace the following nuts with new ones.
 - Swingarm Mounting Plate Nut (Upper) [D]
 - Side Stand Bracket Nut [E]
 - Center Stand Bracket Nut [F]
 - Apply a non-permanent locking agent to the following bolts.
 - Front Engine Mounting Bolts (Front) [G]
 - Front Engine Mounting Bolts (Rear) [H]
 - Swingarm Mounting Plate Bolt (Lower) [I]
 - Side Stand Bracket Bolts [J]
 - Center Stand Bracket Bolt [K]
 - Install the center stand brackets [L].
 - Install the bolts and nuts, following the specified tightening sequence.
 - First, tighten the following bolts temporarily.
 - Front Engine Mounting Bolt (Front, Left)
 - Front Engine Mounting Bolt (Front, Right)
 - Front Engine Mounting Bolt (Rear, Left)
 - Second, tighten the following bolts and nuts temporarily.
 - Front Engine Mounting Bolt (Rear, Right) and Spacer [M]
 - Swingarm Mounting Plate Nut (Upper)
 - Swingarm Mounting Plate Bolt (Lower)
 - Side Stand Bracket Bolt (Rear)
 - Swingarm Pivot Shaft Nut [N]
 - Center Stand Bolts [O]
 - Third, tighten the bolts and nuts to specified torque in the following order.

Torque -

 1. Front Engine Mounting Bolt (Front, Left): 45 N·m (4.6 kgf·m, 33 ft·lb)
 2. Front Engine Mounting Bolt (Front, Right): 45 N·m (4.6 kgf·m, 33 ft·lb)
 3. Front Engine Mounting Bolt (Rear, Right, L = 40 mm): 45 N·m (4.6 kgf·m, 33 ft·lb)
 4. Front Engine Mounting Bolt (Rear, Left, L = 30 mm): 45 N·m (4.6 kgf·m, 33 ft·lb)
 5. Swingarm Pivot Shaft Nut: 110 N·m (11.2 kgf·m, 81.1 ft·lb)
 6. Swingarm Mounting Plate Nut (Upper): 45 N·m (4.6 kgf·m, 33 ft·lb)
 7. Side Stand Bracket Bolt (Front Side Bolt): 50 N·m (5.1 kgf·m, 37 ft·lb)
 8. Side Stand Bracket Bolt (Rear Side Bolt): 50 N·m (5.1 kgf·m, 37 ft·lb)
 9. Center Stand Bolt (Left): 45 N·m (4.6 kgf·m, 33 ft·lb)
 10. Center Stand Bolt (Right): 45 N·m (4.6 kgf·m, 33 ft·lb)
 11. Center Stand Bracket Bolt (Right, L = 20 mm): 50 N·m (5.1 kgf·m, 37 ft·lb)
 12. Center Stand Bracket Bolt (Left, L = 30 mm): 50 N·m (5.1 kgf·m, 37 ft·lb)
 13. Swingarm Mounting Plate Bolt (Lower): 45 N·m (4.6 kgf·m, 33 ft·lb)
 14. Side Stand Bracket Bolt (Rear): 50 N·m (5.1 kgf·m, 37 ft·lb)
 15. Front Engine Mounting Bolt (Front, Left): 45 N·m (4.6 kgf·m, 33 ft·lb)
 16. Front Engine Mounting Bolt (Front, Right): 45 N·m (4.6 kgf·m, 33 ft·lb)
- When tightening the center stand bolt, tighten it while the center stand retracted position.

Engine Removal/Installation



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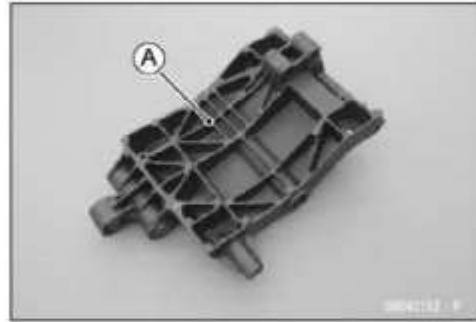
- Run the leads, cables and hoses correctly (see Cable, Wire, and Hose Routing section (18-2)).
- Install the removed parts.
- Adjust:
 - Throttle Cables (see Throttle Control System Inspection(2-18))
 - Drive Chain (see Drive Chain Slack Inspection(2-44))
- Fill the engine with engine oil (see Engine Oil Change(2-40)).
- Fill the engine with coolant (see Coolant Change(2-28)).

8-12 ENGINE REMOVAL/INSTALLATION

Engine Removal/Installation

Swingarm Mounting Plate Removal

- Remove:
 - Engine (see [Engine Removal\(8-4\)](#))
 - Swingarm (see [Swingarm Removal\(13-30\)](#))
- Remove the swingarm mounting plate [A] from the frame.



Swingarm Mounting Plate Installation

- Install the swingarm mounting plate, and tighten its bolts and nuts temporarily.
- Install the swingarm (see [Swingarm Installation\(13-30\)](#)).
- Tighten the swingarm pivot shaft nut temporarily.
- Install the engine (see [Engine Installation\(8-10\)](#)).