

5. ENGINE REMOVAL/INSTALLATION

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SERVICE INFORMATION

GENERAL

- A floor jack or other adjustable support is required to support and maneuver the engine.
- The following parts or components can be serviced with the engine installed in the frame:
 - Clutch
 - Gearshift linkage
 - Oil pump and oil filter
 - Cylinder heads
 - Alternator
 - Starter motor
 - Carburetors
 - Cooling system

SPECIFICATIONS

Engine dry weight	87.7 kg (193.3 lb)
Oil capacity	3.0 liters (3.2 U.S. qt, 2.6 Imp qt.) after disassembly
	2.9 liters (3.1 U.S. qt, 2.5 Imp qt.) after draining
Coolant capacity	2.8 liters (3.0 U.S. qt, 2.4 Imp qt.) after draining

TORQUE VALUES

Engine hanger bolts	— 8 mm bolt	24—30 N•m (2.4—3.0 kg-m, 17—22 ft-lb)
	— 10 mm bolt	35—45 N•m (3.5—4.5 kg-m, 25—33 ft-lb)
Sub-frame bolts	(Upper)	60—70 N•m (6.0—7.0 kg-m, 43—51 ft-lb)
	(Lower)	35—45 N•m (3.5—4.5 kg-m, 25—33 ft-lb)
Exhaust pipe joint nut		8—12 N•m (0.8—1.2 kg-m, 6—9 ft-lb)
Exhaust pipe band bolt		18—28 N•m (1.8—2.8 kg-m, 13—20 ft-lb)
Exhaust muffler stay bolt		24—30 N•m (2.4—3.0 kg-m, 17—22 ft-lb)

ENGINE REMOVAL

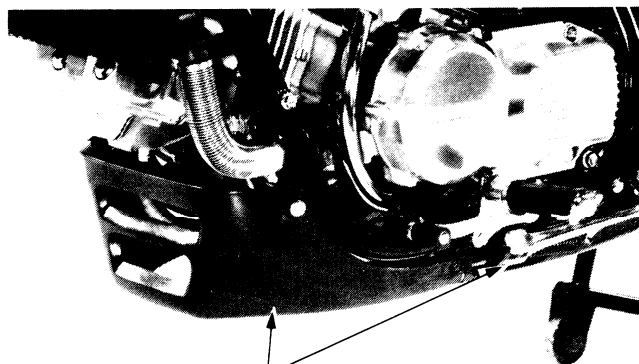
Place a jack or support block under the engine, to raise the wheels off the ground.

Remove the following:

- Seats and fuel tank (Section 4)
- Carburetor (Section 4)
- Radiator (Section 6)

Remove the left and right side covers.

Remove the lower cowl attaching screws and cowls.



(1) LOWER COWLS

Disconnect the battery ground wire at the battery terminal.

Disconnect the starter motor cable at the starter motor.

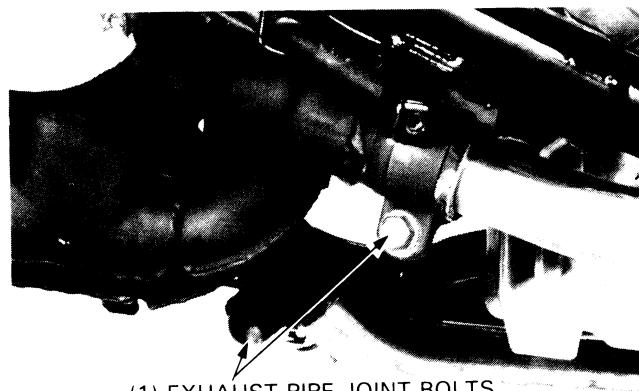
Disconnect the alternator, pulse generator and neutral switch connectors.

Remove the spark plug caps.

Disconnect the hoses from the rear ASV (California model).

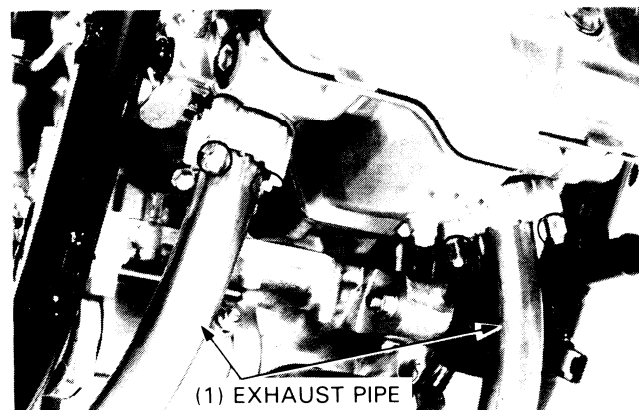


Loosen the exhaust pipe joint bolts.



(1) EXHAUST PIPE JOINT BOLTS

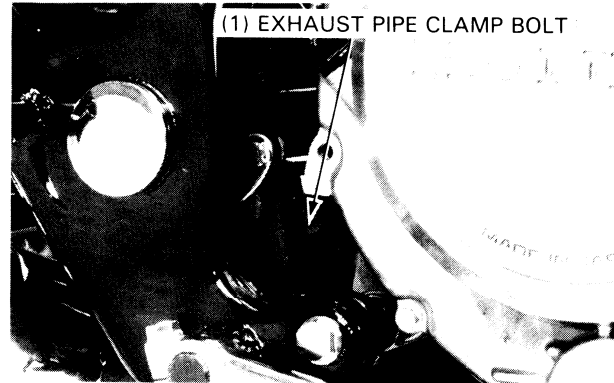
Remove the exhaust pipe joint nuts and exhaust pipes.



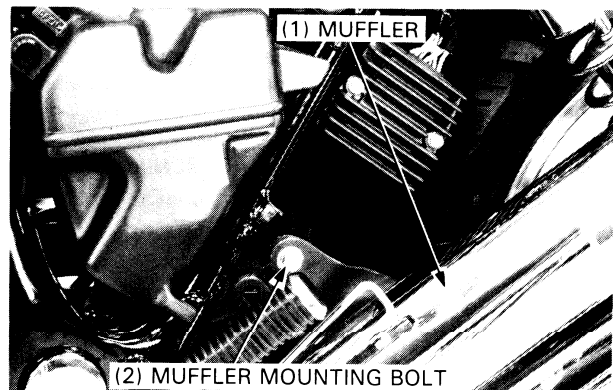
(1) EXHAUST PIPE

ENGINE REMOVAL/INSTALLATION

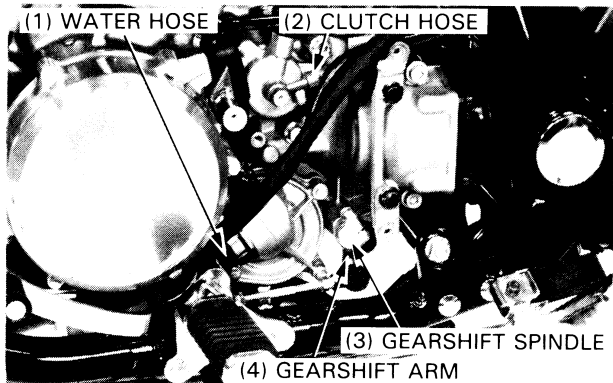
Loosen the rear cylinder exhaust pipe clamp bolts.



Remove the right and left muffler mounting bolts.
Remove the mufflers.



Remove the left rear cover.
Remove the gearshift arm from the gear shift spindle.
Disconnect the water hose.
Disconnect the clutch hose and drain the clutch fluid.



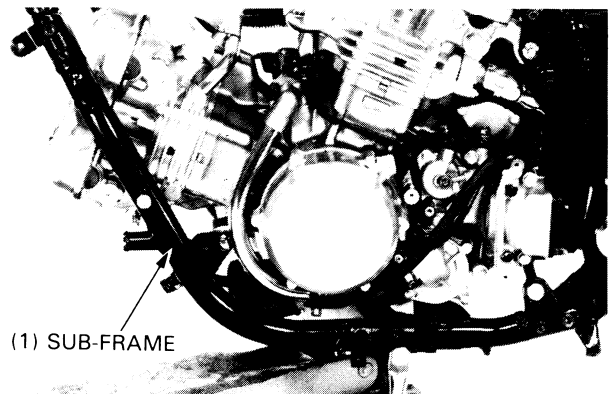
Place a floor jack or other adjustable support under the engine.

NOTE

- The jack height must be continuously adjusted so that the mounting bolts can be removed.

Remove the following:

- left sub frame.
- engine mounting bolts.
- engine from the left side.



ENGINE INSTALLATION

NOTE

- Note the engine hanger bolt collar locations before engine installation.

Engine installation is essentially the reverse of removal. Use a floor jack or other adjustable support to carefully maneuver the engine into place.

CAUTION

- Carefully align mounting points with the jack to prevent damage to mounting bolt threads and wire harness and cables.

Tighten all the fasteners to the specified torque:

ENGINE MOUNT BOLT:

10 mm	35–45 N·m (3.5–4.5 kg-m, 25–33 ft-lb)
8 mm	20–30 N·m (2.0–3.0 kg-m, 14–22 ft-lb)

SUB-FRAME BOLTS:

Upper	60–70 N·m (6.0–7.0 kg-m, 43–51 ft-lb)
Lower	35–45 N·m (3.5–4.5 kg-m, 25–33 ft-lb)

NOTE

- Route the wires and cables properly (section 1).
- Fill the crankcase to the proper level with the recommended oil (page 2-1).
- Fill the cooling system (page 6-2).
- Perform the following inspection and adjustments:
Throttle operation (page 3-4).
Clutch (page 3-15).
Rear brake (page 3-13).

Align the punch marks on the gearshift arm and gearshift spindle and install the gearshift arm (page 7-23).

Install the exhaust system with new exhaust pipe joint gaskets.

Install the exhaust pipes and hand tighten the bolts and nuts, then tighten them in order given below.

- Tighten the exhaust pipe joint nuts.

TORQUE: 8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)

- Tighten the muffler stay bolts.

TORQUE: 24–30 N·m (2.4–3.0 kg-m, 17–22 ft-lb)

- Tighten the exhaust pipe band bolts.

TORQUE: 18–28 N·m (1.8–2.8 kg-m, 13–20 ft-lb)

