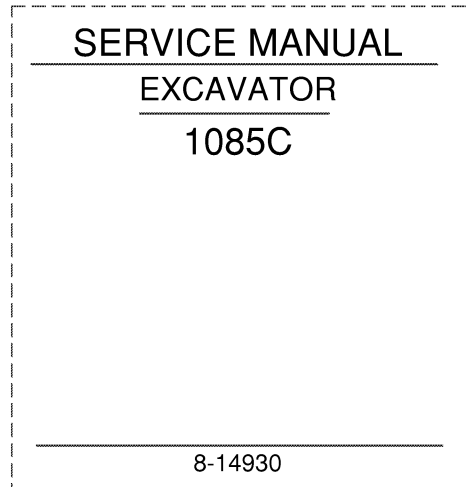


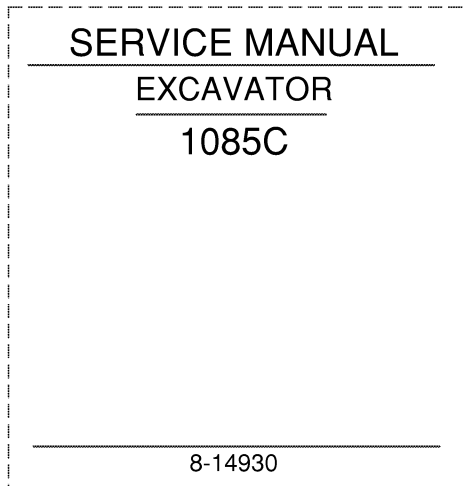
1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4



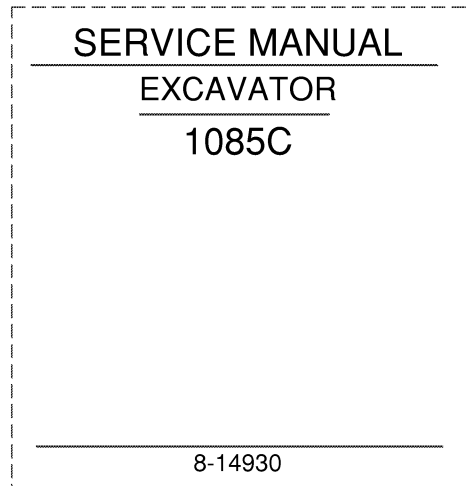
1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4



1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4



1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4

1085C Cruz-Air Excavator

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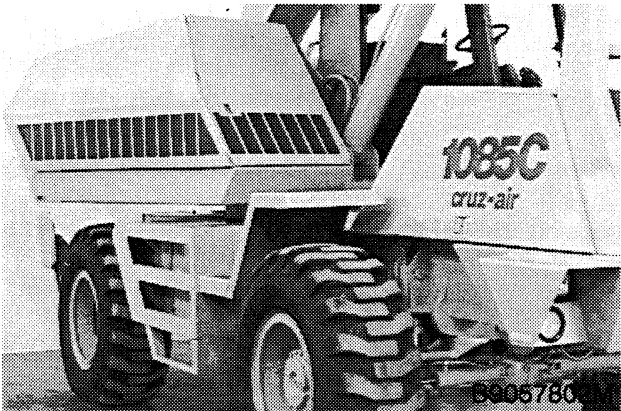
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Section 2001

ENGINE REMOVAL AND INSTALLATION
AND RADIATOR REMOVAL AND INSTALLATION

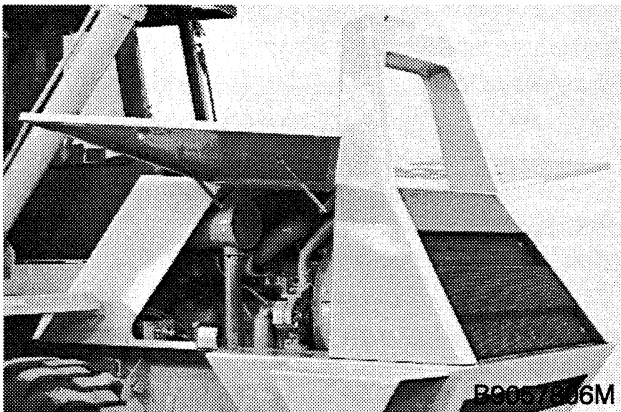
ENGINE REMOVAL

STEP 1



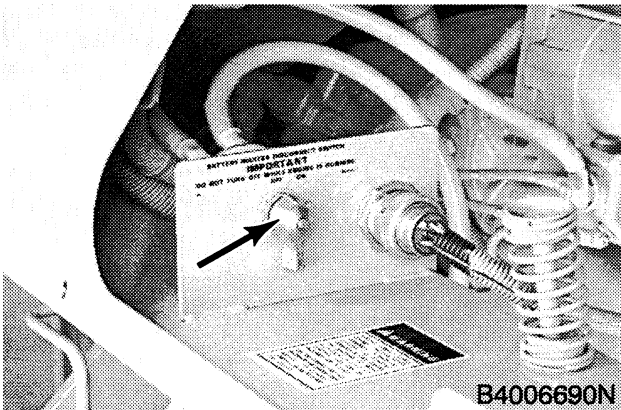
Park the machine on a level surface. Rotate the cab approximately 15 degrees to the left of center. Apply the parking brake and stop the engine.

STEP 2



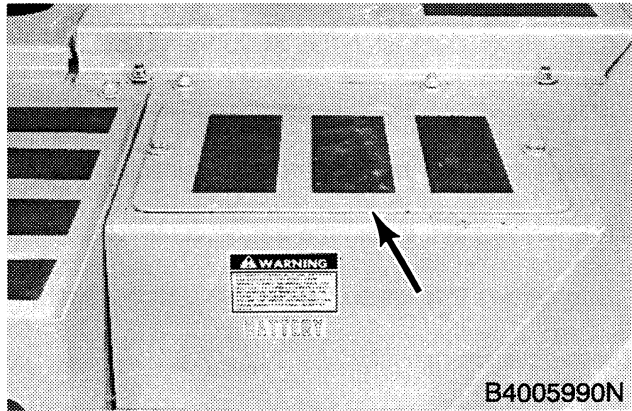
Open the access door on each side of the engine compartment.

STEP 3



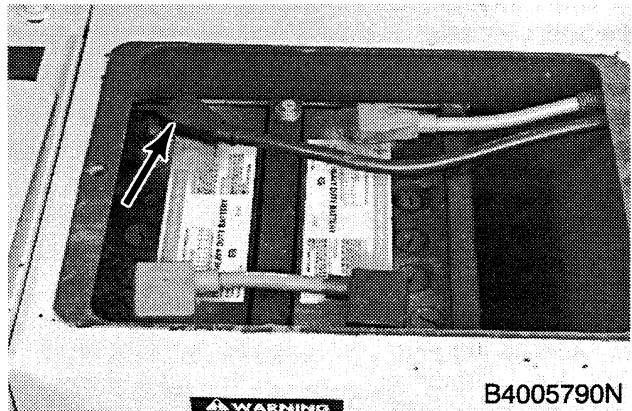
Move the master disconnect switch to the OFF position.

STEP 4



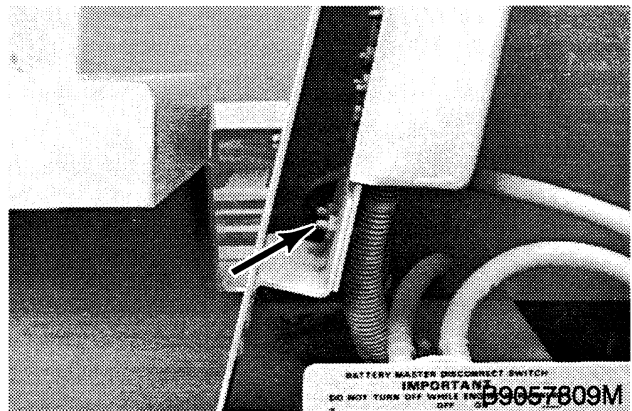
Remove the cover for the batteries.

STEP 5



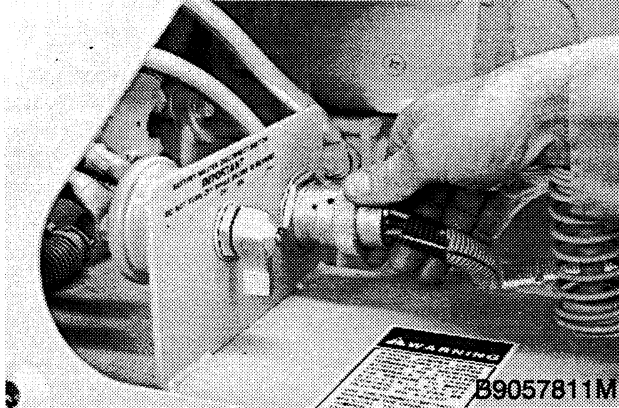
Disconnect the ground cable shown.

STEP 6



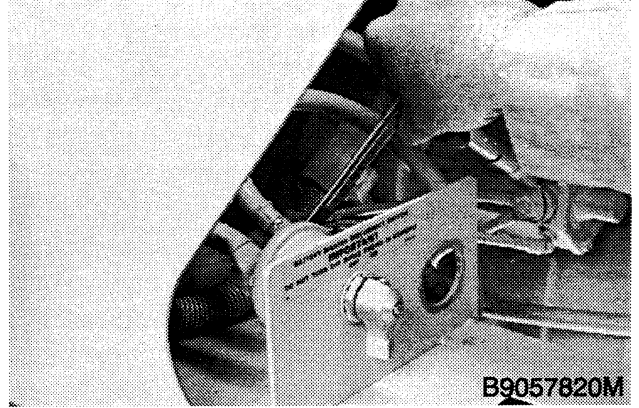
Loosen and remove the bolts and lock washers that fasten the relay panel to the bracket on the right hood. Move the relay panel out of the way.

STEP 7



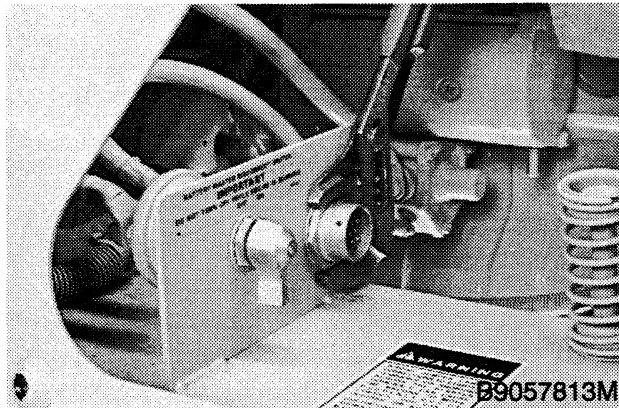
Disconnect the wire harness from the connector.

STEP 10



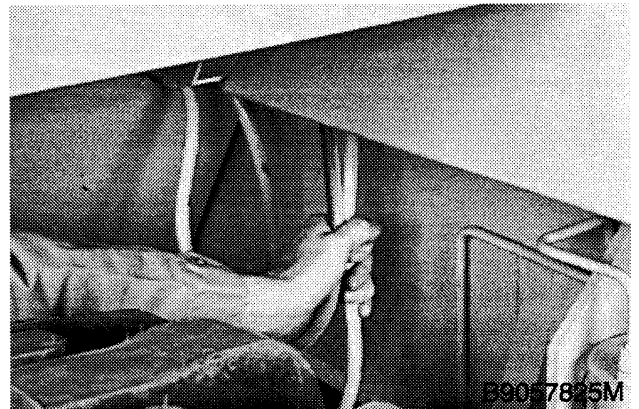
Fasten identification tags to the cables for the master disconnect switch. Disconnect the cables from the master disconnect switch.

STEP 8



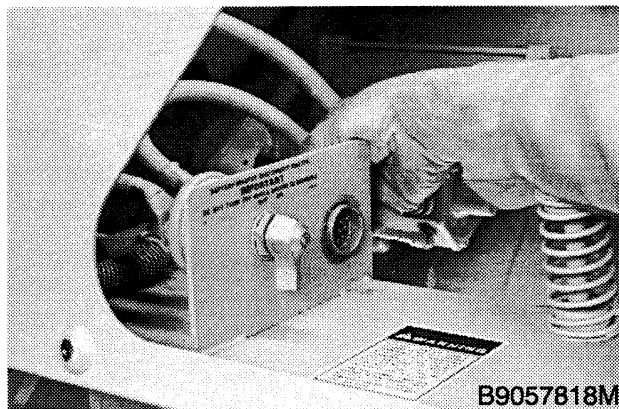
Loosen and remove the nut for the connector.

STEP 11



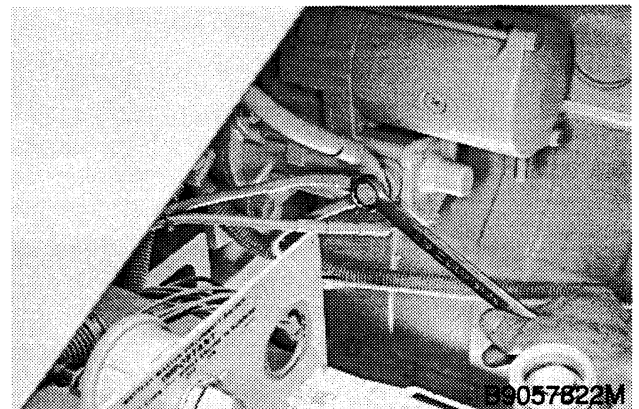
Remove the cables from the right hood.

STEP 9



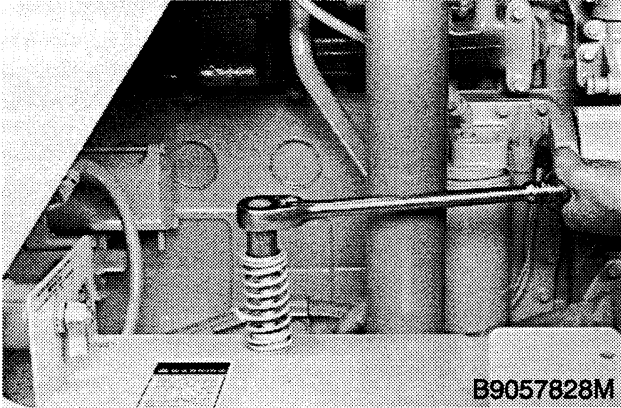
Remove the connector.

STEP 12



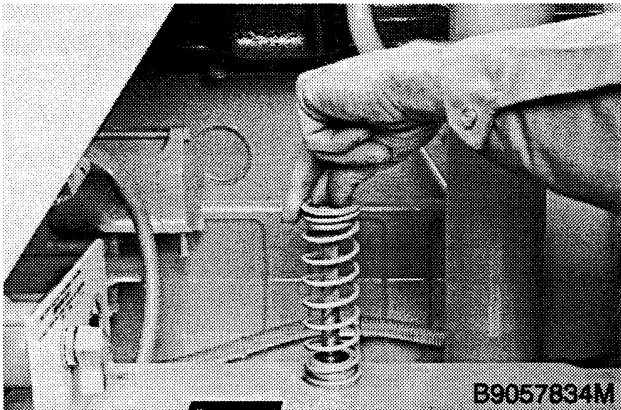
Fasten identification tags to the cables at the starter. Disconnect the cables from the battery terminal of the starter solenoid. Disconnect the cable from the switch terminal of the starter solenoid.

STEP 13



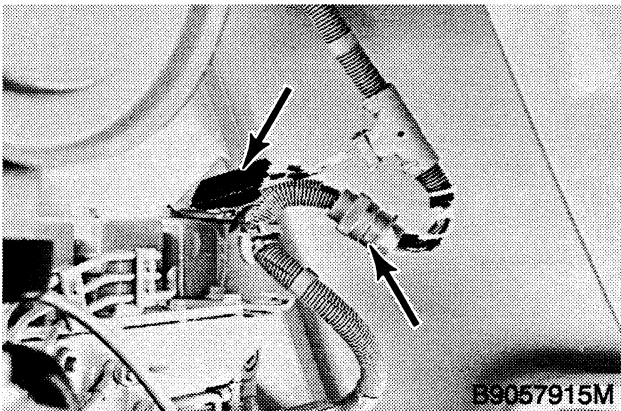
Loosen the self-locking nut and bolt for the spring assembly.

STEP 14



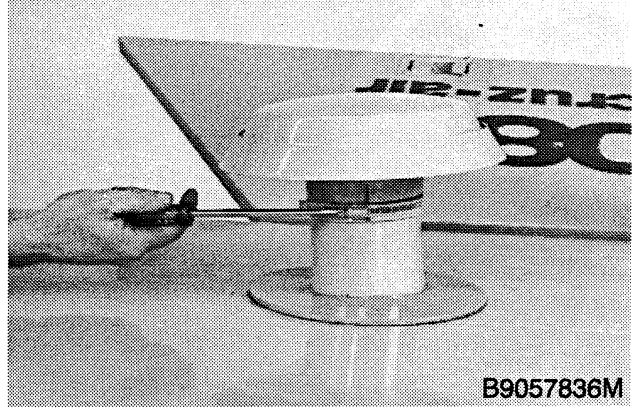
Remove the self-locking nut, bolt, flat washers, spring seats, and the spring from both sides of the hood.

STEP 15



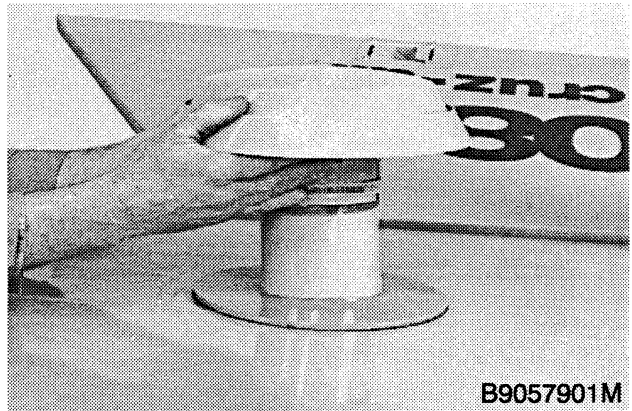
Disconnect the connectors for the wire harness.

STEP 16



Loosen the clamp for the air cleaner cap.

STEP 17



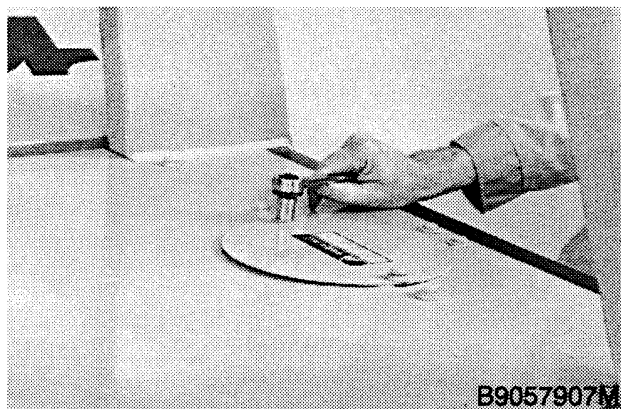
Remove the air cleaner cap.

STEP 18



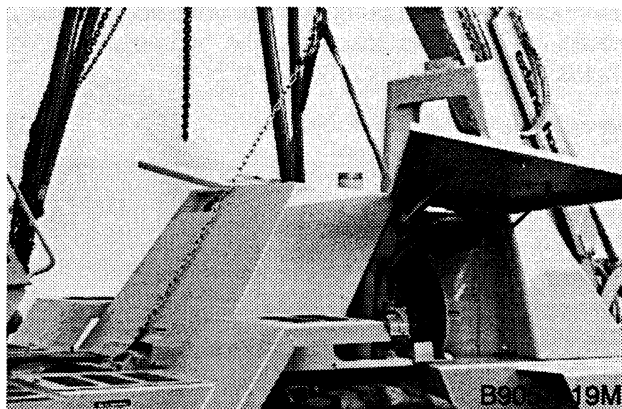
Remove the grommet.

STEP 19



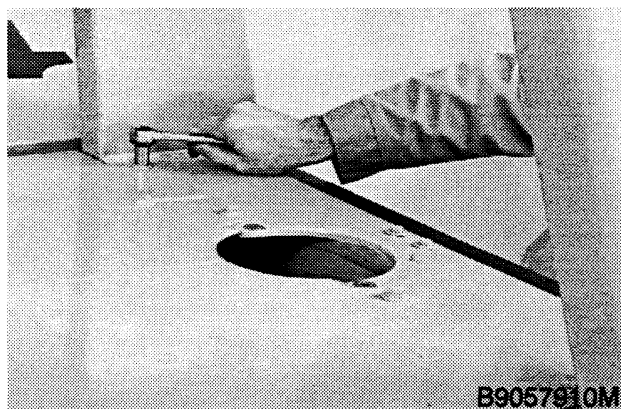
Remove the access cover for the radiator cap.

STEP 22



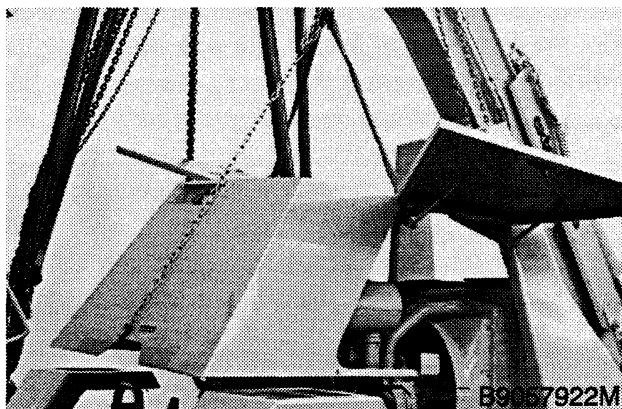
Connect suitable lifting equipment to the hood.

STEP 20



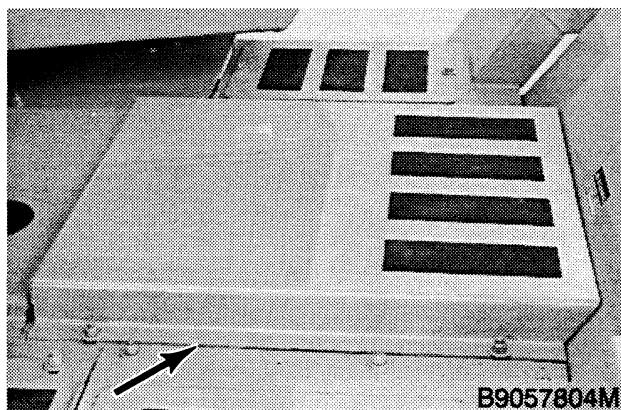
Loosen and remove the cap screws, lock washers, and flat washers that fasten the hood to the radiator shroud.

STEP 23



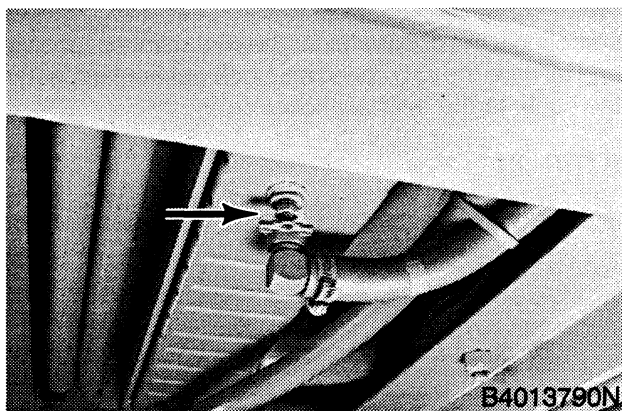
Lift the hood and remove the hood from the machine.

STEP 21



Remove the cover for the torque converter.

STEP 24

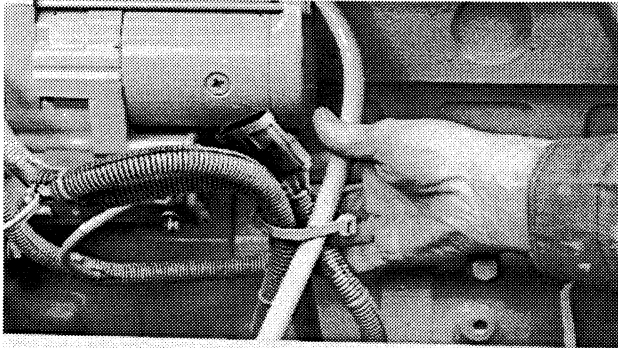


Make sure that the engine is cool and remove the radiator cap. Open the drain valve and drain the cooling system. The cooling system holds 34 U.S. quarts (32 litres) of coolant.

STEP 25

Connect a vacuum pump to the hydraulic reservoir or drain the hydraulic reservoir. The hydraulic reservoir holds 36 U.S. gallons (136 litres) of oil.

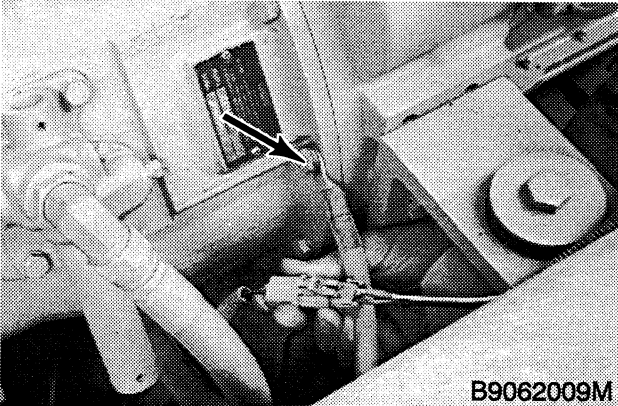
STEP 26



B9062006M

Cut the tie strap that fastens the wire harness to the cable.

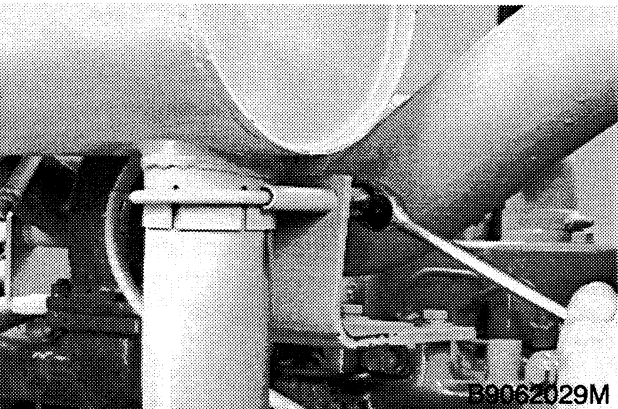
STEP 27



B9062009M

Disconnect the connector for the wire harness. Loosen and remove the cap screw and lock washer that fasten the cable to the flywheel housing.

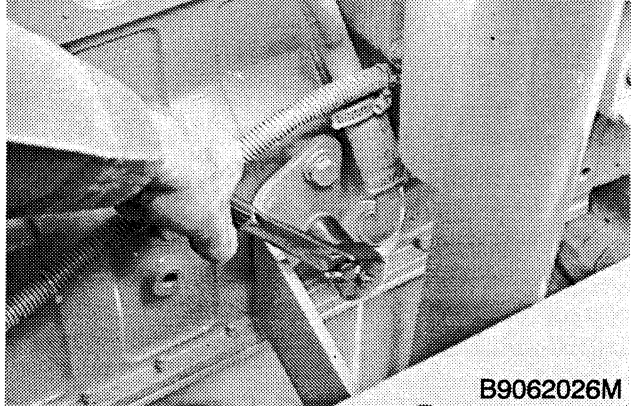
STEP 28



B9062029M

Loosen the clamp that fastens the muffler to the mounting bracket.

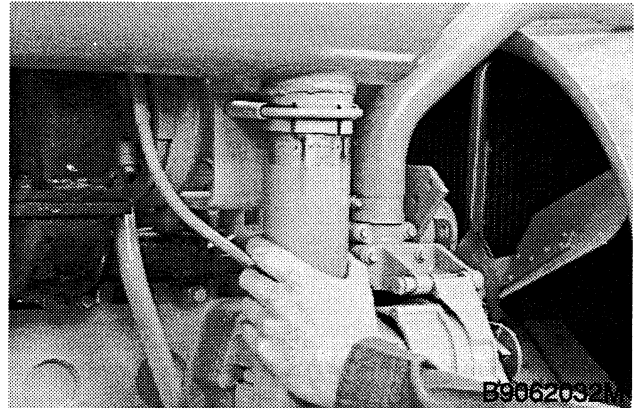
STEP 29



B9062026M

Loosen and remove the cap screws, lock washers, and flat washers that fasten the bracket for the exhaust pipe to the engine.

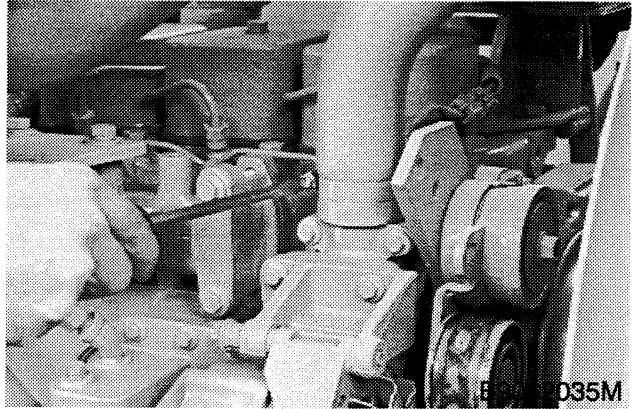
STEP 30



B9062032M

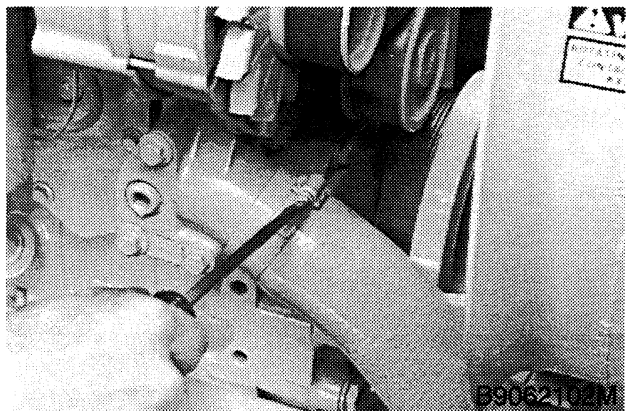
Remove the exhaust pipe.

STEP 31

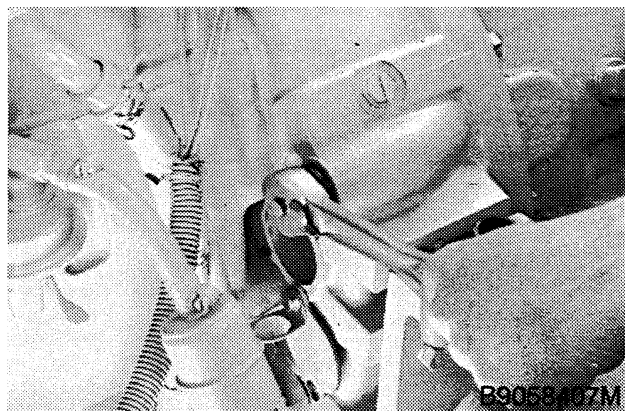


B9062035M

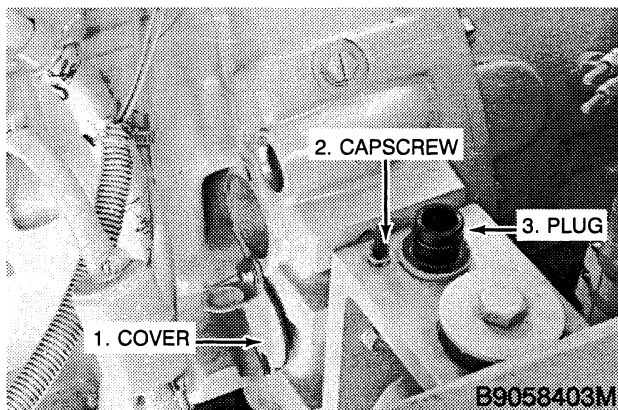
Disconnect the top radiator hose from the engine.

STEP 32

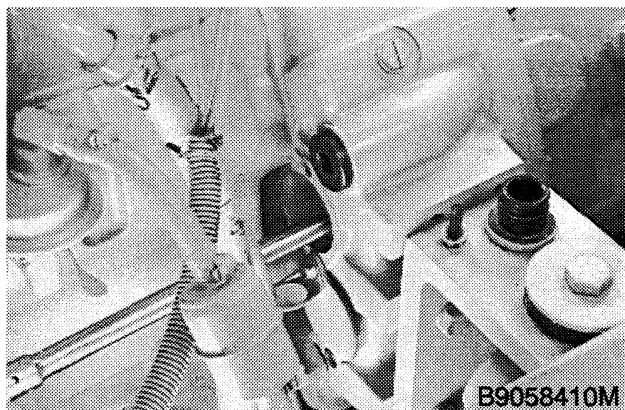
Disconnect the bottom radiator hose from the water pump.

STEP 35

Install the CAS-1690 tool and rotate the flywheel to align the cap screw with the hole below.

STEP 33

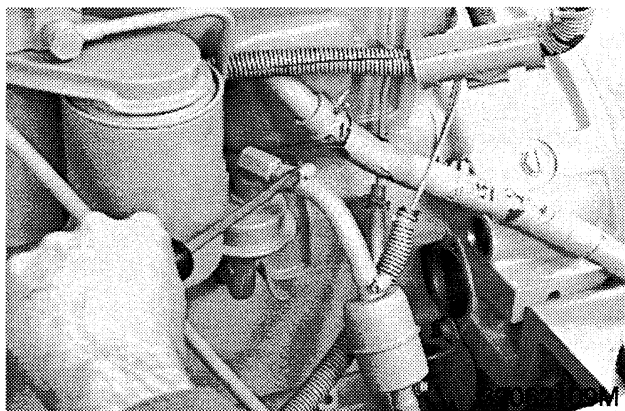
Remove the hose from the bracket at the cover. Loosen the bottom cap screw and loosen and remove the top cap screw that fastens the bracket and cover to the flywheel housing. Remove the plastic plug from the flywheel housing.

STEP 36

Loosen and remove the cap screw and flat washer. Rotate the flywheel and continue this procedure to remove the remaining cap screws and flat washers.

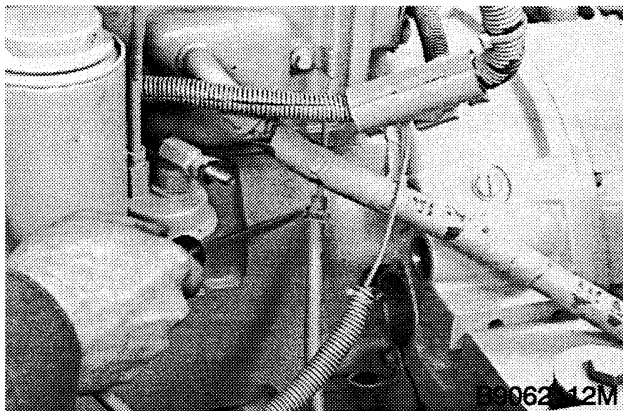
STEP 34

There are eight cap screws with flat washers that fasten the flex plate to the flywheel. Only one cap screw at a time can be removed. The flywheel must be rotated to align each cap screw with the hole. Do the following procedure to remove the eight cap screws with flat washers.

STEP 37

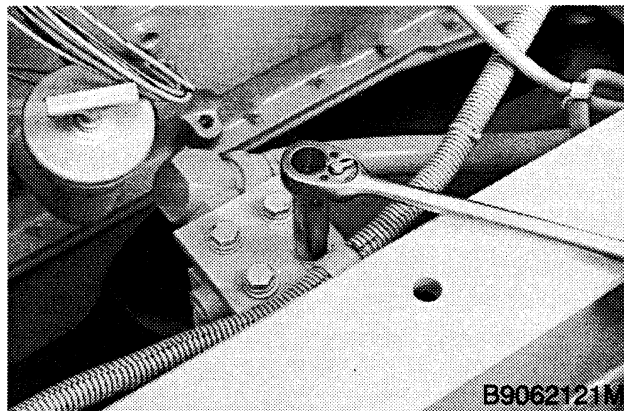
Disconnect the fuel supply hose from the hand primer pump. Install a plug in the hose.

STEP 38



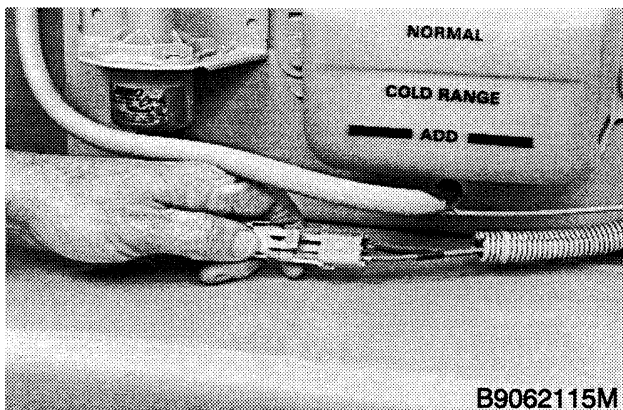
Disconnect the fuel return hose from the fuel line. Install a plug in the hose.

STEP 41



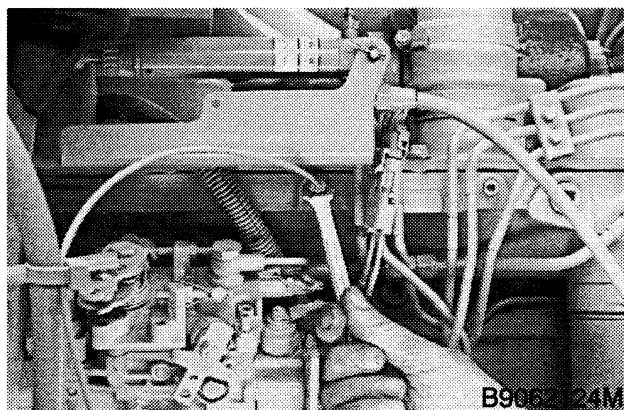
Loosen and remove the cap screw and lock washer that fasten the clamp for the wire harness to the bracket.

STEP 39



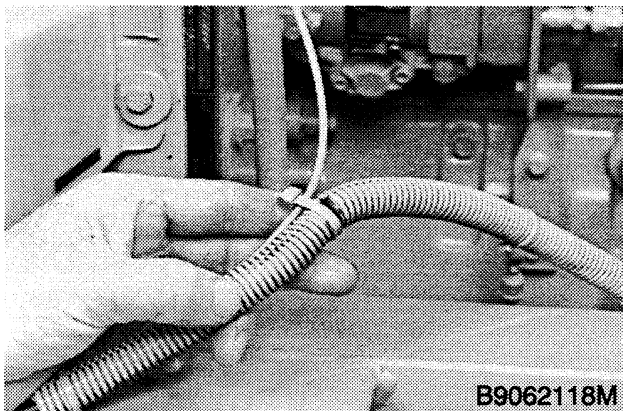
If the machine is equipped with ether injection, disconnect the connector for the wire harness.

STEP 42



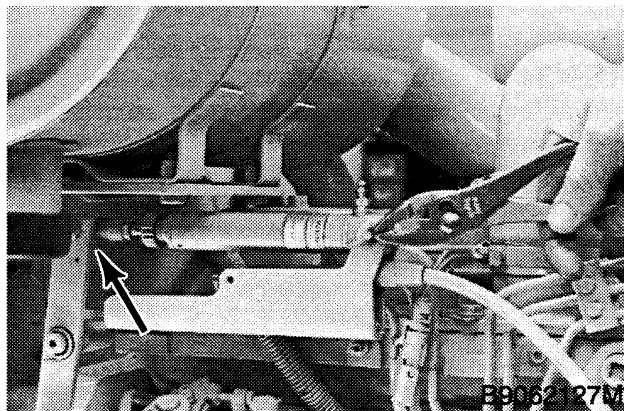
If the machine is equipped with ether injection, disconnect the tube from the intake manifold.

STEP 40



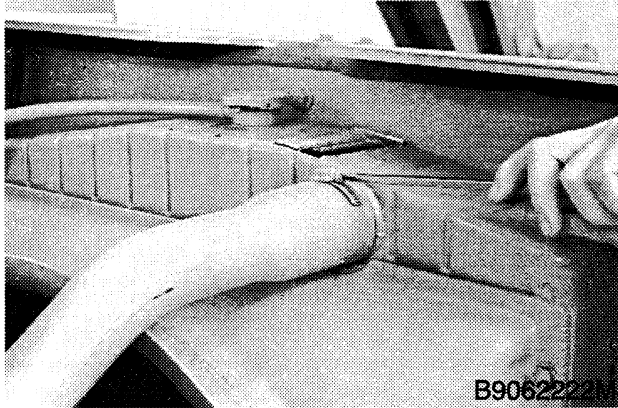
If the machine is equipped with ether injection, cut the tie strap that fastens the wire harness to the tube for the ether injection.

STEP 43



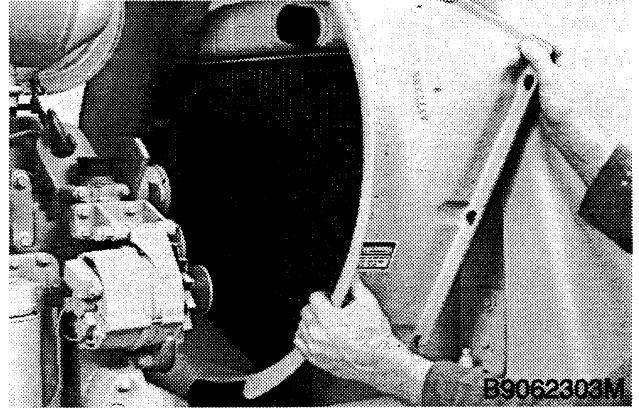
Remove the cotter pin and clevis pin that fasten the closed end of the accelerator cylinder to the bracket. Disconnect the piston rod end of the accelerator cylinder from the lever. Remove the accelerator cylinder and put the accelerator cylinder out of the way.

STEP 44



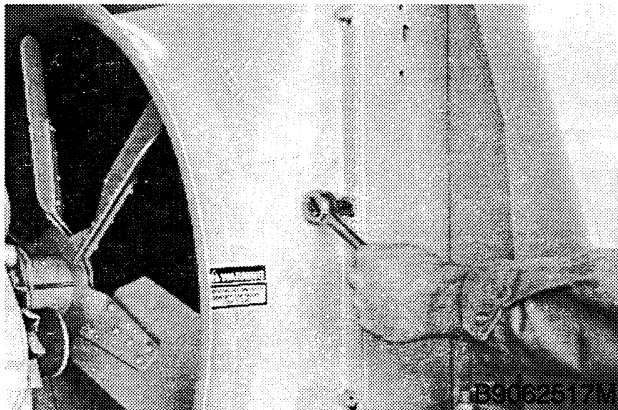
Disconnect the top radiator hose from the radiator. Remove the hose.

STEP 47



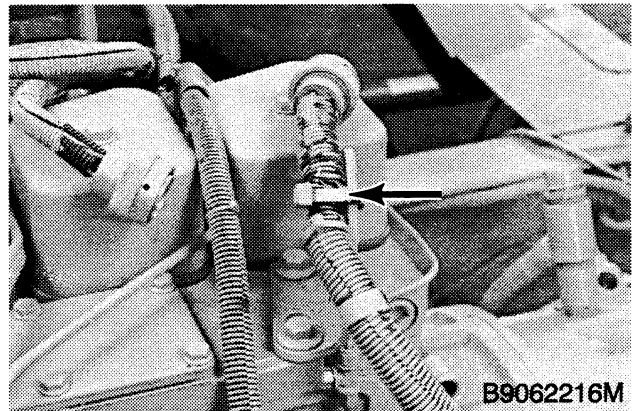
Remove the fan shroud.

STEP 45



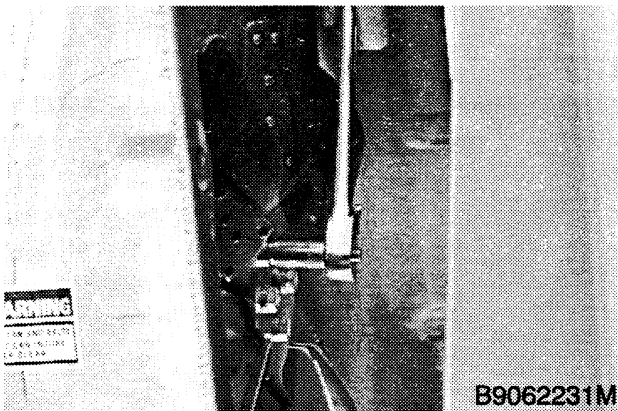
Loosen and remove the cap screws, lock washers, and flat washers that fasten the fan shroud to the radiator.

STEP 48



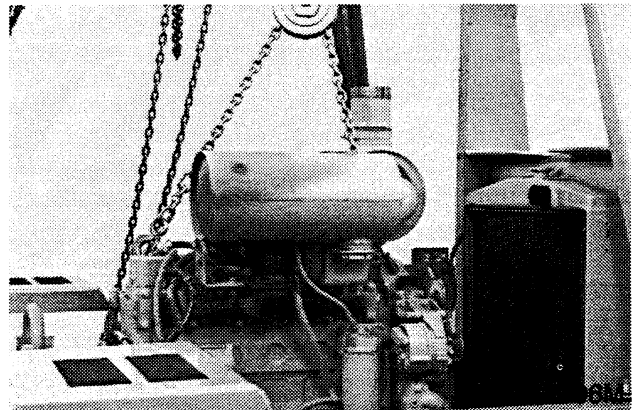
Cut the tie strap that fastens the wire harness to the lifting eye on the engine.

STEP 46



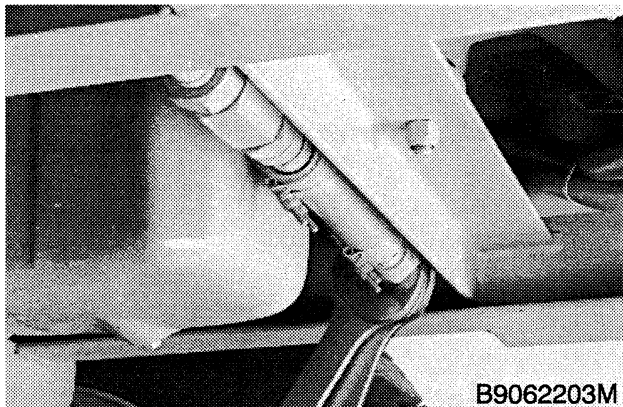
Loosen and remove the cap screws and lock washers that fasten the fan and spacer to the pulley. Remove the fan and spacer.

STEP 49



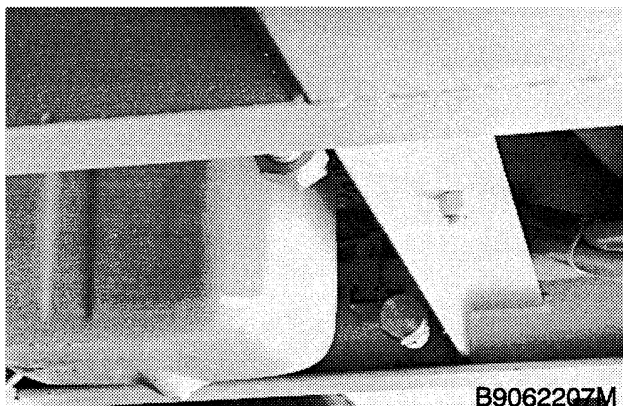
Connect suitable lifting equipment to the engine.

STEP 50



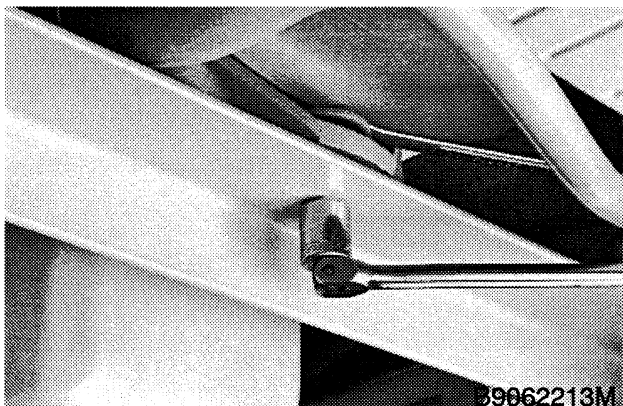
Disconnect and remove the hose and check valve assembly at the front of the oil pan.

STEP 51



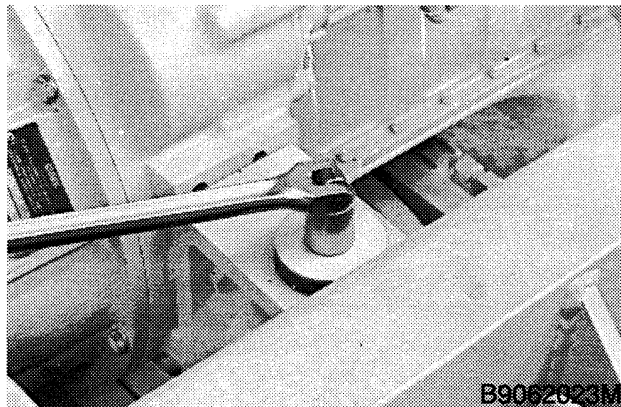
Install a plug in the tube fitting and a cap on the tube.

STEP 52



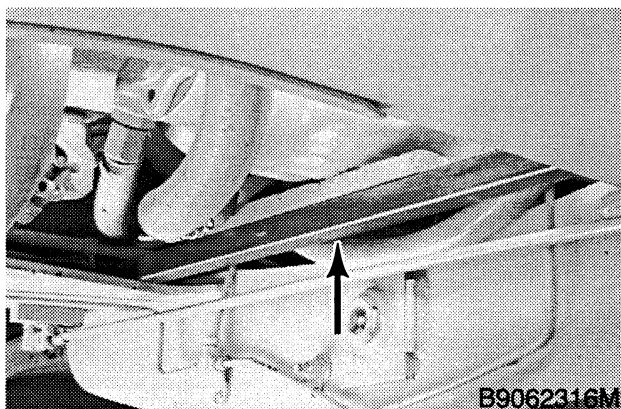
Loosen and remove the self-locking nut, bolt, and hardened washer that fasten the front engine support to the frame.

STEP 53



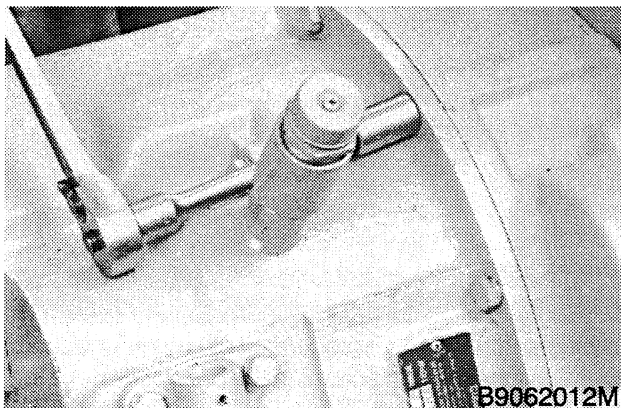
Loosen and remove the self-locking nuts, bolts, and hardened washers that fasten both rear engine mounting brackets to the frame.

STEP 54



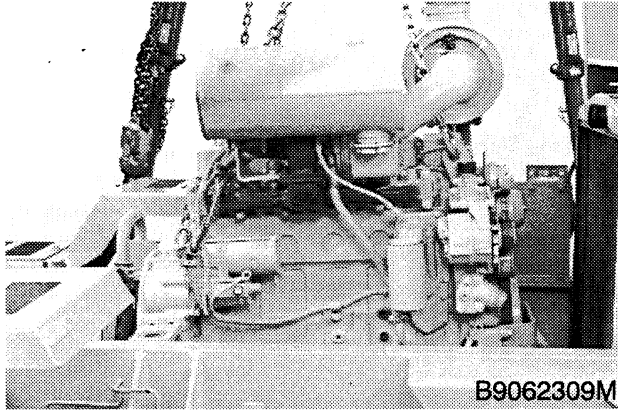
Lift the engine and torque converter approximately 2 inches (50 mm) and put supports under the torque converter as shown. Lower the engine and torque converter so that the torque converter is on the supports.

STEP 55



Loosen and remove the cap screws and lock washers that fasten the torque converter to the flywheel housing.

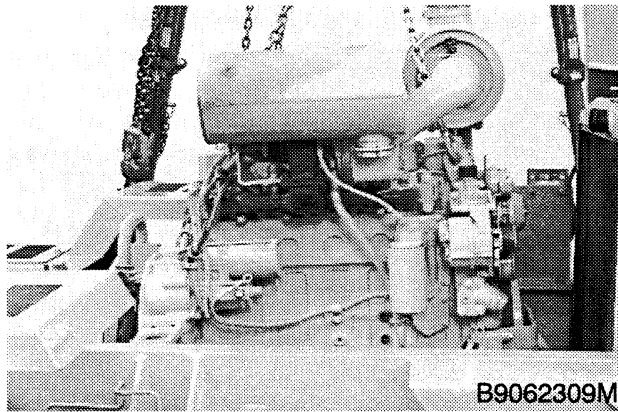
STEP 56



Move the engine forward so that the flywheel housing is free of the flex plate on the torque converter. Lift the engine and remove the engine from the machine.

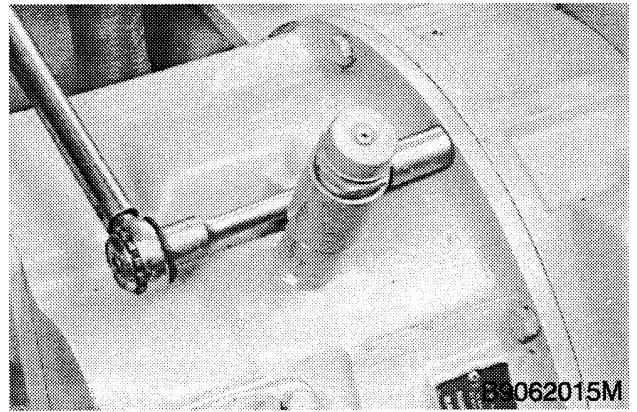
ENGINE INSTALLATION

STEP 57



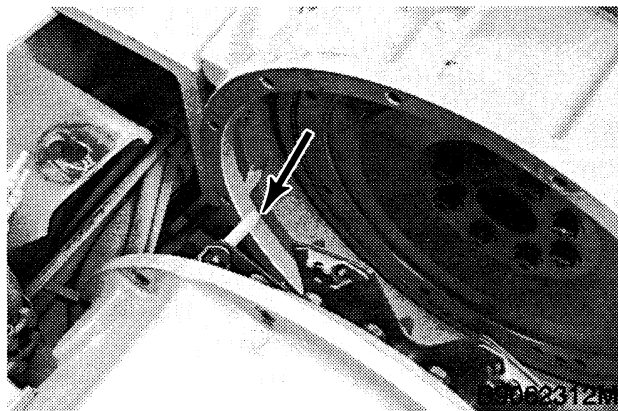
Install the engine over the frame.

STEP 59



Install the cap screws and lock washers that fasten the torque converter to the flywheel housing. Tighten the cap screws to 480 to 540 pound-inches (54 to 61 Nm).

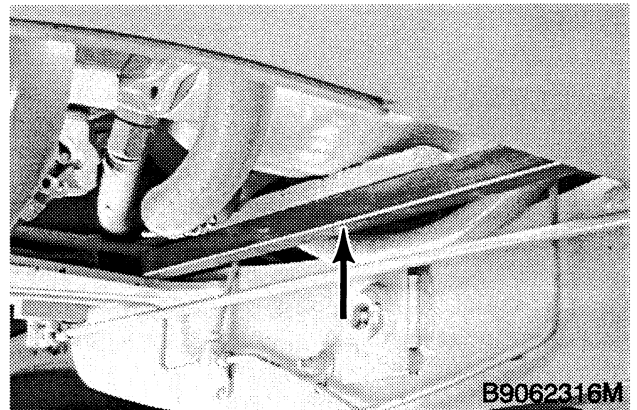
STEP 58



Install a stud 2-3/4 inches (70 mm) long with 3/8 NF threads in one of the holes in the flex plate so the stud is to the left side as shown. Make sure the flex plate is not bent or damaged. Push the engine toward the rear. Have another person align the stud with the hole in the flywheel.

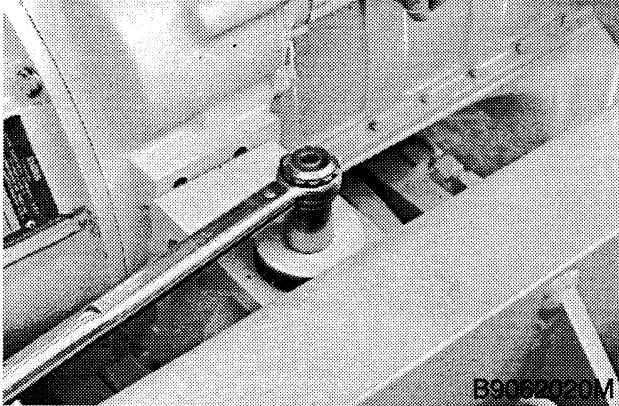
Bur 8-14980

STEP 60



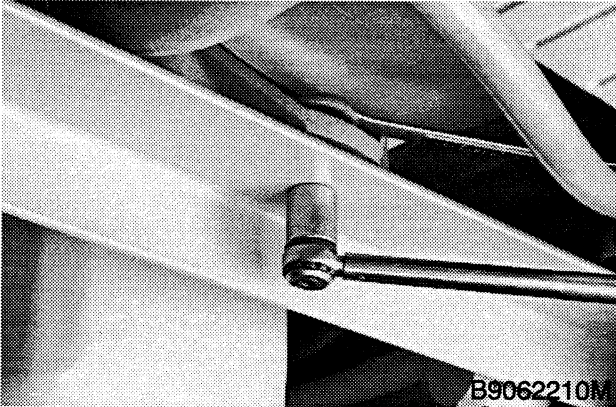
Lift the engine and torque converter approximately 2 inches (50 mm) and remove the supports from under the torque converter. Lower the engine and torque converter.

STEP 61



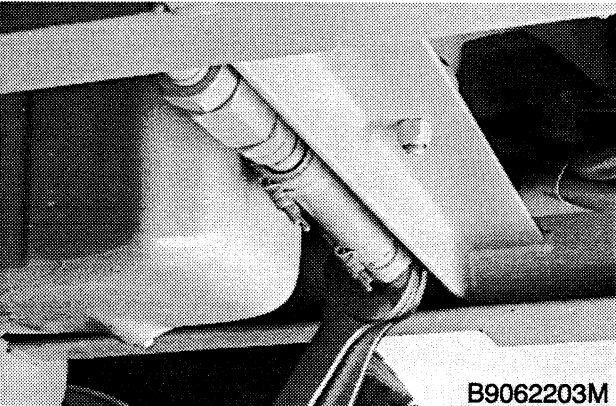
Install the bolts, hardened washers, and self-locking nuts that fasten both rear engine mounting brackets to the frame. Tighten the bolts to 130 pound-feet (176 Nm).

STEP 62



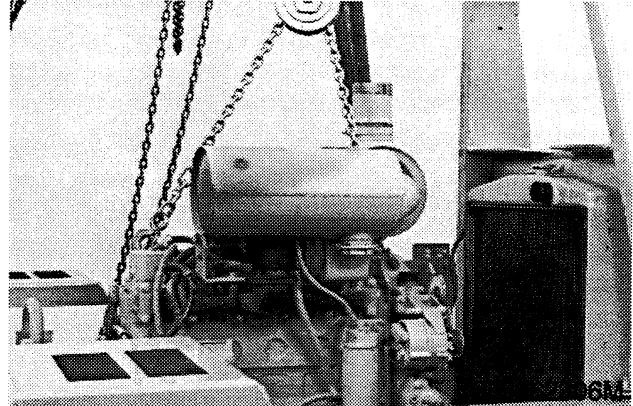
Install the bolt, hardened washer, and self-locking nut that fasten the front engine support to the frame. Tighten the bolt to 130 pound-feet (176 Nm).

STEP 63



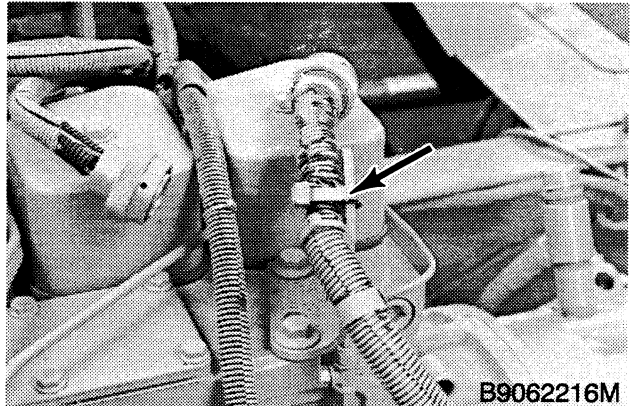
Remove the plug from the tube fitting and the cap from the tube. Connect the hose and check valve assembly at the front of the oil pan.

STEP 64



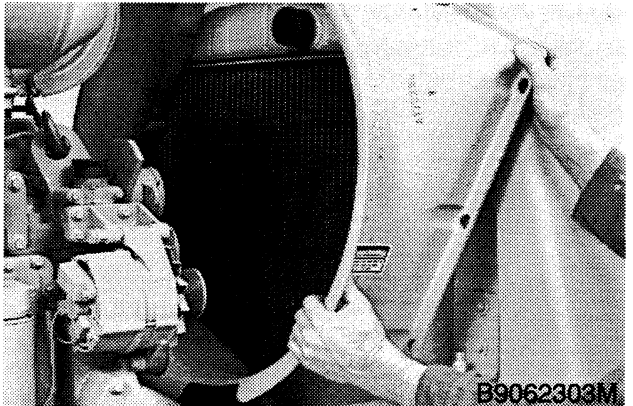
Disconnect and remove the lifting equipment from the engine.

STEP 65



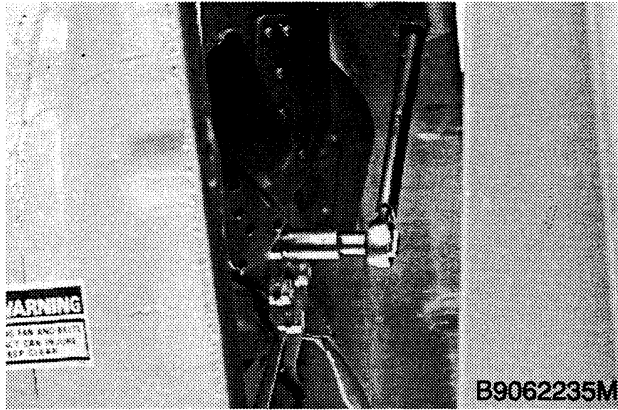
Install a new tie strap to fasten the wire harness to the lifting eye on the engine.

STEP 66



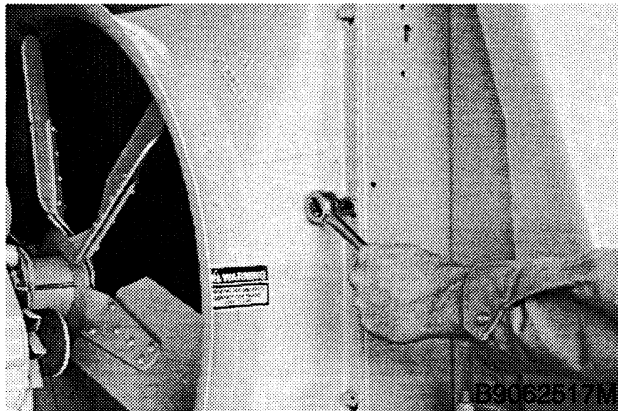
Install the fan shroud.

STEP 67



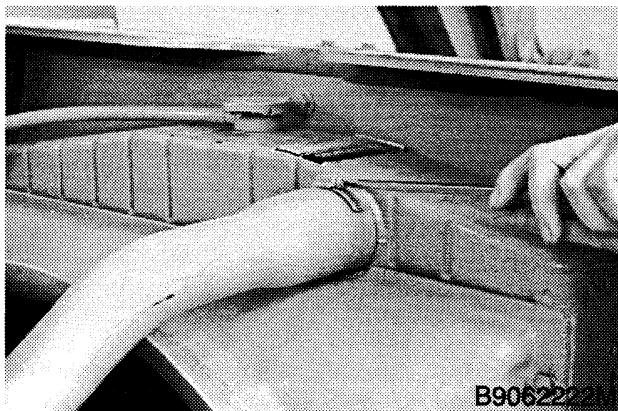
Install the spacer, fan, cap screws, and lock washers that fasten the fan and spacer to the pulley. Tighten the cap screws to 504 pound-inches (57 Nm).

STEP 68



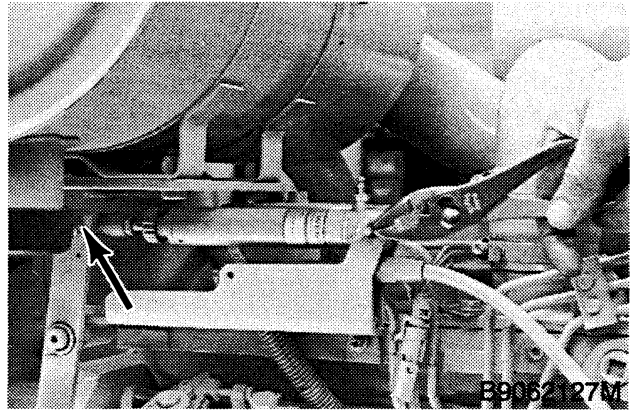
Install the cap screws, lock washers, and flat washers that fasten the fan shroud to the radiator. Tighten the cap screws.

STEP 69



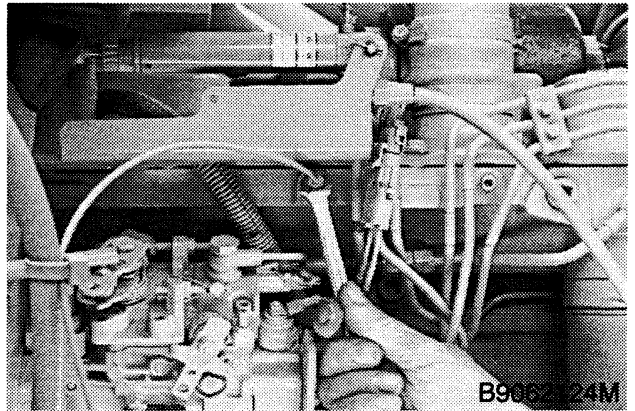
Install the top radiator hose and connect the hose to the radiator.

STEP 70



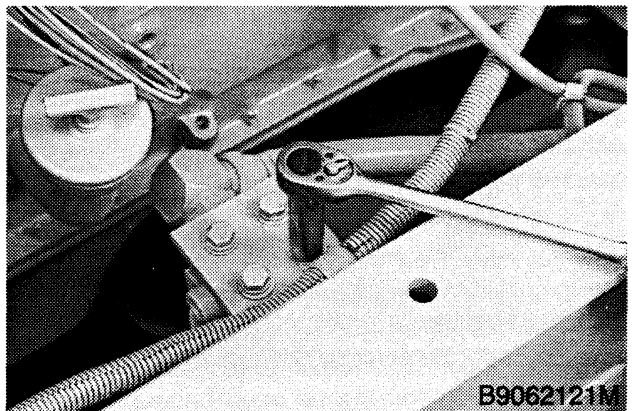
Install the accelerator cylinder. Connect the piston rod end of the accelerator cylinder to the lever. Install the clevis pin and cotter pin that fasten the closed end of the accelerator cylinder to the bracket

STEP 71



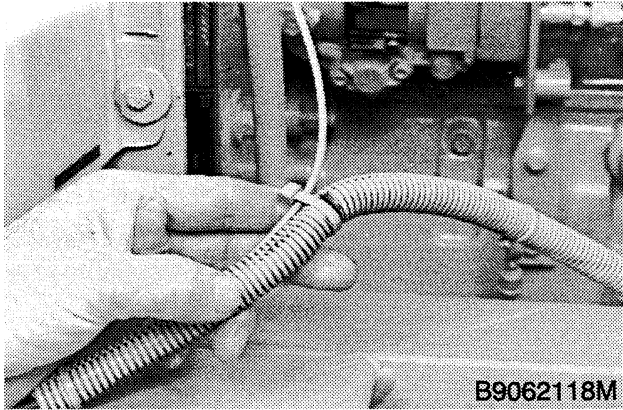
If the machine is equipped with ether injection, connect the tube to the intake manifold.

STEP 72



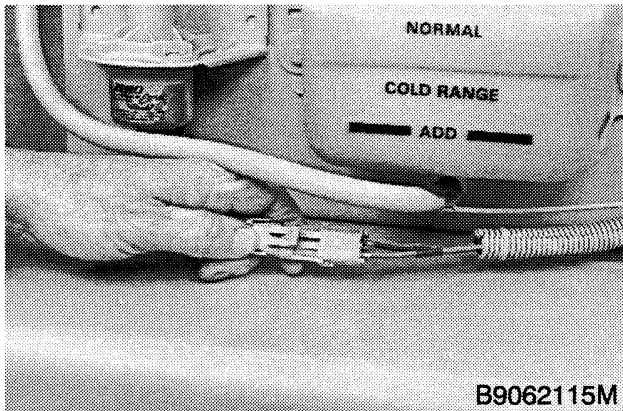
Install the cap screw and lock washer that fasten the clamp for the wire harness to the bracket. Tighten the cap screw.

STEP 73



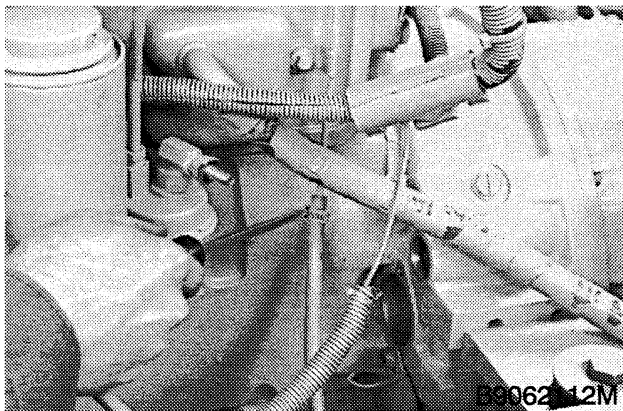
If the machine is equipped with ether injection, install a new tie strap to fasten the wire harness to the tube for the ether injection.

STEP 74



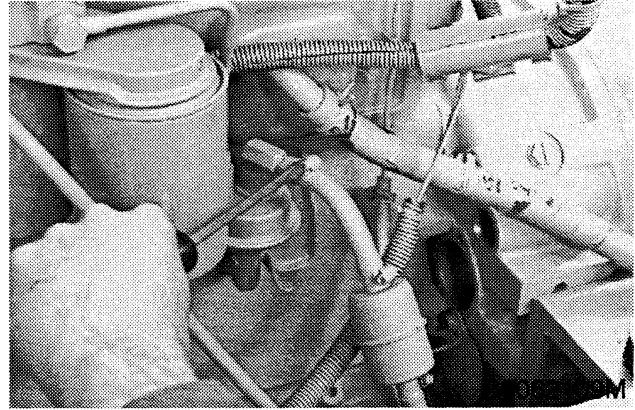
If the machine is equipped with ether injection, connect the connector for the wire harness.

STEP 75



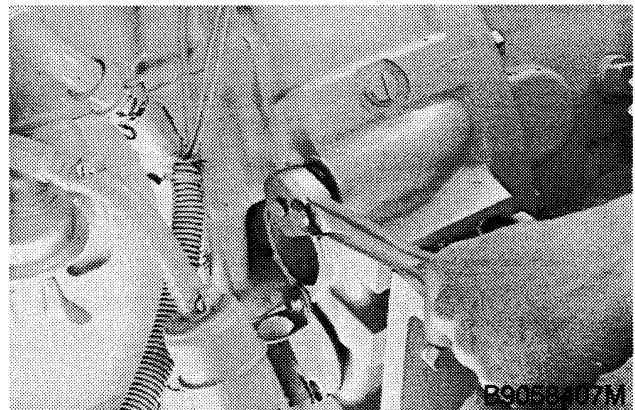
Remove the plug from the fuel return hose and connect the fuel return hose to the fuel line.

STEP 76



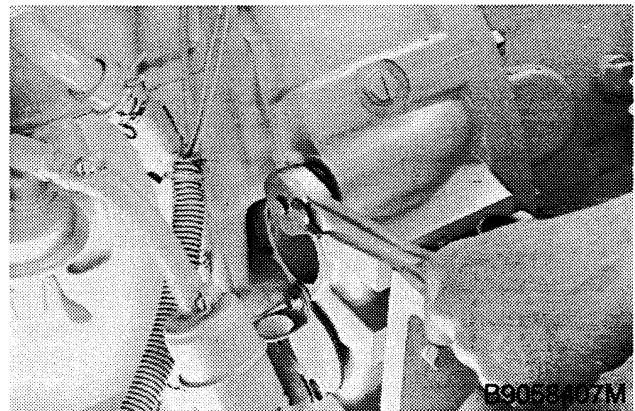
Remove the plug from the fuel supply hose and connect the fuel supply hose to the hand primer pump.

STEP 77



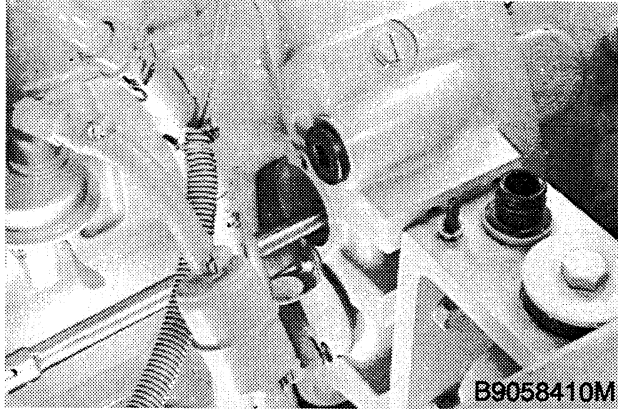
Install the CAS-1690 tool to turn the flywheel. Remove the stud from the flex plate and install a cap screw and flat washer.

STEP 78



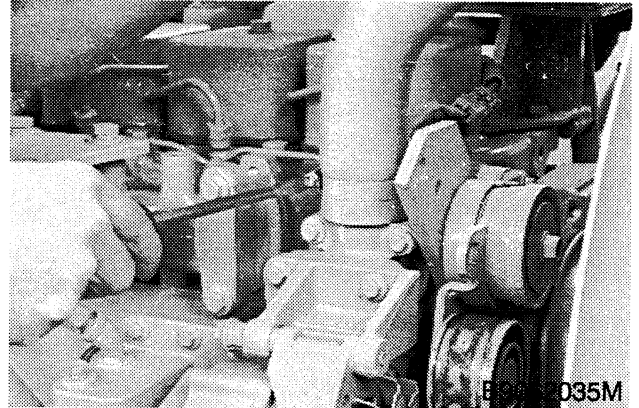
Rotate the flywheel and install the remaining cap screws and lock washers.

STEP 79



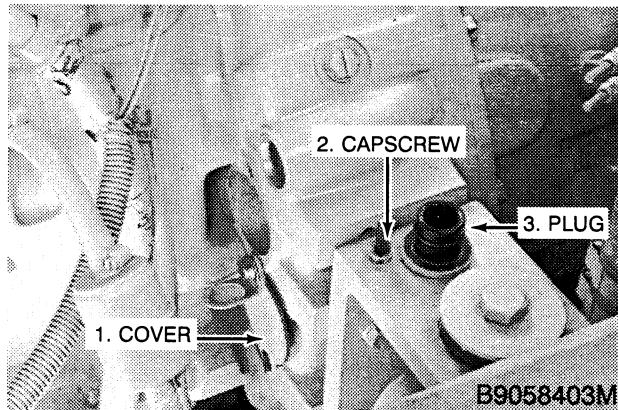
Tighten all of the cap screws to 396 to 444 pound-inches (45 to 50 Nm).

STEP 82



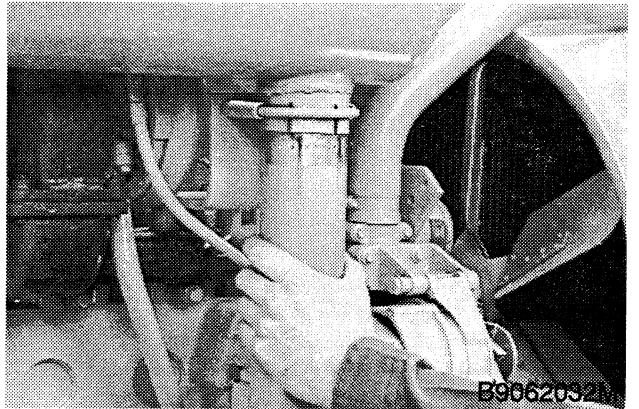
Connect the top radiator hose.

STEP 80



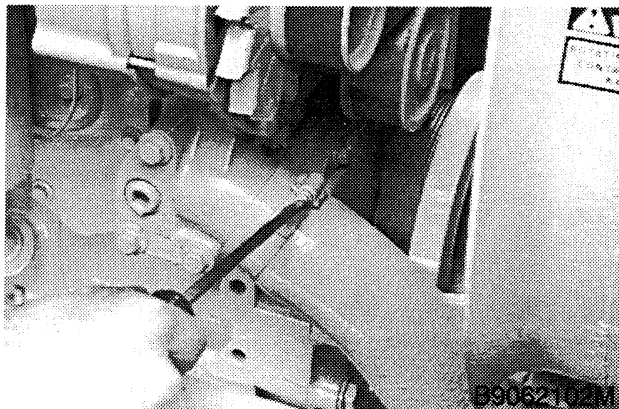
Remove the CAS-1690 tool and install the plastic plug in the flywheel housing. Install the cover and the bracket for the hose. Install the cap screw and tighten both cap screws. Install the hose in the bracket.

STEP 83



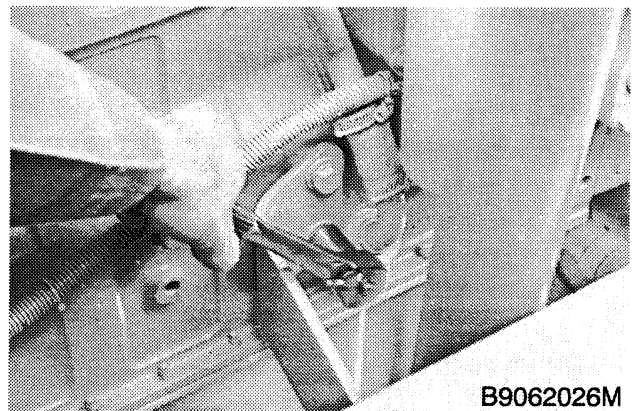
Install the exhaust pipe.

STEP 81



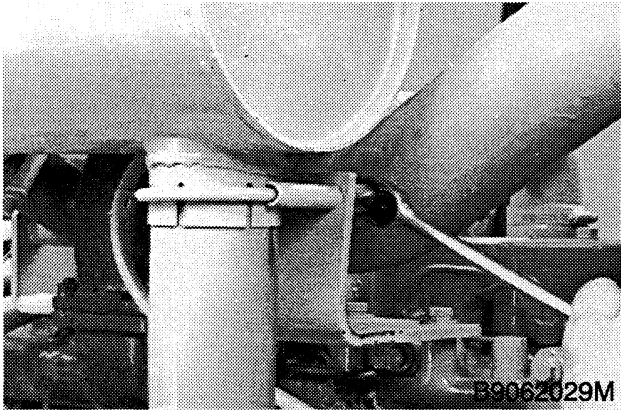
Connect the bottom radiator hose.

STEP 84



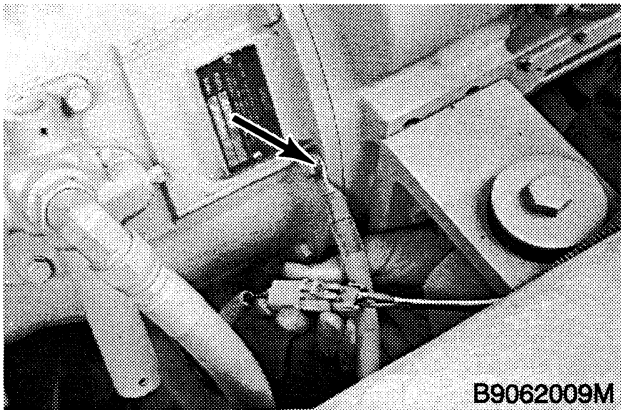
Install the cap screws, lock washers, and flat washers that fasten the bracket for the exhaust pipe to the engine. Tighten the cap screws.

STEP 85



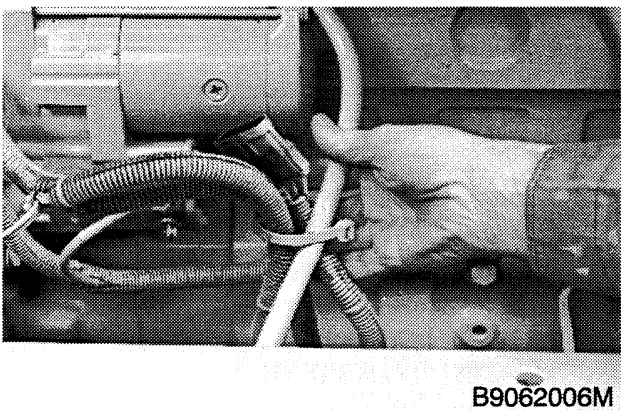
Tighten the clamp that fastens the muffler to the mounting bracket.

STEP 86



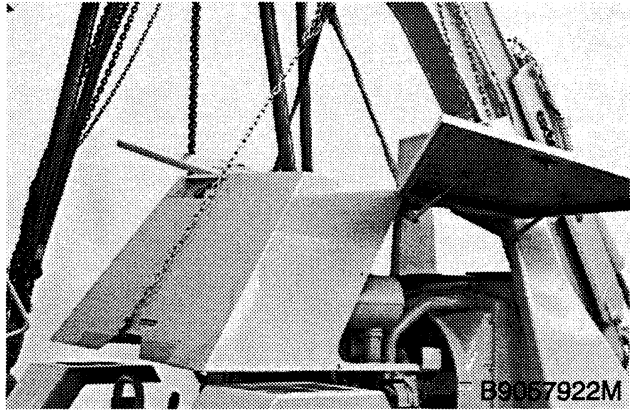
Install the cap screw and lock washer that fasten the cable to the flywheel housing. Tighten the cap screw to 480 to 540 pound-inches (54 to 61 Nm). Connect the connector for the wire harness.

STEP 87



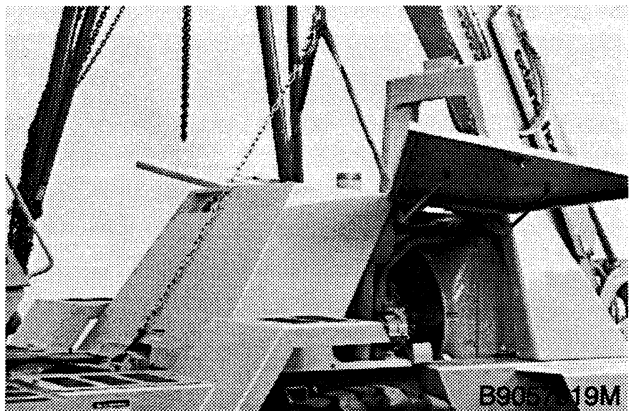
Install a new tie strap to fasten the wire harness to the cable.

STEP 88



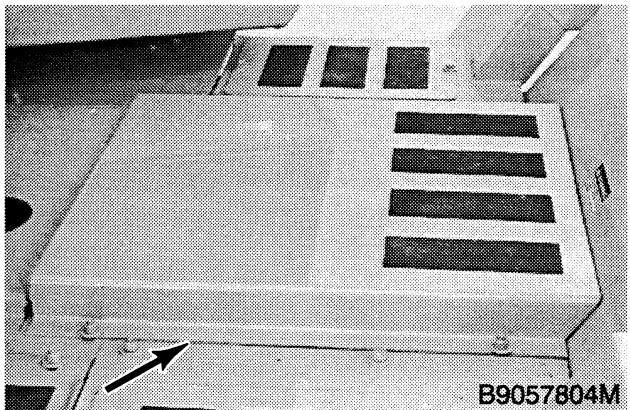
Install the hood over the machine.

STEP 89



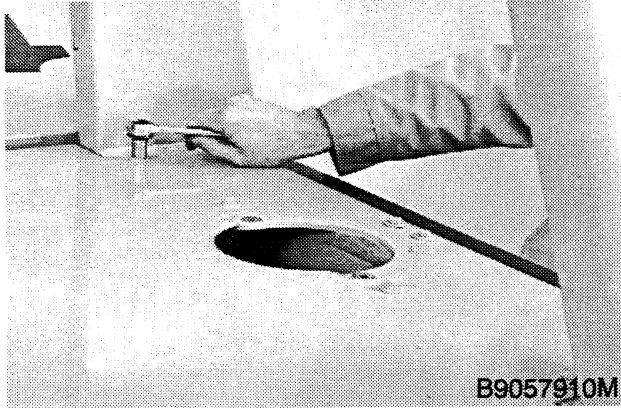
Lower the hood into position. Disconnect and remove the lifting equipment from the hood.

STEP 90



Install the cover for the torque converter.

STEP 91



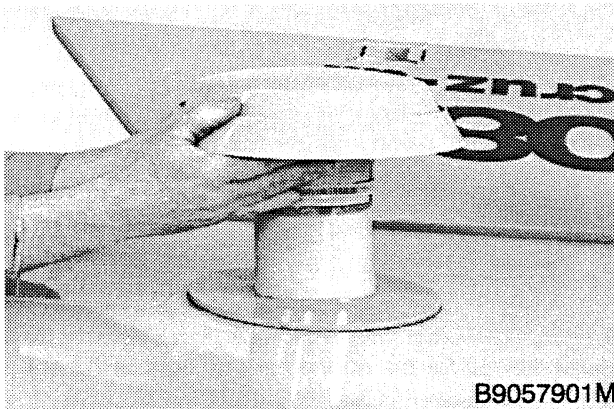
Install the cap screws, lock washers, and flat washers that fasten the hood to the radiator shroud. Tighten the cap screws.

STEP 92



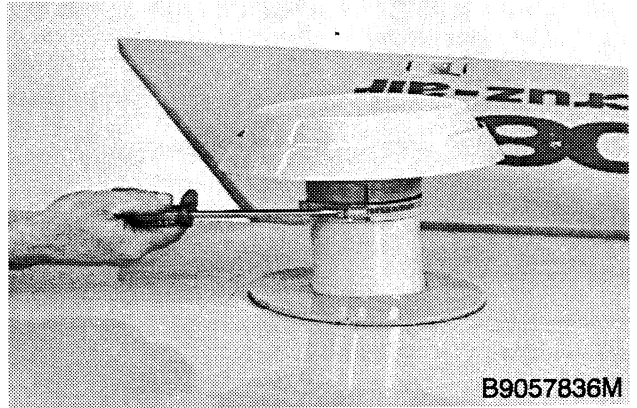
Install the grommet.

STEP 93



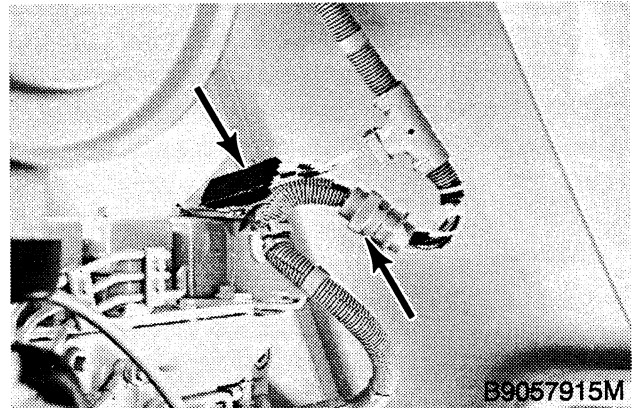
Install the air cleaner cap.

STEP 94



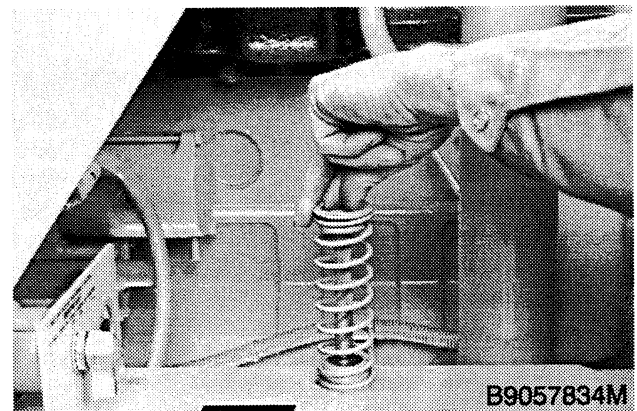
Tighten the clamp for the air cleaner cap.

STEP 95



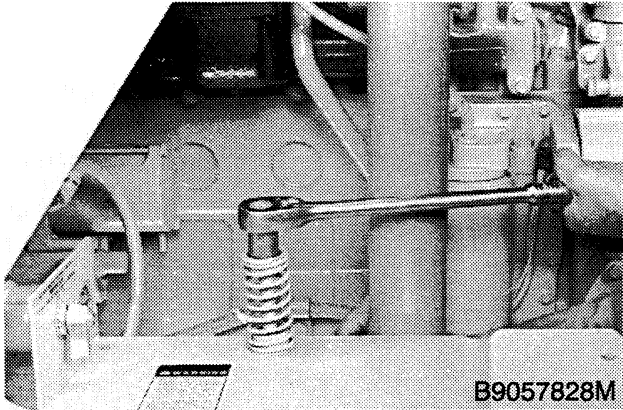
Connect the connectors for the wire harness.

STEP 96



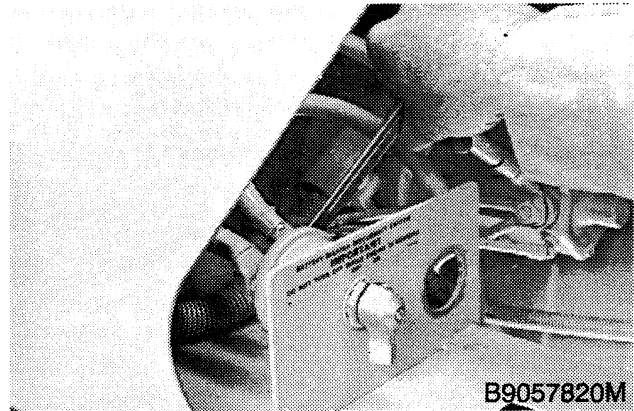
Install the spring, spring seats, flat washers, bolt, and self-locking nut for the spring assembly on each side of the hood.

STEP 97



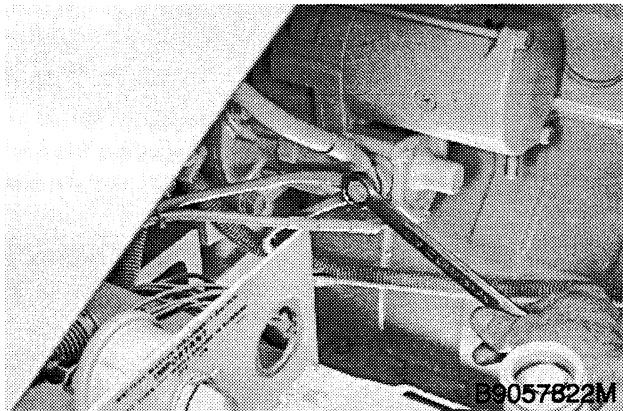
Tighten the bolt.

STEP 100



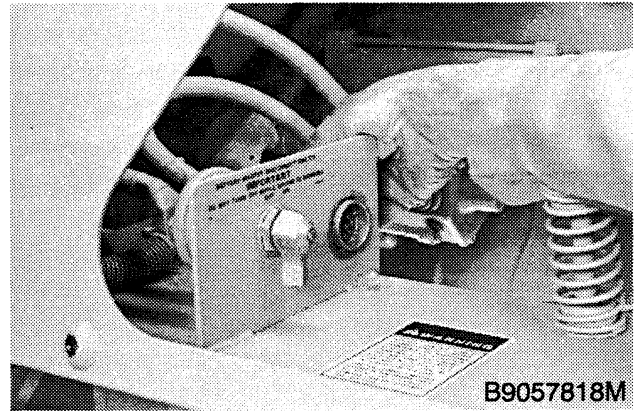
Connect the cables to the master disconnect switch.

STEP 98



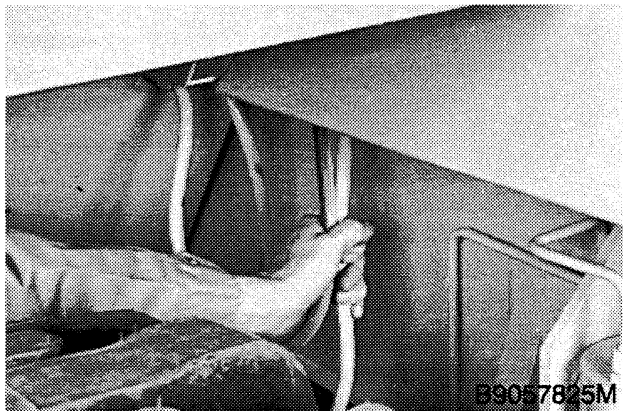
Connect the cable to the switch terminal of the starter solenoid. Connect the cables to the battery terminal of the starter solenoid.

STEP 101



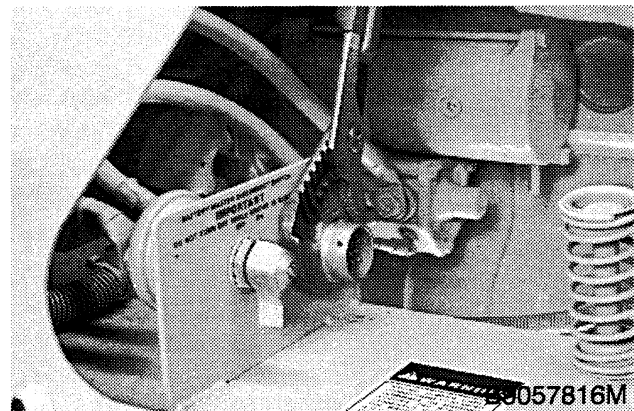
Install the connector.

STEP 99



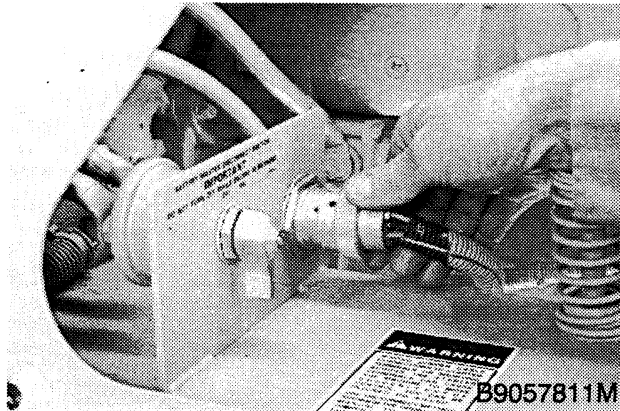
Route the cables for the master disconnect switch through the right hood.

STEP 102



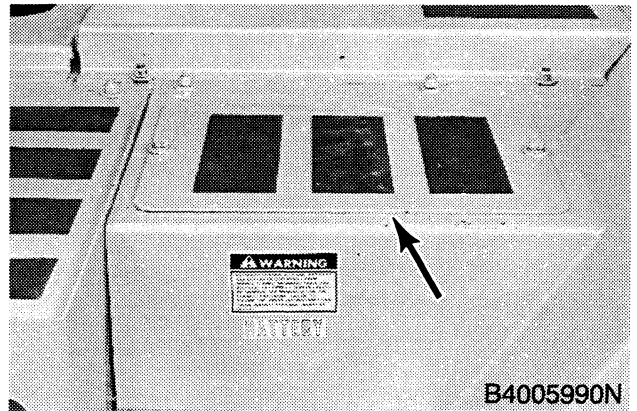
Install the nut for the connector and tighten the nut.

STEP 103



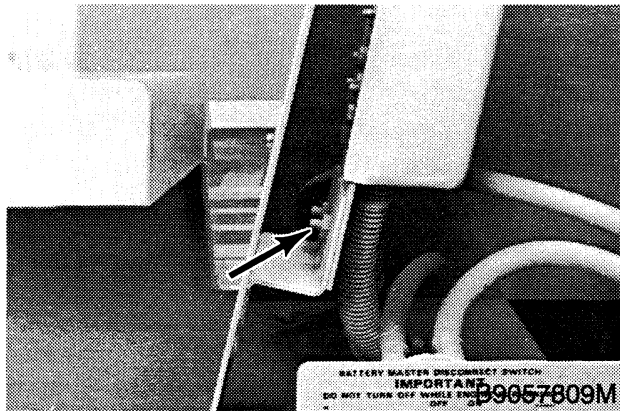
Connect the wire harness to the connector.

STEP 106



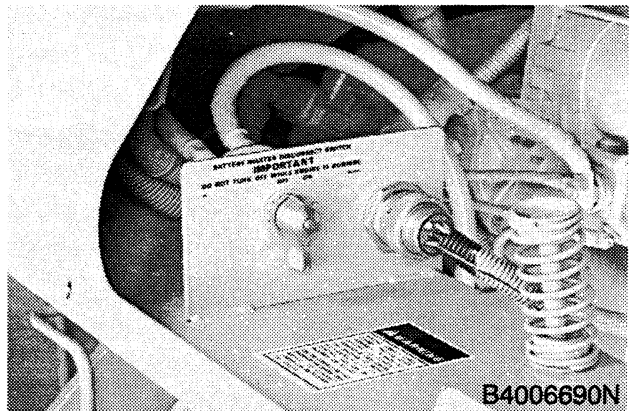
Install the cover for the batteries.

STEP 104



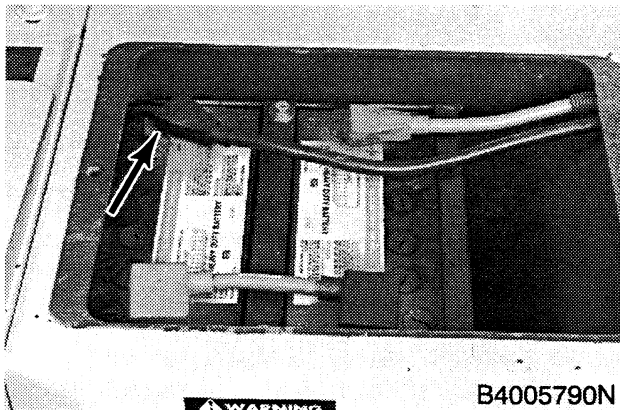
Install the relay panel against the bracket. Install the bolts, and lock washers and tighten the bolts.

STEP 107



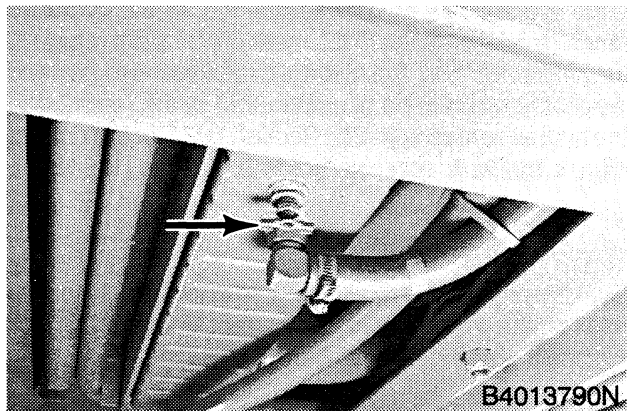
Move the master disconnect switch to the ON position.

STEP 105



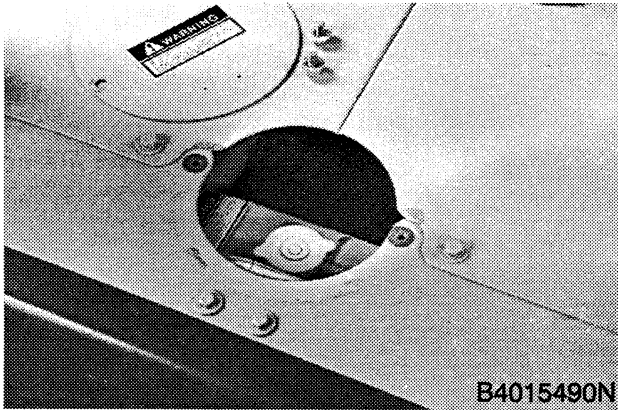
Connect the ground cable shown.

STEP 108



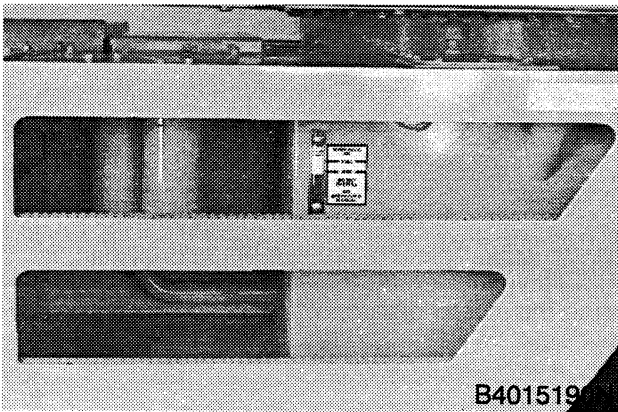
Make sure that the drain valve for the radiator is closed.

STEP 109



Fill the cooling system with coolant. If new coolant is being installed, the coolant must be half permanent antifreeze. The cooling system holds 34 U.S. quarts (32.2 litres) of coolant. See Section 1002. Install the radiator cap.

STEP 110

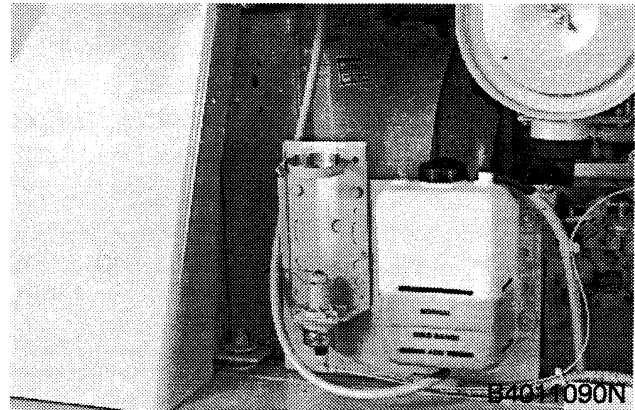


If the hydraulic reservoir was drained, fill the hydraulic reservoir with oil to the FULL mark on the sight gauge. If the oil drained from the hydraulic reservoir is to be used again, the oil must be filtered before being returned to the hydraulic reservoir. See Section 1002 for the correct oil. The hydraulic reservoir holds 36 gallons (136 litres).

STEP 111

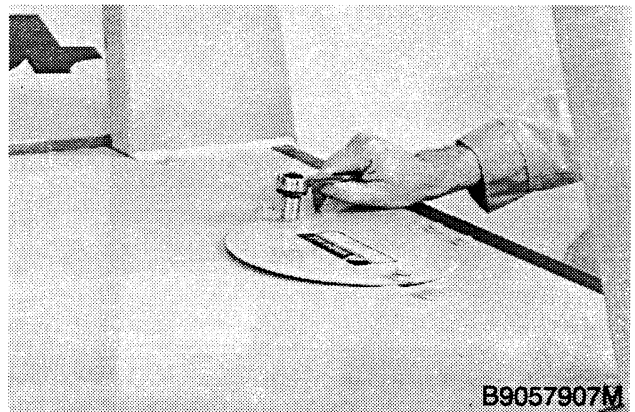
Start the engine and run the engine at low idle. Check to see that the gauges show the correct indication. Check for coolant and oil leaks. Stop the engine.

STEP 112



Let the engine cool and check the level of the coolant reservoir. Add coolant as required.

STEP 113



Install the access cover for the radiator cap.

STEP 114



Close the access door on each side of the engine compartment.

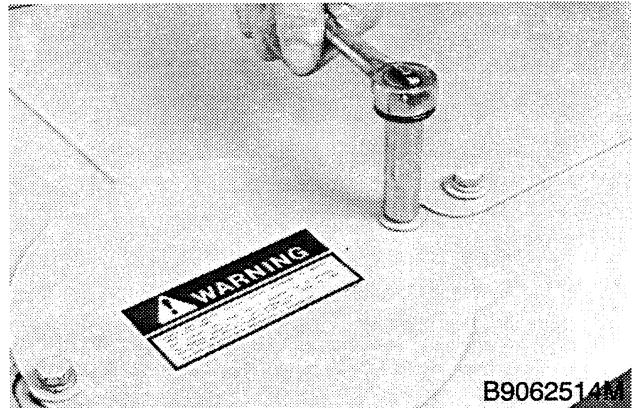
RADIATOR REMOVAL

STEP 115



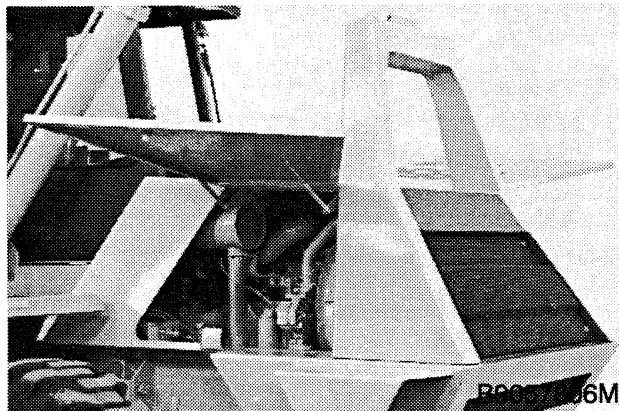
Park the machine on a level surface. Rotate the cab approximately 15 degrees to the left of center. Apply the parking brake and stop the engine.

STEP 118



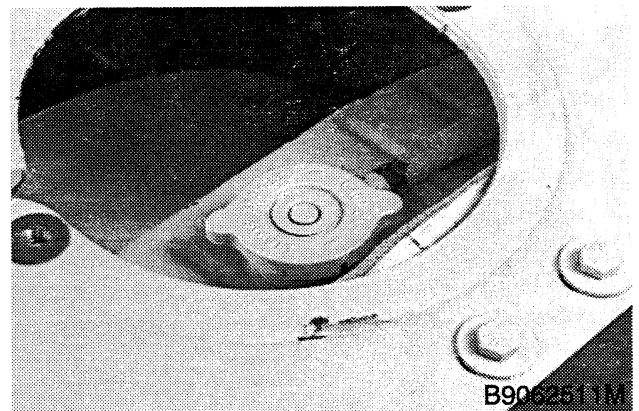
Remove the access cover for the radiator cap.

STEP 116



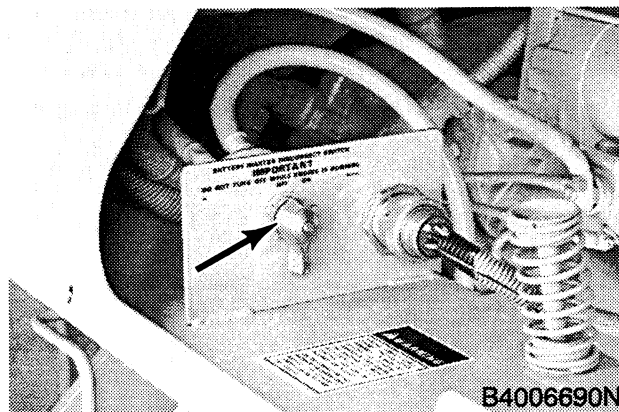
Open the access door on each side of the engine compartment.

STEP 119



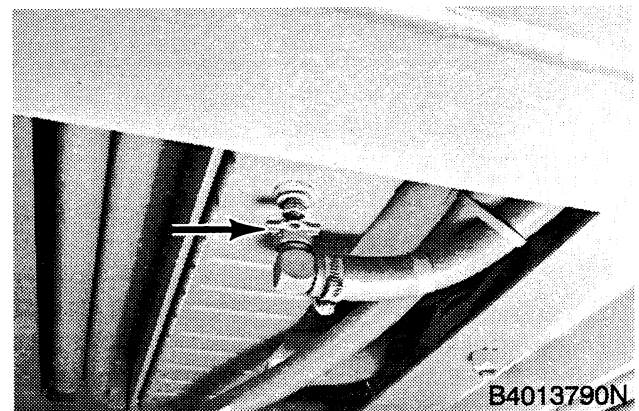
Make sure that the engine is cool and remove the radiator cap.

STEP 117



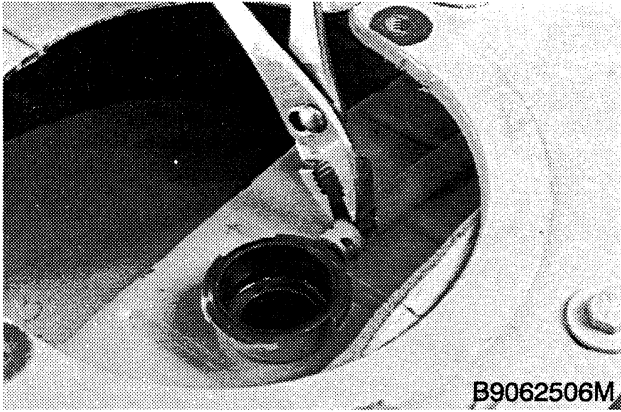
Move the master disconnect switch to the OFF position.

STEP 120



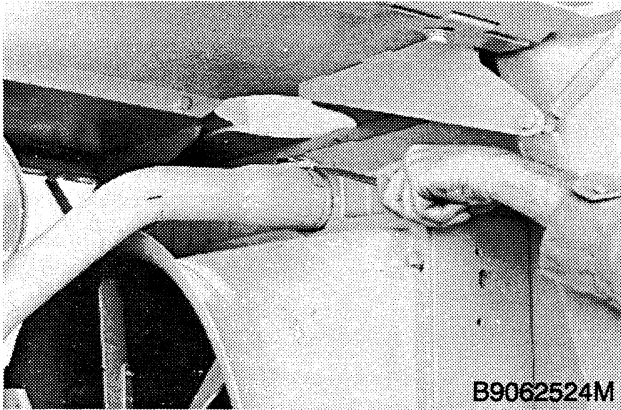
Open the drain valve and drain the cooling system. The cooling system holds 34 U.S. quarts (32 litres) of coolant.

STEP 121



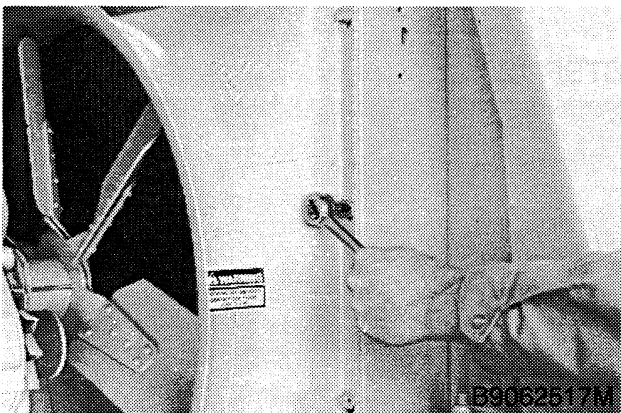
Disconnect the drain hose from the filler neck.

STEP 122



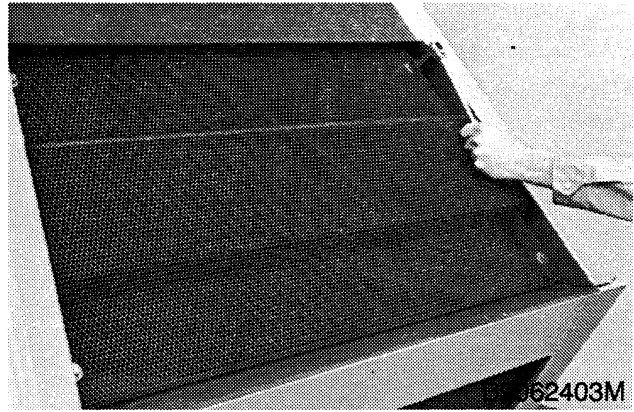
Disconnect the top radiator hose from the radiator.

STEP 123



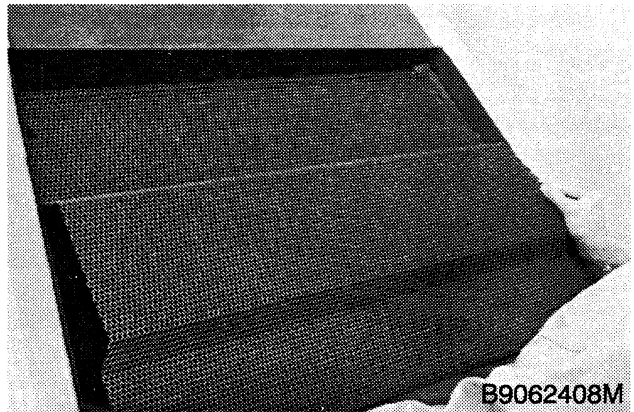
Loosen and remove the cap screws, lock washers, and flat washers that fasten the fan shroud to the radiator.

STEP 124



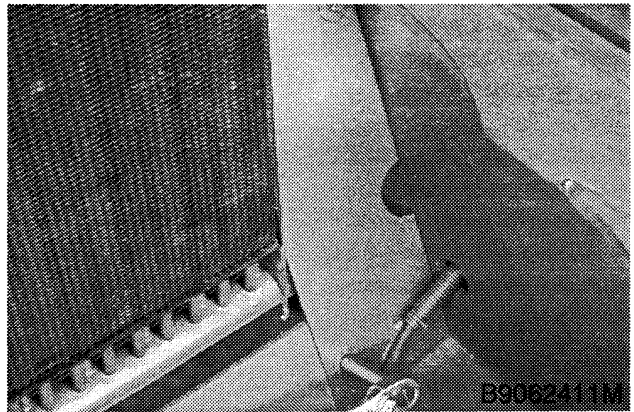
Loosen and remove the cap screws, lock washers, and flat washers that fasten the grille to the radiator shroud.

STEP 125



Remove the grille.

STEP 126



Loosen and remove the cap screws, lock washers, and flat washers that fasten the plate to each side of the frame.



Suggest:

If the above button click is invalid.

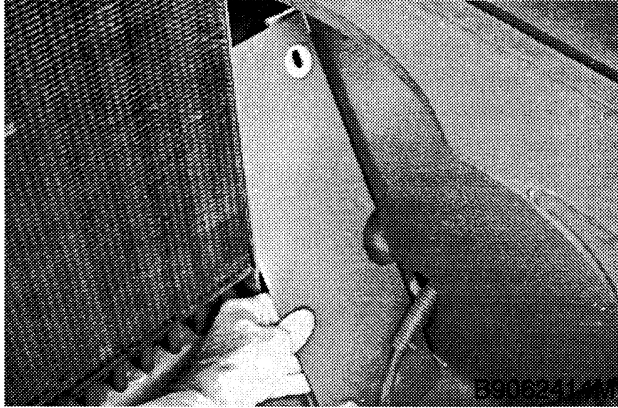
Please download this document

first, and then click the above link

to download the complete manual.

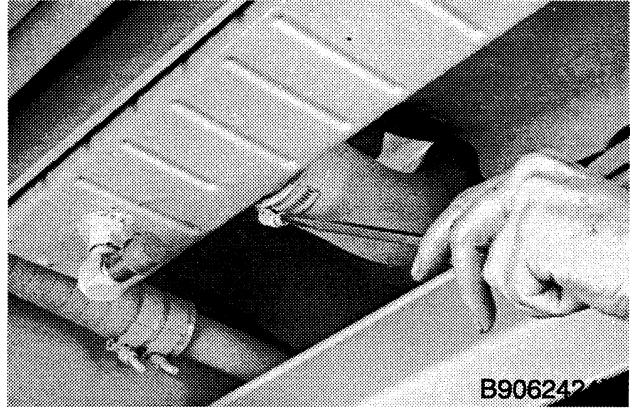
Thank you so much for reading

STEP 127



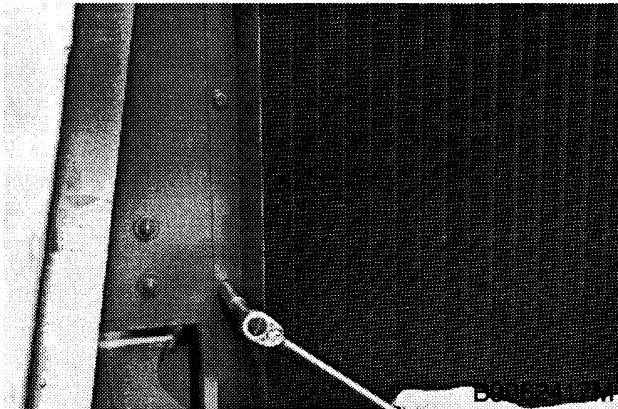
Remove the plates.

STEP 130



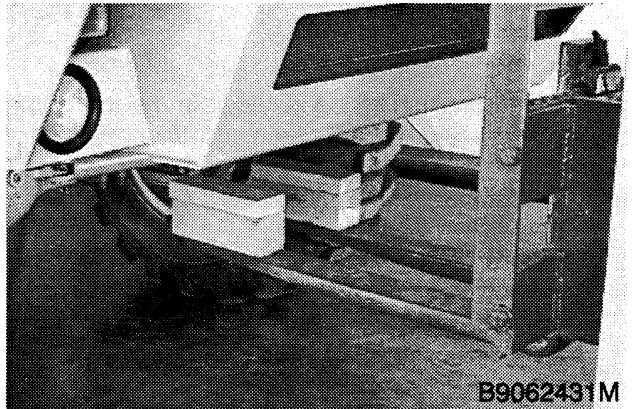
Disconnect the bottom radiator hose.

STEP 128



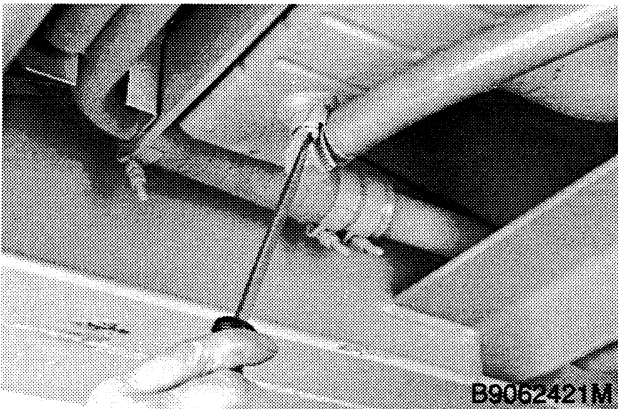
Leave one cap screw, lock washer, and flat washer installed on each side of the oil cooler to hold the radiator in place. Loosen and remove the remaining cap screws, lock washers, and flat washers.

STEP 131



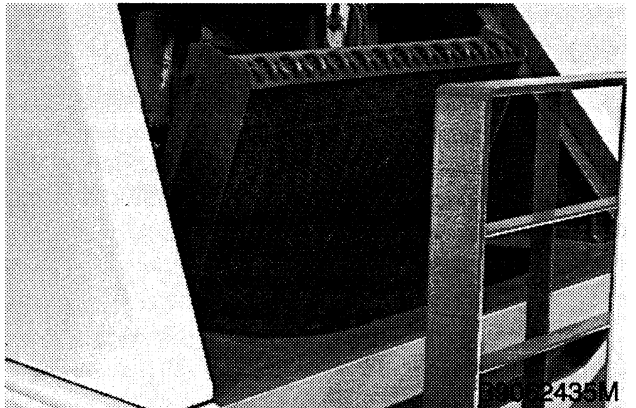
Install suitable lifting equipment under the radiator. If necessary, use wood blocks for supports.

STEP 129



Disconnect the hoses from the bottom of the radiator. Install a plug in each hose and a cap on each fitting.

STEP 132



Raise the lifting equipment against the bottom of the radiator. Loosen and remove the remaining cap screws, lock washers, and flat washers that fasten the radiator to the oil cooler. Tilt the top of the oil cooler forward.

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