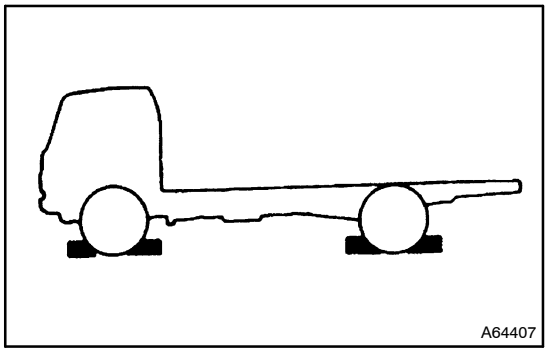
ENGINE ASSY (S05C–TB)

REMOVAL AND INSTALLATION

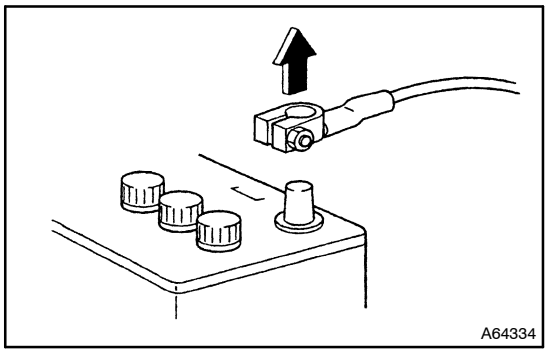
14173–01



1. BLOCK WHEEL OF VEHICLE

(a) Park the vehicle on the level ground.

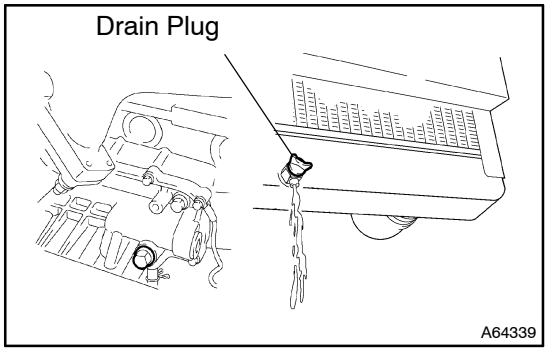
(b) Block the wheels.



2. DISCONNECT NEGATIVE TERMINAL CABLE FROM BATTERY

NOTICE:

Always disconnect the negative (–) terminal cable when servicing the engine.



3. DRAIN ENGINE COOLANT

CAUTION:

To avoid danger of burns, do not drain the coolant while the engine and radiator are still hot.

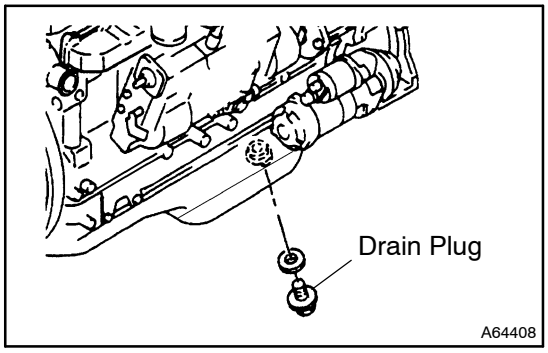
(a) Drain the coolant from the radiator and engine.

Coolant capacity:

15.2 liters (16.0 US qts, 13.4 Imp. qts)

HINT:

The coolant can be drained more easily by removing the filler cap.



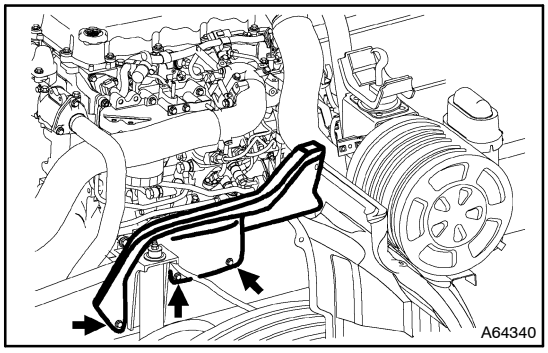
4. DRAIN ENGINE OIL

(a) Drain the engine oil through the drain plug.

Oil capacity:

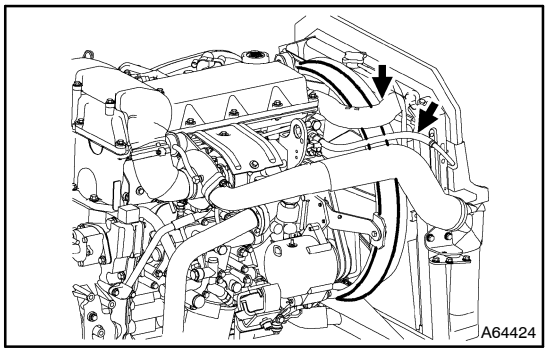
w/ oil filter: 8.6 liters (9.1 US qts, 7.6 Imp. qts)

w/o oil filter: 10.6 liters (11.2 US qts, 9.3 Imp. qts)



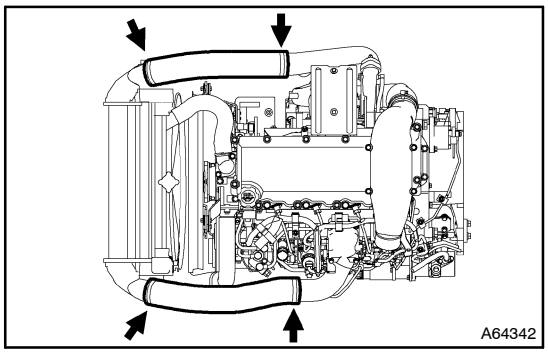
5. REMOVE SPLASH BOARD

(a) Remove the LH and RH splash boards.

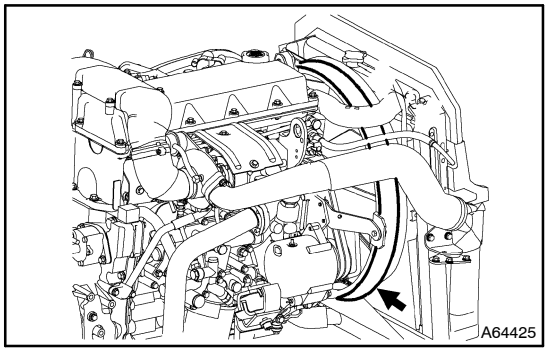


6. DISCONNECT RADIATOR HOSE

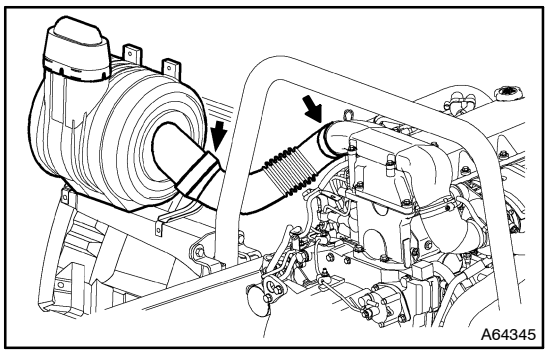
7. DISCONNECT HEATER HOSE



8. DISCONNECT INTERCOOLER HOSE



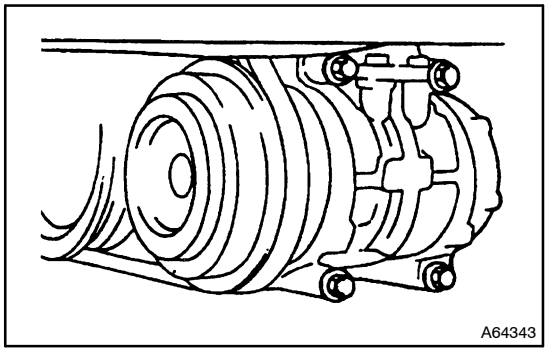
9. REMOVE FAN SHROUD SEAL HOLDER



10. DISCONNECT AIR CLEANER HOSE

11. REMOVE REAR CAB MOUNTING BRACKET

12. REMOVE AIR CLEANER TOGETHER WITH BRACKET



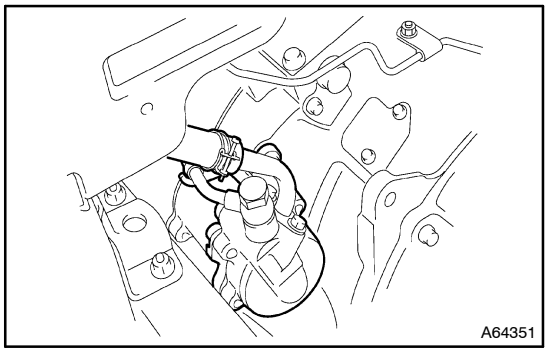
13. DISCONNECT A/C COMPRESSOR FROM ENGINE

(a) Loosen the tension pulley, and then remove the V belt.

(b) Remove the A/C compressor.

HINT:

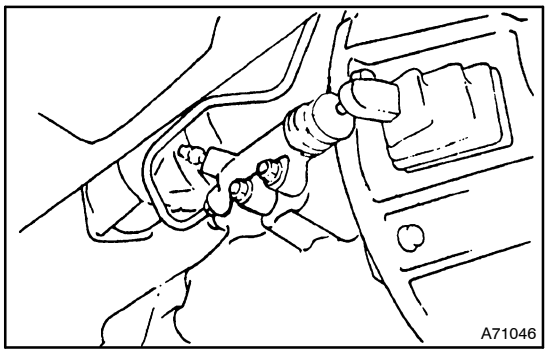
Suspend on the chassis side by rope or wire with the hose installed.



14. DISCONNECT VANE PUMP ASSY FROM ENGINE

HINT:

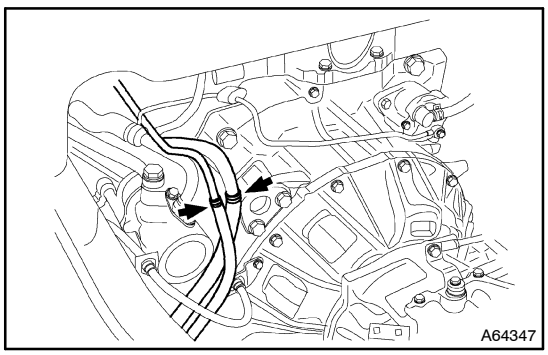
Suspend on the chassis side by rope or wire with the hose installed.



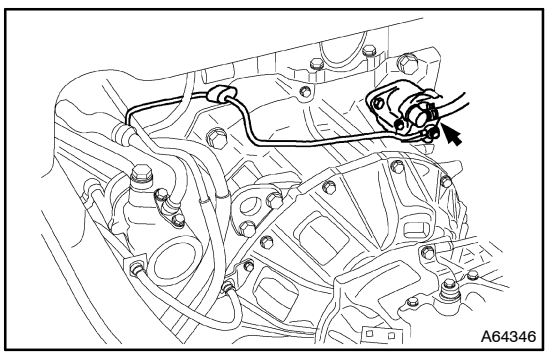
15. REMOVE CLUTCH RELEASE CYLINDER ASSY

(a) Remove the bracket of the clutch hose.

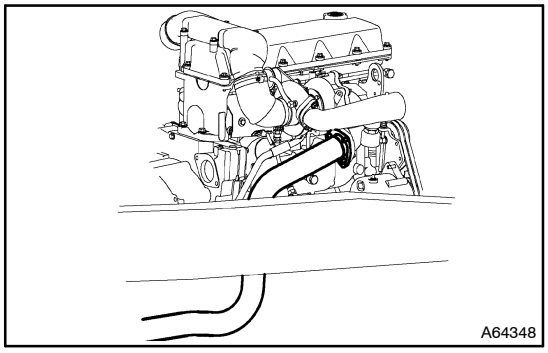
(b) Remove the release cylinder together with the lines.



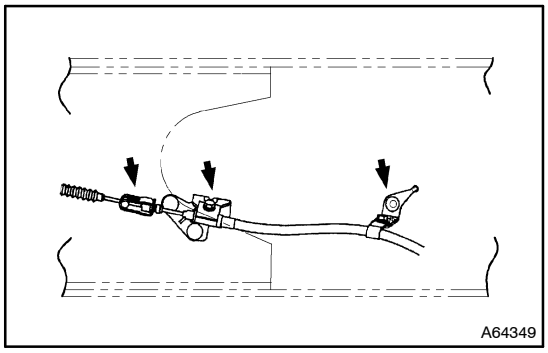
16. DISCONNECT FUEL HOSE



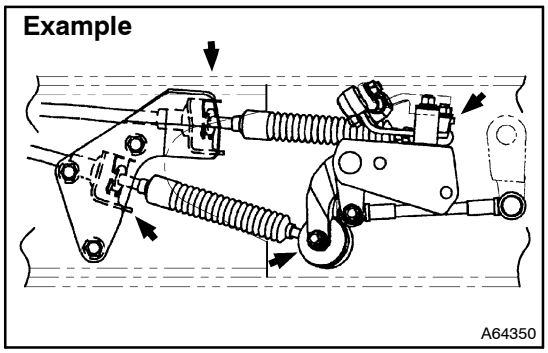
17. DISCONNECT VACUUM HOSE



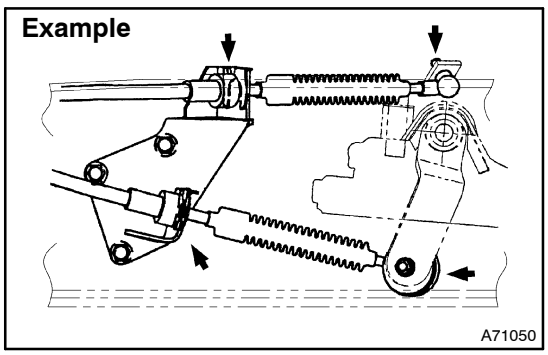
18. REMOVE EXHAUST PIPE ASSY



19. DISCONNECT PARKING BRAKE CABLE ASSY



20. DISCONNECT TRANSMISSION CONTROL CABLE ASSY



21. DISCONNECT ELECTRICAL WIRE

(a) Disconnect the engine main wire harness.

HINT:

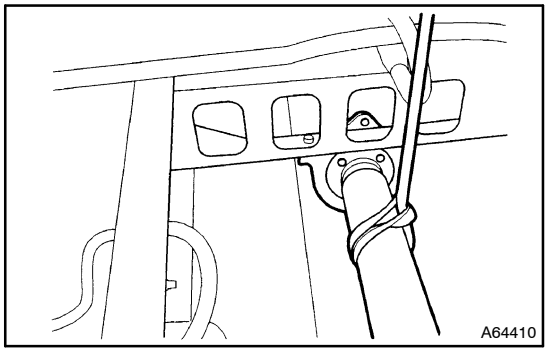
Do not disconnect the wire harness in the engine side but the chassis side.

(b) Disconnect the generator part wire harness.

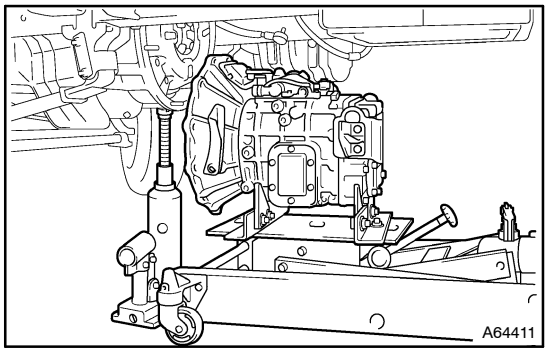
(c) Disconnect the starter part wire harness.

(d) Disconnect the transmission part wire harness.

(e) Disconnect the oil pressure switch part wire harness.



22. REMOVE PROPELLER SHAFT ASSY



23. REMOVE MANUAL TRANSMISSION ASSY

(a) Place a jack under the bottom of the flywheel housing.
(b) Place a transmission jack under the transmission.

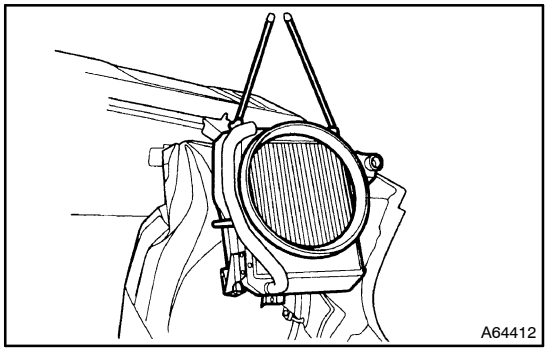
NOTICE:

The engine must be suspended with a hoist until disassembly of the transmission completes.

(c) Remove the mounting bolt of the mounting rubber behind the transmission.
(d) Remove the mounting bolt of the transmission at the clutch housing, and then remove the transmission.

HINT:

Jack up and align the transmission with the engine, and then pull the transmission straight out.

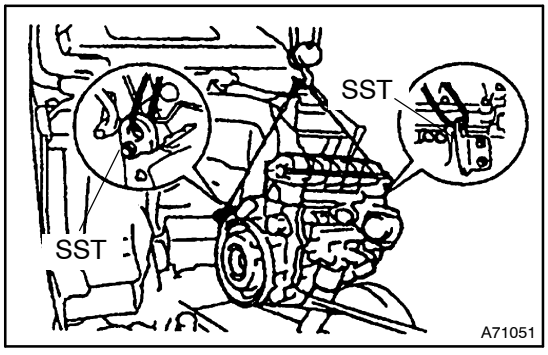


24. REMOVE RADIATOR ASSY

(a) Remove the 2 bolts of the radiator mounting bracket and the 2 bolts of the stay
(b) Remove the radiator.

HINT:

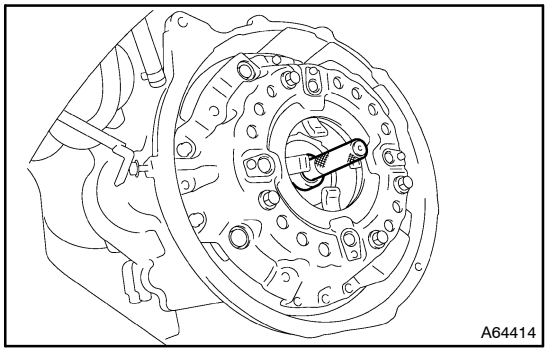
Attach a hoist to the radiator.



25. REMOVE ENGINE ASSY

(a) Install SST (engine hangers) to the front and rear of the engine in the correct direction.
Bolt part No.:
90031–09508 (Front), 90031–19120 (Rear)
Torque: 108 N·m (1,100 kgf·cm, 80 ft·lbf)
(b) Attach hoists to the engine hangers at the front and rear ends of the engine, and lift the engine slightly.
(c) Remove the engine mounting from the frame.
(d) Remove the engine.
(e) Mount the engine on a work stand.

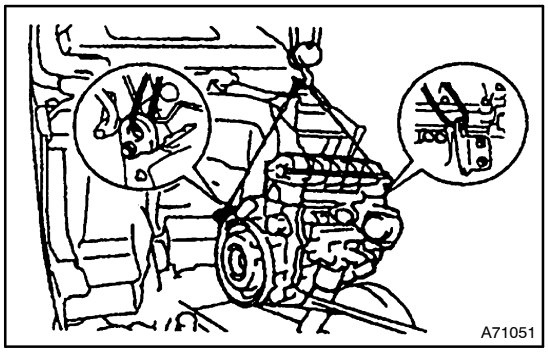
26. REMOVE CLUTCH COVER AND DISC



27. INSTALL CLUTCH DISC AND COVER

HINT:

Center the clutch disc.

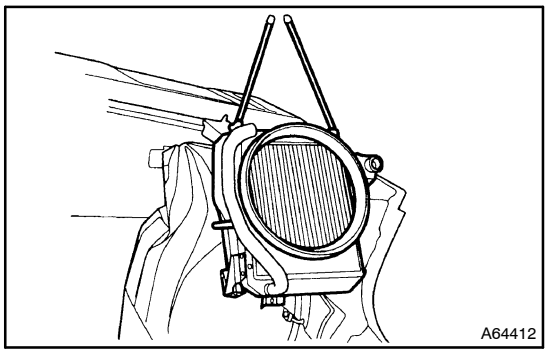


28. INSTALL ENGINE ASSY

(a) Using a hoist, lift up the engine hangers at the front and rear ends of the engine, and install it on the frame.

(b) Tighten the engine mounting nut.

Torque: 100 N·m (1,020 kgf·cm, 74 ft·lbf)



29. INSTALL RADIATOR ASSY

(a) After installing the radiator hose at the engine side, fix it with the clamp.

HINT:

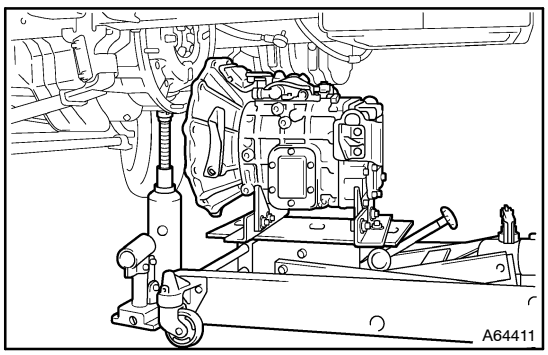
Place a hoist on the radiator.

Torque:

18 N·m (184 kgf·cm, 13 ft·lbf) for bolts

7.5 N·m (76 kgf·cm, 63 in.·lbf) for nuts

(b) After installing the radiator side fan shroud into the engine side securely, fix it with the clamp.



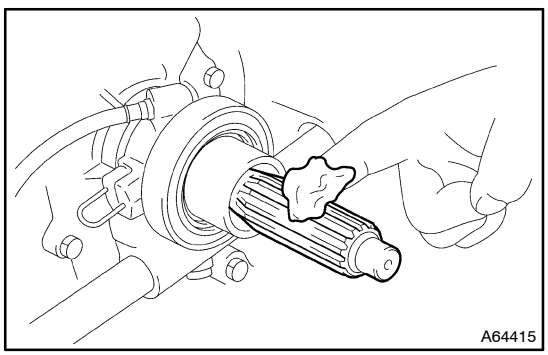
30. INSTALL MANUAL TRANSMISSION ASSY

(a) Engage the jack with the flywheel housing bottom surface.

(b) Engage the transmission jack with the transmission.

(c) Mount the transmission to the engine, and tighten the clutch housing mounting bolt.

Torque: 43.1 N·m (440 kgf·cm, 32 ft·lbf)



HINT:

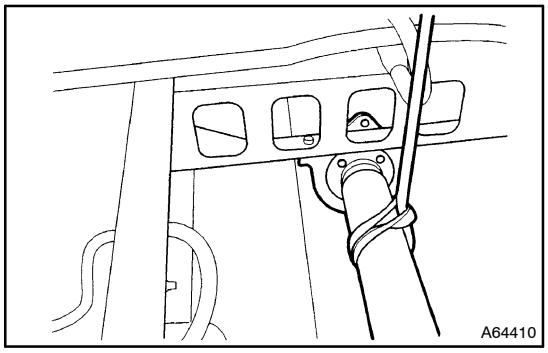
- Apply clutch spline grease to the input shaft spline.

  Grease:

  Part No. 08887–01706, CLUTCH SPLINE GREASE or equivalent
- Be sure to install the transmission straight while matching the engine angle with the transmission angle, using a jack.

(d) Tighten the mounting rubber mounting nut at the back of the transmission.

Torque: 65 N·m (650 kgf·cm, 48 ft·lbf)



31. INSTALL PROPELLER SHAFT ASSY

(a) Tighten the flange nut.

Torque:
63.9 – 85.5 N·m (650 – 870 kgf·cm, 47 – 63 ft·lbf)

HINT:

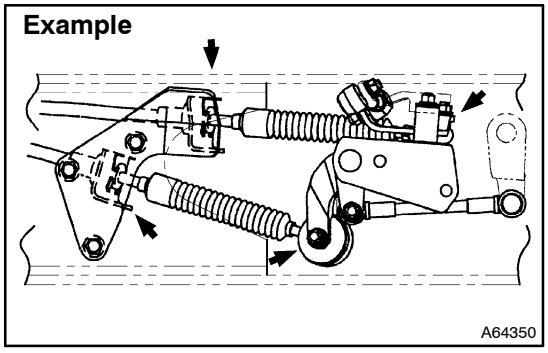
Use a hoist for the propeller shaft.

(b) Tighten the center bearing support mounting nut.

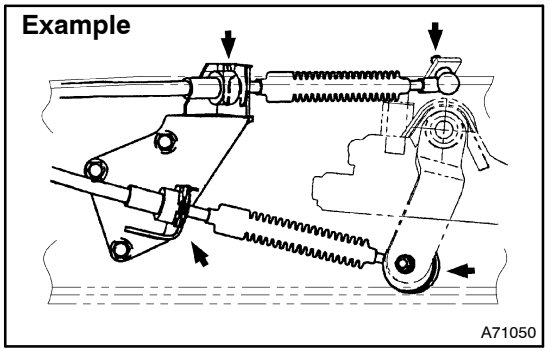
Torque:
37.4 – 49.2 N·m (380 – 500 kgf·cm, 27 – 36 ft·lbf)

32. CONNECT ELECTRICAL WIRE

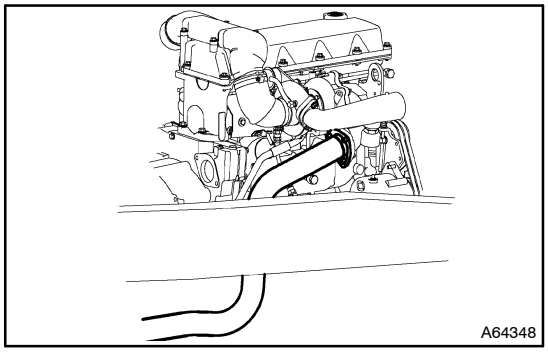
(a) Connect the engine main wire harness.
(b) Connect the generator part wire harness.
(c) Connect the starter part wire harness.
(d) Connect the transmission part wire harness.
(e) Connect the oil pressure switch part wire harness.



33. CONNECT TRANSMISSION CONTROL CABLE ASSY



34. CONNECT PARKING BRAKE CABLE ASSY



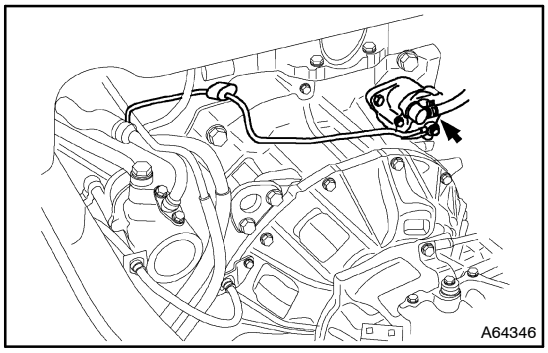
35. INSTALL EXHAUST PIPE ASSY

HINT:

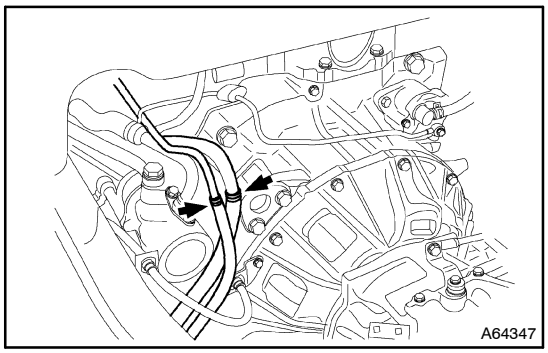
Be sure to use a new gasket.

(a) Install the exhaust pipe.
Torque: 70 N·m (700 kgf·cm, 52 ft·lbf)

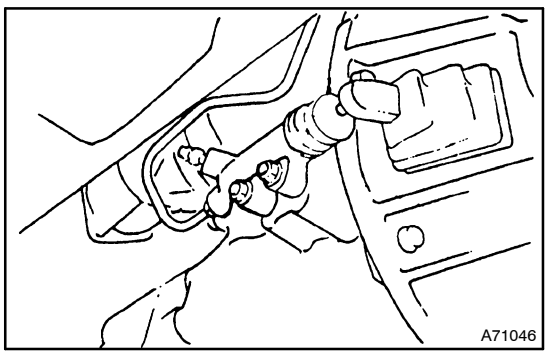
(b) Install the muffler.
Torque: 29.5 N·m (301 kgf·cm, 22 ft·lbf)



36. CONNECT VACUUM HOSE



37. CONNECT FUEL HOSE



38. INSTALL CLUTCH RELEASE CYLINDER ASSY

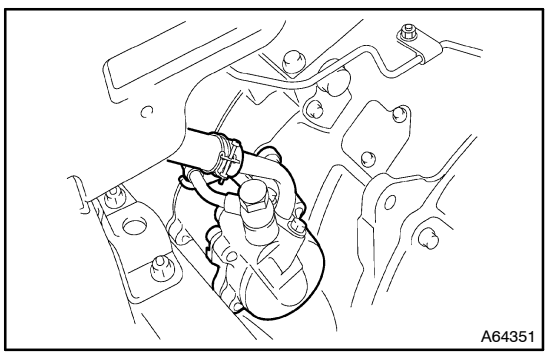
(a) Install the release cylinder to the lines.

HINT:

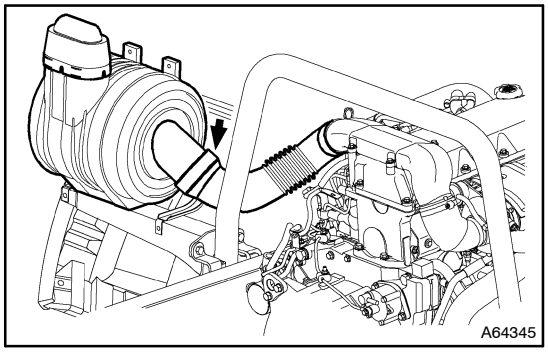
Check and adjust the push rod dimension.

(b) Install the clevis pin and return spring at the lever.

(c) Install the wiring clip of the clutch hose.



39. INSTALL VANE PUMP ASSY
Torque: 47 N·m (480 kgf·cm, 35 ft·lbf)

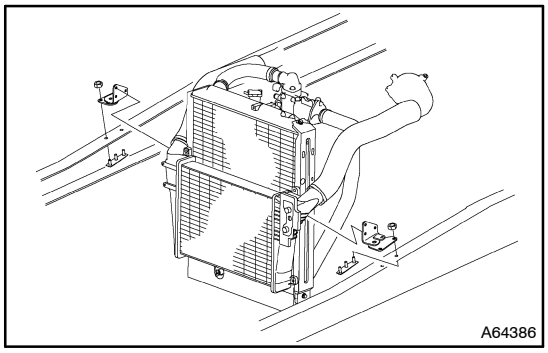


40. INSTALL REAR CAB MOUNTING BRACKET
Torque: 55 N·m (565 kgf·cm, 41 ft·lbf)

41. INSTALL AIR CLEANER HOSE

(a) Install the air cleaner hose to the bracket.

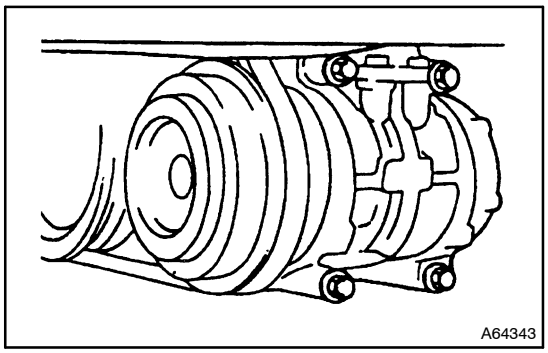
(b) Install the air cleaner with the air hose connected to the engine.



42. FIX RADIATOR ASSYTO FRAME

(a) Install the radiator mounting.

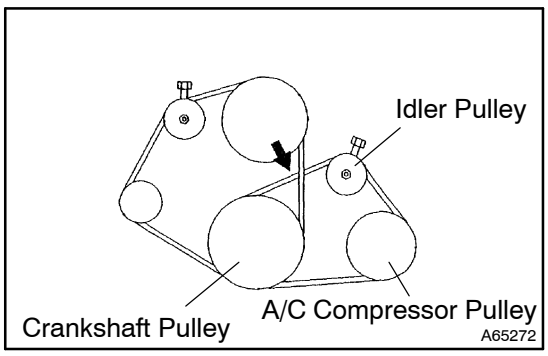
(b) Install the reservoir hose.



43. INSTALL A/C COMPRESSOR

(a) Install the A/C compressor with the 4 bolts.
Torque: 29.5 N·m (300 kgf·cm, 22 ft·lbf)

HINT:
For the coolant charging procedure (gas charging), observe the air conditioner manufacturer's instructions.



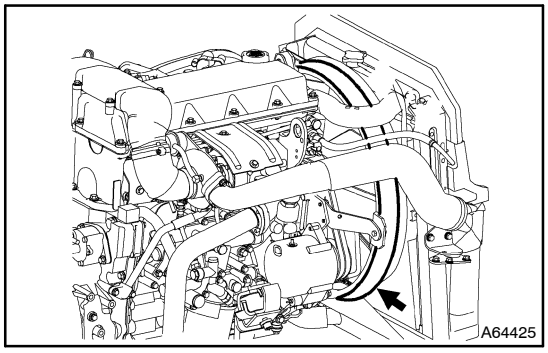
(b) Install the V belt.
(1) Turn the adjusting bolt until the V belt becomes tight, and then tighten the tension pulley lock nut.
Torque: 41.3 N·m (420 kgf·cm, 30 ft·lbf)

(c) Adjust the V belt deflection.
(1) Apply a load of approx. 10 kg (22 lb) by pressing the V belt with your thumb.

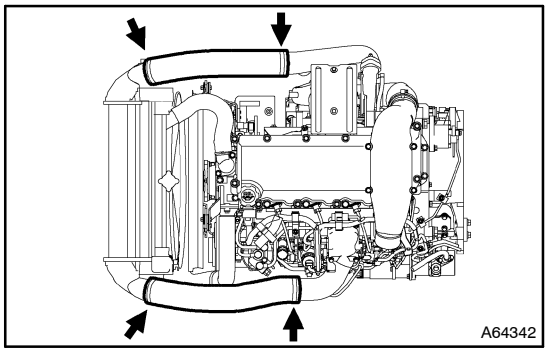
V belt deflection:

New belt	7.0 – 8.5 mm (0.276 – 0.335 in.)
Used belt	8.5 – 10.0 mm (0.335 – 0.394 in.)

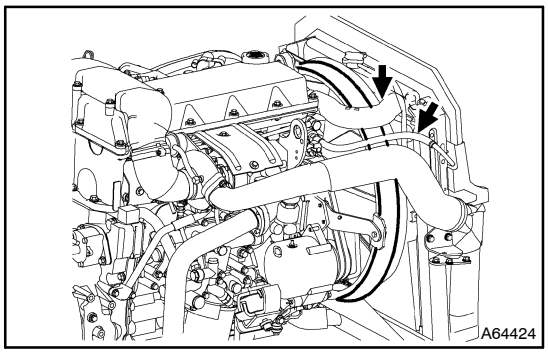
HINT:
- "New belt" refers to a belt which has been used for less than 5 minutes on a running engine.
- "Used belt" refers to a belt which has been used on a running engine for 5 minutes or more.
- After installing a new belt, run the engine for approx. 5 minutes and recheck the belt tension.



44. INSTALL FAN SHROUD SEAL HOLDER

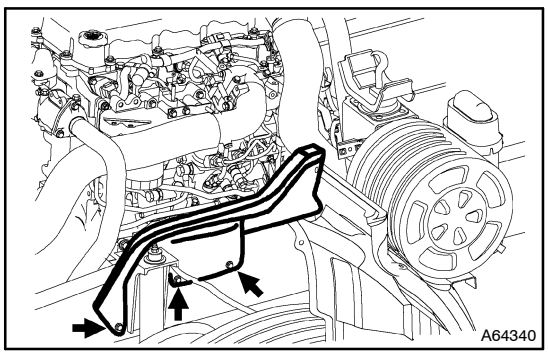


45. INSTALL INTERCOOLER HOSE



46. INSTALL RADIATOR HOSE

47. INSTALL HEATER HOSE



48. INSTALL SPLASH BOARD

(a) Install the LH and RH splash boards.

49. CONNECT NEGATIVE TERMINAL CABLE TO BATTERY

50. ADD ENGINE OIL

Oil capacity: 8.6 liters (9.1 US qts, 7.6 Imp. qts)

51. ADD ENGINE COOLANT

(a) Add coolant slowly until the system is filled up to the filter opening, then install the cap securely.

Coolant capacity: 16.5 liters (17.4 US qts, 14.5 Imp. qts)

HINT:

Trapped air in the cooling system can cause overheat.

52. BLEED FUEL (See page 11–156)

53. INSPECT FOR ENGINE COOLANT LEAKS

54. INSPECT FOR FUEL LEAKS

55. INSPECT FOR EXHAUST GAS LEAK