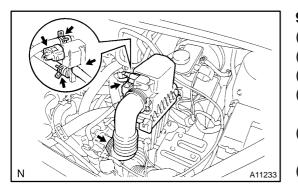
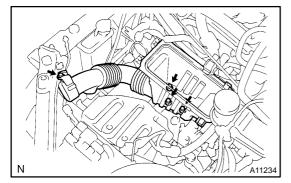
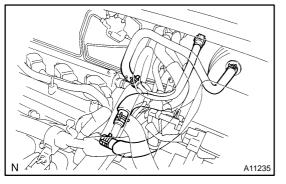
# REMOVAL

- 1. REMOVE BATTERY AND TRAY
- 2. REMOVE HOOD
- 3. REMOVE OUTER FRONT COWL TOP PANEL (See page BO-32)
- 4. REMOVE ENGINE UNDER COVERS
- 5. DRAIN ENGINE COOLANT
- 6. DRAIN ENGINE OIL
- 7. DRAIN TRANSAXLE OIL
- 8. DISCONNECT ACCELERATOR CABLE







9. REMOVE AIR CLEANER CAP

- (a) Disconnect the MAF sensor connector.
- (b) Disconnect the PCV hose from the cylinder head.
- (c) Disconnect the 2 hose from the VSV for EVAP.
- (d) Disconnect the 2 clamps, and disconnect the air cleaner cap from the air cleaner case.
- (e) Loosen the hose clamp, and disconnect the air cleaner hose from the throttle body.
- (f) Remove the air cleaner cap and air cleaner hose assembly.

## 10. REMOVE AIR CLEANER CASE

- (a) Remove the air filter.
- (b) Remove the 4 bolts and air cleaner case and air cleaner inlet assembly.

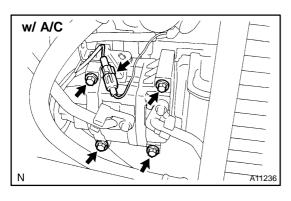
#### 11. DISCONNECT TUBE, HOSES AND CONNECTORS

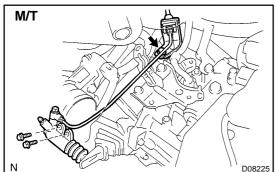
- (a) Remove the fuel pipe clamp.
- (b) Disconnect the fuel tube from fuel pipe on vehicle side.
- (c) Disconnect the heater hose from water bypass pipe.
- (d) Disconnect the brake booster vacuum hose from pipe.
- (e) Disconnect the heater hose from water hose union on cylinder head.
- 12. REMOVE DRIVE BELT AND GENERATOR (See page CH-7)

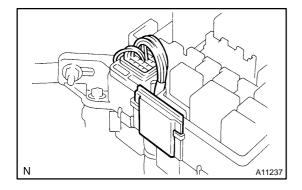
2002 ECHO (RM884U)

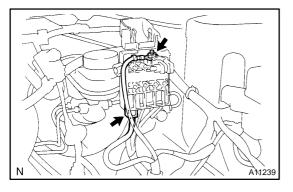
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## 13. REMOVE RADIATOR ASSEMBLY (See page CO-16)









### 14. w/ A/C:

## DISCONNECT A/C COMPRESSOR FROM ENGINE

- (a) Disconnect the A/C compressor connector.
- (b) Remove the 4 bolts, and disconnect the A/C compressor from the engine.

HINT:

Suspend the A/C compressor securely.

- 15. M/T: DISCONNECT CLUTCH RELEASE CYLINDER FROM TRANSAXLE
- (a) Remove the bolt, and disconnect the bracket from the transaxle.
- (b) Remove the 2 bolts, and disconnect the release cylinder from the transaxle.
- 16. DISCONNECT TRANSAXLE CONTROL CABLE(S) FROM TRANSAXLE
- 17. DISCONNECT ENGINE WIRE FROM ENGINE COMPARTMENT
- (a) Disconnect the connector from the relay box.
- (b) Disconnect the cable clamp from the relay box.

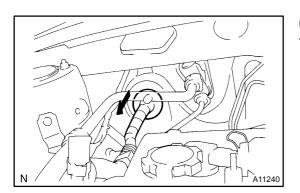
- (c) Disconnect the connector from the fusible link.
- (d) Disconnect the positive cable from the positive terminal.

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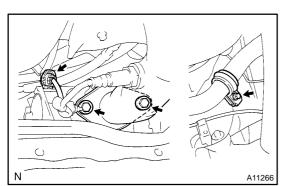


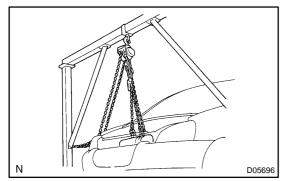
### 18. DISCONNECT ENGINE WIRE FROM CABIN

- (a) Remove the lower panel (See page BO-76).
- (b) Disconnect the 4 ECM connectors.
- (c) Disconnect the 2 cowl wire connectors from connectors on bracket.



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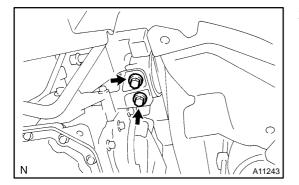
(d) Pull out the engine wire from the cabin.

19. DISCONNECT PS PUMP FROM ENGINE (See page SR-24)

## 20. REMOVE CENTER EXHAUST PIPE

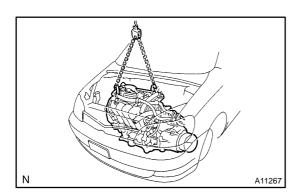
- (a) Disconnect the rear heated oxygen sensor.
- (b) Disconnect the connector for front heated oxygen sensor.
- (c) Remove the 2 bolts and floor brace.
- (d) Remove the 3 bolts, 2 springs and pipe clamp.
- (e) Disconnect the 2 O-ring, and remove the center exhaust pipe and 2 gaskets.
- 21. REMOVE DRIVE SHAFTS (See page SA-18)
- 22. REMOVE SUSPENSION MEMBER (Manual steering: See page SR-35) (Power steering: See page SR-48)
- 23. REMOVE REAR ENGINE MOUNTING
- (a) Remove the through bolt, lock nut and rear engine mounting insulator.
- (b) Remove the 2 bolts, nut and rear engine mounting bracket.
- 24. ATTACH ENGINE SLING DEVICE TO ENGINE HANG-ERS
- (a) Remove the bolt, and disconnect the condenser.
- (b) Install the 2 engine hangers in the correct direction. Engine hanger part No.: 12281-21010 Bolt part No.: 91512-B1016 2 pieces Torque: 38 N-m (388 kgf-cm, 28 ft-lbf)
- (c) Attach the engine sling device to the engine hangers. **CAUTION:**

Do not attempt to hang the engine by hooking the chain to any other part.



- 25. REMOVE ENGINE AND TRANSAXLE ASSEMBLY FROM VEHICLE
- (a) Remove the 2 bolts, and disconnect the LH engine mounting.

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- (b) Remove the 2 bolts and nut, and disconnect the RH engine mounting.
- (c) Remove the bolt holding the liquid tube to the RH engine mounting insulator.
- (d) Remove the 3 bolts and RH engine mounting insulator.



(e) Lift the engine out of the vehicle slowly and carefully. HINT:

Make sure the engine is clear of steering gear assembly all wiring, hoses and cables

- (f) Place the engine and transaxle assembly on to the stand.
- 26. SEPARATE ENGINE AND TRANSAXLE (M/T: See page MX-4) (A/T: See page AX-29)