ENGINE

The 210M HAULPAK is powered by a Cummins QSK19 engine. The front engine mount is attached to a cradle between the frame rails. The cradle is mounted to the frame with rubber mounts. The rear engine mounts are mounted on frame brackets attached to each side of the flywheel housing with rubber mounts.

Engine Removal

⚠WARNING

Engine weighs approximately 4300 lbs (1950 kg). Make certain all lifting apparatus is of adequate capacity.

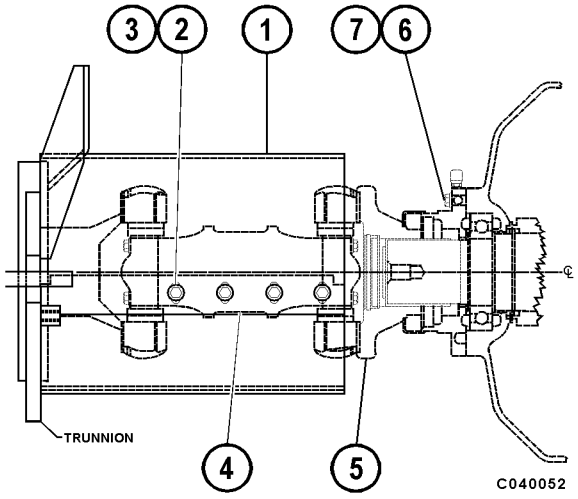
1. Remove radiator. Refer to instructions covering radiator removal in this section.

NOTE: Plug all ports and cover hose connections when disconnected to prevent dirt and foreign material from entering.

2. Remove air inlet piping from air cleaner to engine.
3. Remove exhaust piping from turbocharger to flex pipes.
4. Remove upper half of driveline protector. Refer to Figure 4-1.
5. Remove capscrews (6) securing coupling to cover.
6. Make sure cross bearing caps are separated from coupling flange.
7. Remove transmission cooler hose clamps. Disconnect and cap hoses from transmission.
8. Remove clamps securing hoses to front engine mount cradle. Position hoses so they will not interfere with cradle removal.
9. Disconnect fuel lines and CEC throttle potentiometer cable at fuel lever.

NOTE: Identify and mark connection points of all wires.

10. Disconnect all wiring to engine.



F IGURE 4-1. DRIVELINE REMOVAL

1. Driveline Protector,
2. Capscrew
3. Lockwasher
4. Driveline
5. Coupling
6. Capscrew
7. Washer

11. Measure height of front engine cradle to frame mounts (Figure 4-2). Measurement should be 2.06 in. (52.3 mm). If less than this dimension, rubber mount should be replaced after engine is removed.

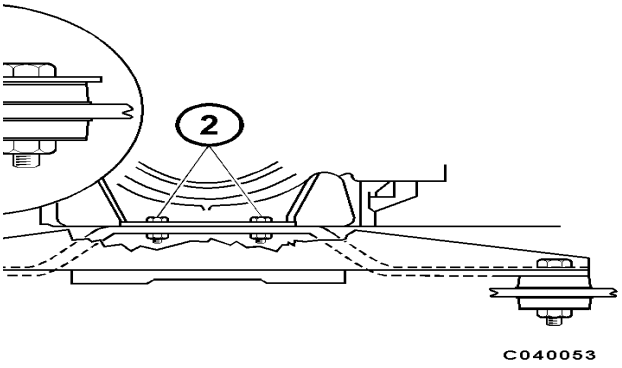


FIGURE 4-2. FRONT ENGINE CRADLE MOUNT

1. Cradle Mount
2. Engine Mount Capscrews

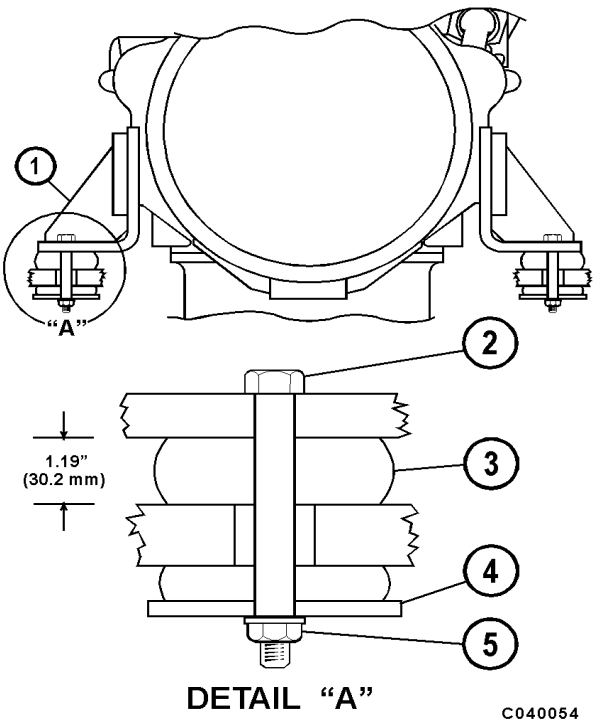


FIGURE 4-3. REAR ENGINE MOUNT

1. Engine Bracket
2. Capscrew
3. Rubber Mount
4. Washer
5. Locknut

12. Measure distance from rear engine mount, on each side, to frame mount at all four rubber mounts (Figure 4-3). Distance should be 1.19 in. (30.2 mm). If less than this dimension, replace rubber mounts after engine is removed.
13. Place engine lifting device between cylinder heads, one on each end of engine, under protruding cast portion (2, Figure 4-4). Take up slack.
14. Remove capscrews securing front engine mount to cradle (2, Figure 4-2), and capscrews at each rubber mount of cradle.
15. Remove capscrews from four rear engine rubber mounts (1, Figure 4-3).
16. Raise front of engine enough to remove front cradle.
17. Carefully maneuver engine forward and upward to clear horse collar and front bumper.
18. Move to clean work area and position on supports to prevent damage to oil pan, etc.

Engine Installation

1. If removed, install rear engine mounts (1, Figure 4-5) to flywheel housing. Tighten capscrews to standard torque.

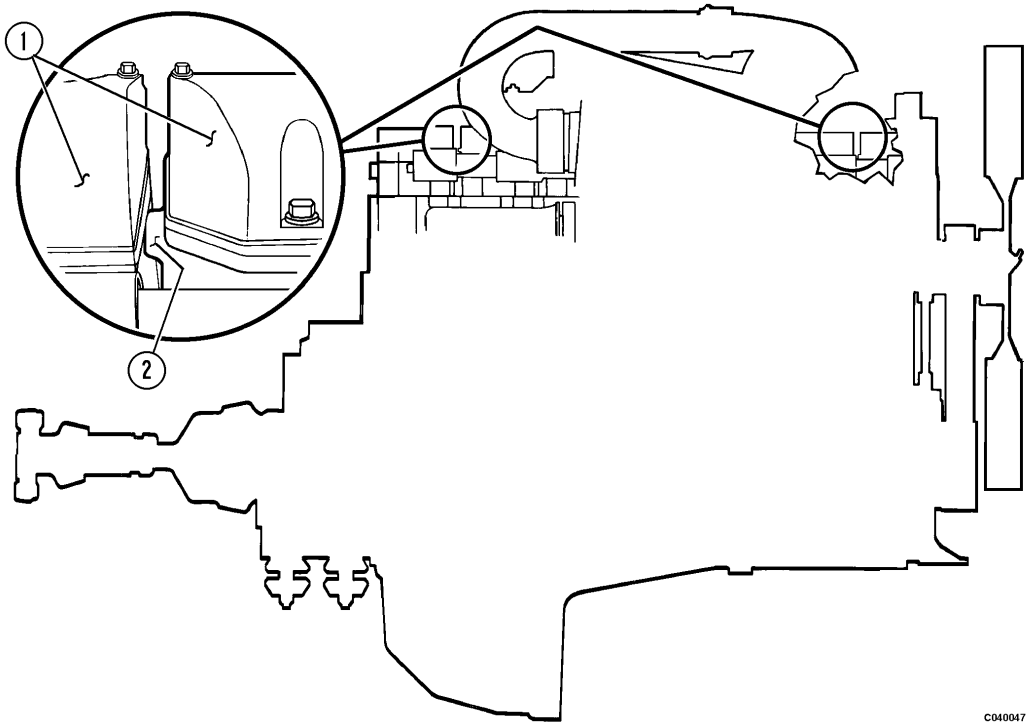


FIGURE 4-4. ENGINE LIFTING POINTS

1. Heads
2. Lift Point

2. Place rubber mount in each rear engine frame mount (3, Figure 4-5).

3. Install front engine rubber mounts in frame mounts (1, Figure 4-6).

4. Place engine device between cylinder heads, one on each end of engine, under protruding cast portion. Refer to Figure 4-4. Take up slack.

⚠WARNING

Engine weighs approximately 4300 lbs. (1950 kg). Make certain all lifting apparatus is of adequate capacity.

5. Position engine in frame on rear rubber mounts, start capscrews.

6. Place front cradle (1, Figure 4-6) on front rubber mounts, install capscrews.

FIGURE 4-6. FRONT ENGINE CRADLE MOUNT

1. Cradle Mount
2. Engine Mount Capscrews

7. Install capscrews (2), lockwashers and nuts, securing front engine mount to cradle. Tighten to standard torque.

8. Allow full weight of engine to rest on mounts.

9. Install lower half of rear rubber mounts, large washer and nuts (4,5, Figure 4-5).

10. Tighten nuts until rear rubber mounts are compressed between engine mount and frame mount to a dimension of 1.19 in. (30.2 mm). Refer to Figure 4-5.

11. Install capscrew and nut in front rubber mounts Figure 4-6). Tighten nut to standard torque.

FIGURE 4-5. REAR ENGINE MOUNT

1. Engine Bracket
2. Capscrew
3. Rubber Mount
4. Washer
5. Locknut

FIGURE 4-7. DRIVELINE INSTALLATION

1. Driveline Protector,
2. Capscrew
3. Lockwasher
4. Driveline
5. Coupling
6. Capscrew
7. Washer