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Coding Information

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Title: Vibration Troubleshooting

Applies To: All International Trucks

CHANGE LOG

Dealers: Please refer to the change log text box below for recent changes to this article:

11/2/2015 - Added info from IK0100013 & IK1200666
 10/16/2015 - Removed content about discontinued tool - ZTSE 4580 and updated Author for feedback purposes
 4/01/2015 - Added Frequency Graph
 8/28/2014 - Deleted the yellow highlighted links that were not really links.
 8/05/2014 - Author updated for feedback purposes

Engine Vibration Source:

DESCRIPTION

Engine Vibration on MaxxForce® 11 and 13

SYMPTOMS

- Vibrations felt in the engine at idle and highway speeds.
- Driver may complain they cannot see out the side mirrors due to the vibration.

RESOLUTION

When installing a MaxxForce 11 or 13 engines a shoulder bolt (PN 3822703C1 or 3596321C2) must be used to align both the left and right front engine mounts. This will ensure correct alignment of front engine mount bushings. Install the shoulder bolts (as shown in Figure 2) prior to lowering the engine into the chassis. After the engine has been positioned and the front and rear engine mount bolts have been tightened to the appropriate torque, remove the alignment bolt from each of the front engine mounts. If the alignment bolts are left in, it will cause an engine vibration.

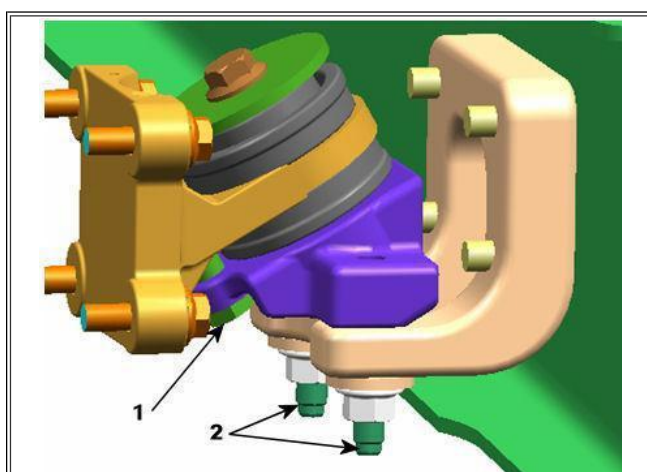


Figure 1

1. Temporary Alignment Bolt
2. Engine Mount Bolts

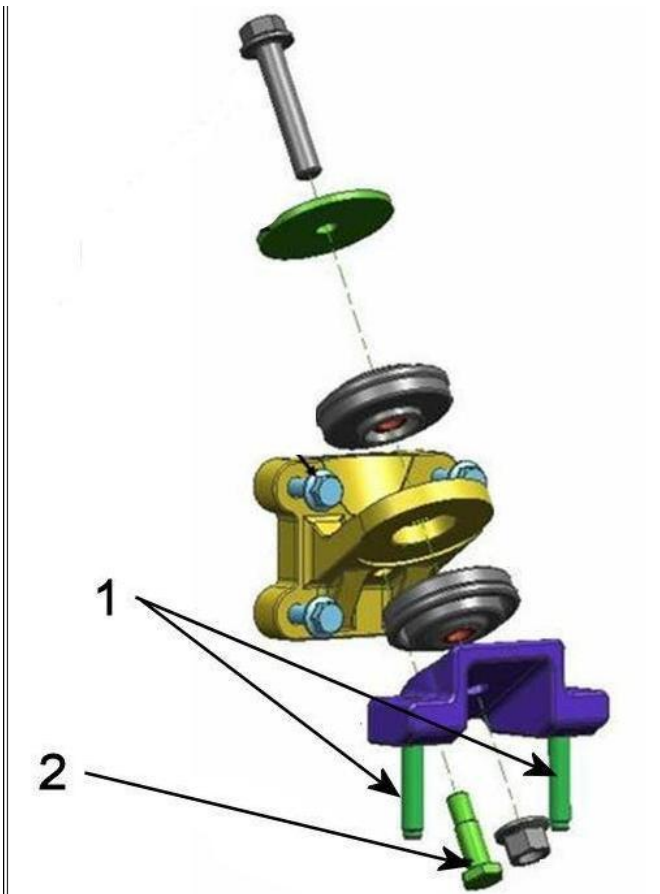


Figure 2
 1. Front Engine Mount Bolts (Torque to 215-237 Nm) (160-175 Lbf-ft)
 2. Temporary Alignment Bolt

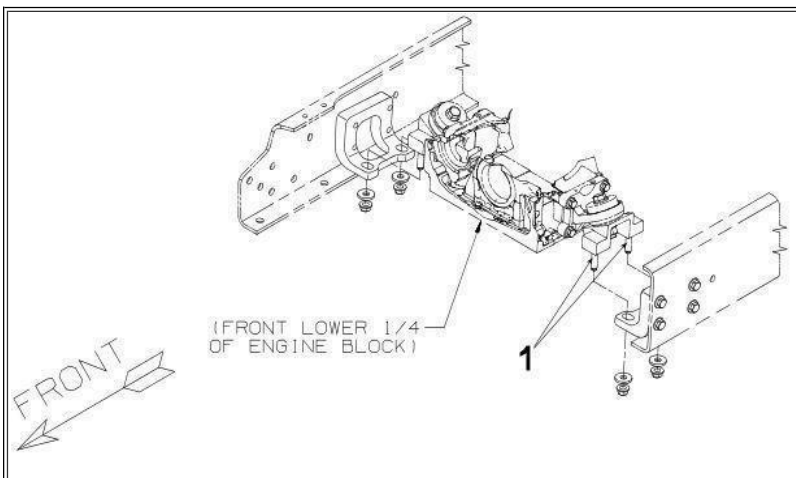


Figure 3
 Front Motor Mount Bolts (Torque to 215-237 Nm) (160-175 Lbf-ft)

Cab Vibration Source:

DESCRIPTION

Cab Mount Vibration. Applies to any vehicle model.

SYMPTOMS

- Vibrations felt in the engine or cab at idle and/or highway speeds.

- Driver may complain they cannot see out the side mirrors due to the vibration.

RESOLUTION

Check the air bag height on the rear cab mounts. Check the torque and condition of the front cab mounts.

Mirror Shake (post-Engine and Cab Source Investigation):

DESCRIPTION

Mirror shakes and vibrates at idle or other engine speeds. Applies to any vehicle model.

SYMPTOMS

- Mirror Shake at engine idle speed
- Mirror Shake at any engine speed
- Mirror Shake when backing up vehicle

PARTS INFORMATION

Self adhering lead weights

SERVICE INFORMATION

Lang Mekra Mirror Service Information

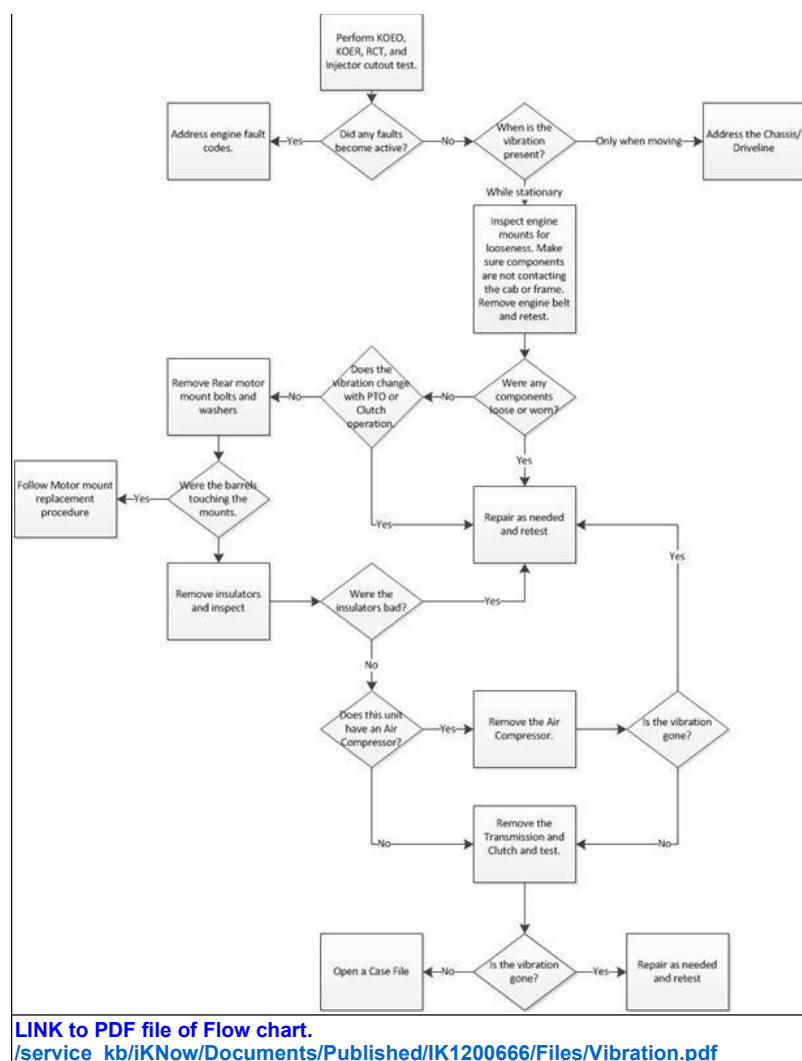
<http://www.lang-mekra.com/service.html>

RESOLUTION

- Inspect to make sure upper flip out arm has good rubber grommet. These have been known to wear out.
- Also, remove mirror(s) that are vibrating and add weight using self adhering lead weights to the back side of mirror.
- May take as much as 16oz.

TROUBLESHOOTING

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MOTOR MOUNT ADJUSTMENT/REPLACEMENT PROCEDURE

- Remove rear motor mount nuts and large washers.
- Check barrels (integral part of the insulator) to see if they are centered in mounting bracket hole (See Figure 1 below).
 - If barrels are centered, physically remove the insulators and inspect the sides of barrels.
 - If barrels are ripped then replace the rear insulators.
 - If barrels are contacting the brackets, widen the frame as necessary.
 - Loosen rear cab crossmember bolts (do not loosen bolts connecting to the frame) and push frame apart as needed and re-torque bolts.
- The front engine insulators are also suspect and they have to be removed in order to inspect the inner radius of the barrels for signs of contact or melting/worn rubber coating (See Figure 2 below).
 - If they show signs of rubbing then they must be replaced.

Note: Moving the engine and mounts around with weight off is not advised as they will change position when weight is applied – move mounts with weight on them.

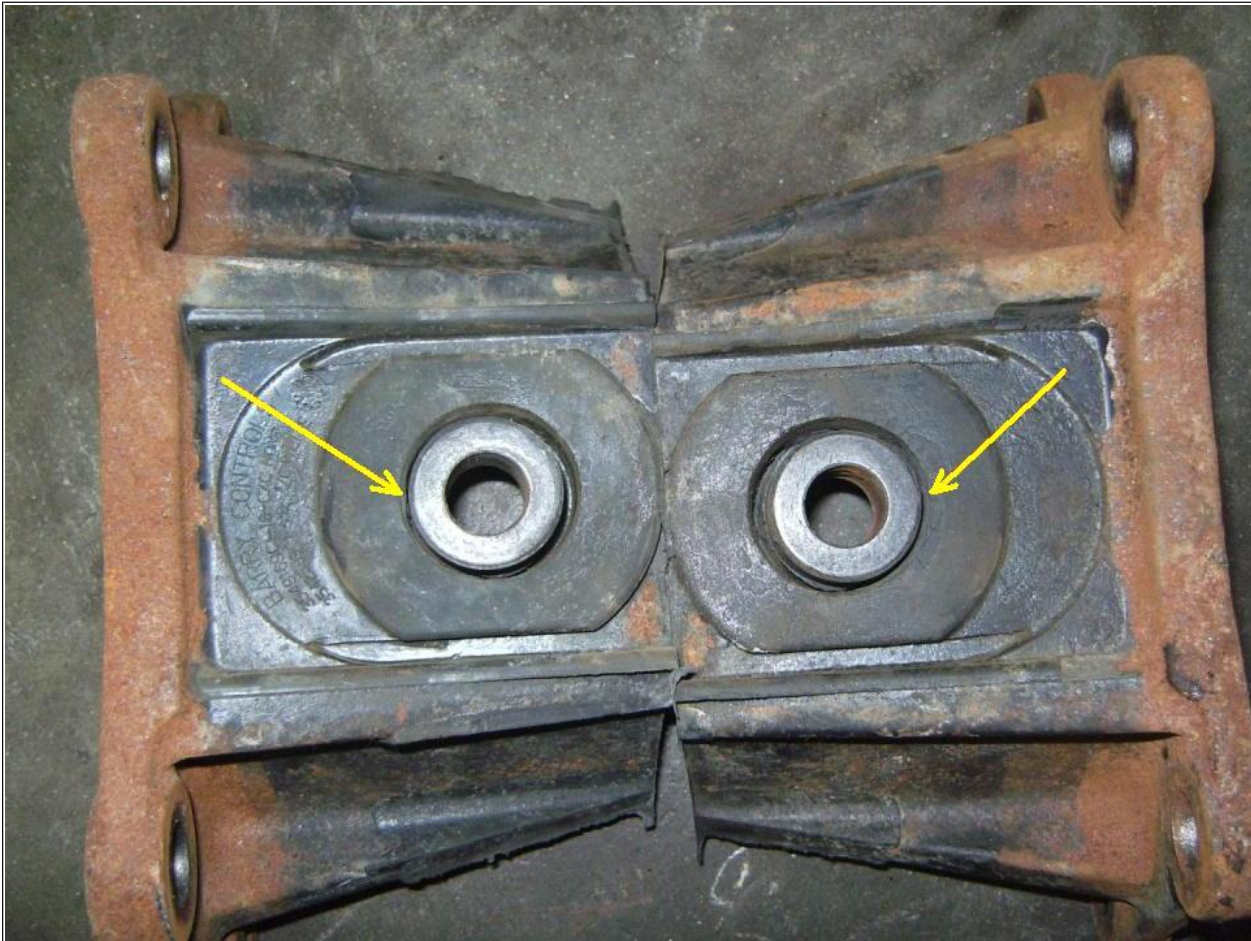


Figure 1:
INSULATOR DAMAGE - NOTICE BARRELS CONTACTING MOUNT



Figure 2:
FRONT INSULATOR DAMAGE

SYMPTOMS

- Driver may feel a vibration while steering the chassis in one direction or the other.
- Driver may feel this in the floor or steering wheel while driving in certain conditions and speed ranges.
- Driver may hear as well as feel this vibration

TROUBLESHOOTING

1. Remove the lower snubber washers on the rear engine mounts and look to see if the "spool" is centered in the mount bracket.
2. Jack the rear of the engine up to remove pressure from mount to see if the "spool" or the outer portion of the rubber on the mount is torn loose.

RESOLUTION

- Replace any compromised mount - there are no part number changes just get what parts calls for.
- With new mounts installed, carefully let the weight of the engine down on the mounts-pay close attention to note whether the weight of the engine cocks the spool to an angle and then note whether the spool is perfectly centered.
- Loosen the bolts that assemble the rear of cab crossmember and push out the frame if it is too narrow or pull frame together if too wide to allow centering of the rear engine mount bolts and retorqued the crossmember bolts.
- If the frame is **still** too wide at the rear engine mount area then you will need to add grade eight washers between the mount and the frame to space it inward until perfectly centered.
- If the frame is **still** too narrow at the rear engine mount area then you will need to measure the frame width at the front engine crossmember, again at the rear engine mount area, and lastly at the first crossmember (rear cab mount) behind the engine and document these numbers

 Hide Details

Feedback Information

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