

DIY Front & Rear Engine Mount Replacements

OK, now before we start let me say a few things...

1. When the rear engine mount has failed, it is usually wise to replace both as a pair, because the front engine mount is the smaller of both and with an east-west engine such as ours they work together. So when the rear has failed the smaller front mount is taking all the strain and possibly being weakened due to it.

You can tell a failed rear engine mount by a number of signs...

- more pronounced engine vibrations when idling but not when driving
- leakage of thin watery oil from the engine mount
- the centre bolt of the engine mount sitting towards the lower half of the outer metal casing where usually it sits centre or slightly above.

2. This is not difficult, but not quick either. You will need patience with the rear mount.

3. You might think about a modification to the standard bracket for the rear mount (described later) to get it back together more easily.

4. Although some of the pictures show the tailshaft removed, it is because I had to replace the bearings and seal in the transfer pinion, NOT because it is needed to be removed for the rear engine mount replacement.

If after reading the following procedures some things scare you, then take it to Nissan or a mechanic to do rather than start and find halfway through that you don't have the time or patience.

Hopefully there is nothing left out or not explained enough. If any clarifications are needed, please post questions in the thread and I will answer them for everyone else to read.

Revhead Kev (X450)

Front Mount.

Nissan Part No. 112708H310

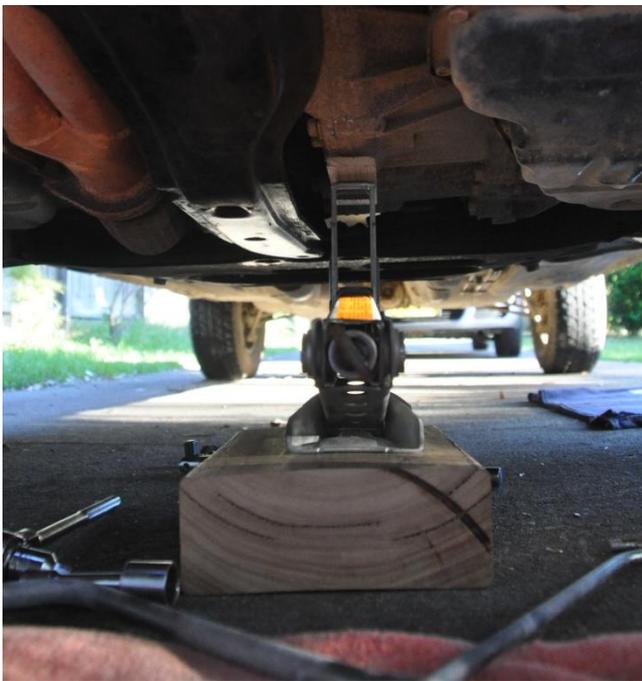
This is the easiest and most straight forward to do with no modifications and quite capable to be done with standard tools with the Xtrail on the ground.

You will need...

- Metric socket set with small extension
- Breaker bar (long heavyduty bar with knuckle joint, no ratchet, for undoing bolts which have stuck due to time)
- Torque wrench suitable for 50-65 ft/lb
- Long heavy-duty screwdriver or lever bar
- Standard car jack and possibly some bricks or pavers for extra height

Removal Procedure...

1. Support engine with jack. This is more to take the weight off the front mount centre bolt to make it easier to remove, rather than stopping the engine from moving as there are 3 other engine mounts keeping it in place.



2. Undo the bolt through the centre of the front engine mount.

3. Undo the 4 rear bolts of the centre subframe member.

4. Undo the 2 front bolts of the centre subframe member (it will now drop down)

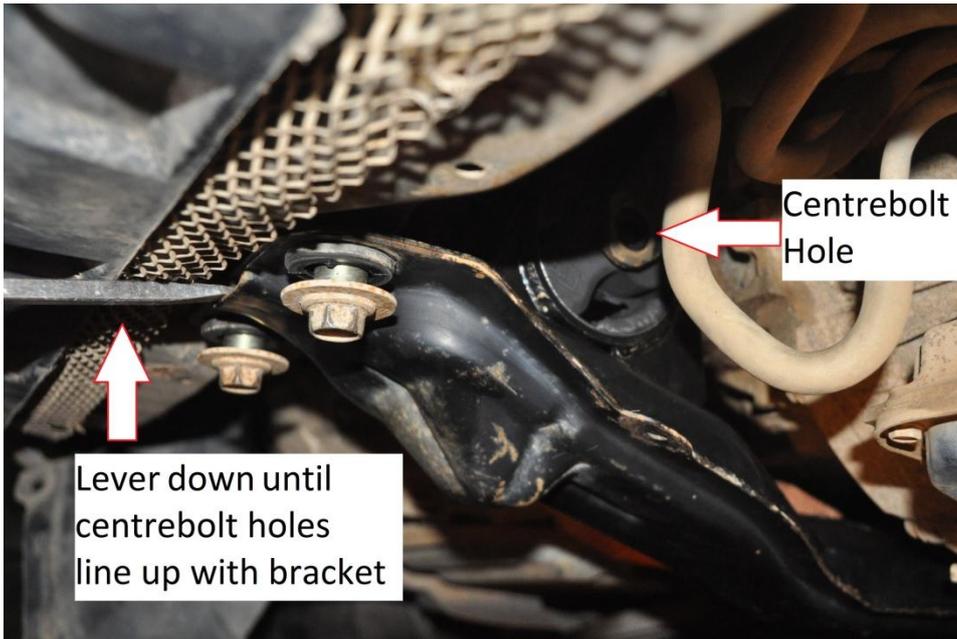
5. Remove the centre subframe member by sliding it towards the front of the Xtrail to drop the rear off the top of the main subframe at the back.



6. Now the old front engine mount can be removed from the centre subframe member and the new mount fitted.

Installation Procedure...

1. Slide the rear of the centre subframe member back over the main subframe at the back of the engine and partially screw in the 2 front bolts to support it at the front.
2. Reinstall the 4 rear bolts of the centre subframe member finger tight only.
- 3a. If the holes of the engine mount bracket completely line-up with the centre of the front engine mount then reinsert the front engine mount through-bolt.
- 3b. If the holes of the engine mount bracket do not line-up with the centre of the front engine mount, use a long heavy-duty screwdriver to lever the centre subframe member down until the holes line-up and then reinsert the front engine mount through-bolt.



4. Tighten and torque up the 2 front centre subframe member bolts.
 5. Torque up the 4 rear centre subframe member bolts.
 6. Torque up the front engine mount through-bolt.
- Drop the jack and all done.

Rear Mount.

Nissan Part No. 113208H800

For most, paying Nissan the \$250-odd for labour (if the dealer knows what to do) is probably worth taking the hassle-free option but for those who decide to tackle it, this is where you really get the satisfaction of a job well done.

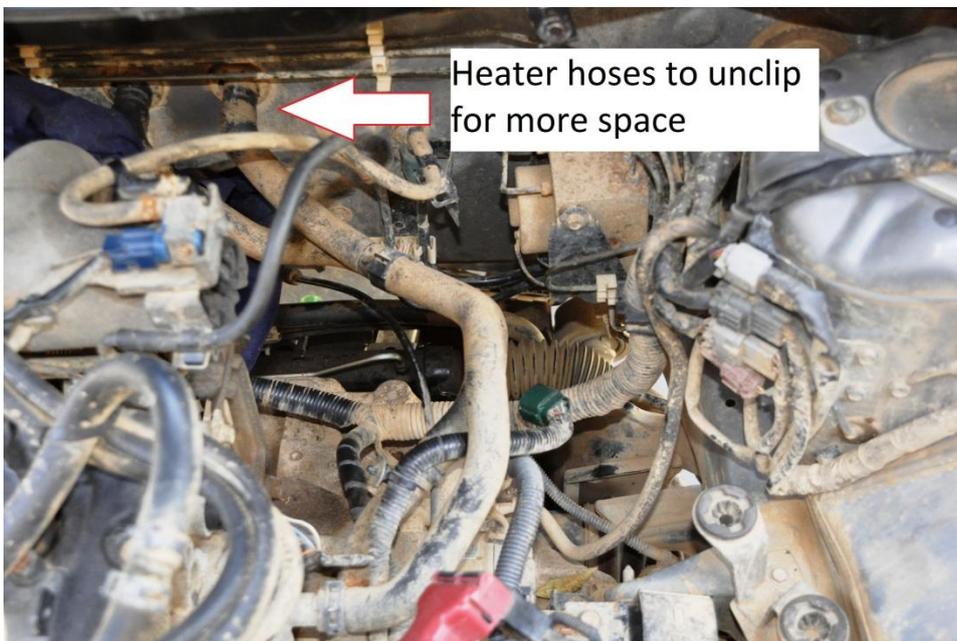
You will need...

- Metric socket set with extensions (one ratchet with knuckle joint on the handle is useful when undoing/tightening the steering gear bolt)
- Breaker bar (long heavyduty bar with knuckle joint, no ratchet, for undoing bolts which have stuck due to time)
- Torque wrench suitable for 35-110 ft/lb
- Long heavy-duty screwdriver or lever bar
- Standard car jack and possibly some bricks or pavers for extra height
- Car stand
- Long-handled 14mm ring/ratchet spanner ***only special tool required but easily bought online



Preparation...

1. Unclip the top of the airfilter box, remove the airfilter.
2. Loosen the intake flextube coupling at the top of the airfilter box, disconnect the MAF sensor connector and remove the lid.
3. Loosen the flextube coupling at the throttle body and move the flextube aside (infront of the engine is a nice resting place).
4. Unclip the throttle control connector, undo the 4 hexscrews of the throttlebody and remove it fom the intake manifold.
5. Undo the holding bolt for the bottom of the airfilter box and remove it from the engine bay.
6. (optional) unclip the heater hoses from the firewall connections and tie out of the way. Some coolant will leak out of the pipes but it will be minimal if the hoses are not allowed to drop below the level of the radiator.



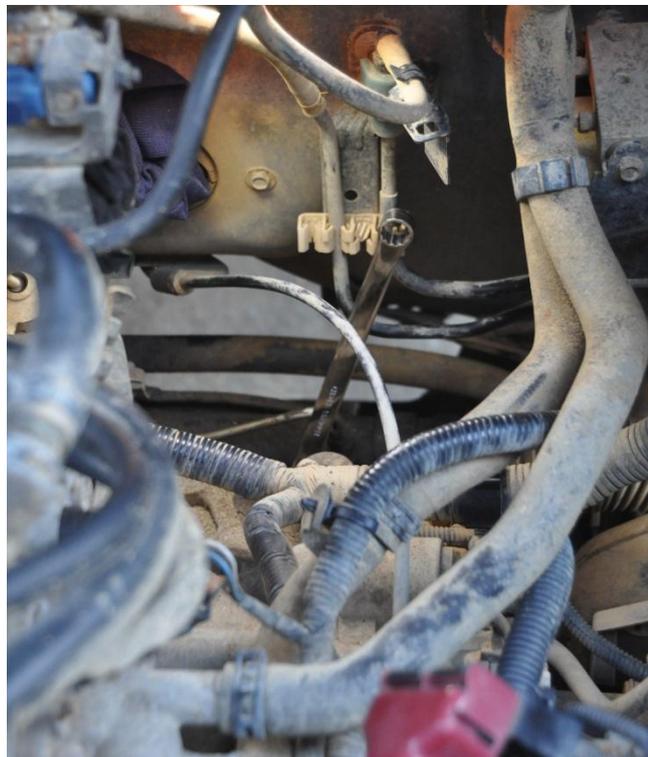
This all gives you access to the 2 bolts at the top of the engine mount bracket later when needed.

Removal Procedure...

1. Jack up the left front of the Xtrail and support on a stand.
2. Remove the left front wheel.



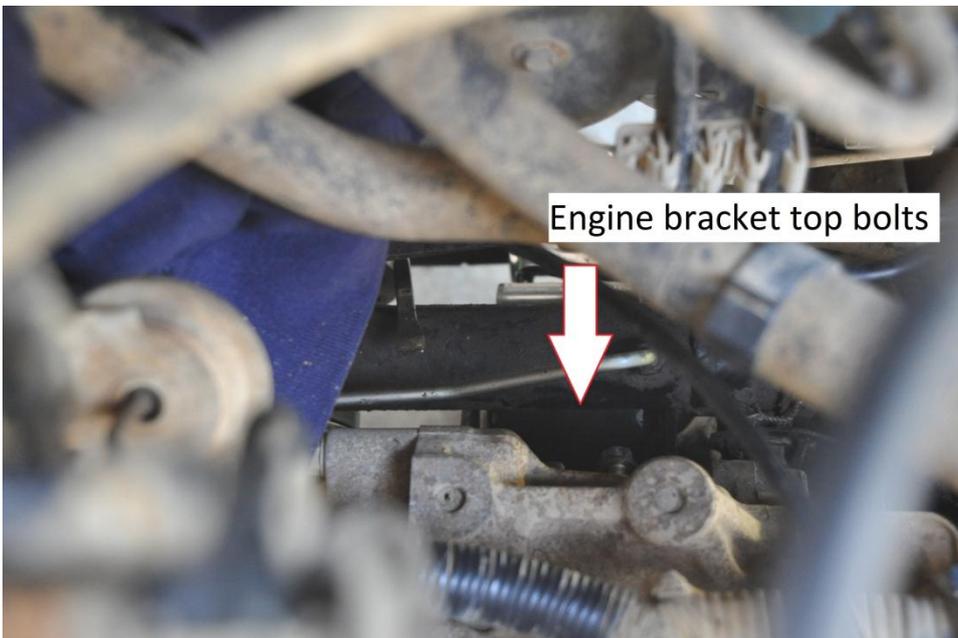
3. Using the long-handled 14mm ring spanner, loosen the 2 top bolts of the engine mount bracket by reaching over the steering gear through the wheel arch. The long handle gives the extra torque and grip required over a standard spanner to loosen them.



4. Working underneath, loosen and remove the 2 lower bolts of the engine mount bracket with a ring spanner. Depending on the drop of the engine you may be able to use the long-handled ring spanner or you may need to use a standard ring spanner which has a slight "tilt" to the head for clearance away from the main subframe member. If using the normal ring spanner, some taps with a hammer may be needed to shock the bolts loose initially.



5. Reaching over the radiator down through the space made available in the engine bay, remove the top 2 engine mount bracket bolts.



6. Working through the left wheel arch, use the breaker bar and a short length of 20mm NB fence pipe as an extension, undo the steering gear bolt. This may be very tight and possibly frozen in place. If it is, apply heat with a butane torch to the nut at the back to unlock the bolt from it. Remove the bolt. This enables step 9 later to be performed.



7. Working underneath, loosen the main through-bolt of the engine mount. The subframe support for the steering gear will be in the way, requiring the use of a ring spanner and stopping it from being completely removed so just undo it but do not try to remove it for now. Supporting the weight of the engine with a jack will help with loosening of the bolt.



8. Still underneath, loosen and remove the 2 front bolts and rear cross-bolt of the engine mount.

9. To enable the engine mount and bracket to be removed completely, clearance from the steering gear bracket needs to be made by wedging a long heavy-duty screwdriver or lever bar between the steering tube and bracket to lift it up out of the way. The interference is shown in the following photo.



10. The engine mount and bracket should now be able to be slid towards the rear of the Xtrail, lifting the rear of the mount over the fixed mounting point where the rear cross-bolt was removed. Stopping part-way, the centre through-bolt should be able to be removed from the engine mount to allow the engine mount and bracket to be separated for easier removal. Complete removal may require twisting of the engine mount to enable it to be guided over the fixed mounting point.

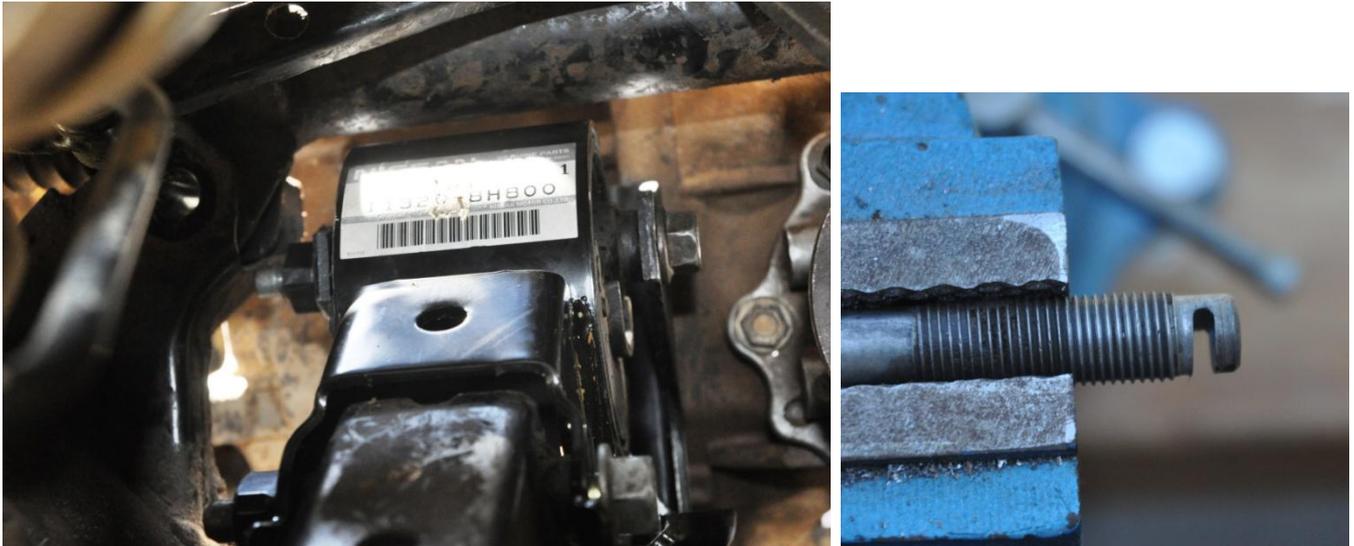
Modification to engine bracket...

Possibly not needed, but I did these to make assembly and future removal easier.

1a. As there is no clearance to remove the centre through-bolt of the engine mount because of the steering gear support bracket being in the way, I cut-off the welded nut from the engine mount bracket so that I could install the through-bolt from the other side where there is more room away from the transfer pinion and rear tailshaft to enable a torque wrench to be used for tightening.

1b. To maximise the clearance of the bolt end from the steering gear subframe support, I cut off most of the unthreaded end of the bolt.

Before cutoff



After cutoff



2. On the engine bracket there is a small extended tab inside which slots into a keyway in the metal centre-bolt tube of the engine mount. This is only to ensure the bracket is not installed upside-down, but it also inhibits the bracket from pivoting on the centre-bolt making installation harder. I took this off with an angle grinder.



Installation procedure...

1. Working underneath, rest the engine mount bracket in place against the engine and let it drop between the engine and the main subframe member while you move the engine mount into place.



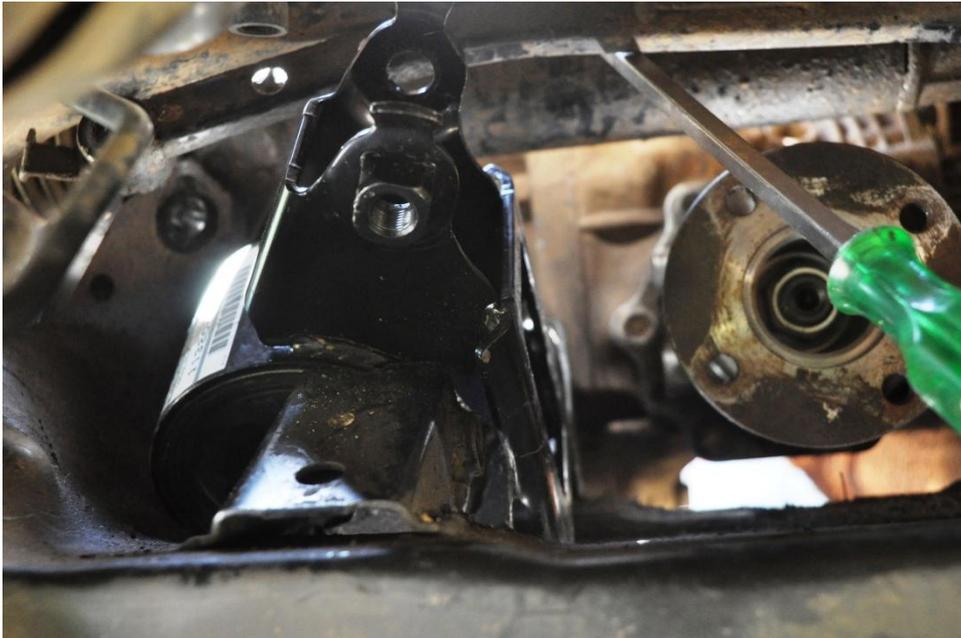
2. Move the engine mount into place by guiding it over the rear cross-bolt fixed mounting point.

This is best done by...

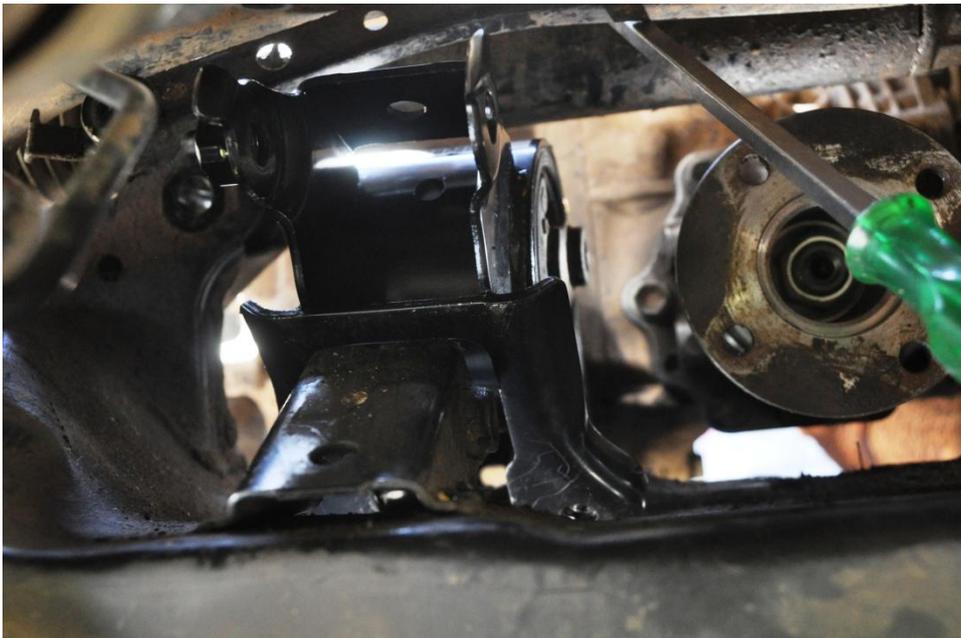
2a. Starting sideways,



2b. Sliding over the fixed bracket on the subframe,



2c. Then turning over to have the foot of the mount downwards,



2d. Then guiding the foot between the engine mounting bracket and subframe.



3. Lift the engine mounting bracket so that the engine mount centre-bolt can be installed. Do not completely tighten it at this stage.

3a. If you did the engine bracket modification then install the bolt from the right, holding the engine mount and bracket up slightly to allow the bolt clearance over the transfer pinion shaft. Once the bolt is through, screw the nut onto left end of the bolt.

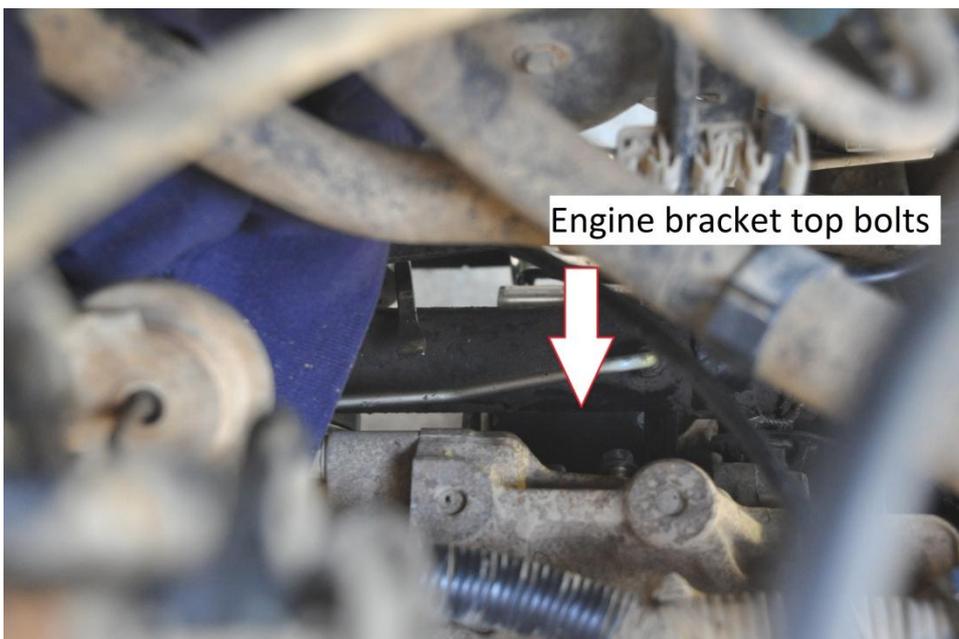


3b. If you did not do the bracket modification then install the bolt from the left, holding the engine mount and bracket slightly rear-ward to give the bolt clearance from the subframe steering gear support member.

4. Partially screw in the 2 lower bolts of the engine mounting bracket. At this stage depending on the condition of the old engine mount the jack supporting the engine may have to be lowered or lifted to assist in lining up the bolt holes of the engine with the engine mounting bracket.



5. Reaching over the radiator down through the space made available in the engine bay, install the 2 top bolts of the engine mounting bracket and tighten as much as possible.



6. Using the long-handled 14mm ring spanner, completely tighten the 2 top bolts of the engine mount bracket by reaching over the steering gear through the wheel arch. This will allow you to tighten them more than you just did reaching over the radiator.

7. Working back underneath, completely tighten the lower 2 bolts of the engine mounting bracket.

8. Remove the long-handled screwdriver or lever wedged between the steering tube and bracket and install the steering gear bolt finger tight.



9. Lower the jack supporting the engine, install and only partially screw in the 2 front bolts of the engine mount.

10. Using a screwdriver or short lever, push the engine mount back in position towards the engine so that the cross-bolt holes line up with the fixed rear mounting bracket and install the cross-bolt.



11. Torque up the 2 front bolts of the engine mount and then the cross-bolt.

12a. If you did the modification to the through-bolt so that it was installed from the right, torque up the through-bolt.

12b. If you left the through-bolt unmodified so that it was installed from the left, tighten the through-bolt as tight as possible with a ring spanner (there will be no clearance for a socket or torque wrench).

13. Working through the left wheel arch, tighten and torque the steering gear bolt. If you don't have a torque wrench, this should be tightened as much as you can as the torque setting is twice that of any of the other bolts.

14. Reinstall the left wheel, remove the stand and lower the Xtrail back to the ground.

15. Reinstall the intake parts in reverse order, starting with the heater hoses (if removed), bottom of the airfilter box, throttle body and throttle control connector, flextube coupling to the throttle body, top of the airfilter box to the flextube coupling and MAF sensor connector, finishing with the air filter and clipping the top of the airfilter box back in place.

16. Try and rock the engine by pushing on the intake manifold. It should not move. Start the engine and watch to make sure there are no vibrations. Let the engine reach operating temperature.

17. Once the engine has warmed up, check idle speed is correct. If too high it will be due to the throttle valve being accidentally moved during removal or installation. Perform the idle air learn procedure (found on the forum) to reset it to normal.

ALL DONE :o)