

# GEN III/IV CHEVROLET SMALL BLOCK TO NISSAN 300ZX ENGINE SWAP KIT Z32 TRANSMISSION



## INSTALLATION INSTRUCTIONS

Rev A May 2015

### **!!NOTICE!!**

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### **!!WARNING!!**

THE USER OF THIS PRODUCT ASSUMES ALL LIABILITY FOR ANY DAMAGES TO PERSONAL OR PUBLIC PROPERTY RESULTING FROM THE USE OR MISUSE OF THIS PRODUCT. ANY INJURIES SUSTAINED BY THE USER AND/OR ANY OTHER INDIVIDUALS ARE ALSO THE SOLE RESPONSIBILITY OF THE USER. MOTORSPORTS ACTIVITIES ARE INHERENTLY DANGEROUS AND LOJ INNOVATIONS, LLC CAN NOT BE HELD RESPONSIBLE FOR ANY INCIDENTS RESULTING FROM THE USE OR MISUSE OF THIS PRODUCT.



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### BEFORE YOU BEGIN:

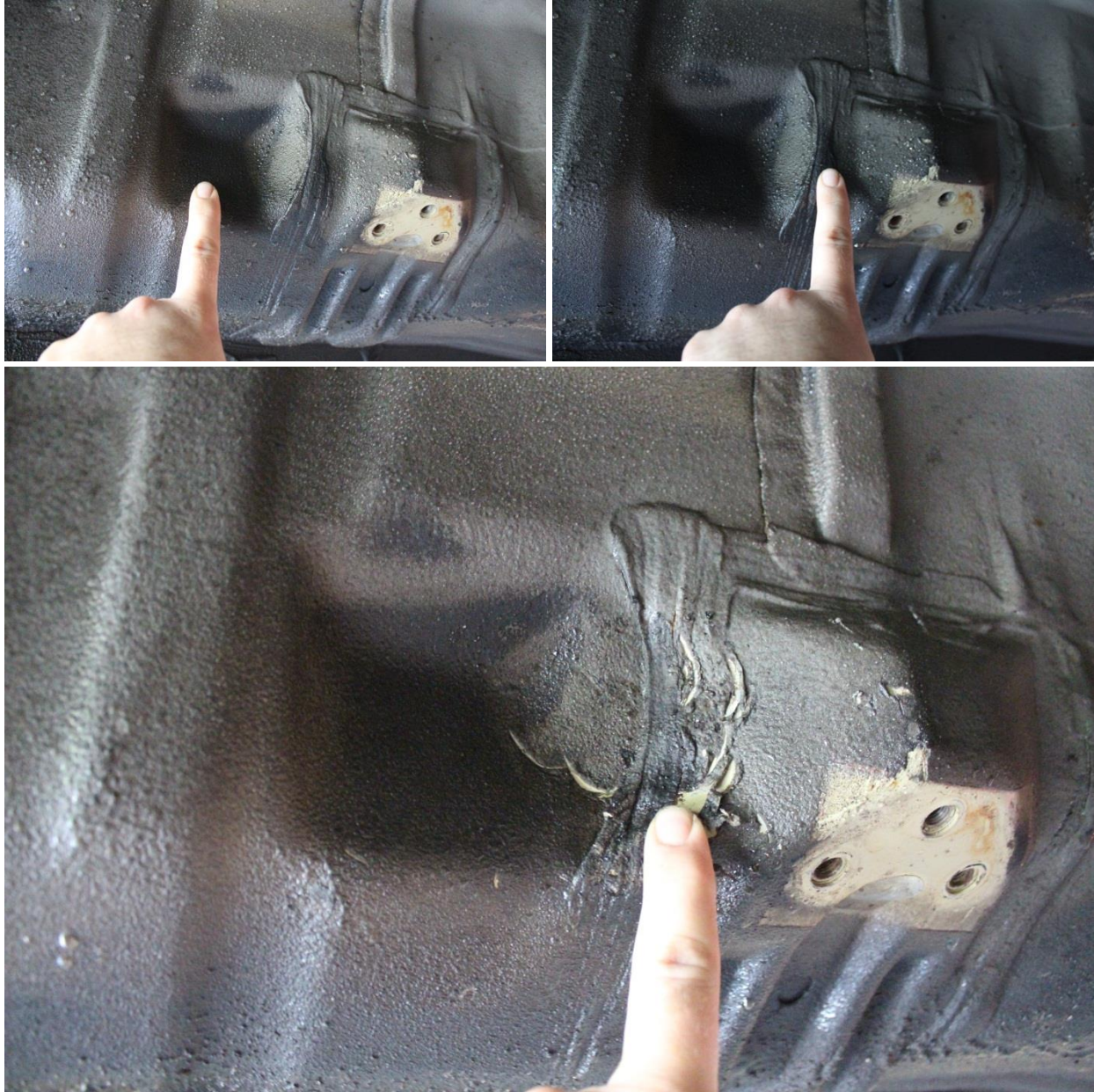
Please ensure that all of the components required for your installation have been included in your package. This will include:

- One pair of motor mounts with Qty. 8 M10x1.5 25mm bolts for attaching the mounts to the block. **YOU WILL RE-USE YOUR ORIGINAL ENGINE MOUNT NUTS**
- One transmission mount with Qty. 6 M10x1.25 30mm bolts for attaching the mount to the car. **YOU WILL REUSE YOUR ORIGINAL TRANSMISSION MOUNT NUTS**
- One LS to Z32 Transmission Adapter with Flywheel and hardware
- One shifter relocation bracket with hardware
- One pair of heater core outlets
- One LS Heater Recirculation Block

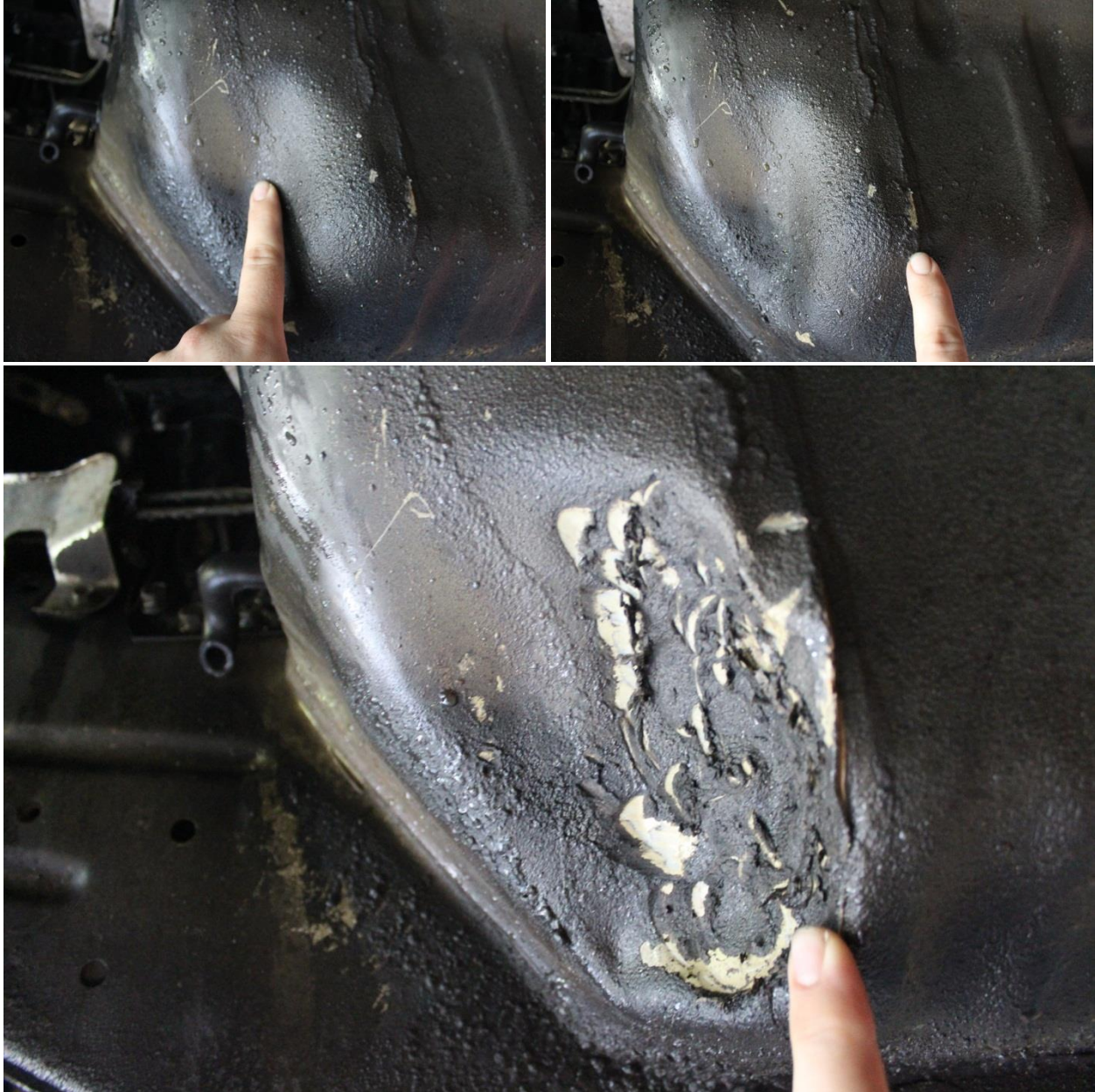
### INSTALLATION PROCEDURE:

- 1) After successfully removing your original engine and transmission, we recommend using this opportunity to give your engine bay a good cleaning. It is always more pleasant to work on a clean engine and vehicle.
- 2) Your first step will be installing your heater core outlets. There is a how-to video of this installation procedure available in the support section of the LOJ Innovations Website. If you do not have access to the video, some cliff notes are available below.
  - a. Cut the barb portion off of your existing heater core outlets.
  - b. Clean the heater core outlets and use compressed air to blow as much remaining coolant out of the heater core as possible.
  - c. Using emery cloth, scuff the outside of the heater core outlets.
  - d. Using a ½" plumbers brush, scuff the inside of both LOJ heater core outlets extensions.
  - e. Apply plumbers flux to both the heater core outlets and the inside of the heater core extensions.
  - f. The heater core extension with a single bend is installed on the upper heater core outlet, pointing diagonally upwards in line with the lower outlet.
  - g. The heater core outlet extension with two bends is installed on the lower outlet and will be oriented parallel with the upper outlet. **LEAVE ENOUGH CLEARANCE FOR HOSES AND CLAMPS!**
  - h. Braze both of the outlets in place using a MAPP Gas torch and plumbers solder.
- 3) Support you 300zx on jack stands with at least 18" of clearance between the framerrails and the ground. 24" is preferred.

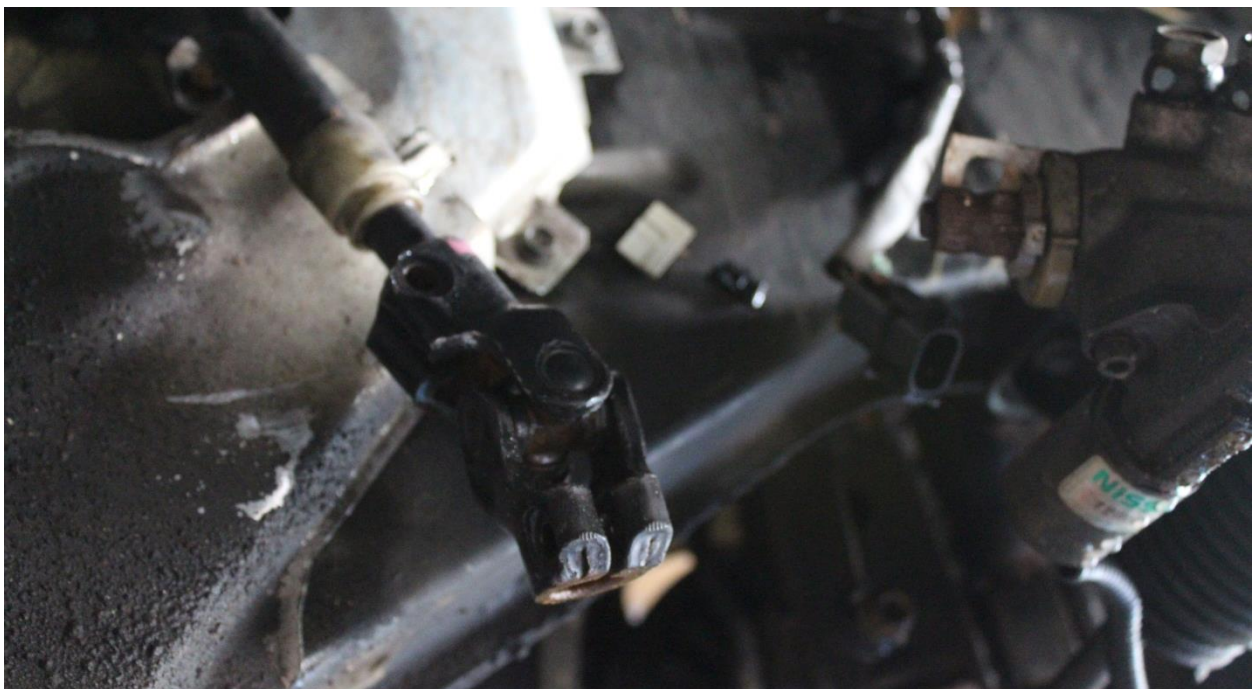
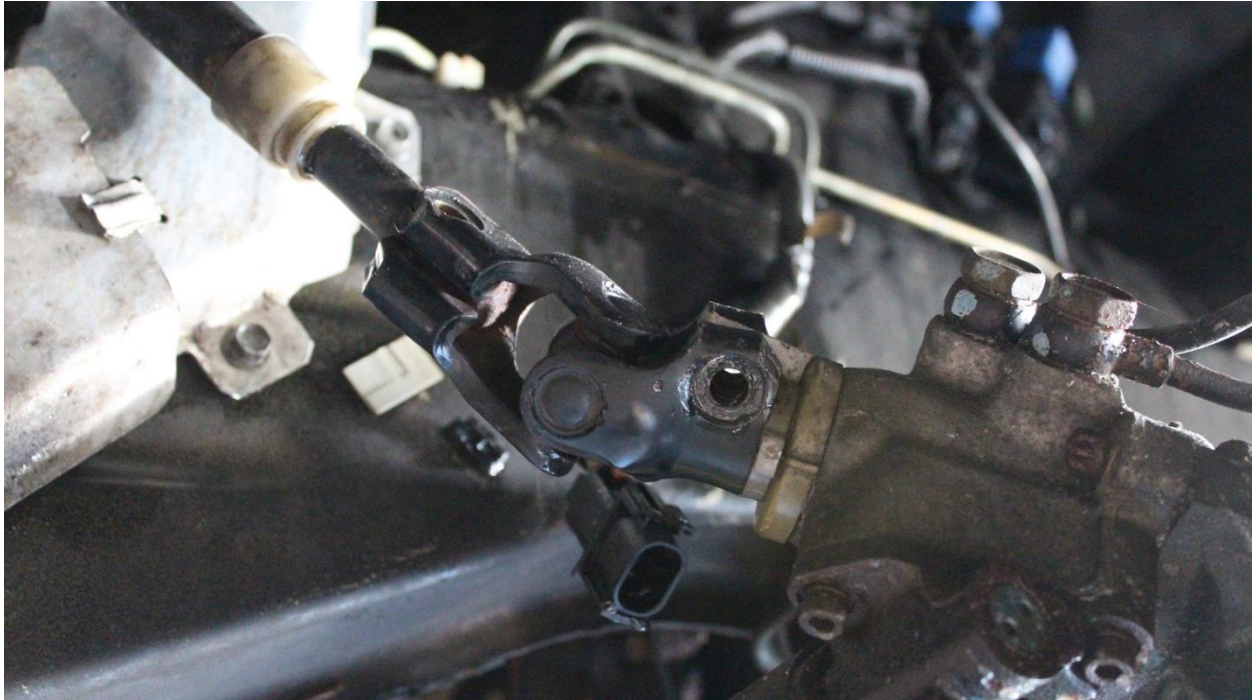
- 4) You will need to dent your transmission tunnel in two locations. The first location is just behind a pocket in the transmission tunnel where the speedo sensor lies. There is a how-to video on the LOJ Innovations Website in the support section showing this. Pictures are included below for reference. The top left image shows where the speedo sensor pocket is located. The top right image shows the area that needs to be dented. The bottom image shows the area after denting.



- 5) The second location where the transmission tunnel needs to be dented is where the starter pocket is located. You will notice a seam in the metal just behind the starter pocket. Use this seam as a reference on how far back the pocket needs to be extended. Use the images below for reference. The top left image is the starter pocket. The top right image is the seam used for reference. The bottom image is the result after denting the floor.



- 6) Remove the U-Joint that is connecting the steering column shaft to the steering rack. There are two M8 (12mm head) bolts holding this in place. Both bolts **MUST BE COMPLETELY REMOVED**. It would be a good idea to soak the splines in a penetrating lube to assist in removal. The U-Joint must be slid further up the column shaft in order to remove it from the rack. There is a plastic orientation marker on the steering rack, leave this in place to ensure you reinstall the u-joint in the same orientation! See the pictures below:



- 7) Once the steering column has been detached from the steering rack, you will need to remove the four nuts holding the front subframe to the car. There are two M12 (17mm head) nuts on each side of the car. This will allow you to lower the subframe approximately 2" from the body. The subframe will not fall if all of your suspension is still installed. You may need to use a prybar to separate the subframe from the car. See the pictures below for reference:



- 8) Install the engine mounts onto your motor using the supplied hardware. The mounts are marked Left and Right.
- 9) Install your LOJ Innovations Z32 300ZX to LSx transmission adapter in accordance with the installation instructions. You will want the engine and transmission attached to one another prior to installation.
- 10) Install your LOJ Innovations Z32 Shifter Relocation Bracket in accordance with the installation instructions. DO NOT INSTALL THE SHIFTER!

**IMPORTANT – The U-Joint has metal caps that contain many small needle bearings that can be lost if the cap comes off the U-Joint! Be careful not to lose these bearings as they cannot be purchased separately from Nissan!**

- 11) Install your engine and transmission using an appropriate engine hoist. You will need to angle the tailshaft of the transmission down into the transmission tunnel while the engine is over the radiator support. Continually check clearances to ensure no components are being damaged.

**IMPORTANT – You MUST install your engine and transmission together!! There is insufficient clearance to install the transmission once the engine is mounted in place. It would be a good idea to leave the starter off of the assembly until after the engine and transmission is installed. It will give you more room for maneuvering with it uninstalled.**



- 12) Use the fact that the front crossmember is free to move to your advantage. Getting the sump portion of the oil pan past the steering rack is the most difficult part of the installation. You will need to use a floor jack under the tail of the transmission to get the assembly at the right angle to allow the rack to come up in front of the sump. See the picture below:





- 13) Once the sump is behind the steering rack, lower the engine until the mount studs drop through their mounting slots on the front subframe. Reinstall your factory motor mount nuts onto the mount studs that are now poking through the subframe, but **DO NOT COMPLETELY TIGHTEN THEM.**
- 14) Use your engine hoist to raise the engine and subframe together to reinstall the subframe onto the car's body. Once the subframe is mounted in place, once again lower the engine until the mounts sit flush against the subframe. There is some freedom to move the engine left to right, which changes the angle at which it is mounted.

**IMPORTANT – The left to right angle at which the engine is mounted is CRITICAL to hood clearance! Make sure the bottom of the sump is parallel with the bottom of the subframe!!!**

- 15) You can now tighten the nuts holding the engine mounts into the subframe.
- 16) Now you must crawl under the car to install the transmission mount bracket. First slide the mount over the studs on the factory rubber transmission mount and reuse the OEM nuts to hold the bracket to the mount. Do not tighten!

17) Jack the transmission up to raise the mount bracket until it is flush with the mounting locations on the car.

**IMPORTANT** – The transmission may contact the transmission tunnel while you jack it into place. This is normal! The factory rubber mount compresses quite a bit once the weight of the transmission is placed on it.

18) Install the three bolts into the transmission mount bracket through the NON-SLOTTED holes first. DO NOT TIGHTEN! Then install the bolts into the slotted side of the bracket. Once all bolts are started, tighten all bolts as well as the two nuts holding the rubber mount to the bracket.

19) If you did not install the shifter bracket and striker rod in step 10, install them now! Now is also a good time to install your starter and check clearances. You may need to clearance the starter location more, but this is unlikely. Finished starter installation looks like this:



Your installation is complete! Enjoy!