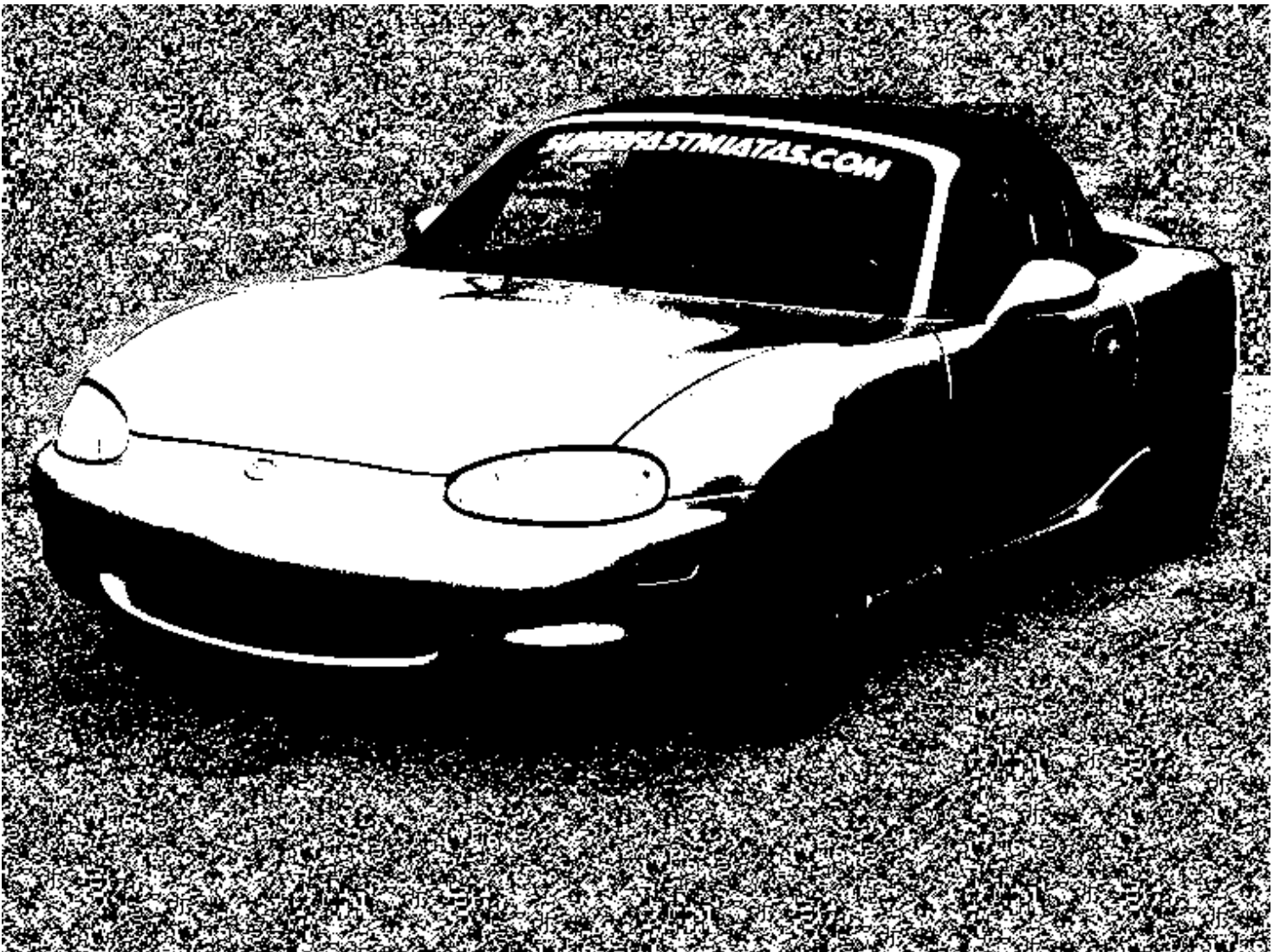


JV6 Miata Kit:  
Honda J Series Conversions  
for Mazda MX-5 Miatas  
1989-2005



# JV6 Installation Manual



Dear Customer,

We welcome you to the Honda Powered Miata World. Thank you and Congratulations for your purchase. You can be certain that you have made a wise choice with this upgrade. This kit was designed to help put you on the right track when building your ultimate Miata. With the help of this JV6 Kit, you will be driving your Super Fast Miata soon.

We'll do all we can to help keep your project moving along. Please keep in mind that pictures will be of great help, so if you don't have a digital camera, (or always wanted one) now is a good time to get one. In fact, you should take LOTS of pictures to document your project.

The purpose of this kit is to make your Honda VTEC installation easy and hassle free. We have taken the research and development headaches out of the install so that you do not have to deal with any of that. The sub-frame mounts to the car. The engine mounts to the sub-frame. And after a few other small connections, you are ready to crank and drive your Super Fast Miata.

We have broken the whole VTEC Miata build up into sections, from start to finish. We hope that this will be a pleasurable experience for you and we will do everything that we can to make it that. Just remember, we are available to help you 5 days a week. Just give us a call or drop us an email.

Thanks and have fun,

Mini Tec

# PARTS REQUIRED

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This Section contains a list and description of the parts included in the JV6 Kit, and a list of parts that you will need in addition to this kit.

## Your JV6 Kit Contains:

- Front Subframe
- Transmission to Engine Adaptor Plate
- Flywheel Adaptor with bolts
- Poly Engine Mounts x2
- Oil pickup
- Custom oil pan
- Throw-out Bearing bushing
- Thermostat Housing



### Additional Parts Needed:

- Honda J Series Engine complete: 2001-2003 Acura CL Type S, or 2002-2004 Honda Odyssey
- Engine computer: You can use the stock ecu from the 2001-2003 Acura CL Type S 6 Speed with that engine. For best performance, use AEM's Series 2 Engine Management System for Honda J series.
- Custom Exhaust (Front Manifold and downpipes available from Mini Tec)
- Honda B Series Flywheel, Clutch Pressure Plate, Pilot Bearing, and Throw-out bearing (2000 Honda Civic SI)
- 1.8L Miata Clutch Disc
- Starter: 1984-1995 Honda Civic SOHC Manual

## PREPARATION

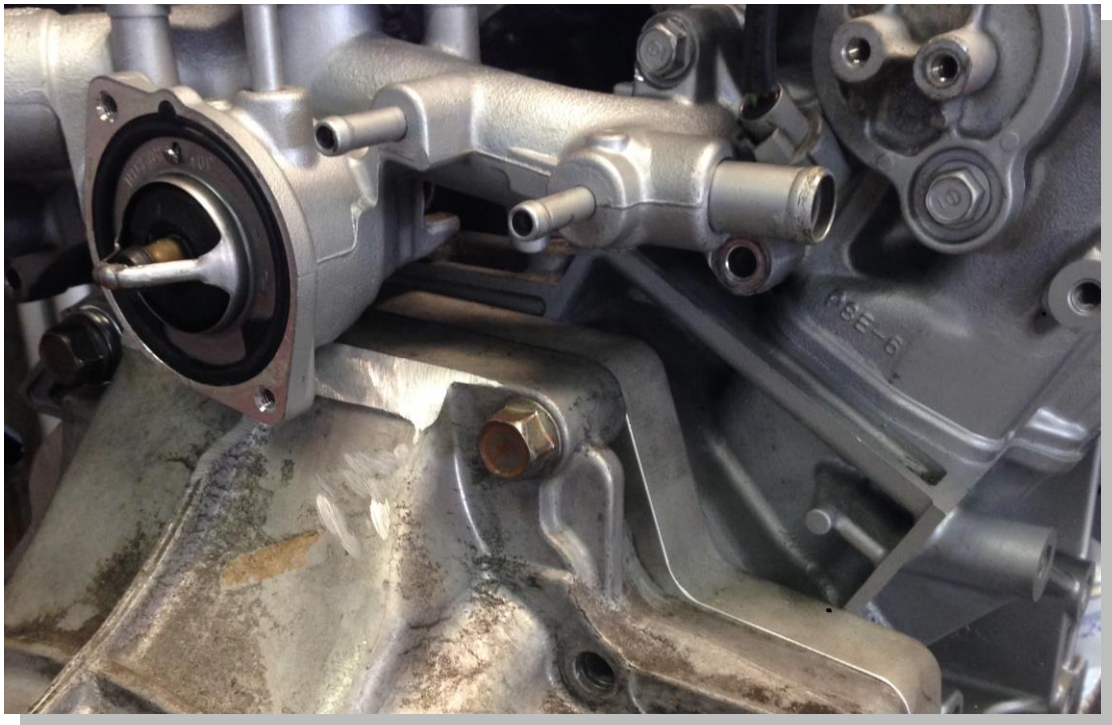
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Remove stock Miata engine and subframe. Retain all hardware until you have completed the conversion.

\*Cut top of transmission at 45° as shown. This will allow room for the Honda Water Jacket.







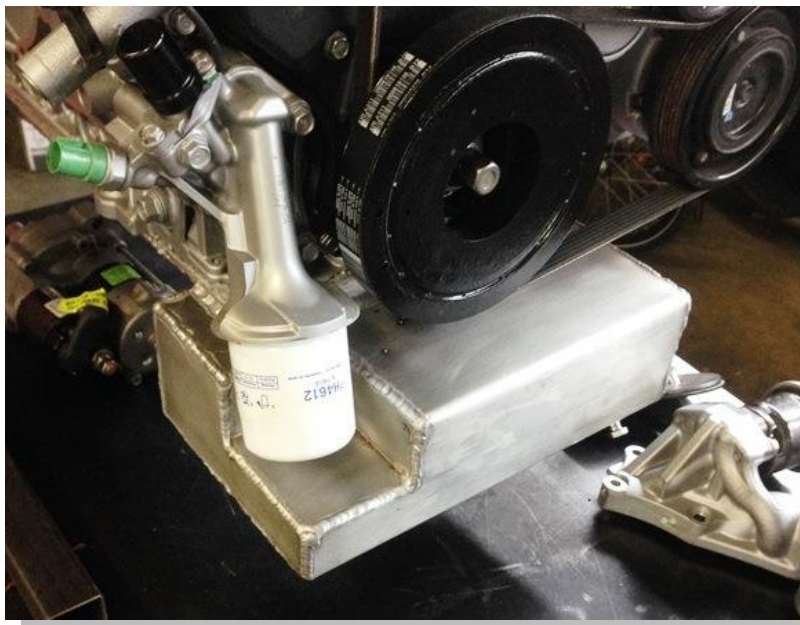
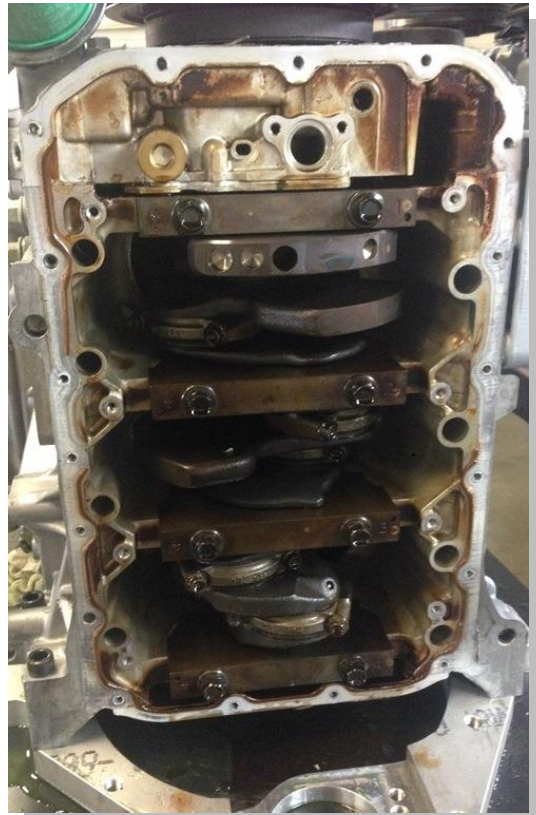
Flip flywheel ring to align with reverse mounted starter. The easiest way to do this is to put your flywheel in an oven for 30 minutes at 450°. Remove the flywheel and tap the gear ring off. Using a file or flap disc, you will want to match the inside bevel of the gear ring so that it will fit flush against the flywheel after being flipped and reinstalled. Put only the gear ring back in the oven for about 5 minutes before attempting to reinstall it onto the flywheel. Flip the gear ring and reinstall it. (Note: If you purchased the JV6 Package, this step has already been done for you.)

Notch bottom of transmission for starter.



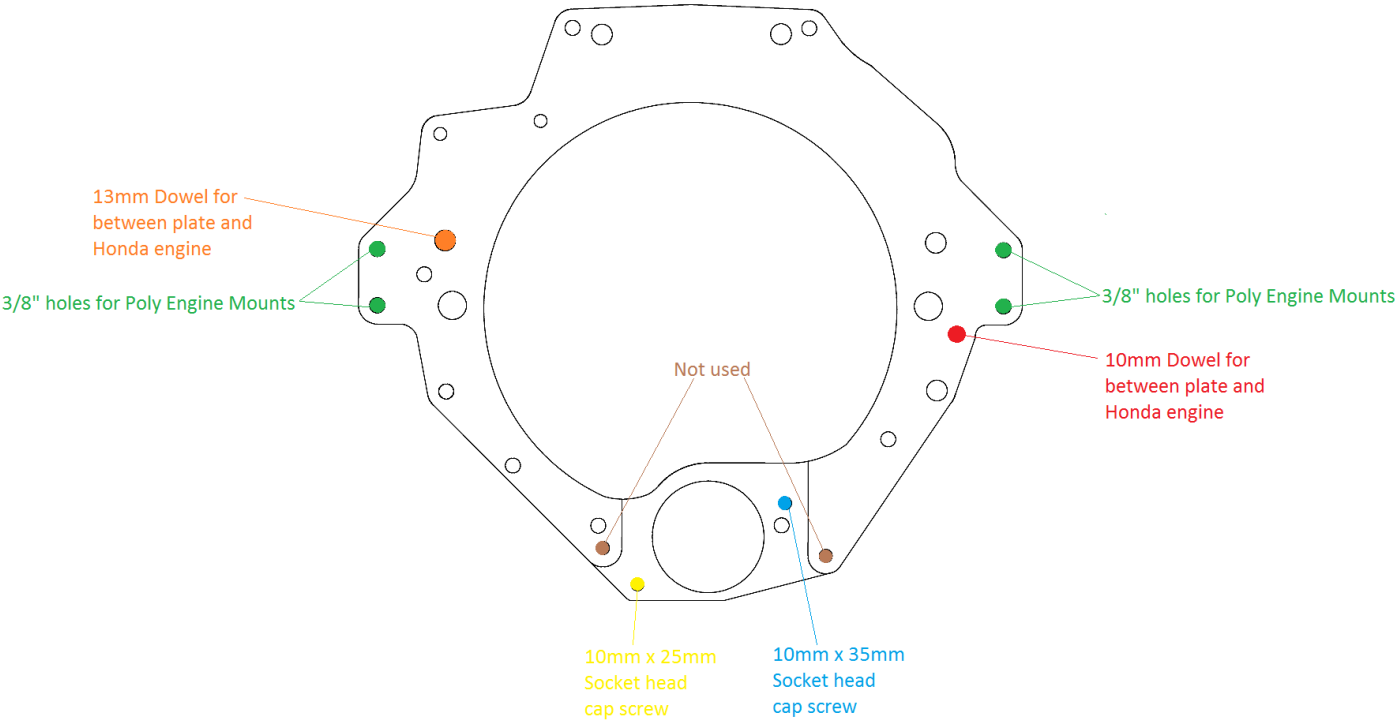


Remove Honda oil pan and windage tray as these will not be used. Replace Honda oil pickup with supplied JV6 Oil Pickup and install new custom oil pan. Use a heavy coat of silicone for the oil pan seal.



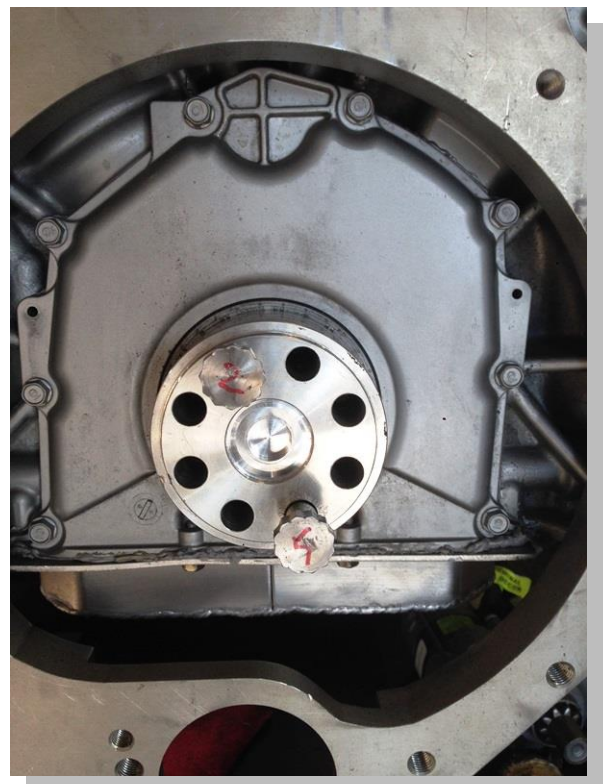
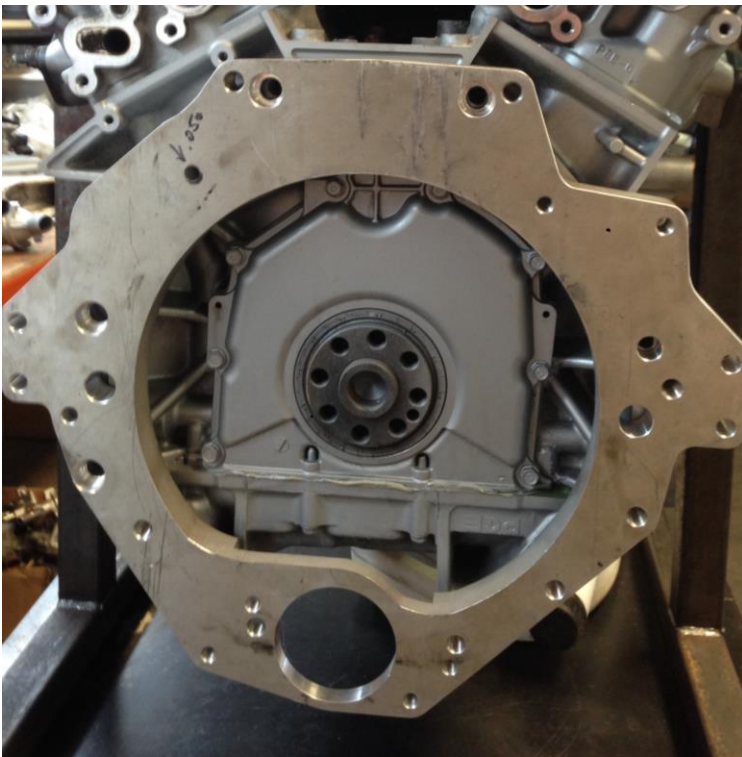
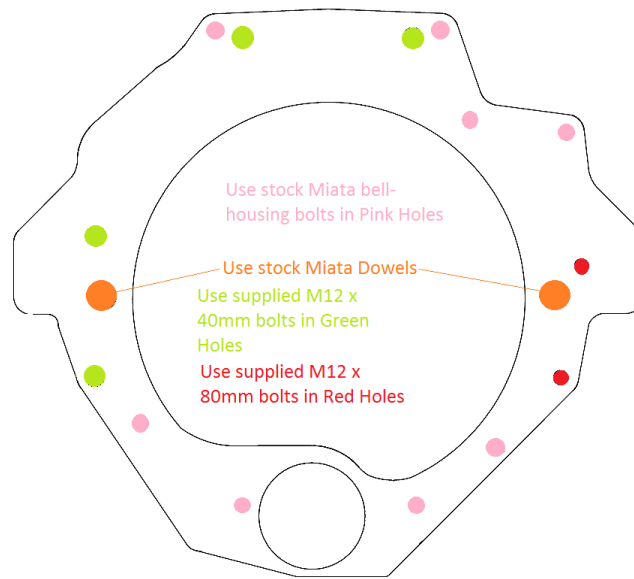
Attach Transmission Adaptor plate, flywheel, and clutch to engine as shown.

JV6 Transmission Plate  
Side facing Honda engine





JV6 Transmission Plate  
Side facing Miata Transmission



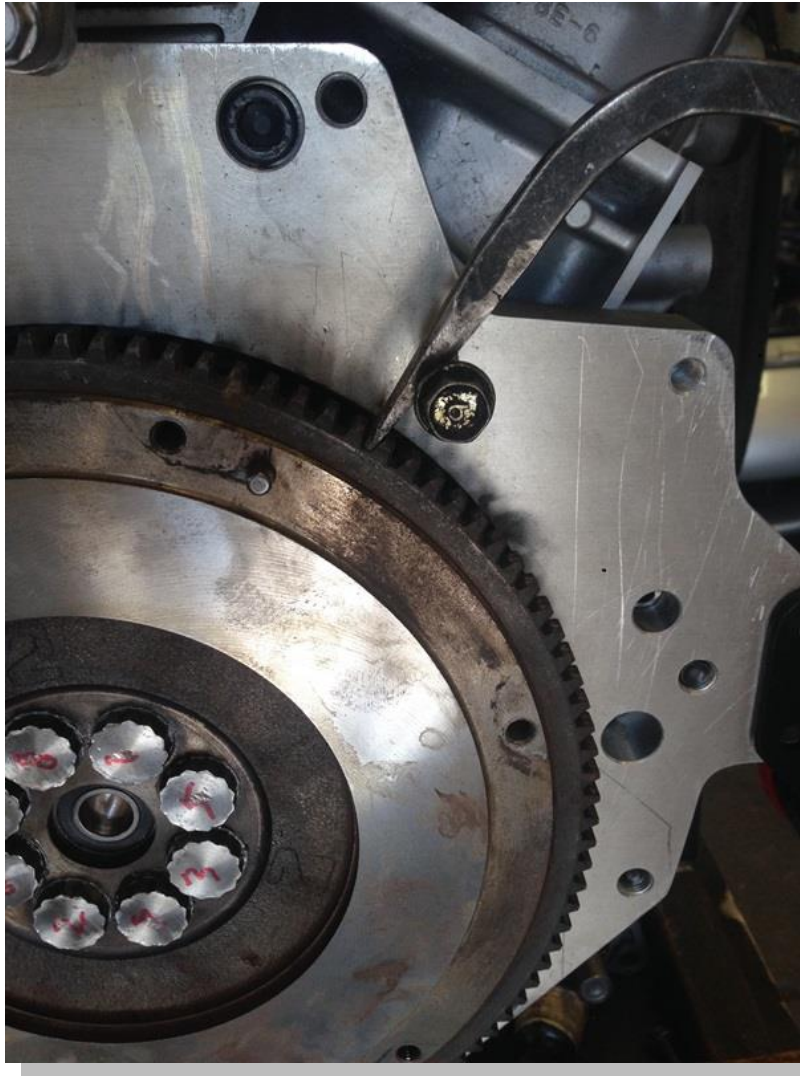
Lightly coat the shank of flywheel bolts with anti-seize. Use a thread locking compound on all threads of flywheel bolts (e.g. Loctite Threadlocker #262 or

equivalent). First torque bolts in sequence to 65ft/lbs, then a second time on all bolts to 72ft/lbs.



**Figure 1 Flywheel torque sequence**

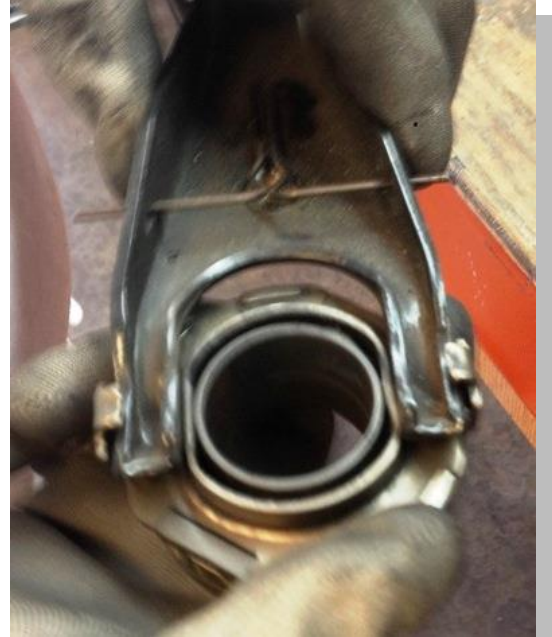
The Honda J series is an interference engine. Therefore, be sure to steady the flywheel when torquing flywheel bolts to NOT let the crankshaft rotate backwards!







Bend throw-out bearing tabs inwards to better fit the Miata clutch fork. (Note: If you purchased the JV6 Package, this step has already been done for you.)



Use supplied Throw-out Bearing Sleeve to adapt Honda throw-out bearing to Miata transmission input shaft. We suggest coating the inside of the sleeve with a type of



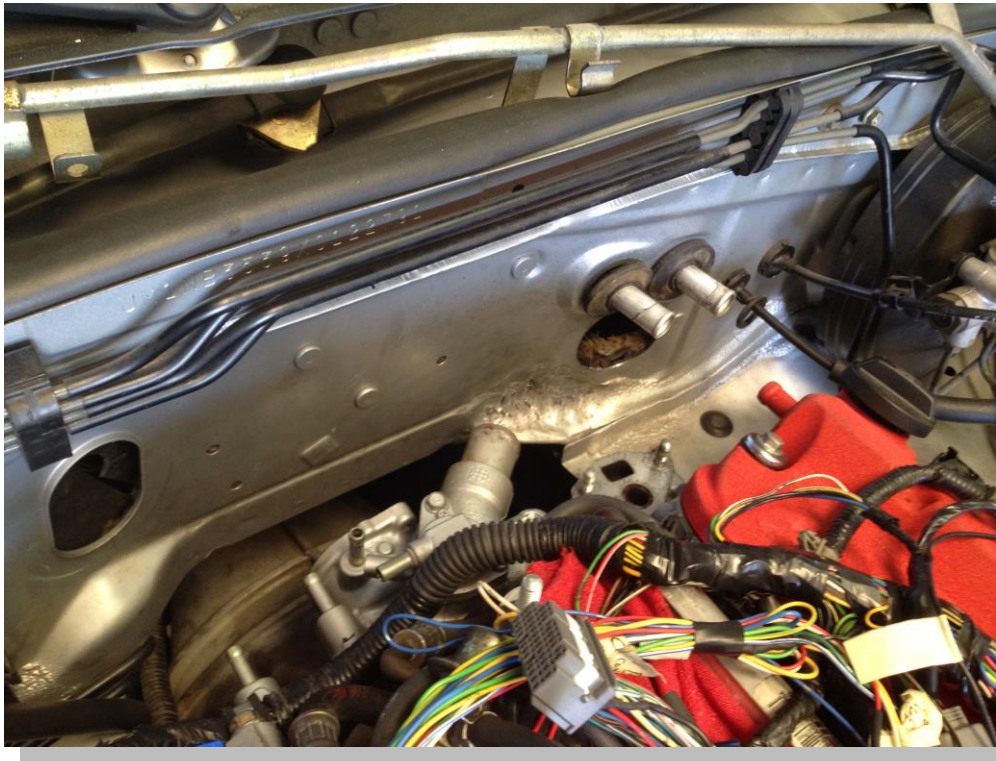
adhesive (Loctite) and also using a punch at the back of the sleeve to set it on the input shaft.

Use 2 supplied spacers behind slave cylinder to gain clearance past adaptor plate.



Using body hammer, make an indention on firewall so that the coolant hose has plenty of clearance coming out of the water jacket.





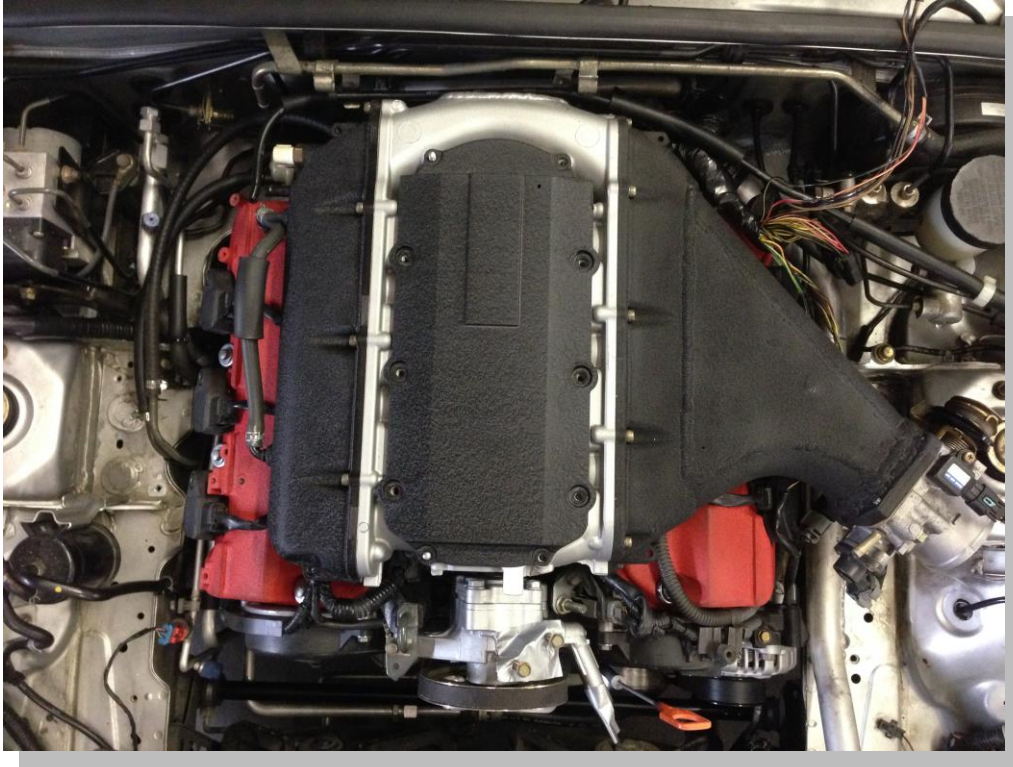
Heat Throw-out bearing bushing in oven for 20 minutes at 400 degrees. Remove from oven and quickly install it by sliding it over the transmission input shaft. This bushing is intended to fit tightly and not move on input shaft once it cools.

Swap Valve Covers from left to right. This will put the oil fill in a better spot for you and puts the vent in the front for easier access.

**Exhaust:** Only the 1 modified front exhaust manifold is included with the kit. The Rear manifold on your motor will not be used. You will take the Front manifold off of your motor and move it to the right side. The manifold that is supplied with the kit will go on the steering shaft side (LHD).

Relieve A/C Compressor mounting bolt boss.

## Intake modification





# INSTALLATION

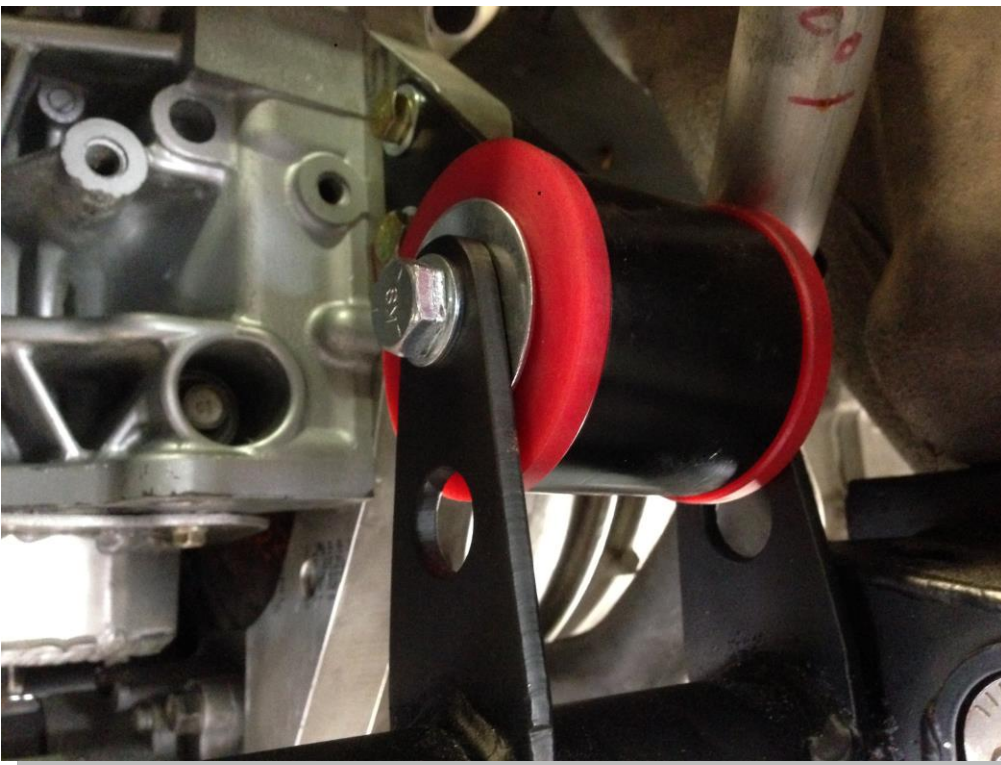
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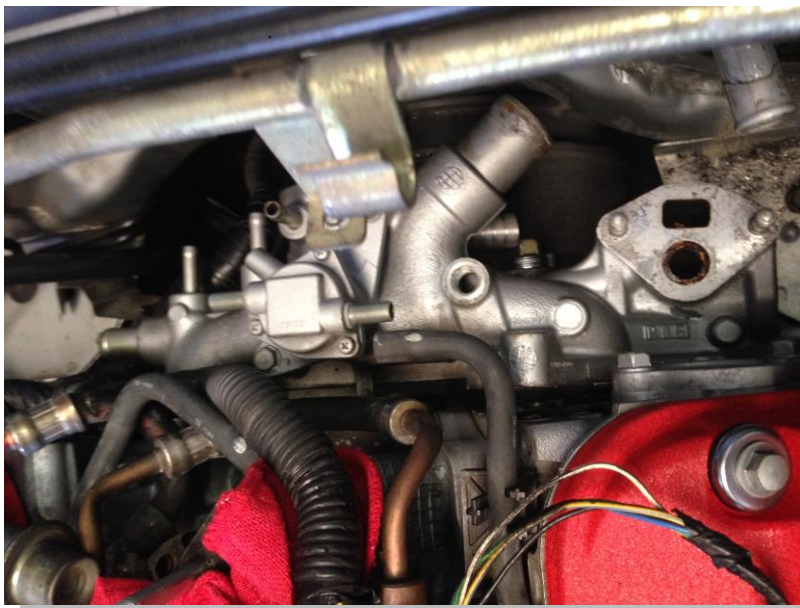
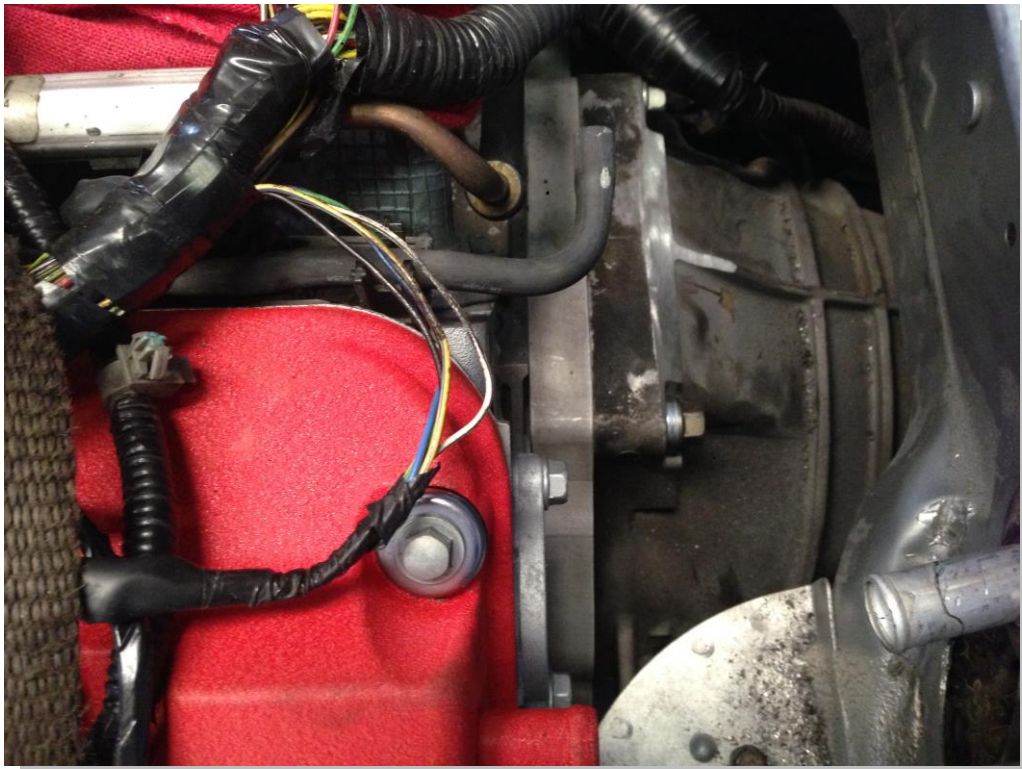
Install JV6 frame into car just as the original frame was removed using the factory hardware. Do the same for the suspension. Use 3 washers on each side of the upper suspension arms for factory Miata caster setting.

Remove radiator before installing engine. Lower engine into car carefully. Make sure that the PPF is attached to the transmission and rear differential before installing engine. This is vital to locate the engine properly.

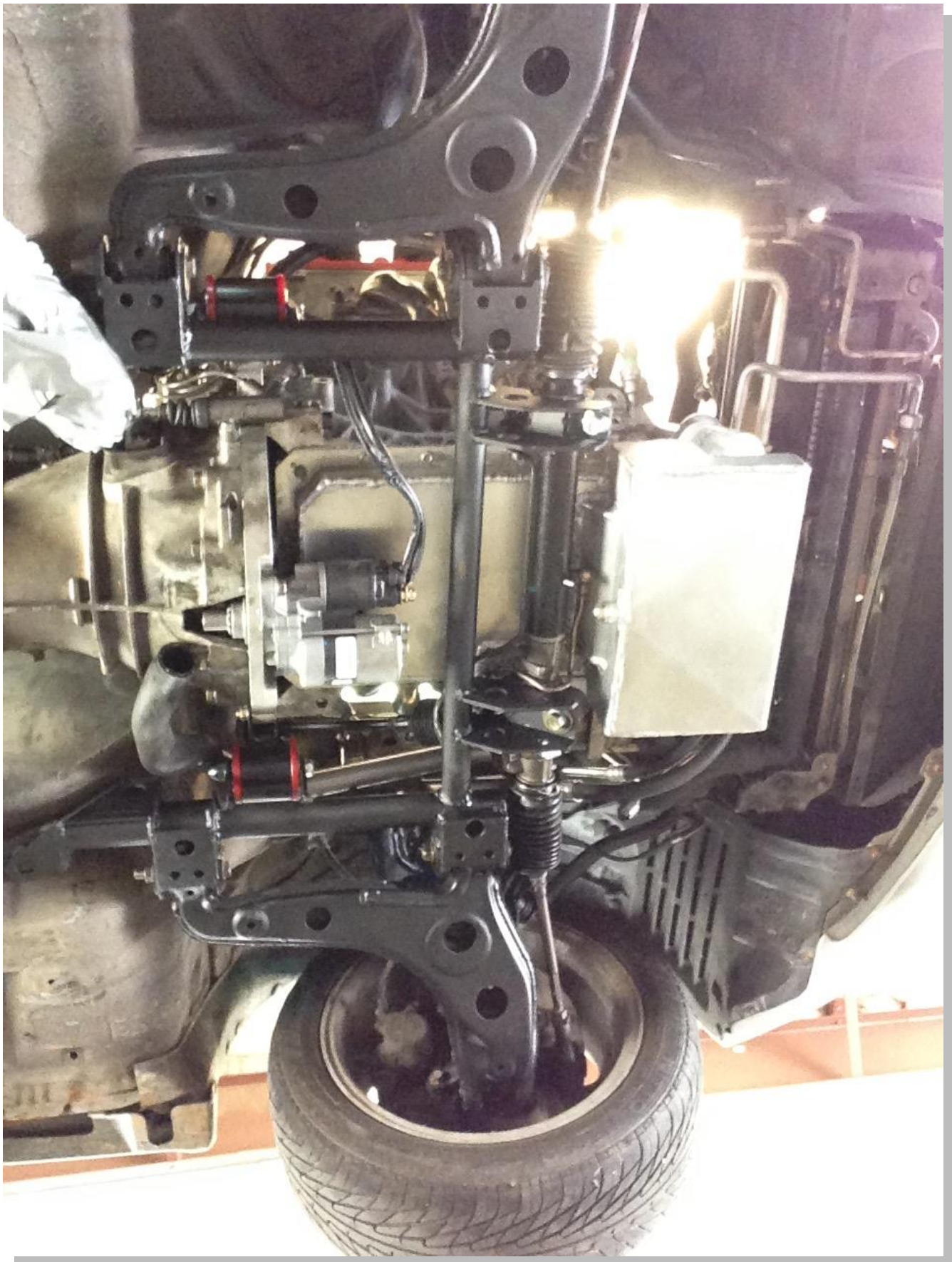


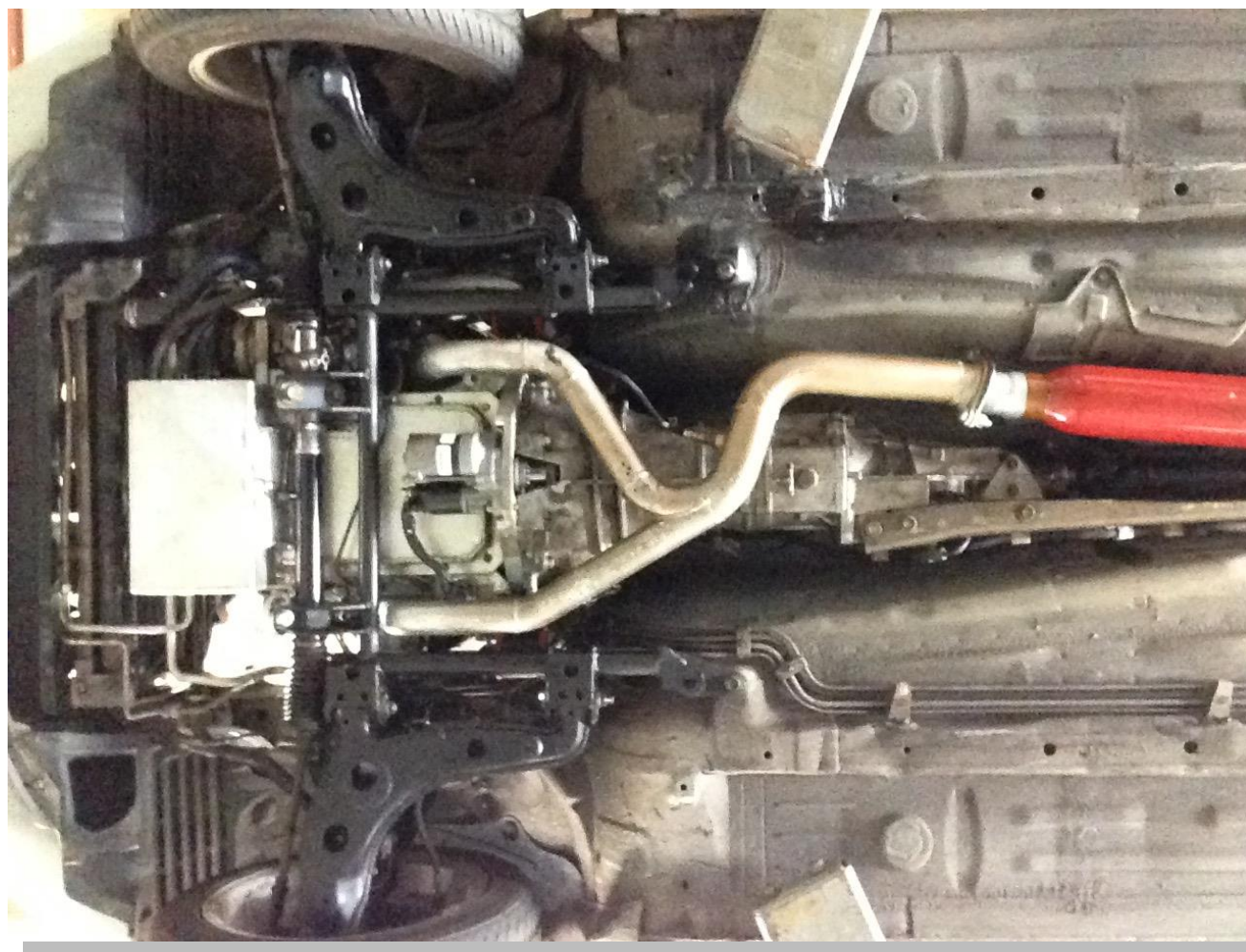
















**Check List:** For your safety, please check...

- That every suspension component is fastened tightly.
- That the steering system is fastened properly and all nuts and bolts are secure.
- For a firm brake pedal.
- That the engine is stationary.
- All fluid levels are full.
- Tires are inflated properly.
- Check for leaks.
- All lug nuts are tightened properly.

## **Test Drive:**

For your first test drive, go slow and easy to make sure that there are no problems. Listen to the car as you drive it for odd noises. Drive the car easily for a few miles

and then go over the Check List again. After driving the car for 100 miles, check front suspension alignment again.

Periodically, you will need to check all of your suspension components for wear.

After that, have fun!

#### Disclaimer of Warranty

Neither the seller nor the manufacturer will be liable for any loss, damage or injury directly or indirectly arising from the use or inability to determine the use of this product.

Before using, the user shall determine the suitability of the products for its intended use, and the user should assume full responsibility and risk in connection herewith.

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