

MTD KIT:
HONDA ENGINE
CONVERSIONS FOR
CLASSIC MINIS



MTD INSTALLATION MANUAL
FOR CLASSIC MINIS 1959 – 2001



Dear Customer,

We welcome you to the Honda Powered Mini 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 Mini. With the help of this MTD Kit, you will be driving your Super Fast Mini soon.

Mini has been made in many variations with many subtle “tweaks” and varying build quality over its lifetime. It is impossible to account for all these, and some will even be unique to your car. Additionally, your car is likely 15-20 years old, with all that has happened to it in that time.

With all that said, your MTD kit and these instructions are designed to try to allow for some of these differences. For others, you will have to “field fit” or adjust as you go. 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. Your project may seem overwhelming at times, but if you take it one step at a time, in a logical sequence and take an occasional break from it, you’ll do great.

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 all 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 Mini.

We have broken the whole VTEC Mini 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, L.L.C.

PARTS

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

MTD Kit Contents:

- MTD Subframe
- RH Upper Suspension Arm
- LH Upper Suspension Arm
- RH Adjustable Lower Suspension Arm
- LH Adjustable Lower Suspension Arm
- Upper Strut Brackets
- Rear Transmission Stabilizer
- Mounting Hardware
- 2 Mini/Honda Chromoly Axle Shafts



Additional Parts Needed:

- Honda D Series Engine/Transmission (See List on page -----)
- Coil-Over Shocks or Mini Tec's Coil-Over Shock Kit.
- Front Disc Brake System: Mini Tec's Superbrake, Mini 8.4" Disc Brakes, Other...
- Wheels with a -7mm Offset to the outside (needed for turning radius clearance) or wheel spacers
- Honda Engine and ECU Wiring Harness'
- Modified Honda ECU – OBD1
- Electronic Speedometer

- Honda Civic Radiator or Mini Tec's MTD Aluminum Radiator Kit
- Honda Shifter

PREPARATION

Step 1: Remove stock Mini engine and sub-frame. Then remove everything else in the engine compartment.



Step 2: Remove inner fenders: Cut and remove both inner fenders as shown. You will need this extra space for the width of the subframe.



Step 3: Cut out metal just below stock shock mount. This is needed to fit the MTD subframe (See following two photos).



Step 5: Cut out behind grille: You will need to remove any excess metal behind your grille (See Photo below). This will give you maximum flow and cooling ability.



Step 6: Remove all inner metal bracketry that is attached to the lower valence. Cut off lower front valence 1" below bumper lip at intersection. At this point you will need to reattach and weld valence to leading edge of bumper lip as shown.



Your Mini should now be prepared for the installation process.

INSTALLATION

Installing Engine into Subframe:

Step 1: Bore stock Honda engine and transmission mount to 1/2" using a drill bit.

Step 2: Attach engine to sub-frame using stock engine mount (use *1/2 x 4 1/2 bolt) and stock transmission mount (use 1/2 x 4 1/2 bolt).

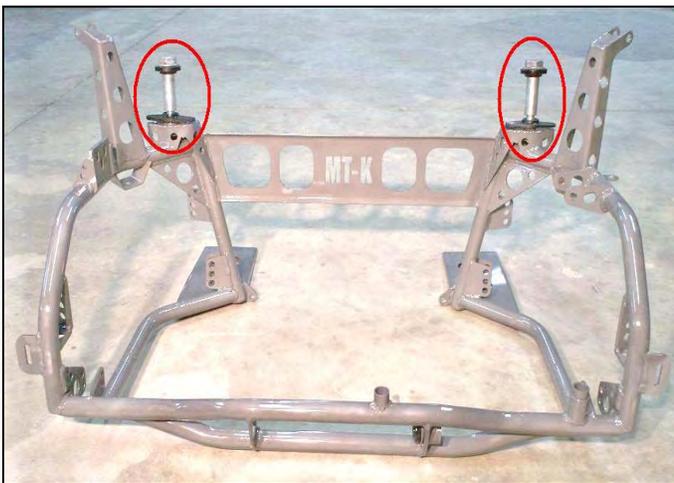


Step 3: Attach upper bump stops. Mini bump stops with the single stud will work here.

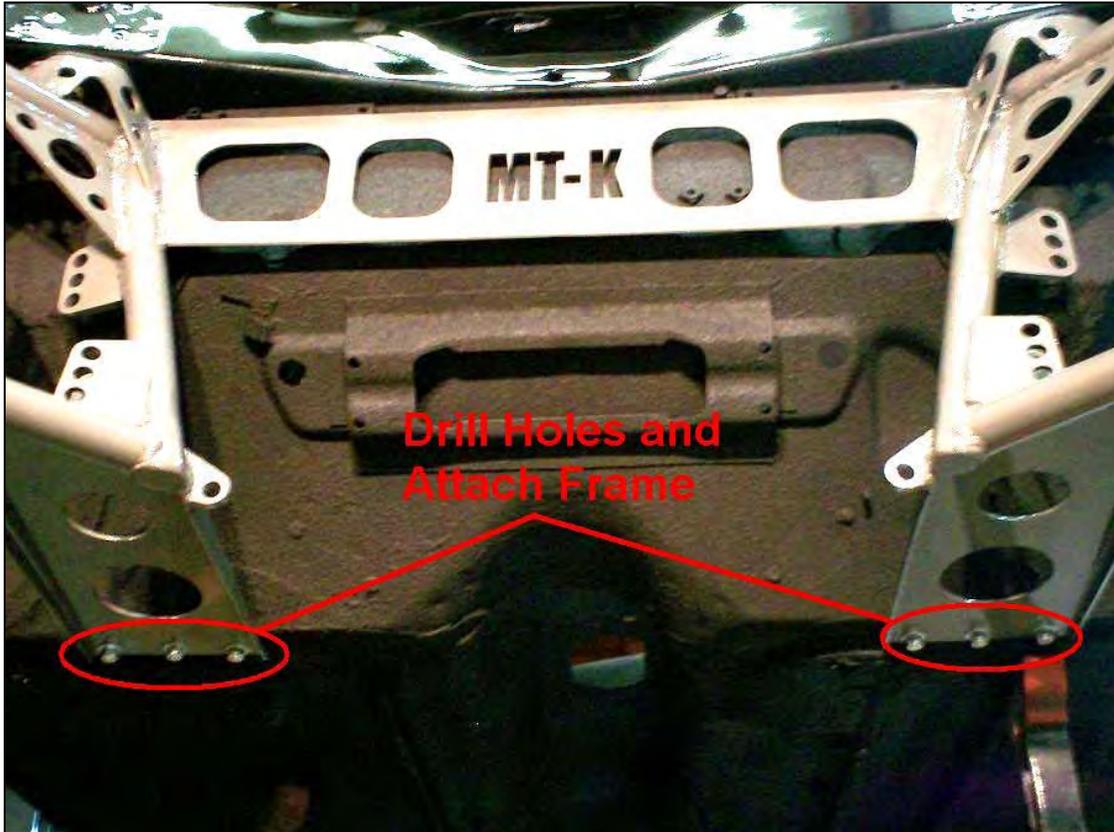


Install Engine and Subframe into Mini:

Step 1: By lowering the car onto the subframe, attach it to the car using the two large subframe mounting bolts just like the standard Mini subframe attaches. If your car is an earlier model and does not have these two large $\frac{3}{4}$ " diameter bolts, then you will need our MK1/2 Subframe Mounting Kit. Standard Mini mounting bolts are circled in red in the following photo. Do not tighten completely at this point. You will need to attach the subframe and the bottom first.



Step 2: Drill six holes to support the bottom of the subframe using a 5/16” drill bit. Use the six supplied 5/16” bolts with plates to fasten the subframe to the car on the lower side. The plates will go inside of the car to give the subframe extra support. After the six bolts are in place and tight, tighten the two large subframe mounting bolts on top of the frame. See photos.



Your subframe should now be attached to your Mini.

Axles: Assembly and Installation

Parts needed for Assembly: *Chromoly Axle Shafts, Complete Inner Honda CV Joint Assemblies, and Complete Outer Mini CV Joint Assemblies.

Step 1: Assemble Small end of axle shaft with the Mini cv joint assembly as done on a stock Mini but replace ball bearing gear with supplied gear. (See following four Photos)



Honda Axle End Assembly: Assemble large splinned side of axle with the Honda cv joint assembly. (See following four Photos)





Axle Installation: Simply slide one of the axles into the transmission and the other into the engine mid-shaft until the axles lock into place.

Swivel Hubs and Brakes:

Install the Swivel Hubs and Brakes as done on stock Mini.

Master Cylinder:

Depending on your setup, you may have to relocate one of your master cylinders. If you have both master cylinders on the right side of the car, then they are clear. If you have both master cylinders on the left side, then the brake master cylinder will have to be relocated. We recommend getting a left hand drive conversion pedal box. This will allow you to mount the master cylinder on the right side of the car, clear of any objects. Note: For best clearance, check out Mini Tec's Aluminum Racing Pedal Kit.

Shifter Linkage:

Use Honda Shifter linkage for the conversion.

Step 1: Cut all four ends off of the shifter linkage.

Step 2: Hang shifter in stock Mini location. New holes will need to be drilled. (See following Photo)



Step 3: Hang shifter ends on the transmission. (See following Photo)



Step 4: Reattach lower shifter end (as shown in following photo). The shifter rod reducers will be needed to rebuild the shifter linkage (shifter rod reducers are shown being held in previous and following photos).



Step 5: Rebuild the shifter linkage using ¾” metal pipe. Bend and weld pipes so that all gears can be easily shifted to and from without hitting the body or anything else. (See following photo)



Fuel System: Change your fuel pump to one that ranges from 32 to 48 PSI. A return line will be needed on certain models that do not have them.

Cooling System:

The MTD Subframe is designed to use the Honda Civic radiator 1992 – 1998 model. There are two tabs located on the front of the sub-frame for mounting this radiator. Alternative: Mini Tec Radiator Kit – comes with everything you need to keep your Honda Mini running at the correct operating temperature. Items included are: Aluminum Radiator, Radiator fan, radiator hoses, and a catch can.

Wiring:

Because the Mini is a stand alone system, only OBD1 computers can be used. Pin-outs can be found on the web. Contact your local Honda tuner for more information. We also offer plug-in wiring harnesses to relieve you of this step.

Intake Modification:

You will need to shorten or modify your intake so that it does not interfere with the bulkhead. We suggest cutting the intake and adding 45 degree silicone elbows as shown below. Silicone hoses can be purchased through various racing parts dealers such as www.VenAir.com.



Suspension Setup:

These figures are for daily driving. You may want to set up the car differently if planning on racing your Mini.

- Front Caster Setting = 2.5 Degrees
- Front Camber Setting = -1 Degree

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

- That every suspension component is fastened tightly.
- That the steering system is fastened properly.
- For a firm brake pedal.
- That the engine is stationary.
- All fluid levels are full.
- Tires are inflated properly.
- All lug nuts are tight.

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

Periodically check all suspension nuts and bolts for wear and/or tightness.

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.

For off road use only!

Copyright 2006 Mini Tec, L.L.C. All rights reserved.