

# Project Phoenix

By **MATT CAVIN**  
Contributing Writer

*Project Phoenix was introduced in the May issue. Come along on a journey of building a show car and a practical daily driver. Along the path of installments, we will introduce write-ups of product installations from various manufacturers including: Energie Developments/RE Motorsports, Greddy, Gotham Racing, Tein, Racing Hart, and Mazdaspeed, to name a few. We are going to rate each installment by difficulty by displaying 1-5 rotors. One rotor is easiest with five being hardest. In this installment we are going to install Greddy Pulleys, Tein HA Coilovers and Racing Hart C5 installation.*

## Greddy Pulley Kit

**T**HE GREDDY PULLEY KIT provided by Energie Developments / RE Motorsports is a nice kit. The kit includes two pulleys: the water pump pulley and the alternator pulley. It also comes with a shorter belt for those who wish to eliminate the air pump. The Pulleys are designed to be larger,



thus resulting in slower rotational speed of the water pump and alternator. This is referred to as “under driving” because it results in lower than average performance from both the water pump and alternator in typical driving conditions. Under driving accessories such as the water pump, alternator, and power steering pump will help them perform better at higher rpm with less stress to the internal mechanisms. The water pump has been known to “cavitate” at high rpm. Cavitation occurs when the water pump spins so fast that it no longer flows water, it simply churns it. This causes poor cooling



ing and water bubbles in the cooling system. The pulleys come anodized a brilliant blue color, for those who wish for a different finish, many have been successful with polishing, powder coating, and re-anodizing the pulleys. The shorter belt can be used to eliminate the air pump—an emissions device used to preheat the catalytic converter—in areas that do not require emissions, or for competition use. This can be useful in cleaning up the engine bay or providing more room for a larger turbo setup. Another benefit is the mechanical advantage of reducing parasitic drag on the engine, or extra friction used by the energy needed to drive the accessories faster, which results in more useable horsepower that is typically wasted on these accessories.

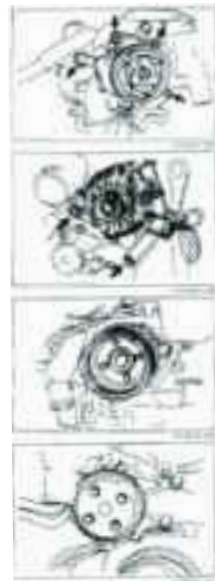


### STEP-BY-STEP

1.) Loosen tension on the main belt by loosening the nut on the alternator bracket. The nut is designed to secure the unit once proper belt tension is

achieved. It is a common mistake to loosen the bolt first because it works against the nut. Both are 12mm.

- 2.) If removing the air pump is necessary, loosen the air pump bracket, again, all 12mm. Then remove the main air pump pivot bolt which is also 12mm.
- 3.) Remove the air pump hoses, electrical clip, and everything else connected to it. Once these items are removed, the long aluminum line that runs down to the cat from the air pump can be removed. However, it is harmless if left in place. This is a great time to put in a mid-pipe or high-flow cat to remove the flange and hole for the air pump. The hole on the lower intake manifold does not have to be sealed off as it only provides a passage to the catalytic converter from the air pump.
- 4.) Remove the four 10mm bolts on the water pump pulley and work it off the water pump. Once the stock water pump pulley is removed you can now put the new Greddy water pump pulley in place and hand-tighten the four bolts.
- 5.) The alternator pulley is tricky because it wants to spin. The only way to do this is to hold the alternator assembly stationary and knock the 21mm nut off. The only safe way to do this is with an impact wrench. If one is not available, the alternator is easily removed—only one pivot bolt holds it in—and can be taken to a local shop for removing the nut. Some have used pulley pullers or Mazda SST (Special Service Tools) but that can be either tricky or expensive. After successfully removing the pulley, install the Greddy Pulley and impact the nut back on. It does not require a lot of torque, but hand tightening is not an option.
- 6.) Once the pulleys are installed, the belt supplied with the kit can be installed if the air pump has been eliminated. If not, the stock belt can be reinstalled and the bolts are tightened in the reverse order. If the belt is too tight, it will cause unnecessary stress on the water pump leading to premature failure. It should feel snug, but not too tight. About 1/8-inch free play is desirable for belt tension.



## Tein HA Coilover Install

### STEP-BY-STEP

Before you set out to do this install make sure you have an entire day set aside; this install is incredibly tedious and will wear you out. The best thing to do this is get four jack stands and elevate the car. Put each corner on a jack stand and then proceed to remove wheels.



- 2.) Once the wheels are removed you will need a spring compressor to compress your stock springs. This is very tedious, so don't get discouraged when it takes forever to get it done. In the end it will be well worth the time.
- 3.) Once the spring is compressed you need to compress the coil. Pulling up

the hub works, but jacking up the hub is easiest. Once the strut has been compressed you can then remove the 14mm bolt at the bottom, holding the strut to the lower arm, then remove the brake line from the holders on the strut.



4.) Once that is done you can proceed to take off the top three bolts located in the engine bay and in the rear of the car. It is a good idea to go ahead and loosen the large, 19mm bolt in the center of the strut as well. You will need it loose to remove the pillow ball mounts to reuse on the Tein HA Coilovers, or you can purchase pillow ball mounts from Tein or Mazda.



5.) Once removed you will need to drill out the top of the pillow ball mounts because there is a flat spot in the hole for the center bolt, and on the Teins, they are round.



6.) Now just reverse to install the actual Tein coilovers. The trickiest part, now that you got them in, is setting ride height and damper to suit your feel and needs.

To set ride height, Tein included a fork hook that turns the height sets. Make sure when setting you count and do an even amount on the other side. Also, when you set the car down it will be higher than it will be due to settling has not occurred yet. So most likely within about an hour you will have to redo your settings.

7.) Now that you got height set, it's on to damper. Damper is pretty straightforward; all the way to the left is soft, to the right hard. Find where it is comfortable for you. Personally for driving around the street, one click to the

right from absolute soft is recommended. For spirited driving six clicks, while for road course 10 clicks right is appropriate.

Basically you can either make your RX-7 ride as soft as a BMW luxury car, or as hard as an Indy car; it's all personal preference. There is more control with it softer because you can feel the car shifting and can tell when you are pushing the limits. With it stiff, you can just let go because it gives a false sense of control or traction.

## Racing Hart G5 18-inch Install

Just a quick guide on installing after-market rims for those who have never messed with stuff like changing tires. For a deeper dish rim or a rim with center caps that hide the lugs you are going to need special thin lugs that use a key to put them in. Stock lugs will not fit many rims. To remove stock rims:



jack up the car and use a lug wrench to remove lugs; remove the rim; put new rim on hub; put the lugs back on tight, and put jack down and enjoy.



## Next Month's Product Installations:

Greddy Front Mount Intercooler; Greddy Evolution Exhaust; Energie Dev/ RE Motorsports downpipe and midpipe. **RX**



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 **mazda** Mazda R&D Irvine, CA September 11, 2004