

R35/VR38 Coil Mount Kit for Z32/VG30DE(TT)

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Always verify you have the most current revision by comparing the date above to the date listed next to the links on our Downloads webpage: https://www.bde-performance.com/downloads.htm

Note, throughout this article the term "R35" will be used to describe the coil type, this term encompasses both R35/VR38 and Z34/G37/VQ37 type coils which work with this kit once modified.

Parts List

BDE-6900 Coil Mount Base Kit

- (Qty) Description
- (6) Steel Top Mount Plate
- (6) Aluminum Bottom Mount Plate
- (6) Nylon Angled Coil Adapter
- (6) SS Conductor Spring
- (6) Nylon Herbie Clamp
- (24) SS #4-40 x 1.5" Socket Head Cap Screw
- (1) Blue LocTite

BDE-6930 Pull-Ring Kit (optional)

- (6) Aluminum Pull-Ring
- (12) #8-32 x 0.375" Torx Head Flat Screw (zinc plated)

Hitachi Coils (optional)

- (6) IGC0078 Hitachi Z34/370Z Ignition Coil
- or (6) IGC0079 Hitachi R35/GT-R Ignition Coil

Electrical Connectors (optional)

- (6) BDE-6910 R35 to Z32/VG30 Plug-n-Play Coil Adapter Harness
- or (1) BDE-6920 Z32 Plug-n-Play PTU Delete Harness
 - or
- (6) BDE-695 R35 Coil Connectors with Terminals or
- (6) BDE-696 Z32/VG30 Coil Adapter Connectors with Terminals
- or
 (6) BDE-697 Z32 Coil Connector Replacements with Terminals

Tools needed for installation

- 3/32" Allen wrench (for #4-40 bolts)
- Large pliers (for Herbie clamps)
- T15 Torx drive (for optional pull-ring #8-32 bolts)
- 12mm socket (stock coil mount bolts)
- Silicone spray lubricant
- Dielectric grease

Z32/VG Coil Disassembly

If you are using PN: BDE-6910 Plug-n-Play Coil Adapter Harness kit, check your engine harness coil connectors for damage to their locking clip. If they are broken or damaged, replacement connectors with terminals are available from BDE as PN: BDE-697 (qty 6).

Remove all coils from the upper plenum and spray some silicone lubricant or WD-40 into the joint between the lower spark plug stems and the coils. Twist the lower stem on each coil to spread the lubricant so that it freely rotates on the coil. Afterwards, begin to pull while twisting the stem to remove it from the coil (see figure 2).

Clean the stems of any dirt or debris and place in a safe spot to re-use during assembly (this is also a good time to clean the spark plug dust shields of dirt or debris).





Figure 1 - stock Z32 coil

R35 Coil Disassembly

Note, there is a small resistor in the R35 coils that will be exposed during disassembly and it can easily be lost. Disassemble the coils in a clean area so you can find the resistor when it escapes!

- 1. Roll the top flange of the coil's rubber stem boot down, then twist and pull the boot and stem off of the coil body. This will expose the resistor inside the coil stem barb hole remove the resistors and place them all in a safe spot, these will be re-used during assembly (see figures 3 and 4).
- 2. Remove the rubber stem boot from the top of the stem and safely store along with the resistors to be re-used during assembly (see figure 4).
- 3. Discard the remaining conductor spring and stem.



Figure 3 - R35 coil assembly with boot rolled down

Figure 4 - R35 coil disassembled

R35 Coil Modification

The OE bolt-on mount tab (see figure 5) must be cut off of the R35 coils and blended into the curve of the coil body (see figure 6) to install with the BDE base mount kit onto a VG30DE(TT). If you already have a set of these coils, you can ship them to BDE and we will do this for \$30, PN is: **COIL MOD**. Due to this modification, the 30-day warranty Hitachi associated with these parts is forfeited but BDE will honor this warranty for coils purchase from BDE. You may elect to DIY this modification at your own risk.



Figure 5 - R35 and Z34 coils with mount tabs

Figure 6 - mount tab removed

Assembly

- 1. Put a drop of blue LocTite on the threaded ends of all #4-40 bolts and set aside
- 2. If you are installing the optional BDE pull-ring kit, apply a drop of blue LocTite onto the threads of each #8-32 bolt and install the pull-rings onto each steel top mount plate and tighten with a T15 Torx drive.
- 3. Set all of the coils on their tops so that the stem barb is up and verify no debris from cutting the mount tab off is stuck inside the stem barb hole.
- 4. Place the R35 resistor into the coil stem barb hole.
- 5. Install the BDE angled stem adapter into R35 rubber stem boots. Ensure that both are properly engaged and the rubber boot is not folded over inside the center hole.
- 6. Hold the short end of the BDE spring onto the installed resistor so that the long end of the spring will slide into the R35 rubber stem boot and angled stem adapter assembly as you install them onto the R35 coil barb. Twist the boot/angled adapter assembly onto the coil barb to ensure they are properly engaged then twist to align the BDE angled stem adapter so it is pointed towards the coil electrical connector side (see figure 7).



Figure 7 - angled adapter position

Figure 8 - bottom plate red dot position

- 7. Place the BDE aluminum bottom mount plate with the recessed side towards the coil rubber boot on the coil/boot/stem adapter assembly. The flange of the rubber boot will fit into the recess of the aluminum bottom mount plate.
- 8. Rotate the BDE aluminum bottom mount plate so the side marked with a red dot is on the same side as the coil electrical connector (see figure 8).
- 9. Place the BDE steel top mount plate onto the top of the R35 coil so that the angled mount tabs are facing upwards and on the side of the coil electrical connector.
- Insert a #4-40 bolt through one of the steel top mount plate's side holes and thread it into the properly aligned threaded hole in the aluminum lower mount plate and hand-tighten. Repeat for the remaining bolts.
- 11. Equally snug all of the #4-40 bolts with a 3/32" Allen wrench so that none of the parts can move freely, then tighten the bolts gently to secure the assembly. ***<u>Do not</u> over-tighten the bolts to the point that the coil body is deformed or crushed!***
- 12. Place a Herbie clamp over the boot and position its clamping end towards the electrical connector side of the coil (see figure 9), do not tighten the Herbie clamp yet.
- 13. Verify the BDE angled stem adapter is positioned with its angle towards the coil's electrical connector side (see figure 7).
- 14. Locate the Herbie clamp about 1/8" from the end of the rubber coil boot with it's clamping end towards the coil's electrical connector side and use pliers to pinch it tight to the point there are 3 to 4 teeth remaining to engage.
- 15. Install the R35/BDE coil assembly onto the VG spark plug stems (see figure 9).
- 16. Apply some dielectric grease to the holes that engage the spark plugs and install the coil assemblies into each cylinder's location on the engine.





Figure 9 - R35/VG30DE(TT) coil fully assembled

Figure 10 - coil electrical connections

Electrical Connections

The R35 coil's 12V and ground connections are switched around from the Z32 coil's connections. If you are making your own adapter harnesses or installing the R35 connectors onto your engine harness, you will need to ensure the power and ground wires are routed correctly to the R35 coils (see figure 10).

Timing Light Hookup

For timing accuracy, BDE advises all inductive timing light hookups with R35 coils to be triggered off of the spark plug side of the coil - **do not use the signal wire of the R35 coil's electrical connector to trigger an inductive timing light, due to the dwell time it will not be accurate.**

Coil Dwell Time in ECU

The R35 coil's spark energy is dependent upon the dwell time, or charge time, that the ECU is programmed to control. You will need to verify the dwell time in your ECU to ensure the R35 coils perform properly and are not damaged from too much dwell time.

The dwell time relative to battery voltage table below is from Platinum Racing Products' (PRP) extensive testing that they have shared. This recommended dwell time is adjusted down 15% from maximum spark output energy since a street-driven engine certainly doesn't need 100% of coil energy all of the time.

Neither BDE nor "PRP takes no responsibility for any damage caused as a result of incorrect use of this data." Use this data to program coil dwell time at your own risk.

Voltage	Dwell time mS	Voltage	Dwell time mS
8.0	7.8	12.5	3.9
8.5	7.5	13.0	3.6
9.0	7.0	13.5	3.4
9.5	6.8	14.0	3.2
10.0	6.5	14.5	3.1
11.0	5.2	15.0	2.9
11.5	4.6	15.5	2.8
12.0	4.1	16.0	2.6