



# HYBRID RACING

-So you want to put a K Series motor into your '92-'95 Civic?

-POWER STEERING KIT

-RSX TYPE S PS PUMP

-'96 CIVIC CONDENSOR

-DSS AXLES

-HONDATA K PRO

-The complete parts guide to the

-K SWAP THROTTLE CABLE

-FULL SIZE RADIATOR

## EG CIVIC K Swap

-K SWAP RADIATOR HOSE

-RADIATOR HOSE INSERT

-COOLANT TEMP SENSOR

-FAN SWITCH

-RSX SHIFTER

-KARCEPTS ADAPTER PLATE

-RSX STYLE SHIFTER CABLES

-CENTER FEED FUEL RAIL

-FUEL PRESSURE REGULATOR

-TUCKED FUEL LINE KIT

-INLINE FUEL FILTER

-FUEL PRESSURE GAUGE

-FUEL PUMP

-COLD AIR INTAKE

-FRANKS MANIFOLD

-T-BOTTLE BODY ADAPTER

-HYTECH K SWAP HEADER

-MID-PIPE

-3" EXHAUST

-HONDATA K PRO

-CONVERSION HARDNESS



## INTRO

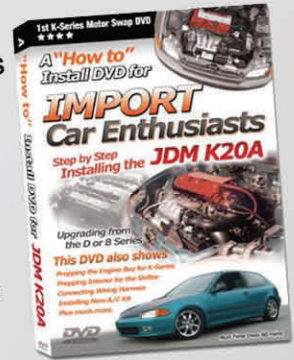
Swapping a K Series motor into a '92-'95 Honda Civic may seem like a daunting task, but if you plan properly, it can be a relatively simple and stress-free procedure. Whether you are building your car for the street, the strip, the track or any combination of the 3, this guide can assist you in choosing which parts are right for you. This guide details the advantages and disadvantages of similar products, and it provides insight into ways to save money while doing a K swap. *Every part described in this guide can be found at [hybridracing.com](http://hybridracing.com). If you need an engine and/or transmission for your swap, feel free to call us at 225-932-9588 or email [sales@hybrid-racing.com](mailto:sales@hybrid-racing.com)*



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**1. K-Series Install DVD** If you are concerned that you will have trouble completing a K Swap because you've never done one before, it may be a good idea to pick up Hybrid Racing's K-Series Install DVD. This DVD can be helpful even if you've done a K-Swap before and just want to learn some ways to make the swap easier and cleaner. It shows the definitive way to *do your swap quickly, and correctly the first time*. It provides detailed videos and explanations of the different steps involved in doing a k-swap properly. This DVD covers an EK K-swap, but all of the concepts are exactly the same as an EG K-swap. The main differences are a slightly different conversion harness and different motor mount geometry.



**2. Drivetrain** Obviously the first system that comes to mind when doing a K swap is the drivetrain. There are a number of components needed to adapt a K series motor to an EG chassis. Most important of these are obviously engine mounts and axles. Those and some other parts are detailed below.

**1. Hybrid Racing Engine Mounts** Probably the first parts that come to mind when considering a K Swap are the engine mounts that are needed to mount the K Series motor into your EG chassis. *Hybrid Racing engine mounts feature tapered bushings that minimize vibration transfer between the engine and chassis.* The mounts are available in two styles. The first style is constructed entirely from 1/8" steel plate and receives a tough powder coat finish. The second style features anodized billet aluminum and powder coated steel plate construction. *The aluminum mounts can be custom ordered in clear or black anodize.* Hybrid Racing uses DuPont industrial powder coat on all of its steel mount components. Some welding or cutting may be required depending on application. *The bushings for both the steel mounts and billet mounts are available in 4 different hardnesses so that you can tweak your mounts to best suit your application.* 60A hardness bushings are recommended for street cars with minimal engine modifications.



**(Left) Hybrid Racing Steel K Swap Mounts for the '92-'95 Civic**

75A hardness bushings are recommended for cars that see street and track use that have upgraded engines. 85a hardness bushings and solid aluminum bushings are available for purpose-built racecars that require both high strength and incredible drive train responsiveness. **All Hybrid Racing engine mounts feature True Torque Positioning Technology** which essentially positions the engine so that equal mounts of torque are applied to both axles so that no unnecessary stress is put on the drivetrain or mounts. It should be noted that the OEM passenger side engine mount on the EG must be removed from the chassis to install the Hybrid Racing K Swap engine mounts. This can be done by simply drilling out the spot welds that secure the OEM engine mount to the chassis.



**Hybrid Racing Billet K Swap Mounts for the '92-'95 Civic**



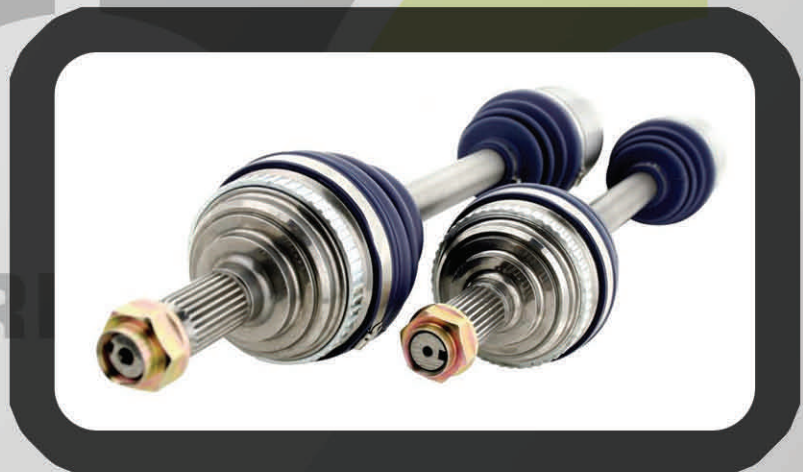
**2. Axles** are an integral part of getting power from the motor to the wheels. So obviously choosing the right ones is very important. Hybrid Racing offers a number of options when it comes to K swap axles. Since all of these axles are compatible with the EG chassis and K series transmission, the real deciding factor is how much power you intend to make.

**1. Base RSX or EP3** These axles are the same as those equipped on a base model RSX or EP3. These axles have no warranty and are ideal only for those who will not be modifying their engines or abusing their car regularly.

**2. Drive Shaft Shop Stage 0** Like the base RSX axle, the Drive Shaft Shop level 0 axles have no warranty. They are designed for a spirited daily driver with few modifications to the motor. If you intend to track your car, you may wish to consider upgrading to level 2.9 axles or higher. This system can be equipped with the optional ABS rings if your car is equipped with an ABS system.

**3. Drive Shaft Shop Stage 2.9** These axles are rated to 500hp. They come with a 1 year warranty. These axles feature full chromoly construction and heat treated CV joints. These axles are compatible with the stock hubs. This system can be equipped with the optional ABS rings if your car is equipped with an ABS system.

**(Right) Drive Shaft Shop Level 2.9 Axles**



**4. Drive Shaft Shop Stage 3.9** These axles are rated to 600hp. They come with a 1 year warranty. These axles feature full chromoly construction and heat treated CV joints. These axles are not compatible with the stock hubs. For this reason, these axles are supplied with new set of hubs that are identical to OEM with the exception of a larger spline for the larger axle.

**5. Drive Shaft Shop Stage 5.9** These axles are rated to 1000hp. They come with a 1 year warranty that does not cover tearing of the CV boots. These axles feature full chromoly construction and heat treated CV joints. These axles are not compatible with the stock hubs. For this reason, these axles are supplied with new set of hubs that are identical to OEM with the exception of a larger spline for the larger axle. The hubs come with wheel studs that will need to be pressed in. The spline on the transmission side is the same as the OEM spline and is compatible with aftermarket limited slips and spools. This system can be equipped with the optional ABS rings if your car is equipped with an ABS system. ***These are easily the strongest axles available for a k series powered vehicle. If you intend to make some crazy power, then these are a must.***

**(right) Drive Shaft Shop Level 5.9 Axles**



**RACING**

**3. Hybrid Racing K Swap Clutch Line** The EG's clutch line needs to be replaced during a K swap for a number of reasons. Because the slave cylinder in the EG uses a different fitting than that of a K series transmission, a new clutch line is needed when doing a K swap. More importantly, the OEM clutch line in an EG is a hard line and puts the fitting for the slave cylinder in the wrong place for a K swap. ***Hybrid Racing offers a specially designed flexible clutch line just for K-swaps.***

Each clutch line features -3AN Teflon hose that has a stainless steel braided jacket and rubber protective covering. Each clutch line is pressure tested after it is assembled to ensure there are no leaks. This will connect to your stock master cylinder and the K series slave cylinder. **Hybrid Racing K Swap clutch lines are available for both right hand drive (JDM) and left hand drive (USDM) configurations.**

**(right) Hybrid Racing  
K-series Clutch Line  
Conversion for  
92-00 Civic**



**4. Throttle Cable** Since the stock motor on an EG is on the passenger's side, the stock throttle cable is much longer than necessary when doing a K swap.

**1. OEM Honda Throttle Cable** This is a throttle cable from a 1996 EK civic. These have proven to be a little long, but not excessively long when used on a K swap. ***This combined with its affordability makes this a good choice for the budget builder.*** Plus, since it's an OEM Honda part, you can be assured that the quality is acceptable.

**2. K Tuned Throttle Cable (with bracket)** This throttle cable was designed with the K swap in mind. It is shorter than an EK's throttle cable, to keep the engine bay looking cleaner. The cable is supplied with its own throttle cable bracket (which replaces the OEM throttle cable bracket). The supplied bracket has no provisions for cruise control, so this is not ideal for those wishing to retain cruise control functionality. Also, the supplied bracket is not compatible with BDL throttle bodies or K20A (Type-R) throttle bodies.

**5. Drivetrain Extras** If you're looking to race your K swap or make more power, you may want to consider some of these options.

- 1. LSD** If you're planning to do any racing, one of the best ways to make sure your power is always getting to the ground is by installing an LSD. Hybrid Racing Carries both the Qauipe and Wavetrac LSD's for the K series transmission. *For a fully illustrated K Series specific LSD install guide, check out HybridRacing.com 's technical article section!*



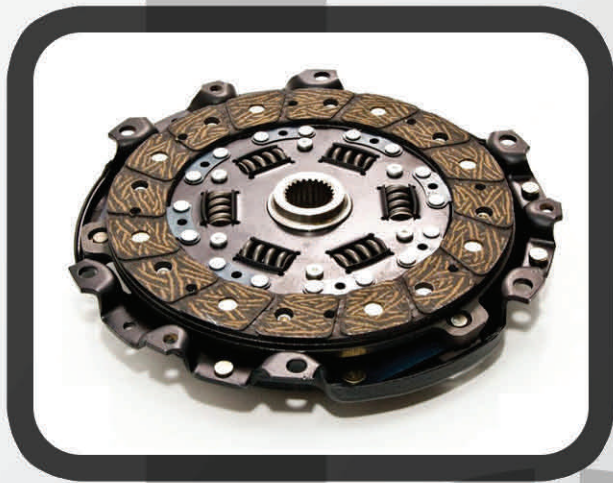
**(left) Wavetrac LSD  
for the K Series  
Transmission**

- 2. Clutch** If you intend to do a lot of racing or to modify your engine to make any more power than stock, than it's wise to install a new, upgraded clutch to make sure that abuse and increased horsepower don't make your stock clutch slip. It's worth noting that if you're intending to put an upgraded clutch on a 5 speed K series transmission, you will need to buy one of the performance flywheels on the market or an RSX type S stock flywheel to accommodate the bolt pattern on the pressure plates supplied with the clutches. You will also notice that some of these clutches can be purchased in a sprung or unsprung model. Sprung clutches have smoother engagement and are better suited to street driving. Unsprung clutches have very sudden engagement, making them ideal for track use. *Hybrid Racing carries 8 Competition Clutch performance clutches for the K series transmission.* Each clutch is supplied with the pressure plate, clutch disk, all applicable bearings, and an alignment tool.





- 1. Stage 1 Clutch** Is rated for 40% more torque over stock clutch, but is not recommended for use in cars equipped with turbos, superchargers, or nitrous oxide.
- 2. Stage 2 Clutch** Is rated for 80% more torque than the stock K series Clutch. A 500 mile break in period is recommended for this clutch. *Hybrid Racing strongly recomends this clutch for lightly modded K-Series motors.*



(left) **Competition Clutch Stage 2** sprung clutch for **K Series Transmissions**



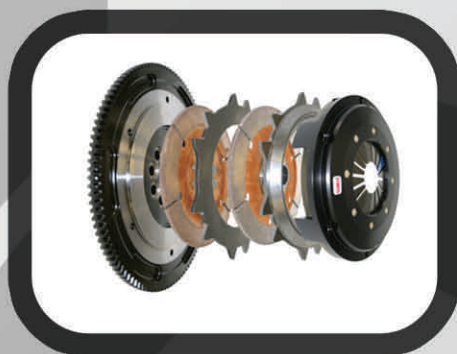
**Mark Podkowik's 10 second all motor K-Swap Civic FG**

**3. Stage 3 Clutch** Is rated for 150% more torque than the stock K series Clutch. A 5500 mile break in period is required for this clutch.

**4. Stage 4 Clutch** Is rated for 250% more torque than the stock K series Clutch. A 500 mile break in period is required for this clutch. *Hybrid Racing uses this exclusively in its K-swapped product testing and road race cars.*

**5. Stage 5 Clutch** Is rated for 300% more torque than the stock K series Clutch. A 500 mile break in period is required this clutch.

**6. Twin Disc Clutch** This clutch is strongest of the after market K series clutches. It is recommended for race use only. Because of its unique design, the kit is supplied with a special



(left) **Competition Clutch  
Twin Disc Clutch for  
K Series transmissions**

**3. Engine Internals** Because of the K series motor's rising popularity, there are many, many available aftermarket engine internals for it. Whether you're looking to pick up just a few horsepower or to build a track monster, there are parts to suit your needs.

**1. Cams** Whether you're just looking to pick up a few more horse power on an otherwise stock motor, adding a turbo and need more lift and duration, or want something specially tuned to ITB's or a supercharger, there are cams that suit exactly what you need. There are around 10 companies currently producing aftermarket cams for the K series motor.

Unfortunately, the discussions of exactly what cam is right for every variation of the K series motor is beyond the scope of this article. However, Hybrid Racing is always looking to provide more detailed information to the K series market, and you can expect some detailed reviews on most available cams in the near future. Hybrid Racing carries the full lines of **BluePrint, Hytech, and Skunk2 cams.**

**2. Pistons** are often swapped out for one of several reasons. Sometimes they are swapped to vary the motor's compression ratio to suit a new setup. Also, after-market lightened pistons are available. By lightening the rotating components in a motor, the red line can be moved up, the throttle response can be improved, and more power can be made at any given RPM. Hybrid Racing carries a full line of Wiseco pistons.

**3. Rods** are also often replaced to lower the weight of the rotating assembly in the motor. More importantly, rods are often replaced when a motor is being built to make more power than stock. *Hybrid Racing carries the full lines of I-beam and H-beam rods offered by Blue Print.*



(right) BluePrint Pro  
H-Beam Rods for  
K-Series Engines



**4. Performance Chain Tensioner** One huge problem that has been seen on many built K series motors is chain tensioner failure. The OEM chain tensioner has been shown to sometimes fail when used in a motor that has fast ramping cams with aftermarket, stiff valve springs. When the chain tensioner fails to work correctly, it's not uncommon to have the timing chain skip

teeth on the cam gear which can lead to interference between valves and pistons...and ultimately a blown motor. ***The Hybrid Racing Performance Chain Tensioner was designed to remedy several key flaws in the OEM chain tensioner that allow it to fail. It is designed to take the abuse that an after-market valve train can cause.*** This product is slated to be released in March 2009.

**3. Wiring/Electronics** The wiring aspect of a K swap is actually fairly simple if you use a conversion harness, like those sold by Hybrid Racing.

**1. ECU** Because of the immobilizer (which is designed to recognize the key of the car the ECU was taken from) found in K series ECU's, hooking up the fuel injection system is not as easy as bolting up your ECU and turning over the motor. Here are the four best solutions to this problem.

**1. Type R ECU** This is the most straight forward solution to avoiding issues with an immobilizer. Type R ECU's do not have an immobilizer. Unfortunately, locating a Type R ECU is normally quite difficult and can be expensive. Fortunately, there are several other options available to you.

**2. Mobilizer-K** This product is made by Doctronic and sold exclusively by Hybrid Racing in the US. It is a circuit board with 3 wires connected to it. It can be easily spliced into a K series engine harness. It disables the ECU's immobilizer circuit, meaning the ECU can be run easily in a K-swap. This product is known to work with the following ECU's: PLM, PLR, PND, PNF, PRA, PRB, PPA. ***This is easily the most affordable solution to the K-series ECU immobilizer problem.***

**3. Hondata K Pro** This option provides a solution to the immobilizer problem while also offering several other features. The first feature is full control over tuning of the engine. Things like cam angle, ignition advance, and fuel supply can be adjusted using the Windows XP compatible software that is supplied with the K Pro.



In addition, ***the K Pro has data logging capabilities, so that you can review what your engine was doing after a day at the track.*** Hondadata only converts ECU's to K Pros. Accordingly, you must supply a 2002-2004 K series ECU. If you do not have one, Hybrid Racing can source one for you for an additional fee (see the drop down options for the K Pro on Hybrid Racing's Site). One of the greatest features of the K Pro is that it is supplied with a number of "base maps." These base maps are setup for different standard modifications that can be done to a K series motor. These are convenient for getting a car running before bringing it to a dyno to get the maps tweaked. Ultimately the ***base maps simplify your tuner's job and will mean you spend less money at the dyno*** each time you make a change to your motor.

**4. AEM's** standalone ECU is an excellent product. It offers such unique options as the ability to run separate O2 sensors on each cylinder, programmable traction control, fuel table auto mapping, and electronic boost control. The AEM ECU is supplied with a few base maps for the K Series motor but not is many as the K Pro. For this reason, more tuning is required in most cases for the AEM ECU, but in many cases the extra effort is worth the added adjustability offered by this ECU.

**2. Hybrid Racing Conversion Harness** Hybrid Racing conversion harnesses allow a k-series engine harness and ECU to be easily adapted to the EG's dash harness. ***All of the connectors that are used on Hybrid Racing's conversion harnesses are brand new and are sourced from the same company Honda and Acura get them from.*** This ensures OEM reliability, fit and finish. These conversion harnesses are compatible with the Hybrid Racing A/C and Power Steering kits and come with install guides. As with all Hybrid Racing parts, full email and phone tech support is available if you have any questions that arise during the installation process.



(left) Hybrid Racing K-series Conversion Harness for the 92-95 Civic

**3. Hybrid Racing Speed Converter** The OEM speedometer in an EG is compatible with the signal sent out by an '02-'04 K series transmission's speed sensor. However, the '05-'06 speed sensor outputs a different signal and will give inaccurate readings to the EG's speedometer. *The Hybrid Racing Speed Converter converts the output signal from an '05-'06 transmission to be compatible with the EG's speedometer.*

(right) Hybrid Racing Speed Converter



**4. K Swap Ground Kit** If you want to avoid headaches trying to chase down wiring problems on your K swap, purchasing a K swap ground kit from Hybrid Racing is a cheap and easy solution. These ground kits are supplied with 4 wires, all with soldered ends, unlike cheap grounds that use crimped ends. One of the supplied grounds is attached to the negative terminal on the battery. The other 3 go to various points on the engine and transmission to assure a positive ground between the engine's sensors and the electrical system.



(left) Hybrid Racing K-Swap Ground Kit

**4. Fuel System Components** While it may often be one of the most overlooked systems when doing an engine swap, it's very important to consider what parts will be needed to adapt your new engine to your chassis. This is fairly simple in the case of a K swap. Only 3-4 main parts are needed.

**1. Hybrid Racing Fuel Rail** *Hybrid Racing offers one of the most unique K-series fuel rails on the market.* It features 3 -8AN ports and one 1/8 NPT port. Each rail receives a hard anodized finish and has "Hybrid Racing" and the Hybrid Racing "hr" logo laser etched into it. Each rail is also supplied with (2) -6AN/-8ORB unions, (2) -8ORB plugs, and (1) 1/8 NPT plug. This fuel rail can be setup in several different configurations thanks to its 3 port design. There are two popular configurations. The first is the standard recirculating setup where fuel flows to one side of the rail from the filter and out the other side of the rail to the fuel pressure regulator and then the tank. This requires that the central port be plugged with one of the supplied -8ORB plugs. The second popular configuration is the "tucked" setup. This is a returnless setup and requires that both ends of the fuel rail be plugged with the supplied -8ORB plugs. The fuel supply line is run from the fuel pressure regulator to the center port on the fuel rail, between the intake runners for cylinders 2 and 3. The 1/8 NPT hole on the top of the rail can be fitted with a fuel pressure gauge or plugged with the supplied 1/8 NPT plug.

(right) Hybrid Racing  
K-Series Fuel Rail

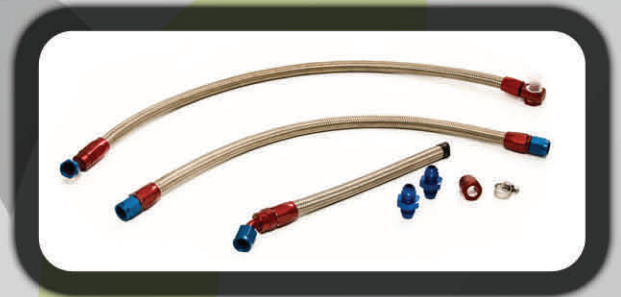


**2. Fuel Pressure Regulator (FPR)** When swapping out your k-series motor's fuel setup for something that will work in your k swap, the first thing you'll need is a FPR. Hybrid Racing recommends the AEM and Aeromotive FPR's for K-swaps. The FPR keeps the fuel pressure at the injectors steady, so that the fuel injection system functions as it was designed to. Both FPR's can be setup to work for both the recirculating and returnless configurations of the Hybrid Racing fuel rail.

**3. Fuel Lines** Fabricating a custom set of AN fuel lines can be difficult, especially considering the special tools that are required. That is why *Hybrid Racing offers prefabricated fuel lines for K swap applications*. All of Hybrid Racing's fuel lines are pressure tested after assembly to ensure a quality product. There are two different sets of fuel lines available. Each fuel line set is available in either braided stainless lines with red and blue AN fittings, or braided black Kevlar lines with silver AN fittings.

**1. Standard Fuel Line Kit** This set is designed to work in the recirculating setup. Four lines are provided with this kit, the first line goes from the stock hard line (from the fuel tank) to the OEM fuel filter, the second line goes from the OEM fuel filter to the fuel rail, the third line goes from the fuel rail to the FPR, and the last line goes from the FPR to the stock hard line (back to the fuel tank).

**(right) Hybrid Racing Standard Fuel Line kit for K-swaps (shown in stainless steel)**



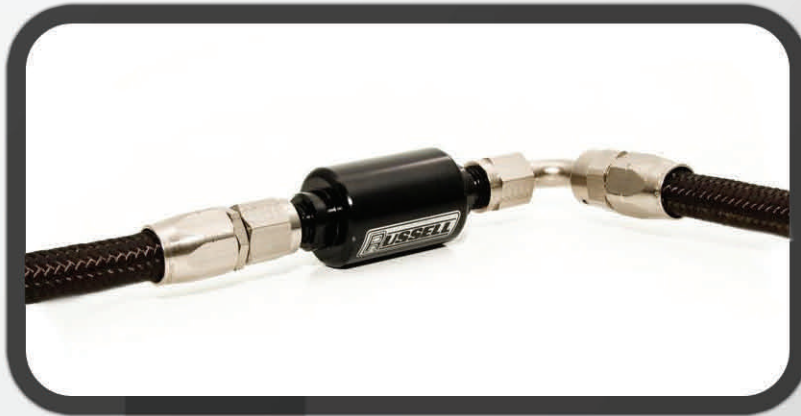
**2. Tucked Fuel Line Kit** This set is designed for the returnless setup. This kit also comes with 4 lines. The first line goes from the hard line (from the fuel tank) to the FPR, the second line goes from the FPR to the other hard line (back to the fuel tank), the third line goes from the FPR to the inline fuel filter, and the final line goes from the fuel filter to the center port on the Hybrid Racing fuel rail.



**(left) Hybrid Racing Tucked Fuel Line kit for K-swaps (shown in black kevlar)**



- 4. Fuel Filter** If you plan to setup your fuel rail in the re-circulating configuration, then the OEM fuel filter can be used and will be attached to the fuel line that goes to the input side of the fuel rail. However, in the case of a returnless setup, an aftermarket in-line fuel filter must be used. Hybrid Racing offers in-line fuel filters in black or blue; they are available as an add-on when ordering the returnless (or “tucked”) fuel line kit.



**(left) Russell brand  
Inline fuel filter fitted  
to Hybrid Racing  
tucked fuel line kit**

- 5. Fuel Pressure Gauge** It's important to install a fuel pressure gauge (FPR) somewhere in the fuel system so that you can check the fuel pressure quickly and easily. Both the Hybrid Racing K series fuel rail and the AEM FPR that is sold by Hybrid Racing are designed to accept a 1/8 NPT fuel pressure gauge. This gives you the option to have the gauge in plain sight on the fuel rail, or hidden away on the FPR.

## **1. Fuel System Extras**

- 1. Fuel Pump** Depending on what your horsepower goals are, it may be necessary to run an aftermarket fuel pump. Hybrid Racing carries a Walboro in-tank fuel pump that's designed to support over 500hp.
- 2. Injectors** Depending on your horsepower requirements, it may be necessary to run larger injectors.



**5. Shifting Assembly** Because the shifting assembly on a stock EG uses a solid linkage, it's necessary to equip your K swap with new parts to be able to shift the K series motor's cable actuated transmission. Both a shifter and shift cables will be needed.

### 1. Shifter

**1. RSX-Style Shifter** For many years, the only option for installing a shifter into a K Swapped car was to use adapters to mount an RSX style shifter to the center tunnel using one of several adapter plates that various companies offer. The most widely used adapter plate is designed by Karcepts and is available on [hybrid-racing.com](http://hybrid-racing.com)

**1. Revo Short Shifter** This is a slightly upgraded version of the OEM RSX shifter. It differs from the OEM unit in that it has adjustable front/back throw. The throw can be adjusted anywhere from stock RSX throw to 85% of stock throw.

**2. Karcepts Adapter Plate** This plate is made from stainless steel and is required to mount an RSX style shifter to an EG chassis. Unfortunately, a large section of the center tunnel must be cut out using an angle grinder or saw in order to mount the Karcepts Adapter Plate and RSX style shifter. Because of this, it is impossible to ever revert back to a D Series Motor and shifter. One other drawback to using this adapter plate is the fact that it sits 3" below the top of the center tunnel. Depending on what header is used and what diameter exhaust is used, the exhaust may touch the bottom of the Karcepts Adapter Plate. However, it is recommended that the exhaust be 1" away from the Adapter Plate to avoid the shifter and shift knob from getting too hot.



**(left) Karcepts adapter plate**

**(right) Buddy Club Short Shifter Installed using Karcepts adapter plate**



## 2. Hybrid Racing Bolt-In Adjustable Short Shifter

After nearly a year of R&D, Hybrid Racing developed a shifter that was *specifically designed for K swaps. It does not require any cutting of the center tunnel like the Karcepts adapter plate.* It bolts up to the chassis using the OEM mounting holes. Two additional holes must be drilled to mount the shifter box to the EG chassis, but these holes are only 10mm in diameter and are located under the OEM center console cover and are completely hidden once the interior is replaced.



(left) Hybrid Racing Bolt-in Adjustable Short Shifter (side view)



(right) underside of adjustable short shifter with debris shield removed



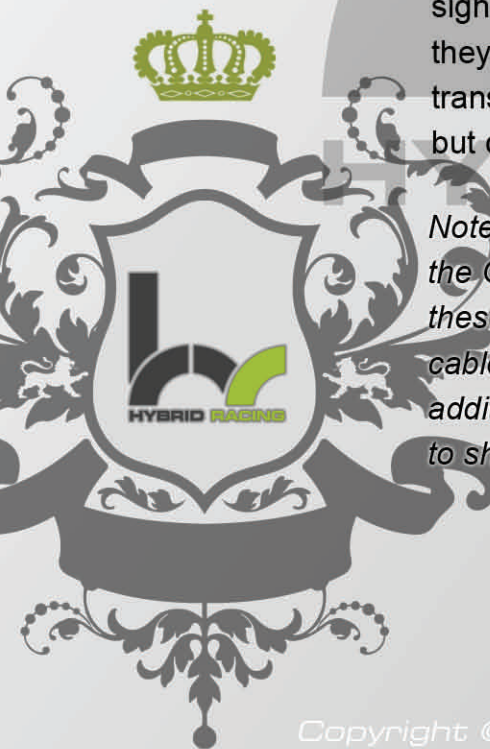
*There are a number of other features that also make the Hybrid Racing shifter a smart choice.* It sits 2" below the top of the center tunnel, which means it provides 1" more clearance for exhaust piping than the Karcepts adapter plate. This shifter is compatible with both OEM RSX shifter cables and with the Hybrid Racing performance shifter cables. The Hybrid Racing shifter also boasts a substantial amount of adjustability. The front/back and left/right throw can be independently adjusted to 3 different settings (each). The shortest throw setting is less than 50% of the stock RSX shifter's throw.

At its longest setting, the throw is approximately 80% of that of a stock RSX shifter. The shift knob's height can be adjusted approximately 2.5". Also, a unique design that utilizes a splined central shaft and an aluminum offset block allows the shift knob to be pivoted about a 4" circle in 45 degree increments. This allows the user to place the shift knob wherever it is most comfortable. For instance, the shift knob could be placed closer to the steering wheel for racing applications, or further back for a more natural feel in daily driving applications. In total, the **Hybrid Racing shifter can be adjusted to any of 432 different combinations of throw and shift knob location**. The shifter also features full steel and aluminum construction, which translates into a firmer feel than the OEM RSX's plastic shifter.

## **2. Shifter Cables** There are 3 options available to you when deciding what shifter cables to use on your k swap.

- 1. OEM RSX Shifter Cables ('02-'04)** These are the ideal OEM cables to use in a K swap. They are compatible with both RSX style shifters and the Hybrid Racing Shifter. The only modification they require is that the rubber grommet that is on both cables be cut off, which is very simple. Unfortunately, these cables are not without their drawbacks. First, the plastic swivel support tubes at the shifter end of the cables are not very strong and have been shown to pull out when the cable is used in conjunction with a RSX style short shifter set to the shortest throw setting. Once this swivel support tube has been pulled out of a cable, it cannot be replaced and a new cable is needed. In addition, the OEM RSX cables use a significant amount of rubber and plastic bushings in their rod ends (where they attach to the transmission and shifter). This makes for a cost effective design for Acura, but can be the source of unwanted play (or "slop") in the shift linkage.

*Note: There are a number of companies that offer solid metal bushings for the OEM RSX shifter cables. Hybrid Racing recommends against using these types of bushings because they increase the stress on the OEM cables and can, in some cases, lead to failure of the OEM cables. In addition, these bushings create a noticeable increase in the force required to shift, which is obviously not desirable.*



**2. OEM RSX Shifter Cables ('05+)** These cables are identical to the earlier version of the OEM RSX shifter cables with one exception: there are two thick metal weights that are attached to the shifter end of each cable. This weight prevents the cables from being able to be installed into an RSX style shifter mounted to a Karcepts adapter plate as well as the Hybrid Racing shifter. For this reason, to use these shifter cables in a swap application, the weights must be cut off.

**3. Hybrid Racing Performance Shifter Cables** After numerous reports of the OEM cables failing when used with short shifters, Hybrid Racing developed a set of RSX style shifter cables. *These cables are designed with racing applications in mind.* They feature *hard anodized solid aluminum bushings* (as opposed to the plastic ones used on OEM cables), *high-heat rubber sheaths, stainless steel swivel support tubes, stainless steel push/pull rods and stainless steel cores.*



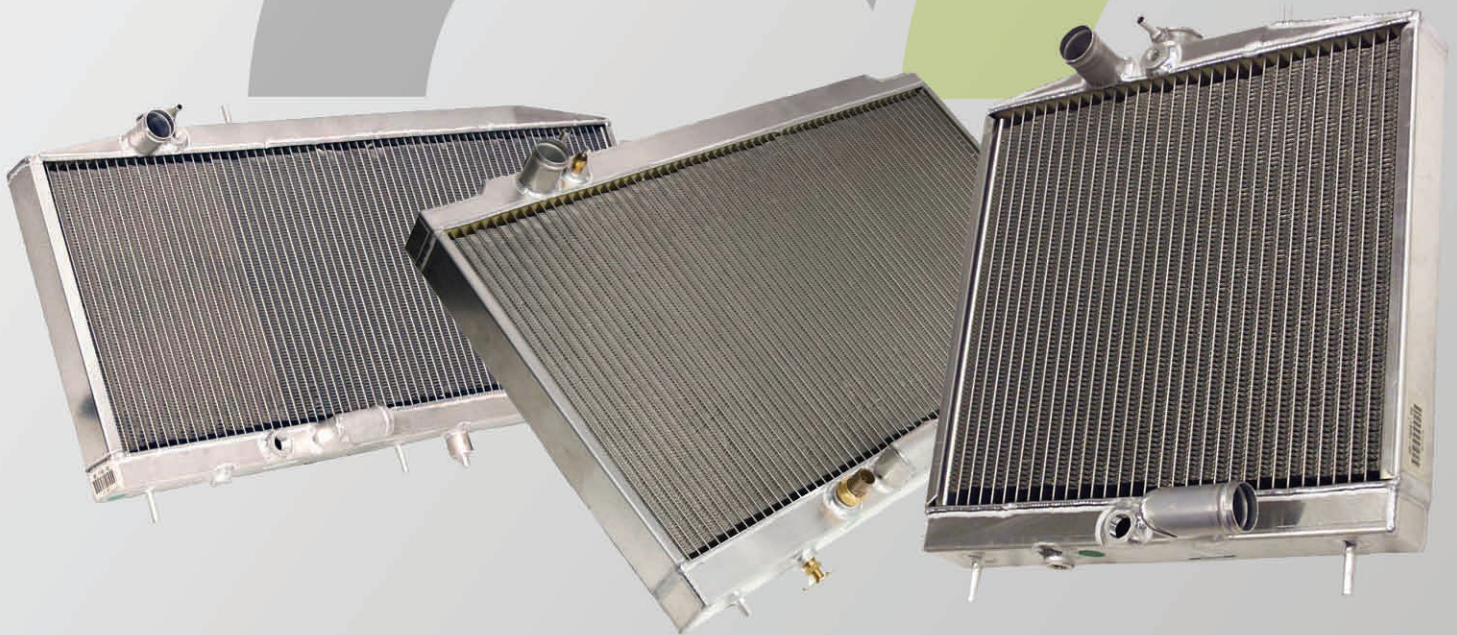
(right & above)  
Hybrid Racing  
Performance  
Shifter Cables

Although the Hybrid Racing cables feature solid rod ends which are meant to reduce free play in the cables for a firmer feel, the **Hybrid Racing shifter cables do not suffer from the problems that can arise when using OEM RSX shifter cables with aftermarket solid metal bushings.** This is due to the implementation of a chrome plated steel spherical joint which provides two degrees of freedom, where solid bushings provide only one. It's for this reason that Hybrid Racing shifter cables are able to provide a more solid feel and more durability, while still retaining the low shifting effort that the OEM cables require.

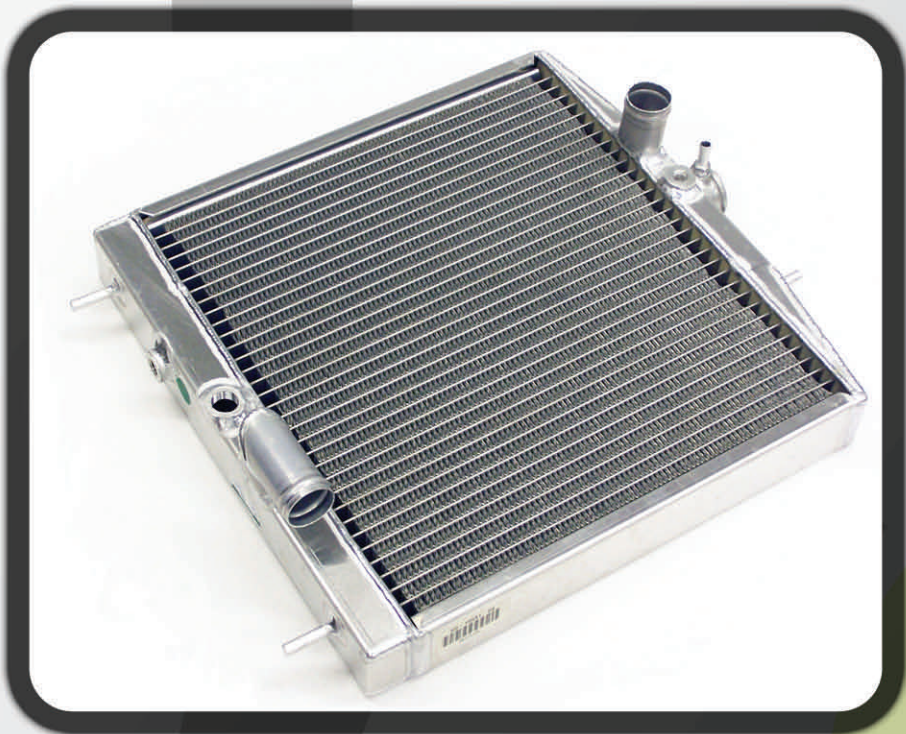
**6. Cooling** Because K-series motors and transmissions are arranged opposite to the EG's stock drivetrain, the cooling system on your K Swap will need to be altered. What components you choose will depend on your budget and the car's purpose (be it track, daily driving, or both).

### 1. Radiator

**1. Hybrid Racing K-Swap Radiators** Hybrid Racing offers K-swap radiators that are specifically designed for EG's that have had a K Series engine installed. **The Inlet and outlet are located to minimize the amount of hose required between the engine and radiator. These radiators feature fan switch and temperature sensor bungs as well as a grounding post on the underside of the radiator,** to ensure a good ground connection between the fan switch, temperature sensor, and chassis. A radiator cap and drain cock are included with each radiator. Hybrid Racing offers two radiators for the K Swapped EG. The next few pages provide details on both.



**1. Half Size Radiator** The half size radiators were the first that were offered by Hybrid Racing. They are designed to be located where the OEM condenser should go. ***No cutting, welding or modification is required to mount the radiator because it uses the OEM condenser mounting tabs.*** If you choose to run the Hybrid Racing A/C kit in your K swap, the condenser will be relocated to where the OEM radiator was located. By swapping the radiator and condenser locations, the radiator hoses can be routed more efficiently, and more room is left for the intake manifold on the K-series motor.



**(left) Hybrid Racing Half Size Radiator for the EG K-Swap**

**HYBRI**

**(right) Hybrid Racing Half Size Radiator installed in EG chassis**



**2. Full Size Radiator** The full size radiator is intended for cars where no A/C is required and where the half size radiator may not sufficiently cool the motor. *Many road racing teams often opt to use the full-size radiator* for this reason. The full size radiator rests on both the OEM radiator and condenser mounting tabs. Like the half sized radiator, *no cutting or welding is required to install this radiator*. Simply drop it in, connect the sensors and hoses, fill it with water, and it's good to go.



**(left) Hybrid Racing Full-Size K-Swap Radiator for EG Civic. Shown from inside the engine bay.**

**(right) Hybrid Racing Full-Size K-Swap Radiator for EG Civic. As viewed from front of car.**





## 2. Stock Radiator

**1. Brackets** Because the K-Series engine and transmission are reversed relative to the stock D-Series configuration, if the stock radiator is to be used, it must be relocated to the driver's side of the car. In its stock location, no radiator hoses are available to connect the stock radiator to a K Series engine. ***Relocating the stock radiator can be a fairly involved procedure.*** First, a Karcepts radiator relocation kit is needed. This provides the upper brackets that are needed to move the stock radiator and reserve tank. However, ***the lower radiator brackets still need to be cut off the chassis and rewelded on the driver's side.*** Obviously, this solution is not optimal for those looking to keep their k swap as bolt-in as possible.

**2. Sensor Mounting** If you choose to stick with the stock radiator, you still need to have a way to put the temperature sensor and fan switch into the coolant stream. There are two ways to do this.

**1. Hybrid Racing Radiator Hose Insert** This is a simple anodized aluminum fitting offered by Hybrid Racing. To install it, you simply cut a 2" section out of the center of the lower radiator hose and insert the Radiator Hose Insert between the 2 sections of hose. The hose(s) should be tightly secured to either end of the Radiator Hose Insert with hose clamps. ***The temperature sender and fan switch both screw into the Radiator Hose Insert,*** and a ground wire must be run from the chassis to the grounding post that is attached to the Radiator Hose Insert.



**(left) Hybrid Racing Radiator Hose Insert**

**2. K-Tuned Thermostat Housing** This serves the same function as the Hybrid Racing Radiator Hose Insert except it replaces the OEM thermostat housing on the K Series motor. It is constructed entirely from billet aluminum. Unlike the Radiator Hose Insert, it needs no ground connection as it connects directly to the block. Also, the neck that the radiator hose attaches to on the K-Tuned Thermostat Housing can be swiveled; this opens up the possibility for a variety of radiators or radiator hoses to be used.

**(right) K-Tuned  
Thermostat  
Housing**



**3. Radiator Fan** A radiator fan is a critical component in any vehicle. It provides airflow through the radiator when the car is not moving fast enough. Because of clearance issues with K-Series intake manifolds, most K-Swaps will need to run a pusher fan in front of the radiator. If you are using the Hybrid Racing Half-Size Radiator, you'll want to use an 11" Spal slim fan. If you are keeping your OEM radiator, a 13" fan will fit. For the Hybrid Racing Full-Size Radiator, you should use 2 11" Spal slim fans.

**4. Radiator Hose** Since the K series motor was not originally equipped in the EG chassis has different coolant port locations than the K series motor, the OEM radiator hoses will not work. **Hybrid Racing offers OEM style radiator hoses that are a perfect fit for a K swap application.** Both hoses are supplied as one unit and must be cut apart into the upper and lower half before installing.

## 5. Sensors

- 1. Coolant Temperature Sensor** This sensor is needed for the ECU to know the engine temperature and for the dash's temperature gauge to function properly. This part is a Honda OEM part and is available at HybridRacing.com . If using a Hybrid Racing K swap radiator, the switch will screw into a bung that is welded to the radiator. If using either the Hybrid Racing radiator hose insert or K Tuned thermostat housing, the sensor will screw into that instead.
- 2. Radiator Fan Switch** This sensor is used to switch the radiator fan on or off, depending on the coolant temperature. This part is also a Honda OEM part and is available at HybridRacing.com . Like with the coolant temperature sensor, this sensor can be installed in Hybrid Racing K swap radiators, the Hybrid Racing radiator hose insert, or the K Tuned thermostat housing, depending on which one you choose to use.

## 7. Intake

- 1. Throttle Body** Several of the K series engines are supplied with a throttle body meant for a drive-by-wire setup. For K Swaps, it's necessary to use only throttle bodies that are cable actuated. If you do not have a cable actuated throttle body, a BDL big bore throttle body work. However, BDL throttle bodies do not support cruise control, so if you intended to adapt your K swap to have cruise control, a BDL throttle body will not work for your application.

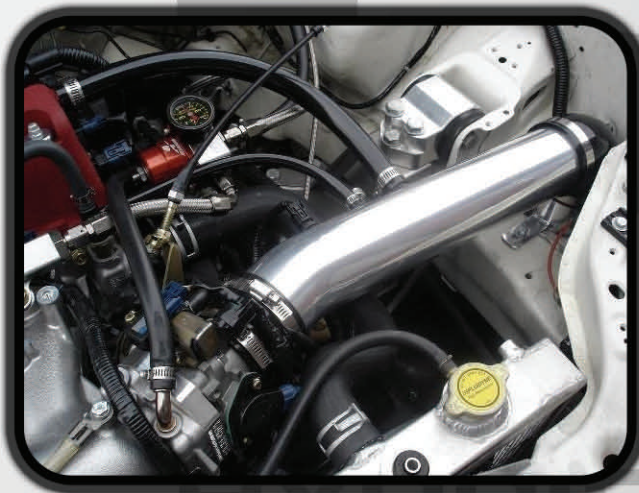
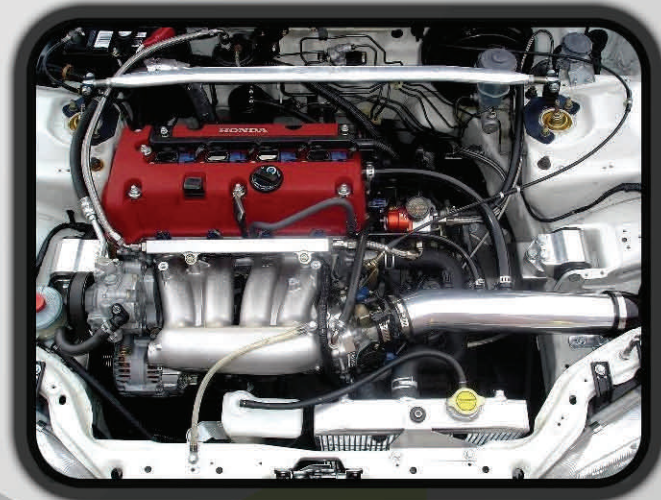
**HYBRID**  
(right) BDL 72mm K  
Series Big Bore  
Throttle Body



**2. Cold Air Intake** Since the OEM intake setup from an RSX won't work in a K swapped vehicle, it's necessary to purchase a cold air intake if you don't want to connect your filter directly to the throttle body. There are three cold air intakes available for K swaps.

**1. Karcepts Cold Air Intake** *This is probably the most unique intake available for K swaps.* Like the other intakes available, it puts the filter behind the bumper in the driver's side wheel well. However, the Karcepts intake routes the piping through a hole in the frame rail, for a slightly different look than other intake designs.

**(right) Karcepts Cold Air Intake installed in EG K Swap**

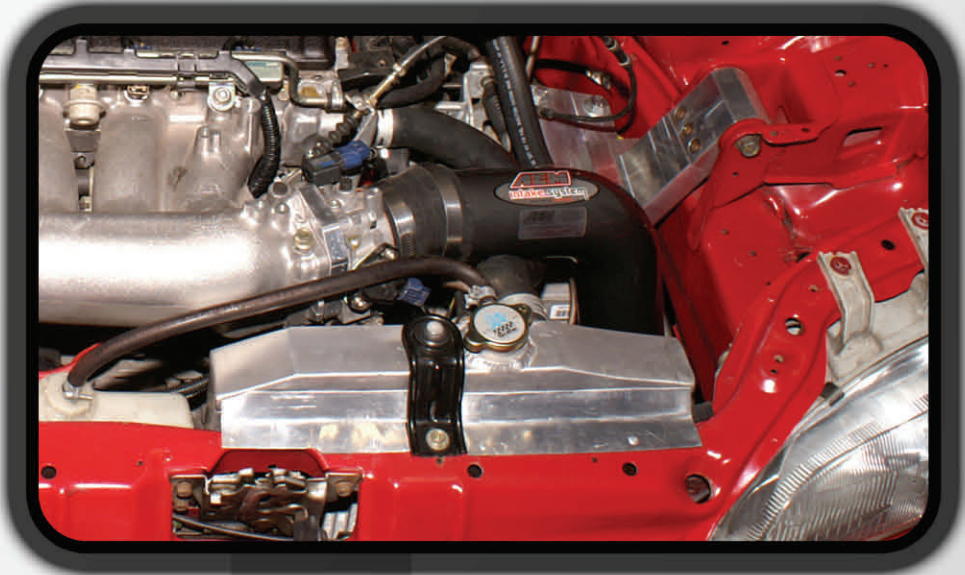


**(left) Close up of Karcepts Cold Air Intake routed through frame rail**

**(right) Karcepts Cold Air Intake Filter Location**



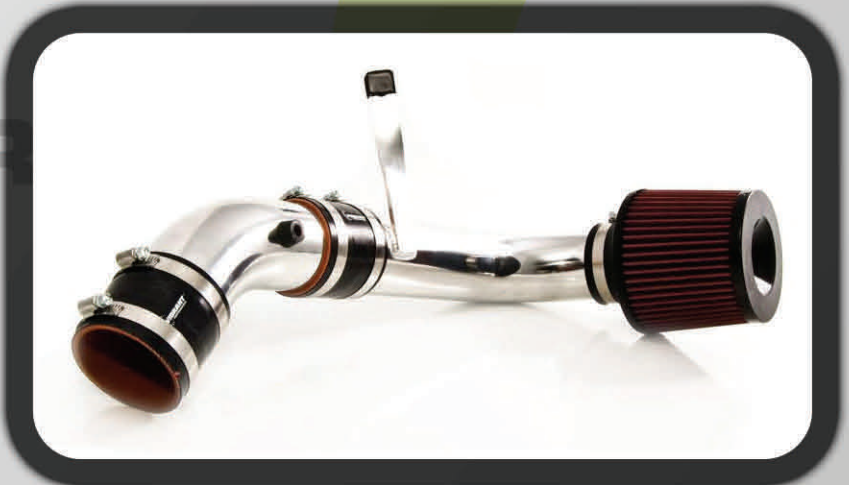
**2. AEM Hybrid Intake** This was the first cold air intake available for K swaps. It puts the air filter behind the bumper in the driver's side wheel well. *Unlike the Karcepts unit, it routes the piping below the driver's side frame rail.* These intakes are supplied with AEM's unique dry flow filter that boasts better filtration and longer filter life.



**(left) AEM Hybrid Intake installed on an EG chassis**

**3. K Tuned** This intake is much like the AEM intake, but it is supplied with a standard filter, not the dry flow filter. *This intake also requires one more coupler than the AEM version, so the finished assembly doesn't look quite as clean.* Since this intake is nearly half the price of the AEM intake and about 25% cheaper than the Karcepts intake, it is an ideal solution for the budget builder.

**(right) K Tuned K Swap cold air intake**



### 3. Intake Extras

**1. RBC Intake Manifold** While not a K swap specific part, the RBC intake manifold is a very popular bolt-on upgrade for the K series motor. Its long, straight runners are conducive to building more power in the upper rpm's. If you decide to use an RBC intake manifold, you'll need to purchase an adapter plate in order to mount your throttle body to it. These adapter plates are made by both Karcepts and K Tuned; Hybrid Racing carries both.

**2. Intake Manifold Gaskets** Hondata intake manifold gaskets are created from a thick, heat resistant polymer that is designed to stop heat from transferring from the engine to the intake manifold. This results in a colder, denser supply of air to the engine and of course, more power.

### 8. Exhaust

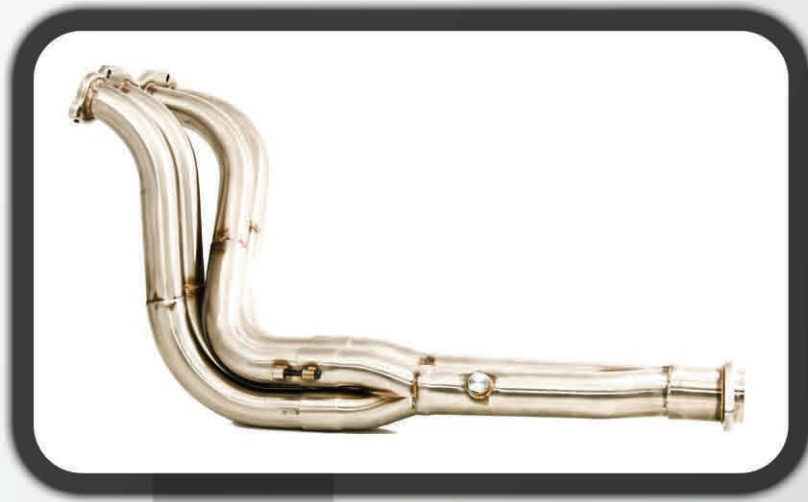
**1. Header** Since the K Series motor does not come from the factory in an EG chassis, there is no stock exhaust setup that will work in your K swap. Because of this, you will need to purchase a header. The benefit of this is that the K series motor has been shown to make more power than stock when equipped with a well-designed aftermarket header. Hybrid Racing offers several solutions to this problem.

**1. K Tuned Header** This header was designed to be an affordable solution for the budget builder. It features all stainless construction, and a 2.5" collector. The collector is made from flex pipe to allow the exhaust system to flex more easily as the motor torques. This is the cheapest K swap header available on the market. It is designed to provide sufficient clearance for a Karcepts shifter mounting kit. This header is designed to fit K20A/A2/A3/Z1 engine swaps in the EG chassis with Hybrid Racing Gen 2, Innovative, and Hasport mounts.

(right) K Tuned  
K Swap Header



**2. Hybrid Racing Race Header** This header is designed to fit K20A/A2/A3/Z1 engine swaps in the 92-00 Civic with Hybrid Racing Gen 2, Innovative, and Hasport mounts. *It features a 4-2-1 design and full stainless steel construction.* This header also features a 2.5" collector.



**(right) Hybrid Racing  
K Swap header**

**3. Hytech Header** Hytech is known for making some of the best headers on the market. Their K swap header features a true merge-type collector. This header is designed to fit K20A/A2/A3/Z1 engine swaps in the 92-00 Civic with Hybrid Racing Gen 2, Innovative, and Hasport mounts. This header features a 3" collector.

**2. Mid Pipe** Since there are no exhaust systems specifically made for the K swap, installation is not as simple as bolting up an exhaust system to the K swap header. An adjustable mid pipe should be used to mate your K swap header to your current or aftermarket exhaust system. Hybrid Racing carries an adjustable mid pipe designed to work with most K Swap headers

**3. Exhaust System** Any exhaust system designed for your chassis will work with your k swap. The only important detail is that, as mentioned above, an adjustable mid pipe will be needed to join your exhaust to your header. Most muffler shops can easily adjust and install this part for you should you not want to do it yourself.



**9. Air Conditioning (AC) and Power Steering (PS)** Whether you want air conditioning, power steering, both or neither in your k swap, Hybrid Racing has a solution for you. Currently there are two AC/PS eliminator kits as well as kits that allow the K series AC compressor and PS pump to be hooked up to the current AC and PS systems on your chassis.

**1. AC/PS Eliminator Kits** If you want to eliminate the air conditioning and power steering from your motor, you will need one of these specially designed tensioners in order to properly route the serpentine belt around the crank pulley, water pump, and alternator. Both kits are supplied with all of the necessary hardware to bolt on the supplied tensioner, as well as a new, properly sized accessory belt.

**1. K Tuned** This kit is available for the k20a/a2/z1, k20z3, k20a3/k24a4 (k24a4 bottom end with k20a3 head), k24a2/a4, and k24a2/a4/k20a (k24a2/a4 bottom end with k20a head) motors. This part is required on a CRX and EF Civic to avoid having to remove the right headlight due to interference from the k series alternator. It also eliminates interference between the hood and stock k series alternator pulley. This kit uses a 3.7 oz Gates glass-reinforced black composite pulley. The kit is also supplied with the necessary serpentine belt.



**(left) K Tuned  
AC/PS  
Eliminator Kit**

**2. Karcepts** This kit is available for k20a/a2/z1, k20z3, and k24a2/a4 motors. It features all aluminum construction and a clear anodized finish. The bearing used for the pulley is an OEM Honda part, and the kit is supplied with a NAPA/Gates serpentine belt too.

**(right) Karcepts  
AC/PS Eliminator  
Kit installed on a  
K Series Engine**





**2. K Swap AC Line Kit** The Hybrid Racing K swap AC kits are designed to adapt your chassis' stock AC system to work with the AC compressor from an RSX type S mounted to a K series motor. Because the radiator should be moved to the left side of the vehicle when doing a K swap (for better routing of the coolant hoses and for better clearance of the intake manifold), this kit requires that the condenser be mounted on the right side of the car. This kit is designed to work with a '96 civic condenser. ***The kit is supplied with all of the necessary lines, fittings, and brackets to complete the conversion.*** The only required wiring is that the compressor, fan, and compressor switch be connected. Detailed instructions are included with each kit that explain how to hook up all of the lines and wires.

**(right) Hybrid Racing  
EG K Swap AC Kit**



**3. K Swap PS Line Kit** For those who want to keep their power steering, Hybrid Racing has developed a kit that ***includes everything necessary to adapt an RSX type S power steering pump to the power steering rack on an EK civic.*** The kit includes all of the lines and fittings necessary for the conversion. A power steering fluid cooler and overflow reservoir are supplied with each kit as well. If you want power steering, but would rather create your own setup, Hybrid Racing also offers a specially designed fitting meant to plug into the high-pressure output of an RSX type S power steering pump and accept a -8ORB/-6AN union (like those used in most aftermarket fuel rails).



**(left) Hybrid Racing  
K Swap  
Power Steering Kit**

#### 4. Other Parts You'll Need

Depending on what combination of AC and PS you decide to run, you will need a few other parts and a properly sized belt.

##### 1. If Keeping AC Only

- 1. AC Condenser** The Hybrid Racing K swap AC kit is designed to work with a '96 civic condenser mounted on the passenger's side of the vehicle (where the stock radiator was located).
- 2. Stock AC Lines** Be sure to keep the AC lines that are currently in your car. All of the lines (with the exception of the ones supplied with the Hybrid Racing K swap AC kit) will be needed for the conversion.
- 3. EP3 Idler Pulley and Bracket** To route the belts properly when using only AC, the use of an EP3 Civic idler pulley and idler pulley bracket is necessary. This is a stock Honda part and can be picked up from any Honda or Acura dealership.
- 4. Serpentine Belt**
  - 1. For K24's** use a 52" serpentine belt
  - 2. For K20's** use a 50.5" serpentine belt



## 2. If Keeping PS Only

**1. RSX Type S Power Steering Pump** The Hybrid Racing power steering kit was developed around this pump, so this is what is recommended when doing a K swap power steering conversion. Other K series power steering pumps may be suitable, but Hybrid Racing has not confirmed this.

**2. RSX Type S Crank Pulley** Hybrid Racing recommends the use of an RSX type S crank pulley when using the RSX type S power steering pump. This assures that the pump does not run at a higher RPM than necessary. When using an RSX crank pulley, the belt length does not change whether the kit is installed on a K20 or K24 motor, as it does when equipping the AC kit.

**3. Jackson Racing Pulley (P/N 052-154)** This pulley will need to be retrofitted to your PS pump.

### 4. Serpentine Belt

**1. For K24's** use a 52" serpentine belt

**2. For K20's** use a 52" serpentine belt

## 5. If Keeping AC and PS

**1. Type S Power steering pump** The Hybrid Racing power steering kit was developed around this pump, so this is what is recommended when doing a K swap power steering conversion. Other K series power steering pumps may be suitable, but Hybrid Racing has not confirmed this.

**2. AC condenser** The Hybrid Racing K swap AC kit is designed to work with a '96 civic condenser mounted on the passenger's side of the vehicle (where the stock radiator was located).

**3. Stock Lines** Be sure to keep the AC lines that are currently in your car. All of the lines (with the exception of the ones supplied with the Hybrid Racing K swap AC kit) will be needed for the conversion.

**6. If Eliminating AC and PS** All you will need is either of the kits listed in section 9.1. Both of these kits are supplied with all of the necessary hardware to run your motor without AC or PS. They are also supplied with the necessary belt, to make installation as easy as possible.

**Hybrid Racing** offers all of the parts needed to complete a K Swap into a Civic or Integra Chassis. We can even supply engines and transmissions, stock or built! If you're interested in purchasing a package with all of the parts for your K Swap, send an email to [sales@hybrid-racing.com](mailto:sales@hybrid-racing.com) with a list of what parts you already have as well as a brief description of what you hope to achieve with the car (ie "daily driver," "road race," "drag race," "keep AC," "delete AC and PS" etc.).

