THE ULTIMATE K-SWAP GUIDE

HYBRIDRACING
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v1.1

Hybrid Racing's

K-Series Engine Swap Guide

by David Cordell

Welcome to the world's largest and most comprehensive guide to the K-Swap! If you've ever thought about what you would need, how you would do it, or who to contact about K-Swap information, this guide is for you! With over 9 years of K-Swap experience and as the very first company to offer K-Swap-specific parts and packages, the team at Hybrid Racing knows what it takes!

Given the wide variety of applications and engine choices, the Honda K-Swap can be a daunting task to research. For most, a quick search of an internet forum is a good starting place but soon you run into misinformation and rumors leaving you confused and frustrated. So we created this epic guide to be used as the go-to resource for anything K-Swap related. We left out the internet talk and stuck to good ol' fashion facts!

Here you will find over 60 pages of facts, specs, tips and information you can use to determine if the swap is right for you. The Ultimate K-Swap Guide has several purposes, all of which are geared toward informing you of what it takes to do it right the first time. From chassis notes and an engine list, to a breakdown of each swap component, this guide covers it all!

Drop us an email at sales@hybrid-racing.com after you have reviewed the guide to get a custom K-Swap package price quote for all of the stuff you'll need!

If you spot an error drop us an email at info@hybrid-racing.com with a description of what's wrong and w'ill send you some free awesome sauce!

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K-Series Install DVD

(EG/DC/EK)

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 also 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.

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 with a list of what parts you already have as well as a brief description of what you hope to achieve with the car.

Chassis Notes

This section will discuss the differences between the various chassis in regard to the K-Series swap. Some are easier while some require more parts and more work. Below are some facts associated with each chassis to help you understand what type of work is needed for the swap.

84-87 Honda Civic / CRX

- NOT easily swapped
- Major custom fabrication required
- Uncommon car for the K-Swap because of difficulty

88-91 Honda Civic / CRX

(EC/ED/EE/EF)

- Less difficult than older chassis
- Requires more swap specific parts, generally more expensive to swap
- Requires cutting and welding of frame rails and rear sub-frame
- Requires cutting hood for clearance
- Requires custom or aftermarket front cross member / traction bar
- Requires welding of passenger frame swap mount
- Requires digital speedometer (factory cable speedo is not easily compatible)
- Requires cable to hydro clutch pedal conversion
- Limited choice of off the shelf headers (custom headers built to fit are only alternative)
- Not air conditioning or power steering compatible
- Hybrid Racing bolt-in shifter compatible
- Factory core engine wiring harness is required for conversion harnesses
- Return-type fuel system

90-93 Acura Integra

(DA5/DA9/DB1/DB2)

- Requires more swap specific parts, generally more expensive to swap
- Requires cutting and welding of frame rails and rear sub-frame
- Requires custom or aftermarket front cross member
- Requires welding of passenger frame swap mount
- Requires digital speedometer (factory cable speedo is not easily compatible)
- Requires cable to hydro clutch pedal conversion
- Limited choice of off the shelf headers (custom headers built to fit are only alternative)
- Not air conditioning or power steering compatible
- Hybrid Racing bolt-in shifter compatible
- Return-type fuel system

92-95 Honda Civic

(EG/EH/EJ1/EJ2)

- Very popular chassis for the K-Swap
- Requires removal of passenger side frame mount
- Air conditioning, heater and power steering compatible (NO AC for RHD Chassis)
- Requires trimming of the hood supports if running power steering (K20 & K24)
- Use of Hybrid Racing engine mounts is recommended if using power steering, so engine can be moved forward to clear power steering rack.
- Wide variety of swap parts available
- Minimal fabrication necessary (only necessary to remove the frame mount)
- OEM EP3 axles can be used
- Hood support interference with K24
- Ideal engine placement for axle angle
- Hybrid Racing bolt in shifter compatible
- Return-type fuel system

94-01 Acura Integra

(DB6/DB9/DC1/DC2/DC4)

- Very popular chassis for the K-Swap
- Requires removal of passenger side frame mount
- Air conditioning, heater and power steering compatible (NO AC for RHD Chassis)
- Requires trimming of the hood supports if running power steering (K20 & K24)
- Use of Hybrid Racing engine mounts is recommended if using power steering, so engine can be moved forward to clear power steering rack.
- Wide variety of swap parts available
- Minimal fabrication necessary (only necessary to remove the frame mount)
- OEM EP3 axles can be used
- Hood support interference with K24
- Ideal engine placement for axle angle
- Hybrid Racing bolt-in shifter compatible
- Full size radiator and AC condenser compatible
- Offers more front engine bay room than any other chassis
- 94-01 MY chassis use the same HR conversion harness
- Relocation or modification of OEM ABS pump location may be necessary to install frame mount and AC lines.
- Return-type fuel system
- ALL US versions (including US Type R) use 26 spline front hubs
- ONLY the JDM 98+ Type R DC2 use 28 spline front hubs

96-00 Honda Civic

(EK3, EK4, EK5, EK9, EJ6, EJ7, EJ8, EJ9, EM1)

- Very popular chassis for the K-Swap
- Does not require any cutting or fabrication
- Can be 100% bolt-in with swap parts
- Air conditioning, heater and power steering compatible (NO AC for RHD Chassis)
- Requires trimming of the hood supports if running power steering (K20 & K24)
- Has option to use EG/DC sub-frame for idea axle angle and improved engine placement (No fabrication required)
- Hybrid Racing bolt in shifter compatible
- Stock EK sub-frame reduces the amount of room in front of the engine, making longer or custom intake manifolds or thicker radiators hard to use.
- Stock EK sub-frame offer less than ideal axle angle which can cause to axle failure in high hp swapped or race cars.
- Stock EK sub-frame equipped cars cannot use large race headers due to clearance issues (custom fab headers must be used)
- 96-98 and 99-00 require the use of different conversion harnesses (all other swap parts are the same)
- OEM EP3 axles can NOT be used
- Return-type fuel system

01-05 Honda Civic

(EM2/ES1/EP3/EU1)

- 02-05 Civic Si (EP3) only version that comes factory with K-Series motor
- 02-05 Civic Si (EP3) is compatible with most K24 engines and all RSX transmissions (5 & 6spd)
- 01-05 Civic (EM2) must use RSX subframe for K-Swap
- 01-05 Civic (EM2) must use RSX shifter and cables, some modification is required
- 01-05 Civic (EM2) K-Swaps are AC and PS compatible, but require the use of both RSX and EP3 components.
- 01-05 Civic (EM2) requires the use of conversion engine mounts
- 01-05 Civic (EM2) K-Swap chassis can use EP3 axles, (RSX-S axles can be used but must has RSX-S front hubs)
- 01-05 Civic (EM2) K-Swap chassis must use factory D17 ECT sensor on the K motor for gauge cluster coolant gauge function
- Return-less type fuel system
- Fuel pressure regulator located inside of fuel tank

02-06 Acura RSX Type S

(DC5)

- Factory K-Series car
- Compatible with most K24 engines
- K24 swapped cars require used of different front sway bar
- Return-type fuel system
- Fuel pressure regulator located inside of fuel tank
- RSX Type S has 28 spline outer axle joints and hubs
- RSX Base has 26 spline outer axle joints and hubs
- 5 and 6 speed shifters and cables are cross-compatible

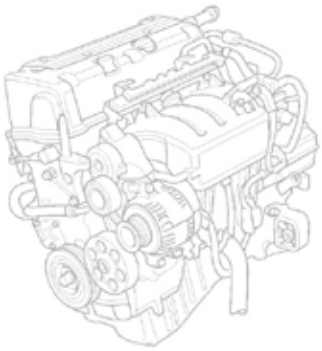
K-Series Engine Guide

Engine Code	Displacement	Chassis	Country	Compression	Bore (mm)	Stroke (mm)	Horsepower	Torque	Throttle Body	Note	ECU	LSD	Avg Price*
K20A	1998cc / 2.0L	01-06 Integra Type R (JDM DC5)	Japan	11.5:1	86	86	220	160	DBC		PRC	Yes	$5,000.00
	1998cc / 2.0L	01-05 Civic Type R (JDM EP3)	Japan	11.5:1	86	86	212	158	DBC		PRD	Yes	$4,800.00
	1998cc / 2.0L	02-08 Accord Euro R	Japan	11.5:1	86	86	220	160	DBW		***	Yes	$4,800.00
	1998cc / 2.0L	02-04 Integra Type S	Japan	9.8:1	86	86	160	141	DBC		***	No	$1,900.00
K20A2	1998cc / 2.0L	02-04 RSX Type S	United States	11.1:1	86	86	200	142	DBC		PRB	No	$3,200.00
	1998cc / 2.0L	02-04 Integra Type R	Austraila	11.1:1	86	86	200	142	DBC		***	No	$3,200.00
	1998cc / 2.0L	02-05 Civic Type R	United Kingdom	11.1:1	86	86	200	142	DBC		PRA	No	$3,500.00
K20A3	1998cc / 2.0L	02-05 Civic Si	United States	9.8:1	86	86	160	141	DBC		PNF	No	$1,900.00
	1998cc / 2.0L	02-05 Civic SiR	Canada	9.8:1	86	86	160	141	DBC		PNF	No	$1,900.00
	1998cc / 2.0L	02-06 RSX	United States	9.8:1	86	86	160	141	DBC		PND	No	$1,900.00
k20Z1	1998cc / 2.0L	05-06 RSX Type S	United States	11.0:1	86	86	210	143	DBC		PRB**	No	$3,500.00
	1998cc / 2.0L	05-06 Honda Integra Type S	Austraila	11.0:1	86	86	210	143	DBC		***	No	$3,500.00
K20Z3	1998cc / 2.0L	06-11 Honda Civic Si	United States	11.0:1	86	86	197	140	DBW		RRB	Yes	$4,000.00
	1998cc / 2.0L	06-11 Acura CSX Type S	Canada	11.0:1	86	86	197	140	DBW		***	Yes	$4,000.00
K20Z4	1998cc / 2.0L	07-10 Honda Civic Type R	Europe	11.0:1	86	86	198	142	DBW		***	Yes	$6,000.00
K23A	2300cc / 2.3L	07-11 Acura RDX	United States	8.8:1	86	99	240	260	DBW	****	RWG	No	$3,500.00
K24A1	2354cc / 2.4L	02-06 Honda CRV	United States	9.6:1	87	99	160	160	DBC		PPA	No	$1,700.00
K24A2	2354cc / 2.4L	04-05 Acura TSX	United States	10.5:1	87	99	200	166	DBW		RBB	No	$2,200.00
	2354cc / 2.4L	06-08 Acura TSX	United States	10.5:1	87	99	205	164	DBW		RBB	No	$2,200.00
K24A4	2354cc / 2.4L	03-05 Honda Accord	United States	9.7:1	87	99	160	160	DBW		RAA	No	$1,700.00
	2354cc / 2.4L	03-06 Honda Element	United States	9.7:1	87	99	160	160	DBW		PZD	No	$1,600.00
K24A8	2354cc / 2.4L	06-07 Honda Accord	United States	9.7:1	87	99	166	160	DBW		RAD	No	$1,600.00
	2354cc / 2.4L	07-08 Honda Element	United States	9.7:1	87	99	166	160	DBW		PZD	No	$2,000.00
K24Z1	2354cc / 2.4L	07-09 Honda CRV	United States	9.7:1	87	99	166	160	DBW		RZA	No	$2,000.00
K24Z2	2354cc / 2.4L	08-09 Honda Accord	United States	10.5:1	87	99	177	161	DBW	LX/LX-P	R42	No	$2,000.00
K24Z3	2354cc / 2.4L	08-09 Honda Accord	United States	10.5:1	87	99	190	162	DBW	EX	R42	No	$2,500.00
	2354cc / 2.4L	09+ Acura TSX	United States	11.0:1	87	99	201	172	DBW		RL5	No	$3,000.00
K24Z6	2354cc / 2.4L	10+ Honda CRV	United States	10.5:1	87	99	180	161	DBW	ALL	REZ	No	$2,500.00
K24Z7	2354cc / 2.4L	12 Honda Civic Si	United States	11.0:1	87	99	201	170	DBW	Si	RX0	Yes	***

Notes:

* Average price based off good condition used engines and transmissions.
** This PRB ECU is not compatible with KPRO (A13-A16 only)
*** Not available
**** Not compatible with K-Swaps

Throttle body:
DBC = Drive By Cable / DBW = Drive By Wire (no throttle cable)



K20A

K20A

Engine

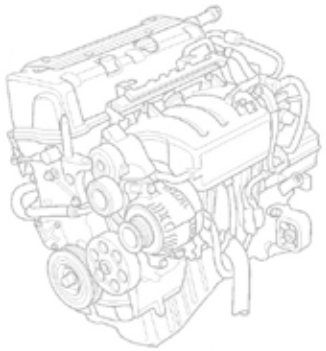
- Has true VTEC (3 lobe intake and exhaust cam)
- 8200rpm Redline
- Only offered in Japan
- JDM Type S version "K20A" is NOT the same as the Type R version (See K-Series Engine Spec Chart, page 9)
- "PRB" style cylinder head
- Aluminum PRB intake manifold
- K20A specific throttle body (requires a special aftermarket cable bracket)
- Factory equipped oil cooler
- Cast aluminum oil pan
- Stock oil pump suffers cavitation pass 8600rpm.
- After market oil pan baffle recommended for road racing
- Factory oil pump does not contain balance shafts

Electronics

- ECU can be used without KPRO or immobilizer removal unit
- Must have primary and secondary o2 sensors present for engine to function properly
- P0600 Multiplexor error code will be stored in ECU, does NOT affect performance
- RHD engine wiring harness is 2ft shorter than US version
- Factory equipped wideband o2 sensor
- Engine and charge harnesses are compatible with all conversion wiring
- Does NOT have VTEC oil pressure switch
- Factory PRC ECU can be used for Hondata KPRO (JDM ITR only)

Transmission

- 6spd gearbox w/ helical LSD
- 4.764 Final drive
- Uses DC5 28 spline axles (not compatible with K-Swapped cars unless using 98+ JDM DC2 front hubs)
- Low frequency vehicle speed sensor type, located on the rear of the gear box housing, above the intermediate shaft.



K20A2

K20A2

Engine

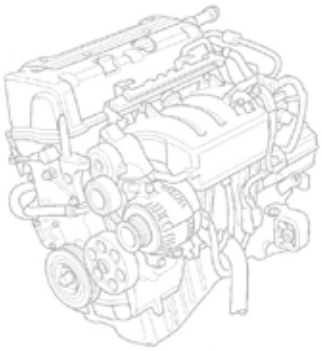
- Easiest engine to use as a complete drop out swap
- Has true VTEC (3 lobe intake cam, 3 lobe exhaust cam)
- "PRB" style cylinder head
- Aluminum PRB intake manifold (Same as K20A)
- Factory equipped oil cooler
- Most widely used alternator, AC compressor, starter and power steering pump
- Cast aluminum oil pan
- Stock oil pump suffers cavitation pass 8600rpm.
- After market oil pan baffle recommended for road racing
- Factory oil pump does not contain balance shafts

Electronics

- Factory engine and charge harness can be used
- Does not require any change of engine sensors
- Factory ECU (PRB) can be used stock w/immobilizer delete unit, or with the Hondata KPRO
- Factory equipped wideband o2 sensor
- Low frequency vehicle speed sensor type, located on the rear of the gearbox, above the intermediate shaft.

Transmission

- 4.389 Final drive
- 6spd gearbox w/no factory LSD



K20A3

K20A3

Engine

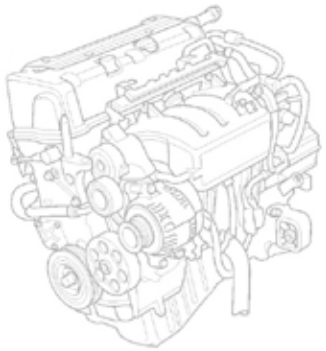
- Does NOT have true VTEC (3 lobe intake cam, 1 lobe exhaust cam)
- Weaker rods than K20A/A2
- Suitable for low boost applications
- Plastic intake manifold, different throttle body design
- Stamped steel oil pan
- Factory oil pump does not contain balance shafts

Electronics

- Factory ECU can be used for Honda KPRO (will not have functioning reverse lockout solenoid if used on 6spd transmission)
- Engine and charge harnesses are compatible with all conversion wiring (manual trans equipped engine ONLY)
- Low frequency vehicle speed sensor type, located on the rear of the gear box housing, above the intermediate shaft.
- Uses same crank and cam sensors as the K20A/A2/Z1

Transmission

- 5spd gearbox w/no factory LSD
- 4.76 final drive (02-05 EP3), 4.389 (DC5 Base)



K20Z1

K20Z1

Engine

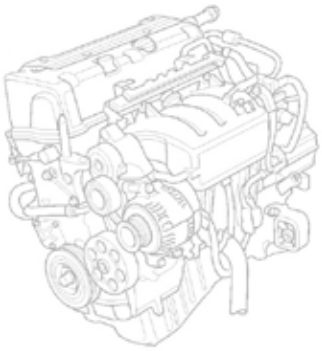
- Has true VTEC (3 lobe intake cam, 3 lobe exhaust cam)
- Uses the same camshafts as K20A
- PRB" style cylinder head
- Aluminum PRB intake manifold (Same as K20A)
- Factory equipped oil cooler
- Most widely used alternator, AC compressor, starter and power steering pump
- Cast aluminum oil pan
- Stock oil pump suffers cavitation pass 8600rpm.
- After market oil pan baffle recommended for road racing
- Factory oil pump does not contain balance shafts

Electronics

- Requires the use of 02-04 K20A2 engine wiring harness
- Requires the use of 02-04 RSX-S ECU / JDM ECU or KPRO
- PRB A13-A16 ECU's CAN NOT BE USED
- Factory equipped wideband o2 sensor (must use 02-04 sensor)
- High frequency vehicle speed sensor type, located on the front of the gear box case.
- Requires the use of a VSS signal Converter

Transmission

- 4.764 Final drive
- 6spd gearbox w/no factory LSD



K20Z3

K20Z3

Engine

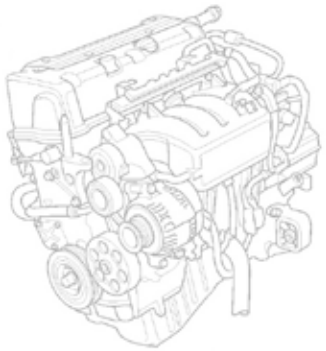
- Has true VTEC (3 lobe intake cam, 3 lobe exhaust cam)
- Uses the same camshafts as K20A
- "RBC" style cylinder head, different head castings compared to the "PRB"
- Aluminum RBC intake manifold, with integrated coolant neck passage
- Factory equipped oil cooler
- Factory equipped wideband o2 sensor (must use 02-04 sensor)
- Cast aluminum oil pan
- Stock oil pump suffers cavitation pass 8600rpm.
- After market oil pan baffle recommended for road racing
- Factory oil pump contains balance shafts

Electronics

- Requires the use of 02-04 K20A2 engine wiring harness
- Requires the use of 02-04 RSX-S ECU / JDM ECU or KPRO
- Drive By Wire throttle body (no throttle cable)
- Requires the use of a DBC (drive by cable) throttle body and TPS

Transmission

- Requires the use of RSX/EP3 transmission gear selector parts (stock Z3 transmission DOES NOT work with RSX shifter cables)
- 4.764 Final drive
- 6spd gearbox w/ factory helical LSD
- High frequency vehicle speed sensor type, located on the front of the gear box case.
- Requires the use of a VSS signal Converter

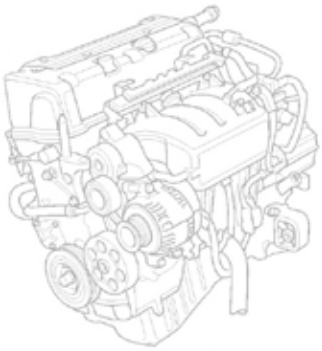


K23A

Overview

- Has different block castings than other K-Series engines
- NOT compatible with manual transmissions
- NOT compatible with other K-Series cylinder heads and blocks
- AWD setup NOT compatible with other K-Series engines
- Using different engine internals and cylinder head design
- Top mount intercooler and turbo system not compatible with other K engines
- Aluminum block, steel sleeves with factory forged rods and pistons

K23A



K24A1

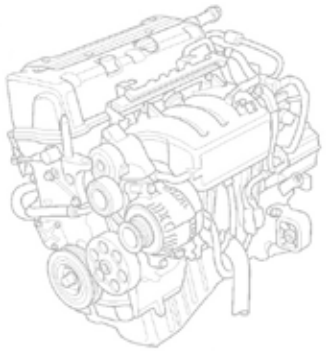
K24A1

Engine

- Does NOT have true VTEC (3 lobe intake cam, 1 lobe exhaust cam)
- Accepts K20 head swaps w/ stock pistons
- Bolts up to ALL K-Series manual transmissions
- Decently strong rods for boost
- Redline should not be set past 7300 with stock rods
- Factory oil pump should be changed when building motor (or boosting)
- K20A/A2/Z1 oil pumps are bolt on w/K24 chain & tensioner
- No factory equipped oil cooler (block will require drilling and tapping for use of OEM cooler setup)
- "PRB" style cylinder head w/ separate coolant passage
- Stamped Steel oil pan

Electronics

- Requires the use of 02-04 K20 (5 or 6spd) engine wiring harness
- Requires the use of manual trans CRV ECU (PPA)
- 5spd manual trans ECU CAN be used w/immobilizer delete unit
- 5spd manual trans ECU CAN be used for KPRO
- 5spd ECU WILL NOT have reverse lock out function
- Uses different crank and knock sensor than K20A/A2/Z1



K24A2

K24A2

Engine

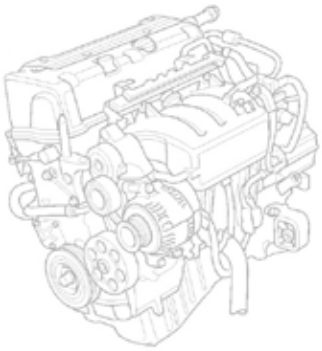
- Has true VTEC (3 lobe intake cam, 3 lobe exhaust cam)
- "RBC" style cylinder head, different head castings compared to the "PRB"
- Aluminum RBB intake manifold, with integrated coolant neck passage
- Drive By Wire throttle body (no throttle cable)
- Requires the use of a DBC (drive by cable) throttle body and TPS
- No factory equipped oil cooler
- Cast aluminum oil pan
- Stock oil pump suffers cavitation pass 8600rpm.
- After market oil pan baffle recommended for road racing
- Factory oil pump contains balance shafts

Electronics:

- Requires the use of 02-04 K20A2 engine wiring harness
- Requires the use of compatible ECU &KPRO (TSX ECU IS NOT SWAP COMPATIBLE)
- Factory equipped wideband O2 sensor (must use 02-04 sensor)
- High frequency vehicle speed sensor type, located on the front of the gear box case.
- Requires the use of a VSS signal Converter
- Has different crank and knock sensors

Transmission:

- K24A2 transmission is NOT compatible with HR mounts
- Not compatible with RSX shifter
- 4.764 Final drive
- 6spd gearbox w/ NO factory helical LSD



K24A4

K24A4

Engine

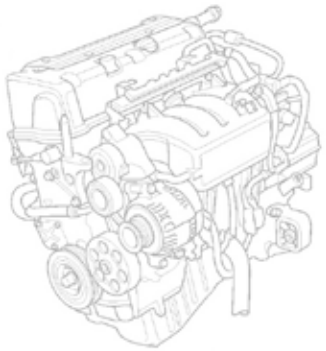
- Does NOT have true VTEC (3 lobe intake cam, 1 lobe exhaust cam)
- "PRB" style cylinder head, separate coolant passage
- Aluminum one piece RAA intake manifold, (similar to the TSX)
- Drive By Wire throttle body (no throttle cable)
- Requires the use of a DBC (drive by cable) throttle body and TPS
- No factory equipped oil cooler
- Stamped Steel Oil pan
- Stock oil pump suffers cavitation pass 7500.
- After market oil pan baffle recommended for road racing
- Factory oil pump contains balance shafts
- Requires the use of a K24A1 engine mount bracket (11910-PPA-000)

Electronics:

- Requires the use of 02-04 K20A2 engine wiring harness
- Requires the use of compatible ECU &KPRO (Accord ECU IS NOT SWAP COMPATIBLE)
- Has different crank and knock sensor
- CRV (PPA) ECU can be used to power stock engine

Transmission:

- K24A4 transmission is NOT compatible with HR mounts
- Not compatible with RSX Shifter
- 5spd, No LSD
- 4.389 Final drive

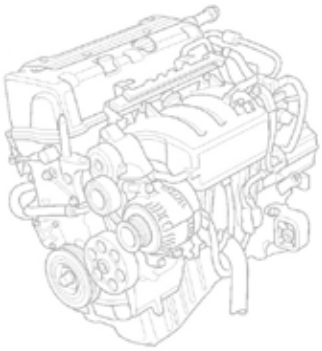


K24Z series

K24Z Series Engines

Overview

- Engines have integrated exhaust ports in the cylinder head
- Crank position sensors located in the middle of the block, not on the timing chain side
- Timing chain case cover is different than normal K20/K24
- Oil filter is relocated to the bottom of the engine
- Cam sensors are different
- No true VTEC (3 lobe intake and 1 lobe exhaust)

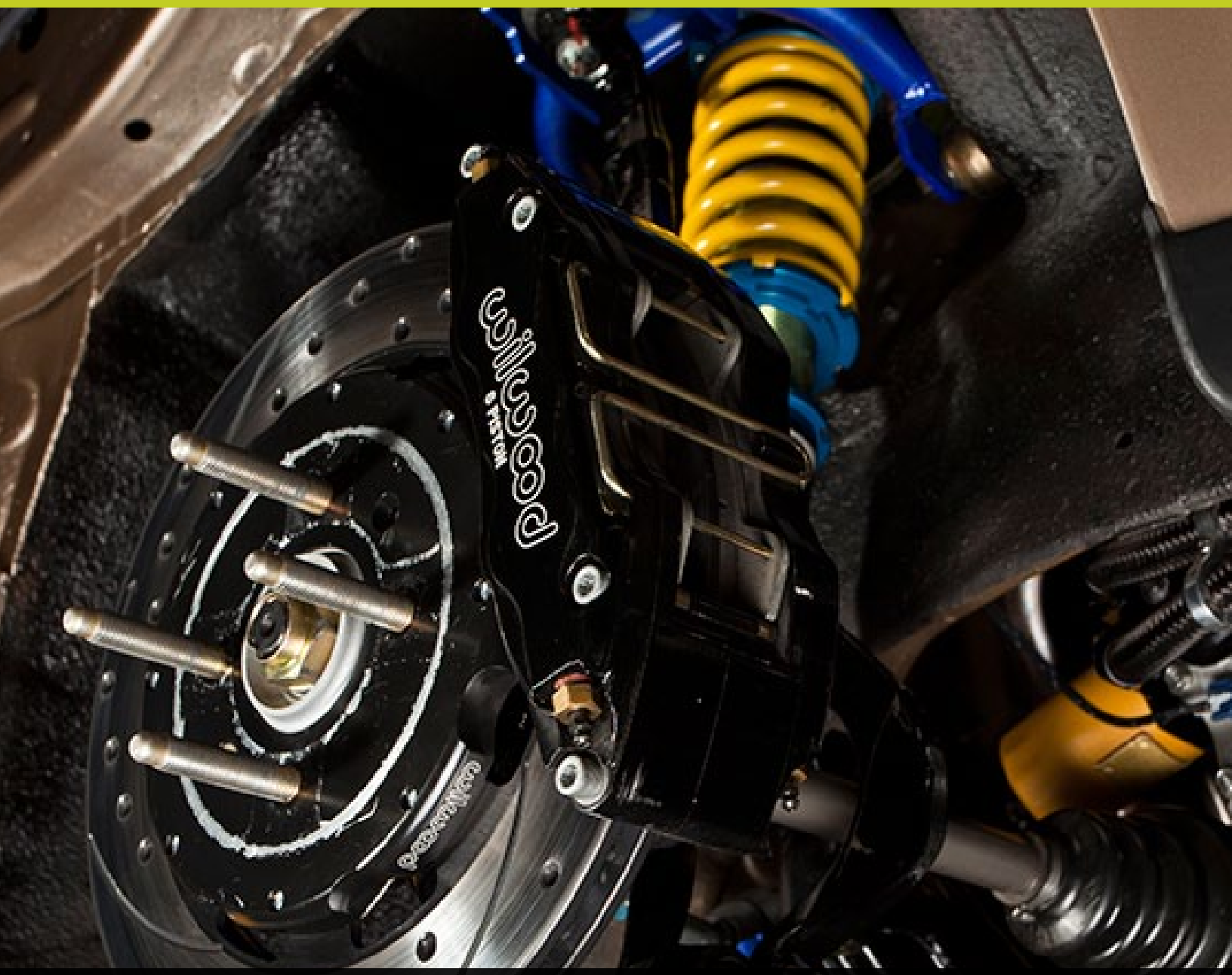


K20/K24 Hybrid Engines

Engine

- K24A1 & K24A2 are the most commonly used K24 blocks for head swaps because no modification is needed to the internals in order for the K20 head to fit.
- K24A4s require different pistons before it is head swap compatible
- Use K24 timing chain cover, timing chain, timing chain guides, dipstick, appropriate head gasket
- When using a K20A/A2/Z1 oil pump on K24 block, use the K20 pump, K24 oil pump chain, guide and tensioner. Also use the K20 windage tray. The use of the K20 or K24 oil pan is possible.
- All K-Series coil packs are the same
- K20A, K20A3, K20A2, K20Z1

K20 | K24



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. These critical components are listed in this section along with other necessary and optional parts.

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 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.

All Hybrid Racing engine mounts feature True Torque Positioning Technology which positions the engine so that equal amounts of torque are applied to both axles to prevent unnecessary stress 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.

Bushings

The bushings for both the steel mounts and billet mounts are available in four different hardnesses so that you can tweak your mounts to best suit your application. Solid mounts are also available.

Hardness	Recommended Application	Usage
60A	Ideal for street cars with minimal engine modifications.	5%
75A	Perfect for street and track use on cars with upgraded engines and power.	75%
85A	Made for circuit or road race cars with high output engines where vibration needs to be reduced.	10%
95A	An optimal solution for high power drag, circuit, or rally cars where minimal engine movement is needed. This is the hardest duromenter bushing offered without actually being solid.	5%
Solid	Solid busings offer no engine movement. These mounts are only offered in billet and use steel inserts to prevent damage to the aluminum mount.	5%

Axles

Axles are an integral part of getting power from the motor to the wheels. So obviously choosing the right ones are very important. Hybrid Racing offers a number of options when it comes to K-Swap axles. Since not all of these axles are compatible with each chassis and K-Series transmission, be sure to pick the proper ones

Hybrid Racing Budget Swap Axles (EG/DC/EP/EM)

- No warranty
- Suitable for basic swap cars with minimal modifications
- NOT compatible with EK-Swapped cars.
- WILL NOT HOLD STANDING STARTS OR DRAG STRIP LAUNCHES.

Driveshaft Shop Level 0 Axles

- No Warranty
- Suitable for street cars with increase power
- ABS rings come standard
- Optional road race package upgrade available. Upgrades include high temperature grease and outer boot vent tubes.
- WILL NOT HOLD STANDING STARTS OR DRAG STRIP LAUNCHES!

Driveshaft Shop Level 2.9 Axles

- Rated to hold up to 500hp
- 1 year warranty against breaks
- ABS rings come standard.
- Optional road race package upgrade available. Upgrades include high temperature grease and outer boot vent tubes.

Driveshaft Shop Level 3.9 Axles & Hub Kit

- Rated to hold up to 600hp
- 1 year warranty against breaks
- ABS rings are optional (extra $100)
- Stronger and more durable 26 spline replacement hubs (not compatible with OEM axles)
- Optional road race package upgrade available. Upgrades include high temperature grease and outer boot vent tubes.
- 4 and 5 bolt hubs available with extended wheel studs

Driveshaft Shop Level 5.9 Axles & Hub Kit

- Rated to hold up to 1000hp
- 1 year warranty against breaks
- ABS rings are optional (extra $100)
- Stronger and more durable 33 spline replacement hubs (not compatible with OEM axles)
- 4 and 5 bolt hubs available with extended wheel studs

Driveshaft Shop Level PRO Kit

- Rated to hold up to 1000hp+
- 1 year warranty against breaks
- ABS rings are optional (extra $100)
- Stronger and more durable 33 spline replacement hubs (not compatible with OEM axles)
- Custom high strength intermediate shaft
- Custom splined Wavtrac LSD or Spool

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.

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 it a good choice for the budget builder. Plus, since it's an OEM Honda part, you can be assured that the quality is acceptable.

Hybrid Racing K-Swap Clutch Line

The chassis' clutch line needs to be replaced during a K-Swap for a number of reasons. Because the slave cylinder in the OE chassis uses a different fitting than that of a K-Series transmission, a new clutch line is needed when doing 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.

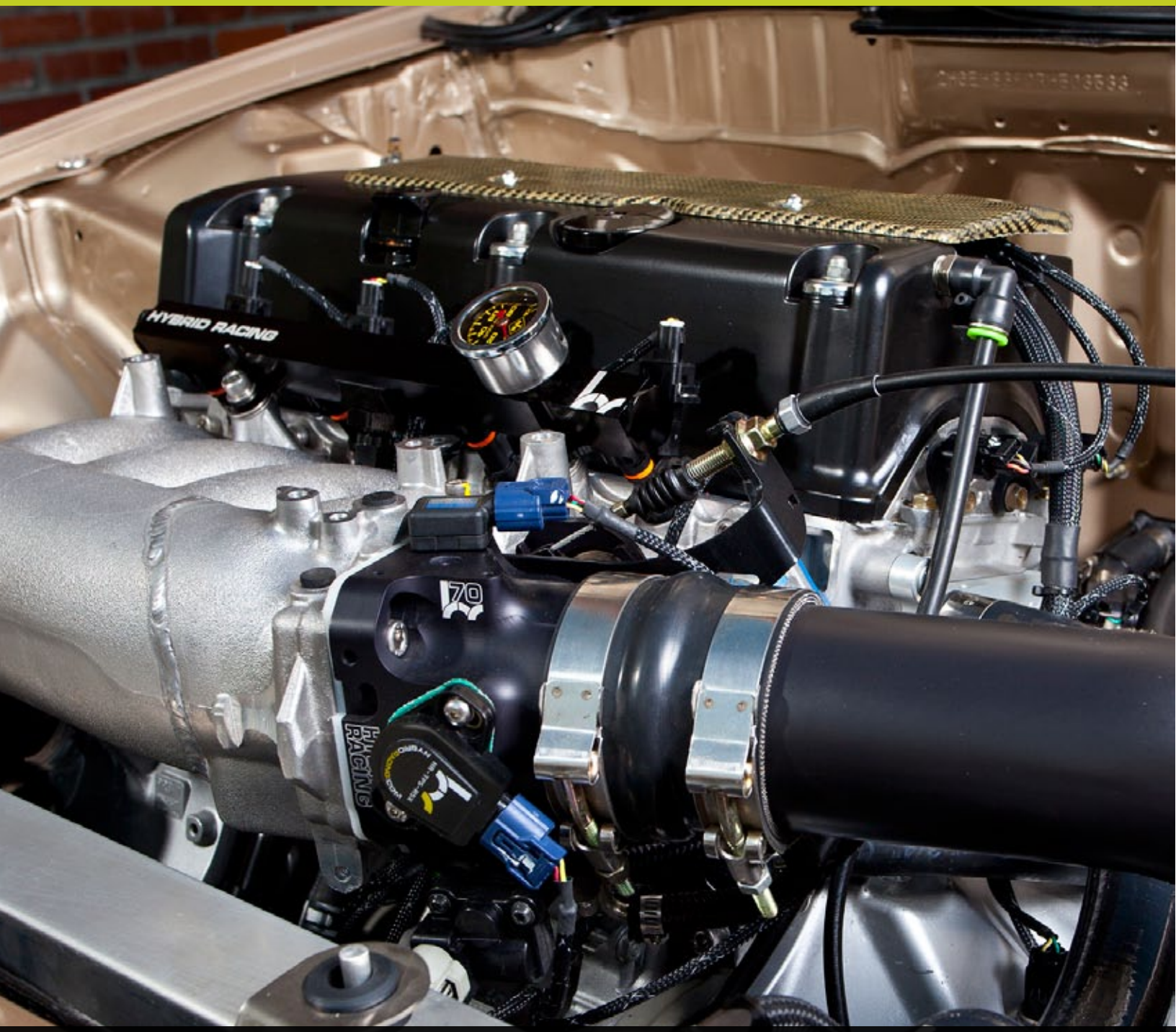
Clutch

If you intend to do a lot of racing or to modify your engine to make more power than stock, then it's wise to install a new, upgraded clutch to make sure that abuse and increased horsepower doesn'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.

Clutch Type	Description	Torque*
Stage 1	Rated for 40% more torque over stock clutch. Not recommended for use in cars equipped with turbo, superchargers, or nitrous oxide	+40%
Stage 2	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 recommends this clutch for lightly modded K-Series motors.	+80%
Stage 3	Rated for 150% more torque than the stock K-Series clutch. A 500 mile break in period is required for this clutch.	+150%
Stage 4	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.	+250%
Stage 5	Rated for 300% more torque than the stock K-Series clutch. A 500 mile break in period is required this clutch.	+300%

* Torque listed as percent increase over stock clutch specifications



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.

ECUs

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 best solutions to this problem.

K20A 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.

Mobilizer K

This product is made by Doctronic and by Hybrid Racing in the US. It is a circuit board with 4 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, and PPA. This is easily the most affordable solution to the K-series ECU immobilizer problem.

Hondata Kpro

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/Vista/7 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. Hondata 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 HybridRacing.com). 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.

Hybrid Racing Conversion Harness

Hybrid Racing conversion harnesses allow a k-series engine harness and ECU to be easily adapted to the 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 AC 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.

Hybrid Racing Adjustable Speed Converter

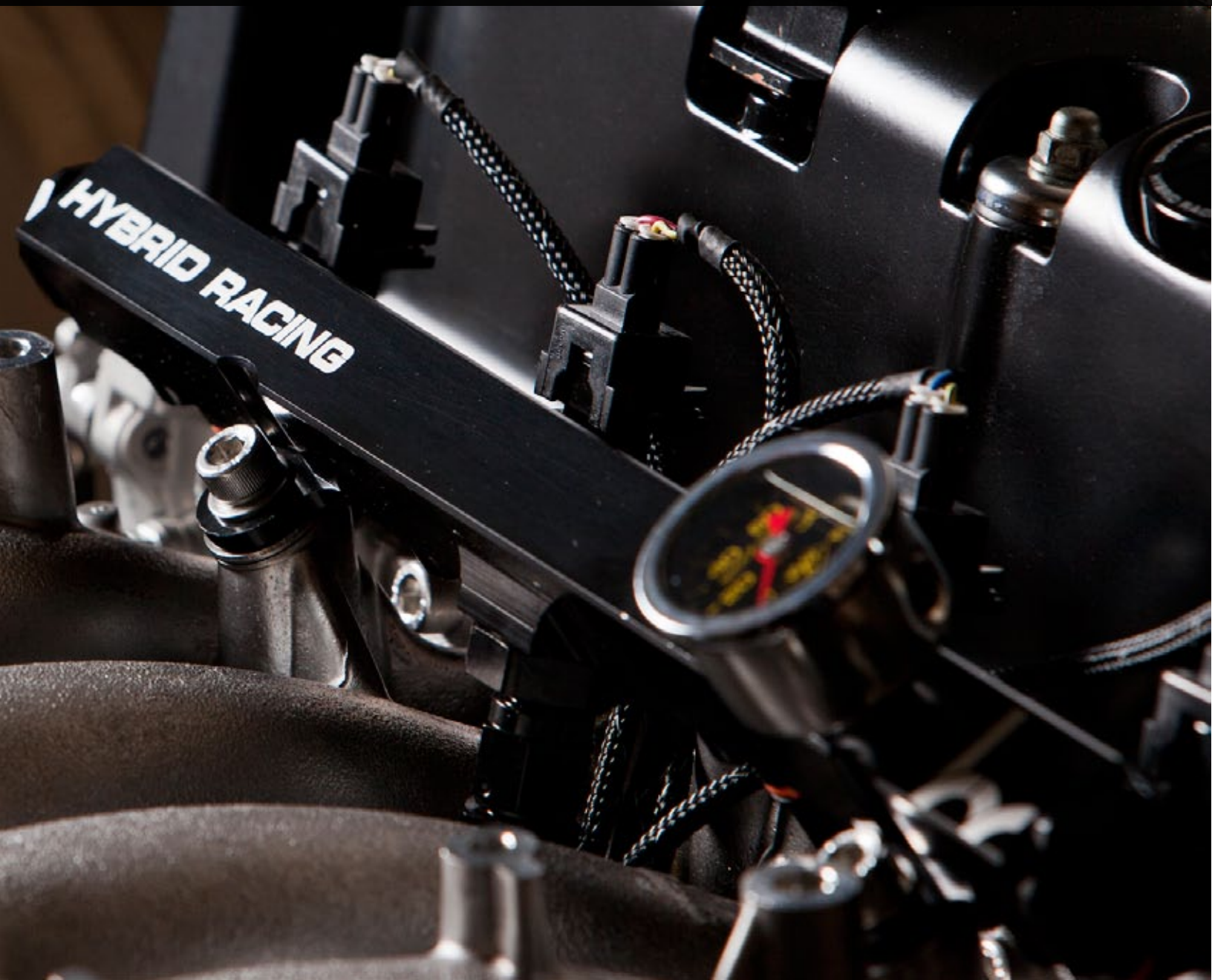
The OEM speedometer in an EG is compatible with the signal sent out by an '02-'04 K-Series transmission's speed sensor. However, the '05-'06 speed sensor outputs a different signal and will give inaccurate readings to the EG's speedometer. The Hybrid Racing Speed Converter converts the output signal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

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.

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.



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 return less 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.

Fuel Pressure Regulator

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 return less configurations of the Hybrid Racing fuel rail.

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.

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).

Tucked Fuel Line Kit

This set is designed for the return-less 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.

Fuel Filter

If you plan to setup your fuel rail in the recirculating 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 return-less 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 return less (or "tucked") fuel line kit.

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.

Injectors

Depending on your horsepower requirements, it may be necessary to run larger injectors

Shifter 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.

DC5 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

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.

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.

There are a number of other features that also make the Hybrid Racing shifter 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 throws 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.

OEM RSX Shifter Cables (02-04 K20A2)

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 on both cables be cut off, which is very simple. Unfortunately, these cables do have 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 by 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 cable. In some cases, lead to failure of the OEM cables. Addition bushings create a noticeable increase in the force required which is obviously not desirable.
- Note: The JDM K20A shifter cables have different size ends. If you are using them and want the HR bushings, make sure you order them specifically for the Type R.

OEM RSX Shifter Cables (05-06 K20Z1)

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.

Hybrid Racing Performance Shifter Cables

After numerous the ports 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.

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.

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 altered. Which components you choose will depend on your budget and the car's purpose (be it track, daily driving, or both).

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 more details regarding radiators.

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 AC 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.

Full Size Radiator

The full size radiator is intended for cars where no AC 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 in- stall this radiator. Simply drop it in, connect the sensors and hoses, fill it with water and it's good to go.

The only cars that can run a full size radiator AND full size AC condenser are the DC2/EM2/EP3/RSX.

Stock Radiator

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.

Brackets

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 re-welded on the driver's side. Obviously, this solution is not optimal for those looking to keep their K-Swap as bolt-in as possible.

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.

Hybrid Racing Silicone Swap hoses

Since the K-Series motor was not originally equipped in the EG chassis has different coolant port locations than the K-Series motor, the existing EG radiator hoses will not work.

Hybrid Racing offers custom radiator hoses specifically designed to work with the half and full size swap radiators. These are made entirely of reinforced silicon and also work with OEM radiators.

OEM Style Radiator Hoses

Hybrid Racing also offers OEM type rubber hoses that work with both the OEM and swap radiators. Both hoses are supplied as one unit and must be cut apart into the upper and lower half before installing.

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.

Radiator Fan

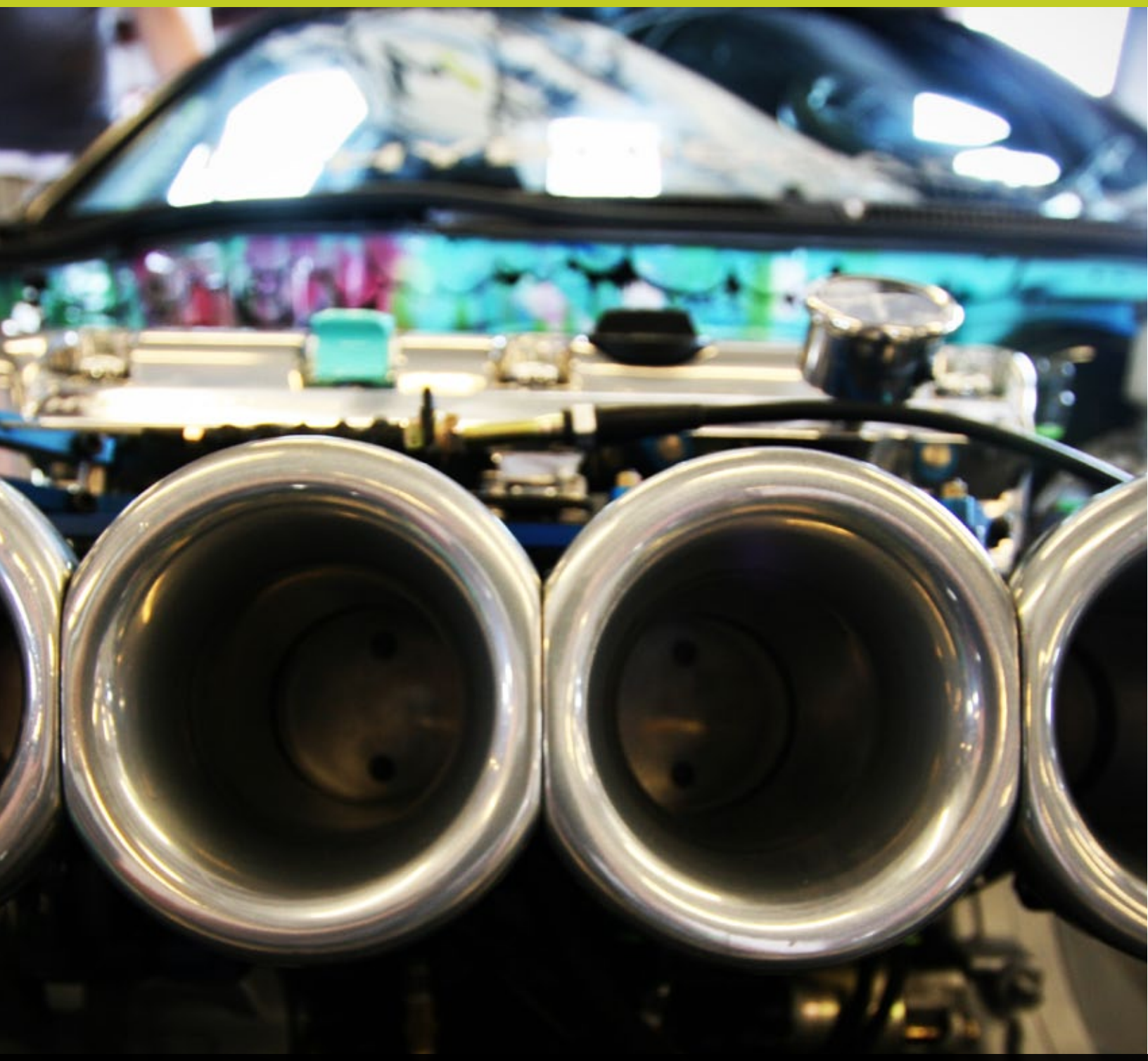
A radiator fan is a critical component in any vehicle. It provides airflow through the radiator when the car is not moving fast enough. Because of clearance issues with K-Series intake manifolds, most K-Swaps will need to run a pusher fan in front of the radiator. If you are using the Hybrid Racing Half-Size Radiator, you'll want to use an 11" 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.

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 the sensor will screw into that instead.

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 OENI 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, depending on which one you choose to use.



Intake System

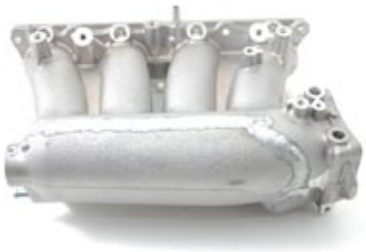
You will need a few parts to properly configure your intake system. The following pages outline the basics for a naturally-aspirated engine.

Intake Manifolds

There are tons of different brands and designs of intake manifolds floating around the market, here is a brief outline of the OEM manifolds.

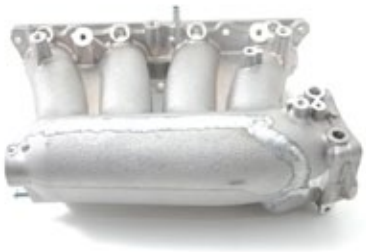
PRB Intake Manifold

- Found on: 01-06 K20A, 02-04 K20A2, 02-05 K20A3, 05-06 K20Z1
- Good flow characteristics
- Can be bored to 70mm without modification
- Good choice for swaps that have limited space in front of engine



RBC Intake Manifold

- Found on: 06-11 K20Z3
- Great flow characteristics
- Can be bored to 70mm without modification
- Great, inexpensive upgrade to stock engines
- Porting can increase flow up to 360CFM
- Requires the use of an adapter if using an RSX throttle body



RRC Intake Manifold

- Found on: 07-11 K20Z4
- Great flow characteristics
- Can be bored up to 74mm without modification
- Does not have an IACV port
- Expensive upgrade with similar flow as a ported RBC
- Requires the use of an adapter if using an RSX throttle body

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.

Hybrid Racing Throttle Body

- Available in 70mm & 74mm
- Features a dual-hole design that allows the unit to be bolted to the either the PRB or RBC intake manifold without the use of an adapter.
- Cruise control compatible! (For the RSX/EM/EP swappers!)
- No stick guarantee
- Provisions for all OEM sensors
- Throttle cable bracket, gasket and hardware included

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.

- Hybrid Racing Silicone Cold Air swap intake(IMG63, IMG64, IMG65)
- Full 3"/76mm inner diameter.
- Glass-reinforced silicone construction.
- Designed to keep intake air cold.
- Includes filter and all mounting hardware.
- Stainless steel t-bolt clamp.
- Works with PRB, RBC & RRC manifolds

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.

Throttle body adapters

If you are using an RSX or any other drive-by-cable throttle body and plan to bolt it to a manifold that utilizes drive-by-wire throttle body, you will need an adapter. These adapters are inexpensive and available through Hybrid Racing.

Thermal Throttle Body Gaskets

Reduce intake air temperatures with the help of the Hybrid Racing thermal throttle body gaskets. Made of a special insulating material, this gasket helps reduce heat transfer from the engine bay to intake air providing an increase in power.

Exhaust System

Any exhaust system designed for your chassis will work with your K-Swap. The only important detail is that 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 yourself.

Swap Header

Since the K-Series motor does not come in most 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

Hybrid Racing Race Swap Header

The race swap header is a great choice for those looking to get great performance out of an off the shelf header. These headers are fully tig welded, constructed of stainless steel. It offers a 2.5' collector in addition to all of the necessary hardware and gaskets.

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

Air Conditioning & Power Steering

There are four options regarding AC & PS. Depending on what combination you choose, you may need a few parts and a properly sized belt as described in the following section.

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. The EG kit is designed to work with a '96 civic condenser. The DC2 and EK use the factory supplied AC condenser. The kits are 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 explains how to hook up all of the lines and wires.

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 in the EG/DC & EK chassis. 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)..

Option 1: No Air Conditioning or Power Steering (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.

Hybrid Racing Auto-tensioning AC/PS Removal Kit

Hybrid Racing has taken an essential K-Swap accessory and developed a low maintenance, very durable unit. The Auto -tensioning unit features a spring loaded belt tensioner, similar to how the OEM unit works. The unit will self-adjust once the belt wears in and will always apply the proper amount of force to make sure the belt stays tight.

Option 2: Air Conditioning Only

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).

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.

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.

Serpentine Belts

- K24's use a 52" serpentine belt
- K20's use a 50.5" serpentine belt

Option 3: Power Steering Only

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.

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 K2O or K24 motor, as it does when equipping the AC kit.

Jackson Racing Pulley [P/N 052- 154)

- This pulley will need to be retrofitted to your PS pump.

Serpentine Belt

- For K24's use a 52" serpentine belt
- For K20's use a 52" serpentine belt

Option 4: Air Conditioning and Power Steering

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. (K20A, K20A2 and K20Z1 pumps are the same)

AC Condenser

The Hybrid Racing EG 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). The EK and DC2 chassis' will use the OE condenser.

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.

Frequently Asked Questions

1. What parts do I need for my K-Swap?

With all of the information posted above, if you still have questions regarding what you need, contact us. www.Hybrid-Racing.com

2. How much does it cost to put a K-Swap into my car?

Depending on your chassis and engine choice, the price to get a completely running swap in a chassis varies from $5,000 - $15,000 total.

3. Can I keep Air Conditioning and Power Steering with my K-Swap?

AC and PS kits are available for the EG, DC, and EK chassis through Hybrid Racing.

4. Can I use OEM axles with my swap?

Because the swap requires retrofitting an engine into the chassis that was not designed for it, your stock axles will not work. However, there are swaps that exist with an OEM axle. Those acceptations are the in the EG and DC2 chassis. The OEM EP3 axles will work for that chassis without modification. EK's, EF's ect CAN NOT use OEM axles due to the difference in center bar length.

5. I've heard of people rebuilding axles using different OEM parts to work, is this recommended?

No. Due to the difference in length, OEM combo axles tend to be extremely unreliable. Hybrid Racing recommends using axles that are specifically designed to work with the K-Series swaps.

6. What is the best engine to use?

This is a very general question that we get asked often. The best engine is relative to what you want out of the swap. Speed? Affordability? Reliability? So many factors come into play to determine this answer. However, if you are looking for a motor that is easy to swap, great balance of affordability and performance, our choice is the K20A2 or K20Z1.

7. Can I use my factory engine harness?

Depending on what engine harness is being used, yes and no. These are the only OEM engine wiring harnesses that can be used.

- 02-04 RSX Base 5spd
- 02-04 RSX Type S (6spd)
- 01-06 JDM Integra Type R (K20A)
- 02-05 Civic Si (EP3)

8. What charge harness do I use?

As a general rule of thumb, use the same charge harness that comes from the same engine. For example, if you have a K20A2 engine harness, use the K20A2 charge harness. K20A3, use the K20A3 charge harness. It is possible to get them to work interchangeably, however modification is required.

9. What does the charge harness do?

The charge harness connects the starter, alternator, knock sensor and engine wiring directly to the under hood fuse box and battery. Since the fuse box on the donor car is located behind the headlight, modification is required to adapt it to your chassis. Visit the Hybrid Racing technical articles for a how to guide at www.HybridRacing.com.

10.Do I need a conversion harness?

Yes. The conversion harness created by Hybrid Racing, offers a plug and play solution for the missing link between the K-Series engine and your chassis. Our conversion harnesse plugs into the K-Series engine harness, as well as the ECU and the chassis. It has an O2 sensor relay and depending on what chassis, provisions for OBDII data port connectivity.

11.What ECU do I use? Can I use the stock one?

The choice of ECU depends on the engine being used. It is possible to use the OEM ECU with the following engines:

- K20A2 – Use K20A (ITR PRC, or CTR PRD), K20A2 (PRB) ECU or KPRO
- K20A3 – Use K20A3 ECU (PND) or KPRO
- K24A1 – Use K24A1 ECU (PPA) or KPRO
- K24A2 – NOT OEM ECU Compatible
- K24A4 – Use K24A1 ECU (PPA) or KPRO

All stock ECU's listed above will require the use of an immobilizer bypass unit.

12.Why can't I put a K20 head on my K24A4 block?

The K20 head IS COMPATIBLE with the K24A4 block; however, the block internals are NOT COMPATIBLE with the head. The interference comes when the pistons move to top dead center (TDC). The top of the pistons will actually contact the bottom of the cylinder head. Differently shaped pistons such as those found in the K24A1, A2 or aftermarket pistons and rods will be necessary to correct the problem.

13.What throttle cable do I use with my swap?

Some combinations of engines and chassis' will require different things. MOST of the time, the standard GSR or EK throttle cables should work for the most common applications.

14.I have an EK and want to put a K20 in it. Do I need to change to the EG/DC subframe? What parts do I need to make that work?

Changing to the EG/DC subframe is NOT required. It is very possible to have the swap running and working with the stock EK subframe. However, because it requires the engine to sit so far forward, the space in front of the engine is reduced, and it requires the use of longer axles.

The benefits of the EG/DC subframe are worth the effort. You will be able to run longer intake manifolds, such as the RBC, RRC, ect. The axles and engine are moved towards the firewall for better placement and weight distribution.

The EG/DC subframe swap requires the following parts:

- EG/DC subframe
- EG/DC front lower control arms
- EG/DC front compliance arms & bushings
- EG/DC steering rack (manual or power, depending on preference)
- Steering rack u-joint (which joint used depends on the model of car and if power steering was standard]
- EG/DC subframe bolts! (This is very important as the EK uses different bolts and they will not work!)

15.What sensors on my engine can I remove? Which ones do I need?

There are only a few sensors on the engine that the motor can function without. All of which will need to be disabled with the Hondata KPRO.

Sensors that can be disabled:

- Knock Sensor – This can be disabled in KPRO, however it is recommended to have it functional.
- VTEC Oil Pressure Switch – This can be disabled in KPRO. K20A engines do not have this sensor.
- Purge Control Solenoid – This is located on the throttle body and is used for emissions. This sensor can be unplugged and removed as long as the OBD2 functions are disabled in KPRO.
- Secondary O2 Sensor – Since this is required for normal operation with a stock ECU, KPRO will be required in order to turn this sensor off.
- Primary O2 Sensor – This is a factory wideband sensor and should be used at all times. It is possible to wire in an aftermarket wideband sensor however the OEM sensors have been proven to be just as accurate.
- IACV (Idle Air Control Valve) – This can be disabled in KPRO. If you turn it off, it may still function manually, however if you delete it completely, make sure to monitor the idle when the engine is cold.

Sensors that are necessary for normal function:

- TPS (Throttle Position Sensor) – this is essential to the proper function of the engine. If the TPS is not present, it will limit the engines power.
- MAP (Manifold Absolute Pressure) – this is essential for proper function. If the MAP sensor is not present, the engine will not idle or crank.
- CKP (Crank Position Sensor) – this sensor is required for normal function. The engine will not crank if this sensor is not present.
- CMP – (Cam Position Sensor) – these are located on the side of the cylinder head. They are required for normal function. The engine will not crank if these are unplugged.
- IAT (Intake Air Temperature) – this is located in the intake tube and is essential for normal function.
- VTC, VSS

16.Can I drop an automatic transmission in my car when I do a K-Swap?

The automatic transmissions are much larger, and have different mounting points compared to the manual gearboxes. They are controlled by the ECU which is the largest limiting factor. With the current swap parts, using the auto trans just isn't feasible with any reasonable budget.

17.What is the difference between the RBC and PRB intake manifolds?

The PRB intake manifold comes on the K20A, K20A2, K20A3 & K20Z1 engines. It is slightly shorter than the RBC and does not have an angled inlet. The RBC is slightly longer (about 1.2 inches) and is found on the K20Z3. The RBC has shown to increase power throughout the RPM band on even mild built engine setups. However, the use of an RBC intake manifold and a drive by cable will necessitate the use of an adapter.

WHO IS HYBRID RACING?

In 2001 when the import scene was really hitting its stride I was out there purchasing products and dealing with shops as a customer just like you. My first build was a white '89 CRX with a turbo ZC motor—full paint, the entire works. I spent every night and every dollar on this car, eating at Taco Bell and off of the 99 cent menu at Wendy's to save cash to get the parts I wanted. I had to deal with guys on eBay and message boards and local shops that just wanted to make a buck off of me. I got tired of getting scammed and even more tired of getting parts that were of low quality, didn't fit and had no thought put into them. So together with a few close friends we started to take things into our own hands.

We began working on our cars and doing side jobs all the while throwing around ideas for how we would make current products better and how we could get our cars to go faster. After countless B-Series swaps we decided to do something unheard of at the time (2002) a K-Swap. We figured if Honda took the time to develop an entirely new engine (K-Series) we should take the time to check it out. We liked what we saw. Realizing that there were no parts to make this swap happen and no shops that we could call we decided to start developing parts for K-Series swaps.

In 2003 we purchased the domain name HYBRID-RACING.COM and registered as a company. And with the money we had been saving from doing local swaps, we managed to score a small

shop to work out of. We were a bunch of teenagers and we set out to change how shops dealt with customers and to develop products that made you step back and say "wow". We were the first company to release EG mounts, plug and play harnesses, AC kits, shifter cables, fuel line kits, clutch lines and a ton of other Kswap parts. We supported message boards and gave back to the community with our time and money, researching new products to make the swap more cost effective, cleaner and easier.

We created a shop that you could call and just ask questions with no strings attached; no dickhead attitude, just a simple "Hey. How are you doing and how can we help?" You see, we know that you're doing your swap with a buddy in your garage or maybe your just tweaking your setup to get ready for a race and inevitably you have a few questions and who else to call but the guys with experience, right?

So that's Hybrid Racing up until now! We have a ton of new product ideas and we still have the laid back "customers come first" attitude. You have probably noticed on the message boards how quick we are to respond and that we always take care of our customers no matter what.

So if you are ready to start researching the parts you need for a Kswap, or you just need a new clutch for your engine, drop us an email or give us a call. We are devoted to helping you get the parts you need. We have dealer accounts with all of the major brands and we only sell the parts that we use and believe in. At the end of the day it boils down to YOU being able to trust who you call and know that you're going to get top notch customer service and parts you can trust. You don't have to take our word for it just search "Hybrid Racing" on google and see what pops up.

And to all of our current customers, thank you for your support over the last 6 years and for continuing to help change our Industry.

Thank you for supporting us.

– William Davidson