

Stock K20 K24 Engine Guide Quick And Dirty

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The Stock K Series Engine Guide For Power

With the newfound affordability of the K-Series in terms of Power Per Dollar, more and more people are popping up with questions with which K-Series motors are the most desirable and which ones work the best. In this post, I will list each motor from worst to best and explain what can be done to make the optimal power from the engine.

WORST: K20A3

Original Car: RSX Base. 02-05 Civic Si EP3

Pros: The engine block is usable. RSX A3 has same oil pump as A2.

Cons: Everything Else

Best Path To Power?: Swap It.

Max Power Suggested: Trashcan

The K20A3 (Certain K20A Models in Japan) is the single hand WORST K-Series motor ever made. The Cylinder head does not flow, the engine does not have actual vtec, the rod journals are a completely different size than it's A2 Counterpart, the aftermarket for the engine is limited and overall power output is downright disappointing. The engine blocks are similar to the A2 with the same main journal size so the A2 crank can be swapped in, and it can be built as an 'A2' but if you're starting from scratch, you're better off just starting with an A2.

K24Z7: Form Factor Limited Option

Original Car: 2012-2015 Civic Si

Pros: Great form factor for tight swap, easy exhaust manifold fabrication

Cons: Poor flowing cylinder head, Limited aftermarket capabilities, balance shaft oil pump

Best Path to Power on Stock Engine?: Kraftwerks Supercharger, Full-Race Turbo Kit

Max Stock Engine Power Suggested: 400-450HP

The Z7 is the K Series engine with an integrated exhaust manifold into the head. The exhaust is a single oval exit making it extremely easy for people trying to swap engines into tight form factors who might not be able to make a full tubular manifold fit in the bay. Naturally Aspirated, the engines are severely limited with full bolt on cars making ~205-215HP on average, but the engines work decently well in forced induction applications. These engines come alive with a Kraftwerks Supercharger or a Turbo kit. These engines can be built but have limited to no options for camshafts, and after the money spent unless you're restricted by space may have well spent the money on any of the better K-series engines. If you're planning on swapping 92-00 Honda chassis, I would look at other engine options.

K24A1, A4, A8, A: Best Budget Builder Option

Original Car: Accord, CRV

Pros: Big displacement, high flowing heads, Best budget starting point
Cons: Intake Only VTEC, Balance Shaft Oil Pumps

Best Path To Power On Stock Engine?: Swap Cylinder Head and Oil Pump + Turbo Kit

Max Power Stock Engine: 400-500HP

The Non-TSX K24 engines are great starting points for engine builders. The entire longblocks can be found for much cheaper than the A2 counterparts and they share many of the same parts. The major downside being the single camshaft vtec. With a cylinder head swap, these engines can pack a pretty big punch. But I would really only recommend them if you plan on swapping pistons/rods because of the convenience factor. While you're swapping cylinder heads and oil pans, you may as well swap the internals. A Rod/Piston CRV block w/ upgraded oil pump and machine work can be done for under \$2000 and support over 700HP. Expect to pay ~\$400-\$700 for a RSX-S, TSX, or 06-11 Si Cylinder head. On the flip side to single cam vtec, The CRV head is the highest flowing cylinder head of all K Series Heads. If you're planning on building a non-vtec K series, the CRV Cylinder head is worth keeping around.

K20Z3

Pros: Strong, powerful K series w/ one of the best cylinder heads

Cons: Balance Shaft Oil Pump

Best Path To Power On Stock Engine?: Swap Oil Pump

Max Power Suggestion: 400-500HP

The K20Z3 can be found in the 06-11 Civic Si. It features a set of some of the best camshafts offered in the K-Series lineup and shares most internals with the K20A2. The only downside is the oil pump. K24s and the Z3 are not able to rev to the moon typically due to the oil pump. From the factory, the engines come with a balance shaft style oil pump that is prone to failure at high RPM. So many people elect to swap the K20A2 oil pump in to alleviate the issue. Other than the Oil Pump, the Z3 is a very strong contender for a fast K-Series car. A side note: if you purchase a full swap, although the Z3 trans has an LSD, it requires a different shifter, cables, and speed sensor converter to be read by KPro applications correctly. We prefer the Type S 6Speed or the EP3 5Speed for swap cars. The Z3 can be made to work, but money can be better spent elsewhere.

K24A2/A: Best Value/Dollar + Highest Potential

Pros: Strong, Extremely stout K-Series Engine, Big Displacement, 2-Cam VTEC K24

Cons: Balance Shaft Oil Pump, 25 VTC, Poor flowing cylinder head*

Best Path to Power On Stock engine?: 50 VTC + Oil Pump*

Max Power Suggestion: 500-600HP

The K24A2 is my personal favorite K-Series engine of the bunch. The K24A2 is a high displacement torque monster of an engine. With simple bolt ons an E85, these engines will make over 240HP Naturally aspirated. The biggest downsides are the limited VTC gear and balance shaft oil pump. Both modifications being relatively cheap makes it a small hurdle to jump for an engine with extreme upside potential. If you can

splurge even more, swapping the cylinder head for a Type-S would offer more additional gains, but in turbo applications where we've made over 600+HP on stock engines, we had great luck without swapping the head. These motors are stout and still relatively affordable. \$800-1200 for a stock engine and expect to spend ~\$500 to change the oil pump and vtc if buying new OEM from Honda.

Protip: when buying a 'JDM K24A' check the cylinder head for RBB. The K24A is sold as both a K24A4 equivalent and a K24A2 Equivalent. Opening the valve cover will let you know immediately which engine it actually is.

BEST K20A2/Z1 (Also Type R K20A): Ready Out Of The Box

Pros: Strong Internals, High Flowing Cylinder Head, Desirable Oil Pump, 50 VTC*

Cons: 2.0L Displacement

Best Path To Power On Stock Engine: Ready to Go

Max Power Suggestion: 500-600HP

The K20A2 is the easiest turnkey solution to making power with a K Series Engine. The engine comes pre-equipped with everything ready to make strong, efficient power out of the box with minimal downsides. These engines are becoming more and more desirable by the day and prices are regularly going up because of just how well engineered they are. Just slap a turbo kit, clutch, and fuel on the car and you have a 10 second monster ready to go.

Other Tips and Tricks:

If you're planning on building the engine from the get go, start with a cheaper, less desirable K24 block.

Balance Shaft Oil Pump will limit revs under 7800RPM

06-08 K24A2 is more desirable over earlier years due to camshaft design

50* VTC can be found in 06-11 Si, 02-06 RSX-S

Keep WTQ under 500ftlbs if you like keeping your rods inside the block

Best All Motor Trans: RSX-X 6 Speed

Best Turbo Trans: 02-05 Civic Si

K Kenny is the author of this solution article.