

ZC ENGINE INFO

The term ZC engine is used sort of generically to describe the 88-91 CRX or Civic DOHC 1.6 liter. In reality, there are a bunch of different versions of this engine. They are both single and dual overhead cam and come both fuel injected and carbureted. The only constant thing about them is that they are 1.6 liter non-VTEC engines. The following is a run down of the ZC engine

The ZC was available in Civics and Integras starting in 1985 and were still available in some models up until the 2001 model year. The ZC is typically rated at 120 to 130 PS (German for horse power). The carbureted ZCs were the least powerful, and the SOHC and DOHC automatics were the least powerful of the fuel injected models.

Because of the large number of ZC's I will only talk mainly about the DOHC models in this article. I am sure you care about the SOHC and carbureted models even less than I.

1st generation ZC's (1985-1987)

Brown Valve Cover ZCs

The first ZC came in the 85-87 Civic and CRX Si. It looks similar to the 86-87 US Integra engine with the exception of the intake manifold and throttlebody. The throttle body is identical to the US 85-87 CRX Si throttlebody. As for the manifold, there is no EACV as found on the Integra engine. Interestingly, these were the most powerful of the ZCs. Along with some of the 86-87 Integra models the engine is rated at 135PS. After 1988 the max power for a ZC was 130PS.

The 86-87 Integra came with a ZC also. The intake and throttlebody are virtually identical to that of its US counterpart. This engine is also rated at 135PS, compare this to the US Integra 112 HP. The majority of the difference is probably contributed to the difference in the ECU programming and the much higher quality gas available in Japan. There may be some differences in compression ratio or cams, but without accurate measurement I cannot confirm this.

What do they fit?

Both these engine can be bolted into the 84-87 CRX or Civic or the 86-87 Integra with some minor modifications needed to bolt them into the Civics and CRXs. Because these engines are typically fuel injected, it is best when bolting them in to the Civic or CRX, you use the Si model. Converting the carbureted cars to FI is a labor of love, you gotta really want that car to go through the trouble. A quick note here, there were carbureted versions of the 86-87 Integra ZC that came both as a dual side draughts or two barrel down draught, a la 86-89 Accord.

When bolting either engine into the 84-87 Civic or CRX, you use the ZC or Integra mounts, except the driver's side mount and bracket. Those need to come from the original Civic or CRX. The Japanese Civic and CRX uses the Integra mount, because it has a different bracket on the left-hand framerrail for the Si model.

Wiring wise, you want to use the stock harness for swapping the Civic ZC into your Civic or CRX. The harness will need to be stretched in a couple of places for better fit. The Si ECU will run this engine, if you do not have the ZC ECU.

If you install the Integra ZC into the Civic or CRX you will also need to wire in the EACV. Use the US or Japanese Integra ECU to run this engine.

If you want to install the Civic ZC into the 86-87 Integra, use the original Integra intake manifold and throttle body. While the Integra ZC is a direct replacement with no mods. Both need the original wiring harness to be used. Harnesses from right-hand drive vehicles don't always work very well in left-hand drive vehicles.

2nd Generation ZCs

Black Valve Cover ZC

Starting in 1988, all the DOHC ZCs came with a black valve cover, there were some major differences though, so pay attention. There are two basic types, 88-89 Integra and 88-91 Civic/CRX. They are not interchangeable, here are the differences:

- 1) If you have the two ZCs side by side one thing is obvious, the Integra ZC drivers side mount bracket is on the front of the engine, like the 86-89 Integra or 84-87 Civics. The Civic ZC has the bracket for the mount sticking out of the timing belt cover.
- 2) Upon closer inspection, you may notice the intake manifolds are slightly different, as well as the valve cover and timing gears cover.
- 3) Hey, that's not all, the bolt holes for the transmission bell housing are not the same. Only three of the holes are in the same position.

What do they fit?

Because the 88-89 Integra ZC engine mounts the same as the 86-89 Integra, the engine will not only bolt in to the 88-89 Integra, but also the 86-87 Integra and 84-87 Civic or CRX. Cool you say, sort of. The reason this is not done more often, is because of the wiring differences. Some big changes need to be done. The two major sticking points are vehicle speed sensor and electronic load detector. These require more than just a couple of wires for the conversion to work.

The 88-91 Civic style ZC is a direct bolt in to the 88-91 Civics and CRXs. You can bolt the ZC to the stock transmission easily too. You just need to make sure you have the right clutch and flywheel combo. The easy way is to match the pair to what ever year tranny you use. Electrically the ZC is identical to the Si or EX, with the exception of the distributor wiring.

If you decide to use the Civic ZC tranny with your Civic ZC engine, get the Civic ZC intermediate shaft. Why you ask, because there is no US counterpart to this part. The 86-89 Integra intermediate shaft will not fit, and I don't care what your friend heard or said.

3rd Generation ZCs

Is there such a thing?

After 92 in some Civics and a few 94 up Integras the DOHC ZC still comes in the odd model. These ZCs look like the Civic style ZCs from 88-91 but have the later style electronics. There are even more Integra and Domani models with SOHC ZC engines. There is not a lot of interest in these (SOHC or DOHC) engines I am afraid, because the B-series VTEC motors bolt right in the 92 up Civics. The ZC does make a good swap in the lowly, underpowered CX or VX, but only with the EX, Si or ZC transmission, otherwise I don't recommend them. But for the sake of argument and to impress you with or large volume of trivial Honda knowledge, let's go ahead discuss them.

To recognize this 3rd generation DOHC ZC engine, just look for the black valve cover and 92 up grey colored electrical connectors. Some of the other visual clues are: a plug in the end of the exhaust cam, like the B-series motors, two studs sticking up from the driver's side engine bracket poking out of the timing belt cover, and no writing on the top of the intake manifold, just the three raised bars on the casting like all the other 92-95 Civic engines.

What do they fit?

Well, they will fit the 92-2000 Civics or the 94 up Integra. Not that anyone would anyone would put it in an Integra.

Again, this engine bolts to the stock transmission, and the Si or EX trannys make for a decent combo. But if you decide to use the 92 up ZC tranny with your 92 up ZC engine, get the 92 up Civic ZC intermediate shaft too. Why you ask, because again, there is no US counterpart to this part. By the way, although it is different from the 88-91 style, it is interchangeable.