

CFTECH

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How To

Install a Mazda five-speed

Until now, the go-to five speed gearbox for any Ford engine conversion was the Type-9. Now, Retro Ford has come up with a comprehensive kit to fit a Mazda MX5 gearbox behind a Zetec, making a super-strong and a relatively simple swap. We find out what it's all about.

The traditional five-speed gearbox to use behind a Ford engine always has been the Type-9. But we all know, it has its downsides. It's pretty big for the duty it does plus the ratios are a bit cruiser — it's renowned for having a whopping great gap right in the middle of the 'box. Plenty have them beefed-up for more strength and we've widely reported on specialists that'll build you a super-tailored Type-9 to fit your application. But there is a new kid on the block pioneered by Retro Ford.

Dave Colledge is well-known for not accepting anything as given, which means

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when he sees the potential of an alternative, then he'll investigate and exploit it. The vision came while dealing with his adapter kits to fit a Duratec into virtually any classic Ford. Being basically a Mazda engine, it makes sense to use a Mazda 'box behind it. And it just so happens they are extremely strong — plus they have lovely ratios, and because they're meant to fit in a sports car are pretty compact and right now reasonably priced.

Their strength has been thoroughly tested behind Dave's drag car — a Duratec Escort estate with in excess of 300 bhp, which uses a virtually stock MX5 'box and hasn't shown any sign

of breakage at all. Which got Dave thinking — what would it take to put one behind a Zetec in place of the marginal Type-9? Well actually, quite a lot — for a start, the 'box has an integral bellhousing so it needs an adapter plate, a different clutch, a bit of trimming... But, it's not beyond the realms of possibility!

So Dave's make a kit, which takes the major chore out the conversion. We followed along as he explained the details on how to fit the 'box into a Mk1 Cortina — although it's very similar to the Escort, too. And yes, he also has kits for that one covered.



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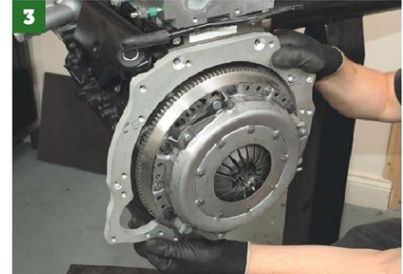


Adaption

These are the main components of the kit, but there are variations according to the application you have — this one works with Retro Ford's Cortina rack-and-pinion kit but there's also ones to retain the steering box, too.



Sitting on an engine stand for clarity, this is what we are after — an MX5 'box from 2006 onwards (code N7) — via a Retro Ford adapter plate. Let's get onto the details.



The first part is to bolt on this adapter machined from alloy plate, which picks up on the Zetec fixings. Also fitted in this application is one of the same company's steel flywheels.



Supplied in the kit are these location dowels, which correspond with the Mazda bellhousing bolt face.



You will also need a 215 mm clutch with a 22-spline centre section, which is meant to mate with the Mazda's input shaft. Retro Ford can supply everything you need including the cover plate, too.



Next bit is the spigot bush — again, this is an Retro Ford adaption, which slots into the centre of the crank allowing support for the Mazda's input shaft.



The gearbox will need a fair bit of trimming, as you can see from the casing, which has been cleaned up. What it does mean is that the 'box will fit inside a very narrow tunnel like the Cortina's with only the minimum of cutting to the car's shell.



Indicated is a section which will need removing — you can see an original next to it. This allows...



... Clearance for the Retro Ford starter motor to be fitted.



Clutch Release

The Cortina uses hydraulic clutch release, while Retro Ford already does a kit to adapt a concentric release bearing to the Type-9. In this instance, Dave has adopted the same system, which makes hooking up the mechanism much simpler — there are three components to the kit.



You need to remove the original front plate off the Mazda gearbox, which simply unbolts and slides forward off the input shaft.



12 The guide tube can then be simply cut off with a hacksaw and dressed with a file.



13 Next bit is this billet aluminium adapter plate, which corresponds with the Mazda mounting bolt holes allowing...



14 ...The Retro Ford concentric release bearing to be bolted to the front.



15 The adapter plate goes into the bellhousing, bolting to the front of the gearbox face.



16 The release bearing is next but it needs some adaption first. It comes supplied with a feed pipe and an extended bleed screw — both of these need removing.



17 Once it's bolted in place, you can see that the feed pipes are orientated towards one of the access holes in the bellhousing — the feed pipe and the bleed tube are replaced with remote units. Retro Ford uses braided hose and for now, the pipes exit through the original release arm hole.



18 This is the view through the access hole — you can see the outer edges have been drilled and tapped...



19 ...To accept this alloy plate, which has two fittings attached. One is for bleed, the other for feed, which is clearly etched into the plate's face.



20 Back inside the bellhousing, you can see the orientation of the braided hoses, connecting with the fittings in the plate.



21 Finally in this section, there is another hole in the bellhousing, which needs filling over this is was the starter motor hole in the MX5 application — Retro Ford supplies another alloy plate, which is simply bolted in place.



Adapting the shell

The Mazda gearbox is very compact, but there is some cutting that's required to get it to fit in the car. Thankfully, it is well-thought-out by Retro Ford meaning — for a rack-and-pinion-converted car — you don't need to cut the transmission tunnel out and replace it, but there is some trimming to do.

how to: install a mazda five-speed



The first parts you need to remove are the standard gearbox mounting pressings inside the transmission tunnel, which simply need trimming back. You can also see the original gearlever hole has been raised.



To start, the main part that needs adaption is the centre of the crossmember that goes over the top of the gearbox tunnel, which is shown here on a standard shell.



The centre needs removing, while the ends are capped over with these two sections of formed sheet steel, which will need welding in place.



The main reason is the exit for the gearlever is right above the saddle section — a hole measuring 125x110 mm wide needs cutting out.



Moving to the top of the car, you can see where the gearlever comes out — just in front of the handbrake.



Shown is the gearlever fitted, which give us the opportunity to say that Retro Ford also does a quickshift for the 'box, too!



The hole is then neatly covered with this Retro Ford panel formed from sheet steel, incorporating a gaiter ring for the gearlever rubber.



In Dave's own ST170-engined two-door fitted with a Mazda 'box it all looks neat and tidy, while the original gearbox plate appears factory — although that too has had a bit of adaption.



This is post-conversion, which has had a slice inserted...



... Indicated in red pen here. Dave has cut the tunnel and lifted the back up, then inserted two sections of sheet steel to fill the gap.



All this works for a steering box converted car — shown is the kit that allows you to retain the steering box. Alas, you will need to cut and let in the plates supplied.



34 Gearbox Crossmember

There are a couple of components associated with the gearbox crossmember, which is a fabricated piece — although the shell will need some adaption to make it fit.



The first part is the gearbox adapter, which is fabricated by Retro Ford to fit onto the back of the gearbox.



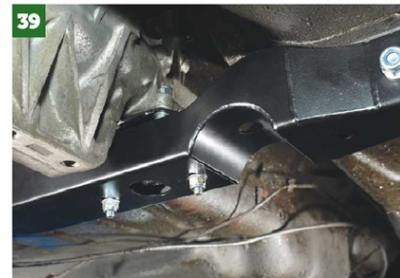
On to that, the gearbox rubber bolts, which allows that to bolt into the new gearbox crossmember — pretty simple stuff!



Going back to the adapted shell for a second, you can see either side of the cut-out centre section, two bolt holes, which Dave has drilled into the original crossmember. These have been sleeved with steel sections of tube and then welded in place and dressed.



This allows the crossmember to bolt into place using supplied fixings that go right through the original crossmember and fabricated section, being fixed with Nyloc nuts.



One of the details in the fabricated crossmember to note — it has a built-in cut-out for the exhaust to be routed through, to keep it neatly tucked up into the floor.



40 Propshaft

Retro Ford also supplies a two-piece propshaft for each application. The first part of the installation is fitting the centre-bearing adapter, which bolts to the floor.



It's actually slightly offset, which allows the travel of the propshaft to be corrected in the tunnel.



Installation complete! You can see how neatly the gearbox fits in the tunnel — like it was meant to be there.



From the top, the mocked-up Zetec fits a treat...



...While there's plenty of room around the uncut transmission tunnel.