

Flyin' Miata

We make Miatas fly!



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Clutch installation tips.

Congratulations on your purchase of a Flyin' Miata clutch! **Please read and follow all of the below directions. 99 out of 100 tech calls we receive about our clutches are cured when we read these directions back to the customer and they actually follow them.** There especially seems to be a dis-connect with “pros” who don't like to be told what to do. We have had to tell people to bring their cars home from the shop so we could talk them through the adjustment when their mechanic wouldn't listen. If you have questions or don't understand the procedure, feel free to call us, we're happy to help. Please start by following all of the directions, though.

1. Please have your flywheel machined to give the new disc a good surface to start with. ***This is very important!*** (not necessary with a new flywheel) Also, make sure to thoroughly clean all friction surfaces with carb cleaner before assembly. Any oil on the surfaces (including fingerprints) can cause chatter.
2. Peel back the rubber boot on your clutch slave cylinder to make sure you don't have any leakage there. If you find any fluid under the boot, buy a new slave cylinder. Heavier pressure plates put more load on the hydraulics and will often finish off a marginal or tired slave cylinder or even the master. Don't forget to put some grease on the end of the slave cylinder pushrod where it meets the release arm or you will have a chirp that will eventually (if not sooner) drive you nuts.
3. Put a thin layer of grease on the splined input shaft of the transmission as well as the corresponding sleeve on the clutch disc. Don't use too much grease, as it will sling onto the clutch and hurt its effectiveness. Also be sure that the disc slides easily on the input shaft.
4. Tighten the plate onto the flywheel using a diagonal pattern, tightening each bolt a few turns at a time. Do not tighten one bolt the whole way if the rest of them are loose. Do not use air tools and do make sure that the bolts are tightened to 14 – 18 ft/lbs.
5. Flush your hydraulic system for the clutch. Do the brakes while you're at it.
6. Many performance clutches (including the ACT and FM clutches) will engage much closer to the floor than a stock clutch, sometimes to the point of not dis-engaging completely, even when the pedal is on the floor. Re-adjustment of the clutch pedal height and clutch master cylinder free-play is **almost always** required or the car will not go into gear. Really, we

mean it. Please be sure to follow **all** of these directions before you call us. Even if you've put in dozens of clutches, humor us- our way works. Here's how to do it:

Start by cracking the nut loose on the larger clutch pedal switch, it's a 17mm. Then unscrew the switch a few turns, which will raise the resting position of the clutch pedal, giving you more travel. Next adjust the free-play on the master cylinder pushrod by cracking the 12 mm locknut loose. Once that nut is loose you should be able to easily turn the pushrod by hand. You will need to lengthen it to reduce free-play. Turn the rod to lengthen and as soon as you feel it touch the piston in the master, back off a hair. Get under the car (easiest with two people) and try to push the slave pushrod back into its bore. If you can push it in, you still have some free-play. If it won't budge, you have covered the fill/bleed hole from the reservoir into the master cylinder and need to shorten the rod on the clutch pedal a little. If you are able to push it in, be sure to pump the clutch pedal a few times to get fluid back into the slave. You want as little free-play as possible while still allowing the slave pushrod to be pushed back into its bore. Don't forget to tighten the locknut when you're done and then re-check that the slave pushrod still goes back into its bore when pushed by hand.

Technical note: Understanding how a master cylinder works may help understand our adjustment procedure. A properly adjusted master cylinder has the piston just behind the fill hole from the reservoir. As soon as you step on the pedal, the piston covers this hole and you start generating pressure in the hydraulics. If you have too much free-play, it means you are using up part of your pedal travel just getting to the point where the piston passes the hole, so your clutch may not dis-engage fully. On the other side of the coin, if you adjust out all of the free-play, you will cover the bleed/fill hole. This does two very bad things. One is that your clutch fluid can't go back up into the reservoir as it expands with heat. If it can't bleed into the reservoir, the fluid will build up pressure in the system and try to disengage the clutch by pushing on the slave cylinder. The second bad thing is this: as you remove free-play and pass the bleed/fill hole, you are "reducing" clutch travel by moving a smaller volume of fluid than if you were properly adjusted with the piston resting just behind the fill hole. This is a common error. "If I tighten it more, I'll get more travel, right?" Wrong.

7. When you step on the clutch while starting the car, you are doing the worst thing possible to the thrust bearing on your crankshaft. You have no oil pressure (engine not running) and now you're squeezing what little oil there is out from between the thrust bearing and the crankshaft. Due to the stronger pressure plate used in the clutch, this situation is even worse with an aftermarket HP clutch. Bypassing the starter interlock on the clutch pedal allowing the car to be started without depressing the clutch will add many miles to the life of your crankshaft thrust bearing. We have included a stainless steel clip to defeat this switch, please refer to its installation instructions.
8. Allow a 500 mile break-in period before you start pushing it. Break-in means no excessive slipping, no clutch drops and no full throttle. Of course, full throttle in a naturally aspirated car is very different than full throttle in turbo / supercharged car, so adjust your right foot accordingly (naturally aspirated cars don't have to be quite as careful about no full throttle). Be sure that your free travel is still correct after the break-in, adjust it if need be.

Enjoy your new FM clutch!