



## 5X Racing Mazda Miata Aluminum Shifter Bushing Installation Instructions

Thank you for your purchase! These instructions will explain how to properly install a 5X Racing Aluminum Shifter Bushing in your Mazda Miata. It is applicable to both 5-speed and 6-speed transmissions, as well as the later 6-speed transmissions found in late 2001-2005 Mazda Miatas. The differences between the different models will be noted within the text.

### **Tools Needed:**

- ¼" ratchet
- 10mm sockets
- Grease (any wheel bearing or automotive grease will do)
- Phillips head screwdriver

### **Steps for installation:**

1. Remove the shift knob by unscrewing it counter-clockwise
2. Remove the center console by locating the 5 screws and removing them. This procedure is outlined in your repair manual and we won't go into depth on it besides these simple steps:
  - a. There are two screws on the side of the console in line with the shifter, they are covered by decorative caps
  - b. There is one screw under the ash tray. Simply pull the ash tray up to remove it
  - c. There are two screws located inside the floor of the armrest compartment under the flip up lid
  - d. Snap the front of the console up, lift the shifter boot over the shifter threaded end, then slide it forward towards the radio while guiding it over the trunk and fuel door release levers at the rear of the console.
  - e. Remove and set aside

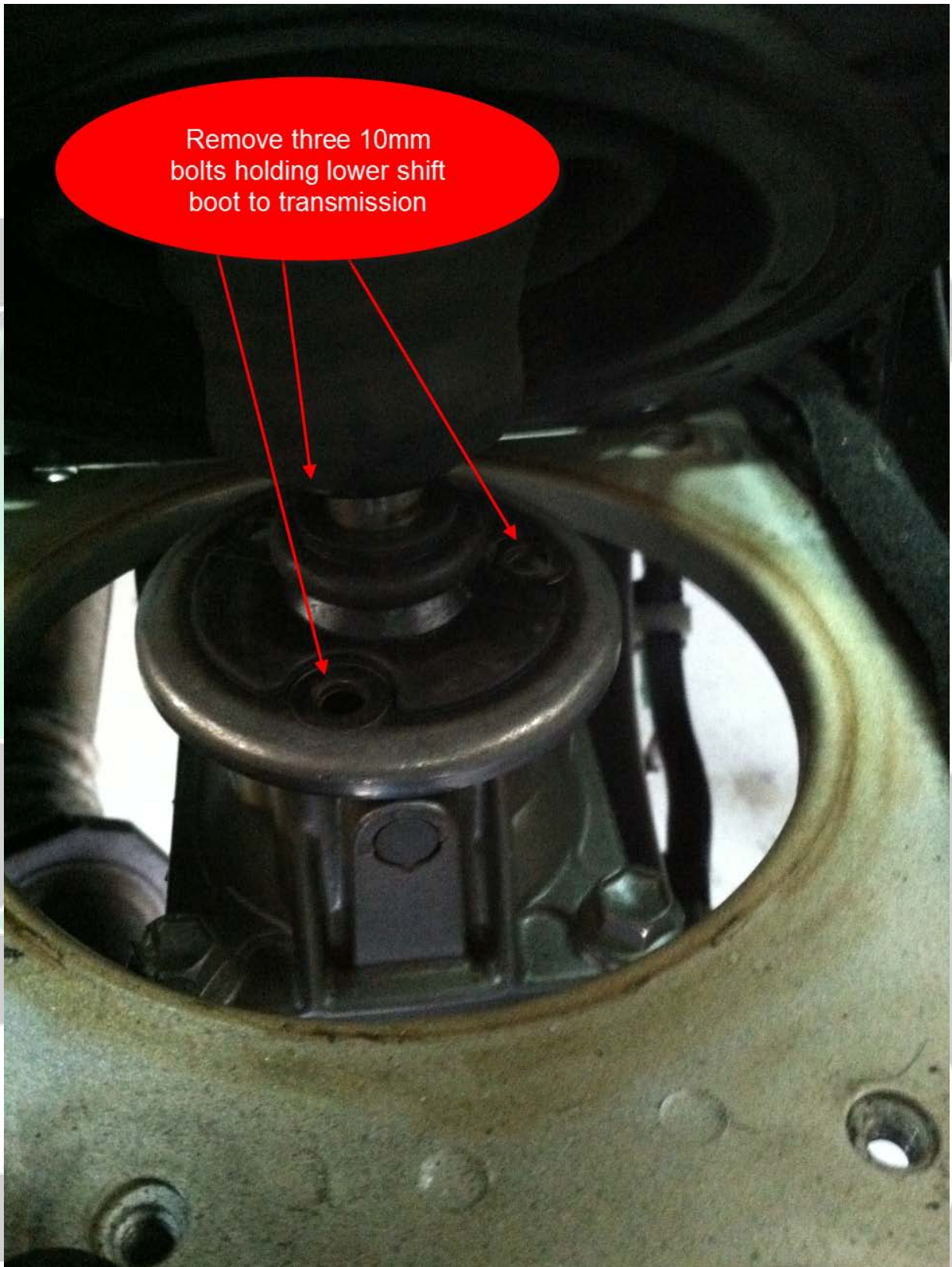
3. Remove the four 10mm bolts holding the upper shift boot to the chassis

The logo for SX Racing features the letters 'SX' in a large, stylized, metallic green font with a 3D effect and a grey drop shadow. Below 'SX', the word 'Racing' is written in a white, rounded, sans-serif font, also with a grey drop shadow.

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4. Pull the shift boot upwards, turning it inside out over the top of the shifter to gain access to the lower shift boot. It is not necessary to remove the upper shift boot to perform this job.
5. Remove the three 10mm bolts holding the lower shift boot to the transmission



6. Pull the entire shifter assembly out of the transmission and out of the car. Be careful of dripping transmission oil left over on the bottom of the shifter.
7. If your OEM plastic shifter bushing is still intact, it will be stuck on the bottom of the shifter when you remove it from the transmission. If it is NOT there, it is most likely broken and one of two things has happened:
  - a. There are pieces of it located within the shifter turret recess where the bushing is normally located. If this is the case, remove them with needle nose pliers

- b. It has completely disintegrated and has fallen into the depths of the transmission. If this is the case DON'T WORRY! It's just plastic and has probably been chewed up, or the pieces will come out with the oil when drained. A broken plastic bushing will not hurt your transmission internals (at least we've never heard of it happening)
8. Take your shifter assembly to a work bench and remove the shifter bushing (if still snapped onto the shifter) by knocking it off with a rubber hammer, wooden hammer handle, or with a pair of Channel-Lock pliers. Be careful not to damage the tip of the shifter when doing so (which is why we recommend a rubber hammer or wooden handle of some sort)
  9. If you need to change the shifter boots, now is the time. They're most likely damaged, so just cut them off with a razor knife. If for some reason you need to remove the upper shift boot, you can use WD-40 to slide the boot collar up the shifter handle and remove it. The lower boot cannot be removed without being destroyed.
  10. Replace all washers and reinstall your shift boots if removed, and clean the entire shifter assembly.
  11. If you have a wire wheel, or at the very least some scotch brite pads, it's a good idea to clean the ball tip of the shifter before installing the new bushing to ensure no build-up fouls the rotational movement.
  12. Take your new 5X Racing Shifter Bushing and some grease (we use the brake caliper grease that comes with the Mazda OEM Brake Caliper Rebuild kits, but any wheel bearing or all purpose grease intended for metal will do), and put a layer of it on the shifter ball tip, and on the inside of the bushing



13. Install the 5XR Bushing onto the shifter ball tip. Every shifter is different, and worse so Mazda did not worry about the tolerances of these being perfect, which is why they compensated for the tolerance variances by loading up the entire lower shifter assembly with plastic bushings and flexible washers, and a lower ball tip bushing that snapped on. SO, some of you will have a bushing that "snaps" on, and some will have a bushing that "slides" on. We try to make all of the bushings "snappable", but with the variances in shifters, sometimes there are lower shifter ball tips that are smaller, or in the case of a shifter that has been used with a broken or missing shifter bushing for quite some time, just plain worn down from the metal to metal contact. The grease is meant firstly to hold the bushing onto the shifter ball tip for installation, and secondly to provide lubrication for a short time after the install until the transmission oil can lubricate it. Think of it as "break-in lube"!

14. Take some more grease and coat the outside surface of the shifter bushing after it has been installed on the shifter ball tip

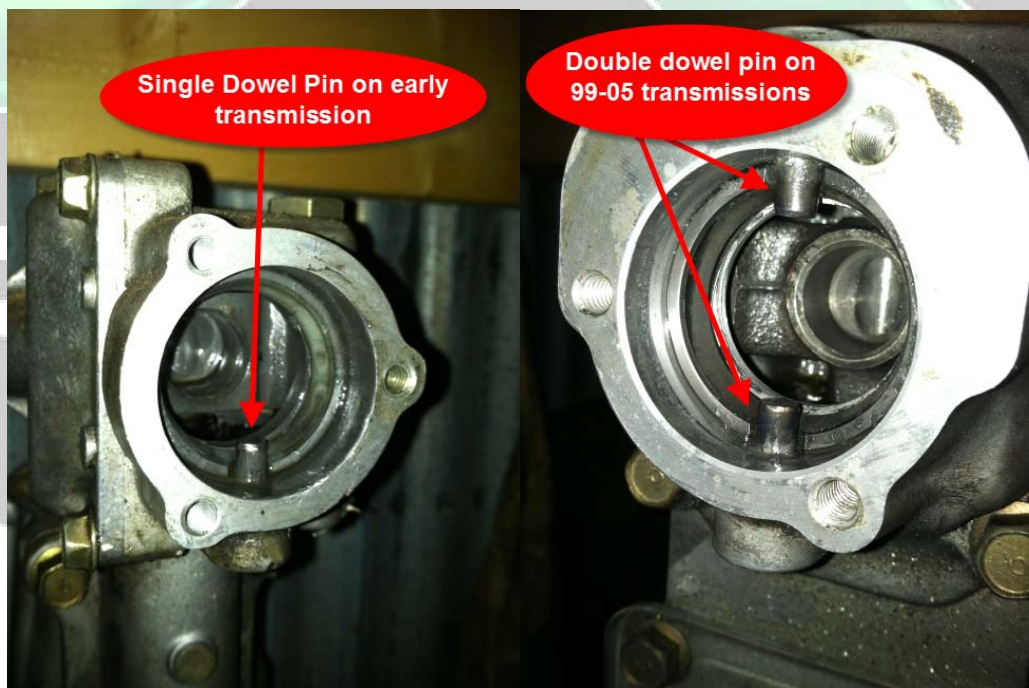


15. You are now ready to install the shifter assembly back into the car! First and most important thing to remember: **DO NOT DROP THE BUSHING INTO THE TRANSMISSION!!!** After you know this, please take the appropriate route below:

- a. Do you have a 1990-2005 5-Speed or 1999-early 2001 6-speed? Yes? Then start at step i. No? If you have a late 2001+ 6-speed, then proceed to step "b".
  - i. remove the old fluid from the shifter turret with a turkey baster type bulb, or in a pinch, use a bunch of paper towels to soak it up so you can see the shifter bushing cradle
  - ii. Refill the turret with the fluid of your choice (We use and recommend RedLine MTL) until it reaches the top of the block with the hole in it that holds the shifter bushing (bushing cradle). Don't put too much in, or else it will leak out from around the lower shift boot, especially if it rips!



- iii. Install the shifter assembly taking care to get the bushing into its mounting hole at the base of the turret properly. Take notice of the slots in the larger ball on the shifter above the bushing. These slots **MUST** be lined up with the dowel pins on the inside rim of the turret housing. On Pre-1999 transmissions, there will only be one slot in the front (it too has a crappy plastic bushing in it!), and on Post-1999 transmissions there will be two slots, one on the front, and one on the back. The 99+ transmissions do not have plastic slot bushings. Place the shifter down into the turret, and you can rotate the shifter until it “pops” down into the slots if you don’t nail it exact. Using the shift boot for orientation is a good guide to know where the shifter is located physically without having to look at it. (wider bolt spacing part of the upper boot is the front, closer bolt spacing part is the rear). Make sure your upper shift boot is oriented properly, as it will be impossible to see the pivot ball of the shifter as it is being installed into the turret because of the lower shift boot.





- iv. Do not force the shifter down, it should slide in with little effort. You will know it's down all the way when the lower shift boot is either touching, or is close to the transmission top. If the lower boot needs to be stretched to be bolted down, then the bushing might not be seated all the way. You can "tap" it in if you feel the need to, but just be aware that you might bind the bushing into the turret hole, which will cause it to separate from the shifter and will need to be plucked out and reattached to the ball tip. Removing the shifter bushing from the turret is not as easy as it sounds without damaging it, especially if it is bound up in there. **DO NOT DROP THE BUSHING INTO THE TRANSMISSION!!!**
- b. Do you have a mid-2001+ 6-Speed?
  - i. Yes? The turret on these transmissions is NOT filled with oil, so no oil will need to be added. Don't mistakenly add oil thinking it was low and will appear eventually, as you'll completely overfill the transmission!
  - ii. Install using the same technique as 15-a-iii above

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- c. An alternate method that might work well if you're having trouble getting the bushing to seat into the cradle, or if your bushing fits looser and doesn't "snap in", is to place the bushing into the bushing cradle in the turret first, then install the shifter into it while it's already in there. A slight "tap" with a rubber hammer might be necessary to seat the shifter tip into the bushing.
16. Once your shifter and bushing is fully seated into the bushing cradle in the turret, move the shifter around to ensure it rotates and you can select gears, then reinstall and tighten the three 10mm bolts that fasten the lower shift boot to the transmission. Do not exert too much force on these as they can strip easily. A 1/4" ratchet will work fine.
17. Pull the upper shift boot down over the shifter, then reinstall the four 10mm bolts that fasten it to the chassis
18. Reinstall the console and shift knob by using steps 1 and 2 in reverse
19. Go bang some shifts!
20. Enjoy for years!

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