

# PRECOR EFX 544 RETRO-FIT KIT INSTALLATION MANUAL

Please keep in mind that when removing the original parts all new parts will be installed in a similar fashion. We have not made any frame changes, so this means that most of the fasteners will be reinstalled very much the same way as they are removed.

- 1) Remove the front cover.
- 2) Remove the rear cover - **CAUTION:** Exercise extreme caution when working with the flywheels and/or the stair arms. Because of the mass of the flywheels, serious injury may result if fingers are pinched between the flywheel spokes and the stair arms. Always wear eye protection whenever removing the stair arms.
- 3) Remove both stair arms and set all the washers to the side. You will be replacing them in the same orientation. **CAUTION: Remember to use eye protection.** Clean both flywheel pins well and make sure there are no signs of wear. If there are signs of wear they must be replaced or they will have an adverse effect on the new style stair arms. Replace these pins using only genuine Precor parts, and procedures.
- 4) Remove the old style ramps and put the washer and hex head screw aside. You will need them later to fasten the new style ramps in place.
- 5) Remove both wear tubes and set these aside. You may need them later on.
- 6) Remove lower lift axel/arm
- 7) Unplug the lower board from the elevation connector, the ribbon cable and disconnect both brown wires off the lift capacitor. When the EFX C544 is operating, the capacitor will hold a lethal amount of charge. **Do not touch the capacitor as serious injury or death might result. You must remove power from the EFX 544 prior to disconnecting any wires from the lower board; the power cord must be disconnected from the wall outlet.** Always ensure that the EFX 544 is unplugged from the wall outlet when you inspect or adjust the EFX 544, or when you isolate, remove, or replace an EFX 544 component. Removing the covers exposes high voltage components and potentially dangerous machinery. Exercise extreme caution when you perform maintenance procedures with the hood removed.
- 8) Cut any wire ties that secure the wiring you have unplugged as described above.

- 9) Remove the four screws that secure the electronics bracket and grounding wires and carefully lift the bracket slightly upward then slowly slide the bracket off the front of the machine and lay it gently onto the floor next to the machine. Use extreme caution so as not to cut or pinch the wiring that is channeled through the bottom of this bracket and the hole cut into the frame. You will need to exercise the same caution when this bracket is replaced. Typically the damage to the wiring is done when you first begin to lift this bracket off the machine. Remember to think first before you take action.
  
- 10) Gently pull the lift arm tube out and away from the lift bracket. **Do Not** turn or rotate the lift arm tube. (If this tube is rotated you may have to recalibrate the lift motor).
  
- 11) Remove the old lift bracket and slide on the new short lift bracket sent with this kit. Make sure that the guide screws are secure. If they are not, remove, clean both sets of threads, apply service removable thread locker and reinstall screws securely into place, holding the spacer and lift guide as positioned before.
  
- 12) Once the short bracket is in place, swing the lift arm tube back down, lining up the horizontal portion of the lift arm tube with that of the holes in the short lift bracket. If you have been trained on the typical Precor methods of changing out lift guide and brackets then you will see many of the same procedures here and throughout the remainder of the installation.
  
- 13) Insert the new style lower lift arm shaft (removing the screws and washers at each end of this new shaft is necessary before installing) through the first hole of the short lift bracket, then through the horizontal portion of the lift arm tube and finally through the opposite hole of the short lift bracket. It is helpful to apply a small amount of super lube (heavy paste form) before beginning this step. Keep equal lengths protruding on each side of the short lift bracket as you finish this step.
  
- 14) Slide a Delrin spacer (Labeled as spacer c in parts diagram and also identified by the flat sides. This allows the front cover to clear these spacers, so make sure the flat sides are oriented front and rear) onto each side of the shaft.
  
- 15) Slide one wave washer onto the lower lift arm. Note: there have been some instances where we have had to add a slightly wider Delrin spacer. The object here is to have just enough room between the short lift bracket and the ramp lift bracket to allow only for this spacer and 1 wave washer. A slight springy tension caused by the wave washers slight compression when the two bolts are put in place and tightened down on the lower lift shaft is the desired effect. Keep this in mind later when this lower lift shaft is completely assembled. You do not want a tight binding fit. You do however want a secure fit that applies the correct amount of compression to snugly hold all the spacers and wave washers into place. You should not be able to freely spin spacers or washers at any time.

- 16) Slide one ramp into place (either left or right side, but make sure you use the correct one. A quick way to tell is by noticing that the lift guide and bracket on each ramp is mounted off center. Always mount the ramp so that the lift guide and bracket is closest to the frame.) by lining up the first hole of the ramp's lift bracket and sliding it first onto the lower lift shaft. Because this style ramp is connected at the lift bracket as well as the frame pivot shaft, they must be slid onto both shafts at the same time. Keep an eye on the other end of the ramp, as you are sliding the ramp onto the lower lift shaft. As you get closer to the frame pivot shaft, to prevent binding, slide the ramp onto both pins at the same time when you are in position to do so.
  
- 17) On these next two steps you will be working on the same side as the ramp you just installed. Secure the ramp end to the frame pivot axle/pin with the original hardware removed in step 4.
  
- 18) Slide a Delrin spacer onto the lower lift shaft, one wave washer, then the widest of all the Delrin spacers, one of the lower lift shaft washers and finally the hex head bolt that was removed in step 13. Tighten this hex head bolt as much as possible using only your hand. Do not use pliers to hold the shaft on the other side. You do not want to scratch or mar the surface of this shaft at any time. The other hex head bolt will be added once the other side is completed and you will at that point be able to tighten both bolts together.
  
- 19) Repeat steps 15 through 18 for the other side. As you put the last bolt and washer onto the lower lift shaft, hold both bolts at each end of the lower lift shaft with the proper tools. Both bolts will tighten as you tighten one. It is necessary to tighten all the way without leaving any gaps between the washer and the lower lift shaft. At this point that you will notice any binding of the spacers. You'll know if the spacing is correct if as you begin to tighten, there isn't any drawing in towards the short guide bracket of the front ends of either ramp. Remember these are all Precor manufactured parts and we have not changed the distance or spacing of the ramp's inner edges in relation to the frame side they are closest to. Because the new style ramps are now fastened in two places at almost opposite ends, the ramp edge distance in relation to the frame must be the same or there will be a binding within the ramps. This binding will cause several issues to arise such as a choppy motion when elevating the ramps, and a slight to fairly severe vibration when elevating. These two issues, should they arise, must be solved immediately or future problems will arise. The only way this binding will occur is if your spacers and wave washers are too thin and the tightening of the lower lift shaft bolts have drawn the ends of both ramps towards the short lift bracket. In essence you would have pinched the front end of the ramps closer together than the distance of the end of the ramps. If you have installed everything correctly and double-checked your spacing then you will have no problems.
  
- 20) Repeat step 9 to replace the lower electronics bracket, reversing the procedure. Take extreme caution so as not to cut or pinch the wiring that is channeled through the bottom of this bracket and the hole cut into the frame.
  
- 21) Repeat step 7 by plugging in all wiring exactly the way you removed it.

- 22) Secure all wiring by replacing all wire ties or add more as needed.
- 23) Replace both stair arms using the new style provided in the kit and once again reverse the procedure you had followed in step 3, but with these you will add the oilite washers also included with this kit. Be sure the orientation is as follows: 1<sup>st</sup> the flat steel washer; 2<sup>nd</sup> one oilite washer; 3<sup>rd</sup> the new style stair arm; 4<sup>th</sup> second oilite washer; 5<sup>th</sup> second steel washer; 6<sup>th</sup> wave washer; 7<sup>th</sup> the last steel washer; 8<sup>th</sup> finally the snap ring. **Caution: Remember to wear eye protection. Use extreme caution when working with the flywheels and/or the stair arms. Serious injury may result if fingers are pinched between the flywheel spokes and the stair arms.**
- 24) The last design change you will require a rotary rasp, (Typically sold at hardware store such as Home Depot). The slots that are formed in the rear cover need to be trimmed higher. A little less than one inch should allow enough room for the stair arms to clear. You do this by using a rotary rasp and your drill gun set at high speed. This process only takes about 5 minutes to do and is made very easy by using the rotary rasp. The need for this is because our design changes the height of the elevation to the ramps, which transfers to the stair arms. If the holes are not made higher the stair arms will rub, or hit against the rear cover.
- 25) Replace the rear cover, reversing step # 2 and fully test machine to make sure all functions are good. You should notice an immediate positive change in the feel of the stair arms and the way the elevation system behaves. Properly installing the kit will result in a smooth, stable motion. If there is any noise or vibration in the elevation as it goes up or down, then this means the ramps are binding. Go over what was discussed in step # 19 to solve this problem.
- 26) Replace front cover reversing step # 1 and perform one last test to make sure the machine is functioning properly.