Z-Rail Slide and Bearing Block Replacement

Purpose: This TSB will provide instructions on how to replace the Z-Rail slide and bearing block assembly. The rail is bolted to the vertical support and the bearing block is bolted to the picker to hold the picker in alignment as it moves up and down. Special parts and tools will need to be odered prior to going to the kiosk.

Scope: This process will be for older or newer style rail/bearing assemblies that have failed.

Symptoms:

- If there is too much back-and-forth play in the Picker
- There is grinding/catching on the Z-rail when moving the Picker by hand with power off.
- Catastrophic failure of the block allows the picker to fall free.
- Small ball bearings may be found on the bottom of the kiosk.
- Other issues with the Z-rail slide and bearing that keep the Picker from operating firmly and smoothly.

NOTE The bearing attached to the lower pulley for the picker belt OR the Y Motor can also be the problemwith grinding and catching. Rule these out before proceeding with this repair.

Tools needed:

- Metric Allen wrench set
- Cable ties
- Side cutters
- Loctite 222 – low strength (RDBX80741)
- Deep-reach T-handle with 3mm hex tip (www.McMaster.com part# 7167A43)

Parts Needed: RDBX00242 – BLOCK AND RAIL – VERTICAL RAIL

Procedure:

1. Power off the kiosk.
2. Allow the Picker to move to the bottom of the kiosk.
3. Leave the top Z-rail screw in place.

4. Remove the next 16 Z-rail screws from the top to bottom (between the brackets in the below pic along with the engineering drawing showing some of the screws.)

a. These should be 3mm Allen Cap screws.

b. These were installed with low strength Loctite and may take some force to crack and release.

c. Pay attention to the amount of force needed to break them free for the reinstall step.

d. A power tool and adapter will make full removal easier once the screws are broken free.

5. Move the picker back up to around vend door height and tie the belt together with a cable tie to hold the Picker in mid-air.
6. Remove the 4 screws holding the picker carriage to the bearing block(s).

a. This requires the long T-handle.

b. Make sure to seat the T-handle into the screw head with a firm hit from your palm.

c. These were installed with low strength Loctite and may take some force to crack and release.

7. This is the engineering drawing and a pic of the newer single bearing block mount which is what you will receive from Parts. This vertical support is a U-channel obscuring the view of the bearing block.

8. The older mounting is 2 separate bearing blocks (1 on top and 1 on the bottom of the Picker carriage) each using 2 screws highlighted by the orange boxes in the engineering drawing along with a pic.
a. There are 8 holes on old and new carriages and the bottom 4 will line up with the new Z-rail.

9. Allow the bearing block(s) to ride down to the bottom of the rail.
10. Make sure that the four 5/32" Allen bolts securing the Z-motor to the vertical support are very snug

11. Loosen the Z-motor tensioning screw enough to allow the vertical bearing rail to be removed.

    a. Loosen the jam nut first by turning it counter-clockwise and down several threads

b. Screw the tensioning bolt into the Z-motor bracket by turning clockwise until there is a good gap between the bolt head and the Z-rail.

12. Remove the remaining 5 screws from the bottom of the Z-rail and then the 1 screw from the top so that the rail will not fall forward unexpectedly.
NOTE Be aware of the loose Picker being able to swing around so as not to damage the sensor boards or other components during rail removal and reinstall.
13. Remove and discard the old assembly.
14. Make sure there is tape holding the block to the rail to keep it on at all times or the tiny bearing balls may fall out and a new assembly will have to be ordered.
15. Carefully slip the new rail into place behind the hanging Picker.
16. Reverse the procedure starting with the 1 top screw and then the bottom 5 screws.

    a. Apply a small amount of low strength Loctite 222 on each screw to lock it in place:

    b. Do not fully tighten down the screws yet – just thread them all the way in.

    c. You should have enough work time to install all of the screws prior to tightening them.

17. Remove the tape holding the block in place and slide it up to meet the picker carriage.
18. Re-install the 4 screws to secure the block to picker.

    a. A small screwdriver can be used to hold the block up by inserting it into one of the empty holes while threading the others.

    b. Apply a small amount of low strength Loctite 222 on each screw.

    c. Fully snug these 4 screws down.

19. Thread the remaining screws into the rail.

    a. Use a small amount of low strength Loctite 222 on each screw.

    b. Cut the tie securing the picker and move out of the way as needed to access all screws.

c. Once all screws are threaded in, tighten them all down to about the same feel as on removal.

20. Re-adjust the Z-motor tensioning screw so that the belt is appropriately tight.
21. Manually lift the picker up and down several times to confirm smooth motion and then leave picker at bottom.
22. Power up system and do some test moves and check slot data as necessary.