

Title: Main handle replacement

Products: Air 2.1 & Idea Violin/Viola

Parts: 396.421

Time: 10-20 minutes

Difficulty: Medium. The repair procedure might require tools and supplies that might not be common in a household tool set.

1. Overview

- a. Many handle repairs require a similar set of procedures and tools. In this repair manual, the simplified procedures are segmented in the below manner.
 - i. Remove the handle base cover
 - ii. Release the interior lining from shell
 - iii. Remove the handle fasteners
 - iv. Install a new handle
 - v. Reattach the interior lining

2. Tools & Supply Needed

- a. Hand drill with 5/32" drill bit
- b. Rivet gun
- c. 2mm Allen key (if the handle base is fastened with screws)
- d. Small flat head screwdriver
- e. Acetone (or acetone-type nail polish remover)
- f. Fabric glue or Super glue (optional)
- g. Heat gun (optional)

3. Preparation

- a. Lay a towel or clean, soft cloth large enough to cover the entire case on the working surface
- b. Place the case LID SIDE DOWN
- c. Make sure the repair is performed in a well-ventilated area.

4. Remove the handle base cover

- a. Slide a flat head Screwdriver under the metal base cover, from the music pocket side, then lift the cover using the leverage. Do not twist as doing so could potentially scratch the surface. (Figure 1)
 - i. Notice the indentation in the middle, which catches the hole underneath, locking the cover in place. Your goal is to release this lock.
 - ii. **Be sure to lift only the cover.** There could be a space between the base and the case shell to which the screwdriver can slip into.



Figure 1

5. Release the interior lining from shell

- a. Locate where the lining meets the case shell (right above the rivet (Figure 2 & 3).
- b. Using the flat head screw apply/pour acetone (video1), then attempt to peel back the lining by hand to expose the rivets. If the glue is stubborn, apply more acetone
 - i. DO NOT USE SHARP KNIFE to cut through the glue. In the video1 included in this instruction, a ruler with blunt edge is used. The surrounding fabric absorbs acetone very quickly and reduces its efficacy. Trying to apply acetone directly to the glue line will loosen the glue quicker.
 - ii. There might be another layer of fabric covering the rivet either wholly or partially. Follow the same procedure to release the liner. (Figure 4).

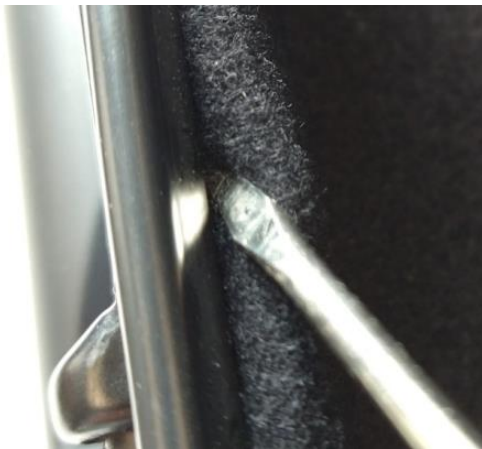


Figure 3

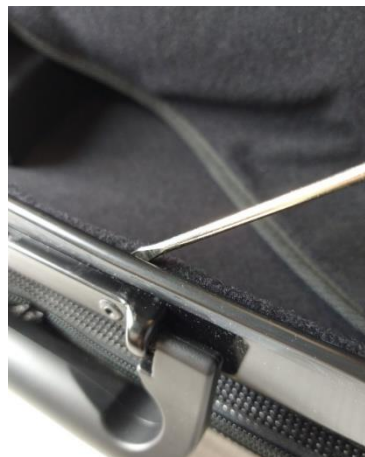
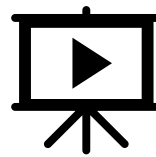


Figure 2



Figure 4



Video 1. To open, Click the icon

6. Remove the handle base fasteners
 - a. Using a drill with a 5/32" drill bit, drill out the rivets SLOWLY from outside. Repeat, then remove the handle base, which consists of metal cap and a plastic plate under the cap.
 - i. **Pro Tips**
 1. Place a rag inside the case to catch debris.
 2. When the rivet gets drilled out, the drill bit could potentially poke through the fabric, if pressing it too hard or drilling too fast. Stop the drill when the rivet/washer starts spinning or lifts. Then pry it out by hand or a pair of pliers.
 - ii. After some use, the handle could get stuck on the surface. In this case, gently pull by hand or pry it off using a flat head screwdriver like the base cover
 - iii. Be sure to take all debris out of the case. Using air compressor to blow the debris out is recommended.

7. Install the new handle
 - a. Follow the rivet gun instruction to setup the gun to match the rivet
 - b. Place the handle base metal cap over the plastic plate with the logo facing up. Put a rivet through the rivet hole with thick end first. (Figure 5)
 - c. Dry fit a new handle to confirm the location. (Figure 6)
 - i. If the hole locations match, proceed to next. If not, make new holes where they are equidistant from the centerline of the existing rivet holes. The new holes should be the size of the thicker end of rivets (5/32"). Making the holes bigger is not recommended.
 - d. Place a washer on the interior side (thicker end) rivet heads
 - e. Using a rivet gun, secure the rivet from outside. Repeat.
 - i. Depending on the rivet gun, you might need to squeeze the gun 2-3 times.
 - ii. Be sure to hold the gun steady. As the rivet gets fastened and the mandrel breaks off from the rivet head, you might experience a jolt.
 - f. Install the base cover



Figure 5

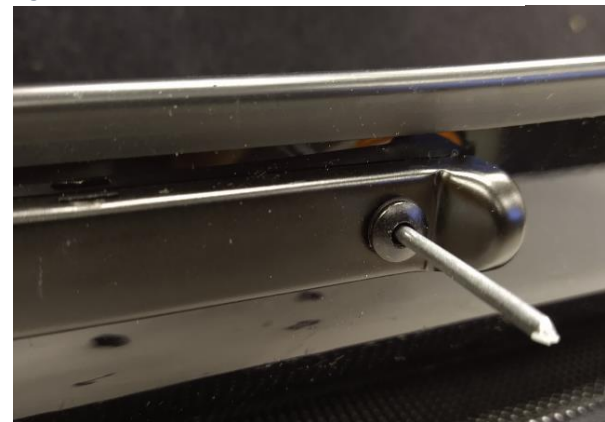


Figure 6

8. Reattach the interior lining
 - a. Using a flat head screwdriver, apply acetone to the glue until it becomes soft and tacky.
 - b. Press and hold the fabric firmly against the shell for 30 seconds. Repeat for all loose lining.
 - i. Optional - Apply heat can accelerate the set and cure time.