Chrysalises Tools & Parts (1)

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Chrysalis I

For the left and right soundboards, polished and unpolished Delrin nut and Lexan shield assemblies.

\( \frac{1}{16} \text{ in.} \times \frac{1}{2} \text{ in.} \) stainless steel hitch pins (same as Chrysalis II).

\( \frac{1}{8} \text{ in.} \times \frac{3}{4} \text{ in.} \) stainless steel nut pins.

Machined \( \frac{3}{4}-20 \) stainless steel coupling nuts.

Machined \( \frac{1}{4}-20 \) stainless steel support screws.

Polished and coated oval head \( \frac{3}{4}-20 \) brass machine screws (same as Chrysalis II).

8-32 stainless steel socket head set screws (same as Chrysalis II).

For \( \#4 \times \frac{3}{8} \) in. stainless steel tuning gear mounting screws, shortened Phillips head screwdriver (same as Chrysalis II).

• One extra set of 32 machined aluminum and color-coded buttons (same as Chrysalis II).

• Stainless steel shim washers (0.178 \( \times \) 0.123 \( \times \) 0.007) and 4-40 \( \times \frac{3}{8} \) in. socket head cap screws used to fasten the buttons.

One extra stainless steel split shaft collar used to balance the Chrysalis wheel.

Polished and coated brass bracket wood screws.

Aluminum ferrules.

Various fasteners: stainless steel screws, nuts, and washers; and polished and unpolished Delrin flanges.
Chrysalises (2)

Chrysalis II

Two Delrin tubes used to align the axle through two soundboard center holes during assembly.

“Extruded Brass” by Prismatic Powders bridge color test piece.

For the left and right soundboards, polished and unpolished Delrin nut and Lexan shield assemblies.

$\frac{1}{16}$ in. $\times \frac{1}{2}$ in. stainless steel hitch pins (same as Chrysalis I).

$\frac{9}{16}$ in. $\times$ 1 in. stainless steel nut pins.

#4 $\times$ $\frac{3}{8}$ in. stainless steel tuning gear mounting screws; and shortened Phillips head screwdriver (same as Chrysalis I).

#2 $\times$ $\frac{1}{4}$ in. stainless steel Lexan shield screws (same as Chrysalis I).

Polished and coated oval head $\frac{1}{4}$-20 brass machine screws (same as Chrysalis I).

8-32 stainless steel socket head set screws (same as Chrysalis I).

• One extra set of 32 machined aluminum and color-coded buttons (same as Chrysalis I); plus 24 extra buttons.

• Stainless steel shim washers ($0.178 \times 0.123 \times 0.007$) and 4-40 $\times \frac{1}{2}$ in. socket head cap screws used to fasten the buttons.

One extra stainless steel split shaft collar used to balance the Chrysalis wheel.

Machined $\frac{1}{4}$-20 stainless steel coupling nuts.

Aluminum ferrules.

Various fasteners: stainless steel screws, nuts, and washers; and polished and unpolished Delrin flanges.
Chrysalises (3)

Chrysalis I & II Gears and Tools

Grover tuning gears: #V97-18NA. 12 extra gears for the Left and Right Soundboards.
Clear “Super Lube” for lubricating tuning gear sprockets and tuning gear posts inside the ferrules.

Stringing tools:
Red piano understringing felt to prevent scratching the angled surfaces of bridge Rings B.
Custom Delrin stringing tool to compress coils at tuning gears and to straighten hitch pins at the bridges.
Felt-lined tuning gear crank.
Small precision pliers with dark blue handles.
Small wire cutters with light blue handles.
Modified and standard ratcheting and plain wrenches for various internal supports screw nuts.
Custom black slotted screwdriver for the brass screws of the 16 soundboard brackets.
Custom yellow Phillips screwdriver for tuning gear mounting screws.
Modified clear “screw starter” tool for polishing Delrin nuts on wet/dry paper.
Red 3/32 in. ball-end hex driver for the 4-40 socket head cap screws that fasten the color-coded buttons.
Custom wood clamp for polishing Delrin nuts at buffing wheel.
Chrysalises (4)

Chrysalis I & II Jigs and Extras

Chrysalis I nut pin location jig.

Chrysalis I and II lathe arbor for turning Lexan shields.

Chrysalis I and II short axle with center point for locating bearings.

Chrysalis I and II experimental ferrules.

Chrysalis I and II extra rosewood blocks and aluminum flanges.

Chrysalis I and II four screw assemblies for picking up sprayed soundboards.

Chrysalis II soundboard center hole location plug with handle.

Chrysalis I and II Lexan shield drilling and milling jig.

Chrysalis I snap ring for locating flanges around Delrin spacers.
This is a dense, high-quality 2.0 mm thick jet-black felt used to cover 16 redesigned Delrin brake pads on Chrysalis I and Chrysalis II. This color of this felt is called “Ink” and it is available from Creative Foam, formerly known as the Aetna Felt Corporation.
Chrysalises (6)

Chrysalis II

These scraps of quarter-sawn Sitka spruce are remnants from making the soundboards and ribs of Chrysalis II. They can be used to repair the soundboards of Chrysalis I, Chrysalis II, Harmonic/Melodic Canon, Bass Canon, and Just Keys. (Many smaller remnants not in photo.)
Chrysalises and Canons Music Wire

Röslau music wire sizes:

Chrysalis I, left side, #6 – 0.016 in.
Chrysalis II, left side, #7 – 0.018 in.
Chrysalis I & II, right side, #9 – 0.022 in.
Chrysalis II, String No. 1, right side, #11 – 0.026 in.
Harmonic/Melodic Canon, #10 – 0.024 in.
Bass Canon, core wire of wound strings, #9 – 0.022 in.

Looping machine for plain strings: Chrysalis I and II, Harmonic/Melodic Canon, and Just Keys.

Customized looping machine for turning the brass ball ends of wound strings: Bass Canon.
Ball Bearings

Chrysalises, Glassdance, and String Winder