# FIBERWORKS SILVER PLUS FOR MAC

How to Weave on your Computer Assisted Loom
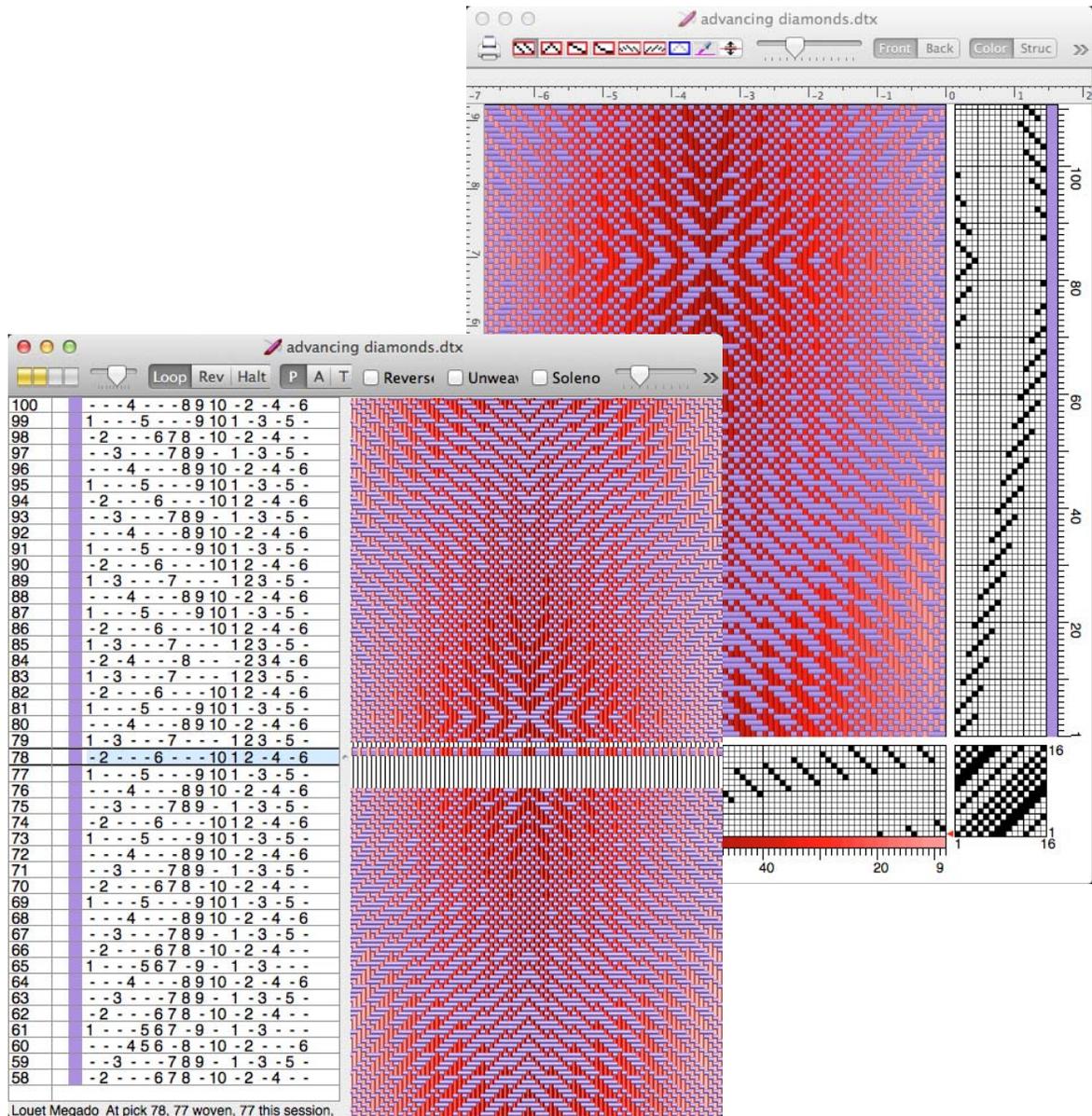
For AVL, Leclerc, Louet, Dobbytron/Macomber
Séguin and Toika

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Activation of Silver Plus

For installation of the Silver Plus program, see the main Silver Manual

Activation dialog for loom functions

This activation dialog may appear when you choose **File > Weave** in a copy of Fiberworks that was previously only validated as **Silver** rather than **Silver Plus**. It may also appear in Silver Plus if you select an **AVL** loom in **Loom Setup**, if your original validation did not include AVL.

It allows you to upgrade your current Silver version to Silver Plus or Silver Plus with AVL without having to reinstall the program.

Fiberworks Silver Plus Activation

Your Program ID is   12345-P-67890

The The Weave option allows you to run a computer assisted loom. To use the Weave option, your program needs to be registered at level Silver Plus. You do this by purchasing an activation code from Fiberworks to upgrade your Silver level Program up to Silver Plus or Silver Plus with AVL.
To order the upgrade, send your name, the type of loom you intend to use, your Fiberworks Silver Customer Number or Invoice number and the program ID that appears above, to Fiberworks.

website: www.fiberworks-pcw.com

email: info@fiberworks-pcw.com

Enter your Activation Code

123   213   132   231

By entering an activation code, I accept the terms of the Silver Software License that appears on the inside front cover of the Silver Manual

Cancel   Activate

If you originally installed and validated as Silver Plus or Silver Plus with AVL, you should not encounter this dialog.

Copy the program ID numbers as they appear in your Silver Plus program. The numbers in the illustration above are just an example. This is **not** your program ID!

Email the program ID to us at: info@fiberworks-pcw.com

In addition to the program ID, please identify yourself with name, program purchase registration number or invoice number or date of purchase, and indicate if you are validating regular Silver Plus or Silver Plus with AVL. Activation for AVL includes all other looms. We will send back the Activation code by email as soon as possible.

Click the **Activate** button to complete the process. Until you activate you can't access the weaving features described in this manual.

Weaving

Once the Weaving functions have either been validated when you originally installed, or activated as described above, you can then choose **File > Weave** to open the Weaving window and connect to your loom.

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Designing to Weave

Before opening the weaving window, create a design or open an existing file in the normal drawdown window. Shown below is a variation of maltese.dtx, one of the sample designs included with the Silver Plus program.
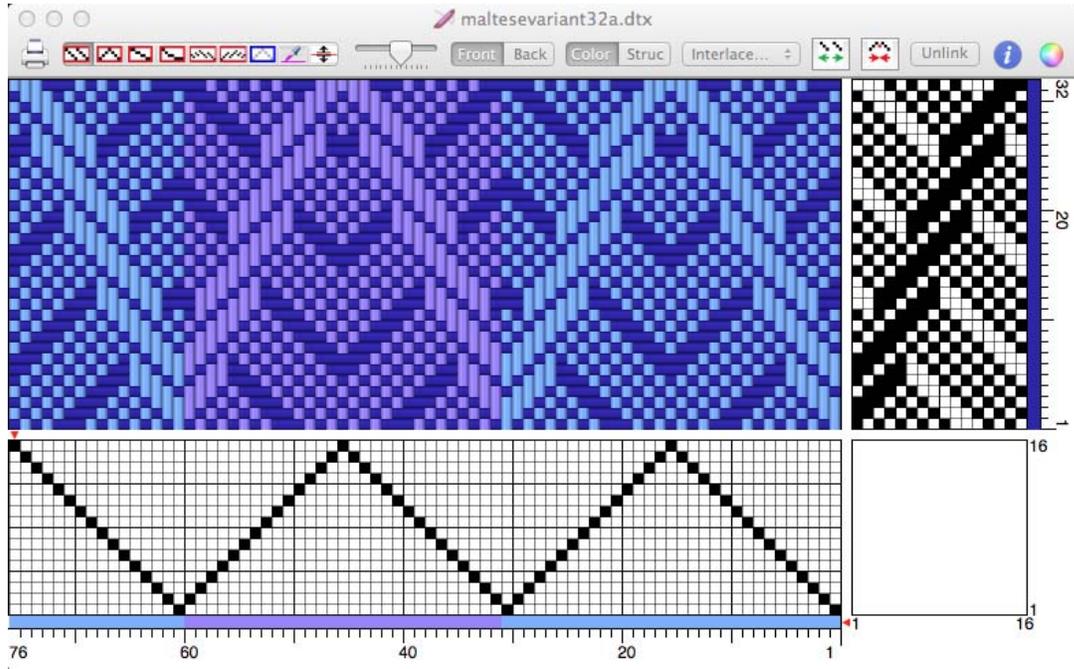

The design may have a conventional tieup and treadling or it can be a liftplan as shown.

Number of shafts should not exceed the capacity of your loom.

To proceed to the **Weave function** choose **File > Weave** in the main menu**.**

If the Weave item on the File menu is grayed out, check that there is a weaving design open in the drawdown window, with **at least one pick**. If Fiberworks has not yet been validated or has lost its validation, Save, Print and Weave items will be missing from the File menu. See your Fiberworks Silver manual for information on how to validate.

When you first enter the Weaving window, the bottom left corner of the window will say **no loom selected**. While the program is in this state, you can **simulate** loom action by **pressing the spacebar (p.8)**. One press is equivalent to opening the shed, and a second press is equivalent to throwing the shuttle and closing the shed. The simulation will allow you to explore the weaving window functions before getting involved with the loom itself.

New	⌘N
Open...	⌘O
Open Recent	▶
Duplicate	
Close	⌘W
Save	⌘S
Save As...	⇧⌘S
Revert to Saved	
Page Setup...	⇧⌘P
Print ...	⌘P
Weave	⌥⌘W
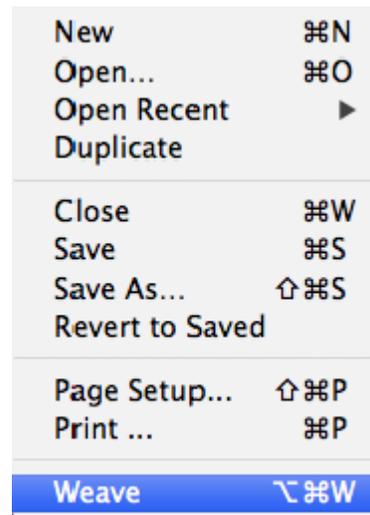
© 2018, Fiberworks

Weaving Window Layout:

The weaving window shows your design in two parallel panes.
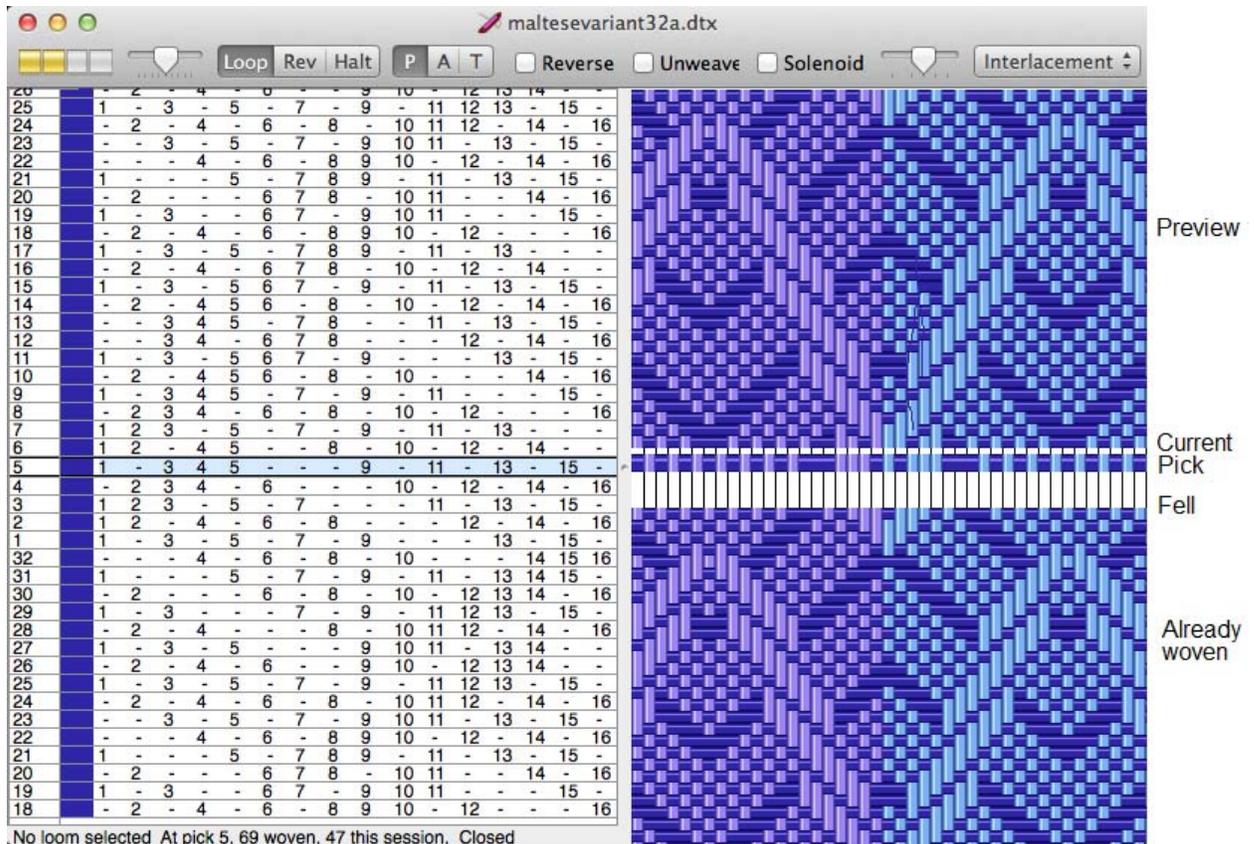
The **left pane** shows the **lag chain**. Each row represents one pick, and lists the shafts that will be lifted. **Pick number** is in the leftmost column, and next to that is a column that shows the **color** for that pick as determined by your weaving draft. The remainder of each line shows the shafts to be lifted at each pick. The current pick is highlit in light blue, and is always located halfway up the window. With the shed closed, the current pick will be the **next pick** to be woven. With the shed open, it represents the shafts currently lifted.

Below the lag chain a line of text shows the current status, identifying the loom, the current pick number, a count of total woven and woven this session, and the shed state.

The pane on the right is a view of the woven sample, shown here in an **interlacement** view of the cloth. This section can be displayed as Warp or Weft Drawdown, Color Drawdown, Interlacement, Rep View or Weft-Faced View (p.18). The current pick is shown at mid level, dividing the display into upper and lower halves. The lower half shows cloth already woven, and will be blank if you have not woven anything yet. The upper shows a preview of what you are about to weave.

The pick order is **always bottom up**, showing the cloth the way you see it as you weave.

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Simulated weaving with No Loom Selected

With No Loom Selected, the spacebar simulates weaving action. One press of the spacebar changes the shed status from **Closed** to **Open**. The cloth view on the right indicates this by showing the current pick dropping down onto the fell. On a real loom, you would now throw the shuttle.
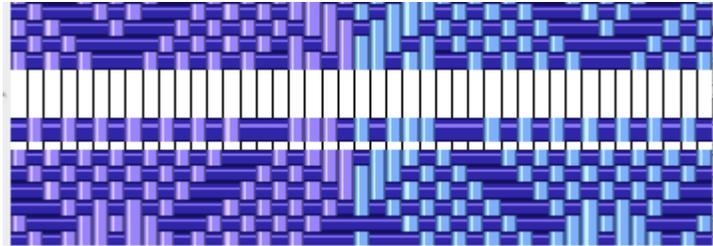
Press spacebar again; the second press changes the shed status to back to **Closed**. This will cause the pattern to scroll down the screen, and the next row in the preview section becomes the new current pick. The current pick always remains in the same position, and the pattern scrolls down the screen as you weave.

Changing the Size of the Weaving Window Panes

The relative size of the two panes in the weaving window can be easily changed using the mouse. Rest the mouse cursor on the bar dividing the two sections. The cursor will change into a double headed arrow when you are on the boundary.
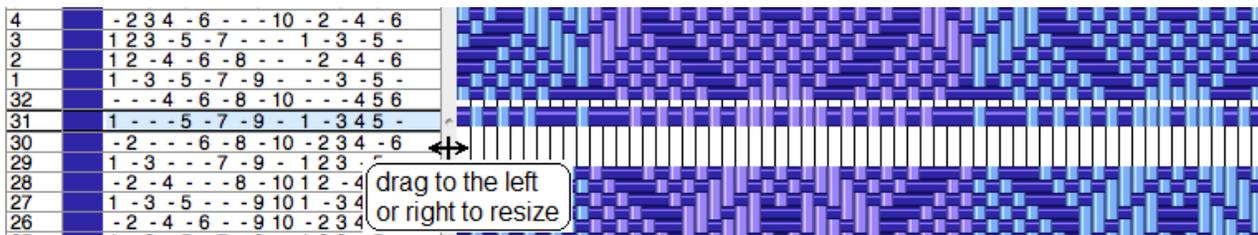
Drag the boundary as needed to resize each panel as desired.

If you decrease the width of the lag chain panel the shaft numbers become more crowded. For extremely narrow pane width and looms with a larger number of shafts, the numbers can no longer be displayed and a simple grid pattern is shown instead.

Liftplan and Lag Chain

The term **Lag** refers to the wooden or metal bars used to select shafts on a mechanical dobby loom. Pegs screwed into the bars determine which shafts are lifted on each pick. The **lag chain** is series of lags linked together in sequence. In Fiberworks, the **lag chain** represents the sequence of picks which determine the weaving. There's a subtle difference from the liftplan: the lag chain may take specific sections of the liftplan (Set a Range, p.17), may repeat or reverse the pick order of the liftplan (p.21); picks from the liftplan can alternate with tabby that was not included in the original liftplan (p.19). Your original design need not even be a liftplan; Fiberworks can construct the lag chain from a conventional tieup and treadling.

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The Weaving Window Toolbar

The standard components include the following:

Loom Status indicator. All gray bars appear when no loom has been selected or no ports can be detected. A **single** bar highlit in **red** indicates that the preferred port can't be found. Check that your USB cable is plugged in to the computer. (See more information on Ports on p.12).

Two bars highlit in **yellow** indicates a satisfactory response from the port, but the loom has not been detected. Check that your USB cable is connected at the loom end and that the loom is switched on.

Three bars highlit in **green** indicate that the loom is responding, but is currently in a resting state. This may be a normal start-up condition for many looms. It's most important that you see the three green bars to confirm that loom and computer are communicating properly.

All **four** bars highlit in **green** mean that a pick pattern has been sent to the loom. If this follows the three green bars, this indicates that the loom is in an active weaving cycle. However, if you click the **Solenoids On** button or press the **Return** key while two yellow bars still show, this can send a pick pattern even though the loom has not responded yet, and it's possible that proper communication has not been established..

Magnification control. One is found above the Lag Chain panel, and another above the Cloth View panel, giving independent control of magnification in each panel (p.15 and p.18).

Repeat Control determines what happens after the last pick of the liftplan. **Loop** returns to the first pick, **Rev** reverses back through the liftplan sequence and **Halt** terminates weaving at chain end (p.18).
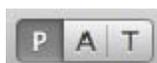
Pattern Control: P selects **Pattern Only**; all lags are taken from the liftplan. **A** selects **AutoTabby**; pattern and tabby are interleaved in a predetermined sequence. **T** selects **Tabby only**. (p.18-19)
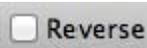
Reverse control sets the direction of progress through the liftplan into reverse (p.21).

Unweave control, when selected, steps back through the sequence already woven allowing you to return to a weaving error to correct it (p.22).
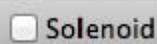
Solenoid control allows you to turn solenoids off so you can take a break.
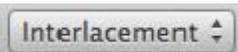
Cloth representation control lets you set the way cloth is displayed in the Cloth View panel (p.18).

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File Menu (weaving window)

New, Open etc

The standard menu items create a New drawdown window or Open a **dtx** or **wif** file in the **drawdown** Window.

Then Choose the Weave menu item in the Drawdown window's File menu (p.6) to open a **weaving** window.

A **new** weaving will start at pick 1. A design that was **woven and saved previously** as a **dtx** file will resume at the last woven pick if the design was saved when you last closed down Fiberworks.

New	⌘N
Open...	⌘O
Open Recent	▶
Duplicate	
Close	⌘W
Save	⌘S
Save As...	⇧⌘S
Revert to Saved	
Page Setup...	⇧⌘P
Print ...	⌘P
Drawdown	⇧⌘W

Close

This closes the weaving window. If the design is also open in a drawdown window, the drawdown window remains open, otherwise you may be prompted to save the file.

Save, Save As

These save the currently active design. If you save as a **dtx** file, the **last pick woven** and **current weaving state** will be **included** in the file, so that you can resume exactly where you left off when you reopen the file. Wif files do **not** include weaving information.
Use **Save As** to change the filename or folder location when you save, so that you do not overwrite the original. For a design originally opened as a **wif** file, you may wish to use Save As to save a **dtx** version of the file so that the current weaving state is recorded.

Note: The program assumes that if you open a shed, you also threw the shuttle, so the last open shed counts as the last pick woven. If you open the shed, and quit without throwing the shuttle, you will be one pick too far ahead when you resume. See Unweave (p.22) and Navigating in the lag chain (p.16) to see how to correct this situation.

Revert toSaved

Revert to saved replaces the current contents of the window with the last saved version.

Print   Print is not available in the Weaving Window

Drawdown   Takes the place of Weave in the regular File menu.

This brings the drawdown window for the design you are currently weaving to the front and activates that window. If the current design is not open as a drawdown window, a new drawdown window is opened. Use this menu item if you need to make major adjustments to the design.
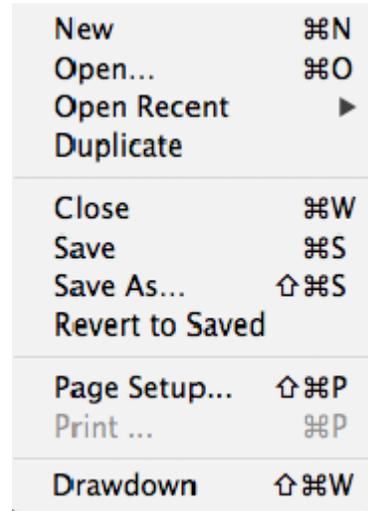
Loom & Ports menu

Use the Loom & Ports menu to select the loom and to setup the port used to connect the loom.

```
Loom Setup
Port Setup
Quick Reconnect    ⌥R
Force Reconnect
```

Before trying to setup the loom, you first need to select the correct port through **Port Setup**. Once the correct port is found, its identity will be recorded in Fiberworks Preferences. Thereafter, Fiberworks will attempt to connect via the identified port.

Finding A Port

Your Mac connects to the loom via a cable with a USB connector at the Mac end. Many looms connect via an older style of port called an RS232 serial port, so an adapter is needed to convert the USB signals to RS232 signals.

There are two possible connections at the loom end:

If the cable plugs into a USB type socket on the loom, the necessary adapter has been built into the loom by the loom manufacturer. We call this an **built-in** USB adapter. If the loom end of your cable has a 9-pin plug, the adapter is in the cable. We call this an **external** USB adapter. Most built-in and external USB adapters may require you to install **driver software** supplied by the manufacturer of the adapter.
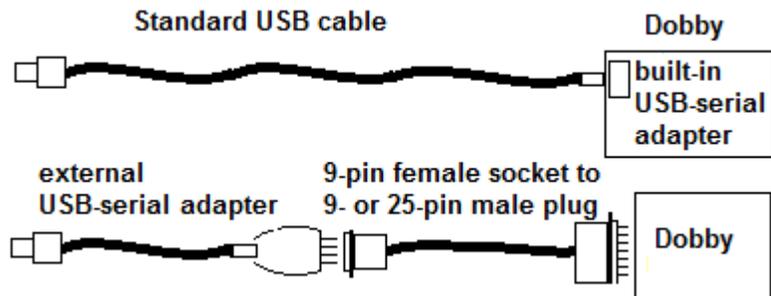
Exception: If the adapter is based on a chip by FTDI, and you have Mac OS X El Capitan or Sierra, the driver is already included in Mac OS X and you do not need to install anything extra. This exception may also apply to Mavericks and Yosemite versions of OS X, but we have not had the opportunity to test. AVL Compu-Dobby IV, 4.5, Little Weaver, Louet dobbies manufactured since 2014 and Toika ES series contain the FTDI chip, as do external adapters by US Converters (models XS880 and XS8801) or Startech (model ICUSB2321F, but not the model without the F suffix).

What is a Port? It's important to understand that the "port" is not the USB socket on the Mac, but the device at the other end of the cable that passes messages to and from the dobby. **It does not matter which USB socket you plug into on the Mac, any socket will access the same port.**

Before you try to connect the loom, it's necessary to go to Port Setup to choose a preferred port. This is because the Mac uses ports for a variety of external devices and one can't blindly proceed with the first port found. In particular, Bluetooth devices use ports that could be confused with the port you need to use to connect to the dobby.

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Port setup

The first time you go into Weave, Use Port Setup to choose your port.

Before choosing Port Setup, disconnect cable to the dobby **at the computer end**. Choose **Port Setup** from the **Loom and Ports** menu. .

1) **Click Exclude:** This step identifies all ports on the Mac that have nothing to do with the loom, and excludes these ports from the search.

2) Reconnect the loom USB cable to the Mac and switch the dobby on if it has built-in USB. Wait 5 seconds for the Mac to identify the device and then click the **Scan Ports** button.

3) Normally only one port will be found, and you can click **OK** to use this port.

If you use an adapter with multiple 9-pin outlets, more than one port will be listed. In that case, click on one to select it. You may have to resort to trial and error to find the port that brings a response from the loom and lights up the three green bars in the status indicator.

Note: *Keyspan adapters typically identify one more port than there are 9-pin sockets. A Keyspan with one serial 9-pin socket will identify two ports. Both identities represent the same actual port so you can choose either port and it should work.*

Keyspan also make adapters with 2 or 4 serial 9-pin sockets, which show 3 or 5 ports repectively. Choose one, then experiment by plugging the loom into each socket,

If no ports are found after step 2

This may happen if you did not disconnect the loom USB before clicking Exclude. Click Start again, and disconnect when prompted, or if driver software has not been properly installed or is not matched to your version of OS X.
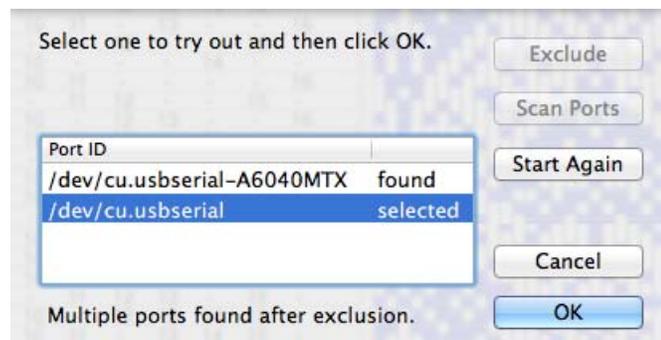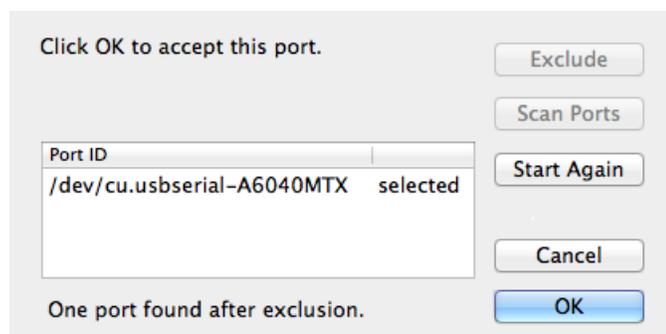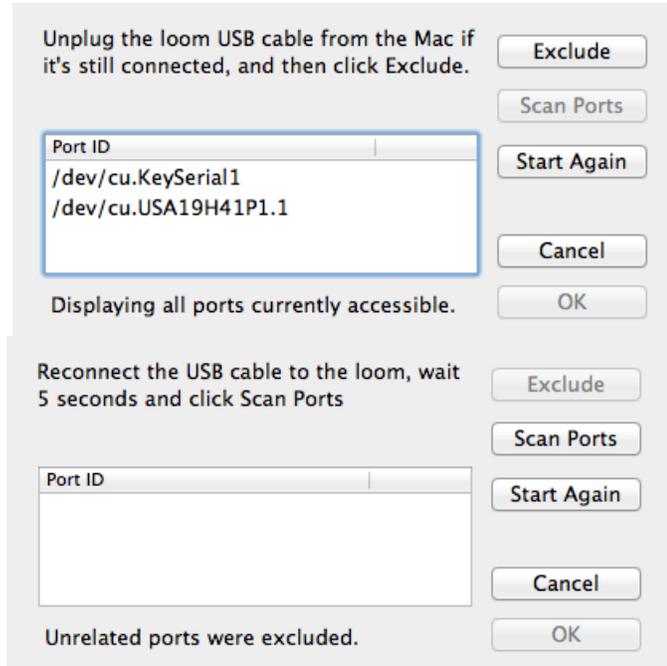
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Loom Setup

Use the menu item **Loom Setup** to select and configure the loom connected to your computer. The looms supported are listed below.

When you have selected your loom, you will need to set the maximum number of shafts for the loom. Then close the dialog sheet.

The Mac will then attempt to set up the port to contact the loom. The **Loom Status** indicator on the toolbar shows you if this is successful.

One red bar means no port found:

1) Is your USB cable plugged in to the Mac? If the dobby has built-in USB, is it connected and switched on?

2) If you are just starting, ensure that the adapter driver software supplied by the manufacturer is installed (see p.14). If this driver software is not installed, or if the driver does not match your OS X version, the port won't be detected.

3) Are you sure that this adapter is compatible with your Mac and its version of OS X? Check the USB adapter manufacturer's website for an updated driver.

**Two amber bars** means that the port has opened properly but the loom has not responded yet.

1) Is the cable connected to the loom?
2) It's possible that the port detected is not the correct port to connect to the loom (p.12).
3) Is the loom switched on? Some looms provide power to the USB device.
4) Have you selected the right loom?
5) Some looms require a certain action before they will respond e.g. Toika (see p.40).

Three green bars means the loom has responded and is awaiting further action from you to start an active weaving cycle. See the sections on the individual looms, (pp.26-43) for how to make the loom fully active.

Some looms have a lengthy self test after being switched on, and may not respond for up to 60 seconds.

If the loom is connected and switched on and the right port has been selected, but the indicator is stuck on two yellow, try Quick Reconnect or Force Reconnect in the Loom and Ports menu.

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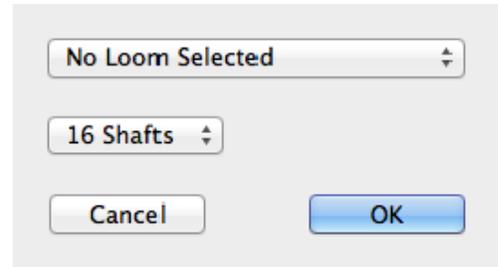
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After the port and loom have been selected.

If the Mac can't find the designated port when you start a new weaving session, a prompt will appear giving you three options:

If you just forgot to connect and turn on the loom, do so now and then click **Retry**.

If you have changed looms and now use a different connection, click **Port Setup**.
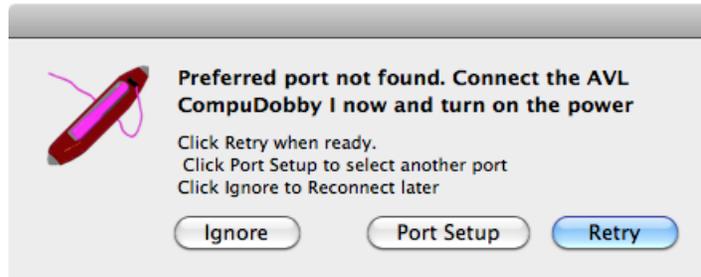
Click **Ignore** to bypass the prompt.
When you finally do connect up, go to the Loom and Ports menu and click Quick **Reconnect** or **Force Reconnect**.

Quick Reconnect, Force Reconnect

These menu items let you re-establish a connection if the cable is accidentally unplugged, or if the loom suddenly does not appear to be receiving pick instructions. After selecting Reconnect, the red indicator will appear for about 3-5 seconds, and then should progress though yellow to green as for a normal start-up.

If you are changing between looms and they use different adapters, you should click the Force Reconnect menu item.

If the loom suddenly stops responding in the middle of a session, and the fault lies in the driver rather than in Fiberworks, the only way to recover is to restart the Mac so that the driver gets reloaded.

Installing USB-serial adapter driver software

Fiberworks relies on Mac OS X to communicate with the USB adapter that connects the loom. If OS X can't see the adapter, neither can Fiberworks. You need to install driver software provided by the adapter's manufacturer so that OS X can detect the adapter.

It's generally best to download the driver from the adapter manufacturer's website. If a CD was supplied with the adapter and is compatible with your version of OS X, you may install from the CD, but new releases of OS X may render the CD out of date.

FTDI Adapters: built-in to AVL Compu-Dobby IV, Little Weaver, Louet products 2014 and later, Toika ES series, and also found in external adapters from US Connectors or Startech. Download the **VCP** driver, not the D2XX version. **Do not install D2XXhelper.**

The driver is only needed for older versions of OS X 10.5-10.8
http://www.ftdichip.com/drivers/VCP/MacOSX/FTDIUSBSerialDriver_v2_2_18.dmg

Silabs: built-in to Louet products 2004-2013 and newer Leclerc products.

http://www.silabs.com/Support%20Documents/Software/Mac_OSX_VCP_Driver.zip

Keyspan: In-cable (external) adapters with 1, 2 or 4 RS232 9-pin sockets

https://www.tripplite.com/support/model/mid/USA-19HS

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Prolific Technologies: manufactures generic and store brand (e.g. Staples) in-cable or external adapters.

For OS X 10.5-10.8
http://www.prolific.com.tw/UserFiles/files/PL2303_MacOSX_v1_5_1_20160309.zip

For OS X 10.9-10.11
http://www.prolific.com.tw/UserFiles/files/PL2303_MacOSX_1_6_1_20160309.zip

Note: *AVL Compu-Dobby I may not respond to a Prolific USB adapter.*
*Drivers for **Belkin** adapters are not available for current Macs.*

Unplug the adapter before you start to install the driver. After installing the driver, you will need to **quit all programs and restart the Mac**.
Plug in the adapter.

To check that the adapter driver software has installed correctly, click on the **Apple** menu; choose **About this Mac**, then click **System Report** to see that your USB device appears.

Scroll down to the **Software** section and choose **Extensions**. It takes the Mac about a minute to

fill the list. Find the brand name of your adapter to see that the driver a) is in the list, b) is **loadable**, and c) is **loaded** when the adapter is connected.

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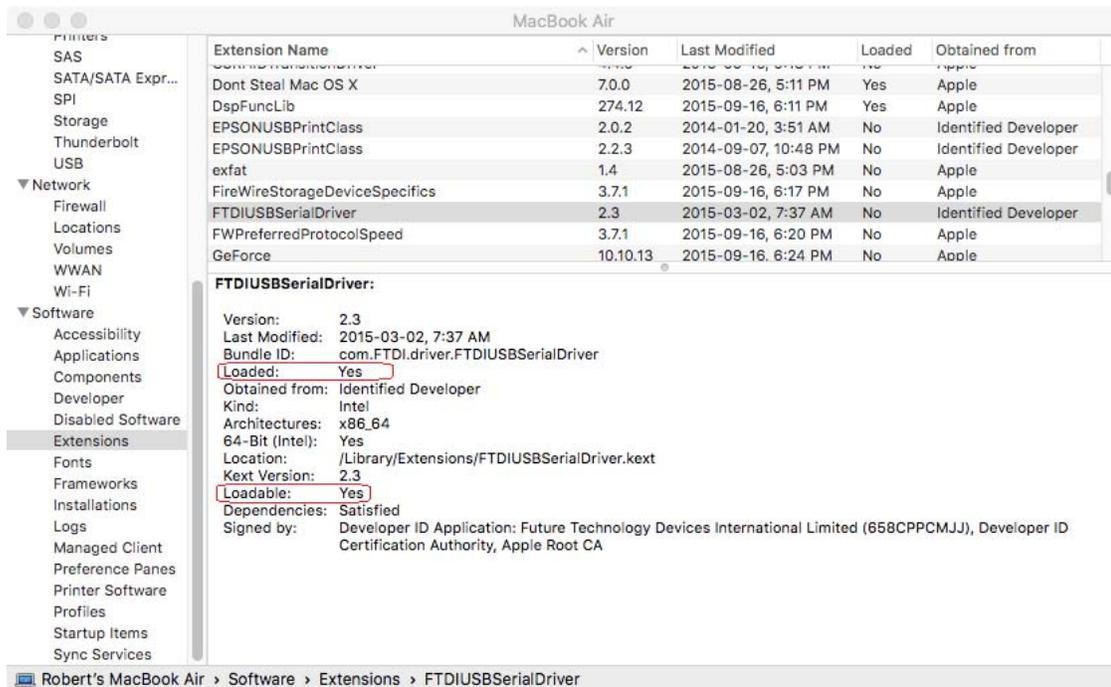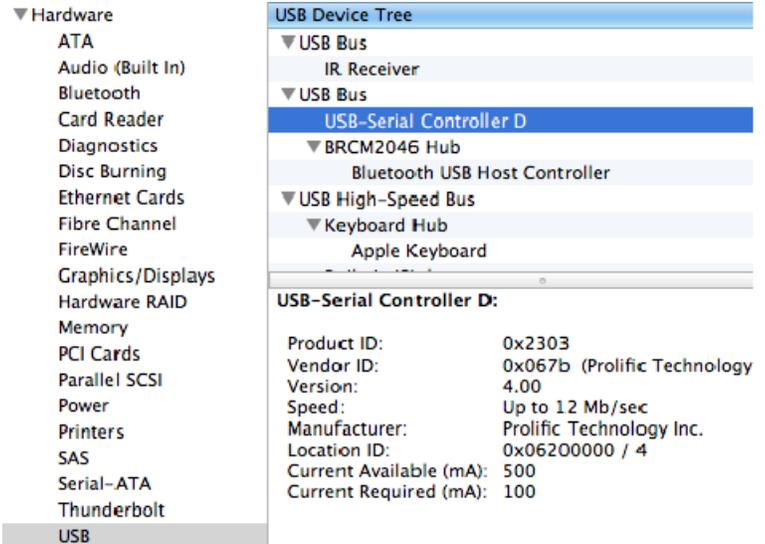
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Lag Chain Menu

Items in the Lag chain menu control the **appearance** of the Lag Chain pane on the left side of the weaving window.

Make Lags Larger	⌥⌘ +
Make Lags Smaller	⌥⌘ –
Numbered Lags	
Black & White Grid	
Color-Coded Grid	
Place Shaft 1 at Front	
Place Shaft 1 at Back	
Go To ...	⌘G
Reset Chain ...	⌥⌘R
Set Beeps ...	

Make Lags Larger shortcut: **Alt Cmd +** **Make Lags Smaller** shortcut: **Alt Cmd -**

These items control the **font size** of shaft numbers in the lag chain over a range 8 point to maximum 20 point. The font size is also linked to the Magnification slider in the toolbar above the lag chain.

If you have a 40 shaft loom, you may not be able to see all shafts at the larger font sizes. The slider scale also has positions equivalent to 6 point and 4 point. These do not show text, and substitute one of the grid views instead.

Numbered Lags, Black & White Grid, Color-Coded Grid

These let you choose one of three alternative modes for displaying the lag chain:

Numbered text format, which is the normal choice, or if you have too many shafts to share the screen with the cloth view, as a simple **grid**. The grid may be **black & white** or **color coded**:

Color	Shafts
Black	1, 9, 17, 25, 33
Red	2, 10, 18, 26, 34
Orange	3, 11, 19, 27, 35
Tan	4, 12, 20, 28, 36
Green	5, 13, 21, 29, 37
Cyan	6, 14, 22, 30, 38
Blue	7, 15, 23, 31, 39
Magenta	8, 16, 24, 32, 40.

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Place shaft 1 at front, Place shaft 1 at back

These options let you choose the conventional threading with Shaft 1 closest to the weaver, or Scandinavian threading with Shaft 1 furthest from the weaver. Choose the option that matches the way you actually thread your loom.

Go To ... Cmd+G

This option gives you a quick way to navigate to a different part of the lag chain. Use the slider as a coarse control and the stepper as a fine control, or type in the lag number in the text box. You can also navigate through the lag chain with the cursor arrow keys.

Go to Lag Number	22
Cancel	Revert	Go to

Navigating through the chain by keyboard

The **Up arrow** key ↑ advances the **Preview** portion of the lag chain. The **Down arrow** key ↓ lets you back up to an earlier part of the chain.

Cmd+Up arrow jumps to the end of the chain. **Cmd+Down arrow** jumps to the beginning of the chain.

The blue bar marks the **current pick**. The **woven** portion below the blue bar won't move when you navigate - what's already woven is woven and won't change just because you move to a new part of the lag chain.

start   up arrow twice   down arrow x 5

If the shed is still closed, the **current pick** is considered to be part of the preview. Once the shed is open, the shaft selection can't change so the current pick becomes part of the woven record, so won't move. For most looms, it's recommended to navigate and make adjustments when shed is closed. The Arm is an exception

If you open and close a shed without throwing the shuttle, the pattern advances because the computer can't tell that no weft was inserted. You can use the down arrow key to back up to the missed pick.

There are two special actions when the Sequence is set for AutoTabby (see p.19-20):

Shift+Up or down arrows step through the pattern sequence only, leaving tabby static.

Option+Up or down arrows step through the tabby sequence only leaving the pattern static

Reset Chain   Option+Cmd+R

Reset chain carries out three actions:

1) Sets the current pick to pick 1**.**

2) Clears the history of what was previously woven and sets the count of picks woven to zero.

3) Sets the weaving range to start on the first pick and end on the last pick of your design. If you have inserted extra picks, deleted picks, or added extra to the end of your treadling in the Drawdown window after you started weaving, it may be necessary to do **Reset Chain** so that the weaving Window will recognized the changes. You can also adjust for inserted or deleted picks by using the **Clear Range End Mark** menu item (see below).

Set Beeps   not implemented in this version.

Setting a Range of Picks to Weave

It is easy to **weave a selected portion** of the entire treadling sequence.

1) Navigate so the **beginning** of the treadling range that you wish to weave is on the screen.

2) Position the mouse cursor on the pick that you wish to **start** on, and **right click** or **Control click** to pop-up a menu. The selected pick will be highlit in pink. From the menu, choose **Mark Start of Range**.

3) Navigate so the end of the range you wish to weave is on the screen.

4) Position the mouse cursor on the **last** pick you wish to include, and **right click** or Control click to pop-up a menu. The selected pick will be highlit in pink. From the menu, choose **Mark End of Range**.

Weaving will now be **limited to the range you have just selected**, until you either choose **Reset Chain** from the Lag Chain menu, or right click or Control-click anywhere in the lag chain, and choose **Clear Range Start Mark**. The repeat the process to choose **Clear Range End Mark**.

You may also use **Clear Range End Mark** to update the weaving window if you have done some editing that inserted or deleted picks in the drawdown window. This will have less drastic effects than **Reset Chain** (see above)

Cloth View Menu

The **Cloth View** menu controls the appearance of the cloth view in the right hand pane of the Weaving Window The first six options control how cloth is displayed and are comparable to similar options in the regular drawdown window.

Warp Drawdown	⌘1
Weft Drawdown	⌘2
Color Drawdown	⌘3
Interlacement	^⌘I
Rep/Warp-Faced	^⌘R
Weft-Faced	^⌘W
Make Larger	⌘+
Make Smaller	⌘–
Show Front	⌥⌘F
Show Back	⌥⌘B
Flip Warp	
Change Face	
Customize Toolbar...	

Their action is duplicated by the Toolbar Drop-Down list.

Bound Weave and Double Weave are absent because they are to complex to display while working with a loom.

Make Larger   **Cmd +**

Make Smaller **Cmd –**

These two items control the magnification of the cloth view, and act similarly to the corresponding items in the Drawdown window. A second slider control of the right side of the toolbar also adjusts magnification in the cloth view.

Show Front, Show Back

These items let you view the two sides of the cloth sample in the right hand pane.

Flip Warp

This menu item lets you set **left to right** or **right to left** threading order for the cloth view. It's up to you to ensure that the threading on the loom and the display match. Depending on the draft layout you choose in the drawdown Window, the default presentation of the threading may end up reversed left for right, and this lets you display the correct view.

Change Face

This menu item lets you weave your sample from the opposite face. One reason to do this may be if you have unbalanced lifts: you can choose to weave from the side that gives the lighter lifting effort.

Customize Toolbar

This menu item lets you choose which tools you wish to include for easy access in the toolbar.

Navigating in the Cloth View

Left and **right** arrow keys shift the portion of the threading that is used to draw the cloth panels in the upper part of the weaving window. This does not affect the lag chain or anything that you weave, just what you see in the cloth panels.

Sequence Menu

This menu controls how the sequence of lags in the lag chain is constructed and other factors affecting events while weaving.

Endless Loop

Autoreverse   toolbar
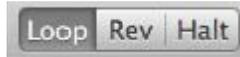
Halt at End

These three menu items determine what happens when you reach the **end** of your liftplan. One member of the three is always selected, indicated by a **check mark** in the menu and a **pressed in look** to the selected button.

The default is to make an **endless loop**. The last pick in your liftplan is followed by the first pick and the entire liftplan sequence repeats without limit. Watch out for liftplans that have top to bottom **symmetry**: if the last pick is **identical** to the first pick, there will be a pair of identical picks at the transition point. Either **delete** the identical last pick, or see **Setting a Range** (p.17) for another way to deal with this.

Autoreverse means that when you reach the last pick in the liftplan, the direction of weaving **reverses**, and you work backwards through the chain. When you reach the **first** pick of the lift plan, the direction of progress reverts to forwards again.
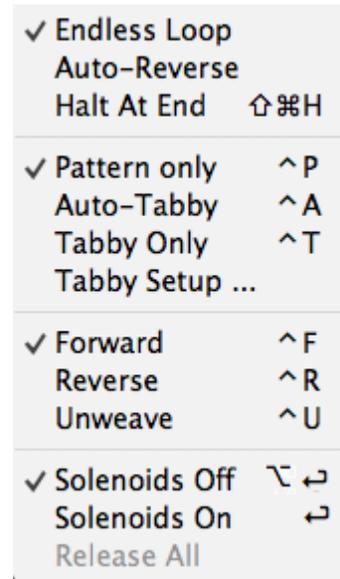
endless loop ▼				
2:	1	2	-	4
1:	1	-	3	-
111:	-	2	-	4
110:	1	-	3	-
109:	-	2	-	4

autoreverse ▼				
109:	-	2	-	4
110:	1	-	3	-
111:	-	2	-	4
110:	1	-	3	-
109:	-	2	-	4

halt at end ▼				
M:	-	-	-	-
M:	-	-	-	-
111:	-	2	-	4
110:	1	-	3	-
109:	-	2	-	4

Halt at end puts blank picks after the last pick in your liftplan. Weaving will halt when you reach the end of the chain.

Pattern Only   keyboard   **Ctrl+P**

Autotabby   keyboard   **Ctrl+A**   toolbar
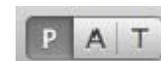
Tabby only   keyboard   **Ctrl+T**

These three menu items determine the tabby content of your lag chain. One member of the three is always selected, and this is indicated by a check mark placed next to the selected menu item, and a pushed in look to the corresponding toolbar button.

(See p.15 for special keyboard navigation in AutoTabby mode. Shift+up or shift+down arrow changes pattern only; Option+up or Option+down arrow changes tabby only.)

In **Pattern only** mode, every pick in the lag chain comes from successive picks in the liftplan, with no tabby (unless there was tabby in the original liftplan).

In **Autotabby mode**, tabby picks **alternate** with pattern picks taken from the liftplan. Tabby picks are marked **A:** and **B:**.

If you have already included tabby in the original liftplan, **autotabby will add tabby again**, and you will get a doubled-up tabby in the weaving. Switching back to Pattern Only will remove the automatically generated tabby, but not tabby that was included in the original liftplan or treadling. To remove tabby from the original liftplan or treadling use **Treadling > Remove Tabby** in the Drawdown window, and then do Clear Range End mark (p.17).

In **Tabby only** mode, only tabby picks are woven.

pattern only ▼

15:	1	-	3	-	5	6	7	-
14:	-	2	-	4	5	6	-	8
13:	-	-	3	4	5	-	7	8
12:	-	-	3	4	-	6	7	8
11:	1	-	3	-	5	6	7	-
10:	-	2	-	4	5	6	-	8

autotabby ▼

| 13: | - | - | 3 | 4 | 5 | - | 7 | 8 |
A:	1	-	3	-	5	-	7	-
12:	-	-	3	4	-	6	7	8
B:	-	2	-	4	-	6	-	8
11:	1	-	3	-	5	6	7	-
A:	1	-	3	-	5	-	7	-

tabby only ▼

B:	-	2	-	4	-	6	-	8
A:	1	-	3	-	5	-	7	-
B:	-	2	-	4	-	6	-	8
A:	1	-	3	-	5	-	7	-
B:	-	2	-	4	-	6	-	8
A:	1	-	3	-	5	-	7	-

Tabby Setup
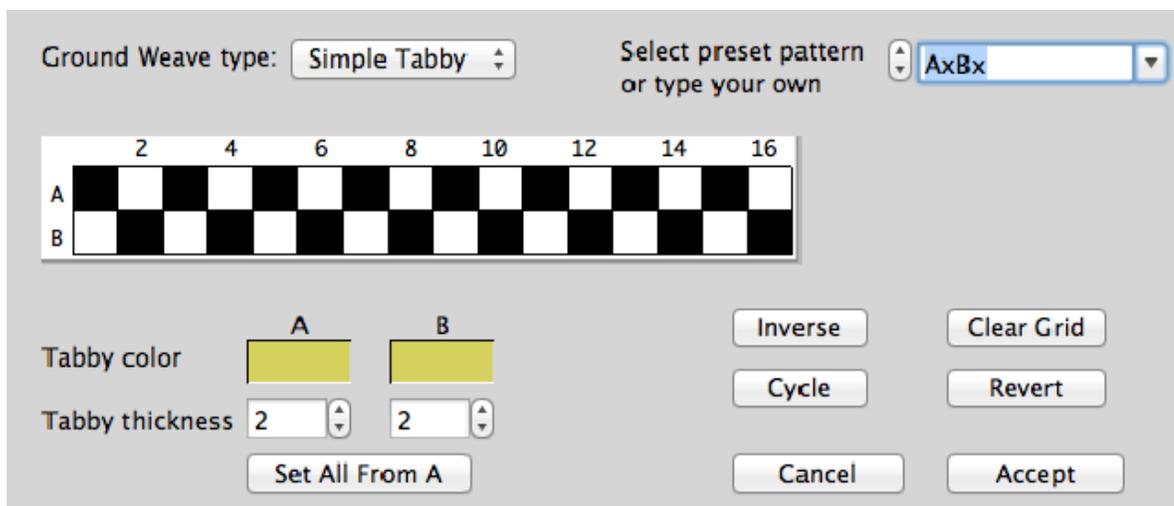
This menu item and panel gives you control over the **tabby** or ground weave structure inserted by Autotabby or Tabby Only, and also allows for more complex ground weave structures than simple plain weave.

For simple tabby, the grid contains two tabby picks, derived by analyzing your threading. Edit the tabby grid as you please by clicking grid squares with the mouse. Double click or Option-click to erase.

At top right there's a box to select how tabby interleaves with pattern. You can choose one of the presets or type your own sequence. **A** and **B** represent tabby picks and **x** represents a pattern pick. The stepper control cycles the selected sequence, AxBx, xAxB, BxAx, xBxA etc.

AxBx
ABx
ABxx
ABxxxx
AxxBxx
AxxxBxxx
AxxxxBxxxx
AxABxB
AxBxBxAx

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You may also choose ground weaves based on **3-shaft** or **4-shaft twill**. The grid will expand to three or four picks deep depending on your selection.

Ground Weave type:	Simple Tabby
	3 Shaft Twill
Twill reverses whe ✓	4 Shaft Twill

	2	4	6	8	10	12	14	16
A								
B								
C								
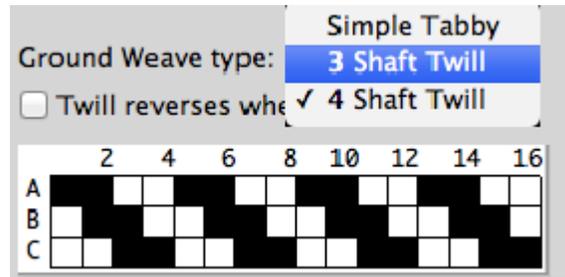
Underneath the tabby grid there are **color boxes** for the tabby thread color. 3-shaft or 4-shaft twill ground weaves show 3 or 4 color boxes respectively. Drag a color from the color palette and drop it into each color box. There are also settings for the relative thickness of the tabby threads. The default thread is 4 units thick, so selecting the value **2** sets tabby to use half-width threads. In many cases, tabby or ground weave uses the same color and thickness throughout. **Set All from A** repeats the color and thickness for A in the remaining boxes.

If pick A is filled and pick B is empty, the **Inverse** button fills B with the inverse of A. If both A and B are filled, Inverse makes A and B trade places.

The **Cycle** button is mostly used with 3- or 4-shaft twill ground weaves. If pick A is filled with a pattern, and B and C picks are empty, Cycle will take the pattern in pick A, shift it one shaft higher and set it in B, shift it another shaft higher and set it in C and so on. If all picks are filled Cycle cycles the existing patterns, so A replaces B, B replaces C and C replaces A. On simple tabby, Cycle and Inverse do the same thing.

Forward Ctrl+F   Reverse Ctrl+R
toolbar

☐ Reverse

Forward and Reverse control the direction in which the lag chain progresses. If you select **Reverse**, the pick sequence **above** the current pick progresses in descending order. Nothing changes below the current pick, because the lower section represent a record of what has already been woven.

reverse when shed is open

4:	-	2	3	4	-	6
5:	1	-	3	4	5	-
6:	1	2	-	4	5	-
7:	-	2	3	-	5	-
8:	-	2	3	4	-	6
9:	1	-	3	4	5	-
*10:	-	2	-	4	5	6
9:	1	-	3	4	5	-
8:	-	2	3	4	-	6
7:	-	2	3	-	5	-
6:	1	2	-	4	5	-

When to click the Reverse Button:

Weave up to and including the **turning point** (red asterisk at pick 10 on the right), and click the reverse button or type the shortcut. If the shed is still open, the turning point will be the current pick (pick 10).

If you have already closed the shed on pick 10 when you select **Reverse**, the turning point will be at the fell (lower right). For some looms , e.g. Louet, the screen display goes straight to the closed shed state even though the shed may still be open on the loom.

reverse when shed is closed

3:	-	2	3	-	5	-
4:	-	2	3	4	-	6
5:	1	-	3	4	5	-
6:	1	2	-	4	5	-
7:	-	2	3	-	5	-
8:	-	2	3	4	-	6
9:	1	-	3	4	5	-
*10:	-	2	-	4	5	6
9:	1	-	3	4	5	-
8:	-	2	3	4	-	6
7:	-	2	3	-	5	-

In either case, the next pick to weave will be pick 9 instead of pick 10.
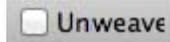
Unweave
Ctrl+U

Select this menu item, or type **Ctrl+U**, or click its toolbar button to **unweave** by working **back** through the lag chain's history of what has been woven already. **Unweave** lets you **correct an error in a previous pick**. Click the Unweave button again to uncheck it, or select Forward Ctrl+F or Reverse Ctrl+R to revert to normal Weaving.

How Unweave differs from Reverse

If you select **Unweave** after weaving pick 59, the current pick will be pick 59 again so you can remove the weft

If you select **Reverse** after weaving pick 59, the current pick will be pick 58. The turning point of the pattern is not repeated.

After you remove weft 59 and close the shed in **Unweave** mode, the current pick backtracks through the record of picks previously woven. This lets you remove successive wefts until you reach the error. The preview section does not change direction.

In **Reverse** mode, the **already woven** section will continue to accumulate picks, and the preview section runs in descending order of picks. Compare the illustration on this page with p.21.

pick 59 has just been woven;
pick 60 should be next

	1	2	3	4	5	6
64:	-	-	3	4	-	6
63:	-	-	3	4	5	-
62:	-	2	-	4	5	6
61:	1	-	3	-	5	6
60:	-	2	-	4	-	6
59:	1	-	3	-	5	-
58:	-	2	-	4	-	6
57:	1	-	3	-	-	6
56:	-	2	-	-	-	6

a mistake is detected;
select unweave

next shed will re-open
pick 59 so weft can be
removed

	1	2	3	4	5	6
64:	-	-	3	4	-	6
63:	-	-	3	4	5	-
62:	-	2	-	4	5	6
61:	1	-	3	-	5	6
60:	-	2	-	4	-	6
59:	1	-	3	-	5	-
58:	-	2	-	4	-	6
57:	1	-	3	-	-	6
56:	-	2	-	-	-	6

close pick 59;
the current pick
backtracks down the
already woven section

next shed to open is
pick 58

	1	2	3	4	5	6
64:	-	-	3	4	-	6
63:	-	-	3	4	5	-
62:	-	2	-	4	5	6
61:	1	-	3	-	5	6
60:	-	2	-	4	-	6
59:	1	-	3	-	5	-
58:	-	2	-	4	-	6
57:	1	-	3	-	-	6
56:	-	2	-	-	-	6

Solenoids on   keyboard: **Enter**   toolbar
Solenoids off   keyboard: **Option Enter**
Release All   (AVL CD III only)
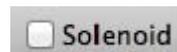
Select **Solenoids off** to turn power off to the solenoids while leaving the dobby powered up. Use this option whenever you are taking more than a couple of minutes break to avoid any risk of overheating. For most looms, you can also use this option when you want to lift nothing, e.g. for loom maintenance.

Select **Solenoids On** to activate the current pick and start or resume weaving.

Use **Solenoid Power Off** on the **AVL Compu-Dobby III** to rest the solenoids as described above. However with solenoids **off**, the Compu-Dobby III **lifts all shafts**. For the Compu-Dobby III, the additional menu item **Release All** releases all shafts by **sending power to all solenoids**. Use this menu item **sparingly** to avoid overheating and don't leave it on for more than a few minutes.

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Diagnostic Menu

This menu allows you to check aspects of your loom's function, in particular, communication with the loom. Not all looms use all of the functions in this menu, and specific details for each type of loom are given in the Looms section.

Response Test
Treadle Sensor Test ...
Solenoid Test ...
Button Test ...
Alignment
Dobby Self Test
View Port Log ...
Set Logging On
✓ Turn Logging Off

Response Test

This menu item tests **two way communications**. The computer sends a query, and the loom sends a response. If the response is detected, you will get the message

The status indicator at the left end of the toolbar will show 3 or 4 **green steps**.

If this test fails, the status indicator will show one red or two amber steps. **One red** means that the communications port is not responding. **Two amber steps** mean that the port appears to be OK, but the loom is not responding.

AVL CompuDobby I is responding OK!

Click OK to resume weaving.

OK

Treadle Sensor Test

This test detects signals sent by the loom when the treadle is moved up and down. Run this test if the **pattern does not advance** when you treadle the loom.

- Arm Up / Shed Closed
- Arm Down / Shed Open
- Test Passed
- Test Failed
- ☐ Invert the Sensors
- Close

Treadle the loom until either Test Passed or Test Failed light up.

For AVL looms, this is a test of communication **from loom to computer**. Some other looms, e.g. Louet, use two way communication for the sensor test. On the Louet, work the treadles methodically rather than abruptly to ensure that the Arm Down sensor is detected.

Correcting inverted sensors

If the sensors that detect the shed state have been installed in the wrong positions, it is possible that Arm Up will show when the arm is actually down and Arm Down will show when the arm is actually up. If this is the case, click the button labelled **Invert the Sensors** and repeat the sensor test. The arm position should now show correctly. This button only appears for certain looms.

Resume weaving the same way you normally start up; either push the treadle or click the Solenoids button **On** or press the Enter key after the Sensor Test panel disappears.
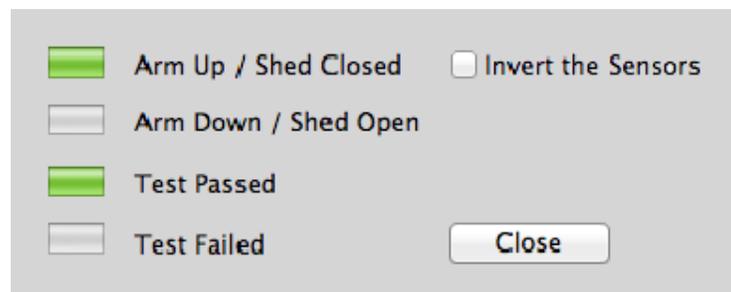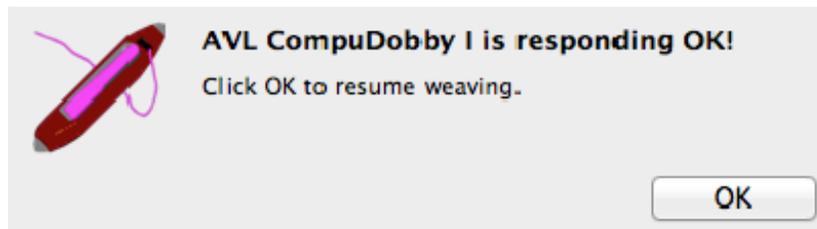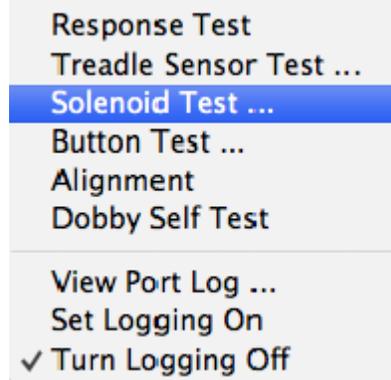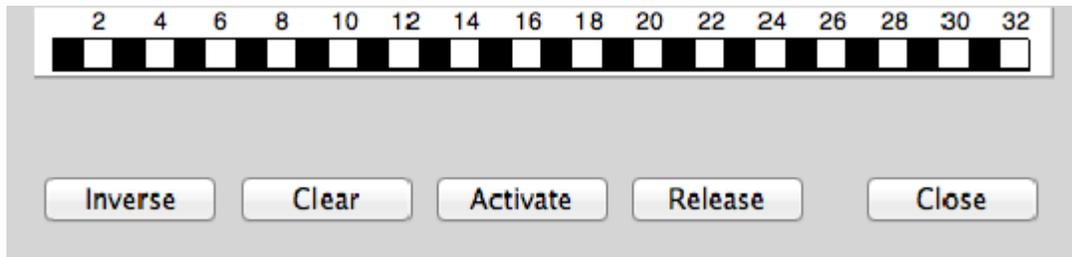
Solenoid Test

This tests communication from **computer to loom** and checks that solenoids respond properly. The pattern should start marked for all odd-numbered solenoids. Click **Activate** to send the pattern to the loom and check that they respond. On some looms, you may need to treadle the loom to see the solenoid pattern. Click **Release** when satisfied.

The Inverse button will invert the pattern to set all the even shafts, or you can click the Clear button, and than click in your own pattern to test the action on particular shafts. Double-click individual squares in the grid to turn them off again.

Click Solenoids off when you are done. Don't leave solenoids on for more than a couple of minutes at a time.

Resume weaving the same way you normally start up; either push the treadle or click the toolbar Solenoids button **On** or press the Enter key after the Solenoid Test panel disappears.

Button Test, Alignment

These items are only valid for AVL Compu-Dobby I and II. See the AVL section, p.28-29.

Dobby Self Test

This menu item triggers the dobby to start its self test. Each solenoid will click in turn. The AVL Compu-Dobbies will stop after one round of clicks. Other looms may require you to cancel the self test.

End self test for Macomber/Dobbytron.

Click OK to resume weaving.

OK

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View Port Log

This menu item displays a record of the messages sent between computer and loom, and is a useful way to identify the source of any problems. To **record messages**, first choose **Set Logging On**. Then proceed with normal weaving actions, and the log will be created. Choose View Port Log to see the recorded messages.

The panel will update itself everytime a message is sent, so you can watch the log respond to treadling action.

Each message from computer to loom starts a line with "**sent=**".

Each message from loom to computer starts a line with "**recv=**".

Some looms communicate in human readable messages, others use binary codes. The example at right is for AVL Compu-Dobby, which uses binary.

```
            Communications Log

recv=62 3
recv=61 3
sent=15 25 31 45 50 60 7f
recv=62 3
sent=1b 2a 38 4a 50 60 7f
recv=61 3
recv=62 3
sent=17 25 34 45 50 60 7f
recv=61 3
recv=62 3
sent=1e 22 3a 4a 50 60 7f
recv=61 3
recv=62 3
sent=1d 21 35 45 50 60 7f
recv=61 3
recv=62 3
sent=1b 29 3a 42 50 60 7f
recv=61 3
recv=62 3
sent=17 25 35 41 50 60 7f
recv=61 3

        Clear          Close
```

61 3 is the normal *shed closed* message for AVL.

62 3 is the normal *shed open* message for AVL.

The **sent=** messages specify **solenoid patterns** for the dobby. This can help determine if a bad shed happens from a problem at the computer end or the dobby end. If the "sent=" message is correct, and the shed is wrong, it's a problem at the dobby end.

Set Logging On

Turn Logging Off

These two menu items control whether messages are being recorded or not. The default state is **Off**, so you need to **Set Logging On** and then **resume weaving** to create a record.

Setting Logging **On** does not create a record from previous actions, so if you view the log immediately after setting logging **On**, the log will still be empty.

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Looms

AVL Compu-Dobby I, II and III series

Power on, Compu-Dobby I, II and III

Power can be switched on for the AVL Compu-Dobby either before or after entering the weaving window. If you open the weaving window while the Compu-Dobby is still off, the status indicator at the left end of the toolbar will show two amber steps. When you switch on, the Compu-Dobby does its self test, and when the solenoids stop clicking, it will identify itself to Fiberworks. You should then see three green steps on the status indicator. If the loom is already on when the weaving window opens, Fiberworks should detect it immediately, and you should see three green steps.

> *Important: On AVL **Compu-Dobby I** and **Compu-Dobby II**, do **not** press any buttons on the control box until the computer has communicated with the loom by sending the first pick to the solenoids, or by doing the Response Test or Solenoid test. If you press a control box button before the computer has communicated with the loom, the Compu-Dobby goes into **Cartridge mode**, and **ignores all further signals from the computer**. To get out of cartridge mode, turn the power off to the Compu-Dobby, wait five seconds, and turn it on again.*

Starting to weave

There are several alternative methods to get the first pick active.

1) Treadle the loom. Solenoids should activate when you first go from the **open shed** or **arm down** position to **closed shed/arm up**. If the arm is down initially, solenoids will activate on the first arm up. If the arm is up initially, push down and then up again. If you have a pattern in the window, you will hear solenoids click, and the status indicator will show 4 green steps.

Or 2) Click the **Solenoids** button in the tool bar.

Or 3) Press the **Enter** key, the shortcut for menu item **Sequence > Solenoids On**.

Method 1 is not recommended for the Compu-Dobby III, if your initial treadle action opens the shed, because with solenoids are still inactive, you have to lift **all** shafts. It will work if the first treadle action raises the arm back up to the shed closed position.

Once started, the computer sends a new shaft selection for every shed-closed shed-open cycle.

Resting

If you leave the loom for any significant period of time, click the **Solenoids** button **Off** or press **Option+Enter** key to **rest** the solenoids and avoid overheating. Use the startup procedure described above or press Enter again to resume weaving.

Navigating the lag chain

It is recommended that you do all adjustments of position or direction of the liftplan in the **shed closed** position. If you change position in the liftplan with cursor arrow keys or by using the Go To Lag menu item (p.16), solenoids will click in rapid succession. Avoid this by turning solenoids Off or while doing major adjustments (click the Solenoids button Off, or press Option+Enter, the shortcut for menu item Solenoids Off. Follow the start up procedures described previously to resume weaving.

Diagnostics

Response test checks communication from computer to loom and back from loom to computer. After the test, the status indicator will revert to three green steps, indicating that the loom is in the resting state. Follow the start up procedure (p.26) to reactivate and resume weaving.
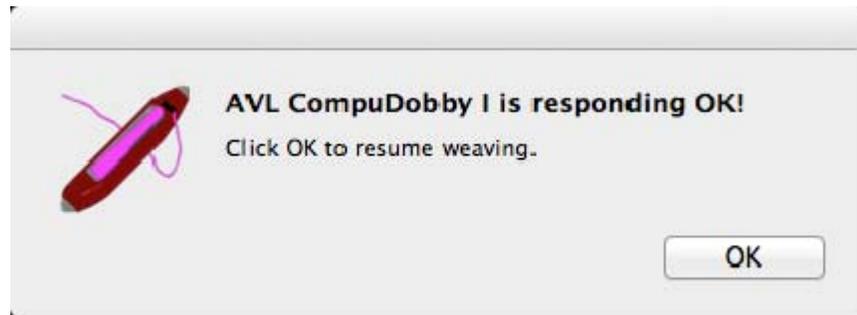
AVL CompuDobby I is responding OK!
Click OK to resume weaving.

OK

Treadle Sensor test (p.23) detects the signals passing in the direction from the Compu-Dobby to the computer, when the arm that picks the shafts reaches its **upper** position (shed fully **closed, release treadle down**) and when it reaches the **lower** position (shed fully **open**, **lifting treadle down**). Normally the lifting treadle is on the right and the release treadle is on the left, but treadles can be connected either way without affecting how the loom performs.

The dialog that appears when you select Treadle Sensor test from the diagnostics menu indicates when these signals are received by lighting upt the green indicators. Push each treadle a few times until the box labelled **test has passed** shows a check mark.

If the test reports **arm up** when it's actually down and **arm down** when it's actually up, click the **switch positions** button to correct this. The loom will seem to function with the wrong orientation, but may occasionally skip a shaft or two because of the bad timing.

Sensor error detected indicates a possible electronics fault. Ignore it if it occurs once in a blue moon, but you may need to consult AVL if errors are detected frequently.

The **Compu-Dobby I** uses **optical sensors** embedded in a plywood square bolted on just below the dobby box. These need steady ambient light to work properly. A bright light directly overhead from the sensors can cause them either to not detect the arm movement, or to detect both positions simultaneously, which triggers the sensor error response. **Extraneous shadows, bright sunlight or reflections passing over the sensors** can also set off spurious signals that mimic arm movement.

Follow the start up procedure (p.26) to reactivate and resume weaving.

Negative dobbies such as the Compu-Dobby III and IV will lift all shafts when the solenoids are released in the Sensor Test. We suggest avoiding the Sensor test and checking the Port Log to verify sensor responses on negative dobby looms.

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Solenoid test (p.24) tests communication from computer to loom. If this test succeeds and the response test does not, it indicates that there's something stopping the computer from receiving signals from the loom, but otherwise the selected port is correct. You can use the Solenoid test to check individual solenoids. Click the **Clear Pattern** button, then set solenoids on one at a time by clicking into the grid pattern. Treadle the loom to see that the selected shaft picks up and releases cleanly.

Button Test checks the response of the AVL button controls. These are found on Compu-Dobby I on a box at the end of an extension cable. On the Compu-Dobby II, they are on the control unit that is mounted in the middle of the loom. The Compu-Dobby III does not have button controls. Button controls are designed primarily to operate the Compu-Dobby with the memory cartridge, but weaving programs can also respond to them. To test, press each button once to light up the green indicators and repeat to turn the indicators off again. Watch out for indicators that flicker on and off as you press the button.

In weaving mode (rather than button test mode) the buttons do the following

1) **Skip** advances the pattern by one pick (similar to the cursor **up arrow** key).

2) **Reverse** switches the liftplan direction of progression (similar to Sequence>Reverse).

3) **Pattern** selects Pattern Only mode (p.19).

4) **Tabby** selects Tabby only mode (p.19).

5) **Save** stores the current weaving position in when using the AVL memory Cartridge. When weaving in Fiberworks, you can choose one of four actions for button 5.

6) **Resume** restarts a weaving session from the memory Cartridge. When weaving from Fiberworks, you can choose one of four actions for button 6.

Since buttons 5 and 6 relate to the Memory Cartridge (not supported on Mac Fiberworks) we allow you to choose your own preferred actions for button 5 and 6.
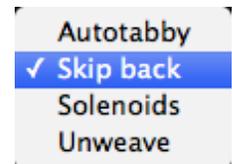
Autotabby selects that sequence mode, **Skip Back** backs up the pattern by one pick, equivalent to cursor **down arrow** key. **Solenoids** turns solenoids On if they are Off, and vice versa. **Unweave** allows you to work back though the most recent weaving to correct an error.

*Note: **If you have chosen a Solenoids option on button 5 or 6**, don't use this button to start a weaving session with Fiberworks before the first pick has been sent to the Compu-Dobby. Doing so will put the Compu-Dobby into Cartridge mode and block communication from the computer (p.26).*
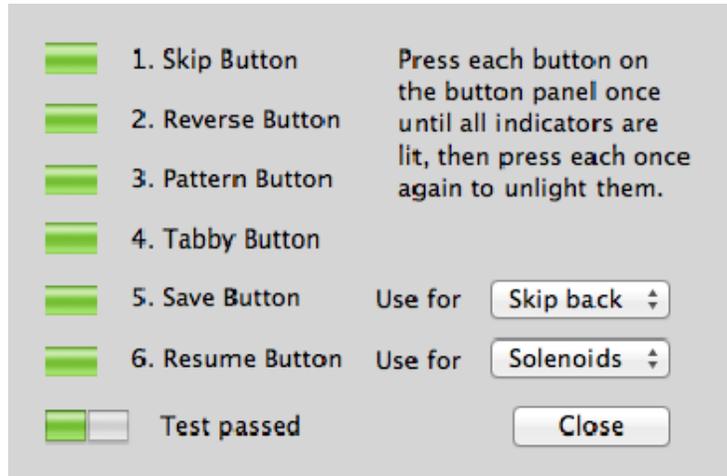
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Alignment (Compu-Dobbies I or II only)

Alignment activates your first and last solenoids (assuming you have selected the right number of shafts in Loom Setup). Use Alignment when you mount the Compu-Dobby I or Compu-Dobby II solenoid box on the loom. Refer to the AVL manual for assembling the Compu-Dobby on the loom for instructions on how to set the alignment correctly.

Alignment should be a two person job. **Your assistant should hold the box in place so it does not crash to the floor**. Loosen the bolts that mount the Compu-Dobby solenoid unit on the side of the loom (on the Compu-Dobby II, not the control unit in the middle of the loom). Position the unit so the extended solenoids displace the shaft wires enough to push them into the slots in the arm mechanism, but not so tight that the "piano keys" resist the extended solenoid tips. Now tighten the bolts. **Check bolts periodically** to ensure that they remain tight so that the Compu-Dobby does not slip out of its brackets.

Follow the start up procedure (p.26) to reactivate and resume weaving.

Dobby Self Test initiates the self test that normally occurs when you switch the CompuDobby on. Each solenoid will click in turn. On the AVL, Self Test ends after one cycle of solenoid clicks. If successful, Fiberworks will display the same Compu-Dobby Responding OK message as is used for the Response test. After a self test, resume weaving as described for the Response test.

Follow the start up procedure (p.26) to reactivate and resume weaving.

View Port Log shows all messages passing between computer and loom. You can see the solenoid pattern that the computer has requested, and compare with what has been lifted. You can also see if the computer is sending messages, but nothing is coming back from the loom.

.


```
○ ○ ○          Communications Log

recv=62 3
recv=61 3
sent=15 25 31 45 50 60 7f
recv=62 3
sent=1b 2a 38 4a 50 60 7f
recv=61 3
recv=62 3
sent=17 25 34 45 50 60 7f
recv=61 3
recv=62 3
sent=1e 22 3a 4a 50 60 7f
recv=61 3
recv=62 3
sent=1d 21 35 45 50 60 7f
recv=61 3
recv=62 3
sent=1b 29 3a 42 50 60 7f
recv=61 3
recv=62 3
sent=17 25 35 41 50 60 7f
recv=61 3

        [ Clear ]          [ Close ]
```
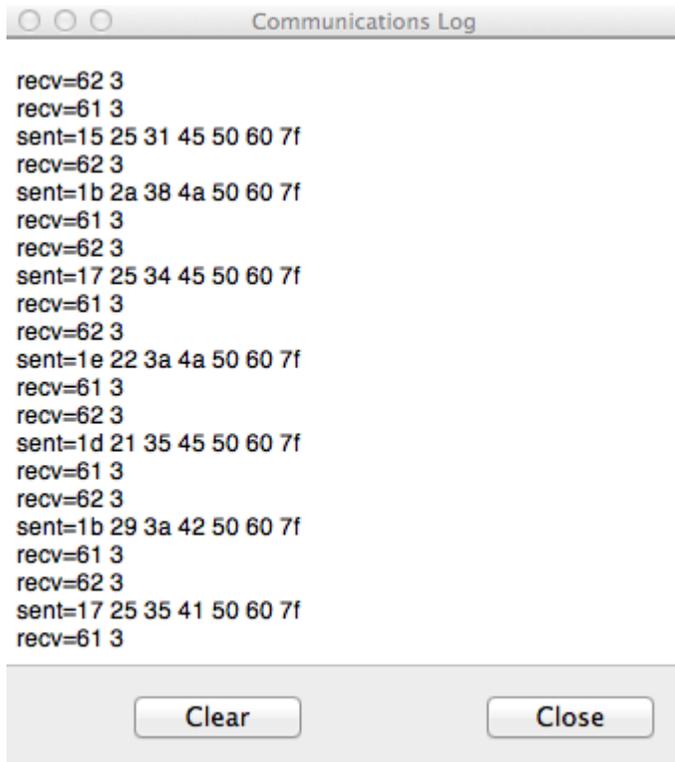
If the Compu-Dobby does not lift all the shafts selected

- Make sure the shaft cables have not slipped off a pulley in the castle

- If you use the air-assist, make sure the piston is adjusted to bring the arm back to the topmost position.

- On the Compu-Dobby III, the solenoid tips have little stirrups to guide the shaft cables. Check to see that cables have not slipped out of the stirrups.

- Check the how the shaft cables line up with the slots in the arm. If you live in a region with large seasonal changes in humidity, the mounting strut (**CD I** and **II**) may shift.
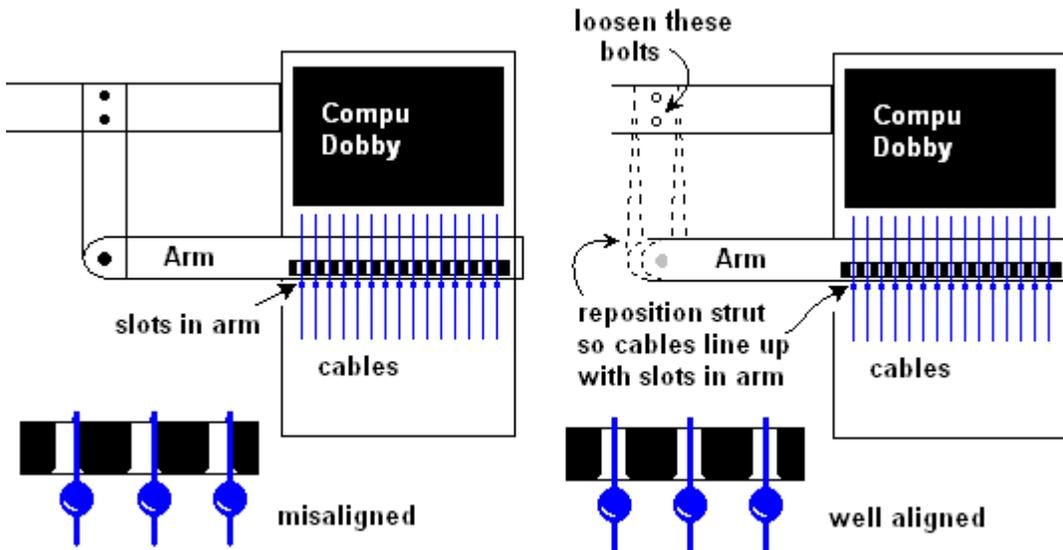
If the Compu-Dobby continues to lift shafts that were selected on the previous pick

- Although it seems that you can close the shed by releasing the lifting treadle and relying on gravity alone, a **distinct push on the release treadle** is needed to ensure that the arm rises to the topmost position so that the shaft cables can slip out of the slots on the arm. If you don't do this, some cables may stick in place.

- If you have set solenoids to activate when shed is closed on the Compu-Dobby III, go to loom setup and set it to activate solenoids when shed is open.

If the treadle needs excessive force to open the shed

- The cable from the lifting treadle should wind around a **snail-shaped cam**. Check that the cable has not slipped off this cam.

- Check the tension on the shaft-balancing springs.

If one of the solenoids does not activate

- Your Compu-Dobby box may need to go on a California vacation. Consult AVL.

Do make sure that lint does not accumulate around the cooling fan and louvres.

Do not ever use lubricant on the solenoids.

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AVL Compu-Dobby IV , 4.5 and Little Weaver

Connection

Use a USB cable to connect from computer to the USB port on the loom. Fiberworks will work with the built in serial adapter in the Compu-Dobby IV, 4.5 or Little Weaver.

Currently Fiberworks does not support the Ethernet connection.

Download the VCP driver from the FTDI website. **Do not install D2XX helper**.

Make sure that you download a driver that matches your Mac OS X version.

For OS X 10.5-10.8
http://www.ftdichip.com/drivers/VCP/MacOSX/FTDIUSBSerialDriver_v2_2_18.dmg

For OS X 10.9-10.11
http://www.ftdichip.com/Drivers/VCP/MacOSX/FTDIUSBSerialDriver_v2_3.dmg

The FTDI driver is included in macOS 10.12 Sierra and it is not necessary to download.

Power on and Starting up

The Compu-Dobby IV or Little weaver may be switched on before or after entering the weaving window. The dobby takes about 30 seconds to perform its self test, so you will not see the three green bars until the self test finishes. If there's no response after a minute, try Quick Reconnect (Loom and Ports menu). Once three green bars show, depress the treadle all the way down and then fully up again (Compu Dobby IV, 4.5), or pull the beater all the way towards you and solenoids should activate for the first pick.

Response test.

After the response test, the pick that was current when you started the response test will be reactivated immediately if the arm is Up, otherwise you should press the treadle all the way down as described above.

The Response test can also be used to re-establish communication with the Compu-Dobby if for some reason the connection is lost.

Treadle Sensor Test

The test itself is similar to the other AVL Compu-dobbies (p. 23 and 27). If the you have the negative dobby version of the Compu-Dobby IV, the sensor test will try to lift all shafts while the solenoids are inactive. Instead of the sensor test, you may wish to use the Port Log (p.25) to verify that arm position messages are being sent by the Compu-Dobby.

Solenoid Test

On the Compu-Dobby IV, **only activate the solenoids in the solenoid test** (p.24) **when the arm is in the Up position or the Little Weaver Beater is forward.** You may need to raise the shed to see that the correct shafts are lifted, but always return to the arm Up position/shed closed position before trying another shaft combination.

After Sensor and Solenoid tests, reactivate the solenoids as described for Start up.

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Louet Magic Dobby, Megado and Octado series

Port:

Dobbies manufactured **2014 or later** use a built in adapter manufactured by **FTDI.**

Dobbies manufactured **between 2004 and 2013** have both 9-pin serial socket and a USB adapter manufactured by **Silabs (Silicon Laboratories).** An external USB-serial adapter may also be used with the 9-pin serial socket.

Older dobbies may have either 9-pin or 25-pin serial sockets and require a USB-serial adapter, and possibly a 9-pin to 25-pin adapter since most USB serial adapter have 9-pin connectors.

see pp.12-14 for installation of port driver software.

Make sure the driver you install matches the version of OS X you are using.

Power on

If you switch power on to the Louet Dobby before entering the weaving window, Fiberworks should detect it as soon as the Weaving Window opens. This should show three green steps in the indicator at the left end of the toolbar.

If the Louet Dobby is not powered up when you open the weaving window, you will see two amber steps in the indicator. Switching on the Louet Dobby should immediately change the indicator to show 3 green steps.

Starting to weave

Initially, the computer is waiting for an indication that you are ready to weave. On most Louet looms, you can do this by **pressing the treadle down and returning to the rest position.** This first push will not lift any shafts, you are just using the treadle to tell the computer you are ready. On the Magic Dobby without a treadle, push the handle down and then return. The solenoids should activate when you return to the rest position of the treadle or handle, and the loom status indicator should now show 4 green steps.

In a few cases, this may not work and you should push the Enter key to fire the solenoids for the first pick, or click the **Solenoids** button in the toolbar. If the loom fails to respond to the treadle, try the Enter key or the Response test in the diagnostics menu, and these will normally put the Louet back in its weaving cycle.

Use either of these methods to resume weaving after doing the **Sensor Test, Solenoid Test** or **Self Test** (see below).

Weaving Cycle

Solenoids are normally activated just as the shed closes, and deactivated as the shed reaches the fully open position. If you leave the treadle in the shed closed or rest position for any length of time, the solenoids remain under power and risk overheating. It's a good idea to use the **Solenoids off** menu item (Sequence menu) or the click the Solenoids button in the toolbar unchecked whenever you intend to take a break. Resume weaving as described for **Starting to weave**.

Timed out

To prevent overheating, the solenoids in the Louet dobbies **turn themselves off** if the shed is not opened within about 60 seconds of the solenoid being activated. If this happens, the loom status indicator will show only **three** green steps instead of four. Resume weaving after being Timed Out as described for **Starting to weave**. Either push the treadle down once, or press the Enter key. Weaving will resume with the same pick that caused the time out. Since timing out occurs if you don't open the shed, that pick can't have been woven yet.

Navigating the lag chain

If you can reach your computer easily from the weaving position, you can do adjustments of position or editing in the liftplan in the **shed open** position while solenoids are normally off. Changes affect the **next** pick rather than the current pick which is being held open. Solenoids are not active while shed is open, so you can hold shed open without worrying about a time-out happening. If solenoids do not automatically activate when you close the shed, press Enter to resume weaving.

If it's hard to keep the treadle down while working at the computer, you can also do adjustments of position or editing in the liftplan in the **shed closed position.** If you change position in the liftplan with cursor arrow keys, changes affect the current pick and solenoids will click in rapid succession. This can be avoided by selecting **Solenoids Off** while doing major adjustments. Follow the start up procedures described previously to resume weaving. Minor adjustments (one or two steps) such as reversing the sequence or switching to tabby can be done in the shed closed position with solenoids on.

Diagnostics

Response test checks two way communication between computer and loom. The computer sends a query and waits for a response. When this is received, an alert box should display (see at right). If no response is received, the loom status indicator in the toolbar will continue to show two amber steps.
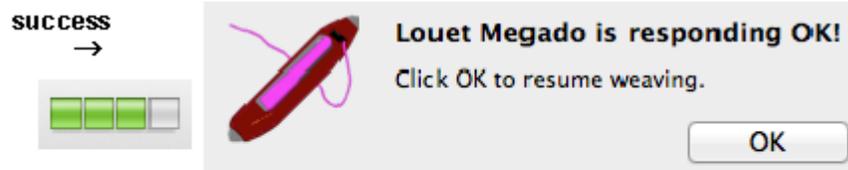
Treadle Sensor test (p.23) detects the signals that the Louet Megado or Octado send to the computer as the knife or arm moves from its **upper** position (shed fully **closed, treadle up**) and as the shed is halfway open. Louet looms use a magnet on the knife and two sensor switches mounted on a wooden strut that projects from the dobby box. The upper switch is placed so the magnet triggers it at or near the shed closed position. The lower switch is roughly midway between shed closed and shed fully open positions, so the magnet passes by the switch very
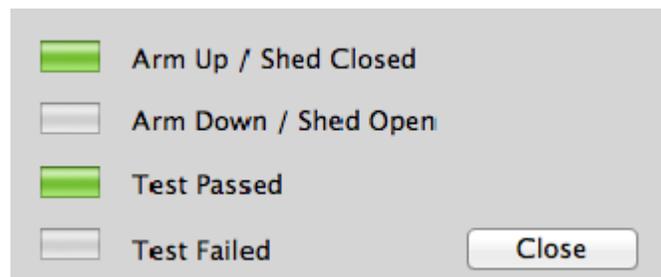
briefly. To do the treadle sensor test, it's advisable to move the treadle steadily and relatively slowly rather than a normal weaving treadle action, so as to catch the instant when the magnet is next to the lower switch. If the Sensor test produces no response, the magnet is not being detected. Check that it has not slipped out of position.

Treadle sensor test on the Magic Dobby: On the Magic Dobby, the knife that picks the shafts rises instead of pulling down, so shed closed actually has handle up rather than arm up, and shed open has handle down rather than arm down, but otherwise the principle is the same.

Solenoid test (p.24) tests communication from computer to loom. If this test succeeds and the response test does not, it indicates that there's something stopping the computer from receiving signals from the loom, but otherwise the port is working. You can use the Solenoid test to check individual solenoids. Click the **Clear Pattern** button, then set solenoids on one at a time by clicking into the grid pattern. Treadle the loom to see that the selected shaft picks up and releases cleanly.

There are no button controls to test on the Louet dobby units, and no Alignment test.

If the Louet Dobby does not lift the shafts selected

- If the weaver dithers or presses the treadle tentatively, the solenoids may release before the knife has caught all the "piano keys" that lift the shafts. Typically, this causes lower numbered shafts to be missed. To prevent this, treadle more briskly.

- If the magnet is set too high or the knife set too low, solenoids may release too early and miss lower numbered shafts.

- If the cord to the treadle is too tight so the knife is too low, or the magnet is set too high, the knife may pass higher numbered shafts before it can pick them up.

**If shafts from the previous pick are lifted when they are not selected**

- Check for **sticky shafts** that don't drop back to their proper unlifted position. When this happens, the "piano keys" that the solenoids push out don't return to their unlifted position, and stick in a **pushed out** position (see step 4 above). When the knife descends for the next pick, it catches the piano key even when the corresponding solenoid is not activated.
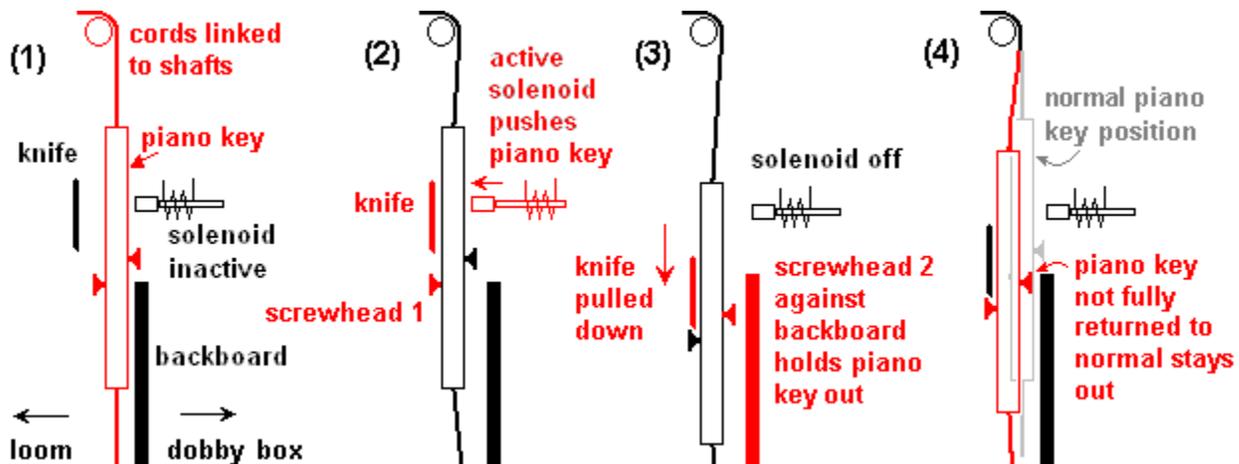
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What makes shafts stick?

- Insufficient tension on the warp. Increase warp tension as much as reasonable, and use **weighted** shaft bars (available from Louet) rather than plain wooden shaft bars.

- Shaft cords have slipped out of the slots at the end of the wooden shaft bars - see cord 2 in the illustration on the right.

- Bowed shaft bars. The metal reinforcement in the weighted shaft bars corrects this.

- Heddles too crowded and bunched together, especially bunches of unused heddles Spread your heddles as much as possible, and stagger the placement of unused heddles at the ends of shafts.

unused heddles bunched   a bowed shaft will stick   unused heddles staggered
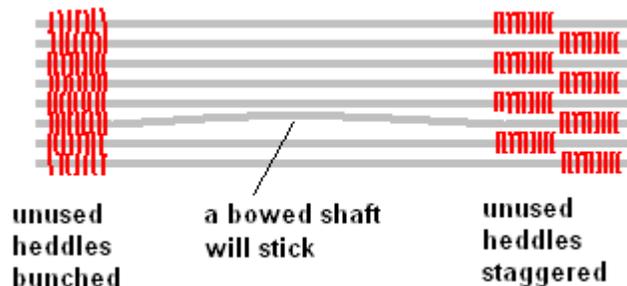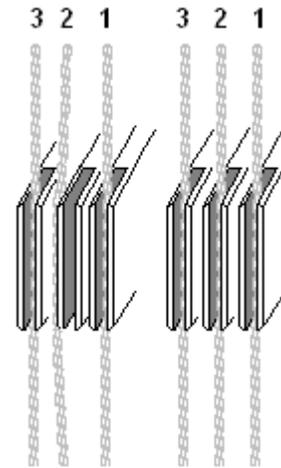
If the treadle needs excessive force to open the shed

- Check that cords have not slipped of their pulleys, in particular the large wooden pulleys below the dobby head.

- Check that lint and stray thread have not accumulated on the pulley bearings, in particular, the wooden pulleys below the dobby head.

If one of the solenoids does not activate when it should

- Use Solenoid Test to check the dobby unit when it's dismounted from the loom. Consult Louet if a solenoid appears not to respond properly.

- On the Magic Dobby, make sure that the plastic "piano keys" line up with the solenoid tips and a solenoid is not pushing between "keys".

If the pattern does not advance when you release the treadle.

- Check the alignment of the magnet with the two sensors, particularly the upper sensor. When the treadle comes to rest, the magnet should line up with the upper sensor.

- Solenoids should activate when the treadle and knife are fully up. If the magnet seems to line up with the sensor but solenoids don't fire, this may indicate a faulty upper sensor.

- You should hear a soft "clunk" as solenoids release when the treadle is just past halfway down. No "clunk" may indicate a faulty lower sensor.

Leclerc Weavebird series II looms

Port: **see pp.12-14 for installation of port driver software.**

If you connect the Leclerc Dobby via the USB cable, this links to a **built in USB to serial adapter**. Download the Silabs driver for the built in adapter. Leclerc supplied external USB-serial adapters carrying the name "Sabrent"; these are manufactured by Prolific technologies, and you should download that driver. It's possible that the Sabrent adapter won't work with recent versions of OS X or mac OS.

Make sure the driver you install matches the version of OS X you are using.

Power on

If you switch power on to the Leclerc before entering the weaving window, Fiberworks should detect it as soon as the Weaving Window opens. This should show three green steps in the indicator at the left end of the toolbar.

If the Leclerc Dobby is not powered up when you open the weaving window, you will see two amber steps in the indicator. Switching on the Leclerc Dobby should immediately change the indicator to show 3 green steps.

Starting to weave

Initially, the computer is waiting for an indication that you are ready to weave. On most L Leclerc looms, you can do this by **pressing the treadle down and returning to the rest position.** This first push will not lift any shafts, you are just using the treadle to tell the computer you are ready. The solenoids should activate when you return to the rest position of the treadle or handle, and the loom status indicator should now show 4 green steps.

In a few cases, this may not work and you should push the Enter key to fire the solenoids for the first pick, or click the **Solenoids** button in the toolbar. If the loom fails to respond to the treadle, try the Enter key or the Response test in the diagnostics menu, and these will normally put the Leclerc back in its weaving cycle.

Use either of these methods to resume weaving after doing the **Sensor Test, Solenoid Test** or **Self Test** (see below).

Weaving Cycle

Solenoids are normally activated just as the shed closes, and deactivated as the shed reaches the fully open position. If you leave the treadle in the shed closed or rest position for any length of time, the solenoids remain under power and risk overheating. It's a good idea to use the **Solenoids off** menu item (Sequence menu) or the click the Solenoids button in the toolbar unchecked whenever you intend to take a break. Resume weaving as described for **Starting to weave**.

Timed out

To prevent overheating, the solenoids in the Leclerc dobbies **turn themselves off** if the shed is not opened within about 60 seconds of the solenoid being activated. If this happens, the loom status indicator will show only **three** green steps instead of four. Resume weaving after being Timed Out as described for **Starting to weave**. Either push the treadle down once, or press the Enter key. Weaving will resume with the same pick that caused the time out. Since timing out occurs if you don't open the shed, that pick can't have been woven yet.

Navigating the lag chain

If you can reach your computer easily from the weaving position, you can do adjustments of position or editing in the liftplan in the **shed open** position while solenoids are normally off. Changes affect the **next** pick rather than the current pick which is being held open. Solenoids are not active while shed is open, so you can hold shed open without worrying about a time-out happening. If solenoids do not automatically activate when you close the shed, press Enter to resume weaving.

If it's hard to keep the treadle down while working at the computer, you can also do adjustments of position or editing in the liftplan in the **shed closed position.** If you change position in the liftplan with cursor arrow keys, changes affect the current pick and solenoids will click in rapid succession. This can be avoided by selecting **Solenoids Off** while doing major adjustments. Follow the start up procedures described previously to resume weaving. Minor adjustments (one or two steps) such as reversing the sequence or switching to tabby can be done in the shed closed position with solenoids on.

Diagnostics

Response test checks two way communication between computer and loom. The computer sends a query and waits for a response. When this is received an alert panel will display (similar to the example for Louet on p.33). If no response is received, the loom status indicator will show two amber steps, reminding you to switch on the loom.

Solenoid test (p.24) tests communication from computer to loom. If this test succeeds and the response test does not, it indicates that there's something stopping the computer from receiving signals from the loom, but otherwise the correct port port has been selected.

You can use the Solenoid test to check individual solenoids. Click the **Clear Pattern** button, then set solenoids on one at a time by clicking into the grid pattern. Treadle the loom to see that the selected shaft picks up and releases cleanly.

There are no button controls to test on the Leclerc dobby units, and no Alignment test.

Treadle Sensor test detects the signals that the Leclerc Weavebird dobby loom sends to the computer as the treadle is moved from shed **closed, treadle up** to **shed open** position. To do the treadle sensor test, it's best to move the treadle steadily and relatively slowly rather than a normal weaving treadle action, so as to catch the instant when the magnet is next to each sensor.

🟩	Arm Up / Shed Closed
⬜	Arm Down / Shed Open
🟩	Test Passed
⬜	Test Failed [Close]
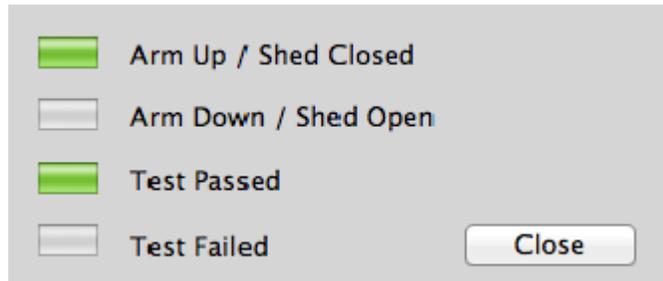
Leclerc Diana Series I Looms

The earlier Leclerc Dobby used on the first series of Diana loom generally follows the same scheme as Series II, **with the following differences**:

The early Diana series was only available with 16 shafts.

There is no way to initiate the solenoid pattern by pushing the treadles, so for Leclerc Series I, start up always proceeds via a prompt panel. Click OK only when you are actually ready to weave, and the first solenoid pattern will be activated immediately.

Timed out

To prevent overheating, the solenoids in the Leclerc dobbies **turn themselves off** if the shed is not opened within about 60 seconds of the solenoid being activated. If this happens, the loom status indicator will show only **three** green steps instead of four. Resume weaving after being Timed Out by pressing the Enter key or clicking the Solenoids button in the Toolbar. The Leclerc series I looms won't initiate the solenoid action by pushing the treadles.

Weaving will resume with the same pick that caused the time out. Since timing out occurs if you don't open the shed, that pick can't have been woven yet.

Diagnostics

After trying the Solenoid Test or Dobby Self Test, restart the solenoids as described above for Timed Out.

Series I Leclerc looms do not have a treadle sensor test.

Macomber, Dobbytron and Séguin series Looms

Power on

You may switch on power to the Dobbytron, Macomber or Séguin either before or after entering the weaving window. If you switch on before, the Dobby will be detected as the Weaving window opens, and three green steps should show on the loom status indicator. If you switch on after opening the Weaving window, the dobby won't be detected until you press the treadle, so the loom status indicator will remain with two amber steps and you may get a prompt to connect and switch on the dobby.

Starting to weave

The computer is waiting for an indication that you are ready to weave, and pushing the treadle is one way to do this. Push the treadle all the way down and release; the first pick will activate when you release the treadle. Push the button on Séguin or Air Macomber looms. The loom status indicator should then show four green steps, allowing the first shed to open.

Alternatively for Macomber or Dobbytron (but not Séguin), you may press press **Enter** or click the Solenoids button in the toolbar to activate the solenoids for the first pick.

Weaving Cycle

Solenoids are normally activated just as the shed closes, and deactivated as the shed reaches the fully open position. On the Macomber, if you leave the treadle in the rest position for any length of time, the solenoids remain under power and risk overheating. It's a good idea to use the **Solenoids off** menu item or toolbar button (Sequence menu) whenever you intend to take a break. Resume weaving by pressing the **Enter** key**.**

Timed out

The Macomber cuts power to the solenoids after a period of inactivity to prevent overheating. This is indicated by Timed Out showing at the bottom of the Lag chain window. You can recover from a time out in the same way that you start to weave.

Dobbytrons regulate power to the solenoids to prevent overheating, so there should be no timeout on a Dobbytron. The Séguin does not have a timeout signal, but may indicate a fault in the dobby mechanism.

Navigating the lag chain

Do adjustments of position or editing in the liftplan in the **shed closed position.** If you change position in the liftplan with cursor arrow keys or by scrolling or dragging the mouse in the weaving window (p.8-9), changes affect the current pick and solenoids will click in rapid succession. This can be avoided by selecting **Solenoids Off** while doing major adjustments. Press Enter to resume weaving. Minor adjustments (one or two steps) such as reversing the sequence or switching to tabby can be done in the shed closed position with solenoids on.

Diagnostics

Response test checks two way communication between computer and loom. The computer sends a query and waits for a response (see **Power On**). **Power to the dobby must be already switched on when you start the response test**
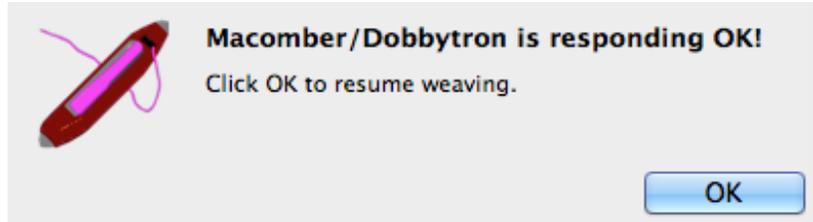
Solenoid test (p.24) tests communication from computer to loom. If this test succeeds and the response test does not, it indicates that there's something stopping the computer from receiving signals from the loom, but otherwise the Com number of the selected port is correct. You can use the Solenoid test to check individual solenoids. Click the **Clear Pattern** button, then set solenoids on one at a time by clicking into the grid pattern. Treadle the loom to see that the selected shaft picks up and releases cleanly.

There is no Treadle sensor test for the Macomber. The Response test detects the same messages that a treadle sensor test would check.

Toika

Connection: Newer ES series Toikas us the FTDI built-in USB serial adapter. Older Toikas require an external adapter such as the Keyspan. See pp.12-14 for driver info.

Toika Options

When you choose Toika from the Loom Setup panel, two special options appear. Choose **Use Debounce** if the pattern occasionally skips a pick. This makes the computer ignore a treadle sensor on the loom that stutters instead of switching cleanly. Similarly, if the loom unexpectedly throws itself into reverse, choose **Ignore Reverse**. The Reverse button on the computer still works, but the one on the loom will be ignored.
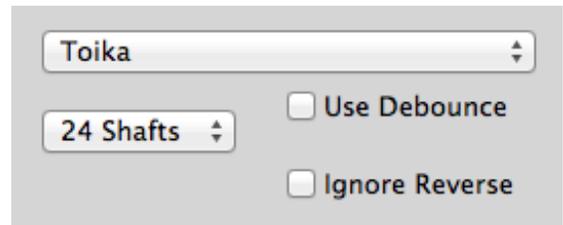
Power on

You can switch power on to the Toika **before or after** entering the weaving Window. However, Fiberworks can't detect whether the Toika is powered up, so the Loom Status indicator will remain with two amber steps. This is normal for the Toika.

Starting to Weave

Method 1) Click the Solenoids button on the toolbar, or press the Enter key. Then open the shed, and the weaving sequence will start with the initial pick.

Method 2) Simply start treadling. The first shed lifted may be blank or may be random. Ignore it. The proper weaving sequence will start on the second open shed.

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Shaft order on the Toika

As built, the Toika uses Scandinavian shaft order, that is, Shaft 1 is at the back of the loom. However Fiberworks automatically corrects this to standard North American layout with Shaft 1 nearest the weaver at the front of the loom. If you have threaded with shaft 1 at the back, Scandinavian style, choose the menu item **Set Shaft 1 at Back** from the the **Chain menu** (p.16). Always **thread the loom** according to the convention you have chosen. Always choose the Shaft placement that matches the way you threaded the loom.

Diagnostics

The **Response test** for the Toika differs from other looms in that you have to open the shed to receive a signal back from the loom.

Toika is responding OK!
Click OK to resume weaving.

OK
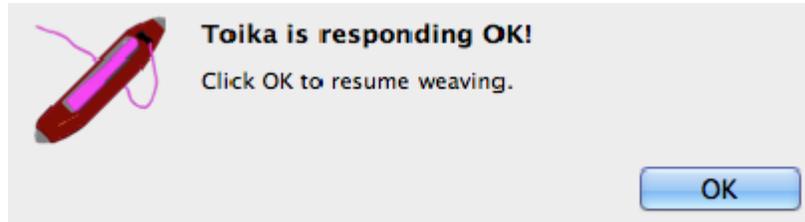
Treadle Sensor Test checks communication from loom to computer, in particular the signal that tells the computer to advance the pattern. A switch on the control box of the loom determines whether to progress though the liftplan **forwards** or

Treadle the Toika with direction switch Forward

Treadle the Toika with direction switch in Reverse

Close

in **reverse.** To test this response, a special version of the treadle sensor test panel appears. If you open shed with the direction switch in the forward position, the upper indicator should light up. If you open shed with the direction switch in reverse, the lower indicator should light up.
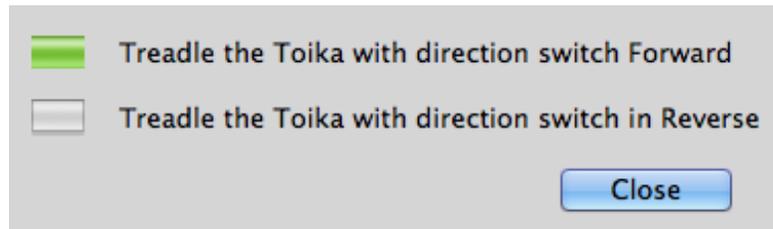
Before closing the panel, make sure the direction switch on the loom is set the way you want to continue weaving.

This **direction switch** on the loom duplicates the action of the **Reverse Direction** menu item and toolbar button. The computer can track changes when the switch on the loom is changed, but there's no way to tell the loom that the toolbar button has changed, so it is possible for the direction setting on the loom to be in conflict with the toolbar.

To avoid confusion, **always use the loom direction switch to change direction.** The toolbar button will serve as an **indicator of the direction,** but should not be used to change the direction setting.

Solenoid test (p.24) checks communication from computer to loom. If this test succeeds and the treadle sensor test does not, this means that there's something stopping the computer from receiving signals from the loom.

You can use the Solenoid test to check individual solenoids. Click the **Clear Pattern** button, then set solenoids one at a time by clicking into the grid pattern. Open the shed to see that the selected shaft picks up and releases cleanly.

Arm Patronic

Arm Options

When you choose **Arm** from the Loom Setup panel, three special options appear. The Arm requires the flow of data from computer to loom to be evenly spaced. The normal method to achieve this uses signals on an extra line in the cable, known as the handshake line. If your cable is correctly wired, and your USB adapter supports Handshake, none of the options need to be selected for proper operation.
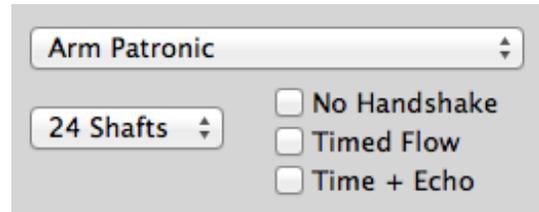
The Port Log (**Set Logging On**, **View Port Log**, (Diagnostics menu) can reveal different faults in communication. The Arm *echoes* all characters received from the computer, so if communications are working properly, a "sent=" line should be followed by a "recv=" echoing exactly the same content:

Normal reception	Loom losing characters	Transmission failed
`sent=M)D14.50K0AB`	`sent=M)D14.50K0AB`	`sent=M)D14.50K0AB`
`recv=M)D14.50K0AB`	`recv=M)1.5KAB`	

If the "echo", shown in the recv= line, is identical to the sent= line, transmission and reception are working properly, and no further action is necessary. If occasional characters are missing from the recv= line, you need to choose the Timed Flow option.

If a sent= line is not followed by a recv= line with at least a partial echo, transmission is not getting through, and you should choose both Timed Flow and No Handshake.

An alternative to Timed flow is Time + Echo. After a character is sent, the computer waits for its echo to come back before the next character is sent. This is often faster than a fixed time delay between each character as used by timed flow.

Power on

You can switch power on to the ARM Selectronic **before or after** entering the weaving Window. Only click the OK in the reminder box after **power is switched on** to the loom control unit. Fiberworks then sends the loom a message to activate the computer controlled mode.

Starting to Weave

To signal that you are ready, push the treadles in turn. The first cycle may be a blank pick, but solenoids should activate the next time shed is closed. When you hear the solenoids click, open the shed without delay.

Timed out

To prevent overheating, the solenoids in the Arm dobby head **turn themselves off** if the shed is not opened within five second of the solenoids being activated. If this happens,

the computer may beep and the Status bar shows **TIMED OUT** in the Weaving Status section. Resume weaving after being TIMED OUT by pushing treadles in turn until the solenoids reactivate.

Diagnostics

Response test: A message should appear indicating that the ARM is responding. If The loom seems to stop clicking solenoids at any time, for example after a time-out or after the treadle sensor test, and does not respond to pushing the treadles, doing the response test will reactivate the computer controlled mode.

Treadle Sensor test If you run this test and treadle the loom, a message will appear to confirm that the computer is receiving the treadle message. Treadle messages also appear as the letter Q in the port log:

```
recv=Q
```

There is no solenoid test for the ARM. To test solenoids, make up a simple pattern that lifts one shaft at a time as well as any other pattern you need to check such as tabby, and open the pattern in the weaving window.

Noble

Startup The Noble does not have a start up prompt. It's probably best to Switch power on for the loom after opening the weaving window. Push the treadle to start.

Diagnostics

Response test: A message should appear indicating that the ARM is responding.
Treadle Sensor test If you run this test and treadle the loom, a message will appear to confirm that the computer is receiving the treadle message. Treadle messages also appear as the letter Q in the port log:

There is no solenoid test for the Noble. To test solenoids, make up a simple pattern that lifts one shaft at a time as well as any other pattern you need to check such as tabby, and open the pattern in the weaving window.

Schacht Combby and J-Comp

Fiberworks does not include software support for these looms since they require direct programming of hardware that is not Mac compatible.

Instead a electronic modification that allows these looms to run from a standard USB-serial adapter is available from **http://www.flatwaterfarm.com/**

or contact **jcacord@gmail.com**

When installed on the loom, the modification allows the dobby unit to communicate using the **Dobbytron** interface, pp.39-40.

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