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Introduction

The Video LunchBox™ is a pencil test/reference test frame grabber capable of recording individual frames or full motion video, and playing them back, full screen, at a user selectable 15, 24, or 30 frames per second.

The Video LunchBox is designed to be easy to use. Most users learn all they need to know about the Video LunchBox by using it for a few minutes. But since there are some useful features which are not so obvious, you might want to scan the Table of Contents to help you decide which sections of this User's Manual are worth reading.

If you need to contact Animation Toolworks, we can be reached at:

> **Animation Toolworks, Inc.**
> **18484 Parrett Mountain Road**
> **Sherwood, Oregon, 97140**
> **(503)625-6438**

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Caring for the Video LunchBox

Operating Conditions

Operating conditions for the Video LunchBox are the same as for most electronic equipment. It should not be operated in a damp or hot environment. Care should be taken not to cover the vent holes on the sides of the Video LunchBox.

The Video Lunchbox must only be operated on 60 Hz, 110 volt AC power. Make sure the power cord is fully inserted into its socket in the side of the Video LunchBox.

The Video LunchBox is not user serviceable-- if it needs servicing, it must be returned to Animation Toolworks for service.

How to operate the latch

The draw latch on the front of the Video LunchBox can be a little tricky to operate. Flip out the clasp so you can grip it, then rotate it counter-clockwise to release it, or clockwise to tighten it.

How to remove the cover

The cover of the Video LunchBox can be completely removed to reduce clutter in your workspace.
1) Open the front latch
2) One at a time, retract the hinge pins by grasping the plastic loop, squeezing it tightly, then rotating it upward until it points straight out.

Replacing the cover

Before you replace the cover, make sure the hinge pins are retracted as described above. Then simply place the cover on the Video LunchBox, and flip the plastic loops on the hinges downward until they are flat against the side of the Video LunchBox.

How to clean the Video LunchBox

Disconnect the power cord, then wipe it with a dry or slightly damp sponge or cloth.

Setting Up the Video Lunchbox

Choosing components

Camera:

The camera will usually be the component which limits the resolution of the Video LunchBox system, so it's important to choose the right camera for your needs. If you require higher quality output, you will need a high resolution camera. If you are doing reference tests with a low resolution monitor, almost any camera will do.

The Video LunchBox will work with CCD based cameras. These include most camcorders or video cameras built since 1990. While camcorders will work for most uses, they have some limitations:

- some camcorders turn off after a few minutes of not recording
- some camcorders have low video resolution and poor lenses. Manufacturers put the money into a tape transport mechanism and battery power system which you will not use while animating with the Video LunchBox
- Few camcorders have interchangeable lenses

The alternative to a camcorder is a video camera. For the same price, you can usually get higher resolution in a video camera than in a camcorder. Low resolution monochrome cameras can be found for about $150; high resolution color cameras can cost up to $1000 or more. Many animators like to use cameras with a C mount lens system, since this is the same system used on some 16mm film cameras, such as the Bolex.

Video cameras today have either 1/3 inch or 1/2 inch CCD arrays. 1/2 CCD arrays are usually higher resolution cameras, and are more expensive. Just as with film, the different format cameras produce different results with the same lens. In our experience, the following lens choices offer good results:

camera	2-D on copy stand	3-D stop motion set
1/3 inch CCD	8 mm fixed focal length	8-75 mm zoom
1/2 inch CCD	12 mm fixed focal length	8-75 mm zoom

Animation Toolworks offers a selection of cameras and lenses which have been tested with the Video LunchBox. Call for more information.

Monitor:

You will need a video monitor with a "video" or "line" input. If your monitor only has an "Antenna" or "Cable" input, you will not be able to connect it directly to the Video LunchBox.

Most consumer or professional video monitors will work well with the Video LunchBox. We have encountered a few monitors on which the colors flicker when used with the Video LunchBox. If this occurs with your monitor, please refer to the Troubleshooting section ("*When viewing a captured frame, the color flickers on and off*", page 19.)

If you plan to frequently connect and disconnect the Video LunchBox and the monitor, we recommend you find a monitor with BNC connectors instead of RCA jacks. RCA

connectors do not handle the stress of repeated use very well, and may start to fail after a few hundred connections.

Animation Toolworks has a selection of monitors available for purchase. Call for more information.

Cables:

Don't skimp on cables. If you've ever wasted an hour because a cable was defective you know what we mean. We recommend using 75 ohm RG59 BNC video cables. You can also use good quality RCA jack type video cables, but the connectors will wear out faster and you will need an adapter on the Video LunchBox end of the cables. Do not use 50 ohm RG58 computer cables. Do not use RCA jack type audio cables.

Power Strips:

A good power strip makes setup easier and can reduce problems with the video equipment. Look for a power strip with a 15 Amp circuit breaker. Consider using a power strip with a surge protector built in-- they are inexpensive, and can protect all your video equipment at once.

Attaching Components

The Basic Setup

Equipment:
- Power strip
- Video Camera
- Video LunchBox
- Video Monitor
- Two 75 ohm BNC video cables

1) Plug the Camera, Video Lunchbox, and Monitor into the same power strip.

2) Attach a 75 ohm video cable from the [camera icon] connector on the Video LunchBox to the "Video out" connector on the camera. You may need a BNC to RCA adapter if your camera has an RCA type connector.

3) Attach a 75 ohm BNC cable from the [monitor icon] connector on the Video LunchBox to the "Video in" or "line" or "aux" connector on the monitor.

Note: Do __not__ attempt to attach the BNC cable to the monitor's antenna connection.

4) Set the monitor to the correct video input mode. Frequently, the monitor will have a "Video" mode, or a selection for "line" or "aux", instead of the video tuner. For example, say you have attached the cable to the monitor's "Video 3 In" connector. Use the monitor's buttons or menus for "Input", or "Line In", to select "Video 3" as the Input.

If you encounter any difficulties, refer to the Troubleshooting section ("*The frame number display is on, the red light is not flashing, but there is no video on the monitor,*" page 18.)

The Recording Setup (Allows recording to video tape)

Equipment:
- Power strip
- Camera
- Video LunchBox
- Monitor
- Video Tape Recorder
- Three 75 ohm BNC video cables

1) Plug the Camera, Video Lunchbox, and Monitor, and Video Tape Recorder (VTR) into the same power strip.
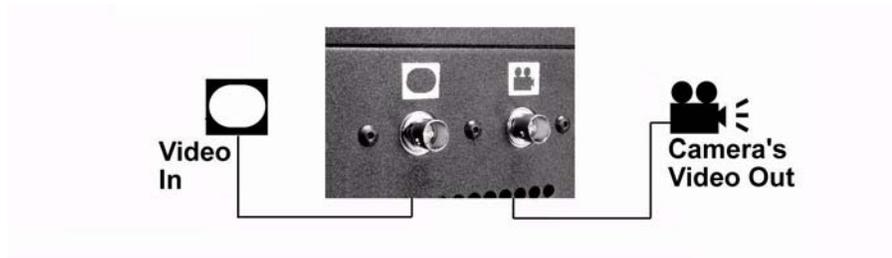
2) Attach a 75 ohm video cable from the connector on the Video LunchBox to the "Video out" connector on the camera. You may need a BNC to RCA adapter if your camera has an RCA type connector.

3) Attach a 75 ohm BNC cable from the connector on the Video LunchBox to the "Video in" or "line in" or "aux" connector on the video tape recorder. You may need a BNC to RCA adapter if your video tape recorder has an RCA type connector.

4) Attach a 75 ohm BNC cable from the "video out" or "monitor" connector on the video tape recorder to the "Video in" or "line" or "aux" connector on the monitor.

5) Set the monitor to the correct video input mode. Frequently, the monitor will have a "Video" mode, or a selection for "line" or "aux", instead of the video tuner. For example, say you have attached the cable to the monitor's "Video 3 In" connector. Use the monitor's buttons or menus for "Input", or "Line In", to select "Video 3" as the Input.

6) Select the Video LunchBox as the source input for the VTR. Most VTRs have an "input", "input select", or "input source" selector switch. Select "line" or "aux" or "L1". On some VTRs, this is done by changing the channel until "line" or "aux" or "L1" appears.

7) Operate as described in "*Scenario 3: Saving images to video tape*" on page 8.
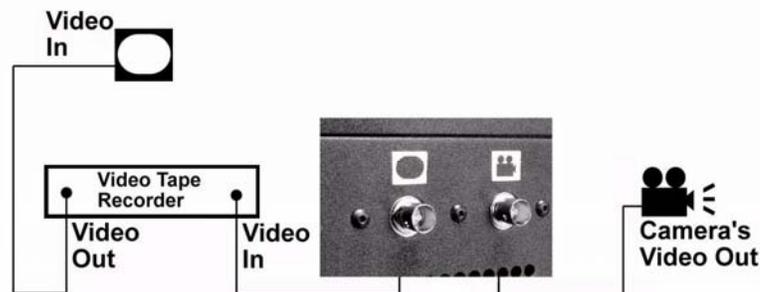
Download setup (Allows you to load frames from a video tape into the Video LunchBox)

Equipment:
- Power strip
- Video LunchBox
- Monitor
- Video Tape Recorder
- Three 75 ohm BNC video cables

1) Plug the Camera, Video Lunchbox, and Monitor, and Video Tape Recorder (VTR) into the same power strip.

2) Attach a 75 ohm video cable from the [camera icon] connector on the Video LunchBox to the "video out" or "monitor" connector on the video tape recorder. You may need a BNC to RCA adapter if your VTR has an RCA type connector.

3) Attach a 75 ohm BNC cable from the [monitor icon] connector on the Video LunchBox to the "Video in" or "line" or "aux" connector on the monitor.

4) Set the monitor to the correct video input mode. Frequently, the monitor will have a "Video" mode, or a selection for "line" or "aux", instead of the video tuner.

6) Operate as described in "*Scenario 4: Loading images from video tape*" on page 9.
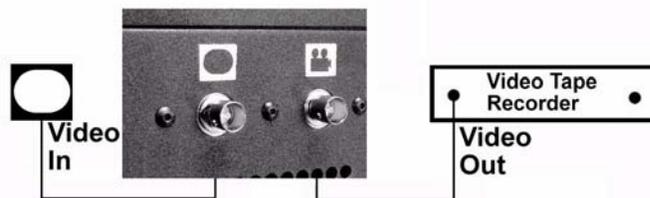
Two- Minute Tutorial

1) Attach your video camera to the [icon] input of the Video LunchBox.

2) Attach your video monitor to the [icon] input of the Video LunchBox

3) Make sure your camera, monitor, and the Video LunchBox are all plugged in and turned on. For best results, plug all three into the same outlet or power strip.

4) You should see a "live" image from the camera on the monitor. The green light next to the numeric display lets you know the Video Lunchbox is passing through the live image. If you *don't* see the live image, click the [icon] key .

5) Click the [icon] key. You've captured the image.

6) Click the [icon] key to see the captured image. Click [icon] again to return to the live image.

7) Animate a few frames, clicking the [icon] key after each frame. The numeric display indicates your frame number.

8) Click the [icon] or [icon] keys. This plays your loop at 30 fps or 24 fps.

9) Click the [icon] and [icon] keys to move backwards or forwards through your frames. Advance to the last frame you shot. Advance again and the Video LunchBox automatically switches to "live" mode.

10) Click the [icon] key. Now the Video LunchBox rapidly toggles between the live camera feed and your last frame. This is called "flip-flop" mode. Start moving your character to see how this works.

11) Click the [icon] key while in flip-flop mode. The image is instantly captured, and you are ready to shoot again. Animate a few more frames.

12) Click the [icon] key to exit flip-flop mode.

13) Hold down the [icon] key for three seconds. Now you see your loop continuously. Click any other key to stop it.

14) Hold down the [icon] or [icon] keys. You will go forwards or backwards at 15 fps.

15) Hold down the [icon] key. After a moment it will start capturing in real-time (30 frames per second). You can use this mode to shoot reference film for lip-sync.

That's all! You've mastered the basic operation of the Video LunchBox.

How To

Scenario 1: Replacing a bad frame

I accidentally hit [camera icon] before I was ready

1) Click the [◁|] or [|▷] keys until you are at the bad frame

2) Click the [◁|] key to back up one frame before the bad frame

3) Click the [camera icon] key to overwrite the bad frame

Scenario 2: Accurate replacement or repositioning

I need to place a character back on my set in the same position it was in for frame 17

1) Click the [◁|] or [|▷] keys until you are at frame 17

2) Click [flip flop icon] to enter flip flop mode. The monitor will flicker between the stored frame with the character in position, and the live video feed. As the character approaches the correct position, the flickering is less and less.

3) If the flip-flop mode changes too fast for you, hold down the [flip flop icon] key and it will slow down.

Scenario 3: Saving images to video tape

I want to save a pencil test for future reference

1) Set up the Video LunchBox with the video tape recorder as described in "*Recording Setup*" on page 4.

2) Select the Video LunchBox as the source input for the Video Tape Recorder (VTR). Most VTRs have an "input", "input select", or "input source" selector switch. Select "line" or "aux" or "L1". On some VTRs, this is done by changing the channel until line" or "aux" or "L1" appears. When you are successful, the Video LunchBox image will appear on your monitor.

3) Insert a tape in the VTR and cue it as desired.

4) Cue the Video LunchBox to the last frame of the loop.

5) Click to switch to a live video feed.

6) Place a lens cap on the camera to get a nice black leader (optional).

7) press "RECORD" on the VTR to start the recording.

8) wait a few moments for the VTR to finish recording a leader. (Most VTR's don't record cleanly for the first few seconds)

9) Click or . You may want to do this a few times, pausing between each for some black space between recordings.

10) Stop the VTR.

Scenario 4: Loading images from video tape

I want to examine a live reference film frame by frame

[Note: depending on the quality of the video tape and the Video Tape Recorder (VTR), the image quality may be degraded when it is loaded onto the Video LunchBox. Scenario 5 may be a better option if you need better image quality]

1) Connect a cable from the connector of the Video LunchBox to the "monitor out" or "video out" connector of the VTR.

2) Connect a cable from the connector of the Video LunchBox to the "video in" connector of the monitor.

3) cue the VTR to slightly before the desired segment, and press "Play".

4) A few seconds before the desired segment, press and hold the key on the Video LunchBox.

5) When you see the end of the desired segment, release the key.

Scenario 5: Shooting live- motion reference

I want to shoot the mouth of a reference actor for lip-synch

1) Use the "basic setup" with a camera as the source to the Video LunchBox.

2) Hold down the key while the actor speaks the line.

3) Release the key immediately when the actor finished the line.

Scenario 6: Animating to a live-motion reference

I have filled the Video LunchBox with live motion as in scenario 4 or 5, and now wish to animate to it.

1) Click the or keys until you are at a frame you wish to replace.

2) Use either the key or the key to let you compare the position of your character with your reference.

3) When your character is in position, click the key to back up one frame. (If you are in flip flop mode you will need to click it twice-- once to exit flip flop, and once to back up).

4) Click the key to overwrite the reference with the animated frame.

5) Proceeding in this manner, frame by frame, replaces the live motion reference with your animated character.

Scenario 7: Key frame animation

I want to set up key frames first, then fill in with additional frames

1) Place a lens cap on the camera

2) Hold down the for a few seconds until all frames are filled with a black image.

3) Use the or keys go to the frame *before* each keyframe.

4) Shoot each key frame using the key.

5) Fill in the other frames as usual.

Scenario 8: Setting custom loop boundaries

I have 50 frames in the Video LunchBox, and want to examine a cycle from frames 10-30.

1) Hold down the ◻ key until the green light flashes and 1 shows on the display.

2) Use the ◁ or ▷ key to get to frame 10.

3) Press the (30) key to mark this as the loop start.

4) Use the ▷ key to get to frame 30.

5) Press the (24) key to mark this as the loop end.

6) Press the ◻ key to return to basic mode.

7) Press either (30) or (24) to view the loop. Hold either key down for three seconds to view the cycle continuously.

Scenario 9: Changing a loop boundary

I've extended the cycle in Scenario 8 to frame 40, and want to view it:

1) Re-enter special mode 1 by holding down the ◻ key until the green light flashes and 1 shows on the display.

2) Use the ◁ or ▷ key to get to frame 40.

3) Press the (24) key to mark this as the loop end.

4) Press the ◻ key to return to basic mode.

5) Press either (30) or (24) to view the loop.

Scenario 10: Erasing custom loop boundaries

I'm finished examining a cycle, and wish to restore the Video LunchBox to normal operation.

1) Re-enter special mode 1 by holding down the ◻ key until the green light flashes and 1 shows on the display.

2) Press the 🎥 key to clear the loop start and end.

3) Press the ◻ key to return to basic mode.

11

Scenario 11: Shooting time lapse video

I want to shoot a time lapse video of the clouds moving by my window. I choose to shoot a frame every 15 seconds, so 1 hour of weather will be viewed in 8 seconds.

1) Hold down the ◻ key until the yellow light flashes and 2 shows on the display.

2) Use the ◁| or |▷ key to choose "15" seconds.

3) Press the 🎥 key to start shooting.
4) Come back in an hour, and the frame counter should say "240".

5) Press the ◻ key to return to basic mode.

6) Press either (30) or (24) to view the loop.

Scenario 12: Recovering after a power glitch

The power was accidentally disconnected for a fraction of a second after I shot 175 frames.

Note: This technique will not always be successful

If you cannot risk losing frames in a power outage, consider using a UPS (Uninteruptable power supply). An inexpensive UPS can keep the Video Lunchbox images safe for 30 minutes or more. Computer stores sell UPS's-- contact Animation Toolworks for recommendations of UPS models.

1) Hold down the ◻ key until the red light flashes and 3 shows on the display.

2) Press the 🏃 key to "unreset" the *Video LunchBox*.

3) Press the ◻ key to return to basic mode.

4) You may now have recovered the "lost" frames. They may be slightly damaged, or they may be unusable. The *Video LunchBox* will not know the difference between the 175 frames you shot and the 81 frames which are empty, so you may want to use some of the special mode 1 features to lock out these empty frames.

Scenario 13: Switching to high resolution mode

The Video Lunchbox's normal resolution (256X512) is usually adequate for shooting reference or pencil test, but sometimes you notice horizontal lines flicker. Switching to high resolution (512X512) mode will give you a rock-solid image, but will reduce the frame capacity of the Video LunchBox to half the number of frames in normal resolution. **Do not switch to hi-res mode in the middle of a session-- all images will be lost!**

1) Hold down the ◻ key until the red light flashes and 3 shows on the display.

2) Press the (24) key to set the Video LunchBox to high resolution mode.

3) Press the ◻ key to return to basic mode.

4) The number of frames available will now be reduced to half the number you had in normal resolution. E.g., if you had 256 available in normal resolution, you will now have 128 high resolution frames available.

Video Lunchbox Reference

The Video LunchBox front panel has 7 push-button keys. Each key has one function when it is depressed momentarily, and another when it is held down. Many of the keys also have special functions when the Video LunchBox is in one of the three "special modes".

Basic Key functions:

	Shoot	The shoot key advances frame counter by one frame, and then captures a single frame of video. If it is held down for more than two seconds, it starts to capture frames in real-time (30 fps).
	Backward	The backward key displays the previous stored frame and decrements the frame counter by one frame. When it reaches zero, it moves the frame counter to the last frame which has been recorded. When the backward key is held down for more than two seconds, the display of frames accelerates to 15 fps.
	Forward	The forward key displays the next stored frame and increments the frame counter by one frame. When it reaches the last frame shot, it changes the mode to "live" (camera) mode. If you hit the forward key again, it wraps around to frame 0. When the forward key is held down for more than two seconds, the display of frames accelerates to 15 fps.
	Mode	The mode key toggles the Video LunchBox between displaying the "live" video feed from the camera or the stored frame. When the video output is from the "live" camera, the green lamp next to the frame counter will be lit. If the mode key is held down, the Video LunchBox switches into one of three "special" modes. If you release the key when the number "1" is on the display and the green lamp is flashing, you will enter special mode 1. If you release the key when the number "2" is on the display and the yellow lamp is flashing, you will enter special mode 2. If you release the key when the number "3" is on the display and the red lamp is flashing, you will enter special mode 3. Operation in these special modes is described below.

	Flip-flop	The flip-flop key puts the Video LunchBox in a special mode where it switches quickly between the "live" camera input and the frame stored at the current frame number. If you hold down the flip-flip key, the rate of the flip-flop slows down. While you are in flip-flop mode, you can use the shoot key to shoot the current scene, and then return to flip-flop mode. Many animators will leave the Video LunchBox in this mode most of the time. To leave the flip-flop mode, hit any key besides the shoot or flip-flop keys.
	30 fps	The 30 fps key plays a loop of all frames, starting and ending at the current frame. If the 30 fps key is held down for more than three seconds, the Video LunchBox loops continuously until another key is pressed. A portion of all frames can be played, see "*Loop Programming"* on page 15.
	24 fps	The 24 fps key plays a loop of all frames, starting and ending at the current frame, at a simulated 24 frames per second. If the 24 fps key is held down for more than three seconds, the Video LunchBox loops continuously until another key is pressed. A portion of all frames can be played, see "*Loop Programming"* on page 15.

Numeric Display:

	frame 21	The numbers on the frame counter let you know what frame number is being viewed on the monitor.
	(Flashing) mode 2	A flashing number indicates you are in a special mode, see "*Loop Programming," "Intervalometer"* and *"Special Functions"* on the following pages.
	frame 1021	*If your Video LunchBox can store more than 1000 frames:* a leading "0" indicates the frame counter is on a frame larger than 1000. For example, "21" is frame 21, while "021" is frame 1021.

Loop Programming
Special mode 1 (flashing green):

Special mode 1 lets you customize the looping behavior of the Video LunchBox. It lets you set special boundaries so you only see a portion of your frames when you play a loop. It also lets you set aside a special frame as a "lockdown": a frame which cannot be overwritten accidentally.

You enter special mode 1 by holding down the "mode'" key until the number 1 is on the display and the green light is flashing.

The following keys have actions in special mode 1:

	Loop Reset	This key clears all the special loop functions you may have set in special mode 1. It removes the protection from the lockdown frame, and removes the special loop start and end frame markers.
	Backward	The backward key acts the same as in the basic mode
	Forward	The forward key acts the same as in the basic mode
	Mode	The mode key returns the Video LunchBox to basic mode, where the loop start and end markers and the lockdown frame will have an effect
	Lockdown Frame	This key marks the current frame as the lockdown frame. The lockdown frame can be used as a reference frame for a start, end, or other special place in your animation. You cannot accidentally overwrite the lockdown frame-- the shoot key will skip over it and write to the next frame. Also, when you play a loop the lockdown frame will not appear. However, the lockdown frame will appear normally if you go to it using the forward or backward key.
	Loop Start	This key marks the current frame as the starting frame of the loop. After you return to basic mode, any time you press either loop key the Video LunchBox will jump to this frame to start.
	Loop End	This key marks the current frame as the ending frame of the loop. After you return to basic mode, any time you press either loop key the Video LunchBox will only play frames up to this marked frame.

Intervalometer
Special mode 2 (flashing yellow):

Special mode 2 turns the Video Lunchbox in to an intervalometer. This lets you shoot time lapse video. You can set the shooting interval to between 1 and 255 seconds, and then leave the Video LunchBox to capture frames unattended. It will continue to capture

frames until you interrupt it by clicking the ▨ key. If left uninterrupted, it will continue to capture frames and overwrite previously stored frames.

You enter special mode 2 by holding down the "mode'" key until the number 2 is on the display and the yellow light is flashing.

The following keys have actions in special mode 2:

🎥	**Start Shooting**	The shoot key starts the intervalometer running. It will continue to capture frames at the specified interval until you press the ▨ key to return to normal mode.
◁❘	**Reduce Interval**	This key reduces the frame capture interval by one second.
❘▷	**Increase Interval**	This key increases the frame capture interval by one second, up to 255 seconds.
▨	**Mode**	The mode key returns the Video LunchBox to basic mode. All the frames captured in intervalometer mode are available to view using the normal loop functions

Special Functions
Special mode 3 (flashing red):

Special mode 3 lets you reset the Video LunchBox in some special ways.

Special mode three has the following functions:
- reset the Video LunchBox without cycling the power
- "open up" all frame for viewing, whether or not they have any images in them
- set the Video LunchBox to either normal (256X512) or high resolution (512X512)

Warning!

You should never enter special mode 3 if you have frames you want to keep (exception-- "unreset") .

If you accidentally enter special mode 3, click on **to get out without doing any damage.**

The following keys have actions in special mode 3:

	Reset All	This key resets the Video LunchBox. It has the same effect as interrupting the power. **Existing frames will be lost.**
	Mode	The mode key returns the Video LunchBox to basic mode. **If you accidentally enter special mode 3, this is the key to use to get out without doing any damage**.
	Unreset	"Unreset" the Video LunchBox. Normally, you can only view frames which have been "shot" previously. This key lets you view all frames, whether or not there is any image stored there. This key is useful if you have had a very brief power outage. It is *possible* that your frames are still usable, but you can't see them because the Video LunchBox has been reset-- so use this function to unlock all frames
	Reset to Normal Resolution	This key sets the Video LunchBox to normal resolution (256X512). **Existing frames will be lost.**
	Reset to High Resolution	This key sets the Video LunchBox to high resolution (512X512). **Existing frames will be lost.** High resolution mode stores both fields of a frame separately. If there is any movement during the 1/30th of a second that this frame is being recorded, you will see a "flicker" between the two fields of the frame when you view the frame. Therefore, do not use high resolution mode to capture in real-time (30 fps).

Troubleshooting:

The Video Lunchbox appears dead-- no light, no fan

1) Check the power cord-- it must be securely and completely inserted into the socket on the left side of the Video LunchBox.
2) Check the electrical outlet-- attach another device to it to make sure it is working
3) Contact Animation Toolworks for help!

I have no video output and the red light is flashing

Something is wrong with the video input:

1) Make sure the camera or video source is connected to the connector
2) Wiggle the cables. If the video flickers, replace the cable.
3) Make sure the camera power is on and the camera is producing a signal. You can check the camera by attaching it directly to the "video in" on the monitor.
4) The Video Lunchbox will not work reliably with a tube based video camera (for example-- a surveillance camera that is more than 10 years old). Use a CCD based camera (any modern camcorder or video camera). Contact Animation Toolworks for a recommendation.

The video output disappears after a few minutes and the red light is flashing

Some camcorders turn themselves off after a few minutes. Check the camcorder manual to see of you can disable this feature. With some cameras you disable this feature by removing the video tape.

The frame number display is on, the red light is not flashing, but there is no video on the monitor

1) Check the cable between the Video LunchBox and the monitor. It should

   connect to the connector on the Video Lunchbox, and the "Video In" or "Line" connector on the monitor. It should not be connected to the "Antenna" or "CATV" or "Cable" connector on the monitor.

2) Wiggle the cable between the Video LunchBox and the monitor. Replace it if the video flickers.

3) Make sure the monitor is set to accept its signal from the "Video In" or "Line" connector. This may involve going into the monitor's program mode and selecting the input source for the monitor. The video source you need to select will usually be called "line" or "aux". Other monitors have a "Video" mode switch which switches between the video jack and the internal TV tuner.

The video output has a line or ripple moving slowly up or down the screen

1) All video equipment used with the Video Lunchbox should be connected to the same branch circuit. The easiest way to do this is to have the camera, monitor, Video LunchBox, and the Video Tape Recorder (VTR).   all share a common power strip.
2) Keep video cables as short as possible. Replace long, coiled up cables with shorter cables.
3) Try moving video cables and power cables which drape across different pieces of video equipment.
4) Try moving components which are close to each other. Move the Video Lunchbox away from the monitor, or move the monitor away from the VTR.

Some horizontal edges or lines in the image appear to flicker up and down a small amount

1) Change the Video LunchBox to high resolution mode. Do *not* do this in the middle of a shoot-- you will lose your frames!

Some stationary objects on camera appear to move between frames

1) Your camera is compensating for varying light levels by changing the exposure time. If your camera lets you disable the automatic exposure compensation, try it.

2) The contrast of the image is different than the previous image. With many video monitors this will cause the image to grow or shrink slightly, making it seem like objects at the edge of the screen are moving. A different monitor may reduce the problem.

The video image is grainy; there are speckles in the dark regions

Your camera doesn't have enough light:
1) Open the aperture on the lens
2) Chose a slower exposure time if your camera has manual exposure
3) Use more lights

When viewing a captured frame, the color flickers on and off

The Video LunchBox works with most video monitors, but a few have trouble displaying its images in color

1) Try a different monitor. We can recommend inexpensive monitors which work very nicely with the Video Lunchbox
2) Reduce the color saturation on the monitor. Usually there is an adjustment for "color" or "saturation"

The red, green, or yellow light is flashing and the Video Lunchbox keys don't seem to do the right things

You've accidentally entered a "special mode" by holding down the key.

1) Press the key to return to normal mode.

Specifications

Product Name: Video LunchBox

Model Number: VLB256, VLB512, VLB1024 (specifications apply to all models unless explicitly stated otherwise)

Description:
The Video LunchBox is a pencil test/reference test frame grabber capable of recording individual frames or full motion video, and playing them back, full screen, at a user selectable 15, 24, or 30 frames per second.

System Requirements:
Video Input: NTSC video (e.g., a **camera**, video tape player, or computer
                NTSC output device)
Video Output: NTSC video (e.g., a **monitor**, video tape recorder, or computer
                NTSC input device)
Electrical Input: 110 V, 60 Hz AC
Video Connectors: 75 ohm BNC
Operating System: none required
Computer Platform: none required

Operating Characteristics:
Color or **Black and White**
Capacity:

Number of frames	VLB256	VLB512	VLB1024
Normal resolution	256	512	1024
High resolution	128	256	512

Resolution: Normal: 256 TV lines of 512 elements
            High: 512 TV lines of 512 elements
Time to capture one frame: 1/30th second for a single frame. Realtime capture at 30 fps
Playback: single frame steps, 15 fps, 24 fps, 30 fps. Subloops are user selectable.
Output modes: single frame; playback of frames; live input feed;
            Flip-Flop between single frame and live input feed (2 speeds)
User Input Device: 7 buttons
User Output Device: 3 digit frame number display, 3 color coded indicator lamps
Intervalometer Range: 1-255 seconds duration between capturing frames

Size: 9.88" x 6" x 10"
Weight: 3.5 pounds
Removable Top

Warranty: 12 months

Limited Warranty

Note: Peripheral products (e.g., video cameras, video monitors, lenses, etc.) not manufactured by Animation Toolworks are warranted separately by their manufacturers. Warranty information for these products accompanied them at the time of delivery.

Animation Toolworks, Inc. warrants the Video LunchBox against defects in material or workmanship. Warranty duration for the Video LunchBox is one year from the date of purchase. Animation Toolworks will repair, or at our option, replace any part that becomes defective for products purchased within the United States of America.

Conditions:

• If you need to ship the Video LunchBox, please pack it in its original carton, and send it prepaid and insured, to

> *Within the US:*
> Animation Toolworks, Inc.
> 18484 SW Parrett Mountain Road
> Sherwood, Oregon 97140
> *Outside the US:*
> ship to your local dealer

• Proof of the date of purchase is the burden of the product owner.
• This Warranty only applies for products under normal use
• This Warranty does not apply to any part(s) of the Video LunchBox that have been installed, altered, repaired, or misused, or if serial numbers have been altered or removed.
• Replacement parts supplied under this Warranty carry the unexpired portion of the original Warranty. Batteries are not covered under this Warranty.
• The liability of Animation Toolworks, Inc., if any, and purchaser's exclusive remedy for damages, shall not be greater than the actual purchase price of the product with respect to which such claim is made. In no event shall Animation Toolworks, Inc. be liable for any special, indirect, or consequential damages of any kind.

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