

Tobin Video Transfer Single Format Sprocketless Telecine

Includes Ultimate and True Speed

Cautionary Notes:

1. The three motors are electronically switched and circuit failure could cause them to run prematurely. If working near potentially moving parts, first turn off the power with the rear switch.
2. The light emitter should not be looked at directly as it is very bright. On some models it pulsates, and a flashing light is known to trigger an epileptic fit in susceptible persons.



Basic Operation

Turn on the power with the switch on the right rear of the TVT. Refer to page 7 for identification of parts.

Switch the unit to “Still” and note that there are no hairs or lint visible in the picture on the underscanned video monitor. If there are any, swing open the film gate and brush or blow out the hairs. Switch back to “Stop” and close the film gate.

Check that the film format is correct for the present TVT machine. The badge on the TVT will tell you if it is made for Super-8 or for Regular-8 film. If the film is the wrong format for the TVT, change to your alternate TVT model.



“NTSC” and “PAL” designations on the TVT badge in the lower right of the front panel show the video standard for which the model is made. NTSC is used in North America including the USA, PAL is used in Europe.



The TVT has easy automatic threading. This sprocketless design prevents the film damage that could otherwise occur if a bad splice sticks in the film gate and film sprockets continue to drag the film through. Threading is done as follows.

1. Place the full film reel on the Supply (right-hand) reel spindle. Ensure that the film leader has a gentle natural curl from being wound on the reel, and is cut straight across, in between perforations, with a very slight bevel on the unperforated edge. The film’s perforations should be towards you, with the end hanging on the right.
2. Start the TVT running forward.
3. Move the Film Threading Lever ① fully downwards in the large arc shown, and feed the beginning of the film leader between the two metal guide rollers ② until the rubber feed roller pulls film from the supply reel. (See Figure A on page 2.)
4. Allow about six inches (15 cm) of the film leader to enter the TVT, or until you hear the clicking of the pulldown claw engaging the film. This should take about two seconds.
5. Then release the Film Threading Lever gently to its original position. The film will now naturally pass by the left side of the attached roller, to give additional vibration-absorbing action. NOTE: Failure to release the Lever as soon as the clicking is heard may cause a film jam.
6. When the film leader emerges from the lower sprung film guide, lead it around the two guide rollers

towards the Take-up (left-hand) spindle. Let the leader extend about a foot (30 cm) past the Take-up reel spindle.

7. Stop the TVT. When the Take-up spindle stops turning, mount the take-up reel on it. Attach the leader to the hub of the take-up reel, and turn the reel clockwise a couple of turns.

Switch to “Forward” to preview the film. It should be right way up (people’s heads and the sky at the top). The frameline (the dividing line between pictures on the film) should not be visible; if it is, adjust the **Framer** knob until it is not seen. The film need not be running to make the adjustment, but ensure the film is in its rest position and not in the middle of a pulldown cycle. Note: The original Framing knob is no longer active for Framing owing to optical and mechanical changes. If it is set wrong however you will get a dark shadow at the top or bottom of the frame. Turning this knob a little will remove it.

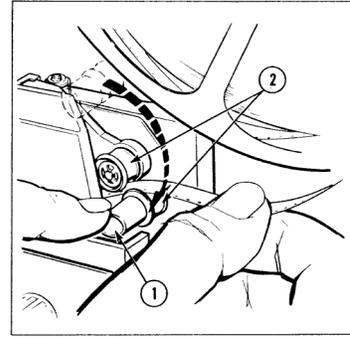


Figure A. Autoload Threading

Switch to “Reverse” and run until the picture is all back on the supply reel and there is about 1 foot (.3m) of leader film between the supply reel and the film gate, then switch to “Stop.” Push the “Reset” button to zero the footage counter. Start the video recorder. Switch the TVT to “Forward” and you will be recording the film on video.

At the end of the film, switch to “Stop” and stop the recorder. Record the film length count for billing purposes, if your company charges by the foot or meter. Attach the end of the film straight across to the supply reel, without going through the rollers and gate, and turn the reel a couple of turns counter-clockwise. Switch the Rewind “On” and when the film is fully rewound turn the Rewind switch “Off” immediately. Do not stick your finger into the reel spokes or grab the edge of a plastic reel while it is spinning, as this may cause injury. Remove the supply reel after it stops, and you are now ready to transfer the next reel.

Speed Selection

In all cases the transfer speeds are crystal controlled and will give flickerless results, with no speed tweaking by the operator.

The running speeds are the exactly correct 18 and 24 FPS (frames per second) that are standard for home movies. 18 FPS is used for most amateur film. 24 FPS has been used by folks with professional aspirations. If screen action looks slow at 18, switch to 24. Conversely, if you have the “Keystone Kops” effect at 24, switch to 18. An additional 9 FPS speed is provided for locating a particular spot in the film, but it has “travel ghost” and is not suitable for recording.

The 3CCD camera gives extra resolution and color fidelity.

Camera

The installed camera is the Sentech Y/C camera with Y/C (S-video) 4-pin MiniDIN connector in addition to Composite. The Ultimate model instead has a Hitachi HV-D30 (NTSC) or HV-D30P (PAL) camera. This normally has Composite and Y/C outputs. Alternatively you can order Component outputs, either RGB or Y R-Y B-Y.

Exposure Control

The left-hand switch selects either Peak Sensing Automatic, Averaging Automatic, or fully Manual. If the film cameraman was very careful with his exposure, the **Peak** Sensing will retain the mood of the film. However, if the film is poorly exposed and very dark and has bright elements such as the sun or a movie light, the Peak method will respond mostly to the bright areas and cause the rest of the picture to reproduce too dark. For run of the mill amateur footage, the **Averaging** exposure will be the best compromise and is recommended instead. You can also select fully **Manual** brightness setting

with the variable knob, and this is suggested for unusually composed footage such as fireworks against a black sky. In all modes, the exposure is controlled by varying the brightness of the light emitter.

Note that the Automatic functions can generally react faster than you can yourself. Note also that the Manual brightness knob is still active in either of the Automatic modes, setting a minimum brightness floor, so the automatic functions will not over-react to flashbulbs going off and the like. This is known as “non-additive mixing” where the brighter setting of the two (either manual or automatic) overrides the other. If you are in an Auto mode with the manual knob turned up higher than the Auto would call for, and you rapidly turn down the knob, it will take a while for the exposure to re-stabilize back up to the Auto level and will temporarily be abnormally dark.

Color Control

The white balance is normally preset by TCS to fixed white balance giving neutral reproduction, so pure white objects in the film will have no color tint in the video. Automatic white balance is recommended for film that was shot with the wrong filter (white balance) setting, or where the film has faded or was improperly processed. Meticulously exposed film with high quality processing and proper storage however can benefit from the preset white setting.

For the **1CCD** camera, you can turn on the automatic white balance by turning off tiny switch #1 on the bottom rear of the camera module. You can get a negative image for a special effect, or for experiments with negative film, by turning on tiny switch #8 on the bottom rear of the camera module; for this you will need to use Manual exposure control.

For the **3CCD** camera in Ultimate models, refer to the separate camera instruction book.

Installation

Connect the TVT machine to a suitable video recorder. This is often a Mini-DV (digital video) or else DVD (digital video/versatile disc) recorder, or less commonly these days a VHS (video home system) machine. There are one or two video output jacks on the front of the machine, according to your choice of camera. Both of the two jacks can be used at the same time if desired:

- The S-Video (“Separate”-video) Y/C output may give a cleaner video signal, as the luminance (brightness or Y) and chrominance (color or C) signals are sent through separate wires and will not interfere with each other, and thus not cause odd artifacts to appear in the picture. This connection is with the Mini-DIN 4-pin cable.

- The conventional video output is used in case the recorder lacks an S-Video input. The jack is a professional BNC type, so use the BNC cable to connect to commercial video equipment. Use the BNC to RCA phono type cable or adapter, to connect to the Yellow input jack on consumer equipment.

For digitizing the picture to a computer, you can: (1) Feed the video into the analog inputs of a camcorder with video to Firewire pass-through, and connect the Firewire cable to the computer, or: (2) Feed the video into a Canopus box or similar, to convert the signal from video to computerese.

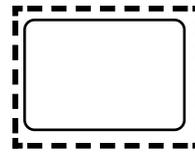
Plug the TVT into a source of 120 volts AC (alternating current) for NTSC video models. Plug the TVT into a source of 240 volts AC (alternating current) for PAL video models. If your machine was specified with a different voltage than mentioned, the required voltage will appear on a sticker on the rear cover. Do not plug 120 volt units into 240 volts or this can cause supply reel spindle motor overheating and risk of fire in Reverse and Rewind modes. 240 volt units will not give satisfactory reel torque in Reverse and Rewind when powered by 120 volts.

For safety and to minimize electrical interference the third wire should be grounded (earthed.)

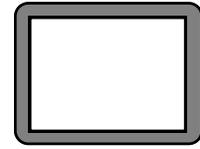
Turning on the unit will cause the footage counter to light up, and for video to be output.

Monitoring

A color video monitor should be used to help you best oversee the transfer operation. We recommend that the picture monitor be connected to the output of the recorder, so the tape or disc playback can be spot-checked for quality. We also suggest the use of an "Underscan Monitor" which enables the entire video signal to be seen by the operator. Such a monitor can be recognized by an Underscan-Normal switch. (In the underscan position, the active video area is bordered with black.)



Conventional TV
or Monitor Cuts
Off Picture



Underscanned
Monitor Shows
All The Video So
No Surprises

This is because ordinary monitors and TV sets have varying degrees of "overscan." The picture is larger than the picture tube, so the edges are cut off. The amount of underscan is not well standardized, may not be centered, may be out of adjustment, and may hide defects that could be seen on a different TV set. For example, the film may be out of frame so that the frameline is visible on some receivers but not others. Or, a piece of lint may be lodged on the edge of the aperture and working its way into the frame. To guarantee that the frameline or hairs will not be visible to anyone, no matter how their TV set may be adjusted, the transfer process should be watched with an underscan monitor so the entire video signal can be seen. There can be small artifacts on the extreme edges, such as dirt specks stuck to the aperture, which will not be a problem as the customer will not see the entire video frame on his TV set.

When demonstrating the process or results to the public, the monitor should be switched back to the Normal position to prevent misunderstandings or long explanations.

If an Underscan monitor is not available, you can manage with one having Pulse Cross (Pulse Delay.) This puts the corners of the picture in the middle of the screen. It is possible to use this function to check for framing and gate hairs although it is less convenient.

Some consumer flat-panel TV sets are now being made with Native Mode (Toshiba's name for it) or equivalent, and show the entire video signal without overscanning and losing part of the picture. These can be used in place of an Underscan monitor.

Other Needs

Film will be received from the public in various states of disrepair, with bad splices, winding turned over on the reel, being mounted on the wrong type reel or the wrong way out, no leaders, etc. and a facility must be provided for making the footage ready for transfer. This requires at the minimum a pair of film rewinds, with adapters for regular-8 and super-8 reels, a supply of film leader and empty reels, a film splicer, and a way of cleaning excess dirt off the film. Ideally there will be a light box for looking through the film, and a light above the editing bench to reflect light off the film.

Refer to the first section of these instructions for a description of how the film should be wound on the reel. There should be 4 feet of leader on the start for proper threading of the TVT, and enough leader on the end to thread the film cleaning device. Torn film sprocket holes and crooked splices should be removed to prevent transfer problems.

Small rolls should be spliced together for efficient transfer. A properly made cement splice, using fresh cement, is preferred. The smoothest transit of splices occurs when you have made a beveled splice using an (unfortunately discontinued) Agfa or Bolex splicer, where the total thickness at the splice is about the same as unspliced film. (Fuji Single-8 and K-Mart Focal film was on polyester base and must be tape spliced.) When making tape splices, ensure that the sprocket holes are not covered up and the tape is on straight, on both sides of the film.

We suggest using 400 foot (122 meter) reels, and cans or 7" size white 1/4" audio tape boxes. Usually if 7 small 50' rolls of regular-8 film, or 8 small 50' rolls of super-8 film, is wound on each reel,

this will enable two of the reels to fit on each 1 hour tape or disc with minimum waste and no need for time-consuming tape editing or overlaps. Mark the leader on the head (beginning) of the reel with the customer's name or job number, and the reel number, to avoid mixups. Leader with a matte finish can be written on with pencil, while shiny leader can be marked with a Sharpie or India ink. Ensure that the cleaning step does not remove the reel identification. Storage cans should be ventilated for slight air circulation, to prevent film deterioration from "vinegar syndrome." Advise the customer to keep his film in a cool, dry, dark place to prevent fungus growth. You want the film to be in good condition so you can transfer it again when the next super generation of video equipment formats makes the present transfer obsolete. :-)

After each reel is spliced and repaired, it is rewound through the film cleaner device on to the proper reel, which restores the reel to being heads (start) out instead of tails (foot or end) out, and sent to the transfer room. **Note:** When using a liquid cleaner, view the rewinding film by reflected light to make sure it is dry again before it winds up, or else the film may dry with "shoreline" marks on it. You can wind quite fast if not using an excessive amount of fluid.

Important note on lubrication: Some film types are not lubricated in processing and will give an unsteady image and noisy running until lubricated. This includes the recent Ektachrome 64T and 100D film as well as some private brand films made by other manufacturers. The cleaning fluid should have a small amount of wax dissolved in it to provide lubrication for smooth transport through the TVT or through the customer's projector. A suggested amount is a lump of candle wax or beeswax the size of a pea ground up and dissolved in a pint (half litre) of solvent. Cleaning solvents that are widely used include methyl chloroform (*toxic fumes*), perchloroethylene (dry cleaning fluid) (*toxic fumes*), Freon TF (*ozone depleting*), or 99% isopropanol (isopropyl alcohol) (*flammable*). There are also commercially mixed film cleaners with lubricant. Cleaning must take place in a ventilated area.

Other Information

The TVT has a "Mechanism Hours" timer to measure how long the main drive motor and the mechanism have been running. This only advances in the Forward and Reverse modes. The count is remembered without need for batteries when the unit is turned off. A time interval for servicing has not yet been established.

Routine service:

- After long use, the Claw Pivot and cams may need greasing. Instructions for this are posted in the Instruction Manual section of the website, or will be furnished on request.

Service adjustments:

- After long use, the white balance of the LED and camera module could change, which is not important if using the AWB (automatic white balance). To reset the white balance on the Y/C camera when the AWB is turned off, turn to "Still" without film and observe the output signal with an oscilloscope or waveform monitor. Adjust the R and B (red and blue) pots in the camera module, for minimum chroma carrier, preferably from the S-video "C" output. Be very careful with the tiny pots as they are easily damaged or torn loose from the circuit board. For the 3CCD camera, it is equipped with automatic white balance memory and refer to the separate camera instruction book.
- In case of replacing the timing belt, it will be necessary to reset the Shutter Phase in order to not have travel ghost (vertical blurring). Shutter phase is selected with the jumpers on the circuit board.
- In case of odd symptoms, first check the output voltage of the switching power supply modules. These should be 12 and 24 volts DC, $\pm 5\%$. The voltage should change little no matter what settings are made to the operating controls. The 18 or 24 volt supply may sag momentarily while the drive motor starts running.

If dust accumulates on the optics or light source, it should be removed with a clean camel's hair brush or air blower. Fingerprints must be removed immediately from the lens with lens cleaner and lens tissue, following the instructions included with them. There should be no need to dismantle the light source module.

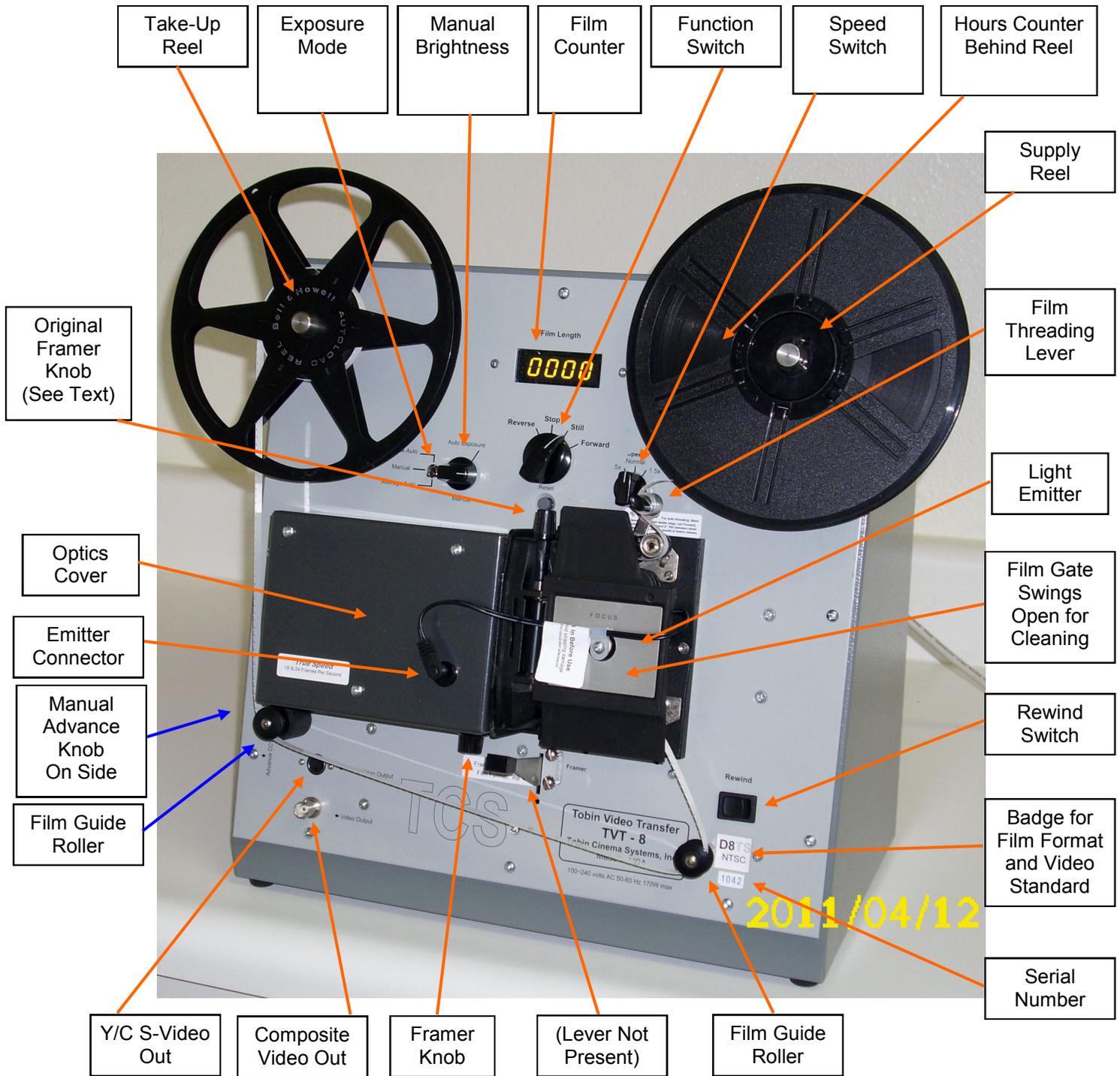
Suggested Sources of Supplies

<http://www.urbanskifilm.com>

Tobin Cinema Systems, Inc.

<http://www.urbanskifilm.com>

TVT-8TS.pub rev 8-16-13



On rear: Power inlet connector, power switch, line voltage rating sticker.