

Operating Instructions for models with Sentech camera:

TVT-D8C, TVT-S8C Tobin Video Transfer Dual-8 or Super-8 “My Own Telecine”

Basic Operation

Connection. The telecine does not have a power switch. The 3-wire plug goes into line (mains) voltage of 100 to 240 volts AC, 50 or 60 Hz. The third grounding pin is for electrical safety, and to minimize any electrical interference that could be generated or received by the TVT. The video outputs are through a 4-pin MiniDIN Y/C S-video socket and an RCA video jack on the camera housing. These connect to a DVD, Mini-DV or VHS recorder or computer of your choice. Note that unlike competing units no computer is required. The recorder output should connect to an underscanned video monitor. See below for an explanation.

Before Threading. Note: The operating controls are shown on Page 8. Check 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.

Film Format. Check that the film format is correct for the present TVT machine setup:



- The **TVT-S8C** is only for Super-8 silent film. It will not accept Regular 8.
- Your **TVT-D8C** normally is set for Super-8 film when the Claw lever is in the Super-8 (upper) position and the 1/2" (12.7mm) supply reel spindle adapter is installed.

- Your TVT-D8C normally is set for Regular 8mm film when the Claw lever is in the Regular-8 (lower) position and the 5/16" (8mm) supply reel spindle is uncovered.

The film will not advance through the gate if the Claw setting is wrong. If the setup is wrong, change to the other TVT-D8C setup as explained

below. Besides the basic Claw setting there are optical adjustments needed, see page 3.

Video Standard. There are no “NTSC” or “PAL” designations on the TVT, the video type can be inferred from the type of power (mains) plug. NTSC is used in North America, PAL is used in Europe. Units shipped to North America with a USA power cord will be NTSC, and units shipped to Europe with the European power cord will be for PAL, unless otherwise specified when ordering.

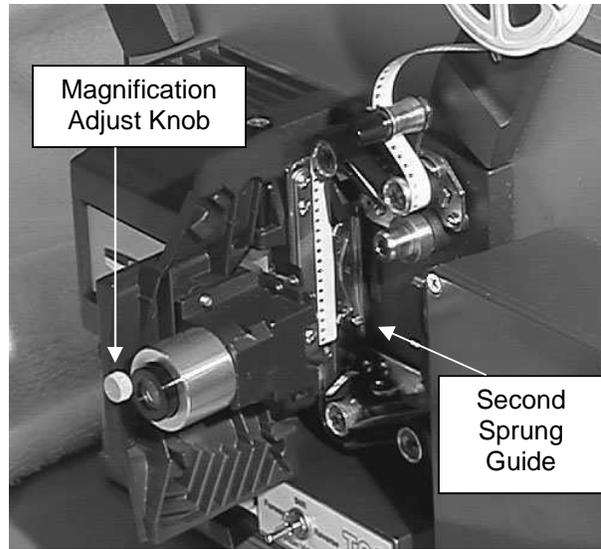
Threading. Place the full reel of film on the right-hand “Supply Reel” spindle, matching up a slot in the reel hub with a key in the reel spindle. If the reel is correctly prepared, the perforations (sprocket holes) in the film will be towards you, with the emulsion side (the side with the picture) facing to the right, while the film is hanging down from the right-hand side of the reel. There should be about 4 feet (1.25m) of leader before the first picture. If any of this is not the case, return the film reel to the preparation department for correction.

Threading the TVT-D8C. The TVT-D8C requires film reels that are not unbalanced, and that are not bent and pinching the film edges.

The TVT-D8C has easy partly manual 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:

Lift up the Rewind lever to minimize drag on the running film. Swing open the lens holder to reveal the film gate. Pull about 10 inches (1/4 meter) of leader past the film gate area and insert it into the film gate. Route the film around the three upper sprung rollers as shown. Place the beginning of the leader just below the second sprung edge guide, and make sure it is in the proper channel. Close the film gate. (Note: a rubber feed roller, if present, is not used and can be disregarded.)



Threading the TVT-S8C. Push and hold down the clear plastic Autoload film guide, run Forward, and insert the beginning of the film leader into the slot. Keep holding the guide until the film emerges from the bottom sprocket. At this time you can release the guide.

Finishing the threading on both: Run the TVT in Forward, and it will automatically go the rest of the way towards the take-up reel. Attach the beginning of the leader to the take-up reel, turning the reel clockwise a couple of turns. It may attach automatically if using the correct type of original reel, if one is available.

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 must be running to make the adjustment on the TVT-S8C. The film can be stationary to make the adjustment on the TVT-D8C, but make sure the film has not stopped in the middle of a pull-down cycle to the next frame. After previewing, back up the film to before the first picture.

Recording. Start the video recorder. Switch the TVT to "Forward" and you will be recording the film on video. Exposure errors in the film can be compensated with the **Exposure** knob on the front of the TVT.

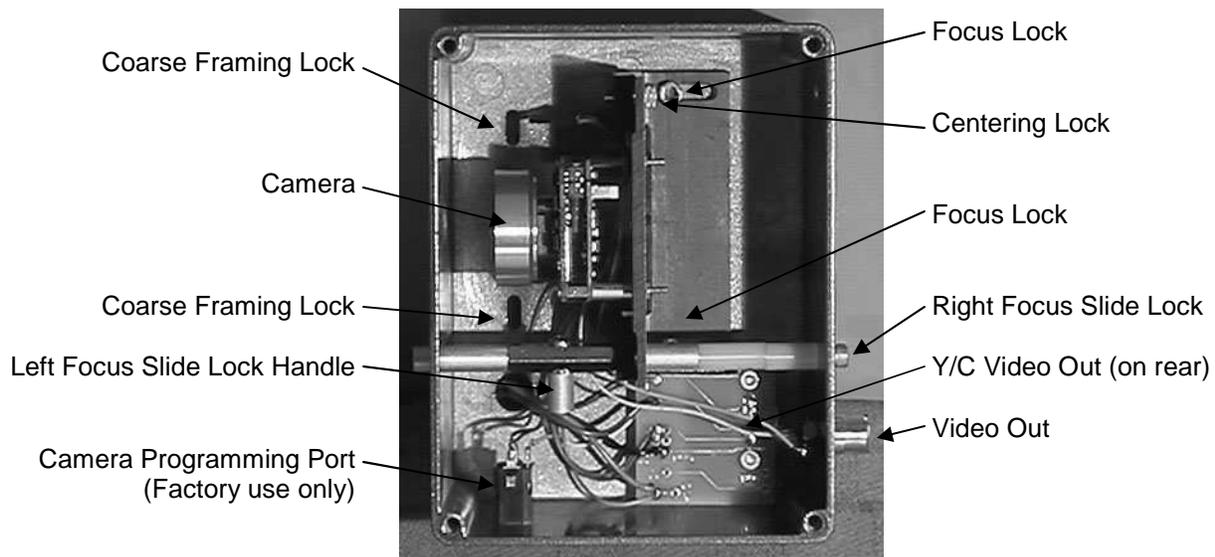
The film should be inspected, repaired, cleaned and lubricated before it comes to you for transfer. A bad splice or multiple damaged perforations can cause the film to stick in the film gate. On the TVT-D8C it may free itself momentarily, or you may have to help the film through by pulling on it at the take-up reel. On the TVT-S8C it may lose the loops and give a blurred picture. Pushing down briefly on the Autoload film guide may reset the loops. In a severe case, you might have to stop for a second and rotate the knobs on the end of the sprockets to adjust the loops so they are not hitting the plastic guides. You will hear a ratcheting noise when turning the stiff sprocket knobs, this is normal and not harmful.

At the end of the film, switch to "Stop" and stop the recorder. Raise the take-up reel arm. 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 to Reverse and on the TVT-D8C engage the Rewind lever. When the film is fully rewound turn the 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, lower the take-up reel arm to normal, and you are now ready to transfer the next reel.

TVT-D8C Film Format Changeover

Claw Change: Move the Claw lever all the way up to Super-8 to center it for super-8 film. Move the claw lever all the way down to Regular-8 to center it for regular-8 film.

Feed Reel Spindle Change: the Super-8 reel spindle adapter slides on and off. S8 film uses the 1/2" (12.7mm) spindle and R8 film reels have the 5/16" (8mm) size hole. (The "wrong" spindle can be installed to suit film that is wound on the wrong type non-standard reel.) If available, an original black plastic spindle adapter will be provided. If not available, an alternative adapter will be furnished and this may require a rubber reel retainer to prevent the reel from falling off.



Magnification Change: The effects of this and the following adjustments should be judged on your underscanned monitor. The lens can be removed by fully unscrewing the Magnification adjusting knob. An internal spring presses the lens against the adjustment. For Super-8 film, the end of the lens with the retaining ring should face the film. For regular-8 film, the end of the lens with the retaining ring should face the camera. For Super-8, adjust the Magnification screw so the right end of the lens is protruding from the lens holder by about .2 inches or about 5mm. For regular 8, reverse the lens end for end so the retaining ring is on the left, and slide the lens so the right end extends only about .12 inches or about 3mm past the right side of the lens holder. (When adjusting the TVT-D8C to match the aperture of a particular film camera, this setting can be modified. Moving the lens to the left will further magnify the film (zoom in); moving it right will reduce the size (zoom out). If you "zoom in" too much you will cut off people's heads and feet more often. If you "zoom out" too much you will have to change the Framing Adjustment more frequently while working, and you are more likely to see and deal with hairs and dirt around the edges of the camera's filming aperture.)

Note: the following steps use the 7/64" Allen hex driver, with camera cover removed with a #2 Phillips screwdriver, and you can best see on the monitor what is happening if the room lights are dim. The ball end of the 7/64" driver must be used in order to reach the lower Focus Lock screw at an angle.

Centering Change: Run the film to be copied to a few feet past the end of the head leader. Pick a spot with lots of fine detail or that is grainy, for easier focusing (below). If the film frame is in the middle of a pulldown cycle, remove the lamp cover and turn the timing pulley counter-clockwise so the film advances once and then is stationary. Loosen the Left hand part of the Focus Slide a turn or two of the handle. Loosen the Right part of the Focus Slide by about a turn. Loosen the Centering Lock Screw on the rear of the camera plate by 1/8 of a turn, and slide the camera plate in or out on the elongated holes to center the image. (Do not disturb the 2 small screws that mount the camera module to the metal plate.) Tighten the Centering Lock Screw. Tighten the right part of the Focus Slide. Tighten the left part of the Focus Slide.

Framing Adjustment: The Framer knob adjusts the framing of the image. If there is not enough range, you can loosen the two Framing Coarse screws inside the camera case and move the camera box up or down.

Focus Adjustment. Loosen the two Focus Lock screws slightly. Manually slide the camera plate left and right to find the best focus. Re-tighten the two Focus Lock screws.

Monitoring Notes

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

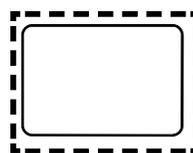
operator. Such a monitor can be recognized by an Underscan-Normal switch. (In the underscan position, the active video area is bordered with black.)

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.

The Underscan monitor is necessary when correctly adjusting the magnification, centering, framing and focus when changing over between the S8 and the R8 settings.

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.

Monitors with a flat screen are sometimes Underscan capable by another name if they claim to be able to show the whole video frame. 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 method although it is less convenient.



Conventional TV
or Monitor Cuts
Off Picture



Underscan
Monitor Shows
All The Video So
No Surprises

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, also the TVT-D8C sometimes does not like small 50' reels. 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 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. :-)

NOTE: The TVT-D8C has the super-8 claw position, above the gate, when running both S8 and R8 films. Such mechanisms are fussy about splices, compared to regular-8 only ones with the claw below the gate. If your cement splices cause excessive jamming in the film gate, change the direction of splicing by winding the film right to left on the bench while splicing, instead of left to right, so you are scraping the outgoing film instead of the incoming one. Having the splice accordingly lap the other way (so the sharp leading edge of the thick splice rubs against the mechanism's pressure plate instead of hitting the bottom of the minimally undercut aperture plate opening) will give more reliable running.

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, especially if newly processed. This includes the current Ektachrome 64T and 100D films 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.

Some users have adopted a modified means of lubrication. They spray Pledge Beeswax furniture polish on to a rag, and wind the film through it while still damp.

Running Speeds

The **TVT-D8C** and **TVT-S8C** models run at one speed. This is 19.98 FPS (frames per second) for NTSC video models, and 16-2/3 FPS for PAL video models. This design feature gives smooth screen motion and the greatest degree of exposure correction for dark film. The TVT gives frame by frame scanning in real time, with each film frame going to three video fields. This gives smoother screen motion than duplicating entire video frames via computer.

Other Information

Routine service:

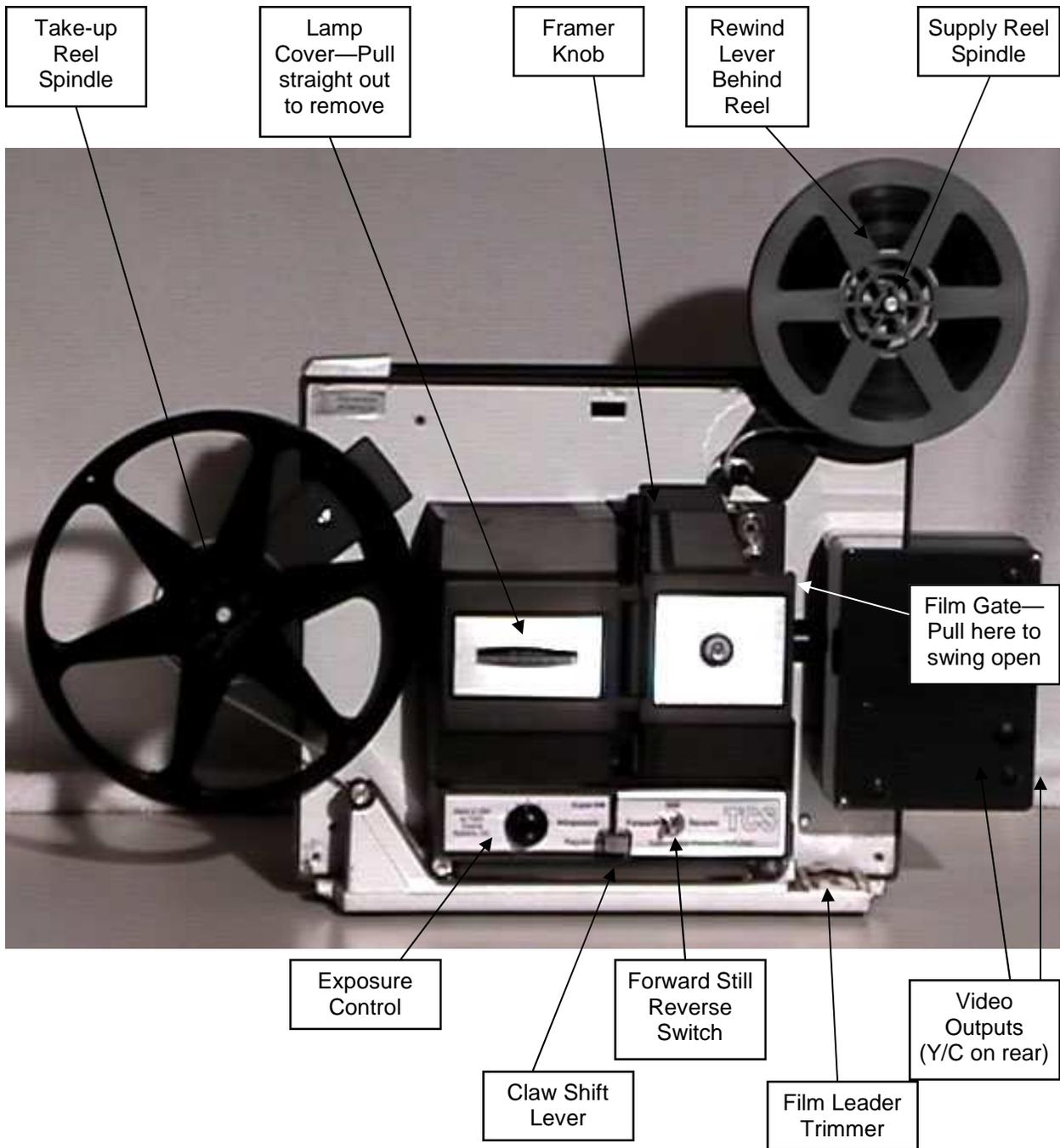
- After long use, the Claw Pivot and cams may need greasing. Instructions for this will be furnished on request.

Service adjustments and information:

- After long use, the white balance of the LED and camera module could change. This is a factory adjustment as a special jig and software are needed in order to change the camera DSP (digital signal processing) settings.
- In case of replacing the timing belt, it will be necessary to reset the "Shutter Phase." When the claw is in about the start of a pulldown cycle, the top edge of the interrupter disc slot should be about at the center of the opto-interrupter. The disc position can be changed when the TVT is stopped, by loosening the screw on the end of the motor shaft. If there is residual travel ghost, move the disc relative to the shaft as follows: For a ghost extending above a light object, turn the disc counter-clockwise a little. For a ghost extending below a bright object, turn the disc clockwise a little. Then re-tighten the screw and re-check.
- Camera setup settings such as gain, white balance type and gamma are all done at the factory with a special jig and software program, and cannot be altered by the user. The small dipswitch on the camera should have number 1 turned on, and the rest turned off, for correct function. Do not attempt to connect anything to the camera programming port on the bottom of the camera housing as no good can come from this.
- In case of odd symptoms, first check the output voltage of the switching power supply. The voltage should be 15.6 volts DC.
- The TVT may malfunction if the Ground pin on the power cord is not connected.
- If dust accumulates on the optics it should be removed with a clean camel's hair brush or air blower. Fingerprints must be removed immediately with lens cleaner and lens tissue, following the instructions included with them.

Suggested Sources of Supplies

<http://www.urbanskifilm.com/>



Power cord and serial number nameplate are on the rear.

Tobin Cinema Systems, Inc.
<http://www.tobincinemasystems.com>