Film steadiness compensation

Film running direction

... 5 6 7 0 1 2 3 4 5 6 7 0 1 2 ...

Strobo flashes

Correct time gap in between frames at 25fps=40uS

Wrong time gap in between frames 39.98uS

Necessary error compensation -0.02uS

Wrong time gap in between frames 40.02uS

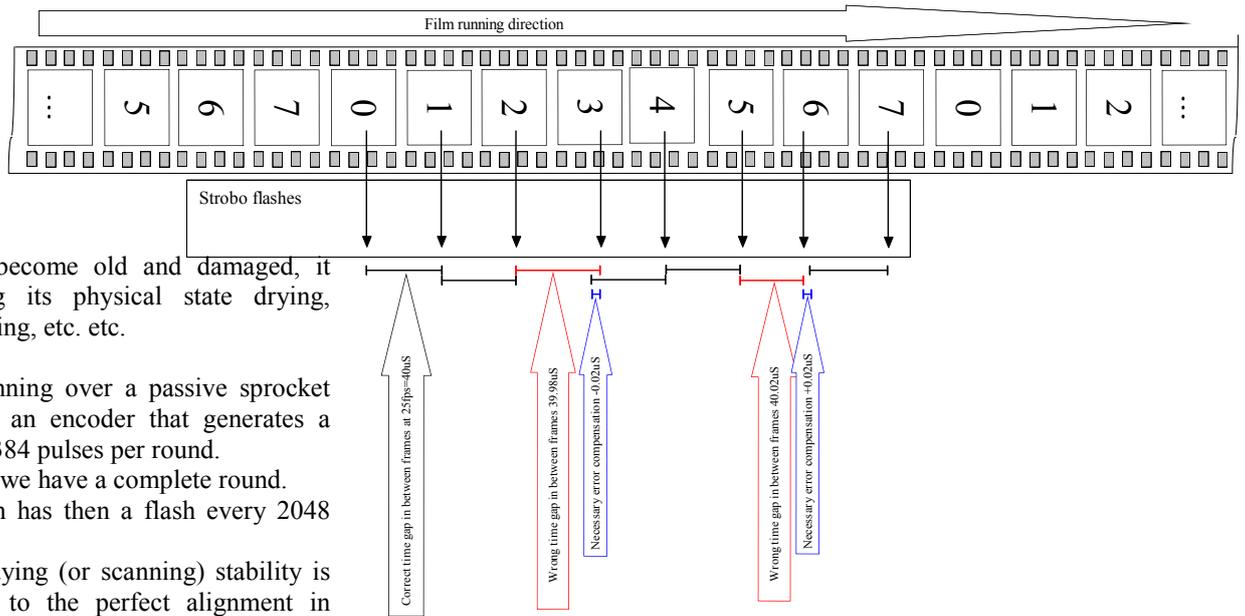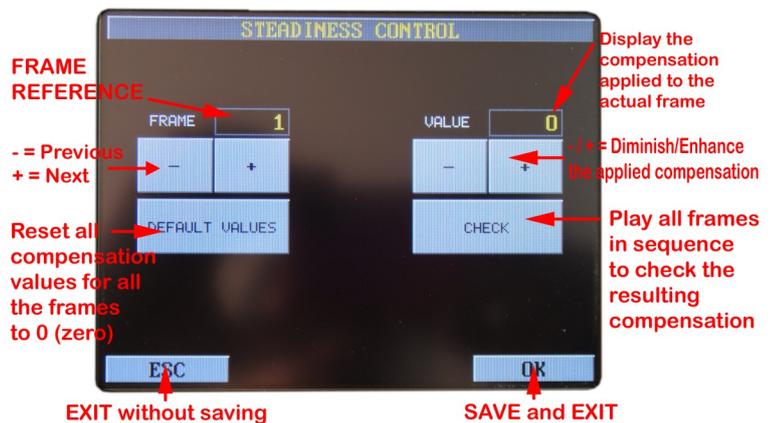Necessary error compensation +0.02uS

When a film become old and damaged, it starts changing its physical state drying, shrinking, bending, etc. etc.

The film is running over a passive sprocket combined with an encoder that generates a sequence of 16384 pulses per round.
Every 8 frames we have a complete round.
The 35mm film has then a flash every 2048 pulses.
The images playing (or scanning) stability is strictly related to the perfect alignment in between every displayed picture and the following one.

When a "not perfect" film moves over the sprocket, its physical action become "not perfect" as well; it will not move linearly anymore over the sprocket becoming more "sinusoidal".

The steadiness compensation system is based on the adoption of an user compensation table that will shift the theoretical flashing reference (every 2048 pulses) so to obtain a positive or negative error correction.
Keeping the 0 frame as fixed reference, the user table will apply in loop the error correction chosen with the equipment interface.

STEADINESS CONTROL

FRAME REFERENCE

FRAME 1

VALUE 0

- = Previous
+ = Next

Display the compensation applied to the actual frame

-/+ = Diminish/Enhance the applied compensation

DEFAULT VALUES

CHECK

Reset all compensation values for all the frames to 0 (zero)

Play all frames in sequence to check the resulting compensation

ESC

OK

EXIT without saving

SAVE and EXIT

To Access to the *steadiness control* menu, just press the ⚙ button.

Once active, the control will start flashing the frame 0 (reference frame) and the frame selected in the "frame reference" area:

1. Start to run the film (it is advisable to use the *Jog Shuttle* equipment control). Keep it running during all the procedure. You can eventually stop and rewind BUT the correction is effective and can be judged only on film running FORWARD.
2. Frame, eventually, on the film perforation to have a solid reference.
3. Check if the film is now "jumping"; if so apply a point of compensation or if not, move to the next frame changing the frame reference.
4. If you've completed the check (you've checked all the 7 frames on the 35mm film sprocket), you can check the final risult before applying the setting just pressing the button *CHECK*.
5. Press the button *OK* to save the newly made compensation table.

NOTES:
It is normal that the strobo lamp flashes not as often as before activating the function: it flashes only for frame 0 and for the reference frame. The setup is done only one frame at once comparing it with the reference one,
The "direction" of the correction is unknown at the beginning of the procedure. Just apply a correction in one direction (positive in example) and visually check if the "jumping" become worse or better. Starting from that initial direction, keep it until the required correction become null (0). It is normal that on an high frames sprocket (a 16mm sprocket i.e.) the defect has a complementary correction structure; the correction can assume positive values on some frames and negative values on others. This because the film can act over the round sprocket as if it were elliptical instead.
It is, unfortunately, normal that the compensation is not effective on some kind of films. The logical foundation is that a redundant error can be compensated applying always the same correction. The correction is not effective with all random defects (splices i.e.).