

Overcrank & Undercrank Speed Reference Chart (updated 4 September 2007)

	audio speed (playback shoot) %	AU Pitch Filter Value	video speed (Optical Flow) %
U N D E R C R A N K	5	3360	2,000.00
	10	3120	1,000.00
	15	2880	666.67
	20	2640	500.00
	25	2400	400.00
	30	2160	333.33
	35	1920	285.71
	40	1680	250.00
	45	1440	222.22
	50	1200	200.00
	55	1080	181.82
	60	960	166.67
	65	840	153.85
	70	720	142.86
	75	600	133.33
	80	480	125.00
	85	360	117.65
	90	240	111.11
	95	120	105.26
	NORMAL	100	0

	audio speed (playback shoot) %	AU Pitch Filter Value	video speed (Optical Flow) %
NORMAL	100	0	100
O V E R C R A N K	105	-60	95.24
	110	-120	90.91
	115	-180	86.96
	120	-240	83.33
	125	-300	80.00
	130	-360	76.92
	135	-420	74.07
	140	-480	71.43
	145	-540	68.97
	150	-600	66.67
	155	-660	64.52
	160	-720	62.50
	165	-780	60.61
	170	-840	58.82
	175	-900	57.14
	180	-960	55.56
	185	-1020	54.05
	190	-1080	52.63
	195	-1140	51.28
	200	-1200	50.00

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Note:

Although the above table is only meant for your shooting guide, do not use it without proper understanding of the formats and playback equipments. Conduct your tests first, before using it for your real projects. Technically speaking, only some of the modes have been tested out on my projects (mostly music videos) and theoretically, it works for both PAL and NTSC since its involved in percentage change and nothing to do with 'frames-per-second' per say. I maybe wrong (or bad in my Mathematics! I use to hate this subject!!!), but no harm trying. I hereby take no responsibility, if your video did not turn out as expected. Good Luck in your 'ramp'age!

Instructions:

- 1) Place the NORMAL SPEED (100%) audio playback source on FCP timeline.
- 2) Place a "Slug" (same duration as audio) on video layer and apply "Timecode Generator".
- 3) Export as "Quicktime Movie" (eg. "Playback.mov")
- 4) Re-import "Playback.mov" and adjust 'Speed' (Option+J) settings as desired (from the "playback shoot" column).
- 5) Apply "AU Pitch" audio filters to the speed adjusted clip and apply the "pitch" settings (refer to 'AU Filter Value') to gain back original pitch.
Note: Pitch adjustment label in Red, cannot be change to more than the 2400 max value!
- 6) Export, encode and use it for your 'Playback Shoot' (eg. on iPod, DVD player etc..)
- 7) When editing, you can adjust the speed change in FCP (according to the tableguide) and send to Motion to take advantage of the Optical Flow (speed changes in FCP is preserve when sending to Motion now!) or just send captured clip to Motion and adjust the clips speed there.

In Motion, go to Inspector Tab >Timing > Speed (choose appropriate speed cross-referencing "playback shoot" speed you recorded on camera. WARNING: When you have a long master clip, and need to change the speed of some part of a clip, "Optical Flow" will process the whole entire master clip. Export the desired "marked clip" in FCP that is needs speed change into a new clip and re-import it again into FCP. This way, your workflow process is cut down short instantaneously.

example: If my playback shoot was on 150% (overcrank), i will use a -600 for my AU Pitch Filter value and use 66.67% video re-timing.

- 8) Under frame blending, choose "Optical Flow" for a nice, clean blending.
- 9) Enjoy!

Prepared & Compiled by :

Isazaly Mohamed Isa (a.k.a Zalee),
Creative/Technical Director, Kino-i Sdn Bhd
Certified Apple Pro Trainer, Malaysia.
zalee@kino-i.com

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