

## Tape-Shuttling

Back in the days of high-torque reel motors and simple (some would say primitive) tape transports, there was a bit of an art to fast-winding tape called SHUTTling.

Shuttling is achieved by "rocking" between fast-forward and rewind (or vice-versa) to keep tape speed at a reasonable rate and to slow the tape to a near-stop before actually pressing the STOP button.

NOTE: Most tape decks that require shuttling also require that you press STOP and let the machine come to a complete stop BEFORE going into PLAY mode. The reason for this is that these machines will immediately disengage winding-torque and/or brakes on the reel motors when you press the PLAY button and this will cause a "death tape spill" or rip (break or stretch) the tape if the reels have not come to a stop first.

Another potential problem, possibly more severe, is the pinch roller grabbing the tape and stopping everything while the tape is still moving from the fast-wind operation. For instance, if you were in Fast-Forward when this happened, tape would spill from the supply reel and the inertia of the takeup reel would continue to try to move the tape after the pinch roller had engaged the tape against the capstan. This can be disastrous (snapped, or worse, stretched tape and a bunch of spilled tape all over).

Later machines that have motion sensing do the shuttling for you. If you press stop from one of the fastwind modes, the machine enters a shuttle mode, then finally engages the brakes or pinch roller as the tape passes through zero velocity.

NOTE 2: This method is required to preserve tape heads (and control room monitors) on ALL older Ampex decks, up to the AG-440B (which had a tape-lifter delay circuit so the tape lifters wouldn't place the tape back against the heads until the machine had enough time to come to a stop if it were properly adjusted; the 440C had an actual motion-sensing control that would not allow the machine to go into play or the lifters to drop until the machine had come to a complete stop). Do not underestimate the damage fast-winding with the tape against the heads can do to control room monitors. Tweeters WILL burn under certain conditions. Any decent modern power amp has zero difficulty putting out full watts at frequencies well beyond human hearing -- and most decent tweeters are not designed to pass that energy out into the air.

NOTE 3: If you're new at owning a vintage studio tape deck, practice this with a junk reel of tape. DO NOT DO THIS FOR THE FIRST TIME WITH SOMETHING VALUABLE LOADED ON THE MACHINE.

Shuttling is very simple. Let's look specifically at an Ampex 440"a" rewinding mostly through a reel and then playing it. Put the machine into REWIND (<<). After it's gotten up to a reasonable speed, press the FAST-FORWARD button (>>) momentarily. You will see that the reels immediately slow down as the machine naturally transitions to FF motion. Before it comes to a momentary stop or changes direction, press the << button again. Repeat to keep the tape speed slow-ish, which allows for good tape-pack and prevents a too ragged edge-pack. This means smoother motion through the transport when you play the tape.

A smooth pack also avoids edge damage to your valuable tape.

As you approach the point where you want to stop, shuttle the << and >> buttons to make the machine slow down. Get it slower and slower as you get near The Point. When you're at The Point, press >> just long enough for the machine to transition to a near-stop. Then press the STOP button. Voila! The machine comes to a stop and you shouldn't hear the shriek caused by

the tape being dragged across the heads at fast speed. You can now press PLAY and start playing your tape. Your tape heads and monitors thank you!

This sounds more complicated than it is. And, while this may sound non-intuitive, the shuttle method is more gentle on tape than fast-winding and then dead-stopping. In fact, that method will usually rip tape on small reels on the older Ampex decks (300 particularly).

For an Ampex 300, the method is the same but there are no push-buttons. You simply move the lever switch between << and >> after engaging one direction and pushing the START switch. In fact, on a 300, when you get to your stop point, you can switch the lever to the PLAY position and the machine will automatically come to a stop. Then you hit the START switch and the machine begins playing.

REMEMBER, WITH AMPEX 300, 350 and 400 SERIES MACHINES, YOU MUST HOLD THE TAPE GATE OPEN SO THE MANUAL LIFTERS HOLD THE TAPE AWAY FROM PHYSICAL CONTACT WITH THE HEADS. IF YOU DO NOT HOLD THE GATE OPEN, THERE ARE FAST-WINDING CONDITIONS THAT CAN CAUSE THE GATE TO SLAM THE TAPE AGAINST THE HEADS. THIS IS NOT GOOD FOR THE TAPE, THE MACHINE, OR YOUR CONTROL ROOM MONITORS. REMEMBER: THE MONITORS YOU SAVE ARE YOUR OWN.

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