Spencer Chase's Roll Transport Mechanism - 2 of 2

Capstan / Pinch Roll Driver Unit





When shipped, the unit is in the down position, and little feet keep the capstan from touching the pinch roll. This is swung up during scanning so they do make contact. Since the assembly swings on a brass hinge, it too is held down during shipment by a removable plastic shipping brace. Note the brace's knurled nut also secures the take-up slack-sensor roller . Flat screwheads (pointing towards yellow lifter) are used as feet when the assembly is raised for threading.





Slack-Sensing Roller



Take-up Slack-Sensor roller and Vane. Roller that rests on the top of the paper between the CIS/Driver unit and take-up spool, attaches to brass cross bar which moves a vane across an optical switch that controls the take-up spool stepper motor and the clutch (for redundant protection). Brass screw assembly on bracket is for 'fine' weighting adjustment.

Capstan/Pinch-Roll Drive



As seen from the top



As seen from Beneath

Take-Up Spool Assembly



Take-up spool is glass fiber reinforced resin.



Free-end spool assembly



Stepper Motor / Clutch end assembly



Stepper motor mounted on a piece of drawer slider hardware to allow smooth, fine adjustment to align the take-up spool with the supply spool.





Loosen stepper shaft-coupler screws from stepper motor on right-end of take-up spool, remove stepper, and you see an Electro-clutch unit. Remove it (by removing C clamp) exposes free-spinning plate (that connects to the stepper).

Behind free-spinning plate is another plate (just visible in photo) that's attached to the spool. When clutch winding is energized, back plate is attracted to the front plate in a clutch action, driving the spool.



Looking at an angle into the hole on the take-up spool where you attach the end-tab, we can just see the other end of the clutch assembly, but this seems to have been force-fit into place and we don't dare try to access it.

[Spencer: This was done by modifying a standard belt driven magnetic clutch. I turned off the drive gear teeth and pressed it into the spool hub. The spool hub is pressed into the spool tube. The motor and spool slide on a little piece of drawer slide to allow for lateral adjustment. This was done in a rather clunky way because it will probably not need to be done often. Just in case a bunch of rolls have strange flange dimensions. I never have to do this with da or Ampico rolls, just some odd ones.]

