Subject: Re: Roberts 770 not keeping speed
Posted by slbender on Thu, 19 Apr 2007 05:42:14 GMT
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Hi,There are six basic things that cause a tape deck to be off speed:1)- Mechanically, is the applied Pinch Roller have the proper applied pressure, usually this is around 1.5Kg. +/-.25 Kg.2)- A "slick" or oily surface, when contaminated with debris, or from exposure to some oils or other plastic products, the surface can lose "traction". The same also applies to the tape guides and tape heads in the tape path, contamination with debris or "sticky Shed" from bad tape will increase friction causing speed variation problems.3)- The outer rubber tire on the Pinch Roller can get "dents" in its surface; or become brittle and crack or break off in places, or in extreme cases have loss of "round", turn "soft", or to "goo".4)- Loss of lubrication may cause the Pinch Roller to bind or stick.5)- The metal capstan may be turning at an improper speed, the motor speed may vary due to a bad or stretched rubber belt, or a 30 to 40 year old Motor Phase Capacitor (also called the Motor Run Cap, or Phase Advance Cap) may be out of spec causing improper or varying speed. 6)- Lastly, improper backtension in three motor decks usually, can cause tape stretching or variations in tape speed from the beginning to the end of a reel. Backtension problems in single motor decks is often much worse, as this can be caused by so many sources - improper friction cams, rubber wheelies with bad spots, springs and/or rubber belts with oil on their surface, or that have been stretched over time, debris and gummy residues, improper brake friction, etc...The last thing concerns the Servo-Controlled Capstan Direct Drive Motors used in some later direct drive units, like the Akai's made after 1970, the electronics may start to break down needing replacement of several parts within the servo-controlled circuitry, as far as I know the Roberts 770 predates this and uses a Hysteresis Motor with belt drive. To effect repairs, often one needs the original Service Manual: 1 - Applied tension needs to be checked with a fish scale or tentelmeter. springs need to be tightened or adjusted, or replaced. 2 - Cleaning the tape path and the surface of the Pinch Roller may solve the problem. 3 - The pinch roller may need to be "re-tired", which costs about $30-$40. but may be the only solution since few mint Pinch Rollers are available. 4 - Cleaning and re-lubricating the Pinch roller may solve this problem. 5 - The Motor Run Cap needs to be replaced; old ones may soon suffer from the same problems in a few years, so often a proper modern replacement is the best solution. Note - Induction and Hysteresis motors use Phase Capacitors that are Non-Polar and A.C. Working Volts rated, a DC cap or polarized electrolytic cap, the most common type seen will likely explode if used in this application.6 - Backtension problems on 3 motor decks is usually adjusted by several large variable power resistors; or a whole slew of adjustment pots - in the case of the Pioneer RT-909. On single motor decks it can be a combination of four or five interdependent adjustments and often replacement of parts becomes an issue some 30 or 40 years later, when parts are no longer available, so it is much more time consuming and difficult to adjust using the old parts...Lastly, a Servo Control repair requires a proper technician and the proper test tapes and parts, and adjustment equipment.-Steven L. Bender, Designer of Vintage Audio Equipment