

TROUBLESHOOTING SPEED PROBLEMS ON GYRO TURNTABLES

By Dave Lang

If a Gyro is running too slow or varies in speed, here are possible causes:

First a test must be done to determine if there is a friction problem in the bearing. Remove the belt and get the platter rotating by giving it the slightest push. The platter should spin friction-free for 10 revolutions or more. There should be no noise coming from the deck. If the deck fails this test, go to number 3 or 4.

DECKS WITH AC MOTORS - If your deck has the later DC motor, skip this section and go directly to number 1 below. See photo at end to identify your motor type.

If your deck has the older German Papst AC motor, a test must be done to see if the Oilite motor bearings are gummed up. If severe enough, this could prevent the deck from coming up to full speed. This would be the most common cause of slow speed on really old decks. In some instances, it will be noticed that after deck runs for a while, the speed issue improves because the motor warms up and thins the gummed oil in the bearings. When the motor is turned off, it cools and the problem comes back.

To check the motor bearings, remove the belt and spin the pulley with thumb and forefinger. It should spin friction-free for 5 or 6 revolutions. Also check to see that when the motor shaft is turned back and forth slowly, there is no sluggish feeling. If the motor fails these tests, the fix is to convert to the DC motor and power supply. The old AC motors are not serviceable as parts are no longer available. The DC motor also provides significant sound improvement and all the DC power supplies have variable speed adjustments. The DC motor kit is a drop-in conversion.

A very temporary fix is to squirt some WD40 into the top bearing just below the pulley and into the bottom bearing between the rotor and stator. The latter may require removal of the motor from its housing depending on model. This fix sometimes lasts a few weeks but the problem will come back as the WD40 evaporates.

1. **Worn out or stretched belt.** To test, install the belt on the smaller pulley groove (33 RPM) and start the deck to see how long the platter speed takes to stabilize. It should not be more than one revolution of the platter. If it takes longer, the belt is slipping. Replace with a new belt.

2. **Pulley is worn.** (Unlikely, but possible if the deck is run long enough with a slipping belt.) The pulley groove will have developed a shiny, mirror finish as the slipping belt abrades and polishes it over time. The problem is that the deck will run slow even with a new belt as the worn pulley is now a smaller diameter. The solution is to replace the pulley and belt OR if you have the DC motor, adjust the speed control in the DC power supply using a strobe disc.

3. **Thrust ball is missing from the bearing.** Did someone remove the platter and/or bearing recently? – The thrust ball can fall out unnoticed and is a more common problem than you would think. If the thrust ball bearing is missing, there will be direct metal to metal contact between the end of the bearing spindle and thrust pad inside the bearing. The fix here is to install a new thrust ball and re-lubricate with Michell synthetic bearing oil. Flush the bearing with copious amounts of lighter fluid or Brake Clean solvent to remove all contaminated oil and metal filings. Let dry completely. Re-lubricate the bearing before reassembling. NOTE: If the bearing is run without the thrust ball for an extended time, it is possible to cause permanent damage as metal filings find their way into the bronze bearing surfaces. A complete new bearing will then be required.

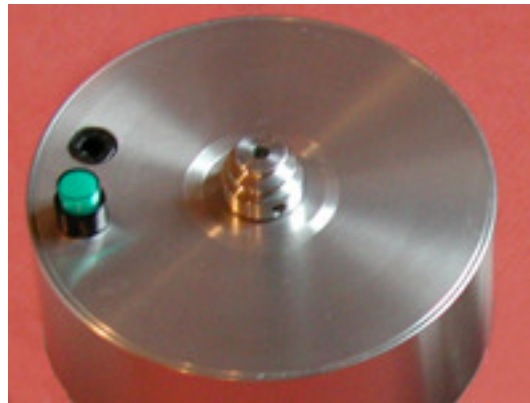
4. **Inverted bearing base is unscrewed slightly.** If you have the later inverted bearing (bronze color as opposed to silver), it could have loosened and unscrewed from the underside of the chassis. This is caused when the bearing base is not tightened enough on initial assembly of the deck. Over time, vibration and the weight of the platter effectively allow the bearing to unscrew from the underside of the chassis. The effect is to lower the platter and bearing to the point where metal to metal contact between the bottom of the bronze bearing housing and the top of the metal chassis occurs. Although rare, it is even possible for the platter weights on the underside of a gyro platter to foul the top of the metal chassis. To check for an unscrewed bearing base, remove the belt and spin up the platter slightly by hand. Listen for a chaffing sound as the platter rotates (there should be no sound), or visually check below the platter that the bearing housing has clearance between itself and the top of the metal chassis. If this test fails, you must remove the platter and use a large coin in the slot on the underside of the bearing to re-tighten. Make it as tight as it will go. This will involve lifting the metal chassis off the suspension towers. Do not tilt the chassis too much or the oil in the oil well will spill out.

NEVER REMOVE A PLATTER UNLESS YOU HAVE FIRST UNSCREWED THE PLATTER HOLD-DOWN NUT. THE PLATTER SHOULD NEVER BE REMOVED WITH THE BEARING STILL ATTACHED. YOU CAN PERMANENTLY DAMAGE THE BEARING SUFACES.

AC MOTOR



DC MOTOR



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