Pioneer DC-Z84 Cassette Player Repairs

The Cassette player mechanisms in this Pioneer stereo suffer from 2 common problems. Here I will outline those problems and the repairs.

Circuit diagram is available from Electrotanya.

The 2 mechs in that stereo are very similar. They are both bidirectional, and can play a tape either forward or reverse without removing the tape. One has a erase and record circuit, but not the other, so they have different analog interface boards. They have different sets of tape type sensor switches and therefore slightly different interfaces on motor and solenoid interface board.

Each mech can do 2 speeds. The mech has a single solenoid to change its state, and a Mode switch to detect when it is in the Stop position. There a several other switches to detect tape type (Metal CrO2 etc), and the presence of a cassette. The motor has +12V connections and A and B connections. The resistance between A and B controls the speed. The interface board that drives the mech has control transistors that with different variable resistors to adjust the 2 different speeds.

The mech solenoid switches the mech between states by operating for a short time to trigger a transition. The mech is initially in Stop, with the Mode switch closed. A short pulse (about 100ms) will change it from Stop to Play Forward. A longer pulse (say 200ms) will change it from Stop to Play Reverse. In either Play state, the next pulse moves to Fast Forward, the next to Rewind, and the next back to Stop, where the Mode switch will close again.

Fault 1

Symptom of this fault is that the takeup spool is permanently or intermittently locked stopped. This fault may also affect the rewind spool. See Figure 1:

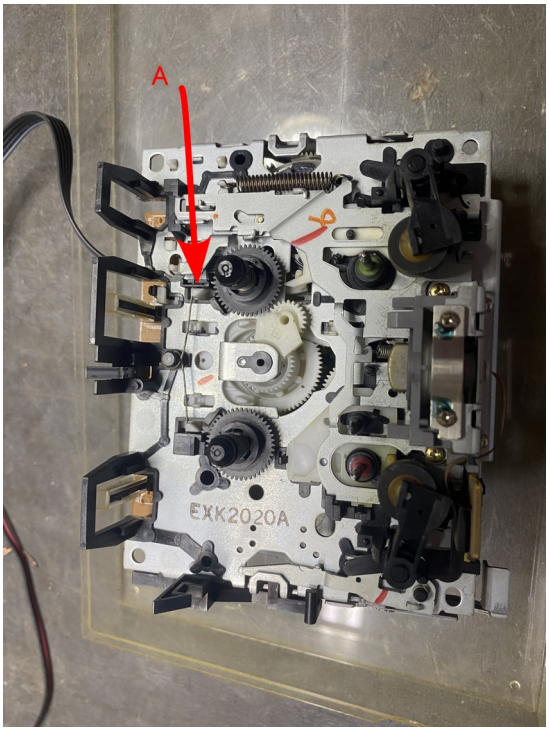

Figure 1: Takeup spool lock (A)

The lock is a small triangular block that inserts into the teeth of the takeup spool.There is a similar one for the rewind spool. These locks are moved by a lever on the other side. See Figure 2:

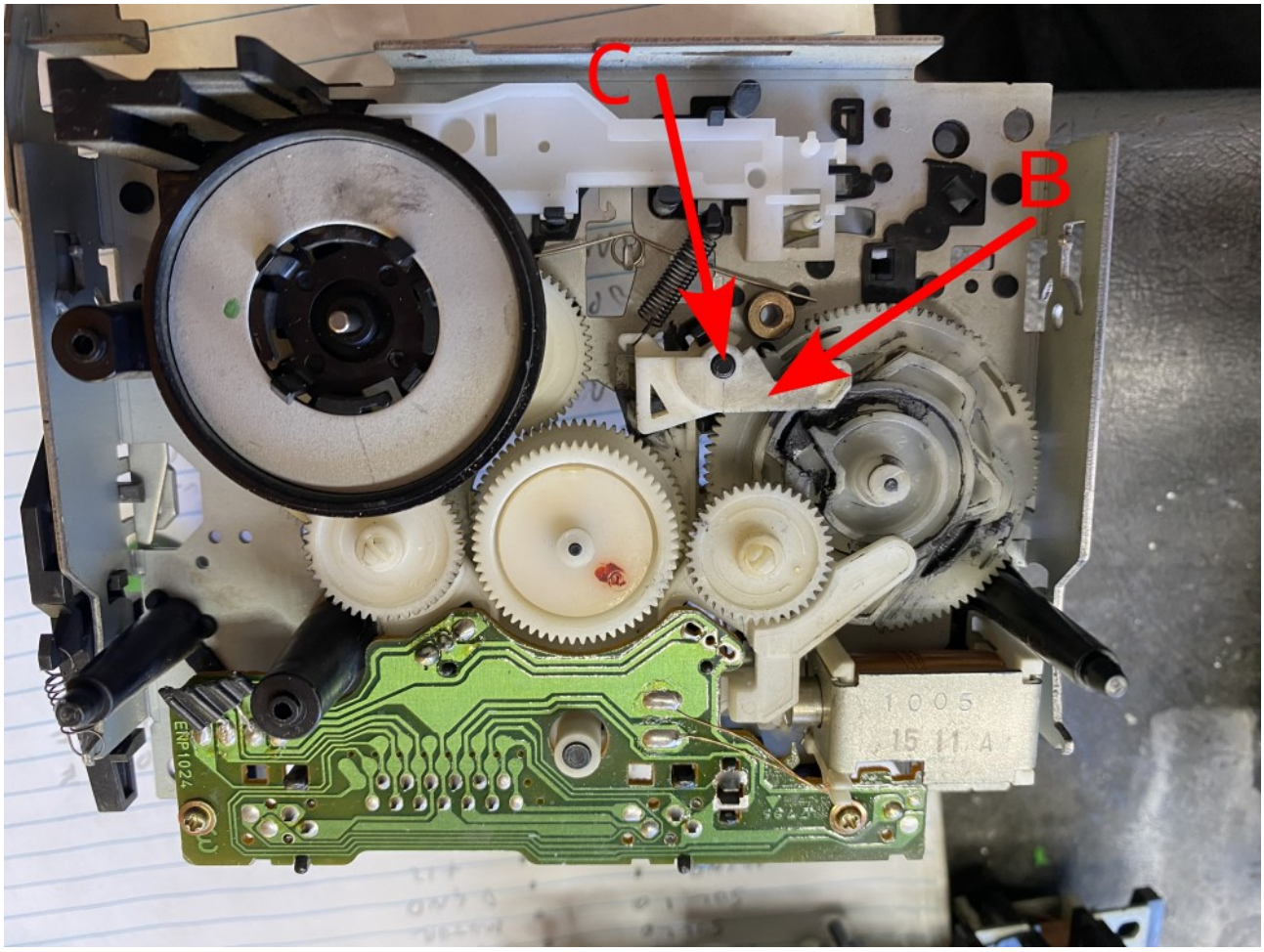

Figure 2: Lock operating mechanism. Post C cracks and tilts under the force of the lever B.

Lever B is operated by the main cam and moves the lock on the other side. It pivots on post C, moved by the main cam wheel. The fault is caused by the plastic supports of the post C cracking, causing the post to tilt sideways under the force on the lever and letting the lever become disengaged from the locking bar. The solution is to reinforce the post with a screw from the other side. See Figure 3:

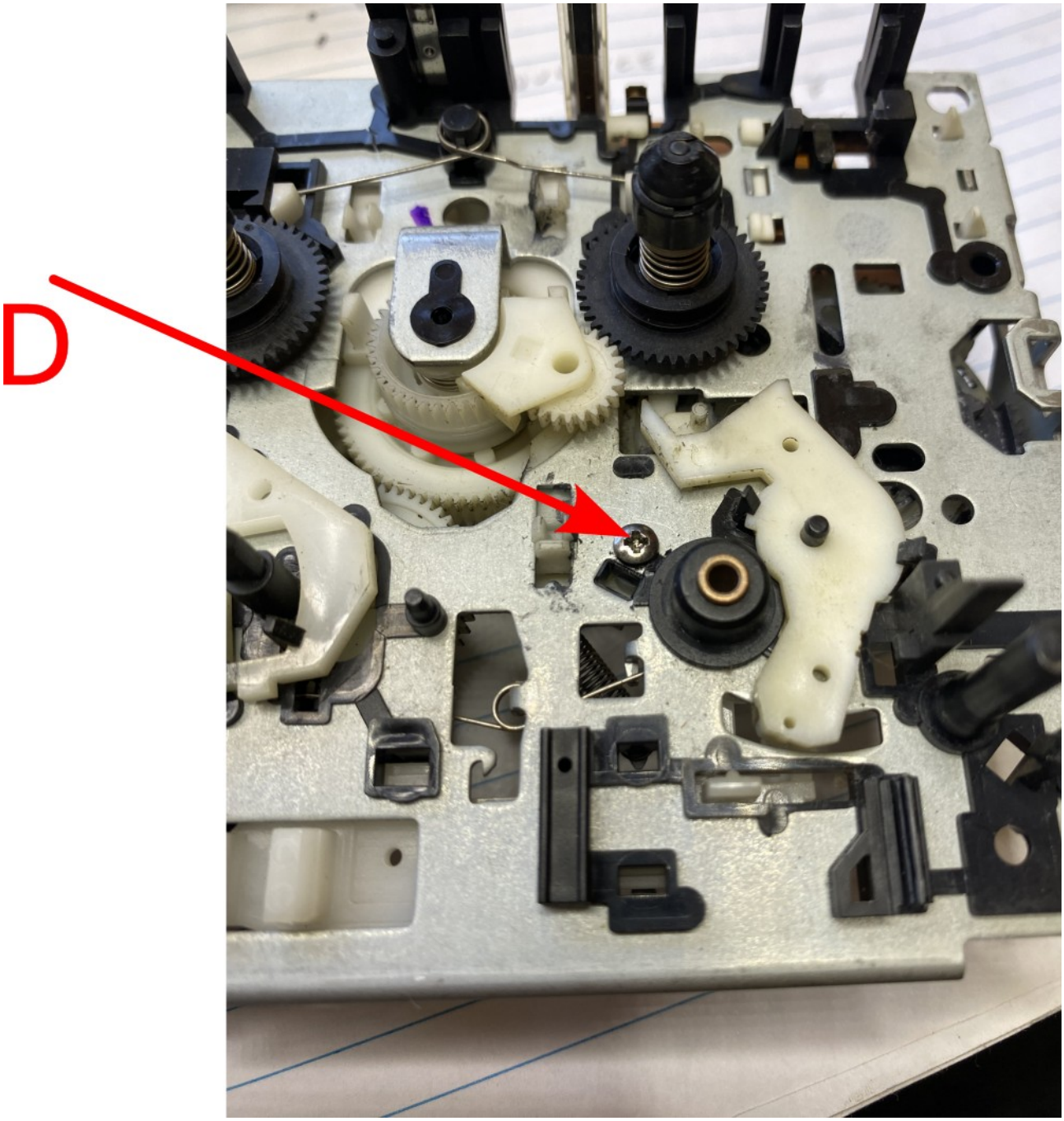

Figure 3: Site of the new post reinforcing screw D

You will need to partially dismantle the mech to repair this, including removing the sliding frame that holds the tape playback head. At the site where the new supporting screw will go you will see some black plastic, part of the plastic moulding for the post. Carefully remove this, it will come off easily as the plastic in this area has already cracked. You will now observe a small hole in the steel plate. This is centred on the black plastic post C, which is on the other side of the plate. You will

need 2 tiny drills: 1.5mm and 2mm, and a 2 mm diameter screw about 10mm long. First use the 1.5mm drill (I use a pinvice) to drill through the existing hole into the centre of the plastic post C from underneath. You will need to support the post with your hand while drilling to ensure it doesn't bend or tilt while drilling, and remains perpendicular to the plate, and so the drill goes exactly up the centre of the post. Drill to about 15 mm deep. Now with the 2mm drill, open up the hole in the steel plate to 2mm diameter. Don't go into the plastic post: stop as soon as the steel is opened to 2mm. Then screw in the new 2mm screw. This will hold the plastic post perpendicular to the plate and prevent tilting. Fixed!

Fault 2

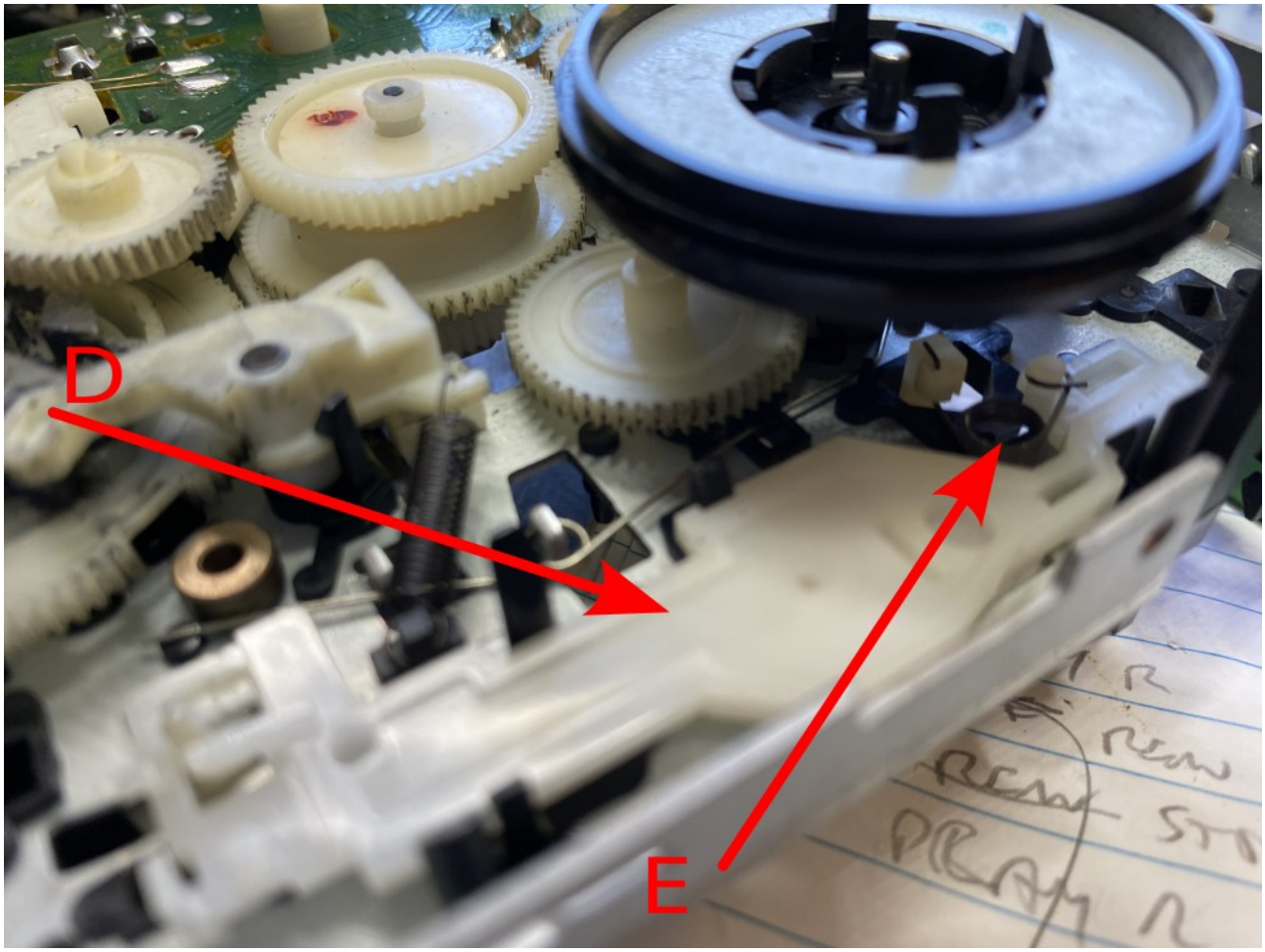

Figure 4: Head rotation mechanism

The mechs have a playback head that rotates 180 degrees to go from Play Forward to Play Reverse. This fault causes the rotation to sometimes not fully complete, preventing playback and sometimes damaging the tape. See Figure 4.

Plastic bar D moves to rotate the head on the other side. Spring E is an overcentre spring to make the bar D move fully one way or the other. It gets weak. The angle between the 2 arms of the spring is generally less than 90 degrees. You need to open this up to say 110 degrees. You will need to (carefully!) remove it, twist the metal of the spring so the ends of the spring are a bit further from each other (ie open the coils up a bit) then (carefully!) reinstall it. Fixed.