

Subject: Sony APR-5003V • capstan motor removal
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Thanks, Christopher

Sony APR-5003V • capstan motor removal

date: 2015-07-03

problem: regular-period "chirping" documented in emails of 2015-06-13, 2015-06-14

1. Top-level components

- remove head assembly (loosen 3 screws)
- remove pinch roller (screw-on top plate)
- remove small front/cosmetic panel (4 screws)
- remove large back/cosmetic panel (2 screws)
- remove keyboard assembly (2 screws)
 - note that the anti-static harness, (Sony APR manual, 10-22, 10-23), ref. 809 (black wire with red crimp) is screwed down on top of the brown plastic projecting ear at top right of the keyboard assembly

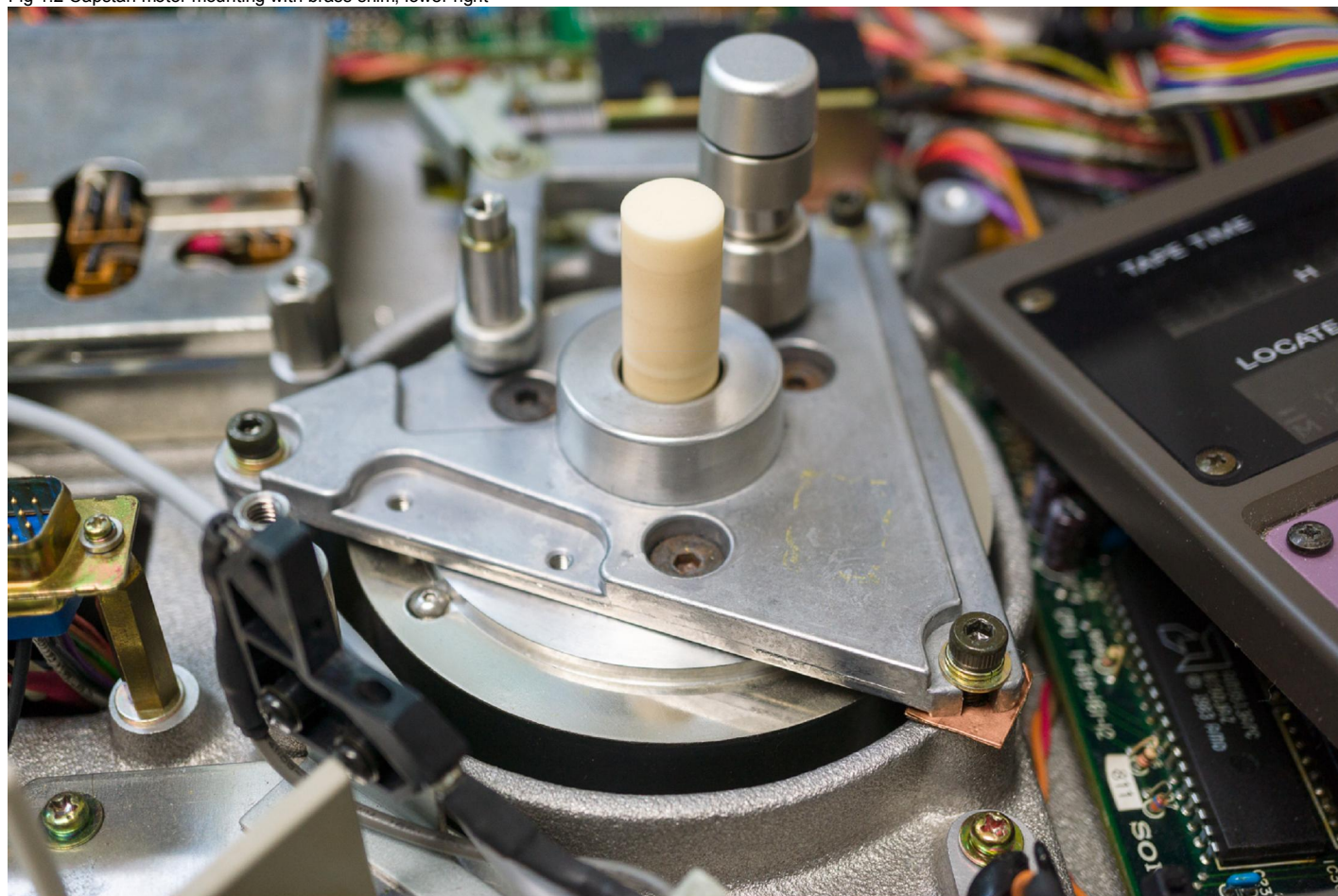
Fig 1.1 Keyboard assembly w/anti-static harness



2. Capstan motor mounting

- motor is mounted with three socket-head-cap-screws (3 mm)
- JKC brass shim, 0.042 mm thick, installed at lower right screw position to improve perpendicularity of capstan shaft to deck plane and tape path
- capstan screw assembly sequence: SHCS, lock washer, flat washer

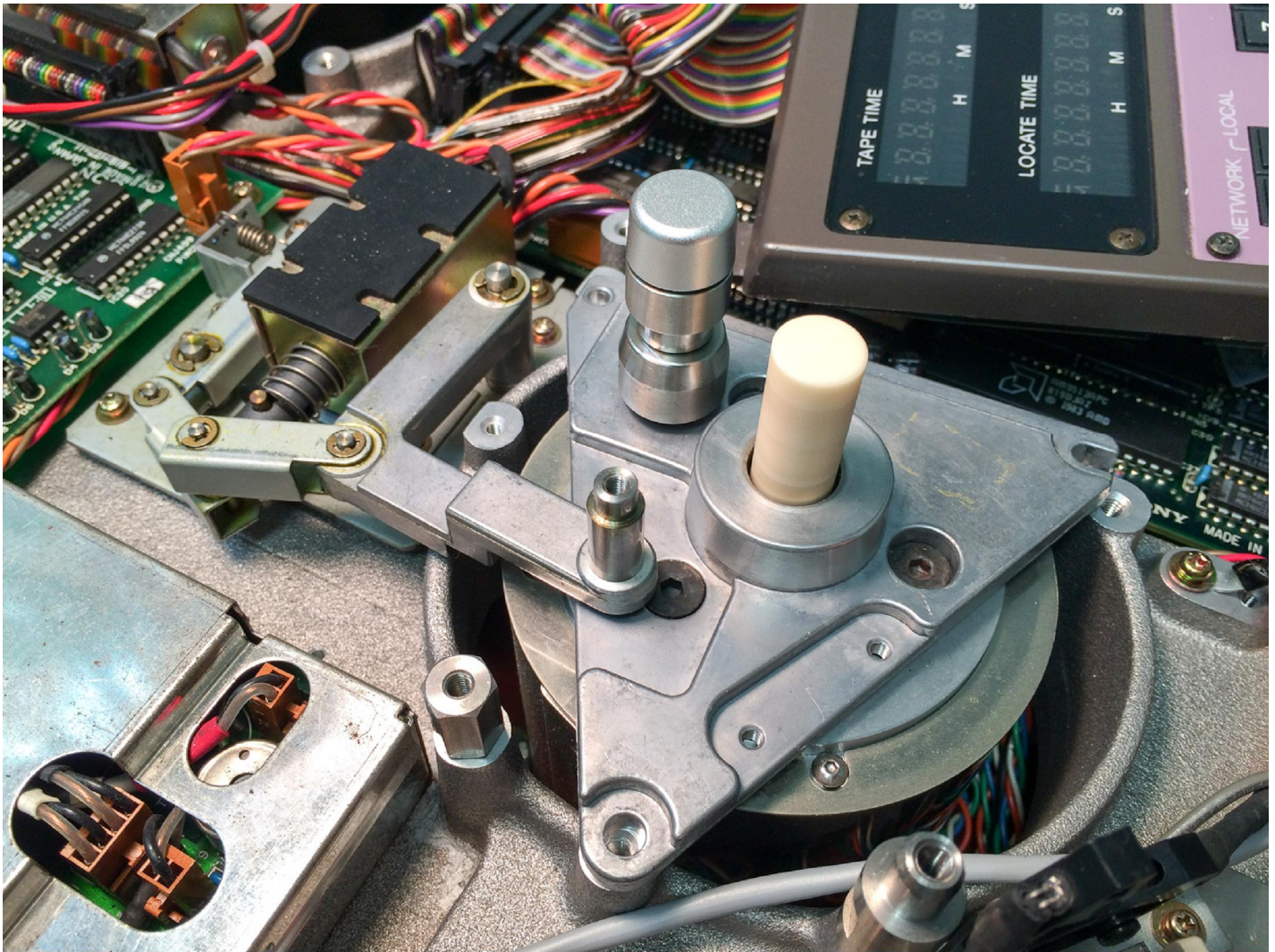
Fig 1.2 Capstan motor mounting with brass shim, lower right



3. Pinch roller linkage (Sony APR manual, 10-17)

- L-shaped cast linkage that holds the pinch roller must be removed in order to lift out the capstan motor, this requires removing 2 C-lips
- JKC advice for C-clips: insert a screwdriver that fits into the indentation on the inner diameter of the C-clip, and twist slowly, as this will leverage the clip away from the shaft and liberate the clip
- JKC: hold a finger over the clip so that it doesn't fly away!
- in drawing 10-17, the C-clip #1 (larger) is identified as E-4; remove with small (2.5mm) Wiha flat screwdriver
- in drawing 10-17, the C-clip #2 (smaller) is identified as E 2.3; remove with very small (2mm) Wiha flat screwdriver
- to remove the linkage, it will be necessary to push pin 608 down and out of the linkage; note that it has an attached C-clip that does not need to be disturbed

Fig 1.3 Pinch roller linkage



4. Capstan removal related parts

- 1. Capstan motor screws. SHCS, 3mm, qty: 3 + shim
- 2. Pinch Level Assembly, 603.
 - C-clip E-4 (end of arm)
 - C-clip E-2.3 (middle of arm)
 - Pin 608 (receives C-clip E-2.3 on top)

Fig 1.4 Pinch roller linkage parts (front row), capstan mounting screws and shim (rear)



5. Capstan motor removal

- note the position of the wiring harness down around the motor housing
- after the pinch roller linkage arm has been removed, lift the capstan motor up and out of its chamber
- to disconnect the capstan motor tach assembly cable, 703 (CPN965), (CBC label "9"), pull the Molex connector firmly with one hand and it will come free from its mating half

Fig 1.5 Sony APR-5003V capstan motor



6. Shipping

- George Athanasiou recommended that the motor be double-boxed in such a way that the inner box put no pressure on the ceramic capstan shaft
- ship via FedEx/UPS express service to preclude rough handling
- I used a small Pelican case, lined with StrongBox die-cut foam as the inner box; surrounded it with several inches of bubble-wrap (top and bottom), and plastic peanuts (sides)
- note that the foam blocks on the left end of the photo below press against the triangular mounting plate, above and below the ceramic shaft, effectively preventing the motor from shifting during shipment
- shipping weight with Pelican case, 3.86 kg (8 lbs 8 oz)
- FedEx shipment: 2015-07-04, tracking: 773977876084, \$58 for Express Saver (3-day) service to San Francisco, insured for \$1000

Fig 1.6 Capstan motor packed for shipping



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