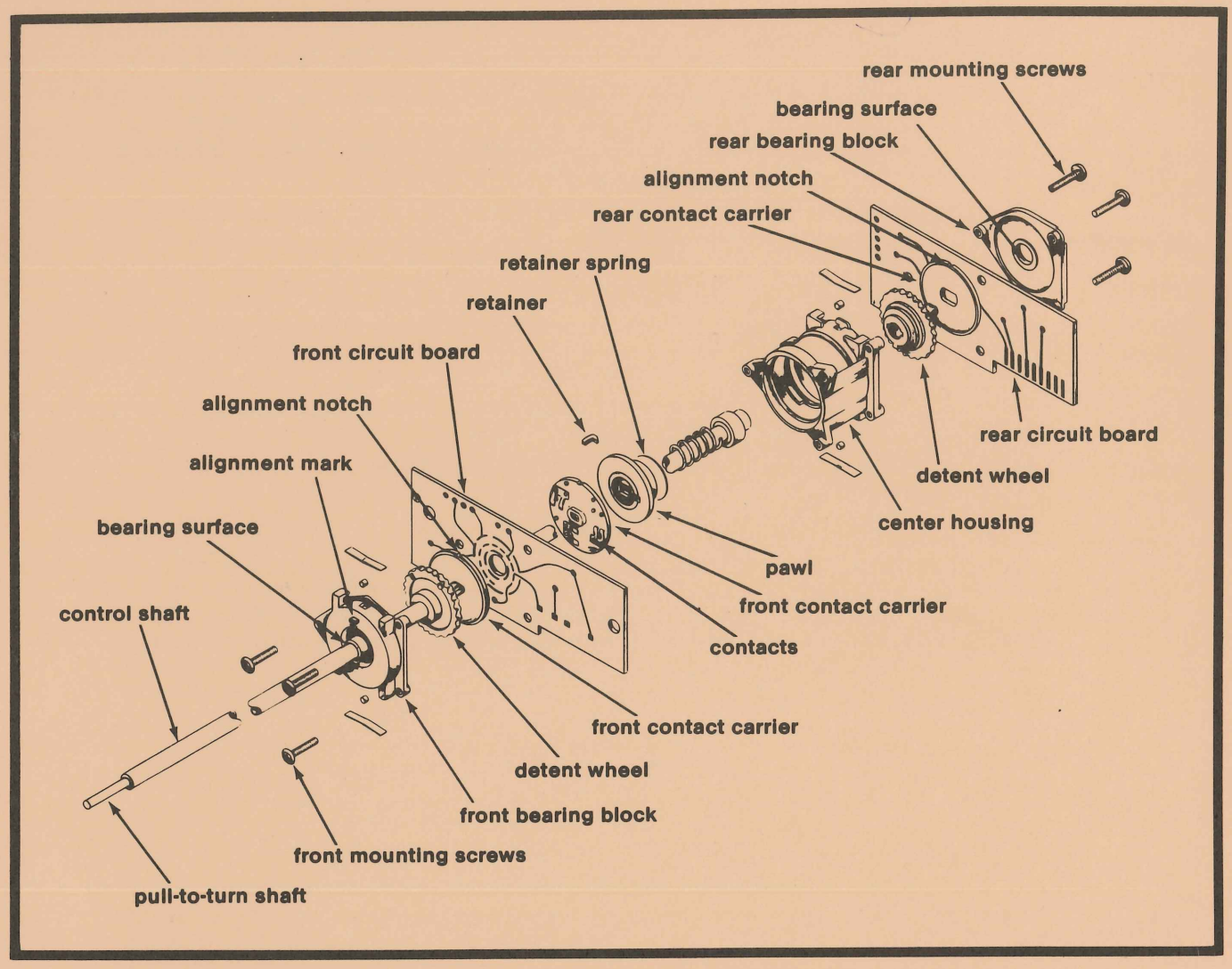
Cleaning and Maintenance of Tek-Made Rotary Switches

Many problems relating to Tek-made rotary switches can be attributed to improper cleaning and maintenance procedures. The correct procedures mentioned herein are not presented in most instrument manuals, and apply to all Tek-made rotary switches irrespective of their configuration.

Analysis of failed rotary switches show three primary reasons for failure: (1) contact contamination; (2) contact damage; (3) retainer spring off pawl.

Contact contamination and damage occur most often when cleaning is attempted while the switch is assembled. To avoid damage, remove switch from instrument, disassemble and use the cleaning procedure described on page 3.

Retainer spring off pawl is limited to switches with the "pull-to-turn" feature, and can be repaired by reinstalling the same spring or replacing it with a new spring (P/N 354-0550-00).



PROCEDURE

Disassembly

1. Remove switch assembly from instrument (follow directions in instrument manual for this).

2. Before beginning disassembly, rotate control shaft to the full counter-clockwise position. Compare switch to assembly drawing. Note position of alignment mark on front bearing block and positions of circuit boards. They should be the same after reassembly.

3. Disassemble switch from the rear toward the front. Lay out parts in the disassembly sequence. On switches with the "pull-to-turn" feature, maintain pressure on spring-loaded center assembly to prevent loss of parts. Special note: Contact carriers are mechanically, **but not electrically**, interchangeable. You may want to mark carriers to assure that they are not mixed during reassembly.

Cleaning

4. Clean front and rear contacts **gently** with a brush and isopropanol (isopropyl alcohol) or fotocol (ethyl alcohol) using caution to avoid damage. Some film deposits may not be removed by this procedure. For these cases, use an Eberhard Faber "Pink Pearl" eraser and rub very gently. Do not use typewriter or fiberglass erasers because they are too abrasive and will remove excessive amounts of gold from the contacts. After using eraser, clean with alcohol and brush to remove all residue.

5. Lubricate contact surfaces on both circuit boards with a thin coat of No Noise (P/N 006-0442-00).

6. Lubricate front and rear bearing surfaces with silicone grease (P/N 006-1353-01) using care to avoid contaminating contact side of carriers.

Reassembly

7. Reassemble front towards the rear. Most switch alignment problems will be eliminated by following the correct reassembly procedure.

8. Install front control shaft/detent wheel assembly in front bearing block. With enough tension of shaft to hold detent wheel in position, rotate shaft to assure full range of switch positions. If travel is restricted to a few positions, remove detent wheel, rotate shaft slightly, and try again. Rotate shaft to full counter-clockwise position and hold.

9. Install first front contact carrier (carriers with "double D" hole can be installed 180° out of position). Align notch on carrier with alignment mark on front bearing block.

10. Slide front circuit board over shaft. Be sure protrusions on front bearing block mate with holes in circuit board to avoid cocking switch out of line.

11. Install second front contact carrier. Follow alignment procedure in Step 9. (On units with a single circuit board, install rear bearing block. Install mounting screws and proceed to Step 19.)

12. On units with dual circuit boards and pull-to-turn feature, install second shaft with detent wheel in place.

13. Install center housing, seat it with front circuit board and hold in place. Install front mounting screws.

14. Install rear detent wheel. Rotate shaft to full counter-clockwise position. Hold pull-to-turn shaft out until rear bearing block is mounted (in Step 17).

15. Install rear contact carrier. (Follow alignment procedure in Step 9.)

16. Install rear circuit board.

17. Install rear bearing block. Hold it in place and release pull-to-turn shaft.

18. Be sure center housing and rear bearing block are seated on circuit board. Install mounting screws.

19. Torque all mounting screws to 1.5 lbs.

20. Check shaft(s) for proper rotation.

21. Install switch assembly in instrument.

22. Rotate control and pull-to-turn shafts to full counter-clockwise position and install knobs.

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