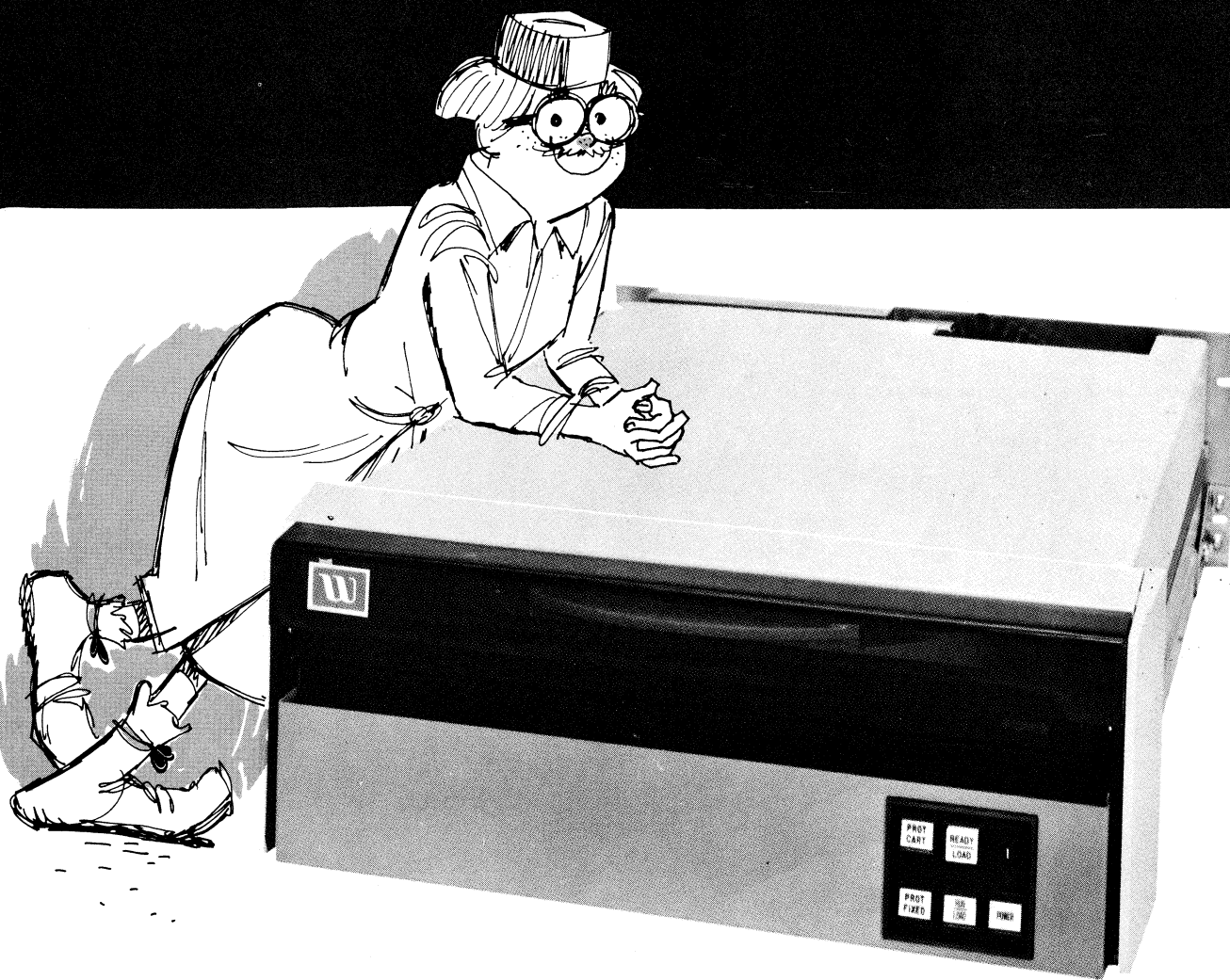


# PREVENTATIVE MAINTENANCE PROCEDURES

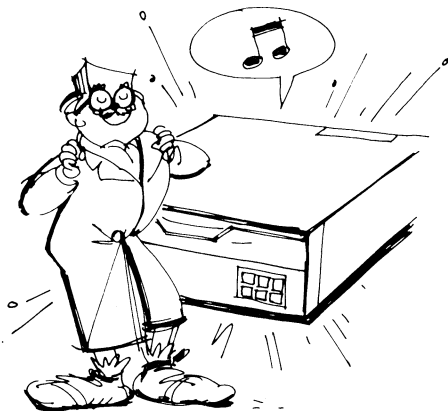


5404 Jandy Place ■ Los Angeles, Calif. 90066 ■ (213) 390-8081

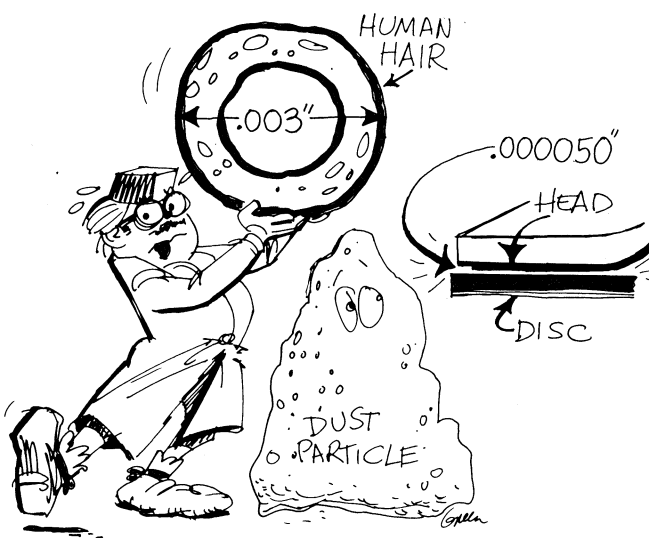
INCORPORATED

SETTING THE PACE IN PERIPHERALS





Caring for a WANGCO Disc Drive is not difficult, and is a particularly rewarding job because the care you give is amply returned in terms of long and error-free service.

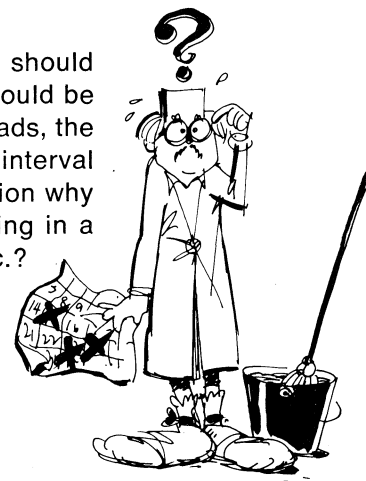
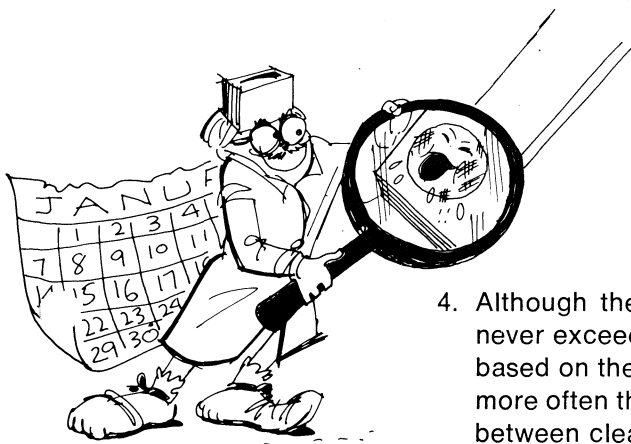


Because of the very small clearance between the flying head and disc surface, it is imperative that the heads, as well as the disc surfaces, are properly maintained. A look at the comparison of flying height to a strand of hair, and even a speck of dust, will show why we think this booklet can be so important to you.

As you can see, when in flying attitude, the head is separated from the disc surface by only a few microns, and because of the speed of the rotating disc (2400 rpm is equal to 93 mph), even the smallest particle of foreign matter could cause damage to the heads or disc surfaces.

## A. PREVENTIVE MAINTENANCE SCHEDULE

1. R/W head and disc inspection and cleaning should be accomplished initially during installation.
2. One month after installation, inspect and clean the heads and disc. Keep a record of the condition of the heads.
3. One month later, repeat Step 2.
4. Although the interval for cleaning the heads and disc should never exceed 1000 operating hours, the P.M. interval should be based on the results of Steps 2 and 3. The dirtier the heads, the more often they should be cleaned. The shorter the time interval between cleaning, the more the engineers should question why the heads become dirty so quickly. Is the drive operating in a clean environment, is the air filter properly installed, etc.?





## B. R/W HEADS

### 1. INSPECTION

Tools: Small, dental-type mirror; small light source (pocket flashlight, etc.).

Procedure: Remove the disc cartridge and illuminate the head area with the light source. The upper heads may be viewed with the mirror.



### 2. CLEANING

Tools: Cotton swab applicator; 91% isopropyl alcohol. (IPA)

Procedure: Wipe the heads with an alcohol-moistened swab. Apply only light pressure to prevent any damage to the heads. Repeat using a dry swab. Inspect the heads to be sure they are clean and no residue remains from the cotton swab.

**NOTE:** *There is limited access to clean the bottom two heads so more care must be exercised to prevent any damage to the head mountings.*



## C. FIXED DISC

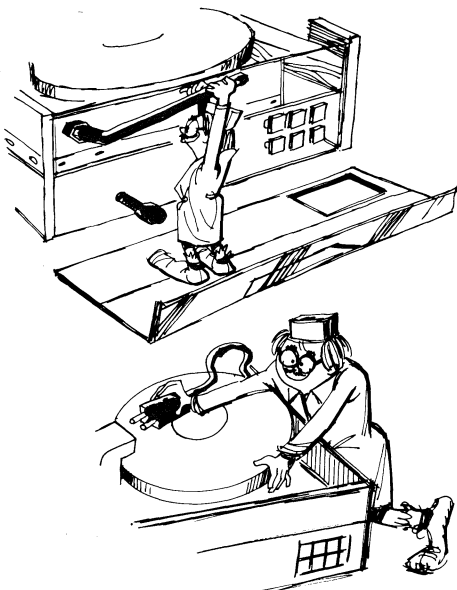
Tools: Cotton swab applicator; 91% isopropyl alcohol, Allen wrench.

**Procedure:** To gain access to the fixed disc, snap out the trim panel at the front of the drive unit, and remove the two 4-40 screws that secure the disc access cover, located above the air intake grate (to the left of the center of the drive), as well as the cover.

Unplug connector P-15, near the top of the servo amplifier board; this will inhibit the servo system and, therefore, loading of the heads. Install a cartridge or test hub to obtain disc speed control. If a test hub is employed, the cartridge interlock switch must be manually activated. Allow the disc to reach operating speed.

Insert a cotton swab, moistened with IPA, through the access hole and lightly move it across the disc, the upper as well as the lower surface. Repeat this operation, using a new swab each time, until the swab remains clean.

**CAUTION:** *Absolutely avoid any contact between the disc and the swab stick!*



---

## RECOVERY PROCEDURES

---

### A. DRY LOAD:

Use the following procedure to check a disc drive 1) when the status of the R/W heads and/or disc cartridge is unknown, and 2) when a dry load has occurred (heads loaded when disc was not revolving).

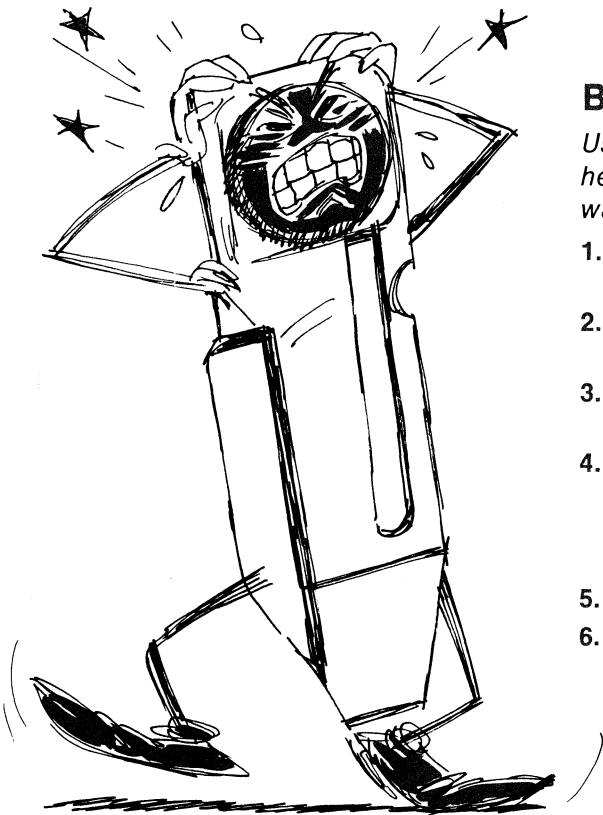
1. Retract heads.
2. Inspect all heads for cleanliness. *Clean heads and disc if necessary.*
3. Unplug P15 on SVA board (prevents carriage from automatically loading during a load sequence).
4. **POWER switch on; RUN switch on.**
5. Wait for completion of brush cycle.
6. Manually load heads by *carefully* pushing carriage forward.
7. Slowly sweep full travel of positioner while *intently listening*.
8. If no unusual sounds are heard, proceed to step 11.
9. At any unusual sound, immediately unload heads, RUN switch off, and POWER switch off.
10. *Clean disc and heads and begin again at step 4.*
11. If everything seems okay, return to normal operating procedures.
12. Exercise the positioner for 15 to 20 minutes using a WANGCO Field Exerciser (Wangco No. 300382) or the system.
13. Stop and check heads for oxide deposits.
14. If all okay, return the disc drive to system operation. If the amount of oxide seems to be excessive, continue with the recovery procedures for a head crash.

---

### B. HEAD CRASH:

Use the following procedure to repair a disc drive when the R/W heads are believed to have touched the disc surface while the disc was revolving.

1. Define how bad the crash was by inspecting the R/W heads. Note the severity for each head.
2. Clean all heads in the drive; *inspect the heads again* to be sure each one is clean.
3. Remove any stained or streaked heads and replace with a good head. (*Disc Manual, IV-39, 4.3.15.*)
4. Replace the disc corresponding to the stained or streaked heads. If fixed disc is bad, replace disc (*Disc Manual IV-20, 4.2.5*) and adjust cartridge disc Index/Sector Transducer (*IV-46, 5.1.3*).
5. Clean the other disc.
6. Go to Step 4 of the Dry Load procedure.



---

## CHECKING A BAD HEAD

---

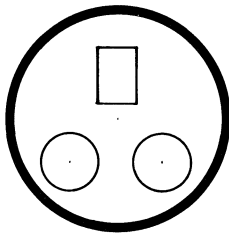
*Use this procedure when a head is believed to have been destroyed due to physical contact with the disc.*

**Inspect head and make note of its condition.**

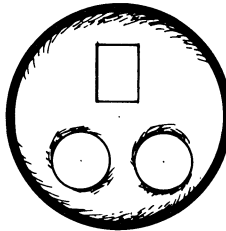
**Clean head and *inspect again*.**

**If head cannot be satisfactorily cleaned, remove the head from the positioner and inspect (*Disc Manual IV-39, 4.3.15*).**

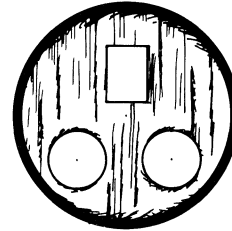
**Use the following chart and *your own experience* in determining whether to replace the questionable head or not.**



***New head —  
no oxide  
deposit***



***Head with  
normal usage —  
some darkening  
around the edges***



***Head which  
has crashed —  
stained and/or  
streaked;  
cannot be  
cleaned  
completely***

---

## DISC CARTRIDGE ACCOUNTABILITY

---

*To be certain a bad disc cartridge is never used on a functional disc drive the following suggestions should be followed.*

- 1. All disc cartridges should be properly identified and accountable using the vendor's serial number.**
- 2. All disc cartridges should be accountable to an area.** In other words, if there are several systems in the area, never move the cartridges from system to system, building to building, etc.
- 3. Any cartridge, found to be *bad* should be clearly marked as being bad.**
- 4. Do not, under any circumstances, place a bad disc cartridge on another drive.**



# INSTALLATION PROCEDURE

1. Preparation

2. Installation

3. Operation

4. Maintenance

5. Troubleshooting

6. Appendix

For the purpose of this manual, the term "peripheral" refers to any device that is connected to the computer system and is used to input or output data. Examples of peripherals include printers, plotters, and modems.

The following steps should be followed when installing a peripheral:

1. Read the manufacturer's instructions carefully.

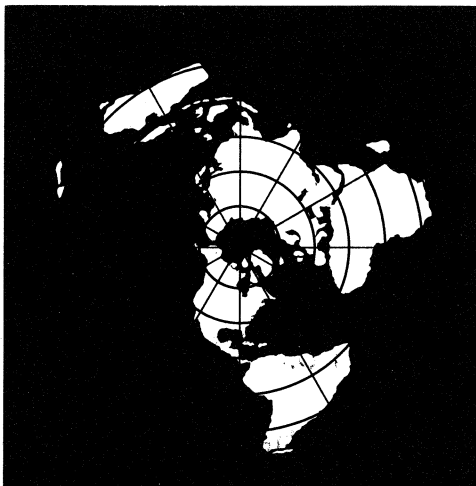
2. Connect the peripheral to the computer system.

3. Turn on the power to the peripheral and the computer system.

4. Verify that the peripheral is operating correctly.

5. If necessary, adjust the settings on the peripheral.

6. If the peripheral is not operating correctly, consult the manufacturer's instructions for troubleshooting.



## WANGCO INCORPORATED

SETTING THE PACE IN PERIPHERALS

5404 JANDY PLACE • LOS ANGELES, CALIF. 90066  
213 / 390-8081

New York, N.Y. 203/755-7885 • Boston, Mass. 617/444-9264 • Washington, D.C. 301/937-2215 • Cocoa Beach, Fla. 305/458-1144 • Chicago, Ill. 312/298-6050 • Houston, Tex. 713/785-0581 • Dallas, Tex. 214/620-1551 • Denver, Colo. 303/355-3521 • San Francisco, Calif. 408/246-9241 • Seattle, Wash. 206/632-0710 • In Europe: WANGCO Incorporated, The Lodge, 362 Cranford Lane, Harlington, Middlesex, England. Telephone 897-0202. Offices in France, Germany, Sweden, Switzerland, Australia, Brazil, Canada, Israel, Japan and South Africa.