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The Dysan 240 Alignment Diskette is used for alignment operations on flexible disc drive units. The media itself is physically compatible with the IBM Diskette, (described in IBM Manual GA 219190) however, it is recorded with special purpose data in order to accomplish alignment operations associated with most flexible disc drives.

Note: Care should be exercised not to record on the diskette. To do so will destroy its usefulness as an alignment diskette. A write protect hole punched in the jacket is provided with the Dysan 240 to minimize the possibility of inadvertant recording on the diskette. This protective feature, however, is only functional on those drives that incorporate a write protect feature meeting the specifications outlined in paragraph 4.1.2.7 of the "American National Standard for Unrecorded Flexible Disk Cartridge".

A description of the alignment operations that can be follows:

| Recommended Operation | Track Number |
|---|---|
| Head Load Actuator Timing | 00 |
| Index/Sector Photo Transistor Alignment | 01 and 76 |
| Read/Write Head Radial Alignment | 38 |
| Read/Write Head Load Button Adjustment | 75 |

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I. Head Load Actuator Timing

A. Insert Dysan 240.

B. Step carriage to track 00.

C. Sync oscilloscope on "Load Head".
Set time base to 10 msec/division.

D. Connect probes in such a fashion as to display the read signal at the output of the differential amplifier. Ground the probes to the PCB. Set the inputs to Add and invert one input.

E. Energize the Head Load solenoid and observe the read signal on the oscilloscope. The signal must be at 50% of full amplitude within the head load delay time specified by the disc drive manufacturer. If not, adjust the head load actuator in accordance with the manufacturer's instructions.

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## II. Index/Sector Photo Transistor Alignment

### A. Index/Sector Photo Transistor Potentiometer Adjustment

1. Insert Dysan 240.
2. Using oscilloscope sync on leading edge of "Index", DC coupled, set vertical scale to 2v/cm.
3. Adjust the potentiometer to obtain a pulse of 1.7 msec ± .5 msec duration.

### B. Index/Sector Photo Transistor Adjustment

1. Step Read/Write carriage to track 1.
2. With oscilloscope sync'd on "Index" (as in step A.2. above), set time base to 50 usec/division.
3. Connect probes in such a fashion as to display the read signal at the output of the differential amplifier. Ground probes to the PCB. Set the inputs to AC, add and invert one channel. Set vertical deflection to 500 mv/division. Channels 1 and 2 should be added and one of the channels inverted.
4. Observe the timing between the start of the sweep and the first data pulse. This should be 200 ± 50 usec. If the timing is not within tolerance continue to step 5. If it is within tolerance seek to track 76 and reverify that the timing is 200 ± 50 usec.
5. Loosen the holding screw in the Index Trans ducer until the Transducer is just able to be moved.
6. Observing the timing, adjust the Transducer until the timing is 200 ± 50 usec. Insure that the Transducer assembly is against the registration surface on the base casting.
7. Tighten the holding screw.
8. Recheck the timing.
9. Seek to track 76 and reverify that the timing is 200 ± 50 usec.

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## III. Read/Write Head Radial Alignment

A. Insert Dysan 240.
(Note: Alignment Diskette should be allowed to acclimate to room conditions for at least twenty minutes before alignment procedures commence.)

B. Step the carriage to track 38.

C. Sync an oscilloscope on "Index". Set the time base to 20 msec per division. This should display over one revolution.

D. Connect two probes in such a fashion as to display the read signal at the output of the differential amplifier. Ground the probes to the PCB. Set the inputs to AC, add and invert one channel. Set the vertical deflection to 200 mv per division.

E. The two lobes displayed should be within 80% amplitude of each other. (See Figure 1) if the lobes do not fall within this specification, continue to F.

F. Loosen the mounting screws which hold the stepping motor to the disc drive.

G. Rotate the stepper motor radially in order to move the head in or out. If the left lobe is less than 80% of the right, turn the stepper motor clockwise. If the right lobe is less than 80% of the left lobe turn the stepper motor counter clockwise.

H. When the lobes are of equal amplitude, tighten the mounting screws.

I. Check the adjustment by stepping off track and returning. Check in both directions.

J. Whenever head radial alignment has been adjusted, the track 00 detector adjustment and Track 00 stop must be checked.

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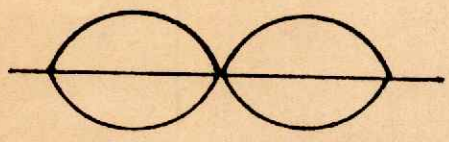
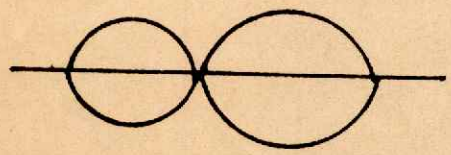
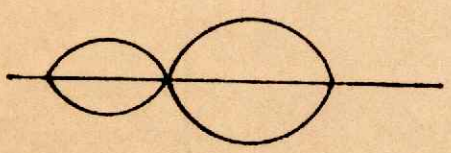


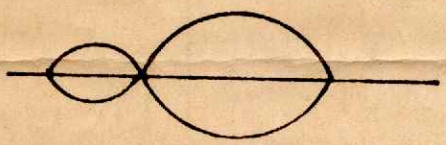
EQUAL AMPLITUDE (100%)
(ON TRACK)



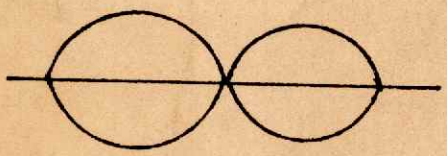
LEFT 80% OF RIGHT
(+1 MIL OFF TRACK, TOWARD 39)



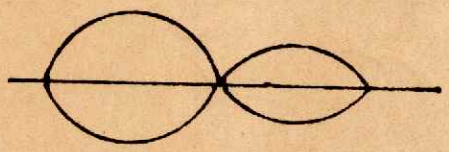
LEFT 60% OF RIGHT
(+2 MIL OFF TRACK, TOWARD 39)



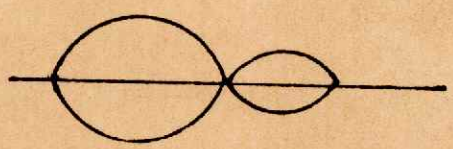
LEFT 40% OF RIGHT
(+3 MIL OFF TRACK, TOWARD 39)



RIGHT 80% OF LEFT
(-1 MIL OFF TRACK, TOWARD 37)



RIGHT 60% OF LEFT
(-2 MIL OFF TRACK, TOWARD 37)



RIGHT 40% OF LEFT
(-3 MIL OFF TRACK, TOWARD 37)

FIGURE 1

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IV. Read/Write Head Load Pad Adjustment

(This procedure only applies to those flexible disc drives that have replaceable and/or adjustable head load pads.)

A. Insert Dysan 240.

B. Connect oscilloscope in such a fashion as to display the read signal at the output of the differential amplifier. Add differentially and sync on "Index".

C. Step carriage to track 75.

D. While observing read signal on oscilloscope, rotate the load button counterclockwise in small increments ($10^{o}$) until maximum amplitude is obtained.