

SERVICE LETTER

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NUMBER: DK3041

PURPOSE

To inform field personnel of the method to be used to measure the R/W head resolution in the D3000 disk drives.

SYMPTOMS

Read/Write Errors

1. If the R/W head resolution is below 40%, data errors can result.
2. The signal level for an all ones pattern at track 400_{10} (620_g) is $100mv \pm 10mv$.

EQUIPMENT REQUIRED

1. Oscilloscope having at least a 100 MHz bandwidth and a horizontal module having a delayed sweep mode and a minimum sweep rate of ≤ 50 ns/div.
2. One (1) 10X scope probe, having a comparable bandwidth to the oscilloscope, and a ground lead.
3. Disk Exerciser, Pertec Model DO-1 or equivalent.

TEST PROCEDURE

1. Raise the Logic and Servo PCBA's to the vertical position.
2. Connect disk exerciser to the disk drive under test.
3. Apply power to the drive, when safe, depress start and allow it to come ready.
4. Connect oscilloscope probe to TP19 on the 103751 (D3000) Read/Write PCBA. Connect ground lead to TP18.
5. Set scope vertical amplifier gain to 0.05V/Div.; use internal trigger on positive slope and normal sync modes.
6. Position Read/Write heads over cylinder address 400_{10} (620_g).
7. Write an all zeros pattern on all surfaces.
8. Select one surface at a time and set the exerciser to the read mode. Measure and record the signal voltage of each R/W head.
9. Write an all ones pattern on all surfaces
10. Select one surface at a time and set the exerciser to the read mode. Measure and record the signal voltage for each R/W head.

PERTEC

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11. Calculate each head resolution with the following formula:

$$\% \text{ resolution} = \frac{V (\text{all ones})}{V (\text{all zeros})} \times 100\%$$

The minimum acceptable resolution is 40%. Replace any R/W head that does not meet this specification.

12. Repeat test for any R/W heads that are replaced.

NOTE: If the removeable heads are replaced, a CE alignment must be performed.

13. If replacement of the R/W heads does not improve the resolution factor, then the R/W PCBA or the platter may be faulty.