



DEVELOPMENT STANDARD

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Revision B
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MAGNETIC HEAD FOR USE WITH
QIC-3030-MC RECORDING FORMAT

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This document defines those parameters standardized on the magnetic tape head utilized in the QIC-555M minicartridge tape drive.

This head is a two-channel, dual gap, read-while-write element in serpentine mode. It is designed for use with DC2500 series (295 ft.) or equivalent cartridges at packing densities up to 50,800 FTPI, with 40 tracks on the tape through physical displacement of the head.

1.0 **M ECHANICAL REQUIREM ENTS**

1.1 **Physical Dimensions and Track Layout** are detailed in Figure 1.

2.0 **ELECTRICAL AND MAGNETIC REQUIREMENTS**

2.1 **Recording Flux Density** is 50,800 FTPI.

2.2 **Recording Code** is 0, 2 GCR 4-5.

2.3 **Recording Method** is double-density NRZI (with pulse train).

2.4 **Read Head Output** at 60 IPS, DC2380 tape, and 50,800 FTPI is 0.2 mV p-p minimum.

2.5 **Pulsed Write Current** is used in the recording method.

2.6 **Read Filter Bandpass** shall be -3 dB at 2.0 MHz with a -18 dB per octave rolloff.

2.7 **Resonance Frequency** for the read head with a capacitance load of 10 pf at the head connector shall be 8 MHz minimum and the write head shall be 10 MHz minimum with 10 pf load.

2.8 **Write Saturation Current (Isat)** at 50,800 FTPI is defined as the write current value required to produce the first 95% of the maximum read output. Total Isat variation shall be $\pm 20\%$ of nominal.

2.9 **Write Current (Iw)** is set at the value of $1.3 I_{sat} \pm 3.0\%$.

2.10 **Resolution** is determined as:

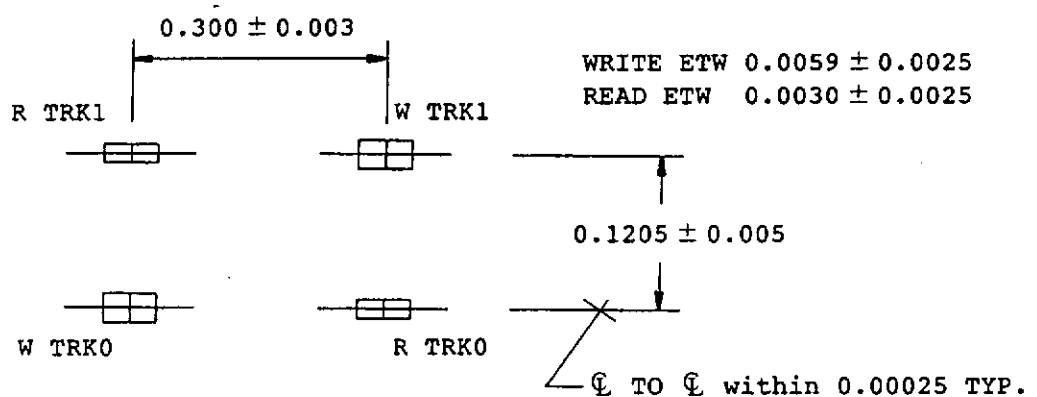
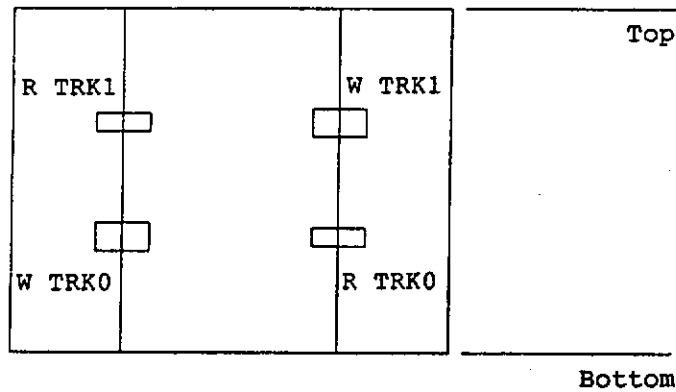
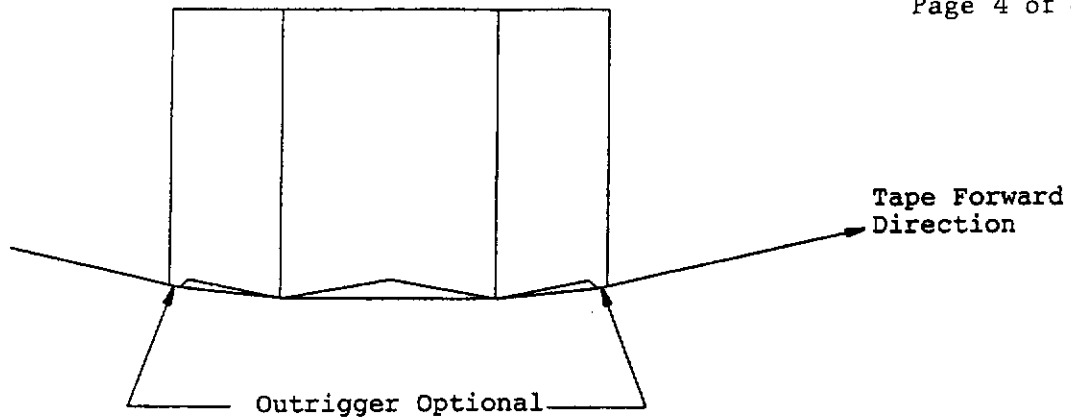
$$\text{Res.} = \frac{\text{Output at 101,600 FTPI}}{\text{Output at 50,800 FTPI}} \times 100$$

Resolution shall be a maximum of 8%.

- 2 11 **Magnetic Crossfeed** is determined by the ratio of the read head output without tape movement and the write head energized at 50,800 FTPI at 1w to the "read-while-write" output signal at 50,800 FTPI. This ratio to be a maximum of 10%.
- 2 12 **Magnetic Crosstalk** is determined by the ratio of the read head output while writing with the write head in the same gap line, to the "read-while-write" output signal at 50,800 FTPI. This ratio to be a maximum of 500%.
- 2 13 **Peak Shift** in a sequence of flux transitions defined by the encoded pattern 1110011 100. . . (3F-3F-1 F .). The maximum displacement of flux transitions on either side of the reference flux transitions shall not exceed 22% from nominal bit cell
- 2 14 **Overwrite** - After overwrite @ 101 6 FTPI (6F) on the tape written @ 16,933 FTPI (1F), residual signal @ 16,933 FTPI < 5%, using a spectrum analyzer.

1.00 Mechanical Outline "QIC-555M" 40 Tracks, 50,800 FTPI

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Notes: Azimuth of each gap

- W TRK1: Parallel degrees shall be within 3' with respect to W TRK0.
- R TRK0: Parallel degrees shall be within 3' with respect to W TRK0.
- R TRK1: Parallel degrees shall be within 3' with respect to W TRK1.