DEVELOPMENT STANDARD

QIC-177
Revision A
27 Aug 97

MAGNETIC HEAD FOR USE WITH
QIC-3220-MC RECORDING FORMAT

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Cartridge
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(See important notices on the following page)

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QIC DEVELOPMENT STANDARDS

Revision History for QIC-177

Rev. Level	Detail	Rev. Date
A	Released	8/27/97

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Application:
This Specification is developed to provide a reference for compatibility of TRAVAN 20GB TFMR Heads with Imation TRAVAN 20GB Cartridges, and for interchange between TRAVAN 20GB Cartridges written on QIC-3320 MC Imation licensed Drives.
This Specification is not intended for pass/fail criteria by any specific TRAVAN 20GB Drive Manufacturers. Head Suppliers are required to receive TRAVAN 20GB Head Specifications from the Drive Manufacturers for Pass/Fail Criteria.

1.0 GENERAL SPECIFICATIONS

1.1 Description

This specification defines a single bump (Read-While-Write 2 bump head is optional) single channel Thin Film Inductive Write, MR Read Head for .315 inch media. The head criteria required for the Travan 20GB Data Cartridge application are defined.

1.2 Definitions

Write Equalization is not used unless specified. Write Equalization is defined in the Serial Recorded Magnetic Tape Format for Information Interchange for Travan 20GB.

1.2.1.	Density (1f):	Will be 79.8 Kfci (3142 fcmm) unless otherwise specified.
1.2.2.	Tape Test Speed:	40-120 ips
1.2.3.	Overwrite (dB):	The f/4 residual output divided by the f/4 output. Residual output is the f/4 output remaining after overwriting with a 1f signal (100% fixed Write EQ is on for this test).
1.2.4.	Suppression	The 100% write equalized f/4 output divided by the unequalized f/4 Output (reported in dB). The write head (or suitable ferrite read head) is to be used as the reader for this test to eliminate the potential for MR saturation.

1.3 Environmental Conditions

1.3.1. The head shall be required to meet the entire specification only if used, stored and transported within the environmental conditions described in this section.

1.3.2. Operation

1.	Temperature:	41° f to 135° f, (5° C to 57° C)
2.	Temp gradient:	86° f/hr max, (30° C/hr)
3.	Humidity:	20% to 80% noncondensing relative humidity with maximum wet bulb 80° f (26.6° C)
4.	Atmospheric Pressure:	10.9 to 15.2 psi, (75,000 to 105,000 Newtons per sq. meter; 562 to 788 mm hg)
5.	Vibration/Acceleration:	.5g, 5-500 Hz, 3 axis
6.	Shock:	2.5g (half-sinewave, 11 msec) max.

1.3.3. Storage And Transportation (Non-Operating)

1.	Temperature:	-40° f to 126° f (-40° C to +52° C)
2.	Temp gradient:	86 deg f/hr (30 deg C/hr) max.
3.	Humidity:	10% to 80% non-condensing relative humidity with max. wet bulb 80.6° f (27°C)
4.	Atmospheric Pressure:	6.9 to 15.2 psi (47,500 to 105,000 newtons per sq. meter; 356 to 788 mm hg)
5.	Vibration/Acceleration:	2g, 10-500 Hz, 3 axis; 0.2 inch, 5-10 Hz
6.	Shock:	20g (half-sine, 11 msec. duration) max.

1.3.4. Test

1.	Temperature:	68 ±7° f (20 ± 4° C)
2.	Humidity:	50 ±10 % non condensing relative humidity with maximum wet bulb 64° f (18° C)

1.3 Environmental Conditions (cont.)

1.3.5.	Magnetic Environment Maximum Field The elements must perform per specification when subjected to this field.		10 gauss max.
1.3.6	Head Life (Wr) wear @ 120 ips, ambient conditions.	(hours)	5000 min.

2.0 Electrical Specifications

2.1. Tape and Cartridge

2.1.1.	MP+ 1650 Oe. media, Travan™ Data Cartridge.		
2.1.2.	Tension	(oz)	.65 min.
2.1.3.	Tape Wrap Angle Must conform to the Head Penetration recommendation in the Unrecorded, Servo Burst, Track ID, Magnetic Tape Minicartridge For Information Exchange. Imation Document# 78-8098-9604-2		

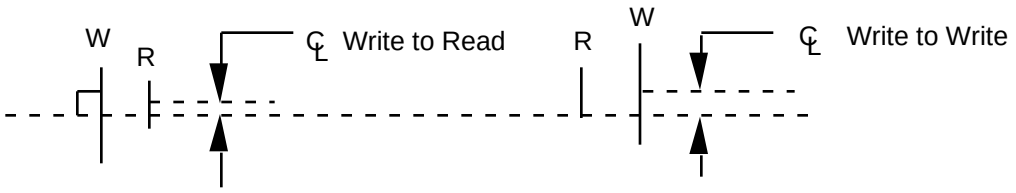
2.2. Write Head Performance

2.2.1.	(OW) Overwrite (see 1.2.3)	(dB)	-26 min.
2.2.2.	(SV): Suppression f/4 weq (see 1.2.4)	(dB)	-8.1

3.0 Mechanical Specifications

3.1. Dimensions

3.1.1.	Mechanical Write Gap (reference)	(µm) (µ")	1.35 ref (53 ref)
3.1.2.	Effective Track Width		
	1. Read	(µm) (µ")	22.0 ±1.0 (866 ± 40)
	2. Write	(µm) (µ")	66 ± 1.5 (2598 ± 60)
3.1.3.	Gap to Gap (Write to Write) Read-While-Write (RWW)	(mm) (in)	1.854 ± .076 .073 ± .003



3.1.4.	Write to Read Centerline Tolerance (same bump)	(µm) (µ")	0 ± 2 0 ± 79
3.1.5.	Write to Write Centerline Tolerance Read-While-Write (RWW)	(µm) (µ")	0 ± 2.5 0 ± 98

4.0 Static Specifications (Measured at Connector Pins)

4.1.	**Write Resonant Frequency** (including Flex)	(MHz)	70 min.

5.0 HEAD CLEANING

CAUTION: The use of any head cleaning system, whether employing wet, dry, or scrubbing actions, must be extremely carefully tested and evaluated for efficiency and validated not to cause damage to the tape head structure in ways outlined below, but not limited to those areas described in the following section.

5.1 The following solvent(s) may be used to clean the head without:

(a) causing damage to its structure;

(b) permitting head fabrication glues and epoxy products to wick to the head to tape interface;

(c) causing damage to the media in the event that small amounts do not evaporate immediately:

1. Reagent grade anhydrous isopropyl alcohol

5.2 Head Cleaning cartridge methods must:

(a) limit the solvent applied to a quantity sufficient to clean the head without leaving or redepositing debris;

(b) not permit solvent to seep into the head surface bondlines and contour airbleed slots; and

(c) not contribute to electrostatic discharge problems which damage the head.