OUTLINE

This specification provides a description for the TEAC FT-3008TR micro streamer: Mini Data Cartridge Unit (hereinafter, referred to as the MTU). The MTU is available with four different colors of front bezel.

Model	FT-3008TR-000	FT-3008TR-001	FT-3008TR-002	FT-3008TR-003
TEAC Part number	19305170-00	19305170-01	19305170-02	19305170-03
Front bezel color	Black	Light gray	Dark gray	Platinum white
Indicator LED color	Green			
Form factor	3.5-inch (Height: 1 inch)			
Safety standards	UL 1950 CSA No.950 TÜV EN60950			
Tape used (mini data cartridge)	Mini data cartridge specified in QIC-161 (TR-1), QIC-159 (QIC-WIDE) or QIC-160. (Refer to item 3 for the details)			
Recording format	QIC-80-MC			
Readable format	QIC-80-MC/QIC-40-MC			
Recording density	14,700ftpi			
Data density	14,700bpi			
Formatted data capacity	Approx. 401MB, using TR-1 tape. (approx. 802MB when data is compressed by a factor of 50%)			
Power supplies	+5V DC, +12V DC			
Interface	In compliance with QIC-117 (alias FDD interface)			
Drive select setting	SOFTWARE PHANTOM SELECT 0 at factory-preset			
Terminator	1kΩ (fixed)			

(Table 1) General specifications

CONSTRUCTION

External Construction

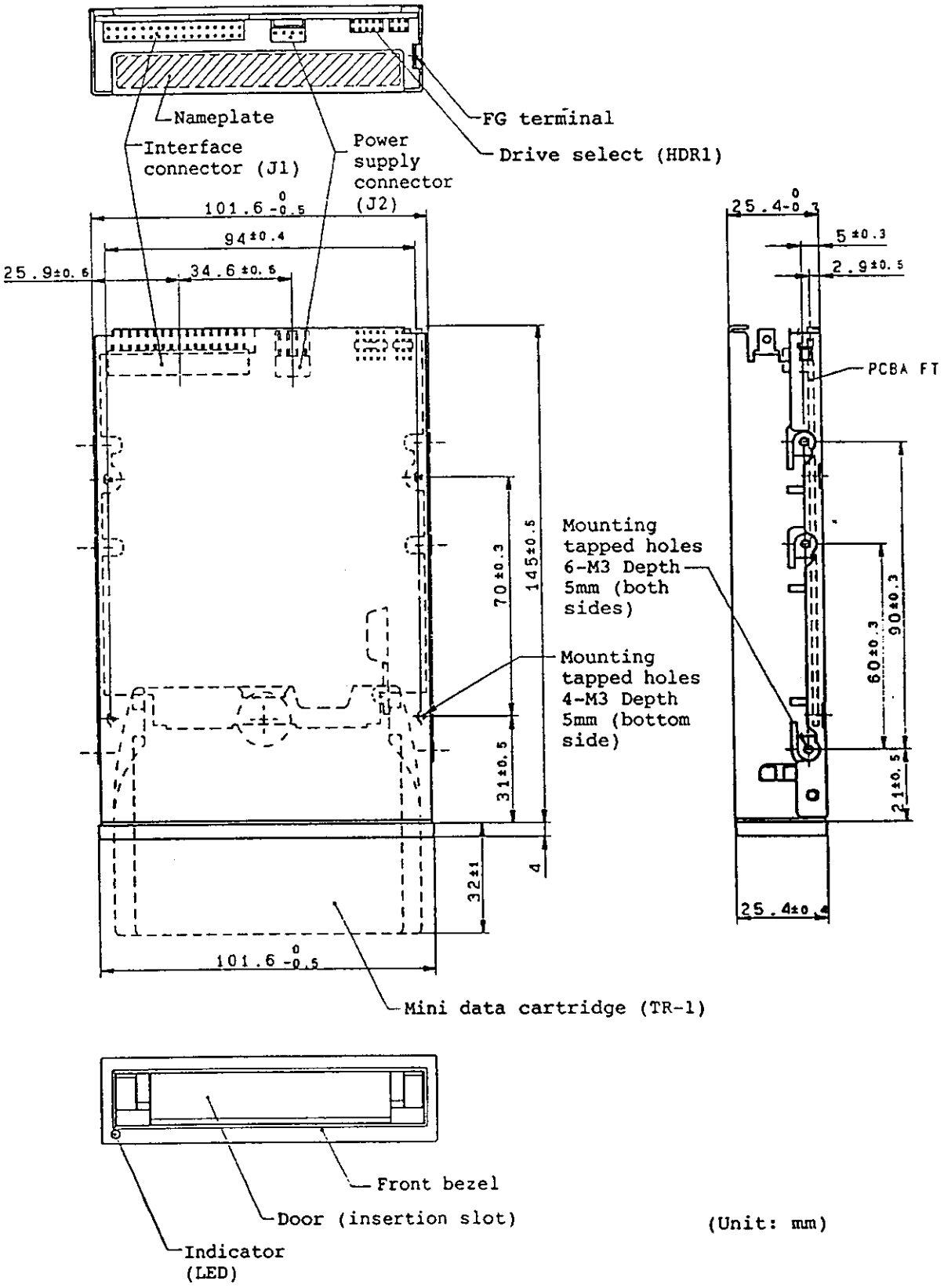
(1) Height : 25.4mm (1.00 *in*), Nom.
(2) Width : 101.6mm (4.00 *in*), Max.
(3) Depth : 145.0mm (5.71 *in*), Nom.
(4) Weight : Approx. 410g (Approx. 0.9 lbs)
(5) Direction of installation : as described below.

(a) The cartridge may be inserted horizontally from the front. However, the orientation with the indicator positioned on the right side is not permitted.
(b) The cartridge may be inserted vertically from the front.
(c) In case of (a) and (b), the front side can be tilted to upward or down-ward maximum 15 degrees.

(6) Mounting method : The drive is mounted with screws through the mounting holes at the sides and bottom. Refer to Fig.1 for the positions of the mounting holes.

Note: When mounting the drive with screws, use a tightening torque of 4kg·cm (55.5oz·*in*) or less.

(7) Color of front bezel : Refer to Table 1.
(8) Indicator LED color : Refer to Table 1.
(9) External view : Refer to Fig.1.



(Fig.1) MTU external view

ENVIRONMENTAL CONDITIONS

Items		Conditions
Ambient temperature	In operation	5~45°C (41~113°F)
	During storage or transportation	-22~60°C (-8~140°F)
Temperature gradient	In operation	6°C (10.8°F) or less per hour(non-condensing)
	During storage or transportation	30°C (54°F) or less per hour(non-condensing)
Relative humidity	In operation	20~80% (non-condensing) Maximum wet-bulb temperature: 26°C (79°F)
	During storage	10~90% (non-condensing) Maximum wet-bulb temperature: 40°C (104°F)
	During transportation	10~90% (non-condensing) Maximum wet-bulb temperature: 45°C (113°F)
Vibration	In operation	1G or less (10~100Hz, sweeps at 1oct/min.) 0.5G or less (100~600Hz, sweeps at 1oct/min.)
	Non-operating, During transportation	1.5G or less (10~100Hz, sweeps at 1/4oct/min.)
Shocks	In operation	5G (sine half-wave 11msec) or less
	One shock at non-operating, One shock during transportation	70G (sine half-wave 11msec) or less
Transportation conditions		The general rule level I of the appropriate package goods test method in JIS-Z0200 should be satisfied when specified packing case is used. When a long period (48 hours or more) is required for transportation such as by ship, storage environmental conditions should be applied.

(Table 3) Environmental conditions

RECORDING CHARACTERISTICS

(1) Recording format : In compliance with QIC-80-MC
(2) Number of tracks (on tape) : 36, using QIC-161 or QIC-159 tape
28, using QIC-160 tape
(3) Encoding system : MFM
(4) Recording form : Single track serpentine recording
(5) Recording density : 14,700ftpi
(6) Data density : 14,700bpi
(7) ECC : Reed Solomon (3-order)
(8) Data capacity

3 types of data capacity are provided depending upon the tape used.

Tape used	TR-1	QW5122F	DC2120XL XIMAT
QIC standard	QIC-161	QIC-159	QIC-160
Data capacity/tape (compressed) (Note 1.)	Approx. 802MB	Approx. 426MB	Approx. 354MB
Data capacity/tape (uncompressed)	Approx. 401MB	Approx. 213MB	Approx. 177MB
Data capacity/track	Approx. 11.16MB	Approx. 5.93MB	Approx. 6.32MB
Number of segments/track	376	200	213
Number of sectors/segment	Data 29, ECC 3		
Number of data/sector	1,024 bytes		

Notes: 1. Data is the capacity during a data compression factor of 50%.
2. Data capacity is under the following conditions.
(a) Speed tolerance : ± 0%
(b) Number of defect (on tape) : 0

(Table 4) Tape used and data capacity

TAPE USED (MINI DATA CARTRIDGE)

Mini data cartridge specified in QIC-161, QIC-159 or QIC-160 should be used.

QIC Standard	QIC-161	QIC-159	QIC-160
Length	750ft (228.6m)	400ft (121.9m)	425ft (129.5m)
Width	0.3149 ± 0.0005 *in* (8.000 ± 0.013mm)	0.3150 ± 0.0005 *in* (8.000 ± 0.013mm)	0.247 ± 0.0005 *in* (6.27 ± 0.013mm)
Coercivity	550 Oe (44,000 A/m)		

(Table 2) Characteristic of tape used (for reference)

TEAC recommends the following tapes, which have been confirmed suitable for use with the MTU.

(1) Preformatted tape

3M : TR-1 (QIC-161)

: DC2120XL XIMAT (QIC-160)

SONY : QW5122F (QIC-159)

(2) Unformatted tape

3M : DC2120XL (QIC-160)

Note: If the above tapes are difficult to obtain, the following tape may also be used although its data capacity is a little smaller.

(a) Preformatted tape

3M : DC2120 XIMAT (307.5ft)

(a) Unformatted tape

3M : DC2120 (307.5ft)

STANDARDS OF RECORDING FORMAT AND INTERFACE

This MTU complies with the following standards in order to be compatible with the recording format and interface.

(1) QIC-80-MC
FLEXIBLE-DISK-CONTROLLER-COMPATIBLE RECORDING FORMAT FOR INFORMATION INTERCHANGE

(2) QIC-117
COMMON COMMAND SET INTERFACE SPECIFICATION FOR FLEXIBLE DISK CONTROLLER BASED MINICARTRIDGE TAPE DRIVES

(3) QIC-113
HOST INTERCHANGE FORMAT

DATA COMPATIBILITY

(1) Write compatible : In compliance with QIC-80-MC

(2) Read compatible : In compliance with QIC-80-MC and QIC-40-MC

RELIABILITY OF DATA AND DRIVE

(1) Soft error	: 1 or less per 1 $\times 10^7$ bits read
(2) Unrecoverable error	: 1 or less per 1 $\times 10^{14}$ bits read
(3) Mean Time to Repair (MTTR)	: 20 min. or less
(4) Mean Time Between Failures (MTBF) at duty cycle 10%	: 119,000POH or more

OUTLINE

This specification provides a description for the TEAC FT-3010TR micro streamer: Mini Data Cartridge Unit (hereinafter, referred to as the MTU). The MTU is available with four different colors of front bezel.

Model	FT-3010TR-000	FT-3010TR-001	FT-3010TR-002	FT-3010TR-003
TEAC Part number	19305180-00	19305180-01	19305180-02	19305180-03
Front bezel color	Black	Light gray	Dark gray	Platinum white
Indicator LED color	Green			
Form factor	3.5-inch (Height: 1 inch)			
Safety standards	UL 1950 CSA No.950 TÜV EN60950			
Tape used (mini data cartridge)	Mini data cartridge specified in QIC-162 (TR-2), QIC-148 (QIC-WIDE) or QIC-143. (Refer to item 3 for the details)			
Recording format	QIC-3010-MC			
Readable format	QIC-3010-MC/QIC-80			
Recording density	22,125ftpi			
Data density	22,125bpi			
Formatted data capacity	Approx. 812MB, using TR-2 tape (approx. 1,624MB when data is compressed by a factor of 50%)			
Power supplies	+5V DC, +12V DC			
Interface	In compliance with QIC-117 (alias FDD interface)			
Drive select setting	SOFTWARE PHANTOM SELECT 0 at factory-preset			
Terminator	1kΩ (fixed)			

(Table 1) General specifications

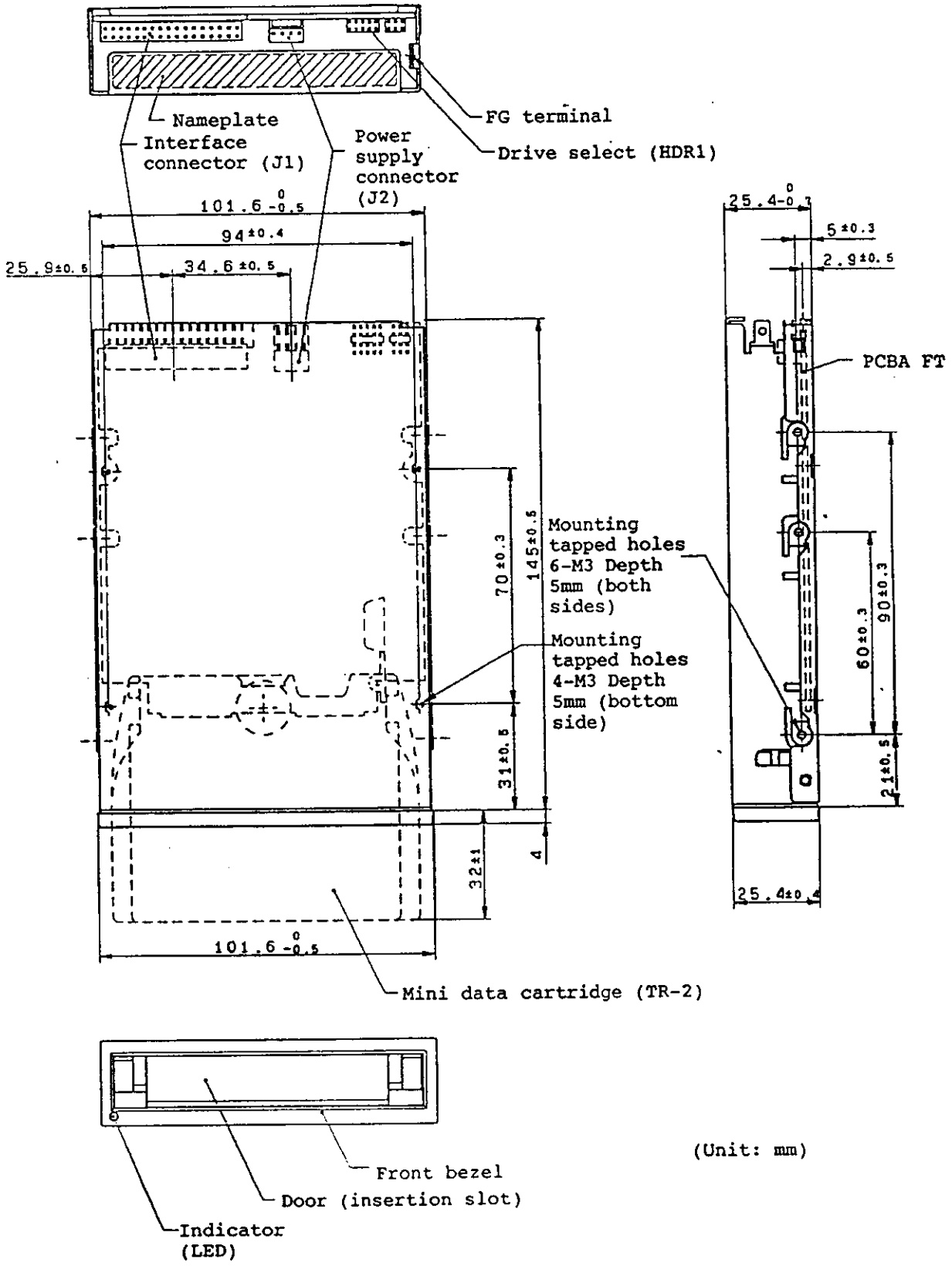
CONSTRUCTION

External Construction

(1) Height : 25.4mm (1.00 *in*), Nom.
(2) Width : 101.6mm (4.00 *in*), Max.
(3) Depth : 145.0mm (5.71 *in*), Nom.
(4) Weight : Approx. 410g (Approx. 0.9 lbs)
(5) Direction of installation : as described below.
  (a) The cartridge may be inserted horizontally from the front. However, the orientation with the indicator positioned on the right side is not permitted.
  (b) The cartridge may be inserted vertically from the front.
  (c) In case of (a) and (b), the front side can be tilted to upward or down-ward maximum 15 degrees.
(6) Mounting method : The drive is mounted with screws through the mounting holes at the sides and bottom. Refer to Fig.1 for the positions of the mounting holes.

Note: When mounting the drive with screws, use a tightening torque of 4kg·cm (55.5oz·*in*) or less.

(7) Color of front bezel : Refer to Table 1.
(8) Indicator LED color : Refer to Table 1.
(9) External view : Refer to Fig.1.



(Unit: mm)

(Fig.1) MTU external view

ENVIRONMENTAL CONDITIONS

Items		Conditions
Ambient temperature	In operation	5~45°C (41~113°F)
	During storage or transportation	-22~60°C (-8~140°F)
Temperature gradient	In operation	6°C (10.8°F) or less per hour(non-condensing)
	During storage or transportation	30°C (54°F) or less per hour(non-condensing)
Relative humidity	In operation	20~80% (non-condensing) Maximum wet-bulb temperature: 26°C (79°F)
	During storage	10~90% (non-condensing) Maximum wet-bulb temperature: 40°C (104°F)
	During transportation	10~90% (non-condensing) Maximum wet-bulb temperature: 45°C (113°F)
Vibration	In operation	1G or less (10~100Hz, sweeps at 1oct/min.) 0.5G or less (100~600Hz, sweeps at 1oct/min.)
	Non-operating, During transportation	1.5G or less (10~100Hz, sweeps at 1/4oct/min.)
Shocks	In operation	5G (sine half-wave 11msec) or less
	One shock at non-operating, One shock during transportation	70G (sine half-wave 11msec) or less
Transportation conditions		The general rule level I of the appropriate package goods test method in JIS-Z0200 should be satisfied when specified packing case is used. When a long period (48 hours or more) is required for transportation such as by ship, storage environmental conditions should be applied.

(Table 3) Environmental conditions

RECORDING CHARACTERISTICS

(1) Recording format : In compliance with QIC-3010-MC
(2) Number of tracks (on tape) : 50, using QIC-162 or QIC-148 tape
40, using QIC-143 tpae
(3) Encoding system : MFM
(4) Recording form : Single track serpentine recording
(5) Recording density : 22,125ftpi
(6) Data density : 22,125bpi
(7) ECC : Reed Solomon (3-order)
(8) Data capacity

3 types of data capacity are provided depending upon the tape used.

Tape used	TR-2	QW3010XLF	MC3000XL PIMAT
QIC standard	QIC-162	QIC-148	QIC-143
Data capacity/tape (compressed) (Note 1)	Approx. 1,624MB	Approx. 866MB	Approx. 692MB
Data capacity/tape (uncompressed)	Approx. 812MB	Approx. 433MB	Approx. 346MB
Data capacity/track	Approx. 16.2MB	Approx. 8.67MB	Approx. 8.67MB
Number of segments/track	547	292	292
Number of sectors/segment	Data 29, ECC 3		
Number of data/sector	1,024 bytes		

Notes: 1. Data is the capacity during a data compression factor of 50%.
2. Data capacity is under the following conditions.
(a) Speed tolerance : ± 0%
(b) Number of defect (on tape) : 0

(Table 4) Tape used and data capacity

TAPE USED (MINI DATA CARTRIDGE)

Mini data cartridge specified in QIC-162, QIC-148 or QIC-143 should be used.

QIC standard	QIC-162	QIC-148	QIC-143
Length	750ft(228.6m)	400ft(121.9m)	400ft(121.9m)
Width	0.3149 ± 0.0005*in* (8.000 ± 0.013mm)	0.3150 ± 0.0005*in* (8.000 ± 0.013mm)	0.247 ± 0.0005*in* (6.27 ± 0.013mm)
Coercivity	900 Oe(72,000A/m)		

(Table 2) Characteristic of tape used (for reference)

TEAC recommends the following tapes, which have been confirmed suitable for use with the MTU.

(1) Preformatted tape

3M : TR-2 (QIC-162),
MC3000XL PIMAT (QIC-143)

SONY : QW3010XLF (QIC-148)

(2) Unformatted tape

3M : MC3000XL (QIC-143)

Note: If the above tapes are difficult to obtain, the following tape may also be used although its data capacity is a little smaller.

(a) Preformatted tape : not commercially available

(b) Unformatted tape

3M : MC3000 (300ft)

STANDARDS OF RECORDING FORMAT AND INTERFACE

This MTU complies with the following standards in order to be compatible with the recording format and interface.

(1) QIC-3010-MC
SERIAL RECORDED MAGNETIC TAPE MINICARTRIDGE FOR INFORMATION INTERCHANGE

(2) QIC-117
COMMON COMMAND SET INTERFACE SPECIFICATION FOR FLEXIBLE DISK CONTROLLER BASED MINICARTRIDGE TAPE DRIVES

(3) QIC-113
HOST INTERCHANGE FORMAT

DATA COMPATIBILITY

(1) Write compatible : In compliance with QIC-3010-MC

(2) Read compatible : In compliance with QIC-3010-MC and QIC-80-MC

RELIABILITY OF DATA AND DRIVE

(1) Soft error	: 1 or less per 1 $\times 10^{7}$ bits read
(2) Unrecoverable error	: 1 or less per 1 $\times 10^{14}$ bits read
(3) Mean Time to Repair (MTTR)	: 20 min. or less
(4) Mean Time Between Failures (MTBF) at duty cycle 10%	: 119,000POH or more