

MT-4403 and MT-4406 Magnetic Tape Cartridge Streamer User Guide

M5178A

MA/BasicFour
Computers That Mean Business

005178-010

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PREFACE

This user guide contains instructions for installing and operating the MT-4403 and MT-4406 Magnetic Tape Cartridge Streamers. Service information for the MT-4403 may be found in BFISD 8082, the MT-4403 Service Manual. Service information for the MT-4406 may be found in the O.E.M. service manual.

The topics in this guide include:

- o Section 1 Introduction
- o Section 2 MTCS Description
- o Section 3 Routine Operating Procedures
- o Section 4 MTCS Maintenance
- o Section 5 MTCS Specifications

WARNING

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures that may be required to correct the interference.

PREFACE

This user guide contains instructions for installing and operating the MT-4403 and MT-4406 Magnetic Tape Cartridge Streamers. Service information for the MT-4403 may be found in BFISD 8082, the MT-4403 Service Manual. Service information for the MT-4406 may be found in the O.E.M. service manual.

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WARNING

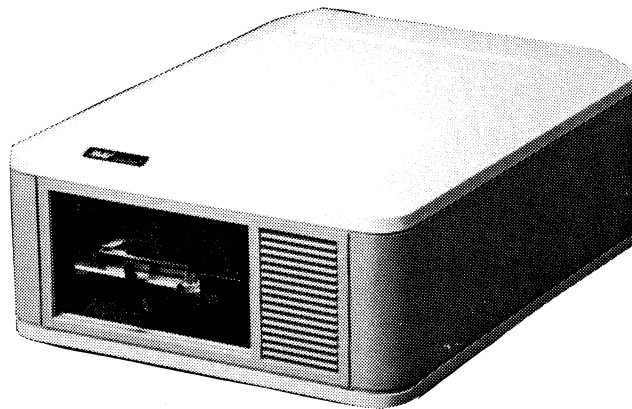
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SECTION 1

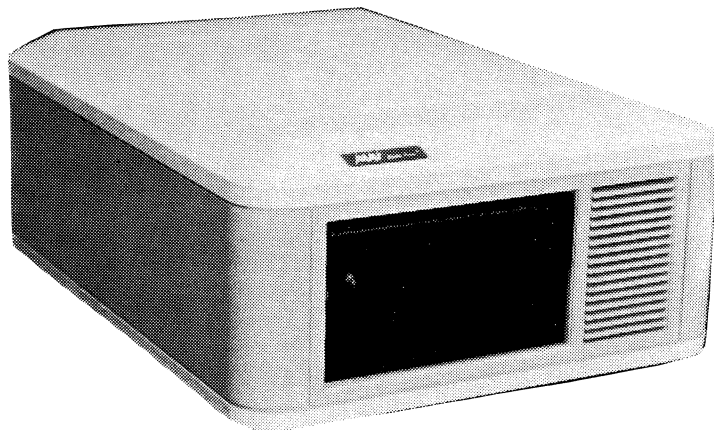
INTRODUCTION

GENERAL

This guide is your source of information for using the MT-4403 or MT-4406 Magnetic Tape Cartridge Streamer (MTCS). It contains the descriptions and procedures needed to operate and maintain the MTCS. Figure 1-1 shows both models of the MTCS.



MT-4403



MT-4406

Figure 1-1. MT-4403 and MT-4406 Magnetic Tape Cartridge Streamers

NOTES

SECTION 2

MTCS DESCRIPTION

MTCS DESCRIPTION

The MTCS is a high-performance streaming tape drive capable of storing up to 120 megabytes (Mbytes) of formatted data on a standard 1/4-inch tape cartridge.

The MT-4403 uses a 450-foot cartridge and stores up to 45 Mbytes of data. The MT-4406 comes in two versions; 45/60 Mbyte and 120 Mbyte. The 45/60-Mbyte version of the MT-4406 stores up to 45 Mbytes of data on a 450-foot cartridge and up to 60 Mbytes of data on a 600-foot cartridge. The 120-Mbyte version of the MT-4406 stores up to 120 Mbytes of data on a 600-foot cartridge.

The MTCS functions only in a streaming mode. Streaming mode is a form of tape operation where the tape does not need to stop and start to be read: it continues moving, or streaming. The advantages of tape streaming over conventional start/stop tape operation are simplified mechanics and more efficient use of the tape. One microprocessor controls basic drive functions, and a second microprocessor is an integral part of the intelligent formatter and controls the overhead functions of tape formatting.

The MTCS writes data to and reads data from magnetic tape cartridges. The cartridge is 4 inches wide, 6 inches long, and 1/2-inch deep. It conforms to ANSI specifications X3.55-1977 and X3B5.84-29 for unrecorded tape cartridges. The tape is 1/4-inch wide and 450 or 600 feet long. A typical tape cartridge is illustrated in Figure 2-1.

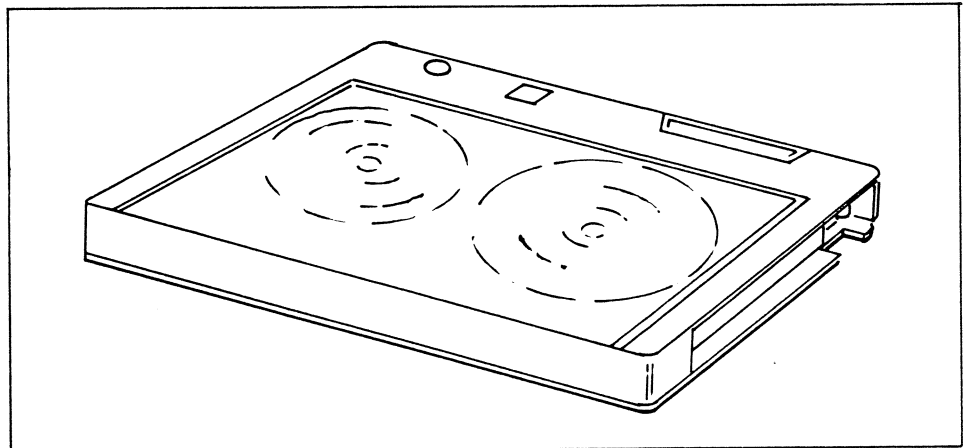


Figure 2-1. Magnetic Tape Cartridge

The 1/4-inch wide magnetic tape is wound on two hubs. These hubs are driven by an internal drive belt, which is coupled by an internal belt capstan. The capstan is driven by the capstan roller and the drive motor assembly.

On the MT-4403, the cartridge is inserted in the tray loading mechanism, which is then pushed into the MTCS. On the MT-4406, a door is opened, the cartridge is inserted into the unit, and the door is closed. Now the cartridge is held in a usable position relative to the Read/Write heads inside the MTCS. Figure 2-2 illustrates cartridge insertion on the MT-4403.

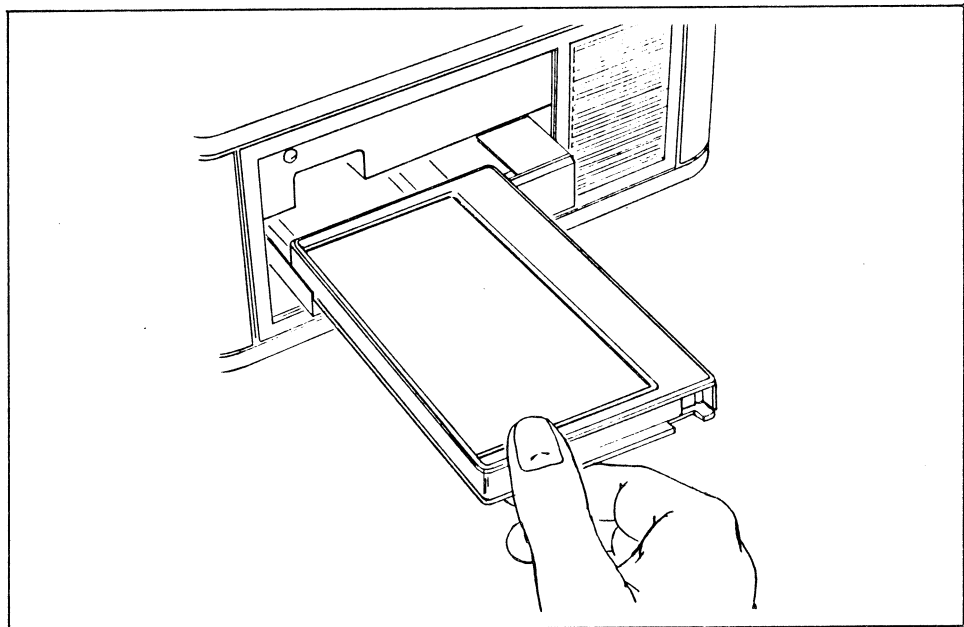


Figure 2-2. Inserting the Cartridge (MT-4403 shown)

The MTCS contains four heads, which are small electromagnets that read, record, and erase polarized spots on magnetic tape. There are two Read heads and two Write heads. One set of Read and Write heads records data in the forward direction and the other set of Read and Write heads records in the reverse direction. The heads are positioned by a motor, which is controlled by a microprocessor.

To summarize, you send data to the MTCS with instructions from your keyboard. These instructions cause the microprocessor to manipulate the heads, which are electromagnets. The heads read, write, or erase data on the tape. The tape is being turned by a motor, which is operated by another microprocessor. Figure 2-3 summarizes MTCS operation.

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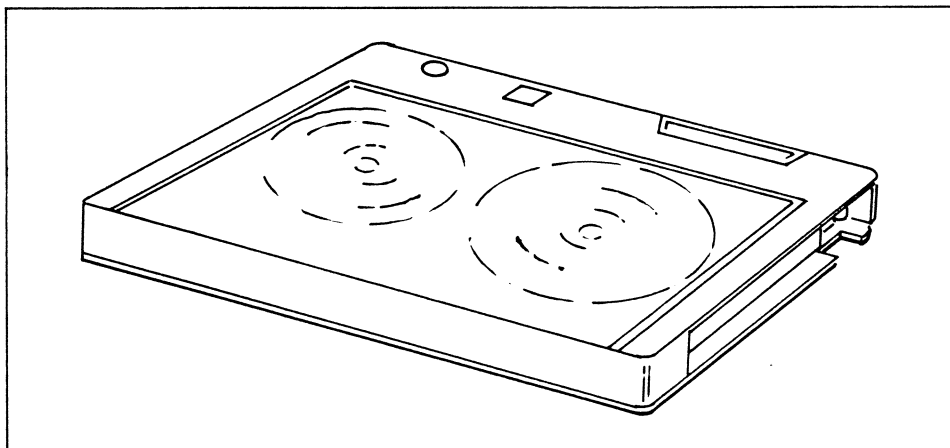


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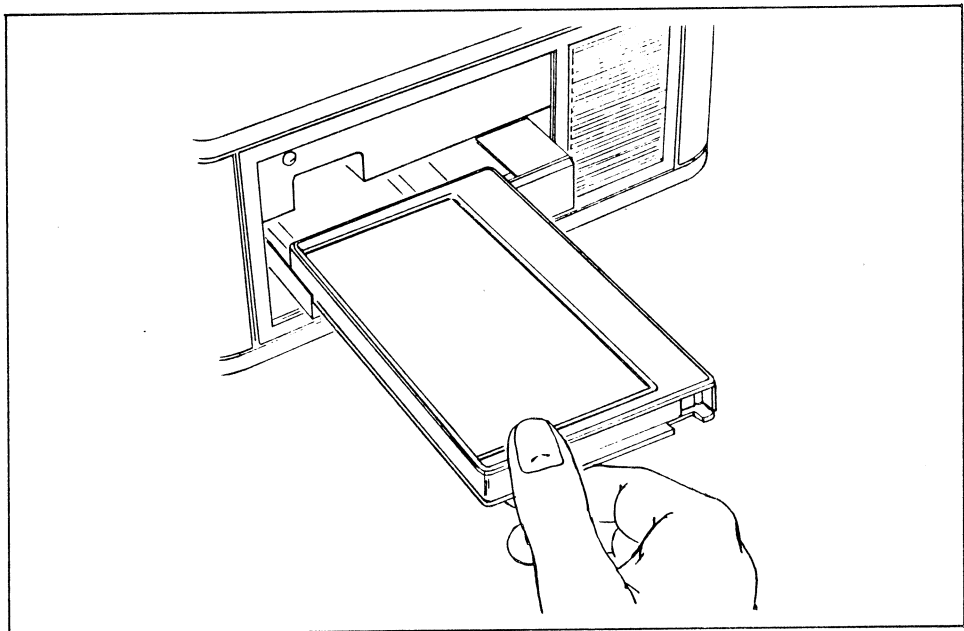


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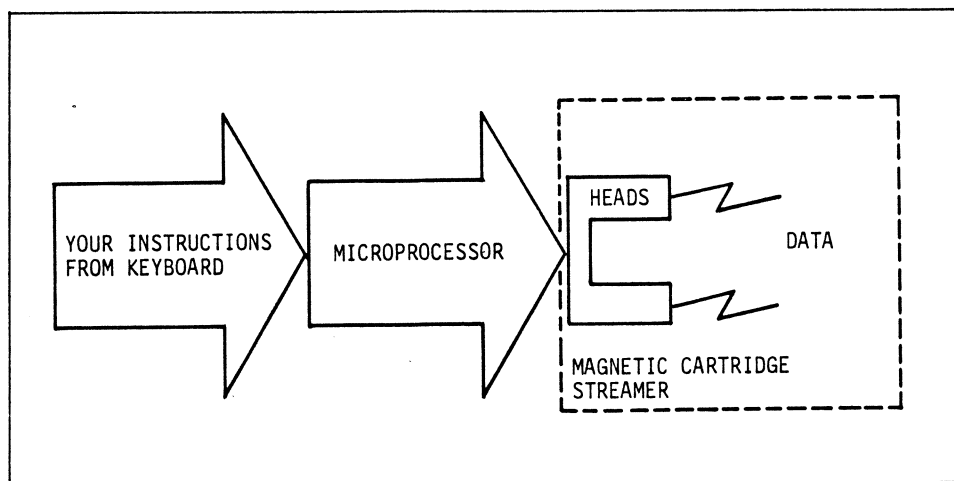


Figure 2-3. Summary of MTCS Operation

SWITCHES AND CONNECTORS

The MTCS switches and connectors are located on the rear panel of the unit (see figure 2-4). They include:

- o The Power On/Off Switch
- o The AC Power Cord Receptacle
- o The Interface Cable Connector

The power on/off switch turns the MTCS on and off. When the "1" side of the switch is pressed in, the MTCS is on. When the "0" side of the switch is pressed in, the MTCS is off.

The ac power cord receptacle is used to attach a power cord. The interface cable connector is used to attach the system interface cable.

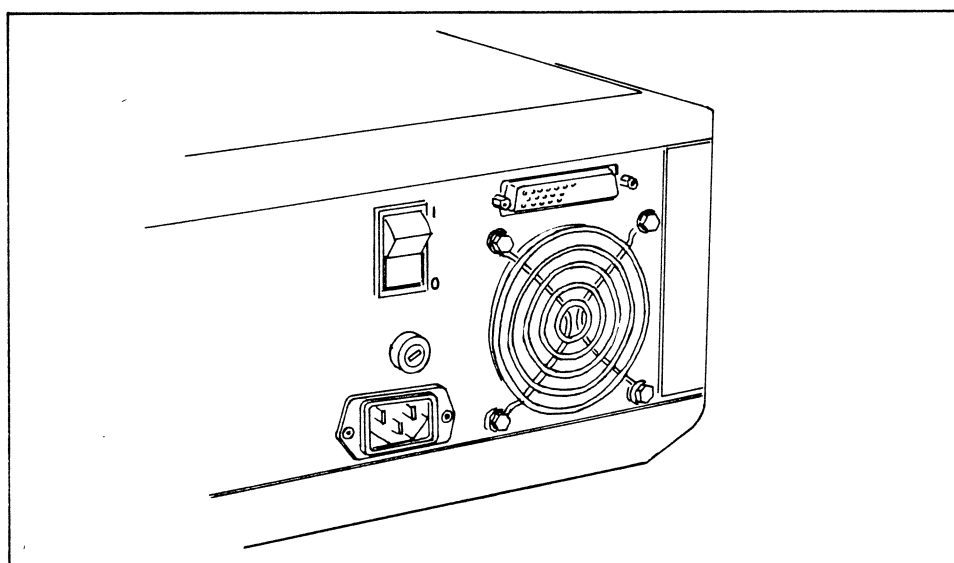


Figure 2-4. Switches and Connectors on MTCS Rear Panel

NOTES

SECTION 3

ROUTINE OPERATING PROCEDURES

INTRODUCTION

The routine MTCS operating procedures are:

- o Connect MTCS
- o Turn MTCS On/Off
- o Insert Cartridge
- o Remove Cartridge
- o Write-Protect Cartridge

CONNECT MTCS

Plug the power cord into the receptacle on the back of the MTCS unit, as shown in figure 3-1. Plug the other end of the power cord into an electrical outlet.

Plug the system interface cable into the connector on the back of the MTCS unit, as shown in figure 3-2.

The MTCS is now connected and ready for use.

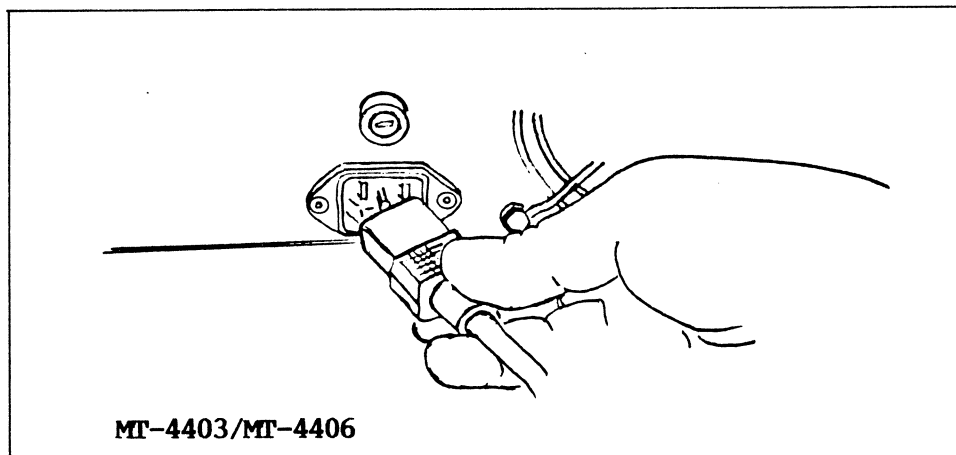


Figure 3-1. Connecting the MTCS Power Cord

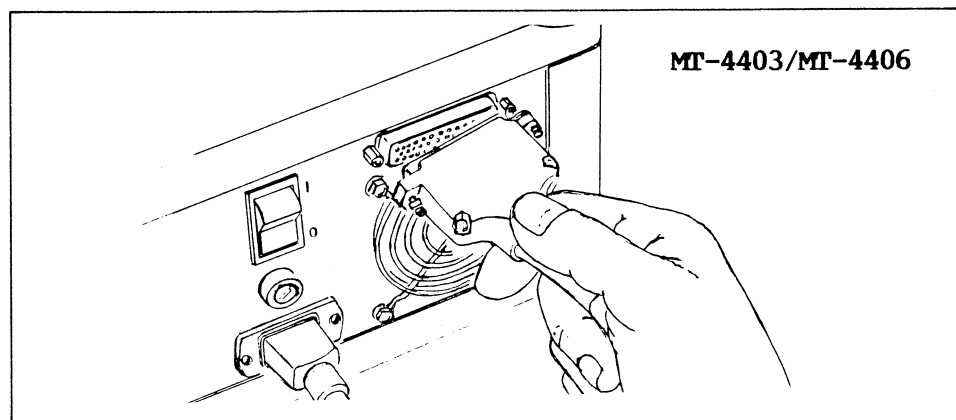


Figure 3-2. Connecting the MTCS Interface Cable

TURN MTCS ON/OFF

To turn the MTCS on, press in the "1" side of the power on/off switch (see figure 3-3).

To turn the MTCS off, press in the "0" side of the power on/off switch.

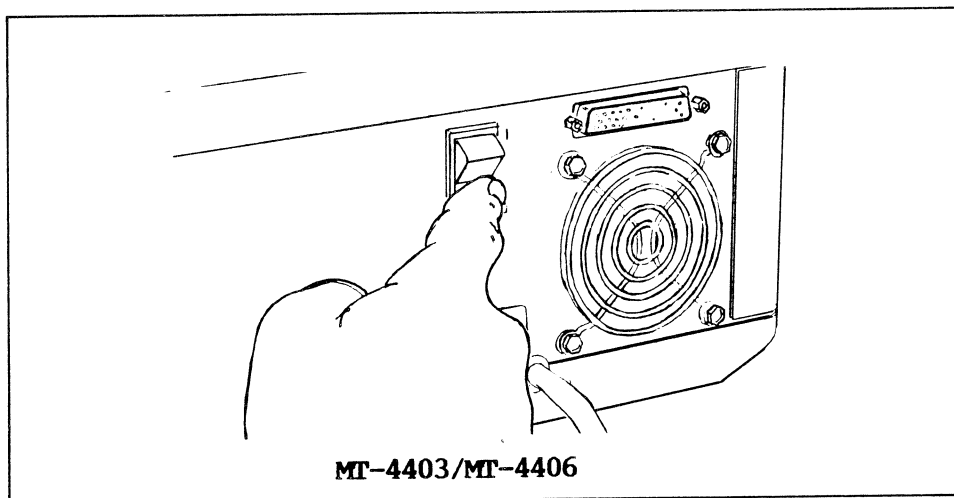


Figure 3-3. Turning the MTCS On/Off

INSERT CARTRIDGE

To insert a tape cartridge in the MTCS, follow these steps:

1. MT-4403. Open the MT-4403 by moving the front lever down to its horizontal position (see figure 3-4).

MT-4406. Open the MT-4406 by pushing the front button to release the cartridge door (see figure 3-4).

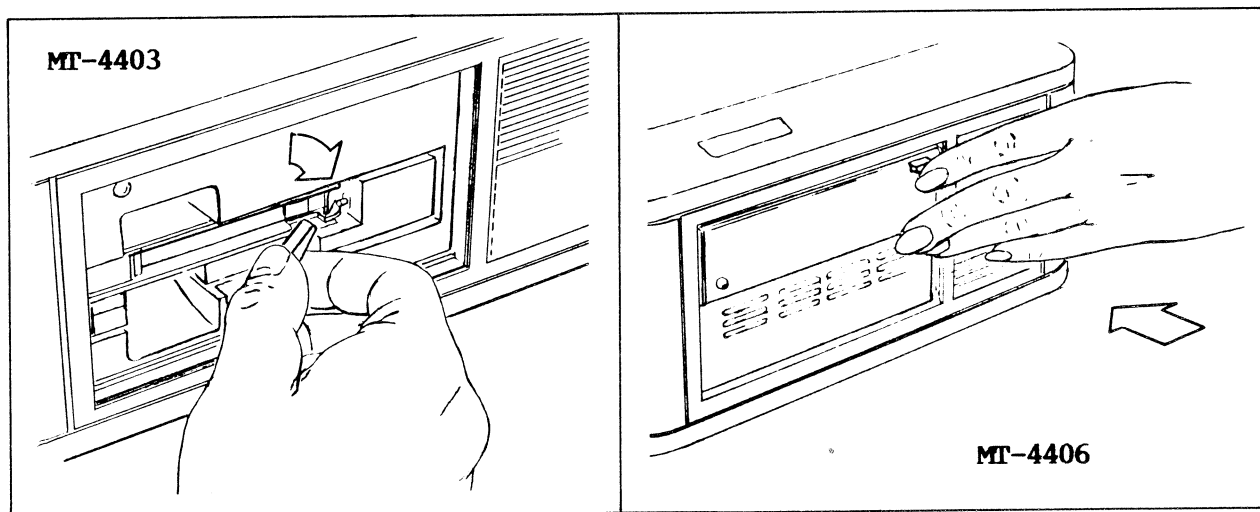


Figure 3-4. Opening the MTCS

2. MT-4403. Insert your finger in the cartridge slot and gently pull out the cartridge tray (see figure 3-5).

MT-4406. Push the cartridge door down to its full-open position (see figure 3-5).

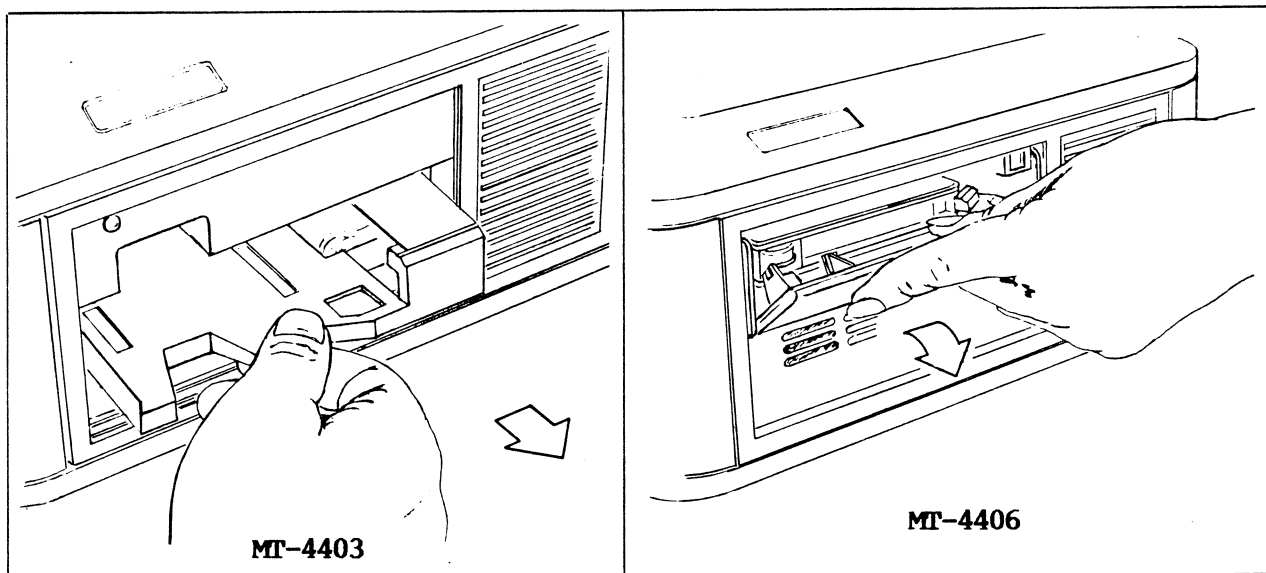


Figure 3-5. Pulling Out Cartridge Tray (MT-4403) or Pushing Down Cartridge Door (MT-4406)

3. MT-4403/MT-4406. Insert the tape cartridge, as shown in figure 3-6.

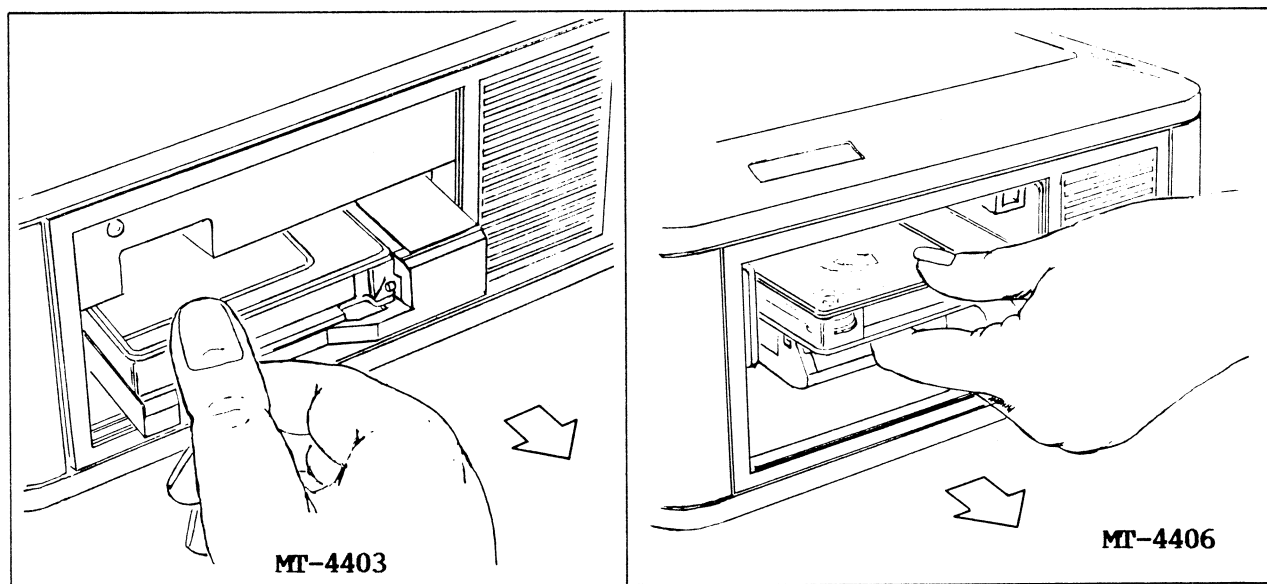


Figure 3-6. Inserting the MICS Tape Cartridge

4. MT-4403. Lock tape cartridge in place by moving the front lever up to its vertical position (see figure 3-7).

MT-4406. Push cartridge door up until it locks (see figure 3-7).

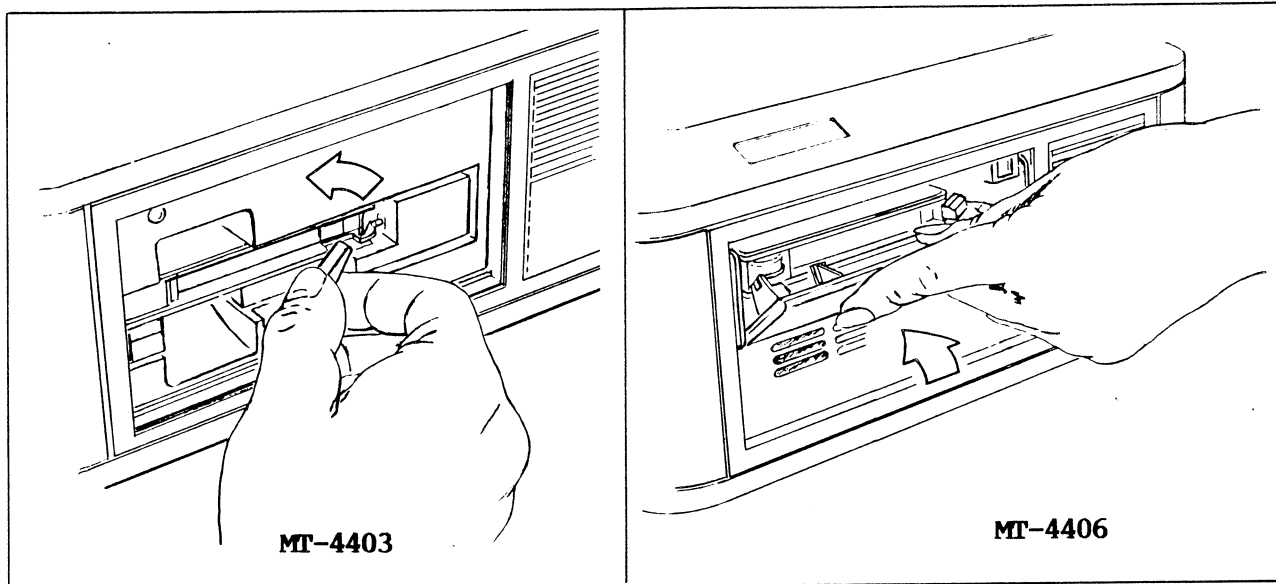


Figure 3-7. Closing the MTCS

REMOVE CARTRIDGE

To remove a tape cartridge from the MTCS, follow these steps:

1. MT-4403. Move the front lever down to its horizontal position (figure 3-4).

MT-4406. Push the front button to release the cartridge door (figure 3-4).

2. MT-4403. Grasp the cartridge and gently pull out the tray containing the tape cartridge (see figure 3-8).

MT-4406. Push the cartridge door down to its full-open position (figure 3-5) and grasp the tape cartridge (see figure 3-8).

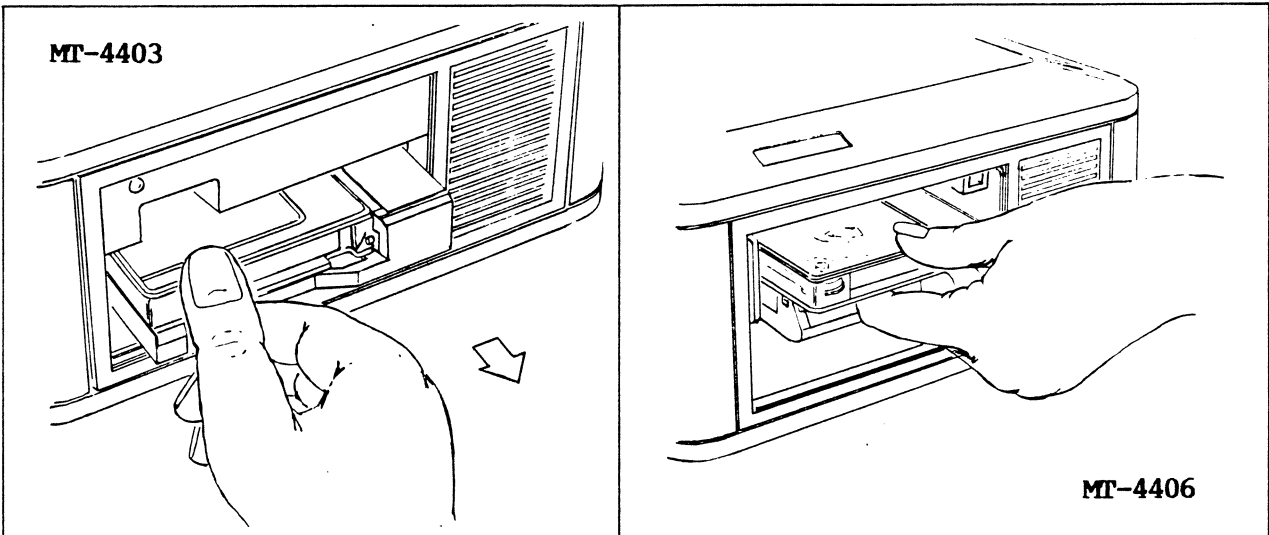


Figure 3-8. Pulling Out Tape Cartridge and Tray (MT-4403) or Grasping Tape Cartridge (MT-4406)

3. MT-4403. Carefully remove the tape cartridge from the tray, as shown in figure 3-9.

MT-4406. Remove the tape cartridge, as shown in figure 3-9.

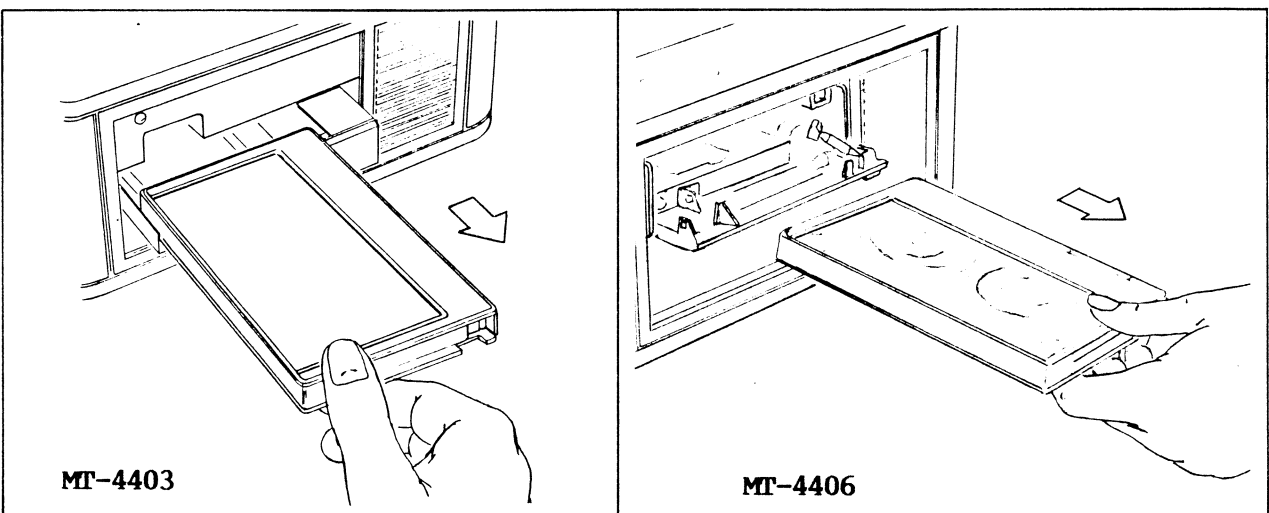


Figure 3-9. Removing Tape Cartridge

WRITE-PROTECT A CARTRIDGE

You can write-protect a cartridge to protect your data from being overwritten or erased. To "write-protect" means to prevent other users from accidentally writing to it.

To write-protect a tape, use your thumbnail or a screwdriver to rotate the plastic plug in the corner of the cartridge so that the arrow is lined up with the word "SAFE". In this position, the cartridge is write-protected.

To remove the write-protection, use your thumbnail or a screwdriver to rotate the plastic plug so the arrow is facing away from the word "SAFE". Now the cartridge is not write-protected, and it can be written to.

SECTION 4

MTCS MAINTENANCE

MTCS MAINTENANCE

The MTCS is virtually maintenance-free. The only maintenance procedures you need to perform are cleaning the MTCS enclosure and cleaning the heads.

CLEANING THE ENCLOSURE

You can clean the MTCS enclosure with a soft cloth moistened in warm water containing an extremely mild detergent solution. Be careful not to get moisture inside the enclosure.

CLEANING THE HEADS

The Read/Write heads can be swabbed gently with a lint-free swab moistened with Freon TF, available at computer stores.

After the heads have been cleaned, they should be allowed to dry thoroughly before the unit is used. The heads should be cleaned after every eight hours of actual tape movement. If you are using new tapes, clean the heads after the first five hours of actual tape movement.

CAUTION

Never use anything except Freon TF to clean the heads.

NOTES

SECTION 5

MTCS SPECIFICATIONS

MTCS SPECIFICATIONS

Specifications for MTCS are listed in tables 5-1, 5-2, and 5-3.

Table 5-1. General Specifications

PARAMETER	VALUE
Capacity (formatted)	
MT-4403/ MT-4406	45 Mbytes, using 450-foot tape cartridge
MT-4406	60 Mbytes, using 600-foot tape cartridge
MT-4406	120 Mbytes, using 600-foot tape cartridge (will read 450-foot cartridge written on 45 Mbyte MTCS and 600-foot cartridge written on 60 Mbyte MTCS)
Recording Tracks	$\frac{45 \text{ Mbyte}}{9}$ $\frac{60 \text{ Mbyte}}{9}$ $\frac{120 \text{ Mbyte}}{15}$
Recording Method	NRZI, with data serially recorded in a bidirectional serpentine format
Recording Speed	MT-4403 (45 Mbyte): 90 in/sec (ips); MT-4406 (45/60 Mbyte): 90 ips; MT-4406 (120 Mbyte): 72 ips
Data Density	$\frac{45/60 \text{ Mbyte}}{8,000 \text{ bits/inch}}$ $\frac{120 \text{ Mbyte}}{10,000 \text{ (bpi)}}$ (bpi)
Data Transfer Rate (72/90 ips)	86.7 kbs
Maximum Burst	200 kbs
Tape Cartridges	300XLP: 450-foot, 1/4-inch tape cartridge (P/N 907815-002) 600A: 600-foot, 1/4-inch tape cartridge (P/N 907815-003)
Voltage	115/220 VAC

Table 5-2. Physical Dimensions

PARAMETER	VALUE
Height	3.38 inches (8.58 centimeters)
Width	5.88 inches (14.93 centimeters)
Depth	8 inches (20.32 centimeters)
Weight	4.5 pounds (2.04 kilograms)
Maximum shipping weight	10 pounds (4.54 kilograms)

Table 5-3. Environmental Specifications

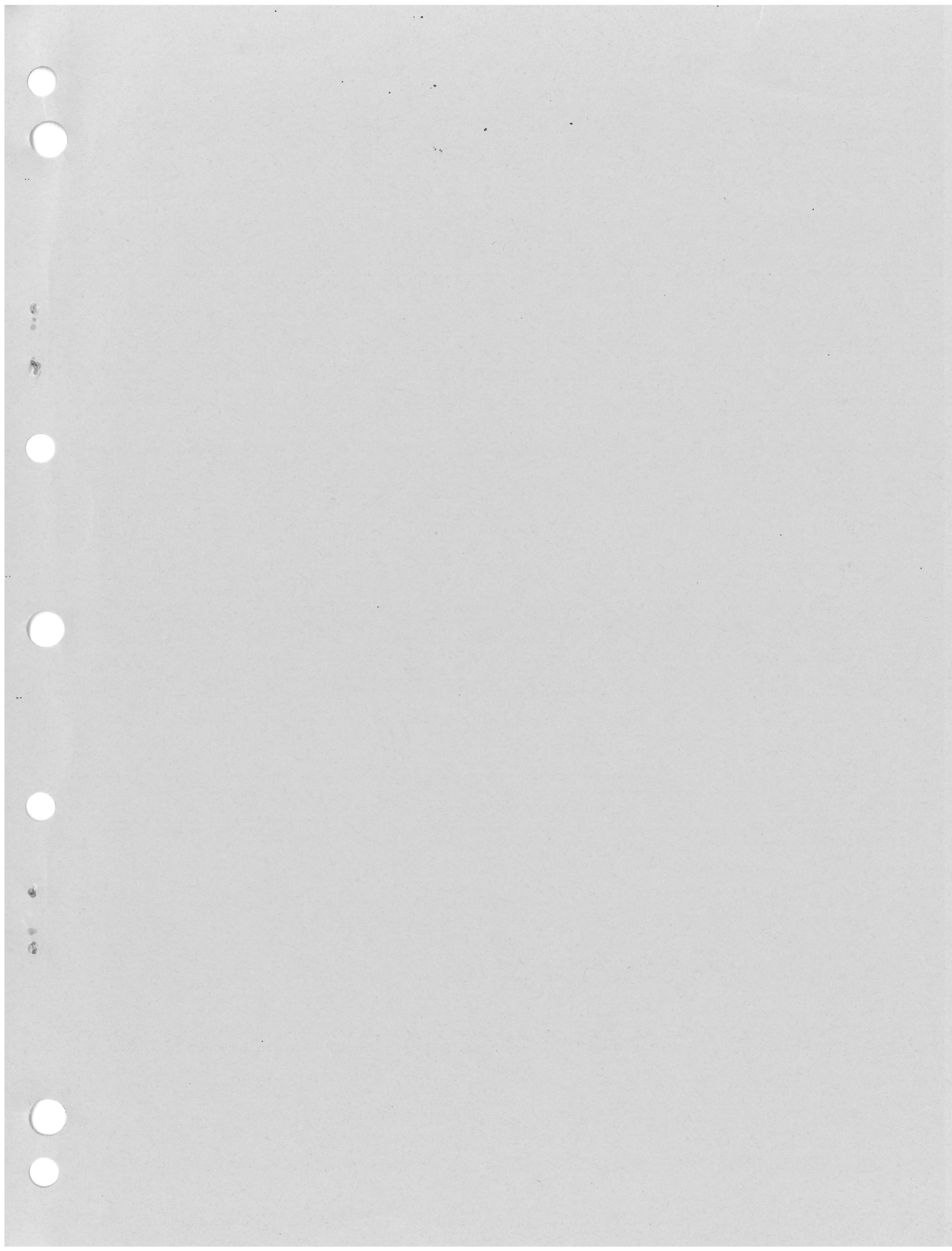
PARAMETER	VALUE	
	OPERATING	Non-Operating
Temperature Range	+41° to 100°F (+5° to 38°C)	-22° to +140°F (-30° to +60°C)
Relative Humidity	20 to 80%, non-condensing	1 to 90%, non-condensing
Altitude	Sea level to 10,000 feet (3 kilometers)	Sea level to 49,000 feet (15 kilometers)

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