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# RC3616 High-Speed Magnetic Tape Unit Operating Guide

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**Abstract:**

A brief description of the controls and their functions and of the operating procedures is given. Further, supplementary notes are included, for instance on maintenance.

(18 printed pages)

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# 1. CONTROLS



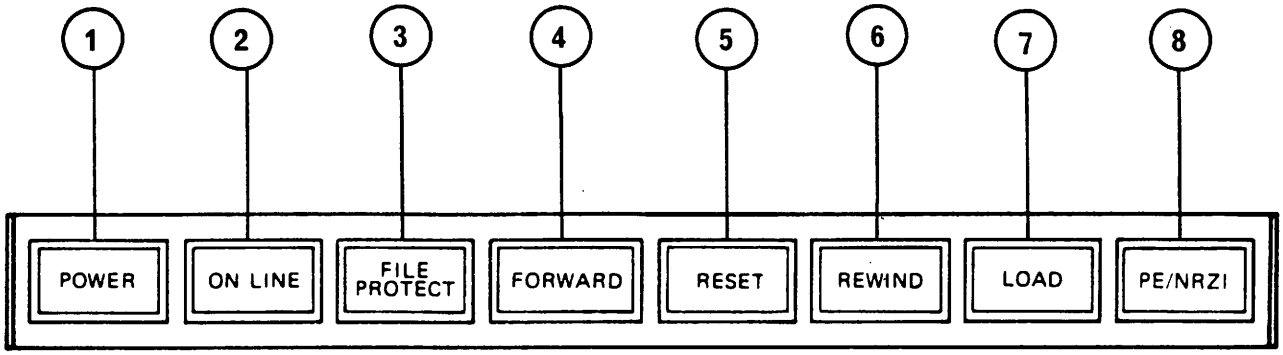


Figure 1: Control panel.

1) POWER push-button/indicator - applies power to the unit when depressed to light.

2) ON LINE push-button/indicator - places tape unit under control of the host when depressed to light. Unit is taken off-line if RESET push-button (5) is depressed.

3) FILE PROTECT indicator - lights when writing of data on the tape is inhibited. If a 'write enable ring is installed on the tape reel the indicator does not light and writing is possible.

4) FORWARD push-button/indicator - functions only in off-line mode, i.e. if ON LINE indicator (2) is not lit. Depressing the FORWARD push-button will cause the tape to move forward at normal tape speed. To stop the unit in the FORWARD mode depress the RESET button (5).

5) RESET push-button

- all tape motion stops when RESET is depressed. The unit is taken off-line and the ON LINE indicator will stop lighting.

As seen the RESET button can be used by the operator to stop the operations directly. In the specific error case discussed in 3.1.3, however, the RESET button should not be used.

From the descriptions of the other control functions it will be evident when to apply the RESET function.

6) REWIND push-button

- tape rewinds at high speed when depressed. The unit must be off-line. Rewinding can be stopped by depressing the RESET push-button (5). If RESET is not depressed the tape will run beyond the beginning-of-tape marker, stop, and then automatically return to the load point.

If REWIND is depressed once more, the tape will rewind onto the file reel.

7) LOAD push-button/indicator

- when depressed, tape is automatically threaded and advanced to the load point whereupon the unit goes on-line. LOAD and ON LINE (2) will be lit when the action is completed. The LOAD light is lit only when the tape is positioned at the load point.

8) PE/NRZI push-button/indicator - when depressed to light tape unit is in PE mode (1600 bpi). When depressed to extinguish the tape unit is in NRZI mode (800 bpi).

On some units only one of the features is installed; then the correct setting is selected and the push-button is not attended any further.

## 2. OPERATING PROCEDURES 2.

The tape unit and the operating points are shown in fig. 3. The unit can use tape reels with a cartridge for easy loading as well as reels without a cartridge. The outline of a cartridge reel is shown below.

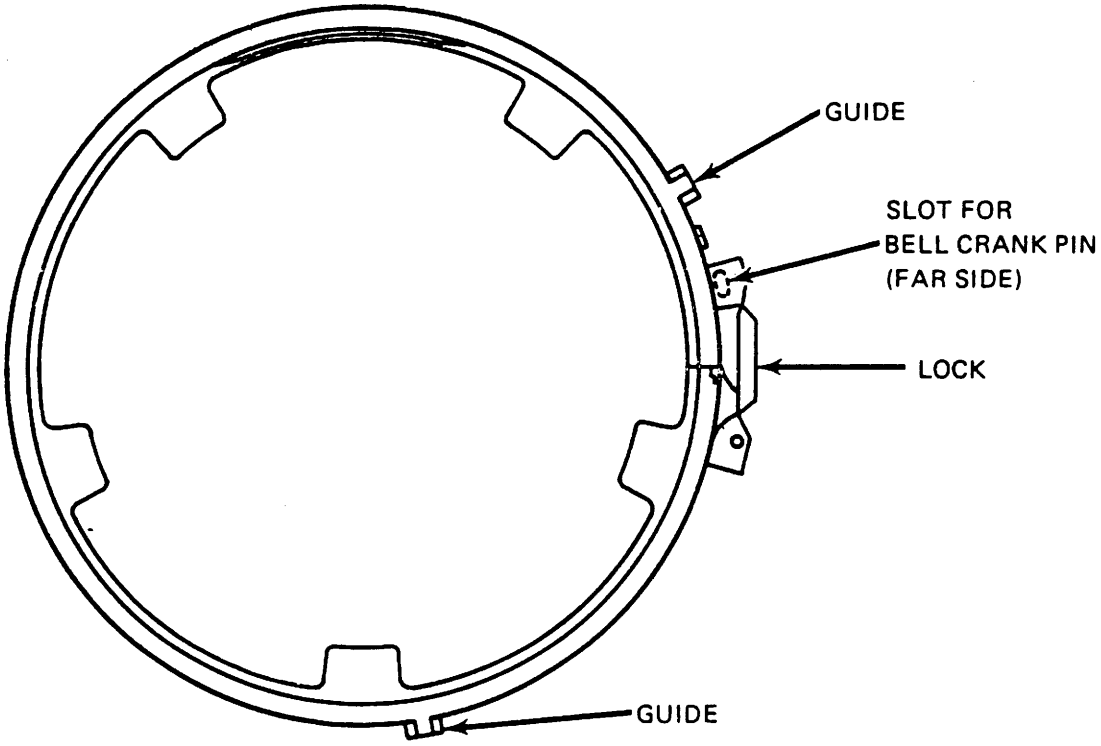


Figure 2: Cartridge.

It is always the file reel (upper reel) which is loaded/unloaded. A toggle action hold-down knob is located on the file reel hub - by pressing the end marked PRESS it allows mounting of the reel, by pressing the other end it locks the reel in place.

Note: The presence of a 'write enable ring' is required in order to allow writing of data on the tape (otherwise reading is possible only).

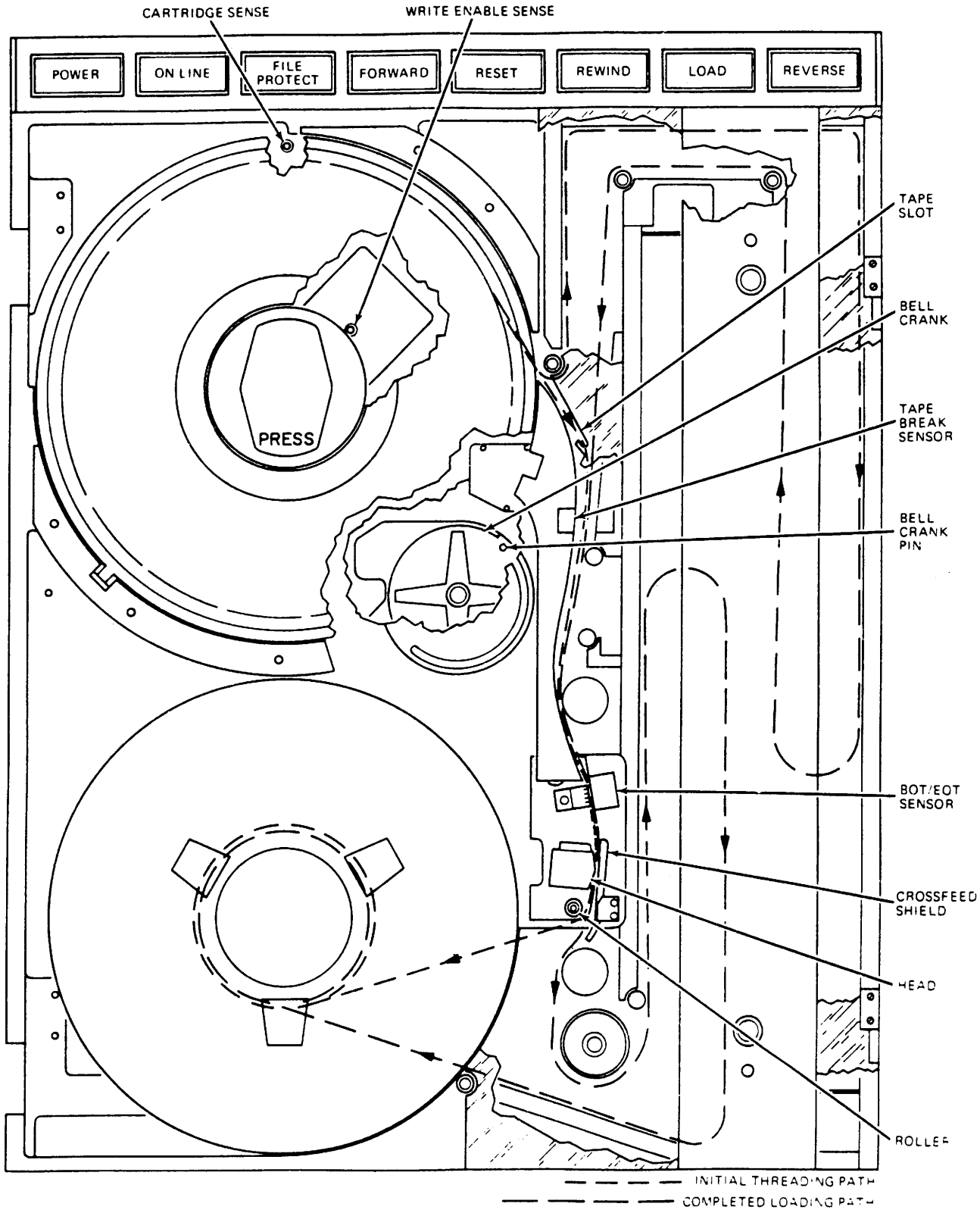


Figure 3: Tape unit; tape threading path.

## 2.1 Start Procedures 2.1

### 2.1.1 Loading with a Cartridge 2.1.1

Loading an IBM-compatible cartridge onto the unit is accomplished as follows:

1. Depress the POWER switch and wait a few seconds before initiating the loading sequence (this allows time for the vacuum blower to reach running speed).

2. Place the toggle action hold-down knob, located on the file reel hub, in the unlocked position by pressing the end marked PRESS.

3. The cartridge has three guides: two outer guides and one slot for the bell crank pin. With these aligned, mount the cartridge on the file hub. Lock the reel in place by depressing the extended tab on the knob.

4. Depress the LOAD switch.

Upon depressing the LOAD switch, the cartridge opens, the tape exits the cartridge and is threaded past the head assembly and onto the fixed reel. Tape is then dumped into the buffer chambers and positioned at the load point. The LOAD indicator lights and the unit goes on-line automatically causing the ON LINE indicator to light.

### 2.1.2 Loading without a Cartridge 2.1.2

Loading a reel wihout a cartridge is accomplished as follows:

1. Depress POWER switch and wait a few seconds before initating the loading sequence.

2. Place the supply reel onto the file reel hub.

3. Manually feed tape into the tape slot by slowly rotating the file reel in the reverse direction and sliding the leader into the slot in the chamber cover.

4. Slowly rotate the file reel in the forward direction until the tape has passed the tape break sensor inside the tape chute.

5. Depress LOAD switch.

Upon depressing the LOAD switch, the tape is threaded automatically onto the fixed reel in the same manner as when loading with a cartridge.

## 2.2 Stop Procedure 2.2

Unloading of the tape is accomplished as follows:

1. Press REWIND switch.

2. Allow time for the tape to rewind to BOT (BOT = beginning-of-tape). The LOAD indicator will then light.

3. Momentarily press REWIND. The tape will then unload onto the file reel. If a cartridge has been used it will then be closed.

4. Unlock the reel hold-down knob to release the reel. Remove cartridge from deck.

Notes: - if desirable power can automatically be switched on/off as the system is switched on/off. In that case just do not switch off the POWER push-button at the unit.

- the dust cover should remain closed at all times when the tape is on the fixed reel as well as when the tape unit is not working.

# 3. SUPPLEMENTARY INFORMATION 3.

## 3.1 Error Handling 3.1

### 3.1.1 Abort of Load Sequence 3.1.1

The unit will automatically abort the loading sequence under any of the following conditions:

1. The cartridge fails to open (ensure that the cartridge toggling crank pin is in the pin slot of the cartridge).

2. Tape fails to enter the chute and thus fails to pass the tape break sensor.

3. Tape fails to be picked up on the fixed reel.

4. BOT or EOT marker is not sensed within 10 seconds of the start of the loading sequence. EOT = end-of-tape.

5. Tape not successfully dumped into the vacuum chambers.

If an abort occurs during a loading sequence when using a cartridge, the unit will automatically attempt one more loading sequence, except in the case of the BOT/EOT sense (4). If the BOT/EOT marker is not sensed within 10 seconds, another loading sequence will not be initiated. Any load abort will put the reels in reversing motion until all the tape is on the file reel. If a cartridge is being used, it will then be closed.

### 3.1.2 Power Failure 3.1.2

If a power failure should occur during any part of the loading sequence, there are two possible methods to restart the loading sequence once power has been restored.

1. If the loading sequence has advanced to the point where tape is dumped into the buffer chamber when the power failure occured, press the REWIND swtich. This will wind the tape onto the file reel and out of the chambers. Once the tape is taut, depress the LOAD switch. This will cause the tape to be dumped into the chambers and then rewound to the load point.

2. In all other instances, pressing the RESET switch will initiate an abort sequence. After the abort sequence, normal loading may then be re-initiated.

### 3.1.3 Tape Out of File Reel 3.1.3

If the tape unit misses the EOT (EOT = end-of-tape) marker for any reason, the following special procedures are required to re-load the tape. The special procedures required are dependent on when the RESET push-button was depressed.

The remedies are used whether a cartridge is applied or not, but the points concerning the cartridge are skipped - of course - if no cartridge is applied.

Case A: RESET not pressed.

This is the case where the tape has just run off the reel. Do not press RESET as this will return the cartridge motor to the closed cartridge position if the tape break sensor is not covered by the tape. The procedure to re-load is as follows:

1. Remove the easy load cartridge from the empty file reel and place the file reel back on the tape unit. This is done by manually turning the bell crank pin and closing the cartridge and then removing the reel from the hub.

2. Open the chamber doors, and manually thread the tape back onto the file reel.

3. Turn the file reel so that a minimum of 5 turns are on the reel.

4. Close and latch the chamber door.

5. Press LOAD push-button. The tape unit shall perform a middle-of-tape load, i.e. it will dump tape into the chambers and rewind to the load point.

Case B: RESET was pressed.

If the RESET push-button has been pressed with the tape break sensor exposed, the cartridge motor will return to its closed cartridge position. In this closed cartridge position, an initial load sequence will be initiated and a BOT or EOT signal is required to complete the load sequence. The procedure to reload is as follows:

1. Remove the easy load cartridge from the empty file reel and place the empty file reel back on the tape unit.

2. Open the chamber doors, and manually thread the tape back onto the file reel.

3. Turn the file reel until the EOT marker is back on the file reel.

4. Close and latch the chamber door.

5. Press the LOAD push-button. The tape unit shall initiate an initial load sequence and begin searching for EOT. When EOT is sensed, the tape unit will dump tape into the chambers and rewind to the load point.

If by any chance during this procedure the RESET push-button should be pressed an abort cycle will be initiated and then the only initial remedial action is to turn power off. There are 2 procedures to get out of this mode depending on the length of tape on the file reel.

Case B-1: Short length on file reel.

1. Turn off power.

2. Wind all tape back onto fixed reel.

3. Turn on power and wait for a few seconds.

4. Press RESET.

5. Load as per procedure given for case B.

Case B-2: Long length on file reel.

1. Turn off power.

2. Open chamber doors.

3. Carefully close the cartridge and remove the reel from the hub. Take the tape out from the load chute so that the tape break sensor is exposed.

4. Turn on power and wait for a few seconds.

5. Press RESET. This should return the cartridge motor to the closed cartridge position.

6. Re-thread the tape and place the reel back on the hub. Close the chamber doors.

7. Press LOAD. An initial load sequence will be initiated and the unit will search for EOT or BOT. Place a piece of white paper under the sensor to simulate a BOT or EOT. The tape unit shall load tape into the chambers and initiate a rewind to the load point.

## 3.2 Maintenance

3.2

1 time per day (per 8 running hours)

Clean the read-write-heads, the guides, the tape cleaner and the capstan using a swab stick, or a soft lint free cloth, damped with isopropyl alcohol.

Do not use too much fluid; the excessive fluid may easily penetrate the bearings and damage these.

Observe: Other detergents such as methylated spirit can damage the read-write-heads and the capstan.

1 time per week (per 40 running hours)

The small holes on the sides of the vacuum chambers are cleaned using the brush that is included with the service-gear of the tape unit; slightly damp the brush with isopropyl alcohol.

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