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**Anti-Erasure Safeguards  
Of Tape Device Detailed**

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By VICTOR K. McELHENY  
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WASHINGTON, Nov. 28—  
The tape recorder that President Nixon's personal secretary, Rose Mary Woods, has testified she used to transcribe a conversation of June 20, 1972, between the President and his former chief of staff, H. R. Haldeman, has built-in protections against inadvertent erasures.

An independent examination and test with such a machine today showed that to cause an erasure, two simultaneous mistakes must be made, whether the machine is operated by hand or by using a foot treadle.

Experiments in using the machine, however, show that the small, transformer-equipped, high-intensity lights that Miss Woods uses on her White House desk and typing table are capable of generating the kind of sustained hum that was heard during the 18-minute gap yesterday when a copy of the tape was played in Chief Judge John J. Sirica's courtroom.

Miss Woods testified today that she never used the Uher Universal 5000 tape recorder before Oct. 1, the day that Stephen Bull, a White House aide, brought her the high fidelity equipment, and the day that she said at least four to five minutes worth of the gap was created.

She repeated her contention that she used the unfamiliar equipment, frequently interrupted by telephone calls on several lines, in a state of fatigue induced by 29 hours of weekend work at Camp David in Maryland, in transcribing a nearly inaudible tape that included a conversation on June 20, 1972, between the President and his former White House chief of staff, H. R. Haldeman.

A section of the recording was obliterated, Miss Woods

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testified, when, at the start of a telephone call, she inadvertently depressed the light gray "recording" key on the Uher's control keyboard, while keeping her foot down on the Fidelitape FP-10 treadle she was using to advance and rewind the tape for transcription.

An independent test today showed that when the Uher is operated as Miss Woods said, an erasure occurs.

By aiming her finger at the dark gray "stop" key and hitting the adjacent "recording" key instead, Miss Woods, with 25 years experience as a secretary, appears to have overridden a standard protection used by secretaries who are accustomed to depressing a foot-treadle so that both hands are free for typing a tape transcript.

#### Two-Button Treadle

In other words, during transcription using a foot treadle, a secretary need not touch the control keyboard at all. To stop the advance of the tape, all the secretary must do is remove her foot from the treadle.

There is a similar "fail-safe" feature for most tape recorders when they are operated by hand. Both a tape-advancing and recording button usually must be depressed. On the Uher, these keys are far enough apart to normally require using one finger of each hand.

For most tape recorders, the foot-treadle for transcribing does not involve recording at all, but merely advancing and rewinding the tape. The treadle supplied by Uher has two buttons, one for each operation. The Fidelitape has a large plate

for advancing, and a projecting, perpendicular rewind bar just to the right.

The treadle used by Miss Woods takes only slight pressure to operate. It is also easy to release. During a courtroom demonstration yesterday, after a simulated telephone call interruption, Miss Woods took her foot off the treadle quickly, indicating this may be a natural reaction.

Photographs showing Miss Woods seated at her White House desk and typint table, which were exhibited in court today, indicate that Miss Woods had to stretch as she answered a telephone call on a call-director at the upper left-hand corner of her desk. The indication was that some contortion was needed to keep the toe of a shoe on the treadle.

Because Miss Woods recalls only a four-to-five-minute interval of inadvertent erasing on Oct. 1, and because of a slight change in the tone of the hum about five minutes into the "gap," there has been speculation that there may have been two intervals of erasing. Little information about this emerged during today's testimony.

#### Interference by Lamp

An independent test today showed that both tones could have been caused by a high-intensity lamp that Miss Woods kept on her typing table. The lamp, called a Tensor 6500, contains a transformer that creates an electronic interference that can produce a hum on tape.

Miss Woods testified today that tapes subpoenaed for Watergate investigation were in her custody from late September to

mid-November, when the tapes were duplicated. It was not clear from today's testimony whether the entire 18-minute gap was created during this

There has been speculation this week that Miss Woods might have caused the entire 18 minute gap by inadvertently operating the rewind bar on the Fidelitape treadle while the "recording" key was depressed on the Uher machine. Presumably, she would have done this by shifting her foot on the treadle.

In one test with the machine, it was shown that 18 minutes' worth of tape recording at the rate of one and seven-eighths inches per second would have been erased by this method in only 20 seconds.

Other experiments with the machine showed that this method of erasure produced a variable, high-pitched whistle unlike the one heard yesterday in Judge Sirica's courtroom. This variable whistle was developed whether or not a transformer-equipped lamp near the recorder was producing the recorder was producing electro-magnetic interference.

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