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SUBJ: Estimate of Time Required to Save or Restore a Full Core User of Model 14 CTSS with 1301 Disk and 7320 Drum on the 7094.

I/O Time	DRUM	DISK	
A full core dump = 71 tracks			1302
User Mach. Cond. = 2 "			
Total 73 tracks x 34 ms/track for disk		2480	1240
x 17.2 ms/track for drum	1250		
<b>Seek Time</b>			
Estimate for disk*		500	
Drum seek per track = 0 ms	0		
<b>Latency</b>			
72 tracks might average 3 cylinders on disk. 3 seeks x 17 ms av latency		50	
Drum requires only one seek. 8.6 ms av latency	9		
<b>Lost Latency due to clock trap processing</b>			
at 35 ms per track and 200 ms per clock trap we miss latency every sixth track			
~12 tracks x 34 ms latency for disk		408	
at 17.2 ms per track and 200 ms per clock trap we miss every twelvth track			
~6 tracks x 17.2 ms latency for disk	103		
<b>Total estimate in seconds</b>	<b>1.36</b>	<b>3.44</b>	

\*The Seek time to read all tracks in one disk module is approximately the following:

40 tracks/cylinder, 50 cylinders/section, 5 sections/area, 5 areas/module Seek time track to track 0 ms., cylinder to cylinder 50 ms., section to section 120 ms., area to area 180 ms.

$$\text{Seek time in ms.} = (((40 \times 0 + 50) \times 49 + 120) \times 4 + 180) \times 4 + \text{Seek time to first track.}$$

$$= 41840$$

or 4.18 ms per consecutive track plus setup time to initial track.

Assuming the intitial seek time is about 150 ms., the total seek time for 73 tracks is  $73 \times 4.18 + 150$  ms. or about 460 ms.

If the disk routine must use more than one consecutive block for this information, extra seek time must be added for each block.