

cessible. On the other hand, it must be started (in order to free a core for the program in limbo). Therefore, failure to make the programs in limbo inaccessible would result in an endless loop within the Swapper. A similar problem does not arise for programs on the big drum, since they are automatically inaccessible if the big drum is needed for a previously authorized swap.

5. If the big drum is not already engaged in a swapping operation, or if the BAP is already on a big-drum swapping field, the Swapper searches for the most suitable program to swap onto the big drum. Although the worst program in core could be swapped out immediately, it is probably in core because it is better than most of the programs stored on the little drum; therefore, it will probably soon be the best program in the system and should not be placed on the big drum. Consequently, the Swapper examines the status and queue level of programs both on the little drum and in core in order to find the worst program in core or on the little drum (WCLD). An important feature of this search is that it is initialized to start at a different point on the little drum each time that it is performed; therefore, any completely inactive program on the little drum will be moved to the big drum in a maximum of 31 big-drum swaps. It should also be noted that programs hung because they need access to the big drum for I-O operations are not considered when searching for the WCLD, in order to prevent them from appearing twice in the I-O Processor's queue structure (see Section IV).

Now the location of the WCLD is determined. If this program is in core, the Swapper alters its control registers so that the next time that it is started it will link to the I-O Processor for big-drum swapping. On the other hand, if it is on the little drum and the little drum is free, then it is swapped with the worst program in core in preparation for big-drum swapping. If the little drum is busy, then the Swapper waits for the little drum to complete its current operation by running the best user in core.