

TO: Distribution  
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DATE: October 1, 1973  
SUBJECT: System Maintenance Status, August 25 - September 28

## 1. Significant Events

We have continued to be plagued with system failures during this reporting period. However, the number of failures has been decreasing from week to week and all indications are that we are entering a new phase of system reliability. Hopefully we will be able to maintain this reliability in both the software and hardware areas more or less indefinitely.

We essentially shut off hardcore changes during this period in order to work on the reliability and thus we haven't much else to report on as significant events. We now feel that all major software problems have been found and most have been fixed.

Although they were not directly perpetrated by us, a number of changes to the administrative scheme of things have been made. Among the changes made was a reorganization of internal documentation along somewhat more reasonable lines. In addition, the Multics Change Request was invented and should be a good first step toward more effective management of system changes. We hope that other changes with the same goal will be made as quickly as possible to help prevent some of the reliability and interface problems we've had in the past.

### A. Online System Installations

During this reporting period we managed to get completely caught up with online installations. Included among the over 300 changes made to the online libraries were new versions of runoff, BCPL, teco, and PL/1. Also installed were most of the pieces that make up the GCOS simulation package.

### B. Other Installations

During this reporting period hardcore systems MSS 20.11b through MSS 20.11l were installed. These systems have all been aimed at improving software reliability,

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either by installing fixes or by setting traps for unanalyzed bugs. Our major fix, MSS 20.111, repaired the so called reused address problem, but had to be pulled due to a bug in the fix. That should be fixed soon so that we can again install real changes as well as fixes. We expect to install MSS 21.0 in the not-too-distant future. This system continues the implementation of the new directory control and makes the changes required for more online disk space. In addition to the hardcore systems, we also installed ROS 1.26 with several 355 fixes.

### C. Crash Analysis

This reporting period had 121 system failures. Although the hardware failures outnumbered the software problems during this period, the software problems continue while the hardware appears to have stabilized. We have, however, been working away at the software problems, and solutions to all of the major ones are either installed or ready to be installed. (Our fix for our most major problem, the reused addresses, was installed but had to be pulled due to bugs in the fix.) It now appears that the reliability should continue to improve over the next few weeks. Hopefully this improvement in reliability will be reflected in better system performance and in more user confidence.

	Aug 25-31	Sep 1-7	Sep 8-14	Sep 15-21	Sep 22-28	Total
Hardware	20	19	14	4	2	49
Hardware Suspected	1	1	0	2	0	4
Software	4	6	6	14	9	39
Software Suspected	0	0	1	0	1	2
Not Yet Analyzed	0	0	0	0	0	0
Not Analyzable	1	1	0	2	2	6
Other	4	1	2	2	2	11
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Total	30	28	23	24	16	121

### 2. Problem Areas

I would say something about micro-reproductions, but someone once said if you can't say something good don't say anything at all.

We are entering a difficult time in the system change department. Honeywell marketing has apparently made a number of commitments to perspective customers that could result in a variety of problems for the MIT site. In addition, CISL is attempting to arrive at a more or less fixed appearance for the system before their initial system release which is due in early 1974. This will result in a number of changes to the user interface over the next few

months which we will have to be extremely careful in handling.

### 3. Task Status

In spite of poor system reliability a number of tasks have made progress. In particular, work on the hardcore tools has progress somewhat, work on the Multics Installation System documentation project has resulted in several documentation outlines, and work on the hardcore updater is being planned. In addition, we have begun a system performance evaluation and several changes for update\_seg are being planned.

### 4. Work Planned for the Coming Month

During the next few weeks we hope to catch up on some of our backlogged system installations. In particular, we hope to install the next phase of the new directory control, MSS 21.0.

In addition, we expect work on system performance tuning, the hardcore tools, and various phases of the Multics Installation System to continue.















