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COLOSSUS Memo # 73 Rev. 1

TO: Distribution
FROM: Fred H. Martin
DATE: July 30, 1968
SUBJECT: Behavior of the Tracker and UPLINK ACTY Lights
During Rendezvous

In Colossus the tracker light has two simultaneous users (actually three if the lamp test is included, but it is initiated by the astronaut, V35, and will not be considered in this memo):

1) the light is lit if the T4RUPT program detects an optics CDU hardware failure. T4RUPT cycles every $1/2$ sec.

2) the light is let if the Data Good discrete is not present after the VHF range is read in R22. The cycle rate here is every 1 min.

A. Let the symbols T4, and DG represent the above cases (1) and (2) respectively and further let

T4 = 0 mean no optics failure

T4 = 1 mean an optics failure

DG = 0 mean data is good

DG = 1 mean data is not good

The following table identifies the tracker light behavior:

<u>T4</u>	<u>DG</u>	<u>Tracker Light Behavior</u>
0	0	Light is not lit (blank)
0	1	Lit all the time
1	0	Lit except for up to $1/2$ sec blank every 1 min
1	1	Lit all the time

Note, there is a basic ambiguity between two possible occurrences
If the tracker light is on all the time then the data good discrete is definitely
not present.

The astronaut
should terminate VHF tracking; the light will remain blank if the optics is
in working order. The conclusion therefore is bad VHF, good optics. On the
other hand, if the light remains after termination of VHF, the failure could
be either system. In this case the astronaut should try to establish VHF
status by monitoring other cockpit displays.

The UPLINK ACTY light is lit during P27 when the AGC is accepting uplink
data. An additional use of this light has been defined during rendezvous
tracking: the light is lit if the STIKFLAG is set and if the tracking angles
exceed 10° during rendezvous tracking, R61. The cycling rate is approx-
imately every 8 sec.