

Instrumentation Laboratory
Massachusetts Institute of Technology
Cambridge, Massachusetts

Digital Dev. Memo #409

TO: Eldon Hall
FROM: Phil Ward
DATE: 6 June 1968
SUBJ: AGC Alarm Simulation Tests for Field Checking the Restart Monitors

In anticipation that we will soon be requested to furnish field operation procedures for the Restart Monitors, I have prepared the following description. Al Harano originated the DSKY programs described.

The following tests will cause some of the alarms in the AGC to occur. Please note that the Restart Monitor must be cleared each time the AGC is powered up and each time after an alarm has occurred and has been serviced through the DSKY. Also, some of the programs are valid only for RETRED, AURORA or SUNDIAL ropes. Steps a, b and c and Fig. 1 describe the general operation procedures and should always be followed.

- a. Remove power from AGC and install Restart Monitor assembly in appropriate test connector. Power up AGC.
- b. CLEAR RESTART MONITOR (CLRM)
V 21 N 10 E (V 21 F)
77 E
0 E

The above instructions should be interpreted as: Momentarily depress Verb key; then 2, then 1 key; then momentarily depress Noun key; then 1, then 0 key; then momentarily depress Enter key. (Verb 21 should be flashing after the enter button has been depressed.) Momentarily depress the 7, then again the 7 key; then momentarily depress the Enter key. Finally, momentarily depress the 0 key, then the Enter key again. This operation causes the contents of Channel 77 (the Restart Monitor) to be zero. This is expressed in octal as:

$$c(77)_8 = 00000$$

- c. READ RESTART MONITOR (RDRM)

V 01 N 10 E
77 E

Read the contents of Restart Monitor on DSKY on component 1 display. Reading is in octal. Should be zero if CLRM has just been performed.

- d. CHECK PARITY FAIL (F Memory)

Be certain CLRM has been performed.

V 27 N 01 E
7777 E (Alarm)

RDRM

$C(77)_8 = 00001$

e. CHECK TC TRAP

Be certain CLRМ has been performed.

V21	N01 E	(V21F)
	1300 E	(V21F)
	1300 E	
V25	N26 E	(V21F)
	1 E	(V22F)
	1300 E	(V23F)
	0 E	
	V31 E	(ALARM)

RDRM

$C(77)_8 = 00004$

Note: There is a finite possibility that a Counter Fail Alarm will also occur, depending on when the alarm occurs. In this case:

$C(77)_8 = 00104$

If this happens, repeat program until desired display occurs.

f. CHECK RUPT LOCK.

Be certain CLRМ has been performed.

V 21	N01 E	(V21F)
	1300 E	(V21F)
	30000 E	
	N15 E	(R3 = 1301)
	01300 E	
V 25	N26 E	(V21F)
	1 E	(V22F)
	1300 E	(V23F)
	0 E	
	V31 E	(ALARM)

RDRM

$C(77)_8 = 00010$

Note: Some possibility exists for Counter Fail Alarm as in (e), in which case:

$$C(77)_8 = 00110$$

Repeat program for desired result.

g. CHECK NIGHT WATCHMAN.

Be certain CLRM has been performed.

V 21 N01 E (V21F)
 1300 E (V21F)
 30000 E
 N15 E (R3 = 1301)
 01300 E

V 25 N26 E (V21F)
 2000 E (V22F)
 1300 E (V23F)
 0 E
 V30 E

(Wait about 2 seconds: Alarm)

RDRM

$$C(77)_8 = 00020$$

Note: Same possibility exists for Counter Fail Alarm as in (e), in which case:

$$C(77)_8 = 00120$$

Repeat program for desired result.

h. CHECK VOLTAGE FAIL.

Be certain CLRM has been performed. Lower prime power down slowly until alarm occurs.

RDRM

$$C(77)_8 = 00040$$

Note: Other alarms will probably occur during the Voltage Fail Alarm, in which case the contents of Channel 77 will contain the octal sum of all the alarms, but it will contain the Voltage Fail code.

- i. None of the other failures can be simulated on the AGC without internal circuit jumpers with the covers off. The codes for all alarms are shown in the following table.

ALARM SOURCE	CHANNEL 77 CODE (OCTAL)
*Parity Fail (F Memory)	001
*Parity Fail (E Memory)	003
TC Trap	004
Rupt Lock	010
Night Watchman	020
Voltage Fail	040
Counter Fail	100
Scaler Fail	200
Scaler Double Frequency Alarm	400
*Allowable Combinations of Above Alarms	Octal Sum of Above Codes

*NOTE: Parity Fail will either be in E or F Memory but not in combination.

Figure 1. - Restart Monitor Alarm Codes

Dist.
A. Harano
D. Hanley
A. Hopkins
A. Levenson