

AURORA 85 & 86 - SUNDIAL

Bit Functions of IMODES 30

<u>Bit</u>	<u>Condition</u>	<u>F u n c t i o n</u>
1	1	If PIPA Fail - no ISS warning
2	1	ISS turn-on request - but failed Try again after 90 seconds
3	1	Inhibit CDU Fail
4	1	Inhibit IMU Fail
5	1	PIPA Fail - do not set PROG ALARM
6	1	ISS being initialized
7		
8		
9	0	IMU operate on
10	0	PIPA Fail - ignore if bit 1 and/or 5 = 1
11	0	IMU cage requested or in process
12	0	IMU DCU Fail - ignore if bit 4 = 1
13	0	IMU Fail - ignore if bit 4 = 1
14	0	Turn-on Request
15	0	Temp in Limits

Bit Functions for RADMODES

1	=1	No monitor reposition alarm
2	=0	RR in AUTO MODE
3	=0	RR Range on Low Scale
4	=1	RR Data Fail
5	=1	LR Alt. Data Fail
6	=0	LR desired in Pos 1
	=1	LR desired in Pos 2
7	=0	RR CDU Fail - ignore if bit 2 and/or 13 = 1
8	=0	LR Velocity Data Failed
9	=0	LR Range on Low Scale
10	=1	RR Designate or Request in Progress
11	=1	RR Antenna out of limit
12	=1	RR Antenna in Mode 2
	=0	RR Antenna in Mode 1

Bit Functions for RADMODES (cont.)

<u>Bit</u>	<u>Condition</u>	<u>F u n c t i o n</u>
13	=1	RR CDUs being zeroed
14	=1	RR Antenna being Remoded
15	=1	RR Continuous Designate (no Enable to be sent)

Bit Functions of OPTMODES

1	1	Zero Opt Terminate Task in Process
2	1	Optics CDU Fail inhibited (no Trk Fail)
3	1	Zero Opt in Process
4	0*	Opt Switch in Zero (ch 33 bit 4)
5	0*	Opt Switch in Comp (ch 33 bit 5)
6		
7	0	Opt CDU Fail (ch 30 bit 7)
8		
9	1	Opt driven since last Fresh Start
10	1	Opt Zeroed since last Fresh Start

* If bits 4 & 5 = 1 OPT Switch in MANUAL

Startsub puts OPTMODE = 00130

RADMODES BIT DEFINITIONS

Bit 15 - Continuous Designate

Bit 14 - Remode requested or in progress. This bit is set whenever RRDESSM or RRDESNB determine that a designate may be performed after a remode has been done. It is cleared at the end of remoding by the REMODE routine.

The presence of this inhibits the GIMBAL Limit monitor. If this bit is set during a monitor reposition(see bit 11), the reposition will be interrupted by RR1AXIS and the remode will begin immediately.

Bit 13 - RR CDUs being zeroed. Set by RR Automode monitor and by RR ZERO. Cleared by RR ZEROSB. Inhibits RR CDU Fail from lighting the tracker fail lamp.

Bit 12 - RR Antenna mode. Set by RR ZEROSB according to trunnion angle: 0 for mode I ($|T| < 70^\circ$); 1 for mode II ($|T| \geq 70^\circ$). Establishes limits for RR LIMCHK. Determines gimbal angles for remode and reposition sequences. Determines MODEA and MODEB setting in RR ANGLES (MODE A are gimbal angles if target sighted in present mode, etc.). May be inverted and re-inverted (with rupt inhibited) by RR DESSM and RR DESNB to use RR LIMCHK to see if sighting possible after remode. Permanently inverted by REMODE.

Bit 11 - Monitor Reposition in progress. This bit is set whenever the gimbal limit monitor finds T, S out of limits established for the present mode. It is set by the MONREPOS routine and cleared on completion of the reposition.

Its presence inhibits further operation of the gimbal limit monitor. If, during the reposition, the remode bit (14) is set (by a routine requesting a remode-designate operation), the reposition is interrupted (REPOSRPT) and the remode is started immediately. If, then, when a designate is feasible and STARTDES wants to initiate it, the presence of this bit says antenna control is in

progress, and the associated tasks will use bits 14, 11, and 10 to begin designation as soon as possible.

If, during a designate operation this bit appears, the designate is terminated, since motion of the spacecraft may have driven the antenna out of limits or the antenna failed. The designate supervisor is given an error return (ROBADENO)

- Bit 10 - Designate requested or in progress. This bit is set at STARTDES and cleared at the end of designation, successful or otherwise.
- If it is present at the end of a reposition, control is given to BEGDES to begin designation, possibly preceded by a remode operation. It is cleared on receipt of data good by the designate job to tell the designate task to go to RGOODEND.
- Bit 9 - LR on high scale. Set each time ALT data is read from the LR. Used to detect scale changes so the sample which was attempted during the scale change may be discarded.
- Bit 8 - LR Vel Data Fail. N samples could not be obtained from 2N tries. This bit in conjunction with Bit 5 lights tracker fail. Set and reset by data reading routines.
- Bit 7 - RR CDU OK. Holds last sampled RR CDU fail bit. The absence of this and bits 2, 13 (auto & zeroing) lights tracker fail. Set/reset by RRCDUCHK.
- Bit 6 - Desired LR Antenna position set by LR POSZ and fresh start. Used to monitor LR for proper position while reading data. 0 for LR Pos 1 - 1 for LR POSZ.
- Bit 5 - No LR Pos Data (See bit 8).
- Bit 4 - No RR Data. N samples could not be taken in 2N tries. Turns on tracker fail (see bits 8, 5).
- Bit 3 - RR on HI scale. See bit 9.
- Bit 2 - RR not in AUTO mode. Set/reset by RRAUTCHK in T4. If just off initiates RRTURNON (unless someone using RR). Its presence

inhibits gimbal limit check. If just on, and some program using RR, (RRUSE) do a prog alarm

Bit 1 - Turn-on RRAUTCHK sequence. Set by RRTURNON and reset 1 sec after CDUs zeroed. Inhibits prog alarm in monitor reposition prog. Tested by RRZERO and if set, depends on RRTURNON to go to ENDRADAR after testing RRUSE, which shows someone is waiting.