5.3_V2.0 CLOSE BIG VENT VALVE

Last Revised: June 29,1999
Filename: close_bvv

BRIEF FUNCTIONAL DESCRIPTION:
The big (previously known as “large”) vent valve is planned to be opened once on orbit. It is not planned to be closed. Nevertheless, the mechanism is capable of closing and opening again. The following procedure has been developed in case of an unforseen situation which would require closing the big vent valve.

The sequence of actions will be:

1. enable the valve close mechanism B and verify actuator temperatures
2. Open valve mechanism B
3. monitor the temperature and motion of the actuator
4. Turn off valve close mechanism B when the motion is complete
5. verify the actuator temperature drops after the motion is complete
6. disable the valve close mechanism B

ASSUMED INSTRUMENT STATE:
Assumes that the PSMC has power from the spacecraft.
Assumes that at least one side of the DPA is on.

SPECIAL INITIAL CONDITIONS:
Assumes that *AXAF* ISIM RCTU is powered on and in telemetry format 1, 2 or 4.

OPERATIONAL CONSTRAINTS/CAUTIONS:
The open and close mechanism must not be enabled at the same time. Consult the “Open Big Vent Valve” procedure for details.

REFERENCES:
ACIS Long Form Functional Test Procedure (36-01301.01)
1.7_V1.5 Open Big Vent Valve procedure

CHANGE HISTORY:

V1.2

- changed filenames from “open_vv” to “open_bvv”
- deleted steps at the beginning and end which powered up and down the DPA side A, the procedure now assumes that one side of the DPA is on
- changed the commands in steps 4.1 and 6.1 to be “1VVCCBOF” and “1VVCBDS”

V1.3

- changed the expected value of the logic verifiers due to error in the web version of the ACIS IP&CL

V1.4

- changed TLM FMT requires to 1,2 or 4
- changed time required for step 3.1 to 2 minutes and for step 5.1 to 20 minutes
- changed expected values of HW serial digital TLM verfiers from 0/1 to ENB/DIS, CLOS/NCLO and OPEN/NOPE.

V2.0

- ACIS Team signed-off version
- changed "large" to "big" in text descriptions

Table 1: **Big Vent Valve Closing Procedure**

Step #	Title (Revision 5.3_V2.0)	Time Req	Command Description	Command Mnemonic	Telemetry Description	Telemetry Mnemonic	Expected Value	Units
1.0	Enable Large Valve							
1.1	Enable vent valve mech. B	2	Enable valve B	1VVCBEN	VV Enable B	1VVDBBON	ENB	
1.2	Verify Actuator temps	2			VV Open Act. B T	1VAHOBT	< 30	C
					VV Close Act. B T	1VAHCBT	< 30	C
1.3	Verify open bit				VV Open B	1VVOPBOP	OPEN	
1.4	Verify close bit				VV Close B	1VVCLBCL	NCLO	
2.0	Close Large Valve							
2.1	Close valve B	2	VV Close Drive On B	1VVCCBON	Vent Valve Close B	1VVCDBCL	ON	
3.0	Monitor Actuator Motion							
3.1	Monitor actuator temp	2			VV Close Act. B T	1VAHCBT	120	C
3.2	Verify open bit				VV Open B	1VVOPBOP	NOPE	
3.3	Verify close bit				VV Close B	1VVCLBCL	CLOS	
4.0	Turn Off Valve B							
4.1	Turn off valve B	2	Vent Valve Close Off B	1VVCCBOF	VV Close Drive B	1VVCDBCL	OFF	
5.0	Monitor Actuator cooldown							
5.1	Monitor actuator temps	20			VV Close Act. B T	1VAHCBT	120 to < 30	C
					VV Open Act. B T	1VAHOBT	< 30	C
6.0	Disable Valve B							
6.1	Disable valve B	2	VV Disable B	1VVCBDS	VV Enable B	1VVDBBON	DIS	
	Total Time	32						

Table 2: (CONT) **Big Vent Valve Closing Procedure**

Step #	Telemetry EGSE	Other Verifier	Crit	Description	Notes	RT Con	Tlm Fmt	Min Alt	SIM Pos
1.0									
1.1			2	0 means mechanism is enabled		Y	1,2or4		
1.2			2			Y	1,2or4		
			2			Y	1,2or4		
1.3			2	0 indicates mechanism is open		Y	1,2or4		
1.4			2	1 indicates mechanism is not closed		Y	1,2or4		
2.0									
2.1			2	0 means mechanism is on		Y	1,2or4		
3.0									
3.1			2	Actuator is on !!!		Y	1,2or4		
3.2			2	0->1 indicates mechanism is closing		Y	1,2or4		
3.3			1	1->0 indicates mechanism has closed		Y	1,2or4		
4.0									
4.1			1	1 means mechanism if off		Y	1,2or4		
5.0									
5.1			2	should take 10 minutes to drop		Y	1,2or4		
			2				1,2or4		
6.0									
6.1			2	1 means mechanism is disabled		Y	1,2or4		