

STEREO CONFIGURATION CHANGE REQUEST

For Office Use Only	TITLE: IMPACT EMC Configuration Waiver		CLASS:		NUMBER:					
				I	DATE:					
			II							
CONFIGURED ITEM: STS Number: Payload: STEREO Component : Experiment: IMPACT Component Part #: Serial #:			ORIGINATOR: Name: Dave Curtis Organization: U.C. Berkeley Phone: 510-642-5998 Email: dwc@ssl.berkeley.edu			PRIORITY: <input checked="" type="checkbox"/> Routine <input type="checkbox"/> Urgent <input type="checkbox"/> Emergency				
TYPE OF REQUEST:		RESPONSIBLE ORGANIZATION/INDIVIDUAL:			IMPACTS: (If yes attach additional pages)					
	Configuration									
	Deviation	#				COST:		Yes	<input checked="" type="checkbox"/>	No
<input checked="" type="checkbox"/>	Waiver	#				SCHEDULE:		Yes	<input checked="" type="checkbox"/>	No
	Other:									
REASONS FOR CHANGE:					RETEST REQUIRED:					
	Improvement		Test/Payload Failure		New Document:					
	Reliability	<input checked="" type="checkbox"/>	Specification Requirements		Other:					
					<input type="checkbox"/> No <input type="checkbox"/> Yes					
PROPOSED CHANGE (Attach additional pages as required) The items in the attached list will not be in flight configuration for the IMPACT/PLASTIC EMC test										
RATIONALE (Attach additional pages as required): The IMPACT Suite, together with the PLASTIC instrument, plan a combined EMC test in the near future. Doing this test together makes for a far better test and provides an opportunity for testing the full suite together. However, it imposes some significant schedule challenges to get everything together at the same time. We would also rather do this earlier rather than later to provide time for recovery from any problems found. The specific items that will not be in flight configuration are either considered identical to the flight configuration, or anr not significant for the EMC test, as called out in the attached list.										
DOCUMENTS/DRAWINGS AFFECTED (Document No./Title/Section) :										
AFFECTED (Check all that apply):										
FLIGHT SYSTEMS:			GROUND SYSTEMS:							
	Avionics		Electrical and Cables							
<input checked="" type="checkbox"/>	Experiment		Software/Firmware							
	Structures and Mechanical		Other:		Other:					
REQUIRED APPROVAL DATE: _____										
REQUIRED JUSTIFICATION:										
						(Page 1 of 2)				

STEREO CONFIGURATION CHANGE REQUEST

For Office Use Only	TITLE:		CLASS:		NUMBER:
			I		DATE:
		II			
CONTRACT/AGREEMENT NUMBER EFFECTIVITY:					
	STEREO NAS5-97271	√	IMPACT S-13635Y	PLASTIC NAS5-00132	SECCHI S-13631Y
DOCUMENTS/DRAWINGS TO BE REVISED:					
Document/Drawing Number:	Document/Drawing Title:	Section(s) No.	EO No.:	Date Completed:	
PROCESSING APPROVAL:					
	CCB				
	Out of Board				
	Emergency	Systems Engineer		Date	
CCB APPROVAL:					
CCB ACTION DATE:		CCB ACTION ITEMS/CONDITIONS:			
	Approved				
	Denied				
	Withdrawn				
	Hold				
CLOSEOUT COMMENTS:				DATE OF CLOSEOUT:	
				CMO	

SEP Main

Purge Manifold: not installed

Purge manifold is an aluminum box mounted inside the Main instrument box. It takes incoming purge through an aluminum swagelock fitting and distributes it to the telescopes. It has no electrical connections. Conductive tape covering the screw holes will provide the same characteristics as having it in place. Electronics box will have to be opened to install, but only mechanical connections (screws) will be removed, nothing electrical.

Het Telescope

Detector Aperture Window: non-flight window installed

Front windows for HET Telescope are Kapton film coated with a special Goddard Composite coating. They are mounted on the collimator in front of the detector aperture. These are the same as the flight window except in thickness (non-flight 1/3 mil; flight 5 mil) and non-flight foils have no ITO coating on them. The windows are coated with VDA (same as flight) on the inside thereby closing out the electrical shielding of the telescope. No electrical connections will be breached in the replacement of these apertures.

LET Telescope

Detector Aperture Windows: non-flight windows installed

Front windows for LET Telescope are 1/3 mil Kapton film coated with a special Goddard Composite coating. They are mounted on the outside of the telescope in front of the L1 detectors. These are the same as the flight windows except they do not have ITO coating on them. NOTE: Some of these windows do not get ITO for flight. The windows are coated with VDA (same as flight) on the inside thereby closing out the electrical shielding of the telescope.

Secondary Collimators: not installed

Front apertures have a secondary collimator in front of the aperture window containing a second 1/3 mil Kapton foil. These collimators and windows attach outside of the shielded telescope.

Telescope Mounting Bracket: Failed flight brackets without proper ribbing installed

Too much material was removed to give proper mechanical strength during final

machining. Existing brackets will be installed and swapped out prior to vibration. One electrical connection will be demated and mated to swap in flight bracket, but this connection is completely inside the instrument and should not be a factor for EMC.

SIT Telescope

Collimator/Acoustic door: not installed

Collimator/Acoustic door is an aluminum protrusion on the front aperture of the SIT telescope. It provides acoustic protection to the very fragile SIT Nickel foils. It is completely outside the SIT Telescope and provides no shielding for EMC purposes. The nickel foil closes out the shielding on the telescope aperture and the Collimator/Acoustic cover bolts to the outside. Conductive tape will cover the holes and should provide the same characteristics as having it in place. Even if the door were available it is required that doors be open for radiated tests per the EMC requirements.

Pin puller Actuator: not installed

The pin-puller is mounted under the door and it's electrical connection is to the spacecraft harness. It is independant of the telescope EMC characterization. The pin puller and its harnessing is entirely outside the box (separately shielded).

Thermal Hardware: not installed

There are three heaters on SIT: an electronics box survival heater, a telescope survival heater and a telescope operational heater.

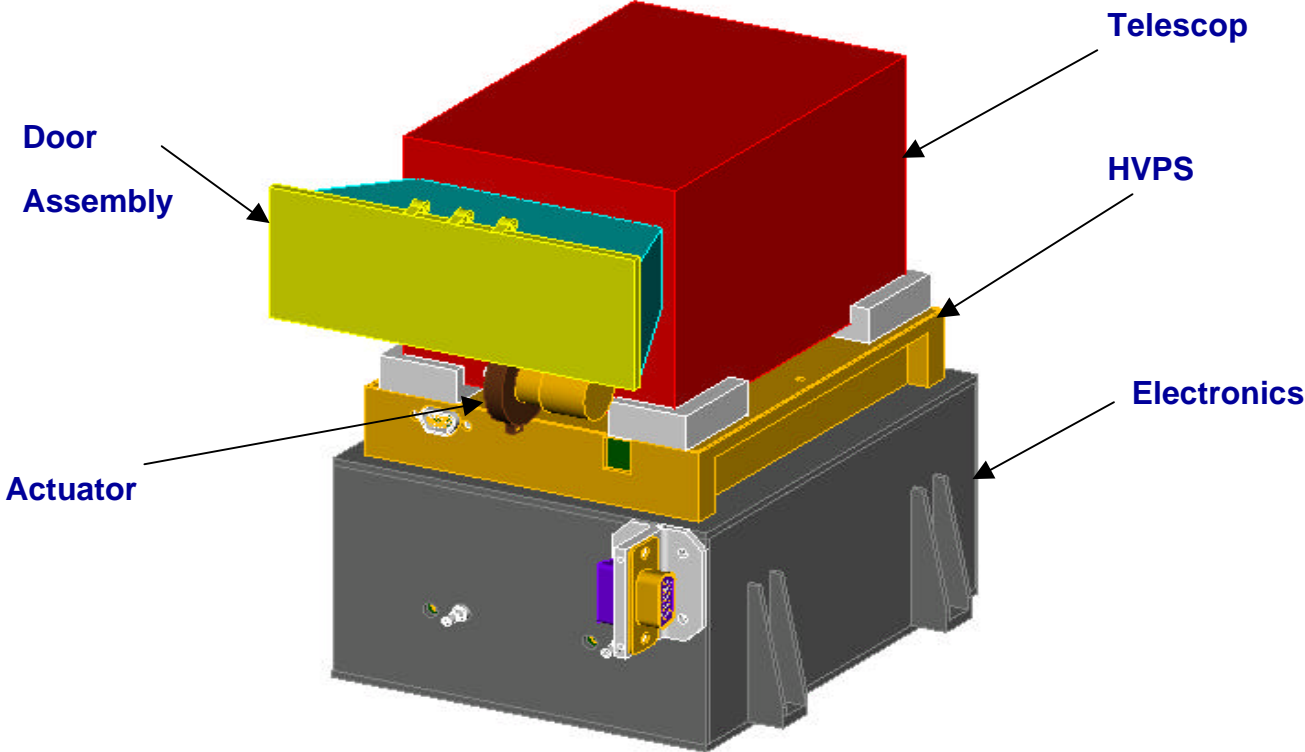
The electronics heater is inside the electronics box, on the bottom and its thermostats are mounted on the mother board. This thermal hardware will not be present but, as the thermostats would be OFF this should make little difference.

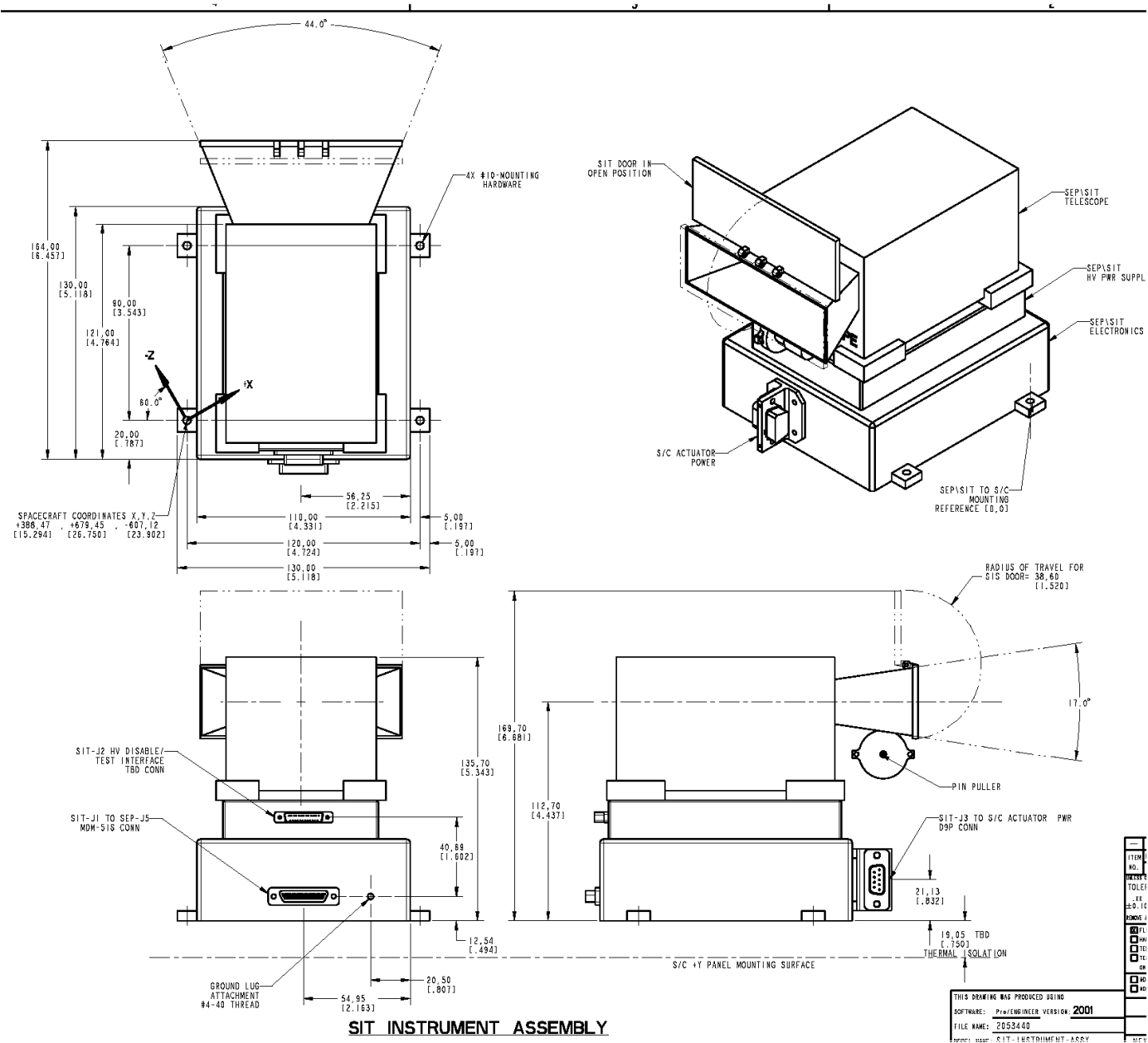
The telescope heaters are on the outside of the telescope as are the thermostats. They will be covered by a shield, which also will not be installed for EMC testing. The power for this hardware comes from the electronics box over a 9-pin cable. The cable is hardwired to the thermal hardware at the telescope end and connects to the SIT motherboard through a 9-pin MDM connector at the electronics end. The cable will also be absent, but the 9-pin MDM on the motherboard is present as are the connections on the motherboard from the system (SEP central) connector to the heater connector. The cable, when it exists, will be shielded and there will be a metal backshell on the MDM. During EMC tests this connector would be covered by a shield instead.

Noise getting in through the system power cable will have its full effect since those connections will be present. What will be missing is the noise getting in and out over the 9-wire cable to the telescope and from the thermal hardware on the telescope through the shielding. We expect this to be fully shielded, but will not be able to demonstrate that.

Attached below are some figures that show the instruments in question.

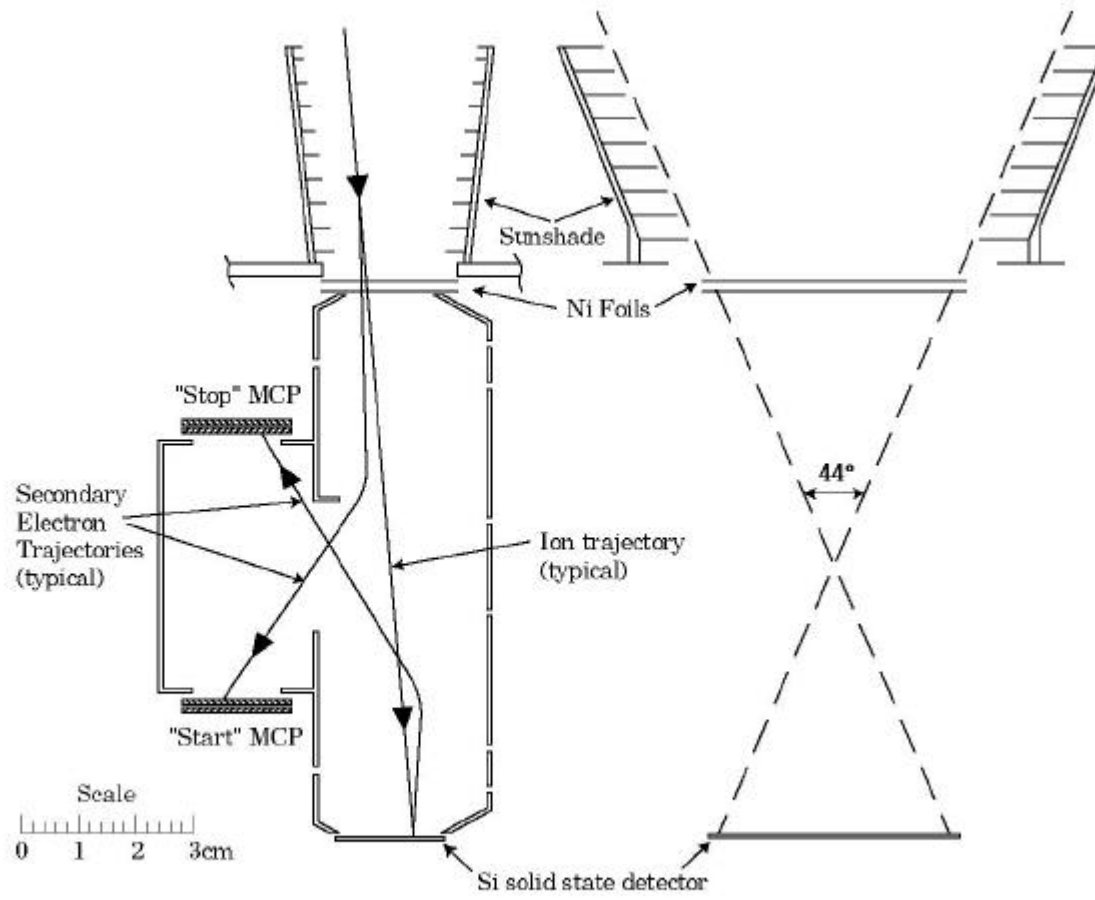
SIT





SIT INSTRUMENT ASSEMBLY

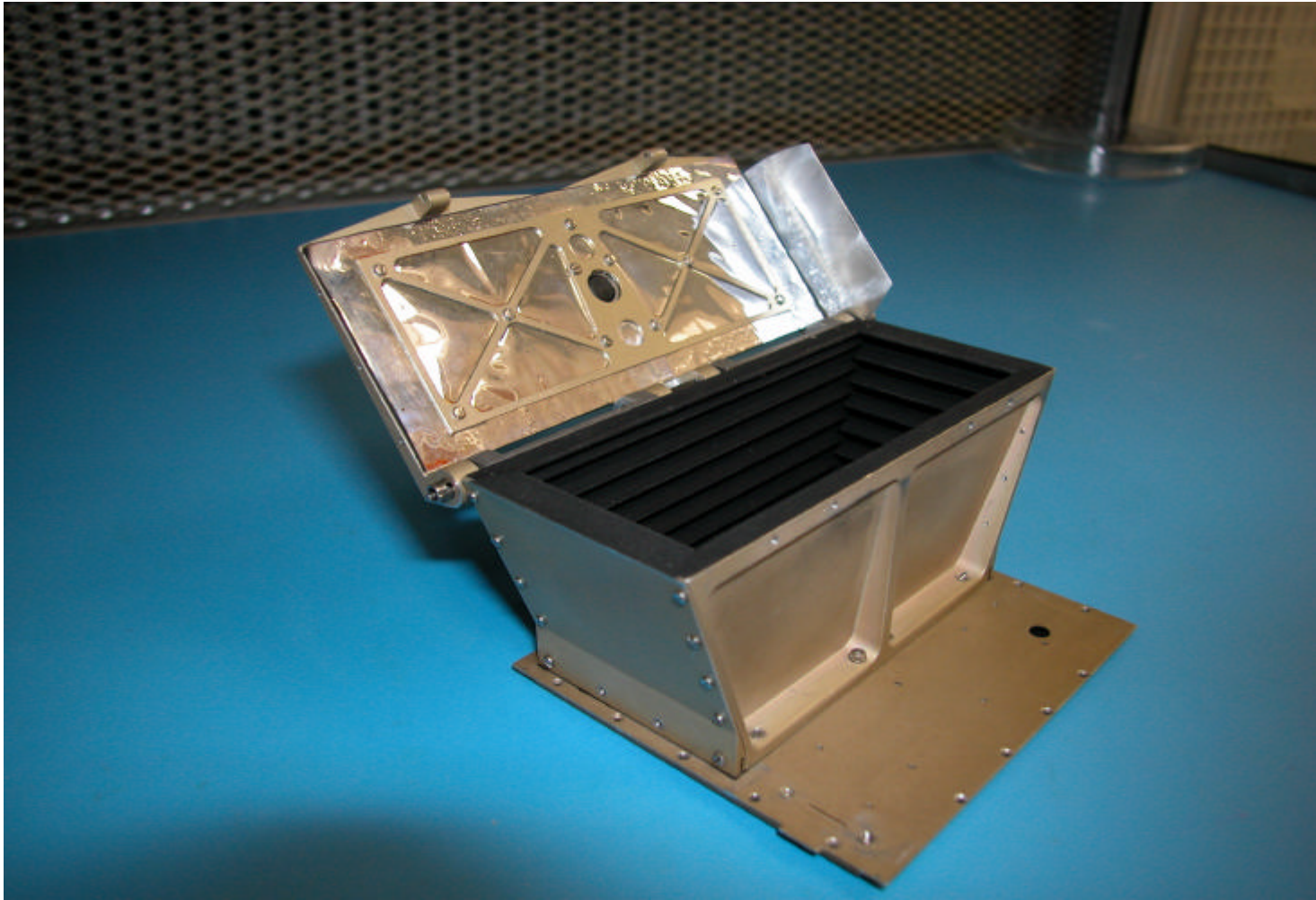
Suprathermal Ion Telescope (SIT)



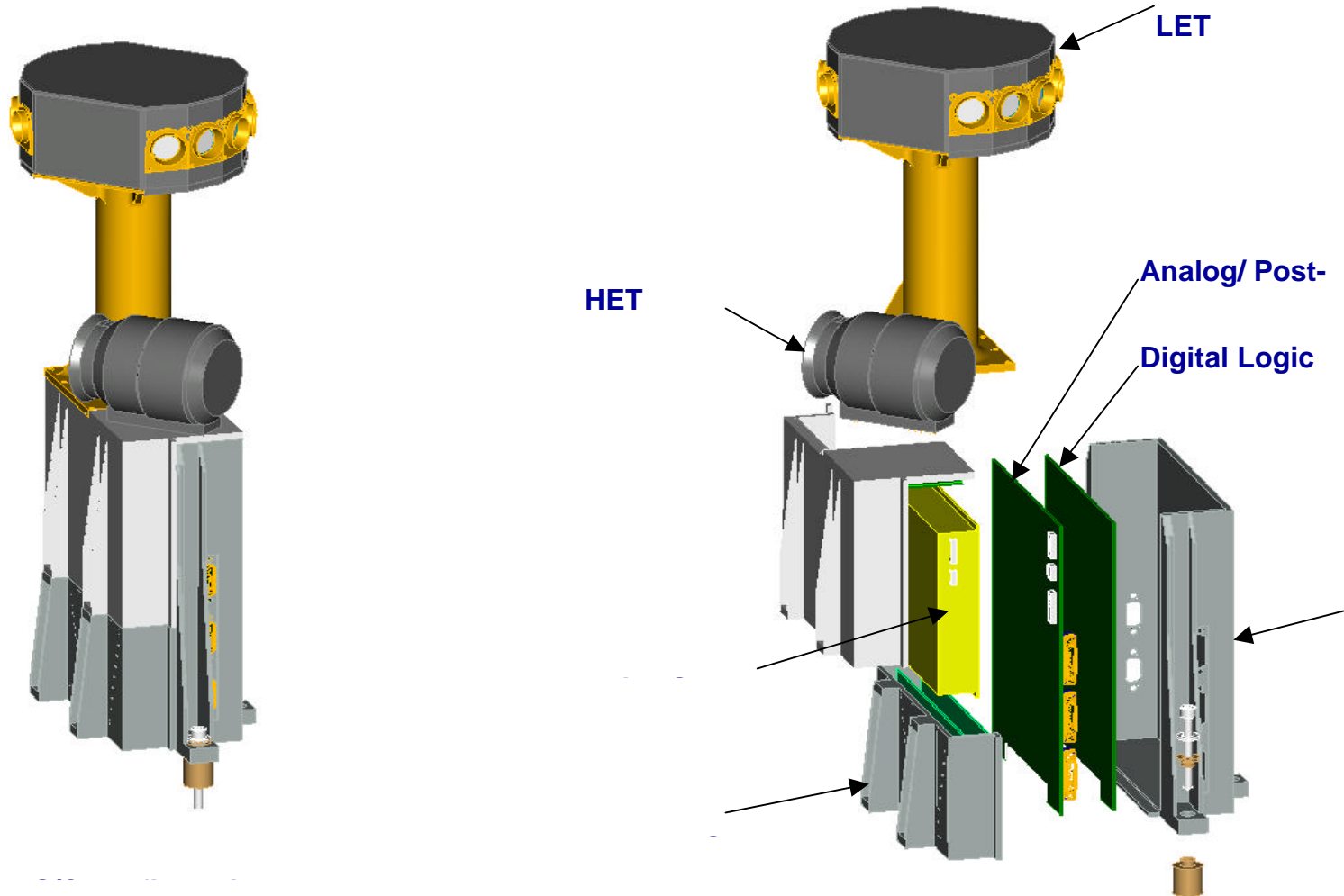
Side View

Top View

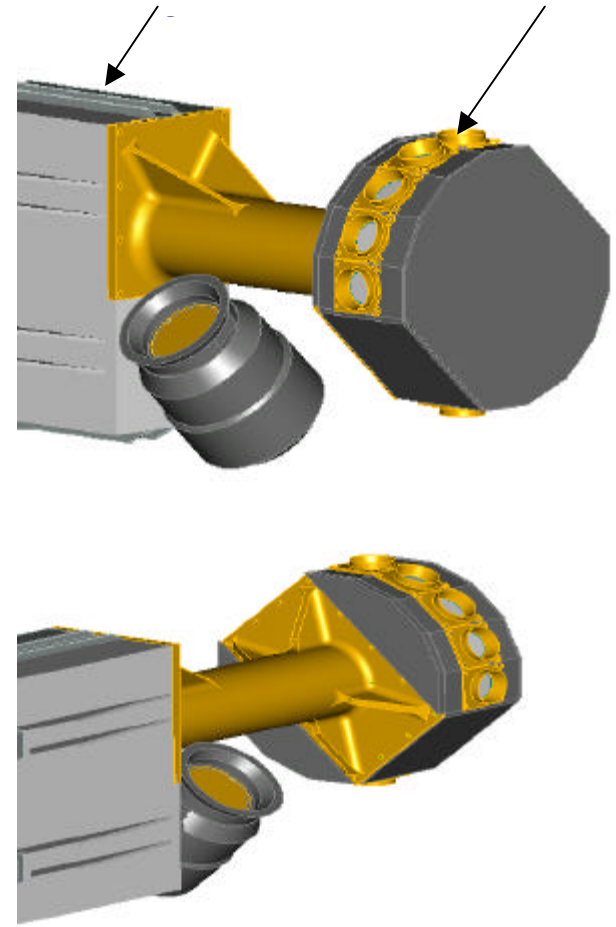
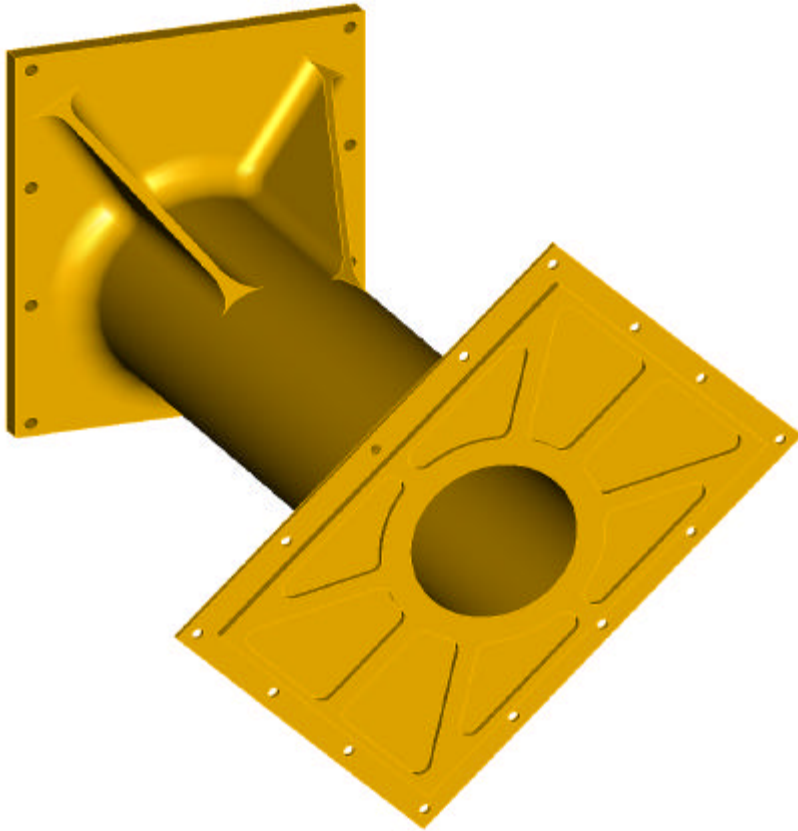
SIT Door



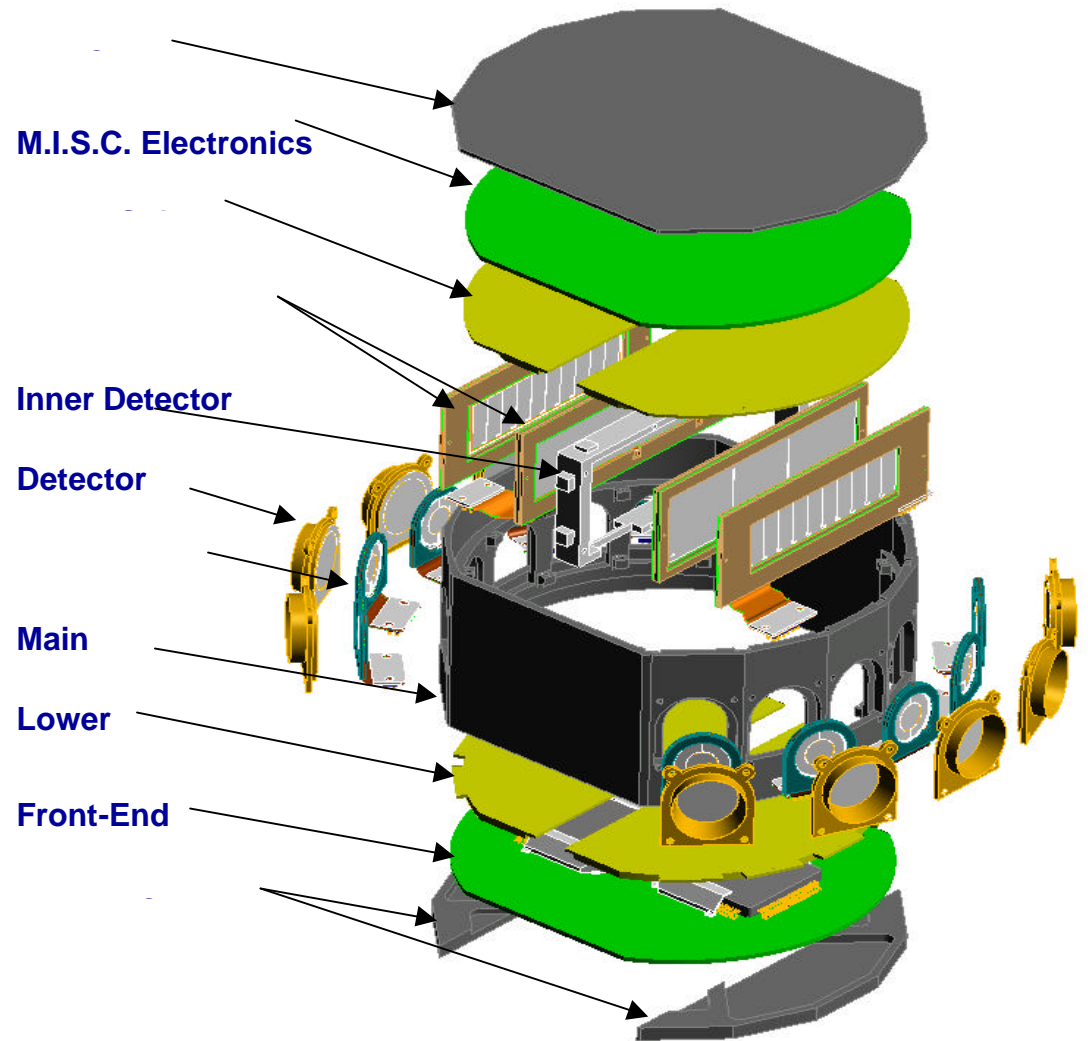
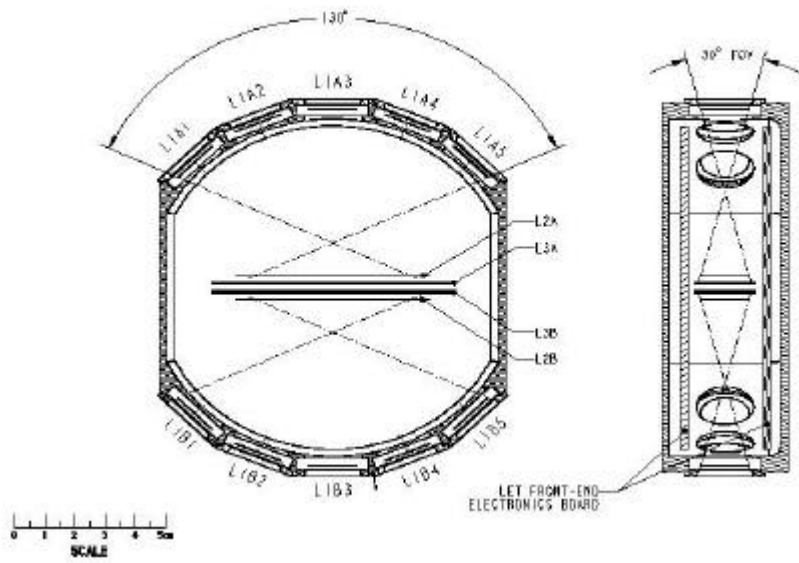
Main SEP Assembly



LET Telescop Bracket



Low Energy Telescope (LET) Schematic



HET Telescope Schematic and Assembly

