

# GLAST Large Area Telescope:

## Mechanical Materials & Parts Status

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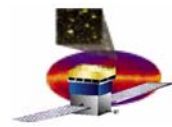


# Mechanical Parts & Process: Status

Jeff Tice

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- ❑ **Material requirements flow down from the Mission Assurance Requirements 433-MAR-0001 and the Mechanical Parts Plan LAT-SS-00107-01.**
- ❑ **LAT Material selection of low outgassing and flight heritage**
  - ❑ **Outgassing specs: TML < 1% CVCM < 0.1%**
- ❑ **Material Usage Agreement (MUA) for Non-Compliant Material**
- ❑ **Important Procedures and Guidelines for Material selection**
  - ❑ **Fastener Integrity Requirements (541-PG-8072.1.2)**
  - ❑ **Metallic Materials for Stress Corrosion Cracking Resistance in Sodium Chloride Environment (MSFC-STD-3029)**
  - ❑ **Standard Test Method for Total Mass Loss and Collected Volatile Condensable Materials for Outgassing (ASTM-E-595)**



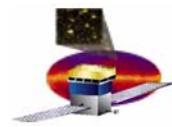
# Mechanical Parts & Process: Status

Jeff Tice

## Inorganic Submitted to SLAC IPO as of 2/23/03

Inorganic				
	Submitted	SLAC IPO Accepted	GSFC Approved	Need more info.
ACD	31	0	0	31
CAL	17	0	0	17
ELEC	0	0	0	TBD
I & T	0	0	0	TBD
MECHANICAL	80	0	0	80
TRACKER	16	2	2	14
<b>TOTAL</b>	144	2	2	142

- Non-Compliant Materials need MUA (SLAC IPO/GSFC evaluated)
- Stress Corrosion Cracking requirements as defined in MSFC-STD-3029
- Details of Fasteners are needed
  - Fastener Integrity Requirement 541-PG-8072.1.2



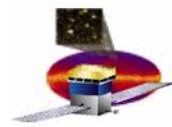
# Mechanical Parts & Process: Status

Jeff Tice

## ❑ Polymer & Composite Submitted as of 2/23/03

Polymer & Composites				
	Submitted	SLAC IPO	GSFC Approved	Need more info.
ACD	50	0	0	50
CAL	28	0	0	28
ELEC	0	0	0	TBD
I & T	0	0	0	TBD
MECHANICAL	22	0	0	22
TRACKER	31	1	3	26
<b>TOTAL</b>	131	1	3	126

- ❑ Outgassing Materials need an MUA (SLAC IPO/GSFC evaluated)
- ❑ Limited Life items (shelf-life) – need a Limited Life Procedure
- ❑ Need Total Surface Area, Volume, Weight



# Mechanical Parts & Process: Status

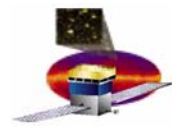
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## Lubricants Submitted as of 2/23/03

Lubricants				
	Submitted	SLAC IPO	GSFC Approved	Need more info.
ACD	1	0	0	1
CAL	0	0	0	TBD
ELEC	0	0	0	TBD
I & T	0	0	0	TBD
MECHANICAL	4	0	0	4
TRACKER	0	0	0	0
<b>TOTAL</b>	5	0	0	5

Function/Application for each different application

Limited Life items (shelf-life) – need a Limited Life Procedure



# Mechanical Parts & Process: Status

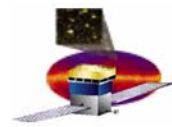
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## Processes Submitted as of 2/23/03

Process				
	Submitted	SLAC IPO Accepted	GSFC Approved	Need more info.
ACD	11	0	0	5
CAL	6	0	0	6
ELEC	0	0	0	TBD
I & T	0	0	0	TBD
MECHANICAL	10	0	0	3
TRACKER	0	0	0	TBD
<b>TOTAL</b>	<b>27</b>	<b>0</b>	<b>0</b>	<b>14</b>

## Process Description

## State if Proprietary



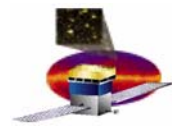
# Mechanical Parts & Process: Status

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## ☐ Totals of all Materials Submitted as of 2/23/03

Total Materials				
	Submitted	SLAC IPO Accepted	GSFC Approved	Need more info.
ACD	93	0	0	87
CAL	51	0	0	51
ELEC	0	0	0	TBD
I & T	0	0	0	TBD
MECHANICAL	116	0	0	109
TRACKER	47	3	5	40
<b>TOTAL</b>	<b>307</b>	<b>3</b>	<b>5</b>	<b>287</b>

## ☐ No inputs from some subsystems



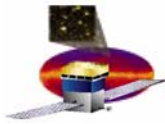
# Mechanical Parts & Process: Future

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- ❑ **Continue materials evaluation for acceptance and approval:**
  - **MPRB meeting for each subsystem (after subsystem CDR)**
  - **Mechanical Parts Review Board meeting on 2/6/03**
    - **ACD subsystem materials review**
    - **Tracker materials needing procurement**
    - **Mechanical materials needing procurement**
  - **Submit completed materials list to GSFC S&MA/Materials Branch for formal approval**
  
- ❑ **Updating all documentation pertaining to the Mechanical Parts & Process in response to revision of the Mission Assurance Requirements (MAR)**





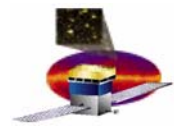
# Mechanical Parts & Process: Summery

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## □ M & P Process

- Review LAT Mechanical Part Plan
- Submit information
- LAT / Subsystem check / Completed List – Big Step
- MPRB meeting / Acceptance - LAT level
- GSFC Approval – Takes time for Non-Compliant Materials/Processes



# Mechanical Parts & Process: Summery

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## Timeline

**4: Must submit all GSFC approved materials March 29**

**3: Final submittal to GSFC for approval March 15**

**2: Final submittal to SLAC IPO for acceptance March 1**

**1: Complete List. Due February 7 (This is third delay)**

- **Consequences:**

- **Late Submittal = No approval for flight fab at CDR**

- **If approval for flight fab is needed at subsystem CDR's, then complete data is needed now.**

## Fill in the Blanks