# *TIMED*

***Thermosphere • Ionosphere • Mesosphere • Energetics and Dynamics***

# LAUNCH VEHICLE STATUS

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# LAUNCH VEHICLE STATUS

- TIMED is dual manifested with JASON on a DELTA II 7920-10 Launch Vehicle under MELS Contract # NAS 5-30722
- A Dual Payload Adapter Fitting (DPAF) mounts JASON on top and TIMED inside on standard 37C payload interfaces.
- DPAF under contract between Boeing and Matra. DPAF PDR occured in Sept '97. CDR due in Feb '98. EO-1/ SAC-C is the first DPAF payload, scheduled for launch in May '99.

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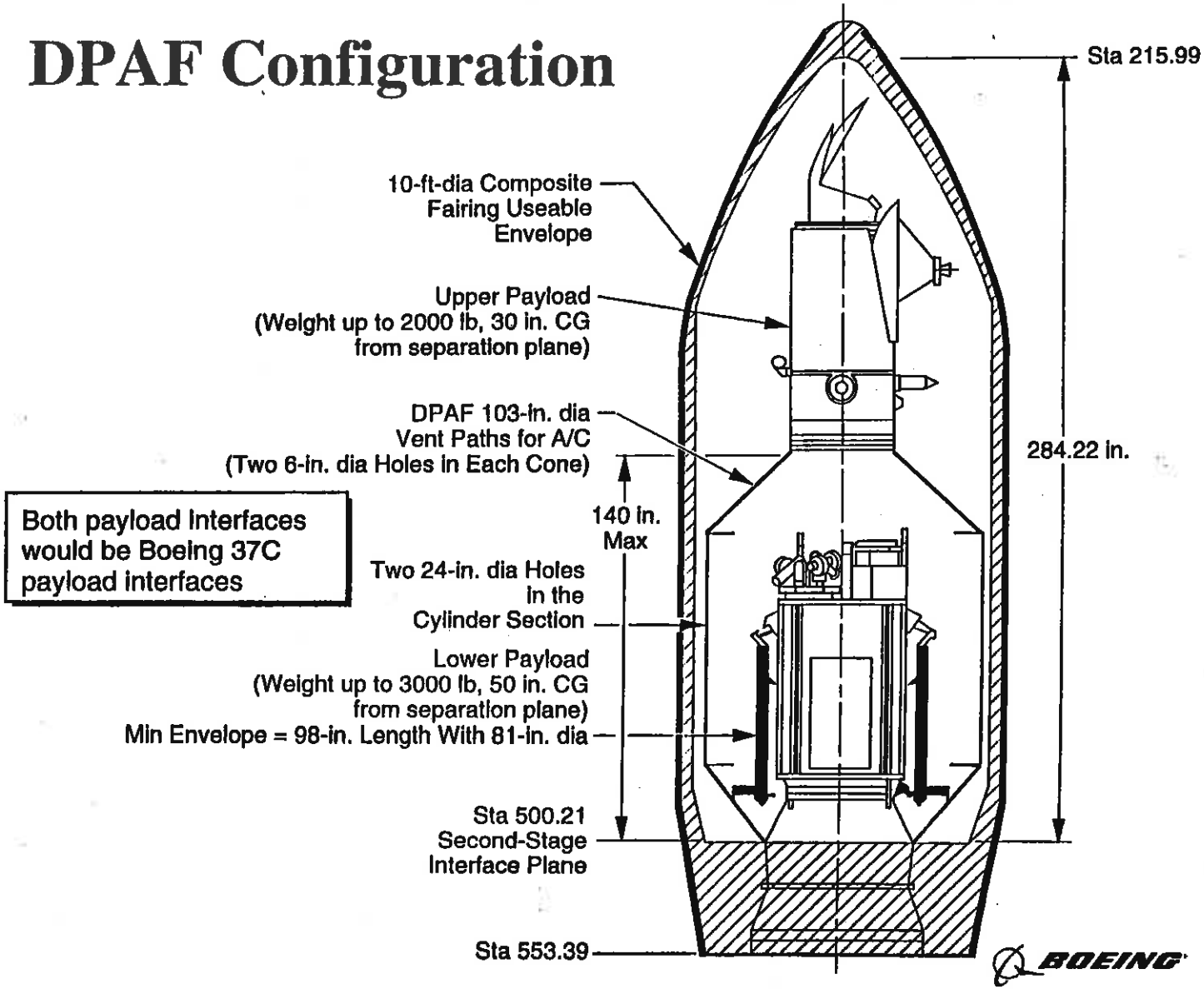
## DPAF Configuration




Both payload interfaces would be Boeing 37C payload interfaces

LEM 3

BOEING

# LAUNCH VEHICLE STATUS

- JASON/TIMED first launch day is May 18, 2000 from SLC-2W at Vandenberg AFB. Nominal orbit is 625 km @74.1°incl.
- Preliminary transfer trajectory completed and presented by Boeing at the October 22,23 1997 JASON/TIMED joint integration meeting. TIMED separation is 7500 sec after lift off.
- JASON and TIMED deployment, Stage 2 avoidance, contamination/collision avoidance, and depletion burns all analyzed by Boeing and deemed nonhazardous to TIMED.

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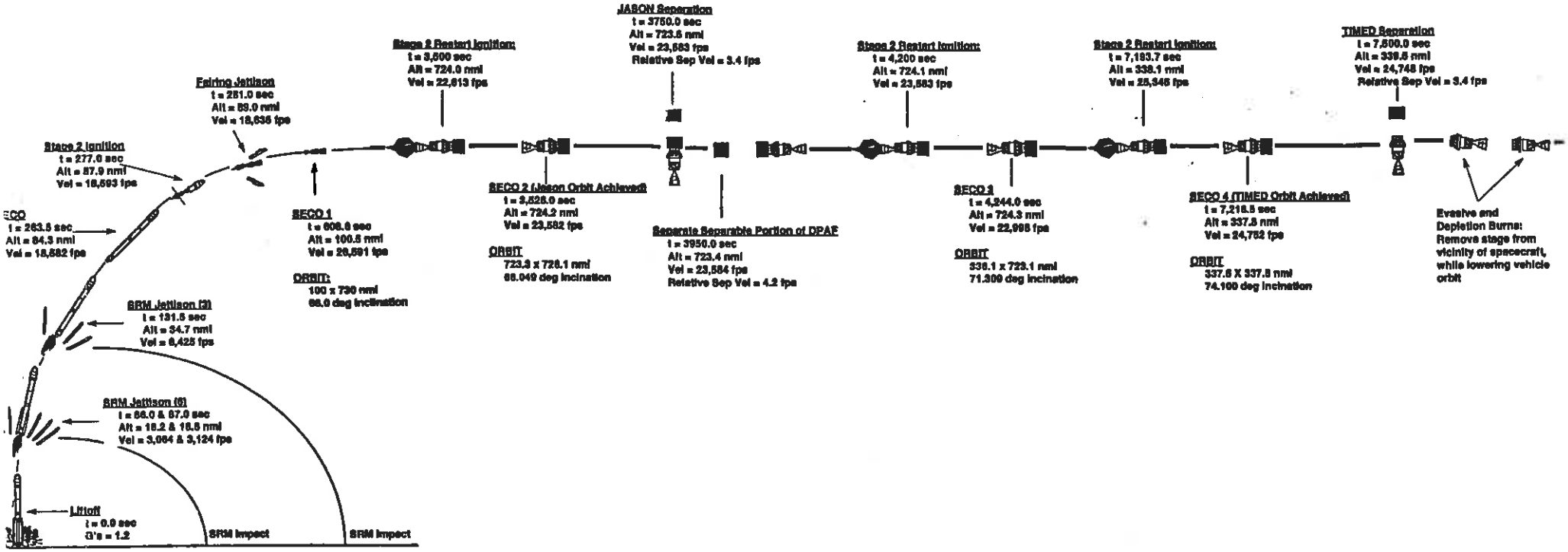
## JASON/TIMED Launch Profile



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- TIMED launch mass requirement of 660 KG @99.7 % PCS met with margin. Up to 8.0% additional mass available as follows:

  +17.7 KG (2.7%) Boeing Holdback at Oct. 22,23 TIM

  +14.6 KG (2.2%) Launch Azimuth Shift (196° to 195°)

  + 4.8 KG (0.7%) -0.05° Target Inclination Change

  + 16 KG (2.4%) +25km 3σ @97% PCS and 99% Prob

- TIMED injection orbit 3σ dispersion parameters all well within required tolerances.

| Orbit | Requirement | Achieved - 3σ |
|---|---|---|
| Apogee Alt. (km) | ±25 | -1.9/+16.5 |
| Perigee Alt. (km) | ±25 | -7.8/+2.0 |
| Inclination (Deg) | ±0.1 | ±0.034 |

# LAUNCH VEHICLE STATUS

- Preliminary Boeing tipoff rate analysis shows that 3σ x axis rates are beyond wheels x axis capability due to CG offset and wheel placement for deployed configuration

| | Boeing Analysis 3σ Rate | Wheels Only | Wheels +Tbars |
|---|---|---|---|
| x | 5.0°/sec | 1.5°/sec | 5.0°/sec |
| y | 2.5°/sec | 7.1°/sec | >8°/sec |
| z | 2.5°/sec | 12.3°/sec | >13°/sec |

- Use of torquer bars for one orbit appears to accomodate Boeing's preliminary 3σ rate. Boeing is doing an updated analysis of worst case rates. Custom separation springs are being considered. Boeing and TIMED are working toward compliance.

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- DPAF envelope defined at Oct 22,23 TIM. TIMED inside in all areas except 0.39 inch intrusion by aft S band antennas (Preliminary okay by Boeing) and 1.5 inch intrusion by solar array at STA 481 (still under evaluation by Boeing).
- Preliminary design longitudinal and lateral stiffness requirements and corresponding design load factors presented by MDac (now Boeing) at the January 30, 1997 TIMED integration meeting were unchanged in October.

# LAUNCH VEHICLE STATUS

- TIMED Launch Vehicle Interface Document 7363-9030 specifies requirements, environments and interfaces. Draft version used early, first release 11-21-97.
- First TIMED Technical Integration Meeting (TIM) at MDAC (now Boeing) in Jan. '97. Second joint JASON/ TIMED TIM at Boeing in Oct. '97. Future TIM's scheduled quarterly. Telecons between Boeing,OLS and TIMED for interface issues now scheduled every other week. First TIMED telecon 11:00 EST Nov. 20.

# LAUNCH VEHICLE STATUS

- TIMED fairing and DPAF access door locations approved
- TIMED interface adapter design approved
- TIMED interface connector pin requirements identified and approved
- Standard separation switch location and type accepted by TIMED
- TIMED T-0 purge requirements identified. Details of implementation still being worked with Boeing
- TIMED T-0 battery air conditioning requirements identified. Details of implementation still being worked with Boeing
- TIMED contamination requirements submitted. Request for a contamination barrier between TIMED and JASON under consideration by OLS and Boeing