6.0 ENVIRONMENTAL CONTROL INTERFACES

6.0.1 Payload Definition

6.0.1.1 Payload Interface Models
Payload thermal models for integrated analysis shall be as defined in SAI-RPT-0140.

6.0.1.2 Payload Coating Surface Properties
For thermal design purposes, the infrared emissions and solar absorptions of those external surfaces shall be as defined in Table 6.0.1.2-1. The breakdown of the Cargo Element surfaces viewed by the Orbiter shall be according to Figure 6.0.1.2-1.

6.0.1.3 (Reserved)

6.0.1.4 (Reserved)

6.0.1.5 (Reserved)

6.0.2 (Reserved)

6.0.3 (Reserved)

6.0.4 ORBITER-TO-PAYLOAD DEDICATED ACCOMMODATIONS

6.0.4.1 (Reserved)

6.0.4.2 Sidewall Mounted Payloads

6.0.4.2.1 Thermal Interfaces
The payload thermal design shall not depend on the Orbiter structure to supply or dissipate heat. The thermal interfaces shall be defined by the interface conductances between the Orbiter structure and the sidewall carrier to which the payload is mounted.

6.0.4.2.1.1 (Reserved)

6.0.4.2.1.2 (Reserved)

6.0.4.2.1.3 (Reserved)

6.0.4.3 Orbiter Docking System Provisions
For thermal design purposes, the infrared emittance (ε) and solar absorptance (α) of the Orbiter Surfaces shall be as defined in Figure 6.0.4.3-1 and Table 6.0.4.3-1.

TABLE 6.0.1.2-1 CARGO ELEMENT COATING SURFACE PROPERTIES

ZONE (Reference Figure 6.0.1.2-1)	SURFACE DESCRIPTION	SURFACE MATERIALS	ALPHA NEW	ALPHA DEGRAD	EPSILON NEW	EPSILON DEGRAD	RHO-DIFFUSE PERCENT	RHO-SPECULAR PERCENT	NOTES
1	HH adapter beam assembly (ABA) Bay 6	White paint Aeroglaze (A276)	0.24	0.36	0.86	0.88	>90	<10	
2	HH adapter beam assembly (ABA) Bay 2	White paint Aeroglaze (A276)	0.24	0.36	0.86	0.88	>90	<10	
3	HH lightweight avionics plate - front	White paint Aeroglaze (A276)	0.24	0.36	0.86	0.88	>90	<10	
3	HH lightweight avionics plate - back and sides	MLI/white beta cloth	0.25	0.32	0.80	0.90	99	1	
4	HH avionics - connector ends	MLI/white beta cloth	0.25	0.32	0.80	0.90	99	1	
4	HH avionics - housing	White paint Aeroglaze (A276)	0.24	0.36	0.86	0.88	>90	<10	
5	Mightysat-1 canister sides	MLI/white beta cloth	0.25	0.32	0.80	0.90	99	1	
5	Mightysat-1 canister lower insulating end cap	MLI/white beta cloth	0.25	0.32	0.80	0.90	99	1	
6	Mightysat-1 top surface (approx. 70%)	Silicon solar cells	0.72	0.72	0.86	0.86	<10	>90	
6	Mightysat-1 top surface (approx. 30%)	Carbon graphite composite	0.93	0.93	0.85	0.85	>90	<10	
6	Mightysat-1 antennas (four)	Chemglaze Z306	0.96	0.96	0.86	0.86	99	1	
7	SAC-A canister sides	MLI/white beta cloth	0.25	0.32	0.80	0.90	99	1	
7	SAC-A canister HMDA (HH motorized door assembly)	MLI/white beta cloth	0.25	0.32	0.80	0.90	99	1	
7	SAC-A canister lower insulating end cap	Silver teflon	0.08	0.14	0.78	0.75	<10	>90	

TABLE 6.0.4.3-1 Thermal-Optical Properties of Orbiter Surfaces

Surface Description	Design Criterion	Surface Material	a New	a Degr.	e New	e Degr.	r Diffuse Percent	r Specular Percent
ODS Trunnions	N/A	Chrome	.30	.40	.10	.90	10	90
ODS Airlock Truss Frame	N/A	Teflon Coated Glass Cloth	.22	.36	.90	.90	99	1
ODS External Airlock	N/A	Teflon Coated Glass Cloth	.22	.36	.90	.90	99	1
ODS Tunnel Adapter	N/A	Teflon Coated Glass Cloth	.22	.36	.90	.90	99	1
Vestible (Internal & External Surfaces)	N/A	Teflon Coated Glass Cloth	.22	.36	.90	.90	99	1
APDS Docking Surface	N/A	Anodized Aluminum	.25 to .45	.45 to .65	.6 to .85	.6 to .85	90	10

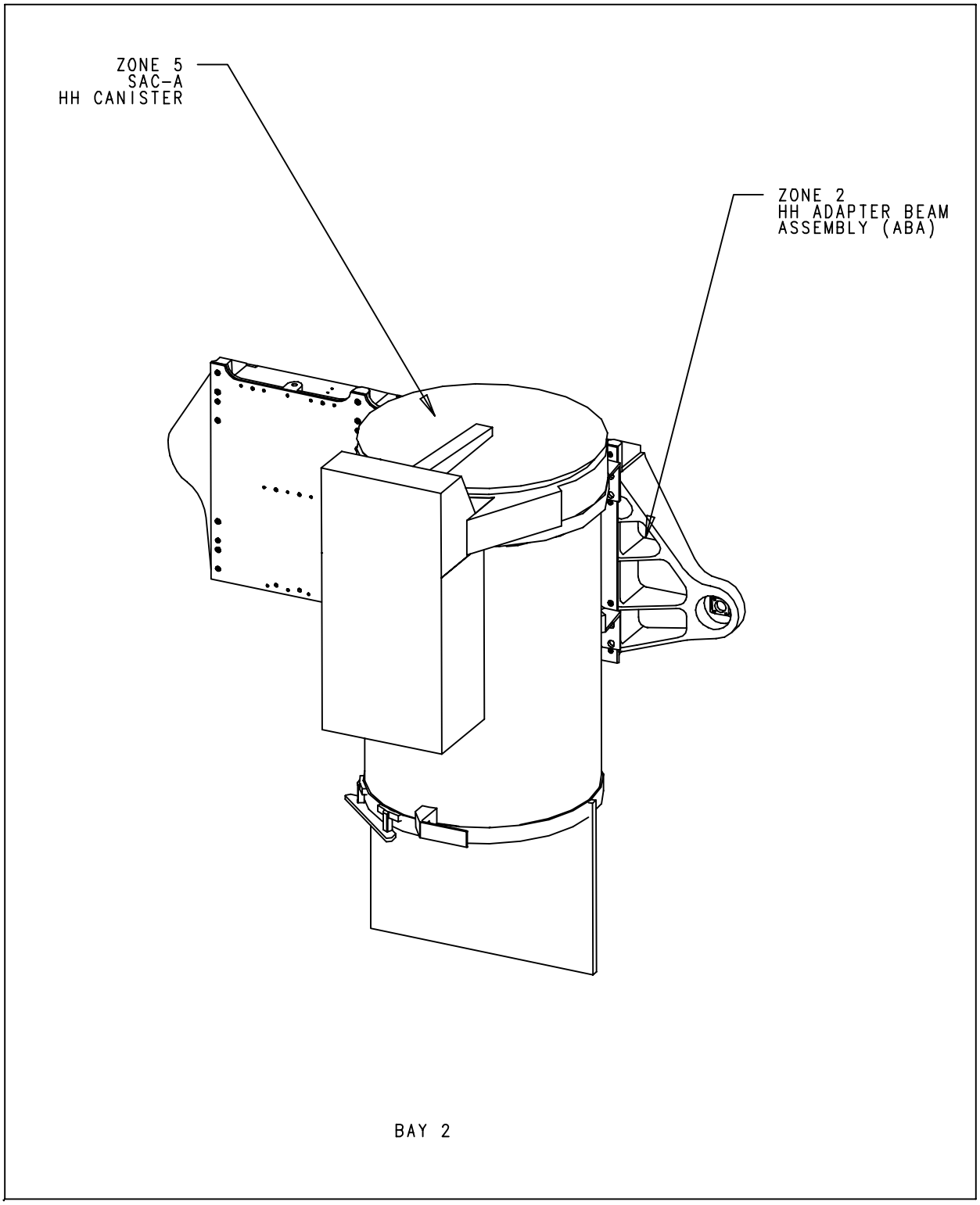

FIGURE 6.0.1.2-1 PAYLOAD SURFACES AFFECTING THERMAL ANALYSIS
(SHEET 1 OF 2)

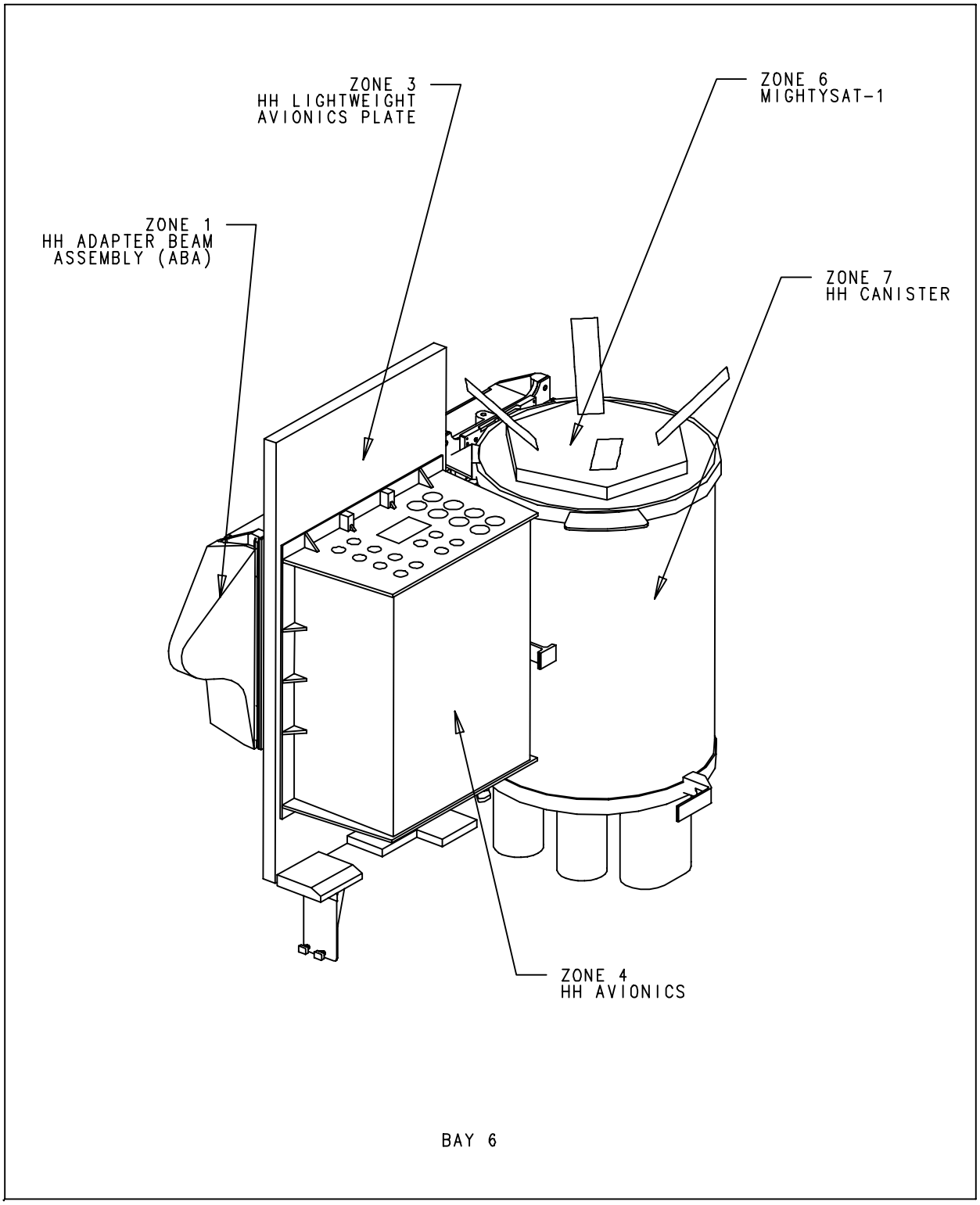

FIGURE 6.0.1.2-1 PAYLOAD SURFACES AFFECTING THERMAL ANALYSIS
(SHEET 2 OF 2)

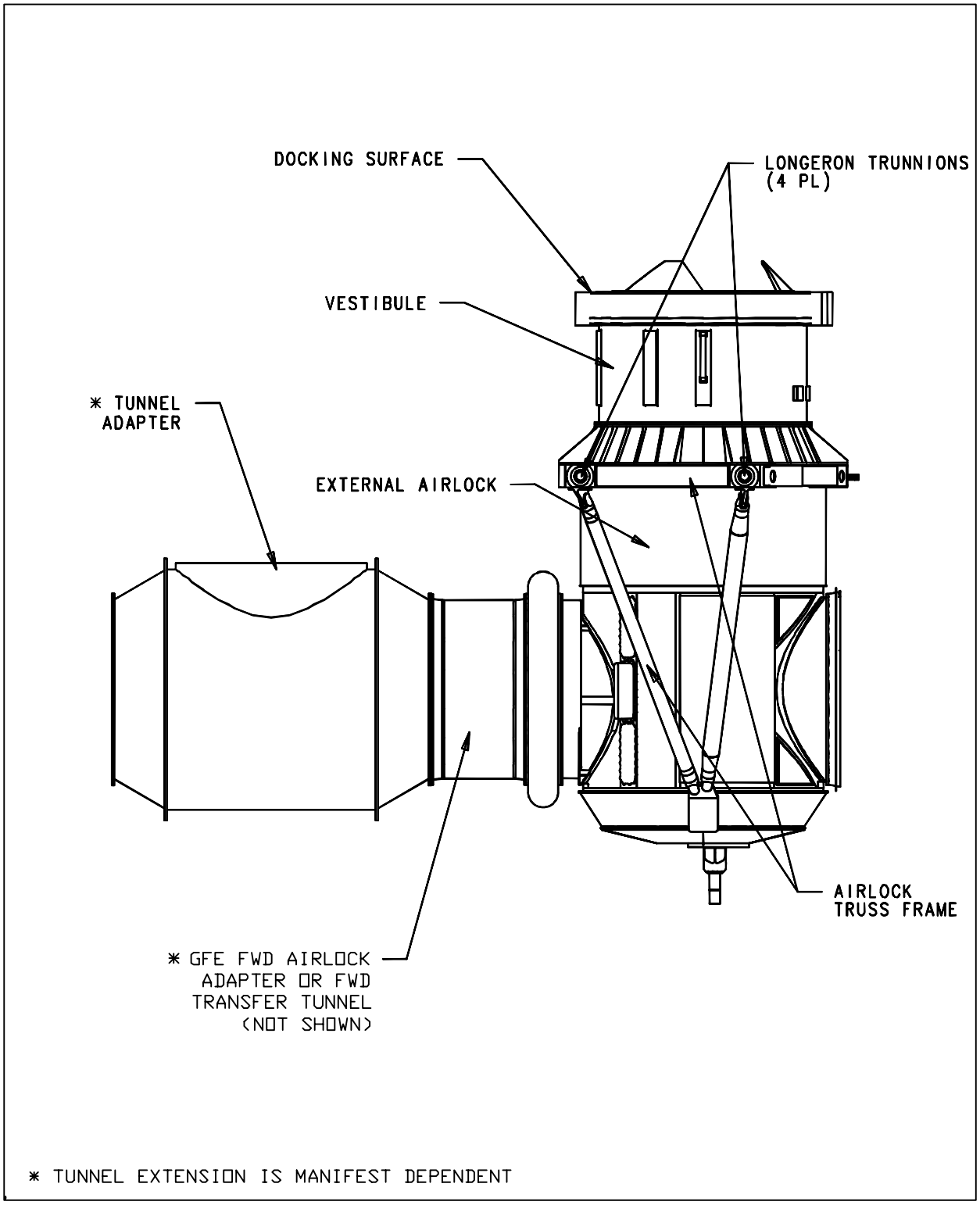

FIGURE 6.0.4.3-1 ORBITER DOCKING SYSTEM (ODS) SURFACES

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