Identification of Life Limiting Components

	Item	Vendor	Model	Comment
√	1. Battery	Boeing (Hughes)	GFE	22-cell, 50-Ah, 28-V Super NiCad. Oversize TRMM spare. TRMM has been in orbit seven years with no failures. Trend data continues to show nominal voltage/current/temperatures. GSFC Code 563 performing ongoing trend monitoring and believes it is highly probably that the life will extend to at least 10/2008.
√	2. Solar Array Drive Cable Wrap	MOOG (Schaffer)	GFE	TRMM component. Nearing 11M deg travel qualification test limit. Disassembly after test showed no wear. Predicted internal temperatures of approx. 25° C well within bearing oil operating range of 0-45° C. Drive motor operation trend data indicates no probable loss of step counts.
√	3. Solar Array Cells	EMCORE (TecStar)	15% BSFR Si	By-pass diode protection for 31-cell sub-strings on outboard panel. Trend data shows nominal performance. GSFC solar cell expert expects no life limiting issue for cells.
√	4. Solar Array Cells	EMCORE (TecStar)	22% DJ GaAs	Inherent solar cell by-pass diode protection. Wired as "fixed" segment. Trend data shows nominal performance. GSFC solar cell expert expects no life limiting issue for cells.
√	5. Solar Array Wiring	EMCORE SWALES		Cell interconnects triple redundant and all array wiring is dual redundant.
√	6. Reaction Wheels	Ithaco/ Goodrich	Type A w/MDE	Three wheels with on-axis orthogonal mounting. All three wheels needed to perform science. Ithaco Life Expectancy Report dated 05/2000 gives rated life >15 yr. Bearing wear is considered the critical lifetime issue and is controlled by bearing lubrication. A life-test for bearing/lubricant EO-1 design was started April 1995 and is still running.
√	7. Star Tracker	Lockheed Martin	AST-201 W/1773	Has shown susceptibility in the South Atlantic Anomaly but with auto recovery from SEU. Background noise trend data well within limits. With box shielding judged to be at least 100 mils total and least tolerant parts rated at 17 krad, radiation life extends to Oct. 2008. (1) (Note that optical front end provides less shielding for roughly 12% of the surface area.)
√	8. Mongoose V Processors	Synova/ Honeywell		No resets or memory errors exist. Subject to radiation dose damage. Rated for radiation dose >> 100 krads. With S/C shielding of 40 mils, radiation life is beyond 2008. (1)
√	9. ACDS & PSE			Common design/parts with MAP S/C that have radiation tolerance of 30 krad. With 50 mils box shielding plus 40 mils S/C shielding, for total of at least 90 mils, radiation life is beyond 2008. (1)
√	10. IRU Gyros	Litton	SIRU	Contains 3 HRG (non-rotating gyros). Not wear-out critical. Bias not accelerating and stable. Rated for 15 krads radiation dose. With S/C plus box shielding totaling 120 mils, radiation life is beyond 2008 (1)
√	11. Propulsion Thrusters	Aerojet (Olin)	MR-103G	Incorporates dual coil dual seat valves in series to mitigate risk of valve leakage. Thrusters qualified to 745,000 pulses, which equates to 745,000 sec of burn time, and propellant throughput of 112 lbm, both of which represent consumption well in excess of EO-1 liftoff propellant load of 49 lbm.
√	12. ALI Aperature Cover	MIT/LL		Actuated by two-phase stepper motor. If motor fails, cover kept in open position by spring. Operations change needed to obtain dark calibrations.
√	13. WARP			No errors on bulk memory. Any radiation induced SEU's most likely correctable
√	14. XPAA	Boeing		No known lifetime critical features.

1. Information on radiation dosage environment based on the NASA AP8 and PSYCHIC models has been provided by Code 561.

√ - Fully assessed and considered not to be life limiting.