Table 4.2.1-3. Coating Galling Test Results

Bearing Load (lb_f)	Uncoated Al Alloy 2219 Plate (125 rms) (lb_f)	Nedox CR Coated Al Aly 2219 Plate (125 rms) (lb_f)	Nedox CR Coat Al Aly 2219 Plate (63 rms) (lb_f)	Nedox NH-1 Coated Al Aly 2219 Plate (63 rms) (lb_f)	Steel Bar (frictional force only) (lb_f)
5	4.9	2.4	2.5	1.9	.64
10	7.5	3.2	3.2	3.3	.90
20	16.2	7.0	6.8	7.2	1.63
30	18.6 *	8.8	10.1	8.7	3.0
40	23.3 *	11.1	16.7 * **	10.2	3.8

* These runs resulted in damaging the simulated convolution to the point of being unusable.

** This is an average of two runs (15.6 and 17.8 lb_f), both of which involved removal of coating.

did provide significant resistance to galling and, that of the two candidates, Nedox NH-1 was superior. This coating was, therefore, applied to the inside surface of the PRD housing.

4.2.1.3 PRD Qualification Program

The PRD qualification program was intended to demonstrate the suitability of the PRD design for the Cassini mission. This was done by a combination of inspections, analyses, and qualification tests. The qualification tests included a PRD assembly dynamic test followed by a PRD dynamic operational demonstration.

PRD Qualification Dynamic Tests

The qualification unit PRD was exposed to acceptance level dynamic testing at ambient pressure. This was followed by a force test on the qualification bellows to verify that no damage occurred during the vibration testing. Next, the PRD was exposed to qualification level vibration testing at operational temperature. Finally, the PRD was successfully demonstrated at operational temperature while exposed to the acceptance level random vibration testing in two axes.

The test environments employed during the dynamic testing were derived from the responses measured at the outboard end of the Q1 RTG during qualification testing for the GPHS-RTG program. The notching to the Q1 data due to the response of the GPHS-RTG