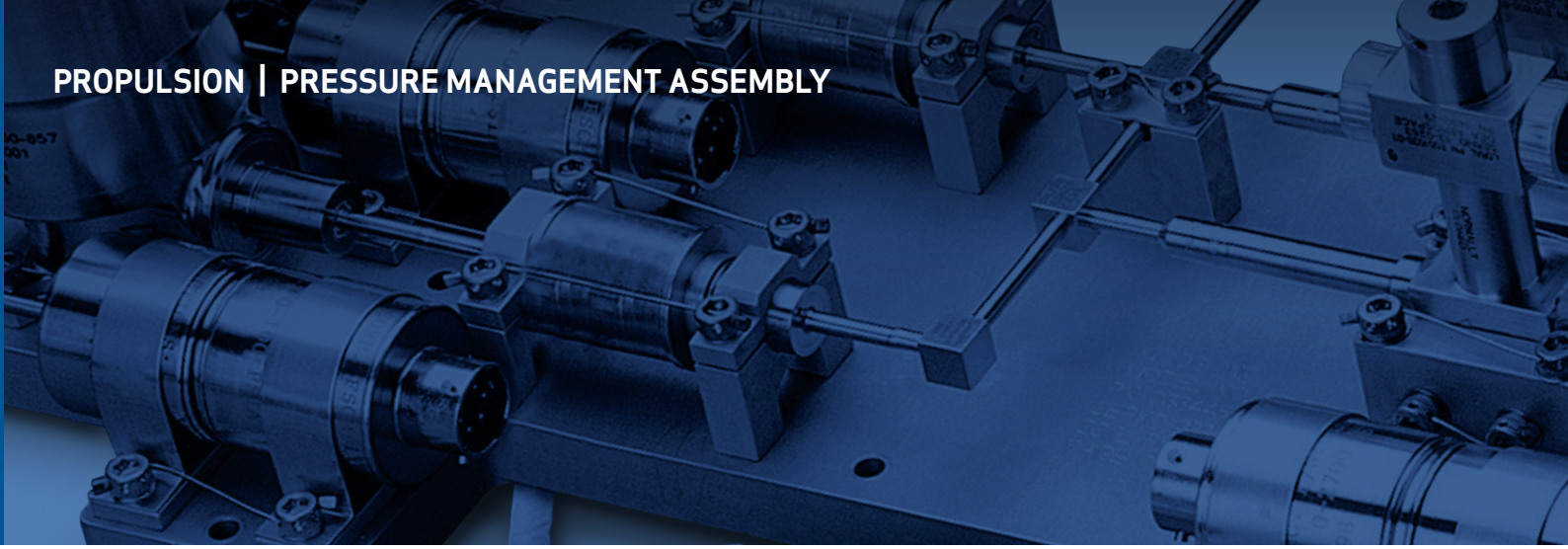
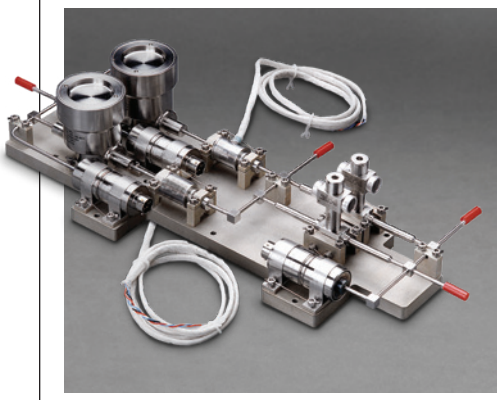
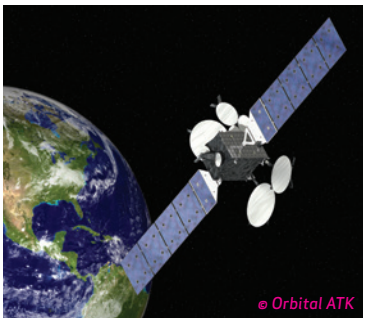
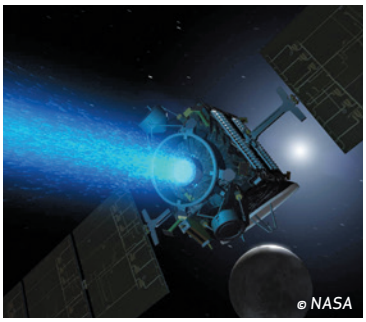


PRESSURE MANAGEMENT ASSEMBLY (PMA)



The Pressure Management Assembly (PMA) is a single fault tolerant, parallel redundant branch regulation assembly that stabilizes and controls xenon inlet pressure to a downstream, low pressure flow control device. Regulation is mechanical with no electrical input required for operation. Flow isolation is provided by latch valves, and initially with normally closed pyro valves. High and low pressure transducers are incorporated for telemetry feedback. The complete welded assembly is incorporated on a flight plate with component brackets.





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PRESSURE MANAGEMENT ASSEMBLY (PMA)

PERFORMANCE CHARACTERISTICS

Parameter	Performance
Materials of Construction	CRES 316L at tube interfaces
Pressure Range	0–6.9 bar low (0–100 psia), 0–186 bar high (0–2700 psia)
MEOP / Proof / Burst Pressure	6-186 / 279 / 558 bar, inlet (88-2700 / 4050 / 8100 psia)
External Leakage	$<1.0 \times 10^{-6}$ sccs GHe at MEOP
Supply Voltage	28 Vdc nominal
Regulated Pressure	2.55 ± 0.1 bar (37.0 ± 1.45 psia)
Regulator Lock Up Pressure	3.45 bar max (50 psia max)
Flow Rate	4 – 60 mg/s Xenon over pressure range
Regulator Internal Leakage	< 3 scc/hr Xenon over pressure range
Latch Valve Internal Leakage	8.4×10^{-4} scc/sec GHe over pressure range (both valves)
Latch Valve Actuation Voltage	26.5 – 41.5 Vdc
Latch Valve Coil Resistance	58 ± 1 ohms at 20°C
Latch Valve Insulation Resistance	> 1 Mohm at 100Vdc, 60 sec, all leads to body
Latch Valve Dielectric Strength	< 100 mA at 500Vac, 60 sec, all leads to body
Latch Valve Response	< 50 ms at MEOP
Latch Valve Inlet Filtration	5 micron abs (capacity of 83mg SAE fine dust at 25 psid)
Transducer Output (Signal) Voltage	0 to 5 Vdc
Transducer Total Error Band	± 2.25% FS over the temperature range
Transducer Insulation Resistance	> 100 Mohm at 100Vdc, 30 sec, all leads to body
Transducer Dielectric Resistance	1.0 mA max at 50 Vac RMS and 60 Hz
Transducer Connector	MS3116-10-6S
Sinusoidal Vibration	5 – 100 Hz, 13g peak
Random Vibration	14.9 grms overall – see included PSD plot below
Shock	3 axis, 100Hz/400g, 1000Hz/1400g, 10kHz/10000g (input levels) (isolated with Moog Manufactured shock isolators)
Thermal Cycle	-33 to 71°C (-27 to 160°F) non-operational (4 cycles) 17 to 60°C (62.6 to 140°F) operational (6 cycles thermal, 4 cycles thermal vacuum)
Cycle Life	> 12,000
Overall Envelope	188W x 476L x 91H (mm)
Mass	3750 g max with Moog supplied shock isolators (not shown)
Heritage	More than 40 geosynchronous orbit to date

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