

FMEA (Failure Modes and Effects Analysis)

Product: Mars rover

Organization Name : Jet Propulsion Lab

#	Function	Potential Failure Modes	Potential Failure Effects	Potential Causes of Failure	Recommend Actions	Responsible Person	Taken Actions
1	Propel Rover	No torque to wheel	Wheel stops turning	Motor failure	Ensure motors have high reliability – at least 99.9% reliability for 100 hours	Tim Smithson, Electronics Div.	Vendor required to submit failure test results
2			..	Motor failure	Test ability to propel Rover with 1 or 2 drive wheels inoperative	Barb Rojo	Prototype tested with 2 motors off line
3		Wheel jams against rock	Wheel stops turning	Inability to sense rocks	Develop ability to sense and avoid rocks or feedback torque increase	B.J. Smith	Work in Progress
4			Wheel damages surface	Wheel surface too soft	Specify surface that can withstand abrasion	N. Knovo	Hard test developed

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The Mechanical Design Process
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