

Bicycle HandBrake Design FMEA excerpt (fictitious with errors for evaluation)

Item	Function	Failure Mode(s)	Effect(s) of Failure	Cause(s) of Failure	Special Product Characteristic(s)	Current Design Controls (Prevention)	Current Design Controls (Detection)	Compensating Provisions	SEV	OCC	DET	Risk Priority	Recommended Actions
Bicycle hand brake subsystem	Provide the correct level of friction between brake pad assembly and wheel rim to safely stop bicycle in the required distance, under all operating conditions.	Insufficient friction delivered by hand brake subsystem between brake pads and wheels during heavy rain conditions.	Bicycle wheel does not slow down when the brake lever is pulled potentially resulting in accident.	Cable Binds due to inadequate lubrication	Lube specification	Hand Brake Design Guide #123	Bicycle system durability test # 789	Design: Independence of front and rear brake allows load sharing to be able to stop safely Operator: apply brakes earlier if problem known or steer away from	5	2	1	Med	Redesign hand brake cable routing to reduce friction and make system insensitive to lubrication degradation
		Requires high force on brake lever to stop bicycle	Brake lever can be closed with some difficulty, with rider experiencing hand fatigue, and bicycle safely stops	Brake lever has high friction due to excessively high tightening spec for attaching hardware	brake lever attaching hardware tightening specification	Bicycle torque requirements for all attaching hardware reviewed in design review	Bicycle system durability test # 789	Design: no design compensating provision Operator: visually close brake lever before riding the bicycle	5	3	2	High	
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