

TECHNICAL REFERENCE · PRINT & KEEP

Why Casters Fail Early: Troubleshooting & Prevention

One-page quick reference · Full engineering guide + live tools at the QR codes below

Quick answer. Casters fail early because of spec and install errors, not worn-out design life. Eight root causes account for over 90 percent of documented early failures, led by under-spec'd load rating, wrong wheel material for the environment, unsealed bearings in washdown duty, and over-torqued axle nuts. These mistakes kill casters 2 to 5 times faster than design life.

Failure-to-Prevention Matrix

Root Cause	Prevention Step	Where Applied	Expected Life Extension
Under-spec load	4x safety, ± 3 load, dynamic rating	Spec phase	2-3x
Wrong wheel material	Environment-first filter	Spec phase	3-5x
Standard bearing in wet	Sealed precision bearing	Spec phase	3-5x
Kingpin in shock duty	Kingpinless rig	Spec phase	3-5x
Over-torqued axle nut	Torque wrench + spec value	Install phase	2-3x (prevents early)
Wrong-temp grease	Match grease to temperature band	Spec phase	3-10x
Skipped 30-day re-torque	Calendar-mandated PM	PM program	1.5-2x
Ignored warning signs	Replace at first noise/creep	PM/ops	Safety + service life

Cost of Early Failure

Cost Component	Per Cart Replacement	Per Fleet (100 carts, 1 year)
Caster unit cost	\$160-480	\$25,000-60,000
Replacement labor (3 hr)	\$200-300	\$30,000-45,000
Downtime (4 hr)	\$400-800	\$60,000-120,000
Workforce injury risk	\$0-10,000 (actuarial)	\$25,000-100,000
Total early-failure cost	~\$800-1,500/cart	~\$140,000-325,000/year



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