

63. Raptor Shake-up

In Chapter 63 titled "Raptor Shake-up" set in SpaceX, 2021, Elon Musk is portrayed as deeply involved and passionately hands-on in refining the design and manufacturing process of the Starship's Raptor engine amidst headaches due to its complexity, cost, and production difficulties. Determined to reduce expenses and inefficiencies, Musk institutes nightly meetings with the Raptor team, advocating for substantial use of stainless steel over more expensive materials and pushing for aggressive simplification and cost-cutting measures. His mantra is to experiment rapidly, accept failure as a step to quick learning, and constantly strive for improvement.

Jacob McKenzie, a young, exceptionally talented engineer of Jamaican origin and MIT graduate, emerges as a standout. Drawing on his background in heavy engineering and previous work on Starship's flap actuators, McKenzie impresses Musk with his combination of calm competence and innovative approach to problem-solving. Musk, seeing McKenzie's potential and success in implementing significant cost-saving strategies, promotes him to lead the Raptor program. Under McKenzie's direction, solutions akin to those used in automotive manufacturing are applied to rocket engine production, which results in substantial cost reductions and efficiency improvements.

Amid these developments, Musk suggests the creation of a new engine, dubbed 1337 ("LEET"), representing a radical departure from the current model with the ambitious goal of significantly lowering costs and advancing SpaceX's mission of making life multiplanetary. This project encapsulates Musk's approach of bold innovation and his drive to push his team toward groundbreaking solutions. The chapter culminates with Musk redirecting focus back to enhancing the existing Raptor design to meet the production rates necessary for SpaceX's ambitious launch schedule, emphasizing the relentless pace and high stakes of their work.

Through the narrative, Musk's leadership style—characterized by direct involvement, challenging traditional engineering approaches, and fostering a culture of rapid iteration and innovation—is vividly portrayed. McKenzie's ascendance to a leadership role under Musk's tutelage exemplifies the nurturing of talent and the blending of engineering excellence with pragmatic, cost-effective manufacturing techniques at SpaceX.