May the Force Be with You!

Aaron Fagan, Senior Editor

Courtesy of LEGO Group

I've been meaning to write about this for a while now, but like that one project that's been sitting on your bench for months, sometimes things get away from you. I've always wondered about a scene in the original *Star Wars* that I've seen at least a hundred times, but have never been able to resolve, and perhaps there is no way to. I'm talking about the iconic trash compactor 3263827 scene—specifically, the terrifying moment when Princess Leia desperately shouts, "Don't just stand there, try to brace it with something!" as the walls begin close in.

And what does she grab from the heap of garbage? A large shaft with three splined sections and three rounded knurled-looking sections. Its form has the whiff of something familiar—it looks like a precision-machined shaft designed for torque transmission, with the knurled sections possibly for gripping or processing material.

Then today, committing myself to write about this, I stumbled across a Reddit thread that both solved and complicated the mystery. Nearly 45 years after *Star Wars* premiered in 1977, that piece of scrap was retroactively identified in *The Book of Boba Fett* as a "cryogenic density combustion booster"—a component from a starfighter.

But what's a cryogenic density combustion booster? If it's a combustion booster for a starfighter, what's it doing mechanically? The name suggests it's part of a propulsion or fuel system—something involving temperature control (cryogenic), fuel mixture (density), and ignition (combustion). But looking at it, those machined sections don't quite fit that description.

Are those really splines designed to transmit rotational torque? Or could they be cooling fins, heat sinks to dissipate thermal energy from a high-temperature combustion process? The "cryogenic" part of the name suggests extreme temperature management, which would make cooling fins logical. But then what about the knurled sections? Are they worn-down diamond knurls? Why are they rounded? Another type of heat sink design to modulate the rate of dissipation?

Maybe what I've been reading as a rotating shaft with torque-transmission features is just the geometric solution to maximizing surface area for heat exchange while maintaining structural integrity. Or maybe it does rotate, and it's part of some kind of compression or pumping mechanism within the combustion booster assembly.

Does the form follow its function? But I don't understand the function; the form remains a puzzle. *Star Wars* has always excelled at creating technology that *looks* used and mechanically plausible without necessarily explaining exactly how it works, and the cryogenic density combustion booster is a prime example.

So, I'm throwing it open to you: What do you think this thing did in operation? How would it cryogenically boost combustion? And what role do those machined sections play? How would you manufacture it?

Whatever it is, it certainly did not withstand the compressive load of the compactor. Maybe there's no single right answer. Maybe that's part of what makes it fascinating. But if you've got theories about *Star Wars* engineering—I'm open. In the meantime, may the force be with you.