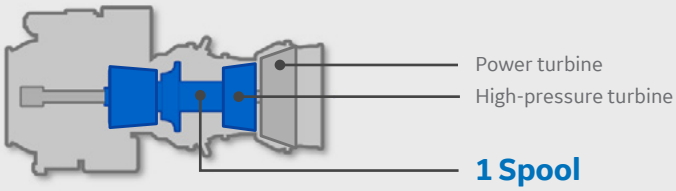
What is a spool and why does it matter?

Using 21st century technology instead of mechanical complexity

"Spool" is engineering shorthand for the combination of an engine compressor and high-pressure turbine that drives it using a connecting drive shaft. In a single-spool engine, the high-pressure turbine drives the entire compressor. In a dual-spool engine, the compressor and high-pressure turbine are both split into two segments. Each compressor segment is driven by its corresponding turbine using two separate drive shafts, with one inside the other.

Better compression (a higher pressure ratio) is required for an engine to deliver 50% more power and 25% better fuel efficiency in an engine the same size as the current T700. GE Aviation evaluated single-and dual-spool engine designs to meet this challenge and determined that the required performance could be met through 21st century technologies without adding additional spools. **Additional spools—and subsequent mechanical complexity—are only necessary when performance cannot be met through technology.**

SINGLE-SPOOL

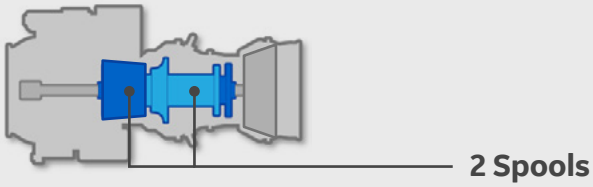


Single core drives power turbine
Simple, efficient, proven approach

Lower pressures, temps, stresses
Optimal operating environment

✓ **Reliability**	40+ years of combat experience, less complex
✓ **Efficiency**	Proven 21st century tech for performance
✓ **Maintainability**	Enables low cost modular repair
✓ **Weight**	Fewer parts, lower weight

DUAL-SPOOL



Core split into two spools
More moving parts, complexity, cost

Higher pressures, temps, stresses
Additional burden on system, more parts

✗ **Reliability**	Complex, more parts. Never installed on a DoD helo
✓ **Efficiency**	2nd spool to meet performance
✗ **Maintainability**	Limits modular design ... drives depot visits
✗ **Weight**	Additional frame & bearings ... adds weight

Achieve superior readiness with a simpler, lighter, more maintainable single-spool engine

LIGHTER WEIGHT

COMBAT FLEXIBILITY
Modular design

LESS COST
10% acquistion 45% maintenance

PERFORMANCE
Equal or better

GE T901 for ITEP

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