

Head to Head Caravan Comparison TPE331-12JR vs PT6A-42A

Category	Pratt & Whitney PT6A-42A	Honeywell TPE331-12JR	ADVANTAGE		Comments
			-42A	-12JR	
Takeoff Distance	???	25-30% less than OEM		✓	More horsepower for takeoff
Maximum Speed (kts)	???	202		✓	Gearbox allows more power at altitude for higher max cruise speed.
Rate of Climb (fpm)	???	1450		✓	More horsepower for climb 900 vs. 850
Power response from idle to max power	Still counting	1.5		✓	Fastest acceleration for tight areas
Power response idle to reverse on landing	Still counting	0.5		✓	Fastest propeller response for short runways
Thermodynamic Horsepower (eshp)	1132	1150	✓	✓	Roughly the same thermodynamic performance
Gearbox Rating for Takeoff (shp)	850	1000		✓	-12JR growth for future and gearbox power to spare
Gearbox Rating for Continuous Ops	850	970		✓	
Propeller RPM	2000	1591		✓	-12JR Slower turning- less noise with bigger propeller
Propeller Diameter	100"	110"		✓	Larger propeller provides better thrust for takeoff
Propeller Idle RPM	1120 min	1082		✓	Less tip speed for less propeller erosion when sitting static.
Specific Fuel Consumption	.601	.523		✓	More efficient design
Fuel Burn @ 850 shp (pph)	511	445		✓	-12JR saves 9.9 gal/hr
Extra cost for fuel per hour (@ \$4.00/gal avg)	\$39.60	\$0		✓	When comparing hourly operating cost, this must be added to the Pratt operating cost to make an even comparison.
Base TBO (commercial ops- no extensions)	3600	7000		✓	-12JR basic TBO almost double the -42A which equals substantially lower per hour operating cost
Compressor wash required	Yes	No		✓	Centrifugal compressors do not require regular washes to retain efficiency.
Gearbox Materials	Magnesium	Aluminum		✓	Major gearbox construction out of aluminum for better corrosion resistance in corrosive environments.
Average Overhaul Cost	\$300,000+	\$185,000		✓	The Honeywell cost is a good average, while the PT6 cost is where a lot of overhauls start.
Cost per hour (based on TBO- no hot section)	\$83.33	\$26.43		✓	Extra money in your pocket