

COMPLEXITY V “SIMPLEXITY”



The **TOMAHAWK TX** Turbine is ready capable of a higher level of sophisticated cycle dynamics & timing control than any production engine in history. It relies in large part on a **33 -350%** increase in the number of active operational valves compared to a 4-cycle 8-cylinder production engine to do so.

Does this fact translate into a more complex engine at higher cost & lower reliability?

COMPARE :

4-CYCLE 8-CYL

TTX

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Reciprocating mass (includes osculating & elliptical)	50-80lbs (23-36kg)	ZERO (0)
Air throttled only w/pumping loss	YES	NO (-90+%PL)
Complex pressure lube system w/pump & reservoir	YES (always)	NO (ZERO)
Lube exposed to spent gases & fuel requiring service	YES (always)	NO (ZERO)
Complex pressure cooling system w/pump & reservoir	YES (always)	NO (ZERO)
Air box w/filter restricting air flow & service required	YES	NO (ZERO)
Super long-life spark plugs required to reduce servicing	NO	YES
Sound attenuation equipment required	YES	NO
Multi-gear transmission required	YES (usually)	NO (usually)
Exhaust after treatment required (not off road)	YES (always)	NO (usually)
# active cycle control valves	16-42	56
# valves exposed to peak combustion pressure & temp	(16-40)	ZERO (0)
# reciprocating valves	16-40	ZERO (0)
# reciprocating coil springs	16-40	ZERO (0)
# high impact hardened valve seats	16-40	ZERO (0)
# reciprocating valve stem guides	16-40	ZERO (0)
# reciprocating valve stem guide seals	16-40	ZERO (0)
# reciprocating valve spring retainers & locks	48-120	ZERO (0)
# reciprocating rocker arms & shafts	0-18-80	ZERO (0)
# reciprocating push rods	0-16	ZERO (0)
# precision ground auto-hydraulic lash adjusters with 5-8 parts each	16-40	ZERO (0)
# cam follower roller bearings	0-16-40	ZERO (0)
# cams	1-4	ZERO (0)
# cam gears & bearings	7-41	ZERO (0)
# cam chain/belts	1-4	ZERO (0)
# cam chain/belt tensioners w/spring	0-2	ZERO (0)
# VVT components	20-60	25
TOTAL parts for valve function only (not counting fasteners)	191-647	25



This is the power of “SIMPLEXITY”

