

Engine Specs

Ignition Timing

Dyno Test Data

Torque Specs

Welchaj 13.0L	Metric	Units	US	Units	Notes
displacement	12.54	L	765.237	cu In	
Bore x Stroke	127 x 165	cm	5" x 6.496"	in	
Max RPM	2310 +/- 60	rpm	2310 +/- 60	rpm	
Idle RPM	600 +/-50	rpm	600 +/-50	rpm	
Weight	998 +/- 50	kg	2200 lbs +/-110.23	lbs	
Electrical System	24	VDC	24	VDC	
Oil Pressure	350-550	kPa	50-80	psi	
Sump Oil Temp.	<110	°C	<230	°F	
Coolant outlet Temp.	83-95	°C	181.4 - 203	°F	Shall Not Exceed 95°C
Torque @ 1800			1177	ft/lb	
Hp @ 1800			403	Hp	Limited to 319 Hp via ECM
Flywheel housing	SAE #1				
Flywheel adpater	SAE 14"				
LP Timing @ 1900 rpm, no load			21° BTDC		
LP Timing @ 800 rpm, no load			8° BTDC		
NG timing @ 1900 rpm, no load			° BTDC		
NG timing @ 800 rpm, no load			° BTDC		
Spark plug	Bosch R6				
Spark plug gap			0.015 TO 0.020"		
crank sensor gap			0.050" TO 0.060"		0.060" recommended
Ignition Timing, LP and LPG			21 to 22° BTDC		@1900 rpm no load
Ignition Timing, NG			BTDC		@1900 rpm no load
LPG supply pressure			14 to 28 in H ₂ O		0.5 to 1.0 psi
lpg regulator setpoint			0.0 to -0.7 in H ₂ O		-0.5 in H ₂ O recommended
NG supply pressure			2 - 25 PSI		
NG regulator setpoint					
Oil Capacity	28L	L	7.4 Gallons	Gal.	for On-Road Oil Pan
136L/Min. (35.93 Gal/Min) at 1800 rpm oil pump volume.	36L	L	9.51	Gal.	for Industrial (Off-Road) Oil Pan
Oil Filters: Fleetguard P/N LF16285, Baldwin P/N JXJ1016 or B7383	5	L	1.32	Gal.	Engine Oil Journals
	136L				
Intake volume @ 1800 RPM (CALCULATED)	37.636	m³/m	1343.3	CFM	CFM @1800 RPM
Intake volume @ 2370 RPM (CALCULATED)	47.477	m³/m	1688.6	CFM	CFM @2370 RPM
Intake volume 3kW (MEASURED)			137	CFM	CFM @1800 RPM
Intake volume 100kW (MEASURED)			390	CFM	CFM @1800 RPM
Intake volume 150kW (MEASURED)			552	CFM	CFM @1800 RPM
Intake volume 250kW (MEASURED)			890	CFM	CFM @1800 RPM
Exhaust Volume @ 1800 RPM	65.041	m³/m	2303.775	CFM	CFM @1800 RPM
Exhaust Volume @ 2730 RPM	89.586	m³/m	3164.18	CFM	CFM @2370 RPM
Exhaust Temp	104.344	°C	1300	°F	
Air Intake system					
Max suggested intake restriction with clean air filter	1.2	kPa(f)	4.818	IN H ₂ O	
Max suggested intake restriction with dirty air filter	6.2	kPa(b)	24.891	IN H ₂ O	
Air flow at 100% load / rated speed		kg/h(m3/h)			
Turbocharging pressure at full load/rated speed		kPa(b)	16	PSI	
Maximum supercharging air temperature (compressor outlet)		°C			
Maximum air temperature increase between ambient and Intercooler outlet		°C			
Heat rejected to intercooler at maximum power		kJ/s(kcal/h)		BTU	
Intercooler system max pressure drop		kPa(b)			
Exhaust System					
Max allowable backpressure	15	kPa(b)	60.221132	IN H ₂ O	
Max exhaust temperature at full load/rated speed		°C		°F	
Exhaust flow at max output		kg/h			
Cooling System					
Coolant capacity (engine only)		L			
Water pump flow at rated speed					
	1200 rpm	237	L/min		
	1500 rpm	297	L/min		
	1800 rpm	356	L/min		
	2000 rpm	396	L/min		calculated, based on flow rate vs rpm at 1200, 1500, 1800 rpm
	2200 rpm	436	L/min		calculated, based on flow rate vs rpm at 1200, 1500, 1800 rpm
Heat to reject by heat exchanger at max power					
Thermostatic valve (adjustment range)		°C			
Cooling liquid max temperature		°C			
Min/max inner pressure in the cooling circuit	70 (0.7)	kPa(b)			
External cooling system max pressure drop	24.5	kPa(b)			
Fan, Puller	Multi-Wing	40/7-7/45°/PAG/SZL/Tp 0.5 in			USED WITH 1PU, AGG POWER UNIT APPLICATIONS
FAN PUSHER	Multi-Wing	40/7-7/45°/PAG/SZR/Tp 0.5 in			SUPPLIED WITH COOLING PACK, COPPER BRASS RAD W BAR AND PI
Air Filter Options					
AIR FILTER					

