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TAD1341GE-B	23572228	01
Important		
This Technical Data Sheet and the corresponding Installation Instructions provide important information to ensure the installed engine will operate according to the design specification in the Volvo Penta application for certification.		
Requirements marked with  are considered as critical for exhaust emissions compliance according to the design specification in the Volvo Penta application for certification.		
Failing to follow and meet these instructions and requirements when installing a certified engine in a piece of nonroad equipment for use in the United States violates U.S. federal law (40 CFR 1068.105(b)), subject to fines or other penalties as described in the Clean Air Act.		

General

In-line four stroke diesel engine with direct injection. Rotation direction, anti-clockwise viewed towards flywheel.

Turbocharged

Number of cylinders			6
Displacement, total	litre		12,78
	in ³		779,7
Firing order			1-5-3-6-2-4
Bore	mm		131
	in		5,16
Stroke	mm		158
	in		6,22
Compression ratio			18,1:1
Wet weight (Not including after treatment system)	Engine only	kg	1325
		lb	2921
		Engine incl. cooling system and air filtration system	kg
		lb	
	Engine incl. cooling system, air filtration system, and frame	kg	1790
		lb	3946

Performance

			rpm	1500	1800
Prime Power	without fan	kW		281	305
		hp		382	415
	with fan	kW		271	287
		hp		369	390
Standby Power	without fan	kW		308	335
		hp		419	456
	with fan	kW		298	317
		hp		405	431
Torque at:	Prime Power	Nm		1789	1618
		lbft		1319	1193
	Standby Power	Nm		1961	1777
		lbft		1446	1311
Power tolerance		%		+4 / -0	
Mean piston speed		m/s		7,9	9,5
		ft/sec		26,0	31,2
Effective mean pressure at:	Prime Power	MPa		1,8	1,6
		psi		255	231
Effective mean pressure at:	Standby Power	MPa		1,9	1,7
		psi		280	254
Max combustion pressure at:	Prime Power	MPa		15,9	16,2
		psi		2306	2350
Max combustion pressure at:	Standby Power	MPa		17	16,7
		psi		2466	2422
Total mass moment of inertia, J (mR ²)		kgm ²		3,43	
		lbft ²		81,4	
Friction Power		kW		30	44
		hp		40,8	59,84
Derating due to altitude - see Technical Diagrams					

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TAD1341GE-B**Engine noise emission**

Test Standards: ISO 3744-1981 (E) sound power

Tolerance ± 0.75 dB(A)

		rpm	1500	1800
Measured sound power Lw	No load	dB(A)	110,3	111,6
	Prime Power	dB(A)	113,9	116,5
	Standby Power	dB(A)	114	116,5
Calculated sound pressure Lp at 1 m	No load	dB(A)	98,3	99,6
	Prime Power	dB(A)	101,9	104,5
	Standby Power	dB(A)	102	104,5

Test conditions for load acceptance data

Warm engine.	Generator	Model	Type of AVR
	Stamford	HCI 444 F1	SX 440
AVR Settings	UFRO (Hz): 47/57	DIP (%)*: 0%	DWELL (%)*: std
	Stability (%)*: std	Voltage (V): 400V	Load factor: 1.0

Applies to Stamford nomenclature,

(%)* : % of max potentiometer setting range

Load acceptance performance can vary due to actual alternator inertia, voltage regulator, type of load and local ambient conditions.

Abbreviation:	Full name:	Descriptions
AVR	Automatic Voltage Regulator	Generator performance and safety control unit
UFRO	Under Frequency Roll Off	Overheating protection at under frequency
DIP		Controls the slope of voltage drop when the UFRO is active
DWELL		Controls the slope of voltage recovery when the UFRO is active.

Single step load performance at 1500 rpm - PRIME (Resistiv load)

Load (%)	Speed diff (%)	Speed Recovery time (s)	Voltage diff (%)	Voltage Recovery time (s)	Remaining load (%)	Speed diff (%)	Speed Recovery time (s)	Voltage diff (%)	Voltage Recovery time (s)
0-20	2,0	0,7	1,0	0,0	20-100	11,0	2,44	8,9	1,5
0-40	3,1	0,9	1,5	0,6	40-100	5,13	2,0	3,0	0,9
0-50					50-100				
0-60	4,9	0,9	2,3	0,7	60-100	2,9	0,8	2,3	0,8
0-71	7 (G3)	1,7	3,5	1,5	x-100				
0-88	10 (G2)	1,7	7,8	1,8	x-100				
0-80	9,1	1,8	6,0	1,4	80-100	1,6	0,6	1,5	0,7
0-100	15,8	2,7	12,8	1,9					
100-0	6,3	1,5	2,3	0,8					

Single step load performance at 1500 rpm - STAND BY (Resistiv load)

Load (%)	Speed diff (%)	Speed Recovery time (s)	Voltage diff (%)	Voltage Recovery time (s)	Remaining load (%)	Speed diff (%)	Speed Recovery time (s)	Voltage diff (%)	Voltage Recovery time (s)
0-20	2,0	0,7	1,0	0,0	20-100	13,2	4,6	10,5	1,7
0-40	3,4	0,9	1,5	0,6	40-100	6,7	4,0	3,6	1,3
0-50					50-100				
0-60	5,6	1,5	2,3	1,7	60-100	3,7	2,8	2,5	0,8
0-66	7 (G3)	1,7	3,5	1,5	x-100				
0-80	10 (G2)	1,7	7,8	1,8	x-100				
0-80	11,3	1,6	8,7	2,3	80-100	1,6	0,6	1,5	0,7
0-100	20,3	4,9	1,6	2,5					
100-0	6,9	1,5	2,6	0,8					

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Single step load performance at 1800 rpm - PRIME (Resistiv load)

Load (%)	Speed diff (%)	Speed Recovery time (s)	Voltage diff (%)	Voltage Recovery time (s)	Remaining load (%)	Speed diff (%)	Speed Recovery time (s)	Voltage diff (%)	Voltage Recovery time (s)
0-20	1,3	0,5	0,3	0,0	20-100	4,6	1,0	7,1	1,6
0-40	2,4	0,8	2,2	0,9	40-100	3,2	1,0	5,1	0,9
0-50					50-100				
0-60	3,6	0,9	4,7	1,0	60-100	2,1	0,8	2,2	0,8
0-100	7 (G3)	1,7	11,2	1,7	x-100				
0-100	10 (G2)	2,5	14,3	2,4	x-100				
0-80	4,9	1,0	6,7	1,3	80-100	1,2	0,4	0,8	0,0
0-100	0,7	1,7	10,4	1,7					
100-0	5,3	1,4	3,4	1,3					

Single step load performance at 1800 rpm - STAND BY (Resistiv load)

Load (%)	Speed diff (%)	Speed Recovery time (s)	Voltage diff (%)	Voltage Recovery time (s)	Remaining load (%)	Speed diff (%)	Speed Recovery time (s)	Voltage diff (%)	Voltage Recovery time (s)
0-20	1,5	0,5	0,4	0,0	20-100	5,2	2,9	8,4	2,1
0-40	2,6	0,9	2,8	0,9	40-100	3,5	1,2	5,7	1,6
0-50					50-100				
0-60	3,9	0,9	5,2	1,0	60-100	2,4	0,8	3,1	0,9
0-93	7 (G3)	1,7	11,2	1,7	x-100				
0-100	10 (G2)	2,5	14,3	2,4	x-100				
0-80	5,4	1,0	8,2	1,6	80-100	1,3	0,5	0,9	0,0
0-100	8,0	2,9	11,8	2,2					
100-0	5,5	1,3	4,1	1,3					

Cold start performance

	rpm	1500	1800	
Time from start to stay within 0.5% of no load speed at ambient temperature: °C	-15 *	s	6,6	6,0
	-25 *	s	10,8	
	-25 **	s	5,2	
	Min start temp*	°C		

* With manifold heater 4.0 kW engaged, lubrication oil 10W/30 Oil.

** With manifold heater 4.0 kW engaged, lubrication oil 10W/30 oil and block heater.

Block heater type	Make	Power kW	Engaged hours	Cooling water temp engine block
	Volvo	2	12	20°C 68°F

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Lubrication system		rpm	1500	1800
Lubricating oil consumption	Prime Power	litre/h	0,04	0,05
		US gal/h	0,011	0,013
	Standby Power	litre/h	0,04	0,05
		US gal/h	0,011	0,013
Oil system capacity including filters		litre	36	
		US gal	9,5	
Oil sump capacity:	max	litre	30	
		US gal	7,9	
	min	litre	19	
		US gal	5,0	
Oil change intervals/specifications:	VSD3	h	600	
	VSD2	h	400	
		h	200	
Engine angularity limits:	front up	°	11	
	front down	°	11	
	side tilt	°	11	
Oil pressure at rated speed		kPa	370 - 520	
		psi	54 - 75	
Lubrication oil temperature in oil sump:	max	°C	130	
		°F	266	
Oil filter		μ	40,000	

* See also general section in the sales guide



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Fuel system		rpm	1500	1800
Prime Power Specific fuel consumption at:	25%	g/kWh	235	254
		lb/hph	0,381	0,411
	50%	g/kWh	202	210
		lb/hph	0,327	0,341
	75%	g/kWh	194	201
		lb/hph	0,314	0,327
	100%	g/kWh	192	201
		lb/hph	0,312	0,326



Standby Power Specific fuel consumption at:	25%	g/kWh	228	245
		lb/hph	0,369	0,396
	50%	g/kWh	199	207
		lb/hph	0,323	0,335
	75%	g/kWh	193	201
		lb/hph	0,314	0,326
	100%	g/kWh	194	204
		lb/hph	0,314	0,331

Fuel system		rpm	1500	1800
Fuel to conform to	ASTM-D975_No1 and 2D JIS KK 2204, EN 590			
System supply flow at:	litre/h		90,0	100,0
	US gal/h		23,8	26,4
Fuel supply line max restriction (Measured at fuel inlet connection)	kPa		30,0	30,0
	psi		4,4	4,4
Fuel supply line max pressure, engine stopped	kPa		20,0	20,0
	psi		2,9	2,9
System return flow	litre/h		18,0	18,0
	US gal/h		4,8	4,8
Fuel return line max restriction (Measured at fuel return connection)	kPa		20,0	20,0
	psi		2,9	2,9
Maximum allowable inlet fuel temp (Measured at fuel inlet connection)	°C		50	50
	°F		122	122
Prefilter / Water separator	μ		10,000	
Fuel filter	μ		5,000	
Governor type/make, standard	Volvo / EMS 2.4			
Injection pump type/make	Delphi E3			

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Intake and exhaust system			rpm	1500	1800
Air consumption at: (+25°C and 100kPa)	Prime Power		m ³ /min cfm	22,7 802	26,4 932
	Standby Power		m ³ /min cfm	24,1 851	29 1024
 See front page for important information Max allowable air intake restriction including piping			kPa psi	5 0,7	5 0,7
Air filter restriction clean Volvo Penta filter			kPa psi	0,7 0,1	0,9 0,1
Heat rejection to exhaust at:	Prime Power		kW BTU/min	187 10635	213 12113
	Standby Power		kW BTU/min	203 11544	235 13364
Exhaust gas temperature after turbine at:	Prime Power		°C °F	405 761	383 721
		Standby Power	°C °F	414 777	403 757
 See front page for important information Max allowable back pressure in exhaust line (after turbine) Pipe dimension Ø: mm			Prime Power	kPa psi	9 1,3
			Standby Power	kPa psi	10 1,5
Exhaust gas flow at: (temp and pressure after turbine at the corresponding power setting)	Prime Power		m ³ /min cfm	49,0 1730	58,0 2048
	Standby Power		m ³ /min cfm	52,0 1836	62,0 2190

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Cooling system		rpm		1500	1800
Heat rejection radiation from engine at:	Prime Power	kW	8	22	
		BTU/min	455	1251	
	Standby Power	kW	10	22	
		BTU/min	569	1251	
Heat rejection to coolant at:	Prime Power	kW	124	138	
		BTU/min	7052	7848	
	Standby Power	kW	133	148	
		BTU/min	7564	8417	
Radiator cooling system type		Closed circuit			
Standard radiator core area		m ²	0,8		
		foot ²	8,61		
Fan diameter		mm	890		
		in	35,04		
Fan power consumption		kW	10	18	
		hp	14	24	
Fan drive ratio		0.84:1			
Coolant capacity,	engine	litre	20		
		US gal	5,28		
	engine with std radiator and hoses	litre	24		
		US gal	6,34		
Coolant pump		drive/ratio	Belt / 1,43:1		
Coolant flow with standard system		l/s	5	5,5	
		US gal/s	1,32	1,45	
Minimum coolant flow		l/s	4,0	4,5	
		US gal/s	1,06	1,19	
Maximum outer circuit restriction, including piping		kPa	45	70	
		psi	6,5	10,2	
Thermostat	start to open	°C	82		
		°F	180		
	fully open	°C	92		
		°F	198		
Maximum static pressure head (expansion tank height + pressure cap setting)		kPa	100		
		psi	14,5		
Minimum static pressure head (expansion tank height + pressure cap setting)		kPa	100		
		psi	14,5		
Standard pressure cap setting		kPa	100		
		psi	14,5		
Maximum top tank temperature		°C	107		
		°F	225		
Draw down capacity. The difference between min coolant level in the expansion tank and the lowest level where the engine's coolant system still is functioning		litre	1,8		
		US gal	0,48		

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Charge air cooler system		rpm	1500	1800
Heat rejection to charge air cooler	Prime Power	kW	52	71
		BTU/min	2957	4038
	Standby Power	kW	59	80
		BTU/min	3355	4550
Charge air mass flow	Prime Power	kg/s	0,43	0,53
	Standby Power	kg/s	0,46	0,55
Charge air inlet temp. (Charge air temp after turbo compressor)	Prime Power	°C	165	184
		°F	329	363
	Standby Power	°C	176	197
		°F	349	387
 See front page for important information Max allowable Charge air outlet temp. (Charge air temp after intercooler)				
	Prime Power	°C	44	44
		°F	111	111
	Standby Power	°C	45	45
		°F	113	113
 See front page for important information Maximum pressure drop over charge air cooler incl. piping				
Charge air pressure (After charge air cooler)		kPa	8	
		psi	1,16	
Standard charge air cooler core area		kPa	219	219
		psi	31,76	31,76
		m ²	0,89	
		foot ²	9,58	

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**Cooling performance**

Standard fan: STD Fan ratio: 1 : 0,84 Fan type: FIX

Cooling air flow and external restriction at different radiator air temperatures based on 107°C TTT and 40% antifreeze. Valid at 1 atm. (radiator and cooling fan, see optional equipment)

Engine speed rpm	Air on temp °C	PRIME POWER		STANDBY POWER	
		Air flow m ³ /s	External restriction Pa	Air flow m ³ /s	External restriction Pa
1500	55			4,4	315
	60	4,7	233	5,0	140
	63	5,1	115	5,5	0
	66	5,5	0		
1800	58			5,7	365
	60			6,4	132
	62			6,9	0
	64	5,6	425		
	66	6,9	0		

Note! External restrictions are calculated for values >0 Pa

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TAD1341GE-B**Engine management system**

Functionality	Alternatives	Default setting
Governor mode	Isochronus / Droop	Isochronus
Governor droop	0-8%	0,0
Governor response	Adjustable PID-constants (VODIA)	Standard
Dual speed	Yes	1500 OR 1800
Idle speed	600-1200	900,0
Fine speed adjustment	± 90	0,0
Stop function	Energized to Run / Stop	Energized to Run / Stop
Preheating function	On / Off	On
Lamp test	On / Off	On

Engine sensor and switch settings

Parameter	Unit	Alarm level		Engine protection		
		Setting range	Default setting	Level	Action. Default/Alternative	
Oil temp	°C	120 - 130	125	Setting +5	Shut down.	
Oil pressure	Low idle	kPa	-	190,0	-30,0	Shut down
	1500 rpm	kPa	-	250,0	-30,0	Shut down-
	1800 rpm	kPa	-	300,0	-30,0	Shut down.
Oil level		-	Min level	-	Shut down.	
Piston cooling pressure >1000 rpm	kPa	-	150	150,0		
Coolant temp	°C	95 - 103	102	Setting +5	Shut down.	
Coolant level		See cooling system	On	Low level	Shut down.	
Fuel feed pressure	Low idle	kPa	-	100	-	-
	>1400 rpm		-	200	-	-
Water in fuel		-	High level	-	-	
Crank case pressure	kPa	-	Increased pressure	Increased pressure	Shut down	
Air filter pressure droop	kPa	-	5	-	-	
	0,0		Alarm level		Engine protection	
Altitude, above sea	m	-	-	1200	Automatic derating, see section derating	
Charge air temp	°C	-	80	85,0	Shut down.	
Charge air pressure 1500	kPa	-	360 / 350	370 / 360	Shut down.	
Engine speed	rpm	100 - 120% of rated speed	115% of rated speed	Alarm level	Shut down.	

Engine protection can be disabled. For consequences please see VP International Limited Warranty Policy

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Electrical system

Voltage and type		24V / insulated from earth	
Alternator:	make/output	A	Bosch 80 A
	tacho output	Hz/alt. Rev	6
	drive ratio		5,3.1
Starter motor	make		Melco
	type		105P70
	kW		7.0
Number of teeth on:	flywheel		153
	starter motor		12
Max wiring resistance main circuit		mΩ	2
Cranking current at +20°C		A	180
Crank engine speed at 20°C		rpm	155
Starter motor battery capacity:	max	Ah/A	2x225
	min at +5°C	Ah/A	-
Inlet manifold heater (at 20 V)		kW	4.0
Power relay for the manifold heater		A	1

Power take off

	rpm	1500	1800
Max allowed bending moment in flywheel housing	Nm	15000	
	lbft	11063	
Max. rear main bearing load	N	4000	
	lbf	899,2	

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Performance	Power (kW)	Rpm
Prime Power	281	1500
Prime Power	305	1800
Standby Power	308	1500
Standby Power	335	1800

Sensors Alarm	Signal	Range	Alarm switch	Alarm Level	Derating level	Condition/Delay	Derating
Boost pressure	0,5-4,5 V	50-500 kPa	N/A	3D map value	3D map value	N/A	See ep_ boost pressure (se table)
Boost temperaure	50-0 kΩ	-40°- 130 °C	N/A	80°C	85°C	N/A	Force shutdown (see table)
Coolant level switch	Digital		Alarm when closed	Low		N/A	Force shutdown
Coolant temperature	50-0 kΩ	-40°- 140 °C	N/A	103°C	107°C	N/A	Force shutdown
Crankcase pressure	0,5-4,5 V	0-15 kPa	N/A	5kPa, Rapid pres inc	5kPa, Rapid pres inc	N/A	Force shutdown
Engine Speed Cam	Frequency		N/A	Lost sign	N/A	N/A	N/A
Engine Speed Crank	Frequency		N/A	Lost sign	N/A	N/A	N/A
Oil level sensor			N/A	Low sign	N/A	N/A	N/A
Oil temperature	50-0 kΩ	-40°- 140 °C	N/A	125°C	130°C	N/A	Force shutdown

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Sensors Alarm	Signal	Range	rpm Map					Condition	Derating
<i>Oil pressure</i>	0,5-4,5 V	0-700 kPa	450 rpm	500 rpm	1000 rpm	1450 rpm	2000 rpm		
Warning Level			-50	60	210	310	310		
Alarm Level			-85	25	175	275	275		

Remarks

1) <i>Soft derate Coolant temp</i>	Speed / °C				
Remaining torque in %	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A

Derate map R2			
°C			
%	N/A	N/A	N/A

2) <i>Soft derate Oil temp</i>	Speed / °C				
Remaining torque in %	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A

Derate map R2			
°C			
%	N/A	N/A	N/A

