



Engine Technical Data

	Unit	4TNV98-NSA
General Data		
Number of Cylinders	-	4
Engine Type	-	Inline, Water-Cooled, 4 Stroke Diesel
Bore x Stroke	mm x mm	98 x 110
Total Displacement	cc	3318
Combustion type	-	Direct Injection
Aspiration	-	Natural Aspiration
Valves per Cylinder	-	4
Compression ratio	-	18.5
Firing Order	-	1-3-4-2

Performance Data

Net Intermittent Power	HP [kW] / rpm	67.7 [50.5]/2500
Net Continuous Power	HP [kW] / rpm	--
Net Max Torque	lb-ft [Nm]/rpm	183.7 [249]/1000
Low Idle Speed	rpm	1000+/-25
High Idle Speed	rpm	2700+/-25
BMEP, Net Power	Psi [kPa]	106 [731]
BMEP, Cont. Power	Psi [kPa]	--

Physical Data

Direction of rotation	-	Counter Clockwise (view from flywheel)
Length - Inches	Inches [mm]	29.76 [756]
Width - Inches	Inches [mm]	21.85 [555]
Height - Inches	Inches [mm]	32.95 [837]
Dry Weight	lbs [kg]	581 [264]
Center of Gravity:	-	
From Rear Face of Block	Inches [mm]	7.87 [200]
From Crankshaft to Exhaust Side	Inches [mm]	1.06 [27]
Above Crankshaft	Inches [mm]	4.88 [124]

PTO System

Flywheel	-	SAE #4
Flywheel Housing	-	SAE #4 (Depth 158)
Gear Case	-	with SAE Hydraulic Pump Flange

Lubrication System

Inclination, Continuous	degree	30
Inclination, 3 minutes Max.	degree	35
Oil Pan Style	-	Deep
Lubrication Oil Filter Type	-	Paper Element
Temperature Limit (main oil pressure passage)	°F [°C]	248 [120]
Nominal Oil Pressure	psi [kgf/cm2]	50[3.5]
Oil Capacity, Effective	Liters	4.5
Total System Capacity	Liters	10.5
Oil Change Interval, Hours	hr	250 (50, initial)
Recommended Oil Type	API	CD, CF or higher grade

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Cooling System

Fan Type	-	Puller
Fan Diameter	Inches [mm]	16.9 [430]
Number of Blades	-	8
Fan Pulley Diameter	Inches [mm]	5.1 [130]
Crank Pulley Diameter	Inches [mm]	5.1 [130]
Fan Spacer Thickness - Inches [mm]	Inches [mm]	1.57 [40]
Max. Coolant Temp.	°F [°C]	221 [105]
Thermostat Starts Opening	°F [°C]	160±2.7 [71 ± 1.5]
Thermostat Fully Open	°F [°C]	185 [85]
Coolant Capacity (Engine)	Liters	4.2
Coolant Flow (C. W. Pump)	Liters / min	73.8
Heat Rejection at Rated Power	BTU/hr [kcal/hr]	117900 [29700]

Fuel System

Fuel Filter Type	-	Paper Element
Fuel Injection Pump Type	-	Distributor Type
Water Separator (Standard)	-	Mesh size: 100-mesh/inch, water reservoir 150 cc
Max. Suction Head (Fuel pickup to Injection pump)	Inches [mm]	40 [1000]
Fuel Feed Pump Type	-	Electrical
Fuel Flow (Feed pump)	Liters / hr	60
Max. Allowable Fuel Temperature	° F [°C]	176 [80] Fuel Injection In
Required Separation Distance Between Pickup & Return	Inches [mm]	min. 4 [100]
Fuel Consumption at Net Inter. Power	hp-hr [g/kW-hr]	0.39 [238]

Intake System

Max. Air Intake Restriction, initial	Inches Water, [kPa]	11.8 [2.9]
Max. Air Intake Restriction, replacement	Inches Water, [kPa]	25 [6.2]
Crankcase Ventilation Type	-	Closed
Engine Air Flow (For sizing air cleaner)	ft ³ / min. [m ³ / min]	131 [3.7]@2500 rpm

Exhaust System

Max. Allowable Back Pressure, initial	Inches Water [kPa]	51.1 [12.7]
Max. Allowable Back Pressure, clean	Inches Water [kPa]	61.4 [15.3]
Exhaust Air Flow @ Max. Power Exhaust Temp.	ft ³ / min. [m ³ /min]	446 [12.6]
Exhaust Temperature at Max. Power	° F [°C]	1202 [650]
Exhaust Temperature at Max. Torque	° F [°C]	1004 [540]

Electrical System

System Voltage	Volts	12 V
Electric Stop Device	-	Stop Solenoid
Alternator	-	12V-40A
Starting Aid Device	-	Air Heater, 12V 400W
Standard pre-heat time	Seconds	15
Engine Block Heater Port	-	Exhaust Side
Starting Motor Type	-	Reduction
Starting Motor Power	kW	2.3
Maximum Starter Cable Resistance	Ohm (Ω)	0.05
Maximum Battery Cable Resistance	Ohm (Ω)	0.0012

History:

Revision 1

Rearranged table

Corrected the Exhaust Air Flow @32 oF(0 oC) to Max. Power Exhaust Temp.

Revision: 1

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Manager	S. Manager	Written by