

JU6H-NL34

INSTALLATION & OPERATION DATA (I&O Data)

UK Produced

Basic Engine Description

Engine Manufacturer	John Deere Co.
Ignition Type	Compression (Diesel)
Number of Cylinders	6
Bore and Stroke - mm (in)	106 (4.19) X 127 (5)
Displacement - L (in ³)	6.8 (415)
Compression Ratio	17.0:1
Valves per cylinder	
Intake	1
Exhaust	1
Combustion System	Direct Injection
Engine Type	In-Line, 4 Stroke Cycle
Fuel Management Control	Mechanical, Rotary Pump
Firing Order (CW Rotation)	1-5-3-6-2-4
Aspiration	Turbocharged
Charge Air Cooling Type	None
Rotation, viewed from front of engine, Clockwise (CW)	Standard
Engine Crankcase Vent System	Open
Installation Drawing	D526
Weight - kg (lb)	752 (1657)

Power Rating

	2350	2600	2800	3000
Gross Power - kW (HP) ^[1]	131 (176)	131 (176)	131 (176)	143.5 (192.5)

Cooling System - [C051002]

	2350	2600	2800	3000
Engine Coolant Heat - kW (Btu/sec)	79.1 (75)	86.5 (82)	95 (90)	123 (117)
Engine Radiated Heat - kW (Btu/sec)	38.1 (36.1)	38.1 (36.1)	38.1 (36.1)	41.9 (39.7)
Heat Exchanger Minimum Flow				
15°C (60°F) Raw H ₂ O - L/min (gal/min)	26.5 (7)	49.2 (13)	53 (14)	56.8 (15)
35°C (95°F) Raw H ₂ O - L/min (gal/min)	49.2 (13)	53 (14)	60.6 (16)	64.3 (17)
Heat Exchanger Maximum Cooling Raw Water				
Inlet Pressure - bar (psi)	14 (203)			
Flow - L/min (gal/min)	98.4 (26)			
Typical Engine H ₂ O Operating Temp - °C (°F) ^[2]	76.7 (170) - 87.8 (190)			
Thermostat				
Start to Open - °C (°F)	76.7 (170)			
Fully Opened - °C (°F)	87.8 (190)			
Engine Coolant Capacity - L (qt)	14 (14.79)			
Coolant Pressure Cap - kPa (lb/in ²)	68.9 (10)			
Maximum Engine Coolant Temperature - °C (°F)	93.3 (200)			
Minimum Engine Coolant Temperature - °C (°F)	71.1 (160)			
High Coolant Temp Alarm Switch - °C (°F)	96.1 (205)			

Electric System - DC

	Standard		Optional	
System Voltage (Nominal)	12		24	
Battery Capacity for Ambients Above 0°C (32°F)				
Voltage (Nominal)	12	[C07634]	24	[C07634]
Qty. Per Battery Bank	1		2	
SAE size per J537	4D		4D	
CCA @ -18°C (0°F)	1050		1050	
Reserve Capacity - Minutes	290		290	
Battery Cable Circuit, Max Resistance - ohm	0.0012		0.0012	
Battery Cable Minimum Size				
0-3.1m Circuit Length ^[3]	00		00	
3.1m-4.1m Circuit Length ^[3]	000		000	
4.1m-5.1m Circuit Length ^[3]	0000		0000	
Charging Alternator Maximum Output - Amp,	40	[C071363]	55	[C071366]
Starter Cranking Amps, Rolling - @15°C (60°F)	350	[C071072]	167	[C071074]

NOTE: This engine is intended for indoor installation or in a weatherproof enclosure. ¹Reduce published Gross kW's by 10% to determine maximum pump load. ²Engine H₂O temperature is dependent on raw water temperature and flow. ³Positive and Negative Cables Combined Length.

JU6H-NL34
INSTALLATION & OPERATION DATA (I&O Data)
UK Produced

<u>Exhaust System</u>	<u>2350</u>	<u>2600</u>	<u>2800</u>	<u>3000</u>
Exhaust Flow - m ³ /min (ft. ³ /min) -----	30.6 (1081)	35.2 (1243)	38.7 (1365)	45.7 (1614)
Exhaust Temperature - °C (°F) -----	527 (980)	511 (951)	507 (944)	530 (986)
Maximum Allowable Back Pressure - kPa (in H ₂ O) -----	7.5 (30)	7.5 (30)	7.5 (30)	7.5 (30)
Minimum Exhaust Pipe Dia. - mm (in) ^[4] -----	127 (5)	127 (5)	127 (5)	127 (5)

<u>Fuel System</u>	<u>2350</u>	<u>2600</u>	<u>2800</u>	<u>3000</u>
Fuel Consumption - L/hr (gal/hr) -----	31.4 (8.3)	45 (11.9)	37.5 (9.9)	40.9 (10.8)
Fuel Return - L/hr (gal/hr) -----	25.7 (6.8)	28.4 (7.5)	30.7 (8.1)	32.6 (8.6)
Fuel Supply - L/hr (gal/hr) -----	57.2 (15.1)	73.4 (19.4)	68.1 (18)	73.4 (19.4)
Fuel Pressure - kPa (lb/in ²) -----	20.7 (3) - 41.4 (6)			
Minimum Line Size - Supply - in. -----	.50 Schedule 40 Steel Pipe			
Pipe Outer Diameter - mm (in) -----	21.5 (0.848)			
Minimum Line Size - Return - in. -----	.375 Schedule 40 Steel Pipe			
Pipe Outer Diameter - mm (in) -----	17.1 (0.675)			
Maximum Allowable Fuel Pump Suction Lift with clean Filter - mH ₂ O (in H ₂ O) -----	0.8 (31)			
Maximum Allowable Fuel Head above Fuel pump, Supply or Return - m (ft) -----	1.4 (4.5)			
Fuel Filter Micron Size -----	2			

<u>Heater System</u>	<u>Optional</u>	<u>Optional</u>
Engine Coolant Heater		
Wattage (Nominal) -----		1360
Voltage - AC, 1 Phase -----		230 (+5%, -10%)
Part Number -----		[C123644]

<u>Air System</u>	<u>2350</u>	<u>2600</u>	<u>2800</u>	<u>3000</u>
Combustion Air Flow - m ³ /min (ft. ³ /min) -----	11.7 (412.9)	13.7 (483.6)	15.1 (533.4)	17.1 (605.1)
Air Cleaner	<u>Standard</u>		<u>Optional</u>	
Part Number -----	[C03396]		[C03327]	
Type -----	Indoor Service Only, with Shield		Canister, Single-Stage	
Cleaning method -----	Washable		Disposable	
Air Intake Restriction Maximum Limit				
Dirty Air Cleaner - kPa (in H ₂ O) -----	3 (12)		2.5 (10)	
Clean Air Cleaner - kPa (in H ₂ O) -----	1.5 (6)		1.2 (5)	
Maximum Allowable Temperature (Air To Engine Inlet) - °C (°F) ^[5] -----	54.4 (130)			

<u>Lubrication System</u>	
Oil Pressure - normal - kPa (lb/in ²) -----	345 (50) - 655 (95)
Low Oil Pressure Alarm Switch - kPa (lb/in ²) -----	138 (20)
In Pan Oil Temperature - °C (°F) -----	104 (220) - 118 (245)
Total Oil Capacity with Filter - L (qt) -----	20 (21.1)

<u>Performance</u>	<u>2350</u>	<u>2600</u>	<u>2800</u>	<u>3000</u>
BMEP - kPa (lb/in ²) -----	986 (143)	889 (129)	827 (120)	841 (122)
Piston Speed - m/min (ft/min) -----	597 (1958)	661 (2167)	711 (2333)	762 (2500)
Mechanical Noise - dB(A) @ 1m -----	C131558			
Power Curve -----	C131999			

⁴Based on Nominal System. Back pressure flow analysis must be done to assure maximum allowable back pressure is not exceeded. (Note: minimum exhaust Pipe diameter is based on: 15 feet of pipe, one 90° elbow, and a silencer pressure drop no greater than one half of the maximum allowable back pressure.) ⁵Review for horsepower derate if ambient air entering engine exceeds 77°F (25°C). [] indicates component reference part number.

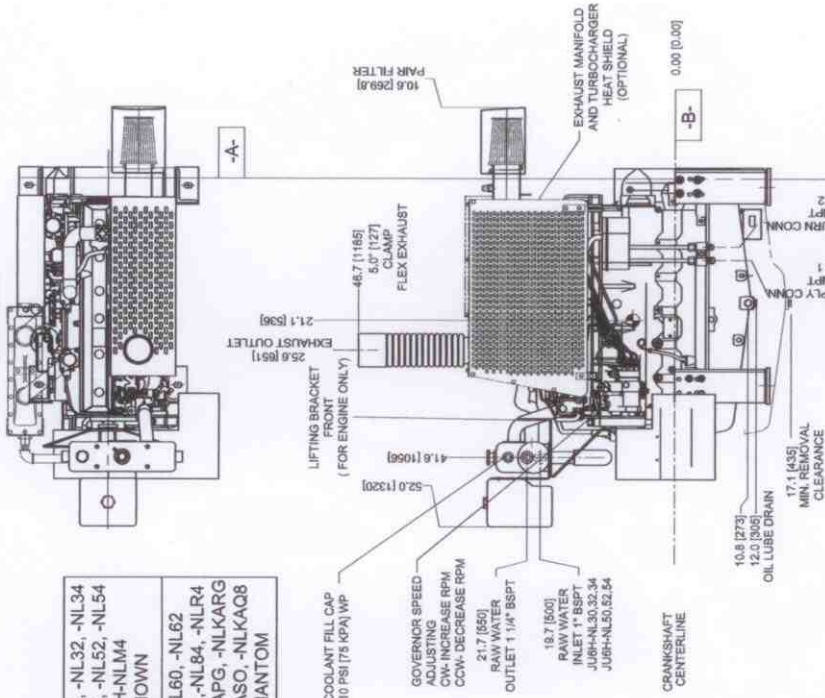
DATUMS

- A- MOUNTING FACE OF FLYWHEEL
- B- ENGINE CRANKSHAFT HORIZONTAL CENTERLINE
- C- ENGINE CRANKSHAFT VERTICAL CENTERLINE
- D- PUMP OR RIGHT ANGLE GEAR SHAFT HORIZONTAL CENTERLINE
- E- END OF PUMP OR RIGHT ANGLE GEAR SHAFT
- F- REAR FACE OF ENGINE HALF FLYWHEEL HUB
- G- MOUNTING FACE OF UNIVERSAL DRIVE SHAFT ADAPTER
- H- CENTER OF GRAVITY OF ENGINE
- I- CLOCKWISE ROTATION WHEN VIEWED FROM FRONT OF ENGINE

CAUTION
ALL PLUMBING MUST BE SUPPORTED AND/OR ISOLATED SO THAT NO WEIGHT OR STRESS IS APPLIED TO ANY ENGINE COMPONENT

ATTENTION
REFER TO THE SPECIFIC MODEL INSTALLATION DRAWING FOR INSTALLATION GUIDELINES

VIEW FROM TOP OF ENGINE

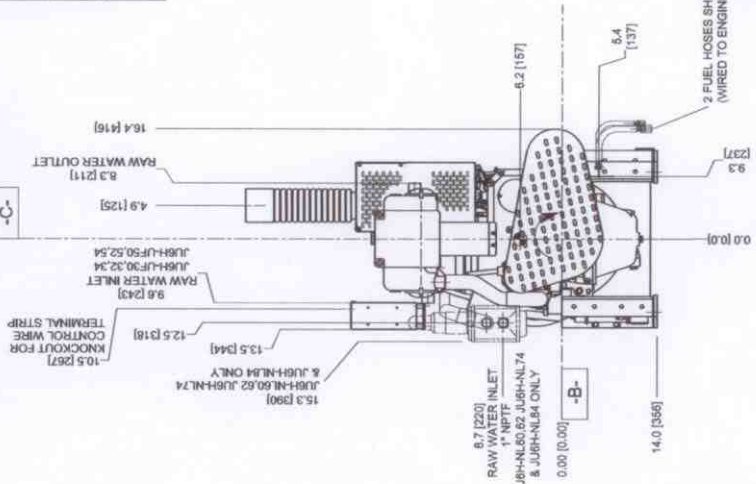


JU6H-NL30, -NL32, -NL34
JU6H-NL50, -NL52, -NL54
JU6H-NL60, -NL62
JU6H-NL74, -NL84, -NL84
*JU6H-NLKAPG, -NLKARG
JU6H-NLKASO, -NLKASO
IN PHANTOM

VIEW FROM LEFT SIDE OF ENGINE

- NOTES:
1. FUEL SUPPLY PIPING FROM TANK TO ENGINE SHOULD BE 1/2" MINIMUM PIPE DIAMETER.
 2. FUEL RETURN PIPING FROM ENGINE TO TANK SHOULD BE 3/8" MINIMUM PIPE DIAMETER.

VIEW FROM FRONT OF ENGINE

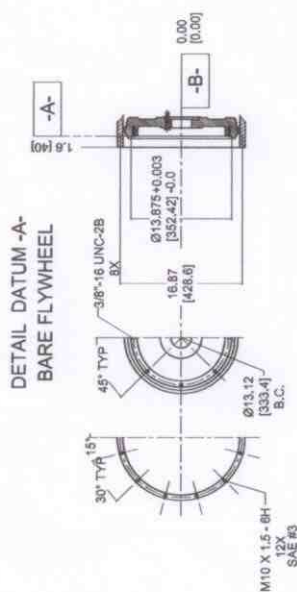


DRAWING SUBJECT TO CHANGE WITHOUT NOTICE

*FOR ENGINES BUILT IN UK BEGINNING AUGUST, 2012

CLARKE		Fire Protection Products, Inc.	
DATE	07/20/02	ENGINE MODEL	JU6H-NL30, -NL32, -NL34, -NL50, -NL52, -NL54, -NL60, -NL62, -NL74, -NL84, -NL84, -NLKAPG, -NLKARG, -NLKASO, -NLKASO, -NLKASO, -NLKASO
DRAWN	K. K. K.	PART NO.	D526
SCALE	1:1	INCH (MM)	1:1
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REV	DATE	DESCRIPTION
1	07/20/02	1. CORRECTED LOCATION OF FUEL PUMP CENTERLINE, REMOVED SHIP GROUND
2	07/20/02	2. ADDED SHIP GROUND
3	07/20/02	3. CORRECTED CENTER LOCATION OF SLOTS - PAGE 2
4	07/20/02	4. ADDED ENGINE MODEL - JUPM 8 - PAGES 2
5	07/20/02	5. MODEL WAS - JUPM 8
6	07/20/02	6. ADDED SHIP GROUND
7	07/20/02	7. ADDED MOUNTING FEET, INSTRUMENT PANEL AND HEATER SETUP



**DRAWING SUBJECT
TO CHANGE
WITHOUT NOTICE**

CLARKE **Fire Protection Products, Inc.**

[illegible]

Air Cleaner

Air Cleaner - Optional

Camshaft

Charge Air Cooler (JU6H-60,62,68,74,84, ADK0,
AD58, ADNG, ADN0, ADQ0, ADR0, AAQ8, AARG,
ADP8, ADP0, ADT0, AD88, ADR8, AD98, ADS0,
ADW8, ADX8, AD98 only)

Charge Air Cooler (JU6R-AA67, 59, 61, PF, Q7, RF, S9, 83 only)

Coolant Pump

Coolant Thermostat

Connecting Rod

Crank Pin Bearings

Crankshaft

Cylinder Block

Cylinder Head

Cylinder Liners

Fuel Pump

Heat Exchanger (USA) - JU4H & JU6H Only

Heat Exchanger (UK) - JU4H & JU6H Only

Injection Pump

Lubrication Cooler

Type..... Plate.....

Lubrication Pump

Type..... Gear
Drive..... Gear

Main Bearings

Type..... Precision Half Shells
Material..... Steel Backed-Aluminum Lined

Piston

Type and Material.....	Aluminum Alloy with Reinforced Top Ring Groove
Cooling.....	Oil Jet Spray

Piston Pin

Type..... Full Floating - Offset

Piston Rings

Number/Piston.....3
Top.....Keystone Barrel Faced -
Plasma Coated
Second.....Tapered Cast Iron
Third.....Double Rail Type
w/Expander Spring

Radiator - JU4R & JU6R Only

Type..... Plate Fin

Materials	
Core.....	Copper & Brass
Tank & Structure.....	Steel

Valves

Type.....	Poppet
Arrangement.....	Overhead Valve
Number/Cylinder.....	1 intake 1 exhaust
Operating Mechanism.....	Mechanical Rocker Arm
Type of Lifter.....	Large Head
Valve Seat Insert.....	Replaceable

JU6H-NL34

FIRE PUMP DRIVER

NOISE DATA**Mechanical Engine Noise ***

RPM	BHP	OVERALL dB(A)	Octave Band									
			31.5 Hz dB(A)	63 Hz dB(A)	125 Hz dB(A)	250 Hz dB(A)	500 Hz dB(A)	1k Hz dB(A)	2k Hz dB(A)	4k Hz dB(A)	8k Hz dB(A)	16k Hz dB(A)
2800	197											
3000	197											

Raw Exhaust Engine Noise **

RPM	BHP	OVERALL dB(A)	Octave Band									
			31.5 Hz dB(A)	63 Hz dB(A)	125 Hz dB(A)	250 Hz dB(A)	500 Hz dB(A)	1k Hz dB(A)	2k Hz dB(A)	4k Hz dB(A)	8k Hz dB(A)	16k Hz dB(A)
2800	197											
3000	197											

To be Provided Later

* Values above are provided at 3.3ft (1m) from engine block and do **not** include the raw exhaust noise.

** Values above are provided at 3.3ft (1m), 90° horizontal, from a vertical exhaust outlet and does **not** include noise created mechanically by the engine

The above data reflects values for a typical engine of this model, speed and power in a free-field environment.

Installation specifics such as background noise level and amplification of noise levels from reflecting off of surrounding objects, will affect the overall noise levels observed. As a result of this, Clarke makes no guarantees to the above levels in an actual installation.

CLARKE®

FIRE PUMP ENGINES

MODELS

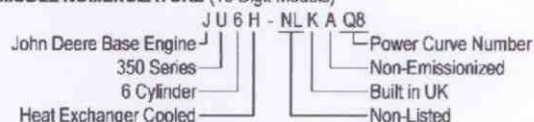
JU6H-NL32	JU6H-NL52	JU6H-NL74	JU6H-NL62	JU6H-NLKAQ8
JU6H-NL34	JU6H-NLM4	JU6H-NLR4	JU6H-NL84	JU6H-NLKARG
JU6H-NL30	JU6H-NL50	JU6H-NL54	JU6H-NL60	JU6H-NLKAS0

ENGINE EQUIPMENT

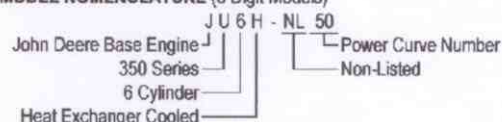
EQUIPMENT	STANDARD	OPTIONAL
Air Cleaner	Direct Mounted, Washable, Indoor Service with Drip Shield	Disposable, Drip Proof, Indoor Service Outdoor Type
Alternator		12V-DC, 42 Amps with Belt Guard; 24V-DC, 40 Amps with Belt Guard
Exhaust Protection		Metal Guards on Manifolds and Turbo
Coupling		Centaflex; Driveshaft
Exhaust Flex Connection		Stainless Steel Flex, Clamped Connection, 5"
Flywheel Housing	SAE #3	
Flywheel Power Take Off	11.5" SAE Industrial Flywheel Connection	
Fuel Connections		Fire Resistant Flexible Supply and Return Lines
Fuel Filter	Primary Filter with Priming Pump	
Fuel Injection System	Stanadyne Direct Injection	
Engine Heater		230V-AC, 1360 Watt; 115V-AC, 1360 Watt
Governor, Speed	Constant Speed, Mechanical	
Heat Exchanger	Tube and Shell Type; 14 BAR (203 PSI), BSP(F) Connections for NL30/32/34/50/52/M4/54 5 BAR (72.5 PSI), BSP(F) Connections for NL74/R4/60/62/84/KAQ8/KAPG/KARG/KAS0	
Instrument Panel		English and Metric, Tachometer, Hourmeter, Water Temperature, Oil Pressure and Two (2) Voltmeters
Junction Box		Integral with Instrument Panel; For DC Wiring Interconnection to Engine Controller
Lube Oil Cooler	Engine Water Cooled, Plate Type	
Lube Oil Filter	Full Flow with By-Pass Valve	
Lube Oil Pump	Gear Driven, Gear Type	
Manual Start Control		On Instrument Panel with Control Position Warning Light
Overspeed Control		Electronic with Reset and Test on Instrument Panel
Raw Water Solenoid Operation		Automatic from Engine Controller and from Engine Instrument Panel
Run - Stop Control	Manual Stop Lever	On Instrument Panel with Control Position Warning Light
Run Solenoid	12V-DC Energized to Stop	12V-DC Energized to Run; 24V-DC Energized to Run; 24V-DC Energized to Stop
Silencer		Industrial with Clamped Connections
Starters	One (1) 12V-DC	One (1) 24V-DC; Two (2) 12V-DC
Throttle Control	Adjustable Speed Control, Tamper Proof	
Water Pump	Centrifugal Type, Dual Poly-Vee Belt Drive with Guard	Centrifugal Type, Single Poly-Vee Belt Drive with Guard

Abbreviations: DC - Direct Current, AC - Alternating Current, SAE - Society of Automotive Engineers, BSP(F) - British Standard Pipe Thread (Female)

MODEL NOMENCLATURE (10 Digit Models)



MODEL NOMENCLATURE (8 Digit Models)



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C133458 revH
30MAY12

Specifications and information contained in this brochure subject to change without notice.

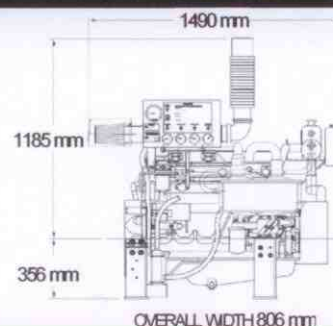
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FIRE PUMP ENGINES

MODELS

JU6H-NL32 JU6H-NL52 JU6H-NL74 JU6H-NL62 JU6H-NLKAQ8
JU6H-NL34 JU6H-NLM4 JU6H-NLR4 JU6H-NL84 JU6H-NLKARG
JU6H-NL30 JU6H-NL50 JU6H-NL54 JU6H-NL60 JU6H-NLKAPG JU6H-NLKAS0

UK Purchased



NON-LISTED – HEAT EXCHANGER COOLED ENGINES

• GROSS POWER RATINGS KW/BHP

JU6H MODEL	RATED SPEED																									
	1470		1760		1800		1900	2000		2100		2200		2350		2400		2600		2800		2960		3000		
NL30	77	103	115	154	117	157			127	170	131	176	131	176	131	176										
NL32														131	176	131	176	131	176							
NL34														131	176	131	176	131	176	131	176	141	189	143.5	192.5	
NL50	113	152	150	201	153	205			166	222	172	231	172	231	172	231										
NL52														172	231	172	231	172	231							
NLM4																				164	220	164	220	164	220	
NL54														172	231	172	231	177.5	238	177.5	238	177.5	238	177.5	238	
NL74														169	227	171	229	176	236	184	247	184	247	184	247	
NLR4																				197	264	197	264	197	264	
NL60	144	193	164	220	168	225			187	251	197	264	197	264	197	264										
NL62															197	264	197	264	197	264						
NL84															199	267	200	268	203	272	212.5	285	222.5	298	225	302
NLKAPG	180	241																								
NLKAQB			186	250																						
NLKARG			206	277	207	278	210	281																		
NLKAS0									213	286																

• Power Rating: A 10% deduction in power must be made to determine the maximum allowable pump load

SPECIFICATIONS

ITEM	JU6H MODELS													
	NL30	NL32	NL34	NL50	NL52	NLM4	NL54	NL74	NLR4	NL60	NL62	NL84	NLKAQB	NLKAPG/RG/S0
Number of Cylinders	6													
Aspiration	T								TRWA					
Rotation*	CW													
Weight – kg (lb)	750 (1657)								766 (1693)					
Compression Ratio	17.0:1													
Displacement – l (cu. in.)	6.8 (414)													
Engine Type	4 Stroke Cycle – Inline Construction													
Bore & Stroke – mm (in.)	106 x 127 (4.19 x 5.00)													
Installation Drawing	D526					UD135	D526		UD135	D526				
Wiring Diagram AC	C07591													
Wiring Diagram DC	C07575													
Engine Series	John Deere 6068 Series													

Abbreviations: CW – Clockwise T – Turbocharged TRWA – Turbocharged with Raw Water Aftercooling

*Rotation viewed from Heat Exchanger / Front of Engine

CERTIFIED POWER RATING

- Each engine is factory tested to verify power and performance.
- Although FM-UL ratings are shown at specific speeds, Clarke engines can be applied at any intermediate speed. To determine the intermediate speed power, make a linear interpolation from the Clarke certified power curve. Contact Clarke or your Pump OEM Representative to obtain details.
- Note: JU6H-NL34/M4/74/R4/84 Engines cannot be used between 2650 and 2750 RPM.

ENGINE RATINGS BASELINES

- Engines are not to be used for continuous duty. Engines are to be used only for stationary emergency standby fire pump service.
- Engines are rated at standard SAE conditions of 29.61 in. (752.1 mm) Hg barometer and 77°F (25°C) inlet air temperature [approximates 300 ft. (91.4 m) above sea level] by the testing laboratory (see SAE Standard J 1349).
- A deduction of 3 percent from engine horsepower rating at standard SAE conditions shall be made for diesel engines for each 1000 ft. (305 m) altitude above 300 ft. (91.4 m)
- A deduction of 1 percent from engine horsepower rating as corrected to standard SAE conditions shall be made for diesel engines for every 10°F (5.6°C) above 77°F (25°C) ambient temperature.

CHOOSE A PURCHASE FACILITY: **U.S.** **U.K.** **ALL** ?

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Clarke...the first name in fire protection.

DOCUMENTS

[Specification Sheet](#)
[Power Curve](#)
[Installation and Operation Data](#)
[Material/Construction](#)
[Installation Drawing](#)
[Emission Data](#)
[Noise Data](#)

JU6H-NL34

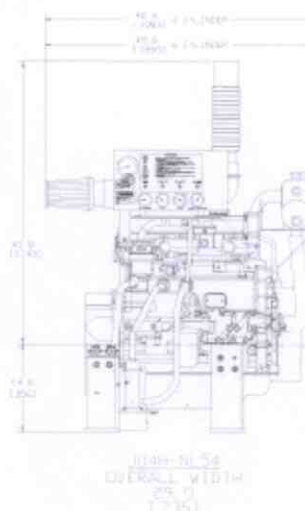
Engines >> Non-Listed - UK >> JU6H High Speed

FORMS

[Proposal](#)

ADDITIONAL RESOURCES

[Operations Manual](#)
[Technical Catalog](#)
[Wiring Diagrams](#)
[General Data](#)
[Parts](#)
[Warranty](#)



SPECIFICATIONS

Number of Cylinders	6
Aspiration	T
Rotation*	CCW
Weight - kg (lb)	750 (1657)
Compression Ratio	17.0:1
Displacement - l (cu.in.)	12.5 (766)
Engine Type	4 Stroke Cycle - Inline Constructio
Bore & Stroke - mm (in.)	127 x 165 (5.00 x 6.50)
Engine Series	John Deere 6068 Series

Abbreviations: CCW - Counter Clockwise N - Naturally Aspirated T - Turbocharged TRWA - Aftercooling

*Rotation viewed from flywheel CW Rotation not available

Engine intended for indoor use or inside weatherproof enclosure only

CLARKE UK, LTD.

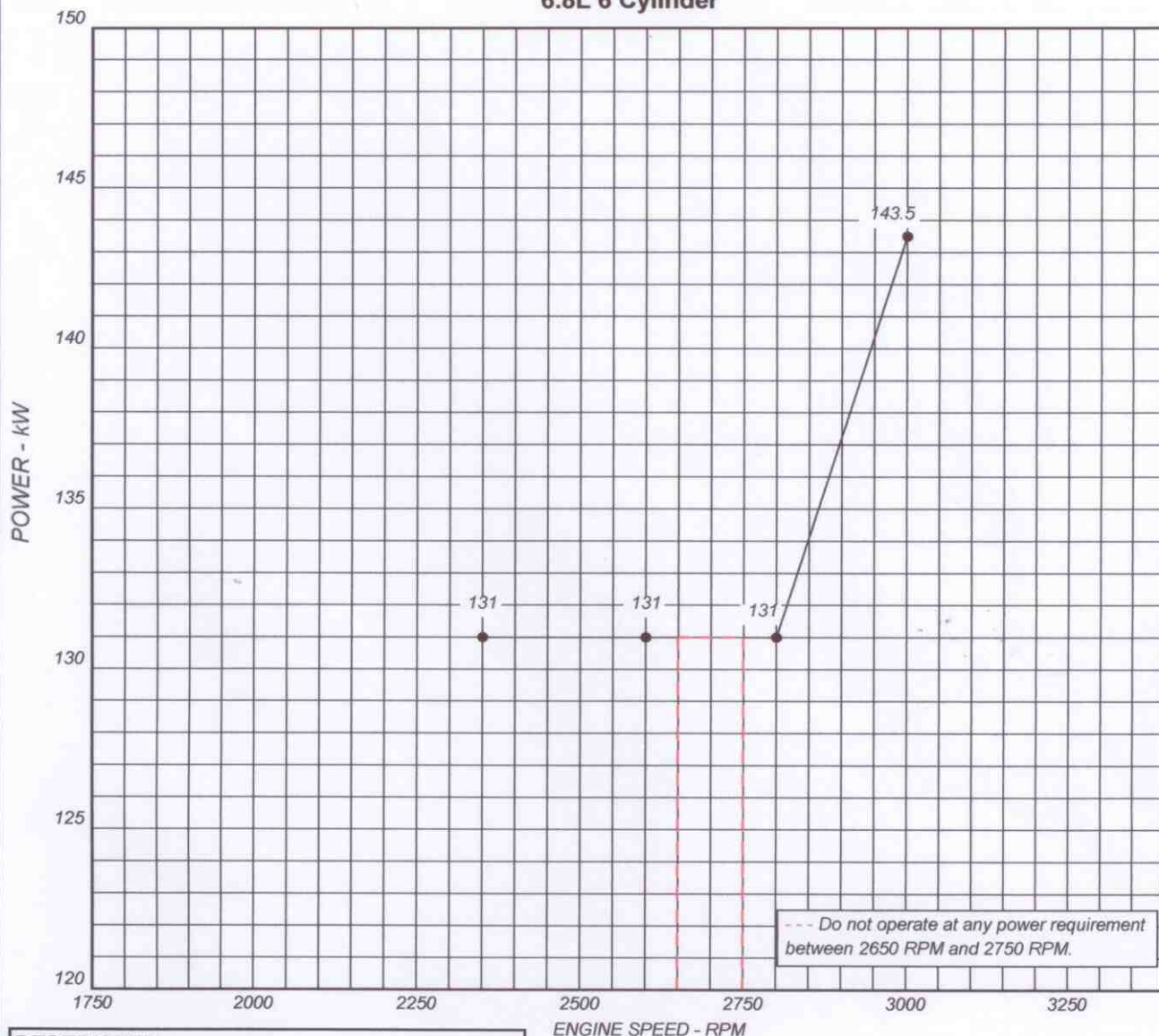
Fire Protection Products

FIRE PUMP MODEL: JU6H-NL34

Heat Exchanger Cooled

Turbocharged

6.8L 6 Cylinder



RESTRICTED:

USE ONLY FOR STAND-BY FIRE PUMP APPLICATIONS

ENGINE PERFORMANCE:

STANDARD CONDITIONS: (SAE J1349, ISO 3046)
77°F (25°C) AIR INLET TEMPERATURE
29.61 IN. (751.1MM) HG BAROMETRIC PRESSURE
#2 DIESEL FUEL (SEE C13940)

KEN WAULIGMAN 18DEC09

● GROSS kW

Reduce published Gross kW's by 10% to determine maximum pump load.

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CREATED

KRW

DATE CREATED

12/02/04

ENGINE MODEL JU6H-NL34

DRAWING NO.

C131999

REV C