WHEEL LOADER 938H

I. GENERAL:

This standard is intended to provide specifications for the procurement of Caterpillar Model 938H Wheel Loaders that meet specific area operational requirements for JEA / SJRPP. This type of Wheel Loader shall be utilized for bulk material handling to support operational needs for the solid fuel units or any other earth moving type work in or around the plants.

II. DESCRIPTIONS FOR CATERPILLAR MODEL 938H WHEEL LOADER:

The following shall be provided:

II.1. ENGINE::

The Caterpillar engine shall meet or exceed all EPA Tier 3/EU Stage IIIa emission specifications for the U.S through 2010.

- II.1.1. Engine Model:..... Cat 6.6 ACERT
- II.1.2. Gross Power: - SAE J1995..... 197 hp
- II.1.3. Net Power: - ISO 9249..... 180hp
- II.1.4. Net Power – SAE J1349 ..... 172 hp
- II.1.5. Net Power – 80/1269/EEC..... 180 hp
- II.1.6. Peak Torque (Net) @1400 rpm ..... 620 ft-lb
- II.1.7. Total Torque Rise: 38%
- II.1.8. Bore: 4.1in
- II.1.9. Stroke: ..... 5.0 In
- II.1.10. Displacement:..... 402.8 in^3
  - These ratings shall apply at 2,100 rpm when tested under the specified standard conditions.
  - Rating for net power shall be based on power available when the engine is equipped with alternator, air cleaner, muffler and on-demand hydraulic fan drive at maximum fan speed.

II.2. WEIGHTS:

- II.2.1. Operating Weight:..... 33,190 lb
  - As supplied with a 3.5 yd^3 general purpose bucket with bolt on cutting edge and 20.5 R 25 GP2B L5 Radial tires.

II.3. OPERATING SPECIFICATIONS:

- II.3.1. Static Tipping Load, Full Turn:..... 22.207 lb
- II.3.2. Breakout force: ..... 27,576 lb
  - For 3.5 yd^3 general purpose bucket with standard 20.5-R25 GP2B L5 Radial Tires.

II.4. TRANSMISSION CAPABILITIES FOR 938H WHEEL LOADER SHALL MEET THE FOLLOWOING:

II.4.1. Forward 1:..... 5 mph

II.4.2. Forward 2:..... 9.1 mph

II.4.3. Forward 3:..... 15.8 mph

II.4.4. Forward 4..... 26.8 mph

II.4.5. Reverse 1:..... 5 mph

II.4.6. Reverse 2:..... 9.1 mph

II.4.7. Reverse 3:..... 15.8 mph

- Maximum travel speeds are with empty bucket and 20.5 R 25 GP2B L5 Radial tires.

II.5. HYDRAULIC SYSTEM FOR 938H WHEEL LOADER SHALL MEET THE FOLLOWING:

II.5.1. Steering System Pump Type: ..... Piston

II.5.2. Hydraulic Cycle Time – Raise:..... 5.4 Seconds

II.5.3. Hydraulic Cycle Time – Dump:..... 1.4 Seconds

II.5.4. Hydraulic Cycle Time – Lower ..... 2.7 Seconds
Empty, float down:

II.5.5. Hydraulic Cycle Time – Total: ..... 9.5 Seconds

II.5.6. Pilot System – Pump Output:..... 77.9 gal/min

- Implement System (Standard), Piston Pump – Rated at 2,100 rpm and 1,000 psi.
- Cycle times shall be with rated payload.

II.6. BRAKE SYSTEM FOR 938H WHEEL LOADER SHALL MEET THE FOLLOWING:

II.6.1. Brakes – Full hydraulic enclosed wet disc brakes

- Break system shall meet all OSHA, SAE J1473 Oct90 and ISO 3450-1985 standards.

II.7. AXLES FOR 938H WHEEL LOADER SHALL MEET THE FOLLOWING:

II.7.1. Front: Axle:..... Fixed

II.7.2. Rear Axle: ..... Oscillating $\pm$ 12^{o}

II.7.3. Maximum Single-Wheel Rise and Fall: ……17 in

II.8. CAB FOR 938H WHEEL LOADER SHALL MEET THE FOLLOWING:

II.8.1. Cab for 938H Wheel Loader shall be constructed with an Integrated Rollover Protective Structure (ROPS) as a Standard that meets or exceeds SAE J1040 APR88 and ISO 3471:1994 criteria.

- Cab for 938H Wheel Loader shall also be constructed with a Falling Objects Protective Structure (FOPS) as a Standard that meets or exceeds SAE J231 Jan81 and ISO 3449:1992 Criteria.
- The cab of the 938H Wheel Loader shall provide the operator with a sound pressure level measured according to the procedures specified in ISO 6394:1998 that is 75 dB(A) for the cab when properly installed, maintained and tested with the doors and windows closed.

II.9. SERVICE REFILL CAPACITIES:

- II.9.1. Fuel Tank – Standard: ..... 65.3 gal
- II.9.2. Engine Cooling System: ..... 9.5 gal
- II.9.3. Engine Crankcase: ..... 4.6 gal
- II.9.4. Power Train: ..... 11.4 gal
- II.9.5. Front Differentials and Final Drives..... 15.1 gal
- II.9.6. Rear Differentials and Final Drives ..... 14 gal
- II.9.7. Hydraulic Oil Tank: ..... 23.5 gal

III. STANDARD EQUIPMENT:

The following standard equipment shall be provided for the 938H Wheel Loader:

III.1. ELECTRICAL:

- III.1.1. 24 Volt /65 Amp Alternator
- III.1.2. Back up alarm, adjustable
- III.1.3. Batteries, disconnect switch with removable key
- III.1.4. Lighting:
  - III.1.4.1. Turn signals with flashing hazard function
  - III.1.4.2. Two halogen headlights with high/low beam
  - III.1.4.3. Parking lights
  - III.1.4.4. LED brake and tail lights
  - III.1.4.5. Two front and rear halogen work lights, cab mounted
- III.1.5. Jumpstart receptacle

III.2. OPERATOR ENVIRONMENT:

- III.2.1. Air Conditioning
- III.2.2. Bucket/Work tool lever lockout feature
- III.2.3. Cab, ROPS/FOPS, pressurized and sound suppressed
- III.2.4. Coat Hook
- III.2.5. Controls, lift and tilt function
- III.2.6. Radio ready including antenna, speakers, two 12V/5A power outlets, includes cigar lighter
- III.2.7. Electric horn, dual actuation (steering wheel, implement pod)
- III.2.8. Sun Visor Front
- III.2.9. Cab heating with fresh air inlet and defrosting function
- III.2.10. Messenger System
  - III.2.10.1. Monitoring and logging of machine data
  - III.2.10.2. Clock
  - III.2.10.3. Operator keypad
  - III.2.10.4. Axle oil temperature
- III.2.11. Product Link

III.2.12. Operator display, Gauges
- III.2.12.1. Engine coolant temperature
- III.2.12.2. Fuel level
- III.2.12.3. Hydraulic oil temperature
- III.2.12.4. Speedometer
- III.2.12.5. Gear indicator
- III.2.12.6. Tachometer
- III.2.12.7. Transmission oil temperature

III.2.13. Operator display, Warning Indicators
- III.2.13.1. Glow Plugs
- III.2.13.2. Electrical, alternator output
- III.2.13.3. Engine inlet manifold temperature
- III.2.13.4. Engine oil pressure
- III.2.13.5. Fuel pressure
- III.2.13.6. Hydraulic oil temperature
- III.2.13.7. Parking brake
- III.2.13.8. Primary steering oil pressure
- III.2.13.9. Service brake oil pressure
- III.2.13.10. Transmission filter bypass
- III.2.13.11. Axle oil temperature
- III.2.13.12. Dual interior review mirrors
- III.2.13.13. Dual exterior review mirrors
- III.2.13.14. Interior operator lighting
- III.2.13.15. Storage compartments
- III.2.13.16. Lunchbox compartments
- III.2.13.17. Beverage holder
- III.2.13.18. Seat, KAB, Cloth, adjustable
- III.2.13.19. Seat belt, retractable, 2” wide
- III.2.13.20. Adjustable steering column/wheel
- III.2.13.21. Forward/Neutral/Reverse switch by implement controls
- III.2.13.22. LH door with sliding window
- III.2.13.23. RH sliding window and emergency exit
- III.2.13.24. Windshield wipers, front and rear
- III.2.13.25. Interval function for front and rear wipers
- III.2.13.26. Windshield washers, front and rear

III.2.14. Brakes, full hydraulic enclosed wet-disc
III.2.15. Break wear indicators with Integrated Braking System (IBS)
III.2.16. Front axle with locking differential
III.2.17. Drive line, extreme service
III.2.18. Engine, Cat C6.6 ACERT and ATAAC (Air to Air after Cooling) technology electronically controlled.
III.2.19. Fan, radiator, electronically controlled, hydraulically driven, temperature sensing, on demand.
III.2.20. Filters, fuel, primary/secondary
III.2.21. Fuel Priming pump (Electric)
III.2.22. Fuel/Water separator
III.2.23. Axle Oil Temperature Monitoring System
III.2.24. Muffler, sound suppressed
III.2.25. Radiator, unit core (6 fins per inch) with ATAAC (Air to Air After Cooling)
III.2.26. Starting aid (Glow Plugs)
III.2.27. Transmission, neutralizer lockout in messenger
III.2.28. Torque converter
III.2.29. Transmission, countershaft, automatic power shift (4F/3R)
III.2.30. Variable Shift control (VSC), messenger

III.3. OTHER STANDARD EQUIPMENT:

III.3.1. Automatic bucket positioned
III.3.2. Counterweight
III.3.3. Couplings, Caterpillar O-ring face seal
III.3.4. Fenders, Extension, Platform, rear
III.3.5. Guards, (bottom crankcase and fuel tank)
III.3.6. Hitch, drawbar with pin
III.3.7. Non-metallic power tilting hood
III.3.8. Hoses, Caterpillar XT
III.3.9. Hydraulics, Load Sensing
III.3.10. Kick-out, lift, automatic
III.3.11. Kick-out, tilt, adjustable
III.3.12. Linkage, Z-bar, cast cross tube/tilt lever
III.3.13. Oil sampling valves
III.3.14. Remote diagnostic Pressure Taps
III.3.15. Sight Gauges: Engine coolant, hydraulic oil and transmission oil level
III.3.16. Steering, load sensing
III.3.17. Vandalism protection cap locks

III.4. HYDRAULICS:

III.4.1. Load sensing implement system, pressure sensing

III.4.2. Load sensing steering system

III.4.3. Two function hydraulic valve (lift and fill)

III.4.4. Two lever operator implement controls

III.5. ANTIFREEZE:

III.5.1. Premixed 50% concentration, Extended Life Coolant, freeze protection to -29^{o} F.

IV. OPTIONAL EQUIPMENT:

IV.1. Auto Lube System

IV.2. Axle Oil Cooler

IV.3. Automatic Front and Rear Differential Lock

IV.4. Axle Ecology Drain

IV.5. Crankcase Guard

IV.6. Fuel Tank Guard

IV.7. Oil Pan Guard

IV.8. Auxiliary Cab Lights

IV.9. Halogen Lighting System (Road & Working)

IV.10. Ride Control

IV.11. Air Suspension Seat

IV.12. Corrosion Resistant Package

IV.13. Turbine Pre-cleaner

IV.14. Secondary Steering

V. WARRANTY:

5 years, 9500 hours on power train & Hydraulics

VI. BUCKET:

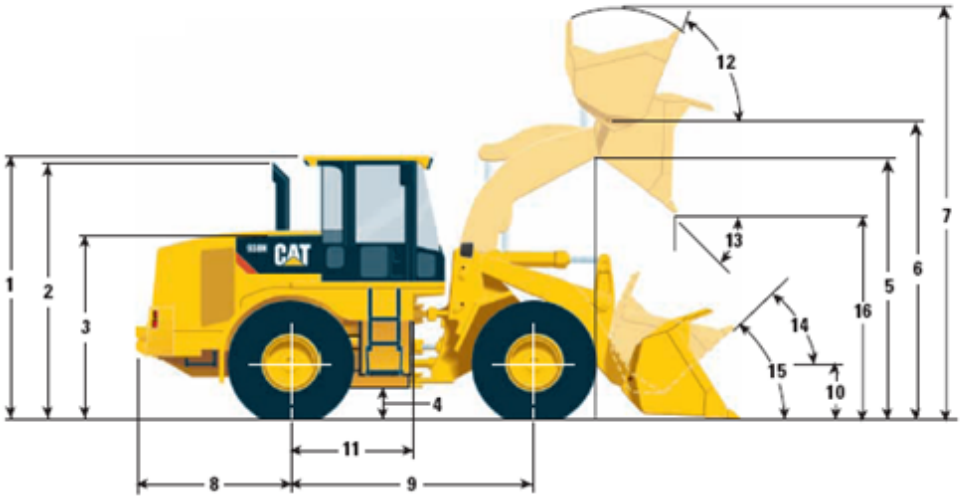
3.5 Cu YD Bucket with bolt on cutting edge

VII. TIRES:

20.5 R 25 GP2B L5 Radial

VIII. DIMENSIONS:

All dimensions are approximate and may vary with work tool.



1	Height to top of ROPS	11'0"
2	Height to top of exhaust pipe	10'2"
3	Height to top of hood	7'11"
4	Ground clearance/Standard tire See Chart below for other tires	1'3"
5	Lift arm clearance @ maximum lift	11'3"
6	Bucket pin height @ maximum lift	12'7"
	Bucket pin height, optional high lift	13'11"
7	Overall height – bucket raised	17'4"
8	Center line of rear axle to edge of counterweight	6'1"

9	Wheelbase	9'10"
10	Height to center line of axle	2'3"
11	Center line of rear axle to hitch	4'11"
12	Rack back @ maximum lift	65°
13	Dump angle @ maximum lift	50°
14	Rack back @ carry	50°
15	Rack back @ ground	42°
16	Dump clearance @ maximum lift and 45° dump	9'1"

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