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.1.3. 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 in³

• 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 yd³ 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 yd³ general purpose bucket with standard 20.5-R25 GP2B L5 Radial Tires.
II.4. TRANSMISSION CAPABILITIES FOR 938H WHEEL LOADER SHALL MEET THE FOLLOWING:

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 ± 12°
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.2.13.15. 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.3.15. 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°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.

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<tbody>
<tr>
<td>1</td>
<td>Height to top of ROPS</td>
<td>11'0&quot;</td>
</tr>
<tr>
<td>2</td>
<td>Height to top of exhaust pipe</td>
<td>10'2&quot;</td>
</tr>
<tr>
<td>3</td>
<td>Height to top of hood</td>
<td>7'11&quot;</td>
</tr>
<tr>
<td>4</td>
<td>Ground clearance/Standard tire See Chart below for other tires</td>
<td>1'3&quot;</td>
</tr>
<tr>
<td>5</td>
<td>Lift arm clearance @ maximum lift</td>
<td>11'3&quot;</td>
</tr>
<tr>
<td>6</td>
<td>Bucket pin height @ maximum lift</td>
<td>12'7&quot;</td>
</tr>
<tr>
<td></td>
<td>Bucket pin height, optional high lift</td>
<td>13'11&quot;</td>
</tr>
<tr>
<td>7</td>
<td>Overall height – bucket raised</td>
<td>17'4&quot;</td>
</tr>
<tr>
<td>8</td>
<td>Center line of rear axle to edge of counterweight</td>
<td>6'1&quot;</td>
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<tr>
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<tbody>
<tr>
<td>9</td>
<td>Wheelbase</td>
<td>9'10&quot;</td>
</tr>
<tr>
<td>10</td>
<td>Height to center line of axle</td>
<td>2'3&quot;</td>
</tr>
<tr>
<td>11</td>
<td>Center line of rear axle to hitch</td>
<td>4'11&quot;</td>
</tr>
<tr>
<td>12</td>
<td>Rack back @ maximum lift</td>
<td>65°</td>
</tr>
<tr>
<td>13</td>
<td>Dump angle @ maximum lift</td>
<td>50°</td>
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<tr>
<td>14</td>
<td>Rack back @ carry</td>
<td>50°</td>
</tr>
<tr>
<td>15</td>
<td>Rack back @ ground</td>
<td>42°</td>
</tr>
<tr>
<td>16</td>
<td>Dump clearance @ maximum lift and 45° dump</td>
<td>9'1&quot;</td>
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