A Checklist and Sample Specifications for Front End Loaders

HERPICC

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A CHECKLIST AND SAMPLE SPECIFICATIONS FOR
FRONT END LOADERS
2–3 cyd ARTICULATING, RUBBER TIRED, 4-WHEEL DRIVE

MAY 1983

PURDUE UNIVERSITY - SCHOOL OF CIVIL ENGINEERING
in cooperation with
INDIANA DEPARTMENT OF HIGHWAYS
INDIANA ASSOCIATION OF COUNTY COMMISSIONERS
INDIANA ASSOCIATION OF CITIES AND TOWNS
FEDERAL HIGHWAY ADMINISTRATION
Attached is a checklist and sample specifications for purchasing front end loaders for use in the maintenance of Indiana's local roads and streets.

This checklist and the sample specifications provide for individual preferences. They are not intended to dictate decisions or restrict bidding. If followed, they will assure a durable piece of maintenance equipment well suited for the uses placed on front end loaders by Indiana Counties, Cities and Towns.

A general observation of those with experience is that reducing specification requirements to obtain a lower first cost is nearly always a poor economic decision.

This information was developed by a task group on Maintenance Equipment Guidelines composed of the following:

John Dalton, Street Commissioner, Bedford
Jim Harper, Street Commissioner, Crawfordsville
Prof. Lloyd Jones, Civil Engineering, Purdue University
Sheril Page, retired, Dugger
Eugene Shurte, LaPorte County Road Supervisor
J. William Strange, Hancock County Highway Engineer
Dick Thompson, Huntington County Engineer
Reno Ulerich, retired, Kokomo
Sean Watt, Director of Division of Transportation, South Bend
Wallace W. West, Indiana Department of Highways

HERP ICC is proud to acknowledge the time and effort these men put into developing these items.

A previous checklist and sample specifications for "Single and/or Tandem Axle Dump Trucks" has been published. If you wish to have a copy please contact HERP ICC. If you have comments or suggestions, please write to me.

Sincerely,

Charles F. Scholer
Associate Director
HERP ICC

[Signature]

Address Reply to:
HERP ICC
Civil Engineering Building
West Lafayette, Indiana 47907

SCHOOL OF CIVIL ENGINEERING AND INDIANA DEPARTMENT OF HIGHWAYS
The following pages contain various items to be considered when seeking bids for front end loaders.

General description of equipment being bid.
Statement of requirement of manufacture of equipment.
Statement of standardization of all component parts of unit.
Statement of parts availability and access.
Statement of location of manufacturer and/or assembly of unit(s).
Statement of bid submitting requirements.
Statement of indemnification of local agency concerning patent devices.
Statement concerning description of term "or equal".
Statement of terms for accepting unit(s), new and used, year hold overs, inspection of unit(s), local, state and federal requirements, disposition of trade-in unit(s), location of units.

Bucket

Size ____ cubic yards.
Width ____ inches (must extend 3" beyond outside face of tires).
Cutting Edge or Teeth (Bolt-on) (Welded).
Corner Guards (yes) (no).
Spill Guard (yes) (no).
Automatic Leveler (yes) (no).

Bucket Type - (General Purpose) (Low Profile) (Light Material) (Multi-Purpose 4 in 1) (Side Dump) (Extra Heavy Duty).

Grab Hooks (yes) (no).
Fork Lift Attachment (yes) (no).
Multiple Attachment Mechanism (yes) (no).
Alternate Sizes (yes) (no).
Bucket Swing ____ degrees.

Checklist

April 26, 1983

HERPICC
Tipping Load - Full Turn _____ pounds.

(This capacity is with basic machine without counterweight and hydroinflation, with standard tires and standard General Purpose Bucket).

Break-Out Force - _____ pounds (Equipped same as tipping load).

Automatic Hydraulic Cylinder Kickout at maximum dump lift arm height.

Minimum distance from front of tires to front edge of bucket with maximum dumping height and at 45 degrees dump angle is _____ inches.
Vendor shall provide the following engine information:

<table>
<thead>
<tr>
<th>Vehicle Make</th>
<th>Model</th>
<th>Year</th>
</tr>
</thead>
</table>

**Engine (Gasoline) (Diesel) (Natural Gas) (Propane)**

<table>
<thead>
<tr>
<th>Make</th>
<th>Model</th>
</tr>
</thead>
</table>

**Number of Cylinders**

<table>
<thead>
<tr>
<th>Stroke-cyle.</th>
</tr>
</thead>
</table>

**Bore and Stroke**

<table>
<thead>
<tr>
<th>x</th>
</tr>
</thead>
</table>

**Displacement**

<table>
<thead>
<tr>
<th>cubic inches.</th>
</tr>
</thead>
</table>

**Taxable Horse Power**

<table>
<thead>
<tr>
<th>Continuous (Net) Flywheel Horse Power</th>
<th>@</th>
<th>R.P.M.'s.</th>
</tr>
</thead>
</table>

**Governed Speed**

<table>
<thead>
<tr>
<th>R.P.M.'s.</th>
</tr>
</thead>
</table>

**Peak Torque**

<table>
<thead>
<tr>
<th>ft. lbs. @</th>
<th>R.P.M.'s.</th>
</tr>
</thead>
</table>

**Compression Ratio**

<table>
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<tr>
<th>:</th>
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</thead>
</table>

**Carburetion (Carburetor) (Naturally Aspirated) (Turbo Charged)**

<table>
<thead>
<tr>
<th>(2Bbl)</th>
<th>(4 Bbl)</th>
<th>(Other)</th>
</tr>
</thead>
</table>

**Cooling System Radiator Capacity**

<table>
<thead>
<tr>
<th>quarts.</th>
</tr>
</thead>
</table>

**Overflow recovery system.** (Yes) (No)

**Corrosion Resistor.** (Yes) (No) Type | Location |

**Silicone Hose System.** (Yes) (No)

**Engine Block Heater(s).** (Yes) (No) Number | Size | Watts.

<table>
<thead>
<tr>
<th>Type</th>
<th>Location</th>
</tr>
</thead>
</table>

**Weatherhead Connection** (Yes) (No) Location

**Radiator Fan.** (Standard) (Reversible)

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Filters Air-Type Location
Prefilter (Yes) (No) Type Location
Oil-Number of filters Location
Oil-Extra Capacity (Yes) (No) Type Location
Fuel - (Yes) (No) Type Location
Water (Yes) (No) Type Location
Hydraulic External Mounted (Yes) (No)

Starter Rated Heaviest Duty for this application by manufacturer.

Alternator/Generator amperes (Brush) (Brushless) Make & Model

Regulator (Integral) (External)

Emergency Shut Down Warning System High Water Temperature - Low Oil Pressure
- Low Hydraulic Pressure - Low Air Pressure

visual and audible warning instruments.

Ignition (Compression Ignited) (Spark Ignited)

Batteries Quantity (Standard) (Maintenance Free) Voltage

Ampere Hour Capacity Cold Crank Power @ 0 degree F.

Dry weight (each) Group Number

Exhaust System

Muffler - (Standard) (Stainless Steel) (Horizontal) (vertical)

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Electrical System

Headlights - Type and Location ________________________________.
Tail Lights - Type & Location ________________________________.
Working Lights - Type & Location ________________________________.

Watts ___________________________ Candle Power ___________________________.

Strobe Lights - Candle Power ___________________________ (Fixed) (Variable)
Separate Power Source (Yes) (No)
Mounting Location(s) ________________________________.

Transmission (Manual) (Automatic) Model ________________________________.

Number of (Speeds) Forward _______ Reverse _______.
Number of Speed Ranges ___________________________.
Top Speed Forward _____ Top Speed Reverse _____ in each Range.

Auxiliary Cooler (Yes) (No) Temperature Gauge (Yes) (No)
Auxiliary Filter (Yes) (No)
Extended Warranty (Yes) (No)

Operating Weight ________________________________ pounds.

Front Axle (Standard) (No Spin)

Rear Axle Manufacture ___________ Model _______ (Standard) (No Spin)
(Hydraulically) (Air) Actuated Locking Mechanism
(External) (Internal) Planitaries
Oscillating (Yes) (No)
Tires (radial) (Tubeless) (Tube Type)
Tread Style - L-2___________________ L-3__________________.
Tire Size - _______________Ply_________Quality__________.
Vehicle Clearance Circle (outside diameter) ____________________.
Wheelbase ________________________
Minimum Ground Clearance ____________________________.

Brake System
(Caliper) (Disk Type) (4-wheel Dual Air/Hydraulic)
(4-wheel Power Actuated/Wet)
Parking Brakes Specifications_________________________.
Automatic Brake Set in event of Low Air Pressure.
Automatic Transmission Disconnect.
Spitter Valves (Yes) (No)
Air Dryer (Yes) (No) (Electric) (Alcohol)
Pancake Clearance from inside of tires ________________ inches.

Fuel Tank
Size of tank ____________gallons.
Tank Marking (Diesel #1 or #2) (Gasoline - Regular, Unleaded, etc.)
Sight gauge on tank (Yes) (No)
Security Package (Yes) (No)
Lockable Tank Caps (Fuel) (Hydraulic) (Yes) (No)
Engine Side Panels (Yes) (No)
Radiator (Yes) (No)

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Cab Ventilated and Insulated

Number of Doors (1) (2)
  (Front Mounted) (Rear Mounted)

Tinted Glass (Yes) (No) (Windshield Only) (All Windows)

Inside Dome Light (Manual Operated) (Door Operated)

Cigar Lighter (Yes) (No)

Seat (Standard) (Adjustable Suspension)

Horn(s) (Electric) (Air)

Heater and Defroster (Standard) (Heavy Duty) (Front) (Rear)

Air Conditioning (Yes) (No) (Standard) (Deluxe)

Sun Visors (Yes) (No)

Radio (Yes) (No) (AM) (AM/FM)

Windshield Wipers & Washers (2 Speed) (Intermittent) (Electric)
  (Air) (Front) (Rear)

Emergency Access Opposite Side from Door (Yes) (No)

Dual Mirrors - Size ___________ • ___________.
  Location (Inside) (Outside)

Adjustable Convex Mirror on Right Side (Yes) (No) Size ________.

Backup Alarm (Yes) (No) Type ________________________________.

Exterior Grab Handles Type _________________________

Fenders (Yes) (No) (Front) (Rear)
Dash Mounted Gauges

Fuel (Switchable to either tank) (Separate gauge each tank)
Tachometer (Yes) (No)
Hourmeter (Yes) (No)
Ammeter (Light) (Needle Type) (Calibrated)
Oil Pressure (Light) (Needle Type) (Calibrated)
Water Temperature (Light) (Needle Type) (Calibrated)
Air Pressure (Needle Type) (Calibrated)
Transmission Temperature (Light) (Needle Type) (calibrated)
Hydraulic Oil (Pressure) (Temperature) (Yes) (No)

Warning Lights

High Water Temperature/Low Oil Pressure Emergency Shut Down Warning System shall be dash mounted. (Yes) (No)

Paint Color_________________________ Type_________________________

Preparation______________________________________________________________________

Warranty of Unit

(Extended Warranty) (Purchaser Designated Option)
(Maufacturers Standard) (Repair Guarantee)
(Scheduled Maintenance Guarantee)
(Guaranteed Minimum Repurchase Price Schedule)

Description______________________________________________________________________

______________________________________________________________________________

Manuals Operators, parts and service (Number of each required_______).

Delivery Time

List of number of weeks required for delivery of Unit(s) from date of order__________ weeks.

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