HIGHWAY DEPARTMENT

Patrick Gavinski, Highway Commissioner

Telephone (608) 355-4855/Fax (608) 355-4398 P.O. Box 26, Baraboo, WI 53913

Quotations for: Two (2) Tri Axle Patrol Truck Accessory Equipment.

Quotations will be reviewed:

Location: Sauk County Highway Department

Date: April 10, 2019

Time: 9:30 A.M.

Contact Person:

Sauk County Highway Department: Patrick Gavinski
Sauk County Highway Commissioner
Telephone: 608-355-4855

Sauk County Highway Department reserves the right to accept any quotation or option deemed most advantageous to Sauk County. The submitters are reminded to make sure their quotation package is complete and has been properly filled out and signed before submittal.

Submitter: _____

Name: _____

Address: _____

_____

Telephone: _____

REQUEST FOR PRICE QUOTATIONS ON TRI-AXLE ACCESSORY EQUPIMENT

GENERAL PROCEDURE

To comply with this REQUEST FOR PRICE QUOTATIONS, the following general procedure and attached specifications are to govern. All quotations must be in the office of the Sauk County Highway Commissioner by Wednesday, April 10, 2004 at 9:30 A.M.

Quotations must be sealed and properly identified with the name and address of the company submitting the quotations. Each quotation must be in a separate container or envelope and marked "Quotation for Tri-Axle Accessory Equipment.

All quotations must be submitted on the attached forms in order to be considered by Sauk County Highway Committee. The following items shall constitute a complete quotation.

1. General Procedure Sheet.
2. Specification list.
3. Completed Quotation Form(s).
4. Warranty Questionnaire.
5. Detailed specification sheet and any additional information deemed advisable

No certified cashiers check or bonds will be required with any quotation, but satisfactory evidence of ability to make delivery of the equipment as specified must be submitted as agreed by both parties.

All quotations will be opened and read by the Highway Committee at the time and date specified above.

The Committee reserves the right to consider all quotations for a period of not exceeding thirty (30) days from date of opening. The Highway Committee will either accept a quotation or reject all quotations within that period of time.

Each company submitting a quotation will be allowed to have a representative appear before the Committee to explain their quotation. A time limit for any such presentation will be established by the Committee at the time that the quotations are opened. The Sauk County Highway Committee reserves their right to reject any or all quotations or parts thereof, and to waive any technicality in any quotation submitted, and to accept such quotations as they deem to be most advantageous to Sauk County

By Order of the Highway Committee

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Patrick Gavinski
Sauk County Highway Commissioner

Dump Bodies and Hoist Specifications

This equipment must be new and the latest type and model manufactured. Enclosed you will find bid specifications for several pieces of equipment. We would like these specifications met. However, it is not our intention to write anyone out of the bidding. Should you need an exemption to these specifications, please note same on your proposal and we will discuss it with you at the review of your proposal.

Body to be mounted on Tri-Axle truck chassis at lowest possible height 2" to 3" behind cab, without drilling flanges of the truck frame, and without welding to the frame. Steel referred to as "high tensile", "high resist", "high strength", etc. must conform to A.S.M.E. A606 grade 50 specifications. Certification of material used must be submitted with your bid forms. The body and hoist are to from the same manufacturer.

A. GENERAL:
   1. 17' 6" Floor Length X 84" Inside dimensions steel body.
   2. 18 Yard capacity.
   3. 158" cab to trunnion dimensions with 18" pivot.

B. UNDER-STRUCTURE:
   1. Western style, no cross members.
   2. 8" tubular longsills, 7 GA high tensile steel-rust proofed inside.
   3. Two OSHA support props with warning decals mounted on the outside of box frame to Support Empty Body.

C. FLOOR:
   1. Full 1/4 AR450 rated 145,000 PSI yield strength 200,000 PSI tensile strength steel with continuous welded seams.
   2. Seamless floor and side sheets are joined by a continuous welded horizontal seam.
   3. Full depth rear binder apron.

D. BODY SIDES AND REAR:
   1. Full 1/4" AR450 with 175,000 PSI Yield Strength and 200,000 PSI tensile strength steel and are smooth and have no External Posts or Bracing.
   2. Body to be continuous weld design.
   3. 62" at Front Wall
   4. 201 Stainless Steel Fully boxed upper rails.
   5. 201 Stainless Steel Full-length Rub Rail
   6. Front mounted side ladders. – 4 Rung Design
   7. 201 Stainless Steel Full depth rear corner posts with Two Oval Light Cutouts
   8. 201 Stainless Steel Rear Bolster
   9. Steps and grab handle inside and outside of dump body at front driver side.
   10. Pockets for side boards shall be a full 2" wide at front and back.
   11. Rubber mounting pads between dump box long sills and truck frame.
   12. Lifting points to have steel brackets mounted on all four corners of body to be used for
   13. Front pockets to be one-piece design and height of cab shield.
   14. Rear pocket to be minimum of 8" high.
   15. Mud flaps installed in front of and behind pusher axle and also in front of and behind Tandems. Rear Flaps Behind Tandems to be Removeable. Must have a storage area For removeable flaps.

E. HEADSHEET:
1. Full 1/4" AR450 with 200,000 PSI tensile strength steel.
2. 62" Height.
3. Two horizontal "V" brake reinforcements in front wall.

F. CABSHIELD:
1. 7 gauge 201 stainless steel construction
2. 1/2 cabshield (20" to 24") X 84" Overall Width.
3. Cabshield to be full width of body.
4. 100% welded to body and to be gusseted as not to interfere with cab.

G. TAILGATE: - Air Release Control With In Cab Switch.
1. Full 1/4" AR450 with 200,000 PSI tensile strength steel
2. 54" height.
3. Single acting.
4. Chain storage pins.
5. Double Wall Design Full Ribbed Panel
6. Flame cut heavy duty hardware.
7. 1" thick hold down hooks.
8. 1-1/2" upper tailgate hinge plates.
9. 1-1/4" upper and lower hinge pins in double shear.
10. Adjustable spreader chains.
11. Positive anti-jump chain locks.
12. Fully adjustable linkage both sides.

H. PAINT:
1. Inspection prior to painting of equipment by Sauk County.
2. Body to be fully sandblasted after all items have been installed on the body.
3. One (1) coat primer.
4. Three (3) coats finish color PPG Paint
5. Color to match cab - truck dealer will supply color code.
6. Body to be fully undercoated after Body is Installed on Chassis

I. RUST PROOFING:
1. Rust proof to be complete on dump body. All enclosed areas to be drilled and sprayed.
2. Rust proofing must be coordinated with Sauk County Shop Foreman.

J. HOIST:
1. To be powered by front mounted central hydraulics.
2. NTEA class 110 rating of 29.1 tons with cable pull off valve.
3. Hydraulic cylinder to be trunnion mounted.
4. Greaseless composite Teflon bearings at all pivot points.
5. Rear Hinge to be fully greaseable and have removeable hinge pins
6. 50 degree dump angle.
7. Shall have a pull off control that prevents cylinder from over extending.
8. Fiver Year Warranty for Hoist
9. Hoist to be made in the USA

K. ELECTRICAL:

1. All wiring for the body lights shall be a one-piece harness and wired into a junction box located within frame rails at the rear of truck in a county approved location. The harness Will be labeled with each function every 18" – 24".
2. High quality, double jacketed (Non aluminum) wire shall be of adequate gauge to carry anticipated current loads.
3. All lights to be recessed, rubber mounted, and each light to have its own ground wire.
4. Recessed tail lights and back-up lights to be mounted in rear corner post. Truck Lite
5. Clearance lights to be Truck Lite Bullet Style Lights
6. Stainless Steel Frame mounted Light Boxes with 4" L.E.D. S/T/T and B/U Lights
7. Grommets to be used wherever wire passes through metal.
8. All wiring in loom with heat shrunk connectors and sealed joints and all eyelet connectors to be seal coated. Any Connection will need to be Soldered and Heat Shrunk
9. All plug connections to be packed with dielectric grease.
10. Cab mounted, central switch box for controlling auxiliary lighting. 6 Bank switch panel
11. All the add-on accessories shall be into trucks main fuse block, or 6 Bank switch panel.
12. All add-on circuits shall be labeled and a simple wire diagram provided.
13. Two recessed rear strobe lights (FS Target Tech Dot) mounted rear upper corners of Dump Body.
14. Engineered Drawing of all Axillary Wiring incorporated into the Force America Wiring

L. BACK-UP ALARM:

1. Back-up alarm to be furnished with truck chassis and remounted if moved by Vendor.

M. HITCH:

1. 1" steel plate to be flush mounted at rear of truck frame for hitch mounting, with 3/4" D-Rings and spring-loaded air brake glad hands mounted in County approved location.

N. PARTS AND SERVICE MANUALS:

1. Supply parts and service manuals for dump body and hydraulic system.

O. INSTALLATION:

1. All equipment to be installed and to function correctly.
2. Assembled unit must meet or exceed all regulatory agency requirements.

P. HYDRAULIC HOSE AND STAINLESS STEEL LINES:

1. High pressure hose shall be not less than 3/4" I.D., have a working pressure of 2000 lbs. minimum and a test pressure of 5000 lbs.
2. Low pressure hose for return shall be of 1" I.D. minimum and have a working pressure of 250 lbs. and a test pressure of 1000 lbs.
3. Plow hoist and power reverse hoses to reach end of frame rails in front of grill.
4. Wing cylinder hoses to reach right frame rail and grill area with 1' of slack.
5. All Long Runs for Wings, Plow, Spreader, Pre-Wet and Anti-Ice to be Stainless Steel Lines with Short Wip Hoses.
6. Spreader hoses to reach rear of frame to a mounted hydraulic manifold - location to be discussed with Sauk County.
7. Dump body to be mounted on chassis and have capabilities for installation of V-box with Liquid Combo Unit for winter operation

Q. PUSHER AXLES:

1. Axle shall be a Hendrickson SCT13 self-steering axle 13,200 IB. Capacity 15" x 4" brakes automatic slack adjusters, air ride/air lift, in cab raise/lower controls, auto raise in reverse, with regulator mounted outside of cab hold back - quick release – brake protector valves, painted black, and are hub piloted – Tires and Wheels provided by Sauk Co.

R. ELECTRIC BODY VIBRATOR & TARP SYSTEM:

1. Unit shall be a Cougar DC3200 3,000 heavy duty electric dump truck body vibrator with-in cab controls or equal.
2. Aero 575 Series Tarp System with Full Tarp Housing, Aluminum Arms, Heavy Duty Asphalt Tarp Material, Dual Arm System. Tarp housing mounted directly behind the cab-shield.

HYDRAULIC PUMP:

The hydraulic pump shall be a U.S. manufactured axial piston pressure and flow compensated load sensing type. The pump shall be cast iron construction and rated to 6.0 cubic inches per revolution at maximum stroke. The pump shall have a 2" suction line. The pump shall be rated for up to 2600 rpm and 3000 PSI. The pump shall have a 1 ¼" keyed drive shaft and SAE type C mounting flange.

SHUT DOWN SYSTEM:

A single normally open, two position, two way, poppet style solenoid valve capable of stopping oil flow to the hydraulic system when actuated. The valve shall be mounted directly to the hydraulic pump discharge port. The valve assembly must also incorporate a high-pressure relief valve to protect the system from over pressurizing during system shut down. This solenoid valve shall be wired to a float type level indicator that is mounted from the top of the reservoir. The system shall be designed so that when the float contacts close, the solenoid valve stops pump flow and an enunciator in the cab that is on a control panel alerts the driver. The control panel will also incorporate an override switch wired to de-energize the shut down system to facilitate diagnostics and equipment storage.

MOUNTING:

The hydraulic pump shall be mounted with shaft center line parallel to the crankshaft center line and at a level to create not more than a **three degree angle** on the drive line. Pump mounting shall be incorporated with a bracket fabricated to mount in the extended frame rails of the truck.

DRIVE LINE:

The hydraulic pump shall be driven directly off the engine crankshaft via a splined drive line to allow for movement. The drive line shall include grease fittings on both u-joints. (SPICER model 1310 series).

HYDRAULIC RESERVOIR:

The hydraulic reservoir will be mounted between the Cab and the Body. This is a Slim style tank and must not exceed 9" overall Space between the cab and the body. It will be frame mounted with Rubber Mounts, be 201 stainless steel construction with 38 gallon capacity. The reservoir must be equipped with the following:

Lockable basket type filler breather cap
Magnetic drain plug
Two inch NPT suction with 100 mesh screen type filter
Separate return port for control drain line
Sight temperature gauge externally mounted
In-Tank filtration with cartridge filter and condition gauge

The hydraulic reservoir shall also be equipped with an electric level or level/temperature sending unit to be wired to the control panel and back lit for designated warning.

The valve shall be mounted on a plate attached to the outside of the reservoir. All hoses must connect to the bottom of the valve, and exit the rear of the reservoir/valve enclosure combination through a integral hose guard. The enclosure cover must have a gasketless passive seal design, to eliminate spray while venting moisture. The valve must be exposed on all sides with the cover removed, for ease of service. Further, the valve mounting plate must swing out for ease of valve service and hose replacement. Oil filter, filler breather, and level/temperature sender must be enclosed by the enclosure cover.

FILTER:
Hydraulic oil filter shall be mounted in the reservoir. Hydraulic filter shall be rated for no less than 80 GPM. Filter shall be ZINGA model TS-1200-25-1-0 with ZSRE-409-10 micro-glass filter element and be equipped with a 12 VDC filter condition indicator.

CONTROL CENTER:
Controls for all valve functions and electronic spreader control will be integrated into a single, self-contained control center. The control center shall be a padded armrest style that is ergonomically designed. Control center shall be modular in design for ease of installation and service, and wiring and connectors shall be keyed and color-coded throughout. All components must be durable for long life and trouble free operation.

The electronic controller shall be a fully proportional multi-stick controller to operate all cylinder functions. Multi-stick PWM driver electronics shall include as standard the capability to control at least 9 proportional outputs simultaneously. Controls for spreader must be located on armrest at the operator's fingertips. There shall also be four auxiliary rocker switches available with an additional fifth switch being the main power switch for the spreader control.

For ease of operation the multi-stick control shall include the following features: LED-backlit nomenclature for all joystick functions and a momentary push-button at the top of the hoist stick to provide hoist-interlock. The "Hoist" decal shall be illuminated amber while disabled, and change to green backlighting when the driver engages the hoist interlock button. The green "Hoist" LEDs shall remain illuminated while the hoist is under operation and shall time-out after a period of hoist inactivity that is selectable from 0 to 15 seconds.

The plow, wing, scraper, or other joysticks shall have the option to include a momentary pushbutton for activation of remote spreader standby, remote spreader blast, or electric joystick interlock. The multi-stick communication hardware/software shall include 4 integral float options. The use of add-on float modules is unacceptable. For flexibility of use the integral float programming shall have the following standard features:

To ensure longevity of performance all lighting to be solid-state LED technology. The use of incandescent lamps or EL backlighting is unacceptable.

All function joysticks shall be of contact-less Hall-effect design and offer up to a 5-Million cycle life. The use of potentiometers is unacceptable. To increase safety of operation, joystick communication hardware/software shall include the following standard features:

- Input power monitor circuitry with power quality diagnostics,
- Redundant dual-reference joystick signals for each joystick axis
- Joystick input off-center checking on all axes and output shutdown on system power-up
- Joystick out-of-range fault condition checking and output shutdown
- True outputs off with joystick centered
- LED-backlit nomenclature shall illuminate and flash RED when any error condition exists and an audible alarm shall sound.
- LED-backlit nomenclature shall blink ON/OFF with increasing frequency as the corresponding function is increased in speed to give the operator visual feedback of each joystick output.

The multi-stick control joystick outputs shall be communicated over the spreader control CAN bus to the Valve Module. Spreader control outputs and joystick control outputs shall be operated on the same Valve Module, or multiple modules as necessary.

This unit will be a (4) Four Joystick and will operate the Following Functions. Left to Right.

- Body Hoist with Interlock – 2-Way
- Left Wing with Interlock Used for Hydraulic Ext. Wing – 4-Way
- Reversible Plow Control – 4-Way
- Right Wing with Interlock Used for Hydraulic Ext. Wing – 4-Way

Multi-stick control shall communicate all joystick data over the spreader control CAN bus. For ease of service and diagnostics the multi-stick control shall have the following easily accessible through the spreader control calibration menus:

- Unique MIN/MAX adjustments for each joystick function (forward, back, left and right)
- On-screen output status indicators for each PWM output
- Audible and visible output error status indicators with flashing error codes for each joystick function

The multi-stick control joystick outputs shall be communicated over the spreader control CAN bus to the Valve Module. Spreader control outputs and joystick control outputs shall be operated on the same Valve Module, or multiple modules as necessary.

The electronic spreader control shall be designed for precise, closed-loop control of granular and prewet liquid applications and operate on a CAN Bus protocol. The Central Processing Unit (CPU) shall have keyed and color coded connections to prevent incorrect installation. The unit shall have USB connectivity for file and data transfer, Ethernet connection, a J1939 communication port for connection to the vehicle bus, a second CAN bus communication port for spreader-only data use, a J1708 connection for a road and air temperature sensor, and a RS-232 connection for AVL communication. The CPU shall have on-board diagnostics, which provide real-time status of CAN bus communication, processor activity, and power status. The CPU shall have a built-in audible alarm for diagnostic purposes. The CPU operating system shall NOT be Windows-based.

The spreader control interface shall have two, color-coded, continuous rotation encoders for granular and spinner control. These encoders shall have integrated push buttons for blast mode and stand-by. The controller shall have a third multifunction 4-way joystick that has an integrated rotary encoder and push button, that can be used for menu navigation, prewet liquid control, or an additional conveyor function. There shall be four, two-way soft keys included in the interface that are generically-labeled and user-configurable for different functions depending on the equipment needs. The controller shall also utilize USB technology that is capable of using a Supervisor key to provide access to the calibration parameters without the access code. The entire operator interface shall be backlit and encased in flexible silicone material with wear-limiting coating applied to the base silicone material. The operator interface shall communicate on the spreader control system CAN bus. The use of an LCD touch screen to change spreader function settings while driving is unacceptable.

The spreader control display shall be a remotely-mounted, 10" diagonal color TFT LCD with capactive touch and a low-profile 16:9 widescreen format and minimum of 1024X600 pixel resolution. LCD shall have variable LED backlighting. CCFL backlighting is unacceptable. The display shall include a scratch-resistant polycarbonate lens with anti-glare coating. Display unit shall have a built-in audible alarm. To avoid driver distraction, the display shall have no integrated dials or pushbuttons. Display shall communicate on the spreader control system CAN bus.

The operator menus shall be color-coded to match the encoder knobs on the operator interface. The display shall be capable of displaying the following on-screen simultaneously: Granular material name, granular material set point and actual application rate including units of measure, prewet liquid name, prewet liquid set point and actual application rate including units of measure, spread width, road temperature, air temperature, material usage total, liquid usage total, vehicle speed, and current date and time. The operator shall have the option of selecting five data items to be displayed onscreen during operation. The display will also provide four warning light indicators for low oil level, body up, oil temp, and filter bypass. These warning lights are to be functional regardless of spreader operation or status.

The display shall have integrated antennas for GPS and cellular communication. Cab mounted antennas are unacceptable. The display shall be capable of communicating wirelessly with road and air temperature sensors.

A proportional PWM driver and input module (Valve Module) shall be remotely-mounted inside the hydraulic valve enclosure for control of both spreader control and joystick control outputs. The entire Valve Module shall be of rugged design for the mobile environment, and must meet IP68 requirements for dust and water ingression. The Valve Module shall include a minimum of ten proportional PWM outputs with potted valve output connections. All outputs shall be protected against short-circuits. Outputs shall be current-compensated and have adjustable PWM frequency. There shall be a minimum of five switch-to-ground type inputs for monitoring hydraulic system inputs such as oil level, body up, High and Low filter bypass, and oil temperature warnings. A minimum of two switch-to-ground type pulse train inputs shall be included in the Valve Module for connection of feedback sensors such as auger feedback and prewet liquid flowmeter feedback. A keyed and color-coded connection shall be provided for CAN bus connection to the CPU module inside the cab. A second CAN bus connection must be provided for daisy-chaining of multiple Valve Modules within the valve enclosure. Diagnostic LED's shall be included for every input and output on the Valve Module, as well as a power status LED and CAN bus activity LED's. The Valve Module shall be potted.

The integrated spreader control and joystick control system shall be equipped with a qualified ESTOP device that immediately disconnects battery power from all outputs. All spreader control

and joystick-operated outputs shall immediately cease to function and the system display shall inform the operator that the ESTOP device has been activated. The ESTOP device must remove power from all output devices, while maintaining power to the display and CPU for diagnostic purposes. Resetting of the ESTOP device shall not result in spreader control and joystick-operated outputs returning to an ON state without operator acknowledgement.

The Control Center shall include pavement/air temperature sensor and plow up sensor. Both sensors shall be installed and communicating with the Control Center

The Control Center shall be a FORCE America Patrol Commander MPJC Ultra series with a 6100 model spreader control.

ISOBUS CONNECTION:
A rugged, easy-to-use connector system shall be provided for connection of various slide-in spreader bodies and trailers (hereby implements) to the vehicle. The system shall conform to ISO 11783-2 standards, and consist of a chassis-mounted bulkhead connector, an implement connector plug and cable assembly. The mated connection shall be rated to a minimum environmental rating of IP67 and shall be largely constructed of high grade plastic material that will not break if dropped or impacted. All power supply wiring (rated for up to 60A) and CAN bus wiring between the vehicle and the implement shall pass through this connection.
The chassis-mounted bulkhead connector shall provide a break-away feature to prevent damage to the connector or cable in the event the operator dismounts/parks the implement and does not disconnect the cable before driving away from the implement. The bulkhead shall be designed to withstand multiple breakaway cycles. To ensure CAN bus signal integrity, the bulkhead shall employ a self-terminating circuit to automatically terminate the CAN bus when the implement is disconnected.

The implement connector shall be a modular design to allow for cleaning and maintenance, and shall incorporate a circumferential cable seal and strain relief. A single jacketed cable shall be provided from the implement connector to the electronic devices on the implement. Sufficient length of jacketed cable shall be provided to allow for strain relief of the cable, over the cable jacket, on the implement. The use of multiple cables or individual wires in split loom or woven mesh coverings shall not be accepted. A tethered dust cap shall be provided to protect the implement connector when the implement is disconnected.

DIRECT LIQUID MODULE:
The 6100 spreader control shall include an ISOBUS connection mounted at the rear of the chassis. A CAN BUS and input/output module shall be mounted on the direct liquid system and connect to the chassis through the ISOBUS connection. The input/output module shall have 2-inputs for flowmeter feedback and low liquid. There shall be 4-outputs rated at 5 amp each for multi lane ball valves and anti-drip valve.

HYDRAULIC VALVE:
The hydraulic valve shall be of modular manifold design. This will be installed in a Frame Mounted 201 Stainless Steel Valve Enclosure. Each hydraulic function requires an individual manifold stacked together to form the manifold base. The hydraulic control valves shall be pulse-width modulated, proportionally controlled. Each hydraulic valve segment shall be individually mounted to the manifold base assembly and be serviceable without removing any hydraulic hoses or any other hydraulic valve segments. All segments shall have heavy duty continuous duty coils and connections shall be with Hirschmann connectors. All coils shall operate at 12 VDC and require a maximum of 1400 milli-amps. Each segment shall be equipped with a rack and pinion manual override except for the auger and spinner sections. The dump body

segment shall be rated to 40 gpm, with all other segments rated to 20 gpm. Valve segments shall be "Add-A-Fold" model or prior approved equal. Valve sections to be arranged as follows:

Hoist:	40 GPM double acting w/down side relief at 500 psi
High Lift Tailgate:	double acting
Plow lift:	double acting
Plow angle:	double acting
Left Wing toe:	double acting with integrated holding valve
Left Wing heel:	double acting with up relief at 1200 psi
Left Wing Push Arm:	double acting with IN relief at 500 psi.
Right Wing toe:	double acting with integrated holding valve
Right Wing heel:	double acting with up relief at 1200 psi
Right Wing Push Arm:	double acting with IN relief at 500 psi.
Auger:	15 gpm
Extra function:	Sub base w/ pressure compensator & cover plate
Spinner:	7 gpm cartridge style
Prewet:	7 gpm cartridge style

TRUCK PORTION PLOW HITCH

1. Plow Hitch to be Mounted As Close to the Front of Truck as Possible
2. Loop and Pin Style Plow Hitch
3. Set up with 14" Mounting Height
4. Non-Tilting Style Hitch
5. Telescopic Style Fold Flat Lift-Arm with Lift Cylinder Storage
6. Lever Release with Pin Lock for Loop
7. Heavy Duty Mounting with 3/4" Wing Side-Plates
8. Reinstall the Factory Bumper with Bracing back to Truck Frame
9. 4" X 10" Double Acting Lift Cylinder with Nitrited Rod
10. Cushion Block Valve for Plow Angle Cylinders
11. Shot Blasted and Powder Coated Black

12' REVERSIBLE PLOW:

1. 12' Overall Width X 48" High with Integral Shield
2. 10 Gauge Roll Formed Moldboard
3. 3/4" x 4" x 4" Bottom Moldboard Angle
4. 2" x 3" x 3/8" Top Moldboard Angle
5. Six 1/2 x 4" Tapered One-Piece Moldboard Ribs
6. Horizontal Moldboard Bracing Between Ribs
7. Adjustable Moldboard Pitch of 5, 10 and 20 degrees
8. Dual Compression Trip Spring Assemblies (No Extension Trip Springs)
9. 4 X 13 inch Double Acting Reversing Cylinders with 2 inch rod. Reversing cylinders must be mounted above the push frame with hydraulic hose inlets on top of cylinders.
10. Angle Cylinders are Mounted on Top of Pushframe
11. Built-In Level Lift Assembly with Single Chain Lift
12. 3-1/2" x 3-1/2" x 1/2" Angle Semi-Circle
13. 4" x 4" X 3/8" Cross Tube Support
14. Weld-On Plow Portion Loop Hitch
15. 36" Fluorescent Markers
16. 3/4" x 6" Carbide Cutting Edge with 1/2" x 6" Cover Blade
17. Moldboard and Pushframe to be 100% Welded
18. Moldboard and Hardware are all Shot Blasted Before Powder Coat
19. Moldboard Painted or Powder Coated Black

20. Push Frame Painted or Powder Coated Black
21. Rubber Snow Deflector Installed
22. Screw Adjustable Parking Jack Installed with Storage Post
23. Marker Kit Installed

DUAL 9' DOUBLE FUNCTION WINGS – ONE EACH SIDE W/HYD EXT. PUSHARM

1. This will be set up for a Left and a Right Wing - Front Mounted
2. Height of moldboard will be 30" intake and 37" Discharge – Tapered Design for Higher Discharge (with 8" high cutting edge)
3. Moldboard is to Roll Formed and made out of 3/16" steel
4. Bottom angle of moldboard will be 4" X 4" X 3/4" structural angle iron with 1/2" x 3" x 3" reinforcing gussets on 12" centers
5. Top edge of the moldboard will be a continuation of the moldboard and be a formed channel that is 2-1/2" x 1"
6. Heavy Duty Upper and Lower Pusharm Mounts mounted Horizontally between Ribs
7. The (6) six moldboard ribs must be one-piece, flame cut 1/2" thick ribs that are tapered from 4" at the bottom angle to 2-1/2" at the top channel
8. The moldboard will be 100% welded
9. The modboard will have a minimum ground clearance under the raised moldboard of 14" for limited benching capabilities
10. Shall allow the toe of the wing moldboard to float freely over rough roads and road shoulders, thus reducing potential damage to the wing and cab/chassis.
11. Wing post shall be of a trailing link style, designed to allow the moldboard to float up a minimum of fourteen inches when in the plowing position.
12. Side Plates will be manufactured with a 3/4" inside mounting plate and a matching 1/2" outer plate. A 3/8" Ex-Ten 50 front base plate will set the width of the post.
13. The post front structure shall be no more than 28" high and 14" wide.
14. Post weldment shall be manufactured with a .750" inside mounting plate and a matching .500" outer plate. A .375" Ex-Ten 50 front base plate will set the width of the post, support the .500" inner lower hinge brackets and the .750" bottom cylinder mounts.
15. There shall be internal reinforcement with a .375" Ex-Ten 50 radius plate and be welded to both side plates and the front base plate.
16. The post weldment will serve as the anchor for three trailing link assemblies.
17. The upper and lower link arms shall be .750" radius bar with a 1.750" machined hole on each end. The upper arm assembly will be reinforced with a 2.500" schedule 80 pipe at the front anchor. The lower arm assembly will be reinforced with a 2.500" schedule 80 pipe at the front anchor and .250" plate centered to the rear.
18. The lift/float link will be .500" bar with a radius at the anchor end, reinforced with a 2.500" schedule 80 pipe. The rear of the lift link will be reinforced with .625" and 1.000" plate and will include two .625" upper cylinder mounts. NO Chain or Bar Type Lift Link Accepted.
19. The rear lift weldment shall have an outer 1.000" and inner .500" bar with radius ends and machined 1.750" holes. Bars shall be spaced and supported with two 2.500" schedule pipes and two .500" x 4.000" triangular gussets. The hinge shall consist of three 1.000" thick radius ears that have 1.438" machined holes, spaced evenly and reinforced with two .250" x 2.000" x 2.000" angles.
20. All 1.750" machined holes will have Rc 50 hardened bushings.
21. Hinge Bolts will be 1-1/2" Grade 8 bolts are rifle drilled and cross drilled and have grease zerks on both ends
22. Lift cylinder shall be a 3.000" ID x 10.000" stroke with a 2.000" nitrated rod. Hydraulic port(s) shall be .750-16 ORB. Cylinder shall be attached within the post with 1.000" stress proof pins, machine washers and roll pins.

23. The rear push arm frame is designed to install on the chassis without any modifications to the exhaust system
24. The main structure of the rear push arm frame assembly will be 7" channel that is 12.25 per ft. The structure cross channel will sit on top of the truck frame to allow better under frame clearance. Provisions for either one or two moldboard pusharms are built into the rear mount.
25. The wing shall be furnished standard with a heavy duty, hydraulic adjustable, and spring cushioned push arm.
26. The hydraulic adjustable inner shaft shall be a minimum of 3" O.D. with a 1/4" wall thickness.
27. The length of the inner and outer tubes shall allow hydraulic adjustment from 56-1/2"" retracted to 74-1/4" extended.
28. The push arm and hydraulic cylinder shall be designed not to allow side load to misalign the connecting and push points.
29. A heavy duty cushioning spring 7" long, 4-1/2" O.D. and 5/8" wire shall cushion minor shock loads without causing the cylinder to retract.
30. The 4" I.D. hydraulic cylinder with 2" rod shall connect externally to the push arm with ½" clevises and minimum of 1-3/8" pins.
31. The swivel joints at each end of the push arm shall be of heavy duty cast iron and be retained with 3/4" grade eight bolts
32. Cutting edge for the wing will be a 5/8" x 8" top punch cutting edge
33. The wing moldboard and all hardware will be powder coated black
34. Must be equipped with Hydraulic Wing Locks for Toe and heel Cylinders on Both Left and Right Wings.
35. The Wings are Mounted so the Front Lift Group is Easily Removeable for Non-Winter Use
36. All Moldboard and Hardware to be Shot Blasted and Powder Coated - Black

Combination Liquid/Granular Applicator

Provide and deliver manufacturer's new current model year hydraulic driven, ice control combination liquid/granular applicator to be dump box mounted. Unit(s) must meet or exceed all state and federal regulations applicable at the time of delivery and shall comply with all welding requirements as detailed herein. Units are to be used in road maintenance operations for snow and ice control.

GENERAL SPECIFICATIONS

It is the intent of these specifications to describe a Combination Granular/Pre-wetting/Liquid Anti-icing application system capable of spreading a granular material, liquid pre-wetting the granular material and applying a liquid anti-icing product individually or all three simultaneously. The application system shall consist of a stainless steel V-box Spreader with liquid storage in saddle tanks mounted on the sides of the V-box in the void area between the V-box spreader and the dump body sides. The V-box system shall have the capability to apply liquid anti-icing products, spread granular material and/or pre-treat the granular material with liquid at the spinner chute. The systems will have an "on-board" control system that will accurately and automatically control the spread of granular material (such as salt/sand) and/or liquids (such as salt brine/magnesium chloride) no matter what the vehicle speed or application rates are.
The control system will automatically stop applying granular and/or liquid when the vehicle stops. The V-box will be mounted on a stainless steel skid assembly with self-loading/unloading legs capable of supporting an empty system. All components of the skid-mounted systems shall be properly designed to safely withstand maximum stress imposed. The skid-mounted combination spreader systems shall meet or exceed the following detailed requirements.

V-box Spreader

Specification shall describe a V-box material spreader capable of hauling and spreading free flowing granular materials from a minimum width of (4) four feet to a maximum of (40) forty feet.

Unit shall consist of a 201 stainless steel body, discharge/feed conveyor, spinner assembly, power drive system and all components necessary to make a complete operating unit.

The spreader hopper shall be constructed of 10 gauge stainless steel with a 2" double crimped top edge formed for greater rigidity.

The hopper **body** length shall be 16 feet with longitudinals overhung for supporting the spinner assembly. Hopper shall be designed to accommodate the dog house within the dump body if required.

The hopper shall not be more than 84" outside width.

The hopper height shall be 50" with a cubic yard capacity of 8.5 water level full. The rear panel shall be reinforced and supported to give it maximum strength.

The body longitudinals shall be manufactured of 7 gauge 201 stainless steel. . Longitudinal shall have a three foot "Bolt On" replaceable rear tail section. The tail section and the mating longitudinal shall have ¼" flanges reinforced with ¼" triangular gussets. Bolts will be minimum of ½" stainless steel.

The channel cross sills shall be 7 gauge 201 stainless steel that tie the lower edge of the longitudinals to each side support.

These cross supports shall be wide enough to allow to slide into a dump body.

The body and conveyor longitudinal shall be electrically welded into a rugged solid unit with 100% continuous weld inside the hopper. .

There shall be twelve 10 gauge stainless steel formed side supports that extend the full side angle height spaced on approximately (2) two foot centers. The vertical ribs of the V-box shall allow the tanks to fit around them.

A heavy-duty, bolt on, stainless steel 5/8" lift loop shall be provided at each corner.

AUGER DISCHARGE SYSTEM

A 201 stainless 7-gauge, replaceable, two piece, structurally engineered trough assembly shall be provided. Trough shall be designed with an integral formed inverted V in the center that will promote material flow to the augers. Trough will be bolted every six inches in the center and every twelve inches to the longitudinal with 3/8" stainless carriage bolts. The reinforced front idler plate, shall be formed of 7-gauge stainless steel. The reinforced rear drive mount plate shall be formed ¼" stainless steel. The idler and drive plates shall bolt to the longitudinal with stainless steel bolts.

There shall be two step-flighted augers, one RH helical and one LH helical. Augers shall be 7" OD X 4" ID with ½" flighting on a Schedule 80 pipe. Each auger shall be driven by a 24.9 CI motor with a 1-1/4" 14T splined shaft and ORB ports. The motors shall direct couple to a 3.6:1 planetary gear box with a 2-1/2" output shaft. Gearbox "float" mount shall be designed to compensate for any misalignment. The output shaft shall be coupled to the auger tube with a UHMW bushing and a 7/8" G8 bolt. One motor shall have a 50 PPR speed sensor with a 4 pin M12 receiver. The 2" idler shaft shall couple to the auger tube with a UHMW bushing and 7/8" bolt. The idler bearings shall be 2" ID, four bolt flange type and relubable. The drive system shall be protected by a bolt-on guard made of 10 gauge channel.

A 201 stainless steel load bearing protective grid with a non-slip feature shall be installed and bolted to the longitudinal above the augers behind the hopper shell to the end of the longitudinal. There shall be a stainless protective shield over the front idler shafts.

Grease extensions shall be provided to enable the operator to grease the front bearings from the rear of the spreader.

A bolt-on 6" x 9.0# wide flange "H" beam will be elevated 3" above the top edge of the hopper, thus providing a longitudinal brace and hinge point for the top screens.
There shall be a centered 2" x 2" stainless steel angle iron welded from the "H" beam to each hopper side for additional side support.
The top screens shall be constructed of 3/8" rods welded to form a 2.5" square mesh which is formed by a combination of ¼" x 1-1/2" flat steel and 2" angle iron with the edge supports reinforced by ¼" x 1" flat steel bars.
Each section shall be secured to the "H" beam with two (2) non-freeze 5/8" rod hinges.
There shall be not less than six (6) screen assemblies per V-box.

An adjustable 10-gauge stainless steel inverted-V shall be installed above the augers. Cross channels for mounting and hopper brackets shall be 10-gauge stainless with stainless mounting hardware.

A minimum of 20" x 19" rectangular, 10-gauge stainless spinner assembly that is adjustable in height shall be provided. The extended upper spinner chute shall be fully enclosed.
The distributor disc shall be a least 20" in diameter of polyurethane material with formed fins. This disc shall be mounted on a cast iron replaceable hub connected directly to the top mounted motor.
The material shall be guided from the conveyor to the distribution disc by means of two internal adjustable 10 gauge stainless steel material deflectors.
These deflectors shall control the spread pattern from left to right by controlling where the material drops on the disc.
The entire spinner assembly shall be manufactured of not less than 10 gauge stainless steel and shall be adjustable in height from 18" to 12" above the ground when in the dump body.
There shall be four (4) external adjustable baffles, adjustable without the use of tools.
A "Y" Chute will be provided with Air Operated Diverter Door for Left, Right or Spinner application. Left and Right Discharge is Direct to the Road Surface without a Spinner.
The entire spinner shall allow cleaning, unloading, or storage.

All hardware and fasteners (unless noted) shall be stainless steel.

Top grates, top beam and augers are to be shot blasted and powder coated black. Motors, gearboxes and bearing to be painted manufacture standard paint.

All welding performed on the spreader must be in compliance with current AWS procedures and guidelines recognized within the State of manufacture.

Manufacturer shall provide caution labels, decals, and any warning deemed necessary.
Manufacturer shall attach their standard warranty statement. All components described herein shall carry minimum one-year warranty.

Skid Assembly
The skid assembly is to be manufactured of stainless steel. It is to consist of two formed longitudinals manufactured of 3/16" stainless steel and 3/16" stainless steel cross members formed into a hat channel shape with ¼" thick welded end plates. Cross channels are to be bolted to the longitudinals using stainless carriage bolts. The skid must be designed to support the empty weight of the V-box, polyethylene saddle tanks and pre-wet/anti-ice plumbing. The skid must be able to be mounted in the bed of a standard dump body. The skid is to be locked in place at the rear of the dump body utilizing the existing dump body tailgate latch system. It must also in-

clude a minimum of two 2" ratchet binders and 2" x 27' nylon straps with flat hooks to secure it to the front of the dump body.

Storage Legs – (To support an empty v-box/tanks only)
Storage leg system shall provide for self-loading and unloading of the skid assembly and shall be designed to do so with the use of the truck hoist only. Leg system must include two 5" diameter x 1.88" wide wheels mounted on the front edge of the skid for ease of loading and unloading. Wheels are to include grease fittings for lubrication of sealed roller bearings. The front legs shall be manufactured from 2.5" x 2.5" x 3/16" tubular stainless steel and shall be self-actuating. The rear legs shall be the telescopic type and shall be manufactured from 3" x 3" x 3/16" thick, 3' long, tubular stainless steel and to include a series of adjustment holes and a 6" square base plate with integral lift handle. The rear tailgate latch assembly shall be equipped with a crossbar assembly that will utilize the dump body tailgate latches as the rear hold down. The crossbar is to be made of stainless 3" x 3" x 3/16" wall tube with an adjustable pin configuration on each end. The rear tailgate latch assembly shall be bolted to the skid assembly and to include a series of bolt holes in the longitudinals for adjustment.

Anti-ice Pumping System
The anti-ice product pump shall be a hydraulic motor driven centrifugal pump rated up to 190 GPM flow with a maximum pressure of 130 PSI. Provided shall be a "Hypro" 9306-HM1C stainless steel pump. The pump shall have a minimum 2" inlet and a minimum of 1-1/2" outlet. System shall apply liquid product proportional to ground speed at application rate entered. Application must remain proportional over the full application rate range. All plumbing fittings shall be constructed of glass filled polypropylene, stainless steel or brass and all valves shall be full port ball type and constructed of glass filled polypropylene with stainless steel bolts and located for ease of maintenance. All major components shall be installed utilizing manifold clamp connections for ease of service. The flow meter shall be a turbine style constructed of stainless steel or polypropylene and rated at a maximum flow of 100 GPM. Flow meter shall have manifold style connections. Flow meter shall be factory calibrated with no-recalibration required for different weight/gallon products and shall include a calibration number. Liquid flow to be regulated by a 12-VDC pulse-width modulated section on the chassis valve bank (supplied with the truck hydraulic system). There shall be three 12-volt DC electrically operated lane boom valves. Valves shall operate within a maximum of one second and shall have manifold style connections for ease of maintenance. The system shall be capable of self-loading and unloading the liquid products from the rear of the truck.

Anti-Ice Spray Booms
There shall be a three spray booms to cover the left, right and center lanes (36 feet total width) for liquid anti-icing. Spray booms shall be constructed of 1-1/2" schedule 10, 304SS pipe, welded tee's and elbows with clean out plugs at the end of the spray booms. Hoses feeding the three booms shall be spiral rib reinforced EPDM and shall be cam-lever coupled to the booms.
Spray Booms (continued)

Unit must spray 1, 2 or 3 lanes wide individually at rates and ground speeds required. Spray booms shall be quick removable from the skid and shall have an adjustable height feature. Spray booms are to use straight stream nozzles and nozzles are to made of brass or stainless steel.

Pre-Wet System
Pre-wet system shall be complete with pump, adjustable on / off valve, nozzles, hoses, and fittings. The pre-wet system shall have a hydraulic motor driven 7 GPM bronze gear pump with an

internal liquid product bypass. Liquid flow shall be controlled through an adjustable 12 VDC on / off valve with the switch in the cab. All plumbing fittings shall be constructed of glass filled polypropylene, stainless steel or brass and include a check valve. The pre-wet system shall inject brine into the auger though area. A 20 mesh suction strainer shall be installed prior to the brass liquid pump. The liquid pump shall be driven through the exhaust oil from the conveyor system The pre-wet pump and valve shall be enclosed in a NEMA fiberglass enclosure and shall be accessible from the rear of the unit for service. A flush system shall be provided to isolate the tanks and allow RV type fluid to flush the pump and nozzles.

Tank(s)
A total capacity of 1300 gallons (one 650 gallon tank on each side of the v-box sander for proper weight distribution) shall be supplied and installed. (Front mounted tanks are unacceptable). The tanks shall be manufactured of heavy-duty polyethylene made to fit around the vertical uprights of the v-box and must be mounted to the skid assembly with stainless mounts and hardware.. Tank wall thickness to be minimum .350". Tanks shall be compatible with all de-icer materials currently available. Tanks are to be interconnected at the bottom corners so they will unload equally. Tanks shall have three 2" threaded openings on the top, one located at each end of the tank and one centered. Vertical ribs of the v-box must be positioned so the tanks can be installed around them. Hoses between the tanks are to be spiral rib reinforced EPDM.

PRE-BUILD MEETING, PICKUP AND DELIVERY:

Successful bidder will work with the successful truck dealer to make sure chassis is set up to accommodate equipment that is sold. No additional funds will be appropriated for moving equipment on chassis to fit the truck equipment. Successful bidder will be responsible for delivery to Sauk County when completed.

DELIVERY TIME:

Successful bidder shall state amount of time required to install all equipment and return vehicle to Sauk County.

MANUALS AND PARTS INFORMATION:

The successful bidder shall furnish a total of one (1) service manuals, one (1) parts manuals, one (1) electric diagrams, one (1) hydraulic diagrams.

Also to be furnished is an itemized parts list of all parts and part numbers used in the installation and make up of the boxes and hydraulics.

WARRANTY:
All warranty work shall either be done at the Sauk County Repair Shop at Baraboo, or the bidder shall be responsible for the pick-up and return of the unit to be serviced.

Unit shall have at least a two (2) year 100% parts and labor warranty.

Quotes are to be F.O.B. at Sauk County Highway Shop, Baraboo.

There shall be no travel expenses.

SAUK COUNTY HIGHWAY DEPARTMENT

QUOTATION

List Price: Two (2) – Tri Axle Patrol Truck Accessory Equipment

Total Net Cost, F.O.B. Baraboo
As Bid per Specifications $_____

Total Net Cost, F.O.B. Baraboo
Bid for Equipment Only $_____

Delivery Date: _____

The Sauk County Highway and Parks Committee reserves the right to accept this quotation with or without trade-in.

Name of Company
Submitting Quotation: _____

By _____

Title _____

Address _____

_____

Telephone Number: _____

WARRANTY

Successful bidder shall furnish Warranty covering the Tri Axle Patrol Truck Accessory Equipment complete as contained in this proposal and as bid. Warranty to cover and protect Sauk County against faulty material and workmanship covering any and all parts on the complete Tri Axle Patrol Truck Accessory Equipment as delivered.

Bidders shall state here the number of days or hours of operation the Warranty will be in effect following the date of delivery to the County of the Dump Body and Central Hydraulic System.

Number of Days _____ Number of Hours _____

What parts of the Tri Axle Patrol Truck Accessory Equipment and complete equipment as delivered will not be covered by such a Warranty?

_____

_____

_____

_____

Does Warranty cover replacement parts only? Yes_____ No_____

(A) Does Warranty cover just the replacement of parts F.O.B. Sauk County Garage, Baraboo, WI? Yes _____ No_____

(B) Does Warranty cover the replacement of the parts and all labor to make such replacements on the Hydraulic System at no cost to Sauk County? Yes_____ No_____

If such replacement parts and all labor necessary for making such replacement is covered in the Warranty at no cost to Sauk County will such work be performed by the bidders mechanics in the Sauk County Garage, Baraboo, WI.? Yes_____ No_____

If not, give the name and address of the location of such service that will be made by the bidder.

_____

_____

_____

GENERAL REMARKS pertinent to conditions of Warranty given.

_____

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_____

NAME AND LOCATION OF 24 HOUR PARTS - SERVICE

_____

_____

_____