INVITATION TO BID and BID
for
Digger Derrick

Bid of _____ (Bidder), organized and existing under the laws of or a resident of the State of _____, doing business as _____, physically located at _____, to the City of Sturgis (City).

1. City will receive sealed Bids for 50 Foot Sheave Height Hydraulic Digger Derrick at the City of Sturgis, **City Manager's Office, 130 N. Nottawa Street, Sturgis, Michigan 49091** until Monday, April 16th, 2018, 4:00 p.m., local time. No Bids will be received after this date and time. Bids must be submitted on this form and shall be enclosed in an opaque, sealed envelope, marked with "BID ENCLOSED – Digger Derrick", and the name and address of the Bidder. Do not submit an envelope so marked unless a valid Bid is enclosed.

2. Bids may not be withdrawn for a period of 30 days after the actual date of opening thereof. This time period may be extended by mutual agreement of the City and any Bidder or Bidders. It is anticipated that a recommendation for award will be submitted to the Sturgis City Commission for consideration at its meeting on Wednesday, April 25th, 2018.

3. The City reserves the right to waive any irregularities and to reject any and all Bids.

4. The undersigned Bidder proposes and agrees, if this Bid is accepted, to accept a Purchase Order and to furnish the vehicle as specified.

5. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over City.

6. Specification: See attached Exhibit A - Specifications for a 50 Foot Sheave Height Hydraulic Digger Derrick mounted on Exhibit B - Truck model 7400 SFA 4X4 (SR525).

7. If Bidders have questions, they may contact Josh Czajkowski, Electric Operations Manager, at (517) 617-6358 or via email at jczajkowski@sturgismi.gov.

8. Bidder will supply specified material for the following unit prices:

Qty.	**Description**	**Cost Each**	**Cost Extension**	**Lead Time**
		$	$	
		$	$	
		$	$	
		$	$	
		Total Cost	$	

SUBMITTED on _____, 2018 By: _____
(date*) **(Name of Bidder*)**

_____ _____
(Street*) **(Signature)**

_____ _____
(City, State, and Zip*) **(Name and Title of Signatory*)**

_____
(Telephone Number*)

*Typed or printed in ink.

CITY OF Sturgis MICHIGAN

130 N. Nottawa St.
Sturgis, MI 49091
www.sturgismi.gov

Ph: 269-651-2321
Fax: 269-659-7295

EXHIBIT A

SPECIFICATIONS FOR A 50 FOOT SHEAVE HEIGHT HYDRAULIC DIGGER DERRICK

This specification is to set forth the specific requirements for a 50 foot sheave height digger derrick, hydraulic operated, equipped with a steel line T-Box/Flatbed body mounted on an appropriate chassis/cab.

This digger derrick shall be to the manufacturer's standard. It shall be equipped with the manufacturer's equipment and accessories which are included as standard in the advertised and published literature for the unit. No such item of equipment or accessories shall be removed or omitted for the reason that it was not specified in the bid.

If it is necessary to bid alternate equipment or to take exceptions to the specifications as set forth, this must be so stated in your bid. For each item, please place an **X** in the appropriate space (Yes__ No__) to signify whether or not you are in complete compliance with the specification. Failure to follow the format or answer the specification may cause your bid to be disqualified. If you need extra space to describe your product, please attach extra sheets. When doing this, be sure your description references the appropriate question number.

		COMPLY	
	GENERAL SPECIFICATIONS	**YES**	**NO**
	UNIT		
1.	50 Foot Hydraulic Derrick, **Rear mount**, designed for mounting over rear axle with a **Turntable winch**, built in accordance with standard specifications and to include the following features:	_____	_____
	A. Maximum Sheave Height 49.3 feet	_____	_____
	B. Maximum Horizontal Reach 39.6 feet	_____	_____
	C. Maximum Digging Radius 28.5 feet	_____	_____
	D. Elevation - From 80 degrees above horizontal to 20 degrees below horizontal	_____	_____

	COMPLY	
GENERAL SPECIFICATIONS	**YES**	**NO**

E. Performance Ranges as follows represented as Non-Bare Boom Capacities: _____ _____

	Capacity	Load Radius (feet)	Boom Angle
Retracted	11,090	10	65
2nd Ext	11,080	10	73
3rd Ext	10,470	10	74
Both Ext	9,820	10	78
Retracted	7,010	15	47
2nd Ext	6,220	15	63
3rd Ext	6,630	15	63
Both Ext	6,040	15	70
Retracted	4,710	20	21
2nd Ext	4,450	20	52
3rd Ext	4,860	20	52
Both Ext	4,340	20	62
Retracted	3,420	20	0
2nd Ext	1,700	30	0
3rd Ext	2,150	30	0
Both Ext	1,150	40	0

Note: Capacity chart provided must include 360 degree operation

F. Unit meets or exceeds ANSI 10.31-2006 _____ _____
Unit serial number placard clearly states compliance

G. Unit is designed and manufactured in facilities that are certified to meet ISO 9001 requirements _____ _____

H. Winch: 15,000 pound bare drum capacity turntable winch with 8.625" diameter drum to comply with ANSI 10.31 Section 4.10.4 for synthetic rope. High torque hydraulic motor drives a self-locking worm gear winch. Counterbalance valves on motor provide reliable load holding _____ _____

I. Insulated, "46 kV and below" _____ _____

	COMPLY	
GENERAL SPECIFICATIONS	**YES**	**NO**
J. Hydraulic Overload Protection System – activates when unit is exposed to overload condition. System prevents actuation of all functions that could add to the overload condition including: - Boom Lower - Intermediate Boom Extend - Third Stage Boom Extend - Winch Raise - Auger Dig - System automatically resets when overload condition is relieved	_____	_____
K. Hydraulic Side Load Protection relieves overload conditions by allowing rotation system to back drive	_____	_____
L. System pressure gauges on all vehicle mounted main control stations	_____	_____
M. Transferable Boom Flares include adjustable alignment guides	_____	_____
N. Pole Guides – cylinder driven open/close and tilt includes double pilot operated check valves to support poles in both tilt directions. Also includes tilt interlock that prevents the upper boom from extending when the transferable flares are attached to the intermediate boom until the guides are articulated to the full up position	_____	_____
O. Fiberglass Boom Tip with provisions for platform attachment.	_____	_____
P. Two-part load line attachment point on intermediate boom.	_____	_____
Q. Full capacity fiberglass upper boom is round and is fabricated using a centrifically cast process that provides a smooth surface finish inside and out that is easy to clean and is highly resistant to damage	_____	_____
R. Cylinders: Rods are chrome plated and ends are threaded and welded	_____	_____
S. Bearings: Lift cylinder equipped with self-aligning bearings. All extending booms utilize slide bearings; there are no roller bearings on extending booms	_____	_____
T. Proportional-Hydraulic Control System: The electrical control panel(s) and pilot hydraulic system provide easy to operate	_____	_____

GENERAL SPECIFICATIONS	COMPLY YES	NO
controls with superior metering. There are only two hydraulic lines through rotation. Hydraulic control valves for Rotation, Boom Elevation, Boom Extension, Digger and Winch are pilot operated and controlled by a proportional pilot system which provides full metering and feathering characteristics. There are no hydraulic lines within operator control station		
U. Standard/Low Speed Selector allows an operator to select standard or low functional speeds without respect to engine throttle. When in standard mode, each function operates at normal speeds. When in low mode, the maximum operational speed of each function is approximately half that of the standard speed, providing a more meterable feel. The function is separate from engine throttle control, giving the operator additional fine tuning speed control	_____	_____
V. Hydraulic Dump Valve installed in pedestal: Provides extra protection by diverting hydraulic flow away from the main control valve when unit is idle. Dump valve solenoid is electronically activated when a function is operated	_____	_____
W. Boom Storage Protection System – switch on main boom activates hydraulic overload protection system to prevent operator from inadvertently placing excessive down force on boom stow bracket	_____	_____
X. Continuous rotation including worm drive rotation gearbox. With booms horizontal and fully extended, unit is able to rotate a 500 lbs load on winch line at boom tip up a 5 degree slope	_____	_____
Y. Manual Override of Hydraulic Functions at main control valve	_____	_____
Z. Complete Hydraulic System including:	_____	_____
a) Magnetic suction separator	_____	_____
b) Return line filter with cold oil indicator	_____	_____
c) Hydraulic pressure gauges	_____	_____
AA. Outrigger/Boom Interlock System: Prevents boom from being unstowed until outriggers have been at least partially deployed	_____	_____
BB. Outrigger/Unit Selector Control: Located near the outrigger controls, allows operator to divert hydraulic oil from machine	_____	_____

	GENERAL SPECIFICATIONS	COMPLY YES	NO
	circuit for outrigger operation. This reduces the potential for inadvertent outrigger movement during machine operation if outrigger controls are bumped		
	CC. Outrigger Control Valves, located at tailshelf	_____	_____
	DD. Tool outlets at tailshelf – tool control valve is integral to the outrigger control valve on the vehicle curbside	_____	_____
	EE. Two (2) Operator and Maintenance/Parts Manuals containing instructional markings indicating hazards inherent in the operation of an aerial device	_____	_____
2.	Rear Mount pedestal. All bed openings in pedestal are covered to prevent foreign objects from entering pedestal. All outer race rotation bearing bolts are accessible from outside the pedestal to facilitate torque inspection	_____	_____
3.	Turntable Winch - Self-locking worm gearbox with locking counterbalance valves to provide reliable load holding. Drum diameter is 8.63 inches flange diameter is 15.75 inches; drum width is 13.0 inches	_____	_____
4.	Winch, (15,000 pounds). Full hydraulic line speed is 21.0 feet per minute on first layer, and 39.0 feet per minute on full drum	_____	_____
5.	Digger Derrick use only (no personnel handling)	_____	_____
6.	Rear Mount – Traditional Control Seat, installed on curb side of turntable, with single control station that includes:	_____	_____
	A. Red emergency stop plunger	_____	_____
	B. Boom, winch, and digger control handles include mechanical interlocks that prevent inadvertent control handle movement	_____	_____
	C. Boom, winch, and digger control handles also include electrical interlocks that activate a hydraulic dump valve that provides hydraulic flow to main control valve	_____	_____
	D. Manually tilting control panel	_____	_____
7.	Foot throttle – electronic control does not require any hydraulic plumbing.	_____	_____

	GENERAL SPECIFICATIONS	COMPLY YES	NO
8.	Cover - for standard Control Panel, vinyl	_____	_____
9.	Radio Remote Controls, can be used in conjunction with other control systems. Radio Remote Control panel includes:	_____	_____
	A. All derrick controls		
	B. Unique transmitting address. Transmitter prevents identical frequency being utilized when many systems are working together		
	C. Battery charger		
	D. Alarm system with speaker mounted on turntable communicates initial activation of radio control system		
	E. Red emergency stop plunger		
	F. Docking station inside cab with out of stow light		
	G. Docking station for using radio remote controls which attaches to lip of platform		
10.	Digger – street side storage	_____	_____
11.	Digger, Two-Speed Mechanical Shift, 12,000 ft-lbs	_____	_____
12.	Auger assembly, 18 inch diameter, for 2 5/8 inch kelly bar, carbide teeth	_____	_____
13.	Screw anchor wrench assembly, for installing 1 3/8 inch anchors with 2 5/8 inch kelly bar, includes kelly bar adapter, 7 foot drive end, and locking dog assembly, shipped loose	_____	_____
14.	1 1/8 Inch x 115 feet - installed, 15,000 pound rating, for turntable winch, recommended for all units	_____	_____
15.	Swivel hook/downhaul weight, 8-1/2 ton capacity, 33 lbs.	_____	_____
16.	2 – sets of outriggers, A-frame, folding shoe, 153 inch maximum spread.	_____	_____
17.	Power Distribution Module (PDM) installed. The PDM is a compact self-contained electronic system that provides a standardized interface with the chassis electrical system. It is composed of a main board, approximately 12.0 x 13.0 inches,	_____	_____

	GENERAL SPECIFICATIONS	COMPLY YES	NO
	designed to be mounted between driver/passenger seat, on back wall, inside the cab. Additional modules plug in to accommodate various options such as engine start/stop, variable throttle control, power take off, interface with Allison World transmission, and engine speed control module for specific engines and chassis. In addition to the above potential options, the PDM also provides up to 16 accessory circuits to be used for controlling other customer specified electrical components. The PDM includes built in test capabilities and diagnostic input, output and status LED's to quickly assess the PDM's performance. All components are circuit board mounted to facilitate replacement and reduce repair time should it be required		
18.	Electronic Side Load Protection (eSLP)™ – Includes visual gauge that informs operator of side load and helps to determine the relative remaining capacity of rotation system. An indicator lamp illuminates when side load limit is reached and the hydraulic overload protection system is engaged, stopping all derrick functions that could contribute to increased side load, preventing potential damage to derrick by excessive loading	_____	_____
19.	Reservoir Assembly – includes reservoir, filter, and magnetic suction separator	_____	_____
20.	Hydraulic System: Closed Center hydraulic system with maximum flow of 43 gpm for simultaneous operation of multiple functions. Flow is provided by a variable displacement, pressure compensated, piston pump. This 'flow on demand' system optimizes the overall system efficiency. System is designed with compensators in each valve section for smooth transitions between functions. Maximum system pressure is 3000 psi. Because flow is provided by a single source (piston pump), **maximum flow** is available to **any** combination of functions including simultaneous operation of the boom and digger/winch functions and flow combining is not necessary	_____	_____
21.	(2) sets of wheel chocks (rubber), 10 inches long x 8 inches wide x 5 1/2 inches high	_____	_____
	UNIT AND HYDRAULIC ACCESSORIES		
22.	Hydraulic oil and lubricants, installed, Conoco Super 22	_____	_____
23.	Subbase assembly for mounting of derrick pedestal and outriggers, to consist of 6 inch x 4 inch tubing (3/8 inch wall) each side of chassis frame with top and bottom plate. To include drop	_____	_____

	GENERAL SPECIFICATIONS	COMPLY YES	NO
	down door, notched for pole tamp storage, include stop at 9.5' from rear		
24.	Pole guide extensions, bolt on	_____	_____
25.	Install gate valves on suction and return lines at hydraulic reservoir to allow changing of filters without loss of oil	_____	_____
26.	Install brace off suction line and wire tie gate valve open	_____	_____
27.	8-1/2 foot x 3/8 inch nylon auger wind up sling	_____	_____
28.	Hannay spring operated hose reels with two (2) 50' hydraulic hoses, quick disconnects, dust caps. Mount reel in Curbside rear corner with payout to rear	_____	_____
29.	Pole Puller - with 7 feet of 5/8 inch high-tensile chain and base, installed on curb side front outrigger	_____	_____
30.	Utility T-Box/Flatbed body, suitable for installing on any single rear axle chassis with 120 inch CA dimension. Body is built in accordance with these specifications, including:	_____	_____
	A. Body: Fabricated from A40 grade 100% zinc alloy coated steel with the following minimum gauge thickness:	_____	_____
	16 gauge outside panels 16 gauge top panels 14 gauge end panels 20 gauge inner door panels 18 gauge outer door panels 18 gauge shelving, spangled steel 14 gauge wheel panels 12 gauge steel floor, formed checker plate		
	B. Body Dimensions:	_____	_____
	158 inch overall body length 94 inch outside width 46 inch body height 18 inch compartment depth 58 inch floor width		
	C. Compartmentation – Curbside:	_____	_____
	a) <u>First Vertical</u> – Six (6) Fixed locking swivel hooks installed as high as possible 2-2-2	_____	_____

GENERAL SPECIFICATIONS	COMPLY YES	NO
b) Second Vertical – Four (4) Adjustable shelves with removable dividers on 4" centers. Shelves installed using B-Line channel for adjustability	_____	_____
c) Third Vertical – Access walkway to include flip up storage with lock for battery storage. Vented. Includes two (2) 45 degree bent grab handles and a rubber belted step below 1st step	_____	_____
D. Compartmentation – Streetside:	_____	_____
a) First Vertical – Six (6) Fixed locking swivel hooks installed as high as possible 2-2-2.	_____	_____
b) Second Vertical – Four (4) adjustable shelves with removable dividers on 4" centers. Shelves installed Using B-Line channel for adjustability	_____	_____
E. Standard Features:	_____	_____
a) Basic body fabricated from A40 grade 100% zinc alloy coated steel	_____	_____
b) Electro cathodic emersion primer	_____	_____
c) Top Coat	_____	_____
d) Understructure completely undercoated	_____	_____
e) Clear coat	_____	_____
f) All doors are full, double paneled, self-sealed with built-in drainage for maximum weather-tightness. Electro-zinc plated, stainless steel hinge rods extend full length of door. Door hinges are zinc alloy material attached with rivets	_____	_____
g) All doors contain stainless steel flush type, rotary latches with recessed handles, including keyed locks and adjustable two-stage strikers. Door handles are riveted to the outer door panel. Back panel has opening for easy access	_____	_____

GENERAL SPECIFICATIONS	COMPLY YES	NO
h) Heavy-gauge welded steel base construction with safety tread floor	_____	_____
i) All edges are either rolled or folded for strength and safety	_____	_____
j) Door header drip rail at top for maximum weather protection	_____	_____
k) Metal formed fenders with no seams	_____	_____
l) Raised gripstrut installed on top of compartments both sides	_____	_____
m) Flow thru ventilation system	_____	_____
n) Automotive type non-porous door seals mechanically fastened to the door facing	_____	_____
o) Structural channel crossmembers	_____	_____
p) Wheel chock holders installed two (2) each side of body	_____	_____
q) Drop-in 2" x 6" black composite material at side access	_____	_____
r) Master body security locking system	_____	_____
s) Gas Cylinders for all vertical doors	_____	_____
t) Rotary Paddle Latches on all doors	_____	_____

BODY ACCESSORIES

31.	Side access step, installed so that the step extends 2" beyond body	_____	_____
32.	3" Steel lip around perimeter of flatbed and tailshelf with drain holes and cutouts for easy cleaning	_____	_____
33.	Pintle hook, 40,000 lb capacity or equivalent, with frame reinforcement and two safety chain D-rings installed at 25 inches (+/- 1 inch) from ground to center of eye. Pintle hook to have	_____	_____

	GENERAL SPECIFICATIONS	COMPLY YES	NO
	secondary latching. To include 2” ball/pintle combo – 30,000 lbs		
34.	Flush mounted D-Rings- Six (6) evenly spaced D-Rings around perimeter of flatbed for tie-down points	_____	_____
35.	Top mounted boxes-Two (2) Top opening boxes with gas struts, land lockable. Mounted above 1st & 2nd vertical on both the streetside and curbside of body. Boxes to be 14" H x Length and Width of available space over the body. Boxes to have bedliner material inside and outside of each box	_____	_____
36.	Two (2) sets of splash aprons--One installed behind rear wheels, not to interfere with rearward backing and 2nd set installed in front of rear wheels with anti-sail brackets to keep away from tires	_____	_____
37.	Triangular reflector kit installed in cab behind seat on passenger’s side	_____	_____
38.	Ten pound fire extinguisher with mounting bracket, installed in streetside first vertical compartment	_____	_____
39.	Three-point grounding system connecting unit, body, and chassis to a common ground. Include Hannay spring operated grounding reel with 50 feet of 4/0 grounding cable and clamp, installed behind curbside rear of body paying out to curbside of vehicle	_____	_____
40.	Two (2) pole capacity pole rack with Four (4) ratchet strap tie downs front and rear of each bunk, installed on streetside of body. Tie downs to be used from inside cargo area. Rear pole support to clear operator platform. Provide 5 spikes on bottom of each bunk so pole will not slide	_____	_____
41.	Install glad hand connectors at rear of vehicle	_____	_____
42.	Install grab handles, one (1) on Street Side at rear	_____	_____
43.	Install hoop style cone holder under front bumper so as cones slide on a slight angle, to accommodate six (6) 24” cones	_____	_____
44.	ICC bumper to be bolt-on. Allow 2” down from maximum ht. Ensure not attached to body	_____	_____
45.	Rear Step-1 rubber belted step located on streetside rear to be mounted 18" from ground to top of step	_____	_____
46.	Install rear tow hooks at rear, bolted on	_____	_____

	GENERAL SPECIFICATIONS	COMPLY YES	NO
47.	Outrigger pads, Four (4) “Outdoor For Life”, 22”x24”x1”. Pads to be yellow with City of Sturgis stamped into them	_____	_____
48.	Outrigger pad holders with lip retainers, installed two (2) each side beneath first verticals, angled downward	_____	_____
	ELECTRICAL ACCESSORIES		
49.	LED Lights and reflectors Including reverse lights in accordance with FMVSS lighting package, installed	_____	_____
50.	Seven (7) pole electrical trailer connection installed	_____	_____
51.	Whelen Model L31HAF LED Amber strobe lights installed one (1) each side of derrick storage support with branch guards L360BGB. Strobe lights are to be visible from the front and rear of the vehicle. Two (2) 4” Round LED Amber strobes in rear light channel. To be Whelen 2FA00ZAR. Two (2) LED amber strobe capsules mounted in front turn signal housings. To be Whelen LAW2AA. Wired to dash mounted switch	_____	_____
52.	One (1) Betts LED light, installed on boom rest directed toward cargo area Whelen LED Perimeter lights- Four (4)- Two mounted on each side of chassis. One light on each side near front of body all the way to outside of body to eliminate shadows and one light each side near rear tailshelf	_____	_____
53.	Phoenix Lights, LED 12-300, post mounted, with mounting plate. One (1) installed off front of body curbside. One (1) installed off streetside rear of body	_____	_____
54.	Backup camera with dash mounted display. (AOM713WPVoyager) 7 inch Heavy duty color LCD monitor sealed/weatherproof w/ 3 camera inputs. (VCCS150-Voyager CCD) color block style camera, 150 degree diagonal view. White housing. IR and LED assisted light (night vision). (CEC34) 34 ft camera to LCD monitor cable. (72704) – Panavise 4 inch single cellular mount	_____	_____
55.	3 position 12v power receptacle centered under dash. Wire battery hot	_____	_____
56.	Install main battery disconnect inside cab, driver’s side floor as	_____	_____

	GENERAL SPECIFICATIONS	COMPLY YES	NO
	entering cab next to seat		
57.	LED Rope lighting installed around perimeter of compartments with master switch inside dash	_____	_____
58.	Outrigger Motion Alarm: Provides audible alarm when any of the outriggers are in motion	_____	_____
59.	Voyager #9035 electric brake controller	_____	_____
60.	Install boom out of stow light	_____	_____
61.	Cab interior LED light – LED dome light, located centered on cab roof and toward rear of cab so head will not hit it when entering truck cab. To be wired battery hot	_____	_____
62.	Backup alarm, installed at rear. Backup alarm adjusts automatically to provide from 87 to 112 decibels alarm, depending on ambient noise conditions. Alarm is installed in 4.5 inch diameter hole with rubber grommet and is wired to chassis backup lights. Installation at rear provides a protected environment for alarm, free from damage from road spray and debris	_____	_____
63.	Hour meter installed to record PTO operating hours	_____	_____
64.	Install modular in-cab accessory switch panel with dual lit switches for function identification and function activation	_____	_____
	INSTALLATION		
65.	Installation of derrick and subbase assembly	_____	_____
66.	Installation of body and accessories	_____	_____
67.	Paint body White with urethane enamel	_____	_____
68.	Derrick painted white with a Powder Coat Paint Process which provides a finish-painted surface that is highly resistant to chipping, scratching, abrasion and corrosion. Paint is electro-statically applied to the *inside* as well as outside of fabricated parts then high temperature cured prior to assembly ensuring	_____	_____

	GENERAL SPECIFICATIONS	COMPLY YES	NO
	maximum coverage and protection		
69.	Wet coat of paint on steel sections of derrick and pedestal area	_____	_____
70.	Apply Line X or equivalent in black to the following: Front of body, exterior outrigger housing, boom rest, pole rack, cargo floor and walls, inside 1st & 2nd verticals on bottom and up walls about 10", top of side packs and walking surfaces, access walkway, tail shelf, top/sides/rear of Pintle hook channel and ICC bumper. To include the inside and outside of both top mounted boxes	_____	_____
71.	Safety and instructional signs, installed	_____	_____
72.	Vehicle height placard is to be placed in view of driver	_____	_____
73.	DOT Certification of completed vehicle	_____	_____
74.	Delivery of completed vehicle	_____	_____
	MISCELLANEOUS		
75.	This derrick is designed and manufactured in a facility that is certified to meet ISO 9001	_____	_____
76.	One (1) year parts warranty	_____	_____
77.	One (1) year labor warranty	_____	_____
78.	Ninety (90) days warranty for travel charges	_____	_____
79.	Bidder is to supply a self-directed, computer based training (CBT) program. This program will provide basic instruction in the safe operation of this device. This program will also include and explain ANSI and OSHA requirements related to the proper use and operation of this unit	_____	_____
80.	Warranty on structural integrity of the following major components is to be warranted for so long as the initial purchaser owns the product: Booms, boom articulation links, hydraulic cylinder structures, outrigger weldments, pedestals, subbases and turntables	_____	_____
81.	Supply copy of manufacturer's warranty with bid	_____	_____
	CHASSIS		

		COMPLY	
	GENERAL SPECIFICATIONS	**YES**	**NO**
82.	See separate attachment – EXHIBIT B	_____	_____
83.	Completed unit is to be delivered to the following address, cleaned, with at least ¼ tank of fuel and ready to place in service:	_____	_____

City of Sturgis - 130 N. Nottawa - Sturgis, MI 49091

USE OF OTHER NAMES AND REFERENCES:

Unless otherwise stated, the use of manufacturer's name and product numbers are for descriptive purposes and establishing general quality levels only. They are not intended to be restrictive. Bidders are required to state exactly what they intend to furnish, otherwise, it is fully understood that they shall furnish all items stated.

BROCHURES AND LITERATURE:

Your proposal must be accompanied by descriptive literature (marked), indicating the exact items to be furnished. The term "as specified" will not be acceptable.

Unit, body and Accessories: **$_____**

Cab and Chassis: **$_____**

Total: **$_____**

Prepared For:
Altec Industries *
Jennifer Pellersels
31 Inverness Center Pkwy. Ste. 360
Birmingham, AL 35242-4875
(205)323 - 8751
Reference ID: N/A

Presented By:
Southland International Trucks, Inc.
Philip Noles
200 Ormoor Blvd.
Homewood AL 35209 -
(205)942-6226

Thank you for the opportunity to provide you with the following quotation on a new International truck. I am sure the following detailed specification will meet your operational requirements, and I look forward to serving your business needs.

Model Profile
2019 7400 SFA 4X4 (SR525)

APPLICATION:	Utility/Service (Other)
MISSION:	Requested GVWR: 39000. Calc. GVWR: 39000 Calc. Start / Grade Ability: 41.28% / 2.86% @ 55 MPH
DIMENSION:	Wheelbase: 201.00, CA: 126.00, Usable CA: 120.00, Axle to Frame: 96.00
ENGINE, DIESEL:	{Cummins L9 330} EPA 2017, 330HP @ 2000 RPM, 1000 lb-ft Torque @ 1400 RPM, 2200 RPM Governed Speed, 330 Peak HP (Max)
TRANSMISSION, AUTOMATIC:	{Allison 3500 RDS} 5th Generation Controls, Wide Ratio, 6-Speed with Double Overdrive, with PTO Provision, Less Retarder, Includes Oil Level Sensor, with 80,000-lb GVW and GCW Max, On/Off Highway
CLUTCH:	Omit Item (Clutch & Control)
AXLE, FRONT DRIVING:	{Fabco FSD-16A} Single Reduction, 16,000-lb Capacity, with Hub Piloted Wheel Mounting
AXLE, REAR, SINGLE:	{Meritor RS-23-160} Single Reduction, 23,000-lb Capacity, Driver Controlled Locking Differential, 200 Wheel Ends Gear Ratio: 6.43
CAB:	Conventional
TIRE, FRONT:	(2) 385/65R22.5 Load Range J G296 MSA (GOODYEAR), 488 rev/mile, 68 MPH, All-Position
TIRE, REAR:	(4) 11R22.5 Load Range H ARMOR MAX MSD (GOODYEAR), 493 rev/mile, 68 MPH, Drive
SUSPENSION, RR, SPRING, SINGLE:	Vari-Rate; 23,500-lb Capacity, with 4500 lb Auxiliary Rubber Spring
PAINT:	Cab schematic 100GM Location 1: 9036, Cool Gray Light (Std) Chassis schematic N/A

Code	Description	F/R Wt (lbs)	Tot Wt (lbs)
SR52500	Base Chassis, Model 7400 SFA 4X4 with 201.00 Wheelbase, 126.00 CA, 120.00 Usable CA, and 96.00 Axle to Frame.	8098/4268	12366
1570	TOW HOOK, FRONT (2) Frame Mounted	8/0	8
1CAG	FRAME RAILS Heat Treated Alloy Steel (120,000 PSI Yield); 10.250" x 3.610" x 0.375" (260.4mm x 91.7mm x 9.5mm); 456.0" (11582mm) Maximum OAL	86/516	602
1LLA	BUMPER, FRONT Steel, Swept Back	0/0	0
	Includes : BUMPER, FRONT Powder Coated Gray (Argent) Color		
1SAL	CROSSMEMBER, REAR, AF (1)	-3/43	40
1WGG	WHEELBASE RANGE 181" (460cm) Through and Including 205" (520cm)	0/0	0
2EZW	AXLE, FRONT DRIVING {Fabco FSD-16A} Single Reduction, 16,000-lb Capacity, with Hub Piloted Wheel Mounting	0/0	0
	Notes : Axle Lead Time is 60 Days		
3ADE	SUSPENSION, FRONT, SPRING Parabolic, Taper Leaf; 16,000-lb Capacity; with Shock Absorbers	96/0	96
	Includes : SPRING PINS Rubber Bushings, Maintenance-Free		
	Notes : The following features should be considered when calculating Front GAWR: Front Axles; Front Suspension; Brake System; Brakes, Front Air Cam; Wheels; Tires.		
4091	BRAKE SYSTEM, AIR Dual System for Straight Truck Applications	0/0	0
	Includes : BRAKE LINES Color and Size Coded Nylon : DRAIN VALVE Twist-Type : DUST SHIELDS, FRONT BRAKE : DUST SHIELDS, REAR BRAKE : GAUGE, AIR PRESSURE (2) Air 1 and Air 2 Gauges; Located in Instrument Cluster : PARKING BRAKE CONTROL Yellow Knob, Located on Instrument Panel : PARKING BRAKE VALVE For Truck : QUICK RELEASE VALVE On Rear Axle for Spring Brake Release: 1 for 4x2, 2 for 6x4 : SLACK ADJUSTERS, FRONT Automatic (with Air Cam Brakes) : SLACK ADJUSTERS, REAR Automatic (with Air Cam Brakes) : SPRING BRAKE MODULATOR VALVE R-7 for 4x2, SR-7 with relay valve for 6x4/8x6		
	Notes : Rear Axle is Limited to 23,000-lb GAWR with Code 04091 BRAKE SYSTEM, AIR and Standard Rear Air Cam Brakes Regardless of Axle/Suspension Ordered		
4193	BRAKES, FRONT, AIR CAM 16.5" x 6", Includes 24 SqIn Long Stroke Brake Chambers	0/0	0
	Notes : The following features should be considered when calculating Front GAWR: Front Axles; Front Suspension; Brake System; Brakes, Front Air Cam; Wheels; Tires.		
4732	DRAIN VALVE {Berg} with Pull Chain, for Air Tank	0/0	0

Code	Description	F/R Wt (lbs)	Tot Wt (lbs)
	Includes : DRAIN VALVE Mounted in Wet Tank		
4AZJ	AIR BRAKE ABS {Bendix AntiLock Brake System} Full Vehicle Wheel Control System (4-Channel) with Automatic Traction Control	0/0	0
4EBS	AIR DRYER {Bendix AD-9} with Heater	1/-11	-10
	Includes : AIR DRYER LOCATION Outside Left Rail, Back of Cab		
4ETG	BRAKE CHAMBERS, FRONT AXLE {MGM} 24 SqIn	0/0	0
4EXU	BRAKE CHAMBERS, REAR AXLE {Bendix EverSure} 30/30 Spring Brake	0/0	0
4NDB	BRAKES, REAR, AIR CAM S-Cam; 16.5" x 7.0"; Includes 30/30 Sq.In. Long Stroke Brake Chamber and Spring Actuated Parking Brake	0/0	0
	Notes : The following features should be considered when calculating Rear GAWR: Rear Axles; Rear Suspension; Brake System; Brakes, Rear Air Cam; Brake Shoes, Rear; Special Rating, GAWR; Wheels; Tires.		
4SPA	AIR COMPRESSOR {Cummins} 18.7 CFM Capacity	0/0	0
4VGG	AIR DRYER LOCATION Mounted Inside Left Rail, Behind Transfer Case Mounting	0/0	0
4WEV	BRAKE PACKAGE, REAR {Bendix Spicer ES-165-7} Air, Cam Type, Extended Service; Size 16.5" x 7", Includes Gunite Slack Adjusters	0/0	0
4WGS	BRAKE PACKAGE, FRONT {Bendix Spicer ES-165-6} Air, Cam Type, Extended Service; Size 16.5" x 6", Includes Gunite Slack Adjusters	0/0	0
4WZJ	AIR TANK LOCATION (2) : One Mounted Under Each Frame Rail, Front of Rear Suspension, Parallel to Rail	0/0	0
5708	STEERING COLUMN Tilting	10/0	10
5CAL	STEERING WHEEL 2-Spoke, 18" Dia., Black	0/0	0
5PSL	STEERING GEAR {Sheppard M110} Power	30/0	30
7BEV	AFTERTREATMENT COVER Steel, Black	0/0	0
7BLD	EXHAUST SYSTEM Single, Horizontal Aftertreatment Device, Frame Mounted Right Side, Under Cab, for Single Vertical Tail Pipe, Frame Mounted Right Side Back of Cab, for All-Wheel Drive	0/0	0
7WAZ	TAIL PIPE (1) Turnback Type, Non-Bright, for Single Exhaust	0/0	0
7WCM	EXHAUST HEIGHT 8' 10"	2/0	2
7WDN	MUFFLER/TAIL PIPE GUARD (1) Non-Bright Aluminum	0/0	0
7WZY	SWITCH, FOR EXHAUST 2 Position, Lighted & Latching, On/Off Type, Mounted in IP, Inhibits Diesel Particulate Filter Regeneration as Long as Switch is in On Position	2/0	2
8000	ELECTRICAL SYSTEM 12-Volt, Standard Equipment	0/0	0
	Includes : DATA LINK CONNECTOR For Vehicle Programming and Diagnostics In Cab : HAZARD SWITCH Push On/Push Off, Located on Top of Steering Column Cover : HEADLIGHT DIMMER SWITCH Integral with Turn Signal Lever : HEADLIGHTS (2) Halogen, Round, with Chrome Plated Bezels		

Code	Description	F/R Wt (lbs)	Tot Wt (lbs)
	: JUMP START STUD Located on Positive Terminal of Outermost Battery : PARKING LIGHT Integral with Front Turn Signal and Rear Tail Light : STARTER SWITCH Electric, Key Operated : STOP, TURN, TAIL & B/U LIGHTS Dual, Rear, Combination with Reflector : TURN SIGNAL SWITCH Self-Cancelling for Trucks, Manual Cancelling for Tractors, with Lane Change Feature : WINDSHIELD WIPER SWITCH 2-Speed with Wash and Intermittent Feature (5 Pre-Set Delays), Integral with Turn Signal Lever : WINDSHIELD WIPERS Single Motor, Electric, Cowl Mounted : WIRING, CHASSIS Color Coded and Continuously Numbered		
8718	POWER SOURCE Cigar Type Receptacle without Plug and Cord	1/0	1
8GXK	ALTERNATOR {Leece-Neville BLP4006HN} Brushless, 12 Volt 325 Amp. Capacity, Pad Mount, with Remote Sense	0/0	0
8HAB	BODY BUILDER WIRING Back of Standard Cab at Left Frame or Under Extended or Crew Cab at Left Frame; Includes Sealed Connectors for Tail/Amber Turn/ Marker/ Backup/Accessory Power/Ground and Sealed Connector for Stop/Turn	2/0	2
8HAH	ELECTRIC TRAILER BRAKE/LIGHTS Accommodation Package to Rear of Frame; for Combined Trailer Stop, Tail, Turn, Marker Light Circuits; Includes Electric Trailer Brake Accommodation Package with Cab Connections for Mounting Customer Installed Electric Brake Unit, Less Trailer Socket	0/2	2
8MEZ	BATTERY SYSTEM {International} Maintenance-Free, (2) 12-Volt 1850CCA Total	5/1	6
8RME	RADIO AM/FM/WB/Clock/3MM Auxiliary Input, with Multiple Speakers, with CD Player	1/0	1
8VAY	HORN, ELECTRIC Disc Style	0/0	0
8WCL	HORN, AIR Black, Single Trumpet, Air Solenoid Operated	0/0	0
8WML	HEADLIGHTS Long Life Halogen; for Two Light System	0/0	0
8WPH	CLEARANCE/MARKER LIGHTS (5) {Truck Lite} Amber LED Lights, Flush Mounted on Cab or Sunshade	0/0	0
8WTK	STARTING MOTOR {Delco Remy 38MT Type 300} 12 Volt; less Thermal Over-Crank Protection	0/0	0
8WWJ	INDICATOR, LOW COOLANT LEVEL with Audible Alarm	0/0	0
8XAH	CIRCUIT BREAKERS Manual-Reset (Main Panel) SAE Type III with Trip Indicators, Replaces All Fuses	0/0	0
8XDU	BATTERY BOX Steel, with Aluminum Cover, 14" Wide, 3 Battery Capacity, Mounted Left Side Under Cab	12/-7	5
8XGT	TURN SIGNALS, FRONT Includes LED Side Turn Lights Mounted on Fender	0/0	0
8XHD	BATTERY DISCONNECT SWITCH 300 Amp; Cab Mounted, Disconnects Charging Circuits; Locks with Padlock	2/0	2
9585	FENDER EXTENSIONS Rubber	0/0	0
9HBM	GRILLE Stationary, Chrome	0/0	0
9WBC	FRONT END Tilting, Fiberglass, with Three Piece Construction; for WorkStar	0/0	0
10060	PAINT SCHEMATIC, PT-1 Single Color, Design 100	0/0	0
	Includes		

Code	Description	F/R Wt (lbs)	Tot Wt (lbs)
	: PAINT SCHEMATIC ID LETTERS "GM"		
10761	PAINT TYPE Base Coat/Clear Coat, 1-2 Tone	0/0	0
11001	CLUTCH Omit Item (Clutch & Control)	-64/-11	-75
12703	ANTI-FREEZE Red, Extended Life Coolant; To -40 Degrees F/ -40 Degrees C, Freeze Protection	0/0	0
12EHV	ENGINE, DIESEL {Cummins L9 330} EPA 2017, 330HP @ 2000 RPM, 1000 lb-ft Torque @ 1400 RPM, 2200 RPM Governed Speed, 330 Peak HP (Max)	0/0	0
12THT	FAN DRIVE {Horton Drivemaster} Direct Drive Type, Two Speed with Residual Torque Device for Disengaged Fan Speed	-36/3	-33
	Includes : FAN Nylon		
12UWZ	RADIATOR Cross Flow, Series System; 1228 SqIn Aluminum Radiator Core with Internal Water to Oil Transmission Cooler and 1167 In Charge Air Cooler	16/-8	8
	Includes : DEAERATION SYSTEM with Surge Tank : HOSE CLAMPS, RADIATOR HOSES Gates Shrink Band Type; Thermoplastic Coolant Hose Clamps : RADIATOR HOSES Premium, Rubber		
12VBB	AIR CLEANER Dual Element	4/0	4
	Includes : GAUGE, AIR CLEANER RESTRICTION Air Cleaner Mounted		
12VXT	THROTTLE, HAND CONTROL Engine Speed Control; Electronic, Stationary, Variable Speed; Mounted on Steering Wheel	0/0	0
12WUL	BLOCK HEATER, ENGINE {Phillips} 120V/1000W, with "Y" Cord From Socket in Standard Location, For a Dealer Installed 120V/300W Max Oil Pan Heater	0/0	0
12WZE	EMISSION COMPLIANCE Federal, Does Not Comply with California Clean Air Idle Regulations	0/0	0
12XAT	ENGINE CONTROL, REMOTE MOUNTED Provision for; Includes Wiring for Body Builder Installation of PTO Controls; with Ignition Switch Control for Cummins ISB/ B6.7 or ISL/L9 Engines	0/0	0
12XZG	FEDERAL EMISSIONS {Cummins L9} EPA, OBD and GHG Certified for Calendar Year 2017	0/0	0
13AVL	TRANSMISSION, AUTOMATIC {Allison 3500 RDS} 5th Generation Controls, Wide Ratio, 6-Speed with Double Overdrive, with PTO Provision, Less Retarder, Includes Oil Level Sensor, with 80,000-lb GVW and GCW Max, On/Off Highway	190/59	249
13TKH	TRANSFER CASE {Fabco TC-38} Two-Speed, 8,500 lb-ft Capacity with Air Control, with PTO Provision, with Reworked Air Ports	0/0	0
13WBL	TRANSMISSION SHIFT CONTROL {Allison} Push-Button Type; for Allison 3000 & 4000 Series Transmission	0/0	0
13WDB	TRANSFER CASE LUBE {EmGard 50W} Synthetic; 1 thru 14.99 Pints	0/0	0
13WGH	TRANSMISSION DIPSTICK Relocated to Right Side of Transmission	0/0	0
13WLP	TRANSMISSION OIL Synthetic; 29 thru 42 Pints	0/0	0

Code	Description	F/R Wt (lbs)	Tot Wt (lbs)
13WUC	ALLISON SPARE INPUT/OUTPUT for Rugged Duty Series (RDS); General Purpose Trucks, Construction	0/0	0
13WYU	SHIFT CONTROL PARAMETERS Allison 3000 or 4000 Series Transmissions, 5th Generation Controls, Performance Programming	0/0	0
13XAM	PTO LOCATION Dual, Left and Right Side of Transmission	0/0	0
14ARB	AXLE, REAR, SINGLE {Meritor RS-23-160} Single Reduction, 23,000-lb Capacity, Driver Controlled Locking Differential, 200 Wheel Ends . Gear Ratio: 6.43	0/223	223
	Includes : REAR AXLE DRAIN PLUG (1) Magnetic, For Single Rear Axle		
	Notes : The following features should be considered when calculating Rear GAWR: Rear Axles; Rear Suspension; Brake System; Brakes, Rear Air Cam; Brake Shoes, Rear; Special Rating, GAWR; Wheels; Tires. : When Specifying Axle Ratio, Check Performance Guidelines and TCAPE for Startability and Performance		
14VAH	SUSPENSION, RR, SPRING, SINGLE Vari-Rate; 23,500-lb Capacity, with 4500 lb Auxiliary Rubber Spring	0/62	62
	Notes : The following features should be considered when calculating Rear GAWR: Rear Axles; Rear Suspension; Brake System; Brakes, Rear Air Cam; Brake Shoes, Rear; Special Rating, GAWR; Wheels; Tires.		
15LMR	FUEL/WATER SEPARATOR {Racor 400 Series,} Unheated, with Primer Pump, and WIF Sensor	0/0	0
15LPE	LOCATION FUEL/WATER SEPARATOR Mounted Inboard of 5 Gallon DEF Tank, Under Cab	0/0	0
	Notes : For Use With 5 Gallon DEF Tank Only		
15SXJ	FUEL TANK Top Draw, Non-Polished Aluminum, 24" Dia, 50 US Gal (189L), Mounted Left Side, Under Cab	18/2	20
15WCN	DEF TANK 5 U.S. Gal. 18.9L Capacity, Frame Mounted Outside Left Rail, Under Cab	-4/17	13
16030	CAB Conventional	0/0	0
	Includes : ARM REST (2) Molded Plastic; One Each Door : COAT HOOK, CAB Located on Rear Wall, Centered Above Rear Window : CUP HOLDERS Two Cup Holders, Located in Lower Center of Instrument Panel : DOME LIGHT, CAB Rectangular, Door Activated and Push On-Off at Light Lens, Timed Theater Dimming, Integral to Console, Center Mounted : GLASS, ALL WINDOWS Tinted : GRAB HANDLE, CAB INTERIOR (1) "A" Pillar Mounted, Passenger Side : GRAB HANDLE, CAB INTERIOR (2) Front of "B" Pillar Mounted, One Each Side : INTERIOR SHEET METAL Upper Door (Above Window Ledge) Painted Exterior Color : STEP (4) Two Steps Per Door		
16HBA	GAUGE CLUSTER English with English Electronic Speedometer	0/0	0
	Includes		

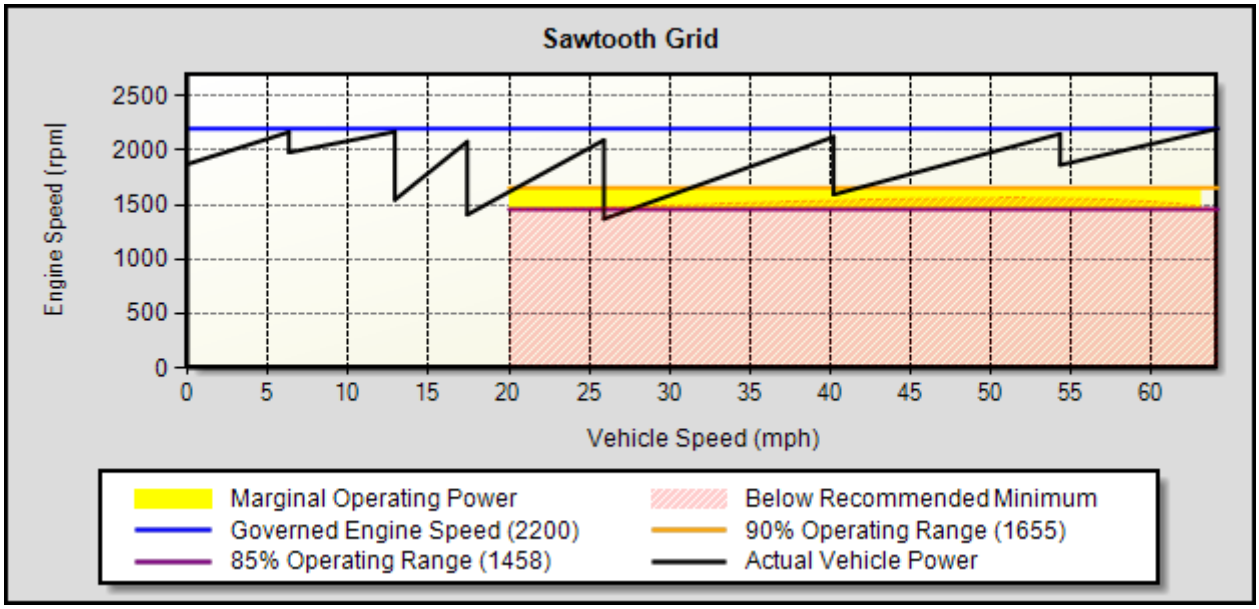
Code	Description	F/R Wt (lbs)	Tot Wt (lbs)
	: GAUGE CLUSTER (6) Engine Oil Pressure (Electronic), Water Temperature (Electronic), Fuel (Electronic), Tachometer (Electronic), Voltmeter, Washer Fluid Level : ODOMETER DISPLAY, Miles, Trip Miles, Engine Hours, Trip Hours, Fault Code Readout : WARNING SYSTEM Low Fuel, Low Oil Pressure, High Engine Coolant Temp, and Low Battery Voltage (Visual and Audible)		
16HGH	GAUGE, OIL TEMP, AUTO TRANS for Allison Transmission	1/0	1
16HKT	IP CLUSTER DISPLAY On Board Diagnostics Display of Fault Codes in Gauge Cluster	0/0	0
16HLJ	GAUGE, DEF FLUID LEVEL	0/0	0
16KAV	SEAT, DRIVER {National} Non-Suspension, High Back with Integral Head Rest, Vinyl, with Fixed Back	-53/-50	-103
16SML	SEAT, TWO-MAN PASSENGER {National} Fixed Back, Integrated Headrest in Both Occupant Positions, Vinyl, Less Under Seat Storage Compartment	35/30	65
16SNB	MIRRORS (2) {Lang Mekra} Rectangular, Thermostatically Controlled Heated Heads, Black Heads, Brackets and Arms, Breakaway Type, 7.55" x 14.1" Integral Convex Both Sides, 102" Inside Spacing	-3/0	-3
16WCT	AIR CONDITIONER {Blend-Air} with Integral Heater & Defroster	39/8	47
	Includes : HEATER HOSES Premium : HOSE CLAMPS, HEATER HOSE Mubea Constant Tension Clamps : REFRIGERANT Hydrofluorocarbon HFC-134A		
16WJS	INSTRUMENT PANEL Center Section, Flat Panel	0/0	0
16WJU	WINDOW, POWER (2) and Power Door Locks, Left and Right Doors, Includes Express Down Feature	5/0	5
16WKY	HVAC FRESH AIR FILTER	0/0	0
16WLE	STORAGE POCKET, DOOR Molded Plastic, Full Width; Mounted on Passenger Door	0/0	0
16WLM	HOURMETER, PTO for Customer Provided PTO; with Indicator Light and Hourmeter in Gauge Cluster Includes Return Wire for PTO Feedback Switch	2/0	2
16WLS	FRESH AIR FILTER Attached to Air Intake Cover on Cowl Tray in Front of Windshield Under Hood	1/0	1
16WRX	CAB INTERIOR TRIM Deluxe	0/0	0
	Includes : CAB INTERIOR TRIM PANELS Cloth Covered Molded Plastic, Full Height; All Exposed Interior Sheet Metal is Covered Except for the Following: with a Two-Man Passenger Seat or with a Full Bench Seat the Back Panel is Completely Void of Covering : CONSOLE, OVERHEAD Molded Plastic; With Dual Storage Pockets with Retainer Nets and CB Radio Pocket : DOOR TRIM PANELS Molded Plastic; Driver and Passenger Doors : FLOOR COVERING Rubber, Black : HEADLINER Soft Padded Cloth : INSTRUMENT PANEL TRIM Molded Plastic with Black Center Section : STORAGE POCKET, DOOR (1) Molded Plastic, Full-Length; Driver Door		

Code	Description	F/R Wt (lbs)	Tot Wt (lbs)
	: SUN VISOR (2) Padded Vinyl with Driver Side Toll Ticket Strap, Integral to Console		
16WSK	CAB REAR SUSPENSION Air Bag Type	0/0	0
27DUM	WHEELS, FRONT {Accuride 29806} DISC; 22.5x12.25 Rims, Powder Coat Steel, 5-Hand Hole, 10-Stud, 285.75mm BC, Hub-Piloted, Flanged Nut, with Steel Hubs, Offset 4.63"	0/0	0
28DUW	WHEELS, REAR {Accuride 51408} DUAL DISC; 22.5x8.25 Rims, Powder Coat Steel, 2-Hand Hole, 10-Stud, 285.75mm BC, Hub-Piloted, Flanged Nut, with Steel Hubs	0/0	0
7382138133	(4) TIRE, REAR 11R22.5 Load Range H ARMOR MAX MSD (GOODYEAR), 493 rev/mile, 68 MPH, Drive	0/80	80
7702658113	(2) TIRE, FRONT 385/65R22.5 Load Range J G296 MSA (GOODYEAR), 488 rev/mile, 68 MPH, All-Position	96/0	96
	Services Section:		
40115	WARRANTY Standard for WorkStar 7300/7400 (4x2, 4x4, 6x4, 6x6), Effective with Vehicles Built January 2, 2015 or Later, CTS-2002U	0/0	0
	Total Component Weight:	**8600/5227**	**13827**
	extended Allison warranty to 5yr/unlimited	0/0	0
	Total Goods Purchased:	**0/0**	**0**

The weight calculations included in this proposal are an estimate of future vehicle weight. The actual weight as manufactured may be different from the estimated weight. Navistar, Inc. shall not be liable for any consequences resulting from any differences between the estimated weight of a vehicle and the actual weight.

There is no weight study for this proposal.

ENGINE/TRANSMISSION MATCHING



Sawtooth Details

Gear	Trans Ratio	Multi Speed	Upshift Power Avail		Govern Power Avail		Peak Power Comparison			Warn Msg
			Veh Spd (MPH)	Eng Spd (RPM)	Veh Spd (MPH)	Eng Spd (RPM)	Gear Step (%)	85% Range (%)	90% Range (%)	
1C-2	4.59	1.00	0.0	1875	6.3	2169	N/A	51	33	
2C-2	2.26	1.00	6.3	1981	12.9	2172	N/A	51	33	
2L-2	2.26	1.00	12.9	1546	17.4	2081	N/A	51	33	
3L-2	1.53	1.00	17.4	1409	25.9	2095	N/A	51	33	
4L-2	1.00	1.00	25.9	1369	40.2	2125	N/A	51	33	
5L-2	0.75	1.00	40.2	1594	54.3	2153	N/A	51	33	
6L-2	0.65	1.00	54.3	1866	64.1	2200	N/A	51	33	

@ - WHEELSLIP CAN OCCUR AT THE GRADE SHOWN. THE VEHICLE IS CAPABLE OF INCREASED GRADEABILITY IF MORE WEIGHT IS PLACED ON THE DRIVE AXLES.

STEADY STATE PERFORMANCE

Performance Results	Gear	Veh Spd (mph)	Eng Spd (rpm)	Fuel Econ (mpg)	Grade (%)	Notes
LEVEL ROAD MAXIMUM SPEED	6L-2	66.2	2274	6.13	0.00	
HI GEAR SPEED @ RATED RPM	6L-2	64.1	2200	6.22	1.70	
55.0 MPH STEADY-STATE	6L-2	55.0	1889	7.44	2.86	
TYPICAL OPERATING SPEED	6L-2	60.0	2060	6.77	2.32	- Calculated Grade Ability/Fuel Economy

VEHICLE ORDER CODING ERRORS MAY RESULT IF THE "LEVEL ROAD MAX SPEED" VALUE EXCEEDS THE "HI GEAR SPEED @ RATED RPM" AND IS USED AS THE ENGINE PROGRAMMABLE VEHICLE SPEED LIMIT.

IF THE RESULTS CONTAIN " -----" , VEHICLE CANNOT ATTAIN THAT SPEED.

IF THE RESULTS CONTAIN "*****", THE ENGINE USED DOES NOT HAVE A FUEL MAP. FUEL ECONOMY CANNOT BE PREDICTED.

Recommendations / General Information

IDLE FUEL RATE : 0.82 GALS/HR @ 700.0 RPM
TORQUE CONVERTER : TC-419 STALL RATIO: 2.02

Fuel Economy Route: Normal Route - City, Suburban, and Highway

Key Fuel Economy Information	City	Suburban	Highway	Notes
MILES PER GALLON	6.01	7.75	7.08	
AVERAGE MPH	19.0	39.9	54.6	
MISSION MINUTES	29.71	51.88	173.32	

IF THE RESULTS CONTAIN "*****", THE ENGINE USED DOES NOT HAVE A FUEL MAP. FUEL ECONOMY CANNOT BE PREDICTED.

GRADEABILITY PERFORMANCE

Enroute - Full Throttle Upshift Performance

Gear	Trans Ratio	Multi Speed	Veh Spd (mph)	Eng Spd (rpm)	Whl Pwr (hp)	Grade (%)	Warn Msg	Notes
1C-2	4.59	1.00	0.0	1875	0.00	41.28	@	STALL
			3.8	2022	153.81	41.28	@	70% EFF
			5.0	2080	200.93	41.28	@	80% EFF
			6.3	2169	245.35	39.18		
2C-2	2.26	1.00	6.3	1981	183.54	28.16		
			12.9	2172	245.78	17.76		
2L-2	2.26	1.00	12.9	1546	254.46	18.44		
			17.4	2081	287.44	15.22		
3L-2	1.53	1.00	17.4	1409	238.72	12.46		
			25.9	2095	284.08	9.68		
4L-2	1.00	1.00	25.9	1369	223.55	7.40		
			26.5	1400	234.43	7.61		
			40.2	2125	273.86	5.37		
5L-2	0.75	1.00	40.2	1594	244.95	4.68		
			54.3	2153	257.78	3.00		
6L-2	0.65	1.00	54.3	1866	253.25	2.92		
			64.1	2200	239.96	1.70		RATED RPM
			65.0	2230	198.15	1.00		
			65.6	2252	167.37	0.50		
			66.2	2274	135.95	0.00		LEVEL ROAD

STARTING / TOP GEAR PERFORMANCE

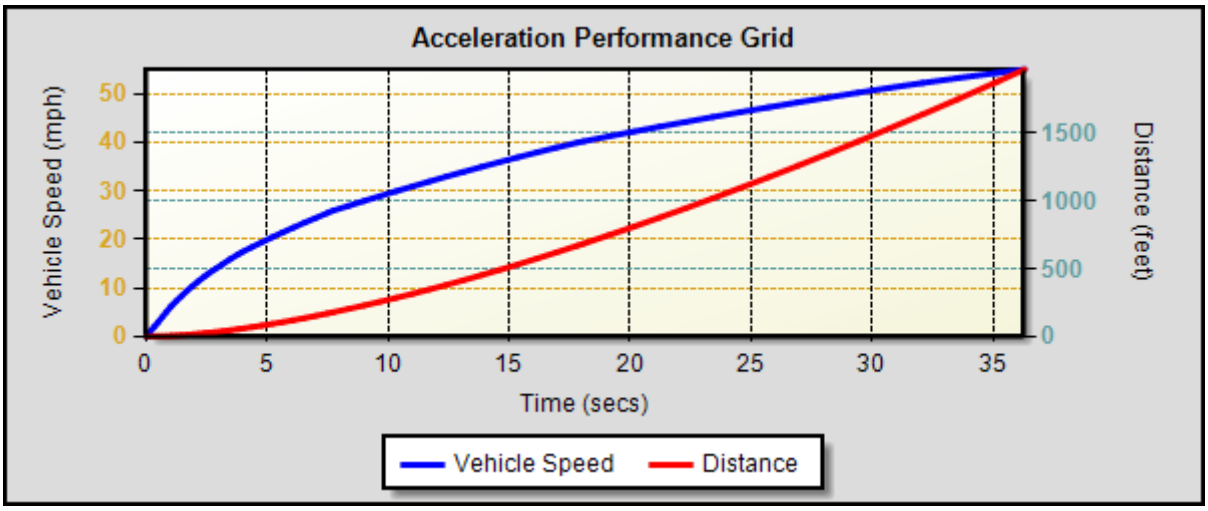
Gear	Trans Ratio	Multi Speed	Veh Spd (mph)	Eng Spd (rpm)	Whl Pwr (hp)	Grade (%)	Warn Msg	Notes
1C-1	4.59	2.22	0.0		0.00	41.28	@	STALL
			2.2		90.50	41.28	@	80% EFF
1C-2	4.59	1.00	0.0		0.00	41.28	@	STALL
			5.0		200.93	41.28	@	80% EFF - Calculated Start Ability - Calculated Start Ability
6L-1	0.65	2.22	30.9		31.71	0.00		LEVEL ROAD
			28.9		254.23	7.54		RATED RPM
6L-2	0.65	1.00	66.2		135.95	0.00		LEVEL ROAD
			64.1		239.96	1.70		RATED RPM

@ - WHEELSLIP CAN OCCUR AT THE GRADE SHOWN. THE VEHICLE IS CAPABLE OF INCREASED GRADEABILITY IF MORE WEIGHT IS PLACED ON THE DRIVE AXLES.

THE TRANSMISSION WAS SIMULATED IN PERFORMANCE OPERATING MODE.

ACCELERATION PERFORMANCE RESULTS

Acceleration Performance Grid



Acceleration Performance: TIME TO ACCELERATE ON A GRADE TO 55.0 (MPH) IS 36.30 (SECS)

Acceleration Performance Details

Gear	Time (secs)	Distance (feet)	Speed (mph)	Notes
1C	0.17	0.1	1.0	
	0.35	0.5	2.0	
	0.52	1.1	3.0	
	0.68	1.9	4.0	
	0.84	3.0	5.0	
	1.01	4.4	6.0	
2C	1.06	4.9	6.3	
	1.26	6.9	7.3	
	1.47	9.2	8.3	
	1.68	12.0	9.3	
	1.91	15.3	10.3	
	2.15	19.1	11.3	
	2.41	23.6	12.3	
2L	2.57	26.7	12.9	
	2.87	32.5	13.9	
	3.17	38.9	14.9	
	3.48	46.0	15.9	
	3.81	53.9	16.9	
3L	3.98	58.0	17.4	
	4.38	68.6	18.4	
	4.79	80.1	19.4	
	5.21	92.4	20.4	
	5.64	105.7	21.4	
	6.09	119.9	22.4	
	6.54	135.2	23.4	
	7.01	151.6	24.4	
	7.49	169.3	25.4	
4L	7.73	178.4	25.9	
	8.37	203.2	26.9	
	9.01	228.9	27.9	
	9.67	256.1	28.9	
	10.33	284.7	29.9	

Gear	Time (secs)	Distance (feet)	Speed (mph)	Notes
	11.01	314.9	30.9	
	11.70	346.6	31.9	
	12.40	380.1	32.9	
	13.12	415.3	33.9	
	13.85	452.3	34.9	
	14.60	491.2	35.9	
	15.37	532.2	36.9	
	16.15	575.2	37.9	
	16.96	621.0	38.9	
	17.82	670.4	39.9	
5L	18.09	686.4	40.2	
	19.11	747.5	41.2	
	20.16	811.3	42.2	
	21.22	878.1	43.2	
	22.31	947.9	44.2	
	23.42	1020.9	45.2	
	24.56	1097.4	46.2	
	25.73	1177.3	47.2	
	26.93	1261.0	48.2	
	28.15	1348.5	49.2	
	29.41	1440.2	50.2	
	30.71	1537.0	51.2	
	32.08	1640.6	52.2	
	33.52	1751.9	53.2	
	35.04	1871.9	54.2	
6L	35.20	1884.6	54.3	
	36.30	1973.3	55.0	

REQUIRED TCAPE INFORMATION

TCAPE Factors For Vehicle

Selected Rear Axle Gear Ratio(s):	6.43
Engine Fan Type:	VISCOUS
Parked PTO:	NO
Enroute PTO:	NO
ID Wheel Slip Conditions:	Yes
Road Governor/Cruise Ctrl:	No
Road Surface Type:	TYPICAL
Drive Axle Engaged:	NO
Fuel Economy Route:	Normal Route - City, Suburban, and Highway
Vehicle Vocation:	GENERAL ON HIGHWAY
Acceleration Grade (%):	0.0
Frontal Area (FT2):	76
Speed Limit on Route (MPH):	61.0
Relative Drag Coefficient:	85
Transfer Case - Gear Ratio (Grade Ability):	1.000
Alternator (A):	40
Transfer Case - Gear Ratio (Accel Perf):	1.000
Steering Gear (HP):	2.60
Air Conditioner (HP):	3.20
Transfer Case - Gear Ratio(Start Ability):	1.000
Vehicle Width (IN):	96
Vehicle Height (IN):	114
Weight on Drive Axle (LBF):	23000
Acceleration Vehicle Spd (MPH):	55.0
Air Compressor (HP):	2.20
Transfer Case - Gear Ratio (Fuel Economy):	1.000
TIRE, FRONT	2 - RADIAL WIDEBASE
TIRE, REAR	4 - RADIAL NORMAL

Components

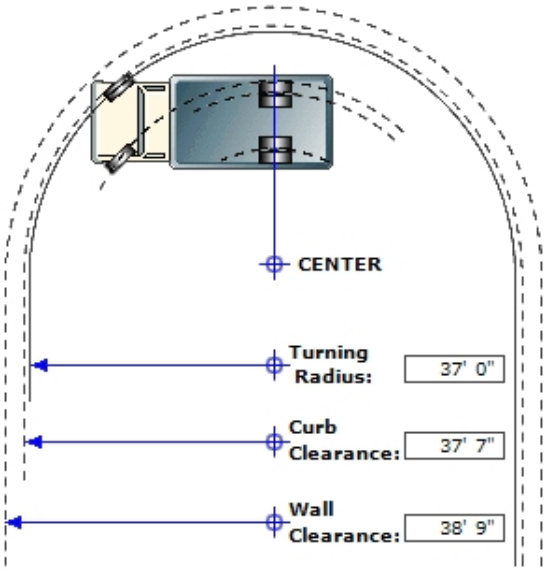
0002EZW	AXLE, FRONT DRIVING {Fabco FSD-16A} Single Reduction, 16,000-lb Capacity, with Hub Piloted Wheel Mounting
0004SPA	AIR COMPRESSOR {Cummins} 18.7 CFM Capacity
0005PSL	STEERING GEAR {Sheppard M110} Power
0008GXK	ALTERNATOR {Leece-Neville BLP4006HN} Brushless, 12 Volt 325 Amp. Capacity, Pad Mount, with Remote Sense
0012EHV	ENGINE, DIESEL {Cummins L9 330} EPA 2017, 330HP @ 2000 RPM, 1000 lb-ft Torque @ 1400 RPM, 2200 RPM Governed Speed, 330 Peak HP (Max)
0012THT	FAN DRIVE {Horton Drivemaster} Direct Drive Type, Two Speed with Residual Torque Device for Disengaged Fan Speed
0013AVL	TRANSMISSION, AUTOMATIC {Allison 3500 RDS} 5th Generation Controls, Wide Ratio, 6-Speed with Double Overdrive, with PTO Provision, Less Retarder, Includes Oil Level Sensor, with 80,000-lb GVW and GCW Max, On/Off Highway
0013TKH	TRANSFER CASE {Fabco TC-38} Two-Speed, 8,500 lb-ft Capacity with Air Control, with PTO Provision, with Reworked Air Ports
0014ARB	AXLE, REAR, SINGLE {Meritor RS-23-160} Single Reduction, 23,000-lb Capacity, Driver Controlled Locking Differential, 200 Wheel Ends
0016030	CAB Conventional
0016WCT	AIR CONDITIONER {Blend-Air} with Integral Heater & Defroster
07382138133	TIRE, REAR 11R22.5 Load Range H ARMOR MAX MSD (GOODYEAR), 493 rev/mile, 68 MPH, Drive 11R22.5 Load Range H ARMOR MAX MSD (GOODYEAR), 493 rev/mile, 68 MPH, Drive
07702658113	TIRE, FRONT 385/65R22.5 Load Range J G296 MSA (GOODYEAR), 488 rev/mile, 68 MPH, All-Position 385/65R22.5 Load Range J G296 MSA (GOODYEAR), 488 rev/mile, 68 MPH, All-Position

TCAPE HAS BEEN DESIGNED TO GIVE ECONOMY AND PERFORMANCE PREDICTIONS WHICH HAVE BEEN SHOWN TO BE TYPICAL FOR MOST OPERATIONS. HOWEVER, DUE TO OPERATING CONDITIONS, DRIVER INFLUENCES, AND OTHER FACTORS, YOUR RESULTS MAY VARY FROM THOSE PREDICTED. ALSO, BECAUSE OF FUEL MAPPING PROCEDURES USED

BY VARIOUS ENGINE MANUFACTURERS, COMPARISONS OF FUEL ECONOMY RESULTS FOR DIFFERENT BRANDS OF ENGINES MAY VARY FROM THOSE SHOWN.

NAVISTAR, INC. SHALL NOT BE LIABLE FOR ANY LOSS OF PROFITS, LOSS OF USE, INTERRUPTION OF BUSINESS OR INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND THAT ARE INCURRED BY DEALER OR BY DEALER'S CUSTOMERS AS A RESULT OF RELIANCE ON TCAPE, WHETHER THE CLAIM IS IN CONTRACT,TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE.

Turning Radius Summary
2019 7400 SFA 4X4 (SR525)



Series:	7000
Model:	SR525
Description:	7400 SFA 4X4
Model Year:	2019

Calculation Factors

Wheelbase:	201
Front Axle:	0002EZW
Description:	AXLE, FRONT DRIVING, {Fabco FSD-16A} Single Reduction, 16,000-lb Capacity, with Hub Piloted Wheel Mounting
Front Wheel:	0027DUM
Description:	WHEELS, FRONT, {Accuride 29806} DISC; 22.5x12.25 Rims, Powder Coat Steel, 5-Hand Hole, 10-Stud, 285.75mm BC, Hub-Piloted, Flanged Nut, with Steel Hubs, Offset 4.63"
Front Tire:	07702658113
Description:	TIRES, 385/65R22.5 Load Range J G296 MSA (GOODYEAR), 488 rev/mile, 68 MPH, All-Position
Steering Gear:	0005PSL
Description:	STEERING GEAR, {Sheppard M110} Power

Turning Radius Statistics

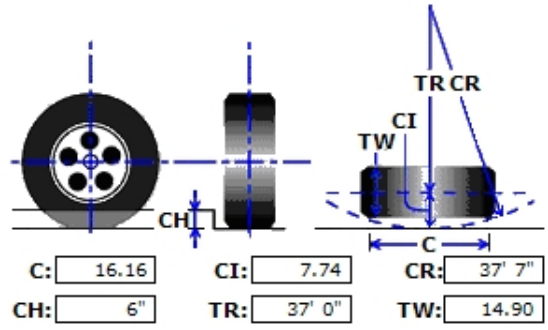
General Information

Inside Turn Angle:	32 Degrees
Radial Overhang:	21

Axle Information

KingPin Inclination:	5.4 Degrees
KingPin Center:	65.8

Turning Radius - Curb View



C	- Curb Contact Length:	16.16
CI	- Curb Clearance Increment:	7.74
CR	- Curb Clearance Radius:	37'7"
CH	- Curb Height:	6"
TR	- Turning Radius:	37'0"
TW	- Tire Width:	14.90

* All Measurements are in inches, unless otherwise specified.

This information is based on engineering information available at this time. Actual figures may vary. Navistar, Inc. cannot accept liability for consequences due to this variance.