

Overview for Contract CN00009778/CN00015379 (1302-02)

Prior to utilizing a contract, the user should read the contract in it's entirety.

DESCRIPTION

- ✓ 38,000 - 62,000 - 72,000 LB GVWR Truck – Dump – Conventional with options, Mfg Mack Trucks – aluminum body, controlled locking differential, automatic transmission, roadwatch system, tow package, centralized on board chassis lubrication, wing plows, spreaders, etc. (see contract for complete list of options)
- ✓ Instructor training for Electric and Hydraulics
- ✓ Instructor training for Chassis Engine and DriveLine
- ✓ 38,000 LB GVWR Truck – Dump – Conventional with options, Mfg Sterling are on Supplement #1 (see contract for complete list of options)

CONTRACT INFO

Contract Number & Title	CN00009778 (1302-02) Dump Trucks
Number of Suppliers	3
Validity Period	10/1/2004 to 9/30/2006
DGS Point of Contact	Robert L Isenberg
Contact Phone# Email	(717) 703-2930 risenberg@state.pa.us

PRICING HIGHLIGHTS

- ✓ Dump Trucks and Options are line item specific. Basic unit is ordered by line item with each option added per contract line item.
- ✓ Awarded prices valid for the term of the contract.

PROCESS TO PURCHASE

- ✓ SAP orders by State Agencies
- ✓ COSTARS Program for eligible local public procurement units

SPECIAL CONTRACT TERMS AND CONDITIONS

These **Special Contract Terms and Conditions** supplement the **Standard Contract Terms and Conditions For Statewide Contracts for Supplies**.

1. Purpose of Contract.

This Contract provides for the procurement of Heavy Dump Trucks with approved options for Commonwealth agencies and participating local public procurement units. The specifications for the Heavy Dump Trucks and the delivery requirements are found in the Pennsylvania Commercial Item Description (PCID) No. 1075, "*General Requirements for Bidding PennDot Vehicles/Equipment*". The most current version of PCID No. 1075, effective at the time and date of bid opening, is included and made a part of this invitation for bids. PCID No. 1075 may be reviewed and downloaded from the Department of General Services website, <http://www.dgs.state.pa.us>. In addition to PCID No. 1075, the following specifications shall apply: Attachment E-PCID 1103 Single Axle, Attachment F-Tandem Axle and Attachment G-Tri-Axle. Also attached are the EQN Drawings which are Attachments I, J and K.

2. Pennsylvania Turnpike Commission.

The requirements contained in PCID No. 1075 and in these Special Bid and Contract Terms and Conditions are applicable to orders issued by the Pennsylvania Turnpike Commission with the following exceptions:

It shall be understood that any reference in the PCID to the "Pennsylvania Department of Transportation" or to "Commonwealth agencies" shall be replaced with "Pennsylvania Turnpike Commission".

Any reference to delivery location, mailing address and contact phone number shall be replaced as follows:

DELIVERY LOCATION:

Pennsylvania Turnpike Maintenance Facility
Milepost 243.8 (New Cumberland)
519 Marsh Run Road
New Cumberland, PA 17070

CONTACT PHONE NO:

(717) 939-9551 ext. 5100

MAILING ADDRESS*:

Pennsylvania Turnpike Commission
Route 283
P.O. Box 67676
Harrisburg, PA 17106

- Note: this name and address shall also be indicated on Form MV-1 "Application for Title"

3. Cooperative Purchasing Program.

The contractor(s) will be required to provide Heavy Dump Trucks to Commonwealth executive and independent agencies as well as those state affiliated entities and entities under the COSTARS (Cooperative Sourcing to Achieve Reduction in Spend) program that desire to order from the Contract. COSTARS is a service provided by the Department of General Services for local public procurement units located in Pennsylvania. Local public procurement units are

Attachment A
Heavy Dump Truck CN00009778

authorized by law to participate in or purchase from Department of General Services' statewide requirements contracts. Eligible local public procurement units are defined as:

- Any political subdivision
- Any public authority
- Any tax exempt, nonprofit educational or public health institution or organization
- Any nonprofit fire, rescue or ambulance company
- And to the extent provided by law, any other entity, including a council of governments or an area government that expends public funds for the procurement of supplies, services, and construction.

The Department does not guarantee additional volume, and has not included their volume in the quantity estimates provided on the pricing sheets. Contractors should consider this potential additional volume when responding to this invitation for bids (IFB). There are in excess of 2,000 local public procurement units that participate in the COSTARS Program and the potential for additional thousands to participate.

4. Selection.

A Commonwealth agency or participating local public procurement unit that needs a Heavy Dump Truck shall select a contractor from the awarded contractors to furnish truck(s) to the agency or unit based upon best value. In making its best value selection, an agency or unit shall evaluate and compare all pertinent factors, but primarily the purchase price and life cycle costs. In selecting the best value contractor, the agency or unit may do one or more of the following: 1) request a best value offer which represents a reduction in the contract price; 2) conduct an online auction for the purpose of obtaining a lower price; or 3) negotiate with the contractor(s) for better contract terms such as warranty, maintenance or delivery.

5. Contract Term.

The Contract shall commence on the Effective Date, which shall be no earlier than October 1, 2004 and expire on September 30, 2005.

6. Option to Extend.

The Department of General Services reserves the right, upon notice to the contractor, to extend the Contract or any part of the Contract for up to three (3) months upon the same terms and conditions. This will be utilized to prevent a lapse in Contract coverage and only for the time necessary, up to three (3) months, to enter into a new contract.

7. Renewal.

The Contract or any part of the Contract may be renewed for four (4) additional one (1) year terms by mutual agreement between the Department of General Services and the contractor. If the Contract is renewed, the same terms and conditions shall apply. The contractor's past performance under the contract will be one criterion that the Department will consider in its decision as to whether to renew.

8. Option for Separate Competitive Bidding Procedure: The Department of General Services reserves the right to purchase supplies covered under this Contract through a separate competitive bidding procedure, whenever the department deems it to be in the best interest of the Commonwealth. The right will generally be exercised only when a specific need for a large quantity of the supply exists or the price offered is significantly lower than the Contract price.

9. Acknowledgement of Order.

The contractor must acknowledge receipt of an order within ten (10) calendar days from the day the purchase order is issued to the contractor. In order to insure timely delivery, the ordering Commonwealth agency and participating local public procurement units should follow up on orders if written acknowledgement is not received within ten (10) calendar days.

10. Delivery Time.

The contractor(s) must make delivery no later than 270 calendar days after acknowledgement of purchase order for Heavy Dump Trucks. Failure to deliver within these time periods shall result in payment of liquidated damages in accordance with Paragraph 16, of these Special Bid and Contract Terms and Conditions. Liquidated damages shall not apply under the circumstances specified in Paragraph 20, Force Majeure, of the Standard Contract Terms and Conditions For Statewide Contracts for Supplies.

Vehicles purchased by Pennsylvania Department of Transportation will be delivered FOB to: PA Department of Transportation, Equipment Division, 17th & Arsenal Blvd., Harrisburg, PA 17120. Call 717-787-2123, Larry Allen, for inspection appointment, title, and MV1 instructions.

All other vehicles will be delivered FOB to: Department of General Services, Bureau of Vehicle Management, 2221 Forster St., Harrisburg, PA 17125, with all proper paperwork as stated in the body of the specification sheets.

11. Additional Delivery Charges (Participating Local Public Procurement Units ONLY).

Participating local public procurement units may pick up ordered equipment at the awarded contractor's place of business or have the equipment delivered by the contractor for an additional **CHARGE PER VEHICLE, of \$300.00.**

12. Liquidated Damages.

If any item is not delivered within the time limits specified in Paragraph 8, Delivery Time, of these Special Contract Terms and Conditions, the delay will interfere with the proper implementation of the Commonwealth's programs and utilizing the item, to the loss and damage of the Commonwealth. From the nature of the case it would be impractical and extremely difficult to fix the actual damage sustained in the event of any such action. The Department of General Services and the contractor, therefore, presume that in the event of any such delay the amount of damage which will be sustained from a delay will be **\$10.00** per calendar day per vehicle, and they agree that in the event of any such delay, the contractor shall pay such amount as liquidated damages and not as a penalty. A Commonwealth agency may, at its option, for amounts due the agency as liquidated damages, deduct such from any money payable to the contractor or may bill the contractor as a separate item. The Commonwealth agency shall notify the contractor in writing of any claims for liquidated damages pursuant to this paragraph before the date the Commonwealth agency deducts such sums from money payable to the contractor. Delivery of an item, which is rejected by the Commonwealth agency, shall not toll the running of the days for purposes of determining the amount of liquidated damages.

Note: See Standard Contract Terms and Conditions For Statewide Contracts for Supplies, Paragraph 20, Force Majeure, for exceptions to the application of liquidated damages.

For Participating Local Public Procurement Units Only: The amount of any liquidated damages against the contractor may be deducted from the total amount due the contractor from a local public procurement unit.

13. Monthly Purchase Reports.

The contractor shall furnish to the Department of General Services monthly electronic reports no later than the fifteenth calendar day of the month for the previous month's purchasing activity. Failure to provide this information may result in termination of the contract.

Each report shall indicate name and address of the contractor, contract number, and period covered by the report. The following information shall be listed on the report for each order received.

- SAP Item No.
- Material Number
- COMMONWEALTH Agency
- Public Procurement Unit
- Make
- Model
- Additional Options
- Vehicle Cost
- Delivery Charge
- Quantity
- Order Date
- Delivery Date

All such reports shall be created using a template provided by the Department. The final format and types of data to be included must be approved by the Department. Reports shall be sent to:

Department of General Services
Attn: Richard Gaul
414 North Office Building
Harrisburg PA 17125
rgaul@state.pa.us

14. Quarterly Business Review Meetings.

The contractor shall actively participate in Quarterly Business Review meetings with the Commonwealth agency commodity managers and fleet managers from Department of Transportation and the Pennsylvania Turnpike Commission to evaluate past performance, address any issues, discuss upcoming vehicle changes, identify additional cost savings opportunities, and report build-out dates. These meetings shall be scheduled by the Department of General Services.

15. Taxes.

All participating local public procurement units will be required to indicate on their purchase orders the Internal Revenue Service Registration Number for exemption from Federal Excise Tax, if applicable.

16. Motor Vehicles to be manufactured in North America. [To be used only for the procurement of passenger cars and trucks as those terms are defined in Section 102 of the Vehicle Code, 75 Pa.C.S. Section102].

All motor vehicles furnished by the contractor pursuant to the Contract must be manufactured in North America. North America is defined as the United States, Canada, and Mexico. A motor vehicle is manufactured in North America if a substantial majority of the principal components are assembled into the final products in an assembly plant in North America. The contractor shall be prepared to prove that the motor vehicles that will be, or have been, furnished to the Commonwealth agency will be or are, in fact, manufactured in North America in accordance with Sections 3731-3736 of the Commonwealth Procurement Code (62 Pa. C.S. Sections 3731-3736),

Attachment A
Heavy Dump Truck CN00009778

known as the Motor Vehicle Procurement Act. No payment shall be made to the contractor unless the Commonwealth agency is satisfied that the contractor has complied with these provisions and the Motor Vehicle Procurement Act. Any payments made to the contractor, which should not have been made, shall be recoverable directly from the contractor. In addition to the withholding of payments, any person who willfully violates any of the provisions of the Motor Vehicle Procurement Act may be prohibited by any public agency from participation in contracts awarded by the public agency for a period of five years from the date of determination that a violation has occurred.

17. Authorized Dealer/Franchiser.

In order to be eligible for award, a bidder must be an Authorized/Franchised dealer representing the manufacturer of Heavy Dump Trucks offered to the Commonwealth.

18. License Required.

It is unlawful for any individual, corporation, partnership, association or other entity foreign or domestic to engage in the business of salesperson, broker, dealer, manufacturer, factory branch, distributor, distributor branch, factory or distributor representative or wholesaler within the Commonwealth unless he has secured a license as required by Act No. 84 of 1983, known as the Board of Vehicles Act. Before a contract is awarded to any bidder and before a bidder sells the Commonwealth any vehicle covered by this requisition, he must hold or secure an appropriate license issued by the State Board of Vehicle Manufacturers, Dealers and Salespersons. Information and/or an application in regard to the license requirement can be obtained from:

Department of State
Bureau of Professional and Occupational Affairs
State Board of Motor Vehicle Manufacturers, Dealers and Salesmen
P. O. Box 2649
Harrisburg, PA 17105-2649

SPECIAL NOTE:

Out-Of-State Dealers are not required to secure a license under Act No. 84 of 1983, and therefore, do not need to comply with this "License Required" Section.

19. Pick-up Site.

The contractor must have a site within the confines of the Commonwealth of Pennsylvania for Commonwealth agencies and participating local public procurement units to pick up their vehicle(s), rather than have the vehicle(s) delivered.

20. Local Public Procurement Unit Participation.

Those local public procurement units and any other Commonwealth purchasing agencies, which issue orders under the Contract, are intended beneficiaries under the Contract and are real parties in interest with the right to sue and be sued without joining the Department of General Services as a party.

Local public procurement units, and any other Commonwealth purchasing agencies, that elect to participate in the Contract may issue orders or enter into participating agreements directly with the contractor and will be responsible for payment directly to the contractor.

The contractor(s), who is awarded the Contract, agrees to provide vehicles at the awarded price, in accordance with the contractual terms and conditions, to all local public procurement units and Commonwealth purchasing agencies that decide to participate. The contractor shall notify the Department of General Services in writing of any and all orders and participating agreements with local public procurement units.

Attachment A
Heavy Dump Truck CN00009778

Any questions or problems pertaining to acquisition of Heavy Dump Trucks by participating Local Public Procurement Units and their use of the Contract should be accomplished in a timely manner and all contact pertaining to these questions or problems should be directed to Richard Gaul at rgaul@state.pa.us and 717-705-0862.

21. Order of Precedence.

To the extent that these Special Bid and Contract Terms and Conditions conflict with the Standard Contract Terms and Conditions For Statewide Contracts for Supplies, these Special Contract Terms and Conditions shall prevail.



All using Agencies of the Commonwealth, Political Subdivision,
Authorities, Private Colleges and Universities

ORIGINAL Page 1 / 5
Contract Number: 4600007721
Creation Date: 09/22/2004

Purchasing Agent:
 Name: Richard Gaul
 Phone: 717-705-0862
 Fax: 717-783-6241
 E-mail: rgaul@state.pa.us
 Valid from/to: 09/22/2004 - 09/30/2005

Your vendor number with us: 114765

Vendor Name/Address:
 MACK TRUCKS INC
 2100 MACK BLVD
 ALLENTOWN PA 18103-5622

Please Deliver To:

 *** TBD AT TIME OF PURCHASE ORDER ***

 *** UNLESS SPECIFIED BELOW ***

Your Quotation: _____ Date: _____
 Collective No.: CN00009778
 Our Quotation: 6000057088

Payment Terms: NET 30

The Commonwealth of Pennsylvania, through the Department of General Services, accepts the submission of the Bidder/Contractor for the awarded item(s) at the price(s) set forth below in accordance with: 1) the RFQ submitted by the Bidder/Contractor, if any; 2) the documents attached to this Contract or incorporated by reference, if any, and 3) the contract terms and conditions stored on the website address at www.dgs.state.pa.us for this type of Contract as of the date of the RFQ, if any, or other solicitation for this Contract, all of which, as appropriate, are incorporated herein by reference. When the Bidder/Contractor receives an order from a Commonwealth agency, the order constitutes the Bidder/Contractor's authority to furnish the item(s) to the agency at the time(s) and place(s) specified in the order. RFQ, as used herein, means Request for Quotations, Invitation for Bids, Invitation to Qualify, or Request for Proposals, as appropriate.

Item	Description	Quantity	UOM	Price	Per Unit	TOTAL
00010	TRUCK,DUMP,W/STEEL BODY & MANUAL TRANS					
	287180	0	EA	81,194.00	EA	0.00
	Item text Mack CV712-J&J DS2 Body					

00020	TRUCK,DUMP,BODY,ALUMINUM					
	287181	0	EA	2,210.00	EA	0.00
	Item text J&J DS2 Body					

00030	TRUCK,DRIVER CONTROLLED LOCKING DIFF					
	287182	0	EA	316.00	EA	0.00
	Item text Meritor-Main Diff. Lock					

00040	TRUCK,DUMP,ALLISON AUTOMATIC TRANS					
	287183	0	EA	11,805.00	EA	0.00
	Item text Allison 4500 RDS-6 w/synthetic fluid & ext warranty					

00050	TRUCK,DUMP,ROADWATCH SYSTEM					
	287184	0	EA	601.00	EA	0.00

*** SEE LAST PAGE FOR TOTAL VALUE OF CONTRACT ***



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Contract Number: 4600007721
Creation Date: 09/22/2004

Vendor Name:

MACK TRUCKS INC

Item	Description	Quantity	UOM	Price	Per Unit	TOTAL
	Item text Roadwatch (in mirror)					
00060	TRUCK,HEAVY DUTY TRAILER TOW PACKAGE 287185	0	EA	796.00	EA	0.00
	Item text Holland PH760 Pintle Hook					
00070	TRUCK,CENTRALIZED,ON BOARD CHASSIS LUB 287186	0	EA	1,475.00	EA	0.00
	Item text Vogel (monitored)					
00080	TRUCK,MAINT FREE BATTERIES,W/3 YR WARR 287187	0	EA	192.00	EA	0.00
	Item text Dynacell DY31-DC					
00090	TRUCK,COMPONENT TECH HYD CONTROLLER 287188	0	EA	10,410.00	EA	0.00
	Item text Component Technology SG					
00100	TRUCK,BASIC HYDRAULIC CONTROLLER 287189	0	EA	11,226.00	EA	0.00
	Item text Basic Hydraulics CS-230					
00110	TRUCK,DUMP,RIGHT WING PLOW 287202	0	EA	11,058.00	EA	0.00
	Item text Henke HDP W10RH PA04					
00120	TRUCK,DUMP,LEFT WING PLOW 287203	0	EA	11,146.00	EA	0.00
	Item text HDPW10LH PA04					
00130	TRUCK,STAINLESS STEEL TAILGATE SPREADER 287204	0	EA	2,857.00	EA	0.00
	Item text F line VCT11DDS404					
00140	TRUCK, DUMP,AUGER REVERSE FEATURE 287205	0	EA	244.00	EA	0.00

*** SEE LAST PAGE FOR TOTAL VALUE OF CONTRACT ***



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 Contract Number: 4600007721
 Creation Date: 09/22/2004

Vendor Name:

MACK TRUCKS INC

Item	Description	Quantity	UOM	Price	Per Unit	TOTAL
Material/Service No.						
00150	TANDEM, TRUCK, DUMP, CONV CAB W/ALUM BODY					
287206		0	EA	90,794.00	EA	0.00
Item text						
Mack CV713-Benson PDT4A06						
00160	TANDEM, TRUCK, DUMP, AUTO TRANSMISSION					
287207		0	EA	10,776.00	EA	0.00
Item text						
Allison 4500 RDS-6						
00170	TANDEM, TRUCK, CCA MAINT FREE BATT W/3 YR					
287208		0	EA	182.00	EA	0.00
Item text						
Dynacell DY31DC						
00180	TANDEM, TRUCK, HEAVY DUTY TRAILER TOW					
287209		0	EA	796.00	EA	0.00
Item text						
Holland PH-760						
00190	TANDEM, TRUCK, COM TECH HYD CONTROLLER					
287210		0	EA	18,466.00	EA	0.00
Item text						
Component Technology SG						
00200	TANDEM, TRUCK, DUMP, BASIC HYD CONTROLLER					
287211		0	EA	14,949.00	EA	0.00
Item text						
Basic Hydraulics CS-230						
00210	TANDEM, TRUCK, DUMP, RIGHT WING PLOW					
287212		0	EA	8,177.00	EA	0.00
Item text						
Tenco TCW-10S-38-N-R (TC-110-HD)						
00220	TANDEM, TRUCK, DUMP, LEFT WING PLOW					
287213		0	EA	8,551.00	EA	0.00
Item text						
Tenco TCW-10S-38-N-R (TC-110-HD)						
00230	TANDEM, TRUCK, DUMP, DUAL WING PLOWS					
287214		0	EA	16,772.00	EA	0.00
Item text						
Tenco TCW-10S-38-N-R (TC-110-HD)						

*** SEE LAST PAGE FOR TOTAL VALUE OF CONTRACT ***



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 Contract Number: 4600007721
 Creation Date: 09/22/2004

Vendor Name:

MACK TRUCKS INC

Item	Description	Quantity	UOM	Price	Per Unit	TOTAL
Material/Service No.						
00240	TANDEM,STAINLESS STEEL BODY, TRUCK DUMP					
287242		0	EA	11,380.00	EA	0.00
Item text						
Benson PDT 4SS 06						
00250	TRI-AXLE TRUCK CONVENT CAB W/ALUM BODY					
287215		0	EA	118,239.00	EA	0.00
Item text						
Mack CV713						
Benson PDTTRA06						
00260	TRI-AXLE DUMP TRUCK AUTO TRANS OPTION					
287216		0	EA	10,776.00	EA	0.00
Item text						
Allison 4500 RDS-6						
00270	TRI-AXLE DUMP TRUCK RIGHT WING PLOW					
287217		0	EA	8,177.00	EA	0.00
Item text						
Tenco TCE-10S-38-N-R						
00280	TRI-AXLE DUMP TRUCK LEFT WING PLOW					
287218		0	EA	8,551.00	EA	0.00
Item text						
Tenco TCW-10S-38-N-R						
00290	TRI-AXLE DUMP TRUCK DUAL WING PLOWS					
287219		0	EA	16,772.00	EA	0.00
Item text						
Tenco TCW-10S-38-N-R						
00300	HEATED WINDSHIELD, IF AVAILABLE FROM MFG					
287220		0	EA	475.00	EA	0.00
00310	MANUALS,COMPLETE SET,CHASS,BDY,HYD,ETC					
287221		0	EA	375.00	EA	0.00
00320	ELECTR ENG AND VEHICLE DIAG SOFTWARE					
287222		0	EA	1,000.00	EA	0.00

*** SEE LAST PAGE FOR TOTAL VALUE OF CONTRACT ***



ORIGINAL

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Contract Number: 4600007721

Creation Date: 09/22/2004

Vendor Name:

MACK TRUCKS INC

Item	Description	Quantity	UOM	Price	Per Unit	TOTAL
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-----SUPPLEMENTAL INFORMATION-----

Header text

Pick up site:

Harrisburg Mack
4230 Industrial Road
Harrisburg Pa 17110

NO FURTHER INFORMATION FOR THIS CONTRACT

Currency: USD

99,999,999,999.00
ESTIMATED VALUE

Attachment C
Mack Trucks

Group I
**Information Sheet for Truck – Dump –
Conventional – 38,000* LB GVWR**

Cab & Chassis Make/Model: Mack CV712

Engine Make/Model/Displacement/HP/Torque: Mack,AMI-300,728C.I.,300HP,1200lb ft
@1300rpm

Automatic Transmission Make/Model: Allison, 4500 RDS-6

Manual Transmission Make/Model: Mack, TM-308

Aluminum Body Make/Model: J & J, DA2

Steel Body Make/Model: J & J, DS2

Frame RBM: 1,960,000

Front/Rear Wheel Mfg. & Part #: Accuride #29039, Accuride #28828

Hydraulic System Console Make/Model: Component Tech- DGS
Component Tech-GL-400 (PennDot)
Basic- CS-230 (Turnpike)

Hydraulic Control Valve Make/Model: Rexroth-MP18

Hydraulic Pump Make/Model: Rexroth-A10V0100

Plow Wing Make/Model: Henke-HDP W10 PA04

Attachment C
Mack Trucks

Group II
**Information Sheet for Truck – Dump –
Conventional – 62,000* LB GVWR, Type IV**

Cab & Chassis Make/Model: Mack, CV713

Engine Make/Model/Displacement/HP/Torque: Mack, AMI-370, 728C.I., 370HP, 1480
@ 1300 rpm, Auto Trans Mack, AI-375A, 728C.I., 375HP

Automatic Transmission Make/Model: Allison, 4500 RDS-6

Manual Transmission Make/Model: Mack, T-310

Aluminum Body Make/Model: Benson PDT4A06

Stainless Steel Body Make/Model: Benson PDT4SS06

Frame RBM: 2,620,000

Front/Rear Wheel Mfg. & Part #:Accuride # 29806, Accuride # 28828

Hydraulic System Console Make/Model: Component Technology SG7

Hydraulic Control Valve Make/Model: Rexroth MP18 3 Function Manifold

Hydraulic Pump Make/Model: Rexroth A10V0100

Plow Wing Make/Model: Tenco TCW-10S-38-N-R (TC-110-HD)

Attachment C
Mack Trucks

Group III
**Information Sheet for Truck – Dump –
Conventional – 72,000* LB GVWR, Tri-Axle**

Cab & Chassis Make/Model: Mack-CV713

Engine Make/Model/Displacement/HP/Torque: Mack AI-460, 728cu. In. 460 hp 1560 @
1300lb ft of torque, Auto trans Mack, AI-427, 728 cu. In., 427HP

Automatic Transmission Make/Model: Allison, 4500 RDS-6

Manual Transmission Make/Model: Mack T-310

Aluminum Body Make/Model: Benson PDTTRA06

Frame RBM: 2,620,000

Front/Rear Wheel Mfg. & Part #: Accuride #29806, Accuride #28828

Hydraulic System Console Make/Model: Component Technology SG7

Hydraulic Control Valve Make/Model: Rexroth MP18 3 Function Manifold

Hydraulic Pump Make/Model: Rexroth A10V0100

Plow Wing Make/Model: Tenco TCW-10S-38-N-R (TC-110-HD)

Attachment M
Mack Trucks

TRAINING:

Training sessions may or may not be utilized.

Training pricing must be submitted with the bid package and will not affect the final outcome of the bid.

FIELD TRAINING SESSIONS

May be performed in any or all of the Regional locations listed (See attachment A)

Mechanic:

The successful vendor shall provide services of qualified factory trained technicians for not more than 16 students. Training sessions of not more than 15 hours to train personnel for in-depth preventive maintenance, overhaul and review of the proper usage of parts and service manuals, as well as component/system adjustments that need to be monitored at specified service intervals. Travel, lodging and meal expenses are the responsibility of the awarded vendor.

The successful vendor shall submit a training plan to the Equipment Division for approval within 30 days after receipt of the Purchase Order. The training plan shall consist of course outline and material handouts.

The successful vendor shall be responsible for providing all material and training aids as needed.

All training must be coordinated and completed within 30 days after the dates established in the approved training plan unless an extension is mutually agreed to in writing with the Statewide Training Coordinator (717) 787-4836, Fax (717) 783-4438.

INSTRUCTOR TRAINING:

To be performed at a certified factory location.

The successful vendor shall provide services of qualified factory trained technicians for not more than 15 hours for a maximum of 14 people at A FACTORY CERTIFIED LOCATION TO TRAIN PENNDOT INSTRUCTOR PERSONAL on electrical and hydraulic systems. Travel, lodging and meal expenses are the responsibility of the Department of Transportation.

The successful vendor shall provide services of qualified factory trained technicians for not more than 37.5 hours for a maximum of 14 people at A FACTORY CERTIFIED LOCATION TO TRAIN PENNDOT INSTRUCTOR PERSONAL on chassis engine and driveline. Travel, lodging and meal expenses are the responsibility of the Department of Transportation.

Attachment M

Mack Trucks

The successful vendor shall submit a training plan and all instructor training shall be coordinated with the Mechanic Training Administrator (717) 705-6771, Fax (717) 705-2125 within 30 days after receipt of the Purchase Order.

****FAILURE TO PROVIDE THE REQUIRED TRAINING AND PRICING MAY RESULT IN REJECTION OF YOUR BID.**

PennDot Mechanic Training: Complete price per training event; training event is defined as 2 consecutive days of not more than 15 hours for not more than 16 students.

REGION ONE

\$4,150 Per Event

PENNDOT District 1-0

255 Elm Street
P.O. Box 398
Oil City, PA 16301
Phone: (814) 678-7043
Fax: (814) 678-7040

PENNDOT District 2-0

1924-30 Daisy Street
P.O. Box 342
Clearfield, PA 16830
Phone: (814) 765-0504
Fax: (814) 765-0487

PENNDOT District 10-0

2550 Oakland Ave.
P.O. Box 429
Indiana, PA 15701-0429
Phone: (724) 357-2816
Fax: (724) 357-1904

TURNPIKE

Western Regional Office
2200 North Center Avenue
New Stanton Pa. 15672
724-755-5000

REGION TWO

\$4,150 Per Event

PENNDOT District 3-0

715 Jordan Avenue
Montoursville, PA 17754
Phone: (570) 368-4217
Fax: (570) 368-4343

Attachment M
Mack Trucks

PENNDOT District 4-0

P.O. Box 111
Scranton, PA 18501
Phone: (570) 963-4032
Fax: (570) 963-4245

REGION THREE

\$4,150 Per Event

PENNDOT District 5-0

1713 Lehigh Street
Allentown, PA 18103-4727
Phone: (610) 798-4184
Fax: (610) 798-4193

PENNDOT District 6-0

7000 Geerdes Blvd.
King of Prussia, PA 19406-1525
Phone: (610) 205-6744
Fax: (610) 205-6909

PENNDOT District 8-0

2140 Herr Street
Harrisburg, PA 17103-1699
Phone: (717) 787-4339
Fax: (717) 772-0975

Equipment Division

17th and Arsenal Blvd.
Harrisburg, Pa. 17120
Phone: (717) 787-1567
Fax: (717) 783-0971

TURNPIKE

Eastern Regional Office
251 Flint Hill Road
King of Prussia Pa. 19406
610 279-3778

Attachment M
Mack Trucks

REGION FOUR

\$4,150 Per Event

PENNDOT District 9-0

1620 North Juniata Street
Hollidaysburg, PA 16648
Phone: (814) 696-7112
Fax: (814) 696-7121

PENNDOT District 11-0

45 Thomas Run Road
Bridgeville, PA 15017
Phone: (412) 429-4942
Fax: (412) 429-5069

PENNDOT District 12-0

P.O. Box 459
North Gallatin Avenue Extension
Uniontown, PA 15401-0459
Phone: (724) 439-7362
Fax: (724) 439-7360

Instructor Training at Certified Factory Location for Electric and Hydraulics:

Complete price for 2 consecutive days of not more than 15 hours for no more than 14 students. \$1,650 Per Event

Instructor Training at Certified Factory Location for Chassis Engine and Driveline:

Complete price for 5 consecutive days of not more than 37.5 hours for not more than 14 students. \$5,000 Per Event



COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA COMMERCIAL ITEM DESCRIPTION (PCID)

GENERAL REQUIREMENTS FOR BIDDING PennDOT VEHICLES/EQUIPMENT

(This item description supersedes PCID No. 1075 eff. 6/21/02)

PCID NO. 1075
 Eff. June 25, 2003

These General Requirements shall apply to all on-road and off-road vehicles, highway equipment, agricultural equipment and construction equipment, procured for use by the Department of Transportation, Commonwealth of Pennsylvania (PennDOT). These requirements are in addition to any supplemental specifications identified in the invitation for bids. The following shall be considered MINIMUM requirements.

A. STANDARDS, CODES, RULES, REGULATIONS:

1. Each vehicle or unit of equipment shall conform to any and all requirements contained in the Pennsylvania Motor Vehicle Code.
2. Each vehicle or unit of equipment shall comply with all current applicable Federal Motor Vehicle Safety Standards, Federal and Pennsylvania Exhaust Emission and Noise Standards, and EPA and OSHA requirements. The appropriate decals indicating compliance shall be affixed to the vehicle/equipment.
3. Each vehicle or unit of equipment shall be manufactured in accordance with any codes, standards and engineering practices as recommended by the following professional organizations for the specific vehicle/equipment:

American Institute of Steel Construction (AISC)
 American National Standards Institute (ANSI)
 American Society of Mechanical Engineers (ASME)
 American Society for Testing and Materials (ASTM)
 American Trucking Association (ATA)
 American Welding Society (AWS)
 American Wood-Preservers Association (AWPA)
 Battery Council International (BCI)
 British Standards Institute (BSI): Limits and Fits
 Compressed Air and Gas Institute (CAGI)
 Industrial Fastener Institute (IFI)
 International Standards Organization (ISO)
 Joint Industrial Council (JIC)
 National Fire Protection Association (NFPA)
 National Truck and Equipment Association (NTEA)
 Power Crane and Shovel Association (PSCA)
 Society of Automotive Engineers (SAE)
 Society of Manufacturing Engineers (SME)
 Steel Structure Painting Council (SSPC)
 Tire and Rim Association (TRA)

B. COMPONENTS, PARTS AND ACCESSORIES:

1. When "No Substitute" components, parts or accessories are designated, only this type of component, part or accessory is acceptable.

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2. All equipment and parts furnished shall be of the manufacturer's most current design, shall be included in its most current published list of models in stock and shall satisfy, these specifications.
3. The same model components shall be utilized on all units supplied by the successful bidder under the specifications.
4. All electronic systems associated with the vehicle/equipment shall be properly insulated so as not to not cause any interference with the operation of the vehicle or the land mobile radio communications system, when properly installed in the vehicle.
5. Power systems must be compatible with the engine, transmission, axles, hydraulic system and power steering, etc., in order to meet the requirements specified herein.
6. Vehicles shall meet the maximum gradeability of the manufacturer when loaded to maximum Gross Vehicle Weight Rating ("GVWR") without exceeding the engine manufacturer's recommended maximum revolutions per minute ("RPM") based on maximum net torque.
7. The ratio of the rear axle and transmission shall be geared to maintain a road speed of approximately 65 mph on a level road, when operating at maximum GVWR without exceeding the recommended engine rpm figure. This is not applicable to construction type equipment.

C SITE VISITS:

Prior to submission of its bid, a bidder may contact PennDOT and schedule a site visit to inspect vehicles/equipment (as available) in PennDOT's current inventory in order to further clarify any drawings, pictures and specifications. Units may be available in the field for bidders to inspect at one or more of PennDOT's Maintenance Districts, but the Commonwealth makes no guarantee that any particular vehicle/equipment shall be located at a site convenient to the bidder's place of business. The site visit must be scheduled with the Equipment Division by calling (717) 787-1567. It is the bidder's responsibility to complete the site visit in time to submit a bid. All travel will be at the bidder's expense.

D. ON BOARD VEHICLE/EQUIPMENT REQUIREMENTS:

1. Each vehicle and unit of equipment shall include the proper forms to apply for a Pennsylvania title and license. These forms will include: the original manufacturer's statement of origin signed by the successful bidder and notarized. All title papers shall be properly prepared and executed. The application for title, Form MV-1 shall indicate the name and address exactly as follows: Pa. Dept. of Transportation, Equipment Division, 17th Street and Arsenal Blvd., Harrisburg, PA 17120 (ATTN: Specifications Unit).
2. Trucks and trailers shall be certified to meet or exceed requirements to obtain a Pennsylvania license. For medium and heavy-duty trucks and vans, the GVWR shall be identified in the vehicle's cab as the final complete certification label (minimum rating). The Gross Combined Weight Rating (GCWR) shall be identified by decal in the cab to indicate the approved weight, which can be towed, if applicable.
3. Vehicles designated for on-road use shall meet the following requirements:
 - a. Shall have a valid Pennsylvania state inspection sticker.
 - b. Shall have completed the manufacturers' recommended pre-delivery service.
 - c. Shall have the vehicle manufacturer's model name and model number stated on a decal affixed to the inside of the driver's side door.
 - d. Shall be clean, lubricated, serviced, gas tank filled to full recommended capacity, all adjustments completed, all mechanical and electrical motors and components fully functional and operational, and the vehicle will be "road ready" for immediate use.

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- e. Shall have appropriately placed decals indicating the types of required fuels or lubricants and the capacity of each fluid's reservoir that is required by the vehicle.
- f. Shall have permanent antifreeze in each vehicle to protect it at a level of -35°F. Only a low silicate type anti-freeze will be used for vehicles having diesel engines.
- g. Shall be free from all dealer signs/emblems.
- h. Shall have all required rust proofing applied to the exterior and underside of the vehicle. No rustproofing compound can be on the personnel compartment's items or the exterior of the body in unsightly or unintended areas.
- i. Shall include a copy of the manufacturer's warranty and service policy with all warranty vouchers, certificates and coupons.
- j. Shall have each vehicle and major component identified with a metal identification tag that provides the OEM's name, model number and individual serial number. Tags will be affixed in an accessible and readable position on the item.

The above items are pre-delivery service items, and bidders should not misconstrue these requirements with warranty problems that arise after the Commonwealth accepts the completed unit which complies with the written specifications.

All charges for any of the aforementioned administrative and technical services and equipment are considered minimum acceptable requirements for delivery and shall be included in the bid price.

E. GENERAL WARRANTY REQUIREMENTS

The following warranty requirements are considered minimum unless otherwise stated in the invitation for bids. If the manufacturer's standard warranty exceeds the specified warranty, the manufacturer's standard warranty will apply. Manufacturer's warranty shall be provided in written or electronic form. All warranties will cover all labor and parts replacement during the warranty period, except as may be otherwise stated below or in the invitation for bids. This warranty, however, does not include items that must be replaced through ordinary wear and tear, but those parts ordinarily replaced through the servicing program will be replaced as part of the servicing program of equipment/vehicles, if appropriate. Parts replaced under this warranty will be of original equipment manufacturer (OEM) quality or higher. Service to the vehicle/equipment will be at a level to maintain or meet the manufacturer's requirements to sustain the warranty.

1. MEDIUM DUTY/HEAVY DUTY CAB & CHASSIS (19,501# GVWR or higher):

The chassis manufacturer's service and warranty program shall be for one (1) year or 12,000 miles (whichever first occurs).

2. LIGHT DUTY TRUCKS & VANS (up to 19,500# GVWR):

The chassis and cab manufacturer's service and warranty program shall be for three (3) years or 36,000 miles (whichever first occurs), including powertrain. A two (2) year, unlimited mileage warranty is acceptable in lieu of a three year, 36,000-mile warranty. The vehicle shall be certified as having a capacity of towing 1,000 pounds without voiding the warranty.

3. CONSTRUCTION EQUIPMENT: The construction and agricultural equipment manufacturer's service and warranty program shall be for a minimum of two (2) years or four thousand (4,000) hours whichever first occurs.

4. ADDITIONAL SPECIFIC WARRANTY ITEMS (Applies to light, medium and heavy duty trucks only)

a. RUST PROOFING WARRANTY

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Cabs/cowls shall be warranted for five (5) full years with no mileage or hourly limitations. This will include rusting through or perforation from within. This warranty and service program covers both labor and parts for the full warranty period. Surface rust caused by chip, scratches, or damage caused by PennDOT employees is not covered by this warranty.

b. FRAME RAILS AND CROSSMEMBERS (Chassis)

For medium/heavy duty trucks, frame rails and cross members are warranted for five (5) full years with no mileage or hourly limitations. This warranty covers both parts and labor for the full warranty period. For light duty trucks and vans, the manufacturer's standard frame rail and crossmember warranty is acceptable.

c. FLAT BED WARRANTY

A vehicle's flat bed shall be warranted for three (3) years. This warranty covers both parts and labor for the full warranty period. A decal will be placed on the inside driver's door stating the warranty's terms and the name, address and telephone number of the contact person to initiate warranty claim services.

d. SERVICE/UTILITY BODY AND ASSOCIATED COMPONENTS WARRANTY

Fiberglass bodies will be warranted for five (5) years to include color fading. Steel service and utility bodies shall be warranted for five (5) years against defects and corrosion, including rust through or perforation from within. Surface rust caused by chip, scratches, or damage caused by PennDOT employees is not covered by this warranty. Associated components such as cranes, air compressors, and snowplows shall be covered by manufacturer's standard warranty. Manufacturer's standard warranty shall be provided in written or electronic form.

e. ENGINE AND TRANSMISSION WARRANTY

The engines for all Heavy/Medium Duty equipment/vehicles will be warranted for parts and labor for five (5) years or 150,000 miles (whichever first occurs). The engine warranty will include all items named or included within the valve covers, cylinder heads block, oil pan and injection pump. The transmission (automatic/manual) will be fully covered by the warranty and service program for two (2) years and will not be limited by mileage or hours. For light duty trucks and vans, the manufacturer's standard frame engine and transmission warranty is acceptable

f. WARRANTY CARD PROCEDURES

The successful bidder shall complete the warranty card except for the warranty start date. The PennDOT Equipment Division shall inform the successful bidder of the following: model number of vehicle; serial number of vehicle, equipment number, and location assigned; date released to the counties.

F. PILOT MODEL:

PennDOT reserves the right to require the successful bidder to make mutually agreeable arrangements to deliver a "pilot model" for initial inspection. Pilot models(s) shall be delivered to the Department of Transportation, 17th St., & Arsenal Blvd., Harrisburg, PA 17120 for inspection, testing and approval. The remaining units shall not be delivered for inspection, testing and approval until after the pilot model has been accepted by PennDOT. The remaining units shall fully meet the requirements of the specifications and must be indistinguishable from the approved pilot model. Presentation of a pilot model will not be required if the quantity is only one (1) unit. The pilot model must meet all the mechanical requirements of the specifications. PennDOT may field test the equipment to determine if it meets the performance requirements of the specifications. Performance testing results will normally be completed within two (2) weeks of date of delivery. There are administrative items that are required to be presented at the pilot model inspection. It is imperative that all of these items be presented at this time so they are ready for shipment, when the balance of the

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units are delivered. PennDOT may withhold payment, where deemed necessary, pending receipt of these items. PennDOT disclaims any liability for damage to equipment that has not been unconditionally accepted by the PennDOT.

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G. DELIVERY:

Time is of the essence. All units must be delivered within the number of days, specified in the invitation for bids, after receipt of the purchase order by the successful bidder. It shall be assumed by the parties that the successful bidder received the purchase order on the third business day following the date of the purchase order, unless the successful bidder provides credible evidence that the order was received on a later date. Bidders must specify delivery time in their bid. Phrases such as "as required", "as soon as possible", or "prompt" have no meaning and may be cause for rejection of the bid. The successful bidder shall deliver at ground level the complete unit(s) to the Equipment Division, 17th Street and Arsenal Blvd. Harrisburg, PA 17120. All deliveries shall be made on a working day between 7:00 AM and 3:30 PM. There is a loading dock at this location; however, any additional unloading cost shall be borne by the successful bidder. The terms of delivery are also controlled by other provisions in the invitation for bids.

The successful bidder shall submit to the PennDOT "on a continuing basis", all service bulletins and technical letters as regularly issued by a manufacturer to dealers or large fleets. All the relevant information shall be supplied for the unit(s) forwarded to the Commonwealth to inform PennDOT of any improvements, changes and/or problems concerning the unit and its component parts. This information shall be addressed to the Pennsylvania Department of Transportation, % Equipment Division, 17th St. & Arsenal Blvd., Harrisburg, PA 17120, ATTN: Chief, Equipment Division. PennDOT reserves the right to have its representative(s) periodically inspect each unit during assembly at the successful bidder's assembly point.

H. PROCEDURE FOR IMPLEMENTING REPAIRS:

In the event that a breakdown occurs, the repair work is to be performed by the successful bidder of record or his duly authorized representative within the Commonwealth. A copy of the successful bidder's work orders shall be supplied to the PennDOT County Equipment Manager and District Equipment Manager. Repairs assigned to the successful bidder can be performed at the successful bidder's place of business, at his duly authorized representative's place of business and, whenever possible, at the county maintenance facility or field locations. If services are to be performed at PennDOT's county maintenance facilities or in the field, the successful bidder must provide proof of insurance as stated in the contract attachments. County Equipment Managers shall notify the successful bidder or his duly authorized service representatives that the vehicle/equipment is down for component repairs and follow PennDOT standard procedure for handling warranty problems in accordance with the benefits of this warranty. At this time of notification, the location of repair is to be mutually agreed upon based on the most timely and cost effective basis to the Department. All work orders against the warranted repair shall be kept in PennDOT's Equipment History File at the county maintenance facility.

When repairs are to be performed at the successful bidder's place of business or his duly authorized representative's place of business, transportation of the vehicle/equipment within the Commonwealth of Pennsylvania shall be made by PennDOT. If determined by PennDOT that repairs cannot be handled within the Commonwealth, then transportation to and from the Commonwealth of Pennsylvania shall be the responsibility of the successful bidder.

I. LUBRICATION AND COMPONENT INFORMATION:

The successful bidder shall provide lubrication and component information (as applicable) upon request by PennDOT. This information may be provided by copying and completing the sample forms attached to this document, or may be presented on forms prepared by the successful bidder and/or manufacturer. (see attached sample forms – 4 pages).

J. SUCCESSFUL BIDDER'S RIGHTS:

The successful bidder shall have the right to make periodic inspections to ascertain that the maintenance techniques and/or repair procedures are being administered in accordance with the guidelines set forth in this document. Preventive maintenance shall be performed by PennDOT in accordance with the component manufacturer's recommended procedures, or as modified during the contract through supplements. All internal parts of the components shall be the repair responsibility of the successful bidder, except maintenance adjustments.

APPROVALS:

Quality Assurance Specialist: Craig E. Wolford, CPPB

Quality Assurance Supervisor: Tom DiMartile, CPPB

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Quality Assurance Manager: Paul Wolf, C.P.M., CPPB

Sample Forms (Instruction Sheet)

The Following Documents Shall Be Completed And Emailed / Shipped To

Email: Contact the Automotive Equipment Specialist @ The Equipment Division @ 717-783-1395 (This is an Excel Spread Sheet, a Work Copy will be Emailed to You)

**Mail: Equipment Division
17th & Arsenal Blvd.
Harrisburg, Pa. 17120
Attn: Specifications Division**

Note: These Forms Must Be Delivered to The Equipment Division With The Pilot Model!

**Instructions To Vendor For Completing The Attached Form
(We Would Prefer Having This Completed Electronically)**

Electronic:

- 1. Obtain Work Copy By Calling 717-783-1395**
- 2. All Sections Are to be Filled Out**
- 3. Insert N/A in All Sections That Do Not Apply, Do Not Leave any Sections Blank**
- 4. Manufacturer, Model No. And Part No. Should Reflect The Actual Component Manufacture**
- 5. Warranty Section Should Reflect The Coverage, The Vendor And/Or Equipment (Truck) Manufacturer Will Supply, Not The Component Manufacturer.**

Paper:

- 1. Same As Above, but Type or Print All Information**

SPEC SHEET

Equipment # Series	Effective Date	
PO Number	Unit Warranty Period	
Year	Engine Manufacturer	
Make	Engine Model	
Model		
VIN Number		
Vendor	Trans. Manufacturer	
Contact Person	Trans. Model	
Contact Phone Num.	Body Manufacturer	
	Body Number	

Oils & Lubes		Filters	Qty. of Filters	Part Number	Com. Code 2810-	Make	Change Interval	Filters Stocked
Engine Oil		Engine Oil Filter						
		Engine Oil Filter Secondary						
Transmission Oil		Transmission Filter						
		Aux. Trans. Filter						
Fuel		Fuel Filter Primary						
		Fuel Filter Secondary						
Rear Axle / Axles								
Steering Oil		Steering Filter						
Hydraulic Oil		Hydraulic Filter Suction						
		Hydraulic Filter Return						
Coolant		Coolant Filter						
Transfer Case								
Front Axle		Air Filter Primary						
Brake Fluid		Air Filter Secondary						
		Air Compressor Filter						

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Description	Manufacturer	Model Number	Part Number	Warranty
Air Compressor				
Air Dryer				
Alternator				
Auto Slack Adjuster				
Auto Lube System				
Axle Front				
Axle Rear				
Battery				
Belt Air Compressor				
Belt Alternator				
Belt Fan				
Belt Power Steering				
Brake Chamber (FRT)				
Brake Chamber (REAR)				
Brake Lining (FRT)				
Brake Lining (REAR)				
Clutch Assembly				
Differential				
Dump Body				
Electronic Joysticks				
Engine (AUX)				
Engine (MAIN)				
Fan				
GL 400				
GL 400 Wiring				
Grote Wiring Harness				
Hoist Cylinder				
Hydraulic Pump - Main				
Pump, Fuel				
Pump, Hydraulic Aux.				
Pump, Steering				

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Description	Manufacturer	Model Number	Part Number	Warranty
Pump, Water				
Radiator				
Rexroth Valve				
Starter				
Steering Gear				
Suspension System Tand				
Tank Fuel Capacity				
Tire Size Front LR				
Tire Size Rear LR				
Transaxle				
Transfer Case				
Transmission				
Wing Plow				



COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA COMMERCIAL ITEM DESCRIPTION (PCID)

PCID NO. 1103 Conventional Cab Dump Truck, 38,000 # GVWR
27 August 2004 (Supercedes 06 August 2004)

1.0 SCOPE: This specification intends to describe a single axle dump truck with central hydraulics, equipped for use in winter maintenance operation, trailer tow, and general hauling of material. The unit supplied shall be the latest model year and shall conform to all applicable state and federal laws and regulations. These specifications describe the minimum acceptable level of quality. Should the manufacturer's engineering department determine the specified minimum is not adequate for our intended use, the manufacturer is obligated to provide the level of quality sufficient for our operation.

2.0 CLASSIFICATION: The following vehicle is included in this PCID.

Type II – 38,000 lb. GVWR

3.0 WEIGHT DISTRIBUTION:

Weight distribution charts must be submitted with the bid for all models per Invitation To Bid. Weight distribution charts shall be submitted for the two modes listed below. The weight distribution charts submitted with the bid shall be reviewed for their reasonableness, and any inconsistencies shall be clarified with the awarded vendor at the "pre-build" meeting. Weight distribution charts must accompany the bids, but except for their inclusion, shall not be used in determining bid award.

1. Summer mode including that portion of the wing plow post and plow frame assembly, which remains on the vehicle all year.
2. Winter mode with front plow, spreader and complete wing plow.

Each item listed on Drawing EQN-507B shall be noted and individually calculated in the vendor's submission.

Weigh Slip: Engineering-certified weight slip shall be provided with the pilot model and signed by the manufacturer's Engineering Department.

It is understood that the components specified are minimum and if the truck manufacturer's Engineering Department recommends or deems necessary, due to their particular weight distribution, a larger component or larger GAWR totally, the burden of responsibility is hereby placed upon the Manufacturer's Engineering Department to supply a unit that is totally engineered.

1. Frame
2. Axle
3. Tires
4. Steering unit components

- 5. Rims
 - 6. Suspension
 - 7. Brakes
 - 8. Any other items as required
- a. The dynamic and static loads created by the unit, plus operational stresses, must be reviewed to insure the Commonwealth of a properly designed/engineered unit.
 - b. Front and rear axle legal weight distribution applies to summer applications only! Winter weight distributions are required for payload information purposes only since winter plowing and spreading operations are exempt from legal weight restrictions. However, the total weight shall not exceed the manufacturer's GVWR for the vehicle, which is offered. The weight imposed on the front and rear axles using the total GVWR shall be shown. (Overweight shown on the axles in these winter modes is for information only).

In addition to the Engineering Certified weight distribution provided at the pilot model inspection, the following information is required with the pilot model. The vehicle shall be certified for 38,000 LB Gross Vehicle Weight Rating (GVWR). The GVWR shall be identified in the cab or on the door as the final complete certification label (minimum rating).

ACTUAL TRUCK WEIGHT: (LB)

"Chassis only" (shall be signed by a certified weigh master.)

_____ Front Axle

_____ Rear Axle

_____ Total

"Chassis with body" (shall be signed by a certified weight master).

_____ Front Axle

_____ Rear Axle

_____ Total

Truck GAWR's as Built (LB)

Front GAWR

Rear GAWR

Axle _____

Tires _____

Springs _____

Rims _____

4.0 GENERAL TRUCK SPECIFICATIONS:

4.1 Power Train Overview:

NOTE: LUBRICANTS FOR FRONT AXLE HUBS AND DIFFERENTIALS, MANUAL/AUTOMATIC TRANSMISSIONS, TRANSFER CASES AND ALL REAR DIFFERENTIALS SHALL MEET OR EXCEED ALL APPROPRIATE MIL AND SAE SPECIFICATIONS FOR SYNTHETIC LUBRICANTS AND SHALL HAVE ALL PLUGS IDENTIFIED AS SYNTHETIC OR PAINTED RED.

(The OEM shall provide written exemption if synthetic oil is not installed).

ENGINE – DIESEL, MIN. 250 HP AT GOVERNED RPM , MIN. 800 LB/FT TORQUE, MIN 6.0 LITER

TRANSMISSION – EATON RT 8709B
EATON RT 8608L – LOWER REV.
EATON RTO 8908LL
EATON RTO 14908LL
MACK TM-308

AUTOMATIC ALLISON 3500 RDS series
4500 RDS series

REAR AXLE – 23,000 LB. Min. Dana, Meritor or Mack in accordance with the specification

NOTE: All rear axles must provide axle shafts with a minimum diameter of 2.19 inch at the spline.

NOTE: REAR AXLE/S SHALL HAVE AN EXTENDED BREATHER TUBE TO PREVENT DEBRIS BUILDUP.

4.1.2 Backup Alarm:

Ref: EQN-74

4.1.3 Front Axle:

18,000 LB capacity, minimum.

The front axle, drag links and tie rods shall have grease zerks installed.

Kingpin or bushings shall be grooved to permit ease of grease flow

Sufficient tire clearance at maximum turning angles.

Complete “Stemco” oil seal assembly, including hub, plug type window and “Guardian” seal, or approved equal.

Each unit shall have the front end aligned.

Setback front axle is unacceptable; axle shall be conventional or set forward type with a maximum of 37" from the centerline of the front axle to the front of the front bumper

4.1.4 Rear Axle: (See powertrain overview for acceptable axle.)

ALUMINUM OR LIGHTWEIGHT HOUSING IS NOT ACCEPTABLE.

STEMCO GUARDIAN rear wheel seals, or approved equal.
Drain plug, magnetic.

NOTE: Rear axle ratio selection will be made after the award and may be a mix of ratios as required. The successful vendor/manufacturer shall present three (3) computer runs showing three (3) most likely ratios for consideration for a speed range of 55 MPH to 65 MPH max. This information shall be presented at the pre-build meeting.

4.1.5 OPTIONAL: Torque-proportioning traction-assist device or a traction device, which is full locking within the differential housing. The device shall provide maximum traction to rear wheels when actuated and shall be self-relieving designed to prevent gear damage and/or axle shaft breakage under extreme service conditions. The traction-assist device shall be driver actuated by a dash mounted traction control switch.

4.1.6 Brakes: (Full air ANTILOCK in compliance with the most current FMVSS requirements.)

Rear brakes: 16.5 inch x 7 inch "S" cam with quick change type single or double pin. (No substitute – standardization.)

Steer axle brake: 16.5 inch x 6 inch, "S" cam or a power front disc brake system providing equal performance. Quick change type single or double anchor pin if drum type brakes are furnished.

Manufacturer's standard ABS diagnostic switch.

Drum brakes shall have automatic slack adjusters and they shall be clearance sensing type only, with adjustment on application of the brake.

Backing plates on all drum brakes.

Air compressor: Per truck manufacturers recommendation.

Buzzer-type, low air pressure indicator. Compressor shall be fitted with a safety valve to prevent mechanical failure.

Parking brake: Rear wheels, spring-type, MGM E 30/30, Anchorlock 30/30 gold seal chambers or approved equal. Parking brake shall provide modulated emergency braking via the foot valve in the event of a rear service system failure.

Rear service parking brake chambers shall be front or top mounted to provide adequate clearance for backing into a bituminous paving machine.

Air tank: Automatic drain valve, with heater on wet (first) tank. Each of the remaining air tanks shall have a manual drain valve.

Air dryer: With heater, inboard mounted, away from road splashing and 20 inch above road surface. Dryer shall be compatible with the body company clearance requirements for sub-frame, valve body, etc. Per: Haldex DRYest or Bendix AD-IP Installation made in concurrence with the air compressor manufacturer 's recommendations.

System shall be equipped with anti-compounding to prevent mechanical failure of the foundation brakes, slack adjusters, etc.

4.1.7 Cab:

Aluminum or galvanized steel cab, 104 inch minimum to 116 inch maximum Bumper to Back of Cab (BBC) dimension excluding frame extension.

Hood: Fiberglass, tilting. Fenders are part of tilting hood. Grille shall be fixed.

Air suspension system for the cab (aftermarket installation is acceptable).

Air deflector: Clear or smoke, hood mounted. Manufacturer's standard full width for the truck model. Access to front-end hood tilt handle shall not be blocked. Extra handle acceptable.

Fenders: Front fenders shall have a 6 inch rubber extension.
Deluxe fresh air hot water heater and defroster, manufacturer's highest output.
Air Conditioning: Highest output available as OEM option.
AM/FM radio with weather band.
Air horn(s): with snow-shield (not required if underhood mount).
All controls and knobs shall be properly identified.
Brake pedal, clutch pedal and throttle shall be suspended if available from the factory.
CB Power connections One (1) pair, at the dash, per EQN-78.
Cab floor covering shall be heavy-duty rubber with closed cell rubber or heavy felt backing.
Cruise control
Cup holder in the cab within easy reach of the operator.
Dome light shall be provided
Dual sun visors.
Windshield: One (1) or two (2) piece construction, tinted. Safety glass throughout.
Drivers and passenger side windows shall be power.
Dual windshield wipers artic type with heaviest arms and linkages available. Wipers shall be min. 2 speed electric with intermittent feature.
Washer system shall be electric. Minimum capacity of two (2) quarts of washer fluid and shall be filled with an anti-freeze type solvent.
Mirrors: Driver's and passenger side power mirrors , west coast style minimum 6 inch X 16 inch manufacturers standard heavy duty break away arms.
Mirrors shall be heated with a lighted toggle switch mounted within accessible reach of the operator, automatic on/off is acceptable. The wires shall be fitted in such a way that the mirror glass/element can be changed by unplugging the two-wire lead.
There shall be a heated convex mirror both sides, minimum 5.5 inch X 8.8 inch or 8" diameter, minimum.

Blind-spot elimination mirror heated (conventional cab only) shall be mounted on the right front fender and it shall be 8 in, minimum, diameter stainless steel or aluminum head with mirror. Mirror shall be a conventional convex mirror, and shall not be of the half-round cross view type. All arm/s and hardware shall also be stainless steel. Fender type washers stainless or aluminum, with rubber pads to be placed on both sides of the fender shall be included. Pedestal system shall be single, double or triple mounting assemblies (stainless steel or aluminum). Mirror shall be mounted in rubber or vinyl. Ref: Grote (800-628-0809)

STEPS: Drivers and passenger entrance steps: Shall be aluminum, serrated. The outer step edge must be serrated in lieu of plain. (Overlay is not acceptable).
Step design material must be the same both left and right side.
Ref: Bustin No. NST4 full size, Ohio Grating No. JA21195G4 serrated, IKG. Industries Type B54 or Mack Part # 85QM423OM4
Top of the first step shall be approximately 21 inch above the ground.

Seats: Driver's seat shall be high back adjustable Bostrom air 915 Series with lumbar support or National 195 Series with lumbar or DuraForm Air Command Series (fabri form cushions with lumbar support) with body cloth insert and three-point retractable seat belt. A bellow-type or protective skirt shall cover the seat suspension mechanism. There shall be an inside armrest on the driver's seat plus an outside armrest installed on the seat or the drivers door. Color coordinated to cab interior.
Passenger seat: With three-point retractable seat belt, manufacturers standard non-suspension (static), and high back type. Color coordinated.

4.1.8 OPTIONAL: Roadwatch system with digital display in the left mirror head or remote location as determined by ordering agency at pre-build meeting, shall be installed. Ref: Sprague Controls

4.1.9 OPTIONAL: Heated windshield.

4.1.10 Chassis:

Cab Axle (CA) dimension: 84 inch. wheelbase and CA dimension may be adjusted to provide the optimum legal weight distribution.

Axle-frame (AF) dimension: Shall incorporate a cross member at the rear of the frame to reinforce the body pivot point. (Local installation is acceptable)

Front Bumper: Heavy duty swept back. Mounted to the frame with inner face of the bumper against the chassis frame.

Plow frame bumper bracket spacers on frame rail, both sides.

Lights: Mounted on the rear of the frame shall be shock mounted to prevent damage from backing into material piles (Ref: EQN-74).

Front mounted tow hooks or eyes: Two (2) front. These may be installed by the body company after completion of the plow hitch mounting using grade 8 bolts of sufficient strength and length and self locking nuts or by full welding.

License plate bracket: Front and rear. Securely mounted to prevent damage when backing into material piles.

4.1.11 OPTIONAL: Centralized on board chassis lubrication system; steel tubing (hard pipe shall be utilized where/when ever possible and practical: Ref: EQN-160

Ref: Grease Jockey by Lubriquip, Inc.
Groeneveld Lube system
Lincoln Lube system
Vogel Lubrication, Inc.
Lubriquip Trabon

4.1.12 Clutch: (if applicable)

Externally lubricated with an extended lube hose if applicable, Eaton/Fuller EZ pedal or Meritor with torque limiting clutch brake.

Clutch adjustment shall be set to specifications prior to delivery to the Department.

There shall be a neutral safety device to ensure that the vehicle cannot be started in gear.

Note: The transmission-input shaft shall be 2 inch spline. Dampened driven disc.

4.1.13 Driveline:

Main driveline: Spicer Life XL, Meritor RPL Series or approved equal, factory balanced, grease able, (1 zerk minimum).

Heavy-duty driveline shall be engineered and be compatible to engine, drive train and transmission torque.

Heavy-duty center bearing, if required, with due consideration to drive shaft angles, length, location, proper bolting based upon engine and transmission selection.

4.1.14 Electrical:

All copper system, negative ground.

Alternator and starter mounting bolts: Grade 8.

Alternator: 130 amp minimum, high performance, solid state, brushless. Battery cable from battery negative terminal to starter motor or frame.

Batteries: Three (3), heavy-duty, 12 volt, field maintenance-free, BCI Group Size 31, with stud-type posts and anti-corrosion treatment on each terminal. 2500 total cold cranking amperes (CCA) at 0 degrees F. 640 minutes of total reserve capacity at 80 degrees F as per SAE.

Battery Mounting: It shall include the following:

- a.) 0.25 inch thick rubber shock pad under the battery.
- b.) Box with cover. Cover shall be constructed of fiberglass, poly, or aluminum (if aluminum there shall be an insulated liner).
- c.) Mounting bolts grade 8 with self-locking nuts.

Cables shall conform to RCC Practice 105 with "sealed" terminal ends for stud-type battery posts.

Electrical system: Circuit-breaker-equipped, in easily accessible location, weatherproof. Fuses acceptable in circuit so identified by manufacturer as safety factor. Any fuse circuit breaker liable to be damaged during truck operation shall have an easily removable protective cover. All wire splices in the cab shall be heat shrink materials. Ref: Thomas & Betts, Tel: (210) 707-2145.

Electrical chassis-wiring harness: Body lighting and wiring to be per EQN-80X (standard harness acceptable for DGS standard truck).

Body plug: Truck manufacturer and Grote Industries shall supply a body builder plug and bracket. All lights, body and chassis shall be protected by the truck manufacturers fuse block assembly.

Final location of the plug and bracket shall be decided at the pre-build meeting.

All exposed junctions: Waterproof and sealed against salt.

Flasher: (All) heavy-duty electrical, Ref: Tridon Model EL 12 or EQUAL.

Note: If an audible alarm is supplied for 4 ways and turn signal, it shall have on/off capability.

All lights for chassis and body shall be LED per EQN-80X and meeting all Federal and state regulations.

The switch for parking light circuit shall be able to handle an additional 3 A load of a light bar.

Head Lights: shall be Halogen with daytime running lights factory or aftermarket installation.

Dump body lights shall have their own dedicated complete circuit.

Starter motor: With thermal overcrank protection and high torque capacity. Suitable for the diesel engines offered as per starter manufacturer's recommendation.

4.1.15 OPTIONAL: three 12 volt maintenance free batteries, 700 CCA each, to be Dynacel model DY31DC with a 3 year non-prorated warranty, or approved equal (vendor contact 215-788 2236).

4.1.16 Engine:

The engine components facing wheel areas, on both sides, and the areas to the rear of wheels shall be shielded. The shield shall protect the engine, fan, radiator and areas behind tires from the stones and debris.

Replaceable heavy-duty fuel filter (s) and oil filter (s) as recommended by the manufacturer bearing a legible OEM part number.

Cooling System: The largest factory available engine cooling capacity compatible with engines and transmissions referenced and for continuous high engine and output under extreme temperatures and/or operating conditions due to prolonged snow plowing operations in low gears. The water pump shall be adequately sized to provide proper cooling and be of sufficient size to accommodate the larger pulley to adequately handle the specified options.

Shall be fitted with provisions for visually monitoring coolant without necessitating removal of the cap from the radiator or expansion tank (e.g. sight glass, transparent expansion tank).

Extended Life Coolant/Anti-Freeze Employing Organic Acid Technology REF: Rotella Extended Life Coolant/Anti-Freeze, CAT-ELC or equal.

4.1.17 Engine Accessories:

Radiator core and shell: Shall be manufacturer's heaviest construction grade radiator available, with overflow recovery system and visual level indicator. Radiator with a "cut-out" to accommodate PTO shaft will not be accepted.

The oil dipstick must have tubing and dipstick with sufficient length to provide reasonable access for checking the oil level.

Engine Heater: Immersion in-block type, for cooling system, with waterproof plug flush-mounted in an accessible location at the front/roadside of the vehicle, outside the cab/hood, 110 volt, 3-prong plug. The electrical cable from the heater to plug shall be one piece and waterproof. Location to be determined at the pre-build meeting.

Coolant/filter: Sized for and compatible with the cooling system, per the manufacturer's recommendation.

Air Cleaner: Air cleaner shall be manufacturer's heaviest duty air cleaner. The air intake system shall be fitted with inside/outside air.

Fan: Thermostatically controlled viscous type or manufacturer's recommended automatic fan.

Screening system: Installed to protect radiator from stones and bugs.

Engine vibration dampener: at PTO flange yoke. Ref: EQN-90.

Diesel Fuel Filter with heated separator: Per engine manufacturers recommendation.

Air restriction gauge: Flush, dash-mounted with indicator slide fro engine air cleaner, Ref: Filter Minder, manufactured by Engineered Products Company Tel: (319) 234-0231. If the vehicle is OEM equipped with an electronic dash that incorporates an air restriction gauge or indicator light, it shall be acceptable.

Governor: Set at manufacturer's recommended maximum engine speed (rpm)

Air intake hoses shall be 0.25 inch minimum thickness, molded hoses. Ref: Gates, Goodyear or equal. Premium radiator and heater hoses. Hoses shall not be painted.

Lubricating oil lines: If hoses are used, they shall be wire braid type, "Aeroquip" or approved equal system, minimum standard.

Drive belts: Cog belts or serpentine (cog belts are not required for power steering.)

4.1.18 Exhaust:

Vertical tailpipe and muffler system or approved horizontal muffler and vertical tail pipe.

Tail pipe with elbow.

Exhaust system shall not interfere with the operation of the dump body or equipment nor will it be close to any fluid tank, and permit wing plow installation, where applicable.

The tail pipe shall be installed in a manner that will keep the muffler and tail pipe away from dump truck body. The flex in the body when operating on an uneven terrain must be considered in the design.

The muffler and tail pipe shall be shielded or insulated to protect personnel from burns when entering or exiting the cab. The shield shall be 180 degrees to 360 degrees and shall be of non-rustable material such as stainless steel or aluminum. Ref: Riker or equal.

4.1.19 Fast Lube Oil Change System (FLOCS):

This system will be installed with all fittings, brackets, clamps and hoses. The system will be compatible with all fittings presently used by the Department. The final placement of the male half of the snap coupler on the equipment will be determined at the pre-build meeting. Aeroquip or equal. Ref: EQN-351A.

4.1.20 Frame and Frame Extension:

Resisting Bending Moment (RBM): minimum of 1,908,000 inch LB per rail, for the entire length of the frame, including extension, except where engine and radiator adjustments are required. Minimum frame RBM shall be approved by manufacturer's Engineering Department.

Frame material: Heat-treated carbon steel, at least 120,000 PSI yield strength, single frame.

Main frame: Either straight channel or offset channel full length. Drop frames are not acceptable.

Bolt on or welded extension will not be accepted.

Front frame shall accommodate the Commonwealth's standard hydraulic PTO shaft and pump (per EQN-90), and the plow frame (per EQN-50). It shall provide easy service accessibility.

The truck offered must be designed to accommodate a right and/or left patrol style wing plow. If a larger RBM is required to perform the specified operational duties, the vendor shall bid a frame concurrent with the intent and spirit of this contract. RE: Snow removal operations, full payload snowplow, right and/ or left patrol wing plow, etc.

4.1.21 OPTIONAL: Heavy Duty Trailer Tow Package: A Holland PH-760 pintle hook shall be installed at 33 inches above ground on a 5/8" steel plate properly supported to frame and crossmember. Steel heavy-duty 3/8", minimum. Package to include air lines for brakes and trailer wire connections per SAE standards. REF: Drawing No. 13B43.

4.1.22 Instrumentation:

All instruments illuminated and dash-mounted except where specified otherwise.

All standard instruments shall be supplied, including, but not limited to the following:

Gauges:

Oil pressure gauge: with warning light or audible alarm.

Air pressure: gauge (s) for dual circuit, dual indicator with lo-pressure audible alarm.

Coolant temperature: with warning light or audible alarm.

Transmission oil temperature: for automatic transmission only with warning light or audible alarm.

Fuel

Hourmeter that records only when the engine is running. In – dash, integral with instrument panel be illuminated and shall be readable from the operator's seat.

Speedometer with odometer with a dual speedometer lead to interface with the hydraulic controller, where applicable.

Tachometer

Voltmeter

Parking brake indicator light.

Hydraulic fluid level gauge.

4.1.23 Warning Light:

One (1) revolving warning light shall be mounted on the drivers side of the body cab protector, Ref: EQN-210B.

LIGHT – WARNING – MOUNTING BRACKET – WIRING:

Ref: EQN-210B.

The wire shall be protected along the entire underside of the cab shield and down the front of the bulkhead.

Location of light on cab shield shall be determined at the pre-build meeting.

A grounding wire shall be provided between the internal and external bracket at the pivot point.

4.1.24 Paint:

Cab shall be made available in all manufacturer's standard available colors, as well as Omaha Orange, 9215 for shade only and PENNDOT yellow, DuPont 6808 for shade only; as specified by the ordering agency.

Frame: all underside components shall be primed and painted black.

Front bumper shall be painted black.

Plow frame shall be painted black with acrylic enamel (with hardener) low VOC.

4.1.25 Safety:

Fire extinguisher: Rechargeable with vehicle mount. Mounted in the cab for easy and quick access. Ref: 2A: 10B: C.

Emergency triangle warning kit, with hold down. Warning Triangle Flare Kit, Ref: KD 610-4645, KD Lamp Co. (Tel: (513) 621-4211) or equal, stowed (fastened) in the cab. Ref: EQN - 66A

Cab and body shall have reflective enhancement per EQN-127.

Grab handles (2): Shall be furnished to provide "Optimum safety" for entering the truck cab.

Manufactures standard or aftermarket. Non-skid paint or rubber may be utilized, (non-skid tape is unacceptable).

Ref: Non skid paint, Gamma Laboratories.

4.1.26 Steering:

Power steering: Dual integral or single integral type hydraulic with power assist cylinder. With stops to prevent damage to system.

Glidecoat steering shaft.

Steering system: (e.g. flow, pressure, relief valve etc.) shall be selected considering the full front axle loading. Ref: Ross or Sheppard gear assembly, or approved equal. Hydraulic supply pump: Vane type or roller type sufficient oil flow to permit one (1) steering wheel revolution per second with front axle loaded to rated capacity, with plow on, in a "park" condition.

Ref: Vickers V-20 Eaton, Borg Warner or approved equal.

The pump shall not be the integral filter type unit.

Power Steering Reservoir: "Remote mounted", and factory mounted, minimum two (2) quart capacity, incorporating a filter which is easy to remove and replace.

The remote filter referenced above shall be certified and engineering approved in conjunction with the appropriate pump.

4.1.27 Front Suspension

9,000 LB capacity at ground each front spring (Min).

The six (6) front spring pins or bearing/bushing shall be furnished with 360-degree grease grooves to insure adequate lubricant penetration.

Spring hangers shall be heavy castings with sufficient pin and bearing surface to render trouble free service.

4.1.28 Rear Suspension

Suspension shall be tailored to axle loads and shall be adequate to sustain maximum GVW without overload or permanent set.

11,500 LB capacity at ground each rear spring.

2,250 LB capacity, separate auxiliary spring each side.

The spring hanger brackets shall be severe duty castings with sufficient bearing surface/wall thickness to prevent premature bolt wear.

The spring center bolts shall be a minimum of .4375 inch size preferably .5000 inch

The rear spring hanger pins shall be the greaseable type.

Bolts must be of sufficient length to go through the washer, spring bracket and truck frame with sufficient length to install a self-locking nut.

4.1.29 Fuel Tank:

Safety-type fuel tank as per the requirements of FMVSS. **Dual tanks are unacceptable.**

One (1) 80 GAL minimum total capacity aluminum or stainless steel unpainted, frame mounted, under the left door.

Tank mounting hardware and brackets shall be for "severe duty" applications. Heavy-duty aluminum or stainless steel with minimum 2 inch wide straps with rubber shims/liners.

Accessible fill pipe with dump body down (located at either end of tank to avoid interference with steps).

System shall be a top draw and top return line.

4.1.30 Wheels and Tires:

GENERAL:

The truck shall be equipped with hub piloted steel disc wheels for tubeless tires. The wheel end shall be equipped with outboard cast brake drums, and 15 degree tubeless steel wheels, hub piloted, 10 hole—285-75 mm bolt circle with 22 mm two-piece flange nuts.

Front: Wheels: 22.5 x 9.00 10 hole---285.75 mm bolt circle with 220 mm bore, tubeless steel disc wheel rated at 10,000 LBS at a maximum inflation pressure of 130 PSIG. Ref: Accuride part number 29039, no substitute.

Rear: Wheels: 22.5 x 8.25, 10 hole – 285.75 mm bolt circle with 220 mm bore, tubeless steel disc wheel rated at 7,500 LBS at a maximum inflation pressure of 120 PSIG. Ref: Accuride part number 28828, no substitute.

The dual rear wheel/tire assembly shall have clearance between the tires, which permits the use of dual tire chains.

Wheel-Guard Separators: The wheel ends shall be equipped with the Accuride part number 5903 Wheel Guard Separator as follows:

Front axle – between the wheel and the brake drum.

Rear axle – between the inner dual and the brake drum and between the inner and outer duals.

Paint: The wheels shall be topcoat painted with TGIC Polyester Powder Paint MLD-82008 High Gloss Gray or equal applied over Cathodic Electro-Disposition Gray Primer.

TIRES: ALL TIRES WILL BE RADIALS
FRONT – 315/80R 22.5 LOAD RANGE L
REAR - 12R22.5 LOAD RANGE H

MANUFACTURER

Goodyear
Michelin

FRONT TIRE

G – 291
XZY-2

REAR TIRE

G – 124 or 164RTD
XDE-A/T

NOTE: The above referenced tire manufacturers and models are for reference only. Approved equal manufacturers/models will be acceptable. Tire speed rating to be considered as part of equivalency.

4.1.31 Transmission: See POWER TRAIN OVERVIEW for acceptable transmission. Transmission type per invitation to bid.

Manual:

Geared for PTO application, right and left side or right side and bottom.
Magnetic drain plug.
Input transmission shaft: 2 inch
12 to 1, minimum 1st gear and reverse ratio.

Automatic:

Dash mounted console with push button shift selector.

There shall be an external oil cooler.

Oil cooler for transmission required due to prolonged transmission torque converter operation in low gears.

Cooler size must be provided to keep the transmission fluid at an acceptable operating temperature under these prolonged conditions. (Water-to-oil type cooler).

An Allison approved cooling system shall be installed regardless of whether retarder is incorporated in the system or not.

5.0 Dump Body and Equipment (Steel):

Galion 408-U NEAP7, or approved equal, 120" length x 96" outside width (84" interior width) x 29" side height. 39" tailgate height. All 8 gauge high tensile strength steel construction.

6-8 cubic yard capacity.

5" @ 6.7# longsills, 4" @ 4.5# crossmembers on 15" centers.

2" floor to side radius

8 gauge full depth rear corner posts, 15" wide. 3/16" rear bolster, 9" deep

Tailgate release manual.

Pedestal type rear hinge on hoist assembly.

Boxed top rail, tarp rail, inside step each side at front.

Three steel vertical braces per side.

Six panel reinforced tailgate with dirt shedding braces. Continuous welded construction. Coal door.

Grip-step catwalk both sides of body.

Forward braced steel splash shields mounted with adequate space for tire chains, bottom 6" of splash shield to be rubber.

Half-cab shield.

Galion, or approved equal, U850C-DA, class 50, 17 ton capacity under body hoist, double acting, 50 degree dump angle.

Body safety prop.

Grip strut ladder, roadside front.

Body to be grit blasted, high solids urethane primed and finish painted to match cab color. Under side of body to be continuously coated with uniform thickness coating to protect steel against rust.

9' wide asphalt tarp with cab shield crank and wind deflector (Pioneer G-500 or approved equal)

Marker and clearance lamps per DOT requirements.

5.1 OPTIONAL: Dump Body, Aluminum:

Five yard (approx.) water level without sideboards.

Seven yard (approx.) water level with sideboards.

Ref: EQN-76.

Front Body bulkhead: Minimum 0.15625 inch aluminum with a minimum of 12 inch above body sides.

There shall be a shovel holder assembly mounted on the left front of bulkhead (final position to be determined at the pre-build meeting). Ref: Akron Foundry AT-2.

Rear corner posts: On both sides, full depth, on-piece construction from the top of the tailgate to the bottom of the rear bolster and free of holes.

Rear bolster: One piece, full depth and full width.

Spreader chain holders: Both sides, top and bottom of the rear corner posts.

All body welding shall be full welding.

Bed Prop: There shall be two (2), three position, self positioning stow away bed props per EQN-62.

There shall be midway sideboard supports (left and right)

A 5/8 inch X 10 inch X 24 inch plate shall be provided on the right lower side of the cross members for mounting a dump body vibrator. Note the ordering agency will provide and mount the dump body vibrator.

5.1.1 Aluminum Tailgate:

Ref: EQN-76.

Tailgate, manufactured from grades 5454H34 and 6061T6

Tailgate 40 inch (minimum), body sides 30-34 inch (approx.)

Double acting five (5) panel tailgate with offset hinges.

Two (2) "J" hooks welded to the tailgate for chain hangers.

1.25 inch dia. Greaseable self-aligning top hinge pins with tapered end and with sufficient length for easy removal. Pins shall be affixed with chains to prevent loss and be non-rotating.

Top hinge plate, aluminum, or steel with replaceable heavy-duty bushings and greaseable fittings.

0.375 inch spreader chain, non-rusting and able to accommodate 0.5 inch thick aluminum chain holder or 0.375 inch thick steel chain holder. Minimum edge distance 1.5 inch.

Tailgate chains shall be covered with expandable braided sleeving of monofilament construction. Ref:Fairmont, (Tel: 304) 366-4600) Part No. Expando Grade DM –color black or yellow.

Four (4) tailgate chain brackets. Two (2) on each side.

Severe duty tailgate attaching brackets.

Aluminum tailgate with built in light bar. Ref: EQN-81X.

Body lighting: -Ref: paragraph 4.1.14 ELECTRICAL CHASSIS – WIRING HARNESS, AND EQN-81X.

Coal chute gate with levers and operating handle. AISI Type 304 stainless steel. Ref: EQN-64 Aluminum.

Air operated Tailgate per EQN-78A: Tailgate must be operated via an in-cab dash mounted switch (switch mounted under dash is not acceptable). All air piping and connections must be D.O.T. approved with .250 inch nylon tubing and brass compression fittings. Spring-over-air or air to air is acceptable.

5.1.2 Body Sides, Aluminum:

Ref: EQN-76.

0.25 inch thick aluminum of grade 5454H34 for aluminum body.

Top rails: Fully boxed and completely closed by "continuous" welding. Both sides.

Vertical side braces: A minimum of three (3) per side on proper centers in addition to the front and rear corner posts. Side braces and front posts shall be furnished with bottom drain holes.

Aluminum body shall be isolated from the steel frame rails at the hinge by installing Mylar material.

5.1.3 Floor, Aluminum:

Material: .3750 inch thick minimum, abrasion-resistant aluminum 545H34 for aluminum body.

One (1) piece construction, welded to all cross members, side panels and longitudinal members. Area reinforcements where necessary. Ref: EQN-76.

5.1.4 Body Structure, Aluminum: The body shall be “stacked construction” aluminum.

<u>Dump Body</u>		<u>Aluminum</u>
Longitudinal member	Size	6 inch I-Beam mm.
	Wt.	6.1 LB/feet
	Material	Al 6061T6
Cross-member	Size	4 inch/I-Beam min.
	Wt.	2.70 LB/feet
	Material	A1 6061T6

4 inch channel cross members of equal strength are permitted at the front and rear of body to finish the unit, and in the area where hoist box is located.

The body shall be reinforced to withstand SEVERE duty service. Ref: Dump body up while spreading salt and anti-skid material or excavation rip rap being dropped in the bed.

The longitudinal beams and channels specified are minimums and may exceed dimensions to permit proper hoist mounting.

Heavy gussets of minimum size 4 inch x 6 inch 0.375 inch thick for aluminum shall be furnished at all cross members on the outside. Where not possible, they will be furnished on the inside.

5.1.5 Cab Shield, Aluminum:

Ref: EQN-76. Full width cab shield with no offset for exhaust stack.

Material: Minimum 0.15625 inch thick aluminum.

Continuous welding on front and cab shield throughout.

One-half (1/2) cab shield with a minimum of four (4) inch lip on front extending over cab.

The body cab shield shall have sufficient clearance to insure that the shield will not hit the exhaust system when dumping on uneven terrain.

NOTE: All mounting procedures shall be in accordance with NTEA standards.

1. Integrally designed/engineered to eliminate body side shifting on uneven terrain.
2. Capable of being utilized in raised position for extended use while spreading salt and ant-skid materials.

NOTE: Hydraulic fittings shall be mounted above the module, and the vertical apron shall be cut out above the frame to facilitate their placement. Receiver pin shall be located on the outside of the module.

NOTE: Acceptable body companies: (No Substitute, prior to bid approval necessary).

- J & J Truck Bodies & Trailers – Somerset P.A.
- Benson International, Inc, Mineral Wells W. Va.
- Warren, Inc. Collins, MS
- Thiele, Inc, Windber, PA
- R/S Body Co, Richmond , KY

Godwin Man. Co., Dunn, NC
Tibrook, Brookville, PA

5.1.6 Accessory Plate:

There shall be an accessory mounting plate installed Ref: EQN-22.
Final Location shall be determined at the pre-build meeting.

5.1.7 Bed Up Alarm:

A safety warning light dash mounted and alarm installed. Switch shall be set at 49 degrees +/-1 degree dump angle to alert the operator and to prevent the hoist cylinder from going fullstroke. Switch shall be mounted in accessible area of the body of the dump bed located away from road splash etc.

NOTE: SWITCH SHALL BE MECHANICAL, MERCURY TYPE SWITCHS are not ACCEPTABLE.

Ref: Scott Electric (Simines) Switch – SIA3SEO3-AR1
Lever - SIA3SXO3-KL200

5.1.8 Chain Boxes:

The final size and location shall be determined at the pre-build meeting.

2 boxes – with no wing, 1 box - with left or right wing.

Chain boxes per EQN-32. The boxes shall be aluminum with aluminum safety grating overlaid. There shall be a minimum of four (4) .750 inch dia. Drain holes in the boxes flooring. The hinge shall be rod with nylon bushings. Piano hinge is unacceptable. Final positioning of these boxes shall be behind the swept back bumper and outboard of the left and right frame channels.

5.1.9 Hoist Cylinder:

There shall be a metal identification tag with the manufacturer's model number, serial number and address. Mounted to the cross shaft in a tube base. The base may be cast or fabricated (no bolts and angle).

Hoist cylinder reference: Commercial No. SD63CB – 78 (2 inch pin size both ends) or Custom No. DAT 63-197-78 (2 inch pin size both ends option 8 for rod end and option 3 for base end), or approved equal.

Ref: EQN-76C.

Upper pin shall be fitted with a remote grease connection per EQN-63.

5.1.10 Hoist Hardware:

The rubber cushion minimum 2 inch thick, and the width equal to width of frame rail, shall attach to longitudinal body member with slotted rubber and track assembly integral with body longitudinals. Note: Laminated rubber is unacceptable.

All mounting procedures shall be in accordance with NTEA standards.

1. Integrally designed/engineered to eliminate body side shifting on uneven terrain.
2. Capable of being utilized in raised position for extended use while spreading salt and anti-skid materials.

Dump hinges shall be fully welded to long member if steel and aluminum shall be bolted with grade 8 bolts (minimum 8 bolts).

A three-position stow-away safety prop shall be furnished. (Self positioning), per EQN-62. All pivot points shall have a minimum of one (1) accessible grease zerk to insure adequate greasing.

20 US ton net payload capacity.

Double acting, hydraulic power-up and down cylinder.

49 degrees plus or minus 2 degrees dumping angle with bumper stops and safety chain or approved device in segmented conduit.

Mounted in a channel nest assembly attached to chassis frame.

There shall be a relief mechanism incorporated within the hydraulic system to prevent damage.

2 inch dia. Min. hoist hinge pin sized to withstand severe use. Full width.

2 inch dia. Min. Lift pins.

Ref: EQN-20X

Ref: EQN-76

Ref: EQN-91

Ref: EQN-94

Ref: EQN-95

Ref: EQN-123

Detail A – Chain holder

Banjo type cut-out to hold tail gate chain

All corners must be angled or rounded for safety

Full welding

Ref: EQN-76

Detail A – Chain holder

Aluminum 0.5 inch thick.

Detail B – Tailgate hinge

Replaceable bushing with greasing capability

The edge distance shall be minimum of 1.75 inch thickness

Detail B – Top Tailgate pins

1.25 inch dia. Steel pin with tapered end.

C-1020 HRS Steel.

Detail C – Tailgate chain bracket

Two (2) per side, total of four per tailgate
Aluminum

Detail D – J Hooks
Two (2) per tailgate

5.2 Plow Frame:

Plow frame shall be furnished and installed as per attached drawings and shall be approved by the truck manufacturer's engineering department. The plow frame shall be per EQN-50. Zerk fittings shall be protected per EQN-64. Snow plow lights to be installed Ref: EQN-124 or approved body builder design. All metal surfaces shall be cleaned prior to primer and final painting.

5.3 Safety:

Safety self-cleaning type grid steps welded to both sides between vertical braces, full length and flush with outer edge of vertical braces per EQN-76.
A slide-in type, Ref: Bustin Industrial products, pn SAL 300, two or three-step ladder, 15 inch wide x approximately 32 inch high, mounted under the dump body on the driver's side between the first and second vertical side body braces. Brackets shall be bolted to the underside of the running board. Ref: EQN- 56.
The body and ladder step material shall be per EQN-76 sheet 1 of 10 aluminum. A short piece of bar stock shall be used above steps to serve as a grab safety handle for body entry. Steps (minimum of two) made from Bustin, Ohio Grating, or IKG Industries safety step material, are required on the driver's side and inside the bed for safe entry and exit. There shall be a pair of wheel chocks with holders (location of holder to be determined at pre-build meeting). Ref: EQN-82
Under ride protection shall meet all the requirements set forth in EQN-118.

5.4 Splash Guards:

Ref: EQN-66.
Aluminum 0.250 splash guards shall be attached to the dump body on each side behind the rear most dual wheel and extend downward to accommodate a 30 inch or 36 inch flap in order to meet Pennsylvania State Inspection requirements. Mud flap sizes permitted are 30 inch or 36 inch. The rubber splashguards shall be bolted to these metal splash guards using self-locking nuts and metal strips.
The forward splash guards shall be aluminum, and extend downward $\frac{3}{4}$ of the length of the rear splash guard/mud flap, with a $\frac{1}{4}$ length, unmarked mud flap attached for the remaining distance.
Forward splashguard shall have a 1 inch lip for entire length-outside extremity (90 degree) with bottom outside corner rounded.
Both front and rear splash guard assemblies shall be properly braced.
Splashguards shall be full length and width with no holes cut in it to accommodate salt lights.

5.5 Welding:

All welding shall be in accordance with standard welding practices as set forth by the American Welding Society.

All vertical and horizontal seams of the body sides and ends shall be continuous welds, full penetration, without skip welds.

6.0 Central Hydraulic System:

Sealed cable or air cab controls for dump body and plow functions. All controls to be mounted in a steel console between driver and passenger seats. Dual flow control with on/off for spreader. Mobile design valving of cast iron construction, horizontally stackable and serviceable without disassembly. Each section to have built in flow and pressure compensator to allow simultaneous operation of any piece of equipment regardless of any other system function (load sensing). Sections for hoist, plow lift and plow angle must be operated manually and adjustable to 15 gpm. Spinner and auger sections incorporated into main valve assembly. Both auger and spinner sections to be pilot operated and have manual overrides, and be adjustable to 15 gpm. All valving to be mounted in one main valve assembly. Multiple valve assemblies unacceptable. Hydraulic pump specification per paragraphs 9.0 through 9.7.

7.0 OPTIONAL: CONSOLE AND POWER DISTRIBUTION CENTER:

The pressure compensated, load sensing central hydraulic system shall operate all functions (plows, dump body, spreader and auger circuits) from an electric/ hydraulic system independently and simultaneously, without interruption of any other hydraulic functions.

All controls and components shall be of the latest design and installed to provide simple and convenient operations.

All system operations shall be achieved from a single pump matching all required flow and pressure demands.

The use of accumulators or auxiliary pumps is not acceptable.

Hydraulic tool operation will be included through both spreader circuits and will not require any type of cooling.

This system shall provide the most fuel efficient, safest, simplest and consistent operation possible.

All hydraulic components shall be installed and serviced by a single manufacturer.

Full responsibility for a serviceable system lies with successful bidder.

All wiring shall be securely clamped at approximately 18 inch intervals, shielded from exhaust and include a protective sleeve where necessary to prevent damage and/or failure.

All electrical connectors shall be treated with die-electric grease.

All systems shall be thoroughly tested and calibrated before delivery.

Upon start up the hydraulic system shall be operated at maximum flow for not less than 15 minutes and then have a new hydraulic filter installed on the truck.

It shall be the sole responsibility of the successful truck manufacturer and control panel manufacturer to ensure that the chassis and the ground control wiring harness is totally compatible.

An operation manual, parts and maintenance manual shall be provided with each unit.

A schematic as well as a parts list shall be provided with the completed unit.

7.1 OPTIONAL: Console Assembly: Shall be **Component Technology MultiGuard SG7** with all joysticks being fully proportional, NO SUBSTITUTE STANDARDIZATION.

Kit number SG08020015 TYPE II No Wing

Kit shall include GL-400-5-5.

All wiring for the kit shall be included and be TPE type wiring external to the cab.

Hydraulic system digital pressure gauge – Wika 907.15.506 w/TYPec10 TRANSDUCER

Valve enclosure

Bulkhead fitting for auger wiring shall be mounted in the rear module

Prewet system part number SG06070008

There shall be a plow saver or power float device installed, reference: COMPONENT TECHNOLOGY PART NUMBER SG03020008.

7.2 OPTIONAL: **Basic Hydraulic Model #CS230** (No Substitute, Standardization).

The in-cab control system shall be a totally modular system including base unit with an integrated circuit panel and control console with programmable multi-axis (X,Y) proportional joysticks. The unit shall be mounted on an adjustable pedestal or have an adjustable armrest style console that accommodates automatic or manual transmissions. The final placement of either mounting shall be determined by the ordering agency. A master shut-off switch shall be provided for the complete in-cab control system.

The joysticks shall be programmable for proportional control and have the ability to be field changeable. The system shall have the capability of housing up to three (3) single, dual or tri-axis joysticks with the ability to function up to (4) pieces of hydraulic equipment.

The levers must be capable of safety trigger protection for all valve functions. The unit shall have a minimum of six (6) identifiable indicator lights.

The base unit will contain an integrated circuit panel (power distribution center). The circuit panel shall have pin outs for specified switch applications with 10 Amp automatic reset breaker protections. Customer accessible input/outputs are to be available for accessories. Labeled plug style connectors will connect all neatly bound wiring to and from the circuit panel. The unit will come complete with easily identifiable connections, color-coded wiring, and full schematic documentation.

All connectors inside the hydraulic valve/electronic control junction box will be supplied integral with the control system. The connectors will be weather tight threaded into a potted weather tight panel. All connections will be labeled with appropriate descriptions for each connection to the solenoids for the hydraulic actuating cylinders.

NOTE: All switches except plow light carry maximum current of 2 amps. All high current is distributed through a power relay box supplied and installed with unit. All switches on potential inductive load circuits must have diode suppression protection.

7.3 OPTIONAL: **Reverse Feature:**

A momentary switch on the control panel will reverse the auger, in case of clogging or other stoppage, under operator control. This switch will also cut out power to the proportional control for the spinner.

8.0 OPTIONAL: **PRE WET SYSTEM:**

80 gallon poly tank and plumbing kit with stainless steel tailgate brackets installed on the rear of the truck. Reference: Component Technology tank part number RES-80-POMNIBUS, plumbing kit SG0609001. The tank assembly shall be installed utilizing an extended upper hinge pin. The bottom of the tank shall not cover the main integrated lights in the tailgate. The tank bracket shall be stainless steel. Reference Benson Body, part number PD-0800.

All hydraulic valve operations shall be achieved from within the cab by a single operator. All controls shall be securely attached, within easy reach of operator and console mounted. All controls shall be connected to the valve/s via electronic cable and power distribution center. All electronics associated with the PDC and console shall be protected against and shall not cause interference to the operation of the vehicle or the land mobile radio communications system when properly installed in the vehicle.

Base shall be of steel construction conforming to drawing included in EQN-95.

Cabinet shall be constructed with 14 gauge steel, and will provide an access panel for ease of service.

Unit shall contain circuit protection for up to 12 auxiliary functions that control 15-ampere relays with automatic reset breakers.

Unit shall contain a terminal strip capable of interfacing with the specified body wiring harness if applicable. Terminal strip will be located inside base unit and have at least three unused sections for further expansion.

Unit shall be capable of adjustment vertically and horizontally to allow for comfortable positioning for the operator.

Unit shall come with full wiring schematic documentation.

Unit shall come with pin-outs for customer accessories such as two-way radio, etc.

Main electrical connection shall be protected by a 80 ampere manual reset circuit.

8.1 Directional Control Valve:

The hydraulic control valve shall be a REXROTH, or approved equal. There shall be a 4 port valve block to control pre-wet etc. as part of the main valve assembly. Part # as listed below.

SG04170301 Rexroth MP18 3 section valve w/ 3 function end cover

Main control valve and enclosure shall be mounted outboard on the curbside frame rail ref: EQN-23 all valve coil, end covers and the power beyond port must be accessible. There shall be one (1) return line from the valve to the return manifold.

9.0 HYDRAULIC ALARM AND SHUTOFF:

There shall be a low hydraulic oil alarm system to alert the operator of a low hydraulic oil situation and allow ample time to take preventative action and avoid damage to the central hydraulic system pump.

It shall be operated via a 12 volt system. All wiring shall be routed to prevent damage from heat, sharp edges and moving parts.

An in-tank float switch shall be mounted to provide a signal to a dash mounted light. The dash light shall come on whenever the oil level drops below a ten (10) Gallon reserve. Assembly shall be an MP Products, Inc. RIG1-Series. All switch wires shall be hermetically sealed in high grade epoxy. The indicator light shall be console mounted. Indicator light lens shall be red in color. Light shall be clearly identified "Low Hyd. Oil". Switch shall be adjusted to ensure that light does not prematurely illuminate (i.e., bed being raised, with adequate reservoir oil, should not cause light to illuminate).

9.1 Hydraulic Hose:

All hose and hose ends shall be matched and assembled on a matched hose machine to prevent hose failure. All hydraulic plumbing practices shall conform to JIC H11 standards. Pressure hoses shall be 100R2, return lines shall be 100R1, and suction lines shall be 100R4. Velocity in pressure sue lines shall not exceed twenty (20) feet per second, return lines not to exceed ten (10) feet per second, and not to exceed four (4) feet per second in suction lines. All hoses shall include JIC female swivel ends with the exception of the suction line. All hydraulic components shall have SAE porting wherever possible.

All hydraulic hoses shall be securely clamped at approximately 18 inch intervals, shielded from exhaust and include a protective sleeve where necessary to prevent damage and/or failure. All hoses shall have JIC swivel connections at each end and be located in such a manner to aid in easy component replacement per EQN-94.

9.2 Hydraulic Pump:

PUMP shall include a low oil shut DOWN WITH OVERRIDE Shutdown shall be direct mounted to the pump. Remote mounted valve will be unacceptable.

The pump shall match system flow and pressure (horsepower) requirements to provide maximum fuel economy. Ref: EQN-90, EQN-91

No unloader or by-pass system will be an acceptable means of regulating excess oil flow.

Pump part number: Parker Hannifin PAVC10092L4AP22X3392 KEYED Crankshaft Mounted,

Full flow relief valve to be installed between pump and control valve. Relief valve setting shall be factory pre-set at 2500 PSI. Relief valve may be mounted inside the main valve enclosure or in the return manifold.

Or

Pump part number: Rexroth Model A10V0100 LH ROTATION: BH00979162

9.3 Hydraulic Pump Driveline:

Hydraulic pump SHALL BE DRIVEN by a 1310 Spicer series, NEAPCO factory balanced drive shaft, or approved equal.

Driveline shall be capable of 130 foot pounds of torque and have tubular shaft of 1141 steel.

Tubular shaft will have 16 spline heat treated to 40 Rockwell hardness.

A groove shall be machined the length of the shaft to provide proper phasing of universal joints at time of shaft assembly.

Driveline installation should be in accordance to manufacturer's recommended procedures.

Slip assembly shall provide not less than 2.25 inch of travel to allow ease of engine drive belt replacement.

The truck engine radiator and frame construction shall readily accommodate the installation of a front mounted crankshaft driven hydraulic pump.

The engine crankshaft pulley or vibration damper shall be drilled and tapped to accommodate a power take off drive shaft adapter plate required under hydraulic system section of these specifications.

Referenced models, Mack FWPTO, Cummins REPTO or approved equal. Ref: EQN-90.

9.4 Oil Reservoir and Accessories:

Aluminum or stainless steel, all welded construction

The oil reservoir shall not be less than 45 GAL capacity, filled with ISO 32AW hydraulic oil

Cylindrical with flat or shallow dish sides, steps shall be included

Tank straps shall be heavy duty (minimum 2 inch wide) stainless steel or aluminum with rubber shims/liners.

Liners shall interlock around the tank strap edges to eliminate them from walking.

Center mounted baffle plate to prevent oil flow from venting directly to section port

A drop tube shall discharge all return oil flow from venting directly to section port

Tapered outlet shall be below oil level at all times to prevent air entrapment

A magnetic dip stick shall be mounted into reservoir from a top NPT female port

Tank shall be mounted under the right door

Tank shall be clearly labeled "HYDRAULIC FLUID ONLY"

Lockable tank filler cap assembly, model 57XL-40 (40 micron with chain) L.C. as manufactured by Lenz. Tel: (937) 277-9364

Suction line/strainer: 125 micron with 3 PSI bypass rated above 47 gpm submerged at all times ¼ turn, 2.5 inch full flow ball valve in the suction line as close to the tank as possible

Strainer integral mounted in a 4 inch NPT female opening in the bottom of reservoir with a 3 inch female NPT opening.

Return manifold: There shall be a return line manifold mounted on the curbside frame rail, final location to be determined at the pre-build meeting.

Return manifold shall be an 8 port header block with 8 # 16 SAE openings and 2 # 24 SAE openings at each end.

Header shall be an Alamo, Damon or Hycoa or equal.

Return line filter: Filter shall be mounted on the outside of the curbside frame rail

Filter shall be a Parker microglas part #80CN-210Q-15739, 300L @10 micron or MPFiltrí – LMP2602BAF1A012M 300L @ 10 micron

There shall be a differential pressure switch with boot to activate a warning light mounted within the console.

Filter shall be remote mounted with spring controlled by-pass set at 25 PSI

Cab mounted filter contamination indicator set at 23 PSID

9.5 Test Port:

There shall be a 5101-6B complete quick coupler or hydraulic gauge, (with dust cover located in the pressure line entering the main valve assembly located inside the valve enclosure. Quick disconnect shall be bracket mounted to the inside of the enclosure, easily accessible so that a shop pressure gauge (not to be installed or included) maybe easily visible for test purposes.

Ref: EQN-20X.

9.6 Installation Practices:

THE USE OF ANY OF THE FOLLOWING ITEMS OR PRACTICES WILL NOT BE ACCEPTED.

Non-steel fittings on hydraulic pressure lines.

Excessive use of elbows on hydraulic pressure lines.

Use of thread tape on hydraulic fittings.

Use of galvanized fittings or components on hydraulic system.

Improper hydraulic line size.
Use of high-pressure hose for hydraulic suction line.
Scotchlok-type wire splices.
Non-insulated wire splices.
Improper hose or wire routing near exhaust, over-sharp edges or through holes without grommets, or sharp edges.
Improperly prepared, primed and painted surfaces.
Non-fused electric circuits.
Hydraulic circuits without pressure relief protection.

9.7 Bed Speed Requirements:

Bed speed shall be tested at 1500 rpm at normal operating temperature

Bed speed full-up shall be 15 seconds maximum

Bed speed full down shall be 10 seconds maximum

10.0 OPTIONAL: GENERAL WING PLOW SPECIFICATIONS: The purpose of these specifications is to describe a full floating patrol wing plow with tripping action and telescoping action mechanism and a capability to lower the assembly in the travel position for improved visibility and to allow emergency egress. Reference: Tenco

It shall be the responsibility of the vendor to certify through proper chassis stress analysis the adequacy of the existing truck frames to accommodate the patrol wing plow in combination with a front mounted plow weighing approximately 3000 LB.

The aforementioned plow will be used for "severe duty" high-speed plowing by the Commonwealth of Pennsylvania. The attached drawings and written text are to be considered minimum and the manufacturer shall reinforce the plow, framing and hydraulic cylinders by means of gussets, or increased material strength or thickness to present a plow designed to meet the severe duty operational setting.

The Patrol Wing shall be designed to be attached or detached independently from the frame assembly. It shall be installed in such a manner as to ensure quick access to the engine and all accessories. (Hood on dump truck shall tilt without obstruction, if applicable.)

All parts not specifically mentioned, which are necessary in order to provide a complete snow plow shall be furnished by the successful bidder. The plow fabrication and assembly shall be to the latest engineering techniques.

All steel unless otherwise specified, shall be hot-rolled steel (HRS) as per ASTM A-36.

When wing assembly is disconnected from the truck, no parts may extend past the body line of the truck.

All bolts shall be grade 8.

A complete set of drawings showing all details and dimensions, sizes, etc., and literature of the plow proposed to be furnished.

10.1 Plow Components:

10.1.2 Shock Absorbing Rear Wing Brace:

The rear wing brace shall be a minimum of a single fixed hinge pin type with an adjustable bottom wing brace, or the formed type wing tube support to attach to a single fixed hinge pin.

The rear wing brace shall be equipped with a telescoping arm and an adjustable type tension spring. If required by manufacturer.

The rear wing "A" frame support strut/girder arrangement of MC 7 inch x 22.7 LB/feet, minimum channel, or fabricated from 7 inch x 12.25 LB/feet channel, 6 inch/feet x 8.2 LB/feet channel, .500 inch plate, 6 inch x 4 inch x .3750 inch structural tubing and other component pieces. It shall be attached in such a way that the load is properly distributed to both chassis frame rails. "A" frame shall be detachable for summer use. Ref: EQN-60A.

One (1) top wing brace cylinder constructed of 3 inch x 15 inch minimum double acting ram, chrome plated piston rods.

Adjustable trip-spring mounted from wing lift cylinder housing to the back of wing.

The rear brace shall be equipped with a 3 inch x 24 inch or 3 inch x 15 inch DA cylinder to actuate the telescoping strut with cross-over relief.

Bottom wing brace constructed of 4 in/10cm O.D. square outer tubing with a 3 inch O.D. square inner tube. Wear guides are welded to inner side of 4 in/10cm tube and to the outside of the 3 inch tube to prevent binding.

The rear wing lift cylinder will be a double acting 3 inch x 27 inch minimum cylinder, chrome plated piston rods with neoprene packing. Cylinder shall float with a 500 PSI relief on the down side.

The tripping spring/eyon rubber compression will be mounted to allow the wing to trip in any of the telescoping positions. The spring/eyon rubber compression shall be adjustable and have a quick release handle to remove tension for detaching the wing. The spring/eyon rubber compression will also be mounted to have tension on the wing in all telescoping positions.

The telescoping strut cylinder shall have incorporated in the hydraulic system an adjustable pressure relief valve for safety, when contacting heavy objects.

10.1.3 Front Wing Support, or Front Wing Post:

Front Wing Mast:

Wing mast shall not block the O.E.M. headlight.

I beam 7 inch x 15.3 LB/feet minimum, wing post.

.6250 inch minimum wing post slide lift with 10inch minimum lift from ground to bottom of plow edge for travel.

Front wing post cylinder double acting ram - direct (no cables) with float and 500 PSI relief on the down side.

Chrome plated piston rods, adjustable chevron type packing, neoprene wipers and bleed screw. Hydraulic hoses, to SAE 100RZ, 022700, AEROQUIP-195, Hi-Impulse, (no substitute,

Front wing post and support strut/girder arrangement shall be attached in such a way that the load is properly distributed to both chassis frame rails without the use of bracing tubes.

Support struts shall be 1.250 inch diameter schedule 80 ASTM A106 Grade A or B seamless pipe brace, minimum of two.

One strut shall be mounted to chassis frame.

One strut shall be mounted to plow frame.

Horizontal support girder 7 inch cross channel or 7 inch ship and car channel at 22.7 LB/feet or tubing 7 inch x 4 inch x .3750 inch.

Bolts shall be minimum grade 8, .6250 inch N.C.

Hinge assembly shall be detachable from the slider assembly of the wing mast.

Formed wing post mounted on cross tube mounted to truck frame members.

Wing slide plate bears on flanged surfaces of formed channel enclosing single acting cylinder, which provides full power up.

Wing Plow Alarm (Mechanical): Wing plow shall have a mechanical alarm system to alert the operator of the position of the plow. It must be visible from the driver's seat. Ref: EQN-60A.

10.1.4 Hydraulic Power

The front wing mast shall have a double acting cylinder vertical lift type, hydraulically controlled by a double acting cylinder direct lift. The front cylinder shall have quick connect coupler/s.

10.1.5 Double Acting Cylinder:

A 3 inch x 15 inch minimum double acting cylinder from rear "A" frame to mold board to raise the rear of the wing and fold the wing close to the truck for transport.

10.1.6 Snow Leveling Wing:

The wing assembly shall in no way interfere with the turning of the right or left front tire. The wing shall not be less than 11 feet long overall, 29 inch high at the front and 36 inch (minimum) high at the discharge end. The moldboard shall be fabricated from 0.1719 inch thick (8 USS gauge) minimum steel and weigh a minimum of 755 LBS.

It shall be drilled to accept standard AASHTO spacing as shown on attached drawing EQN-16A sketch attached and equipped with either a steel or rubber blade as specified.

10.1.7. Rubber Blade:

The patrol wing shall be equipped with a 1.500 inch x 10 inch x 120 inch rubber cutting edge manufactured by Goodyear Tire & Rubber Company or an approved equal, secured to the wing moldboard by .6250 inch grade 8 plow bolts through a .3750 inch x 4 inch steel facing plate. The rubber blade shall be slotted 3.500 inch x .6875 inch to provide adjustment and shall be reversible to provide maximum wear.

10.1.8 Steel Blade:

The cutting edge shall be of .500 inch x 6 inch C1090 steel, at least 10 feet long. Per attached plow blade drawing, EQN-16A.

The wing plow shall have two cast wing shoes.

The patrol wing shall be hydraulically operated with the controls conveniently mounted, (to be discussed at pre-build meeting) in the truck cab with the addition of three valves to the existing valve bank. These valves shall provide lift to the front of wing, the rear of the wing and the folding of the wing toward the cab and control in and out of the strut. The front of the wing shall be controlled by a single acting ram mounted within wing post that permits the front of the wing to be vertically lifted for transportation purposes.

The rear of the wing shall be power hydraulically controlled and attached to tele-strut and a 3 inch x 24 inch double acting cylinder with .3750 inch quick disconnects, (male, female,

cap and plug) which shall be connected to a 7 inch sloped channel located under the dump body and at the rear of the truck cab. The 7 inch channel shall be adequately supported by brackets and cross braces to the truck frame. Bottom bracing shall extend to the rear with bridge type bracing.

10.1.9 Tripping:

The wing shall be of the full tripping type consisting of a special spring-loaded front end. Tripping actuation shall be accomplished through a .8750 inch diameter wire torsion spring at the front end and a tension spring attached to the front and rear of the wing or eyon rubber compression system.

Each spring shall be adjustable and shall automatically return the wing to its normal plowing position after it has passed over the obstruction encountered.

Provision for locking out the tripping action shall be supplied for operations requiring a rigid wing.

10.1.10 Alterations: The following minimum alterations shall be the responsibility of the successful vendor:

1. Add two Timbren load booster or active ride control stabilizers.
2. Brace right hand side plate to truck frame.
3. Add additional steel to side plates to provide increased strength and more substantial mounting for the 7 inch cross channel.
4. One (1) manually adjustable plow storage jack per EQN-60A.
NOTE: Pages 1 and 2 of EQN-60A indicate the general mounting arrangement desired.

10.1.11 Installation Practices:

The use of any of the following items or practices WILL NOT BE ACCEPTED.

Non-steel fittings on hydraulic pressure lines.

Excessive use of elbows on hydraulic lines.

Use of thread tape on hydraulic fittings.

Use of galvanized fittings or components on hydraulic system.

Improper hydraulic line size.

Use of high-pressure hose for hydraulic suction line.

Scotchlok-type wire splices.

Non-insulated wire splices.

Improper hose or wire routing near exhaust, over-sharp edges or through holes without grommets, or sharp edges.

Improperly prepared, primed and painted surfaces.

Non-fused electric circuits.

Hydraulic circuits without pressure relief protection.

NOTE: All zerk fittings shall be threaded.

10.1.12 Directional Control Valve: (for a Single Right or Left Hand Wing)

The hydraulic control valve shall be a REXROTH and shall be part of the dump truck valve

assembly: No substitute, standardization as provided in the Dump Truck Specification
Valves shall control the following functions, Wing plow front post, and wing plow rear post and
wing plow rear telescopic
Electronic joysticks shall be PROPORTIONAL

10.1.13 PLOW IDENTIFICATION:

Each unit shall bear the manufacturer's model number, serial number and weight affixed to the
plow, by means of a permanently affixed non-rusting metallic tag located on the right
hand backside of the moldboard as viewed from truck operator's seat.

10.1.14 Paint:

Color: PENNDOT yellow, DuPont 6808 for shade only. All metal surfaces shall be cleaned prior
to primer and final painting.

10.1.15 Conspicuity Tape:

The Rear of the wing plow shall have a strip of retro-reflective sheeting across the top and down
the outside in order to outline the plow when viewed from the rear. Material shall be: 2
inch wide Reflexite Conspicuity II System of 3M Scotchlite Conspicuity Series 980,
red/silver continuous backing.

10.1.16 Template:

The successful vendor shall provide a metal template of the moldboard contour, including
cutting edge cut out with each pilot.

11.0 OPTIONAL: Tailgate Spreader: Shall be of the single spinner, single Auger type with
hopper which will universally mount on any standard dump body below the tailgate, and will not
interfere with normal dump body operation and is independent of body tailgate. Loads may be
dumped over or under the tailgate and the truck can be used for its normal work without
removing the spreader hopper. The discharge opening shall have a 7-gauge stainless steel
shield to prevent the loss of free flowing materials when auger is idle. The complete spreader,
spinner mount assembly and all hardware including quick detach hinges and pins shall be
constructed of 7 gauges ASCII-304 stainless steel. The trough shall be so designed that the
entire rear section shall open for ready access to the auger chamber to permit rapid clean out
and drainage. This rear plate shall also act as the auger chamber cover plate. The spinner
assembly shall not be attached to the rear cover plate.

11.1 Feed Mechanism: Auger shall be mild steel ASTM A-36 six inches O.D. minimum with
3/8" THICK HARD FACED FLIGHTS and a 4" maximum helix pitch feeding in both directions to
the discharge opening 18.75" from left the auger, drive sleeves and stub shaft shall be as per
PA. Dot Drawing EQN-6 PTC Modified. The left side of the auger shaft shall be supported by
(1) one self-aligning two (2) bolt flange, anti-friction, thrust, re-lube type SURVIOR Series
Corrosion Resistant bearing REF: Timkin # YCJT 1 1/4" PT. The bearing shall be attached to the
removable 1/4" ASCII-304 stainless steel end plates. The right side of the auger shaft shall be
supported by the drive motor.

11.2 Auger Drive Motor: Auger drive motor shall have a displacement of 17.9 cubic
inch per revolution, maximum Reference: White Model RS1801210Z. Auger motor shall

be direct drive. Drive motor must have internally mounted feedback sensor. This sensor will be hall effect design and come complete with cable assembly to connect ITT/Cannon Surge seal type connection.

11.3 Spinner: Single spinner shall be a minimum 18" in diameter and consist of a disc and (6) vanes formed into a single unit from polyurethane, to give a flat trajectory-spreading pattern. The spinner assembly shall be adjustable allowing for variable spreading patterns left, center or right. The entire spinner shall be easily removed by pulling two (2) pins and uncoupling two (2) hydraulic quick disconnect hoses. The spinner assembly shall be linked to the truck frame with a universally mounted parallel arm to keep the spinner horizontal to the road at all dump angles. The spinner hangers shall be a minimum of ¼" thick 2" in width. The spinner assembly shall have a minimum horizontal adjustment of 10". The spinner drive motor shall have a displacement of 3.0 cubic inch per revolution maximum. REF: Char-Lynn Model 101-1001-009 (no substitute standardization.) The spinner hub shall be 4-bolt type hub to mount spinner disc with locking type nuts, (must match bolt pattern for reference spinner). Hub material shall be ASCII-304 stainless steel.

11.4 Hoses: All hydraulic hoses and quick couplers needed to attach the spreader system to the truck hydraulic system shall be furnished. NOTE: The installation of the spreader and hose routing shall be of professional quality.

12.0 DRAWINGS:

EQN-6 PTC Modified

13B-43

EQN-16A PLOW	rev.	05-16-02	3 sheets	STEEL CUTTING EDGES FOR SNOW
EQN-20X	rev.	05-22-03	3 sheets	HYDRAULIC SYSTEM SCHEMATIC
EQN-22	dated	02-16-00	1 sheet	FRAME MOUNTED ACCESSORY PLATE
EQN-23	rev.	03-03-00	5 sheets	HYDRAULIC COMPONENT OVERVIEW
EQN-32	dated	05-22-03	1 sheet	DUMP TRUCK CHAIN BOXES
EQN-50	dated	05-28-02	5 sheets	LOW PROFILE PLOW MOUNTING
EQN-56	dated	01-02-00	3 sheets	SLIDING LADDER
EQN-60A	dated	01-29-00	3 sheets	SNOW PLOW PATROL WING GENERIC MOUNTING ARRANGEMENT
EQN-62	dated	05-28-02	2 sheets	DUMP TRUCK BED PROP SYSTEM
EQN-63 CONNECTION	dated	05-28-02	1 sheet	DUMP TRUCK REMOTE GREASE
EQN-64	dated	05-22-03	4 sheets	COAL CHUTE & TAILGAE APRON DUMP

Conventional Cab Dump Truck, 38,000 # GVWR

PCID NO. 1103

				TRUCK BODY W/ALUMINUM TAILGATE
EQN-66 AND	dated	05-28-02	2 sheets	SPLASH GUARDS-RUBBER-TRAILER TRUCK
EQN-66A	dated	03-19-03	1 sheet	FUSEE STORAGE BOX AND BRACKET
EQN-74	rev.	05-22-03	4 sheets	TRUCK-II AND IV REAR MODULE
EQN-76	dated	05-22-03	7 sheets	TYPE II DUMP BODY DETAILS 38,000 LB GVWR-SINGLE AXLE
EQN-78	dated	07-02-97	1 sheet	CB RADIO CONNECTIONS
EQN-78A TRUCK)	dated	06-03-02	3 sheets	AIR TAILGATE, HARDWARE (DUMP
EQN-80X	rev.	05-22-03	7 sheets	DUMP TRUCK WIRING-TYPE II & IV
EQN-81X	dated	06-03-02	2 sheets	ALUMINUM TAILGATE WITH BUILT-IN LIGHT BAR
EQN-82	dated	05-22-03	1 sheet	CHOCK AND HOLDER
EQN-90 EQN-91	rev. dated	05-23-03 06-03-02	1 sheet 1 sheet	PUMP ASSEMBLY PUMP MOUNTING BRACKET
EQN-94 DUMP	dated	08-15-97	2 sheets	HOSES AND COUPLERS PENNDOT TRUCK
EQN-95	rev.	05-23-03	5 sheets	CONSOLE PEDESTAL
EQN-118	dated	07-08-97	1 sheet	UNDERRIDE PROTECTION
EQN-122	dated	05-16-02	1 sheet	DUMP BODY TAILGATE REFLECTING SHEETING
EQN-124	dated	05-16-02	1 sheet	AUX. SNOW PLOW LIGHT PACKAGE
EQN-127	dated	05-16-02	1 sheet	REFLECTIVITY ENHANCEMENT
EQN-160	rev.	02-15-00	1 sheet	CENTRALIZED LUBE SYSTEM
EQN-210B	rev.	05-14-02	3 sheets	REVOLVING WARNING LIGHT
EQN-351A	dated	08-22-97	2 sheets	FAST LUBE OIL CHANGE SYSTEM
EQN-507B	rev.	05-28-02	3 sheets	CONVENTIONAL DUMP TRUCK WEIGHT

**DISTRIBUTION MINIMUM DATA
REQUIRED**

NOTE: Drawings appear in sae/metric.

The above referenced drawings shall become part of these specifications.

These drawings reflect the intent of the Department and any discrepancies shall be resolved at the line setting ticket meeting between the vendor and the Equipment Chief, or the pre-production inspection of the truck.

DRAWINGS APPEAR AT THE END OF THE SPECIFICATIONS.

Jointly Prepared By: Lawrence Allen, Equipment Manager
 Department of Transportation

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Reviewed and Approved By:

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SPECIFICATIONS

A-15-BU-C-AS

TRUCK – DUMP – CONVENTIONAL - 62,000 LB GVWR
HEAVY DUTY TANDEM DUMP TRUCK (TYPE IV)

052650 thru 053450

TRUCK, DUMP, TYPE IV, ALMN, AUTO (052650)
TRUCK, DUMP, TYPE IV, ALMN, AUTO, WITH RIGHT WING PLOW (052660)
TRUCK, DUMP, TYPE IV, ALMN, AUTO, WITH LEFT WING PLOW (052670)
TRUCK, DUMP, TYPE IV, ALMN, AUTO, WITH DUAL WING PLOW (052680)

TRUCK, DUMP, TYPE IV, ALMN, WITH AUTOSHIFT (052700)
TRUCK, DUMP, TYPE IV, ALMN, WITH AUTOSHIFT, WITH RIGHT WING PLOW (052710)
TRUCK, DUMP, TYPE IV, ALMN, WITH AUTOSHIFT, WITH LEFT WING PLOW (052720)
TRUCK, DUMP, TYPE IV, ALMN, WITH AUTOSHIFT, WITH DUAL WING PLOW (052730)

TRUCK, DUMP, TYPE IV, ALUMINUM, MNL (052800)
TRUCK, DUMP, TYPE IV, ALMN, MNL, WITH RIGHT WING PLOW (052810)
TRUCK, DUMP, TYPE IV, ALMN, MNL, WITH LEFT WING PLOW (052820)
TRUCK, DUMP, TYPE IV, ALMN, MNL, WITH DUAL WING PLOW (052830)

TRUCK, DUMP, TYPE IV, STAINLESS STEEL, AUTO (053340)
TRUCK, DUMP, TYPE IV, STAINLESS STEEL, AUTO, WITH RIGHT WING PLOW (053350)
TRUCK, DUMP, TYPE IV, STAINLESS STEEL, AUTO, WITH LEFT WING PLOW (053360)
TRUCK, DUMP, TYPE IV, STAINLESS STEEL, AUTO, WITH DUAL WING PLOW (053370)

TRUCK, DUMP, TYPE IV, STAINLESS STEEL, WITH AUTO SHIFT (053380)
TRUCK, DUMP, TYPE IV, STAINLESS STEEL, WITH AUTO SHIFT, WITH RIGHT WING PLOW
(053390)
TRUCK, DUMP, TYPE IV, STAINLESS STEEL, WITH AUTO SHIFT, WITH LEFT WING PLOW
(053400)
TRUCK, DUMP, TYPE IV, STAINLESS STEEL, WITH AUTO SHIFT, WITH DUAL WING PLOW
(053410)

TRUCK, DUMP, TYPE IV, STAINLESS STEEL, MANUAL (053420)
TRUCK, DUMP, TYPE IV, STAINLESS STEEL, MANUAL, WITH RIGHT WING PLOW (053430)
TRUCK, DUMP, TYPE IV, STAINLESS STEEL, MANUAL, WITH LEFT WING PLOW (053440)
TRUCK, DUMP, TYPE IV, STAINLESS STEEL, MANUAL, WITH DUAL WING PLOW (053450)

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SPECIFICATIONS
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I. GENERAL TRUCK SPECIFICATIONS:

A. INTENT STATEMENT:

The purpose of these specifications is to describe a conventional, tandem-rear axle dump truck, equipped with dual rear wheels, dump body, hoist, hydraulic power system and snow plow hitch. It shall be capable of one -man operation while plowing snow and simultaneously spreading anti-skid materials or salt during winter operations, and of hauling, stockpiling and unloading maintenance materials into a chip spreader or paver during summer operations. Further it shall be capable of being loaded with front-end loader or self-propelled belt loader.

NOTE: Pennsylvania Department of General Services, PCID No. 1075, "*General Requirements for Bidding PENNDOT Vehicles/Equipment*", most current version effective at the time and date of bid opening, is included as a part of this specification. PCID No. 1075 may be reviewed and downloaded from the Department of General Services website, <http://www.dgs.state.pa.us>.

Delivery as required per Department of General Service PCID NO. 1075 Section "G". All units must be delivered within **270** days after receipt of the purchase order by the successful bidder.

B. WEIGHT DISTRIBUTION:

Weight distribution charts must be submitted with the pilot model for all models per Invitation To Bid. Weight distribution charts shall be submitted for two modes listed below. The weight distribution charts submitted with the pilot model shall be reviewed for their reasonableness, and any inconsistencies shall be clarified with the awarded vendor at the "pre-build" meeting.

1. Summer mode including that portion of the wing plow post and plow frame assembly that remains on the vehicle all year.
2. Winter mode with front plow, spreader and complete wing plow.

Each item listed on Drawing EQN-507B shall be noted and individually calculated in the vendor's submission.

Engineering certified weigh slip shall be provided with the pilot model and signed by the Manufacturer's Engineering Department.

It is understood that the components specified are minimum and manufacturer's Engineering Department recommends or deems necessary, particular weight distribution, a larger component or a larger GAWR totally. The burden of responsibility is hereby placed upon the Manufacturer's Engineering Department to supply a unit that is totally engineered.

1. Frame
2. Axle
3. Tires
4. Steering unit and components
5. Rims
6. Suspension
7. Brakes

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8. Any other items as required

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I. GENERAL TRUCK SPECIFICATIONS: (Continued)

B. WEIGHT DISTRIBUTION: (Continued)

1. The dynamic and static loads created by the unit, plus operational stresses, must be reviewed to ensure the Commonwealth of a properly designed/engineered unit.
2. Front and rear axle legal weight distribution apply to non-emergency applications only!. Winter weight distributions are required for payload information purposes only since winter plowing and spreading operations are exempt from legal weight restrictions. However, the total weight rating shall not exceed the manufacturer's GVWR for the vehicle that is offered. The weight imposed on the front and rear axles using the total GVWR shall be shown. (Overweight shown on the axles in these winter modes is for information only).

In addition to the Engineering Certified weight distribution provided at the pilot model inspection, the following information is required with the pilot model.

The vehicle shall be certified for 62,000 LB Gross Vehicle Weight Rating (GVWR). The GVWR shall be identified in the cab or on the door as the final complete certification label (minimum rating).

ACTUAL TRUCK WEIGHT: (LB)

"Chassis only" (shall be signed by a certified weigh master.)

_____ Front Axle

_____ Rear Axle

_____ Total

"Chassis with body" (shall be signed by a certified weigh master).

_____ Front Axle

_____ Rear Axle

_____ Total

THE ABOVE MAY BE PERFORMED BY THE BODY COMPANY.

SPECIFICATIONS
A-15-BU-C-AS

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

B. WEIGHT DISTRIBUTION: (Continued)

Truck GAWR's as Built (LB)

	<u>Front GAWR</u>	<u>Rear GAWR</u>
Axle	_____	_____
Tires	_____	_____
Springs	_____	_____
Rims	_____	_____

C. POWER TRAIN OVERVIEW:

NOTE: LUBRICANTS FOR FRONT AXLE HUBS AND DIFFERENTIALS, MANUAL TRANSMISSIONS, TRANSFER CASES AND ALL REAR DIFFERENTIALS SHALL MEET OR EXCEED ALL APPROPRIATE MIL AND SAE SPECIFICATIONS FOR SYNTHETIC LUBRICANTS AND SHALL HAVE ALL PLUGS IDENTIFIED AS SYNTHETIC OR PAINTED RED.
(The OEM shall provide written exemption if synthetic oil is not installed)

ENGINE – DIESEL, MIN. 370 HP AT GOVERNED RPM, MIN. PEAK TORQUE OF 1450 LB/FT TORQUE, MIN. 12.0 LITER

TRANSMISSION –

EATON RTO – 14908LL
EATON RTO – 16908LL
MACK T-310M

EATON AUTO-SHIFT RTO-14910(B OR C) - AS2
EATON AUTO-SHIFT RTO-16910(B OR C) – AS2
(Dependant upon engine RPM/axle ratio)

AUTOMATIC ALLISION 4500 RDS

REAR AXLE –

DANA DS463P
MACK S 440 OR S462
MERITOR RT46 -160 -P

NOTE: All rear axles must provide axle shafts with a minimum diameter of 2.19 inch at the spline.

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NOTE: REAR AXLE/S SHALL HAVE AN EXTENDED BREATHER TUBE TO PREVENT DEBRIS BUILDUP.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS:

1. ALARM - BACKUP:

Ref: EQN-74

2. AXLE FRONT:

20,000 LB capacity minimum.

The front axle, drag links and tie rods shall have grease zerks installed.

Kingpin or bushings shall be grooved to permit grease flow.

Sufficient tire clearance at maximum turning angles.

Complete "Stemco" oil seal assembly, including hub, plug type window, and "Guardian" seal, or approved equal.

Each unit shall have the front end aligned.

3. AXLE REAR: - (See powertrain overview for acceptable models.)

ALUMINUM OR LIGHTWEIGHT HOUSING IS NOT ACCEPTABLE.

STEMCO GUARDIAN rear wheel seals, or approved equal.

Drain plug, magnetic.

There shall be an inter-axle differential lock that is manually cab controlled.

NOTE: Rear axle selection will be made after the award and may be a mix of ratios as required. The successful vendor/manufacturer shall present three (3) computer runs showing 3 most likely ratios for consideration for a speed range of 55 MPH to 65 MPH max. This information shall be presented at the pre-build meeting. The rear axle ratios must be the "identical" ratios.

4. BRAKES: (Full air ANTILOCK in compliance with the most current FMVSS requirements.)

Rear brakes: 16.5 inch x 7 inch "S" cam with quick-change type single or double pin. (No substitute, standardization).

Steer-axle-brake: 16.5 inch x 6 inch or a power front disc brake system providing equal performance.

Quick change type single or double anchor pin if drum type brakes are furnished.

Drum brakes shall have automatic slack adjusters and they shall be clearance sensing type only, with adjustment on application of the brake (no substitute).

Backing plates on all drum brakes.

Air compressor: Per truck manufacturers recommendation

Buzzer-type, low air pressure indicator. Compressor shall be fitted with a safety valve to prevent me-

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chanical failure.

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I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

4. BRAKES: (Continued)

Parking brake: Rear wheel spring-type, MGM E 30/30 or Anchorlock 30/30 gold seal chambers. Parking brake shall provide modulated emergency braking via the foot valve in the event of a rear service system failure.

Rear service brake chambers and spring brake chambers mounted to provide adequate clearance for backing into bituminous paving machines.

Air tank: Automatic drain valve, with heater on wet (first) tank. Each of the remaining air tanks shall have a manual drain valve.

Air dryer: With heater, inboard mounted, away from road splashing and 20 inch above road surface. Dryer shall be compatible with the body company clearance requirements for sub-frame, valve body, etc. Per: Haldex DRYest or Bendix AD-IP Installation made in concurrence with the air compressor manufacturer 's recommendations.

All electrical connectors for drain valve and air dryer shall be covered with heat shrink material or have sealed connections.

System shall be equipped with anti-compounding to prevent mechanical failure of the foundation brakes, slack adjusters, etc.

5. CAB:

Aluminum or galvanized steel cab, 104 inch minimum to 125 inch maximum BBC (Bumper to Back of Cab) dimension excluding frame extension.

Hood: Fiberglass, tilting. Fenders are part of tilting hood. Grille shall be fixed.

Air suspension system for the cab shall be factory or aftermarket installation is acceptable

Air deflector: Clear or smoke, hood mounted. Manufacturer's standard full width for the truck model.

Access to front-end hood tilt handle shall not be blocked. Extra handle acceptable.

Fenders: Front fenders shall have a 6 inch rubber extension.

Deluxe fresh air hot water heater and defroster, manufacturer's highest output.

Air Conditioning: Highest output available as OEM option.

AM/FM radio with weather band.

Air horn(s): with snow-shield (not required if underhood mount).

All controls and knobs shall be properly identified.

Brake pedal, clutch pedal and throttle shall be suspended if available from the factory.

CB Power connections One (1) pair, at the dash, per EQN-78.

Cab floor covering shall be heavy-duty rubber with closed cell rubber or heavy felt backing.

Cruise control

Cup holder in the cab within easy reach of the operator.

Dome light shall be provided

Dual sun visors.

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SPECIFICATIONS
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I. GENERAL TUCK SPECIFICATION: (Continued)

D. VEHICLE COMPONENTS: (Continued)

5. CAB: (Continued)

Windshield: One (1) or two (2) piece construction, tinted. Safety glass throughout.

OPTIONAL: Heated windshield per invitation to bid.

Drivers and passenger side windows shall be power.

Dual windshield wipers artic type with heaviest arms and linkages available. Wipers shall be min. 2 speed electric with intermittent feature.

Washer system shall be electric. Minimum capacity of two (2) quarts of washer fluid and shall be filled with an anti-freeze type solvent.

Mirrors: Driver's and passenger side power mirrors , west coast style minimum 6 inch X 16 inch manufacturers standard heavy duty break away arms.

Mirrors shall be heated with a lighted toggle switch mounted within accessible reach of the operator, automatic on/off is acceptable. The wires shall be fitted in such a way that the mirror glass/element can be changed by unplugging the two-wire lead.

There shall be a heated convex mirror both sides, minimum 5.5 inch X 8.8 inch or 8" diameter, minimum.

Roadwatch system with digital display in the left mirror head or remote location as determined by ordering agency at pre-build meeting, shall be installed. Ref: Sprague Controls

Blind-spot elimination mirror heated (conventional cab only) shall be mounted on the right front fender and it shall be 8 inch, minimum, diameter stainless steel or aluminum head with mirror. Mirror shall be a conventional convex mirror, and shall not be of the half-round cross view type. All arm/s and hardware shall also be stainless steel. Fender type washers stainless or aluminum, with rubber pads to be placed on both sides of the fender shall be included. Pedestal system shall be single, double or triple mounting assemblies (stainless steel or aluminum). Mirror shall be mounted in rubber or vinyl. Ref: Grote (800-628-0809)

STEPS: Drivers and passenger entrance steps: Shall be aluminum, serrated. The outer step edge must be serrated in lieu of plain. (Overlay is not acceptable).

Step design material must be the same both left and right side.

Ref: Bustin No. NST4 full size, Ohio Grating No. JA21195G4 serrated, IKG. Industries Type B54 or Mack Part # 85QM423OM4

Top of the first step shall be approximately 21 inch above the ground.

Seats: Driver's seat shall be high back adjustable Bostrom air 915 Series with lumbar support or National 195 Series with lumbar or DuraForm Air Command Series (fabri form cushions with lumbar support) with body cloth insert and three-point retractable seat belt. A bellow-type or protective skirt shall cover the seat suspension mechanism. There shall be an inside armrest on the driver's seat plus an outside armrest installed on the seat or the drivers door. No substitute on seats reference. Color coordinated to cab interior.

Passenger seat: With three-point retractable seat belt, manufacturers standard non-suspension

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(static), and high black type. Color coordinated.
Steering wheel diameter shall be 18 inch (approx).

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

6. CHASSIS:

The GVWR rating of the truck shall be 62,000 LB on the door or in the cab as the final complete certification label. (minimum rating).

96 inch to 102 inch cab axle (CA) dimension. Wheel base dimension 186 inch approximate. Wheel base and CA dimension may be adjusted to provide the optimum legal weight distribution.

The frame AF shall incorporate a cross member at the rear of the frame to reinforce the body pivot point. (Local installation is acceptable).

Front Bumper: Heavy duty swept back. Mounted to the frame with the inner face of the bumper against the chassis frame.

Lights: mounted on the rear of the frame shall be shock mounted to prevent damage from backing into material piles (Ref: EQN-74).

Frame mounted tow hooks or eyes: Two (2) front. These may be installed by the body company after completion of the plow hitch mounting using grade 8 bolts (minimum) of sufficient length, and grade 8 elastic type self-locking nuts, or by full welding.

License plate bracket: Front and rear. Securely mounted to prevent damage when backing into material piles.

Centralized on board chassis lubrication system; steel tubing (hard pipe shall be utilized where/when ever possible and practical: Ref: EQN-160

Ref: Grease Jockey by Lubriquip, Inc.
Groeneveld Lube system
Lincoln Lube system
Vogel Lubrication, Inc.
Lubriquip Trabon

7. CLUTCH: (if applicable)

Externally lubricated with an extended lube hose if applicable, Eaton/Fuller EZ pedal or Meritor with torque limiting clutch brake.

Clutch adjustment shall be set to specifications prior to delivery to the Department.

There shall be a neutral safety device to ensure that the vehicle cannot be started in gear.

NOTE: The transmission-input shaft shall be 2 inch spline. Dampened driven disc.

8. DRIVE LINE:

Main drive line: Spicer Life XL or Meritor RPL Series. "Factory balanced" greasable, (1 zerk minimum).

Heavy-duty drive line shall be engineered and be compatible to engine, drive train and transmission torque.

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Heavy-duty center bearing, if required, with due consideration to drive shaft angles, length, location, proper bolting based upon engine and transmission selection.

Interaxle driveline: Spicer Life XL Series.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

9. ELECTRICAL:

All copper system, negative ground.

Alternator and starter mounting bolts: Grade 8.

Alternator: 130 amp minimum, high performance, solid state, brushless. Battery cable from battery negative terminal to starter motor or frame.

Batteries: Three (3), heavy-duty, 12 volt, field maintenance-free, BCI Group Size 31, with stud-type posts and anti-corrosion treatment on each terminal. 2500 total cold cranking amperes (CCA) at 0 degrees F. 640 minutes of total reserve capacity at 80 degrees F as per SAE.

Battery Mounting: It shall include the following:

- a.) 0.25 inch thick rubber shock pad under the battery.
- b.) Box with cover. Cover shall be constructed of fiberglass, poly, or aluminum (if aluminum there shall be an insulated liner).
- c.) Mounting bolts grade 8 with self-locking nuts.

Cables shall conform to RCC Practice 105 with "sealed" terminal ends for stud-type battery posts.

Electrical system: Circuit-breaker-equipped, in easily accessible location, weatherproof. Fuses acceptable in circuit so identified by manufacturer as safety factor. Any fuse circuit breaker liable to be damaged during truck operation shall have an easily removable protective cover. All wire splices in the cab shall be heat shrink materials. Ref: Thomas & Betts, Tel: (210) 707-2145.

Electrical chassis-wiring harness: Body lighting and wiring to be per EQN-80X.

Body plug: Truck manufacturer and Grote Industries shall supply a body builder plug and bracket. All lights, body and chassis shall be protected by the truck manufacturers fuse block assembly.

Final location of the plug and bracket shall be decided at the pre-build meeting.

All exposed junctions: Waterproof and sealed against salt.

Flasher: (All) heavy-duty electrical, Ref: Tridon Model EL 12 or EQUAL.

Note: If an audible alarm is supplied for 4 ways and turn signal, it shall have on/off capability.

All lights for chassis and body shall be LED per EQN-80X and meeting all Federal and state regulations.

The switch for parking light circuit shall be able to handle an additional 3 A load of a light bar.

Head Lights: shall be Halogen with Daytime running lights factory or aftermarket installation.

Dump body lights shall have their own dedicated complete circuit.

Starter motor: With thermal overcrank protection and high torque capacity. Suitable for the diesel engines offered as per starter manufacturer's recommendation.

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SPECIFICATIONS
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I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

10. ENGINE:

The engine components facing wheel areas, on both sides, and the areas to the rear of wheels shall be shielded. The shield shall protect the engine, fan, radiator and areas behind tires from the stones and debris.

Replaceable heavy-duty fuel filter(s) and oil filter(s) as recommended by the manufacturer bearing a legible OEM part number.

Cooling System: The largest factory available engine cooling capacity compatible with engines and transmissions referenced and for continuous high engine output under extreme temperatures and/or operating conditions due to prolonged snow plowing operations in low gears. The water pump shall be adequately sized to provide proper cooling and be of sufficient size to accommodate the larger pulley to adequately handle the specified options.

Shall be fitted with provisions for visually monitoring coolant without necessitating removal of the cap from the radiator or expansion tank (e.g. sight glass, transparent expansion tank).

The antifreeze solution shall meet all applicable EPA requirements.

11. ENGINE ACCESSORIES:

Radiator core and shell: Shall be manufacturer's heaviest construction grade radiator available, with overflow recovery system and visual level indicator. Radiator with a "cut-out" to accommodate PTO shaft will not be accepted.

The oil dipstick must have tubing and dipstick with sufficient length to provide reasonable access for checking the oil level.

Engine Heater: Immersion in-block type, for Cooling system, with waterproof plug flush-mounted in an accessible location at the front/side of the vehicle, outside the cab/hood, 110 volt, 3-prong plug. The electrical cable from the heater to plug shall be one piece and waterproof. Location to be determined at the pre-build meeting.

Coolant/filter: A spin-on filter element and the HA 350 Mounting Kit. Perry system size S-4 or approved equal.

Air Cleaner: Air filter shall be manufacturer's heaviest duty air cleaner that meets all the requirements of the extended engine warranty.

The air intake system shall be fitted with inside/outside air.

Fan: Thermostatically controlled viscous type or manufacturers recommended automatic fan.

Screening System: that protect radiator from stones and bugs.

Engine Vibration Dampened: At PTO flange yoke. Ref: EQN-90.

Air Restriction Gauge: Flush, dash-mounted with indicator slide for engine air cleaner, Ref: Filter Minder, manufactured by Engineered Products Company. If the vehicle is OEM equipped with an electronic dash that incorporates an air restriction gauge or indicator light, it shall be acceptable.

SPECIFICATIONS
A-15-BU-C-AS

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

11. ENGINE ACCESSORIES: (Continued)

Governor: Set at manufacturer's recommended maximum rpm.

Hoses: The air induction system and large radiator cooling system hoses shall be clamped with 0.500 inch wide, 150 inch LB stainless steel, constant torque, spring loaded worm clamps. Ref: Wittek Manufacturing (Tel: (312) 492-9400) or Breeze Clamp Co, Constant Torque clamps with liner for silicone hoses. Cooling system hose under 1 inch OD may use factory standard hose clamps, as a minimum acceptable standard.

Air intake hoses shall be 0.250 inch minimum thickness, molded hoses. Ref: Gates, Goodyear or equal. Silicone or premium rubber, radiator and heater hoses. Hoses shall not be painted.

Lubricating Oil Lines: High quality flexible wire-braid type, "Aeroquip" or approved equal system, minimum standard if hoses are used.

Drive Belts: Cog belts or serpentine (cog belts not required for power steering).

Engine Brake: Minimum 2 stage, full engine compression brake, ref. Jacobs.

12. EXHAUST:

Vertical tailpipe and muffler system or approved horizontal muffler and vertical tail pipe.

Tailpipe with elbow.

Exhaust system shall neither interfere with the operation of the dump body or equipment nor will it be close to any fluid tank, and **PERMIT WING PLOW INSTALLATION.**

The tail pipe shall be installed in a manner that will keep the muffler and tail pipe away from dump truck body. The flex in the body when operating on an uneven terrain must be considered in the design.

The muffler and tail pipe shall be shielded or insulated to protect personnel from burns when entering or exiting the cab. The shield shall be 180 degrees to 360 degrees and shall be of non-rustable material such as stainless steel or aluminum. Ref: Riker or equal.

13. FAST LUBE OIL CHANGE SYSTEM (FLOCS):

This system will be installed with all fittings, brackets, clamps and hoses. The system will be compatible with all fittings presently used by the Department. The final placement of the male half of the snap coupler on the equipment will be determined at the pre-build meeting. Ref: Aeroquip or prior approved equal. Ref: EQN-351A.

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I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

14. FRAME AND FRAME EXTENSION:

Resisting Bending Moment (R.B.M.): Minimum of 2.5 million inch LB per rail, including extension, for the entire length of the frame, including any frame liners. Where engine and radiator adjustments are required, a minimum of, 1 million inch LB per rail (R.B.M.) will be excepted. Frame material shall be of at least, 110,000 PSI yield strength.

If a larger RBM is required to perform the specified operational duties, the vendor shall bid a frame concurrent with the intent and spirit of this contract. Ref: Snow removal operations, full payload snow plow, right and/or left patrol wing plow, etc.

Main frame and any required liners shall be either straight channel or offset channel, full length.

Minimum frame RBM shall be approved by manufacturer 's Engineering-Department.

Bolt-on or welded extension will not be accepted.

Front frame shall accommodate the Department's standard hydraulic PTO shaft and pump (Ref: EQN-90) and the plow frame. It shall provide easy service accessibility.

The truck offered must be designed to accommodate a right and/or left patrol style wing plow.

15. INSTRUMENTATION:

All instruments illuminated and dash-mounted except where specified otherwise.

All standard instruments shall be supplied, including, but not limited to the following:

Gauges: Oil pressure gauge: with warning light or audible alarm.
Air pressure: gauge (s) for dual circuit, dual indicator with lo-pressure audible alarm.
Coolant temperature: with warning light or audible alarm.
Transmission oil temperature: for automatic transmission only with warning light or audible alarm.
Fuel
Hourmeter that records only when the engine is running. In – dash, integral with instrument panel be illuminated and shall be readable from the operator's seat.
Speedometer with odometer with a dual speedometer lead to interface with the Component Technology system.
Tachometer
Voltmeter
Parking brake indicator light.
Hydraulic fluid level gauge.

16. LIGHT – WARNING:

One (1) revolving warning light shall be mounted on the drivers side of the body cab protector, Ref: EQN-210B.

SPECIFICATIONS
A-15-BU-C-AS

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

17. LIGHT - WARNING - MOUNTING BRACKET - WIRING:

Ref: EQN-210B.

The wire shall be protected along the entire under side of the cab shield and down the front of the bulkhead.

A grounding wire shall be provided between the internal and external bracket at the pivot point.

18. PAINT:

Cab shall be painted PENNDOT yellow. Ref: DuPont 6808 for color only or Omaha Orange, Ref: DuPont 9215.

Frame: All underside components, shall be primed and painted black.

Front bumper shall be painted black.

Plow frame shall be painted black with acrylic enamel (with hardener) low VOC.

19. SAFETY:

Cab and body shall have reflective enhancement per EQN-127.

Emergency triangle warning kit, with hold down. Warning Triangle Flare Kit, Ref: KD 610-4645, KD Lamp Co. (Tel: (513) 621-4211) or equal, stowed (fastened) in the cab. Ref: EQN-66A

Fire extinguisher: Rechargeable with vehicle mount. Mounted in the cab for easy and quick access. Ref: 2A: 10B: C.

Grab handles (2): Shall be furnished to provide "Optimum safety" for entering the truck cab. Manufactures standard or aftermarket. Non-skid paint or rubber may be utilized, (non-skid tape is unacceptable).

Ref: Non skid paint, Gamma Laboratories

20. STEERING:

Power Steering: Dual integral or single integral type hydraulic power steering with right wheel power-assist cylinder.

Glidecoat steering shaft, or Bendix wedgelock lube-for-life shaft.

Steering System: (e.g. flow, pressure, relief valve etc.) Shall be selected considering the full front-GAWR axle loading. Ref: Ross or Sheppard gear assembly.

Hydraulic Supply Pump: Vane type or roller type with sufficient oil flow to permit one (1) steering wheel revolution per second with front axle loaded to rated capacity, with plow on, in a "park" condition. Ref: Vickers V-20, Eaton or Borg Warner.

The pump shall not be the integral filter type unit.

Power Steering Reservoir: "Remote mounted", minimum 2 quart capacity, incorporating a filter which is easy to remove and replace.

The remote filter referenced above shall be factory mounted, certified and engineering approved in conjunction with the appropriate pump.

SPECIFICATIONS
A-15-BU-C-AS

Cogged belts not required on power steering system.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

21. SUSPENSION: FRONT:

10,000 LB capacity at ground each front spring.

The six (6) front spring pins or bearings/bushing shall be furnished with 360-degree grease grooves to insure adequate lubricant penetration.

Spring hangers shall be heavy castings with sufficient pin and bearing surface to render trouble free service.

22. SUSPENSION: REAR:

Suspension shall be tailored to axle loads and shall be adequate to sustain maximum GVW without overload or permanent set.

23,000 LB capacity at ground, each rear spring.

The spring hanger brackets shall be severe duty castings with sufficient bearing surface/wall thickness to prevent premature bolt wear.

The spring center bolts shall be a minimum of .4375 inch size, preferably .5000 inch.

The rear spring hanger pins shall be the greaseable type.

Bolts must be of sufficient length to go through the washer, spring bracket and truck frame with sufficient length to install a self-locking nut.

23. TANK - FUEL:

Safety - type fuel tank as per the requirements of FMVSS. **Dual tanks are unacceptable.**

Trucks with no wing and Trucks with a right wing shall have one (1) 100 GAL minimum total capacity, frame mounted, under the left door.

Left wing and dual wing trucks shall have one (1) 80 GAL minimum total capacity, frame mounted, under the left door.

Tank mounting hardware and brackets shall be for "severe duty" applications. Heavy-duty aluminum or stainless steel with minimum 2 inch wide straps with rubber shims/liners.

Accessible fill pipe with dump body down (located at either end of tank to avoid interference with steps). System shall be a top draw and top return line.

Attachment F

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SPECIFICATIONS
A-15-BU-C-AS

SPECIFICATIONS
A-15-BU-C-AS

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

24. WHEELS/TIRES:

GENERAL:

The truck shall be equipped with hub piloted steel disc wheels for tubeless tires. The wheel end shall be equipped with outboard cast brake drums, and 15 degree tubeless steel wheels, hub piloted, 10 hole - 285.75mm bolt circle with 22mm two-piece flange nuts.

Front: Wheels: 22.5 x 12.25, 10 hole - 285.75mm bolt circle with 220mm bore, tubeless steel disc wheel rated at 10,500 LBS at a maximum inflation pressure of 120 PSIG. Accuride part number 29806, no substitute.

Rear: Wheels: 22.5 x 8.25, 10 hole - 285.75mm bolt circle with 220mm bore, tubeless steel disc wheel rated at 7,500 LBS at a maximum inflation pressure of 120 PSIG. Accuride part number 28828, no substitute.

The dual rear wheel/tire assembly shall have clearance between the tires, which permits the use of dual tire chains.

Wheel-Guard Separators: The wheel ends shall be equipped with the Accuride part number 5903 Wheel Guard Separator as follows:

Front axle - between the wheel and the brake drum.

Rear axle - between the inner dual and the brake drum and between the inner and outer duals.

Paint: The wheels shall be topcoat painted with TGIC Polyester Powder Paint MLD-82008 High Gloss Gray or equal applied over Cathodic Electro-Disposition Gray Primer.

TIRE: All tires will be radials.

Tires: 425/65R22.5 (18 ply min).

Tires: 12R22.5H

MANUFACTURER

Goodyear

Michelin

FRONT TIRE

G-286 SS

XZY - WB

REAR TIRE

G-124 or 164RTD

XDE-A/T

NOTE: The above referenced tire manufacturers and models are for reference only. Approved equal manufacturers/models will be acceptable. Tire speed rating to be considered as part of equivalency.

SPECIFICATIONS
A-15-BU-C-AS

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

25. TRANSMISSION: See POWER TRAIN OVERVIEW for acceptable transmission.
Transmission type per invitation to bid

MANUAL:

Geared for PTO application, right and left side or right side and bottom.

Magnetic drain plug.

Input transmission shaft: 2 inch.

12 to 1, minimum 1st gear and reverse ratio.

AUTOMATIC:

Dash mounted console with push button shift selector.

There shall be an external oil cooler.

Oil cooler for transmission required due to prolonged transmission torque converter operation in low gears. Cooler size must be provided to keep the transmission fluid at an acceptable operating temperature under these prolonged conditions. (Water to oil type cooler). An Allison approved cooling system shall be installed regardless of whether retarder is incorporated in the system or not.

Retarder system shall have a foot control. There shall be a master switch on the dash that will totally disarm the retarder system. A switch in the retarder circuit shall automatically activate the brake lights during retarder operation.

E. DUMP BODY AND EQUIPMENT:

1. DUMP BODY, ALUMINUM:

DETAILS - Ref: EQN-79A

The dump body capacity shall be minimum of 11.0 cubic yards water level.

Side board pockets and tailgate height shall provide additional carrying capacities of 2 and 5 cubic yards.

Front Body Bulkhead: Minimum 0.15625 inch standard aluminum 5454H34, and shall be a minimum of 12 inch above body sides. There shall be a shovel holder assembly mounted on the left front of bulkhead (final position to be determined at the pre-build meeting). Ref: Akron Foundry AT-2

Rear Corner Posts: On both sides shall be full depth, one-piece construction from the top of the tailgate to the bottom of the rear bolster and shall be free of holes.

Rear Bolster: One piece, full depth and full width.

Spreader chain holders: On both sides, top and bottom of the rear corner posts.

All body welding shall be full welding.

Bed prop: There shall be two (2), three position, self positioning stow away bed props per EQN-62. There shall be midway sideboard supports (left and right).

SPECIFICATIONS
A-15-BU-C-AS

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. DUMP BODY AND EQUIPMENT: (Continued)

2. TAILGATE, ALUMINUM:

NOTE: Tailgate shall be interchangeable between aluminum and stainless steel bodies by manufacture. Ref: EQN-79A EQN-81X and EQN-64.

Manufactured from grades 5454H34 and 6061T6.

48 inch (minimum), body sides 38 - 42 inch (approx.).

Double acting five (5) panel tailgate with offset hinges.

Two (2) "J" hooks welded to the tailgate for chain hangers.

1.25 inch dia. greaseable self-aligning top hinge pins with tapered end and with sufficient length for easy removal. Pins shall be affixed with chains to prevent loss and be non-rotating.

Top hinge plate, aluminum, or steel with replaceable heavy duty bushings and greaseable fittings.

0.375inch spreader chain, non-rusting and able to accommodate 0.5/1.27cm in thick aluminum chain holder or 0.375 inch an thick steel chain holder.

Minimum edge distance 1.5 inch.

Tailgate chains shall be covered with expandable braided sleeving of monofilament construction. Ref: Fairmont, (Tel: (304) 366-4600) Part No. Expando Grade DM -color black or yellow.

Four (4) tailgate chain brackets. Two (2) on each side.

Severe duty tailgate attaching brackets.

Aluminum tailgate with built in light bar. Ref: EQN-81X.

Body Lighting: - Ref: paragraph I.D.9 ELECTRICAL CHASSIS - WIRING HARNESS, and EQN-81X.

Coal chute gate with levers and operating handle. AISI Type 304 stainless steel. Ref: EQN-64 aluminum

Air operated Tailgate per EQN-78A: Tailgate must be operated via an in-cab dash mounted switch (switch mounted under dash is unacceptable). All air piping and connections must be D.O.T. approved with .250 inch nylon tubing and brass compression fittings. Spring-over-air or air to air is acceptable.

3. BODY SIDES, ALUMINUM:

The sides shall be minimum .250 inch thick aluminum 5454H34.

Top rails shall be fully boxed and completely closed by "continuous" welding, both sides.

One piece construction for side top and bottom rails; no splices.

Running board width shall cover the outer rear dual tires and shall be full length of the body, both sides.

A minimum of five (5) vertical side braces per side on proper centers shall be furnished in addition to the front and rear corner posts. Side braces and front posts shall be furnished with bottom drain holes with safety self cleaning type grid steps welded, both sides, between vertical braces, full length, and flush with outer edge of vertical braces per EQN-76.

Aluminum body shall be isolated from the steel frame rails at the hinge by installing Mylar material.

SPECIFICATIONS
A-15-BU-C-AS

I. GENERAL TRUCK SPECIFICATIONS: (Continued)E. DUMP BODY AND EQUIPMENT: (Continued)4. FLOOR, ALUMINUM:

One (1) piece body floor shall be .3750 inch thick minimum, abrasion-resistant aluminum 5454H34.
Ref: EQN-79A.

5. BODY STRUCTURE, ALUMINUM:

Ref: EQN-76.

The body shall be "stacked construction" aluminum.

Dump Body	Aluminum	
Longitudinal member	Size	6 inch I-Beam min.
	Wt.	6.1 LB/feet
	Material	Al 6061T6
Cross-member	Size	4 inch I-Beam min.
	Wt.	2.70 LB/feet
	Material	A1 6061T6

4 inch channel Cross members of equal strength are permitted at the front and rear of body to finish the unit, and in the area where hoist box is located.

The body shall be reinforced to withstand SEVERE duty service. Ref: Dump body up while spreading salt and anti-skid material, or excavation rip rap being dropped in the bed.

The longitudinal I-beams and channels specified are minimums and may exceed dimensions to permit proper hoist mounting.

Heavy gussets of minimum size 4 inch x 6 inch x 0.375 inch thick for aluminum shall be furnished at all cross members on the outside. Where not possible, they will be furnished on the inside.

6. CAB SHIELD, ALUMINUM:

Ref: EQN-79A. Full width cab shield with no off-set for exhaust stack.

Body front bulkhead and cab shield shall be minimum 0.15625inch thick aluminum 5454H34.

Continuous welding on front and cab shield throughout.

One-half (1/2) cab shield with four (4) inch lip on front extending over cab.

The body cab shield shall have sufficient clearance to ensure that the shield will not hit the exhaust system when dumping on uneven terrain.

SPECIFICATIONS
A-15-BU-C-AS

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

F. DUMP BODY, STAINLESS STEEL

Dump body shall be built with 304-L stainless steel.

Body, structural items and tailgate shall be constructed from stainless steel utilizing the specification listed under aluminum body I.E.1.

All conversions from aluminum to stainless steel is the responsibility of the successful vendor.

Any applicable verbiage listed under I.G.1. body equipment shall be utilized.

Miscellaneous hardware shall be manufacturers standard.

All referenced drawings shall be utilized if needed by the successful vendor.

G. BODY EQUIPMENT: (ALUMINUM and STAINLESS STEEL)

NOTE: All mounting procedures shall be in accordance with NTEA standards.

1. Integrally designed/engineered to eliminate body side shifting on uneven terrain.
2. Capable of being utilized in raised position for extended use while spreading salt and anti-skid materials.

NOTE: (Hydraulic fittings shall be mounted above the module, and the vertical apron shall be cut out above the frame to facilitate their placement.) Receiver pin shall be located on the outside of the module.

NOTE: Acceptable body companies: (No Substitute, prior to bid approval necessary).

J & J Truck Bodies & Trailers - Somerset PA.,
Benson International, Inc, Mineral Wells W.Va.
Warren, Inc, Collins, MS
Thiele Inc, Windber, PA
R/S Body Co, Richmond, KY
Godwin Man. Co., Dunn, NC
Tibrook, Brookville, PA

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SPECIFICATIONS
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SPECIFICATIONS
A-15-BU-C-AS

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

G. BODY EQUIPMENT: (ALUMINUM and STAINLESS STEEL)

1. ACCESSORY PLATE:

There shall be an accessory mounting plate installed ref: EQN-22. Location to be determined at the pre-build meeting.

2. BED UP ALARM:

A safety warning light dash mounted and alarm installed. Switch shall be set at 49 degrees +/-1 degree dump angle to alert the operator and to prevent the hoist cylinder from going fullstroke. Switch shall be mounted in accessible area of the body of the dump bed located away from road splash etc.

NOTE: SWITCH SHALL BE MECHANICAL, MECURY TYPE SWITCHS are not ACCEPTABLE.

Ref: Scott Electric (Simines) Switch – SIA3SEO3-AR1
Lever - SIA3SXO3-KL200

3. CHAIN BOX/S:

The final size and location shall be determined at the pre-build meeting.

2 boxes – with no wing, 1 box - with left or right wing , 0 box – with dual wing.

Chain boxes per EQN-32. The boxes shall be aluminum with aluminum safety grating overlaid. There shall be a minimum of four (4) .750 inch dia. Drain holes in the boxes flooring. The hinge shall be rod with nylon bushings. Piano hinge is unacceptable. Final positioning of these boxes shall be behind the swept back bumper and outboard of the left and right frame channels.

4. HOIST CYLINDER:

The hoist cylinder shall incorporate a metal identification tag with the manufacturer's model number, serial number and manufacturers address.

The hoist cylinder shall be mounted to the cross shaft in a tube base. The base may be cast or fabricated (no bolts and angle).

*Hoist cylinder reference: Commercial No. SD63-DB-9-110 (2 inch pin size both ends) or Custom No. (DAT 63-245-110) (2 inch pin size both ends option 8 for rod end and option 3 for base end).
(No substitute, standardization).

A safety warning light and alarm, on the dash, shall be incorporated at 49 degree dump angle + 2 degrees to alert operator and to shut off power at the control valve.

Upper pin shall be fitted with a remote grease connection per EQN-63.

SPECIFICATIONS
A-15-BU-C-AS

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

G. BODY EQUIPMENT: (ALUMINUM & STAINLESS STEEL) (Continued)

5. HOIST HARDWARE AND DETAILS:

Ref: 79A

The rubber cushion, 2 inch thick, the width to be equal to width of frame rail, shall attach to longitudinal body member with counter-sunk bolts, incorporating a flat head bolt and a wedge washer and locking nut assembly or slotted rubber and track assembly integral with body longitudinals.

Note: Any other concepts of attaching rubber cushion to the long member must be approved by, Chief of the Equipment Division, prior to bidding. Laminated rubber is unacceptable.

Dump hinges shall be fully welded to long member if steel and aluminum must be bolted with grade 8 bolts, and steel plates in a sandwich type construction with a minimum of 8 bolts.

All pivot points shall have (2) accessible grease zerks at opposite ends to ensure adequate greasing.

Thirty-five (35) U.S. ton net payload capacity.

Double acting, hydraulic power-up and down cylinder.

2 inch dia. min. hoist hinge pin sized to withstand severe use. Full width.

2 inch dia. min. lift pins.

Ref:

EQN-79A	EQN-20X
EQN-123	EQN-79W
EQN-94	EQN-95
EQN-91	

Detail A - Chain holder

Banjo type cut-out to hold tail gate chain

All corners must be angled or rounded for safety

Full welding

Aluminum 500 inch thick.

Carbon Steel 0.3750 inch thick.

Ref: EQN-79A-Aluminum/EQN-79W-Steel.

Detail B - Tailgate hinge

Replaceable bushing with greasing capability

The edge distance shall be minimum of 1-3/4 inch thickness

Aluminum, 1-1/2 inch thick material.

Detail C - Tailgate chain bracket

Two (2) per side, total of 4 per tailgate

Aluminum

Detail D - J Hooks

Two (2) per tailgate

Detail E - Top Tailgate pins

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1-1/4 inch dia. steel pin with tapered end.
C-1020 HRS Steel.

I. GENERAL TRUCK SPECIFICATONS: (Continued)

G. BODY EQUIPMENT: (ALUMINUM & STAINLESS STEEL) (Continued)

6. PLOW FRAME:

Plow frame shall be furnished and installed as per attached drawings and shall be approved by the truck manufacturer's engineering department. The plow frame shall be per EQN-50.

Zerk fittings shall be protected per EQN-64.

Snow plow lights to be installed Ref: EQN-124 or approved body builder design.

All metal surfaces shall be cleaned prior to primer and final painting.

7. SAFETY:

A slide in type, Ref: Bustin Industrial Products, pn SAL300, two or three-step ladder, 15 inch wide x approximately 32 inch high, formed and braced to the dump body on the driver's side between the first and second vertical side body braces, shall be bolted to the underside of the running board ref: EQN-56. Any other configuration shall be approved by, Chief of the Equipment Division.

There shall be a pair of wheel chocks with holder/s (location of holder to be determined at the pre-build meeting) As per EQN-82.

All entrance steps shall be Bustin No. NST4 full size, or Ohio Gating No. JA2II9SG4 serrated or IKG Industries Type BS4 serrated swage lock, with end band for aluminum body.

The body step material shall be BUSTIN 628 for steel body.

A short piece of bar stock shall be used above steps to serve as a grab safety handle for body entry. Steps (minimum of two) made from "Bustin" type safety step material, are required on the driver's side inside the bed for safe entry and exit.

Compliance shall be made per EQN-118.

8. SPLASH GUARDS:

Ref: EQN-66.

Stainless steel 0.172 inch (8-gauge U.S. Standard) or aluminum 0.250 inch splash guards shall be attached to the dump body on each side, behind the rearmost dual wheel, and extend downward to accommodate a 30 inch or 36 inch flap in order to meet Pennsylvania State Inspection Requirements. Mud flap sizes permitted are 30 inch or 36 inch. (No substitute, standardization) The rubber splash guards shall be bolted to these metal splash guards using self-locking nuts and metal strips.

The forward splash guards shall be stainless steel for stainless steel body or aluminum for aluminum body, and extend downward 3/4 of the length of the rear splash guard/mud flap, with a 1/4 length, unmarked mud flap attached for the remaining distance.

Forward splash guard shall have a 1 inch lip for entire length-outside extremity (90 degree) with bottom outside corner rounded.

Both front and rear splash guard assemblies shall be properly braced, and have rolled edges. Splash guards shall be full length and width with no holes cut in it to accommodate salt lights.

SPECIFICATIONS
A-15-BU-C-AS

I. GENERAL TRUCK SPECIFICATONS: (Continued)

G. BODY EQUIPMENT: (ALUMINUM and STAINLESS STEEL) (Continued)

9. WELDING:

All welding shall be in accordance with standard welding practices as set forth by the American Welding Society.

All vertical and horizontal seams of the body sides and ends shall be continuous welds, full penetration, without skip welds.

10. CENTRAL HYDRAULIC SYSTEM:

The pressure compensated, load sensing central hydraulic system shall operate all functions (plows, dump body, spreader and auger circuits) from an electric/ hydraulic system independently and simultaneously, without interruption of any other hydraulic functions.

All controls and components shall be of the latest design and installed to provide simple and convenient operations.

All system operations shall be achieved from a single pump matching all required flow and pressure demands.

The use of accumulators or auxiliary pumps is not acceptable.

Hydraulic tool operation will be included through both spreader circuits and will not require any type of cooling.

This system shall provide the most fuel efficient, safest, simplest and consistent operation possible.

All hydraulic components shall be installed and serviced by a single manufacturer.

Full responsibility for a serviceable system lies with successful bidder.

All wiring shall be securely clamped at approximately 18 inch intervals, shielded from exhaust and include a protective sleeve where necessary to prevent damage and/or failure.

All electrical connectors shall be treated with die-electric grease.

All systems shall be thoroughly tested and calibrated before delivery.

Upon start up the hydraulic system shall be operated at maximum flow for not less than 15 minutes and then have a new hydraulic filter installed on the truck.

It shall be the sole responsibility of the successful truck manufacturer and Component Technology to ensure that the chassis and the ground control wiring harness is totally compatible.

An operation manual, parts and maintenance manual shall be provided with each unit.

A schematic as well as a parts list shall be provided with the completed unit.

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A-15-BU-C-AS

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

G. BODY EQUIPMENT: (ALUMINUM & STAINLESS STEEL) (Continued)

11. CONSOLE AND POWER DISTRIBUTION CENTER:

Console Assembly: Shall be Component Technology MultiGuard SG7 with all joysticks being fully proportional, NO SUBSTITUTE STANDARDIZATION.

Kit number SG08020017 Type IV No Wing

SG08020018 Type IV Single Wing (Left or Right)

SG08020019 Type IV Dual Wing

Kit shall include GL-400-5-5.

All wiring for the kit shall be included and be TPE type wiring only.

Hydraulic system digital pressure gauge – Wika 907.15.506 w/TYPEc10 TRANSDUCER

Valve enclosure

Bulkhead fitting for auger wiring shall be mounted in the rear module

Prewet system Part Number SG06070008

80 gallon poly tank and plumbing kit with stainless steel tailgate brackets installed on the rear of the truck. Reference: Component Technology tank part number RES-80-POMNIBUS, plumbing kit SG0609001. The tank assembly shall be installed utilizing an extended upper hinge pin. The bottom of the tank shall not cover the main integrated lights in the tailgate. The tank bracket shall be stainless steel. Reference Benson Body, part number PD-0801.

All hydraulic valve operations shall be achieved from within the cab by a single operator.

All controls shall be securely attached, within easy reach of operator and console mounted.

All controls shall be connected to the valve/s via electronic cable and power distribution center.

All electronics associated with the PDC and console shall be protected against and shall not cause interference to the operation of the vehicle or the land mobile radio communications system when properly installed in the vehicle.

Base shall be of steel construction conforming to drawing included in EQN-95.

Cabinet shall be constructed with 14 gauge steel, and will provide an access panel for ease of service.

Unit shall contain circuit protection for up to 12 auxiliary functions that control 15-ampere relays with automatic reset breakers.

Unit shall contain a terminal strip capable of interfacing with the specified body wiring harness if applicable. Terminal strip will be located inside base unit and have at least three unused sections for further expansion.

Unit shall be capable of adjustment vertically and horizontally to allow for comfortable positioning for the operator.

Unit shall come with full wiring schematic documentation.

Unit shall come with pin-outs for customer accessories such as two-way radio, etc.

Main electrical connection shall be protected by a 80 ampere manual reset circuit.

12. DIRECTIONAL CONTROL VALVE:

The hydraulic control valve shall be a REXROTH: There shall be a 3 port valve block to control spinner, auger, and pre-wet .as part of the main valve assembly. Will be included in the following part numbers: Part Number SG04170601

Main control valve and enclosure shall be mounted outboard on the curb side frame rail ref: EQN-23 all

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SPECIFICATIONS
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valves, coils, end covers and power beyond ports must be accessible.
There shall be two (2) return lines from the valve to the return manifold

SPECIFICATIONS
A-15-BU-C-AS

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

G. BODY EQUIPMENT: (ALUMINUM & STAINLESS STEEL) (Continued)

13. HYDRAULIC ALARM AND SHUTOFF:

There shall be a low hydraulic oil alarm system to alert the operator of a low hydraulic oil situation and allow ample time to take preventative action and avoid damage to the central hydraulic system pump.

It shall be operated via a 12 volt system. All wiring shall be routed to prevent damage from heat, sharp edges and moving parts.

An in-tank float switch shall be mounted to provide a signal to a dash mounted light. The dash light shall come on whenever the oil level drops below a ten (10) Gallon reserve. Assembly shall be an MP Products, Inc. RIG1-Series. All switch wires shall be hermetically sealed in high grade epoxy. The indicator light shall be console mounted. Indicator light lens shall be red in color. Light shall be clearly identified "Low Hyd. Oil". Switch shall be adjusted to ensure that light does not prematurely illuminate (i.e., bed being raised, with adequate reservoir oil, should not cause light to illuminate).

14. HYDRAULIC HOSE:

All hose and hose ends shall be matched and assembled on a matched hose machine to prevent hose failure. All hydraulic plumbing practices shall conform to JIC H11 standards. Pressure hoses shall be 100R2, return lines shall be 100R1, and suction lines shall be 100R4. Velocity in pressure lines shall not exceed twenty (20) feet per second, return lines not to exceed ten (10) feet per second, and not to exceed four (4) feet per second in suction lines. All hoses shall include JIC female swivel ends with the exception of the suction line. All hydraulic components shall have SAE porting wherever possible.

All hydraulic hoses shall be securely clamped at approximately 18 inch intervals, shielded from exhaust and include a protective sleeve where necessary to prevent damage and/or failure. All hoses shall have JIC swivel connections at each end and be located in such a manner to aid in easy component replacement. Per EQN-94

15. HYDRAULIC PUMP:

PUMP shall include a low oil shut DOWN WITH OVERRIDE Shutdown shall be direct mounted to the pump. Remote mounted valve will be unacceptable.

The pump shall match system flow and pressure (horsepower) requirements to provide maximum fuel economy. Ref: EQN-90, EQN-91

No unloader or by-pass system will be an acceptable means of regulating excess oil flow.

Pump part number: Parker Hannifin PAVC10092L4AP22X3392 KEYED Crankshaft Mounted,

Full flow relief valve to be installed between pump and control valve. Relief valve setting shall be factory pre-set at 2500 PSI. Relief valve may be mounted inside the main valve enclosure or in the return manifold.

Or

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Pump part number: Rexroth Model A10V0100 LH ROTATION: BH00979162

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

G. BODY EQUIPMENT: (ALUMINUM & STAINLESS STEEL) (Continued)

16. HYDRAULIC PUMP DRIVELINE:

Hydraulic pump SHALL BE DRIVEN by a Spicer 1310 series or NEAPCO factory balanced drive shaft. Driveline shall be capable of 130 foot pounds of torque and have, tubular shaft of 1141 steel. Tubular shaft will have 16 spline heat treated to 40 Rockwell hardness.

A groove shall be machined the length of the shaft to provide proper phasing of universal joints at time of shaft assembly.

Driveline installation should be in accordance to manufacturer's recommended procedures.

Slip assembly shall provide not less than 2.25 inch of travel to allow ease of engine drive belt replacement.

The truck engine radiator and frame construction shall readily accommodate the installation of a front mounted crankshaft driven hydraulic pump.

The engine crankshaft pulley or vibration damper shall be drilled and tapped to accommodate a power take off drive shaft adapter plate required under hydraulic system section of these specifications.

Referenced models, Mack FWPTO, Cummins REPTO or approved equal. Ref: EQN-90.

17. PLOW SAVER:

There shall be a plow saver device COMPONENT TECHNOLOGY PART NUMBER - SG03020008 installed.

18. OIL RESERVOIR AND ACCESSORIES:

Aluminum or stainless steel, all welded construction

The oil reservoir shall not be less than 45 GAL capacity, filled with 1SO 32AW hydraulic oil

Cylindrical with flat or shallow dish sides, steps shall be included

Tank straps shall be heavy duty (minimum 2 inch wide) stainless steel or aluminum with rubber shims/liners.

Liners shall interlock around the tank strap edges to eliminate them from walking.

Center mounted baffle plate to prevent oil flow from venting directly to section port

A drop tube shall discharge all return oil flow through the 1.50 female NPT port

Tapered outlet shall be below oil level at all times to prevent air entrapment

A magnetic dipstick shall be mounted into reservoir from a top NPT female port

Tank shall be mounted under the right door

Tank shall be clearly labeled "HYDRAULIC FLUID ONLY"

Lockable tank filler cap assembly, model 57XL-40 (40 micron with chain) L.C. as manufactured by Lenz. Tel: (937) 277-9364

Suction line/strainer: 125 micron with 3 PSI bypass rated above 47gpm submerged at all times
¼ turn, 2.5 inch full flow ball valve in the suction line as close to the tank as possible

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Strainer integral mounted in a 4 inch NPT female opening in the bottom of reservoir with a 3" female NPT opening

SPECIFICATIONS
A-15-BU-C-AS

I. GENERAL TRUCK SPECIFICATONS: (Continued)

G. BODY EQUIPMENT: (ALUMINUM & STAINLESS STEEL) (Continued)

18. OIL RESERVOIR AND ACCESSORIES: (Continued)

Return manifold: There shall be a return line manifold mounted on the curbside frame rail, location to be determined at the pre-build meeting. Ref: EQN - 23

Return manifold shall be an 8 port header block with 8 # 16 SAE openings and 2 #24 SAE openings at each end. Header shall be an Alamo, Damon or Hycoa or equal.

Return line filter: Filter with spring controlled by-pass set at 25 PSI shall be mounted on the outside of the curbside frame rail

Filter shall be a Parker microglas part #80CN-210Q-15739, 300L @10 micron or MPFiltr – LMP2602BAF1A012M 300L @ 10 micron

There shall be a differential pressure switch with boot to activate a warning light mounted within the console.

Cab mounted filter contamination indicator set at 23 PSID

19. TEST PORT:

There shall be a 5101-6B complete quick coupler or hydraulic gauge (with dust cover) located in the pressure line entering the mainvalve assembly located inside the valve enclosure. Quick disconnect shall be bracket mounted to the inside of the enclosure, easily accessible so that a shop pressure gauge (not to be installed or included) maybe easily visible for test purposes. Ref: EQN-20X. Final location shall be determined at the pre-build meeting.

20. INSTALLATION PRACTICES:

The use of any of the following items or practices WILL NOT BE ACCEPTED.

Non-steel fittings on hydraulic pressure lines.

Excessive use of elbows on hydraulic lines.

Use of thread tape on hydraulic fittings.

Use of galvanized fittings or components on hydraulic system.

Improper hydraulic line size.

Use of high-pressure hose for hydraulic suction line.

Scotchlok-type wire splices.

Non-insulated wire splices.

Improper hose or wire routing near exhaust, over-sharp edges or through holes without grommets, or sharp edges.

Improperly prepared, primed and painted surfaces.

Non-fused electric circuits.

Hydraulic circuits without pressure relief protection.

21. BED SPEED REQUIREMENTS:

Bed speed shall be tested at 1500 rpm at normal operating temperature

Bed speed full-up shall be 25 seconds maximum

SPECIFICATIONS
A-15-BU-C-AS

Bed speed full down shall be 18 seconds maximum

II. GENERAL WING PLOW SPECIFICATIONS:

A. INTENT STATEMENT:

The purpose of these specifications is to describe a full floating patrol wing plow with tripping action and telescoping action mechanism and a capability to lower the assembly in the travel position for improved visibility and to allow emergency egress. Tenco

It shall be the responsibility of the vendor to certify through proper chassis stress analysis the adequacy of the existing truck frames to accommodate the patrol wing plow in combination with a front mounted plow weighing approximately 3000 LB.

The aforementioned plow will be used for "severe duty" high-speed plowing by the Pennsylvania Department of Transportation. The attached drawings and written text are to be considered minimum and the manufacturer shall reinforce the plow, framing and hydraulic cylinders by means of gussets, or increased material strength or thickness to present a plow designed to meet the severe duty" operational setting.

The Patrol Wing shall be designed to be attached or detached independently from the frame assembly. It shall be installed in such a manner as to ensure quick access to the engine and all accessories. (Hood on dump truck shall tilt without obstruction, if applicable.)

All parts not specifically mentioned, which are necessary in order to provide a complete snow plow shall be furnished by the successful bidder. The plow fabrication and assembly shall be to the latest engineering techniques.

All steel unless otherwise specified, shall be hot-rolled steel (HRS) as per ASTM A-36.

When wing assembly is disconnected from the truck, no parts may extend past the body line of the truck.

All bolts shall be grade 8.

A complete set of drawings showing all details and dimensions, sizes, etc., and literature of the plow proposed to be furnished.

SPECIFICATIONS
A-15-BU-C-AS

II. GENERAL WING PLOW SPECIFICATIONS: (Continued)

B. PLOW COMPONENTS:

1. SHOCK ABSORBING REAR WING BRACE:

The rear wing brace shall be a minimum of a single fixed hinge pin type with an adjustable bottom wing brace, or the formed type wing tube support to attach to a single fixed hinge pin.

The rear wing brace shall be equipped with a telescoping arm and an adjustable type tension spring. If required by manufacturer.

The rear wing "A" frame support strut/girder arrangement of MC 7 inch x 22.7 LB/feet, minimum channel, or fabricated from 7 inch x 12.25 LB/feet channel, 6 inch/feet x 8.2 LB/feet channel, .500 inch plate, 6 inch x 4 inch x .3750 inch structural tubing and other component pieces. It shall be attached in such a way that the load is properly distributed to both chassis frame rails. "A" frame shall be detachable for summer use. Ref: EQN-60A.

One (1) top wing brace cylinder constructed of 3 inch x 15 inch minimum double acting ram, chrome plated piston rods.

Adjustable trip-spring mounted from wing lift cylinder housing to the back of wing.

The rear brace shall be equipped with a 3 inch x 24 inch or 3 inch x 15 inch DA cylinder to actuate the telescoping strut with cross-over relief.

Bottom wing brace constructed of 4 in/10cm O.D. square outer tubing with a 3 inch O.D. square inner tube. Wear guides are welded to inner side of 4 in/10cm tube and to the outside of the 3 inch tube to prevent binding.

The rear wing lift cylinder will be a double acting 3 inch x 27 inch minimum cylinder, chrome plated piston rods with neoprene packing. Cylinder shall float with a 500 PSI relief on the down side.

The tripping spring/eyon rubber compression will be mounted to allow the wing to trip in any of the telescoping positions. The spring/eyon rubber compression shall be adjustable and have a quick release handle to remove tension for detaching the wing. The spring/eyon rubber compression will also be mounted to have tension on the wing in all telescoping positions.

The telescoping strut cylinder shall have incorporated in the hydraulic system an adjustable pressure relief valve for safety, when contacting heavy objects.

2. FRONT WING SUPPORT, OR FRONT WING POST:

Front Wing Mast:

Wing mast shall not block the O.E.M. headlight.

I beam 7 inch x 15.3 LB/feet minimum, wing post.

.6250 inch minimum wing post slide lift with 10inch minimum lift from ground to bottom of plow edge for travel.

Front wing post cylinder double acting ram - direct (no cables) with float and 500 PSI relief on the down side.

Chrome plated piston rods, adjustable chevron type packing, neoprene wipers and bleed screw.

Hydraulic hoses, to SAE 100RZ, 022700, AEROQUIP-195, Hi-Impulse.

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SPECIFICATIONS
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II. GENERAL WING PLOW SPECIFICATIONS: (Continued)

B. PLOW COMPONENTS: (Continued)

2. FRONT WING SUPPORT, OR FRONT WING POST: (Continued)

Front Wing Mast: (Continued)

Front wing post and support strut/girder arrangement shall be attached in such a way that the load is properly distributed to both chassis frame rails without the use of bracing tubes.

Support struts shall be 1.250 inch diameter schedule 80 ASTM A106 Grade A or B seamless pipe brace, minimum of two.

One strut shall be mounted to chassis frame.

One strut shall be mounted to plow frame.

Horizontal support girder 7 inch cross channel or 7 inch ship and car channel at 22.7 LB/feet or tubing 7 inch x 4 inch x .3750 inch.

Bolts shall be minimum grade 8, .6250 inch N.C.

Hinge assembly shall be detachable from the slider assembly of the wing mast.

Formed wing post mounted on cross tube mounted to truck frame members.

Wing slide plate bears on flanged surfaces of formed channel enclosing single acting cylinder, which provides full power up.

Wing Plow Alarm (Mechanical): Wing plow shall have a mechanical alarm system to alert the operator of the position of the plow. It must be visible from the driver's seat. Ref: EQN-60A.

3. HYDRAULIC POWER:

The front wing mast shall have a double acting cylinder vertical lift type, hydraulically controlled by a double acting cylinder direct lift. The front cylinder shall have quick connect coupler/s.

Double Acting Cylinder:

A 3 inch x 15 inch minimum double acting cylinder from rear "A" frame to mold board to raise the rear of the wing and fold the wing close to the truck for transport.

4. SNOW LEVELING WING:

The wing assembly shall in no way interfere with the turning of the right or left front tire. The wing shall not be less than 11 feet long overall, 29 inch high at the front and 36 inch (minimum) high at the discharge end. The moldboard shall be fabricated from 0.1719 inch thick (8 USS gauge) minimum steel and weigh a minimum of 755 LBS.

It shall be drilled to accept standard AASHTO spacing as shown on attached drawing EQN-16A sketch attached and equipped with either a steel or rubber blade as specified.

SPECIFICATIONS
A-15-BU-C-AS

II. GENERAL WING PLOW SPECIFICATIONS: (Continued)

B. PLOW COMPONENTS: (Continued)

4. SNOW LEVELING WING: (Continued)

a. Rubber Blade:

The patrol wing shall be equipped with a 1.500 inch x 10 inch x 120 inch rubber cutting edge manufactured by Goodyear Tire & Rubber Company or an approved equal, secured to the wing mold-board by .6250 inch grade 8 plow bolts through a .3750 inch x 4 inch steel facing plate. The rubber blade shall be slotted 3.500 inch x .6875 inch to provide adjustment and shall be reversible to provide maximum wear.

b. Steel Blade:

The cutting edge shall be of .500 inch x 6 inch C1090 steel, at least 10 feet long. Per attached plow blade drawing, EQN-16A.

The wing plow shall have two cast wing shoes.

The patrol wing shall be hydraulically operated with the controls conveniently mounted, (to be discussed at pre-build meeting) in the truck cab with the addition of three valves to the existing valve bank. These valves shall provide lift to the front of wing, the rear of the wing and the folding of the wing toward the cab and control in and out of the strut. The front of the wing shall be controlled by a single acting ram mounted within wing post that permits the front of the wing to be vertically lifted for transportation purposes.

The rear of the wing shall be power hydraulically controlled and attached to tele-strut and a 3 in/7.6cm x 24 in/61cm double acting cylinder with .3750 inch quick disconnects, (male, female, cap and plug) which shall be connected to a 7 inch sloped channel located under the dump body and at the rear of the truck cab. The 7 inch channel shall be adequately supported by brackets and cross braces to the truck frame. Bottom bracing shall extend to the rear with bridge type bracing.

c. Tripping:

The wing shall be of the full tripping type consisting of a special spring-loaded front end. Tripping actuation shall be accomplished through a .8750 inch diameter wire torsion spring at the front end and a tension spring attached to the front and rear of the wing or eyon rubber compression system.

Each spring shall be adjustable and shall automatically return the wing to its normal plowing position after it has passed over the obstruction encountered.

Provision for locking out the tripping action shall be supplied for operations requiring a rigid wing.

SPECIFICATIONS
A-15-BU-C-AS

II. GENERAL WING PLOW SPECIFICATIONS: (Continued)

B. PLOW COMPONENTS: (Continued)

4. SNOW LEVELING WING: (Continued)

The following minimum alterations shall be the responsibility of the successful vendor:

- a. Add two Timbren load booster or active ride control stabilizers.
- b. Brace right hand side plate to truck frame.
- c. Add additional steel to side plates to provide increased strength and more substantial mounting for the 7 inch cross channel.
- d. One (1) manually adjustable plow storage jack per EQN-60A.
NOTE: Pages 1 and 2 of EQN-60A indicate the general mounting arrangement desired.

5. INSTALLATION PRACTICES:

The use of any of the following items or practices WILL NOT BE ACCEPTED.

Non-steel fittings on hydraulic pressure lines.

Excessive use of elbows on hydraulic lines.

Use of thread tape on hydraulic fittings.

Use of galvanized fittings or components on hydraulic system.

Improper hydraulic line size.

Use of high-pressure hose for hydraulic suction line.

Scotchlok-type wire splices.

Non-insulated wire splices.

Improper hose or wire routing near exhaust, over-sharp edges or through holes without grommets, or sharp edges.

Improperly prepared, primed and painted surfaces.

Non-fused electric circuits.

Hydraulic circuits without pressure relief protection.

6. DIRECTIONAL CONTROL VALVE: (for a Single Right or Left Hand Wing)

The hydraulic control valve shall be a REXROTH: as provided in the Dump Truck Specification

Dual Wing Plow (052680, 052730, 052830, 053370, 053410, 053450)

Rexroth valve (To be installed on accessory plate Section I.G.I

3MP18-10/C/LB01(57)L1(12)ZZ1A/LB02(57)L1(12)ZZ1A/LB02(57)L1(12)ZZ1A/Q shall control the following functions, Wing plow front post, and wing plow rear post and wing plow rear telescopic

Electronic joystick shall be of the proportional type and be of the same design as provided in the main console assembly.

SPECIFICATIONS
A-15-BU-C-AS

II. GENERAL WING PLOW SPECIFICATIONS: (Continued)

B. PLOW COMPONENTS: (Continued)

7. PLOW IDENTIFICATION:

Each unit shall bear the manufacturer's model number, serial number and weight affixed to the plow, by means of a permanently affixed non-rusting metallic tag located on the right hand backside of the moldboard as viewed from truck operator's seat.

8. PAINT:

Color: PENNDOT yellow, DuPont 6808 for shade only or Omaha Orange, Ref. DuPont 9215. All metal surfaces shall be cleaned prior to primer and final painting.

NOTE: All zerk fittings shall be threaded.

9. CONSPICUITY TAPE:

The Rear of the wing plow shall have a strip of retro-reflective sheeting across the top and down the outside in order to outline the plow when viewed from the rear. Material shall be: 2 in/5.08 cm wide Reflexite Conspicuity II System of 3M Scotchlite Conspicuity Series 980, red/silver continuous backing.

10. TEMPLATE:

The successful vendor shall provide a metal template of the moldboard contour, including cutting edge cut out with each pilot.

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SPECIFICATIONS
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III. DRAWINGS:

EQN-16A	rev	05-16-02	3 sheets	STEEL CUTTING EDGES FOR SNOW PLOW
EQN-20X	rev	05-22-03	3 sheets	HYDRAULIC SYSTEM SCHEMATIC
EQN-22	dated	02-16-00	1 sheet	FRAME MOUNTED ACCESSORY PLATE
EQN-23	rev	03-03-00	5 sheets	HYDRAULIC COMPONENT OVERVIEW
EQN-32	dated	05-22-03	1 sheet	DUMP TRUCK CHAIN BOXES
EQN-50	dated	05-28-02	5 sheets	LOW PROFILE PLOW MOUNTING
EQN-56	dated	01-02-00	3 sheets	SLIDING LADDER
EQN-60A	dated	01-29-00	3 sheets	SNOW PLOW PATROL WING GENERIC MOUNTING ARRANGEMENT
EQN-62	rev	05-28-02	2 sheets	DUMP TRUCK BED PROP SYSTEM
EQN-63	rev	05-28-02	1 sheet	DUMP TRUCK REMOTE GREASE CONNECTION
EQN-64	rev	05-22-03	4 sheets	COAL SHUTE TAILGATE APRON DUMP TRUCK BODY W/ALUMINUM TAILGATE
EQN-66	rev	05-28-02	2 sheets	SPLASH GUARDS – RUBBER TRAILER & TRUCK
EQN-66A	rev	03-19-03	1 sheet	FUSEE STORAGE BOX AND BRACKET
EQN-74	rev	05-22-03	4 sheets	TRUCK-TYPE II & IV REAR MODULE
EQN-78	dated	07-02-97	1 sheet	CB RADIO CONNECTIONS
EQN-78A	rev	06-03-02	3 sheets	AIR TAILGATE, HARDWARE (DUMP TRUCK)
EQN-79A	rev	06-03-02	10 sheets	TYPE IV, TANDEM, ALUM. BODY
EQN-80X	rev	05-22-03	7 sheets	DUMP TRUCK WIRING TYPE II & IV
EQN-81X	rev	06-03-02	2 sheets	ALUMINUM TAILGATE WITH BUILT-IN LIGHT BAR
EQN-82	rev	05-22-03	1 sheet	CHOCK AND HOLDER
EQN-90	rev	05-23-03	1 sheet	PUMP ASSEMBLY
EQN-91	rev	06-03-02	1 sheet	PUMP MOUNTING BRACKET
EQN-94	dated	08-15-97	2 sheets	HOSES AND COUPLERS PENNDOT DUMP TRUCK
EQN-95	rev	05-23-03	5 sheets	CONSOLE PEDESTAL
EQN-118	dated	07-08-97	1 sheet	UNDERRIDE PROTECTION

SPECIFICATIONS
A-15-BU-C-AS

III. DRAWINGS: (Continued)

EQN-122	rev	05-16-02	1 sheet	DUMP BODY TAILGATE REFLECTING SHEETING
EQN-124	rev	05-16-02	1 sheet	AUX. SNOW PLOW LIGHT PACKAGE
EQN-127	rev	05-16-02	1 sheet	REFLECTIVITY ENHANCEMENT
EQN-160	rev	02-15-00	1 sheet	CENTRALIZED LUBE SYSTEM
EQN-210B	dated	05-14-02	3 sheets	REVOLVING WARNING LIGHTS
EQN-351A	dated	08-22-97	2 sheets	FAST LUBE OIL CHANGE SYSTEM
EQN-507B	rev	05-28-03	3 sheets	CONVENTIONAL DUMP TRUCK WEIGHT DISTRIBUTION MINIMUM DATA REQUIRED

NOTE: Drawings appear in SAE/metric.

The above referenced drawings shall become part of these specifications. These drawings reflect the intent of the Department and any discrepancies shall be resolved at the line setting ticket meeting between the vendor and the Chief of the Equipment Division, or the pre-production inspection of the truck.

DRAWINGS APPEAR AT THE END OF THE SPECIFICATIONS.

SPECIFICATIONS
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IV. MANUALS:

See manual information attachment in the bid package.

V. TRAINING:

See training information attachment in the bid package.

SPECIFICATIONS
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VI. WARRANTY:

Per PCID No. 1075 Section E.1. and additional specific warranty items.

This warranty is in effect as follows, starting from date of acceptance by the Department:

BRAKE WARRANTY:

Manufacturer's service and warranty policy for automatic slack adjusters shall be for two (2) years 100% parts only.

RADIATOR WARRANTY:

Manufacturers service and warranty policy for radiator shall be for two (2) years, 100% parts and labor plus an additional two (2) years, 100% parts only.

ENGINE WARRANTY:

The successful vendor and or supplying OEM shall provide the Department with a 100% parts and labor engine warranty FOR 60 months/ 150,000 miles minimum.

The successful vendor shall supply a copy of all items covered under their published extended engine warranty.

NOTE: the oil pan shall be warranted against corrosion, rust, rust thru etc. regardless of atmospheric conditions for 3 years, 100% parts only.

The published warranty shall be supplied with the pilot model.

TRANSMISSION WARRANTY:

Manufacturers service and warranty policy for Manual, Autoshift and Automatic transmissions shall be three (3) years 100% parts and labor

DIFFERENTIAL/AXLE WARRANTY:

Manufacturers service and warranty policy for differential and axles shall be for three (3) years 100% parts and labor.

SPECIFICATIONS
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DUMP BODY WARRANTY:

Constructability and durability of body shall be guaranteed for four (4) years, parts and labor. A decal shall be affixed to the driver's door on the inside outlining this benefit and the company's name, address, phone number, and contact personnel. (Full warranty except wear and negligence).

Body hoist assembly shall be guaranteed for 3 years, 100% parts and labor.

Tailgate spring-over-air cylinder and air to air system 2 years 100% parts and labor.

VI. WARRANTY: (Continued)

CENTRAL HYDRAULIC SYSTEM:

Complete Central Hydraulic system and components 1 year 100% parts and labor including but not limited to the following:

- Rexroth Valve
- GL-400 Controller
- Electronic Joysticks

Complete external TPE wiring harness shall be warranted for 3 years parts only.

HYDRAULIC PUMP Manufacturers service and warranty policy for hydraulic pump shall be three (3) year 100% parts and labor.

ELECTRICAL:

Grote wiring harness shall be 7 years 100% parts. First year shall include 100% labor.
All LED lights shall be 10 years 100% parts.

WING PLOW WARRANTY:

The manufacturers standard service and warranty policy shall be for a minimum of two (2) years. This warranty shall start on the final date of acceptance of the entire order and continue for the two (2) years thereafter, (2) full winter plowing seasons.

NOTE: WARRANTY FOR LABOR SHALL BE AT THE MANUFACTURES LOCATION OR IF A FIELD REPAIR IS COMPLETED BY PENNDOT THE MANUFACTURER SHALL REIMBURSE PENNDOT AT THE MANUFACTURES STANDARD PUBLISHED LABOR RATE.

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SPECIFICATIONS

A-15-BU-F-AW

TRUCK - DUMP - CONVENTIONAL - 72,000 LB GVWR
HEAVY DUTY DUMP TRUCK (TRI-AXLE)

053500 thru 0539000

TRUCK, DUMP, TRI-AXLE, ALUM, AUTO (053500)
TRUCK, DUMP, TRI-AXLE, ALUM, AUTO, W/RIGHT WING PLOW (053510)
TRUCK, DUMP, TRI-AXLE, ALUM, AUTO, W/LEFT WING PLOW (053520)
TRUCK, DUMP, TRI-AXLE, ALUM, AUTO, W/DUAL WING PLOW (053530)

TRUCK, DUMP, TRI-AXLE, ALUM, W/AUTO SHIFT (053700)
TRUCK, DUMP, TRI-AXLE, ALUM, W/AUTO SHIFT, W/RIGHT WING PLOW (053710)
TRUCK, DUMP, TRI-AXLE, ALUM, W/AUTO SHIFT, W/LEFT WING PLOW (053720)
TRUCK, DUMP, TRI-AXLE, ALUM, W/AUTO SHIFT, W/DUAL WING PLOW (053730)

TRUCK, DUMP, TRI-AXLE, ALUM, MNL (053900)
TRUCK, DUMP, TRI-AXLE, ALUM, MNL, W/RIGHT WING PLOW (053910)
TRUCK, DUMP, TRI-AXLE, ALUM, MNL, W/LEFT WING PLOW (053920)
TRUCK, DUMP, TRI-AXLE, ALUM, MNL, W/DUAL WING PLOW (053930)

August 6, 2004 LHA/CW

SPECIFICATIONS
A-15-BU-F-AW

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VI. WARRANTY:

SPECIFICATIONS
A-15-BU-F-AW

I. GENERAL TRUCK SPECIFICATIONS:

A. INTENT STATEMENT:

NOTE: Pennsylvania Department of General Services, PCID No. 1075, "General Requirements for Bidding PENNDOT Vehicles/Equipment", most current version effective at the time and date of bid opening, is included as a part of this specification. PCID No. 1075 may be reviewed and downloaded from the Department of General Services website, <http://www.dgs.state.pa.us>.

Delivery as required per Department of General Service PCID NO. 1075 Section "G". All units must be delivered within **270** days after receipt of the purchase order by the successful bidder.

The purpose of these specifications is to describe a conventional, tandem-rear axle dump truck, with a tag axle (in front) equipped with dual rear wheels, dump body, hoist, hydraulic power system and snow plow hitch. It shall be capable of one -man operation while plowing snow and simultaneously spreading anti-skid materials or salt during winter operations, and of hauling, stockpiling and unloading maintenance materials into a chip spreader or paver during summer operations. Further it shall be capable of being loaded with front-end loader or self-propelled belt loader.

B. WEIGHT DISTRIBUTION:

Weight distribution charts must be submitted with the pilot model for all models per Invitation To Bid. Weight distribution charts shall be submitted for two modes listed below. The weight distribution charts submitted with the pilot model shall be reviewed for their reasonableness, and any inconsistencies shall be clarified with the awarded vendor at the "pre-build" meeting.

1. Summer mode including that portion of the wing plow post and plow frame assembly that remains on the vehicle all year.
2. Winter mode with front plow, spreader and complete wing plow.

Each item listed on Drawing EQN-507B shall be noted and individually calculated in the vendor's submission.

Engineering certified weigh slip shall be provided with the pilot model and signed by the Manufacturer's Engineering Department.

It is understood that the components specified are minimum and manufacturer's Engineering Department recommends or deems necessary, particular weight distribution, a larger component or a larger GAWR totally. The burden of responsibility is hereby placed upon the Manufacturer's Engineering Department to supply a unit that is totally engineered.

1. Frame
2. Axle
3. Tires
4. Steering unit and components
5. Rims
6. Suspension
7. Brakes

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SPECIFICATIONS
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8. Any other items as required

SPECIFICATIONS
A-15-BU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

B. WEIGHT DISTRIBUTION: (Continued)

- a. The dynamic and static loads created by the unit, plus operational stresses, must be reviewed to ensure the Commonwealth of a properly designed/engineered unit.
- b. Front and rear axle legal weight distribution apply to non-emergency applications only! Winter weight distributions are required for payload information purposes only since winter plowing and spreading operations are exempt from legal weight restrictions. However, the total weight rating shall not exceed the manufacturer's GVWR for the vehicle that is offered. The weight imposed on the front and rear axles using the total GVWR shall be shown. (Overweight shown on the axles in these winter modes is for information only).

In addition to the Engineering Certified weight distribution provided at the pilot model inspection, the following information is required with the pilot model.

The vehicle shall be certified for 72,000 LB Gross Vehicle Weight Rating (GVWR). The GVWR shall be identified in the cab or on the door as the final complete certification label (minimum rating).

ACTUAL TRUCK WEIGHT: (LB)

"Chassis only" (shall be signed by a certified weigh master.)

_____ Front Axle

_____ Rear Axle

_____ Total

"Chassis with body" (shall be signed by a certified weigh master).

_____ Front Axle

_____ Rear Axle

_____ Total

The above may be performed by the body company.

SPECIFICATIONS
A-15-BU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

B. WEIGHT DISTRIBUTION: (Continued)

Truck GAWR's as Built (LB)

	<u>Front GAWR</u>	<u>Rear GAWR</u>
Axle	_____	_____
Tires	_____	_____
Springs	_____	_____
Rims	_____	_____

C. POWER TRAIN OVERVIEW:

NOTE: LUBRICANTS FOR FRONT AXLE HUBS AND DIFFERENTIALS, MANUAL TRANSMISSIONS, TRANSFER CASES AND ALL REAR DIFFERENTIALS SHALL MEET OR EXCEED ALL APPROPRIATE MIL AND SAE SPECIFICATIONS FOR SYNTHETIC LUBRICANTS AND SHALL HAVE ALL PLUGS IDENTIFIED AS SYNTHETIC OR PAINTED RED.
(The OEM shall provide written exemption if synthetic oil is not installed)

ENGINE – DIESEL, MIN. 450 HP AT GOVERNED RPM, MIN. PEAK TORQUE OF 1550 LB/FT TORQUE, MIN 12.0 LITER

ENGINE (AUTOMATIC TRANSMISSION ONLY) – DIESEL, MIN. 425 HP AT GOVERNED RPM, MIN. PEAK TORQUE OF 1450 LB/FT TORQUE, MIN 12.0 LITER

TRANSMISSION – EATON RTO – 16908LL
MACK T-310M

EATON AUTO-SHIFT RTO-14910(B OR C) - AS2
EATON AUTO-SHIFT RTO-16910(B OR C) – AS2
(Dependant upon engine RPM/axle ratio)

AUTOMATIC ALLISION 4500 RDS

REAR AXLE – DANA DS463P
MACK S 440 OR S462
MERITOR RT46 -160 - P

NOTE: All rear axles must provide axle shafts with a minimum diameter of 2.19 inch at the spline.

NOTE: REAR AXLE/S SHALL HAVE AN EXTENDED BREATHER TUBE TO PREVENT DEBRIS

SPECIFICATIONS
A-15-BU-F-AW

BUILDUP.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS:

1. ALARM - BACKUP:

Ref: EQN-74

2. AXLE FRONT:

20,000 LB capacity minimum.

The front axle, drag links and tie rods shall have grease zerks installed.

Kingpin or bushings shall be grooved to permit grease flow.

Sufficient tire clearance at maximum turning angles.

Complete "Stemco" oil seal assembly, including hub, plug type window, and "Guardian" seal, or approved equal.

Each unit shall have the front end aligned.

3. AXLE REAR:

ALUMINUM OR LIGHTWEIGHT HOUSING IS NOT ACCEPTABLE.

STEMCO GUARDIAN rear wheel seals, or approved equal.

Drain plug, magnetic.

There shall be an inter-axle differential lock that is manually cab controlled.

NOTE: Rear axle selection will be made after the award and may be a mix of ratios as required. The successful vendor/manufacturer shall present three (3) computer runs showing 3 most likely ratios for consideration for a speed range of 55 MPH to 65 MPH max. This information shall be presented at the pre-build meeting. The rear axle ratios must be the "identical" ratios.

3A. PUSHER AXLE:

Pusher Axle: Mounted forward of rear tandems, and shall incorporate air lift. Ref: Neway tag series with AL series air lift, Turner/Hendrickson, Watson & Chalin WCAL-2200 Series. Height of lift to be determined by successful vendor. Successful vendor shall utilize 12R22.5H tires, if possible. If not attainable (engineering) vendor shall show proof at the pre-build meeting. Vendor is responsible for legal air reserves. Axle shall include in-cab controls and air pressure gauge. Pusher axle shall include hub piloted wheels with radial tires.

Attachment G

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SPECIFICATIONS
A-15-BU-F-AW

SPECIFICATIONS
A-15-BU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

4. BRAKES: (Full air in compliance with the most current FMVSS requirements.)

Rear brakes: 16.5 inch x 7 inch "S" cam with quick-change type single or double pin. (No substitute, standardization).

Steer-axle-brake: 16.5 inch x 6 inch "S" cam or a power front disc brake system providing equal performance. Quick change type single or double anchor pin if drum type brakes are furnished.

Drum brakes shall have automatic slack adjusters and they shall be clearance sensing type only, with adjustment on application of the brake (no substitute).

Backing plates on all drum brakes.

Air compressor: Per truck manufacturers recommendation

Buzzer-type, low air pressure indicator. Compressor shall be fitted with a safety valve to prevent mechanical failure.

Parking brake: Rear wheel spring-type, MGM E 30/30 or Anchorlock 30/30 gold seal chambers. Parking brake shall provide modulated emergency braking via the foot valve in the event of a rear service system failure.

Rear service brake chambers and spring brake chambers mounted to provide adequate clearance for backing into bituminous paving machines.

Air tank: Automatic drain valve, with heater on wet (first) tank. Each of the remaining air tanks shall have a manual drain valve.

Air dryer: With heater, inboard mounted, away from road splashing and 20 inch above road surface. Dryer shall be compatible with the body company clearance requirements for sub-frame, valve body, etc. Per: Haldex DRYest or Bendix AD-IP Installation made in concurrence with the air compressor manufacturer's recommendations.

All electrical connectors for drain valve and air dryer shall be covered with heat shrink material or have sealed connections.

Brake valve shall be mounted away from road splashing.

System shall be equipped with anti-compounding to prevent mechanical failure of the foundation brakes, slack adjusters, etc.

5. CAB:

Aluminum or galvanized steel cab, 104 inch minimum to 125 inch maximum BBC (Bumper to Back of Cab) dimension excluding frame extension.

Hood: Fiberglass, tilting. Fenders are part of tilting hood. Grille shall be fixed.

Air suspension system for the cab shall be factory or aftermarket installation is acceptable

Air deflector: Clear or smoke, hood mounted. Manufacturer's standard full width for the truck model.

Access to front-end hood tilt handle shall not be blocked. Extra handle acceptable.

Fenders: Front fenders shall have a 6 inch rubber extension.

Deluxe fresh air hot water heater and defroster, manufacturer's highest output.

Air Conditioning: Highest output available as OEM option.

AM/FM radio with weather band.

Air horn(s): with snow-shield (not required if underhood mount).

All controls and knobs shall be properly identified.

Attachment G

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SPECIFICATIONS
A-15-BU-F-AW

SPECIFICATIONS

A-15-BU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

C. VEHICLE COMPONENTS: (Continued)

5. CAB: (Continued)

Brake pedal, clutch pedal and throttle shall be suspended if available from the factory.

CB Power connections One (1) pair, at the dash, per EQN-78.

Cab floor covering shall be heavy-duty rubber with closed cell rubber or heavy felt backing.

Cruise control

Cup holder in the cab within easy reach of the operator.

Dome light shall be provided

Dual sun visors.

Windshield: One (1) or two (2) piece construction, tinted. Safety glass throughout.

Heated windshield per invitation to bid.

Drivers and passenger side windows shall be power.

Dual windshield wipers artic type with heaviest arms and linkages available. Wipers shall be min. 2 speed electric with intermittent feature.

Washer system shall be electric. Minimum capacity of two (2) quarts of washer fluid and shall be filled with an anti-freeze type solvent.

Mirrors: Driver's and passenger side power mirrors , west coast style minimum 6 inch X 16 inch manufacturers standard heavy duty break away arms.

Mirrors shall be heated with a lighted toggle switch mounted within accessible reach of the operator, automatic on/off is acceptable. The wires shall be fitted in such a way that the mirror glass/element can be changed by unplugging the two-wire lead.

There shall be a heated convex mirror both sides, minimum 5.5 inch X 8.8 inch or 8" diameter.

Roadwatch system with digital display in the left mirror head, or remote location as determined by ordering agency at pre-build meeting, shall be installed. Ref: Sprague Controls

Blind-spot elimination mirror heated (conventional cab only) shall be mounted on the right front fender and it shall be 8 inch, minimum, diameter stainless steel or aluminum head with mirror. Mirror shall be a conventional convex mirror, and shall not be of the half-round cross view type. All arm/s and hardware shall also be stainless steel. Fender type washers stainless or aluminum, with rubber pads to be placed on both sides of the fender shall be included. Pedestal system shall be single, double or triple mounting assemblies (stainless steel or aluminum). Mirror shall be mounted in rubber or vinyl. Ref: Grote (800-628-0809)

STEPS: Drivers and passenger entrance steps: Shall be aluminum, serrated. The outer step edge must be serrated in lieu of plain. (Overlay is not acceptable).

Step design material must be the same both left and right side.

Ref: Bustin No. NST4 full size, Ohio Grating No. JA21195G4 serrated, IKG. Industries Type B54 or Mack Part # 85QM423OM4

Top of the first step shall be approximately 21 inch above the ground.

SPECIFICATIONS
A-15-BU-F-AW

I. GENERAL TUCK SPECIFICATION: (Continued)

D. VEHICLE COMPONENTS: (Continued)

5. CAB: (Continued)

Seats: Driver's seat shall be high back adjustable Bostrom air 915 Series with lumbar support or National 195 Series with lumbar or DuraForm Air Command Series (fabri form cushions with lumbar support) with body cloth insert and three-point retractable seat belt. A bellow-type or protective skirt shall cover the seat suspension mechanism. There shall be an inside armrest on the driver's seat plus an outside armrest installed on the seat or the drivers door. No substitute on seats reference. Color coordinated to cab interior.

Passenger seat: With three-point retractable seat belt, manufacturers standard non-suspension (static), and high black type. Color coordinated.

Steering wheel diameter shall be 18 inch (approx).

6. CHASSIS:

The GVWR rating of the truck shall be 72,000 LB on the door or in the cab as the final complete certification label. (minimum rating).

Cab axle (CA) dimension and wheelbase dimension shall be determined by the successful vendor with consideration to axles, 17feet dump body, optimum legal weight distribution and proper bed over hang.

The frame AF shall incorporate a cross member at the rear of the frame to reinforce the body pivot point. (Local installation is acceptable).

Front Bumper: Heavy duty swept back. Mounted to the frame with the inner face of the bumper against the chassis frame.

Lights: mounted on the rear of the frame shall be shock mounted to prevent damage from backing into material piles (Ref: EQN-74).

Frame mounted tow hooks or eyes: Two (2) front. These may be installed by the body company after completion of the plow hitch mounting using grade 8 bolts (minimum) of sufficient length, and grade 8 elastic type self-locking nuts, or by full welding.

License plate bracket: Front and rear. Securely mounted to prevent damage when backing into material piles.

NOTE: (Hydraulic fittings shall be mounted above the module, and the vertical apron shall be cut out above the frame to facilitate their placement.)

Centralized on board chassis lubrication system; steel tubing (hard pipe shall be utilized where/when ever possible and practical: Ref: EQN-160

Ref: Grease Jockey by Lubriquip, Inc.
Groeneveld Lube system
Lincoln Lube system
Vogel Lubrication, Inc.

SPECIFICATIONS
A-15-BU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

7. CLUTCH: (if applicable)

Externally lubricated with an extended lube hose if applicable, Eaton/Fuller EZ pedal or Meritor with torque limiting clutch brake.

Clutch adjustment shall be set to specifications prior to delivery to the Department.

There shall be a neutral safety device to ensure that the vehicle cannot be started in gear.

NOTE: The transmission-input shaft shall be 2 inch spline. Dampened driven disc.

8. DRIVE LINE:

Main drive line: Spicer Life XL or Meritor RPL Series. "Factory balanced" greasable, (1 zerk minimum). Heavy-duty drive line shall be engineered and be compatible to engine, drive train and transmission torque.

Heavy-duty center bearing, if required, with due consideration to drive shaft angles, length, location, proper bolting based upon engine and transmission selection.

Interaxle driveline: Spicer Life XL Series.

9. ELECTRICALS:

All copper system, negative ground.

Alternator and starter mounting bolts: Grade 8.

Alternator: 130 amp minimum, high performance, solid state, brushless. Battery cable from battery negative terminal to starter motor or frame.

Batteries: Three (3), heavy-duty, 12 volt, field maintenance-free, BCI Group Size 31, with stud-type posts and anti-corrosion treatment on each terminal. 2500 total cold cranking amperes (CCA) at 0 degrees F. 640 minutes of total reserve capacity at 80 degrees F as per SAE.

Battery Mounting: It shall include the following:

a.) 0.25 inch thick rubber shock pad under the battery.

b.) Box with cover. Cover shall be constructed of fiberglass, poly, or aluminum (if aluminum there shall be an insulated liner).

c.) Mounting bolts grade 8 with self-locking nuts.

Cables shall conform to RCC Practice 105 with "sealed" terminal ends for stud-type battery posts.

Electrical system: Circuit-breaker-equipped, in easily accessible location, weatherproof. Fuses acceptable in circuit so identified by manufacturer as safety factor. Any fuse circuit breaker liable to be damaged during truck operation shall have an easily removable protective cover. All wire splices in the cab shall be heat shrink materials. Ref: Thomas & Betts, Tel: (210) 707-2145.

Electrical chassis-wiring harness: Body lighting and wiring to be per EQN-80X.

Body plug: Truck manufacturer and Grote Industries shall supply a body builder plug and bracket. All lights, body and chassis shall be protected by the truck manufacturers fuse block assembly.

Attachment G

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SPECIFICATIONS

A-15-BU-F-AW

Final location of the plug and bracket shall be decided at the pre-build meeting.

All exposed junctions: Waterproof and sealed against salt.

Flasher: (All) heavy-duty electrical, Ref: Tridon Model EL 12 or EQUAL.

Note: If an audible alarm is supplied for 4 ways and turn signal, it shall have on/off capability.

SPECIFICATIONS
A-15-BU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

9. ELECTRICALS: (Continued)

All lights for chassis and body shall be LED per EQN-80X and meeting all Federal and state regulations. The switch for parking light circuit shall be able to handle an additional 3 A load of a light bar. Head Lights: shall be Halogen with Daytime running lights factory or aftermarket installation. Dump body lights shall have their own dedicated complete circuit. Starter motor: With thermal overcrank protection and high torque capacity. Suitable for the diesel engines offered as per starter manufacturer's recommendation.

10. ENGINE:

The engine components facing wheel areas, on both sides, and the areas to the rear of wheels shall be shielded. The shield shall protect the engine, fan, radiator and areas behind tires from the stones and debris.

Replaceable heavy-duty fuel filter(s) and oil filter(s) as recommended by the manufacturer bearing a legible OEM part number.

Cooling System: The largest factory available engine cooling capacity compatible with engines and transmissions referenced and for continuous high engine output under extreme temperatures and/or operating conditions due to prolonged snow plowing operations in low gears. The water pump shall be adequately sized to provide proper cooling and be of sufficient size to accommodate the larger pulley to adequately handle the specified options.

Shall be fitted with provisions for visually monitoring coolant without necessitating removal of the cap from the radiator or expansion tank (e.g. sight glass, transparent expansion tank).

The antifreeze solution shall meet all applicable EPA requirements.

11. ENGINE ACCESSORIES:

Radiator core and shell: Shall be manufacturer's heaviest construction grade radiator available, with overflow recovery system and visual level indicator. Radiator with a "cut-out" to accommodate PTO shaft will not be accepted.

The oil dipstick must have tubing and dipstick with sufficient length to provide reasonable access for checking the oil level.

Engine Heater: Immersion in-block type, for Cooling system, with waterproof plug flush-mounted in an accessible location at the front/side of the vehicle, outside the cab/hood, 110 volt, 3-prong plug. The electrical cable from the heater to plug shall be one piece and waterproof. Location to be determined at the pre-build meeting.

Coolant/filter: A spin-on filter element and the HA 350 Mounting Kit. Perry system size S-4 or approved equal.

SPECIFICATIONS
A-15-BU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. VEHICLE COMPONENTS: (Continued)

11. ENGINE ACCESSORIES: (Continued)

Air Cleaner: Air filter shall be manufacturer's heaviest duty air cleaner that meets all the requirements of the extended engine warranty.

The air intake system shall be fitted with inside/outside air.

Fan: Thermostatically controlled viscous type or manufacturers recommended automatic fan.

Screening System: that protect radiator from stones and bugs.

Engine Vibration Dampened: At PTO flange yoke. Ref: EQN-90.

Diesel Fuel Filter: Shall be DAVCO (As a single filtration unit) sized per engine manufacturers recommendation.

Air Restriction Gauge: Flush, dash-mounted with indicator slide for engine air cleaner, Ref: Filter Minder, manufactured by Engineered Products Company. If the vehicle is OEM equipped with an electronic dash that incorporates an air restriction gauge or indicator light, it shall be acceptable.

Governor: Set at manufacturer's recommended maximum rpm.

Hoses: The air induction system and large radiator cooling system hoses shall be clamped with 0.500 inch wide, 150 inch LB stainless steel, constant torque, spring loaded worm clamps. Ref: Wittek Manufacturing (Tel: (312) 492-9400) or Breeze Clamp Co, Constant Torque clamps with liner for silicone hoses. Cooling system hose under 1 inch OD may use factory standard hose clamps, as a minimum acceptable standard.

Air intake hoses shall be 0.250 inch minimum thickness, molded hoses. Ref: Gates, Goodyear or equal. Silicone or premium rubber, radiator and heater hoses. Hoses shall not be painted.

Lubricating Oil Lines: High quality flexible wire-braid type, "Aeroquip" or approved equal system, minimum standard if hoses are used.

Drive Belts: Cog belts or serpentine (cog belts not required for power steering).

Engine Brake: Minimum two stage, full engine compression brake, ref: Jacobs.

12. EXHAUST:

Vertical tailpipe and muffler system or approved horizontal muffler and vertical tail pipe.

Tailpipe with elbow.

Exhaust system shall neither interfere with the operation of the dump body or equipment nor will it be close to any fluid tank, and **PERMIT WING PLOW INSTALLATION.**

The tail pipe shall be installed in a manner that will keep the muffler and tail pipe away from dump truck body. The flex in the body when operating on an uneven terrain must be considered in the design.

The muffler and tail pipe shall be shielded or insulated to protect personnel from burns when entering or exiting the cab. The shield shall be 180 degrees to 360 degrees and shall be of non-rustable material such as stainless steel or aluminum. Ref: Riker or equal.

SPECIFICATIONS
A-15-BU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

13. FAST LUBE OIL CHANGE SYSTEM (FLOCS):

This system will be installed with all fittings, brackets, clamps and hoses. The system will be compatible with all fittings presently used by the Department. The final placement of the male half of the snap coupler on the equipment will be determined at the pre-build meeting. Ref: Aeroquip or prior approved equal. Ref: EQN-351A.

14. FRAME AND FRAME EXTENSION:

Resisting Bending Moment (R.B.M.): Minimum of 2.5 million inch LB per rail, including extension, for the entire length of the frame, including any frame liners. Where engine and radiator adjustments are required, a minimum of, 1 million inch LB per rail (R.B.M.) will be excepted. Frame material shall be of at least, 110,000 PSI yield strength.

If a larger RBM is required to perform the specified operational duties, the vendor shall bid a frame concurrent with the intent and spirit of this contract. RE: Snow removal operations, full payload snow plow, right and/or left patrol wing plow, etc.

Main frame and any required liners shall be either straight channel or offset channel, full length.

Minimum frame RBM shall be approved by manufacturer 's Engineering-Department.

Bolt-on or welded extension will not be accepted.

Front frame shall accommodate the Department's standard hydraulic PTO shaft and pump (Ref: EQN-90) and the plow frame. It shall provide easy service accessibility.

The truck offered must be designed to accommodate a right and/or left patrol style wing plow.

15. INSTRUMENTATION:

All instruments illuminated and dash-mounted except where specified otherwise.

All standard instruments shall be supplied, including, but not limited to the following:

- Gauges:
- Oil pressure gauge: with warning light or audible alarm.
 - Air pressure: gauge (s) for dual circuit, dual indicator with lo-pressure audible alarm.
 - Coolant temperature: with warning light or audible alarm.
 - Transmission oil temperature: for automatic transmission only with warning light or audible alarm.
 - Fuel
 - Hourmeter that records only when the engine is running. In – dash, integral with instrument panel be illuminated and shall be readable from the operator's seat.
 - Speedometer with odometer with a dual speedometer lead to interface with the Component Technology system.
 - Tachometer
 - Voltmeter
 - Parking brake indicator light.

SPECIFICATIONS
A-15-BU-F-AW

Hydraulic fluid level gauge.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

16. LIGHT – WARNING:

One (1) revolving warning light shall be mounted on the drivers side of the body cab protector, Ref: EQN-210B.

LIGHT - WARNING - MOUNTING BRACKET - WIRING:

Ref: EQN-210B.

The wire shall be protected along the entire under side of the cab shield and down the front of the bulk-head.

A grounding wire shall be provided between the internal and external bracket at the pivot point.

17. PAINT:

Cab shall be painted PENNDOT yellow. Ref: DuPont 6808 for color only.

Frame: All underside components, shall be primed and painted black.

Front bumper shall be painted black.

Plow frame shall be painted black with acrylic enamel (with hardener) low VOC.

Proper surface preparation is the sole responsibility of the OEM and body builder to comply with V. D.

18. SAFETY:

Cab and body shall have reflective enhancement per EQN-127.

Emergency triangle warning kit, with hold down. Warning Triangle Flare Kit, Ref: KD 610-4645, KD Lamp Co. (Tel: (513) 621-4211) or equal, stowed (fastened) in the cab. Ref: EQN-66A

Fire extinguisher: Rechargeable with vehicle mount. Mounted in the cab for easy and quick access. Ref: 2A: 10B: C.

Grab handles (2): Shall be furnished to provide "Optimum safety" for entering the truck cab. Manufactures standard or aftermarket. Non-skid paint or rubber may be utilized, (non-skid tape is unacceptable). Ref: Non skid paint, Gamma Laboratories

19. STEERING:

Power Steering: Dual integral or single integral type hydraulic power steering with right wheel power-assist cylinder.

Glidecoat steering shaft, or Bendix wedgelock lube-for-life shaft.

Steering System: (e.g. flow, pressure, relief valve etc.) Shall be selected considering the full front-GAWR axle loading. Ref: Ross or Sheppard gear assembly.

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SPECIFICATIONS

A-15-BU-F-AW

Hydraulic Supply Pump: Vane type or roller type with sufficient oil flow to permit one (1) steering wheel revolution per second with front axle loaded to rated capacity, with plow on, in a "park" condition. Ref: Vickers V-20, Eaton or Borg Warner.

SPECIFICATIONS
A-15-BU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

19. STEERING (Continued)

The pump shall not be the integral filter type unit.

Power Steering Reservoir: "Remote mounted", minimum 2 quart capacity, incorporating a filter which is easy to remove and replace.

The remote filter referenced above shall be factory mounted, certified and engineering approved in conjunction with the appropriate pump.

Cogged belts not required on power steering system.

20. SUSPENSION: FRONT:

10,000 LB capacity at ground each front spring.

The six (6) front spring pins or bearings/bushing shall be furnished with 360-degree grease grooves to insure adequate lubricant penetration.

Spring hangers shall be heavy castings with sufficient pin and bearing surface to render trouble free service.

21. SUSPENSION: REAR:

Suspension shall be tailored to axle loads and shall be adequate to sustain maximum GVW without overload or permanent set.

Suspension shall be mechanical (no air).

The spring hanger brackets shall be severe duty castings with sufficient bearing surface/wall thickness to prevent premature bolt wear.

The spring center bolts shall be a minimum of .4375 inch size, preferably .5000 inch.

The rear spring hanger pins shall be the greaseable type.

Bolts must be of sufficient length to go through the washer, spring bracket and truck frame with sufficient length to install a self-locking nut.

22. TANK - FUEL:

Safety - type fuel tank as per the requirements of FMVSS. **Dual tanks are unacceptable.**

Trucks with no wing and Trucks with a right wing shall have one (1) 100 GAL minimum total capacity, frame mounted, under the left door.

Left wing and dual wing trucks shall have one (1) 80 GAL (useable) minimum total capacity, frame mounted, under the left door.

Tank mounting hardware and brackets shall be for "severe duty" applications. Heavy-duty aluminum or stainless steel with minimum 2 inch wide straps with rubber shims/liners.

Accessible fill pipe with dump body down (located at either end of tank to avoid interference with steps).

System shall be a top draw and top return line.

SPECIFICATIONS
A-15-BU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

23. WHEELS/TIRES:

GENERAL:

The truck shall be equipped with hub piloted steel disc wheels for tubeless tires. The wheel end shall be equipped with outboard cast brake drums, and 15 degree tubeless steel wheels, hub piloted, 10 hole - 285.75mm bolt circle with 22mm two-piece flange nuts.

Front: Wheels: 22.5 x 12.25, 10 hole - 285.75mm bolt circle with 220mm bore, tubeless steel disc wheel rated at 10,500 LBS at a maximum inflation pressure of 120 PSIG. Accuride part number 29806, no substitute.

Rear: Wheels: 22.5 x 8.25, 10 hole - 285.75mm bolt circle with 220mm bore, tubeless steel disc wheel rated at 7,500 LBS at a maximum inflation pressure of 120 PSIG. Accuride part number 28828. no substitute.

The dual rear wheel/tire assembly shall have clearance between the tires, which permits the use of dual tire chains.

Wheel-Guard Separators: The wheel ends shall be equipped with the Accuride part number 5903 Wheel Guard Separator as follows:

Front axle - between the wheel and the brake drum.

Rear axle - between the inner dual and the brake drum and between the inner and outer duals.

Paint: The wheels shall be topcoat painted with TGIC Polyester Powder Paint MLD-82008 High Gloss Gray or equal applied over Cathodic Electro-Disposition Gray Primer.

TIRE: All tires will be radials.

Tires: 425/65R22.5 (18 ply min).

Tires: 12R22.5H

MANUFACTURER

Goodyear

Michelin

FRONT TIRE

G-286 SS

XZY - WB

REAR TIRE

G-124 or 164RTD

XDE-A/T

NOTE: The above referenced tire manufacturers and models are for reference only. Approved equal manufacturers/models will be acceptable. Tire speed rating to be considered as part of equivalency.

SPECIFICATIONS

A-15-BU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

24. TRANSMISSION: See POWER TRAIN OVERVIEW for acceptable transmission.
Transmission type per invitation to bid

MANUAL:

Geared for PTO application, right and left side or right side and bottom.

Magnetic drain plug.

Input transmission shaft: 2 inch.

12 to 1, minimum 1st gear and reverse ratio.

AUTOMATIC:

Dash mounted console with push button shift selector.

There shall be an external oil cooler.

Oil cooler for transmission required due to prolonged transmission torque converter operation in low gears. Cooler size must be provided to keep the transmission fluid at an acceptable operating temperature under these prolonged conditions. (Water to oil type cooler). An Allison approved cooling system shall be installed regardless of whether retarder is incorporated in the system or not.

Retarder system shall have a foot control. There shall be a master switch on the dash that will totally disarm the retarder system. A switch in the retarder circuit shall automatically activate the brake lights during retarder operation.

E. DUMP BODY AND EQUIPMENT:

1. DUMP BODY, ALUMINUM:

DETAILS - Ref: EQN-79T

The dump body capacity shall be minimum of 20.0 cubic yards water level.

Side board pockets shall accommodate a standard 2 feet x 4 feet (wood).

Tailgate 64 inches, body sides 60 inch (approx.)

Front Body Bulkhead: Minimum 0.15625 inch standard aluminum 5454H34, and shall be a minimum of 12 inch above body sides. There shall be a shovel holder assembly mounted on the left front of bulkhead (final position to be determined at the pre-build meeting). Ref: Akron Foundry AT-2.

Rear Corner Posts: On both sides shall be full depth, one-piece construction from the top of the tailgate to the bottom of the rear bolster and shall be free of holes.

Rear Bolster: One piece, full depth and full width.

Spreader chain holders: On both sides, top and bottom of the rear corner posts.

All body welding shall be full welding.

SPECIFICATIONS
A-15-BU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. DUMP BODY AND EQUIPMENT: (Continued)

1. DUMP BODY, ALUMINUM: (Continued)

Bed prop There shall be two (2), three position, self positioning stow away bed props per EQN-62. Aluminum shall not be painted. There shall be midway sideboard supports (left and right).

2. TAILGATE, ALUMINUM:

Ref: EQN-79T EQN-81T and EQN-64. NOTE: Approx. 6° angle.

Manufactured from grades 5454H34 and 6061T6.

48 inch (minimum), body sides 38 - 42 inch (approx.).

Double acting five (5) panel tailgate with offset hinges.

Two (2) "J" hooks welded to the tailgate for chain hangers.

1.50 inch dia. greaseable self-aligning top hinge pins with tapered end and with sufficient length for easy removal. Pins shall be affixed with chains to prevent loss and be non-rotating.

1.5 inch thick top hinge plate, aluminum, offset style. Minimum edge distance shall be 1.7500 inch. Severe duty.

0.375 inch spreader chain, non-rusting and able to accommodate 0.5 inch in thick aluminum chain holder or 0.375 inch an thick steel chain holder.

Tailgate chains shall be covered with expandable braided sleeving of monofilament construction. Ref: Fairmont, (Tel: (304) 366-4600) Part No. Expando Grade DM -color black or yellow.

Four (4) tailgate chain brackets. Two (2) on each side.

Severe duty tailgate attaching brackets with replaceable heavy-duty bushings and greaseable fittings shall be provided. Tailgate shall utilize hardware as listed in EQN-79T, page 9 of 9, except for manual handle. Tailgate shall be a pneumatic actuated system with cab control.

Body Lighting: - Ref: paragraph I.D.9 ELECTRICAL CHASSIS - WIRING HARNESS, and EQN-81X.

Coal chute gate with levers and operating handle. AISI Type 304 stainless steel.

Ref: EQN-64 Aluminum

Air operated Tailgate per EQN-78A: Tailgate must be operated via an in-cab dash mounted switch (switch mounted under dash is not acceptable). All air piping and connections must be D.O.T. approved with .250 inch nylon tubing and brass compression fittings. Spring-over-air or air to air is acceptable.

3. BODY SIDES, ALUMINUM:

The sides shall be minimum .250 inch thick aluminum 5454H34.

Top rails shall be fully boxed and completely closed by "continuous" welding, both sides.

One piece construction for side top and bottom rails; no splices.

Running board width shall cover the outer rear dual tires and shall be full length of the body, both sides.

SPECIFICATIONS
A-15-BU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. DUMP BODY AND EQUIPMENT: (Continued)

3. BODY SIDES, ALUMINUM: (Continued)

A minimum of five (5) vertical side braces per side on proper centers shall be furnished in addition to the front and rear corner posts. Side braces and front posts shall be furnished with bottom drain holes with safety self cleaning type grid steps welded, both sides, between vertical braces, full length, and flush with outer edge of vertical braces per EQN-76.

Aluminum body shall be isolated from the steel frame rails at the hinge by installing Mylar material.

4. FLOOR, ALUMINUM:

One (1) piece body floor shall be .3750 inch thick minimum, abrasion-resistant aluminum 5454H34. Ref: EQN-79T.

5. BODY STRUCTURE, ALUMINUM:

Ref: EQN-79T.

The body shall be "stacked construction" aluminum.

Dump Body		Aluminum
Longitudinal member	Size	6 inch I-Beam min.
	Wt.	6.1 LB/feet
	Material	A1 6061T6
Cross-member	Size	4 inch I-Beam min.
	Wt.	2.70 LB/feet
	Material	A1 6061T6

4 inch channel Cross members of equal strength are permitted at the front and rear of body to finish the unit, and in the area where hoist box is located.

The body shall be reinforced to withstand SEVERE duty service. RE: Dump body up while spreading salt and anti-skid material, or excavation rip rap being dropped in the bed.

The longitudinal I-beams and channels specified are minimums and may exceed dimensions to permit proper hoist mounting.

Heavy gussets of minimum size 4 inch x 6 inch x 0.375 inch thick for aluminum shall be furnished at all cross members on the outside. Where not possible, they will be furnished on the inside.

SPECIFICATIONS
A-15-BU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. DUMP BODY AND EQUIPMENT: (Continued)

6. CAB SHIELD, ALUMINUM:

Ref: EQN-79T. Full width cab shield with no off-set for exhaust stack.

Body front bulkhead and cab shield shall be minimum 0.15625 inch thick aluminum 5454H34.

Continuous welding on front and cab shield throughout.

One-half (1/2) cab shield with four (4) inch lip on front extending over cab.

The body cab shield shall have sufficient clearance to ensure that the shield will not hit the exhaust system when dumping on uneven terrain.

If full wing posts are specified, cab shield shall be modified with approval of the Chief of the Equipment Division.

F. BODY EQUIPMENT:

NOTE: All mounting procedures shall be in accordance with TBEA standards.

1. Integrally designed/engineered to eliminate body side shifting on uneven terrain.

2. Capable of being utilized in raised position for extended use while spreading salt and anti-skid materials.

NOTE: (Hydraulic fittings shall be mounted above the module, and the vertical apron shall be cut out above the frame to facilitate their placement.) Receiver pin shall be located on the outside of the module.

NOTE: Acceptable body companies: (No Substitute, prior to bid approval necessary).

J & J Truck Bodies & Trailers - Somerset PA.,
Benson International, Inc, Mineral Wells W.Va.
Warren, Inc, Collins, MS
Thiele, Inc, Windber, PA
R/S Body Co, Richmond, KY
Godwin Man. Co., Dunn, NC
Tibrook, Brookville, PA

1. ACCESSORY PLATE:

There shall be an accessory mounting plate installed ref: EQN-22. Location to be determined at the pre-build meeting.

2. BED UP ALARM:

A safety warning light dash mounted and alarm installed. Switch shall be set at 49 degrees +/-1 degree dump angle to alert the operator and to prevent the hoist cylinder from going full stroke. Switch shall be mounted in accessible area of the body of the dump bed located away from road splash etc.

NOTE: SWITCH SHALL BE MECHANICAL, MERCURY TYPE SWITCHES are not ACCEPTABLE.

SPECIFICATIONS
A-15-BU-F-AW

Ref: Scott Electric (Simines) Switch – SIA3SEO3-AR1
Lever - SIA3SXO3-KL200

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

F. BODY EQUIPMENT: (Continued)

3. CHAIN BOX:

The final size and location shall be determined at the pre-build meeting.

2 boxes – with no wing, 1 box - with left or right wing , 0 box – with dual wing.

Chain boxes per EQN-32. The boxes shall be aluminum with aluminum safety grating overlaid. There shall be a minimum of four (4) .750 inch dia. Drain holes in the boxes flooring. The hinge shall be rod with nylon bushings. Piano hinge is unacceptable. Final positioning of these boxes shall be behind the swept back bumper and outboard of the left and right frame channels.

4. HOIST CYLINDER:

The hoist cylinder shall incorporate a metal identification tag with the manufacturer's model number, serial number and manufacturers address.

The hoist cylinder shall be mounted to the cross shaft in a tube base. The base may be cast or fabricated (no bolts and angle).

Hoist cylinder reference: Commercial No. SD74DD-1-150 or Custom No. 74-129-150 (2.5 inch pin size both ends. No substitute, standardization.

A safety warning light and alarm, on the dash, shall be incorporated at 49 degree dump angle + 2 degrees to alert operator

Upper pin shall be fitted with a remote grease connection per EQN-63.

NOTE: Necessary sequence valves, plumbing and hydraulic fittings shall be supplied to ensure the requirements of 22 seconds full up to full down travel. Recommendations to other hoist cylinders must meet or exceed the aforementioned.

5. HOIST HARDWARE AND DETAILS:

Ref: 79A

The rubber cushion, 2 inch thick, the width to be equal to width of frame rail, shall attach to longitudinal body member with counter-sunk bolts, incorporating a flat head bolt and a wedge washer and locking nut assembly or slotted rubber and track assembly integral with body longitudinals.

Note: Any other concepts of attaching rubber cushion to the long member must be approved by, Chief of the Equipment Division, prior to bidding. Laminated rubber is unacceptable.

Dump hinges shall be fully welded to long member if steel and aluminum must be bolted with grade 8 bolts, and steel plates in a sandwich type construction with a minimum of 8 bolts.

All pivot points shall have (2) accessible grease zerks at opposite ends to ensure adequate greasing.

Thirty-five (35) U.S. ton net payload capacity.

Double acting, hydraulic power-up and down cylinder.

SPECIFICATIONS
A-15-BU-F-AW

2 inch dia. min. hoist hinge pin sized to withstand severe use. Full width.
2 inch dia. min. lift pins.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

F. BODY EQUIPMENT: (Continued)

5. HOIST HARDWARE AND DETAILS: (Continued)

Ref:

EQN-79A	EQN-20X
EQN-123	EQN-79W
EQN-94	EQN-95
EQN-91	

Detail A - Chain holder

Banjo type cut-out to hold tail gate chain
All corners must be angled or rounded for safety
Full welding
Aluminum 500 inch thick.
Carbon Steel 0.3750 inch thick.
Ref: EQN-79A-Aluminum/EQN-79W-Steel.

Detail B - Tailgate hinge

Replaceable bushing with greasing capability
The edge distance shall be minimum of 1-3/4 inch thickness
Aluminum, 1-1/2 inch thick material.

Detail C - Tailgate chain bracket

Two (2) per side, total of 4 per tailgate
Aluminum

Detail D - J Hooks

Two (2) per tailgate

Detail E - Top Tailgate pins

1-1/4 inch dia. steel pin with tapered end.
C-1020 HRS Steel.

6. PLOW FRAME:

Plow frame shall be furnished and installed as per attached drawings and shall be approved by the truck manufacturer's engineering department. The plow frame shall be per EQN-50.
Zerk fittings shall be protected per EQN-64.
Snow plow lights to be installed Ref: EQN-124 or approved body builder design.
All metal surfaces shall be cleaned prior to primer and final painting.

SPECIFICATIONS

A-15-BU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

F. BODY EQUIPMENT: (Continued)

7. SAFETY:

A slide in type, Ref: Bustin Industrial Products, two or three-step ladder, 15 inch wide x approximately 32 inch high, formed and braced to the dump body on the driver's side between the first and second vertical side body braces, shall be welded to the underside of the running board ref: EQN-56. Any other configuration shall be approved by, Chief of the Equipment Division.

There shall be a pair of wheel chocks with holder/s (location of holder to be determined at the pre-build meeting) As per EQN-82.

All entrance steps shall be Bustin No. NST4 full size, or Ohio Gating No. JA2II9SG4 serrated or IKG Industries Type BS4 serrated swage lock, with end band for aluminum body.

The body step material shall be BUSTIN 628 for steel body.

A short piece of bar stock shall be used above steps to serve as a grab safety handle for body entry.

Steps (minimum of two) made from "Bustin" type safety step material, are required on the driver's side inside the bed for safe entry and exit.

Compliance shall be made per EQN-118.

8. SPLASH GUARDS:

Ref: EQN-66.

Aluminum 0.250 inch splash guards shall be attached to the dump body on each side, behind the rear-most dual wheel, and extend downward to accommodate a 30 inch or 36 inch flap in order to meet Pennsylvania State Inspection Requirements. Mud flap sizes permitted are 30 inch or 36 inch. (No substitute, standardization) The rubber splash guards shall be bolted to these metal splash guards using self-locking nuts and metal strips.

The forward splash guards shall aluminum, and extend downward 3/4 of the length of the rear splash guard/mud flap, with a 1/4 length, unmarked mud flap attached for the remaining distance.

Forward splash guard shall have a 1 inch lip for entire length-outside extremity (90 degree) with bottom outside corner rounded.

Both front and rear splash guard assemblies shall be properly braced, and have rolled edges.

Splash guards shall be full length and width with no holes cut in it to accommodate salt lights.

9. WELDING:

All welding shall be in accordance with standard welding practices as set forth by the American Welding Society.

SPECIFICATIONS

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All vertical and horizontal seams of the body sides and ends shall be continuous welds, full penetration, without skip welds.

I. GENERAL TRUCK SPECIFICATONS: (Continued)

F. BODY EQUIPMENT: (Continued)

10. CENTRAL HYDRAULIC SYSTEM:

The pressure compensated, load sensing central hydraulic system shall operate all functions (plows, dump body, spreader and auger circuits) from an electric/ hydraulic system independently and simultaneously, without interruption of any other hydraulic functions.

All controls and components shall be of the latest design and installed to provide simple and convenient operations.

All system operations shall be achieved from a single pump matching all required flow and pressure demands.

The use of accumulators or auxiliary pumps is not acceptable.

Hydraulic tool operation will be included through both spreader circuits and will not require any type of cooling.

This system shall provide the most fuel efficient, safest, simplest and consistent operation possible.

All hydraulic components shall be installed and serviced by a single manufacturer.

Full responsibility for a serviceable system lies with successful bidder.

All wiring shall be securely clamped at approximately 18 inch intervals, shielded from exhaust and include a protective sleeve where necessary to prevent damage and/or failure.

All electrical connectors shall be treated with die-electric grease.

All systems shall be thoroughly tested and calibrated before delivery.

Upon start up the hydraulic system shall be operated at maximum flow for not less than 15 minutes and then have a new hydraulic filter installed on the truck.

It shall be the sole responsibility of the successful truck manufacturer and Component Technology to ensure that the chassis and the ground control wiring harness is totally compatible.

An operation manual, parts and maintenance manual shall be provided with each unit.

A schematic as well as a parts list shall be provided with the completed unit.

11. CONSOLE AND POWER DISTRIBUTION CENTER:

Console Assembly: Shall be Component Technology MultiGuard SG7 with all joysticks being fully proportional, NO SUBSTITUTE STANDARDIZATION.

Kit number SG08020017 Type IV and Tri-axle No Wing

SG08020018 Type IV and Tri-axle Single Wing (Left or Right)

SG08020019 Type IV and Tri-axle Dual Wing

Kit shall include GL-400-5-5.

All wiring for the kit shall be included and be TPE type wiring only.

Hydraulic system digital pressure gauge – Wika 907.15.506 w/TYPEc10 TRANSDUCER

Attachment G

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SPECIFICATIONS

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Valve enclosure

Bulkhead fitting for auger wiring shall be mounted in the rear module

Prewet system Part Number SG06070008

80 gallon poly tank and plumbing kit with stainless steel tailgate brackets installed on the rear of the truck. Reference: Component Technology tank part number RES-80-POMNIBUS, plumbing kit SG0609001. The tank assembly shall be installed utilizing an extended upper hinge pin. The bottom of the tank shall not cover the main integrated lights in the tailgate. The tank bracket shall be stainless steel. Reference Benson Body, part number PD-0802.

SPECIFICATIONS
A-15-BU-F-AW

I. GENERAL TRUCK SPECIFICATONS: (Continued)

F. BODY EQUIPMENT: (Continued)

11. CONSOLE AND POWER DISTRIBUTION CENTER: (continued)

All hydraulic valve operations shall be achieved from within the cab by a single operator.
All controls shall be securely attached, within easy reach of operator and console mounted.
All controls shall be connected to the valve/s via electronic cable and power distribution center.
All electronics associated with the PDC and console shall be protected against and shall not cause interference to the operation of the vehicle or the land mobile radio communications system when properly installed in the vehicle.

Base shall be of steel construction conforming to drawing included in EQN-95.

Cabinet shall be constructed with 14 gauge steel, and will provide an access panel for ease of service.

Unit shall contain circuit protection for up to 12 auxiliary functions that control 15-ampere relays with automatic reset breakers.

Unit shall contain a terminal strip capable of interfacing with the specified body wiring harness if applicable. Terminal strip will be located inside base unit and have at least three unused sections for further expansion.

Unit shall be capable of adjustment vertically ad horizontally to allow for comfortable positioning for the operator.

Unit shall come with full wiring schematic documentation.

Unit shall come with pin-outs for customer accessories such as two-way radio, etc.

Main electrical connection shall be protected by a 80 ampere manual reset circuit.

12. DIRECTIONAL CONTROL VALVE:

The hydraulic control valve shall be a REXROTH. There shall be a 3 port valve block to control spinner, auger, and pre-wet .as part of the main valve assembly. Will be included in the following part numbers: Part Number SG04170601

Main control valve and enclosure shall be mounted outboard on the curb side frame rail ref: EQN-23 all valves, coils, end covers and power beyond ports must be accessible.

There shall be two (2) return lines from the valve to the return manifold

13. HYDRAULIC ALARM AND SHUTOFF:

There shall be a low hydraulic oil alarm system to alert the operator of a low hydraulic oil situation and allow ample time to take preventative action and avoid damage to the central hydraulic system pump.

It shall be operated via a 12 volt system. All wiring shall be routed to prevent damage from heat, sharp edges and moving parts.

An in-tank float switch shall be mounted to provide a signal to a dash mounted light. The dash light shall come on whenever the oil level drops below a ten (10) Gallon reserve. Assembly shall be an MP Products, Inc. RIG1-Series. All switch wires shall be hermetically sealed in high grade epoxy. The indicator light shall be console mounted. Indicator light lens shall be red in color. Light shall be clearly identified "Low Hyd. Oil". Switch shall be adjusted to ensure that light does not prematurely illuminate (i.e., bed being raised, with adequate reservoir oil, should not cause

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A-15-BU-F-AW

light to illuminate).

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

F. BODY EQUIPMENT: (Continued)

14. HYDRAULIC HOSE:

All hose and hose ends shall be matched and assembled on a matched hose machine to prevent hose failure. All hydraulic plumbing practices shall conform to JIC H11 standards. Pressure hoses shall be 100R2, return lines shall be 100R1, and suction lines shall be 100R4. Velocity in pressure lines shall not exceed twenty (20) feet per second, return lines not to exceed ten (10) feet per second, and not to exceed four (4) feet per second in suction lines. All hoses shall include JIC female swivel ends with the exception of the suction line. All hydraulic components shall have SAE porting wherever possible.

All hydraulic hoses shall be securely clamped at approximately 18 in/46cm intervals, shielded from exhaust and include a protective sleeve where necessary to prevent damage and/or failure. All hoses shall have JIC swivel connections at each end and be located in such a manner to aid in easy component replacement. Per EQN-94

15. HYDRAULIC PUMP:

PUMP shall include a low oil shut DOWN WITH OVERRIDE Shutdown shall be direct mounted to the pump. Remote mounted valve will be unacceptable.

The pump shall match system flow and pressure (horsepower) requirements to provide maximum fuel economy. Ref: EQN-90, EQN-91

No unloader or by-pass system will be an acceptable means of regulating excess oil flow.

Pump part number: Parker Hannifin PAVC10092L4AP22X3392 KEYED Crankshaft Mounted,

Full flow relief valve to be installed between pump and control valve. Relief valve setting shall be factory pre-set at 2500 PSI. Relief valve may be mounted inside the main valve enclosure or in the return manifold.

Or

Pump part number: Rexroth Model A10V0100 LH ROTATION: BH00979162

16. HYDRAULIC PUMP DRIVELINE:

Hydraulic pump SHALL BE DRIVEN by a Spicer 1310 series or NEAPCO factory balanced drive shaft. Driveline shall be capable of 130 foot pounds of torque and have a tubular shaft of 1141 steel. Tubular shaft will have 16 spline heat treated to 40 Rockwell hardness.

A groove shall be machined the length of the shaft to provide proper phasing of universal joints at time of shaft assembly.

Driveline installation should be in accordance to manufacturer's recommended procedures.

Slip assembly shall provide not less than 2.25 inch of travel to allow ease of engine drive belt replace-

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ment.

SPECIFICATIONS

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I. GENERAL TRUCK SPECIFICATIONS: (Continued)

F. BODY EQUIPMENT: (Continued)

16. HYDRAULIC PUMP DRIVELINE: (continued)

The truck engine radiator and frame construction shall readily accommodate the installation of a front mounted crankshaft driven hydraulic pump.

The engine crankshaft pulley or vibration damper shall be drilled and tapped to accommodate a power take off drive shaft adapter plate required under hydraulic system section of these specifications.

Referenced models, Mack FWPTO, Cummins REPTO or approved equal. Ref: EQN-90.

17. PLOW SAVER:

There shall be a plow saver device COMPONENT TECHNOLOGY PART NUMBER - SG03020008 installed.

18. OIL RESERVOIR AND ACCESSORIES:

Aluminum or stainless steel, all welded construction

The oil reservoir shall not be less than 45 GAL capacity, filled with ISO 32AW hydraulic oil

Cylindrical with flat or shallow dish sides, steps shall be included

Tank straps shall be heavy duty (minimum 2 inch wide) stainless steel or aluminum with rubber shims/liners.

Liners shall interlock around the tank strap edges to eliminate them from walking.

Center mounted baffle plate to prevent oil flow from venting directly to section port

A drop tube shall discharge all return oil flow through the 1.50 female NPT port

Tapered outlet shall be below oil level at all times to prevent air entrapment

A magnetic dipstick shall be mounted into reservoir from a top NPT female port

Tank shall be mounted under the right door

Tank shall be clearly labeled "HYDRAULIC FLUID ONLY"

Lockable tank filler cap assembly, model 57XL-40 (40 micron with chain) L.C. as manufactured by Lenz. Tel: (937) 277-9364

Suction line/strainer: 125 micron with 3 PSI bypass rated above 47gpm submerged at all times

¼ turn, 2.5 inch full flow ball valve in the suction line as close to the tank as possible

Strainer integral mounted in a 4 inch NPT female opening in the bottom of reservoir with a 3" female NPT opening

Return manifold: There shall be a return line manifold mounted on the curbside frame rail, location to be determined at the pre-build meeting. Ref: EQN - 23

Return manifold shall be an 8 port header block with 8 # 16 SAE openings and 2 #24 SAE openings at each end. Header shall be an Alamo, Damon or Hycoa or equal.

Return line filter: Filter with spring controlled by-pass set at 25 PSI shall be mounted on the outside of the curbside frame rail

Filter shall be a Parker microglas part #80CN-210Q-15739, 300L @10 micron or MPFiltri – LMP2602BAF1A012M 300L @ 10 micron

There shall be a differential pressure switch with boot to activate a warning light mounted within the console.

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Cab mounted filter contamination indicator set at 23 PSID

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

F. BODY EQUIPMENT: (Continued)

20. TEST PORT:

There shall be a 5101-6B complete quick coupler or hydraulic gauge (with dust cover) located in the pressure line entering the main valve assembly located inside the valve enclosure. Quick disconnect shall be bracket mounted to the inside of the enclosure, easily accessible so that a shop pressure gauge (not to be installed or included) maybe easily visible for test purposes. Ref: EQN-20X. Final location shall be determined at the pre-build meeting.

20. INSTALLATION PRACTICES:

The use of any of the following items or practices WILL NOT BE ACCEPTED.

Non-steel fittings on hydraulic pressure lines.

Excessive use of elbows on hydraulic lines.

Use of thread tape on hydraulic fittings.

Use of galvanized fittings or components on hydraulic system.

Improper hydraulic line size.

Use of high-pressure hose for hydraulic suction line.

Scotchlok-type wire splices.

Non-insulated wire splices.

Improper hose or wire routing near exhaust, over-sharp edges or through holes without grommets, or sharp edges.

Improperly prepared, primed and painted surfaces.

Non-fused electric circuits.

Hydraulic circuits without pressure relief protection.

21. BED SPEED REQUIREMENTS:

Bed speed shall be tested at 1500 rpm at normal operating temperature

Bed speed full-up shall be 25 seconds maximum

Bed speed full down shall be 18 seconds maximum

SPECIFICATIONS
A-15-BU-F-AW

II. GENERAL WING PLOW SPECIFICATIONS:

A. INTENT STATEMENT:

The purpose of these specifications is to describe a full floating patrol wing plow with tripping action and telescoping action mechanism and a capability to lower the assembly in the travel position for improved visibility and to allow emergency egress. Tenco

It shall be the responsibility of the vendor to certify through proper chassis stress analysis the adequacy of the existing truck frames to accommodate the patrol wing plow in combination with a front mounted plow weighing approximately 3000 LB.

The aforementioned plow will be used for "severe duty" high-speed plowing by the Pennsylvania Department of Transportation. The attached drawings and written text are to be considered minimum and the manufacturer shall reinforce the plow, framing and hydraulic cylinders by means of gussets, or increased material strength or thickness to present a plow designed to meet the "severe duty" operational setting.

The Patrol Wing shall be designed to be attached or detached independently from the frame assembly. It shall be installed in such a manner as to ensure quick access to the engine and all accessories. (Hood on dump truck shall tilt without obstruction, if applicable.)

All parts not specifically mentioned, which are necessary in order to provide a complete snow plow shall be furnished by the successful bidder. The plow fabrication and assembly shall be to the latest engineering techniques.

All steel unless otherwise specified, shall be hot-rolled steel (HRS) as per ASTM A-36.

When wing assembly is disconnected from the truck, no parts may extend past the body line of the truck.

All bolts shall be grade 8.

A complete set of drawings showing all details and dimensions, sizes, etc., and literature of the plow proposed to be furnished.

SPECIFICATIONS

A-15-BU-F-AW

II. GENERAL WING PLOW SPECIFICATIONS: (Continued)

B. PLOW COMPONENTS:

SHOCK ABSORBING REAR WING BRACE:

The rear wing brace shall be a minimum of a single fixed hinge pin type with an adjustable bottom wing brace, or the formed type wing tube support to attach to a single fixed hinge pin.

The rear wing brace shall be equipped with a telescoping arm and an adjustable type tension spring. If required by manufacturer.

The rear wing "A" frame support strut/girder arrangement of MC 7 inch x 22.7 LB/feet, minimum channel, or fabricated from 7 inch x 12.25 LB/feet channel, 6 inch x 8.2 LB/feet channel, .500 inch plate, 6 inch x 4 inch x .3750 inch structural tubing and other component pieces. It shall be attached in such a way that the load is properly distributed to both chassis frame rails. "A" frame shall be detachable for summer use. Ref: EQN-60A.

One (1) top wing brace cylinder constructed of 3 inch x 15 inch minimum double acting ram, chrome plated piston rods.

Adjustable trip-spring mounted from wing lift cylinder housing to the back of wing.

The rear brace shall be equipped with a 3 inch x 24 inch or 3 inch x 15 inch DA cylinder to actuate the telescoping strut with cross-over relief.

Bottom wing brace constructed of 4 inch O.D. square outer tubing with a 3 inch O.D. square inner tube.

Wear guides are welded to inner side of 4 inch tube and to the outside of the 3 inch tube to prevent binding.

The rear wing lift cylinder will be a double acting 3 inch x 27 inch minimum cylinder, chrome plated piston rods with neoprene packing. Cylinder shall float with a 500 PSI relief on the down side.

The tripping spring/eyon rubber compression will be mounted to allow the wing to trip in any of the telescoping positions. The spring/eyon rubber compression shall be adjustable and have a quick release handle to remove tension for detaching the wing. The spring/eyon rubber compression will also be mounted to have tension on the wing in all telescoping positions.

The telescoping strut cylinder shall have incorporated in the hydraulic system an adjustable pressure relief valve for safety, when contacting heavy objects.

FRONT WING SUPPORT, OR FRONT WING POST:

Front Wing Mast:

Wing mast shall not block the O.E.M. headlight.

I beam 7 inch x 15.3 LB/feet minimum, wing post.

.6250 inch minimum wing post slide lift with 10 inch minimum lift from ground to bottom of plow edge for travel.

Front wing post cylinder double acting ram - direct (no cables) with float and 500 PSI relief on the down side.

Chrome plated piston rods, adjustable chevron type packing, neoprene wipers and bleed screw.

Hydraulic hoses, to SAE 100RZ, 022700, AEROQUIP-195, Hi-Impulse

SPECIFICATIONS

A-15-BU-F-AW

II. GENERAL WING PLOW SPECIFICATIONS: (Continued)

B. PLOW COMPONENTS: (Continued)

FRONT WING SUPPORT, OR FRONT WING POST: (Continued)

Front Wing Mast:

Front wing post and support strut/girder arrangement shall be attached in such a way that the load is properly distributed to both chassis frame rails without the use of bracing tubes.

Support struts shall be 1.250 inch diameter schedule 80 ASTM A106 Grade A or B seamless pipe brace, minimum of two.

One strut shall be mounted to chassis frame.

One strut shall be mounted to plow frame.

Horizontal support girder 7 inch cross channel or 7 inch ship and car channel at 22.7 LB/foot or tubing 7 inch x 4 inch x .3750 inch.

Bolts shall be minimum grade 8, .6250 inch N.C.

Hinge assembly shall be detachable from the slider assembly of the wing mast.

Formed wing post mounted on cross tube mounted to truck frame members.

Wing slide plate bears on flanged surfaces of formed channel enclosing single acting cylinder, which provides full power up.

Wing Plow Alarm (Mechanical): Wing plow shall have a mechanical alarm system to alert the operator of the position of the plow. It must be visible from the driver's seat. Ref: EQN-60A.

HYDRAULIC POWER:

The front wing mast shall have a double acting cylinder vertical lift type, hydraulically controlled by a double acting cylinder direct lift. The front cylinder shall have quick connect coupler/s.

Double Acting Cylinder:

A 3 inch x 15 inch minimum double acting cylinder from rear "A" frame to mold board to raise the rear of the wing and fold the wing close to the truck for transport.

SNOW LEVELING WING:

The wing assembly shall in no way interfere with the turning of the right or left front tire. The wing shall not be less than 11 feet long overall, 29 inch high at the front and 36 inch (minimum) high at the discharge end. The moldboard shall be fabricated from 0.1719 inch thick (8 USS gauge) minimum steel and weigh a minimum of 755 LBS.

It shall be drilled to accept standard AASHTO spacing as shown on attached drawing EQN-16A sketch attached and equipped with either a steel or rubber blade as specified.

SPECIFICATIONS
A-15-BU-F-AW

II. GENERAL WING PLOW SPECIFICATIONS: (Continued)

B. PLOW COMPONENTS: (Continued)

SNOW LEVELING WING: (Continued)

a. Rubber Blade:

The patrol wing shall be equipped with a 1.500 inch x 10 inch x 120 inch rubber cutting edge manufactured by Goodyear Tire & Rubber Company or an approved equal, secured to the wing moldboard by .6250 inch grade 8 plow bolts through a .3750 inch x 4 inch steel facing plate. The rubber blade shall be slotted 3.500 inch x .6875 inch to provide adjustment and shall be reversible to provide maximum wear.

b. Steel Blade:

The cutting edge shall be of .500 inch x 6 inch C1090 steel, at least 10 feet long. Per attached plow blade drawing, EQN-16A.

The wing plow shall have two cast wing shoes.

The patrol wing shall be hydraulically operated with the controls conveniently mounted, (to be discussed at pre-build meeting) in the truck cab with the addition of three valves to the existing valve bank. These valves shall provide lift to the front of wing, the rear of the wing and the folding of the wing toward the cab and control in and out of the strut. The front of the wing shall be controlled by a single acting ram mounted within wing post that permits the front of the wing to be vertically lifted for transportation purposes.

The rear of the wing shall be power hydraulically controlled and attached to tele-strut and a 3 inch x 24 inch double acting cylinder with .3750 inch quick disconnects, (male, female, cap and plug) which shall be connected to a 7 inch sloped channel located under the dump body and at the rear of the truck cab. The 7 inch channel shall be adequately supported by brackets and cross braces to the truck frame. Bottom bracing shall extend to the rear with bridge type bracing.

c. Tripping:

The wing shall be of the full tripping type consisting of a special spring-loaded front end. Tripping actuation shall be accomplished through a .8750 inch diameter wire torsion spring at the front end and a tension spring attached to the front and rear of the wing or eyon rubber compression system.

Each spring shall be adjustable and shall automatically return the wing to its normal plowing position after it has passed over the obstruction encountered.

Provision for locking out the tripping action shall be supplied for operations requiring a rigid wing.

SPECIFICATIONS
A-15-BU-F-AW

II. GENERAL WING PLOW SPECIFICATIONS: (Continued)

B. PLOW COMPONENTS: (Continued)

The following minimum alterations shall be the responsibility of the successful vendor:

- a. Add two Timbren load booster or active ride control stabilizers.
- b. Brace right hand side plate to truck frame.
- c. Add additional steel to side plates to provide increased strength and more substantial mounting for the 7 inch cross channel.
- d. One (1) manually adjustable plow storage jack per EQN-60A.
NOTE: Pages 1 and 2 of EQN-60A indicate the general mounting arrangement desired.

INSTALLATION PRACTICES:

The use of any of the following items or practices WILL NOT BE ACCEPTED.

Non-steel fittings on hydraulic pressure lines.

Excessive use of elbows on hydraulic lines.

Use of thread tape on hydraulic fittings.

Use of galvanized fittings or components on hydraulic system.

Improper hydraulic line size.

Use of high-pressure hose for hydraulic suction line.

Scotchlok-type wire splices.

Non-insulated wire splices.

Improper hose or wire routing near exhaust, over-sharp edges or through holes without grommets, or sharp edges.

Improperly prepared, primed and painted surfaces.

Non-fused electric circuits.

Hydraulic circuits without pressure relief protection.

DIRECTIONAL CONTROL VALVE: (for a Single Right or Left Hand Wing)

The hydraulic control valve shall be a REXROTH as provided in the Dump Truck Specification.

Dual Wing Plow

Rexroth valve (To be installed on accessory plate. Section I.F.I.)

3MP18-10/C/LB01(57)L1(12)ZZ1A/LB02(57)L1(12)ZZ1A/LB02(57)L1(12)ZZ1A/Q shall control the following functions, Wing plow front post, and wing plow rear post and wing plow rear telescopic

Electronic joystick shall be of the proportional type and be of the same design as provided in the main console assembly.

SPECIFICATIONS
A-15-BU-F-AW

II. GENERAL WING PLOW SPECIFICATIONS: (Continued)

B. PLOW COMPONENTS: (Continued)

PLOW IDENTIFICATION:

Each unit shall bear the manufacturer's model number, serial number and weight affixed to the plow, by means of a permanently affixed non-rusting metallic tag located on the right hand backside of the moldboard as viewed from truck operator's seat.

PAINT:

Color: PennDOT yellow, DuPont 6808 for shade only. All metal surfaces shall be cleaned prior to primer and final painting.

NOTE: All zerk fittings shall be threaded.

CONSPICUITY TAPE:

The Rear of the wing plow shall have a strip of retro-reflective sheeting across the top and down the outside in order to outline the plow when viewed from the rear. Material shall be: 2 inch wide Reflexite Conspicuity II System of 3M Scotchlite Conspicuity Series 980, red/silver continuous backing.

TEMPLATE:

The successful vendor shall provide a metal template of the moldboard contour, including cutting edge cut out with each pilot.

Attachment G

-43-

SPECIFICATIONS

A-15-BU-F-AW

III. DRAWINGS:

EQN-16A	rev	05-16-02	3 sheets	STEEL CUTTING EDGES FOR SNOW PLOW
EQN-20X	rev	05-22-03	3 sheets	HYDRALIC SYSTEM SCHEMATIC
EQN-22	dated	02-16-00	1 sheet	FRAME MOUNTED ACCESSORY PLATE
EQN-23	rev	03-03-00	5 sheets	HYDRAULIC COMPONENT OVERVIEW
EQN-32	rev	05-22-03	1 sheet	DUMP TRUCK CHAIN BOXES
EQN-50	dated	05-28-02	5 sheets	LOW PROFILE PLOW MOUNTING
EQN-56	dated	01-02-00	3 sheets	SLIDING LADDER
EQN-60A	dated	01-29-00	3 sheets	SNOW PLOW PATROL WING GENERIC MOUNTING ARRANGEMENT
EQN-62	dated	05-28-02	2 sheets	DUMP TRUCK BED PROP SYSTEM
EQN-63	dated	05-28-02	1 sheet	DUMP TRUCK REMOTE GREASE CONNECTION
EQN-64	dated	05-22-03	4 sheets	COAL SHUTE TAILGATE-DUMPTRUCK BODY W/ALUMINUM TAILGATE
EQN-66	dated	05-28-02	2 sheets	SPLASH GUARDS – RUBBER – TRAILER & TRUCK
EQN-66A	rev	03-19-03	1 sheet	FUSEE STORAGE BOX/BRACKET
EQN-74	rev	05-22-03	4 sheets	TRUCK TYPE II & IV REAR MODULE
EQN-78	dated	07-02-97	1 sheet	CB RADIO CONNECTIONS
EQN-78A	dated	06-03-02	3 sheets	AIR TAILGATE, HARDWARE (DUMP TRUCK)
EQN-79T	dated	06-03-02	8 sheets	TRI-AXLE ALUMINUM BODY
EQN-80X	rev	05-22-03	7 sheets	DUMP TRUCK WIRING TYPE II & IV
EQN-81T	dated	06-03-02	1 sheets	ALUMINUM TAILGATE WITH BUILT-IN LIGHT BAR
EQN-82	rev	05-22-03	1 sheet	CHOCK AND HOLDER
EQN-90	rev	05-23-03	1 sheet	PUMP ASSEMBLY
EQN-91	dated	06-03-02	1 sheet	PUMP MOUNTING BRACKET
EQN-94	dated	08-15-97	2 sheets	HOSES AND COUPLERS PENNDOT DUMP TRUCK
EQN-95	rev	12-06-00	5 sheets	CONSOLE PEDESTAL
EQN-118	dated	07-08-97	1sheet	UNDER RIDE PROTECTION

SPECIFICATIONS
A-15-BU-F-AW

EQN-122	rev	05-16-02	1 sheet	DUMP BODY TAILGATE REFLECTING SHEETING
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III. DRAWINGS: (Continued)

EQN-124	dated	05-16-02	1 sheet	AUX. SNOW PLOW LIGHT PACKAGE
EQN-127	rev	05-16-02	1 sheet	REFLECTIVITY ENHANCEMENT
EQN-160	rev	02-15-00	1 sheet	CENTRALIZED LUBE SYSTEM
EQN-210B	rev	05-14-02	3 sheets	REVOLVING WARNING LIGHTS
EQN-351A	dated	08-22-97	2 sheets	FAST LUBE OIL CHANGE SYSTEM
EQN-507B	dated	05-28-02	3 sheets	CONVENTIONAL DUMP TRUCK WEIGHT DISTRIBUTION MINIMUM DATA REQUIRED / SUMMER MODE

NOTE: Drawings appear in SAE/metric.

The above referenced drawings shall become part of these specifications. These drawings reflect the intent of the Department and any discrepancies shall be resolved at the line setting ticket meeting between the vendor and the Equipment Chief, or the pre-production inspection of the truck.

DRAWINGS APPEAR AT THE END OF THE SPECIFICATIONS.

SPECIFICATIONS
A-15-BU-F-AW

IV. MANUALS:

See manual information attachment in the bid package

V. TRAINING:

See training information attachment in the bid package

SPECIFICATIONS
A-15-BU-F-AW

VI. WARRANTY:

Per PCID No. 1075 Section E.1. and additional specific warranty items.

This warranty is in effect as follows, starting from date of acceptance by the Department:

BRAKE WARRANTY:

Manufacturer's service and warranty policy for automatic slack adjusters shall be for two (2) years 100% parts only.

RADIATOR WARRANTY:

Manufacturers service and warranty policy for radiator shall be for two (2) years, 100% parts and labor plus an additional two (2) years, 100% parts only.

ENGINE WARRANTY:

The successful vendor and or supplying OEM shall provide the Department with a 100% parts and labor engine warranty FOR 60 months/ 150,000 miles minimum.

The successful vendor shall supply a copy of all items covered under their published extended engine warranty.

NOTE: the oil pan shall be warranted against corrosion, rust, rust thru etc. regardless of atmospheric conditions for 3 years, 100% parts only.

The published warranty shall be supplied with the pilot model.

TRANSMISSION WARRANTY:

Manufacturers service and warranty policy for Manual, Autoshift and Automatic transmissions shall be three (3) years 100% parts and labor

DIFFERENTIAL/AXLE WARRANTY:

SPECIFICATIONS
A-15-BU-F-AW

Manufacturers service and warranty policy for differential and axles shall be for three (3) years 100% parts and labor.

DUMP BODY WARRANTY:

Constructability and durability of body shall be guaranteed for four (4) years, parts and labor. A decal shall be affixed to the driver's door on the inside outlining this benefit and the company's name, address, phone number, and contact personnel. (Full warranty except wear and negligence).

Body hoist assembly shall be guaranteed for 3 years, 100% parts and labor.

Tailgate spring-over-air cylinder system and air to air system 2 years 100% parts and labor. .

VI. WARRANTY: (Continued)

CENTRAL HYDRAULIC SYSTEM:

Complete Central Hydraulic system and components 1 year 100% parts and labor including but not limited to the following:

- Rexroth Valve
- GL-400 Controller
- Electronic Joysticks

Complete external TPE wiring harness shall be warranted for 3 years parts only.

HYDRAULIC PUMP Manufacturers service and warranty policy for hydraulic pump shall be three (3) year 100% parts and labor.

ELECTRICAL:

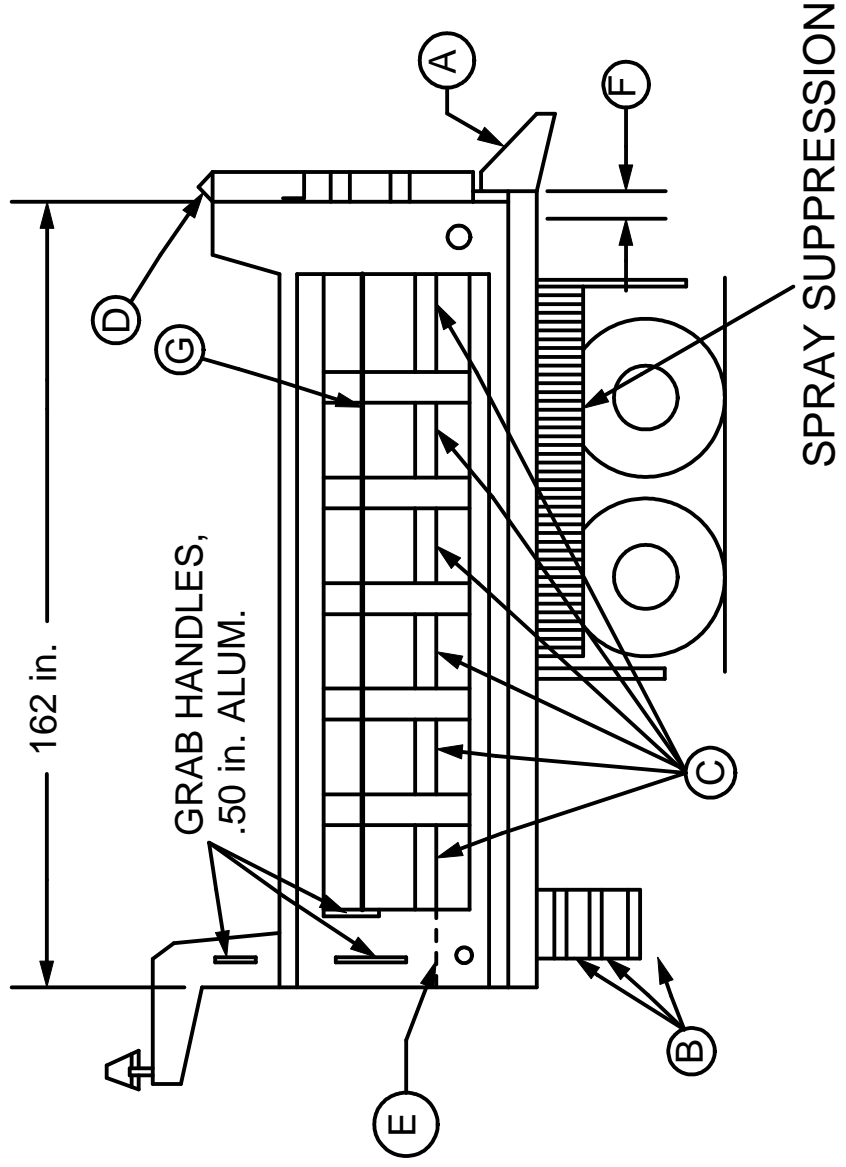
Grote wiring harness shall be 7 years 100% parts. First year shall include 100% labor.

All LED lights shall be 10 years 100% parts.

WING PLOW WARRANTY:

The manufacturers standard service and warranty policy shall be for a minimum of two (2) years. This warranty shall start on the final date of acceptance of the entire order and continue for the two (2) years thereafter, (2) full winter plowing seasons.

NOTE: WARRANTY FOR LABOR SHALL BE AT THE MANUFACTURES LOCATION OR IF A FIELD REPAIR IS COMPLETED BY PENNDOT THE MANUFACTURER SHALL REIMBURSE PENNDOT AT THE MANUFACTURES STANDARD PUBLISHED LABOR RATE.



REVISIONS	
NO.	DATE
1	09/08/95
2	12/07/95
3	08/01/96
4	09/25/97
5	06/03/02

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
DUMP TRUCK 62,000 lb. GVWR DEPT. TYPE IV TANDEM ALUMINUM BODY	DUMP TRUCK 62,000 lb. GVWR DEPT. TYPE IV TANDEM ALUMINUM BODY
DRAWN BY ED K/LLM	SCALE N/A
CHKD RED	DATE 04/12/88
DWG	MATERIAL
	DRW NO. EQN-79A
	SHEET 1 OF 10

NOTES:

MINIMUM FIVE (5) VERTICAL SIDE BRACES PER SIDE, ON PROPER CENTERS. FULL-DEPTH, FULL-WIDTH, ONE-PIECE REAR BOLSTER.

FULL DEPTH ONE-PIECE REAR CORNER POSTS.

SIDE BOARD ARRANGEMENTS BOTH SIDES AS SPECIFIED.

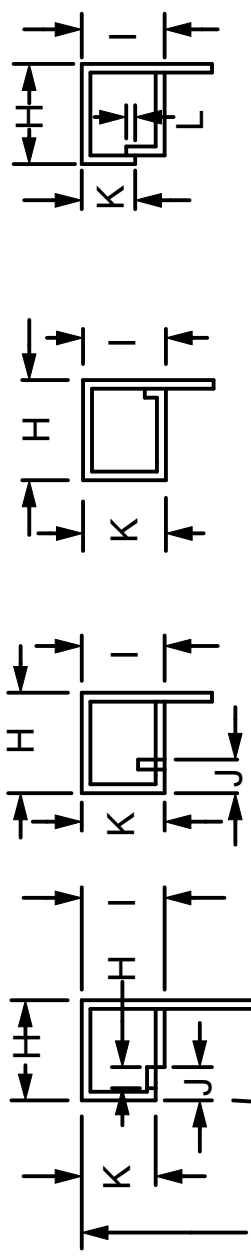
ALL BODY WELDING SHALL BE FULL WELD.

49 (+/-) 1 DEGREE DUMPING ANGLE WITH STOPS AND SAFETY DEVICES. HOLDING DEVICES FOR TAILGATE CONTROL LEVER WITH LATCH OR SAFETY DEVICES.

ALL DIMENSIONS IN INCHES

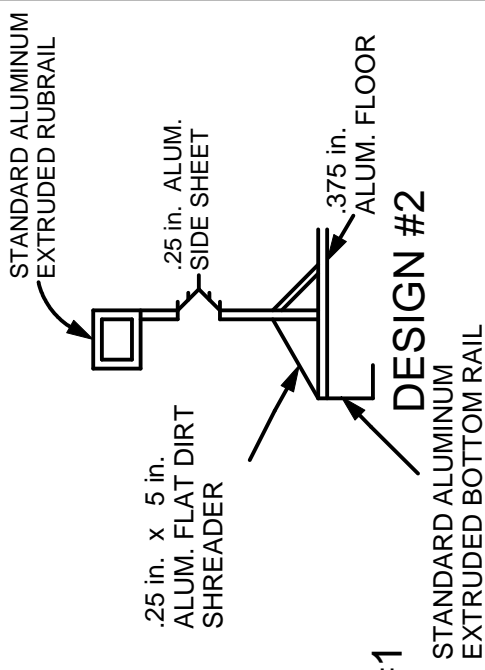
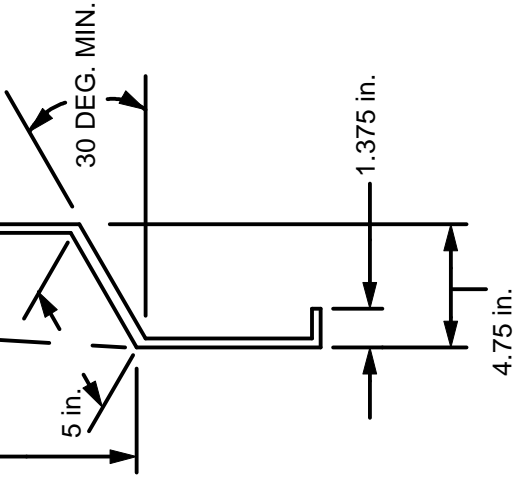
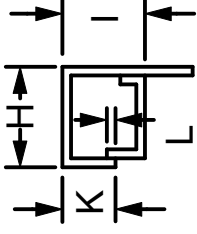
- A. 13 in. (MIN.) WIDTH ALUMINUM APRON, BOLTED. MINIMUM OVERHANG 9 in. APRON TO BE PLACED 75 (+/-) 5 DEGREE ANGLE.
- B. BUSTIN #NST4 FULL SIZE OHIO GRATING #JA2119SG4 SERRATED OR IKG INDUSTRIES TYPE BS4 SERRATED SWAGE LOCK, WITH END BAND ALUMINUM OR STEEL DEPENDING ON BODY, (MINIMUM STEP WIDTH 15 in. / FINAL MOUNTING AND LOCATION OF B,E, AND GRAB HANDLES TO BE DETERMINED AT PREBUILD MEETING.
- C. SAME AS (B) WIDTH 2.625 in.
- D. INVERTED 1.5 in. ANGLE ALUMINUM.
- E. STEP, INSIDE BED.
- F. MINIMUM SIDE SKIRT WIDTH SHALL BE 6 in. A MINIMUM OF THREE (3) .50 in. BOLTS MOUNTED NO CLOSER THAN 2.5 in. FROM EDGE. (BOLTS, NUTS, AND WASHERS USED FOR RETAINING APRON SHALL BE STAINLESS STEEL WITH THREADS COATED WITH NEVER-SEIZE.)
- G. .75 in. ALUMINUM ROUND STOCK, TARP RAIL, FULL LENGTH, BOTH SIDES.

REVISIONS		COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION			
NO.	DATE	BY	MATERIAL		
1	09/08/95	WHM	DUMP TRUCK 62,000 lb. GVWR		
2	12/07/95	SWW	DEPT. TYPE IV TANDEM ALUMINUM BODY		
3	08/01/96	WHM	DRAWN BY ED K/LLM	SCALE N/A	
4	09/25/97	DLW	CHKD RED	DATE 04/12/88	
5	06/03/02	DWG		DRW NO. EQN-79A	
				SHEET 2 OF 10	



38 in. - 42 in.

H= 4 in. MINIMUM, TOLERANCE + .625 in.
 I= .75 in., MINIMUM
 J= 1.25 in. (+/-) .25 in.
 K= 3.5 in. MINIMUM
 L= 1 in. MINIMUM OVERLAP



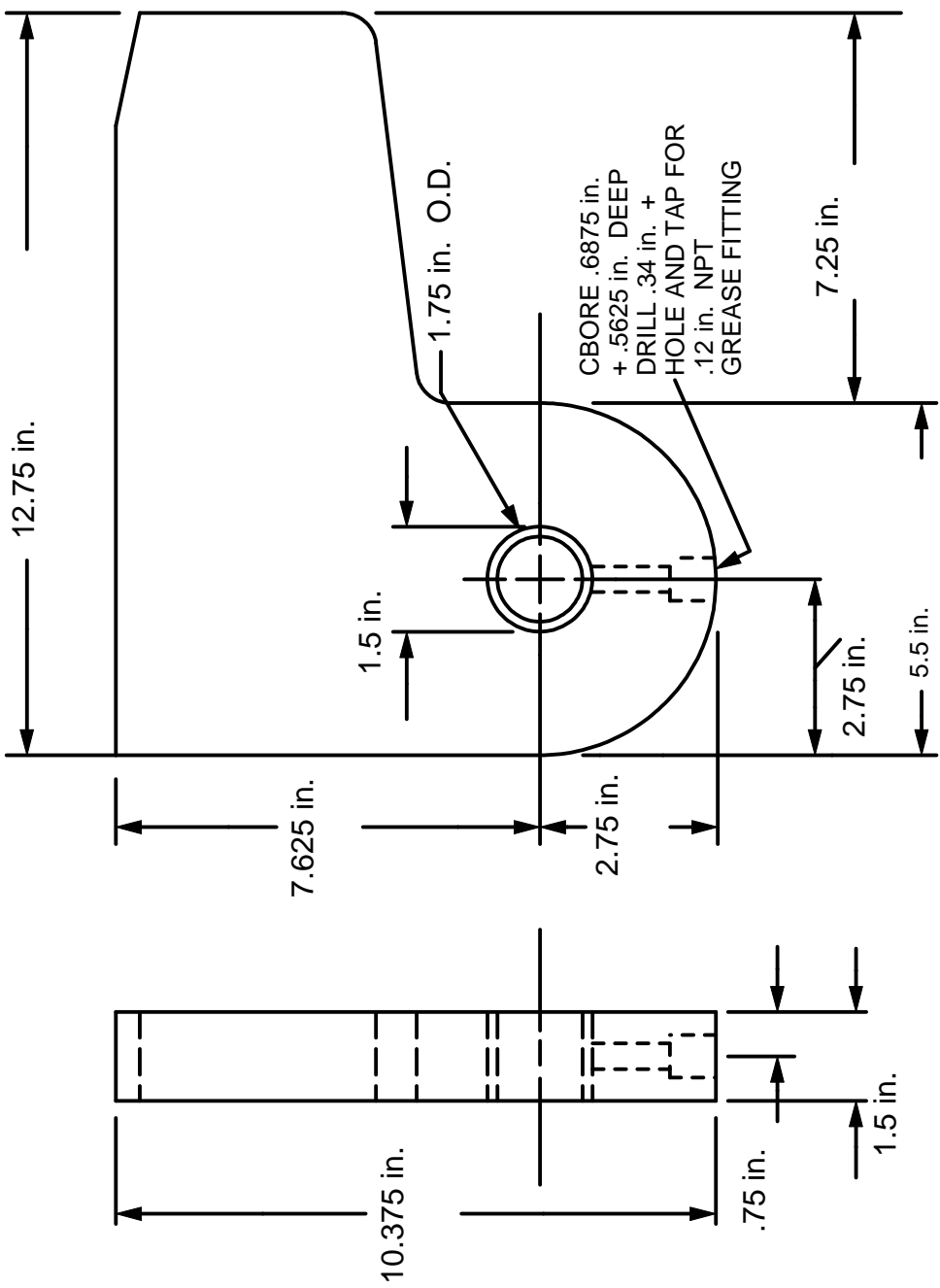
DESIGN #1

DESIGN #2

NOTES:
 SIDE SHALL BE .25 in. U.S. STANDARD ALUMINUM. TWO BEND TOP RAIL BOTH SIDED.
 FULLY BOXED TOP RAIL BOTH SIDED. BOXED TOP RAIL MAY BE FORMED OR CHANNLED OR
 EXTRUDED. BOXED TOP RAIL SHALL BE COMPLETELY CLOSED BY CONTINUOUS WELDING ON
 TOP. ONE PIECE CONSTRUCTION FOR SIDE AND RUNNING BOARD, BOTH SIDES. SLOPED
 RUNNING BOARD, BOTH SIDES. RUNNING BOARD WIDTH TO COVER OUTER REAR DUAL TIRES
 FULL LENGTH BOTH SIDES. FRONT BODY WALL SHALL BE 0.156 in. STANDARD
 ALUMINUM 5454H3. ALL DIMENSIONS IN INCHES.

REVISIONS		COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	
NO.	DATE	BY	
1	06/03/02	DWG	DUMP TRUCK 62,000 lb. GVWR DEPT. TYPE IV TANDEM ALUMINUM BODY
2			
3			DRAWN BY DLW SCALE N/A MATERIAL
4			CHK'D WHM DATE 09/25/97 DRW. NO. EQN-79A
5			SHEET 4 OF 10

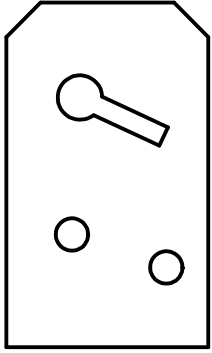
ALL DIMENSIONS IN INCHES. PRESSED BUSHING WITH GREASABLE CAPABILITY. THE EDGE DISTANCE SHALL BE A MINIMUM OF 1.75 in. THICKNESS.



DETAIL M TAILGATE HINGE

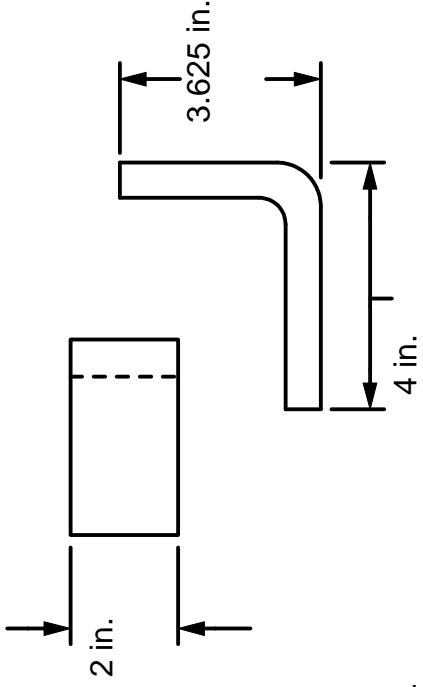
ALL STEEL HARDWARE MUST BE PRIMED AND PAINTED AND BOLTED TO PRESENT A TROUBLE FREE, NON-CORROSION SYSTEM. ANY ALTERNATIVE DESIGN OR MEASUREMENTS REQUIRE A THREE YEAR, 100 % PARTS AND LABOR WARRANTY AND AN ADDITIONAL TWO YEARS FOR A TOTAL OF FIVE YEARS PARTS ONLY WARRANTY.

REVISIONS		COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	
NO.	DATE	BY	
1	06/03/02	DWG	DUMP TRUCK 62,000 lb. GVWR DEPT. TYPE IV TANDEM ALUMINUM BODY
2			
3			DRAWN BY DLW SCALE N/A MATERIAL
4			CHKD WHM DATE 09 / 25 / 97 DRW NO. EQN-79A
5			SHEET 5 OF 10



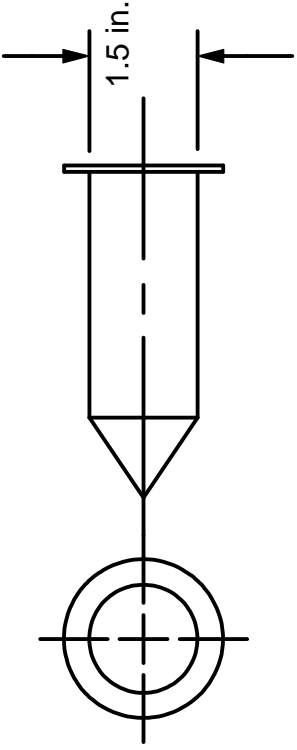
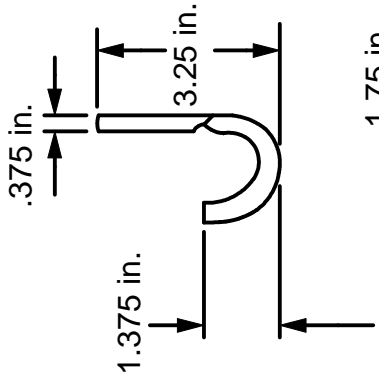
**DETAIL A
CHAIN HOLDER**

CAST OR FORGED ALUMINUM IS UNACCEPTABLE.
.5 in. / 1.27 cm. 6061 ALUMINUM FOR ALUMINUM
BODIES OR .375 in. / .95 cm. STEEL FOR STEEL
BODIES SHALL BE OVERLAPPED AND WELDED.



**DETAIL C
TAILGATE CHAIN BRACKET**

(2) PER SIDE, TOTAL OF (4) PER TAILGATE.
MATERIAL - ALUMINUM

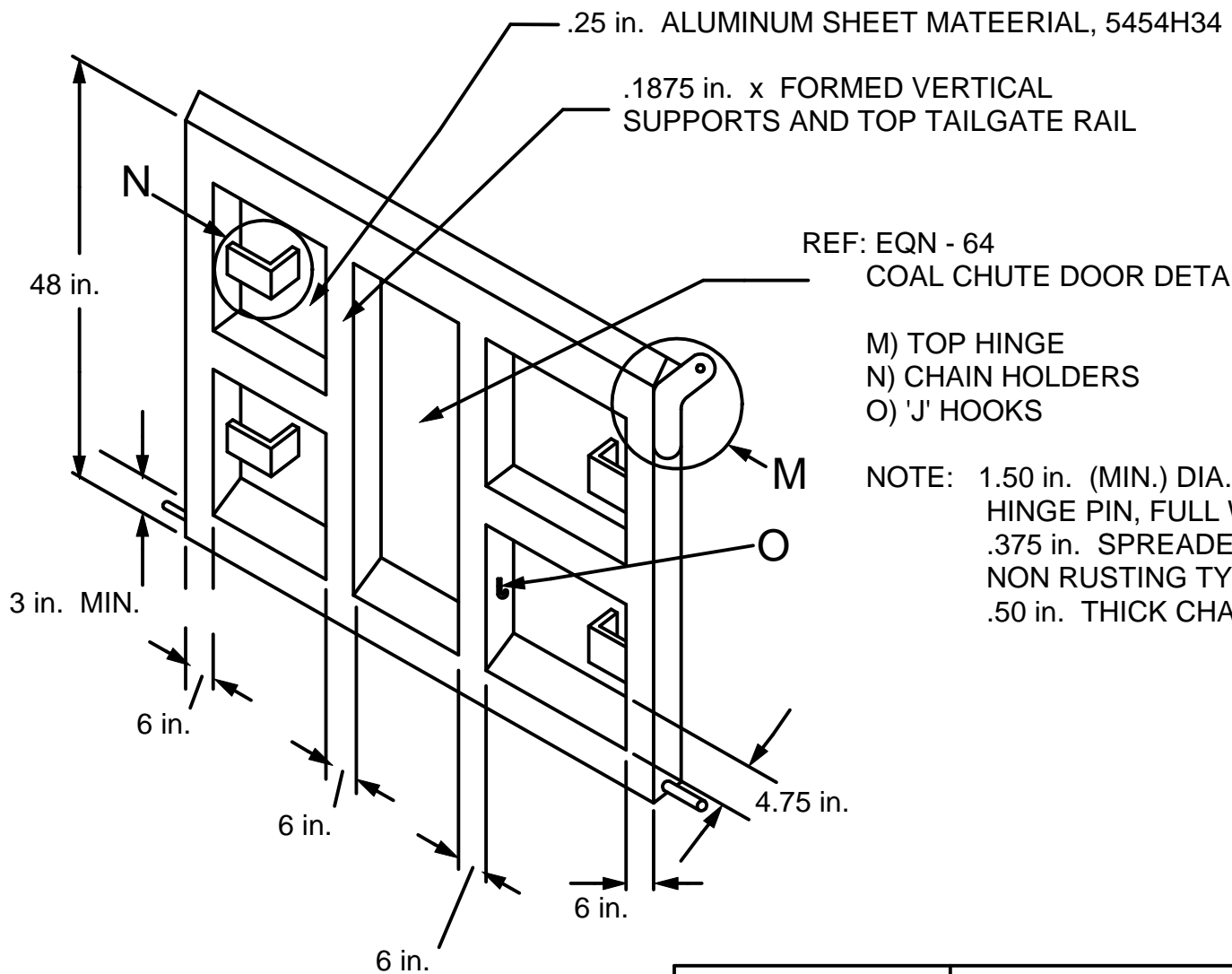


PIN LENGTH SHALL BE DETERMINED BY MFG'S DESIGN
BUT SHALL BE OF SUFFICIENT LENGTH FOR EASE OF
INSTALLATION AND REMOVAL.
PIN WITH LOCKING CHAIN OR PLATE TO PREVENT LOSS.
NON-ROTATING.
C-1020 H.R.S. STEEL BAR.
PIN BUSHINGS SHALL BE REAMED TO ALLOW FOR FREE
ROTATION, BY HAND.

SEVERE DUTY TAILGATE MOUNTING EARS WITH HD BUSHINGS, GREASE FITTINGS
SHALL BE PROVIDED. THIS IS A VERY IMPORTANT AREA AND MAY BE STEEL OR
ALUMINUM BUT MUST BE SEVERE DUTY HARDWARE. EARS SHALL BE FULL WELD.

REVISIONS

NO.	DATE	BY	COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION		
			SCALE	MATERIAL	
1	06/03/02	DWG	DUMP TRUCK 62,000 lb. GVWR		
2			DEPT. TYPE IV TANDEM ALUMINUM BODY		
3			DRAWN BY DLW	SCALE N/A	MATERIAL
4			CHK'D WHM	DATE 09 / 25 / 97	DRW NO. EQN-79A
5					SHEET 6 OF 10



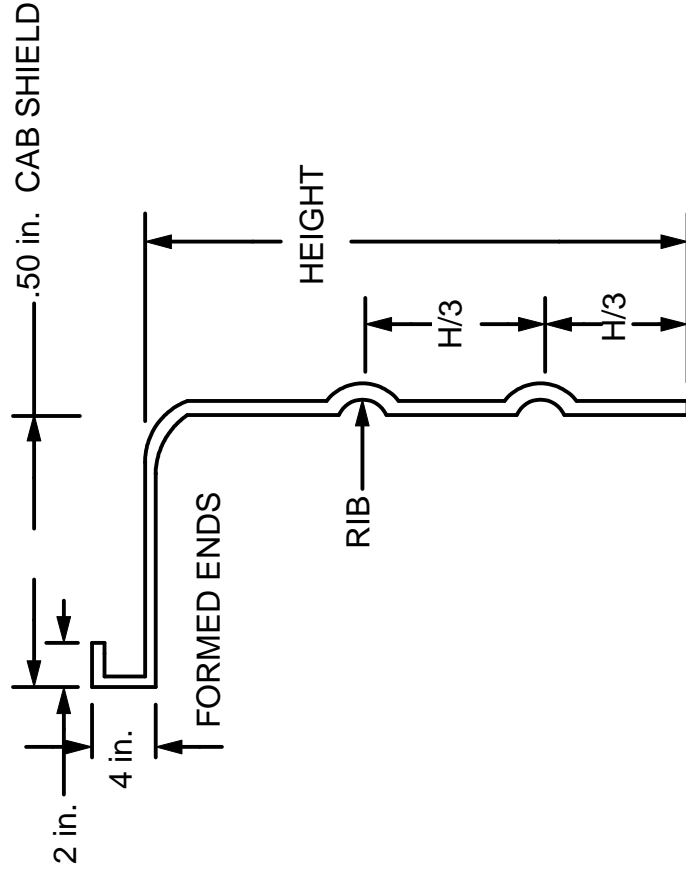
REF: EQN - 64
COAL CHUTE DOOR DETAILS

- M) TOP HINGE
- N) CHAIN HOLDERS
- O) 'J' HOOKS

NOTE: 1.50 in. (MIN.) DIA. BOTTOM HINGE PIN, FULL WIDTH.
.375 in. SPREADER CHAIN, NON RUSTING TYPE CHAIN TO SUIT
.50 in. THICK CHAIN HOLDER.

TAILGATE SLOPE REQUIRES LIGHTS TO BE CANTERED BACK

REVISIONS			COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION		
N0	DATE	BY	DUMP TRUCK 62,000 lbs. GVWR DEPT. TYPE II AND IV ALUMINUM BODY		
1	06/03/02	DWG			
2					
3			DRAWN BY DLW	SCALE N/A	MATERIAL
4			CHK'D WHM	DATE 09/25/97	DRW NO. EQN-79A
5					SHEET 7 OF 10



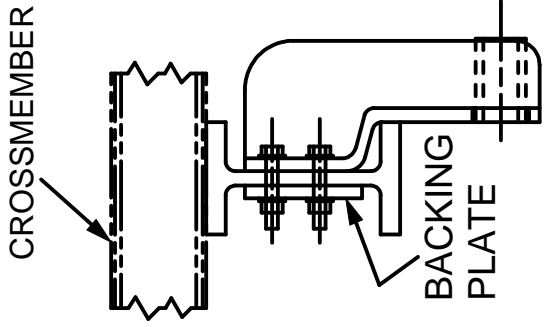
BODY FRONT AND CABSHIELD

NOTES:

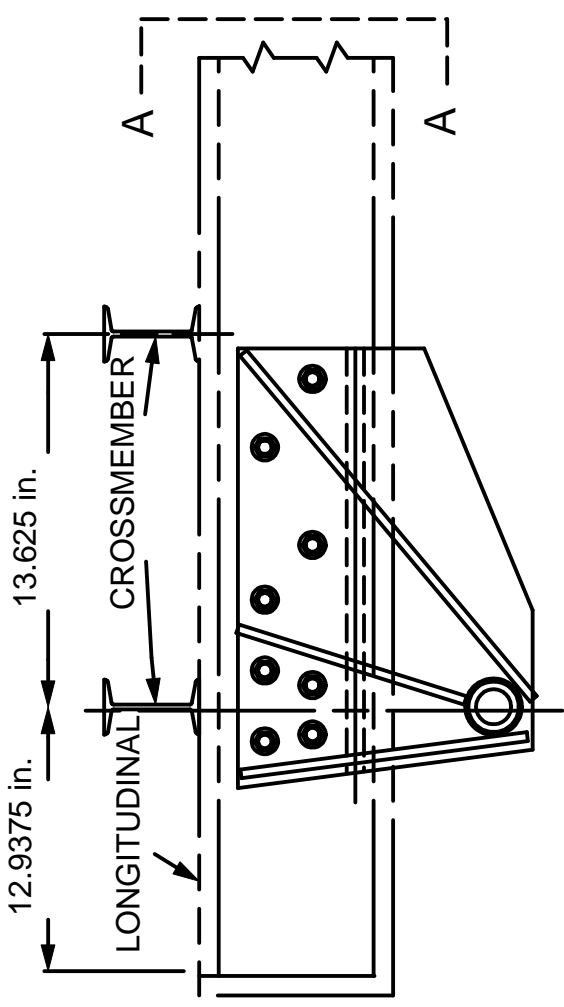
1. BODY FRONT AND CAB SHIELD SHALL BE A MINIMUM OF 0.15625 in. AND SHALL EXTEND AT A MINIMUM OVER THE CENTER OF MID CAB.
2. CONTINUOUS WELDING ON FRONT AND CAB SHIELD THROUGHOUT.
3. ONE-HALF (1/2) CAB SHIELD.
4. 4 in. LIP ON FRONT. (MIN.)
5. UNIVERSAL TYPE CAB SHIELD SHALL HAVE A MINIMUM OF THREE BRACES.
6. THE BODY CAB SHIELD SHALL HAVE SUFFICIENT CLEARANCE TO PREVENT THE CAB SHIELD FROM HITTING THE EXHAUST SYSTEM WHEN DUMPING ON UNEVEN TERRAIN.
7. ALTERNATIVE DESIGN OF RIBS SHALL BE PRE-APPROVED BY THE EQUIPMENT DIVISION.
8. FOR UNITS EQUIPPED WITH FULL POST WINGS, MODIFY CAB SHIELD.
9. FOR ALUMINUM DUMP BODIES, ANY USE OF STEEL REQUIRES CORROSION CONTROL (PAINTING) AND ELECTRO GALVANIC PROTECTION.
10. ALL DIMENSIONS IN INCHES .

REVISIONS		COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	
NO	DATE	BY	
1			DUMP TRUCK 62,000 lbs. GVWR
2			DEPT. TYPE IV TANDEM ALUMINUM BODY
3		DRAWN BY DLW	SCALE N/A
4		CHK'D WHM	DATE 09 / 25 / 97
5			MATERIAL EQN-79A
			DRW NO. EQN-79A
			SHEET 8 OF 10

VIEW A-A

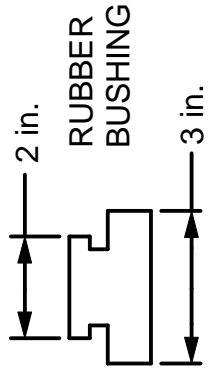
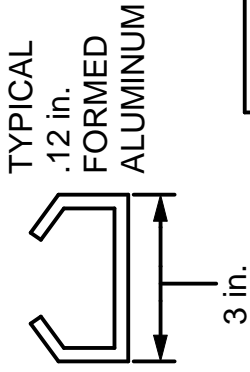


WEB MOUNTED PIVOT
PASSENGER SIDE



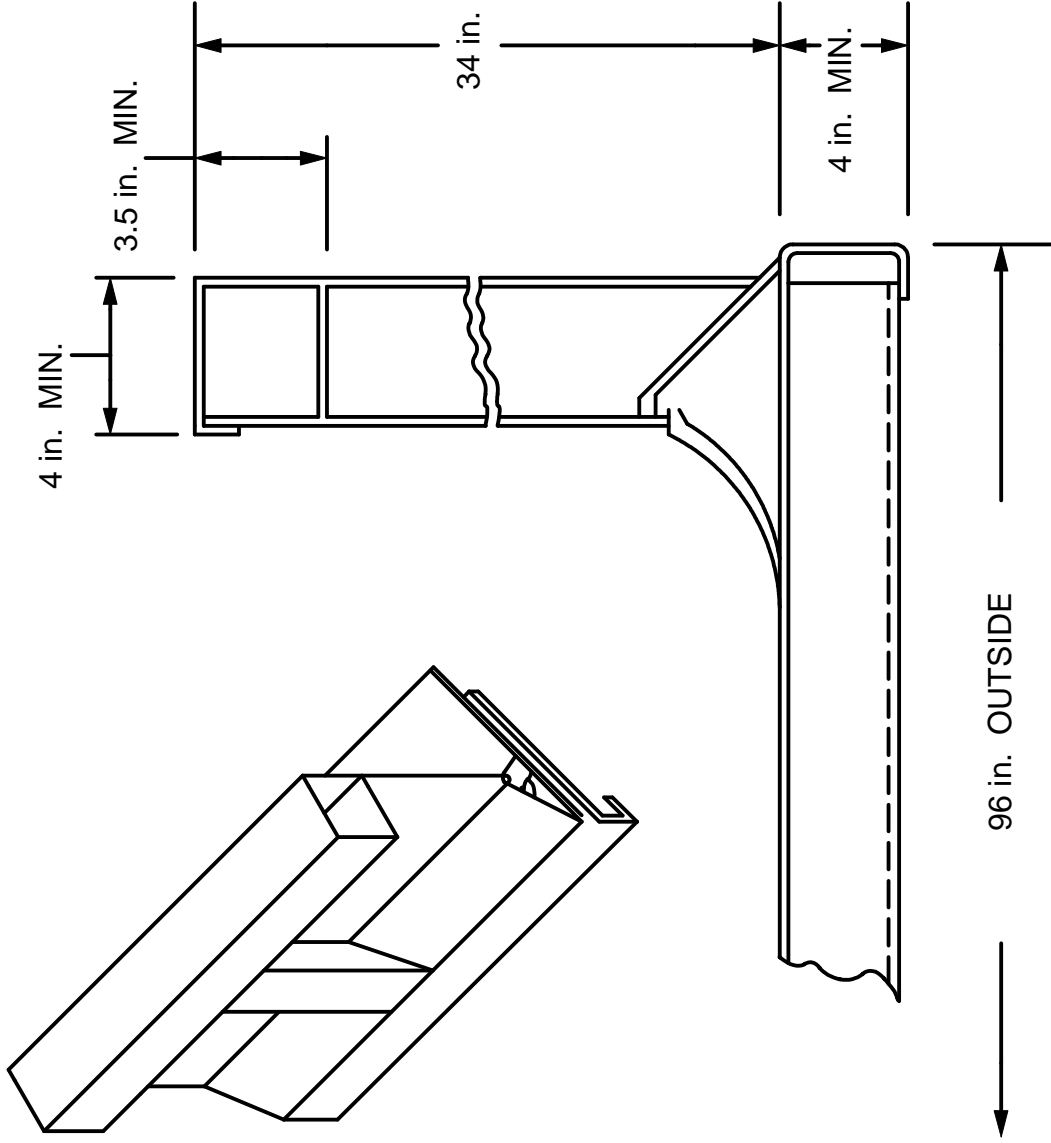
NOTES:

1. THE ABOVE STRUCTURE SHALL BE FURNISHED ON THE LAST FOUR CROSS-MEMBERS.
2. THE LAST FOUR CROSS-MEMBERS SHALL BE PLACED ON 8 in. CENTERS, WITH THE BALANCE ON 12 in. CENTERS.
3. THE BODY SHALL BE SHOCK MOUNTED TO AVOID STRESS ON ROUGH ROADS WHEN EMPTY.
4. THE WEB MOUNT SHALL BE DESIGNED FOR SEVERE DUTY SERVICE.
5. THE BOLTS SHALL BE OF GRADE 8 MINIMUM WITH SELF-LOCKING GRADE 8 NUTS.
6. THE REAR PIN HINGE SHALL BE A MINIMUM OF 2.2 in. DIA., AND THE HINGE BUSHING (GREASABLE) SHALL BE A 2.875 in. OD x 2.12 in. ID, MINIMUM TOLERANCES AND SIZES. PIN SIZES SMALLER THAN 2.116 in. ARE ACCEPTABLE IF THEY ARE STANDARD WITH A VENDOR.
7. ALL DIMENSIONS IN INCHES.
8. "FULL LENGTH" BODY TO FRAME RUBBER MOUNTING SYSTEM.
9. ANY VARIATION TO THIS DESIGN REQUIRES, PRIOR TO BUILD, WRITTEN AUTHORIZATION.



REVISIONS		COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION			
NO.	DATE	BY	SCALE	MATERIAL	
1	06/03/02	DWG			
2					
3			DLW	N/A	
4			WHM		
5					

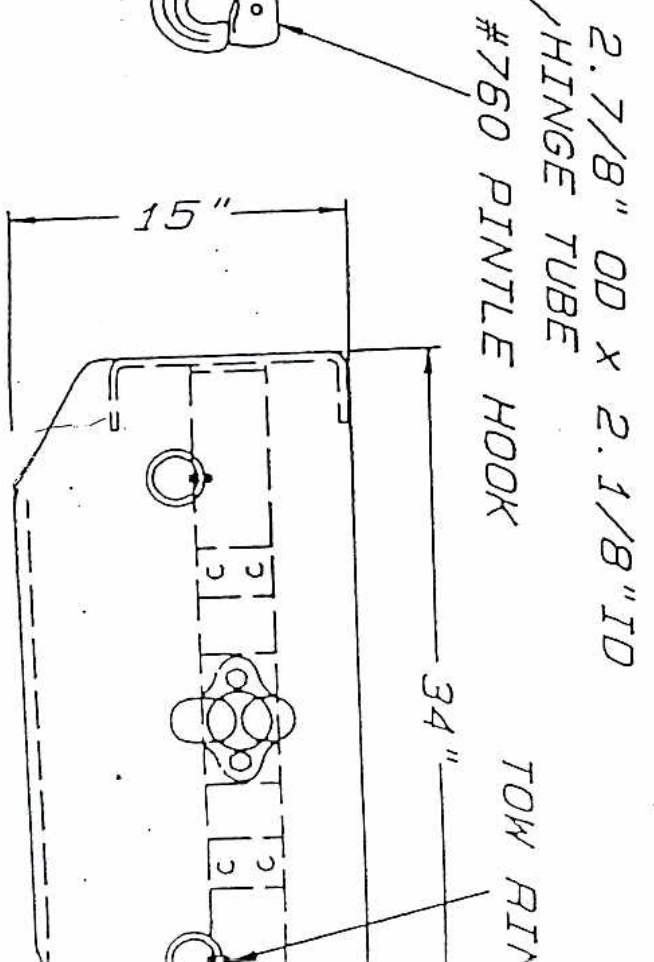
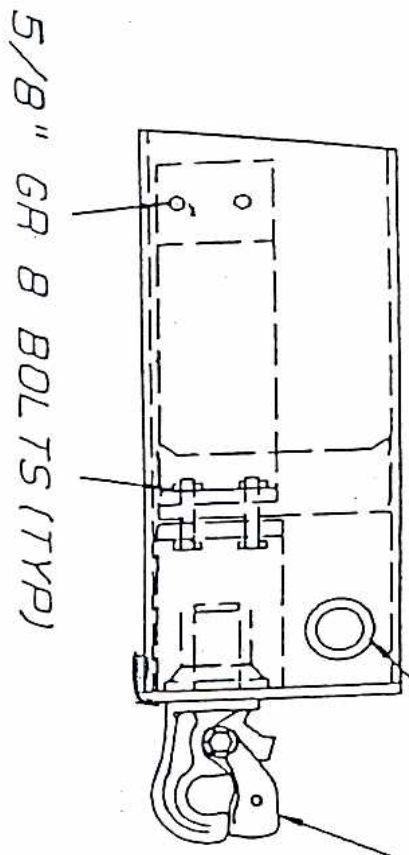
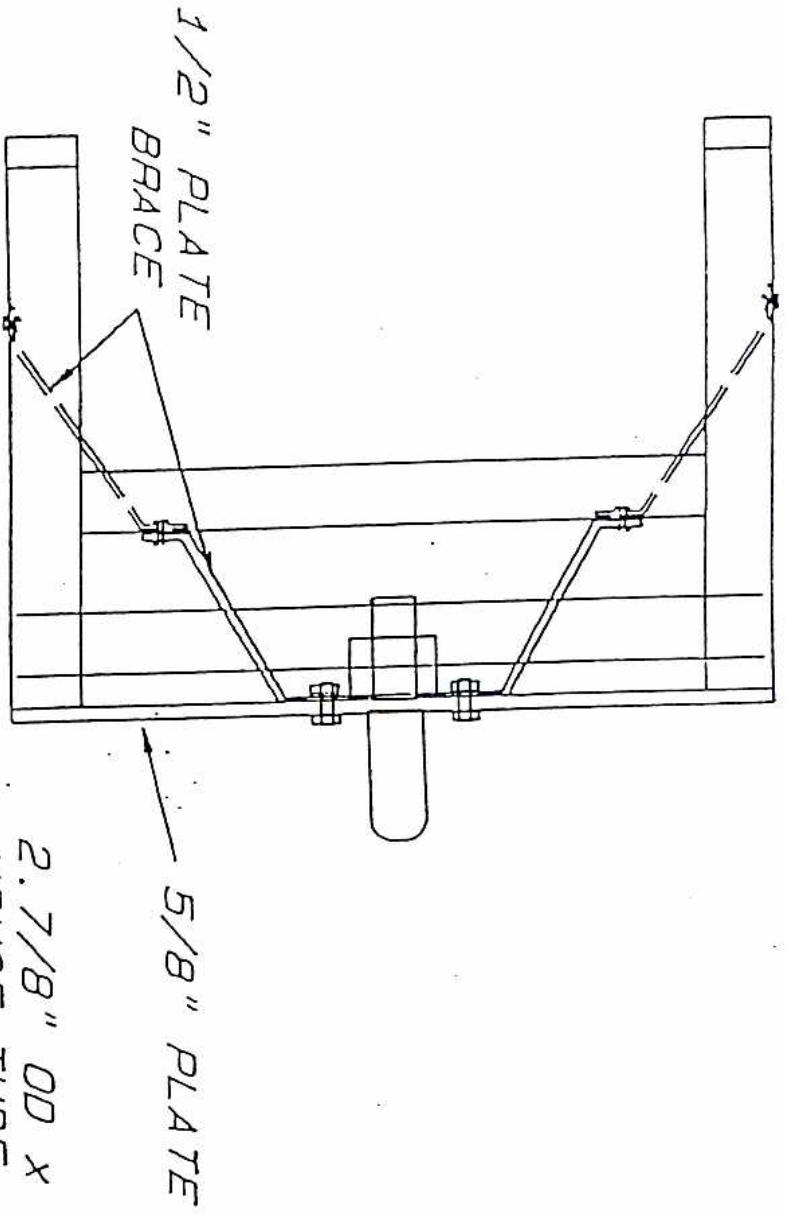
DUMP TRUCK 62,000 LB. GVWR		DRW. NO.	EQN-79A
DEPT. TYPE IV TANDEM ALUMINUM BODY		DATE	09 / 25 / 97
DRAWN BY DLW		SCALE	N/A
CHK'D WHM		DATE	09 / 25 / 97



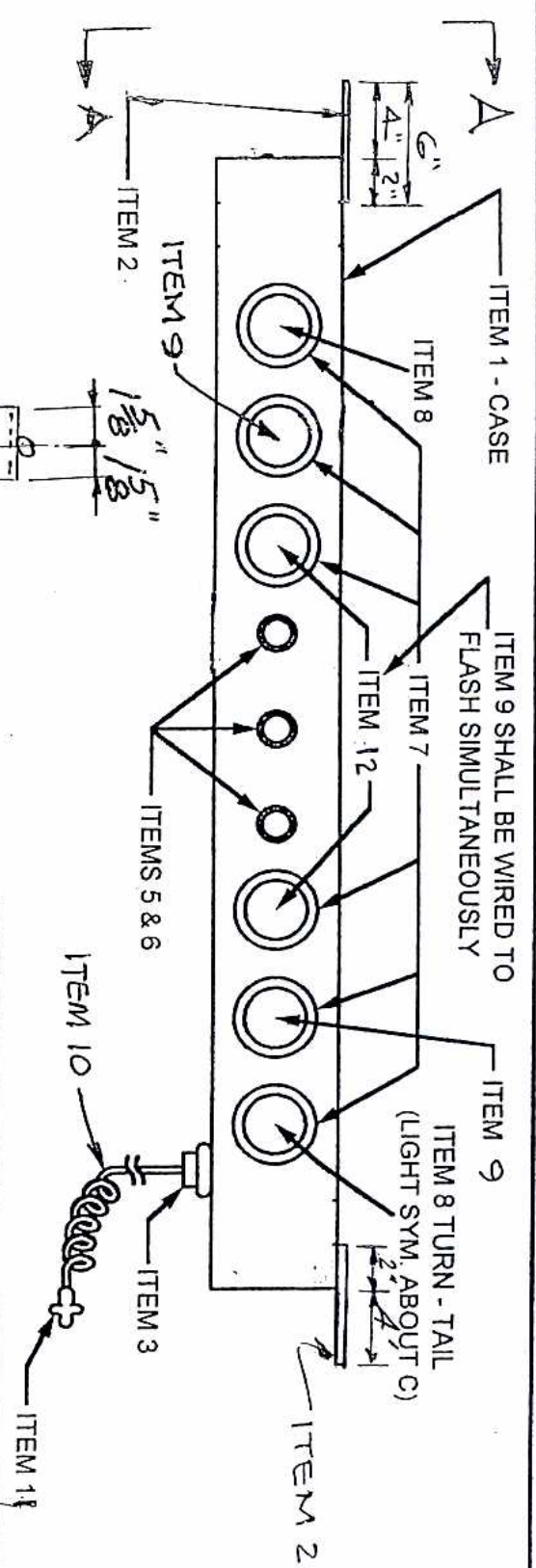
REVISIONS	
NO.	DATE
1	06/03/02
2	
3	
4	
5	

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	
DUMP TRUCK 62,000 lb. GVWR DEPT. TYPE IV TANDEM ALUMINUM BODY	
DRAWN BY	DLW
SCALE	N/A
DATE	09 / 25 / 97
CHK'D	WHM
MATERIAL	
DRW NO.	EQN-79A
SHEET 10 OF 10	

PINTLE HOOK MOUNT ON 5/8" STEEL PLATE SUPPORTED TO FRAME AND CROSSMEMBER



13B-43



NOTE: SECT A-A

Assy to be delivered completely assembled and ready for installation.
 3M type connectors are unacceptable.
 Items 10-13 shall be Stainless Steel.
 All connections shall be sealed plug-in coated with dielectric grease.

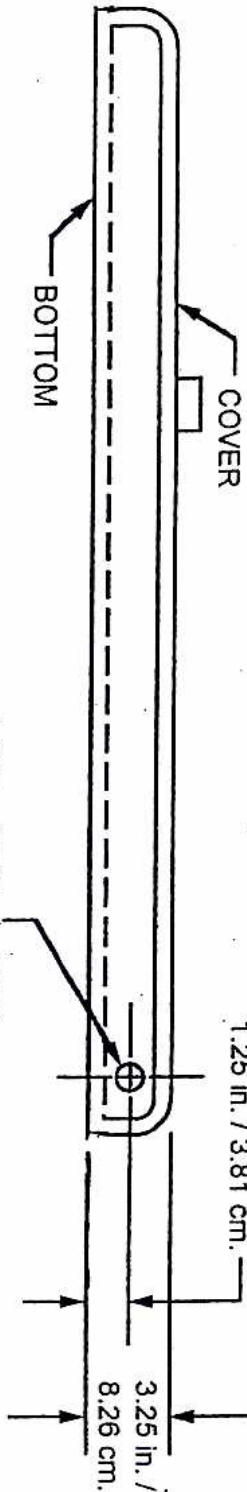
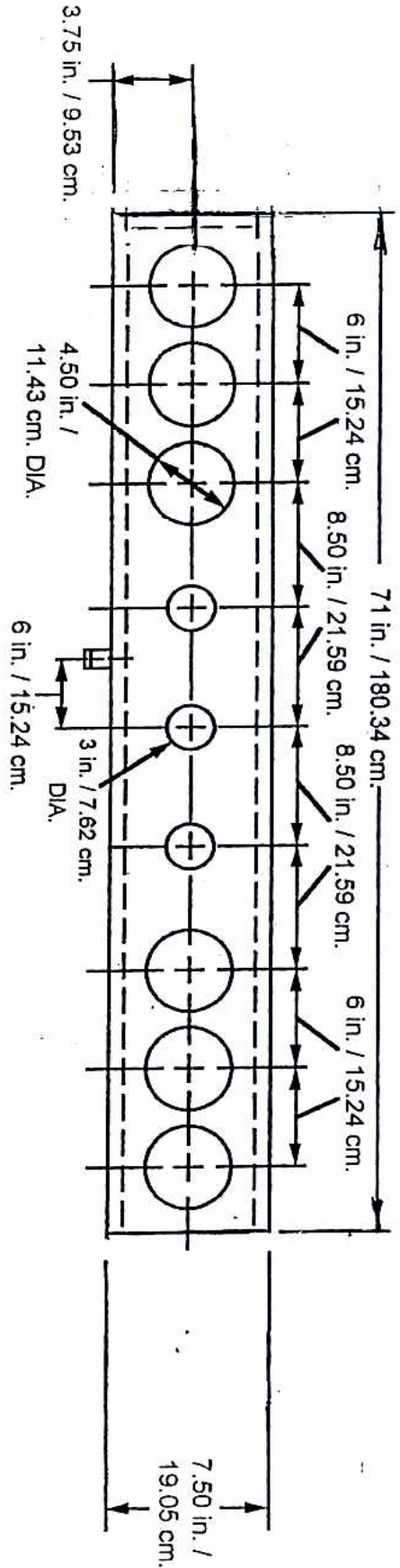
* One end severed and hard wired within case.
 HEAVY DUTY FLASHER REQUIRED FOR AMBER LIGHT LAMPS.
 7-WAY WIRE LEGEND: DATA COLOR
 CODE-ASTM-D-1693

Item	Description	Qty.	TRUCK LITE
1.	Case, Light Module	1	
2.	Brtks, Light Module, Instl	2	5/8" Φ R ₀₀ X 0'-6
3.	Compression Fitting		
4.	Wire Harness (Includes 7 Way Plug)	1	<u>SERIES 50</u>
5.	Grommet, Cluster	3	107 CO
6.	Light Cluster	3	10250R
7.	Grommet, 4 in.	6	40700
8.	Sealed Light, s/Wt Dbl Con	2	44202P
9.	Amber Lamp	2	44203Y
10.	Power Cord 6'	1	9715B
11.	PLUG	1	
12.	BACK-UP LIGHT	2	44205C

REV 2 →
 REV 2 →
 REV 2 →

REVISIONS			PENNSYLVANIA TURNPIKE COMMISSION		
NO.	DATE	BY	DRAWN BY	SCALE	MATERIAL
1	2-26-02	HMM	HMM	N/A	
2	5-15-03	HMM	HMM	N/A	
3					
4			CHKD	DATE 4-10-00	DRW NO.
5					

LIGHT MODULE



* ACCESS REQUIRED TO SERVICE UNIT SHALL BE MADE THRU LIGHT HOLES/S

REVISIONS			P.T.C.	
NO.	DATE	BY		
1			LIGHT MODULE DRAWN BY H.M. SCALE: N/A DATE 4-10-00 MATERIAL: _____ CHKD _____ DRAW NO. _____	
2				
3				
4				
5				

Contract Reference Number: 1302-02
Collective Number: Cn00009778
Change Number: 1
Change Effective Date: 6/22/2005

**COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG**

For: All using Agencies of the Commonwealth
Subject: Heavy Dump Truck
Contract Period: Beginning October 1, 2004 and Ending September 30, 2005
Buyer Name: Alfonzo Robinson 717-346-8181

CHANGE SUMMARY:

In accordance with the Option to Renew Clause in the contract, the Commonwealth and the **Mack Only** mutually agree to renew this contract for an additional one-year period. This contract is now renewed for a period starting October 1, 2005 and terminating on September 30, 2006.

ALL OTHER TERMS AND CONDITIONS OF THIS AGREEMENT NOT CHANGED BY THIS CHANGE NOTICE REMAIN AS ORIGINALLY WRITTEN.