4160B-4175B

BOTTOM DUMP COAL HAULER

GROSS ENGINE HORSEPOWER
1050 hp - 783 kW

MAXIMUM GVW-APPROXIMATE
4160B  580,410 lb - 263,000 kg
4175B  614,077 lb - 278,540 kg
Dart 4100 History

Dart has been a world leader in durable mechanical-drive bottom dump trucks since the 1920’s. Hundreds of bottom dump 4100 series trucks were delivered starting in 1965. This series was upgraded in 1976 with a rigid box chassis design. Hundreds more were built and are still in service around the world in a wide range of mining applications. The rugged box frame and robust drive train components have logged literally millions of successful operating hours. Its upgrade in 2012 to the 4100B is the continuing evolution of its highly successful lineage to add ROPS cabs, tier certified engines, all wheel oil-cooled disc brakes, axle upgrades and many other modern features.

Operators Station and Control

- Built-in ROPS/FOPS Cab
- Spacious Cab with Excellent Visibility
- Ergonomically Designed Cab
- Dual Digital Instrumentation Display
- Full-size Driver and Trainer Air Ride Seats
- Acoustically Engineered and Vibration Isolated

Safe • Simple •
Durable • Innovative

Power Train
- Optional Cummins QST30 Tier II Engine
- Optional MTU 2000 Tier 4i Engine
- Allison H9610 Six Speed Transmission
- Dart D250 Drive Axle Assembly
- Gear Ratio Matched to Mine Specific Application

Structures
- Proven Durable Dart Box Beam Frame
- Integral Operator Diagonal Boarding Stair
- Decking and Railing for Operator Safety
- 300 Gal Fuel Tank Provides 20+ Hours of Operation
- Hydraulic Tank with Large Access Covers for Service and Ground Visible Oil Level Check
- Isolated Steering Tank Oil Reservoir
- Automatic Lubrication System

Braking and Retarding
- Oil-cooled Multiple Disc Brakes
- Hydraulic Braking System
- Spring Applied Parking Brake on All Disk Brakes
- Integrated Downhill Retarding System
- Drive Axle Traction Control
- Automatic Retarder Control Aids in Preventing Engine Overspeed, Eases Operation and Maximizes Productivity

Suspension
- Large Front Gas-oil Strut Suspension
- Drive Axle Gas-oil Strut Suspension
- Five Rod Frame to Axle Connection System
### CUMMINS ENGINE

- **Model:** Cummins QST30 Tier 2
- **Type:** Water-cooled 4-cycle
- **Aspiration:** Turbo-charged/charge air-cooled
- **Number of Cylinders:** 12
- **Bore and Stroke:** 5.51” x 6.50”/140mmx 165mm
- **Rated Horsepower:** SAE J1995 Gross 1050 HP/783 kW @ RPM 2,100
- **Fan Drive Type:** Thermostatic hydraulic—clutching
- **Maximum Torque:** 3414 lb. ft./4629 N-m
- **Fuel System:** Direct injection
- **Governor:** Electronic control
- **Lubrication System:** Gear pump, force-lubrication
- **Filter:** Full-flow type
- **Pre Lube System**
- **Air Cleaner - Dry type / double elements pre-cleaned with dust indicators**

*Optional 1,200 Horsepower engine available

*Optional Tier 4 engine configuration available

### MTU ENGINE

- **Model:** MTU 12V 2000 C66 Tier 4
- **Type:** 12V
- **Aspiration:** Two-stage turbocharge / air cooled
- **Number of Cylinders:** 12
- **Bore and Stroke:** 5.3” x 6.15”/135mmx 156mm
- **Rated Horsepower:** 12V–1050 HP/783 kW @ RPM 2,100
- **Fan Drive Type:** Thermostatic hydraulic - clutching
- **Maximum Torque:** 12V–3423 lb. ft./4640 N-m
- **Fuel System:** Electronically controlled common-rail injection system
- **Governor:** Electronic control
- **Lubrication System:** Forced feed lubricating system with piston cooling
- **Filter:** Multi-stage oil filter
- **Pre Lube System**
- **Air Cleaner - Dry type / double elements pre-cleaned with dust indicators**

### TRAILER BODY

**Body (4160B):**
- **Capacity Struck:** 193 yd³ - 147.0 m³
- **Capacity Heaped (3:1):** 216 yd³ - 165.1 m³
- **Payload:** 160 US tons - 145.2 metric tons

**Body (4175B):**
- **Capacity Struck:** 211 yd³ - 161.1 m³
- **Capacity Heaped (3:1):** 236 yd³ - 180.5 m³
- **Payload:** 175 US tons - 158.7 metric tons

### DRIVE AXLE

- **DA250:** Tubular drive axle housing with bolt on corner groups Double reduction gearing with two piece axle shafts and continuous pressure lubrication, filtration, and oil cooling.

### GEAR RATIO:

- **Differential:** 3.73:1
- **Planetary:** 7.85:1
- **Total:** 29.28:1

### ALTERNATE GEAR RATIO:

- **Differential:** 3.15:1
- **Planetary:** 7.85:1
- **Total:** 24.73:1
STEER AXLE / STEERING

Meets SAE J1511, ISO 5010
SA132 – Steer axle beam is rigid box construction with knuckle type spindles and king pins.
Hydrostatic power steering. Closed center type system minimizes parasitic loss. Utilizing accumulators for quick response.
System uses twin double acting hydraulic cylinders. Steering system and brake application are operationally independent from other hydraulic systems on the truck to prevent system cross contamination.
Supplementary steering electrically driven hydraulic motor allowing three full 90° turns in the event of engine or pump failure
SAE Turning Radius.................................34’3”- 10.4m
Maximum Steering Angle..................................40°
Wall to Wall Turn Clearance.............................80’0”- 24.4 m

MAIN FRAME

Type.............................190” Wheel Base Box Section Structure
Strategically located castings for high stress areas with integral front bumper and operator staircase. The integral ROPS is an extension of the truck frame. Front tow hooks standard.

BRAKES

Meets ISO 3450
Rear - Fully hydraulic control, oil cooled, multiple-disc type
Trailer - Fully hydraulic control, oil cooled, multiple-disc type
Brake Surface - Rear.................................13,924 in² - 89,838 cm²
Brake Surface - Trailer..............................13,924 in² - 89,838 cm²
Service Brake - Pedal operated and modulated up to 100 % of braking effort.
Park Brake - Spring applied, multiple disc-type (all wheels)
Retarder - Rear and trailer brakes applied at a 40/60 rear/ trailer ratio. Application modulated up to 80% of full braking. Column mounted control lever.
Secondary Brake - Controlled and modulated by red pedal operation.
Emergency Brake - Automatically spring applied in the event of engine failure or loss of hydraulic pressure.

TRANSMISSION

Model........................................Allison H9610 Remote Mounted
Torque Convertor..........................3-Element,1-Stage, Polyphase
Transmission............................Constant Mesh Spur Type Planetary
Lockup Clutch............................Wet, Hydraulic Multi-Disc Clutch
Shift Control...........................Fully Automatic CEC5 Electronic Controls
Gear Range............................6 Forward Speeds, and One Reverse
Ranges / Ratio:
1st - 4.24:1
2nd - 3.05:1
3rd - 2.32:1
4th - 1.67:1
5th - 1.00:1
6th - .072:1
Reverse - 5.75:1

WEIGHT (4160B)

Empty Weight...............................260,410 lb. - 118,119 kg
Max Gross Vehicle Weight...........580,410 lb. - 263,269 kg

Weight Distribution:
Empty:
Steer Axle.................................87,230 lb. - 39,566 kg
Drive Axle......................................91,726 lb. - 41,606 kg
Trailer Axle..............................81,454 lb. - 36,946 kg
Loaded:
Steer Axle.................................112,038 lb. - 50,819 kg
Drive Axle......................................229,058 lb. - 103,898 kg
Trailer Axle..............................239,314 lb. - 108,551 kg

WEIGHT (4175B)

Empty Weight...............................264,077 lb. - 119,783 kg
Max Gross Vehicle Weight...........614,077 lb. - 278,540 kg

Weight Distribution:
Empty:
Steer Axle.................................87,623 lb. - 39,745 kg
Drive Axle......................................93,901 lb. - 42,592 kg
Trailer Axle..............................82,553 lb. - 37,445 kg
Loaded:
Steer Axle.................................115,180 lb. - 52,244 kg
Drive Axle......................................246,458 lb. - 111,791 kg
Trailer Axle..............................252,439 lb. - 114,504 kg
4160B-4175B BOTTOM DUMP COAL HAULER

SPECIFICATIONS

ELECTRICAL SYSTEM

Electrical System .................................................. 24V
Batteries 8D .......................................................... 4
Headlights – LED .................................................. 4
Clearance/Parking Marker Lights – LED ..................... 4
Stop/Tail Lights – LED ........................................... 2
Turn Indicators – LED ............................................. 6
Reverse Lights – LED ............................................. 2
Reverse Alarm ....................................................... 1
Engine Compartment Lights – LED ........................... 2
Boarding Stair Lighting – LED
Back Work Lights .................................................. 2
PowerPort - 12 VDC ............................................... 2
Ground Level Engine Shutdown ................................. 1
Master Battery Disconnect - Lock Out/Tag Out ............. 1
Electric Starter .................................................... 2

TRAILER HYDRAULIC SYSTEM

Systems Are Strained and Filtered
Door Cylinder .................................................... 5.00” Dia. Bore
Gallons (ltr.) Per Minute ...................................... 125 - (473 ltr.)

TRACTOR SUSPENSION

Two low pressure nitrogen charged oil filled self
contained hydraulic struts on steer and drive axle.
Five rod axle to frame connections.
Effective Steer Suspension Stroke .......................... 5.0”
Effective Rear Suspension Stroke ........................... 6.25”

SAFETY

• Certified ROPS Cab and Structure
• Integral Diagonal Boarding Staircase with Night Time
  Illumination. Switched at Ground Level or in Cab
• Ground Level Engine Shutdown
• Slip Resistant Foot Traffic Areas
• Lock Out / Tag Out Location
• Supplemental Steering
• Boarding and Decking Handrails/Toe Boards
• Engine Compartment and Drive Shaft Protective Guards
• Mud Flaps
• 12 Nozzle Fire Suppression System
• 10 lb. Hand Held Fire Extinguisher
• Ground Level Chock Block Holder

ROPS Cab Meets ISO 3471: 2008 ROPS
Criteria CSAB352.2-95
FOPS Meets ISO 3449: 2005 Level II FOPS Criteria
Integral ROPS/FOPS Cab Assembly
• Two Full-Size Cab Access Doors
• Operator and Passenger Electrically Operated Windows
• Center Console Contains Dump Body Control and
  Transmission Gear Selector / Economy Mode Switch
  Window Controls, Cup Holders
• Tilt and Telescoping Steering Column with Integral
  Horn Button, Turn Signal Switch and Headlight Dimmer
• Pressurized, Filtered Heater, Air Conditioner, Defrost
• Air Suspension Severe Duty, Operator and Passenger
  Seats with Built in Air Compressor
• 3-Speed Widshield Wipers with 1 Gallon Wash Tank
• Operator Accessible Sealed Rocker Switches for Trouble
  Free Operation
• Engine and Transmission Diagnostic Ports
• AM/FM Radio with Auxiliary Input Jack
• Mounting and Pre-wired for Two-way Radio
• Cup Holder and Lunch Box Tie Down Location
• Air Filter Restriction Indicator
• Circuit Breaker Panel
IN DASH DISPLAY

- Twin Full Color Powerview LCD Displays That Monitor Vehicle Functions, J1939 Compliant
- Speedometer
- Tachometer
- Gear Selected/Gear Attained/Lock Up Indicator
- Engine Oil Pressure, Temperature
- Transmission Pressure, Temperature
- Brake Temperature
- Differential Temperature
- Hydraulic Temperature
- Voltmeter
- Fuel Level
- Hour Meter (engine and vehicle)
- Activation Indicators
- Park Brake
- Retarder
- Automatic Retarder Control
- Traction Control
- Engine, Transmission, Brake, Auto Lube Fault ind.

RIMS / TIRES

Standard Rim Assembly.................................19.5 x 49
Standard Tire..................................................27.00R49

WARNINGS

- Steering Tank Oil Level
- Brake/Hydraulic Temperature
- Hydraulic Tank Oil Level
- Drive Axle Oil Level
- Differential Pressure Loss
- Engine Overspeed
- Air Filter Clogging

LUBRICATION / FLUIDS

- Electrically Driven Automatic Lubrication System
- Fast Fill Fuel Receiver to Accept 150 GPM
- Centralized Ground Level Quick Connect Oil Evacuations

HITCH

20" Diameter Universal Ball Hitch with Bronze Bushings.

SERVICE CAPACITIES

Fuel Tank (standard).........................300 U.S. Gal. - 1,136 ltr.
Engine Oil...........................................34.1 U.S. Gal. - 129 ltr.
Planetaries......................................34 U.S. Gal. - 128 ltr.
Suspension (Total).........................25 U.S. Gal. - 95 ltr.

OPTIONS

Body
- Door Arm Safety Pins
- Rock Ejectors / Mud Flaps
- Mine Site Specific Trailer Body Design

Electrical System
- Fog Lights
- High Capacity Alternator
- Bluetooth Radio
- Extra Truck Lighting

Other
- High Capacity Fuel Tanks
- Fire Extinguisher (Additional 10lb.)
- Standard Fan/Hub (Non De-clutching)
- High Efficiency Fan
- Transmission P.T.Os and Pumps
- Vehicle Safety Striping
- Ground Level Remote Jump Start Station

Cold Weather
- Fuel Heater
- Engine Pan Heater
- Transmission Pan Heater
- Engine Coolant Heater
- Heated Mirrors

Accessories
- Wheel Chocks
- Electrically Operated Automatic Lubrication
- Payload Monitoring System
- Reverse Camera
- Front & Rear Detection Radar
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DIMENSIONS

TRUCK - TRAILER
DIMENSIONS

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CONFIGURATION
CALCULATION GUIDE:

1. Select gross vehicle weight on top scale.
2. Drop vertically to adverse grade percentage line (Note: rolling resistance has not been included in percentage lines.)
3. From intersection, follow horizontally to the left or right to intersect gear range, either for retarding or adverse grade performance.
4. Drop vertically from this point to the base line for indicated vehicle speed.
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1. Select gross vehicle weight on top scale.
2. Drop vertically to adverse grade percentage line (Note: rolling resistance has not been included in percentage lines.)
3. From Intersection, follow horizontally to the left or right to intersect gear range, either for retarding or adverse grade performance.
4. Drop vertically from this point to the base line for indicated vehicle speed.

![Diagram of Retarding (3.15 Diff) Performance](image1)

![Diagram of Retarding (3.73 Diff) Performance](image2)
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