

EH series

HITACHI

EH

3500ACII



## DUMP TRUCK

- **Model Code** : EH3500ACII
- **Nominal Payload with Standard Equipment** : 168 tonnes (185 tons)
- **Maximum GMW with Standard Tires** : 325 000 kg
- **Engine** : Cummins QSK50  
Rated Power 1 491 kW (2 000 HP)

# Refined engineering and advanced Hitachi AC Drive system technology has created hauling capability well recognized in the surface mining industry.

The EH3500ACII continues to prove itself as an exceedingly capable and reliable solution to mine applications worldwide.



## AC Drive Proven Performance & Economic Advantages



The Hitachi engineered AC drives make your hauler a more valuable asset in your mining operation. Better performance, higher availability, and significant reductions in maintenance and operating costs - result in a lower cost per tonne and a higher return on your investment.

## High-Powered Engine



The Cummins QSK50 engine with 1 491 kW provides excellent reliability and low fuel consumption while meeting the emission regulation of U.S. EPA Tier 2.

## Long Frame Life



A fabricated box section and rectangular frame rail construction provides superior resistance to bending and torsional loads. One-piece top and bottom flanges eliminate cross member tie-in joints and provide a larger exposed center area for access to major components.

## Tough Body



The Hitachi horizontal stiffener design minimizes stress concentrations by dissipating load shocks over the entire body length. Closely spaced stiffeners provide additional protection by minimizing distances between unsupported areas.

Well Matched: EH3500ACII & Excavators

Excavator	EX2500-6		EX3600-6		EX5500-5	
	BH	LD	BH	LD	BH	LD
Front						
Bucket	15.0 m <sup>3</sup>	15.0 m <sup>3</sup>	22.0 m <sup>3</sup>	21.0 m <sup>3</sup>	29.0 m <sup>3</sup>	27.0 m <sup>3</sup>
Passes	7	7	5	5	3 - 4	4

BH: Backhoe LD: Loading shovel

# AC Drive Advantage



Hitachi AC drive technology, provides superior performance with higher top speeds, better gradeability and stronger retardation.

These features increase productivity and availability, and reduce operating and maintenance cost.

Lower maintenance costs are achieved with use of brushless motors and elimination of contactors.

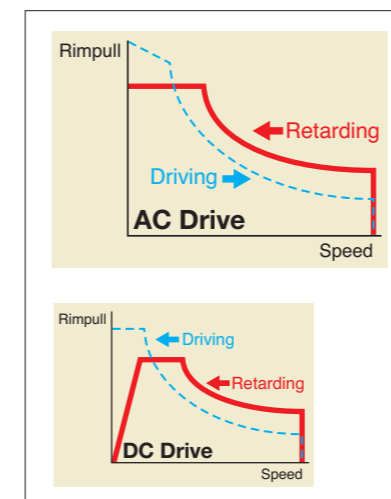
The Hitachi AC motors do not have commutators, reducing costs and allowing the truck to achieve higher speeds.

Less downtime and higher speeds result in more production and lower cost per tonne.

Hitachi AC drive systems power not only rigid haul trucks, but also electric train locomotives world wide.

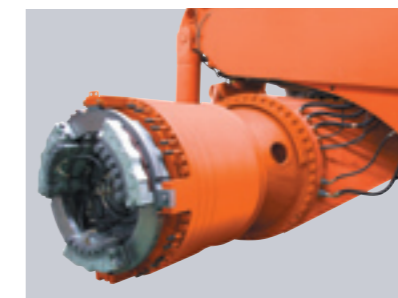


## Full retarding capability



Hitachi AC drive systems provide more rimpull than a comparable DC system. Full retarding capability means the truck can be almost fully stopped without applying the service brakes.

## The AC drive traction motors



Hitachi's Double Path Tandem Planetary Design provides high efficiency. The 1st stationary planetary carrier and new lubricant cooling filtration system provide lower operating temperatures - longer lubricant life, better component life.

## AC DRIVE CONTROL

**Brake Blending**, which combines service brakes with electric retarders, is applied automatically through the AC drive system to stop the hauler. Brake blending also allows the driver to stop the hauler with the retarder pedal only, and acts as a hill-hold brake for sure hill-climbing.

**Auto Cruise Control** keeps vehicle speed constant within the set range by limiting the minimum vehicle speed.

**Auto Retarding Control** keeps vehicle downhill speed constant within the set range by limiting the maximum vehicle speed.

**Slip-Slide Control (Optional)** reduces slipping and sliding by regulating the traction motor torque for stable travel.

# Ease of Operation



## HI-TECH ROPS/FOPS CAB

The new HI-TECH ROPS/FOPS cab has been newly equipped with a Hitachi controller and a large centrally mounted, color Liquid Crystal Display (LCD) as used in Hitachi large sized excavators. Double wall construction of 11 gauge inner and outer steel panels produces a more structurally sound cab. A three-point rubber ISO-mount arrangement minimizes vibration to the operator compartment.



Note: Shown is the machine with the door open.

## Superior Suspension

The Hitachi trailing arm suspension system delivers excellent maneuverability, even at higher speeds. The trailing arm layout offers greater ease of servicing while improving truck performance compared to suspended king-pin designs. The pivot mounting of the trailing arm design allows only axial input to the strut and allows wheel movement to the vertical plane only.

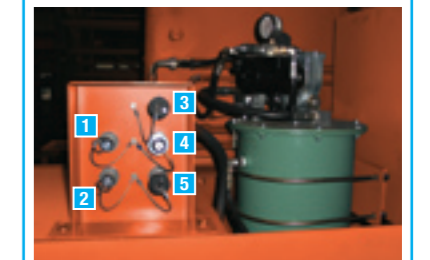
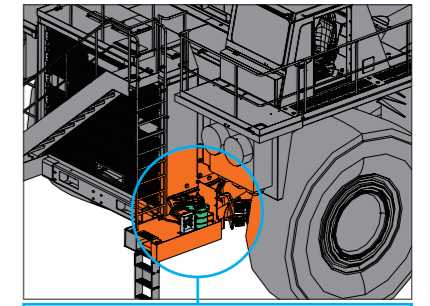
### Features:

- Lateral forces that act on the front wheels are minimized, resulting in reduced tire scuffing.
- Dynamic friction (side-wall force) within the strut is low due to the features of the trailing arm suspension design, allowing the use of a lighter strut engineered to a smaller diameter and longer stroke.
- The necessary frame bulk (horse-collar structure) needed to mount a suspended king-pin is non-existent.
- The elimination of the "horse-collar" member provides greater engine access.

- The NEOCON strut used with the trailing arm suspension, improves operator and component isolation, provides better hauler stability and predictable operational control.
- Locating the king-pin close to the wheel assembly and at a slight angle results in low "Dry Park Steering" effort.
- Development of the compressible media, NEOCON- E™ fluid (proprietary, silicone based, environmentally friendly) for use in the suspension strut with Helium gas, results in an improved energy absorption (isolation) system and an improved energy release (stability) system that responds favorably whether traveling empty or loaded in a wide range of ambient temperatures.

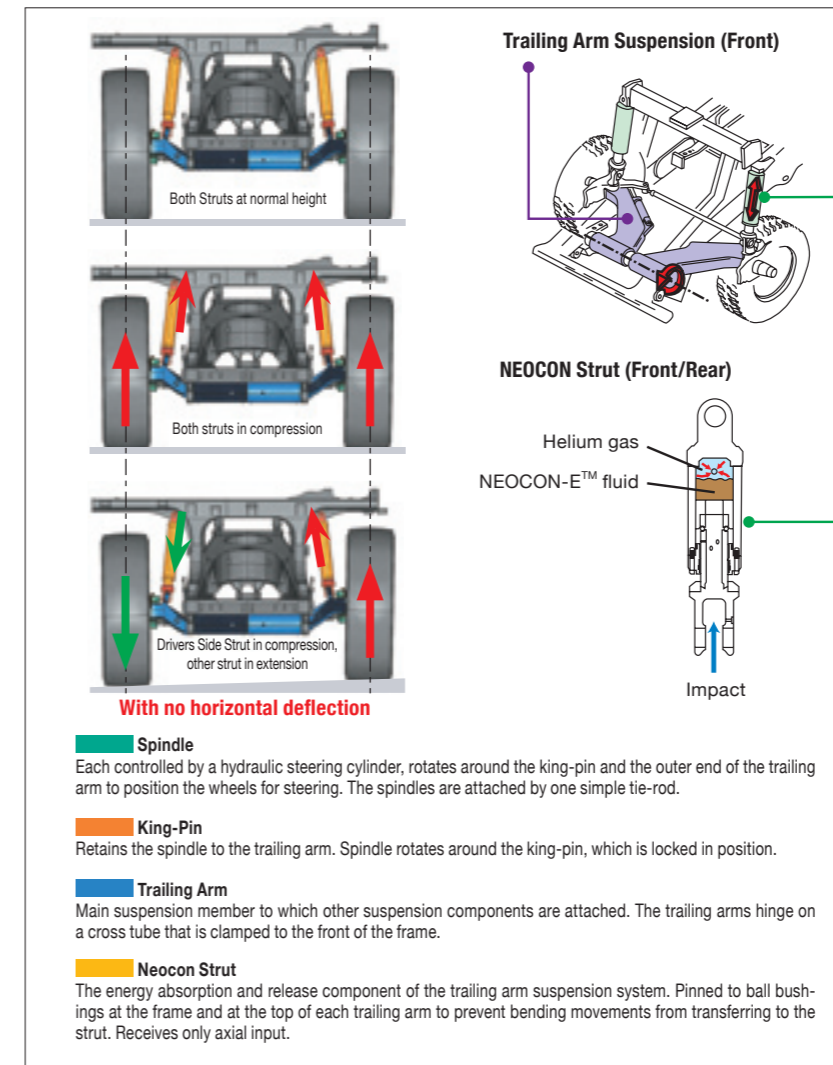
The trailing arm suspension design allows the front struts to be removed and installed without removing the front brakes or tires. This means fewer tools and less labor time are required, resulting in less downtime and higher productivity.

## THE FAST FILLING SYSTEM



1. Coolant 1
2. Coolant 2
3. Grease
4. Hydraulic oil
5. Engine oil

The fast filling system, provided standard on the left side of the radiator, allows direct access at ground level for fast feeding of lubricants, grease, hydraulic oil and engine oil. (Couplers are optional.)



# SPECIFICATIONS

## ENGINE

Model .....	Cummins QSK50
Type .....	4 Cycle
Aspiration.....	Turbocharged & low temperature aftercooled
Emission Certification .....	U.S. EPA Tier 2
Gross Power @1 900 min <sup>-1</sup> (rpm)	
(SAE J1995) .....	1 491 kW (2 000 HP)
Net Power @1 900 min <sup>-1</sup> (rpm)	
(SAE J1349) .....	1 398 kW (1 874 HP)
No. Cylinders .....	16
Bore & Stroke.....	159 x 159 mm
Displacement .....	50.3 L
Starting .....	24 Volt Electric

## ELECTRICAL DRIVE

HITACHI AC-Drive System

Planetary Ratio.....	35.2
Maximum Speed .....	56 km/h

## TIRES

<b>Standard - Front and Rear</b>	<b>Rim Width</b>
37.00R57(**) E4 Radial.....	686 mm (27 in)
<b>Optional - Front and Rear</b>	
42/90R57(**) E4 Radial.....	686 mm (27 in)

Certain job conditions may require higher TKPH(TMPH) in order to maintain maximum production. Hitachi recommends evaluating the job conditions and consulting the tire manufacturer to make proper tire selection.

## ELECTRICAL SYSTEM

Twenty-four volt system. 175 ampere engine driven alternator. Four 12-volt, heavy duty batteries connected in series/parallel

## BODY CAPACITIES

Struck (SAE).....	74 m <sup>3</sup>
Heap 3:1 .....	99 m <sup>3</sup>
Heap 2:1 (SAE).....	111 m <sup>3</sup>

Body capacity and payload subject to change based on customer specific material density and application.

## STEERING SYSTEM

Closed-center, full time hydrostatic power steering system using two double-acting cylinders with a variable piston pump. A Hitachi accumulator provides supplementary steering in accordance with J/ISO 5010 and a constant steering rate under all conditions. A Tilt/telescopic steering wheel with 35 degrees of tilt and 57 mm telescopic travel is standard.

Turning Diameter (SAE) ..	27.3 m
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## HYDRAULIC SYSTEM

Two (2) Hitachi three-stage, double-acting cylinders, with electronic controlled cushioning in retraction and extension, containing dual rod seals and urethane energized scrapers, inverted and outboard mounted. A tandem piston pump combines with four position electronic pilot controlled hoist valve. The electrical controller is mounted to the operator's seat.

Body Raise Time .....	17.5 s
Body Down Time (Float) ..	13.0 s

## BRAKE SYSTEM

Brake systems meet or surpass SAE J/ISO 3450.

### Service

An all-hydraulic actuated braking system provides precise braking control and quick system response. The system is pressure proportioned, front to rear, for improved slippery road control.

### Front Axle – Dry Disc

Disc Diameter Each (2 discs/axle, 3 calipers/disc)..... 121.7 cm

### Rear Axle – Dry Disc

Disc Diameter Each (2 discs/axle, 3 calipers/disc)..... 109 cm

### Secondary

Dual independent hydraulic circuits within the service brake system provide fully modulated reserve braking capability. Both front and rear dry disc are automatically applied when loss of pressure is detected.

### Parking

Two spring on, hydraulic off armature disc brake heads provide effective parking. The braking system complies with J/ISO 3450.

### Retarder

Superior retardation to zero speed on grades is achieved through AC wheel motors in conjunction with four Hitachi resistor grid packages. Service brake blending occurs at speeds below 0.5 km/h.

Maximum dynamic retarding	
Standard.....	2 800 kW

### Load/Dump Brake Apply

Through activation of a switch by the operator, a solenoid is energized, sending full brake pressure to apply the rear Dry Disc brakes. For use during the load and dump cycles.

## WEIGHTS

### With Standard 37.00R57 Tires

Chassis with Hoist.....	113 250 kg
Body .....	26 750 kg
Net Machine Weight.....	140 000 kg
Net Axle Weights	
Front Axle (48 %).....	66 920 kg
Rear Axle (52 %) .....	73 080 kg

Maximum GMW [37.00R57(\*\*)E4] 325 000 kg  
Including Options, 50% Fuel, Operator & Payload. Weights given are for standard options, standard body and tires. Net machine weight changes will directly affect the payload. Material density will determine body volume figures.

Load Weight Distribution	
Front Axle (31 %) .....	102 050 kg
Rear Axle (69 %) .....	222 950 kg

Application Payload Limit with Standard Equipment ..... 185 tonnes (204 tons)

### NOTES:

Nominal Payload shown on front cover indicates Application Payload Limit with Standard Equipment divided by 110%.

### With Optional 42/90R57 Tires

Chassis with Hoist.....	115 250 kg
Body .....	26 750 kg
Net Machine Weight.....	142 000 kg
Net Axle Weights	
Front Axle (48 %).....	67 880 kg
Rear Axle (52 %) .....	74 120 kg

Maximum GMW [42/90R57(\*\*)E4] 327 000 kg  
Including Options, 50% Fuel, Operator & Payload. Weights given are for standard options, standard body and tires. Net machine weight changes will directly affect the payload. Material density will determine body volume figures.

Load Weight Distribution	
Front Axle (31 %) .....	102 680 kg
Rear Axle (69 %) .....	224 320 kg

## HI-TECH ROPS/FOPS CAB

### New HI-TECH ROPS/FOPS Cab

Rops complies with ISO3471 and SAE J1040-May 94, FOPS complies with ISO3449. A three-point rubber ISO-mount arrangement minimizes vibration to the operator compartment.

### Comfort and Ease of Operation

New wrap-around style dashboard means controls are within easy reach and visual contact. A full complement of easy-to-read gauges, automobile type color LCD monitor and warning system, a spacious environment, six-way adjustable operator's air seat, tilt/telescopic steering wheel, filtered adjustable air vents, all contribute to operator safety and comfort.

### Monitoring System

A new Hitachi system monitor and diagnoses all onboard controls including the Hitachi drive system and engine. Data links offer complete integration, while a single color Liquid Crystal Display (LCD) clearly details machine functions. Downtime is minimized with faster and more reliable troubleshooting and analysis. A new Hitachi load weighing system offers benefits such as better equipment utilization on the jobsite, accurate unit and fleet production results, and benchmark unit statistics against fleet results. Cycle time, distance and cycle count can all be measured and recorded to further improvement of job productivity. The Hitachi load weighing system is fully integrated with the Hitachi vehicle monitoring system and display interface, avoiding potential failure or error common in aftermarket systems.

The diagram shows the operator's cab interior with a steering wheel and a large central display. Red arrows point to the 'Display' and 'Display Control Panel'. Numbered callouts (1-13) identify various gauges and indicators on the dashboard.

- 1. Speedometer with odometer
- 2. Tachometer with shift lever indicator
- 3. Engine oil pressure
- 4. Engine coolant temperature
- 5. Travel motor temperature
- 6. Steer / brake supply pressure
- 7. Load weight indicator
- 8. Fuel gauge
- 9. Central warning
- 10. Engine indicators
- 11. Travel device indicators
- 12. Hydraulic / lubricant indicators
- 13. Pilot indicators

### Excellent Serviceability

A removable front cover allows easy access to the service brake valve and heater connections. A removable cover located behind the seat provides easy access to the electric components, Hitachi controller, and all electrical junction points.

## SUSPENSION

### Front Suspension

Independent trailing arm for each front wheel. NEOCON struts containing energy-absorbing gas and compressible NEOCON-E™ fluid are mounted between the trailing arms and frame. Variable damping and rebound features are included.

### Rear Suspension

"A" frame structure, integral with axle housing, links the drive axle to frame at a forward center point with a pin and spherical bushing. A track rod provides lateral stability between the frame and drive axle. Heavy-duty rear-mounted NEOCON struts containing energy-absorbing gas and compressible NEOCON-E fluid suspend the drive axle from the frame. An integral rebound feature is included.



# SPECIFICATIONS

## FRAME

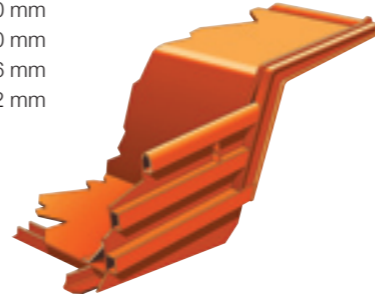
Fully fabricated box section main rails with section height tapered from rear to front. Narrow at the rear to support the load and wider at the front improving truck stability and allowing excellent engine access for servicing. One piece top and bottom flanges that eliminate cross member tie in joints and provide a large exposed center area for access to major components. Large radii minimize stress concentrations. Welded joints are oriented longitudinally to the principal flow of stress for greater durability and more strength.



## BODY

An extended canopy protects the service deck area. High tensile strength 400 BHN abrasion resistant alloy steel is used in thicknesses indicated below:

Floor.....	19 mm
Front .....	10 mm
Sides.....	10 mm
Canopy .....	6 mm
Corners.....	12 mm



High strength 690 N/mm<sup>2</sup> (100 000 psi) alloy steel is also used for the canopy side members and floor stiffeners. The body is rubber cushioned on the frame.

## SERVICE CAPACITIES

Main Accumulator .....	70 L
Crankcase (includes filters) .....	200 L
Cooling System .....	531 L
Fuel Tank .....	2 950 L
Hydraulic System .....	789 L
Planetary Drives .....	176 L
Front Wheels .....	17 L
Windshield Washer .....	20 L

# EQUIPMENT / DIMENSIONS

## STANDARD EQUIPMENT

### GENERAL

- Automatic lubrication System (Lincoln)
- Battery isolation switch
- Body prop pins
- Deck mounted muffler
- Diagonal front ladder
- Electric horn
- Engine access steps (2)
- Fast fluid filling system provision
- Fast fuel filling system provision
- Ground level engine shutdown switch (4)
- Load weighing system
- Operator arm and grid box guards
- Rims for 37.00R57 tires and optional 42/90R57 tires
- Suction port shut off valve at hydraulic tank

### CAB

- Air conditioner (HFC 134A)
- Air suspension seat for operator, 6-position
- AM-FM radio
- Auxiliary outlet 12V
- Engine shutdown switch
- Heater and Defroster
- Integral ROPS/FOPS
- Operator seat belt
- Roll down windows
- Trainer seat
- Trainer seat belt

### GAUGES AND INDICATORS

- Large, centrally mounted, color LCD

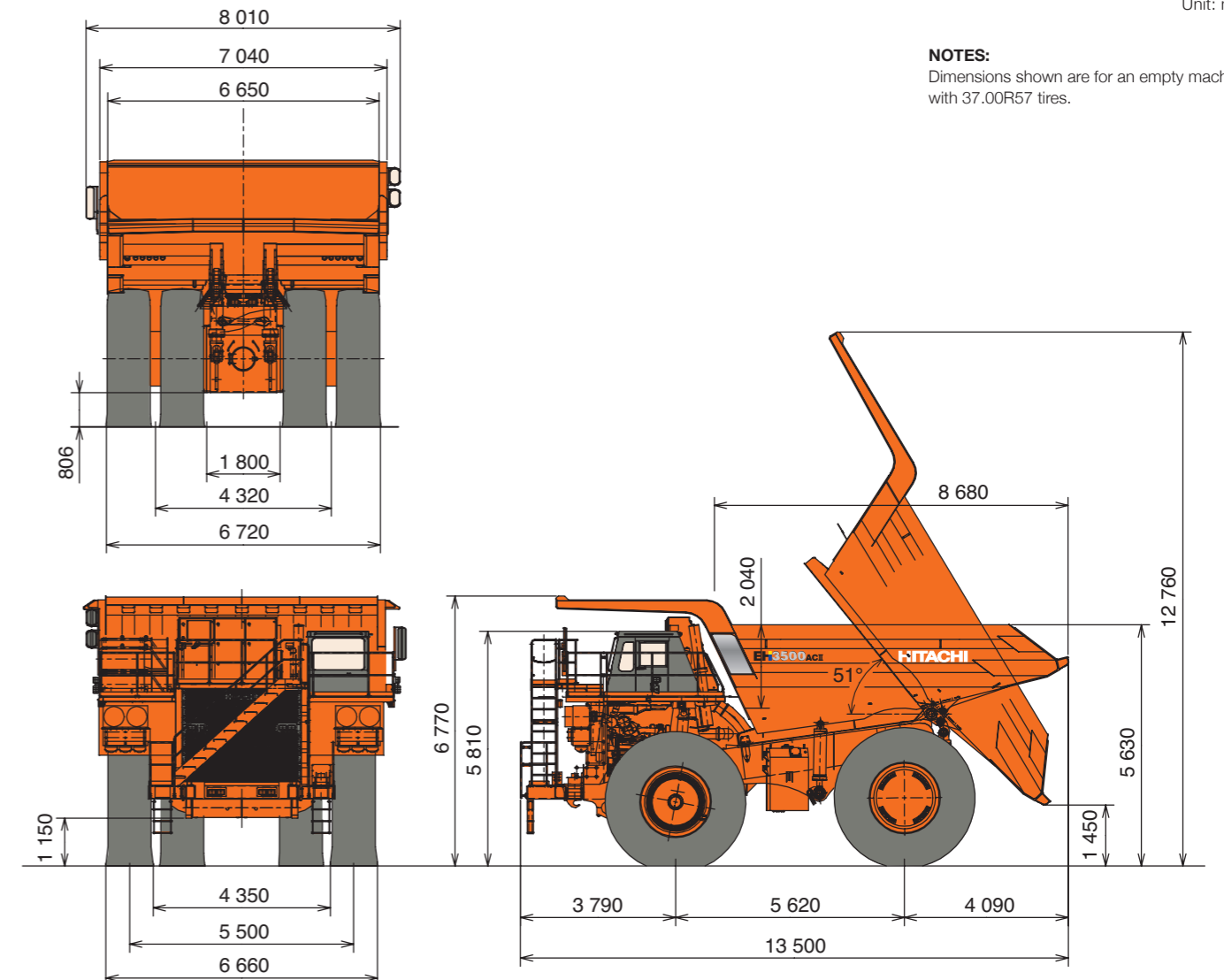
### MACHINE LIGHTS

- Back-up light X 2
- Deck light X 2
- Engine compartment light X 2
- Halogen headlight X 8
- Ladder light X 1
- Rear axle compartment light X 1

## OPTIONAL EQUIPMENT

- Auxiliary dump connection
- Auxiliary steer connection
- Body liners (400BHN)
- Body prop cable
- Body sizes \*\*
- Continuous heated body
- Extreme cold weather package \*\*
- Fast fluid filling system couplers
- Fast fuel filling system coupler
- Halogen front tire light X 2
- Heated mirrors
- HID headlight X 4
- High altitude grid box \*\*
- Loadweight displays
- Mild cold weather package \*\*
- Rear view video system
- Spare rim
- Trolley assist configuration \*\*
- Under view mirror

\*\* : engineered on request





These specifications are subject to change without notice.  
Illustrations and photos show standard models, and may or may not include optional equipment, accessories, and all standard equipment with some differences in color and features.  
Before use, please read and understand the Operator's Manual for proper operation.

