#### **HORSEPOWER**

**Gross: 671 kW** 899 HP @ 2000 rpm

**Net: 664 kW** 890 HP @ 2000 rpm

**OPERATING WEIGHT 108390 kg** 238,960 lb

# KOMATSU®

**D475A**-5E0

**475**A





**HORSEPOWER** Gross: 671 kW 899 HP @ 2000 rpm Net: 664 kW 890 HP @ 2000 rpm

**OPERATING WEIGHT** 

108390 kg 238,960 lb

BLADE CAPACITY

Semi-U: 27.2 m3 35.6 yd3

Full-U: **34.4 m**<sup>3</sup> 45.0 yd<sup>3</sup>

# WALK-AROUND

SAA12V140E-3 turbocharged after-cooled diesel engine provide an output of 664 kW 890 HP with excellent productivity. This engine is EPA Tier 2 emission certified. See page 6.

#### Extra-low machine profile

provides excellent machine balance and low center of gravity.

#### Preventative maintenance

- Centralized service station Enclosed hydraulic piping
- Modular power train design • Oil pressure checking ports See page 9.
- Simple hull frame

and monocoque track frame with pivot shaft for greater reliability.

Large blade capacities: 27.2 m³ 35.6 yd³ (Semi-U

dozer) and 34.4 m<sup>3</sup> 45.0 yd<sup>3</sup> (U dozer) See page 7.

#### The **dual tilt dozer**

(option) increases productivity while reducing operator effort. See page 7.

Automatic lockup *torque converter* saves fuel and increases speed and power transmission efficiency on long pushes. See page 6.

#### Unique and unrivaled noise-suppression.

#### Komatsu-integrated design

for the best value, reliability, and versatility. Hydraulics, power train, frame, and all other major components are engineered by Komatsu. You get a machine whose components are designed to work together for higher production, greater reliability, and more versatility.

### Hydraulic drive radiator cooling

fan controlled automatically, reduces fuel consumption and operating noise levels. See page 6.

#### New hexagonal designed cab includes:

- Spacious interior
- Comfortable ride with new cab damper mounting and K-Bogie undercarriage
- Excellent visibility
- High capacity air conditioning system
- PCCS (Palm Command Control System) lever controls
- Pressurized cab
- Adjustable armrest
- Travel control console integrated with operator seat

#### ECMV (Electronic Controlled Modulation Valve) controlled steering clutch/brake system

facilitates steering operation. See page 5.

#### Low noise

- Operator noise: 70dB(A) (Engine at Hi, cooling fan at 70%, and air conditioner OFF.)
- Dynamic noise (outside): 110dB(A) As per ISO 6395

VHMS (Vehicle Health Monitoring System)



#### New track link design

reduces maintenance cost by making turning pins easier, with improved pin reuse. See page 9.

Low-drive, long-track, eight roller undercarriage ensures outstanding grading ability and stability.

#### Track shoe slip control system (option) reduces operator fatigue. See page 7.

K-Bogie undercarriage system

improves traction, component durability, and operator comfort. See page 6.

See page 7.

# PCCS (PALM COMMAND CONTROL SYSTEM)

Komatsu's new ergonomically designed control system "PCCS" creates an operating environment with "complete operator control."

#### **Human-Machine Interface**

#### Palm command electronic controlled travel control joystick

Ergonomically designed palm command travel joystick provides the operator with a relaxed posture and superb fine control without operator fatigue. Transmission gear shifting is simplified with thumb push buttons.



For improved rear visibility

during return part of cycle, the operator can adjust the seat 15° to the right. The transmission and steering controls move with the seat for best operator comfort. The operator seat is also tiltable for facilitating down hill dozing. The travel control console has adjustments fore and aft, and for height. With an independently adjustable armrest, each D475A operator can adjust control positions to his individual preference, providing optimum operational posture for all operators.

#### Left-hand joystick



Blade and ripper

control joystick

Palm command PPC controlled blade control joystick

**Fuel control dial** 

Blade control joystick uses the PPC (Proportional Pressure Control) valve and the same palm command type joystick as travel control joystick. PPC control, combined with the highly reliable Komatsu hydraulic system, enables superb fine control. (Dual tilt and pitch operation are enabled by depressing switch with a thumb. This is available when installing optional dual tilt dozer.)

Engine revolution is controlled by electric signals, providing

ease of operation eliminating maintenance of linkage and

#### Height adjustable blade control armrest

Blade control armrest is height adjustable without any tools in three stages, providing the operator with firm arm support and ideal armrest positioning.

#### Position adjustable ripper control lever

Ripper control lever is position adjustable, providing optimum operation posture for all operators during ripping operations facing front or watching ripper point.

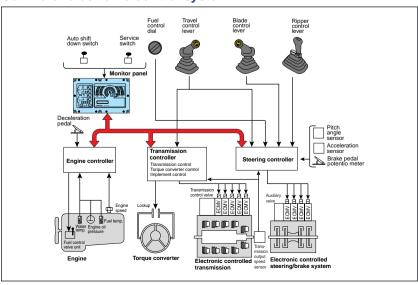
#### **Facing front**



When turned 15°



#### **Outline of electronic control system**



# Power Train Electronic Control System

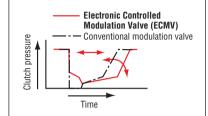
#### **Smooth and soft operation**

these new features.

D475A-5E0 utilizes a newly designed power train electronic control system. The controller registers the amount of operator control (movements of lever and operation of switches) along with machine condition signals from each sensor to acculately calculate the control of the torque converter, transmission, steering clutches and brakes for optimized machine operation. The ease of operation and productivity of the new D475A-5E0 is greatly improved through

#### **ECMV** (Electronic Controlled Modulation Valve) controlled transmission

Controller automatically adjusts each clutch engagement depending on travel conditions such as gear speed, revolution and shifting pattern. This provides shockless smooth clutch engagement, improved component reliability, improved component life and operator ride comfort.

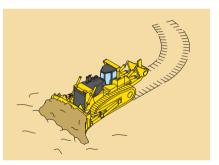


#### ECMV (Electronic Controlled Modulation Valve) controlled steering clutches/brakes

Sensors monitor machine operating conditions, and electronically control steering clutches and brakes depending on type of job, such as size of load during dozing, incline angle of slope or load, providing smooth and ease of operation by reducing counter-steering on downhill travel, etc.

#### Effect of ECMV steering clutches/brake control

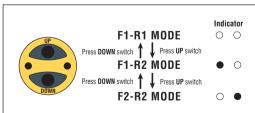
When dozing and turning, ECMV automatically controls stroke ratio of steering clutches and brakes depending on degree of load, enabling smooth dozing and turning.

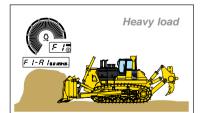


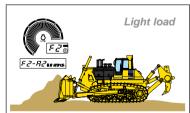
When dozing downhill, ECMV automatically controls steering clutches and brakes depending on incline of machine or degree of load, reducing counter-steering and producing smooth dozing operation.

#### **Preset travel speed function**

Preset travel speed selection function is standard equipment, enabling the operator to select fore and aft travel speed from three preset patterns; F1-R1, F1-R2 and F2-R2 by using the UP/DOWN switch. When the F1-R2 or F2-R2 preset pattern is selected and the travel control is moved into forward or reverse, the machine travels in the preset gear range automatically. This function reduces manual gear shifting frequency during machine operation, enabling the operator to focus on directional and hydraulic control. Preset travel speed selection is especially helpful when used in combination with the Auto-Downshift Function and reduces cycle times during repeated round trip operations.

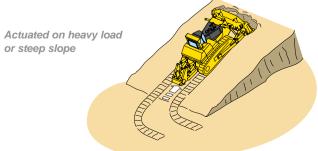






#### **Auto downshift function**

Controller monitors engine speed, travel gear and travel speed. When load is applied and machine travel speed is reduced, the controller automatically downshifts to optimum gear speed to provide high fuel efficiency. This function provides comfortable operation and high productivity without manual downshifting. (This function can be cancelled with cancel switch.)



# PRODUCTIVITY FEATURES

# Engine

The Komatsu SAA12V140E-3 engine delivers **664 kW** 890 HP at 2000 rpm. These features, together with the heavy machine weight, make the D475A-5E0 a superior crawler dozer in both ripping and dozing production. The engine is EPA Tier 2 emission certified, and features direct fuel injection, turbocharger, and air-to-air aftercooler to maximize fuel efficiency.

To minimize noise and vibration, the engine is mounted to the main frame with rubber cushions.

#### Hydraulic drive radiator cooling fan

Fan rotation is automatically controlled depending on coolant and hydraulic oil temperature, saving fuel consumption and providing great productivity with a quiet operating environment.

#### **Automatic torque converter lockup system**

For greater efficiency during long pushes, the lockup mode allows the system to automatically engage the torque converter lockup clutch. Locking up the torque converter transmits all the engine power directly to the transmission, increasing ground speed thus achieving efficiencies equal to a direct drive. The result is efficient use of engine power, less fuel consumption, and faster cycle times.

# Engine Torque Transmission Converter Lockup "OFF" Lockup "ON"

#### K-Bogie undercarriage system

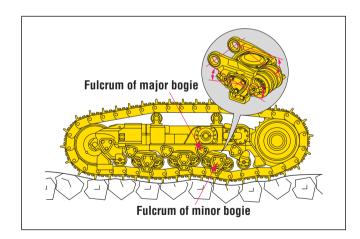
New K-Bogie Undercarriage System combines prior advantages with new additional features.

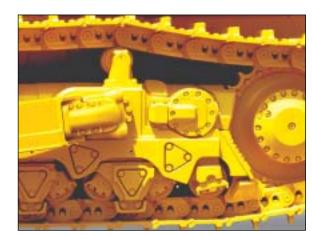
Current features:

- K-Bogies that oscillate with two fulcrums assure large amount of track roller vertical travel. Impact load to undercarriage components is minimized and durability of components is improved since track rollers are always in contact with track link.
- Track rollers follow track link movement to extend the undercarriage life.
- Excellent riding comfort is provided due to less vibration and shock when traveling over rough terrain.

Features on new K-Bogie undercarriage system:

- New K-Bogies with front and rear single bogies are utilized providing increased length of track on ground to improve machine stability.
- The oscillating idler and increased sprocket lead angle improve riding comfort when travelling over rough terrain.





#### Large blade

Capacities of **27.2** m³ 35.6 yd³ (Semi-U dozer) and **34.4** m³ 45.0 yd³ (U dozer) yield outstanding production. High-tensile-strength steel has been incorporated into the front and sides of the blade for increased durability.

#### **Dual tilt dozer (option)**

The dual tilt dozer increases productivity while reducing operator effort.

- Optimum blade cutting angle for all types of materials and grades can be selected on-the-go for increased load and production.
- Digging, hauling, and dumping are easy and smooth with less operator fatigue.
- Dozer tilt angle and tilt speed are twice that of a conventional single tilt system.

#### Rippers (option)

- The variable giant ripper features a long sprocket center-to-ripper point distance, making ripping operation easy and effective while maintaining high penetration force.
- The variable giant ripper is a parallelogram single shank ripper ideal for ripping up tough material. The ripping angle is variable, and the depth is adjustable in four stages by a hydraulically controlled pin puller.
- The multi-shank ripper is a hydraulically controlled parallelogram ripper with three shanks. The ripping angle is variable and depth is adjustable in two stages.



# 

Track shoe slip control panel

#### Track shoe slip control system (option)

- Eliminates the need for the operator to constantly control engine power output with the decelerator while ripping. Operator fatigue is substantially reduced.
- Maneuverability is improved because the operator is free to focus on the ripping application without having to monitor the track shoe slippage.
- Repair costs are significantly lowered and undercarriage life is prolonged with the reduction in track shoe slippage.
- The track shoe slip control system will contribute to lower fuel costs, because the engine output is automatically controlled to optimum levels for operation.

6

# **WORKING ENVIRONMENT**

# **Operator Comfort**

Operator comfort is essential for safe and productive work. The D475A-5E0 provides the operator with a quiet, comfortable environment where the operator can concentrate on the work at hand.

#### Hexagonal pressurized cab

- The cab's new hexagonal design and large tinted glass windows provide excellent front, side, and rear visibility.
- Improved cab sealing, air filters and increased internal air pressure combine to prevent dust from entering the cab.
- The floor mat and door sill are the same height to facilitate easy cleaning.
- The high quality cab interior is fully lined with sound absorbing material.

# Comfortable ride with new cab damper mounting and K-Bogie undercarriage

D475A-5E0's cab mount uses a new cab damper mounting which further improves viscous damper and provides excellent shock and vibration absorption capacity with its long stroke. The cab damper mounting, combined with new K-bogie undercarriage, softens shocks and vibrations while traveling over adverse condition that are impossible to absorb with conventional cab mounting methods. The soft spring cab damper isolates the cab from machine body, suppressing vibrations and providing a quiet, comfortable operating environment.

•Operator noise: 70dB(A) (Engine at high idle, fan speed at 70%, and air conditioner OFF)

-Dynamic noise (outside): 110dB(A) (As per ISO 6395)

#### Improvement of visibility in rear of blade

The shape of the blade heel and the position of the operator's seat are changed so that the operator can check the ground in the rear of the blade during dozing. Accordingly, the operator can work more accurately. In addition, the position of the exhaust pipe is changed for better front visibility.

#### New suspension seat

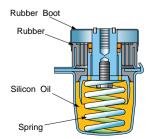
D475A-5E0 uses a new air suspension seat. Fore and aft sliding rails and suspension spring increasing strength and rigidity and reducing play of joints. In addition to turning function for ripper operation, the seat is also tiltable to facilitate down hill dozing.

#### Relocated air intake ports of air conditioner

The air conditioner fresh air inlet is located above the fender to prevent dust from the undercarriage from entering the cab. The inside air recirculation inlet is located behind the operator's seat, away from the dirt and dust of the floor mat, to provide an increased cleaning/replacement interval.



#### Cab damper mounting



# **EASY MAINTENANCE**

#### **Preventative Maintenance**

Preventative maintenance is the only way to ensure long service life from your equipment. That's why Komatsu designed the D475A-5E0 with conveniently located maintenance points to make necessary inspections and maintenance quick and easy.

#### Centralized service station

To ensure convenient maintenance, the transmission and torque converter oil filters are both arranged next to the power train oil level gauge.

#### Monitor with self-diagnostic function

If the monitor finds abnormalities, corresponding warning lamp blinks and warning buzzer sounds. When abnormalities occur during operation, user code and service meter are displayed alternately. When a high importance user code is displayed, a caution lamp

blinks and warning buzzer sounds to prevent the development of serious problems.

#### Oil pressure checking ports

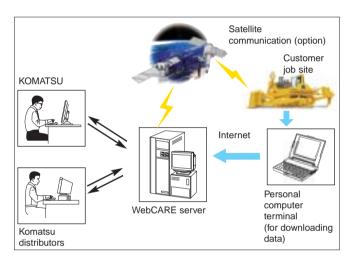
Pressure checking ports for power train components are centralized to promote quick and simple diagnosis.

#### **Gull-wing engine side covers**

Gull-wing engine side covers facilitate engine maintenance and filter replacement. Side covers are a thick one-piece structure with bolt-on latch to improve durability and repairability.

#### **VHMS (Vehicle Health Monitoring System)**

VHMS controller monitors the health conditions of major components and enables remote analysis of the machine and its operation. This process is supported by the Komatsu distributors, factory and design team. This contributes to reduced repair costs and to maintaining maximum availability.



### Low Maintenance Costs

#### Track link with wedge ring

New D475A-5E0 track links feature reduced press-fit force and a wedge ring. Conventional track pins are retained only with a large press-fit force. This results in easier service with reduced pin damage when turning pins and bushings. The result is improved undercarriage life and reduced maintenance cost through reduced wear, greater pin

reduced wear, greater pin reusability, and reduced maintenance man-hours.

#### Highly reliable electric circuit

The electrical circuit reliability is increased by utilizing dust, vibration and corrosion resistant "DT connectors". The reinforced electrical wiring harnesses include a circuit breaker and are covered with a heat-resistant material to increase mechanical strength, provide longer life, and protect the system from damage.

Wedge ring

#### Flat face O-Ring seals

Pin press fitting

Flat face O-ring seals are used to securely seal all hydraulic hose connections and to prevent oil leakage.

#### **Enclosed hydraulic piping**

Hydraulic piping for the blade tilt cylinder is completely housed in the push arm protecting it from damage.

#### Modular power train design

Power train components are sealed in a modular design that allows the components to be dismounted and mounted without oil spillage, making servicing work clean, smooth, and easy.

#### Maintenance-free disc brakes

Wet disc brakes require less maintenance.

8

# **SPECIFICATIONS**



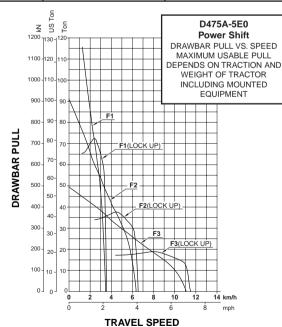
#### **ENGINE**



#### **TORQFLOW TRANSMISSION**

Komatsu TORQFLOW transmission consists of a water-cooled, 3-element, 1-stage, 1-phase torque converter with lockup clutch and a planetary gear, multiple-disc clutch transmission which is hydraulically-actuated and force-lubricated for optimum heat dissipation. Gearshift lock lever and neutral safety switch prevent accidental starts.

Gear	Forward		Rev	erse
1st	3.3 km/h	2.1 mph	4.2 km/h	2.6 mph
2nd	6.2 km/h	3.9 mph	8.0 km/h	5.0 mph
3rd	11.2 km/h	7.0 mph	14.0 km/h	8.7 mph





Double-reduction final drive of spur and planetary gear sets to increase tractive effort and reduce gear tooth stresses for long final drive life. Segmented sprocket teeth are bolt-on for easy replacement.



#### STEERING SYSTEM

PCCS lever, joystick-controlled, wet multiple-disc steering clutches are spring-loaded and hydraulically released. Wet multiple-disc steering brakes are spring-actuated, hydraulically released, and require no adjustment. Steering clutches and brakes are interconnected for easy, responsive steering.



#### UNDERCARRIAGE

Suspension	. Oscillating equalizer bar and pivot shaft
Track roller frame	Cylindrical, high-tensile-strength
	steel construction
Rollers and idlers	Lubricated track rollers

#### K-Bogie Undercarriage

Lubricated track rollers are resiliently mounted to the track frame with a bogie suspension system whose oscillating motion is cushioned by rubber pads.

#### Extreme Service Track Shoes

Lubricated tracks. Unique seals prevent entry of foreign abrasives into pin to bushing clearances to provide extended service life. Track tension is easily adjusted with grease gun.

Number of shoes (each side)
Single grouser
Shoe width (standard)
Ground contact area
Ground pressure (Tractor) 128 kPa 1.30 kg/cm <sup>2</sup> 18.5 psi
Number of track rollers
Number of carrier rollers

Extreme service shoes	Additional weight	Ground contact area	Tractor ground pressure
<b>810 mm</b> 32"	<b>920 kg</b> 2,030 lb	<b>73290 cm²</b> 11,360 in²	<b>113 kPa</b> 1.15 kg/cm <sup>2</sup> 16.4 psi
<b>910 mm</b> 36"	<b>1830 kg</b> 4,030 lb	<b>82340 cm²</b> 12,762 in²	<b>102 kPa</b> 1.04 kg/cm <sup>2</sup> 14.8 psi

# 10

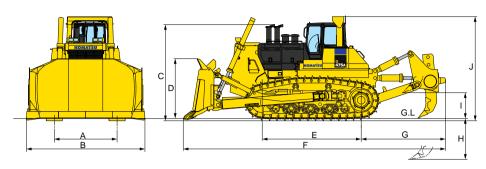
# COOLANT AND LUBRICANT CAPACITY (REFILL)

Fuel tank       1670 ltr         Coolant       210 ltr         Engine       121 ltr	55.5 U.S. gal
Torque converter, transmission,	-
bevel gear, and steering system 210 ltr	55.5 U.S. gal
Final drive (each side)	19.8 U.S. gal



#### 2770 mm 9'1" 5265 mm 17'3" 4546 mm 14'11" 8'10" 2690 mm 4524 mm 14'10" 37'11" 11565 mm 3720 mm 12'2" 1744 mm 5'9" 1196 mm 3'11" 4646 mm 15'3"

#### **SEMI-U DOZER WITH GIANT RIPPER**



Ground Clearance: 655 mm 2'2"

# OPERATI

#### **OPERATING WEIGHT**

**Ground pressure**..... **166 kPa** 1.69 kg/cm<sup>2</sup> 24.0 psi



#### **HYDRAULIC SYSTEM**

Closed-center load sensing system (CLSS) designed for precise and responsive control, and for efficient simultaneous operation.

#### Hydraulic control units:

All spool valves externally mounted beside the hydraulic tank. Plunger type hydraulic pump with capacity (discharge flow) of **542 Itr/min** 143 U.S. gal/min at rated engine rpm.

Relief valve setting ...... 27.5 MPa 280 kg/cm² 3,980 psi

#### Control valves:

Spool control valves for variable digging angle multi-shank ripper and giant ripper.

 Hydraulic cylinders . . . . . . . . . . . . . . Double-acting, piston

	Number of cylinders	Bore
Blade lift	2	<b>180 mm</b> 7.09"
Blade tilt	1	<b>250 mm</b> 9.84"
Ripper lift	2	<b>225 mm</b> 8.86"
Ripper tilt	2	<b>225 mm</b> 8.86"

Hydraulic oil capacity (additional volume):	
Semi-U tilt dozer	48 U.S. gal
U tilt dozer	48 U.S. gal
Ripper equipment (additional volume):	
Giant ripper	34 U.S. gal
Multi-shank ripper	34 U.S. gal



#### DOZER EQUIPMENT

Blade capacities are based on the SAE recommended practice J1265.

	Overall			Maximum	Maximum	Maximum	Weight	
	length with dozer	Blade capacity	Blade length x height	lift above ground	drop below ground	tilt adjustment	Dozer equipment	Ground pressure*
Semi-U	<b>8705 mm</b>	<b>27.2 m³</b>	<b>5265 mm x 2690 mm</b>	<b>1620 mm</b>	<b>1010 mm</b>	<b>770 mm</b>	<b>16500 kg</b> 36,376 lb	<b>166 kPa</b> 1.69 kg/cm <sup>2</sup>
dozer	28'7"	35.6 yd³	17'3" x 8'10"	5'4"	3'4"	2'6"		24.0 psi
U dozer	<b>9205 mm</b>	<b>34.4 m³</b>	<b>6205 mm x 2610 mm</b>	<b>1620 mm</b>	<b>1010 mm</b>	<b>905 mm</b>	<b>18800 kg</b>	<b>169 kPa</b> 1.72 kg/cm <sup>2</sup>
	30'2"	45.0 yd³	20'4" x 8'7"	5'4"	3'4"	3'	41,446 lb	24.5 psi
Dual tilt	<b>8705 mm</b>	<b>27.2 m³</b>	<b>5265 mm x 2690 mm</b>	<b>1620 mm</b>	<b>1010 mm</b>	<b>1145 mm</b>	<b>16950 kg</b>	<b>166 kPa</b> 1.69 kg/cm <sup>2</sup>
Semi-U dozer	28'7"	35.6 yd³	17'3" x 8'10"	5'4"	3'4"	3'9"	37,368 lb	24.0 psi
Dual tilt	<b>9205 mm</b>	<b>34.4 m³</b>	<b>6205 mm x 2610 mm</b>	<b>1620 mm</b>	<b>1010 mm</b>	<b>1350 mm</b>	<b>19250 kg</b>	<b>170 kPa</b> 1.73 kg/cm <sup>2</sup> 24.3 psi
U dozer	30'2"	45.0 yd³	20'4" x 8'7"	5'4"	3'4"	4'5"	42,439 lb	

<sup>\*</sup>Ground pressure shows tractor, cab, ROPS, operator, giant ripper, standard equipment, and applicable blade.

10 11

- Air conditioner with heater and defroster
- Air-suspension seat
- Alternator, 90 A/24 V
- Auto-priming system
- Back-up alarm
- Batteries, 200 Ah/4 x 12 V
- Blower fan
- Decelerator pedal
- Dry-type air cleaner with dust evacuator and dust indicator
- Eight-roller track frames
- Final drive case wear guard



- Hinged underguard with front pull hook
- Hydraulic track adjusters
- Lighting system (including four front and two rear lights)
- Lockup torque converter
- Mirror
- Mirror, rearview
- Muffler with rain cap
- Perforated front mask
- Radiator reserve tank
- **ROPS** brackets
- Seat belt
- Segmented sprockets

ROPS*: Weight	<b>940 kg</b> 2,070 lb
Dimension: Width	. <b>1940 mm</b> 6'4'

\*Meets ISO 3471, SAE J1040 APR88, ROPS standards

- Shoes, 710 mm 28" extreme service, single-grouser
- Starting motors, 2 x 7.5 kW/24 V
- Steel cab
- Steering control
- Sun visor
- TORQFLOW transmission
- Track roller quards
- VHMS (without orbcomm)
- Warning horn
- Water separator
- Wet steering clutches

#### Steel cab\*\*:

Weight
Dimension:
Length 1790 mm 5'10"
Width 1455 mm 4'9"
Height from compartment
floor to ceiling 1530 mm 5'0"
**Meets ISO 3449 FOPS standard.





## Variable giant ripper:

Variable, parallelogram single-shank ripper ideal for ripping up tough material. Ripping angle is variable. Ripping depth is adjustable in four stages by a hydraulically controlled pin puller.

Weight (including hydraulic

control unit) . . . . . . . . **7360 kg** 16,230 lb Beam length . . . . . . . . . . . . 1477 mm 4'10" Maximum lift above ground . 1196 mm 3'11" Maximum digging depth . . . . 1744 mm 5'9"

#### Multi-shank ripper:

Hydraulically controlled parallelogram ripper with three shanks. Ripping angle variable and depth adjustable in two stages.

Weight (including hydraulic

control unit) . . . . . . . . 9720 kg 21,430 lb Beam length . . . . . . . . . . . . 3085 mm 10'1" Maximum lift above ground . 1196 mm 3'11" Maximum digging depth . . . . 1124 mm 3'8"

- Additional cab heater
- Battery isolator
- Coal dozer
- Counterweight
- Double wiper Dual tilt dozer
- Fast fuel fill
- Fire extinguisher

- Hydraulics for ripper
- Lattice front mask
- Light for ripper
- Orbcomm
- Prelubrication
- Push plate
- Radio-AM/FM cassette
- Safety glass

- Shoes:
- -810 mm 32"
- **-910 mm** 36"
- Spill guards
- Strengthened Semi-U blade
- Strengthened U blade
- Track shoe slip control system

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