

# B20E Articulated Dump Truck



## ENGINE

**Manufacturer**  
Mercedes Benz

**Model**  
OM924LA

**Configuration**  
Inline 4, turbocharged and intercooled.

**Net Power**  
163 kW (219 hp) @ 2 200 rpm in accordance with UN ECE R120

**Gross Torque**  
810 Nm (597 lbft)  
@ 1 200 -1 600 rpm

**Displacement**  
4,80 litres (293 cu.in)

**Auxiliary Brake**  
Exhaust Valve Brake  
Engine Valve Brake

**Fuel Tank Capacity**  
195 litres (53 US gal)

**Certification**  
OM924LA meets Euro III emissions regulations

## TRANSMISSION

**Manufacturer**  
Allison

**Model**  
Standard Non Retarder: 3000P ORS  
Optional Retarder: 3000PR ORS

**Configuration**  
Fully automatic planetary transmission with integral retarder.

**Layout**  
Engine mounted

**Gear layout**  
Constant meshing planetary gears, clutch operated

**Gears**  
6 Forward, 1 Reverse

**Clutch Type**  
Hydraulically operated multi-disc

**Control Type**  
Electronic

**Torque Control**  
Hydrodynamic with lock-up in all gears

## TRANSFER CASE

**Manufacturer**  
Kessler

**Series**  
W1400

**Layout**  
Remote mounted

**Gear Layout**  
Three in-line helical gears

**Output Differential**  
Interaxle 33/67 proportional differential. Automatic inter-axle differential lock.

## AXLES

**Manufacturer**  
Bell

**Model**  
15T

**Differential**  
High input limited slip differential with spiral bevel gears.

**Final Drive**  
Outboard heavy duty planetary on all axles

## BRAKING SYSTEM

**Service Brake**  
Dual circuit, full hydraulic actuation dry disc brakes with 8 calipers (4F, 2M, 2R).

Maximum brake force:  
244 kN (54 720 lbf)

**Park & Emergency**  
Spring applied, air released driveline mounted disc.

Maximum brake force:  
182 kN (40 802 lbf)

**Auxiliary Brake**  
Automatic exhaust valve brake and engine valve brake. Optional automatic, adjustable, integral, hydrodynamic transmission retarder. Output shaft speed dependant.

**Total Retardation Power**  
99kW (133 hp) Continuous non-retarder.  
144kW (193 hp) Continuous retarder.  
99kW (133 hp) Maximum non-retarder.  
505kW (677 hp) Maximum retarder.

## WHEELS

**Type**  
Radial Earthmover

**Tyre**  
20.5 R 25

## FRONT SUSPENSION

Semi-independent, leading A-frame supported by hydro-pneumatic suspension struts.

## REAR SUSPENSION

Pivoting walking beams with laminated rubber suspension blocks

## HYDRAULIC SYSTEM

Full load sensing system serving the prioritized steering, body tipping and brake functions. A ground-driven, load sensing emergency steering pump is integrated into the main system.

**Pump Type**  
Variable displacement load sensing piston

**Flow**  
155 l/min (41,5 gal/min)

**Pressure**  
27 MPa (3 915 psi)

**Filter**  
5 microns

## STEERING SYSTEM

Double-acting cylinders with ground driven emergency steering pump.

**Lock to lock turns**  
4,32

**Steering Angle**  
45°

## DUMPING SYSTEM

Two double-acting, single stage, dump cylinders

**Raise Time**  
10 s

**Lowering Time**  
5,5 s

**Tipping Angle**  
70° standard, or any lower angle programmable

## PNEUMATIC SYSTEM

Air drier with heater and integral unloader valve, serving park brake and auxiliary functions.

**System Pressure**  
810 kPa (117 psi)

## ELECTRICAL SYSTEM

**Voltage**  
24 V

**Battery Type**  
Two AGM (Absorption Glass Mat) type

**Battery Capacity**  
2 X 75 Ah

**Alternator Rating**  
28 V 80 A

## VEHICLE SPEEDS

1st	11 km/h	7 mph
2nd	20 km/h	12 mph
3rd	27 km/h	17 mph
4th	38 km/h	24 mph
5th	50 km/h	31 mph
6th	50 km/h	31 mph
R	7 km/h	4 mph

## CAB

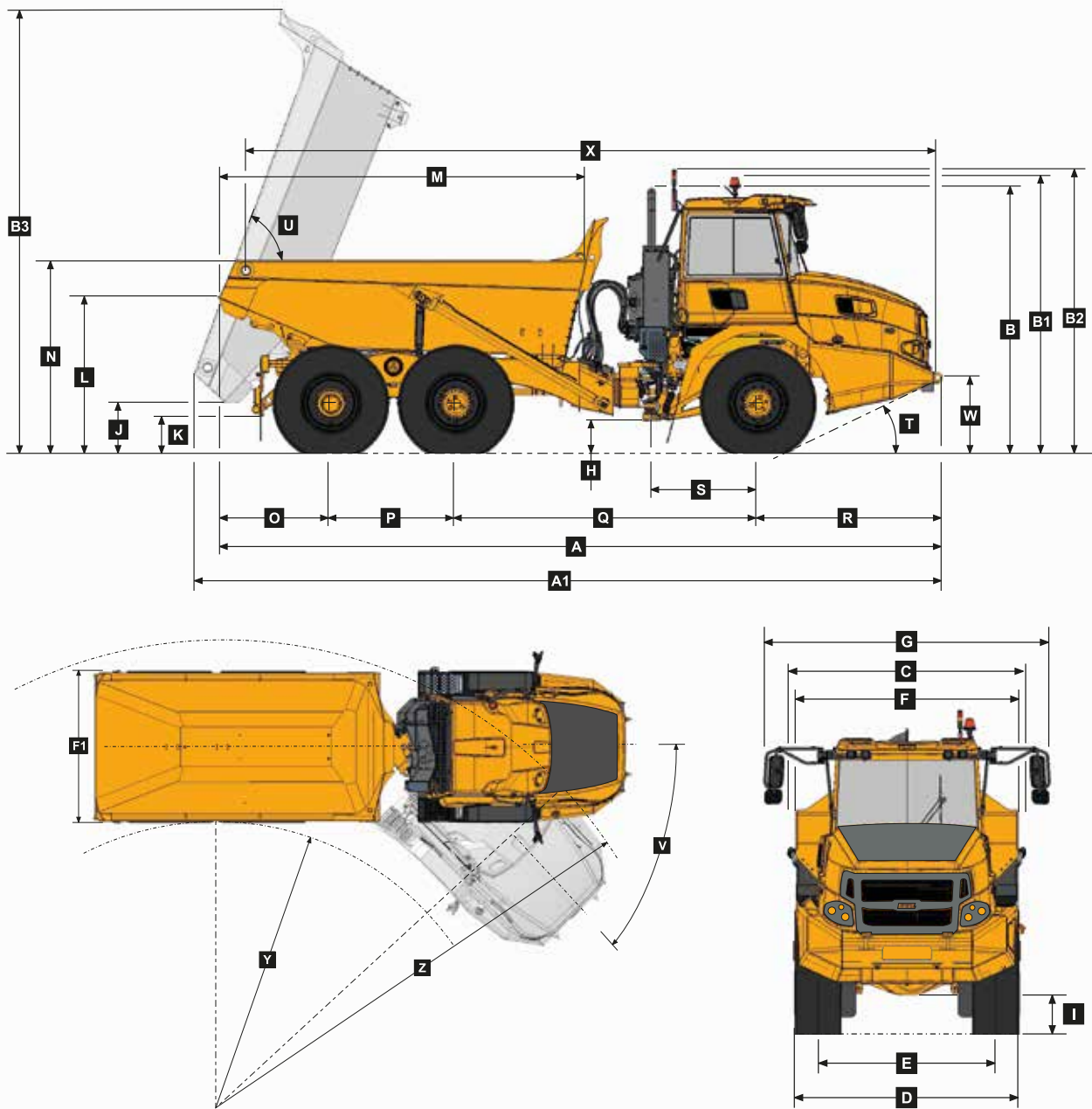
ROPS/FOPS certified 71 dBA internal sound level measured according to ISO 6396.

## Load Capacity & Ground Pressure

OPERATING WEIGHTS				GROUND PRESSURE		LOAD CAPACITY		OPTION WEIGHTS	
UNLADEN*		LADEN*		LADEN (No sinkage)		BODY	m <sup>3</sup> (yd <sup>3</sup> )		kg (lb)
	Tare kg (lb)**		ISO 6016 kg (lb)***	20.5 R 25	kPa (Psi)	Struck Capacity	9 (11)	Bin liner	493 (1 087)
Front	7 970 (17 575)	Front	9 770 (21 544)	Front	223 (32)	SAE 2:1 Capacity	11 (14,5)	Extra wheelset	355 (783)
Middle	3 941 (8 690)	Middle	11 931 (26 308)	Middle	300 (44)	SAE 1:1 Capacity	13,5 (17,5)		
Rear	3 531 (7 786)	Rear	11 741 (25 889)	Rear	300 (44)				
Total	15 443 (34 051)	Total	33 443 (73 741)			Rated Payload	18 000 kg		
	ISO 6016 kg (lb)***			LADEN (15% sinkage)			(39 690 lbs)		
Front	7 985 (17 607)			20.5 R 25	kPa (Psi)				
Middle	4 042 (8 913)			Front	203 (29)				
Rear	3 632 (8 008)			Middle	248 (36)				
Total	15 659 (34 528)			Rear	248 (36)				

\* Includes additional mass. \*\* No fuel, no operator. \*\*\* Full fuel and operator

## Dimensions

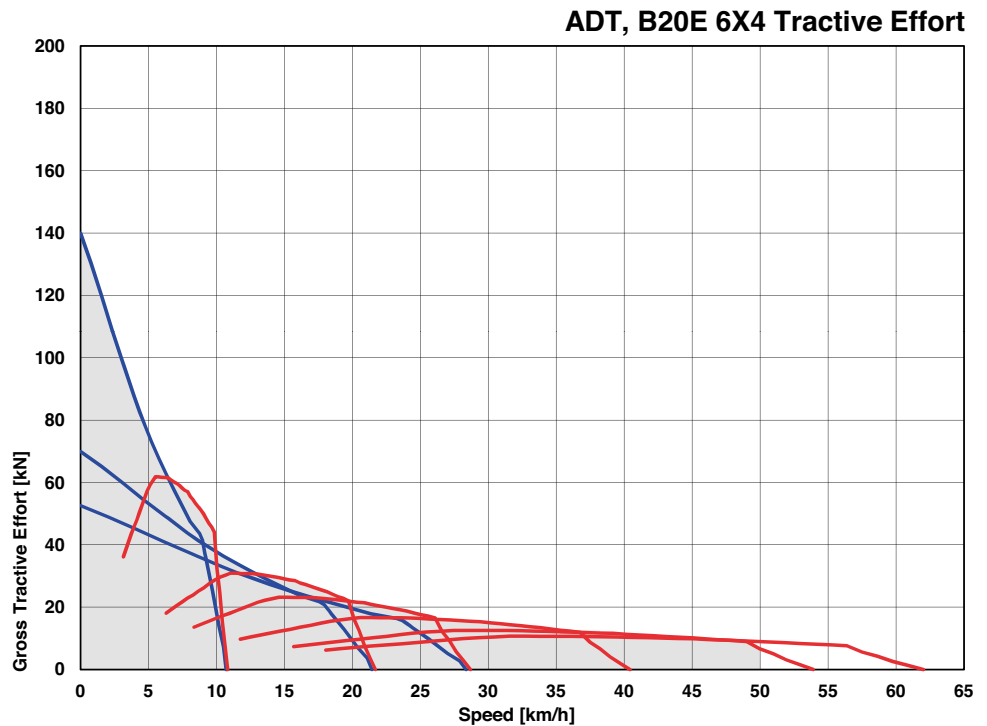
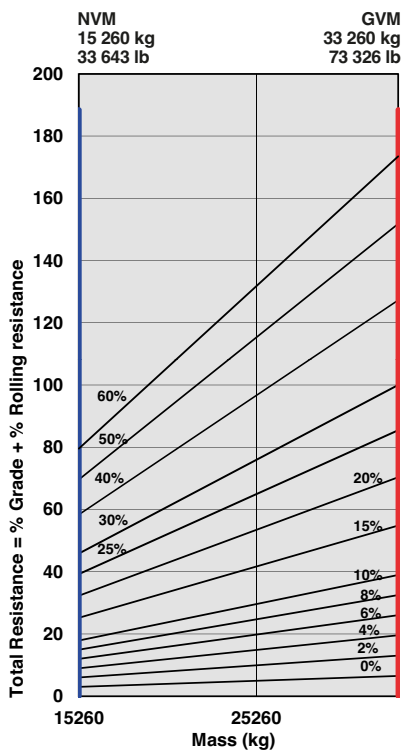


### Machine Dimensions

A	Length - Transport Position	9 271 mm (30 ft. 5 in.)	L	Bin Lip Height - Transport Position	2 060 mm (6 ft. 9 in.)
A1	Length - Bin Fully Tipped	9 573 mm (31 ft. 5 in.)	M	Bin Length	4 709 mm (15 ft. 5 in.)
B	Height - Transport Position	3 454 mm (11 ft. 4 in.)	N	Load over Height	2 533 mm (8 ft. 3 in.)
B1	Height - Rotating Beacon	3 595 mm (12 ft.)	O	Rear Axle Centre to Bin Rear	1 449 mm (4 ft. 9 in.)
B2	Height - Load Light	3 689 mm (12 ft. 1 in.)	P	Mid Axle Centre to Rear Axle Centre	1 600 mm (5 ft. 2 in.)
B3	Bin Height - Fully Tipped	5 743 mm (18 ft. 10 in.)	Q	Mid Axle Centre to Front Axle Centre	3 865 mm (12 ft. 8 in.)
C	Width over Mudguards	2 568 mm (8 ft. 5 in.)	R	Front Axle Centre to Machine Front	2 357 mm (7 ft. 8 in.)
D	Width over Tyres - 20.5R25	2 550 mm (8 ft. 4 in.)	S	Front Axle Centre to Artic Centre	1 361 mm (4 ft. 5 in.)
E	Tyre Track Width - 20.5R25	2 022 mm (6 ft. 7 in.)	T	Approach Angle	26°
F	Width over Bin	2 540 mm (8 ft. 4 in.)	U	Maximum Bin Tip Angle	70°
F1	Width over Tail Lights	2 582 mm (8 ft. 5 in.)	V	Maximum Articulation Angle	45°
G	Width over Mirrors - Operating Position	3 260 mm (10 ft. 8 in.)	W	Front Tie Down Height	1 028 mm (3 ft. 4 in.)
H	Ground Clearance - Artic	479 mm (1 ft. 6 in.)	X	Machine Lifting Centres	8 845 mm (29 ft.)
I	Ground Clearance - Front Axle	444 mm (1 ft. 5 in.)	Y	Inner Turning Circle Radius - 23.5R25	3 954 mm (12 ft. 11 in.)
J	Ground Clearance - Bin Fully Tipped	704 mm (2 ft. 3 in.)	Z	Outer Turning Circle Radius - 23.5R25	7 309 mm (23 ft. 11 in.)
K	Ground Clearance - Under Run Bar	535 mm (1 ft. 9 in.)			

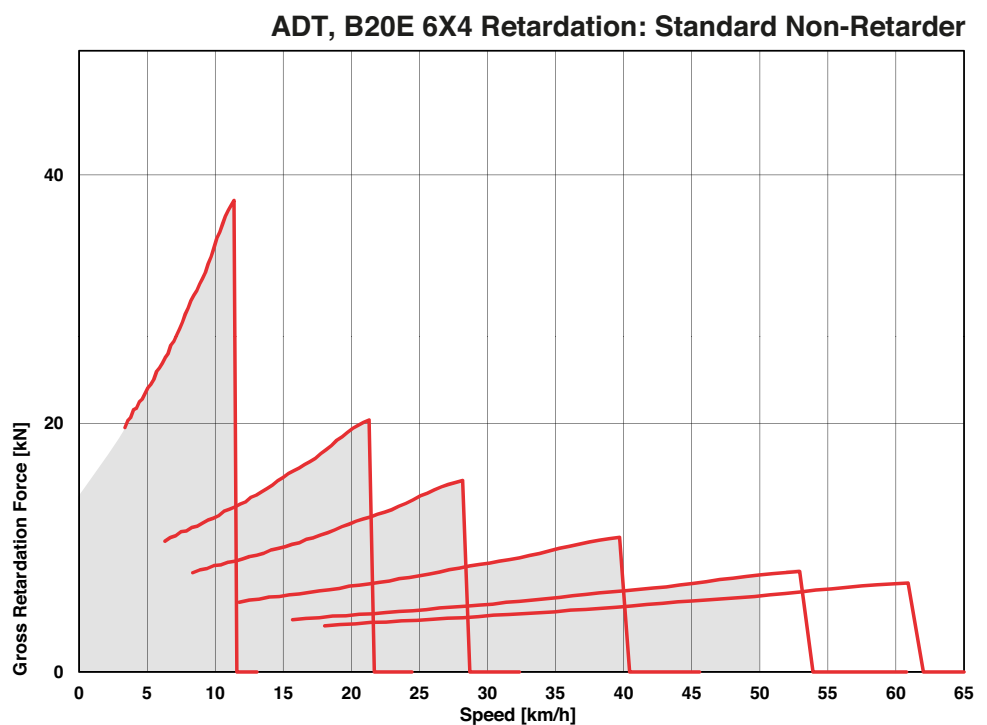
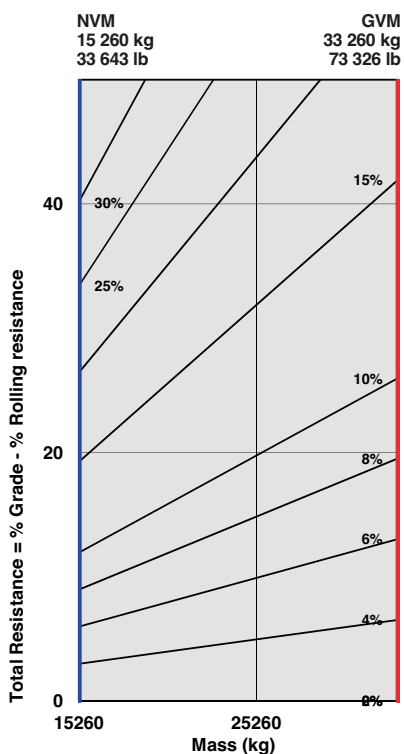
## Gradeability/Rimpull

1. Determine tractive resistance by finding intersection of vehicle mass line and grade line. NOTE: 2% typical rolling resistance is already assumed in chart and grade line.
2. From this intersection, move straight right across charts until line intersects rimpull curve.
3. Read down from this point to determine maximum speed attained at that tractive resistance.



## Retardation

1. Determine retardation force required by finding intersection of vehicle mass line.
2. From this intersection, move straight right across charts until line intersects the curve. NOTE: 2% typical rolling resistance is already assumed in chart.
3. Read down from this point to determine maximum speed.



B18E	B20E	B25E (6x4)	B25E	B30E		B18E	B20E	B25E (6x4)	B25E	B30E	
<b>ENGINE</b>						<b>CAB (continued)</b>					
●	●	●	●	●	Engine valve brake and exhaust brake	●	●	●	●	●	Remote battery jump start
●	●	●	●	●	Dual element air cleaner with dust ejector valve	●	●	▲	▲	▲	High visibility mirrors
●	●	●	●	●	Precleaner with automatic dust scavenging	●	●	●	●	●	12-volt power outlet
●	●	●	●	●	Water separator	●	●	●	●	●	Cup holder
●	●	●	●	●	Serpentine drive belt with automatic tensioner	▲	▲	▲	▲	▲	Electric adjustable and heated mirrors
<b>COOLING</b>						●	●	●	●	●	Cooled/heated lunch box
●	●	●	●	●	Crankshaft mounted electronically controlled viscous fan drive	●	●	●	●	●	Backlit sealed switch module functions with: Wiper control / Lights / Heated mirrors / Retarding aggressiveness / Transfer case differential lock / Transmission gear hold / Dump-body tip limit / Automatic dump-body tip settings / Airconditioner/Heater controls / Preselected Speed Control
●	●	●	●	●	Fan guard	●	●	●	●	●	Deluxe 10" colour LCD: Speedometer / Fuel gauge / Transmission oil temperature gauge / Engine coolant temperature gauge / LED function/warning indicators and audible alarm / Transmission gear selection / Tachometer / Battery voltage / Hour meter / Odometer / Fuel consumption / Tip counter / Trip timer / Trip distance / Metric/English units / Service codes/diagnostics
<b>PNEUMATIC SYSTEM</b>						<b>DUMP BODY</b>					
●	●	●	●	●	Engine-mounted compressor	●	●	●	●	●	Partial up dump-body mechanical lock
●	●	●	●	●	Air drier with heater	▲	▲	▲	●	●	Fully up dump-body mechanical lock
●	●	●	●	●	Integral unloader valve	▲	▲	▲	▲	▲	Body liner
<b>ELECTRICAL SYSTEM</b>						▲	▲	▲	▲	▲	Tailgate
●	●	●	●	●	Battery disconnect	▲	▲	▲	▲	▲	Body heater
●	●	●	●	●	Drive lights	▲	▲	▲	▲	▲	Less dump body and cylinders
●	●	●	●	●	Air horn	<b>OTHER</b>					
●	●	●	●	●	Reverse alarm	●	●	●	●	●	Automatic Traction Control (ATC)
▲	▲	▲	▲	▲	White noise reverse alarm	●	●	●	●	●	20.5R25 Radial earthmover tyres
●	●	●	●	●	Rotating beacon	●	●	●	●	●	23.5R25 Radial earthmover tyres
●	●	●	●	●	Pitch Roll sensor	▲	▲	▲	▲	▲	Remote grease banks
▲	▲	▲	▲	▲	LED Artic reverse light	●	●	●	●	●	Automatic greasing
▲	▲	▲	▲	▲	Halogen Artic reverse light	▲	▲	▲	▲	▲	Onboard weighing
●	●	●	●	●	LED reverse light	▲	▲	▲	▲	▲	Load lights: stack
<b>STEERING SYSTEM</b>						▲	▲	▲	▲	▲	Comfort ride suspension (Front)
▲	▲	▲	▲		Bi-directional ground driven secondary steering pump	▲	▲	▲	▲	▲	Comfort ride suspension (Rear)
●	●	●	●		Ground-driven secondary steering pump	▲	▲	▲	▲	▲	Reverse camera
<b>CAB</b>						▲	▲	▲	▲	▲	Hand rails
●	●	●	●		ROPS/FOPS certification	●	●	●	●	●	Cab peak
●	●	●	●		Tilt cab	▲	▲	▲	▲	▲	High pressure hydraulic filter
●	●	●	●		Gas strut-supported door	▲	▲	▲	▲	▲	Fuel heater
●	●	●	●		I-Tip programmable dump-body tip settings	●	●	●	●	●	Belly cover
●	●	●	●		HVAC Climate control system	▲	▲	▲	▲	▲	Cross member cover
●	●	●	●		AM/FM radio with Aux + USB	▲	▲	▲	▲	▲	Remote transmission filters
●	●	●	●		Rear window guard	▲	▲	▲	▲	▲	Window smash button
●	●	●	●		Wiper/washer with intermittent control	▲	▲	▲	▲	▲	Electronic bonnet opening
▲	▲	▲	▲		Extra wide wiper system	●	●	●	●	●	
●	●	●	●		Tilt and telescoping steering wheel						
●	●	●	●		Centre-mount air-suspension seat						
●	●	●	●		Retractable 3-point seat belt						
●	●	●	●		Foldaway trainer seat with retractable seat belt						
▲	▲	▲	▲		Rotating beacon: seat belt installation						
●	●	●	●		Halogen work lights						
▲	▲	▲	▲		LED work lights						
▲	▲	▲	▲		Remote engine and machine isolation						