

M323F

RAILROAD HYDRAULIC EXCAVATOR



Engine Power
Operating Weight

127 kW (170 hp)
22 900 kg (50,500 lb)

Cat® C4.4 ACERT™ Engine meets U.S. EPA Tier 5 Final and EU Stage V emission standards with an aftertreatment system that requires no operator input or downtime.



THE

CAT® M323F

VERSATILE, HIGH PERFORMANCE

THE CAT® M323F IS A VERSATILE, HIGH CAPACITY RAILROAD WHEELED EXCAVATOR THAT GIVES YOU THE FREEDOM TO MOVE FROM ROAD TO RAIL WITH EASE — WITHOUT COMPROMISING PERFORMANCE. THE M323F RAILROAD EXCAVATOR ALLOWS YOU TO EXPAND YOUR WORK TO NEW TERRAINS.



THE NEXT GENERATION RAILROAD EXCAVATORS

Compliant with the EN15746 standards, the M323F gives you new ways to get the most work done at the lowest cost. Upgrades include:

- + MORE SAFETY
- + MORE EVOLVED TECHNOLOGIES
- + MORE PRECISION AND VERSATILITY

Ready to help you make your business stronger and safer, Cat RailRoad Excavators give you new ways to get the most work done at the lowest cost.



STANDARD CAT SMART CONTROL SYSTEM

The Cat M323F is equipped with an evolved system to control all motions while in rail mode: the Smart Control System. This feature automatically slows down and stops excavator motion using boundaries. Set and follow rotation and height limitation parameters using the intuitive 304 mm (12") high-definition color screen.

STANDARD CAT RATED CAPACITY INDICATOR (RCI) AND LIMITER (RCL) SYSTEMS

The machine is fitted with RCI and RCL systems that enable the operator to work safely during lifting operations. A series of sensors calculates in real time:

- The slope and lateral slope of the machine,
 - The orientation of the upper frame,
 - The full geometry of the front linkage, from stub boom to bucket.
- The RCI/RCL system defines the maximum authorized load at tool point and auxiliary lifting point (ALP). Its purposes are :
- Warning and informing the operator, with sound and visual signals, of the load applied and the rated load at lifting points.
 - Limiting and controlling the front linkage and swing movements.

STANDARD AUTOMATIC OSCILLATING AXLE LOCK

In Working Mode, machine automatically locks the rail oscillating axles. When locked, full stability in digging phases and increased lifting capacities.

When Traveling Mode is set on, Smart Control System unlocks the oscillating axles. This allows the machine to travel on rails, drive at full speed on twisted and poor condition tracks with cant up to 200 mm and inside curves.

STANDARD RAIL SPECIFIC FEATURES

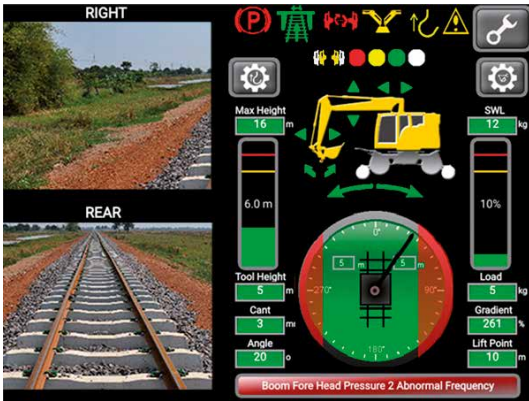
Along with the Smart Control System, the M323F machine is fitted with additional and rail specific features:

- One-way or two-way travel pedal with dedicated controls and new advanced joysticks in cab.
- Temporary Limits Off feature: This key-activated feature disables the active limitations (height or swing limits) during a limited time without compromising the stability of the machine.
- Smart Control System key-lock feature allows the worksite safety manager to lock the defined boundaries
- Stop Convoy feature that allows any personnel on work site along the track to stop machine from traveling when equipped with rail trailers.
- Additional heavy counterweight detection: Smart Control System adapts lifting capabilities when needed.

CAT SMART CONTROL SYSTEM

PUTS SAFETY FIRST WHEN MANAGING YOUR EQUIPMENT

The rail specific Cat Smart Control System allows you to set limits on the machine's movements while providing real-time kinematic, machine rotation positions. Movements smoothly slow down when approaching the preset limits and moves beyond these limits are blocked.



RAIL GAUGE DETECTION SYSTEM

When active, this feature automatically detects if the machine is equipped with UIC (1435 mm) or metric (1000 mm) rail axles. The rail gauge detection system also automatically adapts the RCI/RCL system to the rail track for complete safety during lifting operations.



INSTRUMENT PANEL

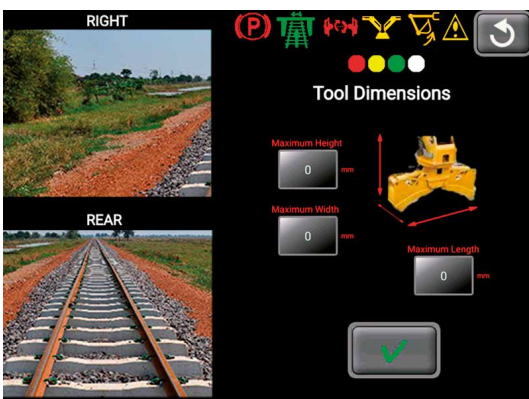
This dashboard gathers information and signals such as:

- One-way travel pedal signals
- Heavy duty counterweight detection
- Stop Convoy activation signal
- Display for UIC or rail trailer brake pressure
- Key lock for Smart Control System parameters
- Temporary Limits Off feature with key activation



SIDE AND REAR CAMERAS

The CAT SMART CONTROL SYSTEM screen also provides a clear view around the machine, on the rear and on the right side thanks to ideally located night vision cameras.



TOOL DEFINITION

To ensure full control until the last millimeters, the Cat Smart Control System permits you to set the dimensions of your tools. Once set up, the tool is fully connected to the front linkage and programmed to obey boundary limits.



STAY SAFE EVERY DAY

FACT:

#1 cause of construction accidents: **FALLS***

49% OF FALLS RESULT IN SERIOUS INJURY

30% OF FALLS RESULT IN DEATH

M323F

100% GROUND-LEVEL MAINTENANCE
HELP PREVENT FALLS

FALLS



*<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4962179/>

SAFETY FEATURES

LOOK OUT FOR YOUR PEOPLE AND EQUIPMENT

Daily maintenance checks can be performed with 100% of the points accessible from ground level, making maintenance faster, easier, and safer. Standard LED lights give you a better view of your jobsite.

SEE THE JOBSITE AROUND YOU

Enjoy better visibility all around you. Smaller cab pillars, larger windows, and a flat engine hood design let you see the jobsite around you. Rear-view and side-view cameras are standard. Equip your machine with up to 14 LED working lights for additional visibility.

UPPER PLATFORM ACCESS

The service platform design provides easy, safe, and quick access to the upper platform through the second cab. The steps use anti-skid punch plate to prevent slipping

BACKUP PUMP

The M323F is equipped with a backup electro-hydraulic pump. In an emergency or main pump failure, press the dedicated switch to run the backup pump and use all main control commands, joysticks and pedals to set the machine into travel position and move to a safe area.

AUTO AXLE LOCK WITH AUTO

The axle locks at zero speed and unlocks when the travel pedal is activated. The axle can also be manually locked with a button on the right-hand console. Auto Axle Brake Lock automatically activates the service brake and locks axle oscillation. It is activated when the travel pedal is in neutral, and the machine speed is near zero.

TOWING FEATURES

Ready for UIC-Type Wagon or Rail Trailers

Be competitive by saving costs. The trailer package lets you take raw materials and tools to the work area without additional machines or personnel.

Optional pneumatic and electric features allow towing of UIC-type wagons or rail trailers. Machine and wagon are easily and safely coupled using a certified tow bar and an automatic coupling system. A new air pressure strategy allows you to minimize downtime.

UNDERCARRIAGE

STRENGTH AND VERSATILITY AT 20 KM/H (12.4 MPH)

HEAVY DUTY ROAD AXLES

Enjoy a long machine life with effective heavy-duty axles. The transmission is mounted directly on the rear axle for protection and optimum ground clearance. The front axle offers wide oscillating and steering angles.



TRAVEL RESTRAINT BRACKET

The CAT M323F is equipped with a travel restraint bracket for clamshell and grapple tools. Thanks to this support, you can easily secure your tool's movement during road and rail travel.



RELIABLE AND PROVEN RAIL AXLE SYSTEM

Choose between three track gauges: UIC (1435 mm), Metric (1000 mm) or Broad Gauge (1600 mm).

Full hydrostatic rail axle system equipped with:

- Rail all-wheel drive
- Two-speed motor with adjustable hydrostatic deceleration.
- Dual-cylinder system to lower or raise the machine during on/offtracking.
- Iron cast cradle with oscillating-suspension system for each rail axle.
- Integrated hydraulic drive on each axle with wet emerged discs for parking brake.
- Service brake disc on each wheel, protected from derailment by the rail wheel.
- Ø632 mm UIC rail wheels with insulated or non-insulated system, depending on local regulations.



FRONT LINKAGE

FOR YOUR NEAR AND FAR-REACHING TASKS



The M323F is factory built with all hydraulics required for railway dedicated tools. Standard auxiliary hydraulics, including high pressure and quick coupler lines and circuits, allow easy attachment changes without the need to add additional lines to your machine.

OPTIMAL BOOM AND STICK CONFIGURATION

The combination of a variable adjustable boom and stick offers the right balance of reach and digging force in rail applications. The front linkage provides improved movement on rails.

Lifting applications are a big part of your job. The M323F is equipped with an auxiliary lifting point (ALP) and lifting eye at the powerlink with a standard safe working load (SWL) of 8t (17,600 lb).

MAKES HARD WORK EASY

COMFORTABLE CAB DESIGN

ERGONOMIC CONTROLS REDUCE FATIGUE

Controls are easy to reach, allowing you to operate comfortably with minimal twists and turns. Cruise control, swing and implement travel lock, and automatic oscillating axle lock on rail, reduce your required movements in the cab.

SECOND CAB FOR RAILWAY COMPLIANCE

In compliance with EN15746, the M323F is equipped with a second cab for the railway safety attendant when traveling on rails. The second cab includes a 12V 10A power supply socket, emergency stop button and pneumatic horn switch.

POWER WHEN YOU NEED IT

A 12V 10A power supply is conveniently located in the operator and second cab for charging your electronics. The second cab is also equipped with a 24V 20A power supply for use with an external refueling station for easy refueling when the machine is on rails.

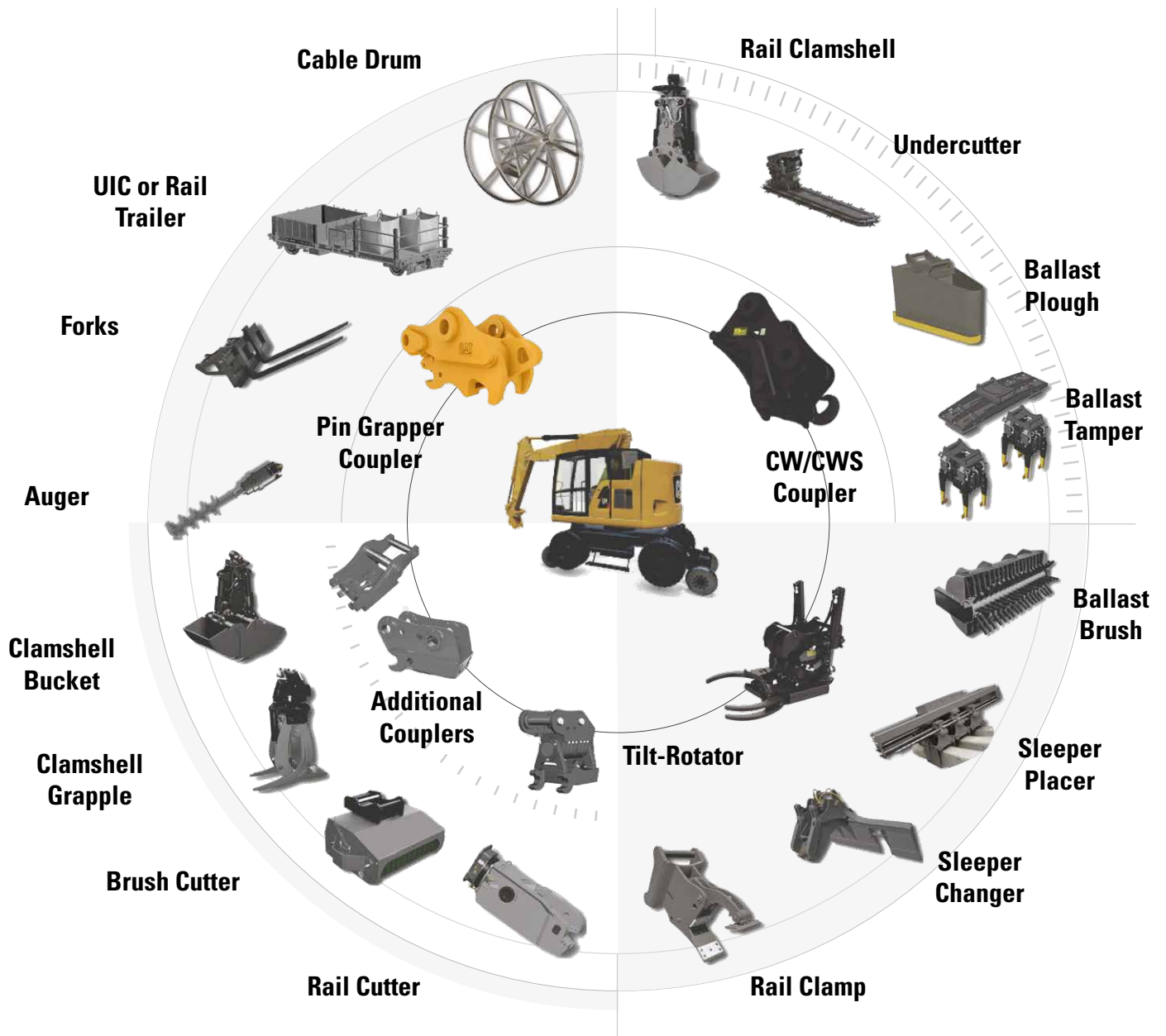
REDUCED CAB VIBRATIONS

The standard sound suppression ROPS operator and secondary cabs meet ISO 12117-2:2008 requirements and help block noise so you can stay focused on the job.



DEDICATED TOOLS

SPECIALTY TOOLS FOR RAIL APPLICATIONS



INCREASE PRODUCTIVITY AND PROFIT

Expand the performance of your machine by utilizing any of the variety of Cat Attachments. Each Cat Attachment is designed to fit the weight and horsepower of your machine for improved performance, safety, and stability.

MATCH YOUR TOOL TO YOUR WORK

The M323F is compatible with a full range of dedicated tools for rail applications including:

- Railway construction
- Railway maintenance
- Railway removal
- Support and transport jobs

TECHNICAL SPECIFICATIONS

See cat.com for complete specifications.

ENGINE		
Engine Model	Cat C4.4	
Rated Net Power (ISO 9249/SAE J1349)	127 kW	170 hp
Maximum Net Power (ISO 9249/SAE J1349)	127 kW	170 hp
Bore	105 mm	4 in
Stroke	127 mm	5 in
Displacement	4.4 L	269 in ³
Maximum Torque at 1,400 rpm	750 N.m	524 lb-ft
<ul style="list-style-type: none"> • Meets Stage V Emission Standards • Net power advertised is the power available at the flywheel when engine is equipped with air cleaner, CEM exhaust gas aftertreatment, alternator, and cooling fan running at intermediate speed • No deratings required up to 3,000 m (9,842 ft) altitude. Automatic derating occurs after 3,000 m (9,842 ft). • Power rating applies at 1,900 rpm* when tested under the specified condition for the specified standard in effect at the time of manufacture. 		
* : Augmented hydraulic flow at main pump output between 1900 rpm and 2200 rpm.		
SWING MECHANISM		
Maximum Swing Speed	11 rpm	
Maximum Swing Torque	42 kN.m	30,978 lbf-ft
WEIGHTS		
Operating Weights*	22900 kg - 23900 kg	50,486 lb - 52,690 lb
* : Operating weight includes short stick, 6400 kg counterweight, full fuel tank, operator, no quick coupler, no bucket and dual pneumatic tires. Weight varies based on configuration.		
TIRES		
Standard, MITAS NB38	10.00 - 20 (Dual)	
Optional, Michelin XF	445/70 R19.5 TL (Single)	
DRIVE		
Maximum Gradeability (22 900 kg/50,486 lb)	53%	
Maximum Travel Speed - Road or Rail	20 km/h	12.4 mph
Drawbar Pull - Road Mode	104 kN	23,380 lbf
Drawbar Pull - Rail Mode	45 kN	10,116 lbf
HYDRAULIC SYSTEM		
Tank Capacity	122 L	32 gal
System	240 L	63 gal
Maximum Pressure - Implement Circuit		
Normal	35,000 kPa	5,076 psi
Heavy Lift	37,500 kPa	5,439 psi
Travel Circuit	35,000 kPa	5,076 psi
Maximum Pressure - Auxiliary Circuit		
High Pressure	35,000 kPa	5,076 psi
Medium Pressure	18,500 kPa	2,683 psi
Swing Mechanism	37,000 kPa	5,366 psi
Maximum Flow		
Implement/Travel Circuit	260 L/min	69 gal/min
Auxiliary Circuit		
High Pressure	260 L/min	69 gal/min
Medium Pressure	70 L/min	18 gal/min
Swing Mechanism	90 L/min	24 gal/min
SERVICE REFILL CAPACITIES		
Fuel Tank Capacity	240 L	63.4 gal
Cooling System	30 L	7.9 gal
Engine Crankcase	13 L	3.4 gal
Rear Axle Housing (differential)	11.2 L	3.0 gal
Front Steering Axle (differential)	9 L	2.4 gal

Final Drive	2.4 L	0.6 gal
Powershift Transmission	2.5 L	0.7 gal
DEF Tank	19 L	5.0 gal
STANDARDS		
Cab/ROPS	ISO 12117-2:2008	
RAIL POWER TRAIN		
Rail Wheel (UIC profile)	Ø632 mm	Ø2'1"
Rail Track Gauge (UIC)	1435 mm	4'8.5"
Rail Wheel (Metric profile)	Ø638 mm	
Rail Track Gauge (Metric)	1000 mm	3'3.4"
Rail Wheel (Broad Gauge profile)	Ø632 mm	Ø2'1"
Rail Track Gauge (Broad Gauge)	1600 mm	5'3.0"
Park Brake (integrated in motor)	Multi-disc	
Tire Ground Clearance on Rail (with single tire)	184 mm	0'7"
UNDERCARRIAGE		
Road Ground Clearance	370 mm	1'3"
Rail Ground Clearance	184 mm	0'7"
Maximum Steering Angle	35°	
Oscillation Axle Angle	±8.5°	
Minimum Turning Radius:		
Outside of Tire	6300 mm	20'8"
End of VA Boom	7100 mm	23'4"
EMISSIONS AND SAFETY		
Engine Emissions	Stage V	
Fluids (optional)		
Hydraulic Oil - Panolin HLP SYNTH	Readily biodegradable EU Flower Eco-label certified	
Diesel Exhaust Fluid	Must meet ISO 22241	
Vibration Levels		
Maximum Hand/Arm (ISO 5349-2001)	<2.5 m/s ²	<8.2 ft/s ²
Maximum Whole Body (ISO/TR 25398:2006)	<0.5 m/s ²	<1.6 ft/s ²
Seat Transmissibility Factor (ISO 7096:2000, spectral class EM5)	<0.7 m/s ²	<2.3 ft/s ²

STANDARD & OPTIONAL EQUIPMENT

Standard and optional equipment may vary. Consult your Cat dealer for details.

UNDERCARRIAGE AND STRUCTURES	STANDARD	OPTIONAL
Heavy-duty road and rail axles with advanced disc brake system and travel motor with adjustable braking force	•	
Road and rail all-wheel drive	•	
Two-speed hydrostatic transmission (road and rail)	•	
Independent rail hydrostatic drive (1 motor per axle)	•	
Rail wheels (insulated if required by local regulations)	•	
Automatic oscillating rail axle lock	•	
6.4 t (14,110 lb) counterweight	•	
7.4 t (16,314 lb) counterweight		•
Travel restraint bracket for clamshell/grapple		•
Emergency Tow Bar	•	
UIC Tow Bar		•
Trailer coupling (automatic lock type) and trailer plug		•
Left and right-side footboards with retractable step	•	
Lockable box at front top of undercarriage	•	
One or two additional tool boxes at undercarriage steps		•
Roading package (road homologation)		•
HYDRAULIC SYSTEM	STANDARD	OPTIONAL
Adjustable hydraulic sensitivity	•	
One medium pressure circuit	•	
Second medium pressure circuit		•
One high pressure circuit	•	
Second high pressure circuit		•
Dedicated swing pump	•	
Load sensing hydraulic system	•	
Programmable flow and pressure for up to 10 attachments	•	
Auxiliary circuit pedal		•
Biodegradable hydraulic oil		•
Micro-filtration unit (coming standard with bio oil)		•
Engine Power mode (P) – Augmented hydraulic flow	•	
Heavy lift mode	•	
SAFETY AND SECURITY	STANDARD	OPTIONAL
Emergency stop button in operator and second cab	•	
Backup electro-hydraulic pump for rail emergencies	•	
Temporary Limits Off	•	
Manual brake release pump (emergency situation on rail)	•	
Safety stickers for rail certification	•	
Pneumatic system for UIC-type trailer or rail trailer		•
Rear and right-side cameras	•	
ROPS operator and second cab	•	
Rated Capacity Indicator (RCI) and Limiter (RCL) system	•	
Boom lowering control valve (BLCV), fore boom lowering control valve (FLCV) and stick lowering control valve (SLCV), including overload warning device	•	
Bucket lowering control valve		•
Automatic swing brake	•	
Emergency Kit		•
Manual emergency coupling unit (front and rear)	•	
BOOM AND STICKS	STANDARD	OPTIONAL
5.2 m (17'1") VA boom, 2.0 m (6'56") stick	•	

SERVICE & MAINTENANCE	STANDARD	OPTIONAL
Ground-level fuel, engine oil and filters, fluid taps	•	
Centralized lubrication for undercarriage and rail bogies		•
Auto-lubricating system		•
ENGINE	STANDARD	OPTIONAL
Cat C4.4 Stage V Certified Engine	•	
Electric fuel priming pump	•	
Automatic starting aid	•	
ELECTRICAL SYSTEM	STANDARD	OPTIONAL
Double alternator (115 A)	•	
Main shut-off switch	•	
12 V - 10 A power supply in operator and second cab	•	
Two front and two rear roading lights	•	
Right side, VA boom, and stick working lights		•
Adjustable travel alarm		•
Refueling pump (100 L/min)	•	
24 V - 20 A power socket (e.g. external refueling pump)	•	
International Union of Railways (UIC) certified rail lights		•
Electric & pneumatic signal/warning horn	•	
24 V - 10 A power supply at stick end		•
Jump start terminals	•	
Spare fuses in each fuse box	•	
OPERATOR CAB	STANDARD	OPTIONAL
Hydrostatic deceleration & rail trailer brake control joystick	•	
Instrument panel with signal LEDs and screens for hydrostatic deceleration power & trailer brake pressure	•	
One-way or two-way travel speed pedal	•	
Cruise control system on road and rail	•	
Road/rail mode button and signal	•	
On-/off-tracking guidance through Smart Sytem	•	
12" HD full graphic and color display with tiltable support	•	
Bluetooth (calling) and USB port radio with speakers	•	
Ergonomic pilot operated joysticks	•	
Air conditioner, heater, and defroster	•	
24V Lighter	•	
Bottle holder	•	
Top and bottom mounted, intermittent, parallel wiper and washer for front window and roof window	•	
Washable floor mat with storage compartment	•	
Interior lighting with door switch	•	
Tiltable left side console with lock-out for all controls	•	
Steering lock device	•	
Adjustable steering column	•	
Windshield and skylight sunshade	•	
SECOND CAB	STANDARD	OPTIONAL
Retractable seat belt	•	
Back door and openable roof for maintenance access to top part of the upper frame	•	
Rear window emergency exit	•	
Pneumatic horn control	•	
Support parts for rail safety devices	•	

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