UDS3

Passenger Boarding Steps

DESCRIPTION & SPECIFICATION

Edition 2021

1. GENERAL DESCRIPTION

1.1 GENERAL

The JBT UDS3 is a self-propelled vehicle specially designed to service the passenger boarding doors of commercial aircraft ranging from the E170 up to the A330/340 and A380 main deck.

The UDS3 provides a lower Total Cost of Ownership (TCO) with a design that provides simple controls and systems, a heavy-duty frame to withstand the harsh airport environment, extra wide pivoting platform and easy access to the engine and all major components.

1.2 PERFORMANCE

The UDS3 delivers a lower TCO by providing features and benefits focused on the key components of TCO including:

Exceptional Safety:

- **Back-up System** – A hydraulic accumulator enables the operator to steer the unit to safety, retract the stabilizer and lower the staircase in the event of a power failure. In addition, the parking brake sets three seconds after the driver selector has been placed into the neutral position.

- **Dynamic Braking** – The hydrostatic drive system provides dynamic braking after the operator's foot is removed from the accelerator pedal, providing smoother and safer stopping.

- **Ergonomic and Safe Operator Environment** – The front center mounted UDS3 operator's cab is equipped with ergonomically designed driving and lifting controls which allow for precise interfacing operations.
- **Corner Stabilizers** – Four hydraulic stabilizers located within each corner of the frame provide maximum stability.

Efficient Operation:

- **Highly Maneuverable** – The UDS3 is a highly maneuverable vehicle capable of easily operating in congested traffic areas.

- **Center Mounted Cab** – The center mounted cab positions the operator directly beneath the passenger door sill assuring safe and expedient interface operations.

- **Wide Platform and Stairs** – The three-meter-wide access platform allows the aircraft door to be opened without having to reposition the steps. The passenger stairs can accommodate two passengers per step providing faster enplanements and deplanements.

- **Highest Quality Components** – The UDS3 has a modern, fuel efficient engine and drive train with the highest quality components.

Easy Maintenance:

- **Excellent Engine Access** – The UDS3 is designed for extended service intervals with easy access to all major components and filters through panels and covers attached to the power module located behind the operator's cab.

- **Low Maintenance Driveline Components** – The driveline is designed with a safety margin and includes only the highest quality axles, hydrostatic drive system and engine.

Extended Reliability

- **Longer Life** – JBT passenger boarding stairs are designed for a 20-year useful life with many in operation well beyond 20 years. The frame is made of heavy-duty steel with an aluminum platform and steps. The UDS3s are subjected to high assembly and test standards including driving, brake testing and raising and lowering of the steps and stabilizers.

- **High Quality Components** – Reliability is extended using the highest quality hydraulic system, hydrostatic drive and engines.

- **Unparalleled Global Service Support** – JBT's vast aftermarket network provides global spare parts and field capability to extend the life its products.
- **Highest Quality Standards** – JBT manufacturing facilities in Orlando, Madrid and Juarez are ISO 9001 certified.

2. TECHNICAL SPECIFICATION

2.1 GENERAL

The UDS3 is a diesel-powered, self-propelled airport servicing vehicle, with an elevating staircase designed to safely and efficiently accommodate passengers boarding and disembarking commercial aircraft.

The following aircraft can be serviced by the UDS3:

Aircraft Manufacturer	Aircraft Models							
Airbus	A300	A310	A320	A330	A340	A350	A380[1]	A220
Boeing	B727	B737	B747	B757	B767	B777	B787	MD11
Bombardier	CS100	CS300						
Embraer	E170	E175	E190	E195				

2.2 APPLICABLE DOCUMENTS

The UDS3 complies with most of the important specifications and requirements set forth in the following documents and publications (full compliance requires selectable **options**).

- IATA AHM 910 Basic Requirements for Aircraft GSE
- IATA AHM 913 Basic Safety Requirements for Aircraft GSE
- IATA AHM 915 Standard Controls
- IATA AHM 920 Functional Specification for Self-Propelled Passenger Loading Steps

2.3 WEIGHT AND DIMENSIONS

Overall Dimensions/Weights:

• Length	8.10 m (319 in)
• Width	3.12 m (123 in)
• Height (retracted)	3.60 m (142 in)
• Wheelbase	4.36 m (172 in)
• Ground Clearance (to frame)	95 mm (4 in)
• Gross Vehicle Weight	6,940 kg (15,303 lb)

Platform/Steps Dimensions:

• Operating Height (minimum)	**2.40 m (91.5 in)**
(maximum)	5.60 m (228 in)
(w/ platform fine adjustment)	**5.84 m (230 in)**
• Platform Width (front)	3.0 m (118 in)
• Platform Length (sides)	1.83 m (72 in)
• Stair Width	1.5 m (59 in)
• Step Depth	292 mm (12 in)
• Step Height	178 mm (7 in)
• Bottom Step to Ground Height	273 mm (10.75 in)
• Inclination of Platform (maximum)	+/- 3 º

Platform/Steps Capacities:

• Platform Load Capacity	2,050 kg (4,520 lb)
• Stair Capacity (extended)	6,840 kg (15,082 lb)
• Step Capacity (each)	228 kg (503 lb)

2.4 POWER UNIT

• Standard	Deutz D 2011 L04i, 37 kW (49 hp) Stage 3A/Tier 3
• Fuel Tank Capacity	150 L (40 gal)

2.5 PERFORMANCE

• Drive Speed (stairway retracted)	25 km/hr (16 mph)
• Turning Radius	10.75 m (423 in)
• Wind Resistance* (stairs extended)	110 km/hr (68 mph)
(stairs retracted)	130 km/hr (80 mph)

***Stabilizers extended, with no (optional) canopy*

2.6 OPERATOR STATION

- Center mounted in the front of the chassis
- Single operator's seat
- Ergonomically friendly weatherproof controls for driving and loading
- Steering wheel control stick for: headlights, turn signal lights, horn
- Controls for: drive, raise/lower stairway
- Switches for: ignition, stair lighting, stabilizers
- Buttons for: engine preheat
- Indicator lights for: stabilizers raised, stabilizers lowered, low oil pressure, high engine temperature, alternator charge control, parking brake on, turn signals on, positioning lights on, stair case lights on, emergency stop/drive controls in neutral on

- Gauges for: hour meter, fuel indicator
- Selector for: priority control (control from instrument panel to adjustment controls on the platform)
- Emergency stop mounted on dashboard

2.7 PLATFORM AND STAIRWAY

Platform

- Spring-mounted front section with full length rubber bumpers that aligns with the aircraft fuselage eliminating any gaps.
- Three-meter overall length allows aircraft door to be opened without having to reposition the vehicle
- Fine adjustment controls: emergency stop, push button to raise platform, push button to lower platform, service lights on
- Sliding and locking aluminum side panels with full length rubber bumpers
- Aluminum flooring with non-slip surface
- Integrated lighting system

Stairway

- Two telescopic flights of stairs directly activated by a single hydraulic cylinder
- Automatic mechanical flight locking system
- Aluminum steps with non-slip surface
- Integrated lighting system
- Rubber handrails

2.8 CHASSIS

- Heavy-duty, purpose-built uni-welded steel body
- Fixed stair assembly section attached with four articulated joints

2.9 TRANSMISSION

- Hydrostatic drive with dynamic braking

2.10 ELECTRICAL SYSTEM

- 24V negative ground system
- Two 12V 140 Ah batteries with heavy duty starter and alternator
- Recessed lights including: brake/tail/indicator/reverse
- Sealed beam headlights, taillights, reverse lights, turn signal lights

2.11 HYDRAULIC SYSTEM

- Automotive-type traction pump attached to the front axle
- Gear-type hydraulic pump attached directly to the traction pump services the hydraulic service system

2.12 STEERING SYSTEM

- Hydraulic power steering. Orbital type steering pump acts upon a double action, double sided hydraulic cylinder connected to the front axle steering bars.

2.13 BRAKE SYSTEM

- Service brake is a hydraulically operated pressure modulated system with disk brakes on the front wheels and shoe and drum brakes on the rear wheels
- Dynamic braking which gradually stops the vehicle when the operator removes their foot from the accelerator pedal
- Parking brake is automatically applied three seconds after the drive selection mode has been set into neutral
- Manual emergency park brake release

2.14 AXLES

- Front: Spicer steering and drive axle
- Rear: Non-driving steel axle that pivots in the middle with a rubber stopper suspension

2.15 TIRES

- 7.00-R12 Radials

2.16 PAINT

- One color polyurethane

2.17 SAFETY AND EMERGENCY DEVICES

- Mushroom-type emergency stop mounted on dashboard and platform
- Automatic engine stop due to:
  - Low oil pressure
  - High coolant temperature
- Drive mode disabled when:
  - Parking brake applied
  - Stabilizers not fully retracted
- Starter disabled when:
  - Engine is running
  - Joystick is not in the neutral position
- Mechanical ratchet locks at each step height
- Parking brake automatically activated three seconds after the drive selector has been set in the neutral position and when engine stops running
- Battery disconnects
- Swiveling front platform with full length rubber bumpers to align directly with the aircraft fuselage eliminating any gaps
- Fine adjustment controls on platform
- Backup alarm
- Stair lowering alarm
- Manual pump for:
  - Raising stabilizers
  - Lowering stairs
  - Releasing parking brake
- Mechanical emergency release of parking brake

2.18 OPTIONAL FEATURES

Chassis

- Enclosed operator's cab, steel/glass with door, wipers
- Enclosed operator's cab, glass with door, wipers
- Cab heating systems
- Front rubber chassis bumper
- Headlight protection
- Winterization

Platform/Stairway

- Open canopy
- Closed canopy

Controls, Lights, Alarms

- Ignition key
- Stair lights activated by movement and light sensor
- Auxiliary battery to power the stair flight lights (separate from main system)
- Flashing or revolving beacons
- Safety barriers without drive inhibit
- Speed limited to 6 km/hr. (4 mph) when stairway extended (optional)
- Speed limited to 1.8 km/hr. (1.1 mph) when stairway extended (optional)
- APD options

Miscellaneous

- Fire extinguisher
- Decals indicating step height
- Additional paint color
- Heated rear view mirrors
- Heated seat
- Battery quick connect
- Instrument panel protection
- Spare tires and rims
- Export preservation