



B250 Push Back Tractor

DESCRIPTION & SPECIFICATION



Edition 2014

1. GENERAL DESCRIPTION

○ GENERAL

The B250 Aircraft Push Back Tractor is a low profile, heavy duty, diesel powered, four wheel drive (4WD) tractor designed for aircraft push backs and towing. It is capable of handling aircraft ranging from regional jets up to the A321/B737.

The B250 provides a lower Total Cost of Ownership (TCO) with a design that provides excellent operator visibility, ability to tow a broad range of aircraft, low maintenance driveline components and a simple, but robust design for an extended useful life.

○ PERFORMANCE

The B250 delivers a lower TCO by providing features and benefits focused on the key components of TCO including:

Exceptional Safety:

- **Outstanding Visibility** – The B250 has excellent front and rear visibility with a “notched back” design with sloped rear fenders that allows the operator to see the front and rear hitches from a seated position in the cab eliminating the need for cameras or lift cabs.
- **Back-up and Braking System** – In the unlikely event of engine or hydraulic failure back-up hydraulic pressure is made available by an on-board accumulator system to steer and stop the tractor safely. There are three levels of safety on the brake system including: a tandem service brake valve, a failsafe park brake and accumulator back-up.
- **Ergonomic and Safe Operator Environment** – The tractor is equipped with ergonomic drive controls which allow precise drive control, for critical operations like connecting and disconnecting the tow bar. Other safety features include heavy duty bumpers and low noise levels.
- **Operator Presence** – After starting the tractor, to ensure that the driver is ready to shift the tractor into gear, the brake pedal must be depressed before the transmission will engage.

Efficient Operation:

- **Highly Maneuverable** – The B250 is a highly maneuverable tractor with a small footprint providing a tight turning radius.
- **Broad Towing Capability** – The B250 is one of four models in the JBT conventional product family that has the capability of covering the entire range of aircraft from RJ's to the 747's and A380's.
- **Highest Quality Components** – JBT's conventional tractor product line has modern, fuel efficient engines and drive trains with the highest quality components.

Easy Maintenance:

- **Excellent Engine Access** – The B250 is designed for extended service intervals with easy access through electrical and hydraulic component side compartments and an oversized engine hatch.
- **Low Maintenance Driveline Components** – The driveline is designed with a safety margin and includes only the highest quality axles, transmissions and engines.
- **Weather Tight Electrical System** – The wire harnesses are connectorized and modular, corrosion and water resistant and shielded where necessary. The control box is located inside the electrical side compartment.

Extended Reliability

- **Longer Life** – JBT conventional tractors are designed for a 20 year useful life with many in operation well beyond 20 years. They are made of heavy-duty steel plate with a high quality drive train. The tractors are subjected to high assembly and test standards including drawbar and brake testing.
- **High Quality Components** – Reliability is extended through the use of the highest quality axles, transmissions and engines.
- **Robust Design** – The robust design is proven to withstand harsh ramp conditions. The design includes a ring of steel, flat glass in the cab, steel dashboard, oversized hinges, heavy hoods and hatches, etc.
- **Unparalleled Global Service Support** – JBT's vast aftermarket network provides global spare parts and field service 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 B250 Aircraft Push Back Tractor is a low profile, heavy duty, diesel powered, four wheel drive (4WD) for aircraft push backs and towing.

The B250 is the smallest conventional aircraft push back tractor offered by JBT and is capable of handling aircraft ranging from RJ's up to the A321/B737-900.

2.2 APPLICABLE DOCUMENTS

The B250 complies with the majority of the important specifications and requirements set forth in the following documents and publications.

Mandatory documents:

- Directive 2006/42/EC
- EN 1915-1 Aircraft GSE. Basic safety requirement.
- EN 1915-2 Aircraft GSE. Stability and strength requirements
- EN 1915-3 (Vibrations measurements method and reduction)
- EN 12312-7 Specific requirements for aircraft movement equipment

- OSHA: Occupational Safety and Health Standards
- SAE: Aerospace Cargo and Ground Equipment Handbook
- ARO: Aerospace Recommended Practice
- AIR: Aerospace Information Report
- ARP 1247D: General Requirements for Aerospace Ground Support Equipment
- AIR 1363: Four Wheel Drive Aircraft Tow Tractors – Factors for Design Consideration
- AIR 1375: Minimum Safety Requirement for Special Purpose Airline Ground Support Equipment
- ARP 1330A: Welding of Structures for Ground Support Equipment

2.3 AIRCRAFT COMPATIBILITY

The B250 is recommended for use on the following aircraft models:

Aircraft Manufacturer	Aircraft Models					
Airbus	A318	A319	A320	A321		
Boeing	B717	B737				
Bombardier	CRJ200	CRJ700	CRJ900	CRJ1000	CS100	CS300
British Aerospace	146					
Embraer	E170	E175	E190	E195		
Fokker	F70	F100				
McDonnell Douglas	DC9	MD80	MD90			
Sukhoi	SJ100					

2.4 WEIGHT AND DIMENSIONS

Gross Vehicle Weight: The B250 is available in the following standard Gross Vehicle Weight (GVW) and Draw Bar Pull (DBP), with optional ballast kits shown:

	<u>GVW</u>	<u>DBP</u>
• Standard	7,711 kg (17,000 lb)	60 kN (13,50 lbf)
• Option 1	9,979 kg (22,000 lb)	78 kN (17,500 lbf)
• Option 2	12,247 kg (27,000 lb)	98 kN (22,000 lbf)
• Option 3	13,608 kg (30,000 lb)	98 kN (22,000 lbf)

Overall Dimensions:

• Length (standard, w/o couplers)	4.71 m (185.5 in)
(standard, w/ couplers)	5.50 m (216.5 in)
• Width (with mirrors retracted)	2.13 m (84 in)
• Height (no cab, to top of hood)	1.47 m (58 in)
• Height (with cab)	1.98 m (78 in)
• Wheelbase	2.24 m (88 in)
• Ground clearance (to frame)	229 mm (9 in)

2.5 POWER UNIT

- Standard Engine: Perkins 1104D-44T 68 kW (91 hp), EU Stage 3A/Tier 3
- Optional Engines: Deutz TD 3.6 L4 55 kW (74 hp), EU Stage 3A/Tier 3
Deutz TD 3.6 L4 55 kW (74 hp), EU Stage 3B/Tier 4f
- Fuel Tank Capacity: 98 L (26 gal)

2.6 PERFORMANCE (Drive Speeds without Load)

- Maximum forward speed: 27 km/hr (17 mph)
- Maximum reverse speed: 16 km/hr (10 mph)

Turning Radius:

- Turning radius (outside – 2WS) 5.64 m (18 ft 6 in)
- Turning radius (outside – 4WS) -Optional 4.11 m (13 ft 4 in)

2.7 CAB

- Open cab
- Mirrors – LHS, RHS, rear coupler
- Two (2) adjustable (non-suspension) vinyl seats with seat belts

2.8 CHASSIS

- Heavy duty, uni-welded steel body equipped with removable ballast located below the side service compartments

2.9 TRANSMISSION

- Dana T12000 Power Shift
- Torque converter/interaxle differential
- Dual mode automatic/manual shifting
- Column mounted
- Four (4) speeds forward and two (3) speeds reverse

2.10 ELECTRICAL SYSTEM

- 24V negative ground system
- Two (2) 12V 950 CCA batteries with heavy duty starter and alternator
- Halogen head lights
- LED tail lights /reverse lights, turn signal lights
- Weather proof control box
- Diagnostic terminal blocks with status LED's
- Batteries, control box, engine control unit (ECU) located inside electrical service compartment
- USB charging port for mobile devices

2.11 GAUGES

- Speedometer
- Fuel level with low level indicator
- Transmission temperature and high temperature indicator
- Hour meter
- Instrumentation/diagnostics
 - Twenty (20) telltale indicators:
 - Left turn signal
 - System fault
 - Operator present
 - Engine warning
 - Engine fault
 - Wait to start
 - High beam head lights
 - Alternator
 - Parking brake
 - Brake fault
 - Hydraulic fault
 - Transmission warning/fault
 - Right turn signal
 - Gear position (R-N-F-4-3-2-1)
 - Thirty (30) pop-up error messages
 - Three (3) second beeper sounds on dash board for faults
- Rocker switches
 - Illuminated pictograms with activation bars on the top half of the switch
 - Four (4) wheel drive
 - Engine shut down over-ride
 - Hazard lights
 - Dimmer to control panel/switch brightness

2.12 HYDRAULIC SYSTEM

- Centralized hydraulic system using an efficient load sensing piston pump for steering and braking
- Hydraulic fluid tank, filter, cooling fan, accumulators located inside hydraulic service compartment

2.13 STEERING SYSTEM

- Two wheel steering (2WS) system with centralized hydraulic operating steering control valve actuating twin steering cylinders mounted on the front axle.

2.14 BRAKE SYSTEM

- Service brakes - hydraulic operated pressure modulated split system with four wheel wet disc brakes.
- Braking systems are backed up with accumulators
- Parking brake – manual foot lever with transmission mounted disc/caliper

2.15 AXLES

- Front - Dana 212 steer axle with leaf spring suspension
- Rear – Dana 112 rigid mounted
- Two (2) wheel steering
- Four (4) wheel drive
 - Automatically switches to two (2) wheel drive when speed is greater than 16 km/hr (10 mph)

2.16 TIRES

- 265/70R 19.5 Radials

2.17 TOWING COUPLERS

- One (1) level with 63.5 mm (2.5 in) pin – front and rear
- Standard height – 425 mm (16.75 in)

2.18 PAINT

- Exterior - one color polyurethane RAL 9010 white
- Couplers - red

2.19 SAFETY FEATURES

- Emergency stop button – dash board mounted
- Engine shutdown override switch
- Engine anti-restart
- Hazards warning lights switch
- Horn activates when park brake not set

2.20 OPTIONAL FEATURES

- Ballast kits to increase GVW and DBP
 - 9,979 kg (22,000 lb) 78 kN (17,500 lbf)
 - 12,247 kg (27,000 lb) 98 kN (22,000 lbf)
 - 13,608 kg (30,000 lb) 98 kN (22,000 lbf)
- Four (4) wheel coordinated and crab steering
- Intercom jacks and cable system, front/rear
- Electronic gauge display
- Ignition switch, keyed
- Sound abatement kit – chassis
- Storage box – snow tire chains
- Storage box – wheel chocks
- Mirror front coupler
- Battery disconnect switch
- Automatic axle lubrication system
- Bottle jack – 27,218 kg (30-ton) capacity
- Jack stand support kit
- Spare tire/wheel
- Alternate couplers
- Three (3)-person seating
- Driver/passenger suspension seats
- Driver/passenger air ride seats
- Back up alarm

Light Options

- Beacon – Amber flashing, with ignition on
- Beacon – Amber rotating, with ignition on
- LED headlights
- Light guards, front and rear
- Work lights, front and rear mounted near couplers
- Compartment lighting – engine/hydraulic/electrical compartments

Enclosed Operator's Cab

- Isolation mounting
- Heater/defroster
- Front windshield wiper/washer
- Windshield visors
- Rear window wiper/washer
- Overhead window
- Drivers fan, swivel mounted
- Floor mat
- Interior dome light
- Rear view mirror
- Doors with sliding windows

Additional Operator Cab Options

- Cab sound insulation
- Passenger fan, swivel mounted
- Rear window defrost – electric grid heater
- Dual level mirrors
- Flashing amber beacon, roof mounted
- Heated/powering LHS/RHS mirrors
- Air conditioning

Winterization Protection Options

- Winterization to -29°C (-20°F), 120V
- Winterization to -29°C (-20°F), 240V
- Winterization to -40°C (-40°F), 120V
- Winterization to -40°C (-40°F), 240V

Fire Extinguisher Options

- Fire Extinguisher: 2.25 kg (5 lb), fender mounted
- Fire Extinguisher: 4.5 kg (10 lb), fender mounted
- Fire Extinguisher: 9 kg (20 lb), fender mounted
- Fire Extinguisher: 9 kg (20 lb), fender mounted
- Variety of beacon and work light options
- Guards for headlights and taillights
- Keyed ignition switch
- Multiple coupler options for front and rear

- **CE Compliance Package**

- Enclosed operator's cab
- Beacon, amber flashing, on with ignition
- Cab sound insulation
- Ignition switch – keyed
- Operations Handbook – Local language (2)
- Driver suspension seat
- Passenger suspension seat
- Sound abatement kit – chassis
- Export preservation