RANGER

Aircraft Container and Pallet Loader

Operator's Handbook

JBT

MERCURY
GROUND SUPPORT EQUIPMENT

CHAPTER 1. GENERAL INFORMATION AND OPERATING INSTRUCTIONS

Section 1. Description

1. GENERAL

NOTE: REFER TO CHAPTER 1, SECTION 3 FOR EMERGENCY OPERATING INSTRUCTIONS.

The Ranger, Aircraft Container and Pallet Loader is a single-operator, self-propelled vehicle capable of lifting and conveying cargo. It can handle containers or pallets and service a variety of aircraft. Refer to Figure 1.

Design concept utilizes the latest in technology and incorporates improved conveying system, electrical systems and hydraulic components. Power units can be a variety of diesel engines. The electrical system is 24 VDC and uses a combination of relay logics and PLC controls. The hydraulic system is closed-center and load-sensing. A hydraulic motor powers the front drive axle to propel the loader.

A number of components of the vehicle are available in different configurations. For instance, the platform can be supplied for rear loading only, or for right side or left side and rear loading, or right, left, and rear loading.

2. CAPABILITIES

The Ranger can service a wide variety of lower deck aircraft intended for containerized cargo. The vehicle can handle a variety of cargo with Unit Load Devices (ULD's) with a flat bottom.

The height of the platform facilitates transfer of cargo loads from and to surface vehicles. The precision positioning capability of the propulsion system provide safe and precise control for positioning the loader.

A universal loader with a double-scissors assembly is available to increase the bridge lift height for aircraft main deck operation.

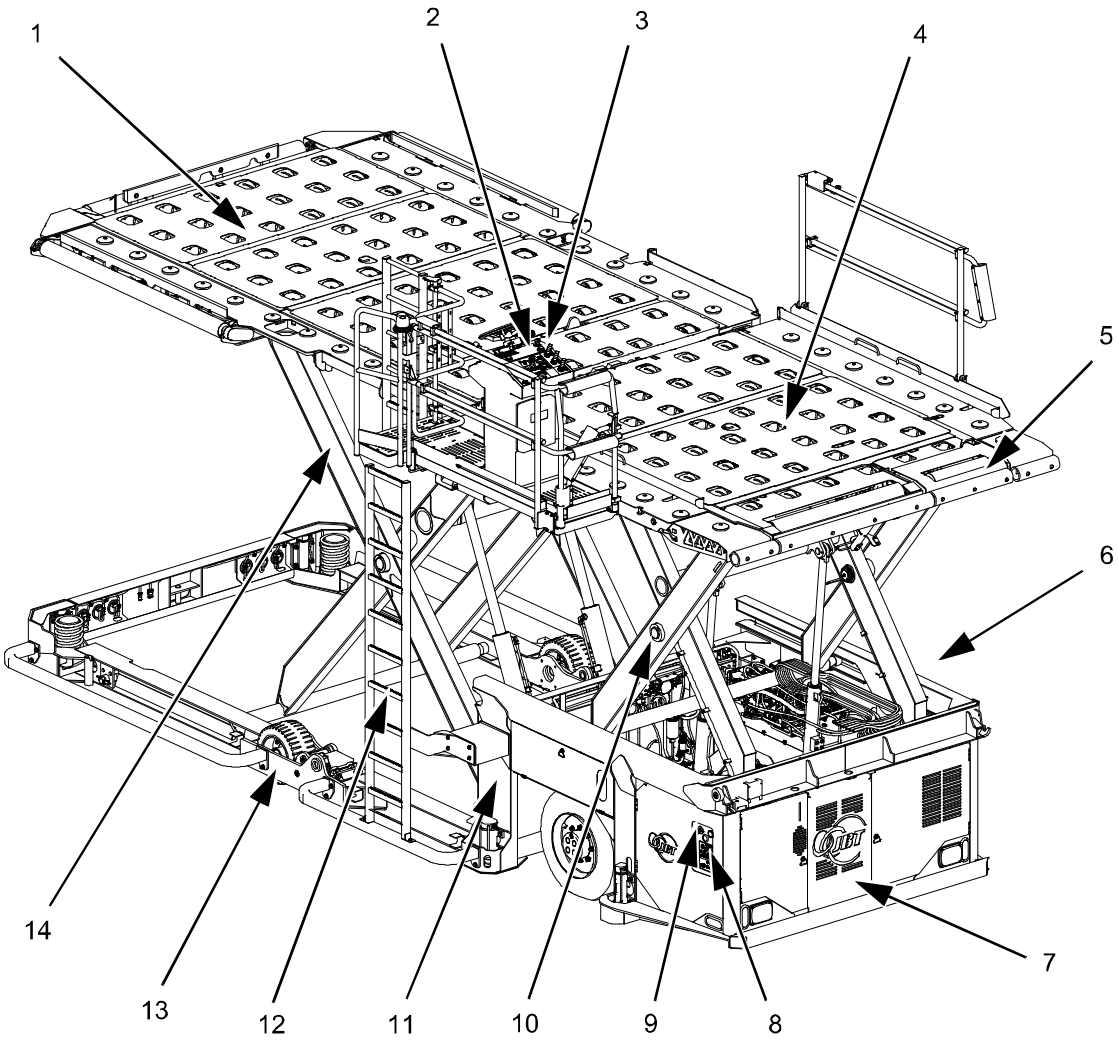
3. MAJOR COMPONENTS

A. CHASSIS

Refer to Figure 1.

The chassis is a rigid steel framework on which all other components are mounted. Two steerable drive wheels support the chassis at the front and two bogie wheel assemblies support the rear of the chassis. The drive wheels propel the chassis hydraulically by means of a drive axle.

The bogie wheel assemblies are supplied with hydraulic height adjustment, as an option. Brakes and steering are also hydraulically powered. During cargo transfer, the chassis is supported by six stabilizers that are hydraulically controlled to provide a stable platform.



1. PLATFORM
2. OPERATOR'S CONSOLE (DRIVING AND OPERATION PANELS)
3. EMERGENCY STOP (E-STOP) (OPTIONAL) INSIDE HYDRAULIC COMPARTMENT
4. BRIDGE
5. FOLDING WING (STANDARD)
6. OPTIONAL E-STOP
7. POWER UNIT
8. MAIN CONTROL PANEL
9. EMERGENCY STOP
10. BRIDGE SCISSORS
11. CHASSIS
12. ACCESS LADDER
13. BOGIE WHEEL
14. PLATFORM SCISSORS

Figure 1
RANGER LOADER

B. BRIDGE

Refer to Figure 2 and Figure 3.

A scissors assembly lifts and lowers the bridge, powered by two hydraulic cylinders. The cargo convey system allows to convey and move fore and aft, and side to side cargo loads on the bridge. Cylinders for tilting the bridge are also included as a standard feature.

Cargo convey is accomplished by rollers and HeliRoll® cluster assemblies. Convey direction is controlled by joystick switches on the operator's control panel. Hydraulic motors provide the necessary power through sprockets and chains.

Two guides, removable and hydraulically adjustable from side to side, assist in aligning cargo for transfer onto the aircraft. The guides can be placed in several predetermined locations for different aircraft door widths and container types.

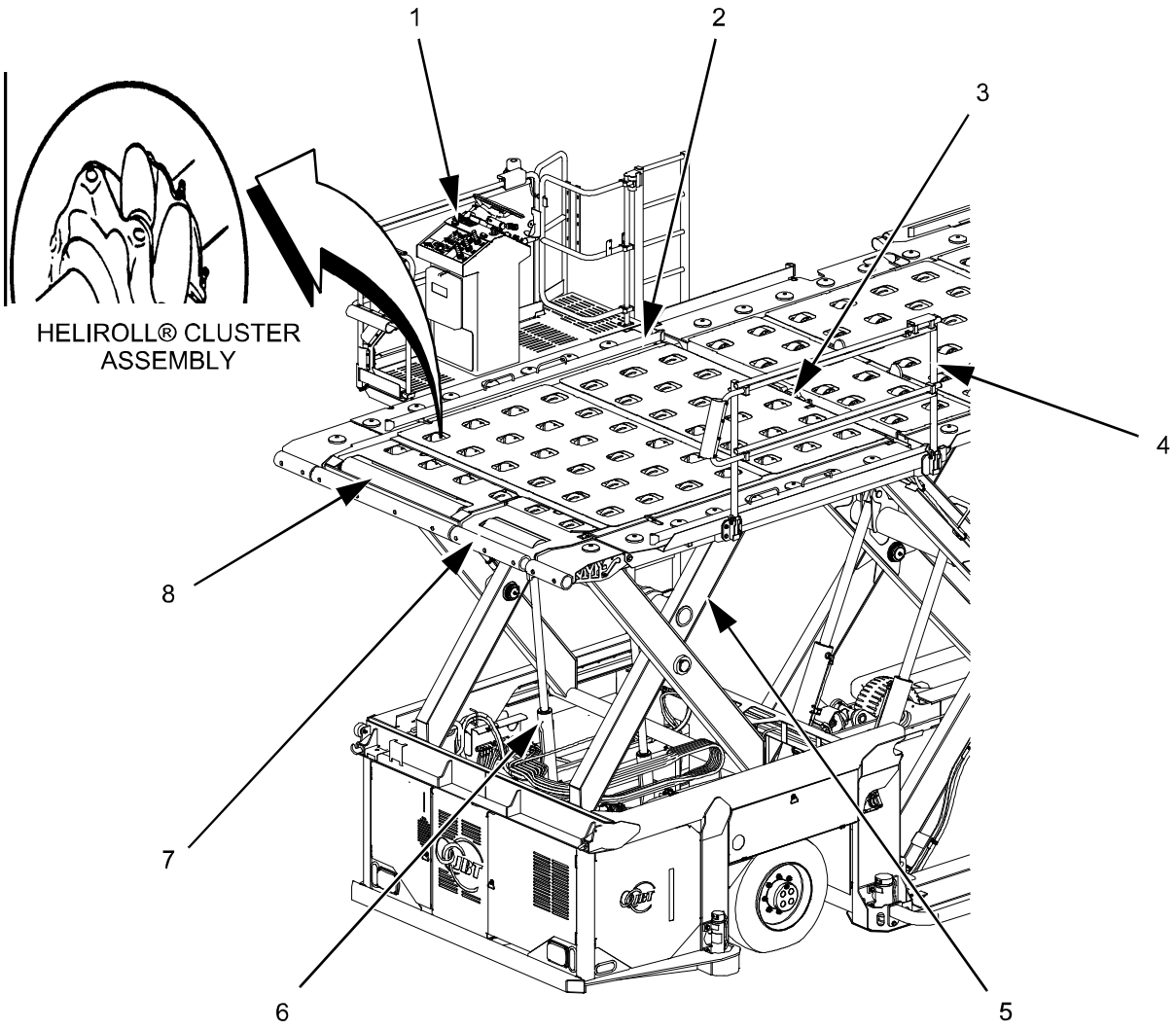
The front of the bridge may be equipped with one or three folding wings, so that the loader can be used for transfer cargo to or from aircraft with varying door widths. These folding wings can be hydraulically lowered and raised and positively support in the up position and pull down to retract.

A load stop at the rear of the bridge, which is normally in the up position, is automatically lowered when the platform is at the same level as the bridge. It prevents cargo to convey off the rear of the bridge when the platform is not in a position to accept the load.

A powered cylindrical roller at the front of the bridge supports and transfers cargo as it is conveyed on or off the bridge. A hinged, telescoping handrail is installed on the left side of the bridge.

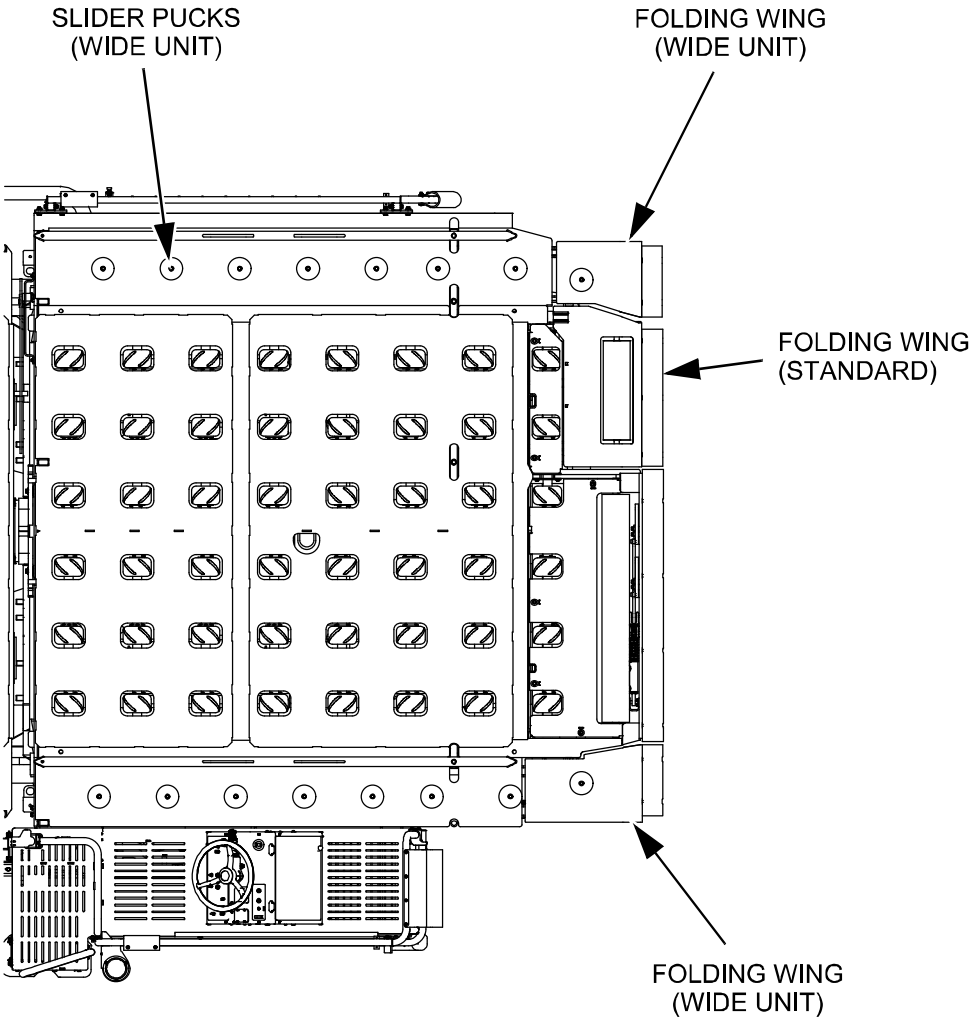
On wide units, slider pucks on both sides of the bridge can be provided. Refer to Figure 3.

For maintenance, a tie down point at the center of the bridge is provided. Optionally, front and rear handrails, bridge safety paint and non-slip surface fixed deck plates can be supplied.



1. OPERATOR'S CONSOLE
2. SIDE GUIDES (2)
3. BRIDGE AND PLATFORM INTERFACE
4. LEFT SIDE HANDRAIL
5. SCISSORS ASSEMBLY
6. LIFTING CYLINDERS (2)
7. FOLDING WING (STANDARD)
8. CYLINDRICAL ROLLER

Figure 2
BRIDGE COMPONENTS



FOLDING WINGS ARE HYDRAULICALLY RAISED AND LOWERED

Figure 3
BRIDGE, FIXED AND FOLDING WINGS

C. OPERATOR'S CAB

Refer to Figure 4.

The operator's cab contains all controls required to drive the vehicle and transfer cargo. The vehicle allows operation while standing up or sitting on an optional retractable seat with seat belt that offers good visibility, as well as safe and convenient access to loader and aircraft controls.

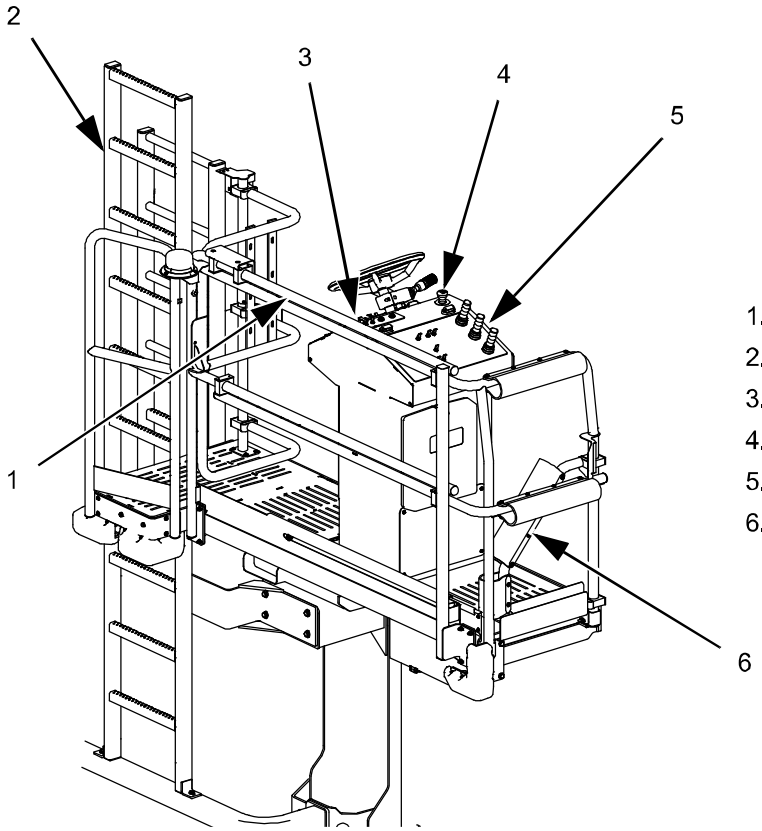
The platform in front of the operator's cab is adjustable fore and aft to allow the operator to gain access to aircraft controls during cargo transfer.

Controls and indicators provided to drive the loader and position cargo are located on two panels. Indicators are placed on the driver's panel so that operation of the loader can be monitored. Controls for propulsion speed and direction are also included. The operator's panel contains the controls to position and transfer cargo loads, raise and lower the bridge and platform, and operate the side and rear stops.

Handrails provide a safeguard for the operator while driving and operating the vehicle.

An emergency pump switch is located on the driver's console in the cab. It activates the emergency pump, which is available in case of engine failure to supply hydraulic oil and control power, so that the platform and bridge can be lowered and stabilizers can be raised.

An accelerator pedal that proportionally controls the speed of the loader is provided. This proportional control feature allows for slow moving and precise positioning of the loader when the aircraft is approached. A brake pedal allows to actuate on the hydraulic service brakes to stop the vehicle.



1. HANDRAIL
2. ACCESS LADDER
3. DRIVER'S PANEL
4. EMERGENCY STOP (E-STOP)
5. OPERATOR'S PANEL
6. SWING-OUT BARRIER

Figure 4
OPERATOR'S CAB COMPONENTS

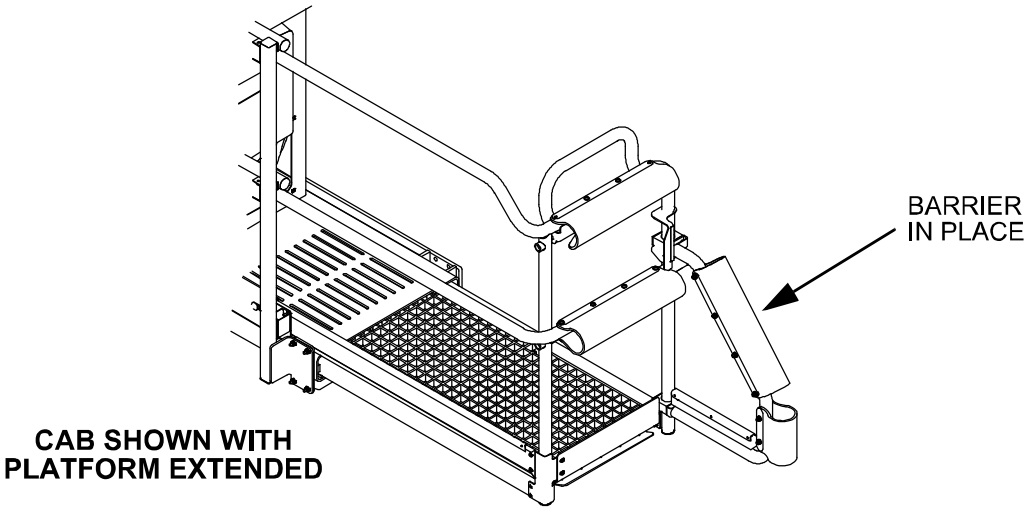


Figure 5
SWING-OUT BARRIER

D. PLATFORM

Refer to Figure 6 and Figure 7.

The platform supported by a scissors assembly, is raised and lowered by two hydraulic cylinders, assisted by two helper cylinders at the rear of the vehicle.

Based on the configuration of the platform, a different combination of rollers and HeliRoll® cluster assemblies are provided. Slider pucks are also provided with wide units.

Hydraulic load stops, automatically or manually operated prevent unintentional unloading of cargo.

Proximity switches prevent manually operating when the platform is not in the proper position for loading or unloading. Also, proximity switches on the bridge sense correct position of the platform before cargo can be transferred to or from the platform.

Powered front and rear load stops are standard, while powered left and right side guides are optional, depending on the configuration selected.

Non-slip fixed deck plates are standard and an optional platform man lift can be provided.

Also, for maintenance, tie downs are provided.

(1) Platform Configurations

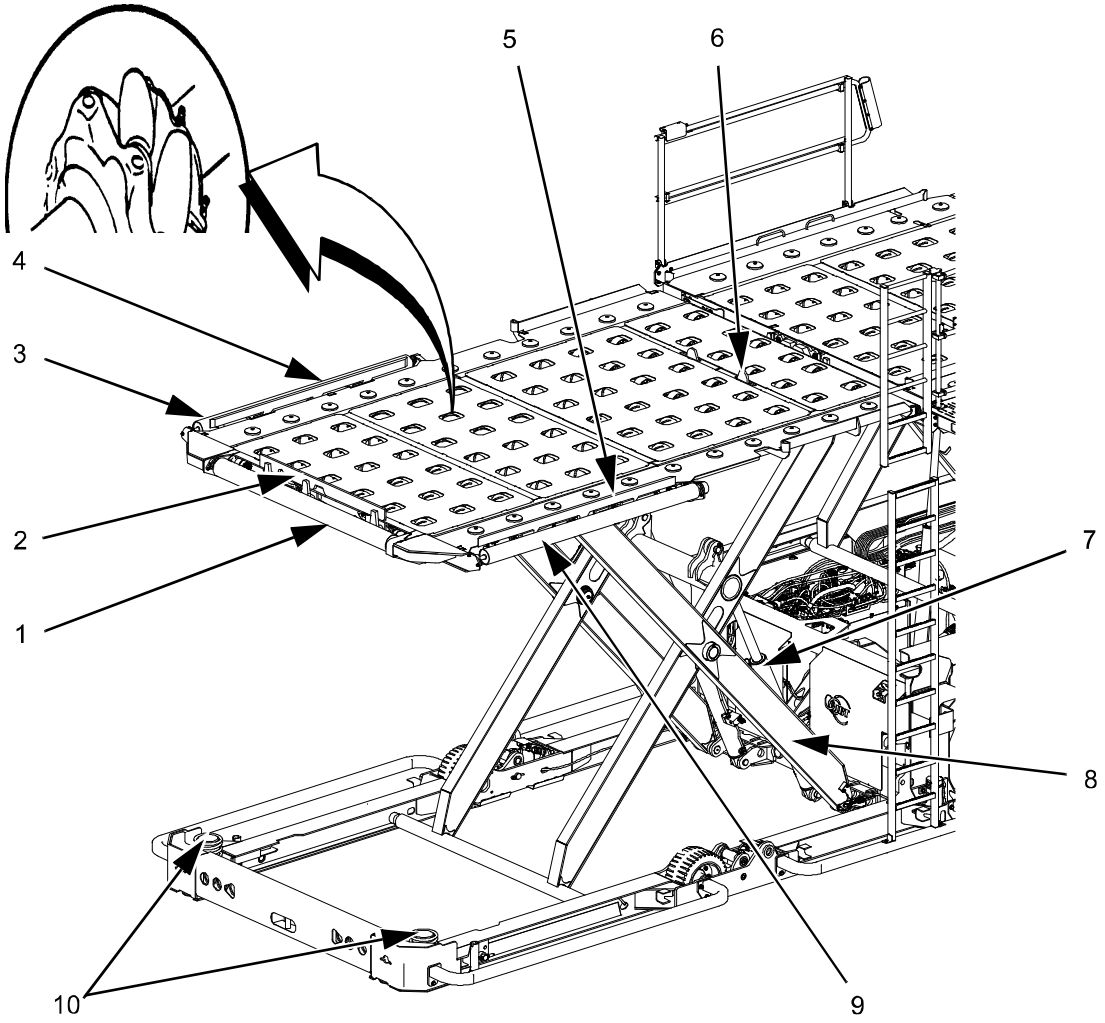
(a) Standard platform with end load only; equipped with straight rollers (no HeliRoll® cluster assemblies) and fixed side guides (no up and down). The rear load stop can be lowered and raised.

(b) HeliRoll® cluster assemblies with fixed side guides (no up and down).

(c) HeliRoll® with powered side guides (with side transfer).

Configurations (a), (b) and (c) can be provided for narrow and wide units.

HELIROLL® CLUSTER ASSEMBLY



1. REAR ROLLER
2. REAR LOAD STOP
3. LEFT SIDE ROLLER
4. LEFT SIDE LOAD STOP
5. RIGHT SIDE LOAD STOP
6. FRONT LOAD STOP
7. PLATFORM LIFT CYLINDER
8. SCISSOR ASSEMBLY
9. RIGHT SIDE ROLLER
10. ASSIST CYLINDERS

Figure 6
PLATFORM COMPONENTS

(2) Right and Left Pallet Side Load - Container Rotation

Allows the operator to transfer palletized or containerized cargo to or from the right and left sides of the loader and to or from the rear. Eight rows of cluster roller assemblies and four rows of straight rollers move the cargo. Two hydraulically powered cylindrical rollers on each side and one at the rear assist in transferring cargo to and from the transporting vehicle. Refer to Figure 7.

Hydraulically powered stops and transfer rollers for the right and left sides (optional) and the rear are provided for this configuration.

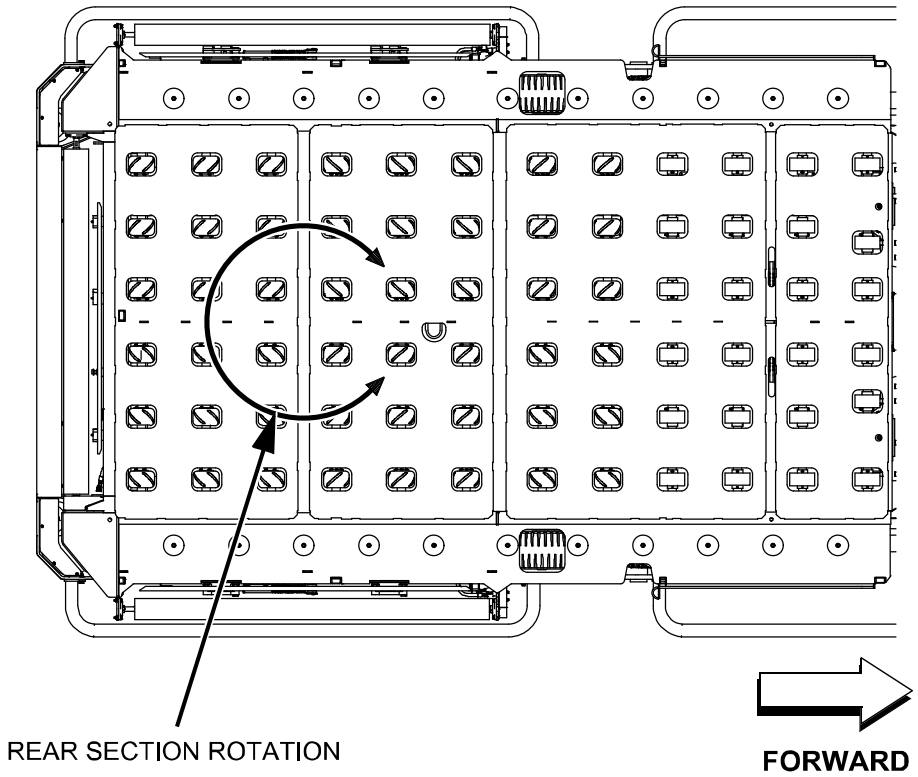
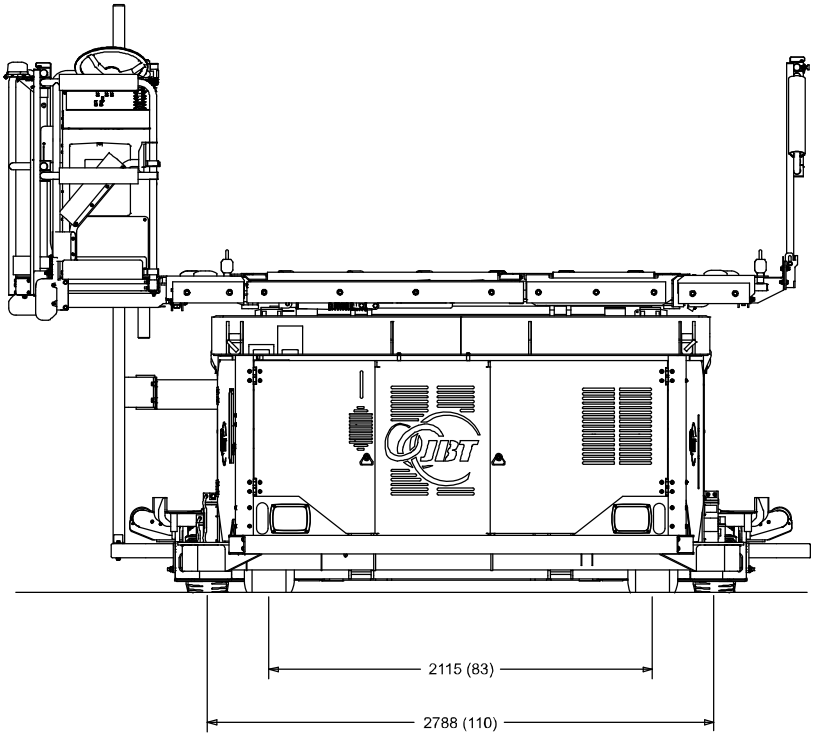


Figure 7
RIGHT AND LEFT PALLET SIDE LOAD - CONTAINER ROTATION

NOTE: DIMENSIONS ARE APPROXIMATE ONLY AND ARE SUBJECT TO MANUFACTURING VARIANCES.



DIMENSIONS IN
MILLIMETERS (INCHES)

Figure 3
VEHICLE TRACK WIDTHS - ALL CONFIGURATIONS

7. ENGINE SPECIFICATIONS AND OPERATING RPM

TABLE 2 - ENGINE SPECIFICATIONS AND OPERATING RPM

Engine Model*	Low Idle High Idle	Peak Torque**	Rated Power**
Deutz Diesel TD 2.9 L4 T4 2.9 L (177 cu.in.) EPA Tier 4f, EU Stage IIIB	1250 rpm 2300 rpm	260 N·m (192 lbf-ft.) @ 1800 rpm	55.2 kW (74.2 hp) @ 2300–2600 rpm
Perkins Diesel 1104D-44T 4.4 L (268 cu.in.) EPA Tier 3, EU Stage IIIA	1250 rpm 2300 rpm	392 N·m (289 lbf-ft.) @ 1400 rpm	68 kW (91.2 hp) @ 2200 rpm
* All engines four-stroke turbocharged, direct injection, four cylinders in line, liquid cooling system. ** Approximate information data. Refer to specific placard on the engine, and to the engine manual in Chapter 5, **MANUFACTURERS' APPENDICES** for additional information.			

8. FUEL SPECIFICATIONS AND RECOMMENDATIONS

TABLE 3 - FUEL SPECIFICATIONS AND DESIGNATIONS

Fuel Type	Sulfur Contents	% By Mass	Fuel Designation	EPA Requirement
Non-road Diesel	< 500 ppm	< 0.05%	Low Sulfur	EPA Tier 2
Highway Diesel*				EPA Tier 3
Non-road Diesel*	≤ 15 ppm	≤ 0.0015%	Ultra-Low Sulfur*	EPA Tier 3
Highway Diesel*				EPA Tier 4

* EPA mandated for the U.S. that by October 2010 all on-road Diesel fuel must be 15 ppm Ultra-Low Sulfur Diesel (ULSD), and off-road Diesel fuel must be 500 ppm. The exception was the State of California that required all Diesel fuel to be 15 ppm ULSD since January 2007, and it applies to all vehicles and equipment with no exceptions. EPA also required for all the U.S. that 2007 model year and newer vehicles must use ULSD fuel, called also 'Sulfur-free' Diesel fuel.

CAUTION

WHEN USING DIESEL FUELS WITH SULFUR CONTENTS GREATER THAN 500 PPM (0.05% BY MASS) AND THE ENGINE EQUIPPED WITH AN EXTERNALLY COOLED EGR (TIER 3 ENGINES), LARGER FILTERS WITH TIGHTER MICRON FILTRATION MUST BE USED. CONSULT THE ENGINE MANUFACTURER FOR MODIFICATIONS NEEDED.

CAUTION

DO NOT USE DIESEL FUELS WITH SULFUR CONTENTS GREATER THAN 15 PPM (0.0015% BY MASS) IN EPA TIER 4 ENGINES.

CAUTION

DO NOT USE JET A1 FUEL IN THIS VEHICLE. REFER TO ENGINE MANUFACTURER FOR SPECIFIC RECOMMENDATIONS.

9. DIESEL FUEL SYSTEM

A. FUEL TYPE

Refer to 'FUEL SPECIFICATIONS AND RECOMMENDATIONS' and cautions above.

- Diesel fuel, Tier 3 (Stage IIIA) engines ..... ASTM D975-07, No. 1-D and No. 2-D
- Diesel fuel, Tier 4 (Stages IIIB, IV) engines ... EN 590, DIN 51628 and ASTM D975 No. 1-D S15 and No. 2-D S15

B. FUEL TANK CAPACITY

- Fill capacity ..... 98 L (26 gal.) approx.

C. FILTER TYPE

- Primary filter ..... Cartridge type, fuel and water separator
- Secondary filter ..... Canister type
- Heated fuel and water separator..... Optional

NOTE: FUEL WAXING MAY OCCUR AT LOW TEMPERATURES, CLOGGING THE FUEL SYSTEM AND REDUCING THE ENGINE EFFICIENCY. IF THE AMBIENT TEMPERATURE IS LESS THAN 0 °C (32 °F), WINTER-GRADE FUEL (SUITABLE DOWN TO -23 °C [-10 °F]) SHOULD BE USED. FOR TEMPERATURES BELOW -9 °C (16 °F) REFER TO THE ENGINE OPERATION MANUAL IN CHAPTER 5.

NOTE: FOR OPERATION AT TEMPERATURES BELOW -23 °C (-10 °F), A FUEL FILTER HEATER IS RECOMMENDED. REFER TO ENGINE MANUFACTURER'S MANUAL IN CHAPTER 5 FOR FURTHER INFORMATION.

10. WHEELS AND TIRES

• Front axle wheel rims	8.25 x 19.50 (8 lugs)
• Front tires (pneumatic)	265/70 R19.5 16 ply
• Front tires (solid type)	Optional
• Inflation air pressure (pneumatic tires only)	Refer to Chapter 2, Section 4, "Maintenance Specifications".
• Rear axle wheel rims	12.125 x 9.00 (8 bolt holes)
• Rear wheels (bogie wheels)	18 x 9 x 12.125 (solid type)

11. BRAKES

• Hydrostatic brake (low displacement only)	Hydrostatic braking action on deceleration (forward and reverse), when releasing accelerator pedal

NOTE: LOW DISPLACEMENT MODE IS TYPICALLY UNDER 8 KM/H (5 MPH).

• Service brakes	Brake acting on front wheels, hydraulically powered, mechanically applied with pedal
• Parking brake	Integrated with front axle, spring-applied, and hydraulically released
• Brake fluid	Hydraulic oil from services system

12. AXLES

• Front drive steering axle	The front axle has an integrated differential and two wheel drive hubs, with integrated hydraulic steering and brakes.
• Front wheel lug nuts torque	Refer to Chapter 2, Section 4, "Maintenance Specifications".
• Rear axle	Two sets of bogie wheels, optionally integrated with height adjustment cylinders to lift and lower the rear of the chassis. Bogie wheels are not powered and do not drive the vehicle.

13. STEERING

- System . . . . . The vehicle is equipped with a hydraulic power assisted steering system, mechanically activated by the steering wheel, directly coupled to an Orbitrol valve.
- Activation . . . . . By a double-acting hydraulic cylinder integrated with the front axle and connected to the rocking arms at both ends of the axle.
- Steering angle . . . . . 45º maximum

14. HYDRAULIC SYSTEM

A. GENERAL

Closed center system, pressure compensated with load sensing controls.

B. FLUID TYPE

NOTE: SPECIFICATIONS AND CHARACTERISTICS OF THE HYDRAULIC FLUID TO BE USED WITH THE VEHICLE WILL DEPEND ON THE WEATHER OPERATING CONDITIONS.

This vehicle is shipped with a specified hydraulic fluid, but depending on weather operating conditions it may be required to replace it with a fluid of the proper characteristics.

NOTE: FOR FLUID TYPES AND OIL OPERATING TEMPERATURE RANGES, REFER TO "HYDRAULIC OIL RECOMMENDATIONS" IN CHAPTER 2, SECTION 4, "MAINTENANCE SPECIFICATIONS".

C. HYDRAULIC PUMP

An axial piston pump, directly coupled and driven by the power unit provides hydraulic flow to power all functions in the vehicle.

D. EMERGENCY ELECTRIC PUMP

An electrical motor-driven hydraulic pump is provided for emergency operations. Refer to Chapter 1, Section 3, "Emergency Procedures".

This pump must be manually activated by the operator when the vehicle is moving and the braking or steering pressure drops. Also, it can be manually activated to return to zero position, release parking brake or other emergency procedures.

E. OTHER HYDRAULIC COMPONENTS

- Hydraulic traction and roller motors
- Hydraulic cylinders
- Relief and flow control valves
- Pressure reducing valves

F. FILTERS

• Breather	Replaceable, furnished with water disposal element
• Pressure filter (optional)	Replaceable, 3-micron element
• Return filter	Replaceable, in-tank return filter with 5-micron element

G. HOSE ASSEMBLIES

Pressure Hoses

• Diameter 6.4–15.9 mm (0.25–0.625 in.)	SAE 100R16, SAE standard J517
• Diameter 19.1–25.4 mm (0.75–1.00 in.)	SAE 100R12, SAE standard J517

Suction Hoses

• All diameters	SAE 100R4, SAE standard J517

H. OPERATING PRESSURES

NOTE: FOR OPERATING PRESSURES REFER TO CHAPTER 2, SECTION 4, "MAINTENANCE SPECIFICATIONS".

15. ELECTRICAL SYSTEM

A. MAIN ELECTRICAL COMPONENTS

- 24 VDC system, powered by alternator on engine; current stored on two 12 VDC batteries
- Headlights (low and high beams) and rear stop and reverse lights
- Turn signal lights (front and rear of vehicle) and hazard warning lights
- Beacon(s)
- Working lamps (optional)

B. FUSES AND CIRCUIT BREAKERS

Fuses or circuit breakers are provided to protect ignition switch, heater, beacon, instrument panel, services, horn and other components.

NOTE: REFER TO CHAPTER 4, **ILLUSTRATED PARTS LIST** FOR CIRCUIT BREAKERS, FUSES, RELAYS AND LAMP BULBS QUANTITIES AND SPECIFICATIONS.

Section 4. Specifications

1. GENERAL

This vehicle specification outlines the product definition of the Ranger offered by JBT, Ground Support Equipment.

Vehicles in this line are equipped with diesel powered engines driving a hydraulic pump for traction and services. The vehicle is hydraulically driven providing propulsion to the front axle.

NOTE: MAINTENANCE SPECIFICATIONS ARE CONTAINED IN CHAPTER 2, SECTION 4. ALL REFERENCES TO GALLONS ARE FOR U.S. GALLONS.

NOTE: VEHICLE SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE, DUE TO DESIGN IMPROVEMENTS AND CUSTOMERS' SPECIFIC REQUIREMENTS.

2. MODEL DEFINITION

Vehicle name:	Ranger, Aircraft Container and Pallet Loader
Designation:	Ranger 7
Vehicle type:	Aircraft Container and Pallet Loader
Power unit:	Diesel (standard)
Configurations:	Narrow, Wide, and Universal
Gross vehicle weight:	Refer to 'GENERAL DIMENSIONS AND WEIGHTS'.
Maximum cargo load:	Refer to 'OPERATING CHARACTERISTICS'.

3. AIRCRAFT COMPATIBILITY

The Ranger can service a wide variety of lower and main deck aircraft intended for containerized cargo, with different door still heights, including main decks as an option. The vehicle can handle a variety of cargo with Unit Load Devices (ULD's) comprised of a flat bottom. Refer to 'OPERATING CHARACTERISTICS'.

4. LOADER CONFIGURATIONS

TABLE 1 - LOADER CONFIGURATIONS

<table>
<tr><th>Loader</th><th>Bridge and Platform Width</th><th>Bridge Maximum Height</th></tr>
<tr><td>Narrow (Standard)</td><td>Narrow</td><td rowspan="2">Aircraft Lower Deck</td></tr>
<tr><td>Wide</td><td rowspan="2">Wide</td></tr>
<tr><td>Universal</td><td>Aircraft Main Deck</td></tr>
<tr><td colspan="3">All configurations are offered with optional hydraulic bogie wheels to raise the chassis in driving mode.</td></tr>
</table>

5. OPERATING CHARACTERISTICS

General Performance

• Bridge lift capacity	7050 kg (15 500 lb.) (maximum)
• Platform lift capacity	7050 kg (15 500 lb.) (maximum)
• Load capacity	Two containers (LD-1 or LD-3) (or similar dimensions) or one pallet 3.18 m x 2.44 m (125 in. x 96 in.)
• Maximum speed	14.5 km/h (9 mph) standard 24.0 km/h (15 mph) high speed option
• Wind speed (maximum during operation)	73 km/h (45 mph)
• Wind speed (withstand-stability)	161 km/h (100 mph)
• Transfer speed	18.30 m/min. (60 fpm)

Lift Speeds

• Bridge (lower deck)	3.60 m/min. (12 fpm) approx.
• Bridge (main deck)	4.60 m/min. (15 fpm) approx.
• Platform	13.70 m/min. (45 fpm) approx.

Minimum Transfer Height

• Bridge (lower deck)	1778 mm (70 in.)
• Bridge (main deck)	1899 mm (75 in.)
• Platform (fully retracted)	470 mm (19 in.) approx.

Maximum Transfer Height

• Bridge (lower deck)	3759 mm (148 in.)
• Bridge (main deck)	5586 mm (220 in.)
• Platform (fully extended)	3772 mm (149 in.) approx.

6. GENERAL DIMENSIONS AND WEIGHTS

A. WEIGHTS

• Standard loader* (narrow, lower deck)	12 338 kg (27 200 lb.) approx.
• Wide loader* (lower deck)	12 928 kg (28 500 lb.) approx.
• Universal loader* (main deck)	14 470 kg (31 900 lb.) approx.

NOTE: *MINIMUM TOTAL WEIGHT. TOTAL WEIGHT WILL BE DEPENDING ON CONFIGURATION AND FEATURES SUPPLIED.

B. GENERAL DIMENSIONS

Total Length	
• All configurations	8844 mm (348 in.)
Total Width	
• Narrow loader	3786 mm (149 in.) (bridge) 3146 mm (124 in.) (platform)
• Wide and Universal loaders	4435 mm (175 in.) (bridge) 3845 mm (151 in.) (platform)
Narrow and Wide Loader Heights (to highest point)	
• To top of steering wheel	5007 mm (197 in.) (maximum)
• To top of outer ladder	3219 mm (127 in.) (minimum)
Universal Loader Height (to highest point)	
• To top of inner ladder	7085 mm (279 in.) (maximum)
• To top of outer ladder	3537 mm (139 in.) (minimum)
Bridge Widths (between guides)	
• Wide and Universal loaders	3226 mm (127 in.) (maximum) 2489 mm (98 in.) 1600 mm (63 in.) (minimum)
• Narrow loader (standard)	2489 mm (98 in.) (maximum) 1600 mm (63 in.) (minimum)
Platform Widths (between guides)	
• Wide and Universal loaders	3234 mm (127 in.)
• Narrow loader	2502 mm (99 in.)
Other Dimension	
• Bridge length	3501 mm (138 in.)
• Platform length (between load stops)	4093 mm (161 in.)
• Wheelbase (to center of bogie wheel)	3239 mm (128 in.) approx.
• Stopping distance (at full speed, with dynamic brake and service brake)	4.60 m (180 in.) approx.
• Maximum grade to start or drive on	5%
Track Widths	
• Front axle	2115 mm (83 in.)
• Rear axle (bogie wheels)	2788 mm (110 in.)

Convey Mode - Standard or Bogie Wheels Retracted (Optional)

- Ground clearance (front bumper). . . . . 214 mm (8 in.) approx.
- Ground clearance (platform) . . . . . 65 mm (3 in.) approx.
- Ground clearance (minimum). . . . . 63 mm (2 in.) approx.
- Approach angle . . . . . 6°
- Ramp break over angle . . . . . 5°
- Departure angle . . . . . 1°

Driving Mode - Bogie Wheels Extended (Optional)

- Ground clearance (front bumper). . . . . 159 mm (6 in.) approx.
- Ground clearance (rear of platform). . . . . 231 mm (9 in.) approx.
- Ground clearance (minimum). . . . . 79 mm (3 in.) approx.
- Approach angle . . . . . 5°
- Ramp break over angle . . . . . 8°
- Departure angle . . . . . 4°

Turning Radius - Wide and Universal Loaders

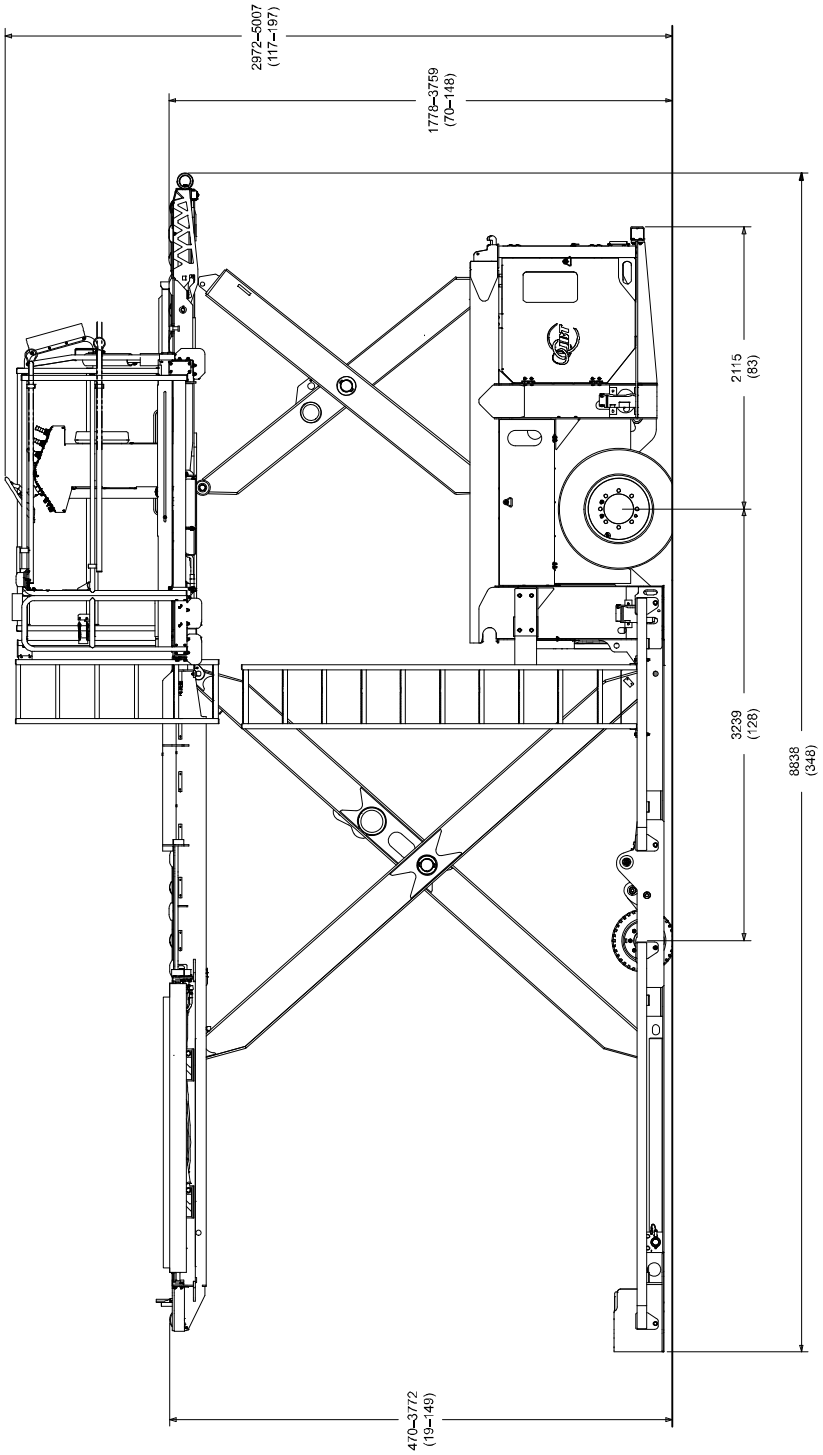
- Exterior turn radius (swept) . . . . . 8167 mm (322 in.) approx.
- Exterior turn radius (outer front wheel). . . . . 6316 mm (249 in.) approx.
- Exterior turn angle . . . . . 30° approx.
- Interior turn radius (inner front wheel) . . . . . 4330 mm (170 in.) approx.
- Interior turn radius (inner rear wheel). . . . . 2666 mm (105 in.) approx.
- Interior turn angle. . . . . 45° approx.

Turning Radius - Narrow Loader

- Exterior turn radius (swept) . . . . . 7835 mm (308 in.) approx.
- Exterior turn radius (outer front wheel). . . . . 6316 mm (249 in.) approx.
- Exterior turn angle . . . . . 30° approx.
- Interior turn radius (inner front wheel) . . . . . 4330 mm (170 in.) approx.
- Interior turn radius (inner rear wheel). . . . . 2666 mm (105 in.) approx.
- Interior turn angle. . . . . 45° approx.

NOTE: DIMENSIONS ARE APPROXIMATE ONLY AND SUBJECT TO MANUFACTURING VARIANCES.

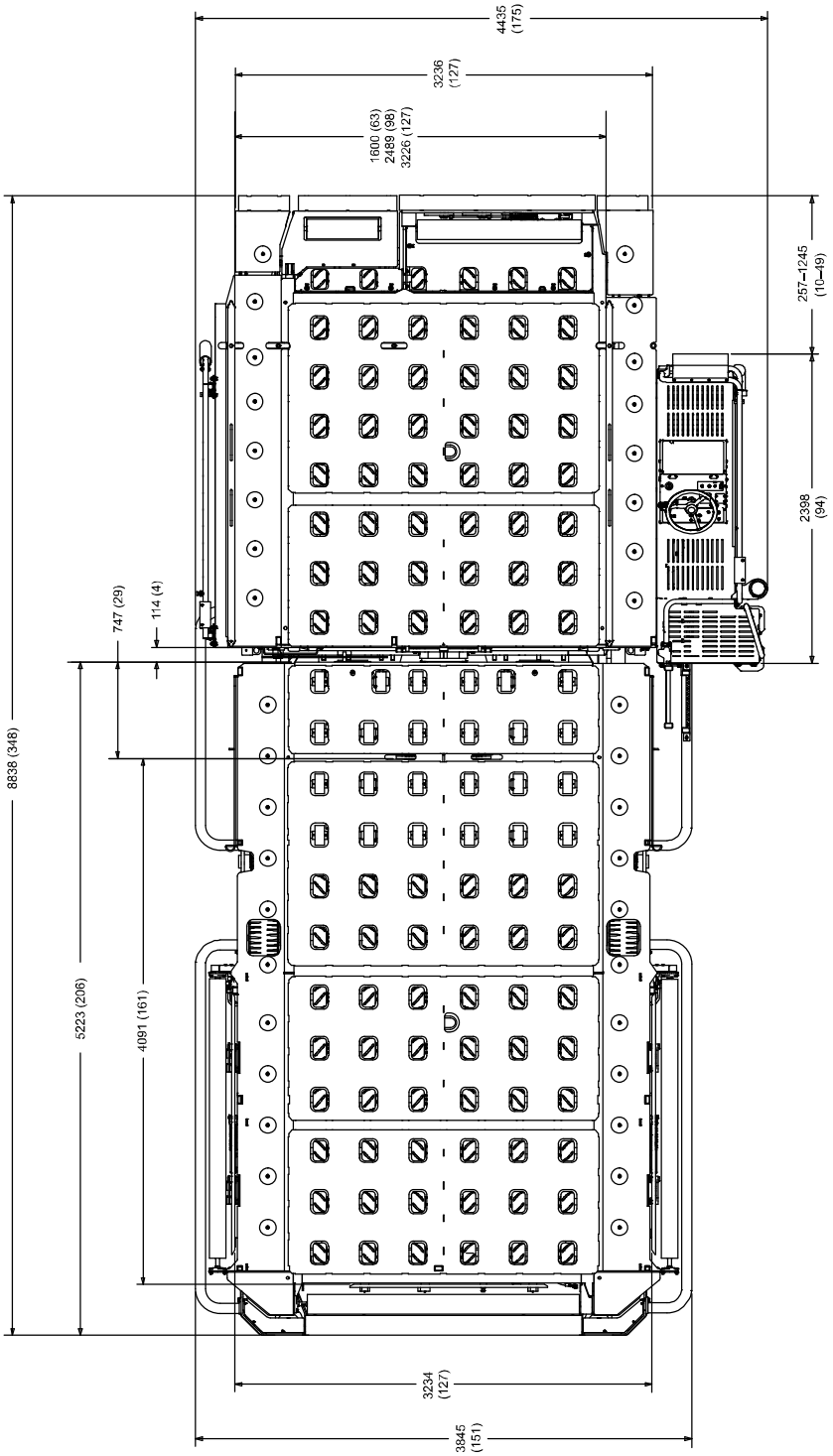
DIMENSIONS IN
MILLIMETERS (INCHES)



NOTE: DIMENSIONS ARE APPROXIMATE ONLY AND ARE SUBJECT TO MANUFACTURING VARIANCES.

Figure 1
GENERAL DIMENSIONS - LOWER DECK LOADER

DIMENSIONS IN
MILLIMETERS (INCHES)



NOTE: DIMENSIONS ARE APPROXIMATE ONLY AND ARE SUBJECT TO MANUFACTURING VARIANCES.

Figure 2
BRIDGE AND PLATFORM DIMENSIONS - WIDE LOADER