ECR 327/336

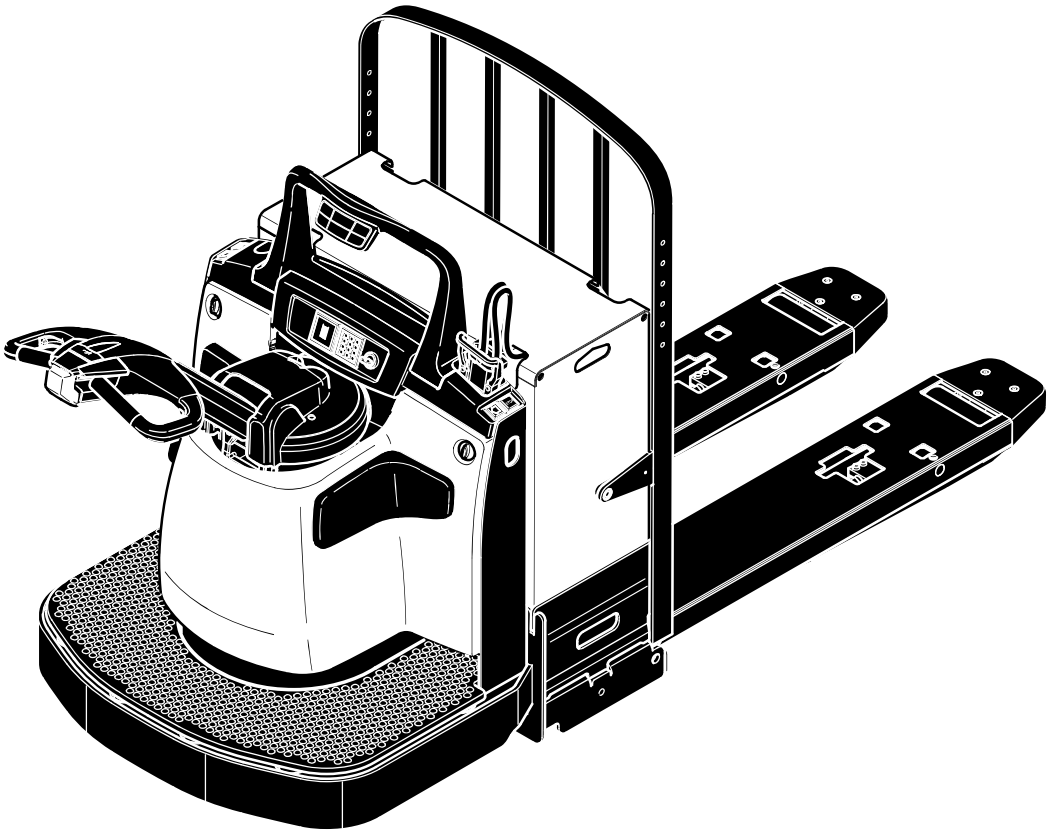
10.05 -

Operating instructions (USA)

Instrucciones de servicio (E)

50451814

03.07



JUNGHEINRICH

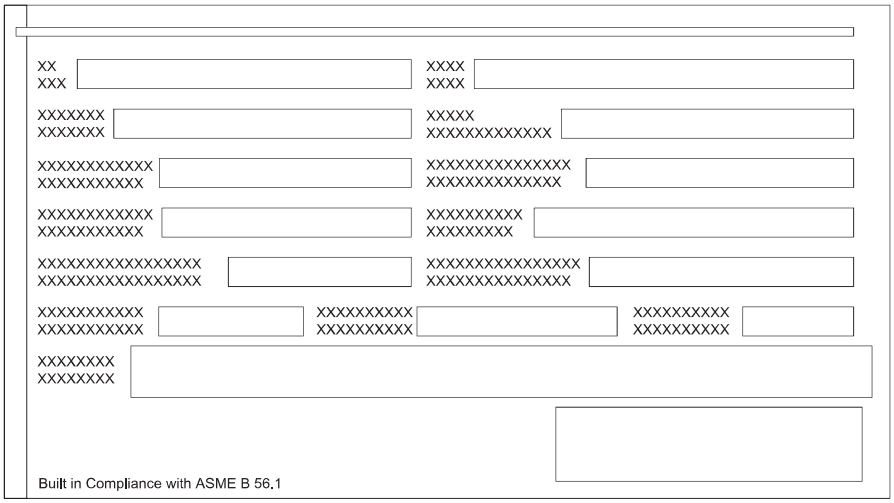
Attachment of accessories: The attachment or installation of accessories, and modifications and/or additions to the hardware or software, which adversely affect or change the nominal power, the safe operation, the emergency devices or other functions of the industrial truck, are permissible only with the prior, express, written approval of the manufacturer.
If such approval is granted, the nameplates, markings or warnings with regard to load capacity, operation, and maintenance must be altered accordingly.
Local authority approval must be obtained if necessary.
Local authority approval does not, however, release the owner from his or her duty to obtain approval from the manufacturer.

If the industrial truck is fitted with accessories, including fork extensions, the user must ensure that the truck is labeled to identify the accessories and that the approximate weight of the truck and the combined accessories is shown, together with the load capacity of the truck and accessories at maximum lift with a laterally centered load.
If the modifications are associated with alterations and repairs to the basic functions, these changes must be made in accordance with the criteria and procedures set down by the manufacturer.

The basic functions comprise the following elements:

– Steering (guidance)
– Travel speed
– Controller and sensors
– Lift and load influencing

Nameplate: We recommend that you copy the details from the nameplate onto the diagram below to ensure that this important data is available to the operator and that this Operating Manual is not accidentally used for another machine.



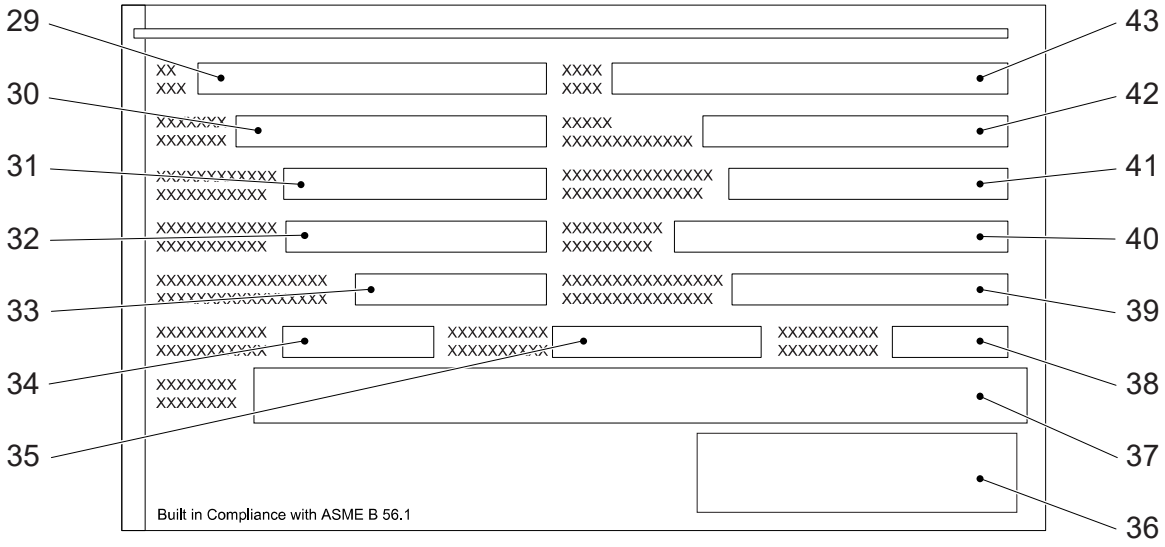
The operator is responsible for ensuring that all nameplates, warning signs and instruction signs are in place and are legible (see "Position of signs and nameplates" in Chapter D).

⚠WARNING The use of an industrial truck involves certain risks, which cannot be fully excluded even with the use of electrical devices; these risks can, however, be minimized through intelligence, consideration, and common sense. It is, therefore, essential that operators are qualified, diligent, and physically and mentally fit, and have been thoroughly trained in the safe use of the machine and in materials handling techniques.

Vehicle with 3600 kg load and 150 mm load carriage travel, including 510 Ah battery

Fork length in inches (mm)	Forkover-hang in inches (mm)	Load center (LC) in inches (mm)	Vehicle weight in lb (kg)	Drive axle in lb (kg)	Load axle in lb (kg)	Drive wheel load while moving in drive direction (level ground) in lb (kg)	Drive wheel load while moving in fork direction (level ground) in lb (kg)
35.7 (908)	7.3 (185)	19.7 (500)	10430 (4731)	3331 (1511)	7099 (3220)	2835 (1286)	2615 (1186)
41.7 (1060)	7.3 (185)	23.6 (600)	10470 (4749)	2765 (1254)	7705 (3495)	2269 (1029)	2048 (929)
47.8 (1213)	7.3 (185)	23.6 (600)	10511 (4768)	3512 (1593)	7000 (3175)	3016 (1386)	2795 (1268)
53.7 (1365)	7.3 (185)	26.9 (683)	10551 (4786)	3750 (1701)	6803 (3086)	2978 (1351)	2736 (1241)
59.7 (1517)	7.3 (185)	29.9 (759)	10591 (4804)	3979 (1805)	6612 (2999)	3208 (1455)	2965 (1345)
95.7 (2432)	7.3 (185)	47.9 (1216)	10833 (4914)	4866 (2207)	5968 (2707)	4094 (1857)	3851 (1747)
102.8 (2610)	7.3 (185)	51.4 (1305)	10882 (4936)	4982 (2260)	5899 (2676)	4211 (1910)	3968 (1800)
83.7 (2127)	23.3 (592)	41.9 (1064)	10714 (4860)	3417 (1550)	7297 (3310)	2921 (1325)	2701 (1225)
92.8 (2356)	32.3 (821)	46.4 (1178)	10745 (4874)	2945 (1336)	7800 (3538)	2449 (1111)	2229 (1011)
95.7 (2432)	35.3 (897)	47.2 (1200)	10756 (4879)	2855 (1295)	7901 (3584)	2359 (1070)	2138 (970)
102.8 (2610)	42.3 (1075)	47.2 (1200)	10780 (4890)	2820 (1279)	7961 (3611)	2324 (1054)	2103 (954)

4.1 Nameplate, vehicle



Item	Designation	Item	Designation
29	Model	37	Manufacturer
30	Serial no.	38	Battery code
31	Rated load capacity	39	Battery weight, min./max.
32	Battery voltage	40	Drive output
33	Empty weight without battery	41	Load center distance
34	Residual load capacity	42	Year of manufacture
35	Lift height, max.	43	Option
36	Manufacturer's logo		

NOTICE In the event of queries about the vehicle or when ordering spare parts, please quote the serial number (30).

2.2 Driving, steering, braking

⚠WARNING Extra care must be taken when driving and steering, especially outside the perimeter of the vehicle.
In ride-on mode, keep an adequate distance from the vehicle.

Emergency stop

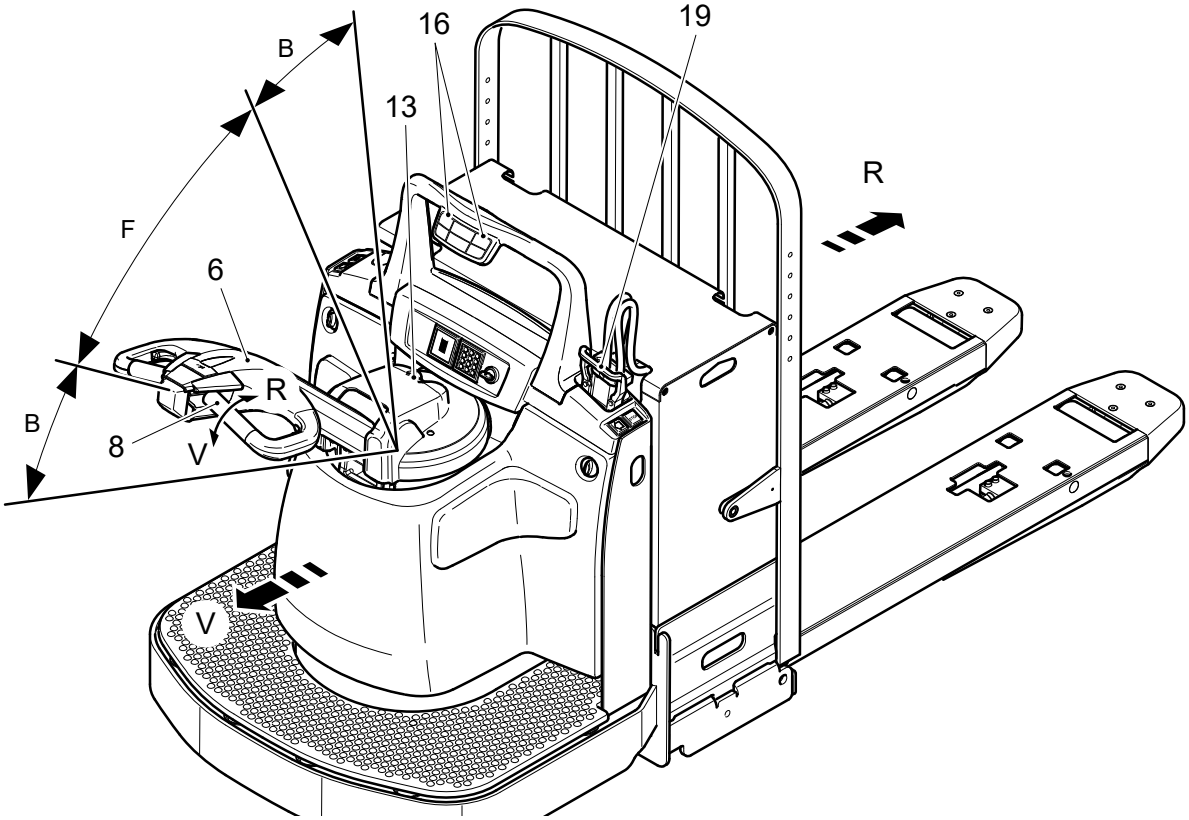
– Pull out the battery connector (19).

All electrical functions are switched off. The magnetic brake is applied and brakes the vehicle with the highest brake step.

Driving

IMPORTANT Do not drive the vehicle unless all covers are closed and properly locked. The main direction of travel is travel in the tiller direction (V). Extra care must be taken when traveling in the load direction (R).

NOTICE Travel in the load direction (R) should be limited to shunting and to picking up and setting down loads.



– Prepare for operation (see Section 2.1).
– Move the tiller (6) in the travel range "F".
– Turn the travel regulator (8) in the desired direction of travel (forward (V) or backward (R)).

The vehicle starts moving in the chosen direction. The speed of travel is controlled with the travel regulator (8). The maximum speed is 5.6 km/h (3.5 mph). If the high-speed button (16) is held down (●) in ride-on mode, the maximum speed of travel is 15 km/h (9.3 mph) in the tiller direction (V) and 9 km/h (5.6 mph) in the fork direction (R).

The principal duty of the operator is the safe operation of the powered industrial truck in accordance with the instructions covered in the training program.

Failure to observe the safety regulations when operating the industrial truck or improper use or maintenance of a powered industrial truck can have the following consequences:

– Death or serious injury to the operator or to other people;
– Damage to the industrial truck or to other property.

The training program should focus on the safe and appropriate use of the industrial truck, with the goal of preventing injury to the operator or to other people and property damage. To this end the following topics should be covered:

1. General information about the industrial truck(s) to be operated by the trainee, including:
   – Technical data on the powered industrial truck, including differences between industrial trucks used in the area of work;
   – Differences in comparison to a car;
   – Meaning of the information on the nameplate, including rated load capacity, warnings and instructions attached to the industrial truck;
   – Operating instructions and warnings set out in the Operating Manual for the industrial truck, together with inspection and maintenance instructions to be followed by the operator;
   – Type of drive motor and its features;
   – Type of steering;
   – Braking response and braking distance, laden and unladen;
   – Visibility to front and rear, laden and unladen;
   – Load capacity when handling loads, weight and load center distance;
   – Stability characteristics, laden and unladen, and with and without attachments;
   – Position of controls, function, operation, recognition of symbols;
   – Possible load-handling equipment, attachments; transport of loads;
   – Filling and charging the battery;
   – Safety devices and barriers for certain types of industrial truck;
   – Other features of a particular industrial truck;

2. The operating environment and its influence on the operation of the industrial truck, including:
   – Floor surface and nature of the sub-floor, including temporary conditions;
   – Equipment for filling and charging the battery;
   – Use of "classified" industrial trucks in areas presenting a risk of fire or explosion as defined in ANSI/NFPA 505.
   – Narrow gangways, doors, overhead cables and pipe systems, and other enclosed areas;
   – Areas in which the industrial truck may possibly be operated alongside other powered industrial trucks, vehicles or pedestrians;
   – Use and load capacity of elevators;
   – Other special operating conditions and hazards, which the operator could encounter.

If it is found that the industrial truck needs to be repaired and is, therefore, in an unsafe condition, or if it is likely that the safety of the truck can no longer be assured, the person authorized by the owner must be informed of the situation immediately and the truck must not be used again until it has been made safe for use.

If safety deficiencies on the industrial truck emerge during operation, the person authorized by the owner must be informed of the situation immediately and the truck must not be used again until it has been made safe for use.

Repairs and adjustments can be made if the appropriate permission has been granted.

If you have been asked to charge the battery(ies) on the industrial truck, check that the battery acid level is correct and that air can circulate freely through the ventilation openings in the battery compartment before connecting the charger to the power source.

Avoid naked flames when checking the electrolyte level in the batteries.

General: Before starting up the industrial truck, the operator must read "Starting the vehicle" in Chapter E.

The industrial truck and all its functions or attachments can only be started and used when the operator is in the driver's seat in the specific operating position.

Hands and feet must remain inside the area provided for the operator or inside the cab. No part of the body should be outside the driver's cab.

The wearing of safety shoes is recommended.

Keep all parts of the body away from the lifting system.

Keep all parts of the body away from the swivel system and from other attachments on the truck.

Familiarize yourself with the limits of the truck and when using the truck take care to avoid injuring people. The safety of pedestrians is always the highest priority.

– Never drive the truck up to a person who is standing in front of an object.
– Before turning the truck round, make sure that nobody is standing in range of the rear of the vehicle.
– Pay particular attention to corridors, passageways or other areas where pedestrians could cross the travel way of the industrial truck.

Nobody must ever stand or walk under the raised section of an industrial truck, regardless of whether the truck is laden or unladen.

Passengers must not be carried on a powered industrial truck unless a dedicated seat is provided by the manufacturer.

Do not allow people to ride on the fork carrier or forks.

When handling loads above the mast, sound decisions and maximum caution are critical.

In areas classed as potentially hazardous, only industrial trucks approved for these areas can be used.

5.2 Travel program

The vehicle comes with three travel programs. The active program is indicated by the green LED (24), keys 1, 2 and 3.

NOTICE The travel programs can be customized to the vehicle use.

5.3 Parameters

In programming mode the keypad can be used to set the code lock functions and to customize the travel programs. It can also be used to set battery parameters.

NOTICE On vehicles without an information display (CANDIS (○)), only the code lock parameters can be set.

Parameter groups

The parameter number comprises three digits. The first digit indicates the parameter group as shown in Table 1. The second and third digits are numbered consecutively from 00 to 99.

No.	Parameter group
0xx	Code lock settings (codes, travel program enables, automatic shutdown, etc.)
1xx	Travel parameters for travel program 1 (acceleration, coasting brake, speed, etc.)
2xx	Travel parameters for travel program 2 (acceleration, coasting brake, speed, etc.)
3xx	Travel parameters for travel program 3 (acceleration, coasting brake, speed, etc.)
4xx	Parameters not relating to the travel program

F Battery – Maintaining, recharging, replacing

1 Safety regulations for handling lead-acid batteries

The industrial truck must be parked and in a safe condition before work is carried out on the batteries (see "Switching off and securing the vehicle" in Chapter E).

In order to avoid injury or damage, the equipment and procedures used to replace and charge the battery must comply with ANSI/NFPA 505.

The battery types and chargers (e.g., intermittent charging), which are supplied or stipulated by the industrial truck manufacturer but not referred to in ANSI/NFPA 505, should be maintained in accordance with the instructions from the truck manufacturer.

Maintenance personnel: Only trained and authorized personnel are permitted to charge, maintain and replace the batteries. The instructions in this manual together with the battery and charger manufacturer's instructions must be followed when carrying out the above procedures.

Fire prevention: Do not smoke and avoid naked flames when handling batteries. There must be no flammable substances or spark-generating materials within a radius of 78.7 inches (2 meters) of a vehicle parked for the purposes of battery charging. The area in which the battery is charged must be well-ventilated and have appropriate fire-protection equipment.

Battery maintenance: The cell screw caps on the battery must be kept dry and clean. Connections and cable lugs must be clean, lightly greased with pole grease, and adequately tightened. Batteries with bare connection terminals must be covered with a non-slip insulating mat.

⚠WARNING In order to prevent injury and/or damage, the manufacturer's procedures must be followed when replacing the contacts in one of the battery terminals.

Battery disposal: The batteries must be disposed of in accordance with applicable national environment-protection regulations or waste-disposal regulations. The manufacturer's instructions for disposal should be observed.

IMPORTANT Before closing the battery cover, make sure that the battery cable cannot be damaged.

⚠WARNING Batteries contain acid, which is toxic and corrosive. Protective clothing and safety goggles must, therefore, be worn when working on the batteries. Avoid coming into contact with battery acid.
If battery acid accidentally comes into contact with clothing, skin or eyes, wash the affected part of the body thoroughly with clean water. Seek medical attention if battery acid comes into contact with the skin or eyes. Battery acid spillages must be neutralized immediately.

IMPORTANT Only use batteries with a closed battery tray.

⚠WARNING The weight and dimensions of the battery have a considerable influence on the operating safety of the industrial truck. The battery system must not be replaced without the prior written approval of the manufacturer.

Inspection: The forks must be inspected carefully and at regular intervals by qualified personnel for signs of damage, cracks, permanent deformation, etc., which could adversely affect their safe use. All forks showing signs of such defects must be replaced or removed from service and may not be used again if they cannot be satisfactorily repaired by the fork manufacturer or by an appropriately qualified specialist.

1. Surface cracks: The forks and, in particular, the underside and the weld seams with which all attachments are joined to the body of the fork, must be given a thorough visual inspection for cracks and – if necessary – subjected to non-destructive material testing to identify cracks. The inspection for cracks must include all special fixings between the body of the fork and the fork carrier, including all bolted-on systems and wrought fixings for suspended devices or undulating load suspension equipment. The forks must not be brought back into service if cracks are found.
2. Linearity of the fork blade and fork back: Check the linearity of the top of the fork blade and the front of the fork back. If the deviation from the straight line is more than 0.5% of the length of the fork blade or the height of the fork back, the fork must not be brought back into service until it has been properly repaired.
3. Fork angle (between the top of the fork blade and fork back, facing the load): Any fork with a deviation of more than 3 degrees from the original specification must not be brought back into service. After being removed from service, the fork must be realigned and then inspected again.
4. Difference in height between fork tips: They determine the difference in height between a pair of forks mounted on the fork carrier. If the difference in height between the fork tips is more than 3% of the length of the fork blade, the forks must not be brought back into service until they have been properly repaired.
5. Position lock (if provided in original configuration): Check that the position lock is in good repair and is operating correctly. If a fault is found, the fork must not be brought back into service until it has been properly repaired.
6. Wear:
   - Fork blade and fork back: The fork blade and fork back – particularly in the area of the fork stop – must be thoroughly inspected for wear. The fork must not be brought back into service if the thickness of the fork back is less than or equal to 90% of its original value.
   - Positioning hooks (if provided in original configuration): The load-bearing surface of the top hook and the retaining surfaces of both hooks must be inspected for wear, cracks and other local deformation. If deformation is found which leads to excessive play between the fork and the fork carrier, the fork must not be brought back into service until it has been properly repaired.