

**KOMATSU**

# SHOP MANUAL

ELECTRIC REACH TRUCK

## AR50 Series

FB10RL(F)/13RL(F)/15RL(F)/18RL(F)-14  
FB10RW/13RW/15RW-14

M245-140001 and up  
M245-140001 and up

**KOMATSU FORKLIFT**

## PRECAUTIONS WHEN PERFORMING THE SERVICE WORK

Always pay attention to “Safety” before starting any work — this is important.

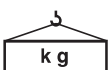
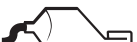
Never attempt any work where danger to yourself or to other persons.

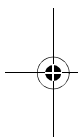
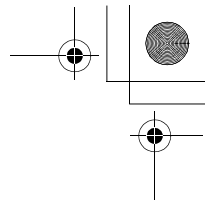
Whenever work requiring safety precautions are described in this manual, a flag mark  inserted, always make double sure that safety measures are taken.

Other unmarked work, should always be performed after studying and using your common sense to prevent accidents.

## DESCRIPTION OF THE SYMBOLS

The symbols described below are used in this manual for convenience and better understanding.

| Symbol                                                                              | Item                     | Description                                                              |
|-------------------------------------------------------------------------------------|--------------------------|--------------------------------------------------------------------------|
|  | <b>Safety</b>            | Special safety precautions are needed to perform the work.               |
|  | <b>Note</b>              | Special technical precautions are needed to perform the work             |
|  | <b>Tightening torque</b> | Fastening parts that require specified tightening force when assembling. |
|  | <b>Weight</b>            | Weight of parts or systems                                               |
|  | <b>Coat</b>              | Places to be coated with adhesives, etc. when assembling                 |
|  | <b>Filling</b>           | Oil filling and its amount                                               |



# SECTION INDEX

00. FOREWORD

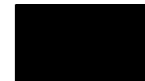
10. GENERAL AND SPECIFICATIONS



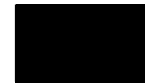
20. TESTING AND ADJUSTING



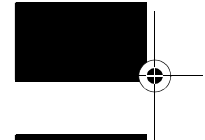
30. REMOVAL AND INSTALLATION



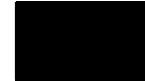
40. DISASSEMBLY AND ASSEMBLY



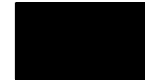
50. MAINTENANCE STANDARD



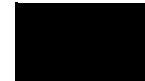
60. STRUCTURE AND FUNCTION



70. TROUBLESHOOTING

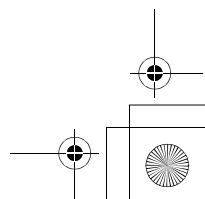
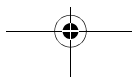
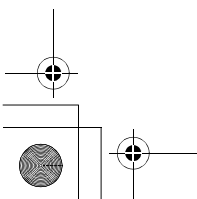


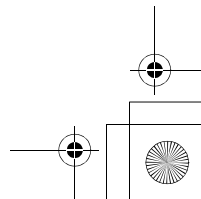
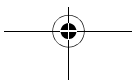
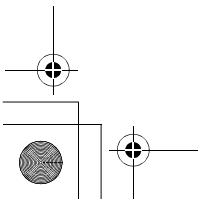
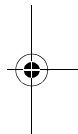
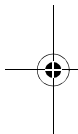
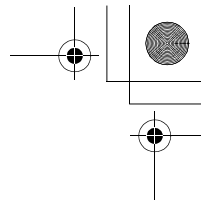
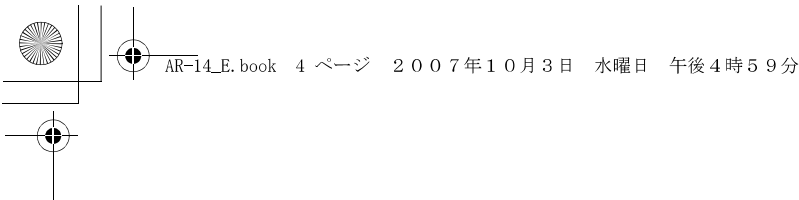
80. YEARLY INSPECTION CRITERIA

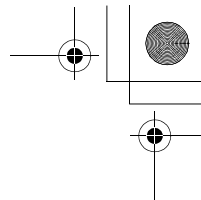
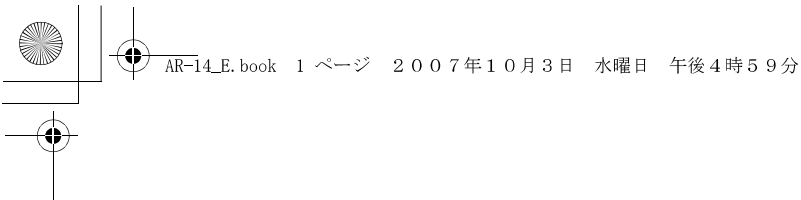


90. CONVERSION TABLE

APPENDIX

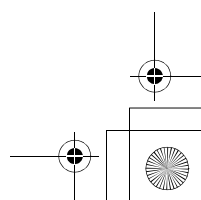
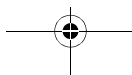
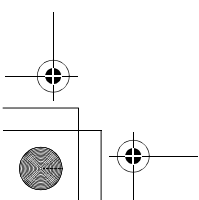
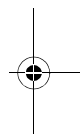
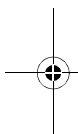






# 10. GENERAL AND SPECIFICATIONS

|                                                  |       |
|--------------------------------------------------|-------|
| SPECIFICATION.....                               | 10-2  |
| SAFETY ITEMS FOR MAINTENANCE .....               | 10-7  |
| STANDARD TIGHTENING TORQUE FOR BOLTS.....        | 10-14 |
| STANDARD TIGHTENING TORQUE FOR PIPE JOINTS ..... | 10-15 |
| HOW TO USE LOCTITE.....                          | 10-16 |



## SPECIFICATION

## GENERAL AND SPECIFICATIONS

## SPECIFICATION

## 1.Main specification

|                 |        |                                   |                                                     |                                               |                         |                         |            |
|-----------------|--------|-----------------------------------|-----------------------------------------------------|-----------------------------------------------|-------------------------|-------------------------|------------|
| Characteristics | 1.2    | Model                             | Manufacturer's Designation                          |                                               | FB10RL-14, FB10RLF-14   | FB13RL-14, FB13RLF-14   |            |
|                 | 1.3    | Power Type                        | Electric, Diesel, Gasoline, LPG, Cable              |                                               | Electric                | Electric                |            |
|                 | 1.4    | Operation Type                    | Pedestrian, Driver Standing, Sitting, Order Picking |                                               | Standing                | Standing                |            |
|                 | 1.5    | Rated Capacity                    | Q1                                                  | Rated Capacity                                | kg                      | 1000                    | 1250       |
|                 | 1.6    | Load Center                       | c                                                   | Load Center                                   | mm                      | 500                     | 500        |
|                 | 1.6.1  | Alternative Capacity              | Q2                                                  | Capacity@600mm Load Center                    | kg                      | 870                     | 1080       |
|                 | 1.8    | Load Distance                     | x                                                   | Front Axle Center to Fork Face                | mm                      | 175                     | 175        |
|                 | 1.9    | Wheelbase                         | y                                                   |                                               | mm                      | 1110                    | 1250       |
|                 | Weight | 2.1                               | Service Weight                                      | Including Min. Capacity Battery, see line 6.5 |                         | kg                      | 2020       |
| 2.4             |        | Axle Loading Mast/Forks Extended  | Loaded                                              | Front                                         | kg                      | 2555                    | 2855       |
| 2.4.1           |        |                                   |                                                     | Rear                                          | kg                      | 465                     | 430        |
| 2.4.2           |        |                                   | Unloaded                                            | Front                                         | kg                      | 905                     | 890        |
| 2.4.3           |        |                                   |                                                     | Rear                                          | kg                      | 1115                    | 1145       |
| 2.5             |        | Axle Loading Mast/Forks Retracted | Loaded                                              | Front                                         | kg                      | 1940                    | 2020       |
| 2.5.1           |        |                                   |                                                     | Rear                                          | kg                      | 1080                    | 1265       |
| 2.5.2           |        |                                   | Unloaded                                            | Front                                         | kg                      | 690                     | 635        |
| 2.5.3           | Rear   |                                   |                                                     | kg                                            | 1330                    | 1400                    |            |
| Tyre            | 3.1    | Tyre Type                         |                                                     |                                               | Solid                   | Solid                   |            |
|                 | 3.2    | Tyre Size                         | Front                                               |                                               | φ 260 x 120             | φ 260 x 120             |            |
|                 | 3.3    |                                   | Rear                                                |                                               | φ 360 x 180             | φ 360 x 180             |            |
|                 | 3.4    |                                   | Additional Wheels                                   |                                               | φ 127 x 90              | φ 127 x 90              |            |
|                 | 3.5    | Number of Wheel                   | Front/Rear(*=driver)                                |                                               | 2/1*+2                  | 2/1*+2                  |            |
|                 | 3.6    | Tread, Front                      | b10                                                 | mm                                            | 975                     | 975                     |            |
|                 | 3.7    | Tread, Rear                       | b11                                                 | mm                                            | —                       | —                       |            |
| Dimensions      | 4.1    | Tilting Angle                     | α/β                                                 | Forward/Backward                              | degree                  | 3/5                     | 3/5        |
|                 | 4.2    | Mast Height, Lowered              | h1                                                  | with Std. Mast                                | mm                      | 1995                    | 1995       |
|                 | 4.3    | Std. Free Lift                    | h2                                                  | with Std. Mast, from Ground                   | mm                      | 105                     | 105        |
|                 | 4.4    | Std. Lift Height                  | h3                                                  | with Std. Mast, from Ground                   | mm                      | 3000                    | 3000       |
|                 | 4.5    | Mast Height, Extended             | h4                                                  | with Std. Mast                                | mm                      | 3935                    | 3935       |
|                 | 4.7    | Height, Overhead Guard            | h6                                                  |                                               | mm                      | 2250                    | 2250       |
|                 | 4.19   | Length, with Std. Forks           | l 1                                                 |                                               | mm                      | 1905                    | 1905       |
|                 | 4.21   | Width, at Tyre                    | b1                                                  |                                               | mm                      | 1095                    | 1095       |
|                 | 4.22   | Forks                             | s/e/l                                               | Thickness/Width/Length                        | mm                      | 35x100x850              | 35x100x850 |
|                 | 4.23   | Fork Carriage Class               | ISO 2328, Type A/B/no                               |                                               | Pin Mount               | Pin Mount               |            |
|                 | 4.24   | Width, Fork Carriage              | b3                                                  | mm                                            | 750                     | 750                     |            |
|                 | 4.26   | Width, between Reach Legs         | b4                                                  | mm                                            | 752                     | 752                     |            |
|                 | 4.28   | Reach Travel                      | l 4                                                 | mm                                            | 440                     | 580                     |            |
|                 | 4.31   | Ground Clearance                  | m1                                                  | under the Mast                                | mm                      | 75                      | 75         |
|                 | 4.32   |                                   | m2                                                  | at the center of Wheelbase                    | mm                      | 80                      | 80         |
|                 | 4.33   | Right Angle Stacking              | Ast                                                 | with L1000 x W1200 pallet                     | mm                      | 2275                    | 2310       |
|                 | 4.34   | Aisle                             | Ast                                                 | with L1200 x W800 pallet                      | mm                      | 2340                    | 2355       |
|                 | 4.35.1 | Turning Radius                    | Wa                                                  | mm                                            | 1325                    | 1465                    |            |
|                 | 4.35.2 |                                   | Wb                                                  | mm                                            | 670                     | 555                     |            |
|                 | 4.37   | Length, without Forks             | /7                                                  |                                               | 1470                    | 1610                    |            |
| Performance     | 5.1    | Travel Speed (FWD)                | Loaded/Unloaded                                     |                                               | km/h                    | 9.5/10.5                | 9.5/10.5   |
|                 | 5.2    | Lifting Speed                     | Loaded/Unloaded                                     |                                               | mm/s                    | 350/540                 | 320/540    |
|                 | 5.3    | Lowering Speed                    | Loaded/Unloaded                                     |                                               | mm/s                    | 500/550                 | 460/550    |
|                 | 5.4    | Reach Speed                       | Loaded/Unloaded                                     |                                               | mm/s                    | 300/300                 | 300/300    |
|                 | 5.6    | Max. Drawbar Pull                 | 3min rating                                         |                                               | N                       | 5880                    | 5880       |
|                 | 5.8    | Max. Gradeability                 | Unloaded 1.5km/h, 3min rating                       |                                               | %                       | 32                      | 31         |
|                 | 5.10   | Service Brake                     | Operation/Control                                   |                                               | Mechanical, Disc        | Mechanical, Disc        |            |
|                 | 5.11   | Parking Brake                     | Operation/Control                                   |                                               | Mechanical, Disc        | Mechanical, Disc        |            |
|                 | 5.12   | Steering                          | Operation/Control                                   |                                               | Electric Power Steering | Electric Power Steering |            |
| Drive           | 6.1    | Drive Motor (AC)                  | 60min rating                                        |                                               | kW                      | 4.5                     | 4.5        |
|                 | 6.2    | Pump Motor (AC)                   | 5min rating                                         |                                               | kW                      | 9                       | 9.0        |
|                 | 6.2.1  | PS Motor (DC)                     | 60min rating                                        |                                               | kW                      | 0.3                     | 0.3        |
|                 | 6.4    | Battery Voltage                   |                                                     |                                               | V                       | 48                      | 48         |
|                 | 6.4.1  | Battery Capacity, Min.            | Ah/5-hour                                           |                                               | 201                     | 201                     |            |
|                 | 6.4.2  | Battery Capacity, Max.            | Ah/5-hour                                           |                                               | 240                     | 240                     |            |
|                 | 6.5    | Battery Weight, Min. Capacity     | kg                                                  |                                               | 365                     | 365                     |            |
| Others          | 8.1    | Drive Motor Control               |                                                     |                                               | MOS-FET inverter        | MOS-FET inverter        |            |
|                 | 8.1.1  | Pump Motor Control                |                                                     |                                               | MOS-FET inverter        | MOS-FET inverter        |            |
|                 | 8.1.2  | PS Motor Control                  |                                                     |                                               | MOS-FET chopper         | MOS-FET chopper         |            |
|                 | 8.2    | Relief Pressure for Attachment    | bar                                                 |                                               | 167                     | 167                     |            |
|                 | 8.2.1  | Hydraulic Tank Capacity           | Ltr                                                 |                                               | 16                      | 16                      |            |

4.33 and 4.34 Values are not including a clearance. See Aisle width section for detail.

## GENERAL AND SPECIFICATIONS

## SPECIFICATION

|                 |        |                                   |                                                     |                                               |                         |                         |            |
|-----------------|--------|-----------------------------------|-----------------------------------------------------|-----------------------------------------------|-------------------------|-------------------------|------------|
| Characteristics | 1.2    | Model                             | Manufacturer's Designation                          |                                               | FB15RL-14, FB15RLF-14   | FB18RL-14, FB18RLF-14   |            |
|                 | 1.3    | Power Type                        | Electric, Diesel, Gasoline, LPG, Cable              |                                               | Electric                | Electric                |            |
|                 | 1.4    | Operation Type                    | Pedestrian, Driver Standing, Sitting, Order Picking |                                               | Standing                | Standing                |            |
|                 | 1.5    | Rated Capacity                    | Q1                                                  | Rated Capacity                                | kg                      | 1500                    | 1800       |
|                 | 1.6    | Load Center                       | c                                                   | Load Center                                   | mm                      | 500                     | 500        |
|                 | 1.6.1  | Alternative Capacity              | Q2                                                  | Capacity@600mm Load Center                    | kg                      | 1300                    | 1560       |
|                 | 1.8    | Load Distance                     | x                                                   | Front Axle Center to Fork Face                | mm                      | 175                     | 175        |
|                 | 1.9    | Wheelbase                         | y                                                   |                                               | mm                      | 1350                    | 1500       |
|                 | Weight | 2.1                               | Service Weight                                      | Including Min. Capacity Battery, see line 6.5 |                         | kg                      | 2220       |
| 2.4             |        | Axle Loading Mast/Forks Extended  | Loaded                                              | Front                                         | kg                      | 3245                    | 3620       |
| 2.4.1           |        |                                   |                                                     | Rear                                          | kg                      | 475                     | 480        |
| 2.4.2           |        |                                   | Unloaded                                            | Front                                         | kg                      | 955                     | 970        |
| 2.4.3           |        |                                   |                                                     | Rear                                          | kg                      | 1265                    | 1330       |
| 2.5             |        | Axle Loading Mast/Forks Retracted | Loaded                                              | Front                                         | kg                      | 2360                    | 2465       |
| 2.5.1           |        |                                   |                                                     | Rear                                          | kg                      | 1360                    | 1635       |
| 2.5.2           |        |                                   | Unloaded                                            | Front                                         | kg                      | 715                     | 690        |
| 2.5.3           | Rear   |                                   |                                                     | kg                                            | 1505                    | 1610                    |            |
| Tyre            | 3.1    | Tyre Type                         |                                                     |                                               | Solid                   | Solid                   |            |
|                 | 3.2    | Tyre Size                         | Front                                               |                                               | φ 254 x 114             | φ 254 x 120             |            |
|                 | 3.3    |                                   | Rear                                                |                                               | φ 360 x 180             | φ 360 x 180             |            |
|                 | 3.4    |                                   | Additional Wheels                                   |                                               | φ 127 x 90              | φ 127 x 90              |            |
|                 | 3.5    | Number of Wheel                   | Front/Rear*(=driven)                                |                                               | 2/1*+2                  | 2/1*+2                  |            |
|                 | 3.6    | Tread, Front                      | b10                                                 | mm                                            | 975                     | 975                     |            |
|                 | 3.7    | Tread, Rear                       | b11                                                 | mm                                            | -                       | -                       |            |
| Dimensions      | 4.1    | Tilting Angle                     | α/β                                                 | Forward/Backward                              | degree                  | 3/5                     | 3/5        |
|                 | 4.2    | Mast Height, Lowered              | h1                                                  | with Std. Mast                                | mm                      | 1995                    | 1995       |
|                 | 4.3    | Std. Free Lift                    | h2                                                  | with Std. Mast, from Ground                   | mm                      | 105                     | 105        |
|                 | 4.4    | Std. Lift Height                  | h3                                                  | with Std. Mast, from Ground                   | mm                      | 3000                    | 3000       |
|                 | 4.5    | Mast Height, Extended             | h4                                                  | with Std. Mast                                | mm                      | 3935                    | 3935       |
|                 | 4.7    | Height, Overhead Guard            | h6                                                  |                                               | mm                      | 2250                    | 2250       |
|                 | 4.19   | Length, with Std. Forks           | l 1                                                 |                                               | mm                      | 2005                    | 2075       |
|                 | 4.21   | Width, at Tyre                    | b1                                                  |                                               | mm                      | 1095                    | 1095       |
|                 | 4.22   | Forks                             | s/e/l                                               | Thickness/Width/Length                        | mm                      | 35x100x850              | 38x100x850 |
|                 | 4.23   | Fork Carriage Class               | ISO 2328, Type A/B/no                               |                                               | Pin Mount               | Pin Mount               |            |
|                 | 4.24   | Width, Fork Carriage              | b3                                                  | mm                                            | 750                     | 730                     |            |
|                 | 4.26   | Width, between Reach Legs         | b4                                                  | mm                                            | 752                     | 752                     |            |
|                 | 4.28   | Reach Travel                      | l 4                                                 | mm                                            | 580                     | 730                     |            |
|                 | 4.31   | Ground Clearance                  | m1                                                  | under the Mast                                | mm                      | 75                      | 75         |
|                 | 4.32   |                                   | m2                                                  | at the center of Wheelbase                    | mm                      | 80                      | 80         |
|                 | 4.33   | Right Angle Stacking              | Ast                                                 | with L1000 x W1200 pallet                     | mm                      | 2405                    | 2460       |
|                 | 4.34   | Aisle                             | Ast                                                 | with L1200 x W800 pallet                      | mm                      | 2450                    | 2475       |
|                 | 4.35.1 | Turning Radius                    | Wa                                                  | mm                                            | 1560                    | 1715                    |            |
|                 | 4.35.2 |                                   | Wb                                                  | mm                                            | 555                     | 555                     |            |
|                 | 4.37   | Length, without Forks             | /7                                                  |                                               | 1710                    | 1860                    |            |
| Performance     | 5.1    | Travel Speed (FWD)                | Loaded/Unloaded                                     |                                               | km/h                    | 9.5/10.5                | 9.5/10.5   |
|                 | 5.2    | Lifting Speed                     | Loaded/Unloaded                                     |                                               | mm/s                    | 320/540                 | 300/540    |
|                 | 5.3    | Lowering Speed                    | Loaded/Unloaded                                     |                                               | mm/s                    | 460/550                 | 460/550    |
|                 | 5.4    | Reach Speed                       | Loaded/Unloaded                                     |                                               | mm/s                    | 300/300                 | 300/300    |
|                 | 5.6    | Max. Drawbar Pull                 | 3min rating                                         |                                               | N                       | 5880                    | 5880       |
|                 | 5.8    | Max. Gradeability                 | Unloaded 1.5km/h, 3min rating                       |                                               | %                       | 28                      | 27         |
|                 | 5.10   | Service Brake                     | Operation/Control                                   |                                               | Mechanical, Disc        | Mechanical, Disc        |            |
|                 | 5.11   | Parking Brake                     | Operation/Control                                   |                                               | Mechanical, Disc        | Mechanical, Disc        |            |
|                 | 5.12   | Steering                          | Operation/Control                                   |                                               | Electric Power Steering | Electric Power Steering |            |
| Drive           | 6.1    | Drive Motor (AC)                  | 60min rating                                        |                                               | kW                      | 4.5                     | 4.5        |
|                 | 6.2    | Pump Motor (AC)                   | 5min rating                                         |                                               | kW                      | 9.0                     | 9.0        |
|                 | 6.2.1  | PS Motor (DC)                     | 60min rating                                        |                                               | kW                      | 0.3                     | 0.3        |
|                 | 6.4    | Battery Voltage                   |                                                     |                                               | V                       | 48                      | 48         |
|                 | 6.4.1  | Battery Capacity, Min.            | Ah/5-hour                                           |                                               |                         | 280                     | 280        |
|                 | 6.4.2  | Battery Capacity, Max.            | Ah/5-hour                                           |                                               |                         | 390                     | 390        |
|                 | 6.5    | Battery Weight, Min. Capacity     |                                                     |                                               | kg                      | 495                     | 495        |
| Others          | 8.1    | Drive Motor Control               |                                                     |                                               | MOS-FET inverter        | MOS-FET inverter        |            |
|                 | 8.1.1  | Pump Motor Control                |                                                     |                                               | MOS-FET inverter        | MOS-FET inverter        |            |
|                 | 8.1.2  | PS Motor Control                  |                                                     |                                               | MOS-FET chopper         | MOS-FET chopper         |            |
|                 | 8.2    | Relief Pressure for Attachment    | bar                                                 |                                               | 167                     | 167                     |            |
|                 | 8.2.1  | Hydraulic Tank Capacity           | Ltr                                                 |                                               | 16                      | 16                      |            |

4.33 and 4.34 Values are not including a clearance. See Aisle width section for detail

## SPECIFICATION

## GENERAL AND SPECIFICATIONS

|                 |             |                                   |                                                     |                                |                         |                         |                  |
|-----------------|-------------|-----------------------------------|-----------------------------------------------------|--------------------------------|-------------------------|-------------------------|------------------|
| Characteristics | 1.2         | Model                             | Manufacturer's Designation                          |                                | FB10RW-14               | FB13RW-14               |                  |
|                 | 1.3         | Power Type                        | Electric, Diesel, Gasoline, LPG, Cable              |                                | Electric                | Electric                |                  |
|                 | 1.4         | Operation Type                    | Pedestrian, Driver Standing, Sitting, Order Picking |                                | Standing                | Standing                |                  |
|                 | 1.5         | Rated Capacity                    | Q1                                                  | Rated Capacity                 | kg                      | 1000                    | 1250             |
|                 | 1.6         | Load Center                       | c                                                   | Load Center                    | mm                      | 500                     | 500              |
|                 | 1.6.1       | Alternative Capacity              | Q2                                                  | Capacity@600mm Load Center     | kg                      | 870                     | 1080             |
|                 | 1.8         | Load Distance                     | x                                                   | Front Axle Center to Fork Face | mm                      | 175                     | 175              |
|                 | 1.9         | Wheelbase                         | y                                                   |                                | mm                      | 1110                    | 1250             |
| Weight          | 2.1         | Service Weight                    | Including Min. Capacity Battery, see line 6.5       |                                | kg                      | 2020                    | 2035             |
|                 | 2.4         | Axle Loading Mast/Forks Extended  | Loaded                                              | Front                          | kg                      | 2560                    | 2860             |
|                 | 2.4.1       |                                   |                                                     | Rear                           | kg                      | 460                     | 425              |
|                 | 2.4.2       |                                   | Unloaded                                            | Front                          | kg                      | 910                     | 895              |
|                 | 2.4.3       |                                   |                                                     | Rear                           | kg                      | 1110                    | 1140             |
|                 | 2.5         | Axle Loading Mast/Forks Retracted | Loaded                                              | Front                          | kg                      | 1945                    | 2025             |
|                 | 2.5.1       |                                   |                                                     | Rear                           | kg                      | 1075                    | 1260             |
|                 | 2.5.2       |                                   | Unloaded                                            | Front                          | kg                      | 695                     | 640              |
| 2.5.3           | Rear        |                                   |                                                     | kg                             | 1325                    | 1395                    |                  |
| Tyre            | 3.1         | Tyre Type                         |                                                     |                                | Solid                   | Solid                   |                  |
|                 | 3.2         | Tyre Size                         | Front                                               |                                | φ 260 x 120             | φ 260 x 120             |                  |
|                 | 3.3         |                                   | Rear                                                |                                | φ 330 x 145             | φ 330 x 145             |                  |
|                 | 3.4         |                                   | Additional Wheels                                   |                                | φ 150 x 80              | φ 150 x 80              |                  |
|                 | 3.5         | Number of Wheel                   | Front/Rear(*=driven)                                |                                | 2/1*+2                  | 2/1*+2                  |                  |
|                 | 3.6         | Tread, Front                      | b10                                                 | mm                             | 975                     | 975                     |                  |
|                 | 3.7         | Tread, Rear                       | b11                                                 | mm                             | -                       | -                       |                  |
| Dimensions      | 4.1         | Tilting Angle                     | α/β                                                 | Forward/Backward               | degree                  | 3/5                     | 3/5              |
|                 | 4.2         | Mast Height, Lowered              | h1                                                  | with Std. Mast                 | mm                      | 1995                    | 1995             |
|                 | 4.3         | Std. Free Lift                    | h2                                                  | with Std. Mast, from Ground    | mm                      | 105                     | 105              |
|                 | 4.4         | Std. Lift Height                  | h3                                                  | with Std. Mast, from Ground    | mm                      | 3000                    | 3000             |
|                 | 4.5         | Mast Height, Extended             | h4                                                  | with Std. Mast                 | mm                      | 3935                    | 3935             |
|                 | 4.7         | Height, Overhead Guard            | h6                                                  |                                | mm                      | 2250                    | 2250             |
|                 | 4.19        | Length, with Std. Forks           | l 1                                                 |                                | mm                      | 1905                    | 1905             |
|                 | 4.21        | Width, at Tyre                    | b1                                                  |                                | mm                      | 1080                    | 1080             |
|                 | 4.22        | Forks                             | s/e/l                                               | Thickness/Width/Length         | mm                      | 35x100x850              | 35x100x850       |
|                 | 4.23        | Fork Carriage Class               | ISO 2328, Type A/B/no                               |                                | Pin Mount               | Pin Mount               |                  |
|                 | 4.24        | Width, Fork Carriage              | b3                                                  | mm                             | 750                     | 750                     |                  |
|                 | 4.26        | Width, between Reach Legs         | b4                                                  | mm                             | 752                     | 752                     |                  |
|                 | 4.28        | Reach Travel                      | l 4                                                 | mm                             | 440                     | 580                     |                  |
|                 | 4.31        | Ground Clearance                  | m1                                                  | under the Mast                 | mm                      | 75                      | 75               |
|                 | 4.32        |                                   | m2                                                  | at the center of Wheelbase     | mm                      | 80                      | 80               |
|                 | 4.33        | Right Angle Stacking              | Ast                                                 | with L1000 x W1200 pallet      | mm                      | 2275                    | 2310             |
|                 | 4.34        | Aisle                             | Ast                                                 | with L1200 x W800 pallet       | mm                      | 2340                    | 2355             |
|                 | 4.35.1      | Turning Radius                    | Wa                                                  | mm                             | 1325                    | 1465                    |                  |
|                 | 4.35.2      |                                   | Wb                                                  | mm                             | 670                     | 555                     |                  |
|                 | 4.37        | Length, without Forks             | /7                                                  |                                |                         | 1470                    | 1610             |
|                 | Performance | 5.1                               | Travel Speed (FWD)                                  | Loaded/Unloaded                |                         | km/h                    | 9.5/10.5         |
| 5.2             |             | Lifting Speed                     | Loaded/Unloaded                                     |                                | mm/s                    | 350/540                 | 320/540          |
| 5.3             |             | Lowering Speed                    | Loaded/Unloaded                                     |                                | mm/s                    | 500/550                 | 460/550          |
| 5.4             |             | Reach Speed                       | Loaded/Unloaded                                     |                                | mm/s                    | 300/300                 | 300/300          |
| 5.6             |             | Max. Drawbar Pull                 | 3min rating                                         |                                | N                       | 6080                    | 6080             |
| 5.8             |             | Max. Gradeability                 | Unloaded 1.5km/h, 3min rating                       |                                | %                       | 32                      | 32               |
| 5.10            |             | Service Brake                     | Operation/Control                                   |                                | Mechanical, Disc        | Mechanical, Disc        |                  |
| 5.11            |             | Parking Brake                     | Operation/Control                                   |                                | Mechanical, Disc        | Mechanical, Disc        |                  |
| 5.12            |             | Steering                          | Operation/Control                                   |                                | Electric Power Steering | Electric Power Steering |                  |
| Drive           | 6.1         | Drive Motor (AC)                  | 60min rating                                        |                                | kW                      | 4.5                     | 4.5              |
|                 | 6.2         | Pump Motor (AC)                   | 5min rating                                         |                                | kW                      | 9.0                     | 9.0              |
|                 | 6.2.1       | PS Motor (DC)                     | 60min rating                                        |                                | kW                      | 0.3                     | 0.3              |
|                 | 6.4         | Battery Voltage                   |                                                     |                                | V                       | 48                      | 48               |
|                 | 6.4.1       | Battery Capacity, Min.            |                                                     |                                | Ah/5-hour               | 201                     | 201              |
|                 | 6.4.2       | Battery Capacity, Max.            |                                                     |                                | Ah/5-hour               | 240                     | 240              |
|                 | 6.5         | Battery Weight, Min. Capacity     |                                                     |                                | kg                      | 365                     | 365              |
|                 | Others      | 8.1                               | Drive Motor Control                                 |                                |                         | MOS-FET inverter        | MOS-FET inverter |
| 8.1.1           |             | Pump Motor Control                |                                                     |                                | MOS-FET inverter        | MOS-FET inverter        |                  |
| 8.1.2           |             | PS Motor Control                  |                                                     |                                | MOS-FET chopper         | MOS-FET chopper         |                  |
| 8.2             |             | Relief Pressure for Attachment    | bar                                                 |                                | 167                     | 167                     |                  |
| 8.2.1           |             | Hydraulic Tank Capacity           | Ltr                                                 |                                | 16                      | 16                      |                  |

4.33 and 4.34 Values are not including a clearance. See Aisle width section for detail

## GENERAL AND SPECIFICATIONS

## SPECIFICATION

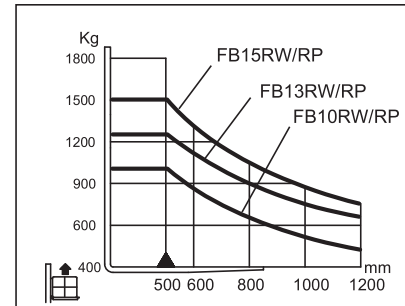
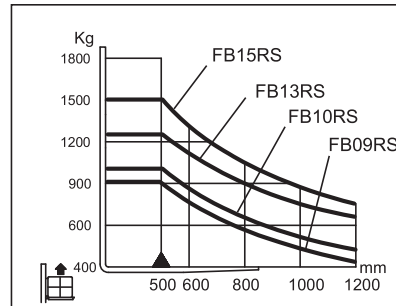
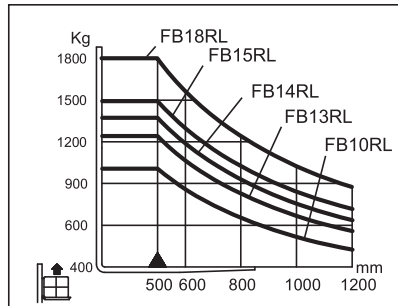
|                 |        |                                   |                                                     |                                |                         |
|-----------------|--------|-----------------------------------|-----------------------------------------------------|--------------------------------|-------------------------|
| Characteristics | 1.2    | Model                             | Manufacturer's Designation                          |                                | FB15RW-14               |
|                 | 1.3    | Power Type                        | Electric, Diesel, Gasoline, LPG, Cable              |                                | Electric                |
|                 | 1.4    | Operation Type                    | Pedestrian, Driver Standing, Sitting, Order Picking |                                | Standing                |
|                 | 1.5    | Rated Capacity                    | Q1                                                  | Rated Capacity                 | kg 1500                 |
|                 | 1.6    | Load Center                       | c                                                   | Load Center                    | mm 500                  |
|                 | 1.6.1  | Alternative Capacity              | Q2                                                  | Capacity@600mm Load Center     | kg 1300                 |
|                 | 1.8    | Load Distance                     | x                                                   | Front Axle Center to Fork Face | mm 175                  |
|                 | 1.9    | Wheelbase                         | y                                                   |                                | mm 1350                 |
| Weight          | 2.1    | Service Weight                    | Including Min. Capacity Battery, see line 6.5       |                                | kg 2220                 |
|                 | 2.4    | Axle Loading Mast/Forks Extended  | Loaded                                              | Front                          | kg 3250                 |
|                 | 2.4.1  |                                   |                                                     | Rear                           | kg 470                  |
|                 | 2.4.2  |                                   | Unloaded                                            | Front                          | kg 955                  |
|                 | 2.4.3  |                                   |                                                     | Rear                           | kg 1265                 |
|                 | 2.5    | Axle Loading Mast/Forks Retracted | Loaded                                              | Front                          | kg 2365                 |
|                 | 2.5.1  |                                   |                                                     | Rear                           | kg 1355                 |
|                 | 2.5.2  |                                   | Unloaded                                            | Front                          | kg 720                  |
|                 | 2.5.3  |                                   |                                                     | Rear                           | kg 1500                 |
| Tyre            | 3.1    | Tyre Type                         |                                                     |                                | Solid                   |
|                 | 3.2    | Tyre Size                         | Front                                               |                                | φ 254 x 114             |
|                 | 3.3    |                                   | Rear                                                |                                | φ 330 x 145             |
|                 | 3.4    |                                   | Additional Wheels                                   |                                | φ 150 x 80              |
|                 | 3.5    | Number of Wheel                   | Front/Rear(*=driven)                                |                                | 2/1*+2                  |
|                 | 3.6    | Tread, Front                      | b10                                                 | mm                             | 975                     |
|                 | 3.7    | Tread, Rear                       | b11                                                 | mm                             | -                       |
| Dimensions      | 4.1    | Tilting Angle                     | α/β                                                 | Forward/Backward               | degree 3/5              |
|                 | 4.2    | Mast Height, Lowered              | h1                                                  | with Std. Mast                 | mm 1995                 |
|                 | 4.3    | Std. Free Lift                    | h2                                                  | with Std. Mast, from Ground    | mm 105                  |
|                 | 4.4    | Std. Lift Height                  | h3                                                  | with Std. Mast, from Ground    | mm 3000                 |
|                 | 4.5    | Mast Height, Extended             | h4                                                  | with Std. Mast                 | mm 3935                 |
|                 | 4.7    | Height, Overhead Guard            | h6                                                  |                                | mm 2250                 |
|                 | 4.19   | Length, with Std. Forks           | l 1                                                 |                                | mm 2005                 |
|                 | 4.21   | Width, at Tyre                    | b1                                                  |                                | mm 1080                 |
|                 | 4.22   | Forks                             | s/e/l                                               | Thickness/Width/Length         | mm 35x100x850           |
|                 | 4.23   | Fork Carriage Class               | ISO 2328, Type A/B/no                               |                                | Pin Mount               |
|                 | 4.24   | Width, Fork Carriage              | b3                                                  | mm                             | 750                     |
|                 | 4.26   | Width, between Reach Legs         | b4                                                  | mm                             | 752                     |
|                 | 4.28   | Reach Travel                      | l 4                                                 | mm                             | 580                     |
|                 | 4.31   | Ground Clearance                  | m1                                                  | under the Mast                 | mm 75                   |
|                 | 4.32   |                                   | m2                                                  | at the center of Wheelbase     | mm 80                   |
|                 | 4.33   | Right Angle Stacking Aisle        | Ast                                                 | with L1000 x W1200 pallet      | mm 2405                 |
|                 | 4.34   | Aisle                             | Ast                                                 | with L1200 x W800 pallet       | mm 2450                 |
|                 | 4.35.1 | Turning Radius                    | Wa                                                  | mm                             | 1560                    |
|                 | 4.35.2 |                                   | Wb                                                  | mm                             | 555                     |
|                 | 4.37   | Length, without Forks             | /7                                                  |                                | mm 1710                 |
| Performance     | 5.1    | Travel Speed (FWD)                | Loaded/Unloaded                                     |                                | km/h 9.5/10.5           |
|                 | 5.2    | Lifting Speed                     | Loaded/Unloaded                                     |                                | mm/s 320/540            |
|                 | 5.3    | Lowering Speed                    | Loaded/Unloaded                                     |                                | mm/s 460/550            |
|                 | 5.4    | Reach Speed                       | Loaded/Unloaded                                     |                                | mm/s 300/300            |
|                 | 5.6    | Max. Drawbar Pull                 | 3min rating                                         | N                              | 6080                    |
|                 | 5.8    | Max. Gradeability                 | Unloaded 1.5km/h, 3min rating                       |                                | % 29                    |
|                 | 5.10   | Service Brake                     | Operation/Control                                   |                                | Mechanical, Disc        |
|                 | 5.11   | Parking Brake                     | Operation/Control                                   |                                | Mechanical, Disc        |
| Drive           | 5.12   | Steering                          | Operation/Control                                   |                                | Electric Power Steering |
|                 | 6.1    | Drive Motor (AC)                  | 60min rating                                        | kW                             | 4.5                     |
|                 | 6.2    | Pump Motor (AC)                   | 5min rating                                         | kW                             | 9.0                     |
|                 | 6.2.1  | PS Motor (DC)                     | 60min rating                                        | kW                             | 0.3                     |
|                 | 6.4    | Battery Voltage                   |                                                     | V                              | 48                      |
|                 | 6.4.1  | Battery Capacity, Min.            |                                                     | Ah/5-hour                      | 280                     |
|                 | 6.4.2  | Battery Capacity, Max.            |                                                     | Ah/5-hour                      | 390                     |
|                 | 6.5    | Battery Weight, Min. Capacity     |                                                     | kg                             | 495                     |
| Others          | 8.1    | Drive Motor Control               |                                                     |                                | MOS-FET inverter        |
|                 | 8.1.1  | Pump Motor Control                |                                                     |                                | MOS-FET inverter        |
|                 | 8.1.2  | PS Motor Control                  |                                                     |                                | MOS-FET chopper         |
|                 | 8.2    | Relief Pressure for Attachment    |                                                     | bar                            | 167                     |
|                 | 8.2.1  | Hydraulic Tank Capacity           |                                                     | Ltr                            | 16                      |

4.33 and 4.34 Values are not including a clearance. See Aisle width section for detail

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## GENERAL AND SPECIFICATIONS

## 2. Allowable Load Table



## 3. Dimension Diagram

