

**KOMATSU**

# SHOP MANUAL

**FG10/15/18-21**

**FG15H/18H-21**

**FD10/15/18-21**

**FG20/25/30-17**

**FG20H/25H-17**

**FG20N/25N/30N-17**

**FG35A-17**

**FD20/25/30-16**

**FD20H/25H/30H-16**

**FD20N/25N/30N-16**

**FD35A-16**

### PRECAUTIONS WHEN PERFORMING THE SERVICE WORK

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

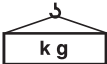
Never attempt any work where danger to yourself or to other persons.

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                 |

# SECTION INDEX

**00. FOREWORD**

**10. GENERAL AND SPECIFICATIONS**

**20. TESTING AND ADJUSTMENT**

**30. REMOVAL AND INSTALLATION**

**40. DISASSEMBLY AND ASSEMBLY**

**50. MAINTENANCE STANDARD**

**60. STRUCTURE AND FUNCTION**

**80. CRITERIA FOR PERIODICAL INSPECTION AND JUDGMENT**

**90. CONVERSION TABLE**

**APPENDIX**



## 10. GENERAL AND SPECIFICATIONS

|                                                     |       |
|-----------------------------------------------------|-------|
| SPECIFICATIONS .....                                | 10-2  |
| PERIODIC REPLACEMENT OF<br>CONSUMABLE PARTS .....   | 10-16 |
| SAFETY ITEMS FOR MAINTENANCE .....                  | 10-17 |
| STANDARD TIGHTENING TORQUE<br>FOR BOLTS .....       | 10-25 |
| STANDARD TIGHTENING TORQUE<br>FOR PIPE JOINTS ..... | 10-26 |

## SPECIFICATIONS

## AX50 (1.0 - 1.8ton) Series

|                 |       |                                |                                    |       |                 |          |                        |             |                      |
|-----------------|-------|--------------------------------|------------------------------------|-------|-----------------|----------|------------------------|-------------|----------------------|
| Characteristics | 1.2   | Model                          | Manufacturer's Designation         |       |                 | FG10T-21 | FG10C-21               | FD10T-21    | FD10C-21             |
|                 | 1.3   | Power Type                     | Electric, Diesel, Gasoline, LPG    |       |                 | Gasoline |                        | Diesel      |                      |
|                 | 1.4   | Operation Type                 |                                    |       |                 | Sitting  |                        | Sitting     |                      |
|                 | 1.5   | Rated Capacity                 | Rated Capacity                     |       | kg              | 1000     |                        | 1000        |                      |
|                 | 1.6   | Load Center                    | Rated Load Center                  |       | mm              | 500      |                        | 500         |                      |
|                 | 1.6.1 | Alternative Capacity           | Capacity@600mm Load Center         |       | kg              | 900      |                        | 900         |                      |
|                 | 1.8   | Load Distance                  | Front Axle Center to Fork Face     |       | mm              | L2       | 400                    |             | 400                  |
|                 | 1.9   | Wheelbase                      |                                    |       | mm              | L3       | 1400                   |             | 1400                 |
| Weight          | 2.1   | Service Weight                 |                                    |       | kg              |          | 2080                   | 2120        | 2180 2220            |
|                 | 2.2   | Axle Loading                   | Loaded                             | Front | kg              |          | 2725                   | 2760        | 2760 2790            |
|                 | 2.2.1 |                                |                                    | Rear  | kg              |          | 355                    | 360         | 420 430              |
|                 | 2.3   |                                | Unloaded                           | Front | kg              |          | 1065                   | 1100        | 1095 1130            |
|                 | 2.3.1 |                                |                                    | Rear  | kg              |          | 1015                   | 1020        | 1085 1090            |
| Tyres           | 3.1   | Tyre Type                      |                                    |       |                 |          | Pneumatic              |             | Pneumatic            |
|                 | 3.2   | Tyre Size                      | Front                              |       |                 |          | 6.50-10-10PR(I)        |             | 6.50-10-10PR(I)      |
|                 | 3.3   |                                | Rear                               |       |                 |          | 5.00- 8- 8PR(I)        |             | 5.00-8-8PR(I)        |
|                 | 3.5   | Number of Wheel                | Front/Rear (x=driven)              |       |                 |          | 2*/2                   |             | 2*/2                 |
|                 | 3.6   | Tread, Front                   |                                    |       | mm              | b4       | 890                    |             | 890                  |
|                 | 3.7   | Tread, Rear                    |                                    |       | mm              | b3       | 895                    |             | 895                  |
|                 |       |                                |                                    |       |                 |          |                        |             |                      |
| Dimensions      | 4.1   | Tilting Angle                  | Forward/Backward                   |       | degree          |          | 6/10                   |             | 6/10                 |
|                 | 4.2   | Mast Height, Lowered           | 2-stage Mast                       |       | mm              | h2       | 1995                   |             | 1995                 |
|                 | 4.3   | Std. Free Lift                 | 2-stage Std. Mast, from Ground     |       | mm              |          | 135                    |             | 135                  |
|                 | 4.4   | Std. Lift Height               | 2-stage Std. Mast, from Ground     |       | mm              | h1       | 3000                   |             | 3000                 |
|                 | 4.5   | Mast Height, Extended          | 2-stage Std. Mast                  |       | mm              | h3       | 3955                   |             | 3955                 |
|                 | 4.7   | Height, Overhead Guard         |                                    |       | mm              | h4       | 2070                   |             | 2070                 |
|                 | 4.19  | Length, with Std. Forks        |                                    |       | mm              | L1       | 2965                   |             | 2965                 |
|                 | 4.20  | Length, to Fork Face           |                                    |       | mm              |          | 2195                   |             | 2195                 |
|                 | 4.21  | Width, at Tyre                 | Single                             |       | mm              | b1       | 1070                   |             | 1070                 |
|                 | 4.22  | Forks                          | Thickness x Width x Length         |       | mm              |          | 31x100x770             |             | 31x100x770           |
|                 | 4.23  | Fork Carriage Class            | ISO 2328, Type A/B/no              |       |                 |          | Class 2, Type A        |             | Class 2, Type A      |
|                 | 4.24  | Width, Fork Carriage           |                                    |       | mm              |          | 970                    |             | 970                  |
|                 | 4.31  | Ground Clearance               | Under Mast                         |       | mm              |          | 120                    |             | 120                  |
|                 | 4.32  |                                | at Center of Wheelbase             |       | mm              |          | 130                    |             | 130                  |
|                 | 4.33  | Right Angle Stacking Aisle     | with L1000 x W1200 pallet          |       | mm              |          | 3315                   |             | 3315                 |
|                 | 4.34  |                                | with L1200 x W800 pallet           |       | mm              |          | 3515                   |             | 3515                 |
|                 | 4.35  | Turning Radius                 |                                    |       | mm              | Wa       | 1915                   |             | 1915                 |
| Performance     | 5.1   | Travel Speed (FWD)             | Loaded, 1st/2nd                    |       | km/h            |          | 19.0                   | 9.0/19.0    | 19.0 8.5/19.0        |
|                 |       |                                | Unloaded, 1st/2nd                  |       | km/h            |          | 19.0                   | 9.0/19.0    | 19.5 8.5/19.5        |
|                 | 5.2   | Lifting Speed                  | Loaded                             |       | mm/s            |          | 580                    |             | 620                  |
|                 |       |                                | Unloaded                           |       | mm/s            |          | 640                    |             | 670                  |
|                 | 5.3   | Lowering Speed                 | Loaded                             |       | mm/s            |          | 500                    |             | 500                  |
|                 |       |                                | Unloaded                           |       | mm/s            |          | 550                    |             | 550                  |
|                 | 5.6   | Max. Drawbar Pull              | Loaded, 1.5 km/h, 3 min rating     |       | KN              |          | 10                     | 11          | 13 14                |
|                 | 5.8   | Max. Gradeability              | Loaded, 1.5 km/h, 3 min rating     |       | %               |          | 34                     | 38          | 49 41                |
|                 | 5.10  | Service Brake                  | Operation/Control                  |       |                 |          | Foot/Hydraulic         |             | Foot/Hydraulic       |
|                 | 5.11  | Parking Brake                  | Operation/Control                  |       |                 |          | Hand/Mechanical        |             | Hand/Mechanical      |
| Others          | 5.12  | Steering                       | Type                               |       |                 |          | FHPS                   |             | FHPS                 |
|                 | 6.4   | Battery                        | Voltage/ Capacity at 5-hour rating |       | V/ah            |          | 12/33                  |             | 12/64                |
|                 | 7.1   | Maker Model                    |                                    |       |                 |          | NISSAN K15<br>GCT GK15 |             | Komatsu 4D92E        |
|                 | 7.2   | Rated Output, SAE net          |                                    |       | KW              |          | 27.2@2500              |             | 34.6@2450            |
|                 | 7.3   | Rated RPM                      |                                    |       | min-1           |          | 2500                   |             | 2450                 |
|                 | 7.3.1 | Max. Torque, SAE net           |                                    |       | Nm@min-1        |          | 113@1600               |             | 142@1800             |
|                 | 7.4   | No. of Cylinder/Displacement   |                                    |       | cm <sup>3</sup> |          | 4-1486                 |             | 4-2659               |
|                 | 7.6   | Fuel Tank Capacity             |                                    |       | Ltr             |          | 40                     |             | 40                   |
|                 | 8.2   | Relief Pressure for Attachment |                                    |       | bar             |          | 172                    |             | 172                  |
|                 | 8.6   | Clutch                         |                                    |       |                 |          | T/C                    | Dry         | T/C Dry              |
|                 | 8.7   | Transmission                   |                                    |       |                 |          | TORQFLOW               | Synchromesh | TORQFLOW Synchromesh |

| FG15T-21               | FG15C-21    | FD15T-21        | FD15C-21    | FG15HT-21              | FG15HC-21   |
|------------------------|-------------|-----------------|-------------|------------------------|-------------|
| Gasoline               |             | Diesel          |             | Gasoline               |             |
| Sitting                |             | Sitting         |             | Sitting                |             |
| 1500                   |             | 1500            |             | 1500                   |             |
| 500                    |             | 500             |             | 500                    |             |
| 1350                   |             | 1350            |             | 1350                   |             |
| 405                    |             | 405             |             | 405                    |             |
| 1400                   |             | 1400            |             | 1400                   |             |
| 2450                   | 2490        | 2550            | 2590        | 2450                   | 2490        |
| 3500                   | 3535        | 3530            | 3565        | 3500                   | 3535        |
| 450                    | 455         | 520             | 525         | 450                    | 455         |
| 1005                   | 1040        | 1035            | 1070        | 1005                   | 1040        |
| 1445                   | 1450        | 1515            | 1520        | 1445                   | 1450        |
| Pneumatic              |             | Pneumatic       |             | Pneumatic              |             |
| 6.50-10-10PR(I)        |             | 6.50-10-10PR(I) |             | 6.50-10-10PR(I)        |             |
| 5.00- 8- 8PR(I)        |             | 5.00-8-8PR(I)   |             | 5.00- 8- 8PR(I)        |             |
| 2*/2                   |             | 2*/2            |             | 2*/2                   |             |
| 890                    |             | 890             |             | 890                    |             |
| 895                    |             | 895             |             | 895                    |             |
| 6/10                   |             | 6/10            |             | 6/10                   |             |
| 1995                   |             | 1995            |             | 1995                   |             |
| 140                    |             | 140             |             | 140                    |             |
| 3000                   |             | 3000            |             | 3000                   |             |
| 3955                   |             | 3955            |             | 3955                   |             |
| 2070                   |             | 2070            |             | 2070                   |             |
| 3160                   |             | 3160            |             | 3160                   |             |
| 2240                   |             | 2240            |             | 2240                   |             |
| 1070                   |             | 1070            |             | 1070                   |             |
| 35x100x920             |             | 35x100x920      |             | 35x100x920             |             |
| Class 2, Type A        |             | Class 2, Type A |             | Class 2, Type A        |             |
| 970                    |             | 970             |             | 970                    |             |
| 120                    |             | 120             |             | 120                    |             |
| 130                    |             | 130             |             | 130                    |             |
| 3360                   |             | 3360            |             | 3360                   |             |
| 3560                   |             | 3560            |             | 3560                   |             |
| 1955                   |             | 1955            |             | 1955                   |             |
| 18.5                   | 8.5/18.5    | 18.5            | 8.5/19.0    | 18.5                   | 8.5/18.5    |
| 19.0                   | 9.0/19.0    | 19.0            | 8.5/19.5    | 19.0                   | 9.0/19.0    |
| 570                    |             | 620             |             | 590                    |             |
| 640                    |             | 670             |             | 640                    |             |
| 500                    |             | 500             |             | 500                    |             |
| 550                    |             | 550             |             | 550                    |             |
| 10                     | 11          | 13              | 14          | 15                     | 14          |
| 26                     | 27          | 33              | 31          | 37                     | 35          |
| Foot/Hydraulic         |             | Foot/Hydraulic  |             | Foot/Hydraulic         |             |
| Hand/Mechanical        |             | Hand/Mechanical |             | Hand/Mechanical        |             |
| FHPS                   |             | FHPS            |             | FHPS                   |             |
| 12/33                  |             | 12/64           |             | 12/33                  |             |
| NISSAN K15<br>GCT GK15 |             | Komatsu 4D92E   |             | NISSAN K21<br>GCT GK21 |             |
| 27.2@2500              |             | 34.6@2450       |             | 34.6@2450              |             |
| 2500                   |             | 2450            |             | 2450                   |             |
| 113@1600               |             | 142@1800        |             | 152@1600               |             |
| 4-1486                 |             | 4-2659          |             | 4-2065                 |             |
| 40                     |             | 40              |             | 40                     |             |
| 172                    |             | 172             |             | 172                    |             |
| T/C                    | Dry         | T/C             | Dry         | T/C                    | Dry         |
| TORQFLOW               | Synchromesh | TORQFLOW        | Synchromesh | TORQFLOW               | Synchromesh |

|                 |       |                                |                                    |       |                 |          |                        |             |                 |
|-----------------|-------|--------------------------------|------------------------------------|-------|-----------------|----------|------------------------|-------------|-----------------|
| Characteristics | 1.2   | Model                          | Manufacturer's Designation         |       |                 | FG18T-21 | FG18C-21               | FD18T-21    | FD18C-21        |
|                 | 1.3   | Power Type                     | Electric, Diesel, Gasoline, LPG    |       |                 | Gasoline |                        | Diesel      |                 |
|                 | 1.4   | Operation Type                 |                                    |       |                 | Sitting  |                        | Sitting     |                 |
|                 | 1.5   | Rated Capacity                 | Rated Capacity                     |       | kg              | 1750     |                        | 1750        |                 |
|                 | 1.6   | Load Center                    | Rated Load Center                  |       | mm              | 500      |                        | 500         |                 |
|                 | 1.6.1 | Alternative Capacity           | Capacity@600mm Load Center         |       | kg              | 1570     |                        | 1570        |                 |
|                 | 1.8   | Load Distance                  | Front Axle Center to Fork Face     |       | mm              | L2       | 405                    |             | 405             |
|                 | 1.9   | Wheelbase                      |                                    |       | mm              | L3       | 1400                   |             | 1400            |
| Weight          | 2.1   | Service Weight                 |                                    |       | kg              |          | 2645                   | 2685        | 2745            |
|                 | 2.2   | Axle Loading                   | Loaded                             | Front | kg              |          | 3870                   | 3905        | 3900            |
|                 | 2.2.1 |                                |                                    | Rear  | kg              |          | 525                    | 530         | 595             |
|                 | 2.3   |                                | Unloaded                           | Front | kg              |          | 960                    | 995         | 990             |
|                 | 2.3.1 |                                |                                    | Rear  | kg              |          | 1685                   | 1690        | 1755            |
| Tyres           | 3.1   | Tyre Type                      |                                    |       |                 |          | Pneumatic              |             | Pneumatic       |
|                 | 3.2   | Tyre Size                      | Front                              |       |                 |          | 6.50-10-10PR(I)        |             | 6.50-10-10PR(I) |
|                 | 3.3   |                                | Rear                               |       |                 |          | 5.00- 8- 8PR(I)        |             | 5.00-8-8PR(I)   |
|                 | 3.5   | Number of Wheel                | Front/Rear (x=driven)              |       |                 |          | 2*/2                   |             | 2*/2            |
|                 | 3.6   | Tread, Front                   |                                    |       | mm              | b4       | 890                    |             | 890             |
|                 | 3.7   | Tread, Rear                    |                                    |       | mm              | b3       | 895                    |             | 895             |
| Dimensions      | 4.1   | Tilting Angle                  | Forward/Backward                   |       | degree          |          | 6/10                   |             | 6/10            |
|                 | 4.2   | Mast Height, Lowered           | 2-stage Mast                       |       | mm              | h2       | 1995                   |             | 1995            |
|                 | 4.3   | Std. Free Lift                 | 2-stage Std. Mast, from Ground     |       | mm              |          | 140                    |             | 140             |
|                 | 4.4   | Std. Lift Height               | 2-stage Std. Mast, from Ground     |       | mm              | h1       | 3000                   |             | 3000            |
|                 | 4.5   | Mast Height, Extended          | 2-stage Std. Mast                  |       | mm              | h3       | 3955                   |             | 3955            |
|                 | 4.7   | Height, Overhead Guard         |                                    |       | mm              | h4       | 2070                   |             | 2070            |
|                 | 4.19  | Length, with Std. Forks        |                                    |       | mm              | L1       | 3200                   |             | 3200            |
|                 | 4.20  | Length, to Fork Face           |                                    |       | mm              |          | 2280                   |             | 2280            |
|                 | 4.21  | Width, at Tyre                 | Single                             |       | mm              | b1       | 1070                   |             | 1070            |
|                 | 4.22  | Forks                          | Thickness x Width x Length         |       | mm              |          | 35x100x920             |             | 35x100x920      |
|                 | 4.23  | Fork Carriage Class            | ISO 2328, Type A/B/no              |       |                 |          | Class 2, Type A        |             | Class 2, Type A |
|                 | 4.24  | Width, Fork Carriage           |                                    |       | mm              |          | 970                    |             | 970             |
|                 | 4.31  | Ground Clearance               | Under Mast                         |       | mm              |          | 120                    |             | 120             |
|                 | 4.32  |                                | at Center of Wheelbase             |       | mm              |          | 130                    |             | 130             |
|                 | 4.33  |                                | with L1000 x W1200 pallet          |       | mm              |          | 3395                   |             | 3395            |
|                 | 4.34  |                                | with L1200 x W800 pallet           |       | mm              |          | 3595                   |             | 3595            |
|                 | 4.35  | Turning Radius                 |                                    |       | mm              | Wa       | 1990                   |             | 1990            |
| Performance     | 5.1   | Travel Speed (FWD)             | Loaded, 1st/2nd                    |       | km/h            |          | 18.5                   | 8.5/18.5    | 18.5            |
|                 |       |                                | Unloaded, 1st/2nd                  |       | km/h            |          | 19.0                   | 9.0/19.0    | 19.0            |
|                 | 5.2   | Lifting Speed                  | Loaded                             |       | mm/s            |          | 570                    |             | 620             |
|                 |       |                                | Unloaded                           |       | mm/s            |          | 640                    |             | 670             |
|                 | 5.3   | Lowering Speed                 | Loaded                             |       | mm/s            |          | 500                    |             | 500             |
|                 |       |                                | Unloaded                           |       | mm/s            |          | 550                    |             | 550             |
|                 | 5.6   | Max. Drawbar Pull              | Loaded, 1.5 km/h, 3 min rating     |       | KN              |          | 10                     | 11          | 13              |
|                 | 5.8   | Max. Gradeability              | Loaded, 1.5 km/h, 3 min rating     |       | %               |          | 25                     | 24          | 29              |
|                 | 5.10  | Service Brake                  | Operation/Control                  |       |                 |          | Foot/Hydraulic         |             | Foot/Hydraulic  |
|                 | 5.11  | Parking Brake                  | Operation/Control                  |       |                 |          | Hand/Mechanical        |             | Hand/Mechanical |
| I.C Engine      | 5.12  | Steering                       | Type                               |       |                 |          | FHPS                   |             | FHPS            |
|                 | 6.4   | Battery                        | Voltage/ Capacity at 5-hour rating |       | V/ah            |          | 12/33                  |             | 12/64           |
|                 | 7.1   | Maker Model                    |                                    |       |                 |          | NISSAN K15<br>GCT GK15 |             | Komatsu 4D92E   |
|                 | 7.2   | Rated Output, SAE net          |                                    |       | KW              |          | 27.2@2500              |             | 34.6@2450       |
|                 | 7.3   | Rated RPM                      |                                    |       | min-1           |          | 2500                   |             | 2450            |
|                 | 7.3.1 | Max. Torque, SAE net           |                                    |       | Nm@min-1        |          | 113@1600               |             | 142@1800        |
|                 | 7.4   | No. of Cylinder/Displacement   |                                    |       | cm <sup>3</sup> |          | 4-1486                 |             | 4-2659          |
|                 | 7.6   | Fuel Tank Capacity             |                                    |       | Ltr             |          | 40                     |             | 40              |
|                 | 8.2   | Relief Pressure for Attachment |                                    |       | bar             |          | 172                    |             | 172             |
|                 | 8.6   | Clutch                         |                                    |       |                 |          | T/C                    | Dry         | T/C             |
| Others          | 8.7   | Transmission                   |                                    |       |                 |          | TORQFLOW               | Synchromesh | TORQFLOW        |



| FG18HT-21       | FG18HC-21   |
|-----------------|-------------|
| Gasoline        |             |
| Sitting         |             |
| 1750            |             |
| 500             |             |
| 1570            |             |
| 405             |             |
| 1400            |             |
| 2645            | 2685        |
| 3870            | 3905        |
| 525             | 530         |
| 960             | 995         |
| 1685            | 1690        |
| Pneumatic       |             |
| 6.50-10-10PR(I) |             |
| 5.00- 8- 8PR(I) |             |
| 2*/2            |             |
| 890             |             |
| 895             |             |
| 6/10            |             |
| 1995            |             |
| 140             |             |
| 3000            |             |
| 3955            |             |
| 2070            |             |
| 3200            |             |
| 2280            |             |
| 1070            |             |
| 35x100x920      |             |
| Class 2, Type A |             |
| 970             |             |
| 120             |             |
| 130             |             |
| 3395            |             |
| 3595            |             |
| 1990            |             |
| 18.5            | 8.5/18.5    |
| 19.0            | 9.0/19.0    |
| 590             |             |
| 640             |             |
| 500             |             |
| 550             |             |
| 15              | 14          |
| 33              | 32          |
| Foot/Hydraulic  |             |
| Hand/Mechanical |             |
| FHPS            |             |
| 12/33           |             |
| NISSAN K21      |             |
| GCT GK21        |             |
| 34.6@2450       |             |
| 2450            |             |
| 152@1600        |             |
| 4-2065          |             |
| 40              |             |
| 172             |             |
| T/C             | Dry         |
| TORQFLOW        | Synchromesh |

**BX50 (2.0 - 2.5ton) Series**

|                 |                   |                              |                                    |                  |      |                 |                 |                        |                 |                 |             |
|-----------------|-------------------|------------------------------|------------------------------------|------------------|------|-----------------|-----------------|------------------------|-----------------|-----------------|-------------|
| Characteristics | 1.2               | Model                        | Manufacturer's Designation         |                  |      |                 | FG20T-17        | FG20C-17               | FD20T-16        | FD20C-16        |             |
|                 | 1.3               | Power Type                   | Electric, Diesel, Gasoline, LPG    |                  |      |                 | Gasoline        |                        | Diesel          |                 |             |
|                 | 1.4               | Operation Type               |                                    |                  |      |                 | Sitting         |                        | Sitting         |                 |             |
|                 | 1.5               | Rated Capacity               | Rated Capacity                     |                  | kg   |                 | 2000            |                        | 2000            |                 |             |
|                 | 1.6               | Load Center                  | Rated Load Center                  |                  | mm   |                 | 500             |                        | 500             |                 |             |
|                 | 1.6.1             | Alternative Capacity         | Capacity@600mm Load Center         |                  | kg   |                 | 1810            |                        | 1810            |                 |             |
|                 | 1.8               | Load Distance                | Front Axle Center to Fork Face     |                  | mm   | L2              | 460             |                        | 460             |                 |             |
|                 | 1.9               | Wheelbase                    |                                    |                  | mm   | L3              | 1650            |                        | 1650            |                 |             |
|                 | Weight            | 2.1                          | Service Weight                     |                  |      | kg              |                 | 3220                   | 3255            | 3310            | 3355        |
| 2.2             |                   | Axle Loading                 | Loaded                             | Front            | kg   |                 | 4670            | 4705                   | 4700            | 4745            |             |
| 2.2.1           |                   |                              |                                    | Rear             | kg   |                 | 550             | 550                    | 610             | 610             |             |
| 2.3             |                   |                              | Unloaded                           | Front            | kg   |                 | 1480            | 1505                   | 1510            | 1545            |             |
| 2.3.1           |                   |                              |                                    | Rear             | kg   |                 | 1740            | 1750                   | 1800            | 1810            |             |
| Tyres           | 3.1               | Tyre Type                    |                                    |                  |      |                 | Pneumatic       |                        | Pneumatic       |                 |             |
|                 | 3.2               | Tyre Size                    | Front                              |                  |      |                 | 7.00-12-12PR(I) |                        | 7.00-12-12PR(I) |                 |             |
|                 | 3.3               |                              | Rear                               |                  |      |                 | 6.00-09-10PR(I) |                        | 6.00-09-10PR(I) |                 |             |
|                 | 3.5               | Number of Wheel              | Front/Rear (x=driven)              |                  |      |                 | 2*/2            |                        | 2*/2            |                 |             |
|                 | 3.6               | Tread, Front                 |                                    |                  |      | mm              | b4              | 965                    |                 | 965             |             |
|                 | 3.7               | Tread, Rear                  |                                    |                  |      | mm              | b3              | 960                    |                 | 960             |             |
|                 | Dimensions        | 4.1                          | Tilting Angle                      | Forward/Backward |      | degree          |                 | 6/12                   |                 | 6/12            |             |
| 4.2             |                   | Mast Height, Lowered         | 2-stage Mast                       |                  | mm   | h2              | 1995            |                        | 1995            |                 |             |
| 4.3             |                   | Std. Free Lift               | 2-stage Std. Mast, from Ground     |                  | mm   |                 | 150             |                        | 150             |                 |             |
| 4.4             |                   | Std. Lift Height             | 2-stage Std. Mast, from Ground     |                  | mm   | h1              | 3000            |                        | 3000            |                 |             |
| 4.5             |                   | Mast Height, Extended        | 2-stage Std. Mast                  |                  | mm   | h3              | 4050            |                        | 4050            |                 |             |
| 4.7             |                   | Height, Overhead Guard       |                                    |                  |      | mm              | h4              | 2110                   |                 | 2070            |             |
| 4.19            |                   | Length, with Std. Forks      |                                    |                  |      | mm              | L1              | 3450                   |                 | 3450            |             |
| 4.20            |                   | Length, to Fork Face         |                                    |                  |      | mm              |                 | 2530                   |                 | 2530            |             |
| 4.21            |                   | Width, at Tyre               | Single                             |                  | mm   | b1              | 1150            |                        | 1150            |                 |             |
| 4.22            |                   | Forks                        | Thickness x Width x Length         |                  |      | mm              |                 | 36x122x920             |                 | 36x122x920      |             |
| 4.23            |                   | Fork Carriage Class          | ISO 2328, Type A/B/no              |                  |      |                 |                 | Class 2, Type A        |                 | Class 2, Type A |             |
| 4.24            |                   | Width, Fork Carriage         |                                    |                  |      | mm              |                 | 1020                   |                 | 1020            |             |
| 4.31            |                   | Ground Clearance             | Under Mast                         |                  | mm   |                 | 115             |                        | 115             |                 |             |
| 4.32            |                   |                              | at Center of Wheelbase             |                  | mm   |                 | 160             |                        | 160             |                 |             |
| 4.33            |                   | Right Angle Stacking Aisle   | with L1000 x W1200 pallet          |                  | mm   |                 | 3650            |                        | 3650            |                 |             |
| 4.34            |                   |                              | with L1200 x W800 pallet           |                  | mm   |                 | 3850            |                        | 3850            |                 |             |
| 4.35            |                   | Turning Radius               |                                    |                  |      | mm              | Wa              | 2190                   |                 | 2190            |             |
| Performance     | 5.1               | Travel Speed (FWD)           | Loaded, 1st/2nd                    |                  | km/h |                 | 18.5            | 8.5/18.5               | 18.5            | 8.5/18.5        |             |
|                 | Unloaded, 1st/2nd |                              | km/h                               |                  | 19.0 | 9.0/19.0        | 19.0            | 8.5/19.0               |                 |                 |             |
|                 | 5.2               | Lifting Speed                | Loaded                             |                  | mm/s |                 | 545             |                        | 630             |                 |             |
|                 | Unloaded          |                              | mm/s                               |                  | 600  |                 | 685             |                        |                 |                 |             |
|                 | 5.3               | Lowering Speed               | Loaded                             |                  | mm/s |                 | 450             |                        | 450             |                 |             |
|                 | Unloaded          |                              | mm/s                               |                  | 500  |                 | 500             |                        |                 |                 |             |
|                 | 5.6               | Max. Drawbar Pull            | Loaded, 1.5 km/h, 3 min rating     |                  | KN   |                 | 14              | 14                     | 18              | 17              |             |
|                 | 5.8               | Max. Gradeability            | Loaded, 1.5 km/h, 3 min rating     |                  | %    |                 | 28              | 27                     | 36              | 34              |             |
|                 | 5.10              | Service Brake                | Operation/Control                  |                  |      |                 |                 | Foot/Hydraulic         |                 | Foot/Hydraulic  |             |
| 5.11            | Parking Brake     | Operation/Control            |                                    |                  |      |                 | Hand/Mechanical |                        | Hand/Mechanical |                 |             |
| 5.12            | Steering          | Type                         |                                    |                  |      |                 | FHPS            |                        | FHPS            |                 |             |
|                 | 6.4               | Battery                      | Voltage/ Capacity at 5-hour rating |                  | V/ah |                 | 12/33           |                        | 12/64           |                 |             |
| I.C Engine      | 7.1               | Maker Model                  |                                    |                  |      |                 |                 | NISSAN K21<br>GCT GK21 |                 | Komatsu 4D94LE  |             |
|                 | 7.2               | Rated Output, SAE net        |                                    |                  |      | KW              |                 | 34.6@2450              |                 | 46.3@2450       |             |
|                 | 7.3               | Rated RPM                    |                                    |                  |      | min-1           |                 | 2450                   |                 | 2450            |             |
|                 | 7.3.1             | Max. Torque, SAE net         |                                    |                  |      | Nm@min-1        |                 | 152@1600               |                 | 186@1800        |             |
|                 | 7.4               | No. of Cylinder/Displacement |                                    |                  |      | cm <sup>3</sup> |                 | 4-2065                 |                 | 4-3052          |             |
|                 | 7.6               | Fuel Tank Capacity           |                                    |                  |      | Ltr             |                 | 58                     |                 | 58              |             |
|                 | Others            | 8.2                          | Relief Pressure for Attachment     |                  |      | bar             |                 | 181                    |                 | 181             |             |
| 8.6             |                   | Clutch                       |                                    |                  |      |                 |                 | T/C                    | Dry             | T/C             | Dry         |
| 8.7             |                   | Transmission                 |                                    |                  |      |                 |                 | TORQFLOW               | Synchromesh     | TORQFLOW        | Synchromesh |