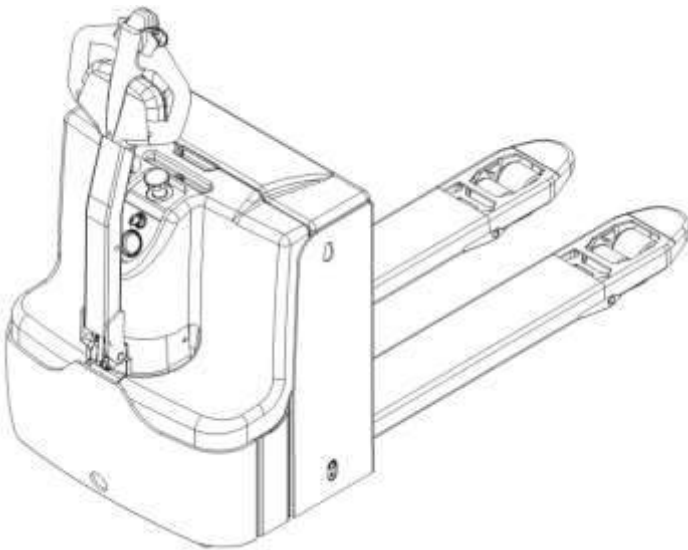




Service & Maintenance Manual

Pallet truck EP16-N01 EP20-N04



Warning

You must read the instructions in this manual before using the manual.

Notice:

- The last page, please check the file and all of the current product type on the nameplate.

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FOREWORD

The handling car operation, please read the manual carefully and fully understand the use of the car, improper operation easily lead to danger.

This manual describes the different types of pallet truck usage, maintenance truck, please make sure the model is consistent with your company.

Please pay attention to keep for future use. If this manual or alert/warning label damaged or lost, please contact the local dealer to replace.

The carrier in accordance with EN 3691-1 (Industrial vehicles - safety requirements and validation, part 1), EN 12895 (Industrial vehicles - electromagnetic compatibility), EN 12053 (The safety of industrial vehicles - test method of the measurement noise emission), EN 1175 (Industrial vehicle safety - electrical performance requirements) standard requirement, must ensure that the vehicle on the basis of the above purposes. According to EN 12053, driver's ear noise level is less than 70dB (A).

NOTICE:



- Waste packaging should be according to the material classification in solid waste box, collection processing and specially by the local environmental protection bureau. To avoid pollution, optional littering is prohibited.
- To avoid the spill situation when use the product, the user should prepare some materials can be absorbed (waste wood chips or dry cloth) to absorb of the leakage of oil in a timely manner. To avoid the secondary pollution of the environment, has been with absorbable materials shall be delivered to special department according to local authorities.
- Continuous improvement of our products, because only in this manual operation/maintenance truck, for the purpose of this manual does not guarantee in addition to the special circumstances, please understand.

NOTICE: In this manual, the symbol on the left if you don't follow that may result in death or serious injury, warning and dangerous situation.

Copyright

Copyright by this file last mentioned company reserves on the CE standard.

1. GENERAL

1.1 INTRODUCTION – MAINTENANCE SAFETY PRECAUTIONS

Maintenance work may cause injuries. Always take care to perform work safe, at least observing the following. It is of utmost importance that maintenance personnel pay strict attention to these warnings and precautions to avoid possible injury to themselves, others or damage to the equipment. A maintenance program must be followed to ensure that the machine is safe to operate.

The specific precautions to be observed during maintenance are inserted at the appropriate point in the manual. These precautions are, for the most parts, those that apply when servicing hydraulic and larger truck component parts

⚠ WARNING MODIFICATION OF THE TRUCK WITHOUT CERTIFICATION BY A RESPONSIBLE AUTHORITY THAT THE TRUCK IS AT LEAST AS SAFE AS ORIGINALLY MANUFACTURED, IS A SAFETY VIOLATION.

⚠ WARNING SINCE THE TRUCK MANUFACTURER HAS NO DIRECT CONTROL OVER THE FIELD INSPECTION AND MAINTENANCE, SAFETY IN THIS AREA RESPONSIBILITY OF THE OWNER OR OPERATOR.



⚠ WARNING FAILURE TO COMPLY WITH SAFETY PRECAUTIONS, LISTED IN THIS SECTION MAY RESULT IN MACHINE DAMAGE, PERSONNEL INJURY OR DEATH AND IS A SAFETY VIOLATION.

- Only specially trained personnel to the local operation.
- Please read it carefully before operation or maintenance vehicle operation and maintenance manual.
- Read all the vehicles with preventive measures.
- Make sure you fully understand operation content. Maintenance vehicles before preparing the necessary tool box parts are very important.
- Maintenance vehicles is the first consideration when you and the safety of others. In the absence of mechanical equipment parts do not move. Please do not place heavy objects on the location of the instability. Improve equipment part; make sure to provide enough support.
- We should pay attention to the machine hydraulic system to operate under the pressure of high risk. In any part of the disconnect or remove system before doing everything it can to reduce the system pressure. Through many times to stop and start the cycle control motor, reduce the system pressure.



- Maintenance vehicles when remove rings, watches and jewelry.



- Drill grinding or hammer to wear a helmet, safety shoes and work clothes, wear protective glasses. In order to avoid the hurt by prominent parts of the vehicle, the staff must wear safety clothing. Don't wear oily clothes. Check to remove battery when the plug-in. Do not wear loose clothing and tie, in case of clothing involved in equipment.

- During maintenance does not allow any unauthorized person stand near the machine.



- Can't replace lamps and lanterns with flame. Don't use flame leak check, oil level or electrolyte.



- Immediately clean the grease of the operating area or hand, if someone slipped on vehicle slip could be dangerous.

- Use pure oil and clean container.

- Oil is a kind of dangerous substances, there is fire don't appear grease or oil. To do a good job of using fire extinguishers and other firefighting equipment.



- Keep battery away from fire hazards, the generated gas explodes.



- Flammable things far away from the vehicle, and smoking is prohibited to work.
- Disconnect the battery when you replace the electrical components.

- Using force recommended oil level, according to the environmental temperature choose oil viscosity.



- In a closed space in the exhaust gas is very dangerous.

- Avoid inhaling processing components of dust, wear a mask when necessary.

- At the top of the vehicle is working, be careful not to fall.

- In the operating area warning label (such as "don't start" "maintenance"), this can prevents workers start or a moving vehicle.

- When welding or power system is working, turn off the key switch and unplug battery plug-in. The vehicle parking in solid flat field. The goods fork fell to the lowest level, stop the motor

work. Park machine company, the ground.

- In the sulfuric acid toxic battery electrolyte, it can burn skin and clothes of corrosion. If splashed on your clothing or skin sulfate to rinse immediately with plenty of water.



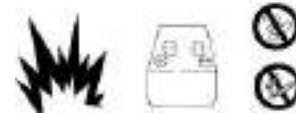
- For battery to work to wear goggles or safety glasses, if splashed into eyes, rinse immediately and go to a doctor.

- Metal object touch the battery terminal may cause short circuit and burn to you, tools to stay away from the battery terminal.

- Fire, lit a match and flame to stay away from the battery, battery (hydrogen) gas explodes.



- Disassembly and assembly of battery to make sure the battery terminal (+, -) properly connected.



- If the water into the electrical system, the operation will lead to failure. Don't use water on sensors, connectors, and vehicle instrument.

- Don't deal with electrical equipment, wear wet gloves that could lead to electric shocks.
- Work together with others, choose a leader and work according to his instructions. Don't to outside any maintenance work.

- Unless you have special instructions, must the ability after the motor stopped for maintenance work. If the motor run time for maintenance, you must have two technicians present: a piling car operation, and another for maintenance work. In this case, do not touch any contact with any moving parts.

- Before adjustment, lubrication and maintenance work, close all the power switch.

- Remove containing O gaskets or seal parts, clean up the installation surface and replace the new seal.



- Thoroughly clean the machine, particularly carefully clean oil components and in the area near the oil dipstick. Be careful not to let any dirt or dust into the system.

- Can only be used to allow the burning cleaning solvent.

- When change hydraulic oil or filter, check the hydraulic oil and filter for excess metal particles or other foreign material.



- Use of manufacturers to provide spare parts for replacement, make sure that the replacement of parts or components is the same as the original parts.

- Check the open gear box, there might be a material falls into. Before remove the cover for inspection, to ensure that you have nothing in his pocket. Then carefully remove the nut.

1.2 MEASUREMENT CONVERSIONS

Length

| unit | cm | m | km | in | ft | yd | mile |
|------|--------|--------|----------|---------|---------|---------|----------|
| cm | 1 | 0.01 | 0.00001 | 0.3937 | 0.03281 | 0.01094 | 0.000006 |
| m | 100 | 1 | 0.001 | 39.37 | 3.2808 | 1.0936 | 0.00062 |
| km | 100000 | 1000 | 1 | 39370.7 | 3280.8 | 1093.6 | 0.62137 |
| in | 2.54 | 0.0254 | 0.000025 | 1 | 0.08333 | 0.02777 | 0.000015 |
| ft | 30.48 | 0.3048 | 0.000304 | 12 | 1 | 0.3333 | 0.000189 |
| yd | 91.44 | 0.9144 | 0.000914 | 36 | 3 | 1 | 0.000568 |
| mile | 160930 | 1609.3 | 1.6093 | 63360 | 5280 | 1760 | 1 |

1mm=0.1cm, 1 μ m=0.001mm

Area

| unit | cm ₂ | m ₂ | km ₂ | a | ft ₂ | yd ₂ | in ₂ |
|-----------------|-----------------|----------------|-----------------|----------|-----------------|-----------------|-----------------|
| cm ₂ | 1 | 0.0001 | – | 0.000001 | 0.001076 | 0.000012 | 0.155000 |
| m ₂ | 10000 | 1 | 0.000001 | 0.01 | 10.764 | 1.1958 | 1550.000 |
| km ₂ | – | 1000000 | 1 | 10000 | 1076400 | 1195800 | – |
| a | 0.01 | 100 | 0.0001 | 1 | 1076.4 | 119.58 | – |
| ft ₂ | – | 0.092903 | – | 0.000929 | 1 | 0.1111 | 144.000 |
| yd ₂ | – | 0.83613 | – | 0.008361 | 9 | 1 | 1296.00 |
| in ₂ | 6.4516 | 0.000645 | – | – | 0.006943 | 0.000771 | 1 |

1ha=100a, 1mile₂=259ha=2.59km₂

Volume

| unit | cm ₃ = cc | m ₃ | l | in ₃ | ft ₃ | yd ₃ |
|-----------------------|----------------------|----------------|---------|-----------------|-----------------|-----------------|
| cm ₃ = m l | 1 | 0.000001 | 0.001 | 0.061024 | 0.000035 | 0.000001 |
| m ₃ | 1000000 | 1 | 1000 | 61024 | 35.315 | 1.30796 |
| l | 1000 | 0.001 | 1 | 61.024 | 0.035315 | 0.001308 |
| in ₃ | 16.387 | 0.000016 | 0.01638 | 1 | 0.000578 | 0.000021 |
| ft ₃ | 28316.8 | 0.028317 | 28.317 | 1728 | 1 | 0.03704 |
| yd ₃ | 764529.8 | 0.76453 | 764.53 | 46656 | 27 | 1 |

1gal(US)=3785.41 cm₃=231 in₃=0.83267gal(US)

Weight

| unit | g | kg | t | oz | lb |
|------|---------|---------|----------|---------|---------|
| g | 1 | 0.001 | 0.000001 | 0.03527 | 0.0022 |
| kg | 1000 | 10 | 0.001 | 35.273 | 2.20459 |
| t | 1000000 | 1000 | 1 | 35273 | 2204.59 |
| oz | 28.3495 | 0.02835 | 0.000028 | 1 | 0.0625 |
| lb | 453.592 | 0.45359 | 0.000454 | 16 | 1 |

1 tone (metric)= 1.1023 ton(US)=0.9842 ton(UK)

Pressure

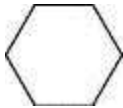
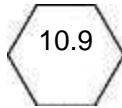
| | | | | | | |
|---------------------|---------------------|---------|---------------------|---------|---------------------|---------------------|
| unit | kgf/cm ₂ | bar | Pa=N/m ₂ | kPa | lbf/in ₂ | lbf/ft ₂ |
| kgf/cm ₂ | 1 | 0.98067 | 98066.5 | 98.0665 | 14.2233 | 2048.16 |
| bar | 1.01972 | 1 | 100000 | 100 | 14.5037 | 2088.6 |
| Pa=N/m ₂ | 0.00001 | 0.001 | 1 | 0.001 | 0.00015 | 0.02086 |
| kPa | 0.01020 | 0.01 | 1000 | 1 | 0.14504 | 20.886 |
| lbf/in ₂ | 0.07032 | 0.0689 | 6894.76 | 6.89476 | 1 | 144 |
| lbf/ft ₂ | 0.00047 | 0.00047 | 47.88028 | 0.04788 | 0.00694 | 1 |

kgf/cm₂=735.56 Torr(mmHg)=0.96784atm


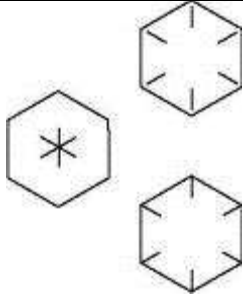
STANDARD TIGHTENING TORQUE

The following charts give the standard tightening torques of bolts and nuts.

METER TABLE

| Classification | 4T, 5T | 10T |
|----------------|---|---|
| Bolt type |  |  |
| Bolt size | Torque kgf · m (lbf · ft) | Torque kgf · m (lbf · ft) |
| M4 | 0.2 ± 0.02 | 0.4 ± 0.04 |
| M5 | 0.3 ± 0.03 | 0.8 ± 0.08 |
| M6 | 0.5 ± 0.05 | 1.4 ± 0.14 |
| M8 | 1.2 ± 0.12 | 3.3 ± 0.3 |
| M10 | 2.3 ± 0.23 | 6.5 ± 0.7 |
| M12 | 4.0 ± 0.4 | 11.3 ± 1.1 |
| M14 | 6.4 ± 0.6 | 17.9 ± 1.8 |
| M16 | 9.5 ± 0.9 | 26.7 ± 2.7 |
| M18 | 13.5 ± 1.4 | 38.0 ± 3.8 |
| M20 | 18.6 ± 1.9 | 52.2 ± 5.2 |
| M22 | 24.7 ± 2.5 | 69.4 ± 6.9 |
| M24 | 32.1 ± 3.2 | 90.2 ± 9.0 |
| M30 | 62.6 ± 6.3 | 176.1 ± 17.6 |
| M36 | 108.2 ± 10.8 | 304.3 ± 30.4 |
| M42 | 171.8 ± 17.2 | 483.2 ± 48.3 |
| M45 | 211.3 ± 21.1 | 594.3 ± 50.4 |

INCH TABLE

| | 4T, 5T | 10T |
|--------------------------|---|---|
| Classification Bolt type |  |  |
| Bolt size | Torque kgf · m (lbf · ft) | Torque kgf · m (lbf · ft) |
| 1/4 | 0.6 ± 0.06 | 1.7 ± 0.2 |
| 5/16 | 1.2 ± 0.12 | 3.0 ± 0.3 |
| 3/8 | 2.0 ± 0.20 | 5.6 ± 0.5 |
| 7/16 | 3.2 ± 0.32 | 8.9 ± 0.9 |
| 1/2 | 4.7 ± 0.47 | 13.4 ± 1.3 |
| 9/16 | 6.8 ± 0.68 | 19.0 ± 1.9 |
| 5/8 | 9.3 ± 0.93 | 26.1 ± 2.6 |
| 3/4 | 16.0 ± 1.60 | 45.1 ± 4.5 |
| 7/8 | 25.5 ± 2.55 | 71.6 ± 7.2 |
| 1 | 38.0 ± 3.80 | 106.9 ± 10.7 |
| 1-1/8 | 54.1 ± 5.41 | 152.2 ± 15.2 |
| 1-1/4 | 74.2 ± 7.42 | 208.9 ± 20.9 |
| 1-3/4 | 98.8 ± 9.88 | 277.8 ± 27.8 |
| 1-1/2 | 128.2 ± 12.82 | 360.7 ± 36.1 |

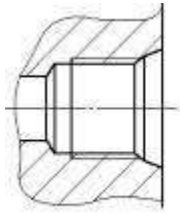
The torque in above table shall not be applied to nylon or nonferrous bolts or washer. The same is valid for not standardized ones.

H Newton meter : 1 Nm = 0.1kgfm

| Diameter (mm) | Flat width (mm) | Torque | |
|------------------|--------------------|-----------|------------|
| | | kgf·m | N·m |
| 10 | 14 | 6.7 ± 0.7 | 66.7 ± 6.8 |
| 12 | 17 | 11.5 ± 1 | 112 ± 9.8 |
| 16 | 22 | 28.5 ± 3 | 279 ± 29 |

Split flange bolt tightening torque

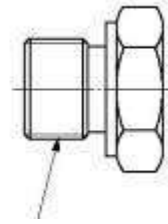
The following table torque applied to split flange bolts



PF THREAD



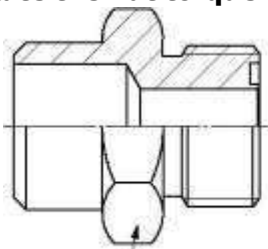
O – ring



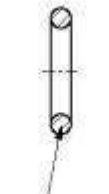
Plug

| Thread | Torque (kgf·m) |
|--------|----------------|
| 1/8 | 1.1 ± 0.1 |
| 1/4 | 2.6 ± 0.2 |
| 3/8 | 4.6 ± 0.3 |
| 1/2 | 8.5 ± 0.4 |
| 3/4 | 19 ± 1.0 |
| 1 | 33 ± 2.0 |

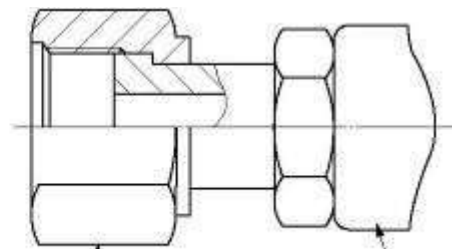
With rotate the nut torque o-rings



Connector



O – ring



Swivel – nut

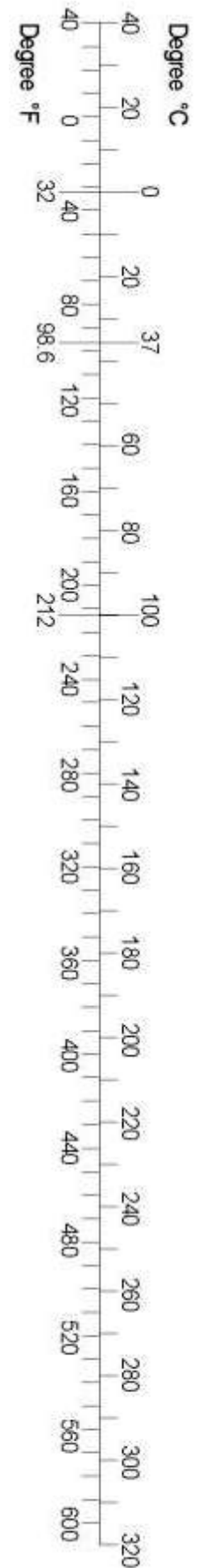
hose

| Tube O.D (inch) | Thread (in) | Torque (kgf·m) |
|-----------------|----------------|----------------|
| 1/2 | UN 13/16 - 16 | 9.5 ± 0.95 |
| 3/4 | UN 1 3/16 - 12 | 18 ± 1.8 |
| 1 | UN 1 7/16 - 12 | 21 ± 2.1 |

APPROXIMATE CONVERSIONS

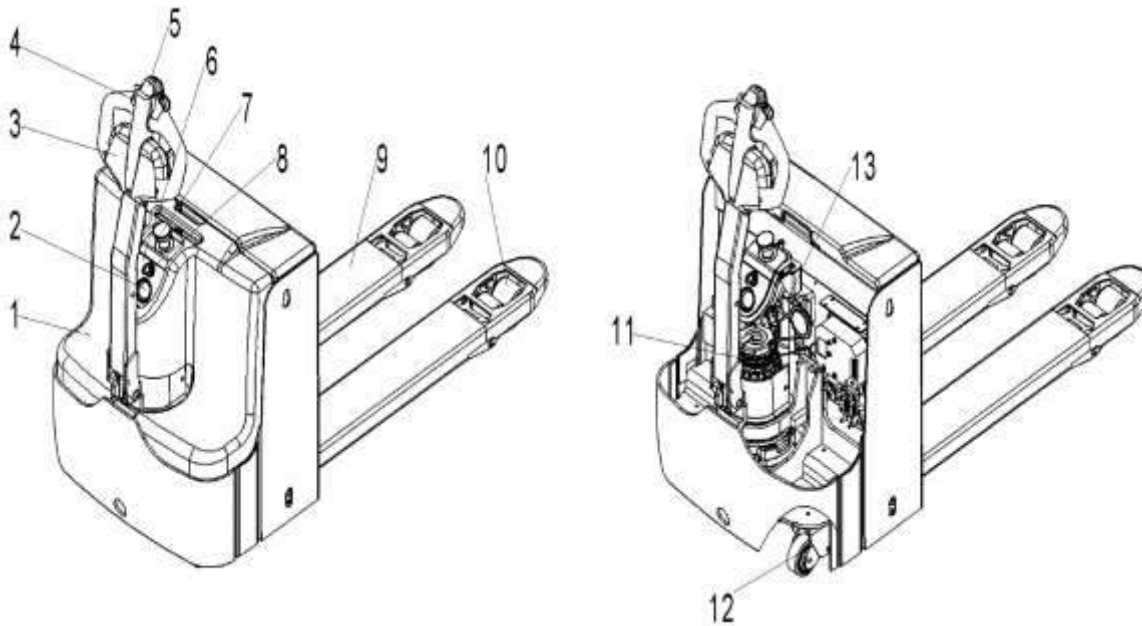
| SI Unit | Conv Factor | Non-SI Unit | Conv Factor | SI Unit |
|--|-------------|---------------------------|-------------|-------------------------|
| Torque | | | | |
| Newton meter (N·m) | × 8.9 | = In·in | × 0.113 | = N·m |
| Newton meter (N·m) | × 0.74 | = lb·ft. | × 1.36 | = N·m |
| Newton meter (N·m) | × 0.102 | = kg·m | × 7.22 | = lb·ft.* |
| Pressure (Pa = N/m²) | | | | |
| kiloPascal (kPa) | × 4.0 | = in. H ₂ O | × 0.249 | = kPa |
| kiloPascal (kPa) | × 0.30 | = in. Hg | × 3.38 | = kPa |
| kiloPascal (kPa) | × 0.145 | = psi | × 6.89 | = kPa |
| (bar) | × 14.5 | = psi | × 0.069 | = bar* |
| (kg/cm ²) | × 14.22 | = psi | × 0.070 | = kgf/cm ² * |
| Newton/mm ² | × 145.04 | = psi | × 0.069 | = bar* |
| MegaPascal (MPa) (Pa=N·m ²) | × 145 | = psi | × 0.00689 | = MPa |
| Power r (W = J/s) | | | | |
| kiloWatt (kW) | × 1.36 | = PS (cv) | × 0.736 | = kW |
| kiloWatt (kW) | × 1.34 | = HP | × 0.746 | = kW |
| kiloWatt (kW) | × 0.948 | = Btu/s | × 1.055 | = kW |
| Watt (W) (W=J/s) | × 0.74 | = ft·lb/s | × 1.36 | = W |
| Energy (J = N·m) | | | | |
| kiloJoule (kJ) | × 0.948 | = Btu | × 1.055 | = kJ |
| Joule (J) (J=N·m) | × 0.239 | = calorie | × 4.19 | = J |
| Velocity and Acceleration | | | | |
| meter per sec ² (m/s ²) | × 3.28 | = ft/s ² | × 0.305 | = m/s ² |
| meter per sec (m/s) | × 3.28 | = ft/s | × 0.305 | = m/s |
| kilometer per hour (km/h) | × 0.62 | = mph | × 1.61 | = km/h |
| Horse Power/Torque | | | | |
| BHP × 5252 R.P.M. = TQ (lb·ft) | | TQ Z R.P.M. 5252 = B.H.P. | | |
| Temperature | | | | |
| °C = (°F-32) ÷ 1.8 | | °F= (°C Z 1.8) + 32 | | |
| Flow Rate | | | | |
| liter/min (dm ³ /min) | × 0.264 | = US gal/min | × 3.785 | = l/min |

Note : () Non-SI Unit



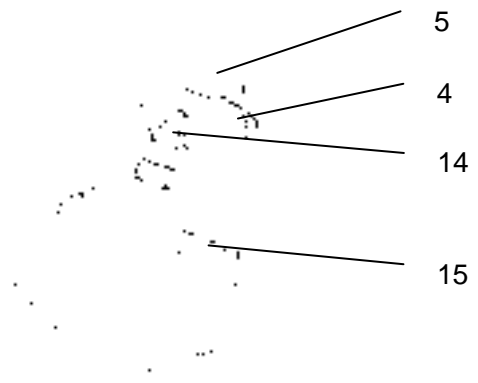
2. SPECIFICATION

2.1 OVERVIEW OF MAIN COMPONENTS



| | | | |
|-----|---|----|------------------------|
| 1. | Electrical box cover | 11 | Driving wheel |
| 2. | Discharge indicator, LED charging indicator | 12 | Steering wheel parts |
| 3. | handle shank | 13 | hydraulic oil cylinder |
| 4. | Drive control switch (switch) butterfly | 14 | |
| 5. | Safety switch button/belly | 15 | |
| 6. | Instrument panel cover | 16 | |
| 7. | Joint emergency button | 17 | |
| 8. | Key switch | 18 | |
| 9. | Pallet fork chassis | 19 | |
| 10. | Load wheel | 20 | |

CONTROL HANDLE



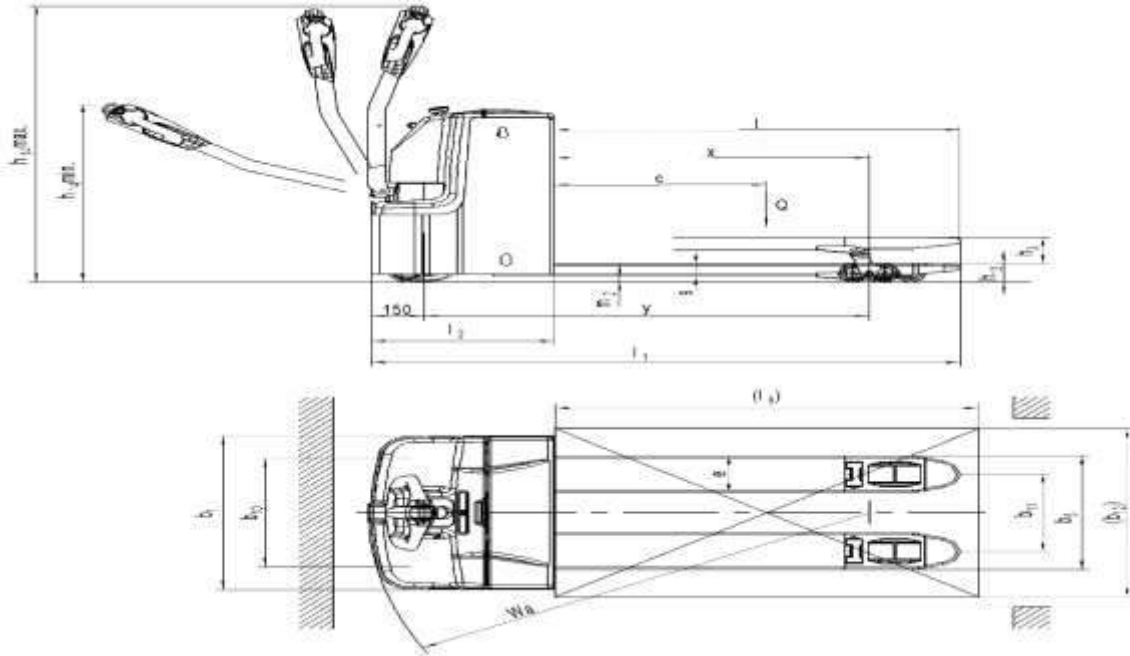
| | | | |
|----|----------------------|----|----------------|
| 5 | Safety switch | 15 | Lifting switch |
| 4 | Drive control switch | | |
| 14 | horn button | | |

2.2 TECHNICAL PARAMETER TABLE

Depending on the type of industrial vehicles VDI 2198 standard table

| Depending on the type of industrial vehicles VDI 2198 standard table | | | | | |
|--|-------------|---|----------------------|-----------------------|---------------------|
| features | 1.2 | type | | EP16-N01 | |
| | | | | Fixed the pedal | Folding pedals |
| | 1.3 | Power (electric, diesel, gasoline, liquefied petroleum gas, electrical)gas, electrical) | | electric | |
| | 1.4 | Driving mode (manual type, walk, stand driving, car type, choose type) | | standing steer type | standing steer type |
| | 1.5 | Load Capacity | Q (t) | 2.5 | |
| | 1.6 | Load center distance | C (mm) | 600 | |
| | 1.8 | Front overhang | X (mm) | 965 | |
| 1.9 | Wheel base | Y (mm) | 1595 | | |
| weight | 2.1 | Weight (including battery) | kg | 1085 | 950 |
| | 2.2 | When the full bridge load driver side/bearing side | kg | 1555/2030 | 1370/2080 |
| | 2.3 | When the full bridge load driver side/bearing side | kg | 885/200 | 730/220 |
| wheel | 3.1 | Tyre | | Polyurethane (PU) | |
| | 3.2 | Wheel size driving side | ∅ x w (mm) | ∅82X82 | |
| | 3.3 | Wheel size Bearing side | ∅ x w (mm) | ∅250X82 | |
| | 3.4 | Steering wheel size | ∅ x w (mm) | ∅124X60 | |
| | 3.5 | Number of wheels (x = drive wheel)drive side/bearing side | | 1x+2/4 | |
| | 3.6 | Wheel base(front) driving side | b ₁₀ (mm) | 530 | |
| | 3.7 | Wheel base (behind) Bearing side | b ₁₁ (mm) | 367/512 | |
| size | 4.4 | Hoisting height | h ₃ (mm) | 120 | |
| | 4.9 | The height of the operating lever in the neutral position | h ₁₄ (mm) | 1235 | 1005/1445 |
| | 4.15 | Goods fork minimum height | h ₁₃ (mm) | 85 | |
| | 4.19 | Overall length | l ₁ (mm) | 2667 | 2122 |
| | 4.20 | Body length | l ₂ (mm) | 1516 | 971 |
| | 4.21 | overall width | b ₁ (mm) | 790 | |
| | 4.22 | Pallet fork size | s/e/l (mm) | 60/173/1150 | |
| | 4.25 | Pallet fork out wide | b ₅ (mm) | 540/685 | |
| | 4.32 | The minimum clearance from the ground | m ₂ (mm) | 25 | |
| | 4.33 | Work channel width,1000X1200 pallet (1200 Across the pallet fork placed) | Ast (mm) | 3084 | 2550 |
| | 4.34 | Work channel width,800X1200 pallet (1200 Fork placed along the goods) | Ast (mm) | 2945 | 2410 |
| 4.35 | turn radius | Wa (mm) | 2520 | 1980 | |
| property | 5.1 | running speed Full/empty | km/h | 9/12 | 9.5/12.5 |
| | 5.2 | hoisting speed Full/empty | m/s | 0.038/0.058 | |
| | 5.3 | rate of descend Full/empty | m/s | 0.050/0.048 | |
| | 5.8 | Maximum gradeability Full/empty | % | 8/10 | 8/15 |
| | 5.10 | brake | | Electromagnetic brake | |
| motor | 6.1 | Drive motor power | kW | 2.7 | |
| | 6.2 | Lifting Motor Power | kW | 2.2 | |
| | 6.3 | Battery, according to DIN 43531/35/36 A, B, C, top | mm | B,3PzS | |
| | 6.4 | Battery voltage/capacity | V/ Ah | 24/375 | |
| | 6.5 | Battery weight | kg | 300 | |
| | 6.6 | Energy consumption (VDI cycle) | kWh/h | 1.83 | 1.75 |

| | | | | |
|--------------|-----|---|-------|------------------|
| other | 8.1 | Drive control | | Ac speed control |
| | 8.4 | According to the EN12053 driver's ear noise level | dB(A) | 69 |
| | | | | |



2.3 LUBRICATION

HYDRAULIC OIL



The hydraulic oil must have the anti-wear properties, and it is forbidden to different brands or types of oil are mixed together, because their additives or comparable viscosity values may be different.

THICKENING OF THE HYDRAULIC OIL

| Viscosity | | | #40 | #30 |
|--|---------|--------------------|--------|--------|
| Features | | Unit | | |
| Viscosity | At 40°C | mm ² /s | 57 | |
| | At 50°C | | 40 | |
| Viscosity index | | | ≥ 150 | ≥ 150 |
| Cleveland open cup | | °C | ≥ 160 | ≥ 160 |
| Pour point | Maximum | °C | ≤ -35 | ≤ -35 |
| Density 15 °C | | kg/m ³ | | 861.5 |
| Copper corrosion(100°C, 3h) | | Level | ≤ 1 | ≤ 1 |
| Foaming (93.5 °C) | | ml / ml | ≤ 30/0 | ≤ 30/0 |
| D type vane pump test Biggest loss | | mg | ≤ 100 | 15.3 |
| Wear points of diameter 1200 r/min, 294N, 30min, 75 °C | | mm | ≤ 0.5 | ≤ 0.5 |

GEAR BOX OIL

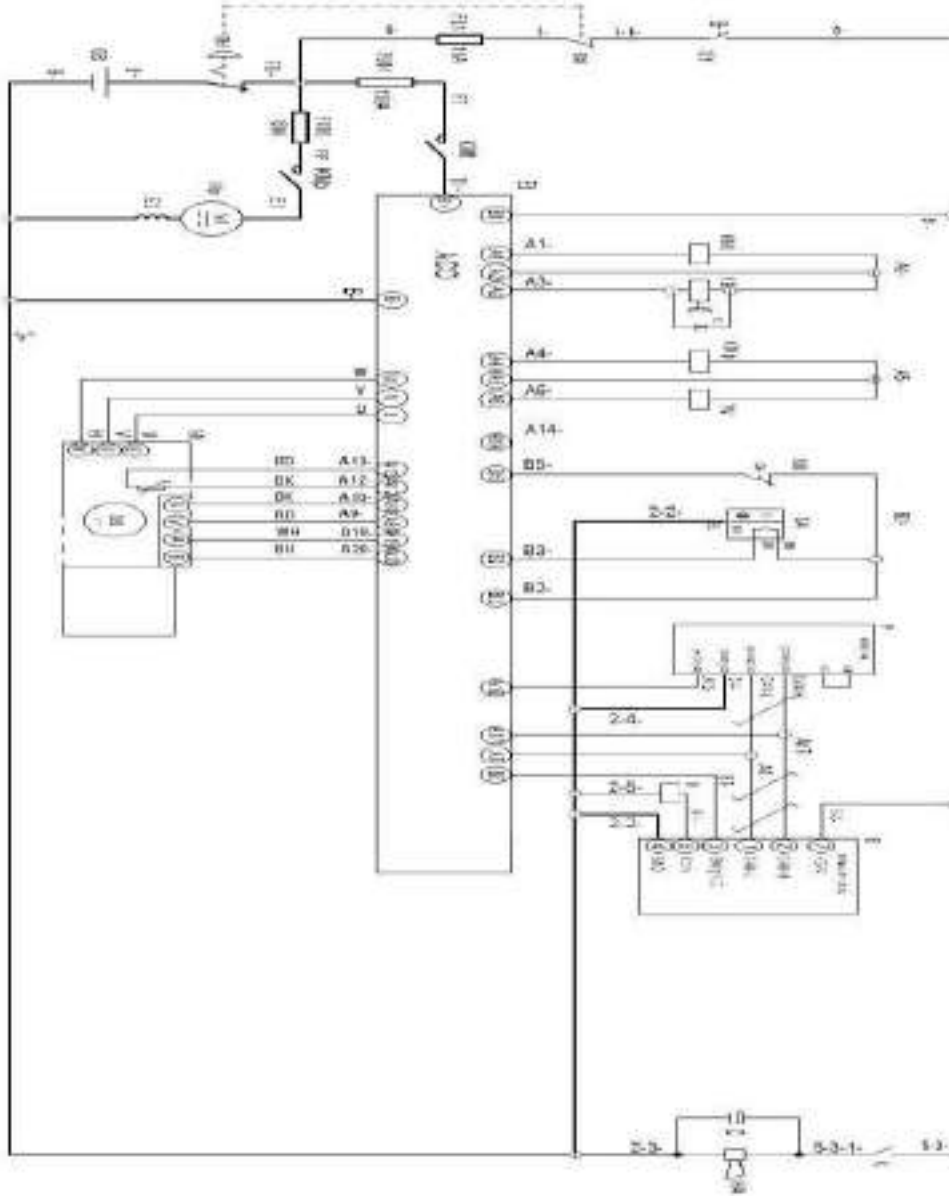
Extreme pressure lithium grease 1#

| Features | Unit | |
|--|-------|----------|
| Penetration 0.1mm | | 310--340 |
| Drop point | °C | ≥ 170 |
| Extreme pressure (Timken OK) | N | ≥ 177 |
| Similar viscosity (-10 °C, 10s ⁻¹) | Pa. s | ≤ 250 |
| Corrosion resistance performance (52 °C, 48h) | Level | 1 |
| Line some oil (100 °C, 24h) | % | ≤ 10 |

3 ELECTRICAL SYSTEM

3.1 ELECTRIC DIAGRAM

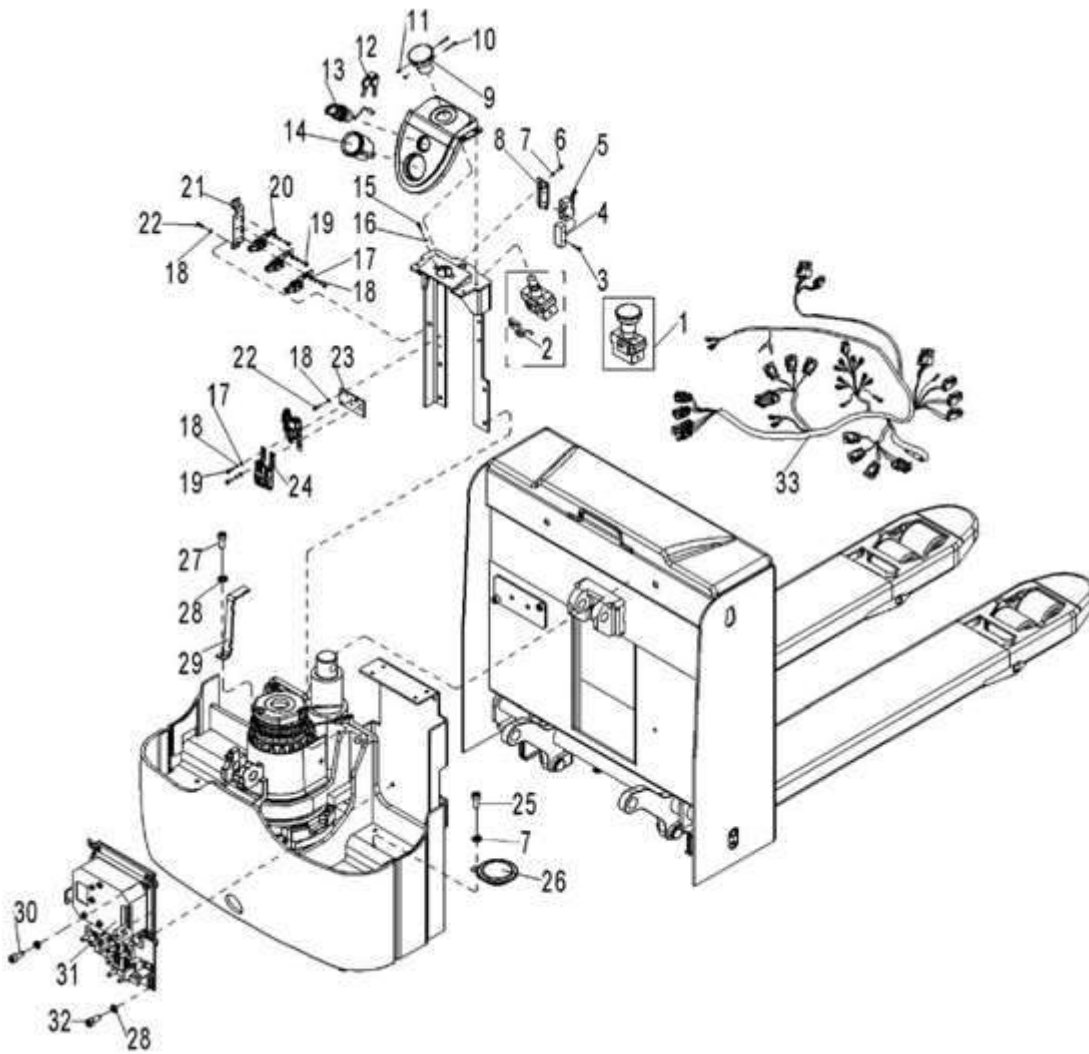
Electric diagram



FUSE01 : 150A
FUSE02 : 80 A
FUSE1 : 10 A

3.2 ELECTRIC INSTALLATION

Electrical assembly



ELECTRICAL ASSEMBLY

| NO | Name | Quantity | Remarks |
|----|---|----------|-------------------------|
| 1 | Dc power supply switch | 1 | ZDK32-350 |
| 2 | Dc power supply switch ZDK32-350 micro switch | 1 | |
| 3 | cross recessed pan head screw | 2 | M4x25 |
| 4 | Micro switch cover | 1 | |
| 5 | Micro switch | 1 | RZ-15GW2S-B3 |
| 6 | hexagon socket cap screws | 2 | M6x12 |
| 7 | Standard spring washer | 4 | 6 |
| 8 | Limit switch mounting plate | 1 | |
| 9 | Dc power supply switch | 1 | ZDK32-350 mushroom head |
| 10 | cross recessed pan head screw | 2 | M3x25 |
| 11 | Type I hexagonal nut | 2 | M3 |
| 12 | General key switch | 1 | LKS-101A key |
| 13 | General key switch | 1 | LKS-101A |
| 14 | voltameter | 1 | CURTIS 803 |
| 15 | hexagon socket cap screws | 2 | M5x16 |
| 16 | Standard spring washer | 2 | 5 |
| 17 | Flat washer class C | 2 | 4 |
| 18 | Standard spring washer | 9 | 4 |
| 19 | cross recessed pan head screw | 5 | M4x12 |
| 20 | AMP core 2 connectors | 4 | |
| 21 | Plug-in bending plate | 1 | |
| 22 | hexagon socket cap screws | 4 | M4x12 |
| 23 | Excessive plug-in board | 1 | |
| 24 | Plug seat | 3 | |
| 25 | hexagon socket cap screws | 2 | M6x20 |
| 26 | horn | 1 | DC24V |
| 27 | hexagon socket cap screws | 1 | M8x16 |
| 28 | Standard spring washer | 5 | 8 |
| 29 | Line socket | 1 | |

3.3 DRIVING WHEEL

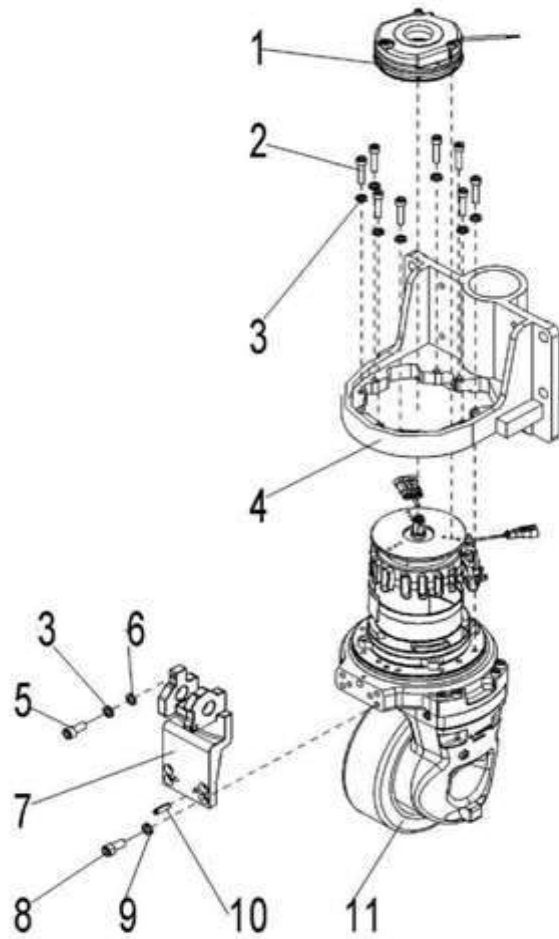
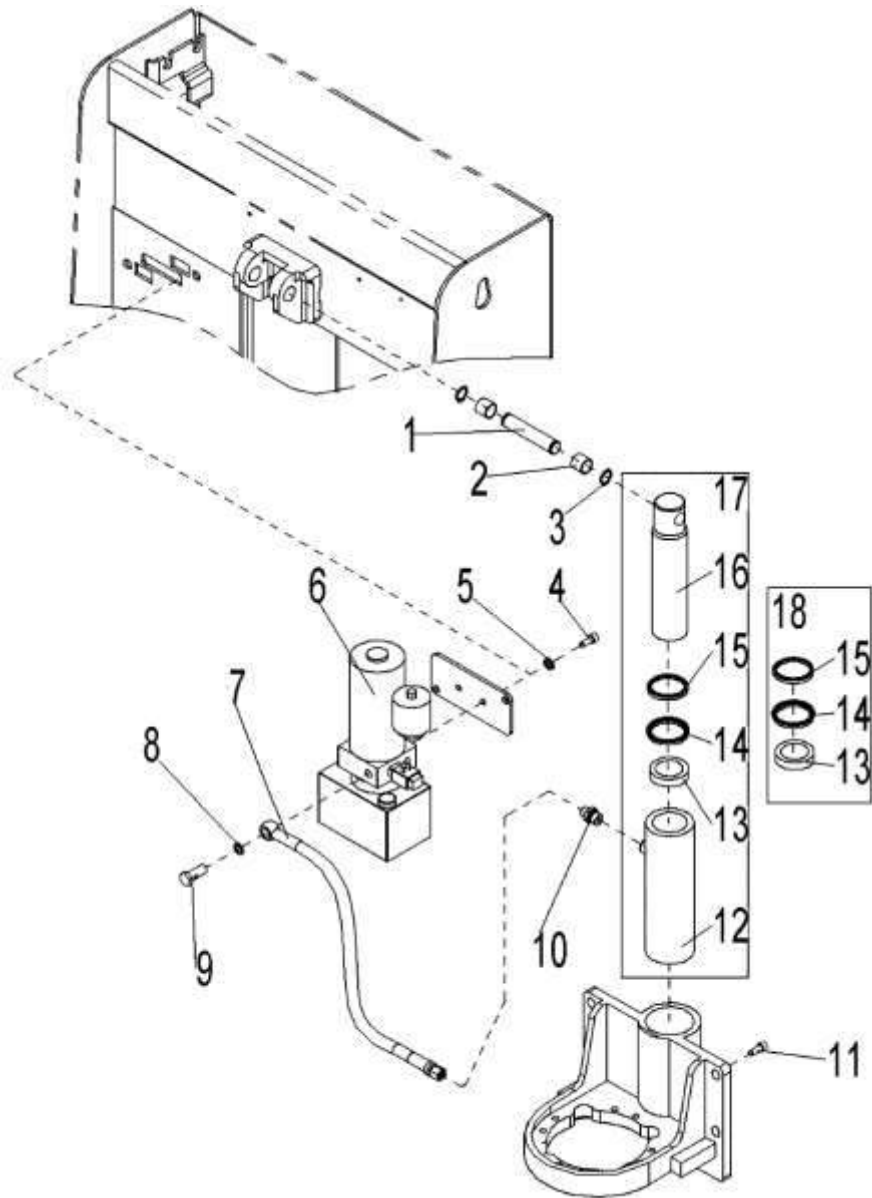


FIGURE 14 ROTARY-DRIVEN ASSEMBLY

| NO | Name | Quantity | Remarks |
|----|---------------------------------------|----------|---------|
| 1 | Electromagnetic brake | 1 | |
| 2 | hexagon socket cap screws | 8 | M8x40 |
| 3 | Standard spring washer | 9 | 8 |
| 4 | Driving wheel seat | 1 | |
| 5 | hexagon socket cap screws | 1 | M8x16 |
| 6 | Small washer A-class | 1 | 8 |
| 7 | handle seat | 1 | |
| 8 | hexagon socket cap screws | 4 | M10x20 |
| 9 | Standard spring washer | 4 | 10 |
| 10 | Elastic cylindrical pin heavy | 2 | 8x26 |
| 11 | Vertical communication drive assembly | 1 | |

3.4 HYDRAULIC POWER UNIT

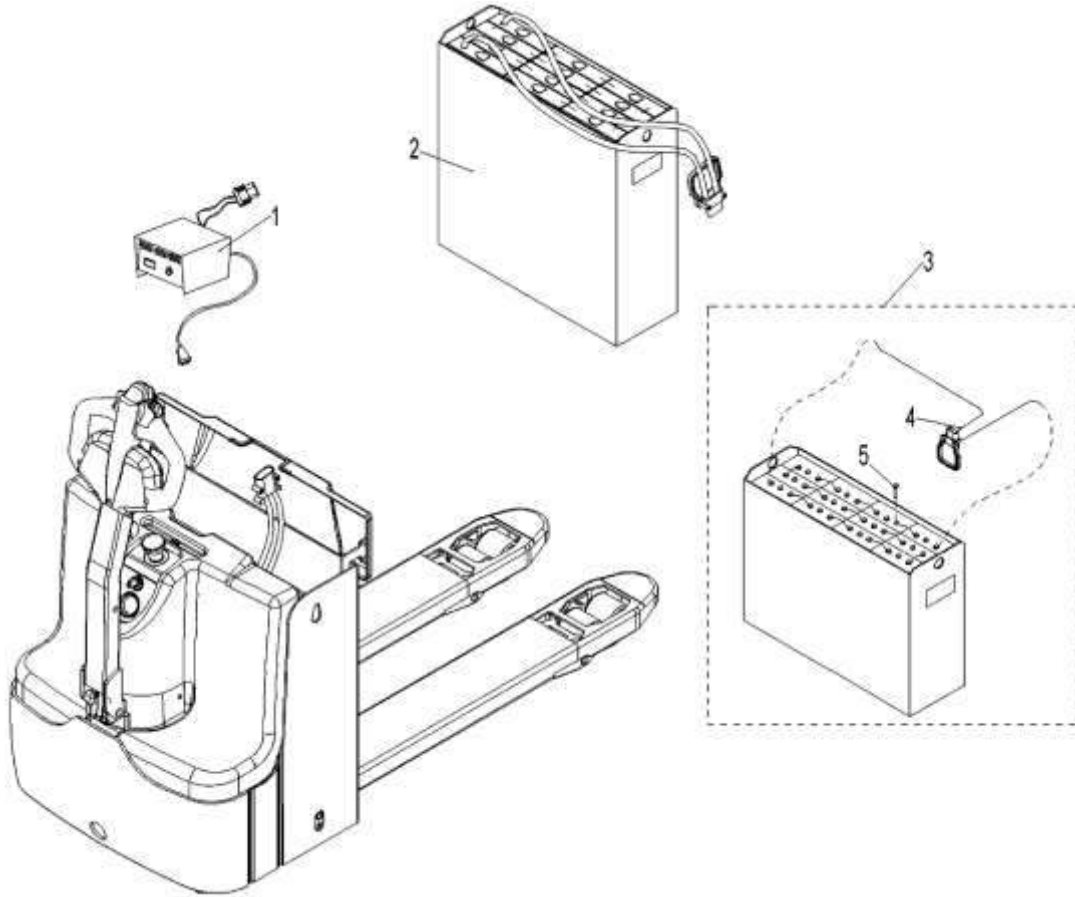


HYDRAULIC ASSEMBLY

| NO | Name | Quantity | Remarks |
|----|----------------------------------|----------|----------|
| 1 | Oil cylinder pin | 1 | |
| 2 | Composite set | 2 | 20×23×20 |
| 3 | Shaft with elastic ring - type A | 2 | 20 |
| 4 | hexagon socket cap screws | 2 | M8x16 |
| 5 | Standard spring washer | 2 | 8 |
| 6 | Dc hydraulic power unit cell | 1 | |
| 7 | Hydraulic hose assembly | 1 | |
| 8 | Seal copper pad | 1 | |
| 9 | Joint bolt | 1 | |

| | | | |
|----|---------------------------|---|-------------|
| 10 | Straight pipe joint | 1 | |
| 11 | hexagon socket cap screws | 1 | M10x20 |
| 12 | Oil cylinder | 1 | |
| 13 | Support ring | 1 | 50X55X15 |
| 14 | Y type sealing ring | 1 | 50X60X6/7 |
| 15 | Dust ring | 1 | 50X58X5/6.5 |
| 16 | piston rod | 1 | |
| 17 | Oil cylinder components | 1 | |
| 18 | Sealing parts | 1 | |

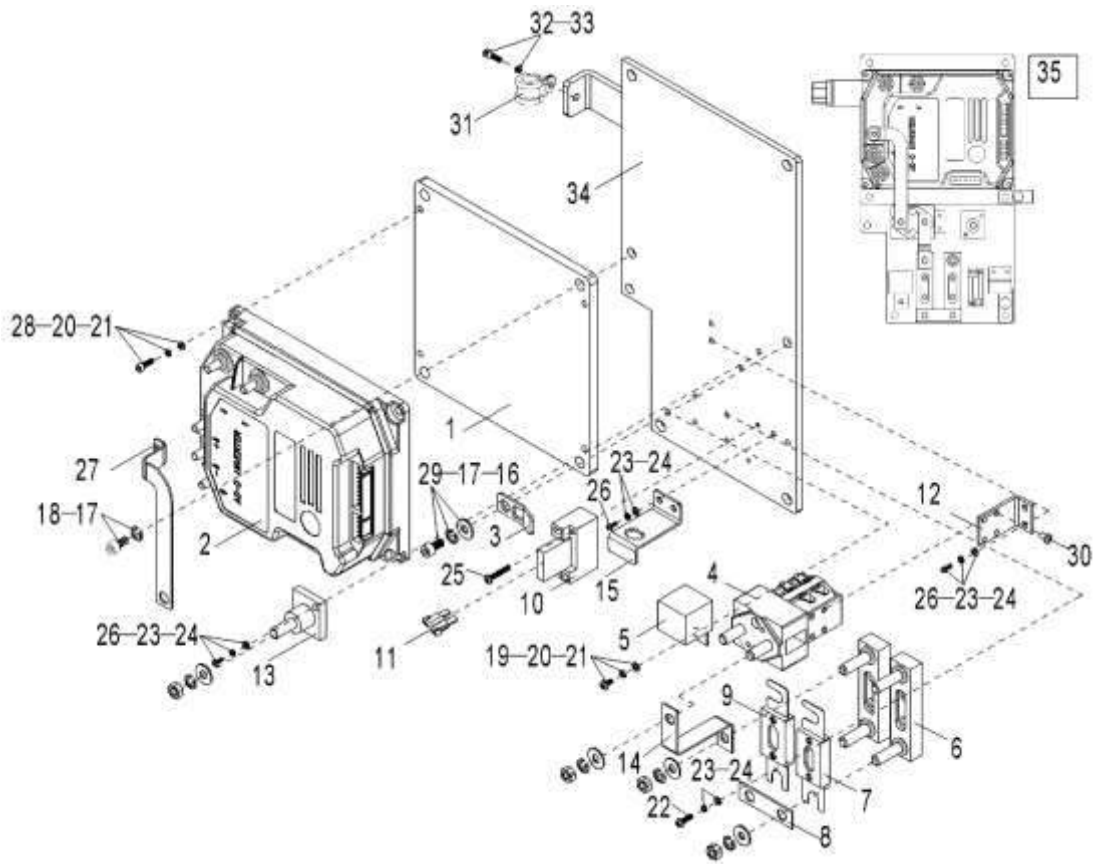
3.5 BATTERY COMPONENTS



BATTERY COMPONENTS

| NO | Name | Quantity | Remarks |
|----|--------------------------|----------|------------------------|
| 1 | Charger(Asian Chinese) | 1 | 24V/25A |
| | Charger (Asian English) | 1 | 24V/25A |
| | Charger (European style) | 1 | 24V/25A |
| | Charger (Australian) | 1 | 24V/25A |
| | Charger (English-style) | 1 | 24V/25A |
| | Charger (American) | 1 | 24V/25A |
| 2 | Power supply assembly | 1 | Bolt type |
| 3 | Power supply assembly | 1 | welded |
| 4 | Connector components | 1 | Bolt type battery only |
| 5 | Plastic screws | 24 | Bolt type battery only |
| | | | |

3.6 CONTROLLER



ELECTRICAL CONTROL GROUP

| NO | Name | Quantity | Remarks |
|----|---------------------------|----------|--------------------|
| 1 | Aluminium sheet | 1 | |
| 2 | controller | 1 | AC-0-24V/200A |
| 3 | Hang line board | 3 | |
| 4 | Traction motor contactor | 1 | C100/120 DC24V |
| 5 | electric relay | 1 | ACR01F-F-1AD DC24V |
| 6 | Bolt the fuse | 2 | SY Y |
| 7 | Bolt fuse | 1 | 80A |
| 8 | Copper platoon | 1 | |
| 9 | Bolt fuse | 1 | 150A |
| 10 | Fuse holder for a vehicle | 1 | BD-1X10A |
| 11 | Auto Fuses | 2 | 10A |
| 12 | Main contactor mounts | 1 | |

| | | | |
|----|-------------------------------|----|-------|
| 13 | M8 terminal | 1 | BD-M8 |
| 14 | Copper platoon | 1 | |
| 15 | Programmer plugin fixed frame | 1 | |
| 16 | Flat washer class C | 1 | 8 |
| 17 | Standard spring washer | 2 | 8 |
| 18 | hexagon socket cap screws | 1 | M8x16 |
| 19 | cross recessed pan head screw | 1 | M5x10 |
| 20 | Standard spring washer | 5 | 5 |
| 21 | Flat washer class C | 5 | 5 |
| 22 | cross recessed pan head screw | 4 | M4x16 |
| 23 | Standard spring washer | 10 | 4 |
| 24 | Flat washer class C | 10 | 4 |
| 25 | hexagon socket cap screws | 2 | M3x25 |
| 26 | cross recessed pan head screw | 6 | M4x10 |

3.7 BATTERY CHARGING AND REPLACEMENT



- Only qualified personnel are allowed to repair or to recharge the battery, please be sure to follow the manual instructions and battery manufacturers
- The battery is a free maintenance, no bleeding again
- Battery recycling need to follow the national laws regulations, please follow these rules
- When handling the battery, it is prohibited to use open flame, can cause gas explosion
- Prohibited in the area of the battery materials or combustion liquid, no smoking, well ventilated area must be guaranteed
- Before charging or installation/replacement battery needs good safe parked vehicles
- Before completing the repair the repair work, please ensure that all of the cable connected correctly and not interfere with other parts to a vehicle

For the standard battery, this car is equipped with the following valve control type sealed lead acid battery model.

One 2VBS 24 V/ 160 Ah (EP16)



Only allowed to use the liquid acid sealed batteries
The weight of the battery had certain influence on vehicle operation behavior

Please consider the highest working temperature of the battery

a. REPLACEMENT

EP16-N01

Safe parking vehicles, shut off the key switch (8), and press the abrupt stop switch (7) to shut down the vehicle. Open the battery cover and keep upright. Unplug the battery connector (16), and then hanging out the battery.

Install from the move instead, please first connect the positive terminal, otherwise easy damaged vehicles.

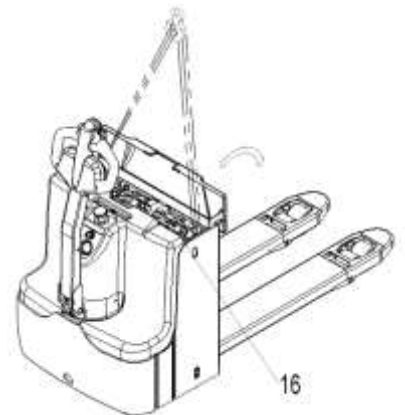


Figure.12: replace the battery

b. BATTERY INDICATOR

Discharge conditions with ten red LED display section.



Battery discharge

Battery full

Figure. 14: battery discharge indicator

Only when the battery charging right, the right of the LED lights up. As the battery charged condition, LEDs light up in turn, but only on one at a time.

- On the left side of the second LED lights flashing, suggests that "energy storage" (70% of the depth of discharge).
- Two most on the left side of the LED lights flashing, indicate "battery is empty" (80% of the depth of discharge).

C. CHARGING

- Can only be used with the charger.
- Before using the charger, please fully understand the content of the charger on the instruction manual
- Charge the room must ensure that the well ventilated
- Fully charged situation can only view from the discharge display. To control this situation, it is necessary to interrupt the charging process and launch vehicles

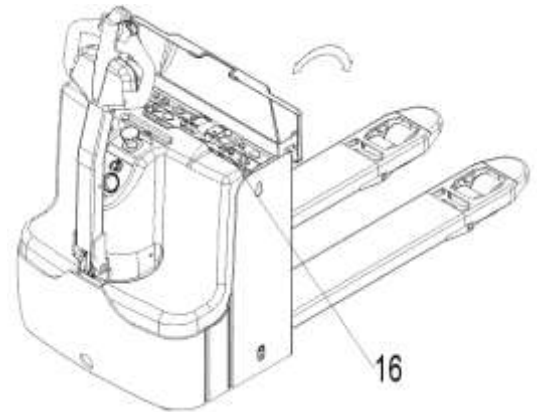


Figure.15: Battery recharging

Will provide a dedicated power supply vehicle parked in a special security area.

Lower pallet fork, removal of the goods.

Shut down the vehicle power supply, connect the spring line and power supply.

Charging is complete, disconnect the connector from the socket, and put it in the designated bags.

REGULAR MAINTENANCE



- Only qualified personnel are allowed to repair or to recharge the battery, please be sure to follow the manual instructions and battery manufacturers
- Before maintenance, please fork removed the goods from the goods and the goods fork fell to the lowest position
- For vehicles, please according to the fourth chapter using the specified binding equipment or lifting equipment. Homework before, please put the safety devices (such as specified jack, wedge or wood) to prevent the accidental fall under cars, mobile or sliding
 - Please pay attention to maintenance the handle bar. Through the compression, the pressure of a gas spring has pre-installed. Careless easy to cause harm
 - Use approved and dealers distribute the original spare parts
 - Please consider the hydraulic oil leakage may cause machine failures and accidents
 - Allow only trained maintenance technician to adjust pressure valve
 - If you need to change the wheels, please follow the above instructions.
 - Castor must be round and no abnormal wear and tear. Check the maintenance list of key projects.

MAINTENANCE LIST

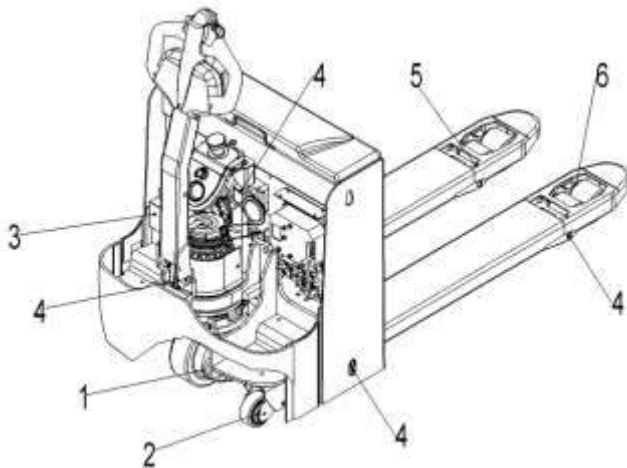
Table 3 maintenance list

| | | Time interval(month) | | | |
|---------------------------|--|----------------------|---|---|----|
| | | 1 | 3 | 6 | 12 |
| Hydraulic system | | | | | |
| 1 | Check the hydraulic oil cylinder, piston for damage and leakage | | • | | |
| 2 | Check whether there is damage and leakage of hydraulic fittings and tubing | | • | | |
| 3 | Check the hydraulic oil level if necessary, to fill again | | • | | |
| 4 | Refill the hydraulic oil(12 months or 1500 hours of work) | | | | • |
| 5 | Check and adjust the function of pressure valve(1200 /1600/2000 kg +0/ +10%) | | | | • |
| Mechanical systems | | | | | |
| 6 | Check whether the goods fork deformation and cracks | | • | | |
| 7 | Check whether the base deformation and cracks | | • | | |
| 8 | Check whether all the screws are completely fixed | | • | | |
| 9 | Inspection door frame and chain whether there is corrosion, deformation or damaged, replace if necessary | | • | | |
| 10 | Check if there is a noise and leakage of gear box | | • | | |
| 11 | Check whether the wheel is the deformation and damage, replace if necessary | | • | | |
| 12 | Lubrication to bearing | | | | • |
| 13 | Check and lubrication pivot point | | • | | |
| 14 | Lubricating grease nipple | • | | | |
| Electrical system | | | | | |
| 15 | Check whether the wire is damaged | | • | | |
| 16 | Check the electrical connections and terminal | | • | | |
| 17 | Detect abrupt stop switch function | | • | | |
| 18 | Check whether there is electric drive motor noise and damage | | • | | |
| 19 | Test the monitor | | • | | |
| 20 | Check whether or not to use the correct fuse, replace if necessary | | • | | |
| 21 | Test buzzer | | • | | |
| 22 | Check the contactor | | • | | |
| 23 | Check the frame for leakage(insulation test) | | • | | |
| 24 | Check the function of the accelerator and wear conditions | | • | | |
| 25 | Check the drive motor of electric system | | • | | |
| Braking system | | | | | |
| 26 | Check the brake performance, such as replacement of brake disc or adjust the air gap is necessary | | • | | |
| Battery | | | | | |
| 27 | Check the battery voltage | | • | | |
| 28 | Clean and grease to the terminal, and check for corrosion and damage | | • | | |
| 29 | Check whether the battery shell is damaged | | • | | |
| Charger | | | | | |
| 30 | Check the power cord is damaged | | | • | |
| 31 | Check in the process of charging start protection | | | • | |
| Function | | | | | |
| 32 | Test buzzer | • | | | |

| | | | | | |
|---------------|--|---|---|--|--|
| 33 | Check electromagnetic braking air gap | • | | | |
| 34 | Detection of emergency braking function | • | | | |
| 35 | Detect reverse braking and regenerative braking function | • | | | |
| 36 | Detection of belly switch function | • | | | |
| 37 | Check the steering function | • | | | |
| 38 | Check the function of lifting and lowering | • | | | |
| 39 | Check the handle lever switch function | • | | | |
| Comprehensive | | | | | |
| 40 | Check whether all labeling clear full | • | | | |
| 41 | Check the castor, if wear for height adjustment or replacement | | • | | |
| 42 | Make a test run | • | | | |

LUBRICATING POINT

According to the maintenance list lubricating the marked point. Grease required specifications for: DIN 51825 standard grease.



1. Steering bearing
2. Supporting roller bearing
3. Oil pump
4. Shaft
5. Binding point
6. Wheel load bearing

Figure. 16: lubrication points

CHECK AND REFILL THE HYDRAULIC OIL AGAIN

The hydraulic oil type required:

- H-LP 46, DIN 51524
- Viscosity is 41.4-47
- According to the type of the oil are respectively 0, 7 L 16/20.

Waste materials such as waste oil, waste batteries or other materials must be according to the national laws and regulations for processing and recycling, if need to pay to the recycling company for recycling. Required to start the vehicle when the oil level should not be less than the minimum amount of oil. If it is necessary to add oil to gas.

CHECK THE FUSE

Remove the main cover, the fuse is located in the position shown in figure 17.

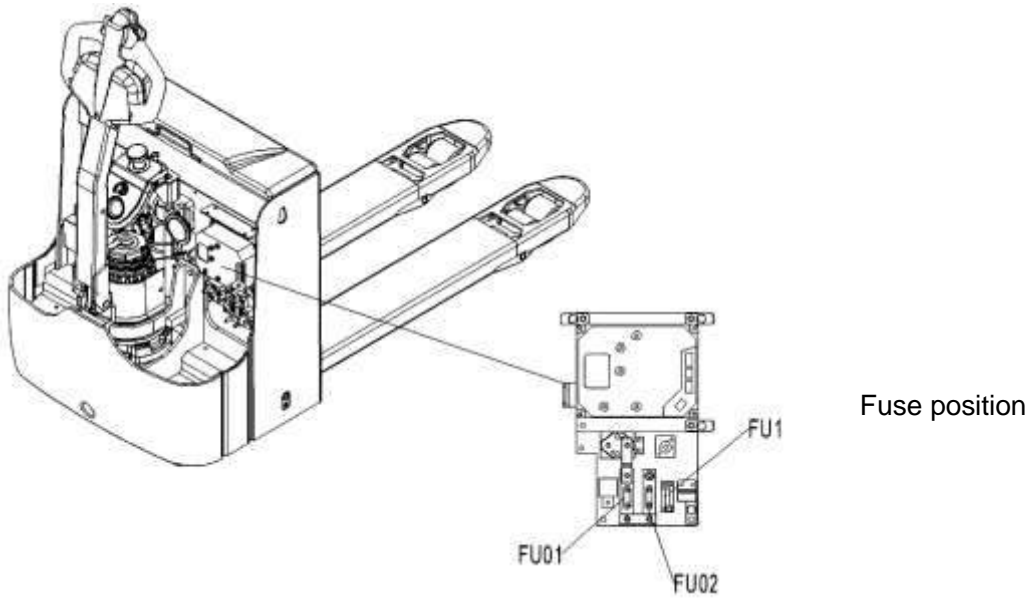


Figure. 17: Fuse location

Table 4: Fuse specification

| | Specification |
|--------|---------------|
| FUSE01 | 150A |
| FUSE02 | 80A |
| FUSE1 | 10A |

3.8 ELECTRICAL COMPONENTS REPLACEMENT



The bolt with Allen wrench unscrew can remove the cover.

REPLACEMENT OF ELECTRIC SCALE, THE KEY SWITCH AND URGENT STOP SWITCH

1. The key switch connector to disconnect



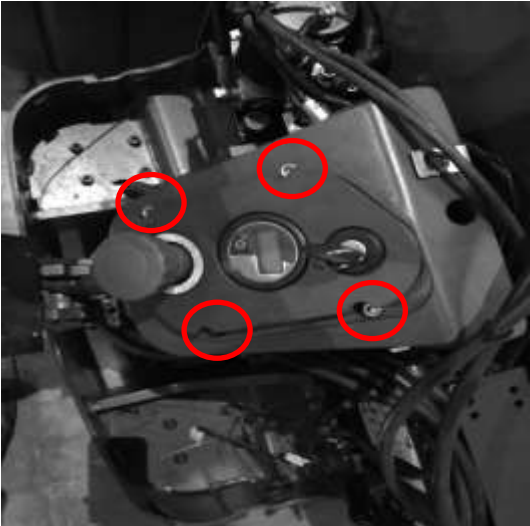
2 The electricity meter connector to disconnect



3 The proximity switch connector to disconnect



4. With four bolts on Allen instrument fixed plate.



5. With cross up remove the two screws on the abrupt stop switch.



6. To remove the mushroom head.



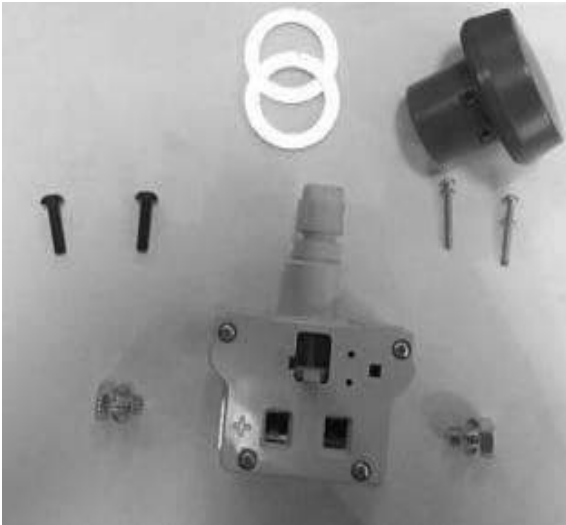
7. With the 2.5 mm wrench to integrate the instrument fixed plate and the leaf shape panel connection of four screws unscrewed.



8. With the 3 mm to dismantle the fixed stop switch and the two screws.



9. Can replace the urgent stop switch.



10. Unscrew the fixed nut, can replace the voltameter.

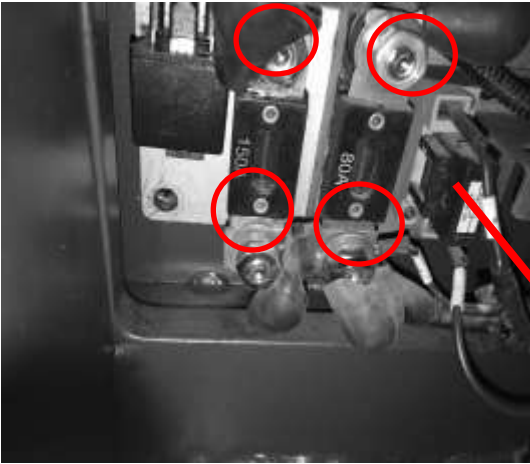


11. Counterclockwise to dismantle the key switch on the nut, remove the key switch.



REPLACING THE FUSE

1. Using a wrench unscrew the nut corresponding to replacing the fuse



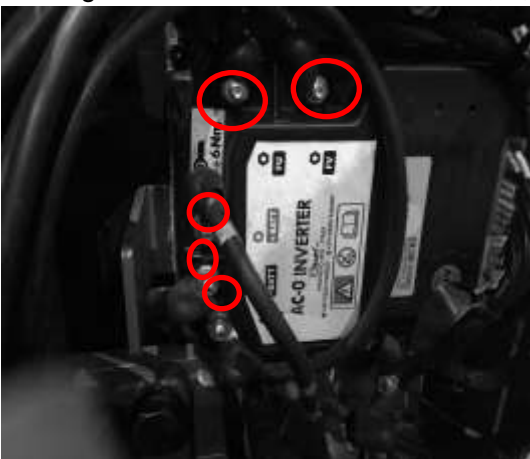
Open the fuse seat cover, remove the fuse and replace

ELECTRONIC CONTROL OF REPLACEMENT

1. The electric connector pulled up.



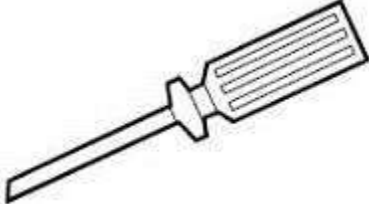
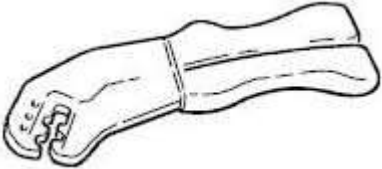
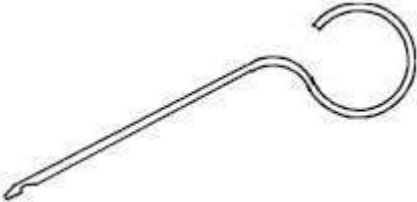
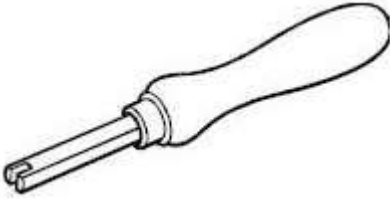
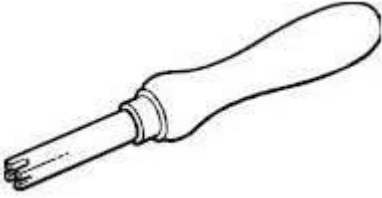
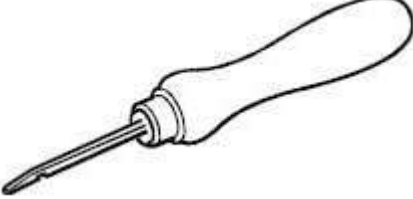
2 Using a wrench to electric control + B, B, U, V, W on the bolt



3. To get off four bolts fixed controller (one on each corner), can change the electric control.

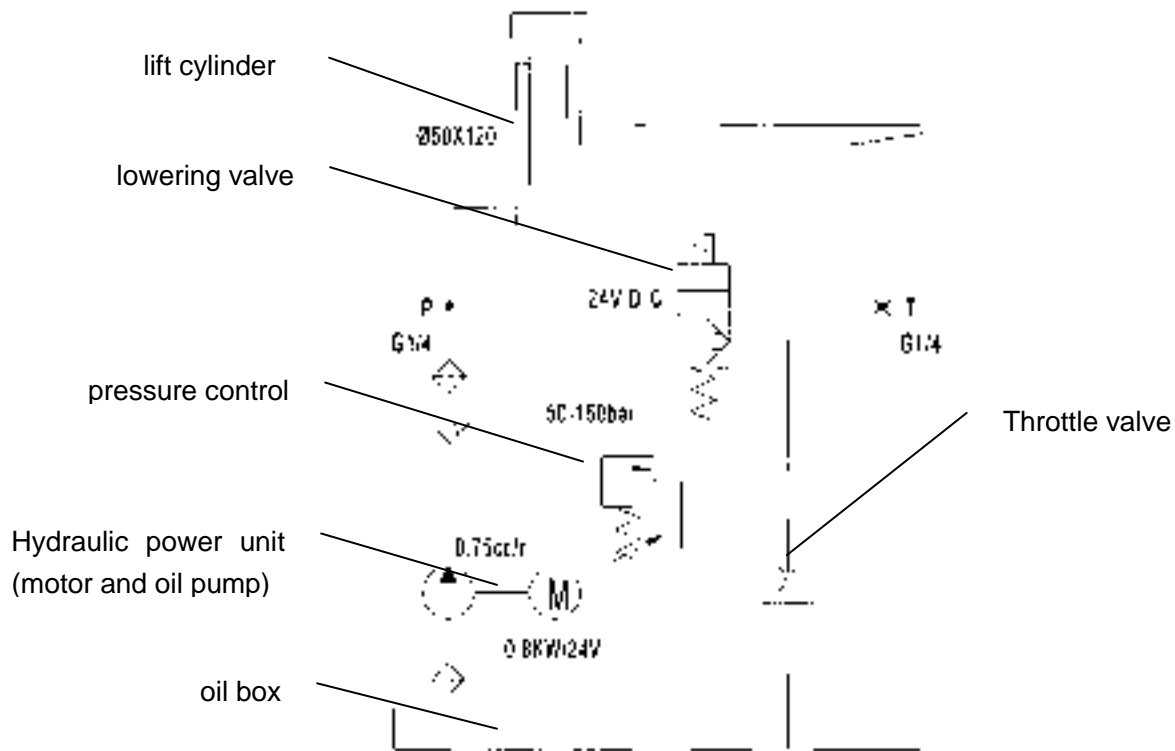


3.9 TOOL FOR REPAIRING THE PIN OF ELECTRIC PLUG

| NO | Pictures | Application |
|----|---|--|
| 1 |  | Tool for removal of pins / sleeves |
| 2 |  | Tool for application of pins / sleeves |
| 3 |  | Tool for release of lock |
| 4 |  | Tool for application of secondary locking 2 – pole |
| 5 |  | Tool for application of secondary locking 4 – pole |
| 6 |  | Tool for removal of pins / sleeves |

4 HYDRAULIC SYSTEM

HYDRAULIC CIRCUIT



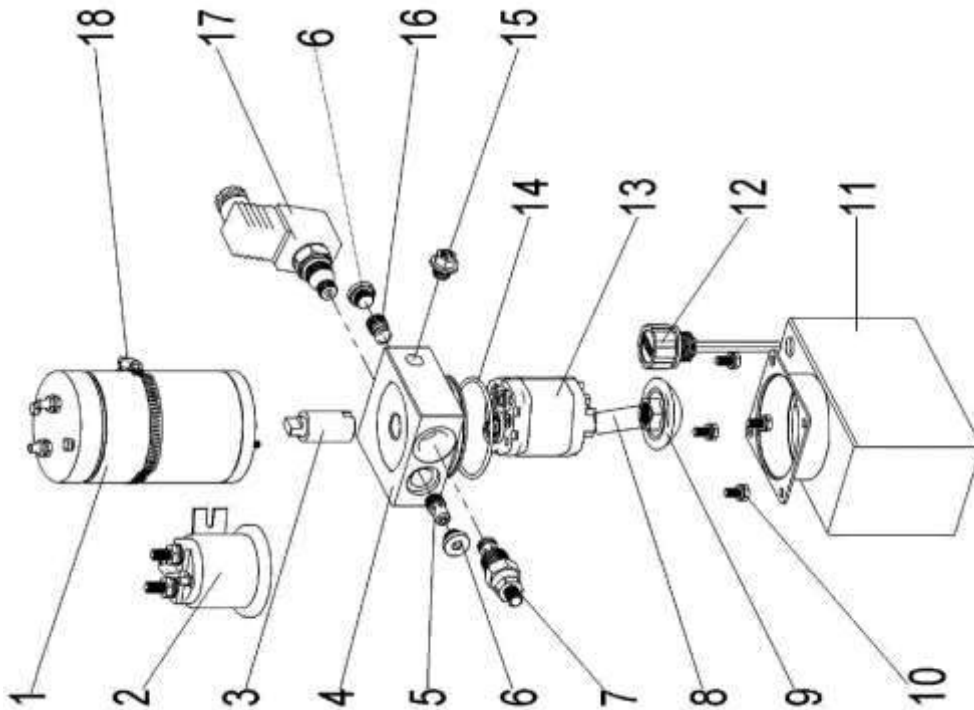
CHECK THE HYDRAULIC OIL

| Appearance | Smell | Condition | Result |
|--|-------|---------------------------|---|
| Clearly does not change color | good | good | You can use |
| Color transparent | good | And other oil mix | Check if the viscosity, qualified can continue to use |
| Change color as milk | good | Mixed with air and water | Separation of water or replace the hydraulic oil |
| Become a dark brown color | bad | oxidation | Replace the hydraulic oil |
| Color clear but have small black spots | good | Mixed and other particles | The filtered using |

4.1 CLEANING TANK AND FILTER



Reduce the pallet fork, release the hydraulic oil



- Remove the pump station
- Remove the fuel tank
- Remove the filter
- Cleaning tank and filter
- Clean the body fixed plate
- Use compressed air to clean up, and check whether the filter is invalid or damaged. If the failure or damage to the filter to replace
- Clean the tank on dust and foreign bodies
- assembly

FAULT ANALYSIS

| Phenomenon | Cause | Result |
|--------------------------------|---|---|
| The hydraulic oil has a bubble | There are air into the hydraulic oil | Check air from which place into the fuel tank, reinforce the loose parts. |
| Discoloration | Air, water and hydraulic oil mixed together | Replace the hydraulic oil |
| | By oxidation or mixed with other particles, the decrease of the quality of the hydraulic oil. | Replace the hydraulic oil |

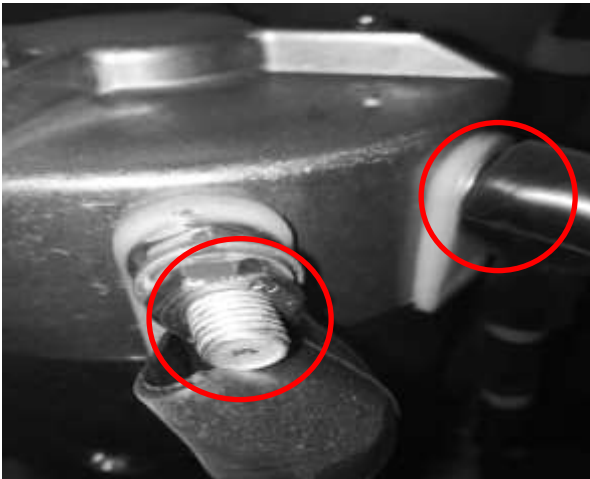
⚠ Filler plug is used ventilation, down by the screw, the air goes out from the tank, it is likely to take out a small amount of hydraulic oil and gas bubble, so there will be oily be soiled screw plug. Watch for a period of time, ensure no leakage phenomenon.

⚠ Lifting motor current is large, long hours, relay wiring mouth will be damaged. Please check whether this situation occurred.

⚠ Solenoid valve is wearing parts. If after lifting goods fork down automatically, the electromagnetic valve can block or damage, clean or replace solenoid valve.

⚠ Impact, hydraulic pipe joints and hydraulic pipe may be loose and the oil, so you need to check, if loose to tight.

4.2 CHANGE OF PUMP STATION



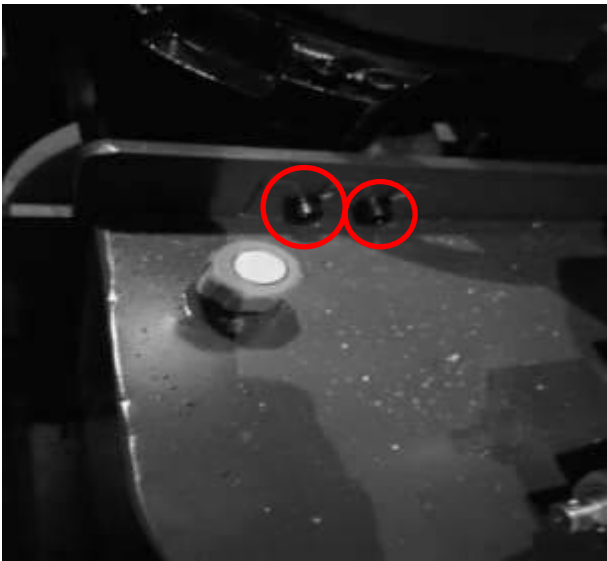
1. In 13 mm wrench unscrew the screw, remove the connection



2. With 22 mm and 22 mm open end wrench remove the hydraulic tubing. **Note: remove the tubing with the hydraulic oil leakage, suggest remove the mat back yarn or cloth.**



3. Remove the connectors by hand



4. With 5 mm twist under two fixed screw, can remove the oil pump.

4.3 REPLACE THE HYDRAULIC OIL





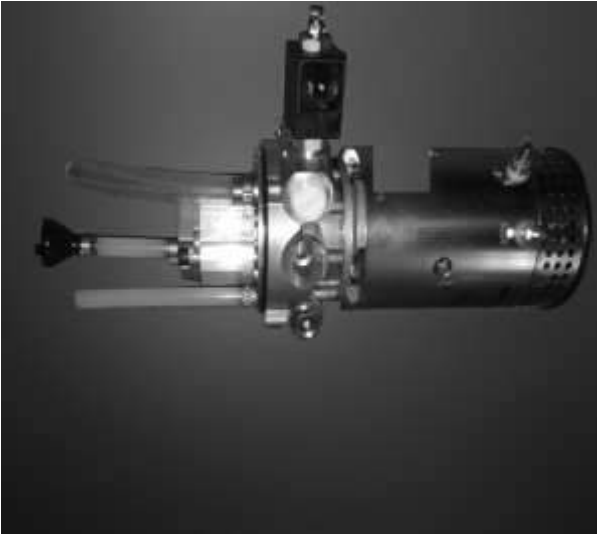
1. Remove the oil pump, unscrewed the cap, then pour out the waste oil, and then tank can be installed into the car, the installation process is the inverse process of disassembly.



2. Through the tubing into the hydraulic oil, twist the lid

4.4 REPLACE THE FILTER





1. In 5 mm Allen wrench unscrew the bolts, remove the oil pump



2. After the oil pump down, can replace filter

4.5 REPLACE CARBON BRUSH



1. With 10 mm open end wrench screw down bolt



2. Open the hood shield



3. With a phillips screwdriver unscrewed the screw, can take out the carbon brush, for replacement. The installation process is the process of inverse process

4.6 ADJUST THE PUMP PRESSURE

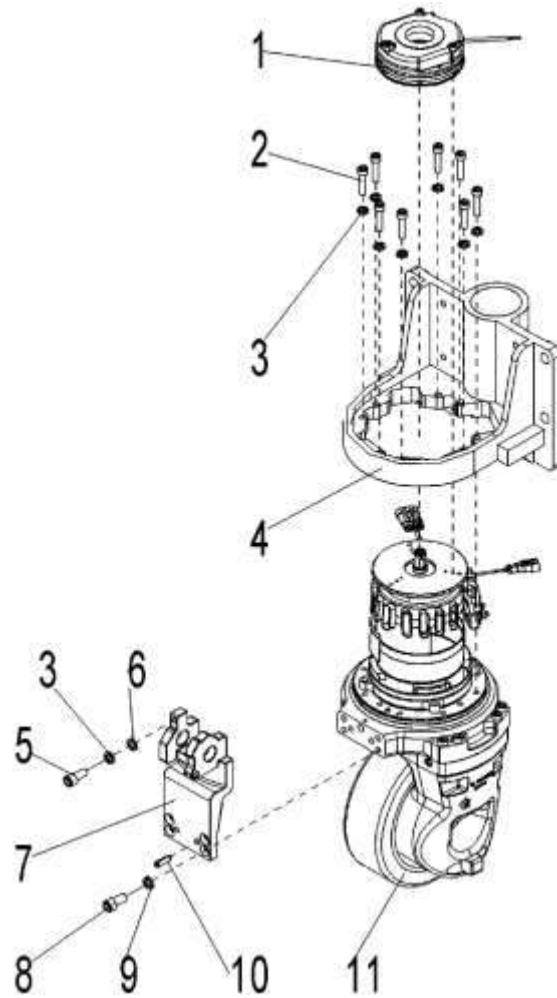


1. With 24 mm socket wrench unscrew the bolt



2. Adjust the pressure oil pump with 6 mm, adjust the reoccupy after the completion of 24 mm socket wrench and tighten the bolt

5 DRIVING WHEEL



DRIVING WHEEL ASSEMBLY

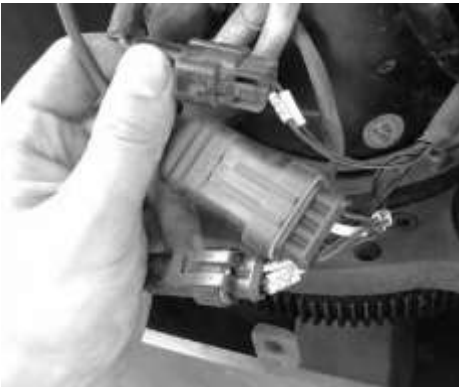
| NO | Name | Quantity | Remarks |
|----|---------------------------------------|----------|---------|
| 1 | Electromagnetic brake | 1 | |
| 2 | Hexagon socket cap screws | 8 | M8x40 |
| 3 | Standard spring washer | 9 | 8 |
| 4 | Driving wheel seat | 1 | |
| 5 | Hexagon socket cap screws | 1 | M8x16 |
| 6 | Small washer A-class | 1 | 8 |
| 7 | handle seat | 1 | |
| 8 | Hexagon socket cap screws | 4 | M10x20 |
| 9 | Standard spring washer | 4 | 10 |
| 10 | Elastic cylindrical pin heavy | 2 | 8x26 |
| 11 | Vertical communication drive assembly | 1 | |

5.1 REPLACE THE DRIVE WHEELS (Note - : when the demolition of driving wheel need professional lifting equipment, ascends, please pay attention to safety)

Unscrew the eight screws, remove the outer cover

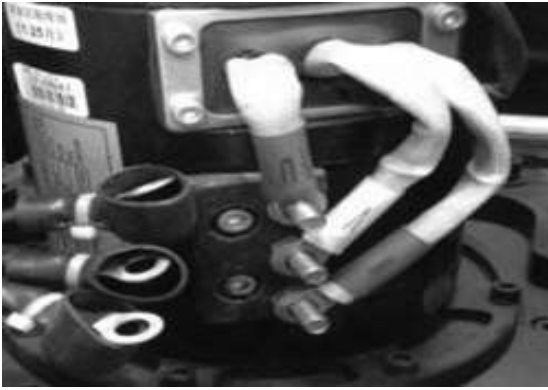


Pull the plug and socket



Using a wrench, unscrew the screw pull wiring, remove the drive wheels





Unscrew five screws, take out the wheels can be replaced



5.2 ADJUST THE BRAKE OF THE AIR GAP

Due to wear and tear, the rated air gap would be a big Z. In order to ensure brake torque, enough in the air gap must be adjusted before peak. Air gap can adjust many times, when the thickness of the friction brake to achieve the minimum value, must change the friction brake disc. The noise of the braking torque and crack.

When the air gap is more than the maximum, it may cause brake can't release the brake, friction brake is on fire, and even cause serious accident. Must regularly check and adjust the air gap, attention must disconnect the main power supply.

Step 1:

Adjust the three screw

Step 2:

Fixed brake three screws loosen



Step 3:

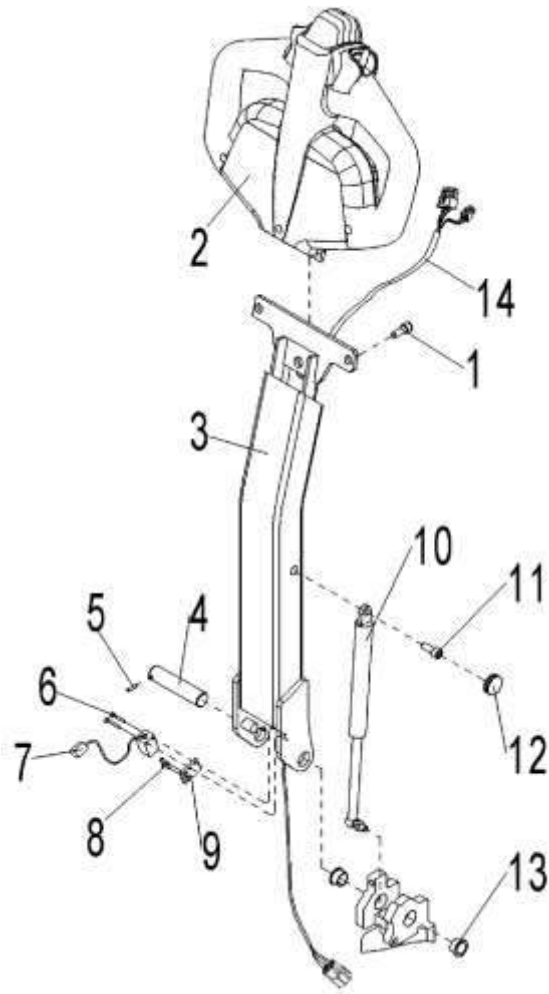
With a feeler check air gap Z is the rated air gap value

Operation of a variety of data consistent with the following table, please

| Standard torque (Nm) | Power (W) | Standard torque air gap (mm) | Mounting screw strengthen (Nm) |
|----------------------|-----------|------------------------------|--------------------------------|
| 5 | 20 | 0.3-0.35 | 2.8 |

If the air gap is more than 0.35 mm, replacement or brake disc brakes

6 HAND SHANK



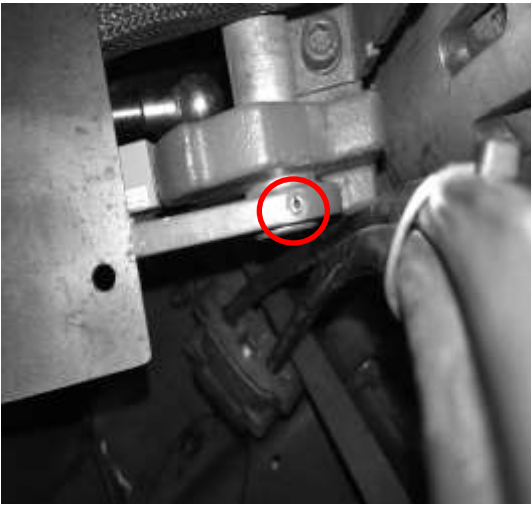
HANDLE ASSEMBLY

| NO | Name | Quantity | Remarks |
|----|--|----------|----------|
| 1 | Hexagon socket cap screws | 2 | M8x25 |
| 2 | Canbus control handle C | 1 | 94300-90 |
| 3 | Handle bar assembly | 1 | |
| 4 | Spiale | 1 | |
| 5 | Elastic cylindrical pin - straight flute heavy | 1 | 4X16 |
| 6 | Hexagon socket cap screws | 2 | M3x20 |
| 7 | Interlock switch | 1 | |
| 8 | Hexagon socket cap screws | 2 | M4x12 |
| 9 | Switching floor | 1 | |
| 10 | Gas spring | 1 | |
| 11 | Hexagon socket cap screws | 1 | M8x20 |

| | | | |
|----|-------------------------------|---|----------|
| 12 | Envelope | 1 | |
| 13 | Composite cover with shoulder | 2 | 20X22X12 |
| 14 | Handle control wiring harness | 1 | |

6.1 REMOVE THE HANDLE

1. In the punch on the hole, the elastic pin with a hammer to knock out.



2. With the punch will handle shaft to knock out. **Note: the handle shaft on the attention to handle drop on hands.**



6.2 REPLACE THE GAS SPRING



1. Pull out the rubber plug



2. With 6 mm Allen wrench screw down the bolt

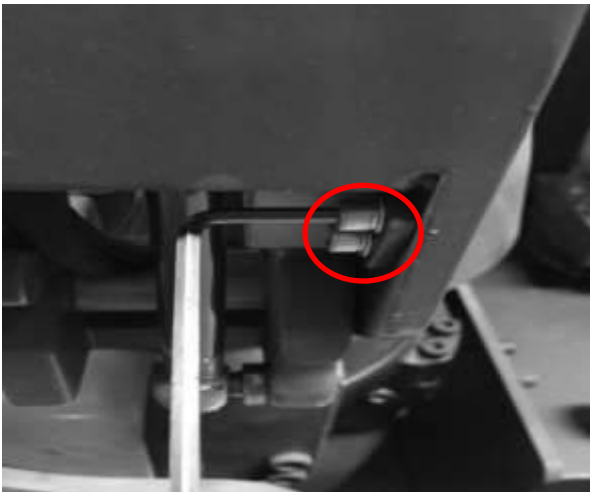


3. The fixed gas spring with 13 mm open end wrench unscrew bottom screw



4. Remove the gas spring

6.3 CHANGE THE INTERLOCK SWITCH



1. With 6 mm Allen wrench screw down the bolt



2. Open the handle cover



3. Remove the joint (pay attention to the wiring harness)



4. Remove the switch



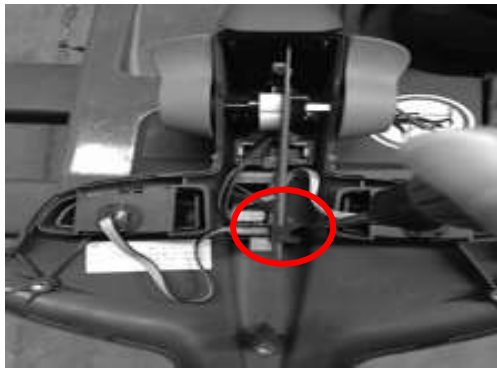
5. With a phillips screwdriver unscrewed the screw



6. Can replace the interlock switch

6.4 THE HANDLE OF THE HEAD REPLACEMENT

| | |
|---|--|
| | |
| <p>1. Remove the 3 screws can remove the handle back cover.</p> | |
| | |
| <p>2. Pull the handle of the connector.</p> | <p>3. Remove the two fixed screw can remove the driver switch.</p> |
| | |
| <p>4. Remove the drive shaft switch.</p> | |

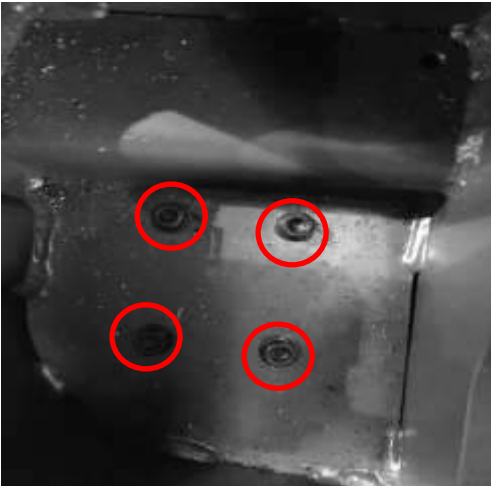


5. Remove the screws on the fixed plate, pull out the connector, then you can replace the circuit board.

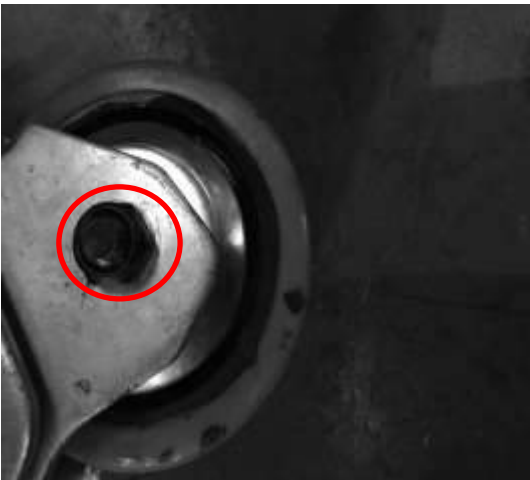
7 CASTER

7.1 CASTER OPERATION

1 First remove the four bolts be desirable in caster components



2 Unscrew the nut can replace the wheels



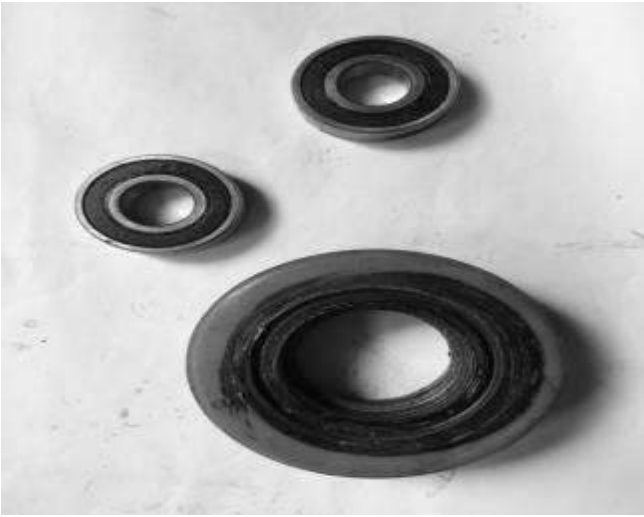


3. Remove the bolts



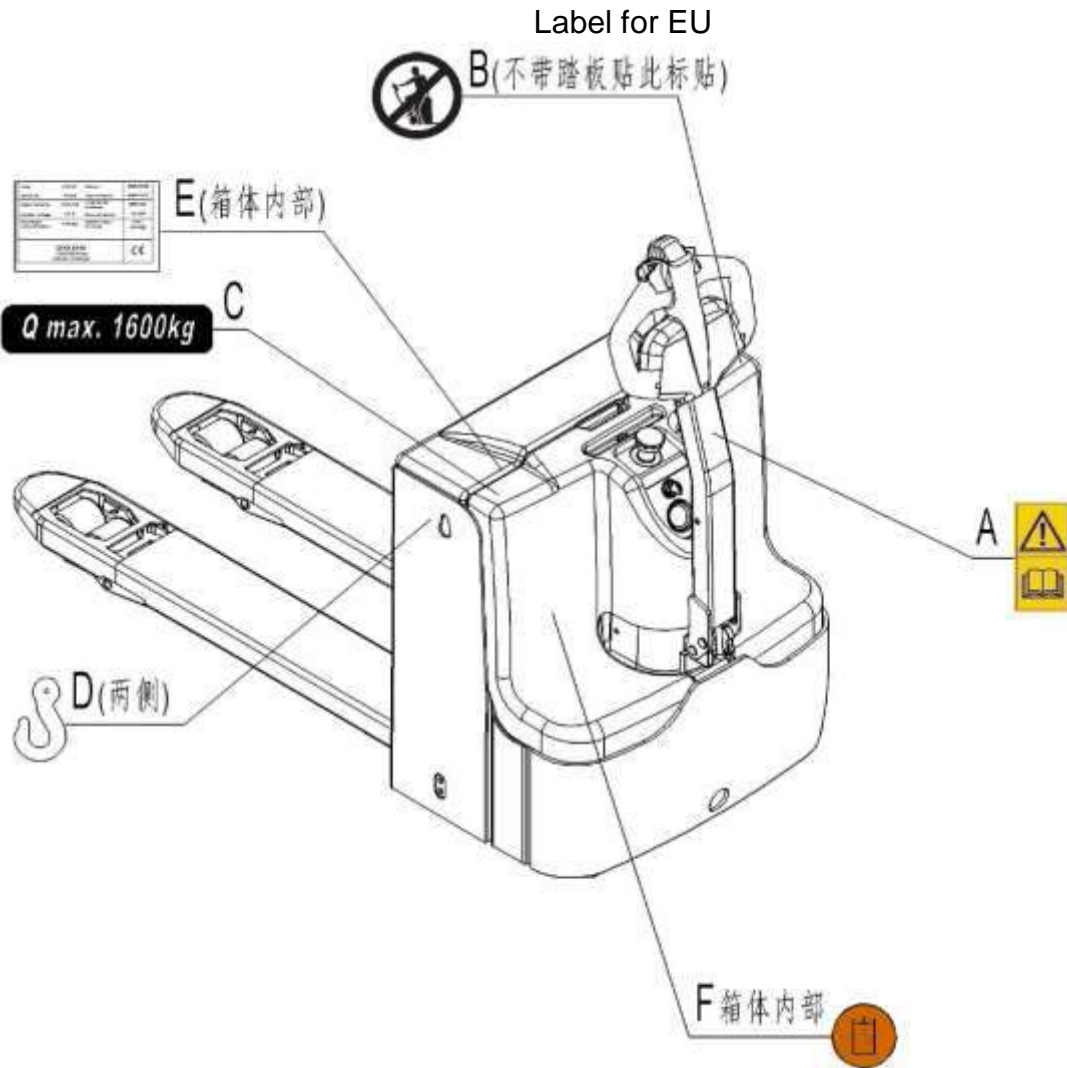
4. Remove the wheels





5.Remove the shaft with punch, can replace the roller

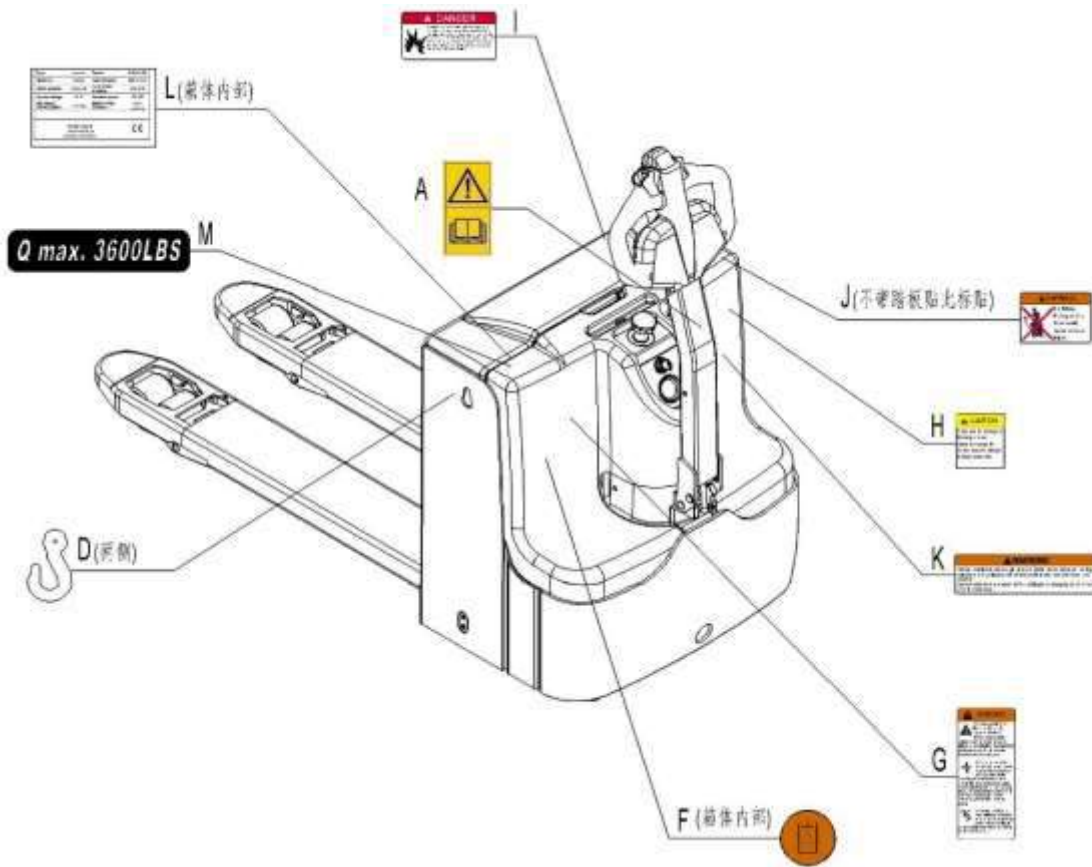
8. LABELS



ASSEMBLY (EU)

| NO | Name | Quantity | Remarks |
|----|------------------------|----------|---------|
| A | Prompt labeling | 1 | |
| B | Travelling on labeling | 1 | |
| C | Load labeling (1600kg) | 1 | |
| | Load labeling (2000kg) | | |
| D | Hook labeling | 2 | |
| E | CE labeling | 1 | |
| F | Refuel labeling | 1 | |

Label for US



ASSEMBLY (US)

| NO | Name | Quantity | Remarks |
|----|--------------------------|----------|---------|
| A | Prompt labeling | 1 | |
| C | Load labeling (5500 LBS) | 1 | |
| D | Hook labeling | 2 | |
| F | Refuel labeling | 1 | |
| G | Warning label | 1 | |
| H | Warning label | 1 | |
| I | Warning label | 1 | |
| J | Warning label | 1 | |
| K | Warning label | 1 | |
| L | CE labeling | 1 | folding |
| | CE labeling | 1 | fixed |

9 MAINTENANCE LIST

| NO | Name | Quantity | Remarks |
|----|---|----------|-----------------------------|
| 1 | Rubber ring | 2 | Appearance |
| 2 | Rubber ring | 2 | |
| 3 | Rubber ring | 2 | |
| 4 | Rubber ring | 2 | |
| 5 | Composite set 25x28x20 | 2 | Frame assembly |
| 6 | Composite set 20x23x20 | 2 | |
| 7 | Composite set 25x29x25 | 2 | |
| 8 | Composite set 20x22x12 | 4 | |
| 9 | Pressure distribution type oil cup 6 | 2 | |
| 10 | Composite set 25x28x20 | 2 | |
| 11 | Composite set 20x23x20 | 2 | |
| 12 | Composite set 25x29x25 | 2 | |
| 13 | Composite set 20x22x12 | 4 | |
| 14 | Pressure distribution type oil cup 6 | 2 | |
| 15 | Composite set 25x28x20 | 2 | |
| 16 | Composite set 20x23x20 | 2 | |
| 17 | Composite set 25x29x25 | 2 | |
| 18 | Composite set 20x22x12 | 4 | |
| 19 | Pressure distribution type oil cup 6 | 2 | |
| 20 | Deep groove ball bearing 6202 | 12 | |
| 21 | Composite set 25x28x20 | 2 | |
| 22 | Composite set 20x23x20 | 2 | |
| 23 | Composite set 25x29x25 | 2 | |
| 24 | Composite set 20x22x12 | 4 | |
| 25 | Pressure distribution type oil cup 6 | 2 | |
| 26 | Into the roller | 2 | Load wheel assembly (EU) |
| 27 | Pressure distribution type oil cup 6 | 2 | |

| | | | |
|----|--|------|--------------------------|
| 28 | Composite set 20x22x12 | 4 | |
| 29 | Deep groove ball bearing 6204 | 8(双) | Load wheel assembly (EU) |
| 30 | Wheel bearing 84X84 | 4(双) | |
| 31 | Composite cover with shoulder 18x20x12 | 4(双) | |
| 32 | Double row angular contact ball bearings | 2 | Steering wheel assembly |
| 33 | Polyurethane spring | 2 | |
| 34 | Composite set 12x15x15 | 4 | |
| 35 | Deep groove ball bearing 6204 | 4 | |
| 36 | Balance wheel 100X40 | 2 | |
| 37 | 9 Interlock switch | 1 | Handle assembly |
| 38 | Gas spring | 1 | |
| 39 | envelope | 1 | |
| 40 | Composite cover with shoulder 20X22X12 | 2 | |
| 41 | Support ring 50X55X15 | 1 | Hydraulic assembly |
| 42 | Y type sealing ring 50X60X6/7 | 1 | |
| 43 | Scraper seal 50X58X5/6.5 | 1 | |
| 44 | Support ring 56X61X15 | 1 | |
| 45 | Y type sealing ring 56X66X10/11 | 1 | |
| 46 | Scraper seal 56X64X5/6.5 | 1 | |
| 47 | Micro switch | 1 | Electrical assembly |
| 48 | Micro switch | 1 | |
| 49 | Bolt fuse 80A | 1 | Electronic components |
| 50 | Bolt fuse 150A | 1 | |
| 51 | Auto Fuses | 2 | |

10 FAULT ANALYSIS

| NO | PROGRAMMING UNIT SHOWS | CODE | FAULT PHENOMENON | FAULT DIAGNOSIS |
|----|--------------------------|------|-----------------------------|---|
| 1 | BATTERY DISCONNECT FAULT | 4.5 | BATTERY NOT CONNECTED | 1. BATTERY NOT CONNECTED 2. THE BATTERY CONTACT UNDESIRABLE |
| 2 | BRAKE OFF FAULT | 3.4 | BRAKE CLOSE FAULT | 1.ELECTROMAGNETIC BRAKE COIL SHORT CIRCUIT 2. ELECTROMAGNETIC BRAKE DRIVE OPEN CIRCUIT |
| 3 | BRAKE OFF FAULT | 3.2 | BRAKE BOOT FAILURE | 1.ELECTROMAGNETIC BRAKE COIL OPEN 2.ELECTROMAGNETIC BRAKE DRIVE SHORT CIRCUIT |
| 4. | CURRENTSENSE FAULT | 4.1 | CURRENT DETECTION FAULT | 1.MOTOR OR MOTOR WIRING SHORT CIRCUIT 2. THE CONTROLLER FAILURE |
| 5. | EEPROM CHECKSUM FAULT | 4.3 | EEPROM FAULT | 1.EEPROM FAULT OR LOSE EFFICACY |
| 6. | HARDWARE FAILSAFE | 4.2 | THE MOTOR VOLTAGE OVERSPRAY | 1.MOTOR VOLTAGE CAN'T MATCH THE ACCELERATOR INPUT 2. MOTOR OR COIL SHORT CIRCUIT 3. THE CONTROLLER FAILURE |
| 7. | HPD FAULT | 3.5 | HPD FAULT | 1.ACCELERATOR, KEY SWITCH, PUSH OR PROHIBIT INPUT SEVERAL ACTION SEQUENCE OF OPERATION ERROR 2. ADJUST THE ACCELERATOR FAULT |
| 8 | MAIN FAULT | 2.3 | MAIN CONTACTOR OF FAILURE | 1.MAIN CONTACTOR ADHESIONS OR OPEN CIRCUIT 2. MAIN CONTACTOR COIL DRIVER ERROR |

| | | | | |
|----|--------------------|-----|---|---|
| 9 | MAIN OFF FAULT | 2.1 | MAIN CONTACTOR COIL DRIVER "OFF"FAULT | 1. THE OPENING OF MAIN CONTACTOR COIL ERROR |
| 10 | MAIN ON FAULT | 2.4 | MAIN CONTACTOR COIL DRIVER "ON"FAULT | 1. THE CLOSING OF THE MAIN CONTACTOR COIL ERROR |
| 11 | OVERVOLTAGE FAULT | 1.5 | THE BATTERY VOLTAGE IS TOO HIGH | 1.BATTERY VOLTAGE>31V 2. CONNECT THE CHARGER WHILE THE VEHICLE RUNNING 3. THE BATTERY CONTACT UNDESIRABLE |
| 12 | PRECHARGE FAULT | 3.3 | PRE CHARGE FAULT | 1.THE CONTROLLER FAILURE 2. LOW BATTERY VOLTAGE |
| 13 | SPEED POT FAULT | 1.3 | THE SPEED LIMIT POTENTIOMETER FAILURE | 1.SPEED POTENTIOMETER WIRED OPEN CIRCUIT OR SHORT CIRCUIT 2. THE SPEED LIMIT POTENTIOMETER OPEN CIRCUIT |
| 14 | THERMAL FAULT | 1.1 | OVER/LOW TEMPERATURE CUT OFF | 1.TEMPERATURE>80℃ OR <-10℃ 2. THE VEHICLE OVERLOAD 3. RUN UNDER THE HARSH ENVIRONMENT 4. ELECTROMAGNETIC BRAKE IS NOT NORMAL RELEASE |
| 15 | THROTTLE FAULT | 1.2 | POTENTIOMETER SLIDE SIDE OR BEYOND THE RANGE OF LOW VOLTAGE | 1.ACCELERATOR INPUT OPEN CIRCUIT OR SHORT CIRCUIT 2. ACCELERATOR POTENTIOMETER FAILURE 3. ACCELERATOR TYPE CHOOSE WRONG |
| 16 | UNDERVOLTAGE FAULT | 1.4 | THE BATTERY VOLTAGE IS TOO LOW | 1.BATTERY VOLTAGE<17V 2. POOR CONTACT BATTERIES OR CONTROLLER |
| 17 | WIRING FAULT | 3.1 | HPD FAILURE FOR MORE THAN 10 SECONDS | 1.INCORRECT OPERATION ACCELERATOR 2. THE MECHANICAL PARTS OF |

