

MANUAL HAND PALLET TRUCK

OPERATION MANUAL & MAINTENANCE MANUAL



Foreword

Thanks for your choice and using the high quality hand pallet truck that we offer to you. It may be helpful if you can spare a little time to read this manual carefully before using. Keep the book well, and it'll be more convenient for the truck maintenance and the contact with us in future.

We have to inform you in advance that, for the products' continuous evolution and improvement, we may do some appropriate improvements in the design of products, and there's maybe something not consistent with the objects. Here we thanks for your understanding.

Both the product technology and safety requirements of this product conform to the national and international standard, please be at ease when using.



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Operation Manual

Application Range

This product is suitable for using in rated load.

This product is good for handling palletized cargo, when you need other use, the load capacity can be taken according to 75% rated load.

This product is suitable for the hard and flat ground.

This product is limited to single operation.

Main parameters

The specifications in table 1 is our standard truck's main technical parameters, if need more details, please get from our agents.

We also produce pallet truck with special specifications to meet all requirements, such as extra-low, ultrahigh, super-wide, ultra narrow, over-length, exceed short or with brake, please contact with our sales engineer.

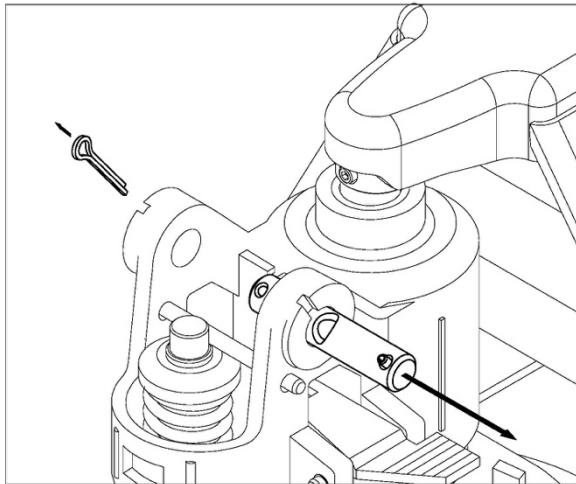
Rated Capacity (kg)			2500
Main specifications	Distance between fork-arms	B (mm)	550
	Fork length	L (mm)	800/1150
	Fork lowered height	H (mm)	75
Overall dimensions	Length×width×height	(mm)	1500x550x1240
Steering wheel diameter			Φ180
Fork wheel diameter			Φ80
Weight			60

Assembly of hand pallet truck

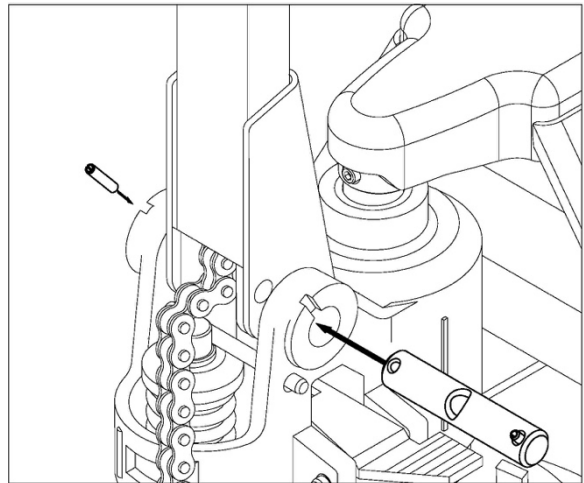
For the transportation, the handle is disconnected with the complete machine when you get the product, which requires yourself assembling it. If conditions allow, you can also authorize our retailer to assemble.

First please prepare some tools, such as: hammer, pliers, and so on.

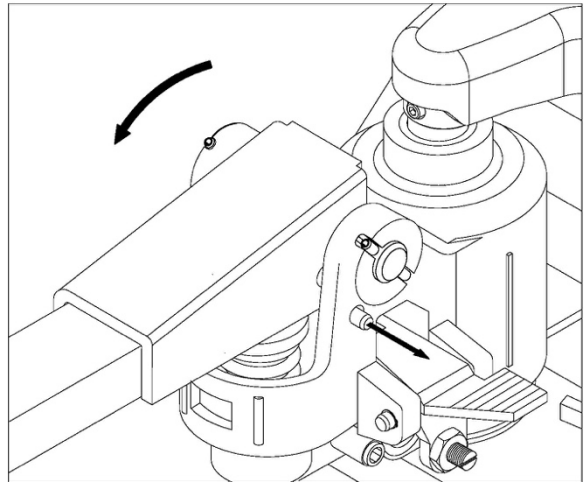
1 Pull out the split cotter pin from the pin roll with three holes, and then extract the pin roll.



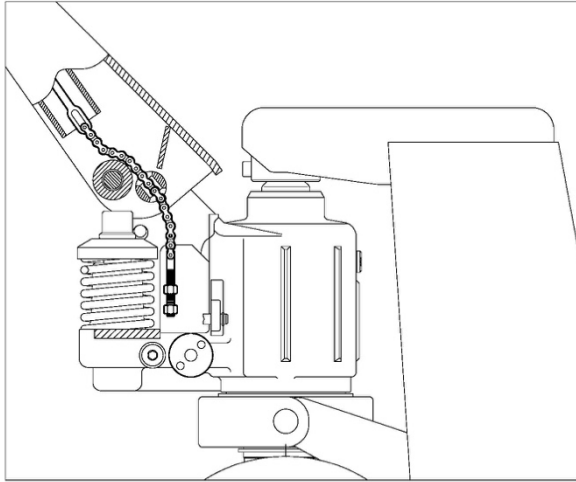
2 Move the hand grip into the pump place, and insert the pin roll back into the original place, then get the spring pins through the two end holes of the pin roll, and couple the hand grip and pump body. Here the two end spring pins of pin roll should be implanted into the slot of the layer board endface of the pump's both ends.



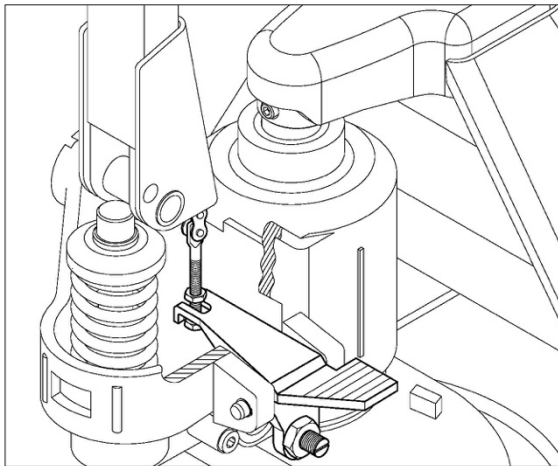
3 Pull down the hand grip, and remove the fixed pin from the big spring.



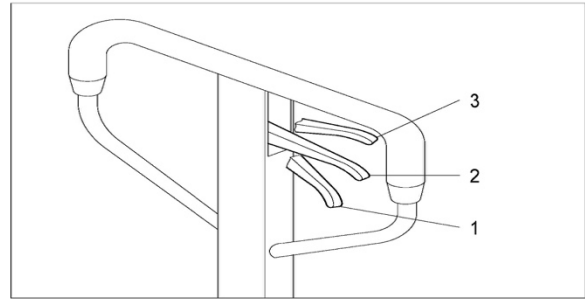
Put the chain of the hand grip get through the middle hole of pin roll. For the penetration convenient, you can pull the hand grip a little angle slightly, and this job needs a little patience.



5 Take the screw nut which is at the end of chain and hitch the groove of the lever board. Then unscrew the top nut slowly and leave a bit gap between the lever, generally 2mm~4mm, not too tight with the lever board, or it will damage the chain.



6 After finishing assembling according to the above steps, it needs further commissioning work, and the method is as follows:



After the truck is assembled, try to rock the hand grip and operate different positions of control handle knob to examine the lifting, free position and dropping and check that whether the different positions are normal or not.

The screw under the lever board is used to adjust the truck situation. When the truck body drops immediately after it is lifted, you should turn the screw a little counter-clockwise. And then try the truck again until truck body could lift normally. If the truck body couldn't drop after it is lifted, you should turn the screw a little clockwise. And then try to operate truck again until the truck body could drop normally. The external hexagon nut at screw plays the locking function in the truck. So you should undo the external hexagon nut before adjustment. And screw down the nut after you finish the adjustment.

Operation Guide

See above fig., when hand knob 1 is placed on the lift position, the truck will be in a state of lift. At this time, if you rock the hand grip, the truck will be lifted.

When hand knob 2 is placed on the free position, the truck will travel. At this time, if you rock the hand grip, the truck will neither lift nor drop. Then, you can use the truck move the cargo.

When the hand knob 3 is placed on the drop position, truck forks will drop. At this time, the truck forks will drop automatically.

Inspection before use

If the hand pallet truck has not been used or placed upside down for a long time, air may get into the hydraulic system, the trouble can be eliminated by the following method:

Turn the hand knob to the drop position and rock the handle for 4~6 times. Then release the operation knob. If necessary, the process can be repeated for several times until the hand pallet truck can be operated normally.

First check the truck when it's unloaded, you should be sure that the lift and drop is normal, the wheel is without defect, rolling is not blocked, and sundries on the wheel axle is cleared up.

Loading type and rated weight

Ideal cargo should be pallet type, and the gravity center of the cargo is just in the middle of the truck forks. The rated weight must be reduced when the cargo gravity center is not in the middle of the truck forks. The rated weight is shown as the table.

When you choose a truck you should consider the rated load, and our suggestion is to buy one which the load capacity is 1.25 or 1.5 times of the actual use. Such the truck has rich quantity and it's safer to use for a long time.

Hydraulic oil

Working liquid of the pump meets ISO standard's 32nd anti-wear hydraulic oil, and the needed capacity is about 250-300ml, which is according to the environment temperature -5°C~40°C. When the temperature is during -35°C~5°C, you choose the anti-wear hydraulic oil which is suitable for the low temperature environment, or declare when you order.

Maintenance

- Although this truck is designed and manufactured as a non-maintenance one, its performance will be better if we make some necessary maintenance.
- The routine check should be carried out daily and every abnormal phenomenon should be dealt with immediately. Please do not use a faulty truck in order to prolong the service life.
- Add 1~2 drops of oil in the rotary joints every three months. Generally the refueling point is at the socket of shaft and hole.
- Replace the wheel bearing every 6~12 months.
- Make an adjustment of the connecting rod under the fork every 6~12 months, or as the truck performance.
- Replace the hydraulic oil in the pump every 12 months. The amount of hydraulic oil should not be too much or too little, generally 250ml~300ml, and its oil level should not exceed a maximum height of the filling hole next to the pump.
- Make an adjustment of the screw on the lever plate every 6~12 months or depending on the truck performance, and the adjustment method is the same as the relevant section of the above assembling content.
- The wheel life should depend on the wear and tear case, you should replace the wheel which wears much or loss of round.
- Specially pay more attention to the place between wheel and axis. Make sure there's not any yarn or other rags in order to keep all wheels running with handiness.

Possible faults and trouble shooting

Table 2 is the main faults of hand pallet truck and its solution, for your reference:

Table 2

No.	Faults	Causes	Trouble shooting
1	The forks can't be lifted to the max. lift height.	hydraulic oil is not enough	Add appropriate filtrated working oil.
2	The forks can't return to the lowest position.	Too much hydraulic oil.	Take out appropriate working oil.
		Some parts are deformed or blocked.	Replace the parts or repair.
3	The forks can't drop after lifted.	The control valve is abnormal.	Readjust the unloading device.
		The parts are deformed or damaged.	replace the damaged and deformed parts.
4	Hydraulic oil leakage	The oil seal is unavailable.	Replace the oil seal
		The pump core and the surface of the plunger is damaged or worn.	Replace the core, plunger and the damaged parts
		The coupled places become loosend.	Fasten the loosened place again.
5	The fork can't be lifted.	The viscosity of the working oil is too high, or there's no working oil.	Check the hydraulic oil or replace it.
		There's impurity in the oil.	Clear up and add new working oil.
		The valve is abnormal.	Readjust the unloading device
6	The forks drop immediately after they are lifted; the handle returns or the forks drop markedly after they are lifted.	The valve of oil pump is blocked by abnormal matter.	Open the control valve and take out the parts. Then re-install the parts after they are cleaned.

Notes

- Please read the operation instruction carefully before you operate the hand pallet truck and learn about all the features of this type of hand pallet truck.
- If you want to let the truck down by controlling the hand knob, you should better lift the hand knob a little first, and then let the truck down slowly. It is forbidden to pull the hand knob with great force, because rapid dropping could cause some damages to both the hand pallet truck and cargo.
- Don't rock the hand grip at a high speed and in a high frequency.
- Don't load the cargo at a high speed.
- Don't overload the forks. Overloading could keep the hand pallet truck from working normally.
- The gravity center of cargo should be in the middle of truck forks. The offset of cargo could make hand pallet truck out of balance.
- Don't load loose or unstable goods!
- Don't put the goods on the truck fork for a long time.
- When the truck does not work, make sure that the truck forks are on the lowest position.
- It is forbidden to load people and let them stand on the forks to slide. Don't put any part of body below the cargo.
- The truck is suitable for flat and hard ground to use. If you have to use on the sloping ground, you can choose the truck with brake van.
- Do not operate the unnamed position.
- Do not try to repair without training !

Transportation and storage

For the time not being in use, it should be stored in dry and well-ventilated room, without any corrosive environment.

- The truck should be placed in level, and no weight on it for a long time.
- Lubricate the joint hinge, and coat the anti-rust oil at the bare metal.
- Repair the paint-off place timely !
- Do not touch water, much less than being stored together with chemicals.
- Product lifting and holding up, should be under the command of professionals.
- The products should be fixed with carriage by rope in Long-distance transportation.
- Pay attention to some parts of this product while moving or carrying, as that may wound human body.

Disposal of waste

When the truck is out of its service life or the waste parts replaced down, please don't pour out anywhere. In case of damaging the environment, here's the disposal suggestion for your reference:

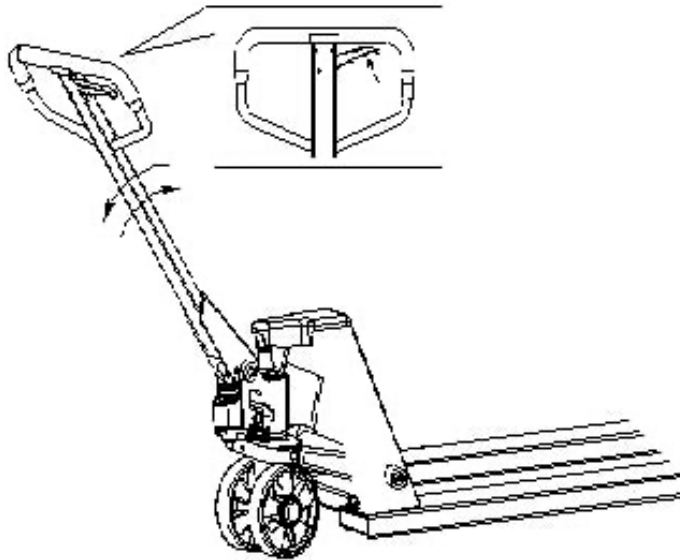
- First of all, disassemble the products, pour out the hydraulic oil, and the metal parts and rubber parts should be classified.
- Collect the waste hydraulic oil, and send it to the oil recovery site or burn it in terms of national safety standards method.
- More than 99% parts of this product are made of steel materials, which can be delivered to scrap metal recycling unit to disposal.
- Only a few of rubber parts can also be sent to recycling site to process.

Maintenance Manual

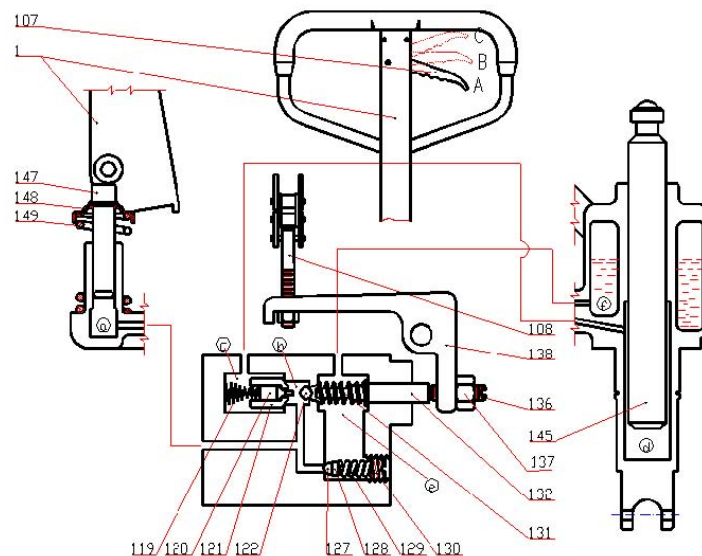
Hand pallet truck can not lift up

Reason 1: with air in oil tank

Solution: Pull knob in up position C, swing the handle by 10 times, and the air will go out.



Reason 2: Strike pin not adjusted well. If position of strike pin is too close to left, the steel ball can not close. Solution: unscrew nut #137 a little, screw up #136 in anticlockwise, put knob #107 at the position A, swing handle, until the pallet truck can lift up properly, and then screw back #137.



PIC.1

Reason 3: Valve not clean.

If there is some swarf , #4, #5 and #6 can not close properly, so pallet truck can not lift up.

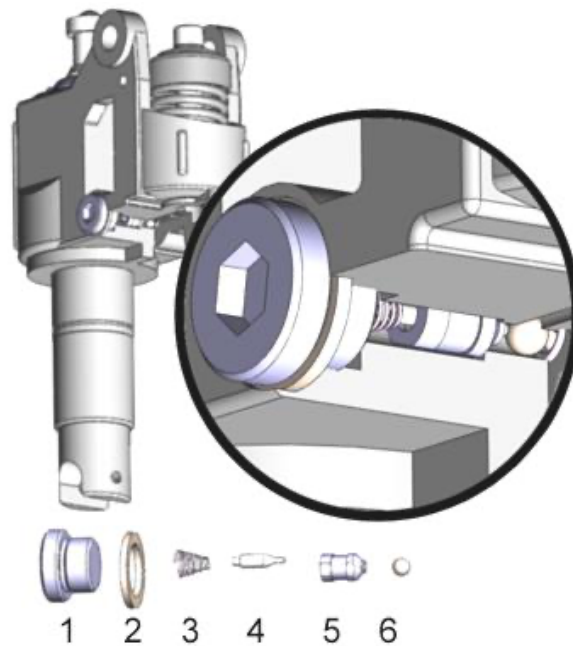
Solution (refer pic.2):

- 1) Open plug #1
- 2) Take #3,#4,#5, if there is any swarf inside, and clean it.
- 3) Check if #4 and #5 are good or damaged. Replace them
- 4) if necessary. Assemble them back.

Notice:

- 1) #1 and #2 need be screw up to avoid oil leaking.
- 2) When assemble ball #6, make sure to put in right position.

PIC. 2

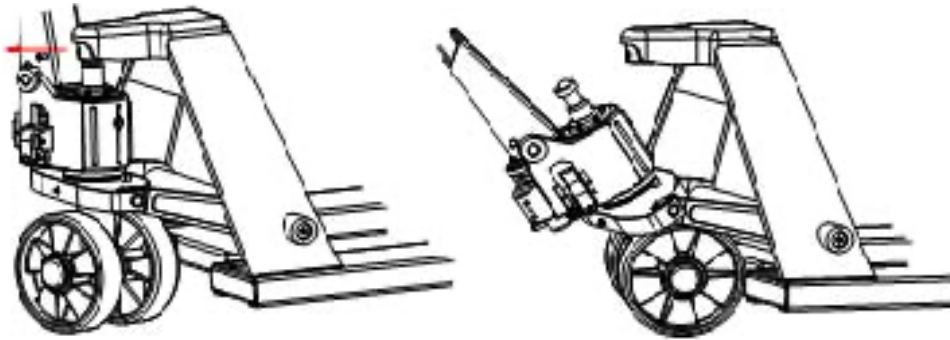


Pallet truck declines automatically after lift up

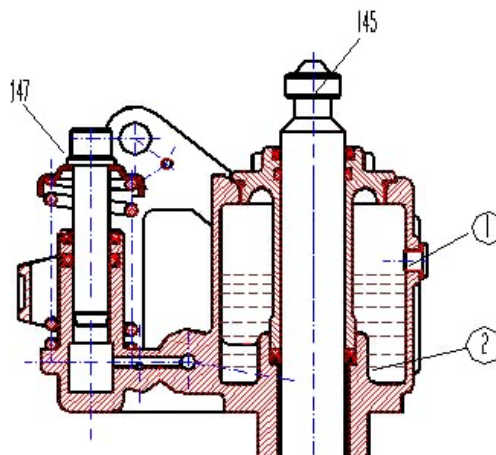
Reason: Seal kit broken

Solution:

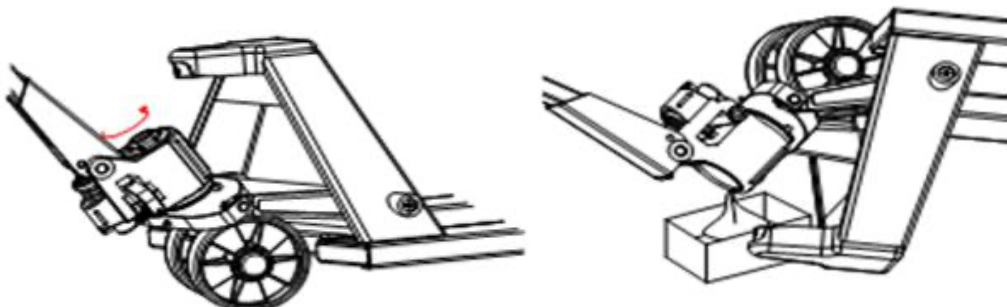
- 1) Unscrew the bolt in the bulkhead (the red line pointed)
- 2) Lift up the fork frame.



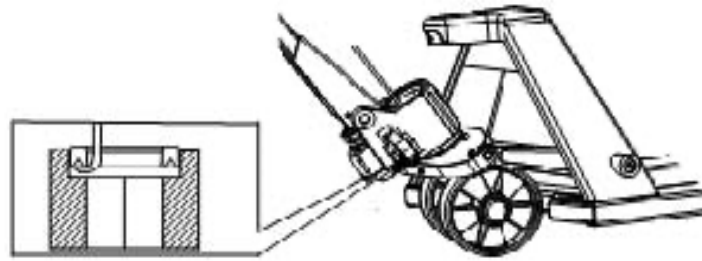
- 3) Take out piston #145



- 4) Take off pump cap and pour out the oil



- 5) Take out seal kit in the bottom
- 6) Replace with new seal kit
- 7) Add clean hydraulic oil, install #145 and assemble pump back to fork frame

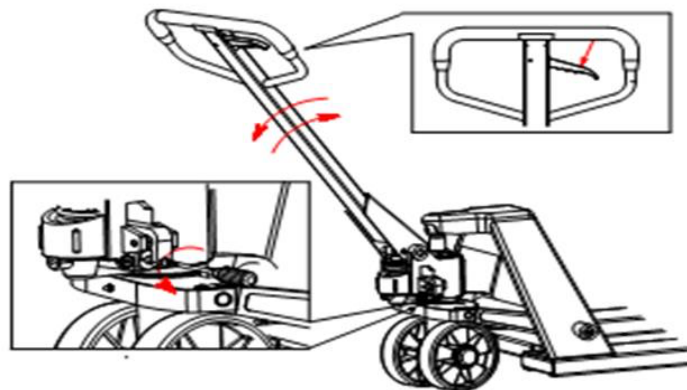


Pallet truck can not declines

Reason 1: strike pin #132 not placed in right position.

- 1) unscrew nut #137 a little,
- 2) screw up #136 in clockwise, put knob #107 at the position A
- 3) swing handle, until the pallet truck can declines properly, and then screw back #137.

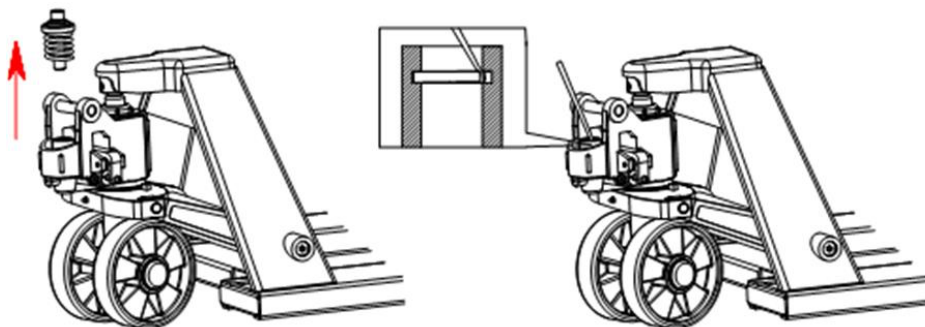
Reason 2: Valve not clean, clean the swarf. Same as above.



Oil leakage

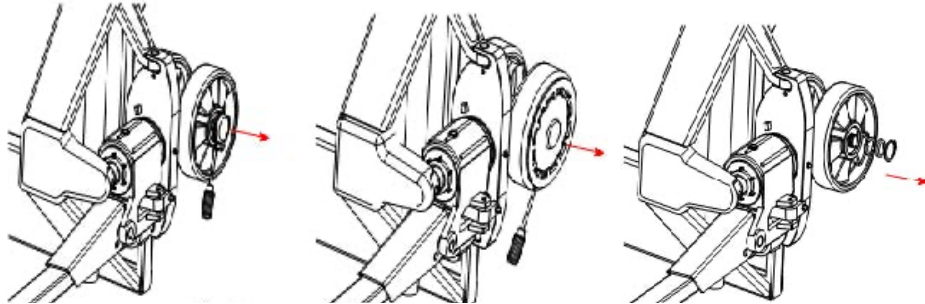
Problem 1: oil leak from pump plunger #147 (refer PIC.1)

Take offer handle #1, take out #147, and replace seal kits.



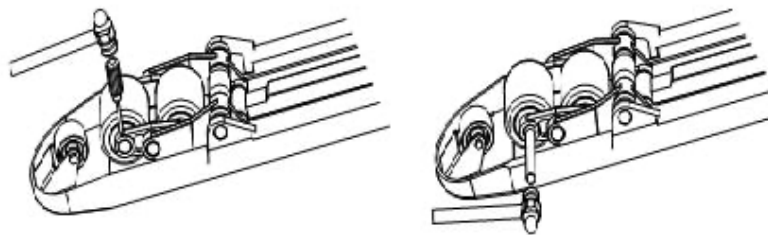
Replace steering wheel

- 1) Take off dust cover, and snap ring, then old wheel.
- 2) Put new wheels, and assemble the parts back in order.



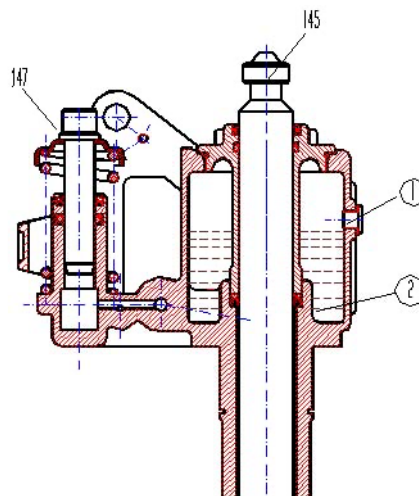
Replace fork wheel

- 1) Remove snap ring, and shaft
- 2) Replace the wheels.
- 3) Install the other parts back.



Replace hydraulic oil

Unscrew plug ① (refer PIC 3), put the hand pallet truck down and pour out all hydraulic oil.
Adding new hydraulic oil around 110-130ml, and tighten the plug.

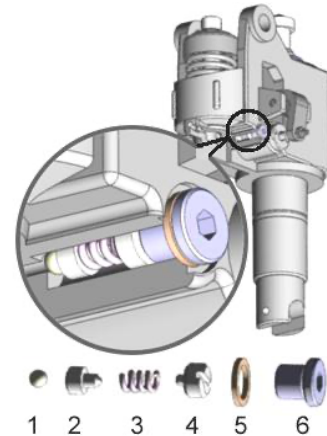


PIC.3

Safety valve maintenance

Safety valve includes below parts (refer PIC.4):

- No 1 — Steel ball
- No 2 — Ball seat
- No 3 — Spring
- No 4 — Screw for adjusting pressure
- No 5 — Washer
- No 6 — Screw



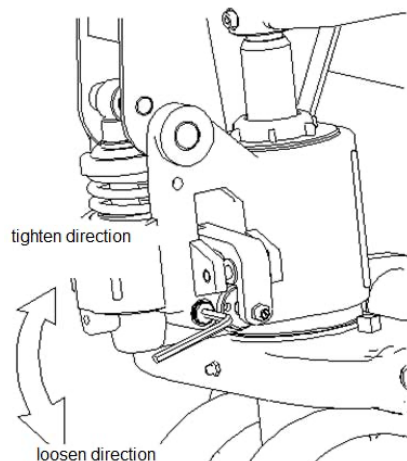
PIC.4

Tools 1 . screwdriver 2 . inner hexagonal spanner S=5mm. 3 . tweezers 4. Loading 1 — Weight is rated capacity 5.loading 2 — Weight is 15% of rated capacity

Safety valve's disassembly and installation

Disassembly

- 1) unscrew Part 6 in counterclockwise direction by inner hexagonal spanner .(Pic.5)
- 2) Remove part 5
- 3) unscrew Part 4 in counterclockwise direction by screwdriver
- 4) Remove parts 3、2、1 , Until now, you have finished the disassembly of safe valve.



Pic.5

Assembly of safety valve

- 1) Clean the mounting hole of safety valve.

- 2) Clean all the parts and check to make sure all parts are clean and well to use.
- 3) Assemble parts 1、 2、 3、 4 according to the opposite order of disassembly.
- 4) Assemble part 5 and 6 after finishing demarcate.

Safety valve's setting

- Must proceed the setting on the flat and hard ground. Keep the underside of rated loading 100mm (4") from background, or put the loading on the pallet trucks forks.
- Put the hand pallet truck under the loading and swing the handle, adjust safety valve at the moment of the loading is just off the ground.
- Setting: swing the handle one time, then turn the part 4 once by screwdriver, and repeat the actions again and again to reach the goal: the truck can be lifted under rated loading, but can't lift up with 115% loading. In such way, the safety valve setting is finished.
- Rated load will become larger by turn part 4 in clockwise direction, while it will become smaller by turn part 4 in counterclockwise direction.
- At last, assemble parts 5,6 back after finishing setting, part 6 tightening torque 4N / m.

Can lift under rated loading

can not lift above 15% loading

WARNING 1. Safety valve should be setting according to specified rated loading. 2. Setting the safety valve must be at the height of just off the ground. 3. Prohibit the untrained people to maintain and debug safety valve! 4. Prohibit maintaining and debugging safety valve on slopes! 5. Operator's hand or foot not allowed to put under loading or forks during adjusting safety valve.

Unloading valve maintenance

As per pic 1,unloading valve includes below parts:

Part 1 ——Spring

Part 2——strike pin

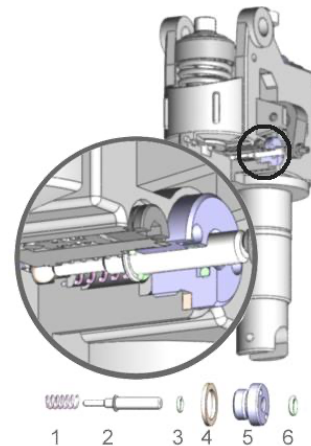
Part 3——O Ring

Part 4——washer

Part 5——strike pin seat

Part 6——O Ring

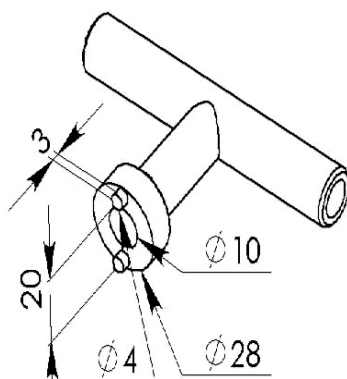
Tools 1. spanner (pic7) 2 .steel pin 3 .tweezers



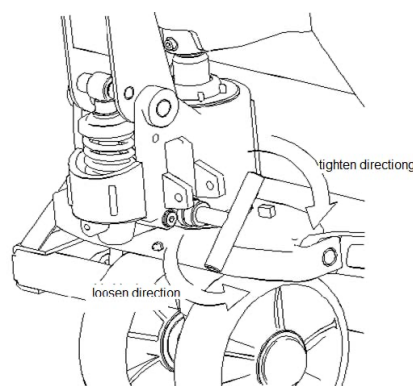
Pic 6 . Unloading valve's structure

Unloading valve's disassembly and installation

1 . disassembly of unloading valve 1) Unscrew Part 5 as per pic 8 in counterclockwise direction by spanner 2) Take out all parts of unloading valve. Pic. 8 disassembly and assembly of strike pin seat. Take part 6 out of part 5 by steel pin. 2. assembly of unloading valve 1) Clean the mounting hole of unloading valve. 2) Clean all the parts and check to make sure all parts are clean and well to use. 3) Assemble parts according to the opposite order of disassembly. Part 5 tightening torque 4N / m 4) Assembled loading valve should start working after operation condition adjustment.



Pic 7 special spanner



Pic 8 disassembly and assembly of strike pin seat

WARNING

Prohibit the untrained people maintaining and debugging unloading valve !

Control valve maintenance

Part 1 — Oil plug

Part 2 — Washer

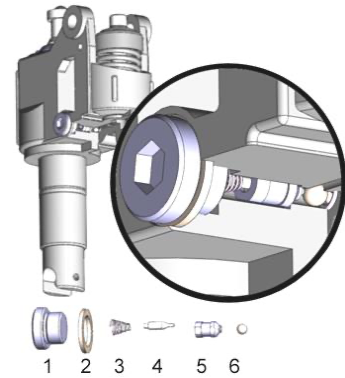
Part 3 — Spring

Part 4 — Valve plug

Part 5 — Valve body

Part 6 — Steel ball

Tools: 1. Tweezers 2. Inner hexagonal spanner S=12mm.



PIC 9. Control valve structure

Control valve's disassembly and installation

- Unscrew Part 7 in counterclockwise direction by inner hexagonal spanner.

- Pic 2 nut for control valve assembly .

- Take all parts from control valve in order.

• Assembly of control valve

- 1) Clean the mounting hole of control valve.

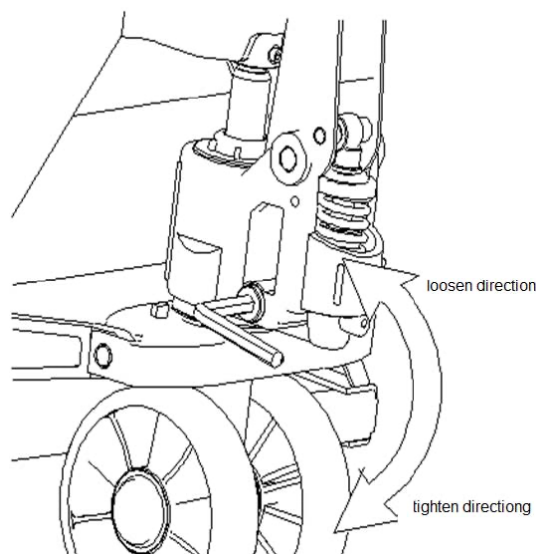
- 2) Clean all the parts and check to make sure all parts are clean and well to use.

- 3) Assemble parts according to the opposite order of disassembly. Tightening Part 1 with torque 80N / m

WARNING

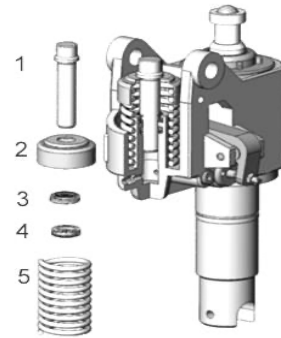
Prohibit the untrained people maintaining and debugging control valve !

Pic 10 control valve assembly.



Pump maintenance

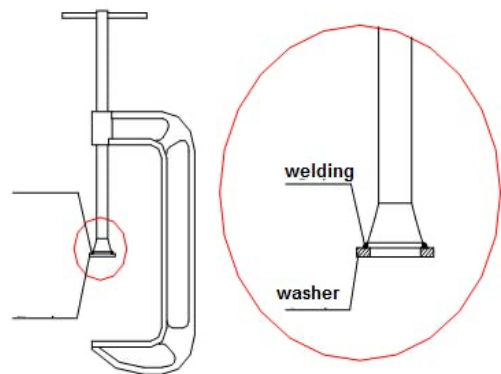
- Part 1 — Piston
- Part 2 — Cap
- Part 3 — Dust ring
- Part 4 — Seal ring
- Part 5 — Spring



PIC.11 Pump structure

Tools

- 1) $\phi 4$ iron hook (head of iron hook should be without burr and sharp edge)
 - 2) steel pin
 - 3) 6-10" cross screwdriver
 - 4) $\phi 37 \times \phi 22 \times 3$ washer
 - 5) hammer
 - 6) $\phi 5$ punch
 - 7) 8" G shape clip:
- prepare G shape clip -weld the 8" G shape clip and $\phi 37 \times \phi 22 \times 3$ washer together as per pic 12.



PIC.12 G shape clip

Pump Dismantling

The handle should be taken away before fixing pump and please find the dismantling details in HANDLE ASSEMBLY MANUALS

Dismantling pump:

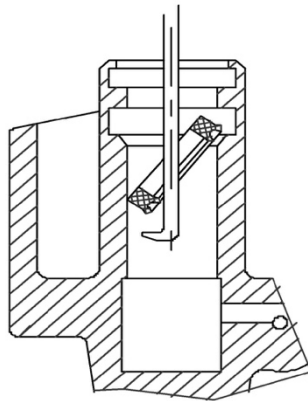
•As indicated in Pic 13, set the "G" type clamp into the dismantled place and turn the crew of "G" type clamp slowly clockwise with. Push part No.1 slightly until the screwdriver which was locked by a big spring drop. Then draw the screwdriver out and turn the screw of "G" type clamp slowly anticlockwise until the big spring (part No.5) drop completely. Get out all parts of pump.

Part No.3 and No.4 are seal kits which should be taken out by steel pin and hook. But seal kits taken out in this way could not be re-used.

Pump assembling

Clean the dust and rubbish of the holes in the pump. And check if all parts are in good way and clear.

- Assemble the pump in opposite order of dismantling.
- The seal kits can be assembled quickly and safely as the description below:
- As indicated in Pic 13, firstly, put the seal kit as the direction showed in the picture into the pump and put it under the seal groove. Hook the seal kit along with the border of the seal groove.

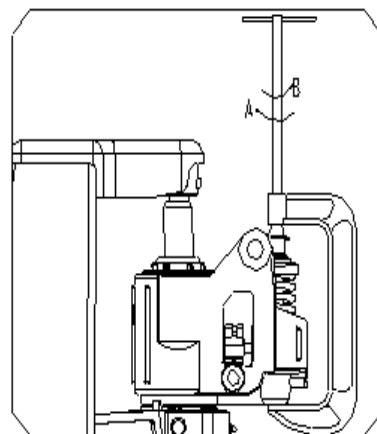


Pic.13 Instand seal kit

- Put “G” type clamp as picture 14, and tighten the clamp in direction A until the screwdriver into hole No.7. Please be attention the plunger should be kept in straight during the tightening process. “G” type clamp should not slip from the head. Put screwdriver inside and loosen the clamp in direction B to take away “G” type clamp.

- Assemble handle: refer to HANDLE ASSEMBLY MANUAL

PIC.14: Install plunger pump



WARNING!

1. The screw head of “G” type clamp should be welded with a ring and the ring should be fitted into Part No.1, or it will be dangerous.
2. It needs to have pressure test after pump assembling. If it has problems of oil leaking, it may be the problem of seal kit which needs to be replaced.
3. No assembling and maintenance pump by people without training.

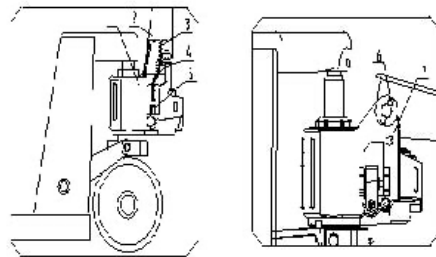
Handle Assembling Manual

1. Tools

- Philip screwdriver in 6~10 inch
- Hammer
- φ5 Punch

2. dismantling handle

- Please read dismantling handle as below against Pic 15
- Drive out the end of Chain 3 from the groove of lever plate.
- Drive out the whole Chain 3 from the middle hole of Shaft 4.
- Turn 80° of the handle and insert screwdriver into Hole 7
- Dismantle Spring pin 6 with hammer and punch. Take shaft 4 and take down the handle.

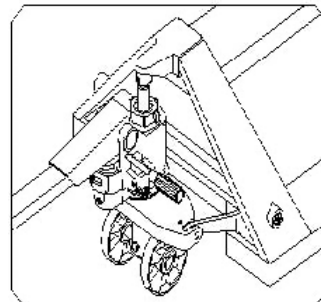


Pic.15:remove handle

Assembling Handle

Refer to pic 15 and pic 16

- 1) put handle 2 back and combine handle 2 and pump1 with shaft 4
- 2) Set spring pin 6 back with hammer
- 3) set chain 3 across the hole in the middle of shaft 4
- 4) Put the end of chain 3 into the groove of lever plate 5
- 5) Turn the handle and press the plunger . Take the screwdriver away.



Pic.16: assemble handle

Test: The handle should be tested after setting up because it might not match the pump in good condition. Please test as below: The knob in the handle is used to control the truck: lifting while down, lowering while up and walking in middle. If the truck goes down quickly after lifting, turn the unloading valve anticlockwise. Then try again; If the truck can not go down after lifting, turn the unloading valve clockwise and try again. You can repeat the process in above until the truck can work normally. Before testing, please loosen the nut of unloading valve and tighten the nut after testing. If the truck is used rarely or placed upside-down, the air may enter the hydraulic system. You can shake the handle to estimate the condition. If it feels empty and the truck can not be lifted or only lifted a little, it means the system has be entrained air which needs to be push out. The method is: hold the knob of the handle and keep the know in up place, shake

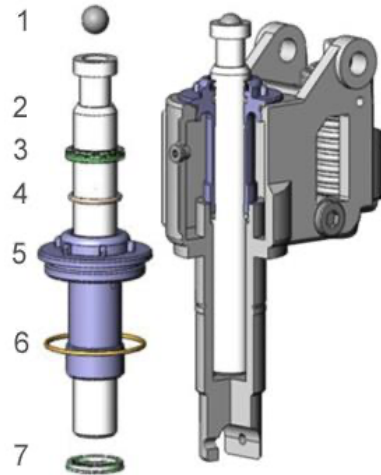
the handle drastically for 4~6 times. Then release the knob and keep it in down place. Lift the truck in normal way to check if the truck can be lifted. Repeat several times until it comes to be normal if necessary.

Warnig: No assembling and maintenance by people without training.

Pump Manual

•**Pic 17 pump structure**

- No.1-----steel ball
- No.2-----Piston
- No.3-----dust ring
- No.4-----seal kit
- No.5-----guide bushing
- No.6----- o ring
- No.7-----V ring

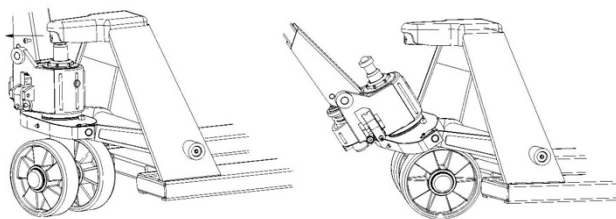


Pic 17. Pump structure

1.Tools: wrench , width: 54mm,including combination wrench, socket spanner, non-adjustable wrench, hook spanner, adjustable spanner and etc. 2. hook: $\phi 4$ (the burrs and sharp edge of the hook should be cut) 3. steel bar $\phi 15 \times 150 \sim 200$ 4. hammer 5. hexagon socket spanner $S=5\text{mm}$ 6.steel needle

Dismantling pump

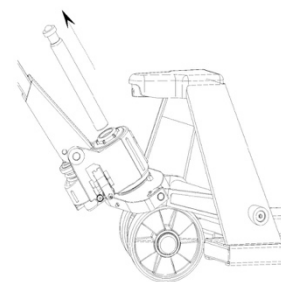
1.Take the piston away from fork frame: the piston should be taken away from the fork frame completely unscrew the hexagon screw of the frame with hexagon socket spanner. Work as pic18 shows: lift the frame a little bit and the plunger can be taken off completely



Pic.18

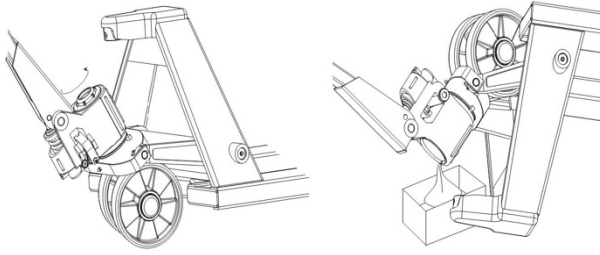
2.Dismantling pump

Draw the piston out as pic 19



Pic. 19

Put one end of steel bar to the place of guide bushing, and knock the other end with hammer until guide bushing comes to be loose. Then get off the guide bushing with wrench. Refer Pic. 20.



Pic. 20

- Pour the oil out as Pic 20. and get out seal kit no. 7, no.3 and no.4 with steel needle.

Assembling Pump

- 1) clean the dust and rubbish inside holes of pump
- 2) check if all parts are in good way and clear
- 3) pour 250ml clear oil of viscosity index ISO15~32 into the pump
- 4) Re-set up the pump in opposite order of dismantling. The moment of force to tighten Part No.5 is 500~600 Nm
- 5) Set the piston back to the fork frame top and tighten M6 as well.

Warning

- It needs to have pressure test after plunger pump assembling. If it has problems of oil leaking, it may be the problem of seal kit which needs to be replaced.
- people without training can not assemble and repair the pump.