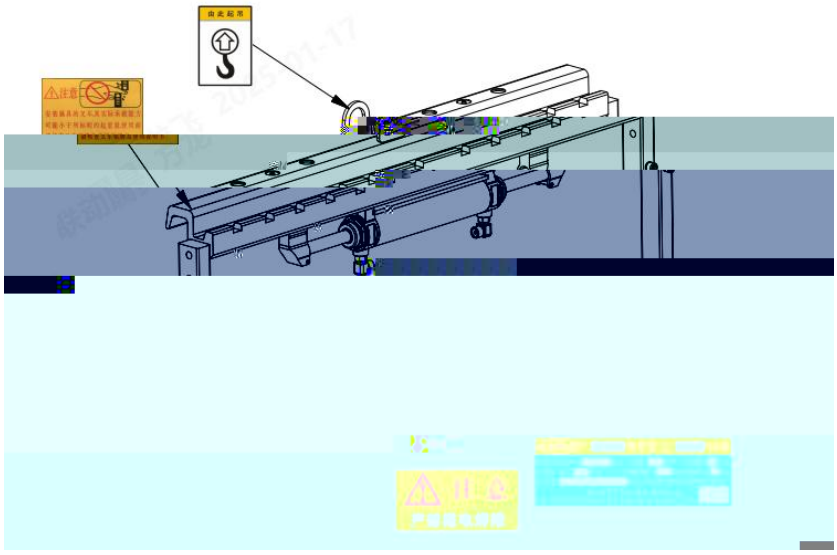
In order to understand and master the safety signs and danger signs in order to better observe the safety operation procedures, this manual has the meaning of "danger", "warning", "attention", "lifting" and "no trampling" of these safety signs. The meaning is explained as follows:

⚠ Used in large, immediate danger situations which, if not avoided, could result in serious loss of life.

⚠ It is used in a potentially dangerous situation that, if not changed, could result in serious casualties.

⚠ It is used in potentially dangerous situations that, if not changed, may cause physical injury to persons or property damage.

⚠ It is used in a potentially dangerous situation that, if not changed, could result in serious casualties.



—— Use maintenance and maintenance personnel must read and understand this user

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—— Pay attenti o all safety tips and da warnings on the side shift device.

—— In case of cl e of the side device e running state of the machine, it should shut down immediately and inform the relevant departments.

—— The operation of the side shift or those involved shall be performed by specialized, forklift-trained personnel, and the statutory minimum working age must be followed.

—— The working environment temperature is-20 40 , the relative humidity should be less than 85%, the altitude should be less than 1 000 meters, and the wind speed should not exceed 5m / s.

1.3.1.1 Wear your safety uniforms and fasten your seat belts.

All operators must wear appropriate personal protective equipment, such as overalls, helmets, safety shoes and safety gloves, and shall follow the following provisions:

¾ Do not wear loose or damaged clothing.

¾ No jewelry is worn during operation, maintenance and repair.

¾ Do not wear sticky and greasy clothes.

¾ Wear your seat belt before work.

¾ Clean and maintain the side shift as specified in the forklift manual to ensure that the side shift works properly.

1.3.1.2 Side shift operator requirements:

¾ Good physical quality, good mental state.

¾ Ability to read the user manual.

¾ Do not allow fatigue work and work under the influence of

¾ The operator must fully understand and apply the working principle, construction and function of the side shift device. You must also know how to operate, maintain and repair side shifters.

¾ The operator shall not use the side shift to load without knowing the rated load, otherwise it will damage the machine and even cause significant danger.

¾ Operators must be careful to ensure that there are no miscellaneous personnel in the work area.

¾ The operator is absolutely not allowed to leave the operating room when the load on the side shift is not removed.

¾ When the operators vision is limited, or when he works in a dangerous place, such as near a power line or a person, the operator must operate under the direction of the signal machine. Because in this case, the operator is not always in the best position to judge the distance, and it is difficult to see the whole working condition.

¾ Overloading can cause forklifts to roll over, causing forklift damage, and causing possible casualties.

Only suitable transport and lifting tools with sufficient load force are allowed (see the nameplate for the weight of the side shipper).

> ⚠ Danger
>
> Do not stand under the lifting cargo.

—— Check at least once per shift. If any abnormal situation occurs, it should be reported to the relevant departments or personnel immediately, and the work should be stopped immediately to troubleshoot in time.

—— When the side shift device is working, the hydraulic cylinder is recommended to work

80 ature above 80 may cause the cylinder failure.

—— When the side shift is in operation, ensure that any fault that may cause harm to peop is oved.

—— Forklift drivers should pay attention to avoid injuring people in the work and driving area.

—— Discard any working mode that damages the stability of the machine.

—— The maximum bearing capacity refers to the bearing capacity of two or more cargo forks at the same time.

—— Pay attention to the rated load on the nameplate, the system recommended working pressure and center distance of rated load.

—— The movement, swing and transport on the side gear due to its own extrusion, cutting and pulling action, the operator should keep a certain safe distance from the side gear to prevent the corners, hands and feet, hair and other involved in the machine and cause personal injury.

—— Trlets, boxes, liquid containers and packages are in good condition.

—— The side shift device must be rechecked in accordance with the regulations or the reinspection period given in the user manual, and this work shall be responsible by a special person.

—— Ensure that the side shift device is maintained and repaired on the flat and solid foundation to ensure that the ground is free of potholes and ruts.

—— When replacing parts and components, attention should be paid to the firmness of the lifting gear -

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The modified components shall be responsible for the consequences; if the installation is inconsistent with the requirements of this user manual, there is no liability guarantee.

—— If it is necessary to remove the parts of the side shift device during assembly and comprehensive maintenance, the assembly and repair work shall be finished immediately and tested correctly.

—— The use of spare parts must meet the technical requirements proposed by the manufacturer, thus guaranteeing the original equipment parts.

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During maintenance, pay attention to tightening the bolts with the given torque. After tightening them three times, replace all the bolts.

See ISO 4762, ISO 4014, ISO 4032 etc, note the following bolt torque:

Bolt grade	8.8	10.9	12.9
M10	45Nm	66Nm	77Nm
M12	77Nm	115Nm	135Nm
M16	190Nm	280Nm	330Nm
M20	385Nm	550Nm	640Nm

—— The maintenance of hydraulic parts must be carried out by personnel with professional knowledge and experience in hydraulic parts. Remove the pressure before repairing the hydraulic pipes.

—— Regularly check the sealing performance and damage of all hydraulic pipes, catheters and couplings, thoroughly remove the fault, leakage and splashing oil may cause injury and fire.

The following causes may lead to serious personal injury and property damage:

—— Improper use.

—— faulty operation.

—— Inadequate maintenance work.

Ignoring the safety tips in this user manual may cause personnel injury and even death, and special attention should be paid to avoid operation violations.

Never allow any work on the machine when affected by the effects of drugs or alcohol.

This side shift is not allowed in places with explosion hazard unless specially designed and authorized.

For fire prevention, hot prevention, electric shock, chemical danger (toxic tail gas, etc.), electromagnetic interference danger, noise danger, vibration danger and other protection, see the manual of forklift machine.

Adjustment of safety valve pressure of forklift (hydraulic circuit supplying side shift): recommended value is 14MPa and maximum value is 21 Mpa.

Flow adjustment of forklift (hydraulic circuit of supply feeder):

Less than the minimum flow rate will lead to unstable movement.

Greater than the maximum flow rate will cause overheating, thus reducing the system performance and shortening the service life of the hydraulic system.

Recommended hose and minimum joint aperture: 6mm.

The rated load of the side shift is based on the nominal carrying capacity given by its mechanical structure, and the determination of the rated load does not consider the nature of the goods or the operating conditions, therefore, the comprehensive carrying capacity of the forklift-side shift is not a fixed value, should consider the goods, operating conditions and the comprehensive carrying capacity of the forklift

Before installing the hydraulic part, first confirm that the whole hydraulic system is consistent with the hydraulic schematic diagram in the user manual and connected according to the schematic diagram; confirm whether the rated pressure of the hydraulic pipe matches the requirements of the side hydraulic cylinder; the rated pressure of the soft and hard pipe must be greater than 28MPa; confirm that the parameter setting of the safety valve matches the working pressure of the hydraulic cylinder (the recommended pressure is 14 Mpa). Confirm the inlet and outlet of hydraulic pipe to ensure

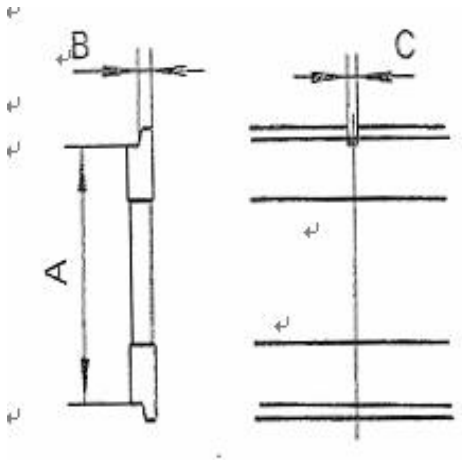

Figure 1

	A		B		C	
Install grade	minimum	maximum	minimum	maximum	minimum	maximum
	380mm	381mm	15mm	16mm	15.2	

During installation, first loosen the lock bolt on the lower hook of the side shifter, remove the lower hook, then lift the side shifter, and put the positioning card on the side shift gear hanging plate into the central groove of the upper beam of the fork rack, as shown in Figure 2. If necessary, the opening of the fork rack can be reprocessed to achieve the required depth and width.

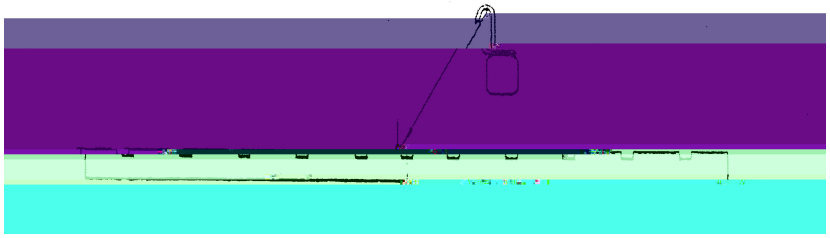

Figure 2

Lift the lower hook to the appropriate position (keep the surface contact between the sliding block and the fork rack, adjust the clearance between the lower hook and the lower beam, the clearance range is recommended 1 2mm), and lock the bolts, the tightening torque is 140 160 N·m.

Before installing the tubing, check whether the hydraulic circuit of the hydraulic system is consistent with the schematic diagram of the side shift shown in Figure 3. Only if the consistency, the tubing can be connected to the hydraulic system. When connecting the oil pipe, the tightening torque distance of the bolt is 120 200 N·m.

The hydraulic circuit of the side shifter is mainly composed of oil cylinder, hydraulic pump, multi-channel valve, safety valve, device and some oil pipes. The hydraulic circuit is as shown in Figure 3.

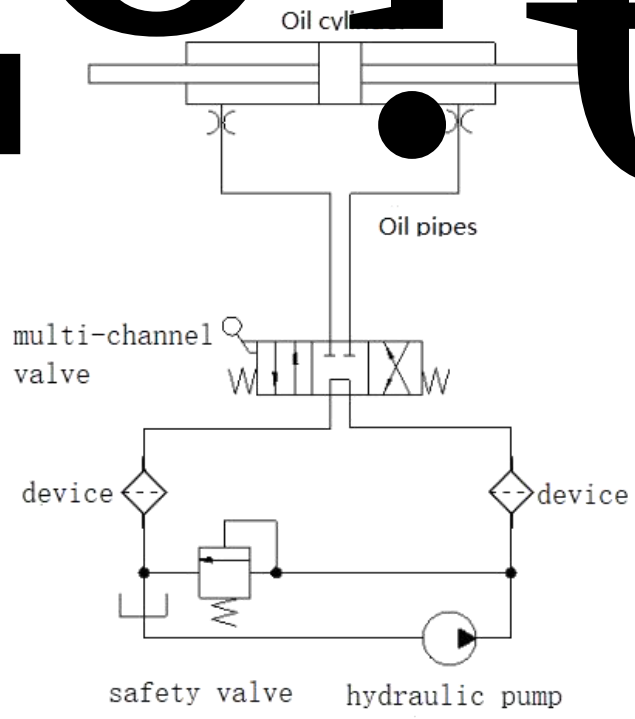

Figure 3 Schematic diagram of the hydraulic circuit of the side shifter

Unscrew the fork stop screw near the center below the lower beam, install the fork, and finally screw on the stop screw.

Please note that the correspondence between the movement direction of the forklift multiplex valve handling handle and the hydraulic action of the side íf A

Side shift direction	Move to the right	Move to the left

The side shifter needs to warm up and move back to the side several times without the normal load, and then it can add the normal load to work.

The load and the load center distance shall not be greater than the calibration range on the label of the side shipper. When the load center distance is greater than the rated load center distance, the actual bearing capacity will decrease; After the forklift stops working, the hydraulic circuit of the side shipper must be relieved so that some necessary maintenance work can be performed subsequently.

The following operations are illegal operations and must be prohibited

- ⚠ Carrying the goods with a single cargo fork;
- ⚠ Move the cargo by pushing the side shift device;
- ⚠ The side shifter is in the side shift state when the forklift turns;
- ⚠ Load instability;
- ⚠ Personnel carrying them on the side shift gear or cargo fork;
- ⚠ When the side shifter fails, it is still used without elimination;
- ⚠ The positioning stop pin is not properly stuck into the center groove of the upper beam of the fork rack during installation;
- ⚠ Electric welding on the side shift device;
- ⚠ Use the side shifter for improper situations.
- ⚠ The side shifter is impacted by the external force when working;
- ⚠ The cargo volume is too large.

⚠ Every 100 hours of use, check whether the hose joint and lower hook fixing bolt are loose; the clearance between the lower hook and lower beam meets the requirements. If the clearance exceeds the specified value, the slider must be adjusted or replaced.

⚠ The upper and sliding blocks must be filled with grease for every 500 hours of use.

⚠ We must check the wear of the upper and sliding blocks, such as the thickness of the upper slider is small.

It must be replaced at 3 mm, and if the slide block thickness is less than 5mm.

⚠ Lubricate all required lubricating parts and add grease;

⚠ All parts that corrosion corrosion corrosion or coated with preservative grease;

⚠ Make the side gear from the impact of weather, the side gear placed indoors or cover the rain cloth;

⚠ If possible, check the hydraulic function of the side shift periodically during storage.

Empty troubleshooting: make the forklift gantry drop down to the fork contact the ground, remove the side shift from the gantry, and then repair. The waste hydraulic oil treatment shall comply with local laws and regulations.

6.1.1 Release the fork stop screw below the lower beam near the center;

6.1.2 Disassemble the cargo fork;

6.1.3 Removing the hose;

Before any operation involving the hydraulic components, stop the operation of the forklift, and then relieve the hydraulic circuit by operating the left and right side shift control

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Do not remove the pressed parts or oil pipes with oil pressure.

6.1.4 Remove the locking bolt on the lower hook of the side shifting gear and loosen the lower hook;

6.1.5 450 Kg crane.

6.2.1 When replacing the slider, we must ensure that the slide positioning platform is completely stuck in the positioning hole of the side shifter;

6.2.2 High quality grease is recommended (Shell EP2 grease is recommended).

6.3.1 Loosen the elastic cable;

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Do not use blunt tools to polish the cylinder head and piston surfaces.

Note the orientation of the sealing ring when replacing the seal.

6.3.3 When reinstalling the cylinder, use the above operation steps in reverse.

7.1.1 Check whether the pressure and flow rate of the system meet the requirements;

7.1.2 Check whether the structural parts are deformed, if deformed, must eliminate the deformation or replace the structural parts;

7.1.3 Check whether the gap between the hook and the lower beam of the fork rack meets the requirements, if the gap is too large, readjust to make it meet the requirements;

7.1.4 Check the hydraulic circuit and cylinder for leaks and replace the corresponding components.

In addition to the irregular inspection, the following inspection shall be made:

7.2.1 Check whether the throttling piece is blocked, and expand the throttle hole appropriately if necessary;

7.2.2 Check the wear condition of the upper and sliding blocks.

7.3.1 Check whether the air leaks in the hydraulic circuit;

7.3.2 Check the wear condition of the upper and sliding blocks.

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1. The warranty period of forklift truck products of Anqing Liandong Engineering Trucks Attachments Co.,LTd is as follows:

(1) 12 months from the date of receipt of the goods.

(2) 1000 hours from the date of installation.

(3) The above two comprehensive measures: among the two to the first arrival period shall prevail.

2. Purbuyers and end users shall:

In order to ensure the smooth implementation of the quality assurance matters of Anqing Liandong Engineering Trucks Attachments Co.,LTd,the purchasers and end users must strictly follow the user guide of Anqing Liandong Engineering Trucks Attachments Co.,LTd. when conducting the installation, commissioning, use and maintenance of the companys products.

The buyer and the end user can only repair the purchased equipment after obtaining the authorization of Anqing Liandong Engineering Trucks Attachments Co.,LTd, but can not remove or replace the parts on the product at will.

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