OAttachments
Quality Attachments for Construction & Agriculture Equipment.

OPERATION MANUAL

Model: OAKPD430A - PILE DRIVE ATTACHMENT

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Thank you for choosing OAttachments hydraulic pile vibrator!

The hydraulic pile vibrator is made with serious R&D and production, it is a new generation of pile driving tool. Features: simple, flexible, quiet, easy maintenance, well designed, reliable performance, save time. In order to make the piling machine in a variety of conditions can get excellent performance, and improved greatly the piling machine characteristics, we edit this Operation Manual in for you to have a comprehensive understanding of the product. The contents of this manual are described how to install and maintenance and repair the piling machine correctly, and to use safely. It is necessary to execute the routine inspections and maintenance to extend the product's life. Please be sure to read this manual to prevent incorrect operation. The user should follow the contents of this manual for technical training to operate correctly, safely, and exert to its best working condition. To the extent permitted by applicable law Jou is not liable for any direct, indirect, incidental or consequential damages arising out of the use or service of the product.

We keep updates the technology of the product, if necessary, the manufacturer has the right to modify the parameters of any data listed in this manual, and not necessarily to advance or after being notified to the customer or end user. To ensure safe operation, be sure to check before any operation of this product. It is necessary to inspect regularly even less use in a short-term. To ensure safe operation, be sure to check before any operation of this product. It is necessary to inspect regularly even less use in a short-term.
Please note to understand this manual correctly. To avoid personal injury and equipment damage, be sure to comply with relevant laws, regulations and security operational matters.

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Chapter1 Product Introduction

1.1 General

The hydraulic pile vibrator is mounted in front of the excavator and used to pile kinds of steel sheet pile, steel pipe pile and concrete piles with a simple, flexible, well- design, reliable performance and quiet operations. The product has wonderful features: easy maintenance, fast speed, and manpower save, and it can be your excellent job helper. The hydraulic pile vibrator is powered by the excavator through the hydraulic power, without another power station. It shows us the characteristics with flexible, multifunctional and fast. The hydraulic pile vibrator works with high frequency vibration in the 2400 to 3000 RPM and produces up to 30 tons to 50 tons force to break the soil instantly and pile by the arm of excavator powerfully and smoothly. Our company combined with years of product experience and theory to develop a new generation of hydraulic and control systems. It improved not only efficiency but the safety and mechanical reliability!

1.2 Features

(1) Functions: Vibrating, clamping, and rotating. Each action is individually controlled and easy operating.
(2) Two-stage boost vibration power output can meet with the kinds of construction conditions. The second boost stage output is more powerful to apply for the difficult layer (Option).
(3) Original Italian hydraulic motor, efficient and quality!
(4) Well-Designed hydraulic system and clamping force
(5) Well-calculated the parts and components performance, long life and reliability.
(6) The product can be installed in all kinds of brand excavators, and you only need to change a different clamp to apply for different job requirement.
(7) Operating by one excavator operator in the cab. Fast, less manpower requirement and efficient.
(8) Working quiet, less impact on the surrounding environment and suitable for urban jobs.

1.3 The main components

1. Swivel: the latest gear built-in design to prevent dirt and impact, replaceable gears run smoothly and durable.
2. Gearbox: the core components and power source of this machine.
3. Bracket: High-performance damping rubber,stable quality,long life.
4. Hydraulic motor: Original Italian hydraulic motor,efficient and quality.
5. Clamp: various types for kinds of piles; powerful hydraulic cylinder,wear-resistant tooth block;casting body solid as a rock.
6. Hydraulic system: Special functions and features designed for the pile vibrator.
7. Arm: Based on brands of excavators and pile requirements, we design several different specifications.
8. Circuit control box: Safe and reliable connector, full protection from oil and wet. Easy to install and maintenance.
9. Control handle: Original multi-function handle from Canada, Beautiful and practical, easy to install and reliability.
10. Hanger and axis: Well-designed, strong and easy maintenance.

1.4 Product specifications and technical

	Product specifications and technical
Item	OAKPD430A
Eccentric Moment (Nm)	52
Speed (rpm)	2800
Centrifugal force (KN)	480
Hydraulic system operating pressure (Bar)	320
Hydraulic system flow demand (Lpm)	210
Total Weight (Kg)	3300
Applied excavator (T)	30~40

1.5 Working principle and application range

The working principle of OAttachments hydraulic pile vibrator is to use high frequency vibration to pile, especially suitable for short piles applied for urban job,bridge,cofferdams,building foundations and others.
How it works:
(1) There are two eccentric wheels built-in K-series hydraulic pile vibrator, driven by the hydraulic motor to produce high-speed rotation and vertical Centrifugal force, through the damping rubber block to keep a certain amplitude, to able to meet various types of soil and piling requirements.
(2) Centrifugal force is proportional with the eccentric torque and vibration frequency square, we research and develop the eccentric wheel through serious calculation and test, and it has powerful centrifugal force and strong material properties, not only to meet the job demand, at the same time to ensure the mechanical reliability.
Construction works: Vibratory pile hammer produces high frequency vibration and high acceleration to the piles, and then, the piles will be vibrated vertically and the land structure in piles around changes due to vibration. The soil surrounding the pile is reduced the frictional resistance, then under the press power of the excavator, vibrating pile sinking into the soil. Pull out the piles, through the lifting power of the excavator and vibration. The requirement of centrifugal force is determined and according to the type of soil, water content, pile types and construction.

Chapter2 Safe rules

2.1 General

★ Please do not modify the machine, and if necessary modified, please contact us. The accidents and failures due to modifications, we are not liable.
★ Do not use the spare parts without our certification or recommended. Before you use qualified substitutes of similar alternatives, please contact us. Any damages, injury or increased costs due to non-certificated parts will not be included in warranty commitment.
★ While you want to shift this machine and existing pipes to other hydraulic excavator, Please contact with us or agent.
★ The operation of the hydraulic excavator,please read the operating manual issued by the hydraulic excavator company. ★The description of hydraulic oil line of pile vibrator is already built-in the main control valve of hydraulic excavator.(Option for some brands) ★ The pipes for each vibrator mounted on the excavator might be different. ★ The pile described in this manual is based on the sheet piles and H-beam as standard.For woods,concrete piles and others,you must use the special clamp.
★ The operator to drive this vibrator must have the following qualifications:
1. A system of construction machinery vehicles (foundation engineering),technical training graduates.
2. Responsible for the vibrator:the system of construction machinery vehicles (foundation engineering) as a special education of plant qualifier.
3. The operator of the hydraulic equipment:hydraulic mechanism Skills Training Course graduates.

2.2 Safe rules

Familiar with this manual, in order to safely use this machine, be sure to comply with the following matters. Often a major accident and failure are caused by negligence, such as the connecting bolts, tighten nuts, the axis and pin. It may cause parts failure and pile loose.

WARNING

Once you find abnormal noise or loose parts, please stop to check immediately, if necessary, you should maintain and change parts.

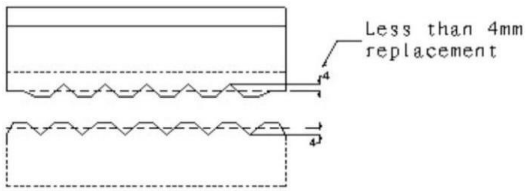
Once you find circuit abnormal, please remove the negative of battery (ground), and check.

NOTICE

After the shutdown of vibrator, the gear box is very hot. Please pay attention and do not touch directly. It will cause burns or serious injury.

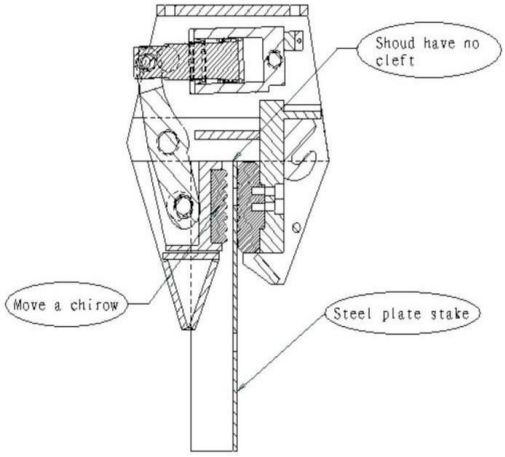
2.2.1 Notes before installation

1. When you install and dismantle the vibrator and arm, please operate the job in a flat,hard ground.
2. When there are two or more persons working,please operate with contact signal.
3. When you install and dismantle the vibrator and arm, please use the lifting equipment.
There must be safe device on hook and wire.
4. Please daily check the hydraulic motor,pipes,and the various parts of the bolts,nuts,axle pins,etc.
The capacity of the gear box oil (lubricant)and leak check.
5. Arm installation and removal.Follow the steps of the installation of the hydraulic excavator bucket.
6. Check the wear of clamp tooth block.As shown below:

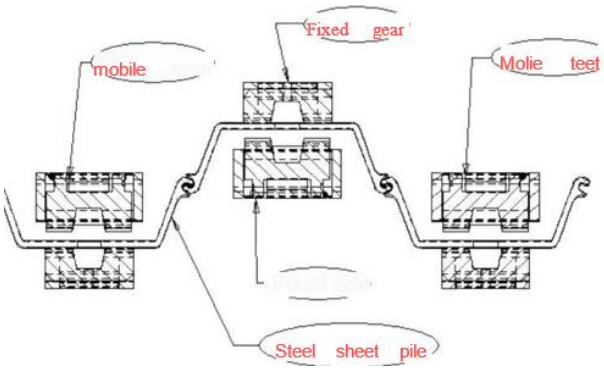


7. Please periodically clear the dust on vibrator.
8. When you connect or disconnect the hydraulic hoses,please pay attention to turn off the engine of the hydraulic excavator. Hydraulic system pressure will spray hot oil.Regarding how to relief the internal pressure,please read the operator manual issued by the hydraulic excavator company.
9. When you do the job with hydraulic oil,be careful the high pressure oil,it will hurt skin or eyes and great dangerous.So please wear the protective glasses and thick gloves.When the high pressure oil spray,stop the machine immediately and block with plugs.
10. While the damping rubber cracking occurs, please do not use the vibrator before replacing the damping rubber.
11,The hydraulic system setting of the device has preset in factory before delivery and been adjusted by service person on jobsite while installation.Do not adjust the hydraulic system setting to avoid damaging the equipment. If you have any questions,please contact service person.
12,Please operate the vibrator and hang on the piles by certificated and skilled operator.
13,While operating the vibrator,please use the auxiliary wire cable with pile.
14,When the hydraulic hoses break,immediately stop piling and move to flat ground to put down the machine,then turn off the engine of the hydraulic excavator.
15,Please do not exceed the maximum load of the vibrator,it will damage the damping rubber and has the risk of machine break. Please note the maximum load of your vibrator model.
16,Never overload the machine.Do not operate in the conditions of the excavator body floating.It has a rollover risk.
17,Besides adjusting and connecting the piles,please do not stand under the vibrator.Please be careful that the nuts, bolts,axles and pins may loose or break and drop down.
18,While operating the vibrator,please ensure to clamp the tooth blocks and the hydraulic system is normal.
19,Never use the vibrator to punch or impact the pile,it will directly hurt the machine.

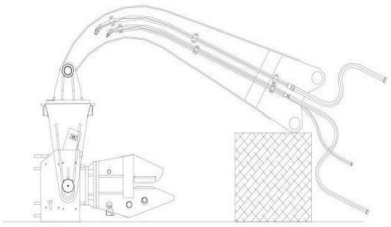
20,While tooth blocks clamping,there should not be clearance between tooth blocks and the pile.Please completely clamp and use a wire rope to connect the clamp and pile as safety insurance.
Because drop down the pile is very dangerous.(Shown below)



20,While working,you should put the force of the excavator averagely on damping rubber and keep the pile vertically.
21,While working,never swing the excavator.It is dangerous.
22,Do not pull out the pile crosswise.
23,Make sure that the vibrator is completely stopped vibrating and then open the tooth blocks.
24,The continuous operation of the vibrator,please follow per pile less 10 minutes as the standard and rest for 5-10 minutes every hour.Long time running of the vibrator will raise the temperature of gear box and shorten the life of bearing,motor and seals.
25,Please do not operate the machine under strong wind and heavy rain.
26,While lift out the steel sheet pile,put the tooth blocks in the middle of the pile.



27,While working,if you need to rotate the vibrator,please note the hydraulic hoses.
28,While pulling out the pile,ensure to hang on wire rope.
29,When rest or stop working,turn off the engine of the hydraulic excavator.
30,After the operation,lift the hanger and put the motor park at the top position
As shown below:



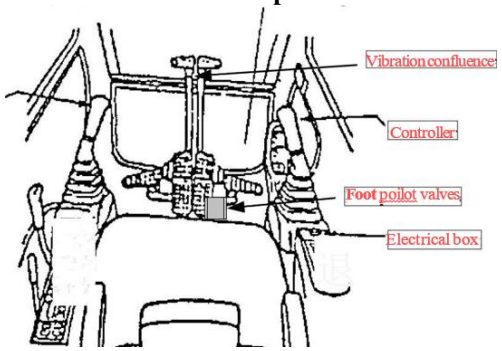
31,After the operation, the vibrator should be covered with sailcloth.
32,Regarding the inspection, maintenance and management, according to the Chapter 4.

2.3 Operating under emergency
When the following states of emergency

A.In the operation of the hydraulic power equipment failure: The clamp pressure drops and may occur pile fall down.In order to prevent the danger,ensure to use wire rope.
B,A wrong operation or hydraulic hoses break: The clamp pressure drops and may occur pile fall down.In order to prevent the danger,ensure to use wire rope.
C,Vibrator and hydraulic power equipment were found abnormal sounds or phenomenon
D,The damping rubber cracking occurs Follow the steps:
(1) Immediately stop vibration and pay attention to the safety of personn;
(2) Please make sure the pile and vibrator under a safe position;
(3) Alter the break rubbers and inspect the vibrator

Chapter3 Operation
3.1 Operation regulations
3.1.1 Preparation

(1) Check the vibrator is installed on the excavator correctly.
(2) Turn on the switch on Circuit control box.
(3) Test the vibration and the switch on the handle.
(4) Test the clamp and the switch on the handle.
(5) Test the swing and the switch on the handle.
(6) (Option)Test the boost vibration and the pedal. Please refer to the figure below:



3.1.2 Vibrating operation:

(1) Start the engine and slowly increase the throttle.
(2) Check the excavator is working normally.
(3) Pedal foot pilot valve,then the main control valve of excavator output the oil.Press the vibration trigger to start vibration action,and the vibration speed will be raised to about 2400 to 3000 RPM.
(4)(Option)Pedal the boost vibration,then press the vibration trigger,the vibration speed will raised to about 3500 RPM or above.
(5) The operator can adjust the speed of the vibrator by engine speed in accordance with the actual needs of the field.
(6) The normal vibration force:Applies in the mud,soft sandy silt,reduce the excavator fuel consumption.
(7) The boost vibration force:Applies in solid sandy with clay layer,belonging to the heavy load.It can not be continuous used,once for 5minutes and vibrator need to rest if the gear box is too hot.
(8) The hydraulic pressure and flow rate of the vibration action required has been set.Please do not adjust if necessary. Excessive vibration speed and overload will damage the motor,bearings and seals and reduce life.

3.1.3 Clamp operation:

(1) Pedal foot pilot valve,then the main control valve of excavator output the oil.
(2) Clamping the pile:Press the clamp control button,and then the hydraulic cylinder moves to push the tooth block to complete the clamping action.
(3) Loosen the pile: Press the loosen control button,and then the hydraulic cylinder goes back to move the tooth block to complete the loosen action.
(4) Operator must hung a wire rope on the pile and the clamp.
(5) Operator can use the hook on clamp to drag the sheet pile.
(6) The hydraulic pressure of clamp action is set to 300 bar, equipped with a holding valve on cylinder,to ensure that the tooth will not loosen due to vibration.

3.1.4 Rotation operation:

(1) Pedal foot pilot valve,then the main control valve of excavator output the oil.
(2) Press the left and right buttons to control the vibrator to turn left and right.
(3) Please note while operating rotation,Do not pull the hydraulic hoses,there will be the possibility of break.
(4) The rotation speed has been adjusted in installation work, approximately 10 RPM.Do not speed up the rotational speed and it is easy to cause the clamp action unstable or parts failure.

3.2 Operation step and technique

(1) Arrangement: Place the sheet piles on the appropriate location to facilitate accesS. Once clamp out two sheet piles,one for piling job,one for standby

(2) Clamp the pile:(Be sure to use a wire rope) Clamp the sheet pile and shake with a little vibration to remove the dust on surface

(3) Move the clamped pile:(Be sure to use a wire rope) Lift the sheet pile slowly and avoid shaking.And then move the pile to the point.Please pay attention to whether there are obstacles or personnel activities within the rotation range.

(4) Adjustment: Cooperate with the ground staff to measure the sheet pile is indeed connected the tie each other and vertically.

(5) Vibration: All verified,clamp the sheet pile and press the vibration trigger to start piling.Never swing the excavator while vibrating piling.

(6) Push down the arm: When the soil beside the sheet pile is loosen,push down the arm into earth.

(7) Boost vibration: If the performance is not good enough,padel the boost vibration to increase the vibrating power.

WARNING
Long time running of thevibrator will raise the temperature of gear box and shorten the life of bearings,motor and seals.
please do not overload. It will cause damage the parts or even dangerous.

4.1 Inspection and maintenance

4.1.1 Arm

(1) Because of different brands and models of hydraulic excavators,operator shall follow how to install bucket to install vibrator arm.

(2) Please complete clean the dirt and dust on the connectors and fittings of hydraulic pipes and hoses connections and fittings while connecting or disconnecting.

(3) Make sure there is no leak and loosen on the hydraulic hoses,fittings and connectors.

(4) Make sure to plug the bolts into the axels on vibrator arm to prevent danger.

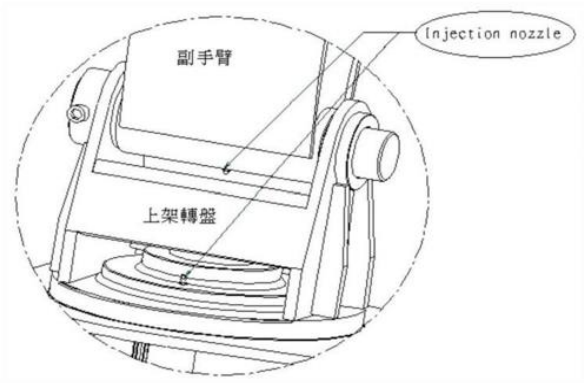
(5) Grease at each pin and axel!

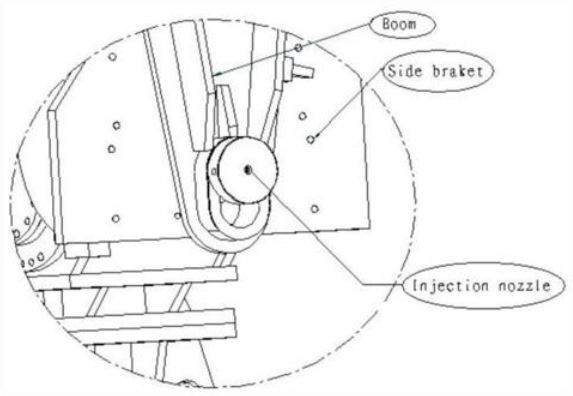
4.1.2 Vibrator (1) Always confirm and tighten the bolts on motor,damping rubbers,hydraulic hoses everyday.

(2) Please check,tighten and grease all the pins and axels around the hanger. Lubricant points (refer to diagram recommended location)

(3) Regularly check the oil in gear box,due to excessive or deterioration of the oil will produce large viscosity and resistance and the motor will be overloaded.The vibration force will decrease and the gear box will cause overheating. Placed the vibrator vertically and loose the bolt on the oil leak hole to drop out the oil.

Grease lubricator





□ Can use a motor engine oil,please match with a local weather condition to choose an engine oil,so as not to damage a parts. □The amount of oil should centrally order for normal

□Can not be lower than a lowest oil line(namely engine oil should from the oil bore run off)

□Such as is lower than an oil the line then mean to save oil shortage to need to add into an oil line just can

□After using for 150 hours in a row or should periodically check weekly,every month should replace an engine oil.

(4) Please check an accepting of wheel gear box to press cover and side to cover if etc.leaks oil.

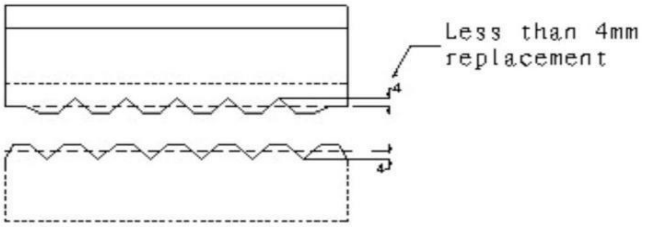
(5) Please confirm to reduce to flap if the rubber damages and cracks.

(6) Please confirm to ventilate device don't leak oil.

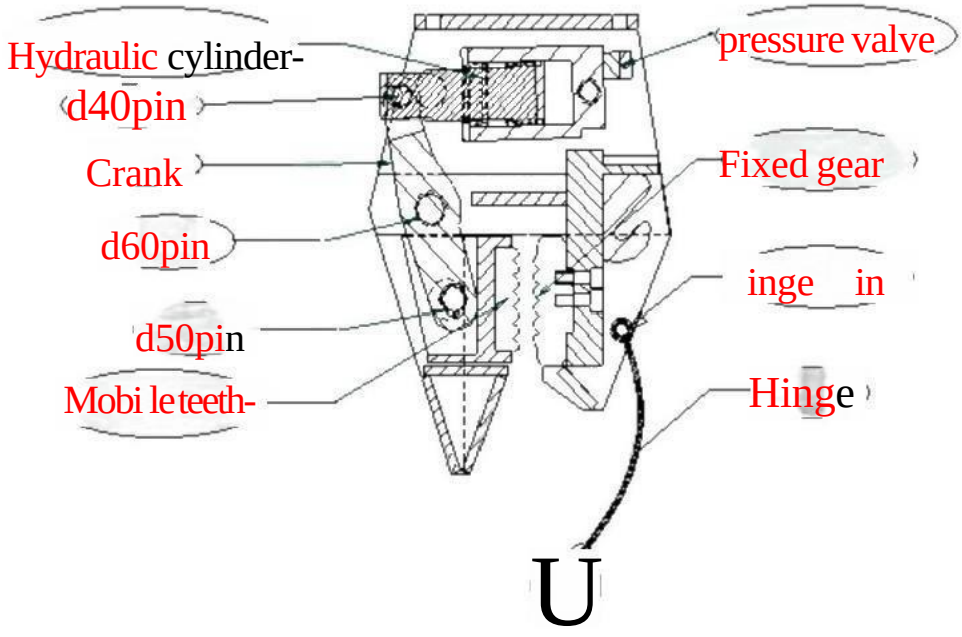
(7) lf the stud bolt loosens or throws to lose, please immediately replace.

4.1.3 Clip a mouth

(1) Please confirm to install to clip whether the stud bolt of mouth essence loosens and sheds off,hydraulic urn have to gastight oil.
(2) Please check to clip mouth Chi a piece whether wear away.Exceed the diagram size above then should replace.



(3) Usually clear and sweep to clip a mouth to connect a ground of mud of part,stone.
(4) Please check to clip the mouth sells to carry in each stalk whether the fixed wreath of department takes off to open, and the stalk sells whether folding is curved,be fixed wreath to take off to open,the stalk then sells to have loose danger.
(5) Please confirm a hydraulic urn the link sell,the central axis sells to wait part to have no bias or transforms.
(6) Please sell place to add to note lubricant in each stalk.
(7) After replacing to clip the hydraulic tube on the mouth, hydraulic urn,have to immediately operate a hydraulic urn, carry on clipping a mouth Clip to put 5-6 times,exhaust memory air and confirm the activity of each joint don't have excrescent voice



4.1.4 Hydraulic excavation machine

Because the hydraulic scoops out machine size and style different,is well confirming of foundation up,should scoop out the main theme that the machine maintains according to the hydraulic.The big part excavation machine all can match with, please read the hydraulic excavation machine companies to publish of relevant elucidation.

4.1.5 Control hand handle and electric circuit box

(1) Please an attention assurance the power already safety mount to scoop out machine electric cell.

(2) Please make sure that having no electric wire is loose and splits,the fuse has no Rong to break.

(3) Not the technical personnel authorized by our company cannot arbitrarily dismantle to unload circuitry, otherwise not to protect to fix.

(4) Please usually notice from drive a pile machine head the circuit that connect to come over have already had no collision or damage.

4.1.6 The hydraulic takes care of road and oil road control valve

(1) Please notice to combine careful check pipeline whether have already transformed to leak an oil circumstance, should clean up after using a period of time,clearance stick to of oil,mire and dust.

(2) Each piping connects if has already leaked oil or crack.

(3) Please make sure each connect have been tightly solid.

(4) When the hydraulic tube needs to be replaced,please act according to original tube length,notice to hang a degree, can not lead tightly.

(5) Each adjustment knob on the oil road control valve at factory already has been adjusted school tightly,and the personnel adjusts to try after the spot gearing. Unless our company authorizes of the technical personnel strictly forbid to arbitrarily transfer oil road initial value,if because of transfer result in the machine carry change but damage,our company not to protect to fix.

4.2 Check item and check timetable

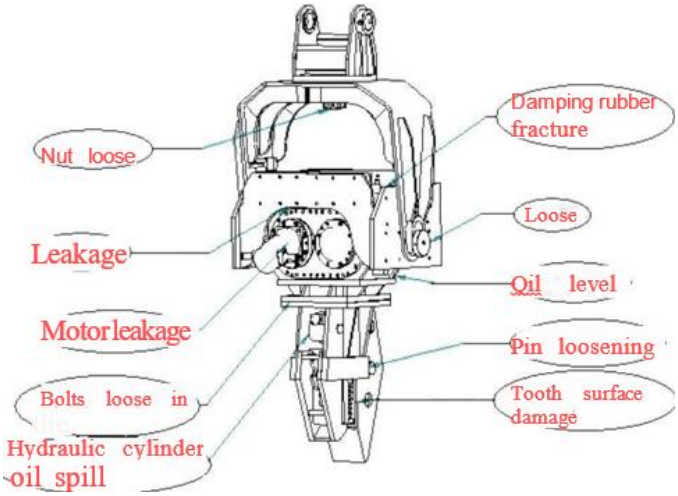
4.2.1 Check item and check timetable

Ordinal number	Check item \ Check period	Every day	Every week	Every month	Three month	Six month	Every year
	Each stud bolt and Luo mother of loose move, shed off and each part of cracked.	√					
2	Is each sell to nail and revolve bearings of cracked wear away.	√					
3	The amount of oil that drives a pile machine, and exhaust sweeping of clots.	√					
4	Reducing the harm of shaking the rubber is cracked.	√					
5	Drive a pile leaking of the machine hydraulic tube, each parts oil.	√					
6	The hydraulic urn leaks oil, and the safety protects device of range estimation.	√					
7	Clip mouth Chi to wear away.	√					
8	The test that clips a mouth to bite to match.	√					
9	The harm of hydraulic tube, leak oil and Ning tight.	√					

10	The hydraulic-pneumatic normal indicator, the harm of switch, revolves.	√					
11	Leak oil from the hydraulic-pneumatic device piping.	√					
12	Operate the harm of hand handle and break line.	√					
13	Wheel gear the difference inside the box ring.		√				
14	Is each sell to nail and axis of revolution of the sticky dense lubricant be in need of.		√				
15	The amount of oil, dirty mark and motor that drives a pile machine lines up quantity.			√			
16	The engine oil that drives a pile machine replaces.			√			
17	The hydraulic motor bearings wears away.				√		
18	The hydraulic motor installs part of seal completely.				√		√
19	Drive a pile cleaning up of machine inner part.				√		√
20	Comprehensive the function try an				√		√

4.3 Check a counterplan by oneself

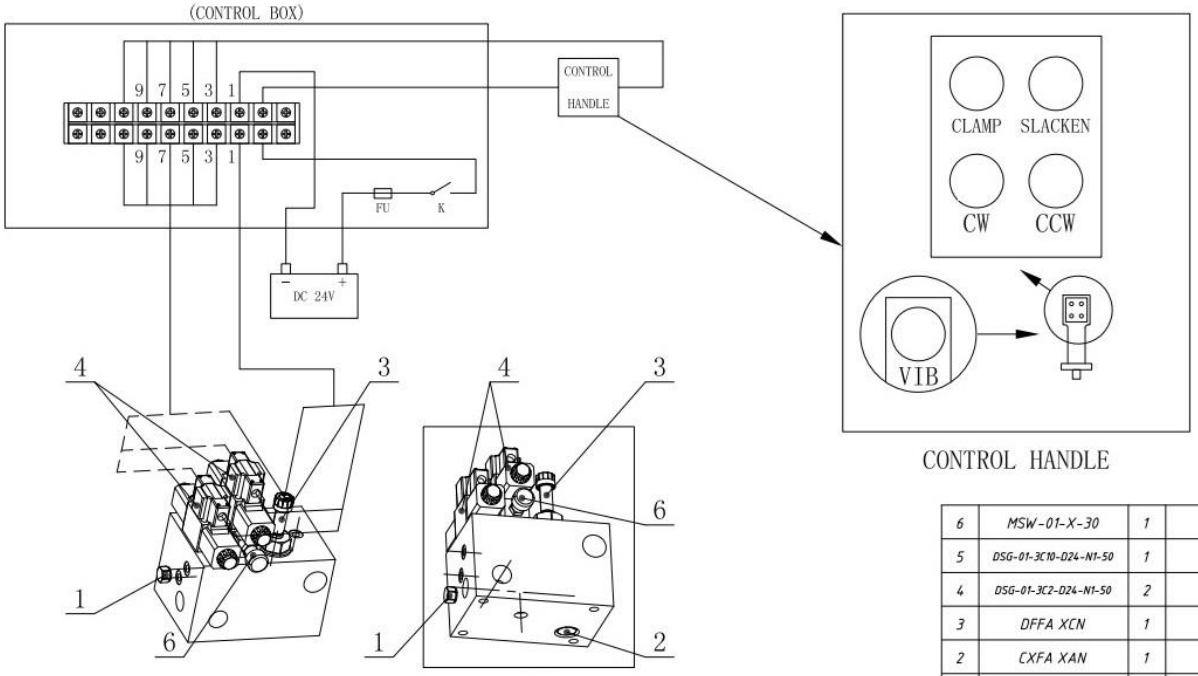
Check main part to is shown as diagram below by oneself:



Chapter5 Fault and Troubleshooting

Items	Inspection	Essential	Normal	Troubleshooting
1	Loosening bolts, nuts and cracking part	Visual inspection and check with wrench	No loosen or broken	Tighten or replacement
		Visual inspection the creak	No creak	Welding repair or replacement
2	Cracking and wear of pins and axis	Visual inspection	No creak	Replacement
3	Gear box oil and breather clean	It should not be lower than the minimum oil level line (ie, the oil flows out from the hole)	No broken or exceeded	Add or replacement
4	Cracking and damage of damping rubber	Visual inspection	No break	Replacement
5	Leaking of hydraulic hoses and the components	Visual inspection	No leakage	Repair
6	Leaking of hydraulic cylinder and holding valve	Visual inspection	No leakage	Repair
7	Wear of tooth block	Visual inspection	Exceed the level	Replacement
8	Tooth block occlusion test	Put a 6mm steel plate and clamp	No clearance	Repair or replacement
9	Hydraulic hoses damage, tighten	Visual inspection	No broken	Replacement
		Clean the dirt and give pressure	No leakage	Tighten or replacement
		Visual inspection	No broken	

10	Circuit wire damage,cut and short	Check with multimeter	No short	Repair or replacement
11	Lubricate thepin and the axis of rotation	Visual inspection	Grease	Grease
12	Gear box oil,dirt and hydraulic motor	Visual inspection the hole and clean		Add and clean
13	Gear box oil change		150 working hours	Replacement
14	Gear box bearing wear	Visual inspection the wear Un-usual sound or temperature Check with thickness gauge	No overheating or wear	Replacement
15	Hydraulic motor bearing wear and seal	Visual inspection Un-usual sound or temperature	No leakage Normal relief oil flow	Repair or replacement
16	Comprehensive performance test	Inspect as Chapter 2	Normal	



6	MSW-01-X-30	1	
5	DSG-01-3C10-D24-N1-50	1	
4	DSG-01-3C2-D24-N1-50	2	
3	DFFA XCN	1	
2	CXFA XAN	1	
1	CXDA XCN	1	

Chapter 6 electrical installation schematic diagram

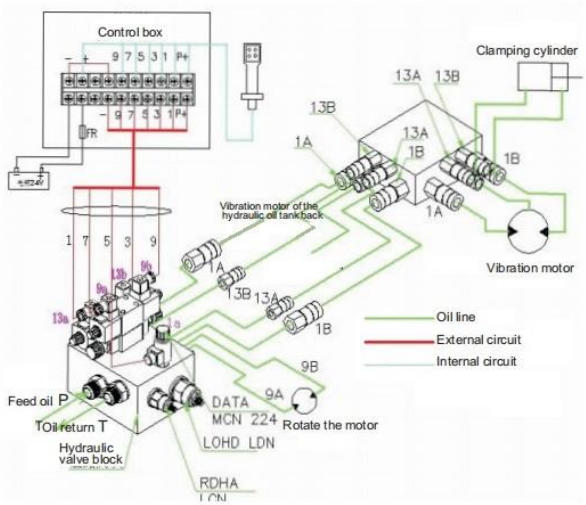
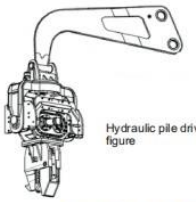


Diagram of pile driver installation steps


Hydraulic pile driver entity rendering


Hydraulic pile driver simplified figure


1 Settle the clamp.

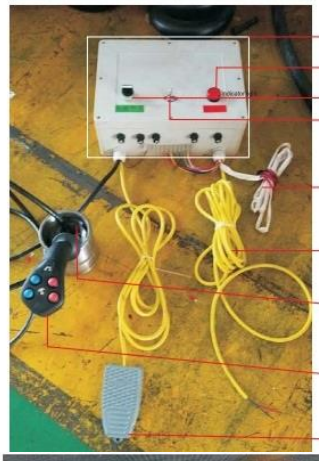

2 Match the holes


3 Tighten the screws


4 Connect the clamp onto the vice arm and fix by pins

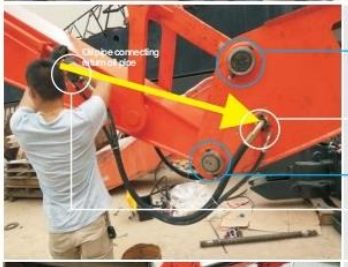
.attachments
an Al Shirawi Group Brand

5 Pin connection



Electric box
Indicator light
Power switch
Vibrating and clamp buttom, you can adjust left or right to see if the action is correct.
These two electromagnetic valve lines (black and red) connect onto the electromagnetic valve
The total power line connect onto the excavator battery, 24V
Take down the right side of the hand shank and install on this one.
Blue button is for clamping action and red button is for rotation action.
Vibration feet valve

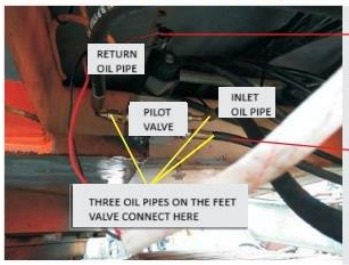
18m long cords connect into the fuel tank and color match color
Red color connect onto red color cord and black connected with white color cord, these are secondary vibration power lines.



Pin connection
Oil pipe connecting, return oil pipe, return to the fuel tank
Pin connection
Oil pipe connecting, return oil pipe,

Outlet pipe line connecting point
Electric cords connect point and follow the hydraulic breaker oil pipeline.

The secondary vibration confluence valve
Walking oil pipe line
Oil pipe for hydraulic breaker pipe line
Yellow color is confluence valve power cords which need to connect onto the electrical box.



Here connect red and black color two lines on the electricty box.
The oil pipe return to your hydraulic breaker pipe line(Should be the bottom pipe line on your feet valve)

Connect for vibrating motor inlet oil pipe
Connect for clamp oil pipe

These two small thin oil pipes connect the rotation motor.
White color pipe line(most thick oil pipe) is return pipe line to the electromagnetic valve
Yellow color pipe line(second thick oil pipe and longest one) is return pipe line to the fuel tank