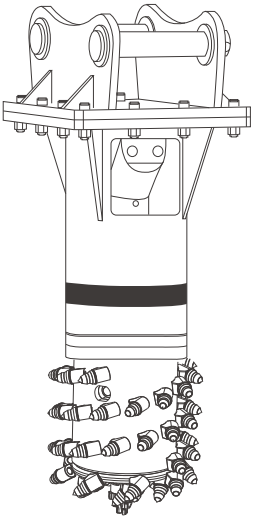
YICHEN

MAKE YOUR
EXCAVATOR
VERSATILE

MANUAL

AXIAL DRUM CUTTER



This manual is applicable to all products of Yichen Axial Drum Cutter series.

- Thank you for purchasing our products. Please pay attention to the instructions for safe operation before use. Please keep the manual properly after reading for future reference.
- Due to the continuous improvement of the company's products, the contents of the manual will also be updated. Please contact our company to obtain the latest version of the manual.


YICHEN

COMPANY PROFILE

Ningbo Yichen Environment Tech Co., Ltd. is a high-tech enterprise specializing in R&D and manufacturing of excavator attachments and environmental engineering equipment. Its main products are drum cutters, rock saws, crusher buckets, screening buckets, earth drills, and soil stabilization systems.

Our predecessor is Ningbo Ant Heavy Industry. The company has continued more than 20 years of experience. Our products are exported to dozens of countries such as the United States, Australia, Britain and Southeast Asia, and are widely used in the fields of new and reconstructed highways, airports, tunnels, bridges, heavy engineering infrastructure and so on. At present, it is a well-known cooperation unit of top 500 enterprises such as State Grid Corporation of China, China Communications Construction, China Railway Construction Corporation, China Railway Group, XuGong Group and Sany group, and has provided products and technical services for a long time to provide strong support for urban construction, municipal administration, transportation and water conservancy.

Ningbo Yichen Environment Tech Co., Ltd. is a member of China engineering machinery, and a member of China Engineering Machinery Industry Association. While creating social and economic value, Yichen has reached a consensus with customers to reduce pollution and reduce public hazards and leave a beautiful environment to the next generation.

MAKE YOUR EXCAVATOR VERSATILE

CONTENTS

1. INTRODUCTION

Congratulations on purchasing the Yichen Axial Drum Cutter. This series of Axial Drum Cutter is designed and manufactured with the most advanced technology. If it is properly used and maintained, it will serve you for many years.

The purpose of this manual is to give you a comprehensive understanding of the machine and its safety operation specifications, including information on how to structure the product, how to install it correctly, how to use and maintain it correctly, and how to query common faults.

The personnel responsible for use, installation, operation and maintenance shall carefully read and understand this manual before use, installation, operation and maintenance.

If the operator violates the way required in the manual, Ningbo Yichen Environment Tech Co., Ltd. (Yichen) will refuse to take any responsibility.

If any modification or modification is not allowed in the manual, the company will not assume any responsibility and warranty.

This operation manual or copy must be kept in the operation room so that the operation and maintenance personnel of the milling and digging machine can use it at any time. For any problems related to use, including use, maintenance, repair, transportation, storage or removal, if the information to solve the problem cannot be obtained from the manual, the company must be contacted.

2. SYMBOL FOR ATTENTION

Attention

Improper use of the machine and improper maintenance operation may lead to serious injury or even death.

operators and qualified maintenance personnel shall carefully study all contents of this manual before using the machine or carrying out any maintenance operation.

the procedures and precautions outlined in this manual apply only when the machine is used for permitted purposes.

Use this symbol in the safety information in this manual and help avoid situations that may cause damage or injury. This information is also used to warn of hazards that may cause damage to the machine.

Important

This symbol is used when precautions need to be taken to avoid any operation that may shorten the service life of the machine.

The company's engineers have considered all reasonable uses or misuse that may lead to potential hazards. For this reason, the safety information contained in this manual may not include every possible safety precautions.

3. PRECAUTIONS - SAFETY

Most accidents that involve product operation, maintenance and repair are caused by failure to observe basic safety rules and precautions. An accident can often be avoided by recognising potentially hazardous situations before an accident occurs. A person must be alert to potential hazards. This person should also have the necessary training, skills and tools to perform these functions properly.

Yichen cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this manual and on the cutting unit are therefore not all inclusive. If a tool, procedure, work method or operating technique that is not specifically recommended by Yichen is used, you must satisfy yourself that it is safe for you and for others.

You should also ensure that the cutting unit will not be damaged or be made unsafe by the operation, lubrication, maintenance or repair procedures that you choose. The information and illustrations contained within this manual are on the basis of the information that was available at the time that this manual was written.

The specifications, torques, pressures, measurements, adjustments, illustrations and other items can change at any time. Ensure all the following safety instructions are read and understood prior to operating, performing and lubrication, maintenance and repair to avoid personal injury. Safety precautions and warnings are provided in this manual and on the cutting units. If these warnings are not heeded, bodily injury or death could occur to you or to others.

Attention

Installation personnel, operators and maintenance personnel must wear personal protective equipment (see section 5.2) or use relevant safety legislation enforced by the state.

Attention

If the installation personnel, operators or maintenance personnel do not wear appropriate safety tools and accidents occur, the company refuses to bear all responsibilities.

3.1 OBJECTIVE

The preparation of this manual provides a clear understanding of the installation, operation and maintenance of the Axial Drum Cutter. We have made every effort to provide information representative of the equipment we produce; However, some design features may be changed due to the requirements of special users.

3.2 GENERAL SAFETY PRECAUTIONS

The following list of general safety precautions shall be considered as guidelines only. The purpose of general safety precautions is to make all personnel aware of the dangerous factors and dangers around the equipment and in the work area.

3.2.1 GENERAL DESCRIPTION

The following safety statements in this manual are only intended to highlight the basic safety procedures. The safety information provided shall not be used as a substitute for insurance requirements, safety procedures, laws, rules and regulations.

3.2.2 SAFETY PROGRAM

The owner and operator of the machine are responsible for organizing the development of a safety program, which shall be consistent with good management practices and any applicable laws, acts or regulations. Plant personnel must be informed of any requirements, precautions or equipment related hazards. These factors must be communicated to all relevant personnel so that they have a clear understanding to ensure the safe implementation of equipment operation and maintenance.

3.2.3 SAFETY RESPONSIBILITY

The employer is responsible for ensuring safe and healthy working conditions for all employees. In order to comply with the health and safety at work act, employers are required to provide workplaces without risk factors that will not cause disease, injury or death to employees. It is the responsibility of employees to take the necessary measures, including the implementation of regulations, to ensure compliance. All copies of any summary of the employer's recruitment shall be posted in case of any violation or at any other specified place.

3.2.4 SAFETY CONSCIOUSNESS

Careful and safety conscious operators are the foundation of safe work and the best guarantee to prevent accidents. The safety of operators and other personnel depends on reasonable care and judgment during the operation of the equipment. In order to prevent accidents, operators of equipment must abide by safety rules and preventive measures, and learn how to identify dangerous factors before they become accidents.

3.3 PERSONAL SAFETY

- Read and understand all warnings, cautions and instructions in this operator's manual and the symbols fixed on the equipment.
- Read and understand any risk assessments that have been made for the equipment or procedures you operate.
- Place the list of all emergency telephone numbers next to the telephone, and inform all personnel in the work area of the location where the list of emergency telephone numbers is placed.
- All accidents must be reported to the relevant supervisor and the doctor or medical facility should be consulted as soon as possible.
- When working on or around equipment, use all handles, ladders, guard rails or any other safety devices. Use safety belt or safety belt if necessary.
- Always wear safety goggles when working in the area with flying debris and dust or in the environment required by the operating regulations.
- In areas where load noise is a problem, wear appropriate hearing protection equipment.
- When working on the site, you must wear safety helmet and safety shoes.
- Wear breathing apparatus or respirator when using paints, chemicals and solvents that may endanger health.
- Do not work around or operate the machine under the influence of any drugs, tranquilizers or alcohol.
- Be sure to take necessary precautions to keep hair, sleeves, trouser legs or any other loose clothing accessories away from moving parts or controls.
- Wear gloves when it is possible to prevent cutting, scratching, scalding and solvents.
- Whenever possible, use lifting and mobile equipment to assist in the work. Be sure to use your legs to lift the weight, not your waist.

3.4 EQUIPMENT SAFETY

- Equipment that is not properly prepared for operation is unsafe. The operator must read the instruction manual before operating the machine for the first time in order to learn the operation and maintenance characteristics, limitations and capabilities. The user should be familiar with the local working environment of the machine and the functions of the controller, indicators, warning symbols and instructions for careful operation.
- Do not remove, damage or change the warning signs or information signs installed on the equipment by the factory. Do not climb over the equipment during transportation or lifting.
- Before operation of the equipment, check all components for any damage or tendency to damage. Any failure shall be reported to the site supervisor.
- Check all fluid and lubrication systems for leaks and for correct levels. The loss of pressure due to the reduced oil level may cause serious hydraulic failure. Improper lubrication can cause bearing failure and damage.
- Do not adjust the pressure valve to obtain a higher operating pressure. Follow the manufacturer's guidelines for the recommended pressure.
- Check all vent valves to ensure that valves and fittings are firmly in place.
- Before operation of any equipment, check whether there are any tools, parts or other foreign objects under and around the equipment.
- Always follow the manufacturer's guidelines for starting, operating and shutting down the machine.
- Do not allow any unskilled or unauthorized personnel to operate the equipment without the supervision of a skilled operator.
- Be sure to use appropriate warning devices to alert others that the machine is about to start.
- Do not leave the equipment controller unattended. If you have to leave, be sure to have qualified operators take over your work.
- Be vigilant against any improper display readings, abnormal sounds, odors or visible defects during equipment startup and operation. If any unsafe conditions occur, the equipment shall be stopped in a safe manner.
- When any inspection, lubrication, adjustment or maintenance is required, the machine must be stopped and the equipment must be locked.
- When carrying out any inspection, lubrication, adjustment or maintenance, be sure to follow the manufacturer's guidelines.
- Always wear personal protective equipment (see Section 5.2) during operation. Keep a safe distance of 30m from the excavator and the drum cutter.

3.5 ELECTRICAL SAFETY

- Only qualified electricians are allowed to work on live parts of any device or equipment.
- It must be assumed that the circuit is live before the electrical test procedure is proven.
- Before performing any inspection, lubrication, maintenance or adjustment procedures, lock out and label the electrical / mechanical controller.

- Before operating any equipment, be sure to check any wires, cables or connectors that show signs of wear, cut, fracture or damage.
- Before operating any equipment, check whether the grounding wire, motor plug and power cable are firmly connected.
- When working in these areas, know the location of all electrical switch boxes on site and try to know the location of power lines and underground cables.
- Do not operate electrical equipment when it is raining or standing on a wet surface. Always disconnect the power supply under these conditions.

3.6 SAFETY OF PRESSURIZING SYSTEM

- Be sure to relieve the system pressure before performing any maintenance on pressurized system components.
- Be sure to relieve the system pressure before any internal inspection of the pressurized system vessel.
- If it is a damaged component, it should be replaced before pressurizing the system.
- Do not attempt to disassemble the pressurization system without proper operation of the equipment.
- Always follow the manufacturer's procedures when inspecting and repairing components of the pressurization system.

3.7 SAFETY OF FLAMMABLE AND HAZARDOUS MATERIALS

- Be sure to store flammable and dangerous materials in safe places and specially designed storage containers.
- Do not allow smoking or ignition around fuel tanks, hydraulic systems or other flammable material storage facilities.
- The fire extinguisher shall be fully charged and identified, and shall be located in the designated area during the whole working period.
- Always turn off all engines and motors when adding fuel or transporting flammable, combustible or hazardous materials.
- Always fill the fuel storage tank in a well ventilated area away from smoking materials, open flames, heaters or any other form of heat source.
- Do not start a diesel or gasoline engine in an enclosed space unless there is sufficient ventilation.
- Do not use flammable or combustible substances for cleaning purposes.
- When handling any flammable or combustible substance, be sure to follow the manufacturer's guidelines.
- Any inspection of the battery must be carried out in a well ventilated area.
- Dispose of wastes, discharged fluids and hazardous materials in accordance with all environmental policies and regulations.

Attention

When handling flammable and hazardous materials, always wear appropriate personal protective equipment (see section 5.2)

4. MOVEMENT AND TRANSPORT

If the weight and size of the Drum Cutter are known, the Drum Cutter must be handled and transported by specially skilled personnel. If the handling operator cannot see the complete Drum Cutter to be moved, another auxiliary operator is required to assist on the ground, but it shall be outside the range of the ground moving vehicle.

Before moving the Drum Cutter, consider:

All shields and covers are properly closed and secured.

Depending on the type of transport, it is necessary to protect the machine and its components against all possible stresses.

When the Drum Cutter arrives, the user shall:

Check the delivery of the Drum Cutter.

Check for damage (visible broken or dented shell plates) during transport. If this happens, notify the carrier immediately and inform the delivery of the goods "pending approval". In case of damage, a written report shall be prepared to the carrier within 6 days after the acceptance of the machine.

Storage of Drum Cutter:

Keep the Drum Cutter away from the transportation area.

Place the Drum Cutter on the wooden mat and maintain the maximum stability.

Attention

Pay attention to the transportation safety requirements indicated by the safety signs.

If the Drum Cutter needs to be stored for more than two months, please follow the following instructions:

Lubricate the different rotating points (central lubrication point) to prevent the equipment from being damp.

Store the Drum Cutter in a dry place at a temperature between – 5 ℃ and + 30 ℃.

Protect the Drum Cutter from dirt, dust and moisture.

5、GENERAL INFORMATION

Yichen Axial Drum Cutter is a direct drive design. In this design, a motor with large torque and low speed is installed between cutting heads with independent bearing assemblies. Assembling a high-power motor allows the customer's excavator to maximize its digging performance within its torque range. A high powered motor is selected to suit the hydraulics for excavators with a torque range capable of giving the maximum pick forces possible. The unit has its own hydraulic valve assembly incorporated within the body of the unit.

The Axial Drum Cutter Unit is suitable for mounting on any type of hydraulic machine or excavator provided the attachment carrier can supply the required power and machine stability is always ensured. The Axial Drum Cutter unit has the power and flexibility for a range of applications.

Yichen Axial Drum Cutter can also be installed with milling and digging cutter heads for other functions, such as grinding cutter heads and slotting cutter heads. Just remove the black milling and digging drum of the machine and install various construction cutter heads. You can also tell the staff of Yichen Company about your construction. We will order various cutter heads to be installed on the machine according to your working conditions to solve your construction problems.

These include:

- Tunnels and roadways: excavation and treatment of walls, roofs, corners,contours,trenches, etc.;
- Road engineering: cutting or excavation of concrete structures, side trenches, slopes and auxiliary facilities, cleaning of damaged cement or asphalt pavements, etc.;
- Water conservancy project: concrete structure treatment, riverbed cleaning, cleaning or dismantling of damaged structures, etc.;
- Municipal engineering: excavation or treatment of pipeline trenches,foundations, structures, cleaning or dismantling of damaged municipal facilities, etc.;
- Open-pit coal mining: excavation and mining of coal mines and mines, etc.

Attention

Please read this operation manual carefully before carrying out any operation of the crusher bucket.

5.1 LOCATION OF IDENTIFICATION AND LABELS (SAMPLE)

The cutting unit does not incorporate dust suppression sprays as standard equipment. The slow pick speed and type of strata generally excavated combine to reduce dust to make minimal levels. However, in those circumstances, where excessive dust levels are generated, appropriate counter measure should be adopted, for example externally mounted water sprays on the excavator boom and the use of personal protective equipment. In order to improve working efficiency and ensure functionality and safe operation of the machine, it is advised that the unit is handled correctly and proper maintenance and inspections is carried out at all times. Improper handling may result not only in problems with the machine, but may also negatively affect operating performance.

Please read this instruction manual carefully so that you are acquainted with the correct handling and operation. Items described in this manual are subject to change without prior notice.

5.2 CAUTION AND WARNING SYMBOLS

Great attention shall be paid to the design and construction of this equipment so that it can operate in a safe and effective manner. Any warning, caution and management symbols required for the use of the equipment shall be clearly located and securely connected. If these symbols are damaged during transportation or on site, they shall be replaced as soon as possible.

Attentin

Personal protective equipment (PPE) refers to protective clothing, hard hats, goggles or other clothing or equipment designed to protect the wearer from injury. Hazards handled by protective equipment include physical, electrical, thermal, chemical, biological hazards and airborne particulate matter. Wear protective equipment for the purpose of occupational safety and health related to work.

	**Management regulation symbol**: Protective clothing includes: work gloves. Exposed hands may be cut and worn by metal or stone when operating the machine.
	**Management regulation symbol:** Protective clothing includes: close fitting conjoined clothing. Loose clothing may be caught by the machine when operating the machine. Be sure to wear proper work clothes.
	**Management regulation symbol:** protective clothing includes: protective shoes. Protect the operator's feet from injury and prevent the operator from slipping.
	**Management regulation symbol:** Protective clothing includes: ear plugs, ear muffs, and anti noise helmet. When the machine is running, prevent noise from damaging the eardrum and causing hearing loss.
	**Management regulation symbol:** protective clothing includes: safety helmet. Prevent head injury.
	**Management regulation symbol:** Protective clothing includes: Glasses / goggles. When the machine is running, the dust generated by working may cause damage to the eyes. Always wear appropriate protective equipment to avoid eye injury and visual impairment.

	**Management regulation symbol:** Dust mask includes: N95 mask, surgical mask and industrial dust mask (national standard <GB2626-2006 self priming filter anti particulate respirator>).
	**Management regulation symbol:** When operating the machine, the dust generated by working may cause damage to the body. Be sure to wear appropriate dust-proof equipment to prevent dust from entering the human respiratory system.
	**Caution symbol:** In order to install and operate the device safely, this operation manual must be studied and understood in a complete manner.
	**Caution symbol:** During operation, personnel must keep a safe distance of at least 30m from the machine. The operator shall isolate the hazardous area. There is a risk of injury through the overturning of handle materials and devices.
	**Caution symbol:** During operation, the belt and moving parts may cause damage to the body, and clothing may be pinched and twisted in. In order to install and operate the device safely, high attention must be paid to prevent personal injury.
	**Caution symbol:** correct lifting point.
	**Caution symbol:** Hydraulic oil hose inlet.
	**Caution symbol:** Hydraulic oil hose outlet.
	**Caution symbol:** Hydraulic oil drain line to excavator.

6、SAFETY AND ACCIDENT PREVENTION

6.1 SAFETY

Ensure the area is clear of personnel before and during operation of the cutting unit. The cutting unit will produce small fragments that can be forcibly ejected and may cause injuries. Ensure no personnel or equipment are within this area. If anyone enters this area, stop cutting and turn off the engine of the excavator.

- When leaving the excavator, place the cutting head on the ground and turn off the engine.
- Never touch the cutting unit whilst the cutting drums are rotating.
- Always stop the engine and remove the keys when inspecting or servicing the cutting unit.
- Do not adjust hydraulic valves or any part of the hydraulic system while the machine is running.
- Always change frayed or damaged hoses immediately.
- Always use specified equipment and change at once if damaged.

6.2 OPERATION

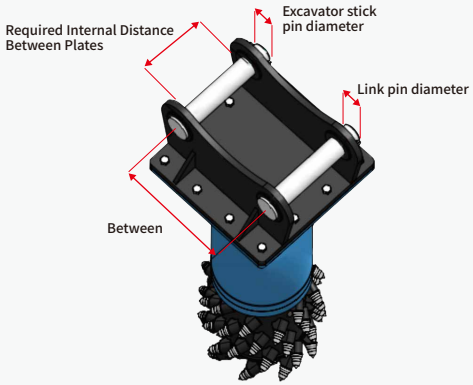
Ensure that the maintenance schedule has been adhered to before operating the machine.

- Only personnel with suitable training/knowledge are to maintain and operate the machinery.
- Operate the handles smoothly without jerking. If the cutting head stalls, back off the work equipment of the excavator. Do not overload the picks as this may cause damage to the cutting unit.
- Do not operate the cutting unit at the end of the stroke of a hydraulic excavator cylinder.
- Do not use the cutting drum with damaged or missing picks as this causes vibration and may damage the unit or excavator.
- The cutting unit should never be run in reverse rotation.
- Never try to cut with the unit while tracking the excavator as this may cause damage to the unit.
- Never place the cutting head against the working surface before starting the unit as this may damage the unit. The unit should be running and fed into the working surface at a rate that does not allow stalling.
- Cutting conditions are best if the cutting unit drums move into the direction of the attachment carrier. If the unit is moved sideways to achieve a larger cutting area, it must be ensured that the pressure on the excavator's boom, arm and cutting drum bearing is not too strong.
- Periodically check that the cutting head is clear of debris as this can affect the overall cutting rate.
- Always ensure that the cutting unit or any part of the unit is correctly attached during any maintenance work.
- The Ningbo Yichen Machinery Co.,Ltd. must be consulted before the cutting unit is used in wet environments or under water. Before the cutting unit can be used in such environments it has to be converted.

7、INSTALLATION

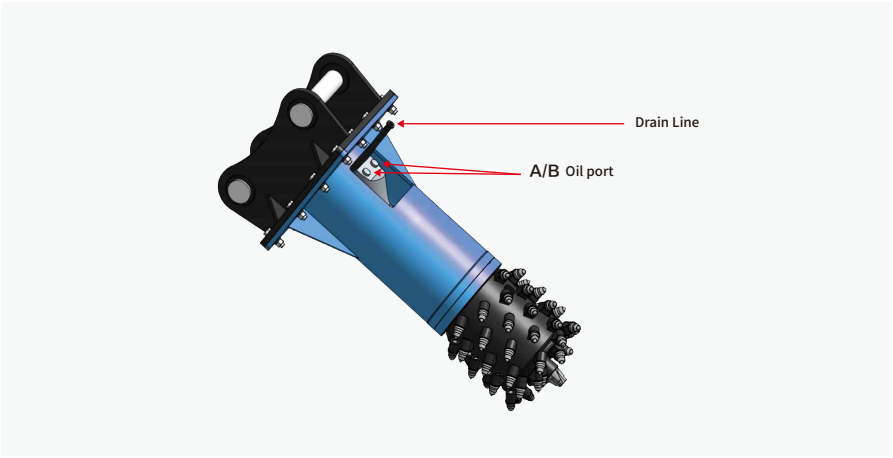
7.1 ADAPTOR BRACKET

The Transverse Drum Cutter requires an adaptor bracket to suit the excavator being used. Yichen can supply a bracket if the following information is supplied.



7.2 HYDRAULIC CONNECTION

The Hydraulic Cutting Unit revolves in 2 way direction.



TUBING

A/B OIL PORT

Model	Name	Specifications	Pressure	Rupture pressure
YD-05RD	2m x G1/2" bore hose	R9R	350bar	1400 bar
YD-10RD	2m x G1/2" bore hose	R9R	350bar	1400 bar
YD-20RD	2m x G1" bore hose	R9R	350bar	1400 bar
YD-30RD	2m x G1" bore hose	R9R	350bar	1400 bar

DRAIN LINE

Model	Name	Specifications	Pressure	Rupture pressure
YD-05RD	2m x G1/2" bore hose	Europulse	185bar	740 bar
YD-10RD	2m x G1/2" bore hose	Europulse	185bar	740 bar
YD-20RD	2m x G1" bore hose	Europulse	185bar	740 bar
YD-30RD	2m x G1" bore hose	Europulse	185bar	740 bar

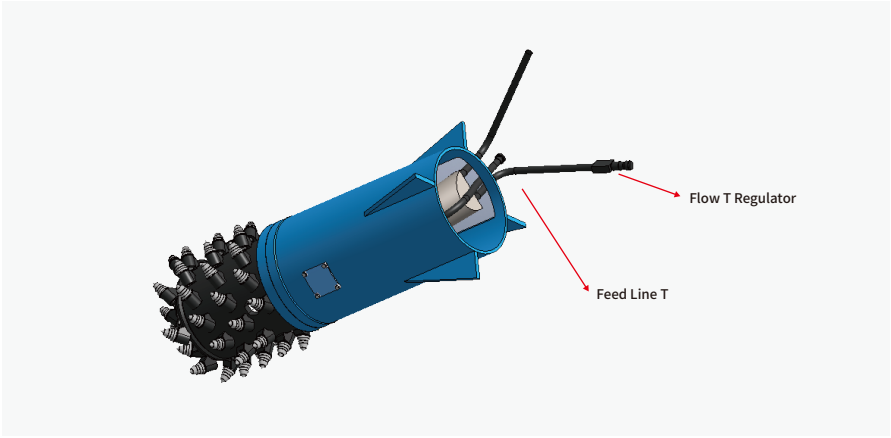
7.3 DETERMINING THE HYDRAULIC SETTINGS

Attention

A responsible person familiar with the workings of hydraulic systems must only carry out the following procedure.

It is imperative that the following procedure is carried out to ensure the Axial Drum Cutter is set up in accordance with the specification. Failure to do so may affect the warranty on the unit. The following will require an adjustable flow regulator with pressure gauge. It is recommended that a Start Up Kit (see Flow Regulator Kit) is obtained before the procedure is carried out.

1. First it must be established how the flow and pressure can be adjusted for the circuit intendedfor the Axial Drum Cutter.
2. Place the flow regulator into the excavator feed line.



3. With the unit off load (i.e. not cutting), and the flow regulator fully open, slowly increase the flow to the unit by increasing the excavator engine speed. The designed turning speed of the unit is 120RPM, the maximum is 150RPM.

SPEED

Model	The ideal speed	The maximum
YD-05RD	100–105 rpm	126 rpm
YD-10RD	95–98 rpm	124 rpm
YD-20RD	95–95 rpm	124 rpm
YD-30RD	83–85rpm	120 rpm

4. The pressure will now need to be measured. Ideally the pressure should be set as close to the excavator's main relief to help reduce heat generation as the cutting drums will be less likely to stall. Wind the flow regulator fully in until the cutting drums no longer turn. Set the pressure at the maximum possible, this is normally around 240 bar.

5. The hydraulic power that is being delivered to the AD10RD from the excavator must now be determined. This is the most important consideration when setting up the AD10RD. If too much power is being delivered the hydraulic motor of the AD10RD will fail prematurely. If it is too low the cutting performance will be reduced. Increase the restriction to the flow and note. the speed of the cutting drums and the pressure at the corresponding speed. Take readings in 50 bar steps. The following formula can then be used:
   Power in kW = (Speed in rpm x Pressure in bar x 4.18) / 600

6. Find the maximum value for the power. This value must not exceed 50 kW, if it does then the flow and / or the pressure must be reduced. As a guide if the material being cut is soft then it is recommended that the pressure is reduced, if the material is hard then the flow should be reduced.

PRESSURE TO BE REDUCED

Model	Rated power	Power found	Original setting	New setting
YD-05RD	25KW	30KW	205 bar	25/30 x 205 = 171 bar
YD-10RD	50KW	55KW	270 bar	50/55 x 270 = 246 bar
YD-20RD	95KW	100KW	320 bar	95/100 x 320 = 304 bar
YD-30RD	250KW	255KW	400 bar	250/255 x 400 = 392 bar

FLOW TO BE REDUCED

Model	Rated power	Power found	Original speed setting	New setting
YD-05RD	25KW	30KW	85rpm	25/30 x 85 = 68 rpm
YD-10RD	50KW	55KW	150rpm	50/55 x 150 = 136 rpm
YD-20RD	95KW	100KW	250rpm	95/100 x 250 = 237 rpm
YD-30RD	250KW	255KW	375rpm	250/255 x 375 = 368 rpm

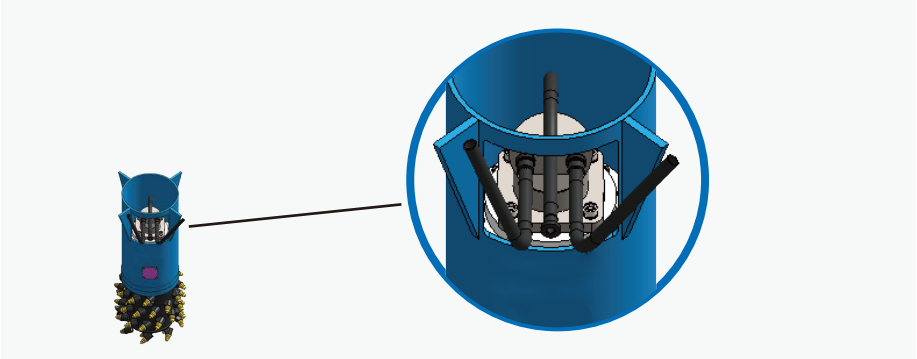
7.4 SWAPPING THE FEED AND RETURN LINES

Attention

A responsible person familiar with the workings of hydraulic systems must only carry out the following procedure.

The Axial Drum Cutterunit is supplied with the feed line on the left hand side (looking from operators cab) and the return line on the right hand side. If required the feed and return lines can be swapped to the opposite sides. To do this the hoses must first be swapped internally. The correct personal protective equipment must be used when exposed to oil and/or temperature.

1. Disconnect the feed, return and drain at the points shown.
2. Disconnect and swap the Hose Connectors.
3. Loosen the fittings at the points shown on the hydraulic block to allow the hoses to bend smoothly.



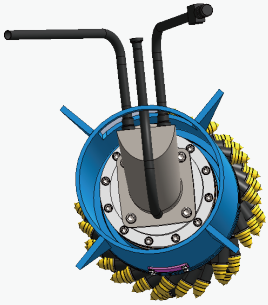
7.5 CONNECTING A DRAIN LINE

Attention

A responsible person familiar with the workings of hydraulic systems must only carry out the following procedure.

If oil is leaking from the relief line, and the hydraulic circuit cannot be altered to reduce the pressure in the return line, a drain line will have to be fitted. The following procedure will have to be followed:

1. Disconnect the drain line as shown.
2. Remove the plug from the housing. Use this plug to blank off at the point where the drain linewas removed.
3. Connect the drain line to the housing. 4. A suitable drain line (working pressure 50 bar) can now be connected to the unit. A minimum 1/2"bore hose must be used. The drain line should be connected to a filter.



7.6 POLLUTION AND FILTRATION

A low level of pollution will ensure that the moving parts of the hydraulic motor (piston, distribution) have a longer lifetime. A pollution level lower than class 9 of NAS 1638 is recommended (18/13 of ISO.4406).

Important

Failure to maintain the required filtration can affect the manufacturer's warranty on the hydraulic motor.

7.7 HYDRAULIC OIL

- Oil type HV 46 or 68
- HV mineral oils possessing improved viscosity / temperature properties (DIN 50524, part 3)..
- Class 46: Viscosity is at 40℃
- Class 68: Viscosity is at 40℃

If the oil type is below 46 centistokes at 40℃ (ISO HV46) the performance must be down-rated.

7.8 STARTING-UP

Before starting up, the pre-shift maintenance schedule must be performed and torque settings checked . Ensure the hydraulic circuit complies with the relevant technical description for the unit.
A new motor must not be operated off-load at high speed. Oil will not pass into the motor crankcase unless the unit is working , resulting in a lack of lubrication to the motor pistons.
Operate the unit for a period of around 20 minutes. Check the relief to atmosphere for leakage. A separate drain line may have to be fitted if leakage is present. However, it is not uncommon for a small amount of oil to be lost when the unit is started for the first time.
During the running in period the oil temperature should be checked –between 50°and 60°is acceptable. Under no circumstances must it exceed 80°. If this occurs, the cooling circuit must be redesigned. After the running in period the flows and pressures should be checked out and reset if necessary

7.9 UNDERWATER OPERATION

Axial Drum Cutter can be operated underwater to a depth of 30 meters. However, Yichen Environment Tech Co., Ltd. should be contacted if the unit is to be operated below 10 meters for a prolonged period of time.

Note: The drain line shall be connected before installation.

8、 FAULT FINDING

IF IN DOUBT ASK! - Seek Yichen Ltd for advice & repair. BE SAFE - only use genuine Yichen / parent machine spare parts.

MOUNTING FRAME - OPERATION

FAULT POSSIBLE CAUSE ACTION	FAULT POSSIBLE CAUSE ACTION	FAULT POSSIBLE CAUSE ACTION
Excessive movement in locating pins	Incorrect or worn locating pins Parent machine pin location / linkage frame pin location worn Damaged parts	Replace with correct new genuine parts Seek advice from parent machine dealer Seek advice from Auger Torque Europe Ltd/parent machine dealer. Only use genuine spare parts

CUTTING DRUM - OPERATION

FAULT POSSIBLE CAUSE ACTION	FAULT POSSIBLE CAUSE ACTION	FAULT POSSIBLE CAUSE ACTION
Cuttig drum does not rotate	No oil - ow	Check that quick releasecoupler(s) are correctly engaged to parent machine Check that parent machine hydraulic system is operating correctly and has sufficient oil of the correct grade
	Parent machine pressure relief valve faulty or set too low	Test, reset or replace to parent machine's specication
	Drive unit seized	Seek advice from Yichen.
Slow cutting speed / slow rotation of Cutting Drum Drive output shaft	Insucient oil - ow from parent machine	Check that parent machine hydraulic system is operating correctly and has sucient oil of the correct grade
	Incompatible Drive to parent machine combination	Check specication. Seek advice from Yichen.
	Worn Drive hydraulic motor possibly due incorrect or dirty oil supply	Seek advice from Yichen. Only use genuine spare parts. Change parent machine hydraulic oil and filter before fitting replacement drive unit.

Cutting drum stalls during work	Parent machine pressure relief valve faulty or set too low	Reset/replace pressure release valve to parent machine's specification
	Restricted oil - ow	Check for damaged or incorrect hydraulic hoses and connections
	Blocked hydraulic filter	Change parent machine lter and oil
	Excessive parent machine pressing force on cutting drum	Reduce pressing force
	Insucient parent machine hydraulic pressure	Check that parent machine oil pressure meets with the Drive Unit requirements

9、 MAINTENANCE

Attention

Qualified technical personnel can only carry out maintenance or repair work.

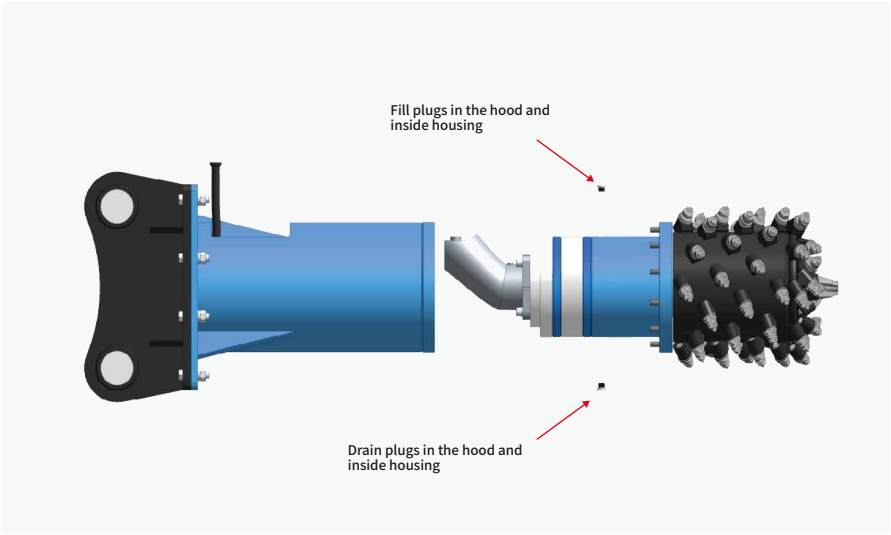
The following checks are recommendations for a maintenance schedule and should be altered according to usage and familiarity with the unit.

The operator must be instructed to wear the appropriate level of personal protective equipment when oils used in the hydraulic system. The used oil must be collected and stored in a suitable container, prior to disposal in an approved manner.

DURATION	CHECK
Weekly	Grease hitch and drive unit pivot pins.
After 30 days (or 100 hours) in first time on site use	Change the oil inside the gear box and fill with new oil
After first oil change, every 60 days or 200 hours	

9.1 OIL CHANGE PROCEDURE

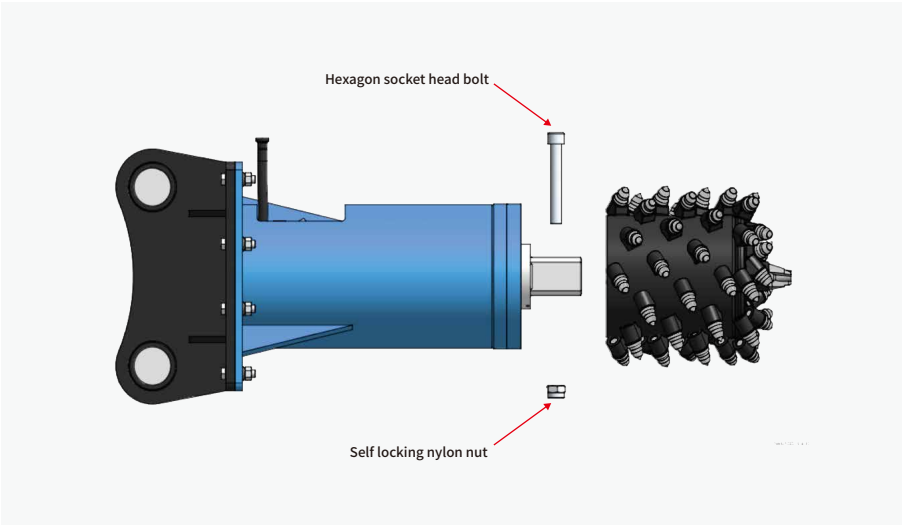
1. Before starting any maintenance work on this unit, read the instructions carefully and ensure you have the correct tools, materials and safety equipment to hand. NOTE: The procedure described below should be carried out by a competent and proficient
2. Remove drain & fill plugs using suitable tooling and allow oil to drain for a minimum of 30 minutes. For best results leave to drain overnight.
3. Refit drain plug and fill with oil.
   Note: Recommended to fill Mobil EP320 mineral gear oil , fill the oil inside the housing until the housing is fully filled.
4.. Refit fill plug.
5. Check for signs of leakage, refill as necessary.



9.2 REMOVING / REPLACING THE CUTTING DRUMS

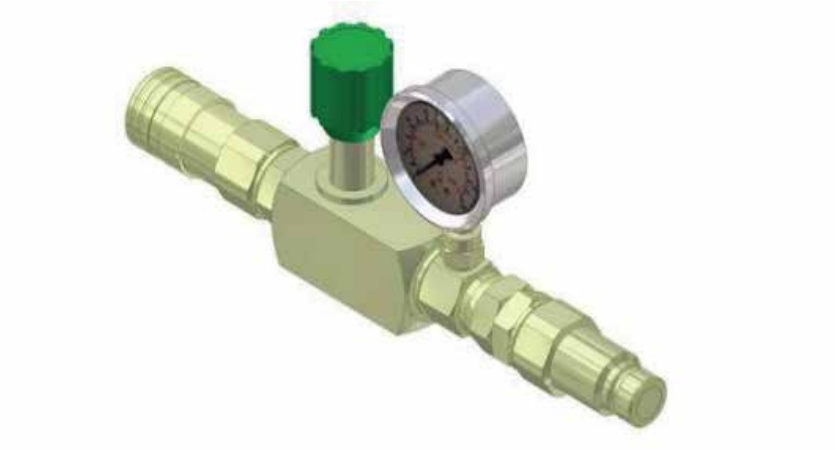
It is recommended that you contact Seller before attempting to undertake the following measures as your warranty may be affected.

1. Switch off the excavator.
2. Remove the 1 M30 x 230 hex bolt (grade 12.9) and nylon nut in the side of the cutting drum.
3. The drum can now be lifted off .
4. When the cutting drum is re-fitted, The bolts must be torqued to 2009 Nm. Care should be taken to prevent damage to the drive unit when replacing the drums.Care should be taken to prevent damage to the drive unit when replacing the drums.



9.3 FLOW REGULATOR KIT

The following Flow Regulator Kit (RWA-183)can be obtained from Ant Machinery to assist in the setting up of the Axial Drum Cutter.



10、 WARRANTY CONDITIONS

Axial Drum Cutter units are the result of a long-term experience in the feld of cutting units, Greatimportance is attached to the fact that our products meet the highest quality demands in design, material andmanufacture.
The warranty covers; 12 months parts, not exceeding 1 000 operating hours, however not later than 14 months after delivery.
The warranty period begins with the handing over to the end-user and/or commissioning of the unit.A warranty registration and an installation/commissioning document are contained at end of this section. These forms must be completed and returned to The Company, immediately upon receipt of the cutting unitin order for the warranty to be registered. Failure to do this will invalidate warranty.

Warranty can only be provided if:
- Delivery inspection, handing over and introduction are carried out according to regulations
- There is application for the right purpose.
- Inspection and maintenance regulations are strictly complied

with.These preconditions represent an important contribution to the prevention of damage, to operation readinessand lifetime.
In the case of warranty, The Company engage to bear direct material and assembly costs caused by theelimination of the damage. The Company will proceed from our spare parts prices. Only genuine The Company spare parts are allowed to be used for repairs (unless agreed with The Company).

10.1 WARRANTY ITEMS

Claims for repairs should be within 4 weeks after the date of damage.In the event of failure of a part covered by the warranty the user will make the failed part, which is the subjectof the claim, available for inspection at the premises of The Company or at the premises of a mutually acceptedthird party.
Defective parts have to be retuned in unchanged condition, carriage paid, Complete units such as hydraulicmotors, gears etc must not be disassembled or taken apart, Any parts returned for examination need to beclearly referenced to unit serial no.Should the part be found to have failed due to defects in design, workmanship or materials, subject to theconditions below, The Company shall replace all the parts free of charge CIF.Should The Company accept a warranty claim, The Company will compensate the spare parts which werenecessary to repair the damage at net prices, Costs for auxiliary material cannot be accepted in principle.

10.2 ITEMS NOT INCLUDED IN THE SCOPE OF THE WARRANTY

· Compensation for suspended work due to breakdown.
· Compensation for any work carried out, or costs incurred, due to breakdown.
· Compen sation for incidental or consequential damages of a hydraulic excavator due to breakdown
· Breakdown due to negligence of proper handling, operation, maintenance and inspection not inaccordance with procedures detailed in this manual.
· Loss of damaged parts.
· Breakdown caused by modifcations made by the customer without prior notice to The Company
· Breakdown caused by the use of parts other than those supplied by The Company
· Breakdown caused by the use of the unit for strata having excessive adhesion and abrasive characteristics.
· Breakdown caused by repair without prior notice to The Company.
· Breakdown caused by improper installation such as over pressure or excessive fow.
· The cutting head, cutting picks, cutting pick boxes, hoses, seals, oil and grease are seen as consumableitems and are not classed as warranty items.
· Expenses for oil, lubricants and fuels as well as other auxiliary materials.
· Expenses for downtime, transport and cleaning.
· Expenses for the elimination of the damage and disturbances of any kind that are not a result of our work during manufacture and assembly
· Expenses for parts, which probably failed due to normal wear, such as picks, pick holders, cutting drums,inspection and maintenance parts etc.
· Attachments not factory installed and or other modifcations which were made without The Company consent and due to improper operation by third parties.

11.3 HYDRAULIC CUTTING UNIT WARRANTY

REGISTRATION FORM

DATE OF RECEIPT OF UNIT:	
SERIAL NUMBER:	
APPLICATION / PROJECT NAME:	
CUSTOMER NAME:	
ADDRESS:	
TELEPHONE NUMBER:	
FAX NUMBER:	
E-MAIL ADDRESS:	
SIGNATURE:	
PRINT NAME:	
POSITION:	

Attention

This form must be completed and returned to Yichen, immediately upon receipt of the cutting unit in order for the warranty to be registered. Failure to do this will invalidate warranty.

11.4 HYDRAULIC CUTTING UNIT INSTALLATION/COMMISSIONING FORM

Dealer: N/A		
Dealer: N/A		
Customer: N/A		
Type of cutting unit:	Serial Number: N/A	Date of Manufacture: N/A

Putting into operation. Place /Date:.....

Job Description:.....

Excavator Type / Model and Serial Number:.....

Adaptor Bracket Details (see page 13):

- Stick Pin Diameter: .....
- Power Link Diameter:.....
- Distance Between Pins: .....
- Distance Between Plates: .....

Hydraulic Connection (see page 14):

- Return Line to Tank: .....
- Filter in Return Line:.....
- Maximum Cutting Drum Speed (rpm):.....
- Pressure Setting (bar): .....
- Power to Unit (kW): .....
- Relief to Atmosphere Leakage, Yes / No:.....

Hydraulic Oil Specification (see page 18):

- Oil Specification: .....
- Oil Manufacturer: .....

Underwater operation, Details (see page 19) .....

Further information if Known: Geology (Type, Compressive Strength, Abrasivity etc.)	Miscellaneous: Paint specification

The receipt of the cutting unit in perfect condition, the receipt of the operating instructions as well as the instructions obtained for the proper operation and maintenance of the hydraulic cutting unit and correct hydraulic connections and adjustment of the base vehicle (excavator) is confirmed herewith.

Place / Date	Name / Signature (dealer customer service)	Name /Signature (customer)

Important

In case of conversion / mounting of the cutting unit on a different excavator, a new report must be made!

ALL ENVIRONMENTAL ENGINEERING EQUIPMENT
SOLUTION SERVICE PROVIDER

YICHEN ENVIRONMENT TECH CO., LTD.

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