PALADIN®

OPERATOR'S HANDBOOK

TRENCHERS

UNIVERSAL SKID STEER LOADER APPLICATIONS

SERIAL NUMBER: _____

MODEL NUMBER: _____

Original
Part Number: 75635-X
Rev. 4

+33 (0)2 54 52 40 00 | www.dubuis.com
STANLEY Dubuis 17-19, rue Julee Berthonneau-BP 3406 41034 Blois Cadex, FRANCE
800-456-7100 I www.paladinattachments.com 503 Gay Street, Delhi, IA 52223, United States of America Copyright ©

H152 9-22-21-6

TABLE OF CONTENTS

H143 11-24-14-3

THIS PAGE
IS INTENTIONALLY
BLANK

PREFACE

GENERAL INFORMATION

This product was carefully designed and manufactured to give you many years of dependable service. Only minor maintenance (such as cleaning and lubricating) is required to keep it in top working condition. Be sure to observe all maintenance procedures and safety precautions in this manual and on any safety decals located on the product and on any equipment on which the attachment is mounted.

WARNING! Never let anyone operate this unit without reading the "Safety Precautions" and "Operating Instructions" sections of this manual.
Always choose hard, level ground to park the vehicle on and set the brake so the unit cannot roll.

Unless noted otherwise, right and left sides are determined from the operator's control position when facing the attachment.

NOTE: The illustrations and data used in this manual were current (according to the information available to us) at the time of printing, however, we reserve the right to redesign and change the attachment as may be necessary without notification.

BEFORE OPERATION

The primary responsibility for safety with this equipment falls to the operator. Make sure the equipment is operated only by trained individuals that have read and understand this manual. If there is any portion of this manual or function you do not understand, contact your local authorized dealer or the manufacturer to obtain further assistance. Keep this manual available for reference. Provide the manual to any new owners and/or operator's

SAFETY ALERT SYMBOL

This is the "Safety Alert Symbol" used by this industry. This symbol is used to warn of possible injury. Be sure to read all warnings carefully. They are included for your safety and for the safety of others working with you.

SERVICE

Use only manufacturer replacement parts. Substitute parts may not meet the required standards.

Record the model and serial number of your unit on the cover of this manual. The parts department needs this information to insure that you receive the correct parts.

SOUND AND VIBRATION

Sound pressure levels and vibration data for this attachment are influenced by many different parameters: some items are listed below (not inclusive):

- prime mover type, age, condition, with or without cab enclosure and configuration
- operator training, behavior, stress level
- job site organization, working material condition, environment

Based on the uncertainty of the prime move, operator, and job site, it is not possible to get precise machine and operator sound pressure levels or vibration levels for this attachment.

NOTE: A list of all Paladin Patents can be found at http://www.paladinattachments.com/patents.asp.

H002 7-31-13-4

THIS PAGE
IS INTENTIONALLY
BLANK

SAFETY STATEMENTS

THIS SYMBOL BY ITSELF OR WITH A WARNING WORD THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY OR THE SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.

DANGER — **THIS SIGNAL WORD IS USED WHERE SERIOUS INJURY OR DEATH WILL RESULT IF THE INSTRUCTIONS ARE NOT FOLLOWED PROPERLY.**

WARNING — **THIS SIGNAL WORD IS USED WHERE SERIOUS INJURY OR DEATH COULD RESULT IF THE INSTRUCTIONS ARE NOT FOLLOWED PROPERLY.**

CAUTION — **THIS SIGNAL WORD IS USED WHERE MINOR INJURY COULD RESULT IF THE INSTRUCTIONS ARE NOT FOLLOWED PROPERLY.**

NOTICE — **NOTICE INDICATES A PROPERTY DAMAGE MESSAGE.**

GENERAL SAFETY PRECAUTIONS

WARNING!

READ MANUAL PRIOR TO INSTALLATION

Improper installation, operation, or maintenance of this equipment could result in serious injury or death. Operators and maintenance personnel should read this manual, as well as all manuals related to this equipment and the prime mover thoroughly before beginning installation, operation, or maintenance. **FOLLOW ALL SAFETY INSTRUCTIONS IN THIS MANUAL AND THE PRIME MOVER'S MANUAL(S).**

READ AND UNDERSTAND ALL SAFETY STATEMENTS

Read all safety decals and safety statements in all manuals prior to operating or working on this equipment. Know and obey all OSHA regulations, local laws, and other professional guidelines for your operation. Know and follow good work practices when assembling, maintaining, repairing, mounting, removing, or operating this equipment.

KNOW YOUR EQUIPMENT

Know your equipment's capabilities, dimensions, and operations before operating. Visually inspect your equipment before you start, and never operate equipment that is not in proper working order with all safety devices intact. Check all hardware to ensure it is tight. Make certain that all locking pins, latches, and connection devices are properly installed and secured. Remove and replace any damaged, fatigued, or excessively worn parts. Make certain all safety decals are in place and are legible. Keep decals clean, and replace them if they become worn or hard to read.

H003 3-10-08

GENERAL SAFETY PRECAUTIONS

WARNING! PROTECT AGAINST FLYING DEBRIS

Always wear proper safety glasses, goggles, or a face shield when driving pins in or out, or when any operation causes dust, flying debris, or any other hazardous material.

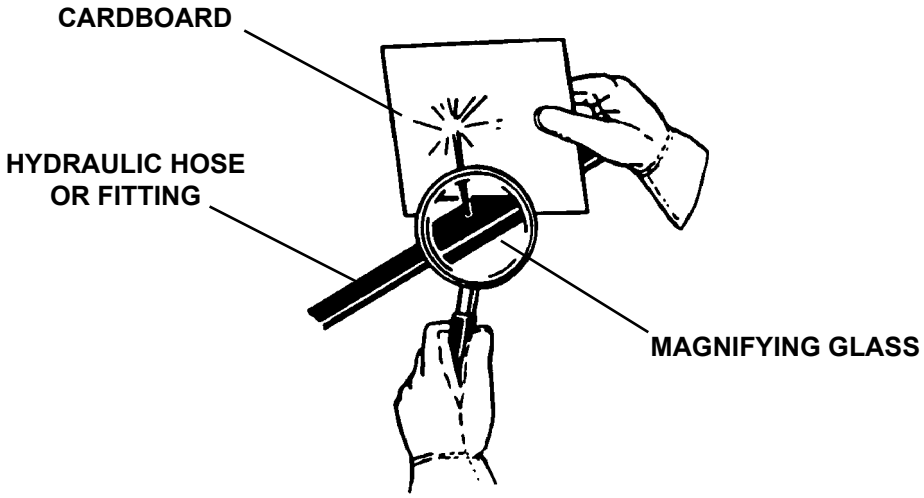
WARNING! LOWER OR SUPPORT RAISED EQUIPMENT

Do not work under raised booms without supporting them. Do not use support material made of concrete blocks, logs, buckets, barrels, or any other material that could suddenly collapse or shift positions. Make sure support material is solid, not decayed, warped, twisted, or tapered. Lower booms to ground level or on blocks. Lower booms and attachments to the ground before leaving the cab or operator's station.

WARNING! USE CARE WITH HYDRAULIC FLUID PRESSURE

Hydraulic fluid under pressure can penetrate the skin and cause serious injury or death. Hydraulic leaks under pressure may not be visible. Before connecting or disconnecting hydraulic hoses, read your prime mover's operator's manual for detailed instructions on connecting and disconnecting hydraulic hoses or fittings.

- Keep unprotected body parts, such as face, eyes, and arms as far away as possible from a suspected leak. Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities.
- If injured by injected fluid, see a doctor at once. If your doctor is not familiar with this type of injury, ask him to research it immediately to determine proper treatment.
- Wear safety glasses, protective clothing, and use a piece of cardboard or wood when searching for hydraulic leaks. **DO NOT USE YOUR HANDS! SEE ILLUSTRATION.**



H004 3-10-08

GENERAL SAFETY PRECAUTIONS

WARNING!

DO NOT MODIFY MACHINE OR ATTACHMENTS

Modifications may weaken the integrity of the attachment and may impair the function, safety, life, and performance of the attachment. When making repairs, use only the manufacturer's genuine parts, following authorized instructions. Other parts may be substandard in fit and quality. Never modify any ROPS (Roll Over Protection Structure) or FOPS (Falling Object Protective Structure) equipment or device. Any modifications must be authorized in writing by the manufacturer.

WARNING!

SAFELY MAINTAIN AND REPAIR EQUIPMENT

- Do not wear loose clothing or any accessories that can catch in moving parts. If you have long hair, cover or secure it so that it does not become entangled in the equipment.
- Work on a level surface in a well-lit area.
- Use properly grounded electrical outlets and tools.
- Use the correct tools for the job at hand. Make sure they are in good condition for the task required.
- Wear the protective equipment specified by the tool manufacturer.

SAFELY OPERATE EQUIPMENT

Do not operate equipment until you are completely trained by a qualified operator in how to use the controls, know its capabilities, dimensions, and all safety requirements. See your machine's manual for these instructions.

- Keep all step plates, grab bars, pedals, and controls free of dirt, grease, debris, and oil.
- Never allow anyone to be around the equipment when it is operating.
- Do not allow riders on the attachment or the prime mover.
- Do not operate the equipment from anywhere other than the correct operator's position.
- Never leave equipment unattended with the engine running, or with this attachment in a raised position.
- Do not alter or remove any safety feature from the prime mover or this attachment.
- Know your work site safety rules as well as traffic rules and flow. When in doubt on any safety issue, contact your supervisor or safety coordinator for an explanation.

EQUIPMENT SAFETY PRECAUTIONS

WARNING! KNOW WHERE UTILITIES ARE

Observe overhead electrical and other utility lines. Be sure equipment will clear them. When digging, call your local utilities for location of buried utility lines, gas, water, and sewer, as well as any other hazard you may encounter.

WARNING! EXPOSURE TO RESPIRABLE CRYSTALLINE SILICA DUST ALONG WITH OTHER HAZARDOUS DUSTS MAY CAUSE SERIOUS OR FATAL RESPIRATORY DISEASE.

It is recommended to use dust suppression, dust collection and if necessary personal protective equipment during the operation of any attachment that may cause high levels of dust.

WARNING! REMOVE PAINT BEFORE WELDING OR HEATING

Hazardous fumes/dust can be generated when paint is heated by welding, soldering or using a torch. Do all work outside or in a well ventilated area and dispose of paint and solvent properly. Remove paint before welding or heating.

When sanding or grinding paint, avoid breathing the dust. Wear an approved respirator. If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

WARNING! END OF LIFE DISPOSAL

At the completion of the useful life of the unit, drain all fluids and dismantle by separating the different materials (rubber, steel, plastic, etc.). Follow all federal, state and local regulations for recycling and disposal of the fluid and components.

OPERATING THE TRENCHER

- Block off work area from bystanders, livestock, etc. Stop operation if bystanders or livestock enter the work area.
- Operate only from the operator's station.
- Never drop a boom with a rapidly moving digging chain on the ground. The force of the trencher may cause the vehicle to move suddenly and unexpectedly.
- Use caution when operating on slopes. The natural vibration will cause the unit to creep sideways downhill. Try to dig with trencher in a level position.
- Do not adjust relief valve settings. Incorrect valve settings could result in equipment damage and/or personal injury.
- An operator must not use drugs or alcohol, which can change his or her alertness or coordination. An operator taking prescription or over-the-counter drugs should seek medical advice on whether or not he or she can safely operate equipment.
- Before exiting the prime mover, lower the unit to the ground, turn off the prime mover's engine, remove the key and apply the brakes.
- Do not use the trencher crumber bar or chain as a step when climbing in or out of the prime mover.
- Be alert to changes in the work area. Watch out for bystanders, changes in weather and soil conditions.

H052 11-16-10-2

EQUIPMENT SAFETY PRECAUTIONS

OPERATING THE TRENCHER

- Do not make sharp turns while trenching. Trencher could become wedged in the trench and damaged.
- Keep equipment and bystanders away from the trencher after it has been dug. The weight could cause a cave in.
- If chain becomes jammed, never attempt to free it while the unit is running. Stop the unit, shut off the engine and review the situation.

TRANSPORTING THE TRENCHER

- When driving on public roads use safety lights, reflectors, Slow Moving Vehicle signs etc., to prevent accidents. Check local government regulations that may affect you.
- Do not drive close to ditches, excavations, etc., cave in could result.
- Do not smoke when refueling the prime mover. Allow room in the gas tank for expansion. Wipe up any spilled fuel. Secure cap tightly when done.
- When transporting keep the trencher as low as the terrain will allow.

MAINTAINING THE TRENCHER

- Before performing maintenance, lower the attachment to the ground, turn off the engine, remove the key and apply the brakes.
- Never perform any work on the attachment unless you are authorized and qualified to do so. Always read the operator service manuals before any repair is made. After completing maintenance or repair, check for correct functioning of the backhoe. If not functioning properly, always tag “DO NOT OPERATE” until all problems are corrected.
- Worn, damaged, or illegible safety decals must be replaced. New safety decals can be ordered from Paladin.
- Never make hydraulic repairs while the system is under pressure. Serious personal injury or death could result.
- Never work under a raised attachment.
- Replace all safety shields and guards when done performing maintenance. Do not operate trencher with protective equipment removed.

H053 11-16-10-2

PREOPERATION

TRENCHERS FOR SKID STEER LOADERS

Your skid steer **MUST** have auxiliary hydraulics to run the trencher. If your unit does not have an auxiliary hydraulic system, contact your skid steer dealer for information on availability.

625 TRENCHER

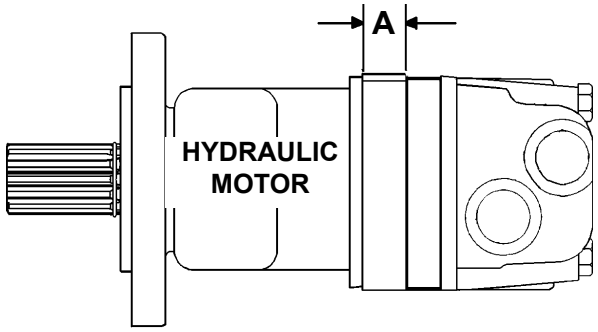
The hydraulic kits for the 625 Trencher include two hoses that connect to the auxiliary hydraulic system.

640 TRENCHER

The hydraulic kits for the 640 Trencher include hoses, fittings and couplers that connect to the auxiliary hydraulic system of your skid steer. Be sure you have the correct hydraulic kit for your trencher and skid steer.

There are different motors and hydraulics available on the 640 trencher. The 640A and 640B are standard flow trenchers and **MUST NOT** be used on high flow systems or damage to the unit will occur. The 640C is a standard flow trencher but can be used in certain high flow applications with the addition of a case drain line. The 640D and 640E are high flow trenchers and **MUST NOT** be used on standard flow hydraulic systems due to unsatisfactory performance. Please verify hydraulic flow compatibility between the trencher and the skid steer before installation.

NOTE: The recommended GPM (LPM) of your motor can be determined by measuring the rotor thickness (A) which will in turn determine the displacement. Refer to the following chart.



Rotor Dimension (A)		Displacement IN^3	Displacement CM^3	Recommended GPM	Recommended LPM	Motor Part Number
.77"	(1.96 cm)	7.7	126	14-17	53-64.4	#101493 (640A)
1.00"	(2.54 cm)	10.0	164	18-24	68.1-90.8	#101494 (640B)
1.25"	(3.18 cm)	12.5	205	25-28	94.6-106	#102311 (640C)
.87"	(2.21 cm)	15.6	256	29-35	109.8-132.5	#101763 (640D)
1.00"	(2.54 cm)	17.9	293	36-44	136.3-166.6	#101845 (640E)

OPTIONS

Eventually you may wish to dig a trench of a depth or width other than what your unit was originally equipped to dig. The 625 & 640 trenchers can be fitted with optional booms, digging chains, sprockets and crumber assemblies to allow you to dig a variety of different size trenches with a digging chain option of a tooth every station or every other station. The following chart will give you an idea of the different trench depths and widths a properly equipped unit is capable of digging.
For more detailed information refer to “Digging Chain Options” in this manual.

TRENCH DEPTHS*	TRENCH WIDTHS			
30 in. (76.2 cm)	6 in. (15.2 cm)	8 in. (20.3 cm)	10 in. (25.4 cm)	12 in. (30.5 cm)
36 in. (91.4 cm)	6 in. (15.2 cm)	8 in. (20.3 cm)	10 in. (25.4 cm)	12 in. (30.5 cm)
42 in. (106.7 cm)	6 in. (15.2 cm)	8 in. (20.3 cm)	10 in. (25.4 cm)	---
48 in. (121.9 cm)	6 in. (15.2 cm)	8 in. (20.3 cm)	---	---
640 TRENCHER ONLY				
60 in. (152.4 cm)	6 in. (15.2 cm)	---	---	---

*Trench depths are given with digging boom at an optimum 65° digging angle and the skid shoe touching the ground. Trenches of various depths can be made by varying the digging angle and raising the trencher up. However, these methods are less efficient.

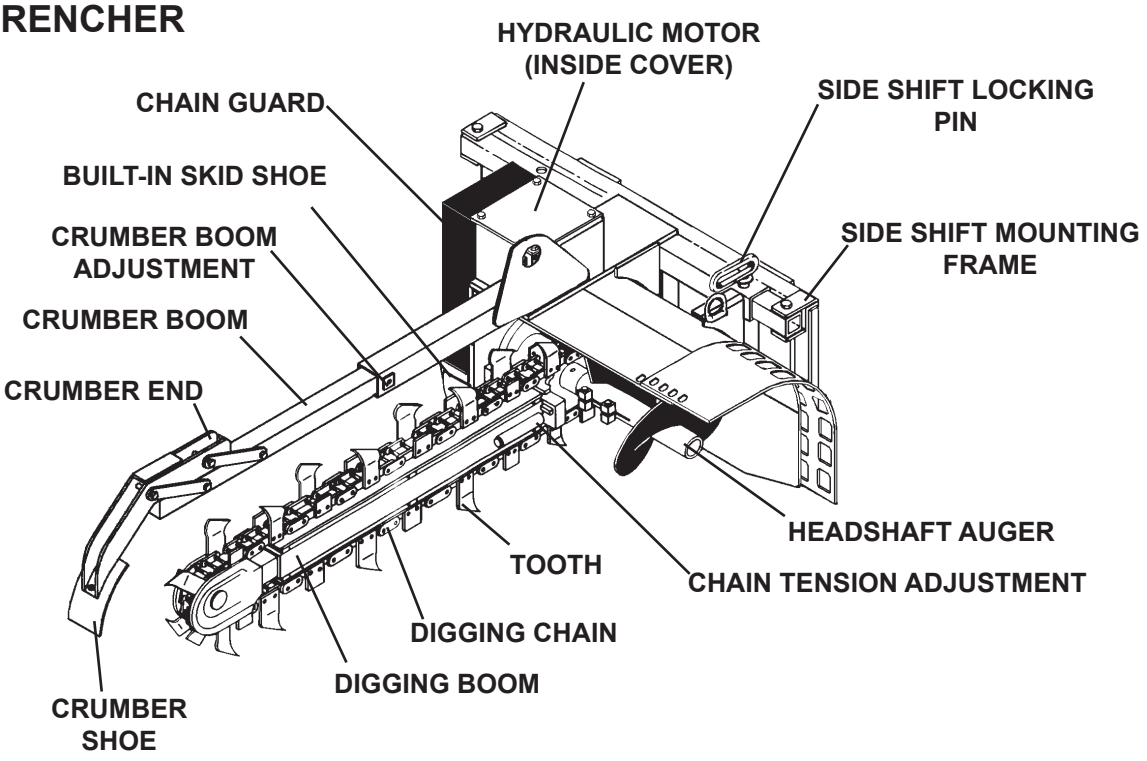
NOMENCLATURE

TRENCHERS

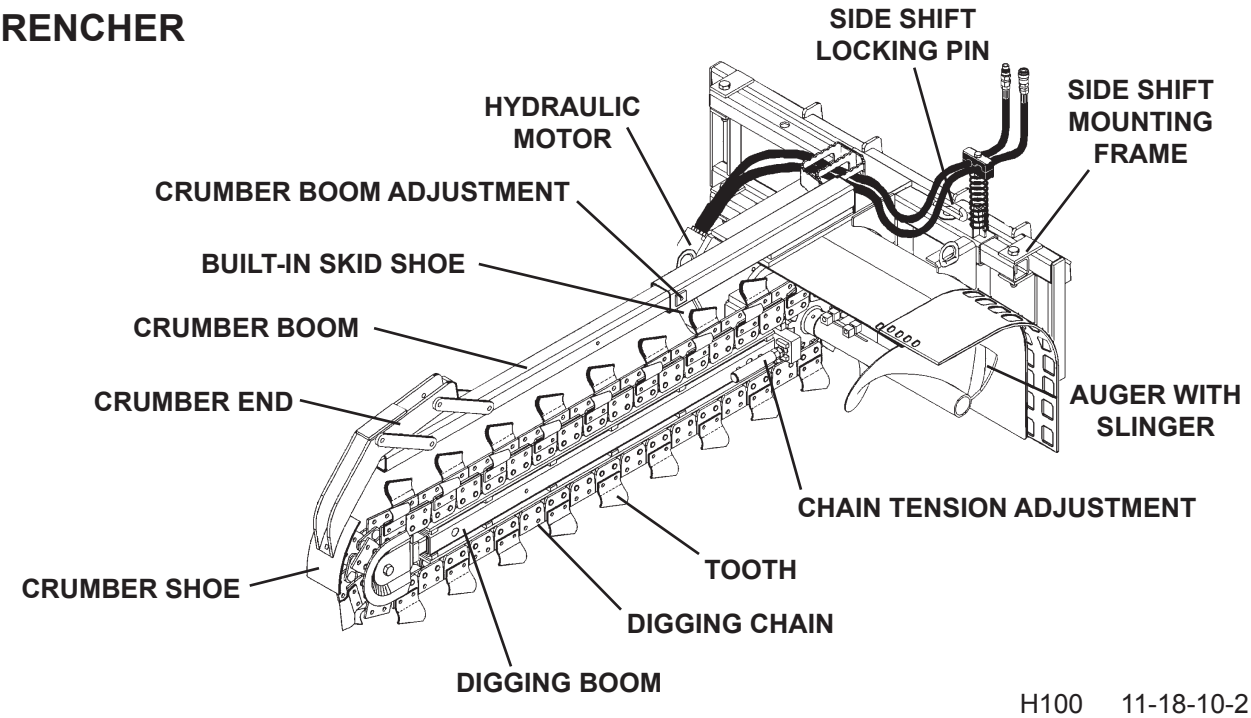
GENERAL INFORMATION

The purpose of this page is to acquaint you with the various names of the trencher components. This knowledge will be helpful when reading through this manual or when ordering service parts.

625 TRENCHER



640 TRENCHER



H100 11-18-10-2

SAFETY DECAL PLACEMENT

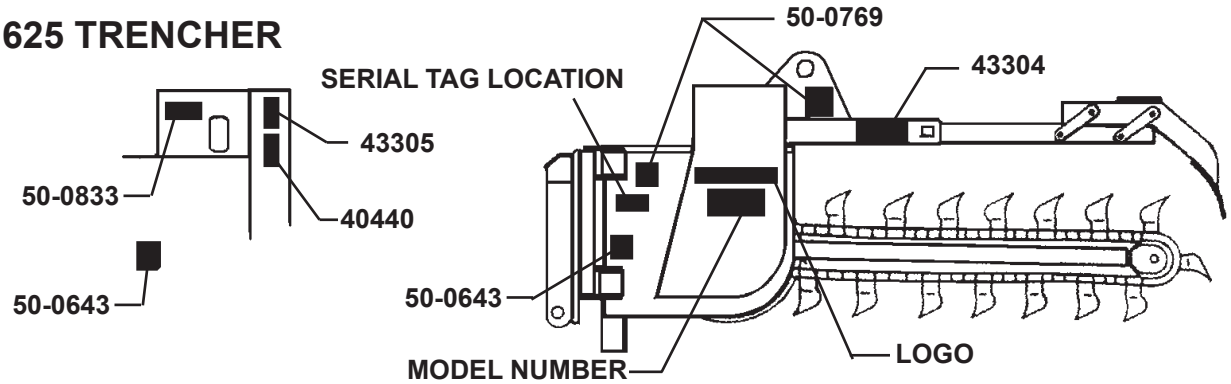
GENERAL INFORMATION

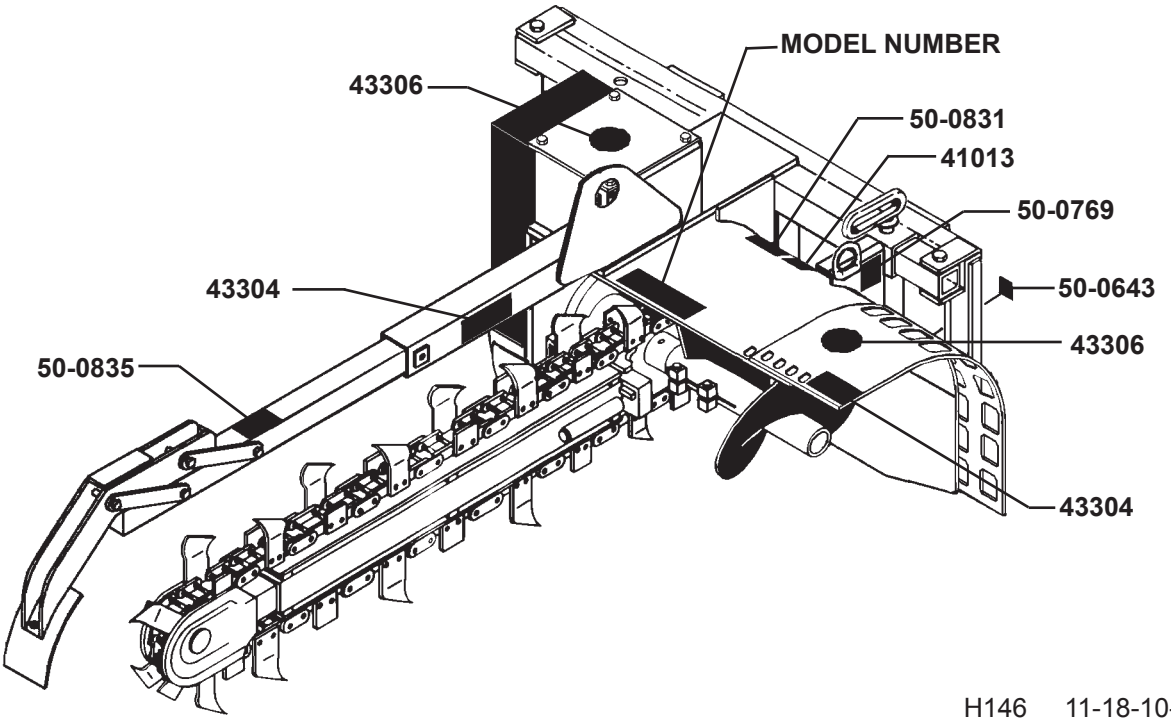
The following diagrams show the location of all the decals used on your attachment. The decals are identified by their part numbers, with the reductions of the actual decals shown on the following pages. Use this information to order replacements for lost or damaged decals. Be sure you understand all decals before operating the attachment. They contain information you need to know for attachment safety. (See decal explanations on the following pages.)

IMPORTANT: Keep all safety decals clean and legible. Replace all missing, or damaged safety decals. When replacing parts with safety decals attached, the safety decals must also be replaced.

REPLACING SAFETY DECALS: Clean the area of application with a nonflammable solvent, then wash the same area with soap and water. Allow the surface to dry. Remove the backing from the safety decal, exposing the adhesive surface. Apply the safety decal to the position shown in the diagram, and smooth out any bubbles.

625 TRENCHER

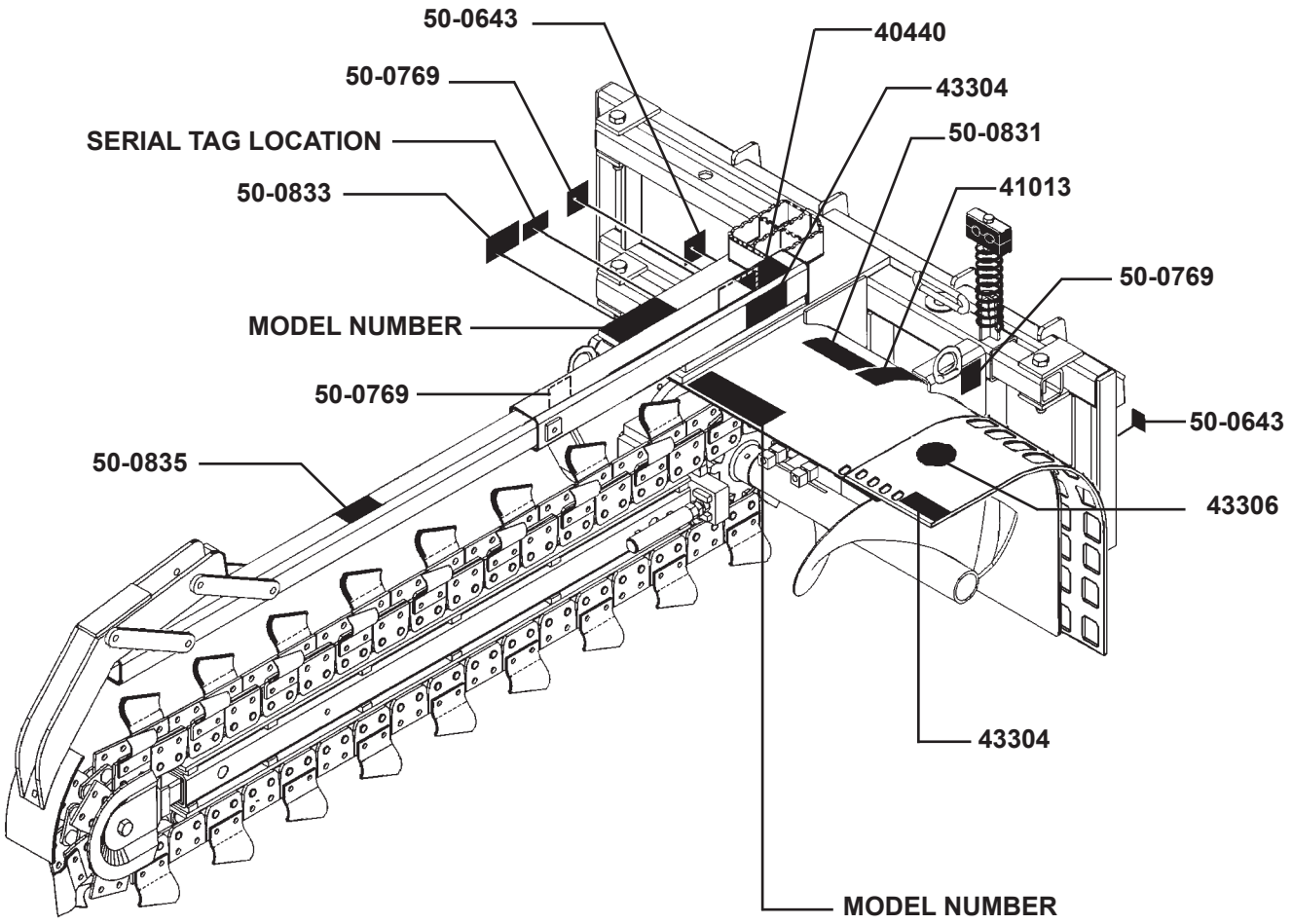




H146 11-18-10-2

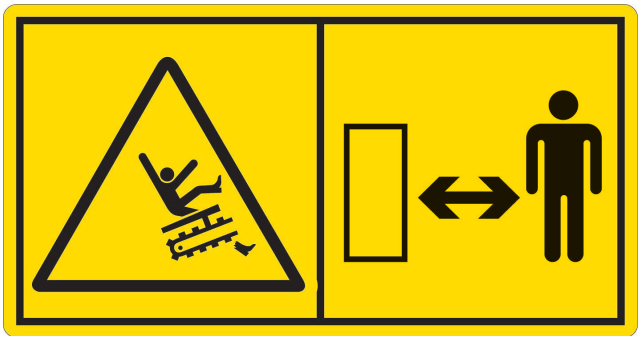
SAFETY DECAL PLACEMENT

640 TRENCHER



H147 11-18-10-2

SAFETY DECALS



⚠ WARNING

ENTANGLEMENT HAZARD: (43304)

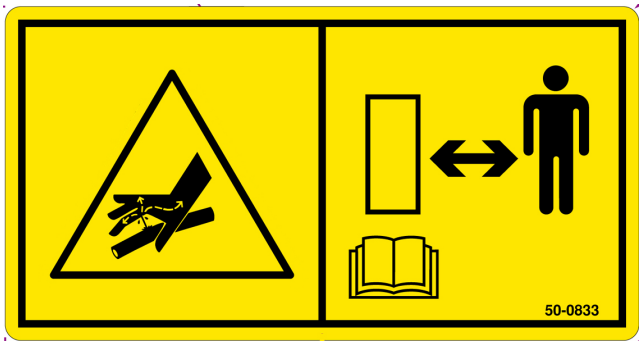
STAND CLEAR of digging chain and trench. Contact with chain and teeth or cave in of trench wall can cause serious injury or death. Keep all bystanders and other personal away from work area during operation.

888-258-0808
(USA & CANADA)

⚠ WARNING

CALL BEFORE YOU DIG. (40440)

Contact all local utility companies before digging. Before starting any digging project, contact your local utility companies and notify them that you intend to dig and have all underground utilities located.. Always inspect the jobsite for evidence of unmarked utilities and contact others if necessary. Failure to locate utilities may result in damage to the environment, personal injury or death.



⚠ WARNING

HIGH PRESSURE FLUID HAZARD: (50-0833)

Escaping fluid under pressure can have sufficient force to penetrate skin causing serious personal injury. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands to search for suspected leaks.

Keep unprotected body parts, such as face, eyes, and arms as far away as possible from a suspected leak. Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities.

If injured by injected fluid, see a doctor at once. If your doctor is not familiar with this type of injury, ask him to research it immediately to determine proper treatment.

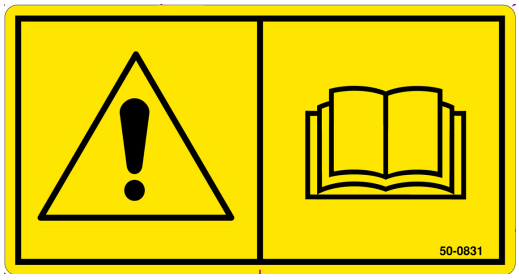
⚠ WARNING

NO STEP (43306)

Do not use the top of the trencher gearbox as a step when entering or exiting the prime mover.

H148 8-26-08

SAFETY DECALS

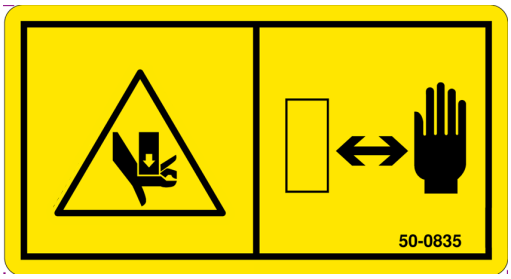


⚠ WARNING

READ MANUALS: (50-0831)
Do NOT operate or service unless you have read and understand the instruction and safety information in the operator's handbook and all prime mover manuals.

⚠ WARNING

ENTANGLEMENT HAZARD: (43305)
This guard covers moving parts underneath. Remove guard for service only. See manual for service information. Do not operate attachment with guard removed. Serious personal injury or death could occur.

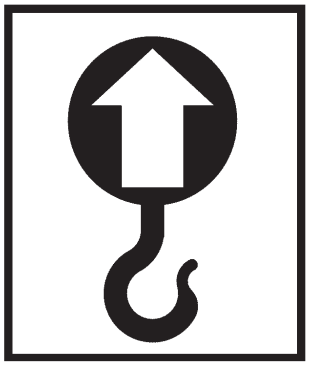


⚠ WARNING

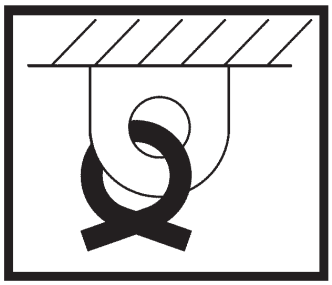
PINCH POINT HAZARD: (50-0835)
Keep hand safe distance away from hazard. Failure to heed this warning could result in serious injury or death.

⚠ WARNING

REMOVE KEY: (41013)
Lower attachment to the ground, set the parking brake, shut off the engine and remove the key before performing maintenance or leaving the operator's station.



LIFT POINT: (50-0769)
Identifies recommended lift point locations. Lifting unit at other points is unsafe and can damage attachment.



TIE DOWN POINT: (50-0643)
Identifies recommended tie down locations. Securing to trailer at other points is unsafe and can damage attachment.

H149 1-21-11-2

INSTALLATION

GENERAL INFORMATION

The following instructions will help you mount your trencher onto your skid steer loader. The trenchers use the quick-attach system for ease of installation.

Remember to read all safety warnings, decals and operations instructions before operating the attachment. If there is any portion of this manual that you do not understand, contact your dealer.

IMPORTANT: PLEASE VERIFY HYDRAULIC FLOW COMPATIBILITY BETWEEN THE TRENCHER AND THE SKID STEER BEFORE INSTALLATION.

- The 625, 640A and 640B are standard flow trenchers and MUST NOT be used on high flow systems or damage to the unit will occur.
- The 640C is a standard flow trencher but can be used in certain high flow applications with the addition of a case drain line.
- The 640D and 640E are high flow trenchers that require a case drain line and MUST NOT be used on standard flow hydraulic systems due to unsatisfactory performance.

INSTALLATION INSTRUCTIONS

1. Remove shipping banding.
2. Remove any existing attachment from the loader.
3. Following all standard safety practices and the instructions for installing an attachment in your skid steer operator's manual, install the attachment onto your skid steer.

NOTE: IT IS IMPORTANT TO MAKE SURE THE LOCKING MECHANISM ON YOUR QUICK ATTACH IS ENGAGED, THEREFORE LOCKING THE ATTACHMENT ONTO THE SKID STEER

4. Lower the unit to the ground and remove the key.
5. Relieve pressure from the auxiliary hydraulic system. Install the correct hydraulic kit for your application and then connect the quick couplers to the auxiliary hydraulic system of your skid steer loader. Route the hoses in such a fashion as to avoid pinching or chafing.

NOTE: BE SURE TO INSTALL A CASE DRAIN LINE IF INSTALLING A HIGH FLOW 640 TRENCHER ONTO A HIGH FLOW SKID STEER.

DISCONNECT INSTRUCTIONS

1. Lower the trencher to the ground.
2. Following Safety Shut Down Procedures; stop the engine and set the parking brake, relieve any pressure in the hydraulic lines.
3. Disconnect the power and return hoses from the auxiliary hydraulics.
4. Following all standard safety practices and the instructions for disconnecting an attachment in your skid steer operator's manual, disconnect the trencher from your skid steer.
5. Connect the hydraulic couplers on the attachment together to prevent contaminants from entering the hydraulic system.

OPERATION
CONTROLS

GENERAL INFORMATION

Simplicity of operation is one of the key features of our trencher. The trenchers themselves have no controls, just a few adjustments to check. It is important however, to be familiar with, and know the controls and adjustments on both the trencher and the skid steer. Such knowledge is crucial for safe, efficient operation of equipment. Take the time to learn how they operate now.

SKID STEER

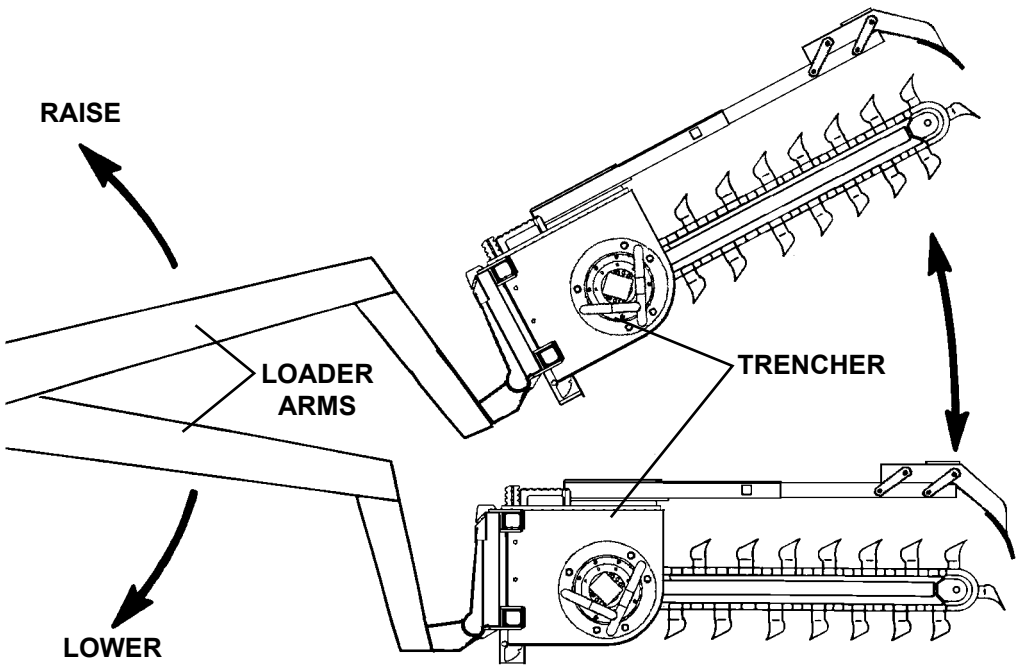
Thorough knowledge of the skid steer controls is necessary for trencher operation. Read your skid steer owner's manual for information regarding skid steer operation before attempting to use the trencher.

RAISING / LOWERING THE TRENCHER

Raise / lower the trencher unit by raising / lowering the skid steer loader arms through their appropriate skid steer controls. (See Figure #1)

CAUTION! Become aware of any overhead power or telephone lines, tree limbs, etc., that the raised trencher could come into contact with. Contact with electrical lines could cause serious injury or death.

FIGURE #1



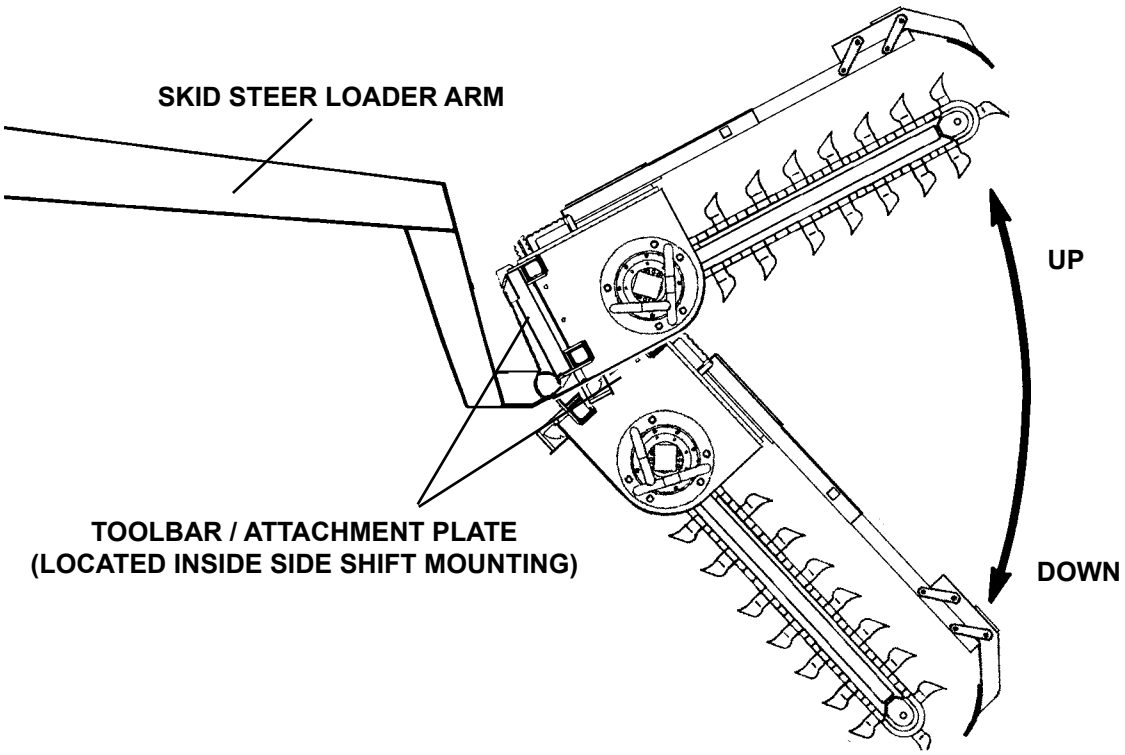
H106 4-29-08

OPERATION
CONTROLS

TILTING THE TRENCHER

Tilt the trencher unit up or down by tilting the toolbar / attachment plate back or forward through its skid steer control. We recommend a 60° digging angle for general trenching as measured from ground level (the horizon). (See Figure #2)

FIGURE #2



SIDE SHIFTING THE TRENCHER

Your trencher has an adjustment to shift the whole unit to the side on its own mount. To shift the unit sideways, first remove the locking pin from the back of the unit.

Lower trencher until trencher frame is resting on the ground, then counter-rotate the tires so that the skid steer moves in a sideways motion. Continue moving until side shift holes are aligned and replace locking pin.

IMPORTANT: ALWAYS REINSTALL THE LOCKING PIN TO PREVENT THE TRENCHER FROM SHIFTING SIDEWAYS DURING OPERATION.

NOTE: SLIGHT SHIFTING OF THE TRENCHER FROM SIDE TO SIDE MAY BE NECESSARY TO ALIGN THE SIDE SHIFT HOLES FOR REINSTALLING THE LOCKING PIN.

OPERATION

CONTROLS

STARTING AND STOPPING THE TRENCHER

The trencher unit itself does not have an on/off control but is operated by the skid steer auxiliary hydraulic control mechanism. To start the trencher, engage the auxiliary hydraulics. (See your skid steer owner's manual.) To stop the trencher, disengage the auxiliary hydraulics.

TRENCHER SPEED CONTROL

To increase trencher speed, increase skid steer engine speed, to decrease trencher speed, decrease skid steer engine speed.

When first starting a trench throttle down the skid steer engine to half throttle. This will reduce the shock to the skid steer and trencher when the digging teeth first contact the ground. Once the trench is started, set the engine back to full throttle.

For general use operate the trencher with the skid steer engine at full throttle to provide maximum power to the auxiliary hydraulics and thus the trencher.

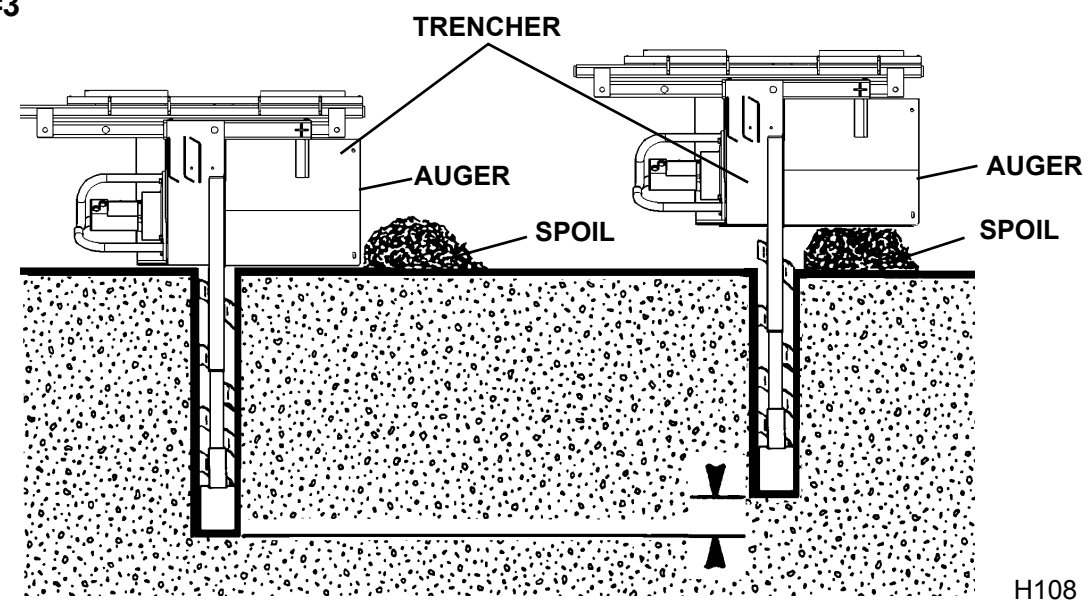
AUGER HEIGHT

The auger is fixed to the trencher mainframe and has no separate adjustment. To raise the auger, raise the trencher as previously described. This will raise the auger and thus leave the dirt or spoil closer to the trench.

Lowering the trencher will cause the auger to lower, moving the spoil away from the trench. The built-in skid shoe on the trencher will prevent the auger from being lowered to the extent that the auger itself starts to dig in the ground as this will greatly reduce efficiency.

Raising or lowering the trencher to change the auger height will also change the trenching depth. You will need to compensate for this by changing the tilt of the trencher down or up accordingly. (See Figure #3)

FIGURE #3



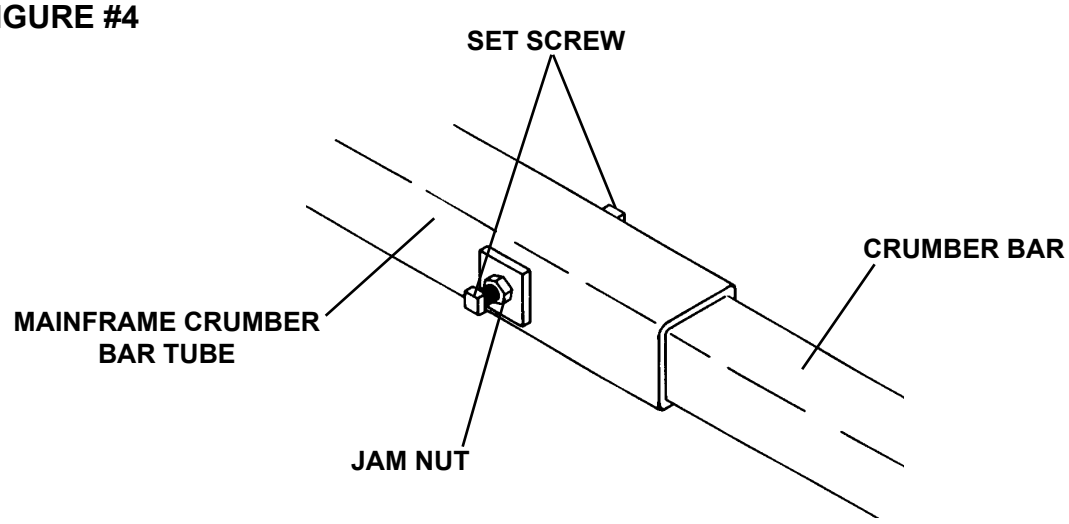
H108 4-29-08

CRUMBER SHOE/BAR ADJUSTMENT

The purpose of the crumber shoe is to keep any loose dirt in the trench close enough to the digging chain so that the digging teeth can grab it and remove it. This will give you a cleaner finished trench. Your trencher has an adjustable crumber bar that can be lengthened or shortened to bring the crumber shoe closer or farther from the digging chain.

To adjust the crumber bar length, loosen the two jam nuts found at the end of the mainframe crumber bar tube. Slide the bar in or out to achieve the desired spacing (we suggest a distance of about 4" (10.2 cm) between crumber shoe and digging teeth for best overall results). Tighten the set screws and jam nuts when finished. See Figure #4

FIGURE #4



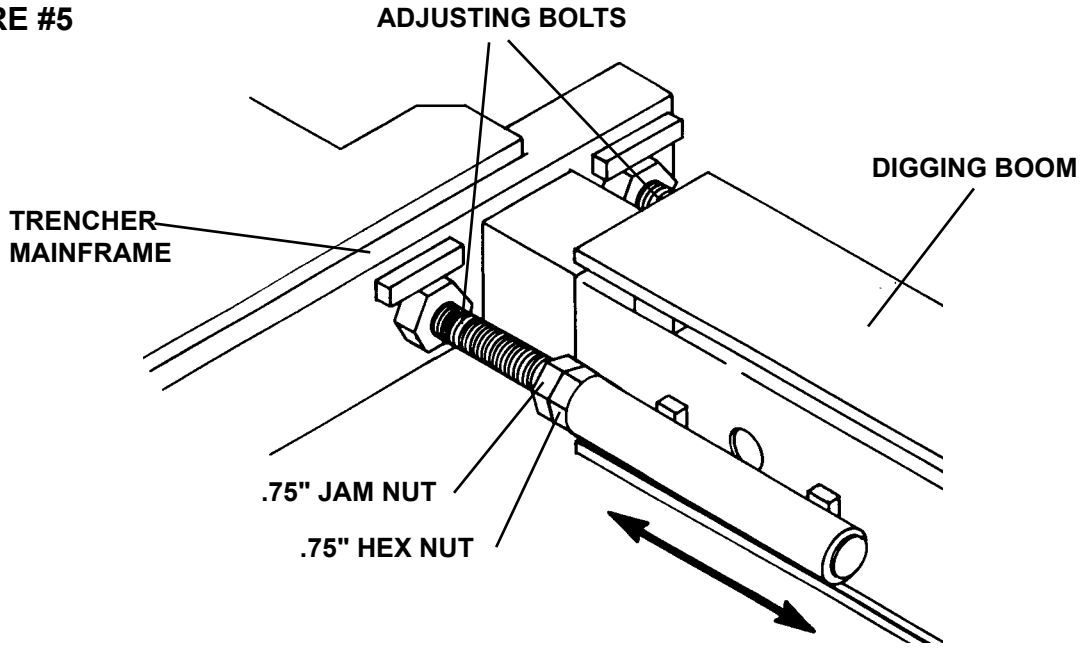
CHAIN TENSION ADJUSTMENT

When trenching, the digging chain tension should be adjusted so that the chain is as loose as possible, without jumping off the sprocket or idler wheel. To do this, an adjustment is provided on the digging boom.

These booms have an adjusting bolt on each side at the trencher end. The head of the bolts are kept from rotating by special tubes welded onto the mainframe. The end of the bolt rests in a tube welded to the boom. Each bolt has a jam nut and a .75" hex nut on it. To tighten the chain, "back off" the jam nut from the regular nuts. Now turn the standard nuts off the adjusting bolts. This will push the boom out and thus tighten the chain. Retighten the jam nut when finished. To loosen the chain, follow the same procedure, except turn the hex nut onto the adjusting bolt. See Figure #5

OPERATION
CONTROLS

FIGURE #5



This procedure must be done simultaneously to both adjusting bolts to prevent the boom from becoming wedged onto its mount.

WARNING! Never work on, or make adjustments to any part of the trencher while the unit is running. You could get caught in the digging teeth which could cause severe injury or death.

It is common for your trencher to need its digging chain tightened after the first 10 to 20 minutes of operation as the chain and sprocket seat themselves.

OPERATION

OPERATING TECHNIQUES

INTENDED USE: This unit is designed to dig holes and trenches up to the depth and width of your digging chain. Use in any other way is considered contrary to the intended use.

GENERAL INFORMATION

With the information in this section and a little practice you should become proficient in your trencher's operation. Observe the following points to obtain the best results with the least amount of wear on the machine. Read the "Safety Precautions" section of this manual before you begin.

CAUTION! **Operate the trencher only when seated at the skid steer controls.**

Do not operate the skid steer without proper ROPS (Roll-Over-Protective-Structure), seat belt, and hard hat.

Pay attention to the job at hand. Be alert to the possibilities of others in the work area.

Never let anyone work around, or perform maintenance on the trencher while it is running.

Always use a crumber assembly on the trencher.

BEFORE YOU START TRENCHING

Before any excavating is started, plan out the job first. Various things need to be considered prior to the actual trenching. The operator should inspect the job site and take notice of any potential hazards in the area. He should have a complete understanding of the task he is expected to perform. Figure out what will be done with the spoil (excavated soil). Will it be used to backfill or be trucked out? What are the soil conditions like? Will you have to work around others? Etc.

WARNING! **Check the prospective trenching area for hidden utility lines before operating the trencher. Contacting a utility line with the trencher could cause electrocution resulting in death. Call all utility companies and have them plot out all their lines first. If you damage a utility line, shut off the equipment at once and contact the affected utility immediately.**

Once you have become familiar with the job site and understand the job requirements it is time to set up for the actual trenching. Check the soil type (hard, soft, rocky, etc.) and the trenching requirements (how deep, wide, etc.). Install the proper digging chain, sprocket, boom, crumber bar and shoe for the job at hand. More information is located in the Digging Chain Options in this manual.

Locate the trencher on the mount with the side shift mechanism (as explained earlier in this section) where it will be most efficient and easy to use.

Mark off the area to be trenched out. This can be done with powdered lime, chalk, or a guide string and stakes. Block off the area from all bystanders if possible.

OPERATION

OPERATING TECHNIQUES

STARTING THE TRENCH

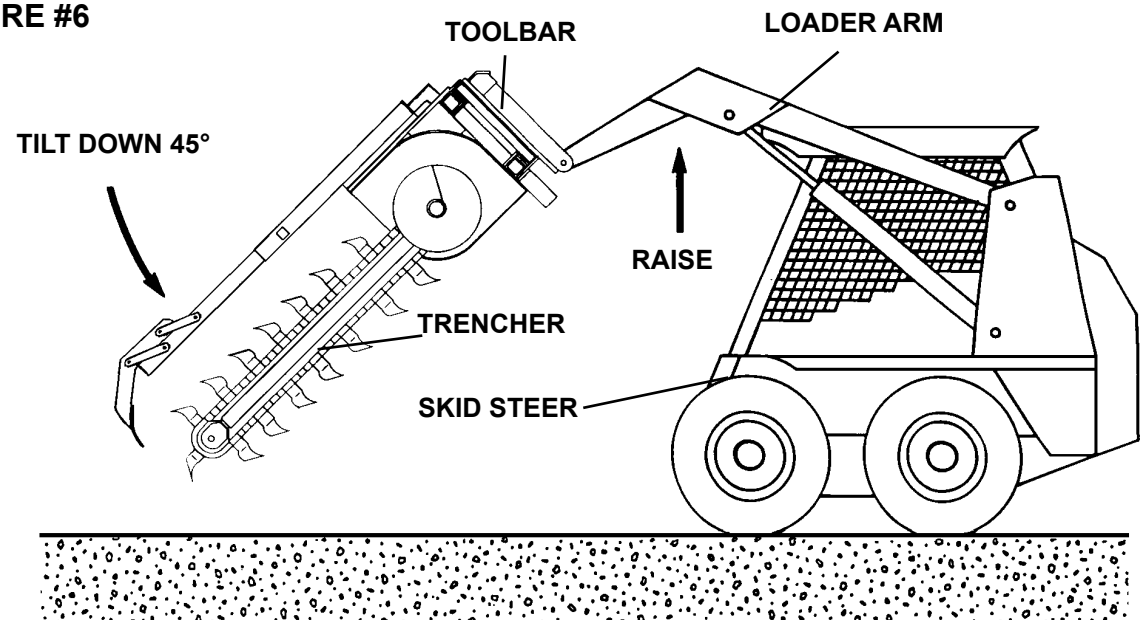
Position the skid steer with the trencher boom directly over the center of the trench layout. It will take about 4' (121.9 cm) of trenching before the trencher will be able to operate at the desired level, so plan for this and position the trencher about 4' (121.9 cm) behind where you want the actual trench to start.

NOTE: THE SKID STEER IS DRIVEN IN <u>REVERSE</u> WHEN TRENCHING. YOU CANNOT TRENCH DRIVING THE SKID STEER FORWARD.

Raise the trencher with the skid steer loader arms and tilt the trencher at a 45° angle. (See Figure #6) Position the unit so that the digging teeth are just above ground level.

Set the skid steer throttle at half speed. Start the digging chain by engaging the skid steer auxiliary hydraulic system.

FIGURE #6

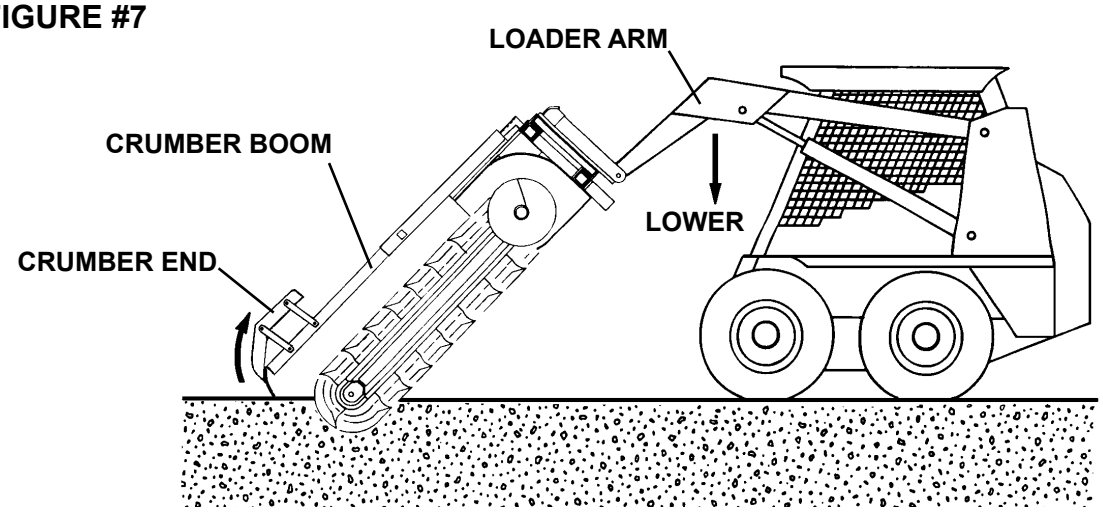


CAUTION<u>!</u> When lowering a moving digging chain to the ground the force of the teeth grabbing the ground will try to pull the trencher suddenly forward. <u>Be prepared.</u> Have the brake on the skid steer set to help counteract the force.

Slowly lower the digging chain into the ground to start the trench. Do this by lowering the trencher with the loader arms. Continue lowering the unit until the crumber end rolls all the way back on the crumber bar. See Figure #7

<u>IMPORTANT:</u> After the crumber end has rolled all the way back, do not lower the trencher any farther without moving the skid steer in reverse. Failure to do so could result in bending of the crumber boom, which is <u>not</u> covered by warranty.

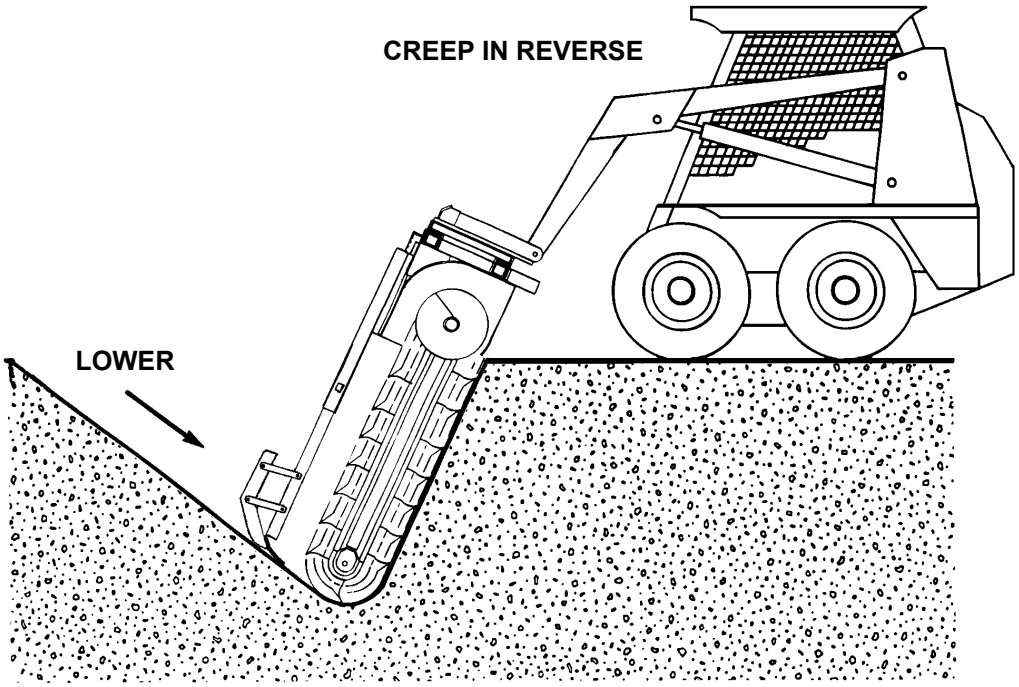
FIGURE #7



Once the crumber end has "bottomed out", begin slowly creeping the skid steer in reverse while continuing to lower the loader arms. When nearing the required depth, stop lowering and tilt the trencher to a 60° to 65° angle. A 60° - 65° angle works best for general trenching. See Figure #8

WARNING! Be alert to what is happening around you. Look behind you before reversing the skid steer. Be aware of any person or thing in the path of the skid steer. Observe any terrain changes such as drop-offs or soft ground.

FIGURE #8

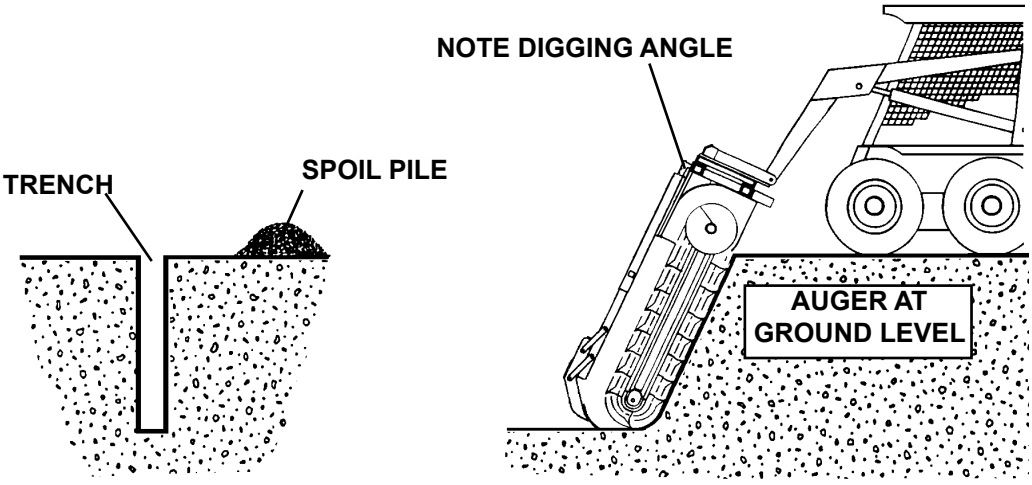


OPERATION

OPERATING TECHNIQUES

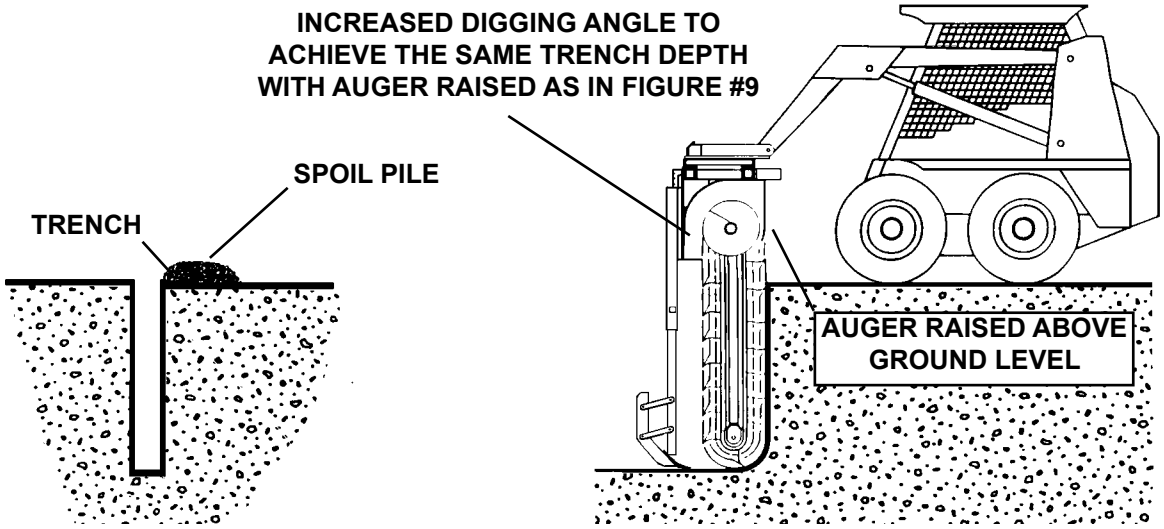
When trenching, keep in mind the spoil placement. Position the trencher so that the auger floats at ground level to move spoil away from the trench. See Figure #9

FIGURE #9



Raise the trencher so the auger rides above ground level to leave the spoil beside the trench. The higher the auger, the closer to the trench the spoil will be placed. You may find that it generally takes less power to run the digging chain if the auger runs 3 - 6 inches (7.6 - 15.2 cm) off the ground, thus increasing the potential footage of trench produced per hour. The higher you want the auger, the more vertical you will need to tilt the trencher to achieve the same trench depth. See Figure #10

FIGURE #10



With the desired trench depth reached, advance the skid steer throttle to the desired engine RPM (we suggest full throttle for maximum digging power). Continue creeping the skid steer in reverse. Monitor the skid steer hydraulic oil pressure and temperature gauges as you trench. If hydraulic oil temperature or pressure gets too high, reduce skid steer creeping speed to reduce the load on the auxiliary hydraulic system.

IMPORTANT: Trying to trench at a speed faster than the auxiliary hydraulic system can handle could cause the trencher to stall. Continued stalling in a short period of time can cause excessive oil temperature which can lead to pump failure. Do not try to trench too much too quickly. If oil temperature becomes too hot, stop the trencher and allow the oil to cool.

STALLING THE TRENCHER

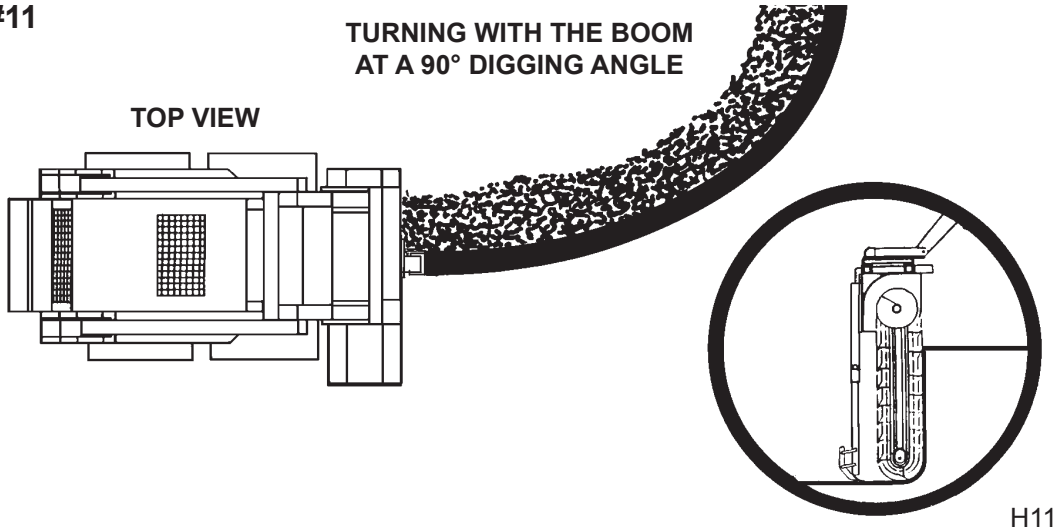
If the trencher stalls while digging, move the skid steer forward slightly to free the trencher. You may be able to free up the digging chain by changing its direction of travel with the auxiliary hydraulic controls. Repeated stalling of the trencher will cause oil to overheat rapidly and should be avoided.

TURNING WHILE TRENCHING

Gradual turns can be made while trenching. The tightness of the turn is directly proportional to the angle and length of the boom. The greater the angle of the trencher boom to the ground, the sharper the turn that can be trenched. (See Figures #11 & #12) Also the shorter the boom length the sharper the possible turn. Remember, the greater the increase in boom angle the higher the unit will have to be raised out of the trench to keep a unified trench depth. Shallow boom angles will severely limit turning ability.

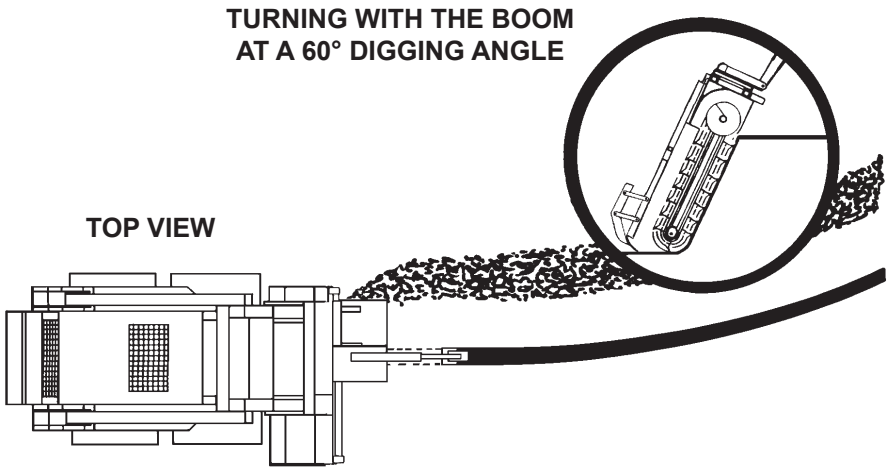
IMPORTANT: Turning too tightly while trenching will cause the trencher to jam in the trench and stall, leading to excessive oil temperatures. Turning too tightly can also cause the trencher boom to bend. Take it easy and proceed slowly with caution.

FIGURE #11



H115 4-29-08

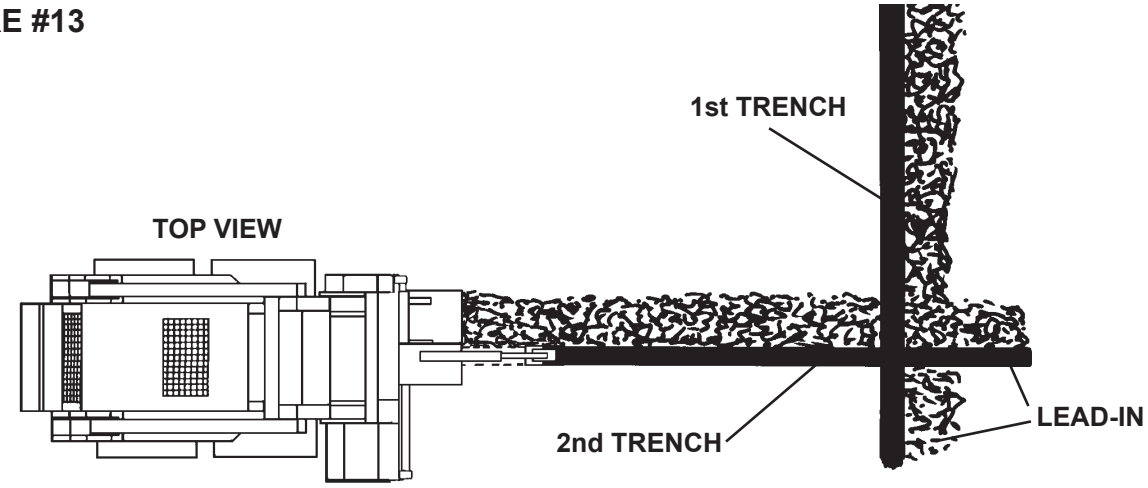
FIGURE #12



MAKING SHARP TURNS

To make sharp turns and 90° angles you need to dig two trenches. Dig the first trench as you normally would. Then reposition the unit and dig the second trench at the appropriate angle. Be sure to take into account the extra lead-in space needed for the trencher to get down to the desired trench depth. See Figure #13

FIGURE #13

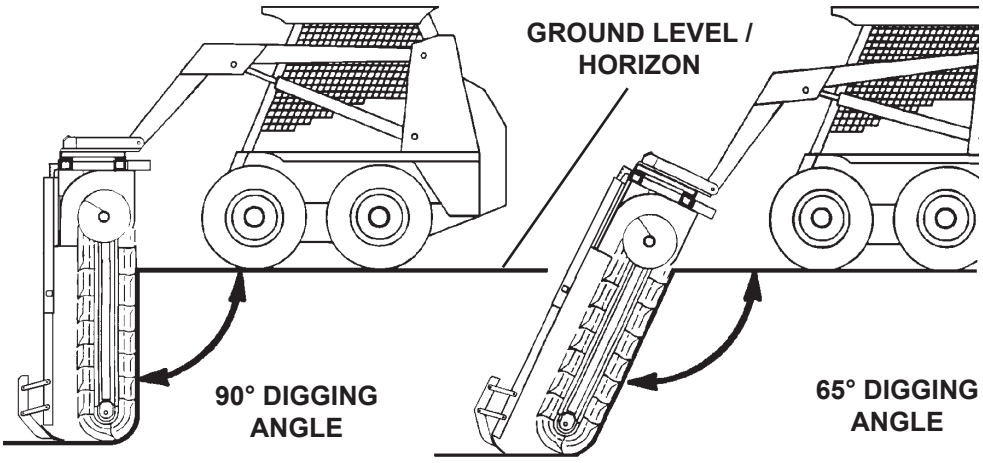


RECOMMENDED DIGGING ANGLES

A 90° digging angle is recommended for use in rock and frost conditions, and when trenching sharp corners. The 90° angle reduces excessive side pressure on the boom and digging chain when trenching corners. See Figure #14

A 60° - 65° digging angle is recommended for normal trenching. At this angle there will be less carry-over, and a cleaner trench bottom can be maintained than at a 90° angle. See Figure #14

FIGURE #14



TRENCHING WITHOUT THE CRUMBER ASSEMBLY

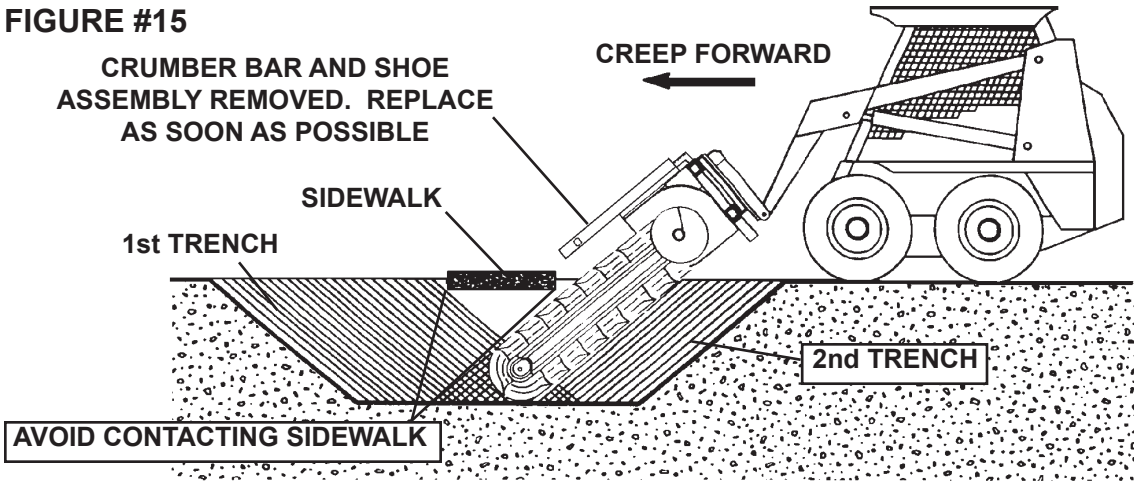
WARNING! The crumber bar and crumber shoe assembly are there for a reason, YOUR SAFETY! There are a few instances where removal may be necessary however. In these cases operate with extreme caution. Reinstall the crumber bar and crumber shoe as soon as possible.

You can use your trencher to dig under obstacles such as sidewalks. To do so, remove the crumber shoe and bar assembly and start your trench as before within a foot of the sidewalk. With the crumber bar and shoe removed you can start the trench vertically without any lead-in space.

When the desired depth has been reached, tilt the trencher at a 60° angle while digging, then creep the skid steer forward and trench under the sidewalk. Be careful not to contact the edge of the sidewalk with the digging teeth.

After you have gone as far as you can without contacting the sidewalk, drive the skid steer in reverse to clear the sidewalk and remove the trencher from the trench. Line up the unit on the other side of the walk and continue to trench as described above until the two trenches are connected. See Figure #15

FIGURE #15



H117 4-29-08

OPERATION

OPERATING TECHNIQUES

Reinstall the crumber bar and crumber shoe assembly immediately. Some spoil will be left in the trench since the crumber was removed during the operation.

ENDING A TRENCH

When you have dug your trench, remember that the trencher boom is at an angle, and that you must continue trenching until the end of the boom has dug past the proposed end of the trench. Once the end of the trench has been dug, keep the trencher running and lift the skid steer loader arms to lift the unit clear of the trench. When the trencher has cleared the trench, disengage the auxiliary hydraulics to stop the trencher. Drive the skid steer away from the trench.

TRANSPORTING THE TRENCHER

When transporting the trencher, remember to keep the trencher as low to the ground as is practical. The lower the trencher rides, the more stable the skid steer will be. You do not want the trencher so low that the digging teeth touch the ground in rough terrain. Shut off the trencher before moving it away from the trench. Never transport the trencher around the job site or anywhere else while the digging chain is moving.

TRENCHER PERFORMANCE

Remember that your trencher's performance is directly related to the power available at your skid steer's auxiliary hydraulic system. If the trencher seems to lack power or speed, it may be due to your skid steer's lack of sufficient auxiliary power.

Trencher performance is also related to how well it's maintained, digging tooth wear, and type and size of digging chain, crumber boom and shoe used.

The following storage procedures will help you to keep your trencher in top condition. They will also help you get off to a good start the next time your trencher is needed.

PREPARATION FOR STORAGE

- Clean the trencher thoroughly, removing all mud, dirt, and grease.
- Tighten all loose capscrews, nuts, and set screws.
- Coat the digging chain with a thin covering of oil. Operate chain for a short period to work the oil into the pins.
- Store the trencher in a dry and protected place. Leaving the trencher outside, exposed to the elements will materially shorten its life.
- Inspect for visible signs of wear, breakage or damage. Order any parts required and make necessary repairs to avoid delays when starting next season.
- Replace decals if damaged or in unreadable condition.
- Seal hydraulic system from contaminants and secure all hydraulic hoses off the ground to help prevent damage

Additional Precautions for Long Term Storage:

- Touch up unpainted and exposed areas with paint to prevent rust.

REMOVING FROM STORAGE

- Remove all protective coverings
- Check hydraulic hoses for deterioration and if necessary, replace.
- During cold weather, operate the trencher slowly for a short time before placing the unit under full load.

H118 1-18-11-2

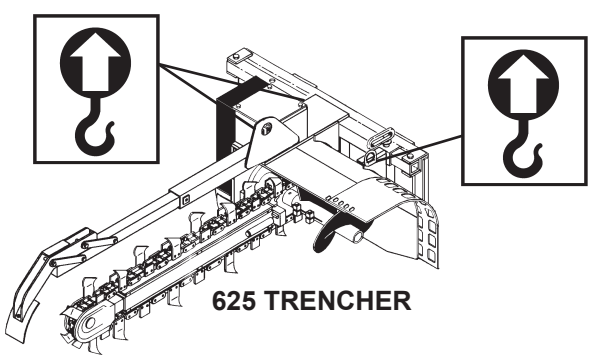
OPERATION

OPERATING TECHNIQUES

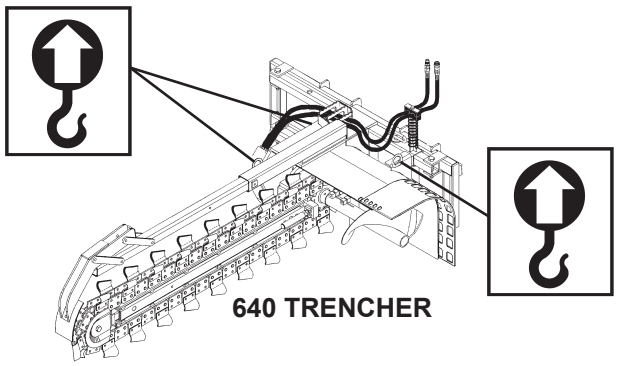
LIFT POINTS

Lifting points are identified by lifting decals where required. Lifting at other points is unsafe and can damage attachment. Do not attach lifting accessories around cylinders or in any way that may damage hoses or hydraulic components.

- Attach lifting accessories to unit at recommended lifting points.
- Bring lifting accessories together to a central lifting point.
- Lift gradually, maintaining the equilibrium of the unit.



625 TRENCHER



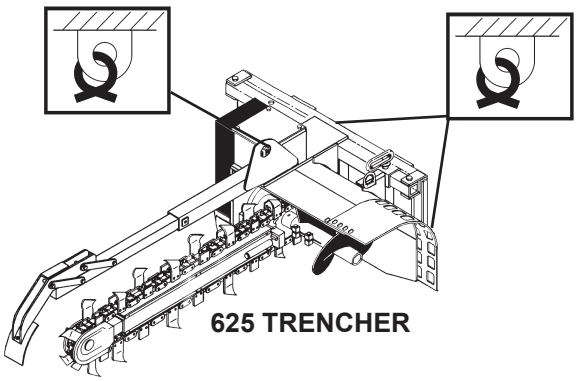
640 TRENCHER

WARNING! Use lifting accessories (chains, slings, ropes, shackles and etc.) that are capable of supporting the size and weight of your attachment. Secure all lifting accessories in such a way to prevent unintended disengagement. Failure to do so could result in the attachment falling and causing serious personal injury or death.

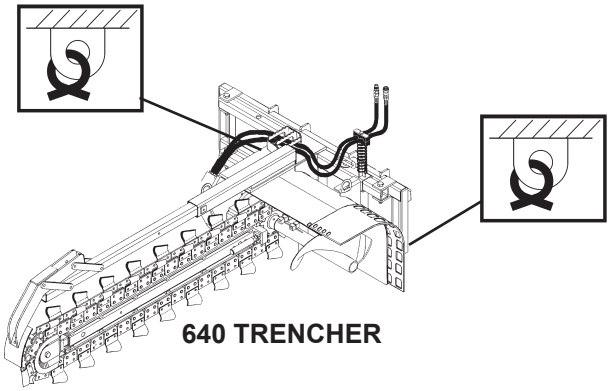
TIE DOWN POINTS

Tie down points are identified by tie down decals where required. Securing to trailer at other points is unsafe and can damage attachment. Do not attach tie down accessories around cylinders or in any way that may damage hoses or hydraulic components.

- Attach tie down accessories to unit as recommended.
- Check unit stability before transporting.



625 TRENCHER



640 TRENCHER

WARNING! Verify that all tie down accessories (chains, slings, ropes, shackles and etc.) are capable of maintaining attachment stability during transporting and are attached in such a way to prevent unintended disengagement or shifting of the unit. Failure to do so could result in serious personal injury or death.

H140 1-18-11-2

DIGGING CHAIN OPTIONS

GENERAL INFORMATION

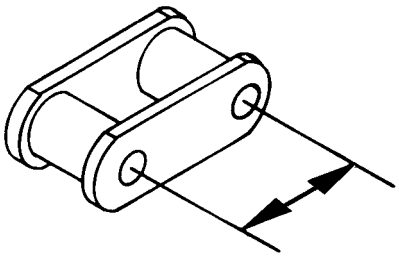
This section is devoted to digging chain options for your trencher. In it you will find a listing of all the chain options available. You will also find information on replacement parts, chain assembly, and chain conversion. These options will increase the flexibility of your equipment, and make your trenching job easier.

There is some basic information about the trencher and its digging components that you should know before you try to order any options. This information is given for your convenience. With it you will be able to better understand the rest of this section.

CHAIN PITCH

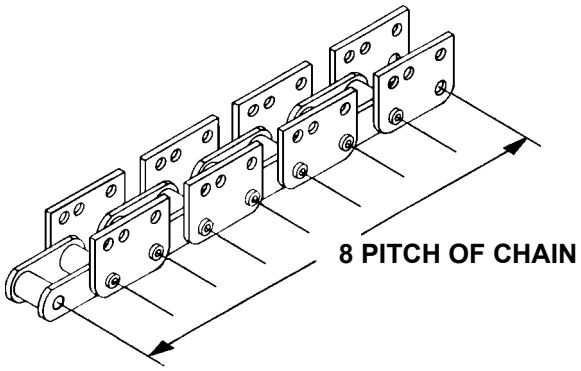
Digging chains are divided into groups by pitch. The pitch of the chain is the distance between the center of the holes in the chain links (See Figure 1). The word pitch can also be used to describe the length of the chain. See Figure #2

FIGURE #1



DISTANCE BETWEEN HOLE CENTERS = PITCH

FIGURE #2



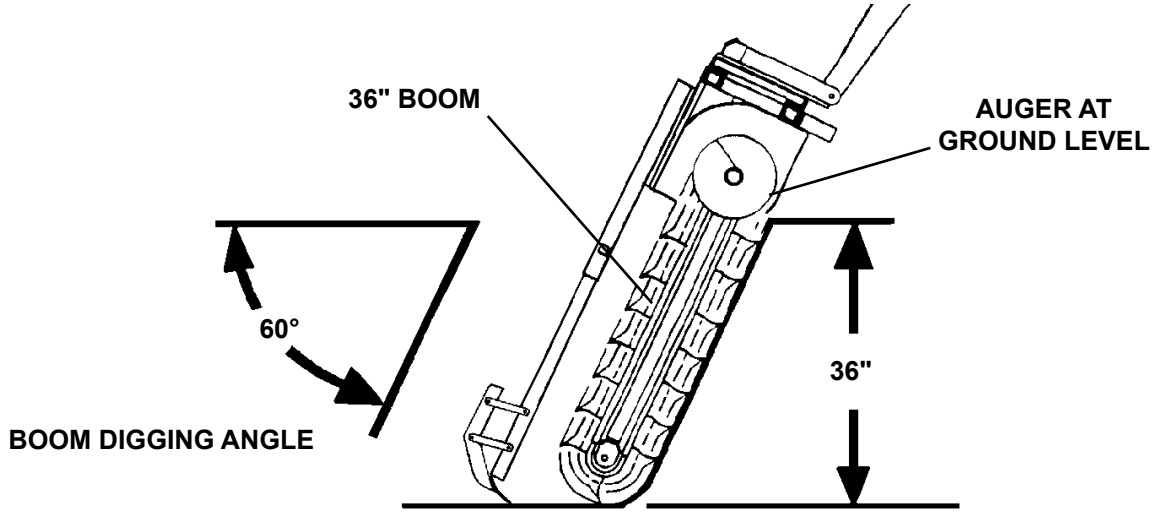
You can not intermix components of different pitches. You cannot substitute chain links of different pitches in a digging chain. Nor can you use a digging chain of one pitch, with a driver sprocket of a different pitch. Attempting to do so will cause the chain to "jump" off the sprocket continuously.

DIGGING CHAIN OPTIONS

COMPONENT SIZE

The size of the digging component is based on the depth of the trench it will dig with auger at ground level and a 60° boom digging angle (See Figure 3). For example, a 36" boom is not necessarily 36" long. The 36" length means it will dig a trench 36" deep with the augers in their float position and at a 60° digging angle.

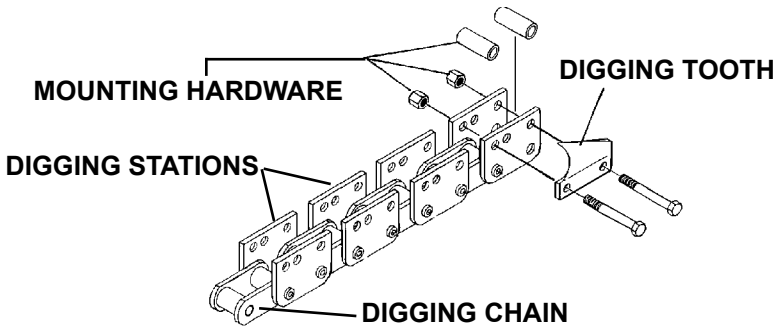
FIGURE #3



DIGGING STATIONS

Digging chains are made up of a series of individual links pinned together. Every link has a special "Digging Station" link. These links are designed so that the digging teeth can be attached to the basic chains (See Figure 4). Digging chains may be purchased in any length, with or without teeth. All chains, teeth, spacers and assorted digging hardware may be purchased separately.

FIGURE #4



This completes the basic information on digging chain options. The rest of this section contains specific information on your digging chains and a description of the parts available.

DIGGING CHAIN OPTIONS

2.00” (5.1 CM) PITCH DIGGING CHAIN ASSEMBLIES

GENERAL INFORMATION

This page contains a listing of all of the 2.00" (5.1 cm) pitch digging chain assemblies offered for your trencher. Each chain assembly comes with all necessary teeth and spacers already installed. Just thread the chain onto the trencher and fasten the two ends together with the pin and keeper pin included in the assembly. A crumber shoe of the appropriate width is also included in the chain assembly.

Before you order a new chain, be sure to check for compatibility with corresponding components. You may need to order more than just a chain assembly. You must use a digging boom of the same digging depth as the chain. The crumber bar must also be of the same digging depth. The digging sprocket must also be of the same pitch as the chain. All of these components must match for the trencher to function properly.

Bare 2.00" (5.1 cm) pitch digging chain (without teeth, spacers, or hardware) can be ordered in any desired length under the part number 79018. Just use this number and then specifiy the length desired in pitches (example, 54 pitches of chain would be needed for a 36" (91.4 cm) boom).

2.00" (5.1 CM) PITCH DIGGING CHAIN ASSEMBLIES

Complete chain assemblies. Includes chain with all teeth and spacers attached. Also includes appropriate width crumber shoe.
50,000# (223 KILONEWTONS) TENSILE STRENGTH

CHAIN ASSEMBLIES WITH A TOOTH EVERY STATION

DESCRIPTION (boom used X trench width)		LENGTH OF CHAIN (in 2.00" pitches)	PART NO.
For 30" (76.2 cm) Boom	6" (15.2 cm) Wide	48 Pitch	79154
For 30" (76.2 cm) Boom	8" (20.3 cm) Wide	48 Pitch	79155
For 30" (76.2 cm) Boom	10" (25.4 cm) Wide	48 Pitch	79156
For 30" (76.2 cm) Boom	12" (30.5 cm) Wide	48 Pitch	79157
For 36" (91.4 cm) Boom	6" (15.2 cm) Wide	54 Pitch	79099
For 36" (91.4 cm) Boom	8" (20.3 cm) Wide	54 Pitch	79100
For 36" (91.4 cm) Boom	10" (25.4 cm) Wide	54 Pitch	79158
For 42" (106.7 cm) Boom	6" (15.2 cm) Wide	62 Pitch	82114
For 42" (106.7 cm) Boom	8" (20.3 cm) Wide	62 Pitch	82115
For 42" (106.7 cm) Boom	10" (25.4 cm) Wide	62 Pitch	82116
For 48" (121.9 cm) Boom	6" (15.2 cm) Wide	68 Pitch	79101
For 48" (121.9 cm) Boom	8" (20.3 cm) Wide	68 Pitch	79102

H121 4-30-08

DIGGING CHAIN OPTIONS

2.00” (5.1 CM) PITCH DIGGING CHAIN ASSEMBLIES

2.00" (5.1 CM) PITCH DIGGING CHAIN ASSEMBLIES

Complete chain assemblies. Includes chain with all teeth and spacers attached. Also includes appropriate width crumber shoe.
50,000# (223 KILONEWTONS) TENSILE STRENGTH

CHAIN ASSEMBLIES WITH A TOOTH EVERY OTHER STATION

DESCRIPTION (boom used X trench width)		LENGTH OF CHAIN (in 2.00" pitches)	PART NO.
For 30" (76.2 cm) Boom	6" (15.2 cm) Wide	48 Pitch	79181
For 30" (76.2 cm) Boom	8" (20.3 cm) Wide	48 Pitch	79182
For 30" (76.2 cm) Boom	10" (25.4 cm) Wide	48 Pitch	79183
For 30" (76.2 cm) Boom	12" (30.5 cm) Wide	48 Pitch	79184
For 36" (91.4 cm) Boom	6" (15.2 cm) Wide	54 Pitch	79185
For 36" (91.4 cm) Boom	8" (20.3 cm) Wide	54 Pitch	79186
For 36" (91.4 cm) Boom	10" (25.4 cm) Wide	54 Pitch	79187
For 42" (106.7 cm) Boom	6" (15.2 cm) Wide	62 Pitch	82117
For 42" (106.7 cm) Boom	8" (20.3 cm) Wide	62 Pitch	82118
For 42" (106.7 cm) Boom	10" (25.4 cm) Wide	62 Pitch	82119
For 48" (121.9 cm) Boom	6" (15.2 cm) Wide	68 Pitch	79188
For 48" (121.9 cm) Boom	8" (20.3 cm) Wide	68 Pitch	79189

70/30 COMBINATION CHAIN ASSEMBLIES

DESCRIPTION (boom used X trench width)		LENGTH OF CHAIN (in 2.00" pitches)	PART NO.
For 30" (76.2 cm) Boom	6" (15.2 cm) Wide	48 Pitch	31546
For 36" (91.4 cm) Boom	6" (15.2 cm) Wide	54 Pitch	31547
For 42" (106.7 cm) Boom	6" (15.2 cm) Wide	62 Pitch	31563
For 48" (121.9 cm) Boom	6" (15.2 cm) Wide	68 Pitch	31548

COMBINATION CHAIN ASSEMBLIES WITH 50/50 R&F/CUP TEETH

DESCRIPTION (boom used X trench width)		LENGTH OF CHAIN (in 2.00" pitches)	PART NO.
For 30" (76.2 cm) Boom	6" (15.2 cm) Wide	48 Pitch	83706
For 36" (91.4 cm) Boom	6" (15.2 cm) Wide	54 Pitch	83707
For 42" (106.7 cm) Boom	6" (15.2 cm) Wide	62 Pitch	83708
For 48" (121.9 cm) Boom	6" (15.2 cm) Wide	68 Pitch	83709

SHARK STYLE TOOTH CHAIN ASSEMBLIES

DESCRIPTION (boom used X trench width)		LENGTH OF CHAIN (in 2.00" pitches)	PART NO.
For 30" (76.2 cm) Boom	6" (15.2 cm) Wide	48 Pitch	31549
For 36" (91.4 cm) Boom	6" (15.2 cm) Wide	54 Pitch	31550
For 42" (106.7 cm) Boom	6" (15.2 cm) Wide	62 Pitch	31551
For 48" (121.9 cm) Boom	6" (15.2 cm) Wide	68 Pitch	31552

H122 4-30-08

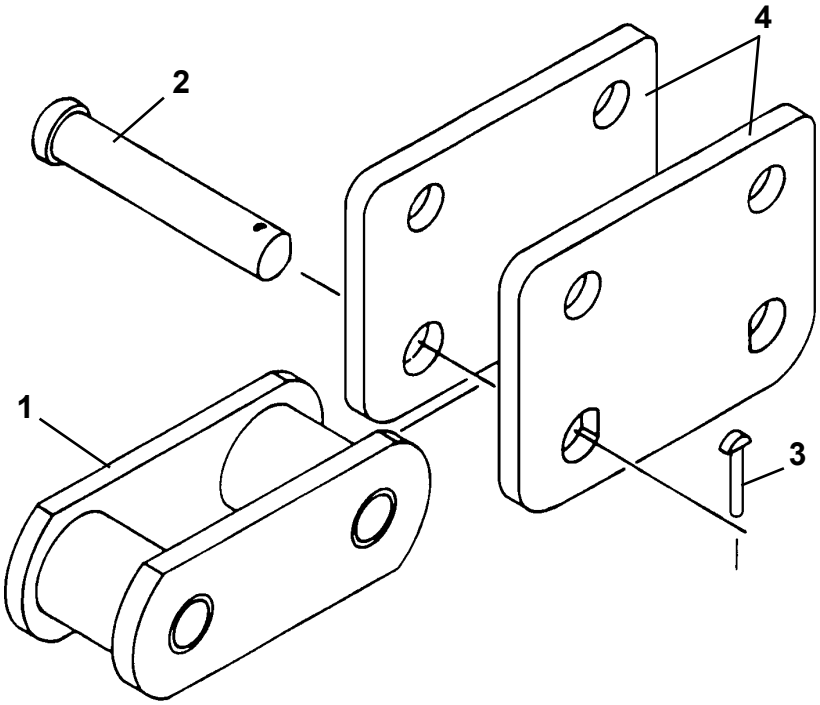
DIGGING CHAIN OPTIONS

2.00” (5.1 CM) PITCH CHAIN REPLACEMENT PARTS

GENERAL INFORMATION

You can purchase individual chain links and pins for your trencher. These can be used to repair a damaged chain, or lengthen and modify an existing chain. Below is a diagram of the chain’s basic components with their descriptions and corresponding part numbers. Use these numbers when ordering. See DIGGING CHAIN ASSEMBLIES located in this section for ordering a complete chain.

When pinning links of chain together, first tap the pin through the connector link with the perfectly round holes and then on through the inner link. Place the second connector link in position, you will note that the end of the pin has one side flattened. Rotate the pin until its flat side lines up with the corresponding flat side of the connector link hole and tap the pin on through. Place the chain keeper pin into the hole at the end of the main pin and tap down tight. Bend the end of the keeper pin over to secure it in place.



NO.	REQ’D	PART NO.	DESCRIPTION
1	Varies	54757	Inner Link
2	Varies	54731	Pin
3	Varies	54732	Chain Keeper Pin
4	Varies	54730	Connector Link includes (2) Pins #54731 and (2) Chain Keeper Pins #54732

H123 5-1-08

DIGGING CHAIN OPTIONS

2.00” (5.1 CM) PITCH CHAIN REPLACEMENT PARTS

GENERAL INFORMATION

Every second link on a digging chain is a special link called a digging station. These digging station links are designed so that digging teeth can be bolted onto them in a variety of configurations. It is the number and the make up of these different digging stations that make each chain unique.

The following pages show the various chains available for 2.00" (5.1 cm) pitch trenchers. The digging tooth make up of each digging station is given in code. The key to the code is listed below. A diagram of each digging tooth station is also shown on the following pages to assist you in identifying chain configurations. The chain assembly diagrams will show you the order of the digging stations on each digging chain.

C-D ..... CENTER SHARK STYLE TOOTH

CL-C ..... CENTER LEFT CUP TOOTH

CL-D ..... CENTER LEFT SHARK STYLE TOOTH

CR-C..... CENTER RIGHT CUP TOOTH

CR-D..... CENTER RIGHT SHARK STYLE TOOTH

6L-C..... 6" LEFT CUP TOOTH

6L-D..... 6" LEFT SHARK STYLE TOOTH

6R-C ..... 6" RIGHT CUP TOOTH

6R-D ..... 6" RIGHT SHARK STYLE TOOTH

8L-C..... 8" LEFT CUP TOOTH

8L-D..... 8" LEFT SHARK STYLE TOOTH

8R-C ..... 8" RIGHT CUP TOOTH

8R-D ..... 8" RIGHT SHARK STYLE TOOTH

10-C..... 10" CUP TOOTH

10-D..... 10" SHARK STYLE TOOTH

12-C..... 12" CUP TOOTH

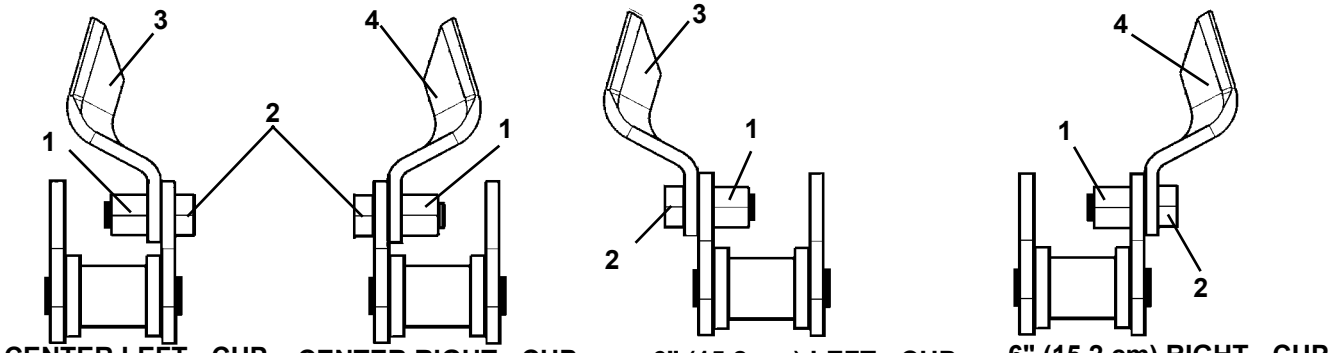
12-D..... 12" SHARK STYLE TOOTH

DIGGING CHAIN OPTIONS

2.00” (5.1 CM) PITCH DIGGING STATIONS

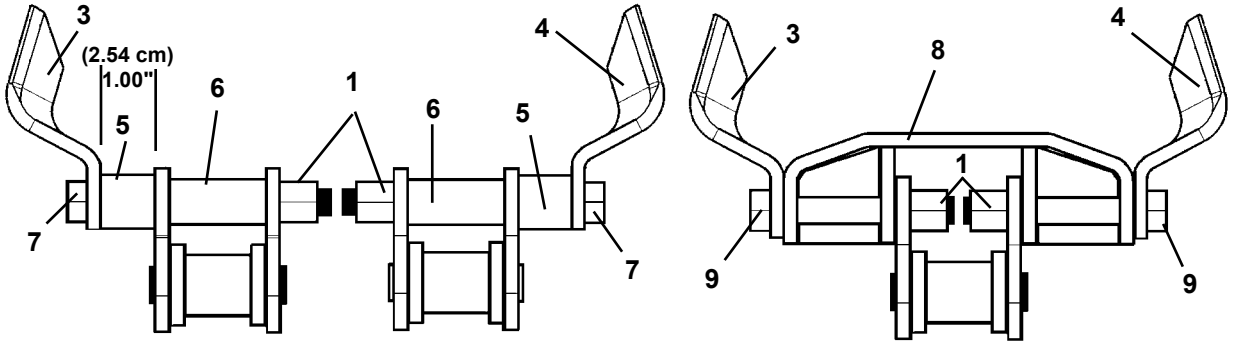
CUP TOOTH DIGGING STATIONS

CL-C **CR-C** **6L-C** **6R-C**



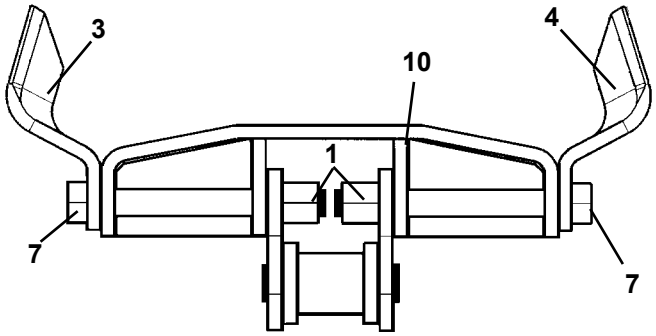
CENTER LEFT - CUP CENTER RIGHT - CUP 6" (15.2 cm) LEFT - CUP 6" (15.2 cm) RIGHT - CUP

8L-C **8R-C** **10-C**



8" (20.3 cm) LEFT - CUP 8" (20.3 cm) RIGHT - CUP 10" (25.4 cm) - CUP

12-C



12" (30.5 cm) - CUP

1	HEX NUT	6	SPACER
2	CAPSCREW	7	CAPSCREW
3.	LEFT CUP TOOTH	8	10” (25.4 cm) TOOTH SPACER
4	RIGHT CUP TOOTH	9	CAPSCREW
5	TOOTH SPACER	10	12” (30.5 cm) TOOTH SPACER

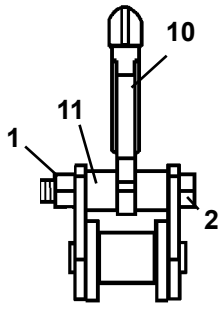
H125 5-1-08

DIGGING CHAIN OPTIONS

2.00” (5.1 CM) PITCH DIGGING STATIONS

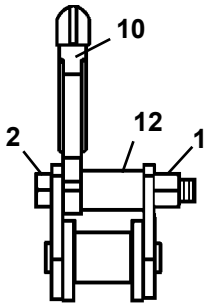
SHARK STYLE TOOTH DIGGING STATIONS

C-D



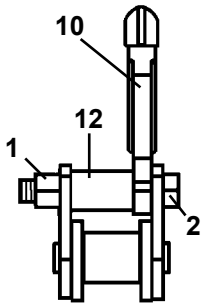
CENTER SHARK STYLE

CL-D



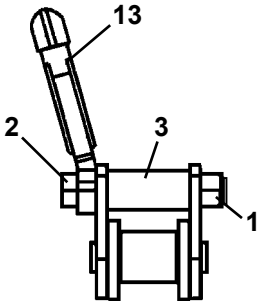
CENTER LEFT SHARK STYLE

CR-D



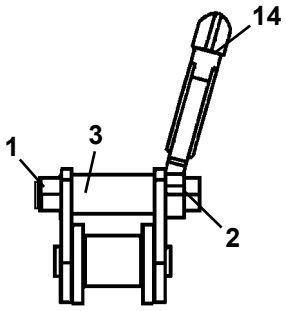
CENTER RIGHT SHARK STYLE

6L-D



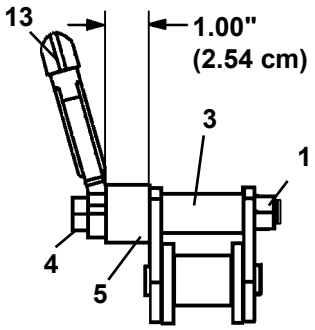
6" (15.2 cm) LEFT SHARK STYLE

6R-D



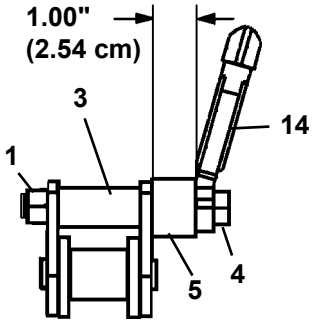
6" (15.2 cm) RIGHT SHARK STYLE

8L-D



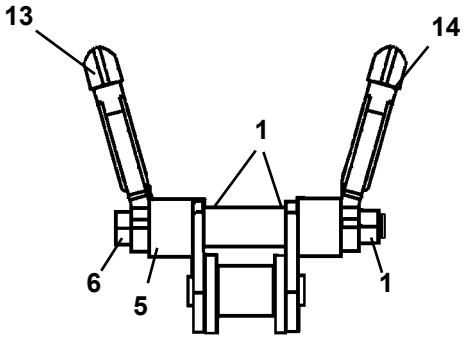
8" (20.3 cm) LEFT SHARK STYLE

8R-D



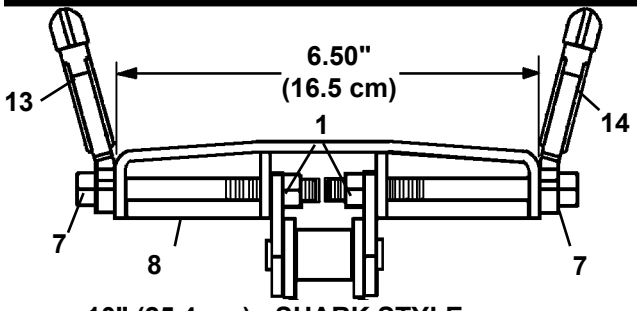
8" (20.3 cm) RIGHT SHARK STYLE

8-D



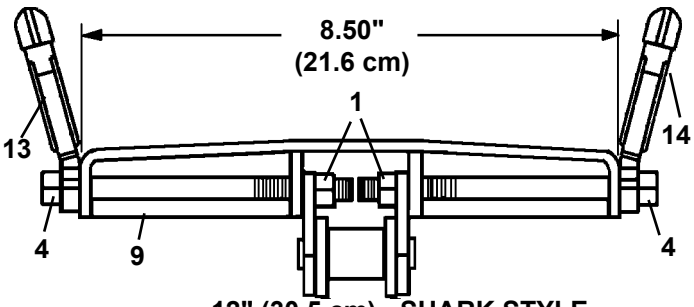
8" SHARK STYLE

10-D



10" (25.4 cm) - SHARK STYLE

12-D



12" (30.5 cm) - SHARK STYLE

1	HEX NUT	8	10” (25.4 cm) TOOTH SPACER
2	CAPSCREW - GRADE 8	9	12” (30.5 cm) TOOTH SPACER
3	SPACER	10	CENTER SHARK STYLE TOOTH
4	CAPSCREW - GRADE 8	11	SPACER
5	TOOTH SPACER	12	SPACER
6	CAPSCREW - GRADE 8	13	LEFT SHARK STYLE TOOTH
7	CAPSCREW - GRADE 8	14	RIGHT SHARK STYLE TOOTH

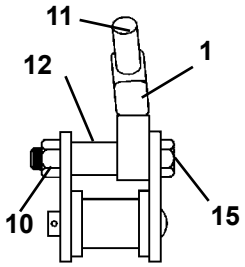
H126 5-1-08

DIGGING CHAIN OPTIONS

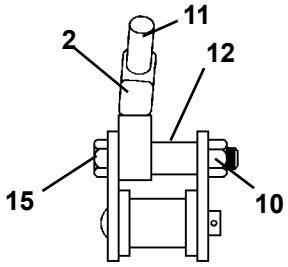
2.00” (5.1 CM) PITCH DIGGING STATIONS

COMBINATION ROCK AND FROST CHAIN - PARTS IDENTIFICATION

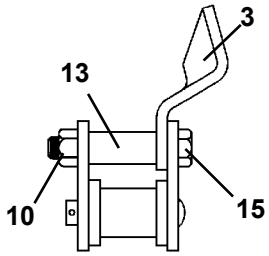
STATION #1



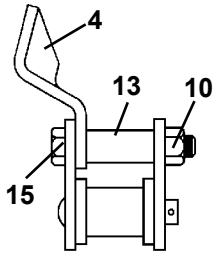
STATION #2



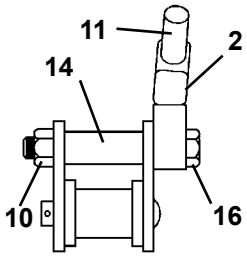
STATION #3



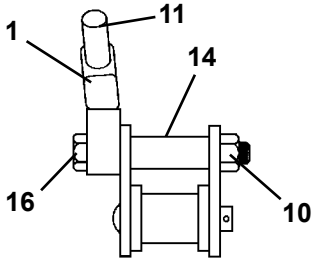
STATION #4



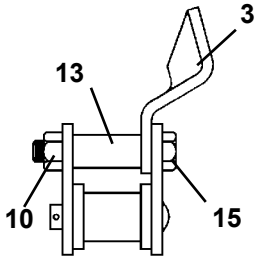
STATION #5



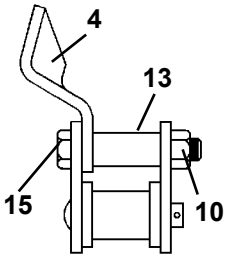
STATION #6



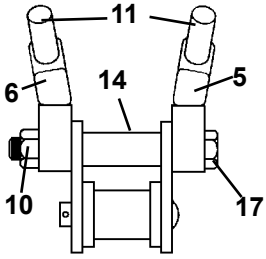
STATION #7



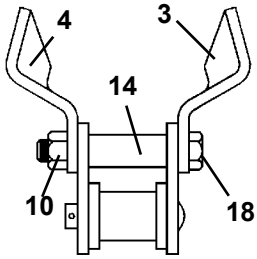
STATION #8



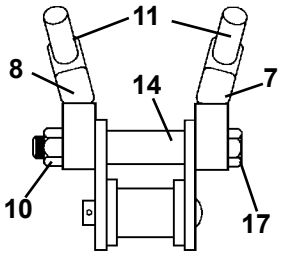
STATION #9



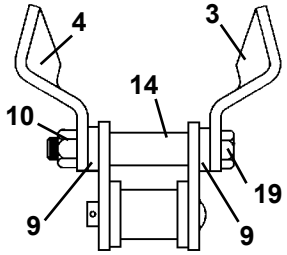
STATION #10



STATION #11



STATION #12



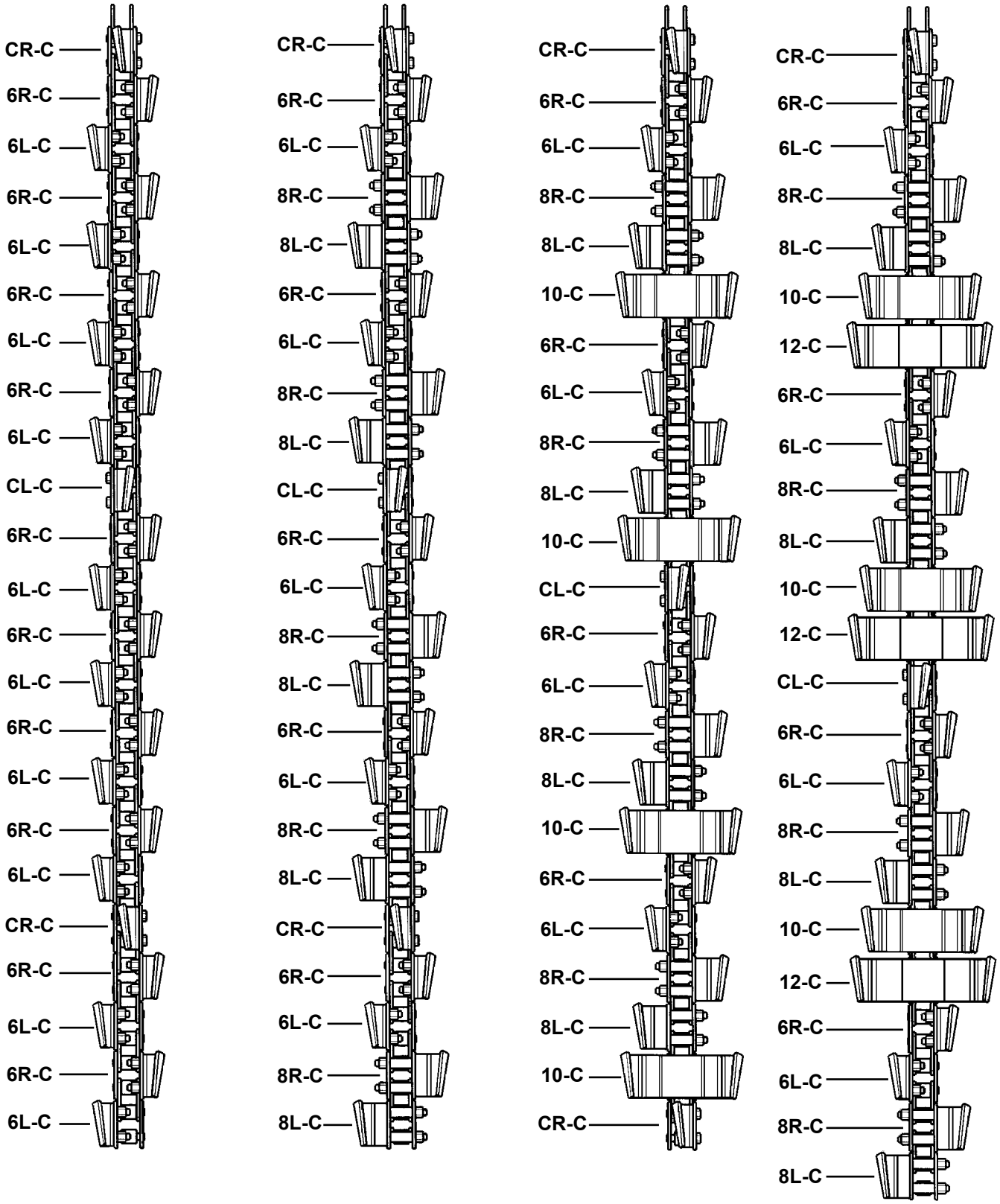
1	CARBIDE BIT HOLDER - 4” (10.2 cm) RIGHT	11	CARBIDE BIT
2	CARBIDE BIT HOLDER - 4” (10.2 cm) LEFT	12	TUBE SPACER
3	CUP CUTTER - RIGHT	13	TUBE SPACER
4	CUP CUTTER - LEFT	14	TUBE SPACER
5	CARBIDE BIT HOLDER* - 5” (12.7 cm) RIGHT	15	CAPSCREW
6	CARBIDE BIT HOLDER* - 5” (12.7 cm) LEFT	16	CAPSCREW
7	CARBIDE BIT HOLDER* - 6” (15.2 cm) RIGHT	17	CAPSCREW
8	CARBIDE BIT HOLDER* - 6” (15.2 cm) LEFT	18	CAPSCREW
9	SPACER - 6” (15.2 cm) CUT	19	CAPSCREW
10	HEX NUT		

* NOTE: There are weld spots located on the top of the 5” (12.7 cm) and 6” (15.2 cm) carbide bit holders to assist in parts identification. One weld spot on the 5” (12.7 cm) holders and two weld spots on the 6” (15.2 cm) holders.

H127 5-1-08

DIGGING CHAIN OPTIONS

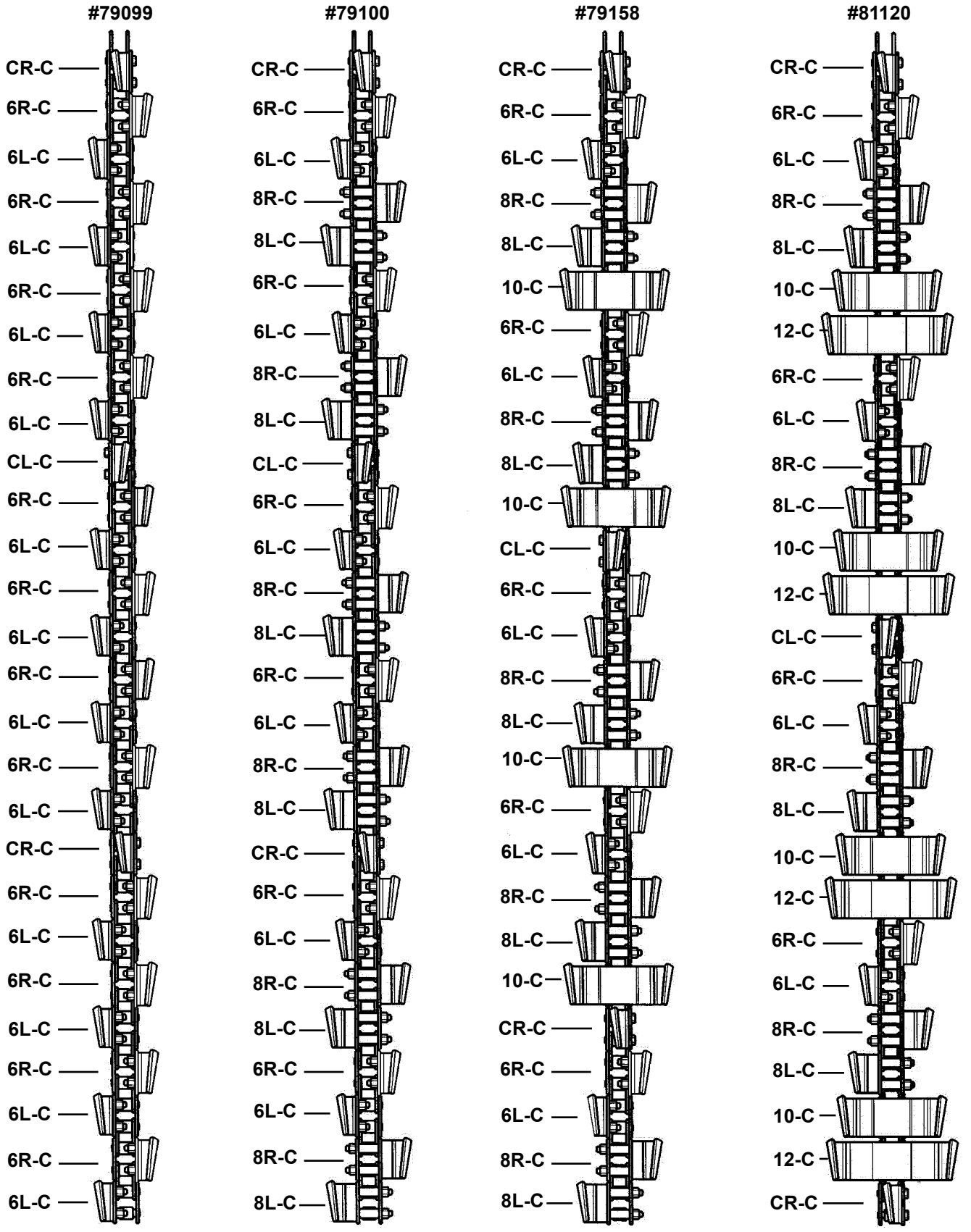
30” (76.2 CM) BOOM WITH CUP TEETH EVERY STATION



H128 5-1-08

DIGGING CHAIN OPTIONS

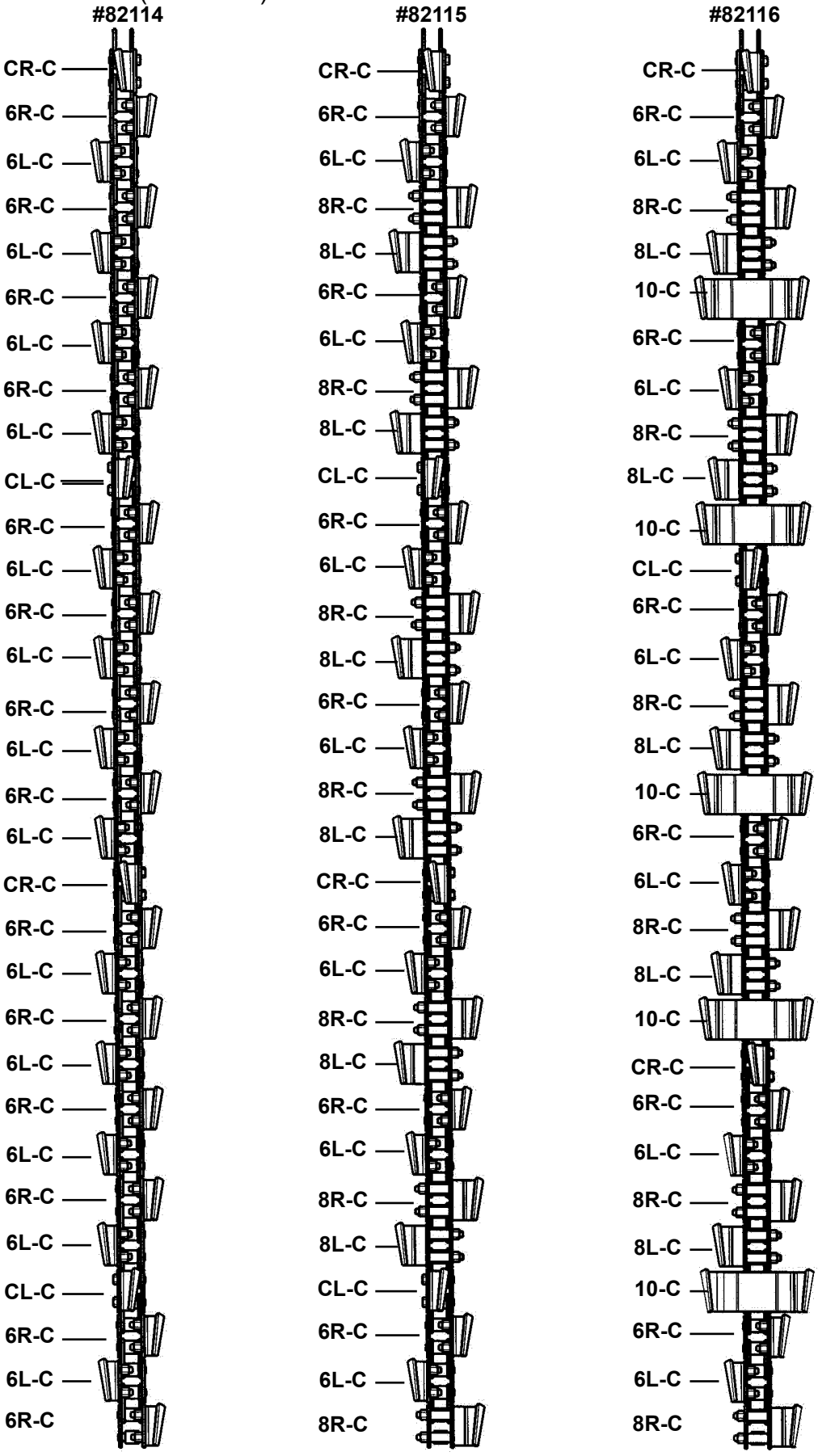
36” (91.4 CM) BOOM WITH CUP TEETH EVERY STATION



H129 5-1-08

DIGGING CHAIN OPTIONS

42” (106.7 CM) BOOM WITH CUP TEETH EVERY STATION

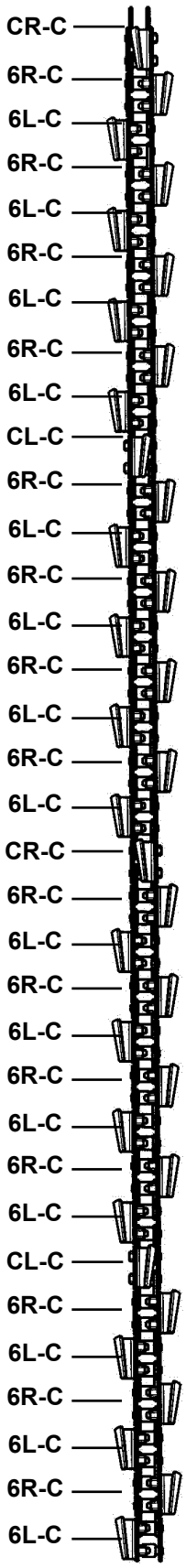


H130 5-1-08

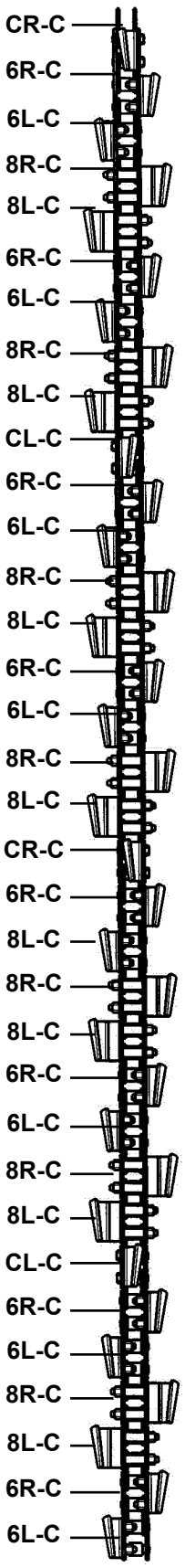
DIGGING CHAIN OPTIONS

48” (121.9 CM) BOOM WITH CUP TEETH EVERY STATION

#79101



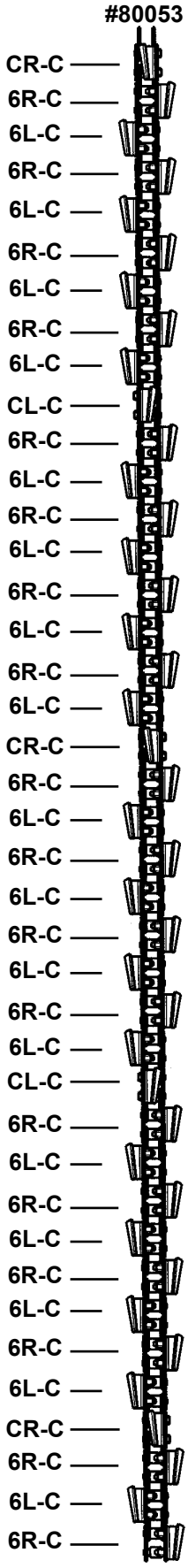
#79102



H131 5-1-08

DIGGING CHAIN OPTIONS

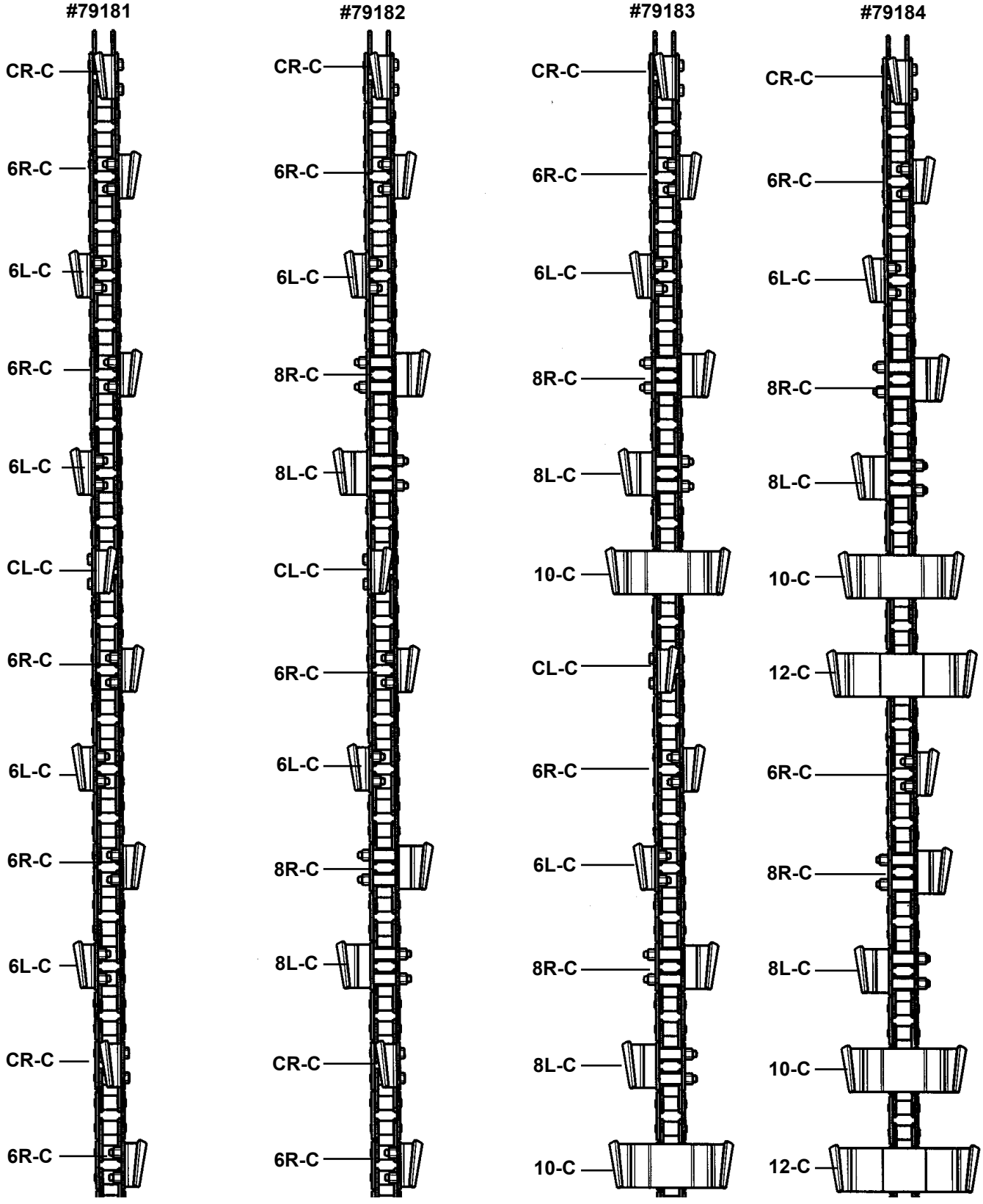
60” (152.4 CM) BOOM WITH CUP TEETH EVERY STATION



H132 5-1-08

DIGGING CHAIN OPTIONS

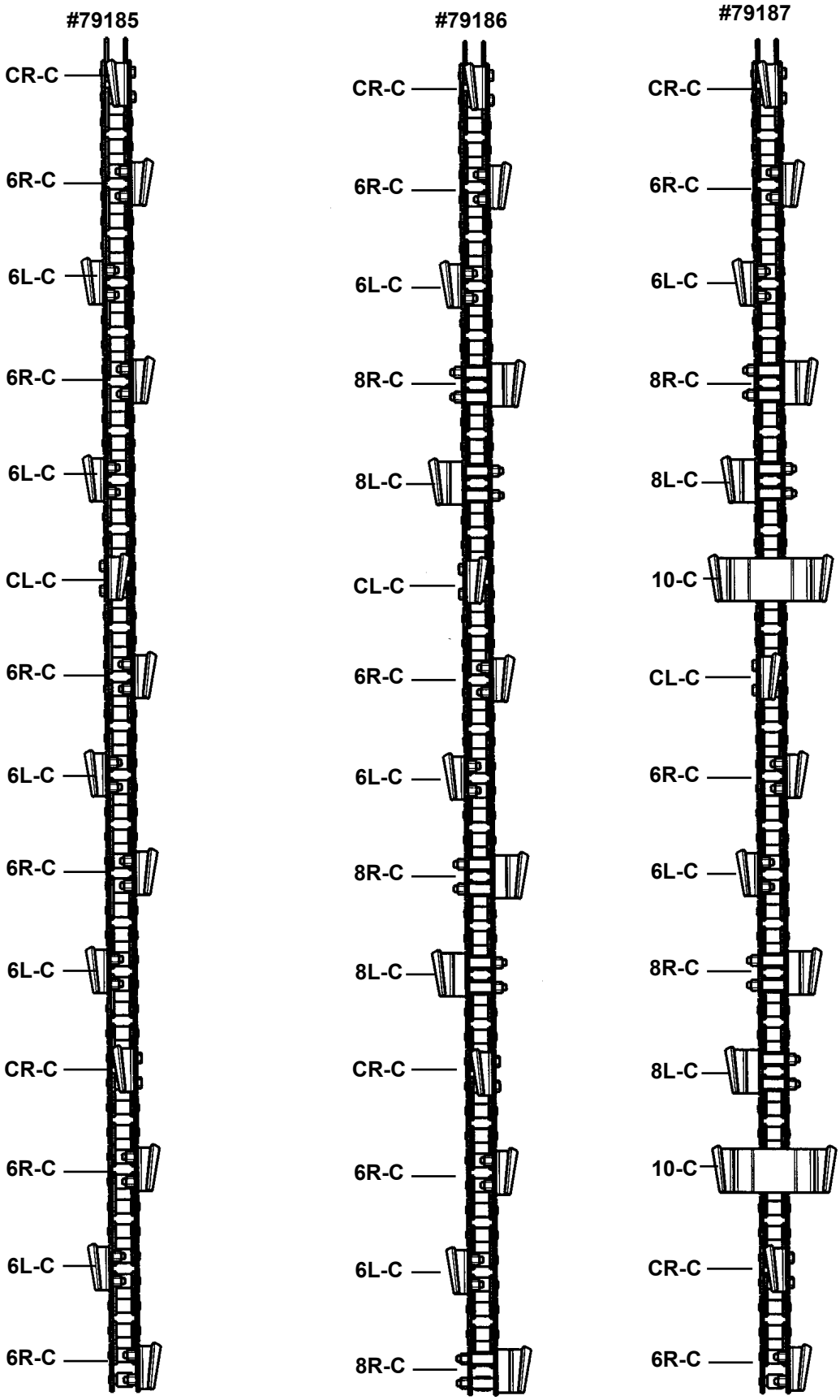
30” (76.2 CM) BOOM WITH CUP TEETH EVERY OTHER STATION



H133 5-1-08

DIGGING CHAIN OPTIONS

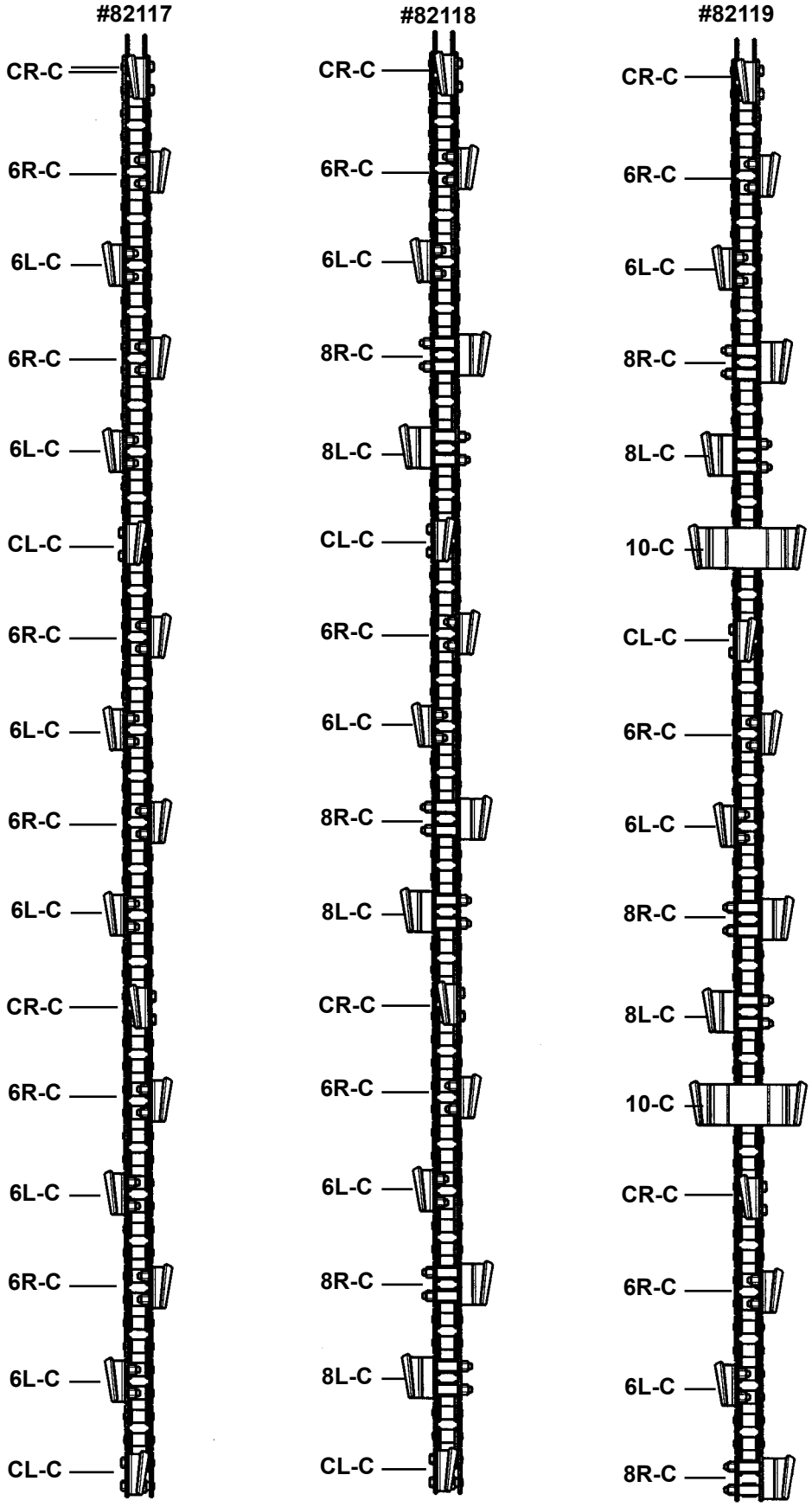
36” (91.4 CM) BOOM WITH CUP TEETH EVERY OTHER STATION



H134 5-1-08

DIGGING CHAIN OPTIONS

42” (106.7 CM) BOOM WITH CUP TEETH EVERY OTHER STATION

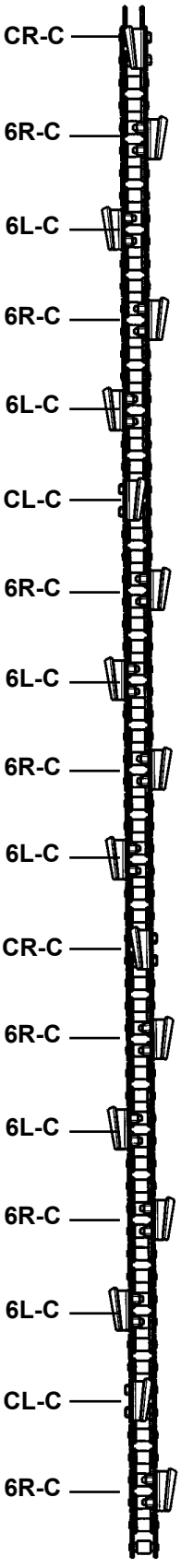


H135 5-1-08

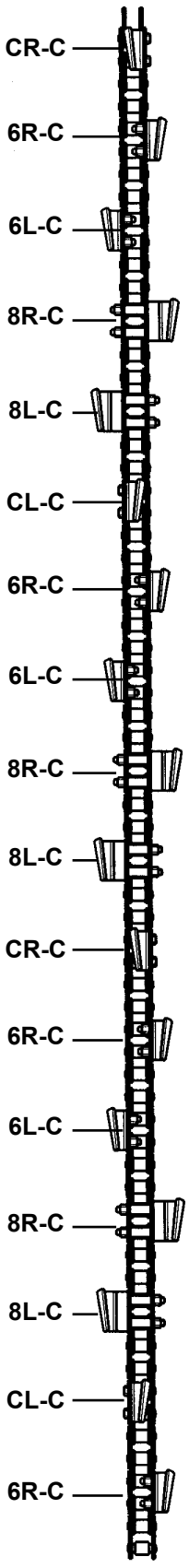
DIGGING CHAIN OPTIONS

48” (121.9 CM) BOOM WITH CUP TEETH EVERY OTHER STATION

#79188



#79189

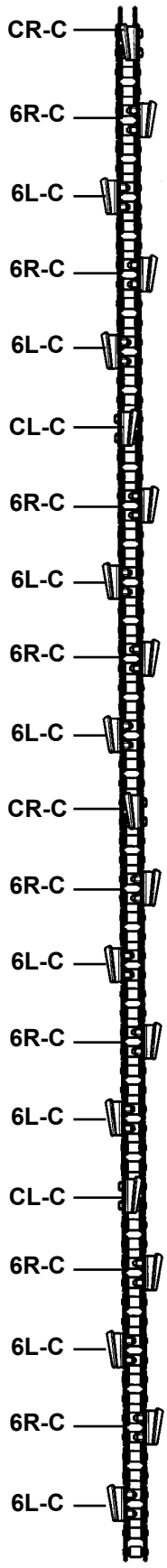


H136 5-1-08

DIGGING CHAIN OPTIONS

60” (152.4 CM) BOOM WITH CUP TEETH EVERY OTHER STATION

#80043

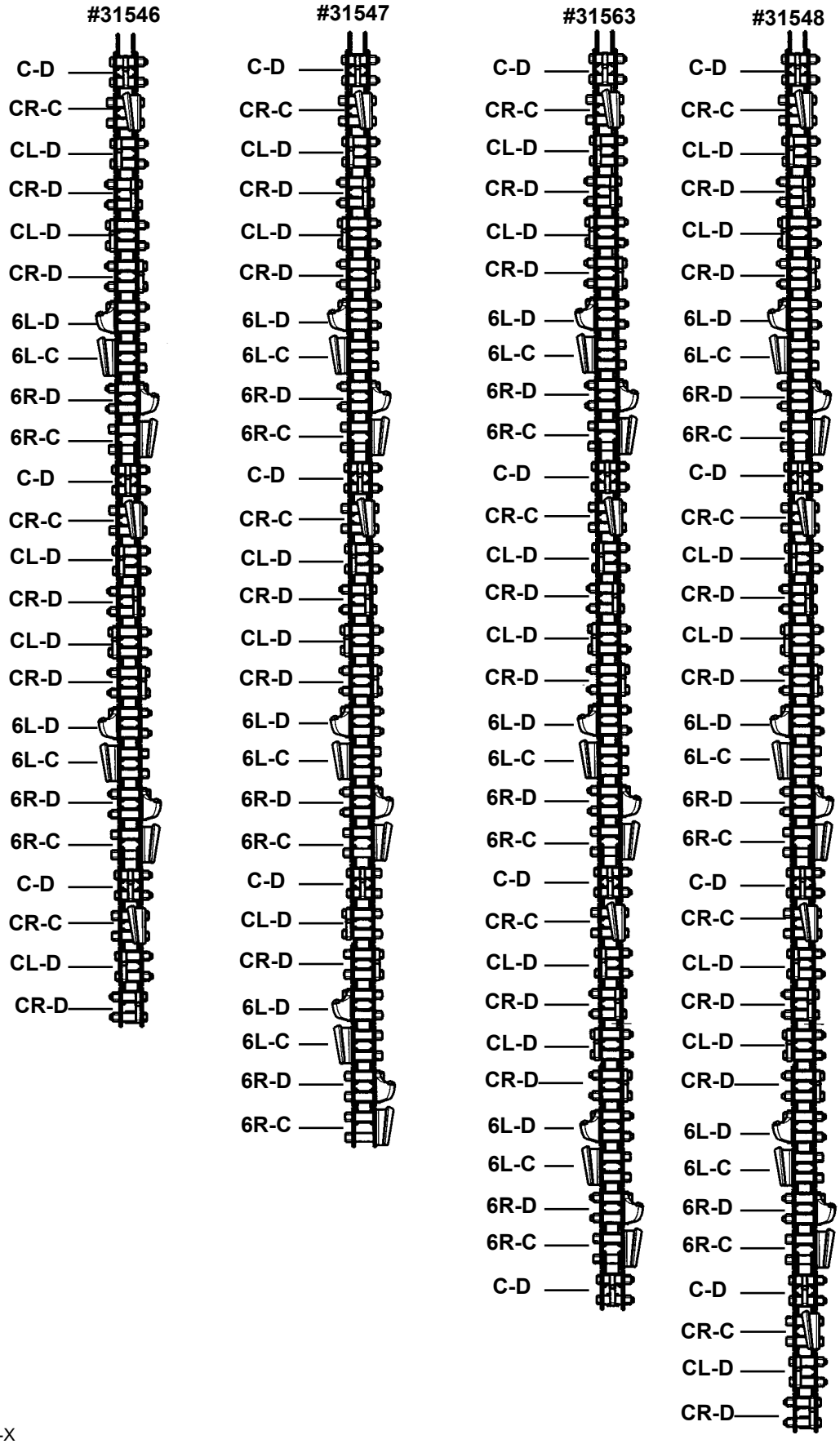


H137 5-1-08

DIGGING CHAIN OPTIONS

70/30 COMBINATION CHAINS

(AGGRESSIVE SHARK-STYLE TEETH - CUP TEETH)



H138 5-1-08

MAINTENANCE

GENERAL MAINTENANCE

GENERAL INFORMATION

Follow these procedures to get full performance and longevity out of the trencher.

LUBRICATION

The only lubrication your trencher needs is the greasing of the headshaft end bearing with an SAE multi-purpose grease every 8 hours of operation. A grease zerk is installed in the bearing to facilitate this task.

NOTE: NOT ALL TRENCHERS REQUIRE LUBRICATING OF THE HEADSHAFT BEARING. SOME UNITS HAVE A SEALED BEARING THAT REQUIRES NO MAINTENANCE. THESE UNITS CAN BE IDENTIFIED BY THE ABSENCE OF A GREASE ZERK IN THE BEARING.

IMPORTANT: <u>DO</u> <u>NOT</u> lubricate any other part of the trencher! Lubricating parts such as the digging chain or the idler wheel will only attract dirt, resulting in increased wear.

EVERY 40 HOURS OF OPERATION

Every 40 hours of operation the trencher should be inspected for loose nuts, capscrews, bearings etc. Tighten as required, replace where necessary.

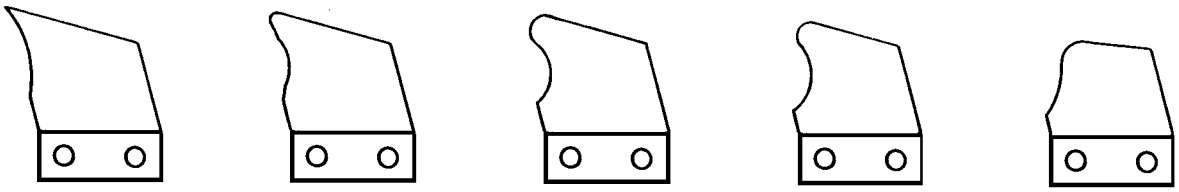
Clean equipment of all dirt, oil, grease, etc. This will assist you in making visual inspections and help avoid overlooking worn or damaged components.

Keep all safety decals clean and legible. Replace if damaged or worn.

DIGGING TOOTH REPLACEMENT

Sharp teeth are important to good performance. When teeth wear out, production will drop sharply, increasing wear and tear on other components.

Cup teeth wear on the tip and side bulge in varying amounts. Wear patterns change with different digging conditions. The following patterns and captions are approximate and should be used as a guide to help you determine your own best cost/benefit tooth replacement time. Normal replacement should be made between 30% and 60% reduction in performance. Replacement is a bolt-on procedure.



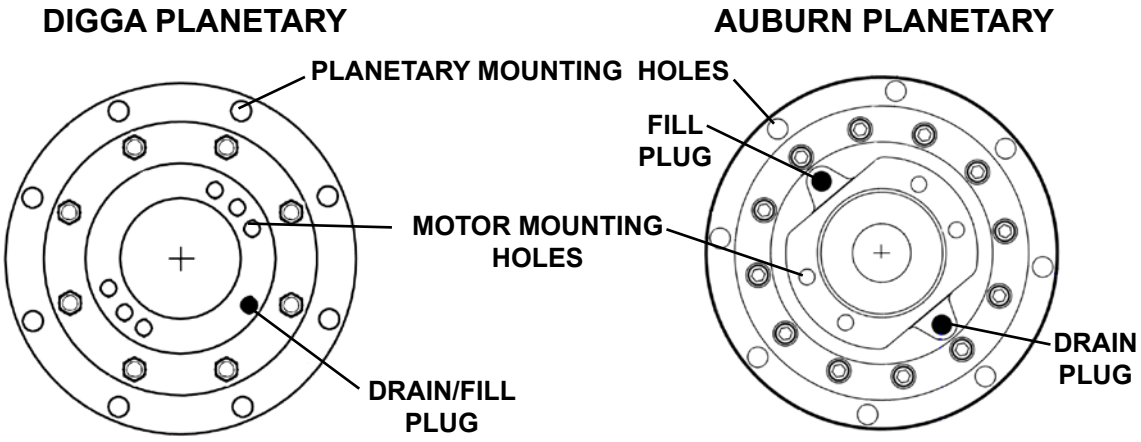
New | **20% Reduced Performance** | **50% Reduced Performance** | **70% Reduced Performance** | **Beyond Use**

H139 5-1-08

MAINTENANCE

PLANETARY GEARBOX

Change planetary oil using API-GL-5, 80W or 90W lubricant after the first 50 hours of operation and then every 1000 hours or 12 months, whichever comes first. Oil should be at operating temperature when checking or changing oil.



CHANGING PLANETARY LUBRICANT (DIGGA PLANETARIES)

Digga Planetaries have one drain/fill plug located towards the bottom of the planetary.

1. Rotate the trencher up so drain/fill plug is located at the lowest point. Secure in place to avoid any inadvertant movement.
2. Wait 5 minutes to allow all of the oil to drain from the gears and bearings. Remove drain plug.
3. To Fill: Rotate the trencher down so the drain/fill hole is at the top. Secure in place to avoid any inadvertant movement. Add .85 quarts (27oz) of API-GL-5, 80W or 90W lubricant. Do not overfill.

CHANGING PLANETARY LUBRICANT (AUBURN PLANETARIES)

Auburn Planetaries have a drain plug and a fill plug located towards the top and bottom of the planetary.

1. Rotate the trencher up so drainplug is located at the lowest point. Secure in place to avoid any inadvertant movement.
2. Wait 5 minutes to allow all of the oil to drain from the gears and bearings. Remove drain plug.
3. To Fill: Rotate the trencher down so the fill hole is at the top. Secure in place to avoid any inadvertant movement. Add .56 quarts (18oz) of API-GL-5, 80W or 90W lubricant. Do not overfill.

TROUBLESHOOTING

DIGGING CHAIN WILL NOT TURN

1. **QUICK COUPLER NOT COMPLETELY ENGAGED.** Check to see that all couplers are matched pairs and engage correctly. Check coupler hook-up and hose routing.

2. **QUICK COUPLER FAILURE.** Check couplers for dirt, rust, or other contaminates that could affect coupler engagement. Clean or replace couplers as needed.

3. **OBSTRUCTION IN HYDRAULIC HOSE.** Remove hydraulic hoses and couplers one at a time and check flow through hose by blowing through the hose or by pouring hydraulic fluid through the hose. Clean or replace hose as needed.

4. **LOADER AUXILIARY HYDRAULICS NOT OPERATING PROPERLY.** See skid steer operator's manual or dealer for information and help.

5. **HYDRAULIC MOTOR FAILED.** Be sure you have hydraulic flow to the motor. If oil flow to motor is good, but motor will still not turn when detached from trencher headshaft, remove motor and have it serviced or replaced as needed.

6. **HEADSHAFT BEARINGS FAILED.** Inspect headshaft bearings (if so equipped) for free movement. Check for binding or foreign matter jamming bearing. Clean or replace as necessary.

7. **BOOM END BEARING FAILED.** Inspect boom end bearing for free movement. Check for binding or foreign matter jamming bearing. Clean or replace as necessary.
8. **DIGGING CHAIN TOO TIGHT.** Digging chain should only be tight enough to remain on sprockets while turning under load. Their should be some sag in the chain. If too tight, loosen chain by the adjusting nut(s) on the boom.

9. **SAND BUILD-UP IN TOOTH ROOT OF SPROCKET.** Sand can build up in the sprockets effectively increasing the chain tension. Raise the boom out of the ditch and reverse the digging chain on the trencher, then run the trencher out of the trench to clear the sprockets. Reinstall the chain in its correct digging direction and readjust chain tension.

10. **DIGGING SPROCKET LOOSE ON HEADSHAFT.** Observe if the headshaft is turning. If shaft is turning but sprocket is not, stop the trencher and tighten the sprocket (640) or the sprocket clamp (625).

TROUBLESHOOTING

TRENCHER DOES NOT DIG FAST ENOUGH

1. **DIGGING TEETH WORN.** See Maintenance Section in this manual. Inspect teeth and replace as needed.

2. **SKID STEER RELIEF VALVE SET TOO LOW.** See skid steer operator's manual and or dealer for proper relief valve service and adjustment.

3. **QUICK COUPLER OR HOSE RESTRICTION.** Inspect couplers and hoses for dirt, rust, and other contaminates and repair or replace as needed.

4. **HYDRAULIC SYSTEM OVER HEATING.** Shut the trencher and skid steer down and allow oil to cool. Repeated stalling of the trencher will cause the oil to over heat. Avoid excessive stalling.

5. **CUTTING A DITCH SIZE BEYOND THE ABILITY OF THE SKID STEER.** Your trencher is powered by oil from the skid steers auxiliary hydraulic system. The horsepower transmitted through the auxiliary hydraulics is substantially less than that of the engine.

6. **INCORRECT HYDRAULIC MOTOR APPLICATION (640 ONLY).** Check the recommended GPM (LPM) for the hydraulic motor you trencher is equipped with and compare to the skid-steer auxiliary hydraulic flow.

HYDRAULIC OIL OVERHEATING

1. **SKID STEER RELIEF VALVE SET TOO LOW.** See skid steer operator's manual and/or dealer for proper relief valve service and adjustment.

2. **QUICK COUPLER OR HOSE RESTRICTION.** Inspect couplers and hoses for dirt, rust, and other contaminates and repair or replace as needed.

3. **MOTOR OR HOSE SIZE NOT BALANCED TO SKID STEER.** A hose or a motor that is too small can cause added internal friction and resultant heat build-up. Check mounting kit parts list and diagram for proper hose size and type.

4. **SKID STEER NOT EQUIPPED WITH OIL COOLER OR SUFFICIENT SUMP CAPACITY.** Check with your skid steer dealer for information and availability of auxiliary cooling and sump kits. Install if available. If not available stop skid steer and trencher and allow them to cool when they get too hot.

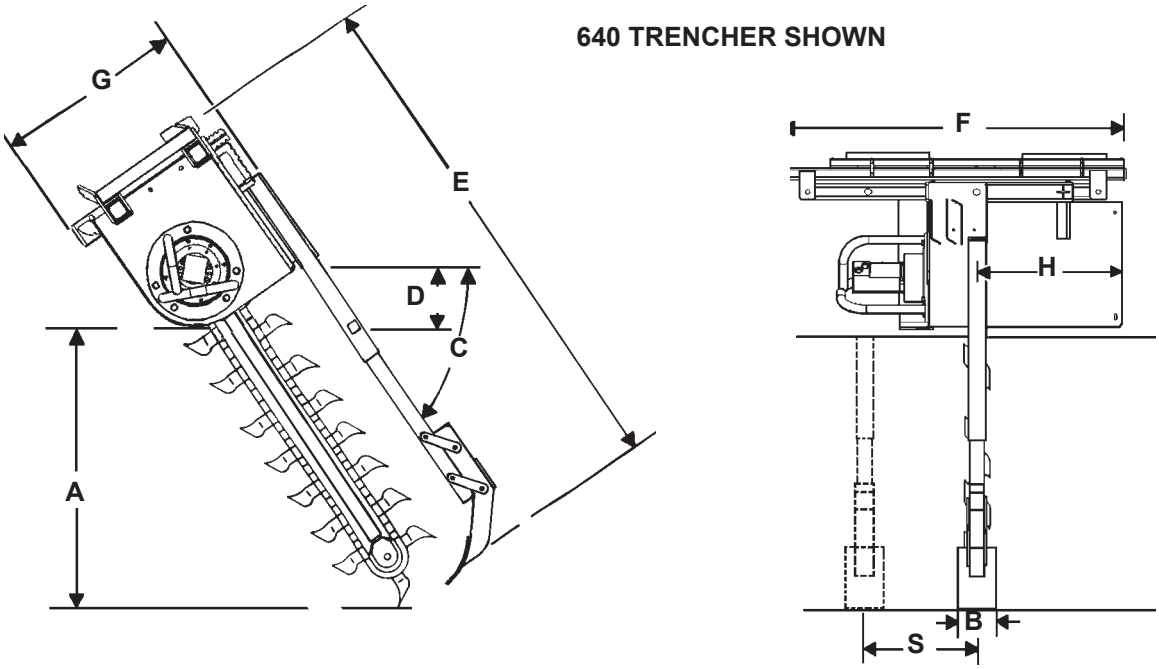
EXCESSIVE CHAIN SPEED

1. **INCORRECT HYDRAULIC MOTOR APPLICATION (640 ONLY).** Check the recommended GPM (LPM) for the hydraulic motor your trencher is equipped with and compare to the skid-steer auxiliary hydraulic flow.

H142 5-2-08

SPECIFICATIONS

640 TRENCHER SHOWN



DESCRIPTION	BOOM SIZE 30" (762mm)	36" (914mm)	42" (1067mm)	48" (1219mm)
A. Trench Depth w/Auger @ 65° Digging Angle	30" (762mm)	36" (914mm)	42" (1067mm)	48" (1219mm)
B. Chain Widths Available - Tooth Every Station				
6" (152mm)	6" (152mm)	6" (152mm)	6" (152mm)	6" (152mm)
8" (203mm)	8" (203mm)	8" (203mm)	8" (203mm)	8" (203mm)
10" (254mm)	10" (254mm)	10" (254mm)	10" (254mm)	NA
12" (305mm)	12" (305mm)	12" (305mm)	NA	NA
C. Recommended Trenching Angle	65°	65°	65°	65°
D. Headshaft Height	8" (203mm)	8" (203mm)	8" (203mm)	8" (203mm)
E. Overall Trencher Length	66" (1676mm)	73" (1854mm)	79" (2007mm)	86" (2184mm)

F. Overall Trencher Width - 625 ..... 54" (1372mm)
Overall Trehcher Width - 640 ..... 59" (1499mm)
G. Overall Trencher Height ..... 32" (813mm)
H. Spoil Discharge Reach ..... 18" (457mm)
S. Side Shift, Right of Center ..... 17" (432mm)

Distance From Centerline Drive Sprocket to Back of Mounting Frame ..... 16" (406mm)

Hydrostatic System:
- 625 GPM Requirements ..... 14-22 GPM (53-83 lpm)
- 640(A) GPM Requirements ..... 14-17 GPM (53-64 lpm)
- 640(B) GPM Requirements ..... 18-24 GPM (68-91 lpm)
- 640(C) GPM Requirements ..... 25-28 GPM (95-106 lpm)
- 640(D) GPM Requirements ..... 29-35 GPM (110-132 lpm)
- 640(E) GPM Requirements ..... 36-44 GPM (136-167 lpm)
- Operating Pressure ..... 2000 - 3000 PSI (138-207 bar)

Approximate Overall Shipping Weight - 625 ..... 1040 LBS (472 kg)
Approximate Overall Shipping Weight - 640 ..... 1120 LBS (508 kg)
(with 3' x 6" - 24 pitch anti-back-flex chain)

H441 1-19-11

BOLT TORQUE SPECIFICATIONS

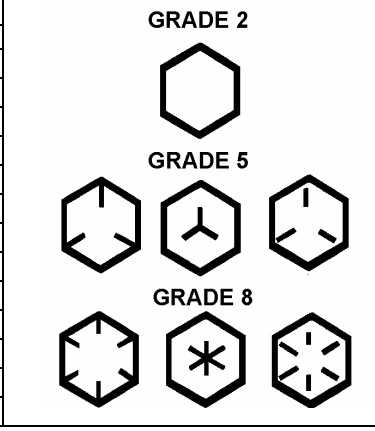
GENERAL TORQUE SPECIFICATION TABLES

Use the following charts when determining bolt torque specifications when special torques are not given. Always use grade 5 or better when replacing bolts.

SAE BOLT TORQUE SPECIFICATIONS

NOTE: The following torque values are for use with extreme pressure lubricants, plating or hard washer applications Increase torque 15% when using hardware that is unplated and either dry or lubricated with engine oil.

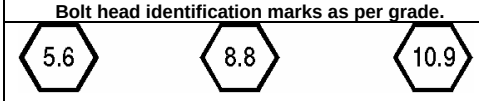
Bolt Size		SAE GRADE 5 TORQUE				SAE GRADE 8 TORQUE				Bolt head identification marks as per grade. NOTE: Manufacturing Marks Will Vary
		Pounds Feet		Newton-Meters		Pounds Feet		Newton-Meters		
Inches	Millimeters	UNC	UNF	UNC	UNF	UNC	UNF	UNC	UNF	
1/4	6.35	8	9	11	12	10	13	14	18	
5/16	7.94	14	17	19	23	20	25	27	34	
3/8	9.53	30	36	41	49	38	46	52	62	
7/16	11.11	46	54	62	73	60	71	81	96	
1/2	12.70	68	82	92	111	94	112	127	152	
9/16	14.29	94	112	127	152	136	163	184	221	
5/8	15.88	128	153	174	207	187	224	254	304	
3/4	19.05	230	275	312	373	323	395	438	536	
7/8	22.23	340	408	461	553	510	612	691	830	
1	25.40	493	592	668	803	765	918	1037	1245	
1-1/8	25.58	680	748	922	1014	1088	1224	1475	1660	
1-1/4	31.75	952	1054	1291	1429	1547	1700	2097	2305	
1-3/8	34.93	1241	1428	1683	1936	2023	2312	2743	3135	
1-1/2	38.10	1649	1870	2236	2535	2686	3026	3642	4103	



METRIC BOLT TORQUE SPECIFICATIONS

NOTE: The following torque values are for use with metric hardware that is unplated and either dry or lubricated with engine oil. Reduce torque 15% when using hardware that has extreme pressure lubricants, plating or hard washer applications.

Bolt head identification marks as per grade.



Size of Bolt	Grade No.	Pitch (mm)	Pounds Feet	Newton-Meters	Pitch (mm)	Pounds Feet	Newton-Meters
M6	5.6	1.0	3.6-5.8	4.9-7.9	-	-	-
	8.8		5.8-.4	7.9-12.7		-	-
	10.9		7.2-10	9.8-13.6		-	-
M8	5.6	1.25	7.2-14	9.8-19	1.0	12-17	16.3-23
	8.8		17-22	23-29.8		19-27	25.7-36.6
	10.9		20-26	27.1-35.2		22-31	29.8-42
M10	5.6	1.5	20-25	27.1-33.9	1.25	20-29	27.1-39.3
	8.8		34-40	46.1-54.2		35-47	47.4-63.7
	10.9		38-46	51.5-62.3		40-52	54.2-70.5
M12	5.6	1.75	28-34	37.9-46.1	1.25	31-41	42-55.6
	8.8		51-59	69.1-79.9		56-68	75.9-92.1
	10.9		57-66	77.2-89.4		62-75	84-101.6
M14	5.6	2.0	49-56	66.4-75.9	1.5	52-64	70.5-86.7
	8.8		81-93	109.8-126		90-106	122-143.6
	10.9		96-109	130.1-147.7		107-124	145-168
M16	5.6	2.0	67-77	90.8-104.3	1.5	69-83	93.5-112.5
	8.8		116-130	157.2-176.2		120-138	162.6-187
	10.9		129-145	174.8-196.5		140-158	189.7-214.1
M18	5.6	2.0	88-100	119.2-136	1.5	100-117	136-158.5
	8.8		150-168	203.3-227.6		177-199	239.8-269.6
	10.9		175-194	237.1-262.9		202-231	273.7-313
M20	5.6	2.5	108-130	146.3-176.2	1.5	132-150	178.9-203.3
	8.8		186-205	252-277.8		206-242	279.1-327.9
	10.9		213-249	288.6-337.4		246-289	333.3-391.6

PALADIN™
CONSTRUCTION GROUP

CE

EU DECLARATION OF CONFORMITY

I, the undersigned, on behalf of:

Manufacturer/Technical Document Holder

Paladin Construction Group
2800 N. Zeeb Road
Dexter, MI 48130 USA
Phone: 734-996-9116
Fax: 734-996-9014

hereby declare that the following product:

Description of Equipment: **Hydraulically driven Trencher for skid steer loader applications. Used for digging holes and trenches up to the depth and width of the digging chain.**

Attachment Model: **625 & 640**

Serial Number: _____

Conforms to: **2006/42/EC Machinery Directive; EN ISO 474-1; EN ISO 2860; EN ISO 982 EN ISO 2867; EN ISO 12100-1; EN ISO 12100-2; EN ISO 14121-1**

Certification method: **Self-certified, per Annex V of the Directive**

Name and address of the person in the Community authorized to compile the technical construction file:

GENESIS GmbH
Alpenstrasse 71
Memmingen, GERMANY D – 87700

At Delhi, Signature, Title, Date

Signature: _____

Title: _____

Date: _____

SAMPLE

UKCA DECLARATION OF CONFORMITY

The undersigned, representing the following manufacturer:

Manufacturer:

Paladin Attachments
2800 N Zeeb Rd.
Dexter, MI 48130
United States

Declares that the product(s)

Product identification:

Description:	HYDRAULIC CABLES CUTTING TOOLS WITH 18V RECHARGEABLE BATTERY
Model:	**BCP040GC - BCP045GC - BCP055GC - BCP065CC - BCP085G+**
Serial number:	L-00001 à L-99999

Conforms to the UK Regulations:
The supply of Machinery (Safety) Regulations 2008, S.I. 2008/1597 (as amended)
Electromagnetic Compatibility Regulations, 2016, S.I. 2016/1091 (as amended)
The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012, S.I. 2012/3032 (as amended)

Designated Standards:

SI 2008/1597	NF EN ISO 15744 (December 2008) NF EN ISO 3744 (February 2012) NF EN ISO 20643 (September 2008) NF EN ISO 11201 (December 2010) NF EN 12096 (September 1997)
SI 2016/1091	EN 62233 (September 2013) EN 55014-1 (June 2017) EN 55014-2 (July 2015) EN 62311 (October 2008)
S.I. 2012/3032	NF EN IEC 63000 (December 2018)

The undersigned is responsible for compilation of the technical file and makes this declaration on behalf of DUBUIS.

Signature

Blois, July 28, 2021

Patrick VERVIER,

Engineering Manager

SAMPLE