



OPERATOR'S MANUAL
HyReach Clipper- Models XD, ED and TeleClipper



Heavy Duty
HY-REACH CLIPPER

PRECISION MANUFACTURING, INC.

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INTRODUCTION

Thank you for purchasing your new Precision XD, ED, or TeleClipper Model Heavy Duty or Extreme Duty Tree Clipper. We hope you will enjoy years of productive use from it. This equipment is designed to be mounted on a ROPS equipped tractor or skid-steer loader. The XD, ED and TeleClipper Series Tree Clippers are designed to trim trees, limbs, brush and other hard-to-reach wood debris. No other use is intended.

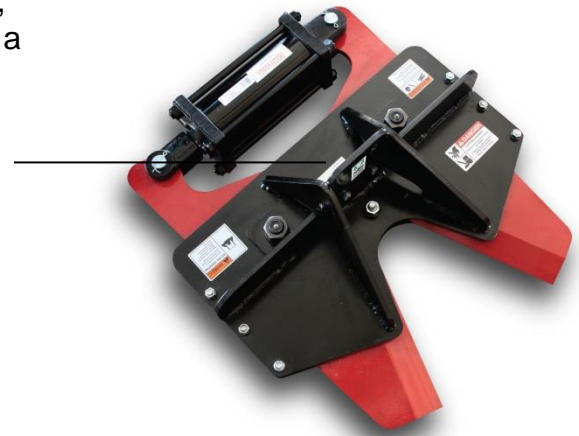
Please read and understand this manual before operation.

REGISTRATION

Registration card must be completed and mailed prior to use of equipment. We respect your privacy. Your personal information will not be shared without permission.

If your registration card is lost or misplaced, please contact Precision Manufacturing for a replacement.

NOTE: The Serial Number is located on a metal tag on the top rear of the clipper.



WARRANTY

Precision Manufacturing warrants all new products manufactured and/or marketed by Precision Manufacturing to be free from defects in material and workmanship under normal usage and service for one year from the date of first use by the buyer, or for one year from the date of the purchase as indicated on the receipt/invoice, whichever occurs first. Repairs or replacements covered under this warranty shall be warranted for the remaining portion of the original warranty period or ninety (90) days, whichever is longer. This warranty shall apply provided the products are returned to Precision Manufacturing's designated facility freight prepaid.

This Warranty excludes all products or component parts that, in the opinion of Precision Manufacturing, have been subjected to negligent use, misuse, alteration, or accident, or that have been repaired with component parts other than those manufactured or used by Precision Manufacturing.

Precision Manufacturing does not warrant component parts supplied by manufacturers who provide separate warranties for their merchandise. It is the obligation of the buyer to contact these suppliers directly for warranty claims, service, and replacement of defective materials and component parts.

Precision Manufacturing reserves the right to make design changes, improve design, or change specifications at any time without any contingent obligation to owners of products previously sold by Precision Manufacturing.

This Warranty shall not be interpreted to render Precision Manufacturing liable for injuries or damages of any kind, direct, consequential, or contingent, to persons or property. Precision Manufacturing shall not be liable for any recovery greater than the cost of repair of defects in workmanship.

Precision Manufacturing shall not be held responsible by buyers for failure to perform any of the obligations of this Warranty if such failures are the result of circumstances of Force Majeure, such as, but not limited to floods, earthquakes, transportation strikes, labor disputes with outside suppliers, or any other conditions beyond the control of Precision Manufacturing.

Warranty service is available by contacting your dealer or distributor.

This Warranty gives you specific legal rights and you may have other rights.

SAFETY

TAKE NOTE! THIS SAFETY ALERT SYMBOL FOUND THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY AND THE SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.



**THIS SYMBOL MEANS
ATTENTION!
BECOME ALERT!
YOUR SAFETY IS INVOLVED!**

SIGNAL WORDS

Note the use of the signal words **DANGER**, **WARNING** and **CAUTION** with the safety messages. The appropriate signal word for each has been selected using the following guidelines:

DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations typically for machine components, which, for functional purposes, cannot be guarded.

WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION: Indicates a potentially hazardous situation that, if not avoided may result in minor or moderate injury. It may also be used to alert against unsafe practices.

If you have questions not answered in this manual or require additional copies or the manual is damaged, please contact your dealer or Precision Manufacturing, Inc., 800 Market Street, Sedalia, MO 65301. Phone (660) 827-6131, Fax (660) 827-7366.



SAFETY – YOU CAN LIVE WITH IT

EQUIPMENT SAFETY GUIDELINES

Safety of the operator is one of the main concerns in designing a new piece of equipment. Designers and manufacturers build in as many safety features as possible. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You, the operator, can avoid personal injury. Study the following precautions and insist those working with you, or for you, follow them.

In order to provide a better view, certain photographs or illustrations in this manual may show an assembly with a safety shield removed. However, equipment should never be operated in this condition. Keep all shields in place. If shield removal becomes necessary for repairs, replace the shield prior to use.

Replace any **CAUTION**, **WARNING**, **DANGER** or instruction safety decal that is not readable or is missing. Location of such decals is indicated in this manual.

Do not attempt to operate this equipment under the influence of drugs or alcohol.

Review the safety instructions with all users annually.

This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible adult familiar with machinery and trained in this equipment's operations. Do not allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions and of how it works.

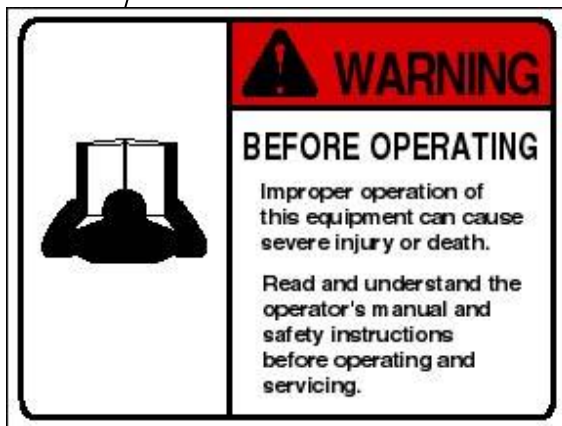
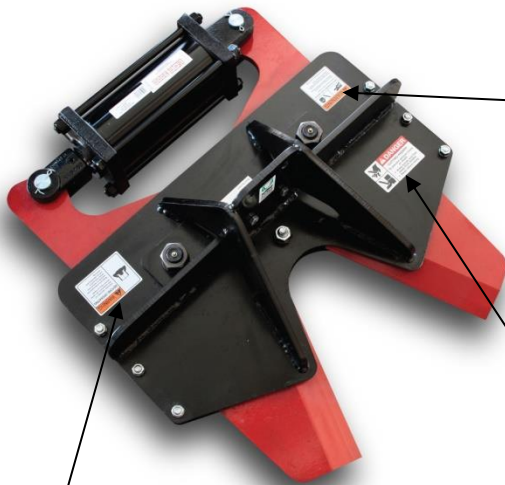
To prevent injury or death, use a tractor or skid-steer equipped with a Roll Over Protective System (ROPS)/(FOPS) If cutting limbs overhead. Do not paint over, remove or deface any safety signs or warning decals on your equipment. Observe all safety signs and practice the instructions on them.

Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in questions, **DON'T TRY IT.**



SAFETY SIGN LOCATIONS

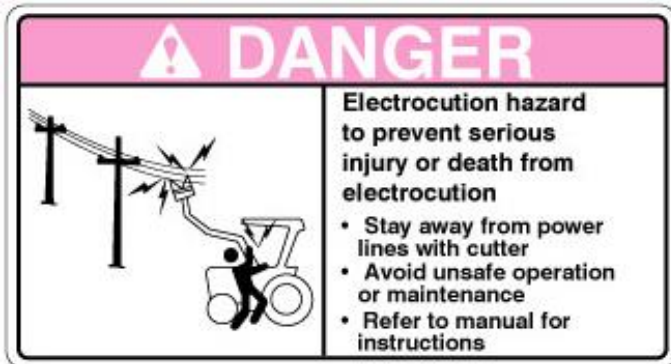
The types of Safety Signs and locations on the equipment are shown in the illustration below. Good safety requires that you familiarize yourself with the various Safety Signs, the type of warning and the area, or particular function related to that area, that requires your **SAFETY AWARENESS**.



REMEMBER: If Safety Signs have been damaged, removed, become illegible or parts replaced without decals, new decals must be applied. New decals are available from your authorized distributor or factory.



SAFETY SIGN LOCATIONS





SAFETY DECAL CARE

- . Keep safety decals and signs clean and legible at all times.
- . Replace safety decals and signs that are missing or have become illegible.
- . Replaced parts that displayed a safety sign should also display the current sign.
- . Safety decals or signs are available from your Distributor or Dealer Parts Department or the factory.

How to install Safety Decals

- . Be sure that the installation area is clean and dry.
- . Decide on the exact position before you remove the backing paper.
- . Remove the smallest portion of the split backing paper.
- . Align the decal over the specified area and carefully press the small portion with the exposed sticky backing in place.
- . Slowly peel back the remaining paper and carefully smooth the remaining portion of the decal in place.
- . Small air pockets can be pierced with a pin and smoothed out using the piece of decal backing paper.



REMEMBER: Your best assurance against accidents is a careful and responsible operator. If there is any portion of this manual or function you do not understand, contact the local authorized dealer or the manufacturer.



BEFORE OPERATION

- . Carefully study and understand this manual before operating attachment.
- . Do not wear loose-fitting clothing, which may catch in moving parts.
- . Always wear protective clothing and substantial shoes.
- . It is recommended that suitable protective hearing and (eye protection) sight protectors are worn.
- . Keep bolts tightened to specified torque.
- . Assure that all tires are inflated evenly.
- . Give the unit a visual inspection for any loose bolts, worn parts or cracked welds, and make the necessary repairs. Follow the maintenance safety instructions included in this manual.
- . Be sure that there are no tools lying on or in the equipment.
- . Do not use the unit until you are sure that the area is clear, especially children and animals.
- . Because it is possible that this equipment may be used in dry areas or in the presence of combustibles, special precautions should be taken to prevent fires and fire-fighting equipment should be readily available.
- . Don't hurry the learning process or take the unit for granted. Ease into it and become familiar with your new equipment.
- . Practice operation of your equipment and its attachments. Completely familiarize yourself with your new equipment.
- . Use a tractor equipped with a Roll Over Protective System (ROPS) or (FOPS) if cutting limbs overhead and fasten your seat belt before starting the engine.
- . The manufacturer does not recommend usage of tractor with ROPS removed.
- . Move tractor wheels/tracks to the widest recommended settings to increase stability.



DURING OPERATION

- . Beware of bystanders, **particularly children!** Always look around to make sure that it is safe to start the engine or move the unit. This is particularly important with higher noise levels and quiet cabs, as you may not hear people shouting.
- . **NO PASSENGERS ALLOWED** – Do not carry passengers anywhere on, or in the tractor or equipment except as required for operation.
- . Keep hands and clothing clear of moving parts.
- . Do not clean, lubricate or adjust your equipment while it is moving.
- . When halting operation, even periodically, set the tractor brakes, shut off the engine and **remove the ignition key.**
 - **DO NOT** operate near the edge of drop-offs or banks.
 - **DO NOT** operate on steep slopes as overturn may result.
 - Operate up and down (not across) intermediate slopes. Avoid sudden starts and stops.
- . Pick the most level possible route when transporting across fields. **KEEP UNIT IN LOWERED POSITION WHEN TRANSPORTING.** Avoid the edges of ditches or gullies and steep hillsides.
- . Be extra careful when working on inclines.
- . Periodically clear the equipment of brush, twigs or other materials to prevent buildup of dry combustible materials.
- . Maneuver the tractor at safe speeds.
- . **AVOID OVERHEAD WIRES OR OTHER OBSTACLES. CONTACT WITH OVERHEAD LINES COULD CAUSE SERIOUS INJURY OR DEATH.**
- . Avoid loose fill, rocks and holes; they can be dangerous for equipment operation or movement.
- . Allow for unit length when making turns.
- . **DO NOT WALK OR WORK UNDER RAISED COMPONENTS OR ATTACHMENTS UNLESS SECURELY POSITIONED AND BLOCKED.**
- . Keep all bystanders, pets and livestock clear of the work area.
- . Operate the tractor from the operator's seat only.
- . Never stand alongside of unit with engine running or attempt to start engine and/or operate machine while standing alongside of unit.
- . Never leave running equipment unattended.
- . As a precaution, always recheck the equipment after each day of operation. Correct all problems. Follow the maintenance safety procedures.
- . Avoid operating the equipment on excessively steep hills and especially on hills that are steeper than 15 degrees. Avoid crossing slopes if possible and do not make sharp uphill steering corrections or a rollover could result. If your tractor starts to tip over on a slope, turn the front wheels quickly downhill to regain stability and control.

The best way to climb most hills is to drive straight up while maintaining a steady ground speed and constant engine RPM. The best way to descend most hills is straight down while using steady pressure on the brakes without locking them up. Locking the brakes in a steep downhill situation can result in loss of traction, steering and control. When you must cross a slope on soft terrain, keep the front wheels turned slightly uphill and maintain a constant speed and a straight line of travel.

Driving too fast, being inattentive and turning too sharply on slippery surfaces can result in rollovers and accidents almost quicker than any other ground condition we know of. Snow cover, wet surfaces, loose gravel and frozen ground can all contribute to this dangerous condition. In these conditions maintain a sharp focus on what you are doing and the terrain you are on. Do not make sharp turns and avoid the need for hard braking if at all possible. If you start to skid or slide in a turn, turn the front wheels in the direction of the skid to regain control.



FOLLOWING OPERATION

- . Following operation, or when detaching, stop the tractor, set the brakes. Disengage the PTO and all power drives, shut off the engine and **remove the ignition keys**.
- . Store the unit in an area away from human activity.
- . Do not store equipment where it will be exposed to livestock for long periods of time. Damage and livestock injury could result.
- . Do not permit children to play on or around the stored unit.
- . Make sure all parked machines are on a hard level surface.



HIGHWAY AND TRANSPORT OPERATION

- . Adopt safe driving practices.
 - Keep the brake pedals latched together at all times. NEVER USE INDEPENDENT BRAKING AS LOSS OF CONTROL AND/OR UPSET OF UNIT CAN RESULT.
 - Always drive at a safe speed relative to local conditions and ensure that your speed is low enough for an emergency stop to be safe and secure. Keep speed to a minimum.
 - Reduce speed prior to turns to avoid the risk of overturning.
 - Avoid sudden uphill turns on steep slopes.
 - Always keep the tractor in gear to provide engine braking when going downhill. Do not coast.
 - Do not drink and drive.
- . Comply with state and local laws governing highway safety and movement of farm machinery on public roads.
- . Use approved accessory lighting flags and necessary warning devices to protect operators of other vehicles on the highway during the daylight and nighttime transport.
- . The use of flashing amber lights is acceptable in most localities. However, some localities prohibit their use. Local laws should be checked for all highway lighting and marking requirements.
- . When driving the tractor and equipment on the road or highway under 40 kph (20 mph) at night or during the day, use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem.
- . Plan your route to avoid heavy traffic.
- . Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc.
- . Be observant of bridge loading ratings. Do not cross bridges rated lower than the gross weight at which you are operating.
- . Watch for obstructions overhead and to the side while transporting.
- . Always operate equipment in a position to provide maximum visibility at all times. Make allowances for increased length and weight of the equipment when making turns, stopping the unit, etc.



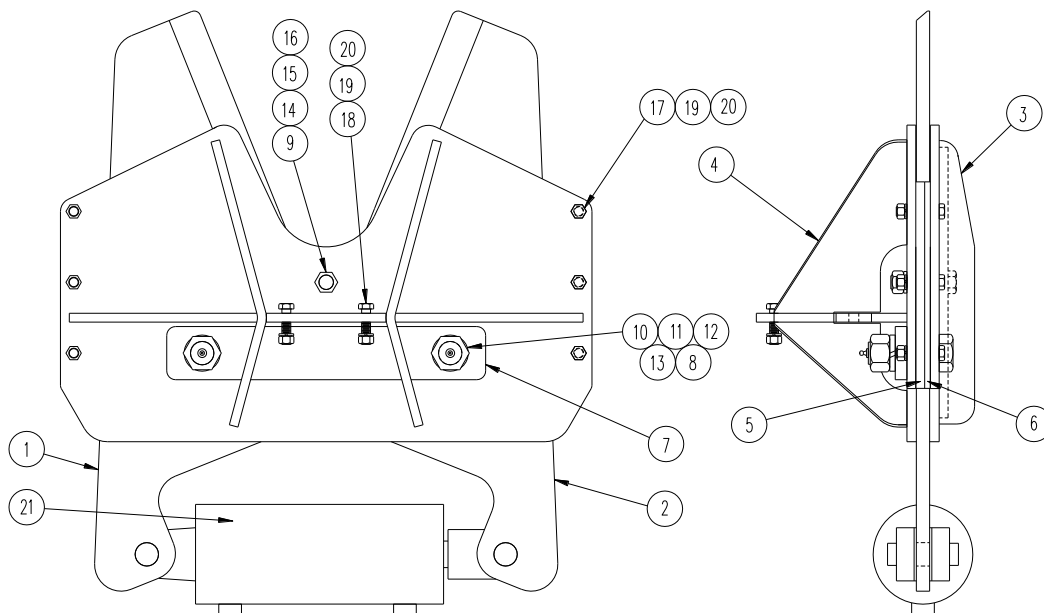
PERFORMING MAINTENANCE

- . Good maintenance is your responsibility. Poor maintenance is an invitation for trouble.
- . Make sure there is plenty of ventilation. Never operate the engine of the tractor in a closed building. The exhaust fumes can cause asphyxiation.
- . Before working on this machine, stop the tractor, set the brakes, lower loader bucket and clipper, disengage the PTO and all power drives, shut off engine and **remove the ignition keys**.
- . Be certain all-moving parts on attachments have come to a complete stop before attempting to perform maintenance.
- . **Always** use a safety support and block the wheels. Never use a jack to support the machine.
- . Use extreme caution when making adjustments.
- . Follow the torque chart in this manual when tightening bolts and nuts.
- . Never use your hands to locate a hydraulic leak on attachments. Use a small piece of cardboard or wood. Hydraulic fluid escaping under pressure can penetrate the skin.
- . Before disconnecting hydraulic lines, shut off hydraulic supply and relieve all hydraulic pressure.
- . Openings in the skin and minor cuts are susceptible to infection from hydraulic fluid. **If injured by escaping hydraulic fluid, see a doctor at once. Gangrene can result. Without immediate medical treatment, serious infection and reactions can occur.**
- . Replace **all shields** and guards after servicing and before moving.
- . After servicing, be sure all tools, parts and service equipment are removed.
- . Do not allow grease or oil to build up on equipment.
- . Always replace hex bolts with the same grade of bolts being replaced. Refer to bolt torque chart for head identification marking.
- . Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer will not claim responsibility for use of unapproved parts and/or accessories and other damages as a result of their use.
- . If equipment has been altered in any way from original design, the manufacturer does not accept any liability for injury or warranty.
- . A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment.

PARTS LIST

XD Clipper Head

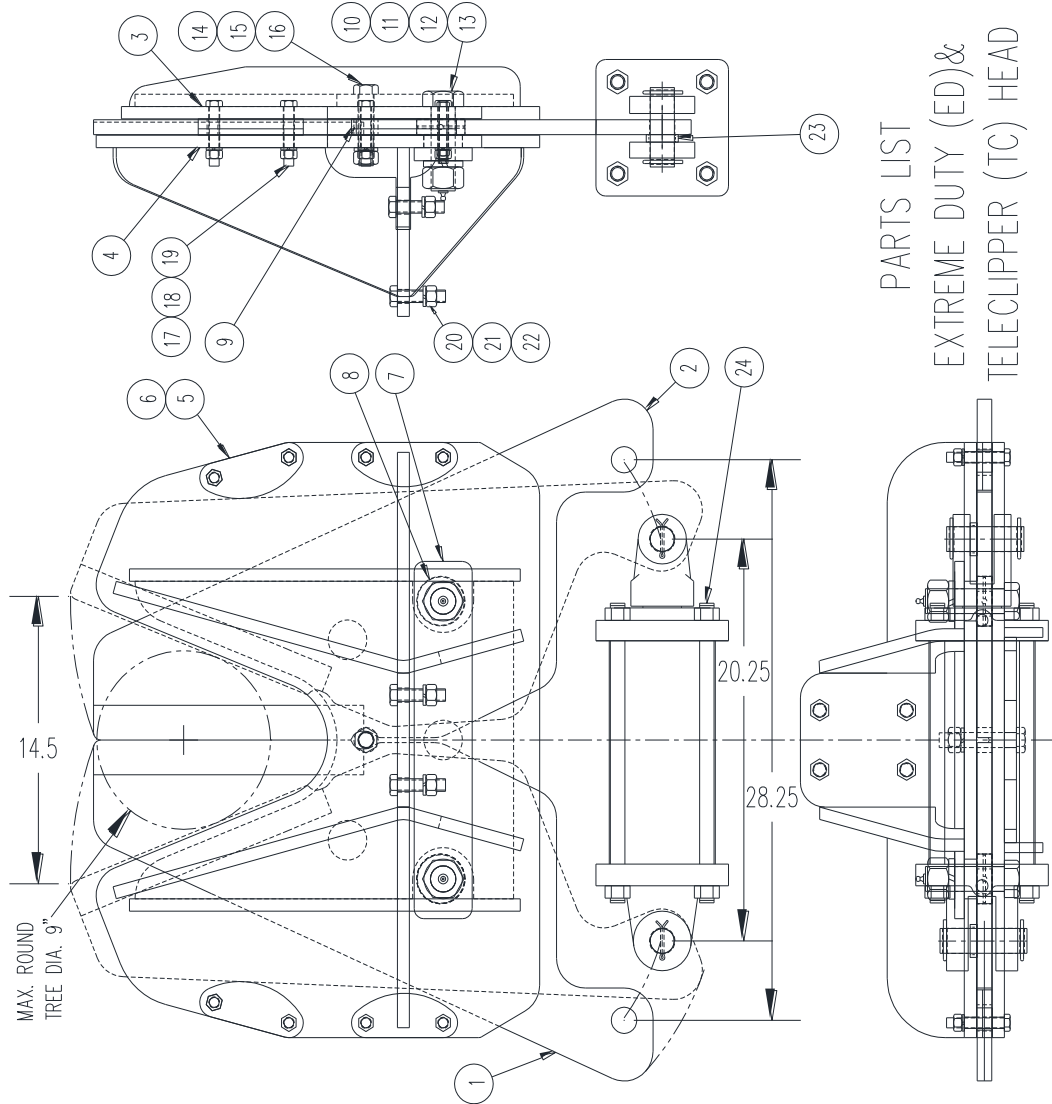
Item Number	QTY	Part Number	Description
1	1	662-1L	BLADE- LEFT
2	1	662-1R	BLADE- RIGHT
3	1	663-15ASM	BOTTOM PLATE WELDMENT
4	1	663-16ASM	TOP PLATE WELDMENT
5	2	662-7	SPACER- 1/2"
6	2	662-8	SPACER- 5/16"
7	1	661-10	SUPPORT PLATE
8	2	661-11	BUSHING-HARDENED/ECCENTRIC
9	2	662-17	CENTER SPACER
10	2	MP019	PIVOT BOLT W/ LUBE HOLE 1-1/4"
11	2	MP130	LOCKWASHER 1-1/4"
12	2	MP131	HEX NUT 1-1/4
13	2	MP109	GREASE FITTING- 5/16" PRESS-IN
14	1	MP132	HHCS 3/4-10 X 3.5 - GR5
15	1	MP133	LOCKWASHER 3/4"
16	1	MP135	HEX NUT 3/4-10
17	6	MP122	HHCS1/2-13X2.5-GR5
18	4	663-MP014	HHCS 5/8-11X2-GR8
19	10	662-MP139	LOCKWASHER 5/8"
20	10	663-MP015	HEX NUT 1/2-13
21	1	CY5X8	HYD. CYL.- 5 X 8



PARTS LIST

ED and TC (TeleClipper) HEAD

ITEM	QTY	P/N	DESCRIPTION
1	1	662-1L	BLADE- LEFT
2	1	662-2R	BLADE- RIGHT
3	1	664-15	BOTTOM PLATE WELDMENT
4	1	664-16/664-39	TOP PLATE WELDMENT (ED / TC)
5	4	664-7	SPACER- 1/2" (THICK)
6	4	664-8	SPACER- 5/16" (THIN)
7	1	661-10	SUPPORT PLATE
8	2	661-11	BUSHING- ECCENTRIC
9	1	662-17	CENTER SPACER
10	2	661-13	PIVOT BOLT W/ LUBE HOLE
11	2	MP130	LOCKWASHER- 1-1/4"
12	2	MP131	HEX NUT- 1-1/4"
13	2	MP109	GREASE FITTING- 5/16" PRESS-IN
14	1	MP016	HHCS- 3/4-10 X 4 GR5
15	1	MP133	LOCKWASHER- 3/4"
16	1	MP135	HEX NUT- 3/4-10
17	8	MP025	HHCS- 1/2-13 X 3 GR5
18	8	MP139	LOCKWASHER- 1/2"
19	8	MP141	HEX NUT- 1/2-13
20	4 / 0	MP014	HHCS- 5/8-11 X 2-1/2 GR8 (ED/TC)
21	4 / 0	MP115	LOCKWASHER- 5/8" (ED/TC)
22	4 / 0	MP035	HEX NUT- 5/8-11 (ED/TC)
23	2	SP125-SCH40X38	SPACER- 3/8" LONG
24	1	CV5X8	HYDRAULIC CYLINDER- 5"x8"



BOLT TORQUE

CHECKING BOLT TORQUE

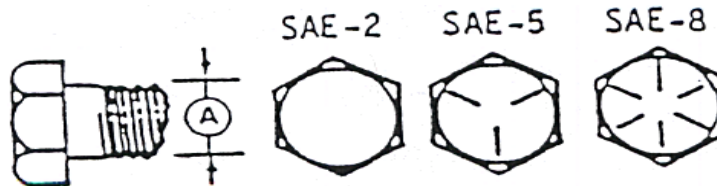
The table shown below gives correct torque values for various bolts and cap screws. Tighten all bolts to the torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt torque chart as a guide. Replace with the same strength bolt.

TORQUE SPECIFICATIONS

"A"	Bolt Torque –			
	Lb-ft	SAE Grade 5 Nm	Lb-ft	SAE Grade 8 Nm
3/8"	33	(45)	45	(63)
1/2"	80	(110)	115	(155)
5/8"	150	(208)	220	(305)
3/4"	290	(390)	400	(540)
1 1/4"	1120	(1523)		

Torque figures indicated above are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or cap screws unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

* Torque value for bolts and cap screws are identified by their head markings.



WIRELESS REMOTE OPERATION INSTRUCTIONS

The remote control/keyfob transmitter can be mounted to your joy stick or control handle by using the hook and loop strap provided.

ACTIVATING RECEIVER

A **reset button** (rubber covered toggle switch) is located on the top of the metal box. When the button is pushed and held for 3 seconds, the receiver is activated and can receive a signal from the keyfob transmitter. The receiver will remain active until it has not received a “rotate” or “extend” signal for 1-2 hours. After 1-2 hours of inactivity the receiver automatically shuts down to preserve the battery charge. The “OFF” button (or marked with the “OFF” symbol O) may also be pressed to shut the system off and preserve the battery. **TO BEGIN OPERATION, THE RESET BUTTON MUST BE PUSHED AND HELD FOR 3 SECONDS TO ACTIVATE OR RE-ACTIVATE THE RECEIVER.**

KEYFOB/TRANSMITTER

XD & ED MODELS- The remote control/keyfob transmitter is a momentary control. This transmitter contains 4 buttons. Only the upper left (with loop at bottom) and lower right are functional. To rotate clipper head, depress and hold the upper left button while activating the auxiliary hydraulics on your machine. This will divert the hydraulic fluid flow to the rotate function. Release the button and the hydraulic flow diverts back to the default or cutting function. The lower right button is the OFF button.

TC (TeleClipper) MODEL- The remote control/keyfob transmitter is a momentary control. This transmitter contains 6 buttons. Only the upper left (with loop at bottom), center right, and lower left are functional. To **ROTATE** clipper head, depress and hold upper left button while activating the auxiliary hydraulics on your machine. This will divert the hydraulic fluid flow to the rotate function. Release the button and the hydraulic flow diverts back to the default or cutting function. To **EXTEND** or **RETRACT** the boom, depress and hold the lower left button while activating the auxiliary hydraulics on your machine. Release the button and the hydraulic flow diverts back to the default or cutting function. The center right button is the OFF button.

To shut the system OFF when you have finished using the HyReach tree clipper for the day or for more than 2 hours, you may depress the OFF button on the keyfob transmitter. This will turn off the receiver and preserve battery charge. To resume operation, the reset button must be pushed and held for 3 seconds to “turn on” or activate the receiver (as explained above).

HELPFUL HINT:

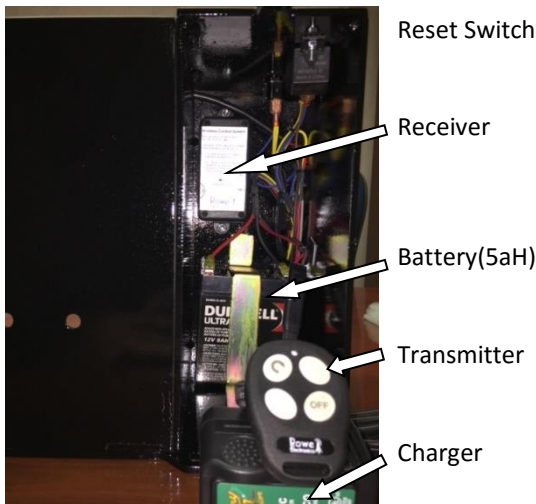
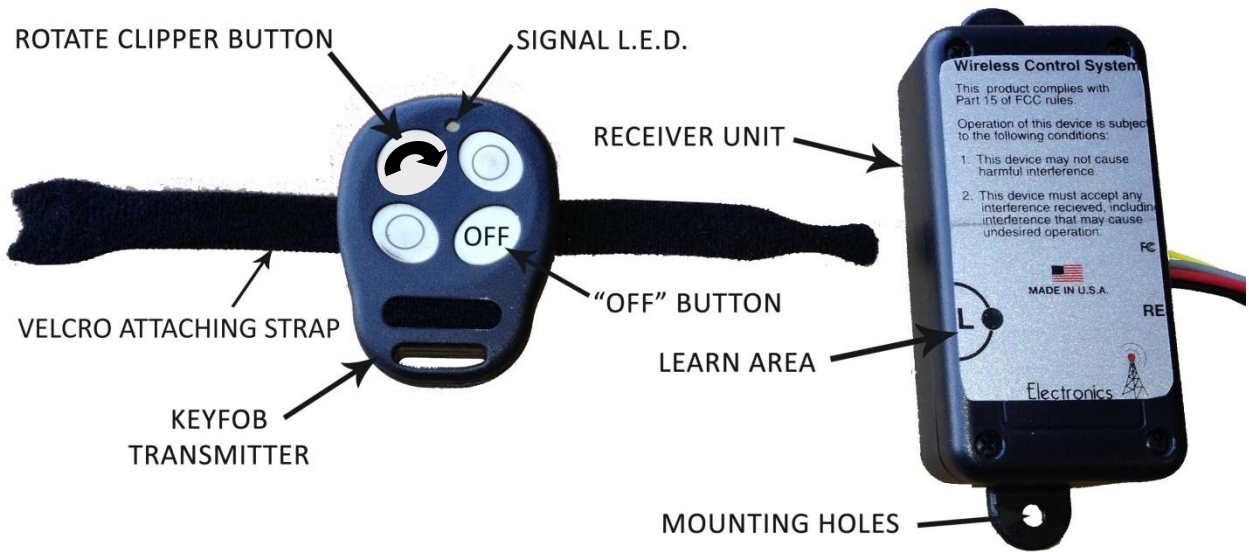
If you are working in a remote area and do not have access to a 120v outlet to charge the battery you may want to consider purchasing an extra battery. A fully charged battery may last several days without recharging, depending upon how much the remote transmitter is used.

BATTERY CHARGING

You will find a 12v battery and a 12v battery charger inside the metal box on the HyReach Clipper frame. The battery will need to be charged on a regular basis depending upon the amount of usage. It is recommended that the battery be charged on a daily basis. The battery charger is already connected to the battery so just plug the charger into a 120v outlet to charge the battery. When charging, the red indicator light on the charger will illuminate. When the battery is fully charged, the green indicator light on the charger will illuminate. The charger is automatic and may be left connected for long periods of time.

WIRELESS CONTROL SYSTEM

XD & ED MODELS

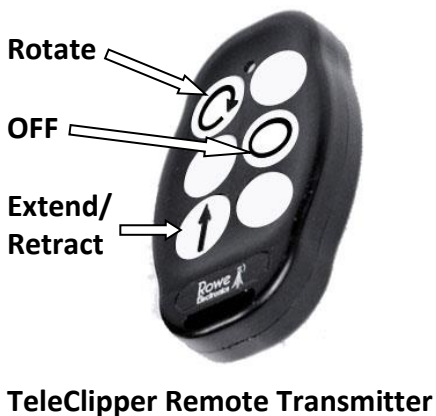


Receiver & Battery installed in box

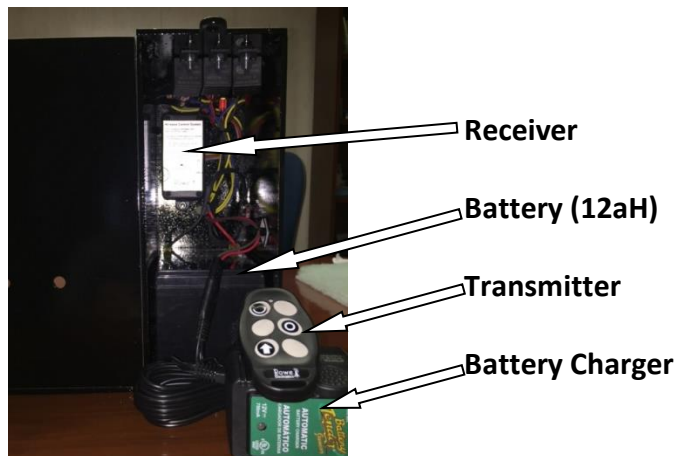


Complete unit mounted on a HyReach Clipper

TC (TeleClipper) WIRELESS REMOTE



TeleClipper Remote Transmitter



WIRELESS REMOTE TROUBLE-SHOOTING

The wireless unit is designed to provide highly dependable, functional, virtually maintenance free service over the lifespan of the unit.

During standard operation of the wireless unit, when you depress the marked button on the key fob transmitter (any button assigned a function) the LED indicator on the key fob will illuminate. Should the LED not illuminate, this is an indicator that battery voltage has dropped below 2.0 volts, and it is time to replace the battery. It is suggested that you change the battery (coin cell battery # CR2032) in the key fob transmitter at least once annually, prior to each operational season. The key fob battery can be changed by simply removing the small screw on the back of the unit, and splitting the transmitter case. Once the case is open, slide the battery out of the battery holder and replace. It is important to be delicate during battery replacement so no damage to the unit occurs; especially with regard to the solder points where the metal battery holder connects to the transmitter board. Electrostatic discharge and/or contacting internal electronic circuitry with metal tools can cause damage to components as well. For this reason, no screwdrivers or other hand tools should be used inside of the transmitter case. Upon reassembly, make certain that the gray keypad is seated securely in the sealing channel. If this is not done properly with care, the unit may be susceptible to water damage. To seat the pad properly, once the battery is changed, position the keypad over the transmitter board, and ensure proper alignment. Place the top half of the transmitter casing (the side with four button holes) down over the entire assembly. **VERY IMPORTANT: DO NOT PLACE THE RUBBER KEYPAD IN THE TOP HALF OF THE CASING BEFORE REJOINING THE TWO HALVES; PLACE THE RUBBER KEYPAD OVER THE BOARD, THEN PLACE THE TOP HALF DOWN OVER THE ENTIRE ASSEMBLY.** Following the above procedure will result in a proper seal and ensure quality protection against environmental forces.

When purchased, the communication between the key fob transmitter and the receiver will already be established. Once powered up, the unit should function properly with no further action required. Occasionally during your period of ownership, there may be times when it is necessary to reestablish the communication, or wireless communication between the key fob transmitter and the receiver unit. This is accomplished by “learning” in the transmitter into the receiver unit. It may be necessary to perform this action after extended periods of storage, inactivity, key fob replacement, or the addition of extra key fob controls. It can also be used as a troubleshooting measure whenever communication between the transmitter and receiver unit has been lost. (Do this only after the initial troubleshooting measure of transmitter battery replacement has been completed) Each transmitter generates a unique signal, and a unique signal for each transmitter prevents your receiver from being susceptible to outside interference, and protects against stray signals causing potentially undesirable operation. Some customers prefer to have multiple key fob controls for their units. Each receiver is capable of handling and responding to multiple (up to five) key fob transmitters; you simply have to “learn” in each individual transmitter to your receiver unit (additional key fob controls/transmitters are available by contacting Precision Mfg at 888-497-3224).

LEARN PROCEDURE

If your receiver is not responding to a signal sent by the transmitter you may need to perform this procedure to let the receiver “learn” the signal from the transmitter. This procedure may also be used if the transmitter or a battery in the transmitter must be replaced

To complete the learn procedure, simply do the following: Power up the unit by pushing the reset toggle switch located on top of the metal storage box and holding for 3 seconds. When you do so, the LED on the receiver unit will flash RED. This indicates that the unit has received power. There is magnetically controlled switching circuitry embedded in the receiver unit. Place a fairly powerful magnet over the receiver “learn” area (see diagram above for location) for 3 seconds, then remove it. The LED will go to a constant RED state. Now immediately press upper left button on the keyfob/transmitter you are attempting to learn in. The LED will go to a GREEN color. This confirms that the receiver has picked up the signal from the transmitter, and subsequently learned that signal. Communication has been established, and it is now ready to function properly. Should the above procedure not complete successfully, wait until the LED light goes out, and repeat the procedure. If for any reason you experience a second failure of the learn procedure, do the following: Place the magnet on the learn area and the LED will go to a constant RED state. Leave the magnet in place on the receiver until the LED light goes out. (approximately 10 seconds) This action completely clears the receiver’s memory. It’s akin to reformatting, or freeing up all of the space on a computer hard drive. Once you have cleared the memory, proceed with the standard learn procedure detailed above for each of the key fob transmitters you wish to use with the device. If, after all of the procedures detailed above are completed, the unit is still not functioning, check the battery in the transmitter once again. (Occasionally, even new batteries fail, or are defective from the factory – If you have a voltage meter, confirm that battery voltage is at least 2.7 volts).

The wireless control system is crafted using high quality components, with long-term service life and superior performance being the ultimate goal. It is our commitment to provide products that not merely meet needs and expectations, but exceed them. Thank you for choosing our product.

WIRELESS REMOTE PART NUMBERS

PART DESCRIPTION	PART NUMBER
Wiring Harness- fits HD, XD, ED Wireless units	WH100
Wireless Receiver, Transmitter, Wire Harness- fits HD, XD, ED	WK100
Wireless Receiver, Transmitter, Wire Harness- fits TC	WK100-TC
Wireless Receiver- fits HD, XD, ED, TC	WR100
Wireless remote RETROFIT kit for wired HD, XD, ED	WR692
Wireless Transmitter- fits HD, XD, ED	WT200
Wireless Transmitter- fits TC	WT200-TC
Battery; 12V 5aH- fits HD, XD, ED	BP100
Battery; 12V 12aH- fits TC	BP400-TC
Battery Charger- fits HD, XD, ED, TC	BC100

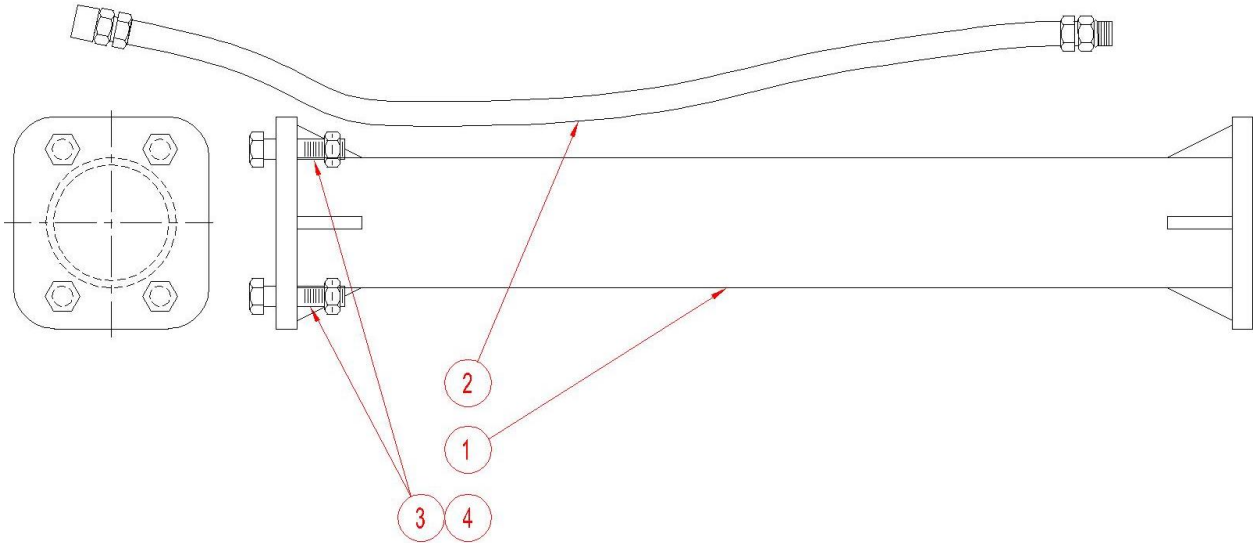
Installation of the EXT30 (30” Frame Extension)

If your Hy-Reach Clipper includes the 30” frame extension, install it as follows:

1. The Precision Manufacturing EXT30 will extend the reach of your Hy-Reach Clipper from 6 ft to 8-½ ft from the attachment point on your loader. The EXT30 can also be used to extend the reach of a 3-point mount Hy-Reach Clipper. The added reach will allow you to cut higher limbs and reach under longer limbs to cut down trees. Here is how to install the EXT30.
2. Observe all safety items in this manual and your Hy-Reach Clipper manual.
3. Place the Clipper and Frame on the ground and shut the tractor off. Bleed any hydraulic pressure from the lines to the Clipper according to your tractor manual.
4. Refer to the parts drawing below to be sure you have received all parts.
5. Next, remove the 4 bolts and nuts holding the Clipper Head to the Rotator Mounting Plate.
6. Remove the hoses from the Clipper head and cap the hoses and cylinder.
7. Insert the Tube Weldment (item 1) between the Clipper head and the Rotator Mounting Plate. Bolt in place using the 5/8-11 bolts and nuts (items 3 & 4). Torque the bolts and nuts to 220 ft-lbs.
8. Attach the extension hoses (item 2) to the ends of your supply hoses.
9. Route the hoses through the guides as shown.
10. Attach the extension hoses to the Clipper Hydraulic Cylinder.



PARTS DRAWING- EXT30



ITEM	QTY	P/N	DESCRIPTION
1	1	EXT30-1	Tube Weldment
2	1	HE30	Hose Kit (2 hoses)
3	4	HCS63-11X250-G8	Bolt- 5/8-11 X 2 1/2 GR8
4	4	HLN63-11	Hex Lock Nut- 5/8-11

PRECISION MFG.
30" EXTENSION- CLIPPER FRAME

PART NO: EXT30
REVISION D

OPERATING INSTRUCTIONS (ED & XD MODELS)

1. Observe all safety statements above and in your Hy-Reach Clipper manual while operating this piece of equipment.
2. Observe the safety labels on the Hy-Reach Clipper unit.
3. Use your Hy-Reach Clipper with 30" extension essentially as before, but with the following exceptions. (CAUTION: Keep all persons and animals away from the Hy-Reach Clipper when it is being used. Personal injury or death could occur if the Clipper closes on a person or animal).
4. Be more cautious when moving the machine from one location to another. Moving the weight of the Clipper Head further away from the loader will cause less weight on the rear of the tractor. The tractor should only be moved while the Clipper Head is in a lowered position. Move to very near the cutting location before raising the Clipper Head, maintaining as much stability of the tractor as possible.
5. When cutting limbs, especially up high, be aware of the weight of the Clipper Head being higher in the air, causing less stability of the machine. Move slowly and carefully while the Clipper Head is raised.

MAINTENANCE (EXT30)

1. There is no maintenance required on the EXT30.
2. Follow all maintenance requirements of the Hy-Reach Clipper as described in the manual.

POWER ROTATOR SOLENOID VALVE HOOK-UP INSTRUCTIONS (FOR UNITS WITHOUT WIRELESS REMOTE CONTROL)

1. Connect wiring harnesses to solenoid valve and switch assembly.
2. Mount switch on the control handle that activates auxiliary hydraulic flow. Try to mount in a position so both the handle and switch can be activated with the same hand. Cable ties are included to assist in mounting the switch. Other methods, not included, may be required to mount switch.
3. Attach red power wire to a keyed power source that is “hot” only with ignition switch in the on position. This will prevent battery drain when vehicle is not in use.
4. The black ground wire may be connected to the vehicle frame or engine block. Metal to metal contact is required for secure ground.
5. When auxiliary hydraulics are activated, the hydraulic flow is directed to the cutting cylinder. When momentary switch is depressed, and auxiliary hydraulics are activated, the hydraulic flow will be diverted to the rotating cylinder. When the momentary switch is released, flow will be diverted back to cutting cylinder.

HOSE KITS

<u>HyReach Clipper MODEL</u>	<u>Hose Kit P/N</u>
HD6251, XD6351, ED6451 (SKID STEER)	MP150
HD6251RH, XD6351RH, ED6451RH (RIGHT HAND SKID STEER)	MP196
HD7251RH, XD7351RH, ED6451RH (RIGHT HAND TRACTOR)	MP149RH
HD7251LH, XD7351LH, ED6451LH (LEFT HAND TRACTOR)	MP149RH
TC6451 (TELECLIPPER FOR SKID STEER)	TC100

OPERATING INSTRUCTIONS - Hy-REACH CLIPPER

1. Do not attempt to cut trees larger than 9" in diameter
2. If blades get stuck in tree, do not try to force out by pulling back or tilting. Chop wood around blade to free blade. Be aware of direction tree may fall.
3. When cutting at ground level, tilt cutter slightly forward to keep hydraulic cylinder in rear of clipper off ground. Drop Clipper to ground in front of tree and then slide clipper under the tree. This allows the weight of the cutter to sink the sleds into the ground and allow you to cut tree at lower levels.
4. When sliding clipper on to tree, avoid impact with tree. Impact will cause damage to the clipper.
5. Cut tree from direction that will allow tree to fall away from operator.
6. A minimum hydraulic pressure of 2,250 PSI is required to operate the 5" X 8" hydraulic cylinder.
7. Check all nuts and bolts each time before operation to assure proper torque (see chart on page 14). Grease all zerks before each operation.
8. When using for High-Reach trimming, do not tilt the loader back too far. The Clipper should always be in less than a vertical position. Do not cut limbs directly overhead.
9. When side trimming, always rotate the blades toward the vertical position. This will allow you to place clipper at a right angle to the limb. Cuts must be perpendicular to limb.
10. Use caution when attaching and disconnecting to mounts. Do not apply extra pressure to the rotator and base plate by over tilting the mount.
11. To help fall tree away from operator, trim limbs on side of operator prior to clipping tree. Tilt cutter slightly forward, drop to ground and slide on to tree and clip. CAUTION: It is not possible to always control the direction the tree falls.
12. Be sure cutting is complete prior to opening blades.
13. Make certain Clipper mount clears all hydraulic fittings on equipment when fully tilted back.
14. The Hy-Reach Clipper is designed for cutting trees. Do not attempt to carry trees or pile brush with clipper.
15. It is possible for dirt and debris to become tightly packed between the blades and the frame of the clipper. This area should be checked daily and cleaned out as needed with a large screwdriver, punch or similar blunt object. If this area cannot be cleaned out it may be necessary to remove the clipper head top plate weldment to clean the areas between the blades and the clipper head frame. Failure to keep these areas clean can result in damage to Clipper Head.
16. DO NOT SHARPEN THE BLADES- Doing so will weaken the edge and VOID THE WARRANTY!

TROUBLE SHOOTING

PROBLEM	SOLUTION
Cutter will not cut completely thru tree.	<p>Blades may not be closing completely.</p> <p>Cylinder clevis on rod end may need to be extended. Blades should barely touch.</p> <p><u>DO NOT OVER EXTEND! DO NOT EXTEND CLEVIS MORE THAN ½ TURN AT A TIME.</u></p> <p>Bushing may be loose. Contact Company.</p>
Blades do not line up.	<p>Bolts may be loose. Tighten according to bolt torque chart on page 14.</p> <p>Bushing may be loose. Contact Company.</p>
Cylinder will not operate.	<p>Check hydraulic pressure.</p> <p>Min. of 2250 PSI is required.</p>
Cutter will not rotate.	<p>Check hydraulic pressure.</p> <p>Min. of 2250 PSI is required.</p> <p>If equipped with wireless remote, refer to the section on page 15 .</p>
Cutter is loose on mount.	<p>Bolts on mounting plate may be loose. Tighten according to bolt torque chart on page 14.</p>
Blades do not close completely.	<p>Cylinder clevis on rod end may need to be extended. Blades should barely touch.</p> <p><u>DO NOT OVER EXTEND! DO NOT EXTEND CLEVIS MORE THAN ½ TURN AT A TIME.</u></p>
One blade tip is longer than the other.	<p>This is our self centering feature. If cut is against the right blade the right blade tip will extend further than the left. Opposite is true if cut is against the left blade.</p>

HyReachClipper FAQ's

Q: How often should I sharpen the blade?

A: Never. The blades come with approximately 1/8" edge. The force from the 5" X 8" cylinder forces the blades thru the tree so the blade does not need to be sharp. Sharpening the blade will only increase the possibilities of chipping the blade.

Q: Will rocks hurt the blade?

A: The blades are made of T1 steel. Dirt and rocks generally do not harm the blades.

Q: I only have one set of auxiliary hydraulic outlets on my tractor/skidsteer and the clipper with the rotating head requires two sets of outlets.

A: You will need to purchase a selector valve. This will turn your single outlet into a double outlet. The flow will be diverted either manually or electrically to either the cutting cylinder or the rotation cylinder. These valves can be purchased from Precision Mfg. as an accessory item. See Xtra valve kits in accessories on the website at www.precisionmfg.com.

Q: How large is the cutting cylinder?

A: The cylinder is custom made for Precision Manufacturing. It is a 3,000 PSI, 5" X 8" cylinder with a 2" rod and 1¼" pins. At 2,500 PSI, the cylinder produces approximately 50,000 lbs of cutting force.

Q: How long have you been making the HyReachClipper?

A: The Clipper was first produced in 1992. Many improvements have been made since that time and we continually look for ways to improve our Clipper.

Q: What kind of routine maintenance is required?

A: Just make sure all bolts and nuts are properly tightened, clean out any accumulated debris from between the blades and the Clipper Head Frame, and lubricate all grease fittings before each use.

Q: Can I pile brush with the clipper?

A: The Clipper is not designed for lifting. Doing so could permanently damage the Clipper and/or accessories.

Q: What type of trees will the Clipper cut?

A: We are yet to find a wood that the Clipper will not cut – **DEAD OR ALIVE!**

Q: How large of a tree or limb will the Clipper cut?

A: Between 9" and 12" with a single cut. The deeper the tree goes into the blade, the larger the cut.

Q: How close to the ground will the Clipper cut?

A: There is a sled on the bottom of the clipper which is used for blade support. To cut at ground level or below, tilt cutter slightly forward and drop it to the ground in front of the tree. Next, slide the Clipper under the tree. The weight of the Clipper will sink the Clipper blades into the ground and allow you to cut at lower levels.

Q: What keeps a tree from falling on the operator?

A: Extreme caution must be taken. Though most cuts fall to the side, it is possible for a tree to fall backwards. To reduce the risk of trees falling backwards, trim limbs on the operator side of tree before cutting. Also, tilting the clipper forward before cutting helps fall tree away from operator.

Q: Will the Clipper operate with all tractors and skidsteers?

A: The Clipper will operate with virtually all tractors and skid steers. The only requirement is to have minimum hydraulic pressure of 2,500 PSI.

Q: Can a Clipper be used with equipment other than skidsteers and tractors?

A: Yes. The clipper has been mounted to back hoes, excavators, telehandlers and bucket trucks to name a few. If the equipment has hydraulics, a clipper can more than likely be adapted for use with that equipment.

Q: How high will a Clipper reach?

A: Most HyReach Clippers will cut 6 ft beyond the end of your equipment. For example: If the loader reaches 12' in the air. Add the 6' reach which means your reach is 18'. A 30" extension may be added to some Clippers for a reach of 8-1/2 ft. The TeleClipper has a variable reach from 7 ft to 10 ft.

Q: How many trees will the Clipper cut per hour?

A: There are too many variables to accurately answer this question since the cutting speed will vary depending upon the hydraulic pressure and flow. Generally, it takes slightly over 3 seconds to cut an 8" tree. Owners have reported cutting up to 300 trees per hour.