



ISO 9001:2000 REGISTERED

AHW WING KIT



BOX 1120, NORPARK DRIVE, MOUNT FOREST, ONT. N0G 2L0 (519) 323-4433 PH (519) 323-4608 FX

INTRODUCTION

Congratulations and thank you for your purchase of new Viking-Cives Snow & Ice Control equipment. This manual has been created to provide you with installation, set-up, operation and maintenance information for the Viking-Cives Side Wing Plows. It has been prepared to familiarize you or any other person who will be assembling, operating, maintaining, or working with this product with the design features, and to instruct you in the recommended operation and maintenance of the unit.

Read this manual carefully before you operate or service your Side Wing Plow. Remember that you're working with heavy equipment that can injure you or someone else. You can help lessen the chance of injury by following the procedures in this manual, carefully.

DANGER: If incorrectly used, this equipment can cause severe injury. Your chance of injury can be greatly reduced by following all safety decal notifications. All decals must be kept clean and complete. Replace any decals that are unreadable. Decals may be purchased directly from Viking-Cives Group and/or your nearest authorized dealer. All Operator/Service people should review this manual carefully and become familiar with its contents. **If anyone else beside you operates or services this equipment, make sure they read this manual and are instructed to follow all the safety procedures related to this equipment. Keep this manual available for reference whenever this product is being handled or used. Provide this manual to any new owners and/or operators.**

The side wing plow is primarily used in conjunction with either a one-way or reversible front plow to provide additional plowing width. The snow discharge from a plow truck's front mounted plow, is picked up by the wing and carried/pushed further back onto the road shoulder; the width of the road cleared is thereby increased in a single pass. Secondary functions of the side wing plow are to clear accumulations of snow from road shoulders, as well as lowering and/or removing snow banks and drifts.

The Viking-Cives Ltd (VCL) side wing plow has been engineered and built with durability and safety of operation in mind. Full trip side wings have been designed to cushion sudden shock, in the event contact between the plow cutting edge and an obstruction such as railway tracks, manhole covers, etc.

To ensure safe and trouble free operation of the side wing plow, careful attention must be given to the critical adjustments during the initial installation and set-up, as well as following periodic maintenance and inspection schedules. This operation manual is designed to assist in the repair, inspection, adjustment and operation of the wing. It also sets out the recommended method for mounting and dismounting these plows and the general maintenance necessary to keep them in proper working order.

GENERAL INFORMATION

The purpose of this manual is to assist in assembling, mounting, operating, and maintaining your new Viking-Cives Snow & Ice Control equipment. Read this manual carefully to obtain valuable information and instructions that will help you achieve years of safe and dependable service.

The illustrations and data used in this manual were current at the time of printing, but due to possible engineering and/or production changes, the actual product may vary slightly in detail. Viking-Cives reserves the right to redesign and/or change components as may be necessary without notification.

Throughout this manual, references may be made to:

| | |
|---|--|
| Prime Mover | The chassis/vehicle to which this product is attached. |
| Right, Left, Front, Rear, Drivers Side, Curb Side | Directions as determined in relation to the operator when seated in the normal operation position. |
| IMPORTANT | Precautions that must be followed to prevent damage to equipment. |
| NOTICE | Precautions that must be followed to prevent substandard performance. |



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REGISTRATION OF EQUIPMENT AND WARRANTY INFORMATION

You should register your equipment with VIKING-CIVES LTD, by filing out a warranty certificate and registration card and returning them to VIKING-CIVES LTD. The warranty period becomes effective upon date of delivery of equipment unless other arrangements have been made with VIKING-CIVES LTD. The information required to register the equipment may be found on the serial number and/or VIN tag secured to the equipment/vehicle. Before using equipment check for damage. Report any damage to equipment at once to VIKING-CIVES LTD.

Viking-Cives Ltd will not commend any modification to its products without prior written approval. Any modifications carried out without prior approval from VCL will **VOID ALL WARRANTY**, and will be the responsibility of the party who completed the modifications.

| | |
|--|----------------------|
| VIKING-CIVES, LTD. Mt. Forest, Ontario, Canada | |
| Model | <input type="text"/> |
| Serial No. | <input type="text"/> |

| | |
|---|----------------------|
| VIKING - CIVES, LTD. Mt. Forest, Ontario, Canada | |
| Date Completed | <input type="text"/> |
| This Vehicle Conforms to All Applicable Motor Vehicle Safety Standards in Effect on Date of Manufacture | |
| Unit Number | <input type="text"/> |
| VIN | <input type="text"/> |

A WORD ABOUT SAFETY

The equipment described in this manual is normally being operated in winter conditions with bad weather and snow & ice conditions. Due to these adverse operating conditions it is important that you the operator use good safety practices at all time to protect yourself and co-workers and others when using the equipment. No accident prevention program can be successful without the wholehearted cooperation of the person directly responsible for the operation of the equipment.

It is not practical or possible to warn you about all the hazards associated with the operation and maintenance of this equipment. You must use your own good judgment supplemented with the information found on the safety decals, instructions in this manual, your employer's safety programs, safety codes, local, state/provincial, and federal laws, rules and regulations. If accidents are to be prevented (and accidents can be prevented), that prevention must come from equipment operators who accept their complete responsibility.

When operating/performing maintenance on this equipment, troubleshooting equipment operations, observe & obey all safety decals on the equipment and warnings listed in the manual. Failure to do this could result in serious injury or death to you or others. The designer, engineer, and manufacturer all help to create a safe product, but the operator of that product can wipe out all of their combined efforts with a single careless act. Remember at all times that as the operator you are responsible for the safe operation of this equipment and responsible for the safety of others. Good safety practices not only protect you but also protect the people around you.



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DEFINITION OF SAFETY TERMS AND SYMBOLS

Throughout this manual, the terms **CAUTION**, **DANGER** and **WARNING** are used to indicate the degree of hazard to personnel if proper safety procedures are not followed. These words will be used in conjunction with the Safety Alert Symbol: a dark triangle containing a white exclamation mark.



The Safety Alert Symbol means: **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!**

| | |
|----------------|---|
| CAUTION | Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury; OR may also be used to alert against unsafe practices that may result in personal injury. |
| DANGER | Indicates an imminently hazardous situation that, if not avoided, <u>WILL</u> result in death or serious injury. |
| WARNING | Indicates an imminently hazardous situation that, if not avoided, could result in death or serious injury. |
| NOTE | Identifies tips, helpful hints, and maintenance information the owner/operator should know. |

SAFETY INSTRUCTIONS

WARNING SECTION



WARNING

Obey all the safety instructions listed in this section and throughout this manual. Failure to obey instructions in this section could result in death or serious injury.

BEFORE ATTEMPTING ANY TYPE OF ASSEMBLY, OPERATION, MAINTENANCE, OR OTHER WORK ON OR NEAR THIS PRODUCT:

- **READ AND COMPLETELY UNDERSTAND THIS MANUAL.**
- **READ AND COMPLETELY UNDERSTAND THE MANUALS PROVIDED WITH YOUR PRIME MOVER/VEHICLE.**
- Read and understand all safety signs on this product and on your prime mover/vehicle.
- Know all your controls and know how to quickly stop all equipment, vehicle movement in case of an emergency.
- Know and follow good work practices when assembling, mounting, maintaining, repairing, removing, and storing this product.
- Never allow anyone, except the operator, to be around the prime mover or this product when either is in motion. Do not start-up unless others are clear of the work area.
- Do not stand or climb on this product.
- Before leaving the operators position or beginning any type of work on this product, lower this product to the ground, apply the prime movers parking brake, stop the engine, remove the starter key, wait for all moving parts to stop, and then relieve all pressure in the hydraulic system.



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DAILY INSPECTION AND LUBRICATION PERIODIC MAINTENANCE INSPECTION

Daily inspection along with periodic preventive maintenance will reduce the chance of any major repairs and down time during equipment use. Before any plow is attached onto the vehicle, all equipment should be inspected and checked to ensure that everything is in safe operating condition. Any and all defects, when noted, should be scheduled for repair(s) and/or immediate replacement. The following checklist should be performed prior to and at the completion of each plowing shift, to ensure operational readiness when required.

1. Check the fluid level in the hydraulic oil reservoir. If the sight indicates low oil level, add the appropriate amount of the specified hydraulic fluid.
2. Grease all required components:
 - All plow harness sheave nipples.
 - All pump drive shaft nipples.
 - Front and rear tower sheave swivel blocks.
 - Wing extension arm nipples.
 - Front and rear tower guide tracks.
 - All front harness pivot points.
3. Check all components for loose and/or missing fasteners, if required tighten and/or replace.
4. Visually inspect all hydraulic connections and hoses for cracks and/or leaks.
5. Check all cables, chains and sheaves for excessive wear or damage.
6. Visually inspect plow and wing units. Check cutting edges and wear shoes. If cutting edge has excessive wear, remove and rotate, or if required replace. **NOTE: Do not allow cutting edge to wear down to mounting angle. Any wear to the mounting angle may affect the operation and safety of the equipment. Replacement is costly.**
7. At the beginning of each shift visually inspect all caution and warning decals. All decals should be complete and legible. If decals are not legible, clean them. If cleaning the decals does not make them legible, install new decals.

GENERAL OPERATING INSTRUCTIONS

1. The operator should familiarize himself with all equipment prior to operation. The cab controls are placed at a comfortable reach of the operator, with an allowable amount of adjustment. If necessary, the controls can be adjusted for either driver or passenger use.
2. The in cab control levers are arranged from left to right as the operator sees the plows.
 - First lever: Front Plow (One-way, Reversible, etc.)
 - Second lever: Front of Wing
 - Third lever: Rear of Wing
 - Fourth lever: Wing Brace (Slider)All levers are clearly marked as to the equipment/function they control.
3. To raise the plow or wing, pull back on the appropriate control level, to lower the plow or wing, push the control level forward. **NOTE: The in cab controls are proportional to the hydraulic valve, therefore the further the control lever is moved the faster the plow or wing will raise or lower.**
4. Before putting any equipment into use, check for any worn, damaged or loose components, if necessary repair or replace. Listen for any unusual sounds, if necessary repair and/or replace worn or damaged parts.
5. Before operating any equipment be sure to read and fully understand all caution and safety warnings. Familiarize yourself and others with all caution/warning labels and their locations. Make sure all labels are complete and legible. Replace any labels that have become unreadable and/or missing. Replacement labels can be purchased directly from Viking-Cives Group and/or your nearest authorized dealer.



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INSTALLATION



SAFETY FIRST!! READ AND UNDERSTAND THE SAFETY INSTRUCTIONS BEFORE PROCEEDING WITH ANY INSTALLATION.

Viking-Cives LTD manufactures various models of side wing plows in both cable lift as well as full hydraulic lift designs. While each of these types vary in style from one model to the next, the basic installation process remains the same for all models.

NOTE: These installation instructions are intended as a guide to aid in the mounting of your Viking-Cives Side Wing Plow. All dimensions provided in these instructions are approximate and could vary due to variables such as: chassis make and model, tire size, type of suspension, customer preference, and/or unknown interference caused by immovable attachments. Viking-Cives LTD assumes no responsibility/liability for improper side wing plow installation, unless installed by Viking-Cives LTD. Side wing plow mounting location should be discussed with the end-user, chassis dealer and the installer prior to beginning installation in order to achieve the best possible installation.

ATTACHMENT TO PRIME MOVER

During the initial installation of the side wing plow to the vehicle, some adjustments will be necessary to insure proper operation of the plow and trip mechanisms. **WARNING: When plow is being raised, lowered or extended – STAND CLEAR!**

Wing Moldboard Installation

1. Set side wing plow unit on a firm, level surface (such as a concrete garage floor or paved area) that is large enough to safely accommodate this product.
2. Drive the prime mover into position. **DANGER: NEVER stand between the prime mover and the side wing plow when the vehicle is being moved into position.** Before connecting the side wing plow to the front & rear harness, shut the vehicle engine down and make sure that the parking brake is engaged.
3. Inspect the front and rear wing masts, check to see that the wing slide(s) move freely. Check cables for frayed ends or fractured strands, and/or excessive rusting of cable.
4. Connect the side plow to the hinge on the front wing post using the wing mounting nut, flat washer and cotter pin provided. The nut should be snug and locked in place, but loose enough to allow pivoting action without binding.
5. Install the rear wing brace arm(s).
 - a. **Cable Wing Towers**
 - i. Install the lower wing brace arm, bolting it securely to the rear wing tower slide. Attach the outer tube portion of the brace to the rear tower slide and the inner portion to the side wing plow.
 - ii. Install the upper spring loaded brace arm; attach the outer tube portion of the brace securely to the wing slide with the trip spring towards the rear of the chassis.
 - iii. The wing braces must be installed as close as possible to 90-degrees with the wing so that the snow load does not bend them, adjust arm lengths as necessary. The brace arm locating pins that are used to adjust the arm lengths are also intended to function as shear pins. If for any reason these shear pins are broken they must be replaced with correct OEM approved replacement pins. **DO NOT replace the shear pins with bolts as doing so can cause damage to the brace arms and/or injury to the operator.**



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- iv. Install the rear wing lift cable in the bottom grab link at the rear of the wing. Insert safety chain in the upper grab link when the wing is in the stored, raised position. **WARNING: The safety chain must be used during transportation and/or when the wing is not in use.**

b. Hydraulic Wing Towers (Double Arm Metro)

- i. Install the lower wing brace arm, bolting it securely to the rear wing tower slide. Attach the outer tube portion of the brace to the rear tower slide and the inner portion to the side wing plow.
- ii. Install the upper spring loaded brace arm; attach the outer tube portion of the brace securely to the wing slide with the trip spring towards the rear of the chassis.
- iii. The wing braces must be installed as close as possible to 90-degrees with the wing so that the snow load does not bend them, adjust arm lengths as necessary. The brace arm locating pins that are used to adjust the arm lengths are also intended to function as shear pins. If for any reason these shear pins are broken they must be replaced with correct OEM approved replacement pins. DO NOT replace the shear pins with bolts as doing so can cause damage to the brace arms and/or injury to the operator.
- iv. Install the rear lift cylinder. Attach the barrel end of the cylinder to the rear wing brace and the rod end to the sliding collar on the upper wing arm.
 1. Using an overhead crane, chain falls or other suitable and safe lifting device, raise the rear of the wing to its folded position. Next raise the front of the wing just above the bottom of the front post to the carry position. NOTE: If the front of the wing is raised to high for this setup, the rear of the wing may fold to close to the chassis and strike the mirror or cab.
 2. Connect the hydraulic hoses leading from the rear lift cylinder to the quick disconnect couplers located on the prime mover. NOTE: Normally one hose will have a male quick disconnect hose end and the other will have a female quick disconnect hose end. This prevents the hoses from being coupled incorrectly. Also when the hoses are disconnected from the prime mover this allows for them to be coupled together to prevent contamination from entering into the hydraulic system.
 3. Extend the rear lift cylinder to its maximum length. Using a welder's pencil or paint, mark the upper arm at the outer end of the sliding collar.
 4. Lower the wing (front and rear) to ground level, retract the rear lift cylinder completely. Position the outer ring collar approximately $\frac{1}{2}$ to $\frac{3}{4}$ -inches inside (towards chassis) from the previously made mark. Heavy tack-weld the ring collar on the outside edge away from the sliding lift collar. Raise the wing checking for adequate clearance making sure contact between wing and chassis does not occur. If required readjust collar position.
 5. With the wing returned to the lowered position and the outer collar correctly located, complete welding (1/4-inch fillet) of the outer ring collar. Position the inner ring collar against the back edge (chassis side) of the sliding collar and weld (1/4-inch fillet) around the outside (chassis side) edge. Note: Do not weld inside edges of the ring collar, as sliding collar may bind with weld seams.
 6. With wing plow still in the lowered position carefully extend the hydraulic cylinder to position the sliding collar approximately halfway between the inner and outer ring collars. Make sure that the lugs on the sliding collar are pointing down. Next place the $\frac{1}{2}$ X $\frac{3}{4}$ flat bars on either side of the sliding collar lugs and weld to the inner and outer ring collars. This will prevent the sliding collar from rotating to far while lifting, which could damage the hydraulic cylinder.
- v. Install wing stop and safety chain.
 1. The wing stop assembly is used to help cushion and absorb the wing lift cylinder in order to help prevent accidental contact between the side wing plow and the chassis cab and mirror(s). First slowly lift the wing to the raised position being careful not to strike the chassis. Next lower the rear of the wing slightly and located the wing stop assembly between the rear wing slide and the rear lift cylinder, when fully raised the wing lift cylinder should slightly



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compress the rubber bumper on the wing stop assembly. Tack-weld first, checking fit and then finish weld 100%.

- vi. With the wing in the raised position, weld the provided safety chain hook to the lower push arm. Find the correct position for the hook by extending the provided safety chain from the rear mast to the push arm. Tack-weld first, checking fit and then finish weld 100%. **WARNING: The safety chain must be used during transportation and/or when the wing is not in use.**

c. Hydraulic Wing Towers (Single Arm (AHW) Metro)

- i. Install the upper wing brace arm, bolting it securely to the rear wing tower slide. Attach the outer tube portion of the brace to the rear tower slide and the inner portion to the side wing plow.
- ii. Install the rear wing lift cylinder. Attach the barrel end of the cylinder to the rear wing brace and the rod end to the upper wing arm.
- iii. Connect the hydraulic hoses leading from the rear lift and the wing extension cylinders to the quick disconnect couplers located on the prime mover. **NOTE: Normally one hose will have a male quick disconnect hose end and the other will have a female quick disconnect hose end.** This prevents the hoses from being coupled incorrectly. Also when the hoses are disconnected from the prime mover this allows for them to be coupled together to prevent contamination from entering into the hydraulic system.
- iv. Install wing stop and safety brace channel.
 1. The wing stop assembly is used to help cushion and absorb the wing lift cylinder in order to help prevent accidental contact between the side wing plow and the chassis cab and mirror(s). First slowly lift the wing to the raised position being careful not to strike the chassis. Next lower the rear of the wing slightly and located the wing stop assembly between the rear wing slide and the rear lift cylinder, when fully raised the wing lift cylinder should slightly compress the rubber bumper on the wing stop assembly. Tack-weld first, checking fit and then finish weld 100%.
 2. With the wing in the raised position, install the provided safety brace channel to the upper push arm. Find the correct position for the mounting lugs by fully extending the lower lift cylinder, retract cylinder slightly (approximately 1-inch) and locate the brace arm against the cylinder barrel and positioning the mounting lugs to the upper push arm. Tack-weld first, checking fit and then finish weld 100%. To operate, fully raise side wing, release brace channel from stored position, carefully lower rear of wing until brace arm contacts cylinder barrel. **WARNING: The safety brace channel must be used during transportation and/or when the wing is not in use.**



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WING PLOW SETUP AND OPERATION



SAFETY FIRST!! READ AND UNDERSTAND THE SAFETY INSTRUCTIONS BEFORE PROCEEDING WITH ANY SETUP AND/OR OPERATION.

When all conditions of installation have been met, the side wing plow is ready to operate. The levers for controlling the wing plow lift functions are located in the cab of the prime mover. **WARNING: When the side wing plow is being raised, lowered or extended – STAND CLEAR!**

DAILY INSPECTION INSTRUCTIONS

Before any plow is attached onto the vehicle, all equipment should be inspected and checked to ensure that everything is in safe operating condition. Any and all defects, when noted, should be scheduled for repair(s) and/or immediate replacement. The following checklist should be performed prior to and at the completion of each plowing shift, to ensure operational readiness when required.

1. The operator should familiarize himself with all equipment prior to operation.
2. Inspect side wing plow for damaged or worn cutting edges and/or wear shoes.
3. Inspect wing moldboard for signs of damage such as broken or worn bolts and pins, cracked welds, bent sections and/or excessive rusting.
4. Inspect trip mechanisms for damage such as broken springs, cracked welds, or missing bolts/nuts. Note: tripping mechanisms should be disassembled, cleaned, and lubricated annually.
5. Inspect wing standoff arms for signs of damage such as cracked welds, bent or broken sections, and excessive rusting.
6. Inspect mounting holes on the rear wing slide/standoff, standoff arms and trip lugs for excessive wear. Holes having greater than 3/16-inch clearance are to be repaired.
7. Inspect plow for broken, worn or stretched lift chains, grab links and clevises.
8. Inspect wing plow assembly to ensure that all fasteners: bolts, nuts, cotter pins, lock rings, etc. are properly secured. Replace any components that are damaged and/or missing.

OPERATING INSTRUCTIONS

GENERAL:

- (1) Before using the side wing plow certain adjustments must be made to the front safety chain in order to ensure proper plowing as well as to prevent damage to the wing.
 - For pavement clearing: Lower the blade onto a hard surface and adjust the safety chain so that it is taut or has no slack.
 - For winging granular shoulder: Raise the wing sufficiently by shortening the safety chain by one link from the position determined above. This is to prevent the wing from removing excessive amounts of granular material from the shoulder and help prevent the front of the wing from snagging on pavement edges and the like.
- (2) Finite adjustments can be made to control the speed of hydraulic equipment such as the side wing plow by making changes to the individual valve spool. The control lever (spool handle) used with the air-operated valves incorporates an adjusting screw, which controls the travel of the spool. In the case of the side wing you can increase the down speed of



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the wing by turning the adjusting screw counter-clockwise or decrease the down speed by adjusting the screw clockwise.
After the desired action is achieved, lock the position of the adjusting screw with a jam nut.

DURING PLOWING (cable towers):

- (1) When raising the wing from the road surface, first raise the front of the wing and then the rear. When lowering the wing, do not allow either end to touch the surface until the wing has been lowered and leveled about 6 – 8 inches above the pavement surface, next lower the rear of the wing into the desired position and then lower the wing front.
- (2) When cleaning the pavement with the wing, the front cable should be tight enough that when the wing moves up and down with the contour of the road, the cable will remain relatively straight instead of flopping back and forth. The rear cable should also be kept relatively tight, but the wing should not leave the surface. The high lift rams should be in the down position.
- (3) When removing snow from gravel shoulders, always keep the front cable tight and position the back cable so that the rear of the wing is slightly off the surface. This will help to keep the wing from unexpectedly digging into the plowing surface. The high lift rams should be in the down position.
- (4) When high winging (step winging, benching, lowering snow-banks, etc.) the wing braces may have to be extended and/or pinned solid to keep the wing from tripping excessively in the hard packed snow. If there is a provision for pinning the front trip hinge, it must be pinned along with the rear arms. After the high winging operations are completed, the wing should be returned the normal trip position again to prevent accidental damage to the wing. When high winging, the bottom of the wing should remain parallel to the plowing surface, as level as possible. It is recommended that the outward ends of the wing braces do not rise or drop more than 6 – 8 inches above or below the horizontal or level position. If the wing is too low in the snow bank and it does not rise, do not continue to hold the control levers back, release them and have the driver decrease speed or stop, so they can be readjusted. Continued applied pressure will result in a possible broken cable, damaged wing and/or wing standoff arms.
- (5) When not winging, the wing should be raised into the carrying position as close to the truck as possible in order to eliminate excessive overhang. The rear wing safety chain should also be connected to provide a secondary means of support. Note: The safety chain must be connected at all times when the wing is not in use and/or during extended transportation durations.

DURING PLOWING (hydraulic towers):

- (1) When raising the wing from the road surface, first raise the front of the wing until the guideline (established during the initial wing setup) is visible and then the rear. When lowering the wing, do not allow either end to touch the surface until the wing has been lowered and leveled about 6 – 8 inches above the pavement surface, next lower the rear of the wing into the desired position and then lower the wing front.
- (2) When cleaning the pavement with the wing, position the front mast slide so that the lifting block is just making contact with the top of the slot cutout in the wing slide. Position the rear of the wing so that it just contacts the road surface, in order to allow the wing to float and follow the contour of the road ensure that the in cab controller is in the detent down position.
- (3) On AHW models only, the inclusion of an additional hydraulic cylinder allows the operator to adjust the side wing-clearing path. This feature will allow the operator to vary the wings position with regard to the distance the wing protrudes away from the chassis in order to clear such obstacles as guardrails, bridge abutments and mail boxes without having to cross over the highway centerline.
- (4) When not winging, the wing should be raised into the carrying position as close to the truck as possible in order to eliminate excessive overhang. The rear wing safety chain should also be connected to provide a secondary means of support. Note: The safety chain must be connected at all times when the wing is not in use and/or during extended transportation durations (On AHW model side wings the lift cylinder is equipped with a separate cylinder safety prop in lieu of the safety chain).



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AFTER PLOWING:

- (1) When plowing is completed wash the wing to remove snow, salt and/or sand accumulations.
- (2) If the wing is to be removed, the following steps should be taken.
 - Place wing on a suitable wing-supporting device.
 - Disconnect safety chain and lift cable/cylinders. Ensure front wing safety chain has been marked as described in the initial setup instructions to facilitate easy hook-up.
 - Disconnect upper and lower wing standoff arms.
 - Lubricate all pivot points, bolts, etc. to prevent rusting and facilitate easier installation.



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MAINTENANCE



SAFETY FIRST!! READ AND UNDERSTAND THE SAFETY INSTRUCTIONS BEFORE BEGINNING ANY MAINTENANCE OPERATION.

In preparation for the snowplowing season a visual equipment inspection must be performed. Look for any damaged components, bends, cracked welds, hydraulic leaks, etc. Inspect all fasteners; tighten any that have loosened and replace any that are damaged. Check all hydraulic hoses for cuts, cracks and/or leaks. Visually check plow lift chains and cable(s) for loose clamps and frays. **Immediately replace any damaged chains and/or frayed cables.**

Periodically during plowing, stop to inspect plow cutting edges and moldboard shoes for wear. At the first sign of excessive wear, discard and replace with new parts.

When the wing plow is disconnected from the prime mover, be sure to couple the hydraulic hoses together, to prevent damage to the quick disconnect hose ends and to help prevent the introduction of foreign material into the hydraulic system.

BEFORE EACH USE

- Make sure that all nuts and bolts are in place and properly tightened.
- Make sure that all other fasteners are in place and are performing their specified function.
- Make sure all safety signs are in place, are clean, and are legible.
- Replace any damaged parts or excessively worn parts.
- Inspect for damage to any part of the plow moldboard or push frame, such as broken or worn bolts or pins, cracked welds, bent sections and/or excessive rusting.
- Inspect for damage to trip mechanisms, such as broken springs, cracked welds, worn or broken bolts.
- Check all hoses for cuts, cracks and leaks.

AFTER EVERY 10 HOURS OF USE

- Grease all grease fittings and pivot points: see Parts Pages and Parts Lists for reference.

REPLACEMENT OF CUTTING EDGE

1. Park the prime mover/vehicle on a level surface (such as a concrete garage floor or paved area) that is large enough to safely accommodate unit with the side wing plow attached.
2. Place the vehicles transmission in "Park" and set the parking brake.
3. Lower the side wing plow onto suitable blocking positioned immediately behind the moldboard. This blocking must be of sufficient height to hold the cutting edge approximately 6" to 8" above the level surface.
4. Shut off the prime movers engine, remove the starter key, wait for all moving parts to come to a stop, and relieve all pressure in the hydraulic lines.
5. Loosen the nuts on all the cutting edge bolts; remove all nuts and bolts except the bolts on each end of the cutting edge.
6. While holding up the end of the cutting edge, remove the nut and bolt from that end and allow the cutting edge to pivot down to the level surface.
7. Repeat Step 6 for the other end of the cutting edge. If using a standard center punched reversible cutting edge, flip the edge from top-to-bottom and reinstall. Properly dispose of worn-out edges and all bolts and nuts.
8. Reinstall a new wear edge by reversing the procedures in steps 7 thru 5; tightening all nuts to recommended torque values.



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01900074: TRUCK INSTALL REAR WING CAN AHW 12 KIT

| ITEM ID | ITEM NO | DESCRIPTION | QTY REQ |
|---------|------------|---|---------|
| 1 | 01401000 | MOLDBOARD ASS'Y RTH AHW CDN 12FT - 8IN | 1 |
| 2 | 01001244 | BRACKET ASS'Y - DETACH AHW STANDOFF ARM | 1 |
| 3 | 01403000 | SINGLE AHW PUSH ARM RTH ASS'Y | 1 |
| 4 | 00700057 | FRT MAST ASS'Y 48 IN AHW GEN II | 1 |
| 5 | 01901057 | CHASSIS REINFORCEMENT INSTALLATION | 1 |
| 6 | 01900155 | PIPE BRACE KIT 2 7/8 BALL - 48.00 IN LG | 1 |
| 7 | 0540029 | CYLINDER HYD DA 3 1/2 X 26 AHW | 1 |
| 8 | 01401120 | PIVOT BLOCK WELD'T | 1 |
| 9 | 0540016 | CYLINDER HYD DA 3 X 21 AHW EXT | 1 |
| 10 | 01001113 | RUBBER BUMPER ASS'Y AHW REAR BRK'T | 1 |
| 11 | 01900156 | RUBBER HELPER SPRING ASS'Y KIT | 1 |
| 12 | 00900086 | PIN 1.250 DIA X 4.000 WELD'T | 2 |
| 13 | 00101207 | BRK'T HYDRAULIC QUICK DISCONNECT WELD'T | 2 |
| 14 | 0720044 | MIRROR CONVEX 10 INCH STAINLESS STEEL | 1 |
| 15 | 01001110 | VALVE MTG BRK'T LTH | 1 |
| 16 | 01001109 | VALVE MTG BRK'T RTH | 1 |
| 17 | 01001107 | ANGLE 4 X 4 X 3/8 - 18 | 1 |
| 18 | 01001108 | PLATE 4.000 X 14.000 X 0.375 | 1 |
| 19 | HW13U-0520 | CLINCH PIN 5/16 X 1 1/4 ZINC | 2 |
| 20 | HW40A-1232 | BOLT HEX 3/4 X 4 UNC ZINC | 2 |
| 21 | HW36D-12 | NUT HEX ELASTIC 3/4 UNC ZINC | 2 |
| 22 | HW40A-1632 | BOLT HEX 1 X 4 UNC ZINC | 2 |
| 23 | HW36D-16 | NUT HEX ELASTIC 1 UNC ZINC | 2 |
| 24 | 00401979 | TUBE RD 1.050N 0.824N 120.000S | 1 |
| 25 | 00401321 | GRAB LINK | 1 |
| 26 | 0590028 | ANCHOR SCREW PIN SHACKLE 5/8" | 1 |
| 27 | 0630058 | HYD QUICK DISC 1/2 MALE | 2 |
| 28 | 0630059 | HYD QUICK DISC 1/2 COUPLING | 2 |
| 29 | 0630066 | HYD QUICK DISC 1/2" MALEELIM | 2 |
| 30 | 0630065 | HYD QUICK DISC 1/2" FEM ELIM | 2 |
| 31 | 0630137 | HYD QUICK DISCONNECT 1/2 DUST CAP STEEL | 1 |
| 32 | 0630135 | HYD QUICK DISCONNECT 1/2 DUST CAP STEEL | 1 |
| 33 | 0630069 | HYD QUICK DISC DUST CAP 1/2" TEMA | 1 |
| 34 | 0630070 | HYD QUICK DISC DUST PLUG 1/2" TEMA | 1 |
| 35 | 0640143 | FITTING PIPE BLK MALL COUPLING 1/2 300# | 3 |
| 36 | 0530026 | VALVE SLOW CONTROL ADJUST 1/2 NPT | 1 |
| 37 | 0630041 | HYD ADAPTER 1/2 MNPT 3/8 JIC STR | 2 |
| 38 | 0630081 | HYDRAULIC ADAPTER 1/2 MNPT 1/2 JIC | 2 |
| 39 | 0630028 | HYD ADAPTER 3/8 JIC 3/8 OR STRAIGHT | 1 |
| 40 | 0630124 | HYD ADAPTER 1/2 MNPT 90 1/2 M JIC | 2 |
| 41 | 0630016 | HYD ADAPTER 3/8 SAE 90 3/8 JIC | 1 |

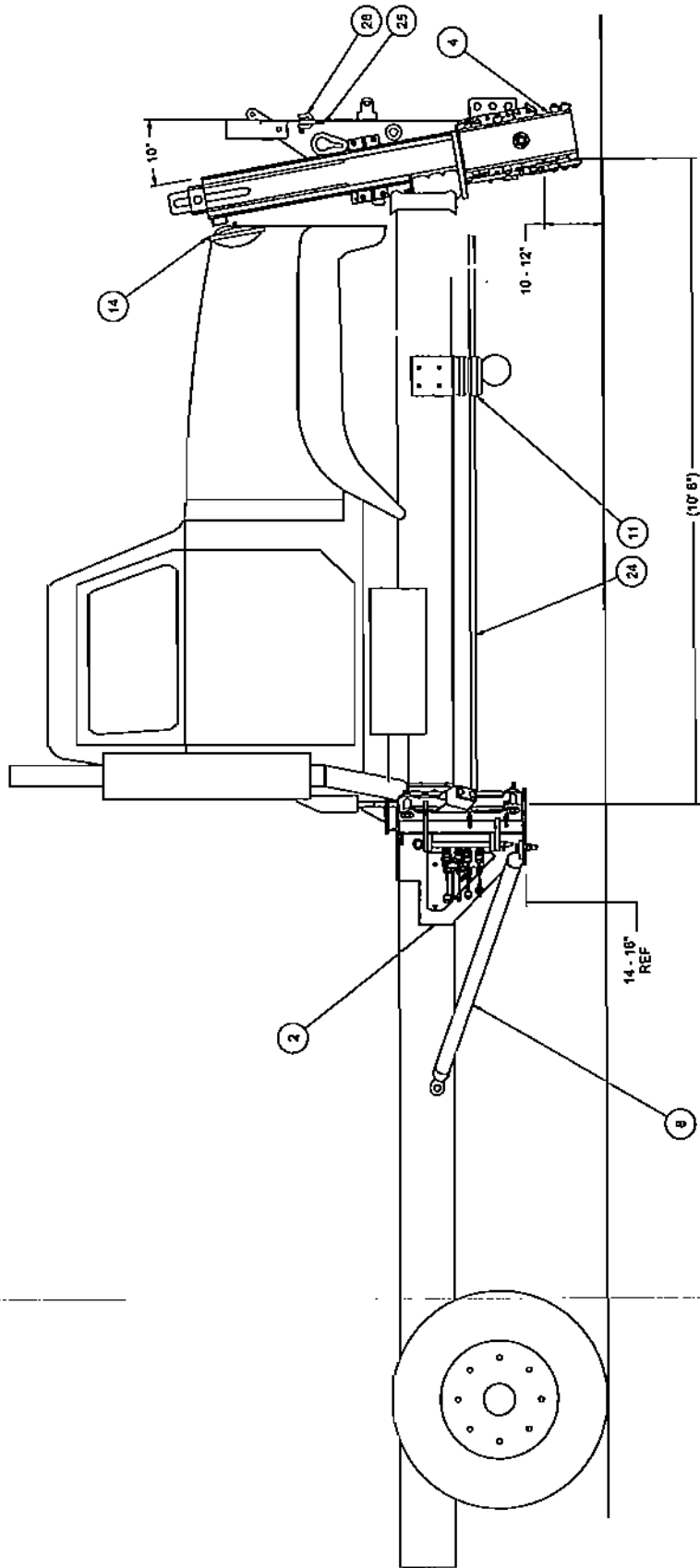


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| | | | |
|----|------------|---------------------------------------|----|
| 42 | 0630044 | HYD ADAPTER 1/2 MNPT 90 3/8 JIC MALE | 2 |
| 43 | HW40A-1016 | BOLT HEX 5/8 X 2 UNC ZINC | 25 |
| 44 | HW30D-10 | NUT HEX STOVER 5/8 UNC ZINC | 25 |
| 45 | 01501131 | HOSE HYD 1/2 100R2 0630121-48-0630114 | 1 |
| 46 | 01501130 | HOSE HYD 1/2 100R2 0630121-35-0630114 | 1 |
| 47 | 01501132 | HOSE HYD 3/8 100R2 0630116-43-0630284 | 1 |
| 48 | 01501133 | HOSE HYD 3/8 100R2 0630116-65-0630284 | 1 |



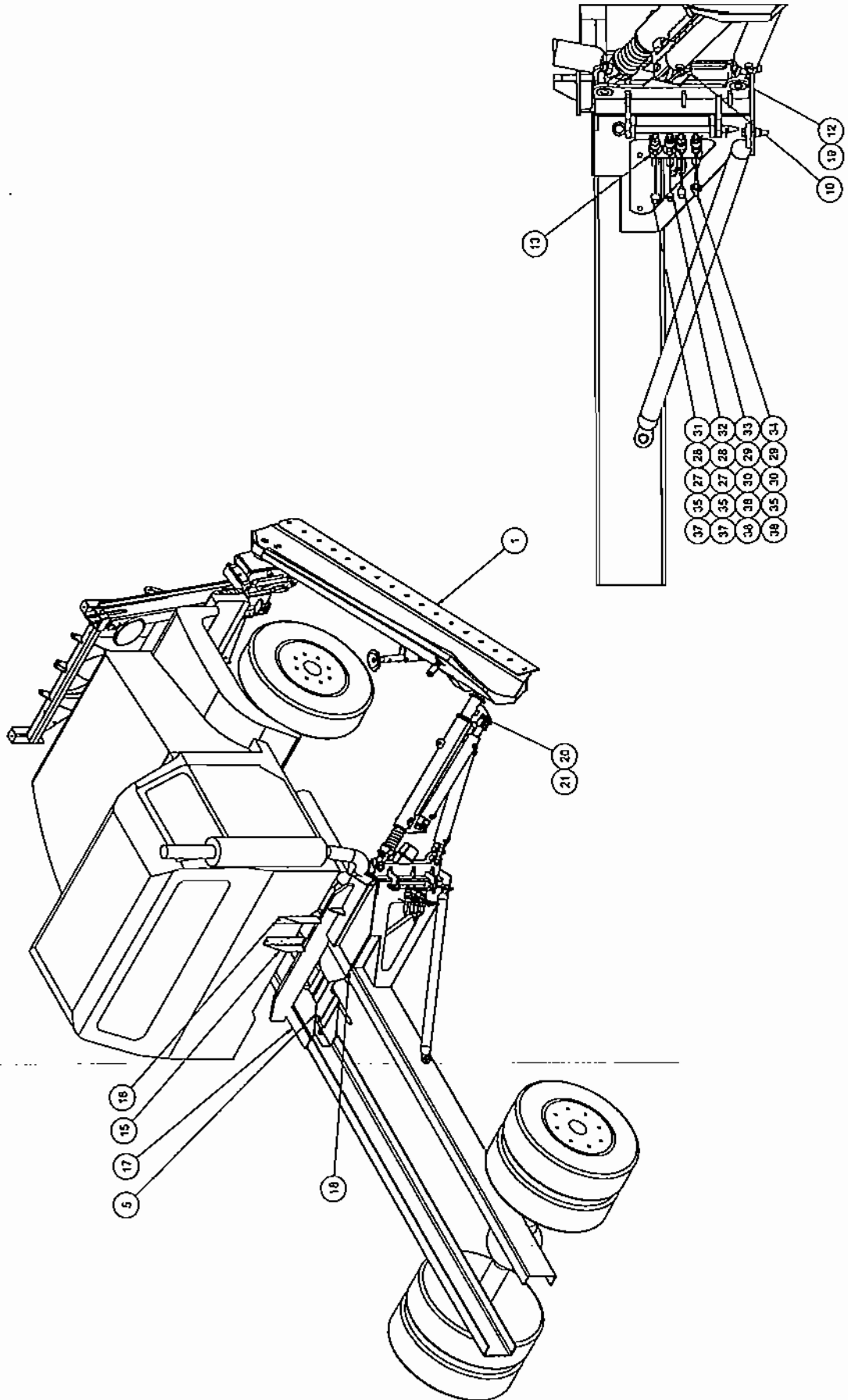
BOX 1126, NORPARK DRIVE, MOUNT FOREST, ONT. N0G 2L0 (519)323-4433 PH (519)323-4806 FX



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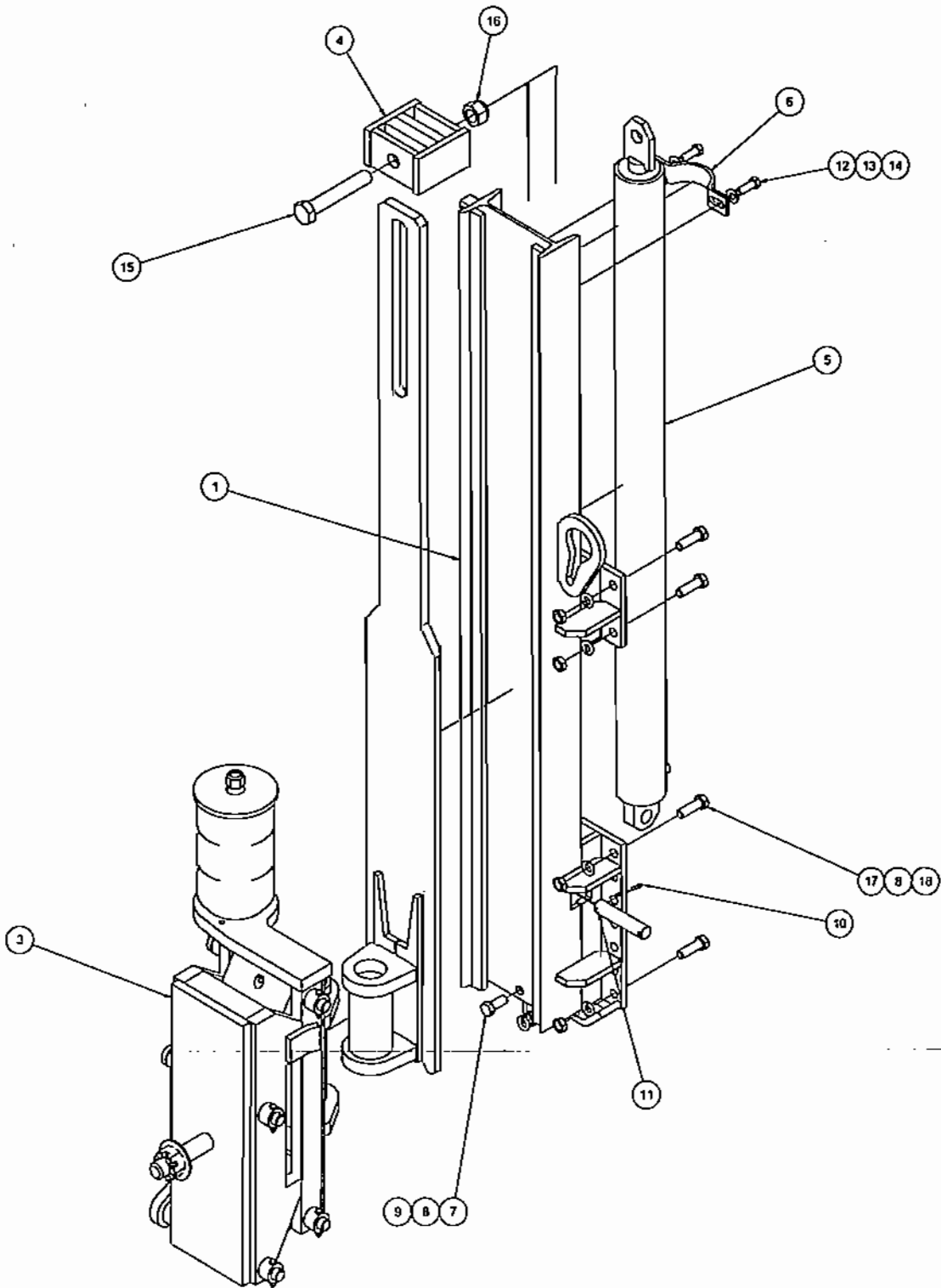
EQUIPMENT MAY NOT BE IDENTICAL AS SHOWN. SOME COMPONENTS MAY BE OPTIONAL.
TO MAINTAIN OUR ON-ROAD PRODUCT AND DEVELOPMENT PROGRAM, VIKING CYCLES LTD. RESERVES THE RIGHT TO CHANGE EQUIPMENT & SPECIFICATION WITHOUT NOTICE.



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00700057: FRT MAST ASS'Y 48 IN AHW GEN II

| ITEM ID | ITEM NO | DESCRIPTION | QTY REQ |
|---------|------------|--------------------------------|---------|
| 1 | 00703000 | FRONT MAST WELD'T 48" STANDARD | 1 |
| 2 | 00702031 | SLIDE WELD'T FRONT MAST 48 IN | 1 |
| 3 | 00700053 | LIFT AND TRIP HINGE AHW RETRO | 1 |
| 4 | 00756812 | COUPLER WELD'T STD FRONT MAST | 1 |
| 5 | 0540032 | CYLINDER HYD DA 3 X 48 | 1 |
| 6 | 00757909 | CYLINDER MOUNTNG BRACKET | 1 |
| 7 | HW40A-1012 | BOLT HEX 5/8 X 1 1/2 UNC ZINC | 1 |
| 8 | HW14C-10 | LOCKWASHER SPLIT 5/8 ZINC | 9 |
| 9 | HW30A-10 | NUT HEX 5/8 UNC ZINC | 1 |
| 10 | HW13A-0632 | COTTER PIN 3/16 X 2 ZINC | 2 |
| 11 | 00900108 | PIN 1.000 DIA X 4.250 | 1 |
| 12 | HW40A-0812 | BOLT HEX 1/2 X 1 1/2 UNC ZINC | 2 |
| 13 | HW14A-08 | FLATWASHER SAE 1/2 ZINC | 2 |
| 14 | HW36D-08 | NUT HEX ELASTIC 1/2 UNC ZINC | 2 |
| 15 | HW40A-1648 | BOLT HEX 1 X 6 UNC ZINC | 1 |
| 16 | HW36D-16 | NUT HEX ELASTIC 1 UNC ZINC | 1 |
| 17 | HW40A-1016 | BOLT HEX 5/8 X 2 UNC ZINC | 8 |
| 18 | HW30B-10 | NUT HEX JAM 5/8 UNC ZINC | 8 |



EQUIPMENT MAY NOT BE EXACTLY AS SHOWN. SOME COMPONENTS MAY BE OPTIONAL.
TO MAINTAIN OUR ONGOING PRODUCT AND DEVELOPMENT IMPROVEMENT PROGRAM, VIKING CIVES LTD. RESERVES THE RIGHT TO CHANGE EQUIPMENT & SPECIFICATION WITHOUT NOTICE.



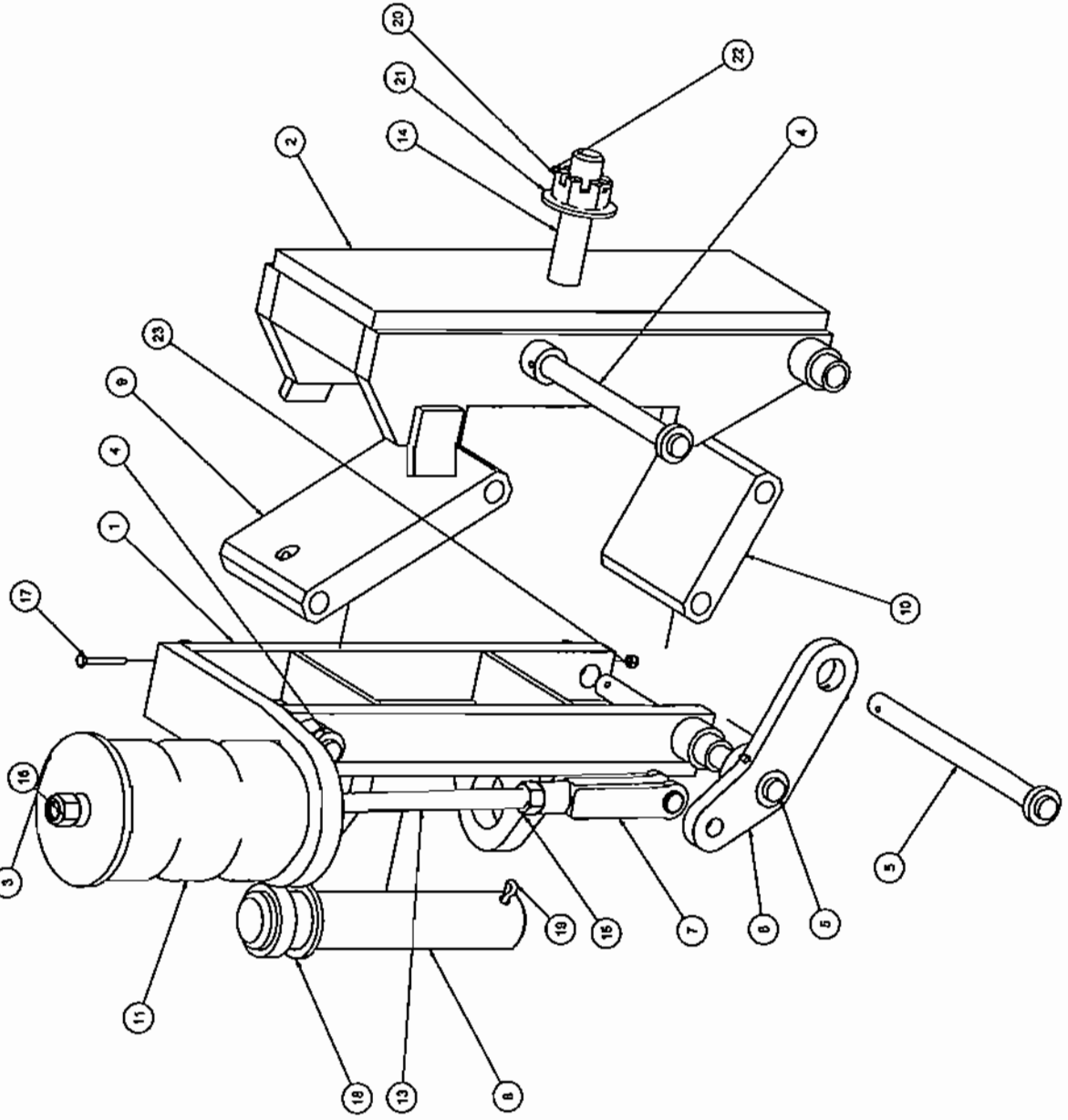
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00700053: LIFT AND TRIP HINGE AHW

| ITEM ID | ITEM NO | DESCRIPTION | QTY REQ |
|---------|------------|---------------------------------------|---------|
| 1 | 00700051 | INNER HINGE WELD'T | 1 |
| 2 | 00700052 | OUTER HINGE WELD'T | 1 |
| 3 | 00700040 | RUBBER SPRING RETAINING CAP WELD'T | 1 |
| 4 | 00900294 | PIN 0.875 DIA X 10.125 WELD'T | 2 |
| 5 | 00900295 | PIN 0.875 DIA X 11.125 WELD'T | 2 |
| 6 | 00700037 | TRIP RESISTANCE LEAVER WELD'T | 1 |
| 7 | 0590055 | CLEVIS YOKE ASSEMBLY 3/4 NF | 1 |
| 8 | 00900284 | PIN 2.250 DIA X 10.500 WELD'T | 1 |
| 9 | 00700042 | TOP LINK PIVOT ARM | 1 |
| 10 | 00700043 | BOTTOM LINK PIVOT ARM | 1 |
| 11 | 0720120 | RUBBER HELPER TRIPLE CONVOLUTION - 55 | 1 |
| 12 | HW29E-04 | GREASE FITTING 1/4 28 STR | 6 |
| 13 | 00700041 | STUD 0.750X24.5 0.750NF2.5 0.750NF4.5 | 1 |
| 14 | 00702037 | BOLT DRILLED 1.250 DIA X 5.000 | 1 |
| 15 | HW31A-12 | NUT HEX 3/4 UNF ZINC | 1 |
| 16 | HW37D-12 | NUT HEX ELASTIC 3/4 UNF ZINC | 1 |
| 17 | HW40A-0416 | BOLT HEX 1/4 X 2 UNC ZINC | 4 |
| 18 | 00702017 | BUSHING 3.000N 2.313M 0.250S | 1 |
| 19 | HW13A-1040 | COTTER PIN 5/16 X 2 1/2 | 1 |
| 20 | HW30C-20 | NUT HEX SLOTTED 1 1/4 UNC ZINC | 1 |
| 21 | HW14B-20 | FLATWASHER USS 1 1/4 ZINC | 1 |
| 22 | HW13A-0840 | COTTER PIN 1/4 X 2 1/2 ZINC | 1 |
| 23 | HW36D-04 | NUT HEX ELASTIC 1/4 UNC ZINC | 4 |



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TO MAINTAIN OUR ON-GOING PRODUCT AND DEVELOPMENT APPROVAL RIGHT PROGRAM, VIKING-GIRES LTD. RESERVES THE RIGHT TO CHANGE EQUIPMENT & SPECIFICATION WITHOUT NOTICE.



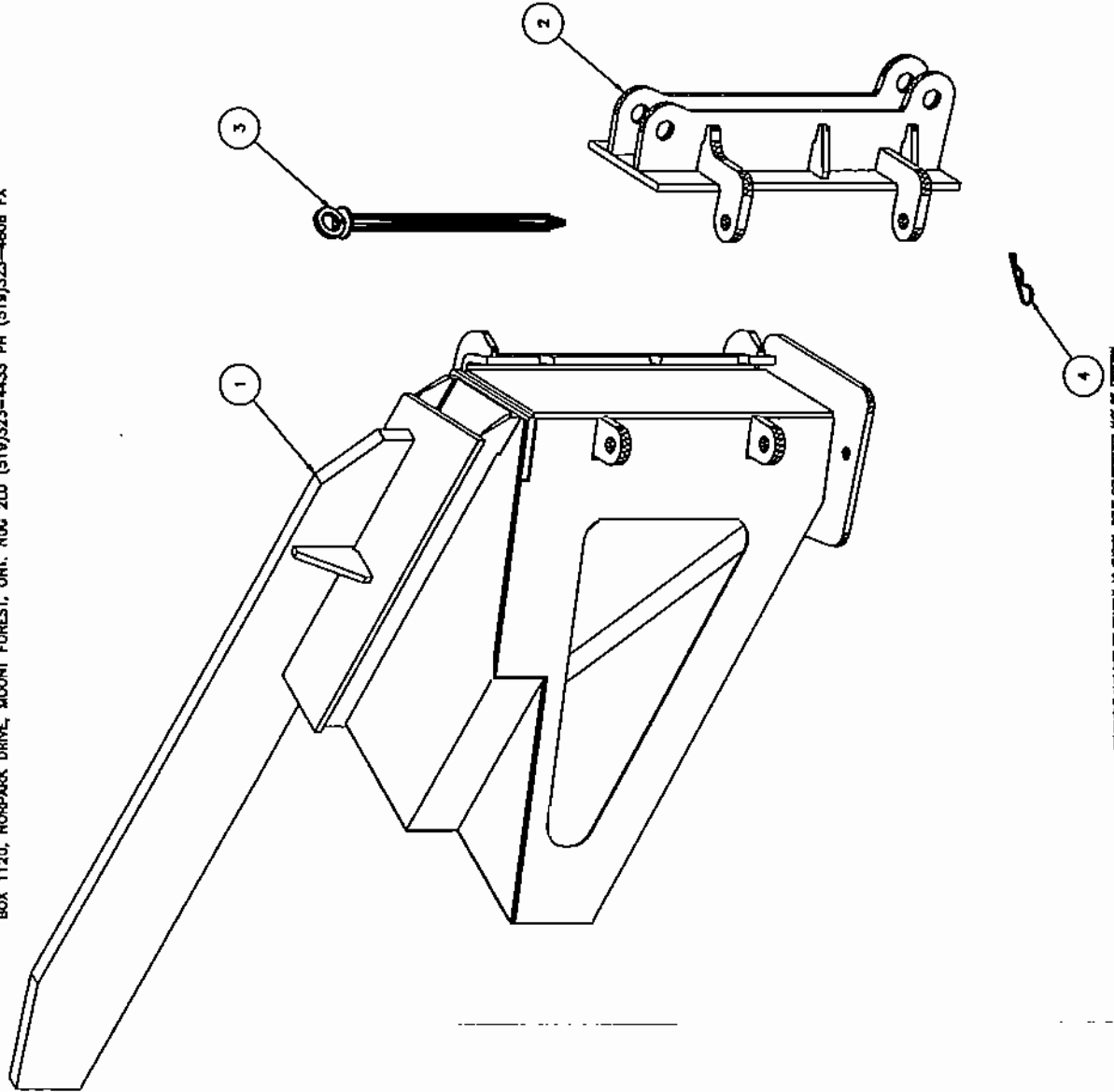
BOX 1120, NORPARK DRIVE, MOUNT FOREST, ONT. N0G 2L0 (519) 323-4433 PH (519) 323-4608 FX

01001244: BRACKET ASS'Y – DETACH AHW STANDOFF ARM

| ITEM ID | ITEM NO | DESCRIPTION | QTY REQ |
|---------|------------|--|---------|
| 1 | 01001233 | BRACKET WELD'T DETACH STANDOFF ARMS | 1 |
| 2 | 01001241 | DETACH BRACKET WELD'T AHW STANDOFF ARM | 1 |
| 3 | 00900198 | PIN 1.000 DIA X 15.500 WELD'T | 1 |
| 4 | HW13L-0360 | COTTER HAIRPIN 3/16 X 3 3/4 ZINC | 1 |



BOX 1120, HORSPARK DRIVE, MOUNT FOREST, ONT. N0G 2L0 (519)323-4433 PH (519)323-4808 FX



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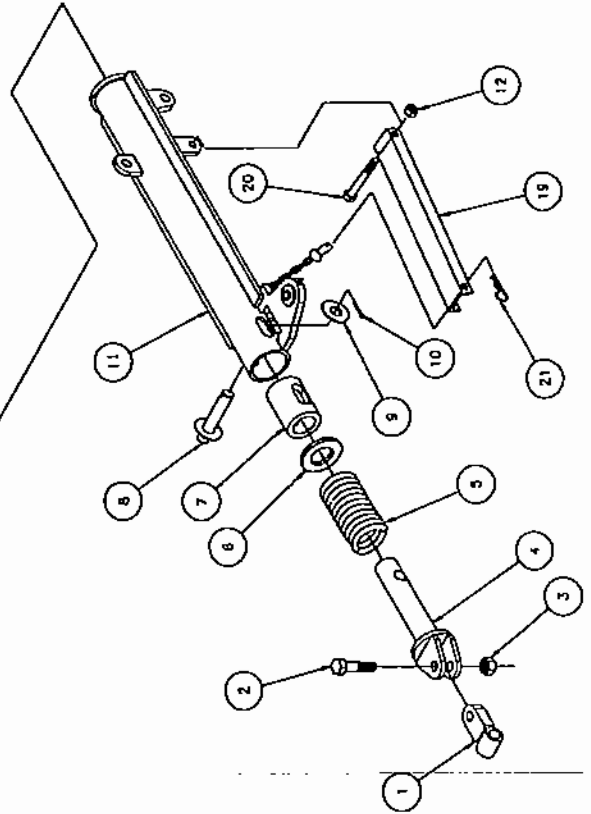
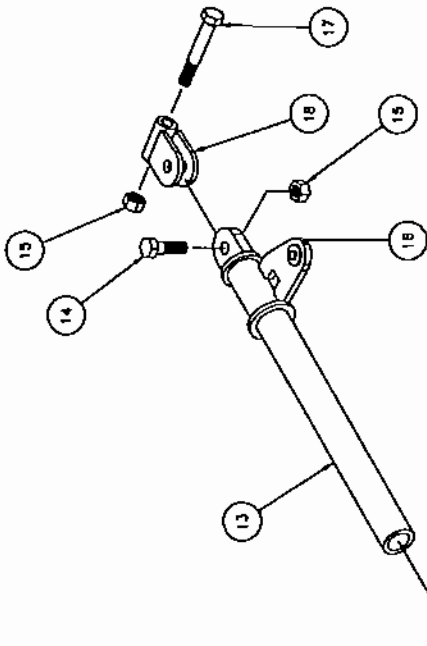
BOX 1120, NORPARK DRIVE, MOUNT FOREST, ONT. N0G 2L0 (519) 323-4433 PH (519) 323-4608 FX

01403000: SINGLE AHW PUSH ARM RTH ASS'Y

| ITEM ID | ITEM NO | DESCRIPTION | QTY REQ |
|---------|------------|---------------------------------------|---------|
| 1 | 01403070 | PIVOT BLOCK REAR POST END WELD'T | 1 |
| 2 | HW40A-1632 | BOLT HEX 1 X 4 UNC ZINC | 1 |
| 3 | HW36D-16 | NUT HEX ELASTIC 1 UNC ZINC | 1 |
| 4 | 01403012 | MOUNTING SHAFT WELD'T | 1 |
| 5 | 0580009 | SPRING COMPRESSION WING BRACE | 1 |
| 6 | 00401155 | BUSHING 4.500B 2.500B 0.375N | 1 |
| 7 | 01403010 | BUSHING AHW ARM | 1 |
| 8 | 01403026 | PIN 1.250 DIA X 5.000 WELD'T | 1 |
| 9 | HW14D-20 | FLATWASHER HARDENED 1 1/4 ZINC | 1 |
| 10 | HW13A-0840 | COTTER PIN 1/4 X 2 1/2 ZINC | 1 |
| 11 | 01403014 | OUTER TUBE WELD'T RTH SINGLE PUSH ARM | 1 |
| 12 | HW36D-12 | NUT HEX ELASTIC 3/4 UNC ZINC | 1 |
| 13 | 01403033 | INNER TUBE WELD'T SINGLE PUSH ARM | 1 |
| 14 | HW40A-2032 | BOLT HEX 1 1/4 X 4 UNC ZINC | 1 |
| 15 | HW36D-20 | NUT HEX ELASTIC 1 1/4 UNC ZINC | 2 |
| 16 | HW29A-02 | GREASE FITTING 1/8 NPT STR | 2 |
| 17 | HW40A-2064 | BOLT HEX 1 1/4 X 8 UNC ZINC | 1 |
| 18 | 01404320 | KNUCKLE WELD'T AHW | 1 |
| 19 | 01401137 | SAFETY ARM CHANNEL | 1 |
| 20 | HW40A-1244 | BOLT HEX 3/4 X 5 UNC ZINC | 1 |
| 21 | HW13L-0438 | COTTER HAIRPIN 1/8 X 2 3/8 ZINC | 1 |



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01401000: MOLDBOARD ASS'Y RTH AHW CDN 12FT - 8IN

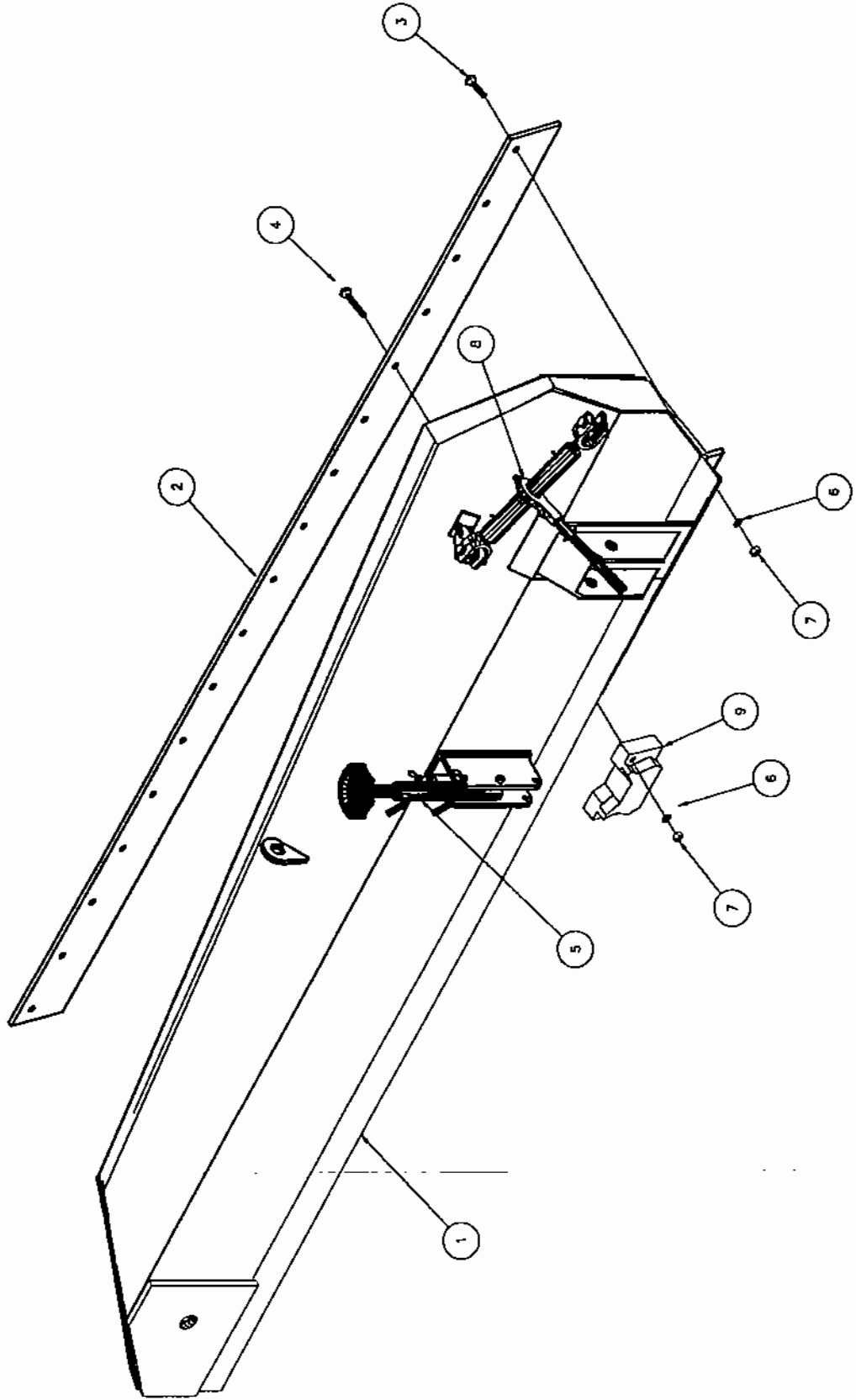
| ITEM ID | ITEM NO | DESCRIPTION | QTY REQ | OPTIONAL |
|---------|------------|---|---------|----------|
| 1 | 01401006 | MOLDBOARD WELD'T RTH AHW CDN - 12FT - 8IN | 1 | |
| 2 | 0500015 | BLADE 8 CP 1/2 X 8 X 132 2 IN START | 1 | |
| 3 | HW40C-1020 | BOLT CARRIAGE 5/8 X 2 1/2 UNC ZINC | 15 | |
| 4 | HW40C-1028 | BOLT CARRIAGE 5/8 X 3 1/2 UNC ZINC | 2 | |
| 5 | 01408140 | PARKING STAND ASS'Y | 1 | |
| 6 | HW14C-10 | LOCKWASHER SPLIT 5/8 ZINC | 17 | |
| 7 | HW30A-10 | NUT HEX 5/8 UNC ZINC | 17 | |
| 8 | 0520023 | RATCHET JACK AHW | 1 | |
| 9 | 0510009 | SHOE WING 8IN HOLES CENTERS | 1 | |

Ordering Note:

An alpha designation in the Item ID column indicates a sub-component for that parent item. When placing parts orders reference the parent item to receive a complete assembly. Individual items can be ordered separately if required by ordering the alpha designated item number.



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01408140: PARKING STAND ASS'Y

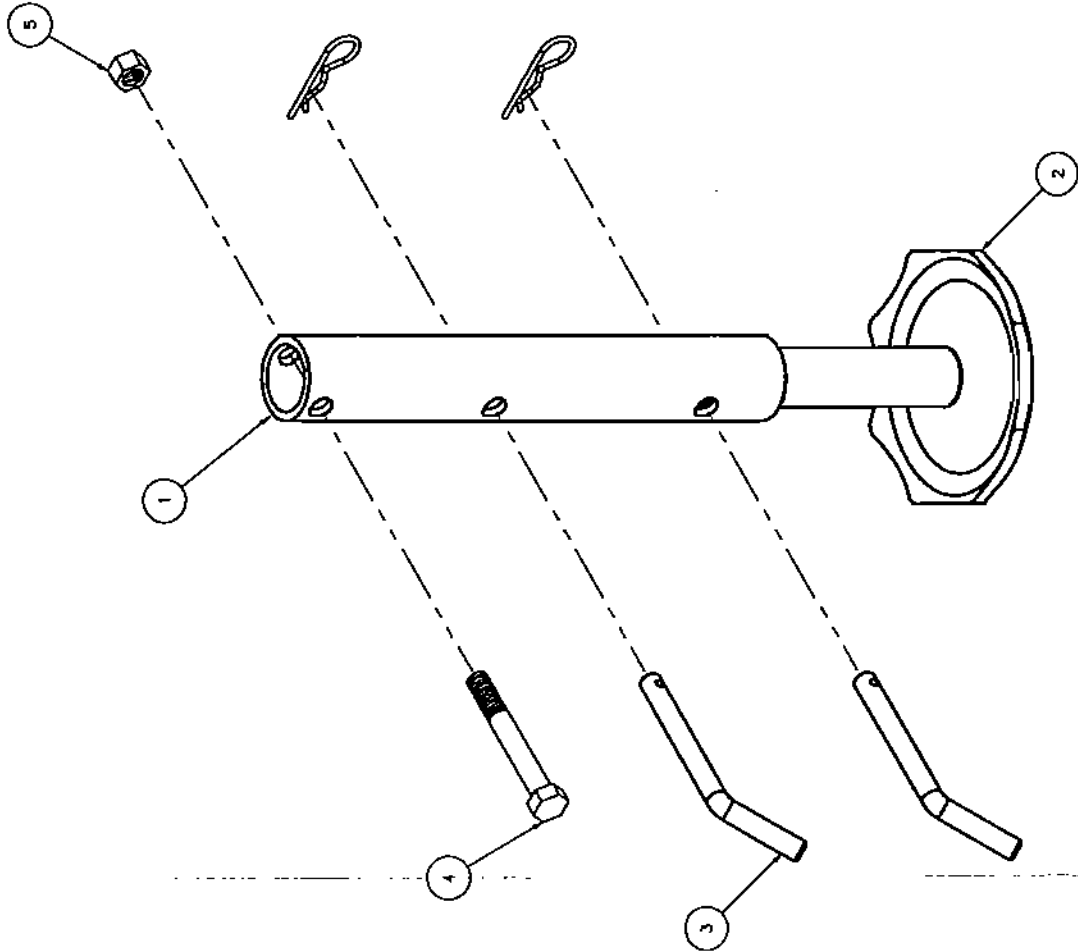
| ITEM ID | ITEM NO | DESCRIPTION | QTY REQ | OPTIONAL |
|---------|------------|---------------------------------|---------|----------|
| 1 | 00401032 | PARKING STAND PIVOT LEG | 1 | |
| 2 | 00401039 | PARKING STAND LEG WELDT | 1 | |
| 3 | HW13S-1648 | PIN BENT PULL 1/2 X 3 ZINC | 2 | |
| 4 | HW13L-0438 | COTTER HAIRPIN 1/8 X 2 3/8 ZINC | 2 | |
| 5 | HW40A-0830 | BOLT HEX 1/2 X 3 3/4 UNC ZINC | 1 | |
| 6 | HW36D-08 | NUT HEX ELASTIC 1/2 UNC ZINC | 1 | |

Ordering Note:

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