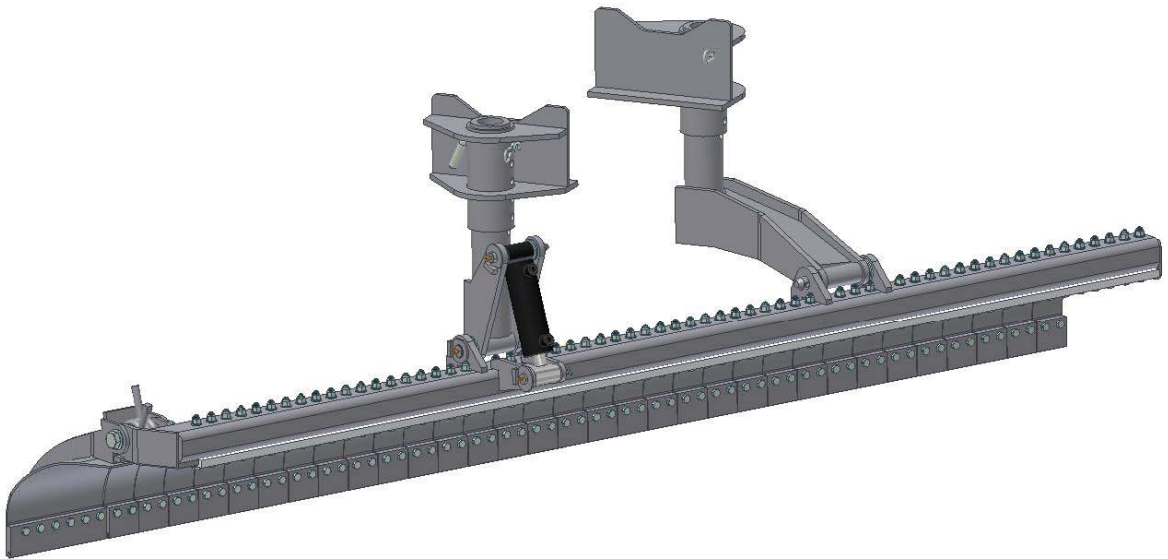




Owner's Manual

VCL UNDERBODY 2-STAGE HYDRAULIC AND PNEUMATIC VERSIONS



Record the MODEL and SERIAL NUMBER of equipment for parts ordering information.

PURCHASED FROM: _____

DATE: _____

MODEL: _____

SERIAL NUMBER: _____



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VIKING-CIVES LTD. (Canada)
MOUNT FOREST, ONTARIO
TELEPHONE (519) 323-4433



*****LIMITED WARRANTY*****

VIKING-CIVES LTD. (Canada) warrants products of its manufacture against defects in workmanship and material for a period of one year from date of shipment to customer; and in consequence of this warranty, any component part or parts of such products proving defective within the above specified time will be repaired or replaced by **VIKING-CIVES LTD. (Canada)**. This warranty will not apply to any product, which have been repaired or altered outside of the **VIKING-CIVES LTD. (Canada)** factory in any way so as, in **VIKING-CIVES LTD. (Canada)** sole judgment, to affect its stability or reliability, nor which has been subjected to misuse, negligence or accident.

The obligations of **VIKING-CIVES LTD. (Canada)** under this limited warranty are limited to the replacement of defective parts as set forth above; such obligations are exclusive and in lieu of all other remedies, warranties, guarantees or liabilities, express or implied, with respect to each product delivered hereunder, arising by law or otherwise (including without limitation any obligation or liability of **VIKING-CIVES LTD. (Canada)**, arising from negligence or with respect to fitness for a particular purpose, merchantability, loss or use, revenue, or profit, or any incidental, indirect, special or consequential damages or injuries, even if **VIKING-CIVES LTD. (Canada)** has been advised of the possibility of such damages or injuries; and all other remedies, warranties, guarantees, or liabilities are hereby expressly excluded and disclaimed. This limited warranty shall not be extended, altered, or varied except by a written instrument signed by **VIKING-CIVES LTD. (Canada)**.


VIKING-CIVES LTD. (Canada) assumes no responsibility for engines, electrical equipment, or any other equipment and accessories not manufactured by **VIKING-CIVES LTD. (Canada)**.




IDENTIFICATION OF EQUIPMENT

Your specific unit is identified by a unique serial number. *To ensure accurate service, your Viking-Cives representative will need this identification number whenever parts and/or service is required.* All units assembled at Viking-Cives Ltd., Mt Forest, ON will have a National Safety Mark label inside the driver's door. Refer to sample label shown below. Your identification number will be in the following format:

Date of Manufacture prior to 2002	Date of Manufacture after 2002
99-000 (1999)	E 00001
20-000 (2000)	
21-000 (2001)	

MANUFACTURED BY / FABRIQUÉ PAR: VIKING-CIVES LTD. MOUNT FOREST ON				
TYPE:	V.I.N. / N.I.V.:		COLD INFL. PRESS. /	
GVWR / PNBV:	KG	DATE:	PRESS. DE GONF. À FROID	
GAWR / PNBE	TIRE / PNEU	RIM / JANTE	PSI/LPC	KPA
FR/AV	KG			
INT 1:	KG			
INT 2:	KG			
RR/AR:	KG			



E 00001
99-000
20-000

In order to provide accurate service, you may also be asked to provide your individual equipment Model and Serial No. The information required to identify the equipment may be found on the serial number tag secured to the equipment.

VIKING-CIVES, LTD.

Mt. Forest, Ontario, Canada

Model

Serial No.

Example:

Model 500HD
Serial 00001



ORDERING PARTS

Delays and errors can be eliminated when ordering instructions are followed correctly.

1. Place orders direct with your nearest dealer, or contact Viking-Cives Group for assistance.
2. State Company name, address, and postal/zip code.
3. Give the exact model and serial number of the equipment and/or unit identification number.
4. Furnish part number, description, and quantities required. Print or type order clearly.
5. Give specific shipping instructions.



VIKING-CIVES LTD. - Mount Forest, Ontario, Canada N0G 2L0;

VIKING-CIVES (USA) - Harrisville, New York 13648;

VIKING-CIVES MIDWEST INC. - Morley, MO 63767;

VIKING-CIVES of WESTERN NEW YORK - Batavia, NY 14020

Ph. (519) 323-4433, Fax (519) 323-4608

Ph. (315) 543-2321, Fax (315) 543-2366

Ph. (573) 262-3545, Fax (573) 262-3369

Ph. (585) 344-7122, Fax (585) 344-7157

Dealer	
Address	
Phone:	
Toll Free:	
Fax:	



WARRANTY REQUEST PROCEDURE

To obtain warranty consideration one must provide VIKING-CIVES LTD with required information including unit identification number, date of manufacture and individual model and serial numbers.

TO OBTAIN PARTS WARRANTY CONSIDERATION:

1. Contact VIKING-CIVES LTD customer service to obtain a Return Material Authorization (RMA) number. Any product arriving at VIKING-CIVES LTD without an RMA number will be rejected and returned to the sender at the sender's expense.
2. Goods are to be shipped prepaid to VIKING-CIVES LTD, Mount Forest, Ontario, Canada. **All items should be clearly marked with the appropriate RMA number.**

When a replacement item is supplied prior to return of the defective part for warranty consideration the following additional steps will occur:

- a. An invoice will be generated for the value of the replacement item(s).
 - b. The defective part(s) must be returned prepaid to VIKING-CIVES LTD.
3. Upon receiving the defective part(s), VIKING-CIVES LTD will issue and process a Discrepant Material Report (DMR). Once the evaluation of the DMR report is complete and the parts are deemed warranty, a credit will be issued against the outstanding invoice. **If the part(s) are deemed Non-warranty, the invoice will remain outstanding to be paid to VIKING-CIVES LTD.** Any part(s) to be returned to the customer will be at the customer's expense.

TO OBTAIN PARTS & LABOUR REPAIR WARRANTY CONSIDERATION:

All repairs considered for warranty that are performed outside of VIKING-CIVES LTD require prior written authorization from VIKING-CIVES LTD. Failure to obtain written warranty authorization prior to repairs may result in the rejection of the warranty claim. **NOTE: VIKING-CIVES LTD warranty labour rates will apply unless specifically determined otherwise.**

1. Contact your VIKING-CIVES Customer Service Department to obtain a Warranty Claim Form (WCF) and warranty authorization number.
2. Fill out all required WCF information and fax or mail the completed form to VIKING-CIVES LTD, attention Customer Service Department.
3. Once the WCF report has been reviewed, warranty authorization will be granted or denied. Any part(s) involved in a WCF request must follow the Parts Warranty Consideration procedures.

FOR WARRANTY REQUESTS PLEASE CONTACT:

VIKING-CIVES LTD. - Mount Forest, Ontario, Canada N0G 2L0;
VIKING-CIVES (USA) - Harrisville, New York 13648;
VIKING-CIVES MIDWEST INC. - Morley, MO 63767;
VIKING-CIVES of WESTERN NEW YORK - Batavia, NY 14020

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Ph. (315) 543-2321, Fax (315) 543-2366
Ph. (573) 262-3545, Fax (573) 262-3369
Ph. (585) 344-7122, Fax (585) 344-7157



INTRODUCTION

The purpose of this manual is to assist in assembling, mounting, operating, and maintaining your new Viking-Cives Snow & Ice Control Equipment. It has been prepared to familiarize operators and service people with the design features of the unit, and to instruct the proper installation, operation and maintenance.

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.

Read this manual carefully before operating and servicing your Snow & Ice Control Equipment. Remember that you are working with heavy equipment that can injure you or someone else. Following the procedures carefully can help lessen the chance of injury.

Throughout this manual, references may be made to the following terms.

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.

A WORD ABOUT SAFETY

The equipment described in this manual is normally being operated in adverse winter conditions with bad weather, snow and ice. Due to these adverse operating conditions it is important that you, the operator, use good safety practices at all times to protect yourself, co-workers and others when using 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 should always 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.

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.

DEFINITION OF SAFETY TERMS AND SYMBOLS

Throughout this manual, the terms **CAUTION**, **WARNING**, and **DANGER** 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!**

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



SAFETY INSTRUCTIONS



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.



WARNING:

If incorrectly used, this equipment can cause severe injury. To avoid possible injury, anyone operating or servicing this equipment must read this manual and follow the safety procedures related to this equipment.

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 or 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.
- All decals must be kept clean and complete. Replace any decals that are unreadable.

SUGGESTED LOCKOUT PROCEDURE

Before leaving the operator's position or beginning any type of work on this product:

1. Lower all attachments to the ground.
2. Apply the prime mover's parking brake, stop the engine and remove the starter key.
3. Wait for all moving parts to stop.
4. Relieve all pressure in the hydraulic system.



WARNING:

After following Lockout Procedures, pneumatic pressure may be present in the system. As air pressure is relieved, component motion may occur. Extreme caution must be used when servicing pneumatic systems.



DANGER:

Springs may be present throughout the equipment, including brake chambers used in the design of the Pro-line tailgate locks. Springs under pre-load pressure may not be secured by following Lockout Procedures. **Viking-Cives Ltd does not recommend or encourage tampering with and/or servicing spring loaded mechanisms without comprehensive training. Mishandling could result in severe injury..**



DAILY INSPECTION AND LUBRICATION

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 to 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 or immediate replacement. The following checklist should be performed prior to and at the completion of each plowing shift to ensure operational readiness.

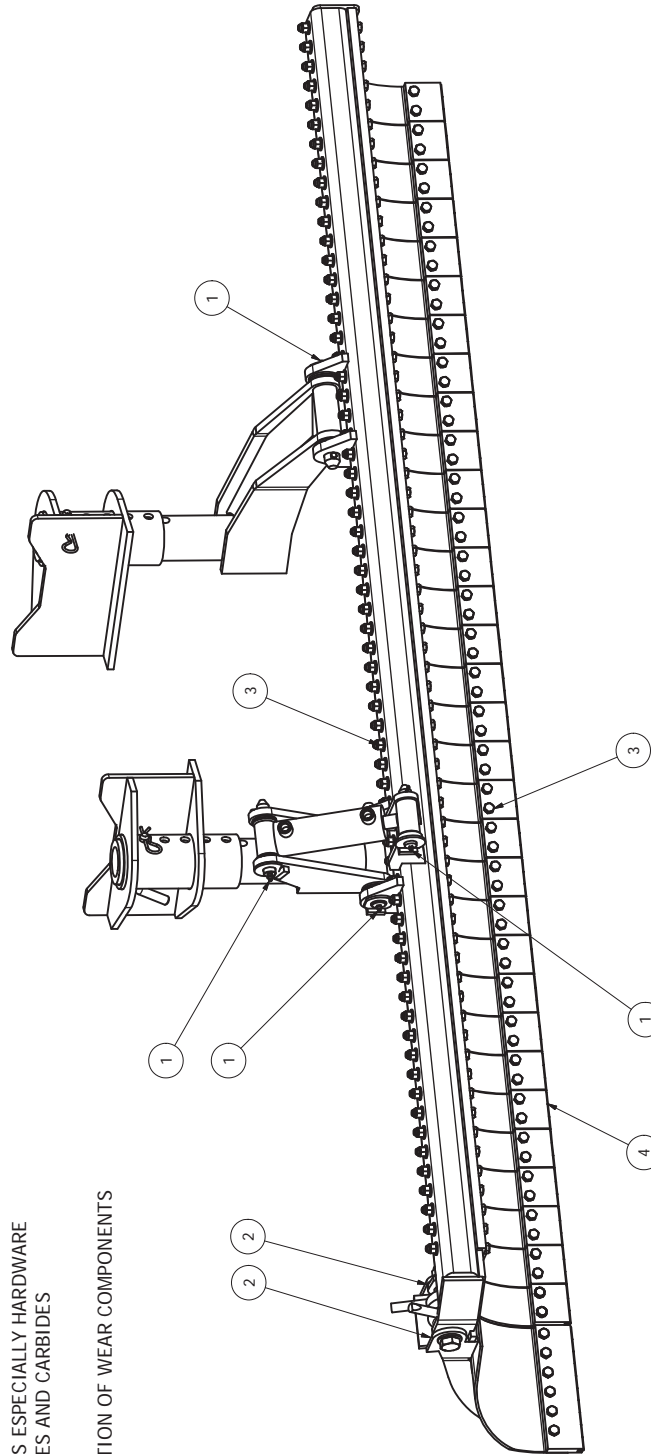
1. Grease all required components:
 - 4 pivot pins
 - trip end pivot
2. Check all components for loose and/or missing fasteners. Tighten and/or replace as necessary.
3. Visually inspect all hydraulic connections and hoses for cracks and/or leaks.
4. Visually inspect all caution and warning decals. All decals should be complete and legible. If cleaning the decals does not make them legible, install new decals.
5. Check cutting edges for signs of excessive wear and replace as necessary.
NOTE: Do not allow cutting edge to wear down to tyne spring. Any wear to the tyne may affect the operation and safety of the equipment. Replacement is costly.

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 clearly marked as to the equipment/function they control.
3. To lower the 2-stage underbody, toggle the switch to the lowered position, the red light will come on. To lift the 2-stage underbody toggle the switch to the raised position.
NOTE: the 2-stage underbody is equipped with an auto-lift device which actuates any time the truck is put in reverse. This is to protect the 2-stage tynes, The truck cannot be rolled backwards with the 2-stage down, **DAMAGE WILL RESULT**
4. Listen for any unusual sounds which may indicate worn or damaged parts. Repair and/or replace as necessary.
5. **DOWN PRESSURE HAS BEEN FACTORY SET AT A MAXIMUM OF 1200psi. ANY INCREASE IN PRSSURE CAN CAUSE DAMAGE TO TYNES AND PREMATURE WEAR ON CARBIDES.**

MAINTENANCE POINTS

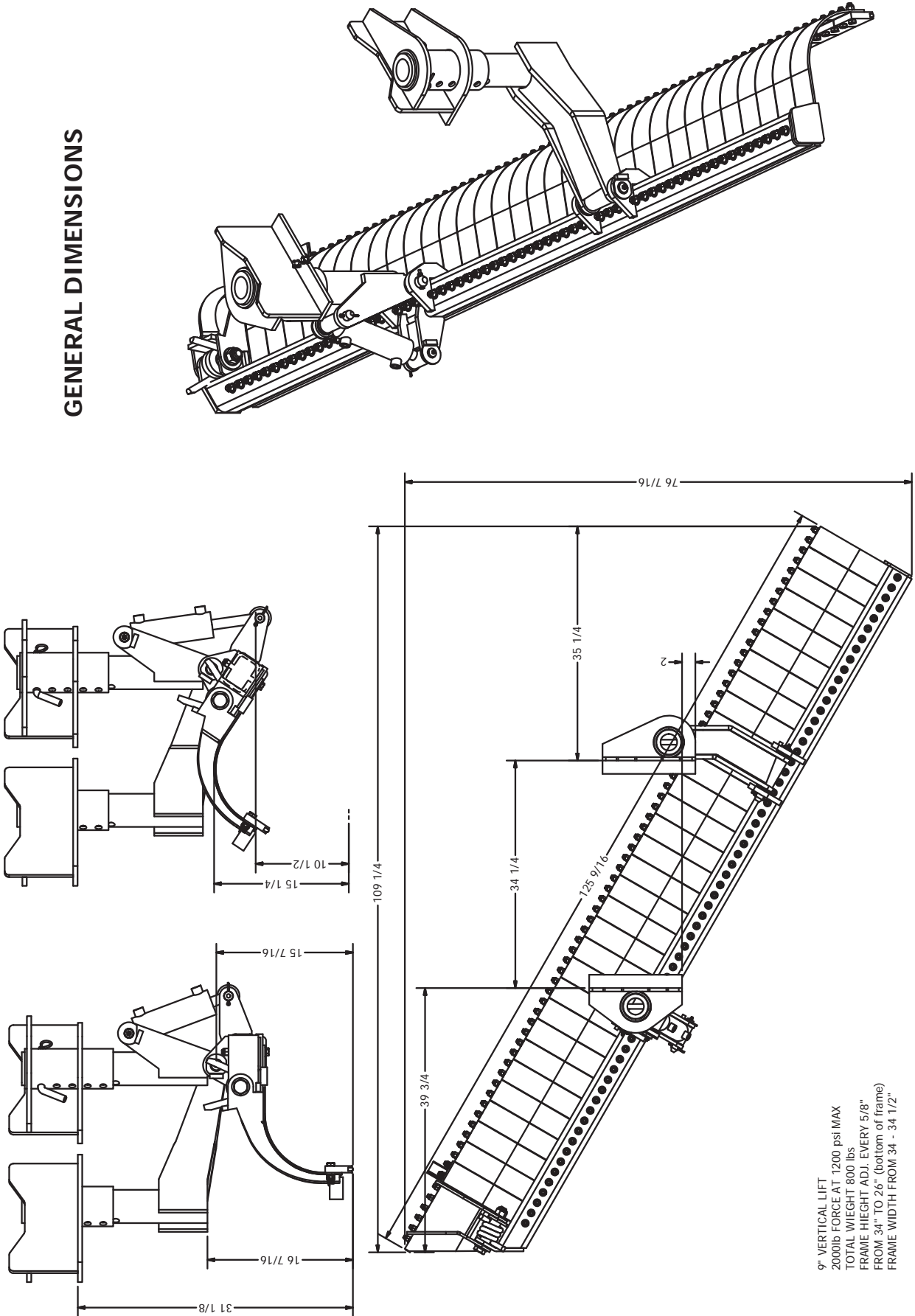
- 1 GREASE**
4 PINS
- 2 SPRAY LUBE / OIL**
TRIP END PIVOTING COMPONENTETS
- 3 CHECK TENSION**
ALL FASTENERS ESPECIALLY HARDWARE
HOLDING TYNES AND CARBIDES
- 4 CARBIDES**
CHECK CONDITION OF WEAR COMPONENTS





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

GENERAL DIMENSIONS



9" VERTICAL LIFT
 2000lb FORCE AT 1200 psi MAX
 TOTAL WEIGHT 800 lbs
 FRAME HEIGHT ADJ. EVERY 5/8"
 FROM 34" TO 26" (bottom of frame)
 FRAME WIDTH FROM 34" - 34 1/2"

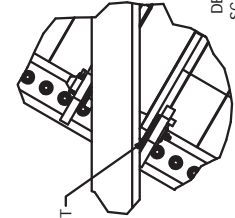
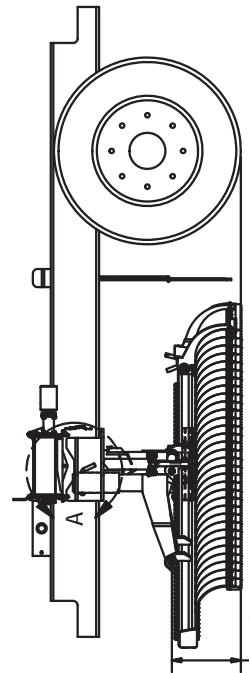
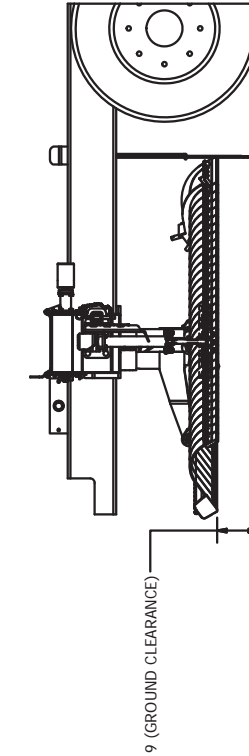
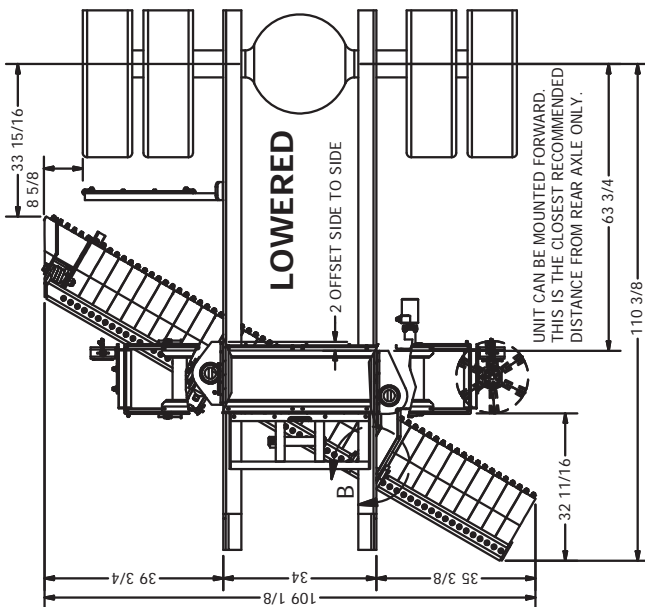
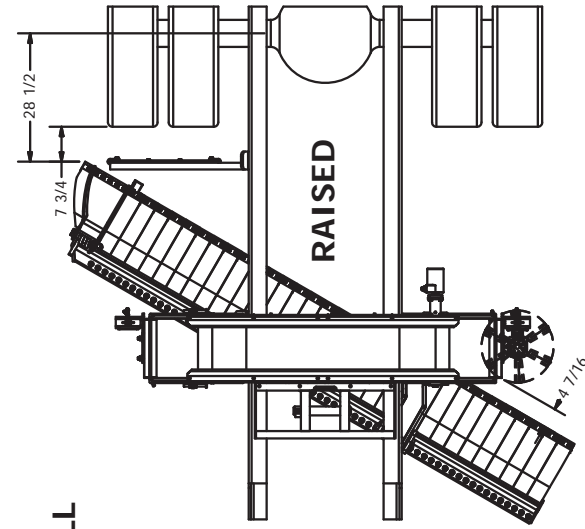
EQUIPMENT MAY NOT BE EXACTLY AS SHOWN. SOME COMPONENTS MAY BE OPTIONAL.
 TO MAINTAIN OUR ON-GOING PRODUCT DEVELOPMENT AND IMPROVEMENT PROGRAM, VIKING-CIVES LTD. RESERVES THE RIGHT TO CHANGE EQUIPMENT & SPECIFICATION WITHOUT NOTICE.



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

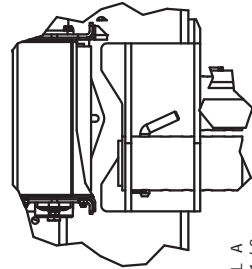
SINGLE SPINNER INSTALL

DESIGNED TO BE MOUNTED UNDER THE CROSS CONVEYOR, BUT NOT LIMITED TO. MAX. RELIEF VALVE SETTING 1200 PSI (83 BAR) SEE DWG 40802037 FOR AIR AUTO LIFT KIT SEE DWG 40802038 FOR ELECTRIC LIFT KIT



USE WASHERS TO ADJUST FOR FRAME WIDTH

DETAIL B
SCALE 1 / 8



SET PIN HEIGHT. (ALSO MIN. CLEARANCE REQUIRED. GROUND TO STEPS, FUEL TANKS ECT.)

DETAIL A
SCALE 1 / 8

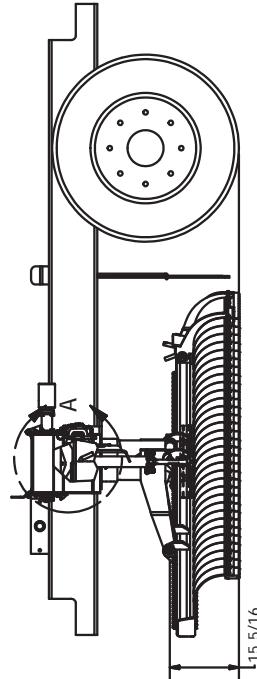
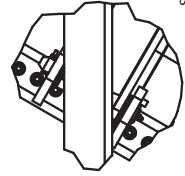
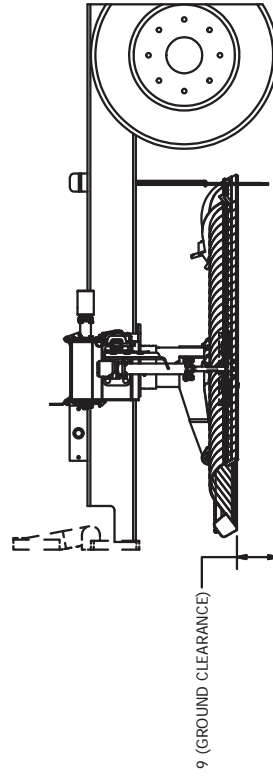
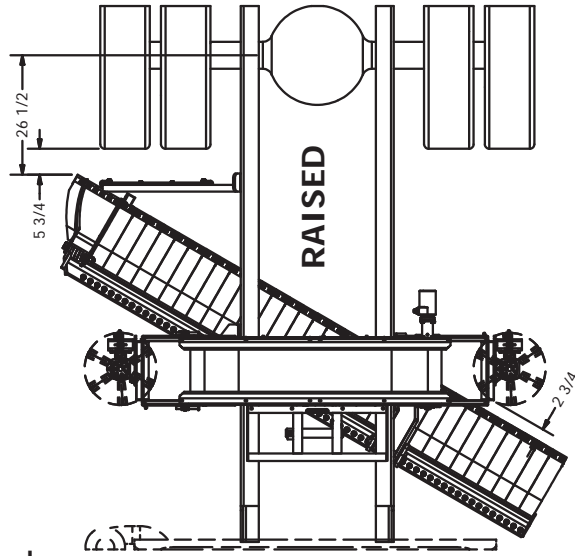
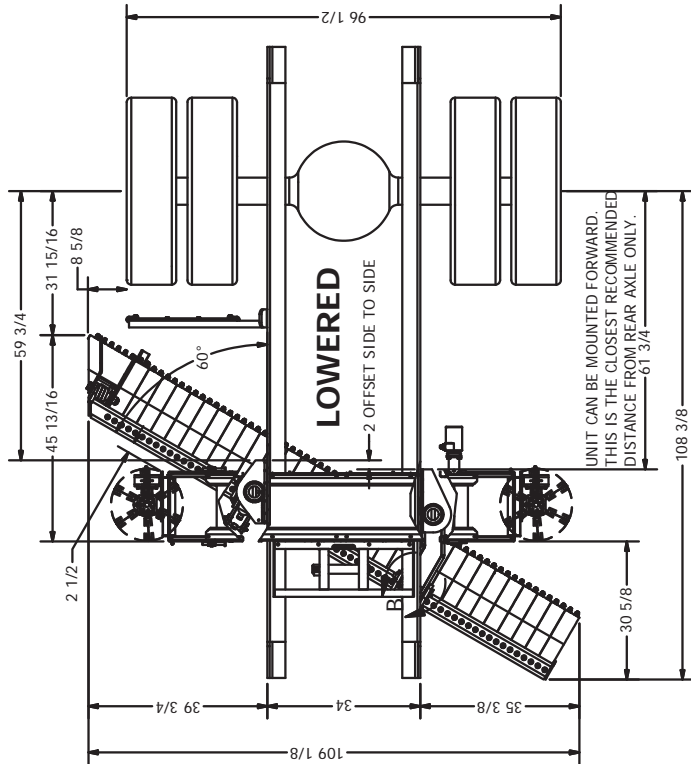
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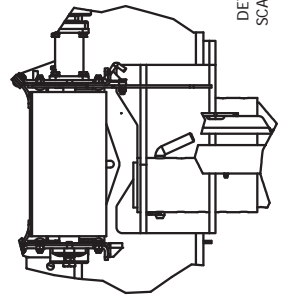
BOX 1120, NORPARK DRIVE, MOUNT FOREST, ONT. N0G 2L0 (519)323-4433 PH (519)323-4608 FX

DUAL SPINNER INSTALL

DESIGNED TO BE MOUNTED UNDER THE CROSS CONVEYOR, BUT NOT LIMITED TO. MAX. RELEASE VALVE SETTING 1200 psi (83 bar) SEE DWG 40802037 FOR AIR AUTO LIFT KIT SEE DWG 40802038 FOR ELECTRIC LIFT KIT



SET PIN HEIGHT.
(ALSO MIN. CLEARANCE REQUIRED.
GROUND TO STEPS, FUEL TANKS ECT.)



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PARTS DIAGRAMS: HYDRAULIC

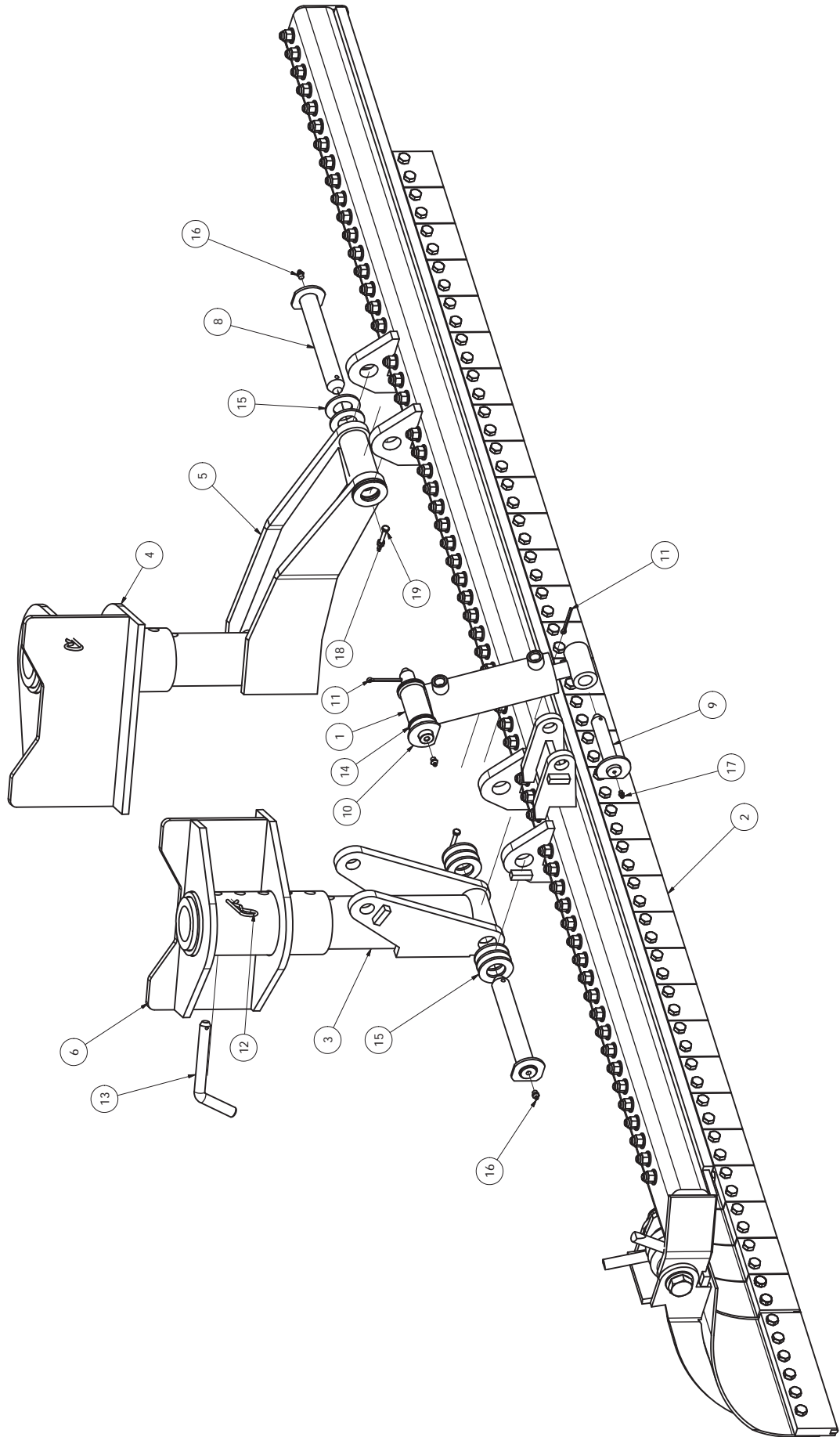
40802001

UNDERBODY 2-STAGE PLOW ASS'Y 108

ITEM ID	ITEM NO.	DESCRIPTION	QTY REQ
1	0540355	CYLINDER HYD DA 2 1/2 X 4 1/2 2-STAGE	1
2	40802002	UNDERBODY 2-STAGE BLADE ASS'Y 102	1
3	40802005	RH SUPPORT ARM WELD'T	1
4	40802006	FRAME SUPPORT LH WELD'T	1
5	40802009	LH SUPPORT ARM WELD'T	1
6	40802010	FRAME SUPPORT RH	1
7	40802037	U-2S HYD ASS'Y AIR OVER HYD CONTROL	1
8	40901005	PIN 1.250 DIA X 8.188 WELD'T	2
9	40901007	PIN 1.000 DIA X 4.375 WELD'T	1
10	41412037	PIN 1.000 DIA X 5.250 WELD'T	1
11	HW13A-0632	COTTER PIN 3/16 X 2 ZINC	2
12	HW13L-0360	COTTER HAIRPIN 3/16 X 3 3/4 ZINC	2
13	HW13S-2472	PIN BENT PULL 3/4 X 4 1/2 ZINC	2
14	HW14A-16	FLATWASHER SAE 1 ZINC	4
15	HW14A-20	FLATWASHER SAE 1 1/4 ZINC	10
16	HW29A-02	GREASE FITTING 1/8 NPT STR	3
17	HW29E-04	GREASE FITTING 1/4 28 STR	1
18	HW36D-04	NUT HEX ELASTIC 1/4 UNC ZINC	2
19	HW40A-0416	BOLT HEX 1/4 X 2 UNC ZINC	2



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



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



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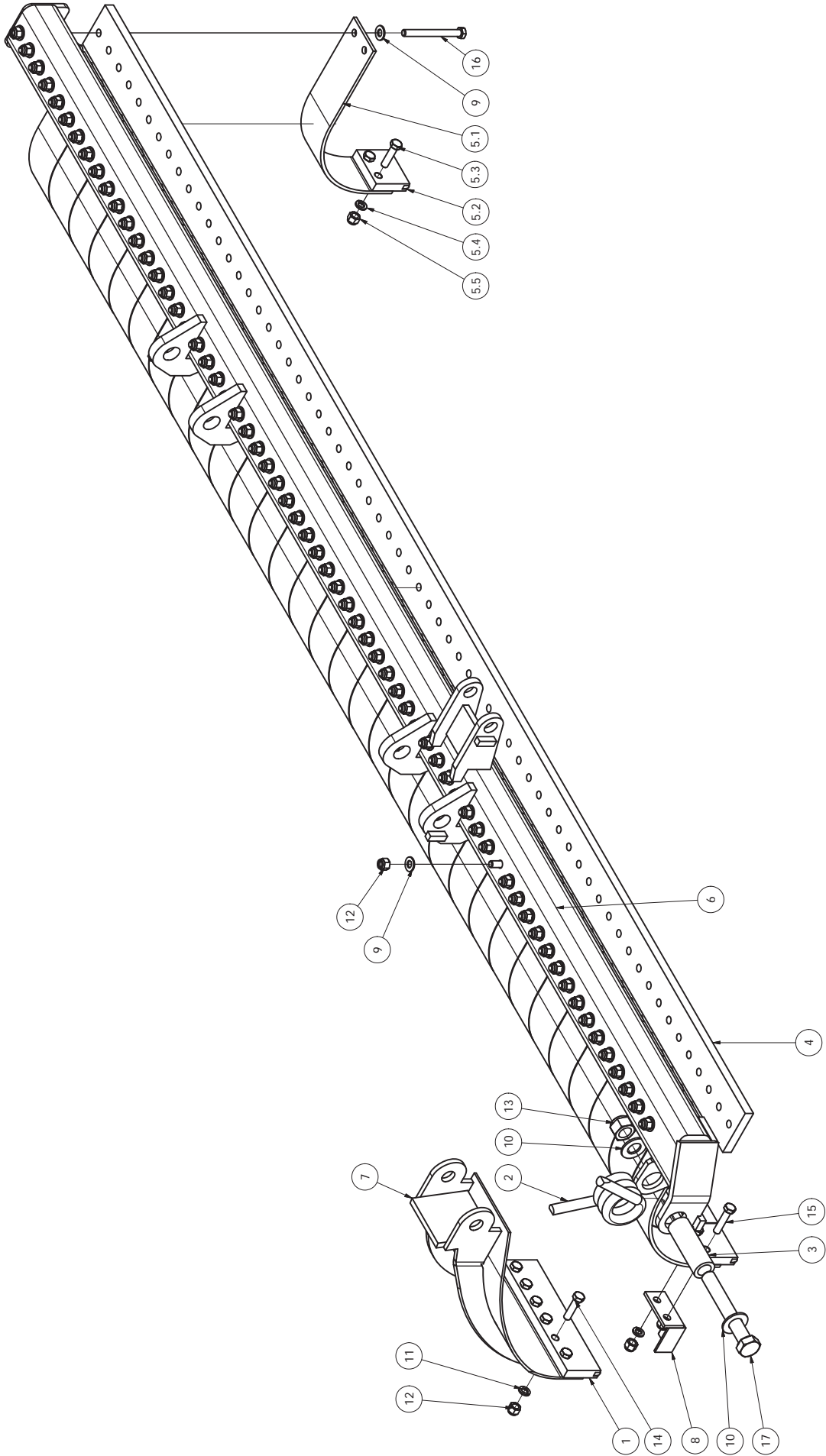
UNDERBODY 2-STAGE BLADE ASS'Y 108

ITEM ID	ITEM NO.	DESCRIPTION	QTY REQ
1	0500208	CARBIDE EDGE TRIPLE END FOR 2-STAGE	1
2	0580014	SPRING TORSION TRIP WING HINGE	1
3	40401053	TUBE RD 1.625N 1.063N 4.625S	1
4	40801098	URETHANE TINE PAD	1
5	40801108	SECONDARY CUTTING EDGE ASSY	32
5.1	40801096	SPRING TYNE 2-STAGE PLOW 3 1/2 WIDE	1
5.2	0500188	CARBIDE EDGE FOR SECONDARY 2 -STAGE PLOW	1
5.3	HW40A-0816	BOLT HEX 1/2 X 2 UNC ZINC	2
5.4	HW14C-08	LOCKWASHER SPLIT 1/2 ZINC	2
5.5	HW36D-08	NUT HEX ELASTIC 1/2 UNC ZINC	2
6	40802003	TYNE FRAME WELD'T 108	1
7	40802023	TRIP END WELD'T RHS	1
8	40802036	TYNE POSITIONER WELD'T	1
9	HW14A-08	FLATWASHER SAE 1/2 ZINC	128
10	HW14A-16	FLATWASHER SAE 1 ZINC	2
11	HW14C-08	LOCKWASHER SPLIT 1/2 ZINC	6
12	HW36D-08	NUT HEX ELASTIC 1/2 UNC ZINC	70
13	HW36D-16	NUT HEX ELASTIC 1 UNC ZINC	1
14	HW40A-0816	BOLT HEX 1/2 X 2 UNC ZINC	6
15	HW40A-0818	BOLT HEX 1/2 X 2 1/4 UNC ZINC	2
16	HW40A-0840	BOLT HEX 1/2 X 5 UNC ZINC	64
17	HW40A-1656	BOLT HEX 1 X 7 UNC ZINC	1

Note: An alpha designation on the Item ID column indicates a sub-component of a 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.



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



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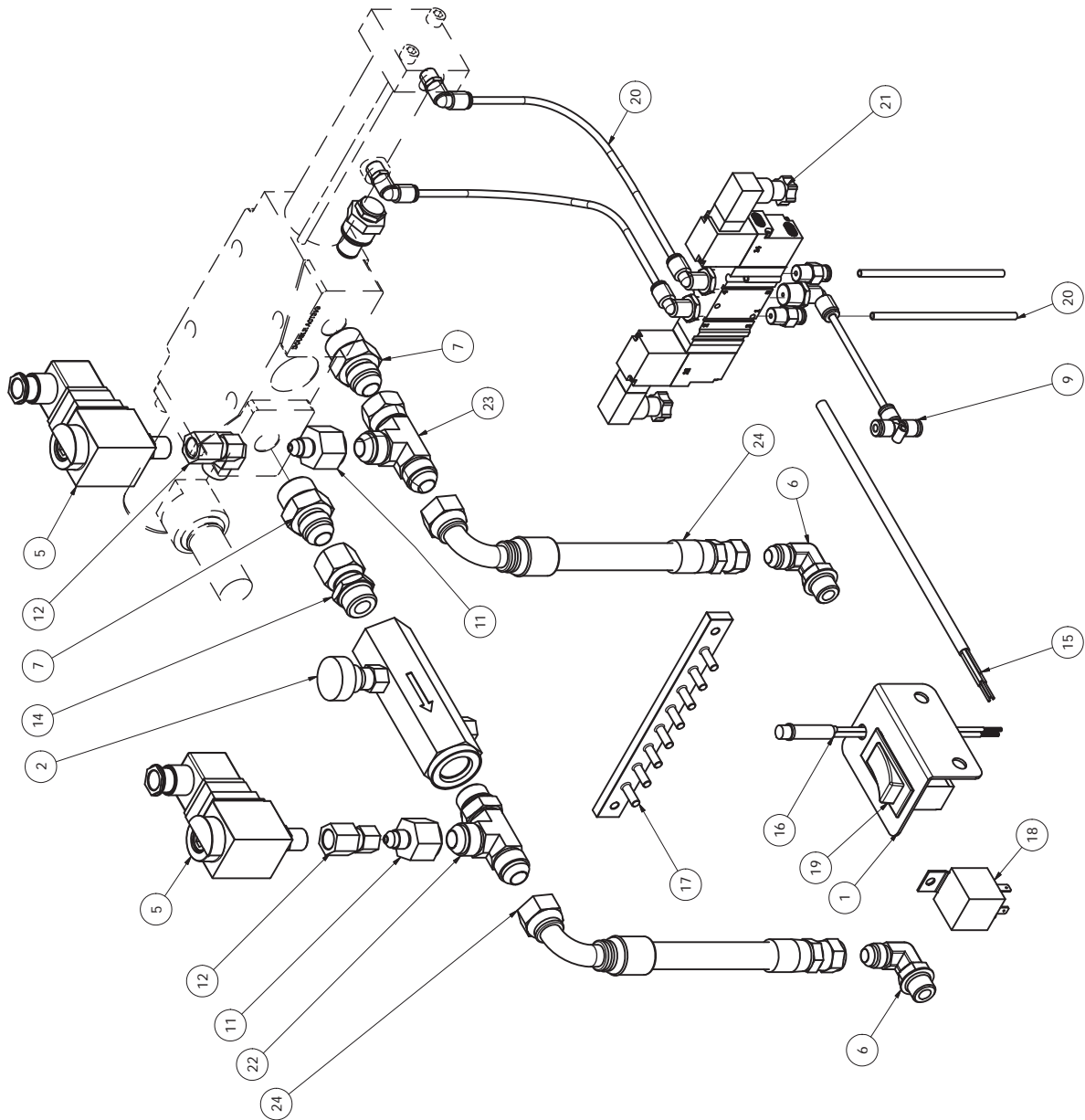
40802037

U-2S HYD ASS'Y AIR OVER HYD CONTROL

ITEM ID	ITEM NO.	DESCRIPTION	QTY REQ
1	00200090	MTG PLATE 2-STAGE ROCKER WITH LIGHT	1
2	0530026	VALVE FLOW CONTROL ADJUST	1
3	0530100	VALVE SECTION DA 500 PR AIR HCD-6	1
4	0530533	VALVE RELIEF ADJUSTABLE 2-STAGE UBODY	1
5	0560084	HIGH PRESSURE SWITCH SPDT. COM, 1 & 2	2
6	0630016	HYD ADAPTER 3/8 SAE 90 3/8 JIC	2
7	0630087	HYD ADAPTER 5/8 ORB 1/2 JIC	2
8	0630310	FITTING AIR 1/8 NPT STR 5/32 AIRLINE	2
9	0630313	FITTING AIR UNION TEE 5/32 AIRLINE	1
10	0630315	FITTING AIR 1/8 MET 90 DEG 5/32 AIRLINE	2
11	0630640	ADAPTER 1/2 JICF TO 1/4 JICM	2
12	0630641	ADAPTER 1/4 JIC FEM TO 1/4 NPT FEM	2
13	0630662	FITTING AIR 1/4 NPT 90 DEG 5/32 AIRLINE	3
14	0630670	HYD ADAPT 1/2 ORB 1/2 FJIC SWIVEL	1
15	0650390-300L	CABLE 3 COND BELDEN 8770	1
16	0660006	PILOT LIGHT GREEN 3/8 DIA	1
17	0660096	COMMON FEED 8 POLE TERMINAL STRIP	1
18	0660207	RELAY 40A/30A 12V SPST(ZETTLER)	1
19	0660380	ROCKER SWITCH ON - ON	1
20	0690031-192L	AIR LINE 5/32 CLEAR X 192 LG	1
21	0690081	VALVE AIR 5-WAY 3 POS OPEN CEN 1/4 NPT	1
22	0C111D-0808	CHAMPION HYD ADAPTER 1/2 SAE 1/2JIC TEE	1
23	112C-08	CHAMPION HYD ADAPTER 1/2 RUN TEE SWIVEL	1
24	41500059	HOSE HYD 3/8 100R2 0630116-000-0630122	2



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



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



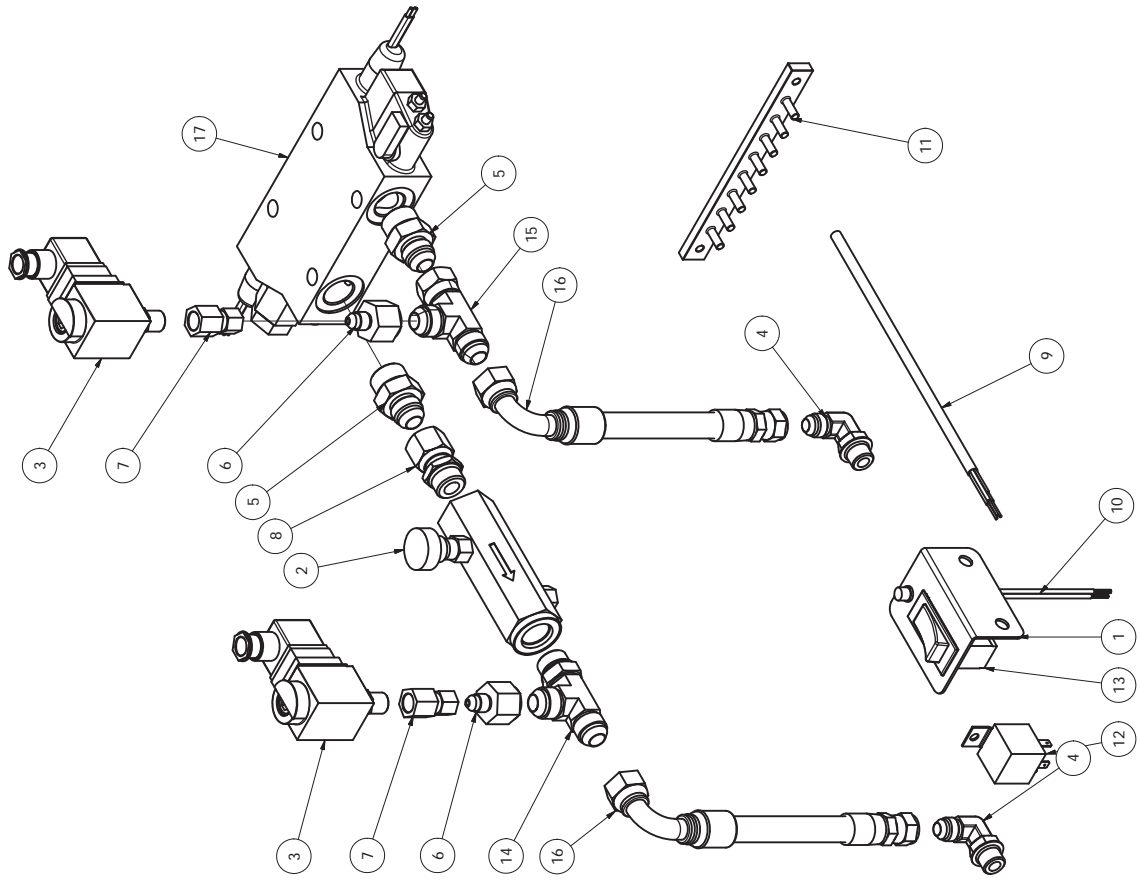
40802038

U-2S HYD ASS'Y ELEC. OVER HYD CONTROL

ITEM ID	ITEM NO.	DESCRIPTION	QTY REQ
1	00200090	MTG PLATE 2-STAGE ROCKER WITH LIGHT	1
2	0530026	VALVE FLOW CONTROL ADJUST	1
3	0560084	HIGH PRESSURE SWITCH SPDT. COM, 1 & 2	2
4	0630016	HYD ADAPTER 3/8 SAE 90 3/8 JIC	2
5	0630087	HYD ADAPTER 5/8 ORB 1/2 JIC	2
6	0630640	ADAPTER 1/2 JICF TO 1/4 JICM	2
7	0630641	ADAPTER 1/4 JIC FEM TO 1/4 NPT FEM	2
8	0630670	HYD ADAPT 1/2 ORB 1/2 FJIC SWIVEL	1
9	0650390-300L	CABLE 3 COND BELDEN 8770	1
10	0660006	PILOT LIGHT GREEN 3/8 DIA	1
11	0660096	COMMON FEED 8 POLE TERMINAL STRIP	1
12	0660207	RELAY 40A/30A 12V SPST(ZETTLER)	1
13	0660380	ROCKER SWITCH ON - ON	1
14	0C111D-0808	CHAMPION HYD ADAPTER 1/2 SAE 1/2JIC TEE	1
15	112C-08	CHAMPION HYD ADAPTER 1/2 RUN TEE SWIVEL	1
16	41500059	HOSE HYD 3/8 100R2 0630116-000-0630122	2



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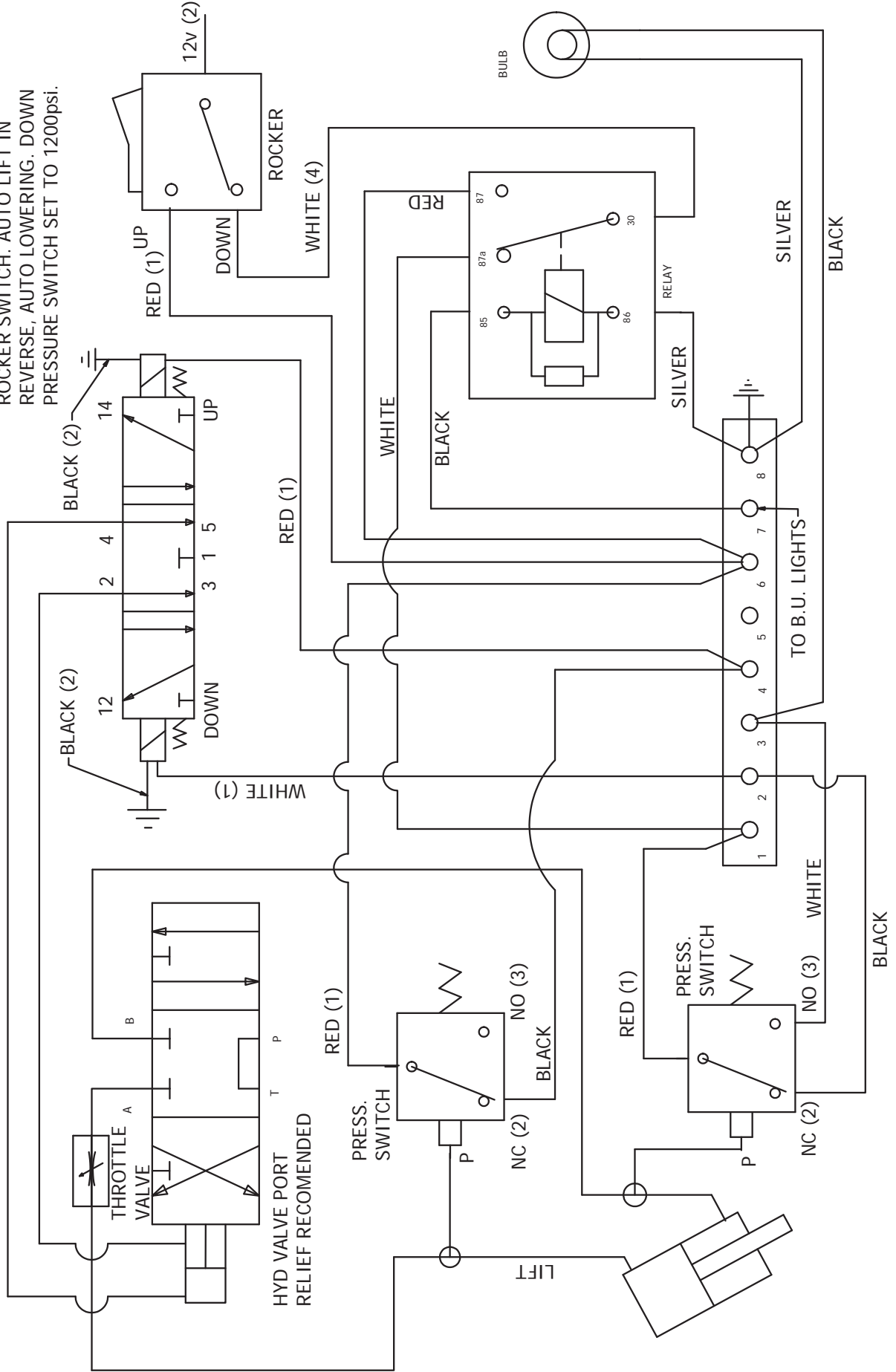


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BOX 1120, NORPARK DRIVE, MOUNT FOREST, ONT. N0G 2L0 (519)323-4433 PH (519)323-4608 FX

U-2S HYD ASS'Y AIR OVER HYD CONTROL
 UNIT CONTROLLED BY ELECTRIC
 ROCKER SWITCH. AUTO LIFT IN
 REVERSE, AUTO LOWERING. DOWN
 PRESSURE SWITCH SET TO 1200psi.



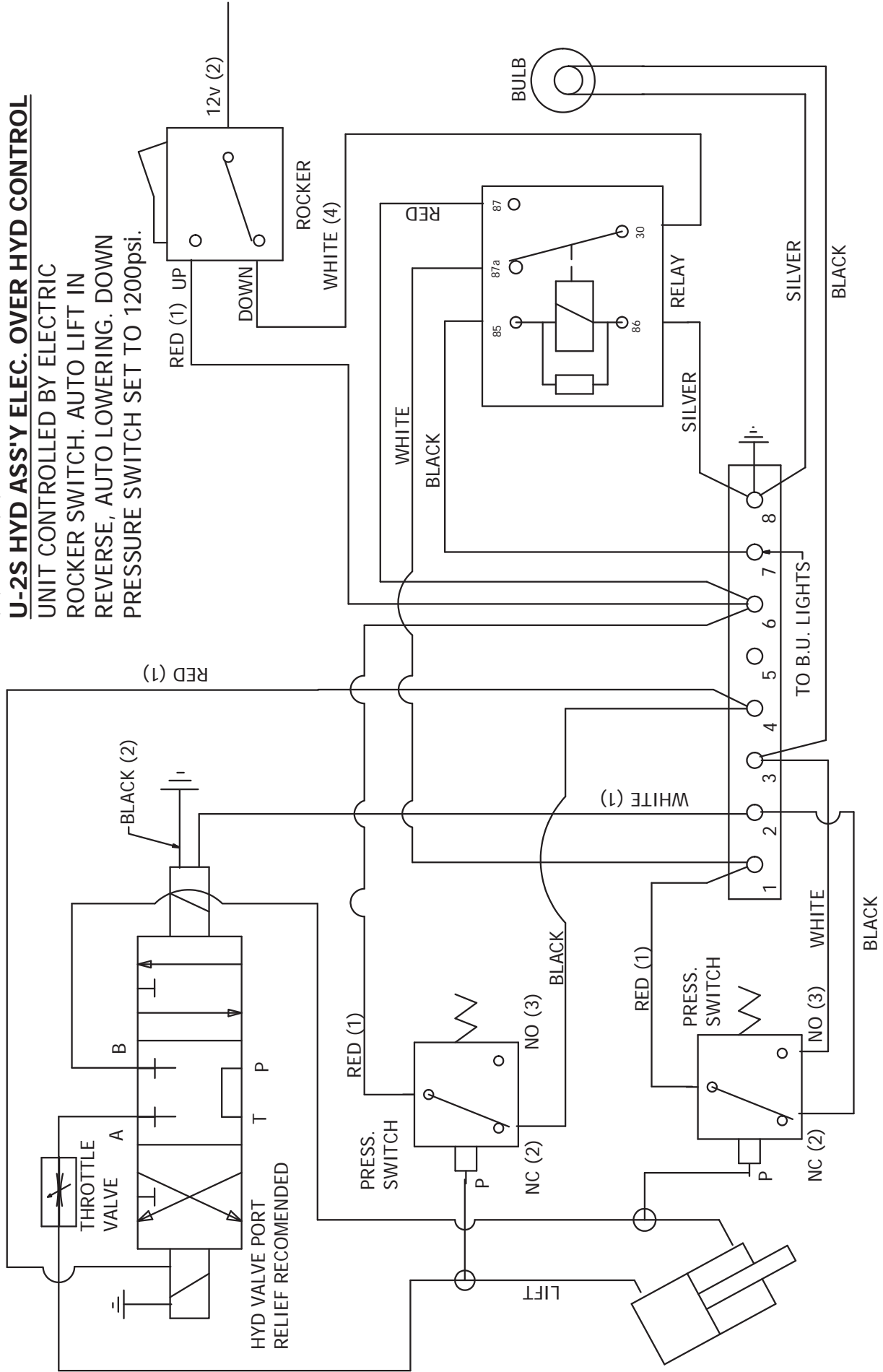
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BOX 1120, NORPARK DRIVE, MOUNT FOREST, ONT. N0G 2L0 (519)323-4433 PH (519)323-4608 FX

U-2S HYD ASS'Y ELEC. OVER HYD CONTROL

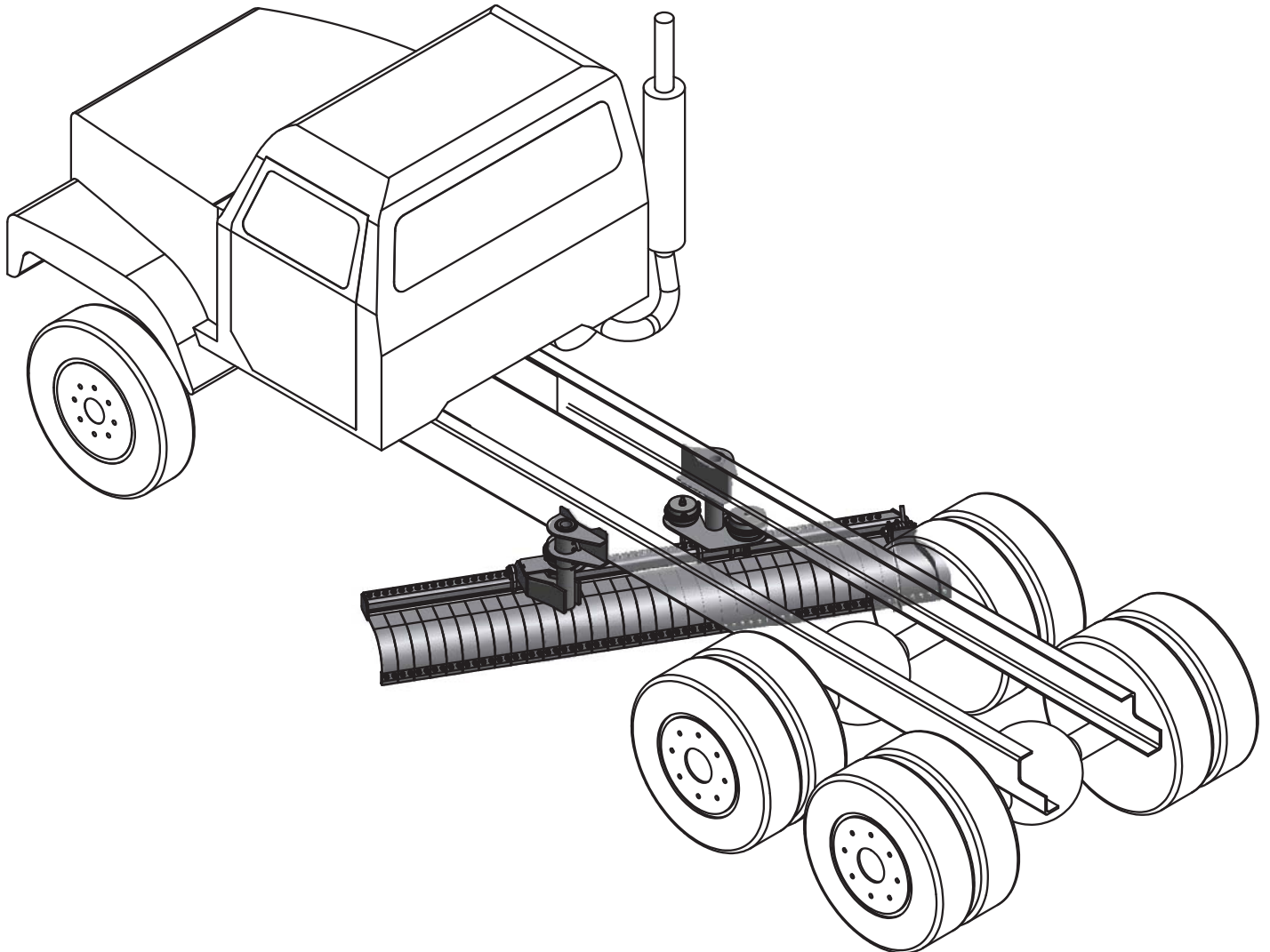
UNIT CONTROLLED BY ELECTRIC
ROCKER SWITCH. AUTO LIFT IN
REVERSE, AUTO LOWERING, DOWN
PRESSURE SWITCH SET TO 1200psi.



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Owner's Manual

VCL UNDERBODY 2-STAGE PLOW W/ AIR POTS





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

MAINTENANCE POINTS

1 GREASE

4 PINS

2 SPRAY LUBE / OIL

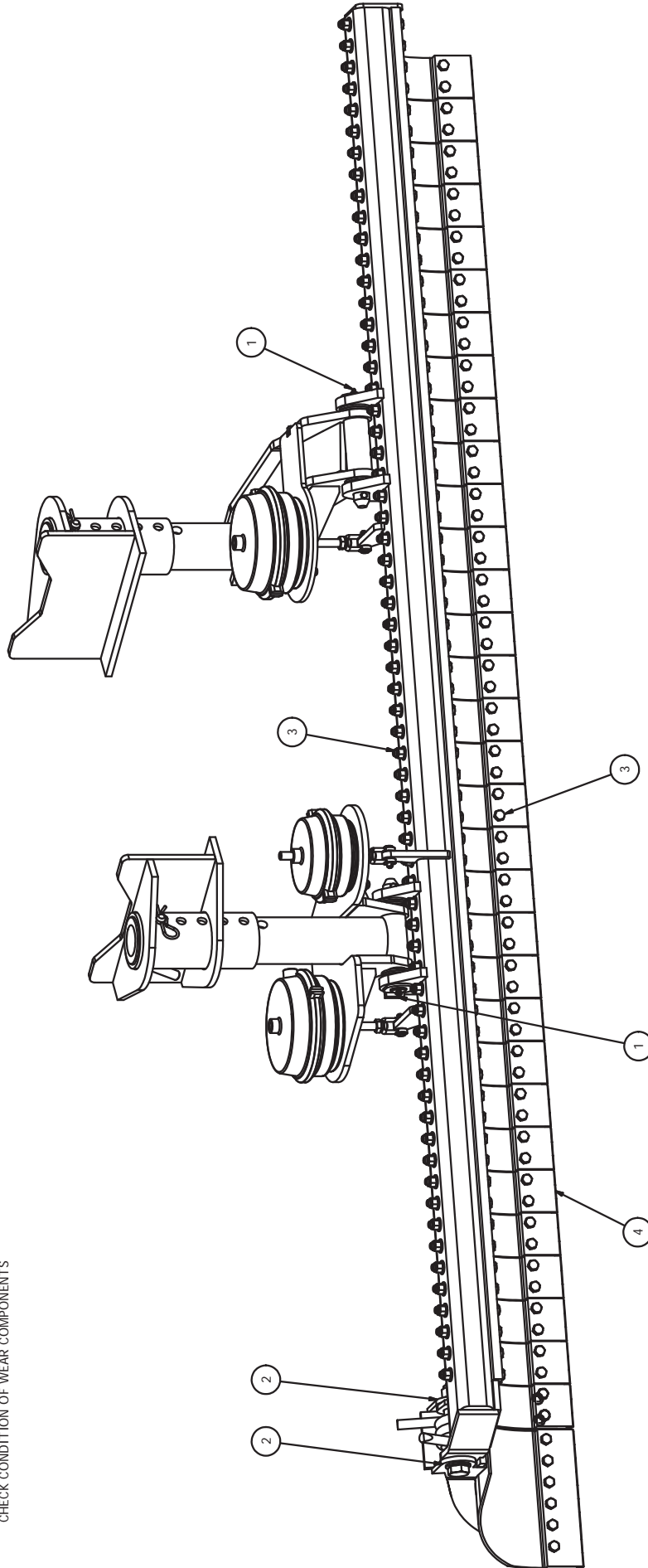
TRIP END PIVOTING COMPONENTS

3 CHECK TENSION

ALL FASTENERS, ESPECIALLY HARDWARE
HOLDING TYNES AND CARBIDES

4 CARBIDES

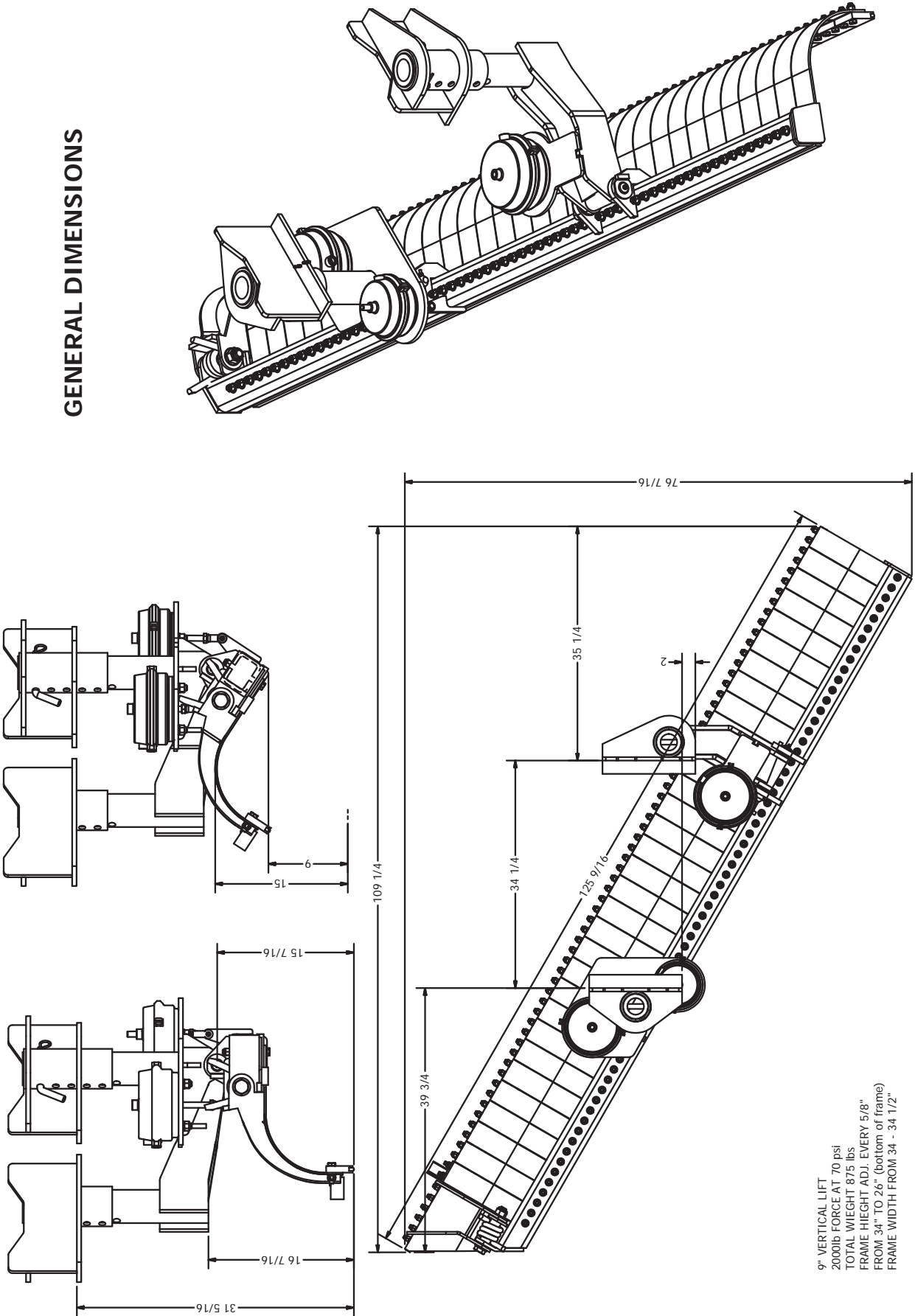
CHECK CONDITION OF WEAR COMPONENTS





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

GENERAL DIMENSIONS



9" VERTICAL LIFT
 2000lb FORCE AT 70 psi
 TOTAL WEIGHT 875 lbs
 FRAME HEIGHT ADJ. EVERY 5/8"
 FROM 34" TO 26" (bottom of frame)
 FRAME WIDTH FROM 34" - 34 1/2"

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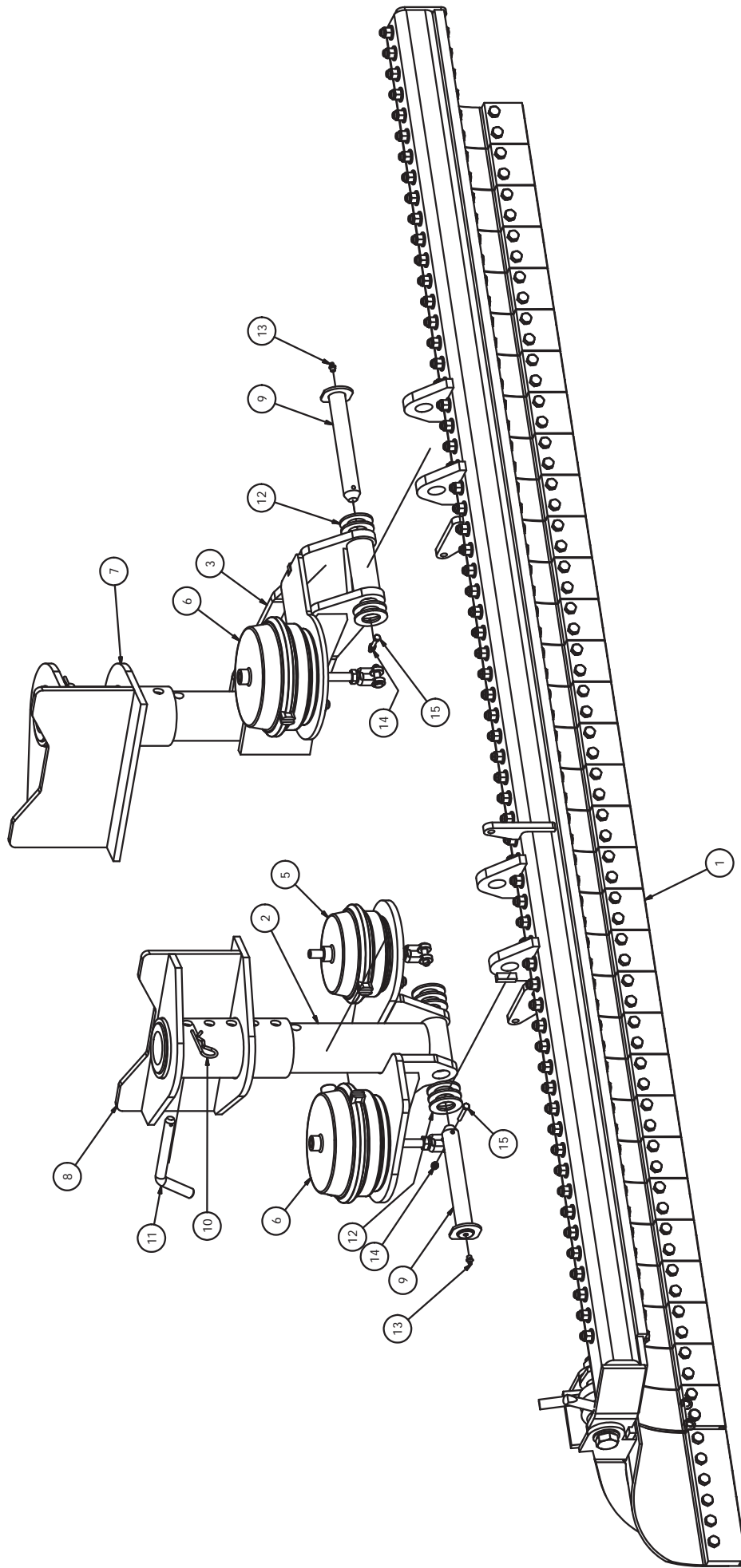
03500171

UNDERBODY 2-STAGE PLOW ASS'Y 108 - AIR

ITEM ID	ITEM NO.	DESCRIPTION	QTY REQ
1	03500173	UNDERBODY 2-STAGE BLADE ASS'Y 108 - AIR	1
2	03500176	RTH SUPPORT ARM WELD'T - AIR BRAKE POTS	1
3	03500182	LH SUPPORT ARM WELD'T AIR BRAKE POT	1
4	03500184	PLUMBING KIT - UNDERBODY 2-STAGE 108 AIR	1
5	0720202	SINGLE ACTING BRAKE POT 24 - 2 1/2	1
6	0720296	SINGLE ACTING BRAKE POT 36 - 3	2
7	40802006	FRAME SUPPORT LH WELD'T	1
8	40802010	FRAME SUPPORT RH	1
9	40901005	PIN 1.250 DIA X 8.188 WELD'T	2
10	HW13L-0360	COTTER HAIRPIN 3/16 X 3 3/4 ZINC	2
11	HW13S-2472	PIN BENT PULL 3/4 X 4 1/2 ZINC	2
12	HW14A-20	FLATWASHER SAE 1 1/4 ZINC	10
13	HW29A-02	GREASE FITTING 1/8 NPT STR	2
14	HW36D-04	NUT HEX ELASTIC 1/4 UNC ZINC	2
15	HW40A-0416	BOLT HEX 1/4 X 2 UNC ZINC	2



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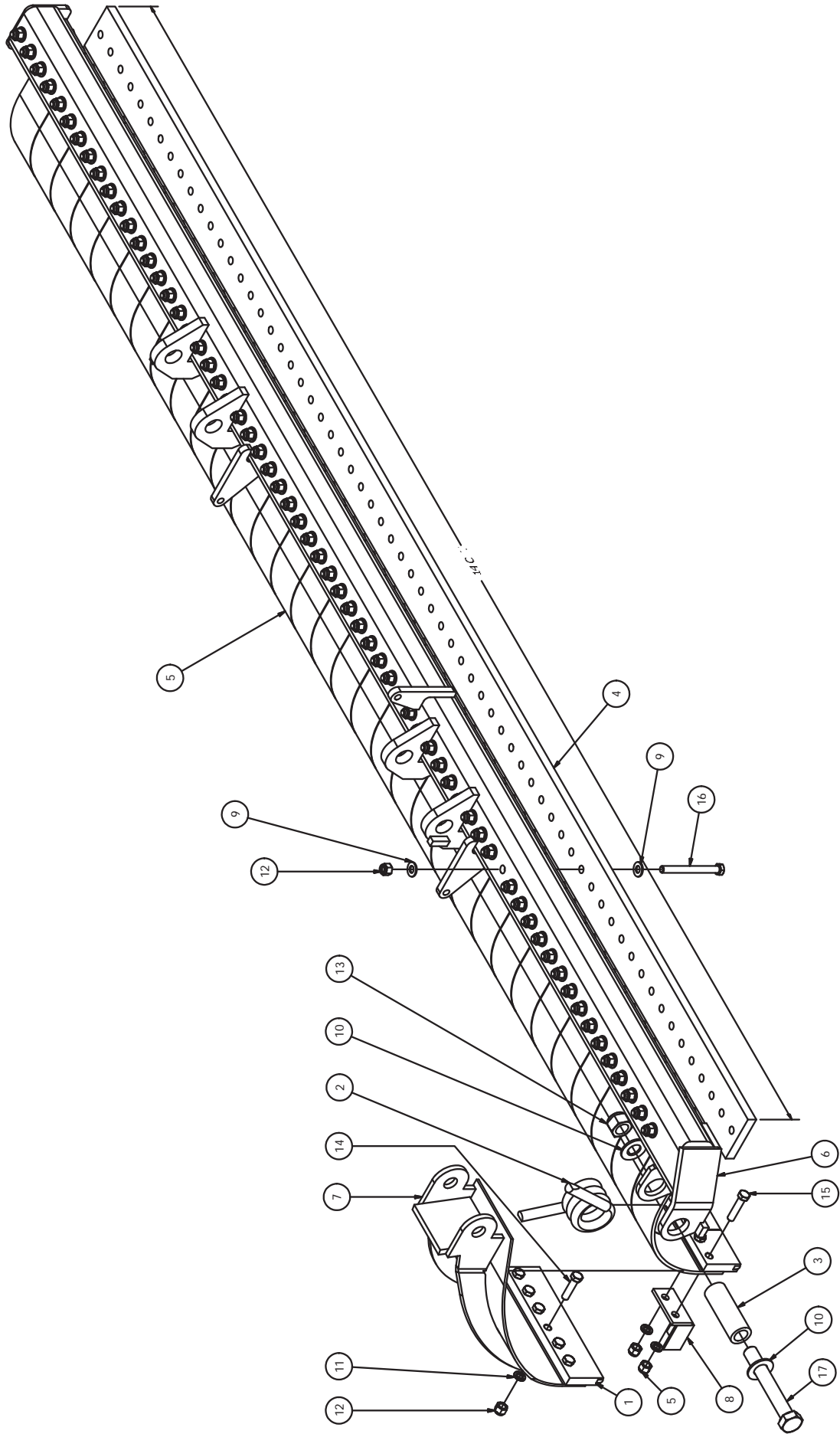
03500173

UNDERBODY 2-STAGE BLADE ASS'Y 108- AIR

ITEM ID	ITEM NO.	DESCRIPTION	QTY REQ
1	0500208	CARBIDE EDGE TRIPLE END FOR 2-STAGE	1
2	0580014	SPRING TORSION TRIP WING HINGE	1
3	40401053	TUBE RD 1.625N 1.063N 4.625S	1
4	40801098	URETHANE TINE PAD	1
5	40801108	SECONDARY CUTTING EDGE ASSY	32
6	03500172	TYNE FRAME WELD'T 108 - W/AIR BRAKE POTS	1
7	40802023	TRIP END WELD'T RHS	1
8	40802036	TYNE POSITIONER WELD'T	1
9	HW14A-08	FLATWASHER SAE 1/2 ZINC	128
10	HW14A-16	FLATWASHER SAE 1 ZINC	2
11	HW14C-08	LOCKWASHER SPLIT 1/2 ZINC	6
12	HW36D-08	NUT HEX ELASTIC 1/2 UNC ZINC	70
13	HW36D-16	NUT HEX ELASTIC 1 UNC ZINC	1
14	HW40A-0816	BOLT HEX 1/2 X 2 UNC ZINC	6
15	HW40A-0818	BOLT HEX 1/2 X 2 1/4 UNC ZINC	2
16	HW40A-0840	BOLT HEX 1/2 X 5 UNC ZINC	64
17	HW40A-1656	BOLT HEX 1 X 7 UNC ZINC	1



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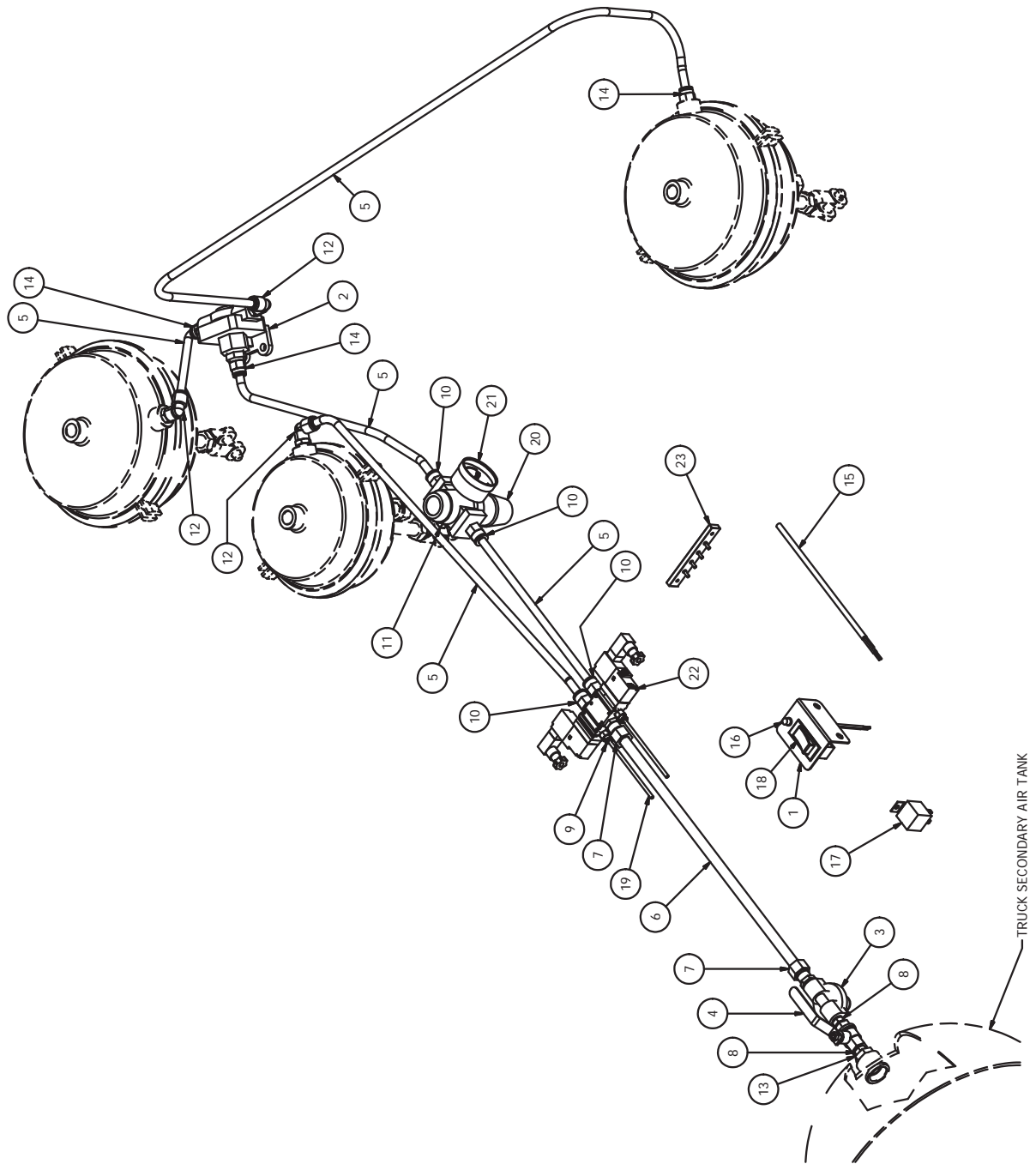
03500184

PLUMBING KIT - UNDERBODY 2-STAGE 108 AIR

ITEM ID	ITEM NO.	DESCRIPTION	QTY REQ
1	00200090	MTG PLATE 2-STAGE ROCKER WITH LIGHT	1
2	0530056	VALVE QUICK RELEASE AIR	1
3	0530058	VALVE PRESSURE PROTECTION AIR	1
4	0530176	VALVE BALL 1/4 NPT 1/4 TURN	1
5	0630290	AIR BRAKE TUBING 3/8	25
6	0630299	AIR BRAKE TUBING 1/2 PROTECTION VALVE	15
7	0630302	FITTING BRASS MALE CONN 1/2 TUBE 1/4 NPT	2
8	0630303	FITTING BRASS HEX NIPPLE 1/4 NPT	2
9	0630310	FITTING AIR 1/8 NPT STR 5/32 AIRLINE	2
10	0630371	FITTING BRASS 1/4 NPT X 3/8 AIR	4
11	0630376	FITTING BRASS 1/4 PLUG	1
12	0630433	FITTING AIR 3/8 NPT 90 3/8 TUBE PTL	3
13	0630472	FITTING BRASS REDBUSH 1/2 MNPT 3/8 FNPT	2
14	0630487	FITTING AIR 3/8 NPT STR 3/8 TUBE PTL	3
15	0650390	CABLE 3 COND BELDEN 8770	30
16	0660006	PILOT LIGHT GREEN 3/8 DIA	1
17	0660207	RELAY 40A/30A 12V SPST(ZETTLER)	1
18	0660380	ROCKER SWITCH ON - ON	1
19	0690031	AIR LINE 5/32 CLEAR	5
20	0690076	INTERNAL BYPASS-REV.FLOW AIR REGULATOR	1
21	0690077	AIR PRESSURE GAUGE	1
22	0690081	VALVE AIR 5-WAY 3 POS OPEN CEN 1/4 NPT	1
23	HH-00958-001	COMMON FEED 4 POLE TERMINAL STRIP	1



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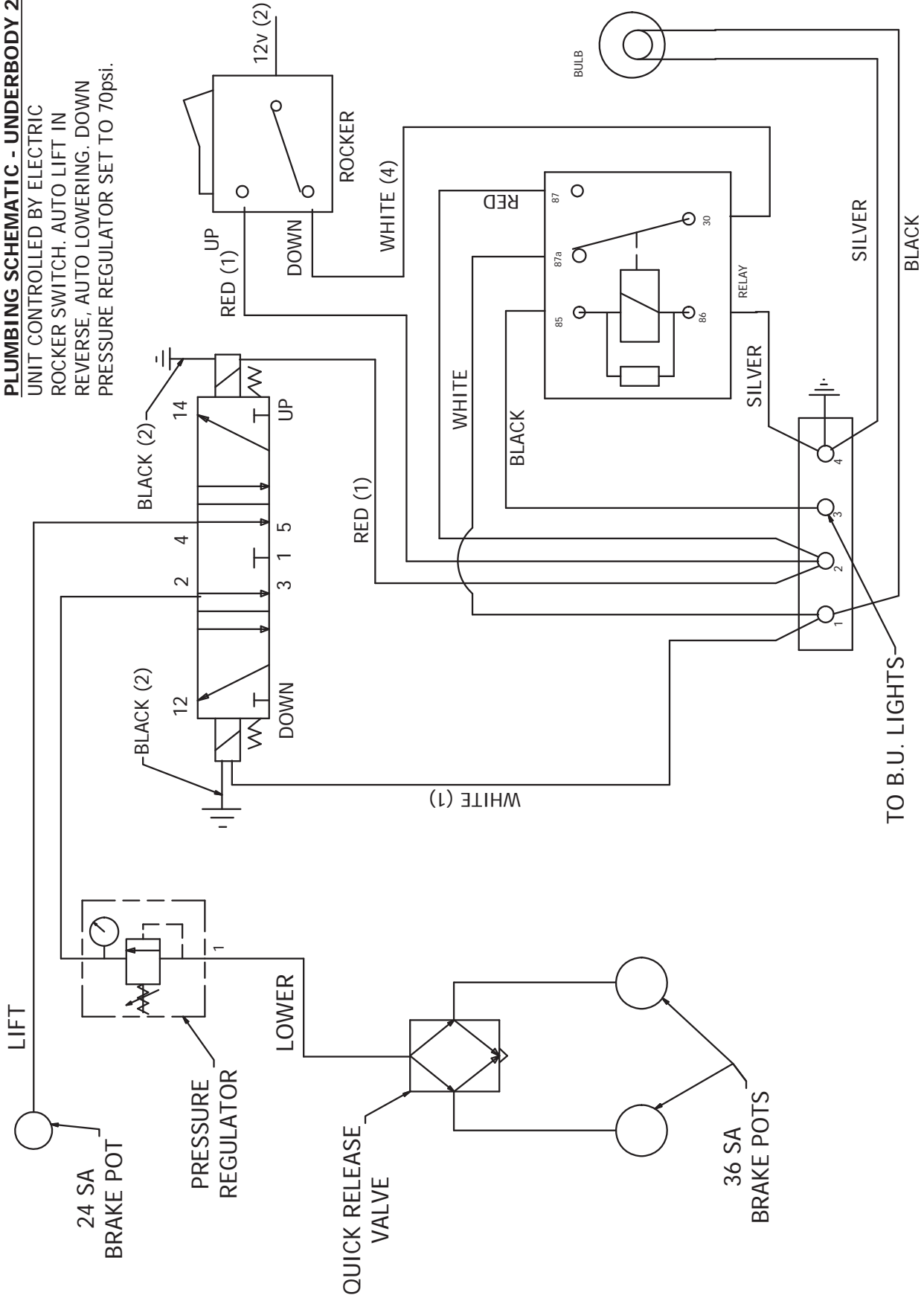
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BOX 1120, NORPARK DRIVE, MOUNT FOREST, ONT. N0G 2L0 (519)323-4433 PH (519)323-4608 FX

PLUMBING SCHEMATIC - UNDERBODY 2-STAGE 108 AIR

UNIT CONTROLLED BY ELECTRIC
ROCKER SWITCH. AUTO LIFT IN
REVERSE, AUTO LOWERING. DOWN
PRESSURE REGULATOR SET TO 70psi.



TO B.U. LIGHTS

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