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212 North Evans Road Evansdale, Iowa 50707 Phone (319) 236-7977 Fax (319) 236-7980

# Owners Manual

**DOUBLE FUNCTION PATROL WING  
METRO 225**

**S7720**

Unit Serial Number: \_\_\_\_\_



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## WARRANTY POLICY

Viking Cives, USA warrants products of its manufacture against defects in workmanship and material for a period of one year, from the date of shipment to the customer. 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 F.O.B. Factory. Providing such parts are returned, transportation prepaid, to the factory and found defective by Viking Cives, USA.

This warranty will not apply to any product which has been repaired or altered outside of Viking Cives, USA factory in any way, so as in Viking Cives, USA's judgement, to affect its stability or reliability, nor which has been subject to misuse or accident.

The obligations of Viking Cives, USA under this warranty are limited to the replacement of defective parts. Such obligations are exclusive and in lieu of all other remedies, warranties, guarantees of liabilities, expressed or implied, with respect to each product delivered. Here under, arising by law or otherwise (including without limitation any obligation or liability by Viking Cives, USA arising from negligence or with respect to fitness, merchantability, loss of use, revenue, or profit, or consequential damages or injuries).

This limited warranty shall not be extended, altered, or varied except by a written instrument signed by Viking Cives, USA.

Viking Cives, USA assumes no responsibility for engines, electrical equipment or any other equipment and accessories not manufactured by Viking Cives, USA beyond the warranty of the manufacturer of such equipment of accessories.

All warranty work done on Viking Cives, USA equipment must have prior authorization from Viking Cives, USA along with a "Return Goods Authorization" number. All labor and parts issued by user for Viking Cives, USA warranty without an authorization number and a signed authorization warranty form will be at the users own cost.

## ORDERING PARTS

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

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



**VIKING-CIVES (USA)** – RR2, Box 36-1/2; Harrisville, New York 13648; (315) 543-2321, (315) 543-2366 Fax  
**VIKING-CIVES (USA) Midwest Division** – 212 North Evans Road; Evansdale, Iowa 50707; (319) 236-7977, (319) 236-7980 Fax  
**VIKING-CIVES LTD.** – RR4, Box 1120; Mount Forest, Ontario, Canada N0G 2L0; (519) 323-4433, (519) 323-4608 Fax



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## TABLE OF CONTENTS

<u>DESCRIPTION</u>	<u>PAGE No.</u>
Warranty policy / Ordering parts	2
Introduction	4
Periodic maintenance inspection	4
Daily inspection and lubrication	4
Operating instructions	5
Drawing of wing installation on truck	6
Drawing of dual arm MTG kit	7
Parts break down of wing installation on truck	8
Parts break down of dual arm MTG kit	8
Parts break down of DF patrol wing	8
Drawing of DF patrol wing	9
Drawing of mast assembly	10
Parts break down of mast assembly	11
Drawing of bracket assembly metro 3 point	12
Parts break down of bracket asb'y 3 point	13
Drawing of full trip hinge	14
Parts break down of full trip hinge	15
Drawing of upper arm assembly	16
Parts break down of upper arm assembly	17
Drawing of lower arm assembly	18
Parts break down of lower arm assembly	19
Installation & adjustment of hydraulic wing	20
Installation & adjustment of HD wing	21
Safety instructions	22



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## INTRODUCTION

This instruction/parts manual has operation and maintenance information for the Viking-Cives (**insert equipment Type**). It has been prepared to familiarize you with the design features of the unit, and to instruct you in its proper operation and maintenance.

Read this manual carefully before you operate or service your (**insert equipment Type**). 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 caution/warning decal notifications. All decals must be kept clean and complete. Replace any decals that are unreadable. Decals may be purchased directly from Viking-Cives or you're 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 with to follow the safety procedures related to this equipment.**

## PERIODIC MAINTENANCE INSPECTION 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.

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. **CAUTION:** 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.

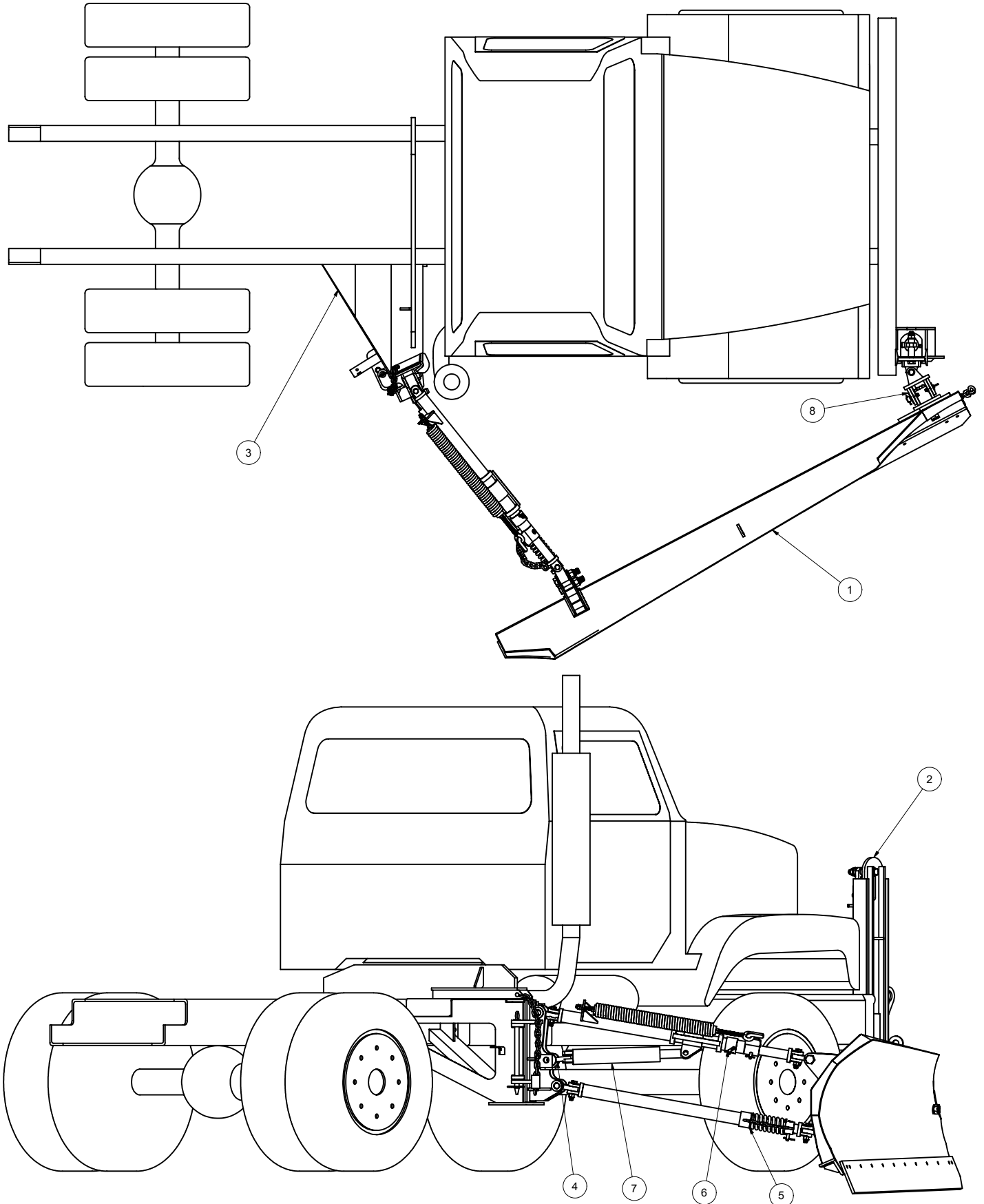


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## OPERATING INSTRUCTIONS

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 make 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 or you're nearest authorized dealer.

**STANDARD 225 WING INSTALLATION ON TRUCK BODY**

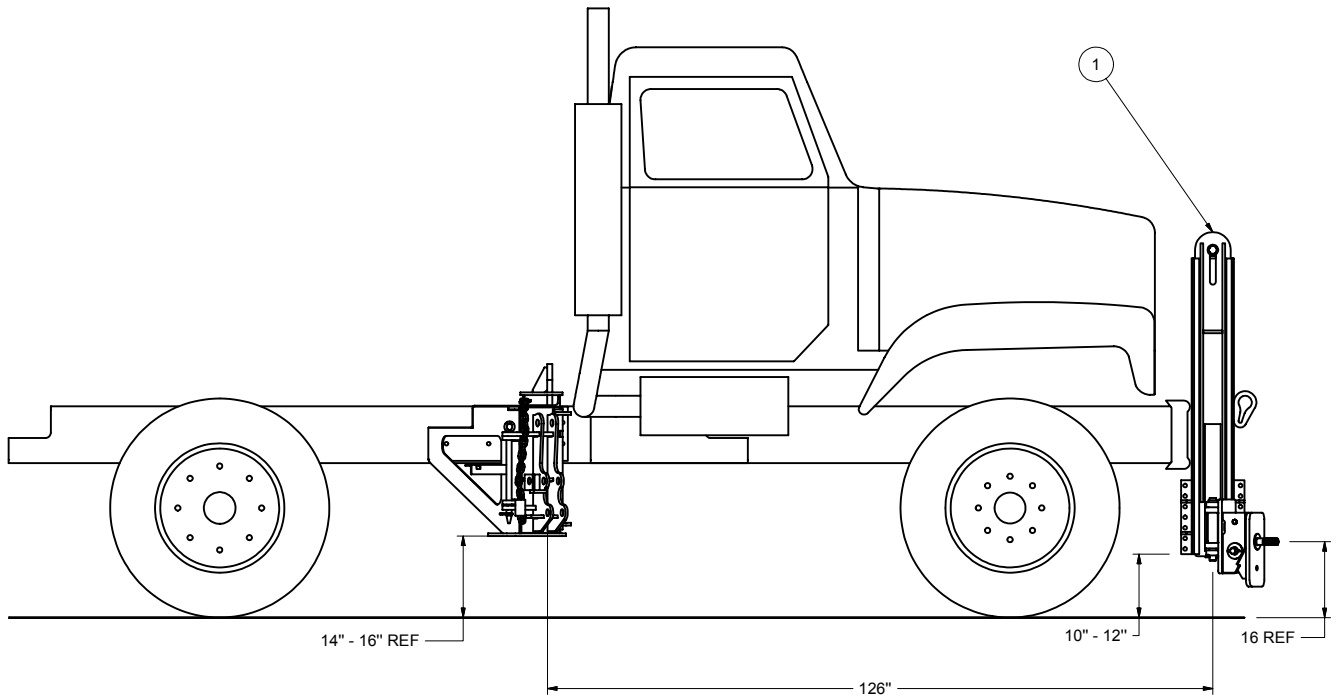
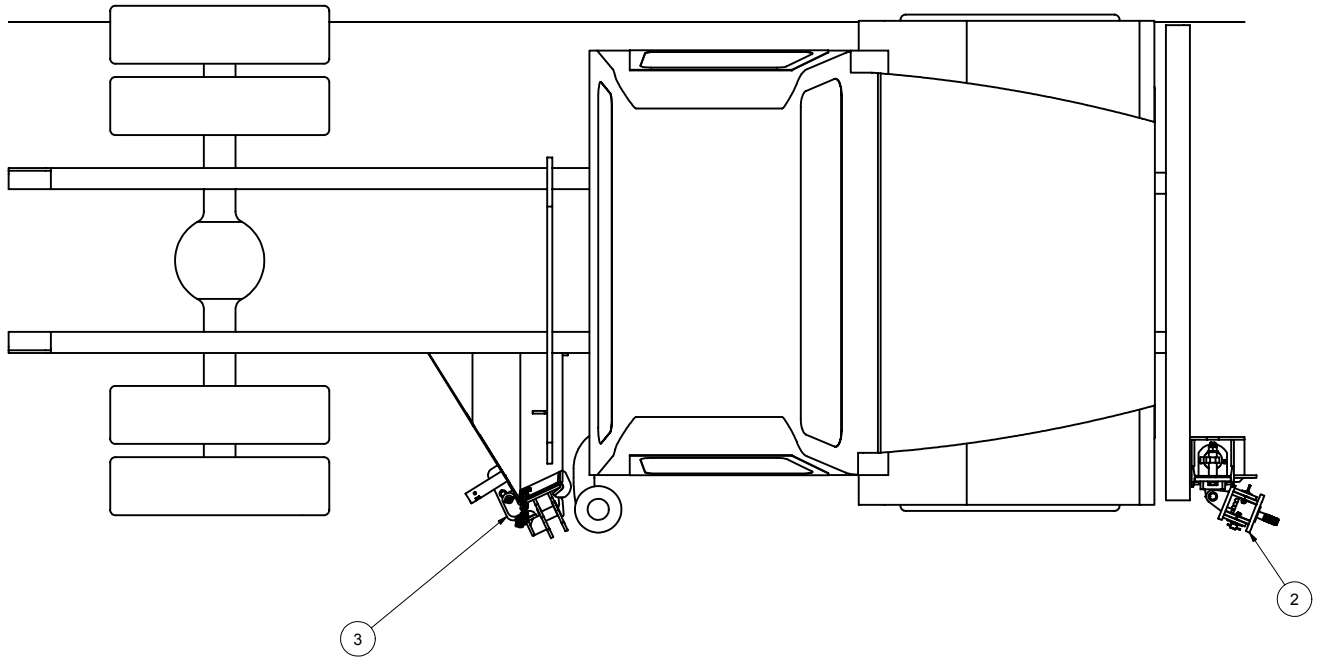


EQUIPMENT MAY NOT BE EXACTLY AS SHOWN. SOME COMPONENTS MAY BE OPTIONAL.  
TO MAINTAIN OUR ON-GOING PRODUCT AND DEVELOPMENT IMPROVEMENT PROGRAM, VIKING-CIVES RESERVES THE RIGHT TO CHANGE EQUIPMENT & SPECIFICATION WITHOUT NOTICE.



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### 225 DOUBLE FUNCTION PATROL WING DUAL ARM MTG KIT



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### DOUBLE FUNCTION WING ON TRUCK

ITEM #	PART #	DESCRIPTION	QTY	OPTIONAL
1	201412008	WING MOLDBOARD WELDMENT - 8' EDGE	1	*
1	201412007	WING MOLDBOARD WELDMENT - 9' EDGE	1	*
1	201401095	WING MOLDBOARD WELDMENT - 10' EDGE	1	*
2	200701926	FRONT MAST ASSEMBLY AH200	1	
3	2010011243	REAR SUPPORT WELDMENT 3 POINT	1	
4	201001242	DETACH BRACKET WELDMENT METRO 3 POINT ARM	1	
5	211201012	LOWER STAND OFF ARM	1	
6	201201071	UPPER STAND OFF ARM FULL TRIP	1	
7	280156AC	3 X 14 7/8 DA CYLINDER	1	
8	201401070	HINGE ASSEMBLY FULL TRIP	1	

ITEM NUMBER 1 WILL DEPEND ON WHAT SIZE YOU DESIRE.

### DOUBLE FUNCTION PATROL WING DUAL ARM MTG KIT

ITEM #	PART #	DESCRIPTION	QTY	OPTIONAL
1	200701926	FRONT MAST ASSEMBLY AH200	1	
2	201401070	HINGE ASSMBLY FULL TRIP	1	
3	201001242	DETACH BRACKET WELDMENT METRO 3 POINT ARM	1	

### DOUBLE FUNCTION PATROL WING

ITEM #	PART #	DESCRIPTION	QTY	OPTIONAL
1	201412008	WING MOLDBOARD WELDMENT - 8' EDGE	1	*
1	201412007	WING MOLDBOARD WELDMENT - 9' EDGE	1	*
1	201401095	WING MOLDBOARD WELDMENT - 10' EDGE	1	*
2	201401102	DUAL ARM BRACKET WELDMENT	1	
3	201401098	DUAL ARM BRACKET WELDMENT	1	

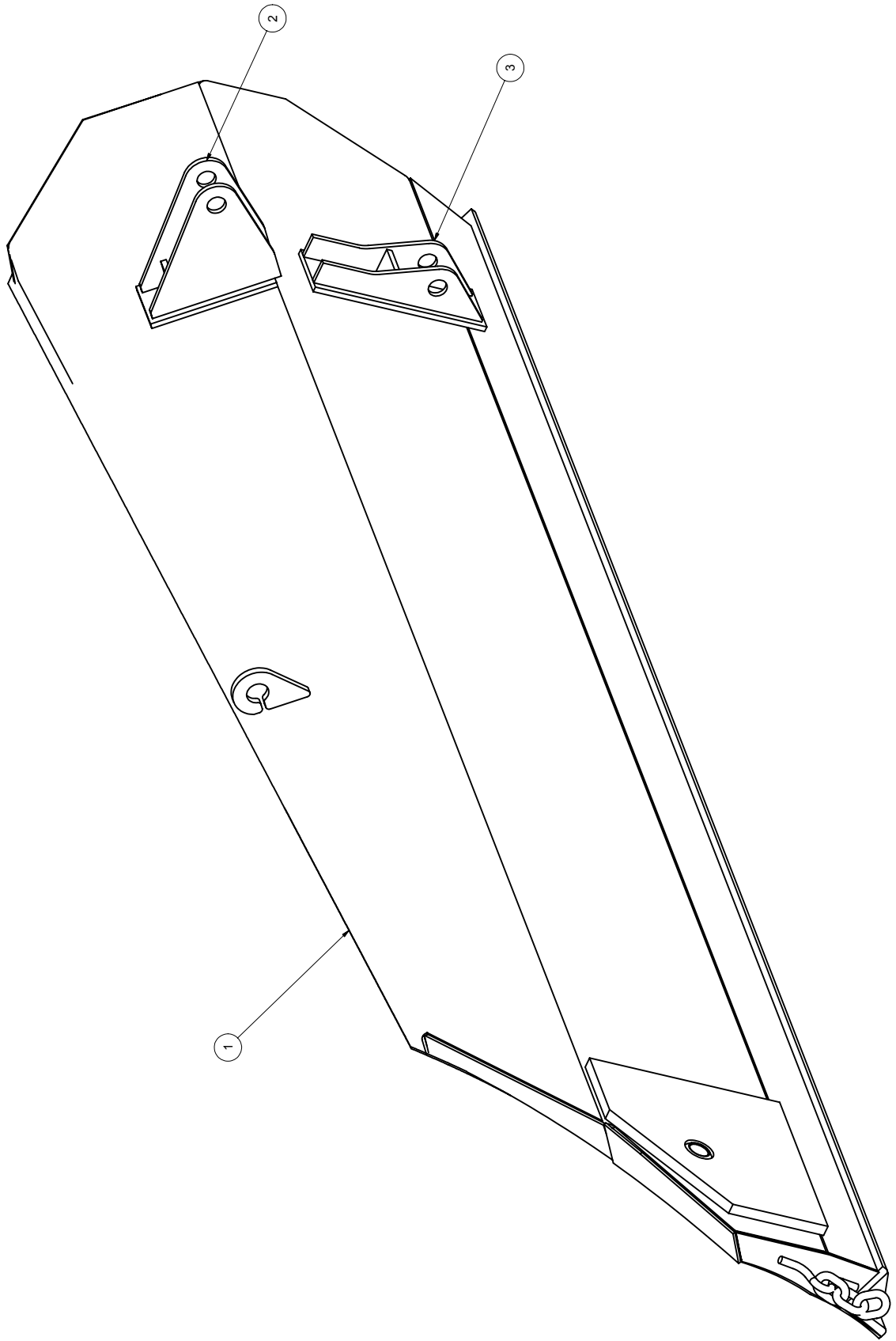
ITEM NUMBER 1 WILL DEPEND ON WHAT SIZE YOU DESIRE.  
WHEN ORDERING ITEMS 2 & 3 REFERANCE PART #201401100 (IT IS SOLD AS A SET).





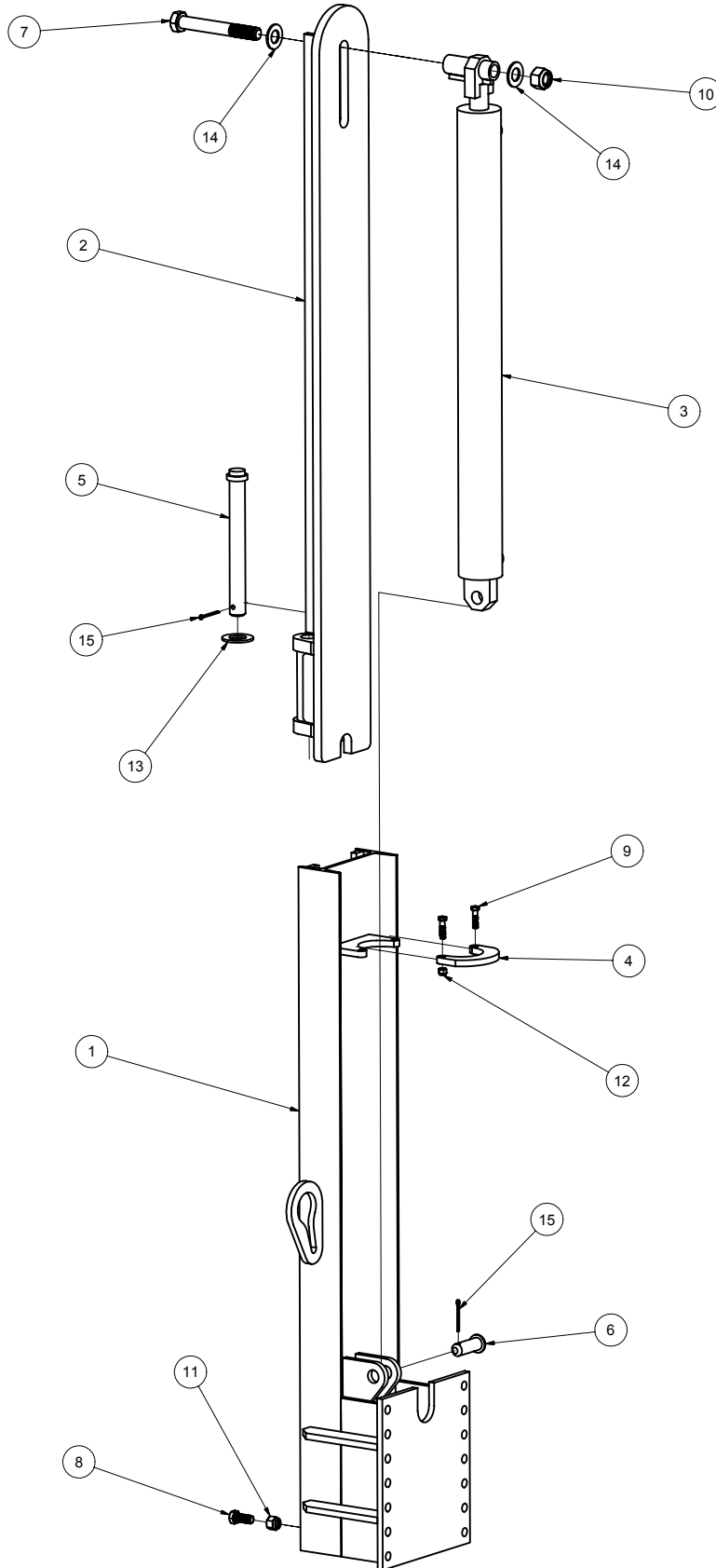
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## DOUBLE FUNCTION 225 PATROL WING



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**MW 225 FRONT MAST ASSEMBLY**



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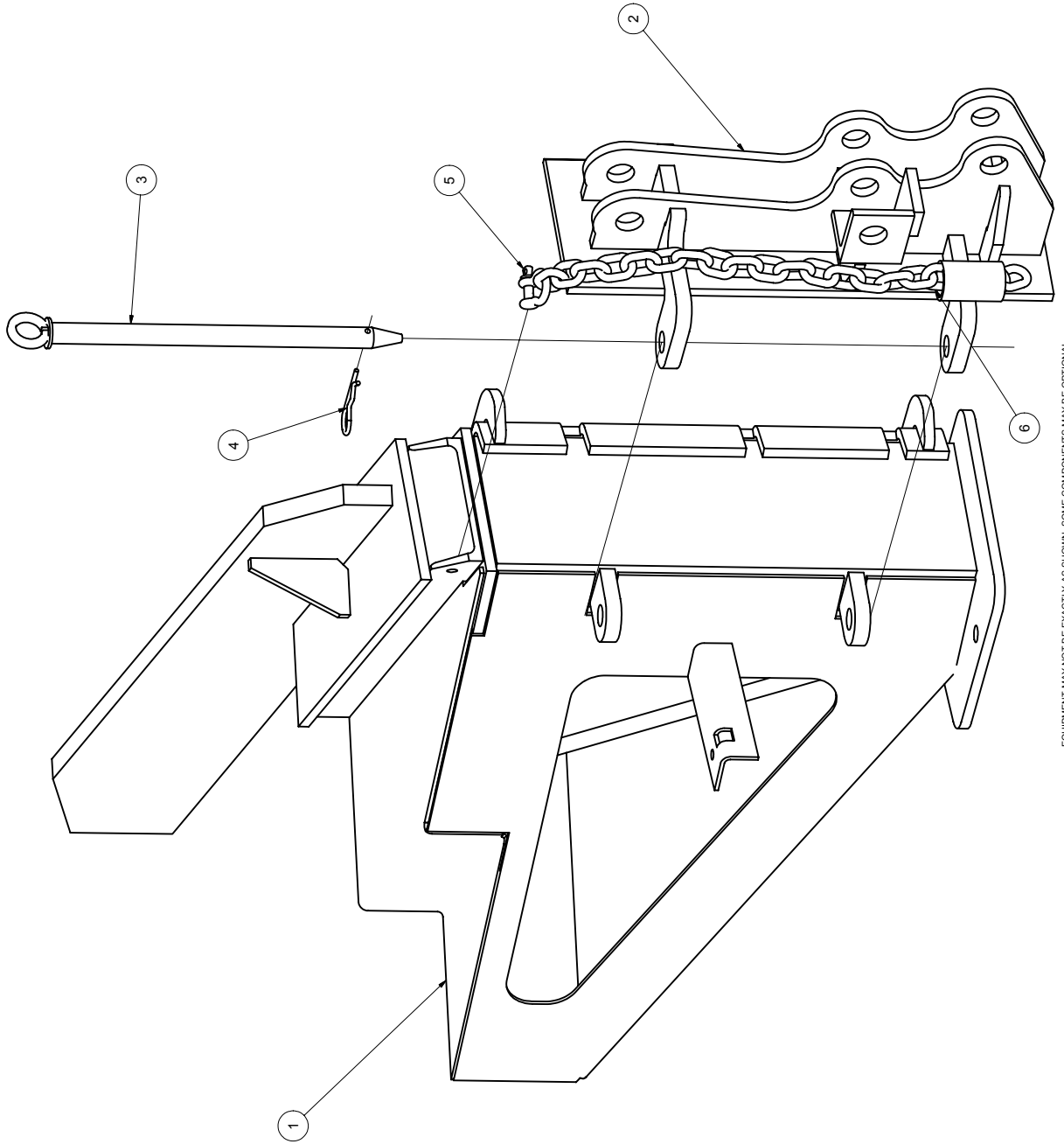
200701926: FRONT MAST ASSEMBLY AH200

ITEM #	PART #	DESCRIPTION	QTY	OPTIONAL
1	200701925	FRONT MAST WELDMENT M56 AH200 VCM	1	
2	210703015	SLIDE WELDMENT FRONT MAST M54 AH200	1	
3	20540030	CYLINDER 3 X 33 DA	1	
4	210705022	CYLINDER CLAMP OUTER	1	
5	200900190	PIN 1.250 DIA X 10.375	1	
6	200900003	PIN 1.000 DIA X 2.563 UH TO CH 3.500 OA	1	
7	281022	BOLT HEX 1 X 7 1/2 UNC ZINC	1	
8	3SK3698	BOLT HEX 5/8 X 1 1/2 UNC ZINC	1	
9	3SK3585	BOLT HEX 3/8 X 1 1/2 UNC ZINC	2	
10	281001B	NUT HEX ELASTIC 1 UNC ZINC	1	
11	3SK3781	NUT HEX ELASTIC 5/8 UNC ZINC	1	
12	3SK3591	NUT HEX ELASTIC 3/8 UNC ZINC	2	
13	281015A	FLATWASHER 1 1/4 USS ZINC	1	
14	281020C	FLATWASHER 1 USS ZINC	1	
15	280556	COTTER PIN 1/4 X 2 ZINC	2	



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### BRACKET ASS'Y - DETACH METRO 3 POINT ARM



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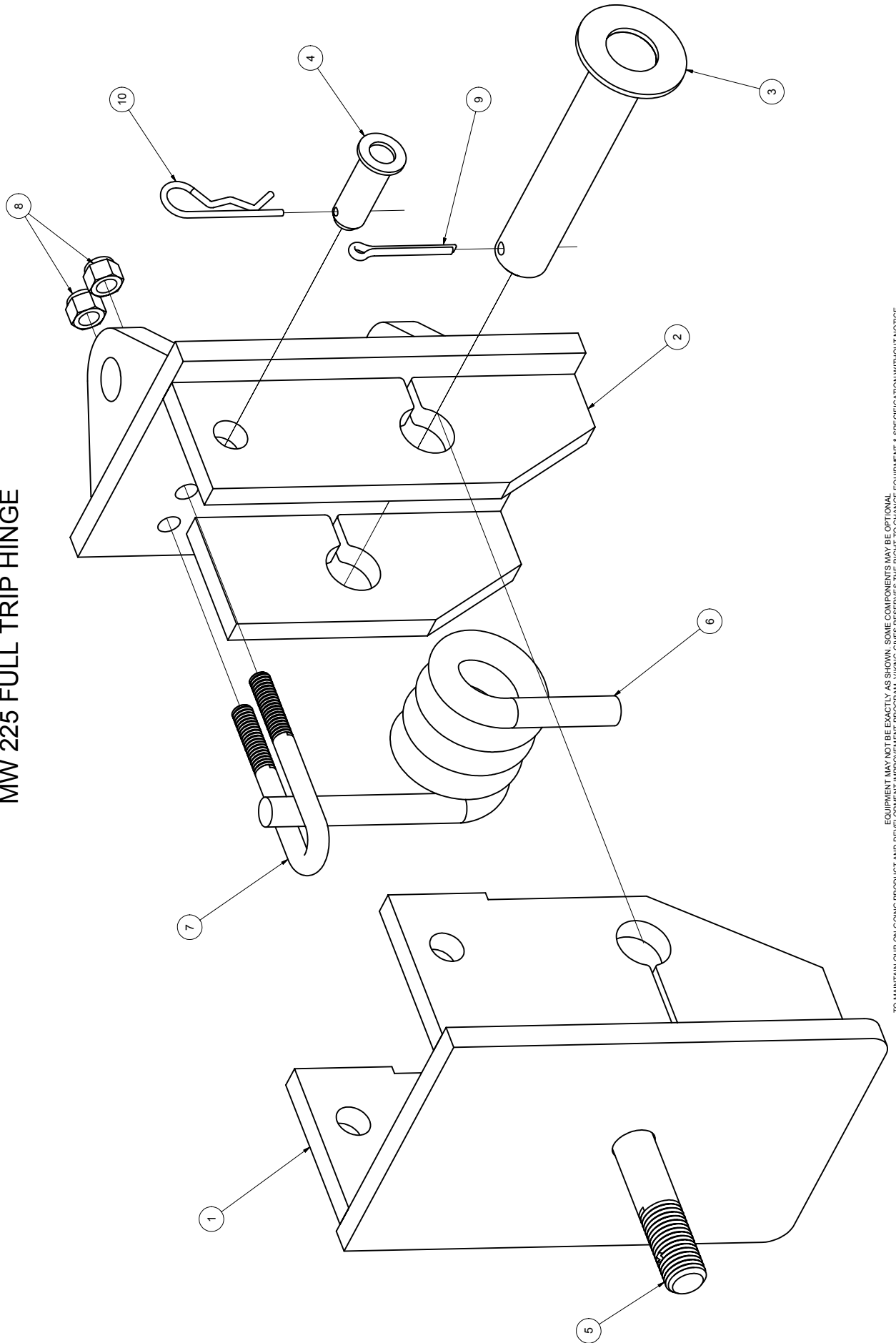
### 201001243: BRACKET ASS'Y – DETACH METRO 3 POINT ARM

ITEM #	PART #	DESCRIPTION	QTY	ALT. PART #
1	201001243	REAR SUPPORT WELDMENT 3 POINT	1	
2	201001242	DETACH BRACKET WELDMENT 3 POINT	1	
3	200900198	PIN 1 DIA X 15 1/2 WELDMENT	1	
4	280536	COTTER HAIR PIN 3/16 X 3 3/4	1	
5	20590023	CHAIN CLEVIS 3/8 SHACKLE RD SCREW PIN	1	280511
6	200401587	CHAIN 3/8 X 38 LG	1	



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### MW 225 FULL TRIP HINGE



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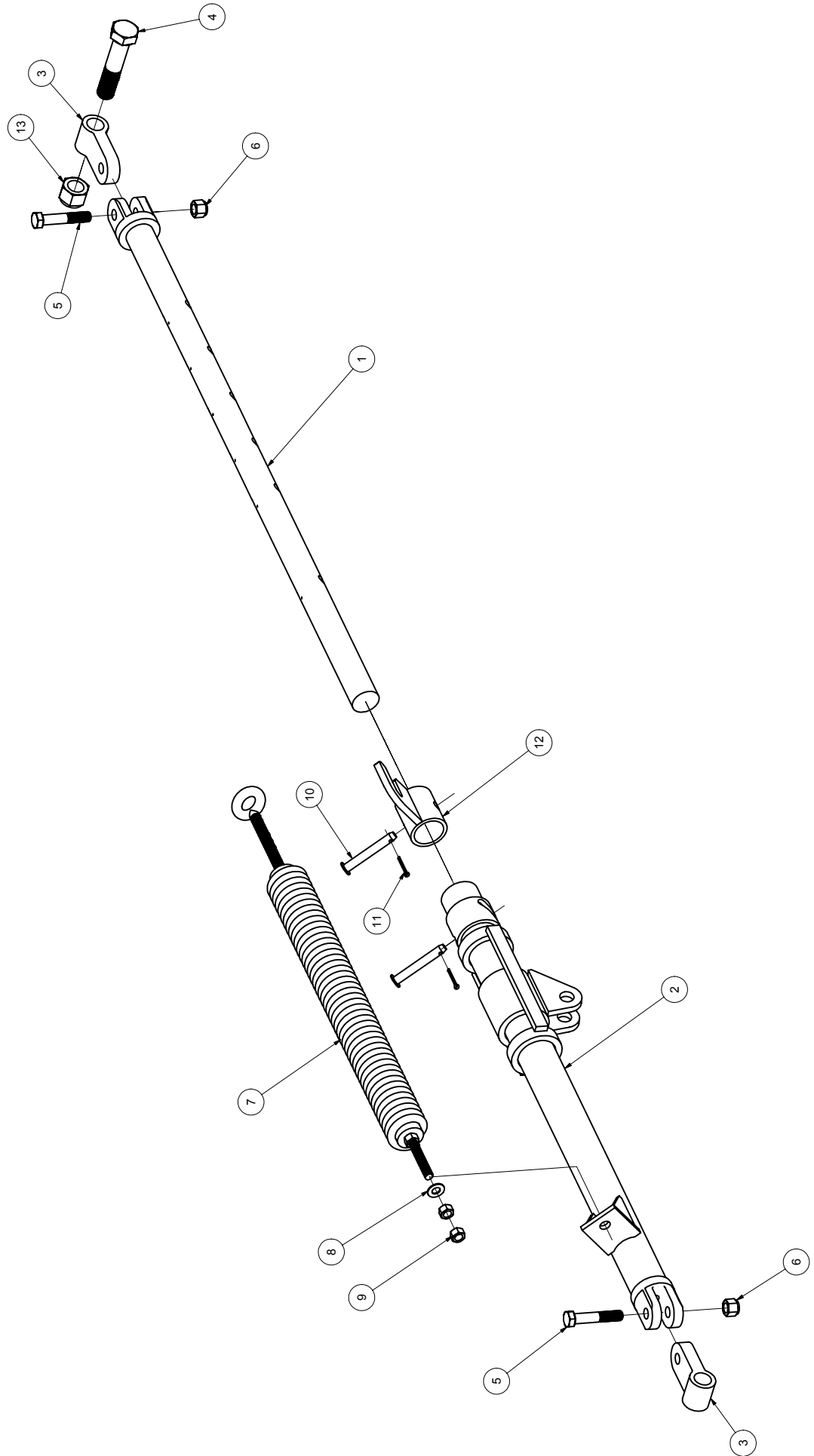
### 201401070: FULL TRIP HINGE

ITEM #	PART #	DESCRIPTION	QTY	ALT. PART #
1	201401074	HINGE BLOCK WELDMENT FULL TRIP	1	
2	201401071	PIVOT BLOCK WELDMENT FULL TRIP	1	
3	200900221	PIN 1.625 DIA X 8.788 WELDMENT	1	20P032A
4	200900003	PIN 1.000 DIA X 2.563 WELDMENT	1	20P148
5	200702037	BOLT DRILLED 1.250 DIA X 5.000 UNC ZINC	1	
6	20580013	SPRING TORSION RH TRIP HINGE 7" FRONT POST	1	280413
7	20620016	U-BOLT TYPE 5/8	1	20M236
8	3SK3785	NUT HEX ELASTIC 5/8 UNC ZINC	2	
9	280507	COTTER PIN 3/4 X 3 ZINC	1	
10	2HW13L-0360	COTTER HAIR PIN 3/16 X 3 3/4 ZINC	1	



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### FULL TRIP UPPER ARM ASS'Y - HYD



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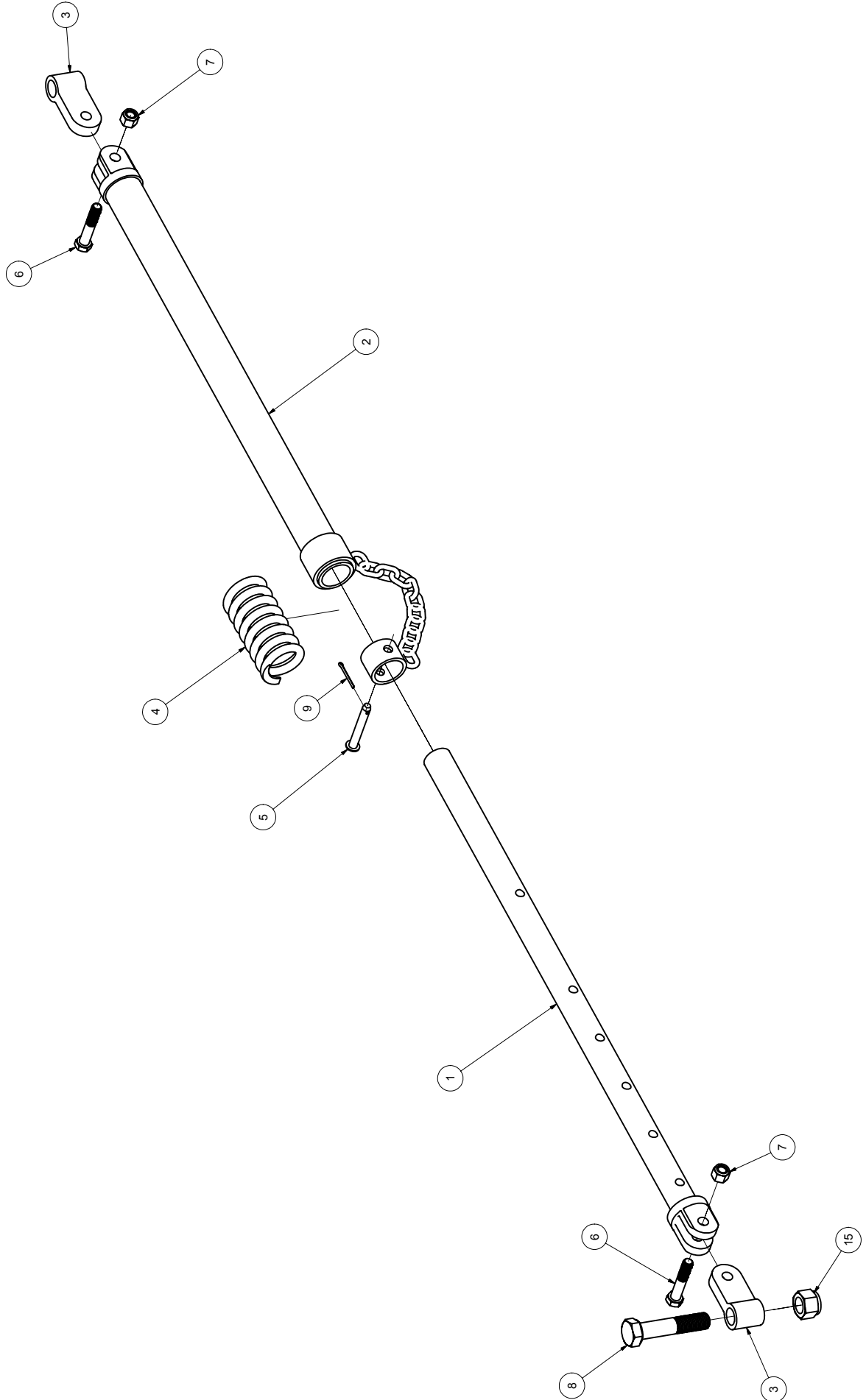
201201071: FULL TRIP UPPER ARM ASS'Y - HYD

ITEM #	PART #	DESCRIPTION	QTY	OPTIONAL
1	211203028	INNER STAND OFF ARM WITH FAB BLOCK	1	
2	211203035	UPPER OUTER ARM WELDMENT FULL TRIP	1	
3	20017167-4	PIVOT BLOCK	2	
4	281028C	BOLT HEX 1 1/4 X 5 1/2 NC HD GRADE 5 ZINC	1	
5	3SK3807	BOLT 3/4 X 4 GRADE 8 ZINC	2	
6	3SK3811	NUT HEX TOPLOCK 3/4 UNC ZINC	2	
7	212401001	SPRING SUSPENSION	1	
8	281070E	FLATWASHER HARDENED 5/8 ZINC	1	
9	3SK3785	NUT HEX TOPLOCK 5/8 UNC GRADE 8 ZINC	2	
10	20P022	PIN 5/8 X 4 YZ	2	
11	280518	PIN COTTER 3/16 X 1 1/2 ZINC	2	
12	211203008	COLLAR SLIDING	1	
13	280999D	NUT HEX ELASTIC 1 1/4 UNC ZINC	1	



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### FULL TRIP LOWER ARM ASSEMBLY



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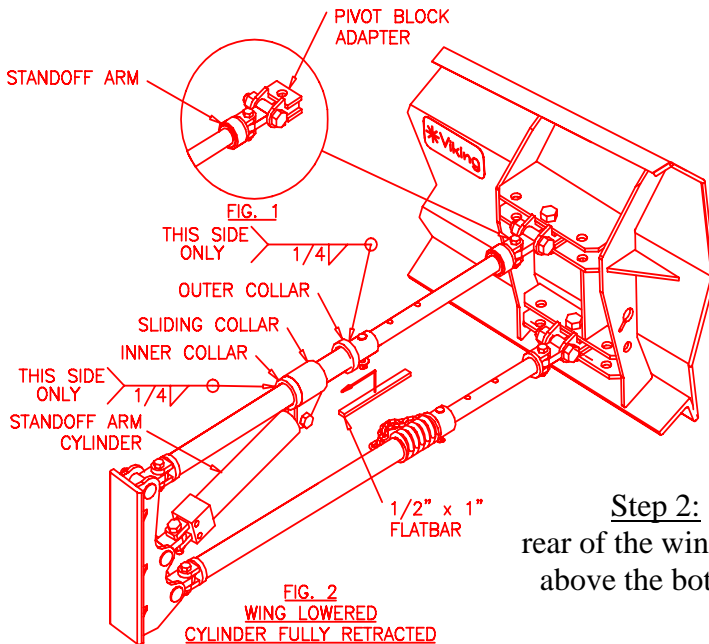


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## 211201012: FULL TRIP LOWER ARM ASS'Y

ITEM #	PART #	DESCRIPTION	QTY	ALT. PART #
1	211203038	INNER STAND OFF ARM WITH FAB BLOCK HD	1	
2	211203037	OTTER ARM LOWER WITH FAB BLOCK HD	1	
3	2007167-4	PIVOT BLOCK	2	
4	280410	SPRING COMPRESSION WING BRACE	1	
5	20P022	PIN 0.625 DIA X 4.000 WELD'T	1	
6	3SK3807	BOLT HEX 3/4 X 4 UNC ZINC	2	
7	3SK3811	NUT HEX ELASTIC 3/4 UNC ZINC	2	
8	281023C	BOLT HEX 1 1/4 X 6 UNC ZINC	1	
9	20P012	PIN 1.250 DIA X 4.000 WELD'T	1	200900086
10	280999D	NUT HEX ELASTIC 1 1/4 UNC ZINC	1	

## INSTALLATION AND ADJUSTMENT OF THE VIKING HYDRAULIC WING



**Step 1:** Unit must be operational. Complete the entire installation, including hydraulic system and controls. Bolt pivot block adapters to standoff arms first (Fig. 1) attach the standoff arms to the rear slide, mount the wing then connect the cylinder as shown in Fig. 2.

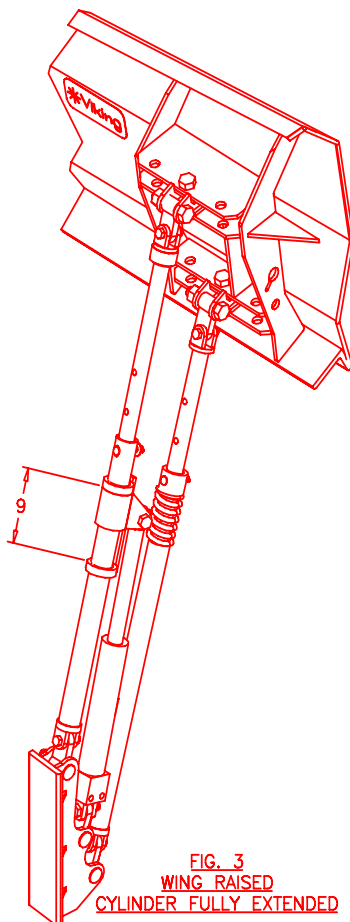
**Step 2:** Using an overhead crane or other safe lifting device, raise the rear of the wing to its folded position (Fig. 3), raise the front of the wing just above the bottom of the front mast. Check for clearance around mirror and exhaust shield.

**Step 3:** Extend the standoff arm cylinder to its maximum length. Make a mark on outer arm around the outer end of the sliding collar.

**Step 4:** Lower the wing (Front and Rear) to the floor. Retract the stand off arm cylinder completely (Fig. 2). Position the outer collar approx. 1/2 way over the mark made in step 3. Tack outer collar on side away from sliding collar. Raise wing, check for clearance if more clearance is needed, adjust outer collar.

**Step 5:** With the wing back on the floor and the outer collar correctly located, weld 1/4 fillet around the outside (toward wing) edge of the outer collar (Fig. 2), move the inner collar so that there is 9" between the collars as shown and weld 1/4 fillet around both sides of the collar (Fig. 2)

**Step 6:** Position sliding collar approx. half way between inner and outer collars. Make sure that the lugs on the sliding collar are pointing down. Place 1/2 x 3/4 flat bar between lugs on sliding collar and weld to inner and outer collars. This prevents the sliding collar from rotating and damaging the cylinder.



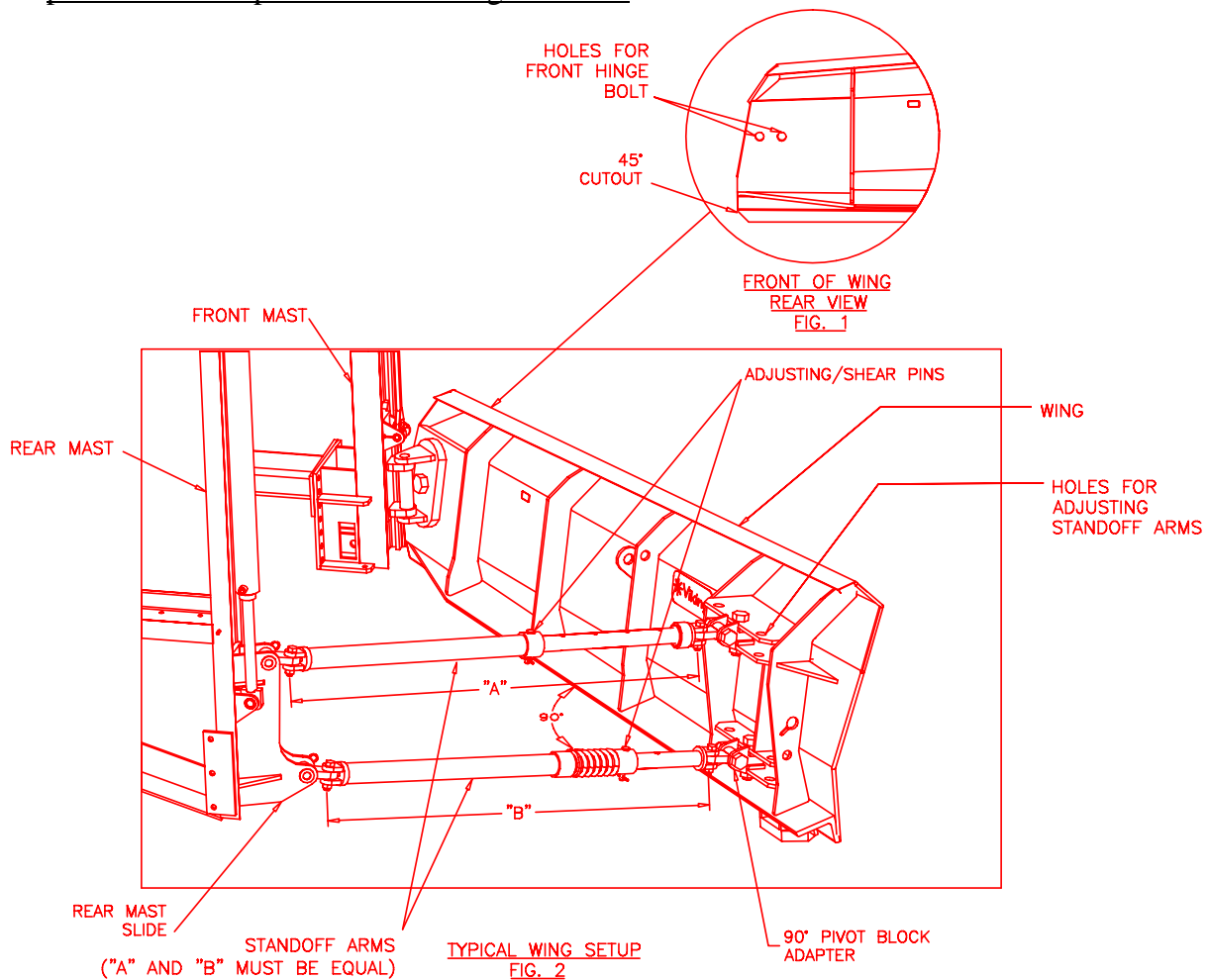
## INSTALLATION AND ADJUSTMENT OF THE VIKING HEAVY DUTY WING

Viking heavy duty wings are furnished with a variety of attaching points to accommodate a wide range of applications.

Beginning at the front of the wing (See Fig. 1), two (2) holes are provided for attaching to the wing to the front hinge bolt. The hole you select for your particular application should position the wing to provide a small overlap from the plow cutting edge to the wing cutting edge. Care must be taken not to position the wing too far forward. The wing should be able to operate through its entire range of motion without striking the plow, even with the plow in the raised position.

**NOTE:** This condition can sometimes occur if the plow set-up is incorrect. Excessive plow lift can reduce plow / wing clearance even if wing set-up is correct. Check the plow set-up before making any corrections to the wing.

At the rear of the wing are a series of holes for attaching the stand-off arms (wing braces). The stand-off arms must be attached to the rear mast slide (or patrol wing rear support) first. The outer end of the arms are then attached to the 90° pivot block adapter and positioned in the hole at the rear of the wing which places the arms at a 90° angle to the wing (See Fig.2). The stand-off arms must be as square as possible to the wing to permit smooth operation of all wing functions.

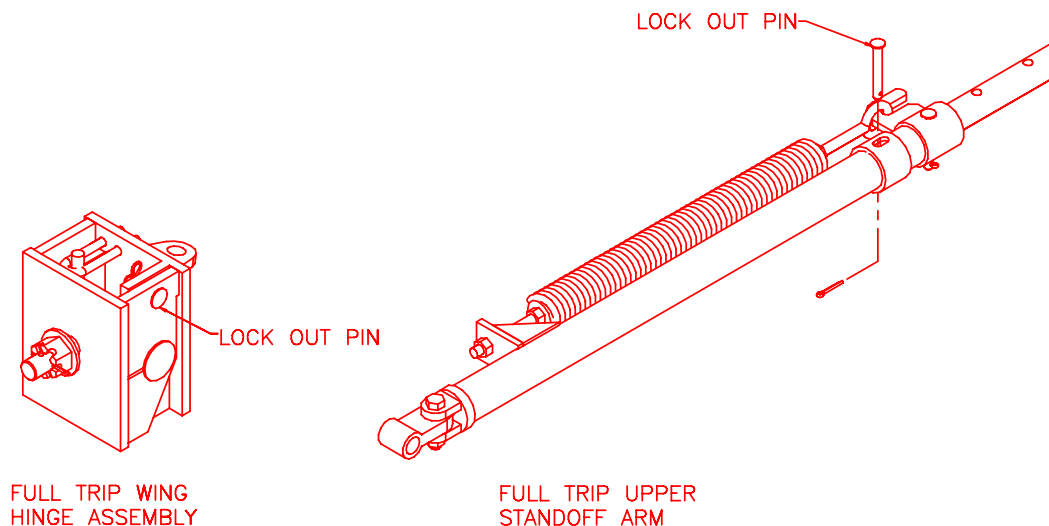


## **WING OPERATION** **SAFETY INSTRUCTIONS**

The Viking wing installed on this truck is equipped with full trip stand-off arms and a full trip wing hinge.

The purpose of this equipment is to enable the wing to “trip” over and to absorb the force of impacting with solid objects which may be struck by the cutting edge.

If the wing is to be used in it's full trip mode remove the lock-out pins indicated below in the full trip wing and the upper stand-off arms.



### **WARNING**

Operating of the full trip wing should be done with both lock-out pins either installed or taken out. If one lock-out pin is installed and the other removed damage to the wing and possible injury to the operator will likely occur.

The lock-out pins should be inserted when the wing is to be used for shelving high snowbanks to prevent the wing from laying over due to the weight of the snow. This condition would overstress the springs and cause premature weakening or failure.