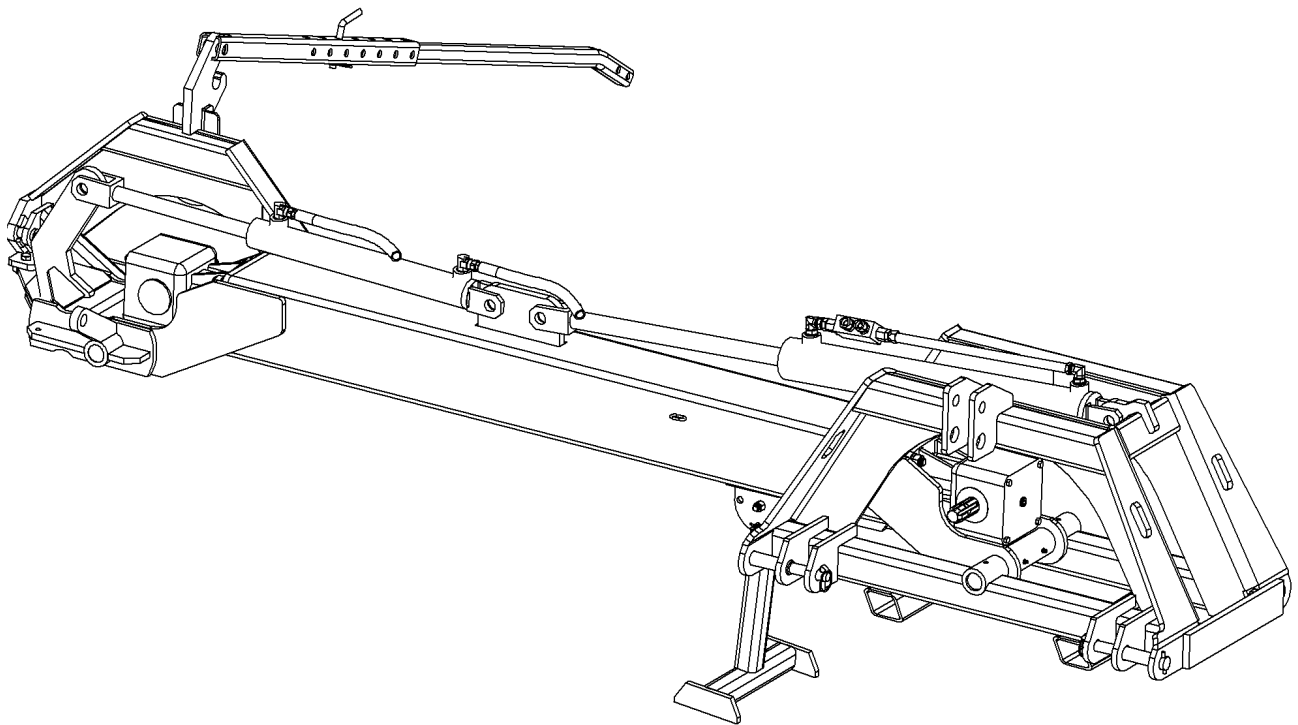




## **AXIS 4 & AXIS 5 - 6**

### **Operator's / Parts Manual**



MK Martin Enterprise Inc.  
3950 Steffler Rd Elmira, ON, Canada N3B 2Z3

Tel: 519-664-2752  
Toll Free: 1-855-664-2752  
Fax: 519-664-3695  
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REV: 18-1



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3950 Steffler Rd. • Elmira • Ontario, Canada • N3B 2Z3 • Email : sales@mkmartin.ca • Fax : (519)-664-3695 • Tel : (519)-664-2752

# Warranty

Effective on products retailed on or after November 1, 2017

## **Two Year Limited Consumer Warranty**

## **Five Year Limited Consumer Warranty on Gearboxes**

## **90 Day Limited Commercial Warranty including Gearboxes**

**Commercial includes rental and industrial applications.**

**Warranty begins at the time of customer delivery and is activated upon warranty registration receipt at MK Martin Enterprise Inc.**

**Warranty coverage is null and void unless the Warranty Registration form has been completed in full and is on file at MK Martin Enterprise Inc.**

**Keep your registration copy in a safe place, it is required as proof of warranty activation.**

This new and unused product is warranted by MK Martin Enterprise Inc. to be free from defects in material and workmanship under normal use and regular service as described in the owner's manual, for a consumer period of 2 years and 5 years for gearboxes, from the date of delivery, and commercial period of 90 days, including gearboxes, from the date of delivery. Warranty is limited to the replacement of parts and / or repair of the product.

If issues develop within the warranty period with the product, contact the local dealer from which you purchased the unit. Only MK Martin authorized dealers may make repairs to the product or affect the replacement of defective parts, unless otherwise approved by MK Martin. Repairs / replacement will be done at no charge within a reasonable time after the receipt of the product.

**This warranty does not cover the following items:**

1. Normal replacement of service items.
2. Normal maintenance or adjustments.
3. Machines or parts lost or damaged during shipment,
4. Accessory items / parts not supplied by MK Martin
5. Damages resulting from:
  - misuse, negligence, accident, theft or fire
  - use of improper or insufficient fuel, fluids or lubricants
  - use of after market parts or accessories, unless approved by MK Martin
  - modifications, alteration, tampering or improper repair
  - any device or accessories installed by other than an authorized dealer.
6. Tires are covered by the manufacturer of the tire and the warranty period specified by that manufacturer. **Please contact the tire manufacturer for warranty on these items.**

MK Martin Enterprise Inc. shall not, in any event, be liable for any losses, damages or costs; to include profits, travel, transportation, pick up, delivery, towing cost, tow vehicle, loss of use, whether special, incidental, consequential or otherwise, in any way. Unit or parts are returned at the customer's expense.

Include a copy of your completed Warranty Registration form with any claim as proof of warranty activation.

There are no warranties, expressed or implied, other than those specified herein. No agent, employee or other person has any authority to vary any of the foregoing provisions.

Warranty coverage is null and void unless the Warranty Registration form has been completed in full and is on file at MK Martin Enterprise Inc. Warranty begins at the time of customer delivery and is activated upon Warranty Registration receipt at MK Martin Enterprise Inc.

**M K Martin Enterprise Inc**

**3950 Steffler Rd**

**Elmira ON CA N3B 2Z3**

*Purchaser's warranty protection is valid only when this completed form or a copy of this form is on file at M K Martin Enterprise Inc. By filling out this form the purchaser has acknowledged delivery of equipment and owner's / operator's manual and has accepted the condition of the equipment.*

**Date of delivery to purchaser -----**

**Type of Equipment -----**

**Model # ----- Serial # -----**

**Retailer's Signature Indicates**

- *Equipment was properly assembled as directed by manufacturer*
- *Equipment was tested for functionality and operates properly*
- *Purchaser was instructed in safe and proper operating procedures*
- *Warranty was explained to purchaser*
- *Purchaser was given the operators manual*

***Retailer***

**Signature -----**

**Company -----**

**Address -----**

**Purchaser's signature indicates**

- *Acceptance of equipment fully assembled*
- *Received operator's manual*
- *Clearly understands conditions of warranty*
- *Received instructions of safe and proper operation of equipment*

***Purchaser***

**Signature -----**

**Company -----**

**Mailing address -----**

**City ----- Prov/State ----- Postal Code/Zip -----**

**Available phone number -----**

**Warranty is valid only when it has been received by manufacturer at address above**

## Warranty Registration

**Please Cut and Return to M K Martin Enterprise Inc**

**Fold And Tape here**

*Do not tape all edges or use staples*

*Fold Here*

**Postage  
Stamp**

**M K Martin Enterprise Inc  
3950 Steffler Rd  
Elmira ON CA N3B 2Z3**

## Safety

**Take Note!** This safety symbol is found throughout this manual to call your attention to instructions involving yourself and others working around the machine.

- **Failure to follow these instructions can result in injury or death**



This symbol means

**-- Attention!**  
**-- Become Alert!**  
**-- Your Safety is involved!**

Signal words are used in this manual.

**Caution:** Indicates a potentially hazardous situation that may result in injury.

**Warning:** Indicates a hazardous situation that could result in serious injury or death.

**Danger:** Indicates a hazardous situation that needs to be avoided. It is you the operator that needs to be aware of these dangers.

If you have any questions not answered in this manual please contact your dealer or

M K Martin Enterprise Inc  
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e-mail [sales@mkmartin.ca](mailto:sales@mkmartin.ca)

[www.mkmartin.ca](http://www.mkmartin.ca)



### **Safety it's in Your Interest!**

- It is the responsibility of the operator to read and understand the Safety instructions before operating the equipment.
- Clear the area of people and animals before starting the unit.
- Do not allow riders
- Wear appropriate ear and eye protection before starting equipment.
- Apply tractor weights to the tool arm weight bar when using heavy equipment.
- When transporting machine, collapse cutter and install safety pin to prevent breakaway feature from accidentally disengaging



### **Do Not Modify This Equipment In Any Way!**

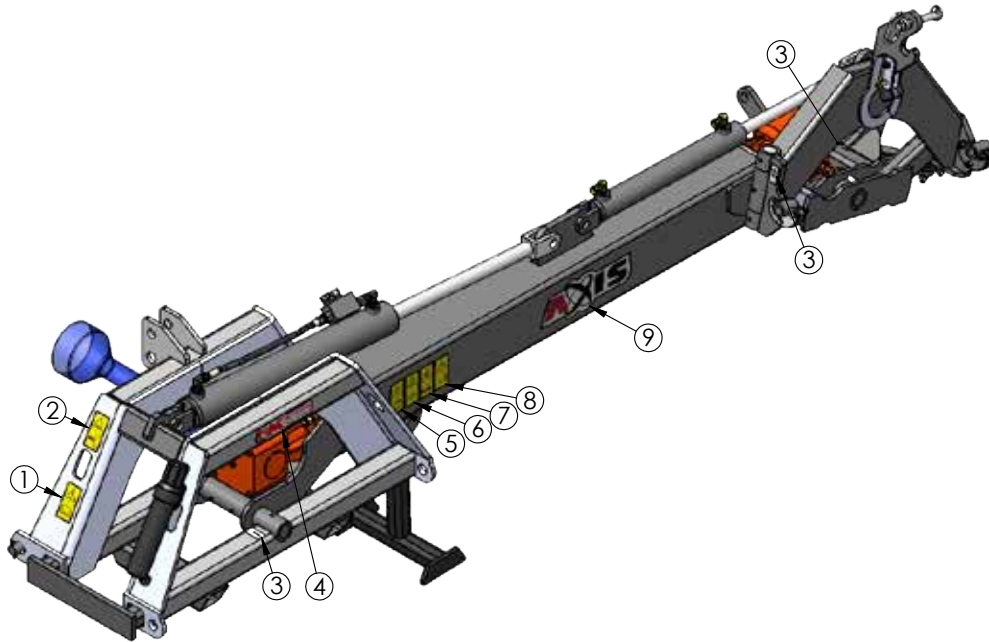
Unauthorized modification may impair the function of the machine or jeopardize the safety of the operator!

**Think SAFETY!**

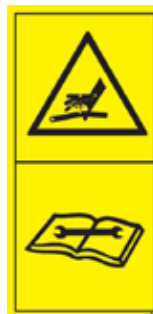
**Work SAFELY!**



## AXIS Decal Locations



**#1 - Before operating machine,** carefully read the instruction manual



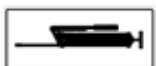
**#6 - DANGER.** Avoid fluid escaping under pressure, Consult manual for service procedures.



**#2 - DANGER of being caught by the PTO shaft.** Do not go near the rotating members of the machine while in operation.



**#7 - DANGER of possible shearing of limbs.** Keep a safe distance from the machine while it is working.



**#3 - Grease**



**#4 - MK Martin**  
Made in Canada



**#8 - DANGER of being crushed.** Stay a safe distance from the machine.



**#5 - Before any operation of maintenance a/o adjustment,** stop, brake the tractor on level ground, lower the machine to the ground and read the instruction manual.



**#9 -**  
AXIS decal - x2

## Operation Attaching

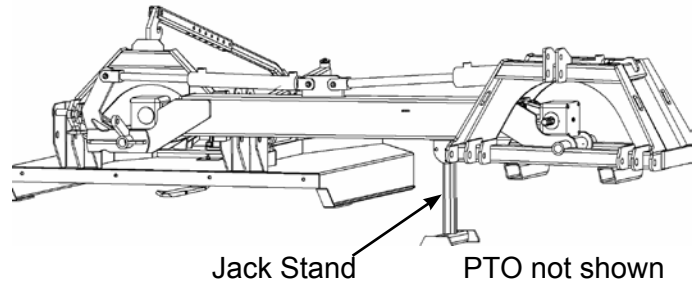
The Axis Tool Arm was designed to be used in conjunction with a rotary cutter or similar device. The main function is to cut grass in roadside ditches or on other inclines. For the Axis Tool Arm to work effectively a tractor with a three point hitch must be used. Using a tractor That does not have substantial weight can result in unsafe conditions, as some tractors are not heavy enough to handle the added weight on the rear and side.

For **AXIS 4** a tractor with a CAT#1 three point hitch or CAT#2 with bushings must be used.

For **AXIS 5-6** a tractor with a CAT#2 or CAT#3 three point hitch must be used. **Using a CAT#1 tractor can result in unsafe conditions.**

### Attaching

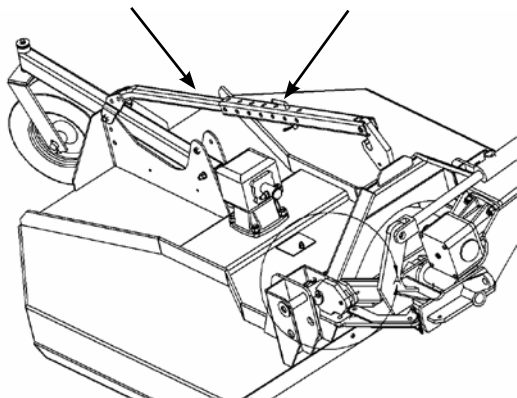
1. Attach Axis Tool Arm to the tractors three point hitch arms.
2. Install stabilizer bars to prevent side drift of the Axis Tool Arm when in operation.
3. Attach hydraulic hoses to the tractor re-motes. (2 required)
4. Attach PTO (*cut to length if required*)  
See *PTO drive line dimension* Page
5. Raise three point hitch until drive line is horizontal, collapse jack stand and secure into position with pin.
6. Cycle the cylinders to ensure the correct hose configuration.



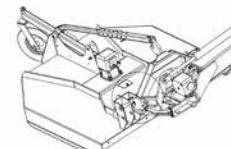
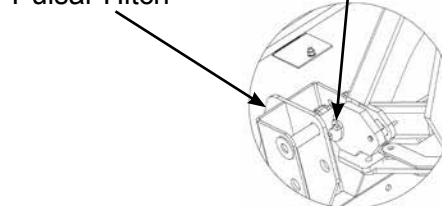
### Cutter Attachment

1. Remove Cutter "A" Frame
2. If required, remove Hitch Clamps from Axis Tool Arm (6) bolts and place on Cutter Hitch Pins
3. Attach Cutter on Axis Tool Arm. Ensure Hitch Clamp bolts are secure.
4. Install Stabilizer Bar from Axis Tool Arm "A" Frame to Cutter Gauge Wheel bracket (*as described elsewhere in the manual.*)
5. Insert Retainer Pin on Stabilizer Arm to retain cutter horizontally.
6. Attach PTO from Cutter to Axis Tool Arm (*cut to length as required*) to fit equipment See *PTO drive line dimension* Page

Stabilizer Bar      Retainer Pin



Shown with      Hitch Clamp Plate  
Pulsar Hitch



Stabilizer Bar has a Slotted hole on inside member that is used to allow the cutter gauge wheel to float along the ground.

## Operating Procedures

- The Axis Tool Arm is equipped with a PO check valve in the main cylinder lines to prevent the arm from drifting when in operation.
- Rotating action of the cutter hitch allows the cutter to follow the contour of the ground. Position the cutter control valve to float position.
- If the attachment encounters a rigid object, the breakaway device will disengage. When this happens STOP the PTO and **stop the tractor and remove the keys!** Manually return the cutter to it's correct position and replace the Shearbolt (1/4"x3") Grade #2. [Fig # 1]



**Do not operate or have the cutter running in a raised position!**



**Do not exceed PTO Speed of 540 RPM!**

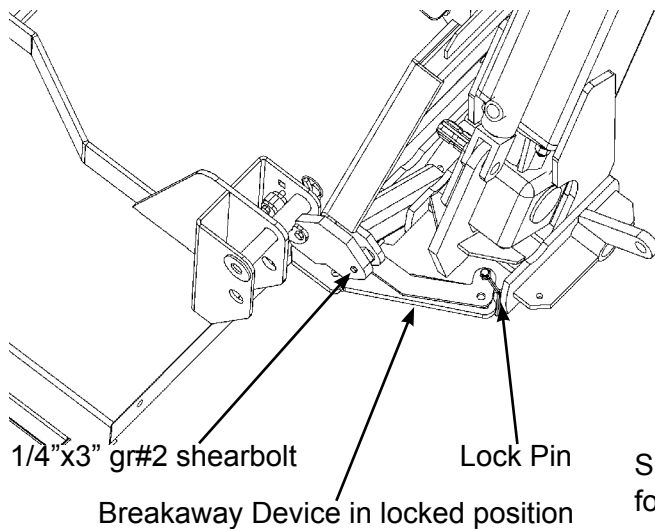


Fig #1

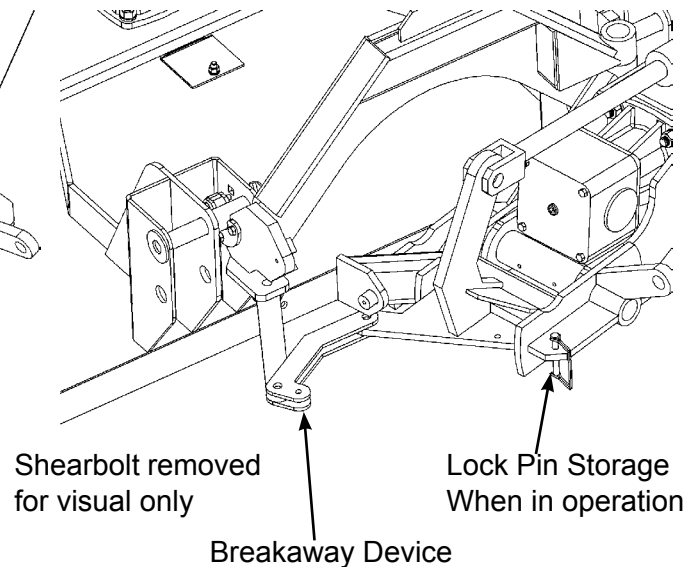
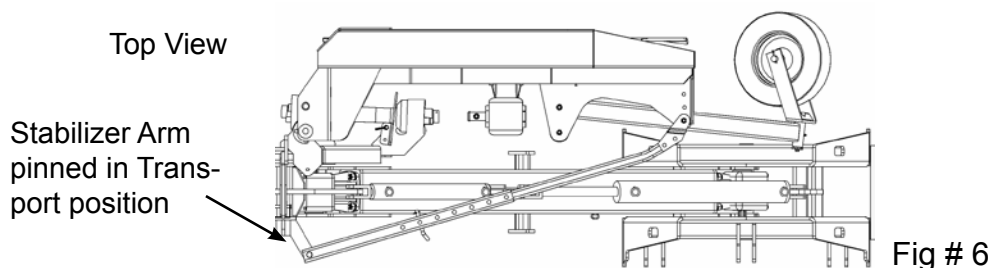
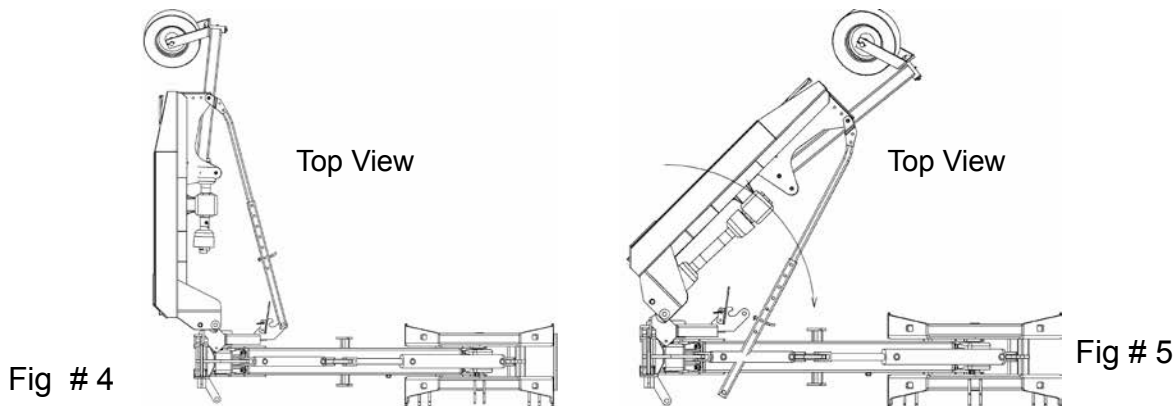
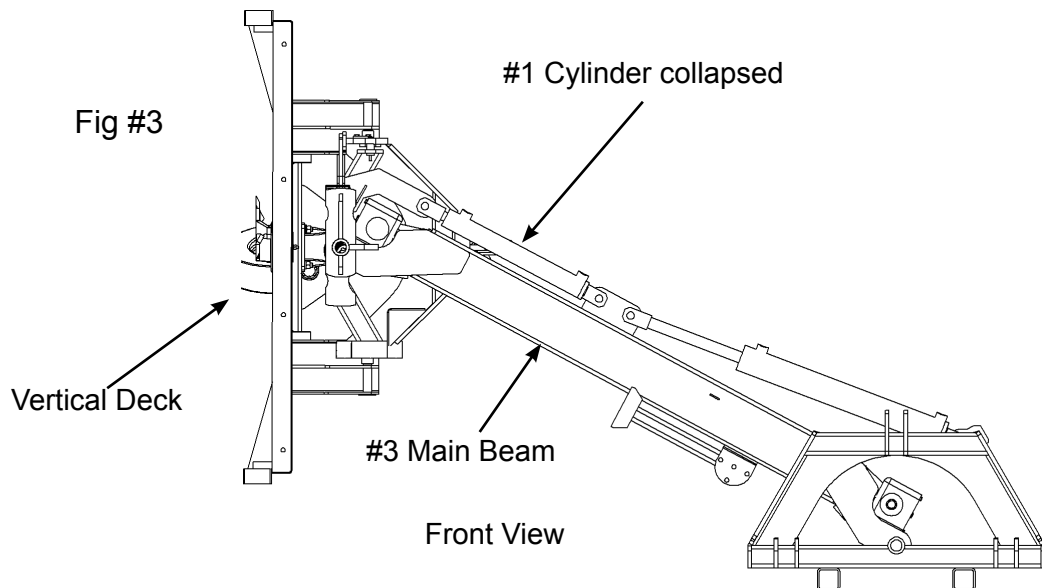


Fig #2

## Operation Transport

1. Rotate the Axis Too Arm "A" Frame Cylinder to the collapsed position. [Fig #3]
2. Install Breakaway Lock pin to secure the deck in transport. [Fig # 1]
3. Raise Main Arm until Deck is in a vertical position. [Fig # 3]
4. Detach Cutter PTO Drive from Axis Tool Arm Gearbox
5. Remove top link pin from Stabilizer Bar and **carefully** swing the cutter toward the tractor [Fig 4,5,6]
6. Attach the Stabilizer Bar to opposite side of "A" Frame hitch [Fig # 6]
7. Insert PTO into Cradle Bracket [Fig #7]
8. Raise the Main Arm until cutter is positioned at rear of tractor. [Fig #8]



## PTO Storage for Transport

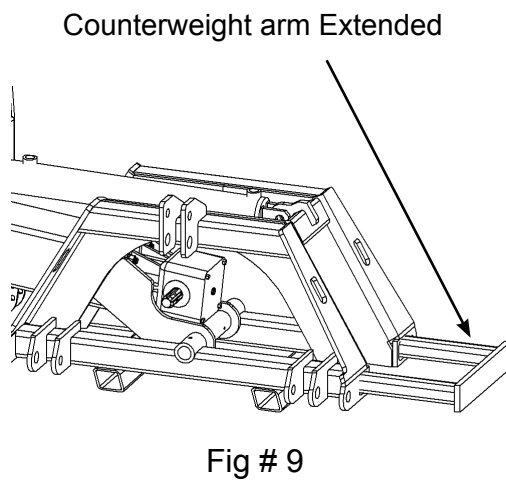
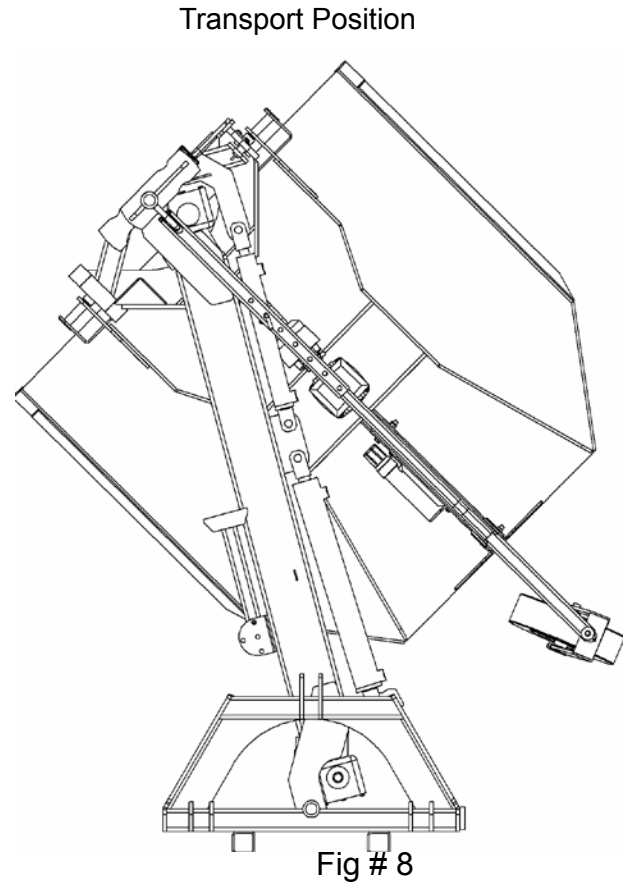
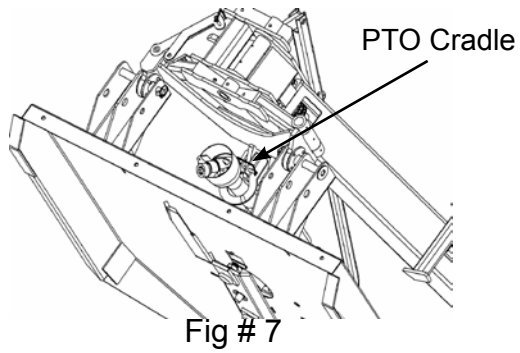
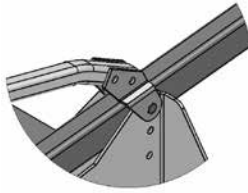


Fig # 9  
If counterweight needs to be added for extra stability, the arm can be extended and tractor weights can be added.

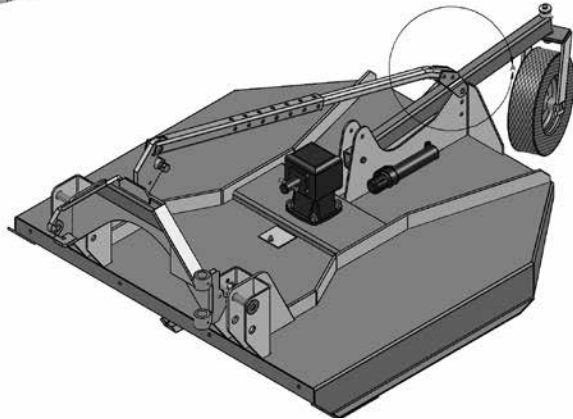
## Attaching Stabilizer Arm to Cutter

Various attachment brackets are supplied with the Axis Tool bar to attach the Stabilizer Bar to the cutter.

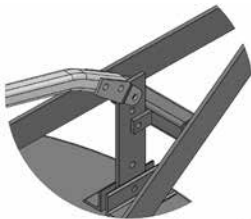
### Cutter with a single Wheel Beam



Shown with Wheel Beam adjustment bolt sharing stabilizer-bar bracket

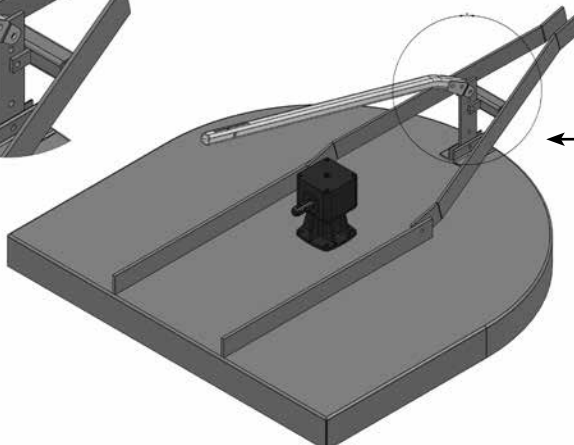


### Cutter with "A" Frame Wheel Bracket



#### Cutter with 90° Adjuster Plate

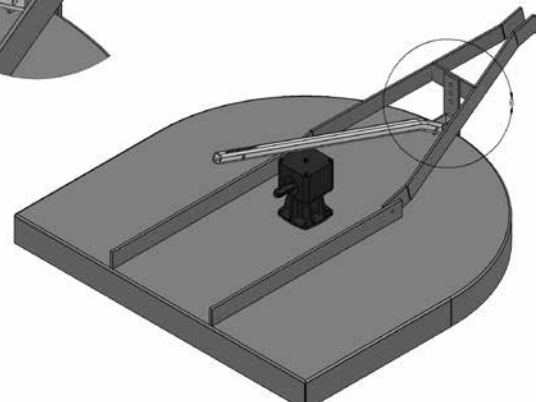
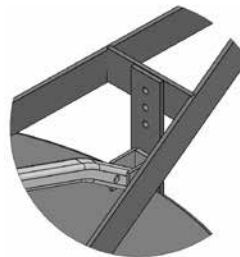
Customer may need to drill bolt hole to attach stabilizer bar.  
As required.



#### Cutter with flat 0° Adjuster Plate

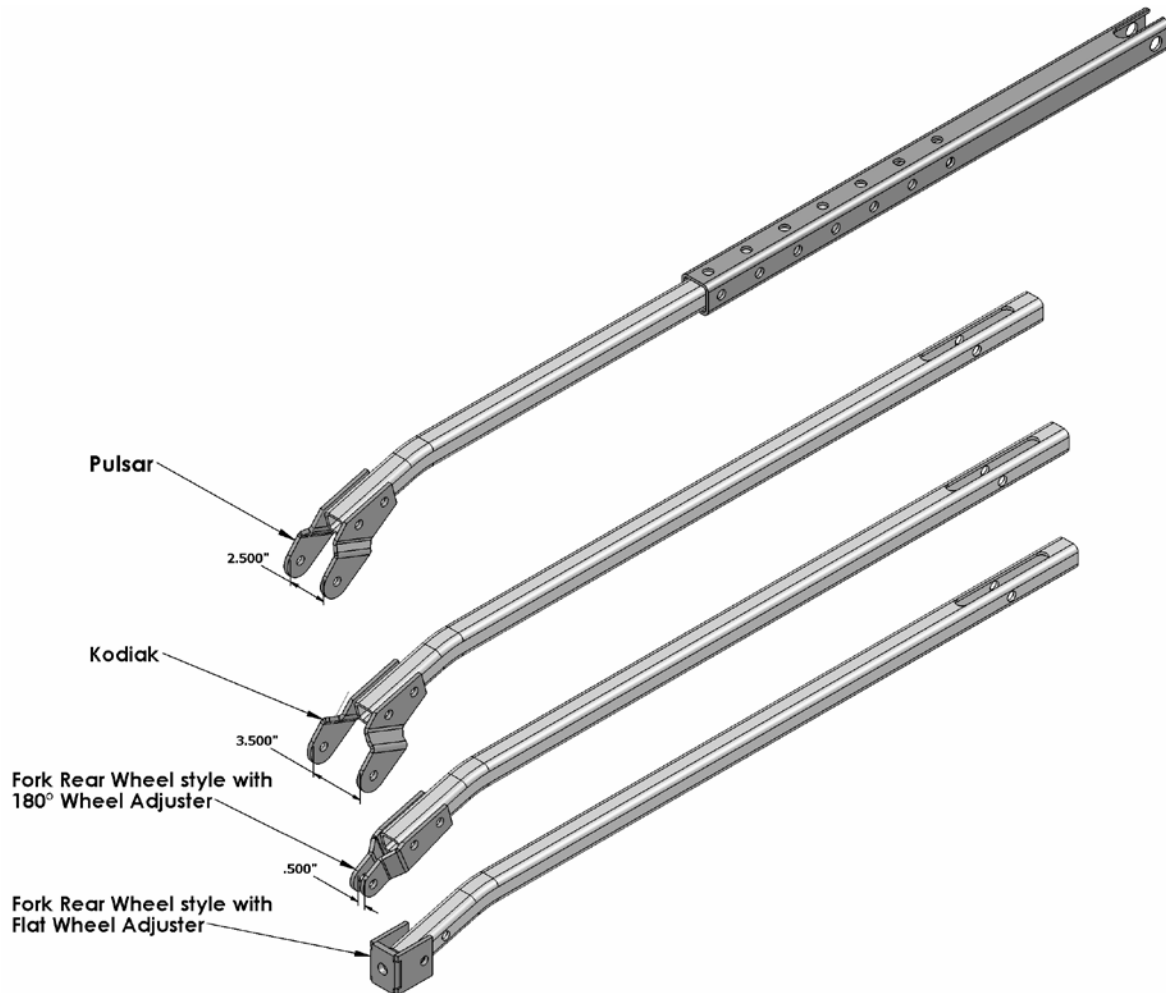
Customer may need to drill hole to attach stabilizer bar.

When attaching at bottom of plate as shown, check to ensure that the gearbox has clearance.



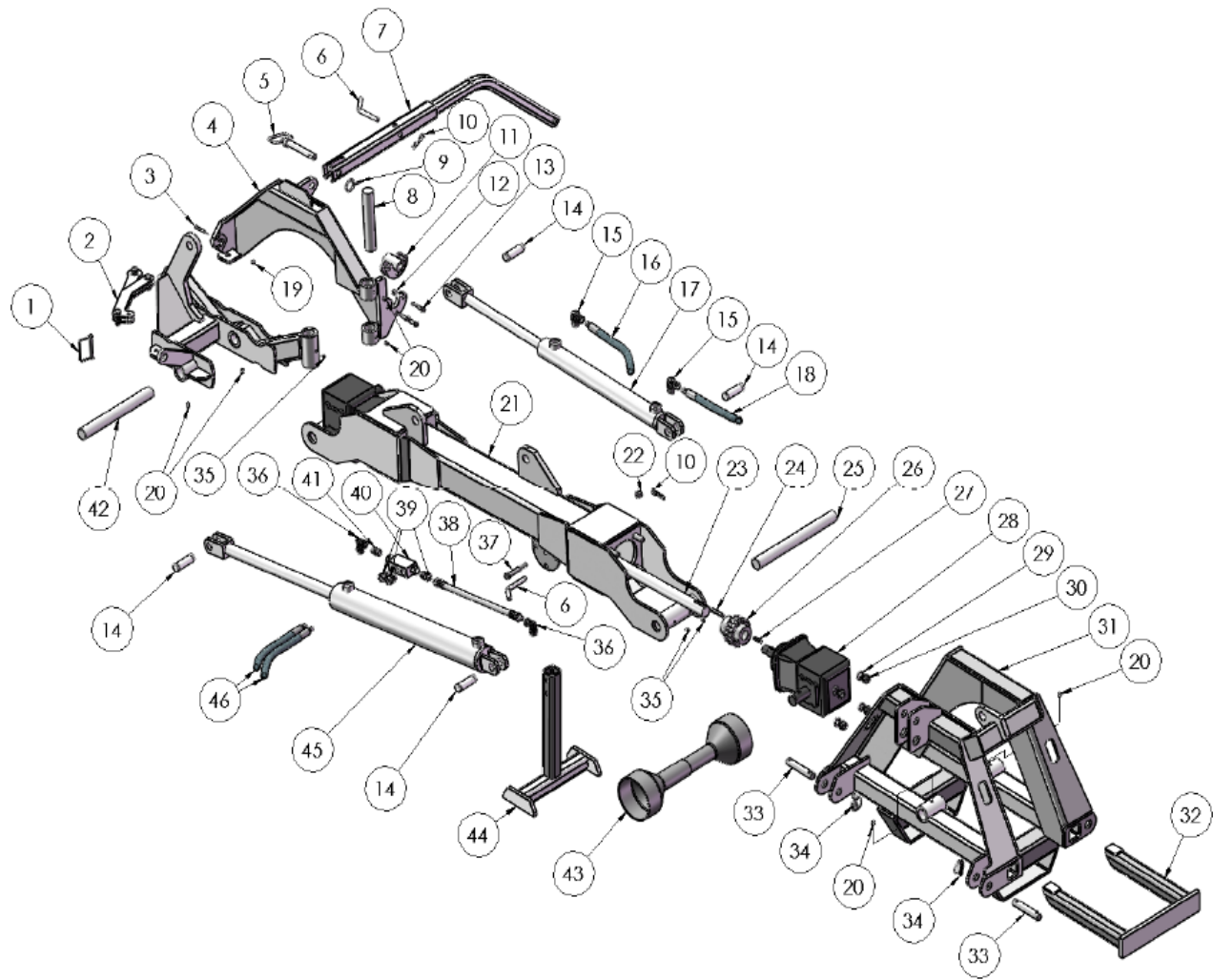
## Stabilizer Arms for Cutters

**Stabilizer Arm Brackets supplied with Tool bar**  
Stabilizer Bar as shown for illustration only



Customer may need to modify or adapt bracket to fit

## Axis 4 Tool Arm Parts



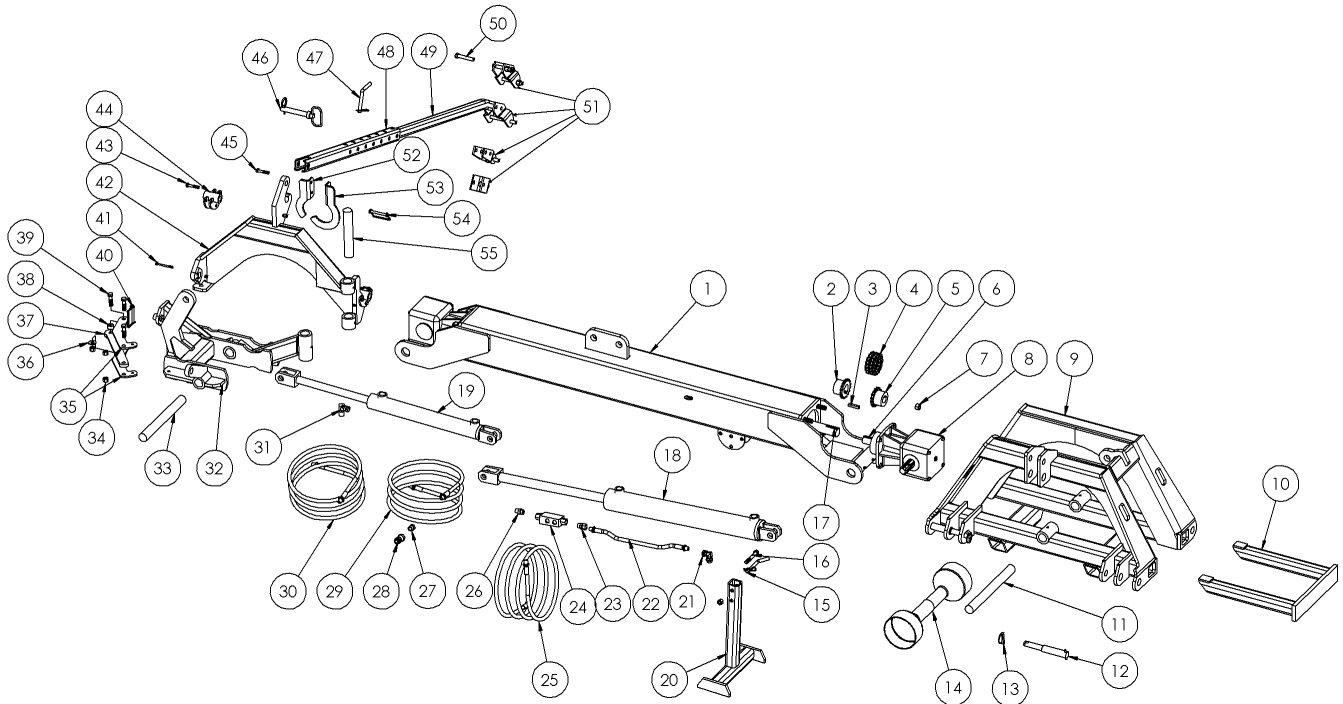
Item #	Part #	Description	Qty
1	795-560240	3/8 PTO Pin	1
2	795-400250	Breakaway Assembly	1
3	OL	Bolt 1/4-20 x 2 1/2 Gr#2	1
4	795-400260	Attachment "A" Frame	1
5	795-560310	Upper Hitch Pin	1
6	795-560130	1/2" Bent Pin	2
7	795-400280	Stabilizer Bar Assembly	1
8	795-560270	"A" Frame Pivot	1
9	OL	3/16 Lynch Pin	1
10	OL	1/8" Hairpin	2
11	795-400300	Hitch Pin Clevis	2
12	OL	Nylon Locknut 3/8-16	6
13	OL	Bolt 3/8-16 x 2	6
14	OL	Cylinder Pin	4
15	690-0606	90° M-ORB9/16-18/F-NPSM3/8-18	2
16	795-560212	1/4" Hydraulic Hose x 84//M-NPT3/8 ea end	1



### Axis 4 Tool Arm Parts

Item #	Part #	Description	Qty
17	795-560220	2 x 16 Welded Cylinder	1
18	795-560211	1/4" Hydraulic Hose x 84 // M-NPT3/8-18 ea end	1
19	OL	Nylon Locknut 1/4"	1
20	OL	Setscrew 3/8-16 x 1/2	6
21	30885	Main Beam	1
22	OL	Nylon Locknut 1/2"	1
23	795-400190	Drive Shaft	1
24	OL	3/8 Key-stock	2
25	795-560160	Main Pivot Shaft	1
26	795-560180	Chain Coupler	2
27	OL	1/4" Key-stock	2
28	795-560170	Gearbox	2
29	OL	Lockwasher 5/8"	8
30	OL	Nut 5/8-11	8
31	795-400100	Main Frame	1
32	795-400110	Weight Bar	1
33	795-400140	Hitch Lift Pin	2
34	OL	7/16 Lynch Pin	2
35	OL	1/4-28 Grease Fitting	5
36	6901-0806	90°M-ORB3/4/F-NPSM3/8-18	2
37	OL	Bolt 1/2-13x3 1/2	1
38	795-560213	1/4" Hydraulic Hose x 16 1/2 //M - NPT3/8-18 ea end	1
39	6900-0806	M-ORB3/4-16/F - MPSM3/8	3
40	795-560200	PO Check	1
41	6401-0806	M-ORB3/4-16/M-NPT3/8-18	1
42	795-400230	Pivot Shaft	1
43	795-560150	Input PTO	1
44	795-560120	Jack Stand	1
45	795-560195	3 x 24 Welded Cylinder	1
46	795-560210	1/4" Hydraulic Hose x 48" // M-NPT3/8-18 ea end	2

## Axis 5-6 Tool Arm Parts

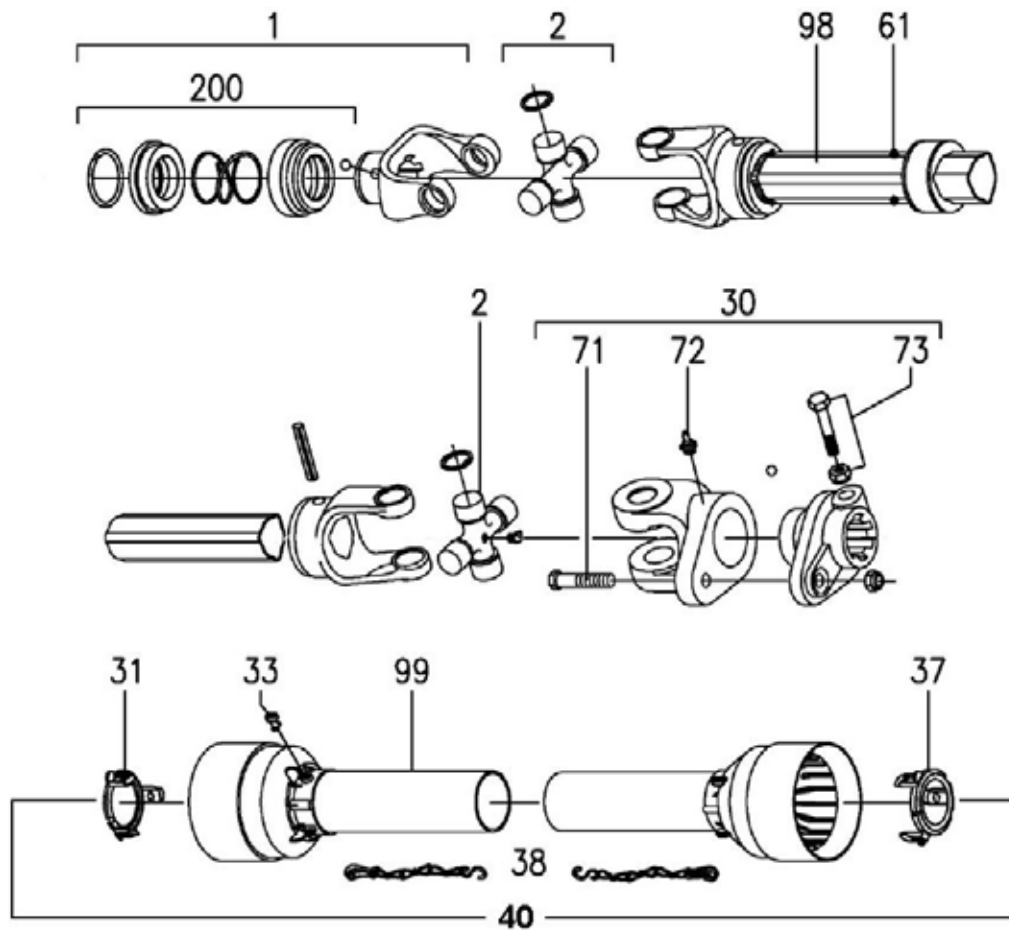


Item #	Part #	Description	Qty
1	32711	Main Arm	1
2	24067	Chain Coupler Sprocket 1 1/2 Shaft	2
3	30889	3/8 Shaft Key	2
4	519-68211528	Coupling Chain	2
5	24068	Chain Coupler Sprocket 1 1/4 Shaft	2
6	30890	1/2 Shaft Key	2
7	OL	5/8 Nut, Lockwasher	8
8	795-560170	Gearbox	2
9	795-560100	Main Frame	1
10	795-560110	Weight Bar	1
11	795-560160	Main Pivot Shaft	1
12	795-560140	Hitch Pin	2
13	OL	Lynch Pin	2
14	795-560150	Input PTO	1
15	OL	1/2" Bent Pin	1
16	OL	Bolt 1/2x3 1/2 c/w In	1
17	795-560190	Main Drive Shaft	1
18	795-560195	3x24 Hydraulic Cylinder	1
19	795-560220	2x16 Hydraulic Cylinder	1
20	795-560120	Jack Stand	1
21	TLM576	90° Elbow	2
22	795-560213	16 1/2" Hydraulic Hose	1

### Axis 5-6 Tool Arm Parts

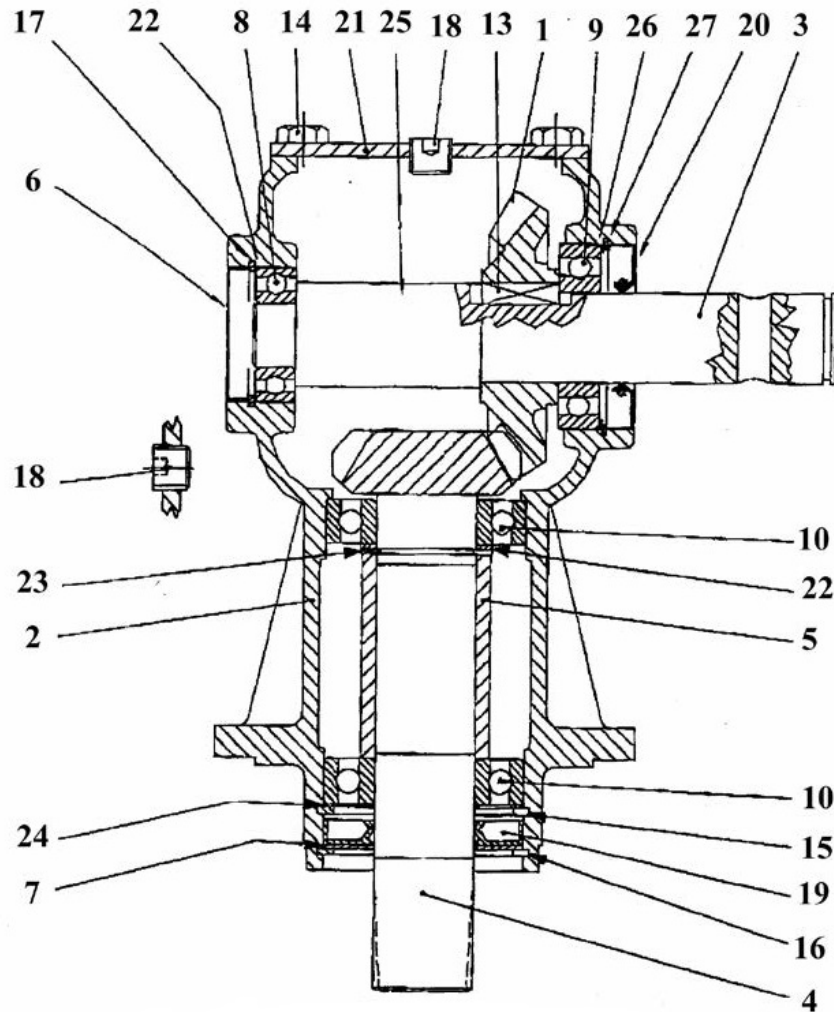
Item #	Part #	Description	Qty
23	HF0611-06-06	Straight Swivel	3
24	795-560200	PO Check Valve	1
25	795-560210	48" Hydraulic Hose	2
26	X2-1116-06-06	Straight Adapter	1
27	5406-0806	Reducer Bushing	4
28	S71-4	Pioneer M Coupler	4
29	795-560211	84" Hydraulic Hose	1
30	795-560212	103" Hydraulic Hose	1
31	HF0691-06-06	90° Swivel Adapter	2
32	32730 *	Cutter Hitch Base	1
33	795-560230	Pivot Shaft	1
34	OL	1/2 Locknut	3
35	30869	Breakaway Link	2
36	OL	1/2" Flatwasher	1
37	32745	Breakaway Link Bar	1
38	30879	Spacer	1
39	OL	Bolt 1/2x2	3
40	OL	3/8x2 1/2 PTO Pin	1
41	OL	1/4x3 c/w In	1
42	32740 *	Cutter Hitch	1
43	OL	Bolts 3/8x2 c/w In	6
44	795-560300	Hitch Pin Clevis	2
45	OL	Bolt 3/8x2 c/w In	1
46	795-560310	Upper Hitch Pin	1
47	OL	1/2" Bent Pin	1
48	23570	Stabilizer Strut Extension	1
49	23572	Lower Stabilizer Bar	1
50	OL	Bolt 1/2x3 c/w In	2
51	23575	Cutter Adapter	1 set
52	32738	PTO Cradle 1	1
53	32737	PTO Cradle 2	1
54	OL	PTO Pin 3/8x2 1/2	1
55	795-560270	A Frame Pivot Shaft	1
<b>Note</b>	<b>Part with *</b>	<b>Sold a Assembly</b>	

## Axis Tool Arm PTO Parts



T50 PTO			
Item #	Description	Part #	Qty.
1	Complete Collar Yoke	141.025.363.1	1
2	Cross Journal Assy	180.015.130	2
30	Complete Shear Yoke	143.250.016.1	1
31	Guard Retaining Collar for Outer Tube	8180.015.288	1
33	Special Plastic Bolt	8180.014.240	6
37	Guard Retaining Collar of Inner Tube	8180.015.289	11
38	Safety Chain	180.016.025	2
40	Complete Guard with Instruction Manual	142.250.372.7521	1
61	Special Grease Nipple	8180.012.418	3
71	Bolt & Nut M10x55 cl. 8.8	165.000.511	1
72	Grease Fitting	190.000.020	1
73	Bolt & Nut M12x1.25x70 cl. 8.8	165.000.525	2
200	Collar Kit for 1 3/8" Yoke	165.000.628	1
	Danger Label for Outer Tube	190.000.216	1
	Danger Label for Outer Guard Tube	190.000.215	1
	PTO Instruction Manual	190.000.371	1

## AXIS Gearbox



Item #	Part #	Description	Qty
1	0.131.5000.00	Crown Gear	1
2	0.205.0300.00	Casting	1
3	0.135.2004.00	Input Shaft	1
4	0.135.6201.00	Pinion	1
5	0.135.71.5.00	Spacer	1
6	8.7.0.00693	Oil Cap	1
7	1.135.7100.00	Protective Washer	1
8	8.0.1.00034	Bearing 6205	1
9	8.0.1.00870	Bearing 6207	1
10	8.0.1.00871	Bearing 6208	2
13	8.4.1.00993	Key	1
14	8.1.1.00054	Bolt M10x20	4
15	8.5.2.00030	Snap Ring	1
16	8.5.2.00955	Snap Ring	1

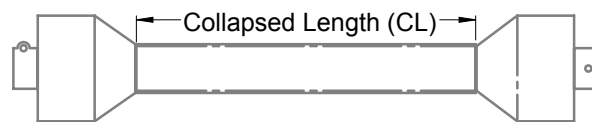
Item #	Part #	Description	Qty
17	8.5.2.01358	Snap Ring	1
18	8.6.6.00201	3/8 Plug	2
19	8.7.1.00748	Dust Lip	1
20	8.7.3.00055	Oil Seal	1
21	0.205.1300.00	Cover	1
22	0.244.7500.00	Shim Kit	2
23	8.5.1.00680	Snap Ring	1
24	0.287.7500.00	Shim Kit	1
25	0.124.7135.00	Name Plate	1
26	0.248.7500.00	Shim Kit	1
27	8.5.2.00131	Snap Ring	1

## PTO Drive-line Dimension

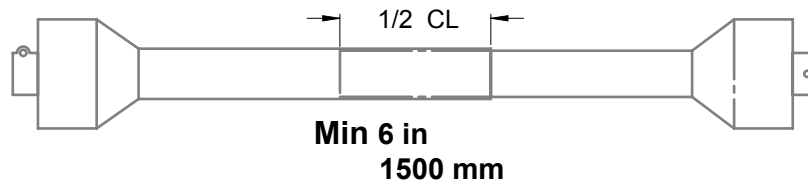
**The PTO Drive-line as supplied with the machine will need to be checked for the proper length before being put into service.**

To accommodate the various hitch and tractor configurations the supplied shaft may be too long, or in some cases too short. To determine shaft length, find the collapsed length, raise or lower the equipment until the PTO out of the tractor is horizontal with the input shaft on the machine. Measure lock-pin groove to lock-pin groove or bolt hole on the equipment. If this is on trailed equipment then turn tractor as sharp as possible.

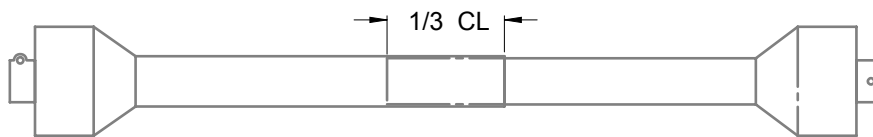
Measure collapsed PTO shaft from lock-pin to lock-pin or bolt hole and compare it with the measurement on the tractor. The difference of these measurements needs to be cut from Both Halves of the PTO shaft plus 1/2".



**Working Length overlap is 1/2 of above collapsed length**



**Minimum Overlap in Transport Position 1/3 of collapsed length**



**Following these guidelines will reduce the chances of damage to the equipment.**

- Use a sharp hacksaw to cut the PTO tube
- Use a fine file to remove any sharp edges and burrs from sawing
- Clean off all dirt and filings from tube , carefully test for smooth fit.
- Apply a light coat of grease to the outside of the small tube
- Reinstall the shields
- Install on equipment and recheck

**These procedures need to be done before first putting into operation and when attaching to a different tractor**

## Maintenance

Ensure all shields are in place

Support equipment with timber blocks or stands, before doing any maintenance on deck of cutter or any other part of machine

Check Gearbox oil level every 50 hrs

1 US quart (.85 liter) SAE 85W90 Gear oil

## Service Intervals

The period recommended is based on normal operating condition.

Severe or unusual conditions may require more frequent lubrication or oil change.

### 8 Hours or Daily

Lubricate PTO Drive Line (4 Locations)

Lubricate all pivot bushings on Axis Tool Arm

### 18-20 Hours

Lubricate PTO Drive Line (3 Locations)

40 Hours or Weekly

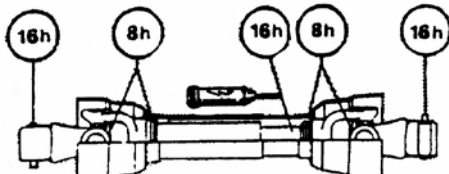
Check Gearbox oil level. Add as required

### Annually

Wash machine

### Storage

Store in a dry place on sturdy blocks or on dry concrete



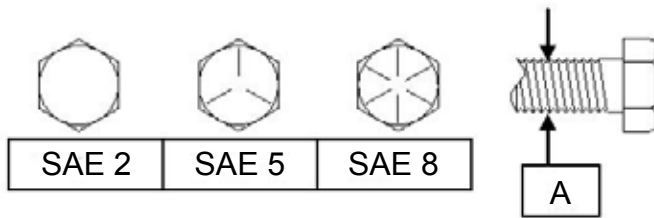
## Bolt Torque

As used on this machine

- Bolt torque table shown below gives torque values for various bolts used.
- This chart is for non-lubricated threads.
- Replace with same strength bolt.

Torque Specifications. Torque values are identified by their head markings.

Diameter	SAE 2		SAE 5		SAE 8	
"A"	<i>ft-lb</i>	<i>N.m</i>	<i>ft-lb</i>	<i>N.m</i>	<i>ft-lb</i>	<i>N.m</i>
1/4	6	(8)	8	(11)	12	(16)
5/16	11	(15)	17	(24)	25	(33)
3/8	20	(27)	31	(42)	44	(59)
7/16	32	(43)	49	(67)	70	(95)
1/2	49	(66)	76	(105)	105	(145)
5/8	97	(130)	150	(205)	210	(285)
3/4	144	(195)	265	(360)	375	(510)
7/8	165	(225)	430	(585)	605	(820)
1	250	(340)	645	(875)	910	(1230)
1 1/8	355	(480)	795	(1080)	1290	(1750)
1 1/4	500	(680)	1120	(1520)	1820	(2460)
1 1/2	870	(1180)	1950	(2640)	3160	(4290)



Allen head cap screw are similar to SAE 8 quality

These torques are for reference only. Not all these sizes and grades are necessarily used in this machine. Bolts that are used as a pivot or hinge have to be used with a locknut, therefore only tighten enough to secure the bolt and still allowing the part to rotate freely.



**Notes:**

[illegible]







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