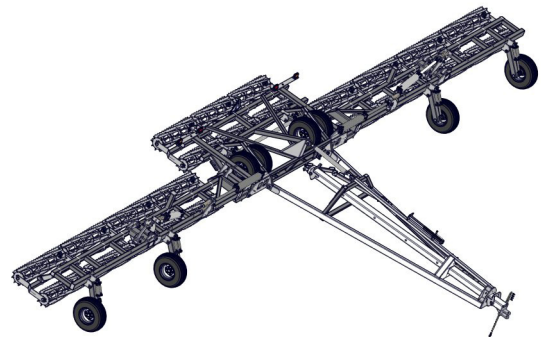


# OPERATORS MANUAL



TF5S

SOIL CONDITIONER



Rev. 1.6.2015

J. & M. Mfg. Co., Inc.  
284 Railroad Street - P.O. Box 547  
Fort Recovery, OH 45846  
Ph: (419) 375-2376 Fax: (419) 375-2708  
[www.jm-inc.com](http://www.jm-inc.com)

## Table Of Contents

3	Introduction
4	To The Dealer
5	Safety Rules
6	Safety Signs
7	Bolt Torque Chart
8	Specifications
9	Initial Set-Up
10	Release Cylinder Set-Up
11	Operations
12	Transporting, Un-Hitching, Field Adjustments
13	Storage, Service, Troubleshooting
14	Torsion Arm
15	Rolling Basket
16	Outside Wing
17	Inside Wing
18	Base
19	Telescoping Tongue
20	A-Frame
21	Wheel & Tire
22-23	Hydraulic Hoses & Fittings
24	Coil Tine Pipe Bar & Round Bar Bracket
25	Light Harness


## Introduction


### TO THE OWNER:


The purpose of this manual is to assist you in operating and maintaining your soil conditioner in a safe manner. Read it carefully. It furnishes information and instructions that will help you achieve years of dependable performance and help maintain safe operating conditions. If this machine is used by an employee or is loaned or rented, make certain that the operator(s), prior to operating:


1. Is instructed in safe and proper use.
2. Reviews and understands the manual(s) pertaining to this machine.

Throughout this manual, the term **IMPORTANT** is used to indicate that failure to observe can cause damage to equipment. The terms **CAUTION**, **WARNING** and **DANGER** are used in conjunction with the Safety-Alert Symbol (a triangle with an exclamation mark) to indicate the degree of hazard for items of personal safety. When you see this symbol, carefully read the message that follows and be alert to the possibility of personal injury or death.

 This Safety-Alert symbol indicates a hazard and means **ATTENTION!**  
**BECOME ALERT! YOUR SAFETY IS INVOLVED!**

 **DANGER** Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

 **WARNING** Indicates a potentially hazardous situation that, if not avoided, will result in death or serious injury, and includes hazards that are exposed when guards are removed.

 **CAUTION** Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.

**IMPORTANT** Indicates that failure to observe can cause damage to equipment.

**NOTE** Indicates helpful information.

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### IMPORTANT

The contents of this manual are based off of the information available at the time it was written. Due to advancements in agriculture and continuing improvements of the design of J&M Manufacturing products any information contained herein is subject to change without notice.

The terms "Right Hand" (RH) and "Left Hand" (LH) will be used to determine the side of the machine from standing behind the machine, facing the direction of travel.

## To The Dealer

Read manual instructions and safety rules. Make sure all items on the Dealer's Pre-Delivery and Delivery Check Lists are completed before releasing equipment to the owner.

The dealer must complete the Warranty Registration found on the Dealer Portal website located at [dealer.jm-inc.com](http://dealer.jm-inc.com). and return it to J. & M. Mfg. Co., Inc. at the address indicated on the form. Warranty claims will be denied if the Warranty Registration has not been submitted.

### EXPRESS WARRANTY:

J. & M. Mfg. Co. Inc. warrants against defects in construction or materials for a period of ONE year. We reserve the right to inspect and decide whether material or construction was faulty or whether abuse or accident voids our guarantee.

Warranty service must be performed by a dealer or service center authorized by J. & M. Mfg. Co., Inc. to sell and/or service the type of product involved, which will use only new or remanufactured parts or components furnished by J. & M. Mfg. Co., Inc. Warranty service will be performed without charge to the purchaser for parts or labor based on the Warranty Labor Times schedule. Under no circumstance will allowable labor times extend beyond the maximum hours indicated in the Warranty Labor Times schedule for each warranty procedure. The purchaser will be responsible, however, for any service call and/or transportation of the product to and from the dealer or service center's place of business, for any premium charged for overtime labor requested by the purchaser, and for any service and/or maintenance not directly related to any defect covered under the warranty. Costs associated with equipment rental, product down time, or product disposal are not warrantable and will not be accepted under any circumstance.

Each warranty term begins on the date of product delivery to the purchaser. Under no circumstance will warranty be approved unless (i) the product warranty registration card (attached to the inside of the Operator's Manual) has been properly completed and submitted to the equipment manufacturer, and (ii) a warranty authorization number has been issued by the equipment manufacturer. This Warranty is effective only if the warranty registration card is returned within 30 days of purchase.

This warranty does not cover a component which fails, malfunctions or is damaged as a result of (i) improper modification or repair, (ii) accident, abuse or improper use, (iii) improper or insufficient maintenance, or (iv) normal wear or tear. This warranty does not cover products that are previously owned and extends solely to the original purchaser of the product. Should the original purchaser sell or otherwise transfer this product to a third party, this implied, with respect to tires or other parts or accessories not manufactured by J. & M. Mfg. Co., Inc. Warranties for these items, if any, are provided separately by their respective manufacturers.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS, IMPLIED OR STATUTORY, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.

In no event shall J. & M. Mfg. Co., Inc. be liable for special, direct, incidental or consequential damages of any kind. The exclusive remedy under this Warranty shall be repair or replacement of the defective component at J. & M. Mfg. Co., Inc.'s option. This is the entire agreement between J. & M. Mfg. Co., Inc. and the Owner about warranty and no J. & M. Mfg. Co., Inc. employee or dealer is authorized to make any additional warranty on behalf of J. & M. Mfg. Co., Inc.

The manufacturer reserves the right to make product design and material changes at any time without notice. They shall not incur any obligation or liability to incorporate such changes and improvements in products previously sold to any customer, nor shall they be obligated or liable for the replacement of previously sold products with products or parts incorporating such changes.

### SERVICE:

The equipment you have purchased has been carefully manufactured to provide dependable and satisfactory use. Like all mechanical products, it will require cleaning and maintenance. Lubricate the unit as specified. Observe all safety information in this manual and safety signs on the equipment.

For service, your authorized J. & M. dealer has trained mechanics, genuine J. & M. service parts, and the necessary tools and equipment to handle all your needs.

Use only genuine J. & M. service parts. Substitute parts may void warranty and may not meet standards required for safety and satisfactory operation. Record the model number and serial number of your equipment in the spaces provided:

**Model No:** \_\_\_\_\_ **Serial No:** \_\_\_\_\_ **Date of Purchase:** \_\_\_\_\_

**Purchased From:** \_\_\_\_\_

Provide this information to your dealer to obtain correct repair parts.

## Safety

### **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!**

Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be erased by an operator's single careless act. In addition, hazard control and accident prevention are dependent upon the awareness, concern, judgment, and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.

Make certain that the operator(s), prior to operating is instructed in safe and proper use and reviews and understands the manual(s) pertaining to this machine. Also make certain that the operator(s) reviews and understands the operator's manual of the tractor prior to hooking up or operating the grain cart.

Read this manual before you operate this machine. If you do not understand any part of this manual, or need more information, contact the manufacturer or your authorized dealer.

### **SAFETY**

Understand that your safety and the safety of other persons is measured by how you service and operate this machine. Know the positions and functions of all controls before you try to operate them. Make sure to check all controls in a safe area before starting your work.

The safety information given in this manual does not replace safety codes, federal, state or local laws. Make certain your machine has the proper equipment as designated by local laws and regulations.

A frequent cause of personal injury or death is from persons falling off equipment and being run over. Do not permit persons to ride on this machine.

Travel speeds should be such that complete control and machine stability is maintained at all times. Where possible, avoid operating near ditches, embankments and holes. Reduce speed when turning, crossing slopes and rough, slick or muddy surfaces.

Collision of high speed road traffic and slow moving machines can cause personal injury or death. On roads, use flasher lights according to local laws. Keep slow-moving-vehicle emblem visible. Pull over to let faster traffic pass.

Hydraulic oil leaking under pressure can penetrate skin and cause infection or other injury. To prevent personal injury,

- Relieve all pressure, before disconnecting fluid lines,
- Before applying pressure, make sure all connections are tight and components are in good condition,
- Never use your hand to check for suspected leaks under pressure. Use a piece of cardboard or wood for this purpose.
- If injured by leaking fluid, see your doctor immediately.

Use care when moving or operating the soil conditioner near electric lines as serious injury or death can result from contact.

Never adjust, service, clean, or lubricate the soil conditioner until all power is shut off. Keep all safety shields in place. Keep hands, feet, hair and clothing away from moving parts while the soil conditioner is in operation.

Make sure that everyone is clear of equipment before applying power or moving the machine.

Do NOT exceed speeds in excess of 20 MPH. Also be sure slow moving vehicle emblem is attached to rear of transport

Before unhooking the implement from the towing unit, be sure to properly block the wheels to prevent the implement from moving. Be sure the jack assembly is positioned in the park position and the weight has been transferred to the jack assembly before unhooking the implement.

Make sure that the implement is fastened securely to the tractor by using the proper hitch pin, clip and safety chains.

Do not stand between towing vehicle and implement during hitching.

## Safety Signs

**⚠ WARNING**



**SERIOUS INJURY or DEATH** can result from **CONTACT** with **FOLDING** or **UNFOLDING** wing. **NEVER** stand near wings when they are being folded or unfolded.

Hydraulic or Mechanical **FAILURE** can cause wings to **FALL RAPIDLY**.

**JM0010165**

**⚠ WARNING**



**SERIOUS INJURY OR DEATH CAN RESULT FROM CONTACT WITH ELECTRIC LINES.**

Use care when moving or operating this machine near electric lines to avoid contact.

**JM0010182**

**⚠ WARNING**



Tongue may **RAISE** or **DROP** rapidly.

To avoid **BODILY INJURY**, use the jack to support the implement **BEFORE** removing the hitch pin.

**JM0010181**

**⚠ WARNING**



**INSTALL TRANSPORT LOCKS** before servicing or transporting machine to avoid injury or death.

Hydraulic failure will cause machine to fall rapidly.

**JM0010167**

**⚠ WARNING**

**KEEP LUG NUTS TIGHTENED**

**JM0010150**



**⚠ WARNING**

**PINCH POINT**

**KEEP HANDS CLEAR**

**JM0014994**



**⚠ WARNING**

**MOVING PARTS CAN CRUSH AND CUT**

**KEEP AWAY FROM MOVING PARTS**

**KEEP ALL GUARDS IN PLACE**

**JM0014993**

**⚠ WARNING**




**HIGH-PRESSURE FLUID HAZARD**

To prevent serious injury or death:

- Relieve pressure on system before repairing or adjusting or disconnecting.
- Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
- Keep all components in good repair.

**JM0010163**

**JM0009946**

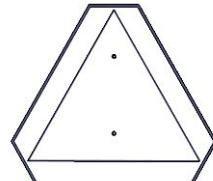
**Amber**

**JM0009945**

**Red**

**JM0009944**

**Fluorescent**



**JM0001616**

## Bolt Torque Chart

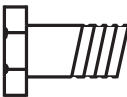
### BOLT TORQUE CHART

Always tighten hardware to these values unless a different torque or tightening procedure is listed for a specific application.


Fasteners must always be replaced with the same grade as specified in the manual parts list.

Always use the proper tool for tightening hardware. SAE for SAE hardware and Metric for metric hardware.

Make sure fastener threads are clean and you start the thread engagement properly. All torque values are given to specification used on hardware defined by SAE J1701 & J1701M (Jul 96).




**SAE SERIES  
TORQUE  
CHART**




SAE Grade 2  
(No Dashes)


SAE Bolt Head  
Identification

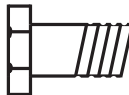


SAE Grade 5  
3 Radial Dashes



SAE Grade 8  
6 Radial Dashes

 Diameter (Inches)	Wrench Size	MARKING ON HEAD					
		SAE 2		SAE 5		SAE 8	
		LBS.-FT.	N-m	LBS.-FT.	N-m	LBS.-FT.	N-m
1/4	7/16"	6	8	10	13	14	18
5/16	1/2"	12	17	19	26	27	37
3/8	9/16"	23	31	35	47	49	67
7/16	5/8"	36	48	55	75	78	106
1/2	3/4"	55	75	85	115	120	163
9/16	13/16"	78	106	121	164	171	232
5/8	15/16"	110	149	170	230	240	325
3/4	1-1/8"	192	261	297	403	420	569
7/8	1-5/16"	306	416	474	642	669	907
1	1-1/2"	467	634	722	979	1020	1383



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METRIC SERIES

TORQUE

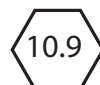
CHART



8.8

Metric Grade 8.8

Metric Bolt Head Identification



10.9

Metric Grade 10.9

Diameter & (Millimeters) Thread Pitch	Wrench Size	COARSE THREAD				FINE THREAD				Diameter & (Millimeters) Thread Pitch
		MARKING ON THREAD				MARKING ON THREAD				
		Metric 8.8		Metric 10.9		Metric 8.8		Metric 10.9		
6 x 1.0	10 mm	8	6	11	8	8	6	11	8	6 x 1.0
8 x 1.25	13 mm	20	15	27	20	21	16	29	22	8 x 1.0
10 x 1.5	16 mm	39	29	54	40	41	30	57	42	10 x 1.25
12.1.75	18 mm	68	50	94	70	75	55	103	76	12.1.25
14 x 2.0	21 mm	109	80	151	111	118	87	163	120	14 x 1.5
16 x 2.0	24 mm	169	125	234	173	181	133	250	184	16 x 1.5
18 x 2.5	27 mm	234	172	323	239	263	194	363	268	18 x 1.5
20 x 2.5	30 mm	330	244	457	337	367	270	507	374	20 x 1.5
22 x 2.5	34 mm	451	332	623	460	495	365	684	505	22 x 1.5
24 x 3.0	36 mm	571	421	790	583	623	459	861	635	24 x 2.0
30 x 3.0	46 mm	1175	867	1626	1199	1258	928	1740	1283	30 x 2.0

### TIGHTENING WHEEL NUTS

**Standard 1/2" wheel studs and nuts should be tightened at 80 ft.lbs. Always tighten in star pattern.**



## Specifications

	Working Width	Transport Height	Transport Width		Approx. Weight*	Outside Wing		Inside Wing		Basket Layout Base		Inside Wing		Outside Wing	
			13" Baskets	16" Baskets											
MODEL TF55	44'	12'	16'-3"	16'-6"	12,324 lbs.	3.5'	3.5'	3.5'	4'	5'	5'	5'	4'	3.5'	3.5'
	45'	12'	16'-3"	16'-6"	12,382 lbs.	3.5'	3.5'	4'	4'	5'	5'	5'	4'	4'	3.5'
	46'	12'	16'-3"	16'-6"	12,440 lbs.	3.5'	4'	4'	4'	5'	5'	5'	4'	4'	4'
	47'	12'	16'-3"	16'-6"	12,498 lbs.	4'	4'	4'	4'	5'	5'	5'	4'	4'	4'
	48'	14'	16'-3"	16'-6"	12,434 lbs.		6'	5.5'	5'	5'	5'	5'	5'	5.5'	6'
	49'	14'	16'-3"	16'-6"	12,760 lbs.	3.5'	3.5'	5'	5'	5'	5'	5'	5'	3.5'	3.5'
	50'	14'	16'-3"	16'-6"	12,818 lbs.	3.5'	4'	5'	5'	5'	5'	5'	5'	4'	3.5'
	51'	14'	16'-3"	16'-6"	12,876 lbs.	4'	4'	5'	5'	5'	5'	5'	5'	4'	4'
	52'	14'	16'-3"	16'-6"	13,084 lbs.	3.5'	5'	5'	5'	5'	5'	5'	5'	5'	3.5'
	53'	14'	16'-3"	16'-6"	13,142 lbs.	4'	5'	5'	5'	5'	5'	5'	5'	5'	4'
	54'	14'	16'-3"	16'-6"	13,202 lbs.	4'	5.5'	5'	5'	5'	5'	5'	5'	5.5'	4'
	55'	14'	16'-3"	16'-6"	13,256 lbs.	5'	5'	5'	5'	5'	5'	5'	5'	5'	5'
	56'	16'	16'-3"	16'-6"	13,434 lbs.	3.5'	5'	6'	6'	5'	5'	5'	6'	6'	5'
	57'	16'	16'-3"	16'-6"	13,492 lbs.	4'	5'	6'	6'	5'	5'	5'	6'	6'	5'
	58'	16'	16'-3"	16'-6"	13,552 lbs.	4'	5.5'	6'	6'	5'	5'	5'	6'	6'	5.5'
	59'	16'	16'-3"	16'-6"	13,606 lbs.	5'	5'	6'	6'	5'	5'	5'	6'	6'	5'
	60'	16'	16'-3"	16'-6"	13,818 lbs.	5'	5.5'	6'	6'	5'	5'	5'	6'	6'	5.5'
	61'	16'	16'-3"	16'-6"	13,858 lbs.	5'	6'	6'	6'	5'	5'	5'	6'	6'	6'
	62'	16'	16'-3"	16'-6"	13,918 lbs.	5.5'	6'	6'	6'	5'	5'	5'	6'	6'	5.5'
	63'	16'	16'-3"	16'-6"	13,958 lbs.	6'	6'	6'	6'	5'	5'	5'	6'	6'	6'

\*With 13" Baskets.

## Coil Tine Pipe Bar and Round Bar Bracket Layout

	Outside Wing		Inside Wing		Base		Inside Wing		Outside Wing	
MODEL TF55	44'	7'		7'	7'	7'	7'		7'	
	45'	7'		7'	7'	7'	7'		7'	
	46'	7'		7'	7'	7'	7'		7'	
	47'	7'		7'	7'	7'	7'		7'	
	48'	6'	5'	5'	7'	7'	5'	5'	6'	
	49'	7'	5'	5'	7'	7'	5'	5'	7'	
	50'	7'	5'	5'	7'	7'	5'	5'	7'	
	51'	7'	5'	5'	7'	7'	5'	5'	7'	
	52'	4'	5'	5'	7'	7'	5'	5'	5'	4'
	53'	4'	5'	5'	7'	7'	5'	5'	5'	4'
	54'	4'	5'	5'	7'	7'	5'	5'	5'	4'
	55'	4'	5'	5'	7'	7'	5'	5'	5'	4'
	56'	4'	5'	6'	6'	7'	6'	6'	5'	4'
	57'	4'	5'	6'	6'	7'	6'	6'	5'	4'
	58'	4'	5'	6'	6'	7'	6'	6'	5'	4'
	59'	4'	5'	6'	6'	7'	6'	6'	5'	4'
	60'	5'	6'	6'	6'	7'	6'	6'	6'	5'
	61'	5'	6'	6'	6'	7'	6'	6'	6'	5'
	62'	5'	6'	6'	6'	7'	6'	6'	6'	5'
	63'	5'	6'	6'	6'	7'	6'	6'	6'	5'



## Set-Up

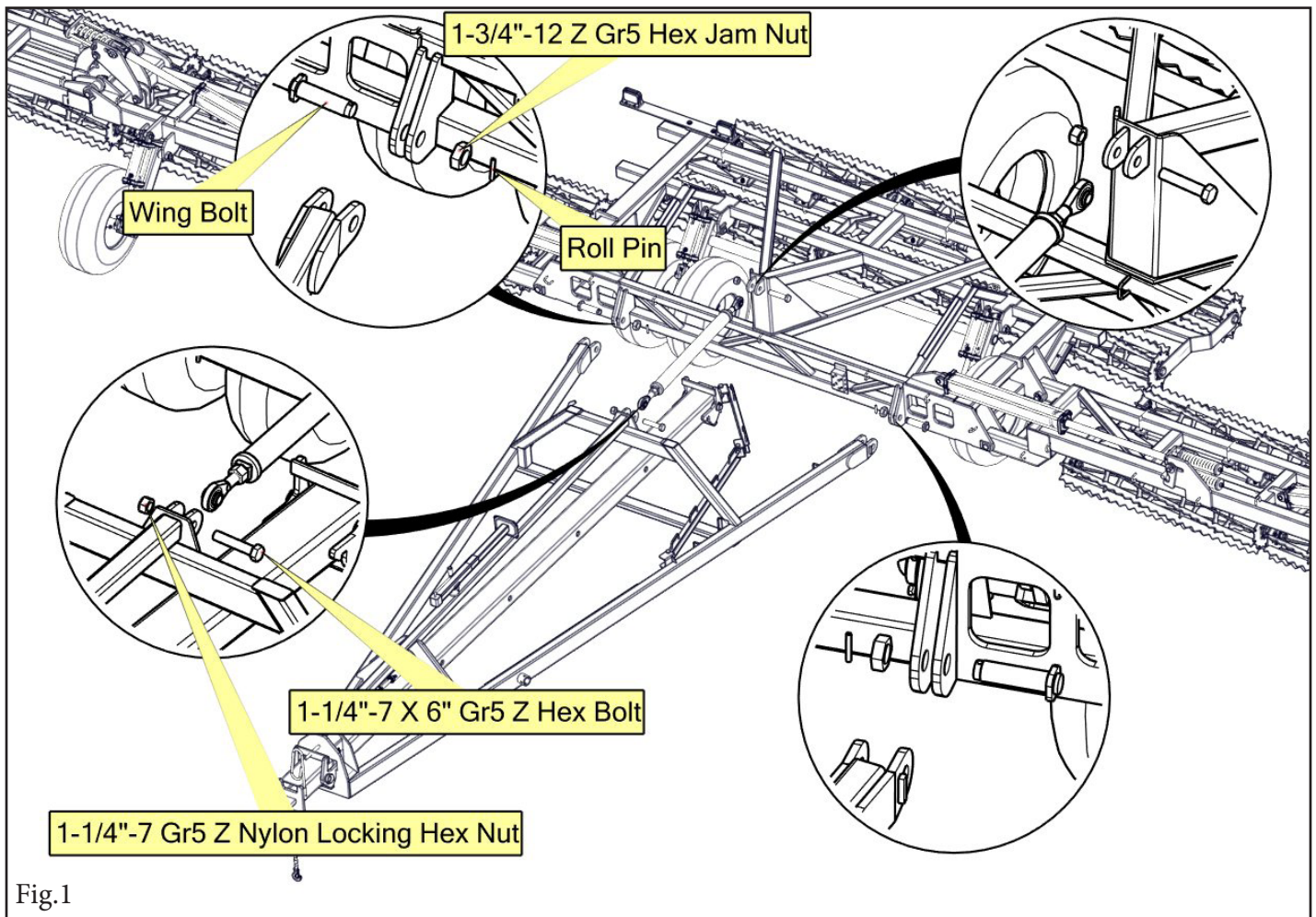


Fig.1

Attach the A-Frame weldment to the main frame. Use a long wing bolt weldment along with a 1-3/4" hex jam nut and a roll pin. Slide the bolt into place from the outside pointing in towards the middle of the a-frame. Tighten hardware once installed.

Install the turnbuckle using (2) 1-1/4" x 6" hex bolts and (2) 1-1/4" lock nuts. Tighten hardware once installed.

Attach the hydraulic hoses from the A-frame to the manifold block located on the main frame(Fig 2). Be sure the hoses which are marked yellow go to the top two ports on the manifold. The hoses marked in red go to the bottom two ports. (Hoses for the fold cylinder go to the bottom, hose for the lift cylinders go to the top.)

Connect the main frame harness to the a-frame harness. Secure the wire to the unit by using zip ties. Test all lights once installed.

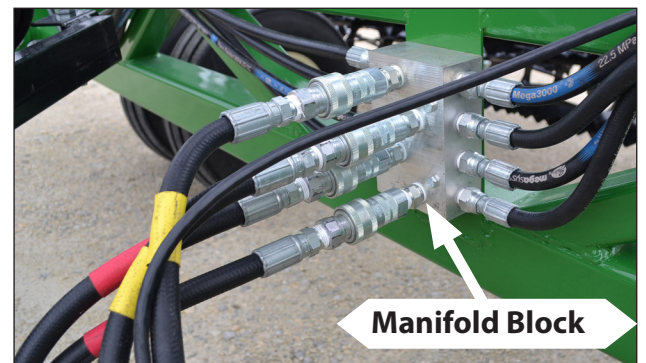
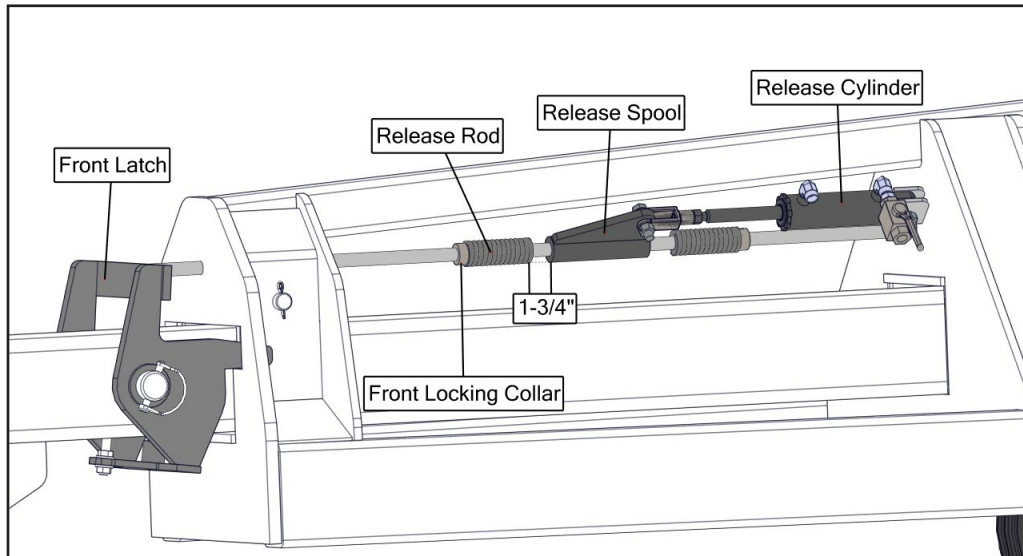


Fig.2

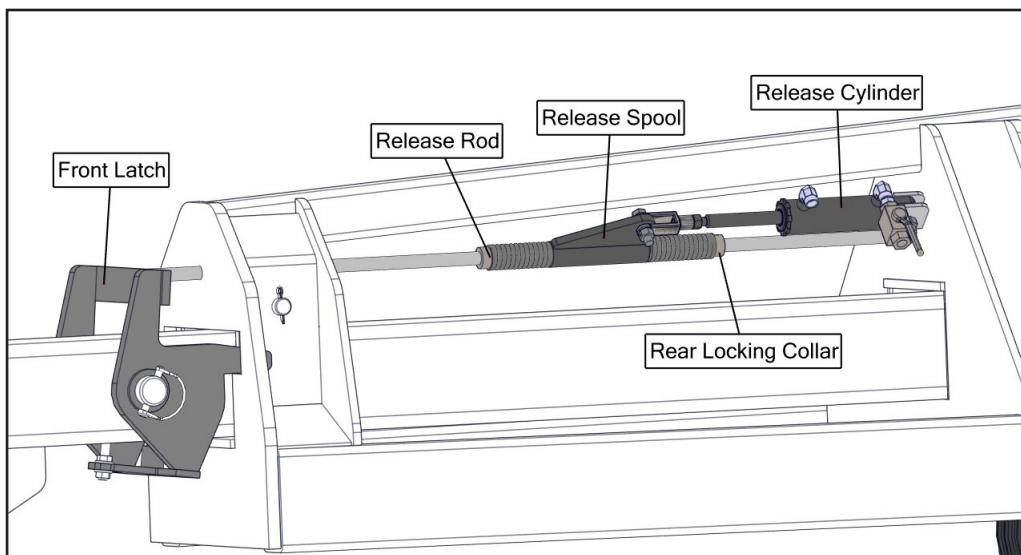
## Release Cylinder Set-Up

The purpose of the release cylinder is to allow the operator to change tongue lengths without leaving the tractor. Pull into the field then unfold the wings. This releases the transport (front) latch. Now pull ahead into field position. The field (rear) latch will engage. The tongue is now locked in place until the unit is folded up.

When leaving the field, fold the wings up, which releases the field (rear) latch. Back into transport position. This engages the transport (front) latch. A shorter tongue will make transportation much easier.



1. The tongue needs to be fully retracted.
2. Release cylinder needs to be retracted.
3. Slide release rod forward until it touches the front latch.
4. Set distance between front spring and release spool at 1-3/4".
5. Tighten front locking collar set screw.
6. Slide release rod back until the front spring touches the release spool.
7. Slide the rear spring and locking collar forward until the rear spring touches the release spool.
8. Tighten rear locking collar set screw.



### PREPARING THE TORSION-FLEX SOIL CONDITIONER

Before putting the soil conditioner into operation, check the machine for damaged or worn parts and replace as necessary.

#### Hardware

Make sure all hardware is properly fastened according to the Bolt Torque chart found in this manual. Recheck all hardware for tightness after the unit has been operated for several hours. Check that all pins and retaining rings are in good condition. Replace any pins or retaining rings that are worn, damaged or missing.

#### Hydraulic Hoses

Check all the hydraulic hoses to make sure they are not rubbing against sharp edges or are kinked / twisted. Hoses should be secured to the soil conditioner with nylon tie straps. Check hoses and fitting for hydraulic leaks. Tighten or replace as necessary. Use a piece of cardboard or wood to detect leaks. NEVER use your hands.

#### Lubrication

Lubricate the Torsion-Flex soil conditioner according to the Lubrication Schedule outlined in the SERVICE section of this manual. (PG. 13)

#### Tires and Wheels

Check the tire pressure in the transport tires. The recommended air pressure is 52 PSI. Make sure the tire pressure is equal in all tires. Make sure the wheel lug nuts are tightened to 80 Ft. Lbs. Check the wheel lug nuts before initial operation and after the unit has been operated for several hours to ensure the lug nuts remain tight.

#### Adjusting the Inner Tongue

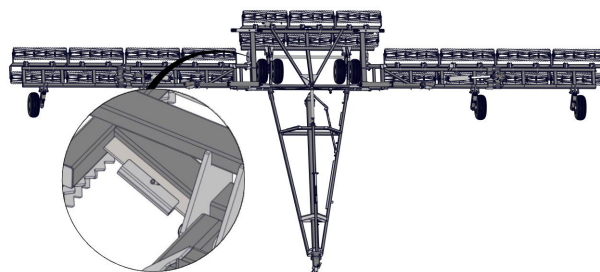
Before attaching the Torsion-Flex soil conditioner to your primary tillage tool, extend the inner tongue of the A-Frame Tongue Assembly to ensure adequate turning clearance between the implements when turning. Adjust the Inner Tongue length by removing the 1-3/4" Tongue Pin and Lynch Pin. Re-adjust the Inner Tongue to the appropriate setting and re-pin as before.

#### Attaching to the Primary Tillage Tool

Back the primary tillage tool into position and attach the soil conditioner to the implement using a high quality hitch pin and clip to lock into place. Install a transport chain (optional). Transport chain should have a minimum rating equal to the gross weight of implement and all attachments. Use only ASAE approved chains. If the unit is parked in the transport position, turn the handle on the jack stand after the soil conditioner has been connected to the primary tillage tool to remove pressure. Remove the Jack Assembly from the storage position and re-pin to the transport position parallel to the a-frame.

#### Unfolding the Wings / Removing the Transport Locks

It is recommended to unfold the side wings in the field. Remove the wheel lift cylinder transport locks so the unit may be lowered to the field working position. Pin the transport locks on the back of the Main-Frame Assembly for easy storage.



## Transporting

Before the soil conditioner is transported, be sure to secure the Jack Assembly in the transport position parallel to the a-frame.

The Torsion-Flex Soil Conditioner will increase the overall length of the primary tillage tool. Use extreme caution when turning to avoid obstacles. Reduce ground speed as necessary to maintain control of equipment.

Install hydraulic cylinder transport locks on the Base Unit wheels BEFORE transporting.

Comply with ALL state and local laws governing highway safety and regulations when moving machinery on public roads. Be sure an SMV emblem is in place and clearly visible on the rear of the conditioner. Make sure all lights are clearly visible and working properly BEFORE highway travel. Be sure the amber, red and orange retro-reflective tape on the implement is in place and clearly visible.

The transport speed should not exceed 10 MPH in the field or over rough terrain. Reduce transport speed when necessary to maintain full control of the implement at all times.

## Un-Hitching

**⚠ WARNING** – Before unhooking the soil conditioner, be sure to install the hydraulic cylinder transport locks. Reposition the jack stand on the a-frame to the parked position and lower the jack stand to the ground by turning the handle until weight of the soil conditioner is transferred to the jack. Keep hands and feet away from the jack stand when lowering.

Remove the Hitch Pin and unhook the safety chains.

**Do not lower the lift wheels with the unit folded up. This will cause damage to the structure of the unit.**

**⚠ WARNING** – Always relieve hydraulic system pressure before disconnecting hoses from tractor or servicing hydraulic system. See the tractor's operators manual for proper procedures. Disconnect the hydraulic hoses. Install dust covers over the hose plugs and outlets.

## Field Adjustments

The Torsion-Flex Soil Conditioner is designed to provide an excellent seedbed when used in conjunction with you primary tillage tool. For maximum performance in normal field conditions, the soil conditioner should be used with the transport wheels in the raised position to allow maximum transfer of weight to the rolling baskets.

The Spring Coil-Tine Harrow Bar is designed to improve the soil leveling capabilities of your conditioner. To improve the ground leveling capabilities of the harrow in heavier soils, pin the harrow bar so the coil-tines are positioned more vertically. In softer soils or to improve field residue flow through the leveler bar, position the bar with a decreased vertical angle of the tines.



## Storage

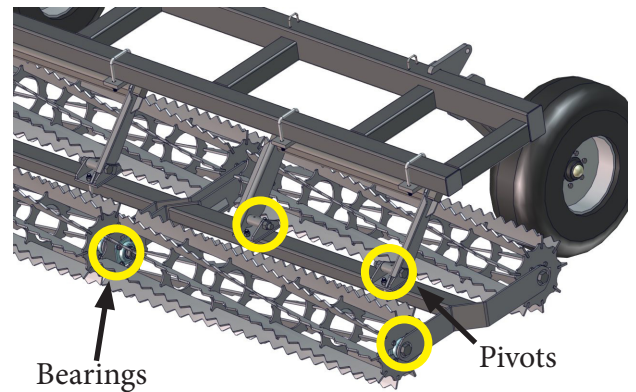
To add longer service and life to your Torsion-Flex Soil Conditioner, perform the following steps before placing the implement in storage:

1. Remove dirt and trash that may cause rusting.
2. Repaint any areas where the paint has been chipped, scratched or worn away.
3. Coat all earth moving surfaces with a suitable rust preventative.
4. Inspect for damaged or worn parts and replace before next use.
5. Lubricate basket assembly pivots and basket bearings.
6. Block up the conditioner to keep the wheels and ground tools off the ground.
7. Replace all worn, torn and faded decals and reflectors.
8. Store the implement inside away from inclement weather.

## Service

To add longer life to your Torsion-Flex Soil Conditioner, perform the following on a regular basis:

1. Grease basket assembly pivots (3X) weekly or every 40 hours. Grease basket bearings every 50 hours of use. Use 2 pumps of grease per bearing.
2. Check lighting before over the road transport. Make sure lights and SMV emblem are clean from dirt and field debris.
3. Check implement for damage, cracked welds, loosened hardware, etc. Promptly repair to prevent further damage.
4. Check hydraulic system for leaks and hose damage, twists or kinks and repair.
5. Check tire pressures (52 psi) and lug nuts (80 ft.lbs.) periodically and adjust as required.

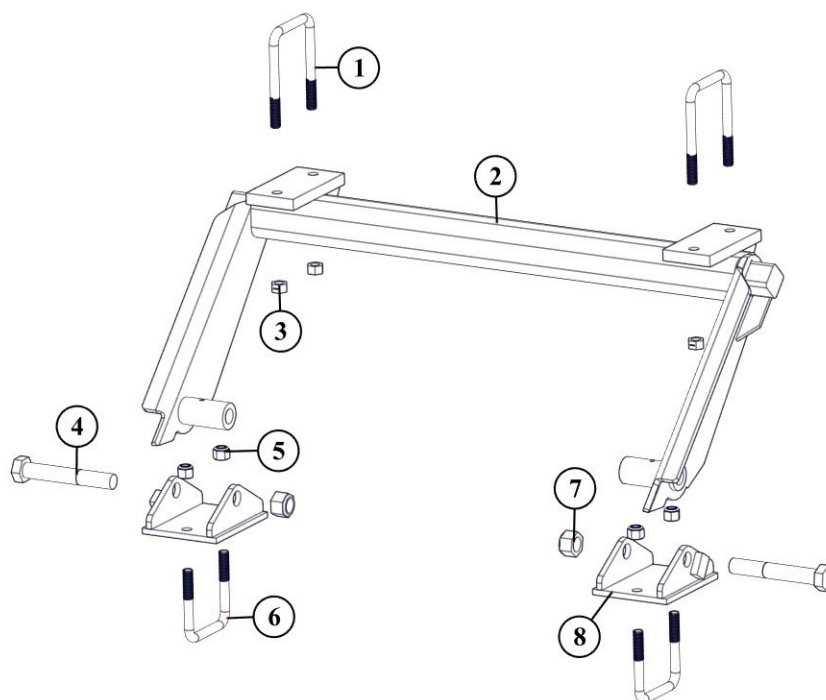


## Troubleshooting

### Hydraulics

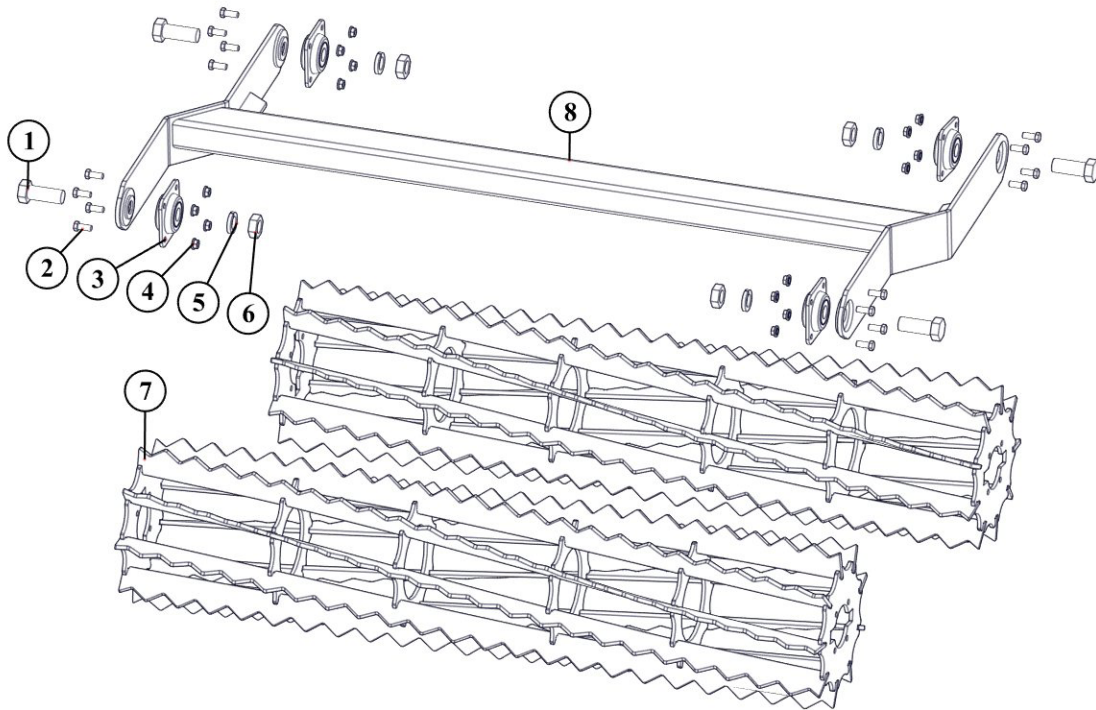
SYMPTON	CORRECTION
Hoses are incorrectly connected to the tractor control levers.	See the Tractor Operator's Manual for valve and control lever arrangement.
Insufficient hydraulic pressure from Tractor	Check the hydraulic reservoir oil level. See the tractor Operator's Manual for hydraulic system recommendations.
Hydraulic components leaking oil.	Locate the leak and replace or repair components.
Hydraulic hoses are kinked or twisted.	Locate the twisted hose and correct.
Hydraulic cylinders are leaking.	Repair or replace cylinders. See Repair Parts section for cylinder or seal kit part numbers.
The orifice in the wing-fold cylinder is plugged.	Remove the contamination from the system. Flush system and change the oil and filter.

## Torsion Arm



#	Description	Part. No.
1	Square U-bolt 4-1/8" Inside Width x 6" Length, 5/8"-11TH	JM0014190
2	3' Heavy Torsion Arm Weldment	JM0008446
2	2' Heavy Torsion Arm Weldment	JM0008447
3	5/8"-11 Gr5 Z Centerlock Hex Nut	JM0002146
4	1"-8 X 6-1/2" Gr5 Z Hex Bolt	JM0014192
5	5/8"-11 Gr5 Z Nylon Locking Hex Nut	JM0008428
6	Square U-Bolt 4-1/8" Inside Width x 4-1/2" Length, 5/8"-11TH	JM0014189
7	1"-8 Gr5 Z Nylon Locking Hex Nut	JM0002161
8	Rocker Pad for 13" Baskets	JM0008427
8	Rocker Pad for 16" Baskets	JM0028405

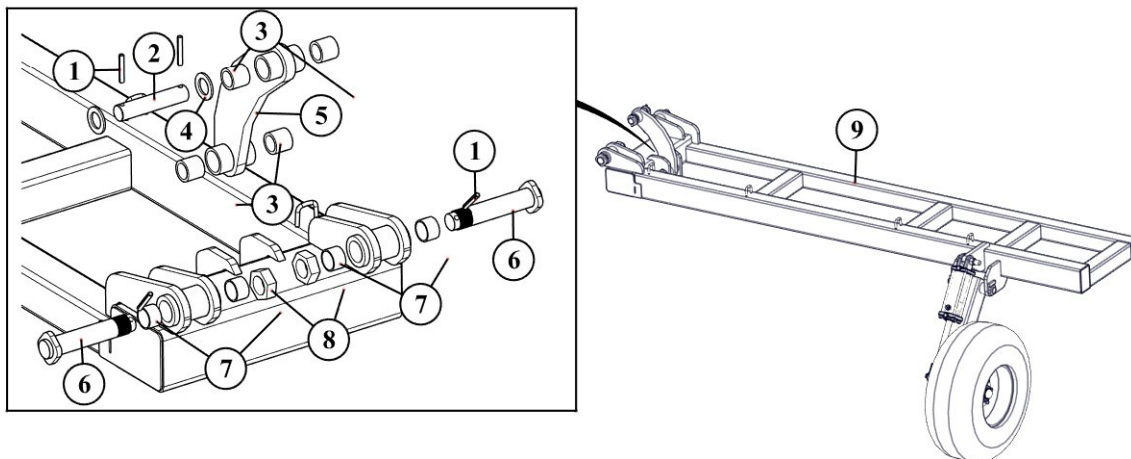
## Rolling Basket



#	Description	Part. No.
1	1-1/4"-12 x 3-1/4" Gr5 Z Hex Bolt	JM0001529
2	1/2"-13 x 1-1/4" Gr5 Z Hex Bolt	JM0001513
3	1-1/4" dia 4 Bolt Bearing	JM0001489
4	1/2"-13 Gr5 Z SF Hex Nut	JM0002153
5	1-1/4" Zinc Finish Lock Washer	JM0001530
6	1-1/4"-12 Z Gr5 Hex Jam Nut	JM0002158
7	16" Dia 6' Basket Weldment 2:1	JM0005747
7	16" Dia 5-1/2' Basket Weldment 2:1	JM0005745
7	16" Dia 5' Basket Weldment 2:1	JM0005742
7	16" Dia 4' Basket Weldment 2:1	JM0005740
7	16" Dia 3-1/2' Basket Weldment 2:1	JM0005734
7	13" Dia 6' Basket Weldment 2:1	JM0003259
7	13" Dia 5-1/2' Basket Weldment 2:1	JM0002586
7	13" Dia 5' Basket Weldment 2:1	JM0003252
7	13" Dia 4' Basket Weldment 2:1	JM0005713
7	13" Dia 3-1/2' Basket Weldment 2:1	JM0026962
8	6' Crazy Leg Weldment	JM0001770
8	5-1/2' Crazy Leg Weldment	JM0001769
8	5' Crazy Leg Weldment	JM0001768
8	4' Crazy Leg Weldment	JM0001767
8	3.5' Crazy Leg Weldment	JM0001766

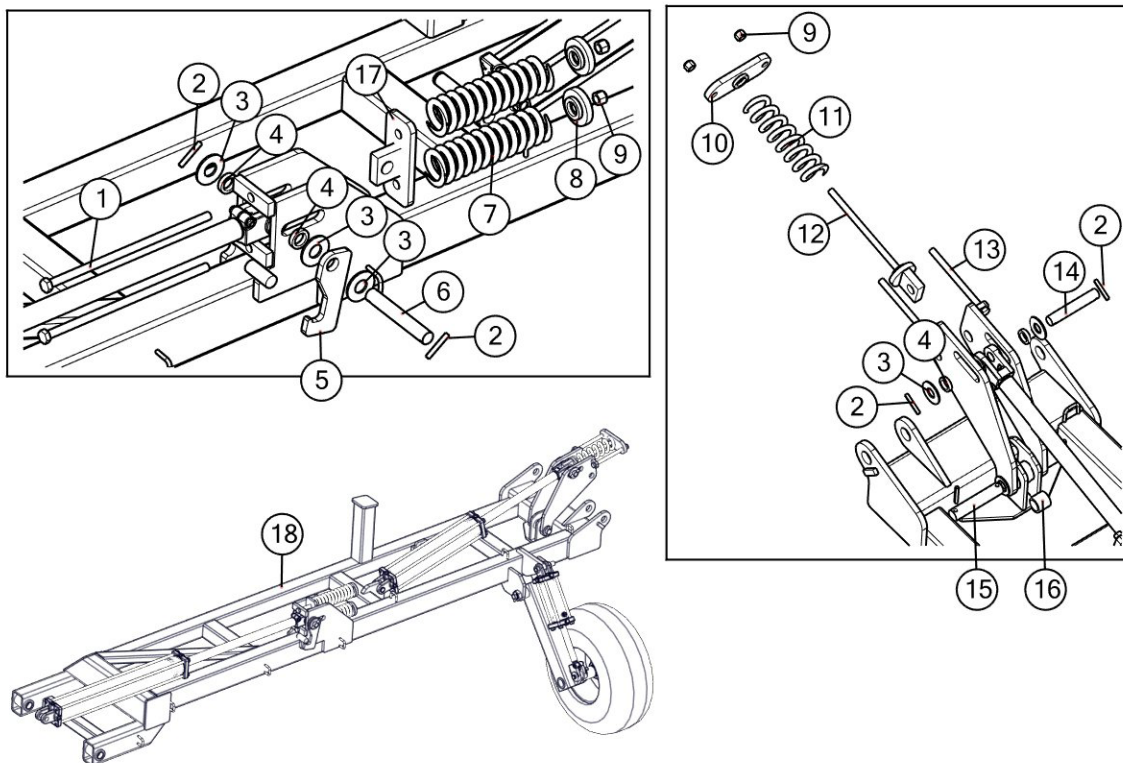


## Outside Wing



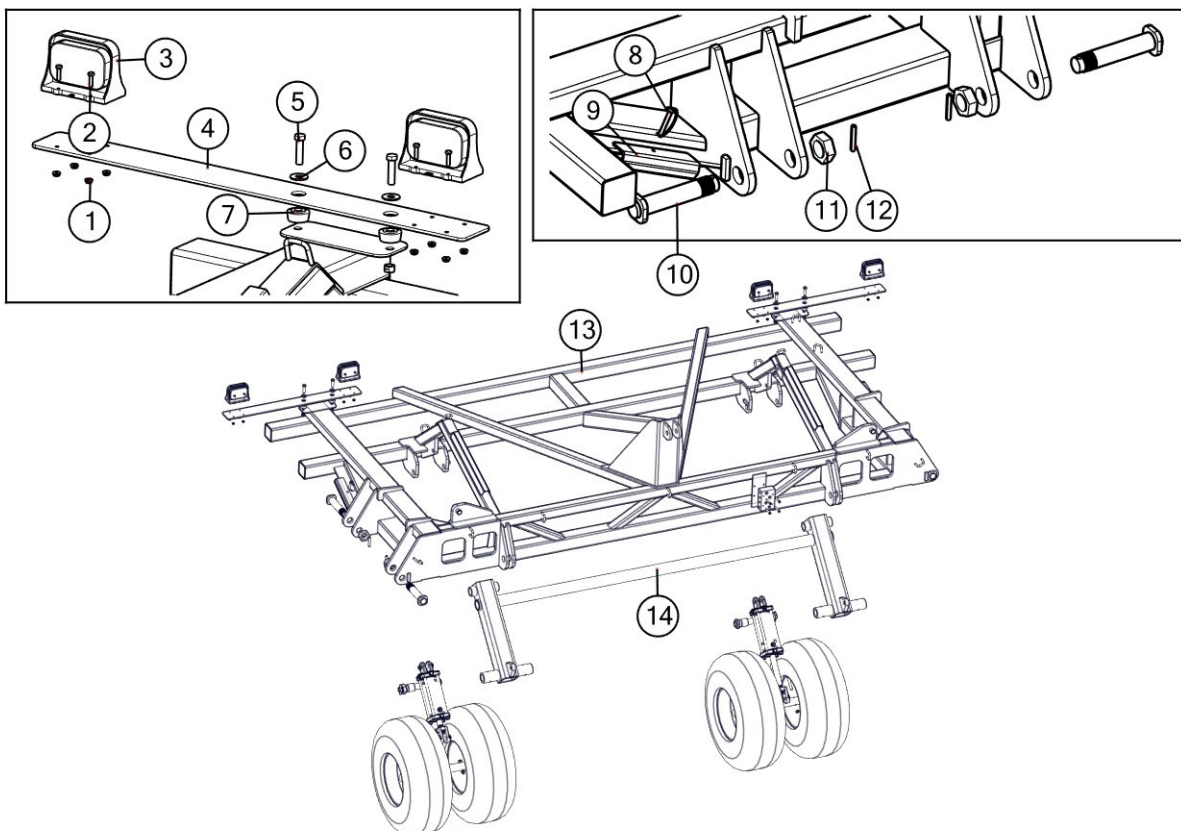
#	Description	Part. No.
1	7/16" x 2-3/4" Z Roll Pin	JM0009895
2	1-1/2" x 7-1/2" Linkage Pin	JM0027138
3	1-1/2" ID x 2" OD x 1-3/4" LG Bushing	JM0028862
4	2nd Wing Linkage Washer	JM0027166
5	Outside Wing Linkage	JM0028875
6	1-3/4" x 9-1/2" Pivot Pin Weldment	JM0027172
7	1-3/4" ID x 2" OD x 1-1/2" Long Bushing	JM0027188
8	1-3/4"-12 Z Gr5 Hex Jam Nut	JM0009752
9	Outside Wing Left Hand Side (60'-63')	JM0028877
9	Outside Wing Right Hand Side (60'-63')	JM0029080
9	Outside Wing Left Hand Side (52'-59')	JM0029239
9	Outside Wing Right Hand Side (52'-59')	JM0029224
9	Outside Wing Left Hand Side (44'-51')	JM0029240
9	Outside Wing Right Hand Side (44'-51')	JM0029225

## Inside Wing



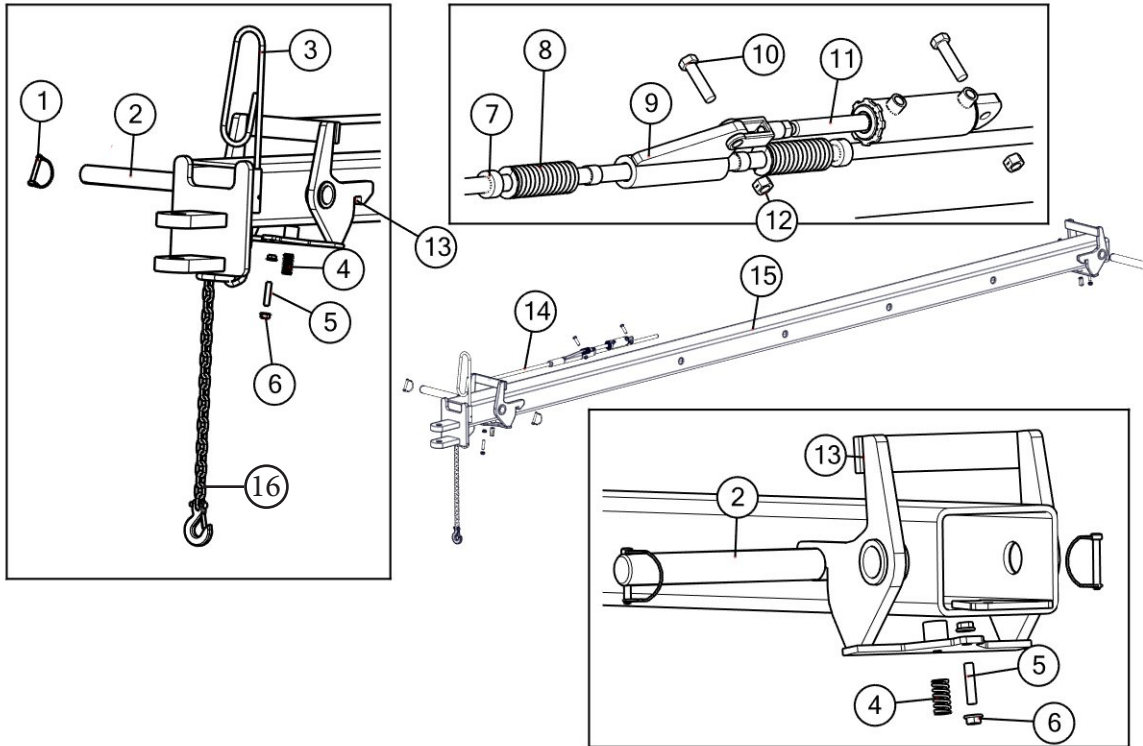
#	Description	Part. No.
1	3/4"-10 x 18" Gr5 Z Hex Bolt	JM0027425
2	7/16" x 2-3/4" Z Roll Pin	JM0009895
3	2nd Wing Linkage Washer	JM0009474
4	Spacer - Cylinder 7/16"	JM0026761
5	Gravity Latch	JM0027160
6	1-1/4" x 8-1/4" Cylinder Pin	JM0027165
7	Spring, 0.63" Coil, 3-1/2"OD, 12 Coils	JM0026637
8	Spring Tension Retainer	JM0027245
9	3/4"-10 Gr5 Z Centerlock Hex Nut	JM0002147
10	Spring Tension Bracket	JM0027289
11	Spring, 0.63" Coil, 3-1/2" OD, 8 Coils	JM0029727
12	Spring Mount - Outside Wing TF5s	JM0027288
13	3/4"-10 x 10" Gr5 Z Hex Bolt	JM0027424
14	1-1/4" x 7-1/4" Cylinder Pin	JM0029074
15	1-1/2" x 7-1/4" Linkage Pin	JM0027138
16	1-1/2" ID x 2" OD x 1-3/4" Composite Bushing	JM0028862
17	Cylinder Mounted Spring Tension Bracket	JM0027208
18	Inside Wing Left Hand Side (56' to 63')	JM0028720
18	Inside Wing Right Hand Side (56' to 63')	JM0029078
18	Inside Wing Left Hand Side (48' to 55')	JM0028918
18	Inside Wing Right Hand Side (48' to 55')	JM0029218
18	Inside Wing Left Hand Side (44' to 47')	JM0028919
18	Inside Wing Right Hand Side (44' to 47')	JM0029220

## Base



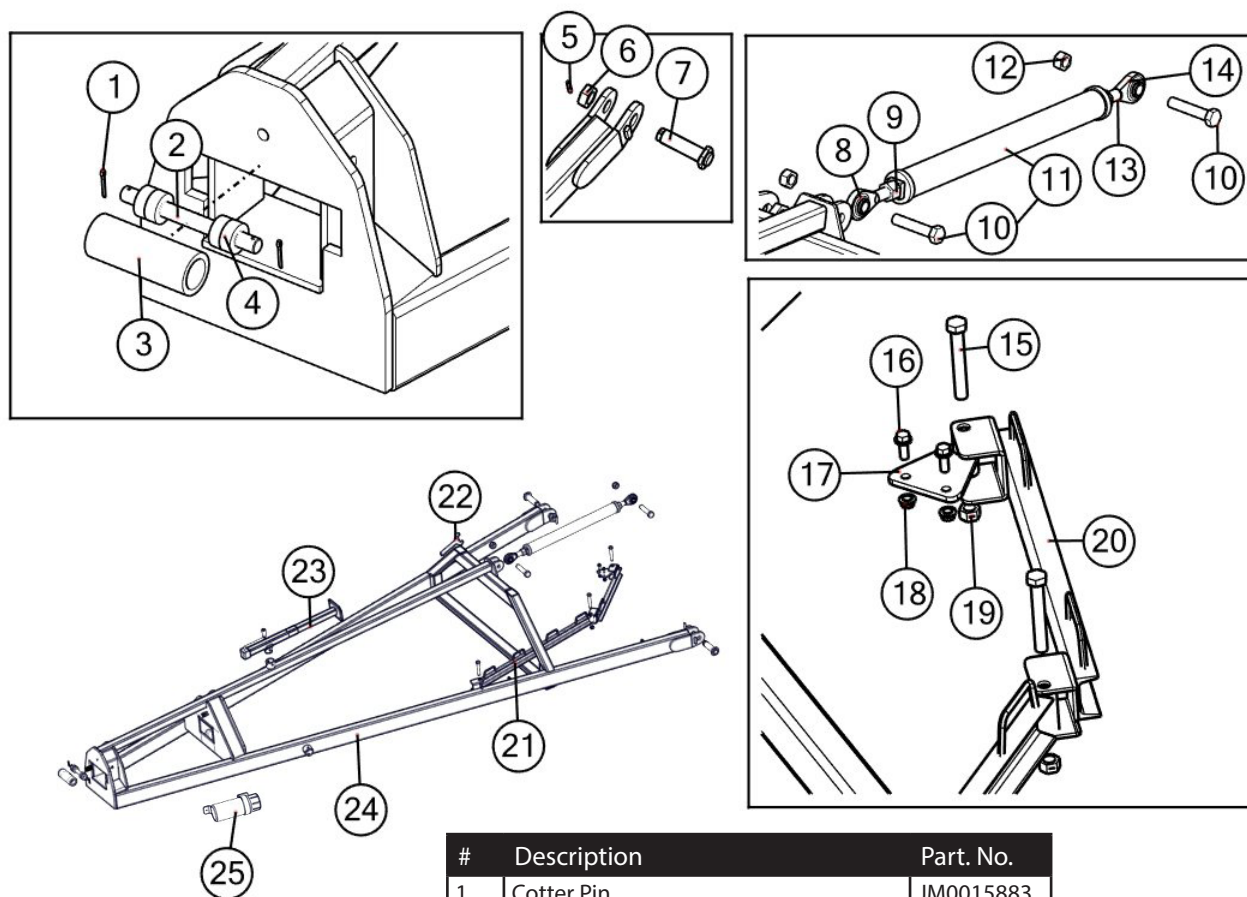
#	Description	Part. No.
1	1/4"-20 Gr5 Z SF Hex Nut	JM0001630
2	1/4"-20 x 1" Gr5 Z Hex Bolt	JM0002095
3	Soil conditioner Amber Light	JM0009975
3	Soil Conditioner Red Light	JM0009976
4	Light Mount	JM0027234
5	1/2"-13 x 2" Gr5 Z Hex Bolt	JM0001593
6	1/2" USS Flat Washer	JM0003082
7	Vibration Mount	JM0001869
8	3/8" x 2-1/2" Z Round Wire Lynch Pin	JM0014929
9	Wheel Chock	JM0015329
10	1-3/4" x 9-1/2" Pivot Pin Weldment	JM0027172
11	1-3/4"-12 Z Gr5 Hex Jam Nut	JM0009752
12	7/16" x 2-3/4" Z Roll Pin	JM0009895
13	15' Base Weldment	JM0028386
14	Base Wheel Lift Arm Weldment (see pg. 21)	JM0029076

## Telescoping Tongue



#	Description	Part. No.
1	3/8" x 2-1/2" Z Round Wire Lynch Pin	JM0014929
2	A-Frame Hitch Locating Pin - 1-3/4" x 11" Pin	JM0024287
3	Hose Holder	JM0009470
4	Compression Spring	JM0001688
5	1/2"-13 x 2-1/4" Stud	JM0029504
6	1/2"-13 Gr5 Z SF Hex Nut	JM0002153
7	3/4" Shaft Collar	JM0025216
8	Latch Spring	JM0025857
9	Latch Release Slide	JM0025229
10	1/2"-13 x 2" Gr5 Z Hex Bolt	JM0001593
11	1-3/4" x 4" Hydraulic Cylinder with Rod Clevis and Butt Tab	JM0018564
12	1/2"-13 Gr5 Z Centerlock Hex Nut	JM0001511
13	Hitch Latch Weldment	JM0029049
14	Latch Release Rod	JM0027223
15	Tongue Weldment - Telescoping	JM0028803
16	Safety Chain	JM0016075

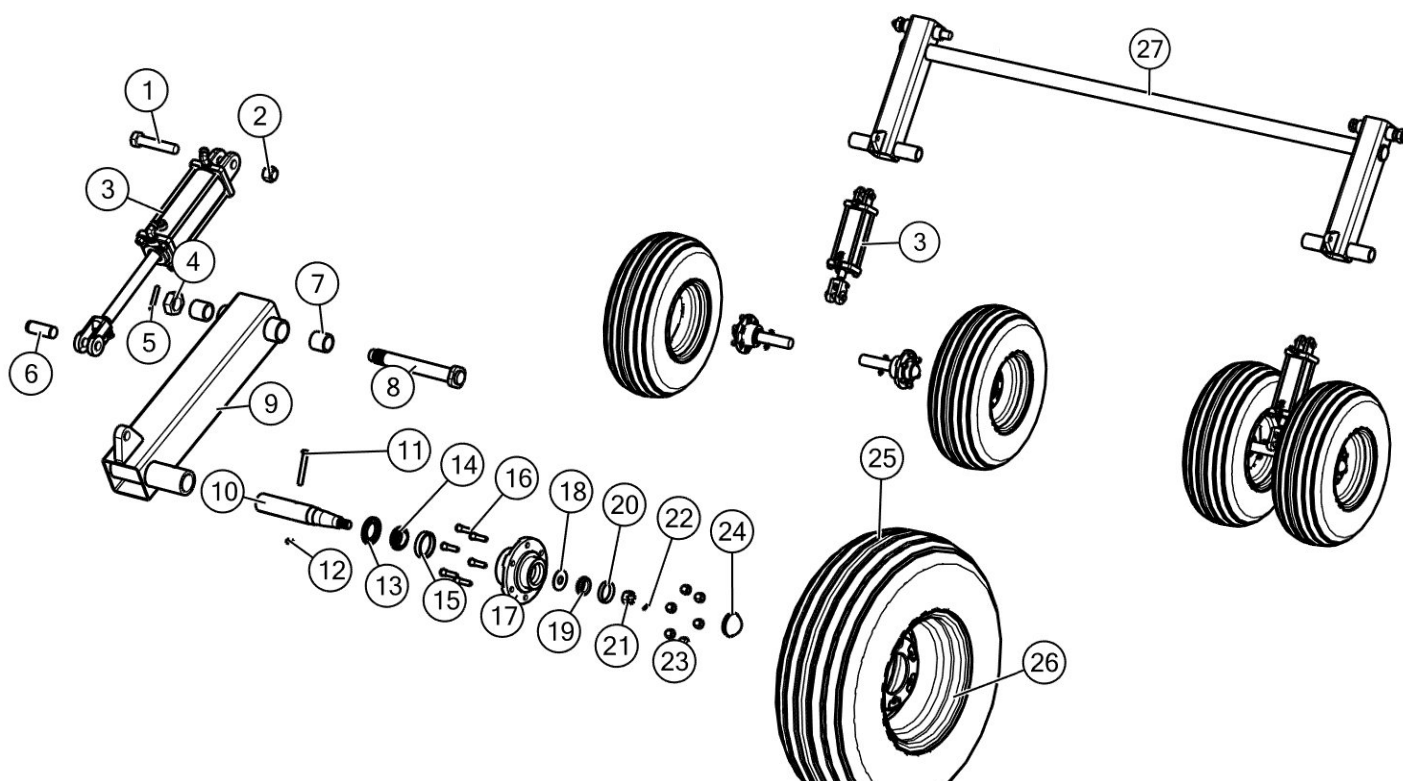
## A-Frame



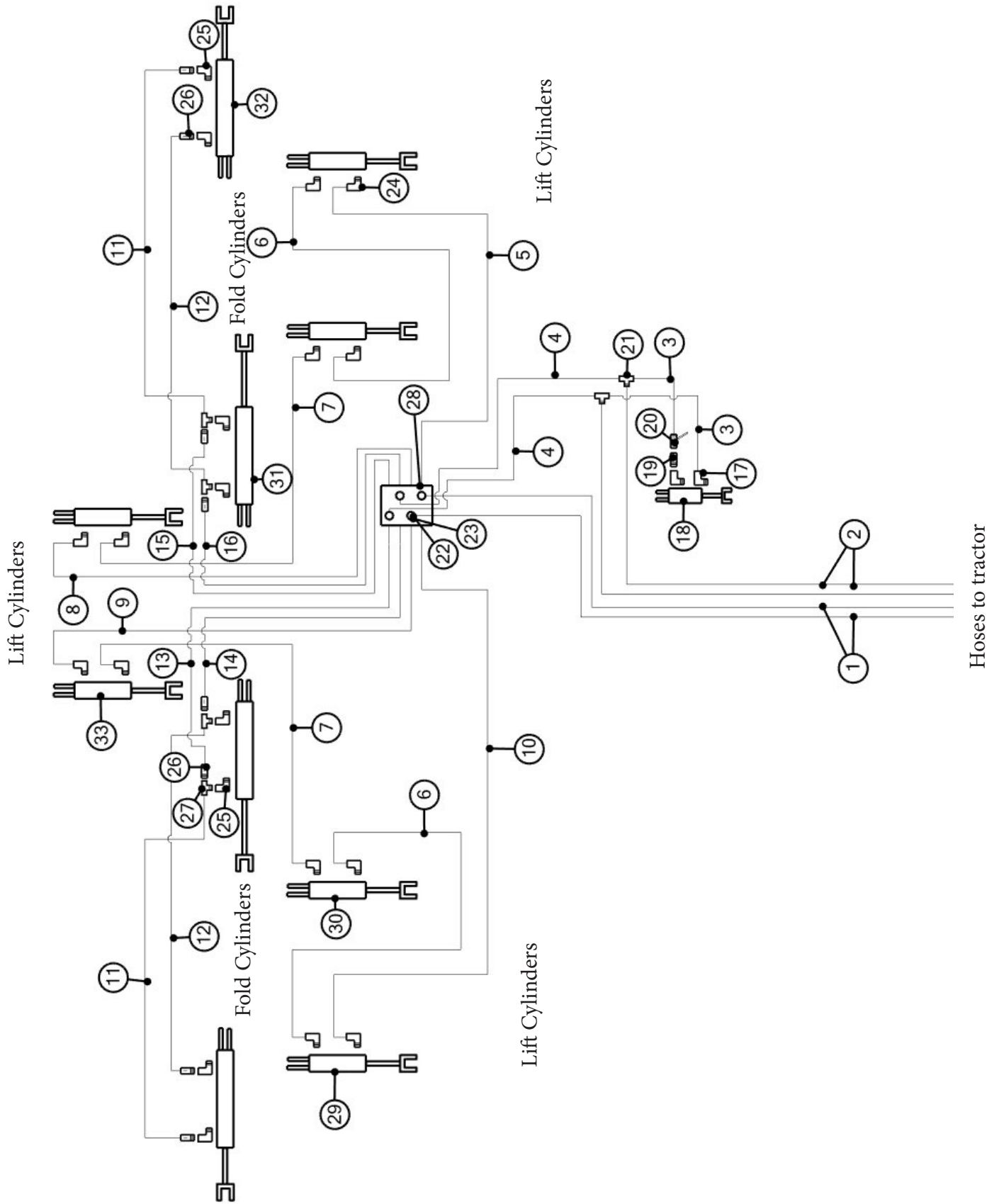
#	Description	Part. No.
1	Cotter Pin	JM0015883
2	Roller Shaft	JM0029201
3	Tongue Roller	JM0028927
4	Bearing	JM0028928
5	7/16" x 2-3/4" Roll Pin	JM0009895
6	1-3/4"-12 Z Gr5 Hex Jam Nut	JM0009752
7	7-1/4" x 1-3/4" Long Wing Bolt	JM0026691
8	1-3/8"-6 x 12-1/8" RH Z Tie Rod End	JM0010119
9	1-3/8"-6 RH Z Hex Nut	JM0010117
10	1-1/4"-7 x 6" Gr5 Z Hex Bolt	JM0016690
11	Turnbuckle Weldment	JM0008556
12	1-1/4"-7 Gr5 Z Nylon Locking Hex Nut	JM0026789
13	1-3/8"-6 LH Z Hex Nut	JM0010118
14	1-3/8"-6 x 12-1/8" LH Z Tie Rod End	JM0010120
15	3/4"-10 x 5" Gr5 Z Hex Bolt	JM0009997
16	1/2"-13 x 1-1/4" Gr5 Z SF Hex Bolt	JM0010002
17	Hose Carrier Mount	JM0028039
18	1/2"-13 Gr5 Z SF Hex Nut	JM0002153
19	3/4"-10 Gr5 Z Centerlock Hex Nut	JM0002147
20	Hose Carrier - Short	JM0029061
21	Hose Carrier - Long	JM0029057
22	Wrench	JM0009526
23	Jack Stand	JM0026798
24	A-Frame Weldment	JM0028761
25	Manual Canister	JM0025266



## Wheel & Tire



#	Description	Part. No.
1	1"-8 x 5" Gr5 Z Hex Bolt	JM0016688
2	1"-8 Gr5 Z Nylon Locking Hex Nut	JM0002161
3	3-1/2" Bore x 8" Stroke Re-phasing Hydraulic Cylinder (Front Outside Lift Wheels)	JM0030323
3	3-3/4" Bore x 8" Stroke Re-phasing Hydraulic Cylinder (Front Inside Lift Wheels)	JM0030321
3	4" Bore x 8" Stroke Re-phasing Hydraulic Cylinder (Rear Lift Wheels)	JM0030322
4	1-1/2"-12 Z Gr5 Hex Jam Nut	JM0027198
5	7/16" x 2-3/4" Z Roll Pin	JM0009895
6	1" x 3-1/2" Clevis Pin with Cotter Pins	JM0026784
7	1-1/2"ID x 2"OD x 1-3/4" Bushing	JM0028862
8	1-1/2" x 12-1/4" Lift Wheel Pivot Pin	JM0029072
9	Wing Wheel Lift Arm Weldment (Left)	JM0028907
9	Wing Wheel Lift Arm Weldment (Right)	JM0028910
10	Spindle	JM0009511
11	1/2"-13 x 3-1/2" Gr5 Z Hex Bolt	JM0009914
12	1/2"-13 Gr5 Z Centerlock Hex Nut	JM0001511
13	Seal	JM0010100
14	Large Bearing	JM0019225
15	Large Cup	JM0010121
16	1/2"-20 x 1-7/8" Stud	JM0019559
17	G783 Hub	JM0010099
18	7/8" USS Flat Washer	JM0014395
19	Small Bearing	JM0019564
20	Small Cup	JM0010122
21	7/8"-14 Gr5 Z Castle Hex Nut	JM0014345
22	1-1/2" Cotter Pin	JM0014348
23	1/2"- 20 Lugnut (Torque at 80 ft. lbs.)	JM0003062
24	Dust Cap	JM0010097
25	Tire 12.5SL 12PR Impl. -1 TL (52 psi)	JM0027744
26	15" x 10" Wheel	JM0027736
27	Base Wheel Lift Arm Weldment	JM0029076

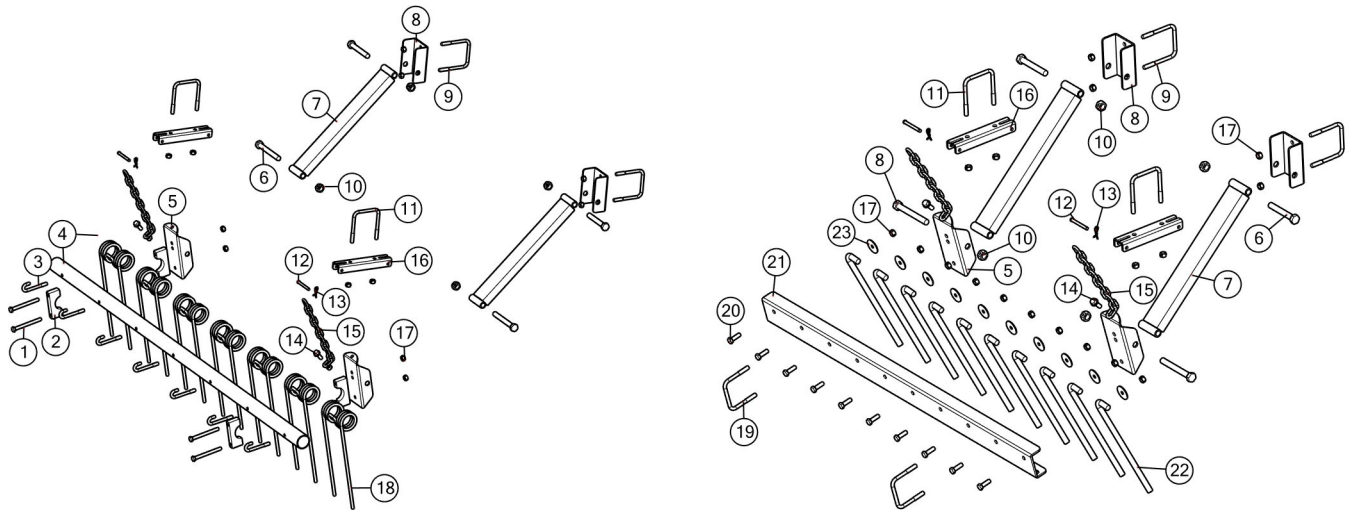




## Hydraulic Hoses & Fittings

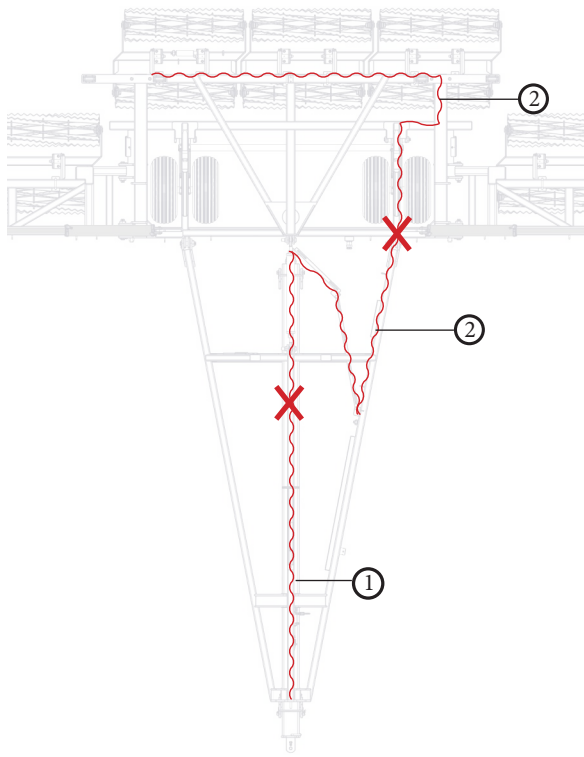
#	Description	Part. No.
1	Hydraulic Hose 1/2" x 482"	JM0030802
2	Hydraulic Hose 1/2" x 392"	JM0030809
3	Hydraulic Hose 1/4" x 107"	JM0030819
4	Hydraulic Hose 1/2" x 90"	JM0030820
5	44'-47' Model - Hydraulic Hose 3/8" x 246"	JM0030821
5	48'-51' Model - Hydraulic Hose 3/8" x 270"	JM0030822
5	52'-55' Model - Hydraulic Hose 3/8" x 294"	JM0030823
5	56'-59' Model - Hydraulic Hose 3/8" x 318"	JM0030824
5	60-63' Model - Hydraulic Hose 3/8" x 348"	JM0030825
6	44'-51' Model - Hydraulic Hose 3/8" x 116"	JM0030826
6	52'-59' Model - Hydraulic Hose 3/8" x 140"	JM0030827
6	60'-63' Model - Hydraulic Hose 3/8" x 160"	JM0030828
7	44'-47' Model - Hydraulic Hose 3/8" x 215"	JM0030829
7	48'-55' Model - Hydraulic Hose 3/8" x 244"	JM0030830
7	56'-63' Model - Hydraulic Hose 3/8" x 263"	JM0030831
8	Hydraulic Hose 3/8" x 95"	JM0030832
9	Hydraulic Hose 3/8" x 144"	JM0030833
10	44'-47' Model - Hydraulic Hose 3/8" x 306"	JM0030834
10	48'-51' Model - Hydraulic Hose 3/8" x 330"	JM0030835
10	52'-55' Model - Hydraulic Hose 3/8" x 354"	JM0030836
10	56'-59' Model - Hydraulic Hose 3/8" x 376"	JM0030837
10	60'-63' Model - Hydraulic Hose 3/8" x 400"	JM0030838
11	44'-47' Model - Hydraulic Hose 3/8" x 99"	JM0030840
11	48'-55' Model - Hydraulic Hose 3/8" x 123"	JM0030841
11	56'-63' Model - Hydraulic Hose 3/8" x 122"	JM0030841
12	44'-47' Model - Hydraulic Hose 3/8" x 95"	JM0030832
12	48'-55' Model - Hydraulic Hose 3/8" x 95"	JM0030832
12	56'-63' Model - Hydraulic Hose 3/8" x 122"	JM0030842
13	Hydraulic Hose 3/8" x 134"	JM0030843
14	Hydraulic Hose 3/8" x 95"	JM0030832
15	Hydraulic Hose 3/8" x 81"	JM0030844
16	Hydraulic Hose 3/8" x 37.5"	JM0030845
17	1/4" Male NPT X 3/8" Female NPT Rigid; 90 Degree Elbow	JM0030053
18	1-3/4" x 4" Hydraulic Cylinder	JM0018565
19	3/8" Male NPT x 3/8" Male NPT Hex Nipple	JM0030038
20	3/8" HP Ball Valve 7250 PSI	JM0027113
21	1/2" Female NPT Tee	JM0028356
22	1/2" Male Nipple Quick Disconnect	JM0018254
23	Pioneer End - Female With 1/2" Female NPT	JM0030052
24	#8 O-Ring x 3/8" NPT Female Swivel 90 Degree	JM0027285
25	#10 male SAE O-ring X 3/8" Female Pipe Swivel – 90 degree elbow	JM0030035
26	3/8" Male NPT x 3/8" Female NPT Swivel With .062 Orifice	JM0018362
27	3/8" Female NPT x 3/8" Female NPT x 3/8" Male NPT; Street T	JM0027116
28	Manifold Block	JM0028902
29	3-1/2" Bore x 8" Stroke Re-phasing Hydraulic Cylinder	JM0030323
30	3-3/4" Bore x 8" Stroke Re-phasing Hydraulic Cylinder	JM0030321
31	4-1/2" Bore x 36" Stroke Tie-Rod Hydraulic Cylinder	JM0014965
32	4-1/2" Bore x 24" Stroke Tie Rod Hydraulic Cylinder	JM0027087
33	4" Bore x 8" Stroke Re-phasing Hydraulic Cylinder	JM0030322

## Coil Tine Pipe Bar and Round Bar Bracket



#	Description	Part. No.
1	1/2"-13 x 5" Gr5 Z Hex Bolt	JM0001594
2	Harrow Squeeze Block	JM0027006
3	1/2-13 Gr5 Z x 4-1/4" J-Bolt	JM0020373
4	3'8" Wide Coil Tine Pipe	JM0026999
4	4'8" Wide Coil Tine Pipe	JM0026996
4	5'8" Wide Coil Tine Pipe	JM0010011
4	6'8" Wide Coil Tine Pipe	JM0026998
5	Lower Harrow Tine Mount - Lobe	JM0015242
6	3/4"-10 x 6" Gr5 Z Hex Bolt	JM0016683
7	Harrow Arm Weldment - For TF5S215 Base	JM0017558
8	Upper Harrow Tine Mount	JM0015241
9	1/2" x 5" U-Bolt	JM0010001
10	3/4"-10 Gr5 Z Centerlock Hex Nut	JM0002147
11	1/2" x 7" U-Bolt	JM0030917
12	Clevis Pin	JM0010003
13	Cotter Pin	JM0010005
14	1/2"-13 x 1-1/4" Gr5 Z SF Hex Bolt	JM0010002
15	5/16" Z Yellow Chain - 11 link	JM0020360
16	Harrow Tine Chain Attach - Cross Slot	JM0015254
17	1/2" Gr5 Z Centerlock Hex Nut	JM0001511
18	Soil Conditioner Coil Tine	JM0020358
19	1/2" x 4" U-Bolt	JM0026990
20	1/2"-13 x 1-1/2" Gr5 Z Hex Bolt	JM0002100
21	4 ft. Harrow Tine Channel	JM0015227
21	5 ft. Harrow Tine Channel	JM0015228
21	6 ft. Harrow Tine Channel	JM0015229
21	7 ft. Harrow Tine Channel	JM0015230
22	3/4" Harrow Tine	JM0026972
23	1/2" Flat Washer	JM0026973
24	3' 8" Harrow Coil Tine and Mounting Brackets	JM0027012
24	4' 8" Harrow Coil Tine and Mounting Brackets	JM0027011
24	5' 8" Harrow Coil Tine and Mounting Brackets	JM0027010
24	6' 8" Harrow Coil Tine and Mounting Brackets	JM0026992
25	4' Harrow Tine and Mounting Brackets	JM0027016
25	5' Harrow Tine and Mounting Brackets	JM0027014
25	6' Harrow Tine and Mounting Brackets	JM0027013
25	7' Harrow Tine and Mounting Brackets	JM0026988

## Light Harness



#	Description	Part. No.
1	A-Frame Harness	JM0027080
2	Base Harness	JM0027077