

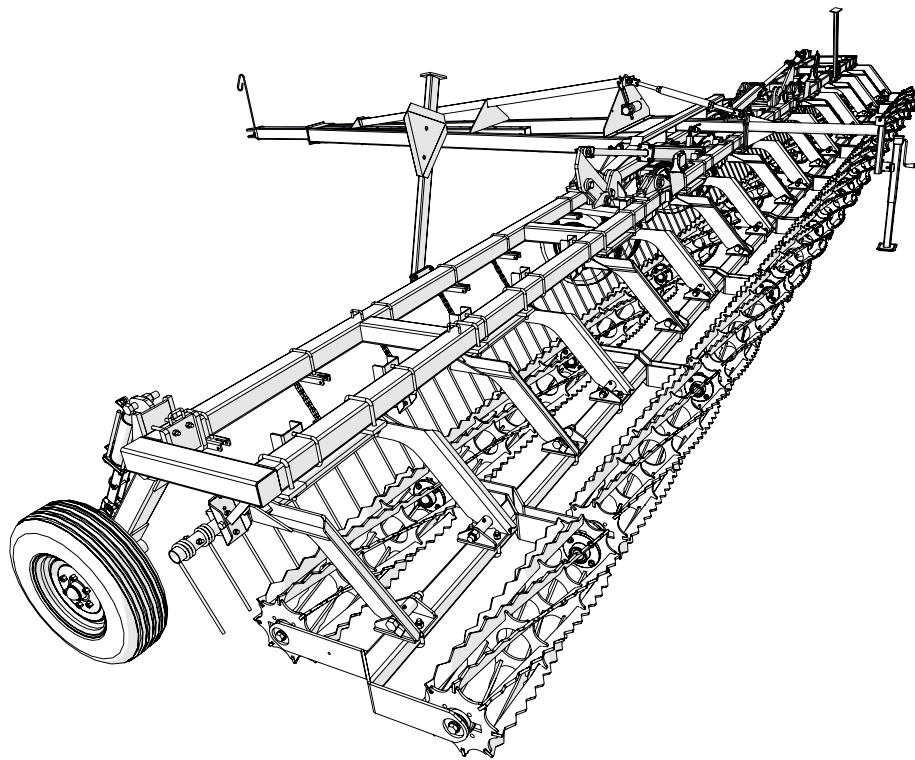


Manual

TORSION FLEX SOIL CONDITIONER

OPERATOR'S MANUAL

MODEL
TF2
TF212
TF215



Rev. 2.17.2023

J&M Manufacturing Co, Inc

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To The Dealer

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 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 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 warranty does not transfer to the third party purchaser in any way. J&M Mfg. Co., Inc. makes no Warranty, express or 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:

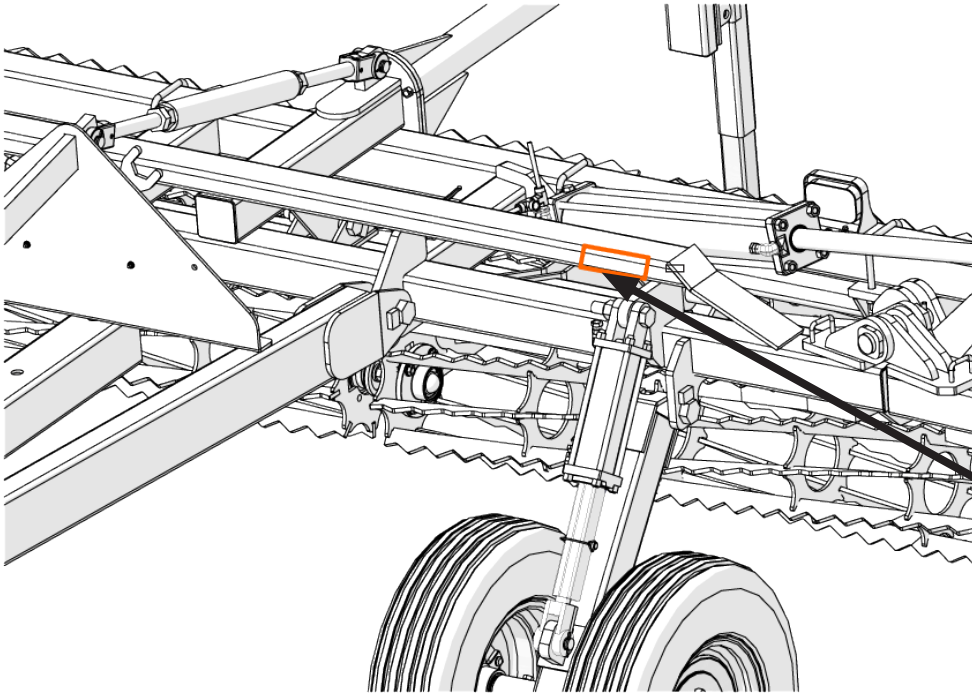
Model No: TF2, TF212, TF215 **Serial No:** _____ **Date of Purchase:** _____

Purchased From: _____

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



Serial Number



Serial Number Location

Serial Number _____
Model Number _____

Standard practice when ordering parts or obtaining information from your dealer requires the serial number and model number. Have numbers available before making contact.

General Information

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, could 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.



Safety Rules



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 tow vehicle prior to hooking up or operating the NitroGro Applicator.

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.

Note: The right and the left hand sides of the implement are determined by facing the same direction that the applicator will travel when moving forward.



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.

Keep all safety shields in place.

Keep hands, feet, hair and clothing away from moving parts while unit is in operation.

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

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

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.

Avoid high pressure fluids. Escaping fluid under pressure can penetrate the skin causing serious injury. Always relieve pressure before disconnecting hydraulic lines. Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands. Keep all components in good repair.

Bolt Torque Chart

Always tighten hardware to these values unless a different torque or tightening procedure is listed for 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. Make sure fastener threads are clean and you start thread engagement properly. **Use these values when tightening all bolts and nuts with the exception of wheel nuts.**

SAE Fasteners

Coarse Thread Series				
	Grade 5		Grade 8	
<i>Diameter and Pitch (Inches)</i>	<i>Dry</i>	<i>Oiled</i>	<i>Dry</i>	<i>Oiled</i>
1/4"-20	8 ft-lbs	6 ft-lbs	12 ft-lbs	9 ft-lbs
5/16"-18	17	13	25	18
3/8"-16	31	23	44	33
7/16"-14	49	37	70	52
1/2"-13	75	57	106	80
9/16"-12	109	82	154	115
5/8"-11	150	113	212	159
3/4"-10	267	200	376	282
7/8"-9	429	322	606	455
1"-8	644	483	909	681
Fine Thread Series				
<i>Diameter and Pitch (Inches)</i>	<i>Dry</i>	<i>Oiled</i>	<i>Dry</i>	<i>Oiled</i>
1/4"-28	10 ft-lbs	7 ft-lbs	14 ft-lbs	10 ft-lbs
5/16"-24	19	15	27	20
3/8"-24	35	26	49	37
7/16"-20	55	41	78	58
1/2"-20	85	64	120	90
9/16"-18	121	91	171	128
5/8"-18	170	127	240	180
3/4"-16	297	223	420	315
7/8"-14	474	355	669	502

Stud and Wheel Nut Torque Specifications

Always tighten hardware to these values unless a different torque or tightening procedure is listed for 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. Make sure fastener threads are clean and you start thread engagement properly. **Use these values when tightening all studs and wheel nuts.**

Stud	Tightening Torque
1/2"-20	80 ft-lbs
9/16"-18	170 ft-lbs
5/8"-18	350 ft-lbs
3/4"-16	400 ft-lbs
20mm	475 ft-lbs
22mm	640 ft-lbs

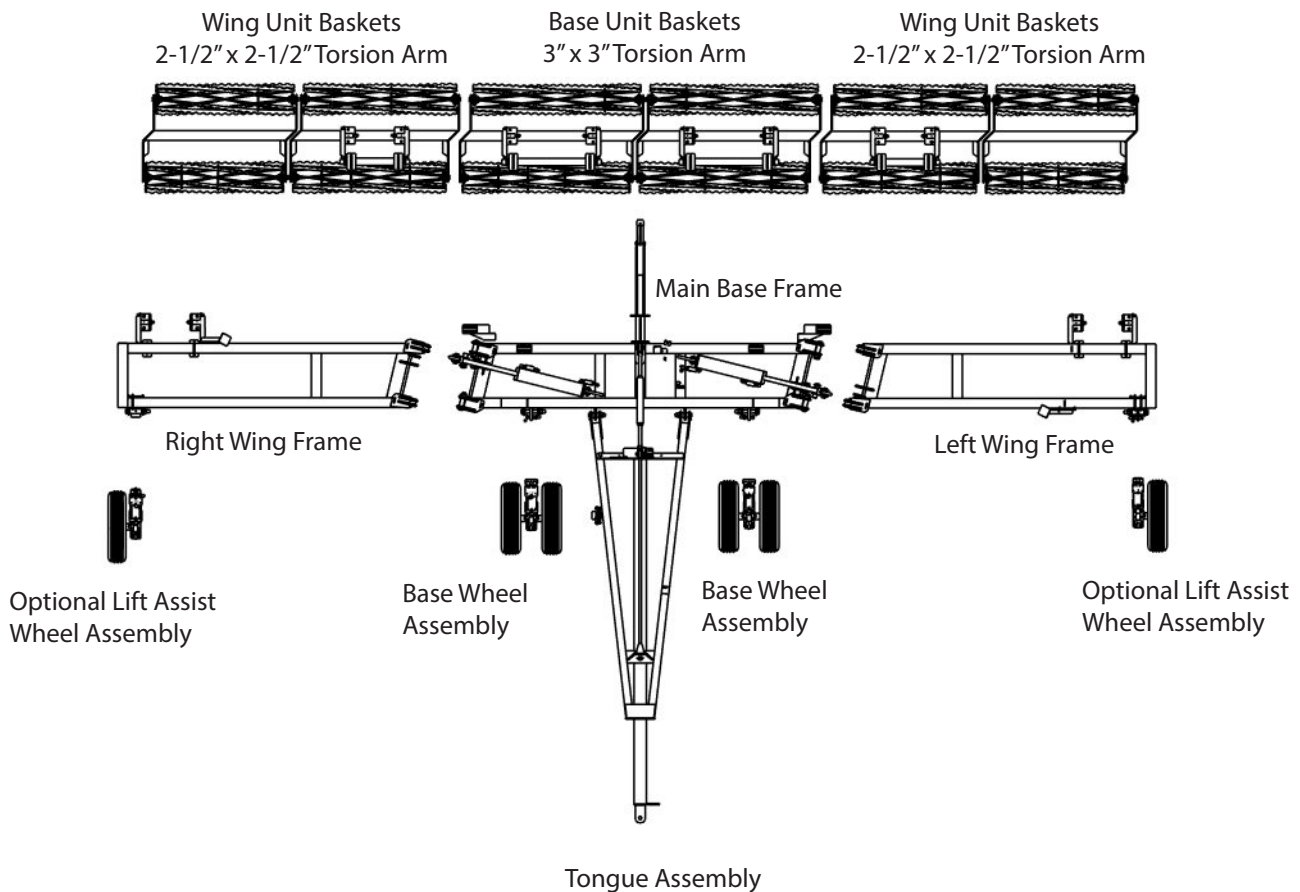
TIGHTENING WHEEL NUTS: During initial operation of the Soil Conditioner, **tighten 1/2"-20 gauge wheel studs and nuts to torque 80 ft-lbs.** Check for proper torque after every 10 hours of use. Failure to do so may damage wheel nut seats. Once seats are damaged, it will become impossible to keep nuts tight.

Setup Instructions

If your J&M Torsion-Flex Soil Conditioner is shipped with components partially assembled. Hardware is required to connect the Base Wheel Assembly, Main Base Frame Assembly, Wing Frames and Tongue Assembly should already be secured to the components at the point of attachment.

The hydraulic cylinders have the fittings already installed and are secured to the base wheel assembly. The hydraulic hoses and light harness wires should be inserted into the component tubing and simply require the ends to be connected.

Each basket frame should have the rolling baskets and torsion flex arm installed. Refer to the Basket Size and Layout, located on the right side of the chart on page 5 of the Operator's Manual for recommended basket layout. Be sure the baskets with the 3" x 3" Torsion Bars are secure to the Main Base Unit and the baskets with the smaller 2-1/2" x 2-1/2" Torsion Bars are secured to the side wings.



Setup Instructions

Wheel Arm Weldment

Attach the wheel arm weldment to the main frame. Use a 1-1/4" x 9" hex bolt and 1-1/4" hex nut. Tighten hardware.

Wheel & Tire Assembly

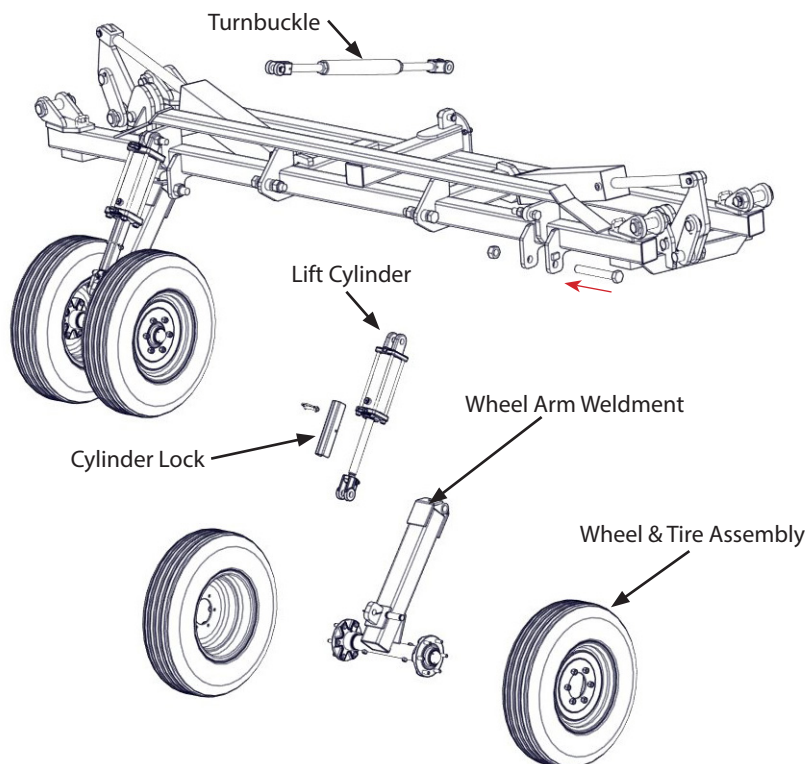
Attach the wheel and tire assembly using (6) 1/2" wheel nuts. Align the wheel and hub and tighten the wheel nuts in a star pattern to 80 ft lbs. Check the wheel nuts periodically to ensure they remain tight.

Lift Cylinder

Attach the lift cylinder to the main frame using a 1" x 5" hex bolt and a 1" nylon locking hex nut. Attach the lift cylinder to the wheel arm weldment using a 1" x 3-1/2" clevis pin and (2) cotter pins. Fasten hardware once secured. Install the cylinder lock, fasten with provided lynch pin.

Turnbuckle

Secure one end of the turn buckle assembly to the top of the main frame as shown using one 1" x 3-1/2" clevis pin and cotter pin.



A-Frame Weldment

Connect the A-Frame to the Base Unit. Use (2) 1-1/4" x 6" hex bolts and (2) 1-1/4" nylon locking hex nuts. Both bolts face the inside of the A-frame. Fasten hardware once secured.

Turnbuckle

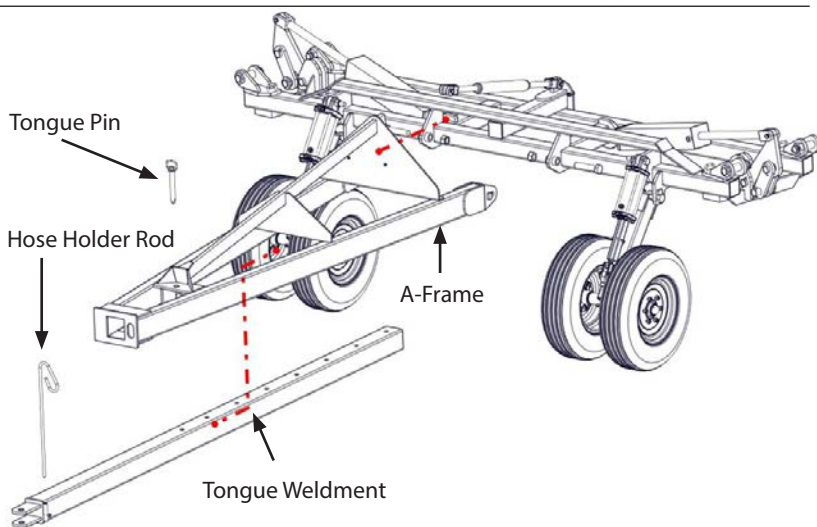
Secure the other end of the turn buckle assembly to the top of the A-frame using a 1" x 3-1/2" clevis pin and cotter pin.

Tongue Weldment

Slide Tongue Weldment inside the A-frame. Secure with 1" x 8" tongue pin. Attach Hose Holder Rod to the Tongue Weldment. Fasten with 3/8" x 3/4" hex bolt. Fasten hardware once secured.

Hydraulic Hoses & Light Harness

Depending on your model go to pages 28-34 to find the destination of each hydraulic hose. Connect the A-Frame harness to the Main Frame harness. Secure with zip-ties.



⚠ WARNING: Before attaching the cylinders to the wing linkage, charge the cylinders with hydraulic oil to bleed all air out of the system, and then check for any leaks. Failure to do so could cause erratic, sudden movement of the wings which could damage the equipment and cause serious injury or death.

Setup Instructions

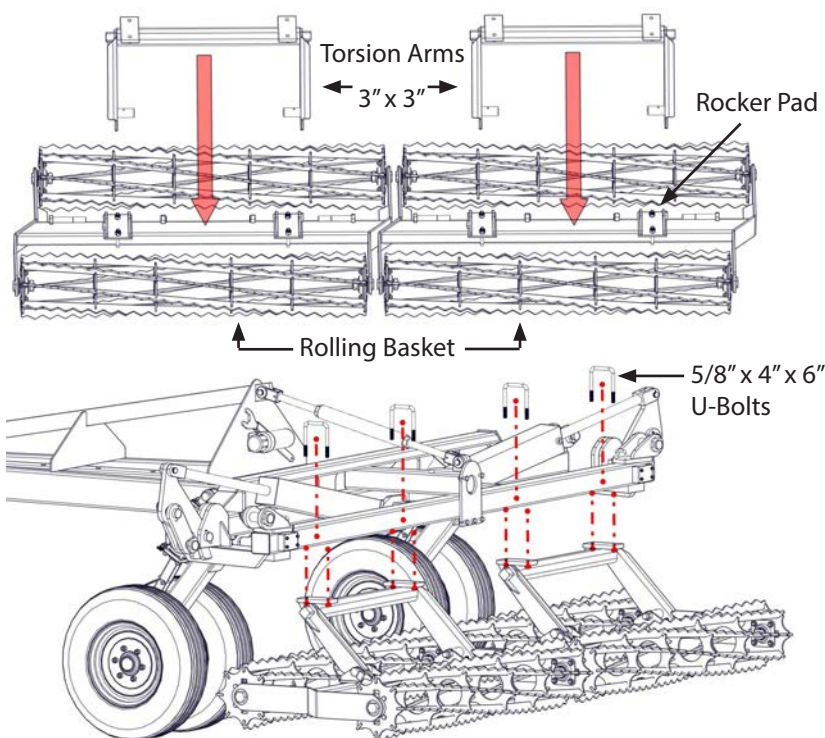
Base Unit Baskets

Attach the 3' Heavy Torsion arms to the rolling basket. Secure with 1" x 6-1/2" hex bolt and 1" nylon locking hex nut. Fasten hardware once secured. (Rocker Pads may need installed. Use 4-1/8" x 4-1/2" x 5/8" U-Bolt and (2) 5/8" nylon locking hex nuts.)

Make sure the baskets are symmetrically placed on the Base Unit Main Frame and have a 1-1/2" clearance between baskets.

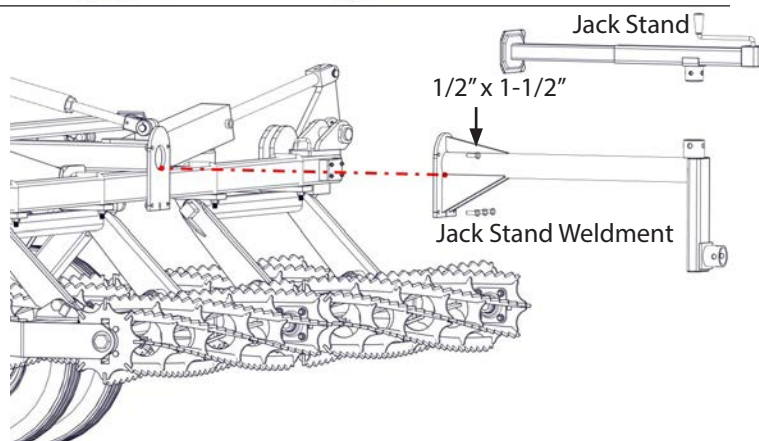
NOTE: Be sure the basket assemblies with the 3" x 3" torsion arms are secured to the Base Unit Main Frame. The rolling basket assemblies for the side wings have a smaller 2-1/2" x 2-1/2" torsion arm.

Attach the torsion arm - rolling basket assembly to the main frame. Secure each torsion arm with (2) 5/8" x 4" x 6" U-bolts and a 5/8" centerlock hex nut. Fasten hardware once secured.



Jack Stand

Secure the Jack Stand Weldment to the Main Frame using (5) 1/2" x 1-1/2" hex bolts and (5) 1/2" centerlock hex nuts. Fasten hardware once secured. Attach the jack stand to the support arm using the supplied pin.



Wing Frame

Attach the Wing Frames to the Main Frame. For each wing use:

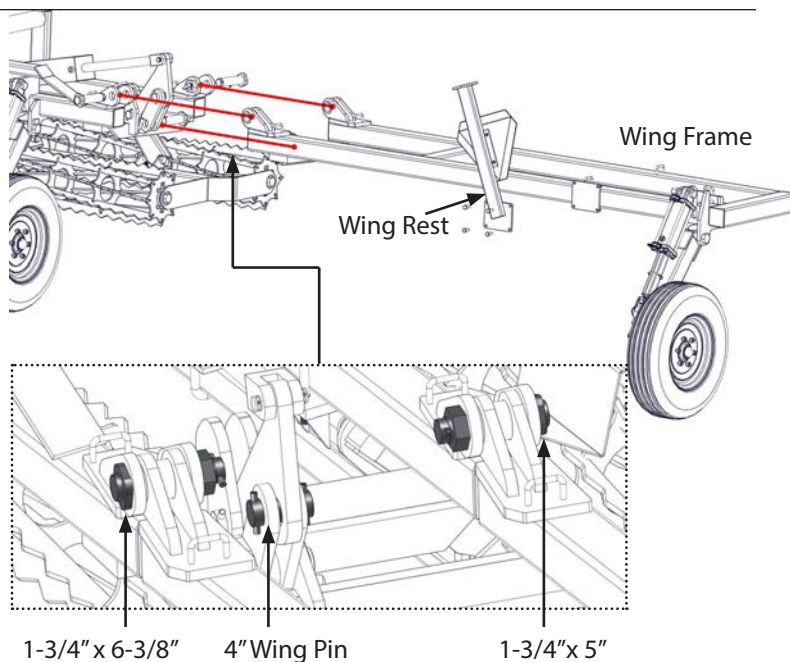
- 1-3/4" x 6-3/8" Welded Pin
- 1-3/4" x 5" Welded Pin
- (2) 1-3/4" Hex Nuts
- 4" Wing Pin
- (4) Roll Pins

Once secured, fasten hardware.

Wing Rest

Attach a Wing Rest weldment to each wing. Secure using (4) 1/2" x 1-1/4" hex bolts and (4) 1/2" centerlock hex nuts.

Once secured, fasten hardware.



Setup Instructions

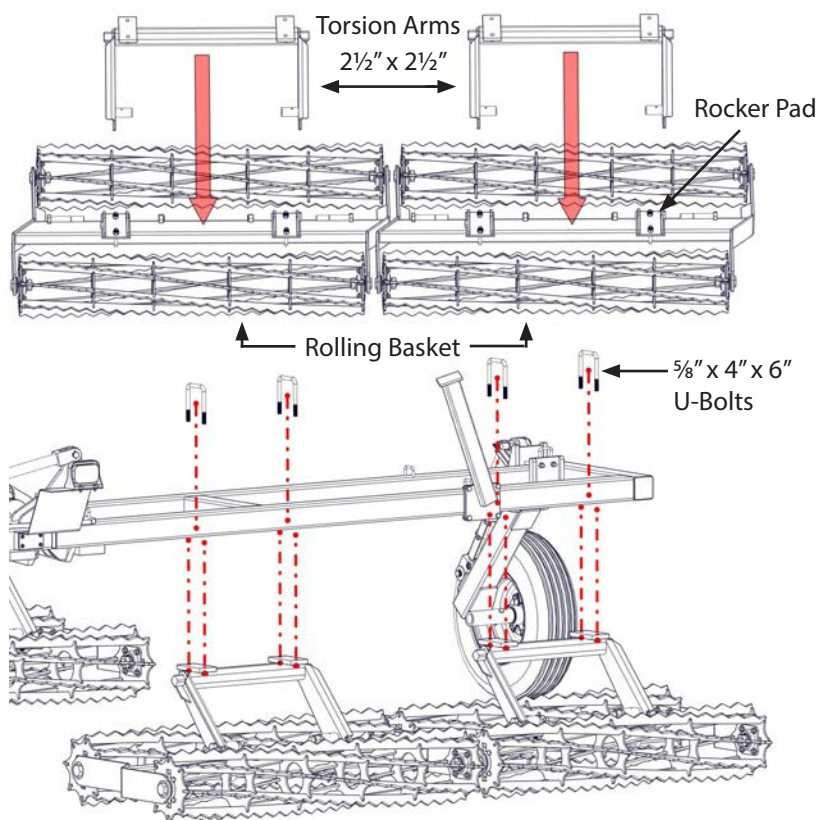
Wing Baskets

Attach the 2' Light Torsion arms to the rolling basket. Secure with 1" x 6-1/2" hex bolt and 1" nylon locking hex nut. Fasten hardware once secured. (Rocker Pads may need installed. Use 4-1/8" x 4-1/2" x 5/8" U-Bolt and (2) 5/8" nylon locking hex nuts.) Make sure the wing baskets are placed according to the "Basket Sizes and Layout" section on the "Specifications" on page 14.

IMPORTANT: Make sure the wing baskets closest to the baskets on the Base Unit baskets have a clearance of 2".

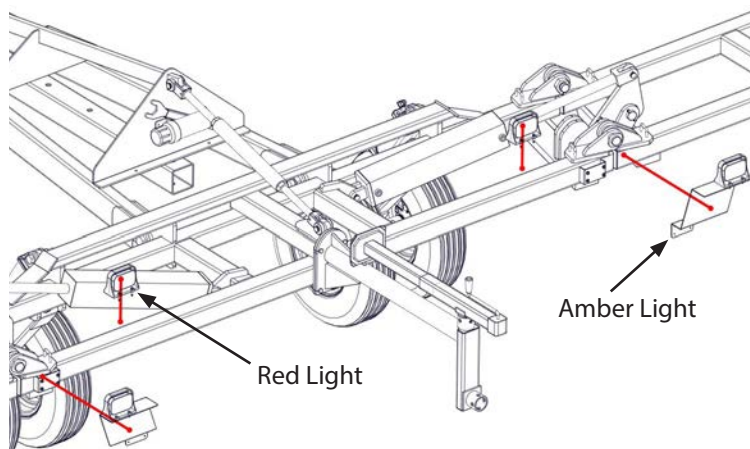
The spacing between each wing baskets should have a clearance of 1-1/2".

Attach each torsion arm - rolling basket assembly to the wing. Secure each torsion arm with (2) 5/8" x 4" x 6" U-bolts and (4) 5/8" centerlock hex nuts.



Lights and Light Brackets

Secure both Red Lights to the Main Frame using (4) 1/4" self tapping screws for each light. Secure both Amber Lights and Light Brackets to the Main Frame using (4) 1/4" x 5/8" hex bolts and (4) 1/4" hex nuts per light. Connect all lights to the main wiring harness. The main harness is installed and located inside the frame. All remaining wiring needs to be stored inside the frame.



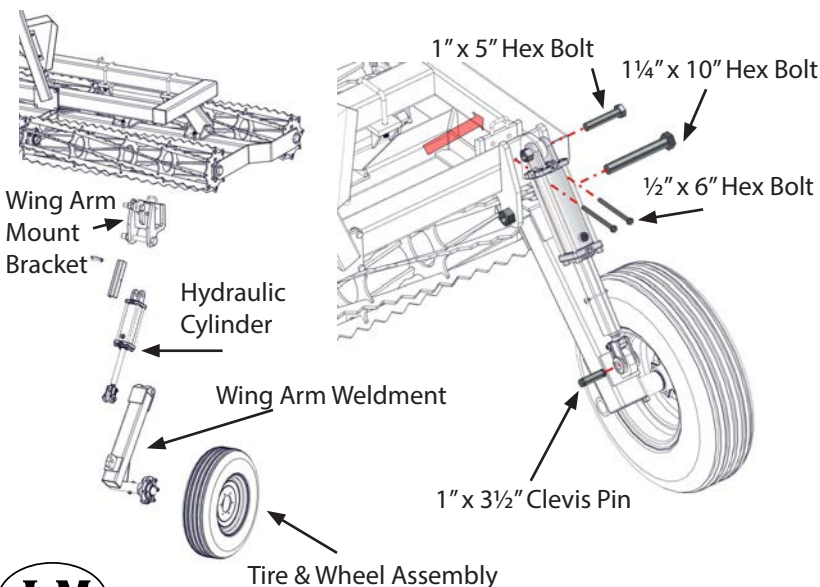
Optional Wing Wheels

Secure the Wing Arm Mount Bracket to the Wing. Place bracket approximately 6" from the outside of the Wing. Secure using (2) 1/2" x 6" hex bolts and (2) 1/2" centerlock hex nuts. Fasten hardware once secured. Attach the Wing Arm Weldment to the Mount Bracket. Secure with a 1-1/4" x 10" hex bolt and 1-1/4" nylon locking hex nut. Attach the wheel and tire assembly using (6) 1/2" wheel nuts.

Align the wheel and hub and tighten the wheel nuts in a star pattern to 80 Ft. Lbs. Check the wheel nuts periodically to ensure they remain tight.

Attach the hydraulic cylinder to the Wing Arm Weldment. Secure with a 1" x 5" hex bolt, 1" nylon locking hex nut, 1" x 3-1/2" clevis pin, and (2) cotter pins. Fasten hardware once secure. Install the cylinder lock, fasten with provided lynch pin.

NOTE: See "TF212, TF215 with Lift Assist (1 Set of Hoses)" on page 32 or "TF212, TF215 Equipped with Lift Assist (2 Sets of Hoses)" on page 34 for correct hydraulic cylinder layout.



Setup Instructions

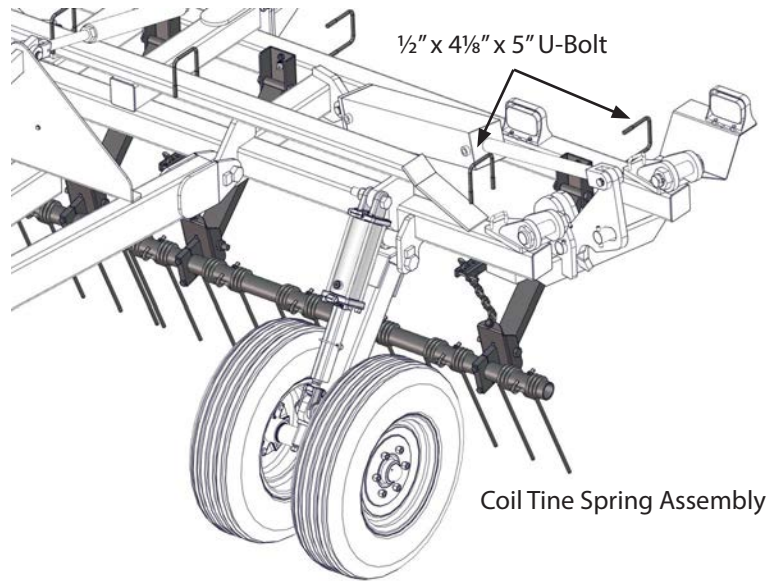
Coil Tine Spring Assembly

For part identification, "Coil Tine Pipe and Round Bar Bracket" on page 29.

For layout help see "Coil Tine Pipe Bar and Round Bar Bracket Layout" on page 13.

Attach the Coil Tine Spring Assembly to the main frame or wing weldment.

Secure the Coil Tine Spring Assembly with (2) 1/2" x 4-1/8" x 5" U-bolts and (4) 1/2" centerlock hex nuts. Fasten hardware once secured.



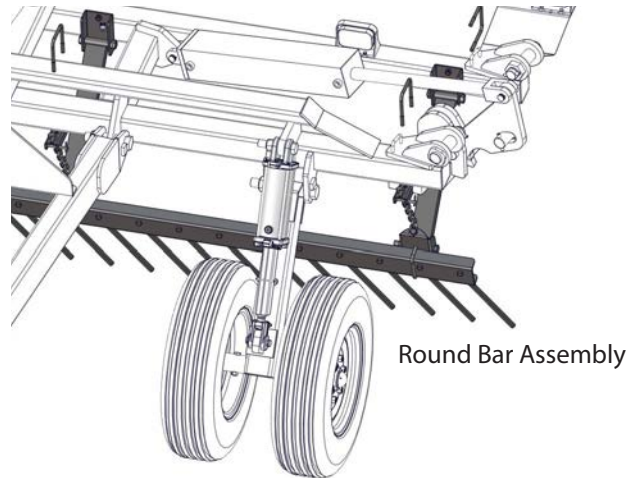
Round Bar Assembly

For part identification, "Coil Tine Pipe and Round Bar Bracket" on page 29.

For layout help see "Coil Tine Pipe Bar and Round Bar Bracket Layout" on page 13.

Attach the Round Bar Assembly to the main frame or wing weldment.

Secure the Round Bar Assembly with (2) 1/2" x 4-1/8" x 5" U-bolts and (4) 1/2" centerlock hex nuts. Fasten hardware once secured.



Coil Tine Pipe Bar and Round Bar Bracket Layout

Below is a recommended layout of the harrow pipe bar and round bar bracket lengths along the width of the conditioner. Be sure the Harrow is properly and evenly spaced along the Base Unit Main Frame and Wing Frames, making adjustments as necessary.

Round Bar Length & Layout					
	Working Width	Side Wing	Base Unit		Side Wing
Model TF2	12'		6'	6'	
	13'		4'	5' 4'	
	14'		5'	4' 5'	
	15'		5'	5' 5'	
	16'		5'	6' 5'	
	17'		6'	5' 6'	
	18'		6'	6' 6'	
Model TF212	20'	4'	6'	6'	4'
	22'	5'	6'	6'	5'
	23'	5'	6'	6'	5'
	24'	6'	6'	6'	6'
	26'	7'	6'	6'	7'
	27'	7'	6'	6'	7'
	28'	4' 4'	6'	6'	4' 4'
	29'	4' 5'	6'	6'	5' 4'
	30'	4' 5'	6'	6'	5' 4'
	31'	4' 6'	6'	6'	6' 4'
	32'	5' 5'	6'	6'	5' 5'
	33'	5' 5'	6'	6'	5' 5'
	34'	5' 6'	6'	6'	6' 5'
	35'	5' 6'	6'	6'	6' 5'
Model TF215	36'	5' 5'	5' 5' 5'	5' 5'	5' 5'
	37'	5' 6'	5' 5' 5'	6' 5'	5' 5'
	38'	5' 6'	5' 5' 5'	6' 5'	5' 5'
	39'	6' 6'	5' 5' 5'	6' 6'	6' 6'
	40'	6' 6'	5' 5' 5'	6' 6'	6' 6'
	41'	4' 4' 5'	5' 5' 5'	5' 4' 4'	5' 4' 4'
	42'	4' 4' 5'	5' 5' 5'	5' 4' 4'	5' 4' 4'
	43'	4' 5' 5'	5' 5' 5'	5' 5' 4'	5' 5' 4'
	44'	4' 5' 5'	5' 5' 5'	5' 5' 4'	5' 5' 4'
	45'	5' 5' 5'	5' 5' 5'	5' 5' 5'	5' 5' 5'

Specifications

	Specifications					Basket Sizes & Layout		
	Working Width	Transport Width	Base Width	Wings Each	Approximate Weight	Side Wing	Base Unit	Side Wing
Model TF2	12'	12'	12'	N/A	2,195 lbs		6' 6'	
	13'	13'	12'	N/A	2,310 lbs		4' 5' 4'	
	14'	14'	14'	N/A	2,425 lbs		5' 4' 5'	
	15'	15'	14'	N/A	2,540 lbs		5' 5' 5'	
	16'	16'	16'	N/A	2,655 lbs		5' 6' 5'	
	17'	17'	16'	N/A	2,770 lbs		6' 5' 6'	
	18'	18'	18'	N/A	2,885 lbs		6' 6' 6'	
Model TF212	20'	13'5"	12'	4'	4,415 lbs	4'	6' 6'	4'
	22'	13'5"	12'	5'	4,645 lbs	5'	6' 6'	5'
	23'	13'5"	12'	5'	4,760 lbs	5'6"	6' 6'	5'6"
	24'	13'5"	12'	6'	4,875 lbs	6'	6' 6'	6'
	26'	13'5"	12'	7'	5,105 lbs	3'6" 3'6"	6' 6'	3'6" 3'6"
	27'	13'5"	12'	7'	5,220 lbs	3'6" 4'	6' 6'	4' 3'6"
	28'	13'5"	12'	8'	5,335 lbs	4' 4'	6' 6'	4' 4'
	29'	13'5"	12'	8'	5,450 lbs	3'6" 5'	6' 6'	5' 3'6"
	30'	13'5"	12'	9'	5,565 lbs	4' 5'	6' 6'	5' 4'
	31'	13'5"	12'	9'	5,680 lbs	3'6" 6'	6' 6'	6' 3'6"
	32'	13'5"	12'	10'	5,795 lbs	5' 5'	6' 6'	5' 5'
	33'	13'5"	12'	10'	5,910 lbs	5'6" 5'	6' 6'	5' 5'6"
	34'	13'5"	12'	11'	6,025 lbs	5'6" 5'6"	6' 6'	5'6" 5'6"
	35'	13'5"	12'	11'	6,140 lbs	5'6" 6'	6' 6'	6' 5'6"
Model TF215	36'	15'5"	15'	10'	6,255 lbs	5'6" 5'	5' 5' 5'	5' 5'6"
	37'	15'5"	15'	11'	6,370 lbs	5' 6'	5' 5' 5'	6' 5'
	38'	15'5"	15'	11'	6,485 lbs	5'6" 6'	5' 5' 5'	6' 5'6"
	39'	15'5"	15'	12'	6,600 lbs	6' 6'	5' 5' 5'	6' 6'
	40'	15'5"	15'	12'	6,715 lbs	3'6" 4' 5'	5' 5' 5'	5' 4' 3'6"
	41'	15'5"	15'	13'	6,830 lbs	4' 4' 5'	5' 5' 5'	5' 4' 4'
	42'	15'5"	15'	13'	6,945 lbs	3'6" 5' 5'	5' 5' 5'	5' 5' 3'6"
	43'	15'5"	15'	14'	7,060 lbs	4' 5' 5'	5' 5' 5'	5' 5' 4'
	44'	15'5"	15'	14'	7,175 lbs	4' 5' 5'6"	5' 5' 5'	5'6" 5' 4'
	45'	15'5"	15'	15'	7,290 lbs	5' 5' 5'	5' 5' 5'	5' 5' 5'



Operations

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 all pins and retaining rings are in good condition. Replace any pins of 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 or 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.

Lubrication

Lubricate the Torsion-Flex soil conditioner according to the "Service" on page 17.

Tires and Wheels

Check the tire pressure in the transport tires. The recommended air pressure is 46 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" x 8" Tongue Pin and Cotter Pin. Readjust 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 and lock into place. Install a transport chain. Transport chain should have a minimum rating equal to the gross weight of implement and all attachments. Use only ASABE 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 located on top of the Storage Extension Arm.

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 A-Frame Tongue Assembly for easy storage.



Transporting

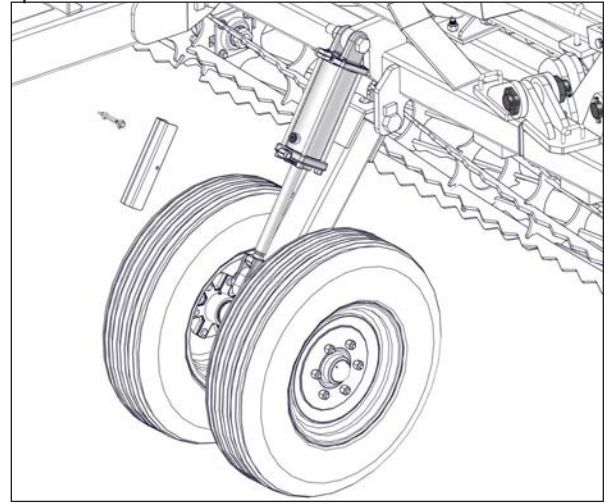
Before the soil conditioner is transported, be sure to secure the Jack Assembly in the transport position located on the top of the Storage Extension Arm.

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 retroreflective 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.



Unhitching

WARNING – Before unhooking the soil conditioner, be sure to install the hydraulic cylinder transport locks. Reposition the jack stand on the Storage Extension Arm 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.

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 your 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.

With the wheels in the raised position, adjust the Turn Buckle Adjustment Bar until the wheels are approximately 2" above the ground. This will set your Torsion-Flex Soil Conditioner at the maximum clearance height during transport.

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

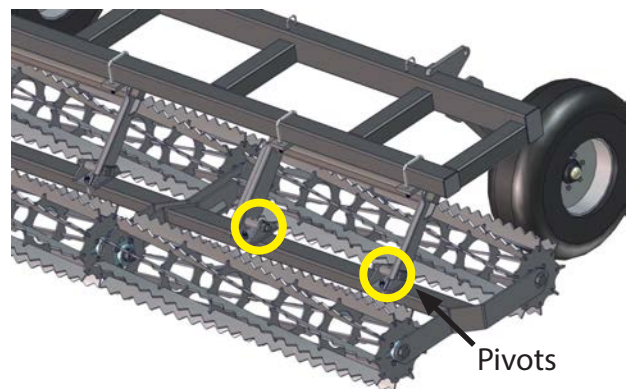
To add longer service and life to your Torsion-Flex Soil Conditioner, perform the following before placing the implement in storage:

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 wing and wheel pivot points.
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 hinge, linkage area and wheel transport pivots (3x) weekly or every 40 hours.
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 make necessary repairs.
5. Check tire pressures and lug nuts periodically and adjust as required.



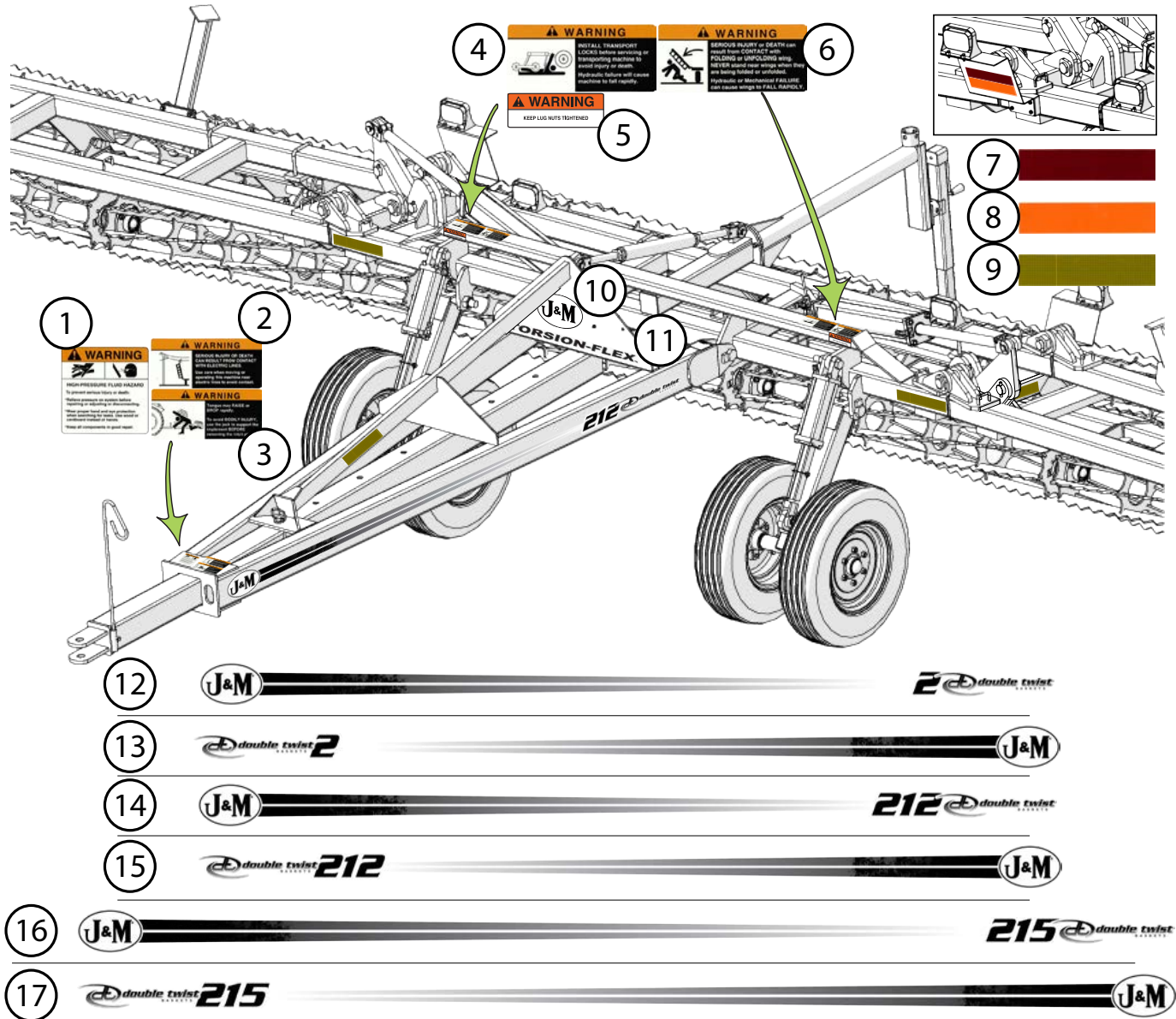
NOTE: Basket bearings do not need greased before the first use. The basket bearings are greased at the factory.

Troubleshooting

When Hydraulics Are Not Functioning Properly...

PROBABLE CAUSE	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.

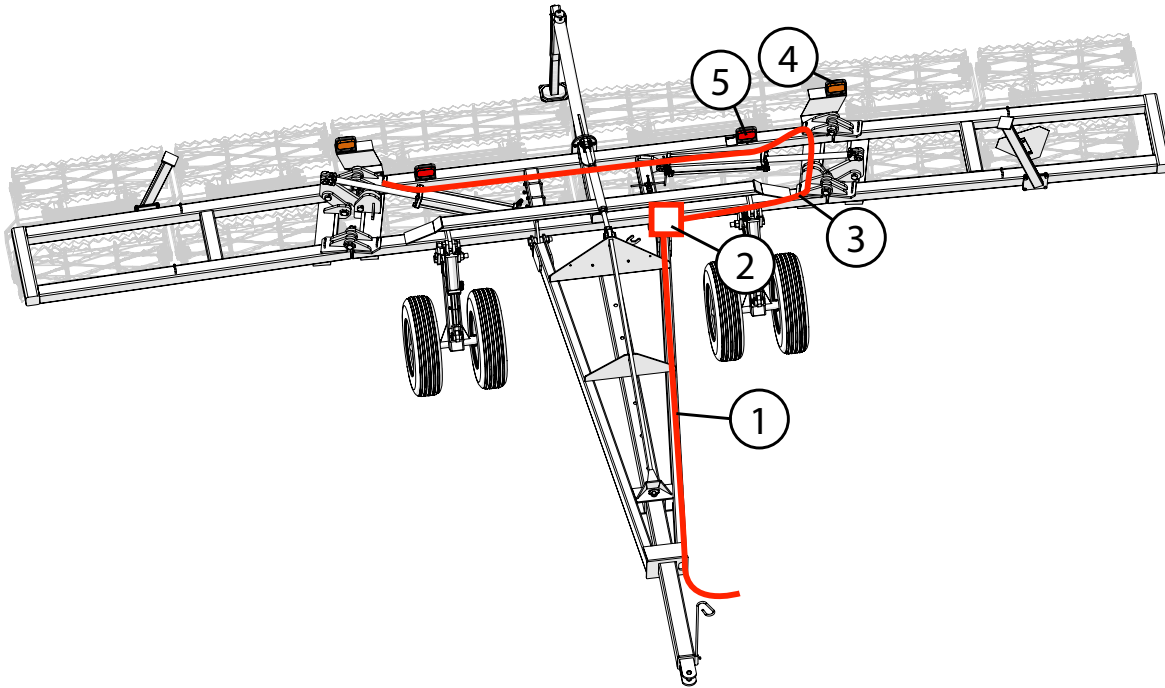
Decals



	Description	Part No.
1	Warning, High Pressure Fluid Hazard Decal 4" x 4"	JM0010163
2	Warning, TF Serious Injury Electric Lines 2-3/4" x 6"	JM0010182
3	Warning - Tongue May Raise Decal 2-3/4" x 6"	JM0010181
4	Warning - Install Transport Locks Decal 2-3/4" x 6"	JM0010167
5	Warning, Keep Lug Nuts Tightened Decal 1-5/8" x 4"	JM0010150
6	Warning, Falling Or Lowering Decal	JM0014992
7	Red Reflective Decal 2" x 9"	JM0009945
8	Orange Reflective Decal 2" x 9"	JM0009944
9	Amber Reflective Decal 2" x 9"	JM0009946
10	J&M Oval Decal (Medium) 5-1/2" x 8-1/2"	JM0010179
11	Torsion Flex Decal 1-3/4" x 31"	JM0010173
12	TF2 Driver Side Stripe Decal	JM0041006
13	TF2 Passenger Side Stripe Decal	JM0076185
14	TF212 Driver Side Stripe Decal	JM0041007
15	TF212 Passenger Side Stripe Decal	JM0076181
16	TF215 Driver Side Stripe Decal	JM0041008
17	TF215 Passenger Side Stripe Decal	JM0076186

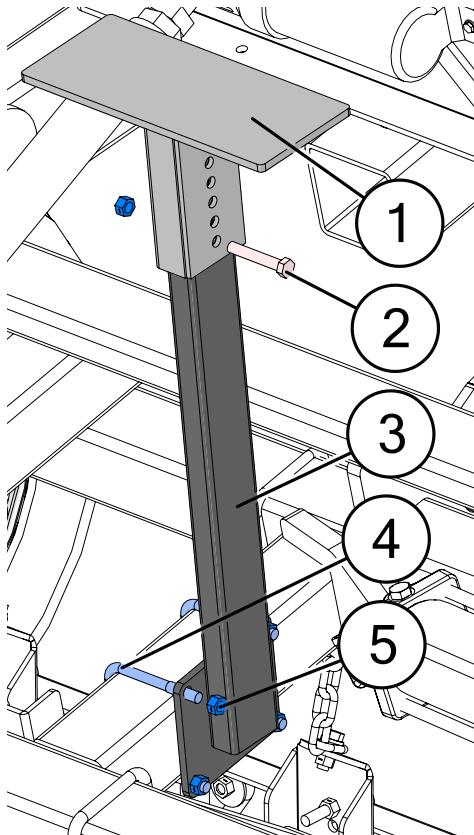


Lights and Wiring



	Description	Part No.
1	Main A-Frame Wiring Harness with 7 Prong Connector End (Torsion-Flex)	JM0027077
2	Light Enhancer and Adapter Kit (3 Wires)	JM0010566
3	Light Wiring Harness (Torsion-Flex)	JM0027080
4	Amber Light (Soil Conditioner, NitroGro)	JM0009975
5	Red Light (Soil Conditioner, NitroGro)	JM0009976

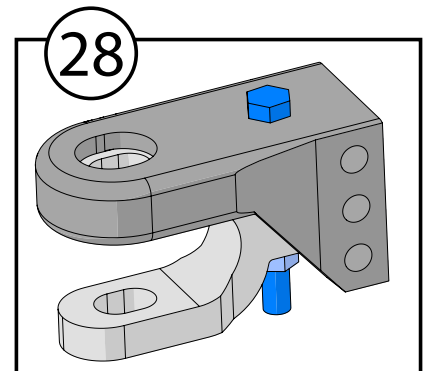
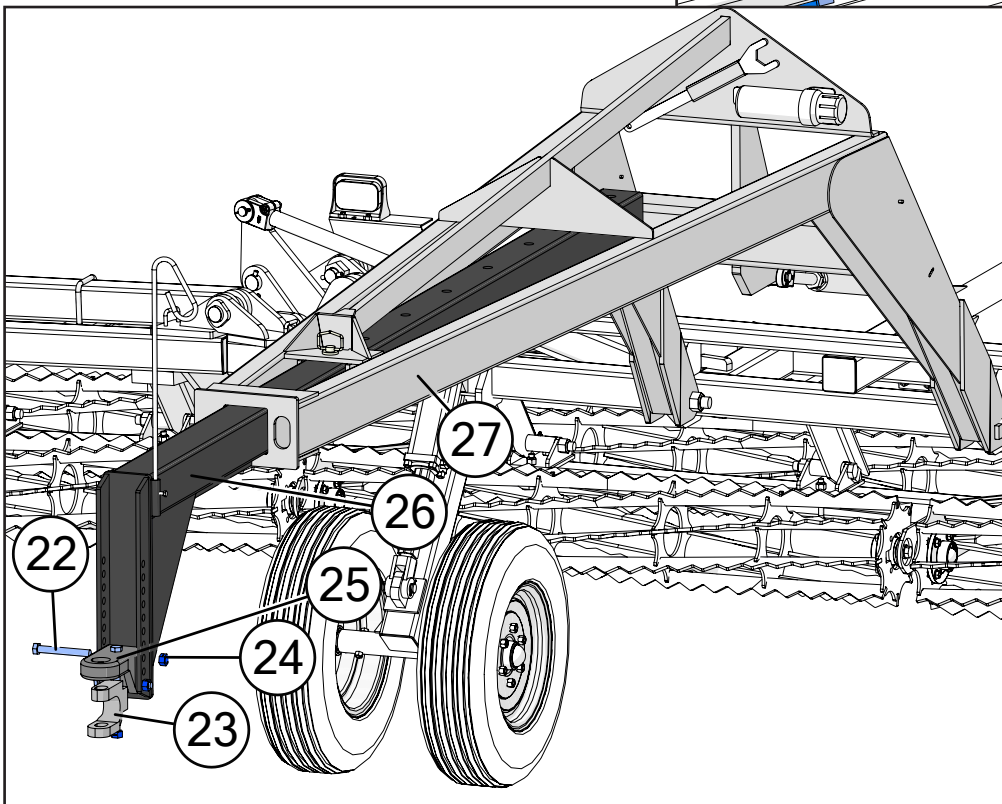
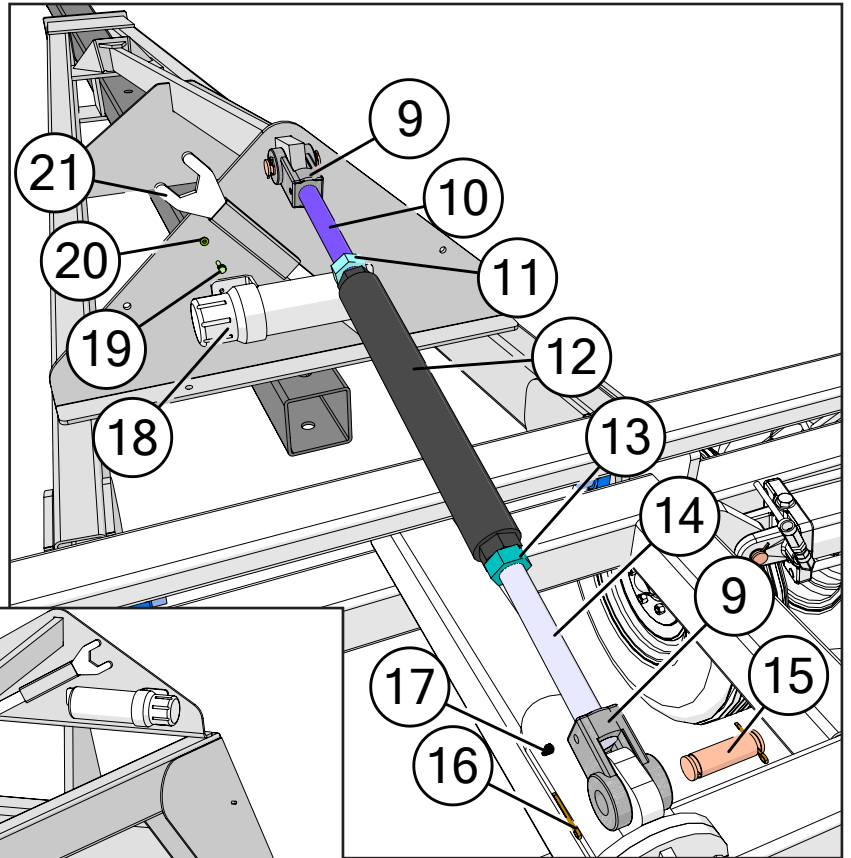
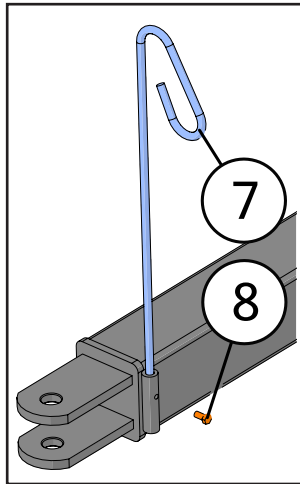
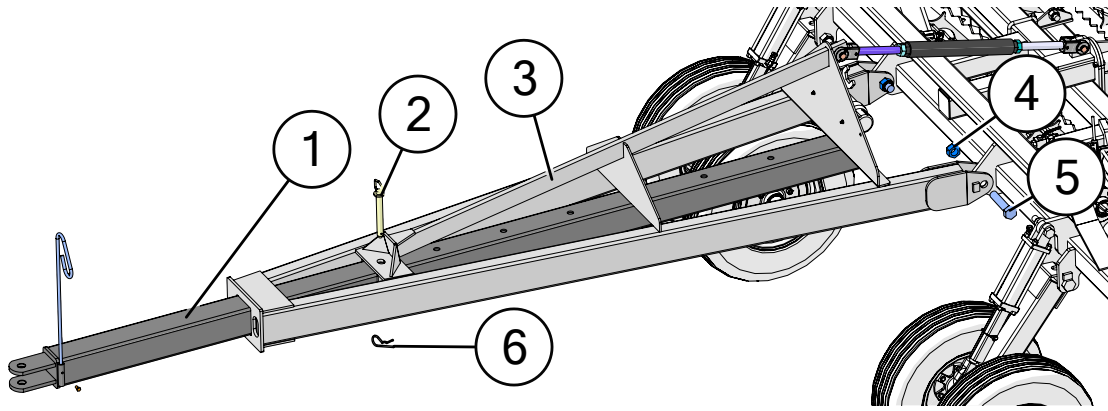
Wing Prop



*Wing Prop only for TF212 & 215 with 13" baskets and harrow bars.

	Description	Part No.
1	Adjustable Prop - Platform (8" Long Tube)	JM0044535
2	1/2"-13 x 3" Gr5 Z Hex Bolt	JM0016678
3	Adjustable Prop - Upright (31" Long Tube)	JM0044536
4	1/2"-13 x 4-1/8" x 5" Square U-Bolt	JM0010001
5	1/2"-13 Gr2 Z Centerlock Hex Nut	JM0001511

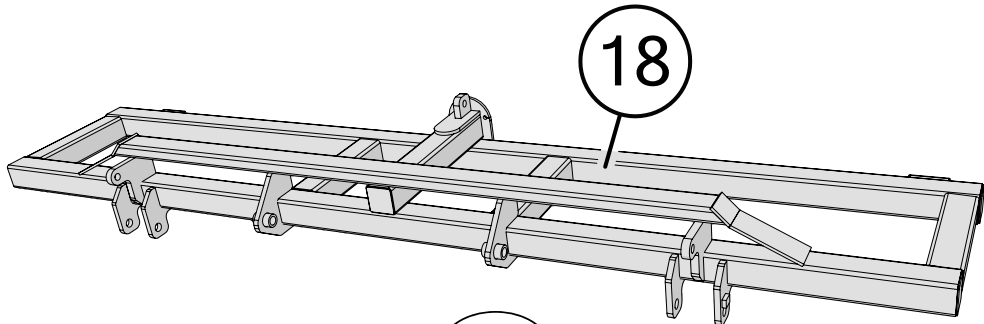
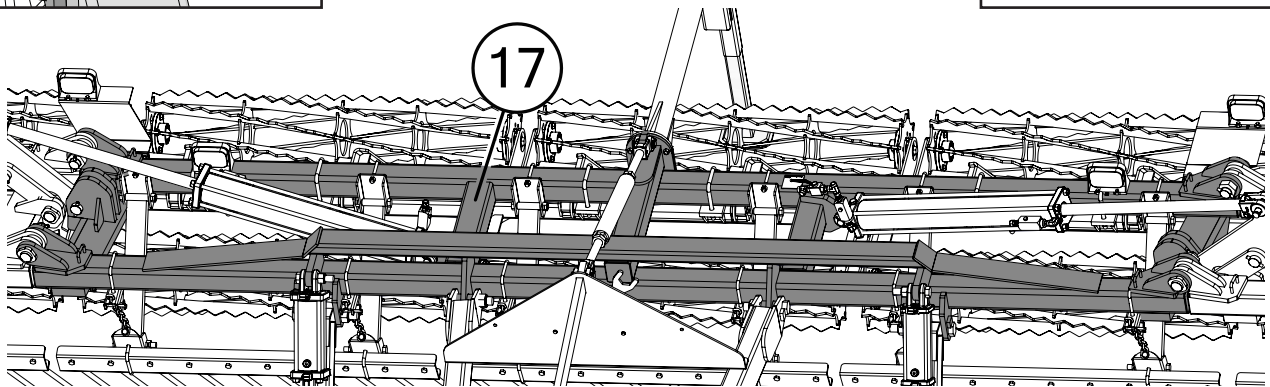
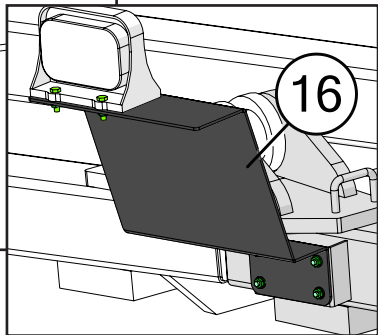
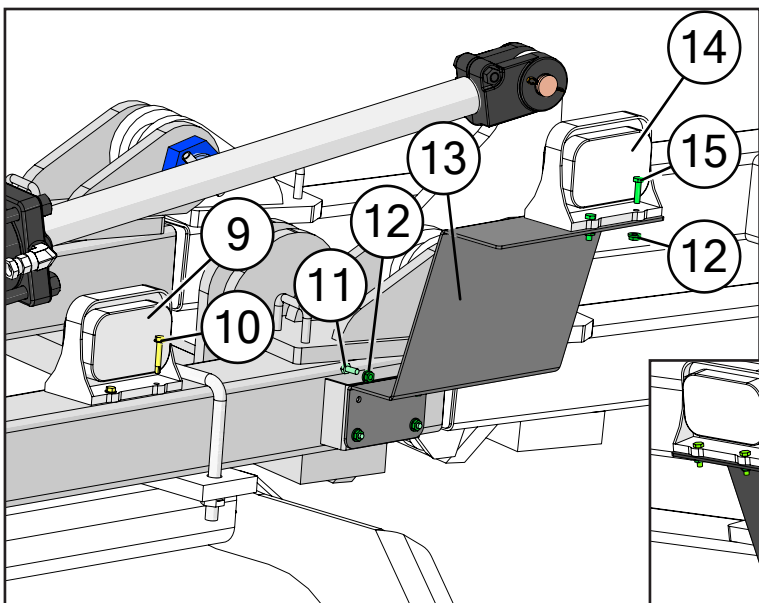
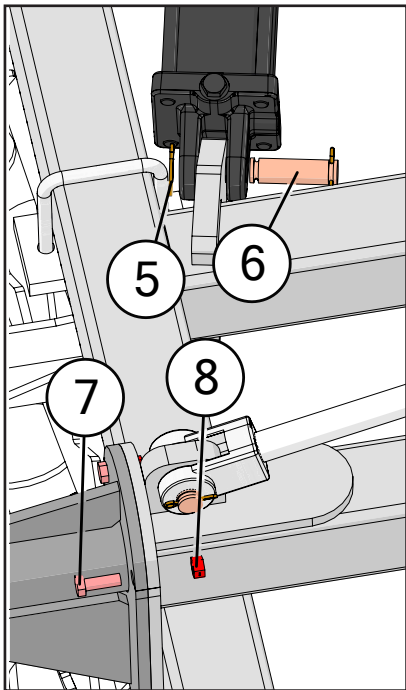
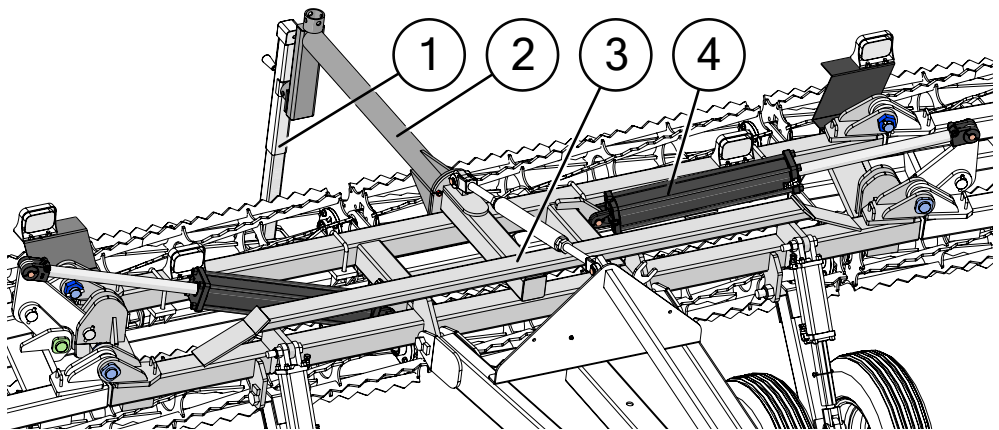
A-Frame Assembly



A-Frame Assembly

	Description	Part No.
1	Inner Tongue Weldment (TF2, TF212, TF215)	JM0026437
2	1" x 8" Tongue Pin and Cotter Pin (18PCP)	JM0027117
3	A-Frame Tongue Weldment (TF212)	JM0026439
3	A-Frame Tongue Weldment (TF215)	JM0026444
4	1-1/4"-7 Gr2 Z Nylon Locking Hex Nut	JM0026789
5	1-1/4"-7 x 6" Gr5 Z Hex Bolt	JM0016690
6	Hair Pin Clip For TF Hitch Pin	JM0028344
7	1/2" Hose Holder Rod for TF Soil Conditioner, NitroGro (12HHR)	JM0027120
8	3/8"-16 x 3/4" Gr5 Z Hex Bolt	JM0001663
9	Turn Buckle Clevis End 1-1/4"-12 THD (1" Pin Hole)	JM0026759
10	TF Turn Buckle Shaft - Both Ends R/H Thread (TBS-2RH)	JM0026755
11	1-1/4"-12 Gr5 PN RH Hex Nut	JM0019930
12	TF Turn Buckle Center Pipe Weldment (TBCB-1)	JM0026758
13	1-1/4"-12 Gr5 PN LH Hex Nut	JM0019931
14	Turn Buckle Shaft 1 L/H, 1 R/H (Gold Plated) (TBS-1RH1LH)	JM0026757
15	1" x 3-1/2" Clevis Pin with Cotter Pins	JM0026784
16	5/32" x 1-1/2" Cotter Pin	JM0014348
17	3/8"-16 x 1/2" Hex Head Set Screw	JM0019044
18	Operator's Manual Canister	JM0010115
19	1/4"-20 x 1" Gr5 Z SF Hex Bolt	JM0001643
20	1/4"-20 Gr5 Z SF Hex Nut	JM0001630
21	Wrench (TF)	JM0015256
22	3/4"-10 x 6" Gr8 Z Hex Bolt	JM0037185
23	CTD Perfect Hitch Clevis 1-1/4" x 1-3/4" Slot	JM0037173
24	3/4"-10 Gr2 Z Centerlock Hex Nut	JM0002147
25	CTD Perfect Hitch Base PP23XLR	JM0037174
26	TF Telescoping Tongue Weldment for Gooseneck	JM0044199
27	TF212 Gooseneck Tongue Weldment	JM0044246
27	TF215 Gooseneck Tongue Weldment	JM0044206
28	CTD Perfect Hitch Assembly (NitroGro) (Includes Bolt & Nut)	JM0037177

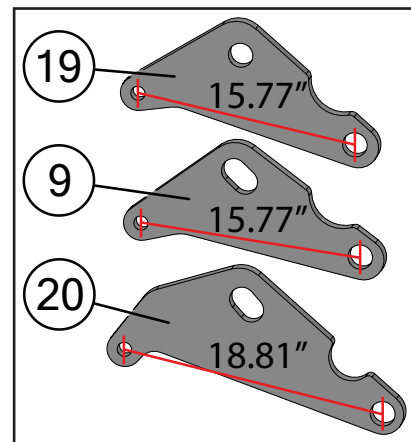
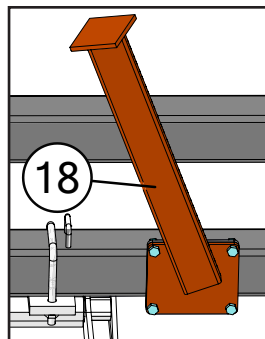
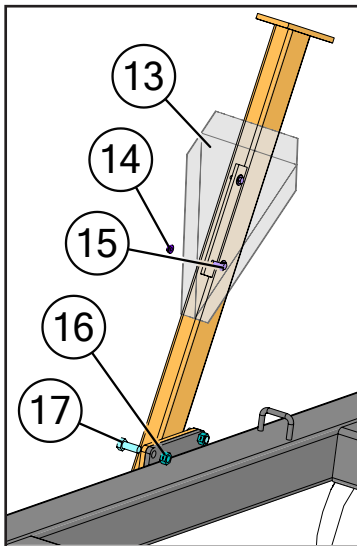
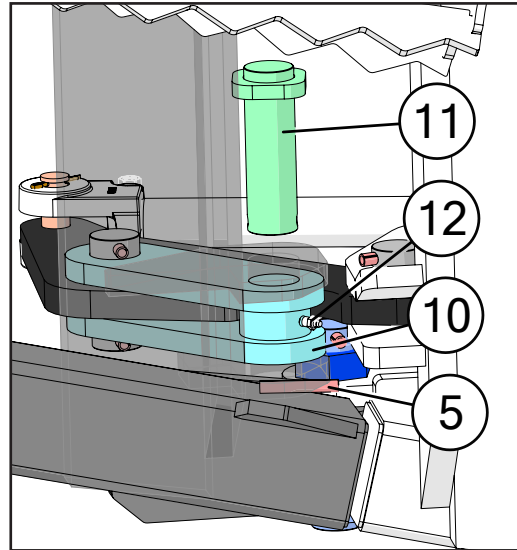
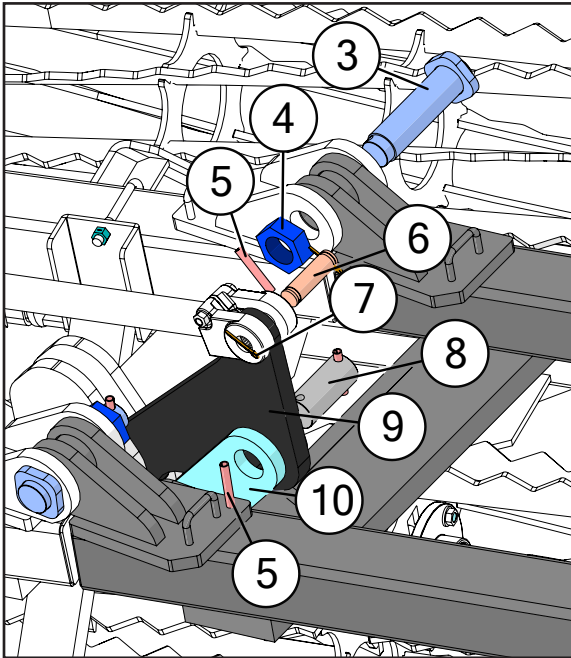
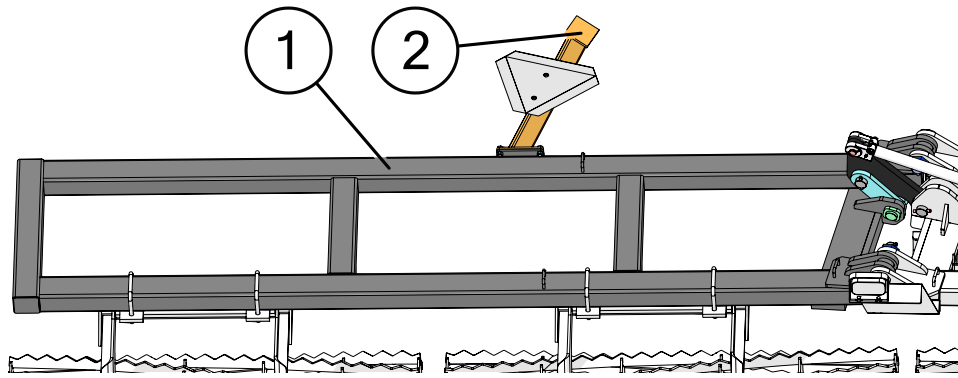
Main Frame Assembly



Main Frame Assembly

	Description	Part No.
1	Jack Stand Assembly (8,000 lbs.)	JM0026798
2	TF Longer Bolt-On Jack Mount Weldment (13" Baskets)	JM0044131
3	TF212 Base Unit Main Frame (BMF-212)	JM0026374
4	4" x 24" Hydraulic Cylinder (424HC)(TF212)	JM0018348
5	5/32" x 1-1/2" Cotter Pin	JM0014348
6	1" x 3-1/2" Clevis Pin with Cotter Pins	JM0026784
7	1/2"-13 x 1-1/2" Gr5 Z Hex Bolt	JM0002100
8	1/2"-13 Gr2 Z Centerlock Hex Nut	JM0001511
9	Red Light (Soil Conditioner, NitroGro)	JM0009976
10	1/4" x 1-1/2" Self Tapping Screw	JM0001571
11	1/4"-20 x 5/8" Gr5 Z Hex Bolt	JM0001479
12	1/4"-20 Gr5 Z SF Hex Nut	JM0001630
13	TF Light Mounting Bracket R/H	JM0015232
14	Amber Light (Soil Conditioner, NitroGro)	JM0009975
15	1/4"-20 x 1" Gr5 Z Hex Bolt	JM0002095
16	TF Light Mounting Bracket L/H	JM0015233
17	TF215 Base Unit Main Frame (BMF-215)	JM0026389
18	TF2 12' or 13' Base Unit Main Frame (BMF-2-12)	JM0031862
18	TF2 14' or 15' Base Unit Main Frame (BMF-2-14)	JM0031863
18	TF2 16' or 17' Base Unit Main Frame (BMF-2-16)	JM0031864
18	TF2 18' Base Unit Main Frame (BMF-2-18)	JM0031865

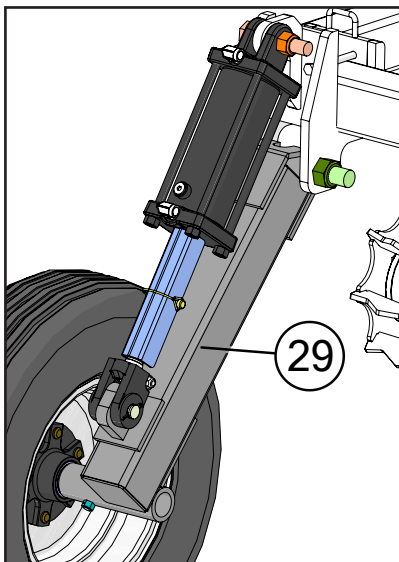
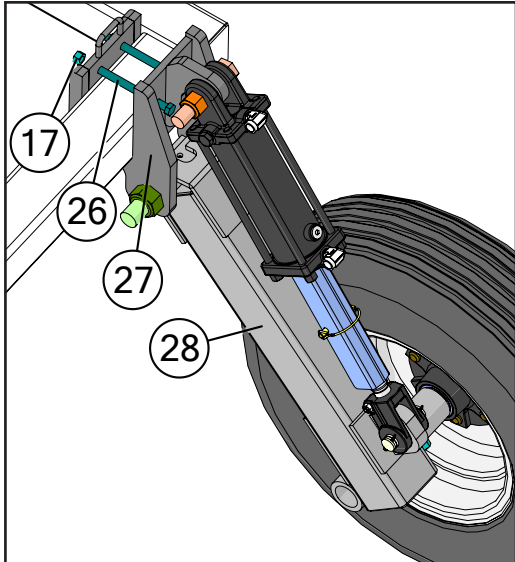
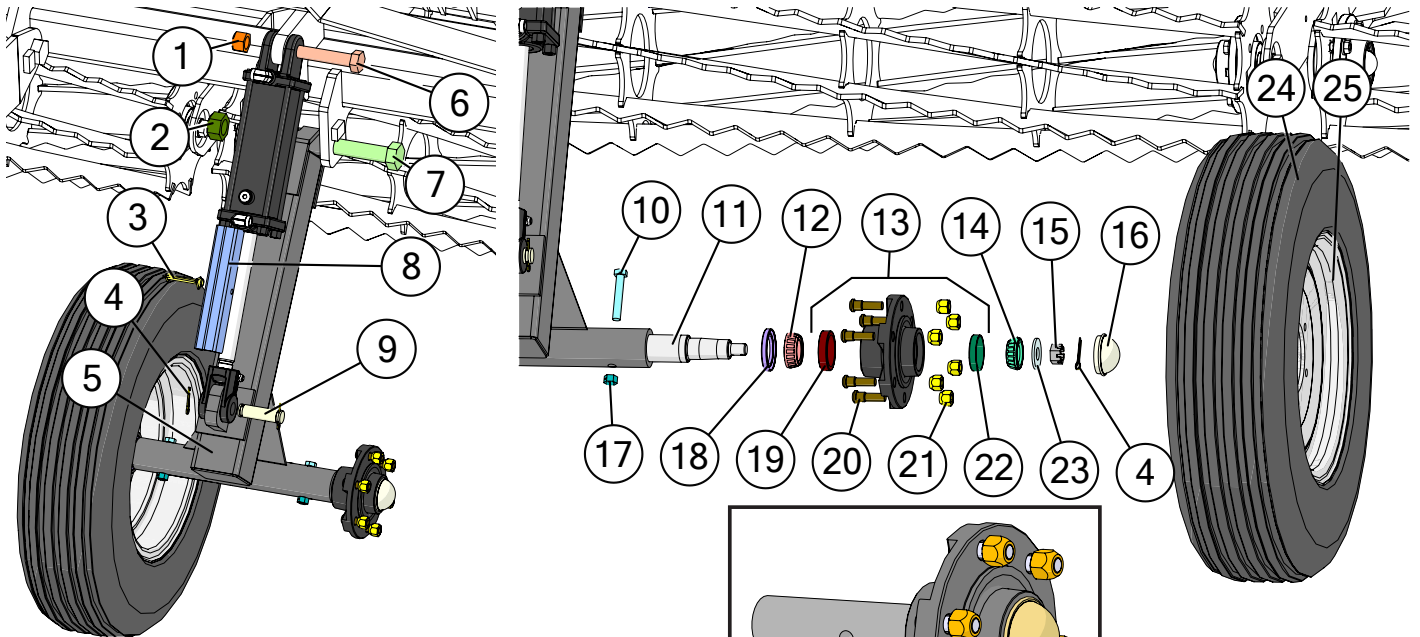
Wing Assembly and Connections



Wing Assembly and Connections

	Description	Part No.
1	4' Wing Weldment TF212	JM0026536
1	5' Wing Weldment TF212	JM0026535
1	6' Wing Weldment TF212	JM0026534
1	7' Wing Weldment TF212	JM0026533
1	8' Wing Weldment TF212	JM0026532
1	9' Wing Weldment TF212	JM0026372
1	10' Wing Weldment TF212	JM0026539
1	11' Wing Weldment TF212	JM0026540
1	10' Wing Weldment TF215	JM0026375
1	11' Wing Weldment TF215	JM0026552
1	12' Wing Weldment TF215	JM0026551
1	13' Wing Weldment TF215	JM0026550
1	14' Wing Weldment TF215	JM0026549
1	15' Wing Weldment TF215	JM0026548
2	TF Wing Rest Arm Left Side (SMV Mount)	JM0026639
3	1-3/4" x 6-3/8" Wing Bolt Z	JM0026691
4	1-3/4"-5 Gr5 Z Hex Nut	JM0019334
5	7/16" x 2-3/4" Z Roll Pin	JM0009895
6	1" x 3-1/2" Clevis Pin with Cotter Pins	JM0026784
7	5/32" x 1-1/2" Cotter Pin	JM0014348
8	1-3/4" x 4" Pin	JM0026689
9	Leverage Arm with Oblong Hole (25'-35' Wide)	JM0015222
10	Pivot Linkage Arm Weldment TF212	JM0026682
10	Pivot Linkage Arm Weldment TF215	JM0026683
11	1-3/4" x 5" Wing Bolt Z	JM0026690
12	1/8" NPT Male x 11/16" Straight Grease Fitting	JM0009756
13	Slow Moving Vehicle Sign	JM0001616
14	1/4"-20 Gr5 Z SF Hex Nut	JM0001630
15	1/4"-20 x 3/4" Gr5 Z SF Hex Bolt	JM0001642
16	1/2"-13 Gr2 Z Centerlock Hex Nut	JM0001511
17	1/2"-13 x 1-1/4" Gr5 Z Hex Bolt	JM0001513
18	Wing Rest Arm Right Side	JM0026640
19	Leverage Arm (Units 24' and Below)	JM0015221
20	Leverage Arm TF215	JM0015223

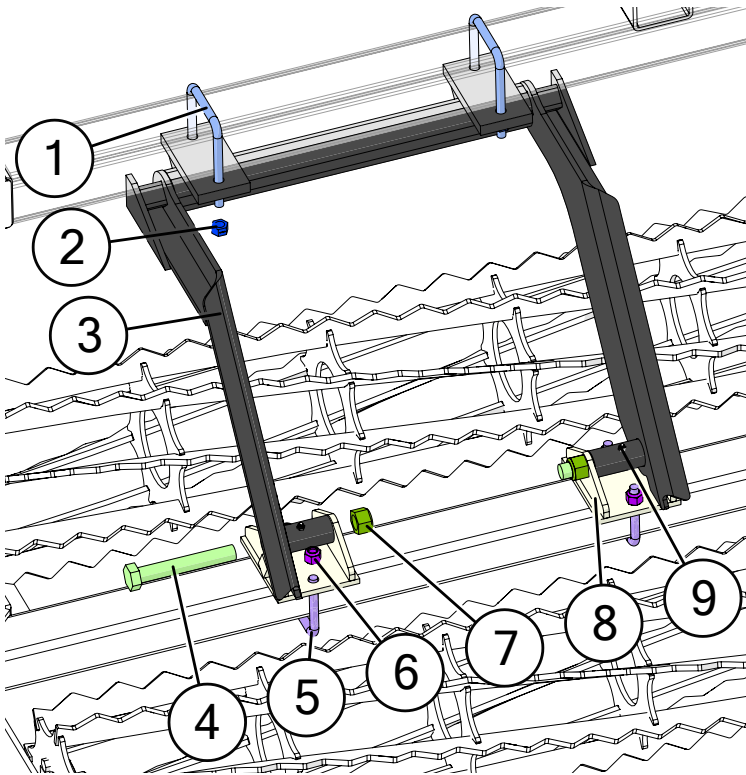
Main Wheel and Wing Wheel Assembly



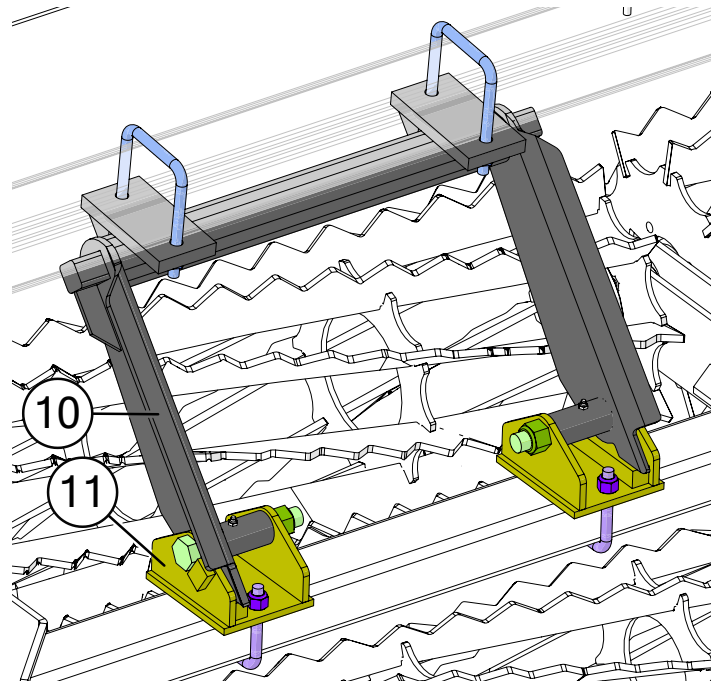
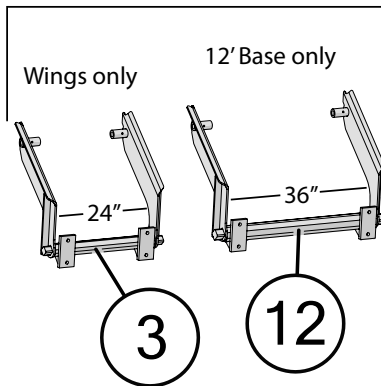
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	Description	Part No.
1	1"-8 Gr5 Z Nylon Locking Hex Nut	JM0002161
2	1-1/4"-7 Gr2 Z Nylon Locking Hex Nut	JM0026789
3	3/8" x 2-1/2" Wire Lock Pin (38212WLP)	JM0014929
4	5/32" x 1-1/2" Cotter Pin	JM0014348
5	TF212, TF215 Wheel Arm Weldment	JM0026696
6	1"-8 x 5" Gr5 Z Hex Bolt	JM0016688
7	1-1/4"-7 x 10" Gr5 Z Hex Bolt	JM0076332
8	Wheel Cylinder Lock	JM0015237
9	1" x 3-1/2" Clevis Pin with Cotter Pins	JM0026784
10	1/2"-13 x 3" Gr5 Z Hex Bolt	JM0016678
11	1-3/4" Diameter Spindle (SS-1345C)	JM0026569
12	Large Inner Bearing for 6-8 Ton (LM48548) (104579)	JM0019563
13	Hub with Races, Studs and Nuts, 7-8 Ton (105218)	JM0026566
14	Small Outer Cone for 6-10 Ton (LM67048)	JM0019564
15	3/4"-16 Gr2 Castle Hex Nut	JM0002130
16	Dust Cap, 6-10 Ton (103969)	JM0026567
17	1/2"-13 Gr2 Z Centerlock Hex Nut	JM0001511
18	Grease Seal, 6-8 Ton (103953)	JM0026572
19	Large Cup for 6-8 Ton (LM48510) (104580)	JM0026565
20	Wheel Stud for Hub, 6-8 Ton (1/2"-20 x 1-7/8") (4187)	JM0019559
21	1/2"-20 Lug Nut, 6-8 Ton (5552)	JM0003062
22	Small Cup for 6-10 Ton (LM67010) (200500)	JM0026564
23	3/4" USS Hardened YZ Flat Washer	JM0058394
24	11L-15 Tire - 10 ply	JM0027743
25	Wheel Rim, 6 Hole 15" x 8" (WR-158)	JM0026801
26	1/2"-13 x 6" G5 Z Hex Bolt	JM0016679
27	TF Wing Wheel Mount Weldment	JM0026429
28	Wheel Arm Weldment - Left (TF212-TF215)	JM0026713
29	Wheel Arm Weldment - Right (TF212, TF215)	JM0026714
30	G25-6 Hub, Spindle, and Bearings Assembly	JM0026571

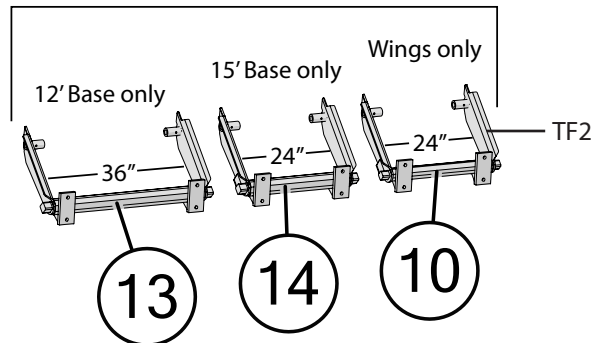
Torsion Arm



13" Serrated Baskets x 13" Serrated Baskets

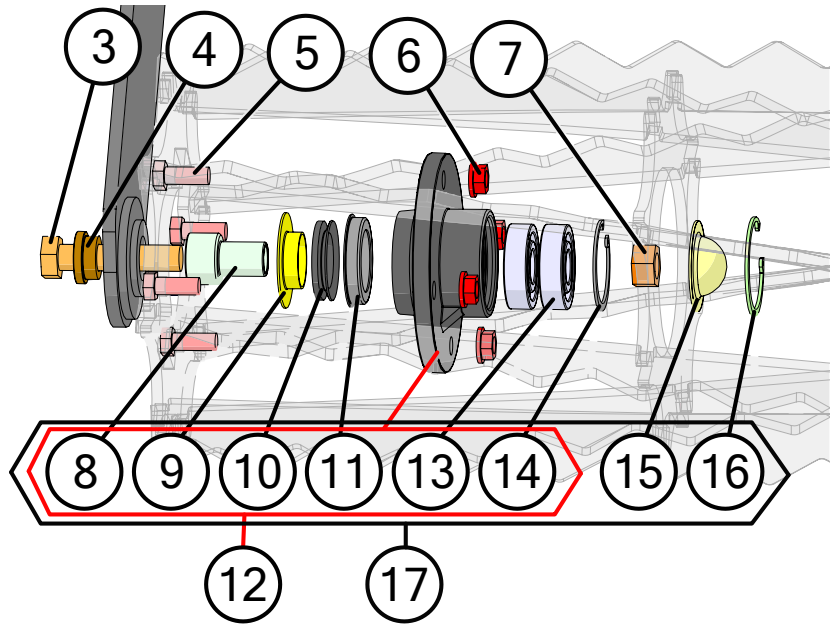
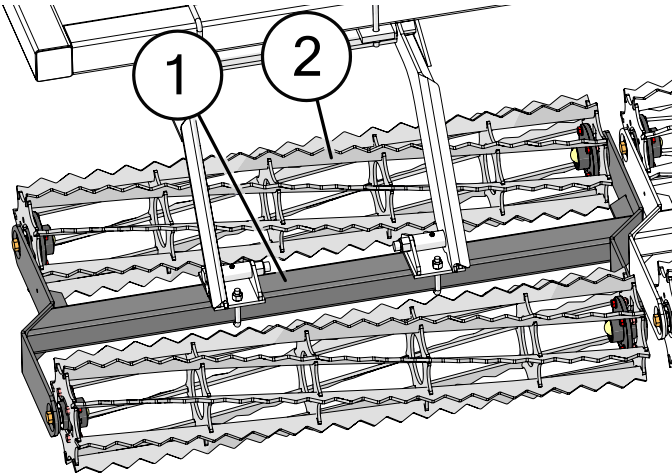


13" Serrated Baskets x 16" Serrated Baskets
13" Serrated Baskets x 13" Round Bar
16" Serrated Baskets x 16" Serrated Baskets



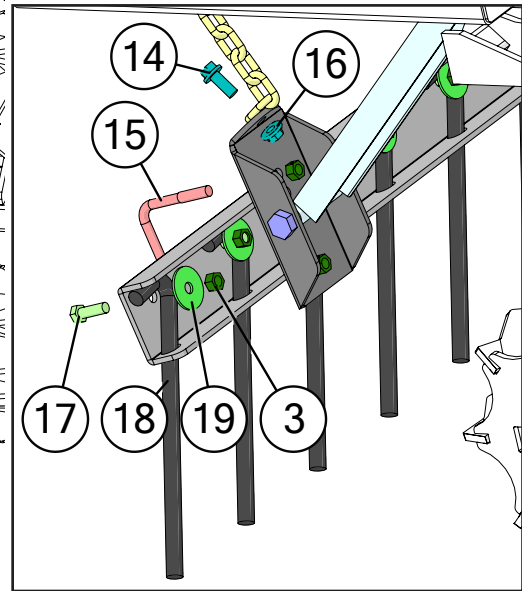
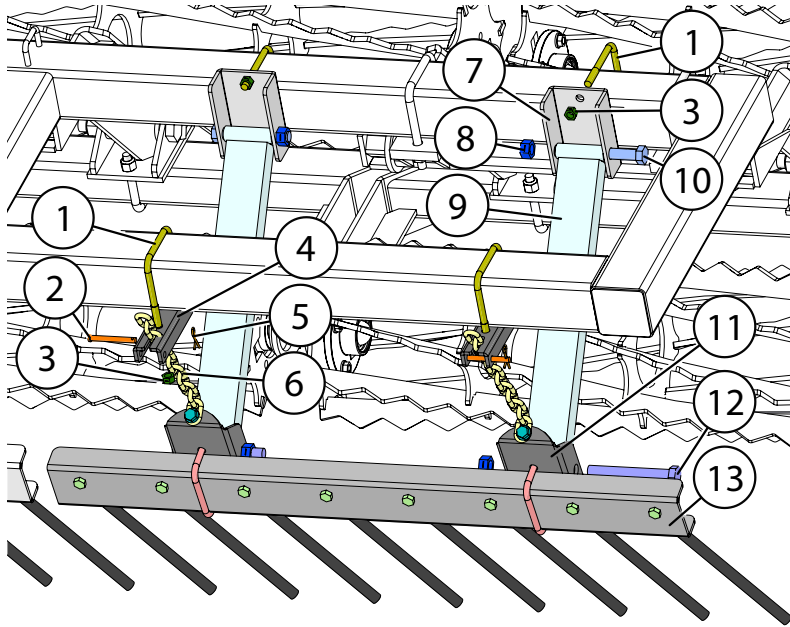
Description	Part No.
1 5/8"-11 x 4-1/8" x 6" Square U-Bolt	JM0014190
2 5/8"-11 Gr2 Z Centerlock Hex Nut	JM0002146
3 2' Light Torsion Arm Weldment (Curved Arms)	JM0044651
4 1"-8 x 6-1/2" Gr5 Z Hex Bolt	JM0014192
5 5/8" x 4-1/8" x 4-1/2" Square U-Bolt	JM0014189
6 5/8"-11 Gr2 Z Nylon Locking Hex Nut	JM0008428
7 1"-8 Gr5 Z Nylon Locking Hex Nut	JM0002161
8 Swivel Bracket for 13" Baskets	JM0008427
9 1/8" NPT Male x 11/16" Straight Grease Fitting	JM0009756
10 2' Light Torsion Arm Weldment (Straight Arms)	JM0008448
11 Swivel Bracket for 16" Baskets	JM0028405
12 3' Heavy Torsion Arm Weldment (Curved Arms)	JM0043556
13 3' Heavy Torsion Arm Weldment (Straight Arms)	JM0008446
14 2' Heavy Torsion Arm Weldment (Straight Arms)	JM0008447

Rolling Basket

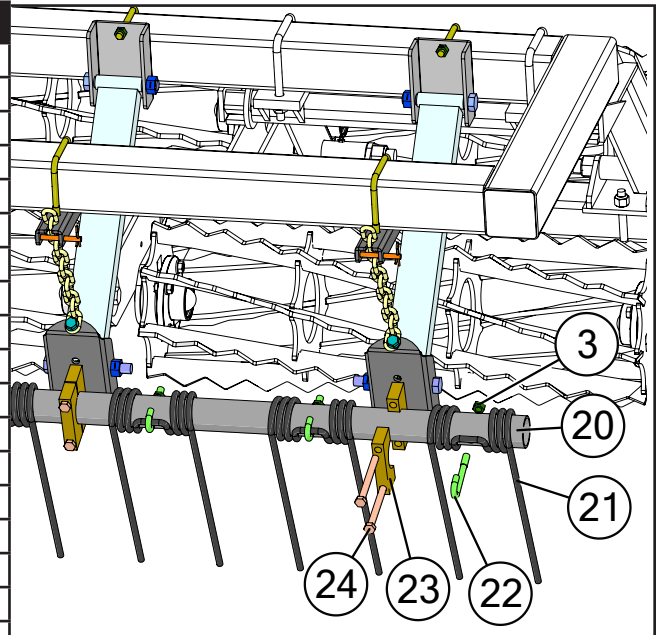


Description		Part No.
1	3-1/2' Crazy Leg Weldment 40" Wide (2:1 Twist)	JM0001766
1	4' Crazy Leg Weldment 46" Wide (2:1 Twist)	JM0001767
1	5' Crazy Leg Weldment 58" Wide (2:1 Twist)	JM0001768
1	5-1/2' Crazy Leg Weldment 64" Wide (2:1 Twist)	JM0001769
1	6' Crazy Leg Weldment 70" Wide (2:1 Twist)	JM0001770
2	3-1/2' Basket Weldment 16" Diameter 37-5/8" Length	JM0005734
2	4' Basket Weldment 16" Diameter 43-9/16" Length	JM0005740
2	5' Basket Weldment 16" Diameter 55-5/8" Length	JM0005742
2	5-1/2' Basket Weldment 16" Diameter 61-5/8" Length	JM0005745
2	6' Basket Weldment 16" Diameter 67-5/8" Length	JM0005747
2	3-1/2' Basket Weldment 13" Diameter 37-5/8" Length	JM0026962
2	4' Basket Weldment 13" Diameter 43-9/16" Length	JM0005713
2	5' Basket Weldment 13" Diameter 55-5/8" Length	JM0003252
2	5-1/2' Basket Weldment 13" Diameter 61-5/8" Length	JM0002586
2	6' Basket Weldment 13" Diameter 67-5/8" Length	JM0003259
3	3/4"-16 x 3-3/4" Gr8 YZ Fine Thread Hex Bolt	JM0076333
4	Flange Washer (1488 Hub)	JM0041325
5	1/2"-13 x 1-1/4" Gr5 Z Hex Bolt	JM0001513
6	1/2"-13 Gr5 Z SF Hex Nut	JM0002153
7	3/4"-16 Gr8 YZ Hex Nut	JM0041245
8	Bearing Sleeve (1488 Hub) (A-5645)	JM0041321
9	Grass Wrap Guard (1488 Hub) (A-5573)	JM0041324
10	Seal (1488 Hub) (A-907-B1-434)	JM0041323
11	Counterface (1488 Hub) (A-5623)	JM0041322
12	1488 Hub Assembly Less Dust Cap and Snap Ring (GBGI)	JM0041320
13	6305 Bearing (1488 Hub)	JM0041319
14	Inner Retaining Ring for 1488 Hub (A-4436)	JM0041318
15	Dust Cap with Seal for 1488 Hub (A-5579)	JM0041317
16	Outer Retaining Ring (1488 Hub) (A-5745)	JM0041316
17	1488 Hub Assembly (GBGI) with Dust Cap and Snap Ring	JM0045622

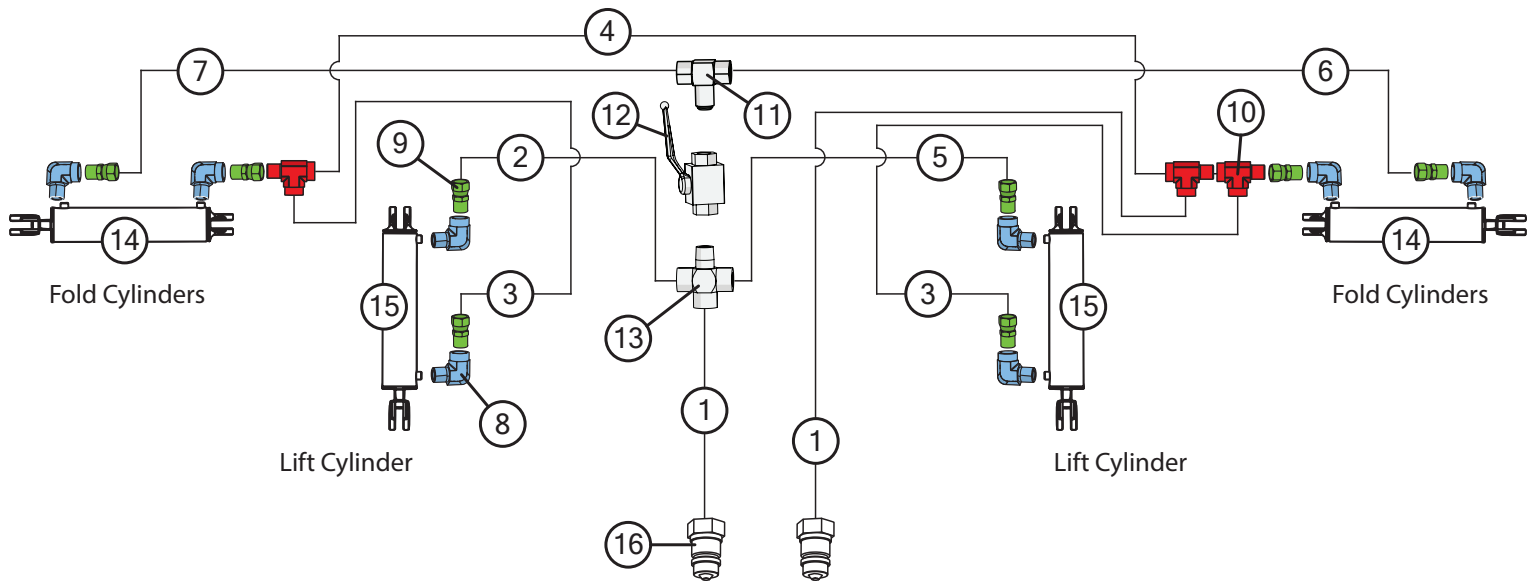
Coil Tine Pipe and Round Bar Bracket



Description	Part No.
1 1/2"-13 x 4-1/8" x 5" Square U-Bolt	JM0010001
2 3/8" x 3" Usable Length Clevis Pin	JM0010003
3 1/2"-13 Gr5 Z Centerlock Hex Nut	JM0001511
4 2" x 8-1/4" Chain Plate (2814CP)	JM0015254
5 1/8" x 3/4" Grip Cotter Pin Z (CP1834Z)	JM0010005
6 5/16" Z Yellow Chain 11 Link (16" Long)	JM0020360
7 2-1/2" x 4" x 6" Upper Harrow Mounting Bracket (21246MB)	JM0015241
8 3/4"-10 Gr5 Z Centerlock Hex Nut	JM0002147
9 3" x 21" Harrow Arm (321HA)	JM0017558
10 3/4"-10 x 5" Gr8 Z Hex Bolt	JM0020318
11 4" x 8" Pivot Bracket (48PB)	JM0015242
12 3/4"-10 x 6" Gr5 Z Hex Bolt	JM0016683
13 4' Harrow Tine Channel	JM0015227
13 5' Harrow Tine Channel	JM0015228
13 6' Harrow Tine Channel	JM0015229
13 7' Harrow Tine Channel	JM0015230
14 7/16"-14 x 1-1/2" Gr5 Z SF Hex Bolt	JM0076336
15 1/2"-13 x 4-1/8" x 3" Square U-Bolt (1244UB)	JM0026990
16 7/16"-14 Gr5 Z SF Hex Nut	JM0076337
17 1/2"-13 x 1-1/2" Gr5 Z Hex Bolt	JM0002100
18 3/4" x 15" Harrow Tine Bar (Spike)	JM0026972
19 1/2" ID x 2-1/4" OD Flat Washer - 3/16" Thick	JM0059670
20 3'8" Coil Tine Pipe (CTP-38)	JM0026999
20 4'8" Coil Tine Pipe (CTP-48)	JM0026996
20 5'8" Coil Tine Pipe (CTP-58)	JM0010011
20 6'8" Coil Tine Pipe (CPT-68)	JM0026998
21 Coil Tine Spring (CTS-1)	JM0020358
22 1/2"-13 x 4-1/4" Gr5 Z J-Bolt	JM0020373
23 TF - Harrow Squeeze Block	JM0027006
24 1/2"-13 x 5" Gr5 Z Hex Bolt	JM0001594



TF212, TF215 (1 Set of Hoses)



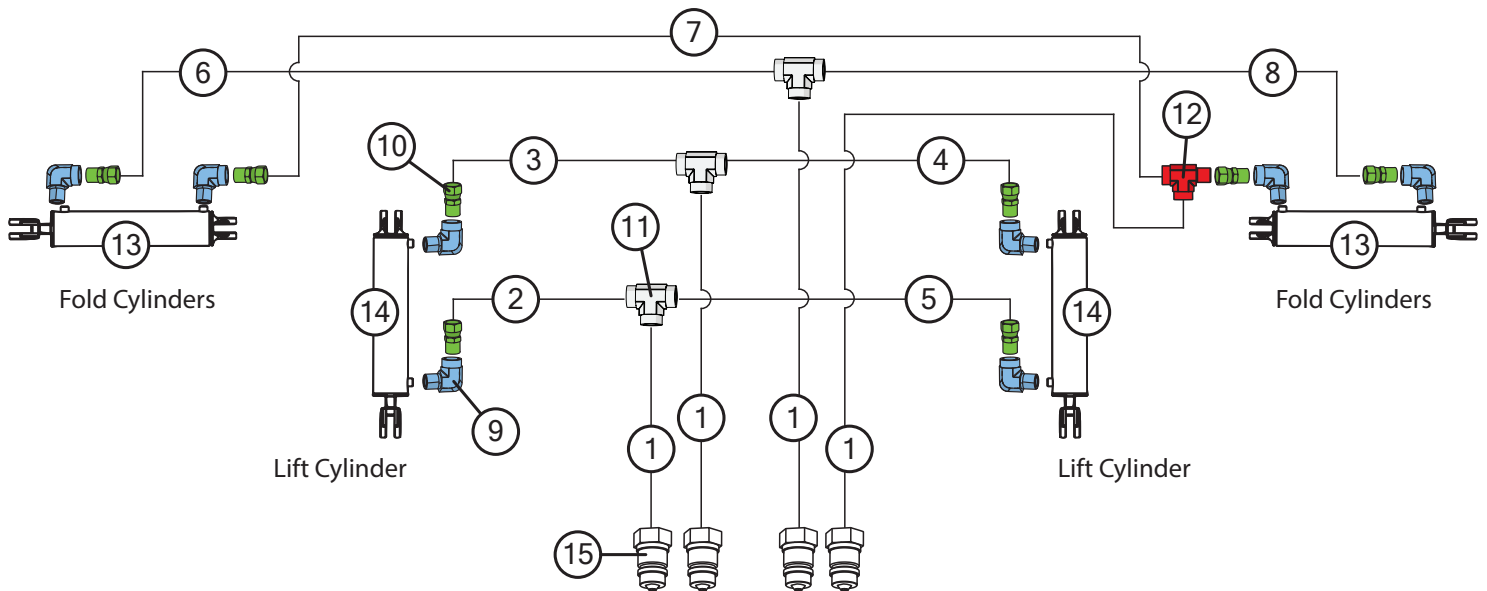
	Description	Part No.	
1	3/8" x 336" Hydraulic Hose 336inch6M3k-6G-8MP-6G-6MPX	JM0076094	TF212
1	3/8" x 384" Hydraulic Hose 384inch6M3k-6G-8MP-6G-6MPX	JM0027139	TF215
2	3/8" x 66" Hydraulic Hose 66inch6M3k-6G-6MP-6G-6MP	JM0027140	TF212
2	3/8" x 75" Hydraulic Hose 75inch6M3k-6G-6MP-6G-6MP	JM0027141	TF215
3	3/8" x 43" Hydraulic Hose 43inch6M3k-6G-6MP-6G-6MP	JM0027142	TF212
3	3/8" x 32" Hydraulic Hose 32inch6M3k-6G-6MP-6G-6MP	JM0027143	TF215
4	3/8" x 40" Hydraulic Hose 40inch6M3k-6G-6MP-6G-6MPX	JM0027144	TF212
4	3/8" x 60" Hydraulic Hose 60inch6M3k-6G-6MP-6G-6MPX	JM0027145	TF215
5	3/8" x 34" Hydraulic Hose 34inch6M3k-6G-6MP-6G-6MP	JM0027132	TF212
5	3/8" x 25" Hydraulic Hose 25inch6M3k-6G-6MP-6G-6MP	JM0027146	TF215
6	3/8" x 29" Hydraulic Hose 29inch6M3k-6G-6MP-6G-6MP	JM0027133	TF212
6	3/8" x 35" Hydraulic Hose 35inch6M3k-6G-6MP-6G-6MP	JM0027148	TF215
7	3/8" x 62" Hydraulic Hose 62inch6M3k-6G-6MP-6G-6MP	JM0027131	TF212
7	3/8" x 88" Hydraulic Hose 88inch6M3k-6G-6MP-6G-6MP	JM0027149	TF215
8	3/8" Female NPT x 1/2" Male NPT; 90 Degree Elbow	JM0010292	
9	3/8" Male NPT x 3/8" Female NPT Swivel with .062 Orifice (Restrictor)	JM0018362	
10	3/8" Male NPT x 3/8" Female NPT x 3/8" Female NPT; Street T	JM0018266	
11	3/8" Female NPT x 3/8" Female NPT x 3/8" Male NPT; Tee	JM0027116	
12	3/8" HP Ball Valve 7250 PSI	JM0027113	
13	3/8" Male NPT x 3/8" Female NPT x 3/8" Female NPT x 3/8" Female NPT; Cross	JM0027115	
14	4" x 24" Hydraulic Cylinder (424HC)(TF212)	JM0018348	TF212
14	Seal Kit for 4" x 24" Hydraulic Cylinder (3000 PSI) (SK649229)	JM0037754	TF212
14	4" x 30" Hydraulic Cylinder (430HC)(TF215)	JM0019909	TF215
14	Seal Kit for 4" x 30" Hydraulic Cylinder (3000PSI)	JM0037756	TF215
15	3" Bore x 8" Stroke Hydraulic Cylinder (Lion)	JM0026724	
15	Seal Kit for 3" x 8" Hydraulic Cylinder (SK649206)	JM0076099	
16	1/2" Female NPT x Male Pioneer - High Flow, Cone Style	JM0018254	

Legacy Hydraulic Cylinder Seal Kits for cylinders rated 2500 PSI

Seal Kit for 4" x 24" Hydraulic Cylinder (2500PSI)	JM0037753
Seal Kit for 4" x 30" Hydraulic Cylinder (2500PSI)	JM0037755



TF212, TF215 (2 Sets of Hoses)



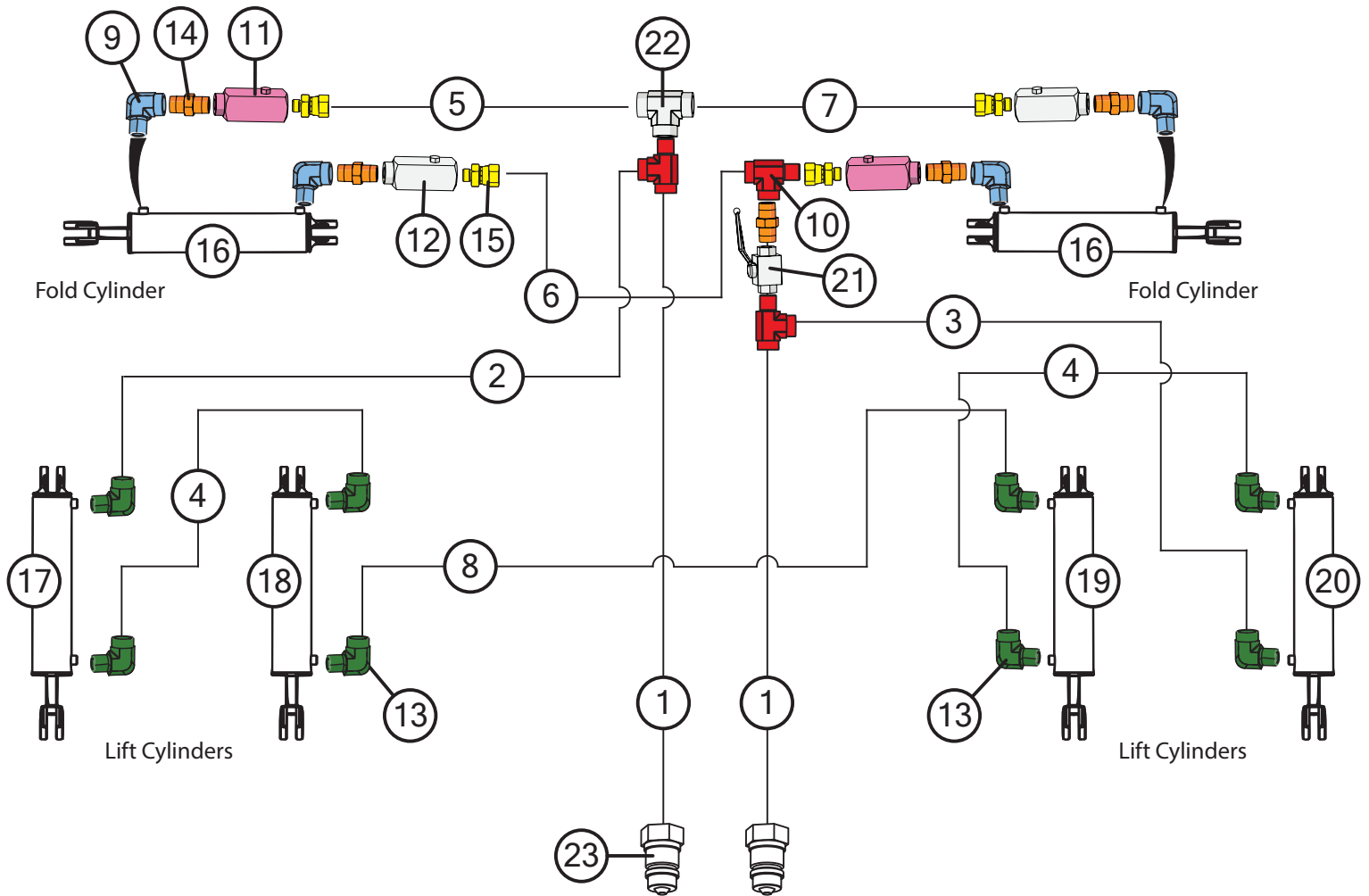
	Description	Part No.	
1	3/8" x 336" Hydraulic Hose 336inch6M3k-6G-8MP-6G-6MPX	JM0076094	TF212
1	3/8" x 384" Hydraulic Hose 384inch6M3k-6G-8MP-6G-6MPX	JM0027139	TF215
2	3/8" x 77" Hydraulic Hose 77inch6M3k-6G-6MP-6G-6MP	JM0027152	TF212
2	3/8" x 81" Hydraulic Hose 81inch6M3K-6G-6MPX-6G-6MP	JM0030844	TF215
3	3/8" x 65" Hydraulic Hose 65inch6M3k-6G-6MP-6G-6MP	JM0027154	TF212
3	3/8" x 75" Hydraulic Hose 75inch6M3k-6G-6MP-6G-6MP	JM0027141	TF215
4	3/8" x 32" Hydraulic Hose 32inch6M3k-6G-6MP-6G-6MP	JM0027143	TF212
4	3/8" x 25" Hydraulic Hose 25inch6M3k-6G-6MP-6G-6MP	JM0027146	TF215
5	3/8" x 40" Hydraulic Hose 40inch6M3k-6G-6MP-6G-6MP	JM0076095	TF212
5	3/8" x 35" Hydraulic Hose 35inch6M3k-6G-6MP-6G-6MP	JM0027148	TF215
6	3/8" x 62" Hydraulic Hose 62inch6M3k-6G-6MP-6G-6MP	JM0027131	TF212
6	3/8" x 88" Hydraulic Hose 88inch6M3k-6G-6MP-6G-6MP	JM0027149	TF215
7	3/8" x 44" Hydraulic Hose 44inch6M3k-6G-6MP-6G-6MP	JM0027155	TF212
7	3/8" x 60" Hydraulic Hose 60inch6M3k-6G-6MP-6G-6MP	JM0076096	TF215
8	3/8" x 29" Hydraulic Hose 29inch6M3k-6G-6MP-6G-6MP	JM0027133	TF212
8	3/8" x 35" Hydraulic Hose 35inch6M3k-6G-6MP-6G-6MP	JM0027148	TF215
9	3/8" Female NPT x 1/2" Male NPT; 90 Degree Elbow	JM0010292	
10	3/8" Male NPT x 3/8" Female NPT Swivel with .062 Orifice (Restrictor)	JM0018362	
11	3/8" Female NPT x 3/8" Female NPT x 3/8" Female NPT; Street T	JM0046965	
12	3/8" Male NPT x 3/8" Female NPT x 3/8" Female NPT; Street T	JM0018266	
13	4" x 24" Hydraulic Cylinder (424HC)(TF212)	JM0018348	TF212
13	Seal Kit for 4" x 24" Hydraulic Cylinder (3000 PSI) (SK649229)	JM0037754	TF212
13	4" x 30" Hydraulic Cylinder (430HC)(TF215)	JM0019909	TF215
13	Seal Kit for 4" x 30" Hydraulic Cylinder (3000PSI)	JM0037756	TF215
14	3" Bore x 8" Stroke Hydraulic Cylinder (Lion)	JM0026724	
14	Seal Kit for 3" x 8" Hydraulic Cylinder (SK649206)	JM0076099	
15	1/2" Female NPT x Male Pioneer - High Flow, Cone Style	JM0018254	

Legacy Hydraulic Cylinder Seal Kits for cylinders rated 2500 PSI

Seal Kit for 4" x 24" Hydraulic Cylinder (2500PSI)	JM0037753
Seal Kit for 4" x 30" Hydraulic Cylinder (2500PSI)	JM0037755



TF212, TF215 with Lift Assist (1 Set of Hoses)



Legacy Hydraulic Cylinder Seal Kits for cylinders rated 2500 PSI

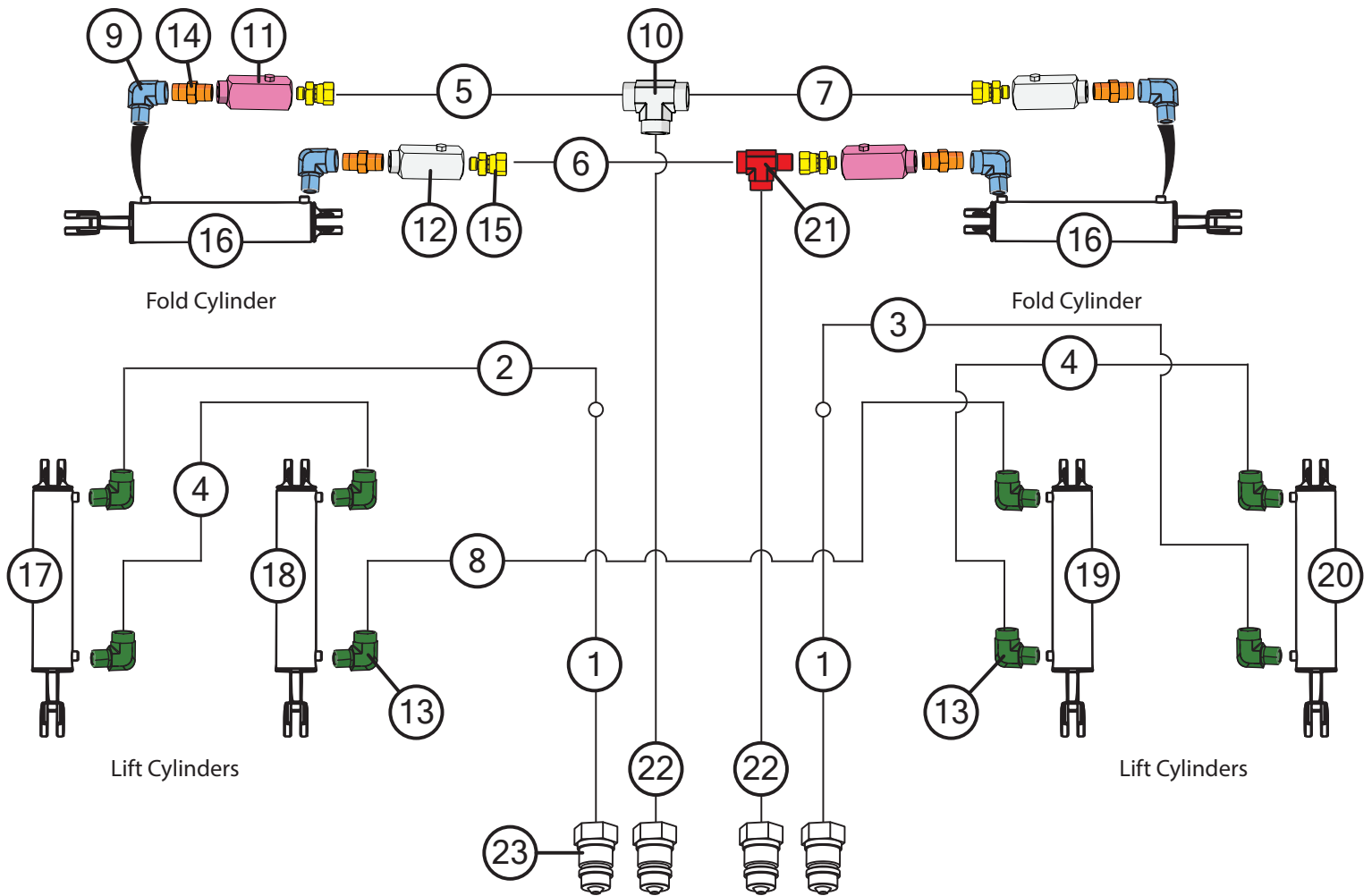
Seal Kit for 4" x 24" Hydraulic Cylinder (2500PSI)	JM0037753
Seal Kit for 4" x 30" Hydraulic Cylinder (2500PSI)	JM0037755



TF212, TF215 with Lift Assist (1 Set of Hoses)

	Description	Part No.	
1	1/2" x 336" Hydraulic Hose 336inch8M3k-8G-8MP-6G-6MPX	JM0027137	TF212
1	1/2" x 384" Hydraulic Hose 384inch8M3k-8G-8MP-6G-6MPX	JM0027263	TF215
2	3/8" x 200" Hydraulic Hose 200inch6M3k-6G-6MP-6G-6MPX	JM0027129	TF212 (32', 33')
2	3/8" x 219" Hydraulic Hose 219inch6M3k-6G-6MP-6G-6MPX	JM0075767	TF212 (34', 35')
2	3/8" x 194" Hydraulic Hose 194inch6M3k-6G-6MP-6G-6MPX	JM0075766	TF215 (36' - 38')
2	3/8" x 259" Hydraulic Hose 259inch6M3k-6G-6MP-6G-6MPX	JM0027238	TF215 (39', 40')
2	3/8" x 271" Hydraulic Hose 271inch6M3k-6G-6MP-6G-6MPX	JM0027239	TF215 (41', 42')
2	3/8" x 283" Hydraulic Hose 283inch6M3k-6G-6MP-6G-6MPX	JM0031974	TF215 (43', 44')
2	3/8" x 295" Hydraulic Hose 295inch6M3k-6G-6MP-6G-6MPX	JM0031975	TF215 (45' - 47')
3	3/8" x 169" Hydraulic Hose 169inch6M3k-6G-6MP-6G-6MPX	JM0031973	TF212 (32', 33')
3	3/8" x 183" Hydraulic Hose 183inch6M3k-6G-6MP-6G-6MPX	JM0027128	TF212 (34', 35')
3	3/8" x 146" Hydraulic Hose 146inch6M3k-6G-6MP-6G-6MPX	JM0031972	TF215 (36' - 38')
3	3/8" x 211" Hydraulic Hose 211inch6M3k-6G-6MP-6G-6MPX	JM0075764	TF215 (39', 40')
3	3/8" x 221" Hydraulic Hose 221inch6M3k-6G-6MP-6G-6MPX	JM0075765	TF215 (41', 42')
3	3/8" x 233" Hydraulic Hose 233inch6M3k-6G-6MP-6G-6MPX	JM0027126	TF215 (43', 44')
3	3/8" x 245" Hydraulic Hose 245inch6M3k-6G-6MP-6G-6MPX	JM0027236	TF215 (45' - 47')
4	3/8" x 169" Hydraulic Hose 169inch6M3k-6G-6MP-6G-6MP	JM0075763	TF212 (32', 33')
4	3/8" x 176" Hydraulic Hose 176inch6M3k-6G-6MP-6G-6MP	JM0027127	TF212 (34', 35')
4	3/8" x 133" Hydraulic Hose 133inch6M3k-6G-6MP-6G-6MP	JM0031971	TF215 (36' - 38')
4	3/8" x 201" Hydraulic Hose 201inch6M3k-6G-6MP-6G-6MP	JM0075761	TF215 (39', 40')
4	3/8" x 211" Hydraulic Hose 211inch6M3k-6G-6MP-6G-6MP	JM0027124	TF215 (41', 42')
4	3/8" x 223" Hydraulic Hose 223inch6M3k-6G-6MP-6G-6MP	JM0027125	TF215 (43', 44')
4	3/8" x 235" Hydraulic Hose 235inch6M3k-6G-6MP-6G-6MP	JM0075762	TF215 (45' - 47')
5	3/8" x 62" Hydraulic Hose 62inch6M3k-6G-6MP-6G-6MP	JM0027131	TF212
5	3/8" x 88" Hydraulic Hose 88inch6M3k-6G-6MP-6G-6MP	JM0027149	TF215
6	3/8" x 35" Hydraulic Hose 35inch6M3k-6G-6MP-6G-6MP	JM0027148	TF212
6	3/8" x 54" Hydraulic Hose 54inch6M3k-6G-6MP-6G-6MP	JM0027240	TF215
7	3/8" x 25" Hydraulic Hose 25inch6M3k-6G-6MP-6G-6MP	JM0027146	TF212
7	3/8" x 34" Hydraulic Hose 34inch6M3k-6G-6MP-6G-6MP	JM0027132	TF215
8	3/8" x 106" Hydraulic Hose 106inch6M3k-6G-6MP-6G-6MP	JM0031970	TF212
8	3/8" x 108" Hydraulic Hose 108inch6M3k-6G-6MP-6G-6MP	JM0031969	TF215
9	3/8" Female NPT x 1/2" Male NPT; 90 Degree Elbow	JM0010292	
10	3/8" Male NPT x 3/8" Female NPT x 3/8" Female NPT; Street T	JM0018266	
11	Parker Relief Valve PCK600s-1.25 (106521)	JM0027086	
12	Parker Relief Valve PCK600s-5.0 (106522)	JM0027085	
13	3/8" Female NPT x 3/8" Male O-ring; 90 Degree Elbow	JM0027082	
14	3/8" Male, 3/8" Male Nipple 0.62 x 2.4	JM0027096	
15	3/8" Male, 3/8" Female Swivel 0.86 x 2.4	JM0027110	
16	4" x 24" Hydraulic Cylinder (424HC)(TF212)	JM0018348	TF212
16	Seal Kit for 4" x 24" Hydraulic Cylinder (3000PSI)	JM0037754	TF212
16	4" x 30" Hydraulic Cylinder (430HC)(TF215)	JM0019909	TF215
16	Seal Kit for 4" x 30" Hydraulic Cylinder (3000PSI)	JM0037756	TF215
17	4" x 8" x 1-1/4" Rephasing Hydraulic Cylinder	JM0014964	
17	Seal Kit for 4" x 8" Stroke Rephasing Hydraulic Cylinder	JM0027599	
18	3-3/4" Bore x 8" Stroke Rephasing Hydraulic Cylinder	JM0014963	
18	Seal Kit for 3-3/4" x 8" Stroke Rephasing Hydraulic Cylinder	JM0037757	
19	3-1/2" Bore x 8" Stroke Rephasing Hydraulic Cylinder	JM0014960	
19	Seal Kit for 3-1/2" x 8" Stroke Rephasing Hydraulic Cylinder	JM0037758	
20	3-1/4" Bore x 8" Stroke Rephasing Hydraulic Cylinder	JM0014958	
20	Seal Kit for 3-1/4" x 8" Stroke Rephasing Hydraulic Cylinder	JM0037759	
21	3/8" HP Ball Valve 7250 PSI	JM0027113	
22	3/8" Female NPT x 3/8" Female NPT x 3/8" Female NPT; Street T	JM0046965	
23	1/2" Female NPT x Male Pioneer - High Flow, Cone Style	JM0018254	

TF212, TF215 Equipped with Lift Assist (2 Sets of Hoses)



Legacy Hydraulic Cylinder Seal Kits for cylinders rated 2500 PSI

Seal Kit for 4" x 24" Hydraulic Cylinder (2500PSI)

JM0037753

Seal Kit for 4" x 30" Hydraulic Cylinder (2500PSI)

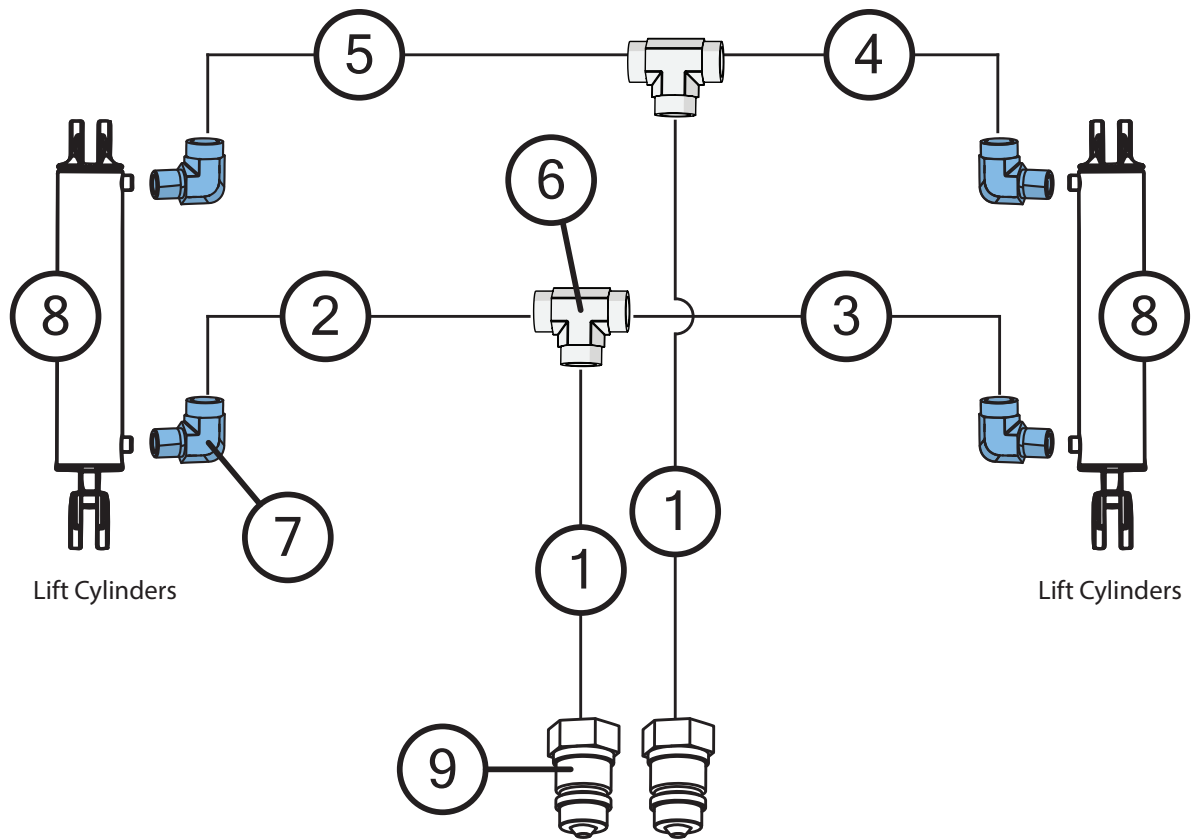
JM0037755



TF212, TF215 Equipped with Lift Assist (2 Sets of Hoses)

	Description	Part No.	
1	1/2" x 336" Hydraulic Hose 336inch8M3k-8G-8MP-8G-6FP	JM0027264	TF212
1	1/2" x 384" Hydraulic Hose 384inch8M3k-8G-8MP-8G-6FP	JM0076093	TF215
2	3/8" x 200" Hydraulic Hose 200inch6M3k-6G-6MP-6G-6MPX	JM0027129	TF212 (32', 33')
2	3/8" x 219" Hydraulic Hose 219inch6M3k-6G-6MP-6G-6MPX	JM0075767	TF212 (34', 35')
2	3/8" x 194" Hydraulic Hose 194inch6M3k-6G-6MP-6G-6MPX	JM0075766	TF215 (36' - 38')
2	3/8" x 259" Hydraulic Hose 259inch6M3k-6G-6MP-6G-6MPX	JM0027238	TF215 (39', 40')
2	3/8" x 271" Hydraulic Hose 271inch6M3k-6G-6MP-6G-6MPX	JM0027239	TF215 (41', 42')
2	3/8" x 283" Hydraulic Hose 283inch6M3k-6G-6MP-6G-6MPX	JM0031974	TF215 (43', 44')
2	3/8" x 295" Hydraulic Hose 295inch6M3k-6G-6MP-6G-6MPX	JM0031975	TF215 (45' - 47')
3	3/8" x 169" Hydraulic Hose 169inch6M3k-6G-6MP-6G-6MPX	JM0031973	TF212 (32', 33')
3	3/8" x 183" Hydraulic Hose 183inch6M3k-6G-6MP-6G-6MPX	JM0027128	TF212 (34', 35')
3	3/8" x 146" Hydraulic Hose 146inch6M3k-6G-6MP-6G-6MPX	JM0031972	TF215 (36' - 38')
3	3/8" x 211" Hydraulic Hose 211inch6M3k-6G-6MP-6G-6MPX	JM0075764	TF215 (39', 40')
3	3/8" x 221" Hydraulic Hose 221inch6M3k-6G-6MP-6G-6MPX	JM0075765	TF215 (41', 42')
3	3/8" x 233" Hydraulic Hose 233inch6M3k-6G-6MP-6G-6MPX	JM0027126	TF215 (43', 44')
3	3/8" x 245" Hydraulic Hose 245inch6M3k-6G-6MP-6G-6MPX	JM0027236	TF215 (45' - 47')
4	3/8" x 169" Hydraulic Hose 169inch6M3k-6G-6MP-6G-6MP	JM0075763	TF212 (32', 33')
4	3/8" x 176" Hydraulic Hose 176inch6M3k-6G-6MP-6G-6MP	JM0027127	TF212 (34', 35')
4	3/8" x 133" Hydraulic Hose 133inch6M3k-6G-6MP-6G-6MP	JM0031971	TF215 (36' - 38')
4	3/8" x 201" Hydraulic Hose 201inch6M3k-6G-6MP-6G-6MP	JM0075761	TF215 (39', 40')
4	3/8" x 211" Hydraulic Hose 211inch6M3k-6G-6MP-6G-6MP	JM0027124	TF215 (41', 42')
4	3/8" x 223" Hydraulic Hose 223inch6M3k-6G-6MP-6G-6MP	JM0027125	TF215 (43', 44')
4	3/8" x 235" Hydraulic Hose 235inch6M3k-6G-6MP-6G-6MP	JM0075762	TF215 (45' - 47')
5	3/8" x 62" Hydraulic Hose 62inch6M3k-6G-6MP-6G-6MP	JM0027131	TF212
5	3/8" x 88" Hydraulic Hose 88inch6M3k-6G-6MP-6G-6MP	JM0027149	TF215
6	3/8" x 35" Hydraulic Hose 35inch6M3k-6G-6MP-6G-6MP	JM0027148	TF212
6	3/8" x 54" Hydraulic Hose 54inch6M3k-6G-6MP-6G-6MP	JM0027240	TF215
7	3/8" x 25" Hydraulic Hose 25inch6M3k-6G-6MP-6G-6MP	JM0027146	TF212
7	3/8" x 34" Hydraulic Hose 34inch6M3k-6G-6MP-6G-6MP	JM0027132	TF215
8	3/8" x 106" Hydraulic Hose 106inch6M3k-6G-6MP-6G-6MP	JM0031970	TF212
8	3/8" x 108" Hydraulic Hose 108inch6M3k-6G-6MP-6G-6MP	JM0031969	TF215
9	3/8" Female NPT x 1/2" Male NPT; 90 Degree Elbow	JM0010292	
10	3/8" Female NPT x 3/8" Female NPT x 3/8" Female NPT; Street T	JM0046965	
11	Parker Relief Valve PCK600s-1.25 (106521)	JM0027086	
12	Parker Relief Valve PCK600s-5.0 (106522)	JM0027085	
13	3/8" Female NPT x 3/8" Male O-ring; 90 Degree Elbow	JM0027082	
14	3/8" Male, 3/8" Male Nipple 0.62 x 2.4	JM0027096	
15	3/8" Male, 3/8" Female Swivel 0.86 x 2.4	JM0027110	
16	4" x 24" Hydraulic Cylinder (424HC)(TF212)	JM0018348	TF212
16	Seal Kit for 4" x 24" Hydraulic Cylinder (3000PSI)	JM0037754	TF212
16	4" x 30" Hydraulic Cylinder (430HC)(TF215)	JM0019909	TF215
16	Seal Kit for 4" x 30" Hydraulic Cylinder (3000PSI)	JM0037756	TF215
17	4" x 8" x 1-1/4" Rephasing Hydraulic Cylinder	JM0014964	
17	Seal Kit for 4" x 8" Stroke Rephasing Hydraulic Cylinder	JM0027599	
18	3-3/4" Bore x 8" Stroke Rephasing Hydraulic Cylinder	JM0014963	
18	Seal Kit for 3-3/4" x 8" Stroke Rephasing Hydraulic Cylinder	JM0037757	
19	3-1/2" Bore x 8" Stroke Rephasing Hydraulic Cylinder	JM0014960	
19	Seal Kit for 3-1/2" x 8" Stroke Rephasing Hydraulic Cylinder	JM0037758	
20	3-1/4" Bore x 8" Stroke Rephasing Hydraulic Cylinder	JM0014958	
20	Seal Kit for 3-1/4" x 8" Stroke Rephasing Hydraulic Cylinder	JM0037759	
21	3/8" Male NPT x 3/8" Female NPT x 3/8" Female NPT; Street T	JM0018266	
22	1/2" x 336" Hydraulic Hose 336inch8M3k-8G-8MP-8G-6MPX	JM0027137	TF212
22	1/2" x 384" Hydraulic Hose 384inch8M3k-8G-8MP-8G-6MPX	JM0027263	TF215
23	1/2" Female NPT x Male Pioneer - High Flow, Cone Style	JM0018254	

TF2 (12' to 18' Working Width)



Description		Part No.
1	3/8" x 336" Hydraulic Hose 336inch6M3k-6G-8MP-6G-6MPX	JM0076094
2	3/8" x 77" Hydraulic Hose 77inch6M3k-6G-6MP-6G-6MPX	JM0076163
3	3/8" x 44" Hydraulic Hose 44inch6M3k-6G-6MP-6G-6MPX	JM0076164
4	3/8" x 32" Hydraulic Hose 32inch6M3K-6G-6MP-6G-6MPX	JM0049170
5	3/8" x 65" Hydraulic Hose 65inch6M3k-6G-6MP-6G-6MPX	JM0076165
6	3/8" Female NPT x 3/8" Female NPT x 3/8" Female NPT; Street T	JM0046965
7	3/8" Female NPT x 1/2" Male NPT; 90 Degree Elbow	JM0010292
8	3" Bore x 8" Stroke Hydraulic Cylinder (Lion)	JM0026724
8	Seal Kit for 3" x 8" Hydraulic Cylinder (SK649206)	JM0076099
9	1/2" Female NPT x Male Pioneer - High Flow, Cone Style	JM0018254

