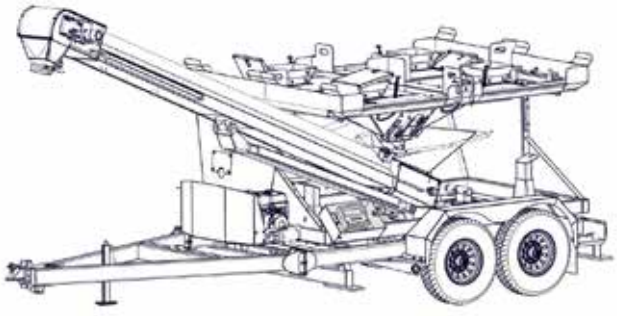
OPERATORS MANUAL

SpeedTender Pro C450



Rev. 3.17.2017

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

Table Of Contents

General Information

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 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: C-450ST **Serial No:** _____ **Date of Purchase:** _____

Purchased From: _____

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

General Information

TO THE OWNER:

The purpose of this manual is to assist you in operating and maintaining your Speed Tender Pro 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:

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

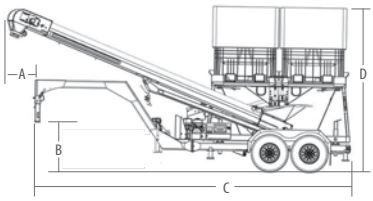
Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be erased by an operator's single careless act. In addition, hazard control and accident prevention are dependent upon the awareness, concern, judgment, and proper training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

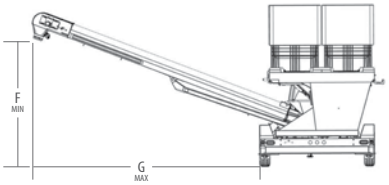
Make certain that the operator(s), prior to operating is instructed in safe and proper use and reviews and understands the manual(s) pertaining to this machine. Also make certain that the operator(s) reviews and understands the operator's manual of the tow vehicle prior to hooking up or operating the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

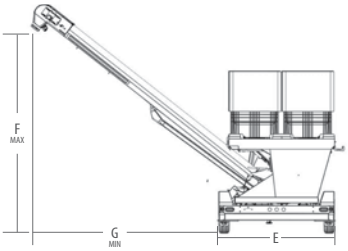
Read this manual before you operate this machine. If you do not understand any part of this manual, or need more information, contact the manufacturer or your authorized dealer.

Safety Rules Next Page

Specifications







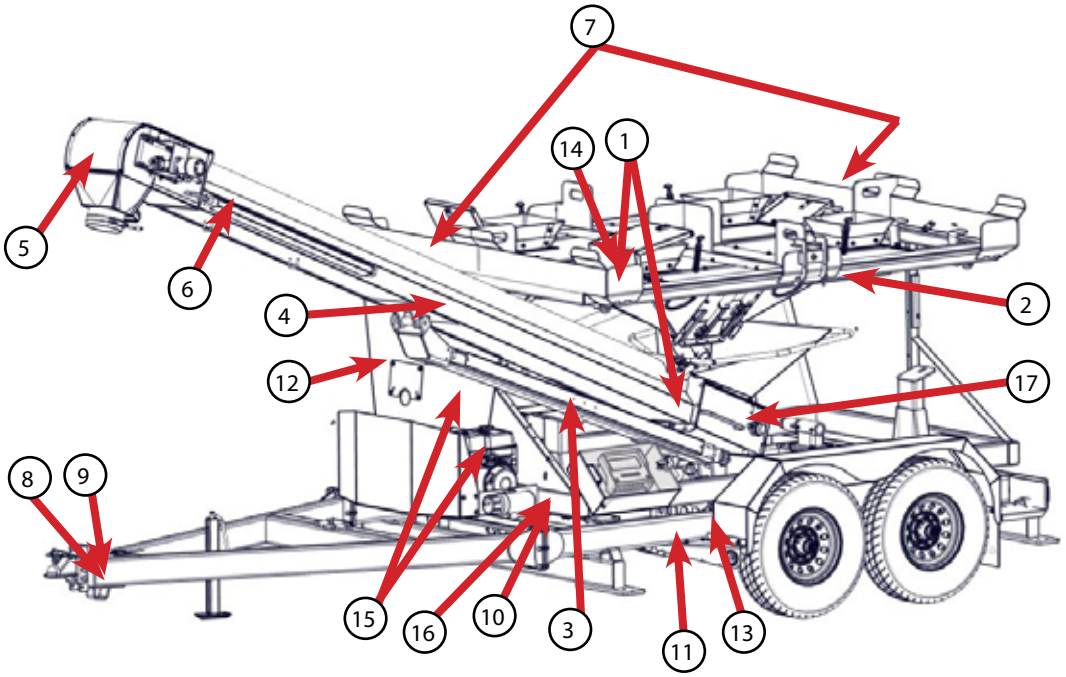
	C4•50 w/ 8" Tube Conveyor		
	A-Frame	Gooseneck	Trailer Mount
A	2'-7"	0'-7"	12'-9"
B	1'-6" (min)	2'-7" (min)	NA
B	1'-10" (max)	3'-3" (max)	NA
C	20'-4"	22'-6"	12'-5"
D	11'-3"	11'-3"	10'-8"
E	4'-0"	4'-0"	4'-0"
F	17'-6"	17'-6"	17'-6"
G	8'-6"	8'-6"	8'-6"
H	14'-5" (max)	14'-5" (max)	14'-5" (max)
H	8'-7" (min)	8'-7" (min)	8'-7" (min)
I	16'-5" (max)	16'-5" (max)	16'-5" (max)
I	13'-7" (min)	13'-7" (min)	13'-7" (min)

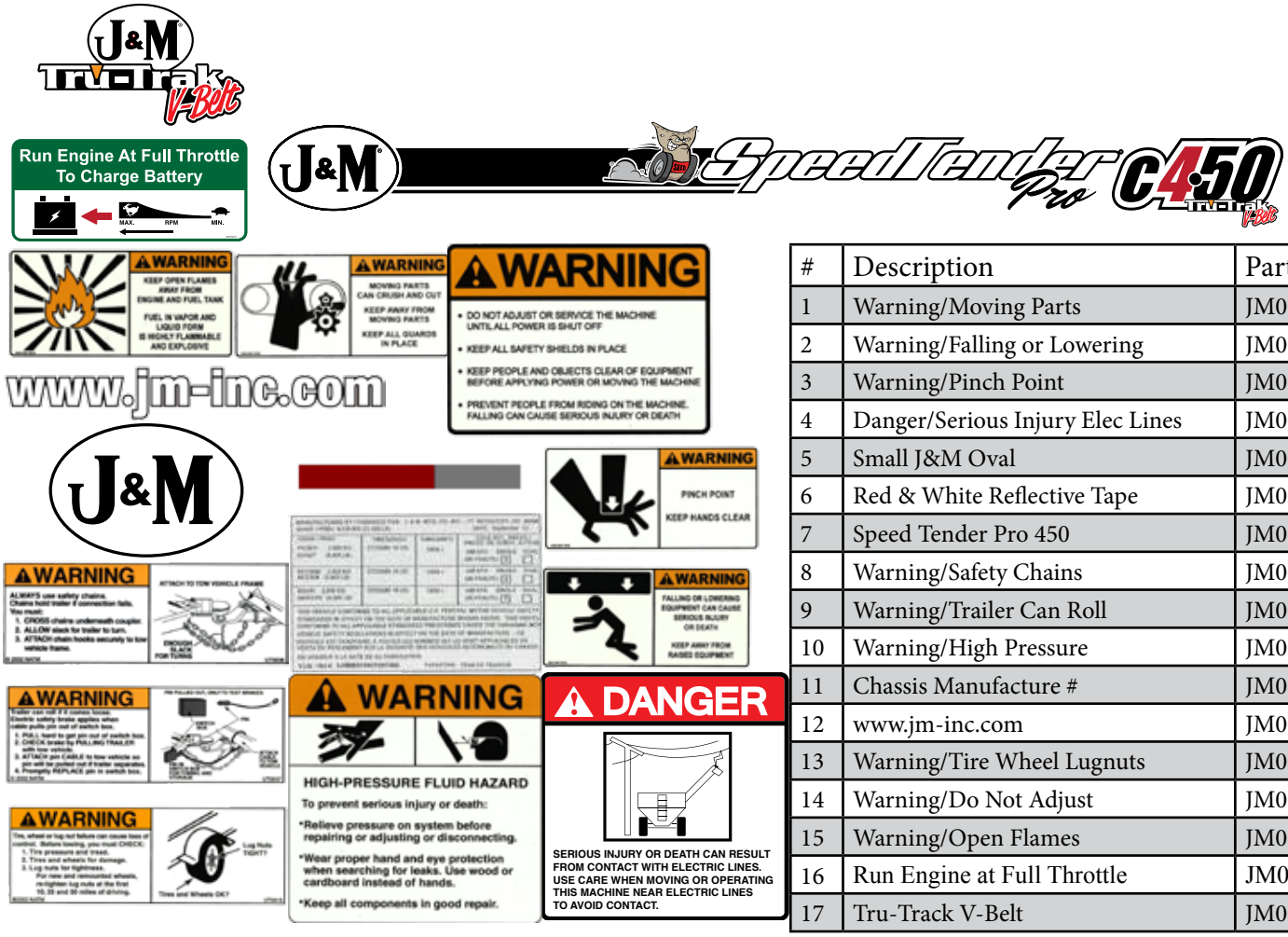
C4.50	
Capacity	Four (4) 50 Unit Boxes
Weight Empty	6,300 lbs.
Tongue Wt. Loaded	1,650 lbs.
Conveyor	22' Long, 8" Tube Conveyor
Unloading Rate	30 Bushels/Min.
Conveyor Reach	49' Front to Rear Swing
Axles	Two (2), 7,000 lb. Torsion-Flex Axles w/ Electric Brakes
Engine	11 HP Honda motor w/ Electric Start

Safety Signs

⚠ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!⚠

Replace Safety Decals Immediately If Damaged or Missing





#	Description	Part. No.
1	Warning/Moving Parts	JM0014993
2	Warning/Falling or Lowering	JM0014992
3	Warning/Pinch Point	JM0014994
4	Danger/Serious Injury Elec Lines	JM0015099
5	Small J&M Oval	JM0010179
6	Red & White Reflective Tape	JM0015079
7	Speed Tender Pro 450	JM0025336
8	Warning/Safety Chains	JM0014995
9	Warning/Trailer Can Roll	JM0014997
10	Warning/High Pressure	JM0010163
11	Chassis Manufacture #	JM0015130
12	www.jm-inc.com	JM0019239
13	Warning/Tire Wheel Lugnuts	JM0014996
14	Warning/Do Not Adjust	JM0014979
15	Warning/Open Flames	JM0014983
16	Run Engine at Full Throttle	JM0032425
17	Tru-Track V-Belt	JM0037730

Safety Rules

Understand that your safety and the safety of other persons are 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.

Secure Speed Tender Pro safety chain to towing vehicle before transporting. Do not transport without safety chains being attached to tow vehicle.

Make sure that the conveyor is fastened securely to the boom arm, and the boom arm is resting on the boom arm support with lynch pin in place before transport.

Use good judgment when transporting Speed Tender Pro on a highway. Maintain complete control at all times. Regulate speed to road conditions. Do not transport unit with rear compartment full and front compartment empty. The unit may not be properly balanced, offsetting the tongue weight of the Speed Tender Pro.

When transporting on public roads, the conveyor must be in the forward position to meet with lighting and visibility marking requirements.

Do not travel faster than 10 mph during off highway travel. Drive slowly over rough ground, hill sides, and around curves to avoid tipping. Use extreme care when operating close to ditches, fences, or on hillsides.

Use care when moving or operating Speed Tender Pro near electric lines as serious injury or death can result from contact.

Never adjust, service, clean, or lubricate Speed Tender Pro until all power is shut off and the battery is disconnected. Keep all safety shields in place.

Carbon monoxide can cause severe nausea, fainting, or death. Do not operate engine in closed or confined work area.

Explosive fuel can cause fires and severe burns. Stop engine before filling fuel tank.

Hot parts can cause severe burns. Do not touch engine while operating or just after stopping.

Hydraulic oil leaking under pressure can penetrate skin and cause infection or other injury.

To prevent personal injury when working with hydraulic power unit:

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

Make sure that everyone is clear of equipment before applying power or moving the Speed Tender Pro.

Before filling the Speed Tender Pro, make certain that no one is inside the grain tanks. Never allow children or anyone in, near, or on the Speed Tender Pro during transport or during loading and unloading of grain. Be aware that moving grain is dangerous and can cause entrapment, resulting in severe injury or death by suffocation.

Before unhooking the Speed Tender Pro from the transport vehicle, be sure to properly block the wheels to prevent the Speed Tender Pro from moving.

When using the Conveyor Swing be sure to stand clear of the swinging boom arm at all times.

1.0 Operations

1.1 Preparing the Towing Vehicle

Before towing the Speed Tender Pro, refer to towing vehicle's owner's manual for information concerning hitch capacities, hitch adjustments, and tire inflation.

Towing vehicle must be equipped with proper electric braking components.

NOTE: The Speed Tender Pro is equipped with LED lights. The towing vehicle may require a flasher upgrade for lights to operate properly.

Do not exceed towing vehicles GVWR (Gross Vehicle Weight Rating) or GCWR (Gross Combination Weight Rating), or the maximum hitch load.

1.2 Preparing Speed Tender Pro

Hydraulics: Check routing of all hydraulic hoses. Hoses should not be kinked, twisted or rubbing against sharp edges. Check all hoses and fittings for hydraulic leaks. Tighten and /or repair or replace as required.

Lubrication: Lubricate Speed Tender Pro as outlined in Service section 2.1 (pg. 17). Refer to engine manual for proper fluid levels in engine.

Tires/Wheels: Check tire pressures and maintain at recommended operating pressure. It is important to check wheel nut/bolts for proper torque as recommended. You can find proper tire pressure and wheel torque located in service manual sections 2.3 and 2.4.

1.3 Connecting Speed Tender Pro to the Towing Vehicle

⚠ **WARNING: Do not stand between the Speed Tender Pro and tow vehicle when hooking up.**

NOTE: The Speed Tender Pro comes standard with a 2 5/16" ball coupler and has an optional 3" lunette eye. Also the Speed Tender Pro can come with an optional Gooseneck Frame in place of the A-Frame. The Gooseneck Frame can feature either a 2 5/16" ball coupler or a 5th Wheel hook up.

1. Back tow vehicle up to Speed Tender Pro.
2. Align the vehicle's ball or lunette eye with the coupler or ring on the Speed Tender Pro.
3. Lift tongue latch lever.
4. Lower jack to set Speed Tender Pro coupler down on ball or lunette eye hook.
5. Latch coupler and insert pin. Check to make sure that coupler is securely latched.
6. Pivot jack to transport position and pin in place.(A-Frame) Raise the "drop leg" for gooseneck jack.
7. Attach 7-way plug to tow vehicle. Check the length of the Speed Tender Pro 7-way to make sure that it is long enough to turn, but not too long to touch the ground.
   NOTE: Check to make sure that lights are in proper operating condition and repair or replace if necessary.
8. Connect the brake breakaway cable to towing vehicle.
9. Attach safety chains to tow vehicle by crossing chains (Figure 1.1). Allow enough slack in chains necessary for turning.
10. Test the brakes and all the lights on the Speed Tender Pro

⚠ **WARNING: Check safety chains for broken, stretched or damaged link or end fittings. Replace chains if found to be damaged. Do not weld safety chains.**

1.0 Operations

Figure 1.1

1.4 Transporting

NOTE: Make sure the jack is in the horizontal position before transporting.
NOTE: Check to make sure the boom arm is in the boom rest and the lynch pin is in place.
NOTE: Make sure that the collapsible hopper is in the up position.
When transporting the Speed Tender Pro on public roads, it is recommended to have the boom in the forward facing position. The rearward facing position may not comply with state law for lighting and marking requirements.

⚠ **WARNING: Travel at a safe speed that allows you to maintain complete control of towing vehicle and Speed Tender Pro at all times.**

1.5 Hydraulic Power Unit Operation

⚠ **WARNING: Explosive fuel can cause fires and severe burns. Stop engine before filling fuel tank.**

⚠ **WARNING: Carbon monoxide can cause severe nausea, fainting or death. Do not operate engine in an enclosed or confined area.**

⚠ **WARNING: Hot parts can cause severe burns. Do not touch engine while operating or just after stopping.**

⚠ **WARNING: Acid from battery can cause fires and severe acid burns. Make sure to charge battery in well-ventilated area.**

⚠ **WARNING: Make sure to relieve hydraulic pressure before working on hydraulic system.**

1.0 Operations

WARNING: Purge hydraulic system of air before operating Speed Tender Pro to prevent serious injury or death.

WARNING: Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.

1. Check to make sure all fittings and hardware are in proper operating condition. Replace if worn or broken. Check engine fluid levels and sight gauge on reservoir for proper operating levels.
2. Slide the Fuel Shut-off Lever to the "ON" position (Figure 1.2).
3. Slide Choke Lever to the "ON" position (Figure 1.2).
4. Turn the key to the start position. Once engine starts, release key (Figure 1.2).
5. After starting, allow the engine to warm-up. Slide choke to the "OFF" position, and increase throttle speed (Figure 1.2).
6. To turn the engine off, slide the Fuel Shut-off to the "OFF" position (Figure 1.2).
7. Turn key off.

NOTE: In extremely cold weather, it is best to allow engine and hydraulics to warm-up before increasing throttle speed.

NOTE: If a hydraulic leak appears, turn off immediately and take appropriate action.

NOTE: See Engine manual for more details on upkeep and service.

Figure 1.2

1.6 Attaching the Bulk Seed Boxes

WARNING: The Speed Tender Pro must be hooked to the towing vehicle during loading and unloading.

WARNING: Load the front bulk seed boxes first to help prevent the chance of flipping.

1. Unlatch and flip open all four of the lids. (Figure 1.3)
2. Remove both of the lynch pins from the clamp handles. (Figure 1.3)
3. Remove the snap pins from both of the side latches. (Figure 1.3)
4. Load all four of the bulk seed boxes.
5. Flip the side latches up and insert both snap pins.
6. Flip the clamp handles up and insert the lynch pins.

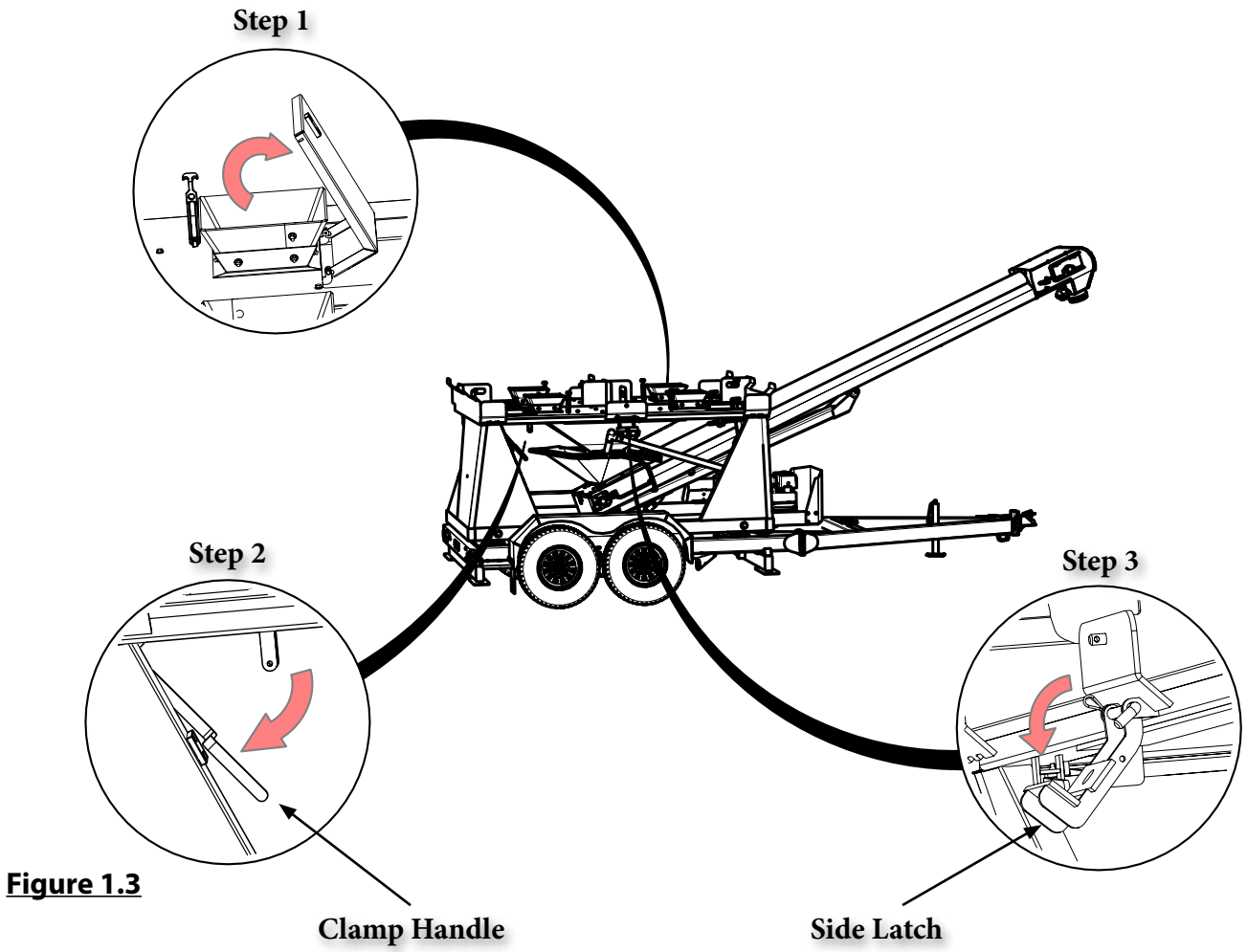


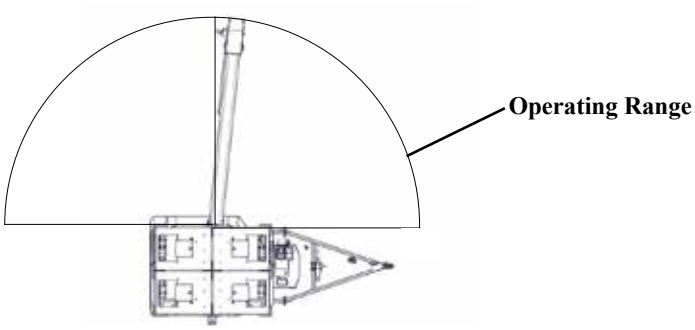
Figure 1.3

1.7 Field Operation

⚠ **WARNING: The Speed Tender Pro must be hooked to the towing vehicle during loading and unloading.**

1. Position the Speed Tender Pro next to the planter/drill so the conveyor/auger will reach the planter box.
2. Remove lynch pin from Boom Arm. (Figure 1.4).
3. Start the hydraulic power unit and increase throttle speed. (Allow hydraulic fluid to warm-up.)(Figure 1.2).
4. Raise the boom out of the boom rest using the handheld control (Figure 1.5).
   NOTE: Wireless options feature a Wireless Remote (Figure 1.5).

⚠ **WARNING: When operating the hydraulic swing option, Do not stand in the operating range of the Conveyor.**



5. Check to make sure the hopper is in the up position (Figure 1.6)

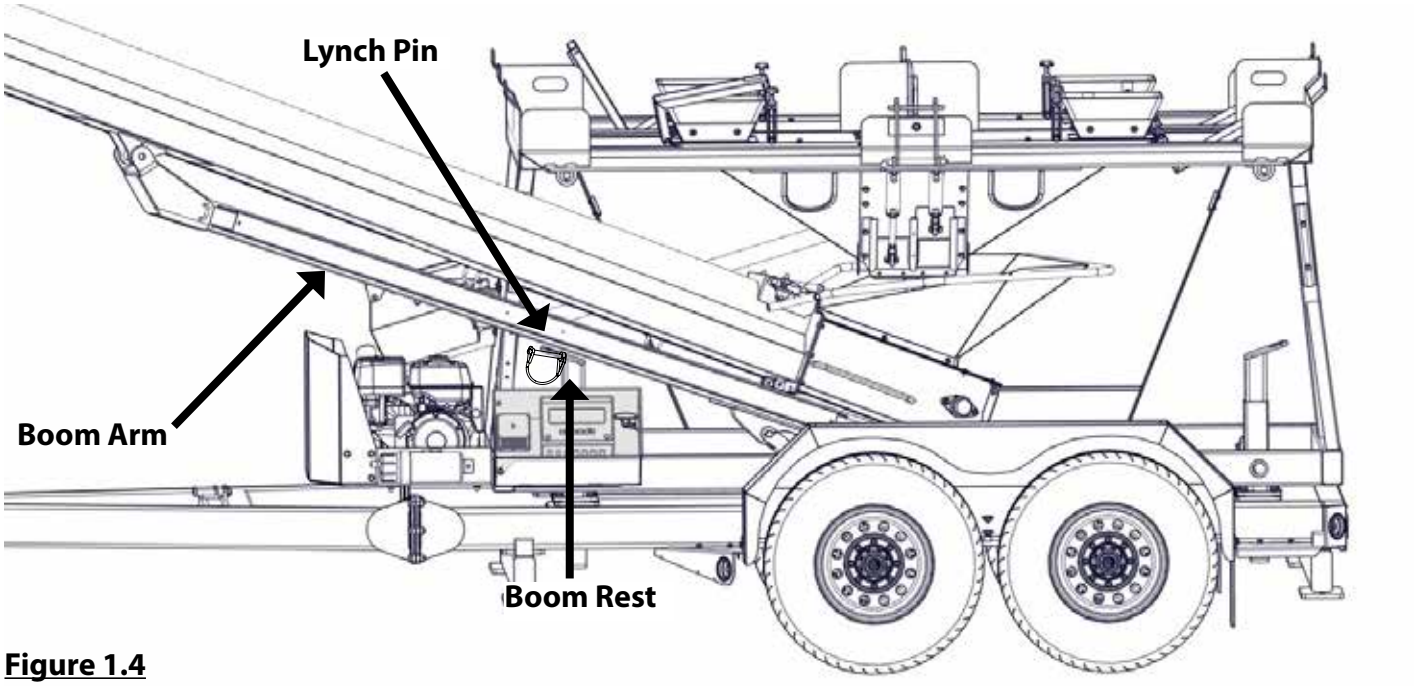


Figure 1.4

Wireless Remote

Handheld Control

Figure 1.5
See Section 4.1 for Remote Options

Hydraulic Door Assembly

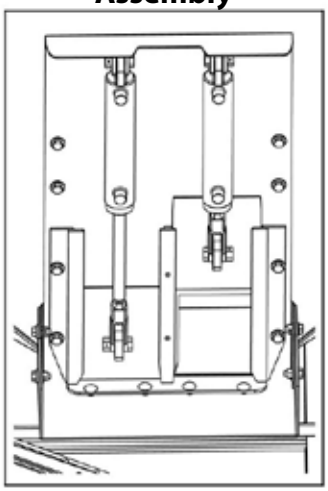
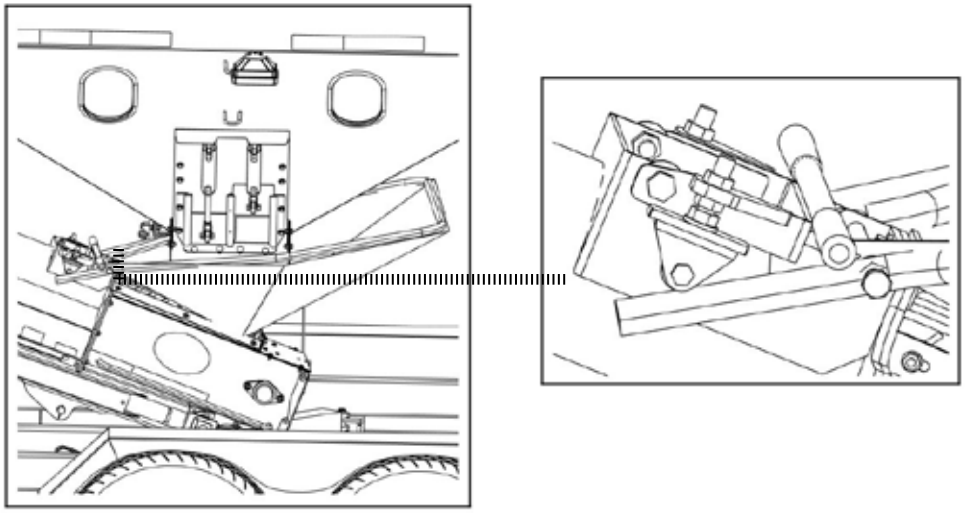


Figure 1.6



Hopper Up

Figure 1.7

6. Open door on Speed Tender Pro using supplied remote. (Figure 1.6).

⚠ **WARNING: Empty-out the rear compartment first to help prevent the chance of flipping the Speed Tender Pro.**

7. Use the Handheld Control or Wireless Remote to start the conveyor/auger.
8. Fill the planter/drill to desired level then repeat.
   NOTE: Adjusting engine throttle will regulate conveyor/auger speed.
9. Close door on Speed Tender Pro before the last planter seed box is full so you can completely empty-out collapsible hoper and conveyor.

⚠ **CAUTION: If you are parked on an incline the boom arm may swing freely. (It is advised that you do not use the Speed Tender Pro on uneven ground).**

10. Position boom above boom rest and lower to allow its full weight on the boom rest.
11. Replace lynch pin in Boom Arm.
12. Make sure the collapsible hopper is in the up position for storage (Figure 1.7).
    NOTE: If you are not using an optional hopper cover this will help the water drain out of the hopper.
13. The engine must throttle at, or above 80% throttle for 3 seconds to begin charge. After the 3 seconds at 80% throttle the battery will continue to charge until the engine is turned off.
14. Slide the fuel shut off lever to the "OFF" position. This will allow the engine to shutoff by running out of gas.
15. Turn the key to the "OFF" position.

1.8 Cleaning out Collapsible Hopper and Conveyor

⚠ **WARNING: The Speed Tender Pro must be hooked to the towing vehicle during loading and unloading.**

1. Remove lynch pin from Boom Arm (Figure 1.4).
2. Start the hydraulic power unit and increase throttle speed. (Allow hydraulic fluid to warm up if it is cold outside) (Figure 1.2).
   NOTE: Make sure collapsible hopper is in the down position.
3. Raise the boom out of boom rest using the handheld control. (Figure 1.5).
   NOTE: Wireless options feature a Wireless Remote (Figure 1.5).

⚠ **CAUTION: If you are parked on an incline, the boom arm may swing freely. (It is advised that you do not use Speed Tender Pro on uneven ground).**

4. Rotate the conveyor to 45 degrees
5. Lower the boom so you can remove the telescoping spout from the discharge end of the conveyor.
6. Swing the collapsible hopper end out from under the Speed Tender Pro shell.
7. Place the collapsible hopper in the up position (Figure 1.7)
8. Lower the discharge end as far as possible, place the discharge end into a 5 gallon bucket. (Figure 1.9). Using the hand held controller, start the conveyor and run until completely empty.
9. Locate the conveyor cleanout door, open it, and remove any debris. Figure 10

⚠ **CAUTION: Make sure that all power is shut off before opening conveyor cleanout door.**

10. Position boom arm above boom rest and lower to allow its full weight on the boom rest.
11. Replace lynch pin in boom pin.
12. Make sure the collapsible hopper is in the up position for storage (Figure 1.7).
    NOTE: This will help the water drain out of the hopper.
13. Slide the fuel shut off lever to the "OFF" position. This will allow the engine to shutoff by running out of gas.
14. Turn the key to the "OFF" position.

Figure 1.9

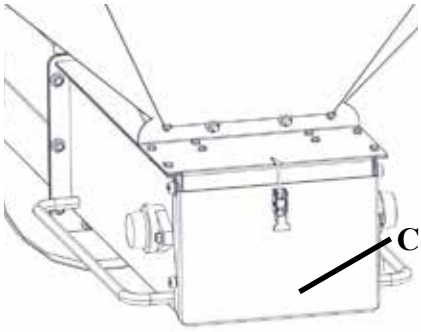


Figure 1.10

1.9 Basic Scale Operations

1. Turn the scale "ON" by pressing the on/off button. The display shows "Hello" then the current weight value is displayed.
2. Press G/N to access the gross mode. (Live scale weight is displayed in the G/N weighing mode.)
3. In the gross mode, press the ZERO/CLEAR key to zero the indicator when the Speed Tender Pro is empty.
4. After initial amount is placed on the scale, press the TARE Key. (Weight is tarred off and goes into net mode, showing weight).
5. Load or unload material as needed (Shows [+] when loading and a [–] value when unloading).
6. When the display reaches the proper amount, stop loading or unloading.
7. Repeat steps 2 through 4 until complete.

NOTE: For more information, refer to the scale manual.

2.0 Service

2.1 Grease Conveyor Bearings

Grease the conveyor bearings every 10 hours of operation and before storage. Use only two pumps of grease per bearing (Figure 2.1).

NOTE: Over lubrication of these bearings will result in premature failure.

NOTE: The conveyor has four bearings that need grease (two at each end). The auger is equipped with one bearing (at hopper end).

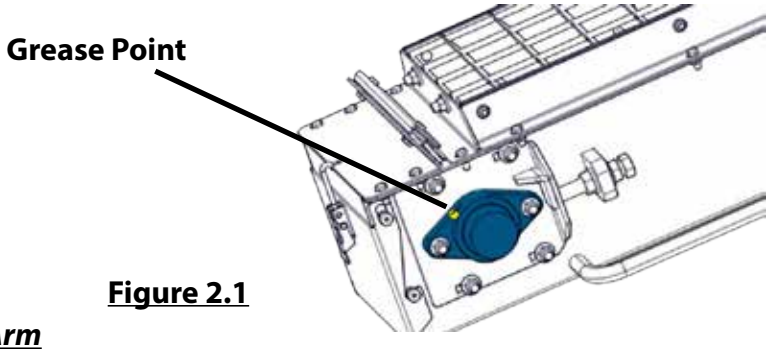


Figure 2.1

2.2 Grease Boom Arm

Grease pivot points on boom arm every 50 hours and before storage (Figure 2.2).

Grease Points

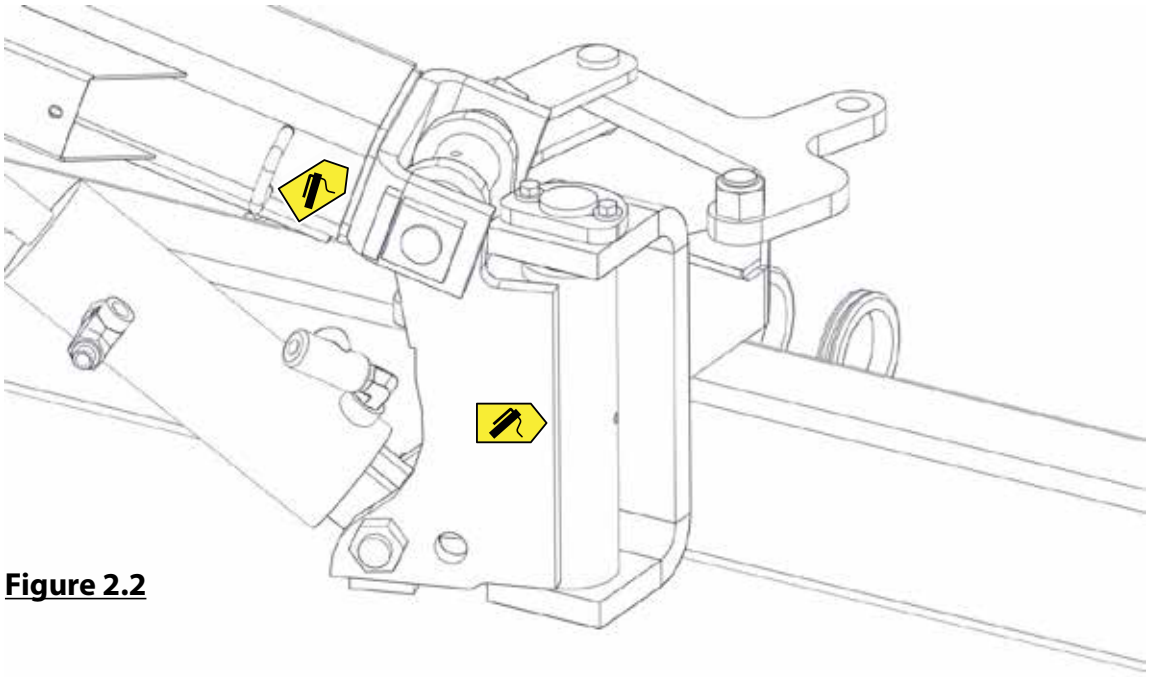


Figure 2.2

2.3 Tire Pressure

The following is to be used as a general guide for tire inflation. Figures can vary depending on specific brand of tire used. It is important that tires are inspected before and after unit is loaded. Start with the minimum pressure indicated. The tire should stand up with no side wall buckling or distress as tire rolls. Do not exceed maximum recommended tire pressure. 235/85R16 tires that are standard on the Speed Tender Pro tires should be inflated to 75psi. J&M also recommends to rotate your tires front to back (not side to side) every 1,200 miles or 12 months (whichever comes first) for longer tire life. Figure 2.3 is a troubleshooting chart used to ensure the tires wear evenly.

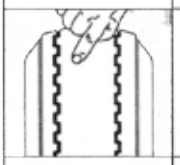
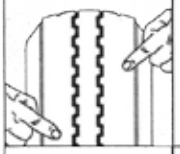
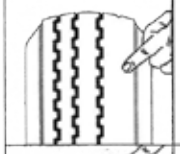
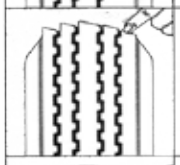
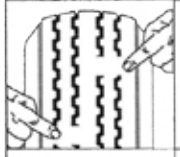
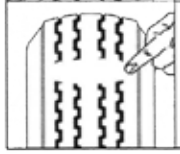
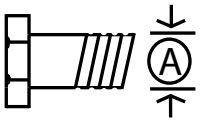
	Condition	Possible Cause	Remedy
	Even Center Wear	Over Inflation	Check & Adjust Pressure When Cold
	Inside & Outside Wear	Under Inflation	Check & Adjust Pressure When Cold
	Smooth, Side Wear - One Side	Loss of Camber or Overloading	Check & Unload As Necessary Have Alignment Checked
	"Feathering" Across The Face	Axle Not Square To Frame or Incorrect Toe In	Square Axles Have Alignment Checked
	Cupping	Loose Bearings or Wheel Balance	Check Bearing Adjustment and Wheel & Tire Balance
	Flat Spots	Wheel Lockup	Adjust Brakes

Figure 2.3

2.4 Tightening Lugnuts

Torque lug-nuts on new and removed wheels to 190 ft. lbs. after the first 10, 25, and 50 miles of driving, then recheck torque every 50 hours or every year, whichever comes first.

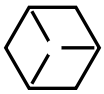
Bolt Torque Specifications



SAE SERIES TORQUE CHART

SAE Grade 2
(No Dashes)

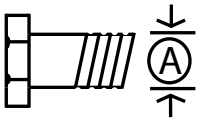
SAE Bolt Head Identification



SAE Grade 5
3 Radial Dashes

SAE Grade 8
6 Radial Dashes

A 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



METRIC SERIES TORQUE CHART

Metric
Grade 8.8

Metric Bolt Head Identification

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

2.5 Wheel Bearings

The wheel bearings need to be cleaned, inspected, and repacked every 12 months or 12,000 miles. Use a number 2 wheel bearing grease to repack the bearings.

Bearing Inspection and Service:

1. Jack up Speed Tender Pro.
2. Remove wheel lug-nuts.
3. Remove wheel from hub.
4. Remove grease cap.
   NOTE: Be careful not to dent or cut a hole in grease cap.
5. Remove the cotter pin, nut, and washer.
6. Wiggle the hub to take the outer wheel bearing out.
7. Pull hub assembly straight off the axle. If you want to reuse the grease seal, (which is not recommended), be careful to support the weight of the hub so that the end of the axle does not ruin the rubber part of the grease seal.
8. To remove the inner bearing, you must remove the grease seal.
9. Remove inner bearing.
10. Wash all grease and oil from the bearing cone using a suitable solvent. Dry the bearing with a clean, lint-free cloth and inspect each roller completely. If any pitting, scalding, or corrosion is present, then the bearing must be replaced. The bearing cups inside the hub must be inspected.
    NOTE: Bearings must always be replaced in sets of a cone and a cup (See bearing cup replacement on following page.)
11. Repack inner bearing with new grease.
    A. Place a moderate amount of grease in the palm of one hand.
    B. Hold the inner bearing, large side down, in your other hand
    C. Using the edge of the bearing like an ice-cream scoop, work it in until you see fresh grease come out of the top side of the bearing.
    D. Rotate 1/8 of a turn and repeat until the whole bearing is full of fresh grease.
12. Place the inner bearing in the back of the wheel hub and add a liberal dose of grease.
13. Position the new wheel seal in its recess and lightly set it with a hammer.
    NOTE: Be careful to not deform the metal part of the seal.
14. Slide the hub assembly onto the spindle and push it back into position.
15. Grease the outer bearings by hand. (See step 11)
16. Slide it and the spindle washer onto the spindle and into the hub recess.
17. Install and bottom out the spindle nut, then back it off 1/4 turn.
18. Reinstall the spindle nut and replace the cotter pin with a new one.
    NOTE: If the castle nut does not line up with the hole in the spindle, then loosen the nut slightly until it does.
19. Pack the bearing cap with fresh grease and lightly drive it into the hub recess with a hammer.
20. Reinstall the wheel onto the hub and torque the wheel lug-nuts.
    NOTE: See wheel nut/bolt torque requirements located in section 2.4.

Bearing cup replacement:

1. Place the hub on a flat work surface with the cup to be replaced on the bottom side.
2. Using a brass drift punch, carefully tap around the small diameter end of the cup to drive it out.
3. After cleaning the hub bore area, replace the cup by tapping it with the brass drift punch. Be sure the cup is seated all the way up against the retaining shoulder in the hub.

2.6 Hydraulic Power Unit

Daily (every 5 hours of use):

1. Check oil level.
2. Inspect for oil leaks and repair as necessary.
3. Check all hoses, fittings, bolts and hardware to make sure that they are secure and properly tightened.
4. Check motor oil level. See Engine operator's manual for details on oil levels, oil types, and service intervals.

Once per season (every 20-25 hours of use):

Change hydraulic oil filter element with either a NAPA 155Z or a FRAM P1654A Filter.

Every two to three years (every 75-80 hours of use):

Drain oil reservoir and refill with clean, good quality hydraulic AW 32 oil. (It is not recommended to refill with tractor hydraulic oil).

Replacing hydraulic parts:

Check parts section for proper part description and part # for replacement.

Purge air from system as follows:

1. Disconnect the rod end clevis of all cylinders in a circuit and block up cylinders so the rod can completely extend and retract without contacting any other components.
2. Pressurize the system and maintain system at full pressure for at least 5 sec. after cylinder rods stop moving. Check that all cylinders have fully extended or retracted.
3. Check hydraulic reservoir and refill as needed.
4. Pressurize system again to reverse the motion of step 2. Maintain pressure on system for at least 5 sec. after cylinder rods stop moving. Check that cylinders have fully extended or retracted.
5. Check for hydraulic leaks using cardboard or wood. Tighten connections according to the torque chart. (pg.28)
6. Repeat steps 2, 3, 4 and 5 (3 to 4 times).
7. Depressurize hydraulic system and connect cylinder rod clevises to their mating lugs.

2.7 Conveyor Belt Tracking

Conveyor belt must run in the center of the pulley at both the discharge end and the collapsible hopper end. Failure to do so will lead to unnecessary wear and shortening of belt life. We recommend that you check your belt for proper tracking every 10 hours of use and before every season.

Checking the belt tracking at collapsible hopper end:

1. Open clean out-door located under collapsible hopper (Figure 2.4). This will allow you to see if the belt is centered on the pulley.
2. If the tracking is ok, close the clean out-door. If tracking is off, see (Section 2.8).

Checking the belt tracking at discharge end:

1. Remove the 12 bolts located at the discharge end (Figure 2.4).
2. Remove the Discharge Pan and Rubber Discharge Pan. This will allow you to see if the belt is centered on the pulley.
3. If the belt tracking is good, reinstall the head pan. If tracking is off, see Section 2.8.

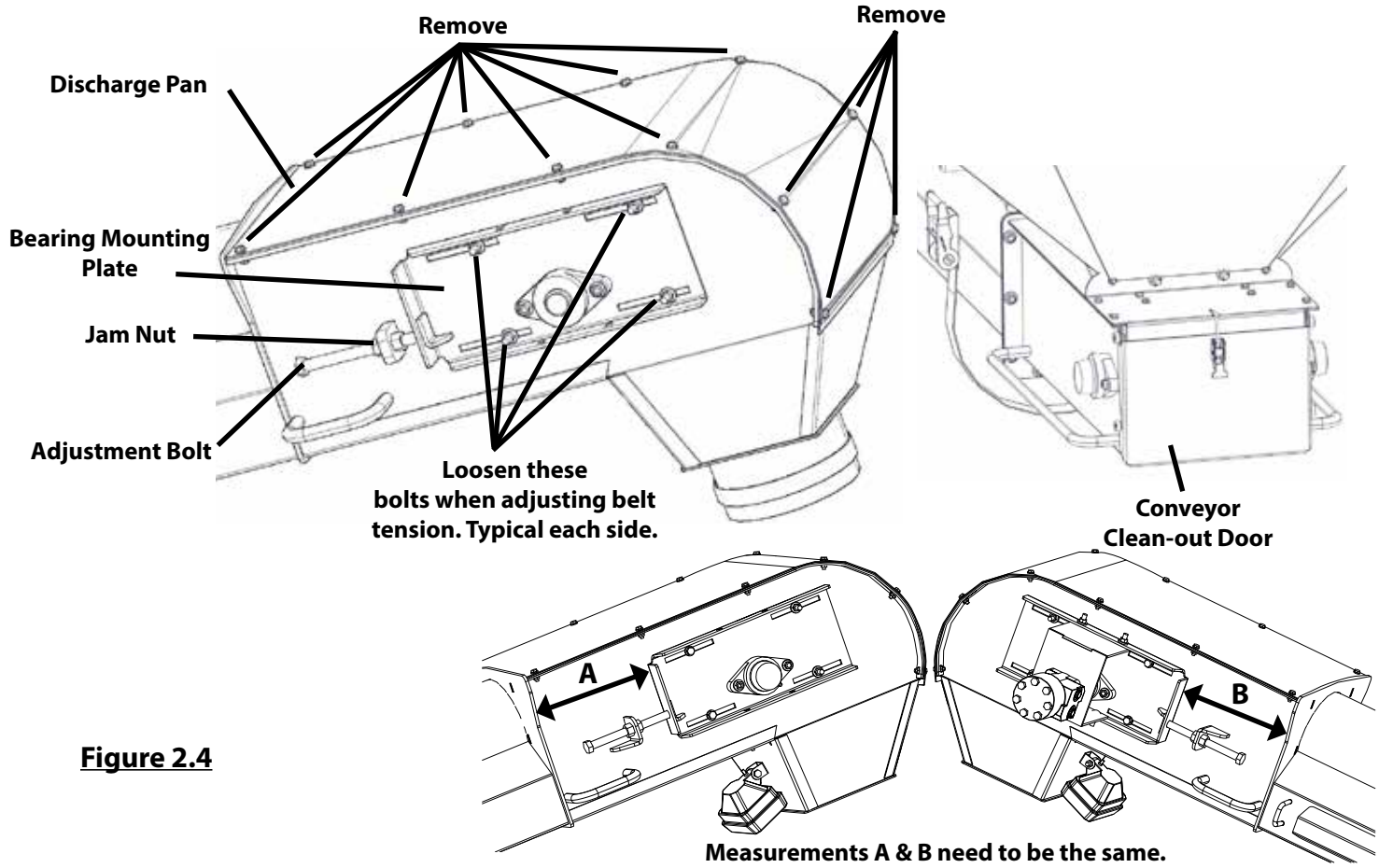


Figure 2.4

2.8 Adjusting Conveyor Belt Tracking

1. Loosen (Do Not Remove) the 4 bolts on the two bearing mounting plates located at the collapsible hopper end of the conveyor (Figure 2.5). **NOTE: Only adjust conveyor in normal position, do not adjust in self-fill position.**
2. Operate the conveyor at a slow speed.

⚠ **CAUTION: Keep hands and clothing away from moving parts.**

3. Loosen jam nut on adjustment bolt (Figure 2.5).
4. Tighten the adjustment bolt slowly until belt is running in the center of the pulley.
   NOTE: Do not loosen the adjustment bolt.
5. Tighten all bolts on bearing mounting plate, and adjustment bolts jam nuts.
6. Repeat at discharge end.
7. When belt is running in center of the pulley on both ends of conveyor, allow the Speed Tender Pro to run for 10 min, then recheck belt for proper tracking.

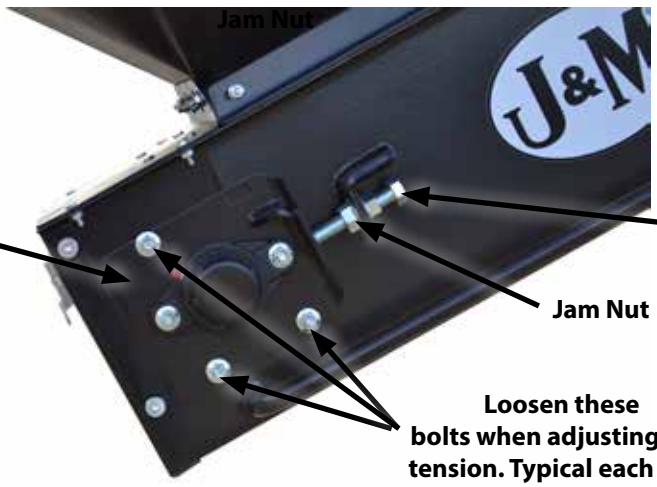


Figure 2.5

2.9 Belt Tensioning

NOTE: You need to adjust your belt tension at least once a year.

1. Remove the head pan and head pan gasket (Figure 2.3).
2. Loosen (Do Not Remove) the 4 bolts on the two bearing mounting plates located at the discharge end of the conveyor (Figure 2.3).
3. Loosen jam nut on adjustment bolt at discharge end (Figure 2.3).
4. Torque threaded adjustment bolt to 23 ft-lb.
5. Operate the conveyor at a slow speed.

⚠ **CAUTION: Keep hands and clothing away from moving parts.**

6. If the belt is tracking properly go to step 7. If tracking is off, see Section 2.8.
7. Open the clean-out door located under collapsible hopper (Figure 2.4). This will allow you to see if the belt is centered on the pulley.
8. If the tracking is ok, close the clean-out door, tighten all hardware and go to step 9. If tracking is off, see Section 2.8.
9. Run the belt at medium speed for 10 min. and recheck the tracking at both the discharge and collapsible hopper end.
10. If tracking is off, see section 2.8.
11. If the belt is still tracking in the center of both pulleys, reinstall the head pan.

2.10 Electric Brakes

The Speed Tender Pro is equipped with electric brakes. They need to be inspected and serviced immediately if a loss of performance is experienced. You need to service your Speed Tender Pro brakes at least once a year with normal use.

How to use your electric brakes properly:
Your Speed Tender Pro brakes are designed to work in synchronization with your tow vehicle brakes. Never use your tow vehicle or Speed Tender Pro brakes alone to stop the combined load.

Your Speed Tender Pro and tow vehicle will seldom have the correct amperage flow to the brake magnets to give you comfortable, safe braking unless you make proper brake system adjustments. Changing trailer load and driving conditions, as well as uneven alternator and battery output, can mean unstable current flow to your brake magnets. It is therefore imperative that you maintain and adjust your brakes as set forth in this manual, use a properly modulated brake controller, and perform the synchronization procedure noted below.

In addition to the synchronization adjustment detailed below, electric brake controllers provide a modulation function that varies the current to the electric brakes with the pressure on the brake pedal or amount of deceleration of the tow vehicle. It is important that your brake controller provide approximately 2 volts to the braking system when the brake pedal is first depressed and gradually increases the voltage to 12 volts as brake pedal pressure is increased. If the controller "jumps" immediately to a high voltage output, even during a gradual stop, then the electric brakes will always be fully energized and will result in harsh brakes and potential wheel lockup.

To synchronize:
To insure safe brake performance and synchronization, read the brake controller manufacturer's instruction completely before preforming the synchronization procedure.

Make several hard stops from 20 m/h on a dry paved road that is free of sand and gravel. If the Speed Tender Pro brakes lock and slide, decrease the gain setting on the controller. If they do not slide, slightly increase the gain setting, Adjust the controller just to the point of impending brake lockup and wheel skid.

2.0 Service

How to adjust electric brakes:

1. Park the Speed Tender Pro on firm and level ground.
2. Block the trailer tires on the opposite side securely so that no forward or rearward movement is possible.
3. Jack up the Speed Tender Pro.
4. Secure the trailer on jack stands of adequate capacity front and rear.
5. At the back of the wheel, on the brake backing plate, there is a small rubber plug near the bottom of the backing plate. Pry out this plug to give access to the star wheel adjuster.
6. Insert the brake adjuster tool and maneuver it so that the tool engages with the teeth in the star wheel. The star wheel looks like a gear with exposed teeth on the perimeter.
7. Turn the adjuster until the brake locks up (you can no longer rotate the wheel by hand). This centers the brake shoes on the brake drum so that they are in the correct position.
8. Now back off the star wheel 8 to 10 clicks or as specified by the manufacturer. The wheel should spin freely with no apparent drag to slow it down. A slight scraping noise is normal as the wheel turns.
9. Repeat this procedure for all the wheels.

When to adjust brakes:

1. After the first 200 miles of operating when the brake shoes and drums have "seated."
2. At 3,000 mile intervals or once a year, whichever comes first.

Brake Cleaning and Inspection:

Your Speed Tender Pro brakes must be inspected and serviced at yearly intervals, (or more often as use and performance requires). Magnets and shoes must be changed when they become worn or scored thereby preventing adequate vehicle braking. Clean the backing plate, magnet arm, magnet, and brake shoes. Make certain that all the parts removed are replaced in the same brake and drum assembly. Inspect the magnet arm for any loose or worn parts. Check shoe return springs, hold down springs, and adjuster springs for stretch or deformation and replace if required.

Brake Shoe and Lining Inspection:

A simple visual inspection of your brake linings will tell if they are usable. Replacement is necessary if the lining is worn (to within 1/16" or less), contaminated with grease or oil, or abnormally scored or gouged. Hairline heat cracks are normal in bonded linings and should not be cause for concern (Figure 2.6). When replacement is necessary, it is important to replace both shoes on each brake and both brakes of the same axle. This will help retain the "balance" of your brakes.

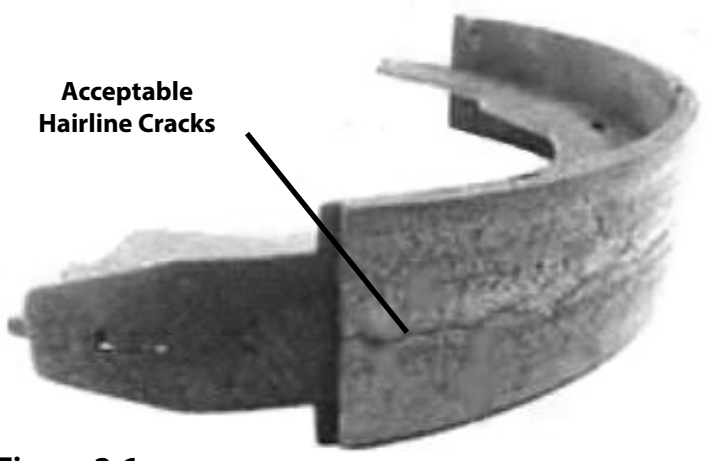


Figure 2.6

2.0 Service

Replacing Brake Linings:

1. Remove the brake shoe retract spring.
2. Remove the shoe hold down assembly by holding the back of the pin with one hand and pushing against the spring and twisting with a hold down spring tool until the cup is released.
3. Remove both shoes together leaving the adjuster assembly and spring intact.
4. Clean the backing plate and lever arm.
5. Inspect magnet arm for any loose or worn parts.
6. Replace springs that are broken, bent, or weak.
7. Apply a light film of lubricant to the anchor pin and shoe rest pads & backing plate areas that are in contact with the lever arm.
8. Attach the adjuster screw and spring to the new brake shoes. The star wheel and adjuster must be positioned as before.
9. Install the new shoes on the backing plate and reinstall shoe retract spring.

After replacement of brake shoes and linings, the brake must be re-burnished to seat in the new components. This should be done by applying the brakes 20 to 30 times from an initial speed of 40 m/h, slowing the vehicle to 20 m/h. Allow ample time for brakes to cool between applications. This procedure allows the brake shoes to seat into the drum surface.

Brake Lubrication:

Before reassembling, apply a light film of lubrication or similar grease, or anti-seize compound on the brake anchor pin, the actuating arm bushing and pin, and the areas of the backing plate that are in contact with the brake shoes and magnet lever arm. Apply a light film of grease on the actuating block mounted on the actuating arm.

Troubleshooting:

Most electric brake malfunctions that cannot be corrected by either brake adjustments or synchronization adjustments can generally be traced to electrical system failure. Mechanical causes are ordinarily obvious, bent or broken parts, worn out linings or magnets, seized lever arms or shoes, scored drums, loose parts, etc. Voltmeter and ammeter are essential tools for proper troubleshooting of electric brakes.

How to Measure Voltage:

System voltage is measured at the magnets. Connect the voltmeter to the two magnet lead wires at any brake. This may be accomplished by using a pin probe inserted through the insulation of the wires dropping down from the chassis or by cutting the wires. **The engine of the towing vehicle should be running when checking the voltage (so that a low battery will not affect the readings).**

Brake Magnet Inspection:

Your electric brakes are equipped with high quality electromagnets that are designed to provide the proper force and friction. Your magnets should be inspected and replaced if worn unevenly or abnormally (Figure 2.7). Even if wear is normal as indicated by your straightedge, the magnets should be replaced if any part of the magnet coil has become visible through the friction material facing of magnet. It is also recommended that the drum armature surface be re-faced when replacing magnets. Magnets should also be replaced in pairs - both sides of an axle.

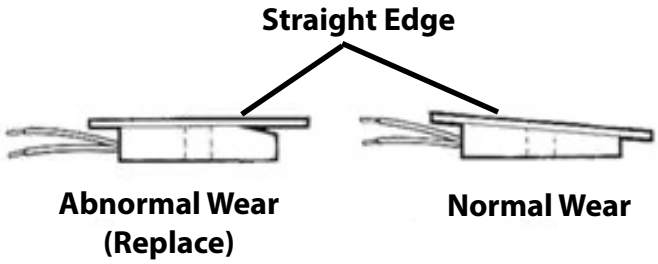


Figure 2.7

Voltage in the system should begin at 0 volts. As the controller bar is slowly actuated, the voltage should gradually increases to about 12 volts. This is referred to as modulation. No modulation means that when the controller begins to apply voltage to brakes it applies an immediate high voltage, which causes the brakes to apply instantaneous maximum power.

The threshold voltage of a controller is the voltage applied to the brakes when the controller first turns on. The lower the threshold voltage, the smoother the brakes will operate. Threshold voltage in excess of 2 volts (quite often found in heavy duty controllers) can cause grabbing, resulting in harsh braking.

How to Measure Amperage:
System amperage is the amperage being drawn by all brakes on the trailer. **The engine of the towing vehicle should be running when checking amperage.**

One place to measure system amperage is at the blue wire of the controller which is the output to the brakes. The blue wire must be disconnected and the amp meter put in series into the line. System amperage draw should be as noted in the table below. Make sure your ammeter has sufficient capacity and note polarity to prevent damaging your amp meter.

Brake Size	Amps/Magnet	Two Brakes	Four Brakes	Six Brakes	Magnet Ohms
12 X 2	3.0	6.0	12.0	18.0	3.2

Replacing brake magnet

1. Orient the magnet over the lever arm post such that the magnet leads are in the correct position for routing.
2. Push the magnet over the lever arm post by compressing the magnet spring between the magnet and the lever arm.
3. Insert the magnet clip in the slot of the magnet. Be sure to orient the magnet clip so it will "snap" into place.
4. Press down on the magnet and install the magnet clip.
5. Be sure that the magnet moves up and down freely on the lever arm post.
6. Route the wiring in the same manner noted on removal. Be sure that wires cannot bind, pinch, or rub. Manually actuate lever arm to insure there is no interference.
7. Install strain relief bushing, allowing enough slack in the wiring to allow the lever arm to move without straining the wires. Be sure the wire cannot come in contact with the armature.
8. Connect the magnet leads to the trailer wiring harness and then reinstall hub and drum.

Brake Drum Inspection:
There are two areas of the brake drum that are subject to wear and require inspection. These two areas are the drum surface where the brake shoes make contact during stopping and the armature surface where the magnet contacts (only in electric brakes).

The drum surface should be inspected for excessive wear or heavy scoring. If worn more than .020" oversized, or if the drum has worn out of round by more than .015", then the drum surface should be turned. If scoring or other wear is greater than .090" on the diameter, the drum must be replaced. When turning the drum surface, the maximum re-bore diameter for a 12" brake drum is 12.090"

The machined inner surface of the brake drum that contacts the brake magnet is called the armature surface. If the armature surface is scored or worn unevenly, it should be refaced to a 120 micro inch finish by removing not more than .030" of material. To insure proper contact between the armature face and the magnet face, the magnets should be replaced whenever the armature surface is refaced and the armature surface should be refaced whenever the magnets are replaced.

2.11 Daily Service (5 -10 Hours of Use)

NOTE: J&M recommends the following service to be performed daily (every 5-10 hours of use)

1. Grease the conveyor bearings every 10 hours. Use only two pumps of grease per bearing
   NOTE: Over lubrication of these bearings will result in premature failure.
   NOTE: The conveyor has 4 bearings that need greased (2 at each end). The auger is equipped with 1 bearing (at Hopper end) (See section 2.1).
2. Check your belt for proper tracking every 10 hours of use and before every season. For steps to properly track your belt see section 2.7.
   NOTE: When checking the belt for tracking you should empty out the clean-out door (Figure 2.4).
3. Check hydraulic oil level.
4. Inspect for oil leaks and repair as appropriate.
5. Check all hoses, fittings, bolts, and hardware to make sure that they are secure and properly tightened.
6. Check engine oil level. See Engine operator's manual for details on oil levels, oil types and service intervals.
7. Check Speed Tender Pro breaks and lights before towing.
8. Check the Speed Tender Pro periodically for cracks in welds and for other structural damage. Have cracked welds fixed immediately.
   NOTE: Failure to have cracked welds fixed immediately could result in extensive damage to the Speed Tender Pro and greatly reduce its life.
9. Make sure tires are properly inflated (See section 2.3).
10. Make sure wheel lug nuts are properly torqued (See section 2.4).
11. Make sure that the conveyor/auger hopper guard is in place. Do not remove.
12. Clean out the Conveyor at the end of every day of use (Section 1.8).

2.12 End of the Year Service

IMPORTANT: When the Speed Tender Pro is not going to be used for a length of time, J & M recommends that you store the Speed Tender Pro in a dry, protected place. Leaving your Speed Tender Pro outside and open to the weather will shorten its life.

1. Grease the conveyor bearings. Use only two pumps of grease per bearing.
   NOTE: Over lubrication of these bearings will result in premature failure.
   NOTE: The conveyor has four bearing that need greased (two at each end).
2. Grease pivot points on boom arm before storage.
3. The wheel bearings need to be cleaned, inspected, repacked, and adjusted. Use a number 2 wheel bearing grease to repack the bearings.
4. Inspect and service the brakes (magnets and shoes). They must be changed when they become worn or scored, thereby preventing inadequate vehicle braking. Clean the backing plate, magnet arm, magnet, and brake shoes. Make certain that all the parts removed are replaced in the same brake and drum assembly. Inspect the magnet arm for any loose or worn parts. Check shoe return springs, hold down springs, and adjuster springs for stretch or deformation, replace as needed.

2.12 End of the Year Service(Continued)

5. Torque lug-nuts (Section 2.4).
6. Make sure that the tires are properly inflated.
7. Remove all grain from inside the grain tanks.
8. Clean out the Conveyor at the end of every season (Section 1.8).
9. Tension and track the conveyor belt. (Section 2.7).
10. Check the Speed Tender Pro periodically for cracks in welds and for other structural damage. Have cracked welds fixed immediately.
    NOTE: Failure to have cracked welds fixed immediately could result in extensive damage to The Speed Tender Pro and greatly reduce its life.
11. Check hydraulic hoses for wear and replace if needed.
12. Make sure that the conveyor hopper guard is in place.
13. Remove battery from the Speed Tender Pro and place in a cool dry place.
    NOTE: Attaching a trickle charger to the battery will help ensure a long life for your battery.
    IMPORTANT: Be sure to disconnect the scales from the battery before charging.
14. Change hydraulic oil filter element with either a NAPA 155Z or a FRAM P1654A Filter.
15. Top off hydraulic oil tank with good quality hydraulic AW 32 oil.
    NOTE: If the Hydraulic Oil appears to be "Milky" in color it should be changed immediately. Otherwise, the Hydraulic Oil should be changed every 2-3 years. If the environment is extremely dusty or dirty the Hydraulic Oil should be changed more often.
15. Check motor oil level. See Engine operator's manual for details on oil levels, oil types, and service intervals.
16. Retract all hydraulic cylinders to prevent the piston rods from rusting.
17. Touch-up spots where paint has been worn away (use good quality primer paint - especially before applying graphite paint to the inside of the grain tank).

2.13 Removing From Storage

1. Grease the conveyor bearings. Use only two pumps of grease per bearing
   NOTE: Over lubrication of these bearings will result in premature failure.
   NOTE: The conveyor has four bearings that need greased (two at each end). The auger is equipped with one bearing (at Hopper end) (See section 2.1).
2. Grease pivot points on boom arm.
3. Torque lug-nuts (Section 2.4).
4. Make sure that the tires are properly inflated.
5. Check your belt for proper tracking every 10 hours of use and before every season. For steps to properly track your belt (Section 2.7).
6. Check oil level.
7. Inspect for hydraulic oil leaks and repair as appropriate.
8. Check all hoses, fittings, bolts, and hardware to make sure that they are secure and properly tightened.
9. Check engine oil level. See Engine operator's manual for details on oil levels, oil types, and service intervals.
10. Check Speed Tender Pro lights before each time you tow.
11. Make sure that the conveyor hopper guard is in place.
12. Reattach battery and check to make sure that it is fully charged.
    IMPORTANT: Be sure to disconnect the scales from the battery before charging.

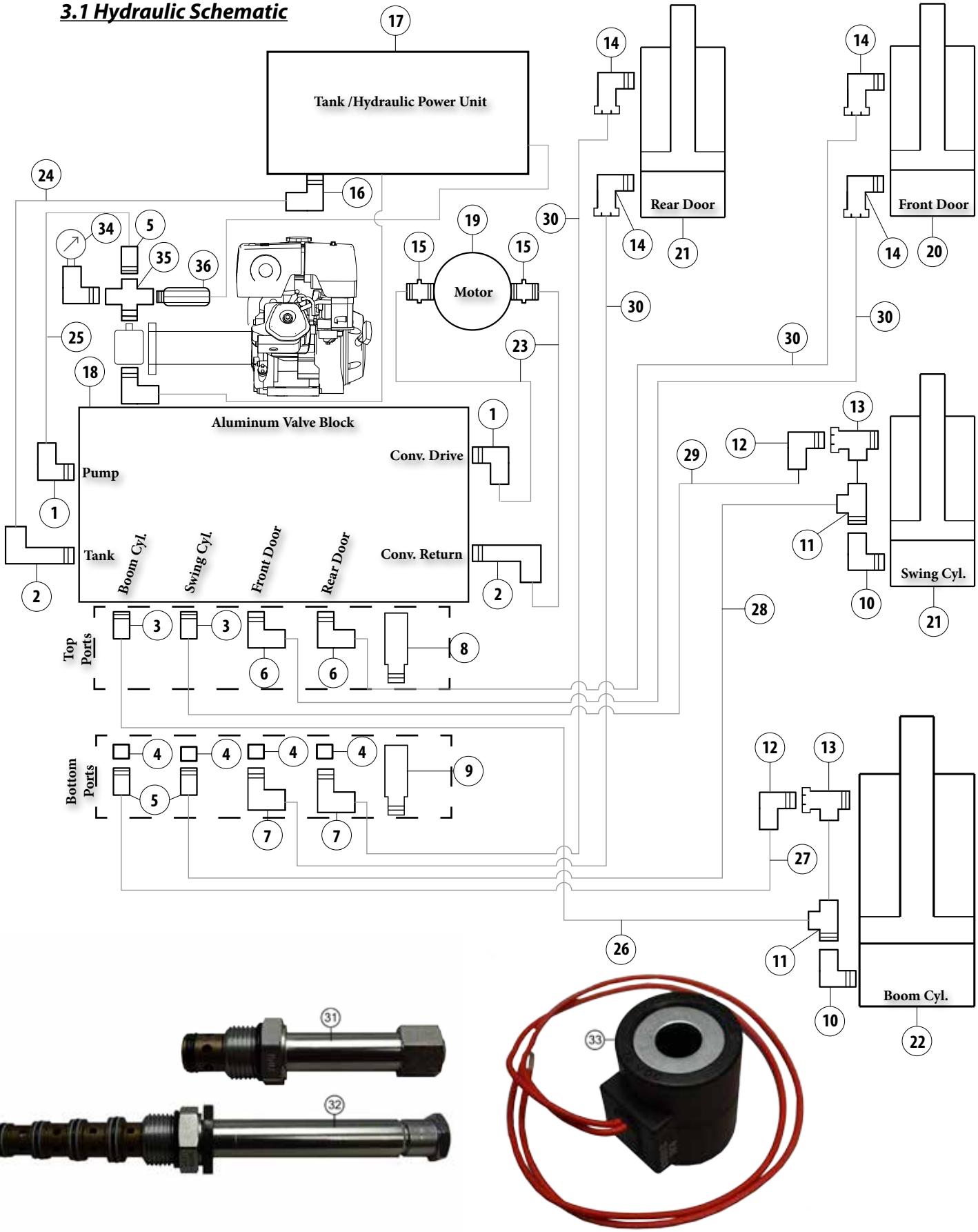
2.14 Troubleshooting

Problems	Solutions
Unit sways during travel	a. Check tire pressure.
	b. Check tow vehicle for loosened hitch parts.
	c. Check tow vehicle's hitch height.
	d. Reduce towing speed.
	e. Check wheel lug-nuts.
	f. Check wheel bearings for adjustment (See section 2.5).
Tires show excessive wear	a. Check tire pressure.
	b. Rotate tires. (See section 2.3)
	c. Check wheel bearings for adjustment. (See section 2.5).
Wheel makes grinding or squeaking noise	a. Service wheel bearings. (See section 2.5).
Noisy when brakes are being applying	a. Properly adjust brakes.
	b. Replace any weak or broken springs in brakes.
	c. Replace the brake linings if excessively worn or contaminated
	d. Check wheel bearings for adjustment (See section 2.5).
No Brakes	a. Properly adjust brakes
	b. Check for short in electric circuit
	c. Replace any brake magnets that are worn or defective
Weak brakes	a. Properly adjust brakes
	b. Replace any excessively worn or contaminated linings.
	c. Check for short in electric circuit
	d. Replace bent backing plate
Dragging brakes	a. Properly adjust brakes
	b. Replace any weak or broken springs in brakes
Locking brakes	a. Replace any weak or broken springs in brakes
	b. Replace any excessively worn or contaminated linings
Grabbing brakes	a. Replace any excessively worn or contaminated linings
Surging brakes	a. Trailer is not adequately grounded
Belt is not moving - Hydraulic pump is not producing sufficient pressure or volume to belt motor.	a. Check for pinched or leaking hydraulic line
	b. Allow hydraulic oil to warm up
	c. Increase engine R.P.M.
	d. Charge battery or plug in to tow vehicle
	e. Hydraulic fluid level low
	f. Hydraulic filter clogged
	g. Check for proper oil viscosity
	h. Check hydraulic output pressure.
Belt is not moving - Obstructed Conveyor	a. Make sure conveyor is not clogged
Belt has insufficient output speed or R.P.M. - Hydraulic pump is not producing sufficient pressure or volume to belt motor.	a. Check for pinched or leaking hydraulic lines.
	b. Allow hydraulic oil to warm up
	c. Increase engine R.P.M.
	d. Hydraulic fluid level low
	e. Hydraulic filter clogged
	f. Check for proper oil viscosity
	g. Repair or replace worn out pump.
Belt has insufficient output speed or R.P.M. - Belt is slipping	a. Adjust belt tension and tracking (See section 2.8).
	b. Check telescoping spout and conveyor for a clog.
	c. Remove material from clean out door.

2.14 Troubleshooting

Problems	Solutions
Belt has insufficient output speed or R.P.M. - Air in hydraulic system.	a. Bleed air out of hydraulic system and fill reservoir (See section 2.6).
	b. Look for leaking or cracked fittings.
Belt has insufficient output speed or R.P.M. - Leak in motor, valve body, or bypass valves.	a. Replace or repair motor, valve body, or bypass valves.
	b. Check for proper oil viscosity.
	c. Clean and lubricate the brake assemblies
Excessive wear to belt edge - Tracking is off.	a. Adjust belt tension and tracking (See section 2.8).
Excessive wear to belt edge - Rubber skirting is worn or out of place.	a. Replace rubber skirting.
	b. Adjust rubber skirting.
Boom arm will not move up or down - Engine R.P.M. slow.	a. Increase engine R.P.M.
Boom arm will not move up or down - Hydraulic pump is not producing sufficient pressure or volume to hydraulic cylinder.	a. Check for pinched or leaking hydraulic lines.
	b. Allow hydraulic oil to warm up.
	c. Increase engine R.P.M.
	d. Hydraulic fluid level low.
	e. Hydraulic filter clogged.
	f. Check for proper oil viscosity.
	g. Check to see if hydraulic pump is worn out
	h. Make sure battery is fully charged.
	i. Check wiring to valve body and hydraulic pump
Hydraulic unit squeals	a. Check sight glass on hydraulic unit reservoir and fill if necessary.
	b. Run engine at reduced speed for 5-10 minutes to warm up oil.
	c. Clean/replace filler cap/breather.
	d. Clear obstruction in suction hose.
	e. Replace plugged/dirty oil filter element.
Hydraulic unit has poor performance at high R.P.M.	a. Clean pressure relief in control valve or replace
	b. Check sight glass on hydraulic unit reservoir and fill if necessary.
	c. Replace plugged/dirty oil filter element
	d. Charge Battery

3.1 Hydraulic Schematic

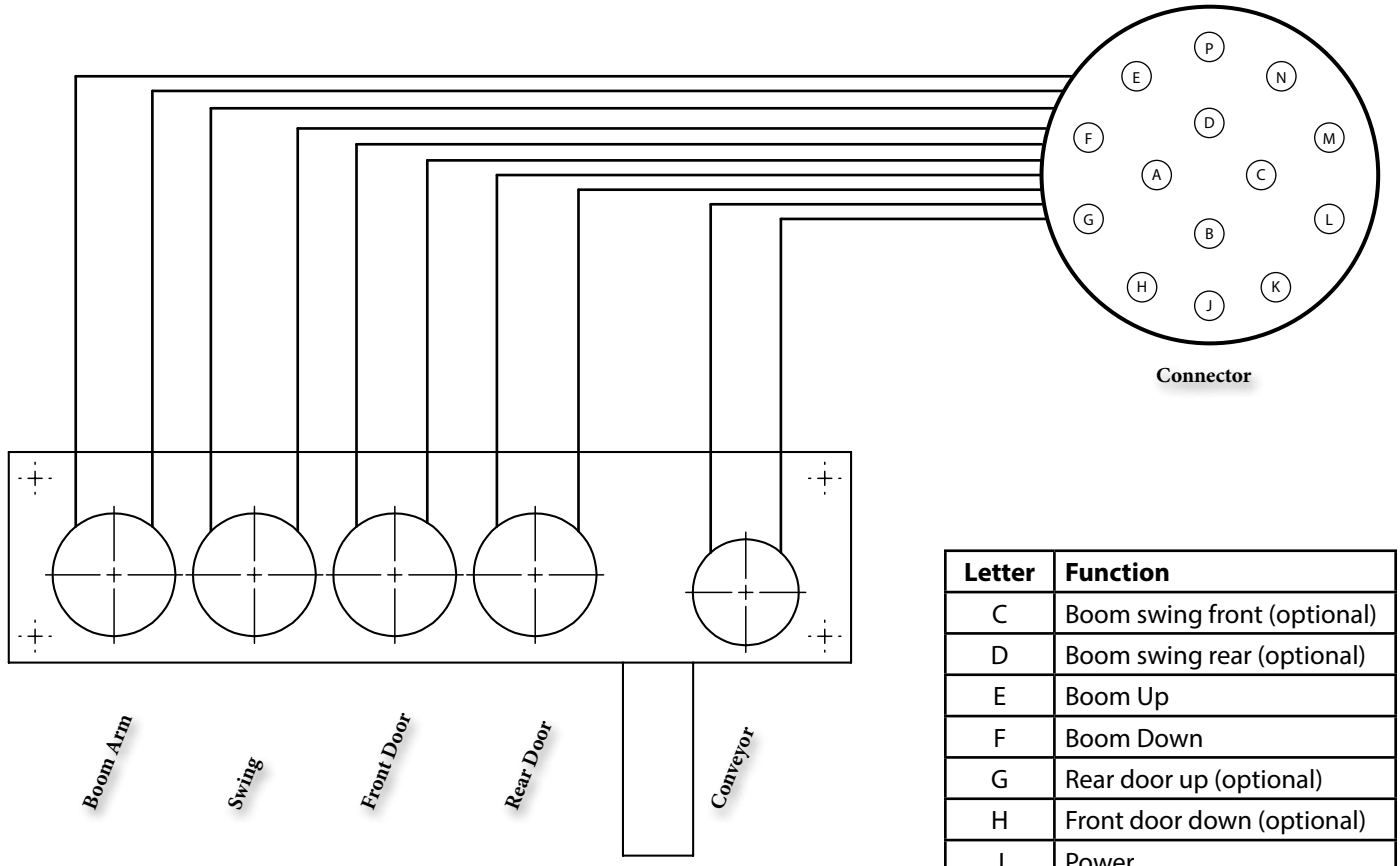


3.0 Hydraulics

#	Description	Part. No.
1	1/2" male JIC x 1/2" male NPT ; 90 degree elbow	JM0033727
2	1/2" male JIC x 1/2" male NPT ; 90 degree elbow, extra long	JM0033728
3	3/8" male NPT x 3/8" female NPT, swivel, 0.042 orifice; straight	JM0033729
4	3/8" male NPT x 3/8" female NPT; straight	JM0033739
5	3/8" male NPT x 3/8" female NPT; swivel	JM0033730
6	3/8" male JIC x 3/8" male NPT ; 90 degree elbow	JM0033731
7	3/8" male JIC x 3/8" male NPT ; 90 degree elbow, extra long	JM0033732
8	Relief Valve 1800 PSI	JM0033733
9	Relief Valve 1600 PSI	JM0033734
10	1/2" male NPT X 3/8" female NPT; 90 degree elbow	JM0010292
11	Pilot Check Valve	JM0010153
12	3/8" male JIC X 3/8" female JIC swivel; 90 degree elbow	JM0010295
13	3/8" male JIC X 1/2" male NPT X 3/8" male JIC, tee.	JM0010291
14	1/4" male pipe x 1/4" female JIC	JM0010301
15	1/2" male JIC X 1/2" male NPT straight	JM0015201
16	1/2" male JIC X 3/4" male NPT; 90 degree elbow	JM0033775
17	Hydraulic Power Unit	JM0003027
18	5 Function Aluminum Valve Block	JM0029973
19	WR series Hydraulic Motor w/ keyed and cross drilled shaft	JM0010469
20	1-1/2" Bore x 7" Stroke Hydraulic Cylinder	JM0002882
21	3" x 14" Hydraulic Cylinder	JM0002261
22	4" Bore x 8" Stroke Cylinder w/ fittings	JM0003045
23	1/2"I.D. Hose; #8 female JIC swivel X #8 female JIC swivel; 326"OAL	JM0010286
24	1/2" I.D. Hose; #8 female JIC swivel X #8 JIC swivel; 27" OAL	JM0010287
25	1/2"I.D. Hose; 3/8" male NPT swivel X #8 female JIC swivel: 34" OAL	JM0010285
26	1/4" I.D. Hose; 3/8" male NPT rigid X 3/8" male NPT swivel; 99" OAL	JM0010284
27	1/4"I.D. Hose; 3/8" male NPT rigid X #6 female JIC swivel: 107" OAL	JM0010283
28	1/4" I.D. Hose; 3/8" male NPT rigid X 3/8" male NPT swivel; 98" OAL	JM0010305
29	1/4" I.D. Hose; 3/8" male NPT rigid X 3/8" male NPT swivel; 78.50" OAL	JM0010304
30	1/4" I.D. Hose; 1/4" male NPT rigid X #6 female JIC swivel; 140" OAL	JM0010300
31	Small Cartridge SV10-21	JM0033736
32	Large Cartridge SV10-57	JM0033737
33	Solenoid - 6352012 - 12VDC	JM0033735
34	3000 PSI Gauge	JM0037742
35	3/8" Cross, 1 male, 3 female	JM0027115
36	Vonberg 2100 psi Blowoff Valve	JM0037492

5 - Function Manifold Valve Schematic (Aluminum) 2015 & Newer

3.2 Aluminum Valve Block



Letter	Function
C	Boom swing front (optional)
D	Boom swing rear (optional)
E	Boom Up
F	Boom Down
G	Rear door up (optional)
H	Front door down (optional)
J	Power
K	Front door up (optional)
L	Rear door down (optional)
M	Pump In
N	Conveyor Start

Use good set of alan wrenches when changing orifices.

The cartidge should be tightened with 25 lbs. of torque.

The Coil nut should be tightened with 5 lbs. of torque.

There is a spring, poppit, and ball bearing at the bottom of each coil.

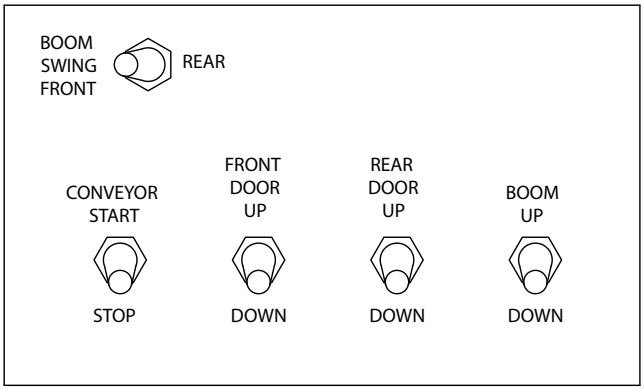
Top Coil operates bottom port.

Bottom Coil operates top port.

When changing cartridge make sure all functions are at rest.

The lettering on the coils should always be facing up.

4.0 Wiring



Pin	Description
A	N/C
B	N/C
C	Conveyor Swing Front
D	Conveyor Swing Rear
E	Boom Up
F	Boom Down
G	Rear Door Up
H	Front Door Down
J	Red - Power
K	Front Door Up
L	Rear Door Down
M	Dump
N	Dump
O	Conveyor Start
P	N/C

JM0014991
Handheld Controller
Starts/Stops Motor
Raises/Lowers Conveyer
Opens/Closes Tank Doors
Hydraulic Conveyer Swing

JM0037124
DPDT (On-Off-On)
Conveyor Swing Front/Rear
Front Door Up/Down
Rear Door Up/Down
Conveyor Up/Down
(Three position switch)

JM0028114
DPST (On-Off)
Conveyor Start/Stop
(This is a throw switch, it is either on or off.)

JM0037125
DPDT (On-On)
Conveyor Start/Stop
(This is a momentary switch, once you let go of the switch it will turn off.)

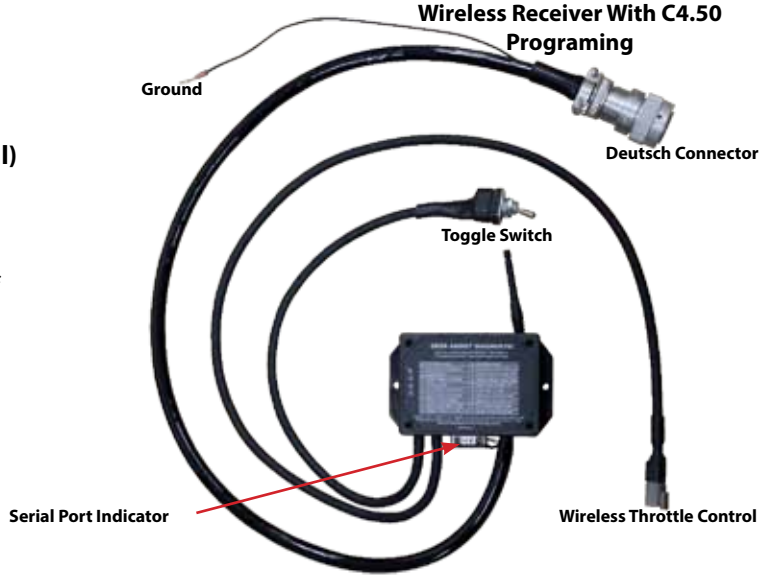
Note: If replacing Conveyor Start/Stop switch, both JM0028114 & JM0037125 will work. If operator wants the switch to be on and off then select JM0028114. If operator wants the conveyor to only run while he is holding the switch then select JM0037125.

JM0040666
Stationary Control J&M Talc
Raises/Lowers Conveyer
Opens/Closes Tank Doors
Hydraulic Conveyer Swing
On/Off Talc
Talc Speed
On/Off Conveyor
On/Off Lights

JM0041574
Deluxe Wireless Remote and LC Series Receiver Kit

JM0036049
Wireless Remote (optional)
Starts/Stops Motor
Raises/Lowers Conveyer
Opens/Closes Tank Doors
Hydraulic Conveyor Swing
Electronic Auto Scale Shutoff

JM0014999
Wireless Receiver With C4.50 Programing



Auto Scale Shutoff

In order for the Auto Dispense function to work, the Speed Tender must be equipped with a factory installed and powered on Weigh-Tronix 640XL scale indicator with the J&M Mega Remote with Auto Dispense as shown to the right.

Using the Auto Dispense Feature

Note: The Auto Dispense Feature is only active after you change or confirm the weight and/or door settings each time the receiver is turned on

- Simply press the Green Auto Dispense(1) button to activate the feature.
- The system will Start the conveyor, open the door, unload within 2-4 Lbs of the desire weight, close the door and cleanout the conveyor with a single press of a button.
- If filling multiple planter boxes, press the Auto Dispense button again to repeat the process. This can be done during the conveyor cleanout stage

Setting the desired Auto Dispense Weight

- Press Scroll (2) to enter Auto Dispense menu
- Hold Tare (3) till weight flashes
- Use the Left and Right Navigation buttons to select the digit and the Up and Down buttons to change the digit
- Hold Tare (3) to Save the desire weight

Selecting the Door to Auto Dispense

- Press Scroll (2) twice to enter the Door Selection menu
- Hold Tare (3) until Door Number is flashing
- Use the Up and Down Navigation buttons to select either door 1 or 2
  Door 1 = Front Door Door 2 = Rear Door
- Hold Tare (3) to Save to door setting

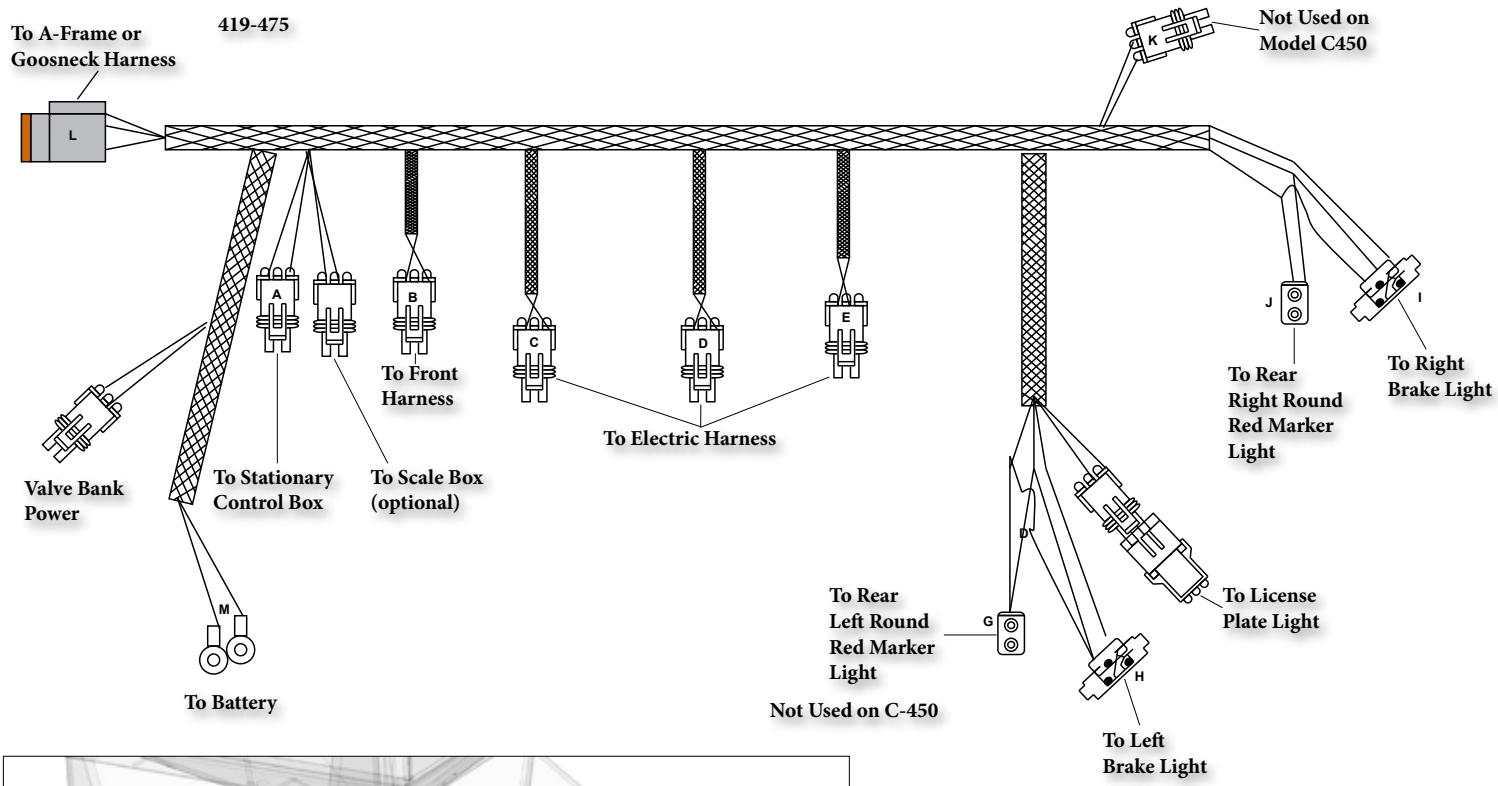
Pairing the J&M Mega Remote to the Receiver

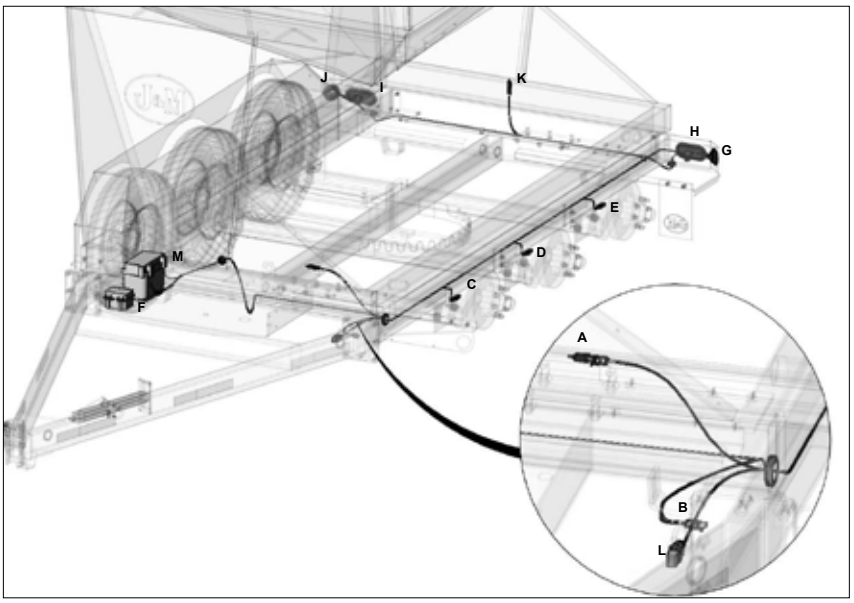
Note: The wireless switch should be in the off position

- Hold Power (4) until the screen displays TEACHING MODE
- Toggle the Wireless Power Switch to On
- The Display will now display "TEACHING COMPLETE" and will return to the live weight display.

4.2 Light Wiring Harness

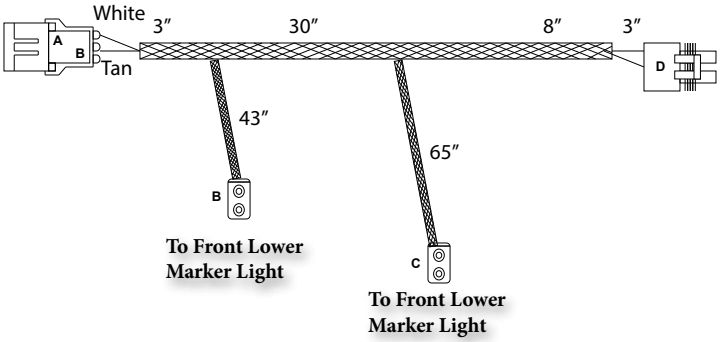
Main Harness JM0033700

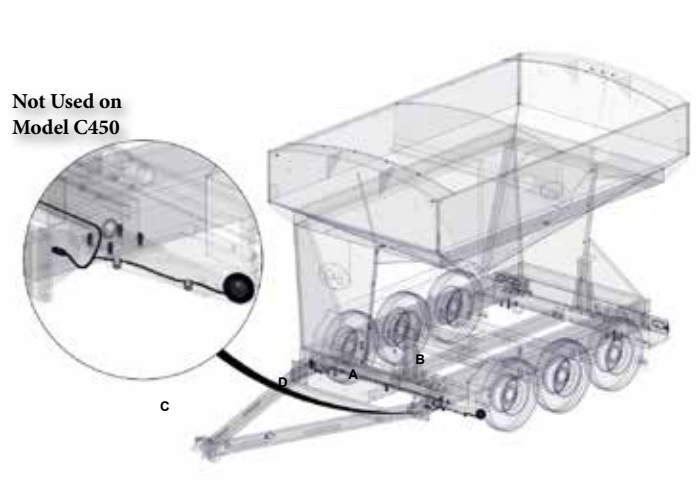




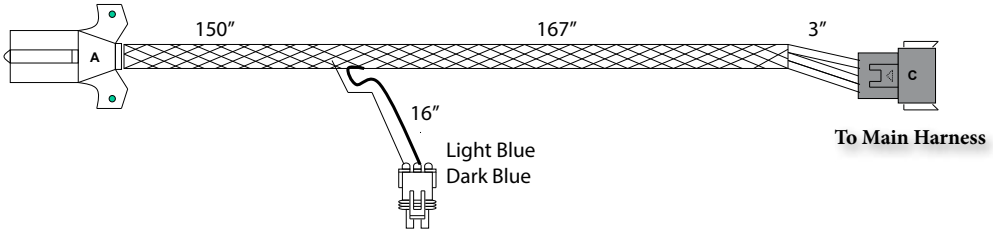
4.0 Wiring

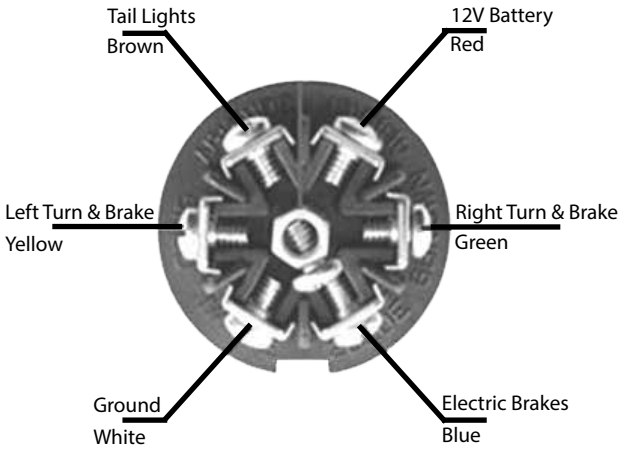
Front Harness (JM0019963)

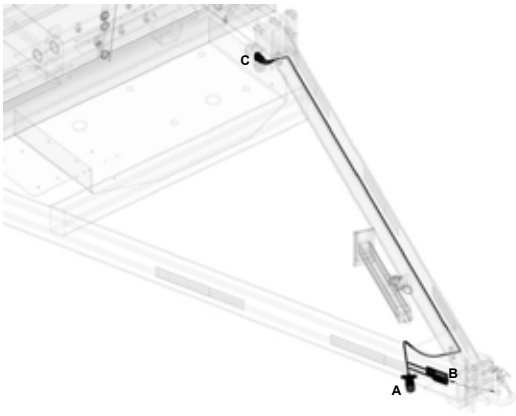




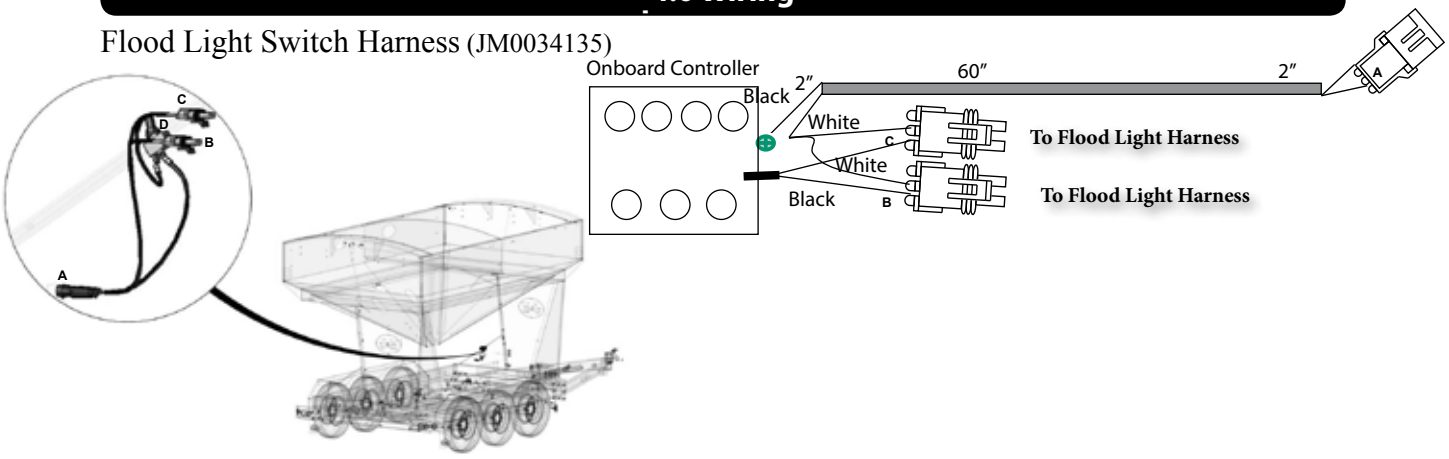
7-Way Trailer Connection (JM0019962 A-Frame) (JM0019961 Gooseneck)



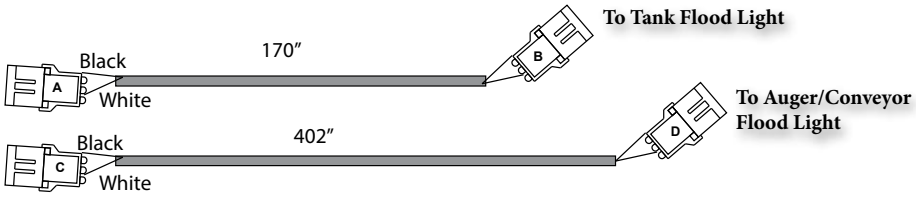


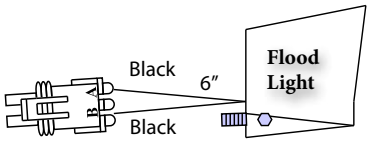


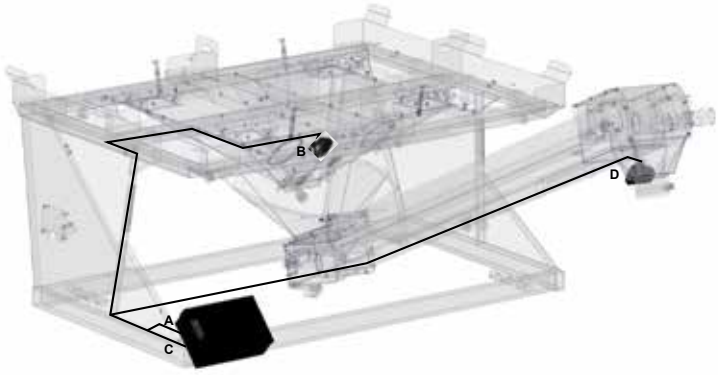
Flood Light Switch Harness (JM0034135)



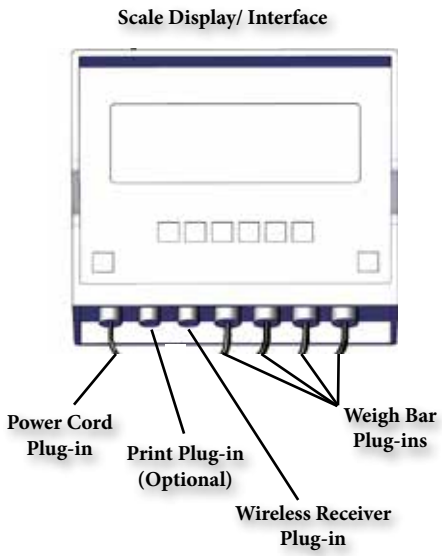
Flood Light Harness (JM0019965)

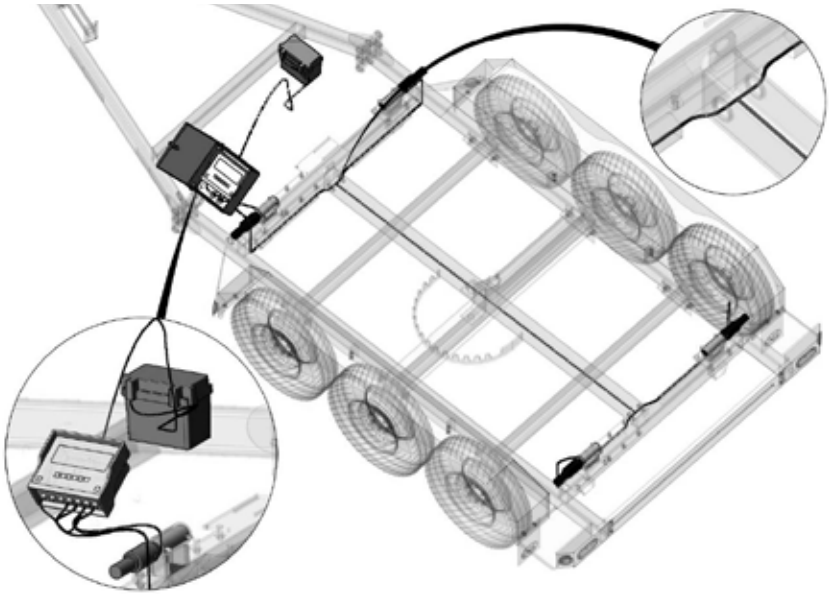






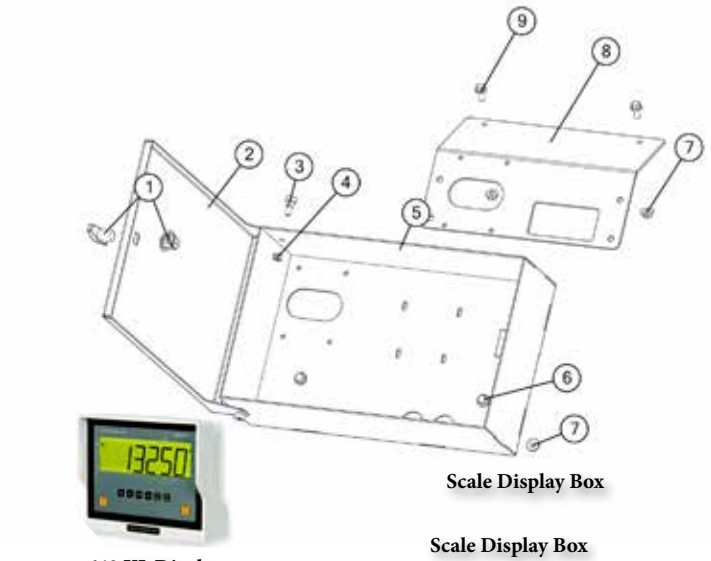
4.3 Scale Wiring





5.1 Scale Parts

#	Description	Part. No.
1	Chrome T-Handle Non-Locking	JM0001911
2	Scale Box Door	JM0029943
3	1/2”-13 x 1-1/2 , 3/8” Shoulder Bolt	JM0009998
4	3/8"-16 Gr5 Z Centerlock Hex Nut	JM0001512
5	Scale Box	JM0029936
6	3/8”-16 X 1.0 Gr5 Z SF Hex Bolt	JM0002092
7	3/8”-16 Gr5 Z SF Hex Nut	JM0002152
8	Scale Mount Bracket	JM0031823
9	3/8”-16 x 3/4” Gr5 Z SF Hex Bolt	JM0001750
10	XL Scale Box Assembly	JM0029945
11	640XL Display	JM0007293

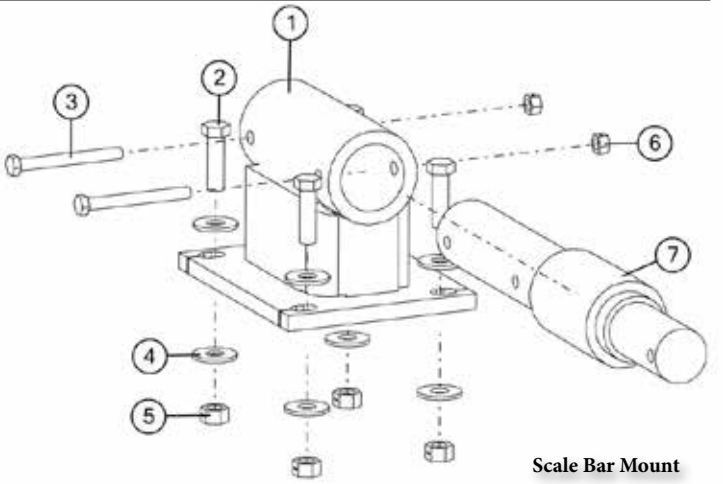


Scale Display Box

640 XL Display

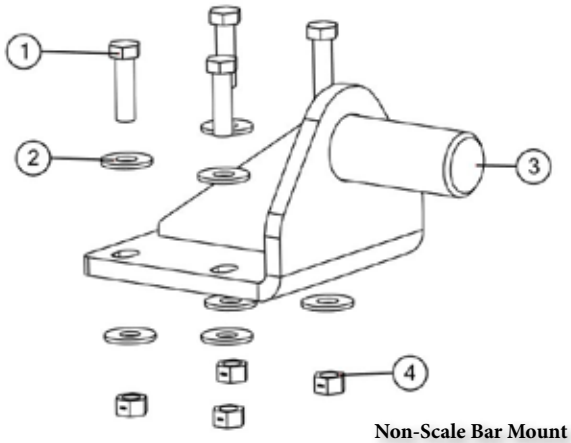
Scale Display Box

#	Description	Part. No.
1	Scale Mount Weldment	JM0009966
2	1/2"-13 x 1-3/4" Gr5 Z Hex Bolt	JM0002101
3	3/8"-16 x 3-1/2" Gr5 Z Hex Bolt	JM0001986
4	1/2" USS Flat Washer	JM0003082
5	1/2"-13 Gr5 Z Centerlock Hex Nut	JM0001511
6	3/8"-16 Gr5 Z Centerlock Hex Nut	JM0001512
7	Avery Weigh-Tronix Weight Bar	JM0002797



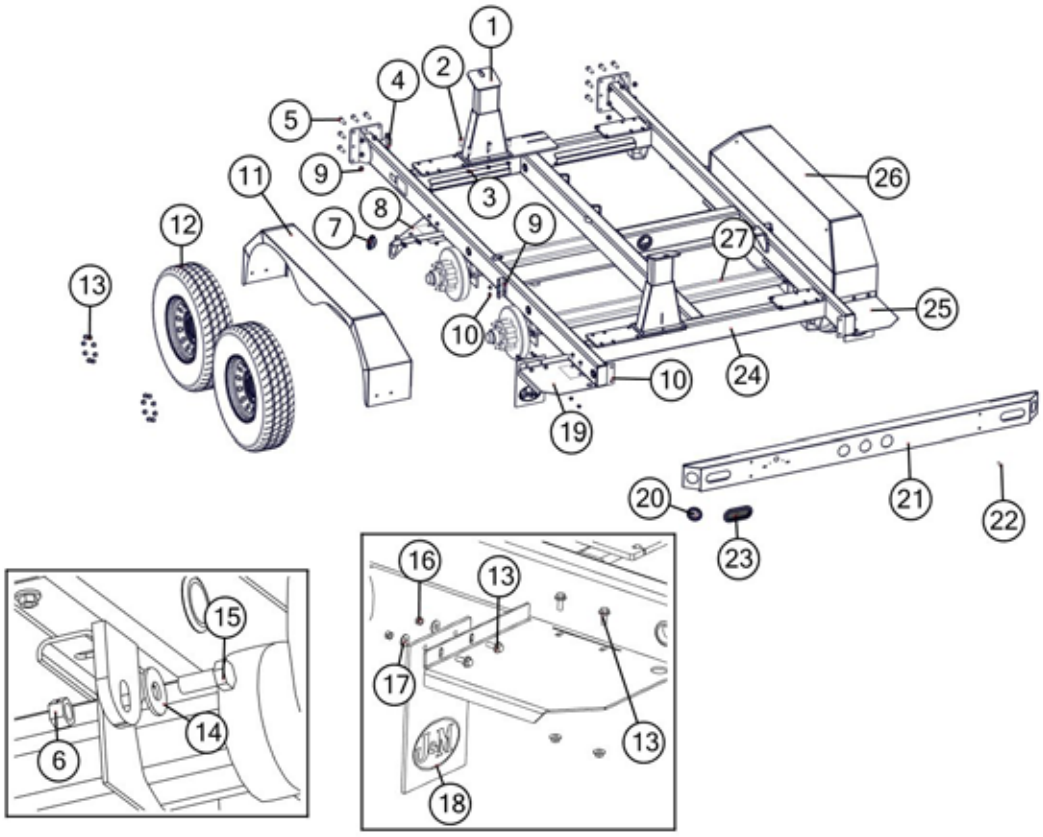
Scale Bar Mount

#	Description	Part. No.
1	1/2"-13 x 1-3/4" Gr5 Z Hex Bolt	JM0002101
2	1/2" USS Flat Washer	JM0003082
3	Non-Scale Weldment	JM0002514
4	1/2"-13 Gr5 Z Centerlock Hex Nut	JM0001511



Non-Scale Bar Mount

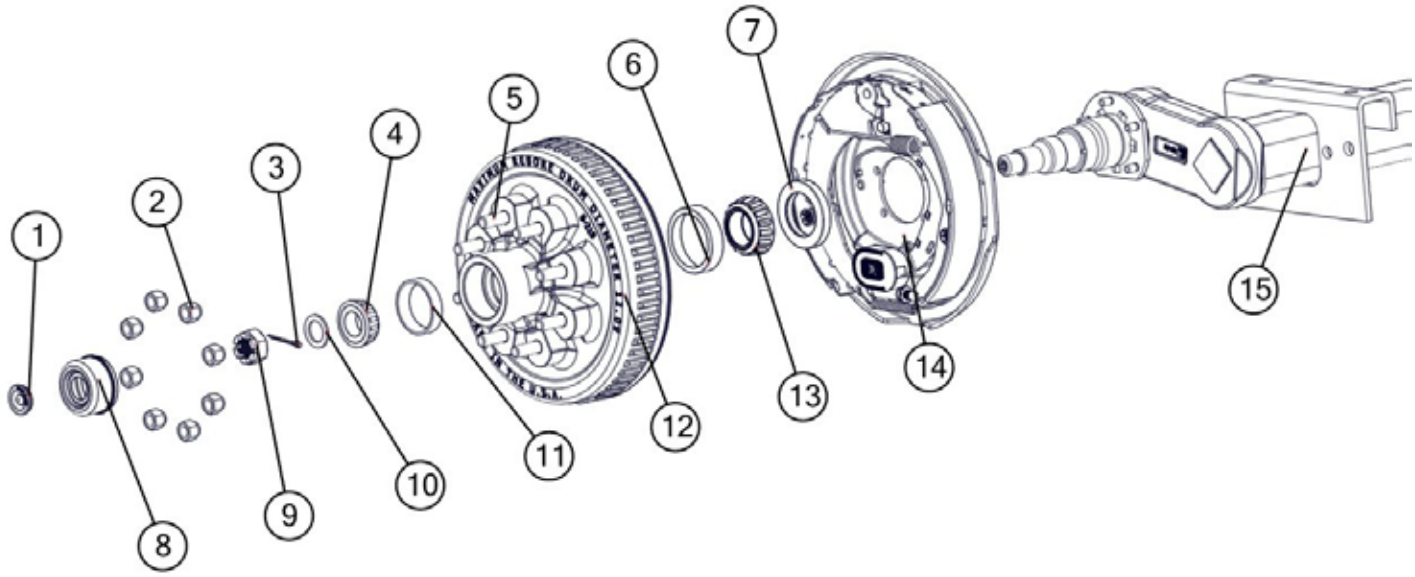
5.2 Chassis Parts



#	Description	Part. No.
1	Boom Rest Weldment	JM0005876
2	1/2"-13 x 1-3/4" Gr5 Z Hex Bolt	JM0002101
3	1/2"-13 Gr5 Z SF Hex Nut	JM0002153
4	Wiring Bracket	JM0002346
4a	1-3/4" x 1/4" x 2" Rubber Grommet	JM0001477
5	5/8"-11 x 2" Gr8 Z Hex Bolt	JM0001771
6	5/8"-11 Gr5 Z Centerlock Hex Nut	JM0002146
7a	Amber Round Light Assembly	JM0001908
7b	Amber Round Light	JM0001895
7c	Round Light Grommet	JM0001902
8	Front Drive Side Step Fender Mount	JM0002339
8	Front Passenger Side Step Fender Mount	JM0002336
9	3/8"-16 x 1" Gr8 Z SF Hex Bolt	JM0001509
10	3/8"-16 Gr5 Z SF Hex Nut	JM0002152
11	Drivers Side Fender Weldment	JM0005874
12	235-85-R16, 8 Bolt Wheel & Tire	JM0009977
13	9-16"-18 Lugnut	JM0008525
14	5/8" USS Flat Washer	JM0003073
15	5/8"-11 x 1-1/2" Gr5 Z Hex Bolt	JM0002103

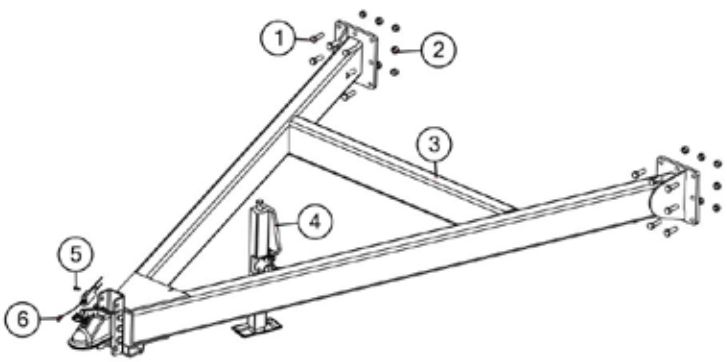
#	Description	Part. No.
16	3/8"-16 Gr5 Z Centerlock Hex Nut	JM0001512
17	3/8" USS Flat Washer	JM0003061
18	J&M Mud Flap	JM0001910
19	Rear Driver Step	JM0002491
20a	Red Round Light Assembly	JM0001905
20b	Red Round Light	JM0001901
20c	Round Light Grommet	JM0001902
21	3 Hole Bumper Weldment	JM0020862
22	3/8"-16 x 3/4" Gr5 Z SF Hex Bolt	JM0001750
23a	Red Oval Brake Light Assembly	JM0001903
23b	Red Oval Brake Light	JM0007114
23c	Red Oval Brake Light Grommet	JM0001897
24	Chassis Frame Weldment	JM0005818
25	Rear Passenger Step	JM0002490
26	Passenger Side Fender Weldment	JM0005874
27	7000lb Axle with Electric Brakes	JM0001957
28	License Plate Light & Bracket (Optional)	JM0016084
29	Bungee Strap 5.5"(Not Shown)	JM0015455

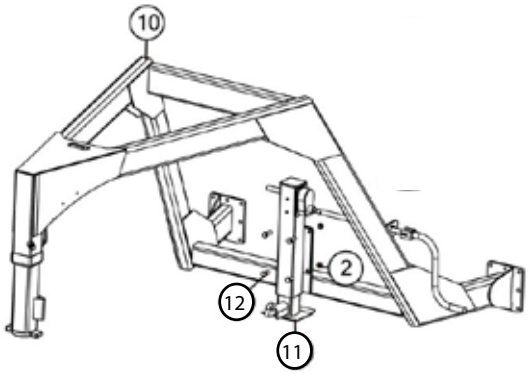
5.3 7,000 Axle

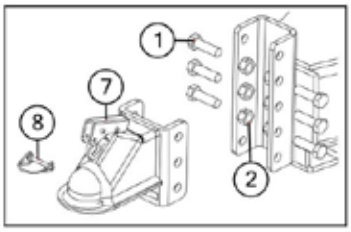


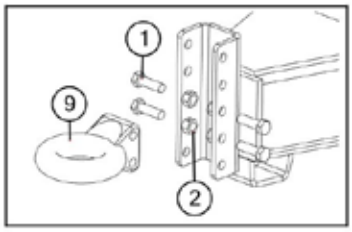
#	Description	Part. No.
1	Rubber Plug for Dust Cap	JM0039538
2	9/16"-18 Lugnut	JM0008525
3	Cotter Pin 1/8" x 1-3/4"	JM0039545
4	14125A Roller Bearing	JM0039542
5	Stud 9/16"-18 x 2.81"	JM0020625
6	25520 Race	JM0018102
7	2-1/4" ID Grease Seal 10-36	JM0035951
8	Dust Cap for EZ Grease	JM0035957
9	Spindle Nut	JM0035956
10	Spindle Washer	JM0039543
11	Race 14276	JM0025077
12	Hub/Drum 7K	JM0035954
12	7K Hub/Drum w/ Races, Studs, and Lug Nuts	JM0039606
13	Tapered Bearing Cone 25580	JM0018104
14	Brake Drum Internal Parts Left Hand	JM0035973
14	Drum Brake Internal Parts Right Hand	JM0035974
15	7k Axle	JM0039596

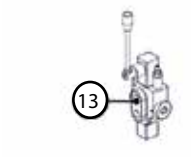
5.4 A-Frame Parts





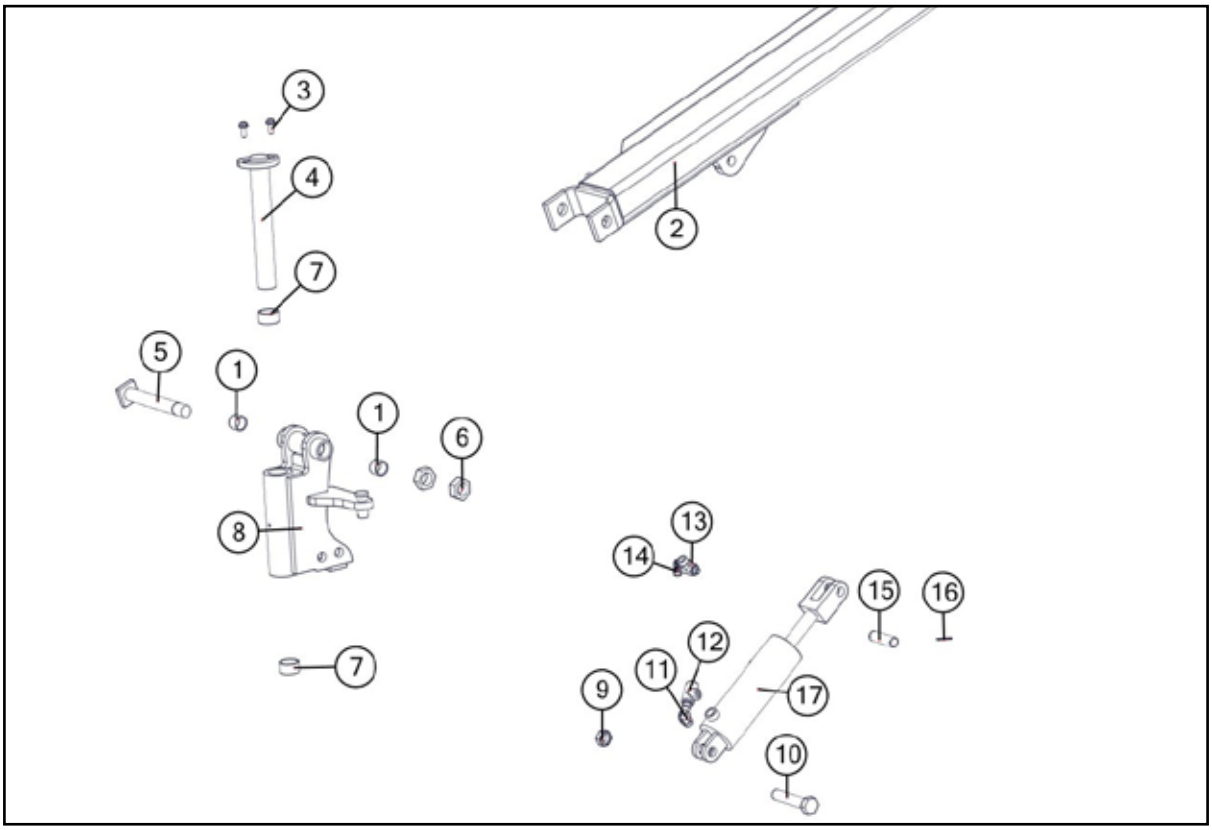






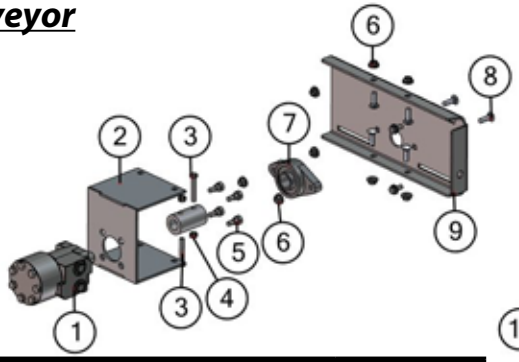
#	Description	Part. No.
1	5/8"-11 x 2" Gr8 Z Hex Bolt	JM0001771
2	5/8"-11 Gr5 Z Centerlock Hex Nut	JM0002146
3	A-Frame Weldment	JM0002481
4	Jack Stand w/ Lynch Pin	JM0001480
5	1/4" x 3/4" Self Tapping Screw	JM0001570
6	Break Away Switch	JM0001843
7	2-5/16" Ball Coupler (21,000 Lbs)	JM0001893
8	1/4" x 1-3/4" Lynch Pin	JM0001478
9	Lunette Eye Hitch	JM0015884
10	Gooseneck Frame Weldment	JM0029497
11	Seed Tender Gooseneck Jack	JM0007078
12	5/8"-11 x 1-3/4" Gr5 Z Hex Bolt	JM0016681
13	Directional Control Valve	JM0031858

5.5 Boom Arm Parts

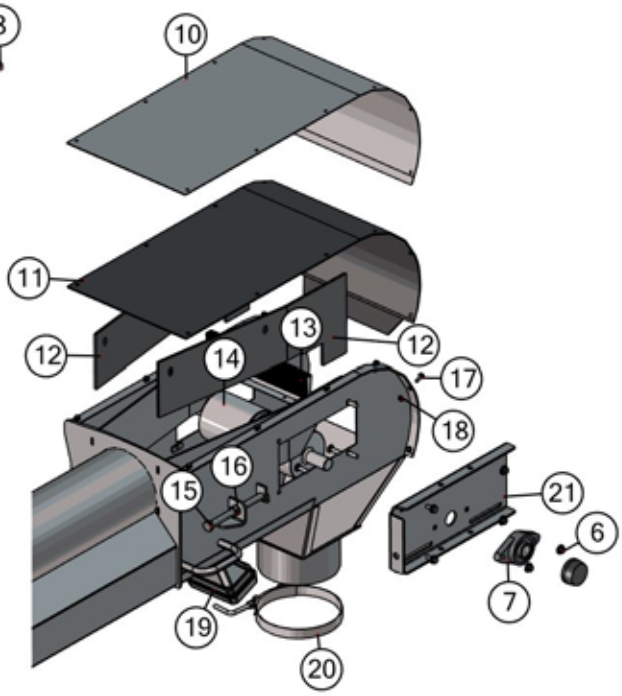


#	Description	Part. No.
1	1-1/4" Bronze Bushing (1 1/2" OD)	JM0002248
2	8"-22' Tube Conveyor Boom Arm	JM0027453
3	3/8"-16 x 1" Gr8 Z SF Hex Bolt	JM0001509
4	Vertical Axis Boom Pin Weldment	JM0002238
5	Horizontal Axis Boom Pivot Pin Weldment	JM0002456
6	1-1/4"-7 Gr5 Z Hex Nut	JM0001700
7	1-3/4" ID Bronze Bushing (2" OD x 1" Length) (EB-134)	JM0002244
8	Vertical Axis Boom Pin Weldment	JM0002241
9	1"-8 Z Gr5 Hex Jam Nut	JM0001705
10	1"-8 x 5" Gr8 Pn Hex Bolt	JM0001774
11	3/8" female NPT x 1/2" male NPT; 90 degree elbow	JM0010292
12	PC-37 Check Valve	JM0018233
13	#6 male JIC X 1/2" male NPT X #6 male JIC, tee	JM0010291
14	#6 male JIC X #6 female JIC swivel; 90 degree elbow	JM0010295
15	1" x 3.4 Clevis Pin	JM0001816
16	1" x 3" Clevis Pin - Cotter Pin	JM0003064
17	4" bore x 8" Stroke Cylinder	JM0003045

5.6 Conveyor

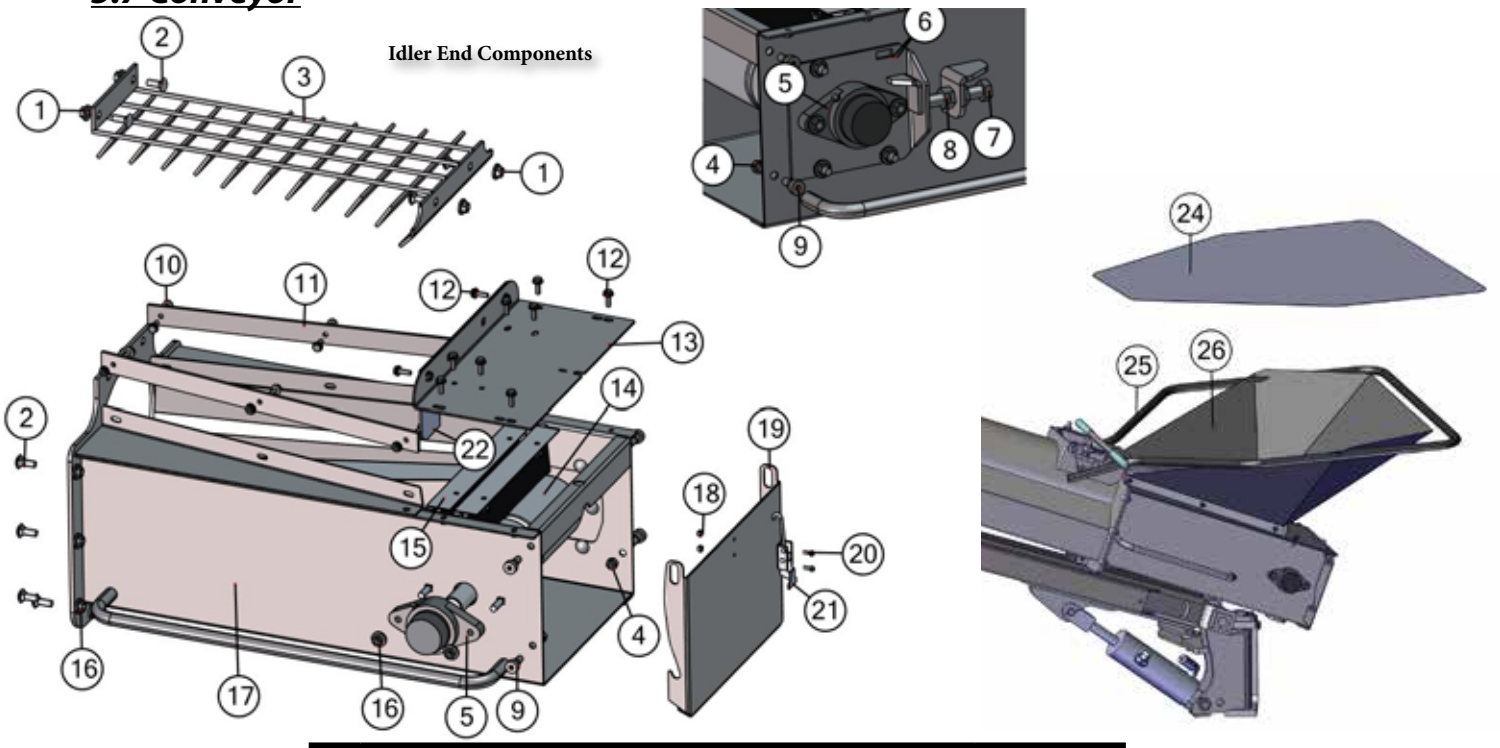


#	Description	Part. No.
1	White Drive WR Series Hydraulic Motor	JM0010469
2	Hydraulic Motor Mount	JM0002225
3	3/8" x 1-3/4" SKT Shoulder Bolt	JM0033449
4	5/16"-18 Gr5 Z Centerlock Hex Nut	JM0002143
5	1/2" Dia. x 3/8" Long Shoulder Bolt	JM0009998
6	3/8"-16 Gr5 Z SF Hex Nut	JM0002152
7	1-1/4" Diameter 2 Bolt Flange Bearing	JM0001811
8	3/8"-16 x 1-1/4" Gr5 Z Carriage Bolt	JM0001639
9	Bearing Mount Bracket (Right)	JM0002235
10	Belt Conveyor Discharge Cover	JM0002772
11	Belt Conveyor Discharge Rubber Pad	JM0002771
12	Top Skirting	JM0021988
13	8" V-Guide Bottom Brush	JM0029585
14	Drivel Roller For V Guide Belt	JM0021425
15	5/8"-11 x 7-1/2" Gr5 Z Hex Bolt	JM0001631
16	5/8"-11 Gr5 Z Hex Nut	JM0001522
17	1/4"-20 x 3/4" Gr5 Z SF Hex Bolt	JM0001642
18	1/4"-20 Gr5 Z SF Hex Nut	JM0001630
19	Field Light (LED) Assembly	JM0001881
20	8" Diameter Clamp	JM0002870
21	Bearing Mount Bracket (Left)	JM0002234



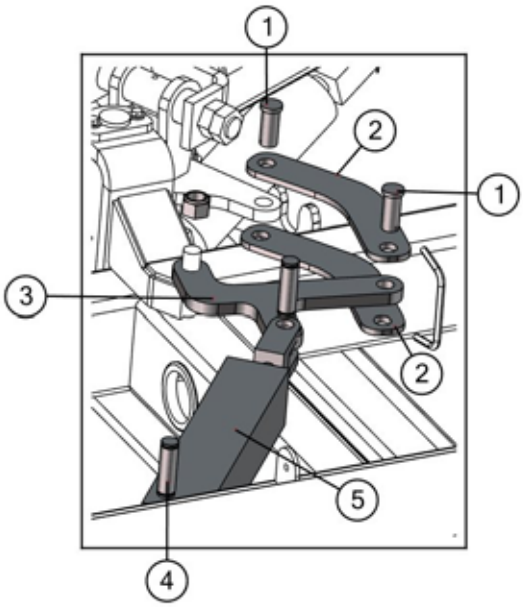
Discharge Spout Components

5.7 Conveyor



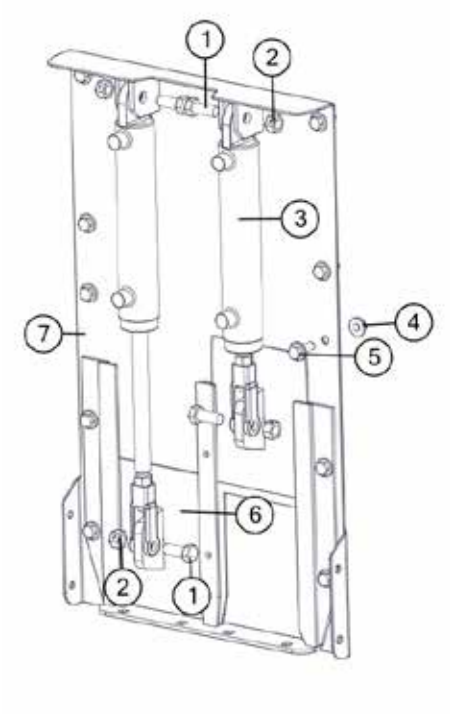
#	Description	Part. No.
1	3/8"-16 Gr5 Z SF Hex Nut	JM0002152
2	3/8"-16 x 1" Gr5 Z Carriage Bolt	JM0001632
3	Conveyor Guard Weldment	JM0002466
4	3/8"-16 Gr5 Z Centerlock Hex Nut	JM0001512
5	1-1/4" Diameter 2 Bolt Flange Bearing	JM0001811
6	Bearing Mount	JM0002199
7	5/8"-11 x 3-1/2" Gr5 Z Hex Bolt	JM0001650
8	5/8"-11 Gr5 Z Centerlock Hex Nut	JM0002146
9	1/2" Diamter x 3/8" LG Shoulder Bolt	JM0009998
10	1/4"-20 Gr5 Z SF Hex Nut	JM0001630
11	Clamp Bar - Conveyor Skirt	JM0002767
12	1/4"-20 x 3/4" Gr5 Z SF Hex Bolt	JM0001642
13	Conveyor Hopper Brush Mount	JM0027027
14	Tube Conveyor Roll, V-Guide, Idler	JM0021426
15	8" V-Guide Bottom Brush	JM0029585
16	3/8"-16 Gr5 Z SF Hex Nut	JM0002152
17	8" Tube Conveyor, V-Guide, 22ft (Lower Section)	JM0027363
18	#8-32 Z Nylon Locking Hex Nut	JM0012334
19	Cleanout Door	JM0027026
20	#8-32 x 1/2" Slotted Hex Washer Head Machine Screw	JM0012333
21	Adjustable Draw Latch	JM0010512
22	Seal - Hopper Skirt	JM0025263
23	8" Tube Conveyor (22' V-Guide Belt)(Belt Only)	JM0028529
24	LC Seed Tender Tarp Cover	JM0041070
25	LC Seed Tender Hopper Hoop	JM0040345
26	LC Seed Tender Hopper Vinyl	JM0041069

5.8 Swing Cylinder Parts



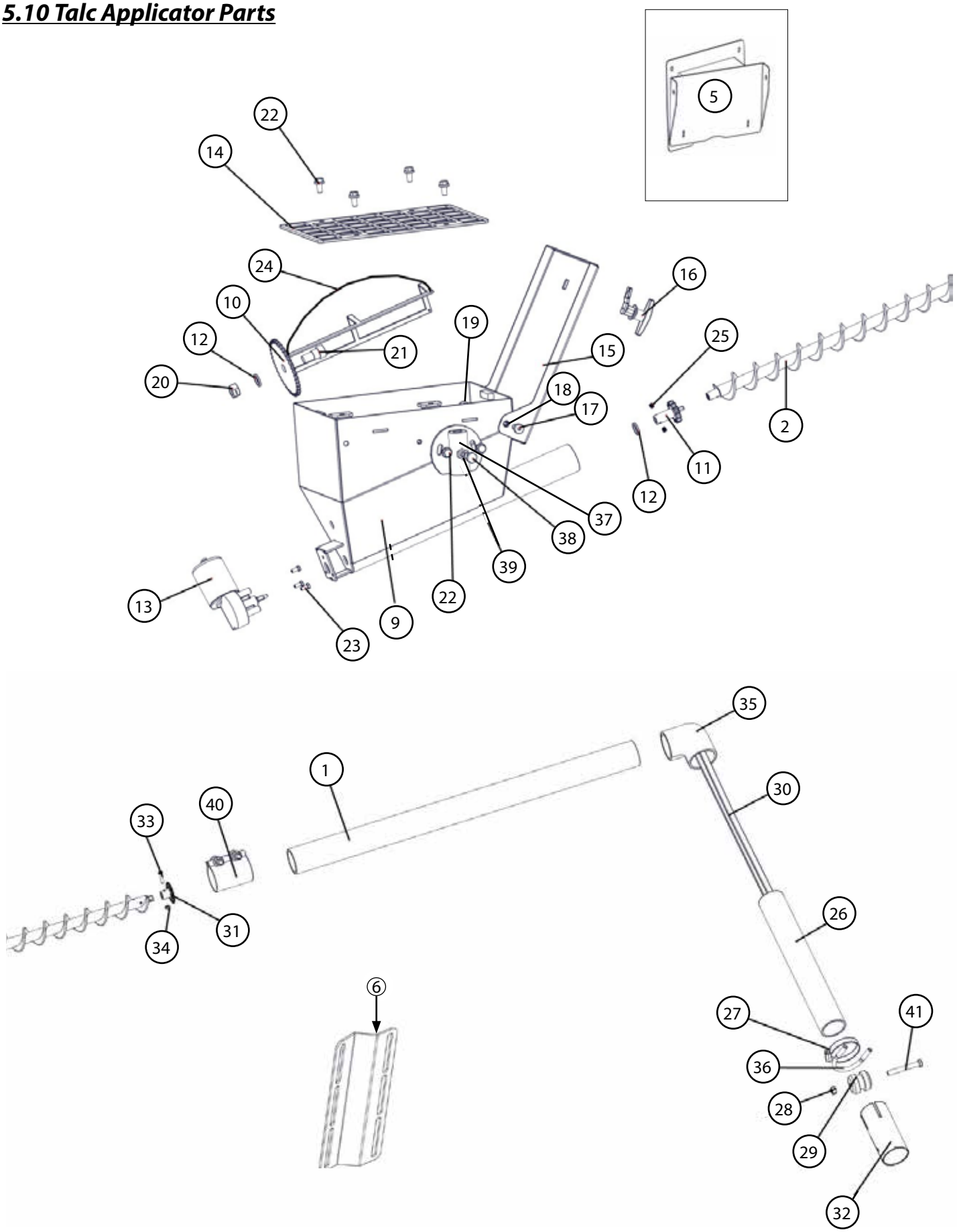
#	Description	Part. No.
1	1" x 2-1/4" Pin w/ Cotter Pin	JM0010201
2	Dual Swing Linkage	JM0002260
3	Single Swing Linkage	JM0002252
4	1" x 3.4" Clevis Pin w/ Cotter Pins	JM0001816
5	Cylinder 3" x 14" w/Pins and Clips and Fittings	JM0002261

5.9 Hydraulic Door Parts



#	Description	Part. No.
1	1/2"-13 x 1-1/4" Gr5 Z Hex Bolt	JM0001513
2	1/2"-13 Gr5 Z Centerlock Hex Nut	JM0001511
3	1-1/2" Bore x 7" Hydraulic Cylinder	JM0002882
4	3/8"-16 Gr5 Z SF Hex Nut	JM0002152
5	3/8"-16 x 3/4" Gr5 Z SF Hex Bolt	JM0001750
6	Hydraulic Door Weldment	JM0002883
7	Hydraulic Door Frame	JM0002872

5.10 Talc Applicator Parts

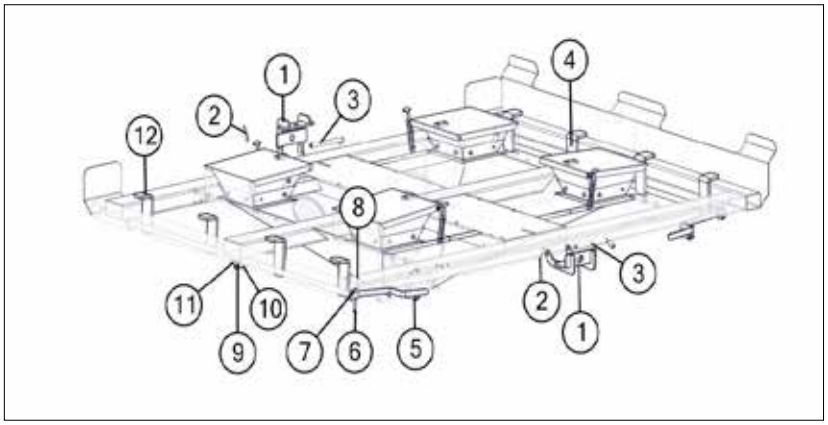


6.0 Aftermarket Installation Instructions

	Description	JM#
1	2” PVC for C4-50 & 510 Talc - 58-3/8" Long	JM0037616
2	C4-50 & 510ST Talc flighting asm - 79-7/8" Long	JM0037619
5	C4-50 Mounting Bracket Weldment	JM0037645
6	C4-50 Talc Spout Mounting Bracket	JM0037675
9	17 Deg. Talc Box Weldment	JM0037538
10	Large Agitator 17 DEG	JM0037241
11	Drive Adapter	JM0035081
12	3/4” Flat washer	JM0035079
13	12V Electric Gear Motor	JM0035522
14	Large Talc box screen	JM0037456
15	17 Deg. Talc Box Door	JM0037237
16	T-Handle Non Locking Chrome	JM0001911
17	1/2” Dia. x 3/8” LG 3/8”-16th Shoulder Bolt	JM0009998
18	3/8” USS Flat Washer	JM0003061
19	3/8”-16 Gr5 Z SF Hex Nut	JM0002152
20	5/8"-11 Gr5 Z Center-lock Hex Nut	JM0002146
21	3/4” Dia x 1/2” LG, 5/8-11, Shoulder Bolt	JM0034989
22	3/8"-16 x 3/4" Gr5 Z SF Hex Bolt	JM0001750
23	M6-1 x 14 Gr8.8 YZ Hex Bolt	JM0031837

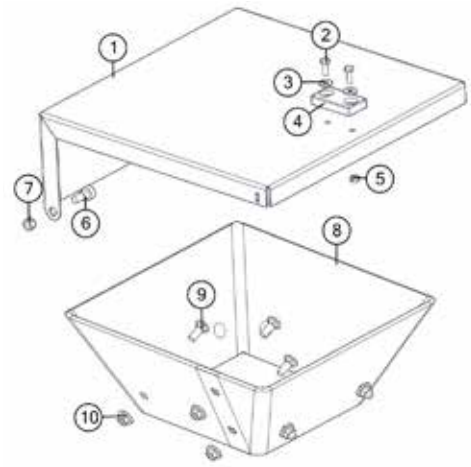
	Description	JM#
24	Weed Whip Cord 18”	JM0038500
25	5/16”-18 x 3/16” Knurl Grip Cup Set Screw	JM0038513
26	2” PVC Downspout	JM0037544
27	Screw Clamp	JM0030547
28	3/8"-16 Gr5 Z Center-lock Hex Nut	JM0001512
29	Talc Chain Drag Poly Idler	JM0037547
30	#35 Chain - 44-5/8” Long	JM0037553
31	Chain Sprocket Weldment	JM0037565
32	Idler Sprocket Housing Weldment	JM0037838
33	#10-24 X 1.0 Z Round Head Phillips Screw	JM0037646
34	#10-24 Z Nylon Locking Hex Nut	JM0016030
35	2" Black Pipe, Sharp 90 Deg Elbow	JM0038564
36	3/8" Round U-Bolt 2" Pipe Size	JM0000351
37	Talc Rotation Bracket Weldment	JM0038395
38	1/2”-13 x 1” Gr5 Z Hex Bolt	JM0010225
39	1/2”-13 Gr5 Z Hex Nut	JM0002124
40	Clamp	JM0037668
41	3/8”-16 x 3” Gr5 Z Hex Bolt	JM0001666

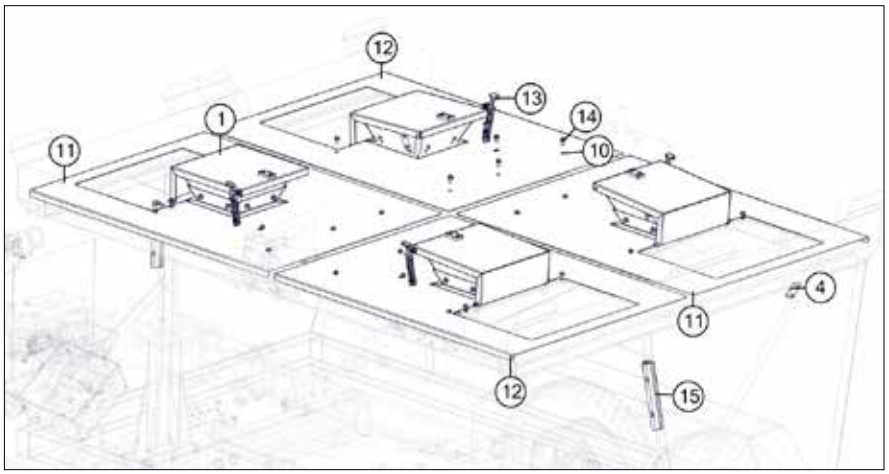
5.11 Box Lock Parts



#	Description	Part. No.
1	Side Latch Weldment	JM0035194
2	Cotter Pin	JM0001657
3	3/4" x 8" L Pin	JM0029738
4	Front Clamp Bar (C450)	JM0033360
5	3/8" x 2-1/2" Z Round Wire Lynch Pin	JM0014929
6	1/4"-20 x 1-1/2" Gr5 Z Hex Bolt	JM0002447
7	1" ID x 2" OD Flat Washer	JM0027916
8	1/4"-20 Gr5 Z Centerlock Hex Nut	JM0001505
9	3/8"-16 Gr5 Z SF Hex Nut	JM0002152
10	Lock Down Support Bracket	JM0020505
11	3/8"-16 x 1" Gr5 Z Carriage Bolt	JM0001632
12	Rear Clamp Bar	JM0033375

5.12 Shell Parts





#	Description	Part. No.
1	Lid	JM0034537
2	1/4"-20 x 3/4" Gr5 Z Hex Bolt	JM0001507
3	1/4" USS Flat Washer	JM0003090
4	Bounce Pad	JM0020802
5	1/4"-20 Gr5 Z Centerlock Hex Nut	JM0001505
6	1/2" x 3/8" LG Should Bolt	JM0009998
7	3/8"-16 Gr5 Z Centerlock Hex Nut	JM0001512
8	Skirting	JM0035220
9	3/8"-16 x 1" Gr5 Z Carriage Bolt	JM0001632
10	3/8"-16 Gr5 Z SF Hex Nut	JM0002152
11	Cover Weldment (Front Left, Rear Right)	JM0034510
12	Cover Weldment (Front Right, Rear Left)	JM0034520
13	8-3/4" Rubber T-Handle Latch	JM0035261
14	3/8"-16 x 3/4" Gr5 Z SF Hex Bolt	JM0001750
15	12" x 2" Bumper	JM0001890

6.1 Scales Installation

Note: For Scale parts see Section 5.3

1. Slide the weigh bar into the scale mount. Making sure that the Weigh bar sticker is facing up (Figure 6.1).
2. Insert two 3/8"-16 x 3-1/2" Grade 5 Zinc Hex Bolt (#1) into scale mount and tighten using 3/8"-16 Centerlock Hex Nut (#2) (Figure 6.1).

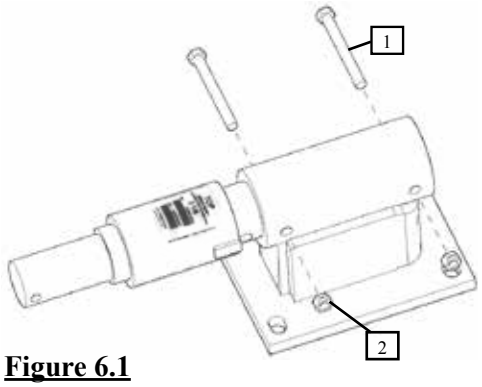


Figure 6.1

3. Remove the 4 bolts from each of the Dummy Scale Mounts and remove it from the unit.

⚠ WARNING: With the 4 bolts removed from each of the Dummy Scale Mounts. The Chassis and Shell are not attached and can slide apart.

4. Lift the shell approximately 2-3". This will allow enough clearance to slide the weigh bars into the Shell/Leg Weldment Spools. (Figure 6.2).
5. Slide Weigh Bars into the Shell/Leg Weldment Spools and lower the Shell/Leg Weldment down so the Weigh Bar Mounts set on the Scale Mounting Plates.
6. Use a punch to align the Weigh Bar Mount holes with the Scale Mounting Plate holes.
7. Insert 1/2"-13 X 1 3/4" Grade 5 Hex Head Bolt (#3) with two 1/2" Zinc USS Washers (#4) and 1/2"-13 Grade 5 Zinc Centerlock Hex Nut (#5) (Figure 6.2)
   IMPORTANT: Be careful not to pinch wires between the Speed Tender Pro chassis and the Scale Mounting Plates.
8. Torque each bolt down to 85 ft-lbs on all 4 Scale Mounting plates (Figure 6.3).

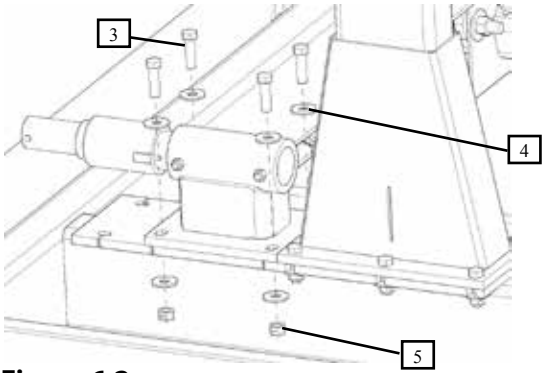


Figure 6.2

9. Remove the four 1 3/8" grommets located in the four chassis holes (Figure 6.3)
10. Slide one grommet on to each of the weigh bar wires of B,C, and D. (Figure 6.3)
    NOTE: Spray grommets with a lubricant spray for ease of installation.
11. Route each wire from B,C and D so they exit chassis hole (Figure 6.3).
12. Slide the grommet from chassis hole over the wires from B, C, and D. (Figure 6.3).
13. Reinstall the grommets back into the chassis holes. (Figure 6.3).
14. Push excess wires into chassis hole (Figure 6.3).
    NOTE: Spray the grommet with a lubricant spray for ease of installation.

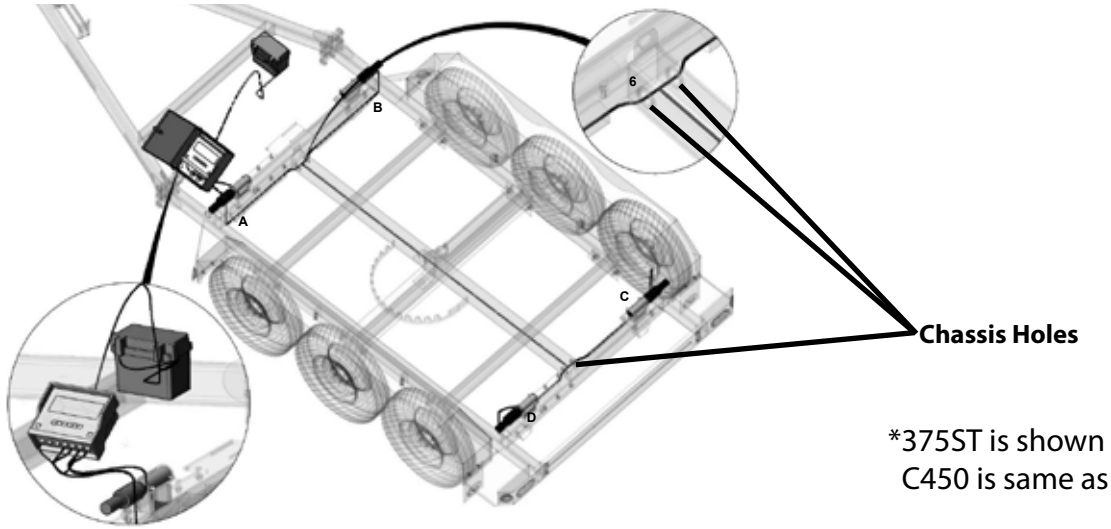


Figure 6.3

15. Attach Scale Display Box (#7) onto the Shell/Leg Weldment (Figure 6.5) with 1/4"-20 X 1" Grade 5 Zinc Hex Bolt (#8) and 1/4"-20 Grade 5 Zinc Serrated Flange Hex Nut (#9) (Figure 6.4). Remove the Stationary control box from the Leg and attach to the outside of the Scale Display Box (#7).

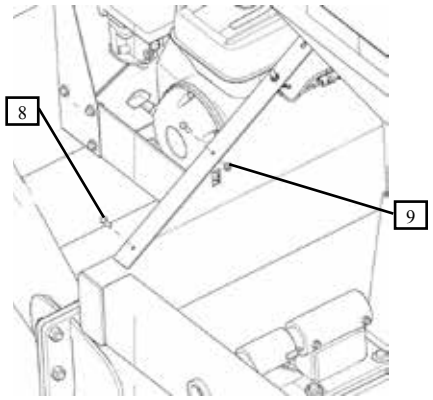


Figure 6.4

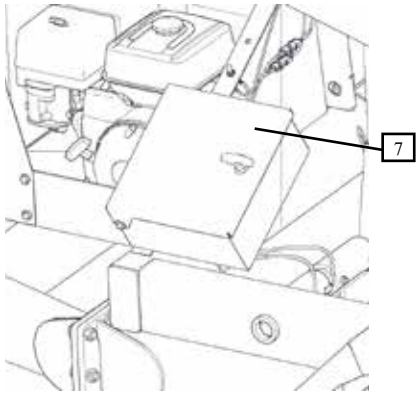


Figure 6.5

16. Insert the four wires form the weigh bars into the back of the scale indicator box. Insert weight bar wires through each grommet.
17 Remove the Back Plate from the 640XL Display Interface (Figure 6.6). Save the nuts and lock washers from the 640XL Display Interface.
18. Insert the 640XL Display Power Cord into grommet hole closest to the door hinge of the scale indicator box.
19. Attach all 5 wires to the bottom of the 640XL Display Interface. (Figure 6.7)
20. Use the nuts and lock washers from step 17 to attach the indicator to the scale indicator box.
21. Connect the indicator box power wire to the battery. The white wire is positive and the black wire is negative.
22. Push extra wire back into chassis holes. (Figure 6.3)
23. Secure Weigh Bar Wires running from the chassis holes with the 4 large wire ties provided.
24. Secure the Weigh Bar Wires running from the indicator box to chassis hole with a wire tie.
25. Power up unit to confirm function. Use scale manual to calibrate the scale system.

Figure 6.6

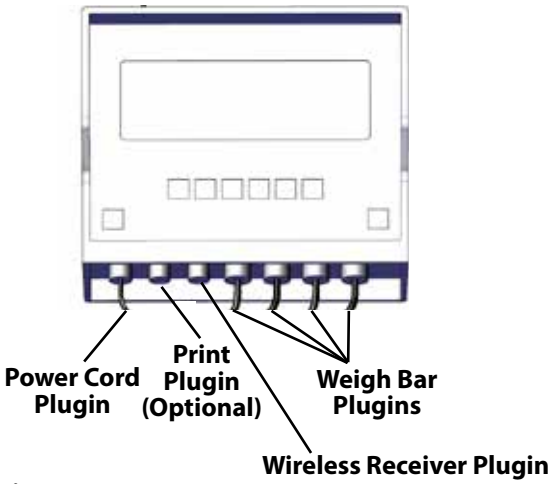


Figure 6.7