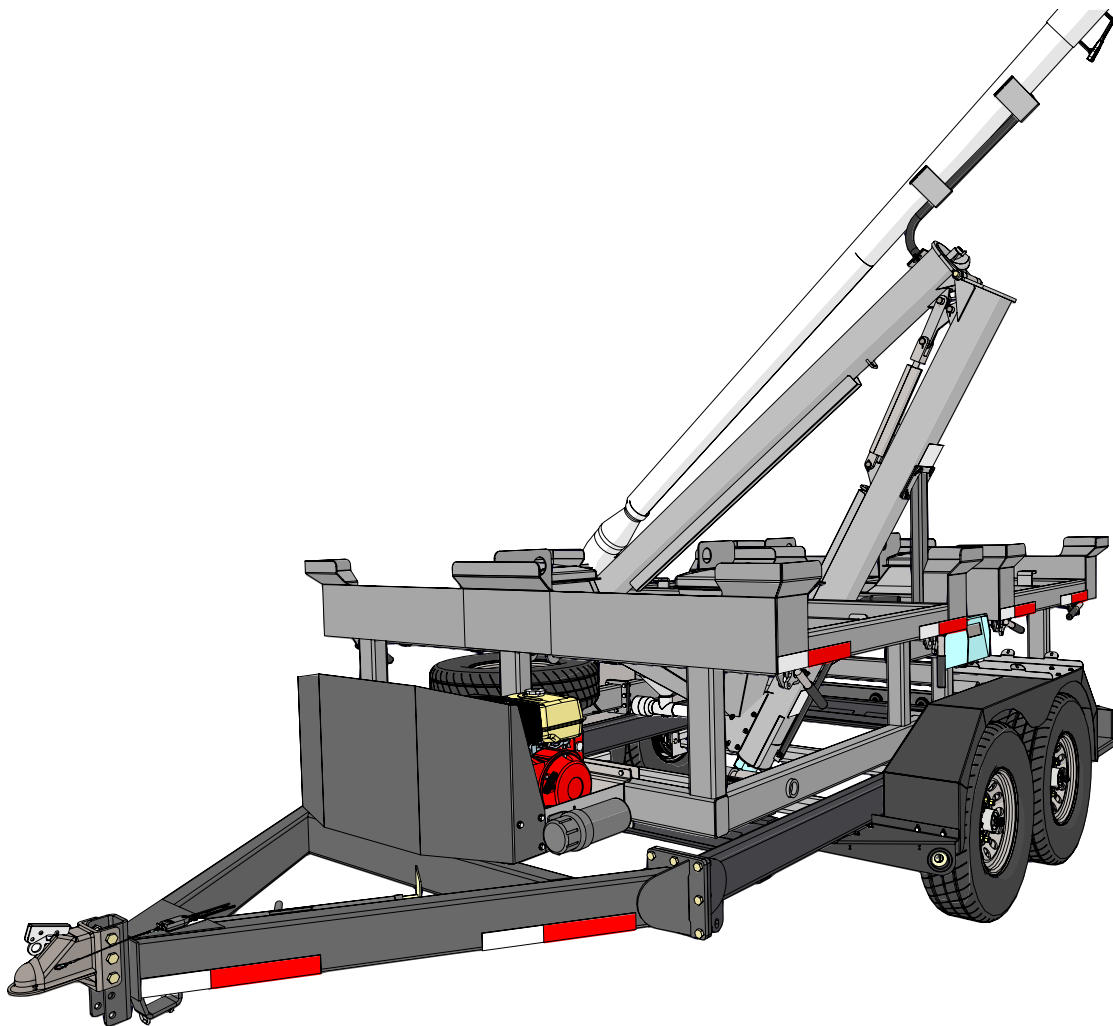




Manual

SPEEDTENDER PRO OPERATOR'S MANUAL

MODEL **450**



Rev. 5.17.2023

J&M Manufacturing 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

4	To the Dealer
5	General Information
6	Safety Rules
7	Specifications
8	Decals
10	Bolt Torque Specifications
11	Operations
15	Hydraulic Power Service
16	General Service
17	Tire Service
18	Wheel Bearing Service
19	Brakes Service
22	Troubleshooting
23	Controls
24	Lights and Wiring
28	Control Box Wiring
31	A-Frame
32	Gooseneck
33	Hydraulic Jack
34	Hydraulics Schematic
36	Scale Display Mount
37	Scale Bar Mount
37	Non-Scale Bar Mount
38	Brakes and Hub Assembly
39	Frame
40	Chassis
41	Battery Disconnect
42	Motor Mount
43	Chutes
44	Chute Lid Holder
44	Spare Tire Mount
45	Talc Applicator
46	Auger Assembly
48	Auger Prop and Rest
49	Cleanout Door

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: SpeedTender Pro 4-50 **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 seed tender in a safe manner. Read this 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 SpeedTender 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 Continued on Next Page

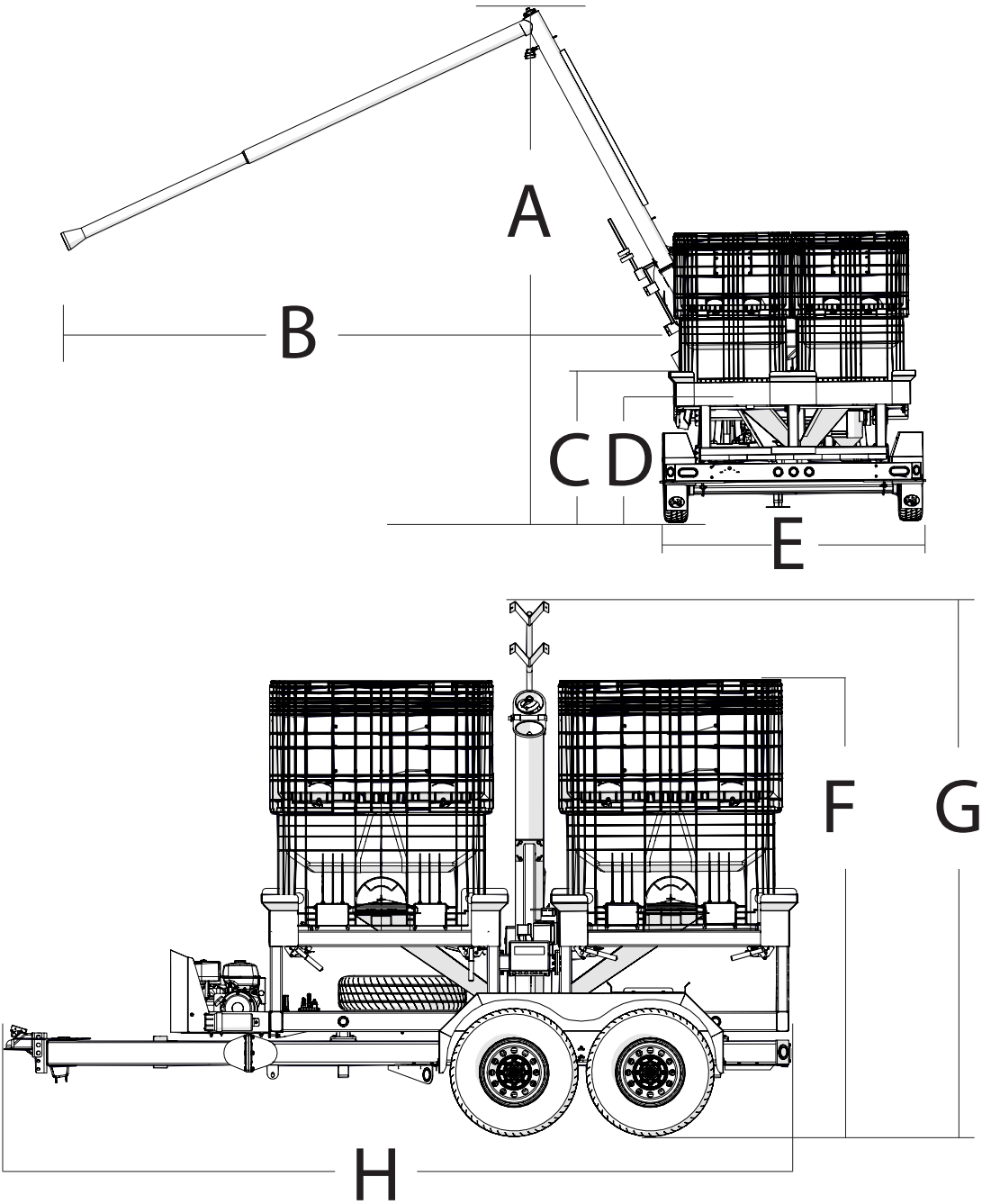
Safety Rules

1. 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.
2. 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.
3. 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.
4. Secure SpeedTender Pro safety chain to towing vehicle before transporting. Do not transport without safety chains being attached to tow vehicle.
5. Make sure that the auger is on the rest before transport.
6. Use good judgment when transporting SpeedTender Pro on a highway. Maintain complete control at all times. Regulate speed to road conditions.
7. When transporting on public roads, the auger must be folded in.
8. 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.
9. Use care when moving or operating SpeedTender Pro near electric lines as serious injury or death can result from contact.
10. Never adjust, service, clean, or lubricate SpeedTender Pro until all power is shut off and the battery is disconnected. Keep all safety shields in place.
11. Carbon monoxide can cause severe nausea, fainting, or death. Do not operate engine in closed or confined work area.
12. Explosive fuel can cause fires and severe burns. Stop engine before filling fuel tank.
13. Hot parts can cause severe burns. Do not touch engine while operating or just after stopping.
14. Hydraulic oil leaking under pressure can penetrate skin and cause infection or other injury.
15. 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.
16. Make sure that everyone is clear of equipment before applying power or moving the SpeedTender Pro.
17. Never allow anyone, including children, in, near, or on the SpeedTender Pro during transport or during loading and unloading of seed. Be aware that moving seed is dangerous and can cause entrapment, resulting in severe injury or death by suffocation.
18. Before unhooking the SpeedTender Pro from the transport vehicle, be sure to properly block the wheels to prevent the SpeedTender Pro from moving.

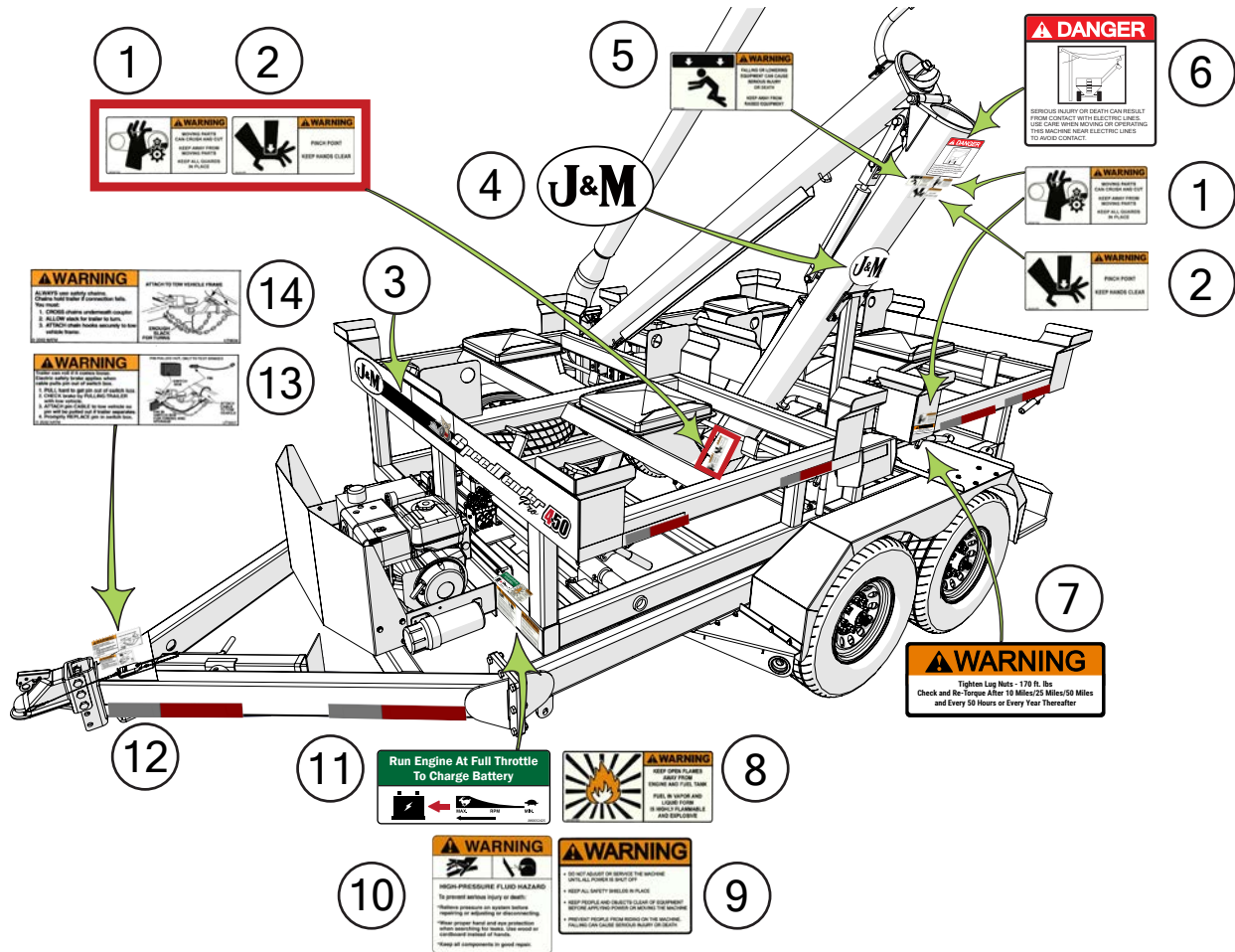
Specifications

Specification	SpeedTender Pro 4-50
Capacity	4 (Four), 50 Unit Boxes (200 Total Units)
Weight (Empty)	4,700 lbs
Tongue Weight (Loaded)	1,600 lbs
Unload Rate	4 Minutes per Box
Axles	Two, 7,000 lbs Torsion-Flex Axles with Electric Brakes
Engine	13 HP Honda Motor with Electric Start

Dimensions	
A	16'-9"
B	20'
C	4'-10"
D	4'-2"
E	8'-4"
F	9'-3"
G	11'
H	16'-5" A-Frame
H	18'-7" Gooseneck

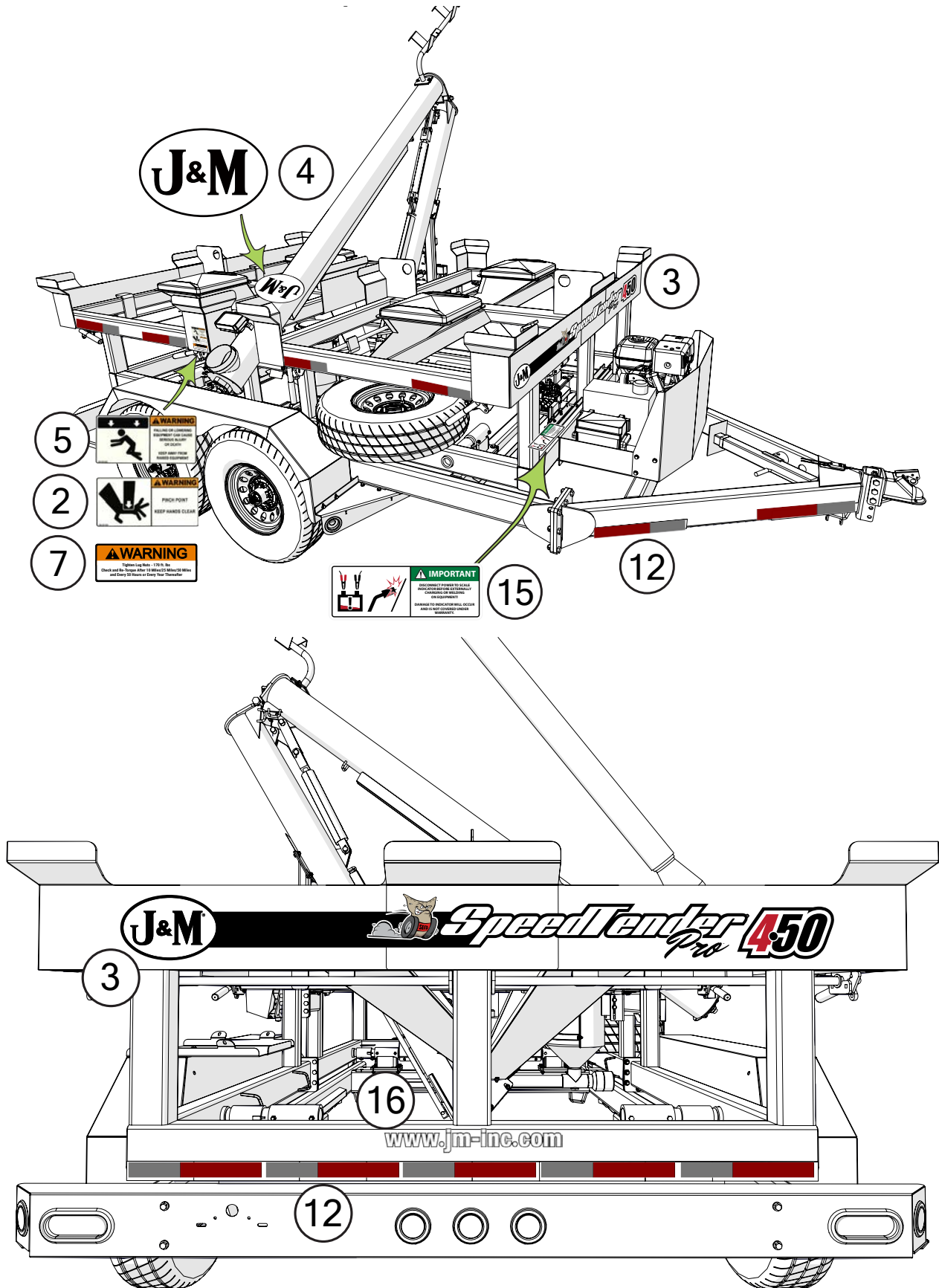


Decals



Description	Part No.
1 Warning, Moving Parts Can Crush and Cut Decal	JM0014993
2 Warning, Pinch Point Decal	JM0014994
3 SpeedTender Pro 450 Decal	JM0025336
4 J&M Oval Decal (Medium) 5-1/2" x 8-1/2"	JM0010179
5 Warning, Falling Or Lowering Decal	JM0014992
6 Danger, Electric Lines Decal	JM0015099
7 Warning, Tire Wheel or Lug Nut Failure Decal	JM0014996
8 Warning, Keep Open Flames Away Decal	JM0014983
9 Warning, Do Not Adjust (4 Bullets) Decal	JM0018040
10 Warning, High Pressure Fluid Hazard Decal 4" x 4"	JM0010163
11 Run Engine At Full Throttle To Charge Battery Decal	JM0032425
12 2" x 18" Red and White Reflective Strip	JM0015079
13 Warning, Trailer Can Roll Decal	JM0014997
14 Warning, Always Use Safety Chains Decal	JM0014995
15 Important, Disconnect Power To Scale	JM0040056
16 www.jm-inc.com Decal	JM0019239

Decals



Bolt 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 bolts and nuts with the exception of wheel nuts.**

SAE Fasteners

Coarse Thread Series				
Diameter and Pitch (Inches)	Grade 5		Grade 8	
	Dry	Oiled	Dry	Oiled
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	30	23	45	35
7/16"-14	50	35	70	55
1/2"-13	75	55	110	80
9/16"-12	110	80	150	110
5/8"-11	150	110	220	170
3/4"-10	260	200	380	280
7/8"-9	430	320	600	460
1"-8	640	480	900	680
Fine Thread Series				
Diameter and Pitch (Inches)	Grade 5		Grade 8	
	Dry	Oiled	Dry	Oiled
1/4"-28	10 ft-lbs	7 ft-lbs	14 ft-lbs	10 ft-lbs
5/16"-24	19	14	29	20
3/8"-24	35	25	50	40
7/16"-20	55	40	80	60
1/2"-20	90	65	120	90
9/16"-18	120	90	170	130
5/8"-18	180	130	240	180
3/4"-16	300	220	420	320
7/8"-14	470	360	660	500

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	120 ft-lbs
9/16"-18	170 ft-lbs
5/8"-18	300 ft-lbs
3/4"-16	400 ft-lbs
20mm	475 ft-lbs
22mm	640 ft-lbs

TIGHTENING WHEEL NUTS: Torque 9/16"-20 lug nuts on wheels to 170 ft-lbs after the first 10, 25, and 50 miles of driving, then recheck torque every 50 hours or every year, whichever comes first. Failure to do so may damage wheel nut seats. Once seats are damaged, it will become impossible to keep nuts tight.

Operations

Preparing the Towing Vehicle

Before towing the SpeedTender 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 SpeedTender Pro is equipped with LED lights. The towing vehicle may require a flasher upgrade for lights to operate properly.

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

Preparing SpeedTender 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, repair, or replace as required.

Lubrication: Lubricate SpeedTender Pro as outlined in the service section of this manual "General Service" on page 16. 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. Refer to "Tire Service" on page 17 for proper tire pressure and "Bolt Torque Specifications" on page 10 for wheel torque specifications.

Connecting SpeedTender Pro to the Towing Vehicle



WARNING: Do not stand between the SpeedTender Pro and tow vehicle when hooking up.

NOTE: The SpeedTender Pro comes standard with a 2-5/16" ball coupler and has an optional 3" lunette eye. Also, the SpeedTender Pro offers 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 SpeedTender Pro.
2. Align the vehicle's ball or lunette eye with the coupler or ring on the SpeedTender Pro.
3. Lift tongue latch lever.
4. Lower jack to set SpeedTender 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. A-Frame - Pivot jack to transport position and pin in place.
Gooseneck - Raise the "drop leg" of the jack.
7. Attach 7-way plug to tow vehicle. Check the length of the cord on the 7-way plug to make sure 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. Allow enough slack in chains to allow for turning.
10. Test the brakes and all the lights on the SpeedTender Pro.



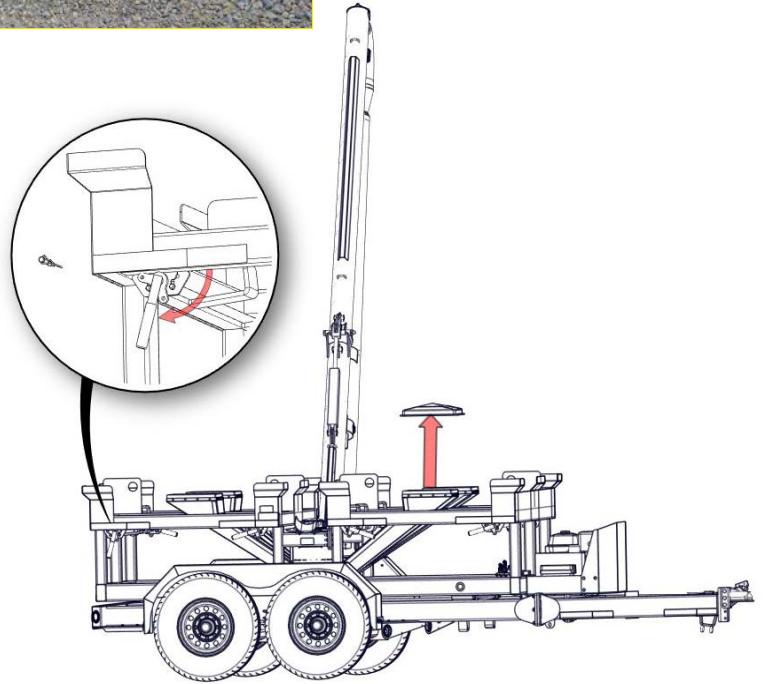
WARNING: Check safety chains for broken, stretched or damaged link or end fittings. Replace chains if found to be damaged. Do not weld safety chains.

Operations



Attaching the bulk seed boxes

1. Unstrap and remove the chute covers.
2. Remove the lynch pins and rotate the clamp handles down.
3. Place a bulk seed box over each of the chutes.
4. Rotate the clamp handles up and reinstall the lynch pins.



Transporting

NOTE: Move the jack to the horizontal position before transporting.

NOTE: Ensure the auger is in the auger rest and strapped down.

⚠ WARNING: Travel at a safe speed to maintain complete control of towing vehicle and SpeedTender Pro at all times.

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. Charge battery in well-ventilated area.

⚠ WARNING: Relieve hydraulic pressure before working on hydraulic system.

Operations

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

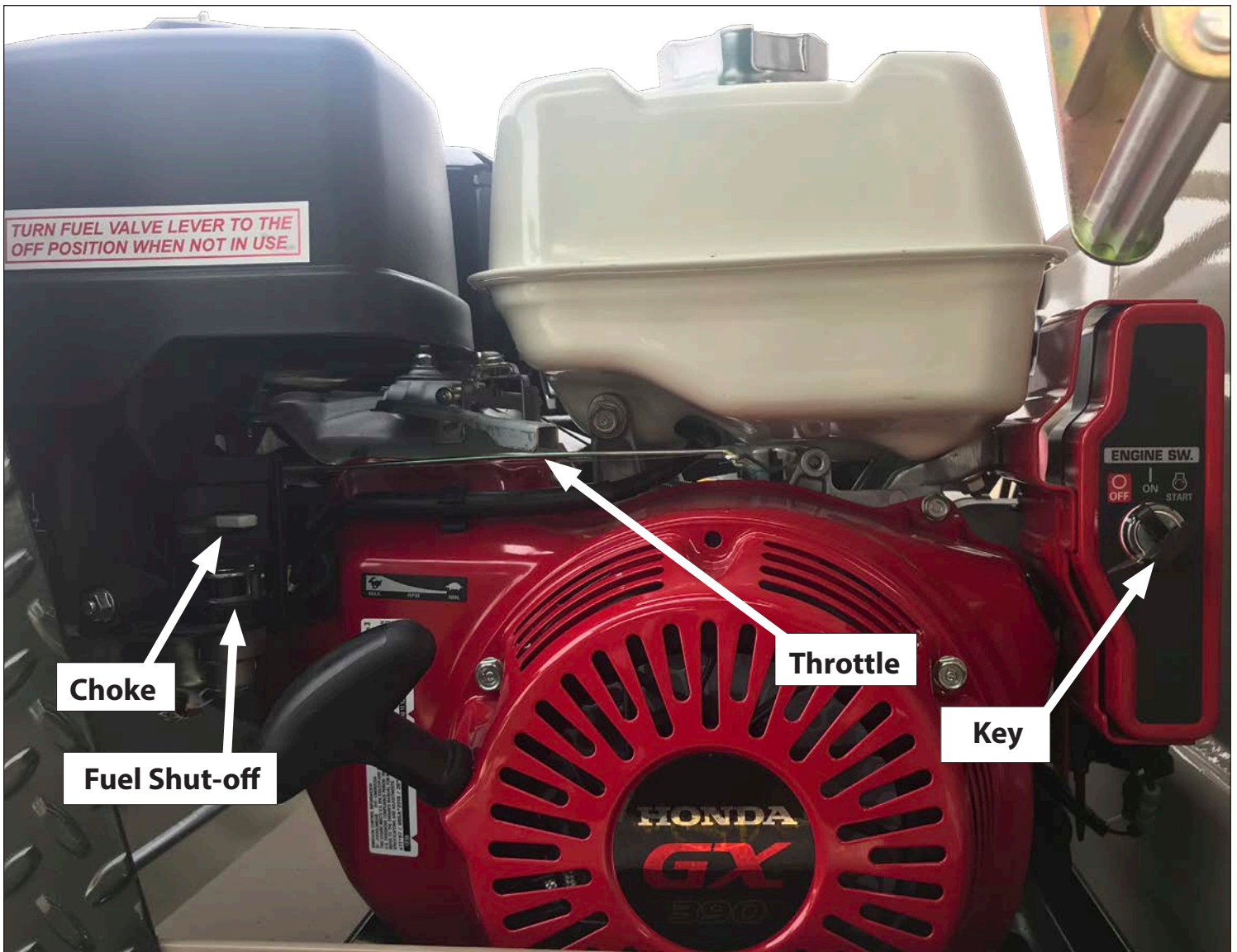
⚠ WARNING: Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.

1. Ensure 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.
3. Slide choke to the "ON" position.
4. Turn switch on battery disconnect to "ON".
5. Turn the key to the start position. Once engine starts, release key.
6. After starting, allow the engine to warm-up. Slide choke to the "OFF" position, and increase throttle speed.
7. To turn the engine off, slide the fuel shut-off lever to the "OFF" position.
8. 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 operator's manual for more details on upkeep and service.



Operations

Field Operation



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

1. Position the SpeedTender Pro next to the planter/drill so the auger will reach the planter box.
2. Turn switch on battery disconnect to "ON".
3. Start the hydraulic power unit and increase throttle speed. (Allow hydraulic fluid to warm up.)
4. Extend the auger to unload position using the handheld controller.
5. Use the 2 Switch Yellow Remote or Key Fob to start the auger.
6. Fill the planter/drill to desired level, then repeat.

NOTE: Adjusting engine throttle will regulate auger speed.

7. 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.
8. Slide the fuel shut-off lever to the "OFF" position. This will allow the engine to shutoff by running out of gas.
9. Turn the key to the "OFF" position.

Reprogramming the Key Fob and Receiver:

Power up the unit. The LED on the receiver unit will flash red four times, indicating the unit has received power. Magnetically controlled switching circuitry is embedded in the receiver unit. Place a fairly powerful magnet on the back of the receiver for 3 seconds and remove it. The LED will change to a constant red state. Now press any button on the transmitter you are attempting to reprogram. The LED will change to a green/yellow color, confirming the receiver has picked up a signal from the transmitter, and subsequently learned that signal. Communication has been established and the key fob will function properly.

Troubleshooting:

If the above procedure does not complete successfully, wait until the LED light goes out and repeat the procedure. If you experience a second failure of the reprogramming, place the magnet on the back of the receiver. The LED will change to a constant red state. Leave the magnet in place on the receiver until the LED light goes out (approximately 10 seconds), which completely clears the receiver's memory. Once you have cleared the memory, proceed with the standard reprogramming procedure for the Key Fob transmitters.

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 SpeedTender Pro is empty.
4. After initial amount is placed on the scale, press the TARE Key. (Weight is tared 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 operator's manual.

Auger Cleanout

1. Raise the clean out door on the auger.
2. Run the auger in reverse until all grain is removed.
3. Close the clean out door.



Hydraulic Power Service

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 ensure 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 1552 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:

Refer to "Hydraulics Schematic" on page 34 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 seconds 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 seconds after cylinder rods stop moving. Check that cylinders have fully extended or retracted.
5. Check for hydraulic leaks using cardboard or wood.
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.

General Service

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. Check hydraulic oil level.
 2. Inspect for oil leaks and repair as appropriate.
 3. Check all hoses, fittings, bolts, and hardware to make sure they are secure and properly tightened.
 4. Check engine oil level. See engine operator's manual for details on oil levels, oil types, and service intervals.
 5. Check SpeedTender Pro brakes and lights before towing.
 6. Check the SpeedTender 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 damage the SpeedTender Pro and greatly reduce its life.**
7. Ensure tires are properly inflated. Tire care guidelines can be found in "Tire Service" on page 17.
 8. Ensure wheel lug nuts are properly torqued. See "Bolt Torque Specifications" on page 10.
 9. To preserve battery, switch battery disconnect to off position.
 10. Clean out the auger at the end of every day of use.

End of the Year Service

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

1. The wheel bearings need to be cleaned, inspected, repacked, and adjusted. Use a number 2 wheel bearing grease to repack the bearings.
2. Inspect and service the brakes (magnets and shoes). They must be changed when they become worn or scored to prevent inadequate vehicle braking. Clean the backing plate, magnet arm, magnet, and brake shoes. Make certain 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 stretching or deformation. Replace as needed.
3. If equipped with talc, be sure to empty talc box entirely and run the talc auger to completely empty talc from the auger pipe.
4. Torque lug-nuts (See "Bolt Torque Specifications" on page 10).
5. Ensure tires are properly inflated. Tire care guidelines can be found in "Tire Service" on page 17.
6. Remove all grain from inside the chutes.
7. Clean out the auger at the end of every season
8. Check the SpeedTender 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 damage the SpeedTender Pro and greatly reduce its life.

9. Check hydraulic hoses for wear and replace if needed.
10. To preserve battery, switch battery disconnect to off position.
11. Remove battery from the SpeedTender 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.

12. Change hydraulic oil filter element with either a NAPA 1552 or a FRAM P1654A Filter.
 13. 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.**
14. Check motor oil level. See engine operator's manual for details on oil levels, oil types, and service intervals.
 15. Retract all hydraulic cylinders to prevent the piston rods from rusting.
 16. Touch up spots where paint has worn away (use good quality primer paint - especially before applying graphite paint to the inside of the grain tank).

Removing From Storage

1. Torque lug-nuts (See "Bolt Torque Specifications" on page 10).
2. Make sure that the tires are properly inflated. Tire care guidelines can be found in "Tire Service" on page 17.
3. Check oil level.
4. Inspect for hydraulic oil leaks and repair as appropriate.
5. Check all hoses, fittings, bolts, and hardware to ensure 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 SpeedTender Pro brakes and lights before each use.
8. Reattach battery and check to make sure it is fully charged.

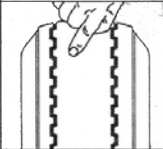
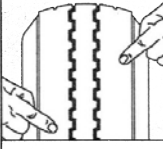
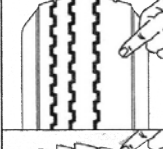
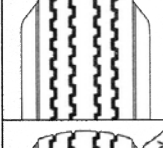
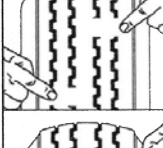
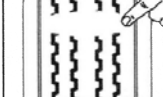
IMPORTANT: Be sure to disconnect the scales from the battery before charging.



Tire Service

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. **235-85-R16 tires are standard on the SpeedTender Pro and should be inflated to 80 psi.** J&M also recommends rotating your tires front to back (not side to side) every 1,200 miles or 12 months (whichever comes first) for longer tire life. The image below 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

Wheel Bearing Service

Clean, inspect, and repack the wheel bearings 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 SpeedTender Pro.
2. Remove wheel 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.
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 bearing by hand, repeating the procedure used with the inner bearing in step 11.
16. Slide the outer bearing 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 nuts. See "Bolt Torque Specifications" on page 10.

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.

Brakes Service

The SpeedTender 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 SpeedTender Pro brakes at least once a year with normal use.

How to use your electric brakes properly:

Your SpeedTender Pro brakes are designed to work in synchronization with your tow vehicle brakes. Never use your tow vehicle or SpeedTender Pro brakes alone to stop the combined load.

Your SpeedTender 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 ensure safe brake performance and synchronization, read the brake controller manufacturer’s instruction completely before performing the synchronization procedure.

Make several hard stops from 20 mph on a dry, paved road that is free of sand and gravel. If the SpeedTender 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.

How to adjust electric brakes:

1. Park the SpeedTender 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 SpeedTender Pro.
4. Secure the front and rear of the trailer on jack stands of adequate capacity.
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 they are in the correct position.
8. Back off the star wheel 8-10 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.

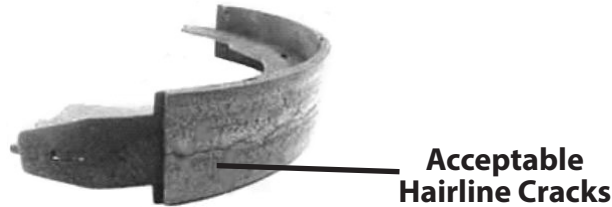
Brake Cleaning and Inspection:

Your SpeedTender 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 to prevent inadequate vehicle braking. Clean the backing plate, magnet arm, magnet, and brake shoes. Make certain 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 stretching or deformation and replace if required.

Brakes Service

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. 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.



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 20-30 times from an initial speed of 40 mph, slowing the vehicle to 20 mph. 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:

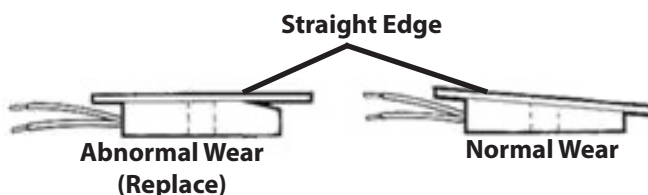
Mechanical causes are ordinarily obvious, bent or broken parts, worn out linings or magnets, seized lever arms or shoes, scored drums, loose parts, etc. Most electric brake malfunctions that cannot be corrected by either brake adjustments or synchronization adjustments can generally be traced to electrical system failure. 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 (as shown below). 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.



Brakes Service

Voltage in the system should begin at 0 volts. As the controller bar is slowly actuated, the voltage should gradually increase to approximately 12 volts, which is referred to as modulation. No modulation means 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 ensure 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 ensure 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.

Troubleshooting

Problems	Solutions
Unit sways during travel	a. Check tire pressure (see "Tire Service" on page 17). b. Check tow vehicle for loosened hitch parts. c. Check tow vehicle's hitch height. d. Reduce towing speed. e. Check wheel lug nuts (see "Bolt Torque Specifications" on page 10). f. Check wheel bearings for adjustment (see "Wheel Bearing Service" on page 18).
Tires show excessive wear	a. Check tire pressure. b. Rotate tires (see "Tire Service" on page 17). c. Check wheel bearings for adjustment. (See "Wheel Bearing Service" on page 18).
Wheel makes grinding or squeaking noise	a. Service wheel bearings (see "Wheel Bearing Service" on page 18).
Noisy when brakes are being applied	a. Properly adjust brakes (see "Brakes Service" on page 19). 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 "Wheel Bearing Service" on page 18).
No brakes	a. Properly adjust brakes (see "Brakes Service" on page 19). b. Check for short in electric circuit. c. Replace any brake magnets that are worn or defective.
Weak brakes	a. Properly adjust brakes (see "Brakes Service" on page 19). 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 (see "Brakes Service" on page 19). b. Replace any weak or broken springs in brakes. c. Clean and lubricate the brake assemblies.
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.
Auger hydraulic pump is not producing sufficient pressure or volume to auger motor	a. Check for pinched or leaking hydraulic line. b. Allow hydraulic oil to warm up . c. Increase engine RPM. 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.
Auger is not moving - Obstructed auger	a. Make sure auger is not clogged.
Auger has insufficient output speed or RPM - Hydraulic pump is not producing sufficient pressure or volume to auger motor	a. Check for pinched or leaking hydraulic lines. b. Allow hydraulic oil to warm up. c. Increase engine RPM. d. Hydraulic fluid level low. e. Hydraulic filter clogged. f. Check for proper oil viscosity. g. Repair or replace worn out pump.
Auger has insufficient output speed or RPM	a. Check telescoping spout and auger for a clog. b. Remove material from clean out door.

Troubleshooting

Problems	Solutions
Auger has insufficient output speed or RPM - Air in hydraulic system	a. Bleed air out of hydraulic system and fill reservoir (See "Hydraulic Power Service" on page 15). b. Look for leaking or cracked fittings.
Auger has insufficient output speed or RPM - Leak in motor, valve body, or bypass valves	a. Replace or repair motor, valve body, or bypass valves. b. Check for proper oil viscosity.
Auger 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 RPM. 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 fluid. 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 RPM	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.

Controls



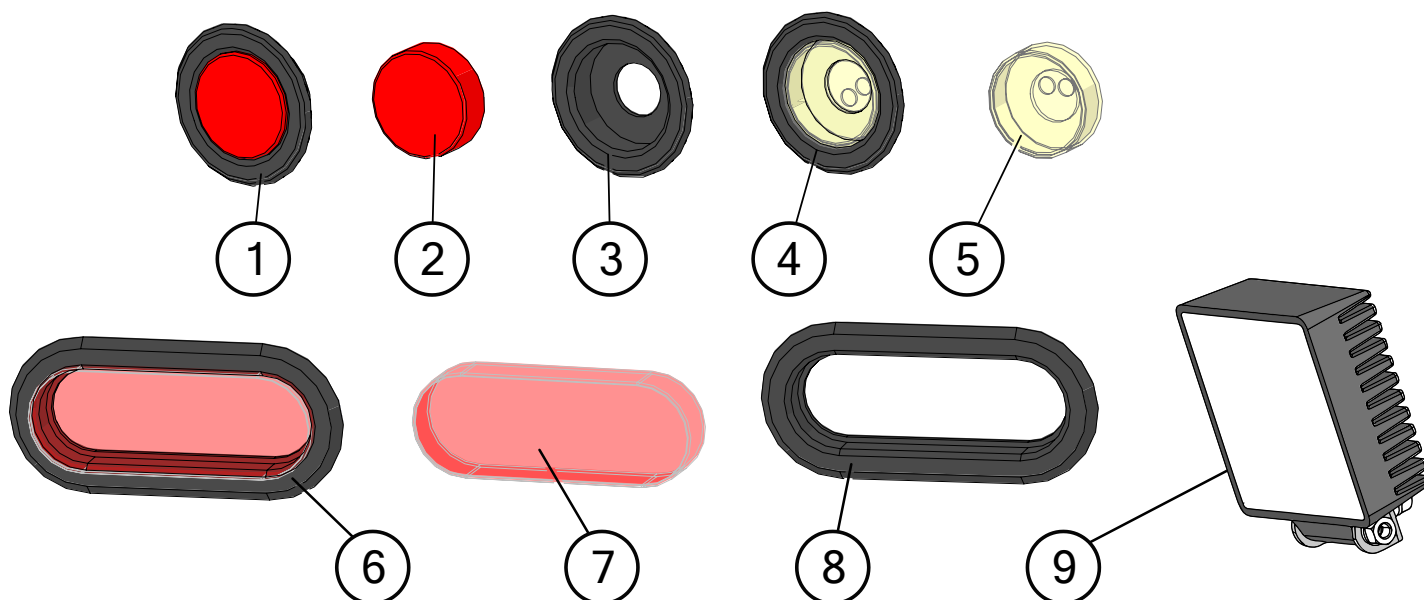
	Description	Part No.
1	Lundell Key Fob	JM0037939
2	Lundell Wireless Receiver	JM0029227
3	Lundell Wireless Receiver with Key Fob	JM0051396
4	2 Switch Yellow Remote with 44' Cord	JM0014984



Lights and Wiring

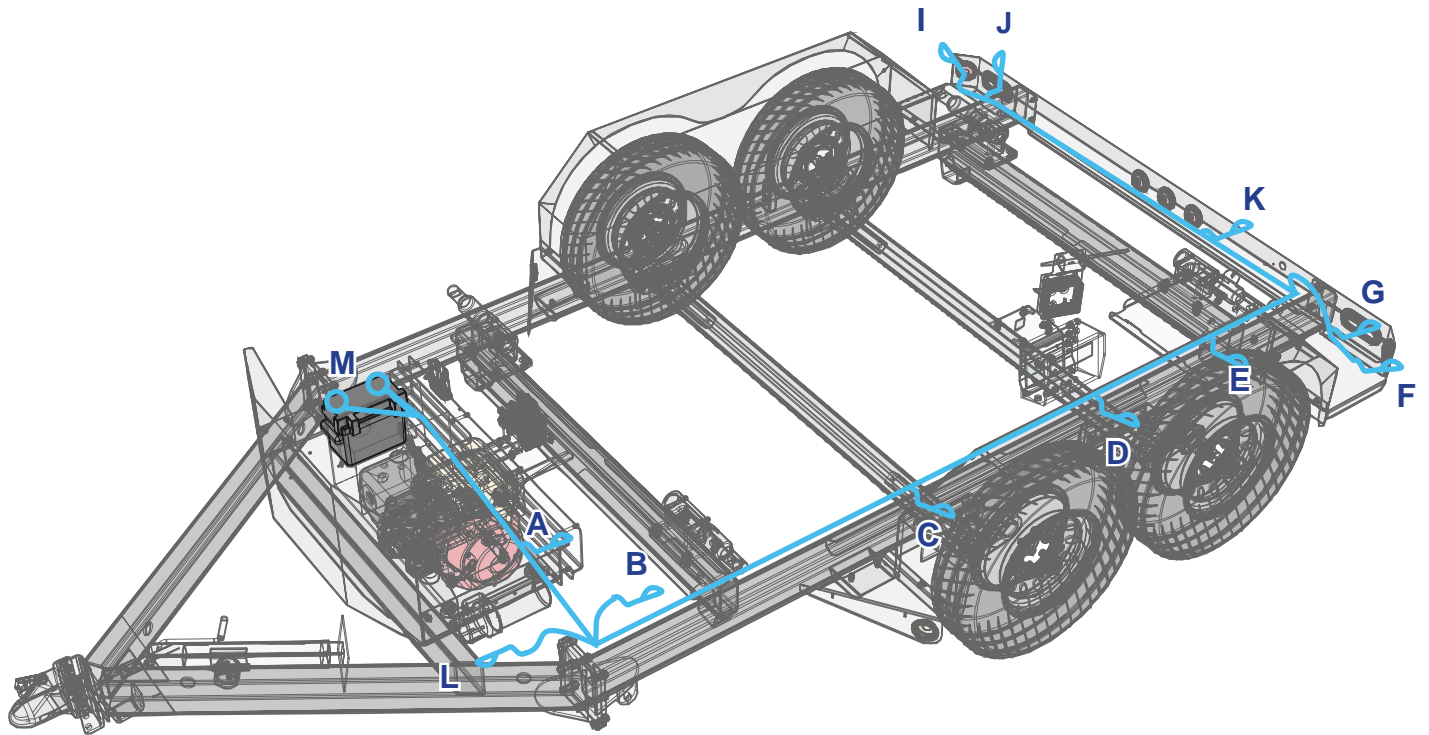
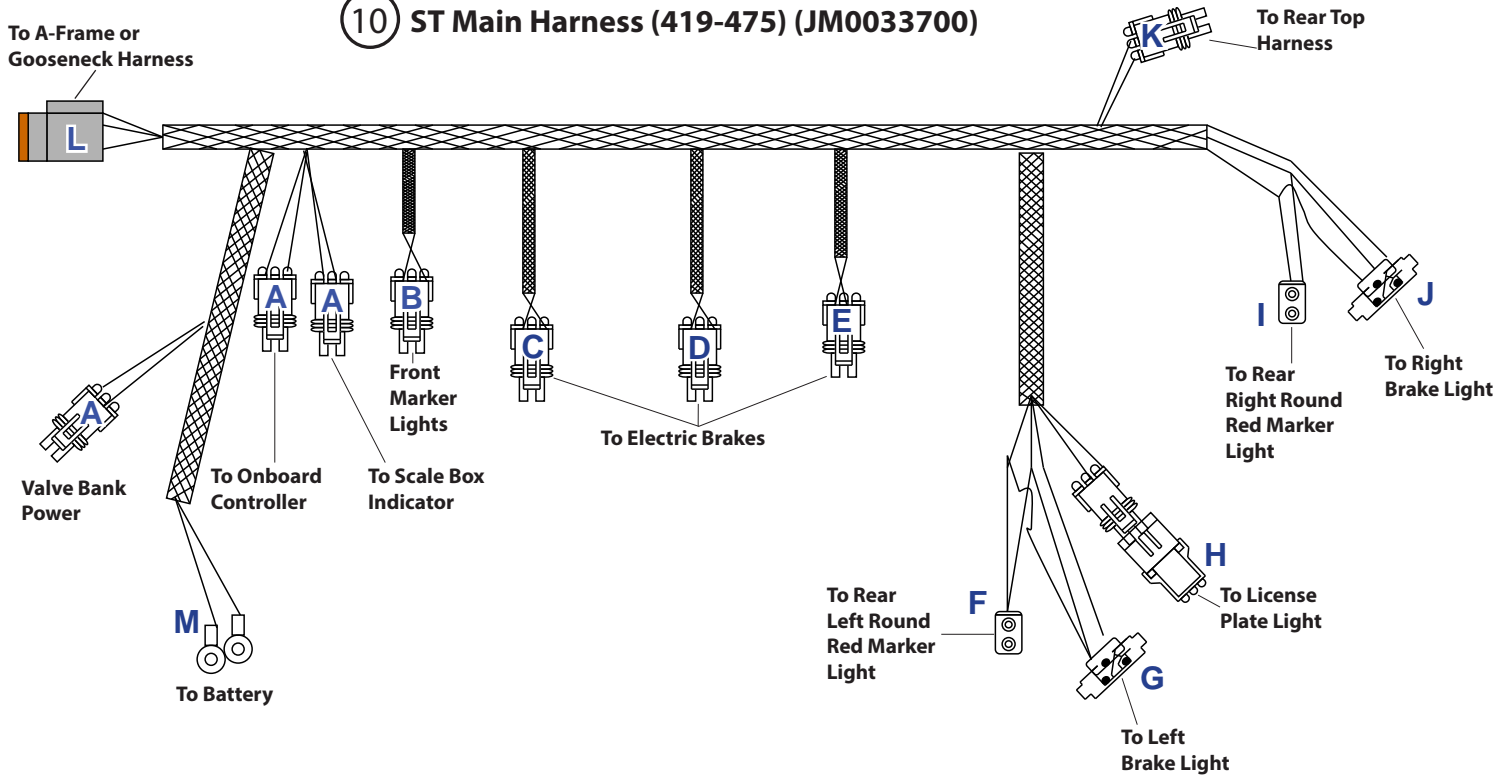
This table will be used for the following section, Lights and Wiring, on Pages 24-27:

	Description	Part No.
1	2-1/2" Red Round LED Light/Reflector Assembly (RRLA1)	JM0001905
2	2-1/2" Red Round LED Light/Reflector (RRLR1)	JM0001901
3	Round Grommet for LED 2-1/2" Light/Reflector	JM0001902
4	2-1/2" Amber Round LED Light/Reflector Assembly (ARLA1)	JM0001908
5	2-1/2" Amber Round LED Light/Reflector	JM0001895
6	Red Oval Brake Light LED Assembly (BLSTOA1)	JM0001903
7	Red Oval Brake Light LED (BLSTOL1)	JM0007114
8	Oval Grommet for Brake Light LED (OVLG1)	JM0001897
9	LED Field Light with Weather Pack Connectors (SpeedTender, NitroGro)	JM0050942
10	ST Main Harness (419-475)	JM0033700
11	ST Front Chassis Wiring Harness (419-385)	JM0019963
12	ST Rear Top Lights Harness (419-390)	JM0019964
13	V-Belt A-Frame 7-Way Trailer Connection	JM0046142
14	V-Belt Gooseneck 7-Way Trailer Connection	JM0046143
15	Breakaway Switch with Cable (BAS-1)	JM0001843



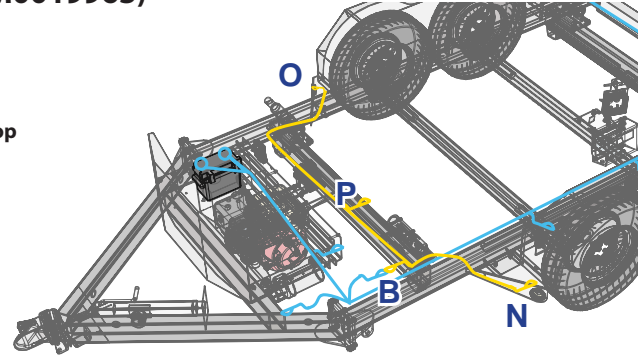
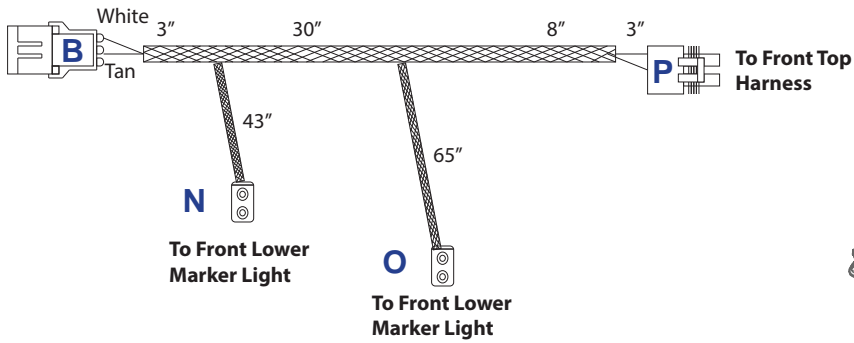
Lights and Wiring

10 ST Main Harness (419-475) (JM0033700)

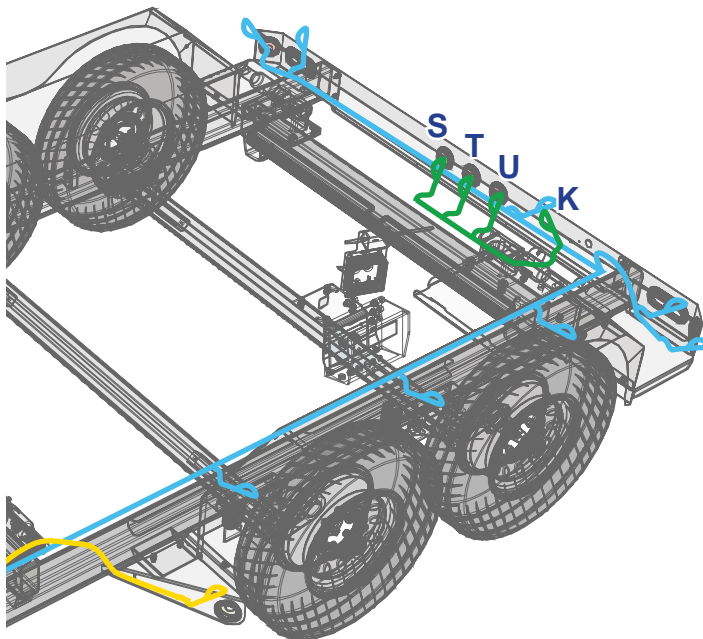
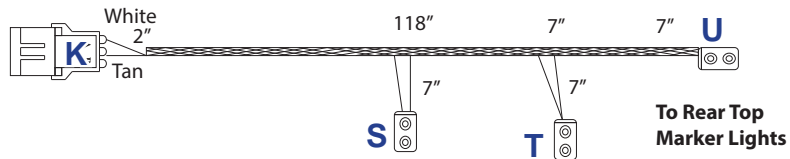


Lights and Wiring

11 ST Front Chassis Wiring Harness (419-385) (JM0019963)



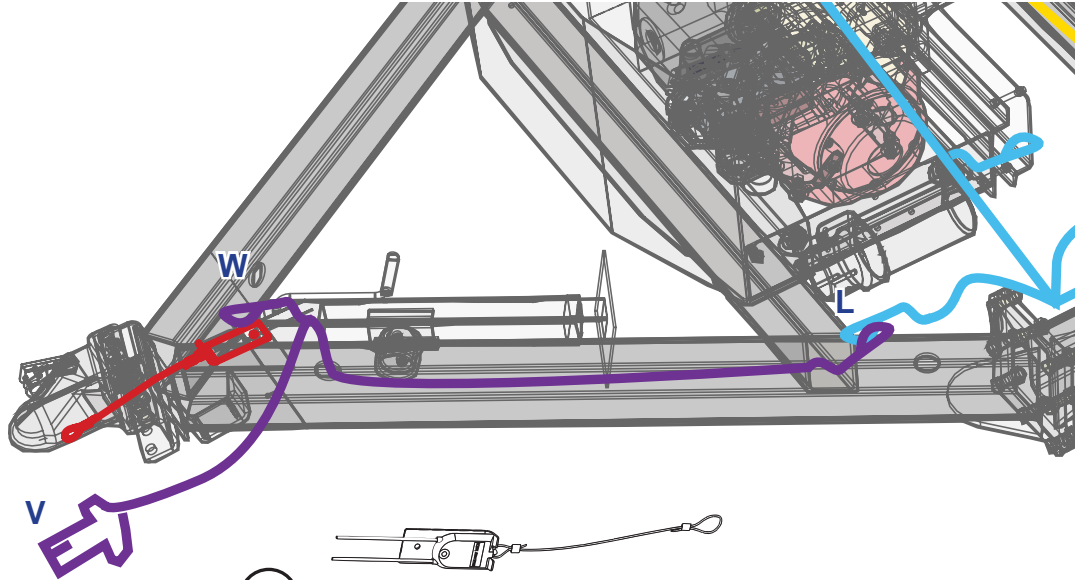
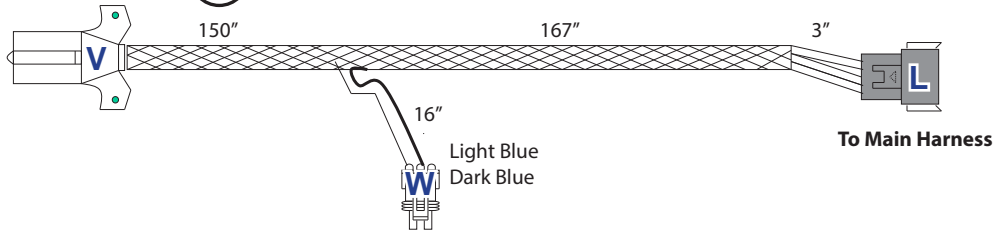
12 ST Rear Top Lights Harness (419-390) (JM0019964)



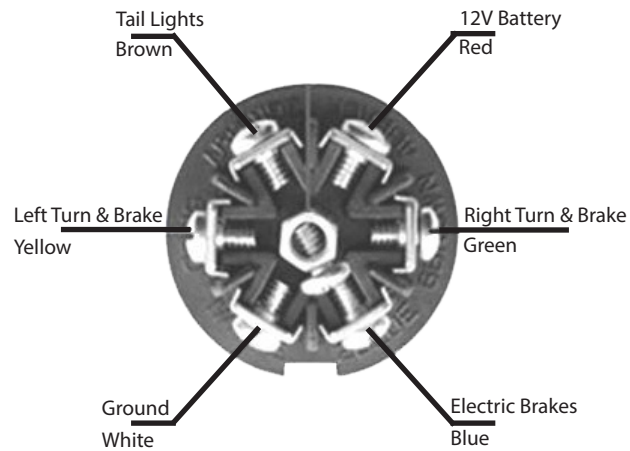
Lights and Wiring

13 V-Belt A-Frame 7-Way Trailer Connection (JM0046142)

14 V-Belt Gooseneck 7-Way Trailer Connection (JM0046143)

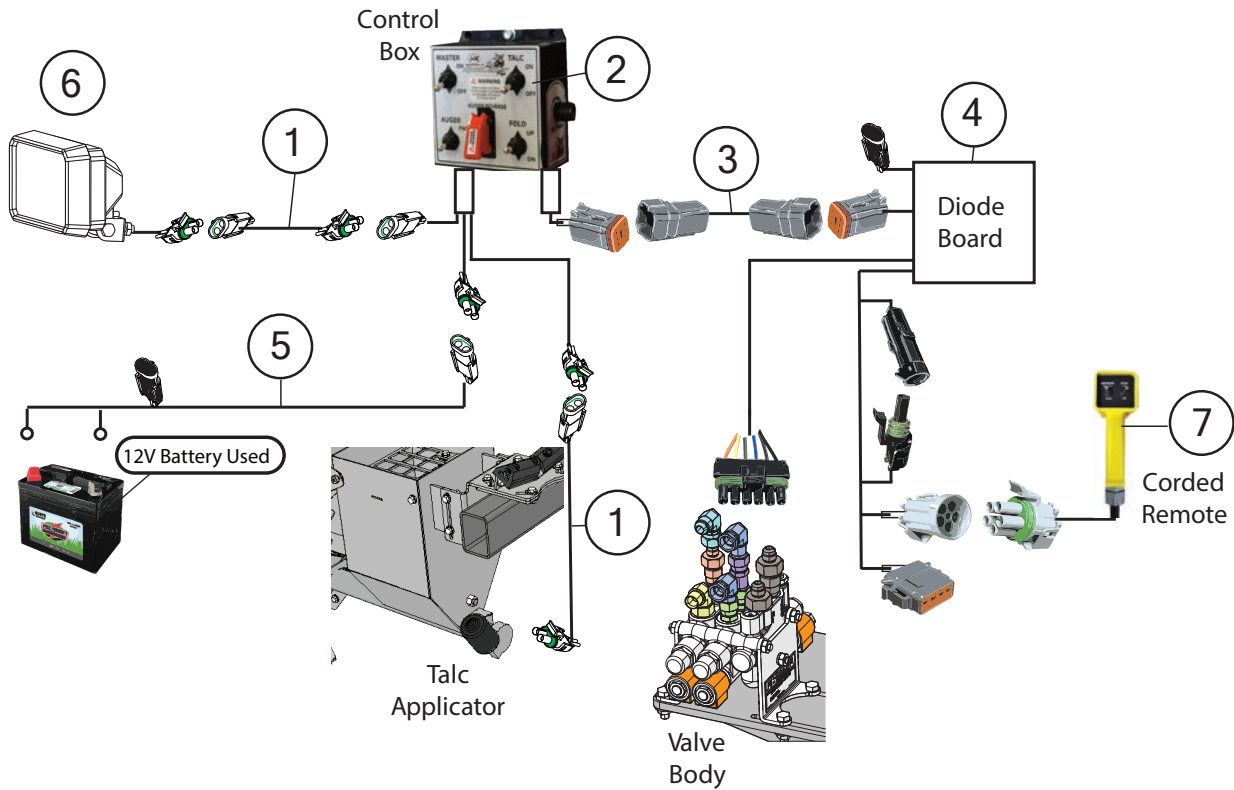


15 Breakaway Switch with Cable (BAS-1) (JM0001843)

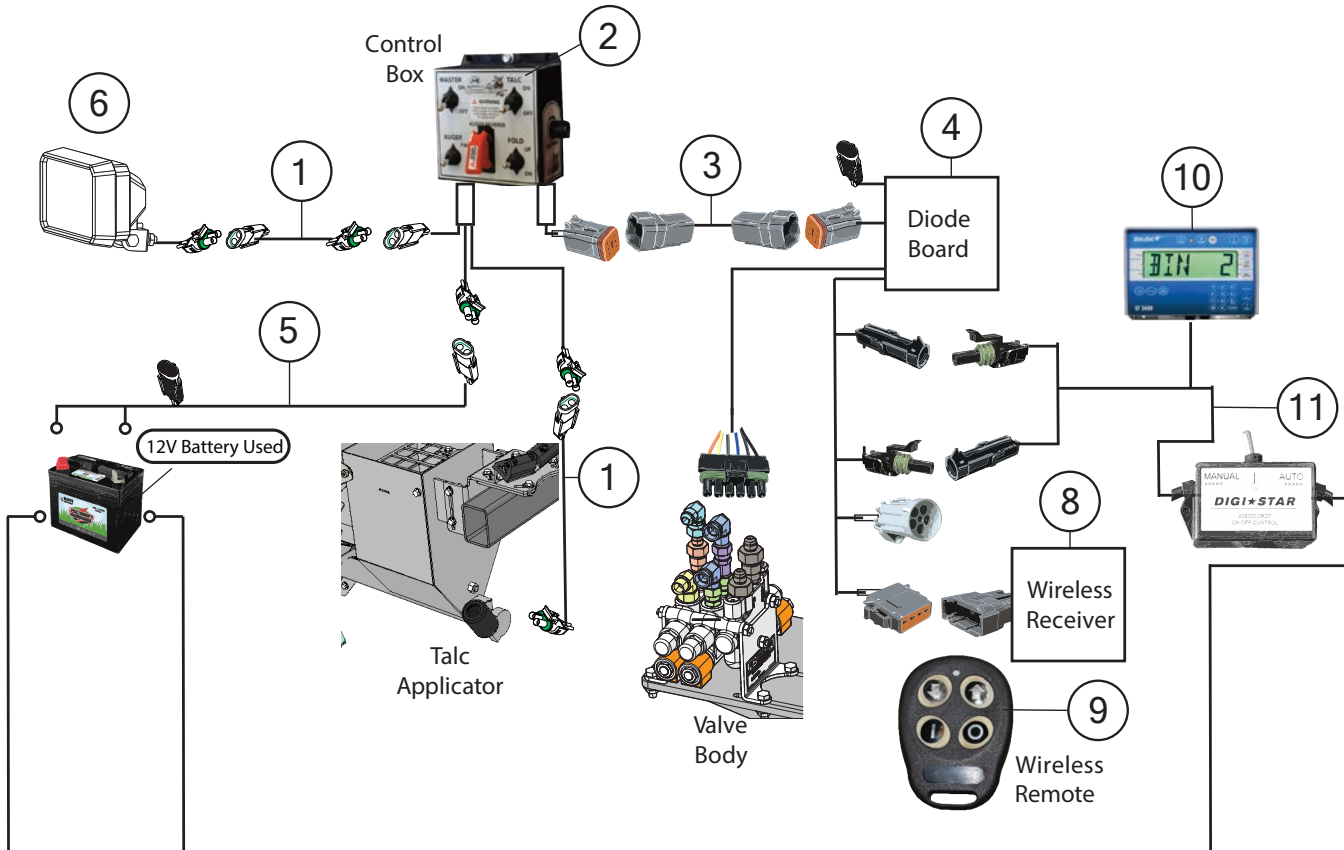


Control Box Wiring

Schematic with Corded Remote

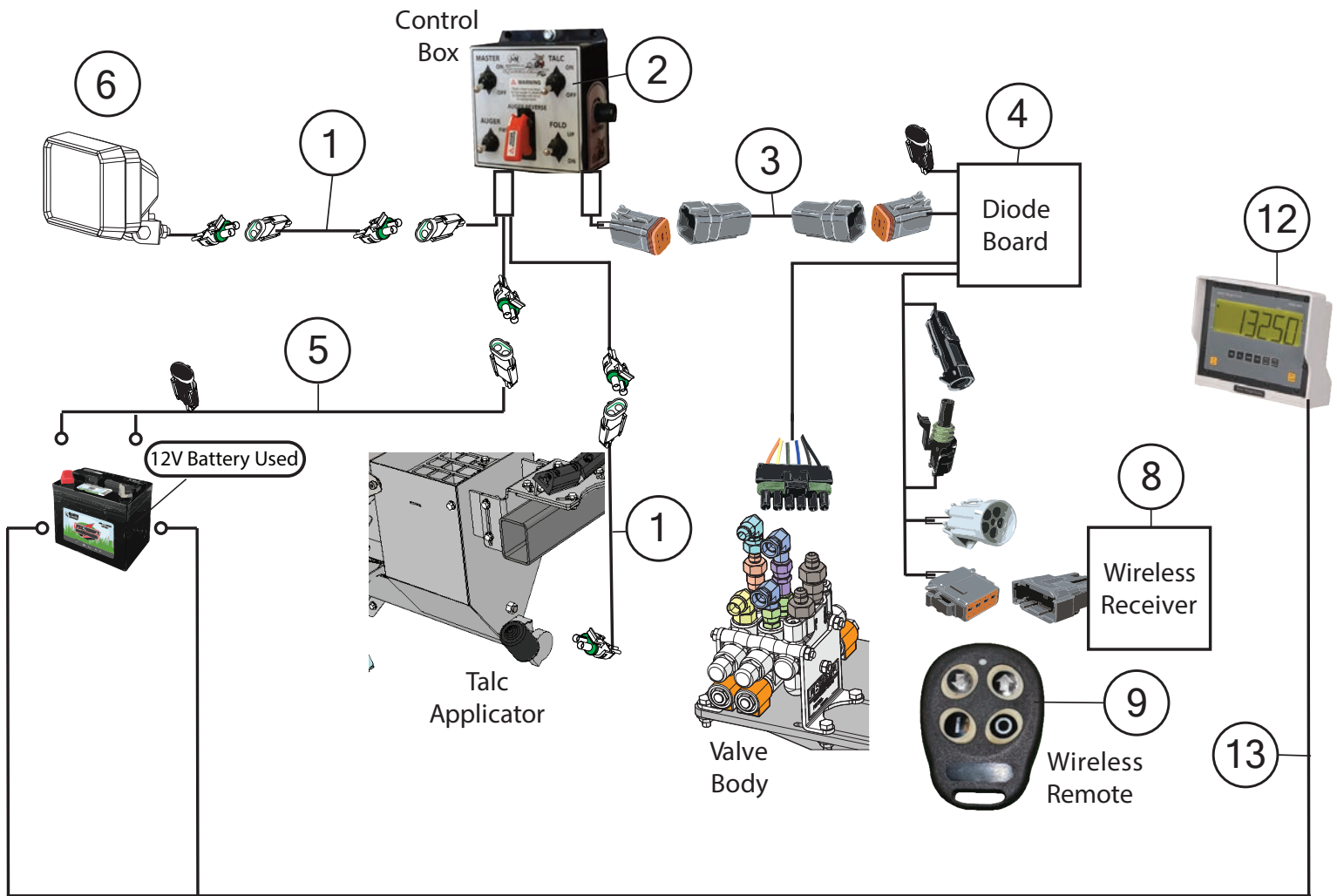


Schematic with Wireless Control and Auto Scale Shutoff



Control Box Wiring

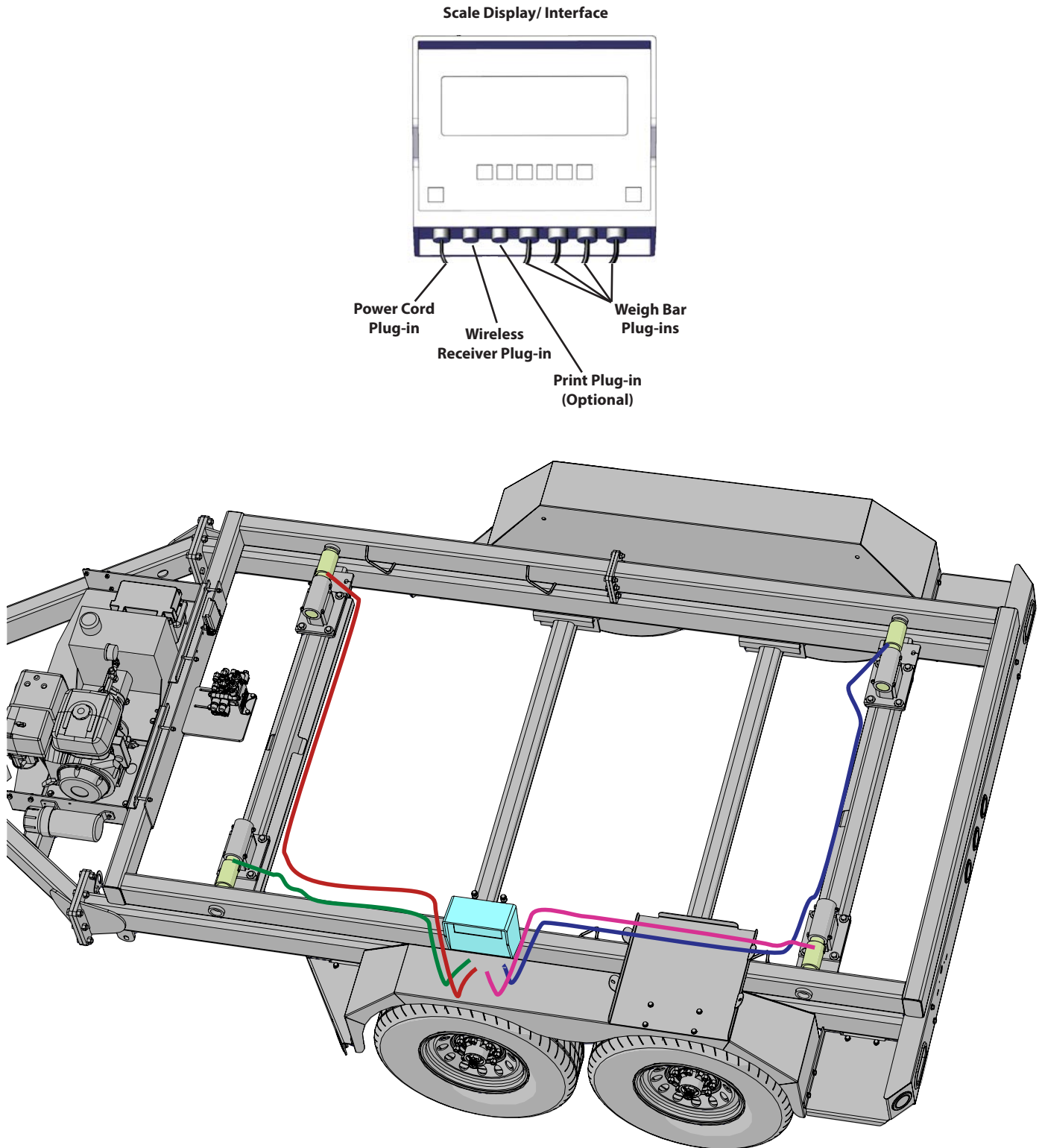
Schematic with Wireless Remote and Avery Weigh-Tronix



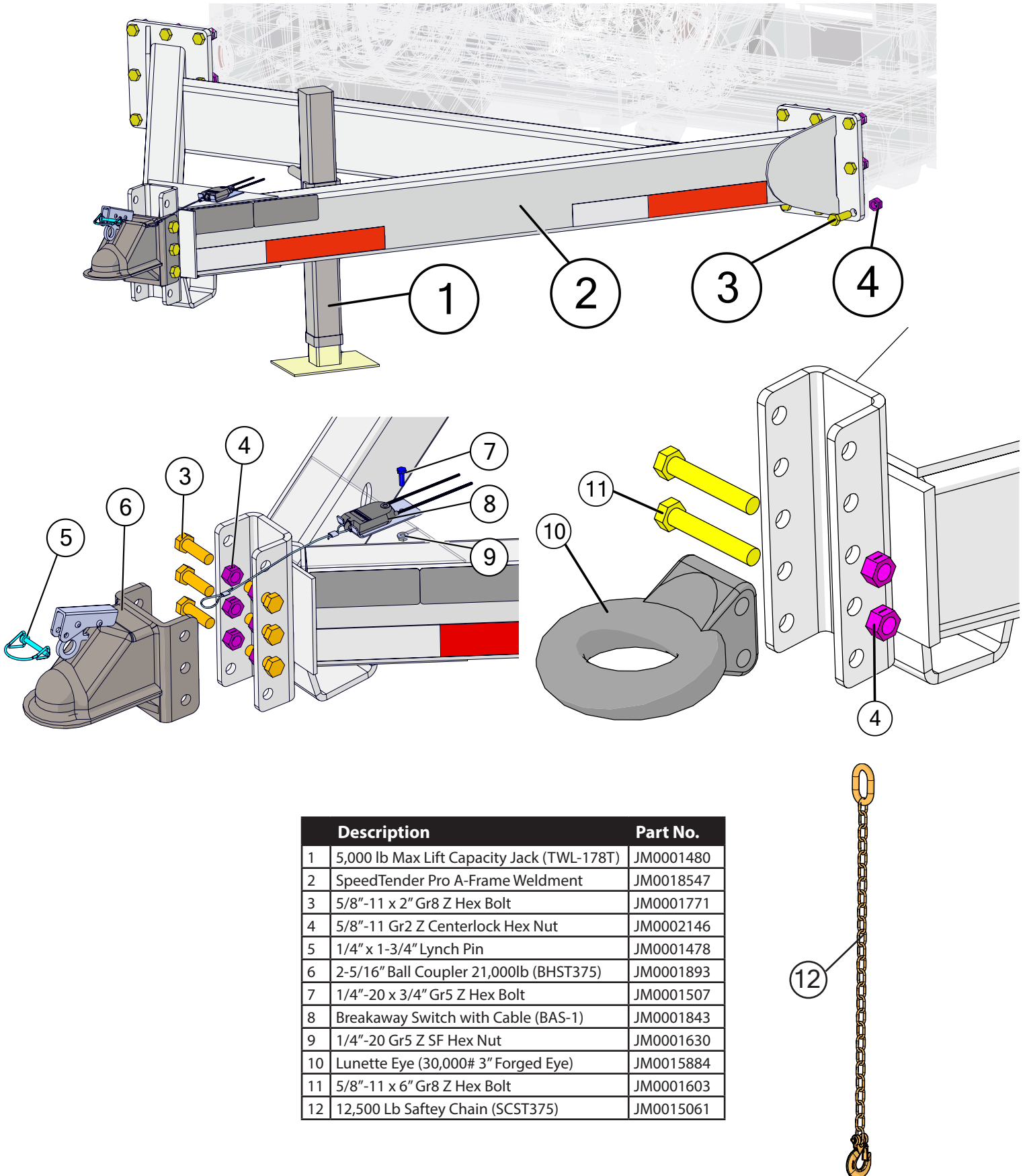
Description	Part No.
1 Auger Light Extension Cable - SpeedTender Pro	JM0029827
2 SpeedTender Pro Complete Control Box with Variable Speed	JM0029221
3 Main Patch Cable - SpeedTender Pro	JM0029826
4 Main Valve Harness Diode Board	JM0029825
5 Power Cable - SpeedTender Pro	JM0029828
6 LED Field Light with Weather Pack Connectors (SpeedTender, NitroGro)	JM0050942
7 2 Switch Yellow Remote with 44' Cord	JM0014984
8 Lundell Wireless Receiver	JM0029227
9 Lundell Key Fob (ST375KF)	JM0037939
10 Digi-Star ST3400 Display Indicator	JM0031958
11 Auto Scale Shut-Off Power Cable (SpeedTender Pro)	JM0029834
12 Avery Weigh-Tronix 640XL Indicator (640XLI)	JM0007293
13 Avery Weigh-Tronix 640XL Power Cord	JM0018867

Lights and Wiring

Scale Wiring



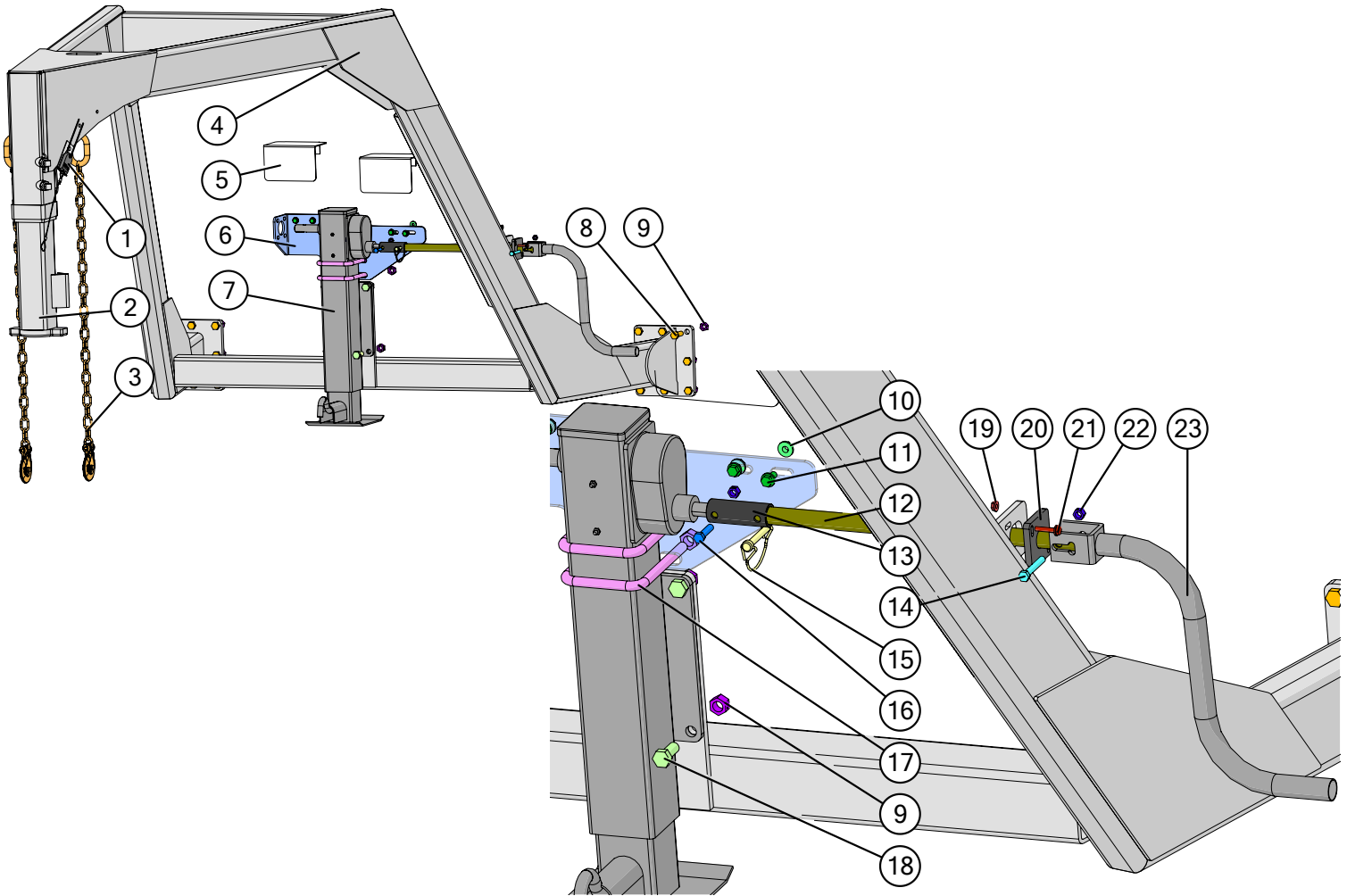
A-Frame



	Description	Part No.
1	5,000 lb Max Lift Capacity Jack (TWL-178T)	JM0001480
2	SpeedTender Pro A-Frame Weldment	JM0018547
3	5/8"-11 x 2" Gr8 Z Hex Bolt	JM0001771
4	5/8"-11 Gr2 Z Centerlock Hex Nut	JM0002146
5	1/4" x 1-3/4" Lynch Pin	JM0001478
6	2-5/16" Ball Coupler 21,000lb (BHST375)	JM0001893
7	1/4"-20 x 3/4" Gr5 Z Hex Bolt	JM0001507
8	Breakaway Switch with Cable (BAS-1)	JM0001843
9	1/4"-20 Gr5 Z SF Hex Nut	JM0001630
10	Lunette Eye (30,000# 3" Forged Eye)	JM0015884
11	5/8"-11 x 6" Gr8 Z Hex Bolt	JM0001603
12	12,500 Lb Saftey Chain (SCST375)	JM0015061

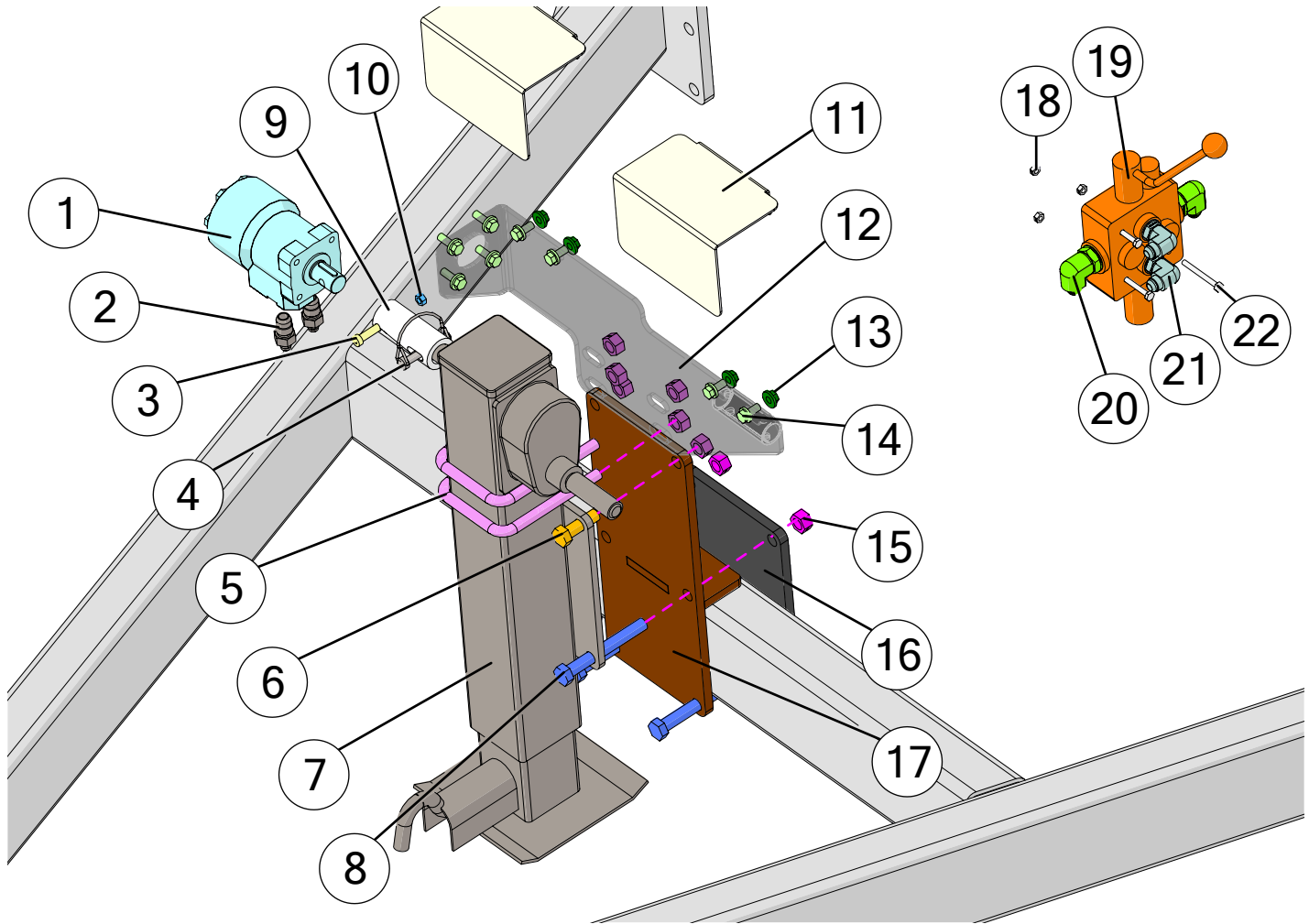
* Two chains for both bumper pull & gooseneck

Gooseneck



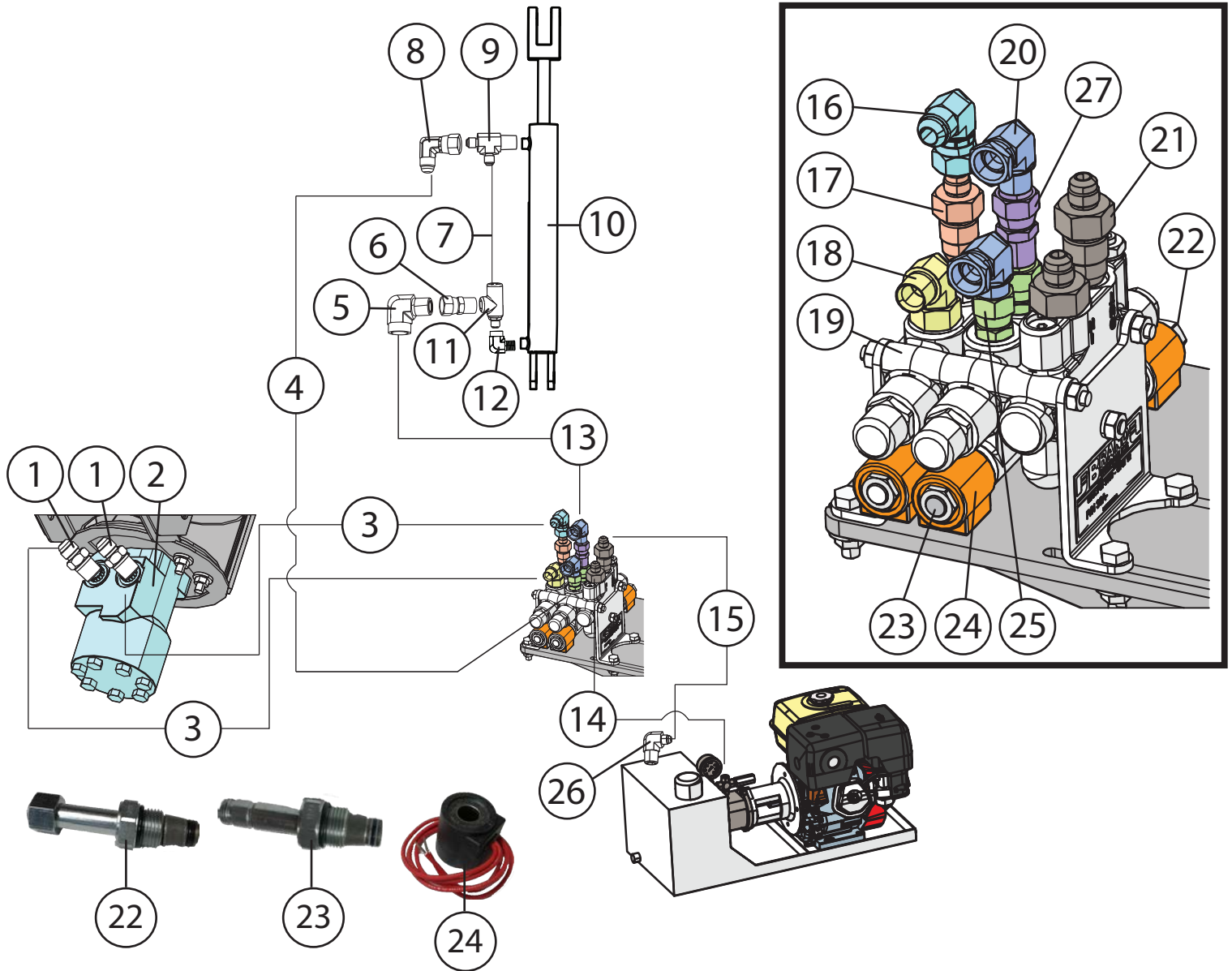
	Description	Part No.
1	Breakaway Switch with Cable (BAS-1)	JM0001843
2	Square Gooseneck Coupler Tube 30,000 LB CAP	JM0007076
3	12,500 Lb Safety Chain (SCST375)	JM0015061
4	Gooseneck Frame Weldment for Seed Tenders Less than 500 Seed Units	JM0029497
5	ST Cover Plate (4-11/16" x 7-1/2" x 4-3/4")	JM0034699
6	Jack Brace for ST Gooseneck	JM0034697
7	Gooseneck Manual Jack with Custom Mounting Plate (10,000#)	JM0007078
8	5/8"-11 x 2" Gr8 Z Hex Bolt	JM0001771
9	5/8"-11 Gr2 Z Centerlock Hex Nut	JM0002146
10	3/8"-16 Gr5 Z SF Hex Nut	JM0002152
11	3/8"-16 x 3/4" Gr5 Z SF Hex Bolt	JM0001750
12	Jack Crank Extension Tube	JM0014132
13	Jack Coupler	JM0029606
14	3/8"-16 x 2-1/2" Gr5 Z Hex Bolt	JM0001647
15	3/8" x 2-1/2" Wire Lock Pin (38212WLP)	JM0014929
16	3/8"-16 x 1-1/2" Gr5 Z Hex Bolt	JM0001659
17	Square U-bolt 4-1/8" Inside Width x 6" Length, 5/8"-11TH	JM0014190
18	5/8"-11 x 1-1/2" Gr5 Z Hex Bolt	JM0002103
19	1/4"-20 Gr5 Z SF Hex Nut	JM0001630
20	Jack Crank Locator	JM0025756
21	1/4"-20 x 1-1/4" Gr5 Z SF Hex Bolt	JM0001646
22	3/8"-16 Gr2 Z Centerlock Hex Nut	JM0001512
23	Gooseneck Jack Handle	JM0007061

Hydraulic Jack



	Description	Part No.
1	WR Series Hydraulic Motor with Keyway and Pinhole (15100F30N6AAAAA)	JM0010469
1	Seal Kit for 15100F30N6AAAAA WR Series Hydraulic Motor	JM0042773
2	1/2" Male JIC x 1/2" Male NPT; Straight	JM0015201
3	3/8" Shoulder Dia x 1-3/4" Shoulder Length x 5/16"-18 Socket Shoulder Bolt	JM0033449
4	3/8" x 2-1/2" Wire Lock Pin (38212WLP)	JM0014929
5	Square U-bolt 4-1/8" Inside Width x 6" Length, 5/8"-11TH	JM0014190
6	5/8"-11 x 2" Gr8 Z Hex Bolt	JM0001771
7	Gooseneck Manual Jack with Custom Mounting Plate (10,000#)	JM0007078
8	5/8"-11 x 5" Gr5 Z Hex Bolt	JM0016682
9	Hydraulic Jack Motor Coupler	JM0026086
10	5/16"-18 Gr2 Z Centerlock Hex Nut	JM0002143
11	ST Cover Plate (4-11/16" x 7-1/2" x 4-3/4")	JM0034699
12	Jack Brace for ST Gooseneck	JM0034697
13	3/8"-16 Gr5 Z SF Hex Nut	JM0002152
14	3/8"-16 x 3/4" Gr5 Z SF Hex Bolt	JM0001750
15	5/8"-11 Gr2 Z Centerlock Hex Nut	JM0002146
16	ST A-Frame Hydraulic Jack Mount Plate	JM0028546
17	ST A-Frame Hydraulic Jack Mount Weldment	JM0028541
18	1/4"-20 Gr2 Z Centerlock Hex Nut	JM0001505
19	Brand Hydraulics Monoblock Hand Valve with Power Beyond	JM0037802
20	1/2" Male JIC x 3/4" Male O-ring; 90 Degree Elbow	JM0039216
21	1/2" Male JIC x 5/8" Male O-ring; 90 Degree Elbow	JM0039215
22	1/4"-20 x 2-1/2" Gr5 Z Hex Bolt	JM0001506

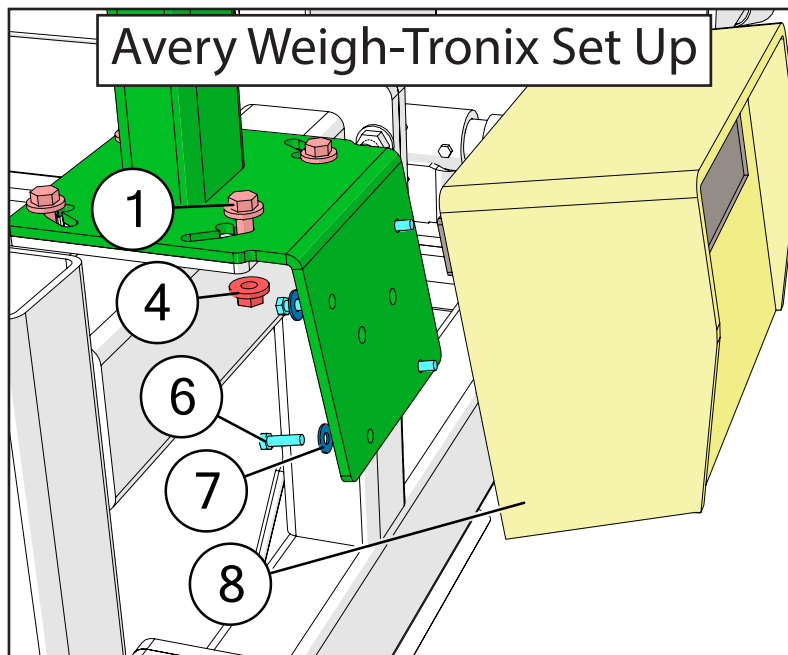
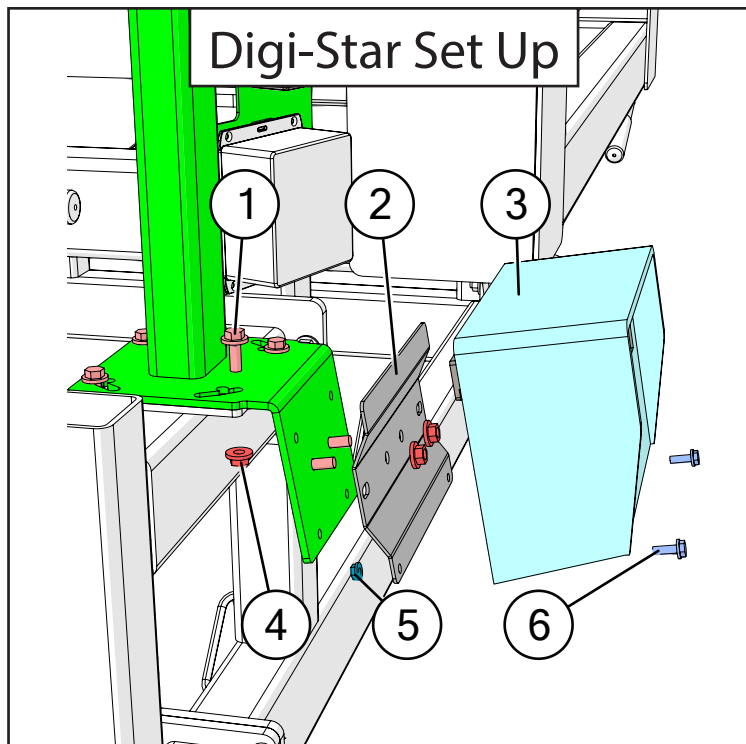
Hydraulics Schematic



Hydraulic Schematic

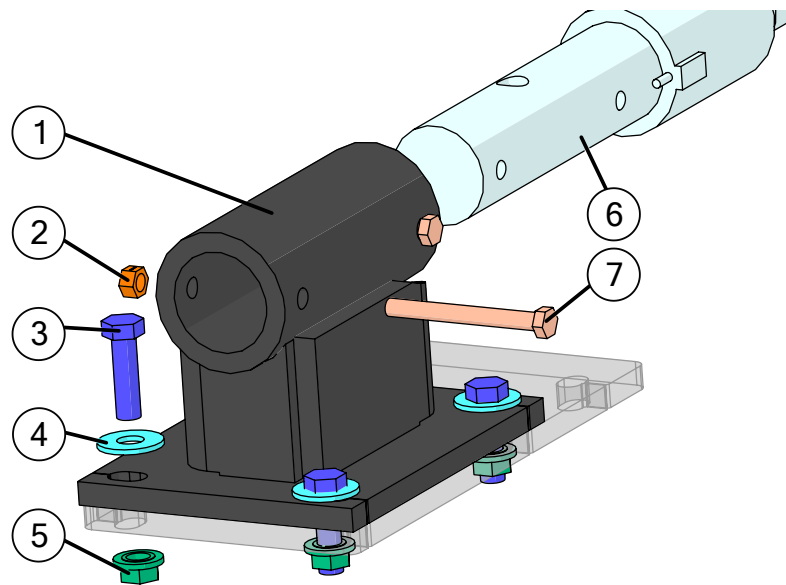
	Description	Part No.
1	1/2" Male JIC x 1/2" Male NPT; Straight	JM0015201
2	WR Series Hydraulic Motor with Keyway and Pinhole (15100F30N6AAAAA)	JM0010469
2	Seal Kit for 15100F30N6AAAAA WR Series Hydraulic Motor	JM0042773
3	1/2" x 91" Hydraulic Hose 91inch8M3k-8G-8FJX-8G-8FJX	JM0025346
4	1/4" x 170" Hydraulic Hose 170inch4M3k-4G-6MP-4G-6MPX	JM0025342
5	3/8" Male NPT x 3/8" Female NPT; 90 Degree Elbow	JM0030059
6	3/8" Male x 3/8" Female Swivel; Straight .032 Orifice	JM0019899
7	1/4" x 12" Hydraulic Hose 12inch4M3k-4G-4MP-4G-6FJX	JM0010282
8	3/8" Male JIC x 3/8" Female JIC Swivel; 90 Degree Elbow	JM0010295
9	3/8" Male JIC x 1/2" Male NPT x 3/8" Male JIC; Tee	JM0010291
10	2" x 12" Hydraulic Cylinder with 1-1/8" Shaft	JM0025341
11	PC-37 Check Valve	JM0018233
12	3/8" Female NPT x 1/2" Male NPT; 90 Degree Elbow	JM0010292
13	1/4" x 158" Hydraulic Hose 158inch4M3k-4G-6MP-4G-6MPX	JM0025343
14	1/2" x 30" Hydraulic Hose 30inch8M3k-8G-6MPX-8G-8FJX	JM0025344
15	1/2" x 34" Hydraulic Hose 34inch8M3k-8G-8FJX-8G-8FJX	JM0025347
16	1/2" Male JIC x 1/2" Female JIC Swivel; 90 Degree Elbow (6500-08-08)	JM0010296
17	1/2" Male JIC x 1/2" Male O-ring; Straight	JM0010293
18	1/2" Male JIC x 1/2" Male O-ring; 90 Degree Elbow	JM0010297
19	2 Spool Valve Body	JM0001829
20	3/8" Male NPT x 3/8" Female NPT Swivel; 90 Degree Elbow with .062 Orifice	JM0010299
21	1/2" Male JIC X 5/8" Male O-ring; Straight	JM0010294
22	Brand Valve Large Cartridge (SV08-21) 3-1/4" Length	JM0020840
23	Brand Valve Small Cartridge (SV08-24) 3" Length	JM0020841
24	Replacement Solenoid Sleeve (6302012) (SL-2)	JM0037164
25	1/2" Male O-ring x 3/8" Female NPT Swivel; Straight	JM0010298
26	1/2" Male JIC x 3/4" Male NPT; 90 Degree Elbow	JM0033775
27	3/8" Male NPT x 3/8" Female NPT Swivel; Straight	JM0010288

Scale Display Mount



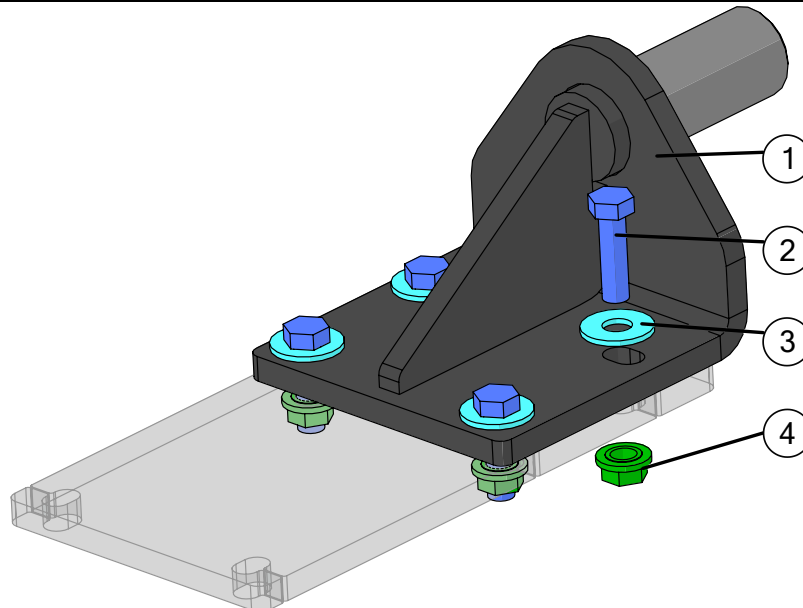
Description	Part No.
1 3/8"-16 x 1" Gr5 Z SF Hex Bolt	JM0002092
2 GT 560 Scale Monitor Display Bracket	JM0046976
3 Digi-Star ST3400 Display Indicator	JM0031958
4 3/8"-16 Gr5 Z SF Hex Nut	JM0002152
5 1/4"-20 Gr5 Z SF Hex Nut	JM0001630
6 1/4"-20 x 3/4" Gr5 Z Hex Bolt	JM0001507
7 1/4" ID, 3/4" OD Z Flat Washer	JM0003090
8 Avery Weigh-Tronix 640XL Indicator (640XLI)	JM0007293

Scale Bar Mount



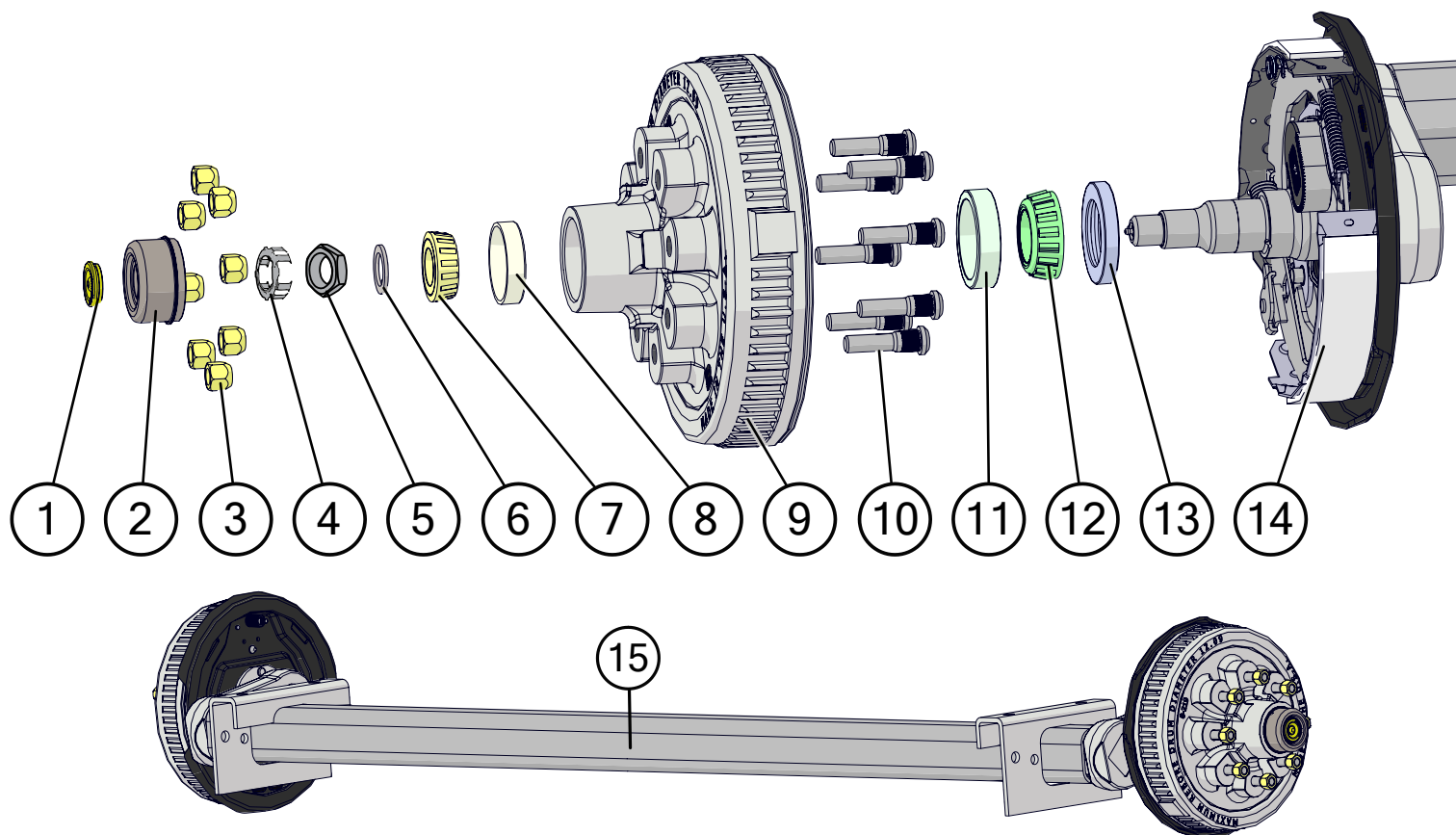
	Description	Part No.
1	Seed Tender Scale Mount Weldment (SMST4W)	JM0009966
2	3/8"-16 Gr2 Z Centerlock Hex Nut	JM0001512
3	1/2"-13 x 1-3/4" Gr5 Z Hex Bolt	JM0002101
4	1/2" ID, 1-3/8" OD Z Flat Washer	JM0003082
5	1/2"-13 Gr5 Z SF Hex Nut	JM0002153
6	Avery Weigh-Tronix 2-1/8" Weigh Bar (WB218)	JM0002797
7	3/8"-16 x 3-1/2" Gr5 Z Hex Bolt	JM0001986

Non-Scale Bar Mount



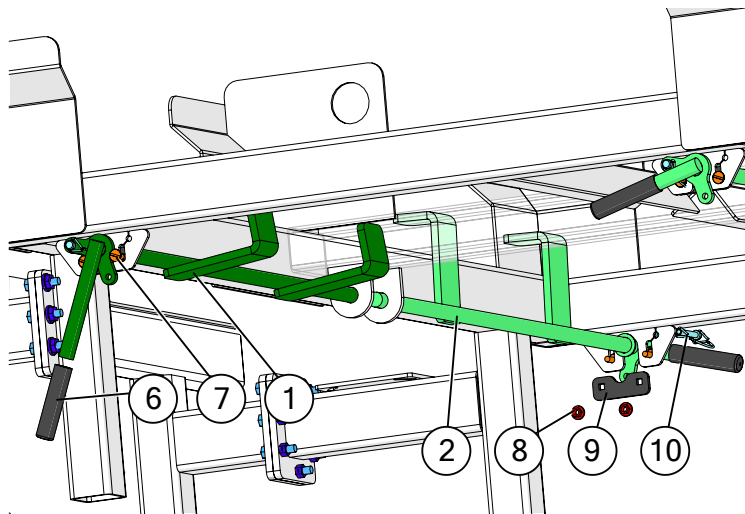
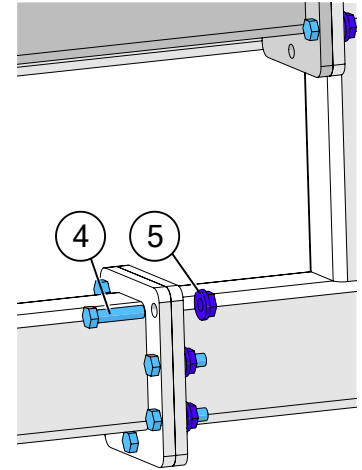
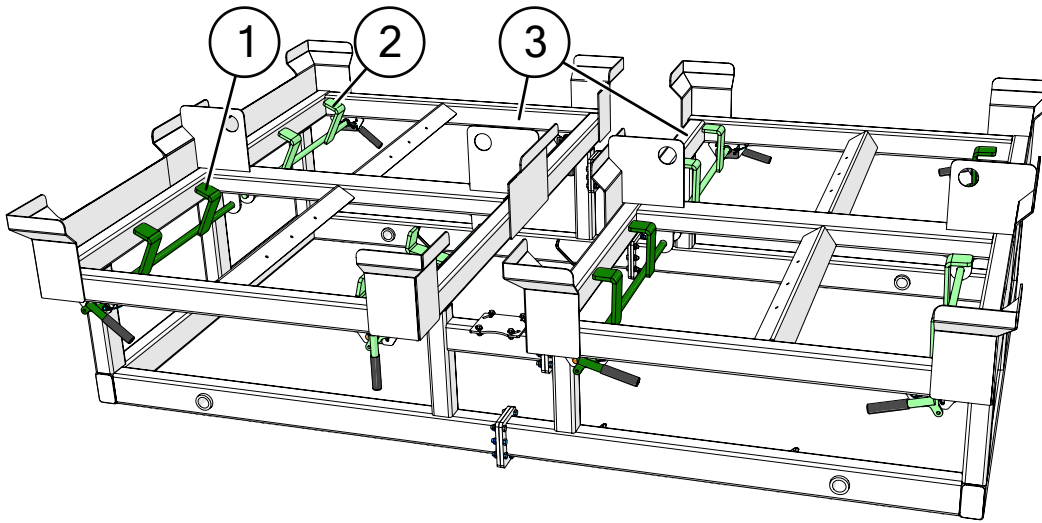
	Description	Part No.
1	Seed Tender Non-Scale Weldment	JM0002514
2	1/2"-13 x 1-3/4" Gr5 Z Hex Bolt	JM0002101
3	1/2" USS Flat Washer	JM0003082
4	1/2"-13 Gr5 Z SF Hex Nut	JM0002153

Brakes and Hub Assembly



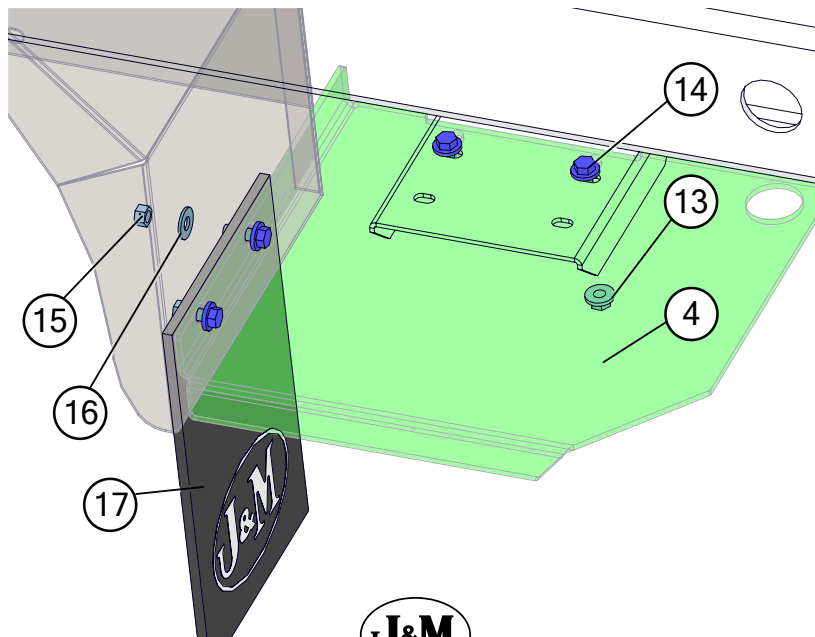
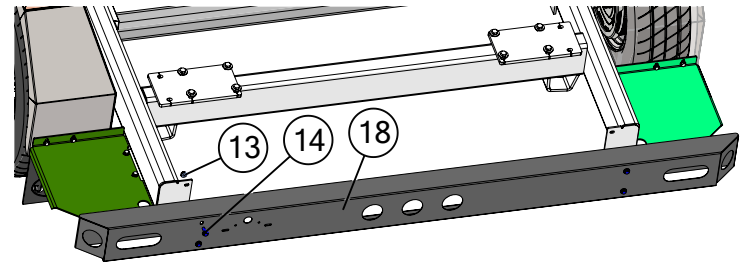
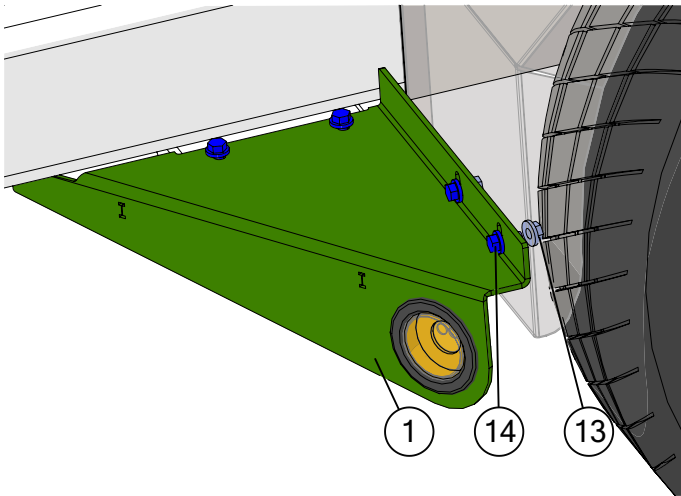
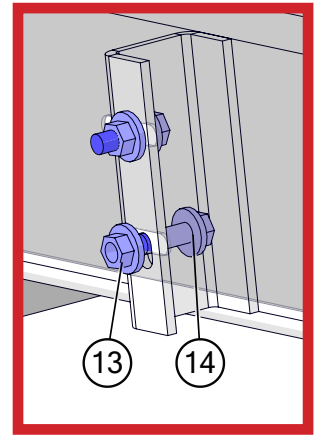
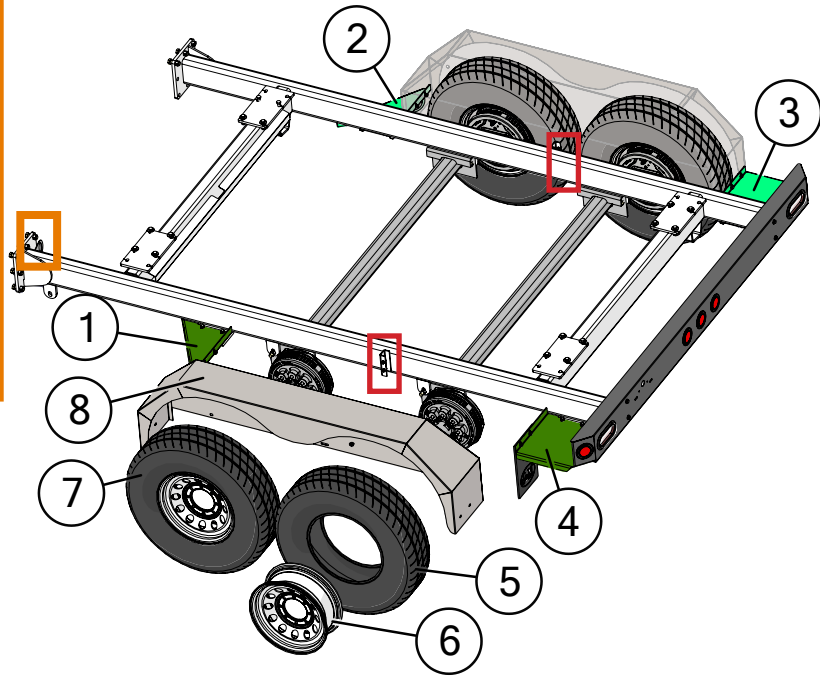
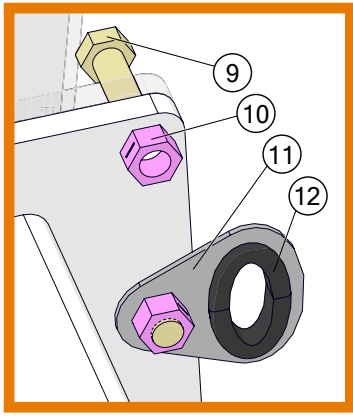
	Description	Part No.
1	Rubber Plug for Dust Cap	JM0039538
2	Dust Cap for EZ Grease (7,000lb)	JM0035957
2	Aluminum Wheel Dust Cap	JM0049437
3	9/16"-18 Conical Lugnut (4WS) (ST)	JM0008525
3	9/16 RH 7/8 Hex 2.40 XL (Lug Nut to Aluminum Wheel)	JM0044721
4	Spring Steel Retaining Clip	JM0051458
5	Special 1" Jam Nut for 5.2k, 7k Axles	JM0035955
6	D Washer (1" ID)	JM0039578
7	14125A Roller Bearing	JM0039542
8	Bearing Cup for Superior Gearbox (14-20") (414276)	JM0025077
9	7K Hub-Drum with Studs, Nuts and Races	JM0041461
10	Stud 9/16"-18 x 2-13/16"	JM0020625
11	Cup, Large Inner, 12 Ton, 25520	JM0018102
12	Tapered Bearing Cone 25580, 12 Ton	JM0018104
13	2-1/4" ID Grease Seal 10-36	JM0035951
14	RH Brake Assembly Complete for SpeedTender (ST375RAC)	JM0035974
14	LH Brake Assembly Complete for SpeedTender (ST375LAC)	JM0035973
15	7,000 lb. Axle with Brakes	JM0001957

Frame



	Description	Part No.
1	Left Lock Weldment (SpeedTender Pro)	JM0020480
2	Right Lock Weldment (SpeedTender Pro)	JM0020479
3	SpeedTender Pro Large Frame Box Support Weldment	JM0020035
4	1/2"-13 x 1-3/4" Gr5 Z Hex Bolt	JM0002101
5	1/2"-13 Gr5 Z SF Hex Nut	JM0002153
6	1" ID x 6" Black Slide on Round Grip (6BSR)	JM0024290
7	3/8"-16 x 1" Gr5 Z Carriage Bolt	JM0001632
8	3/8"-16 Gr5 Z SF Hex Nut	JM0002152
9	SpeedTender Pro Lock Down Bolt-on Plate	JM0020505
10	3/8" x 2-1/2" Wire Lock Pin (38212WLP)	JM0014929

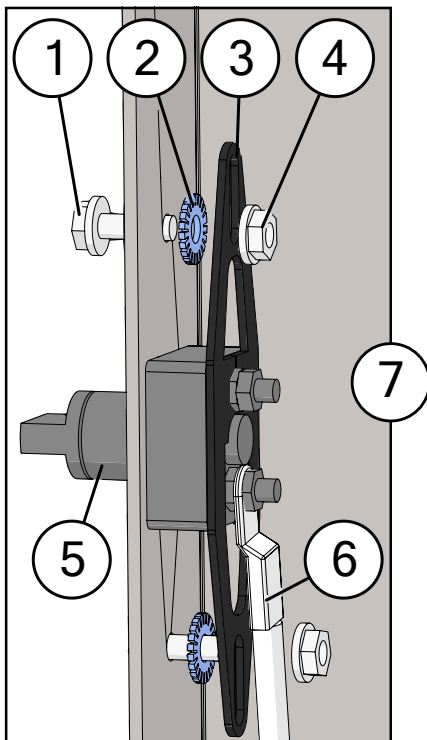
Chassis



Chassis

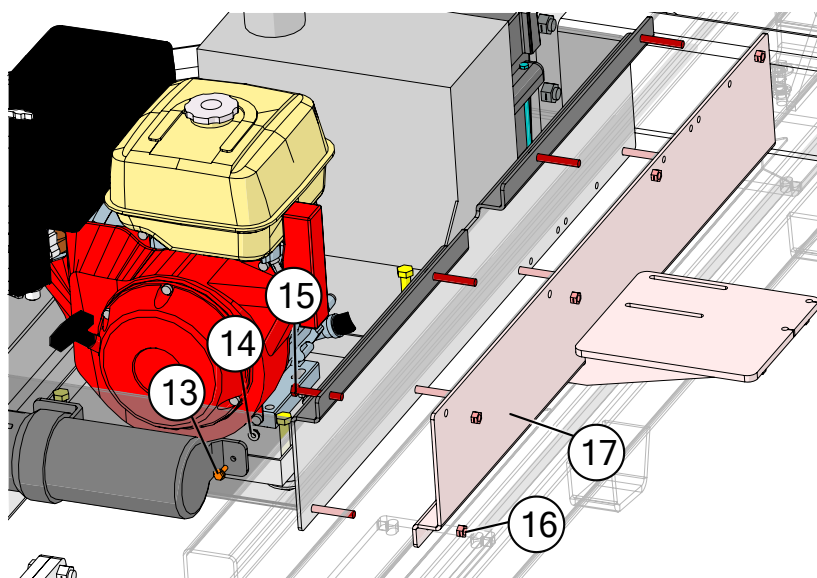
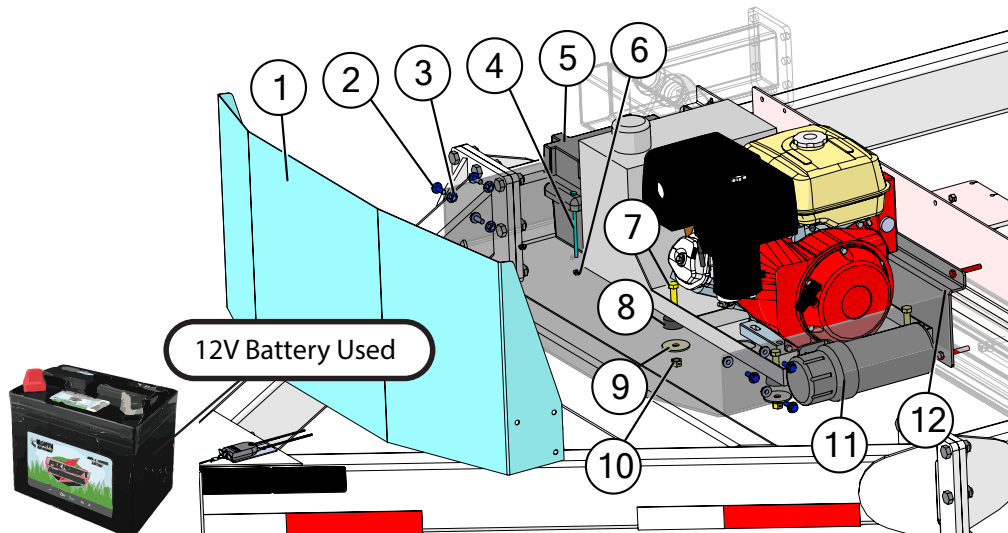
	Description	Part No.
1	Front Driver Side Fender Mount (SpeedTender)	JM0002339
2	Front Passenger Side Fender Mount (SpeedTender)	JM0002336
3	Rear Passenger Side Fender Mount (SpeedTender)	JM0002490
4	Rear Driver Side Fender Mount (SpeedTender)	JM0002491
5	235-85-R16 Load Range E Tire	JM0003232
6	Wheel Rim, 8 Hole, 16" x 6" (16x6-8)	JM0003233
6	Aluminum Wheel Rim, 8 Hole, 16" x 6" (16x6-8)	JM0049426
7	Wheel & Tire (235-85-R16 Load Range E Tire and 16x6-8 Hole Wheel Rim)	JM0009977
7	Wheel & Tire (235-85-R16 Load Range E Tire and 16x6-8 Hole Aluminum Wheel Rim)	JM0049427
8	Two Wheel Diamond Plate Fender Weldment (71")	JM0005874
9	5/8"-11 x 2" Gr8 Z Hex Bolt	JM0001771
10	5/8"-11 Gr2 Z Centerlock Hex Nut	JM0002146
11	Wiring Hanger Tab (Seed Tender Chassis)	JM0002346
12	1-3/4" x 1/4" Oval Grommet (Seed Tender)	JM0007124
13	3/8"-16 Gr5 Z SF Hex Nut	JM0002152
14	3/8"-16 x 1" Gr8 Z SF Hex Bolt	JM0001509
15	3/8"-16 Gr2 Z Centerlock Hex Nut	JM0001512
16	3/8" ID, 1" OD Z Flat Washer	JM0003061
17	J&M Mud Flap	JM0001910
18	SpeedTender Pro Bumper	JM0020862

Battery Disconnect



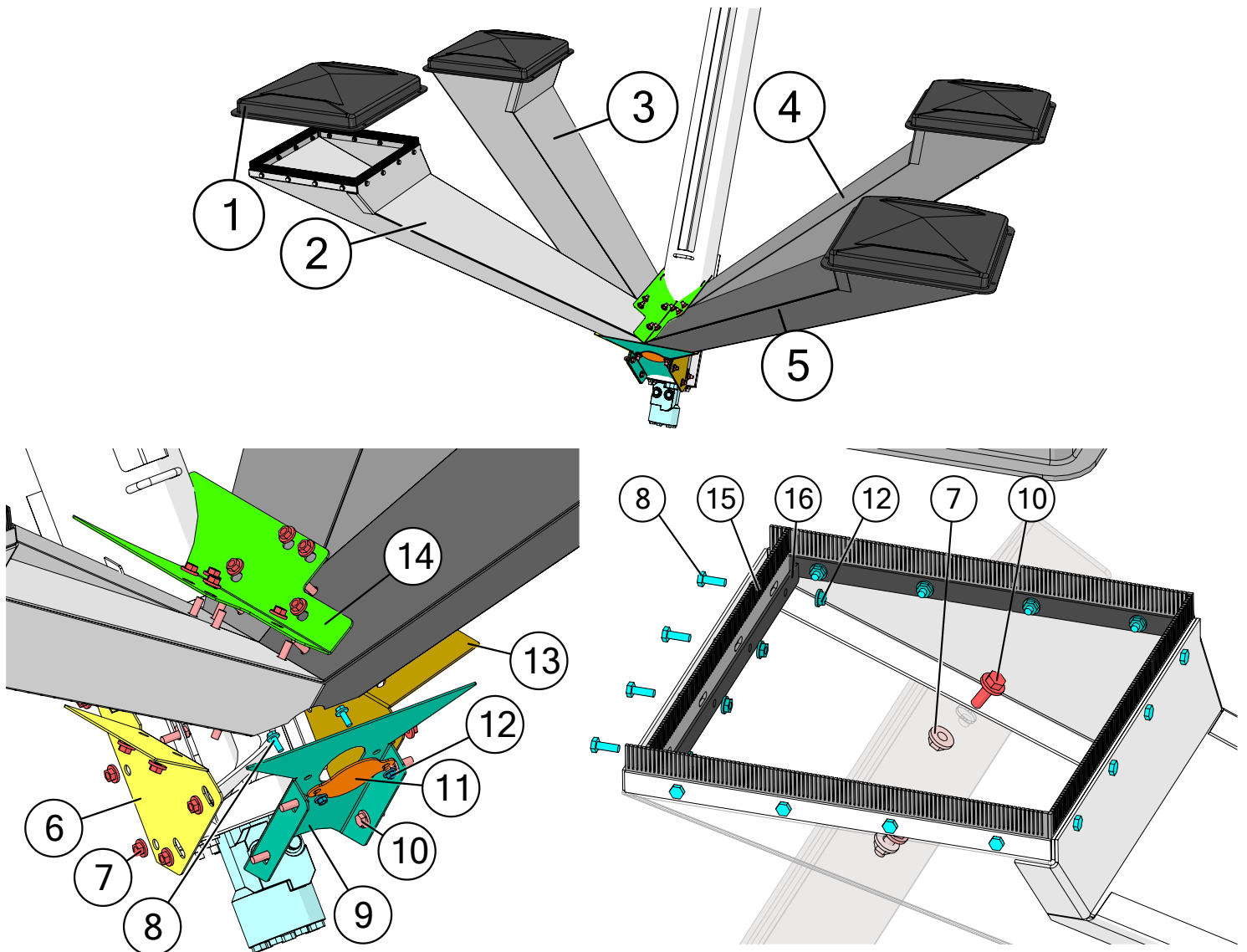
	Description	Part No.
1	1/4"-20 x 3/4" Gr5 Z SF Hex Bolt	JM0001642
2	1/4" Lock Washer	JM0055054
3	Battery Disconnect Switch Mount	JM0053797
4	1/4"-20 Gr5 Z SF Hex Nut	JM0001630
5	Battery Disconnect Switch	JM0053441
6	Battery Disconnect Cable (96")	JM0054583
7	Complete Battery Disconnect Assembly	JM0054599

Motor Mount



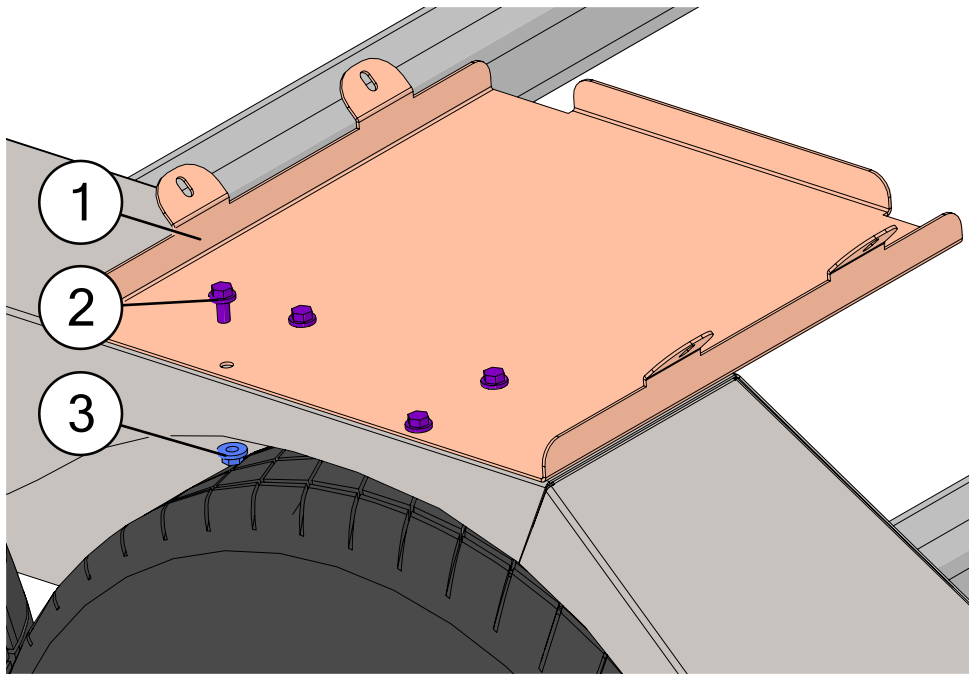
	Description	Part No.
1	Engine Cover (Seed Tender) (ECST375)	JM0000327
2	3/8"-16 x 1" Gr5 Z SF Hex Bolt	JM0002092
3	3/8"-16 Gr5 Z SF Hex Nut	JM0002152
4	1/4"-20 x 6" Gr5 Z Hex Bolt	JM0049441
5	Battery Box (SpeedTender)	JM0001846
6	1/4"-20 Gr2 Z Centerlock Hex Nut	JM0001505
7	1/2"-13 x 2" Gr8 Z Hex Bolt	JM0001620
8	Neoprene Vibration Damping Mount with 5/8" Diameter Hole	JM0001869
9	1/2" ID, 1-3/8" OD Z Flat Washer	JM0003082
10	1/2"-13 Gr2 Z Centerlock Hex Nut	JM0001511
11	Manual Canister 4-1/4" Diameter	JM0025266
12	Bolt on Motor Mount Plate Weldment	JM0020889
13	1/4"-20 x 3/4" Gr5 Z SF Hex Bolt	JM0001642
14	1/4"-20 Gr5 Z Flange Nut	JM0001499
15	3/8"-16 x 2-1/2" Gr5 Z Hex Bolt	JM0001647
16	3/8"-16 Gr2 Z Centerlock Hex Nut	JM0001512
17	Motor and Valve Mount Weldment	JM0025209

Chutes



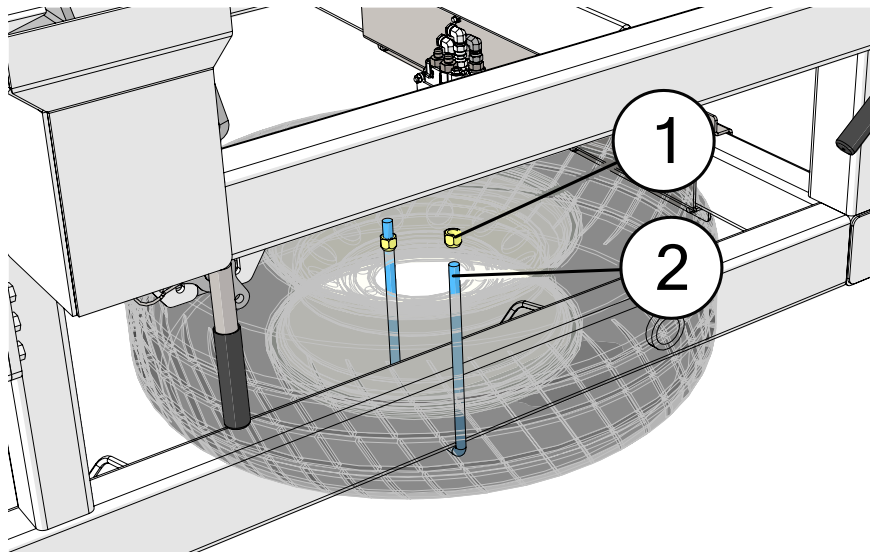
Description	Part No.
1 SpeedTender Pro Plastic Lid	JM0025520
2 SpeedTender Pro Rear Passenger Side Chute	JM0031795
3 SpeedTender Pro Rear Driver Side Chute	JM0031799
4 SpeedTender Pro Front Driver Side Chute	JM0031813
5 SpeedTender Pro Front Passenger Side Chute	JM0031817
6 Hopper Side Panel - Back	JM0022277
7 3/8"-16 Gr5 Z SF Hex Nut	JM0002152
8 1/4"-20 x 3/4" Gr5 Z Hex Bolt	JM0001507
9 Bolt-On Hopper Cover (450)	JM0022278
10 3/8"-16 x 1" Gr5 Z SF Hex Bolt	JM0002092
11 Talc Hole Cover	JM0024959
12 1/4"-20 Gr5 Z SF Hex Nut	JM0001630
13 Hopper Side Panels - Front	JM0031850
14 Center Bolt Plate	JM0022318
15 1/8" Rubber Brush for SpeedTender Pro Chute	JM0027580
16 Top Inside Ring for Chute (SpeedTender Pro)	JM0027579

Chute Lid Holder



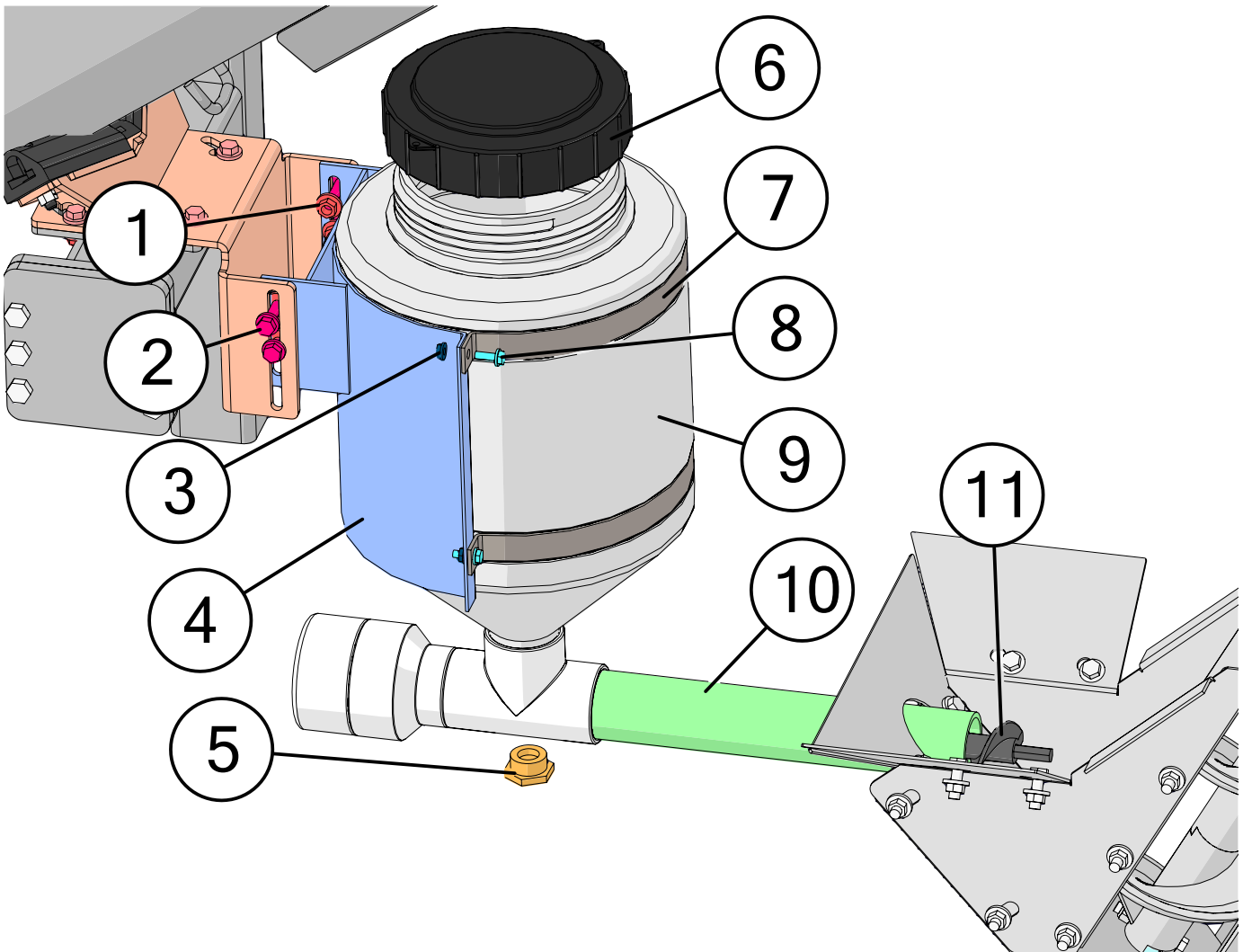
	Description	Part No.
1	Chute Lid Holder	JM0029170
2	3/8"-16 x 3/4" Gr5 Z SF Hex Bolt	JM0001750
3	3/8"-16 Gr5 Z SF Hex Nut	JM0002152

Spare Tire Mount



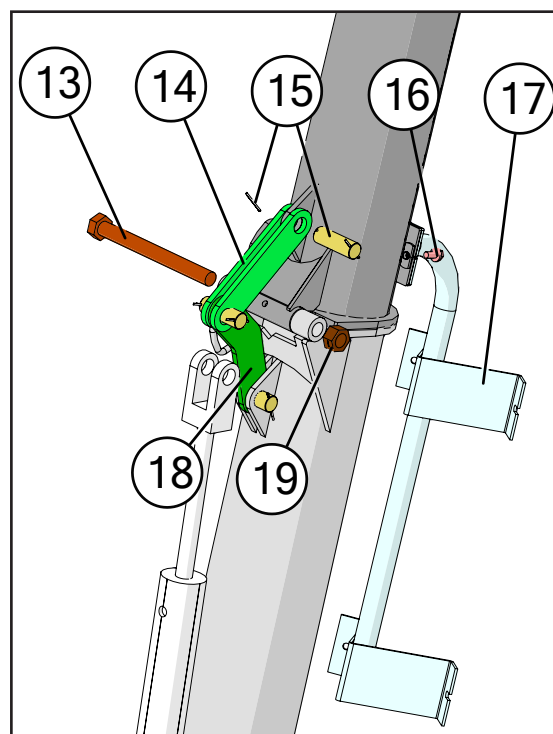
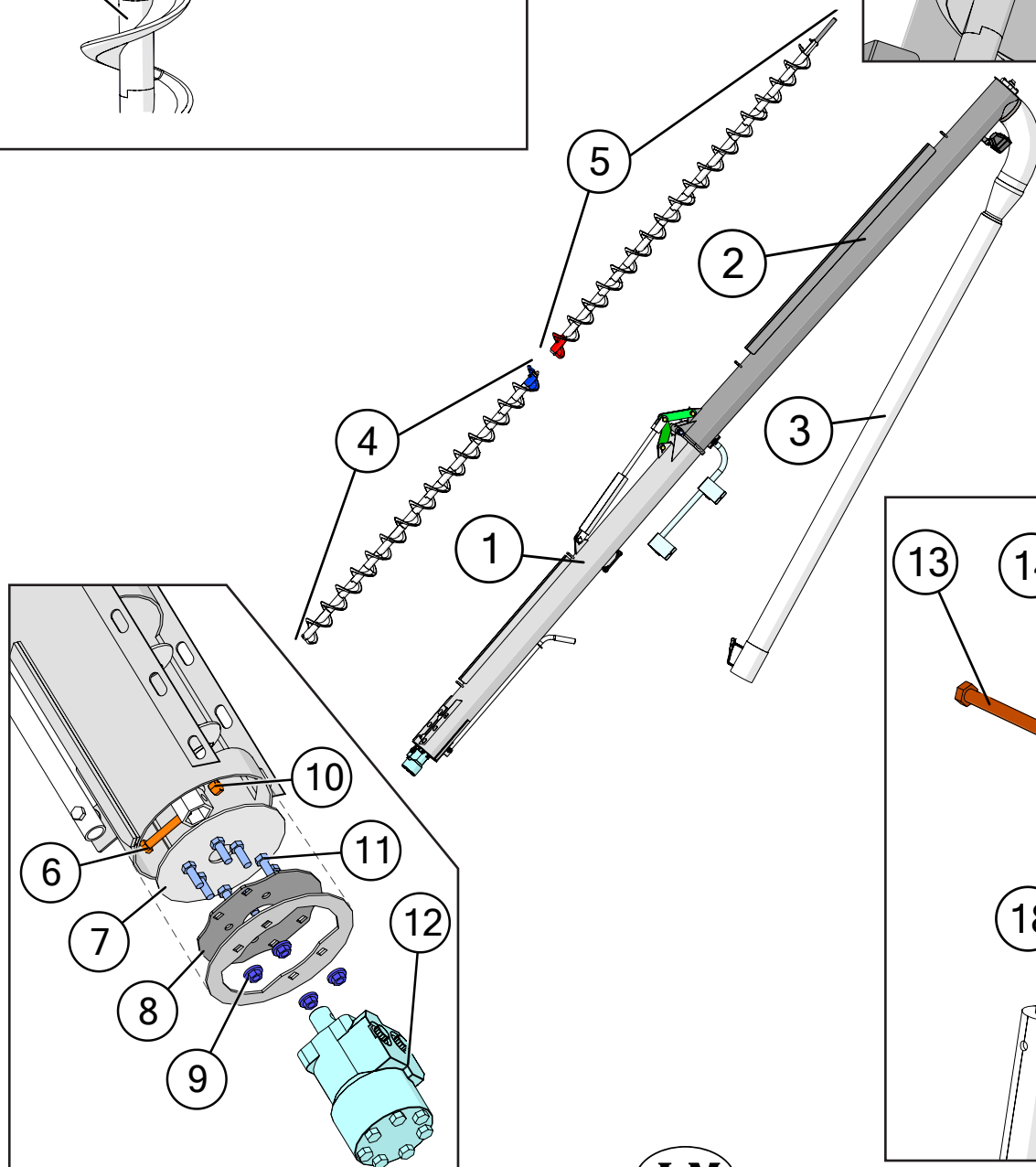
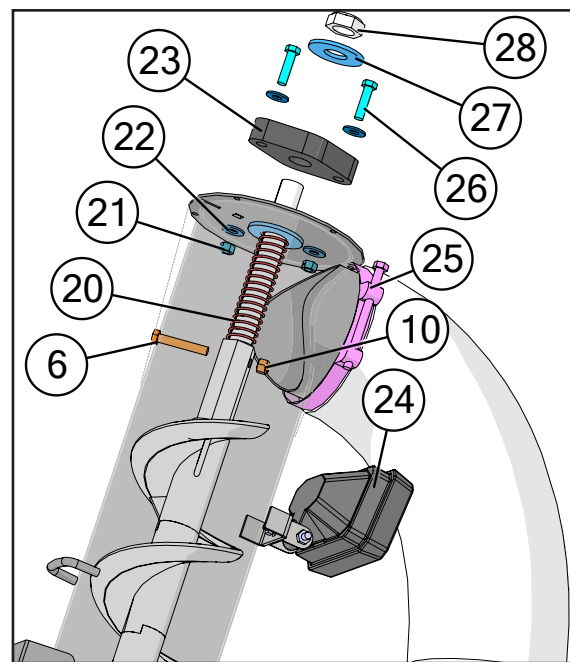
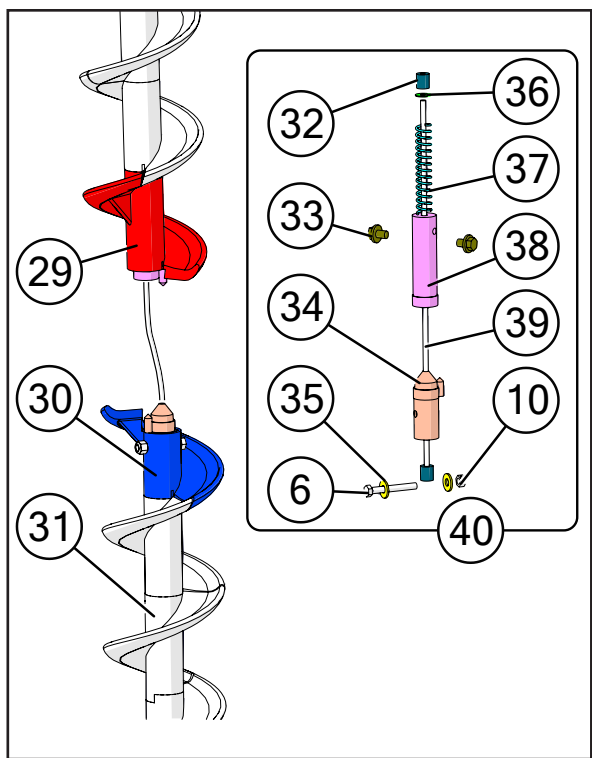
	Description	Part No.
1	9/16"-18 Conical Lugnut (4WS) (ST)	JM0008525
2	9/16"-18 x 5-15/16" x 11-1/2" Square U-Bolt	JM0024203

Talc Applicator



	Description	Part No.
1	3/8"-16 Gr5 Z SF Hex Nut	JM0002152
2	3/8"-16 x 1-1/2" Gr5 Z SF Hex Bolt	JM0001633
3	1/4"-20 Gr5 Z SF Hex Nut	JM0001630
4	Talc Saddle SpeedTender Pro (Lundell)	JM0022323
5	Talc Hole Cap Cleanout Port	JM0030546
6	Lid for Talc on SpeedTender Pro (Lundell)	JM0018071
7	Talc Tank Strap for SpeedTender Pro (Lundell)	JM0028905
8	1/4"-20 x 3/4" Gr5 Z SF Hex Bolt	JM0001642
9	Talc Applicator Power Unit and Tank (No Variable Speed Dial)	JM0031246
10	2" x 16" PVC Pipe (SpeedTender Pro Talc)	JM0025294
11	18" Auger (Pro Box Talc Applicator)	JM0029765

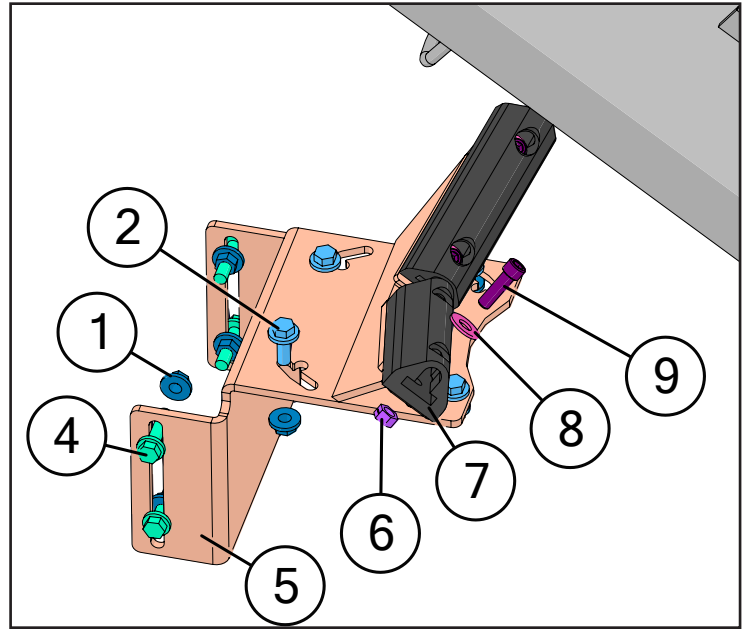
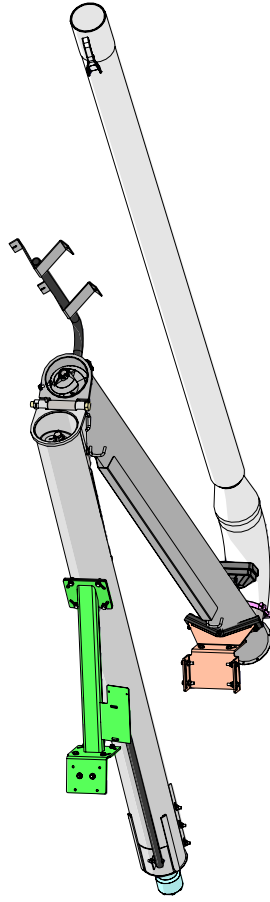
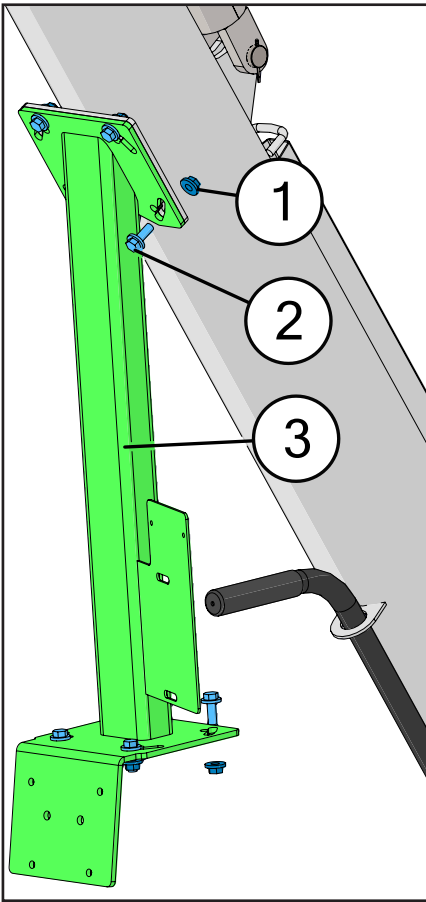
Auger Assembly



Auger Assembly

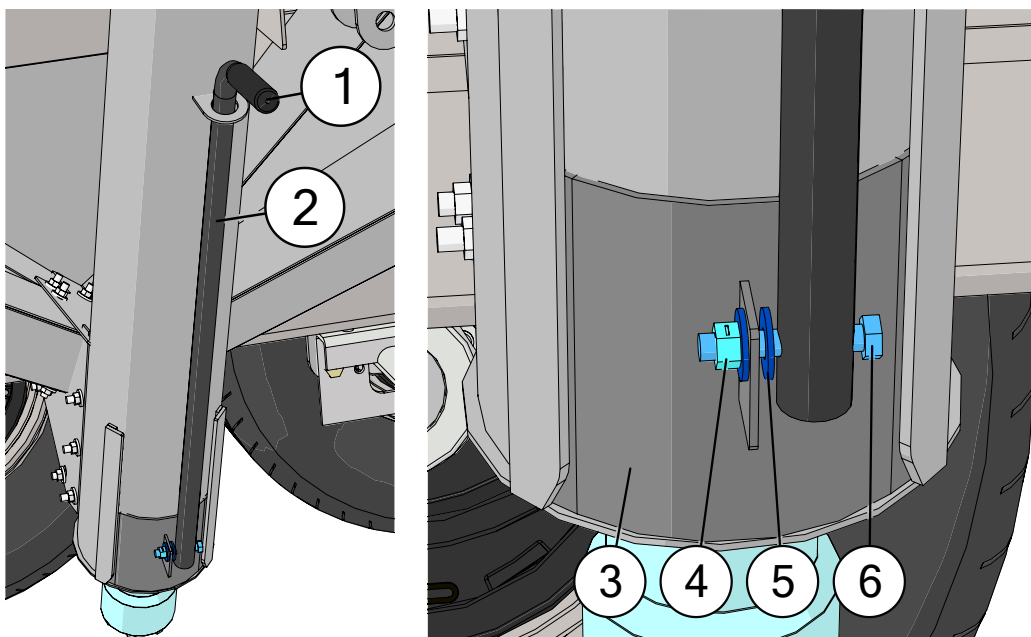
	Description	Part No.
1	SpeedTender Pro Bottom Tube Weldment	JM0031773
2	SpeedTender Pro Auger Top Weldment	JM0031771
3	19' Telescoping Spout (6" Diameter)	JM0021785
4	SpeedTender Pro Lower Auger Assembly	JM0018343
5	SpeedTender Pro Upper Auger Assembly	JM0018344
6	5/16"-18 x 2-1/2" Gr5 Z Hex Bolt	JM0028310
7	Auger Washer (SpeedTender Pro)	JM0028342
8	Auger Motor Bolt Plate (SpeedTender Pro)	JM0018154
9	3/8"-16 Gr5 Z SF Hex Nut	JM0002152
10	5/16"-18 Gr2 Z Centerlock Hex Nut	JM0002143
11	3/8"-16 x 1" Gr5 Z Hex Bolt	JM0001592
12	WR Series Hydraulic Motor with Keyway and Pinhole (15100F30N6AAAAA)	JM0010469
12	Seal Kit for 15100F30N6AAAAA WR Series Hydraulic Motor	JM0042773
13	7/8"-9 x 9" Gr8 Z Hex Bolt	JM0024283
14	Upper Linkage Bar (SpeedTender Pro)	JM0019805
15	1" x 3" Clevis Pin with Cotter Pins	JM0019407
16	3/8"-16 x 3/4" Gr5 Z Hex Bolt	JM0001663
17	SpeedTender Pro Auger Down Spout Clamp Weldment	JM0020580
18	Lower Linkage Bar for SpeedTender Pro (1" Holes, 5-11/16" Between Holes)	JM0016510
19	7/8"-9 Gr2 Z Centerlock Hex Nut	JM0002148
20	1-1/8" ID, 3/32" Diameter Wire, 6" Long Compression Spring	JM0032536
21	3/8"-16 Gr2 Z Centerlock Hex Nut	JM0001512
22	3/8" ID, 1" OD Z Flat Washer	JM0003061
23	UHMW Black UV Bearing - SpeedTender Pro	JM0029438
24	LED Field Light with Weather Pack Connectors (SpeedTender, NitroGro)	JM0050942
25	6" Diameter Spout Clamp (HC-6)	JM0028349
26	3/8"-16 x 1-1/2" Gr5 Z Hex Bolt	JM0001659
27	1" USS Flat Washer	JM0003063
28	1"-8 Gr5 Z Nylon Locking Hex Jam Nut	JM0032539
29	6" x 5-1/2" Cupped Plastic Flighting with Brace - Bottom of Top	JM0032529
30	6" x 5-1/2" Cupped Plastic Flighting with Brace - Top of Bottom	JM0032530
31	6" x 5-1/2" Cupped Plastic Flighting Section	JM0018339
32	Aluminum Stop for 1/4" Cable	JM0040145
33	3/8"-16 x 1/2" Gr5 Z SF Hex Bolt	JM0040150
34	Bullet Nose Bottom (SpeedTender Pro)	JM0040140
35	5/16" USS Flat Washer (7/8" OD)	JM0001742
36	M6 Flat Washer	JM0019447
37	4-1/2" Compression Spring (CMSUAA-4)	JM0018559
38	Bullet Nose Top (SpeedTender Pro)	JM0040139
39	1/4" x 19" Cable (SpeedTender Pro)	JM0040143
40	SpeedTender Pro Auger Cable Complete Assembly	JM0040147
41	Pro Box Upper Auger Shaft, Spring & Bearing Assembly	JM0080198

Auger Prop and Rest



Description	Part No.
1 3/8"-16 Gr5 Z SF Hex Nut	JM0002152
2 3/8"-16 x 1" Gr5 Z SF Hex Bolt	JM0002092
3 Auger Brace Weldment	JM0020565
4 3/8"-16 x 1-1/2" Gr5 Z SF Hex Bolt	JM0001633
5 Auger Rest Weldment (SpeedTender Pro)	JM0027577
6 3/8"-16 Gr2 Z Centerlock Hex Nut	JM0001512
7 6" x 1-7/8" Auger Rest Triangle Pad	JM0037644
8 3/8" ID, 1" OD Z Flat Washer	JM0003061
9 3/8"-16 x 1-1/4" Socket Head Cap Screw	JM0047163

Cleanout Door



Description		Part No.
1	1" ID x 6" Black Slide on Round Grip (6BSR)	JM0024290
2	Clean Out Door Handle	JM0022273
3	Clean Out Door Weldment (SpeedTender Pro)	JM0030692
4	3/8"-16 Gr2 Z Centerlock Hex Nut	JM0001512
5	3/8" ID, 1" OD Z Flat Washer	JM0003061
6	3/8"-16 x 2" Gr5 Z Hex Bolt	JM0001510