



Bulk Seed Handling

Operators Manual

SEED RUNNER® 60 Series Bulk Tender

2760/2760XL

3760/3760XL

3960XL/3960DXL

4960DXL

Midnight Edition

Serial Number D73970100 & Higher

Part No. 2013344

Foreword

This symbol identifies important safety messages. When you see it, read the message that follows and be alert to the possibility of personal injury.

Remember, safety instructions stated in this manual are for your protection. Read them carefully and follow them closely when working around or using this machine.

Read and study this manual completely before attempting to operate this implement. Take this manual to the field for handy reference when operating, adjusting, or servicing your machine.

When referenced, “Right-Hand” (RH) and “Left-Hand” (LH) side of the machine are determined by standing behind the machine and facing in the direction of travel.



Product Information

When ordering parts or when requesting further information or assistance, always give the following information:

- Machine name
- Serial number

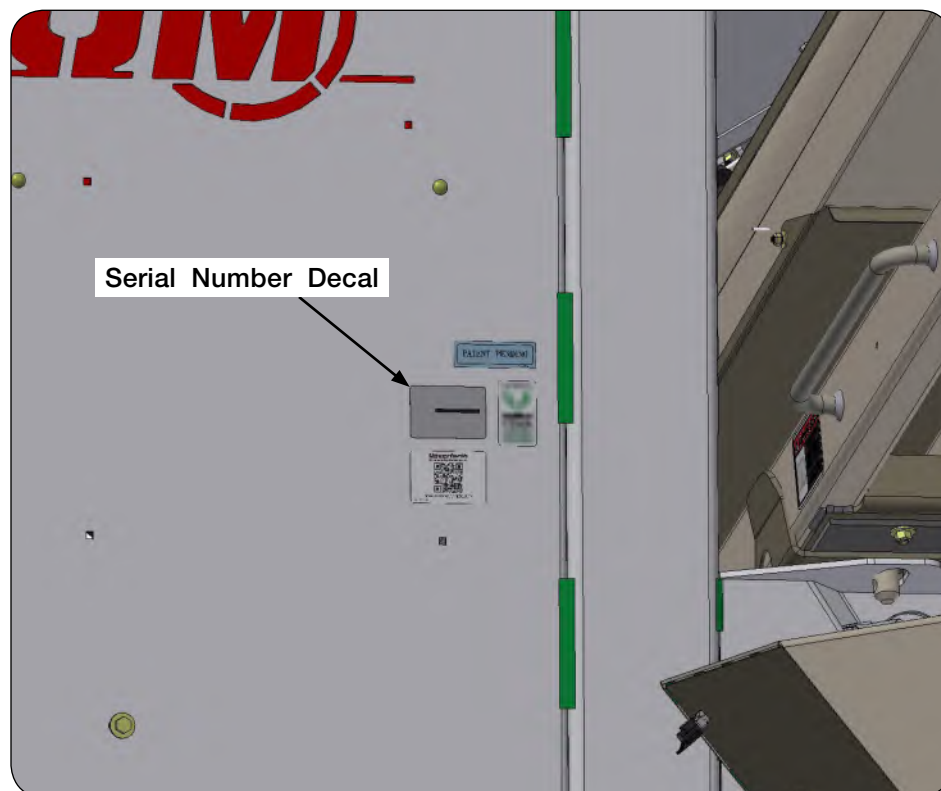
All products manufactured by Unverferth Mfg. Co., Inc. are warranted to be free from material and workmanship defects for one full year from time of consumer delivery. Your local dealer will gladly assist you with any warranty questions.

Please fill out and retain this portion for your records. The serial number plate is located on the frame as shown below.

Purchase Date _____ Model _____ Serial Number _____

Dealer _____ City _____

Dealer Contact _____ Phone _____



IMPORTANT

- *The information, specifications, and illustrations in the manual are on the basis of information available at the time it was written. Due to continuing improvements in the design and manufacture of Unverferth products, all specifications and information contained herein are subject to change without notice.*

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FOR HYDRAULIC TARP INFORMATION, PLEASE REFER TO YOUR HYDRAULIC TARP MANUAL.
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SECTION I

Safety

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General Hazard Information

No accident-prevention program can be successful without the wholehearted cooperation of the person who is directly responsible for the operation of the equipment.

A large number of accidents can be prevented only by the operator anticipating the result before the accident is caused and doing something about it. No power-driven equipment, whether it be transportation or processing, whether it be on the highway, in the field, or in the industrial plant, can be safer than the person who is at the controls. If accidents are to be prevented--and they can be prevented--it will be done by the operators who accept the full measure of their responsibility.

It is true that the designer, the manufacturer, and the safety engineer can help; and they will help, but their combined efforts can be wiped out by a single careless act of the operator.

It is said that, "the best kind of a safety device is a careful operator." We, at Unverferth Mfg. Co., Inc. ask that you be that kind of operator.



REMEMBER:
THINK SAFETY
A CAREFUL OPERATOR IS THE
BEST INSURANCE AGAINST AN
ACCIDENT!

SIGNAL WORDS



INDICATES AN EXTREMELY HAZARDOUS SITUATION OR ACTION THAT WILL RESULT IN SERIOUS INJURY OR DEATH.



INDICATES A HAZARDOUS SITUATION OR ACTION THAT COULD RESULT IN SERIOUS INJURY OR DEATH.



INDICATES AN UNSAFE SITUATION OR ACTION THAT MAY RESULT IN PERSONAL INJURY.

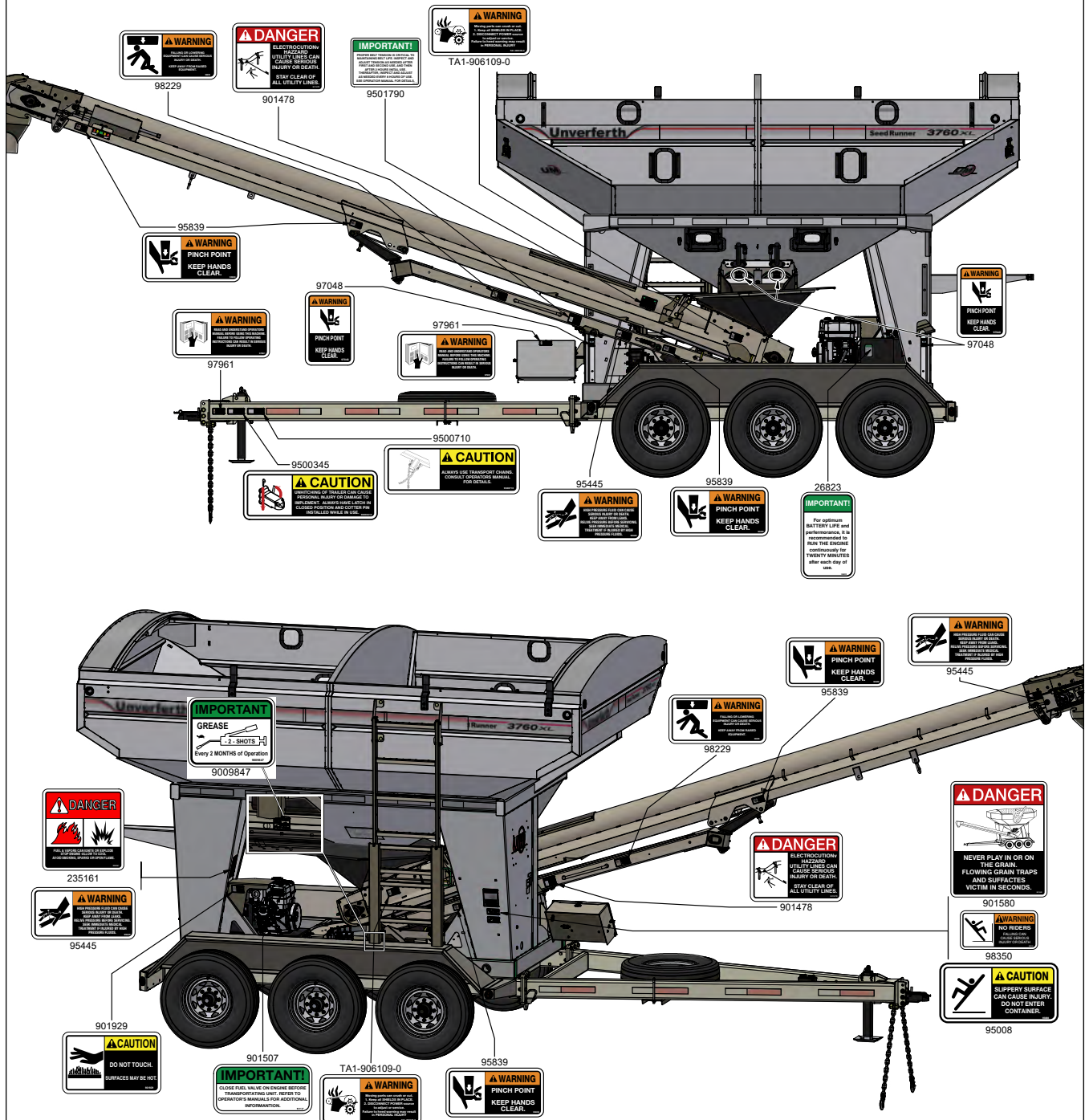


Is used for instruction on operating, adjusting, or servicing a machine.

Safety Decals

⚠ WARNING

- REPLACE LOST, DAMAGED, PAINTED, OR UNREADABLE DECALS IMMEDIATELY. IF PARTS THAT HAVE DECALS ARE REPLACED, ALSO MAKE SURE TO INSTALL NEW DECALS. THESE DECALS INFORM AND REMIND THE OPERATOR WITH OPERATIONAL INFORMATION AND SAFETY MESSAGES.



Following Safety Instructions

- Read and understand this operator's manual before operating. 
- All machinery should be operated only by trained and authorized personnel.
- To prevent machine damage, use only attachments and service parts approved by the manufacturer.
- Always shut power unit and towing vehicle engine off and remove keys before servicing the seed tender. 
- Avoid personal attire such as loose fitting clothing, shoestrings, drawstrings, pants cuffs, long hair, etc., that may become entangled in moving parts.
- Do not allow anyone to ride on the implement. Make sure everyone is clear before operating the machine or towing vehicle. 
- Never enter a seed tender containing grain. Flowing grain traps and suffocates victims in seconds.

Before Servicing or Operating

- Avoid working under an implement; however, if it becomes absolutely unavoidable, make sure the implement is safely blocked. 
- Ensure that all applicable safety decals are installed and legible.
- When working around the implement, be careful not to be cut by sharp edges.
- To prevent personal injury or death while servicing, always ensure that there are people who remain outside the Seed Tender to assist the person working inside, and that all safe workplace practices are followed. There is restricted mobility and limited exit paths when working inside the implement.
- Verify that all safety shields are in place and properly secured.
- Explosive separation of a tire and rim can cause serious injury or death. Only properly trained personnel should attempt to service a tire and wheel assembly.

During Operation

- Regulate speed to field conditions. Maintain complete control at all times.
- Never service or lubricate equipment when in operation.
- Keep away from overhead power lines. Electrical shock can cause serious injury or death.
- Use extreme care when operating close to ditches, fences, or on hillsides.
- Do not leave towing vehicle or Seed Tender unattended with engine running.
- Carbon monoxide can cause severe nausea, fainting or death. Do not operate engine in closed or confined 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.
- Seed being transported may contain seed treatment. Read and follow all requirements for personal protective equipment and first aid as outlined on seed tags.
- Explosive gas from the battery can cause fires and serious acid burns. Charge the battery only in a well ventilated area. Keep sources of ignition away.

Before Transporting

- Secure transport chains to towing vehicle before transporting. DO NOT transport without chains.
- Install transport locks before transporting.
- Check for proper function of all available transport lights. Make sure that all reflectors are clean and in place on machine. Make sure that the SMV emblem and SIS decal are visible to approaching traffic.

During Transport

- Comply with all laws governing highway safety when moving machinery.
- Use transport lights as required by all laws to adequately warn operators of other vehicles.
- Regulate speed to road conditions and maintain complete control.
- Maximum transport speed of this implement should never exceed 20 mph as indicated on the machine. Maximum transport speed of any combination of implements must not exceed the lowest specified speed of the implements in combination. Do not exceed 10 mph during off-highway travel.
- Do not transport unit with rear compartment full and front compartment empty. The unit may not be properly balanced, offsetting the trail ability of the implement.
- Slow down before making sharp turns to avoid tipping. Drive slowly over rough ground and side slopes.
- It is probable that this implement is taller, wider and longer than the towing vehicle. Become aware of and avoid all obstacles and hazards in the travel path of the equipment, such as power lines, ditches, etc.

Pressurized Oil

- Relieve the hydraulic system of all pressure before adjusting or servicing. See “Maintenance” section for procedure to relieve pressure.
- High-pressure fluids can penetrate the skin and cause serious injury or death. Leaks of high-pressure fluids may not be visible. Use cardboard or wood to detect leaks in the hydraulic system. Seek medical treatment immediately if injured by high-pressure fluids.
- Hydraulic system must be purged of air before operating to prevent serious injury or death.
- Do not bend or strike high-pressure lines. Do not install bent or damaged tubes or hoses.
- Repair all oil leaks. Leaks can cause fires, personal injury, and environmental damage.
- Route hoses and lines carefully to prevent premature failure due to kinking and rubbing against other parts. Make sure that all clamps, guards and shields are installed correctly.
- Check hydraulic hoses and tubes carefully. Replace components as necessary if any of the following conditions are found:
 - o End fittings damaged, displaced, or leaking.
 - o Outer covering chafed/cut or wire reinforcing exposed.
 - o Outer covering ballooning locally.
 - o Evidence of kinking or crushing of the flexible part of a hose.



Preparing for Emergencies

- Keep a first aid kit and properly rated fire extinguisher nearby.
- Keep emergency numbers for fire, rescue, and poison control personnel near the phone.



Wearing Protective Equipment

- Wear clothing and personal protective equipment appropriate for the job.
- Wear steel-toed shoes when operating.
- Wear hearing protection when exposed to loud noises.
- Do not wear additional hearing impairing devices such as radio headphones, etc.



Radio Remote Control

Possible Sources of Danger

The remote control works via radio signals. Control commands can be transmitted around obstacles and out of the operator's direct sight. Prevent accidental start-up and possible injury or damage by:

1. Always engage the "E-STOP" button when it is not in use or if the unit is placed any distance away from the operator.
2. Disconnect the receiver power supply before any assembly, maintenance or repair work is done.

IMPORTANT

- **AVOID SYSTEM DAMAGE** - ALWAYS disconnect battery before welding on any part of the seed tender.
3. Never remove or alter any of the safety features of this system.

Protective Features

The radio remote control is equipped with electronic and mechanical safety features. Processing the control signals transmitted from other transmitters is not possible, since transmission coding is unique to each system.

Safety features help protect the operator, as well as others within the work area. All functions can be stopped by pushing the "E-STOP" button on the top of the hand-held transmitter.

NOTE: The receiver goes into "E-STOP" immediately after the "E-STOP" button on the hand-held transmitter is activated.

⚠ WARNING

- **ACCIDENTAL START-UP CAN CAUSE SERIOUS INJURY OR DEATH. NEVER REMOVE OR MODIFY ANY SAFETY FEATURES.**

To Stop In An Emergency

1. Press the red "E-STOP" push button on top of the remote.
2. Wait for all moving Seed Runner® Tender parts to stop.



SECTION II

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APPLICATOR MANUAL.

Pre-Delivery Checklist

After the Seed Runner® Tender has been completely assembled, use the following checklist and inspect the unit. Check off each item as it is found satisfactory or after proper adjustment is made.

- ☐ Inflate tires and torque wheel nuts as specified in Maintenance section.
- ☐ Torque all axle mounting hardware to the torque chart in the maintenance section.
- ☐ All grease fittings have been lubricated.
- ☐ Verify all safety and reflective decals are correctly located and legible. Replace if damaged.
- ☐ Check belt alignment and tension.
- ☐ Verify transport lights are working properly.
- ☐ Transport chains are properly installed and hardware is torqued to specification.
- ☐ Paint all parts scratched in shipment.

WARNING

- **READ AND UNDERSTAND SAFETY RULES BEFORE OPERATING OR SERVICING THIS MACHINE. REVIEW THE SAFETY SECTION IN THIS MANUAL IF NECESSARY.**
- **TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE THE MACHINE IS SECURELY BLOCKED.**
- **ENTANGLEMENT WITH MOVING PARTS CAN CAUSE SERIOUS INJURY OR DEATH. USE EXTREME CARE WHEN INSPECTING AND ADJUSTING BELT TRACKING. AVOID PERSONAL ATTIRE SUCH AS LOOSE FITTING CLOTHING, SHOESTRINGS, DRAWSTRINGS, PANTS CUFFS, LONG HAIR, ETC., THAT MAY BECOME ENTANGLED IN MOVING PARTS.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **FALLING OBJECTS CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT WORK UNDER THE MACHINE AT ANY TIME WHILE BEING HOISTED. BE SURE ALL LIFTING DEVICES AND SUPPORTS ARE RATED FOR THE LOADS BEING HOISTED. THESE ASSEMBLY INSTRUCTIONS WILL REQUIRE SAFE LIFTING DEVICES UP TO 7,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING THE IMPLEMENT.**

Compliance with all lighting and marking laws is the responsibility of the operator at the time of travel.

See federal regulation 49 CFR 562; available at www.govinfo.gov for US federal law requirements.

See your Unverferth dealer for additional brackets, reflectors, or lights to meet your requirements.

For your safety, and the safety of others, use proper tools and equipment and always use safe working procedures. Refer to these instructions before starting any work on the machine.

For ease of assembly, install all hardware loosely until assembly is complete and then tighten according to Torque Chart in the MAINTENANCE Section of this manual.

Assemble Bumper or Gooseneck Hitch to Undercarriage**IMPORTANT**

- *The procedures for assembling this unit are intended for two or more people.*
1. Park the empty Seed Runner® Tender on a firm, level surface. Block the wheels on the machine to keep it from moving. Set the towing vehicle's parking brake, shut off the engine, and remove the ignition key.
 2. If the unit was shipped with a hitch installed, torque the retaining hardware according to the Torque Chart in the Maintenance section. If it was shipped without a hitch installed, proceed to step 2.
 3. Place jack stands rated for a minimum of 3000 lbs capacity under front of undercarriage frame. Raise hitch using a safe lifting device with a minimum 3000 lbs capacity, and place the hitch in line with the undercarriage.
 4. Connect the electrical connections, and push extra wire harness into tubes. Move hitch against undercarriage frame being careful not to pinch the wiring harness.
 4. Bolt the hitch to undercarriage using 5/8"-11UNC x 2 1/2" capscrews (9390-126), 5/8" stainless steel flat washers (903108), and 5/8"-11UNC locknuts (9801). Torque to specs.
 5. Verify the function of the lighting. See Maintenance Section for wiring schematics.

FIG. 2-1

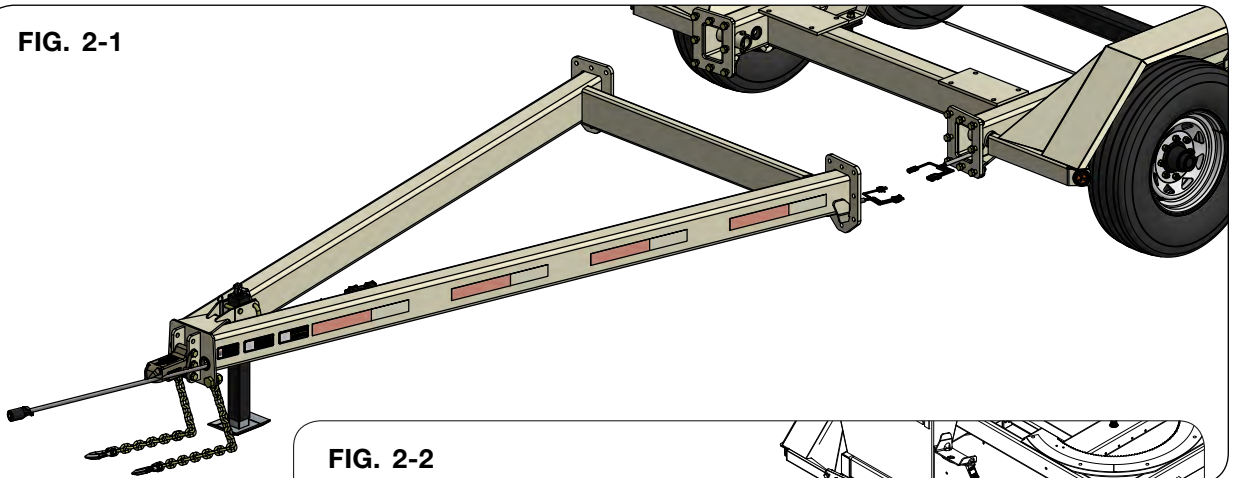
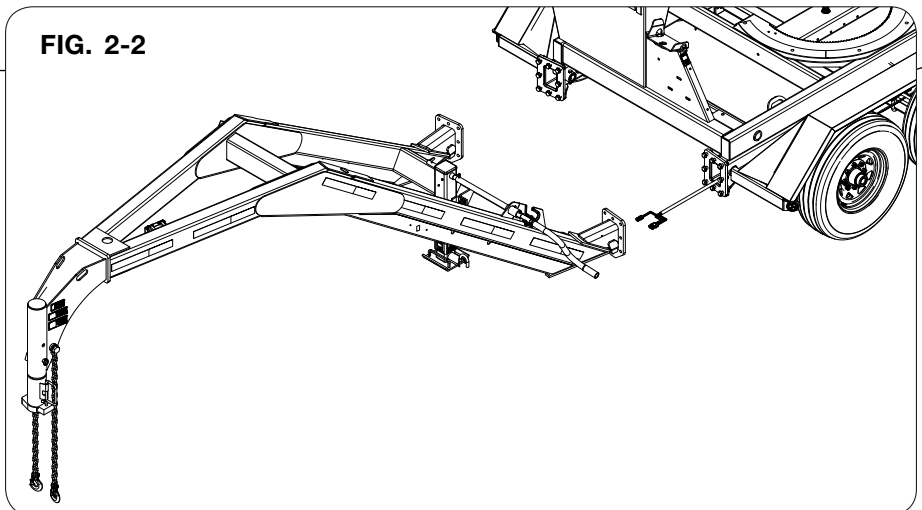
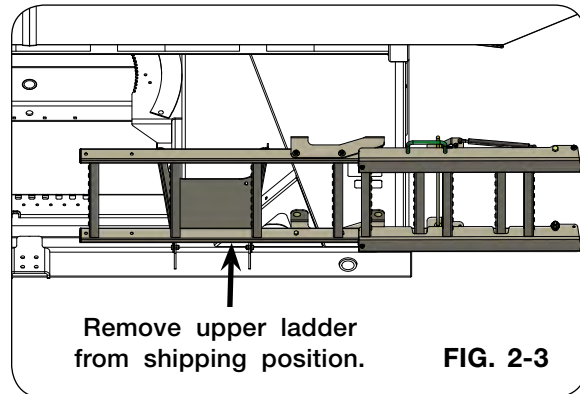


FIG. 2-2

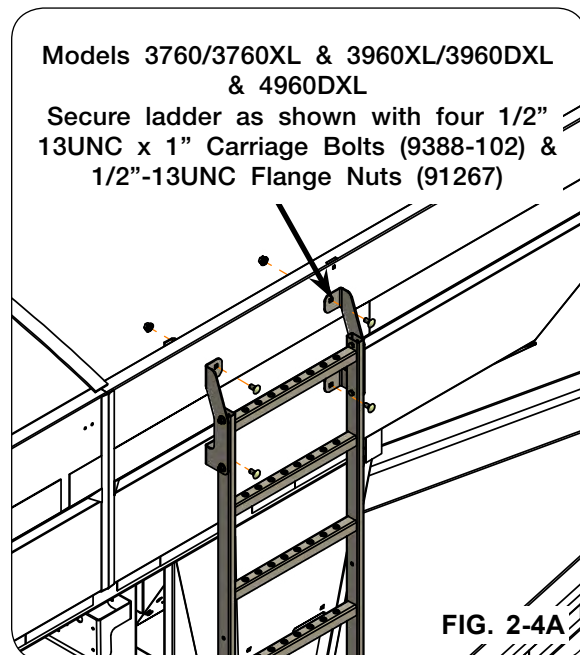
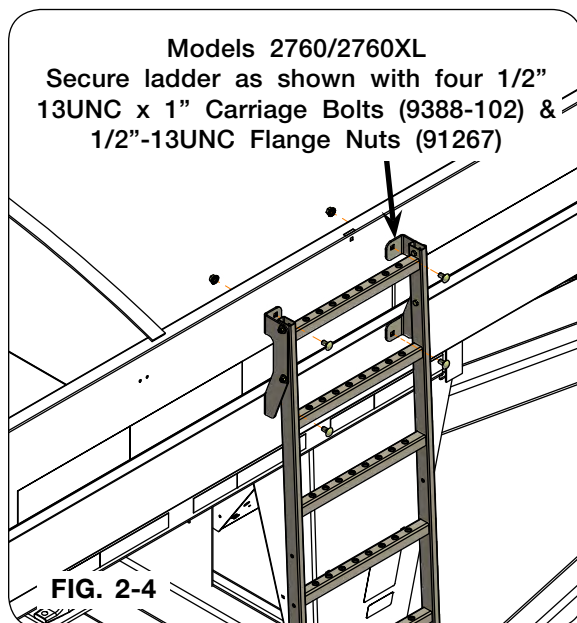


Ladder Installation

1. Park the empty Seed Runner® Tender on a firm, level surface. Block the wheels on the machine to keep it from moving. Set the towing vehicle's parking brake, shut off the engine, and remove the ignition key.
2. Remove upper ladder from the side of the box (FIG. 2-3). Discard nylon washers, and retain remaining hardware. It will be used to mount the ladder to the box.



3. Attach the upper ladder to the right side of the box. Using the predrilled holes at the top, position the mounting brackets and secure using four 1/2"-13 x 1" carriage bolts (9388-102) & 1/2"-13 flange nuts (91267).



Ladder Installation (continued)

4. Slightly loosen the hardware connecting the ladder holder to the undercarriage.
5. Remove the 1/2"-13UNC locknut (9800), 1/2" SAE flat washer (9405-086), and nylon bushing (2003030) from ladder as shown in FIG. 2-6. Attach the ladder holder to the lower portion of the ladder with the previously removed 1/2"-13UNC locknut (9800), 1/2" SAE flat washer (9405-086), and nylon bushing (2003030).
6. Tighten the hardware loosened in step 3. Torque all hardware to specifications listed in "Torque Chart" in the maintenance section.

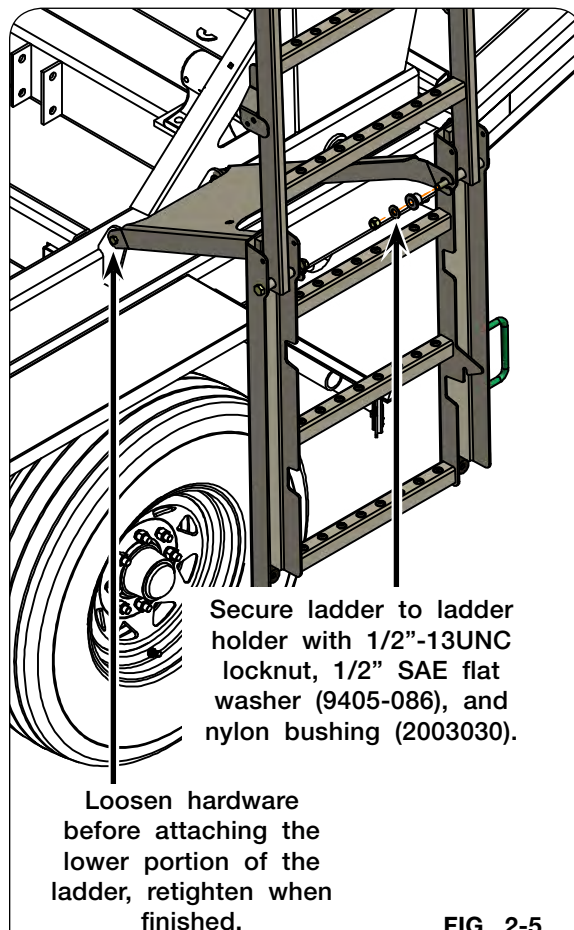


FIG. 2-5

Deluxe Ladder Installation (Option)

1. Park the empty Seed Runner® Tender on a firm, level surface. Block the wheels on the machine to keep it from moving. Set the towing vehicle's parking brake, shut off the engine, and remove the ignition key.
2. Using a safe lifting device rated for 150 lbs., remove upper ladder from the rear of the Seed Runner box. Retain hardware to mount new deluxe ladder.
3. Using a safe lifting device rated for 150 lbs., attach the upper ladder to the right side of the Seed Runner box, using the predrilled holes at the top. Secure in place using four 1/2"-13UNC x 1" carriage bolts (9388-102) and 1/2"-13UNC flange nuts (91267) as shown in FIG. 2-7.
4. Remove the 3/8"-16UNC locknut (9928), 3/8" SAE flat washer (9405-074), and nylon bushing (2003029) and 3/8"-16UNC x 1 1/4" capscrews (9390-056) from ladder as shown in FIG. 2-6.



FIG. 2-6

Secure ladder with 3/8"-16UNC locknut, 3/8" SAE flat washer (9405-086), nylon bushing (2003029), and 3/8"-16UNC x 1 1/4" capscrews (9390-056).

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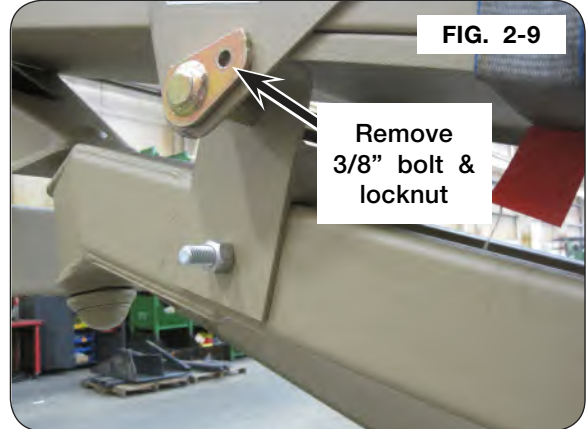
Secure with four 1/2"-13UNC x 1" Carriage Bolts (9388-102) & 1/2"-13UNC Flange Nuts (91267)

FIG. 2-7

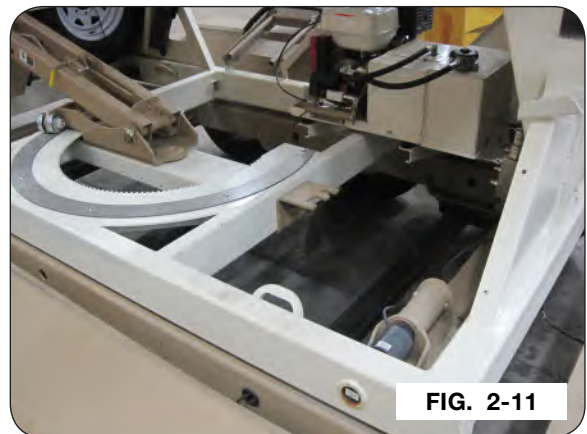
Deluxe Ladder is standard on Midnight Edition

Moving Conveyor to Operating Position (Non DXL Models)

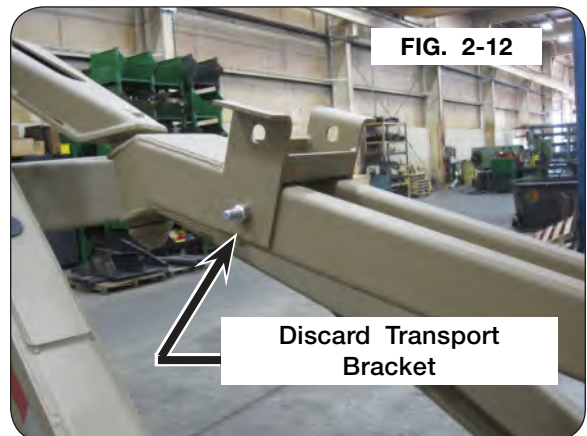
1. Park the empty Seed Runner® Tender on a firm, level surface. Block the wheels on the machine to keep it from moving. Set the towing vehicle's parking brake, shut off the engine, and remove the ignition key.
2. Using a safe lifting device rated for 1000 lbs, lift conveyor. FIG 2-8



3. Remove 1" pin by removing 3/8" bolt and locknut. FIG 2-10



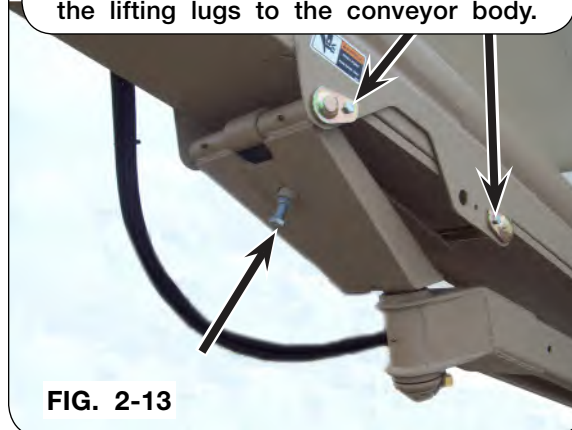
4. Gently slide conveyor towards the hopper so it unhooks from the lower transport latch.
5. Hoist conveyor, remove and discard transport brackets. FIG 2-12



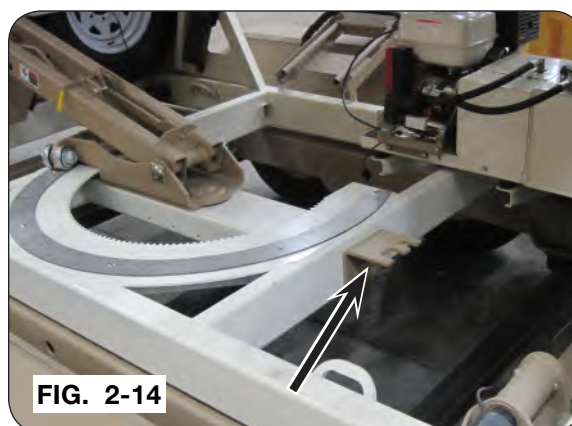
Moving Conveyor to Operating Position (Non DXL Models) (cont)

6. Move conveyor forward to operating position. Insert pin into working position and fasten using 3/8" bolt and locknut.

The retainer bolts that hold the two plated pins shown here are used to hold the lifting lugs to the conveyor body.

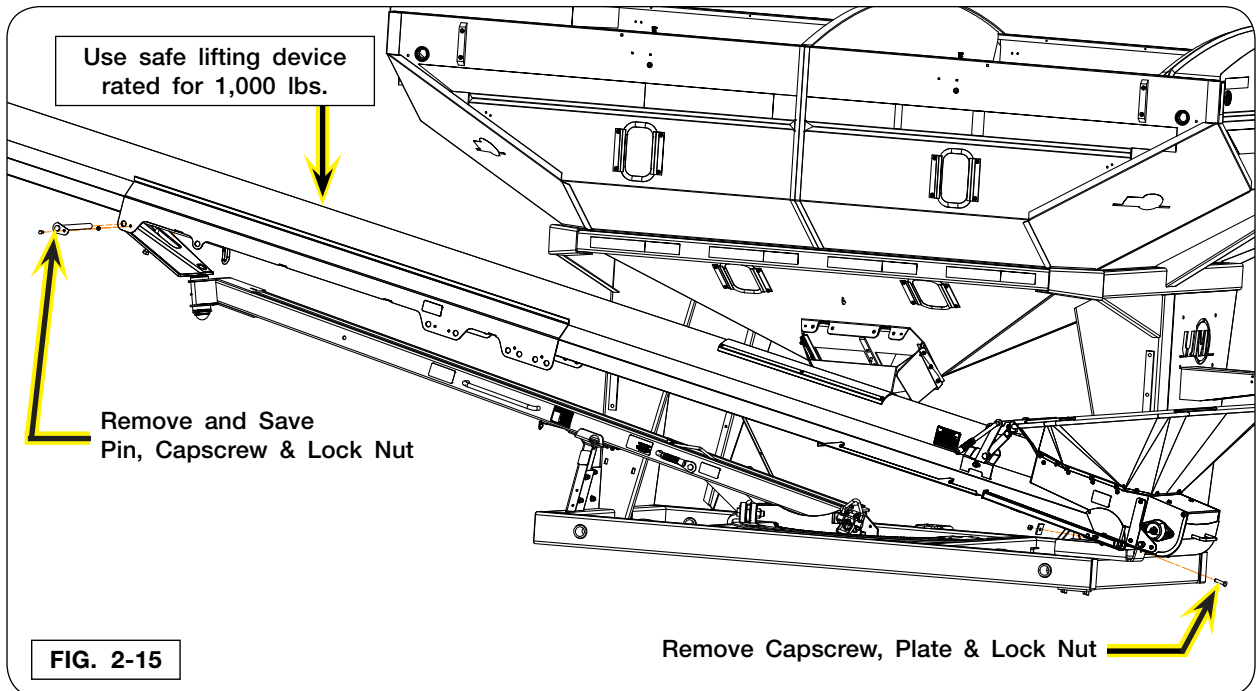
**FIG. 2-13**

7. Hopper end of conveyor can be latched into normal operating position.
8. Remove and discard lower transport bracket.
9. Adjust spring assist. Refer to OPERATION section "Spring Assist Adjustment".
10. Discard lifting lugs after usage.

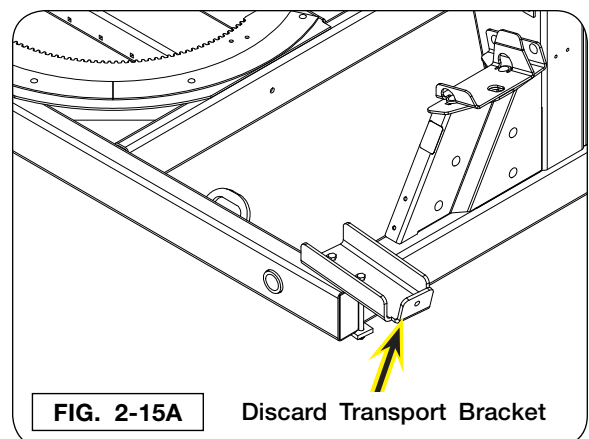
**FIG. 2-14**

Moving Conveyor to Operating Position (DXL Models Only)

1. Park the empty Seed Runner® Tender on a firm, level surface. Block the wheels on the machine to keep it from moving. Set the towing vehicle's parking brake, shut off the engine, and remove the ignition key.
2. Using a safe lifting device rated at a minimum of 1,000 lbs., lift the conveyor.
3. Remove and save 1" dia. pin (25436), 3/8"-16UNC x 1" capscrew (9390-055) and 3/8"-16UNC lock nuts (9928) as shown in FIG. 2-15.

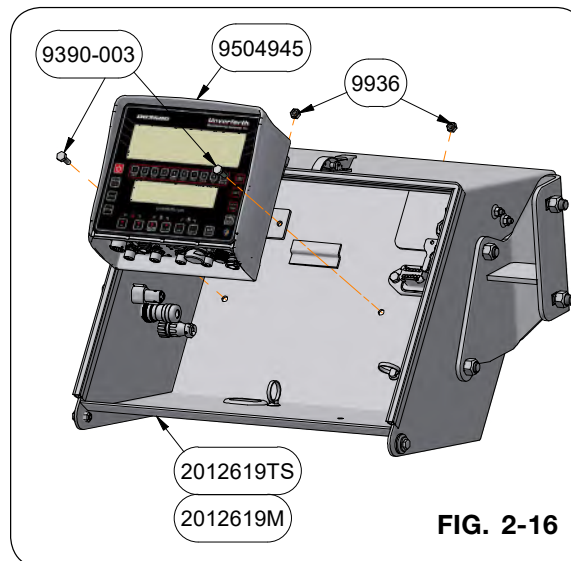


4. Remove 1/2"-13UNC x 2" capscrew (9390-103), plate (2006798) and 1/2"-13UNC lock nuts (9800) as shown in FIG. 2-15.
5. Remove and discard lower transport bracket FIG. 2-15A.
6. Adjust spring assist. Refer to OPERATION section "Spring Assist Adjustment".



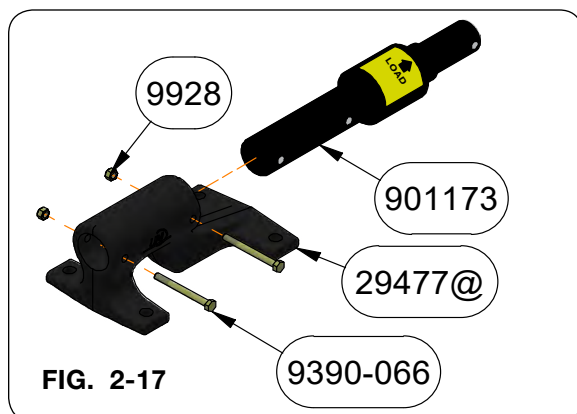
DG3520 Scale Package

1. Park the empty Seed Runner® Tender on a firm, level surface. Block the wheels on the machine to keep it from moving. Set the towing vehicle's parking brake, shut off the engine, and remove the ignition key.
2. Assemble scale monitor inside enclosure using two 1/4"-20UNC x 3/4" capscrews (9390-003) and 1/4"-20UNC locknuts (9936).

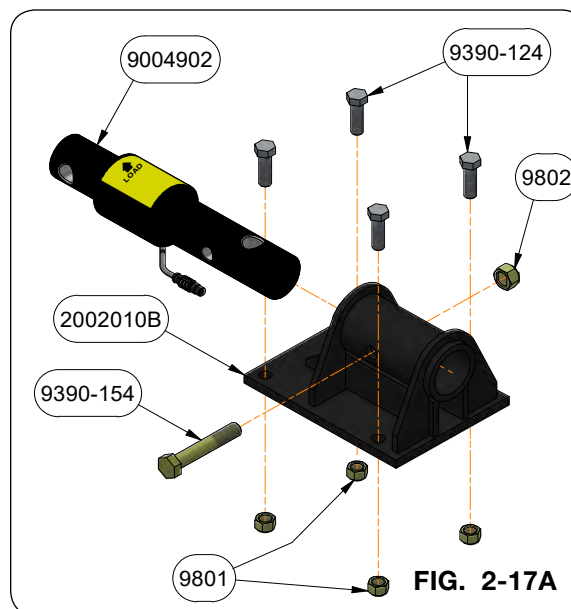


3. Assemble load cell (901173) into scale bracket (29477B) using two 3/8"-16UNC x 3 3/4" capscrews (9390-066) and 3/8"-16UNC top locknuts (9928). Tighten capscrews (9390-066) and locknuts (9928) just enough to engage locknut and the bolt still freely spins in the casting. The load cells must be assembled so the 'LOAD ARROW' indicator on the load cell is located to the top of the bracket as shown in FIG. 2-17.

- For 4960DXL models, see FIG. 2-17A



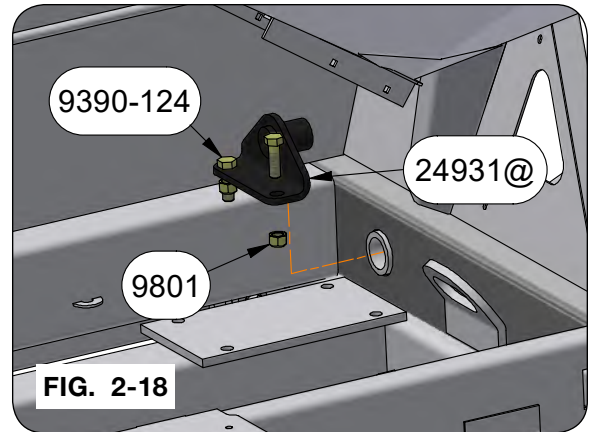
For Models:
 2760 & 2760XL
 3760 & 3760XL
 3960XL & 3960DXL



For Model:
 4960DXL

DG3520 Scale Package (continued)

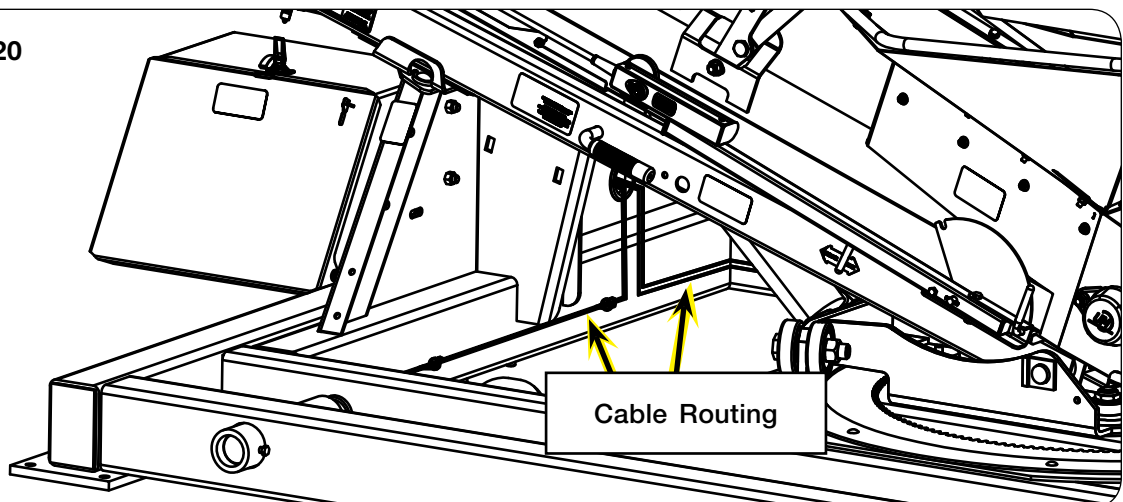
4. 2760 and 3760 Models Only; Remove and discard the 5/8"x2" capscrews (9390-124), 1/2" locknuts (9801) and the hold down brackets from one side of the box. FIG 2-5



5. Using a safe lifting device rated at a minimum of 5000 lbs., carefully lift the unfastened side of the box approximately 1".
6. Slide the load cell into the bushing on the inside of the box and fasten the bracket to the undercarriage using the appropriate hardware referenced in FIG 2-17 and 2-17A. Repeat this process for all four corners of the box. FIG. 2-19

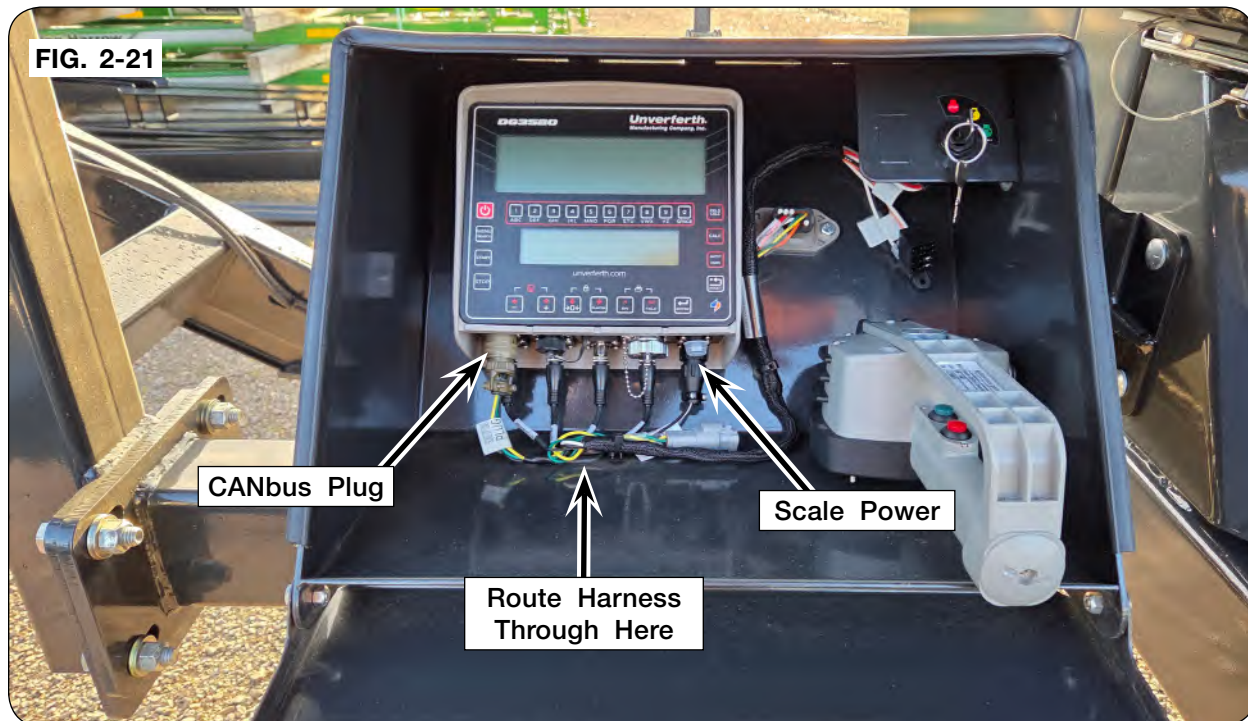


7. Route the load cell cables along the inside edge of the frame, to the scale enclosure, and fasten using the cable ties (9000106). Be certain the cables will not get pinched or worn.

FIG. 2-20

UM2520 Scale Package (continued)

5. Route cables from load bars into opening at bottom of enclosure & connect to the scale indicator ports. Connect Scale power and CANbus plug to bottom of scale. FIG. 2-21



Scale Platform for Units Less Undercarriage (Option)

Using a safe lifting devices rated for 7,000 lbs., lift one side of the Seed Runner box until it just clears the ground and block-up the corners to allow for the installation of the scale platform. Repeat the process on the opposite side of the box.

Slide the load bars into the bushing on the inside of the Seed Runner® Tender as shown below.



Arrange the scale base weldments around the Seed Runner® Tender. Secure the scale base weldments together with eight 5/8"-11UNC x 2" capscrews (9390-124) and 5/8"-11UNC locknuts (9801).

Secure the load bars to the scale base weldments using two 3/8"-16UNC x 3 1/2" capscrews (9390-065) and 3/8"-16UNC top locknuts (9928). The load bars must be assembled so the yellow load direction and serial number decal are facing up. Repeat this process for all four corners of the box.

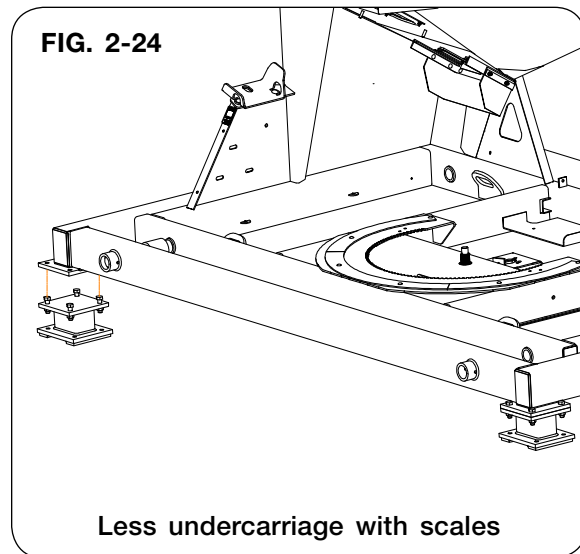
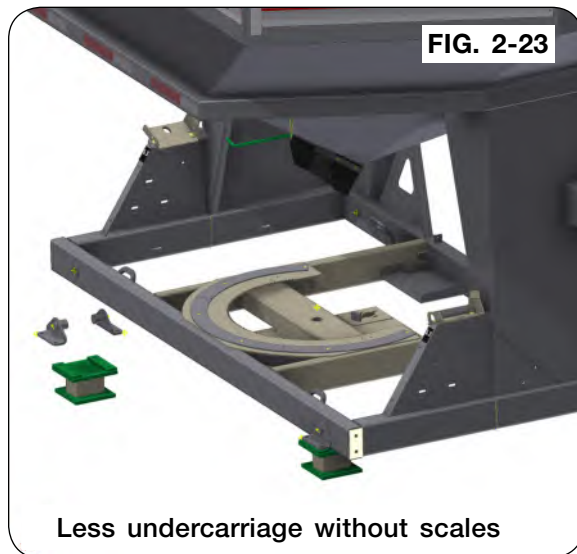
Note: do not overtighten load cell mounting bolts. Bolts should be able to spin freely.

Route load bar cables along inside edge of box and fasten using the cable ties (9000106). Be certain cables will not get pinched or worn.

Route cables from load bars into opening at bottom of enclosure & connect to the scale indicator ports. Connect Scale power and CANbus plug to bottom of scale. FIG. 2-21

Scale Platform Riser Pads - Less Undercarriage (Option)

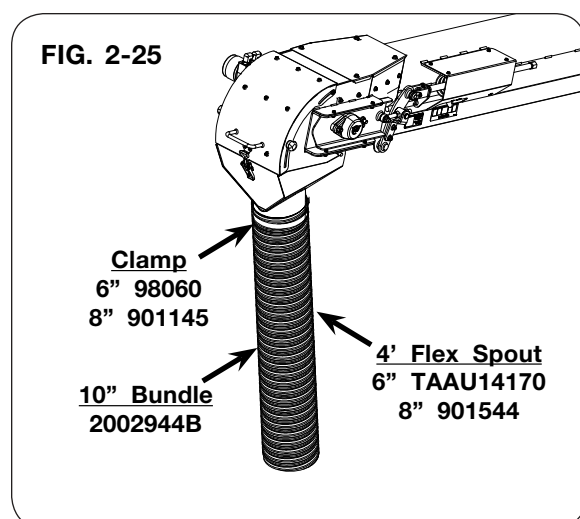
1. Park the empty Seed Runner® Tender on a firm, level surface. Block the wheels on the machine to keep it from moving. Set the towing vehicle's parking brake, shut off the engine, and remove the ignition key.
2. Using a safe lifting device rated for 7,000 lbs., lift the front of the Seed Runner® Tender.
3. Attach the riser pads to the bottom of the Seed Runner, using the appropriate hardware provided.
4. Lower box, repeat to rear and secure the riser pads to the truck/trailer frame..



4' Flex Spout

The standard 4' flex spout is intended for bulk seed loading into large central-fill planter seed hoppers (35 to 100 bushels). It has flex hose attachment at the discharge end of the conveyor and requires no manual holding or maneuvering of the spout during operation.

1. Park the empty unit on a firm, level surface. Block the wheels on the machine to keep it from moving. Set the towing vehicle's parking brake. Lower the conveyor completely, shut off the engine and remove the ignition key.
2. Slip the downspout, with clamp, over the conveyor discharge tube end and tighten.



Telescopic Downspout (Option)

The 2 stage down spout is nice for filling traditional drill seed tanks, while the 3 stage down spout is intended for manual filling of smaller individual planter seed hoppers, requiring increased operator holding, lifting, maneuvering of the long spout assembly while filling. The spout therefore is downsized with a metal adapter for a smaller 6" flex hose and smaller diameter spout for more manageable handling of the spout. The operator is encouraged to slow the conveyor speed for proper operation.

1. Park the empty Seed Runner® Tender on a firm, level surface. Block the wheels on the machine to keep it from moving. Set the towing vehicle's parking brake. Lower the conveyor completely, shut off the engine and remove the ignition key.
2. Loosen clamp .
2. Remove the flex spout from the conveyor.
3. Slip the optional telescopic downspout, with the clamp, over the conveyor chute discharge tube and tighten clamp.

FIG. 2-25

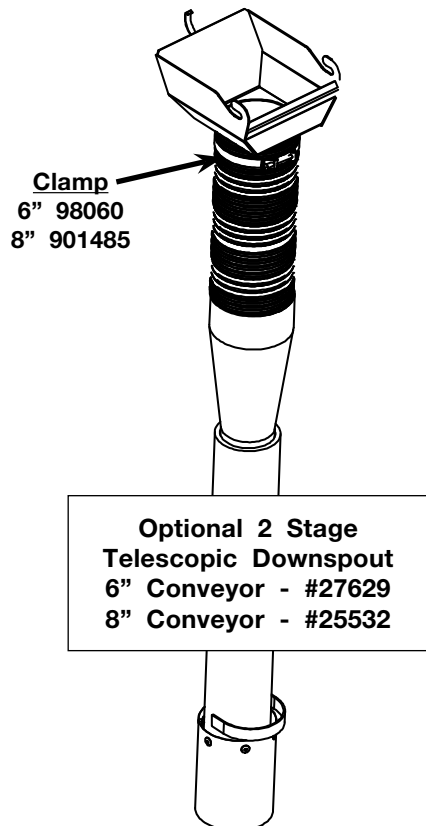
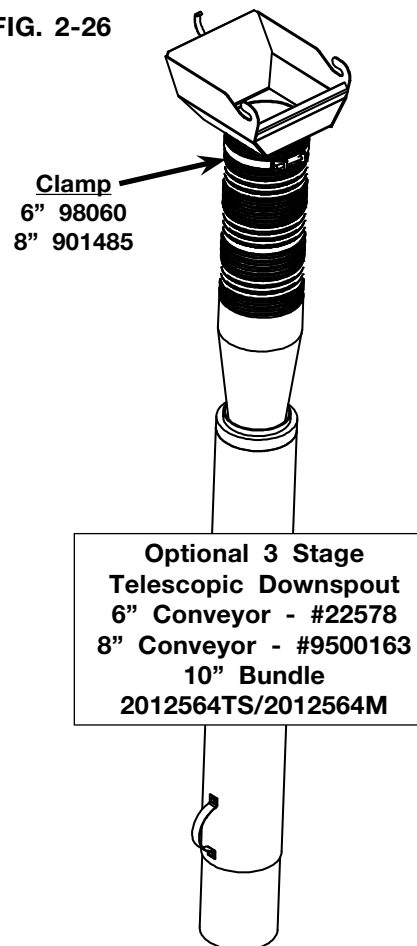


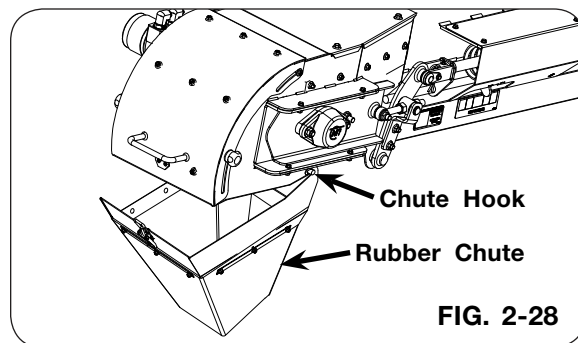
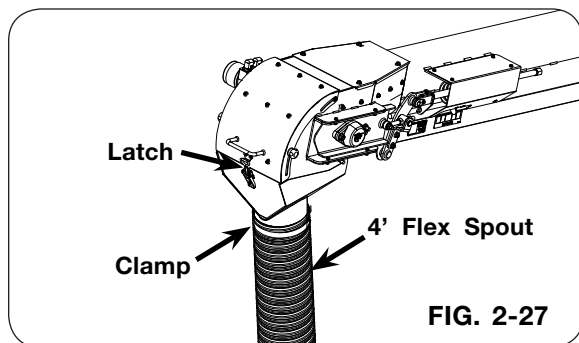
FIG. 2-26



Rubber Chute - 4960DXL Only

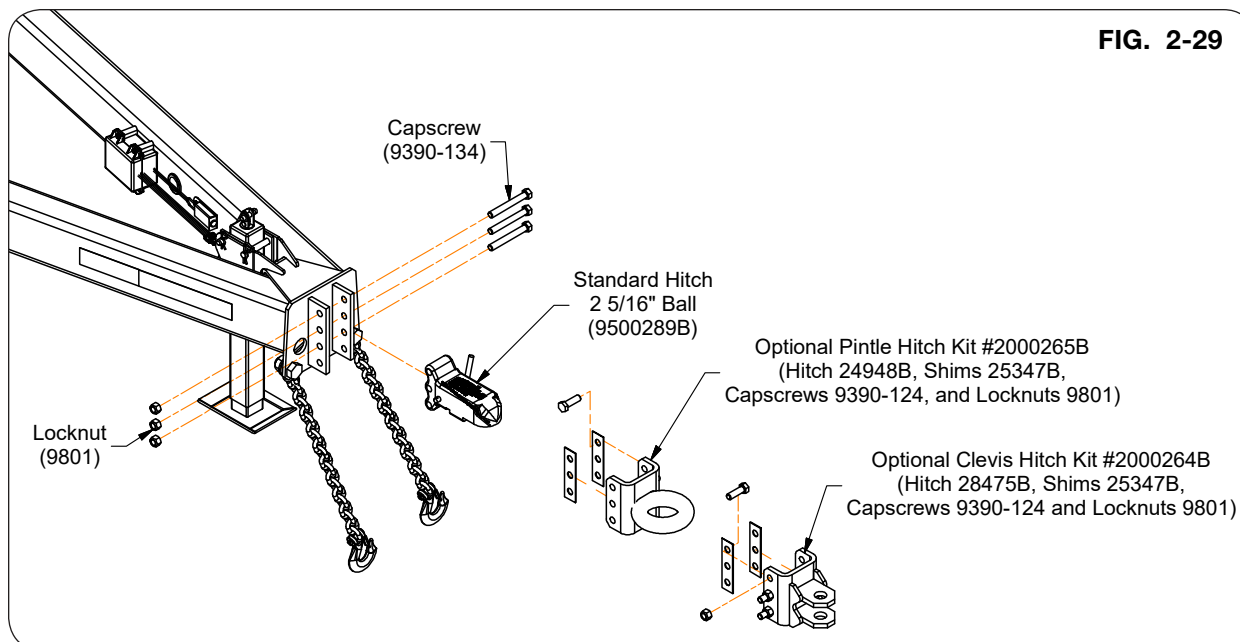
The rubber chute is good for self filling and bulk container transferring of seed.

1. Park the empty Seed Runner® Tender on a firm, level surface and block the wheels. Set the towing vehicle's parking brake. Lower the conveyor completely, shut off the engine and remove the ignition key.
2. Loosen clamp ring and remove the flex spout from the conveyor.
3. Open the latch, swing the chute down and unhook it from the conveyor.
4. Hook the rear of the rubber chute (2012548TS/M) to the Chute Hooks on the conveyor, swing forward and secure the latch.



Hitch Options

1. Remove the hardware, shims, and hitch.
2. Attach optional hitch using the hardware and shims removed in step #1. Torque hardware according to the torque chart in the Maintenance section.

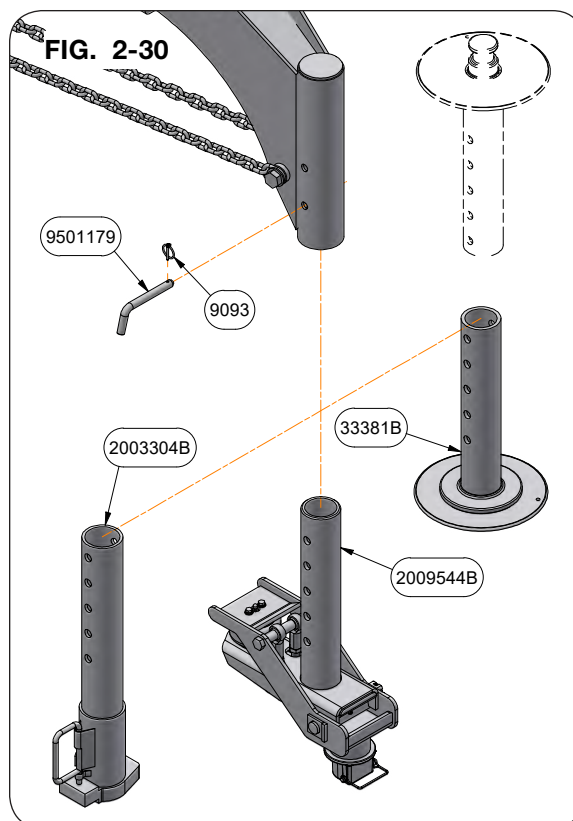


Gooseneck Hitch Options

1. Park the empty Seed Runner® Tender on a firm, level surface and block the wheels. Set the towing vehicle's parking brake. Lower the conveyor completely, shut off the engine and remove the ignition key.
2. Remove Klik Pin (9093) and Lynch pin (9501179).
3. Insert the desired hitch option and secure with the removed lynch and Klik Pin from step 1.

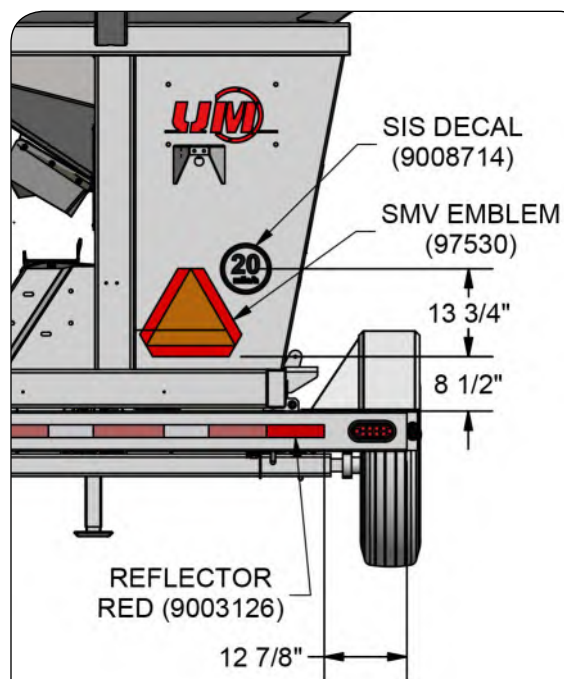
Standard;
2003304B - Gooseneck Hitch, Drilled

Optional:
2009544B - Cushioned Gooseneck Hitch
33381 - Round Gooseneck Fifth Wheel Adapter



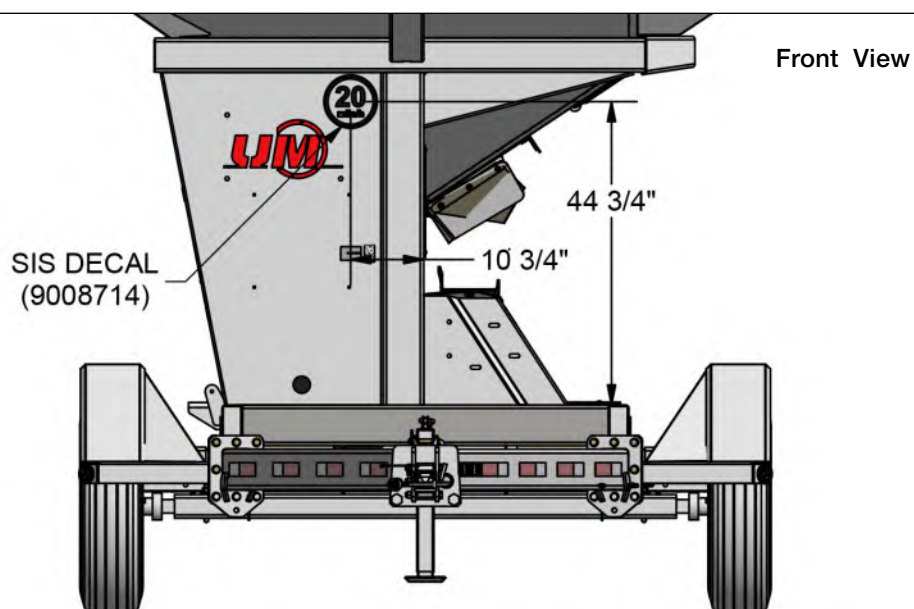
AG Decal Package, Decal Placement

1. Center and attach the SMV Emblem (95730) to the rear of the unit 8 1/2" from the frame. (FIG. 2-36)
2. Attach the SIS decal (9008714) to the rear of the unit 13 3/4" from the bottom of the SMV Emblem (95730). (FIG. 2-36)
3. Attach the red reflector (9003126) 12 7/8" from the right-hand side of the bumper. (FIG. 2-31)

**FIG. 2-31**

Rear View

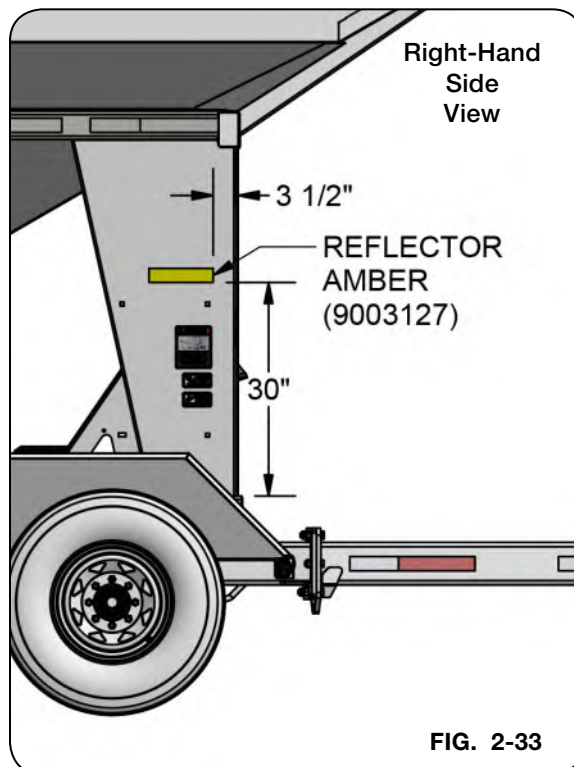
4. Attach the SIS decal (9008714) to the front of the unit 44 3/4" from the frame and 10 3/4" from the side of the panel as shown in FIG. 2-32.

FIG. 2-32

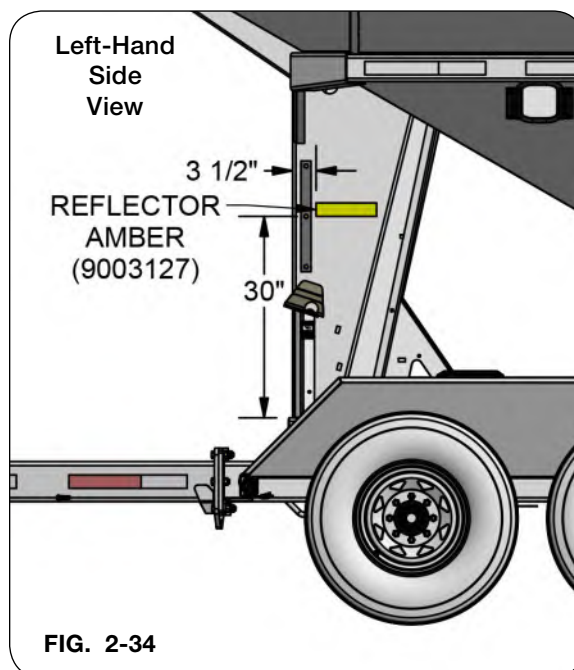
Front View

AG Decal Package, Decal Placement (continued)

5. Place the amber reflector (9003127) 30" from the frame and 3 1/2" from the front on the right-hand side of the unit. (FIG. 2-33)



6. Place the amber reflector (9003127) 30" from the frame and 3 1/2" from the front on the left-hand side of the unit. (FIG. 2-34)



Notes

SECTION III

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FOR HYDRAULIC TARP INFORMATION, PLEASE REFER TO YOUR HYDRAULIC TARP MANUAL.
 FOR T&G LUBRICANT APPLICATOR INFORMATION, PLEASE REFER TO YOUR T&G LUBRICANT
 APPLICATOR MANUAL.

Preparing Towing Vehicle

Before operating implement, refer to towing vehicle's operator's manual for information concerning safe methods of operation, hitch capacities, hitch adjustments, tire inflation, and undercarriage braking operation.

Vehicle must be equipped with proper electric undercarriage braking components. Check vehicle brakes and transport lights. Make sure they are in proper working order.

IMPORTANT

- *This implement is equipped with LED lights. The towing vehicle may require a flasher upgrade for lights to function properly. For flasher upgrade, please see towing vehicle manufacturer for assistance.*

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

Estimated weights of the fully loaded Seed Runner® Tender are:

Model 2760/2760XL

- GVW Rating is 19,500 lbs.
- Loaded tongue weight is 1,000 lbs.

Model 3760/3760XL

- GVW Rating is 25,000 lbs.
- Loaded tongue weight is 1,000 lbs.

Model 39XL60/3960DXL

- GVW Rating is 25,000 lbs.
- Loaded tongue weight is 1,000 lbs.

Model 4960DXL

- GVW Rating is 35,000 lbs.
- Loaded tongue weight is 6,700 lbs.

These are estimates. The loaded tongue weight will vary greatly based on the height of the hitch, and the variation in terrain that the unit is being pulled across.

Towing vehicle hitch – ball, pintle hook, 5th wheel or drawbar must be heavy enough to carry the load of the Seed Runner® Tender.

Preparing Implement

Hydraulic System

Check routing of all hydraulic hoses. Hoses should not be kinked, twisted, or rubbing against sharp edges.

Check hoses and fittings for hydraulic leaks. Tighten and/or repair or replace as required. Refer to “Torque Chart” in MAINTENANCE section.

Lubrication

Lubricate the implement as outlined in the Maintenance section of this manual. Refer to the engine’s operator’s manual for proper fluid levels.

Tires/Wheels

CAUTION

- **IMPROPERLY TORQUED WHEEL NUTS/BOLTS CAN CAUSE A LOSS OF IMPLEMENT CONTROL AND MACHINE DAMAGE. WHEEL NUTS/BOLTS MUST BE CHECKED REGULARLY. SEE TORQUE PAGE IN MAINTENANCE SECTION FOR PROPER WHEEL NUT/BOLT SPECIFICATIONS. WARRANTY DOES NOT COVER FAILURES CAUSED BY IMPROPERLY TORQUED WHEEL NUTS/BOLTS.**

Check tire pressures and maintain at recommended values listed in the MAINTENANCE section of this manual. Check wheel nuts/bolts torque as specified in the MAINTENANCE section.

For questions regarding new tire warranty, please contact your local original equipment tire dealer. Used tires carry no warranty. Tire manufacturers’ phone numbers and web sites are listed in the MAINTENANCE Section of this manual for your convenience.

Connecting Seed Runner® Tender to Towing Vehicle **WARNING**

- **CRUSHING CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT STAND BETWEEN THE TOWING VEHICLE AND IMPLEMENT WHEN HITCHING. ALWAYS ENGAGE THE PARKING BRAKE AND STOP THE ENGINE BEFORE INSERTING THE HITCH PINS OR SECURING THE LATCHES.**



The Seed Runner® Tender undercarriage is designed to be connected to a towing vehicle utilizing either the pintle hitch, a 2 5/16" ball hitch or, if equipped with the clevis hitch, a 1" hitch pin. An optional gooseneck hitch is also available with 2 5/16" ball or 5th wheel hitch.

For bumper pull hitch, back the towing vehicle up to the undercarriage and align the vehicle's ball hitch or pintle hook with the coupler clevis or ring on the undercarriage. Lower jack to set undercarriage down on ball hitch or pintle hook. Latch coupler so the connection is secure. Pivot jack to transport position and pin in place. If using the optional gooseneck hitch, back the towing vehicle up to the gooseneck and couple/latch the units together. Raise the jack weldment into transport position.

Connect electrical plug from undercarriage to towing vehicle. Check routing of the electrical cord to be certain it is long enough to pivot when turning, but not too long to touch or rub the ground during transport.

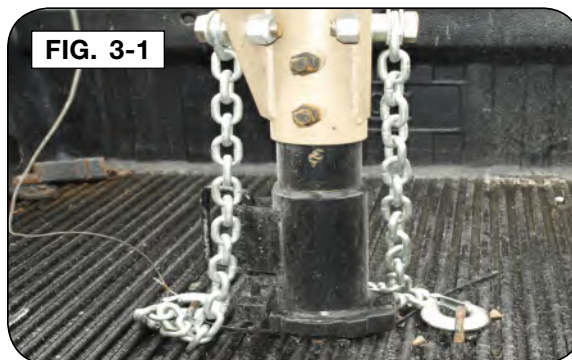
Connect undercarriage brake breakaway cable to towing vehicle. Do not connect this directly to hitch. It needs to be connected in a place that will still be attached, even if the ball hitch or pintle coupler fails.

Transport Chains**⚠ CAUTION**

- ALWAYS USE TRANSPORT CHAIN WHEN TRANSPORTING IMPLEMENTS. FAILURE TO USE A TRANSPORT CHAIN COULD CAUSE PERSONAL INJURY IF IMPLEMENT BECOMES DISENGAGED.
- REPLACE TRANSPORT CHAIN IF ANY LINK OR END FITTING IS BROKEN, STRETCHED, DAMAGED OR NOT FUNCTIONING. DO NOT WELD TRANSPORT CHAIN.
- USE ONLY AN UNVERFERTH DOT TRANSPORT CHAIN WITH A WEIGHT RATING EXCEEDING THE GROSS COMBINED WEIGHT OF ALL TOWED IMPLEMENTS. CONTACT YOUR UNVERFERTH DEALER FOR ADDITIONAL INFORMATION.

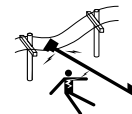
Transport chains should have a minimum rating equal to the gross weight of implement and all attachments. Allow no more slack in chains than necessary to permit turning.

For bumper pull units, cross chains when connecting as shown in FIG. 3-1A.



Transporting**⚠ DANGER**

- ELECTROCUTION WILL CAUSE SERIOUS INURY OR DEATH. ELECTROCUTION CAN OCCUR WITHOUT DIRECT CONTACT. KEEP AWAY FROM ALL UTILITY LINES AND DEVICES.

**⚠ WARNING**

- THE REAR HOPPER OF THE SEED TENDER BOX SHOULD ALWAYS BE EMPTIED FIRST. THIS WILL MAINTAIN WEIGHT ON THE HITCH OF THE TOWING VEHICLE. EMPTYING THE FRONT HOPPER FIRST WITH THE REAR HOPPER FULL COULD RESULT IN NEGATIVE TONGUE WEIGHT ON THE UNDERCARRIAGE AND REDUCED CONTROL OF THE UNDERCARRIAGE WHEN TOWING.
- ALWAYS TRAVEL AT A SPEED THAT PERMITS COMPLETE CONTROL OF TOWING VEHICLE AND IMPLEMENT.

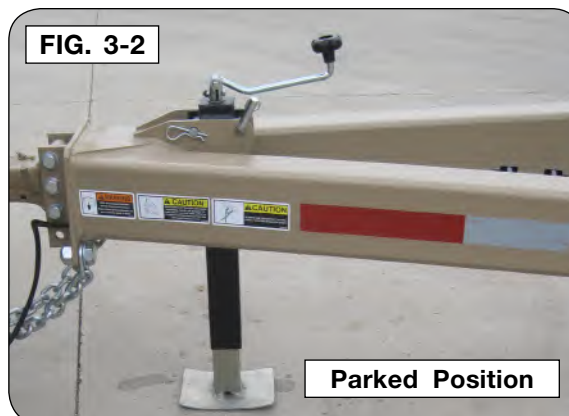
⚠ CAUTION

- USE APPROVED ACCESSORY LIGHTS AND REFLECTORS WHEN TRANSPORTING AT NIGHT, DURING PERIODS OF POOR VISIBILITY AND AS REQUIRED BY LOCAL LAW.

IMPORTANT

- Before transporting, be sure the jack stand is in the 'Transport Position'.
- Conveyor must be latched in the forward position. The pivoting arm must be latched in the transport position with klik pin installed before moving the Seed Runner® Tender. Refer to photo on following page.
- This implement is equipped with LED lights. The towing vehicle may require a flasher upgrade for lights to function properly. For flasher upgrade, please see towing vehicle manufacturer for assistance.

FIG. 3-2



Parked Position

FIG. 3-2A



Transport Position

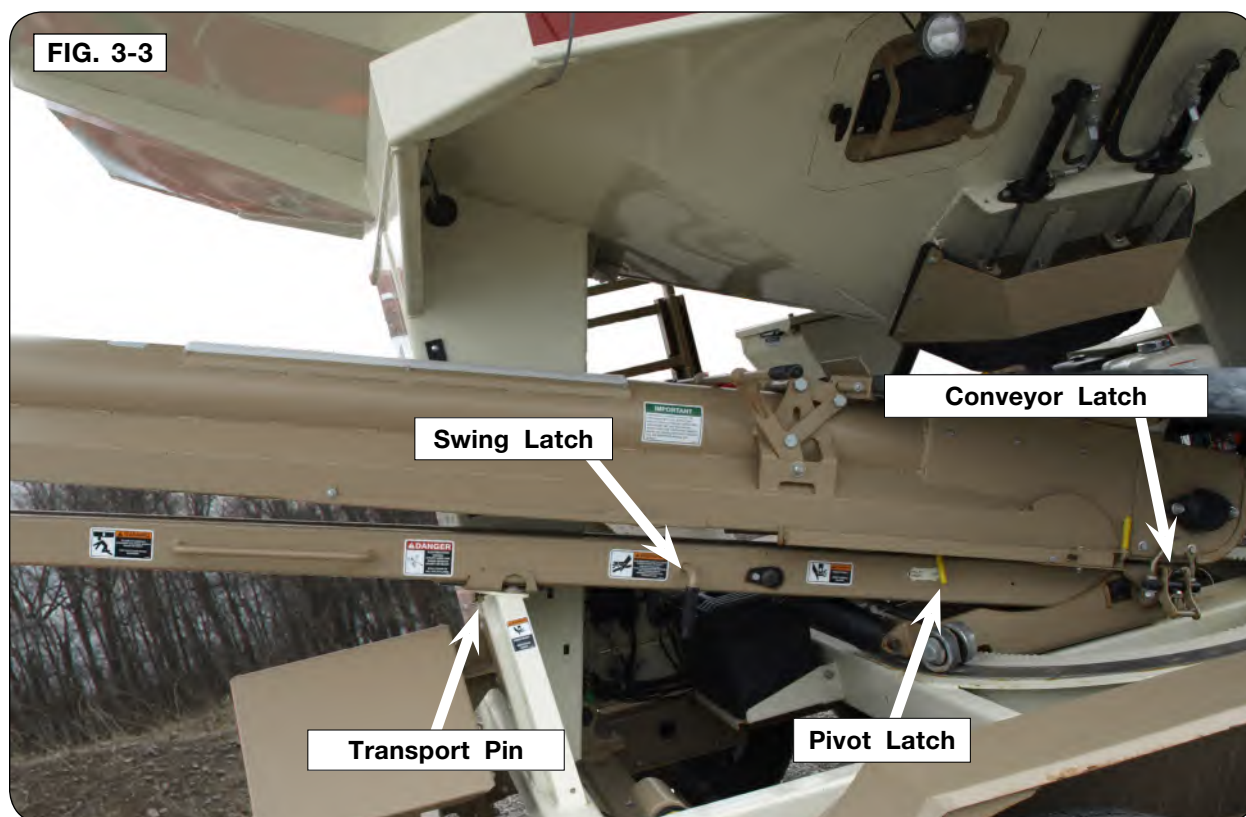
Transporting (continued)

When transporting on public roads, the conveyor ~~needs to~~ be latched in the forward position, extending over the tongue of the undercarriage. Transporting implement with conveyor latched in the rearward position does not comply with lighting and conspicuity marking requirements.

The center of gravity on the seed tender box is higher than a typical undercarriage. Use extreme caution when making turns and entering/exiting fields.

Comply with all laws governing highway safety and regulation when moving machinery on public roads.

Be sure reflectors and lights are in place and clearly visible to approaching traffic.



Hydraulic Power Unit **WARNING**

- EXPLOSIVE FUEL CAN CAUSE FIRES AND SEVERE BURNS. STOP ENGINE BEFORE FILLING FUEL TANK.
- CARBON MONOXIDE CAN CAUSE SEVERE NAUSEA, FAINTING OR DEATH. DO NOT OPERATE ENGINE IN A CLOSED OR CONFINED AREA.
- HOT PARTS CAN CAUSE SEVERE BURNS. DO NOT TOUCH ENGINE WHILE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.
- EXPLOSIVE GAS FROM BATTERY CAN CAUSE FIRES AND SEVERE ACID BURNS. CHARGE BATTERY ONLY IN A WELL VENTILATED AREA. KEEP SOURCES OF IGNITION AWAY.
- HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.
- HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. LEAKS OF HIGH-PRESSURE FLUIDS MAY NOT BE VISIBLE. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.
- RELIEVE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE “RELIEVING HYDRAULIC PRESSURE” IN THE MAINTENANCE SECTION OF THIS MANUAL.
- OPERATION OF THIS EQUIPMENT MAY CREATE SPARKS THAT CAN START FIRES AROUND DRY VEGETATION. A SPARK ARRESTOR MAY BE REQUIRED. THE OPERATOR SHOULD CONTACT LOCAL FIRE AGENCIES FOR LAWS OR REGULATIONS RELATING TO FIRE PREVENTION REQUIREMENTS. THE SPARK ARRESTOR MUST BE PURCHASED SEPARATELY AND CAN BE FOUND IN THE PARTS SECTION NEAR THE END OF THIS MANUAL.

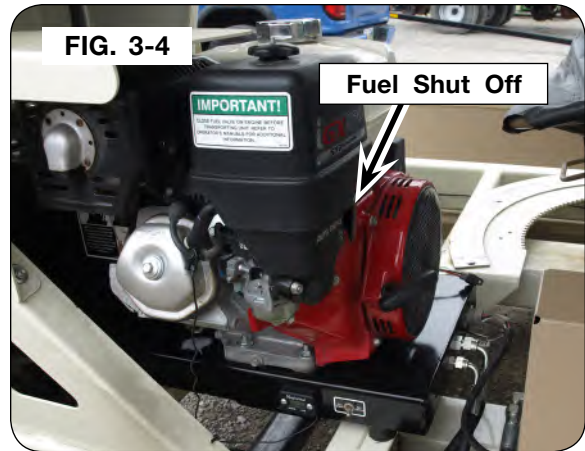
**IMPORTANT**

- *Make certain hoses are all connected, and everyone is clear of conveyor before starting engine.*
- *Do not use ether or other starting aids to start the engine. Damage to the engine will occur.*
- *Use only clean fuel. Contaminates in the fuel may cause damage to the engine or loss of performance.*

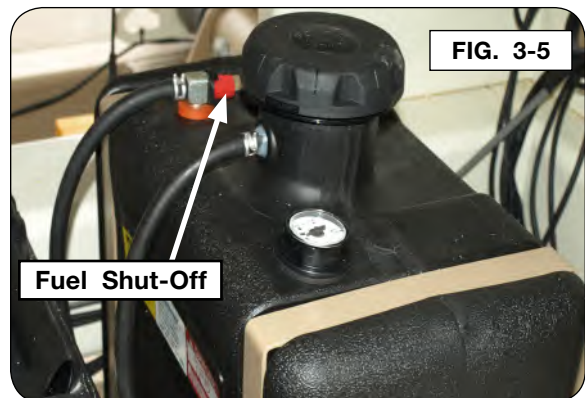
Hydraulic Power Unit (continued)**Small Powerpak**

When engine is not in use, turn fuel lever to the <OFF> position. Leaving the fuel valve on could cause carburetor flooding, fuel in crankcase, or fuel leakage. FIG. 3-4

NOTE: *Installation and maintenance instructions for the spark arrestor can be found in the Honda engine manual.*

**Large Powerpak**

When engine is not in use, turn fuel lever to the <OFF> position. Leaving the fuel valve on could cause carburetor flooding, fuel in crankcase, or fuel leakage. FIG. 3-5

**Before Starting Engine:**

Inspect that all fittings and hardware are in place and secure. Check for any potential hydraulic leaks. Check fluid levels in engine and sight gauge on reservoir. Be sure all valves are switched to neutral position.

If the “Battery Life Indicator” on the hand-held transmitter is not shown, change the batteries.

If the “Battery Life Indicator” on the hand-held transmitter is displayed and if the engine still will not start, check the engine battery.

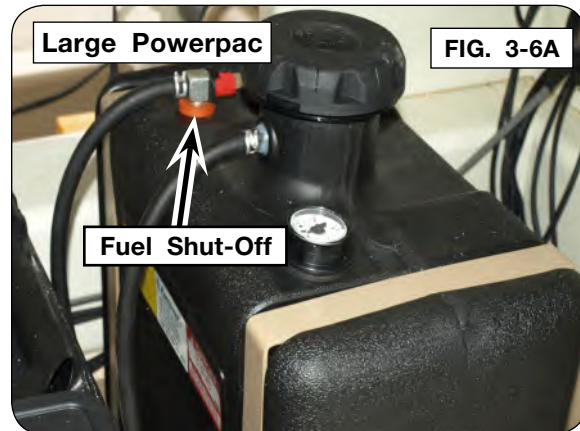
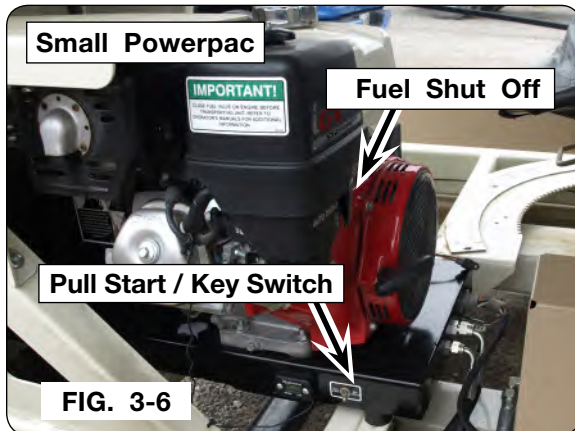
In extremely cold weather, it is best to allow engine and hydraulics to warm up before operating at full throttle speed.

NOTE: *If hydraulic leaks become apparent, turn engine <OFF> immediately and take appropriate actions.*

See Engine operator’s manual for more detailed information on engine operation.

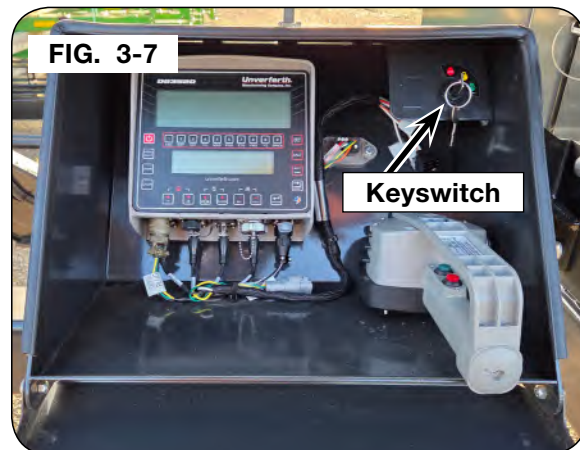
Hydraulic Power Unit (continued)**Starting Engine**

1. Park the empty Seed Runner® Tender on a firm, level surface. Block the wheels on the machine to keep it from moving. Set the towing vehicle's parking brake, shut off the engine, and remove the ignition key.
2. Turn fuel shut-off valve to <ON> position. FIG. 3-6(A)



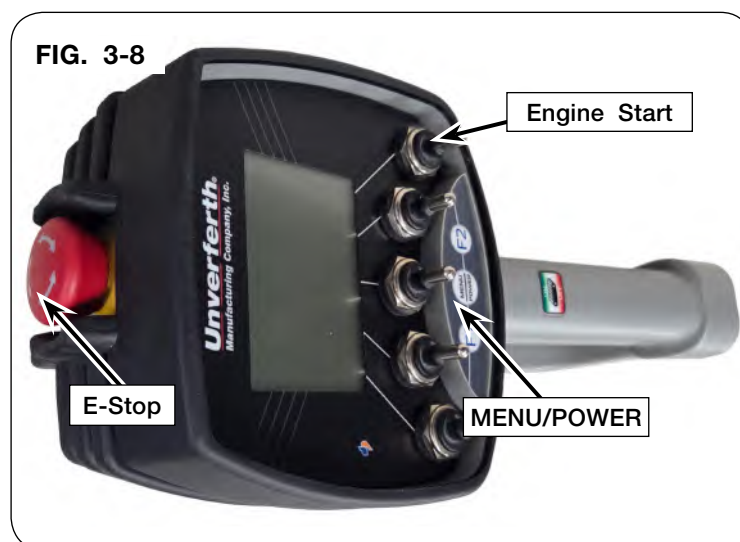
NOTE: When engine is not in use, turn fuel lever to the <OFF> position. Leaving the fuel valve on could cause carburetor flooding, fuel in crankcase, or fuel leakage.

3. On the Small Powerpac, ensure the PULL START / KEY SWITCH toggle is in the KEY SWITCH position. FIG. 3-6
4. Open the control box, rotate keyswitch to the right one position and remove the hand-held transmitter.



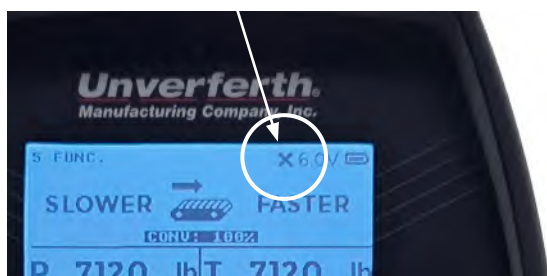
Hydraulic Power Unit (continued)

5. Twist the “E-STOP” button, located on top of the remote, to release the button.

**IMPORTANT**

- In case of an emergency, push in the “E-STOP” to stop all functions and shut the engine off.

6. Press and hold the MENU/POWER button, release when the screen lights up.
7. Wait for the “X” in the top right corner of the remote screen to show a “✓”



8. Push the “Engine Start” toggle up and release to start the engine (FIG. 3-8).
9. Run until the engine and hydraulic system have sufficiently warmed.

Wireless Remote Control

 WARNING

- KNOW AND UNDERSTAND SAFETY RULES BEFORE OPERATING OR SERVICING THE MACHINE. REVIEW SAFETY SECTION IN YOUR SEED RUNNER OPERATOR'S MANUAL IF NECESSARY. 
- EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.
- KEEP HANDS CLEAR OF PINCH POINT AREAS. 
- CARBON MONOXIDE CAN CAUSE SEVERE NAUSEA, FAINTING OR DEATH. DO NOT OPERATE ENGINE IN A CLOSED OR CONFINED AREA.
- HOT PARTS CAN CAUSE SEVERE BURNS. DO NOT TOUCH ENGINE WHILE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.
- HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.
- HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. LEAKS OF HIGH-PRESSURE FLUIDS MAY NOT BE VISIBLE. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS. 
- RELIEVE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE "RELIEVING HYDRAULIC PRESSURE" IN MAINTENANCE SECTION OF THIS MANUAL



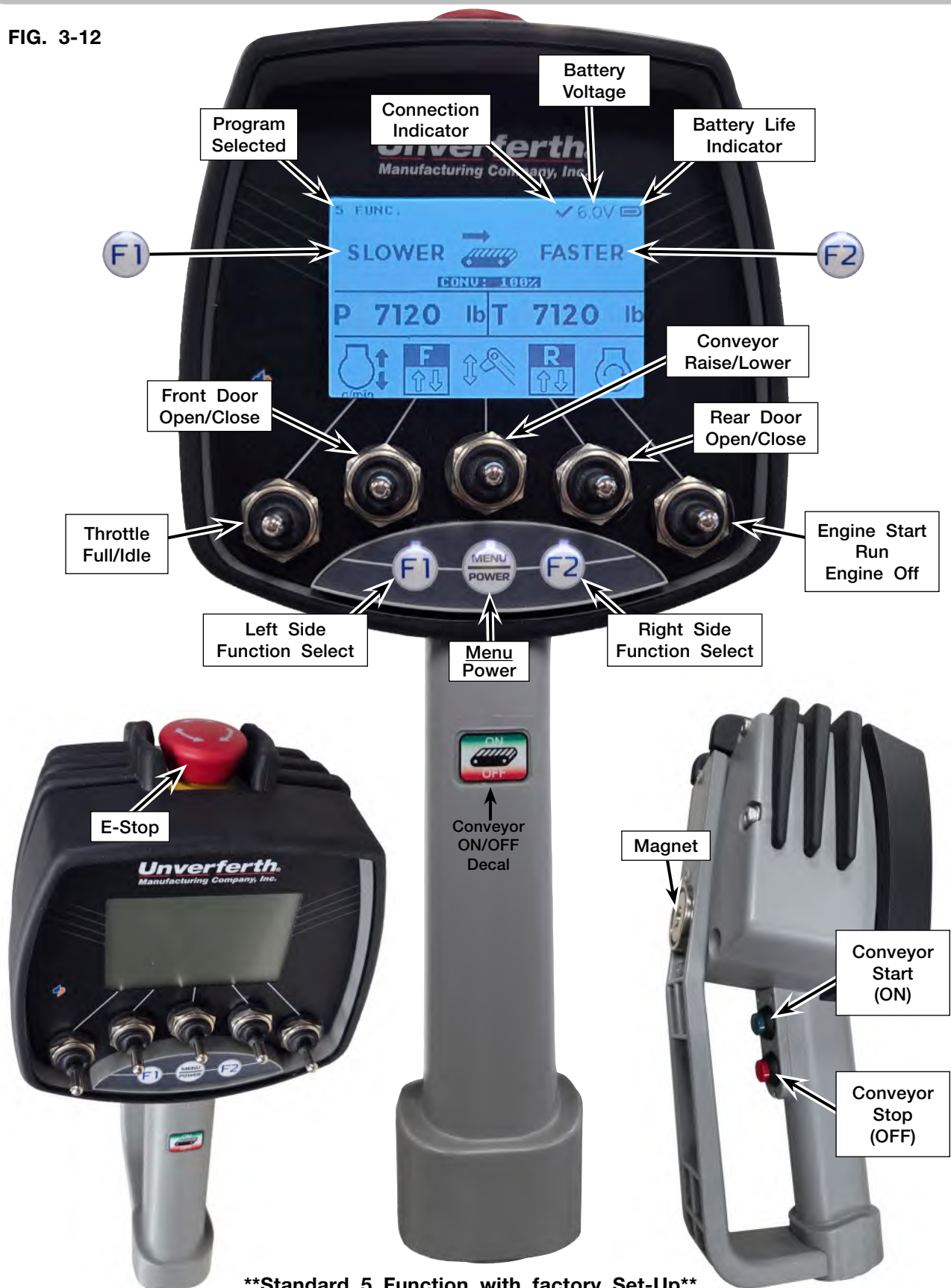
Wireless Remote Tutorial



Backup Controls App

Wireless Remote Control (continued)

FIG. 3-12



Wireless Remote Control (continued)**5-Function Wireless Remote Control Pkg**

1. Engine On/Off
2. Throttle Up/Down
3. Conveyor Raise/Lower
4. Font & Rear Door Open/Close
5. Conveyor Start/Stop

FIG. 3-13

**6-Function Wireless Remote Control Pkg**

1. Engine On/Off
2. Throttle Up/Down
3. Conveyor Raise/Lower
4. Font & Rear Door Open/Close
5. Conveyor Start/Stop
6. Conveyor Swing Left/Right

FIG. 3-14

**7-Function Wireless Remote Control Pkg**

1. Engine On/Off
2. Throttle Up/Down
3. Conveyor Raise/Lower
4. Font & Rear Door Open/Close
5. Conveyor Start/Stop
6. Conveyor Swing Left/Right
7. Hydraulic Self-Load (Conveyor Pivot & Tilt)

FIG. 3-15



*Standard on all remotes; Conveyor Speed and Lights.

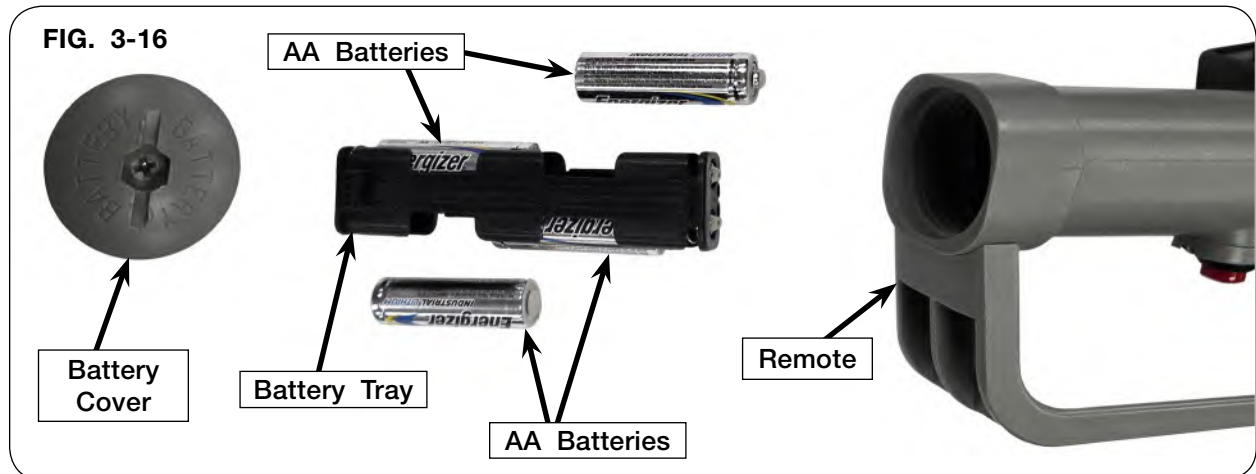
**Available Options; Remote Scale Display, Hydraulic Tarp, T&G, Jack, & Shaker control.

IMPORTANT

- *Before positioning or operating the Conveyor, park unit on a firm, level surface. Set the parking brake and remove the keys from the towing vehicle*

Wireless Remote Control (continued)**Batteries**

If the "Battery Life Indicator" on the hand-held transmitter is not shown, change the batteries.



1. Using a #2 phillips, 10mm Allen (Hex) Wrench or a large coin, remove the battery cover from the remote handle to gain access to the 4 "AA" batteries.
2. Remove the battery tray and replace the expired batteries with 4 fresh "AA" batteries.
3. Replace the battery tray into the remote handle, inserting the tray prongs first and aligning the guides.
4. Secure the cover without overtightening.

IMPORTANT

- Remove batteries if remote will not be used for extended periods.
- Batteries should be replaced between seasons.
- Lithium Ion batteries are factory installed and are recommended for best service life.
- Alkaline batteries can be used but the battery life indicator may not be accurate.
- Do not mix battery types.

Before Starting Engine:

Inspect that all fittings and hardware are in place and secure. Check for any potential hydraulic leaks. Check fluid levels in engine and sight gauge on reservoir. Be sure all valves are switched to neutral position.

If the "Battery Life Indicator" on the hand-held transmitter is displayed and if the engine still will not start, check the engine battery.

See Engine operator's manual for more detailed information on engine operation.

IMPORTANT

- Make certain hoses are all connected, and everyone is clear of conveyor before starting engine.

Wireless Remote Control (continued)

Starting Engine

1. With the unit attached to the towing vehicle, park the unit on a firm, level surface and set the parking brake.
2. Turn fuel shut-off valve to <ON> position

NOTE: When engine is not in use, turn fuel lever to the <OFF> position. Leaving the fuel valve on could cause carburetor flooding, fuel in crankcase, or fuel leakage.

3. Ensure the PULL START / KEY SWITCH toggle is in the KEY SWITCH position

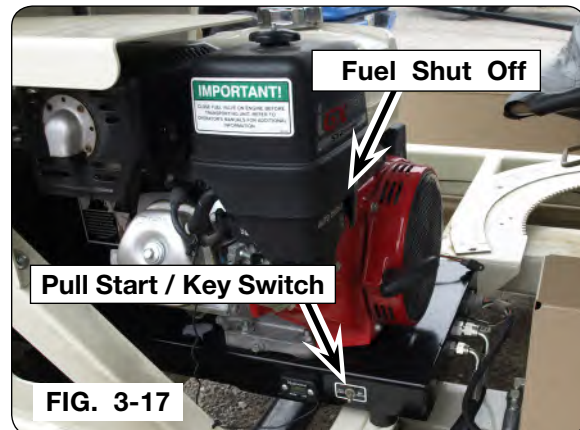


FIG. 3-17

3. Open the control box, rotate keyswitch to the middle position (4) and remove the hand-held transmitter.

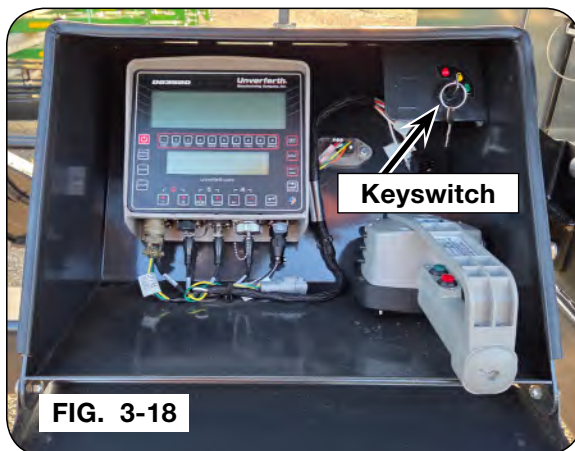


FIG. 3-18



FIG. 3-19

4. Twist the "E-STOP" button, located on top of the remote, to release the button.
5. Press and hold the MENU/POWER button for 1 second and wait for the remote to connect.
6. Push the "Engine Start" toggle up to start the engine (FIG. 3-19).
7. Run until the engine and hydraulic system have sufficiently warmed.

NOTE: In extremely cold weather, it is best to allow engine and hydraulics to warm up before operating at full throttle speed. If a hydraulic leak becomes apparent, turn the engine <OFF> immediately and take appropriate actions.

IMPORTANT

- In case of an emergency, push in the "E-STOP" to stop all functions and shut the engine off.

Wireless Remote Control (continued)**Raising And Lowering Conveyor**

1. Remove klik pin from transport lock before raising conveyor.
2. Using the center toggle to <RAISE/LOWER> the conveyor, position the conveyor at the desired height.

FIG. 3-20

**Swinging Conveyor Front to Rear (optional)**

CAUTION

- CONVEYOR CAN SWING FREELY WHEN UNLATCHED CAUSING INJURY. USE CAUTION WHEN PARKING ON INCLINES.

IMPORTANT

- When not using the conveyor, re-engage the swing latch to prevent the conveyor from swinging.

NOTE: Conveyor can be unlatched to swing freely, or it can be latched in place at various points along the track.

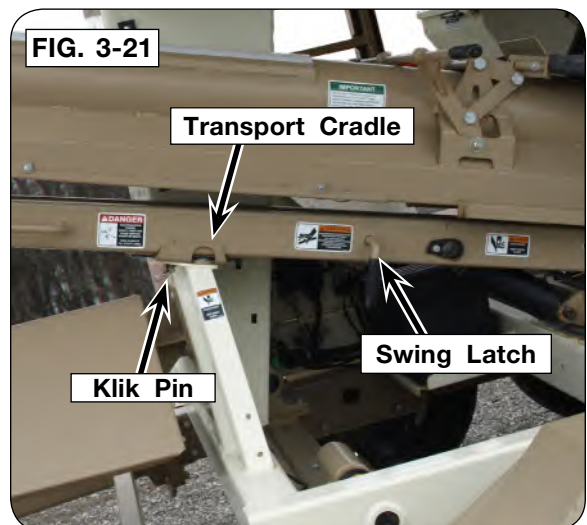
1. Remove klik pin from transport lock.
2. Raise conveyor so that it clears transport cradle.
3. Release Swing latch and use "Conveyor Swing Forward/Rear" (F1 or F2).

F1 = Swing to Front
F2 = Swing to Rear

FIG. 3-25



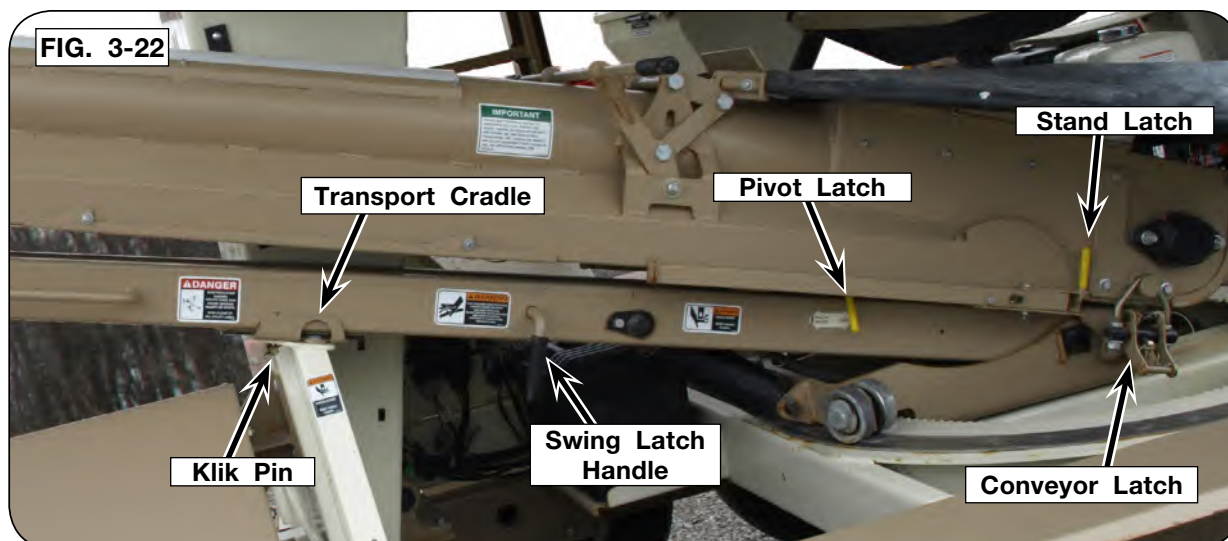
FIG. 3-21



Wireless Remote Control (continued)**Conveyor Rotate and Tilt (Self-Loading) (optional)**

NOTE: It is recommended to close manual valves above hopper doors before proceeding to avoid accidental door opening while moving the conveyor from loading to self-loading positions.

1. Start the engine, remove the transport latch klik pin, unlock the swing latch and swing the conveyor out from the seed tender. (FIG. 3-22)
2. Move the conveyor latch to the unlocked position and lower the hopper on the conveyor.



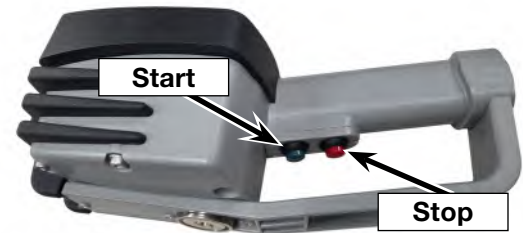
3. Toggle the TILT UP/TILT DOWN switch to the Tilt Up position until the end of the conveyor is high enough to clear the fender on the seed tender.
4. Use the PIVOT LEFT/PIVOT RIGHT switch to pivot the conveyor out beyond the fenders.
5. Use the conveyor RAISE/LOWER, SWING FRONT/SWING REAR, PIVOT LEFT/PIVOT RIGHT and TILT UP/DOWN switches to position the conveyor into the self-loading position. (FIG. 3-40)
6. Release and lower the Conveyor Stand to keep conveyor in place and off of the ground.
7. The conveyor is ready for self-loading.

**FIG. 3-23**

Wireless Remote Control (continued)**Conveyor Start/Stop**

The conveyor belt is operated with the buttons on the inside of the remote handle. The green (top) button starts the conveyor and the Red (bottom) button stops it. (FIG 3-24)

FIG. 3-24

**Throttle**

The control system is equipped with an Auto-Throttle feature. When the conveyor is started, the engine speed increases to full throttle. When stopped, the engine speed is reduced to idle after 15 seconds. This feature can be over-ride at any time by using the throttle switch to change the engine speed. This feature can also be turned off or changed in the Auto Throttle settings. (FIG 3-25)

FIG. 3-25

**Hopper Doors**

The Hopper Doors are operated with the two, inside toggle switches.

Push and hold toggle to fully open or close.

Push and release toggle to set desired open/closed position. (FIG 3-26)

FIG. 3-26

**Conveyor Speed**

The conveyor speed can be set 20%-100%.

Press the MENU/POWER button until the "CONV:" section is displayed.

F1 = Slows Speed

F2 = Increases Speed

FIG. 3-27



Wireless Remote Control (continued)**LED Lights**

The Seed Runner® Tender is equipped with three LED Lights. One located on the upper spout end of the conveyor and two by the hopper doors

Press the MENU/POWER button until the “LIGHTS” section is displayed.

F1 = OFF

F2 = ON

FIG. 3-28

**Hydraulic Tarp (optional)**

Press the MENU/POWER button until the “TARP” section is displayed.

F1 press and hold until fully closed.

F2 press and hold until fully open.

FIG. 3-29



Standard on Midnight Edition

T&G Applicator (optional)

The T&G Applicator delivers a fine coating, (0-100%) of Talcum or graphite, to the seed.

Press the MENU/POWER button until the “T&G” section is displayed.

F1 = SLOWER

F2 = FASTER

See your T&G Applicator Manual for further instructions.

FIG. 3-30



Standard on Midnight Edition

Wireless Remote Control (continued)**Hydraulic Jack (optional)**

Press the MENU/POWER button until the “JACK” section is displayed.

F1 = DOWN

F2 = UP

FIG. 3-31

Standard on Midnight Edition

Electric Shaker (optional)

The Electric Shaker creates a vibrating pattern in the selected hopper and assists the stuck or remaining seed to exit the hopper.

Press the MENU/POWER button until the “SHAKER” section is displayed.

Front Hopper, press and hold F1 to turn on, Release to turn off.

Rear Hopper, press and hold F2 to turn on, Release to turn off.

FIG. 3-32

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NOTE: See the *Wireless Remote Control* manual for further information.

Manual Conveyor Swing**CAUTION**

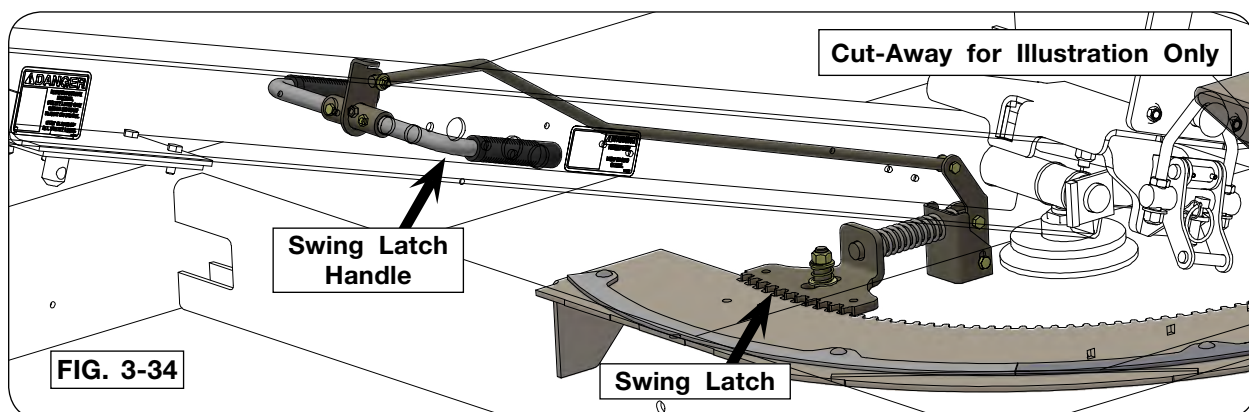
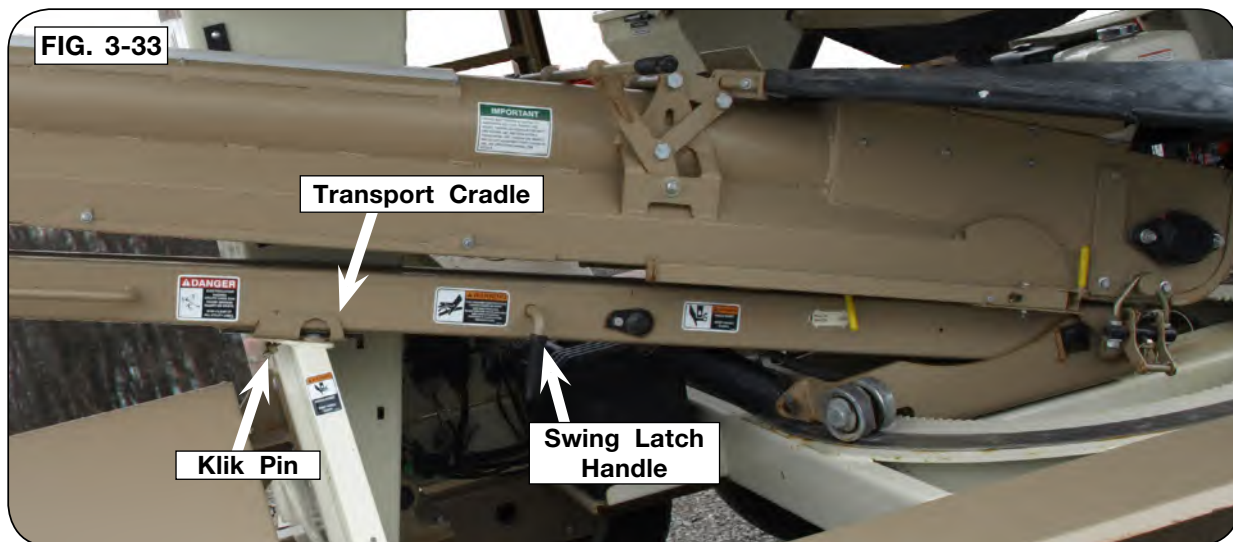
- CONVEYOR CAN SWING FREELY WHEN UNLATCHED CAUSING INJURY. USE CAUTION WHEN UNLATCHING ON INCLINES.

IMPORTANT

- When not using the conveyor, re-engage the swing latch to prevent the conveyor from swinging.

1. Remove klik pin from swing transport lock.
2. Start engine with the remote and raise conveyor so that it clears transport cradle.
3. Release swing latch and position conveyor at desired position.
4. Engage swing latch to secure conveyor in place.

NOTE: Conveyor can be unlatched to swing freely, or, it can be latched in place at various points along the track.



Filling Planter or Drill

Position the Seed Runner® Tender next to planter so conveyor discharge will be over planter box. Start engine on hydraulic power unit, raise conveyor to desired discharge height, and swing to location over planter. Place spout over planter box. Open door(s) on seed tender box to begin flow of seed. Turn on conveyor by pressing conveyor on/off button.

Fill box to desired level and turn conveyor off. Repeat process until each box/hopper is filled by pressing conveyor on/off button again. It is recommended that the conveyor be emptied once the last box/hopper is filled. Do this by closing door(s) on Seed Runner® Tender box shortly before the last box/hopper is full and let conveyor empty out.

IMPORTANT

- *Do not let telescoping spout rest in bottom of seed box. Seed will rapidly build up and plug conveyor, resulting in potential damage to belt.*

NOTE: *When using Seed Runner® Tender to fill individual planter boxes, the cover baffle plate must be installed over grate. This will slow grain flow to an acceptable level for ease of use. Failure to do so will result in over-filling conveyor and potential damage to seed or conveyor.*

Leaving seed in the conveyor for short periods of time will not damage conveyor, nor will it hinder starting/stopping conveyor when it is full, but over time seed could begin to settle resulting in hard starting of the conveyor.

WARNING

- **THE REAR HOPPER OF THE SEED TENDER BOX SHOULD BE EMPTIED FIRST. THIS WILL MAINTAIN WEIGHT ON THE HITCH OF THE TOWING VEHICLE. EMPTYING THE FRONT HOPPER FIRST WITH THE REAR HOPPER FULL COULD RESULT IN NEGATIVE TONGUE WEIGHT ON THE UNDERCARRIAGE AND REDUCED CONTROL OF THE UNDERCARRIAGE WHEN TOWING**

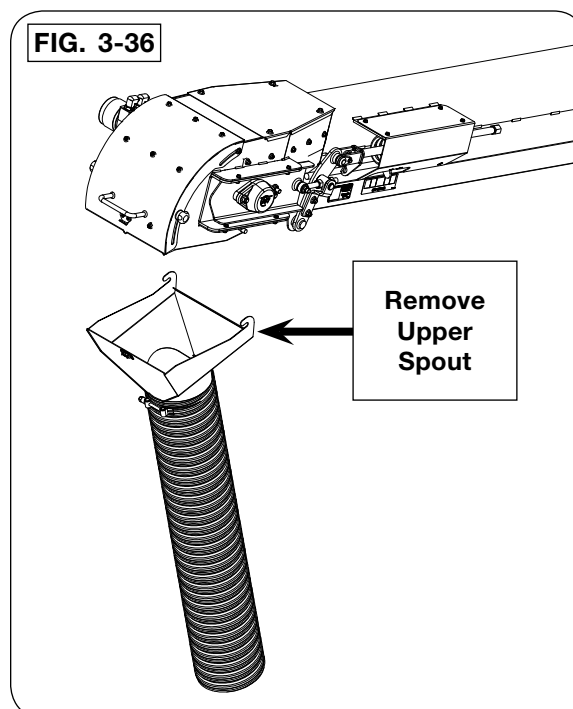
Filling Seed Runner® Tender From Another Wagon or Bulk Container (Self-Filling)**⚠ WARNING**

- THE SEED RUNNER® TENDER MUST BE HOOKED TO THE TOWING VEHICLE WHEN BEING FILLED AND THE BRAKES ON THE TOWING VEHICLE MUST BE SET.
- THE FRONT HOPPER OF THE SEED TENDER BOX SHOULD BE FILLED FIRST. THIS WILL MAINTAIN WEIGHT ON THE HITCH OF THE TOWING VEHICLE. FILLING THE REAR HOPPER FIRST WITH THE FRONT HOPPER EMPTY COULD RESULT IN NEGATIVE TONGUE WEIGHT ON THE UNDERCARRIAGE AND REDUCED CONTROL OF THE UNDERCARRIAGE WHEN TOWING.

1. Pivot conveyor out of transport position to about a 45 degree angle from the tongue and lower completely. (FIG. 3-35)

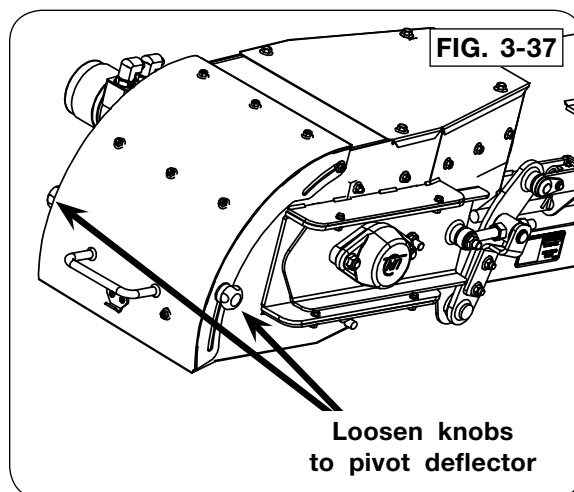


2. Remove upper spout from conveyor by releasing latch and sliding spout off of conveyor. (FIG. 3-36)



Filling Seed Runner From Another Wagon or Bulk Container (Self-Filling) (continued)

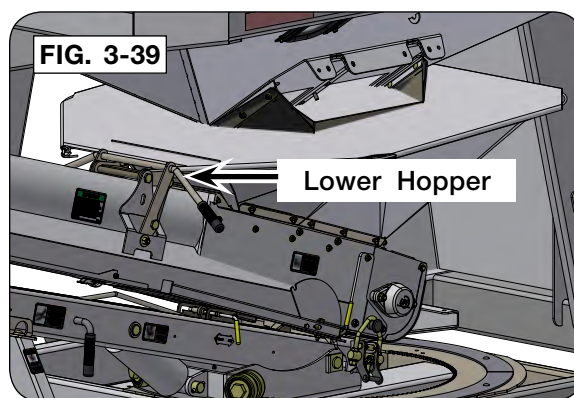
3. Loosen the two knobs on the side of the deflector, pivot deflector up, and tighten knobs to hold deflector in place. (FIG. 3-37)



4. Raise conveyor about half way up and position it at a 45 degree angle from the box. (FIG. 3-38)

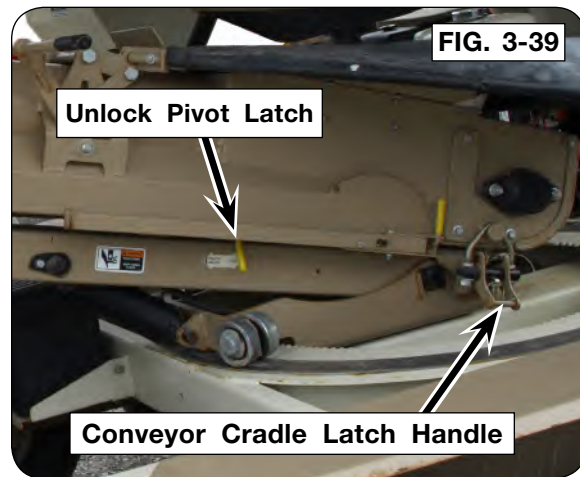


5. Lower flexible hopper by rotating handles forward.



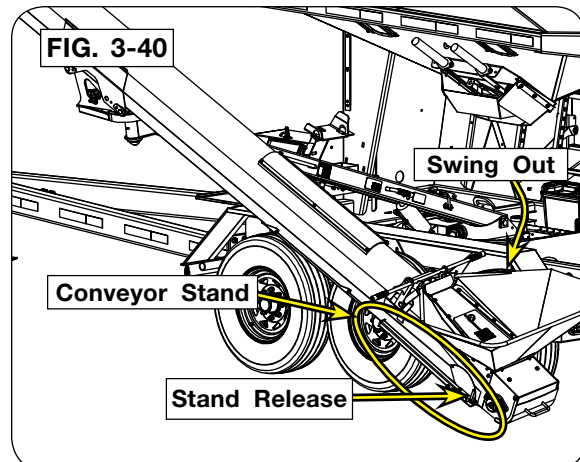
Filling Seed Runner From Another Wagon or Bulk Container (Self-Filling) (continued)

6. Unlatch conveyor from lower cradle by removing the klick pin and lifting the latch handle and then slide the lever forward to unlock the Pivot Latch. (FIG. 3-39)



7. Swing the hopper end of the conveyor out from under the seed tender box, pull the Stand Release lever and rotate the conveyor stand down for use. (FIG. 3-41)

Self-Filling using the 7 Function Handheld Remote

**IMPORTANT**

- *Whenever possible, use the stand on the bottom of the conveyor to keep the hopper off the ground. Maximum conveyor performance and easier access to discharge point on bulk seed containers will result.*

Filling Seed Runner From Another Wagon or Bulk Container (Self-Filling) (continued)

8. Position conveyor so that the discharge end is located over the seed tender box and the hopper is on the ground or on the stand away from the box. (FIG. 4-32)



FIG. 3-41

9. Raise flexible hopper by sliding lever to the upright position. Locate wagon or bulk seed container over conveyor hopper and operate conveyor to fill seed tender box.

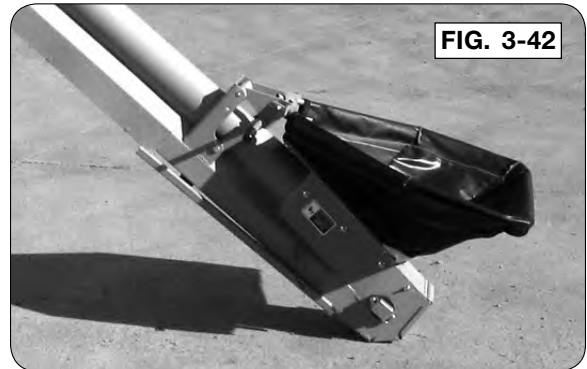


FIG. 3-42

10. When finished loading seed into the seed tender, move wagon or bulk seed container away from conveyor. Position conveyor hopper back under the seed tender box, and latch in place. Conveyor should be placed back in the transport position and secured with the klik pin.

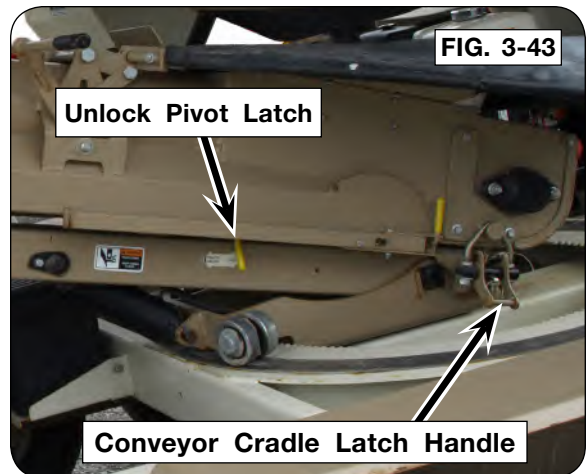


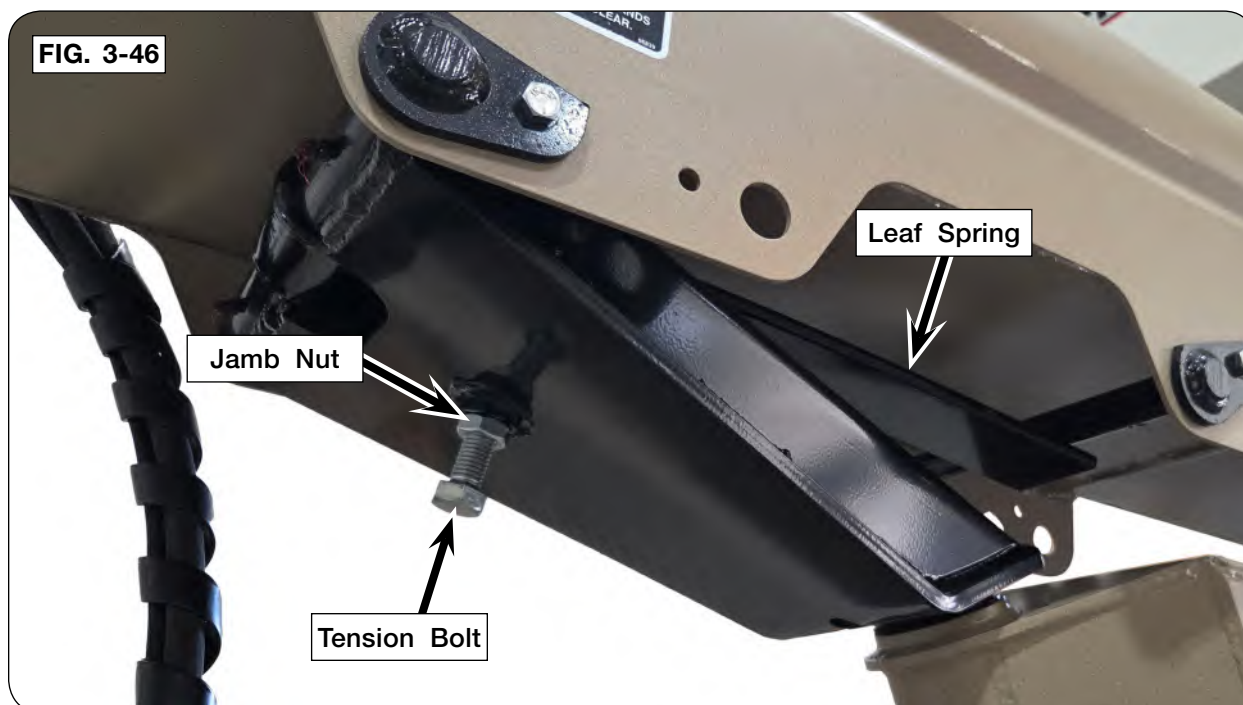
FIG. 3-43

IMPORTANT

- When positioning conveyor, be certain to pivot back in the direction it originally came from. Do not pivot conveyor round and around. Doing so will twist hydraulic hoses at pivot point resulting in damage to hoses and potential hydraulic failure.
- Conveyor must always be latched in cradle except when self-filling seed tender box.

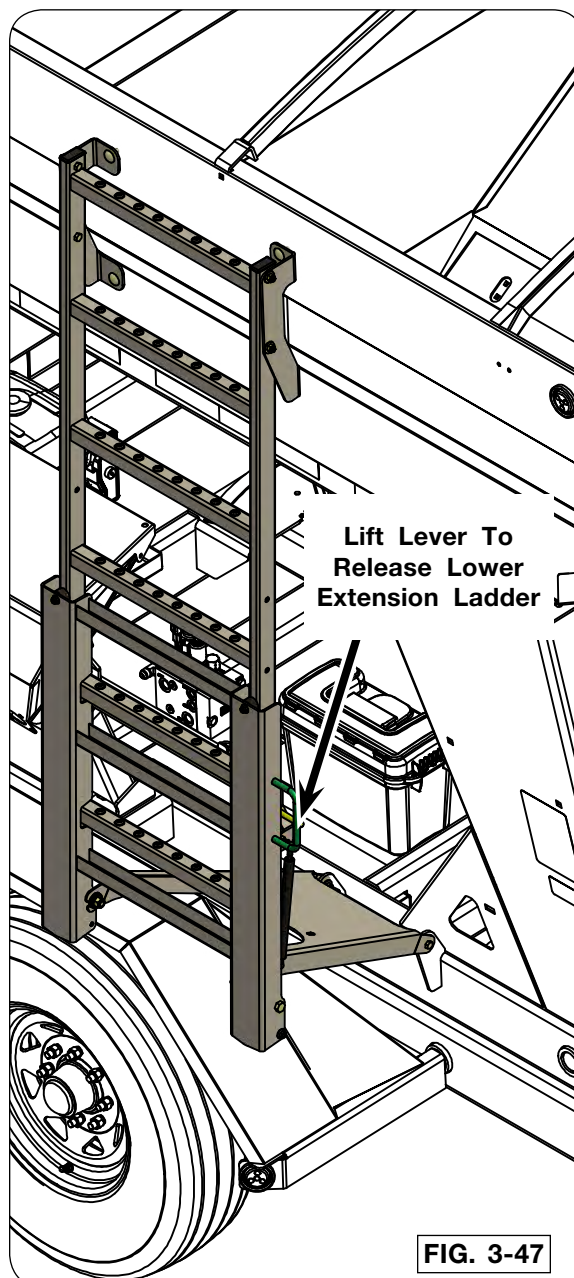
Spring Assist Adjustment

Conveyor support arm is equipped with a spring assist to ease operation in self-filling. This spring assist is adjustable by increasing or decreasing the tension on the spring. To adjust, loosen jam nut, and turn bolt in to increase spring force, and out to reduce spring force. Always lock jam nut after adjustment.



Ladder

1. To use ladder, lift lever shown in FIG. 3-47 to release the lower extension ladder from transport position.
2. When not using ladder, be sure to raise lower extension ladder and latch into the transport position.



Deluxe Ladder (Option)

1. To use ladder, lift lever shown in FIG. 3-48 to release the lower extension ladder from transport position.
2. When not using ladder be sure to raise lower extension ladder and latch into the transport position.



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Tarp**IMPORTANT**

- *Do not release tension from ratchets once they are set. They should only be released when removing tarp from box.*
- *Make sure nobody is on or near the tarping system while operating tarp.*
- *Always use both hands with feet on a solid surface while operating the tarp.*
- *Do not exert extreme force to roll tarp open or closed. If tarp is covered with grain or snow, it must be removed before operating.*
- *End caps must be free from grain that may be piled on them.*
- *Tarp should be fully closed when in transport.*
- *Insert snap pins whenever removing or placing handle in holders.*
- *Inspect tarp and hardware often for abrasions or loosened bolts that may need to be adjusted and/or repaired. Check cables for wear and adjust tension whenever needed. Make all appropriate repairs or adjustments immediately before serious damage occurs.*

Manual Tarp

1. Remove retaining pin from crank holder. With both hands, carefully remove crank from the holder. Extend crank handle assembly to a comfortable operating position at back of box. Roll tarp entirely to the open or closed position. Proceed by placing crank in holder and reinsert pins.



FIG. 3-49

Tarp (continued)**Hydraulic Tarp (optional)**

1. Start engine and wireless remote.
2. Press the MENU/POWER button until the “TARP” section is displayed.
3. Operating the tarp;
 - Open, press and hold F2 until fully open.
 - Close, press and hold F1 until fully closed.
4. Press the red E-STOP button to power down the remote.



Standard on Midnight Edition



DG3520 Electronic Scale**Auto Shut-Off**

Refer to your DG3520 Scale manual for operating information and instructions.

FIG. 3-52**Filling a Central Fill System or Larger Quantity**

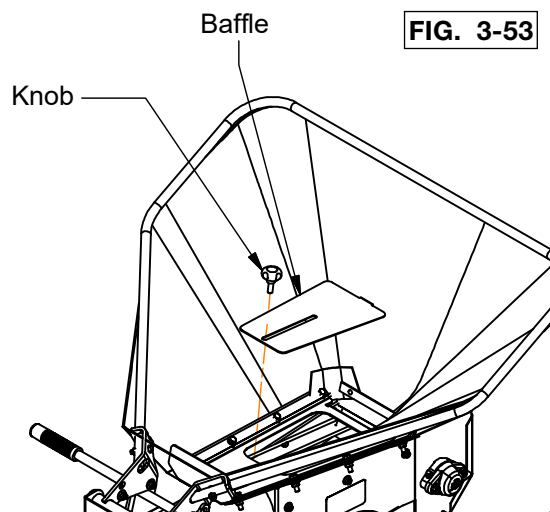
1. The conveyor intake baffle does not need to be installed for a 6" conveyor and it should be removed on an 8" conveyor for maximum seed flow.
2. Refer to the scale manual for calibration and operation instructions.

Filling Individual Planter Boxes

1. Install the baffle supplied on conveyor.

NOTE: Failure to use the intake baffle could overload the belt, causing seed and/or belt damage.

2. Refer to the scale manual for calibration and operation instructions.

FIG. 3-53

DG3520 Electronic Scale (continued)**Auto Shut-Off****Calibration****IMPORTANT**

- *External forces that affect the scale during “Auto Shut off” mode will cause a mis-calculated target weight. Position the conveyor in the optimum location prior to unloading.*

Note: These calibration steps are to quantify the amount of seed in the downspout when the conveyor turns off.

1. Install OR remove the Conveyor Intake Baffle.
Installed: For dispensing a small quantity of seed (Ex: 60lbs., individual planter boxes).
Removed: For dispensing a large quantity of seed (Ex: 300 lbs., central fill planter tanks).
2. Power on the scale indicator and start the powerpak.
3. Set the scale indicator to “Auto” by pressing the “AUTO/MAN” key. Enter the desired weight to be dispensed (Ex: 60 lbs). Press “ENTER” to accept the desired weight.
4. Before starting, record the gross weight displayed on the scale.
5. Start the conveyor and open the hopper door(s). Once the automatic unload has ended, record the new gross weight. Calculate the difference between the loaded and the unloaded gross weight readings. This is the actual weight of seed unloaded (Ex. 70 lbs.).
6. Calculate the difference between the actual seed weight unloaded and the desired unload weight (Ex. 10 lbs.). The scale indicator tolerance must be adjusted by this amount to have the conveyor shut off sooner if overshooting, or later if undershooting.
7. Determine the current scale indicator tolerance value:
 - A. Press the “Main Menu” button to access the main menu.
 - B. Using the (+) and (-) arrow keys, select the parameter “2 – TOLERANCE”.
 - C. Press “ENTER”. The current tolerance value is now displayed (Ex. 12 lbs.).
8. Add the value difference calculated in step 6 to the current tolerance value (Ex. $10+12=22$). Change the scale indicator tolerance value to this new value (Ex. 22 lbs.) by using the numeric keyboard. Press the “ENTER” key to save the value and “RESET” to exit to the “Main Menu”.
9. Repeat steps 4 through 9 until the auto conveyor shut off consistently unloads the desired weight within 5 lbs.

Note: Conveyor speed and seed flow must remain consistent for repeatable unload weights. Changes to conveyor speed and seed flow may require recalibrating the conveyor auto shut off.

Note: Install the conveyor intake baffle if greater precision is desired.

Hydraulic Jack (Option)

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Bumper Hitch, see manual #2013723 for complete operating procedures. (FIG. 3-54)



Gooseneck Hitch, see manual #2013724 for complete operating procedures. (FIG. 3-55)

Gooseneck Cushion Hitch Height/Air Pressure Adjustment

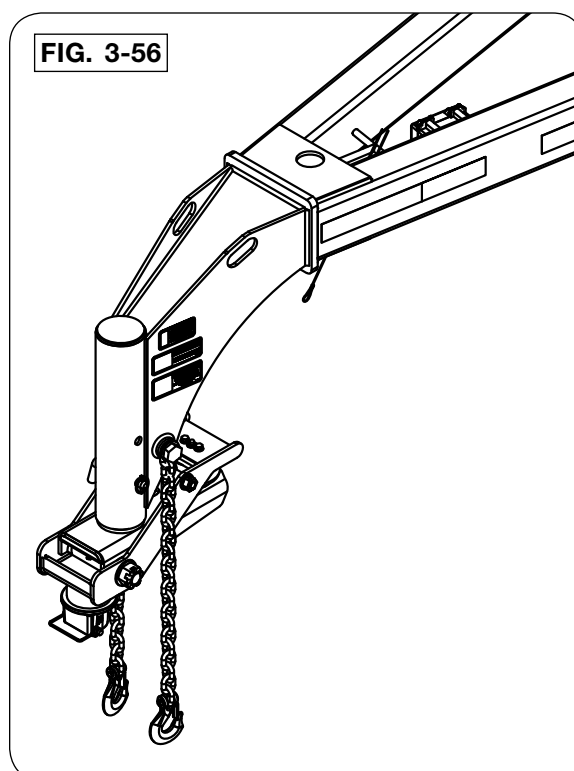
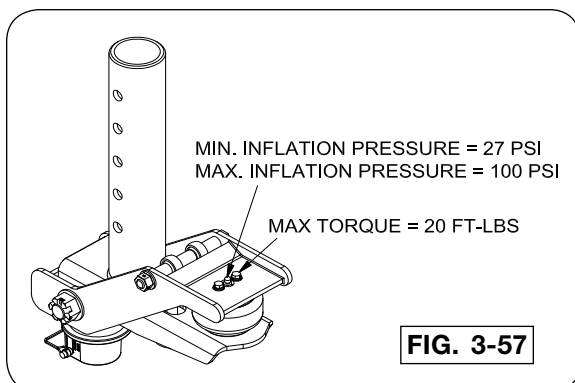
Make sure seed tender is running level when loaded.

Adjust the air pressure as needed to get the desired ride quality for customer's set up.

Min. Inflation Pressure = 27 PSI

Max. Inflation Pressure = 100 PSI

NOTE: Do not over tighten the air bag retaining hardware.



Notes

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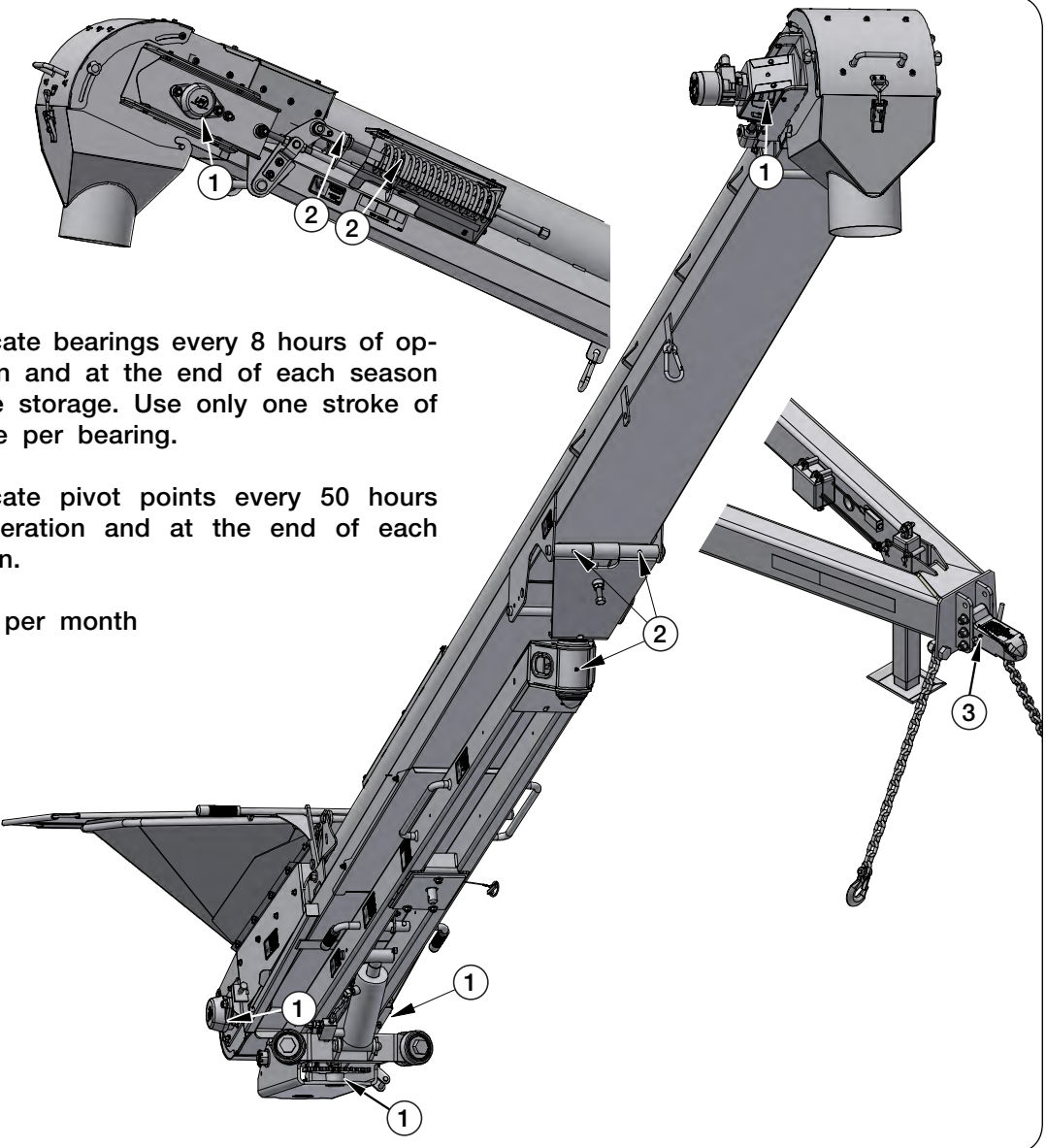
Lubrication**IMPORTANT**

- ***DO NOT** use a high-pressure grease gun to lubricate conveyor bearings, as damage to bearing seal could occur.*
- *These bearings are shipped from our manufacturer full of grease. It is possible they will not take grease on a new machine.*

Lubricate with an SAE multi-purpose grease. All fittings must be free from dirt and paint to insure entry of lubricant inside bearing.

NOTE: Excessive lubrication of bearings will result in premature failure.

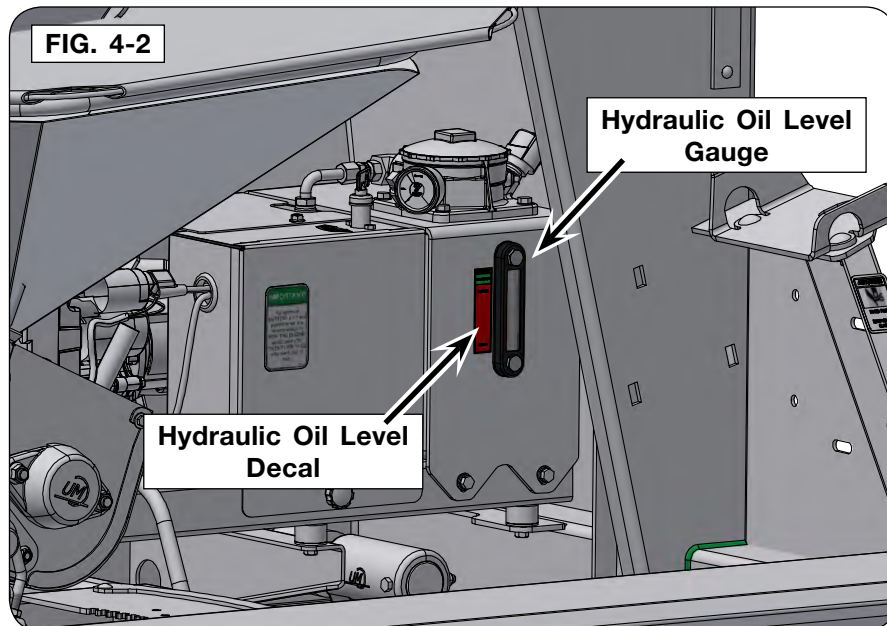
FIG. 4-1

- 
1. Lubricate bearings every 8 hours of operation and at the end of each season before storage. Use only one stroke of grease per bearing.
 2. Lubricate pivot points every 50 hours of operation and at the end of each season.
 3. Once per month

Lubrication (continued)**Hydraulic Power Unit**

Check motor oil level in engine daily. See Engine operator's manual for more information.

Inspect hydraulic oil level in reservoir daily. The level should be 1 to 1-1/2 inches from the top of the sight gauge. Add the appropriate amount of hydraulic oil as needed. Most farm tractor type hydraulic oils are acceptable. **DO NOT** use Automatic Transmission Fluid! **DO NOT** mix different oils when topping off the tank.

**Gooseneck Cushion Hitch**

Lubricate pivot points on pivoting arm every 50 hours of operation and at the end of each season.

Check air bag pressure:

Min. Inflation Pressure = 27 PSI

Max. Inflation Pressure = 100 PSI

Torque the air bag hardware to 20 Ft.Lbs.

Inspect air bag for rips, tears, and leaks.

AIR BAG
MIN. INFLATION PRESSURE = 27 PSI
MAX. INFLATION PRESSURE = 100 PSI

FIG. 4-3

MAX TORQUE = 20 FT-LBS

INSPECT AIR BAG

Grease Every
50 Hours

Hub Assembly 2760(XL) & 3760(XL)

The wheel bearings should be cleaned, repacked and adjusted every 12 months or 2,500 miles, whichever comes first. Use a number 2 wheel bearing grease to repack the bearings. Use the following instructions to properly tighten the wheel bearings:

1. Use grease to lubricate the seal lip.
2. Place the hub onto the spindle. Rotate the hub while installing the hub so that the seal lip does not fold under as the lip goes on the seal face of the spindle.
3. Be sure the outer cone slides on the spindle and cup.
4. Assemble the washer and nut onto the spindle and spin hub as tightening nut and when hub stops turning back the nut off to the closet hole and insert cotter pin. Do not bend the cotter pin.
5. Check for looseness in the hub. There should be none to slight wiggle. If excessive wiggle is present, repeat the procedure starting with step 4.

Hub Assembly 3960XL(DXL) & 4960DXL

The wheel bearings should be cleaned, lubricated and adjusted every 12 months or 12,000 miles, whichever comes first. Use an SAE 80W90 oil to lubricate bearings. If the hub has been removed or bearing adjustment is required, the following procedure must be followed:

1. Clean spindle of all rust/corrosion, etc. The area where bearings and especially seal surface must be smooth and free of all rust and imperfections.
2. Apply a thin coating of oil to the inner seal surface, spindle bearing, and seal surface.
3. Carefully install hub/drum assembly onto the spindle.
4. Install outer bearing, washer, and nut.
5. Rotate hub while tightening spindle nut to 100 ft.-lbs.
6. Loosen nut, do not move hub.
7. Hand tighten nut until snug.
8. Begin to rotate hub and hand tighten more if necessary.
9. Advance the slotted nut to the nearest hole in spindle (horizontal or vertical) and tighten just enough to align with that hole.
10. Check hub for end play. (There should not be any). Hub should rotate freely with essentially no drag.
11. Install cotter pin and bend prong over.
12. Apply a thin layer of oil to hub cap o-ring.
13. Install the o-ring onto cap, being sure the o-ring is fully seated on the cap and not twisted.
14. Thread hub cap onto hub, and torque to 20-30 ft.-lbs. max.
15. Fill hub with oil, rotate and ensure oil level is up to fill line & install rubber plug.

Hydraulic System

WARNING

- RELIEVE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE “RELIEVING HYDRAULIC PRESSURE” IN THE MAINTENANCE SECTION OF THIS MANUAL.
- HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. LEAKS OF HIGH-PRESSURE FLUIDS MAY NOT BE VISIBLE. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.

When properly assembled and maintained, the hydraulic system requires little maintenance.

Replacing Hoses/Fittings/Cylinders:

1. Use replacement hoses, fittings, and cylinders from your Unverferth Manufacturing dealer which are rated for 3000 psi.
2. Do not use hoses, fittings and cylinders that have pipe threads.
3. Do not use Teflon tape or thread sealant on JIC or O-ring fittings. Tighten fittings according to “Torque Chart” in this section.
4. When replacing hoses, always allow sufficient slack to permit hoses to move through the full range of motion of the cylinders.
5. Always purge the hydraulic system after servicing.

Purge Hydraulic System

1. Clear all personnel and objects from the area, including where the machine will have full range of motion during the hydraulic movement. Remove transport locks from the machine.
2. Pressurize the system and maintain the system at full pressure for at least 5 seconds after the cylinder rods stop moving, or hydraulic motors have completed the required movement. Check that all movements are fully completed.
3. Check oil reservoir in the hydraulic power source and refill as needed.
4. Pressurize the system again to reverse the motion of step B. Maintain pressure on the system for at least 5 seconds after the cylinder rods stop moving, or hydraulic motors have completed the required movement. Check that all movements are fully completed.
5. Check for hydraulic oil leaks using cardboard or wood. Tighten connections according to directions in the Torque Specifications in the MAINTENANCE section.
6. Repeat steps in B, C, D, and E 10-12 times.

Check for and correct any leaks. Make sure hoses are not kinked, stretched, or twisted. Secure hoses to prevent cuts or chafing during operation.

Relieving Hydraulic Pressure

To relieve hydraulic pressure in the system, be sure hydraulic motor is disengaged and/or hydraulic cylinder is not exerting force on the system. Next, turn off engine and actuate valve in hydraulic system to all positions of actuation and to the neutral position. This should relieve all pressure in the system. If there is a need to remove hydraulic fittings or hoses, slowly loosen the appropriate connections. If there appears to be pressure in the system, retighten fitting and at the top of this section and perform all procedures again until pressure is relieved.

Valve Manual Override Operation

Should the wireless remote not work, use the valve block override buttons. These are the knurled buttons located on top of the solenoids. The main flow control valve knob must be threaded in in order to operate the other valves override buttons. Return the main flow control valve knob to neutral position after valve manual override operation is complete.

Stackable Valve Manual Override Operation & Wire Schematic

Thread in Main Flow Control BEFORE operating push/pull valves. Thread out Main Flow Control when done.

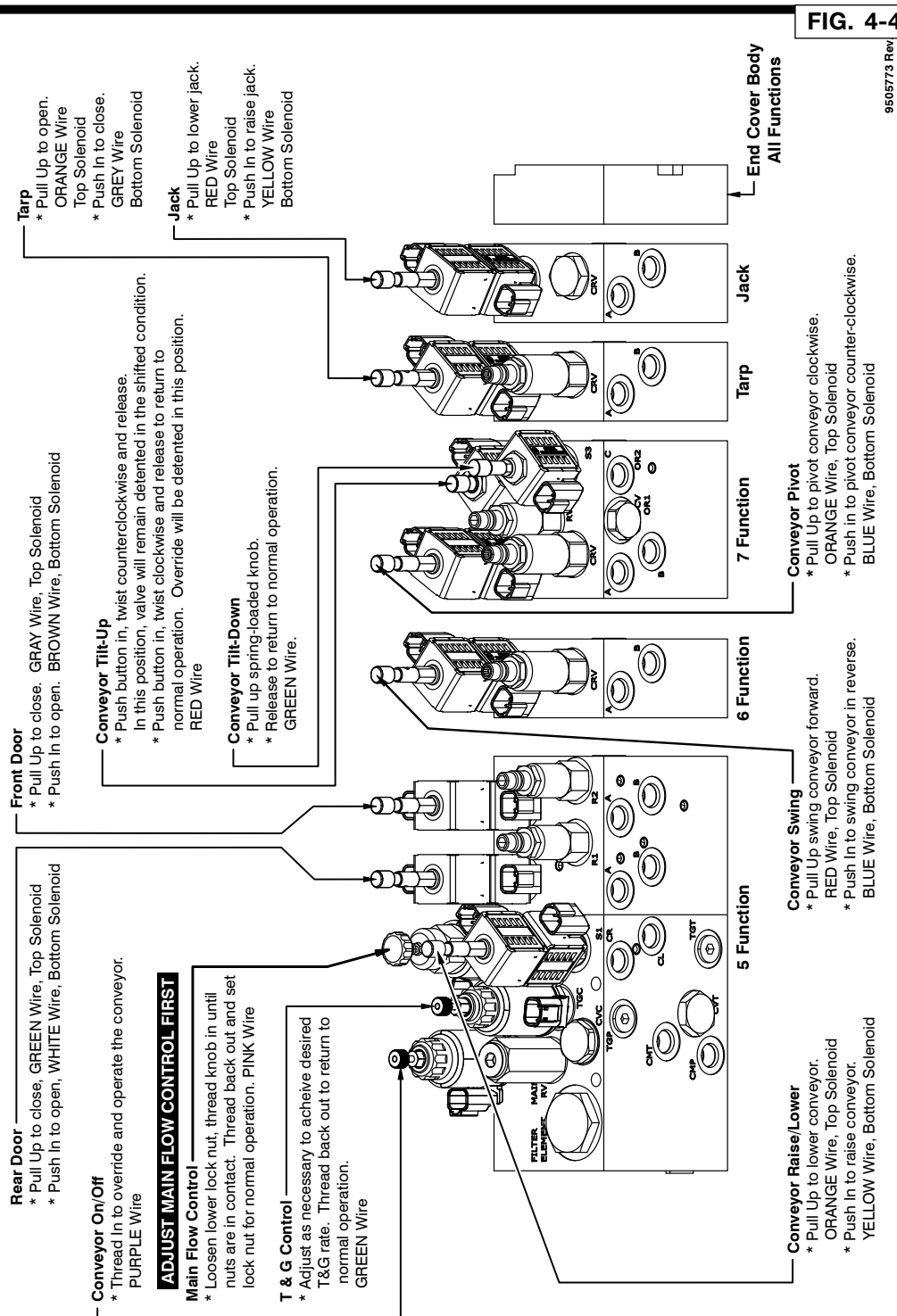


FIG. 4-4

9505773 Rev

Valve Manual Override Operation (continued)

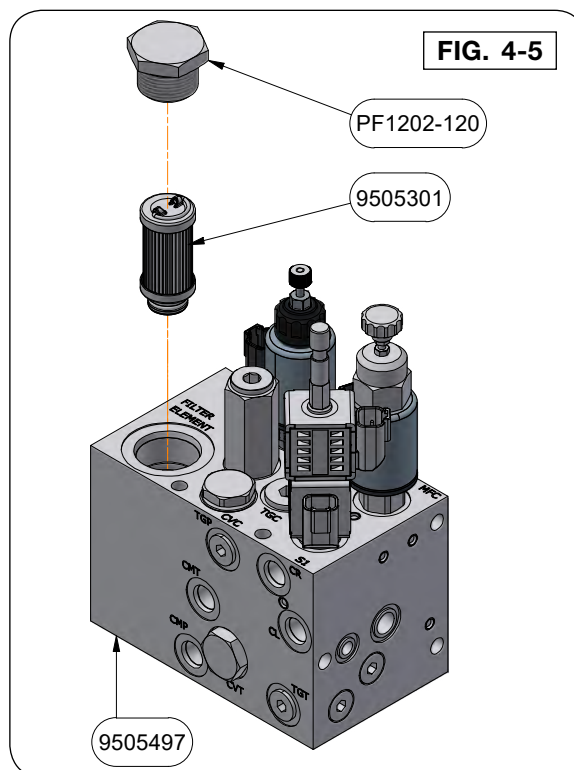
Override Valve Filter

The main override valve body has a screen filter element that may become clogged and need cleaned or replaced.

1. Relieve hydraulic pressure in the system.
(pg. 4-8)
2. Remove and retain the filter housing cap (PF 1201-120)
3. Remove the filter (9505301) and clean or replace.

NOTE: Only replace with a new Unverferth filter.
DO NOT use a substitute filter.

4. After replacing the filter in the housing, install the cap and tighten. Be careful to not overtighten the cap.



Conveyor Belt

IMPORTANT

- *Proper belt tension and correct 'tracking' of the belt are critical to maintaining the belt for years of worry-free use. Belt tension and tracking should be checked after the first initial use and second use and then after the 2 hours of initial use. Thereafter, belt tension and tracking should be checked at the beginning of each season and every 8 hours of use.*
Belt tracking will also need checked anytime the belt tension is adjusted.

Auto Tension

It is recommended to check the belt tension before operation if the unit has been sitting for an extended period of time. Belt tension is adjusted at the discharge end of the conveyor. Belt tension is inspected by observing the Belt Tension Indicator and its location on the Belt Tension Decal.

Green

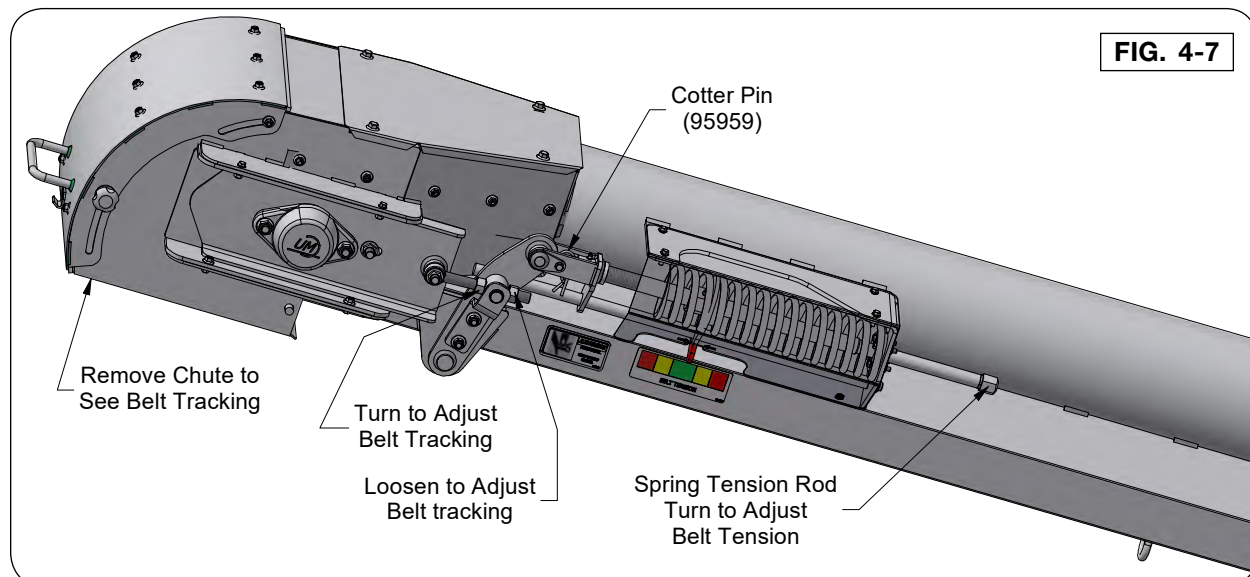
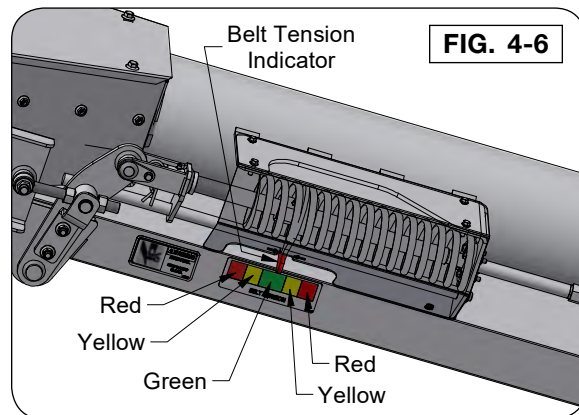
- Optimal Performance.

Yellow

- Needs Attention, Adjust Soon.

Red

- STOP IMMEDIATELY / DO NOT OPERATE, Adjustments are necessary.



1. Remove and retain Cotter Pin (95959)
2. Turn the Spring Tension Rod to position the Belt Tension Indicator as close to the center of the Green, or between the arrows on the shield, as possible.
3. Re-align the holes for the cotter pin and replace pin.

Conveyor Belt (continued)

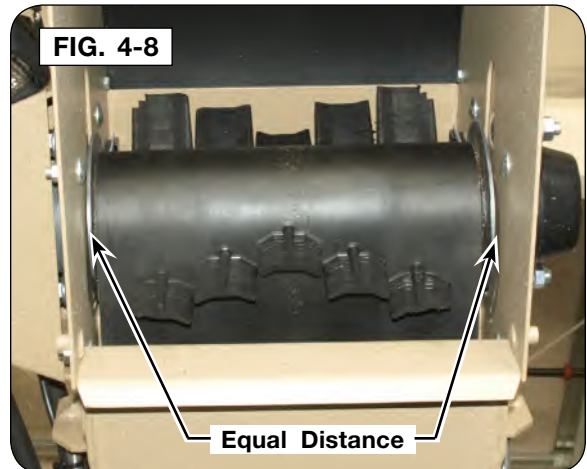
Belt Tracking

WARNING

- MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. USE EXTREME CARE WHEN INSPECTING AND ADJUSTING BELT TRACKING.

Conveyor belt must always run at the center of the pulley on both the intake and discharge end. Improper tracking of the belt will result in excessive wear to the edge of the belt, and will greatly reduce belt life. Check belt tracking every 8 hours of use, and every time belt tension is adjusted.

Inspect tracking of belt at discharge end by removing lower spout, pivoting deflector up, and looking up at the belt and pulley. Operate conveyor at slow speed, and tighten or loosen the adjustment nuts until belt is running in the center of the pulley. (FIG 4-8)

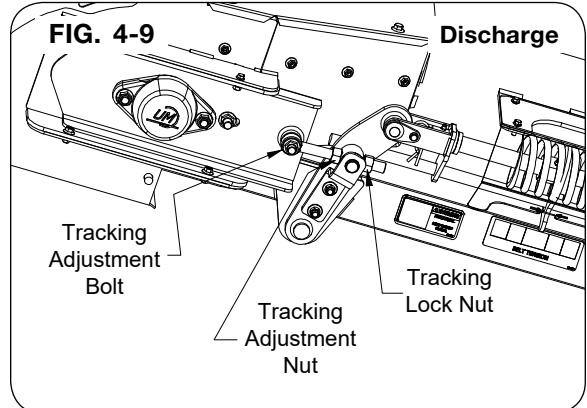


Loosen the rear nut of the Adjustment Bolt. Turn the adjustment nut; clockwise to push the pulley counterclockwise to pull it

Alternate from side to side to center the belt.

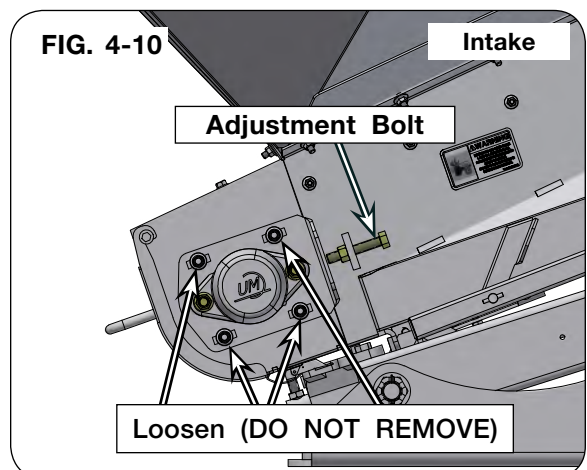
NOTE: Do not make more than an 1/8 turn at a time when adjusting the tracking.

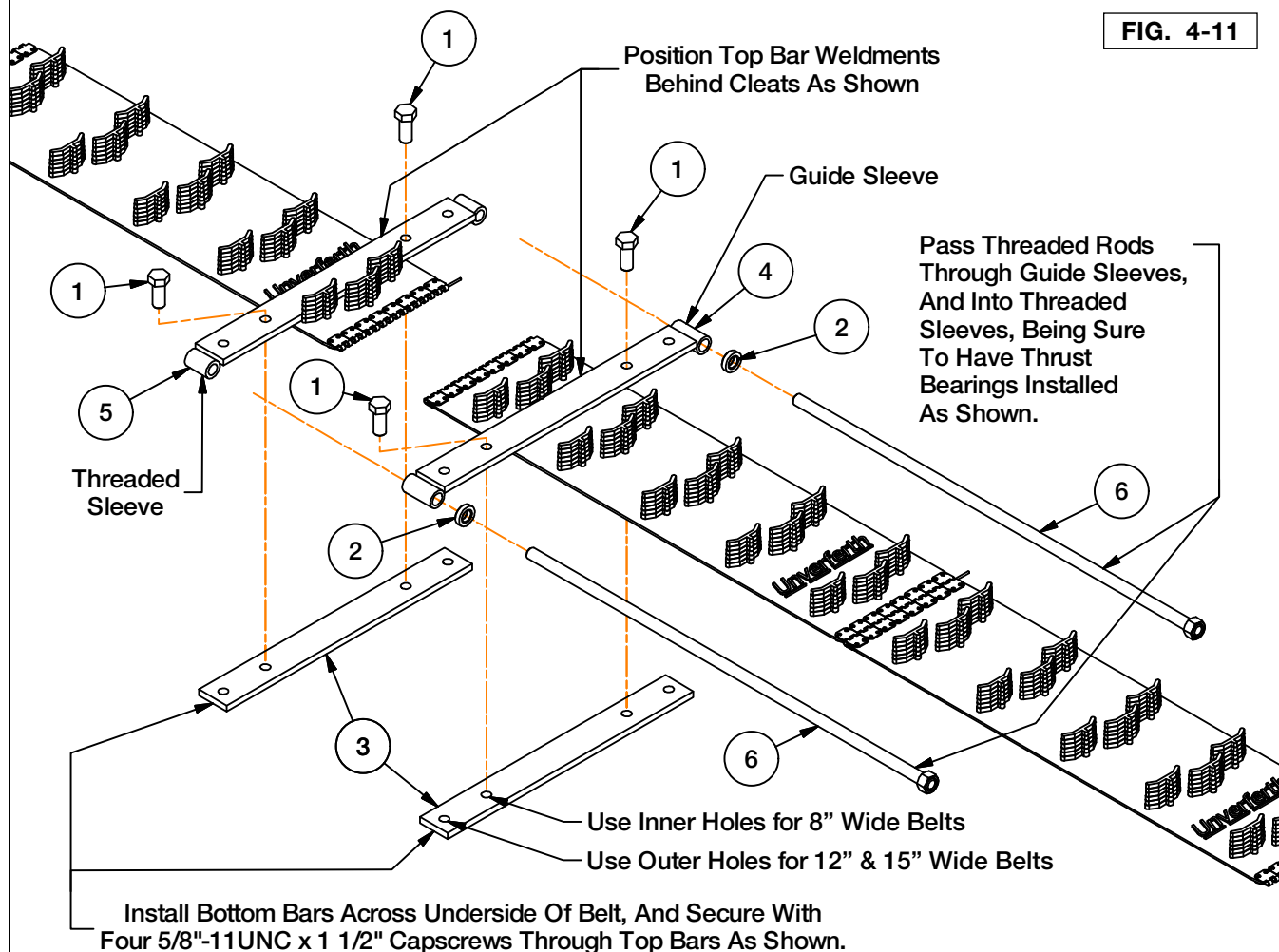
Tighten the Locking Nut when the adjustment is finished. (FIG. 4-9)



Loosen the 4 nuts on the adjustment plate. Loosen the locking nut on the adjustment bolt. Operate conveyor at slow speed, and tighten or loosen adjustment bolt until belt is running in the center of the pulley.

Tighten the bolts on the adjustment plate and lock the adjustment bolt into place. (FIG. 4-10)

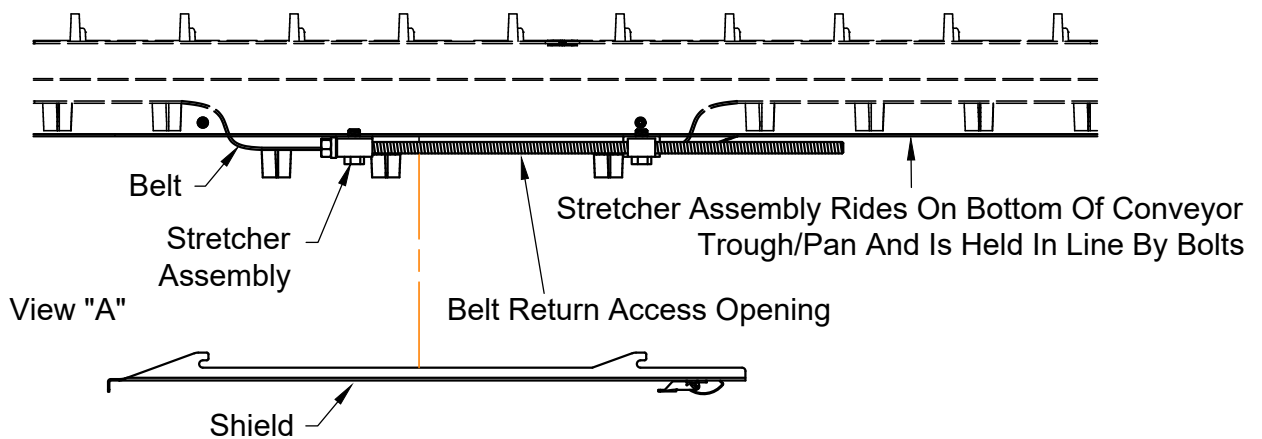
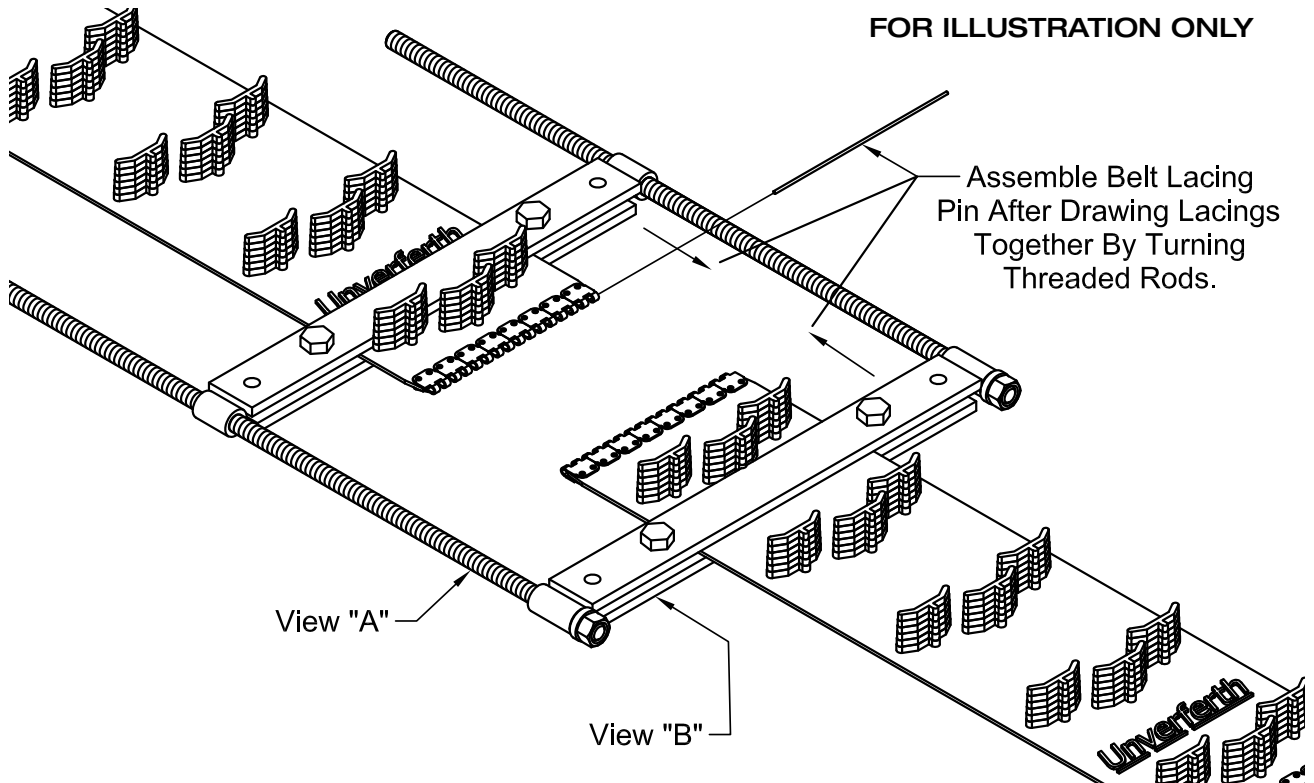


Belt Stretcher (Optional)**FIG. 4-11**

ITEM	PART NO.	QTY	DESCRIPTION
	TA4-114400-0	1	BELT INSTALLATION TOOL
1	9390-122	4	CAPSCREW, 5/8-11UNC x 1 1/2 LG. GRADE 5
2	TA0-903118-0	2	BEARING, BALL THRUST, 5/8" I.D.
3	TA1-114401-0	2	BOTTOM BAR
4	TA2-114404-0	1	PLAIN TOP BAR WELDMENT
5	TA2-114406-0	1	THREADED TOP BAR WELDMENT
6	TA2-114408-0	2	THREAD ROD WELDMENT

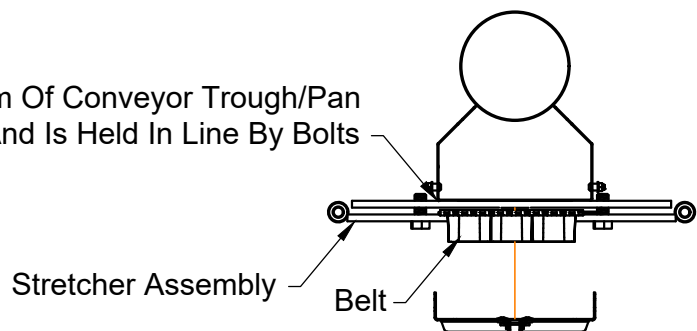
Belt Stretcher (Optional) (Continued)

FIG. 4-12



View "B"

Stretcher Assembly Rides On Bottom Of Conveyor Trough/Pan And Is Held In Line By Bolts



Tarp Cable Tension

Maintaining correct tension on the tarp cables is important to ensure a weather-tight seal on the edges of the tarp.

1. Cable tension is easily determined by position of the tension channel on front and rear spools. As tension is applied with ratchet, the spool turns. Watch the tensioning channel on the side of the spool.
2. Tensioning channel must be level at the bottom position for proper tension. (FIG. 4-13)
3. Ratchet must be in locked down position to hold tension (FIG. 4-23 & FIG. 4-24). Set proper tension and leave it. **DO NOT RELEASE TENSION TO OPERATE TARP SYSTEM.**

Note: *it may be necessary to initially tighten the ratchet an additional two clicks past level. Then open and close tarp system 5 times to pull tarp snug. Tension channel should be level at bottom.*

FIG. 4-13

Tensioning channel must be level at bottom position for proper tension.

Ratchet must be in locked down position to hold tension. Set proper tension and leave it. **DO NOT RELEASE TENSION TO OPERATE TARP SYSTEM.**



FIG. 4-14

Brake Cleaning and Inspection

Your undercarriage brakes must be inspected and serviced immediately if a loss of performance is experienced. With normal use, servicing at one year intervals is usually adequate. With increased usage, this work should be performed more frequently as required. Magnets and shoes must be changed when they become excessively worn or scored, a condition which can reduce 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 for any loose or worn parts, stretched or deformed springs and replace as necessary.

WARNING

- **POTENTIAL ASBESTOS DUST HAZARD - SOME BRAKE LININGS MAY CONTAIN ASBESTOS DUST, WHICH HAS BEEN LINKED TO SERIOUS OR FATAL ILLNESSES. CERTAIN PRECAUTIONS NEED TO BE TAKEN WHEN SERVICING BRAKES**

1. Avoid creating or breathing dust.
2. Avoid machining, filing or grinding the brake linings.
3. Do not use compressed air or dry brushing for cleaning (dust can be removed with a damp brush).

Brake Lubrication

Before reassembling, apply a light film of grease or anti-seize compound on the brake anchor pin, the actuating arm bushing and pin, and the areas on 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.

NOTE: Do not get grease or oil on the brake linings, drums or magnets.

Magnets

Your electric brakes are equipped with high quality electromagnets that are designed to provide the proper input force and friction characteristics. Your magnets should be inspected and replaced if worn unevenly or abnormally. Use a straightedge to check magnet condition. For best results, the magnet should be flat. 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 the 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.

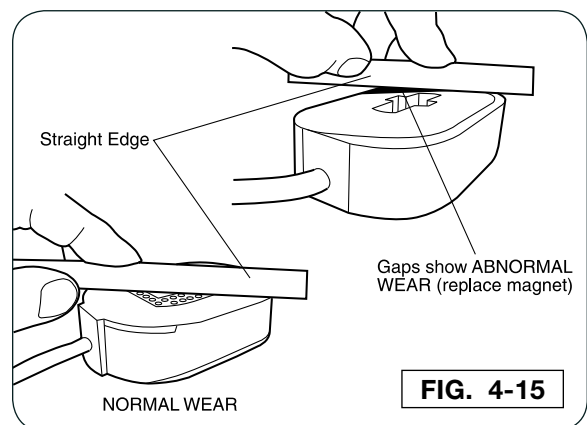
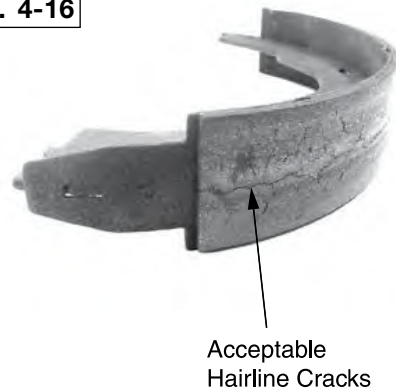


FIG. 4-15

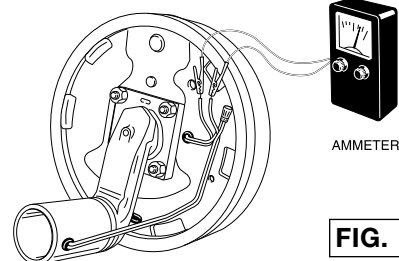
Brake Cleaning and Inspection (continued)**Shoes and Linings**

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.

After replacement of brake shoes and linings, the brakes must be 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.p.h., slowing the vehicle to 20 m.p.h. Allow ample time for brakes to cool between applications. This procedure allows the brake shoes to seat in to the drum surface.

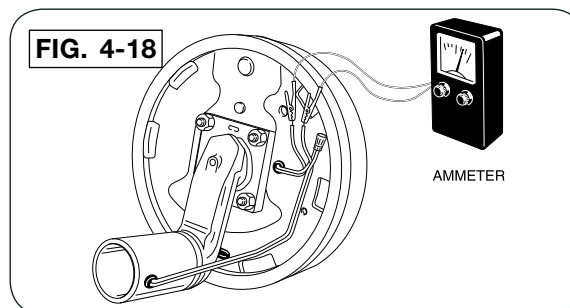
FIG. 4-16**How to Measure Voltage**

System voltage is measured at the magnets by connecting 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. The engine of the towing vehicle should be running when checking the voltage so that a low battery will not affect the readings. Voltage in the system should begin at 0 volts and, as the controller bar is slowly actuated, should gradually increase to about 12 volts. If the controller does not produce this voltage control, consult your controller manual. The threshold voltage of a controller is the voltage applied to the brakes when the controller first turns on. Lower threshold voltage will provide for smoother braking. If the threshold voltage is too high, the brakes may feel grabby and harsh.



Brake Cleaning and Inspection (continued)**How to Measure Amperage**

System amperage is the current flowing in the system when all the magnets are energized. The amperage will vary in proportion to the voltage. The engine of the tow vehicle should be running with the undercarriage connected when checking the undercarriage braking system. 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 ammeter put in series into the line. System amperage draw should be as noted in the table to the right.



Brake Size	Amps/Magnet	Two Brakes	Four Brakes	Six Brakes	Magnet Ohms
7 x 1¼	2.5	5.0	10.0	15.0	3.9
10 x 1½	3.0	6.0	12.0	18.0	3.2
10 x 2¼	3.0	6.0	12.0	18.0	3.2
12 x 2	3.0	6.0	12.0	18.0	3.2
12¼ x 2½	3.0	6.0	12.0	18.0	3.2

Make sure your ammeter has sufficient capacity and note polarity to prevent damaging your ammeter. If a resistor is used in the brake system, it must be set at zero or bypassed completely to obtain the maximum amperage reading. Individual amperage draw can be measured by inserting the ammeter in the line at the magnet you want to check. Disconnect one of the magnet lead wire connectors and attach the ammeter between the two wires. Make sure that the wires are properly reconnected and sealed after testing is completed. The most common electrical problem is low or no voltage and amperage at the brakes. Common causes of this condition are:

1. Poor electrical connections
2. Open circuits
3. Insufficient wire size
4. Broken wires
5. Blown fuses (fusing of brakes is not recommended)
6. Improperly functioning controllers or resistors

Another common electrical problem is shorted or partially shorted circuits (indicated by abnormally high system amperage). Possible causes are:

1. Shorted magnet coils
2. Defective controllers
3. Bare wires contacting a grounded object

Finding the cause of a short circuit in the system is done by isolating one section at a time. If the high amperage reading drops to zero by unplugging the undercarriage, then the short is in the undercarriage. If the amperage reading remains high with all the brake magnets disconnected, the short is in the undercarriage wiring. All electrical troubleshooting procedures should start at the controller. Most complaints regarding brake harshness or malfunction are traceable to improperly adjusted or nonfunctional controllers. See your controller manufacturer's data for proper adjustment and testing procedures. For best results, all the connection points in the brake wiring should be sealed to prevent corrosion. Loose or corroded connectors will cause an increase in resistance which reduces the voltage available for the brake magnets.

Brake Cleaning and Inspection (continued)

Brake Drum Inspection

There are two areas of the brake drum that are subject to wear and require periodic 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 the drum has worn out of round by more than .015", then the drum surface should be re-machined. 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 is as follows:

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 re-faced 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 re-faced and the armature surface should be re-faced whenever the magnets are replaced.

IMPORTANT

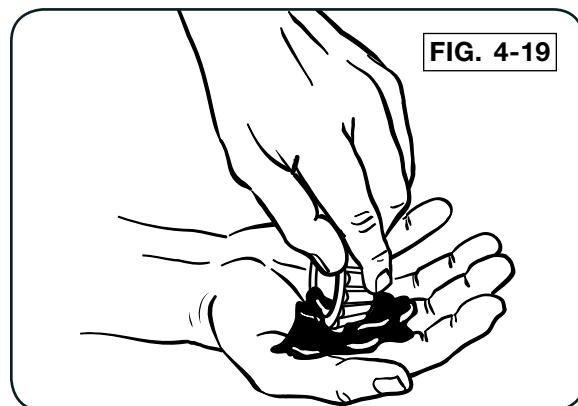
- *It is important to protect the wheel bearing bores from metallic chips and contamination which result from drum turning or armature re-facing operations. Make certain that the wheel bearing cavities are clean and free of contamination before reinstalling bearing and seals. The presence of these contaminants will cause premature failure.*

Bearing Inspection and Lubrication

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.

Along with bearing adjustment, proper lubrication is essential to the proper function and reliability of your undercarriage axle. Bearings should be lubricated every 12 months or 12,000 miles. The method to repack bearing cones is as follows:

1. Place a quantity of grease into the palm of your hand.
2. Press a section of the widest end of the bearing into the outer edge of the grease pile closest to the thumb forcing grease into the interior of the bearing.
3. Repeat this while rotating the bearing from roller to roller.
4. Continue this process until you have the entire bearing completely filled with grease.
5. Before reinstalling, apply a light coat of grease on the bearing cup.



Troubleshooting Brakes

Most electric brake malfunctions, that cannot be corrected by either brake adjustments or synchronization adjustments, can generally be traced to electrical system failure. Voltmeters and ammeters are essential tools for proper troubleshooting of electric brakes. Mechanical causes are ordinarily obvious, i.e. bent or broken parts, worn out linings or magnets, seized lever arms or shoes, scored drums, loose parts, etc. Please consult the following troubleshooting charts in this section of the manual to determine the causes and solutions for common problems found in undercarriage braking systems.

CAUTION

- **BEST BRAKING PERFORMANCE IS ACHIEVED WITH A CONTROLLER SETTING THAT IS JUST SHORT OF WHEEL LOCK UP OR SLIDE. OVERLY AGGRESSIVE BRAKING WHICH RESULTS IN WHEEL LOCK UP AND SLIDING, CAN CAUSE A DANGEROUS LOSS OF CONTROL AND RESULT IN PERSONAL INJURY OR DEATH.**

Power Pak

For general maintenance and servicing of power pak unit, refer to engine Operator's Manual.

NOTE: Engines are warranted for 3 years. For maintenance of engine and warranty information, refer to Operator's Manual provided with engine. Following are Websites to locate engine dealers and service centers:


HONDA
US www.engines.honda.com
Canada www.honda.ca

Please provide Honda with the following engine information:

2760/3760/3960 Models: 11.7 HP/23.7 CU IN; GX390 UT2X QZNR

4960 Models: 22.1 Net HP/ 41.97 cu in; GX700 IRH TDW

The hydraulic filter and fluid should be replaced after every 100 hours of engine run or once the filter gauge indicates a restriction in the red area. Be sure to filter the fluid when filling tank, especially from a bulk container. Any foreign materials in fluid will dramatically reduce the life of the pump. Follow steps below to change hydraulic fluid:

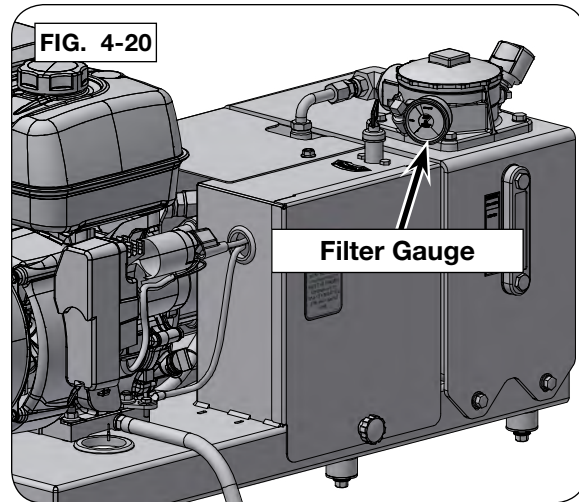
WARNING

- **RELIEVE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE "RELIEVING HYDRAULIC PRESSURE" IN THE MAINTENANCE SECTION.**
- **HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.**
- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. LEAKS OF HIGH-PRESSURE FLUIDS MAY NOT BE VISIBLE. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**



Power Pak (continued)

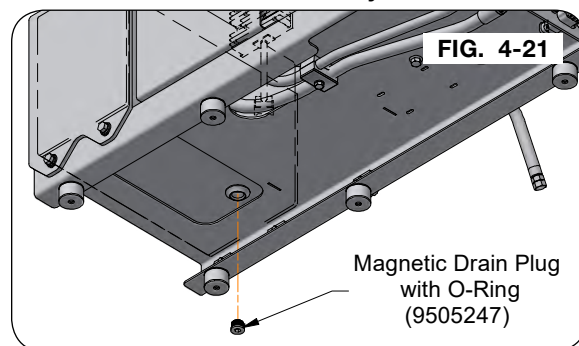
Replace the filter when the filter gauge indicates that the filter should be replaced. Drain the hydraulic oil and replace the oil at this time as well. The reservoir holds approximately 4 gallons, verify correct oil level after refilling the system and operating the seed tender.

**IMPORTANT**

- When checking the filter by using the gauge, check after conveyor is ran for 2 minutes to allow oil to warm up.
- When replacing the filter be sure that it is replaced with an Unverferth service part. This filter has an ultra-fine mesh which filters out microscopic particles. Failure to replace with an Unverferth filter could result in system malfunction and/or shortened life of components. Be sure to filter the fluid when filling the tank, especially from a bulk container. Any contamination will dramatically reduce the life of the pump.
- Use a universal tractor hydraulic fluid that meets or exceeds CNH MAT 3540 and John Deere J20C.

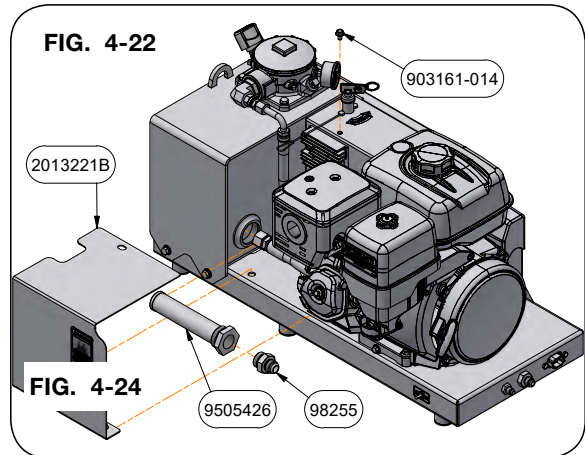
NOTE: It may take several seasons for the gauge to approach the red (replace) portion of the gauge. Once the gauge is close to the red (replace) portion, the gauge will spike.

1. Turn off engine and remove spark plug to prevent engine from starting. Be sure all hydraulic fittings and hoses are relieved of pressure and a proper container is available to drain hydraulic oil.
2. Remove the Magnetic Drain Plug (9505247) and drain hydraulic oil into container. (FIG. 4-21)
3. Inspect the drain plug and O-Ring for debris and damages and either clean or replace if needed.

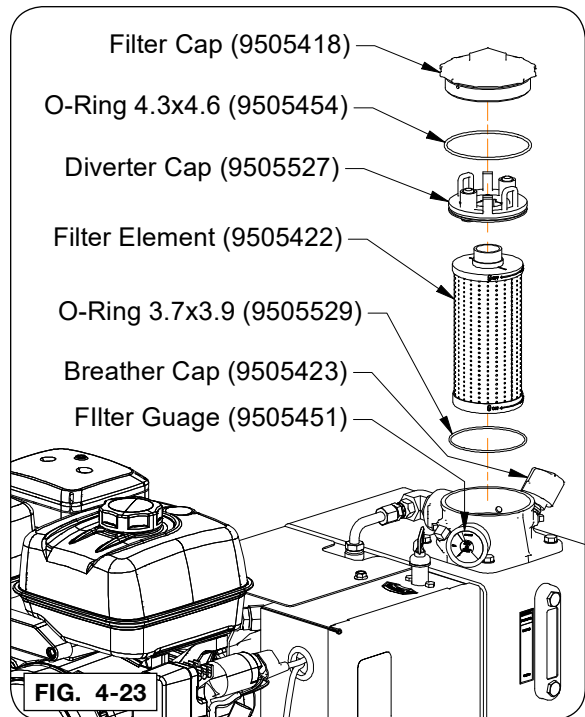


Power Pak (continued)

4. Remove the intake strainer (9505426) from tank. Clean strainer of all debris and check for any damage. Replace if necessary. (FIG. 4-22)
5. Lubricate o-ring and reinstall strainer and hose. Do not overtighten strainer.
6. Install the cover and tighten hold down screw (903161-014) to torque specs. (FIG. 4-23)



6. Remove filter cap and pull out filter using pull tabs on the diverter cap. Retain diverter cap for reuse. Properly dispose of filter and replace with a new Unverferth filter. **DO NOT** use a substitute filter.
7. Once all components have been reassembled and secured, new hydraulic fluid may be added to the hydraulic fluid tank. Fill fluid the proper level shown on the gauge **DO NOT** over fill. Once the tank is full, secure filler cap to top of tank.

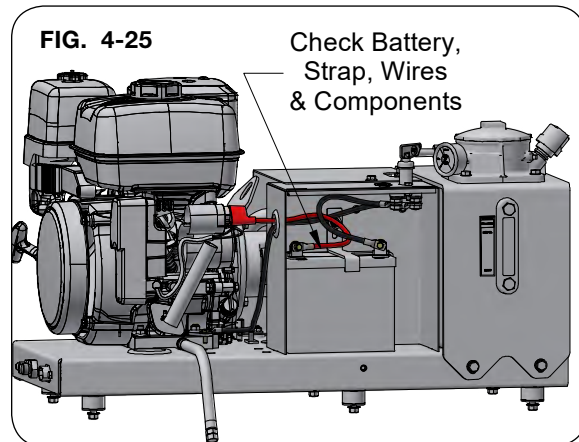
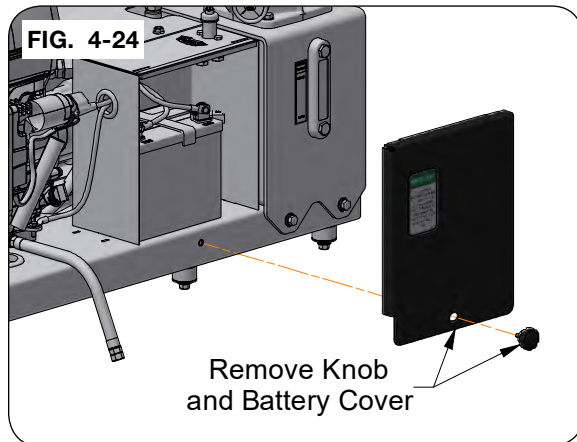


NOTE: When topping off hydraulic fluid tank, always use the same fluid as what is already in the tank. **DO NOT** mix different brands or types of hydraulic fluid.

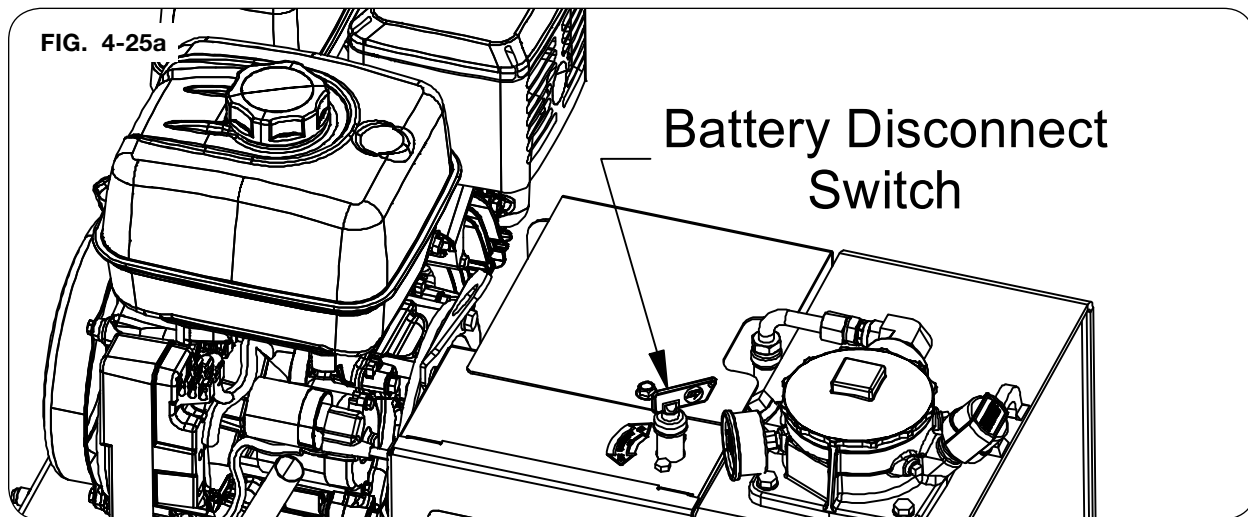
8. With the spark plug removed, prime the pump. Rotate the engine by slowly pulling on the pull cord to make pump cycle. Do this approximately 10 times to fill the intake line.
9. Reinstall spark plug, start engine and run for 3-5 minutes.

Power Pak (continued)

To maintain POWER PAK, remove battery cover and inspect the battery itself, along with any components, wires and connections for any corrosion, wear or damage. Replace as required. Be sure the battery strap is secure and preventing the battery from shifting inside the compartment. (FIG. 4-24 & 4-25)

**IMPORTANT**

- When storing unit for extended periods of time, be sure battery has a full charge and the battery disconnect switch is to the off position. (FIG. 4-25a)
- The disconnect is to only be turned to the off position once the engine is off. If the switch is turned to the off position while the engine is running, damage will occur to the engine charging system and other seed tender electrical components.

**Battery Warranty**

Interstate Battery:
www.interstatebatteries.com
800-CRANKIT

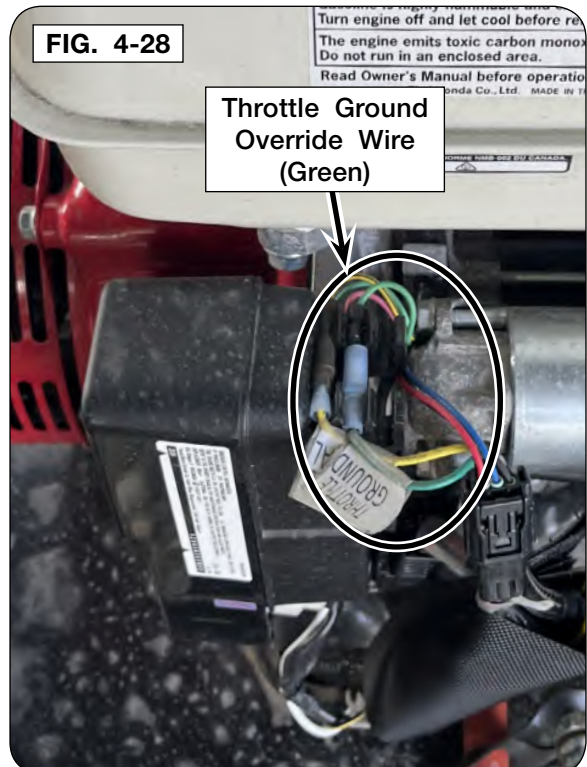
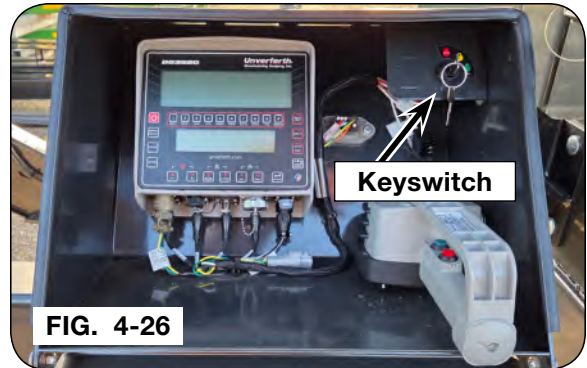
Pull Start Engine

In the event of a wireless remote failure, it is possible to pull start the engine and operate the conveyor manually via the hydraulic block. See “Manual Valve Override” for instructions.

If it is necessary to pull start the engine, the engine can be set to run at full throttle all the time. To do this, disconnect the bullet connector for the Throttle Ground (green) wire. This wire must be reconnected to resume use of the wireless remote. (FIG. 4-28)

To pull start the engine:

1. Open the control box and rotate keyswitch to the middle position (ⓐ). (FIG. 4-26)
2. Flip the Override Switch to the “pull start” position. (FIG. 4-27)
3. Pull start the engine, put it to full throttle (disconnect ground - FIG. 4-28) and let it warm up.
4. Operate as needed using the Manual Valve Override.
5. Once the remote is repaired, move the Override Switch back to “key switch” position, reconnect the throttle ground wire (FIG. 4-28) and operate normally with the functioning remote.



Wheels and Tires

Wheel Nut Torque Requirements

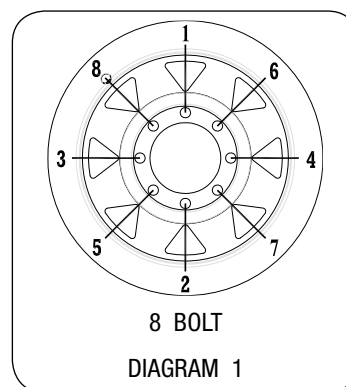


CAUTION

- IMPROPERLY TORQUED WHEEL NUTS/BOLTS CAN CAUSE A LOSS OF IMPLEMENT CONTROL AND MACHINE DAMAGE. TORQUE WHEEL NUTS/BOLTS TO VALUES IN TABLE. CHECK TORQUE BEFORE USE, AFTER ONE HOUR OF UNLOADED USE OR AFTER FIRST LOAD, AND EACH LOAD UNTIL WHEEL NUTS/BOLTS MAINTAIN TORQUE VALUE. CHECK TORQUE EVERY 10 HOURS OF USE THEREAFTER. AFTER EACH WHEEL REMOVAL, START TORQUE PROCESS FROM BEGINNING. WARRANTY DOES NOT COVER FAILURES CAUSED BY IMPROPERLY TORQUED WHEEL NUTS/BOLTS.

Failure to check torque before first load may damage wheel nut/bolt seats. Once seats are damaged, it will become impossible to keep nuts/bolts tight. Tighten nuts/bolts to applicable torque value shown in table. Start all nuts/bolts by hand to prevent cross threading. Torque nuts/bolts in the recommended sequence as shown in Diagram 1.

WHEEL HARDWARE	
SIZE	FOOT-POUNDS
9/16-18 (UNF)	110 ft.-lbs.
5/8-18 (UNF)	165 ft.-lbs.
M22x1.5	450 ft.-lbs.



Tire Pressure

The following is to be used as a general guide for tire inflation and figures can vary depending on specific brand of tire used. It is important that tires are inspected after unit is loaded. The maximum load carrying capacity of the tire is achieved by running the maximum PSI. Consult your local tire dealer before changing the operating PSI of your tires. **DO NOT EXCEED MAXIMUM RECOMMENDED TIRE PRESSURE.**

TIRE SIZE	PSI
235/85R16 LRE	80
235/75R17.5	130
285/70R19.5	130
215/75R17.5 LRE	125

Wheels and Tires (continued)**Tire Warranty**

For questions regarding new tire warranty, please contact your local original equipment tire dealer. Used tires carry no warranty. Following are phone numbers and Websites for your convenience:

Carlisle/Ironman www.carlisletire.com
Phone 800-260-7959
Fax 800-352-0075

Continental/Mitas www.mitas-tires.com
Phone 704-542-3422

BKT Tires Phone: 888-660-0662
330-836-1090

NOTE: Gladiator and Ironman Tires under the Gladiator brand are sold by Carlisle.

Storage

Your Seed Tender is an important investment. Spend a little time to protect it from destructive rust and corrosion. You will be repaid in longer service life and better performance.

After use, clean out box, conveyor, and hopper. Remove all seed, and pressure wash to remove road dirt, seed treatment, etc.

Prepare engine on hydraulic power unit for storage. Refer to engine operator's manual for details.

Inspect hydraulic oil level in reservoir. Level should be 1 to 1 1/2" from the top of the sight gauge.

Check bolts for tightness. Inspect for damaged or worn parts. Check valves, motor, hoses, and fittings for leaks. Check hoses for wear. Replace or repair items as needed.

Repaint any chipped or scraped areas, and store inside away from livestock.

Remove batteries from the wireless remote.

Charge battery before storage. Lack of charge may result in the battery freezing and breaking over the winter.

Once engine is shut off turn the battery disconnect switch to the off position.

Replace all worn, torn or faded decals and reflectors.

It is recommended to check the conveyor belt tension after storage, and before belt operation. Damage to the belt can occur.

Troubleshooting

PROBABLE CAUSE	CORRECTION
Undercarriage Swaying, Tire Wear, Lights	
Unit sways during travel	Check tire pressure Check tongue and steering hardware, tighten appropriately
Tires show excessive wear	Check tire pressure
Wheel makes grinding or squeaking noise	Service wheel bearings
Tail lights are not functioning	Check wires and connections Replace lamps
Conveyor Will Not Turn Over or Develop Proper Speed/Torque	
Pump does not deliver sufficient pressure or volume	Check output and delivery, change if necessary
Conveyor jammed	Shut off and lock-out power, open clean-out door and remove excess material (make sure spout is clear)
Oil level too low	Fill to proper level
Belt is slipping on the upper pulley	Check belt tension and adjust accordingly
Conveyor Runs Too Slow	
Conveyor speed is set slow	Increase belt speed using the wireless remote.
Engine running too slow	Increase engine speed
Pump not producing minimum required flow and pressure	Check pump fluid capacity and correct
Pump is worn	Repair or replace pump
Internal leak in controls or motor	Replace seals; repair or replace valves or motor
Improper hydraulic oil viscosity	If conveyor starts slowly and speed increases after oil heats up, oil is too heavy weight. If conveyor slows down after oil heats up, oil is too light weight
Belt is slipping on the upper pulley	Check belt tension and adjust accordingly
High Pressure filter in control valve is plugged	Replace Filter

Troubleshooting (continued)

PROBABLE CAUSE	CORRECTION
Oil Heats Excessively	
Oil viscosity incorrect	Drain and refill with proper weight oil
Dirty oil	Drain, flush, refill with clean oil and filter
Oil level too low	Fill to proper level
Oil slipping through worn pump	Repair or replace pump
Restricted line or piping	Reroute lines to eliminate restrictions
Belt Edges Showing Excessive Wear	
Belt tracking incorrect	Adjust tracking as detailed in maintenance section.
Poly seals on intake and/or discharge end worn.	Replace poly seals
Pivoting Arm Will Not Raise or Lower	
Check valve or restrictor in lift cylinder is plugged	Remove the check valve or restrictor and clean
Conveyor Will Not Swing	
Swing lock in place	Unlatch conveyor or check swing lock mechanism.
Dirt or debris on swing track	Clean dirt from track
Bearing worn out	Replace bearing
Power Pak	
Pump Squeals: A. Oil level too low in reservoir B. Oil is cold C. Intake strainer is plugged D. Return-line filter is plugged E. Hoses are kinked or leaking	A. Fill to proper level B. Run engine at low idle until hydraulic fluid warms C. Drain reservoir and clean strainer D. Remove and replace filter E. Inspect, adjust or replace hose if necessary
Unit is lacking power: A. Oil level too low in reservoir B. Oil is cold C. Intake strainer is plugged D. Return-line filter is plugged E. Hoses are kinked or leaking F. Pressure relief valve is set too low or is plugged	A. Check sight gauge on reservoir B. Run engine at low idle until hydraulic fluid warms C. Drain reservoir and clean strainer D. Remove and replace filter E. Inspect, adjust or replace hoses if necessary F. Remove cover and adjust with allen wrench or remove valve and inspect for contamination

Troubleshooting (continued)

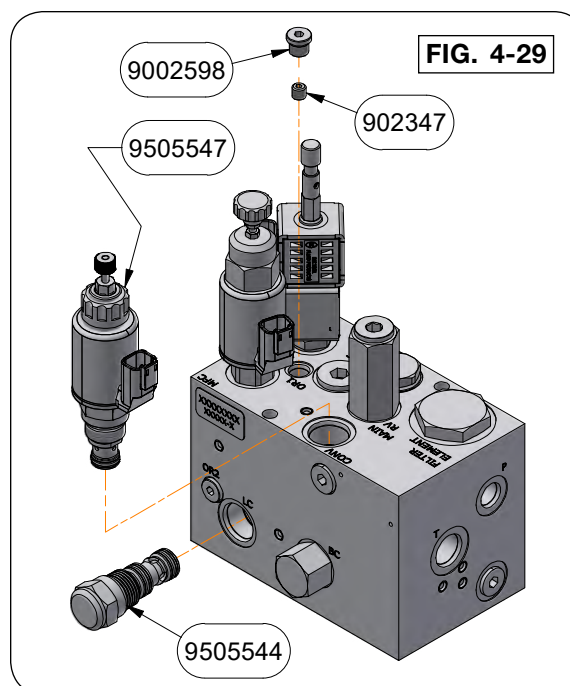
Conveyor Raise/Lower Cylinder Not Working Properly

⚠ WARNING

- RELIEVE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE “RELIEVING HYDRAULIC PRESSURE” IN THE MAINTENANCE SECTION OF THIS MANUAL.
- HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.
- HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. LEAKS OF HIGH-PRESSURE FLUIDS MAY NOT BE VISIBLE. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.
- FALLING OBJECTS CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT WORK UNDER THE MACHINE AT ANY TIME WHILE BEING HOISTED. BE SURE ALL LIFTING DEVICES AND SUPPORTS ARE RATED FOR THE LOADS BEING HOISTED. THESE ASSEMBLY INSTRUCTIONS WILL REQUIRE SAFE LIFTING DEVICES UP TO 1,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.

**IMPORTANT**

- A Union Fitting (92295), Ball Check Valve (99515) and Seal Kit (99516) will need to be purchased from your local Unverferth dealer before continuing.
1. Park the empty seed tender on a firm, level surface. Block the tires on the machine to keep it from moving. Set the towing vehicle's parking brake, shut off the engine and remove the ignition key from the towing vehicle and the seed tender.
 2. Position conveyor into the forward transport position with all weight off of the conveyor lift cylinder.
 3. Relieve hydraulic system pressure.
 4. Remove, clean and inspect the following parts from the main valve block:
 - Proportional flow control (9505547)
 - Load compensator (9505544)
 - OR1 (902347) and OR2 (9504772)
 5. Flush the removed components, make sure everything is free of any contamination. Reassemble flow block when complete.



Troubleshooting (continued)**Conveyor Raise/Lower Cylinder Not Working Properly** (continued)

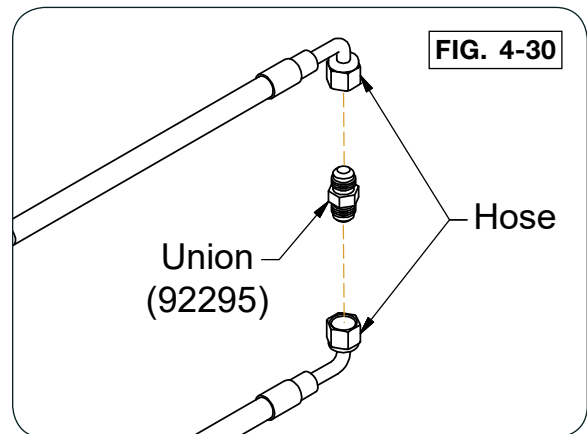
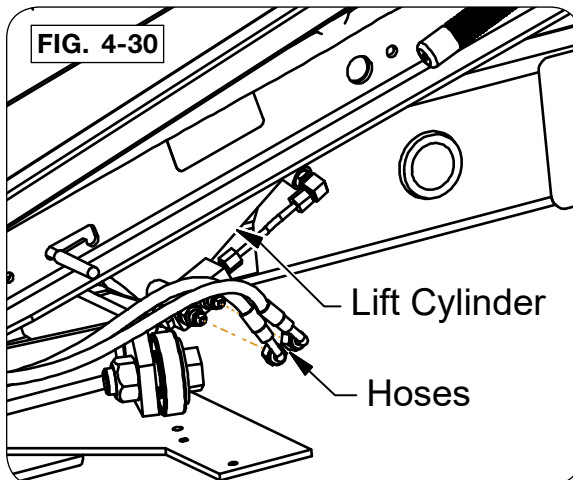
6. Verify the raise and lower function using the operator control. If further adjustments are required, continue with the following steps.
7. If the conveyor is in the raised position:
Use a safe lifting device and supports rated for 1000 lbs, support the conveyor.

If the conveyor is in the transport position:

Proceed with relieving the hydraulic pressure before disconnecting the hydraulic lines. See the hydraulic power unit manual for the procedure to relieve pressure.

NOTE: Make sure that all the load is off the lift cylinder and that cylinder pin will freely rotate.

8. Remove the two hoses from the cylinder and connect the two hoses together using union fitting (92295). Tighten the connections as directed by the “Hydraulic Fittings - Torque and Installation” at the end of this section.
9. To flush the two hoses, operate the Seed Runner tender for a minimum of ten minutes while actuating the control to raise and lower the conveyor. Make sure to actuate the control in both directions (raise and lower).



Troubleshooting (continued)**Conveyor Raise/Lower Cylinder Not Working Properly** (continued)

10. Shut the engine off and relieve the hydraulic pressure. Note the orientation of the fittings on the lift cylinder (902806) and remove. Flush the fittings and make sure that there is nothing obstructing the 0.045" orifice in the restricted fitting (9503019). Replace fitting if obstructed.

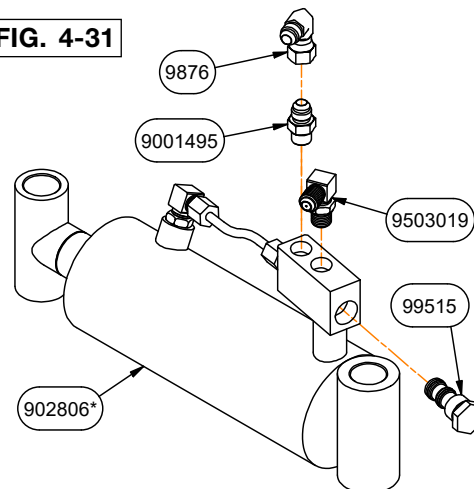
11. Slightly loosen the ball check valve (99515) and allow oil to drip from the cylinder. Once the oil stops dripping, remove the ball check valve and flush the ball check valve and housing. Replace if the ball check valve does not move freely. If the ball check valve moves freely replace the o-rings and teflon washer with the components included in seal kit (99516). Coat the o-rings and teflon washer with oil before reinstalling the valve onto the cylinder.

12. Reinstall all fittings in the same orientation as they were removed. Tighten the connections as directed by the "Hydraulic Fittings - Torque and Installation" at the end of this section.

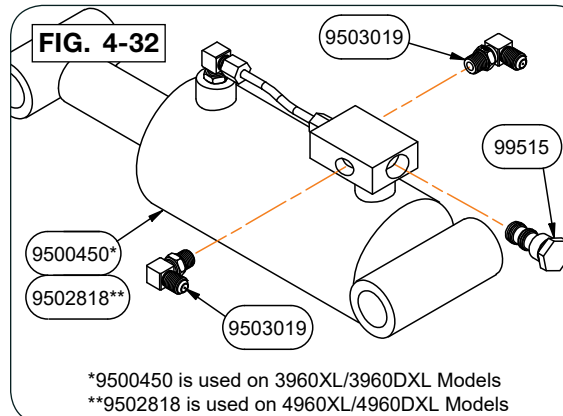
13. See Relieving Hydraulic Pressure at the end of this section and relieve the hydraulic pressure. Remove the union fitting (92295) from the two cylinder hoses and reinstall to their original location on the lift cylinder.

14. If the conveyor is supported by a lifting device, slowly restore it into the transport position and remove the lifting device and support.

15. Verify the raise and lower function using the wireless handheld remote.

FIG. 4-31

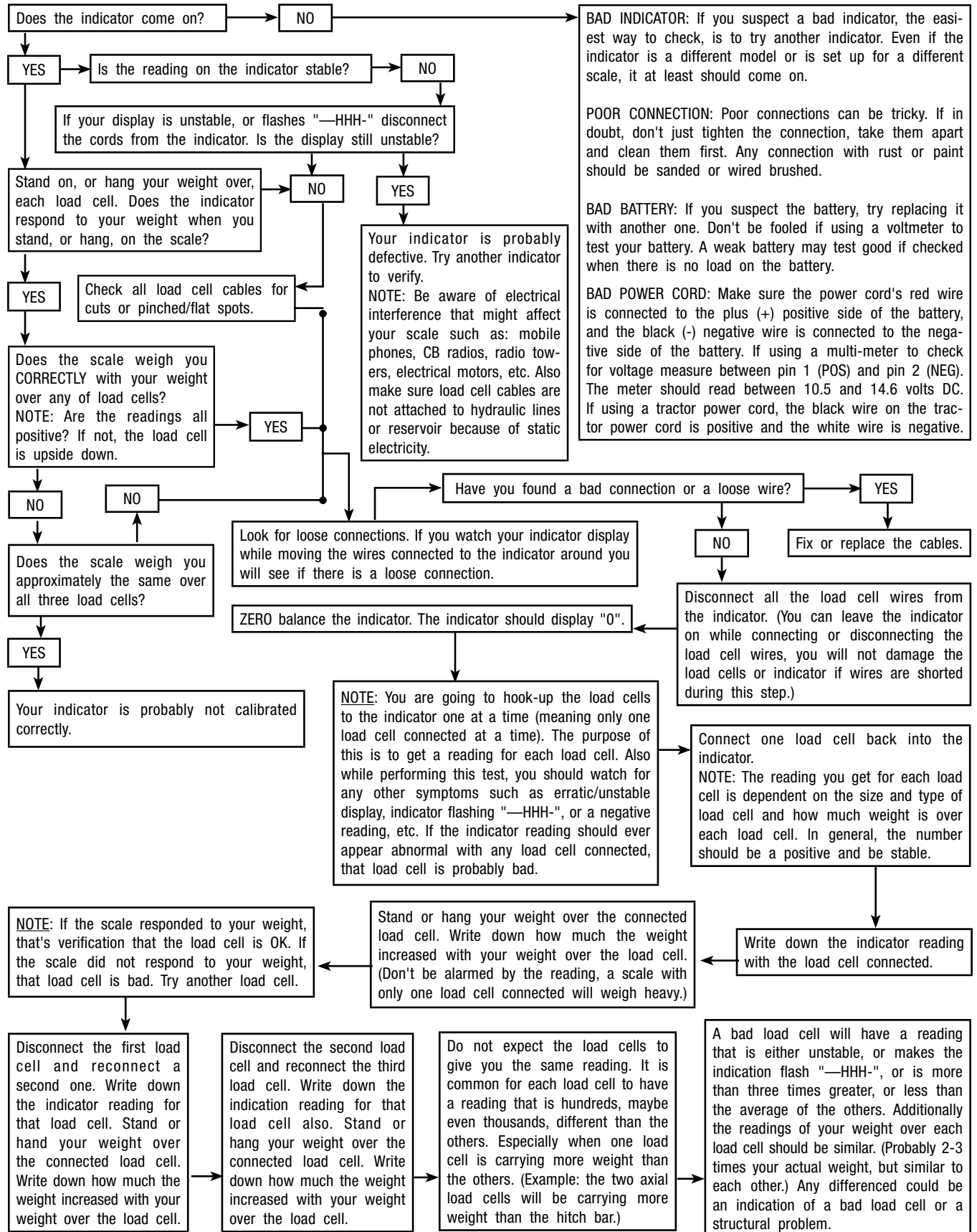
*902806 is used on ALL 2960 & 3760 Series Models

FIG. 4-32

*9500450 is used on 3960XL/3960DXL Models

**9502818 is used on 4960XL/4960DXL Models

Scale Troubleshooting



Scale Calibration - DG3520 Indicator**IMPORTANT**

- *This indicator was calibrated at the factory to weigh accurately with your system. Additional calibration is not necessary under NORMAL conditions.*

The Calibration procedure allows you to change the set-up and calibration of the indicator. You may want to perform this procedure if;

- 1) The indicator is being connected to different load cells.
-or-
- 2) You want to adjust the calibration to match another scale system.

PLEASE NOTE: Do not attempt calibration if the indicator is not reading stable weights. The calibration procedure will not fix instability, inconsistencies, or flashing “—HHH—” messages.

Before continuing, first write down the current set-up and calibration numbers of your DG3520 indicator. These numbers are displayed during the “Self Test”;

Calibration number _____. The default calibration number is 6674.

Adjust DG3520 Indicator to Match Another Scale

Sometimes two different scales are used to weigh the same load. When this is done, the weight measured by each scale may not be the same. This can be caused by one or both of the two scales being slightly out of calibration. This indicator has the ability to match any other scale, even if that scale is uncalibrated.

To match your DG scale (Scale A) to another scale (Scale B) you must determine the Calibration Multiplier. To do this, place a load on Scale A (feed wagon, etc...) and write down the weight displayed. Repeat several times to determine the average weight. Next, place the same load on Scale B and again write down the weight displayed. Again, repeat several times to determine the average weight. Then, use this formula to determine the Calibration Multiplier for the DGs calibration number:

It is important to use an average of several weights before calibrating the scale.

Scale Calibration - DG3520 Indicator (continued)

Scale Matching Example:

Original

CAL# 24080

	1 Trail	2 Trail	3 Trail
Scale B	30,000	30,580	28,000
Scale A	29,440	29,800	27,500
Scale B ÷ A	1.020	1.026	1.018

$$1.020 + 1.026 + 1.018 = 3.064$$

$$3.064 \div 3 \text{ Trails} = 1.021 \text{ CAL Multiplier}$$

$$\text{Orig. UM CAL\#} \times \text{CAL Multiplier} = \text{NEW UM CAL\#}$$

$$24080 \times 1.021 = 24586$$

Scale Matching Example:

Original

SET UP# _____

CAL# _____

	1 Trail	2 Trail	3 Trail
Scale B			
Scale A			
Scale B ÷ A			

$$(\text{Trail 1}) + (\text{Trail 2}) + (\text{Trail 3}) = \text{"X"}$$

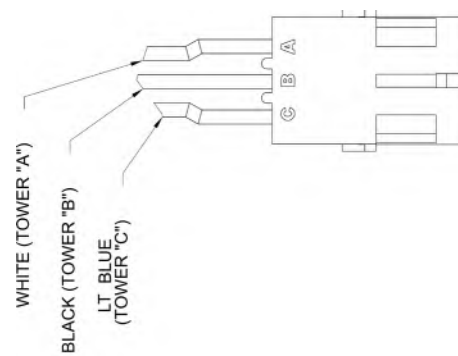
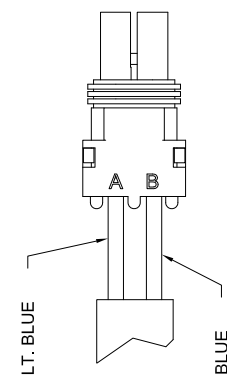
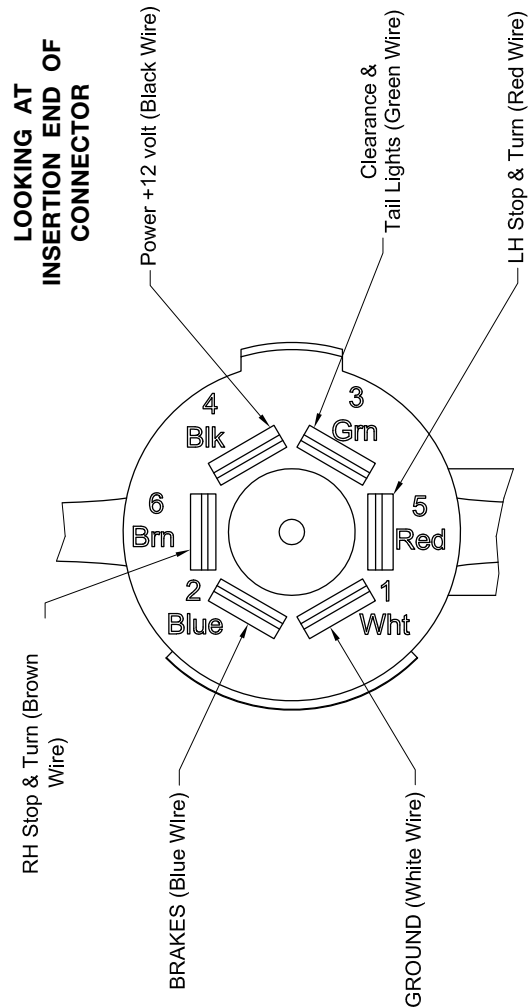
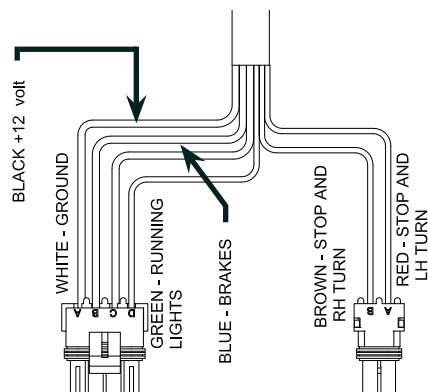
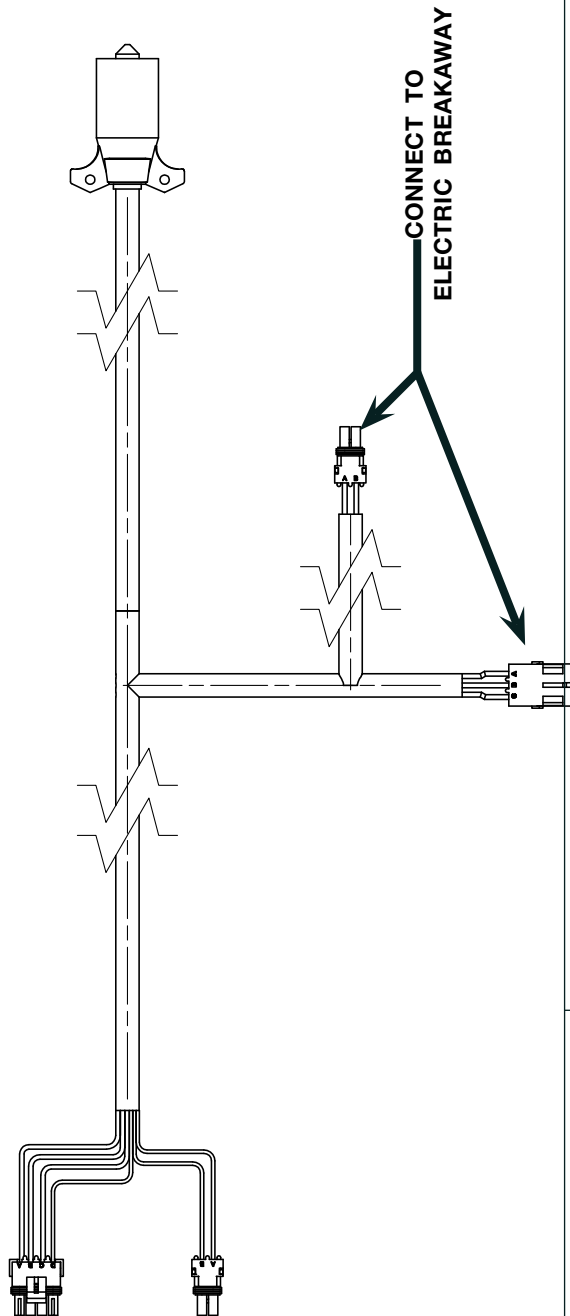
$$\text{"X"} \div 3 \text{ Trails} = \text{_____} \text{ CAL Multiplier}$$

$$\text{Orig. UM CAL\#} \times \text{CAL Multiplier} = \text{NEW UM CAL\#}$$

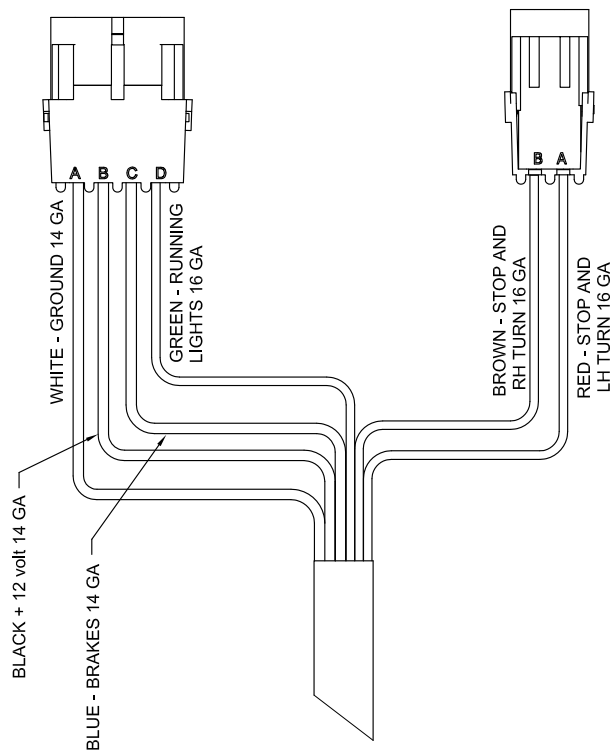
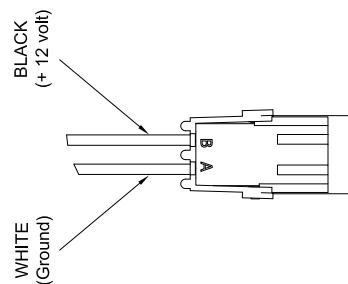
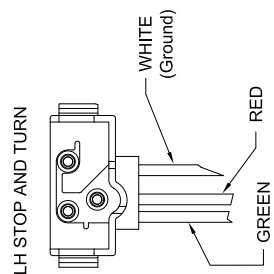
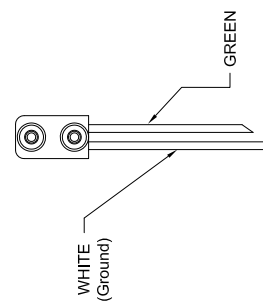
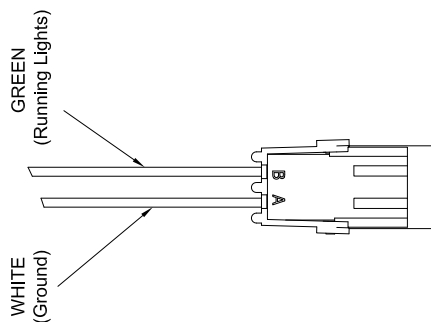
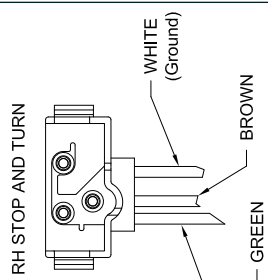
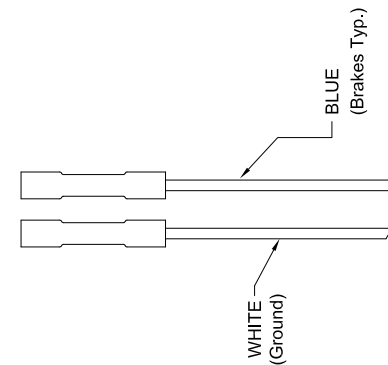
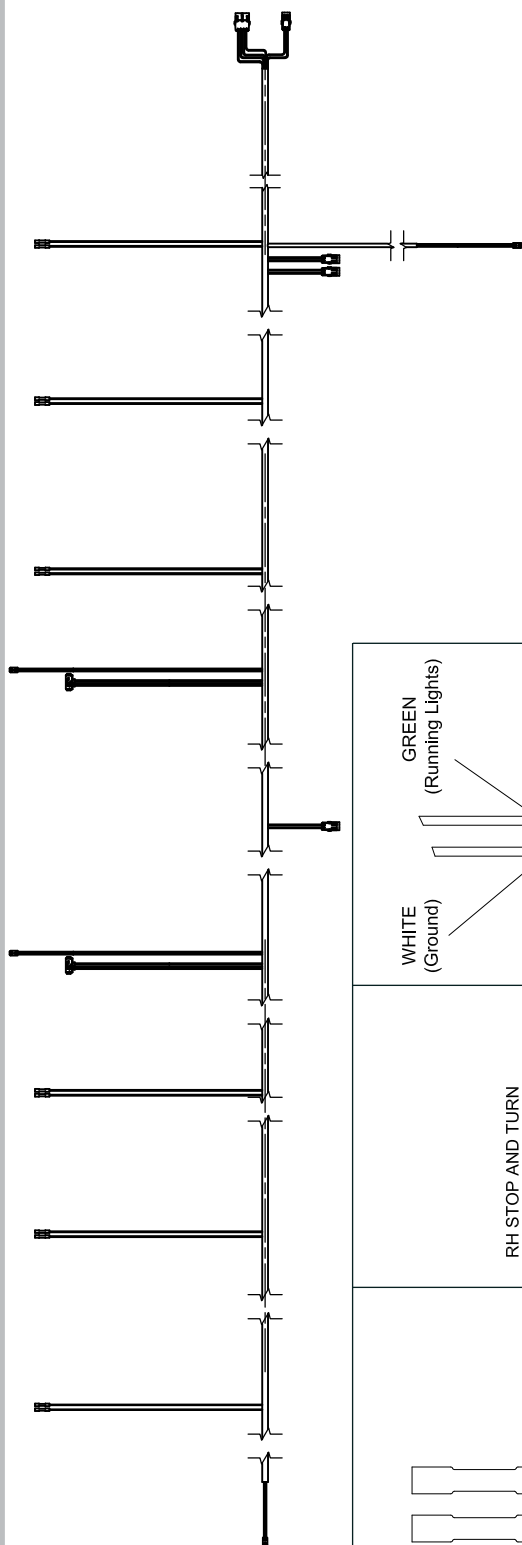
$$\text{_____} \times \text{_____} = \text{_____}$$

See the DG3520 operator's manual to "change the Calibration Numbers".

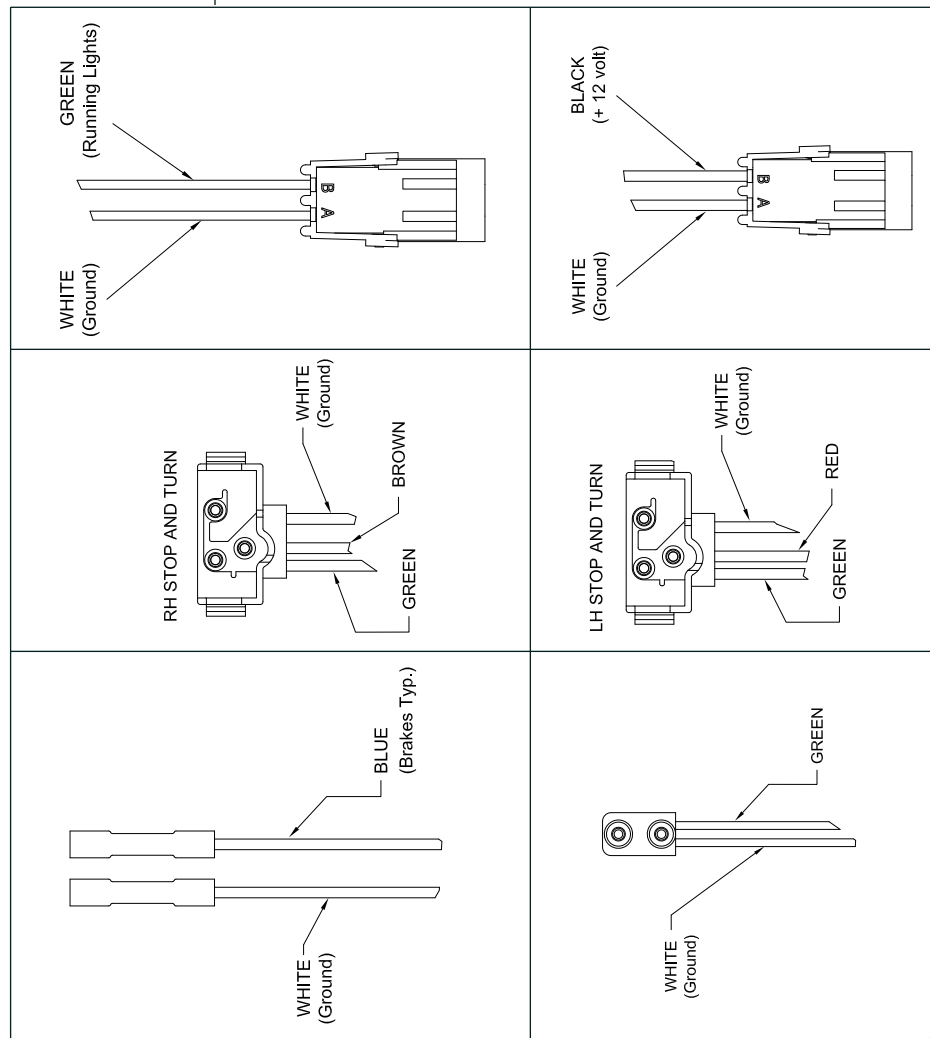
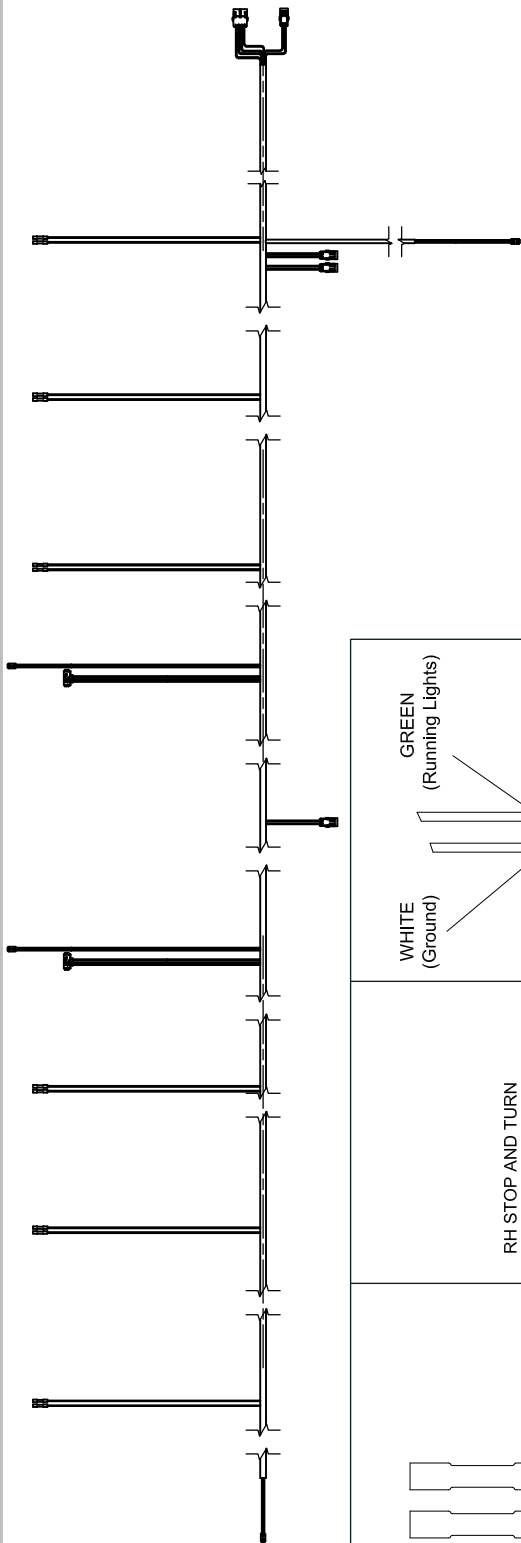
Undercarriage Hitch Harness # 25045 or Gooseneck Harness # 27829 Schematic



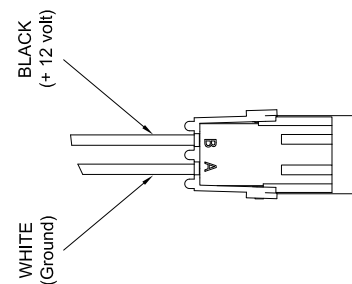
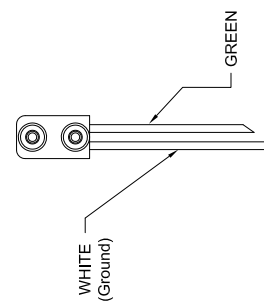
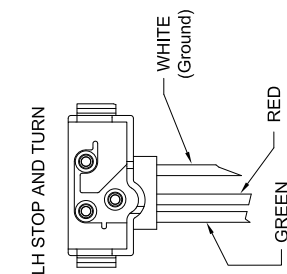
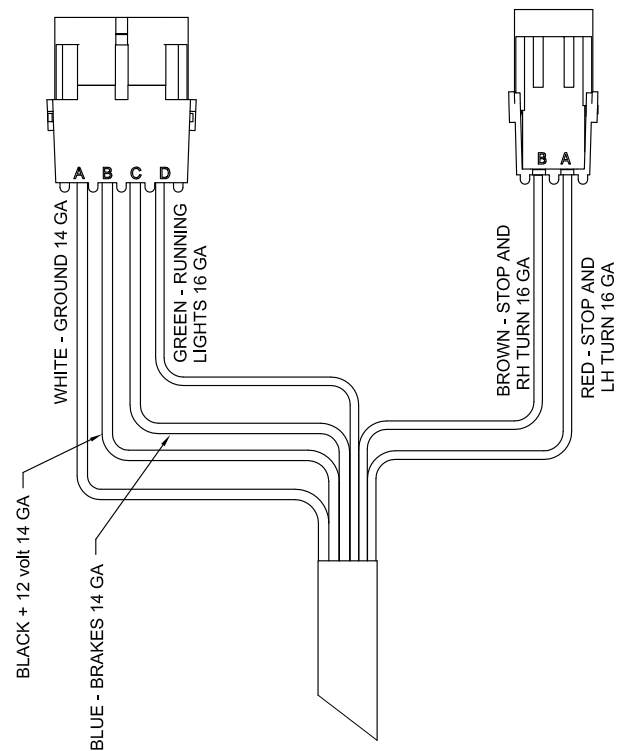
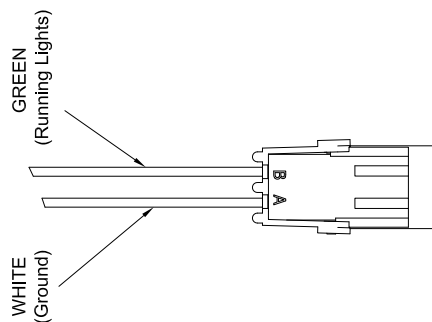
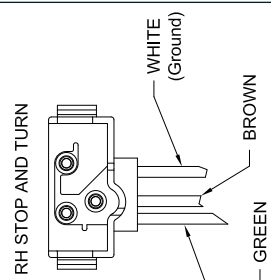
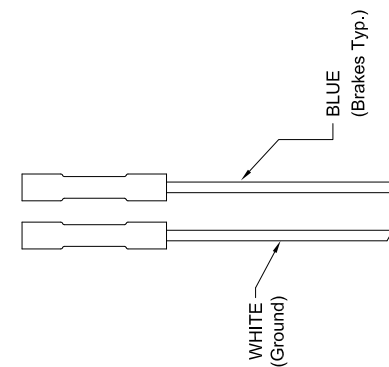
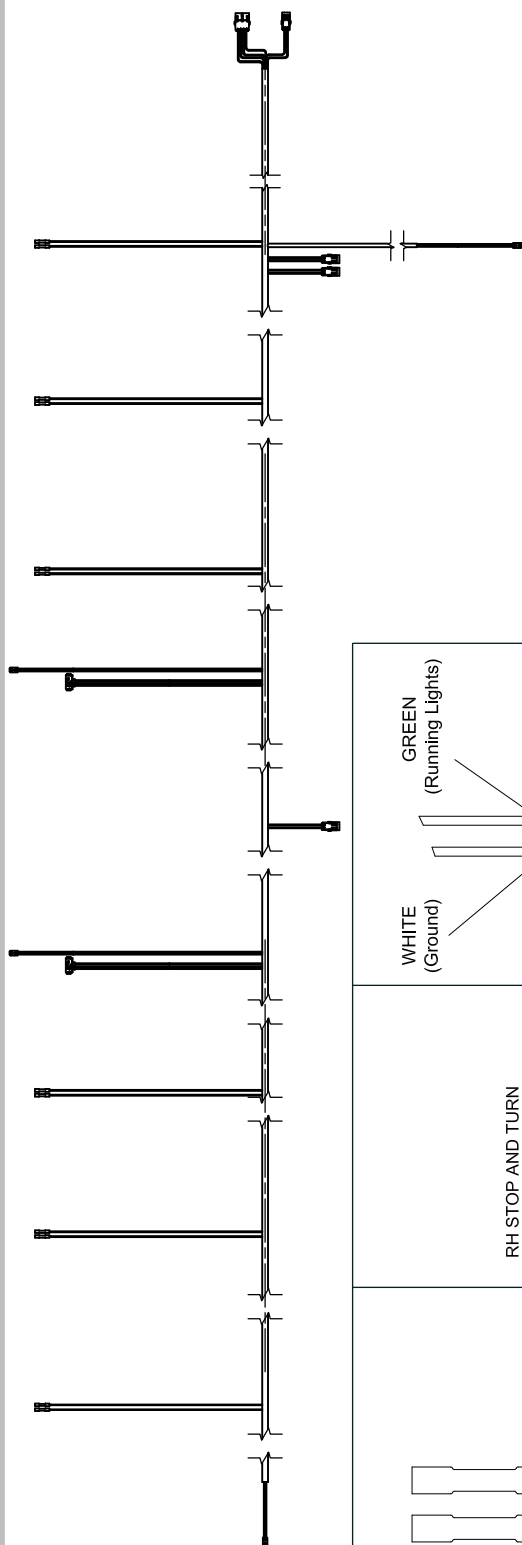
Undercarriage Lighting & Brake Harness Schematic #25046 - 2960(XL)/3760(XL)



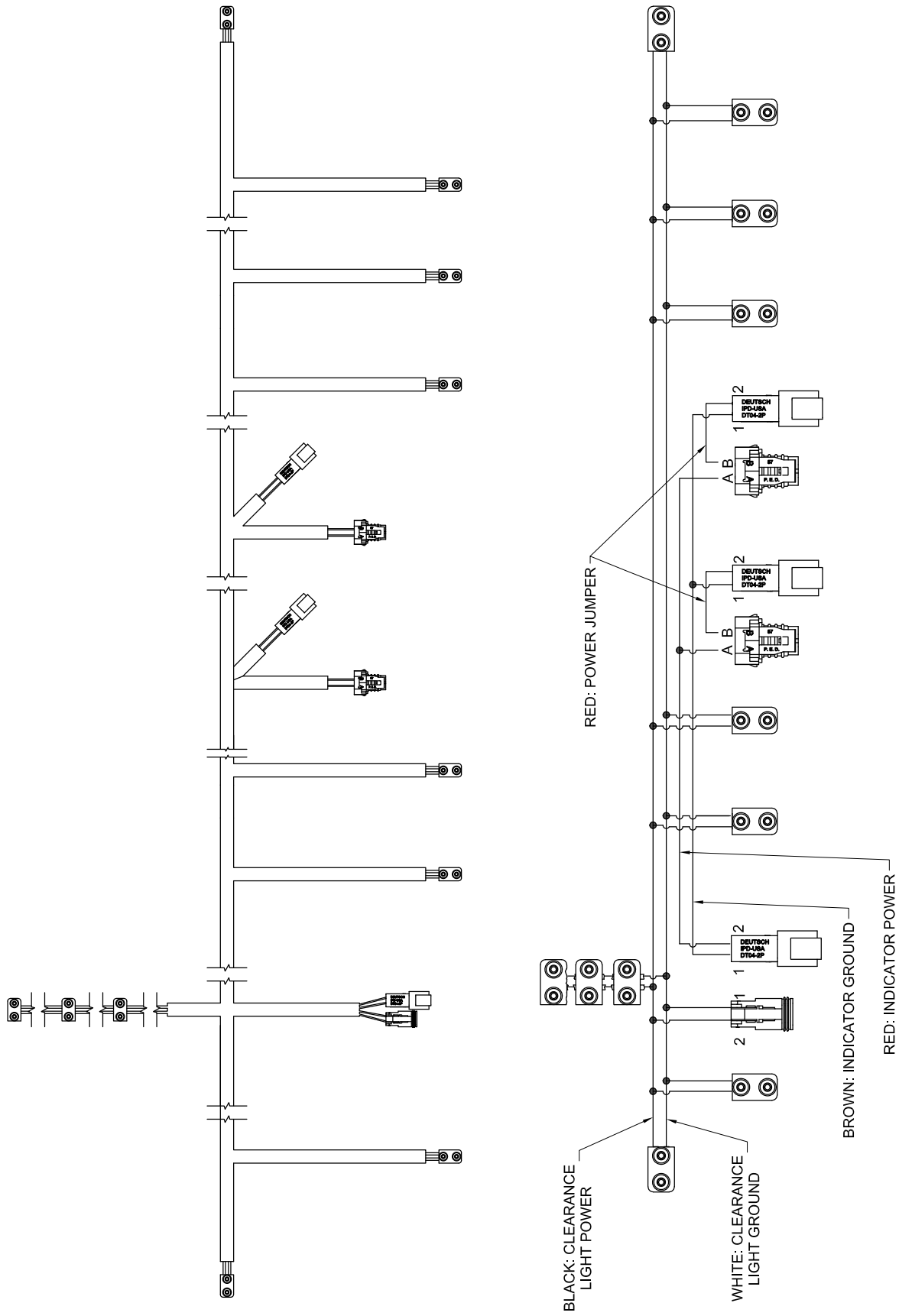
Undercarriage Lighting & Brake Harness # 2005416 Schematic - 3960XL/3960DXL



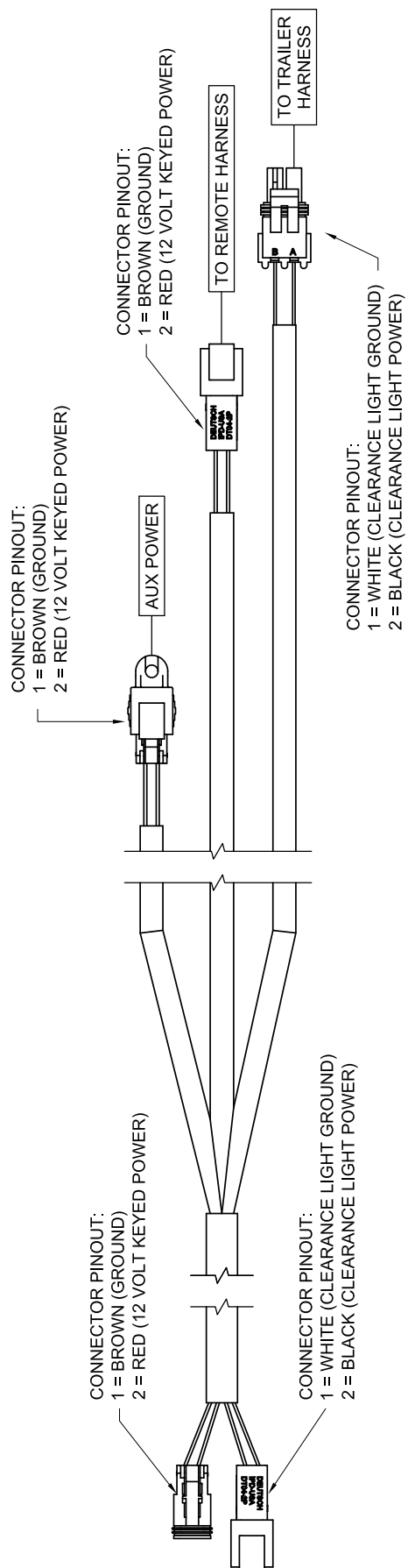
Undercarriage Lighting & Brake Harness Schematic #2002133 - 4960DXL



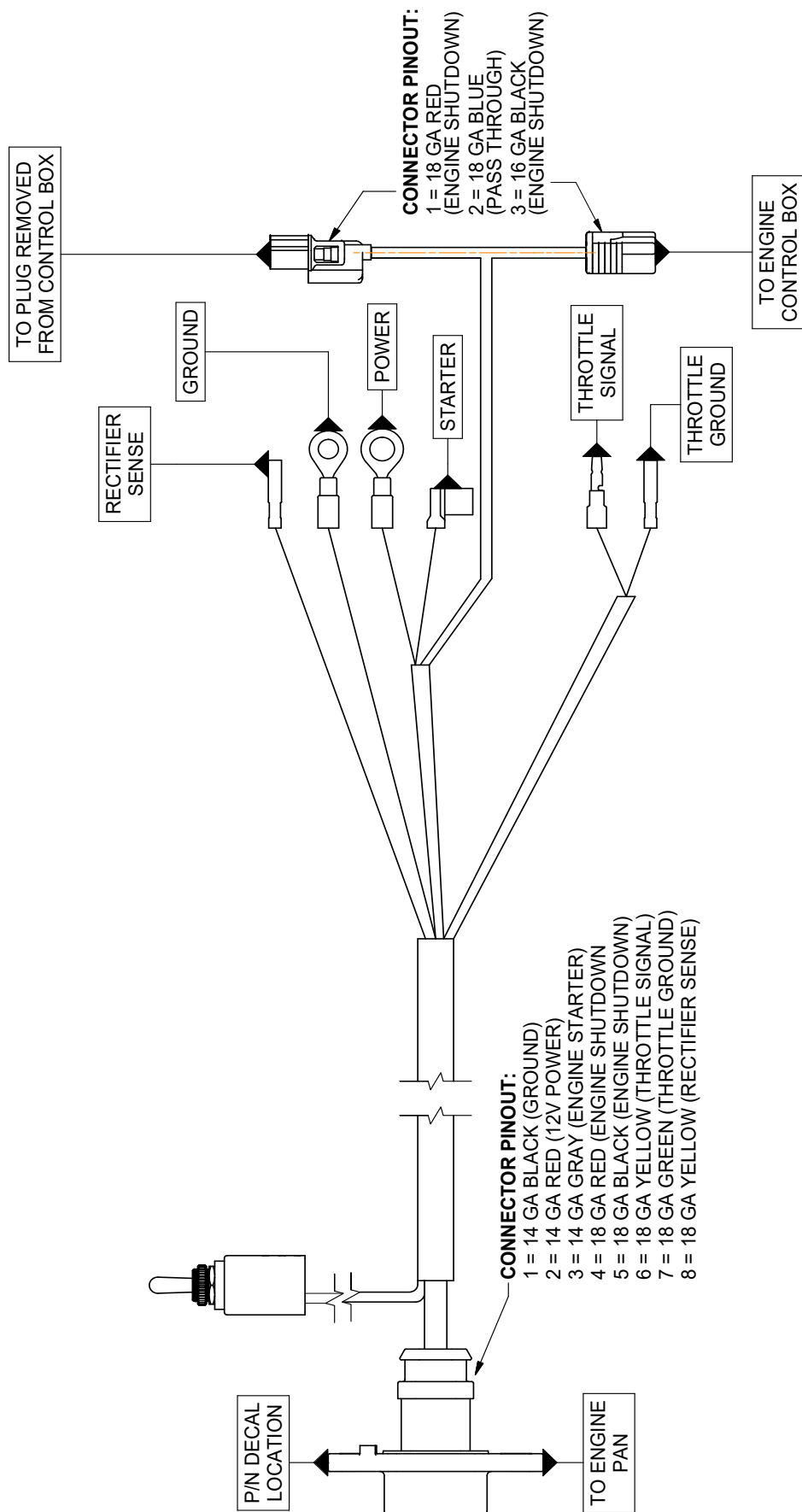
Seed Tank Lighting Harness # 2007536 Schematic



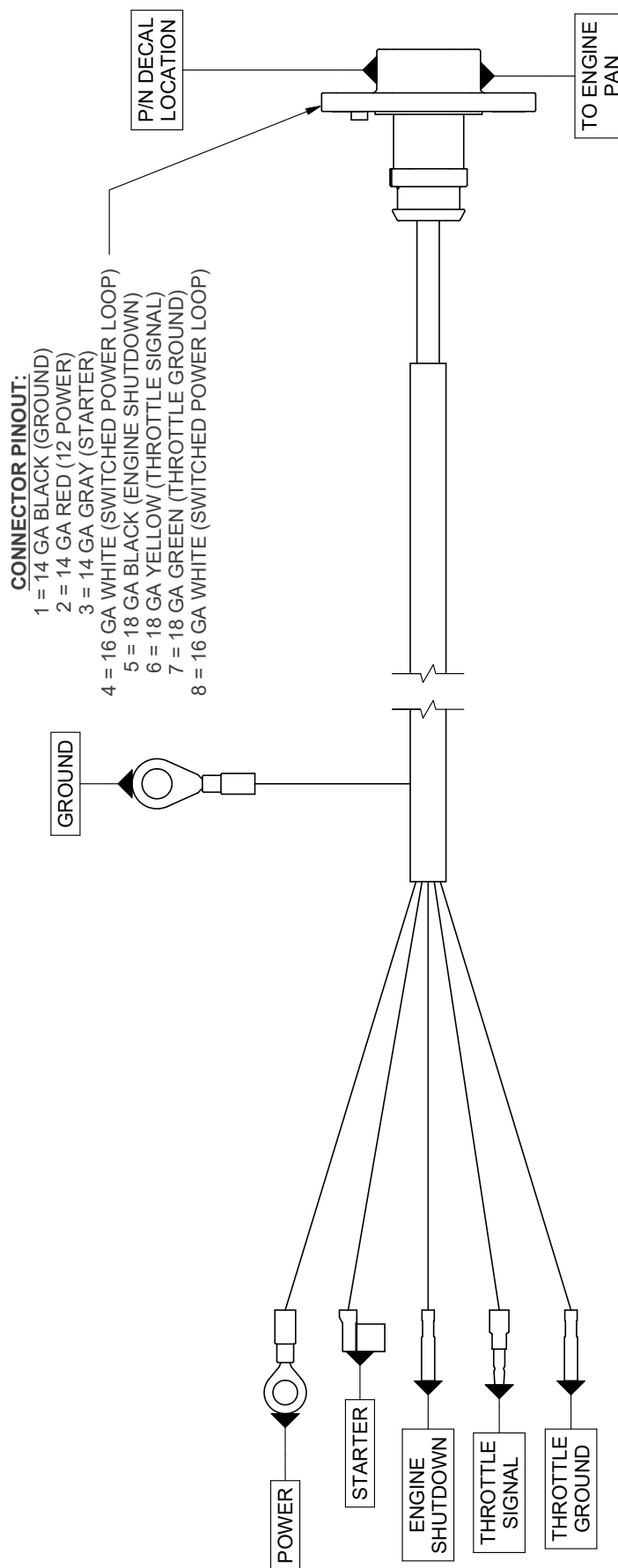
Rear Standard Wire Harness #2002090 Schematic



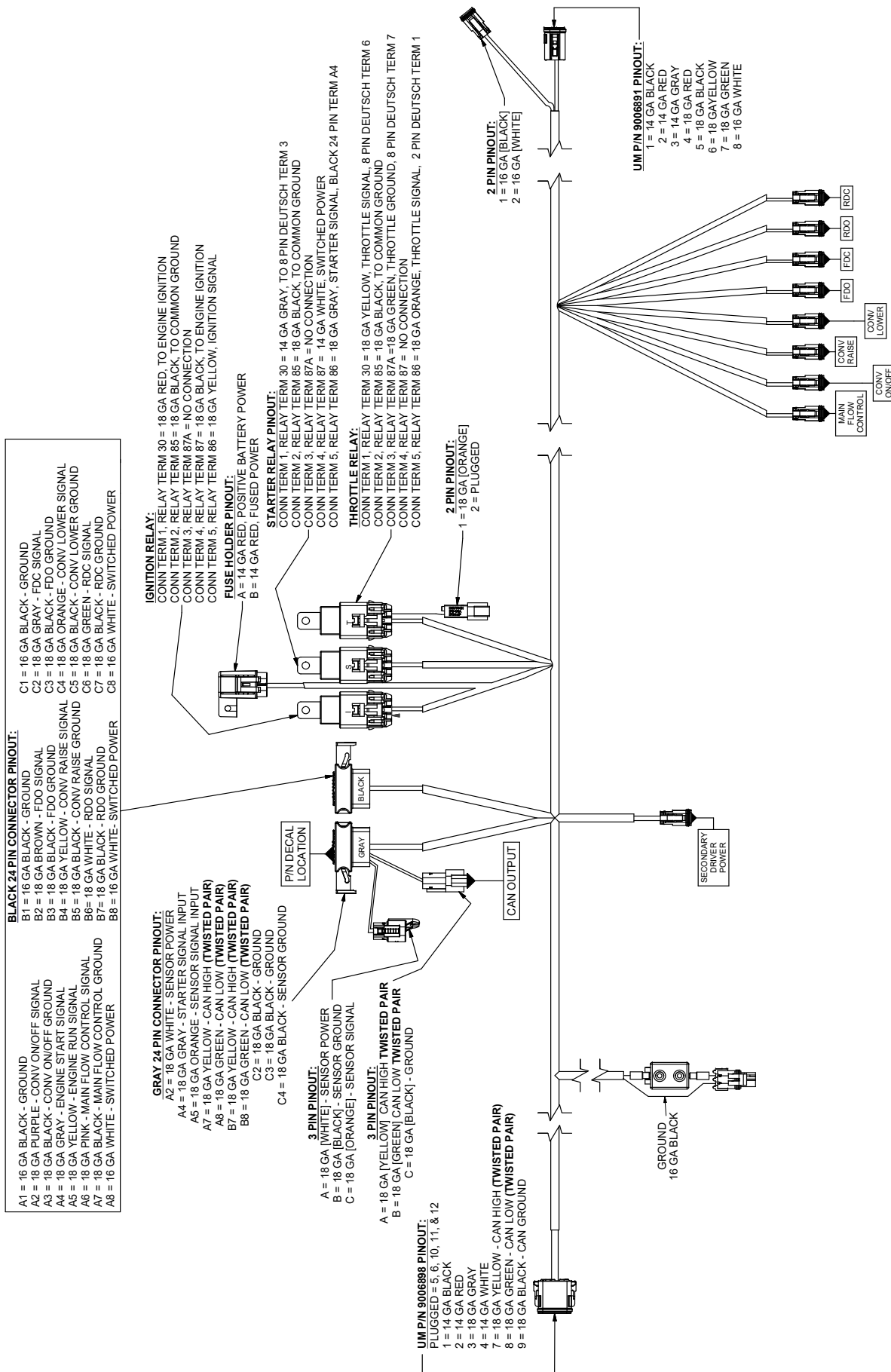
Small Powerpak Engine Harness # 2012717 Schematic



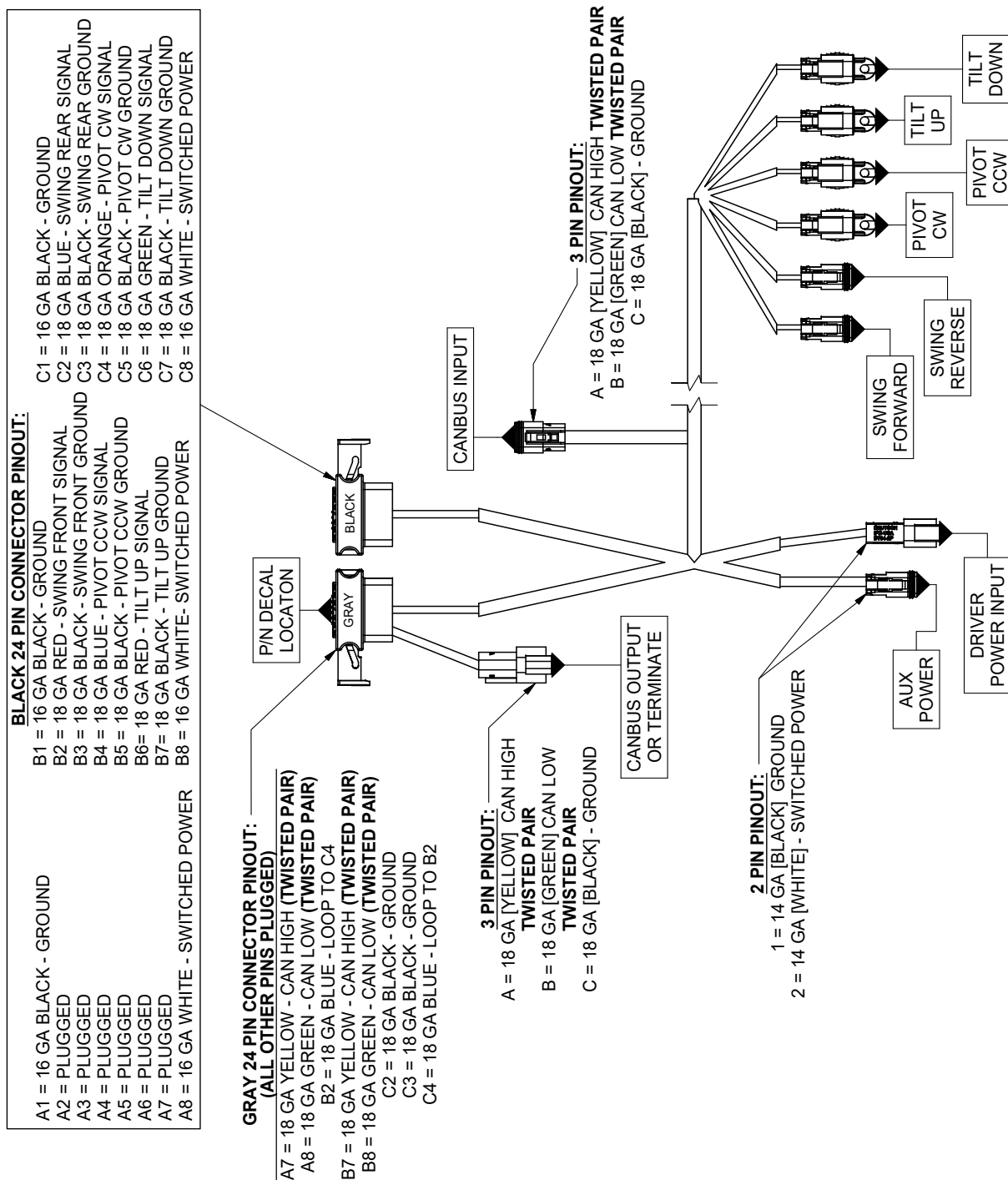
Large Powerpak Engine Harness #2012718 Schematic



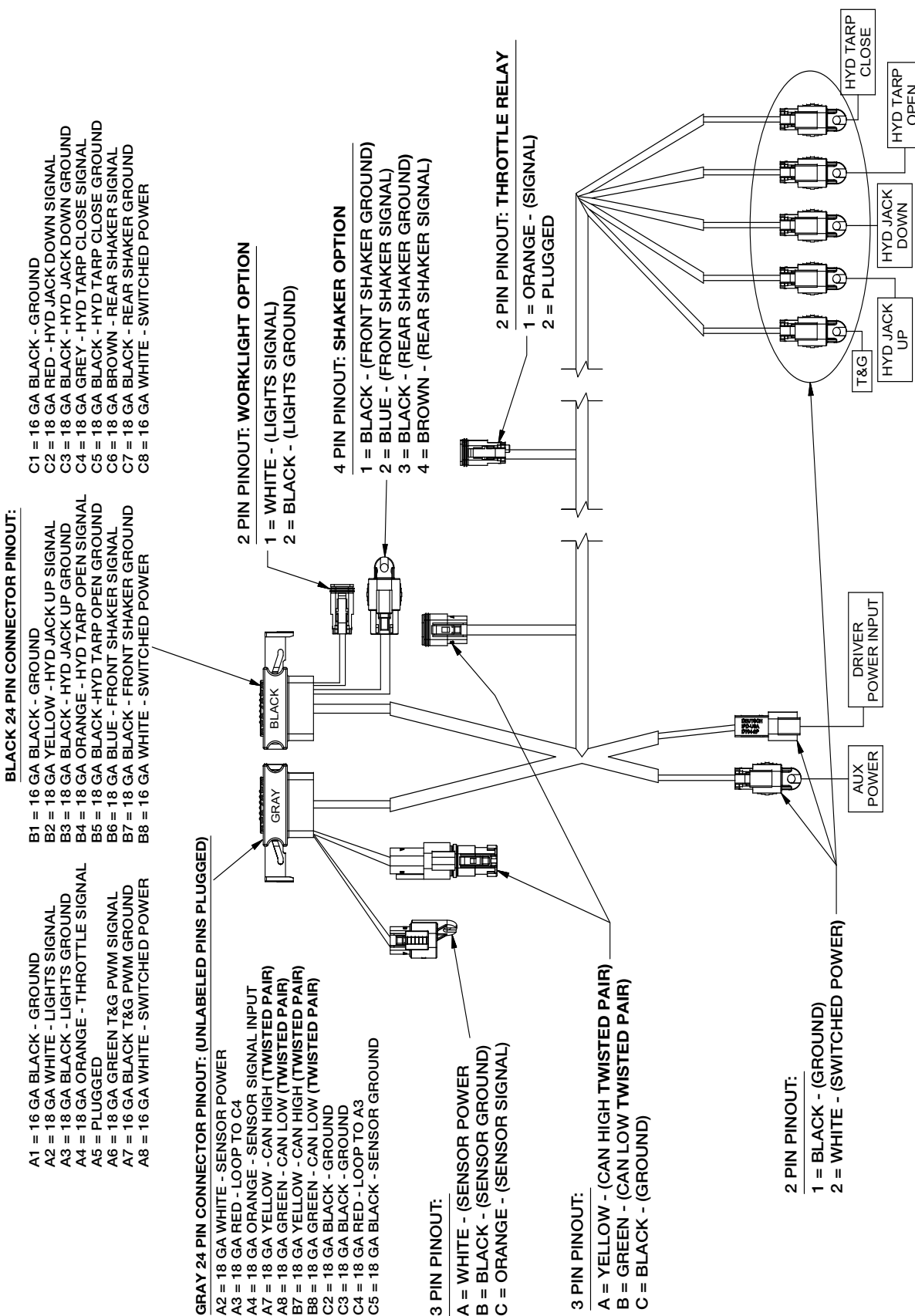
Primary Driver Harness #2012720 Schematic



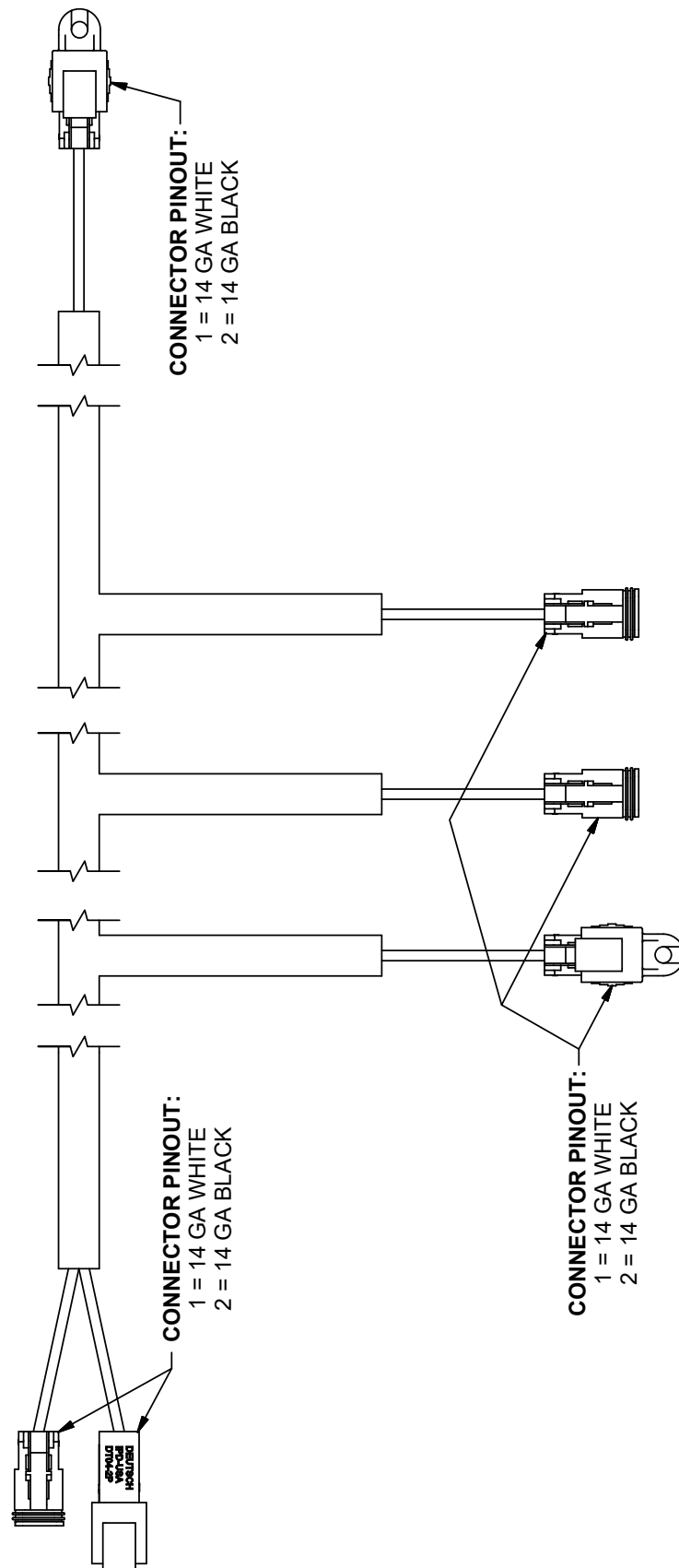
Primary Driver Harness #2012721 Schematic



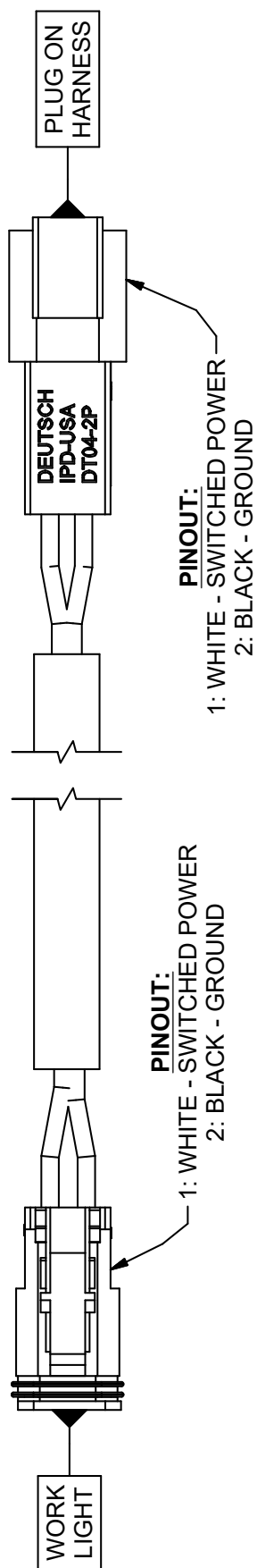
Options Driver Harness # 2012722 Schematic



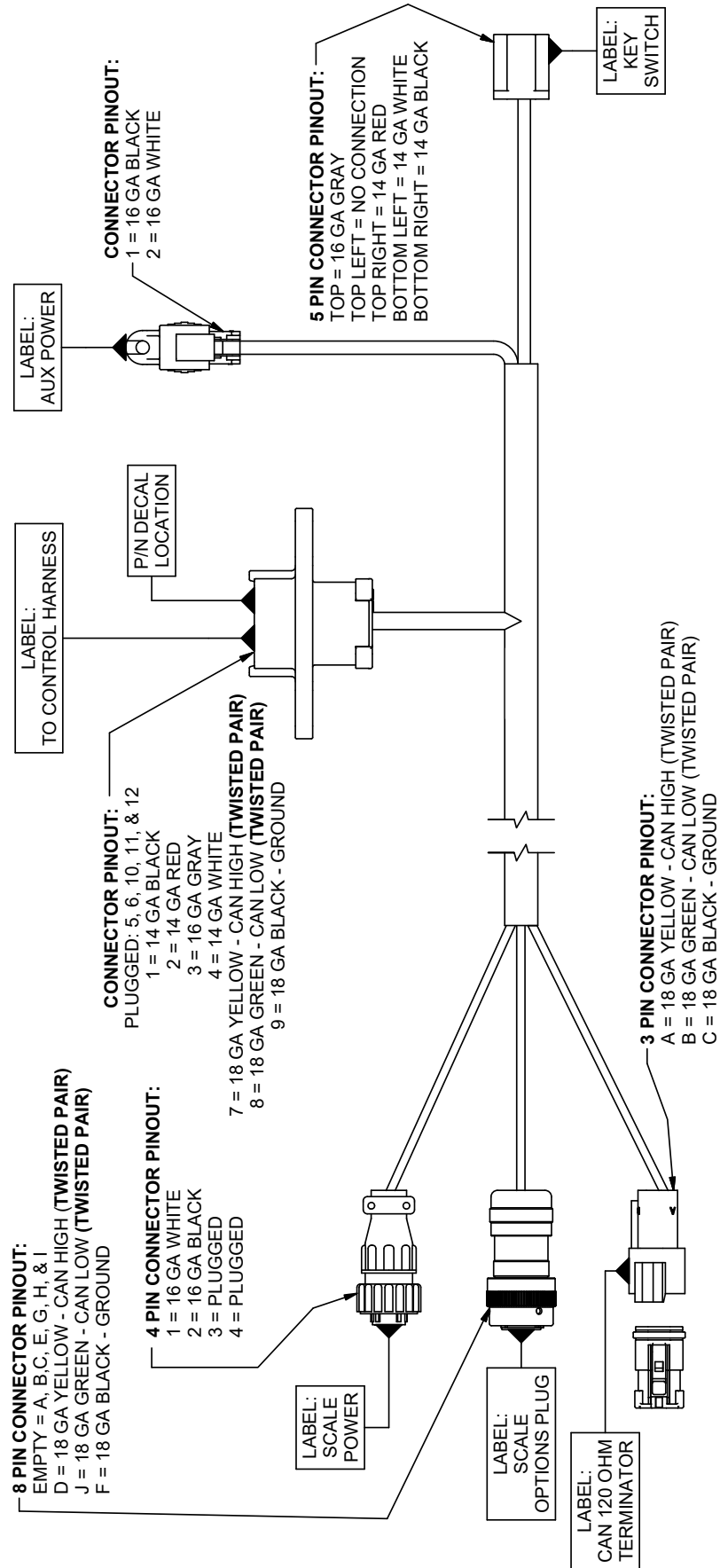
Work Light Harness # 2012723 Schematic



Work Light Extension Harness #2013239 Schematic



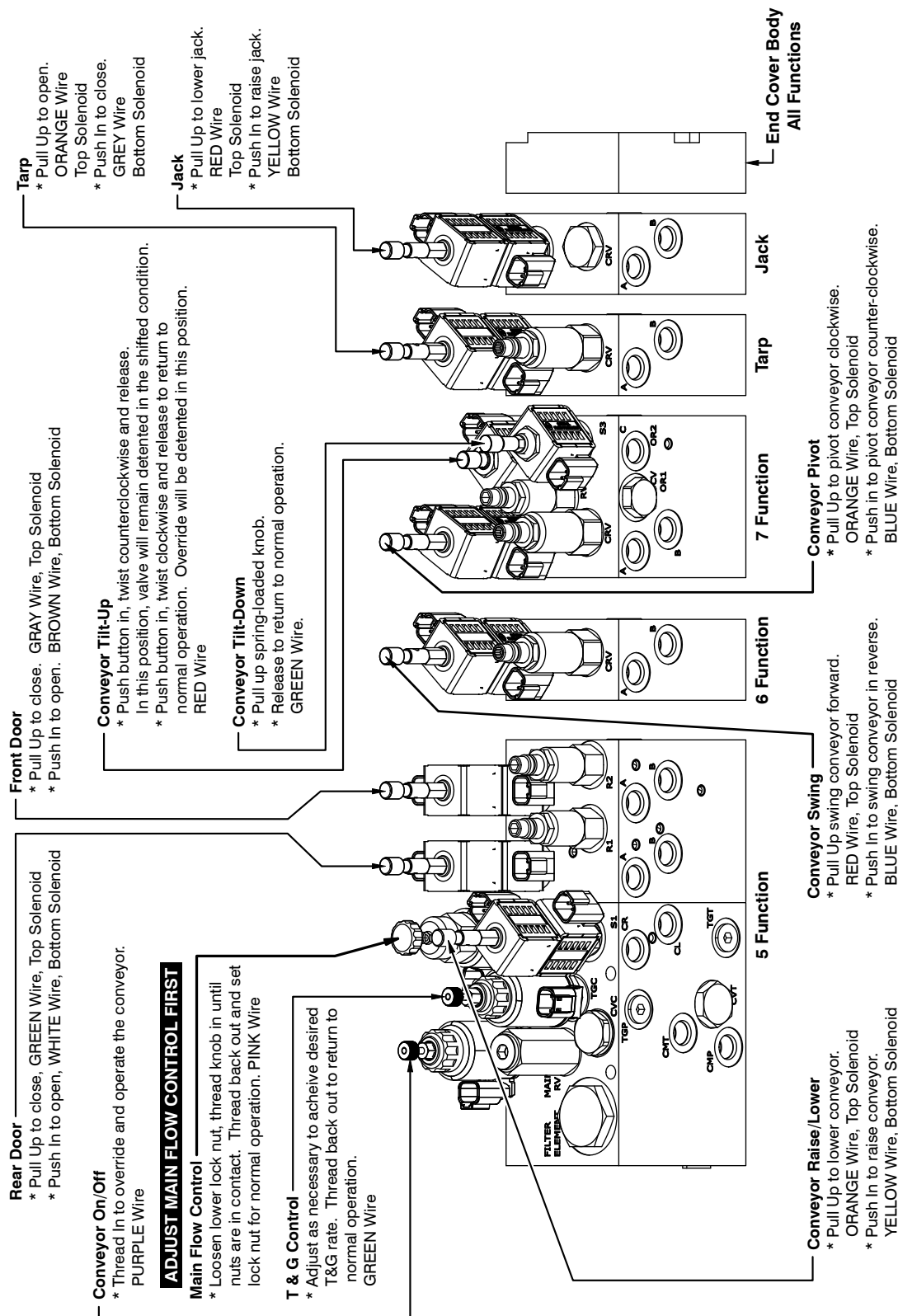
Scale Enclosure Harness #2012719 Schematic



Hydraulic Valve Block Schematic #9503773

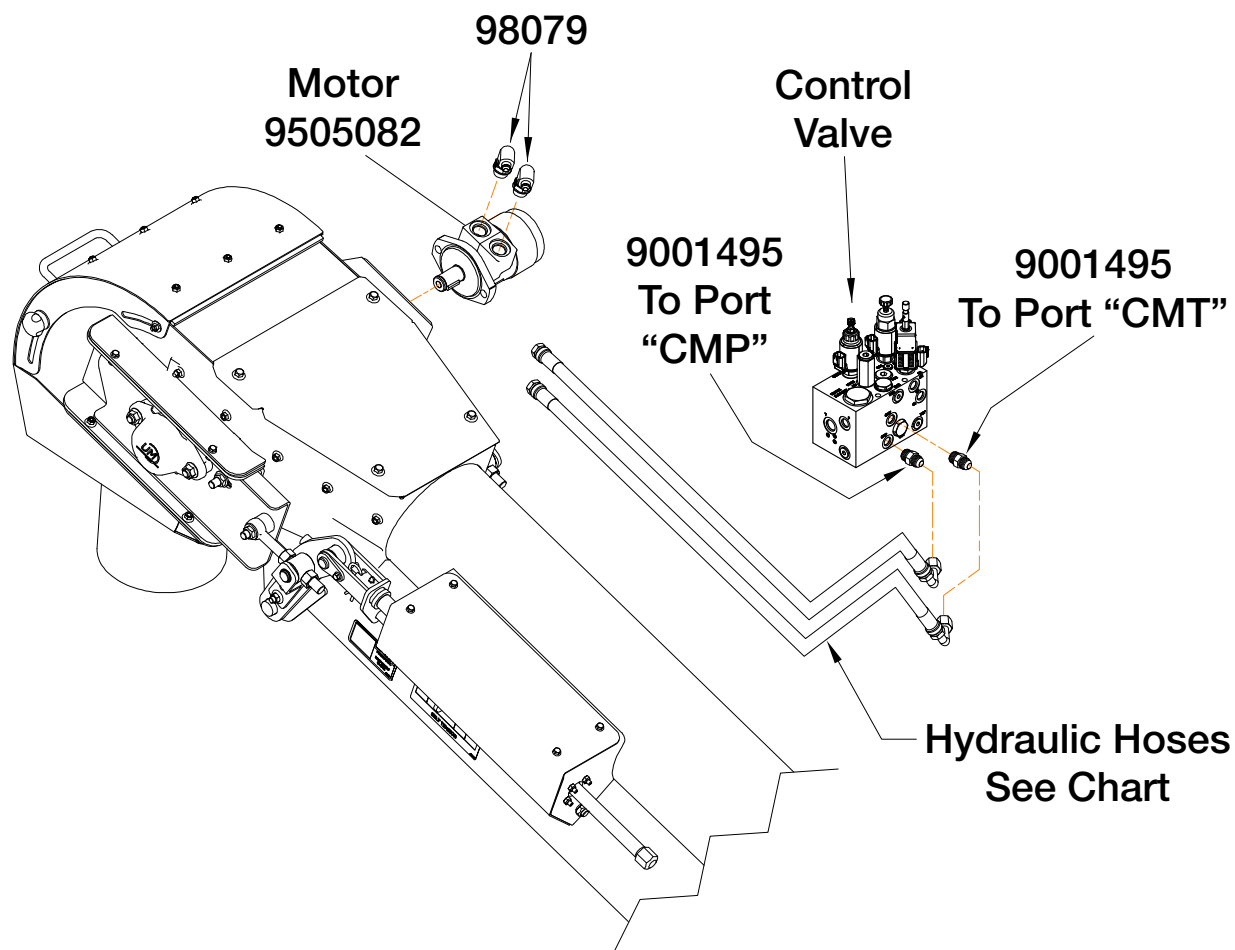
Stackable Valve Manual Override Operation & Wire Schematic

Thread in Main Flow Control BEFORE operating push/pull valves. Thread out Main Flow Control when done.



9505773 Rev. 0

Conveyor Hydraulics Diagram



Hydraulic Hoses				
UNIT	CONVEYOR	PART #	DESCRIPTION	QTY
2760	6"x18'	9505466	3/8" Hose 9/16"JICF x 9/16"JICF x 310"	2
3760	8"x18'			
2760XL	8"x21'	9500429	3/8" Hose 9/16"JICF x 9/16"JICF x 350"	2
3760XL				
3960XL				
3960DXL*	8"x24'	96546	Extension - 3/8"x36" 9/16"-18 JIC Female Swivel x 9/16"-18 JIC Male Straight	2
4960DXL	10"x24'	9505467	3/8" Hose 9/16"JICF x 9/16"JICF x 415"	2

*Extension Hose #96546 is required between hose #9500429 and the motor on model 3960DXL.

Complete Torque Chart

Capscrews - Grade 5

NOTE:

- Grade 5 capscrews can be identified by three radial dashes on the head.
- For wheel torque requirements, refer to Wheels and Tires.
- Tighten U-bolts evenly and equally to have the same number of threads exposed on each end.



SIZE	FOOT POUNDS	NEWTON METERS
1/4-20	8-10	11-13
1/4-28	9-11	12-15
5/16-18	15-17	20-23
5/16-24	17-19	23-26
3/8-16	25-28	34-38
3/8-24	28-31	38-42
7/16-14	40-45	54-61
7/16-20	45-50	61-68
1/2-13	62-68	84-92
1/2-20	68-75	92-102
9/16-12	90-98	122-133
9/16-18	100-110	134-148
5/8-11	120-135	162-183
5/8-18	124-137	168-186
3/4-10	200-220	270-300
3/4-16	210-230	285-310
7/8-9	330-350	425-475
7/8-14	360-380	460-515
1-8	500-525	675-710
1-14	540-560	730-760
1 1/8-7	600-635	815-860
1 1/8-12	665-700	920-950
1 1/4-7	850-895	1150-1215
1 1/4-12	940-990	1275-1340
1 3/8-6	1125-1175	1525-1590
1 3/8-12	1280-1335	1735-1810
1 1/2-6	1500-1560	2035-2115
1 1/2-12	1685-1755	2285-2380

IMPORTANT

- Follow these torque recommendations except when specified in text.

Complete Torque Chart

Capscrews - Grade 8

NOTE:

- Grade 8 capscrews can be identified by six radial dashes on the head.
- For wheel torque requirements, refer to Wheels and Tires.
- Tighten U-bolts evenly and equally to have the same number of threads exposed on each end.



SIZE	FOOT POUNDS	NEWTON METERS
5/16-18	20-22	27-30
5/16-24	21-23	28-31
3/8-16	35-39	47-53
3/8-24	36-41	49-55
7/16-14	54-58	73-78
7/16-20	55-60	75-80
1/2-13	82-88	110-120
1/2-20	94-99	125-135
9/16-12	127-134	170-180
9/16-18	147-155	199-210
5/8-11	160-170	215-230
5/8-18	165-175	225-235
3/4-10	280-295	380-400
3/4-16	330-365	445-495
7/8-9	410-430	555-580
7/8-14	420-440	570-595
1-8	630-650	850-880
1-14	680-700	920-950
1 1/8-7	900-930	1220-1260
1 1/8-12	930-950	1260-1290
1 1/4-7	1250-1300	1695-1760
1 1/4-12	1280-1320	1735-1790

IMPORTANT

- Follow these torque recommendations except when specified in text.

Hydraulic Fittings

Tightening O-Ring Fittings

1. Inspect components for damage or contamination. Do not connect any other type of fitting to an O-ring fitting.
2. For adjustable fittings, insure the jam nut and washer are fully backed up.
3. Lubricate the O-ring and threads on the fitting.
4. Turn the fitting into the port until it is finger tight.
5. For adjustable fittings, set in the desired position.
6. Using a wrench, torque the fitting to the value in the below table. For adjustable fittings the jam nut will be tightened.

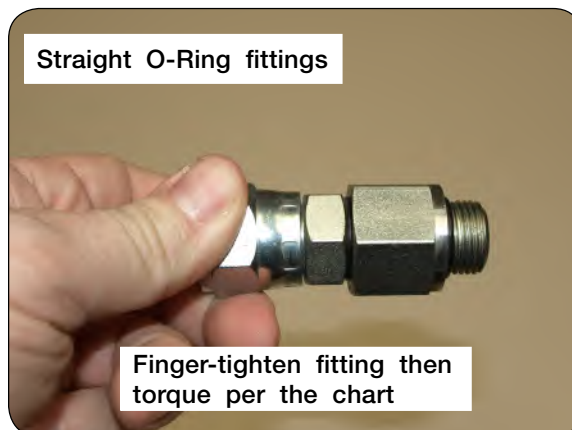
Note: Never use a power tool to install a fitting.

Dash Size	Thread Size	Straight Stud Torque (Ft-Lbs)	Adjustable Stud Torque (Ft-Lbs)
-5	1/2-20	14-19	10-14
-6	9/16-18	18-24	12-16
-8	3/4-16	27-43	20-30
-10	7/8-14	36-48	30-36
-12	1-1/16-12	65-75	44-54
-14	1-3/16-12	75-99	53-70
-16	1-5/16-12	85-123	59-80
-20	1-5/8"-12	115-161	75-100
-24	1-7/8"-12	125-170	105-125

O-Ring fittings

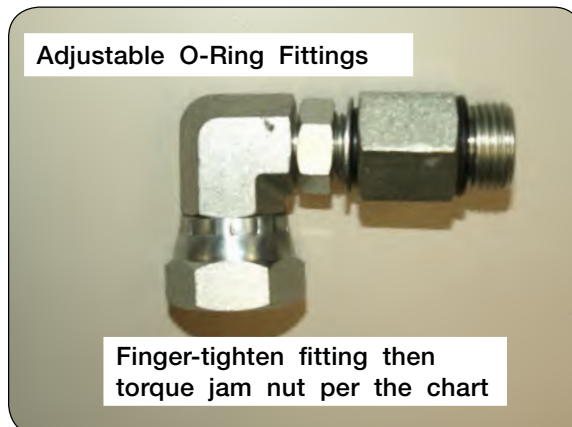


Straight O-Ring fittings



Finger-tighten fitting then torque per the chart

Adjustable O-Ring Fittings



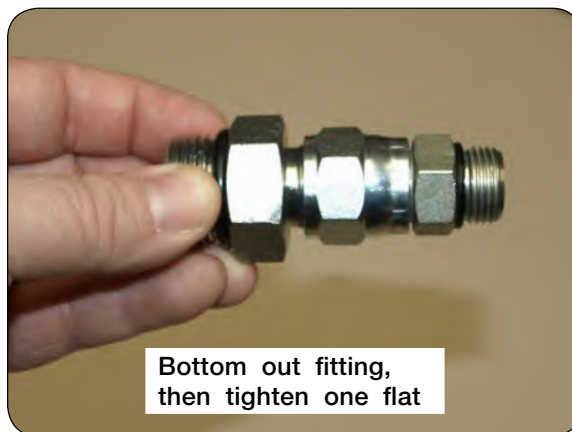
Finger-tighten fitting then torque jam nut per the chart

Hydraulic Fittings

Tightening JIC Fittings

1. Inspect all components for damage or contamination. Do not connect any other type of fitting to a JIC fitting.
2. Lubricate the threads.
3. Turn the fitting into the port until it bottoms out.
4. Use one wrench on the fixed hex on the hose to prevent twisting and a second on the swivel. Tighten the fitting another 60 degrees (or one flat).

Note: Never use a power tool to install a fitting.





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