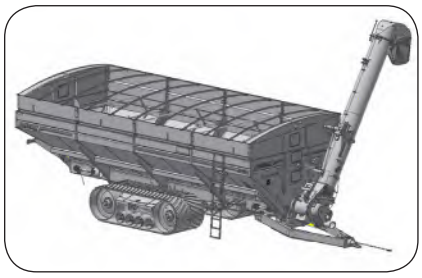
Grain Cart Maintenance



BRENT **Grain Handling**

AVALANCHE® DOUBLE-AUGER GRAIN CART MODEL 2598

Serial Number B42860100 & Higher

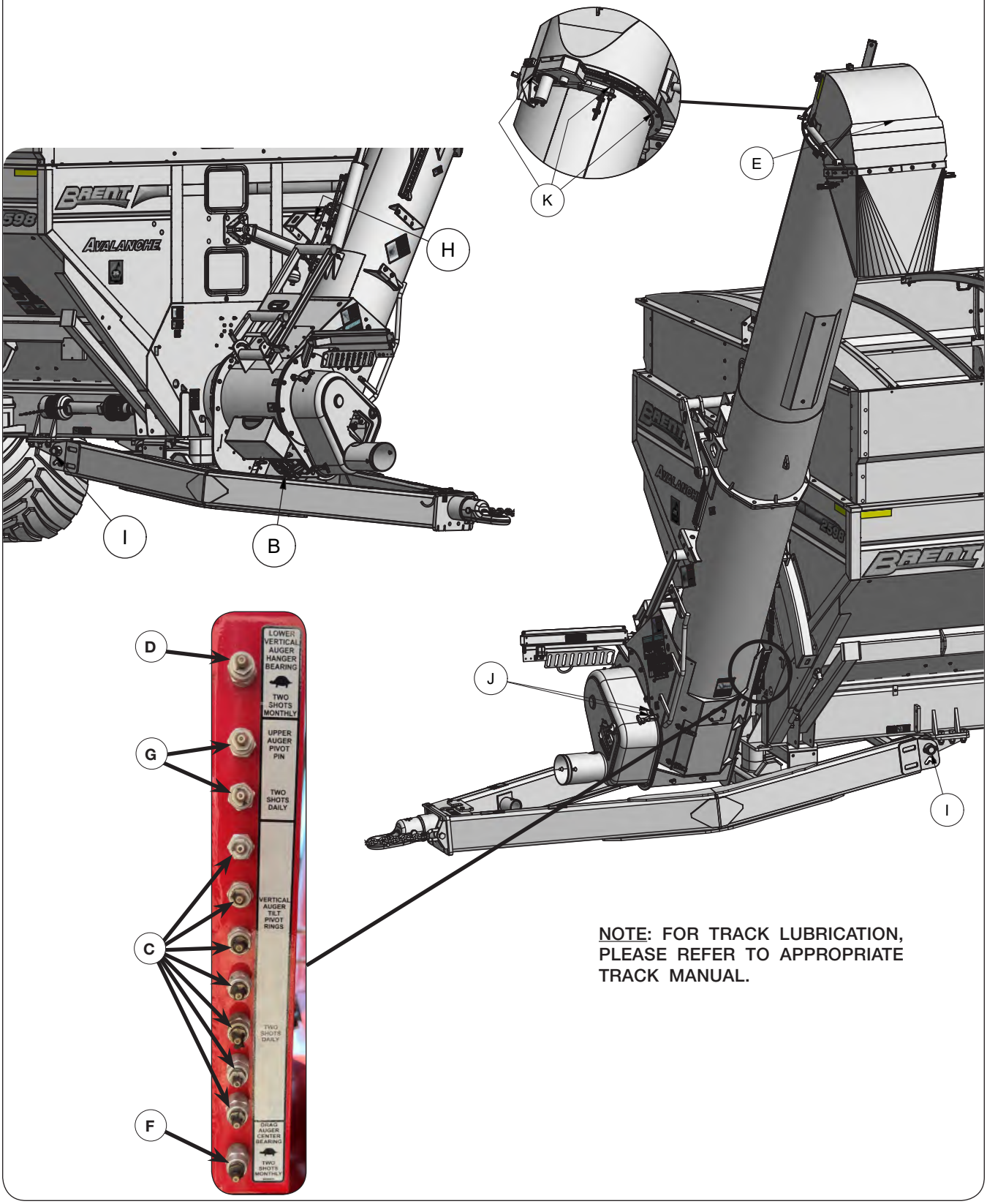
Part No. 296163

Section IV
Maintenance

FOR SCALE, TRACK, UHARVEST, ELECTRIC TARP, AND / OR WATER DELIVERY SYSTEM INFORMATION, PLEASE REFER TO THE INDIVIDUAL MANUALS.

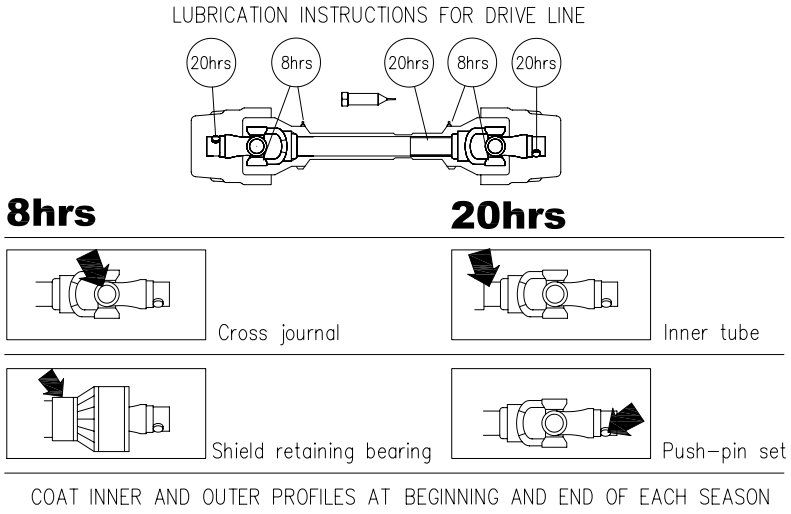
Lubrication

To keep your grain cart in top operating condition and to assure its proper performance and reliability for a long period of time, periodic inspection and lubrication is a must.



NOTE: FOR TRACK LUBRICATION, PLEASE REFER TO APPROPRIATE TRACK MANUAL.

Lubrication (continued)



Unverferth Mfg. recommends use of NLGI #2 Extreme Pressure grease.

The lubrication locations and recommended schedule are as follows:

ITEM	DESCRIPTION	POINT	LUBRICANT	QTY	HOURS
A	PTO Driveshafts - Upper Driveshaft - 2 Grease Points - Lower Driveshaft - 1 Grease Point	3	EP-2	1 Shot	See Chart Above
B	Gearbox -- Remove Cover - Check oil level every 2 weeks. Replace oil every season. Refer to Gearbox in MAINTENANCE section for instructions.	1	EP80W90	Approx 85 oz.	Once Every Season
C	Grease Bank for Auger Pivot Rings - Front & Rear Auger Hinge	7	EP-2	2 Shots	Daily
D*	Grease Bank for Hanger Bearing - Vertical Lower Auger *See note below	1	EP-2	2 Shots*	Monthly
E	Top Bearing - Vertical Upper Auger	1	EP-2	1 Shot	Each Season
F	Grease Bank for Horizontal Auger End & Center Bearings	2	EP-2	2 Shots	Monthly
G	Grease Bank for Auger Pivot Pin - Vertical Upper Auger Hinge	2	EP-2	2 Shots	Daily
H	Grease Slide Plate	1	EP-2	1 Shot	Each Season
I	Tongue Pivot Bushing	2 (one per side)	EP-2	2 Shots	Daily
J	Drive Bearings	2	EP-2	1 Shots	Weekly
K	Discharge Spout Pivot Grease Points	6	EP-2	1 Shot	Monthly

*NOTE: Hanger bearing contains hydraulic shut-off grease zerk (9005240) with pressure relief to prevent over-greasing that could push bearing seals out. If grease is coming out of the relief on the zerk, this is normal and the bearing contains enough grease.

Hydraulic System

Refer to parts section for hydraulic component detail listing.

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

Replacing Hoses/Fittings/Cylinders:

1. Use replacement hoses, fittings, and cylinders from your Unverferth Manufacturing dealer which are rated for 3,000 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

⚠ WARNING

- **HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.**
- **RELIEVE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR’S MANUAL FOR PROPER PROCEDURES.**
- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**

- **KEEP CLEAR OF PINCH POINT AREAS.**

- **FALLING OR LOWERING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH. KEEP EVERYONE AWAY FROM EQUIPMENT WHEN SUSPENDED, RASING, OR LOWERING.**

Purge air from system as follows:

A. Disconnect the rod end of all cylinders in a circuit and block up cylinders so the rod can completely extend and retract without contacting any other component.
B. Pressurize the system and maintain system at full pressure for at least 5 seconds after cylinder rods stop moving. Check that all cylinders have fully extended or retracted.
C. Check oil reservoir in hydraulic power source and refill as needed.
D. Pressurize system again to reverse the motion of step B. Maintain pressure on system for at least 5 seconds after cylinder rods stop moving. Check that cylinders have fully extended or retracted.
E. Check for hydraulic leaks using cardboard or wood. Tighten connections according to directions in Torque Chart.
F. Repeat steps B, C, D, and E 3-4 times.
G. Depressurize hydraulic system and connect cylinder rod clevises to their mating lugs.

IMPORTANT

- *Machine damage will occur if the cylinder is incorrectly installed.*

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

Hydraulic System (continued)

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, consult tractor operators manual for procedure to relieve pressure.

Purging Procedure For EOH System

⚠ WARNING

- **RELIEVE THE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR'S MANUAL FOR PROPER PROCEDURES.**
- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.**
- **FALLING OR LOWERING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH. KEEP EVERYONE AWAY FROM EQUIPMENT WHEN SUSPENDED, RASING, OR LOWERING.**

NOTE: Make sure hoses are not kinked, stretched, or twisted. Secure hoses to prevent cuts or chafing during operation.

1. Open flow door and hold SCV for 5 seconds. Close flow door and hold SCV for 5 seconds.
   Repeat at least 3 times until movement is smooth and even.

2. Pivot auger all the way down and hold SCV for 5 seconds. Raise auger all the way up and hold SCV for 5 seconds. Repeat at least 3 times until movement is smooth and even.

3. Rotate spout all the way forward and hold SCV for 5 seconds. Rotate spout all the way rearward and hold SCV for 5 seconds. Repeat at least 3 times until movement is smooth and even.

4. Tilt spout all the way out and hold SCV for 5 seconds. Tilt spout all the way in and hold SCV for 5 seconds. Repeat at least 3 times until movement is smooth and even.

5. Fold auger to road transport position and hold SCV for 5 seconds. Unfold auger all the way and hold SCV for 5 seconds. Repeat at least 3 times until movement is smooth and even.

Gearbox

When checking the oil level of the gearbox, the vertical auger should be tilted all the way down.

For adequate lubrication, the oil should be visible in the sight glass. Fill with oil to the sight glass only. (FIG. 4-1)

Maximum gearbox life:
Check oil level every 2 weeks.

Replace oil every season with approximately 85 oz. 80W90 EP lubricant.

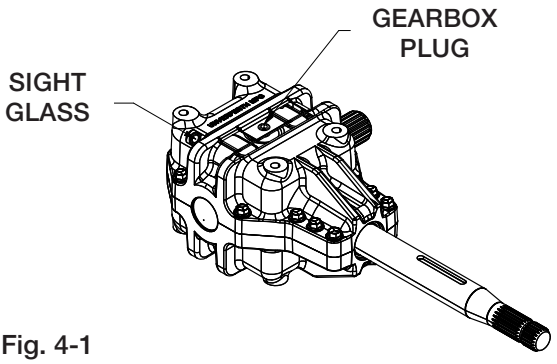


Fig. 4-1

Track Wheels

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 THERE-AFTER. 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 track 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 FIG 4-2.

NOTE: Do not use anti-seize on wheel hardware.

WHEEL HARDWARE	
SIZE	FOOT-POUNDS
3/4-16 (UNF)	365 ft.-lbs.

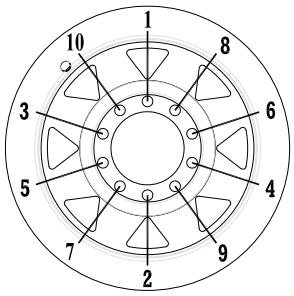


FIG. 4-2 10 BOLT

Manual Override for Optional Electric Over Hydraulic System

WARNING

- **MOVING OR ROTATING AUGER COMPONENTS CAN CAUSE SERIOUS INJURY OR MACHINE DAMAGE. BEFORE OPERATING MANUAL OVERRIDE(S), ENSURE EVERYONE IS AWAY FROM THE SPOUT AND THAT THE SPOUT WILL NOT CONTACT ANY OTHER PARTS OF THE GRAIN CART. ALL CONTROL SWITCHES ARE DEACTIVATED WHILE UTILIZING MANUAL OVERRIDE(S).**

- **MOVING OR ROTATING PTO COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT OPERATE PTO WHILE UTILIZING MANUAL OVERRIDE(S).**

- **FALLING OR LOWERING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH. KEEP EVERYONE AWAY FROM EQUIPMENT WHEN SUSPENDED, RASING, OR LOWERING.**

IMPORTANT

- *Spout must be centered before operating the auger fold. Align checker flag decals to ensure spout rotate is centered.*

NOTE: Manual override operation is intended for emergency use ONLY and is not intended for continuous operation. Spout may rotate into cart causing damage.

NOTE: Manual override operation allows the spout and auger to move regardless of location.

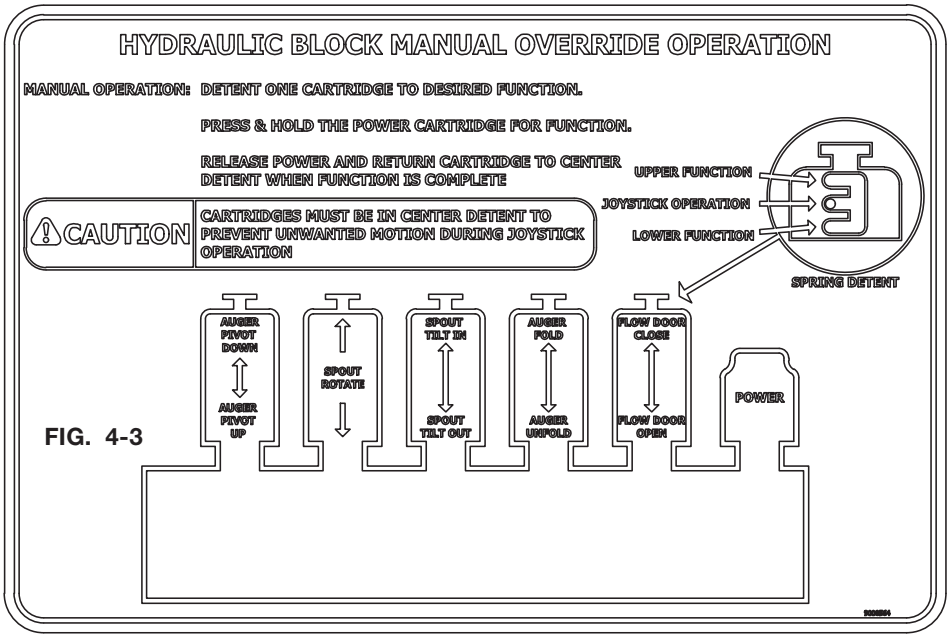


FIG. 4-3

1. Park the empty grain cart on a firm and level surface. Block the tracks on the machine to keep it from moving. Set the tractor's parking brake. Keep engine running.

2. Remove cover plate (295569B) from the bottom of the lower auger housing to access the EOH block assembly. Keep cover plate.

3. Connect the desired Hydraulic Pressure and Return hoses to the tractor SCV remote so that the Pressure line is able to be put in continuous detent.

4. To operate the manual override function, place the tractor SCV remote in continuous detent so that the Hydraulic Pressure hose is pressurized.

Manual Override for Optional Electric Over Hydraulic System (continued)

NOTE: Only one cartridge valve (9008416 & 9008463) must be in the top or bottom detent position at a time to function properly. All other valves must be in the middle detent postion. (FIG. 4-4 & 4-5)

5. Operate the desired function on valve (9008416 & 9008463) by rotating the manual override knurled knob from the locked neutral position. (FIG. 4-4 & 4-5)

6. Push and hold the manual override button on valve (9008438). (FIG. 4-6)

7. Once the desired position is reached, release manual override button on valve (9008438).

8. Return knurled knob to center and lock valve (9008416) & (9008463) in position. (FIG 4-4 & 4-5)

NOTE: Refer to "Troubleshooting" and "Auger Switch Troubleshooting" for EOH, vertical auger and/or rotating spout issues in the OPERATION section.

9. Turn off hydraulic circuit when done. Correct electric/hydraulic system before continued use. Consult your dealer for service and parts.

10. Replace cover plate (272606B) from step 2 to the bottom of the lower auger housing.

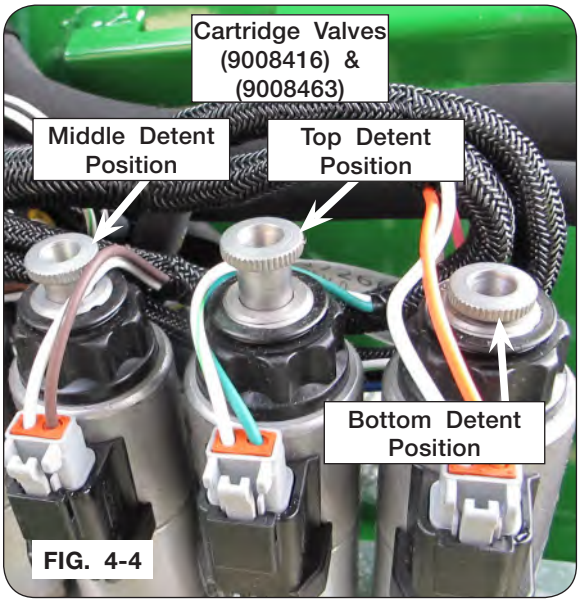


FIG. 4-4

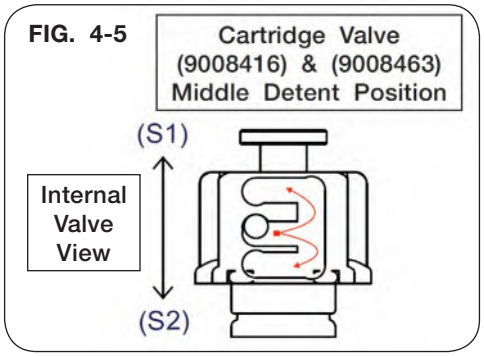


FIG. 4-5

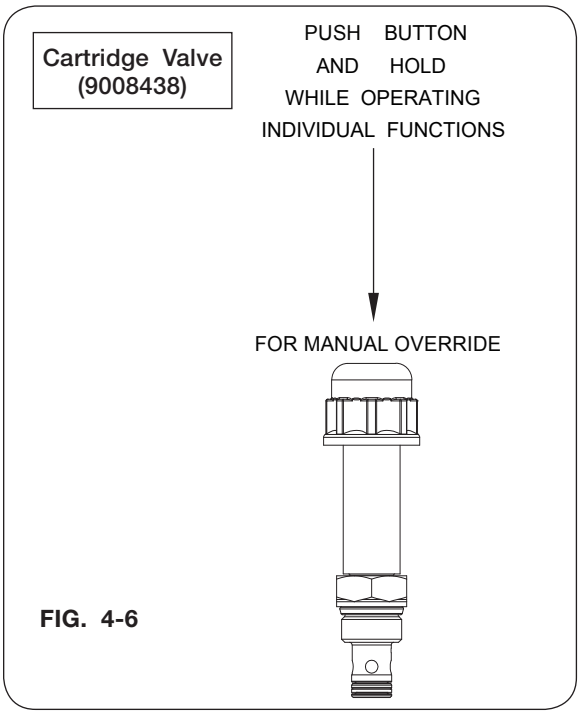


FIG. 4-6

Manual Override for SCV Controlled Spout Rotate & Auger Fold

⚠ WARNING

- **MOVING OR ROTATING AUGER COMPONENTS CAN CAUSE SERIOUS INJURY OR MACHINE DAMAGE. BEFORE OPERATING MANUAL OVERRIDE(S), ENSURE EVERYONE IS AWAY FROM THE SPOUT AND THAT THE SPOUT WILL NOT CONTACT ANY OTHER PARTS OF THE GRAIN CART. ALL CONTROL SWITCHES ARE DEACTIVATED WHILE UTILIZING MANUAL OVERRIDE(S).**

- **MOVING OR ROTATING PTO COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT OPERATE PTO WHILE UTILIZING MANUAL OVERRIDE(S).**

- **FALLING OR LOWERING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH. KEEP EVERYONE AWAY FROM EQUIPMENT WHEN SUSPENDED, RASING, OR LOWERING.**

IMPORTANT

- *Spout must be centered before operating the auger fold. Align checker flag decals to ensure spout rotate is centered.*

NOTE: Manual override operation is intended for emergency use ONLY and is not intended for continuous operation. Spout may rotate into the cart causing damage.

NOTE: Manual override operation allows the spout and auger to move regardless of location.

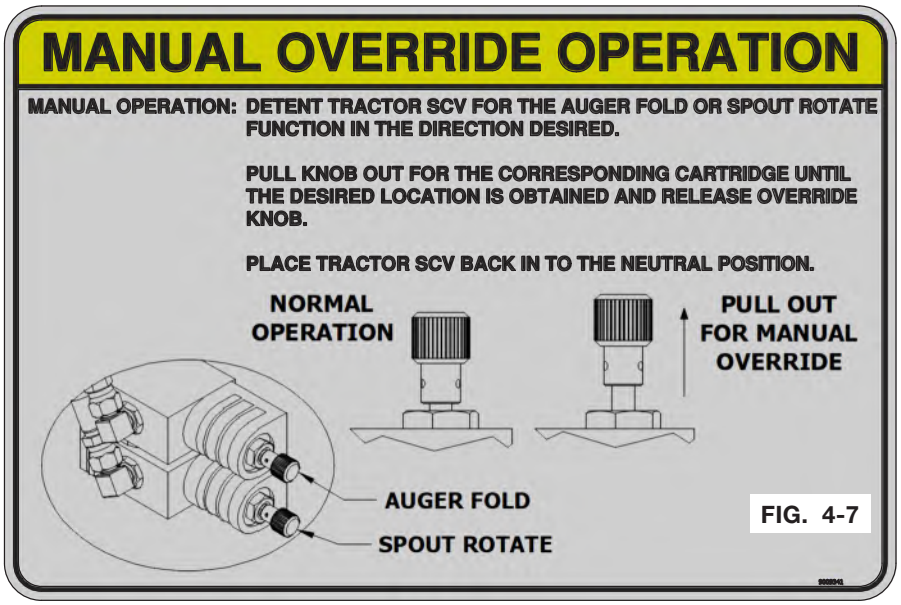


FIG. 4-7

1. Park the empty grain cart on a firm and level surface. Block the machine to keep it from moving. Set the tractor's parking brake. Keep engine running.

2. Remove cover plate (295569B) from the bottom of the lower auger housing to access the auger fold / spout rotate interlock valve assemblies. Keep cover plate.

3. Connect the desired spout rotate hoses (tan hose grips) or auger fold hoses (green hose grips) to the tractor SCV.

4. To operate the manual override function, set tractor SCV to a maximum of 4 gpm and place the tractor SCV for the desired function in continuous detent in the direction of flow that operates the spout rotate or auger fold direction desired.

Manual Override for SCV Controlled Spout Rotate & Auger Fold (continued)

NOTE: Operate one cartridge valve (9009186) at a time. Keep other valve in normal position. (FIG. 4-8 & 4-9)

5. Locate the desired valve (9009186). (FIG 4-8)

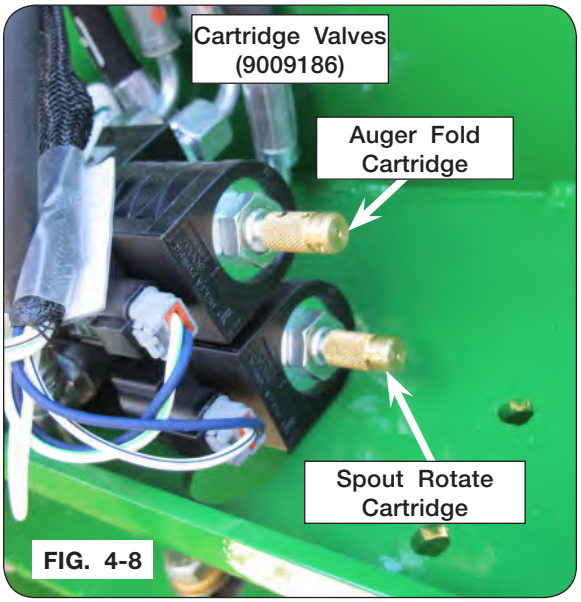


FIG. 4-8

6. Pull and hold the knob out on valve from normal position to manual override position. (FIG. 4-9)

7. Once the desired position is reached, release knob on valve from manual override back to normal position.

8. Turn off hydraulic circuit when done. Correct electric/hydraulic system before continued use. Consult your dealer for service and parts.

NOTE: Refer to "Troubleshooting" and for inline valve, vertical auger and/or rotating spout issues in the MAINTENANCE section.

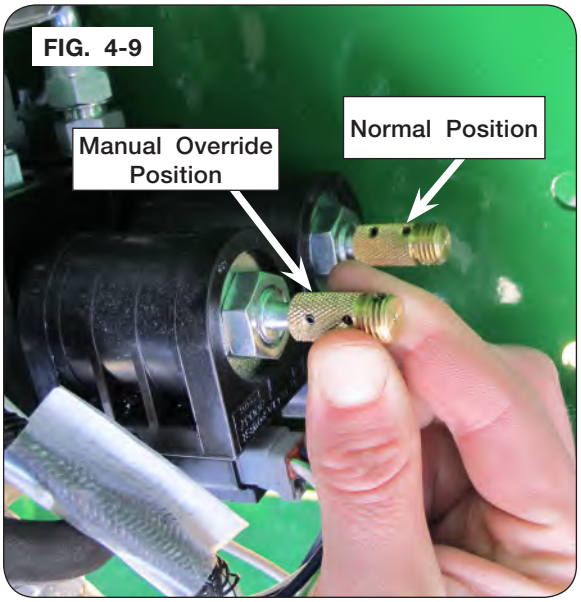


FIG. 4-9

9. Replace cover plate (295569B) from step 2 to the bottom of the lower auger housing. (FIG. 4-10)

FIG. 4-10

Auger System

WARNING

- **TO PREVENT PERSONAL INJURY OR DEATH, ALWAYS ENSURE THAT THERE ARE PEOPLE WHO REMAIN OUTSIDE THE CART TO ASSIST THE PERSON WORKING INSIDE, AND THAT ALL SAFE WORKPLACE PRACTICES ARE FOLLOWED. THERE ARE RESTRICTED MOBILITY AND LIMITED EXIT PATHS WHEN WORKING INSIDE THE IMPLEMENT.**
- **NEVER ENTER CART WITH AUGER OR TRACTOR RUNNING. SERIOUS OR FATAL INJURY CAN OCCUR DUE TO ENTANGLEMENT WITH ROTATING COMPONENTS. ALWAYS STOP ENGINE AND REMOVE KEY BEFORE ENTERING CART.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.**
- **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 2,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**
- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ALWAYS DISCONNECT POWER SOURCE BEFORE SERVICING. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR(S) ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING MACHINE.**

- **WHEN WORKING AROUND THE IMPLEMENT, BE CAREFUL NOT TO BE CUT BY SHARP EDGES.**

Auger System

Vertical Auger Height Check and Lubrication Locations

Annually check all bolts, nuts, and set screws for tightness. Replace the top of the upper vertical auger hardware, as necessary, with 1/2"-13UNC x 1 1/4" capscrew (9390-100), 1/2" lock washer (9404-025) and 2 1/2" dia. washer plate (407699). (Fig. 4-11)

Before servicing the vertical auger, park the unit on a firm, level surface. Block the tracks to keep the machine from moving. Raise vertical auger to discharge position and close horizontal auger flow door. Set the tractor parking brake, turn off tractor engine, remove ignition key, and disconnect PTO shaft and hydraulic lines from tractor.

NOTE: The lower auger position is indexed from the drive dog / tube flange hinge surface as shown. (Fig. 4-12)

Perform lubrication as specified. Refer to "Lubrication" in MAINTENANCE section for more details. (Fig. 4-13 & 4-14)

NOTE: Hanger bearing contains zerk (9005240) with pressure relief to prevent over-greasing that could push bearing seals out. If grease comes out of the relief on the zerk, this is normal and the bearing has enough grease. (Fig. 4-13)

Fig. 4-11

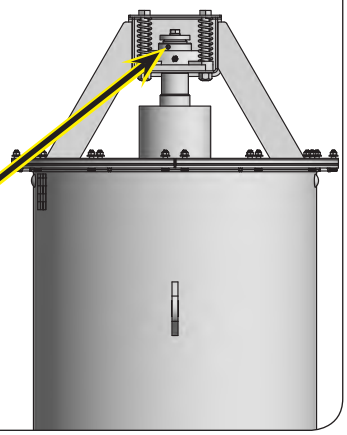
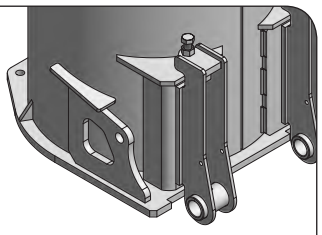


Fig. 4-12



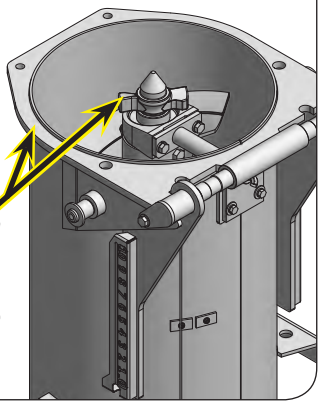


Fig. 4-13

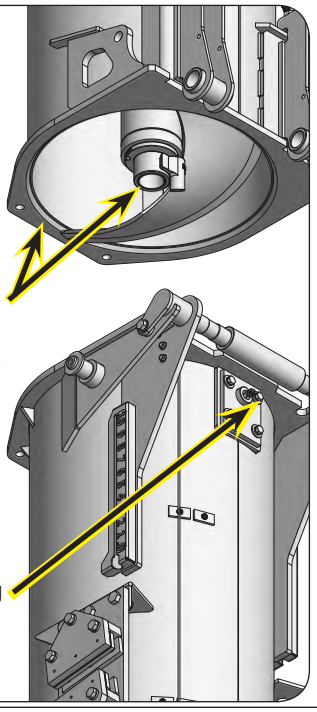
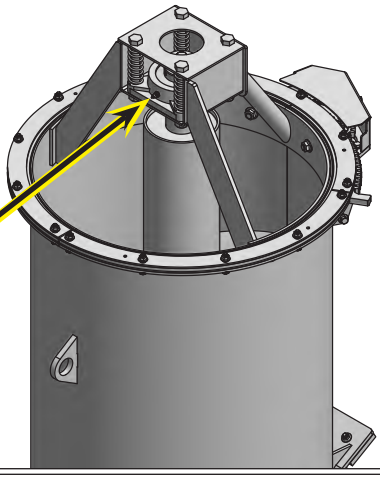


Fig. 4-14



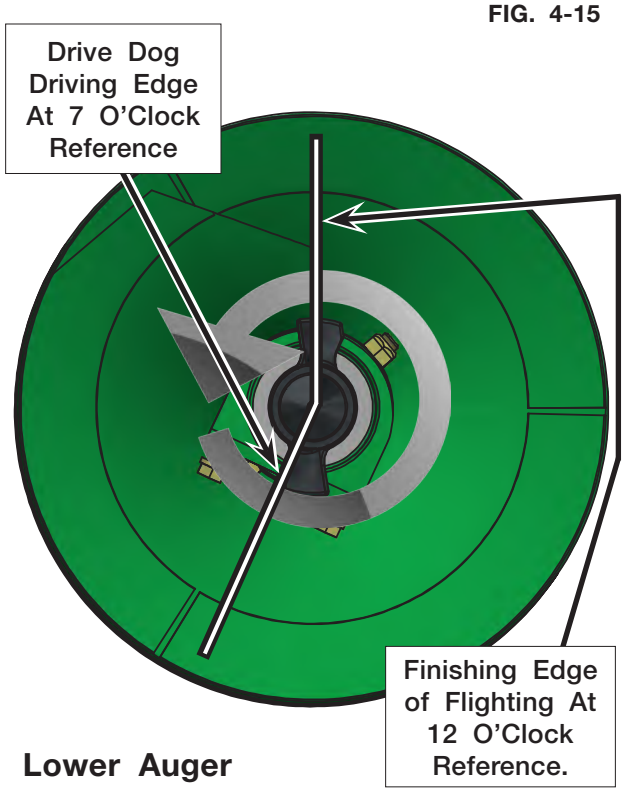
Auger System (continued)

Vertical Auger Timing

1. For the lower vertical auger, use the top edge of the flighting as a 12 o'clock reference. Position the drive dog so the driving edge is at the 7 o'clock position. (FIG. 4-15)

NOTE: Looking down at the lower flighting (FIG. 4-15) the auger rotation will be counter-clockwise. When looking up at the upper flighting (FIG. 4-16) the auger rotation will be clockwise.

FIG. 4-15



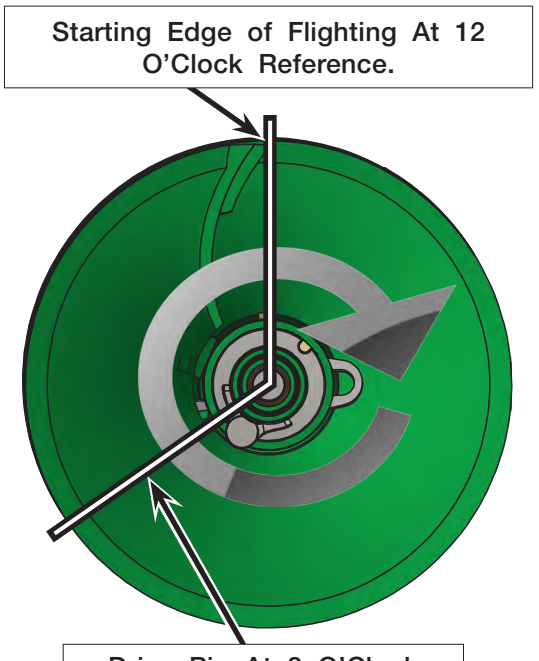
Lower Auger

2. For the upper auger, use the staring edge of the flighting as a 12 o'clock reference. Postion the driven edge of the drive pin at the 8 o'clock position. See Fig. 4-16.

3. When engaged, the upper flighting should immediately follow the lower flighting.

Upper Auger

FIG. 4-16



Auger System (continued)

Horizontal Auger

Annually check all bolts, nuts, and set screws. Perform lubrication as specified.

Horizontal Auger Height Measurement

4. Run a string from the front of the cart to the back, above the cleanout doors and linkages as shown in FIG. 4-17.

5. Attach the string to the bottom of the belly pan in the front side of the front opening. Place a 3/8”-1/2” spacer under the belly pan and clamp the string to the center of the opening as shown in FIG. 4-18.

6. Attach the opposite end of the string to the back side of the rear belly pan opening. Place the same thickness of spacer as was used on the front in between the string and the belly pan. Pull the string tight and clamp to the center of the opening. (FIG. 4-19)

7. Measure the distance from the string to the bottom of the flighting center pipe in between the flighting pitch. take a measurement through the front opening and the rear opening. If the measurement in the front and rear is different, add a shim under the smaller dimensioned end between the string and the belly pan so the measurements are the same.

8. Measure the string to the auger tube either in front or behind the hanger bearing. If this dimension is 1/8” greater than the measurement taken in the front and rear, shims are required on top of the center hanger bearing. (FIG. 4-20)

NOTE: The shims are 1/8” thick each. Add as needed. Shims are available from your Brent dealer.

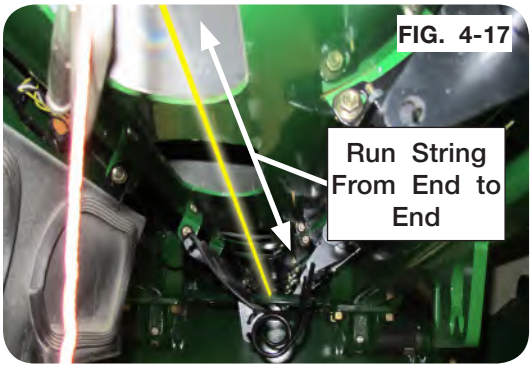


FIG. 4-17

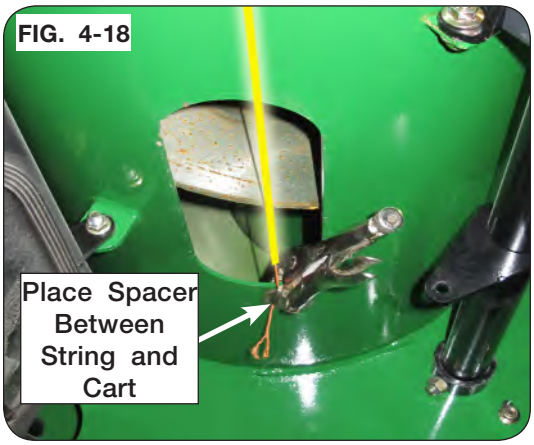


FIG. 4-18

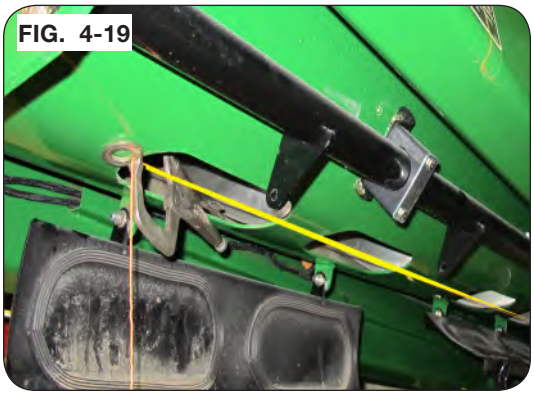


FIG. 4-19

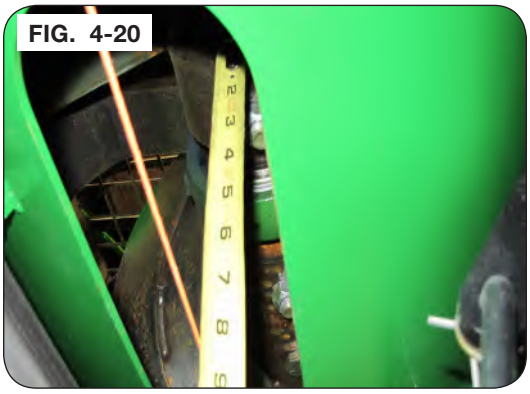


FIG. 4-20

Auger System (continued)

Hanger Bearing Height Adjustment

9. Remove the center screens inside the hopper by removing the 3/8” hardware holding them in place. (FIG. 4-21)

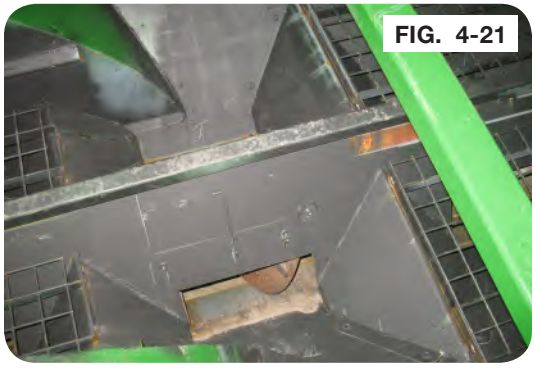


FIG. 4-21

10. Remove the restrictor weldment on the auger tent at the opening above the hanger bearing. (FIG. 4-22)

11. Loosen the two 5/8” x 2” capscrews. It is not necessary to remove this hardware if two or fewer shims are being installed. Install the shims from the backside between the bearing and the bracket as shown in FIG. 4-22.

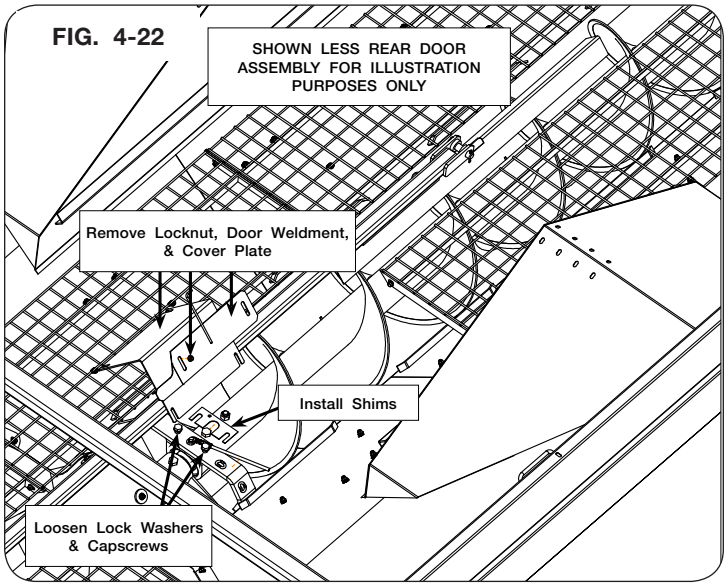


FIG. 4-22

12. If more than two shims are necessary to set the bearing height, replace the 5/8” x 1 3/4” capscrews with the 5/8” x 2” capscrews supplied in the kit.

13. Re-measure the distance from the flighting tube to the string making sure the string is pulled tight. If the measurements are all within 1/8”, the string can be removed.

14. Reassemble the restrictor weldment and screens on the inside of the cart.

15. Reassemble the cleanout door linkages on the front and rear doors.

16. Close cleanout doors and reassemble the cleanout door lock pin.

17. Ensure all personnel and tools are removed from the cart and reconnect the cart to the tractor.

18. Run the auger starting at a low RPM and increase speed to max RPM to make sure the auger flighting does not make contact with the belly pan or flow doors.

Auger System (continued)

Horizontal Auger Driveline Bearings

IMPORTANT

- *Periodically check set screws in all bearings at either end of the driveline for tightness. (FIG. 4-23 & 4-24)*

Fig. 4-23

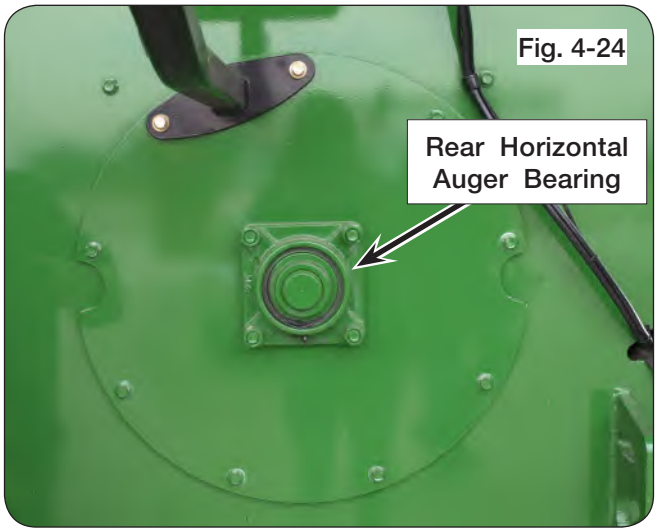


Fig. 4-24

Belt Tightener Adjustment

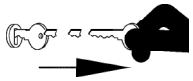
IMPORTANT

- *Do not use belt dressing.*
- *Keep grease and oil off of belt and pulleys.*

NOTE: Pulleys do not need to be removed to remove/replace belt.

Due to prolonged use, belt wear may be evident causing slack. To correct this, follow these steps.

1. Park the unit on a firm, level surface. Block the tracks on the machine to keep it from moving. Set the vehicle parking brake, shut off the engine and remove the ignition key from the towing vehicle.



⚠ WARNING

- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ALWAYS DISCONNECT POWER SOURCE BEFORE SERVICING. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR(S) ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**

2. Remove PTO assembly from Gearbox input shaft.

3. Detension the belt as outlined in OPERATION section. Remove belt tensioner handle.

4. Remove cover and inspect belts for misalignment, loose parts and cracks. Replace if necessary with a matched set. See Fig. 4-27.

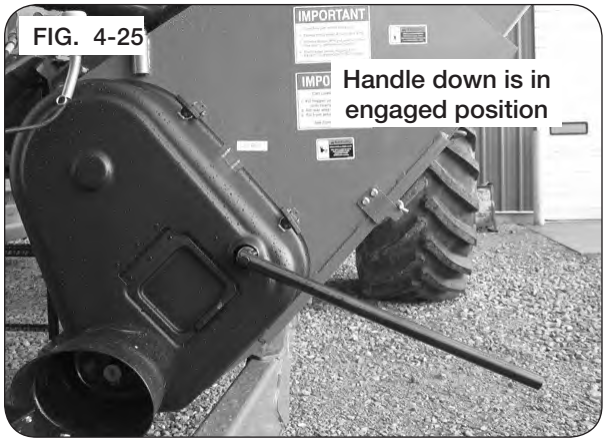


FIG. 4-25

FIG. 4-26


FIG. 4-27

Belt Tightener Adjustment (continued)

4. Remove cover, disengage belt tensioner handle and inspect belts for misalignment, loose parts and cracks. Replace if necessary with a matched set. (Fig. 4-28)

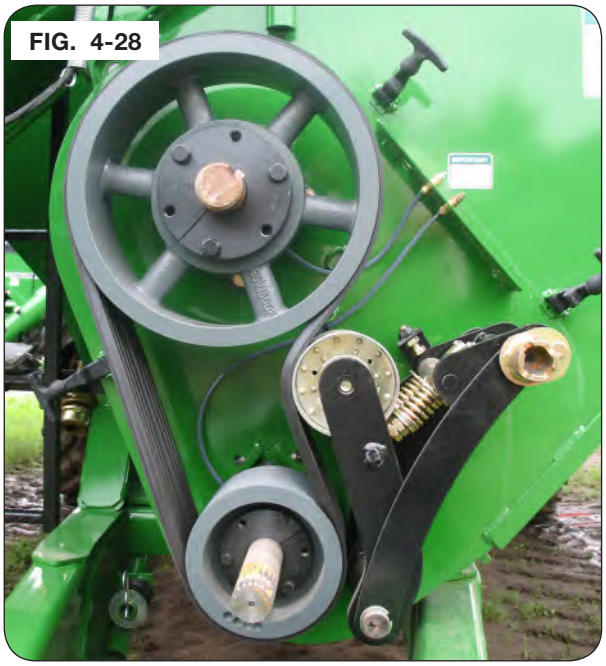


FIG. 4-28

Belt Tightener Adjustment (continued)

5. Belt tension is adjusted with hex nuts below the spring. All belt tension MUST be released from linkage. Loosen outer hex nut and adjust inner nut to establish a 3 1/16" pre-load dimension between the heavy washers. Tighten the outer hex nut against inner nut to lock position. (Fig. 4-29)

6. Check the lower belt pulley to ensure belt is aligned in their grooves and with the belt tensioner handle, engage the roller/idler linkage against the belt and over-center stop. The compressed spring should now be approximately 1 3/4" between the washers and generating a force of approximately 480 lbs. against the belt. (Fig. 4-30)

7. Release and tighten belt multiple times to confirm positions and final adjustments. See Fig. 4-30 and Fig. 4-31.

8. Tighten belt to reinstall the cover guard and the PTO shaft to the gearbox input shaft. Clear work area and test run drivetrain for 3 minutes at 1000 PTO RPM.

⚠ WARNING

- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**

9. Disengage PTO and turn off tractor. Through the cover access door, check the compressed spring length is approximately 1 3/4" between the washers and check each belt for uniform tension. If more adjustment is needed, refer to Steps 5 through 7. If no additional spring adjustment is available, then both belts must be replaced with a new matched set.

NOTE: Always replace belts in matched sets.

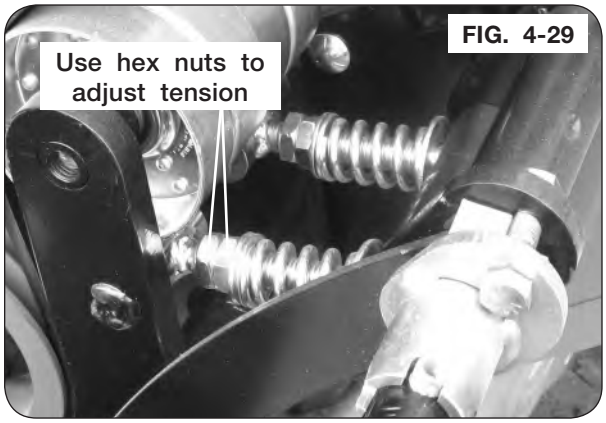


FIG. 4-29

FIG. 4-30

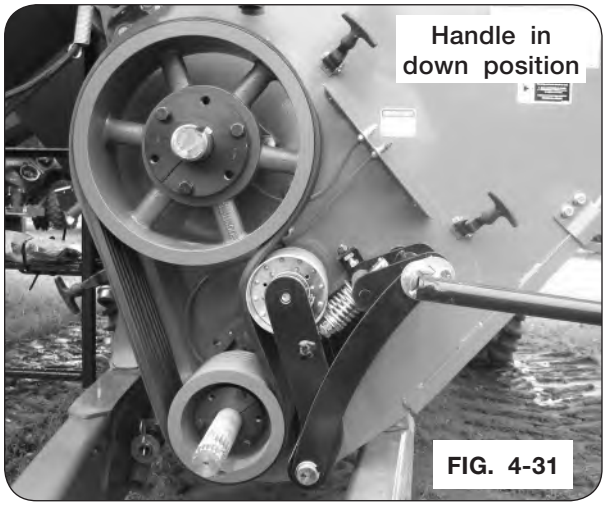


FIG. 4-31

V-Belt Alignment

1. Pulleys must be aligned with the fixed idler. Belts should be centered on idler for longest belt life. (Fig. 4-32)

2. After tightening taper-lock bushing hardware, lay a straight edge across face of the drive and driven belt pulleys to ensure alignment between the grooves on the pulleys.

FIG. 4-32

Split Tapered Bushings

Check annually for tight engagement to drive-shaft. Torque three bolts progressively to values shown:

For the gearbox, bushing with 2 1/4” bore (9007376) - 30 ft-lbs.

For the horizontal auger, bushing with 2 1/4” bore (9004813) - 75 ft.-lbs.

Some gap must remain between flange & hub when bushing is properly tightened.

To remove from shaft, remove capscrews and insert them in tapped holes in bushing flange. Tighten progressively until bushing disengages.

Driveline Removal

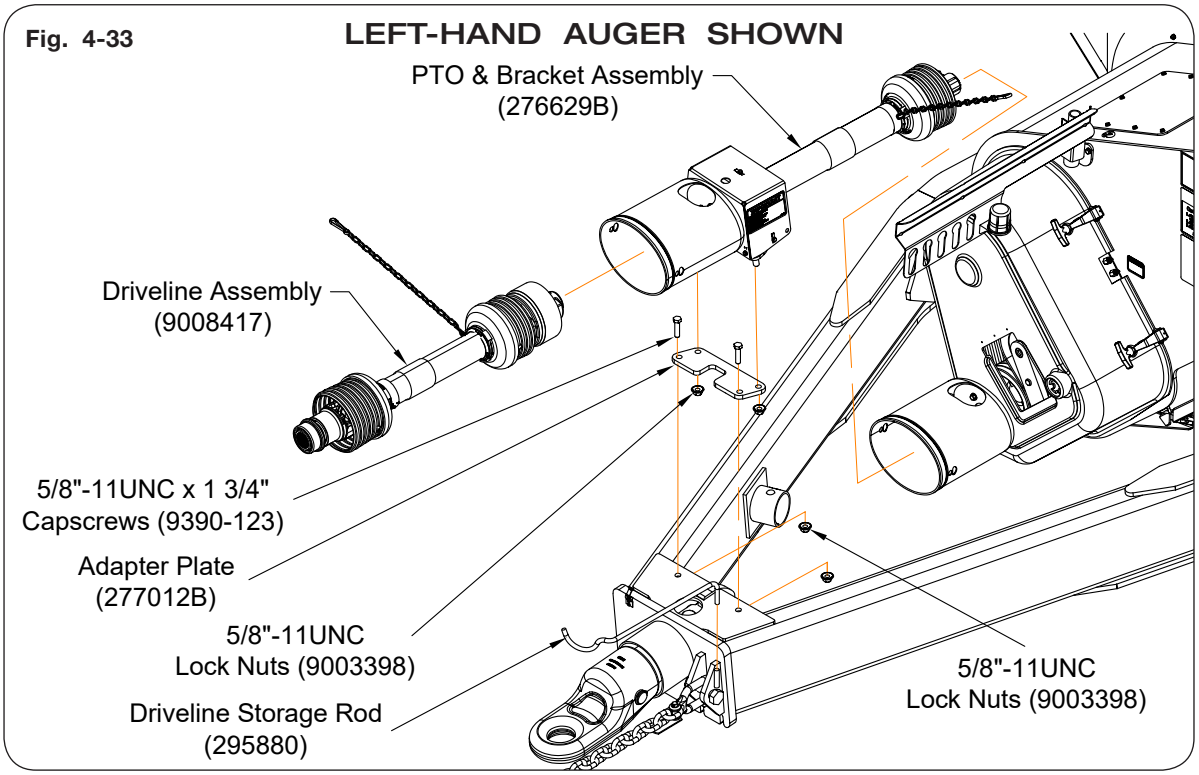
WARNING

- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ALWAYS DISCONNECT POWER SOURCE BEFORE SERVICING. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR(S) ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**

NOTE: Gearbox shaft guard has access doors for installing and removing of driveline.

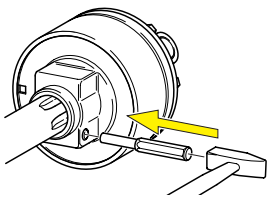
1. Remove the driveline assembly (9008417) cut-out clutch end from the PTO and bracket assembly (276629B) splined shaft end by removing the attaching clamping cone. (Fig. 4-33 and 4-34)

Fig. 4-33



2. Use a hammer and punch and moderately hit the end of clamping cone, as shown. Back off the clamping cone 1/2 turn. Continue alternating punch and unscrewing clamping cone until clamping cone can be removed by hand. (Fig. 4-34)

Fig. 4-34



NOTE: Refer to "PTO Quick Disconnect" in this section for disassembly instructions.

3. Remove the PTO and bracket assembly (276629B) from the gearbox splined shaft. Remove the other end from the adapter plate (277012B) bolted on the tongue with capscrews and lock nuts. (Fig. 4-33)

Driveline Removal

4. Once the PTO and bracket assembly is removed, clean and grease the implement gearbox splined shaft.

5. Secure PTO and bracket assembly and driveline assembly to right-hand side cart brackets. (Fig. 4-35 & 4-36)

Fig. 4-35

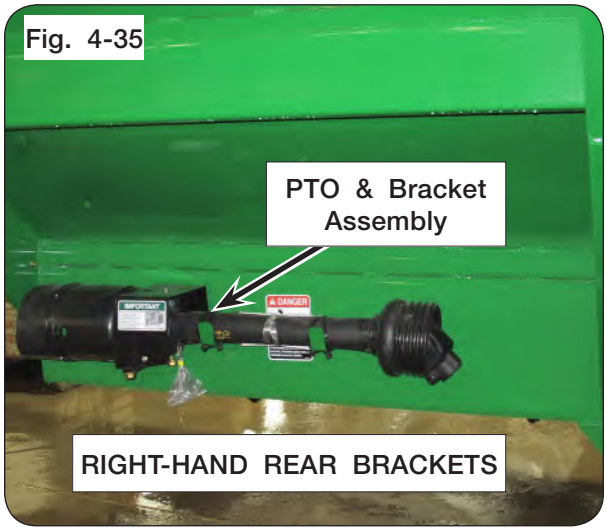
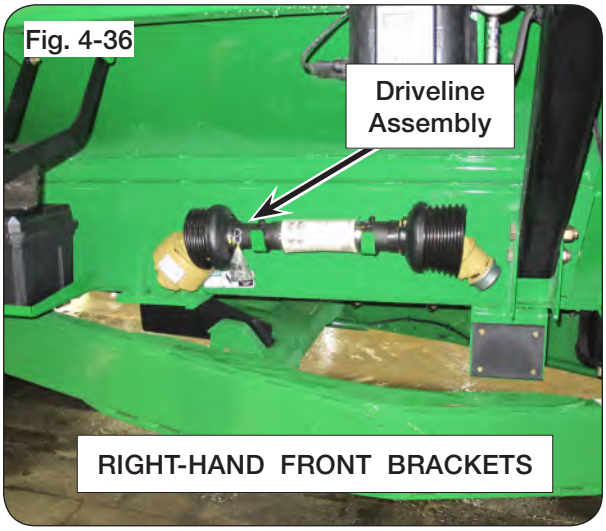


Fig. 4-36



Seasonal Storage

Always open and keep open the flow door, horizontal and vertical auger cleanout doors to remove any remaining grain and to allow moisture to dry.

Wash machine inside and out before storing to remove dirt and debris that can draw and collect moisture. When using pressure washers maintain an adequate distance so not to force water into bearings.

Lubricate machine at all points outlined.

Repaint all areas where paint has been removed to keep rust from developing. Rust will affect grain flow.

Coat exposed cylinder piston rods with rust preventative material if applicable.

Inspect machine for parts that may need to be replaced so they may be ordered in the off season.

Fig. 4-37 Road Transport Position

If unit is equipped with a scale indicator or electric hydraulic controls, store these indoors in a dry location.

Close the tarp to keep debris out of the hopper.

Baffle Adjustment

WARNING

- **TO PREVENT PERSONAL INJURY OR DEATH, ALWAYS ENSURE THAT THERE ARE PEOPLE WHO REMAIN OUTSIDE THE CART TO ASSIST THE PERSON WORKING INSIDE THE CART, AND THAT ALL SAFE WORKPLACE PRACTICES ARE FOLLOWED. THERE ARE RESTRICTED MOBILITY AND LIMITED EXIT PATHS WHEN WORKING INSIDE THE CART.**
- **NEVER ENTER CART WITH AUGER OR TRACTOR RUNNING. SERIOUS OR FATAL INJURY CAN OCCUR DUE TO ENTANGLEMENT WITH ROTATING COMPONENTS. ALWAYS STOP ENGINE AND REMOVE KEY BEFORE ENTERING CART.**
- **THE REAR HOPPER AREA OF THE CART SHOULD ALWAYS BE EMPTIED FIRST. THIS WILL MAINTAIN WEIGHT ON THE HITCH OF THE TOWING VEHICLE. EMPTYING THE FRONT HOPPER AREA FIRST WITH THE REAR HOPPER AREA FULL COULD RESULT IN NEGATIVE TONGUE WEIGHT ON THE UNDERCARRIAGE AND REDUCED CONTROL OF THE UNDERCARRIAGE WHEN TOWING.**

Refer to the following reasons for baffle adjustment:

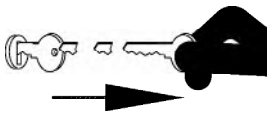
NOTE: To unload the cart evenly from front to back the openings should slightly increase in height from back to front.

1. If higher flow is desired and torque is not the limiting factor, raise each baffle to an incremental amount and rerun.
2. If more material remains at the back of the cart towards the end of the unloading cycle, the back baffles should be adjusted upward in incremental amounts and rerun.
3. If more material remains at the front of the cart towards the end of the unloading cycle, the back baffles should be adjusted downward in incremental amounts and rerun.
4. If the cart requires more torque than what is available at times during the unloading cycle, then all baffles should be adjusted downward in incremental amounts.

Baffle Adjustment (continued)

The horizontal auger baffles are factory-set at the lowest position. This position results in the lowest power requirements and longest flighting life. Once grain has been run through the unit, adjustments can be made to achieve the ideal unloading performance.

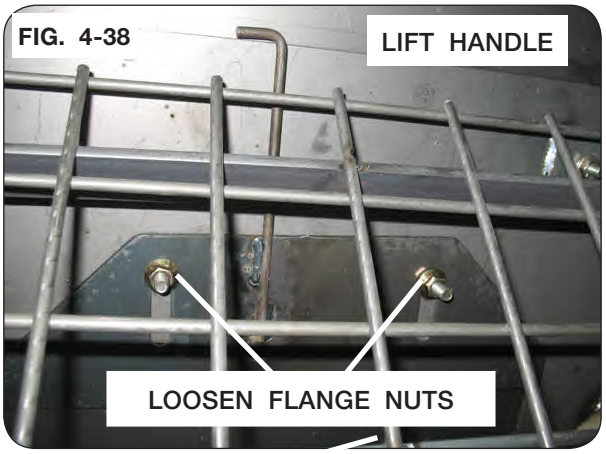
Before making any baffle adjustments, close horizontal auger flow door. Securely block the grain cart, set the tractor parking brake, turn off tractor engine and remove ignition key.



If a higher flow is desired and torque is not a factor, loosen the (2) flange nuts on each baffle, see figure 4-38. Use the lift handle to raise each baffle to the desired position, retighten both flange nuts, see figures 4-38 & 4-39.

NOTE: DO NOT REMOVE ANY SCREEN PANELS. The flange nuts are best accessed using an extended socket wrench and 9/16" socket through the screen panel openings.

NOTE: Screen removed in figure 4-39 for illustration only.



Horizontal Cleanout Door Rockshaft Adjustment

⚠ WARNING

- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEANOUT DOORS ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE THE MACHINE IS SECURELY BLOCKED.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING THE IMPLEMENT.**

1. Park the unit on a firm, level surface. Block the tracks to keep the machine from moving. Set the tractor parking brake, turn off tractor engine, remove ignition key, and disconnect PTO shaft.

2. Loosen all the hardware in the slotted brackets connecting the cleanout door rockshaft to the grain cart tube. (Fig. 4-40)

3. Starting at the front of the cart, using a jack, push the rockshaft up and toward the runner tube. (Fig. 4-40)

FIG. 4-40

NOTE: Ideal distance between the runner tube and rockshaft is 3 1/4". (FIG. 4-41)

4. When the rockshaft is in position, torque the hardware previously loosened to 28 ft.-lbs.

5. Continue repositioning the rockshaft moving toward the back of the cart.

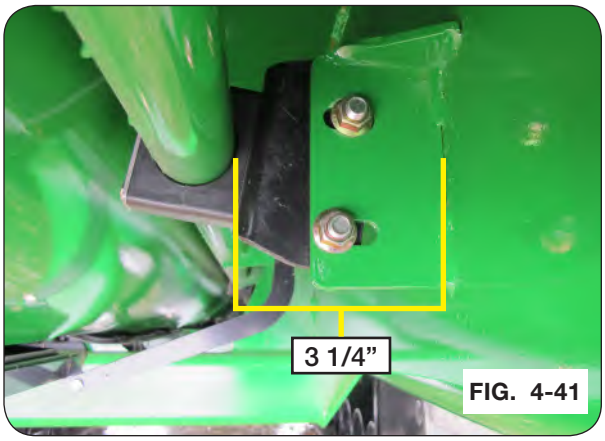


FIG. 4-41

Horizontal Cleanout Door Rockshaft Adjustment

6. Rotate the tensioner handle counter-clockwise to close the doors allowing the plate to fit and seal into the belly pan opening. (Fig. 4-42)

7. Close the doors and ensure all doors seal. (Fig. 4-42)

8. Insert lynch pin into rockshaft and return handle to storage location.

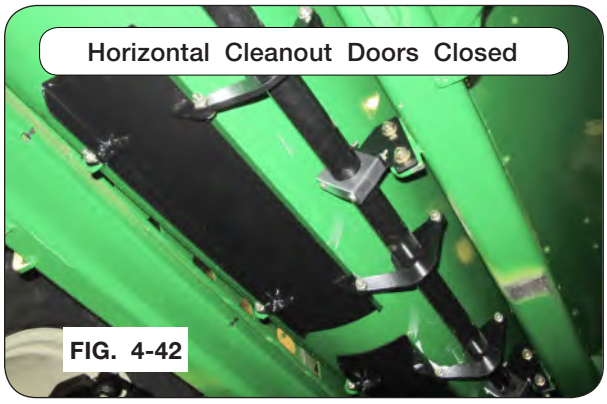


FIG. 4-42

Verify Telescoping PTO Shaft Length

WARNING

- **PROPER EXTENDED AND COLLAPSED LENGTHS OF THE TELESCOPING PTO SHAFT MUST BE VERIFIED BEFORE FIRST OPERATION WITH EACH AND EVERY TRACTOR. IF THE EXTENDED LENGTH OF THE PTO SHAFT IS NOT SUFFICIENT, IT MAY BECOME UNCOUPLED IN OPERATION AND CAUSE SERIOUS INJURY OR DEATH FROM CONTACT WITH UNCONTROLLED FLAILING OF PTO SHAFT ASSEMBLY COMPONENTS.**

IMPORTANT

- *Check the length of the telescoping members to ensure the driveline will not bottom out or separate when turning and/or going over rough terrain.*

An excessive collapsed length can result in damage to the PTO driveline and attached components. This is most likely to occur during extreme turning angles and/or travel over rough terrain. Conditions are amplified on tractors with tracks operating in uneven terrain, particularly rice levies. Damaged driveline components can result in unsafe operation and severely reduced driveline component life.

Check the length of the telescoping members to ensure the driveline will not bottom out or separate when turning and/or going over rough terrain.

NOTE: Do not exceed 10 degrees beyond a straight pull line while operating the PTO.
To verify proper extended and collapsed lengths, use the following procedure:

1. Fully collapse PTO shaft and measure length "L" (Fig. 4-43).

   Enter here:_____(1)
   (Verify that outer tube does not bottom out on surrounding plastic shield components).

2. Pull apart PTO telescoping shaft ends and measure lengths "T" & "C" (Fig. 4-44)

   Add "T" + "C" measurments together
   Enter total here:_____(2)

3. Calculate maximum recommended extended length:

   a. Subtract line 1 from line 2
      Enter here:_____(a)
   b. Divide line (a) by 2
      Enter here:_____(b)
   c. Add line (b) to line 1.
      Enter here:_____(c)
   d. Subtract 3 inches from line (c)
      Enter here:_____(d)

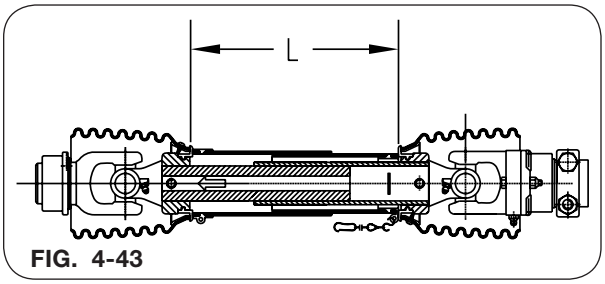


FIG. 4-43

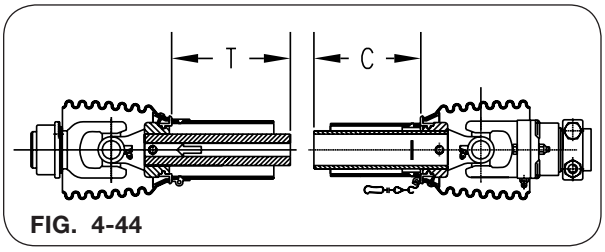


FIG. 4-44

This is the maximum recommended extended length.

Verify Telescoping PTO Shaft Length (continued)

4. Hitch tractor drawbar to cart, ensuring that tractor and cart are on level ground and coupled as straight as practical.

5. Connect PTO shaft to tractor, and measure length “L” from same points as used in step 1. Ensure that this measurement does not exceed the maximum recommended extended length calculated in step 3 above. If necessary, choose a shorter drawbar position, or obtain a longer PTO shaft assembly before operating cart.

6. Position the tractor to obtain the tightest turning angle, relative to the cart (Fig. 4-45).

7. Measure the length “L” from the same points as used in step 1. **This distance must be at least 1.5 inches greater than the distance measured in step 1.** If necessary, adjust the length of the PTO shaft by cutting the inner and outer plastic guard tubes and inner and outer sliding profiles by the same length. Round off all sharp edges and remove burrs before greasing and reassembling shaft halves. (Fig. 4-46)

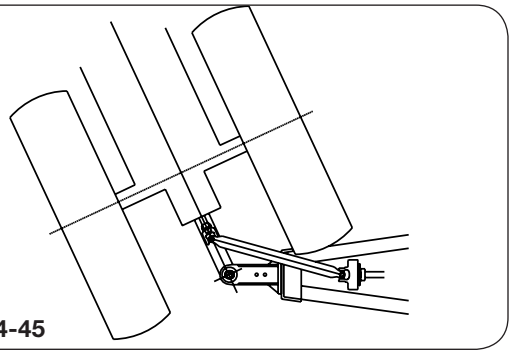


FIG. 4-45

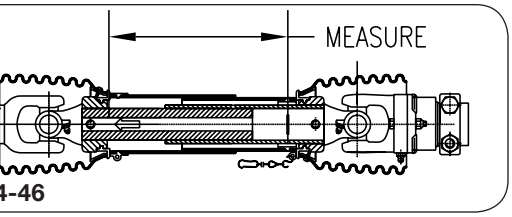
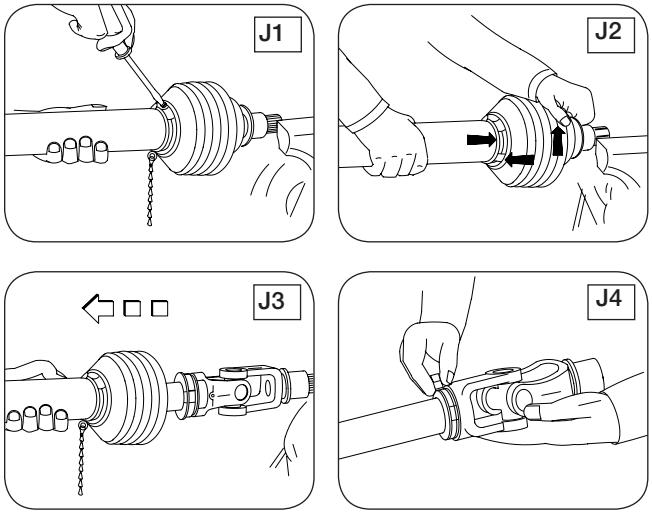


FIG. 4-46

PTO Shaft and Clutch

To Dismantle Guard (Figs. J1 - J4)

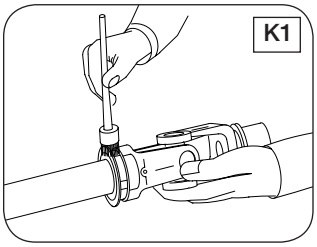
1. Remove locking screw.
2. Align bearing tabs with cone pockets.
3. Remove half-guard.
4. Remove bearing ring.

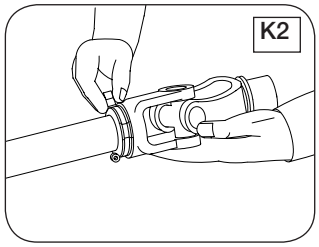


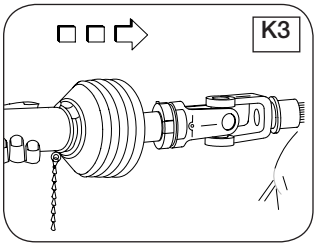
PTO Shaft and Clutch (continued)

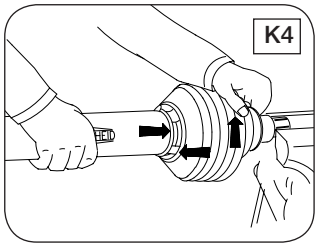
To Assemble Guard (Figs. K1 - K5)

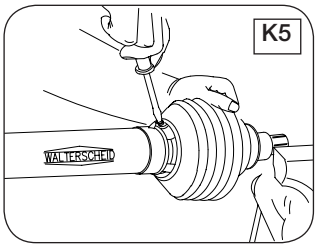
1. Grease yoke groove and inner profile tube.
2. Fit bearing ring in groove with recesses facing profile tube.
3. Slip on half-guard.
4. Turn cone until it engages correctly.
5. Install locking screw.





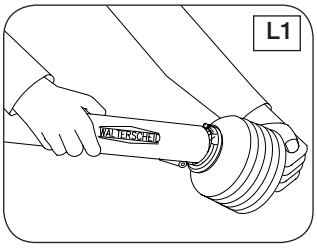


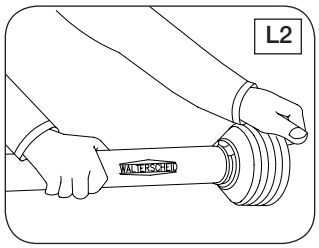


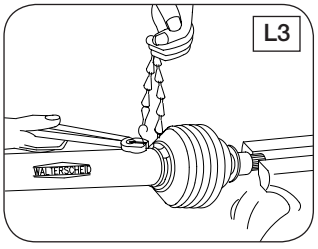


To Assemble Cone (Figs. L1 - L3)

1. Dismantle guard (Figs. J1 - J3). Remove old cone (e.g. cut open with knife). Take off chain. Place neck of new cone in hot water (approx 80o C / 180o F) and pull onto bearing housing (Fig. L1).
2. Turn guard cone into assembly position (Fig. L2). Further assembly instructions for guard (Figs. K1 - K5).
3. Reconnect chain if required (Fig. L3).







PTO Quick Disconnect

Coupling

Slide clamp yoke or cut-out clutch onto connecting shaft. Make sure the location hole for the clamping cone is positioned above the annular groove of the connecting shaft. (FIG. 4-47) Screw appropriate clamping cone into the location hole. (FIG. 4-48) Slightly moving the clamp yoke or clutch to and from in the axial direction will help drive in the clamping cone. Check the clamp yoke or clutch for a tight and safe fit and continue to check at regular intervals. Retighten the clamping cone as necessary. Torque clamping cone to 75 ft.-lbs.

When over loading occurs, the clutch disengages and will repeatedly attempt to reset. The clutch will create a repeated “clicking” noise when resetting. Torque demand must decrease for clutch to reset. Refer to "Auger Overload Procedure" in OPERATION section for details.

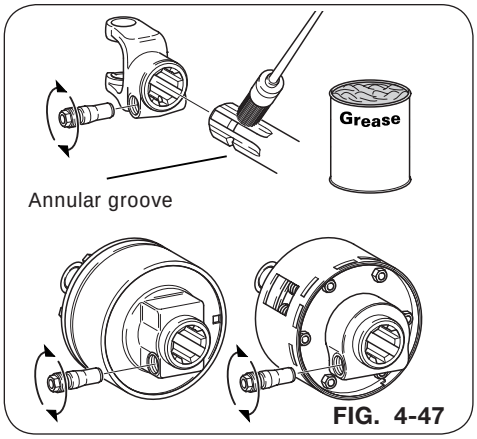


FIG. 4-47

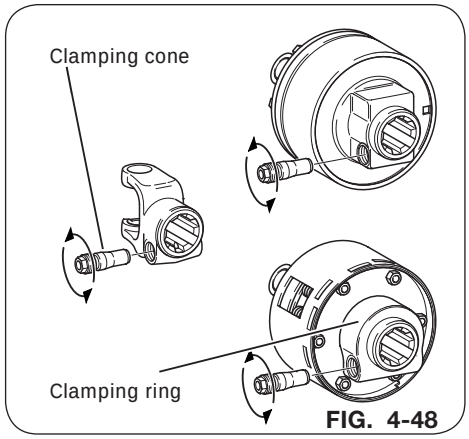
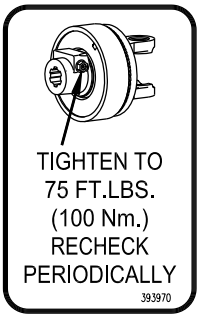


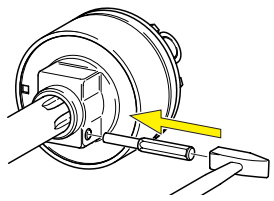
FIG. 4-48



Uncoupling

First dislodge the clamping cone with a punch and hammer from its current position. Unscrew the clamping cone a partial turn. Use the punch and hammer again to help alleviate the torque resistance on the wrench, if necessary. After a few cycles, the clamping cone will move freely with low torque resistance for the removal process. (FIG. 4-49)

FIG. 4-49

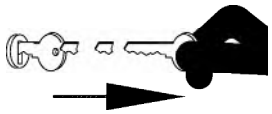


Hydraulic Jack Disassembly

⚠ WARNING

- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**
- **RELIEVE THE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR'S MANUAL FOR PROPER PROCEDURES.**
- **HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.**
- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**
- **UNHITCHING A LOADED CART CAN CAUSE SERIOUS INJURY OR DEATH DUE TO TONGUE RISING OR FALLING. ALWAYS HAVE A LOADED CART ATTACHED TO A TRACTOR. THE JACK IS INTENDED TO SUPPORT AN EMPTY CART ONLY.**
- **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 2,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

1. Park the empty cart on a firm, level surface. Block tractor and the cart tracks to keep the machine from moving. Set the tractor parking brake, shut off the engine and remove the ignition key. Completely disconnect the PTO from the cart and tractor.
2. Attach hydraulic jack hoses to tractor SCV.



3. Open valve and lower jack leg to ground. DO NOT raise tongue.
4. Relieve pressure on hydraulic jack circuit. See tractor operator manual for procedure.
5. Close valve.
6. Support the hydraulic jack assembly with a safe lifting device rated for a minimum of 100 lbs.
7. Remove hydraulic jack hoses from tractor SCV.

NOTE: Discard all hardware and parts from step 8 to step 10.

8. Remove cylinder pin (272587) and snap rings (91192) from the base end of the cylinder at the lug on top of the tongue. (FIG. 4-50)

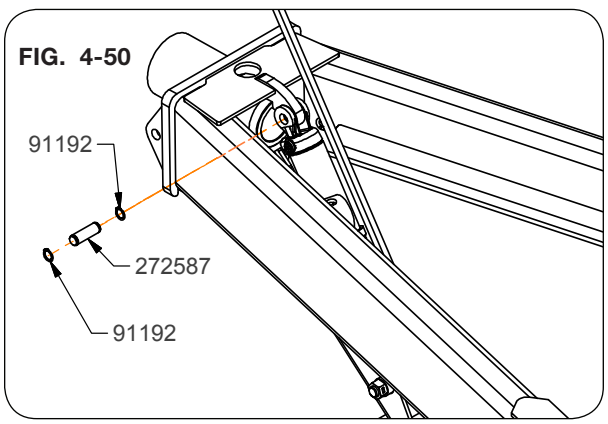


FIG. 4-50

Hydraulic Jack Disassembly (continued)

9. Remove two 7/8"-9UNC x 2 1/4" capscrews (9390-165) and 7/8" lock washers (9404-037) from mounting bracket (273808B). (FIG. 4-51)

10. Remove hydraulic jack assembly from the tongue. (FIG. 4-51)

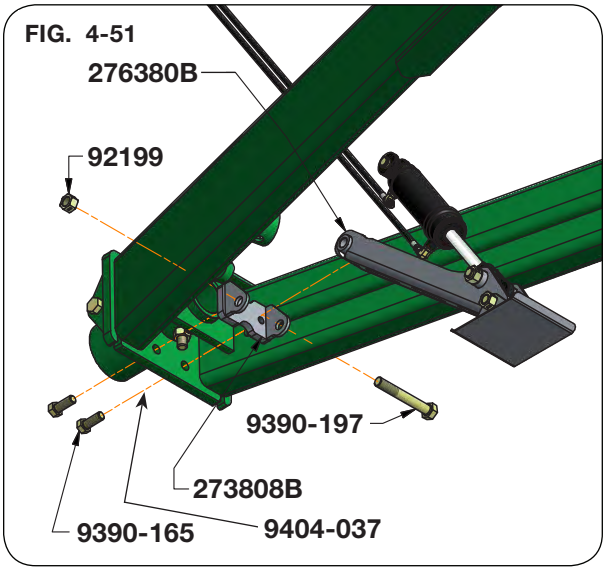


FIG. 4-51

11. On new hydraulic assembly (276645B), attach hoses (9006068) and fittings to cylinder (9009047) as shown in FIG. 4-52. The valve needs to be assembled to the hose on the base end of the cylinder. Assemble the fittings on the cylinder so they face each other, then store the hydraulic hoses on the hose caddy.

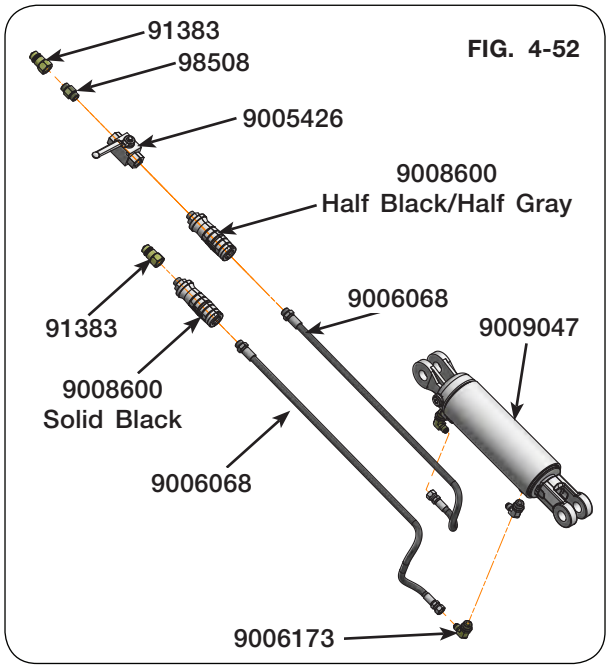


FIG. 4-52

Hydraulic Jack Disassembly (continued)

12. Attach shaft collars (9007301) to the rod end of the cylinder as shown in FIG. 4-53.

13. Assemble the cylinder (9009047) and jack foot (271723B) to the jack leg weldment (276380B) shown in FIG. 4-53 using 1”-8UNC x 7” capscrew (9390-197) and 1”-8UNC locknut (92199).

NOTE: Ensure all jack leg weldment (276380B) joints can pivot freely, especially jack foot (271723B). (FIG. 4-53)

14. Tighten 1” hardware to jack leg weldment and allow the joint to pivot. (FIG. 4-53)

15. Mounting bracket (273808B) must be attached to jack leg weldment (276380B) using 1”-8UNC x 7” capscrew (9390-197) and 1”-8UNC locknut (92199), before mounting to the tongue. (FIG. 4-54)

16. Tighten 1” hardware to jack leg weldment and allow the joint to pivot. (FIG. 4-54)

17. Then attach the mounting bracket (273808B) to the back side of the front hitch plate with two 7/8"-9UNC x 2 1/4" capscrews (9390-165) and 7/8" lock washers (9404-037). (FIG. 4-54)

18. Torque 7/8" hardware to 330 ft.-lbs. (FIG. 4-54)

19. Align the base end of the cylinder with the lug on the top of the tongue and assemble the cylinder pin (272587) and snap rings (91192) shown in FIG. 4-55.

20. Remove the support used for the hydraulic jack assembly.

21. Use tractor hydraulics to cycle the hydraulic cylinder several times to ensure that air is purged from the cylinder.

22. Lower the grain cart onto the jackstand.

23. Close valve and then disconnect hose couplers from tractor.

24. Place hose couplers into storage caddy. Reattach PTO and be sure to route hoses to clear PTO driveline during operation.

25. Check for leaks.

FIG. 4-53

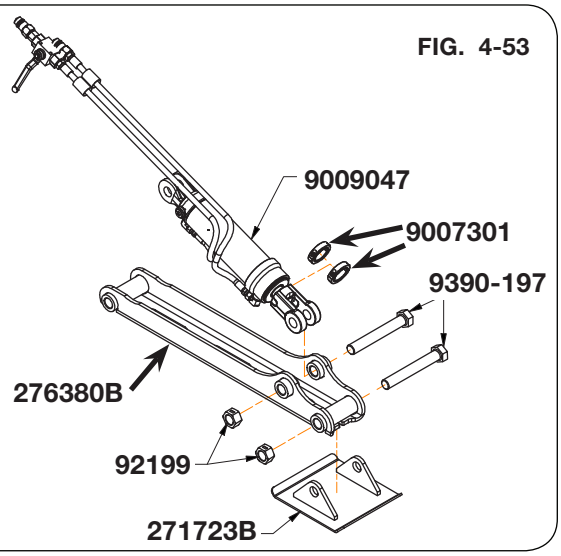


FIG. 4-54

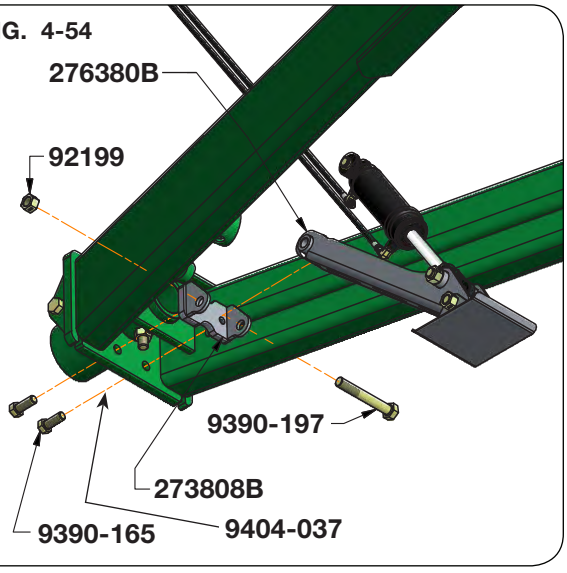
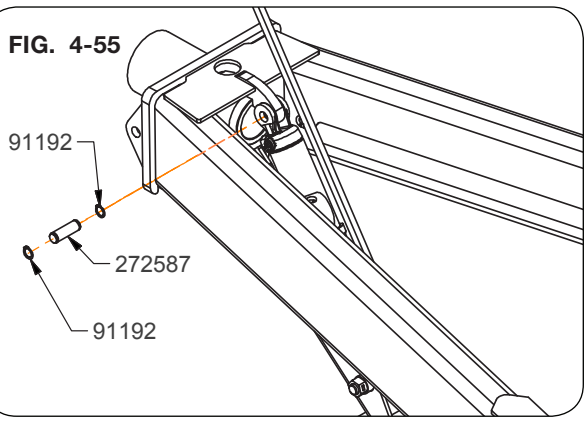


FIG. 4-55



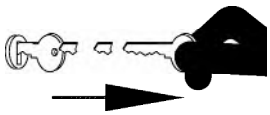
Horizontal Auger Removal

WARNING

- **TO PREVENT PERSONAL INJURY OR DEATH, ALWAYS ENSURE THAT THERE ARE PEOPLE WHO REMAIN OUTSIDE THE CART 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.**
- **NEVER ENTER CART WITH AUGER OR TRACTOR RUNNING. SERIOUS OR FATAL INJURY CAN OCCUR DUE TO ENTANGLEMENT WITH ROTATING COMPONENTS. ALWAYS STOP ENGINE AND REMOVE KEY BEFORE ENTERING CART.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.**
- **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 1,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

NOTE: Open the flow gates all the way.

1. Park the unit on a firm, level surface. Block the tracks to keep the machine from moving. Set the vehicle parking brake, shut off the engine and remove the ignition key and disconnect the PTO shaft from the tractor.



2. Remove the bolts in both middle grates inside the cart. Remove the grates. (Figure 4-56)

NOTE: Retain all hardware for reassembly.

3. Disconnect grease line. (Figure 4-57)

4. Remove the hanger bearing bolts on each side of the auger.

5. Remove capscrews and lock washers holding bearing onto the hanger bearing plate.

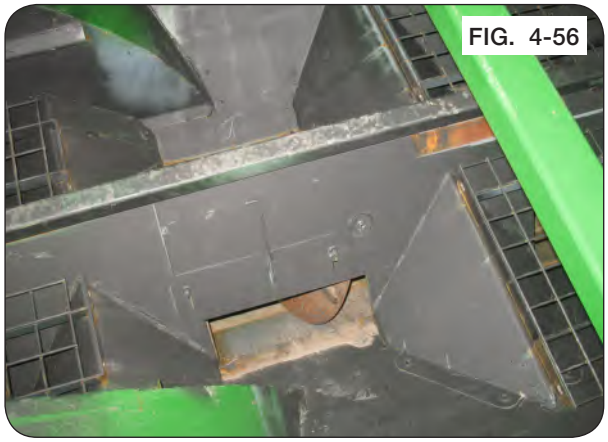


FIG. 4-56

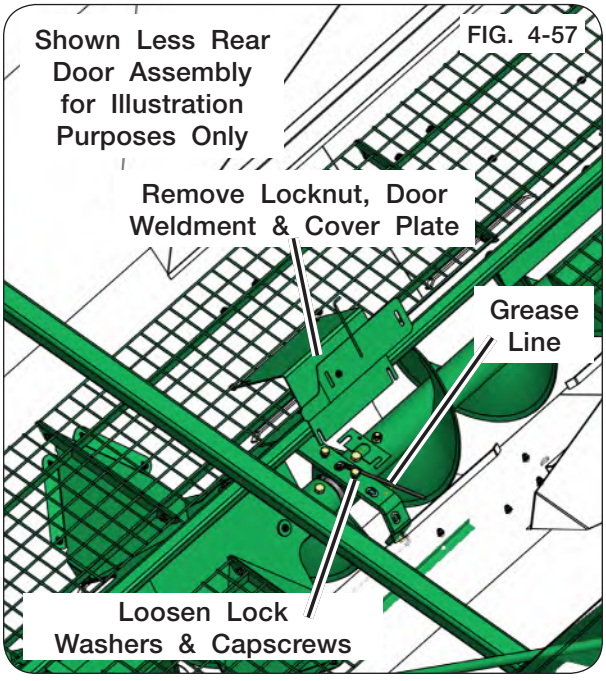


FIG. 4-57

Horizontal Auger Removal (continued)

6. Remove the hanger bearing bracket to allow access to work on the bearing and shaft. Remove two center tube connecting capscrews in the horizontal auger. (Figure 4-58)

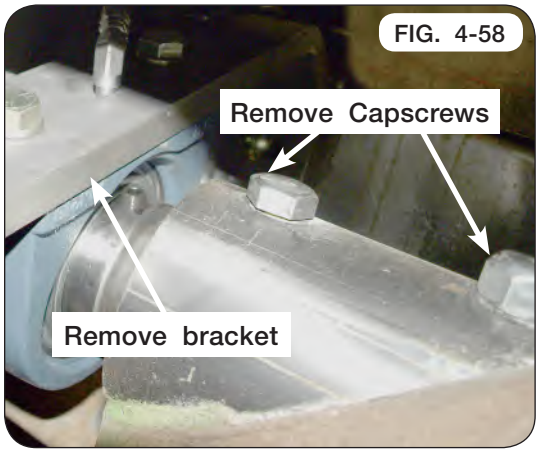


FIG. 4-58

7. Remove the SMV bracket located on the rear auger cover. (Figure 4-59)

8. Remove the capscrews from the auger cover. (Figure 4-59)

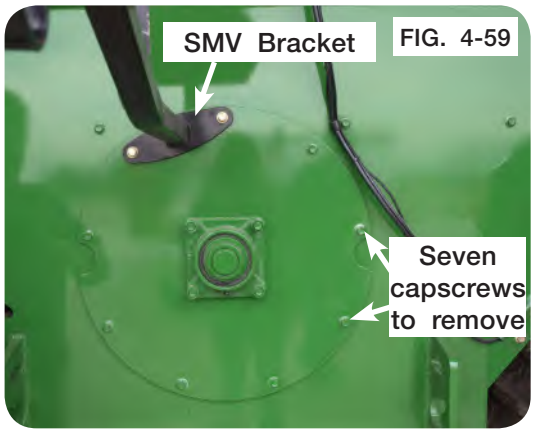


FIG. 4-59

9. Pry the auger from the auger tube. (Figure 4-60)

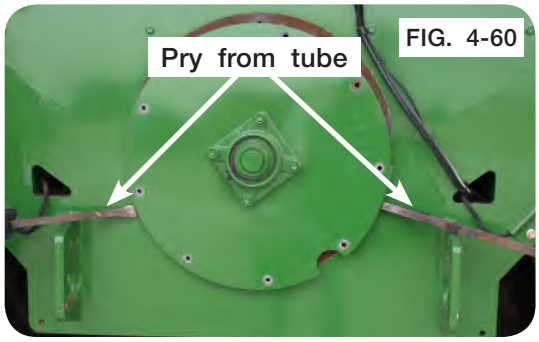


FIG. 4-60

10. Using a safe lifting device rated for a minimum 1,000 lbs., pull the rear auger out 3 feet using a strap. (Figure 4-61)


FIG. 4-61

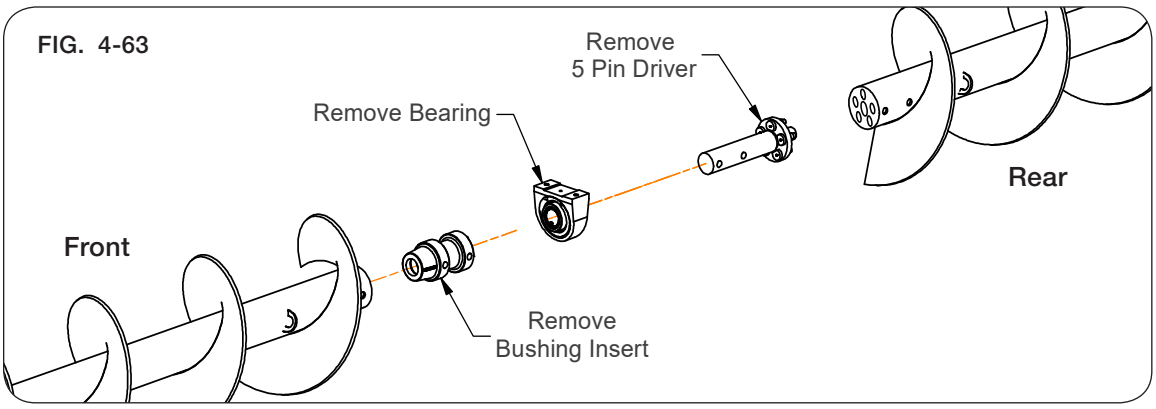
Horizontal Auger Removal (continued)

11. Remove the original 5-pin driver, bearing and the bushing insert. (Figure 4-62 & Figure 4-63)

12. Discard 5-pin driver.


FIG. 4-62

FIG. 4-63



13. Substantially coat bushing insert with anti-seize.

14. Slide bushing insert into front auger and ensure tube holes are aligned. (Figure 4-63 & Figure 4-64)


FIG. 4-64

NOTE: Make sure the set screws on bearing are towards the front of the cart. (Figure 4-65)

15. Slide bearing onto 5-pin driver. (Figure 4-65)

16. Insert new 5-pin driver into front auger and ensure tube holes are aligned.

17. Install front capscrews, spacer bushings and locknuts 180 degrees from each other and assemble spacer bushings on threaded side of capscrews. Hand tighten hardware. (Figure 4-65)

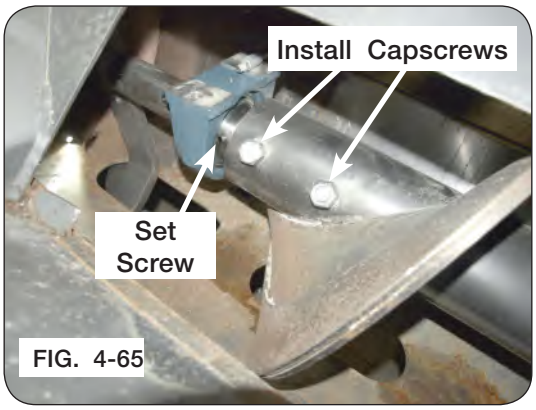


FIG. 4-65

Horizontal Auger Removal (continued)

18. Install hanger bracket. Leave the capscrews loose attaching hanger bracket to the cart. Attach hanger bracket to the bearing. (Figure 4-66)

19. Reattach grease line components. (Figure 4-66)

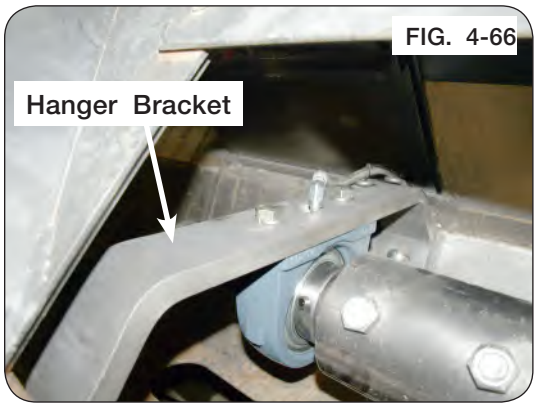


FIG. 4-66

NOTE: Rear auger flighting should lead the front auger flighting.

20. Slide the rear auger forward. Align the pins and holes with the rear auger pipe. (Figure 4-67)

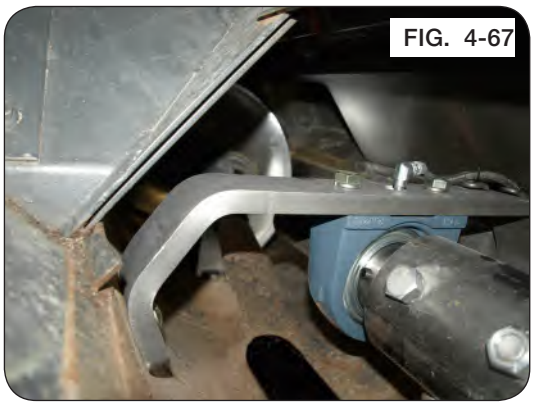


FIG. 4-67

21. Extend a string tightly from front to rear to check horizontal auger alignment. Measure the string to the auger tube either in front or behind the hanger bearing. If this dimension is 1/8" greater than the measurement taken in the front and rear, shims (8GA - 286419B or 12GA - 286424B) are required on top of the center hanger bearing. Ideally the center measurement should be equal to or 1/8" lower than the measurements on the ends of the augers. (Figure 4-68)

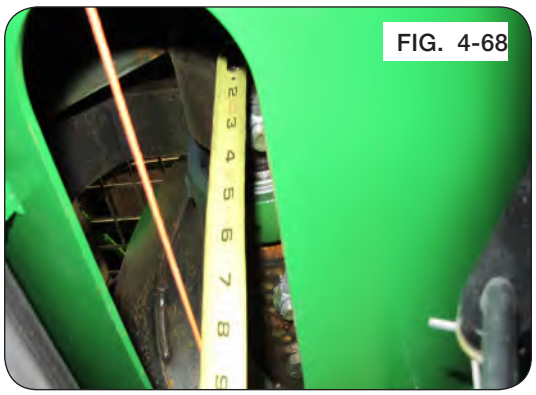


FIG. 4-68

NOTE: The shims are 1/8" thick each. Add as needed. See "Auger System - Horizontal Auger Height Measurement" in MAINTENANCE section for more details.

22. Torque hanger bracket capscrews to 130 ft.-lbs. See Figure 4-66.

23. Torque auger capscrews to 200 ft.-lbs. (Figure 4-69)

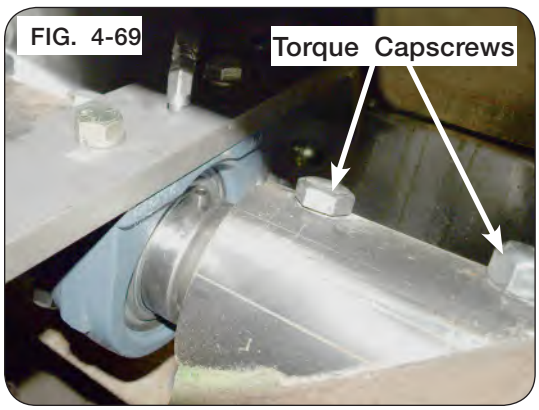


FIG. 4-69

Horizontal Auger Removal (continued)

24. Reattach the rear auger cover and SMV bracket back onto the cart. (Figure 4-70)

25. Torque rear auger cover 3/8"-16UNC x 1" and SMV bracket 3/8"-16UNC x 1 1/4" flange screws to 25 ft.-lbs.

26. Reinstall ALL the grates.

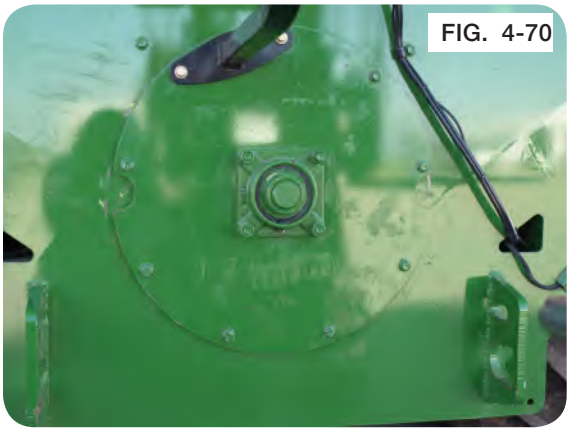


FIG. 4-70

Troubleshooting

Problem	Possible Cause	Corrective Action
No Manual Override (EOH / SCV Contolled) functions work	Not getting 12 Volt power supply to the power harness in the tractor	Check the connections to the main power harness in the tractor cab, and check the 5 AMP fuse in the fuse holder of the main power harness. Replace fuse if necessary.
	Not getting good connection at Deutch connectors in the harnesses	Unplug the Deutsch connectors at the hitch point and in the extension harness (if used). Clean up the connectors with electrical contact cleaner. Make sure the connectors are aligned correctly and re-connect them.
	Not pressurizing the correct hydraulic hose	Make sure the quick couplers are properly connected to the tractor SCV and the Hydraulic Pressure line is being pressurized when engaging the tractor SCV.
Auger unfolds, but won't fold back into a transport position	Rotating Spout is not in the folding position	Rotate the spout so it is positioned straight down or forward in order to fold the auger into a transport position.
	Rotating spout switch is faulty or out of adjustment	Make sure the spout is in the centered position. Refer to the manual override sections in order to fold the auger back into a transport position. Inspect the switch assembly near the rotating spout cylinder. The clearance between the end of the proximity switch and the barrel of the rotating spout cylinder must not exceed 1/4".
Auger unfolds part way and stops	Debris in the EOH block on the auger fold cylinder	Fold auger, remove the Coil and the cartridge valve on the EOH valve block. Remove any debris and reinstall cartridge and coil.
	Rotating Spout switch is out of adjustment or has been activated.	With the auger folded in to the road transport rest, have someone depress and hold the switch at the vertical auger hinge plate. Use any means necessary to depress the switch without placing your hands or other body parts near the pinch points. With the switch depressed, rotate the spout to the folding postion.

Troubleshooting (continued)

Problem	Possible Cause	Corrective Action
Rotating spout will not function	7 pin connector is not plugged into tractor.	Plug in 7 pin connector to same power source as the 5 function controller.
	Proximity Switch at the auger hinge is not getting Power or Ground.	Check power and ground to the proximity switch harness on the vertical auger. Make sure the center pin on the 7 pin plug has +12V key switch power.
	Proximity switch located at the hinge plate is not adjusted correctly.	This proximity switch has a 1/4" effective operating range. The upper auger hinge plate needs to be within that range when it is unfolded in to the operating position. Adjust the proximity switch in or out in order for the sensor to activate when it is in the operating position.
	Switch located at the hinge plate of the vertical auger is not getting power, ground or is defective	Check the ground wire located near the hydraulic valve at the base of the vertical auger and on the left hand standard just behind the front plate of the harness. Unplug the 3 pin connector on the hinge plate proximity switch. With a multi-meter or test light, confirm that the pin in socket B has +12V constant power and socket A has +12V when the sensor is activated.
One single function will not work	Defective coil on the EOH valve for that function	Loosen the cap for the coils associated with that function on the EOH valve. Depress the button on the remote, and determine if the coils are getting magnetized. Inspect the wiring connectors to these coils, and replace the coil if necessary.
	Defective valve on the EOH valve for that function	Remove the coil and the cartridge valve on the EOH valve block for that function. Replace the valve if it doesn't operate when the coil is magnetized.
	Debris in the EOH block at the base of the vertical auger	Remove the coil and the cartridge valve on the EOH valve block. Remove any debris and reinstall cartridge and coil.
Functions continue to operate after the button on the remote is released	Tractor hydraulic flow is set too high	Turn tractor hydraulic flow down so that flow doesn't exceed 6 gallons per minute.
	Defective valve on the EOH valve for that function	Remove the Coil and the cartridge valve on the EOH valve block for that function, and replace the cartridge.

Tarp Troubleshooting Inspection & Maintenance

PROBLEM	SOLUTION
TARP SAGS IN MIDDLE AREAS	1. BOWS MAY BE BENT OR ADJUSTED TOO LOW 2. MISSING OR LOOSE RIDGE STRAP REPLACE OR RETIGHTEN 3. TENSION MAY BE TOO LOOSE. U-JOINT MAY NEED TO BE ADJUSTED ON SPLINED SHAFT TO PROVIDE MORE TENSION
HOLES OR TEARS IN TARP	1. CONSULT YOUR LOCAL DEALER FOR REPAIRS 2. ORDER TARP REPAIR KIT FROM DEALER 3. WHEN NEW TARP OR PARTS ARE NEEDED ALWAYS REPLACE WITH ORIGINAL PARTS

Inspection and Maintenance

⚠ WARNING

- **TO PREVENT PERSONAL INJURY OR DEATH, DO NOT ALLOW ANYONE ON A CLOSED TARP. TARP SYSTEM IS NOT DESIGNED TO SUPPORT A PERSON.**
- **FALLING OBJECTS CAN CAUSE SERIOUS INJURY OR DEATH. REMOVE ACCUMULATED WATER/SNOW/ICE OR ANY OTHER OBJECTS FROM TARP BEFORE OPENING TARP.**

IMPORTANT

- *Do not open or close tarp while moving or in high wind conditions. Damage to the tarp may occur.*
- *Tarp should not be used if it is torn or the bungee cords are frayed or show damage. If water pools on the tarp adjust tension of tarp cables and/or arm springs as required.*

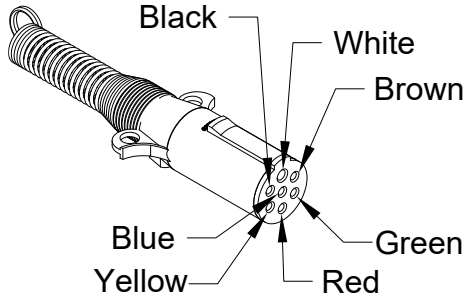
Periodic preventive maintenance should be practiced. Inspect tarp and hardware often for abrasions or loosened bolts that may need adjustment and/or repair. Check bungee cords for wear and adjust tension at the beginning of the season and again half way through the season.

Tears in tarp should be addressed before further tarp operation. If water pools on tarp, adjust tension of tarp cables and/or arm springs.

If installed correctly, tarp should always operate as well as when first installed. If tarp does not pass this simple inspection, make all appropriate repairs or adjustments immediately before serious damage occurs.

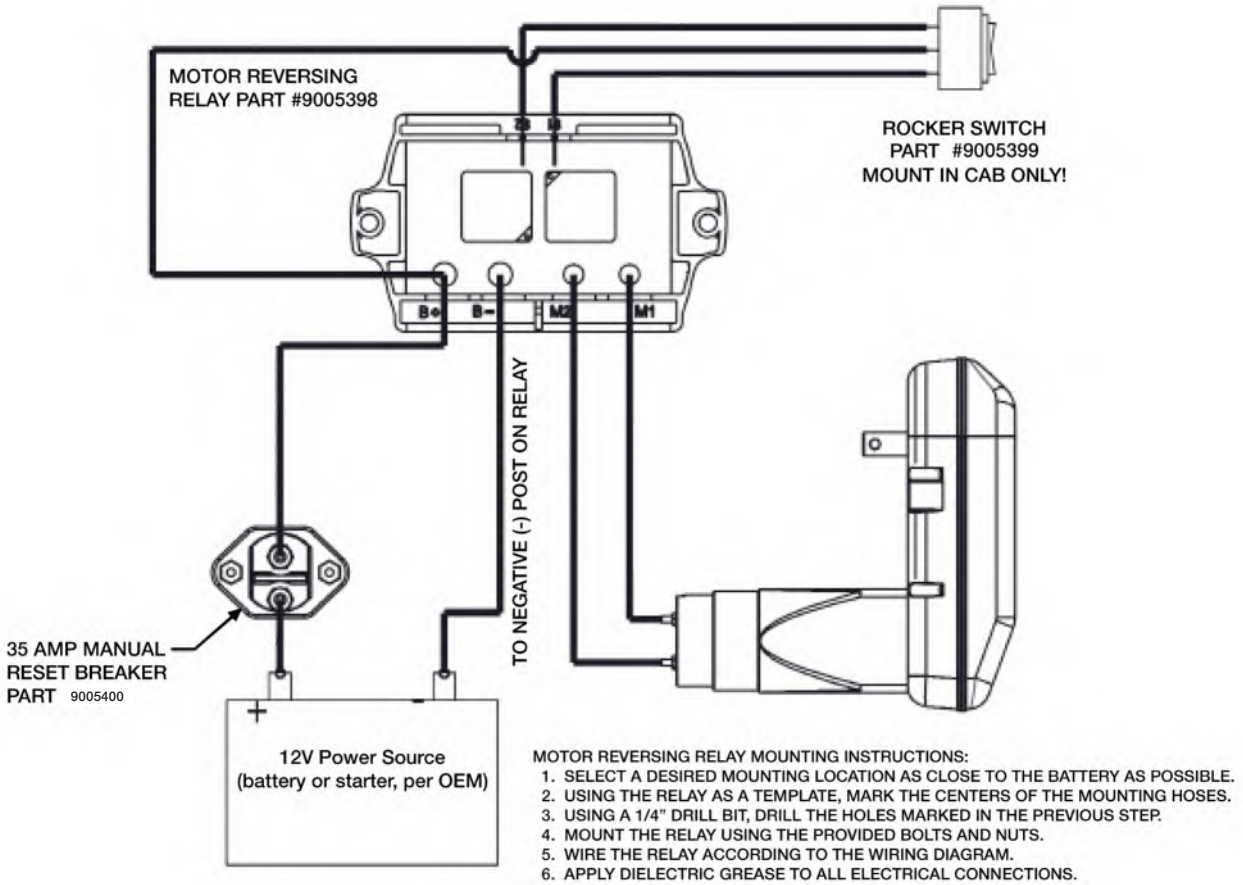
Electrical System Schematic

GRAIN CART WIRES
White -- Ground
Green -- Right Amber Flashing Lamp
Yellow -- Left Amber Flashing Lamp
Brown -- Amber Clearance and
Red Tail Lights (Low Filament)
Red -- Red Brake Lights (High Filament)
Black -- Work Lights
Blue -- 12V Key Switch Power



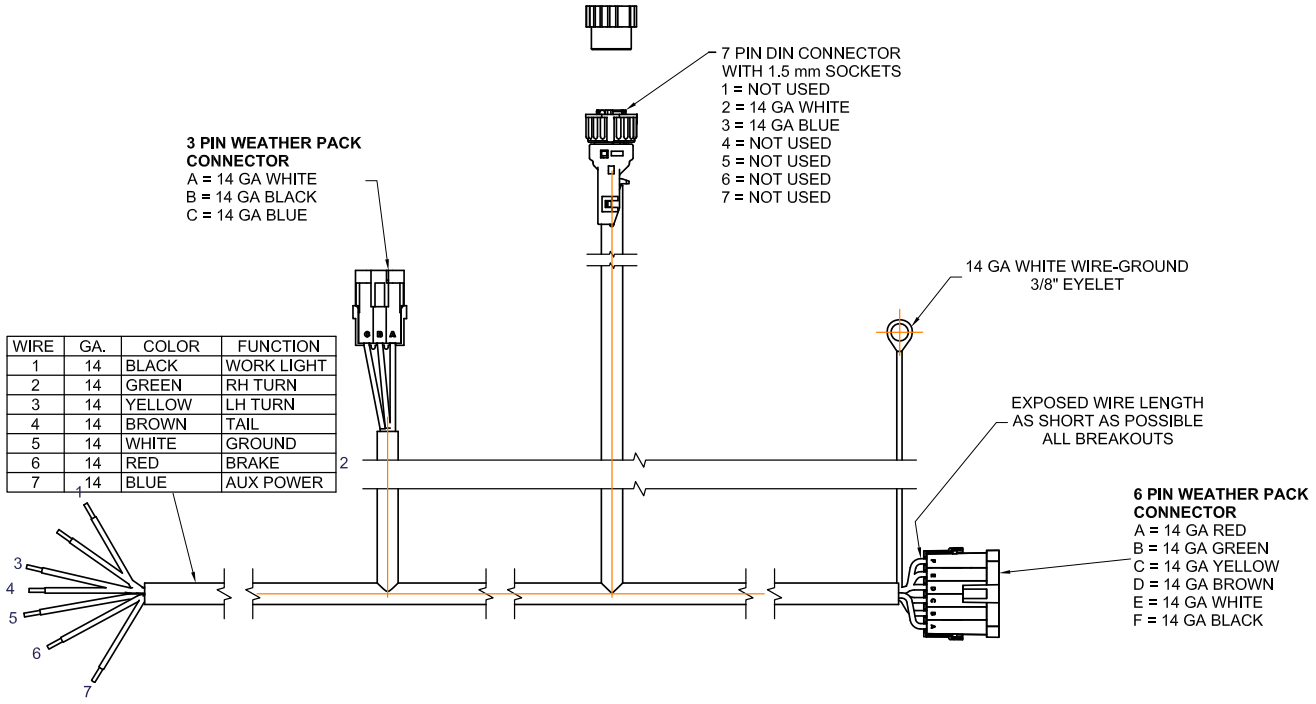
SAE SEVEN-POINT
CONNECTOR PLUG

220912



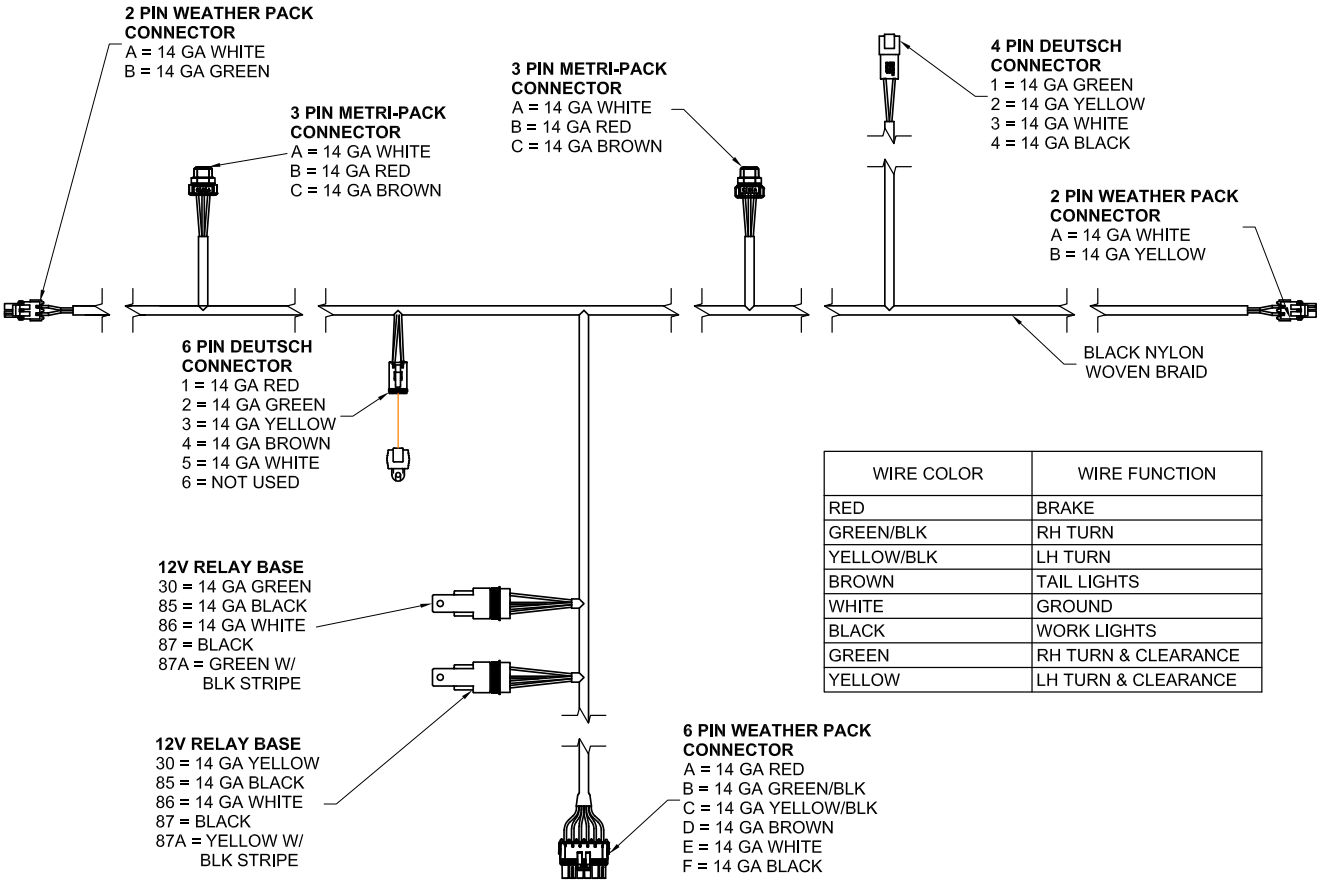
2598 Electric Tarp

Electrical System Schematic - Front Harness #9009540



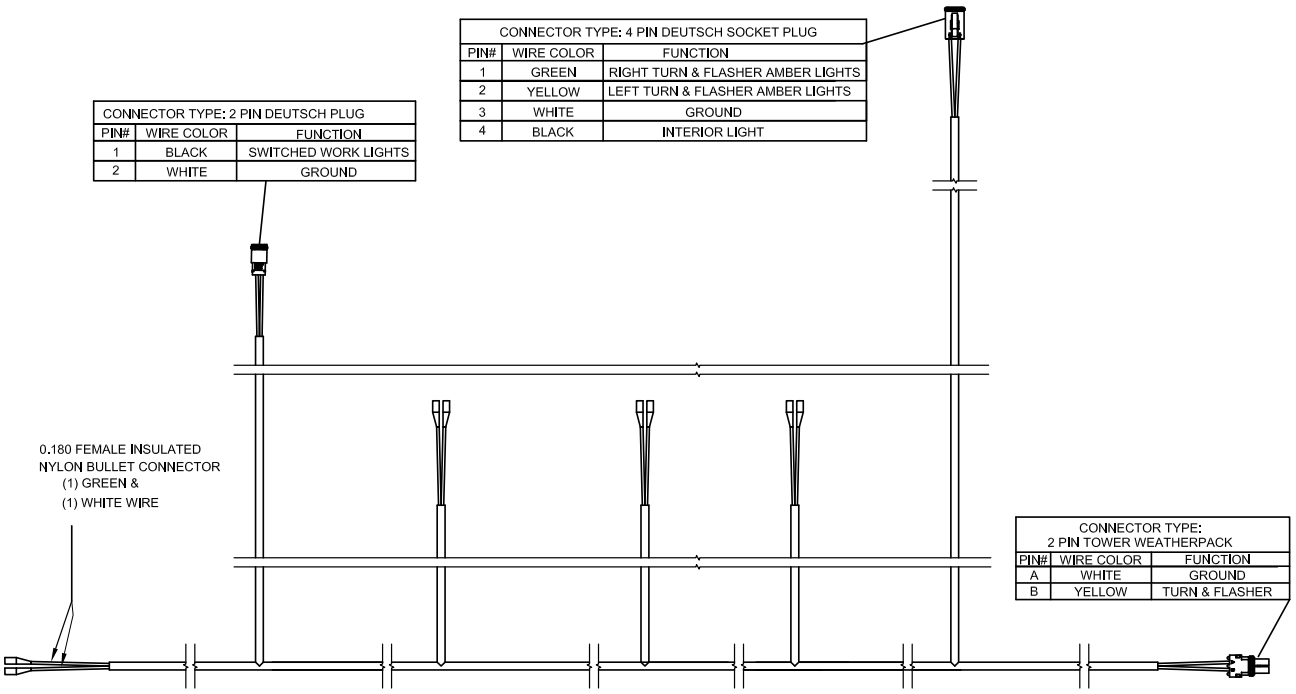
WIRE	GA.	COLOR	FUNCTION
1	14	BLACK	WORK LIGHT
2	14	GREEN	RH TURN
3	14	YELLOW	LH TURN
4	14	BROWN	TAIL
5	14	WHITE	GROUND
6	14	RED	BRAKE
7	14	BLUE	AUX POWER

Electrical System Schematic - Rear Harness #9009587

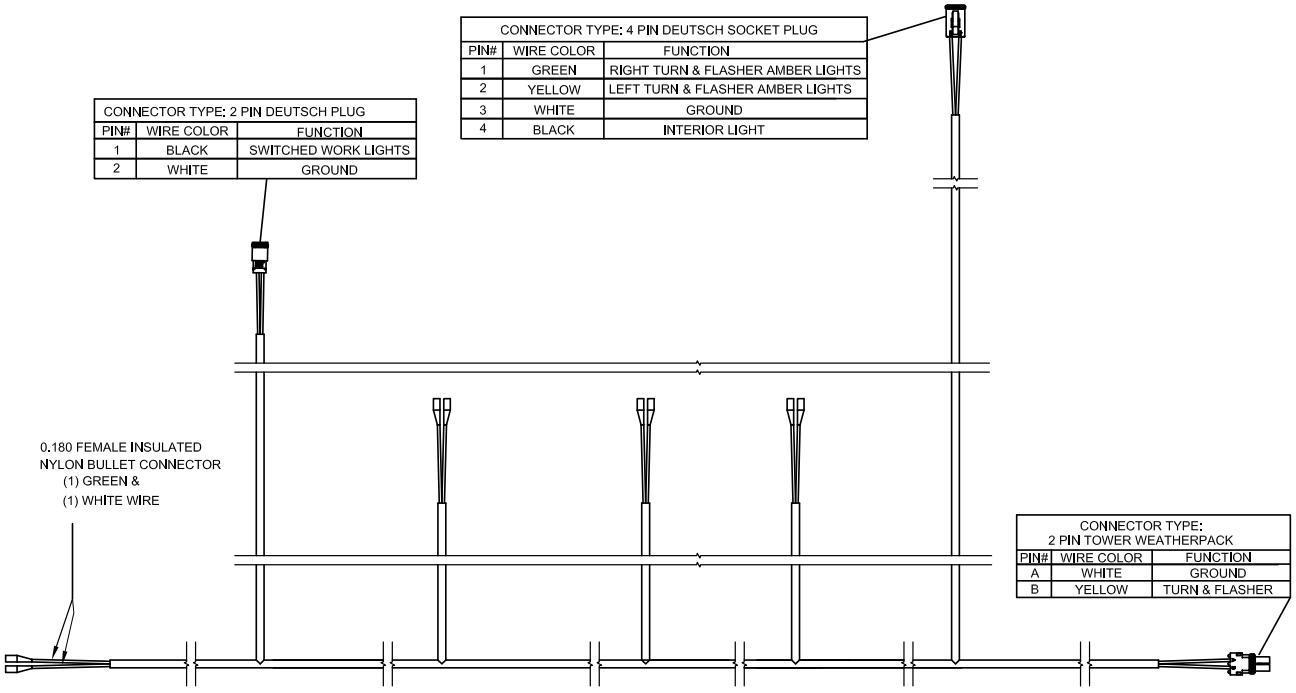


WIRE COLOR	WIRE FUNCTION
RED	BRAKE
GREEN/BLK	RH TURN
YELLOW/BLK	LH TURN
BROWN	TAIL LIGHTS
WHITE	GROUND
BLACK	WORK LIGHTS
GREEN	RH TURN & CLEARANCE
YELLOW	LH TURN & CLEARANCE

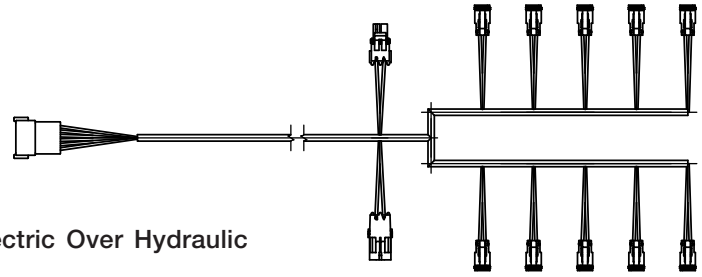
Electrical System Schematic
RH Clearance Light Harness #9009032



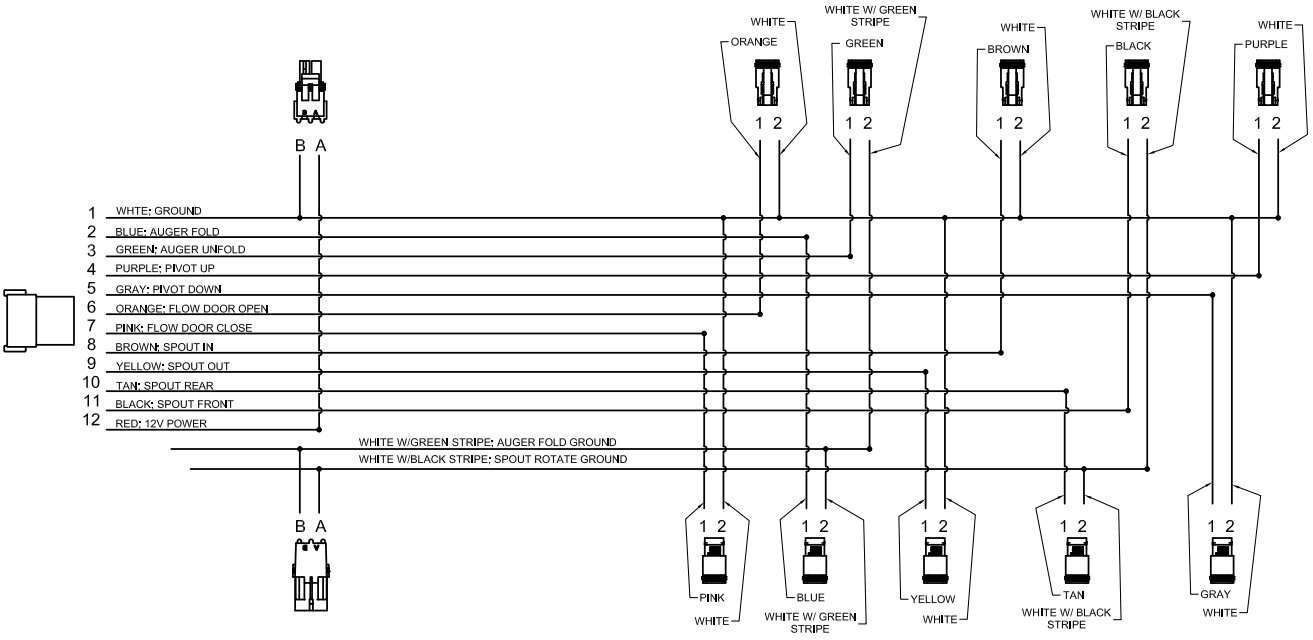
Electrical System Schematic
LH Clearance Light Harness #9009070



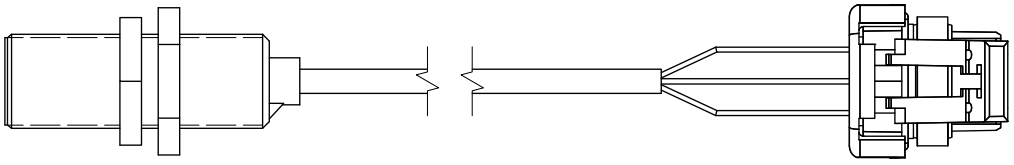
Electrical System Schematic - Main Harness #9007290 (Opt.)



NOTE: For Optional Electric Over Hydraulic 5 Function Valve.

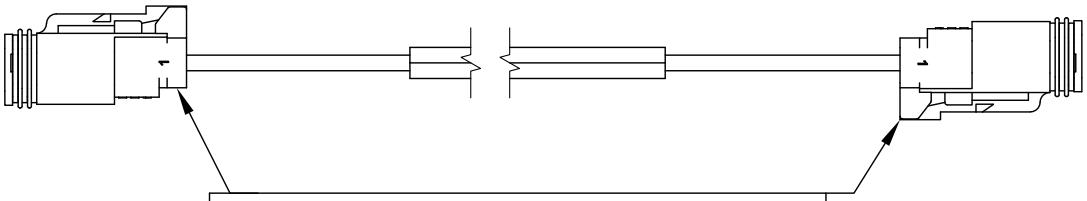


Electrical System Schematic - Proximity Switch #9007223



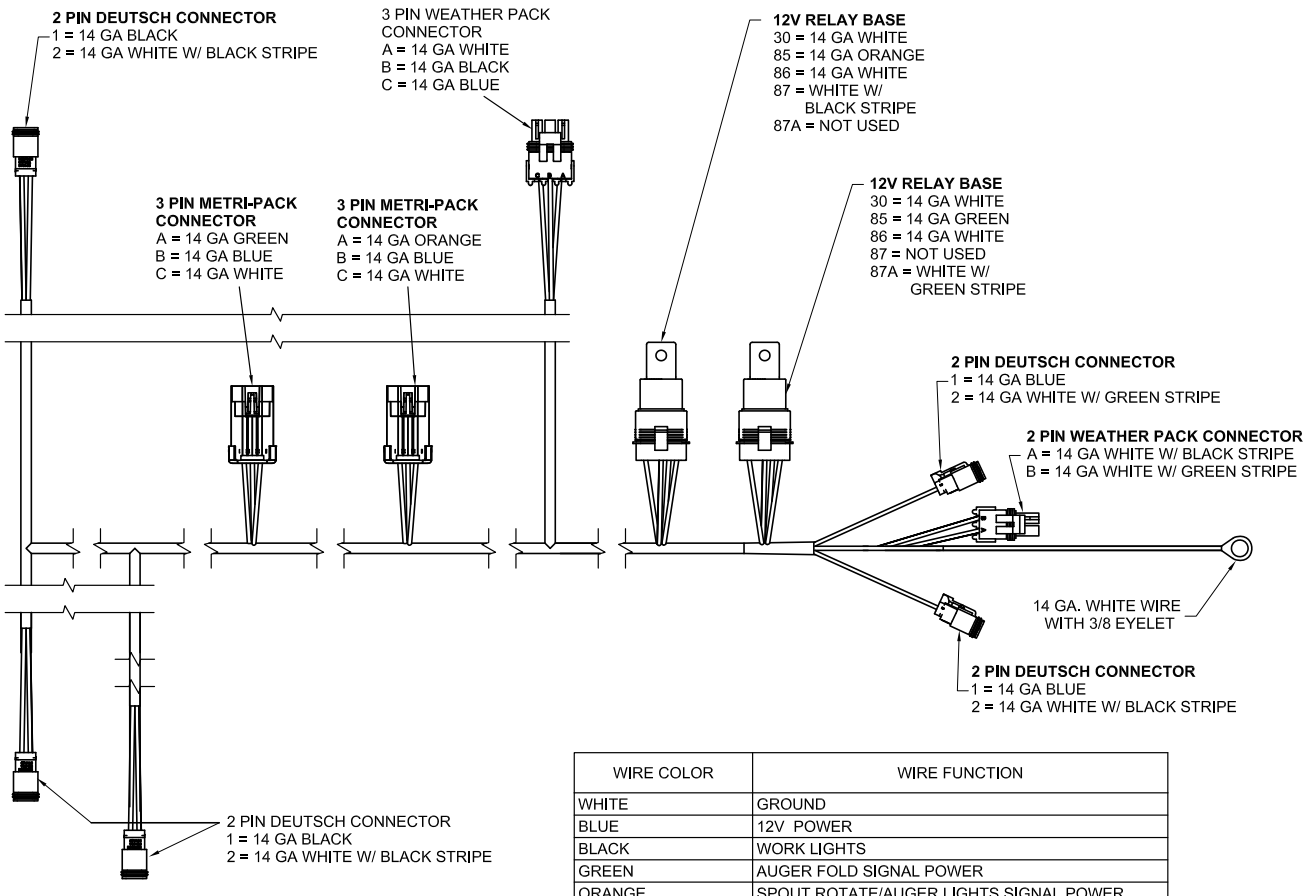
METRI-PACK 150 WIRING CHART		
WIRE COLOR	PIN NO.	FUNCTION
BLACK	A	SIGNAL
BROWN	B	+12 V DC
BLUE	C	GROUND

Electrical System Schematic - Diverter Harness #9007266



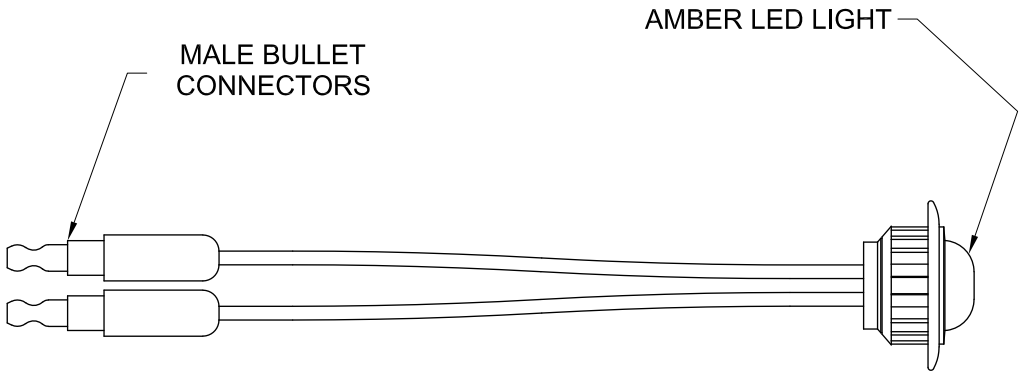
CONNECTOR TYPE: 2 PIN DEUTSCH PLUG		
PIN #	WIRE COLOR	FUNCTION
1	RED	+12V POWER
2	WHITE	GROUND

Electrical System Schematic - Auger Harness #9009531

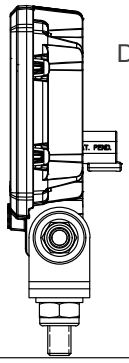


WIRE COLOR	WIRE FUNCTION
WHITE	GROUND
BLUE	12V POWER
BLACK	WORK LIGHTS
GREEN	AUGER FOLD SIGNAL POWER
ORANGE	SPOUT ROTATE/AUGER LIGHTS SIGNAL POWER
WHITE W/GRN STRIPE	AUGER FOLD SWITCHED GROUND
WHITE W/BLK STRIPE	SPOUT ROTATE/AUGER LIGHTS SWITCHED GROUND

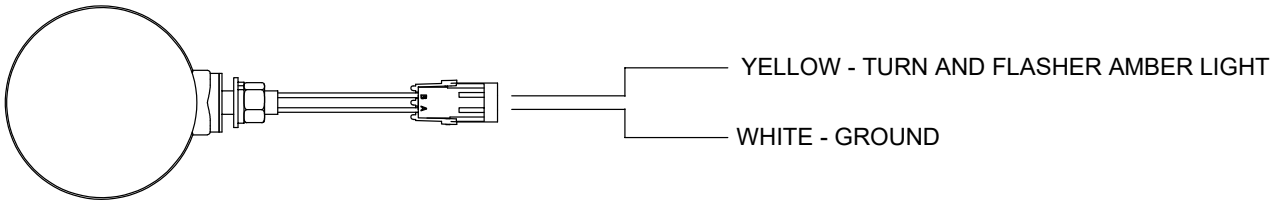
Electrical System Schematic - Micro Dot, LED Light #9006107



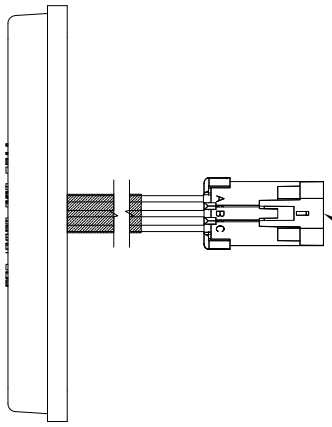
Electrical System Schematic - Work Flood Lamp #9008957



Electrical System Schematic - Amber Lamp #9005142

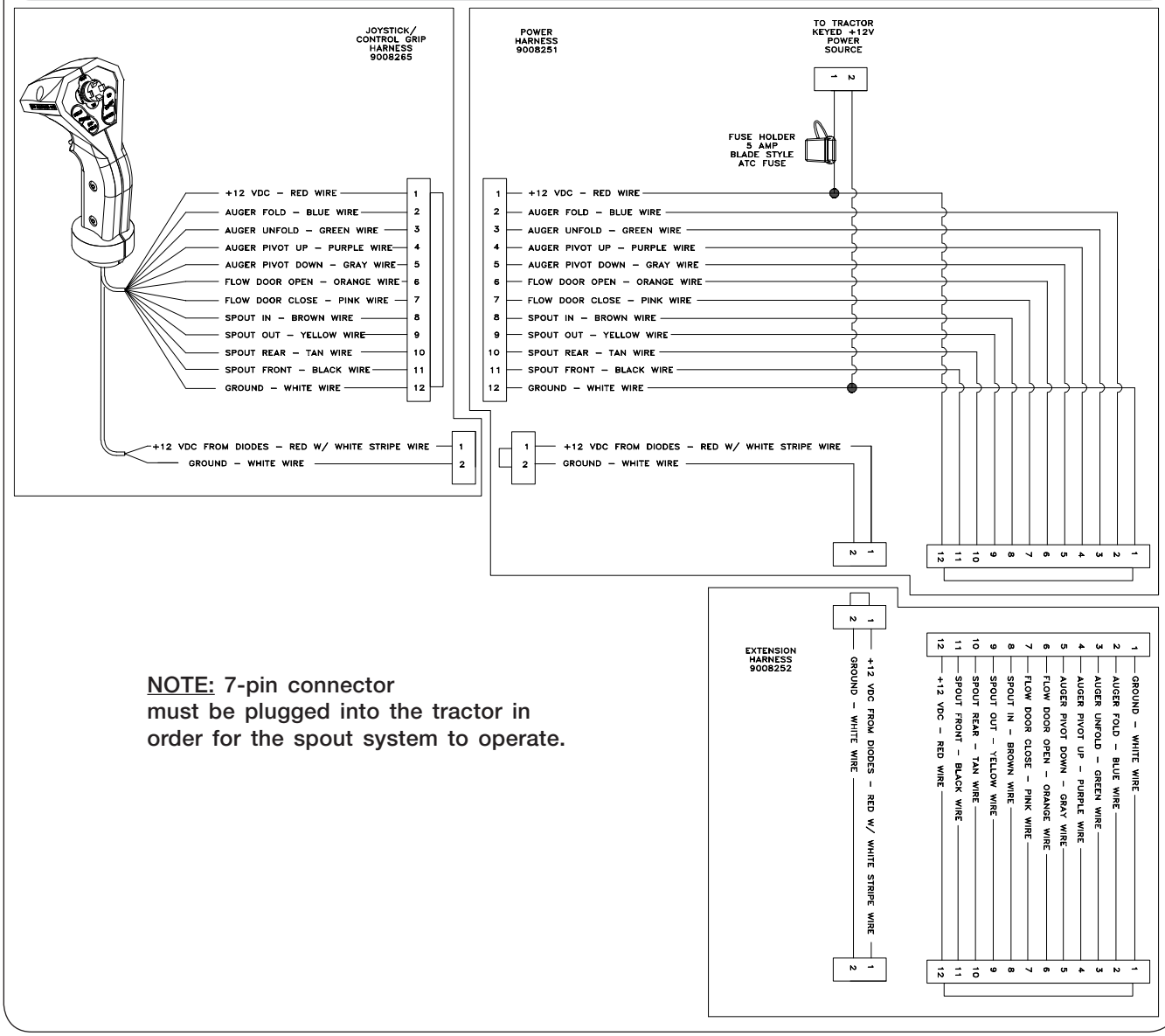


Electrical System Schematic - Red Lamp #9006345



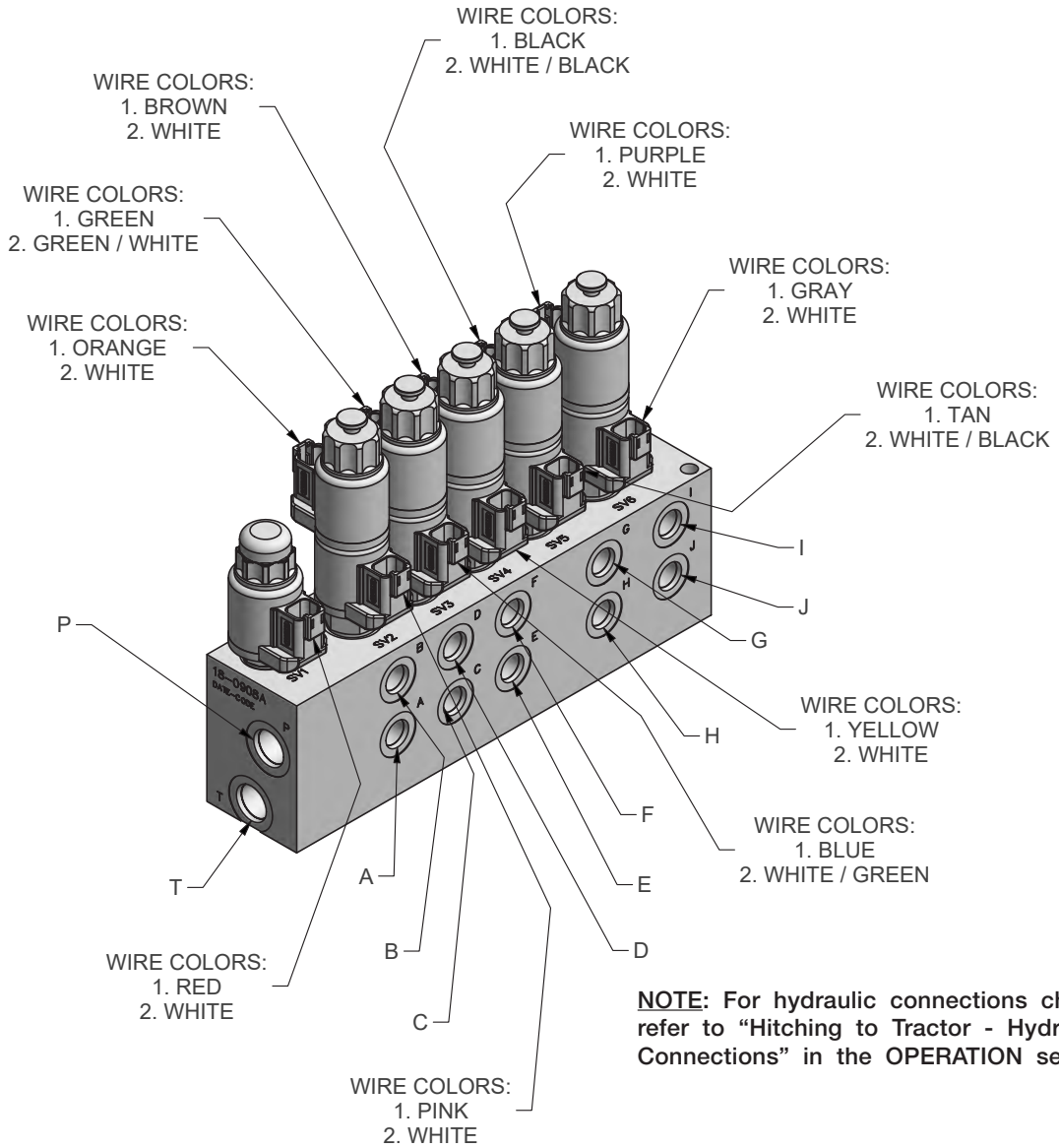
CONNECTOR TYPE:		
3 CAVITY SHROUD METRI-PACK 150		
PIN #	WIRE COLOR	FUNCTION
A	WHITE	GROUND
B	RED	HIGH
C	BROWN	LOW

Electrical Over Hydraulic (EOH) System Schematic 5 Function Optional



NOTE: 7-pin connector must be plugged into the tractor in order for the spout system to operate.

Optional Electric Over Hydraulic Valve Electric Schematic 5 Function

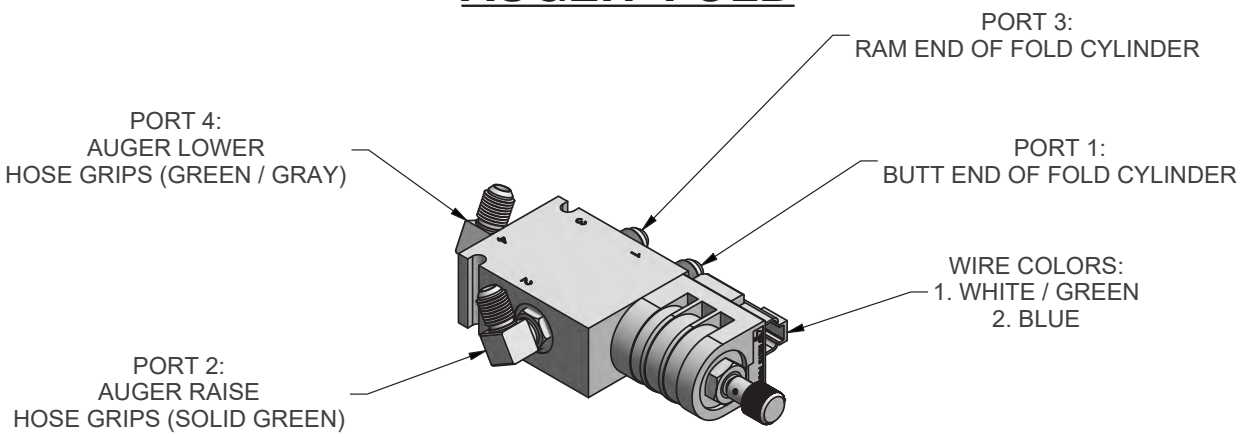


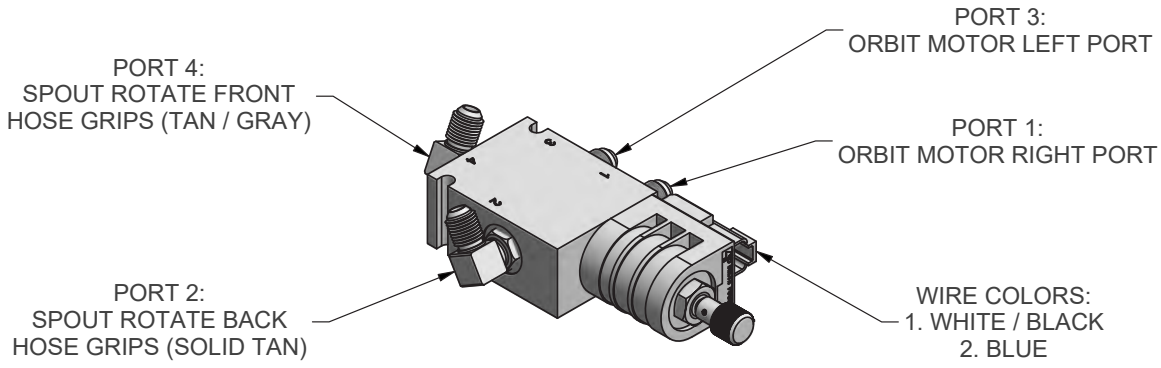
NOTE: For hydraulic connections chart, refer to "Hitching to Tractor - Hydraulic Connections" in the OPERATION section.

PORT	END OF CYLINDER	FUNCTION
A	BUTT END	FLOW DOOR
B	RAM END	FLOW DOOR
C	RAM END	AUGER FOLD
D	BUTT END	AUGER FOLD
E	RAM END	SPOUT TILT
F	BUTT END	SPOUT TILT
G	ORBIT MOTOR LEFT-HAND PORT	JOYSTICK / SPOUT ROTATE
H	ORBIT MOTOR RIGHT-HAND PORT	JOYSTICK / SPOUT ROTATE
I	BUTT END	AUGER PIVOT
J	RAM END	AUGER PIVOT
P		JOYSTICK / TRACTOR PRESSURE
T		JOYSTICK / TRACTOR RETURN

SCV Controlled Inline Valve Assemblies - Electric Schematic

AUGER FOLD





SPOUT ROTATE

NOTE: For hydraulic connections chart, refer to "Hitching to Tractor - Hydraulic Connections" in the OPERATION section.

Complete Torque Chart

Capscrews - Grade 5

NOTE:

- Grade 5 capscrews can be identified by three radial dashes on the head.

- For track wheel torque requirements, refer to Track Wheels.
- 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 1/4-28	8-10 9-11	11-13 12-15
5/16-18 5/16-24	15-17 17-19	20-23 23-26
3/8-16 3/8-24	25-28 28-31	34-38 38-42
7/16-14 7/16-20	40-45 45-50	54-61 61-68
1/2-13 1/2-20	62-68 68-75	84-92 92-102
9/16-12 9/16-18	90-98 100-110	122-133 134-148
5/8-11 5/8-18	120-135 124-137	162-183 168-186
3/4-10 3/4-16	200-220 210-230	270-300 285-310
7/8-9 7/8-14	330-350 360-380	425-475 460-515
1-8 1-14	500-525 540-560	675-710 730-760
1 1/8-7 1 1/8-12	600-635 665-700	815-860 920-950
1 1/4-7 1 1/4-12	850-895 940-990	1150-1215 1275-1340
1 3/8-6 1 3/8-12	1125-1175 1280-1335	1525-1590 1735-1810
1 1/2-6 1 1/2-12	1500-1560 1685-1755	2035-2115 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 track wheel torque requirements, refer to Track Wheels.
- 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 5/16-24	20-22 21-23	27-30 28-31
3/8-16 3/8-24	35-39 36-41	47-53 49-55
7/16-14 7/16-20	54-58 55-60	73-78 75-80
1/2-13 1/2-20	82-88 94-99	110-120 125-135
9/16-12 9/16-18	127-134 147-155	170-180 199-210
5/8-11 5/8-18	160-170 165-175	215-230 225-235
3/4-10 3/4-16	280-295 330-365	380-400 445-495
7/8-9 7/8-14	410-430 420-440	555-580 570-595
1-8 1-14	630-650 680-700	850-880 920-950
1 1/8-7 1 1/8-12	900-930 930-950	1220-1260 1260-1290
1 1/4-7 1 1/4-12	1250-1300 1280-1320	1695-1760 1735-1790

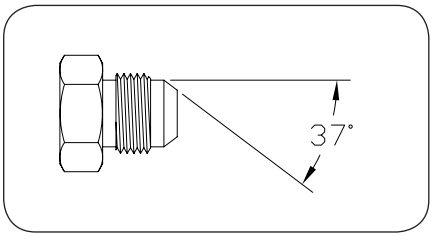
IMPORTANT

- *Follow these torque recommendations except when specified in text.*

Hydraulic Fittings – Torque and Installation

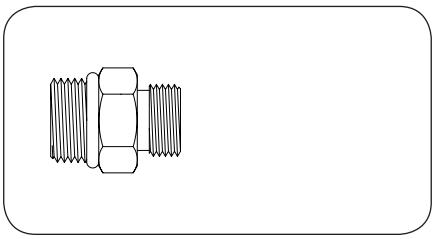
SAE Flare Connection (J. I. C.)

1. Tighten nut with finger until it bottoms the seat.
2. Using a wrench, rotate nut to tighten. Turn nut 1/3 turn to apply proper torque.



SAE Straight Thread O-Ring Seal

1. Insure jam nut and washer are backed up to the back side of smooth portion of elbow adapter.
2. Lubricate o-ring.
3. Thread into port until washer bottoms onto spot face.
4. Position elbows by backing up adapter.
5. Tighten jam nut.



Grain Handling

AVALANCHE® DOUBLE AUGER GRAIN CART MODEL 2098

Serial Number B42850100 & Higher

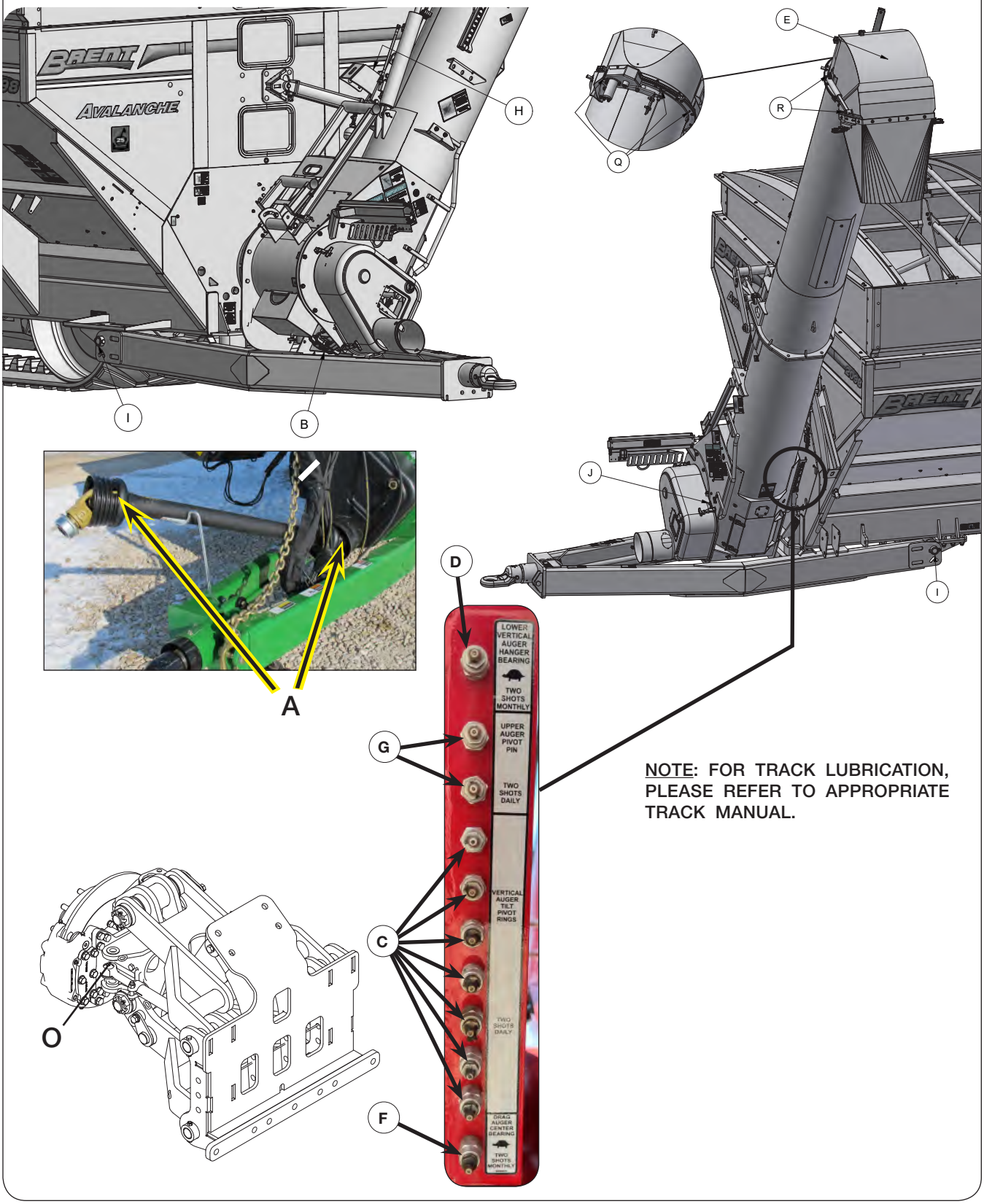
Part No. 296162

Section IV
Maintenance

FOR SCALE, TRACK, UHARVEST, ELECTRIC TARP, AND / OR WATER DELIVERY SYSTEM INFORMATION, PLEASE REFER TO THE INDIVIDUAL MANUALS.

Lubrication

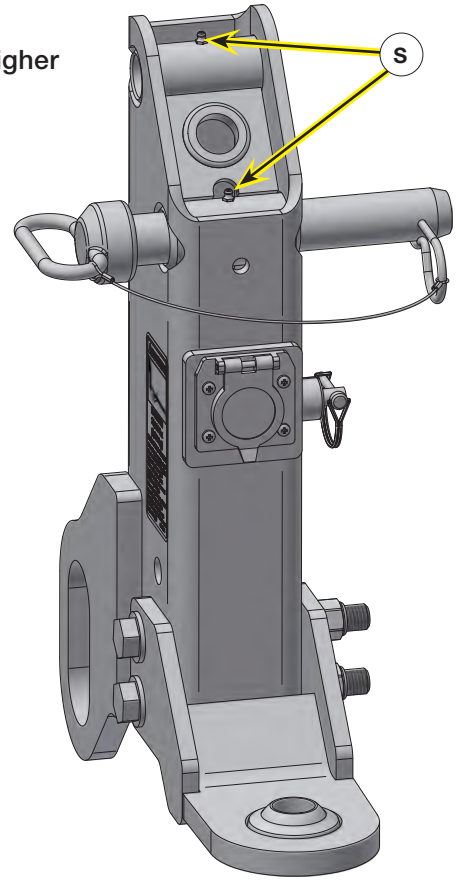
To keep your grain cart in top operating condition and to assure its proper performance and reliability for a long period of time, periodic inspection and lubrication is a must.



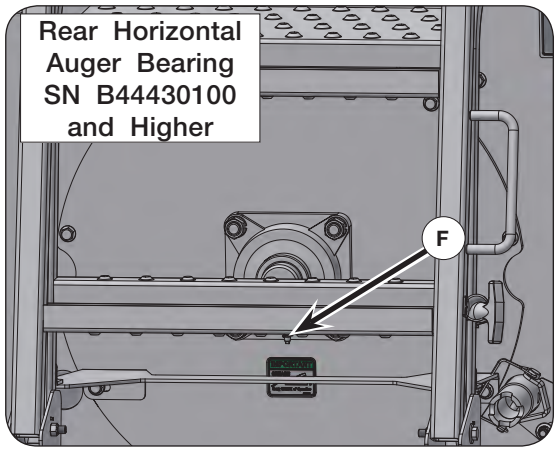
NOTE: FOR TRACK LUBRICATION, PLEASE REFER TO APPROPRIATE TRACK MANUAL.

Lubrication (continued)

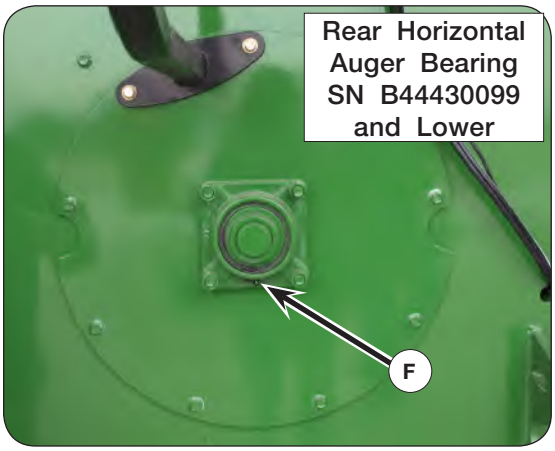
Optional Rear Hitch
For SN B44430100 & Higher



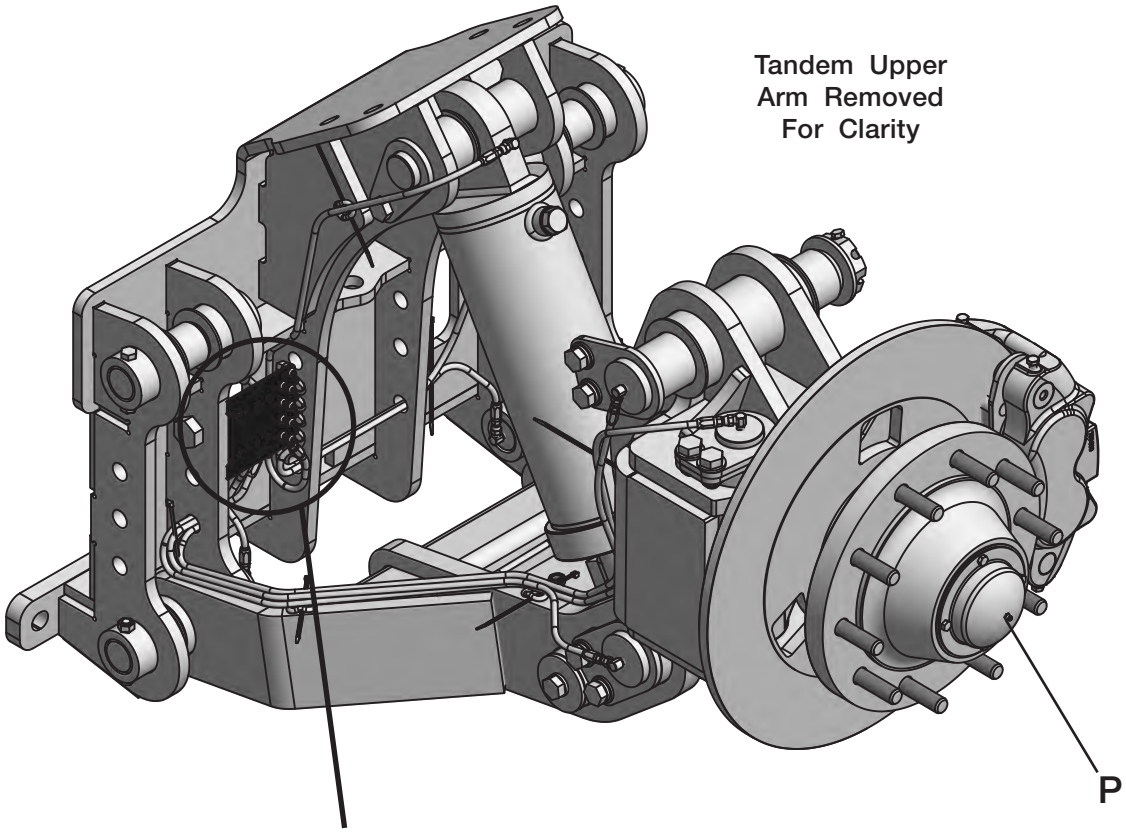
Rear Horizontal Auger Bearing SN B44430100 and Higher

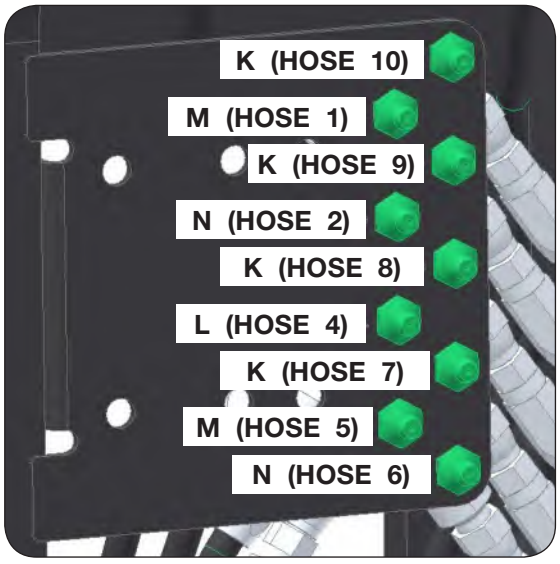


Rear Horizontal Auger Bearing SN B44430099 and Lower



Lubrication (continued)





GREASE BANK HOSE #	GREASE FITTING LOCATION
1	Upper Clevis Pin
2	Lower Suspension Cylinder Pin
3	-
4	Steering King Pin
5	Lower Clevis Pin
6	Upper Suspension Cylinder Pin
7	Upper Parallel Link Arm Pin
8	Upper Parallel Link Arm Pin
9	Lower Parallel Link Arm Pin
10	Lower Parallel Link Arm Pin

Lubrication (continued)

To keep your grain cart in top operating condition and to assure its proper performance and reliability for a long period of time, periodic inspection and lubrication is a must.

Unverferth Mfg. recommends use of NLGI #2 Extreme Pressure grease.

The lubrication locations and recommended schedule are as follows:

ITEM	DESCRIPTION	POINT	LUBRICANT	QTY.	HOURS
A	PTO Driveshaft	3	EP-2	1 Shot	See Next Page
B	Gearbox -- Remove Cover - Check oil level every 2 weeks. Replace oil every season. Refer to Gearbox in MAINTENANCE section.	1	EP80W90	Approx 85 oz.	Once Every Season
C	Auger Pivot Rings - Front & Rear Auger Hinge	7	EP-2	2 Shots	Daily
D*	Hanger Bearing - Vertical Lower Auger *See note below.	1	EP-2	2 Shots*	Monthly
E	Top Bearing - Vertical Upper Auger	1	EP-2	1 Shot	Each Season
F	Horizontal Auger End & Center Bearings	2	EP-2	2 Shots	Monthly
G	Auger Pivot Pin - Vertical Upper Auger Hinge	2	EP-2	2 Shots	Daily
H	Grease Slide Plate	1	EP-2	1 Shot	Each Season
I	Tongue Pivot Bushing	2 (one per side)	EP-2	2 Shots	Daily
J	Front Horizontal Auger Bearing & Gearbox Support Bearing	2	EP-2	1 Shot	Weekly
K	Grease Bank for Parallel Link Arm Pins (Hoses 7, 8, 9 & 10)	4 (per wheel)	EP-2	6 Shots	Daily
L	Grease Bank for Steering King Pin (Hose 4)	1 (per wheel)	EP-2	6 Shots	Daily
M	Grease Bank for Clevis Pivot Pins (Hoses 1 & 5)	2 (per wheel)	EP-2	6 Shots	Daily
N	Grease Bank for Suspension Cylinder Pin (Hoses 2 & 6)	2 (per wheel)	EP-2	6 Shots	Daily
O	Tie Rod End on Steering Linkage	4	EP-2	2 Shots	Every 40 hours of usage
P	Hubs	4	EP-2	Repack	Annually
Q	Discharge Spout Pivot Grease Points	6	EP-2	1 Shot	Monthly
R	Spout Tilt Cylinder Pin	2	EP-2	3 Shots	Weekly
S	Rear Hitch Pivot Pin (Optional)	2	EP-2	2 Shots	Monthly

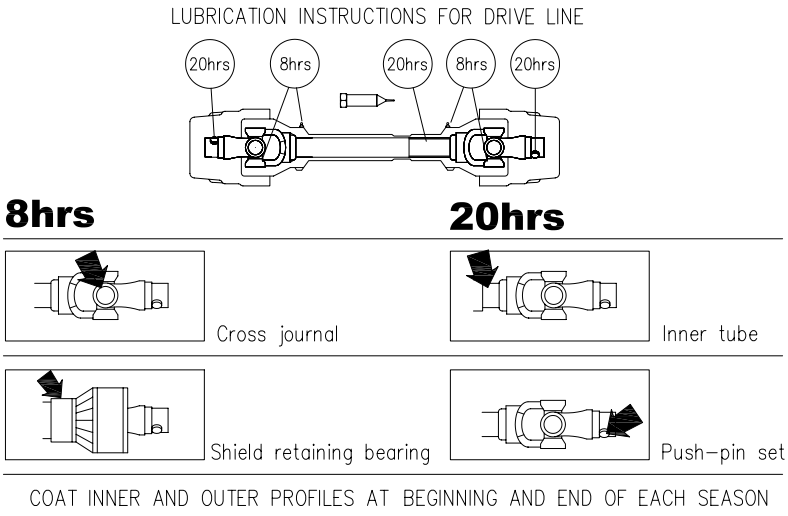
*NOTE: Hanger bearing contains hydraulic shut-off grease zerk (9005240) with pressure relief to prevent over-greasing that could push bearing seals out. If grease is coming out of the relief on the zerk this is normal and the bearing contains enough grease.

PTO Driveshaft Lubrication

Lubricate with NLGI grade 2 grease before starting work and every 8 operating hours. Clean and grease PTO driveshaft before each prolonged period of non-use. Molded nipples on the shield near each shield bearing are intended as grease fittings and should be lubricated every 8 hours of operation! Check and grease the guard tubes in winter to prevent freezing.

NOTE: Inner & outer profile tubes must have lubrication to operate successfully regardless of whether a grease fitting is provided for that purpose! Inner & outer profile tubes without fittings should be pulled apart and grease should be added manually.

FIG. 4-1



Hydraulic System

Refer to parts section for hydraulic component detail listing.

When properly assembled and maintained, the hydraulic system of the grain cart 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

⚠ WARNING

- **HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.**

- **RELIEVE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR'S MANUAL FOR PROPER PROCEDURES.**

- **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.**

- **KEEP CLEAR OF PINCH POINT AREAS.**

- **FALLING OR LOWERING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH. KEEP EVERYONE AWAY FROM EQUIPMENT WHEN SUSPENDED, RASING, OR LOWERING.**

Purge air from system as follows:

A. 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.
B. 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.
C. Check oil reservoir in the hydraulic power source and refill as needed.
D. 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.
E. Check for hydraulic oil leaks using cardboard or wood. Tighten connections according to directions in the Torque Specifications in the MAINTENANCE section.
F. Repeat steps in B, C, D, and E 10-12 times.

IMPORTANT

- *Machine damage will occur if the cylinder is incorrectly installed.*

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

Bleeding Procedure For Braking System

⚠ WARNING

- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.**
- **RELIEVE THE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR'S MANUAL FOR PROPER PROCEDURES.**
- **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.**
- **PLACE TRACTOR IN PARK. TRACTOR MUST IN PARK DURING ENTIRE PROCEDURE.**

NOTE: System is intended for tractors with hydraulic trailer brakes. If your tractor does not have hydraulic trailer brakes, contact your dealer for support.

NOTE: This procedure is a **two-person** process. With responsible operator behind controls, one person operates the brake pedal while the second person loosens the bleeder screw on the brake caliper.

1. Block tires to prevent movement. Set the tractor parking brake, but leave tractor engine on throughout the procedure. Attach hydraulic brake coupler on the cart to the implement brake port at the rear of the tractor.
2. Apply and hold pressure to brake pedal.
3. Attach 1/4" hose to bleeder screw fitting. Put hose in an approved container. Loosen the bleeder screw, at the top of the caliper, on caliper of the closest wheel located in the hydraulic circuit. If necessary, pump the brake pedal to extract all air from the system. Once air bubbles are no longer present, tighten the bleeder screw. (Fig. 4-2)
4. Repeat steps 2 and 3 to the next closest brake caliper in the brake circuit. Repeat until all brakes are bled.
5. Do a final tightness check of all caliper bleed screws before beginning cart operation. Check that all brakes actuate and release properly with tractor brake pedal.

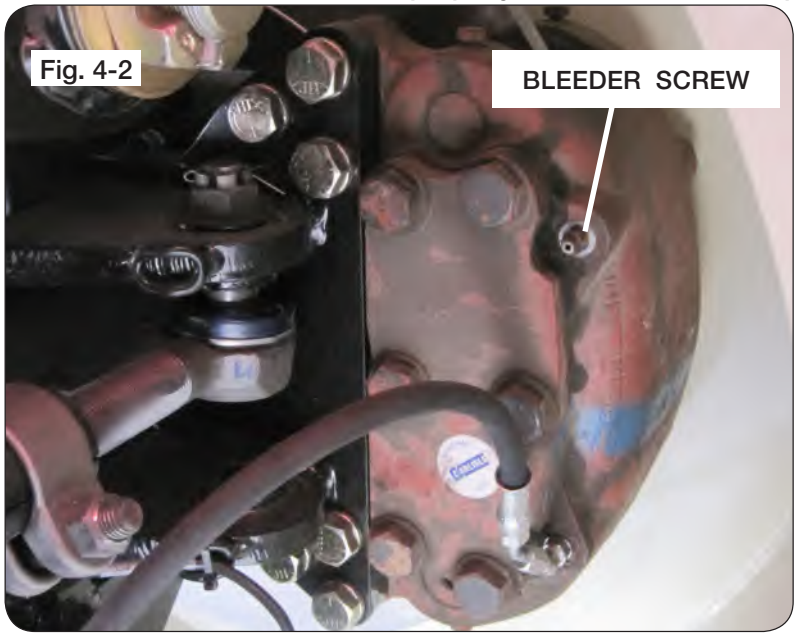


Fig. 4-2

Wheel, Hub and Spindle Disassembly and Assembly

⚠ WARNING

- **TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE MACHINE IS SECURELY BLOCKED.**

- **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 40,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

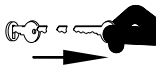
⚠ CAUTION

- **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 THERE-AFTER. AFTER EACH WHEEL REMOVAL START TORQUE PROCESS FROM BEGINNING. WARRANTY DOES NOT COVER FAILURES CAUSED BY IMPROPERLY TORQUED WHEEL NUTS/BOLTS.**

IMPORTANT

- *Remove only one wheel and tire from a side at any given time in the following procedure.*

1. Hitch cart to tractor. Park the empty cart on a firm, level surface. Set the tractor's parking brake, shut off engine and remove key.



2. With cart empty, use safe lifting and load holding devices rated at 40,000 lbs. to support the weight of your grain cart. Place the safe lifting device under the axle closest to the tire.

3. Use a 3,000 lbs. safe lifting device to support the wheel and tire. Remove the wheel and tire from the hub.

4. If only changing wheel and tire, skip to Step 8; otherwise continue with Step 4.

   Remove the hardware retaining the hubcap. Next, remove the hubcap, gasket, cotter pin, castle nut and spindle washer. Remove hub with bearings from old spindle using a 200 lb. safe lifting device.

5. Inspect the spindle and replace if necessary. If spindle does not need to be replaced, skip to Step 6; otherwise continue with Step 5.

   Remove the bolt and lock nut that retain the spindle to the axle. Using a safe lifting device rated for 200 lbs., replace the old spindle with a new spindle. Coat axle contact length of spindle shaft (scale or non-scale) with anti-seize lubricant prior to installation. If installing scale spindle, install with 'top' decal facing upwards. Reuse bolt and lock nut to retain spindle to axle. Tighten as outlined in MAINTENANCE section.

Wheel, Hub and Spindle Disassembly and Assembly (continued)

6. Remove seal and inspect bearings, spindle washer, castle nut and cotter pin. Replace if necessary. Pack both bearings with approved grease and reinstall inner bearing. Install new seal in hub with garter spring facing the outside of hub by tapping on flat plate that completely covers seal while driving it square to hub. (FIG. 4-3) Install until flush with back face of hub. Using a safe lifting device rated for 200 lbs., install hub assembly onto spindle. Install outer bearing, spindle washer and castle nut.

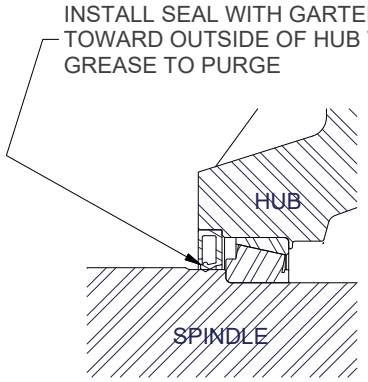


FIG. 4-3

7. Slowly tighten castle nut while spinning the hub until drag causes the hub to stop freely spinning. Do not use an impact! Turn castle nut counterclockwise until the hole in the spindle aligns with the next notch in castle nut. Hub should spin smoothly with little drag and no end play. If play exists, tighten to next notch of castle nut. If drag exists, then back castle nut to next notch of castle nut. Spin and check again. Install cotter pin. Clean face for hub cap gasket and install gasket, grease- filled hub cap and retain hubcap with hardware removed. Tighten hubcap hardware in alternating pattern.

8. Attach the wheel(s) and tire(s) to the hub using the same rated safe lifting device for removal. Tighten wheel nuts to appropriate requirements and recheck as outlined in the Wheel and Tire section of this manual.

9. Raise cart, remove safe load holding devices and lower tire to the ground.

Wheels and Tires

Wheel Nut Torque Requirements

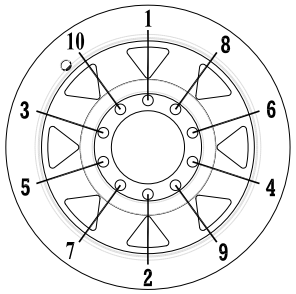
⚠ CAUTION

- **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 THERE-AFTER. 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.

NOTE: Do not use anti-seize on wheel hardware.

WHEEL HARDWARE	
SIZE	FOOT-POUNDS
7/8-14 (UNF)	440 ft.-lbs.
M22x1.5	475 ft.-lbs.



10 BOLT

DIAGRAM 1

Wheels and Tires (continued)

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.** Start with minimum pressure recommended by tire manufacturer. The tire should stand up with no side-wall buckling or distress as tire rolls. Record the pressure needed to support full load and maintain this pressure to achieve proper tire life. **Do not exceed maximum recommended tire pressure.** Each tire must be inflated to max PSI to seat the beads, deflated to 5-10 PSI, then reinflated to recommended minimum pressure.

Tire Pressure for Grain Carts

Tire Make	Tire Size	Load Index / Ply Rating	Max. PSI
Firestone	23.1x26 R-3	12	32
	23.1x26 R-1	12	32
	28Lx26 R-3	12	26
	24.5x32 R-3	12	32
	24.5x32 R-1	12	32
	30.5x32 R-1	14	28
	30.5x32 R-3	14	28
	30.5x32 R-3	16	34
	30.5x32 R-1	16	26
	35.5x32 R-3	20	36
	76x50.00x32 HF-3	16	40
	76x50.00x32 HF-3	20	50
	800/65R32 R-1W	172D	41
	800/60R32 R-3	181B	46
	900/65R32 R-3	191B	46
	900/60R32 R-1	176A8	44
	1250/50R32F IF/CFO R-1WNP	201D	46
	1250/50R32F IF/CFO R-1W	188B	30
	520/85R38 R-1	155A8	29
	520/85R38 R-1	173A8	64
	480/80R42 R-1	151A8	36
	520/85R42 R-1	157A8	29
	520/85R42 R-1	165A8	51
	520/85R42 IF/CFO R-1	169A8/B	35
	IF520/85R42 R-1W	169B	35
	VF520/85R42 R-1W	177B	35
	420/80R46 R-1	151A8	44
	480/80R46 R-1	158A8	44
	380/90R46 R-1	152B	51

Wheels and Tires (continued)

Tire Pressure (continued)

Tire Pressure for Grain Carts

Tire Make	Tire Size	Load Index / Ply Rating	Max. PSI
Titan/Goodyear	23.1x26 R-3	10	26
	23.1x26 R-1	10	26
	24.5R32 R-1	169A8/B (5-Star)	48
	24.5x32 R-3	12	32
	24.5x32 R-1	12	32
	30.5x32 R-3	16	26
	30.5x32 R-3	14	22
	30.5x32 R-1	14	22
	480/80x42 R-1	166A8	23
	1100/45R46 F-1W	195D	35
Mitas	650/75R32 R-1W	172A8	58
	650/75R32 R-1	176A8	41
	800/65R32 R-1W	172A8	46
	900/60x32 R-1W	176A8	41
	900/70R32 R-1W	188A8	53
	1050/50x32 R-1W	178A8	41
	1250/50R32 R-1W	188A8	41
	900/60x38 R-1W	181A8	44
	520/85x42 R-1W	162A8	44
	650/65x42 R-1W	168A8	44
Alliance	30.5B32	18-Ply	36
	35.5LR32	193A8	44
	900/60R32 R-1W	192D	46
	1050/50R32 R-1W	185A8	52
	1250/50R32 R-1W	201B	46
Trelleborg	VF1050/50R32 R-1	198D	52
	900/50R32 R-1W	181A8	55
	900/60x32	176LI	44
	850/55R42 R-1W	161A8	32

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:

Firestone	www.firestoneag.com Phone 800-847-3364
Titan or Goodyear	www.titan-intl.com Phone 800-USA-BEAR Fax 515-265-9301
Trelleborg	www.trelleborg.com Phone 866-633-8473
Continental/Mitas	www.mitas-tires.com Phone 704-542-3422 Fax 704-542-3474
Alliance	www.atgtire.com Phone 781-325-3801

Gearbox

When checking the oil level of the gearbox, the vertical auger should be pivoted all the way down.

For adequate lubrication, the oil should be visible in the sight glass. Fill with oil to the sight glass only. (Fig. 4-4)

For Maximum gearbox life:
Check oil level every 2 weeks.

Replace oil every season with approximately 85 oz. 80W90 EP lubricant.

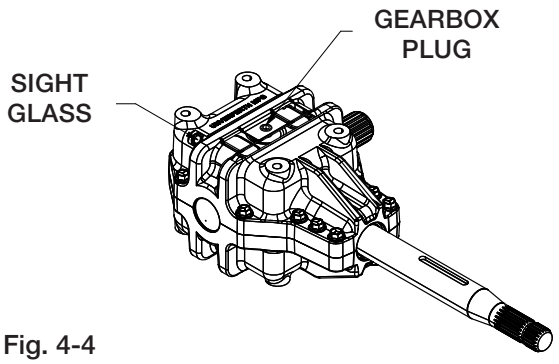


Fig. 4-4

Manual Override for Optional Electric Over Hydraulic System

⚠ WARNING

- **MOVING OR ROTATING AUGER COMPONENTS CAN CAUSE SERIOUS INJURY OR MACHINE DAMAGE. BEFORE OPERATING MANUAL OVERRIDE(S), ENSURE EVERYONE IS AWAY FROM THE SPOUT AND THAT THE SPOUT WILL NOT CONTACT ANY OTHER PARTS OF THE GRAIN CART. ALL CONTROL SWITCHES ARE DEACTIVATED WHILE UTILIZING MANUAL OVERRIDE(S).**

- **MOVING OR ROTATING PTO COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT OPERATE PTO WHILE UTILIZING MANUAL OVERRIDE(S).**

- **FALLING OR LOWERING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH. KEEP EVERYONE AWAY FROM EQUIPMENT WHEN SUSPENDED, RASING, OR LOWERING.**

IMPORTANT

- *Spout must be centered before operating the auger fold. Align checker flag decals to ensure spout rotate is centered.*

NOTE: Manual override operation is intended for emergency use ONLY and is not intended for continuous operation. Spout may rotate into cart causing damage.

NOTE: Manual override operation allows the spout and auger to move regardless of location.

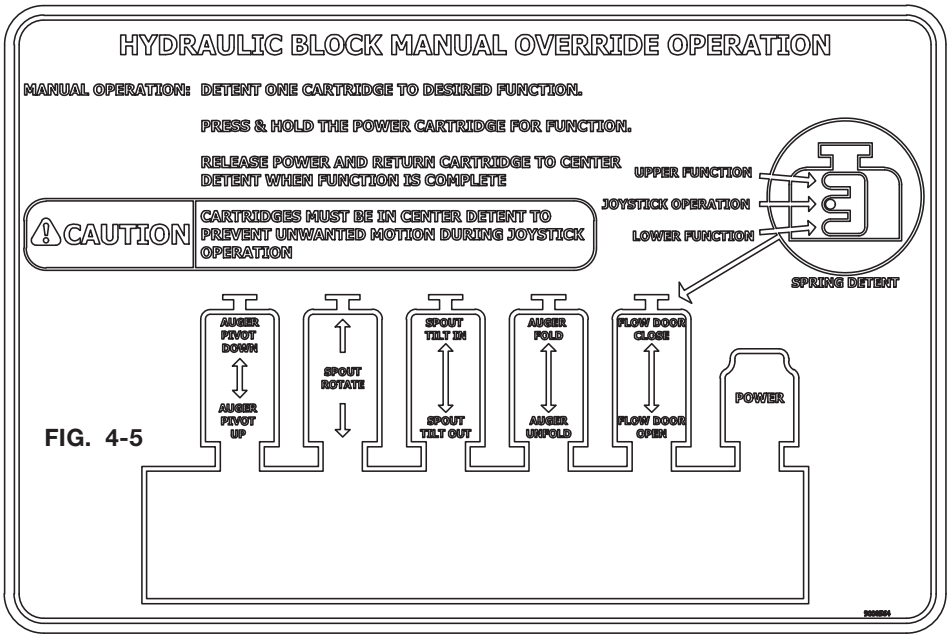


FIG. 4-5

1. Park the empty grain cart on a firm and level surface. Block the machine to keep it from moving. Set the tractor's parking brake. Keep engine running.

Manual Override for Optional Electric Over Hydraulic System (continued)

2. Remove cover plate (295569B) from the bottom of the lower auger housing to access the EOH block assembly. Keep cover plate. (FIG. 4-6)

3. Connect the desired Hydraulic Pressure and Return hoses to the tractor SCV remote so that the Pressure line is able to be put in continuous detent.

4. To operate the manual override function, place the tractor SCV remote in continuous detent so that the Hydraulic Pressure hose is pressurized.

(continued on next page.)

FIG. 4-6

Manual Override for Optional Electric Over Hydraulic System (continued)

NOTE: Only one cartridge valve (9008416 & 9008463) must be in the top or bottom detent position at a time to function properly. All other valves must be in the middle detent postion. (FIG. 4-7 & 4-8)

5. Operate the desired function on valve (9008416 & 9008463) by rotating the manual override knurled knob from the locked neutral position. (FIG. 4-7, 4-8, & 4-10)

6. Push and hold the manual override button on valve (9008438). (FIG. 4-9)

7. Once the desired position is reached, release manual override button on valve (9008438).

8. Return knurled knob to center and lock valve (9008416) & (9008463) in position. (FIG 4-7, 4-8 & 4-10)

NOTE: Refer to "Troubleshooting" for EOH, vertical auger and/or rotating spout issues in the MAINTENANCE section.

9. Turn off hydraulic circuit when done. Correct electric/hydraulic system before continued use. Consult your dealer for service and parts.

10. Replace cover plate (272606B) from step 2 to the bottom of the lower auger housing.

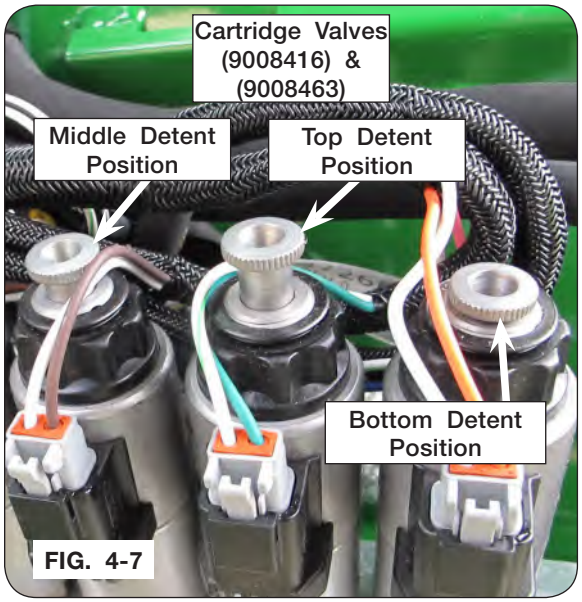


FIG. 4-7

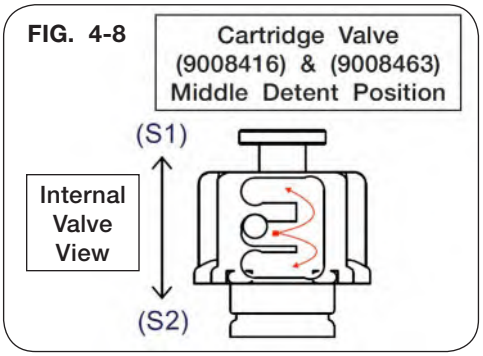


FIG. 4-8

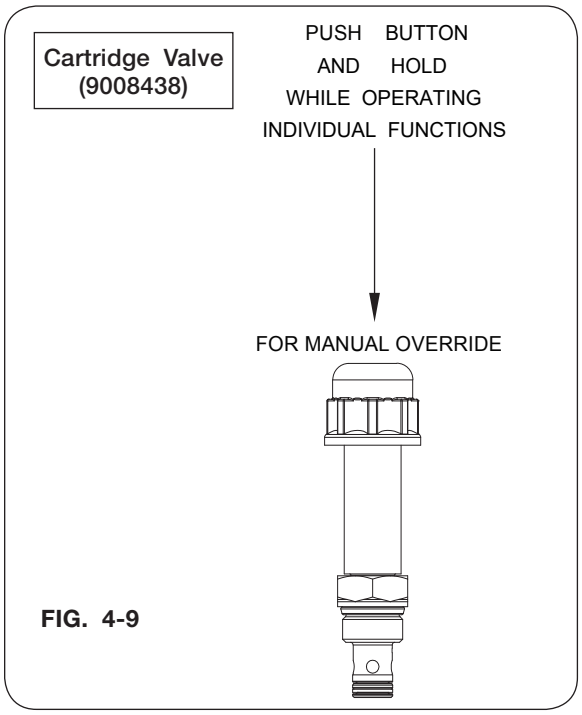


FIG. 4-9

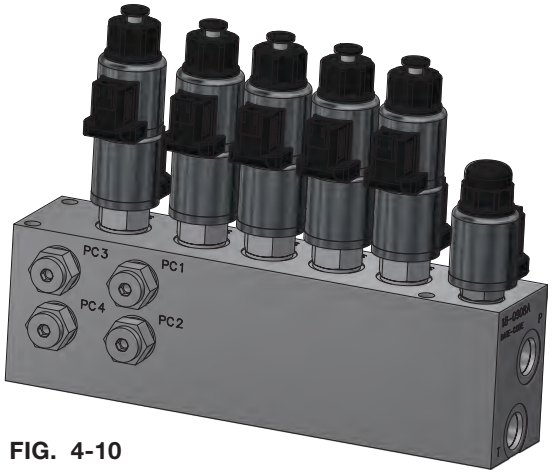


FIG. 4-10

Manual Override for SCV Controlled Spout Rotate & Auger Fold

⚠ WARNING

- **MOVING OR ROTATING AUGER COMPONENTS CAN CAUSE SERIOUS INJURY OR MACHINE DAMAGE. BEFORE OPERATING MANUAL OVERRIDE(S), ENSURE EVERYONE IS AWAY FROM THE SPOUT AND THAT THE SPOUT WILL NOT CONTACT ANY OTHER PARTS OF THE GRAIN CART. ALL CONTROL SWITCHES ARE DEACTIVATED WHILE UTILIZING MANUAL OVERRIDE(S).**

- **MOVING OR ROTATING PTO COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT OPERATE PTO WHILE UTILIZING MANUAL OVERRIDE(S).**

- **FALLING OR LOWERING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH. KEEP EVERYONE AWAY FROM EQUIPMENT WHEN SUSPENDED, RASING, OR LOWERING.**

IMPORTANT

- *Spout must be centered before operating the auger fold. Align checkered flag decals to ensure spout rotate is centered.*

NOTE: Manual override operation is intended for emergency use ONLY and is not intended for continuous operation. Spout may rotate into the cart causing damage.

NOTE: Manual override operation allows the spout and auger to move regardless of location.

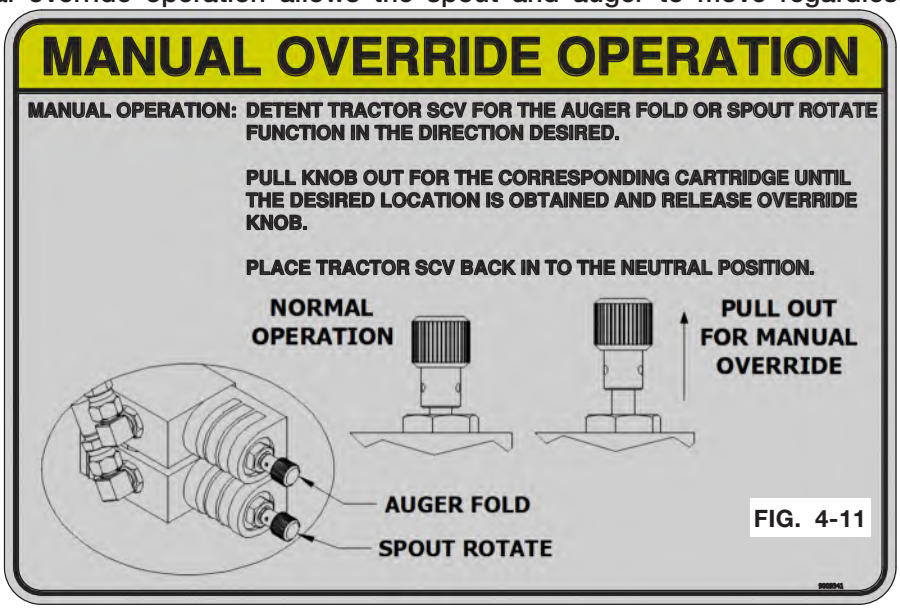


FIG. 4-11

1. Park the empty grain cart on a firm and level surface. Block the machine to keep it from moving. Set the tractor's parking brake. Keep engine running.

2. Remove cover plate (295569B) from the bottom of the lower auger housing to access the auger fold / spout rotate interlock valve assemblies. Keep cover plate.

3. To operate the manual override function, set tractor SCV to a maximum of 4 gpm and place the tractor SCV for the desired function in continuous detent in the direction of flow that operates the spout rotate or auger fold direction desired.

Manual Override for SCV Controlled Spout Rotate & Auger Fold (continued)

NOTE: Operate one cartridge valve (9009186) at a time. Keep other valve in normal position. (FIG. 4-12 & 4-14)

4. Locate the desired valve (9009186). (FIG 4-12)

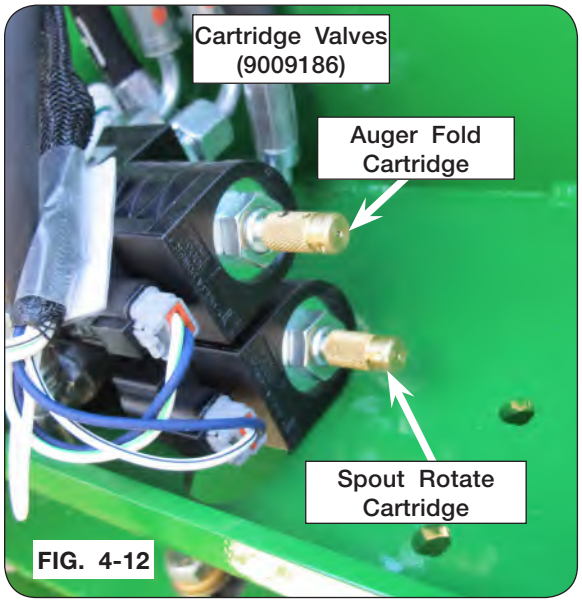


FIG. 4-12

5. Pull and hold the knob out on valve from normal position to manual override position. (FIG. 4-13)

6. Once the desired position is reached, release knob on valve from manual override back to normal position.

7. Turn off hydraulic circuit when done. Correct electric/hydraulic system before continued use. Consult your dealer for service and parts.

NOTE: Refer to "Troubleshooting" and for inline valve, vertical auger and/or rotating spout issues in the MAINTENANCE section.

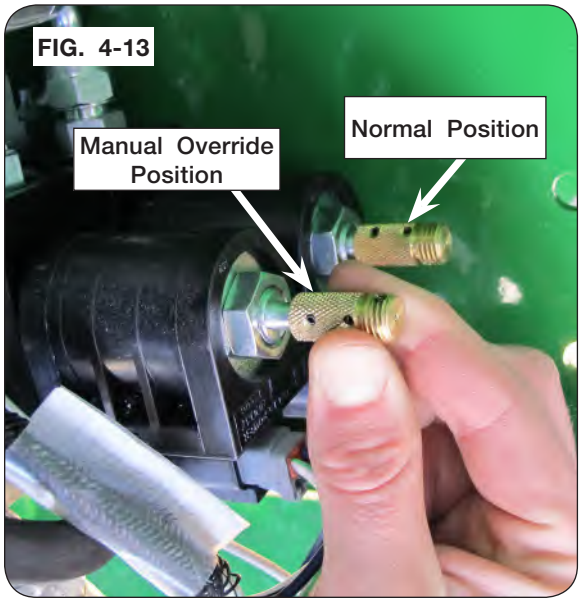


FIG. 4-13

8. Replace cover plate (295569B) from step 2 to the bottom of the lower auger housing. (FIG. 4-14)

FIG. 4-14

Auger System

WARNING

- **TO PREVENT PERSONAL INJURY OR DEATH WHILE SERVICING, ALWAYS ENSURE THAT THERE ARE PEOPLE WHO REMAIN OUTSIDE THE CART TO ASSIST THE PERSON WORKING INSIDE, AND THAT ALL SAFE WORKPLACE PRACTICES ARE FOLLOWED. THERE ARE RESTRICTED MOBILITY AND LIMITED EXIT PATHS WHEN WORKING INSIDE THE IMPLEMENT.**
- **NEVER ENTER CART WITH AUGER OR TRACTOR RUNNING. SERIOUS OR FATAL INJURY CAN OCCUR DUE TO ENTANGLEMENT WITH ROTATING COMPONENTS. ALWAYS STOP ENGINE AND REMOVE KEY BEFORE ENTERING CART.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.**
- **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 2,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**
- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ALWAYS DISCONNECT POWER SOURCE BEFORE SERVICING. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR(S) ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING MACHINE.**

- **WHEN WORKING AROUND THE IMPLEMENT, BE CAREFUL NOT TO BE CUT BY SHARP EDGES.**

Vertical Auger Height Check

Before servicing the vertical auger, park the unit on a firm, level surface. Block the machine to keep it from moving. Raise vertical auger to discharge position and close horizontal auger flow door. Set the tractor parking brake, turn off tractor engine, remove ignition key, and disconnect PTO shaft and hydraulic lines from tractor.

Annually check all bolts, nuts, and set screws for tightness. Replace the vertical auger top bearing hardware, as necessary. (FIG. 4-15)

(Continued on next page)

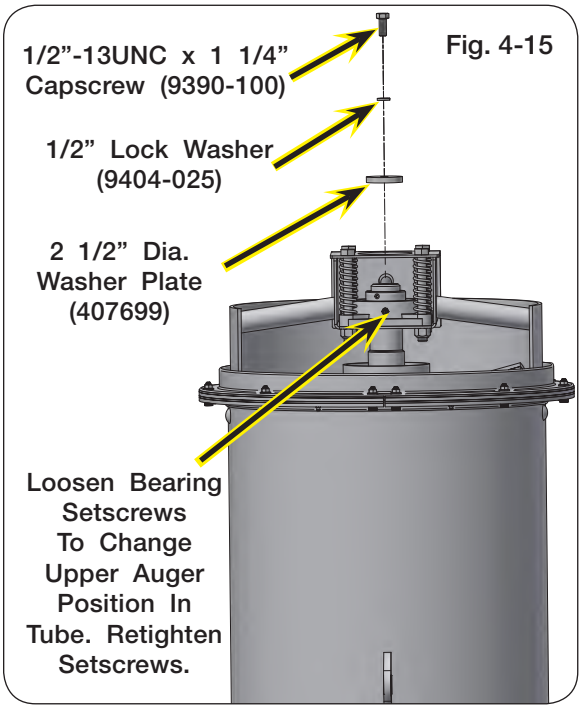


Fig. 4-15

Auger System (continued)

Vertical Auger Height Check (continued)

NOTE: The lower auger position is indexed from the drive dog / tube flange hinge surface as shown. (Figs. 4-17 & 4-18)

Fig. 4-18

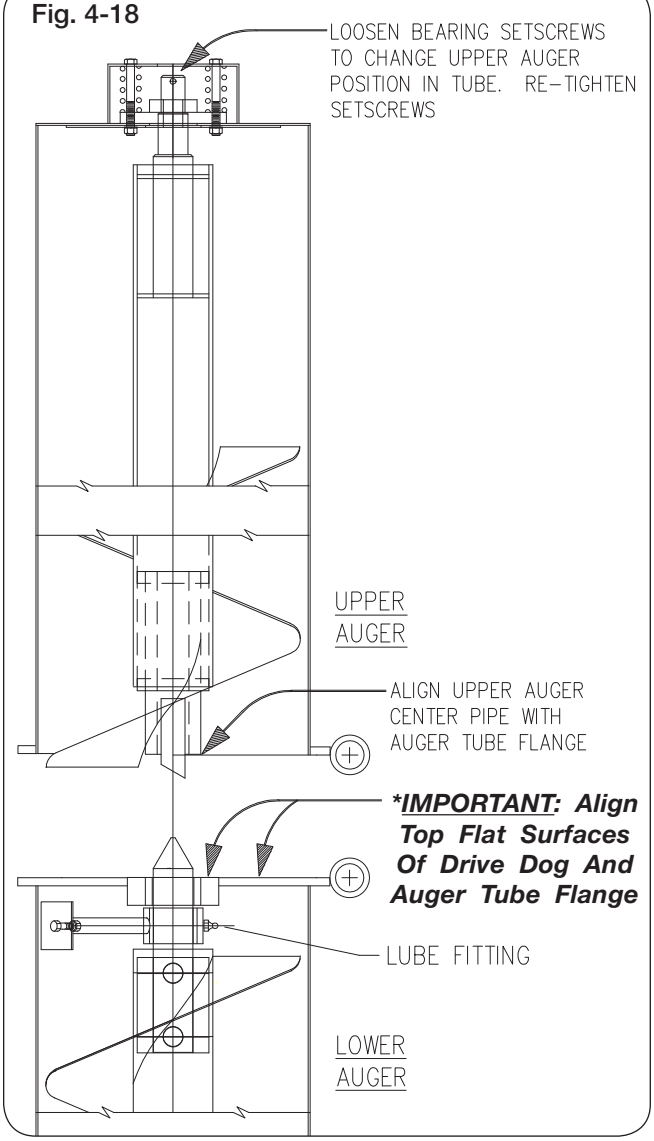


Fig. 4-16

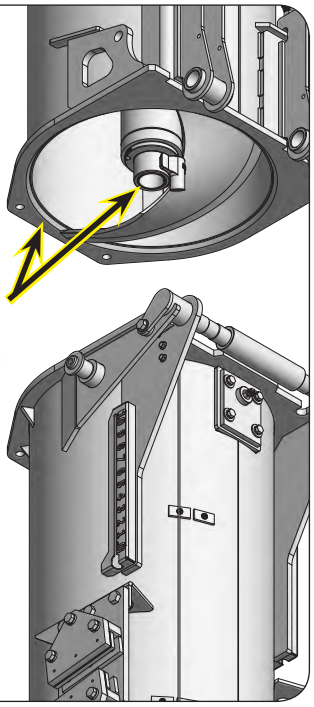
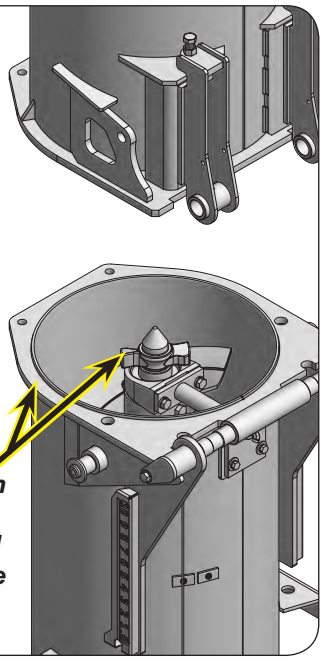


Fig. 4-17



Auger System (continued)

Vertical Auger Timing

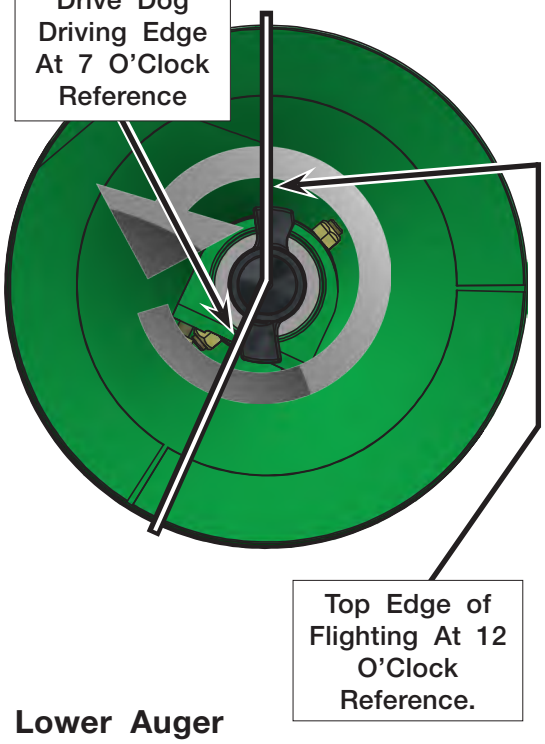
1. For the lower vertical auger, use the top edge of the flighting as a 12 o'clock reference. Position the drive dog so the driving edge is at the 7 o'clock position.

NOTE: Looking down at the lower flighting (FIG. 4-19) the auger rotation will be counter-clockwise. When looking up at the upper flighting (FIG. 4-20) the auger rotation will be clockwise.

2. For the upper auger, use the outer edge of the flighting as a 12 o'clock reference. Postion the driven edge of the drive pin at the 8 o'clock position. See Fig. 4-20.

3. When engaged, the upper flighting should immediately follow the lower flighting.

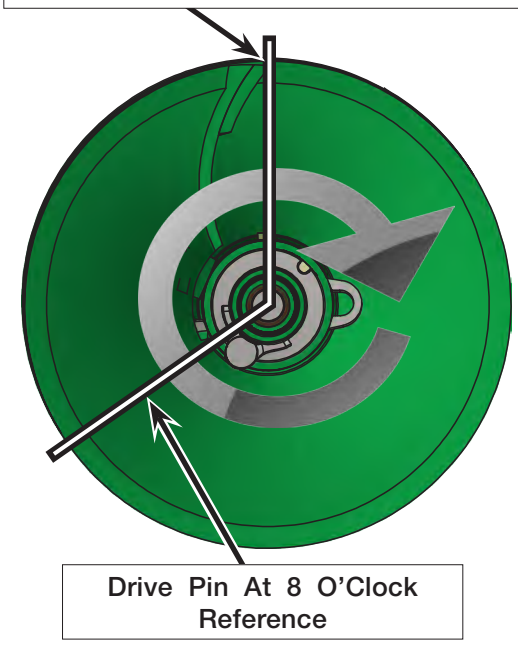
FIG. 4-19



Lower Auger

Upper Auger

FIG. 4-20



Auger System (continued)

Horizontal Auger

Annually check all bolts, nuts, and set screws. Perform lubrication as specified.

Horizontal Auger Height Measurement

4. Run a string from the front of the cart to the back, above the cleanout doors and linkages as shown in FIG. 4-21.

5. Attach the string to the bottom of the belly pan in the front side of the front opening. Place a 3/8”-1/2” spacer under the belly pan and clamp the string to the center of the opening as shown in FIG. 4-22.

6. Attach the opposite end of the string to the back side of the rear belly pan opening. Place the same thickness of spacer as was used on the front in between the string and the belly pan. Pull the string tight and clamp to the center of the opening. (FIG. 4-23)

7. Measure the distance from the string to the bottom of the flighting center pipe in between the flighting pitch. Take a measurement through the front opening and the rear opening. If the measurement in the front and rear is different, add a shim under the smaller dimensioned end between the string and the belly pan so the measurements are the same.

8. Measure the string to the auger tube either in front or behind the hanger bearing. If this dimension is 1/8” greater than the measurement taken in the front and rear, shims are required on top of the center hanger bearing. (FIG. 4-24)

NOTE: The shims are 1/8” thick each. Add as needed. Shims are available from your Brent dealer.

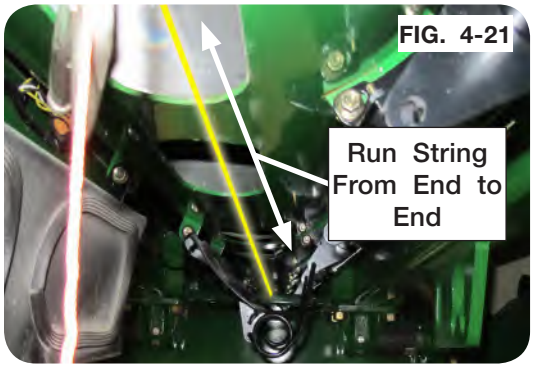


FIG. 4-21

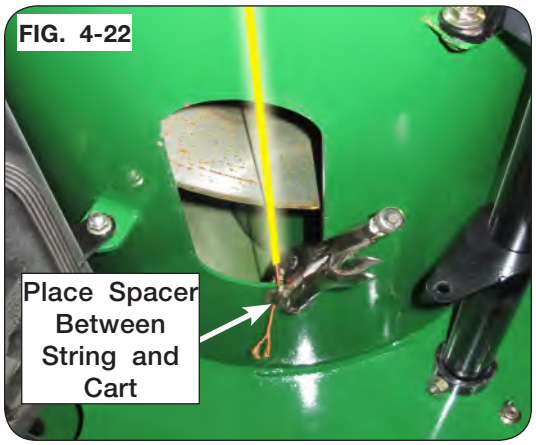


FIG. 4-22


FIG. 4-23

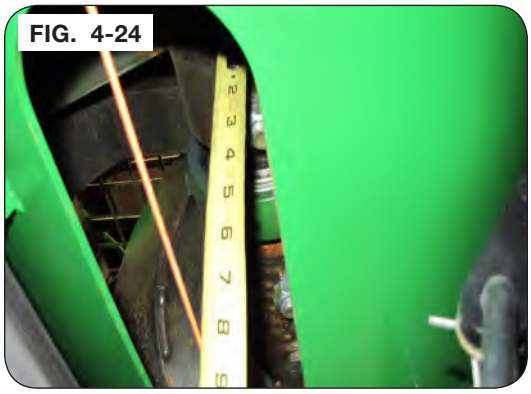


FIG. 4-24

Auger System (continued)

Hanger Bearing Height Adjustment

9. Remove the center screens inside the hopper by removing the 3/8" hardware holding them in place. (FIG. 4-25)

FIG. 4-25

10. Remove the restrictor weldment on the auger tent at the opening above the hanger bearing. (FIG. 4-26)

11. Loosen the two 5/8"x2" capscrews. It is not necessary to remove this hardware if two or fewer shims are being installed. Install the shims from the backside between the bearing and the bracket as shown in FIG. 4-26.

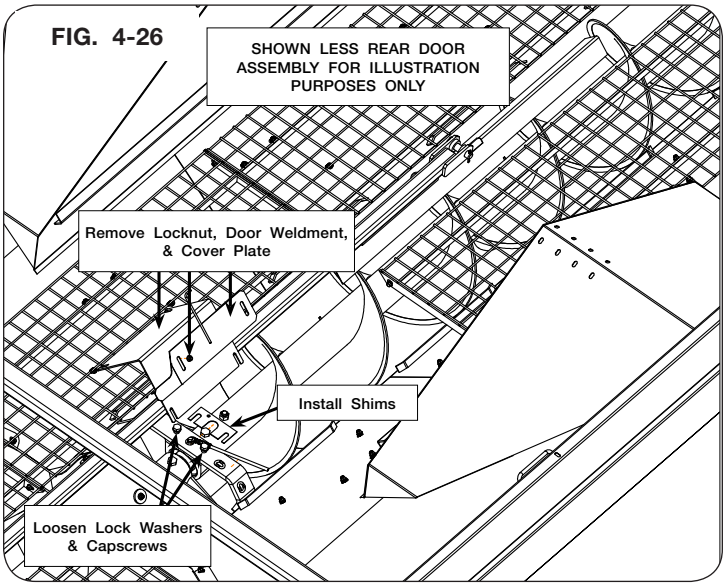


FIG. 4-26

12. If more than two shims are necessary to set the bearing height, replace the 5/8"x1 3/4" capscrews with the 5/8"x2" capscrews supplied in the kit.

13. Re-measure the distance from the flighting tube to the string making sure the string is pulled tight. If the measurements are all within 1/8", the string can be removed.

14. Reassemble the restrictor weldment and screens on the inside of the cart.

15. Reassemble the cleanout door linkages on the front and rear doors.

16. Close cleanout doors and reassemble the cleanout door lock pin.

17. Ensure all personnel and tools are removed from the cart and reconnect the cart to the tractor.

18. Run the auger starting at a low RPM and increase speed to max RPM to make sure the auger flighting does not make contact with the belly pan or flow doors.

Auger Driveline Bearings

IMPORTANT

- *Periodically check set screws in all bearings at either end of the driveline for tightness. (Fig. 4-27, 4-28 and 4-29)*

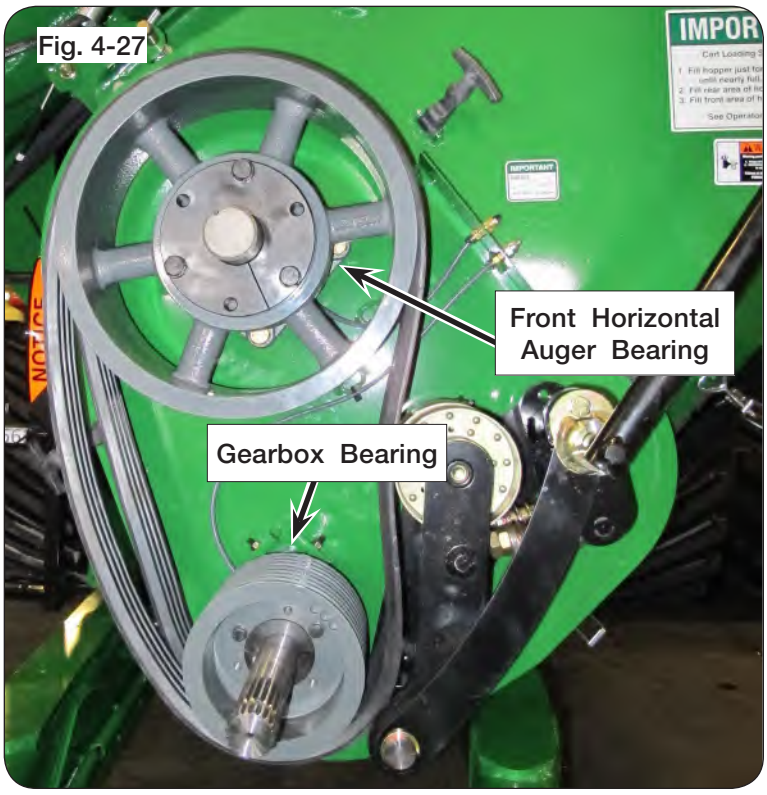


Fig. 4-27

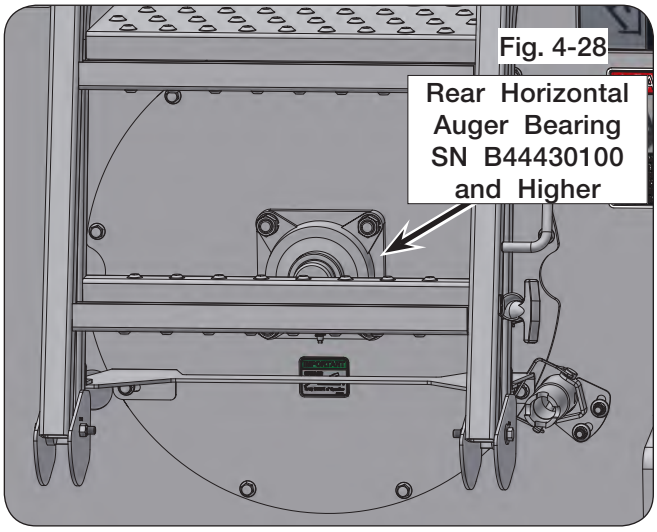


Fig. 4-28

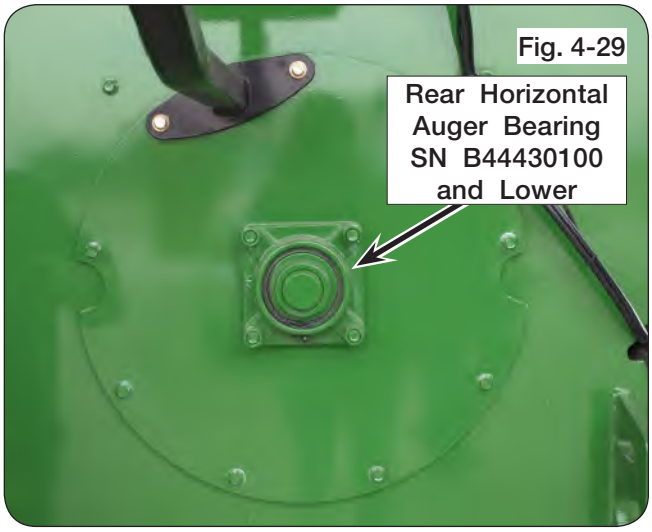


Fig. 4-29

Belt Tightener Adjustment

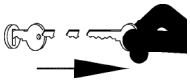
IMPORTANT

- *Do not use belt dressing.*
- *Keep grease and oil off of belt and pulleys.*

NOTE: Pulleys do not need to be removed to remove/replace belt.

Due to prolonged use, belt wear may be evident causing slack. To correct this, follow these steps.

1. Park the unit on a firm, level surface. Block the machine to keep it from moving. Set the vehicle parking brake, shut off the engine and remove the ignition key from the towing vehicle.



⚠ WARNING

- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ALWAYS DISCONNECT POWER SOURCE BEFORE SERVICING. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR(S) ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**

2. Remove PTO assembly from Gearbox input shaft.

3. Detension the belt as outlined in OPERATION section. Remove belt tensioner handle.

4. Remove cover and inspect belts for misalignment, loose parts and cracks. Replace if necessary with a matched set. See Fig. 4-32.

FIG. 4-30

FIG. 4-31


FIG. 4-32

Belt Tightener Adjustment (continued)

5. Belt tension is adjusted with hex nuts below the spring. All belt tension MUST be released from linkage. Loosen outer hex nut and adjust inner nut to establish a 3 1/16" pre-load dimension between the heavy washers. Tighten the outer hex nut against inner nut to lock position. (Fig. 4-33)

6. Check the lower belt pulley to ensure belt is aligned in their grooves. Using the belt tensioner handle, engage the roller/idler linkage against the belt and over-center stop. The compressed spring should now be approximately 1 3/4" between the washers and generating a force of approximately 480 lbs. against the belt. (Fig. 4-34)

7. Release and tighten belt multiple times to confirm positions and final adjustments. See Fig. 4-34 and Fig. 4-35.

8. Tighten belt. Install the cover guard and reattach the PTO shaft to the gearbox input shaft. Clear work area and test run drivetrain for 3 minutes at 1000 PTO RPM.

⚠ WARNING

- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**

9. Disengage PTO, turn off towing vehicle and remove the ignition key. Through the cover access door, check the compressed spring length is approximately 1 3/4" between the washers and check each belt for uniform tension. If more adjustment is needed, refer to Steps 5 through 7. If no additional spring adjustment is available, then both belts must be replaced with a new matched set.

NOTE: Always replace belts in matched sets.

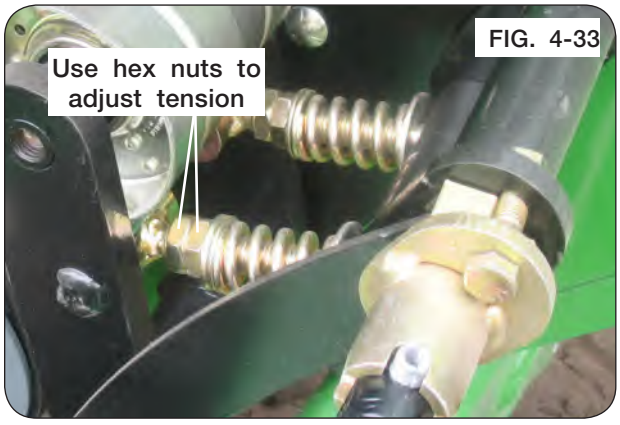


FIG. 4-33

FIG. 4-34

FIG. 4-35

V-Belt Alignment

1. Pulleys must be aligned with the fixed idler. Belts should be centered on idler for longest belt life. (Fig. 4-36)


FIG. 4-36

2. After tightening taper-lock bushing hardware, lay a straight edge across face of the drive and driven belt pulleys to ensure alignment between the grooves on the pulleys. (FIG. 4-37)

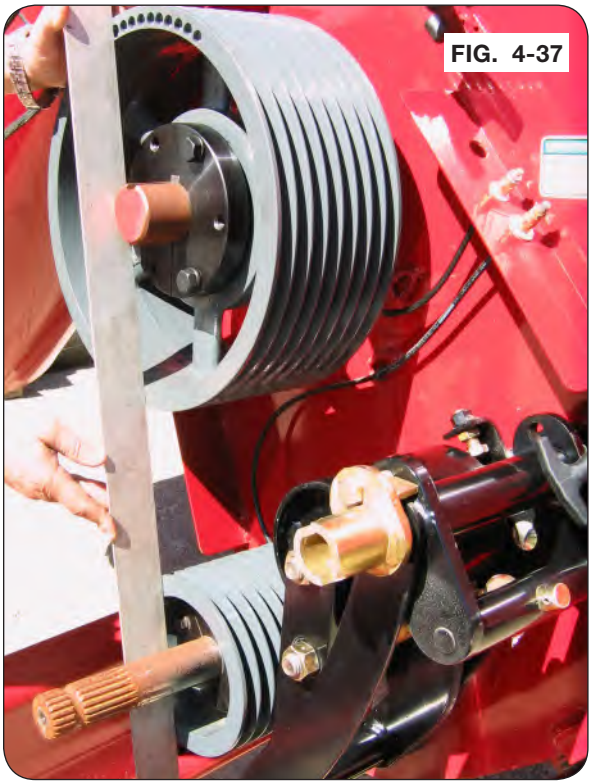


FIG. 4-37

V-Belt Alignment (continued)

Split Tapered Bushings

Check annually for tight engagement to driveshaft. Torque three bolts progressively to the following values:

For the smaller gearbox bushing (9007376): 3/8"-16UNC hardware. Torque to 75 ft-lbs.

For the larger horizontal auger bushing (9004813): 9/16"-12UNC hardware. Torque to 90 ft.-lbs.

Some gap must remain between flange & hub when bushing is properly tightened.

To remove from shaft, remove capscrews and insert them in tapped holes in bushing flange. Tighten progressively until bushing disengages.

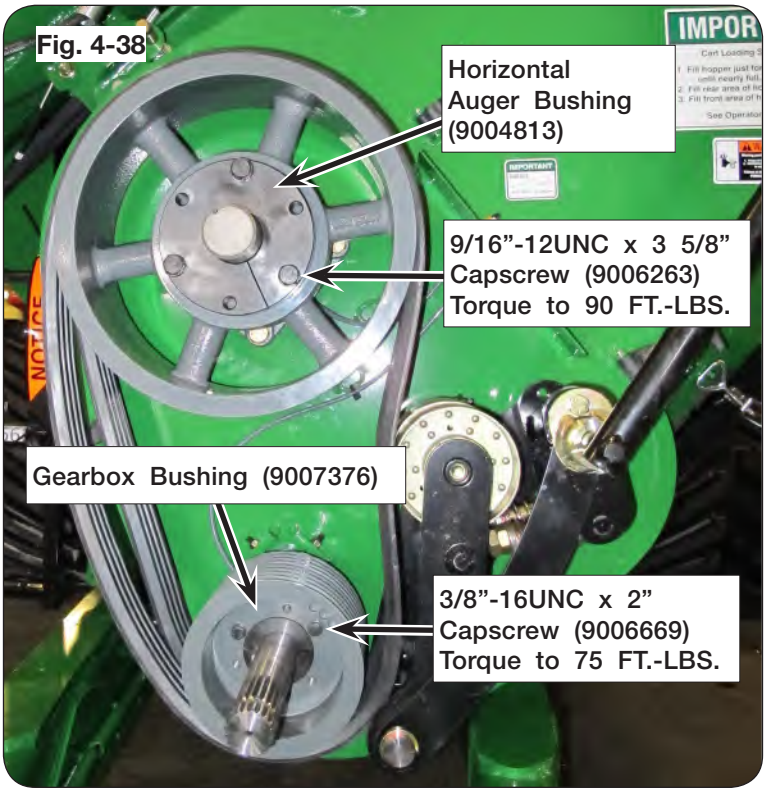


Fig. 4-38

Steering Tandem Maintenance

Periodically check tire alignment and linkages for damage. Remove trash and/or dirt that may have accumulated and possibly interfere with steering performance.

Alignment of tires can be changed by adjustment of linkage(s). See "Steering Tandem Linkage Adjustment Procedures".

Steering Tandem Troubleshooting

NOTE: Always perform the following steps with an empty cart.

Tire Misalignment:

1. Steer the left set of tires until all tire edges are inline and straight forward. Check the opposite side. If both tire edges are equally out of alignment, then the center linkage needs adjustment. See "Steering Tandem Center Linkage Adjustment Procedure" in this section.

2. If only one tire on the opposite side is not straight, then that tire linkage needs to be adjusted. See "Steering Tandem Side Linkage Adjustment Procedure" in this section.

Failure to Auto-Steer:

1. If grease zerks are present, heavily grease the 4 steering kingpins and 8 clevis pivot pins. For grease zerk locations, see “Lubrication” in this section. After long periods of inactivity, the pins can seize in the bushing. Once the pins are greased, manual steer the wheels in both directions. If wheel assemblies to not rotate freely, grease again and repeat manually steering the wheels.

2. Make sure the steering axle control switch is in the OFF/Auto-Steer position. (Fig. 4-39)

3. Check for debris that may be obstructing tie-rod movement.

(Continued on next page)

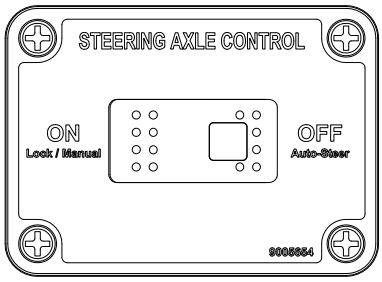


FIG. 4-39

Steering Tandem Maintenance (continued)

Steering Tandem Troubleshooting

NOTE: Always perform the below steps with an empty cart.

Failure to Manual-Steer:

1. Make sure the steering axle control switch is in the ON position. (Fig. 4-40)
2. Make sure the hydraulic hoses are attached properly.
3. Make sure hydraulic circuit is on.

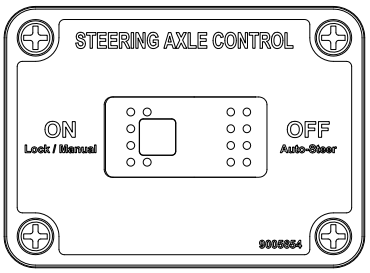
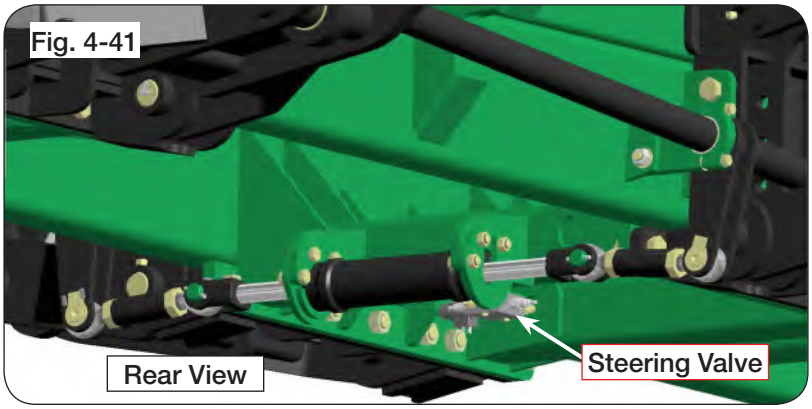


FIG. 4-40

4. Check the harness connection on the steering valve located on the cross axle, make sure there is 12-Volt to the solenoid on the valve attached to the cross axle. (Fig. 4-41)



Steering Indicator Misalignment:

1. Straighten the wheels, if the steering indicator is not centered, follow “Steering Indicator Adjustment Procedure” in this section.

Driveline Removal

DANGER

- **ENTANGLEMENT WITH THE DRIVELINE WILL CAUSE SERIOUS INJURY OR DEATH. KEEP ALL GUARDS AND SHIELDS IN GOOD CONDITION AND PROPERLY INSTALLED AT ALL TIMES. AVOID PERSONAL ATTIRE SUCH AS LOOSE FITTING CLOTHES, SHOE STRINGS, DRAWSTRINGS, PANTS CUFFS, LONG HAIR, ETC. THAT CAN BECOME ENTANGLED IN A ROTATING DRIVELINE.**

WARNING

- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**

Gearbox shaft guard has access doors for installing and removing of driveline.

1. Remove clamping cone/retaining bolt.
2. Use a hammer and punch, if needed, to moderately hit the end of clamping cone/retaining bolt, as shown. (FIG. 4-42)
3. Once clamping cone/retaining bolt is removed, slide torque limiter off gearbox splined input shaft.

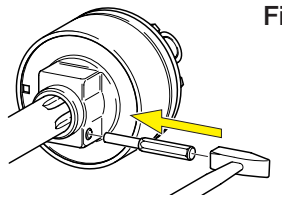


Fig. 4-42

Seasonal Storage

Always open and keep open flow door, horizontal and vertical auger cleanout doors to remove any remaining grain and to allow moisture to dry.

Wash machine inside and out before storing to remove dirt and debris that can draw and collect moisture. When using pressure washers maintain an adequate distance so not to force water into bearings.

Reattach PTO brackets (296155Y) to the inside right hand side of the tongue and place PTO assembly on brackets.

Lubricate machine at all points outlined.

Repaint all areas where paint has been removed to keep from rust developing. Rust will affect grain flow.

Coat exposed cylinder piston rods with rust preventative material if applicable.

Inspect machine for parts that may need to be replaced so they may be ordered in the off season.

Fig. 4-43

If unit is equipped with a scale indicator, electric hydraulic controls or steering controls, store these indoors in a dry location.

Close the tarp to keep debris out of the hopper.

Ensure rear access door is closed and latched and that all ladders are in storage position.

Baffle Adjustment

WARNING

- **TO PREVENT PERSONAL INJURY OR DEATH WHILE SERVICING, ALWAYS ENSURE THAT THERE ARE PEOPLE WHO REMAIN OUTSIDE THE CART TO ASSIST THE PERSON WORKING INSIDE THE CART, AND THAT ALL SAFE WORKPLACE PRACTICES ARE FOLLOWED. THERE IS RESTRICTED MOBILITY AND LIMITED EXIT PATHS WHEN WORKING INSIDE THE CART.**

- **NEVER ENTER CART WITH AUGER OR TRACTOR RUNNING. SERIOUS OR FATAL INJURY CAN OCCUR DUE TO ENTANGLEMENT WITH ROTATING COMPONENTS. ALWAYS STOP ENGINE AND REMOVE KEY BEFORE ENTERING CART.**

The horizontal auger baffles are factory-set at the lowest position. This position results in the lowest power requirements and longest flighting life. Once grain has been run through the unit, adjustments can be made to achieve the ideal unloading performance.

Refer to the following reasons for baffle adjustment:

NOTE: To unload the cart evenly from front to back the openings should increase in height from back to front.

- If higher flow is desired and torque is not the limiting factor, raise each baffle to an incremental amount and rerun.

- If more material remains at the back of the cart towards the end of the unloading cycle, the back baffles should be adjusted upward in incremental amounts and rerun.

- If more material remains at the front of the cart towards the end of the unloading cycle, the back baffles should be adjusted downward in incremental amounts and rerun.

- If the cart requires more torque than what is available at times during the unloading cycle, then all baffles should be adjusted downward in incremental amounts.

(Continued on next page.)

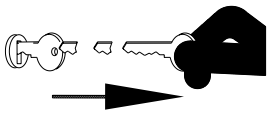
Baffle Adjustment (continued)

Before making any baffle adjustments, close horizontal auger flow door. Park the unit on a firm, level surface. Block the machine to keep it from moving. Set the tractor parking brake, turn off tractor engine, remove ignition key, and disconnect PTO shaft.

If a higher flow is desired and torque is not a factor, loosen the (2) flange nuts on each baffle, see figure 4-39. Use the lift handle to raise each baffle to the desired position, retighten both flange nuts, see figures 4-44 & 4-45.

NOTE: DO NOT REMOVE ANY SCREEN PANELS. The flange nuts are best accessed using an extended socket wrench and 9/16" socket through the screen panel openings.

NOTE: Screen removed in figure 4-45 for illustration only.



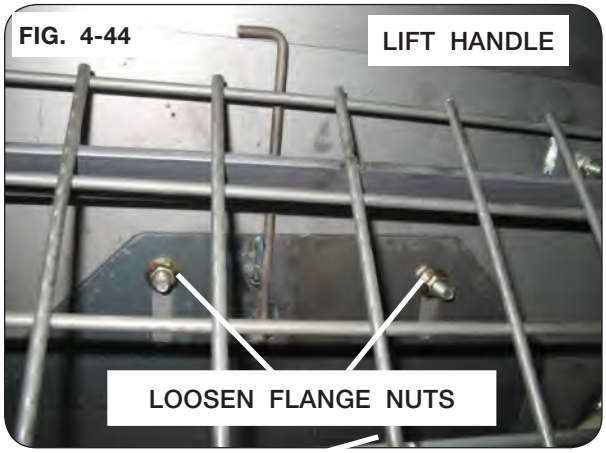


FIG. 4-44

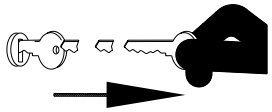
FIG. 4-45

Horizontal Cleanout Door Adjustment

⚠ WARNING

- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEANOUT DOORS ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE THE MACHINE IS SECURELY BLOCKED.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING THE IMPLEMENT.**

1. Park the unit on a firm, level surface. Block the machine to keep it from moving. Set the tractor parking brake, turn off tractor engine, remove ignition key, and disconnect PTO shaft.



2. Loosen all the hardware in the slotted brackets connecting the cleanout door rockshaft to the grain cart tube. (Fig. 4-46)

3. Starting at the front of the cart, using a jack, push the rockshaft up and toward the runner tube. (Fig. 4-46)

FIG. 4-46

NOTE: Ideal distance between the runner tube and rockshaft is 3 1/4". (FIG. 4-47)

4. When the rockshaft is in position, torque the hardware previously loosened to 28 ft.-lbs.

5. Continue repositioning the rockshaft moving toward the back of the cart.

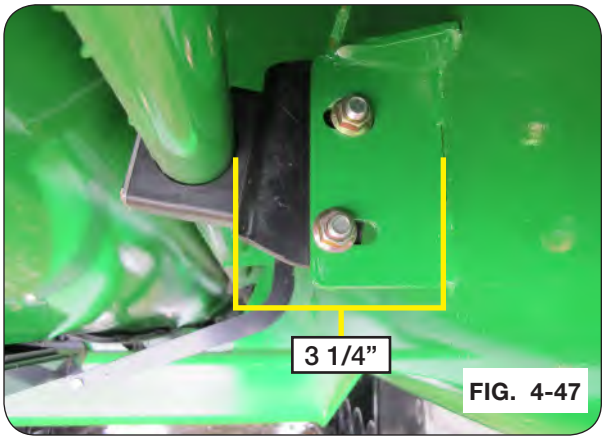


FIG. 4-47

Horizontal Cleanout Door Adjustment

6. Rotate the tensioner handle counter-clockwise to close the doors allowing the plate to fit and seal into the belly pan opening. (Fig. 4-48)

7. Close the doors and ensure all doors seal. (Fig. 4-48)

8. Insert lynch pin into rockshaft and return handle to storage location.

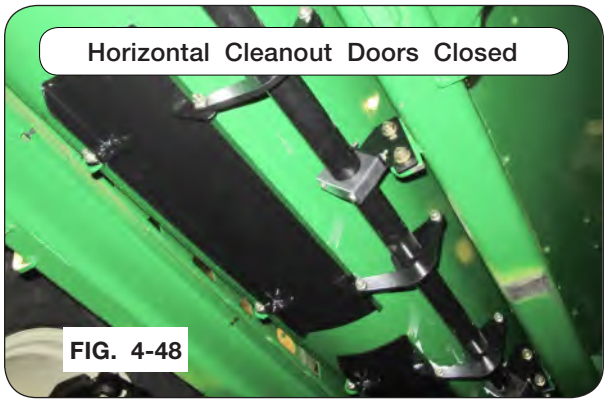


FIG. 4-48

Steering Tandem Linkage Adjustment Procedures

WARNING

- **UNEXPECTED IMPLEMENT MOVEMENT CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT SERVICE OR MAKE ADJUSTMENTS TO IMPLEMENT WHILE THE TOWING VEHICLE IS RUNNING.**
- **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 9,000 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 IMPLEMENT.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**

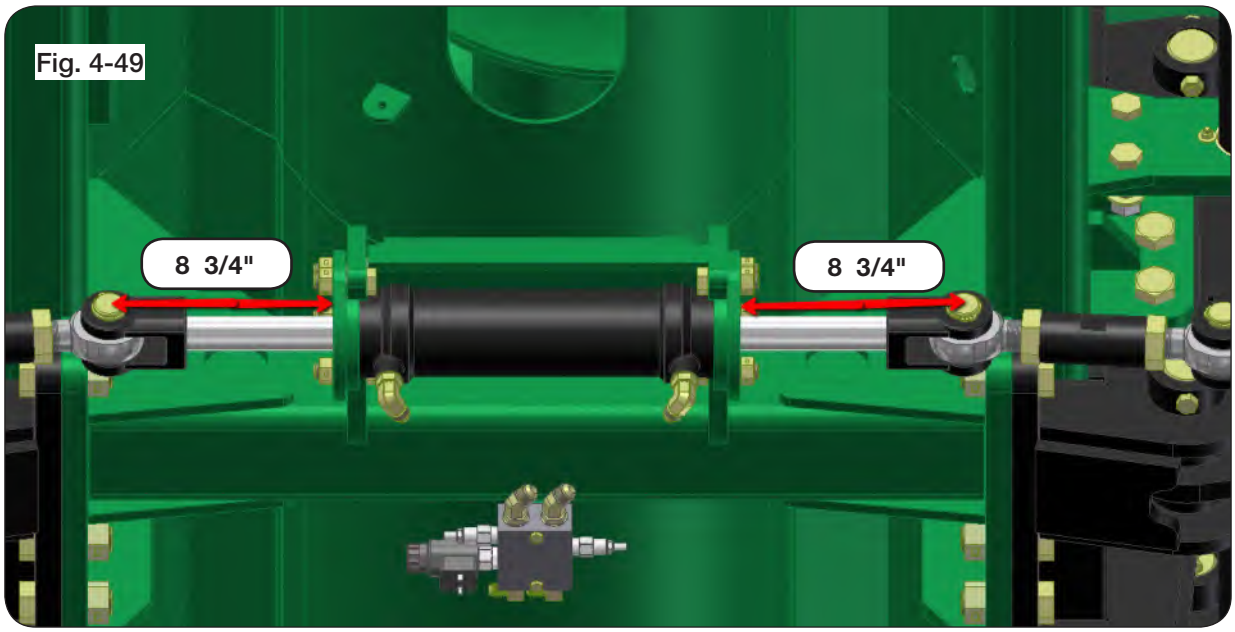
NOTE: Do not block tires since they are being manually steered.

Center Linkage & Rockshaft Adjustment:

Use this procedure if:
* Both tires on both sides are equally out of alignment.
* Or both tires on one side are out of alignment.

1. Park the empty unit on a firm, level surface. Set the towing vehicle's parking brake. Tractor hydraulics are required for some steps, shut off engine and remove ignition key when hydraulic functions are complete. Turn the Steering Tandem switch to the "ON" position, and ensure the hydraulic lever is in float.
2. Manually steer until equal stroke is measured on both ends of cylinder. Measuring from the center of the cylinder pin to the edge of the mount bracket, it should be around 8 3/4" on both sides. Check tire alignment. Verify suspension height is correct. (Fig. 4-49)

Fig. 4-49



Steering Tandem Linkage Adjustment Procedures (continued)

3. With the center of the cylinder pin to the edge of the mount bracket around 8 3/4", adjust the short tie-rod only on the side of the cylinder that needs adjustment. Loosen the jam nuts on each end of the short tie-rod. (Fig. 4-50)

4. Extend or shorten tie-rod by turning jam nuts with 1/2" turn increments while checking wheel alignment between adjustments. Recenter the steering cylinder and check tire alignment. Continue to make adjustments until wheels are straight. (Fig. 4-50)

5. If the tires are removed, use the hub face to align.

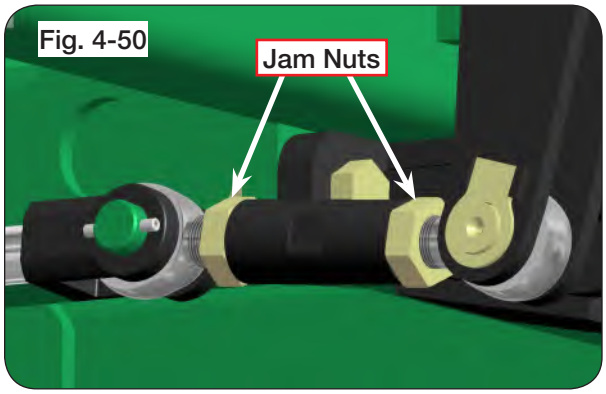
6. If the tires are assembled, check alignment across the outside center of the tires. Due to variation in rubber tire profile, adjust the alignment until the front and rear of both tires are within 1/2” of being inline.

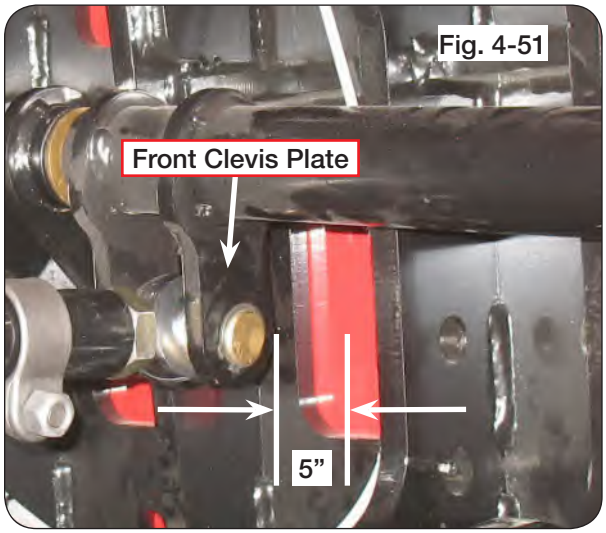
7. To keep the rockshaft aligned, measure the distance between the cart runner tube and edge of the front clevis plate as shown in figure 4-51. This measurement should be 5" on both the LH and RH sides.

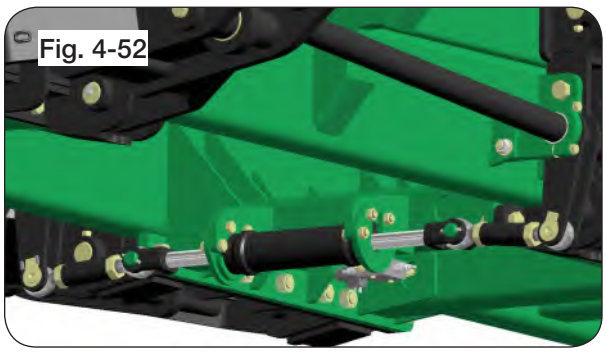
8. Adjust short tie-rod between the steering cylinder and rockshaft, if needed, to maintain 5" dimension before making adjustments to the side linkage tie-rods in the next section.

9. Once wheels are aligned, tighten jam nuts located on the ends of the short tie-rod. (Fig. 4-52)

10. Check alignment of the indicator, if it is misaligned follow "Steering Indicator Adjustment Procedures" in this section.







Steering Tandem Linkage Adjustment Procedures (continued)

Side Linkage Adjustment:

Use this procedure if:
* One or both front tires are out of alignment.
* Or one or both back tires are out of alignment.

1. Remove the weight from the tire by using a safe lifting device rated for a minimum of 9,000 lbs., and support the lower para-link arm of the tandem. (Fig. 4-53)


Fig. 4-53

2. Loosen the jam nut on the rod end, and loosen the clamp and hardware on the tie-rod end. (Fig. 4-54 & 4-55)

3. Adjust rod end jam nut with 1/4” to 1/2” turn increments while checking wheel alignment between adjustments. (Fig. 4-54)

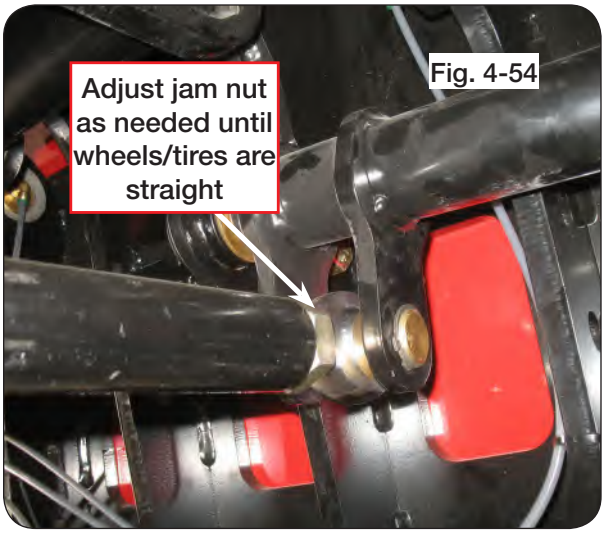


Fig. 4-54

NOTE: Make sure the capscrew on the clamp is facing away from the clevis and spindle to prevent interference when steering. (Fig. 4-55)

4. Once wheels are aligned, tighten the jam nut and the tie-rod clamp. (Fig. 4-54 & 4-55)

5. Lower tire to ground and check alignment.

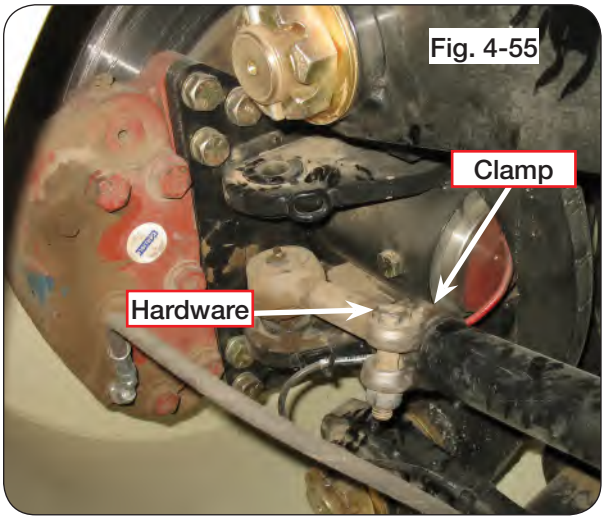


Fig. 4-55

Steering Indicator Adjustment Procedures

NOTE: Steering Tandem Tire position can be determined by observing indicator arrow. For Left-Hand unload, the location is the lower right front panel, and for Right-Hand unload, the location is the lower right portion of front panel.

Use this procedure if:

* To center indicator when tires are straight forward.

1. Straighten the wheels, and loosen the hex nuts (97189) on the u-bolt (9001114). (Fig. 4-56)

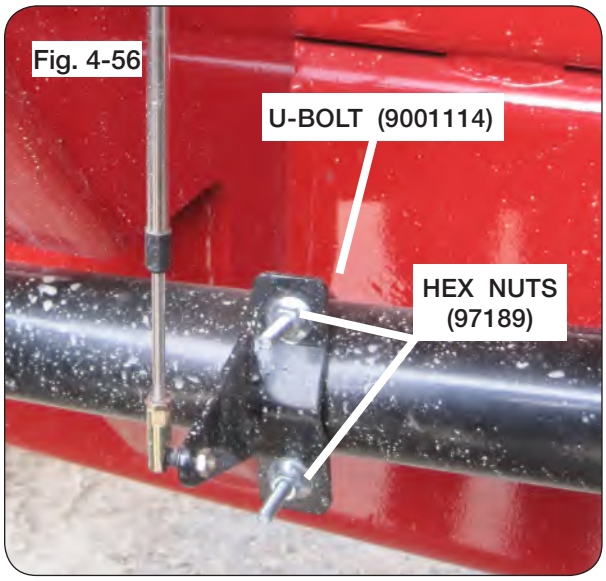


Fig. 4-56

2. Adjust the u-bolt (9001114) to center the red indicator (283749R) on the front of the cart, and retighten the hex nuts (97189). (Fig. 4-56 & 4-57)

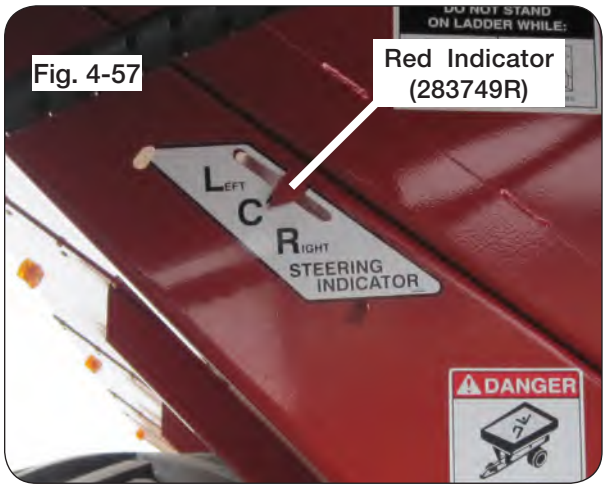


Fig. 4-57

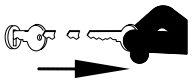
Steering Tandem Rockshaft Replacement

WARNING

- **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 9,000 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 IMPLEMENT.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**

NOTE: Removing and assembling rockshaft takes **two people**: one at the front and rear.

1. Park the empty grain cart on a firm, level surface. Block the machine to keep it from moving. Relieve hydraulic pressure, see tractor operator's manual. Set the tractor's parking brake, shut-off the engine, and remove the ignition key. Completely disconnect the tractor from the grain cart.



2. Remove the weight from the tire by using a safe lifting device rated for a minimum of 9,000 lbs., and support the lower para-link arm of the tandem. (Fig. 4-58)

FIG. 4-58

Steering Tandem Rockshaft Replacement (continued)

3. Disconnect the lower tie-rod only on the side of the cylinder that needs rockshaft replacement. (Fig. 4-59)

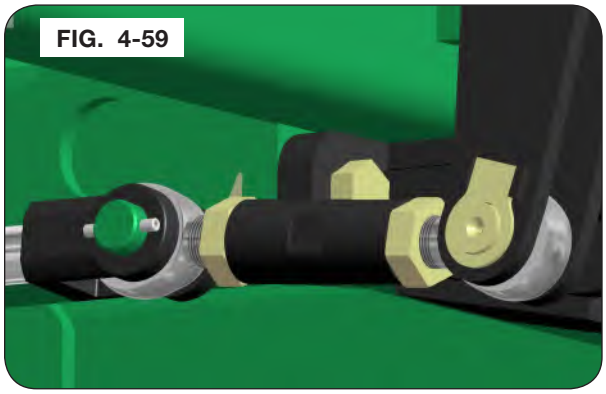


FIG. 4-59

4. Remove the pin on the end of the short tie-rod as shown. Keep pin. (Fig. 4-60)


FIG. 4-60

5. At the rear of the rockshaft, remove the retaining ring on the end of the pin. Keep retaining ring. (Fig. 4-61)

6. Slide the pin from the rockshaft, spacer bushings and tie-rod. Keep pin and spacer bushings. (Fig. 4-61).

7. Repeat steps 5 and 6 for the front of the rockshaft.

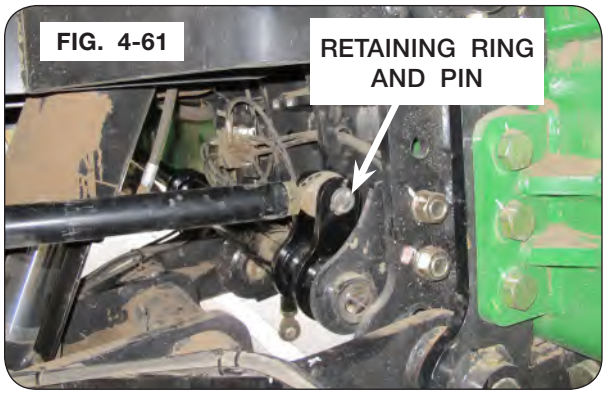


FIG. 4-61

8. Remove the 3/4" capscrews, 3/4" flat washers and 3/4" lock nuts (all hardware qty. 2) attached to the bearing retainer and grain cart as shown. Keep 3/4" hardware. (Fig. 4-62)

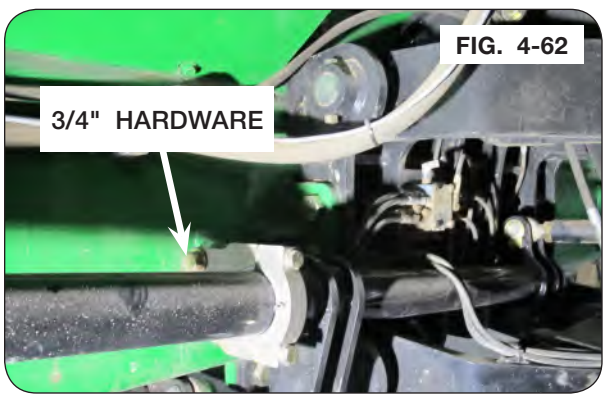


FIG. 4-62

Steering Tandem Rockshaft Replacement (continued)

NOTE: Removing and assembling rockshaft takes two people: one at the front and rear.

9. Slide the rockshaft forward to remove from the rear pivot bushing. (Fig. 4-63)

10. Slide the rockshaft rearward to remove from the front pivot bushing.

11. Lower the rear end of the rockshaft, and slide the rockshaft rearward to remove from grain cart. Discard rockshaft.

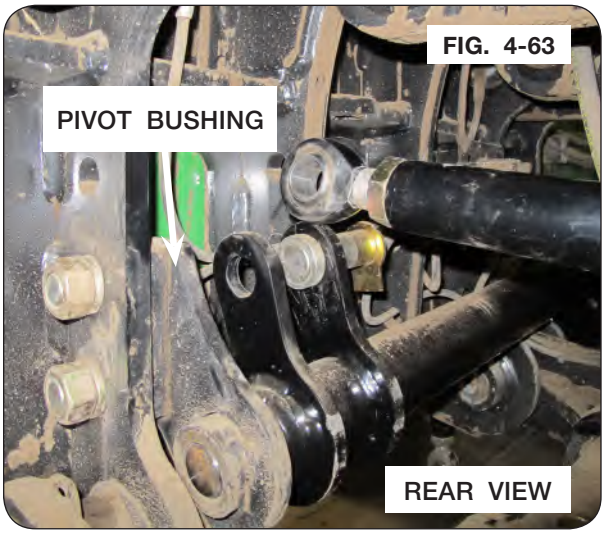


FIG. 4-63

12. Remove and discard self lubricating bushings and washers from the front and rear of the rockshaft. (Fig. 4-64)

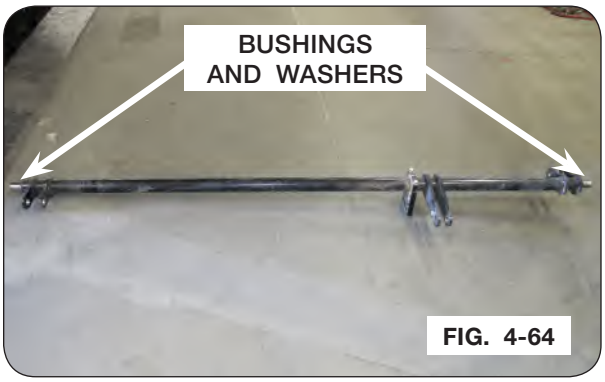


FIG. 4-64

13. Slide new washer and self lubricating bushing to the front end of the new rockshaft.

14. Assemble rockshaft by raising the front end and inserting into the front pivot bushing.

15. Slide new washer and self lubricating bushing to the rear end of the rockshaft.

16. Insert rockshaft into the rear pivot bushing.

17. Reusing 3/4" hardware from step 8, reattach the hardware to the bearing retainer and grain cart. Loosely tighten hardware. (FIG. 4-65)

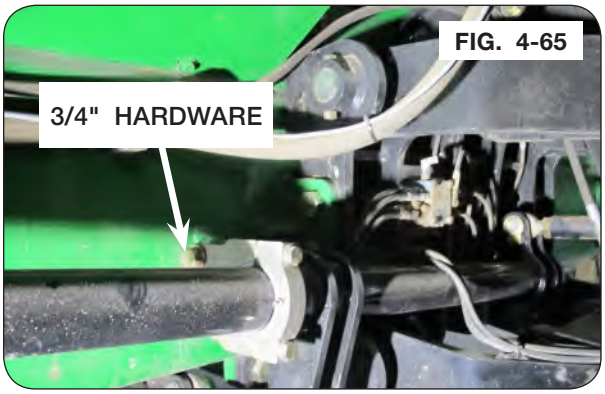


FIG. 4-65

Steering Tandem Rockshaft Replacement (continued)

18. At the rear of the rockshaft and using parts from step 6, insert the pin into the rockshaft, spacer bushings and tie-rod.

19. Reusing retaining ring, attach to the end of the pin.

20. Repeat steps 18 and 19 for the front of the rockshaft.

21. Reusing pin from step 4, attach to the end of the short tie-rod and rockshaft bracket.

22. Tighten all hardware.

23. Lower tire to ground, remove safe lifting devices and check alignment of the rockshaft & tires in "Steering Tandem Linkage Adjustment Procedures" in MAINTENANCE section.

24. Tighten the jam nuts located on the ends of the short tie-rods. Check the alignment of the indicator, if it is misaligned "Steering Indicator Misalignment" in the previous section. (Fig. 4-66)

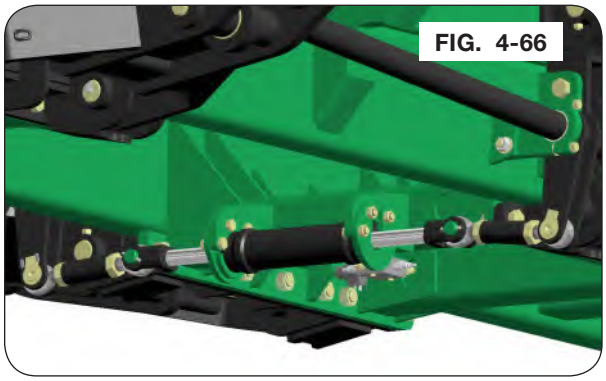


FIG. 4-66

Verify Telescoping PTO Shaft Length

⚠ WARNING

- **PROPER EXTENDED AND COLLAPSED LENGTHS OF THE TELESCOPING PTO SHAFT MUST BE VERIFIED BEFORE FIRST OPERATION WITH EACH AND EVERY TRACTOR. IF THE EXTENDED LENGTH OF THE PTO SHAFT IS NOT SUFFICIENT, IT MAY BECOME UNCOUPLED IN OPERATION AND CAUSE SERIOUS INJURY OR DEATH FROM CONTACT WITH UNCONTROLLED FLAILING OF PTO SHAFT ASSEMBLY COMPONENTS.**

IMPORTANT

- *Check the length of the telescoping members to insure the driveline will not bottom out or separate when turning and/or going over rough terrain.*

An excessive collapsed length can result in damage to the PTO driveline and attached components. This is most likely to occur during extreme turning angles and/or travel over rough terrain. Conditions are amplified on tractors with tracks operating in uneven terrain, particularly rice levies. Damaged driveline components can result in unsafe operation and severely reduced driveline component life.

NOTE: Do not exceed 10 degrees beyond a straight pull line while operating the PTO.
To verify proper extended and collapsed lengths, use the following procedure:

1. Fully collapse PTO shaft and measure length "L" (Fig. 4-67).

   Enter here:_____(1)
   (Verify that outer tube does not bottom out on surrounding plastic shield components).

2. Pull apart PTO telescoping shaft ends and measure lengths "T" & "C" (Fig. 4-68)

   Add "T" + "C" measurments together
   Enter total here:_____(2)

3. Calculate maximum recommended extended length:

   a. Subtract line 1 from line 2
      Enter here:_____(a)
   b. Divide line (a) by 2
      Enter here:_____(b)
   c. Add line (b) to line 1.
      Enter here:_____(c)
   d. Subtract 3 inches from line (c)
      Enter here:_____(d)

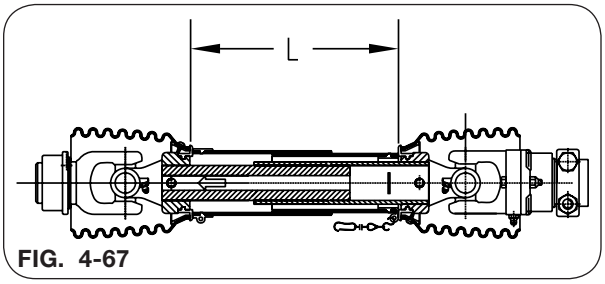


FIG. 4-67

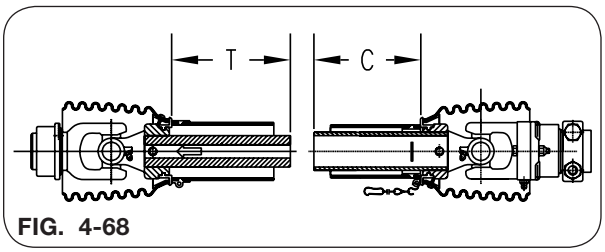


FIG. 4-68

This is the maximum recommended extended length.

Verify Telescoping PTO Shaft Length (continued)

4. Hitch tractor drawbar to cart, ensuring that tractor and cart are on level ground and coupled as straight as practical.

5. Connect PTO shaft to tractor, and measure length "L" from same points as used in step 1. Ensure that this measurement does not exceed the maximum recommended extended length calculated in step 3 above. If necessary, choose a shorter drawbar position, or obtain a longer PTO shaft assembly before operating cart.

6. Position the tractor to obtain the tightest turning angle, relative to the cart. (Fig. 4-69)

7. Measure the length "L" from the same points as used in step 1. **This distance must be at least 1.5 inches greater than the distance measured in step 1.** If necessary, adjust the length of the PTO shaft by cutting the inner and outer plastic guard tubes and inner and outer sliding profiles by the same length. Round off all sharp edges and remove burrs before greasing and reassembling shaft halves. (Fig. 4-70)

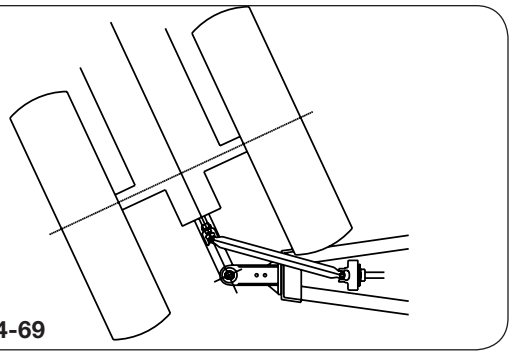


FIG. 4-69

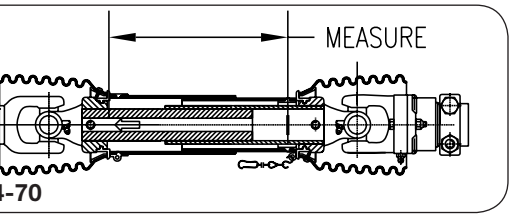


FIG. 4-70

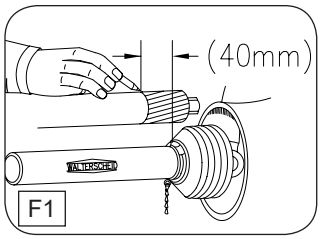
PTO Shaft Length Adjustment

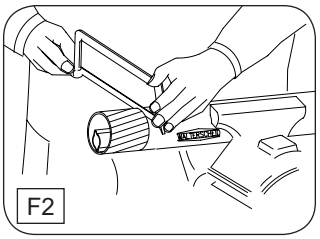
WARNING

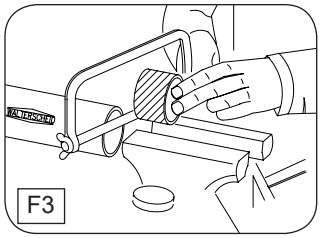
- **CHECK THE LENGTH OF THE TELESCOPING MEMBERS TO ENSURE THE DRIVELINE WILL NOT BOTTOM OUT OR SEPARATE WHEN TURNING AND/OR GOING OVER ROUGH TERRAIN.**

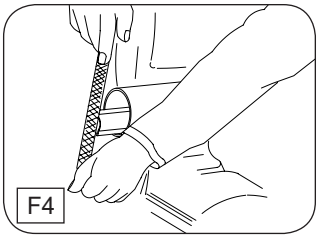
NOTE: Maximum operating length LB. (Refer to "Verify Telescoping PTO Shaft Length" in this section for LB length.)

1. To adjust length, hold the half-shafts next to each other in the shortest working position and mark them.
2. Shorten inner and outer guard tubes equally.
3. Shorten inner and outer sliding profiles by the same length as the guard tubes.
4. Round off all sharp edges and remove burrs. Grease sliding profiles.





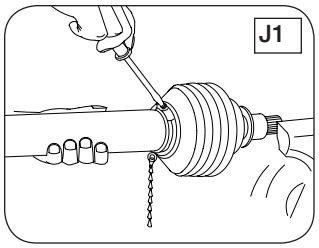


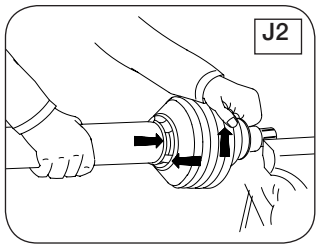


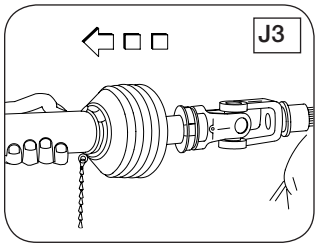
PTO Shaft and Clutch

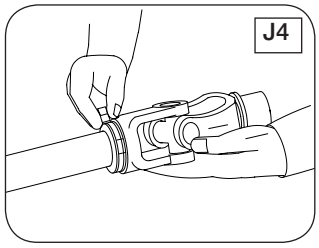
To Dismantle Guard (Figs. J1 - J4)

1. Remove locking screw.
2. Align bearing tabs with cone pockets.
3. Remove half-guard.
4. Remove bearing ring.





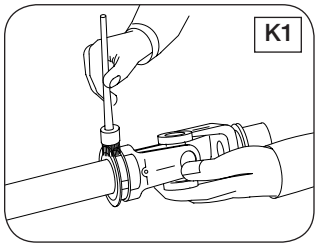


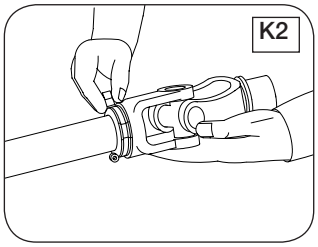


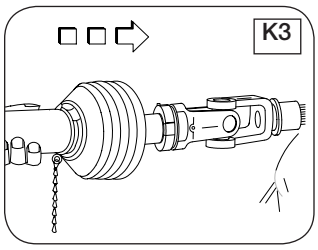
PTO Shaft and Clutch (continued)

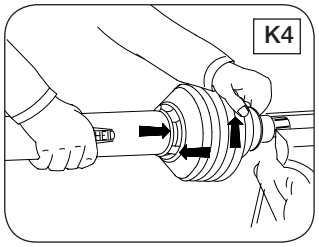
To Assemble Guard (Figs. K1 - K5)

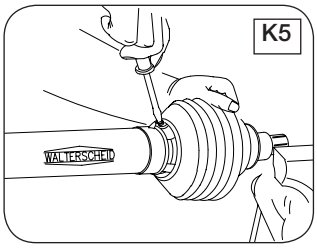
1. Grease yoke groove and inner profile tube.
2. Fit bearing ring in groove with recesses facing profile tube.
3. Slip on half-guard.
4. Turn cone until it engages correctly.
5. Install locking screw.





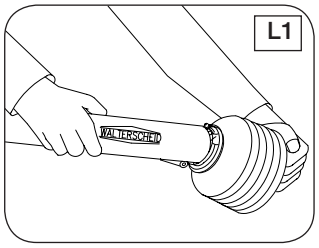


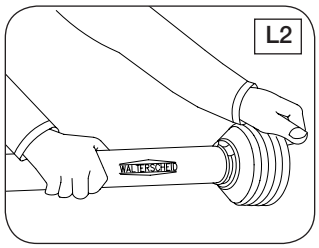


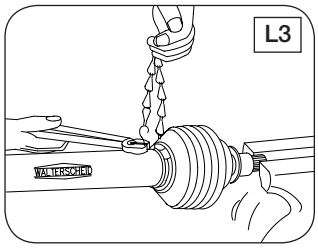


To Assemble Cone (Figs. L1 - L3)

1. Dismantle guard (Figs. J1 - J3). Remove old cone (e.g. cut open with knife). Take off chain. Place neck of new cone in hot water (approx 80o C / 180o F) and pull onto bearing housing (Fig. L1).
2. Turn guard cone into assembly position (Fig. L2). Further assembly instructions for guard (Figs. K1 - K5).
3. Reconnect chain if required (Fig. L3).





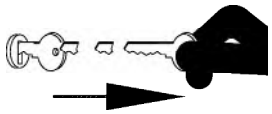


Hydraulic Jack Cylinder Replacement

⚠ WARNING

- **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 THE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR'S MANUAL FOR PROPER PROCEDURES.**
- **HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.**
- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**
- **UNHITCHING A LOADED CART CAN CAUSE SERIOUS INJURY OR DEATH DUE TO TONGUE RISING OR FALLING. ALWAYS HAVE A LOADED CART ATTACHED TO A TRACTOR. THE JACK IS INTENDED TO SUPPORT AN EMPTY CART ONLY.**
- **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 2,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

1. Park the empty unit on a firm, level surface. Block the machine to keep it from moving. Set the tractor parking brake, shut off the engine and remove the ignition key. Completely disconnect the PTO from the cart and tractor.
2. Attach hydraulic jack hoses to tractor SCV.



3. Open valve and lower jack leg to ground. DO NOT raise tongue.
4. Relieve pressure on hydraulic jack circuit. See tractor operator manual for procedure.
5. Close valve.
6. Support the hydraulic jack assembly with a safe lifting device rated for a minimum of 100 lbs.
7. Remove hydraulic jack hoses from tractor SCV.
8. Remove cylinder pin (272587) and snap rings (91192) from the base end of the cylinder at the lug on top of the tongue. (FIG. 4-70)

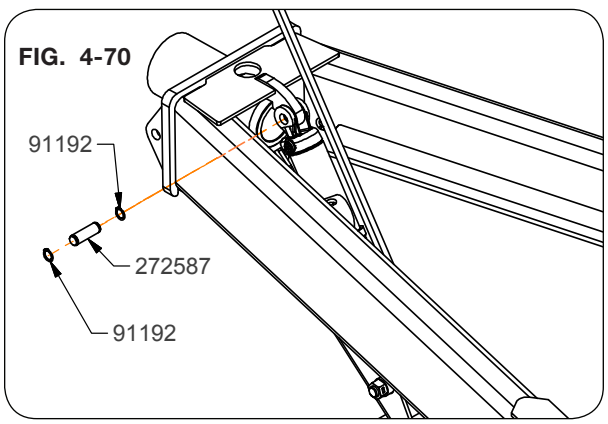


FIG. 4-70

Hydraulic Jack Cylinder Replacement (continued)

9. Remove two 7/8"-9UNC x 2 1/4" capscrews (9390-165) and 7/8" lock washers (9404-037) from mounting bracket (273808B). (FIG. 4-71)

10. Remove hydraulic jack assembly from the tongue. (FIG. 4-71)

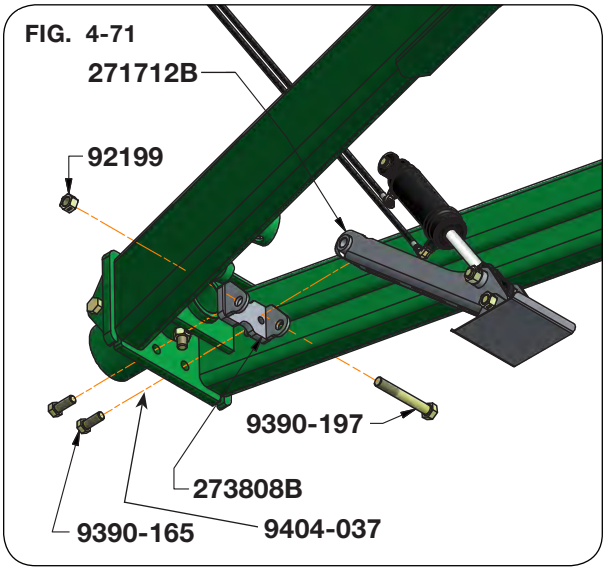


FIG. 4-71

11. On new hydraulic assembly (294143B), attach hoses (9006068) and fittings to cylinder (9009047) as shown in FIG. 4-72 and 4-73. The valve needs to be assembled to the hose on the base end of the cylinder. Assemble the fittings on the cylinder so they face each other, then store the hydraulic hoses on the hose caddy.

12. To reassemble hydraulic jack, see "Optional Hydraulic Jack" in SET UP section.

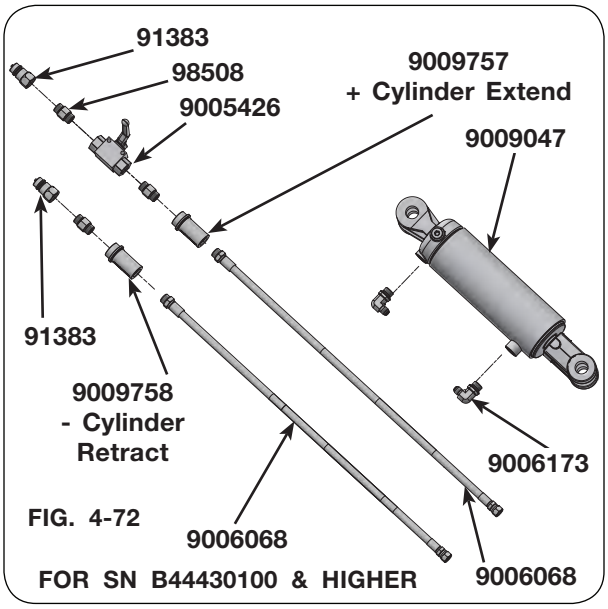


FIG. 4-72

FOR SN B44430100 & HIGHER

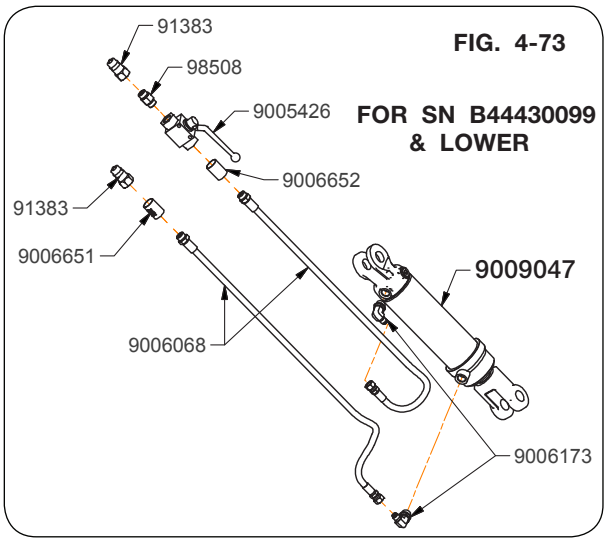


FIG. 4-73

FOR SN B44430099 & LOWER

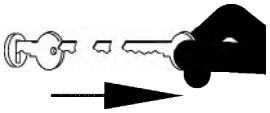
Horizontal Auger Removal and Replacement

⚠ WARNING

- **TO PREVENT PERSONAL INJURY OR DEATH WHILE SERVICING, ALWAYS ENSURE THAT THERE ARE PEOPLE WHO REMAIN OUTSIDE THE CART TO ASSIST THE PERSON WORKING INSIDE, AND THAT ALL SAFE WORKPLACE PRACTICES ARE FOLLOWED. THERE ARE RESTRICTED MOBILITY AND LIMITED EXIT PATHS WHEN WORKING INSIDE THE IMPLEMENT.**
- **NEVER ENTER CART WITH AUGER OR TRACTOR RUNNING. SERIOUS OR FATAL INJURY CAN OCCUR DUE TO ENTANGLEMENT WITH ROTATING COMPONENTS. ALWAYS STOP ENGINE AND REMOVE KEY BEFORE ENTERING CART.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.**
- **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 1,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

NOTE: Open the flow gates all the way.

1. Park the unit on a firm, level surface. Block the machine to keep it from moving. Set the vehicle parking brake, shut off the engine and remove the ignition key and disconnect the PTO shaft from the tractor.



NOTE: For SN B44430099 & lower, skip to step 4.

2. Remove 4 rear ladder capscrews attached to the cart. (FIG. 4-74)

NOTE: Keep all hardware for re-assembly.

3. Remove rear ladder from the cart. (FIG. 4-74)

NOTE: For SN B44430100 & higher, continue to step 5.

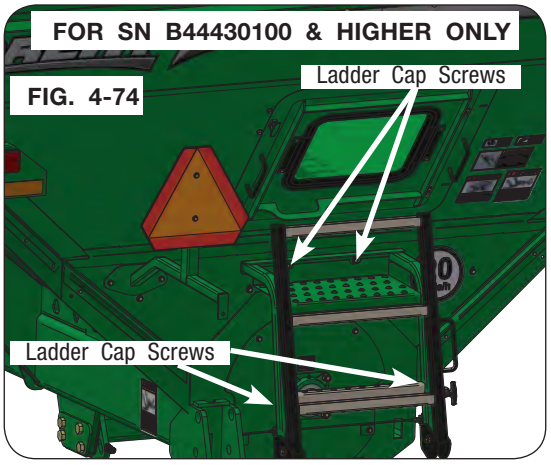


FIG. 4-74

Horizontal Auger Removal and Replacement (continued)

4. For SN B44430099 & lower, remove the SMV bracket located on the rear auger cover. (Fig. 4-75)
5. Remove the capscrews from the auger cover. (Fig. 4-75)
6. Pry the auger from the auger tube. (Fig. 4-76)
7. Using a safe lifting device rated for a minimum 1,000 lbs., pull the rear auger out of the cart. (Fig. 4-77)

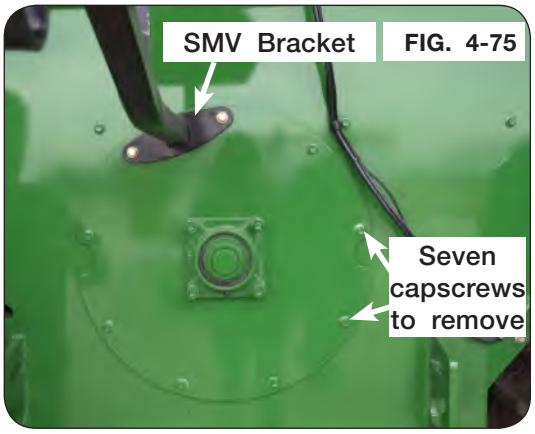


FIG. 4-75

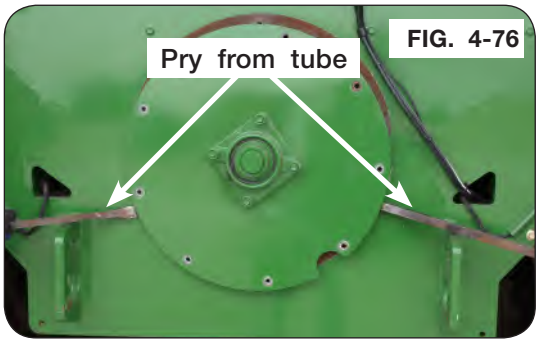


FIG. 4-76

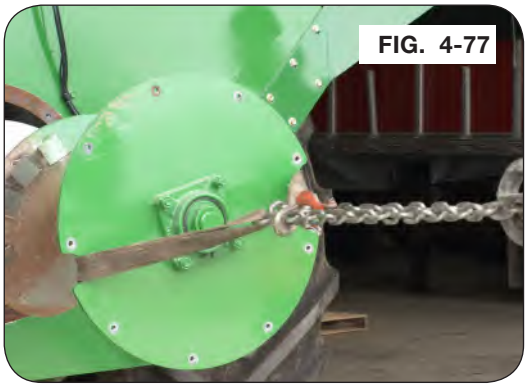


FIG. 4-77

Horizontal Auger Removal and Replacement (continued)

NOTE: If only servicing rear auger, skip to step 23. For 5-pin driver replacement, continue to step 8.

8. Remove the flange screws in both middle grates inside the cart. Remove the grates. (Fig. 4-78)

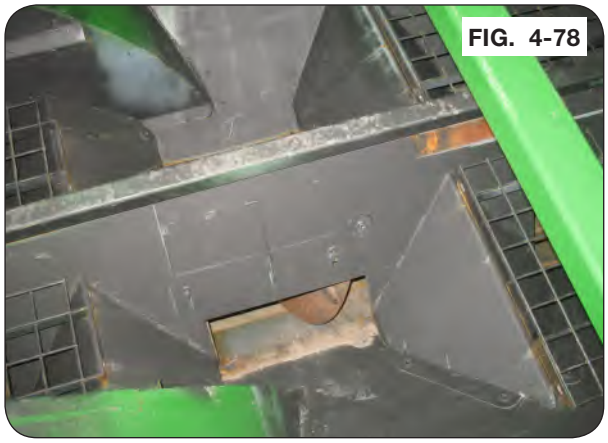


FIG. 4-78

9. Remove locknuts, baffle weldments and cover plates from the middle tent. (Fig. 4-79)

10. Disconnect grease line. (Fig. 4-79)

11. Remove the bearing mount bar bolts on each side of the auger.

12. Remove capscrews and lock washers holding bearing onto the bearing mount bar.

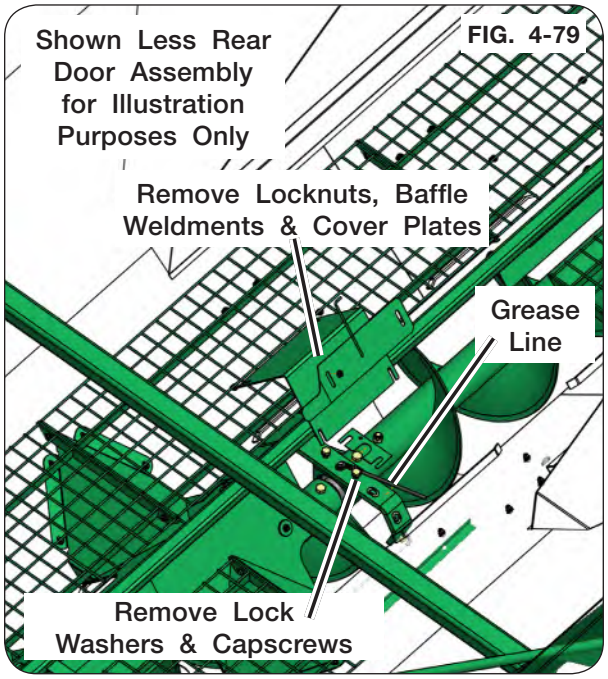


FIG. 4-79

13. Remove bearing mount bar to allow access to work on the bearing and shaft. Remove two center tube connecting capscrews, spacer bushings (283895B) and locknuts from the horizontal auger. (Fig. 4-80)

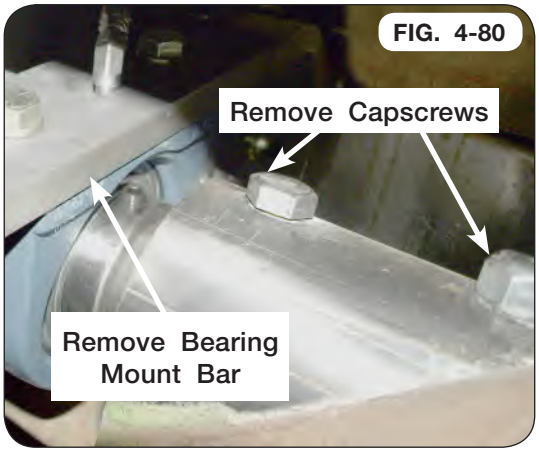


FIG. 4-80

Horizontal Auger Removal and Replacement (continued)

14. Remove the original 5-pin driver, bearing and the bushing insert. (Figure 4-81 & Figure 4-82)

15. Discard 5-pin driver.

FIG. 4-81

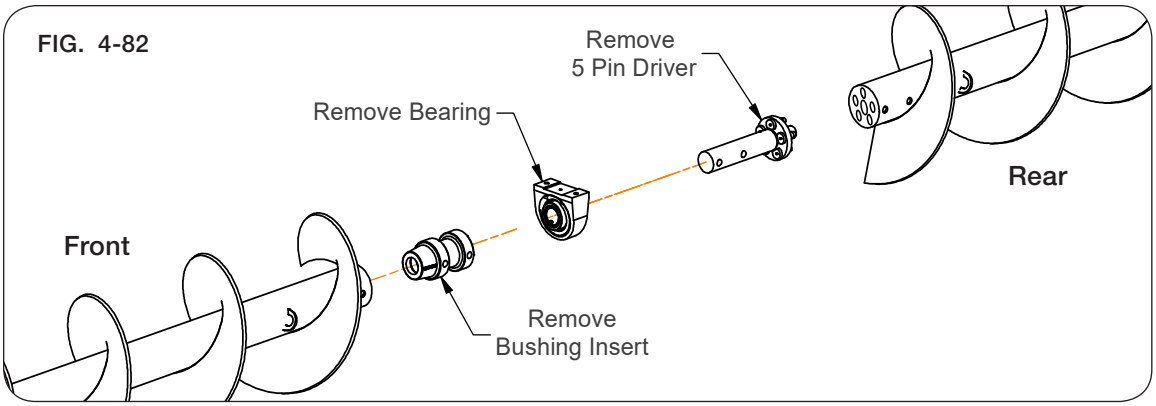


FIG. 4-82

16. Substantially coat bushing insert with anti-seize.

17. Slide bushing insert into front auger and ensure tube holes are aligned. (Figure 4-82 & Figure 4-83)

FIG. 4-83

NOTE: Make sure the set screws on bearing are towards the front of the cart. (Figure 4-84)

18. Slide bearing onto 5-pin driver. (Figure 4-84)

19. Insert new 5-pin driver into front auger and ensure tube holes are aligned.

20. Install front capscrews, spacer bushings and locknuts 180 degrees from each other and assemble spacer bushings on threaded side of capscrews. Hand tighten hardware. (Figure 4-84)

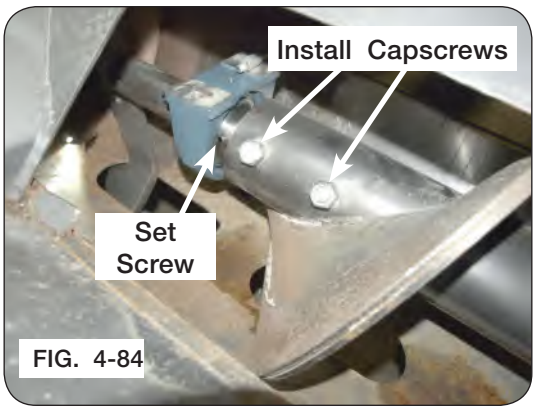


FIG. 4-84

Horizontal Auger Removal and Replacement (continued)

21. Install hanger bracket. Leave the capscrews loose attaching hanger bracket to the cart. Attach hanger bracket to the bearing. (Figure 4-85)

22. Reattach grease line components. (Figure 4-85)

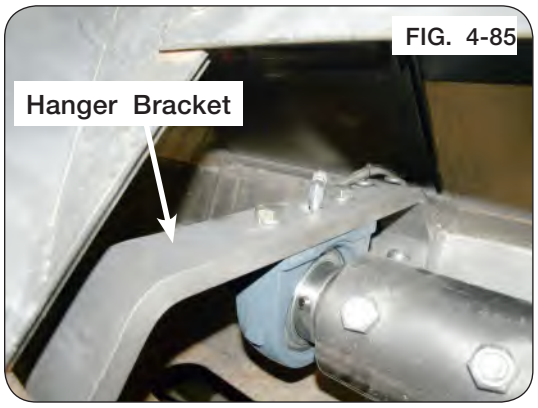


FIG. 4-85

NOTE: Rear auger flighting should lead the front auger flighting.

23. Slide the rear auger forward. Align the pins and holes with the rear auger pipe. (Figure 4-86)

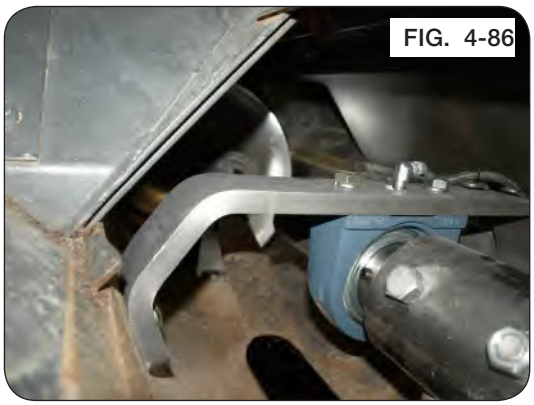


FIG. 4-86

24. Extend a string tightly from front to rear to check horizontal auger alignment. Measure the string to the auger tube either in front or behind the hanger bearing. If this dimension is 1/8" greater than the measurement taken in the front and rear, shims (8GA - 286419B or 12GA - 286424B) are required on top of the center hanger bearing. Ideally the center measurement should be equal to or 1/8" lower than the measurements on the ends of the augers. (Figure 4-87)

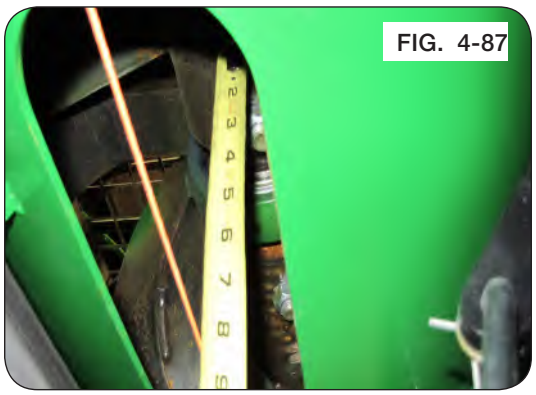


FIG. 4-87

NOTE: The shims are 1/8" thick each. Add as needed. See "Auger System - Horizontal Auger" in MAINTENANCE section for more details.

25. Torque hanger bracket capscrews to 130 ft.-lbs. See Figure 4-85.

26. Torque auger capscrews to 200 ft.-lbs. (Figure 4-88)

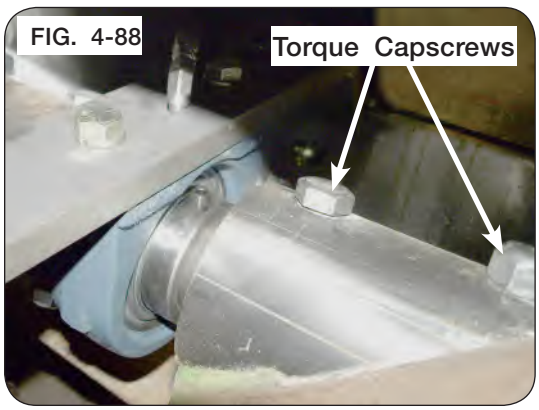


FIG. 4-88

Horizontal Auger Removal and Replacement (continued)

27. Insert hardware for rear auger cover, SMV bracket, and rear ladder, if equipped. (Figs. 4-89 and 4-90)

28. Torque all hardware to specification. See "Torque Chart" in this section. (Figs. 4-64 and 4-90)

29. Reinstall ALL the grates.

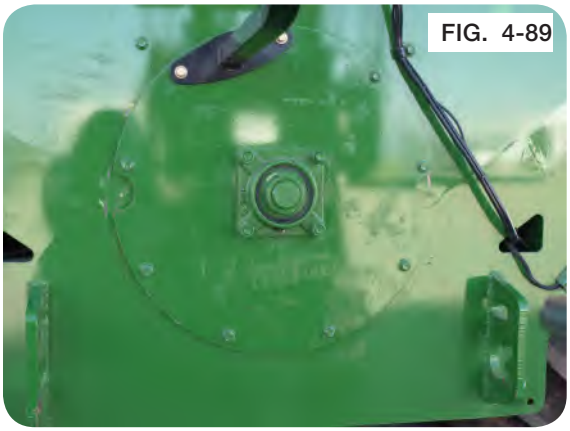


FIG. 4-89

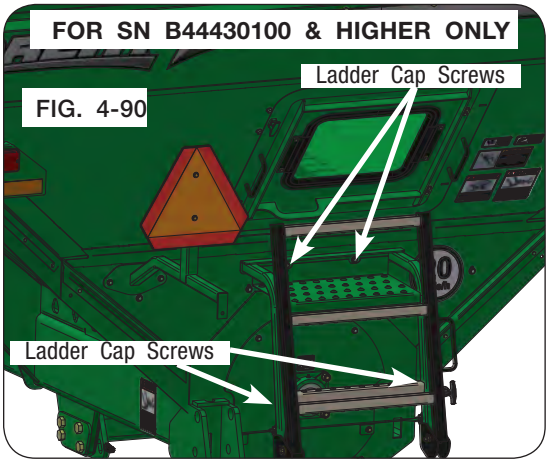


FIG. 4-90

Troubleshooting

Problem	Possible Cause	Corrective Action
No Manual Override (EOH / SCV Contolled) functions work	Not getting 12 Volt power supply to the power harness in the tractor	Check the connections to the main power harness in the tractor cab, and check the 5 AMP fuse in the fuse holder of the main power harness. Replace fuse if necessary.
	Not getting good connection at Deutch connectors in the harnesses	Unplug the Deutsch connectors at the hitch point and in the extension harness (if used). Clean up the connectors with electrical contact cleaner. Make sure the connectors are aligned correctly and re-connect them.
	Not pressurizing the correct hydraulic hose	Make sure the quick couplers are properly connected to the tractor SCV and the Hydraulic Pressure line is being pressurized when engaging the tractor SCV.
Auger unfolds, but won't fold back into a transport position	Rotating Spout is not in the folding position	Rotate the spout so it is positioned straight down or forward in order to fold the auger into a transport position.
	Rotating spout switch is faulty or out of adjustment	Make sure the spout is in the centered position. Refer to the manual override sections in order to fold the auger back into a transport position. Inspect the switch assembly near the rotating spout cylinder. The clearance between the end of the proximity switch and the barrel of the rotating spout cylinder must not exceed 1/4".
Auger unfolds part way and stops	Debris in the EOH block on the auger fold cylinder	Fold auger, remove the Coil and the cartridge valve on the EOH valve block. Remove any debris and reinstall cartridge and coil.
	Rotating Spout switch is out of adjustment or has been activated.	With the auger folded in to the road transport rest, have someone depress and hold the switch at the vertical auger hinge plate. Use any means necessary to depress the switch without placing your hands or other body parts near the pinch points. With the switch depressed, rotate the spout to the folding postion.

Troubleshooting (continued)

Problem	Possible Cause	Corrective Action
Rotating spout will not function	7 pin connector is not plugged into tractor.	Plug in 7 pin connector to same power source as the 5 function controller.
	Proximity Switch at the auger hinge is not getting Power or Ground.	Check power and ground to the proximity switch harness on the vertical auger. Make sure the center pin on the 7 pin plug has +12V key switch power.
	Proximity switch located at the hinge plate is not adjusted correctly.	This proximity switch has a 1/4" effective operating range. The upper auger hinge plate needs to be within that range when it is unfolded in to the operating position. Adjust the proximity switch in or out in order for the sensor to activate when it is in the operating position.
	Switch located at the hinge plate of the vertical auger is not getting power, ground or is defective	Check the ground wire located near the hydraulic valve at the base of the vertical auger and on the left hand standard just behind the front plate of the harness. Unplug the 3 pin connector on the hinge plate proximity switch. With a multi-meter or test light, confirm that the pin in socket B has +12V constant power and socket A has +12V when the sensor is activated.
One single function will not work	Defective coil on the EOH valve for that function	Loosen the cap for the coils associated with that function on the EOH valve. Depress the button on the remote, and determine if the coils are getting magnetized. Inspect the wiring connectors to these coils, and replace the coil if necessary.
	Defective valve on the EOH valve for that function	Remove the coil and the cartridge valve on the EOH valve block for that function. Replace the valve if it doesn't operate when the coil is magnetized.
	Debris in the EOH block at the base of the vertical auger	Remove the coil and the cartridge valve on the EOH valve block. Remove any debris and reinstall cartridge and coil.
Functions continue to operate after the button on the remote is released	Tractor hydraulic flow is set too high	Turn tractor hydraulic flow down so that flow doesn't exceed 6 gallons per minute.
	Defective valve on the EOH valve for that function	Remove the Coil and the cartridge valve on the EOH valve block for that function, and replace the cartridge.

Tarp Troubleshooting Inspection & Maintenance

PROBLEM	SOLUTION
TARP SAGS IN MIDDLE AREAS	1. BOWS MAY BE BENT OR ADJUSTED TOO LOW 2. MISSING OR LOOSE RIDGE STRAP REPLACE OR RETIGHTEN 3. TENSION MAY BE TOO LOOSE. U-JOINT MAY NEED TO BE ADJUSTED ON SPLINED SHAFT TO PROVIDE MORE TENSION
HOLES OR TEARS IN TARP	1. CONSULT YOUR LOCAL DEALER FOR REPAIRS 2. ORDER TARP REPAIR KIT FROM DEALER 3. WHEN NEW TARP OR PARTS ARE NEEDED ALWAYS REPLACE WITH ORIGINAL PARTS

Inspection and Maintenance

⚠ WARNING

- **TO PREVENT PERSONAL INJURY OR DEATH, DO NOT ALLOW ANYONE ON A CLOSED TARP. TARP SYSTEM IS NOT DESIGNED TO SUPPORT A PERSON.**
- **FALLING OBJECTS CAN CAUSE SERIOUS INJURY OR DEATH. REMOVE ACCUMULATED WATER/SNOW/ICE OR ANY OTHER OBJECTS FROM TARP BEFORE OPENING TARP.**

IMPORTANT

- *Do not open or close tarp while moving or in high wind conditions. Damage to the tarp may occur.*
- *Tarp should not be used if it is torn or the bungee cords are frayed or show damage. Fully close tarp with tension on the latch plate to prevent water from pooling.*

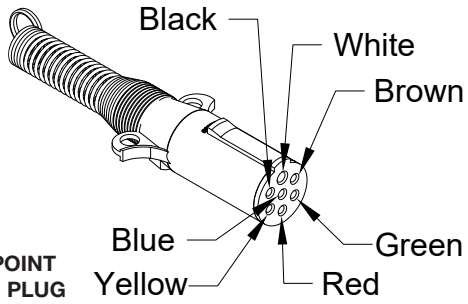
Periodic preventive maintenance should be practiced. Inspect tarp and hardware often for abrasions or loosened bolts that may need adjustment and/or repair. Check bungee cords for wear and adjust tension at the beginning of the season and again half way through the season.

Tears in tarp should be addressed before further tarp operation. If water pools on tarp, adjust tension of tarp cables and/or arm springs.

If installed correctly, tarp should always operate as well as when first installed. If tarp does not pass this simple inspection, make all appropriate repairs or adjustments immediately before serious damage occurs.

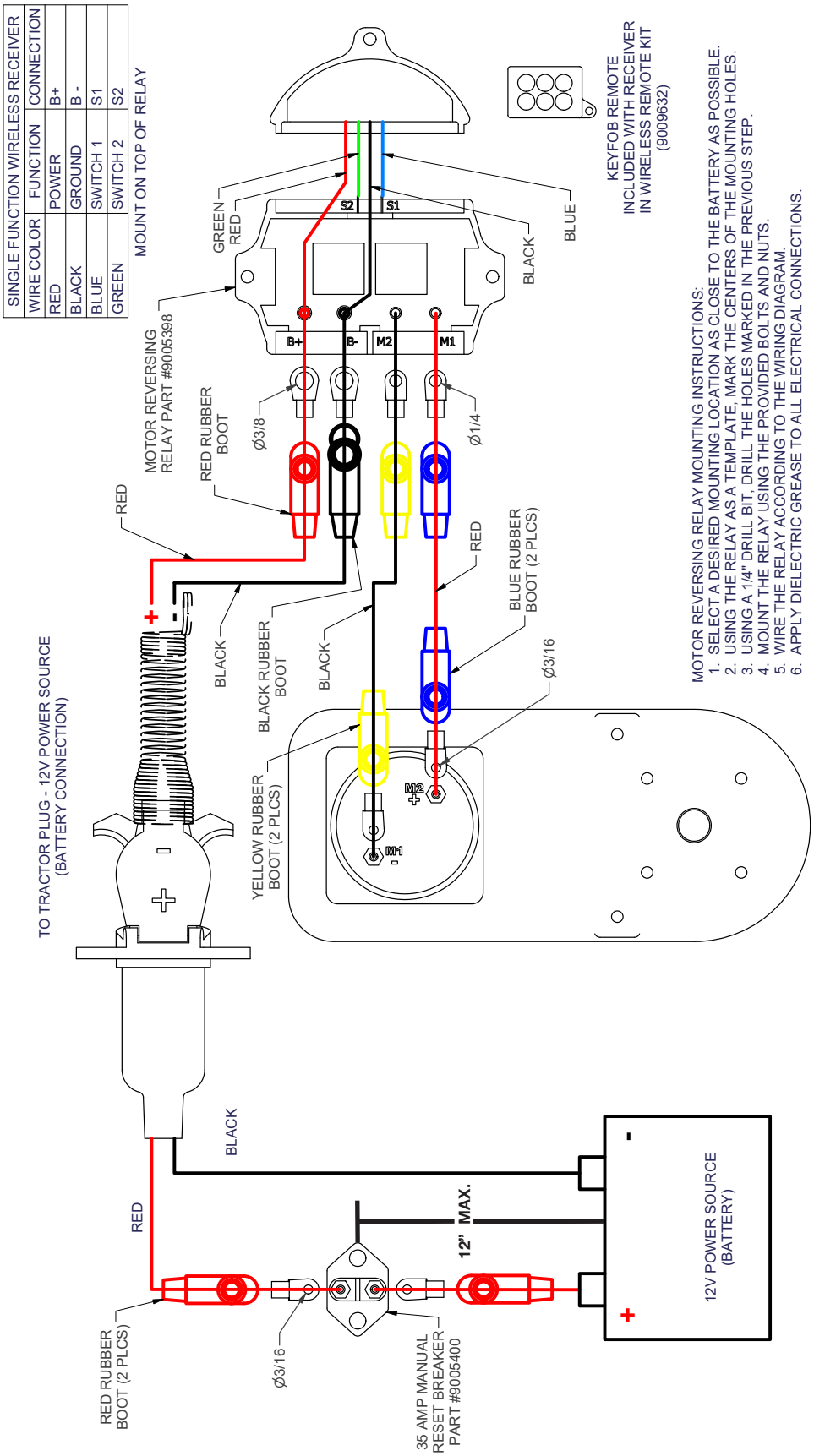
Electrical System Schematic

GRAIN CART WIRES
White -- Ground
Green -- Right Amber Flashing Lamp
Yellow -- Left Amber Flashing Lamp
Brown -- Amber Clearance and
Red Tail Lights (Low Filament)
Red -- Red Brake Lights (High Filament)
Black -- Work Lights
Blue -- 12V Key Switch Power

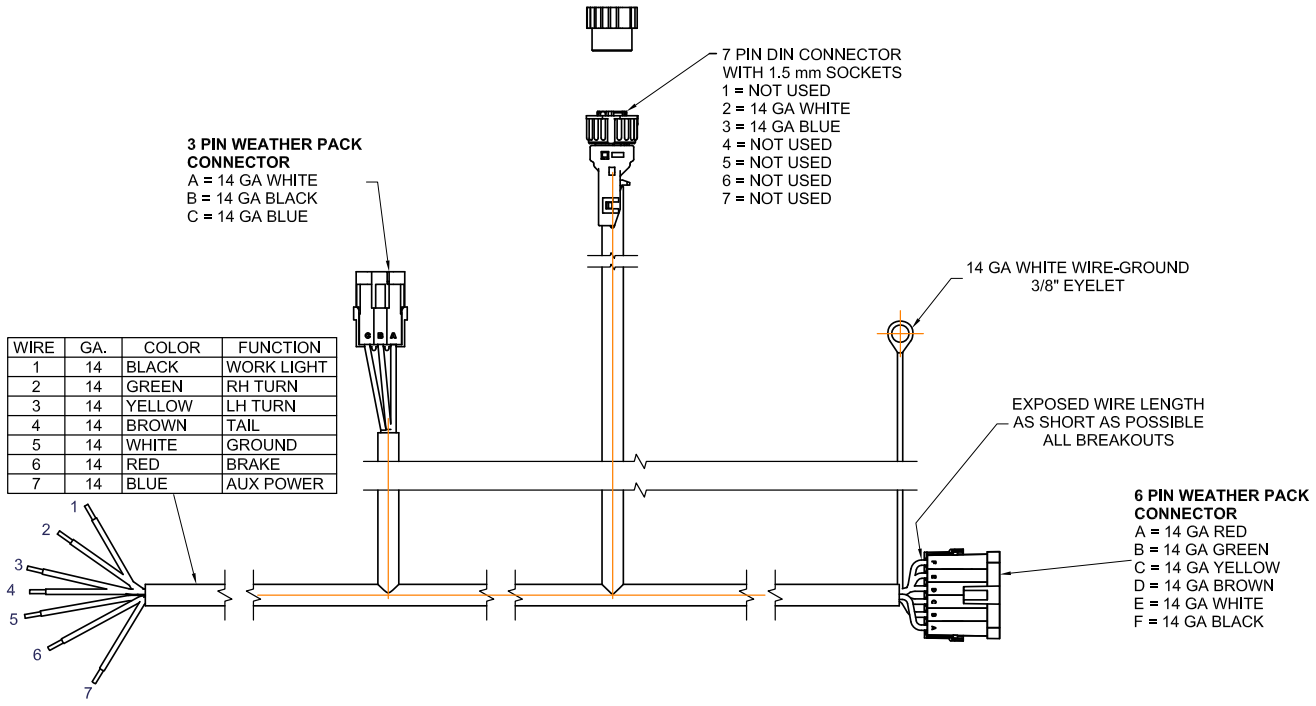


SAE SEVEN-POINT
CONNECTOR PLUG

Electrical System Schematic

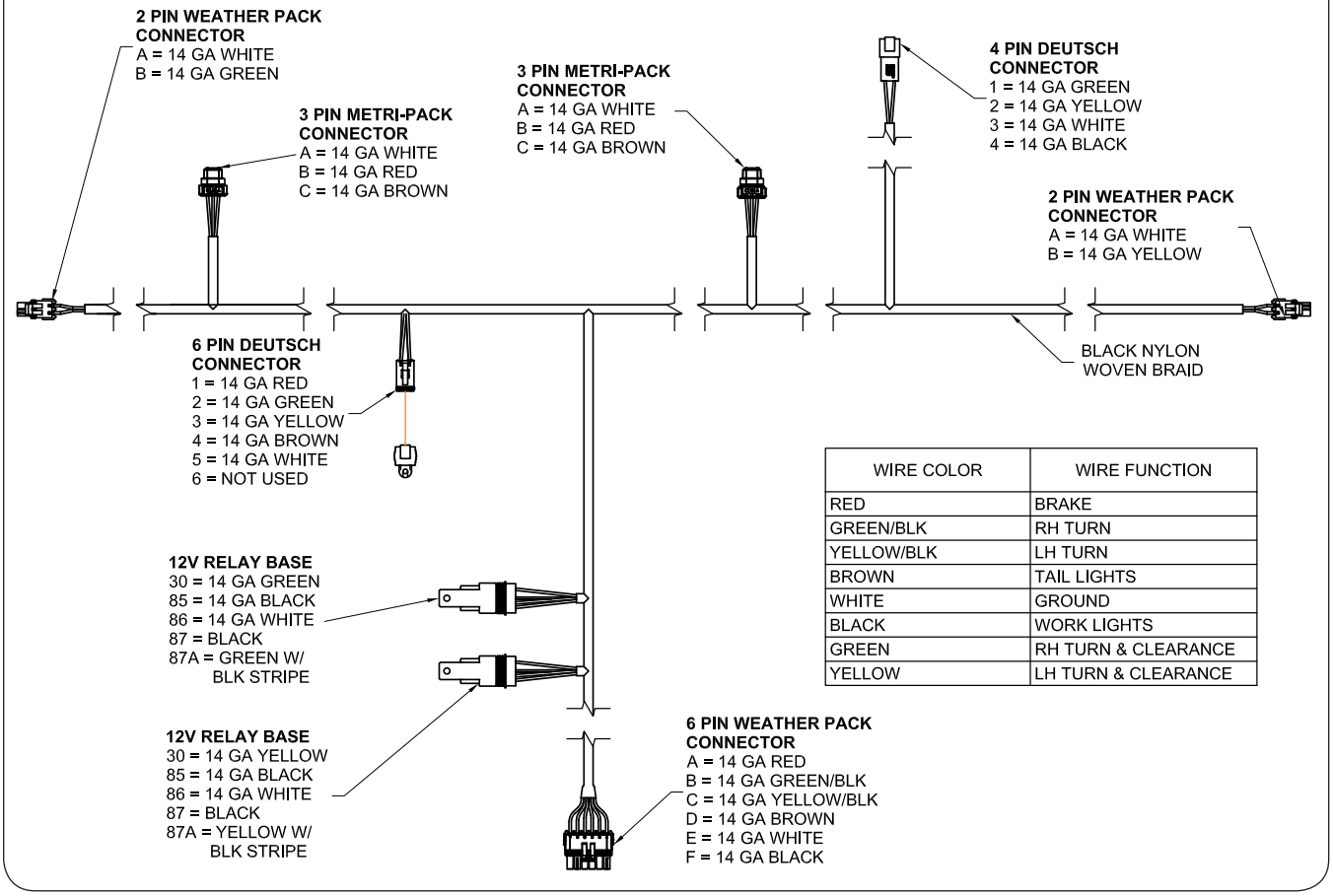


Electrical System Schematic - Front Harness #9009540



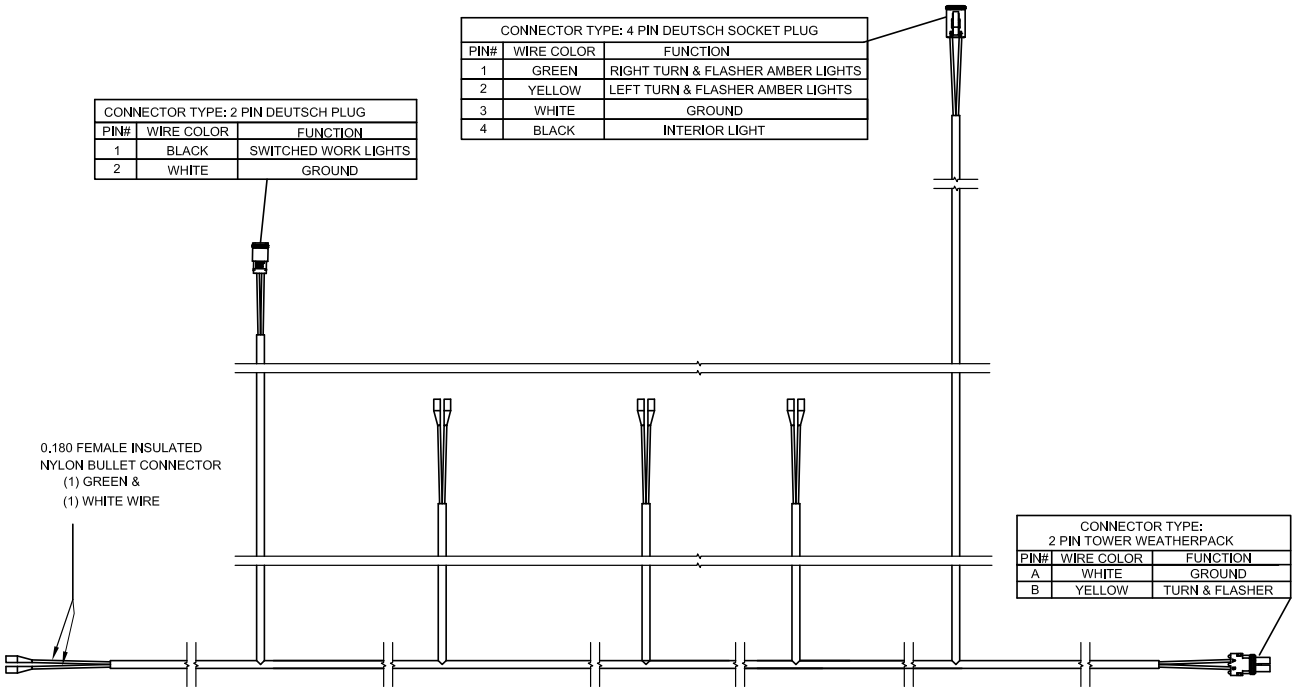
WIRE	GA.	COLOR	FUNCTION
1	14	BLACK	WORK LIGHT
2	14	GREEN	RH TURN
3	14	YELLOW	LH TURN
4	14	BROWN	TAIL
5	14	WHITE	GROUND
6	14	RED	BRAKE
7	14	BLUE	AUX POWER

Electrical System Schematic - Rear Harness #9009574

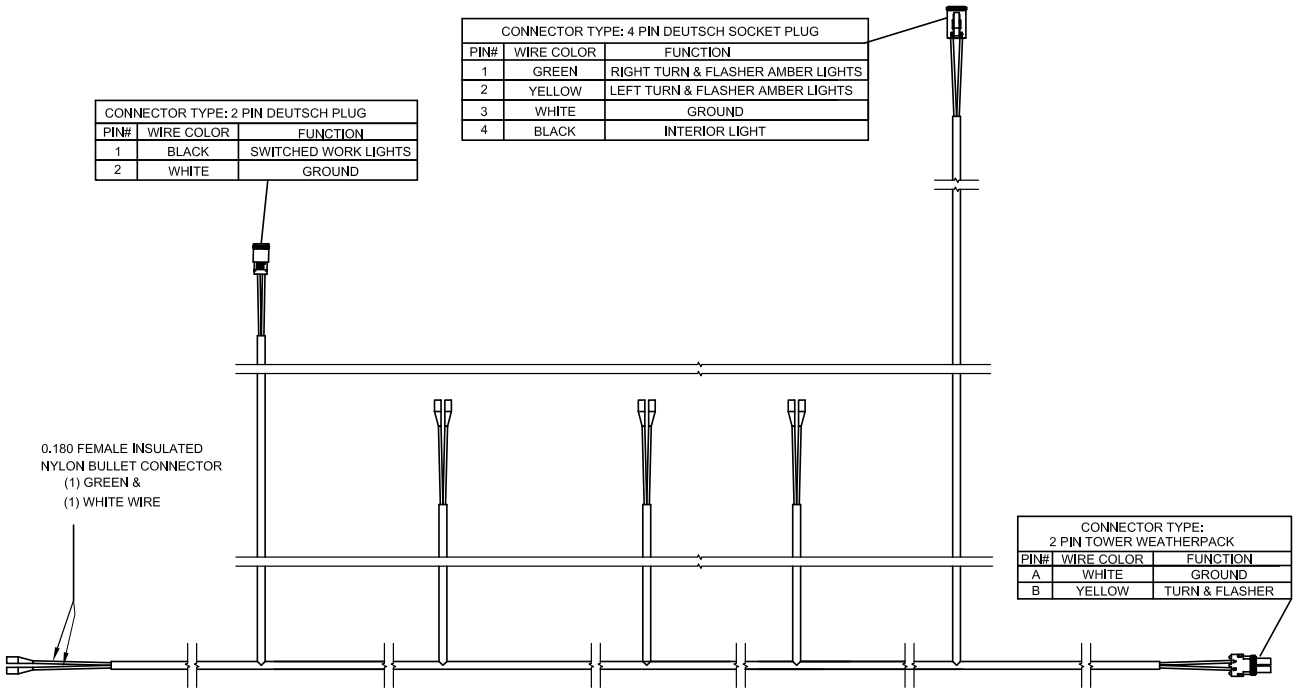


WIRE COLOR	WIRE FUNCTION
RED	BRAKE
GREEN/BLK	RH TURN
YELLOW/BLK	LH TURN
BROWN	TAIL LIGHTS
WHITE	GROUND
BLACK	WORK LIGHTS
GREEN	RH TURN & CLEARANCE
YELLOW	LH TURN & CLEARANCE

Electrical System Schematic
RH Clearance Light Harness #9009030

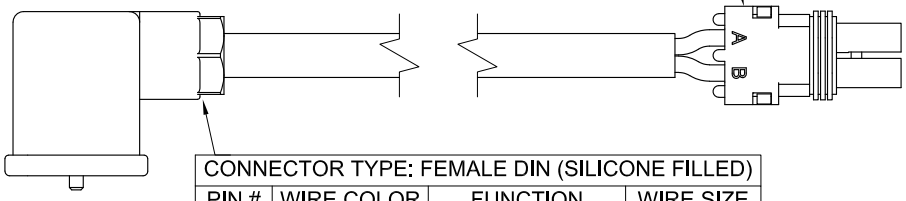


Electrical System Schematic
LH Clearance Light Harness #9009069



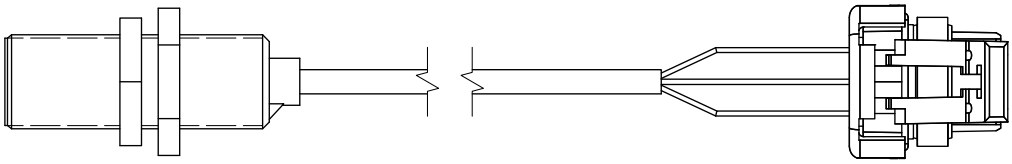
Electrical System Schematic - Harness #9005993

2 PIN TOWER WEATHERPACK		
PIN #	WIRE	FUNCTION
A	14 GA. RED	STEERING LOCK
B	14 GA. WHITE	GROUND



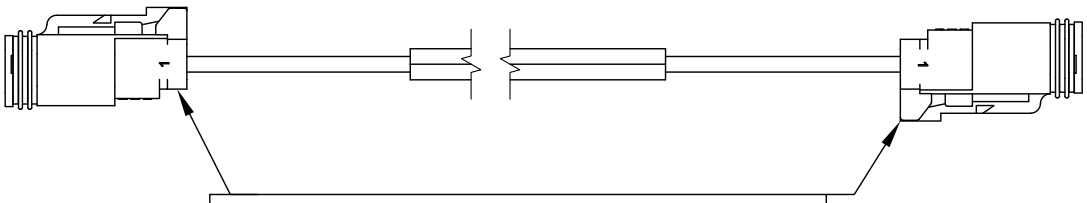
CONNECTOR TYPE: FEMALE DIN (SILICONE FILLED)			
PIN #	WIRE COLOR	FUNCTION	WIRE SIZE
1	RED	STEERING LOCK	14 GA.
2	WHITE	GROUND	14 GA.

Electrical System Schematic - Proximity Switch #9007223



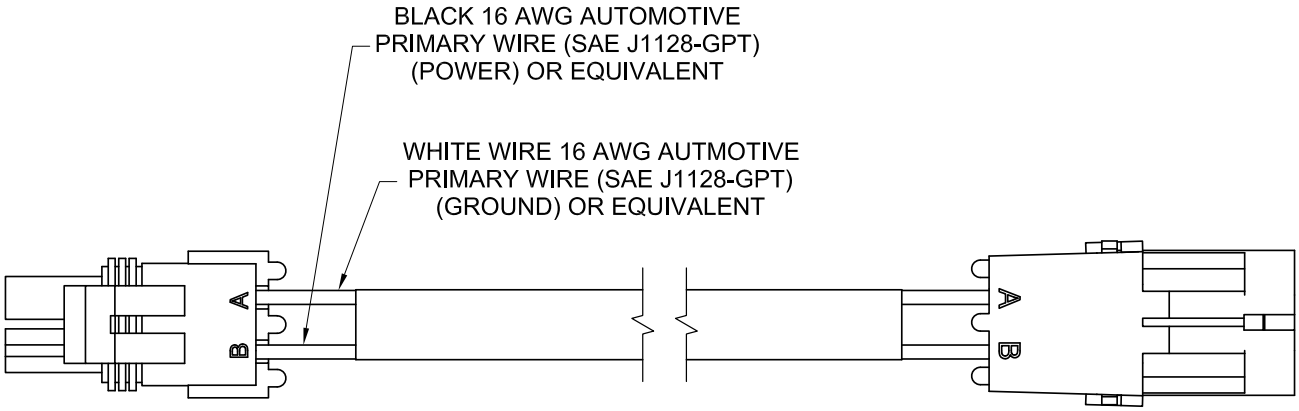
METRI-PACK 150 WIRING CHART		
WIRE COLOR	PIN NO.	FUNCTION
BLACK	A	SIGNAL
BROWN	B	+12 V DC
BLUE	C	GROUND

Electrical System Schematic - Diverter Harness #9007266

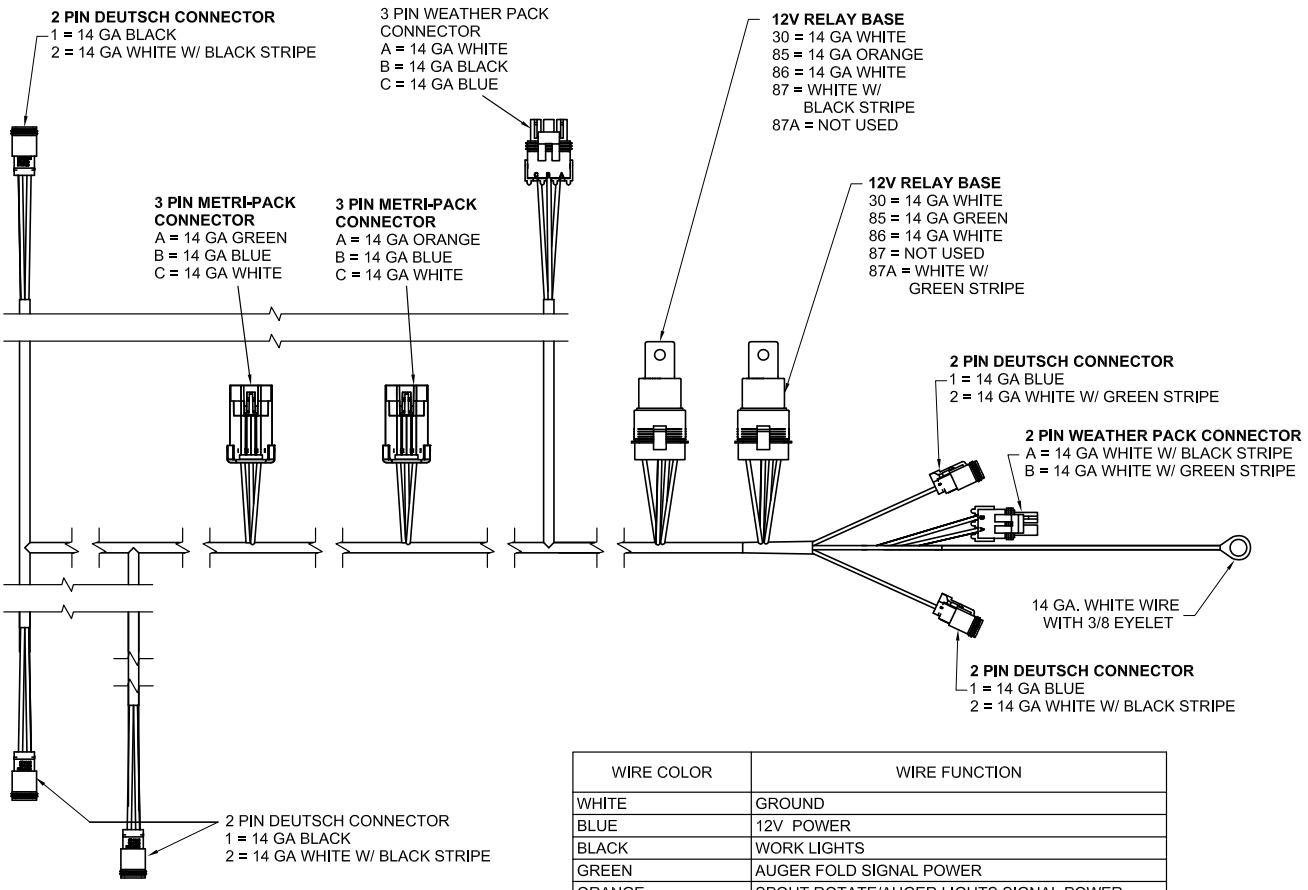


CONNECTOR TYPE: 2 PIN DEUTSCH PLUG		
PIN #	WIRE COLOR	FUNCTION
1	RED	+12V POWER
2	WHITE	GROUND

Electrical System Schematic - Extension Harness #86700

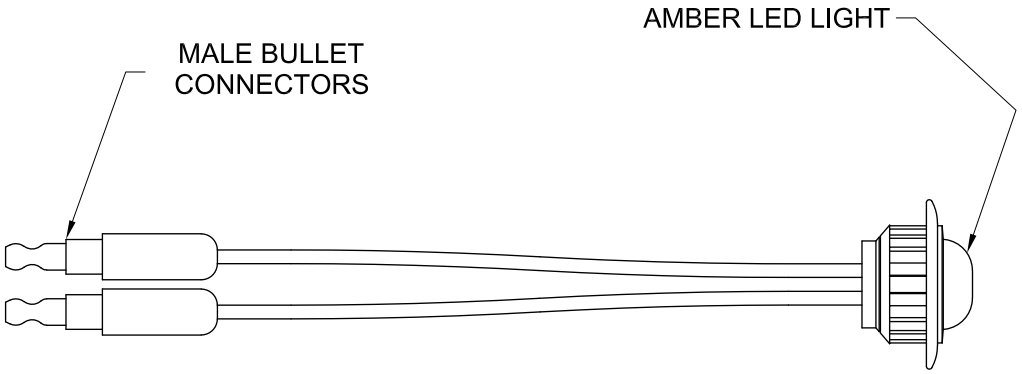


Electrical System Schematic - Auger Harness #9009531



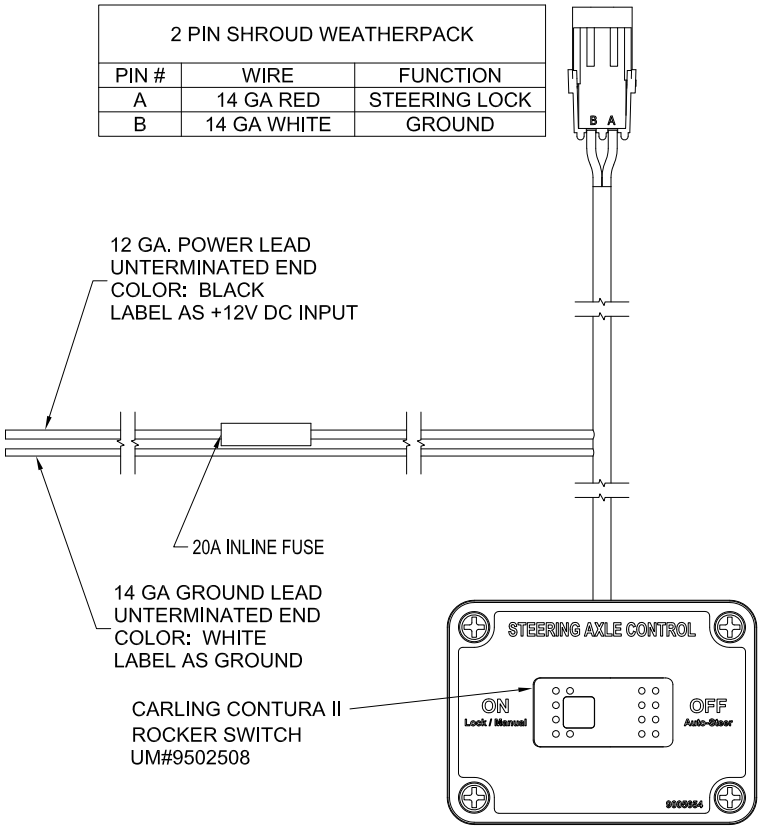
WIRE COLOR	WIRE FUNCTION
WHITE	GROUND
BLUE	12V POWER
BLACK	WORK LIGHTS
GREEN	AUGER FOLD SIGNAL POWER
ORANGE	SPOUT ROTATE/AUGER LIGHTS SIGNAL POWER
WHITE W/GRN STRIPE	AUGER FOLD SWITCHED GROUND
WHITE W/BLK STRIPE	SPOUT ROTATE/AUGER LIGHTS SWITCHED GROUND

Electrical System Schematic - Micro Dot, LED Light #9006107

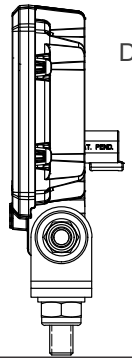


Electrical System Schematic - Rocker Switch Asy #9005654

2 PIN SHROUD WEATHERPACK		
PIN #	WIRE	FUNCTION
A	14 GA RED	STEERING LOCK
B	14 GA WHITE	GROUND



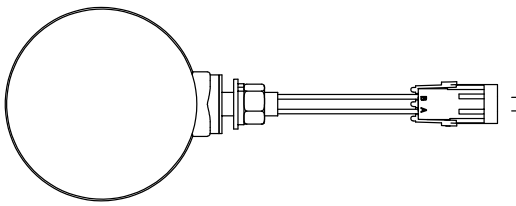
Electrical System Schematic - Work Flood Lamp #9008957



2 PIN INTEGRATED
DEUTSCH CONNECTOR

POWER (PIN #1)
GROUND (PIN #2)

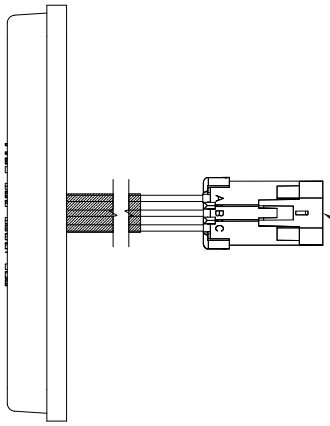
Electrical System Schematic - Amber Lamp #9005142



YELLOW - TURN AND FLASHER AMBER LIGHT

WHITE - GROUND

Electrical System Schematic - Red Lamp #9006345



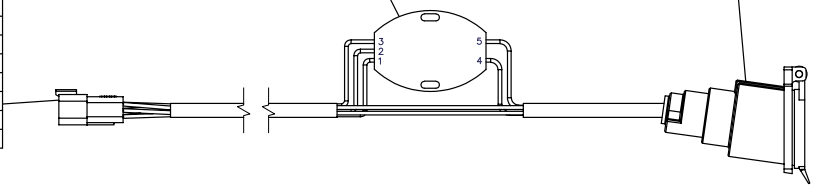
CONNECTOR TYPE:		
3 CAVITY SHROUD METRI-PACK 150		
PIN #	WIRE COLOR	FUNCTION
A	WHITE	GROUND
B	RED	HIGH
C	BROWN	LOW

Electrical System Schematic - Adapter Harness, AG to 7-Blade Connector #9009843 (Optional - Rear Hitch)

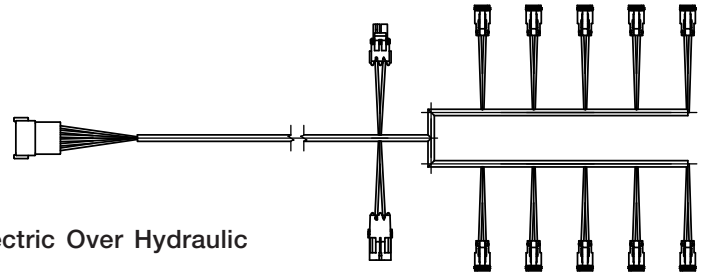
TAIL LIGHT CONVERTER		
WIRE	COLOR	WIRE FUNCTION
1	YELLOW	LEFT TURN/FLASHING
2	RED	BRAKE LIGHTS
3	GREEN	RIGHT TURN/FLASHING
4	YELLOW	LEFT TURN/STOP
5	GREEN	RIGHT TURN/FLASHING

7-BLADE CONNECTOR		
PIN #	WIRE COLOR	WIRE FUNCTION
1	WHITE	GROUND
2	NA	NA
3	BROWN	TAIL/RUNNING LIGHTS
4	BLACK	+12V SWITCHED POWER
5	YELLOW	LEFT TURN/STOP
6	GREEN	RIGHT TURN/STOP

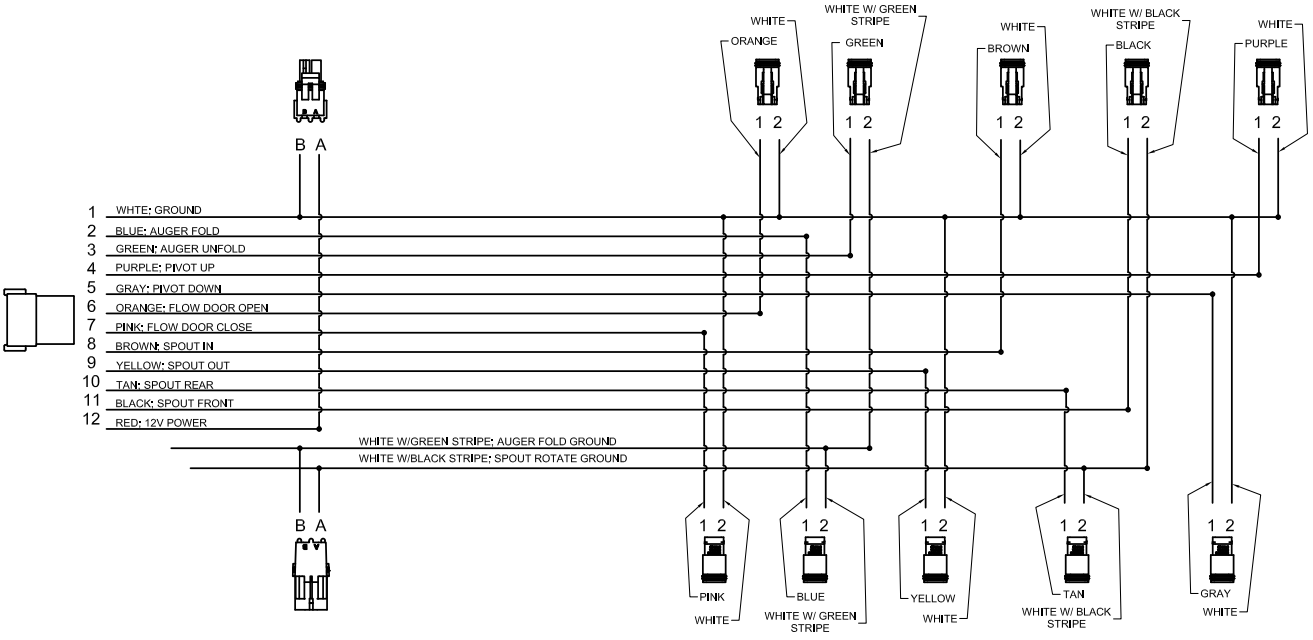
6 PIN DEUTSCH RECEPTACLE		
PIN #	WIRE COLOR	WIRE FUNCTION
1	RED	BRAKE LIGHTS
2	GREEN	RIGHT TURN & FLASHER AMBER LIGHT
3	YELLOW	LEFT TURN & FLASHER AMBER LIGHT
4	BROWN	TAIL LIGHTS
5	WHITE	GROUND
6	BLACK	WORK LIGHTS



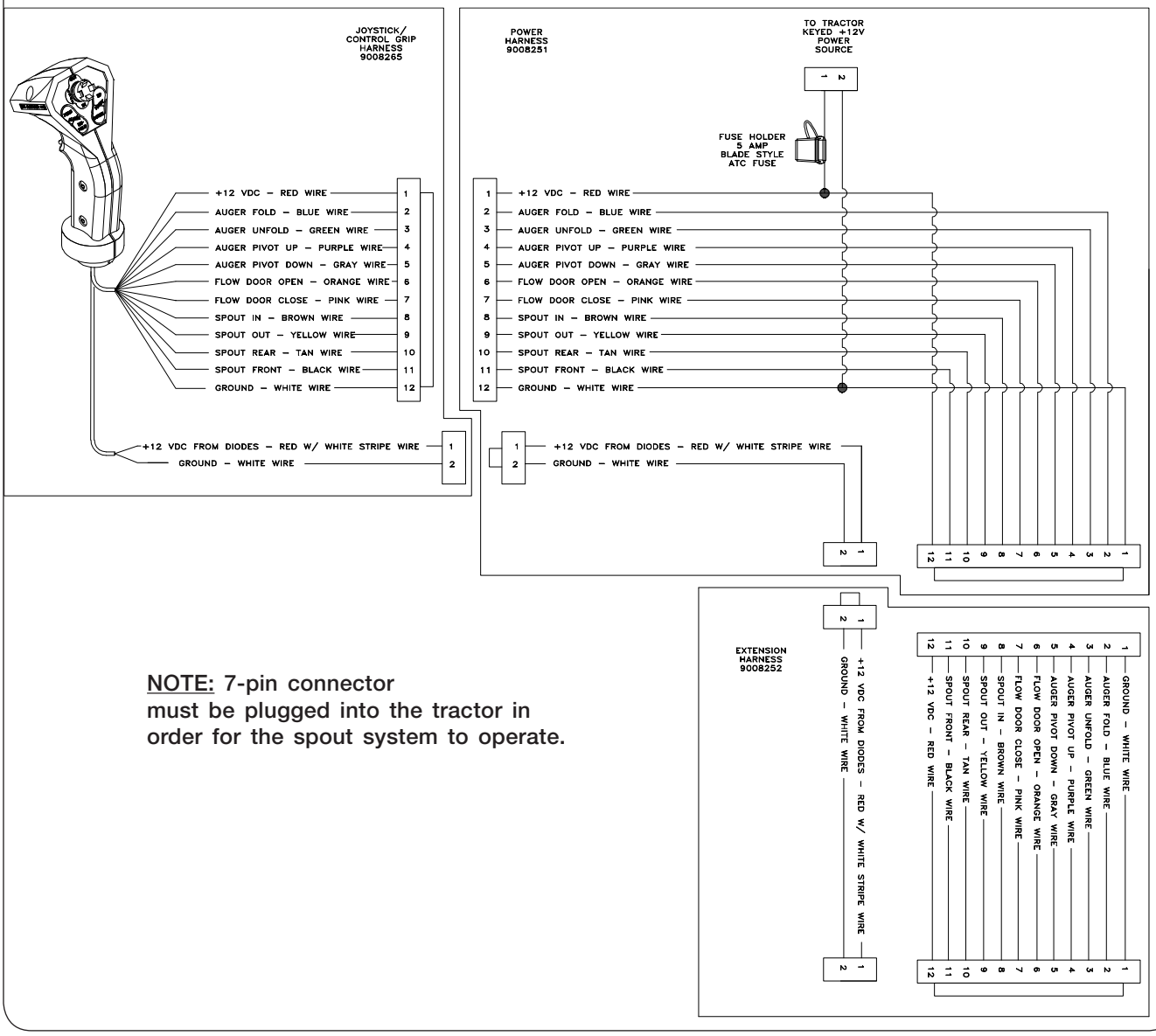
Electrical System Schematic - Main Harness #9007290 (Opt.)



NOTE: For Optional Electric Over Hydraulic 5 Function Valve.

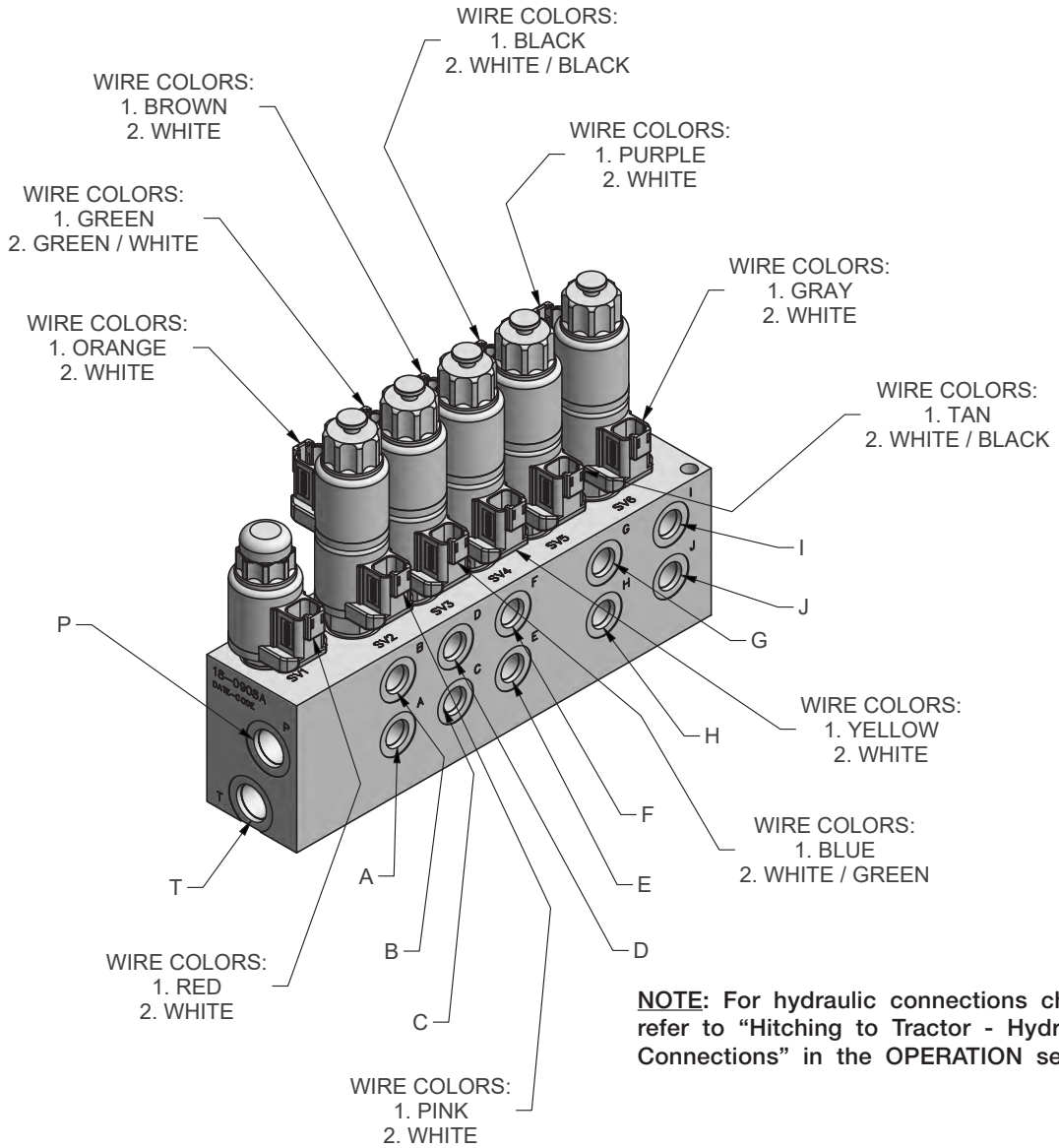


Electrical Over Hydraulic (EOH) System Schematic 5 Function Optional



NOTE: 7-pin connector must be plugged into the tractor in order for the spout system to operate.

Optional Electric Over Hydraulic Valve Electric Schematic 5 Function

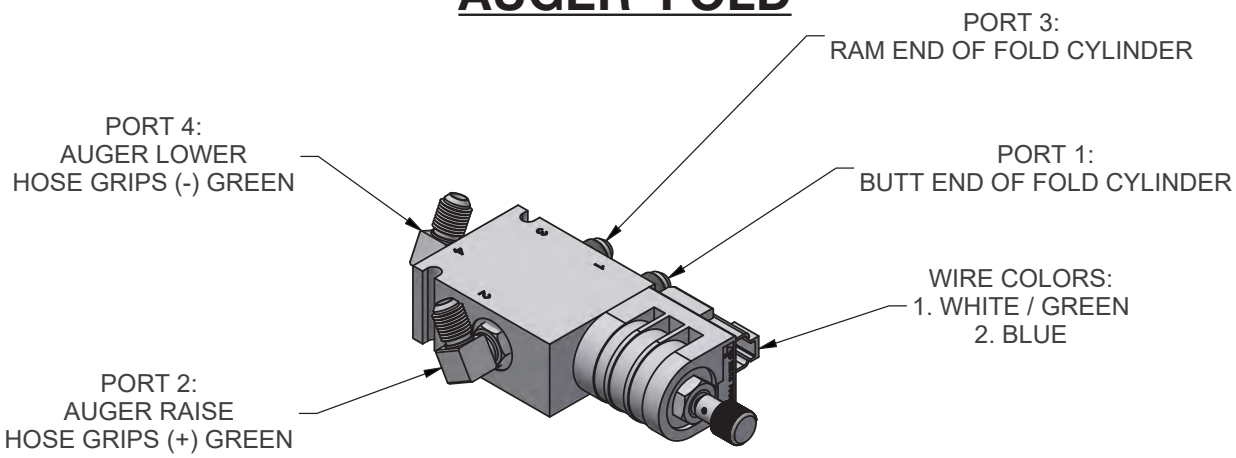


NOTE: For hydraulic connections chart, refer to "Hitching to Tractor - Hydraulic Connections" in the OPERATION section.

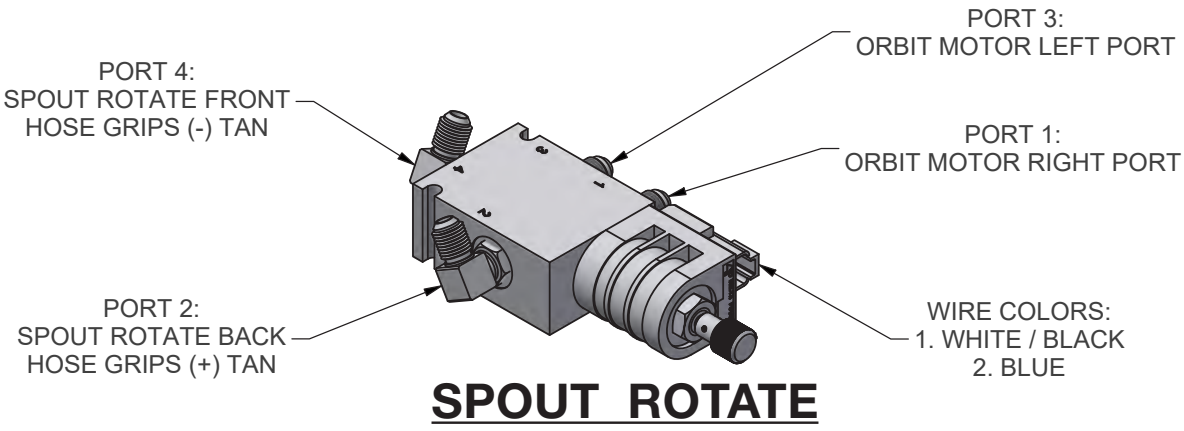
PORT	END OF CYLINDER	FUNCTION
A	BUTT END	FLOW DOOR
B	RAM END	FLOW DOOR
C	RAM END	AUGER FOLD
D	BUTT END	AUGER FOLD
E	RAM END	SPOUT TILT
F	BUTT END	SPOUT TILT
G	ORBIT MOTOR LEFT-HAND PORT	JOYSTICK / SPOUT ROTATE
H	ORBIT MOTOR RIGHT-HAND PORT	JOYSTICK / SPOUT ROTATE
I	BUTT END	AUGER PIVOT
J	RAM END	AUGER PIVOT
P		JOYSTICK / TRACTOR PRESSURE
T		JOYSTICK / TRACTOR RETURN

SCV Controlled Inline Valve Assemblies - Electric Schematic

AUGER FOLD

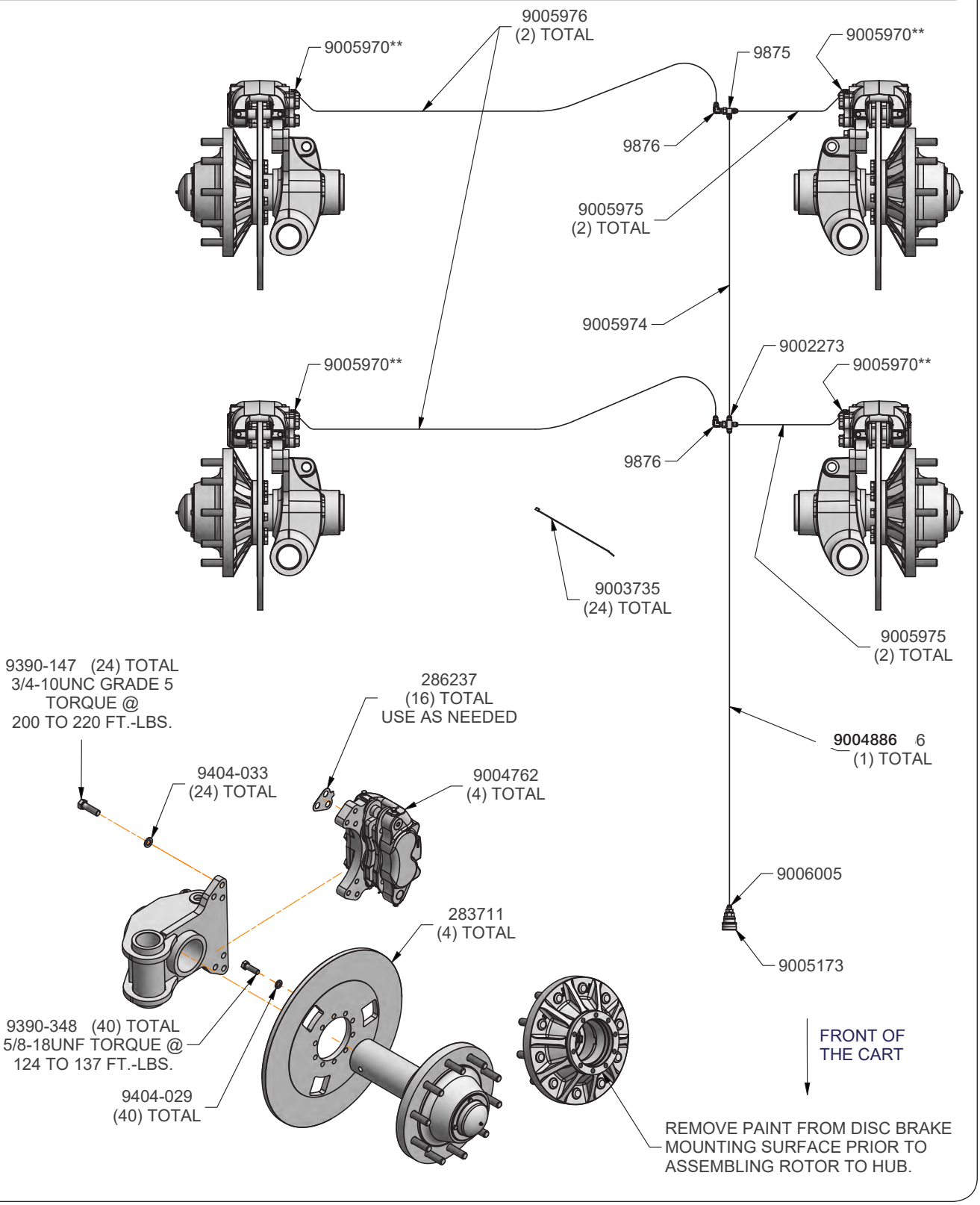


SPOUT ROTATE



NOTE: For hydraulic connections chart, refer to "Hitching to Tractor - Hydraulic Connections" in the OPERATION section.

Braking System Schematic



**LOCATE/REPLACE IN LOWEST BLEEDER PORT OF EACH CALIPER.

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 1/4-28	8-10 9-11	11-13 12-15
5/16-18 5/16-24	15-17 17-19	20-23 23-26
3/8-16 3/8-24	25-28 28-31	34-38 38-42
7/16-14 7/16-20	40-45 45-50	54-61 61-68
1/2-13 1/2-20	62-68 68-75	84-92 92-102
9/16-12 9/16-18	90-98 100-110	122-133 134-148
5/8-11 5/8-18	120-135 124-137	162-183 168-186
3/4-10 3/4-16	200-220 210-230	270-300 285-310
7/8-9 7/8-14	330-350 360-380	425-475 460-515
1-8 1-14	500-525 540-560	675-710 730-760
1 1/8-7 1 1/8-12	600-635 665-700	815-860 920-950
1 1/4-7 1 1/4-12	850-895 940-990	1150-1215 1275-1340
1 3/8-6 1 3/8-12	1125-1175 1280-1335	1525-1590 1735-1810
1 1/2-6 1 1/2-12	1500-1560 1685-1755	2035-2115 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 5/16-24	20-22 21-23	27-30 28-31
3/8-16 3/8-24	35-39 36-41	47-53 49-55
7/16-14 7/16-20	54-58 55-60	73-78 75-80
1/2-13 1/2-20	82-88 94-99	110-120 125-135
9/16-12 9/16-18	127-134 147-155	170-180 199-210
5/8-11 5/8-18	160-170 165-175	215-230 225-235
3/4-10 3/4-16	280-295 330-365	380-400 445-495
7/8-9 7/8-14	410-430 420-440	555-580 570-595
1-8 1-14	630-650 680-700	850-880 920-950
1 1/8-7 1 1/8-12	900-930 930-950	1220-1260 1260-1290
1 1/4-7 1 1/4-12	1250-1300 1280-1320	1695-1760 1735-1790

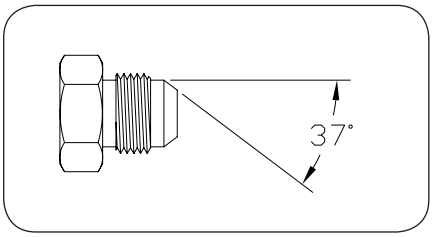
IMPORTANT

- *Follow these torque recommendations except when specified in text.*

Hydraulic Fittings – Torque and Installation

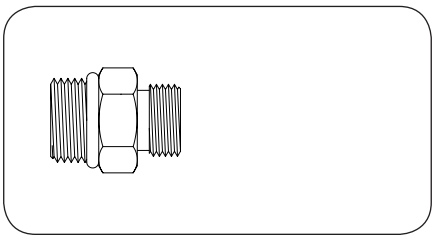
SAE Flare Connection (J. I. C.)

1. Tighten nut with finger until it bottoms the seat.
2. Using a wrench, rotate nut to tighten. Turn nut 1/3 turn to apply proper torque.

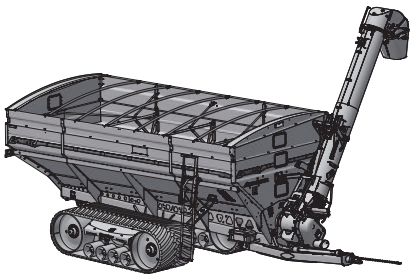


SAE Straight Thread O-Ring Seal

1. Insure jam nut and washer are backed up to the back side of smooth portion of elbow adapter.
2. Lubricate o-ring.
3. Thread into port until washer bottoms onto spot face.
4. Position elbows by backing up adapter.
5. Tighten jam nut.



Notes



BRENT **Grain Handling**

AVALANCHE® DOUBLE-AUGER GRAIN CART MODEL 1598

Serial Number B42870100 & Higher

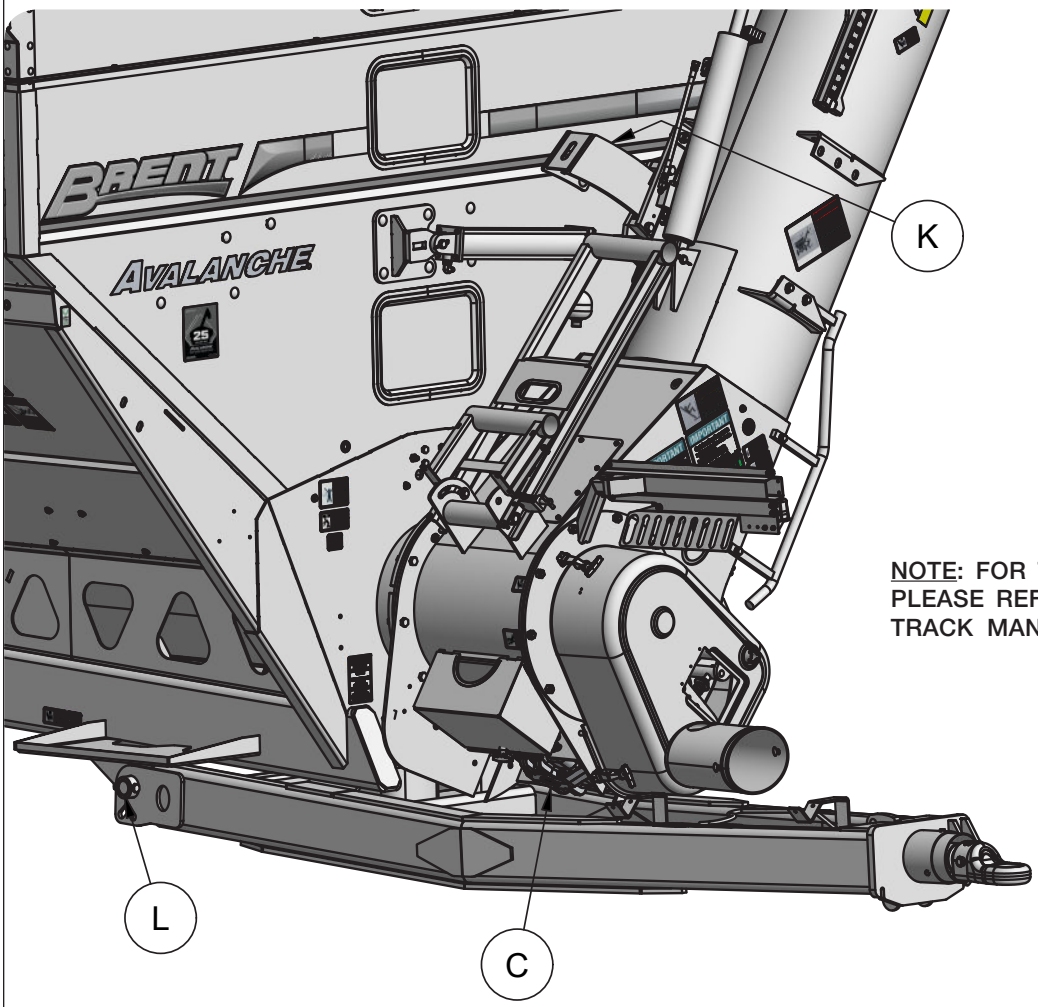
Part No. 296161

Section IV
Maintenance

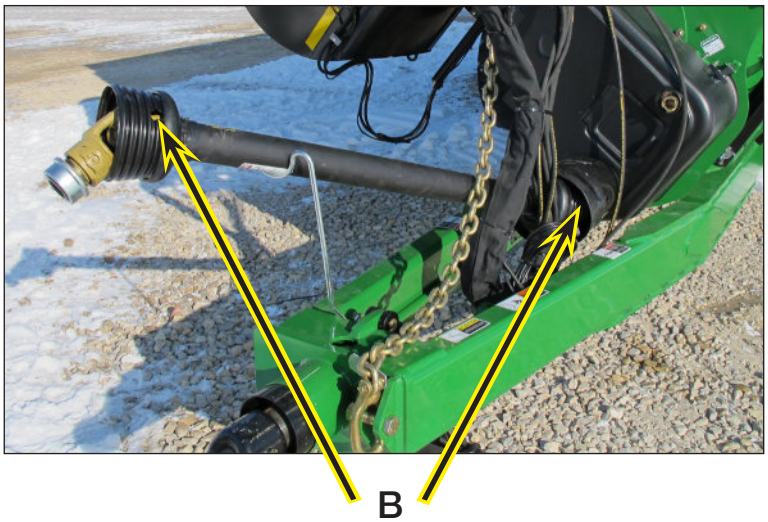
FOR SCALE, TRACK, UHARVEST, ELECTRIC TARP, AND / OR WATER DELIVERY SYSTEM INFORMATION, PLEASE REFER TO THE INDIVIDUAL MANUALS.

Lubrication

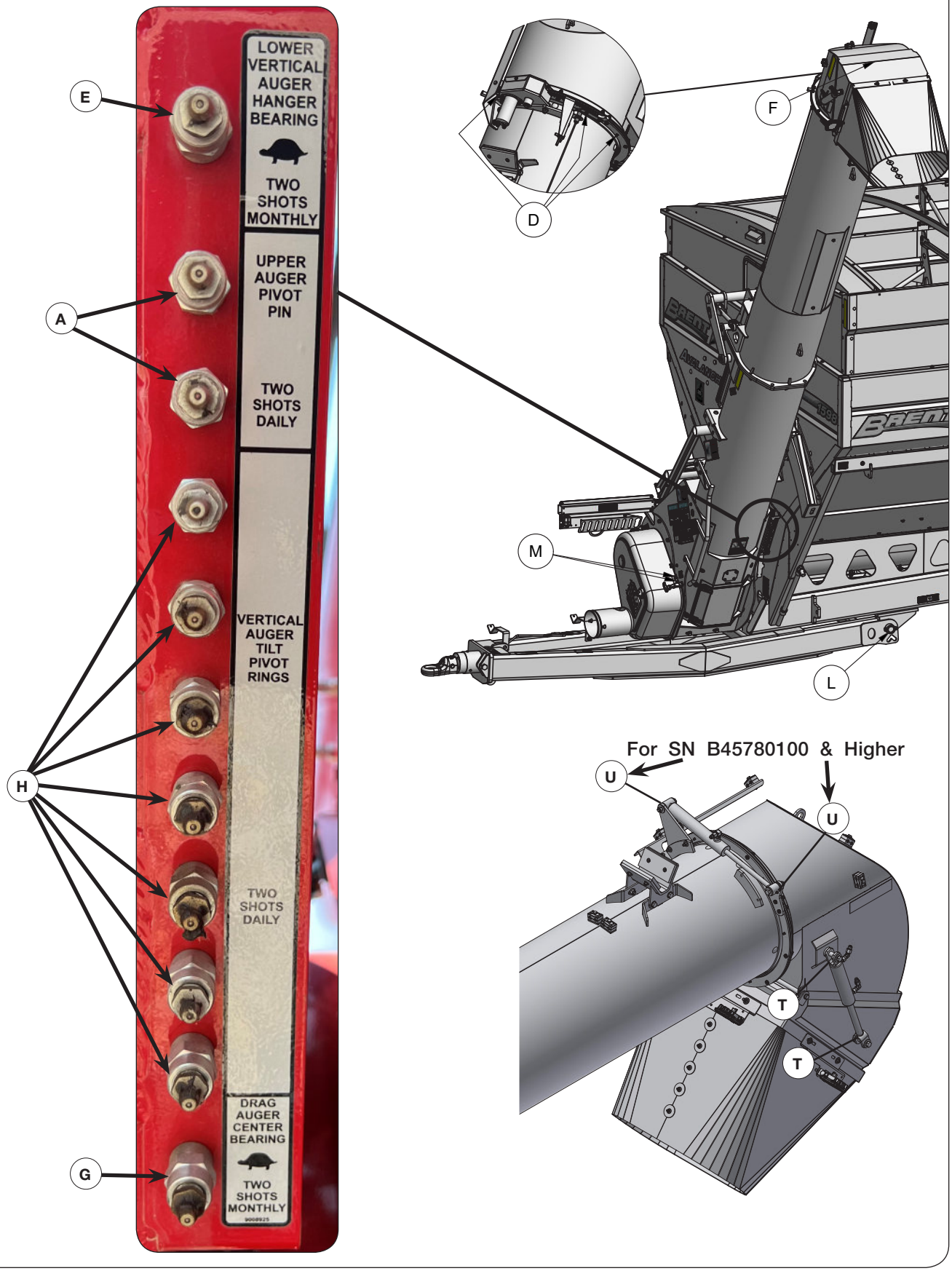
To keep your grain cart in top operating condition and to assure its proper performance and reliability for a long period of time, periodic inspection and lubrication is a must.



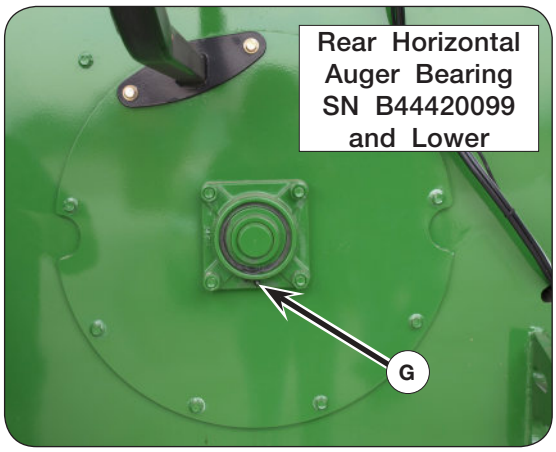
NOTE: FOR TRACK LUBRICATION, PLEASE REFER TO APPROPRIATE TRACK MANUAL.

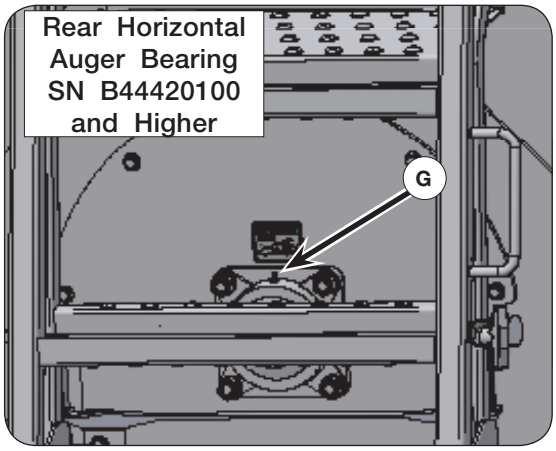


Lubrication

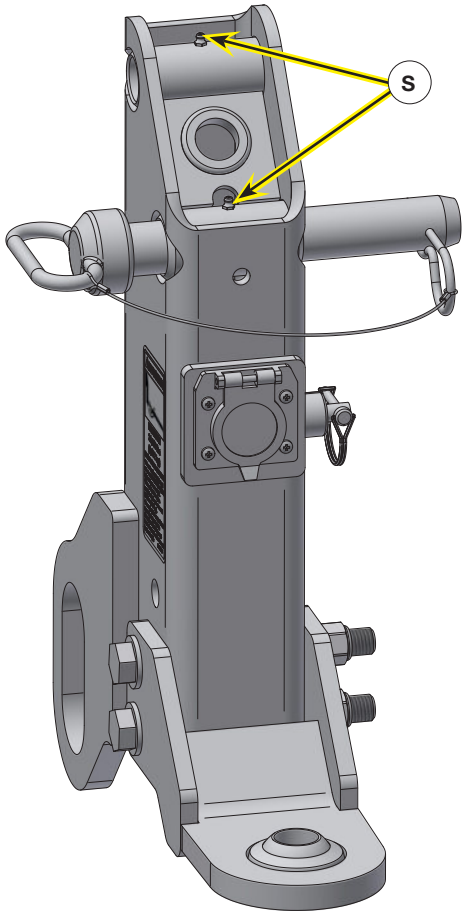


Lubrication (continued)



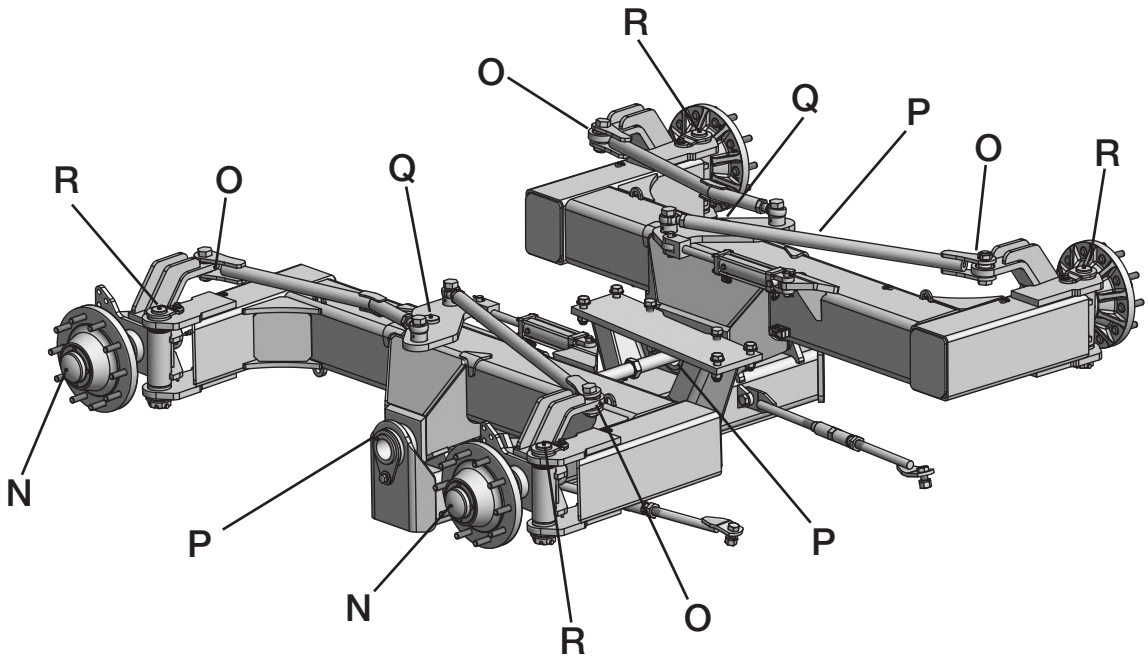


Optional Rear Hitch SN B44420100 and Higher



Lubrication (continued)

Steering Tandem Lubrication Locations

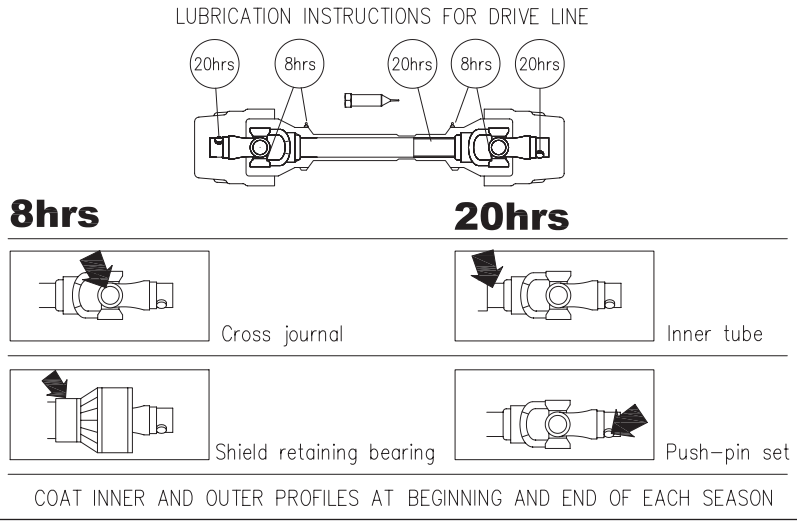


PTO Driveshaft Lubrication

Lubricate with NLGI grade 2 grease before starting work and every 8 operating hours. Clean and grease PTO driveshaft before each prolonged period of non-use. Molded nipples on the shield near each shield bearing are intended as grease fittings and should be lubricated every 8 hours of operation! Check and grease the guard tubes in winter to prevent freezing.

NOTE: Inner & outer profile tubes must have lubrication to operate successfully regardless of whether a grease fitting is provided for that purpose! Inner & outer profile tubes without fittings should be pulled apart and grease should be added manually.

Fig. 4-1



Lubrication (continued)

To keep your grain cart in top operating condition and to assure its proper performance and reliability for a long period of time, periodic inspection and lubrication is a must.

Unverferth Mfg. recommends use of NLGI #2 Extreme Pressure grease.

The lubrication locations and recommended schedule are as follows:

ITEM	DESCRIPTION	POINT	LUBRICANT	QTY.	HOURS
A	Grease Bank for Auger Pivot Pin - Vertical Upper Auger Hinge	2	EP-2	2 Shots	Daily
B	PTO Driveshaft	3	EP-2	1 Shot	See Chart Above
C	Gearbox -- Remove Cover - Check oil level every 2 weeks. Replace oil every season. Refer to Gearbox in MAINTENANCE section for instructions.	1	EP80W90	Approx 85 oz.	Once Every Season
D	Discharge Spout Pivot Grease Points	6	EP-2	1 Shot	Monthly
E*	Grease Bank for Hanger Bearing - Vertical Lower Auger See note below*	1	EP-2	2 Shots*	Monthly
F	Top Bearing - Vertical Upper Auger	1	EP-2	1 Shot	Each Season
G	Grease Bank for Horizontal Auger End & Center Bearings	2	EP-2	2 Shots	Monthly
H	Grease Bank for Auger Pivot Rings - Front & Rear Auger Hinge	7	EP-2	2 Shots	Daily
K	Grease Slide Plate	1	EP-2	1 Shot	Each Season
L	Tongue Pivot Bushing	2 (one per side)	EP-2	2 Shots	Daily
M	Front Horizontal Auger Bearing & Gearbox Support Bearing	2	EP-2	1 Shot	Weekly
N	Hubs	4	EP-2	Repack	2 Years
O	Rod Ends of Steering Linkage	4	EP-2	2 Shots	Weekly
P	Tandem Pivot	4	EP-2	3 Shots	Daily
Q	Steering Pivot Pin	2	EP-2	3 Shots	Weekly
R	Spindle Retainer Pivot Pin	4	EP-2	2 Shots	Monthly
S	Rear Drop Hitch Pivot Pin (Optional) For SN B44420100 and Higher	2	EP-2	2 Shots	Monthly
T	Spout Tilt Cylinder	2	EP-2	3 Shots	Weekly
U	Spout Rotate Cylinder - For SN B45780100 and Higher	2	EP-2	3 Shots	Weekly

***NOTE**: Hanger bearing contains hydraulic shut-off grease zerk (9005240) with pressure relief to prevent over-greasing that could push bearing seals out. If grease is coming out of the relief on the zerk, this is normal and the bearing contains enough grease.

Hydraulic System

Refer to parts section for hydraulic component detail listing.
When properly assembled and maintained, the hydraulic system of the grain cart requires little maintenance.
Replacing Hoses/Fittings/Cylinders:

1. Use replacement hoses, fittings, and cylinders from your Unverferth Manufacturing dealer which are rated for 3,000 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 Specifications" in the MAINTENANCE 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

⚠ WARNING

- **HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.**
- **RELIEVE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR'S MANUAL FOR PROPER PROCEDURES.**
- **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.**

- **KEEP CLEAR OF PINCH POINT AREAS.**

- **FALLING OR LOWERING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH. KEEP EVERYONE AWAY FROM EQUIPMENT WHEN SUSPENDED, RASING, OR LOWERING.**

Purge air from system as follows:

A. 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.
B. 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.
C. Check oil reservoir in the hydraulic power source and refill as needed.
D. 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.
E. Check for hydraulic oil leaks using cardboard or wood. Tighten connections according to directions in the Torque Specifications in the MAINTENANCE section.
F. Repeat steps in B, C, D, and E 10–12 times.

IMPORTANT

- *Machine damage will occur if the cylinder is incorrectly installed.*

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

Bleeding Procedure For Braking System

⚠ WARNING

- **RELIEVE THE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR'S MANUAL FOR PROPER PROCEDURES.**
- **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.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.**

NOTE: System is intended for tractors with hydraulic trailer brakes. If your tractor does not have hydraulic trailer brakes, contact your dealer for support.

NOTE: This procedure is a **two-person** process. One person operates the brake pedal while the second person loosens the bleeder screw on the brake caliper.

1. If using a tractor, set the tractor parking brake, but leave tractor engine on throughout the procedure. Brakes can be attached to either the front or rear set of wheels. Attach hydraulic brake coupler on the cart to the implement brake port at the rear of the tractor.
2. Apply and hold pressure to brake pedal.
3. Attach 1/4" hose to bleeder screw fitting. Put hose in an approved container. Loosen the bleeder screw, at the top of the brake caliper, on caliper of the closest wheel located in the hydraulic circuit. If necessary, pump the brake pedal to extract all air from the system. Once air bubbles are no longer present, tighten the bleeder screw. (Fig. 4-2)
4. Repeat steps 2 and 3 to the next brake caliper in the brake circuit. Repeat until all brakes are bled.
5. Do a final tightness check of all caliper bleed screws before beginning cart operation. Check that brakes actuate and release properly with tractor brake pedal.

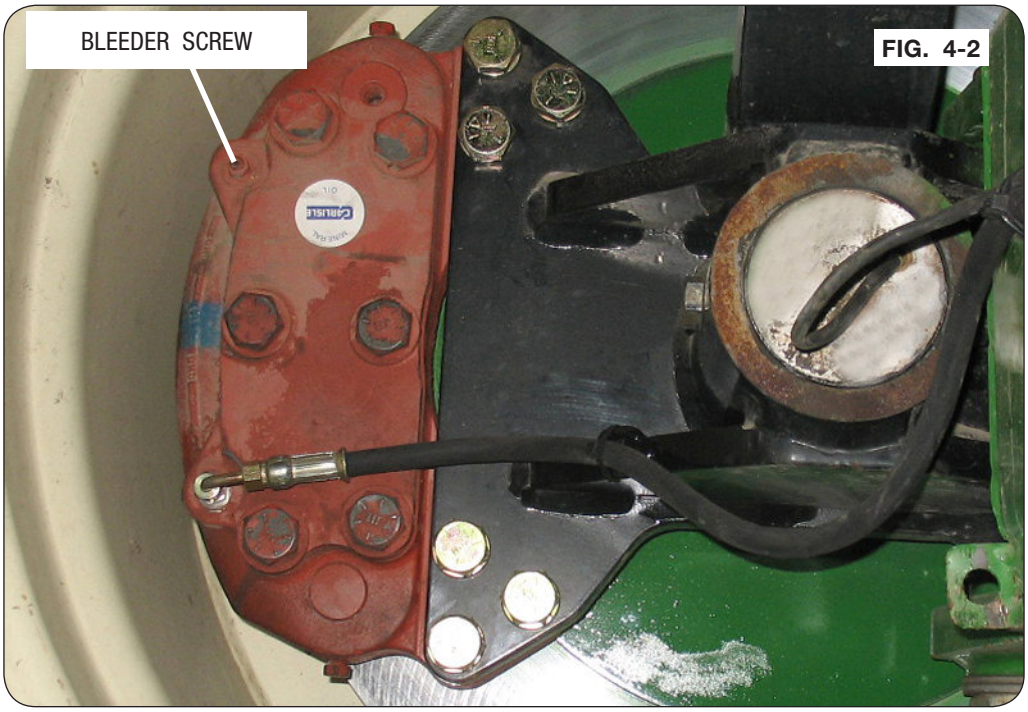


FIG. 4-2

Manual Override for Optional Electric Over Hydraulic System

⚠ WARNING

- **MOVING OR ROTATING AUGER COMPONENTS CAN CAUSE SERIOUS INJURY OR MACHINE DAMAGE. BEFORE OPERATING MANUAL OVERRIDE(S), ENSURE EVERYONE IS AWAY FROM THE SPOUT AND THAT THE SPOUT WILL NOT CONTACT ANY OTHER PARTS OF THE GRAIN CART. ALL CONTROL SWITCHES ARE DEACTIVATED WHILE UTILIZING MANUAL OVERRIDE(S).**

- **MOVING OR ROTATING PTO COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT OPERATE PTO WHILE UTILIZING MANUAL OVERRIDE(S).**

- **FALLING OR LOWERING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH. KEEP EVERYONE AWAY FROM EQUIPMENT WHEN SUSPENDED, RASING, OR LOWERING.**

IMPORTANT

- *For carts SN B45780099 and lower, spout must be centered before operating the auger fold. Align checker flag decals or spout rotate decals to ensure spout rotate is centered.*

NOTE: Manual override operation is intended for emergency use ONLY and is not intended for continuous operation. For carts SN B45780099 and lower, spout may rotate into cart causing damage.

NOTE: Spout and auger can move at any location for carts SN B45780100 and higher. For carts SN B45780099 and lower, only manual override operation allows the spout and auger to move regardless of location.

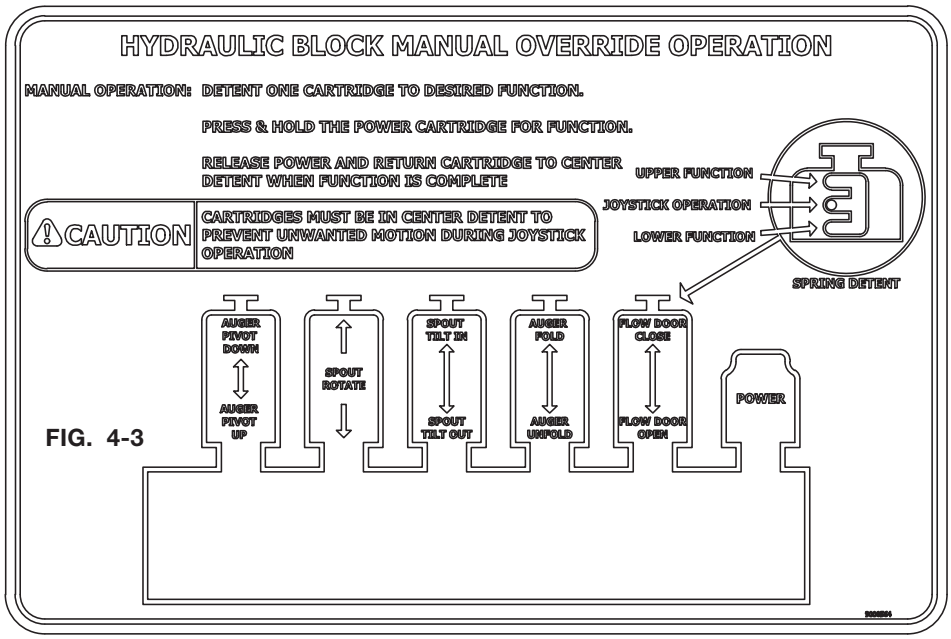


FIG. 4-3

1. Park the empty grain cart on a firm and level surface. Block the machine to keep it from moving. Set the tractor's parking brake. Keep engine running.

Manual Override for Optional Electric Over Hydraulic System (continued)

2. Remove cover plate (295569B) from the bottom of the lower auger housing to access the EOH block assembly. Keep cover plate. (FIG. 4-4)

3. Connect the desired Hydraulic Pressure and Return hoses to the tractor SCV remote.

4. To operate the manual override function, place the tractor SCV remote in continuous detent so that the Hydraulic Pressure hose is pressurized.

(continued on next page.)

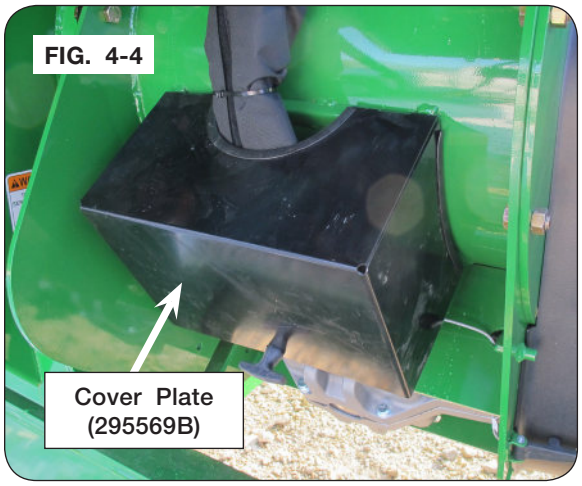


FIG. 4-4

Manual Override for Optional Electric Over Hydraulic System (continued)

NOTE: Only one cartridge valve (9008416 & 9008463) must be in the top or bottom detent position at a time to function properly. All other valves must be in the middle detent postion. (FIG. 4-5 & 4-6)

5. Operate the desired function on valve (9008416 & 9008463) by rotating the manual override knurled knob from the locked neutral position. (FIG. 4-6, 4-7, & 4-8)

6. Push and hold the manual override button on valve (9008438). (FIG. 4-8)

7. Once the desired position is reached, release manual override button on valve (9008438).

8. Return knurled knob to center and lock valve (9008416) & (9008463) in position. (FIG 4-5, 4-6 & 4-8)

NOTE: Refer to "Troubleshooting" for EOH, vertical auger and/or rotating spout issues in the MAINTENANCE section.

9. Turn off hydraulic circuit when done. Correct electric/hydraulic system before continued use. Consult your dealer for service and parts.

10. Replace cover plate (272606B) from step 2 to the bottom of the lower auger housing.

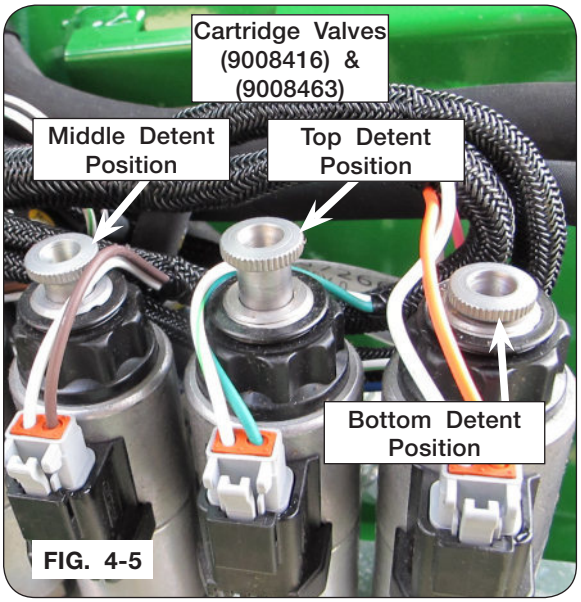


FIG. 4-5

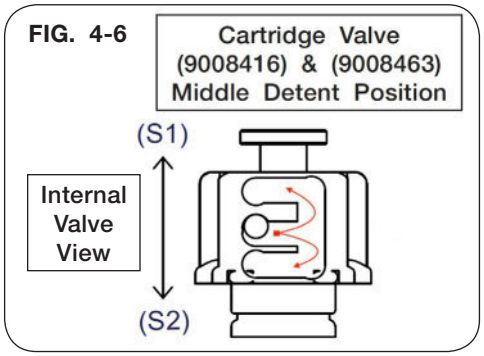


FIG. 4-6

FIG. 4-8

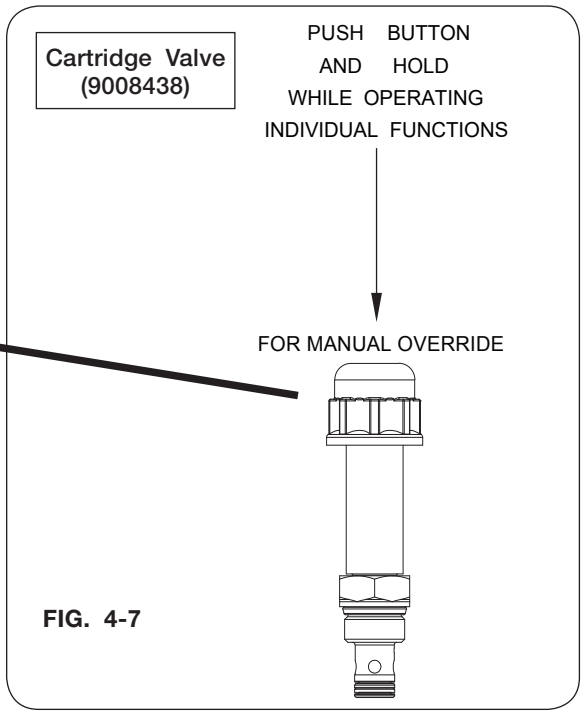


FIG. 4-7

Manual Override for SCV Controlled Spout Rotate & Auger Fold For SN B45780099 & Lower

WARNING

- **MOVING OR ROTATING AUGER COMPONENTS CAN CAUSE SERIOUS INJURY OR MACHINE DAMAGE. BEFORE OPERATING MANUAL OVERRIDE(S), ENSURE EVERYONE IS AWAY FROM THE SPOUT.**
- **MOVING OR ROTATING PTO COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT OPERATE PTO WHILE UTILIZING MANUAL OVERRIDE(S).**
- **FALLING OR LOWERING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH. KEEP EVERYONE AWAY FROM EQUIPMENT WHEN SUSPENDED, RASING, OR LOWERING.**

IMPORTANT

- *Spout must be centered before operating the auger fold. Align checkered flag decals to ensure spout rotate is centered.*

NOTE: Manual override operation is intended for emergency use ONLY and is not intended for continuous operation. Spout may rotate into the cart causing damage.

NOTE: Manual override operation allows the spout and auger to move regardless of location.

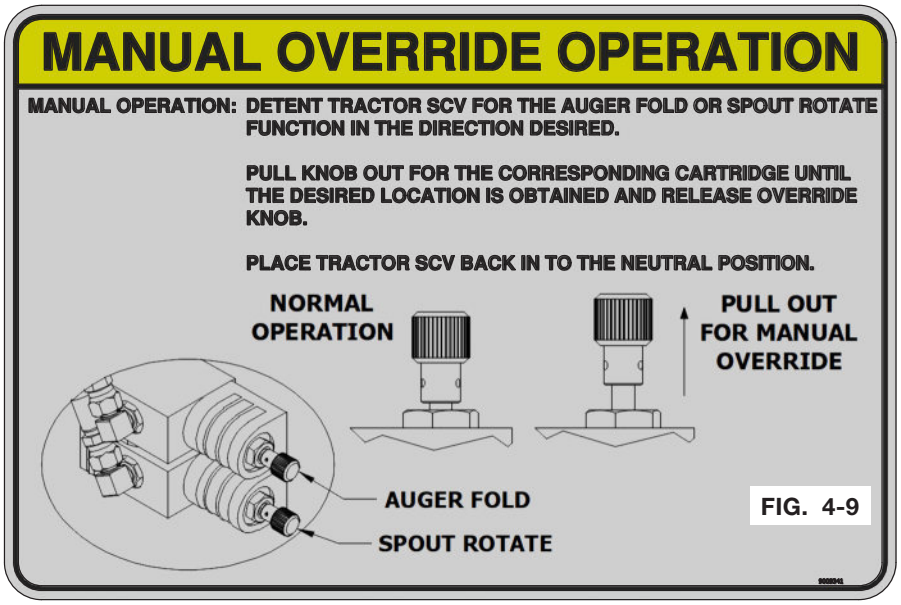


FIG. 4-9

1. Park the empty grain cart on a firm and level surface. Block the machine to keep it from moving. Set the tractor's parking brake. Keep engine running.
2. Remove cover plate (295569B) from the bottom of the lower auger housing to access the auger fold / spout rotate interlock valve assemblies. Keep cover plate.
3. To operate the manual override function, set tractor SCV to a maximum of 4 gpm and place the tractor SCV for the desired function in continuous detent in the direction of flow that operates the spout rotate or auger fold direction desired.

Manual Override for SCV Controlled Spout Rotate & Auger Fold For SN B45780099 & Lower (continued)

NOTE: Operate one cartridge valve (9009186) at a time. Keep other valve in normal position. (FIG. 4-10 & 4-11)

4. Locate the desired valve (9009186). (FIG 4-10)

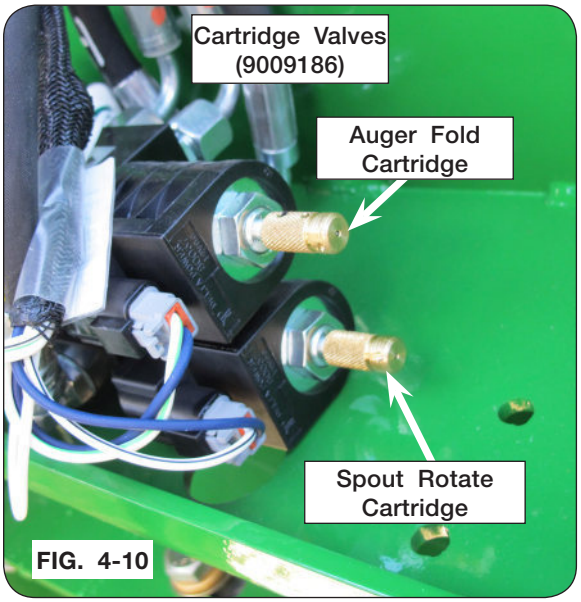


FIG. 4-10

5. Pull and hold the knob out on valve from normal position to manual override position. (FIG. 4-11)

6. Once the desired position is reached, release knob on valve from manual override back to normal position.

7. Turn off hydraulic circuit when done. Correct electric/hydraulic system before continued use. Consult your dealer for service and parts.

   NOTE: Refer to "Troubleshooting" and for inline valve, vertical auger and/or rotating spout issues in the MAINTENANCE section.

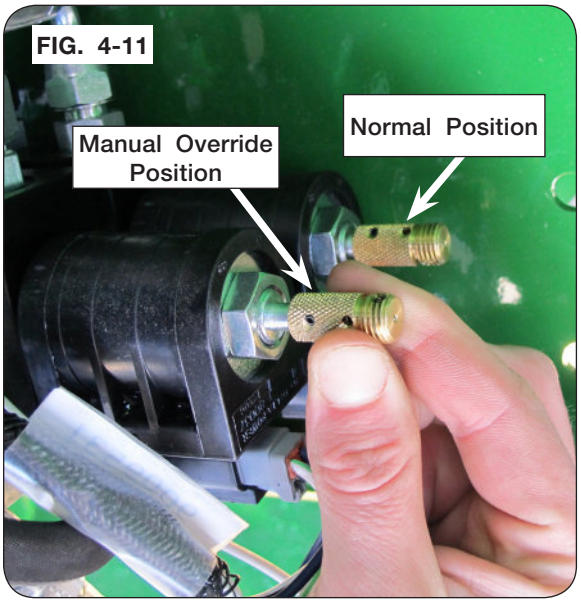


FIG. 4-11

8. Replace cover plate (295569B) from step 2 to the bottom of the lower auger housing. (FIG. 4-12)

FIG. 4-12

Auger System

⚠ WARNING

- **TO PREVENT PERSONAL INJURY OR DEATH WHILE SERVICING, ALWAYS ENSURE THAT THERE ARE PEOPLE WHO REMAIN OUTSIDE THE CART TO ASSIST THE PERSON WORKING INSIDE, AND THAT ALL SAFE WORKPLACE PRACTICES ARE FOLLOWED. THERE ARE RESTRICTED MOBILITY AND LIMITED EXIT PATHS WHEN WORKING INSIDE THE IMPLEMENT.**
- **NEVER ENTER CART WITH AUGER OR TRACTOR RUNNING. SERIOUS OR FATAL INJURY CAN OCCUR DUE TO ENTANGLEMENT WITH ROTATING COMPONENTS. ALWAYS STOP ENGINE AND REMOVE KEY BEFORE ENTERING CART.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.**
- **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 2,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**
- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ALWAYS DISCONNECT POWER SOURCE BEFORE SERVICING. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR(S) ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING MACHINE.**

- **SHARP EDGES ON THE MACHINE CAN CAUSE INJURY. BE CAREFUL WHEN WORKING AROUND THE MACHINE.**

Horizontal Auger

Annually check all bolts, nuts, and set screws. Perform lubrication as specified in “Lubrication” section.

For flighting centerline measurement and hanger bearing height adjustment, refer to “Horizontal Auger Removal and Replacement” in this section.

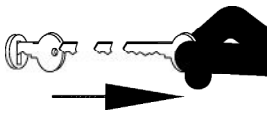
Auger System (continued)

Vertical Auger Folding Linkage Adjustment

NOTE: To fold auger from operating position to transport position, refer to "Electric Over Hydraulic Operation (Optional)" in the OPERATION section.

1. Fold auger from operating position to transport position.

2. Before adjusting the vertical auger folding linkage, park the unit on a firm, level surface. Block the machine to keep it from moving. Set the tractor parking brake, turn off tractor engine, and remove ignition key.



NOTE: The starting distance for the folding linkage pin center-to-center is 14 3/16". (FIG. 4-13)

3. At the FRONT of the auger, remove retaining rings (91192) from the pin (272587) on clevis (9006491). Keep retaining rings and pin. (FIG. 4-13)

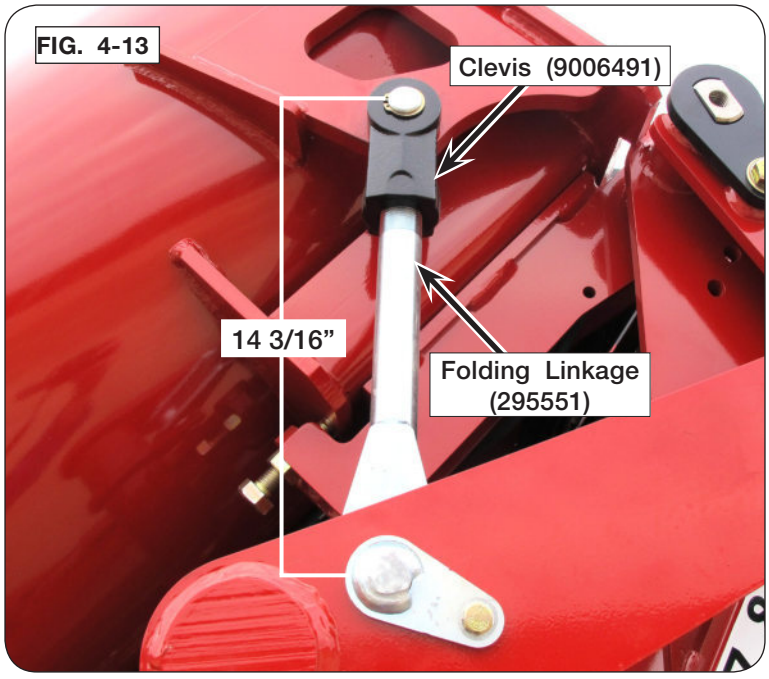
4. Adjust folding linkage (295551) by turning the clevis in or out one full turn. (FIG. 4-13)

5. Reinsert pin into clevis and attach retaining rings to pin.

6. Repeat procedure for the folding linkage on the BACK of the auger.

7. Restart engine, unfold auger, and inspect hinge area. Allow sufficient time for the cylinder to fully engage the two augers and over-center latch to fully engage.

8. If additional length is needed, repeat steps 3-6 until the upper and lower auger firmly seal.



Auger System (continued)

Vertical Auger Height Check

Before servicing the vertical auger, park the unit on a firm, level surface. Block the machine to keep it from moving. Raise vertical auger to discharge position and close horizontal auger flow door. Set the tractor parking brake, turn off tractor engine, remove ignition key, and disconnect PTO shaft and hydraulic lines from tractor.

Annually check all bolts, nuts, and set screws for tightness. Replace the vertical auger top bearing hardware, as necessary. (FIG. 4-14)

(Continued on next page)

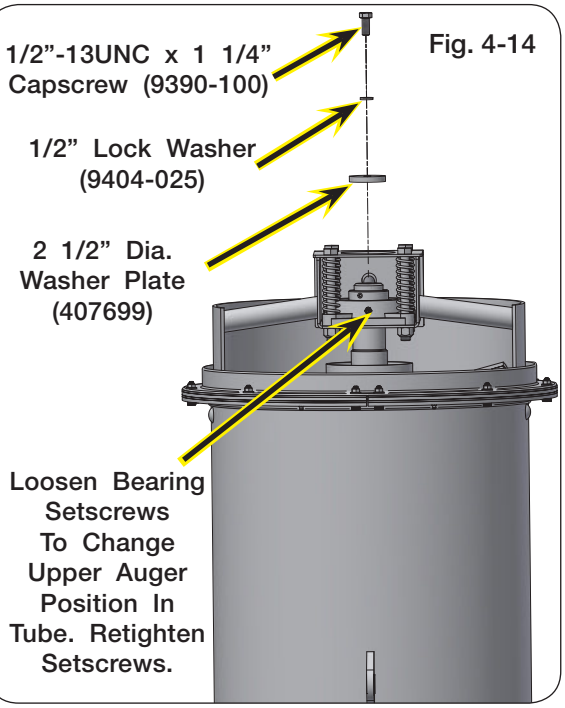


Fig. 4-14

Auger System (continued)

Vertical Auger Height Check (continued)

NOTE: The lower auger position is indexed from the drive dog / tube flange hinge surface as shown. (Figs. 4-15 & 4-16)

Fig. 4-17

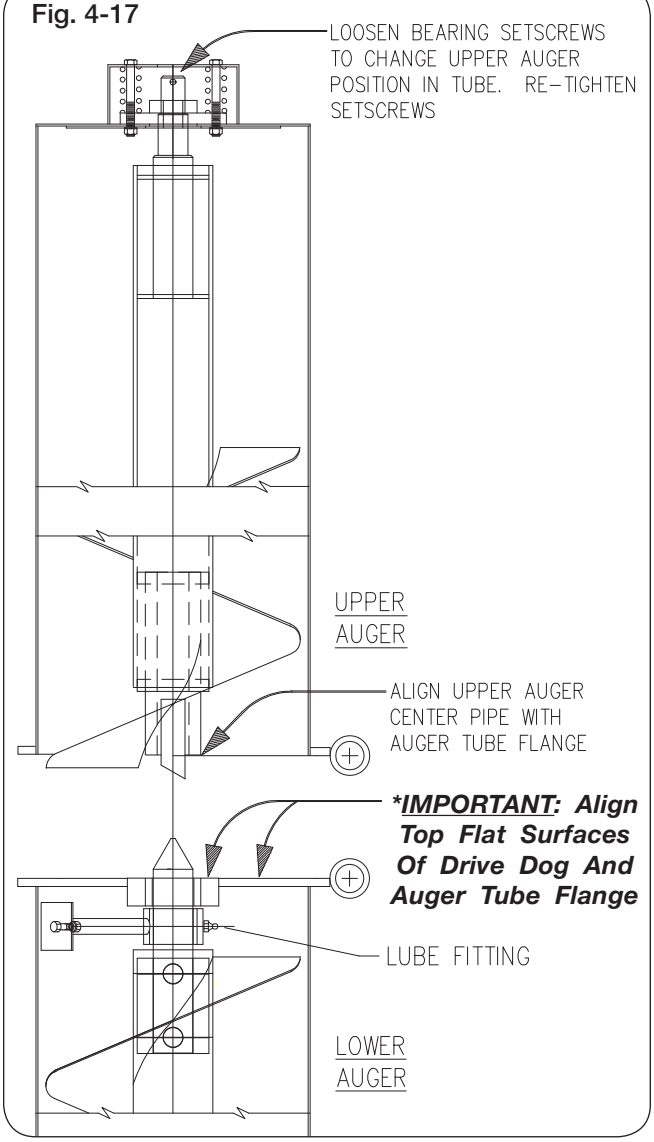
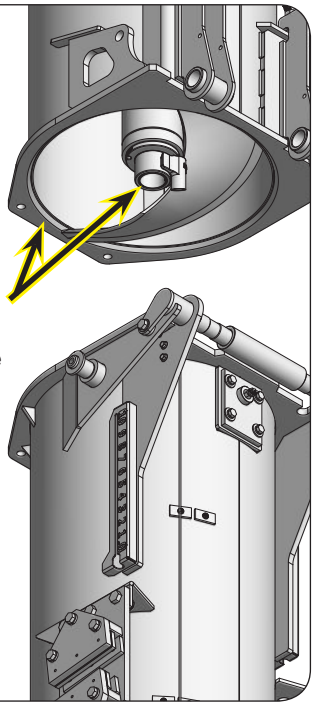
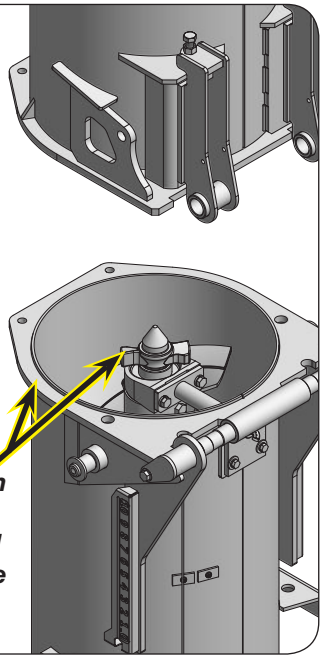


Fig. 4-15



Align Upper Auger Center Pipe With Auger Tube Flange

Fig. 4-16



*IMPORTANT: Align Top Flat Surfaces Of Drive Dog And Auger Tube Flange

Auger System (continued)

Vertical Auger Timing

1. For the lower vertical auger, use the top edge of the flighting as a 12 o'clock reference. Position the drive dog so the driving edge is at the 11 o'clock position. (FIG. 4-18)

NOTE: Looking down at the lower flighting (FIG. 4-18) the auger rotation will be counter-clockwise. When looking up at the upper flighting (FIG. 4-19) the auger rotation will be clockwise.

2. For the upper auger, use the outer edge of the flighting as a 12 o'clock reference. Postion the driven edge of the drive pin at the 4 o'clock position. (FIG. 4-19)

3. When engaged, the upper flighting should follow the lower flighting. (FIG. 4-20)

NOTE: Upper flighting should trail the lower flighting from minimum of 10 degrees to a maximum of 90 degrees.

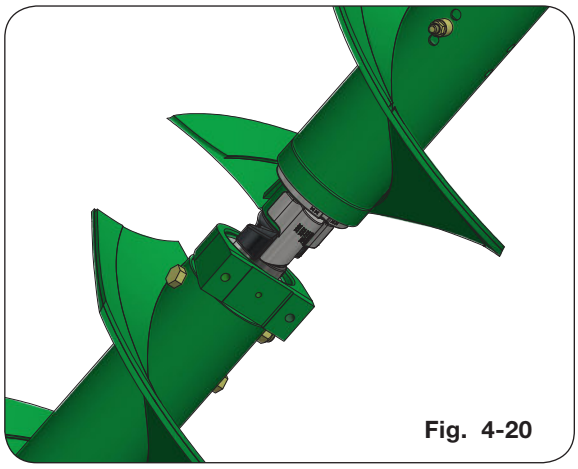
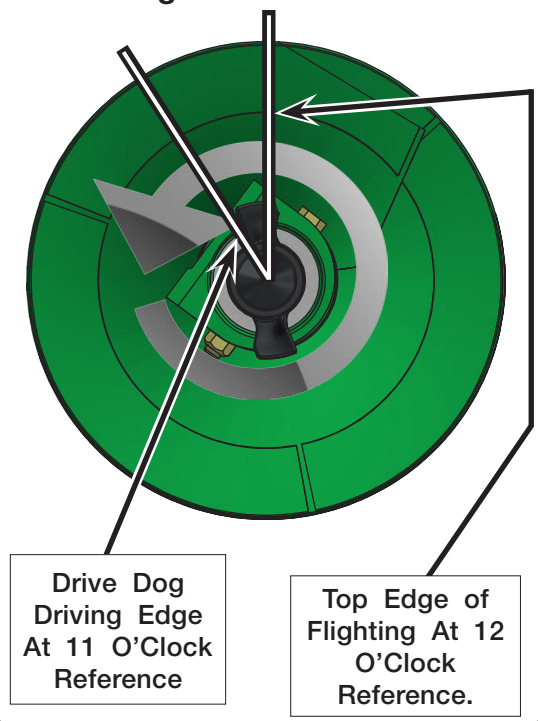
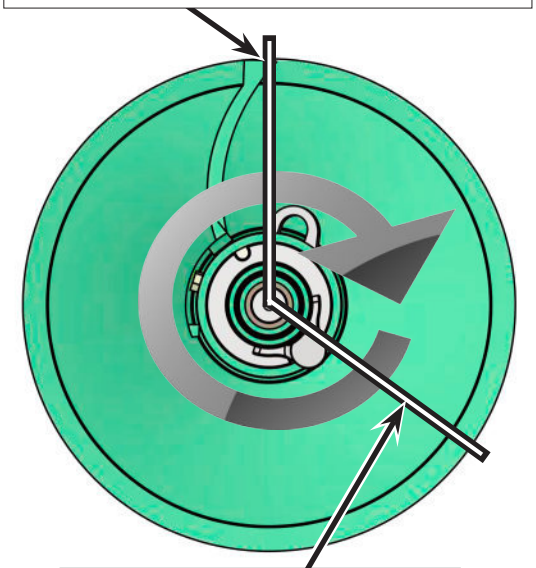


Fig. 4-20

Lower Auger Fig. 4-18



Upper Auger Fig. 4-19

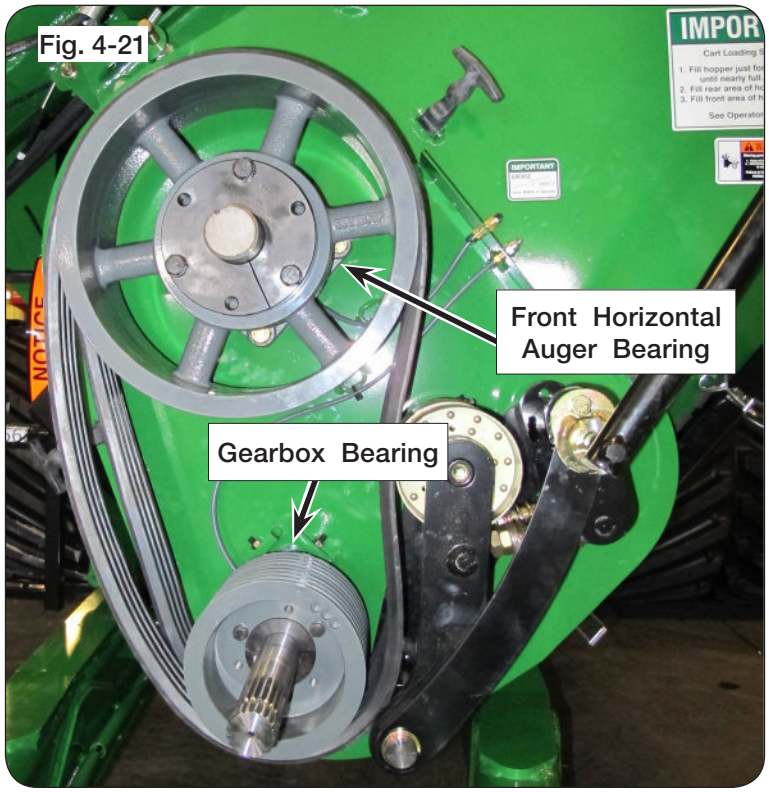


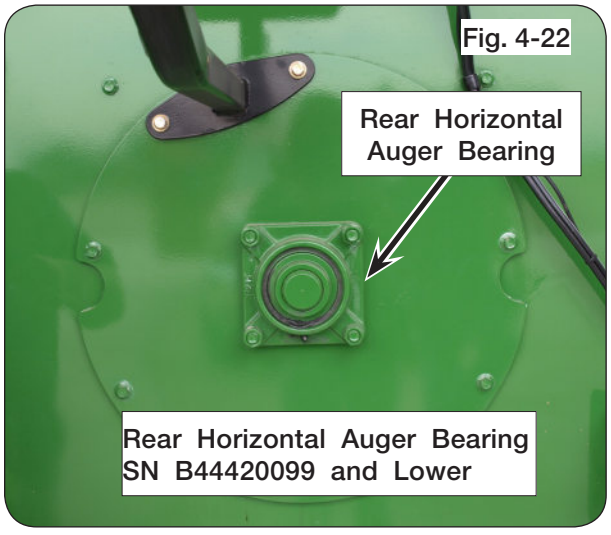
Auger System (continued)

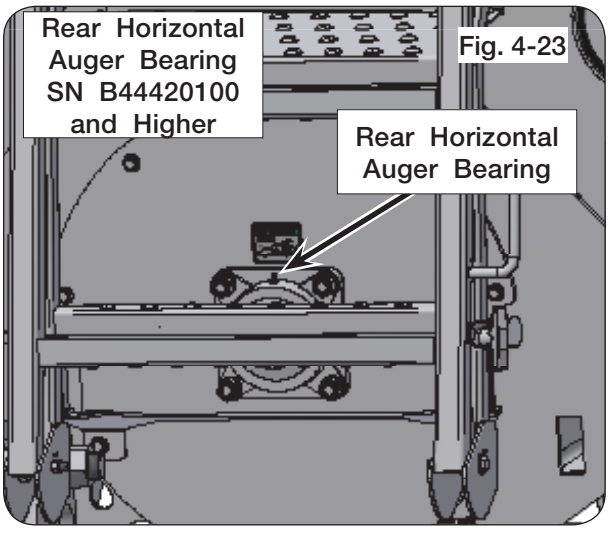
Horizontal Auger Driveline Bearings

IMPORTANT

- *Periodically check set screws in all bearings at either end of the driveline for tightness. (FIG. 4-21, 4-22 and 4-23)*







Belt Tightener Adjustment

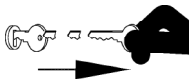
IMPORTANT

- *Do not use belt dressing.*
- *Keep grease and oil off of belt and pulleys.*

NOTE: Pulleys do not need to be removed to remove/replace belt.

Due to prolonged use, belt wear may be evident causing slack. To correct this, follow these steps.

1. Park the unit on a firm, level surface. Block the wheels to keep the machine from moving. Set the vehicle parking brake, shut off the engine and remove the ignition key from the towing vehicle.



⚠ WARNING

- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ALWAYS DISCONNECT POWER SOURCE BEFORE SERVICING. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR(S) ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**

2. Remove PTO assembly from gearbox input shaft.

3. Detension the belt as outlined in OPERATION section. Remove belt tensioner handle.

4. Remove cover and inspect belts for misalignment, loose parts and cracks. Replace if necessary with a matched set. See Fig. 4-26.

Fig. 4-24
Handle down is in engaged position

Fig. 4-25
Handle up is in disengaged position

Fig. 4-26

Belt Tightener Adjustment (continued)

5. Belt tension is adjusted with hex nuts below the spring. All belt tension MUST be released from linkage. Loosen outer hex nut and adjust inner nut to establish a 3 1/16" pre-load dimension between the heavy washers. Tighten the outer hex nut against inner nut to lock position. (Fig. 4-27)

6. Check the lower belt pulley to ensure belt is aligned in their grooves and with the belt tensioner handle, engage the roller/idler linkage against the belt and over-center stop. The compressed spring should now be approximately 1 3/4" between the washers and generating a force of approximately 480 lbs. against the belt. (Fig. 4-28)

7. Release and tighten belt multiple times to confirm positions and final adjustments. See Fig. 4-27 and Fig. 4-28.

8. Tighten belt. Install the cover guard and reattach the PTO shaft to the gearbox input shaft. Clear work area and test run drivetrain for 3 minutes at 1000 PTO RPM.

⚠ WARNING

- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**

9. Disengage PTO, turn off tractor and remove the ignition key. Through the cover access door, check the compressed spring length is approximately 1 3/4" between the washers and check each belt for uniform tension. If more adjustment is needed, refer to Steps 5 through 7. If no additional spring adjustment is available, then both belts must be replaced with a new matched set.

NOTE: Always replace belts in matched sets.

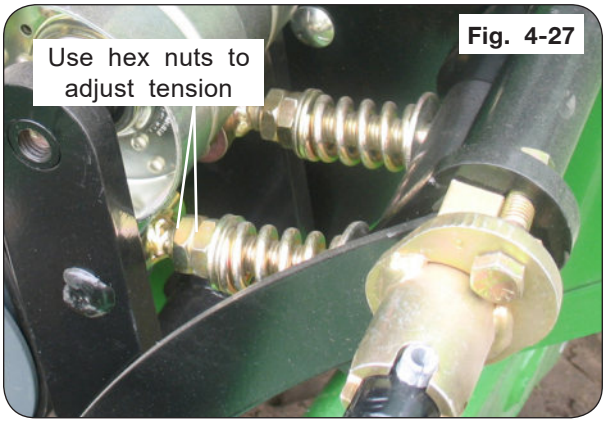


Fig. 4-27

Fig. 4-28

Fig. 4-29

V-Belt Alignment

1. Pulleys must be aligned with the fixed idler. Belts should be centered on idler for longest belt life. (Fig. 4-30)

Fig. 4-30

2. After tightening taper-lock bushing hardware, lay a straight edge across face of the drive and driven belt pulleys to ensure alignment between the grooves on the pulleys. (FIG. 4-31)

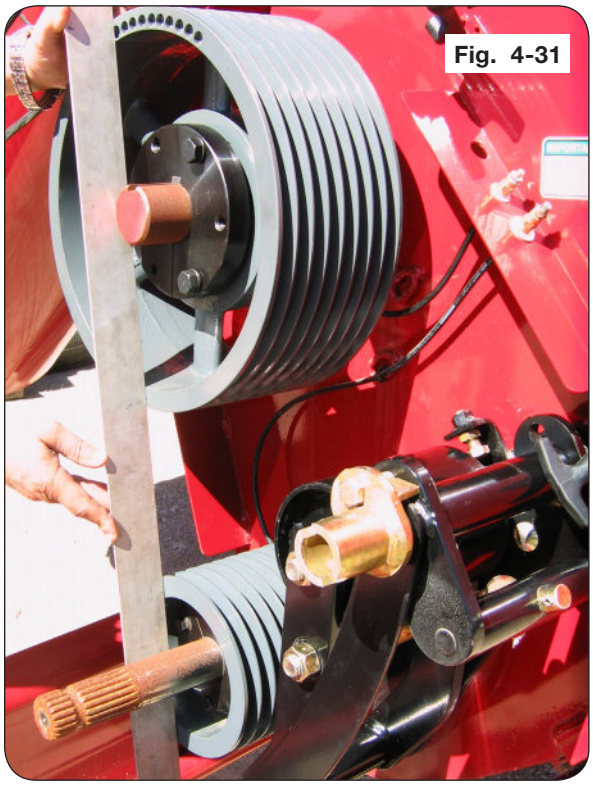


Fig. 4-31

V-Belt Alignment (continued)

Split Tapered Bushings

Check annually for tight engagement to driveshaft. Torque three bolts progressively to the following values:

For the smaller gearbox bushing (9007376): 3/8"-16UNC hardware. Torque to 75 ft-lbs.

For the larger horizontal auger bushing (9004813): 9/16"-12UNC hardware. Torque to 90 ft.-lbs.

Some gap must remain between flange & hub when bushing is properly tightened.

To remove from shaft, remove capscrews and insert them in tapped holes in bushing flange. Tighten progressively until bushing disengages.

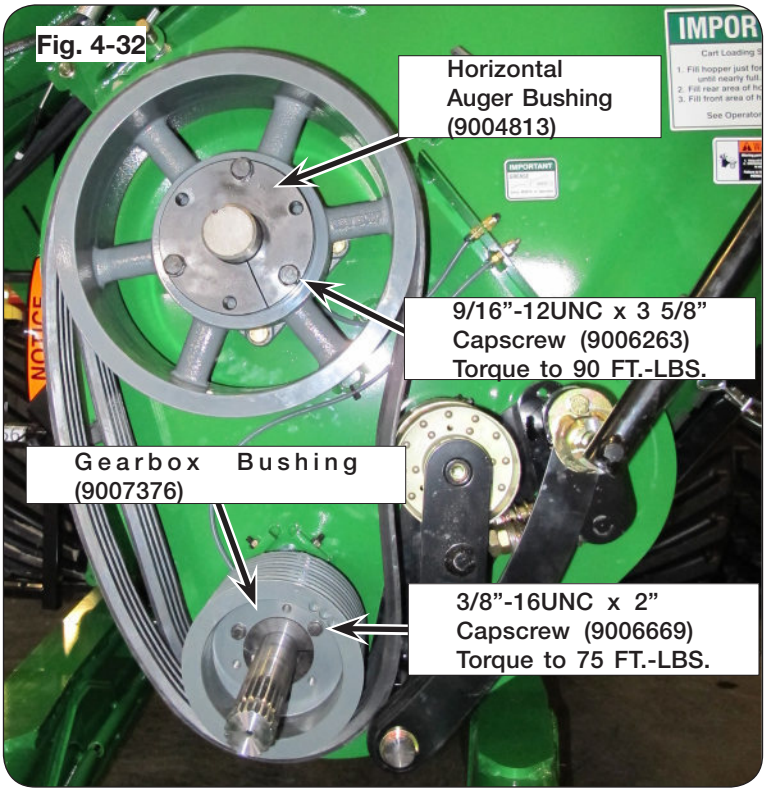


Fig. 4-32

Steering Tandem Maintenance

Periodically check tire alignment and linkages for damage. Remove trash and/or dirt that may have accumulated and possibly interfere with steering performance.

Alignment of tires can be changed by adjustment of linkage(s). See “Steering Tandem Linkage Adjustment Procedures” in this section.

Steering Tandem Troubleshooting

NOTE: Always perform the below steps with an empty cart.

Tire Misalignment:

1. First, rephase the steering cylinders by using the “Steering Cylinder Rephasing” procedure in this section.

2. Steer the left set of tires until all tire edges are inline and straight forward. Check the opposite side. If both tire edges are equally out of alignment, then the center linkage needs adjustment. See “Steering Tandem Linkage Adjustment Procedures” in this section.

3. If only one tire on the opposite side is not straight, then that tire linkage needs adjustment. See “Steering Tandem Linkage Adjustment Procedures” in this section.

Failure to Auto-Steer:

1. If the cylinders get out of phase with the linkages, the steering tandem will not auto-steer. See “Steering Cylinder Rephasing” procedure in this section.

2. If grease zerks are present, heavily grease the 4 spindle retainer pivot pins and 2 steering pivot pins. For grease zerk locations, see “Lubrication” in this section. After long periods of inactivity, the pins can seize in the bushing. Once the pins are greased, manual steer the wheels in both directions using the “Steering Cylinder Rephasing” procedure. If wheel assemblies do not rotate freely, grease again and repeat cylinder rephasing procedure.

3. Make sure the steering axle control switch is in the OFF/Auto-Steer position. (Fig. 4-33)

4. Check for debris that may be obstructing tie-rod movement.

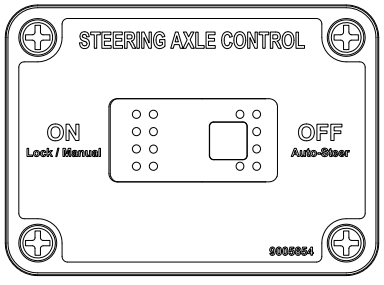


Fig. 4-33

Steering Tandem Maintenance (continued)

Steering Tandem Troubleshooting

NOTE: Always perform the below steps with an empty cart.

Failure to Manual-Steer:

1. Make sure the steering axle control switch is in the ON position. (Fig. 4-34)

2. Make sure the hydraulic hoses are attached properly.

3. Make sure hydraulic circuit is on.

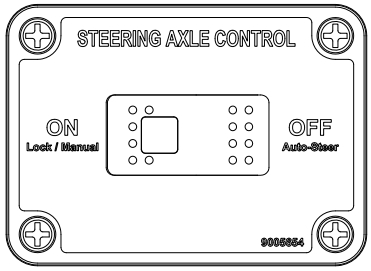


Fig. 4-34

4. Check harness connection on the steering valve located on the cross axle, make sure there is 12-Volts to the solenoid on the valve attached to the cross axle. (Fig. 4-35)

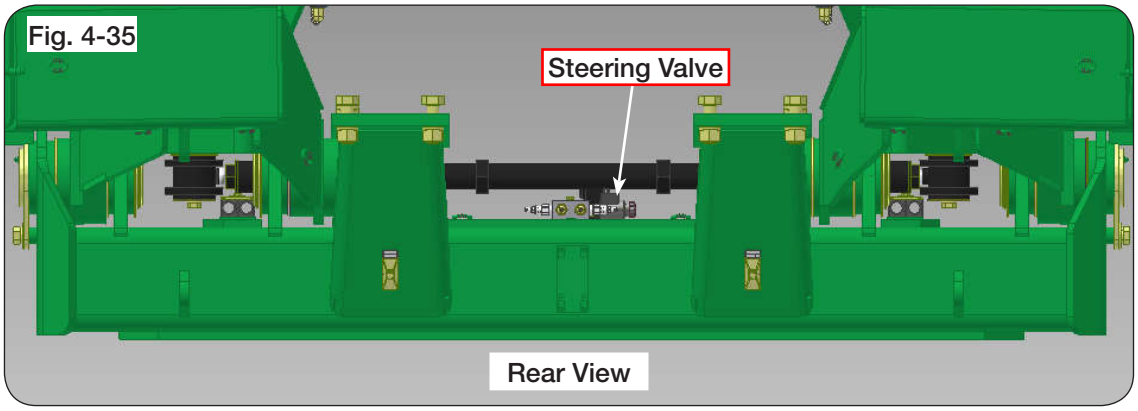


Fig. 4-35

Steering Indicator Misalignment:

1. Straighten the wheels, if the steering indicator is not centered, follow “Steering Indicator Adjustment Procedure” in this section.

Steering Tandem Maintenance (continued)

Steering Cylinder Rephasing

⚠ WARNING

- **UNEXPECTED IMPLEMENT MOVEMENT CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT SERVICE OR MAKE ADJUSTMENTS TO IMPLEMENT WHILE THE TOWING VEHICLE IS RUNNING.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**

NOTE: It is recommended to rephase the cylinders at the start of each day, with an empty cart. Doing this operation helps keep alignment.

NOTE: Do not block tires since they are being manually steered.

1. Park the empty unit on a firm, level surface. Set the towing vehicle's parking brake. Tractor hydraulics are required for some steps, shut off engine and remove ignition key when hydraulic functions are complete.
2. Turn the steering axle control switch to the "ON/Manual-Steer" position, and ensure the hydraulic lever is in float. (Fig. 4-36)
3. Manually steer the tires with the tractor hydraulics completely in one direction and hold hydraulic lever for 5 seconds.
4. Turn the tires completely in the opposite direction and hold the hydraulic lever for 5 seconds.
5. Repeat the process in steps 3 & 4 if the cylinders are not fully extending.

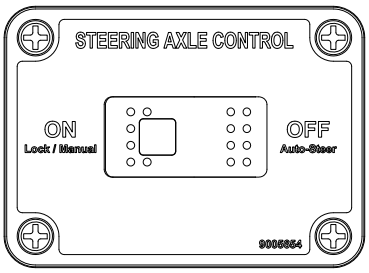


Fig. 4-36

NOTE: Fully extended cylinder should measure 28.25" center-of-pin to center-of-pin.

6. If a cylinder does not fully extend after repeating steps 3 & 4, remove cotter pin and pin from the rod end of the steering cylinder. (Fig. 4-37)
7. Position the rod end so it will not contact anything as it extends and retracts.
8. Rephase the cylinder as described in steps 3 & 4.
9. Reattach the rod end of the cylinder to the steering turntable once the cylinders are rephased. (Fig. 4-37)

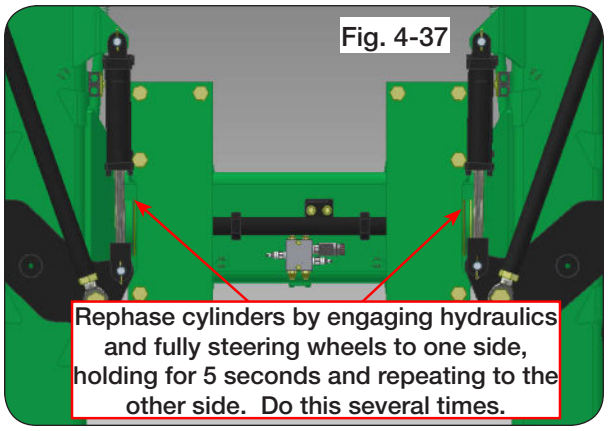


Fig. 4-37

Steering Tandem Linkage Adjustment Procedures

⚠ WARNING

- **UNEXPECTED IMPLEMENT MOVEMENT CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT SERVICE OR MAKE ADJUSTMENTS TO IMPLEMENT WHILE THE TOWING VEHICLE IS RUNNING.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.**
- **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 30,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

NOTE: Before adjusting linkages, perform "Steering Cylinder Rephasing" procedure in the MAINTENANCE section.

NOTE: Do not block tires since they are being manually steered.

Outer Linkage

1. Park the empty unit on a firm, level surface. Set the towing vehicle's parking brake. Tractor hydraulics are required for some steps, shut off engine and remove ignition key when hydraulic functions are complete. Turn the Steering Tandem switch to the "ON" position, and ensure the hydraulic lever is in float.

2. Remove weight from the tires by using a safe lifting device rated for a minimum of 30,000 lbs.

3. Adjust the cylinder on the RIGHT-HAND side of the cart until the center-of-pin to center-of-pin measurement on the cylinder attaching pins is 24.25". This measurement is the center point of the cylinder stroke. (Fig. 4-38)

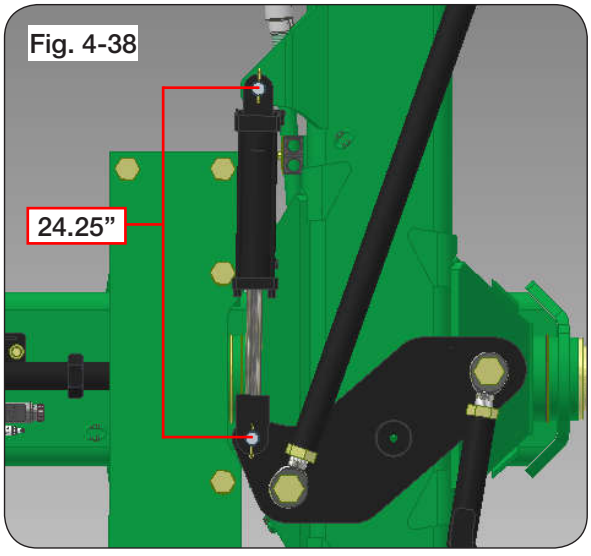


Fig. 4-38

Steering Tandem Linkage Adjustment Procedures (continued)

Outer Linkage

4. Inspect the turntable plate on top of the tandem arm. With the cylinder pin-to-pin measurement at 24.25”, the furthest front and furthest rear edges of the plate should be perpendicular to the tandem arm. If it is not, check the fit of the cylinder base end and rod end pins with both the cylinder and mating bushings for wear or deformation. Replace worn or damaged parts, if necessary. (Fig. 4-39)

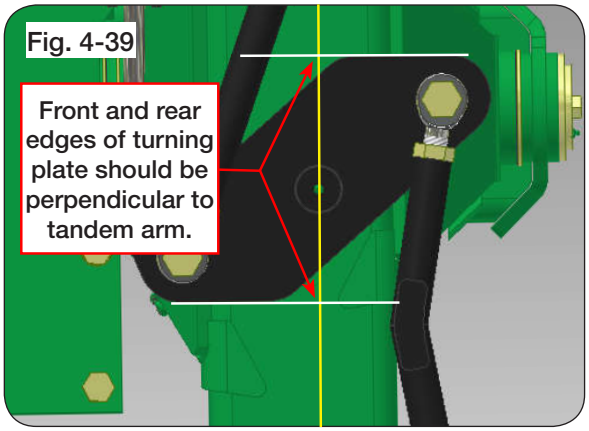


Fig. 4-39

5. Inspect the bushing underneath the tandem arm. With the cylinder pin-to-pin measurement at 24.25”, the head of the pin going through the knuckle joint and the head of the bolt going into the splined pivot pin and bushing should be within 3/8” of a straight line with the tandem arm. (Fig. 4-40)

NOTE: If the linkage pin is more than 1” out of alignment, remove the splined bushing and rotate to align the linkage pin.

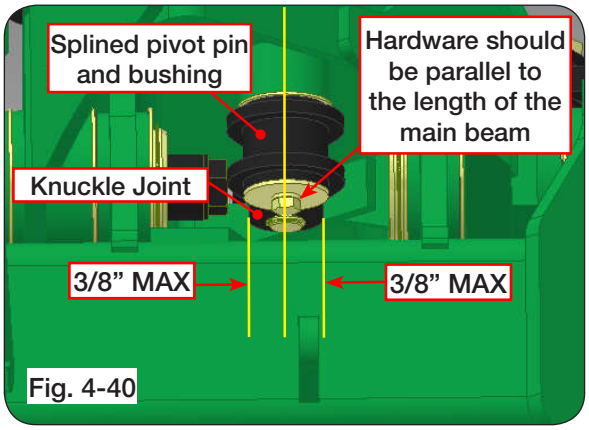


Fig. 4-40

NOTE: If the linkage pin is between 3/8” to 1” out of alignment, there may be an issue with the spline position on either the pivot weldment (283651B - left-hand / 283652B - right-hand) or bushing weldment (283648) and may require the replacement of one or more of these parts.

Steering Tandem Linkage Adjustment Procedures (continued)

Outer Linkage

6. With the cylinder pin-to-pin measurement at 24.25”, ensure the wheels on the right-hand side are straight. If they are not, adjust the outer linkages until the wheels are straight. (Fig. 4-41 & 4-42)

7. If the tires are removed, use the hub face to align as shown in Fig. 4-41.

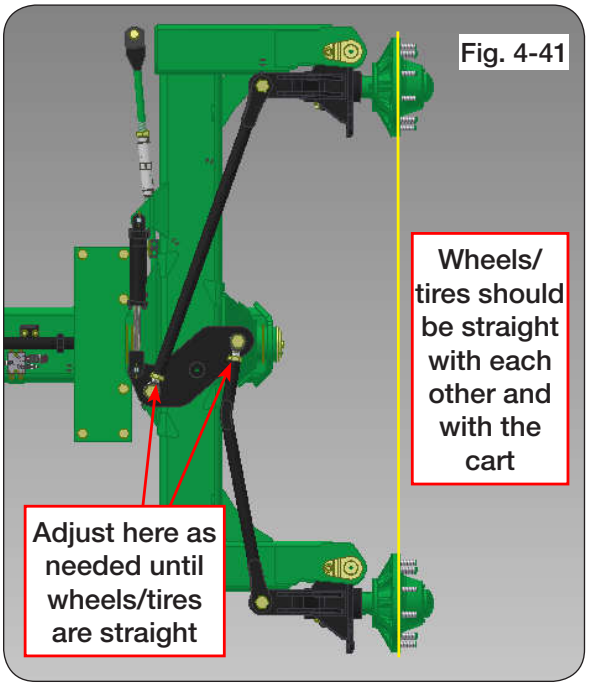


Fig. 4-41

8. If the tires are assembled, check alignment across the outside center of the tires. Due to variation in rubber tire profile, adjust the alignment until the front and rear of both tires are within 1/2” of being inline. (Fig. 4-42)

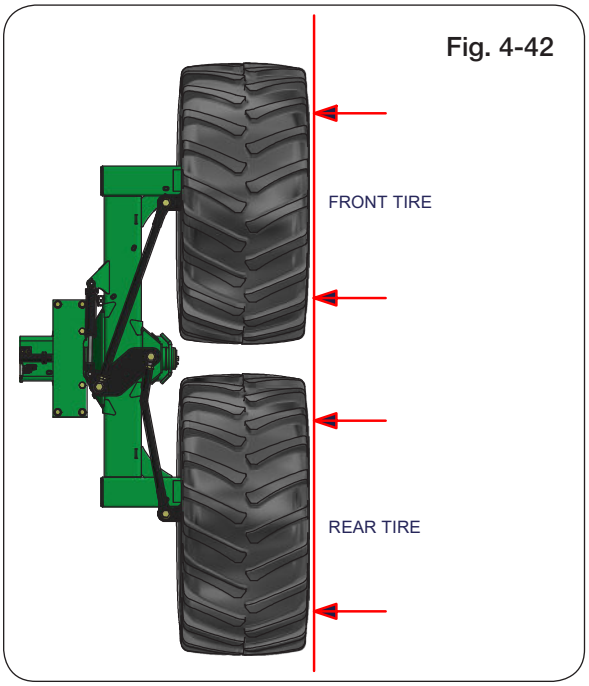


Fig. 4-42

Steering Tandem Linkage Adjustment Procedures (continued)

Outer Linkage

9. For outer linkage adjustment, remove the set screws on the turntable for the link being adjusted, and remove the 1 1/4”-7UNC x 3 1/2” capscrews assembled through the tie rod end. Keep hardware for reassembly. (Fig. 4-43)

10. Loosen jam nuts at the tie rod end. (Fig. 4-43)

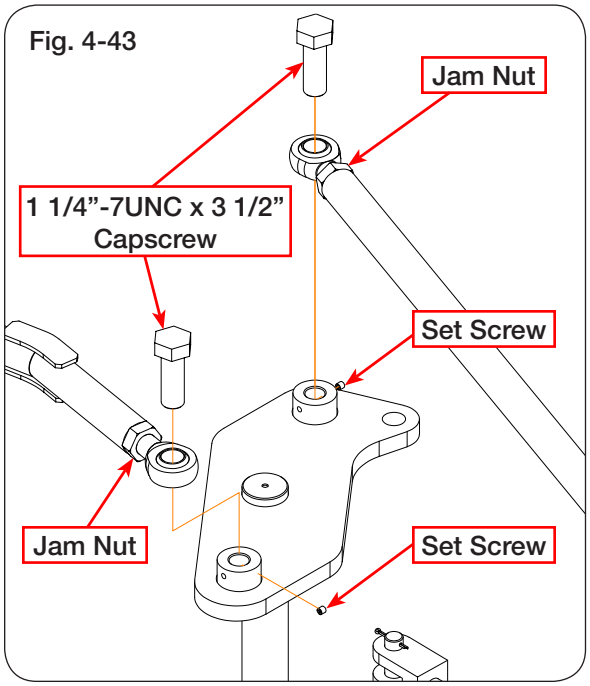
11. Adjust tie rod in 1/2 turn increments while checking wheel alignment between adjustments. (Fig. 4-43)

12. Once the wheels are aligned, tighten jam nuts on tie rod ends. (Fig. 4-43)

13. Reassemble the 1 1/4”-7UNC x 3 1/2” capscrews and set screws.

14. Repeat steps 3 through 13 on the left-hand side, if necessary. Otherwise, continue to center linkage adjustment.

Fig. 4-43



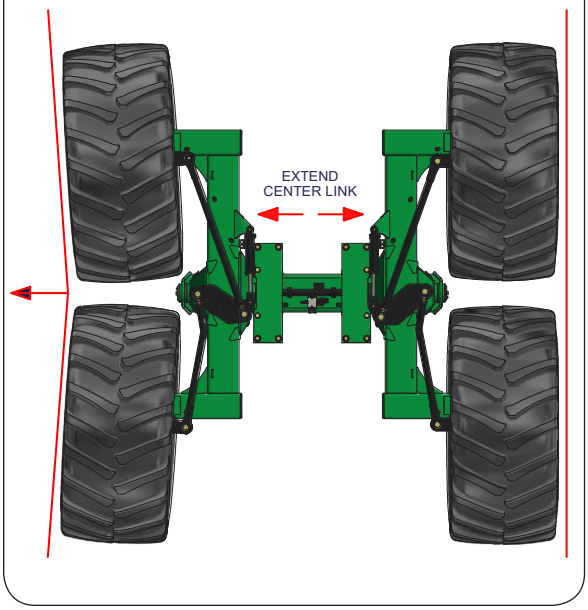
Steering Tandem Linkage Adjustment Procedures (continued)

Center Linkage

1. Reset the right-hand cylinder pin-to-pin to 24.25” and check alignment of the wheels on the left-hand side of the cart.

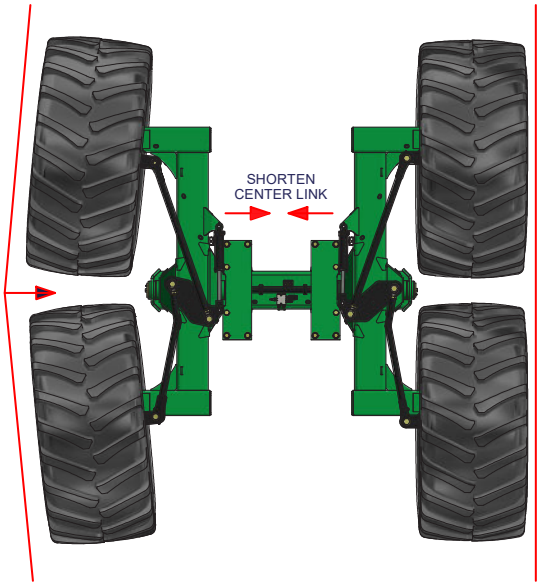
2. If the center of both wheels is too far IN, the center linkage needs to be EXTENDED. (Fig. 4-44)

Fig. 4-44



3. If the center of both wheels is too far OUT, the center linkage needs to be SHORTENED. (Fig.4-45)

Fig. 4-45



Steering Tandem Linkage Adjustment Procedures (continued)

Center Linkage

NOTE: One end of the center linkage has a left-hand thread jam nut. Identify the left-hand thread prior to adjusting to prevent over tightening the jam nut.

4. For center linkage adjustment, loosen the jam nut on both ends. (Fig. 4-46)
5. Loosen the tapered bushing on each end by tapping it outward. (Fig. 4-46)
6. When the tapered bushings have been loosened, the center linkage can be rotated to shorten or extend.
7. Adjust the center linkage until the wheels are inline.
8. Once the wheels are aligned, retighten the jam nuts on both ends.

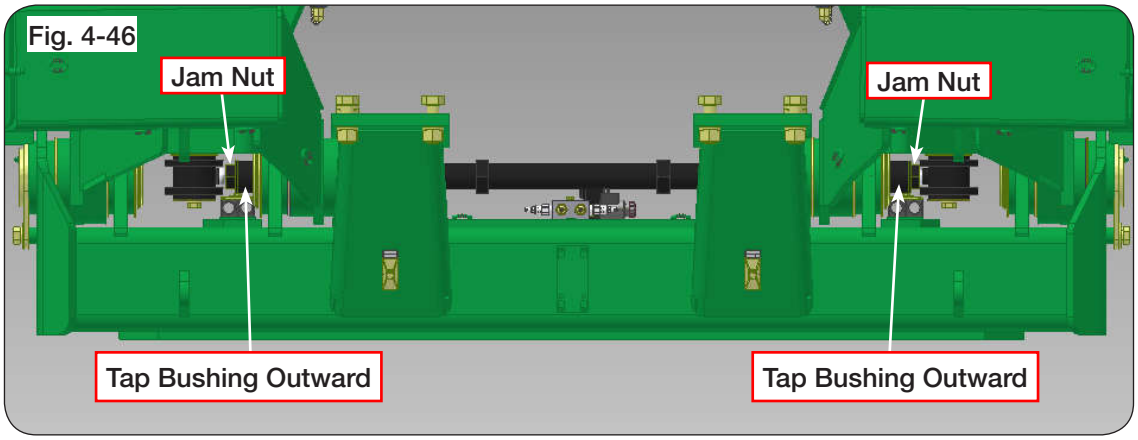


Fig. 4-46

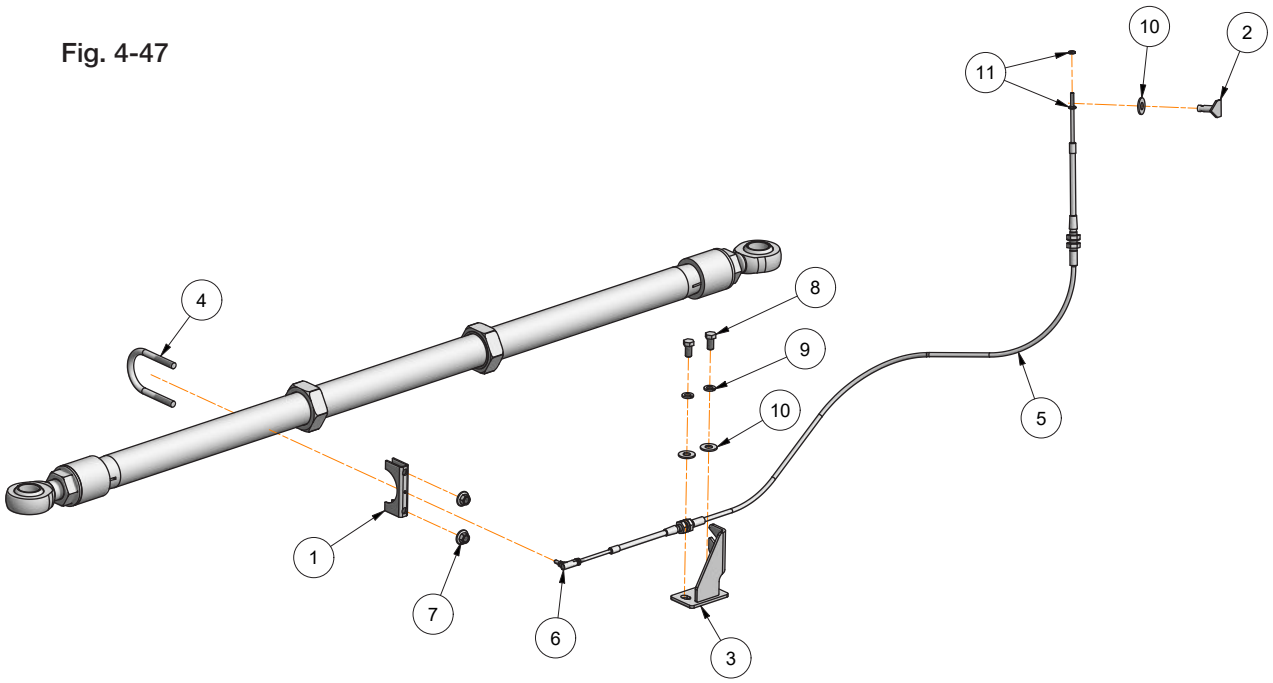
Steering Indicator Adjustment Procedures

Use this procedure:
* To center indicator when tires are straight forward.

1. Straighten the wheels, and loosen the flange nuts (91263) on the u-bolt (9004865) attached to the center tie-rod. (FIG. 4-47)

2. Adjust the u-bolt (9004865) to center the red indicator (283749R) on the front of the cart, and retighten the flange nuts (91263).

Fig. 4-47



ITEM	PART NO.	DESCRIPTION
1	283742	Saddle Clamp
2	283749R	Indicator Weldment =Red=
3	283744B	Indicator Weldment =Black=
4	9004865	U-Bolt 3/8”-16UNC x 3 5/8”
5	9005168	Push / Pull Cable 264”
6	9005109	Rod End
7	91263	Flange Nut 3/8”-16UNC Gr.5
8	9390-053	Capscrew, 3/8”-16 UNC x 3/4” Gr.5
9	9404-021	Lock Washer 3/8”
10	9405-076	Flat Washer 3/8”
11	9390-016	Hex Nut #10-32 Gr.2

Horizontal Auger Removal and Replacement

⚠ WARNING

- **TO PREVENT PERSONAL INJURY OR DEATH WHILE SERVICING, ALWAYS ENSURE THAT THERE ARE PEOPLE WHO REMAIN OUTSIDE THE CART TO ASSIST THE PERSON WORKING INSIDE, AND THAT ALL SAFE WORKPLACE PRACTICES ARE FOLLOWED. THERE ARE RESTRICTED MOBILITY AND LIMITED EXIT PATHS WHEN WORKING INSIDE THE IMPLEMENT.**
- **NEVER ENTER CART WITH AUGER OR TRACTOR RUNNING. SERIOUS OR FATAL INJURY CAN OCCUR DUE TO ENTANGLEMENT WITH ROTATING COMPONENTS. ALWAYS STOP ENGINE AND REMOVE KEY BEFORE ENTERING CART.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.**
- **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 1,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

NOTE: Open the flow gates all the way.

1. Park the unit on a firm, level surface. Block the machine to keep it from moving. Set the vehicle parking brake, shut off the engine and remove the ignition key and disconnect the PTO shaft from the tractor.

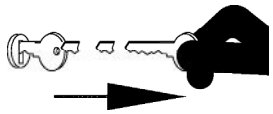
NOTE: For SN B44420099 & lower, skip to step 4.

2. Remove 4 rear ladder capscrews attached to the cart. (FIG. 4-48)

NOTE: Keep all hardware for re-assembly.

3. Remove rear ladder from the cart. (FIG. 4-48)

NOTE: For SN B44420100 & higher, skip to step 5.



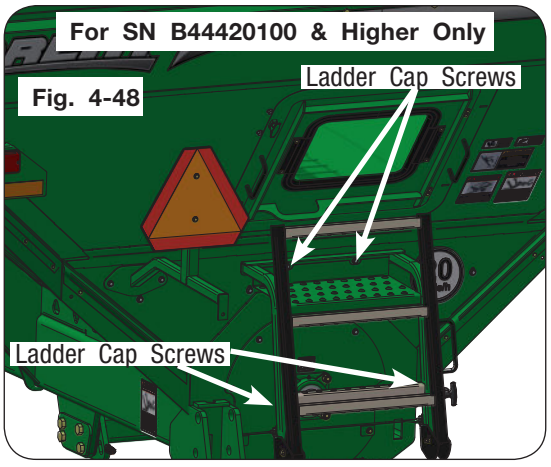


Fig. 4-48

Horizontal Auger Removal and Replacement (continued)

4. For SN B44420099 & lower, remove the SMV bracket located on the rear auger cover. (Fig. 4-49)
5. Remove the capscrews from the auger cover. (Fig. 4-49)
6. Pry the auger from the auger tube. (Fig. 4-50)
7. Using a safe lifting device rated for a minimum 1,000 lbs., pull the rear auger out of the cart. (Fig. 4-51)

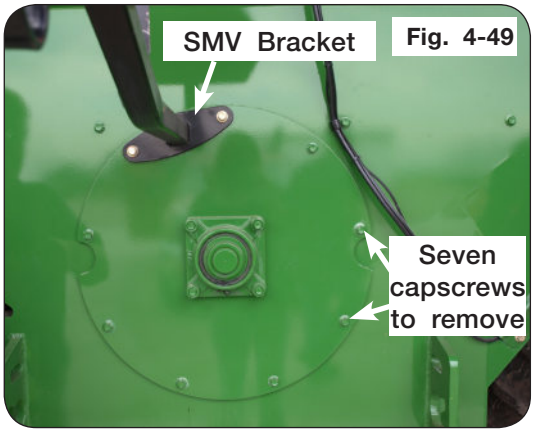


Fig. 4-49

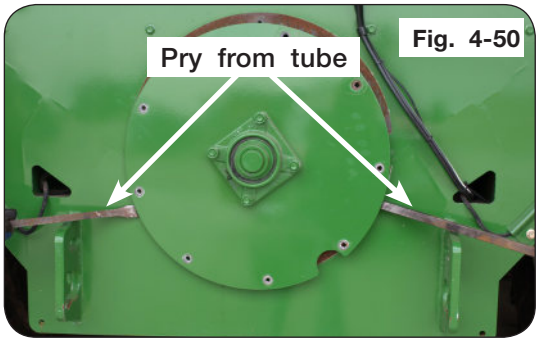


Fig. 4-50

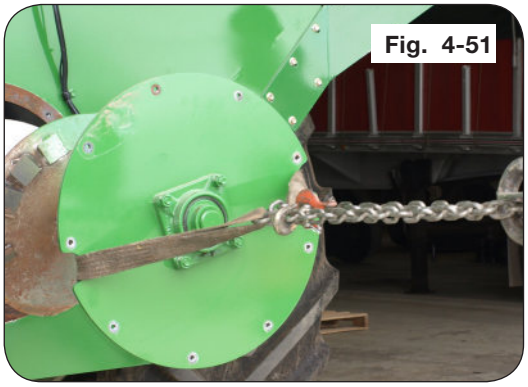


Fig. 4-51

Horizontal Auger Removal and Replacement (continued)

NOTE: If only servicing rear auger, skip to step 23. For 5-pin driver replacement, continue to step 8.

8. Remove the flange screws in both middle grates inside the cart. Remove the grates. (Fig. 4-52)

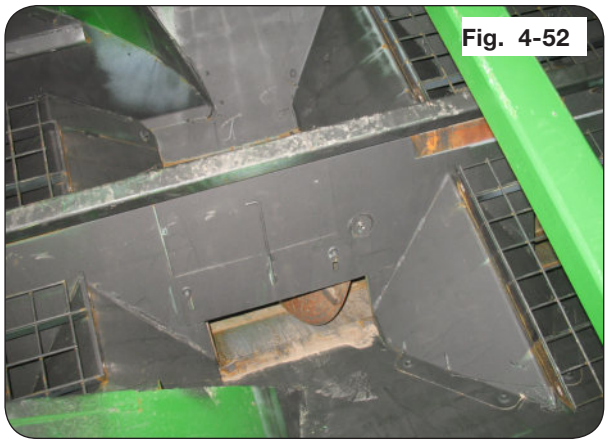


Fig. 4-52

9. Remove locknuts, baffle weldments and cover plates from the middle tent. (Fig. 4-53)

10. Disconnect grease line. (Fig. 4-53)

11. Remove the bearing mount bar bolts and locknuts on each side of the auger. (Fig. 4-53)

12. Remove capscrews and lock washers holding bearing onto the bearing mount bar. (Fig. 4-53)

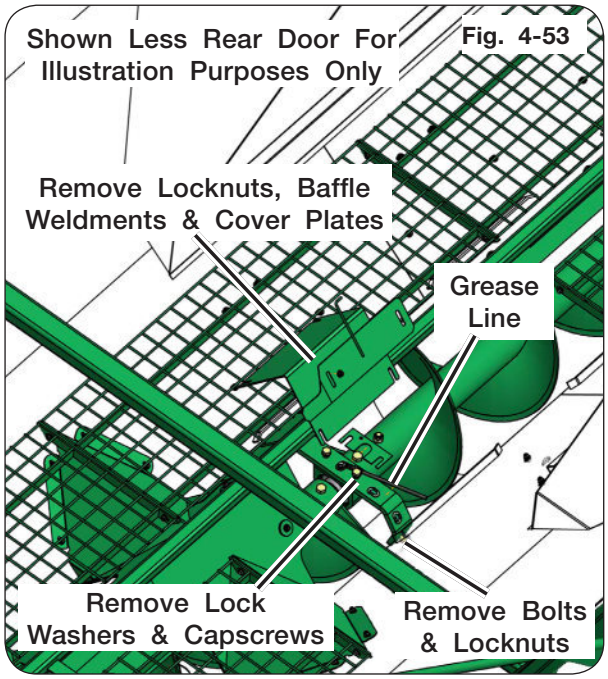


Fig. 4-53

13. Remove bearing mount bar to allow access to work on the bearing and shaft. Remove two center tube connecting capscrews, spacer bushings (283895B) and locknuts from the horizontal auger. (Fig. 4-54)

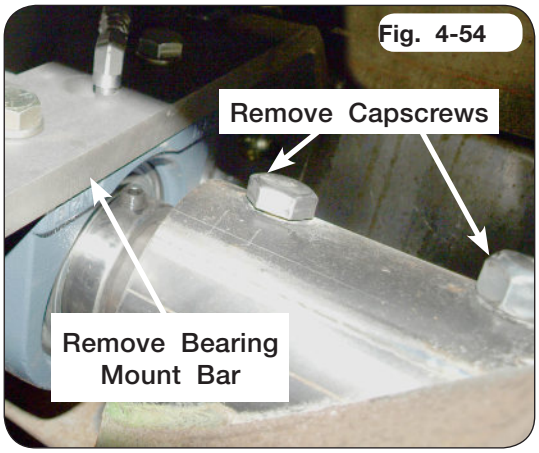


Fig. 4-54

Horizontal Auger Removal and Replacement (continued)

14. Remove the original 5-pin driver, bearing and the bushing insert. (Figure 4-55 & Figure 4-56)

15. Discard 5-pin driver.

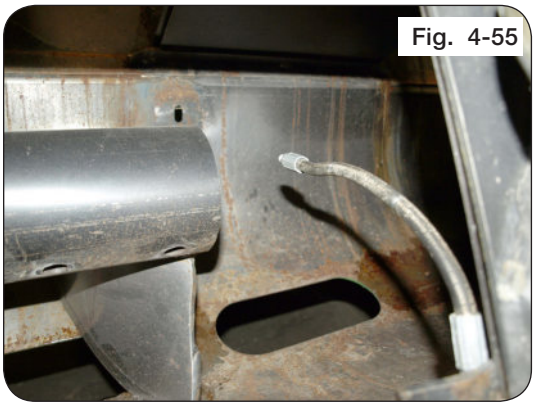


Fig. 4-55

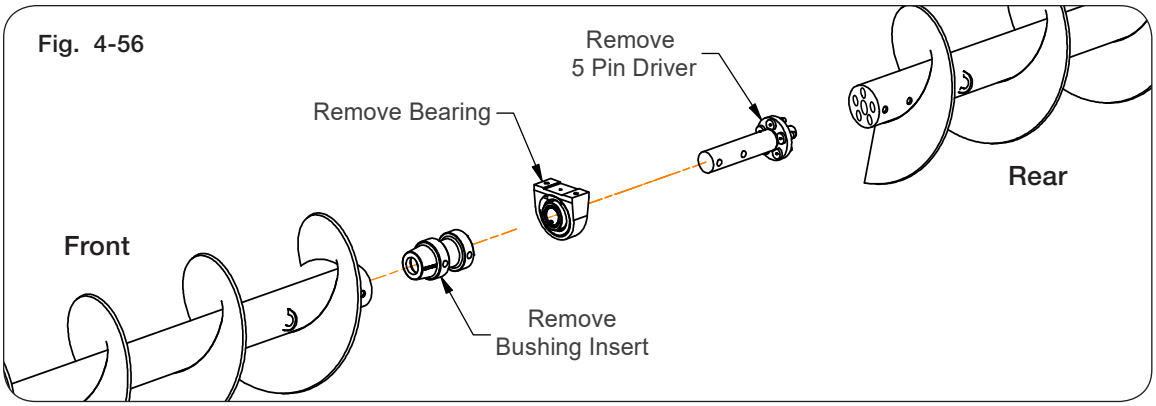


Fig. 4-56

16. Substantially coat bushing insert with anti-seize.

17. Slide bushing insert into front auger and ensure tube holes are aligned. (Figure 4-56 & Figure 4-57)

NOTE: Use auger adapters provided with the auger flighting service kit to assure best fitment.

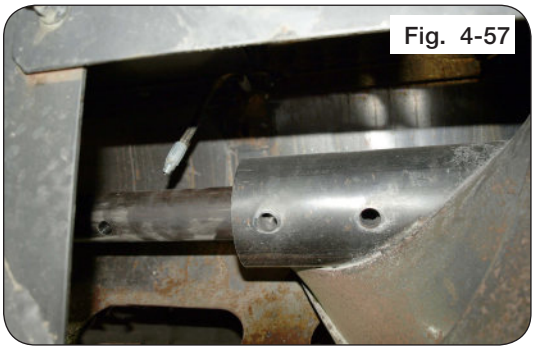


Fig. 4-57

NOTE: Make sure the set screws on bearing are towards the front of the cart. (Figure 4-58)

18. Slide bearing onto 5-pin driver. (Figure 4-58)

19. Insert new 5-pin driver into front auger and ensure tube holes are aligned.

20. Install front capscrews, spacer bushings and locknuts 180 degrees from each other and assemble spacer bushings on threaded side of capscrews. Hand tighten hardware. (Figure 4-58)

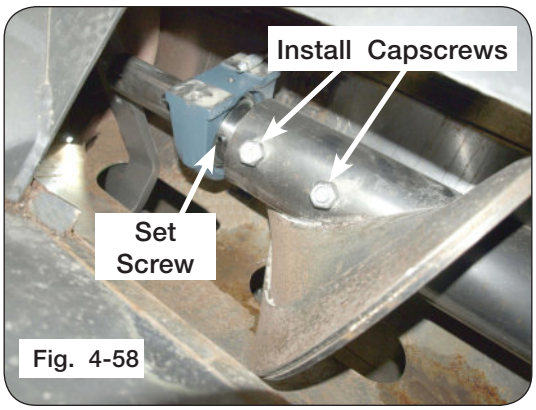


Fig. 4-58

Horizontal Auger Removal and Replacement (continued)

21. Install hanger bracket. Leave the capscrews loose attaching hanger bracket to the cart. Attach hanger bracket to the bearing. (Figure 4-59)

22. Reattach grease line components. (Figure 4-59)

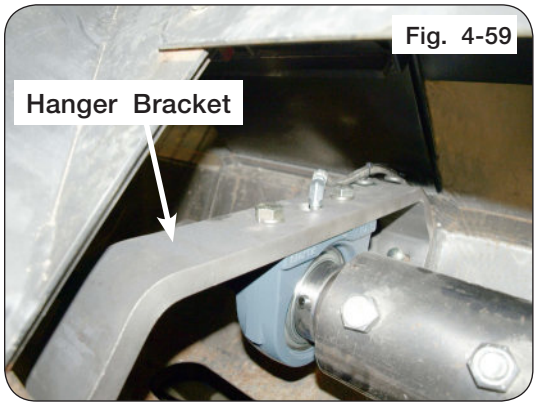


Fig. 4-59

NOTE: Rear auger flighting should lead the front auger flighting.

23. Slide the rear auger forward. Align the pins and holes with the rear auger pipe. (Figure 4-60)

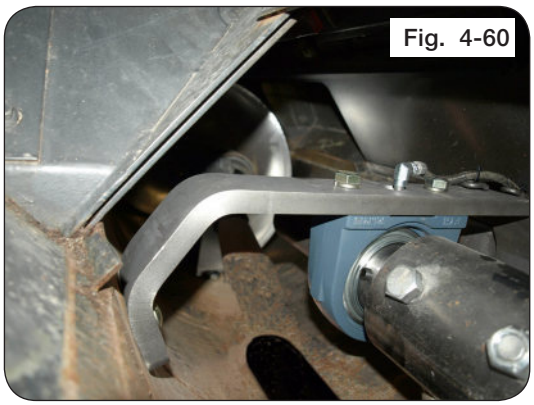
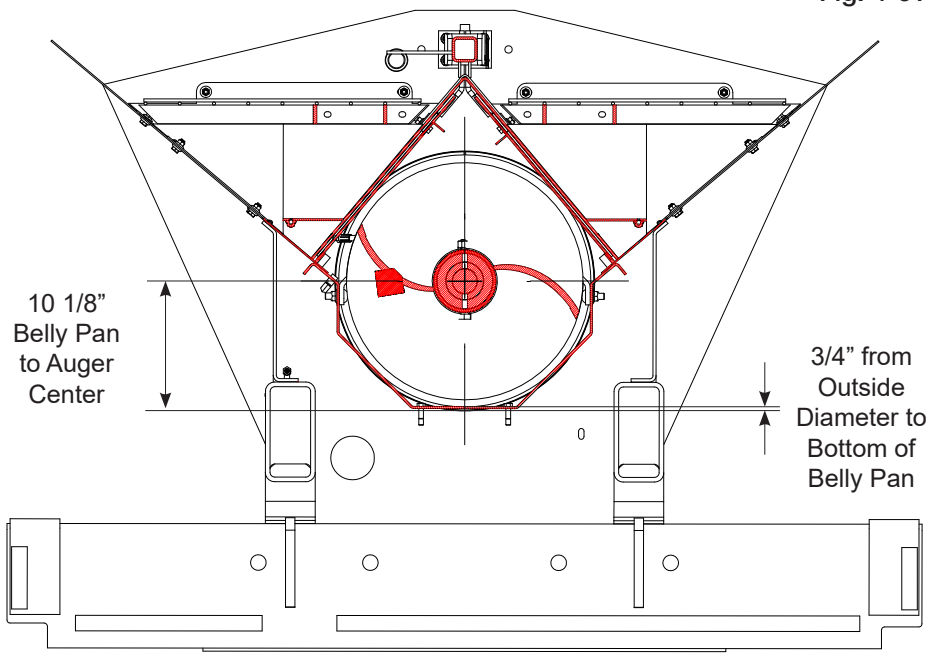


Fig. 4-60

Horizontal Auger Removal and Replacement (continued)

NOTE: With new flighting, the outside diameter is about 3/4" from the bottom belly pan. Always set bearing height using the 10 1/8" flighting centerline measurement. See FIG. 4-61.

Fig. 4-61



24. Extend a string tightly from front to rear to check horizontal auger alignment. Measure the string to the auger tube either in front or behind the hanger bearing. If this dimension is 1/8" greater than the measurement taken in the front and rear, shims (8GA - 286419B or 12GA - 286424B) are required on top of the center hanger bearing. Ideally the center measurement should be equal to or 1/8" lower than the measurements on the ends of the augers. (Figure 4-62)

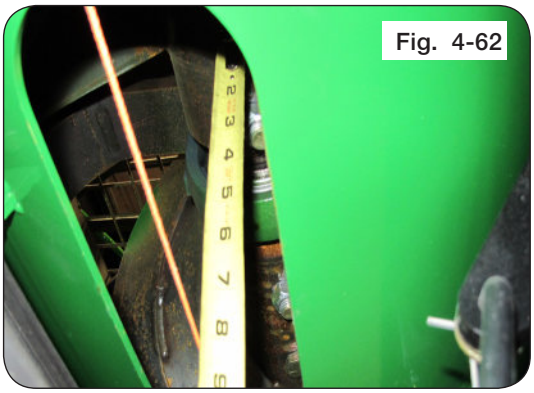


Fig. 4-62

NOTE: The shims are 1/8" thick each. Add as needed. Shims are available from your Brent dealer to achieve 10 1/8" flighting centerline measurement.

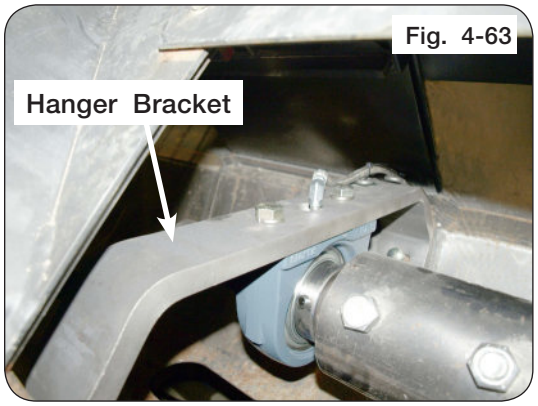
25. To adjust the bearing height down, shim between the bearing and the hanger bracket.

26. To adjust the bearing height up, shim with washers between the bearing bracket and the sides of the cart. When adjusting the height up, washers will need to be placed with one on each side so the bearing stays centered.

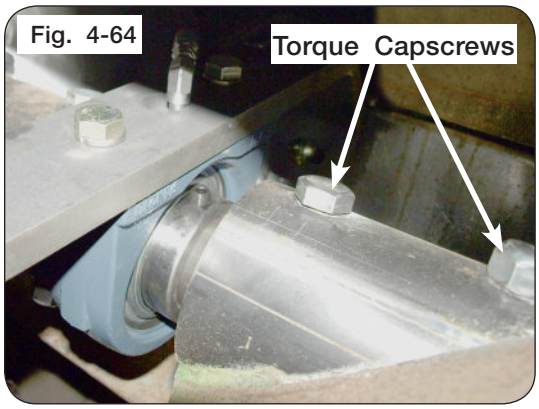
(Continued on next page)

Horizontal Auger Removal and Replacement (continued)

27. Torque hanger bracket capscrews to 130 ft.-lbs. See Figure 4-63.



28. Torque auger capscrews to 200 ft.-lbs. (Figure 4-64)



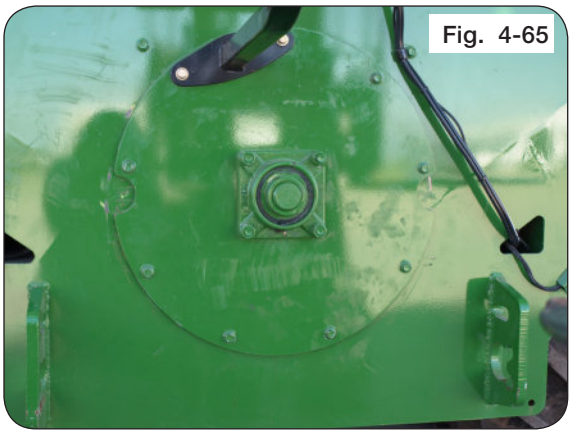
29. Insert hardware for rear auger cover, SMV bracket, and rear ladder, if equipped. Torque hardware to specification. (Fig. 4-65 and 4-66)

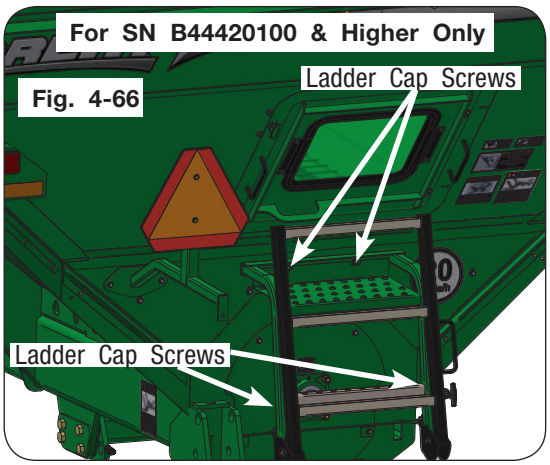
30. Torque all hardware to specification. See "Torque Chart" in this section. (Figs. 4-65 and 4-66)

31. Reinstall ALL the grates.

32. Ensure all personnel and tools are removed from the cart and reconnect PTO shaft to the tractor.

33. Run the auger starting at a low RPM and increase speed to max RPM to ensure the auger flighting does not make contact with the belly pan or flow doors.





Driveline Removal

DANGER

- **ENTANGLEMENT WITH THE DRIVELINE WILL CAUSE SERIOUS INJURY OR DEATH. KEEP ALL GUARDS AND SHIELDS IN GOOD CONDITION AND PROPERLY INSTALLED AT ALL TIMES. AVOID PERSONAL ATTIRE SUCH AS LOOSE FITTING CLOTHING, SHOE STRINGS, DRAWSTRINGS, PANTS CUFFS, LONG HAIR, ETC. THAT CAN BECOME ENTANGLED IN A ROTATING DRIVELINE.**

WARNING

- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**

Gearbox shaft guard has access doors for installing and removing of driveline.

1. Remove clamping cone/retaining bolt.
2. Use a hammer and punch, if needed, to moderately hit the end of clamping cone/retaining bolt, as shown. (FIG. 4-67)
3. Once clamping cone/retaining bolt is removed, slide torque limiter off gearbox splined input shaft.

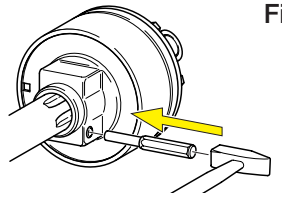


Fig. 4-67

Gearbox

When checking the oil level of the gearbox, the vertical auger should be pivoted all the way down.

For adequate lubrication, the oil should be visible in the sight glass. Fill with oil to the sight glass only. (FIG. 4-68)

For maximum gearbox life:
Check oil level every 2 weeks.

Replace oil every season with approximately 85 oz. of 80W90 EP lubricant.

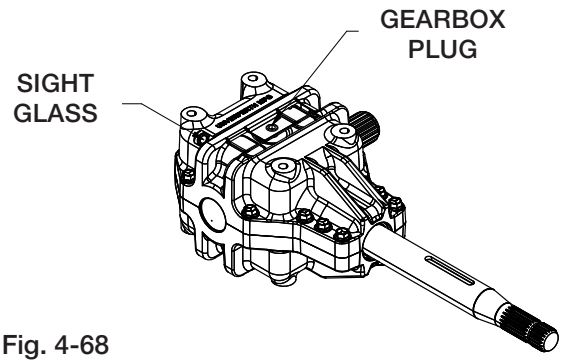


Fig. 4-68

Verify Telescoping PTO Shaft Length

⚠ WARNING

- **PROPER EXTENDED AND COLLAPSED LENGTHS OF THE TELESCOPING PTO SHAFT MUST BE VERIFIED BEFORE FIRST OPERATION. IF THE EXTENDED LENGTH OF THE PTO SHAFT IS NOT SUFFICIENT, IT MAY BECOME UNCOUPLED IN OPERATION AND CAUSE SERIOUS INJURY OR DEATH FROM CONTACT WITH UNCONTROLLED FLAILING OF PTO SHAFT ASSEMBLY COMPONENTS.**

IMPORTANT

- *Check the length of the telescoping members to ensure the driveline will not bottom out or separate when turning and/or going over rough terrain.*

Consult your OEM dealer for recommended drawbar and PTO set up.

An excessive collapsed length can result in damage to the PTO driveline and attached components. This is most likely to occur during extreme turning angles and/or travel over rough terrain. Conditions are amplified on tractors with tracks operating in uneven terrain, particularly rice levies. Damaged driveline components can result in unsafe operation and severely reduced driveline component life.

Check the length of the telescoping members to ensure the driveline will not bottom out or separate when turning and/or going over rough terrain.

NOTE: Do not exceed 10 degrees beyond a straight pull line while operating the PTO.
To verify proper extended and collapsed lengths, use the following procedure:

1. Fully collapse PTO shaft and measure length "L" (Fig. 4-69).

   Enter here:_____(1)
   (Verify that outer tube does not bottom out on surrounding plastic shield components).

2. Pull apart PTO telescoping shaft ends and measure lengths "T" & "C" (Fig. 4-70)

   Add "T" + "C" measurements together
   Enter total here:_____(2)

3. Calculate maximum recommended extended length:

   a. Subtract line 1 from line 2
      Enter here:_____(a)
   b. Divide line (a) by 2
      Enter here:_____(b)
   c. Add line (b) to line 1.
      Enter here:_____(c)
   d. Subtract 3 inches from line (c)
      Enter here:_____(d)

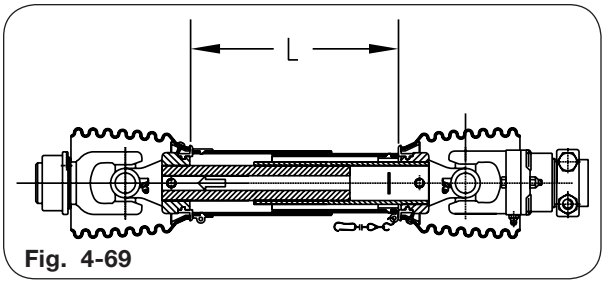


Fig. 4-69

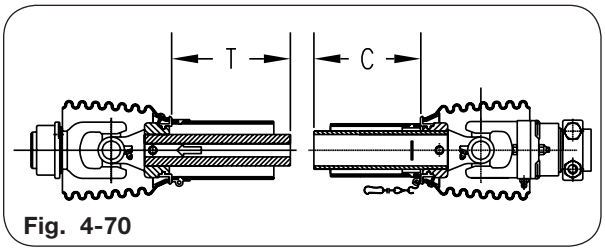


Fig. 4-70

This is the maximum recommended extended length.

Verify Telescoping PTO Shaft Length (continued)

4. Hitch tractor drawbar to cart, ensuring that tractor and cart are on level ground and coupled as straight as practical.

5. Connect PTO shaft to tractor, and measure length "L" from same points as used in step 1. Ensure that this measurement does not exceed the maximum recommended extended length calculated in step 3 above. If necessary, choose a shorter drawbar position, or obtain a longer PTO shaft assembly before operating cart.

6. Position the tractor to obtain the tightest turning angle, relative to the cart (Fig. 4-71).

7. Measure the length "L" from the same points as used in step 1. **This distance must be at least 1.5 inches greater than the distance measured in step 1.** If necessary, adjust the length of the PTO shaft by cutting the inner and outer plastic guard tubes and inner and outer sliding profiles by the same length. Round off all sharp edges and remove burrs before greasing and reassembling shaft halves. (Fig. 4-72)

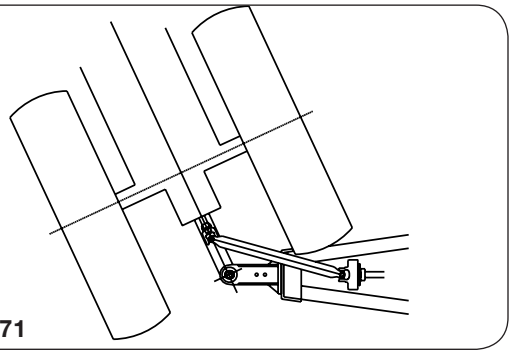


Fig. 4-71

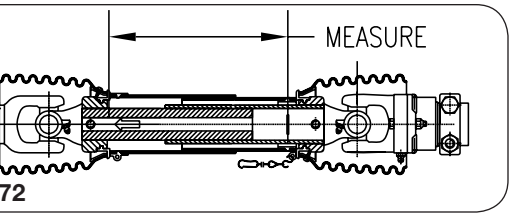


Fig. 4-72

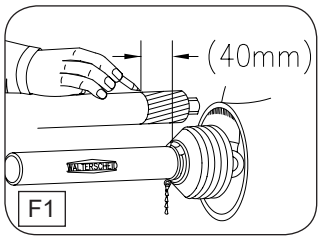
PTO Shaft Length Adjustment

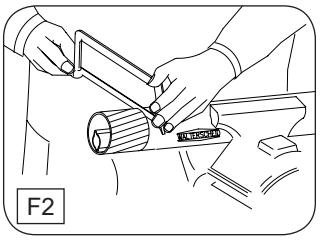
WARNING

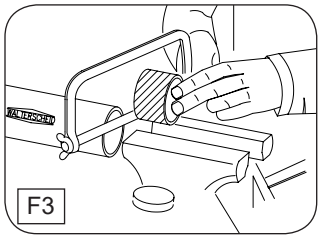
- **CHECK THE LENGTH OF THE TELESCOPING MEMBERS TO ENSURE THE DRIVELINE WILL NOT BOTTOM OUT OR SEPARATE WHEN TURNING AND/OR GOING OVER ROUGH TERRAIN.**

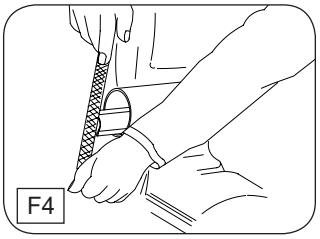
NOTE: Maximum operating length LB. (Refer to "Verify Telescoping PTO Shaft Length" in this section for LB length.)

1. To adjust length, hold the half-shafts next to each other in the shortest working position and mark them.
2. Shorten inner and outer guard tubes equally.
3. Shorten inner and outer sliding profiles by the same length as the guard tubes.
4. Round off all sharp edges and remove burrs. Grease sliding profiles.





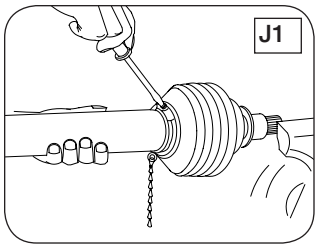


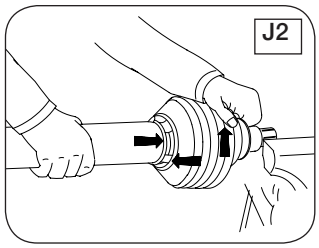


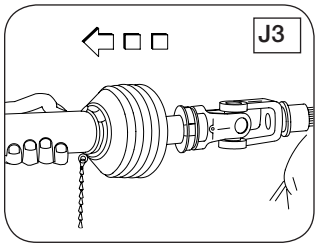
PTO Shaft and Clutch

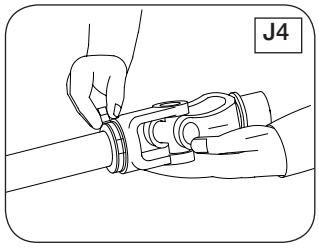
To Dismantle Guard (Figs. J1 - J4)

1. Remove locking screw.
2. Align bearing tabs with cone pockets.
3. Remove half-guard.
4. Remove bearing ring.





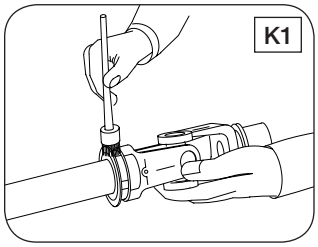


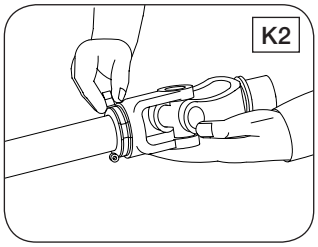


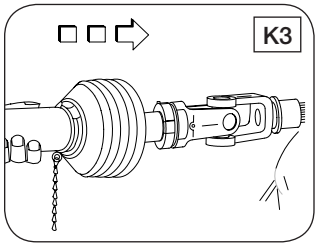
PTO Shaft and Clutch (continued)

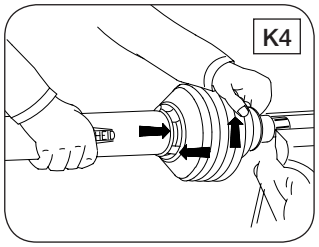
To Assemble Guard (Figs. K1 - K5)

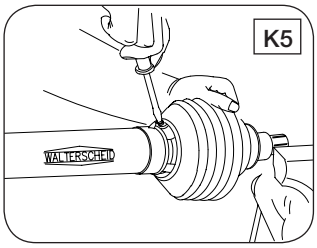
1. Grease yoke groove and inner profile tube.
2. Fit bearing ring in groove with recesses facing profile tube.
3. Slip on half-guard.
4. Turn cone until it engages correctly.
5. Install locking screw.





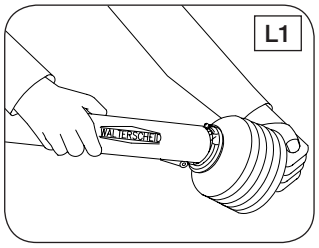


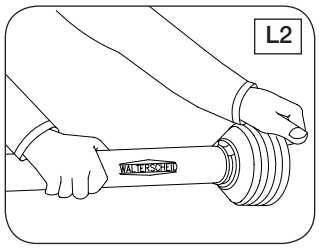


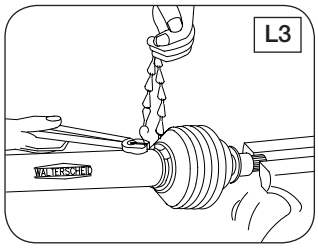


To Assemble Cone (Figs. L1 - L3)

1. Dismantle guard (Figs. J1 - J3). Remove old cone (e.g. cut open with knife). Take off chain. Place neck of new cone in hot water (approx 80° C / 180° F) and pull onto bearing housing (Fig. L1).
2. Turn guard cone into assembly position (Fig. L2). Further assembly instructions for guard (Figs. K1 - K5).
3. Reconnect chain if required (Fig. L3).







Wheel, Hub and Spindle Disassembly and Assembly

⚠ WARNING

- **TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE MACHINE IS SECURELY BLOCKED.**

- **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 30,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

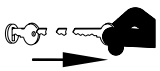
⚠ CAUTION

- **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 THERE-AFTER. AFTER EACH WHEEL REMOVAL START TORQUE PROCESS FROM BEGINNING. WARRANTY DOES NOT COVER FAILURES CAUSED BY IMPROPERLY TORQUED WHEEL NUTS/BOLTS.**

IMPORTANT

- *Remove only one wheel and tire from a side at any given time in the following procedure.*

1. Hitch cart to tractor. Park the empty cart on a firm, level surface. Set the tractor's parking brake, shut off engine and remove key.



2. With cart empty, use safe lifting and load holding devices rated at 30,000 lbs. to support the weight of your grain cart. Place the safe lifting device under the axle closest to the tire.

3. Use a safe lifting device rated for at least 3,000 lbs to support the wheel and tire during removal.

4. Remove the wheel and tire from the hub.

5. If only changing wheel and tire, skip to Step 9; otherwise continue with Step 5.

   Remove the hardware retaining the hubcap. Next, remove the hubcap, gasket, cotter pin, castle nut and spindle washer. Remove hub with bearings from old spindle using a 200 lb. safe lifting device.

6. Inspect the spindle and replace if necessary. If spindle does not need to be replaced, skip to Step 6; otherwise continue with Step 5.

   Remove the bolt and lock nut that retains the spindle to the axle. Using a safe lifting device rated for 200 lbs., replace the old spindle with a new spindle. Coat axle contact length of spindle shaft (scale or non-scale) with anti-seize lubricant prior to installation. If installing scale spindle, install with 'top' decal facing upwards. Reuse bolt and lock nut to retain spindle to axle. Tighten as outlined in MAINTENANCE section.

Wheel, Hub and Spindle Disassembly and Assembly (continued)

7. Remove seal and inspect bearings, spindle washer, castle nut and cotter pin. Replace if necessary. Pack both bearings with approved grease and reinstall inner bearing. Install new seal in hub with garter spring facing the outside of hub by tapping on flat plate that completely covers seal while driving it square to hub. (FIG. 4-73) Install until flush with back face of hub. Using a safe lifting device rated for 200 lbs., install hub assembly onto spindle. Install outer bearing, spindle washer and castle nut.

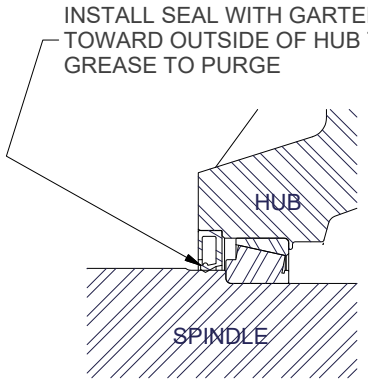


FIG. 4-73

8. Slowly tighten castle nut while spinning the hub until drag causes the hub to stop freely spinning. Do not use an impact! Turn castle nut counterclockwise until the hole in the spindle aligns with the next notch in castle nut. Hub should spin smoothly with little drag and no end play. If play exists, tighten to next notch of castle nut. If drag exists, then back castle nut to next notch of castle nut. Spin and check again. Install cotter pin. Clean face for hub cap gasket and install gasket, grease-filled hub cap and retain hubcap with hardware removed. Tighten hubcap hardware in alternating pattern.

9. Attach the wheel(s) and tire(s) to the hub using the same rated safe lifting device for removal. Tighten wheel nuts to appropriate requirements and recheck as outlined in the Wheel and Tire section of this manual.

10. Raise cart, remove safe load holding devices and lower tire to the ground.

Wheels and Tires

Wheel Nut Torque Requirements

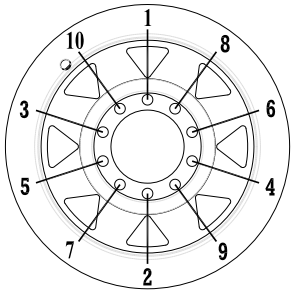
⚠ CAUTION

- **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 THERE-AFTER. 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.

NOTE: Do not use anti-seize on wheel hardware.

WHEEL HARDWARE	
SIZE	FOOT-POUNDS
3/4-16 (UNF)	365 ft.-lbs.
M22x1.5	475 ft.-lbs.



10 BOLT

DIAGRAM 1

Wheels and Tires (continued)

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.** Start with minimum pressure. The tire should stand up with no side-wall buckling or distress as tire rolls. Record the pressure needed to support the full load and maintain this pressure to achieve proper tire life. **Do not exceed maximum recommended tire pressure.** Each tire must be inflated to 35 PSI max to seat the beads, deflated to 5-10 PSI, then reinflated to recommended minimum pressure.

Tire Pressure for Grain Carts

Tire Make	Tire Size	Load Index / Ply Rating	Max. PSI
Firestone	23.1x26 R-3	12	32
	23.1x26 R-1	12	32
	28Lx26 R-3	12	26
	24.5x32 R-3	12	32
	24.5x32 R-1	12	32
	30.5x32 R-1	14	28
	30.5x32 R-3	14	28
	30.5x32 R-3	16	34
	30.5x32 R-1	16	26
	35.5x32 R-3	20	36
	76x50.00x32 HF-3	16	40
	76x50.00x32 HF-3	20	50
	800/65R32 R-1W	172D	41
	800/60R32 R-3	181B	46
	900/65R32 R-3	191B	46
	900/60R32 R-1	176A8	44
	1250/50R32F IF/CFO R-1WNP	201D	46
	1250/50R32F IF/CFO R-1W	188B	30
	520/85R38 R-1	155A8	29
	520/85R38 R-1	173A8	64
	480/80R42 R-1	151A8	36
	520/85R42 R-1	157A8	29
	520/85R42 R-1	165A8	51
	520/85R42 IF/CFO R-1	169A8/B	35
	IF520/85R42 R-1W	169B	35
	VF520/85R42 R-1W	177B	35
	420/80R46 R-1	151A8	44
	480/80R46 R-1	158A8	44
	380/90R46 R-1	152B	51

Wheels and Tires (continued)

Tire Pressure (continued)

Tire Make	Tire Size	Load Index / Ply Rating	Max. PSI
Titan/Goodyear	23.1x26 R-3	10	26
	23.1x26 R-1	10	26
	24.5R32 R-1	169A8/B (5-Star)	48
	24.5x32 R-3	12	32
	24.5x32 R-1	12	32
	30.5x32 R-3	16	26
	30.5x32 R-3	14	22
	30.5x32 R-1	14	22
	480/80x42 R-1	166A8	23
	900/60R32 R-1W	185A	49
	1050/50R32 R-1	196D	52
	1100/45R46 R-1W	195D	35
	IF1250/50R32 R-1W	201D	46
Mitas	650/75R32 R-1W	172A8	58
	650/75R32 R-1	176A8	41
	800/65R32 R-1W	172A8	46
	900/60x32 R-1W	181A8	58
	900/60x32 CHO R-1W	181A8	46
	900/70R32 R-1W	188A8	53
	1050/50x32 R-1W	178A8	41
	1250/50R32 R-1W	188A8	41
	900/60x38 R-1W	181A8	44
	520/85x42 R-1W	162A8	44
	650/65x42 R-1W	168A8	44
Alliance	30.5B32	18-Ply	36
	35.5LR32	193A8	44
	900/60R32 R-1W	192D	46
	1050/50R32 R-1W	185A8	52
	1250/50R32 R-1W	201B	46
Trelleborg	VF1050/50R32 R-1	198D	52
	900/50R32 R-1W	181A8	55
	900/60x32	176LI	44
	850/55R42 R-1W	161A8	32

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:

Firestone	www.firestoneag.com Phone 800-847-3364
Titan or Goodyear	www.titan-intl.com Phone 800-USA-BEAR Fax 515-265-9301
Trelleborg	www.trelleborg.com Phone 866-633-8473
Continental/Mitas	www.mitas-tires.com Phone 704-542-3422 Fax 704-542-3474
Alliance	www.atgtire.com Phone 781-325-3801

Baffle Adjustment

⚠ WARNING

- **TO PREVENT PERSONAL INJURY OR DEATH WHLE SERVICING, ALWAYS ENSURE THAT THERE ARE PEOPLE WHO REMAIN OUTSIDE THE CART TO ASSIST THE PERSON WORKING INSIDE THE CART, AND THAT ALL SAFE WORKPLACE PRACTICES ARE FOLLOWED. THERE ARE RESTRICTED MOBILITY AND LIMITED EXIT PATHS WHEN WORKING INSIDE THE CART.**

- **NEVER ENTER CART WITH AUGER OR TRACTOR RUNNING. SERIOUS OR FATAL INJURY CAN OCCUR DUE TO ENTANGLEMENT WITH ROTATING COMPONENTS. ALWAYS STOP ENGINE AND REMOVE KEY BEFORE ENTERING CART.**

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

The horizontal auger baffles are factory-set at the lowest position. This position results in the lowest power requirements and longest flighting life. Once grain has been run through the unit, adjustments can be made to achieve the ideal unloading performance.

Refer to the following reasons for baffle adjustment:

NOTE: To unload the cart evenly from front to back the openings should increase in height from back to front.

- If higher flow is desired and torque is not the limiting factor, raise each baffle to an incremental amount and rerun.

- If more material remains at the back of the cart towards the end of the unloading cycle, the back baffles should be adjusted upward in incremental amounts and rerun.

- If more material remains at the front of the cart towards the end of the unloading cycle, the back baffles should be adjusted downward in incremental amounts and rerun.

- If the cart requires more torque than what is available at times during the unloading cycle, then all baffles should be adjusted downward in incremental amounts.

Baffle Adjustment (continued)

1. Park the unit on a firm, level surface. Before making any baffle adjustments, close horizontal auger flow door. Securely block the machine to keep it from moving. Set the tractor parking brake, turn off tractor engine and remove ignition key.

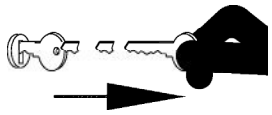
2. If a higher flow is desired and torque is not a factor, loosen the (2) flange nuts on each baffle, see figure 4-74.

3. Use the lift handle to raise each baffle to the desired position. See figures 4-74 & 4-75.

4. Torque all hardware to specification. See "Torque Chart" in this section. See figures 4-74 & 4-75.

NOTE: DO NOT REMOVE ANY SCREEN PANELS. The flange nuts are best accessed using an extended socket wrench and 9/16" socket through the screen panel openings.

NOTE: Screen removed in figure 4-75 for illustration only.



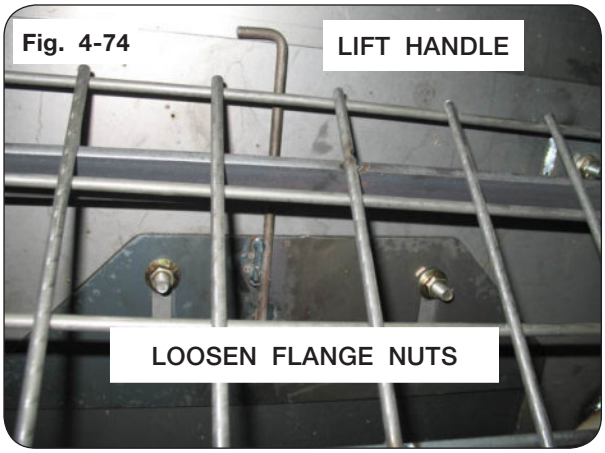


Fig. 4-74

Fig. 4-75

Horizontal Cleanout Door Adjustment

⚠ WARNING

- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEANOUT DOORS ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE THE MACHINE IS SECURELY BLOCKED.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING THE IMPLEMENT.**

1. Park the unit on a firm, level surface. Block the machine to keep it from moving. Set the tractor parking brake, turn off tractor engine, remove ignition key, and disconnect PTO shaft.

2. Loosen all the hardware in the slotted brackets connecting the cleanout door rockshaft to the grain cart tube. (Fig. 4-76)

3. Starting at the front of the cart, using a jack, push the rockshaft up and toward the runner tube. (Fig. 4-76)

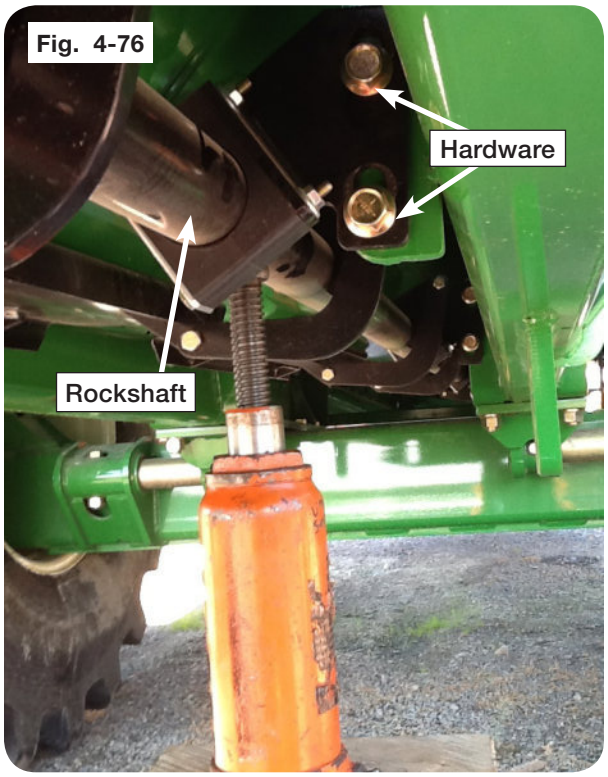


Fig. 4-76

NOTE: Ideal distance between the runner tube and rockshaft is 3 1/4". (FIG. 4-77)

4. When the rockshaft is in position, torque the hardware previously loosened to 28 ft.-lbs.

5. Continue repositioning the rockshaft moving toward the back of the cart.

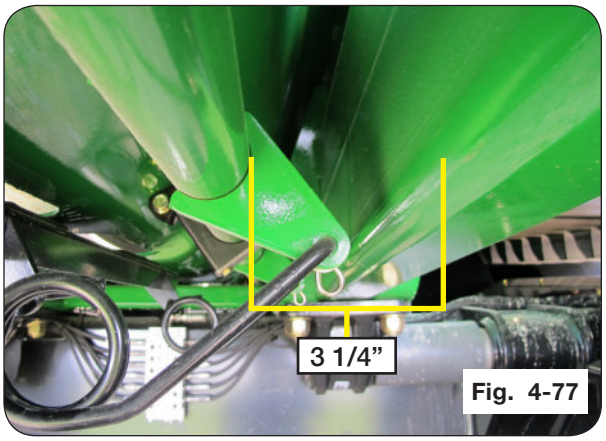


Fig. 4-77

Horizontal Cleanout Door Adjustment

6. Rotate the tensioner handle counter-clockwise to close the doors allowing the plate to fit and seal into the belly pan opening. (Fig. 4-78)

Fig. 4-78

7. If plate insert needs adjustment, loosen the two flat head machine screws holding the plate in position. (Fig. 4-79)

8. Ensure the plate inserts are aligned and fit into the belly pan cut-outs. (Fig. 4-79)

9. Close the doors and ensure all doors seal.

10. Insert lynch pin into rockshaft and return handle to storage location.

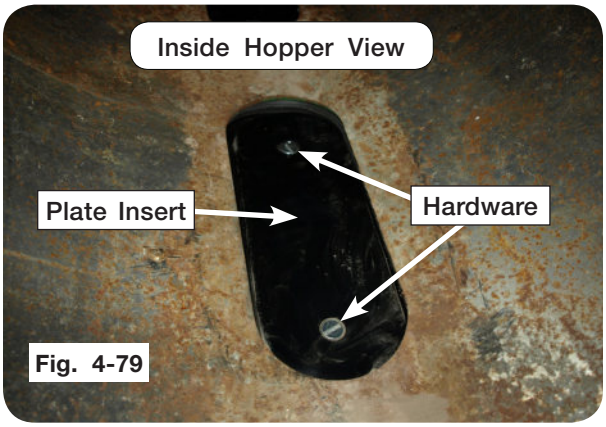


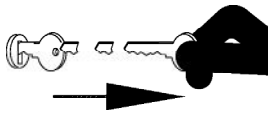
Fig. 4-79

Hydraulic Jack Cylinder Replacement

⚠ WARNING

- **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 THE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR'S MANUAL FOR PROPER PROCEDURES.**
- **HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.**
- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**
- **UNHITCHING A LOADED CART CAN CAUSE SERIOUS INJURY OR DEATH DUE TO TONGUE RISING OR FALLING. ALWAYS HAVE A LOADED CART ATTACHED TO A TRACTOR. THE JACK IS INTENDED TO SUPPORT AN EMPTY CART ONLY.**
- **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 2,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

1. Park the empty unit on a firm, level surface. Block tractor and machine to keep it from moving. Set the tractor parking brake, shut off the engine and remove the ignition key. Completely disconnect the PTO from the cart and tractor.
2. Attach hydraulic jack hoses to tractor SCV.



3. Open valve and lower jack leg to ground.
   DO NOT raise tongue.
4. Relieve pressure on hydraulic jack circuit. See tractor operator manual for procedure.
5. Close valve.
6. Support the hydraulic jack assembly with a safe lifting device rated for a minimum of 100 lbs.
7. Remove hydraulic jack hoses from tractor SCV.
8. Remove cylinder pin (272587) and snap rings (91192) from the base end of the cylinder at the lug on top of the tongue. (FIG. 4-80)

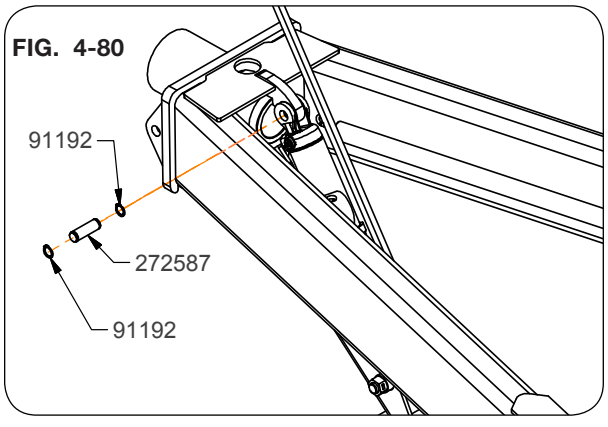


FIG. 4-80

Hydraulic Jack Cylinder Replacement (continued)

9. Remove hydraulic jack assembly from the tongue. (FIG. 4-81)

10. On new hydraulic assembly (296288B), attach hoses (9006068) and fittings to cylinder (9009047) as shown in FIG. 4-81. The valve needs to be assembled to the hose on the base end of the cylinder. Assemble the fittings on the cylinder so they face each other, then store the hydraulic hoses on the hose caddy.

11. To reassemble hydraulic jack, see "Install Hydraulic Jack (Optional)" in SET UP section.

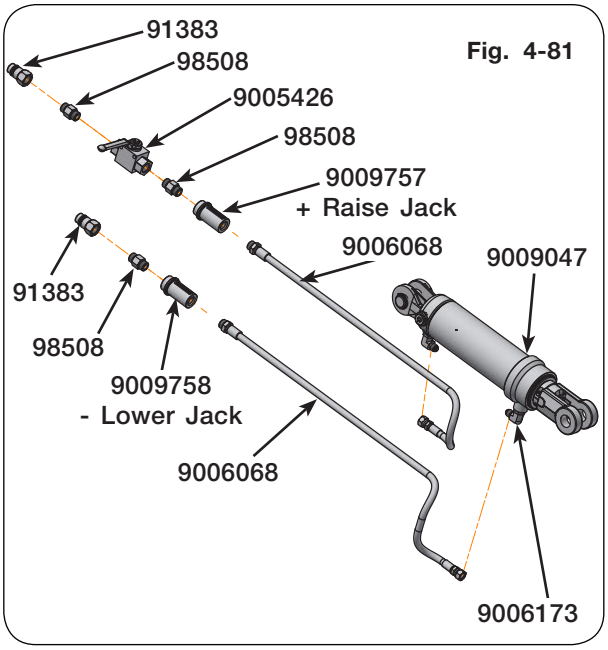


Fig. 4-81

Seasonal Storage

Always open and keep open the flow door, horizontal and vertical auger cleanout doors to remove any remaining grain and to allow moisture to dry.

Wash machine inside and out before storing to remove dirt and debris that can draw and collect moisture. When using pressure washers maintain an adequate distance so not to force water into bearings.

Reattach PTO brackets (296155Y) to the inside right-hand side of the tongue and place PTO assembly on brackets.

Lubricate machine at all points outlined.

Repaint all areas where paint has been removed to keep rust from developing. Rust will affect grain flow.

Coat exposed cylinder piston rods with rust preventative material if applicable.

Inspect machine for parts that may need to be replaced so they may be ordered in the off season.

If unit is equipped with a scale indicator or electric hydraulic controls store these indoors in a dry location.

Close the tarp to keep debris out of the hopper.

Rear access door is latched closed.

Ladders are in storage position.

For SN B44810100 & Higher

Fig. 4-82

Road Transport Position

For SN B44810099 & Lower

Fig. 4-83

Road Transport Position

Troubleshooting

Problem	Possible Cause	Corrective Action
No Manual Override functions work (Electric Over Hydraulic All Serial Numbers) SCV Inline Valve Control (For SN B45780099 and Lower)	Not getting 12 Volt power supply to the power harness in the tractor	Check the connections to the main power harness in the tractor cab, and check the 5 AMP fuse in the fuse holder of the main power harness. Replace fuse if necessary.
	Not getting good connection at Deutch connectors in the harnesses	Unplug the Deutsch connectors at the hitch point and in the extension harness (if used). Clean up the connectors with electrical contact cleaner. Make sure the connectors are aligned correctly and re-connect them.
	Not pressurizing the correct hydraulic hose	Make sure the quick couplers are properly connected to the tractor SCV and the Hydraulic Pressure line is being pressurized when engaging the tractor SCV.
Auger unfolds, but won't fold back into a transport position (For SN B45780099 and Lower)	Rotating Spout is not in the folding position	Rotate the spout so it is positioned straight down or forward in order to fold the auger into a transport position.
	Rotating spout switch is faulty or out of adjustment	Make sure the spout is in the centered position. Refer to the manual override sections in order to fold the auger back into a transport position. Inspect the switch assembly near the rotating spout cylinder. The clearance between the end of the proximity switch and the barrel of the rotating spout cylinder must not exceed 1/4".
Auger unfolds part way and stops	Debris in the EOH block on the auger fold cylinder	Fold auger, remove the Coil and the cartridge valve on the EOH valve block. Remove any debris and reinstall cartridge and coil.
	Rotating Spout switch is out of adjustment or has been activated. (For SN B45780099 and Lower)	With the auger folded in to the road transport rest, have someone depress and hold the switch at the vertical auger hinge plate. Use any means necessary to depress the switch without placing your hands or other body parts near the pinch points. With the switch depressed, rotate the spout to the folding postion.

Troubleshooting (continued)

Problem	Possible Cause	Corrective Action
Auger lights will not function (For SN B45780100 and Higher) Rotating spout will not function (For SN B45780099 and Lower)	7 pin connector is not plugged into tractor.	Plug in 7 pin connector to same power source as the 5 function controller.
	Proximity Switch at the auger hinge is not getting Power or Ground.	Check power and ground to the proximity switch harness on the vertical auger. Make sure the center pin on the 7 pin plug has +12V key switch power.
	Proximity switch located at the hinge plate is not adjusted correctly.	This proximity switch has a 1/4" effective operating range. The upper auger hinge plate needs to be within that range when it is unfolded in to the operating position. Adjust the proximity switch in or out in order for the sensor to activate when it is in the operating position.
One single function will not work	Defective coil on the EOH valve for that function	Loosen the cap for the coils associated with that function on the EOH valve. Depress the button on the remote, and determine if the coils are getting magnetized. Inspect the wiring connectors to these coils, and replace the coil if necessary.
	Defective valve on the EOH valve for that function	Remove the coil and the cartridge valve on the EOH valve block for that function. Replace the valve if it doesn't operate when the coil is magnetized.
	Debris in the EOH block at the base of the vertical auger	Remove the coil and the cartridge valve on the EOH valve block. Remove any debris and reinstall cartridge and coil.
Functions continue to operate after the button on the remote is released	Tractor hydraulic flow is set too high	Turn tractor hydraulic flow down so that flow doesn't exceed 6 gallons per minute.
	Defective valve on the EOH valve for that function	Remove the Coil and the cartridge valve on the EOH valve block for that function, and replace the cartridge.

Auger Switch Troubleshooting

Check continuity between the switch wires to determine if the switches are out of adjustment. Adjust accordingly if needed.

Spout Rotate Switch - For SN B45780099 & Lower

NOTE: For SN B45780099 and lower, the switch on the front of the spout assembly controls the power and ground for both the spout rotate front and rear.

The switch at the spout must have no more than a 1/4" gap between the sensor plate (295693B) and the switch. Verify the gap if the auger fold stops functioning during the auger fold sequence or if the auger folds even if the spout is rotated back and allows the spout to hit the hopper while folding. (Fig. 4-84)

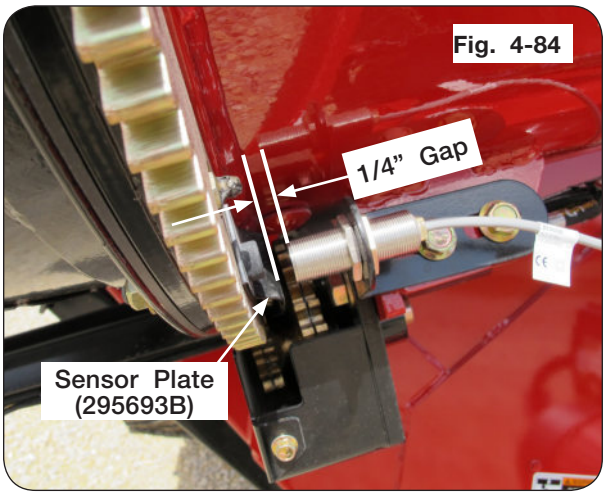


Fig. 4-84

Auger Fold, Unfold & Auger Lights Switch

NOTE: For SN B45780100 and higher, the switch near the auger hinge pin controls the power and ground for the auger lights.

NOTE: For SN B45780099 and lower, the switch controls the power and ground for the auger fold, unfold and auger lights.

The switch at the hinge pin should be adjusted so there is 1/8" gap below the lower auger hinge plate. To maintain the 1/8" gap, adjust the hinges on the upper auger or by turning the switch in or out until the 1/8" gap is achieved. (Fig. 4-85)

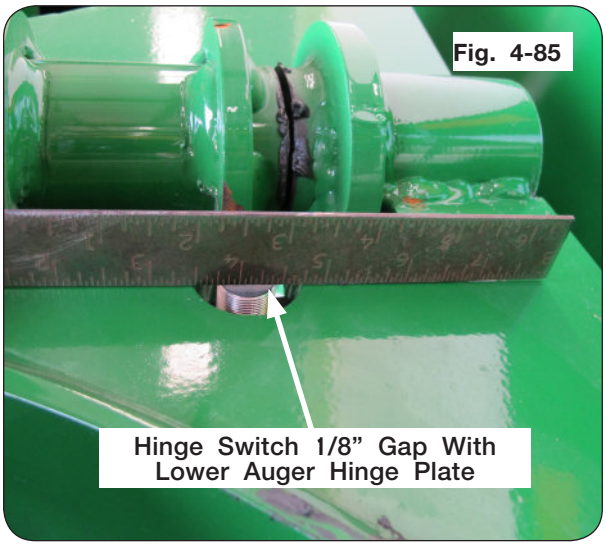


Fig. 4-85

Tarp Troubleshooting Inspection & Maintenance

PROBLEM	SOLUTION
TARP SAGS IN MIDDLE AREAS	1. BOWS MAY BE BENT OR ADJUSTED TOO LOW 2. MISSING OR LOOSE RIDGE STRAP REPLACE OR RETIGHTEN 3. TENSION MAY BE TOO LOOSE. U-JOINT MAY NEED TO BE ADJUSTED ON SPLINED SHAFT TO PROVIDE MORE TENSION
HOLES OR TEARS IN TARP	1. CONSULT YOUR LOCAL DEALER FOR REPAIRS 2. ORDER TARP REPAIR KIT FROM DEALER 3. WHEN NEW TARP OR PARTS ARE NEEDED ALWAYS REPLACE WITH ORIGINAL PARTS

Inspection and Maintenance

⚠ WARNING

- **TO PREVENT PERSONAL INJURY OR DEATH, DO NOT ALLOW ANYONE ON A CLOSED TARP. TARP SYSTEM IS NOT DESIGNED TO SUPPORT A PERSON.**
- **FALLING OBJECTS CAN CAUSE SERIOUS INJURY OR DEATH. REMOVE ACCUMULATED WATER/SNOW/ICE OR ANY OTHER OBJECTS FROM TARP BEFORE OPENING TARP.**

IMPORTANT

- *Do not open or close tarp while moving or in high wind conditions. Damage to the tarp may occur.*
- *Tarp should not be used if it is torn or the bungee cords are frayed or show damage. If water pools on the tarp adjust tension of tarp cables and/or arm springs as required.*

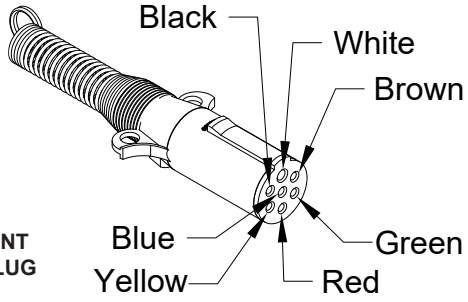
Periodic preventive maintenance should be practiced. Inspect tarp and hardware often for abrasions or loosened bolts that may need adjustment and/or repair. Check bungee cords for wear and adjust tension at the beginning of the season and again half way through the season.

Tears in tarp should be addressed before further tarp operation. If water pools on tarp, adjust tension of tarp cables and/or arm springs.

If installed correctly, tarp should always operate as well as when first installed. If tarp does not pass this simple inspection, make all appropriate repairs or adjustments immediately before serious damage occurs.

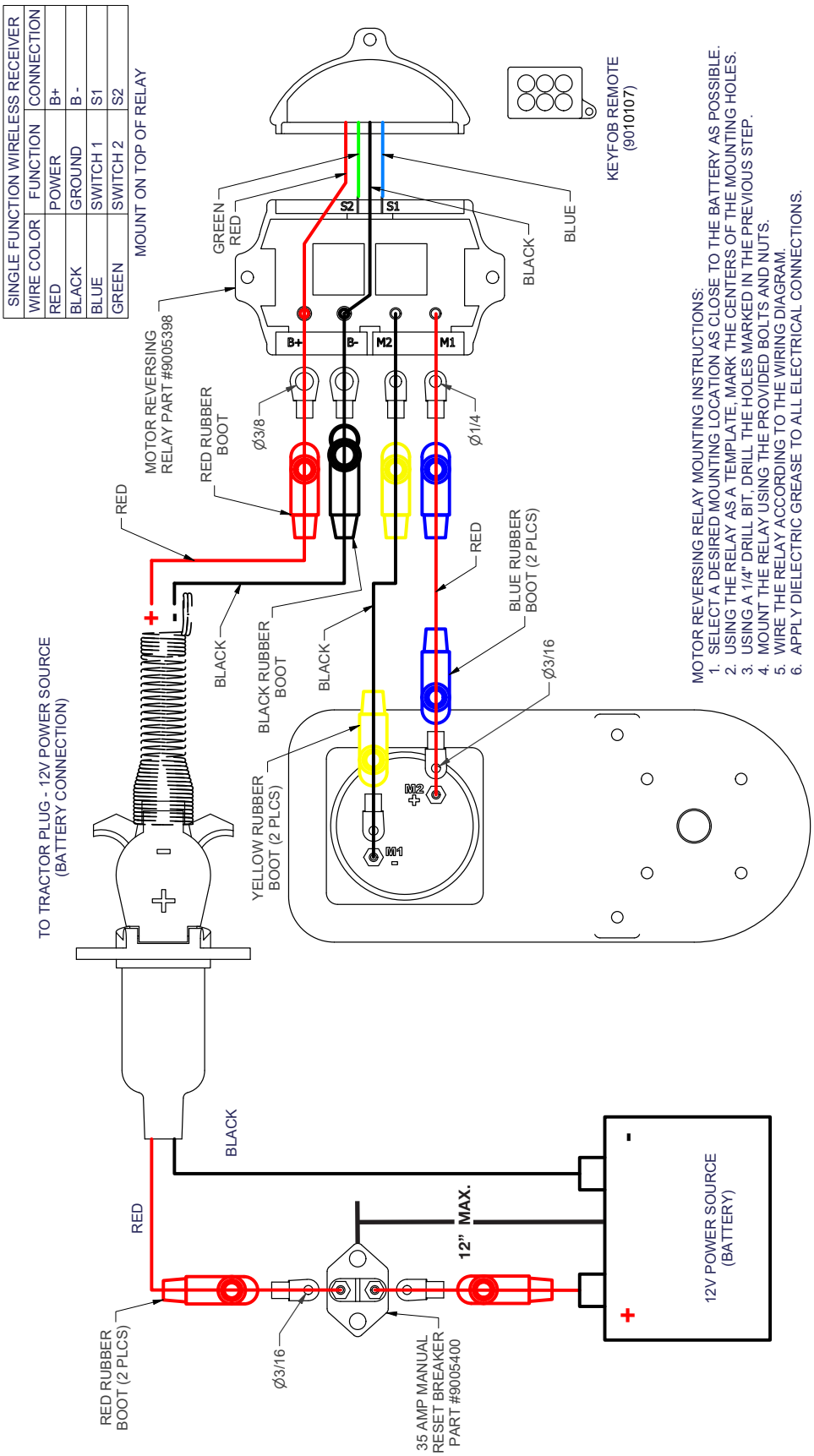
Electrical System Schematic

GRAIN CART WIRES
White -- Ground
Green -- Right amber flashing lamp
Yellow -- Left amber flashing lamp
Brown -- Amber Clearance and
Red Tail Lights (Low Filament)
Red -- Red Brake Lights (High Filament)
Black -- Work Lights
Blue -- 12V Key Switch Power

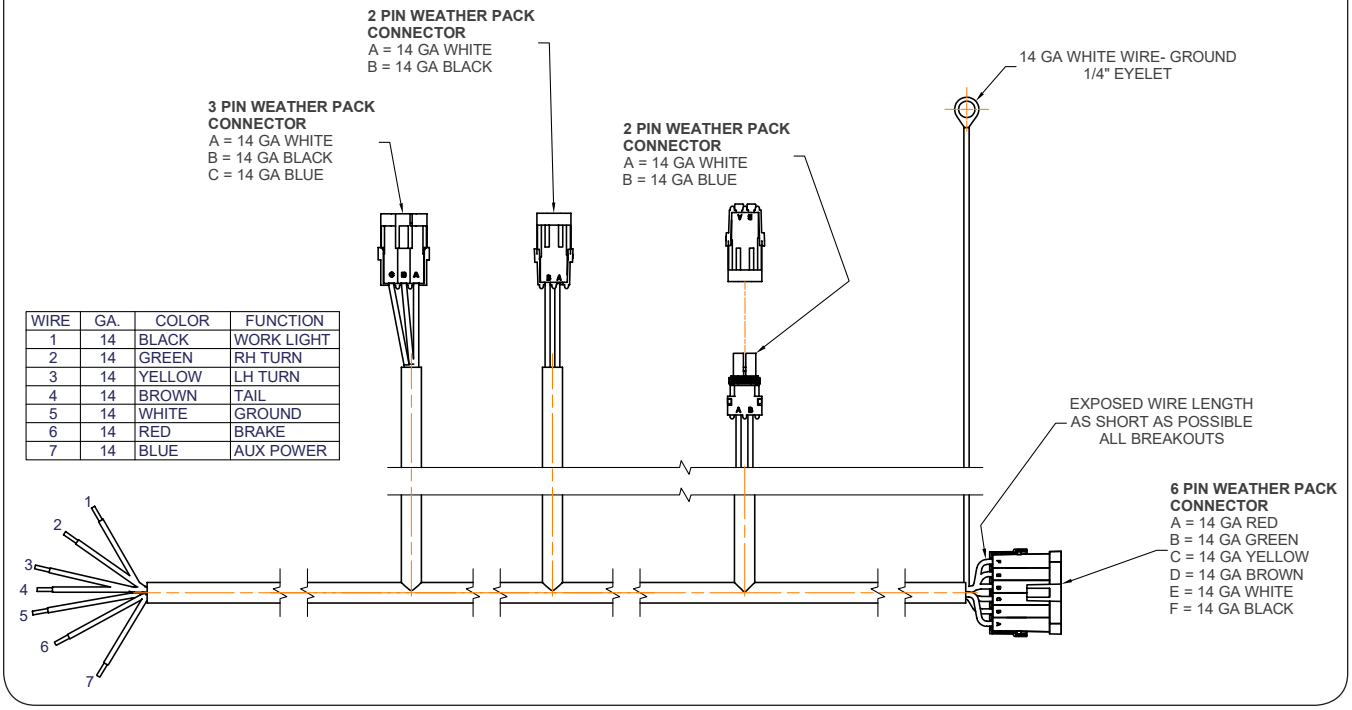


SAE SEVEN-POINT CONNECTOR PLUG

Electrical System Schematic



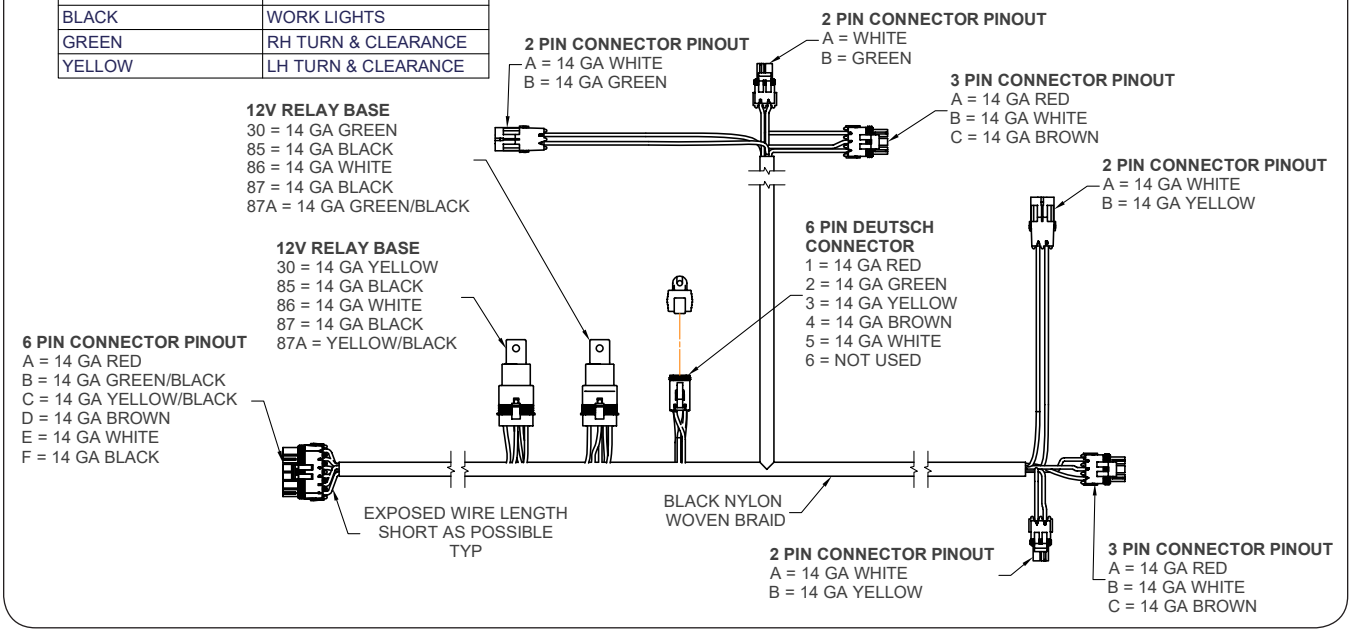
Electrical System Schematic - Front Harness #9009547



WIRE	GA.	COLOR	FUNCTION
1	14	BLACK	WORK LIGHT
2	14	GREEN	RH TURN
3	14	YELLOW	LH TURN
4	14	BROWN	TAIL
5	14	WHITE	GROUND
6	14	RED	BRAKE
7	14	BLUE	AUX POWER

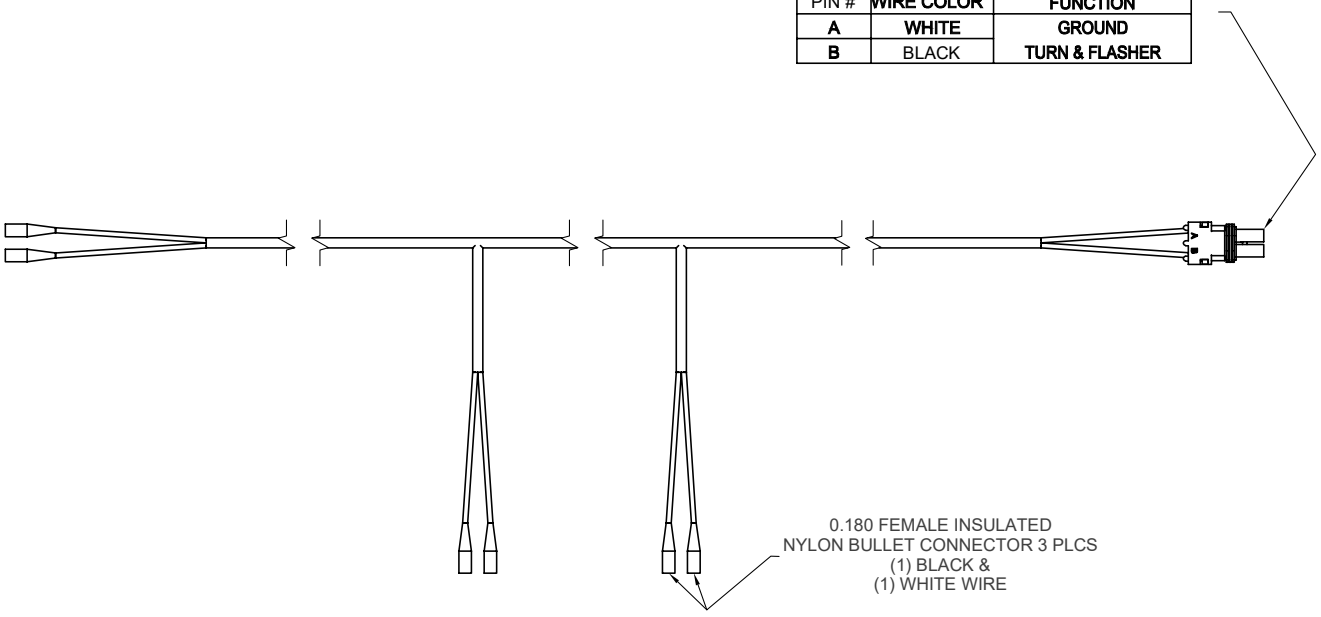
Electrical System Schematic - Rear Harness #9009586

WIRE COLOR	WIRE FUNCTION
RED	BRAKE
GREEN/BLK	RH TURN
YELLOW/BLK	LH TURN
BROWN	TAIL LIGHTS
WHITE	GROUND
BLACK	WORK LIGHTS
GREEN	RH TURN & CLEARANCE
YELLOW	LH TURN & CLEARANCE

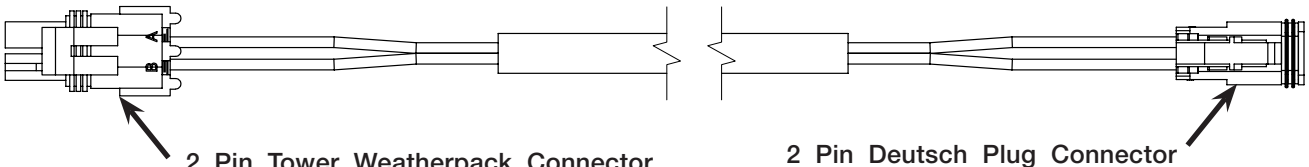


Electrical System Schematic Clearance Light Harnesses #9006520

CONNECTOR TYPE: 2 PIN TOWER WEATHERPACK		
PIN #	WIRE COLOR	FUNCTION
A	WHITE	GROUND
B	BLACK	TURN & FLASHER



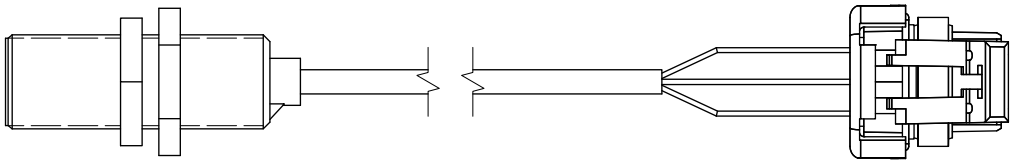
Electrical Diagram — Work Light Wiring Harness #9008969



2 Pin Tower Weatherpack Connector
Pin "A" - White - Ground
Pin "B" - Black - +12V Work Light

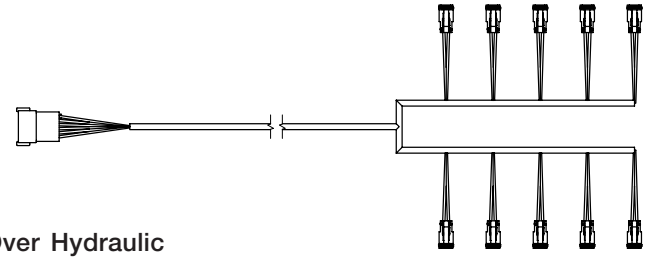
2 Pin Deutsch Plug Connector
Pin 1 - Black - Switched Work Light
Pin 2 - White - Ground

Electrical System Schematic - Proximity Switch #9007223

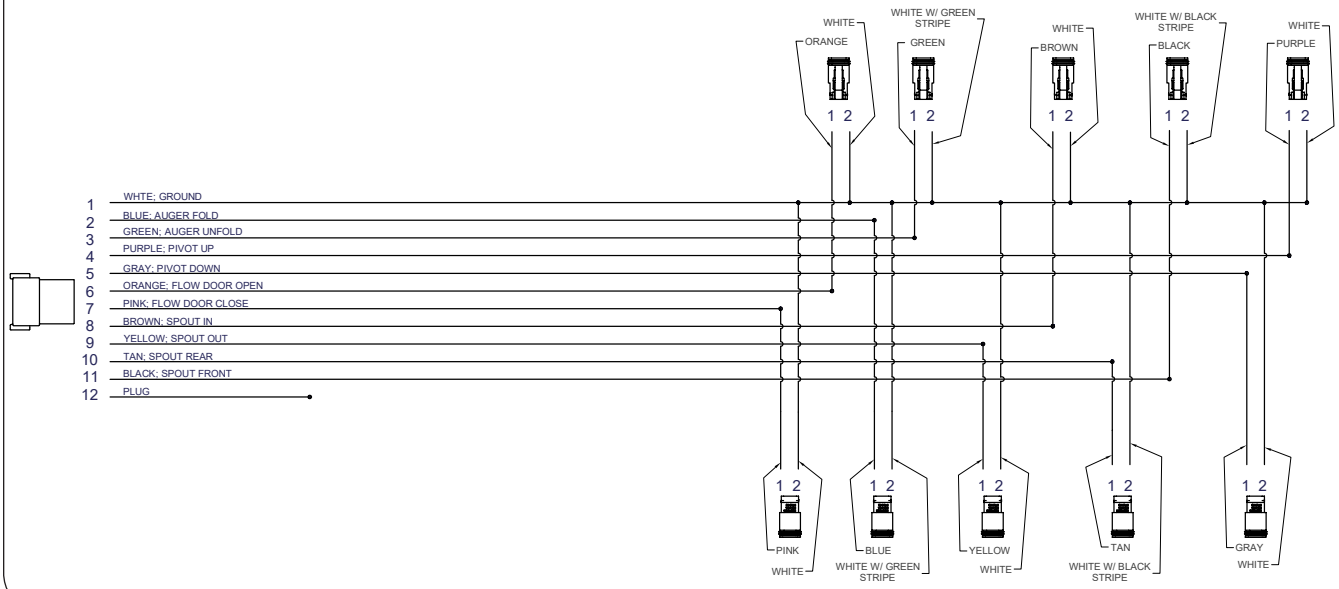


METRI-PACK 150 WIRING CHART		
WIRE COLOR	PIN NO.	FUNCTION
BLACK	A	SIGNAL
BROWN	B	+12 V DC
BLUE	C	GROUND

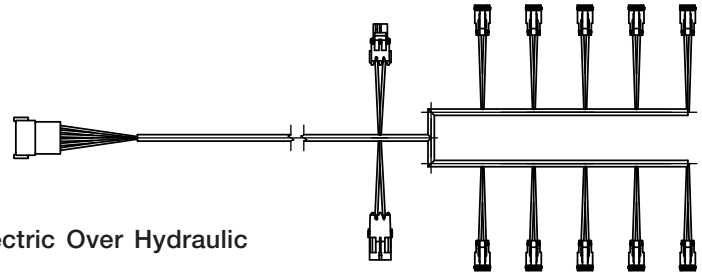
Electrical System Schematic - Main Harness #9010096 (Opt.) For SN B45780100 & Higher



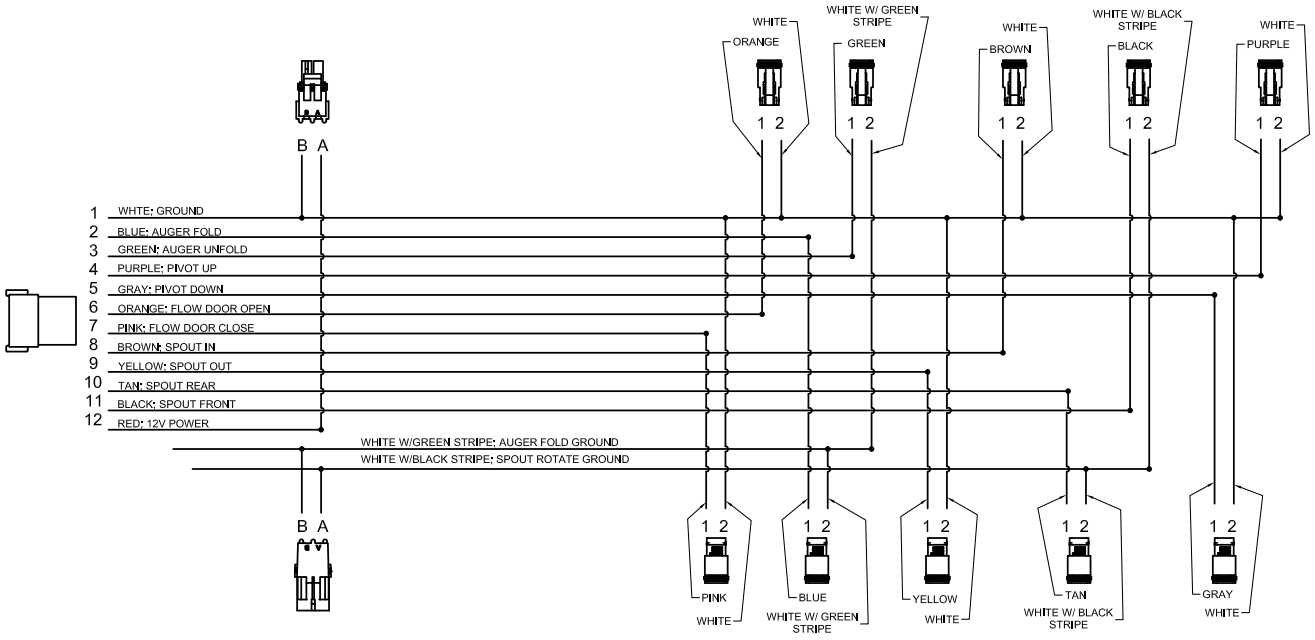
NOTE: For Optional Electric Over Hydraulic 5 Function Valve.



Electrical System Schematic - Main Harness #9007290 (Opt.) For SN B45780099 & Lower

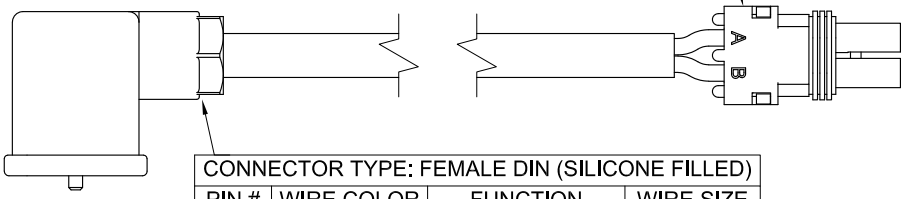


NOTE: For Optional Electric Over Hydraulic 5 Function Valve.



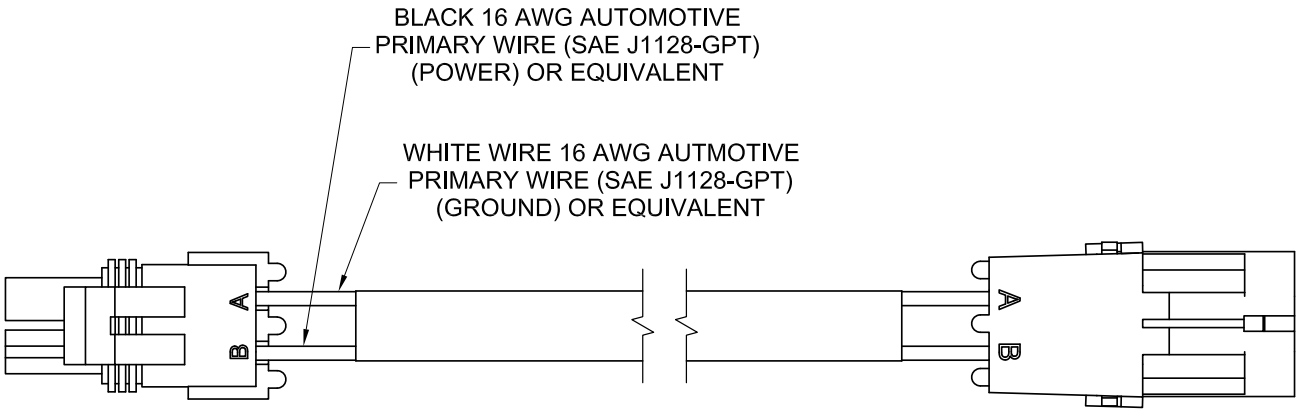
Electrical System Schematic - Harness #9005993

2 PIN TOWER WEATHERPACK		
PIN #	WIRE	FUNCTION
A	14 GA. RED	STEERING LOCK
B	14 GA. WHITE	GROUND

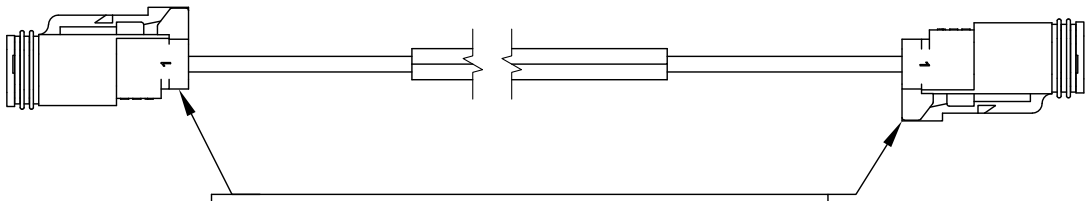


CONNECTOR TYPE: FEMALE DIN (SILICONE FILLED)			
PIN #	WIRE COLOR	FUNCTION	WIRE SIZE
1	RED	STEERING LOCK	14 GA.
2	WHITE	GROUND	14 GA.

Electrical System Schematic - Extension Harness #86700

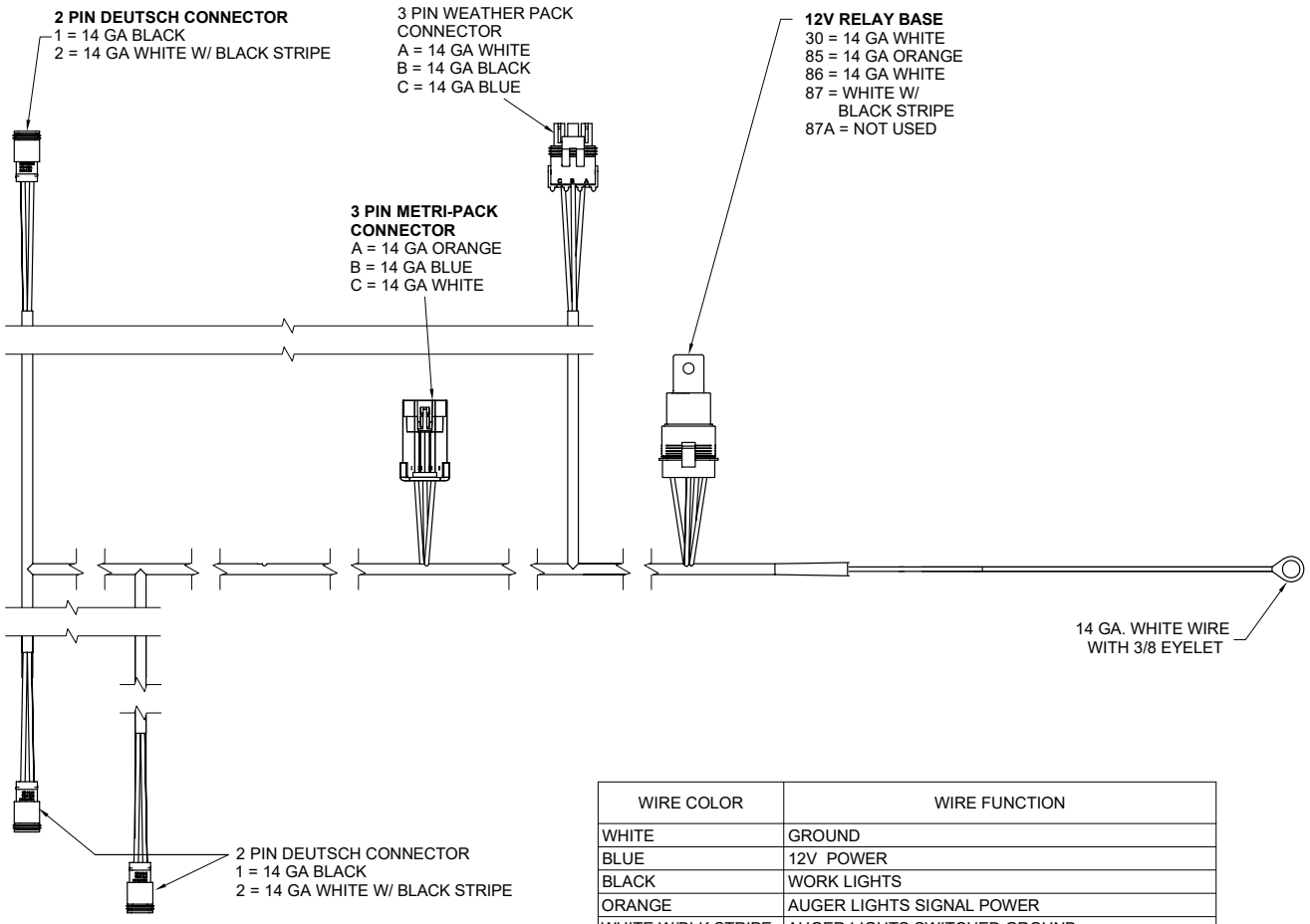


Electrical System Schematic - Diverter Harness #9007266



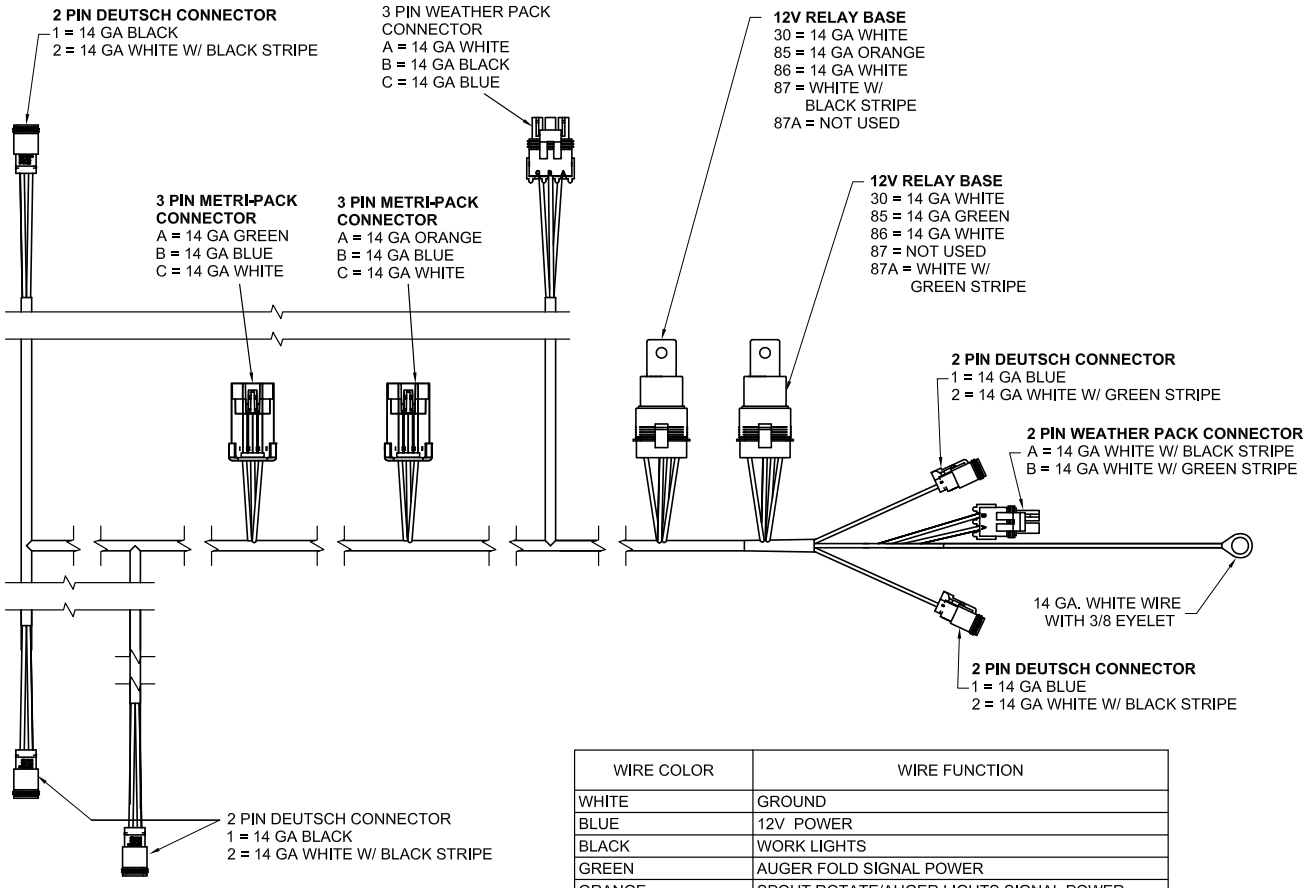
CONNECTOR TYPE: 2 PIN DEUTSCH PLUG		
PIN #	WIRE COLOR	FUNCTION
1	RED	+12V POWER
2	WHITE	GROUND

Electrical System Schematic - Auger Harness #9010101 For SN B45780100 & Higher



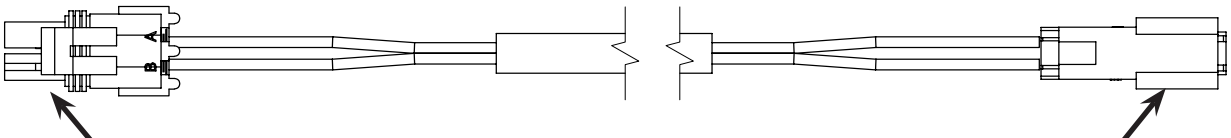
WIRE COLOR	WIRE FUNCTION
WHITE	GROUND
BLUE	12V POWER
BLACK	WORK LIGHTS
ORANGE	AUGER LIGHTS SIGNAL POWER
WHITE W/BLK STRIPE	AUGER LIGHTS SWITCHED GROUND

Electrical System Schematic - Auger Harness #9009531 For SN B45780099 & Lower



WIRE COLOR	WIRE FUNCTION
WHITE	GROUND
BLUE	12V POWER
BLACK	WORK LIGHTS
GREEN	AUGER FOLD SIGNAL POWER
ORANGE	SPOUT ROTATE/AUGER LIGHTS SIGNAL POWER
WHITE W/GRN STRIPE	AUGER FOLD SWITCHED GROUND
WHITE W/BLK STRIPE	SPOUT ROTATE/AUGER LIGHTS SWITCHED GROUND

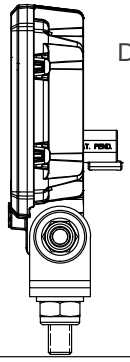
Electrical System Schematic - Work Flood Lamp #9008957



2 Pin Tower Weatherpack Connector
Pin "A" - White - Ground
Pin "B" - Black - +12V Work Light

2 Pin Deutsch Receptacle Connector
Pin 1 - Black - Switched Work Light
Pin 2 - White - Ground

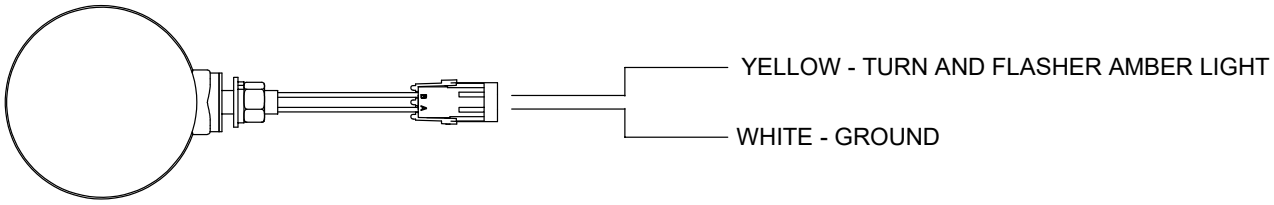
Electrical System Schematic - Work Flood Lamp #9008957



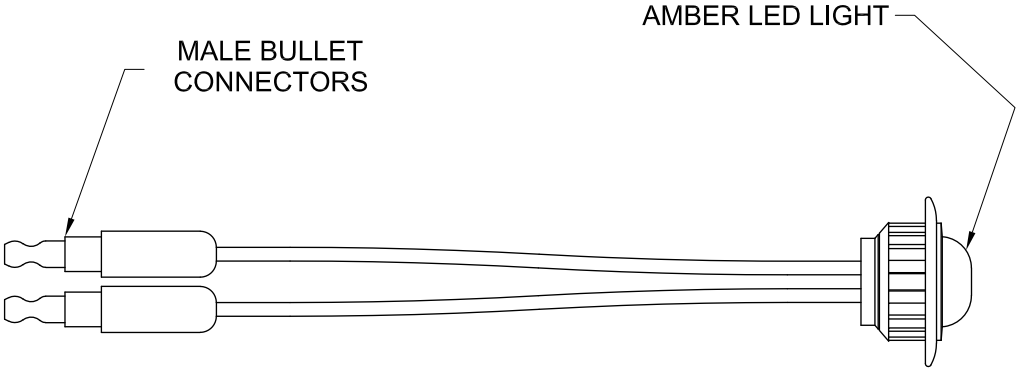
2 PIN INTEGRATED
DEUTSCH CONNECTOR

POWER (PIN #1)
GROUND (PIN #2)

Electrical System Schematic - Amber Lamp #9005142

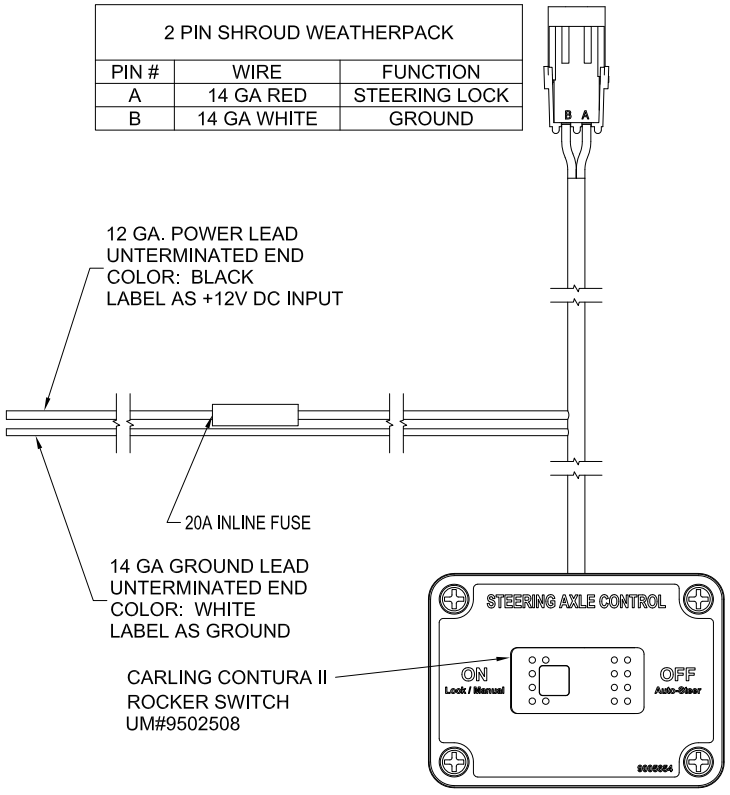


Electrical System Schematic - Micro Dot, LED Light #9006107



Electrical System Schematic - Rocker Switch Asy #9005654

2 PIN SHROUD WEATHERPACK		
PIN #	WIRE	FUNCTION
A	14 GA RED	STEERING LOCK
B	14 GA WHITE	GROUND

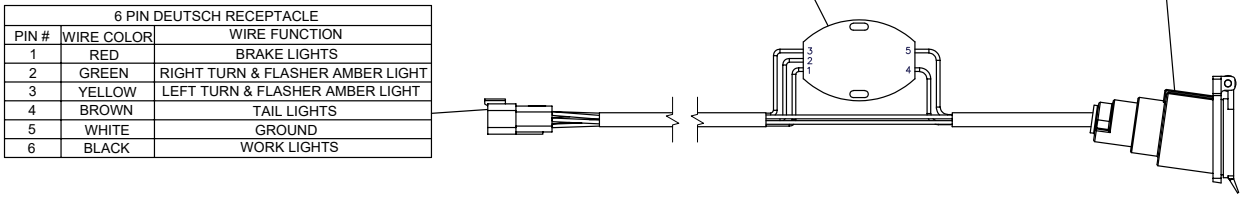


Electrical System Schematic - Adapter Harness, AG to 7-Blade Connector #9009843 (Optional - Rear Hitch) For SN B44420100 & Higher

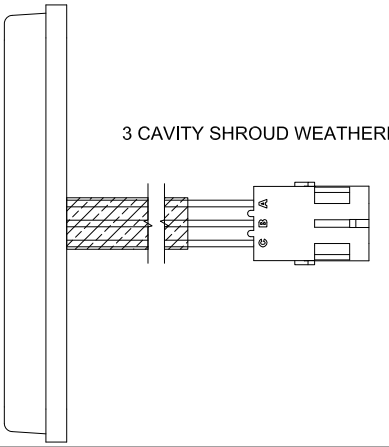
TAIL LIGHT CONVERTER		
WIRE	COLOR	WIRE FUNCTION
1	YELLOW	LEFT TURN/FLASHING
2	RED	BRAKE LIGHTS
3	GREEN	RIGHT TURN/FLASHING
4	YELLOW	LEFT TURN/STOP
5	GREEN	RIGHT TURN/FLASHING

7-BLADE CONNECTOR		
PIN #	WIRE COLOR	WIRE FUNCTION
1	WHITE	GROUND
2	NA	NA
3	BROWN	TAIL/RUNNING LIGHTS
4	BLACK	+12V SWITCHED POWER
5	YELLOW	LEFT TURN/STOP
6	GREEN	RIGHT TURN/STOP

6 PIN DEUTSCH RECEPTACLE		
PIN #	WIRE COLOR	WIRE FUNCTION
1	RED	BRAKE LIGHTS
2	GREEN	RIGHT TURN & FLASHER AMBER LIGHT
3	YELLOW	LEFT TURN & FLASHER AMBER LIGHT
4	BROWN	TAIL LIGHTS
5	WHITE	GROUND
6	BLACK	WORK LIGHTS

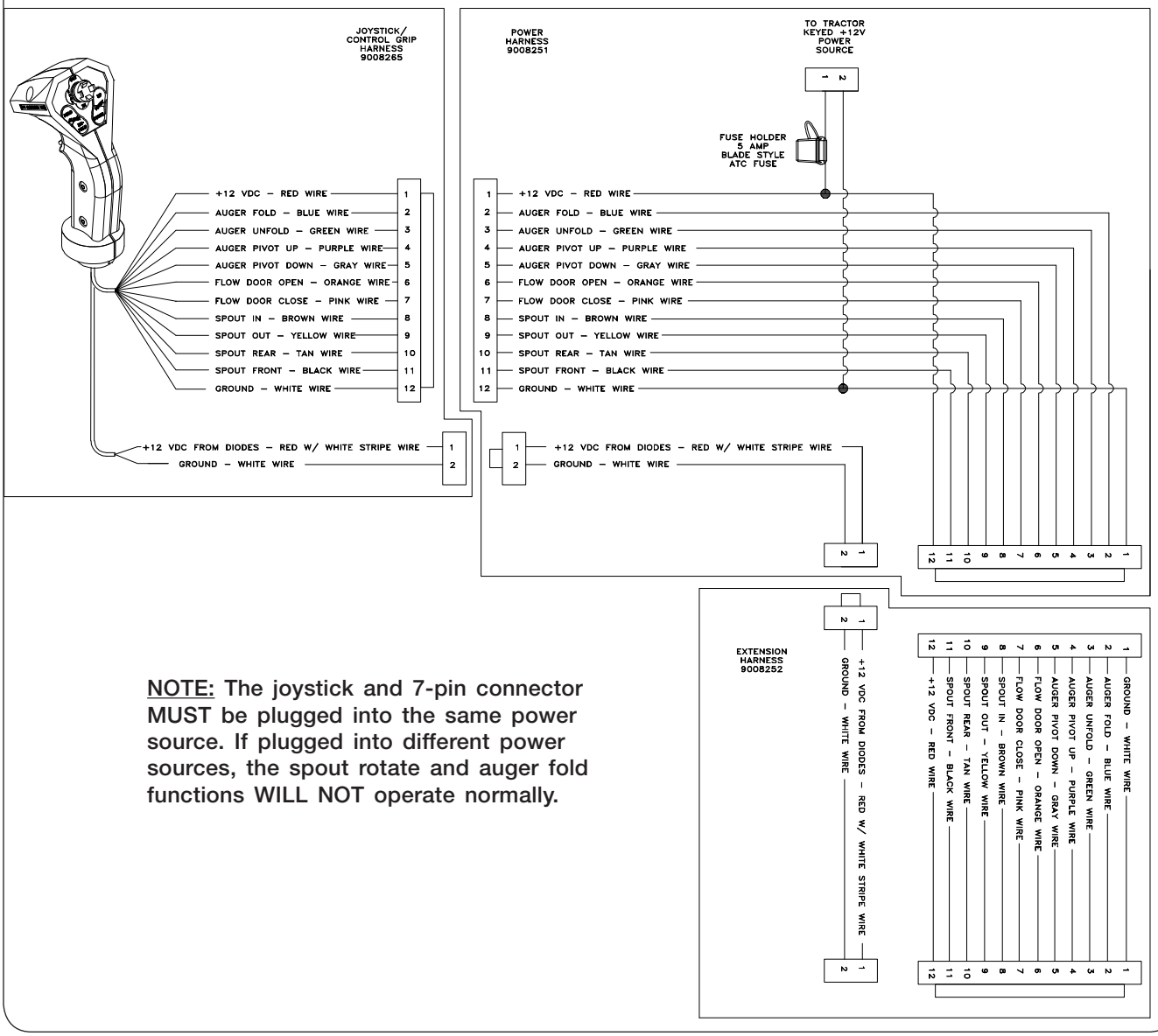


Electrical System Schematic — Red Lamp #9006282



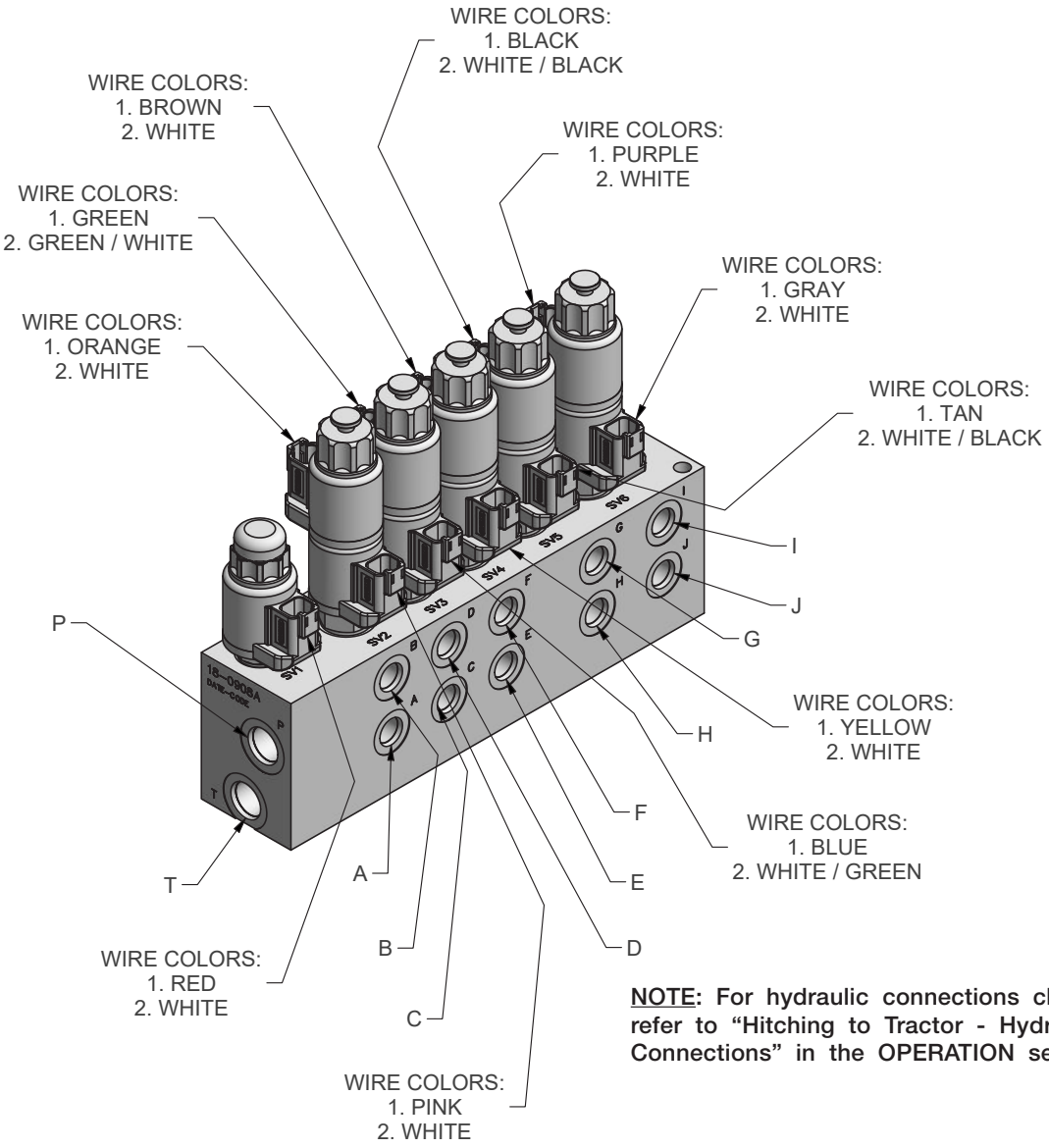
RED - HIGH (PIN #A)
WHITE - GROUND (PIN #B)
BROWN - LOW (PIN #C)

Electrical Over Hydraulic (EOH) System Schematic 5 Function Optional



NOTE: The joystick and 7-pin connector MUST be plugged into the same power source. If plugged into different power sources, the spout rotate and auger fold functions WILL NOT operate normally.

Optional Electric Over Hydraulic Valve Electric Schematic 5 Function

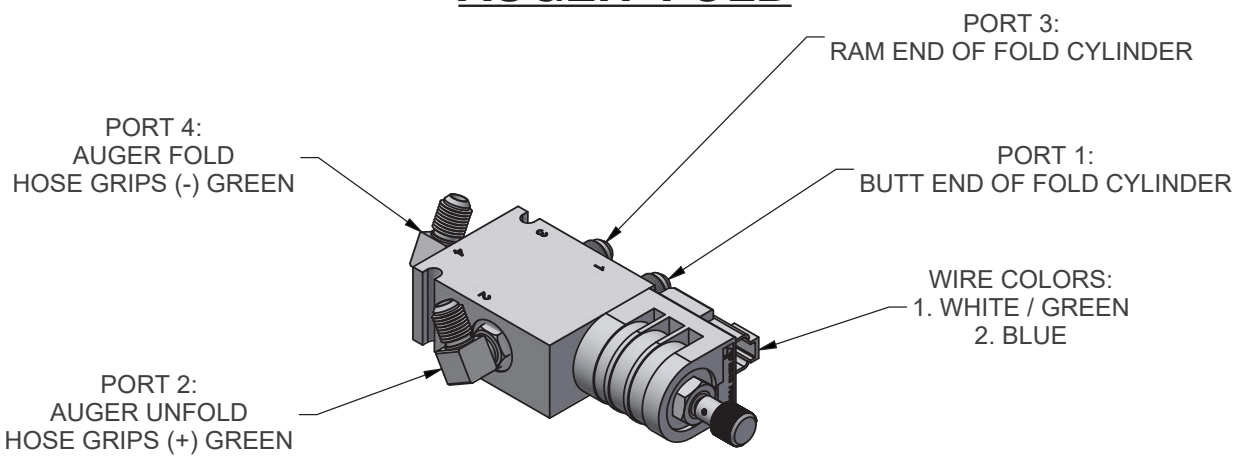


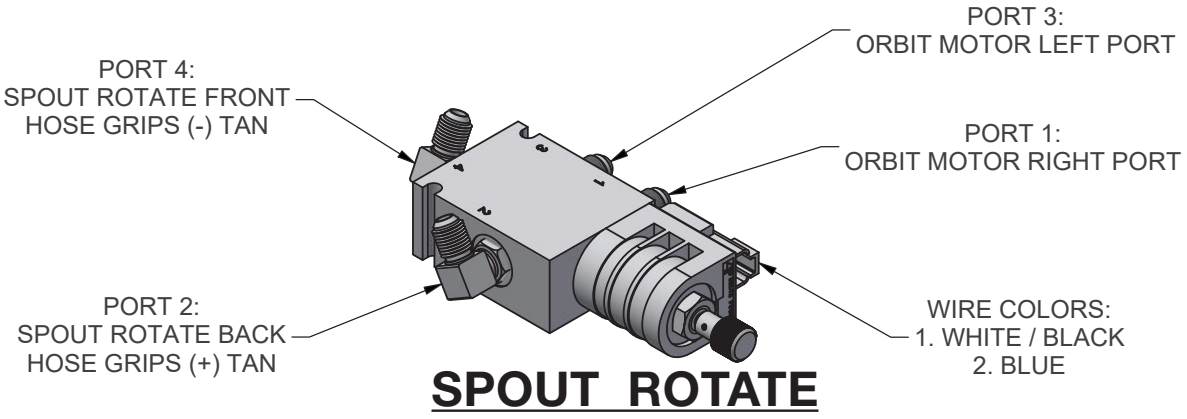
NOTE: For hydraulic connections chart, refer to "Hitching to Tractor - Hydraulic Connections" in the OPERATION section.

PORT	END OF CYLINDER	FUNCTION
A	BUTT END	FLOW DOOR
B	RAM END	FLOW DOOR
C	RAM END	AUGER FOLD
D	BUTT END	AUGER FOLD
E	RAM END	SPOUT TILT
F	BUTT END	SPOUT TILT
G	BUTT END (SN B45780100 & HIGHER) ORBIT MOTOR LEFT-HAND PORT (SN B45780099 & LOWER)	JOYSTICK / SPOUT ROTATE
H	RAM END (SN B45780100 & HIGHER) ORBIT MOTOR RIGHT-HAND PORT (SN B45780099 & LOWER)	JOYSTICK / SPOUT ROTATE
I	BUTT END	AUGER PIVOT
J	RAM END	AUGER PIVOT
P		JOYSTICK / TRACTOR PRESSURE
T		JOYSTICK / TRACTOR RETURN

SCV Controlled Inline Valve Assemblies - Electric Schematic For SN B45780099 & Lower

AUGER FOLD

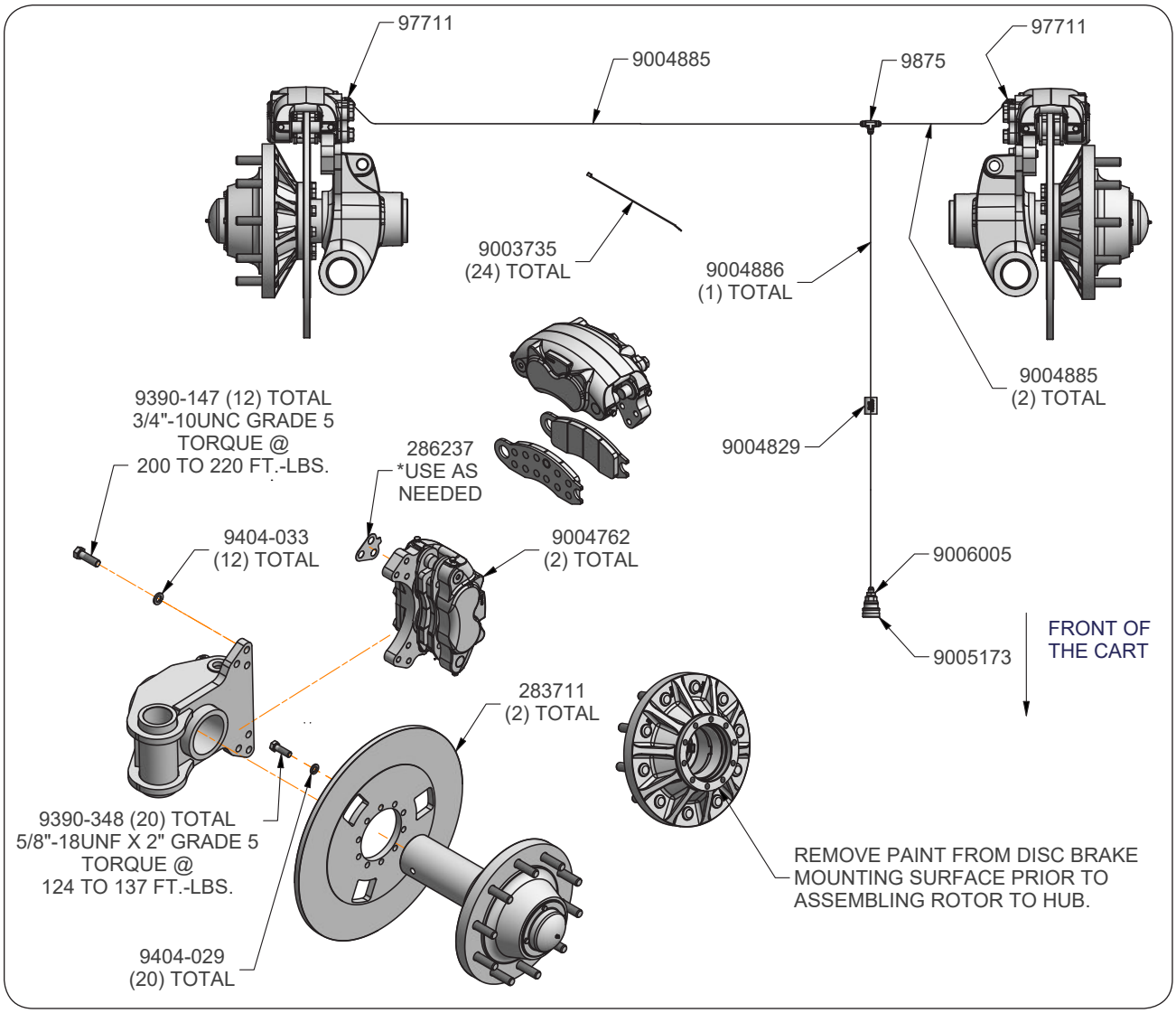




SPOUT ROTATE

NOTE: For hydraulic connections chart, refer to "Hitching to Tractor - Hydraulic Connections" in the OPERATION section.

Braking System Schematic



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 1/4-28	8-10 9-11	11-13 12-15
5/16-18 5/16-24	15-17 17-19	20-23 23-26
3/8-16 3/8-24	25-28 28-31	34-38 38-42
7/16-14 7/16-20	40-45 45-50	54-61 61-68
1/2-13 1/2-20	62-68 68-75	84-92 92-102
9/16-12 9/16-18	90-98 100-110	122-133 134-148
5/8-11 5/8-18	120-135 124-137	162-183 168-186
3/4-10 3/4-16	200-220 210-230	270-300 285-310
7/8-9 7/8-14	330-350 360-380	425-475 460-515
1-8 1-14	500-525 540-560	675-710 730-760
1 1/8-7 1 1/8-12	600-635 665-700	815-860 920-950
1 1/4-7 1 1/4-12	850-895 940-990	1150-1215 1275-1340
1 3/8-6 1 3/8-12	1125-1175 1280-1335	1525-1590 1735-1810
1 1/2-6 1 1/2-12	1500-1560 1685-1755	2035-2115 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 5/16-24	20-22 21-23	27-30 28-31
3/8-16 3/8-24	35-39 36-41	47-53 49-55
7/16-14 7/16-20	54-58 55-60	73-78 75-80
1/2-13 1/2-20	82-88 94-99	110-120 125-135
9/16-12 9/16-18	127-134 147-155	170-180 199-210
5/8-11 5/8-18	160-170 165-175	215-230 225-235
3/4-10 3/4-16	280-295 330-365	380-400 445-495
7/8-9 7/8-14	410-430 420-440	555-580 570-595
1-8 1-14	630-650 680-700	850-880 920-950
1 1/8-7 1 1/8-12	900-930 930-950	1220-1260 1260-1290
1 1/4-7 1 1/4-12	1250-1300 1280-1320	1695-1760 1735-1790

IMPORTANT

- *Follow these torque recommendations except when specified in text.*

Hydraulic Fittings – Torque and Installation

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, ensure 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

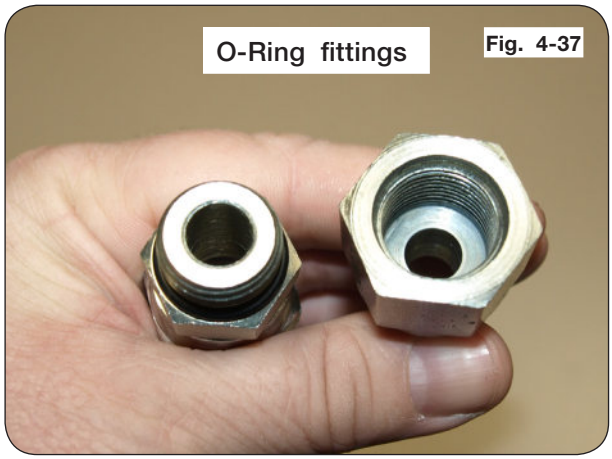


Fig. 4-37

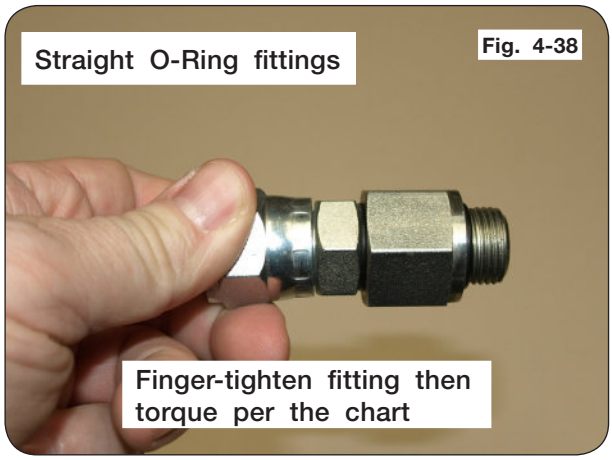


Fig. 4-38

Hydraulic Fittings – Torque and Installation (continued)

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.

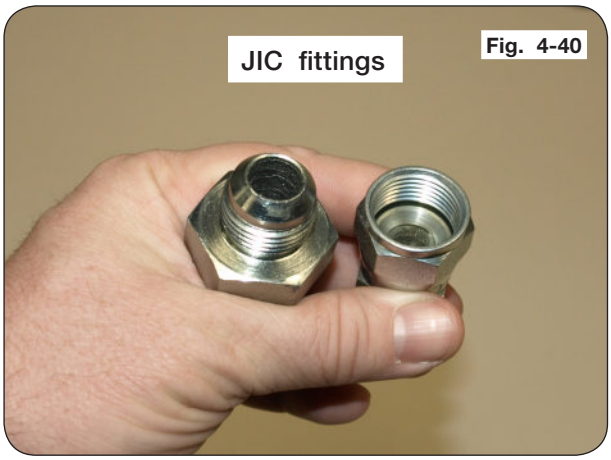


Fig. 4-40

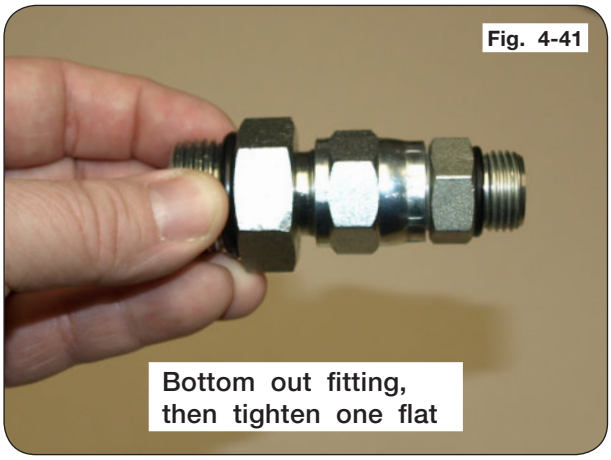
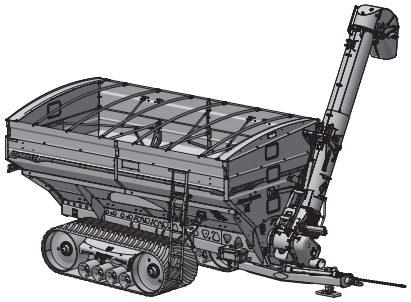


Fig. 4-41

Notes



BRENT Grain Handling

AVALANCHE® DOUBLE-AUGER GRAIN CARTS MODELS 1198 & 1398

1198 = Serial Number B42890100 & Higher
1398 = Serial Number B42880100 & Higher

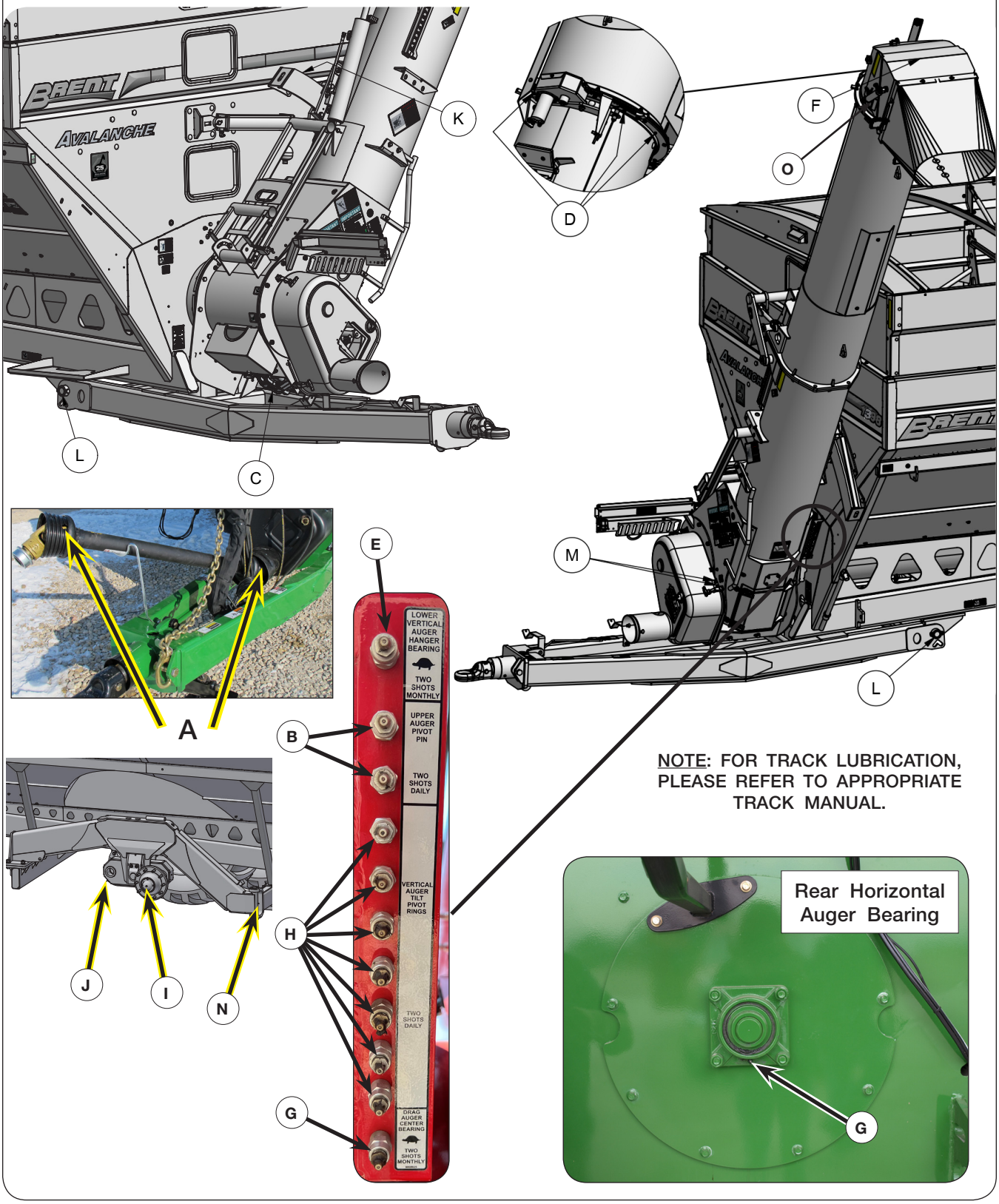
Part No. 296160

Section IV
Maintenance

FOR SCALE, TRACK, UHARVEST, ELECTRIC TARP, AND / OR WATER DELIVERY SYSTEM INFORMATION, PLEASE REFER TO THE INDIVIDUAL MANUALS.

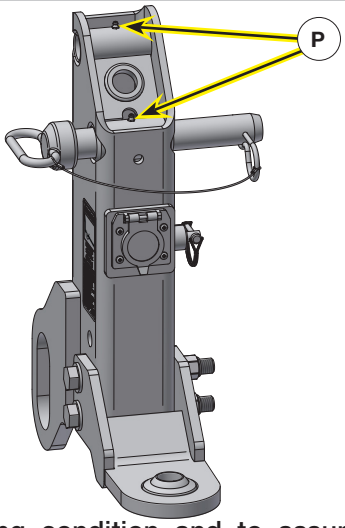
Lubrication

To keep your grain cart in top operating condition and to assure its proper performance and reliability for a long period of time, periodic inspection and lubrication is a must.



NOTE: FOR TRACK LUBRICATION, PLEASE REFER TO APPROPRIATE TRACK MANUAL.

Lubrication



To keep your grain cart in top operating condition and to assure its proper performance and reliability for a long period of time, periodic inspection and lubrication is a must.

Unverferth Mfg. recommends use of NLGI #2 Extreme Pressure grease.

The lubrication locations and recommended schedule are as follows:

ITEM	DESCRIPTION	POINT	LUBRICANT	QTY.	HOURS
A	PTO Driveshaft	3	EP-2	1 Shot	See Chart Below
B	Grease Bank for Auger Pivot Pin - Vertical Upper Auger Hinge	2	EP-2	2 Shots	Daily
C	Gearbox - Check oil level every 2 weeks. Replace oil every season. Refer to Gearbox in MAINTENANCE section for instructions.	1	EP80W90	Approx 85 oz.	Once Every Season
D	Discharge Spout Pivot Grease Points	6	EP-2	1 Shot	Monthly
E*	Grease Bank for Hanger Bearing - Vertical Lower Auger *See note below.	1	EP-2	2 Shots*	Monthly
F	Top Bearing - Vertical Upper Auger	1	EP-2	1 Shot	Each Season
G	Grease Bank for Horizontal Auger End & Center Bearings	2	EP-2	2 Shots	Monthly
H	Grease Bank for Auger Pivot Rings - Front & Rear Auger Hinge	7	EP-2	2 Shots	Daily
I	Hubs	2 / 4	EP-2	Repack	Annually
J	Walking Beam Pivot	2	EP-2	3 Shots	Weekly
K	Grease Slide Plate	1	EP-2	1 Shot	Each Season
L	Tongue Bushing - 1 per side	2	EP-2	2 Shots	Daily
M	Front Horizontal Auger Bearing & Gearbox Support Bearing	2	EP-2	2 Shots	Weekly
N	Walking Tandem Main Frame Pivot	2	EP-2	2 Shots	Each Season
O	Spout Tilt Cylinder Pin	2	EP-2	3 Shots	Weekly
P	Rear Hitch Pivot Pin	2	EP-2	2 Shots	Monthly

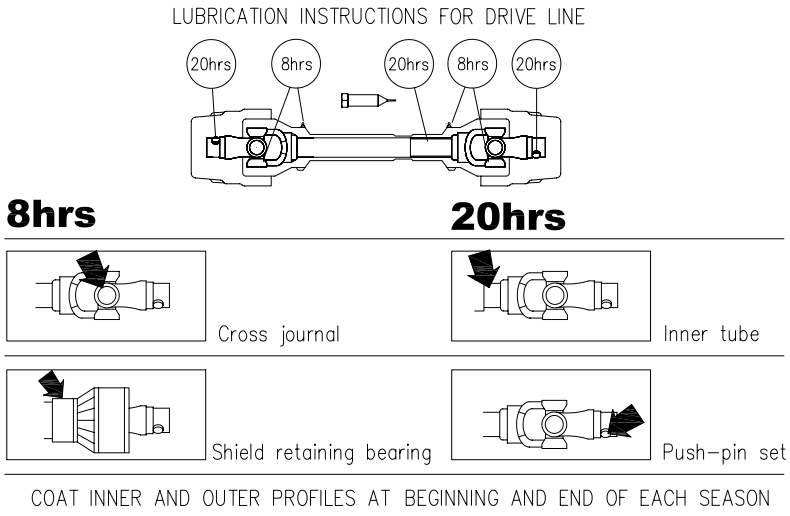
*NOTE: Hanger bearing contains hydraulic shut-off grease zerk (9005240) with pressure relief to prevent over-greasing that could push bearing seals out. If grease is coming out of the relief on the zerk, this is normal and the bearing contains enough grease.

PTO Driveshaft Lubrication

Lubricate with NLGI grade 2 grease before starting work and every 8 operating hours. Clean and grease PTO driveshaft before each prolonged period of non-use. Molded nipples on the shield near each shield bearing are intended as grease fittings and should be lubricated every 8 hours of operation! Check and grease the guard tubes in winter to prevent freezing.

NOTE: Inner & outer profile tubes must have lubrication to operate successfully regardless of whether a grease fitting is provided for that purpose! Inner & outer profile tubes without fittings should be pulled apart and grease should be added manually.

Fig. 4-1



Hydraulic System

Refer to parts section for hydraulic component detail listing.

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

Replacing Hoses/Fittings/Cylinders:

1. Use replacement hoses, fittings, and cylinders from your Unverferth Manufacturing dealer which are rated for 3,000 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 Specifications" in the MAINTENANCE 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

⚠ WARNING

- **HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.**
- **RELIEVE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR'S MANUAL FOR PROPER PROCEDURES.**
- **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.**

- **KEEP CLEAR OF PINCH POINT AREAS.**

- **FALLING OR LOWERING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH. KEEP EVERYONE AWAY FROM EQUIPMENT WHEN SUSPENDED, RASING, OR LOWERING.**

Purge air from system as follows:

A. 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.
B. 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.
C. Check oil reservoir in the hydraulic power source and refill as needed.
D. 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.
E. Check for hydraulic oil leaks using cardboard or wood. Tighten connections according to directions in the Torque Specifications in the MAINTENANCE section.
F. Repeat steps in B, C, D, and E 10-12 times.

IMPORTANT

- *Machine damage will occur if the cylinder is incorrectly installed.*

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

Wheel, Hub and Spindle Disassembly and Assembly

⚠ WARNING

- **TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE MACHINE IS SECURELY BLOCKED.**

- **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 30,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

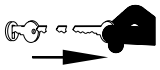
⚠ CAUTION

- **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 THERE-AFTER. AFTER EACH WHEEL REMOVAL START TORQUE PROCESS FROM BEGINNING. WARRANTY DOES NOT COVER FAILURES CAUSED BY IMPROPERLY TORQUED WHEEL NUTS/BOLTS.**

IMPORTANT

- *Remove only one wheel and tire from a side at any given time in the following procedure.*

1. Hitch cart to tractor. Park the empty cart on a firm, level surface. Set the tractor's parking brake, shut off engine and remove key.



2. With cart empty, use safe lifting and load holding devices rated at 30,000 lbs. to support the weight of your grain cart. Place the safe lifting device under the axle closest to the tire.

3. Use a safe lifting device rated for at least 3,000 lbs to support the wheel and tire during removal.

⚠ WARNING

- **FOR WALKING TANDEM DUAL WHEELS, INNER WHEEL AND TIRE MAY FALL FROM HUB CAUSING SERIOUS INJURY OR DEATH. ALWAYS SUPPORT INNER WHEEL WHEN REMOVING OUTER WHEEL.**

4. If only changing wheel and tire, skip to Step 8; otherwise continue with Step 4.

   Remove the hardware retaining the hubcap. Next, remove the hubcap, gasket, cotter pin, castle nut and spindle washer. Remove hub with bearings from old spindle using a 200 lb. safe lifting device.

5. Inspect the spindle and replace if necessary. If spindle does not need to be replaced, skip to Step 6; otherwise continue with Step 5.

   Remove the bolt and lock nut that retains the spindle to the axle. Using a safe lifting device rated for 200 lbs., replace the old spindle with a new spindle. Coat axle contact length of spindle shaft (scale or non-scale) with anti-seize lubricant prior to installation. If installing scale spindle, install with 'top' decal facing upwards. Reuse bolt and lock nut to retain spindle to axle. For walking tandem units, use the hole closest to the hub to retain spindle. Tighten as outlined in MAINTENANCE section.

Wheel, Hub and Spindle Disassembly and Assembly (continued)

6. Remove seal and inspect bearings, spindle washer, castle nut and cotter pin. Replace if necessary. Pack both bearings with approved grease and reinstall inner bearing. Install new seal in hub with garter spring facing the outside of hub by tapping on flat plate that completely covers seal while driving it square to hub. (FIG. 4-2) Install until flush with back face of hub. Using a safe lifting device rated for 200 lbs., install hub assembly onto spindle. Install outer bearing, spindle washer and castle nut.

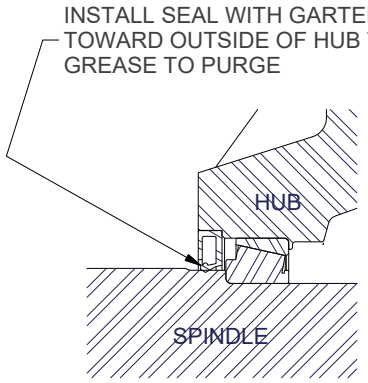


FIG. 4-2

7. Slowly tighten castle nut while spinning the hub until drag causes the hub to stop freely spinning. Do not use an impact! Turn castle nut counterclockwise until the hole in the spindle aligns with the next notch in castle nut. Hub should spin smoothly with little drag and no end play. If play exists, tighten to next notch of castle nut. If drag exists, then back castle nut to next notch of castle nut. Spin and check again. Install cotter pin. Clean face for hub cap gasket and install gasket, grease-filled hub cap and retain hubcap with hardware removed. Tighten hubcap hardware in alternating pattern.

8. Attach the wheel(s) and tire(s) to the hub using the same rated safe lifting device for removal. Tighten wheel nuts to appropriate requirements and recheck as outlined in the Wheel and Tire section of this manual.

9. Raise cart, remove safe load holding devices and lower tire to the ground.

Wheels and Tires

Wheel Nut Torque Requirements

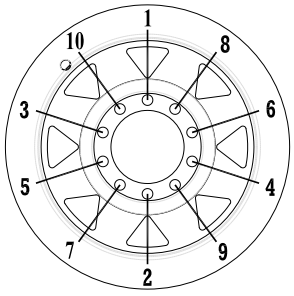
⚠ CAUTION

- **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 THERE-AFTER. 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.

NOTE: Do not use anti-seize on wheel hardware.

WHEEL HARDWARE	
SIZE	FOOT-POUNDS
3/4-16 (UNF)	365 ft.-lbs.
M22x1.5	475 ft.-lbs.



10 BOLT

DIAGRAM 1

Wheels and Tires (continued)

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.** Start with minimum pressure. The tire should stand up with no side-wall buckling or distress as tire rolls. Record the pressure needed to support the full load and maintain this pressure to achieve proper tire life. **Do not exceed maximum recommended tire pressure.** Each tire must be inflated to 35 PSI max to seat the beads, deflated to 5-10 PSI, then reinflated to the tire's max PSI when mounting.

Tire Pressure for Grain Carts

Tire Make	Tire Size	Load Index / Ply Rating	Max. PSI
Firestone	23.1x26 R-3	12	32
	23.1x26 R-1	12	32
	28Lx26 R-3	12	26
	24.5x32 R-3	12	32
	24.5x32 R-1	12	32
	30.5x32 R-1	14	28
	30.5x32 R-3	14	28
	30.5x32 R-3	16	34
	30.5x32 R-1	16	26
	35.5x32 R-3	20	36
	76x50.00x32 HF-3	16	40
	76x50.00x32 HF-3	20	50
	800/65R32 R-1W	172D	41
	800/60R32 R-3	181B	46
	900/65R32 R-3	191B	46
	900/60R32 R-1	176A8	44
	1250/50R32F IF/CFO R-1WNP	201D	46
	1250/50R32F IF/CFO R-1W	188B	30
	520/85R38 R-1	155A8	29
	520/85R38 R-1	173A8	64
	480/80R42 R-1	151A8	36
	520/85R42 R-1	157A8	29
	520/85R42 R-1	165A8	51
	520/85R42 IF/CFO R-1	169A8/B	35
	IF520/85R42 R-1W	169B	35
	VF520/85R42 R-1W	177B	35
	420/80R46 R-1	151A8	44
	480/80R46 R-1	158A8	44
	380/90R46 R-1	152B	51

Wheels and Tires (continued)

Tire Pressure (continued)

Tire Pressure for Grain Carts

Tire Make	Tire Size	Load Index / Ply Rating	Max. PSI
Titan/Goodyear	23.1x26 R-3	10	26
	23.1x26 R-1	10	26
	24.5R32 R-1	169A8/B (5-Star)	48
	24.5x32 R-3	12	32
	24.5x32 R-1	12	32
	30.5x32 R-3	16	26
	30.5x32 R-3	14	22
	30.5x32 R-1	14	22
	480/80x42 R-1	166A8	23
	1100/45R46 F-1W	195D	35
Mitas	650/75R32 R-1W	172A8	58
	650/75R32 R-1	176A8	41
	800/65R32 R-1W	172A8	46
	900/60x32 R-1W	176A8	41
	900/70R32 R-1W	188A8	53
	1050/50x32 R-1W	178A8	41
	1250/50R32 R-1W	188A8	41
	900/60x38 R-1W	181A8	44
	520/85x42 R-1W	162A8	44
	650/65x42 R-1W	168A8	44
Alliance	30.5B32	18-Ply	36
	35.5LR32	193A8	44
	900/60R32 R-1W	192D	46
	1050/50R32 R-1W	185A8	52
	1250/50R32 R-1W	201B	46
Trelleborg	VF1050/50R32 R-1	198D	52
	900/50R32 R-1W	181A8	55
	900/60x32	176LI	44
	850/55R42 R-1W	161A8	32

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:

Firestone	www.firestoneag.com Phone 800-847-3364
Titan or Goodyear	www.titan-intl.com Phone 800-USA-BEAR Fax 515-265-9301
Trelleborg	www.trelleborg.com Phone 866-633-8473
Continental/Mitas	www.mitas-tires.com Phone 704-542-3422 Fax 704-542-3474
Alliance	www.atgtire.com Phone 781-325-3801

Walking Tandem Option

⚠ WARNING

- **FALLING OBJECTS CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT WORK UNDER THE MACHINE AT ANY TIME WHILE BEING HOISTED. BE SURE ALL SAFE LIFTING DEVICES AND SUPPORTS ARE RATED FOR THE LOADS BEING HOISTED. THESE ASSEMBLY INSTRUCTIONS WILL REQUIRE SAFE LIFTING DEVICES UP TO 30,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**
- **OUTER WHEEL AND TIRE MAY FALL FROM HUB CAUSING SERIOUS INJURY OR DEATH. ALWAYS SUPPORT OUTER WHEEL WHEN SERVICING INNER WHEEL.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**

⚠ CAUTION

- **WHEN CHANGING TIRES OR ROW SPACING, IT IS IMPORTANT TO FOLLOW THE STEPS BELOW TO MAINTAIN STABILITY OF THE CART. CHANGE ONE SIDE AT A TIME.**
- **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 THERE-AFTER. AFTER EACH WHEEL REMOVAL START TORQUE PROCESS FROM BEGINNING. WARRANTY DOES NOT COVER FAILURES CAUSED BY IMPROPERLY TORQUED WHEEL NUTS/BOLTS.**

Inner Dual Wheel Access

Use the following procedure to service the inside dual tires.

1. Park the cart on a firm level surface and hitch cart to tractor and chock tractor wheels.
2. Using a safe lifting device rated for 30,000 lbs., raise one side of cart by lifting under the outer end of rear support tube.
3. Using a safe lifting device rated for 4,000 lbs., support the rear portion of the walking tandem assembly.
4. Remove rear retaining hardware, then pivot walking tandem assembly outward to access inner wheel.

Walking Tandem Option (continued)

Inner Dual Wheel Access (continued)

NOTE: Walking tandem assembly must be suitably supported during and after pivoting.

5. After inner wheel service is complete, pivot walking tandem back into position.
6. Reattach and torque capscrews removed in step 4.
7. Rmove safe load holding devices.

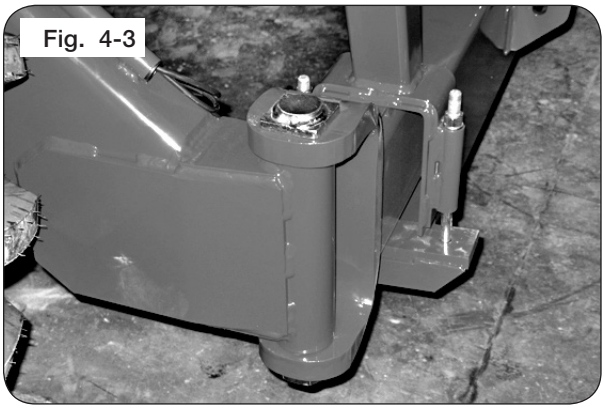


Fig. 4-3

Row Spacing Adjustment

From the factory, the machine will straddle 30” rows. The following procedure will allow the machine to straddle 36” rows. This procedure involves switching inner and outer tire positions and moving the entire assembly out approximately 9”. (FIG. 4-4)

1. Park the empty cart on a firm, level surface. Block the tires on the machine to keep it from moving. Set the tractor’s parking brake, shut off the engine, remove the ignition key and disconnect the PTO shaft and hydraulics from the tractor and cart.
2. Using a safe lifting device rated for 30,000 lbs., raise one side of cart by lifting under the outer end of rear support tube.
3. Using a safe lifting device rated for 4,000 lbs., support the rear portion of the walking tandem assembly.
4. Remove the rear retaining hardware. Then pivot walking tandem to access inner wheel.

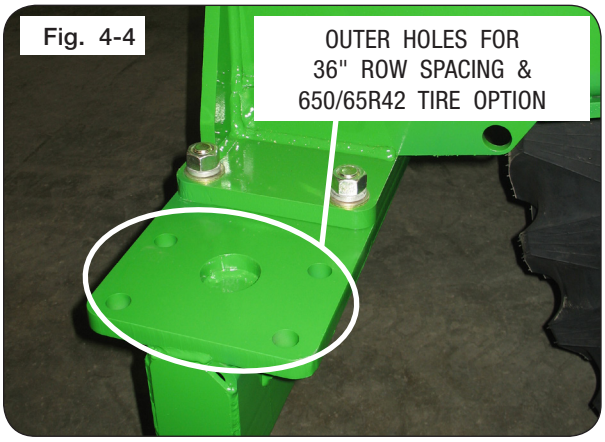


Fig. 4-4

NOTE: Walking tandem assembly must be suitably supported during and after pivoting.

5. Remove the 1 1/8” bolt and loosen front axle beam clamp bolts and extend front pivot beam out approximately 9 inches.
6. Retain same original tread direction and reinstall the previous “Outer” side of tire to the inside hub and the previous “Inner” side of tire to the outer hub.
7. Pivot walking tandem assembly in towards the cart and align bracket mounting holes with cross beam mounting plate. Use outer holes.
8. Reinstall 1 1/8” bolt and torque 640 ft.-lbs. Reinstall rear retaining hardware, tighten front beam clamp bolts and torque 260 ft.-lbs. Lower cart to the ground.

Use same procedures for the opposite side of cart.

Walking Tandem Option (continued)

Use the following procedures for extending the entire assembly only.

1. Using a safe lifting device rated for 30,000 lbs., raise one side of cart by lifting under the outer end of rear support tube. Using a safe lifting device rated for 4,000 lbs., to support weight of tires and walking beam assembly.

2. Loosen the front axle clamp hardware. Remove the 1 1/8” bolt located toward the center of the front axle. Remove the rear retaining hardware.

3. Set rear assembly to desired width. Adjust front sliding extension to match rear. Verify alignment side-to-side. Tighten clamp bolts and reinstall 1 1/8” hardware.

Use same procedures to opposite side of cart.

Gearbox

When checking the oil level of the gearbox, the vertical auger should be pivoted all the way down.

For adequate lubrication the oil should be visible in the sight glass. Fill with oil to the sight glass only.

For Maximum gearbox life:
Check oil level every 2 weeks.

Replace oil every season with approximately 85 oz 80W90 EP lubricant.

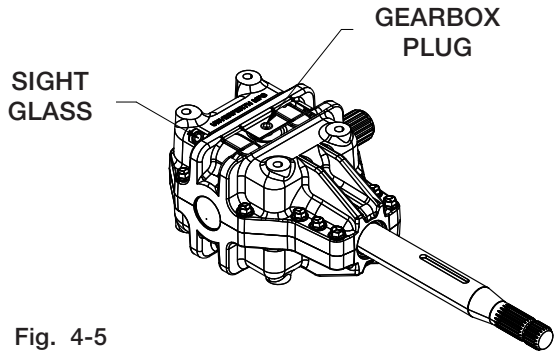


Fig. 4-5

Manual Override for Optional Electric Over Hydraulic System

⚠ WARNING

- **MOVING OR ROTATING AUGER COMPONENTS CAN CAUSE SERIOUS INJURY OR MACHINE DAMAGE. BEFORE OPERATING MANUAL OVERRIDE(S), ENSURE EVERYONE IS AWAY FROM THE SPOUT AND THAT THE SPOUT WILL NOT CONTACT ANY OTHER PARTS OF THE GRAIN CART. ALL CONTROL SWITCHES ARE DEACTIVATED WHILE UTILIZING MANUAL OVERRIDE(S).**

- **MOVING OR ROTATING PTO COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT OPERATE PTO WHILE UTILIZING MANUAL OVERRIDE(S).**

- **FALLING OR LOWERING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH. KEEP EVERYONE AWAY FROM EQUIPMENT WHEN SUSPENDED, RASING, OR LOWERING.**

IMPORTANT

- *Spout must be centered before operating the auger fold. Align checker flag decals to ensure spout rotate is centered.*

NOTE: Manual override operation is intended for emergency use ONLY and is not intended for continuous operation. Spout may rotate into cart causing damage.

NOTE: Manual override operation allows the spout and auger to move regardless of location.

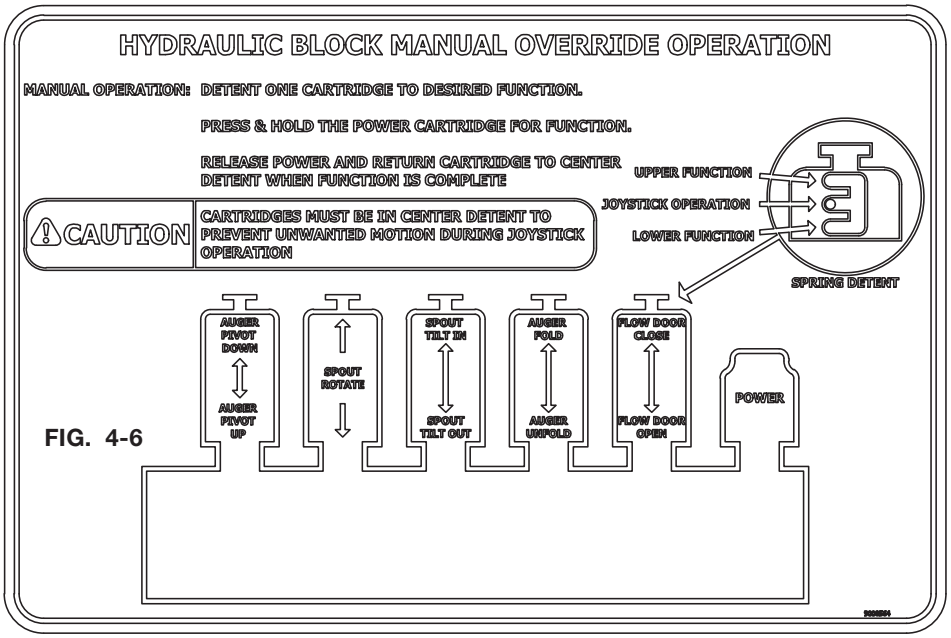


FIG. 4-6

1. Park the empty grain cart on a firm and level surface. Block the machine to keep it from moving. Set the tractor's parking brake. Keep engine running.

Manual Override for Optional Electric Over Hydraulic System (continued)

2. Remove cover plate (295569B) from the bottom of the lower auger housing to access the EOH block assembly. Keep cover plate. (FIG. 4-7)

3. Connect the desired Hydraulic Pressure and Return hoses to the tractor SCV remote so that the Pressure line is able to be put in continuous detent.

4. To operate the manual override function, place the tractor SCV remote in continuous detent so that the Hydraulic Pressure hose is pressurized.

(continued on next page.)

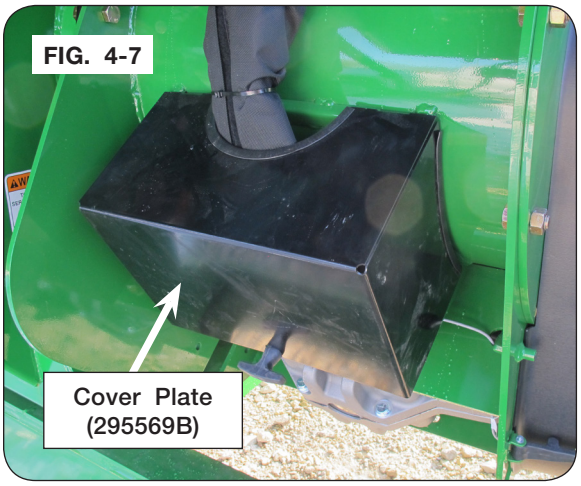


FIG. 4-7

Manual Override for Optional Electric Over Hydraulic System (continued)

NOTE: Only one cartridge valve (9008416 & 9008463) must be in the top or bottom detent position at a time to function properly. All other valves must be in the middle detent postion. (FIG. 4-8 & 4-9)

5. Operate the desired function on valve (9008416 & 9008463) by rotating the manual override knurled knob from the locked neutral position. (FIG. 4-8, 4-9, & 4-11)

6. Push and hold the manual override button on valve (9008438). (FIG. 4-10)

7. Once the desired position is reached, release manual override button on valve (9008438).

8. Return knurled knob to center and lock valve (9008416) & (9008463) in position. (FIG 4-8, 4-9 & 4-11)

NOTE: Refer to "Troubleshooting" for EOH, vertical auger and/or rotating spout issues in the MAINTENANCE section.

9. Turn off hydraulic circuit when done. Correct electric/hydraulic system before continued use. Consult your dealer for service and parts.

10. Replace cover plate (272606B) from step 2 to the bottom of the lower auger housing.

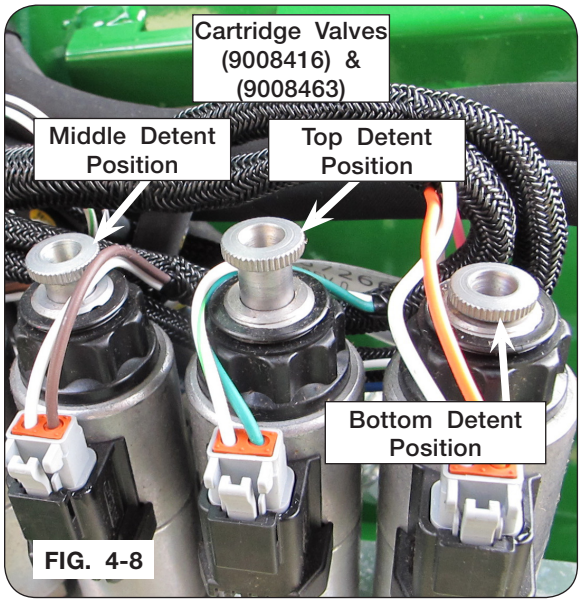


FIG. 4-8

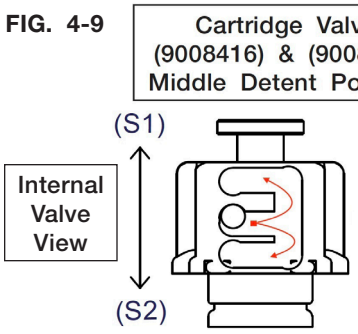


FIG. 4-9

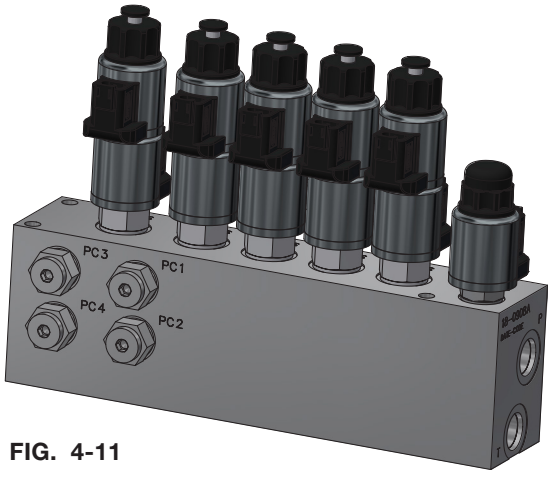


FIG. 4-11

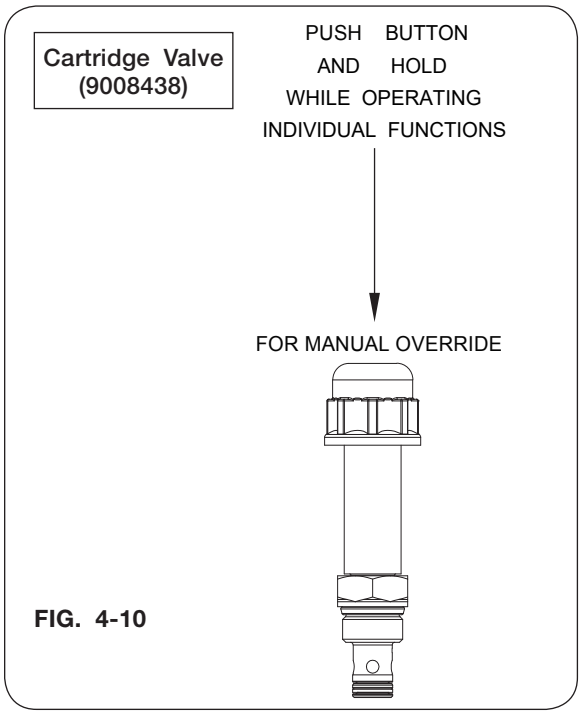


FIG. 4-10

Manual Override for SCV Controlled Spout Rotate & Auger Fold

⚠ WARNING

- **MOVING OR ROTATING AUGER COMPONENTS CAN CAUSE SERIOUS INJURY OR MACHINE DAMAGE. BEFORE OPERATING MANUAL OVERRIDE(S), ENSURE EVERYONE IS AWAY FROM THE SPOUT AND THAT THE SPOUT WILL NOT CONTACT ANY OTHER PARTS OF THE GRAIN CART. ALL CONTROL SWITCHES ARE DEACTIVATED WHILE UTILIZING MANUAL OVERRIDE(S).**
- **MOVING OR ROTATING PTO COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT OPERATE PTO WHILE UTILIZING MANUAL OVERRIDE(S).**
- **FALLING OR LOWERING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH. KEEP EVERYONE AWAY FROM EQUIPMENT WHEN SUSPENDED, RASING, OR LOWERING.**

IMPORTANT

- *Spout must be centered before operating the auger fold. Align checkered flag decals to ensure spout rotate is centered.*

NOTE: Manual override operation is intended for emergency use ONLY and is not intended for continuous operation. Spout may rotate into the cart causing damage.

NOTE: Manual override operation allows the spout and auger to move regardless of location.

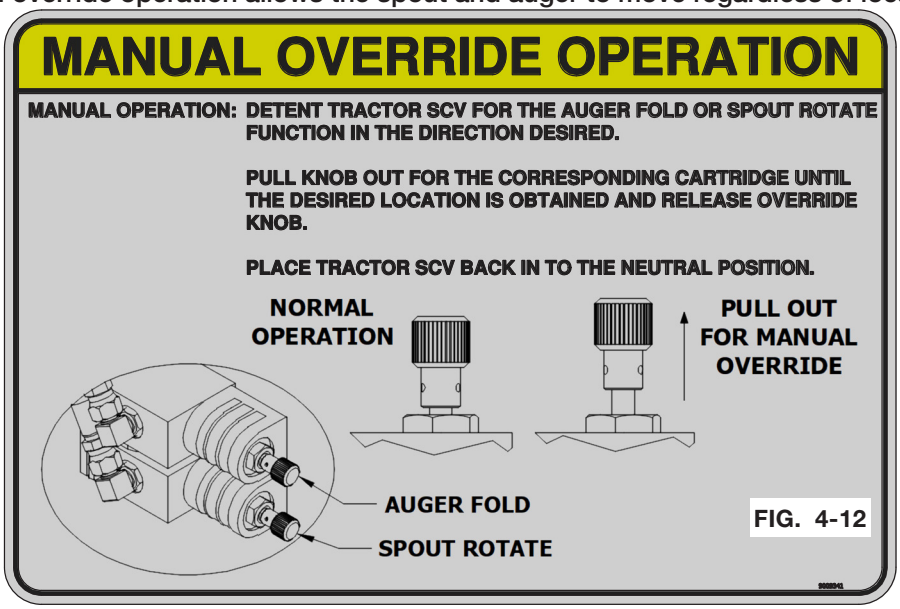


FIG. 4-12

1. Park the empty grain cart on a firm and level surface. Block the machine to keep it from moving. Set the tractor's parking brake. Keep engine running.
2. Remove cover plate (295569B) from the bottom of the lower auger housing to access the auger fold / spout rotate interlock valve assemblies. Keep cover plate.
3. Connect the desired spout rotate hoses (tan hose grips) or auger fold hoses (green hose grips) to the tractor SCV.
4. To operate the manual override function, set tractor SCV to a maximum of 4 gpm and place the tractor SCV for the desired function in continuous detent in the direction of flow that operates the spout rotate or auger fold direction desired.

Manual Override for SCV Controlled Spout Rotate & Auger Fold (continued)

NOTE: Operate one cartridge valve (9009186) at a time. Keep other valve in normal position. (FIG. 4-13 & 4-14)

5. Locate the desired valve (9009186). (FIG 4-13)

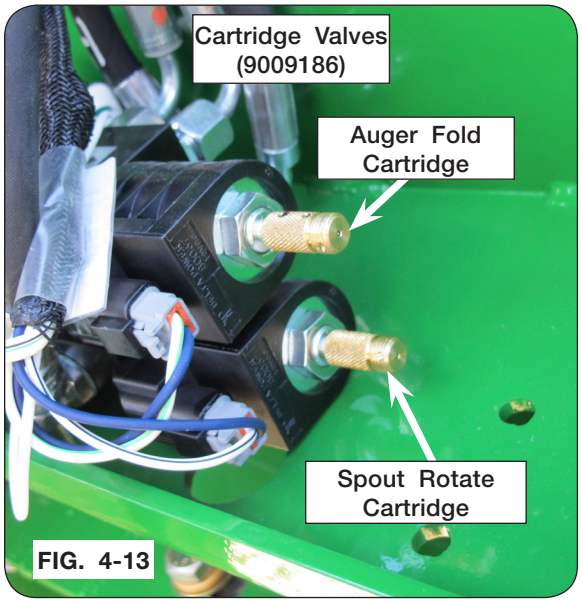


FIG. 4-13

6. Pull and hold the knob out on valve from normal position to manual override position. (FIG. 4-14)

7. Once the desired position is reached, release knob on valve from manual override back to normal position.

8. Turn off hydraulic circuit when done. Correct electric/hydraulic system before continued use. Consult your dealer for service and parts.

NOTE: Refer to "Troubleshooting" and for inline valve, vertical auger and/or rotating spout issues in the MAINTENANCE section.

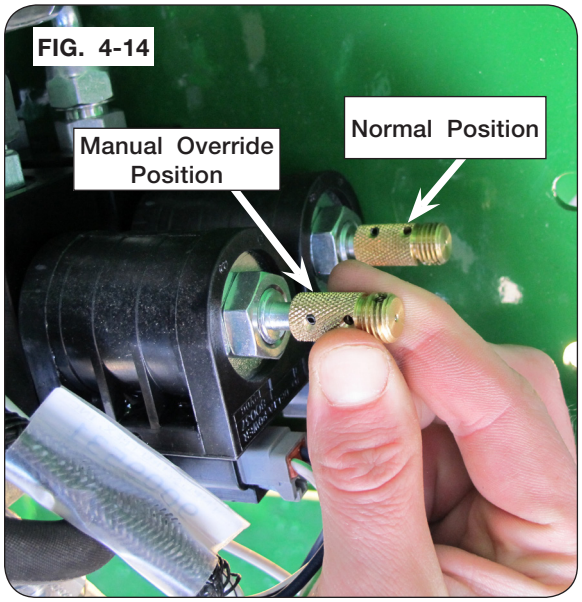


FIG. 4-14

9. Replace cover plate (295569B) from step 2 to the bottom of the lower auger housing. (FIG. 4-15)

FIG. 4-15

Auger System

⚠ WARNING

- **TO PREVENT PERSONAL INJURY OR DEATH WHILE SERVICING, ALWAYS ENSURE THAT THERE ARE PEOPLE WHO REMAIN OUTSIDE THE CART TO ASSIST THE PERSON WORKING INSIDE, AND THAT ALL SAFE WORKPLACE PRACTICES ARE FOLLOWED. THERE ARE RESTRICTED MOBILITY AND LIMITED EXIT PATHS WHEN WORKING INSIDE THE IMPLEMENT.**
- **NEVER ENTER CART WITH AUGER OR TRACTOR RUNNING. SERIOUS OR FATAL INJURY CAN OCCUR DUE TO ENTANGLEMENT WITH ROTATING COMPONENTS. ALWAYS STOP ENGINE AND REMOVE KEY BEFORE ENTERING CART.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.**
- **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 2,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**
- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ALWAYS DISCONNECT POWER SOURCE BEFORE SERVICING. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR(S) ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING MACHINE.**

- **WHEN WORKING AROUND THE IMPLEMENT, BE CAREFUL NOT TO BE CUT BY SHARP EDGES.**

Vertical Auger Height Check

Before servicing the vertical auger, park the unit on a firm, level surface. Block the machine to keep it from moving. Raise vertical auger to discharge position and close horizontal auger flow door. Set the tractor parking brake, turn off tractor engine, remove ignition key, and disconnect PTO shaft and hydraulic lines from tractor.

Annually check all bolts, nuts, and set screws for tightness. Replace the vertical auger top bearing hardware, as necessary. (FIG. 4-16)

(Continued on next page)

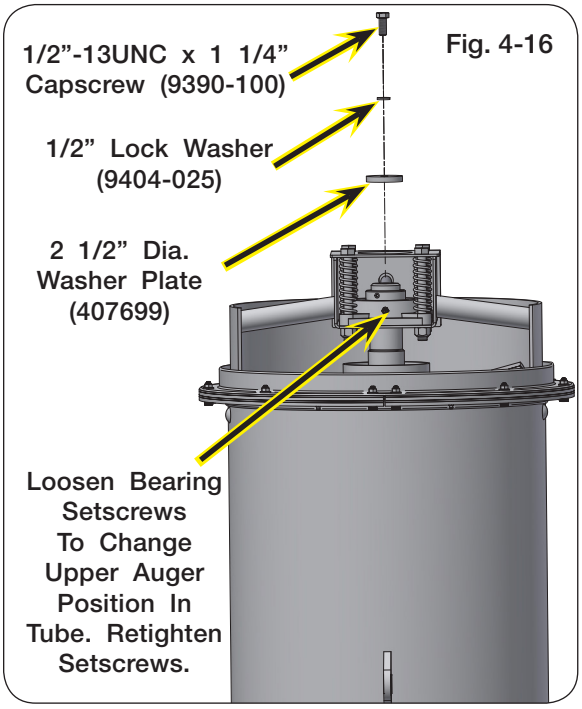


Fig. 4-16

Auger System (continued)

Vertical Auger Height Check (continued)

NOTE: The lower auger position is indexed from the drive dog / tube flange hinge surface as shown. (Figs. 4-18 & 4-19)

Fig. 4-19

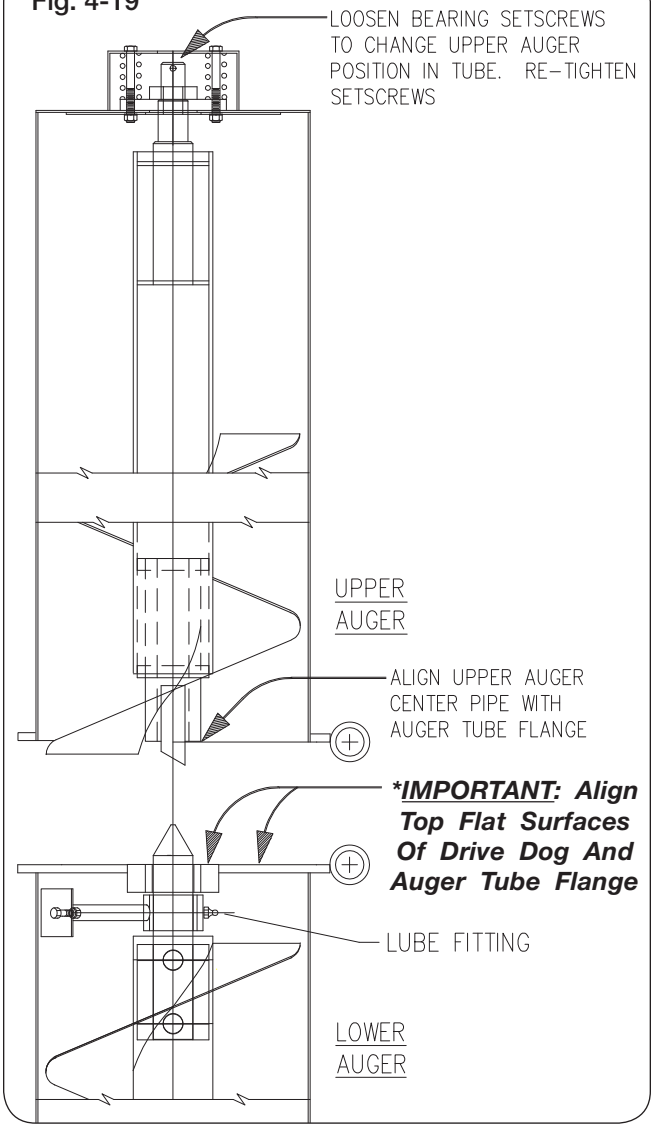


Fig. 4-17

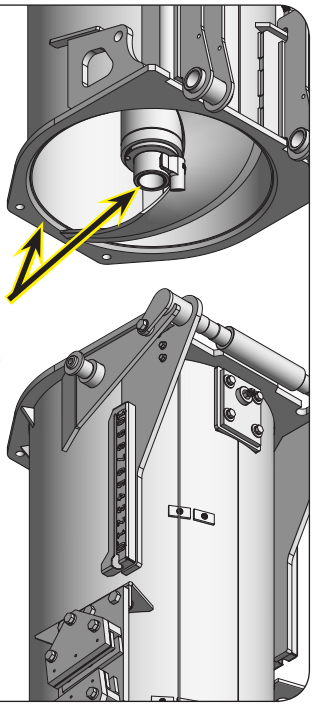
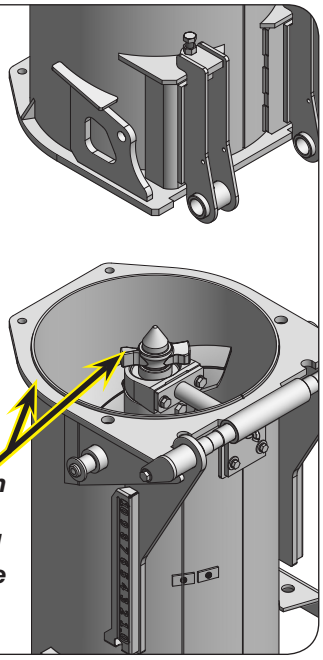


Fig. 4-18



Auger System (continued)

Vertical Auger Timing

1. For the lower vertical auger, use the top edge of the flighting as a 12 o'clock reference. Position the drive dog so the driving edge is at the 11 o'clock position. (FIG. 4-20)

NOTE: Looking down at the lower flighting (FIG. 4-20) the auger rotation will be counter-clockwise. When looking up at the upper flighting (FIG. 4-21) the auger rotation will be clockwise.

2. For the upper auger, use the outer edge of the flighting as a 12 o'clock reference. Postion the driven edge of the drive pin at the 4 o'clock position. (FIG. 4-21)

3. When engaged, the upper flighting should follow the lower flighting. (FIG. 4-22)

NOTE: Upper flighting should trail the lower flighting from minimum of 10 degrees to a maximum of 90 degrees.

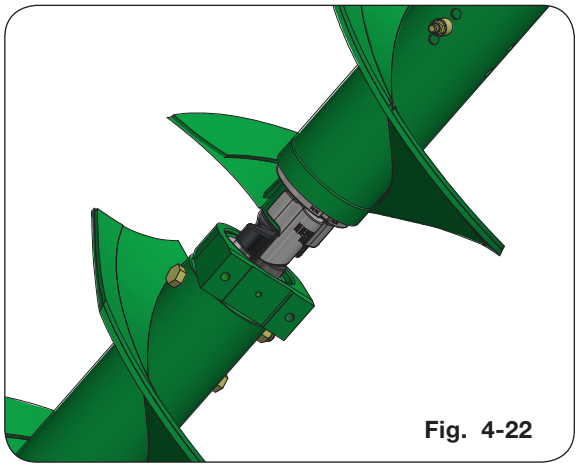
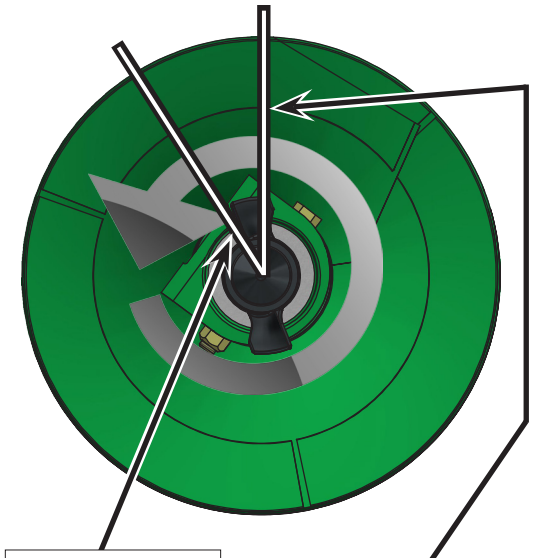
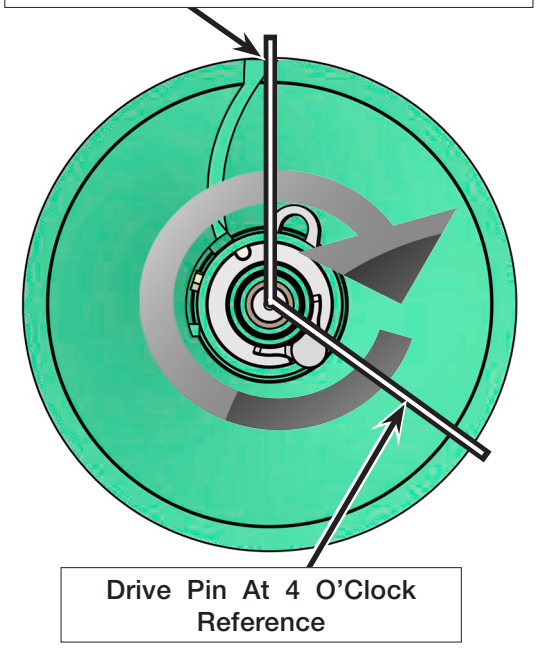


Fig. 4-22

Lower Auger Fig. 4-20



Upper Auger Fig. 4-21



Auger System (continued)

Horizontal Auger

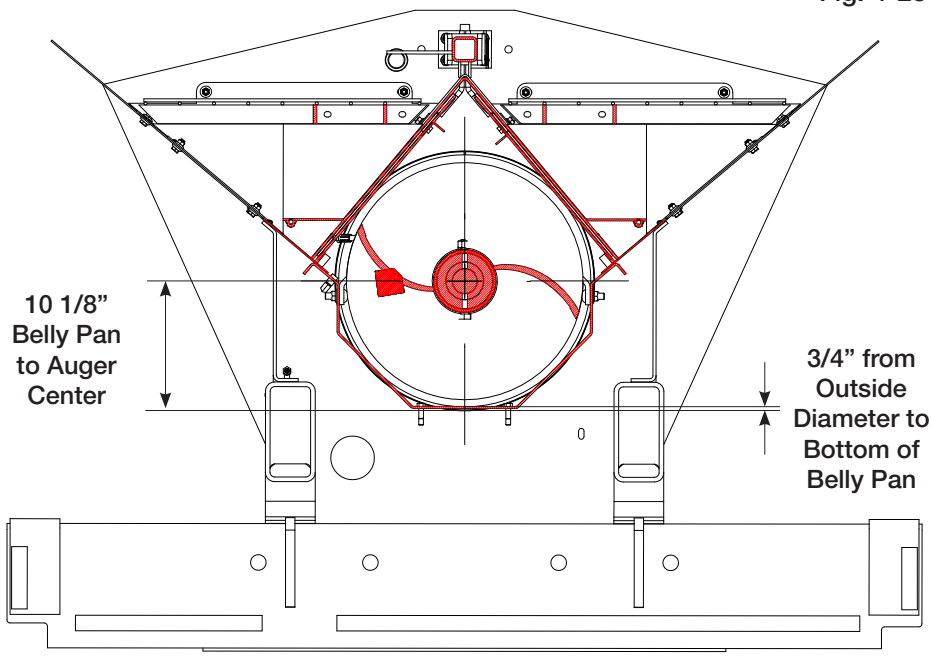
Annually check all bolts, nuts, and set screws. Perform lubrication as specified in “Lubrication” section.

NOTE: With new flighting, the outside diameter is about 3/4” from the bottom belly pan. Always set bearing height using the flighting centerline measurement. See FIG. 4-23.

NOTE: Shims are available from your Brent dealer to achieve 10 1/8” measurement.

To adjust the bearing height down, shim with washers between the bearing and the hanger bracket. To adjust the bearing height up, shim with washers between the bearing bracket and the sides of the cart. When adjusting the height up, washers will need to be placed with one on each side so the bearing stays centered.

Fig. 4-23



Auger Driveline Bearings

IMPORTANT

- *Periodically check set screws in all bearings at either end of the driveline for tightness. (FIG. 4-24 & 4-25)*

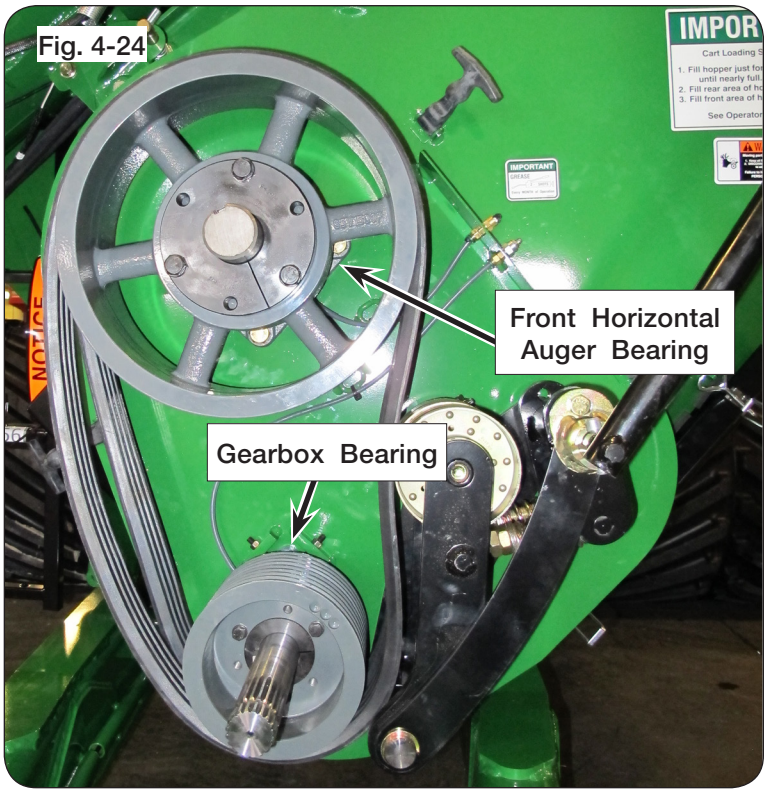


Fig. 4-24

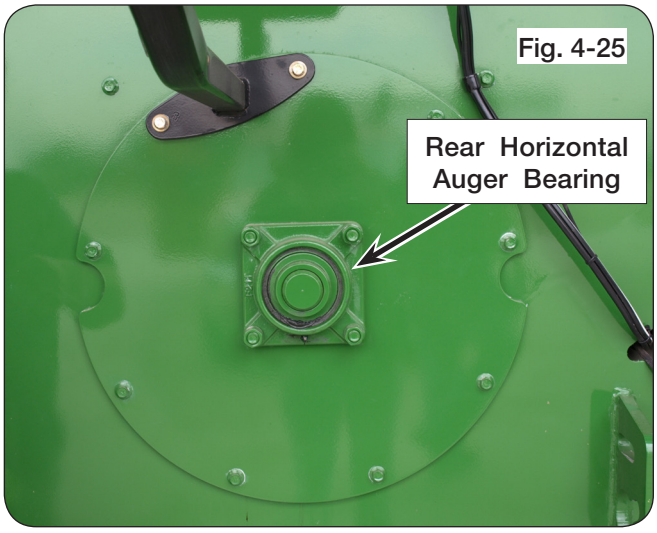


Fig. 4-25

Belt Tightener Adjustment

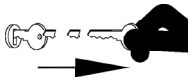
IMPORTANT

- *Do not use belt dressing.*
- *Keep grease and oil off of belt and pulleys.*

NOTE: Pulleys do not need to be removed to remove/replace belt.

Due to prolonged use, belt wear may be evident causing slack. To correct this, follow these steps.

1. Park the unit on a firm, level surface. Block the machine to keep it from moving. Set the vehicle parking brake, shut off the engine and remove the ignition key from the towing vehicle.



⚠ WARNING

- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ALWAYS DISCONNECT POWER SOURCE BEFORE SERVICING. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR(S) ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**

2. Remove PTO assembly from Gearbox input shaft.

3. Detension the belt as outlined in OPERATION section. Remove belt tensioner handle.

4. Remove cover and inspect belts for misalignment, loose parts and cracks. Replace if necessary with a matched set. See Fig. 4-28.

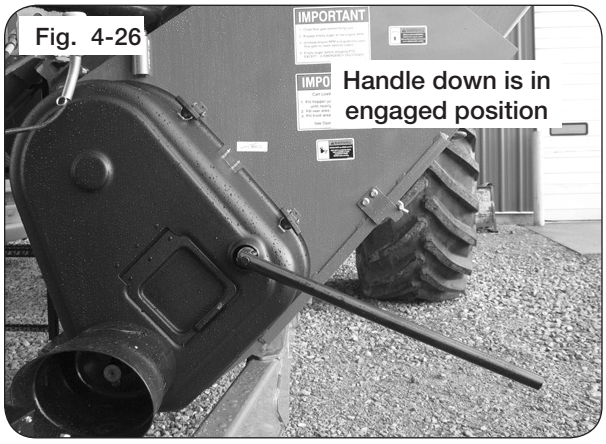


Fig. 4-26

Fig. 4-27


Fig. 4-28

Belt Tightener Adjustment (continued)

5. Belt tension is adjusted with hex nuts below the spring. All belt tension MUST be released from linkage. Loosen outer hex nut and adjust inner nut to establish a 3 1/16" pre-load dimension between the heavy washers. Tighten the outer hex nut against inner nut to lock position. (Fig. 4-29)

6. Check the lower belt pulley to ensure belt is aligned in their grooves. Using the belt tensioner handle, engage the roller/idler linkage against the belt and over-center stop. The compressed spring should now be approximately 1 3/4" between the washers and generating a force of approximately 480 lbs. against the belt. (Fig. 4-30)

7. Release and tighten belt multiple times to confirm positions and final adjustments. See Fig. 4-30 and Fig. 4-31.

8. Tighten belt to reinstall the cover guard and the PTO shaft to the gearbox input shaft. Clear work area and test-run drivetrain for 3 minutes at 1000 PTO RPM.

⚠ WARNING

- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**

9. Disengage PTO, turn off towing vehicle and remove the ignition key. Through the cover access door, check the compressed spring length is approximately 1 3/4" between the washers and check each belt for uniform tension. If more adjustment is needed, refer to Steps 5 through 7. If no additional spring adjustment is available, then both belts must be replaced with a new matched set.

NOTE: Always replace belts in matched sets.

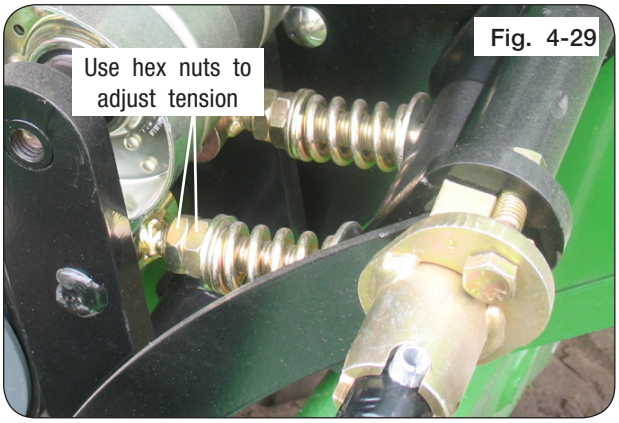


Fig. 4-29

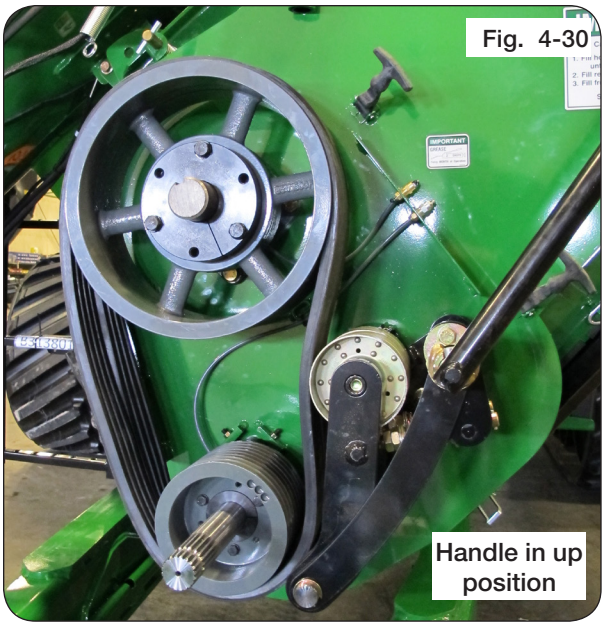


Fig. 4-30

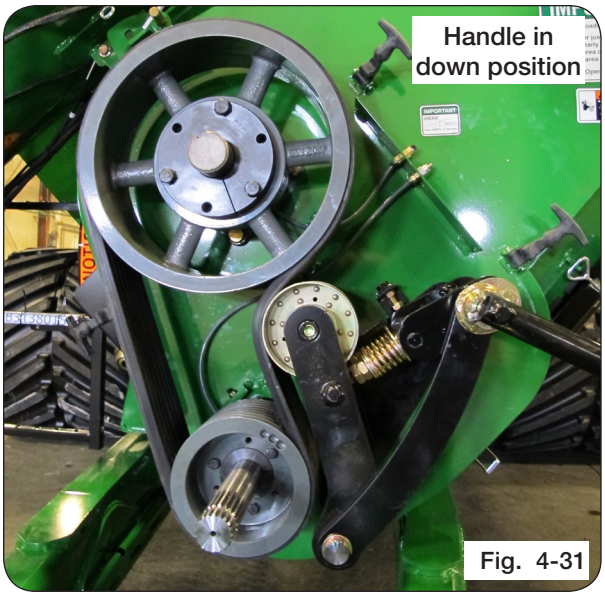


Fig. 4-31

V-Belt Alignment

1. Pulleys must be aligned with the fixed idler. Belts should be centered on idler for longest belt life. (Fig. 4-32)

Fig. 4-32

2. After tightening taper-lock bushing hardware, lay a straight edge across face of the drive and driven belt pulleys to ensure alignment between the grooves on the pulleys. (FIG. 4-33)

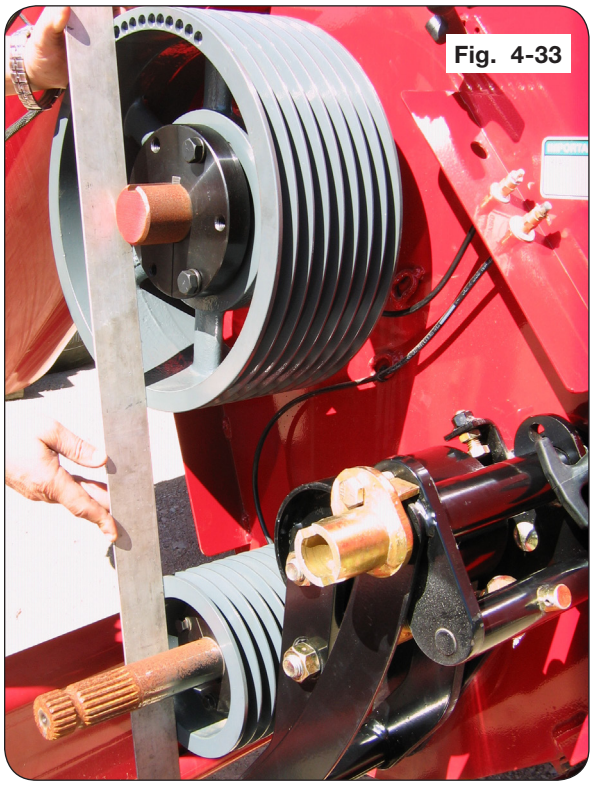


Fig. 4-33

V-Belt Alignment (continued)

Split Tapered Bushings

Check annually for tight engagement to driveshaft. Torque three bolts progressively the following values.

For the smaller gearbox bushing (9007376): 3/8"-16UNC hardware. Torque to 75 ft-lbs.

For the larger horizontal auger bushing (9004813): 9/16"-12UNC hardware. Torque to 90 ft.-lbs.

Some gap must remain between flange & hub when bushing is properly tightened.

To remove from shaft, remove capscrews and insert them in tapped holes in bushing flange. Tighten progressively until bushing disengages.

Fig. 4-34

Driveline Removal

DANGER

- **ENTANGLEMENT WITH THE DRIVELINE WILL CAUSE SERIOUS INJURY OR DEATH. KEEP ALL GUARDS AND SHIELDS IN GOOD CONDITION AND PROPERLY INSTALLED AT ALL TIMES. AVOID PERSONAL ATTIRE SUCH AS LOOSE FITTING CLOTHING, SHOE STRINGS, DRAWSTRINGS, PANTS CUFFS, LONG HAIR, ETC. THAT CAN BECOME ENTANGLED IN A ROTATING DRIVELINE.**

WARNING

- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**

Gearbox shaft guard has access doors for installing and removing of driveline.

1. Remove clamping cone/retaining bolt.
2. Use a hammer and punch, if needed, to moderately hit the end of clamping cone/retaining bolt, as shown. (FIG. 4-35)
3. Once clamping cone/retaining bolt is removed, slide torque limiter off gearbox splined input shaft.

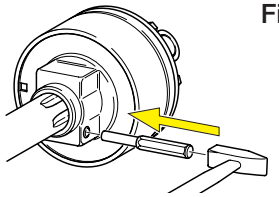


Fig. 4-35

Seasonal Storage

Always open and keep open the flow door, horizontal and vertical auger cleanout doors to remove any remaining grain and to allow moisture to dry.

Wash machine inside and out before storing to remove dirt and debris that can draw and collect moisture. When using pressure washers maintain an adequate distance so not to force water into bearings.

Reattach PTO brackets (296155Y) to the inside right-hand side of the tongue and place PTO assembly on brackets.

Lubricate machine at all points outlined.

Repaint all areas where paint has been removed to keep rust from developing. Rust will affect grain flow.

Coat exposed cylinder piston rods with rust preventative material if applicable.

Inspect machine for parts that may need to be replaced so they may be ordered in the off season.

If unit is equipped with a scale indicator or electric hydraulic controls store these indoors in a dry location.

Close the tarp to keep debris out of the hopper.

Rear access door is latched closed.

Ladders are in storage position.

Baffle Adjustment

WARNING

- **TO PREVENT PERSONAL INJURY OR DEATH WHILE SERVICING, ALWAYS ENSURE THAT THERE ARE PEOPLE WHO REMAIN OUTSIDE THE CART TO ASSIST THE PERSON WORKING INSIDE THE CART, AND THAT ALL SAFE WORKPLACE PRACTICES ARE FOLLOWED. THERE ARE RESTRICTED MOBILITY AND LIMITED EXIT PATHS WHEN WORKING INSIDE THE CART.**

- **NEVER ENTER CART WITH AUGER OR TRACTOR RUNNING. SERIOUS OR FATAL INJURY CAN OCCUR DUE TO ENTANGLEMENT WITH ROTATING COMPONENTS. ALWAYS STOP ENGINE AND REMOVE KEY BEFORE ENTERING CART.**

The horizontal auger baffles are factory-set at the lowest position. This position results in the lowest power requirements and longest flighting life. Once grain has been run through the unit, adjustments can be made to achieve the ideal unloading performance.

Refer to the following reasons for baffle adjustment:

NOTE: To unload the cart evenly from front to back the openings should increase in height from back to front.

- If higher flow is desired and torque is not the limiting factor, raise each baffle to an incremental amount and rerun.

- If more material remains at the back of the cart towards the end of the unloading cycle, the back baffles should be adjusted upward in incremental amounts and rerun.

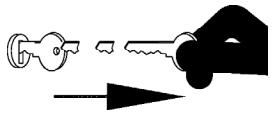
- If more material remains at the front of the cart towards the end of the unloading cycle, the back baffles should be adjusted downward in incremental amounts and rerun.

- If the cart requires more torque than what is available at times during the unloading cycle, then all baffles should be adjusted downward in incremental amounts.

(Continued on next page)

Baffle Adjustment (continued)

Before making any baffle adjustments, close horizontal auger flow door. Securely block the grain cart, set the tractor parking brake, turn off tractor engine and remove ignition key.



If a higher flow is desired and torque is not a factor, loosen the (2) flange nuts on each baffle, see figure 4-37. Use the lift handle to raise each baffle to the desired position, retighten both flange nuts, see figures 4-37 & 4-38.

NOTE: DO NOT REMOVE ANY SCREEN PANELS. The flange nuts are best accessed using an extended socket wrench and 9/16" socket through the screen panel openings.

NOTE: Screen removed in figure 4-38 for illustration only.

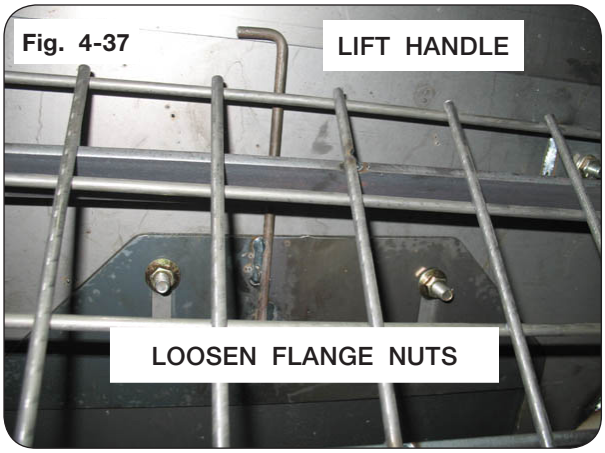


Fig. 4-37

Fig. 4-38

Horizontal Cleanout Door Adjustment

⚠ WARNING

- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEANOUT DOORS ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE THE MACHINE IS SECURELY BLOCKED.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING THE IMPLEMENT.**

1. Park the unit on a firm, level surface. Block the machine to keep it from moving. Set the tractor parking brake, turn off tractor engine, remove ignition key, and disconnect PTO shaft.

2. Loosen all the hardware in the slotted brackets connecting the cleanout door rockshaft to the grain cart tube. (Fig. 4-39)

3. Starting at the front of the cart, using a jack, push the rockshaft up and toward the runner tube. (Fig. 4-39)

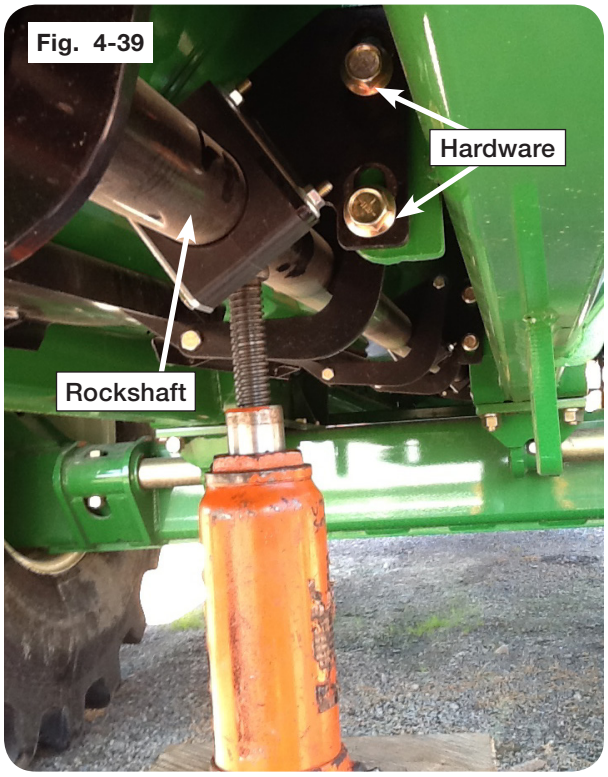


Fig. 4-39

NOTE: Ideal distance between the runner tube and rockshaft is 3 1/4". (FIG. 4-40)

4. When the rockshaft is in position, torque the hardware previously loosened to 28 ft.-lbs.

5. Continue repositioning the rockshaft moving toward the back of the cart.

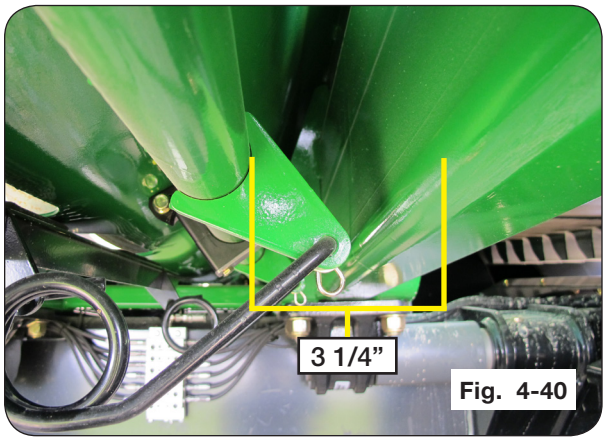


Fig. 4-40

Horizontal Cleanout Door Adjustment (continued)

6. Rotate the tensioner handle counter-clockwise to close the doors allowing the plate to fit and seal into the belly pan opening. (Fig. 4-41)

Fig. 4-41

7. If plate insert needs adjustment, loosen the two flat head machine screws holding the plate in position. (Fig. 4-42)
8. Ensure the plate inserts are aligned and fit into the belly pan cut-outs. (Fig. 4-42)
9. Close the doors and ensure all doors seal.
10. Insert lynch pin into rockshaft and return handle to storage location.

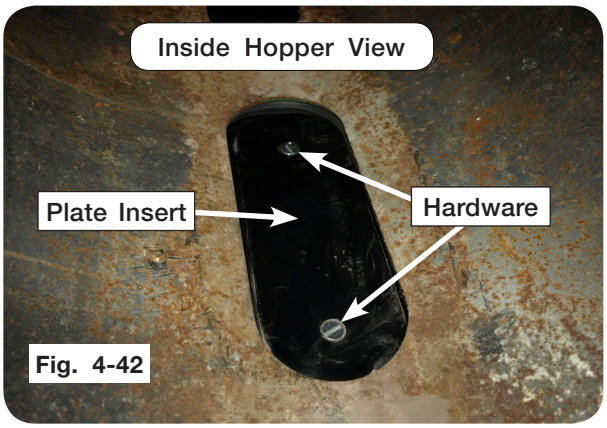


Fig. 4-42

Verify Telescoping PTO Shaft Length

⚠ WARNING

- **PROPER EXTENDED AND COLLAPSED LENGTHS OF THE TELESCOPING PTO SHAFT MUST BE VERIFIED BEFORE FIRST OPERATION WITH EACH TRACTOR. IF THE EXTENDED LENGTH OF THE PTO SHAFT IS NOT SUFFICIENT, IT MAY BECOME UNCOUPLED IN OPERATION AND CAUSE SERIOUS INJURY OR DEATH FROM CONTACT WITH UNCONTROLLED FLAILING OF PTO SHAFT ASSEMBLY COMPONENTS.**

IMPORTANT

- *Check the length of the telescoping members to ensure the driveline will not bottom out or separate when turning and/or going over rough terrain.*

An excessive collapsed length can result in damage to the PTO driveline and attached components. This is most likely to occur during extreme turning angles and/or travel over rough terrain. Conditions are amplified on tractors with tracks operating in uneven terrain, particularly rice levies. Damaged driveline components can result in unsafe operation and severely reduced driveline component life.

NOTE: Do not exceed 10 degrees beyond a straight pull line while operating the PTO.
To verify proper extended and collapsed lengths, use the following procedure:

1. Fully collapse PTO shaft and measure length "L" (Figure 4-43).

   Enter here:_____(1)
   (Verify that outer tube does not bottom out on surrounding plastic shield components).

2. Pull apart PTO telescoping shaft ends and measure lengths "T" & "C" (Figure 4-44)

   Add "T" + "C" measurments together
   Enter total here:_____(2)

3. Calculate maximum recommended extended length:

   a. Subtract line 1 from line 2
      Enter here:_____(a)
   b. Divide line (a) by 2
      Enter here:_____(b)
   c. Add line (b) to line 1.
      Enter here:_____(c)
   d. Subtract 3 inches from line (c)
      Enter here:_____(d)

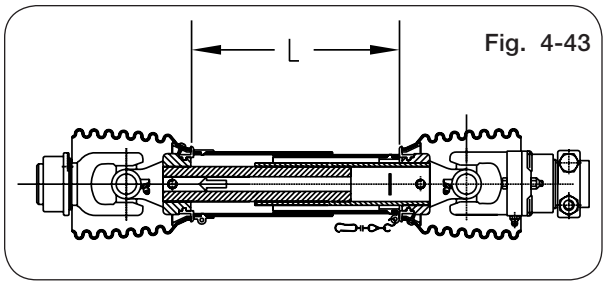


Fig. 4-43

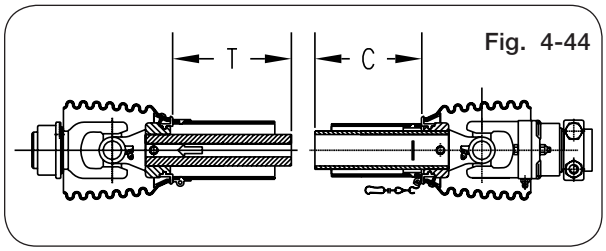


Fig. 4-44

This is the maximum recommended extended length.

Verify Telescoping PTO Shaft Length (continued)

4. Hitch tractor drawbar to cart, ensuring that tractor and cart are on level ground and coupled as straight as practical.

5. Connect PTO shaft to tractor, and measure length "L" from same points as used in step 1. Ensure that this measurement does not exceed the maximum recommended extended length calculated in step 3 above. If necessary, choose a shorter drawbar position, or obtain a longer PTO shaft assembly before operating cart.

6. Position the tractor to obtain the tightest turning angle, relative to the cart (Figure 4-45).

7. Measure the length "L" from the same points as used in step 1. **This distance must be at least 1.5 inches greater than the distance measured in step 1.** If necessary, adjust the length of the PTO shaft by cutting the inner and outer plastic guard tubes and inner and outer sliding profiles by the same length. Round off all sharp edges and remove burrs before greasing and reassembling shaft halves. (FIG. 4-46)

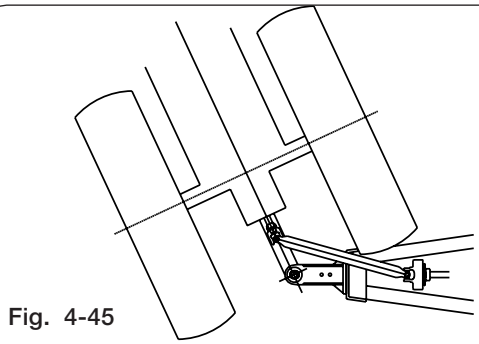


Fig. 4-45

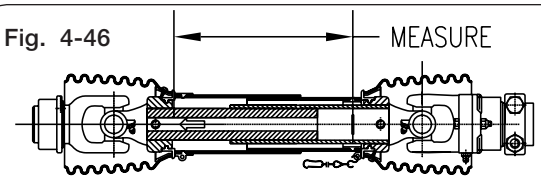


Fig. 4-46

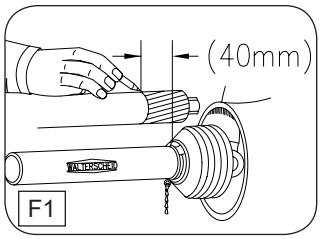
PTO Shaft Length Adjustment

⚠ WARNING

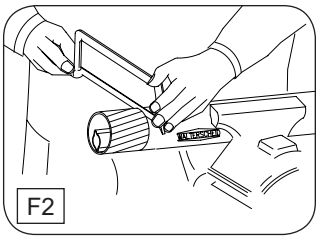
- **CHECK THE LENGTH OF THE TELESCOPING MEMBERS TO ENSURE THE DRIVELINE WILL NOT BOTTOM OUT OR SEPARATE WHEN TURNING AND/OR GOING OVER ROUGH TERRAIN.**

NOTE: Maximum operating length LB. (Refer to "Verify Telescoping PTO Shaft Length" in this section for LB length.)

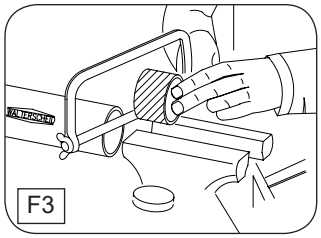
1. To adjust length, hold the half-shafts next to each other in the shortest working position and mark them.
2. Shorten inner and outer guard tubes equally.
3. Shorten inner and outer sliding profiles by the same length as the guard tubes.
4. Round off all sharp edges and remove burrs. Grease sliding profiles.



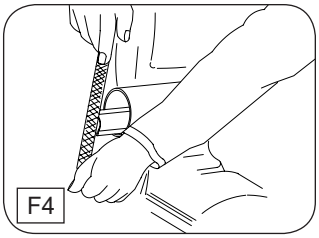
F1



F2



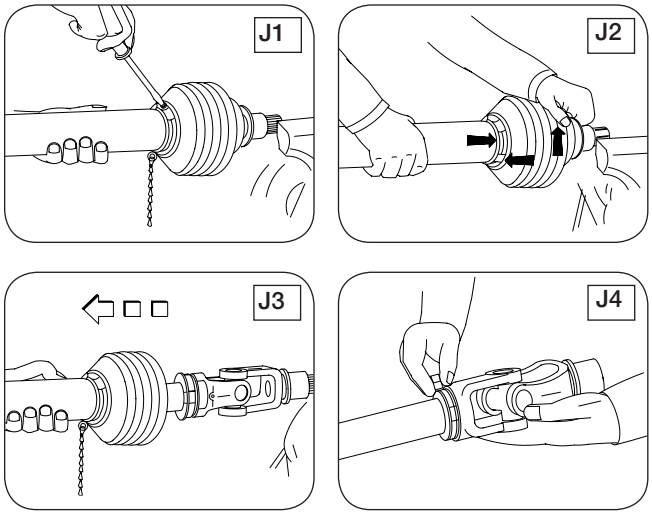
F3


F4

PTO Shaft and Clutch

To Dismantle Guard (Figs. J1 - J4)

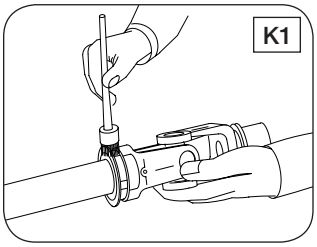
1. Remove locking screw.
2. Align bearing tabs with cone pockets.
3. Remove half-guard.
4. Remove bearing ring.

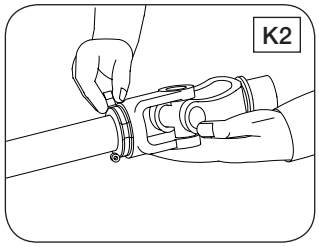


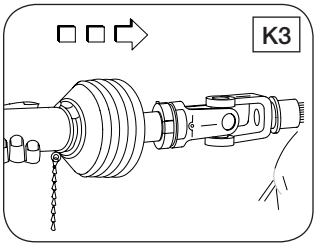
PTO Shaft and Clutch (continued)

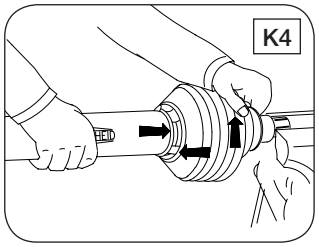
To Assemble Guard (Figs. K1 - K5)

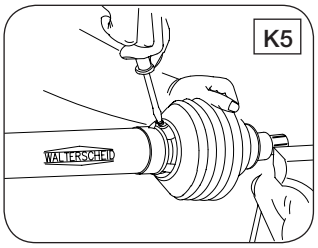
1. Grease yoke groove and inner profile tube.
2. Fit bearing ring in groove with recesses facing profile tube.
3. Slip on half-guard.
4. Turn cone until it engages correctly.
5. Install locking screw.





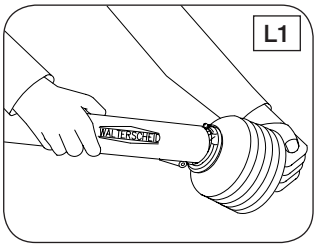


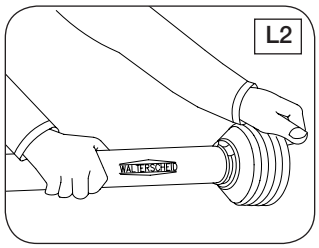


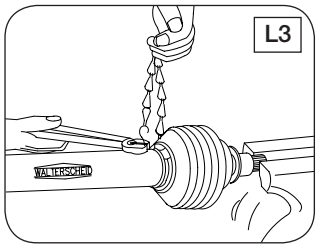


To Assemble Cone (Figs. L1 - L3)

1. Dismantle guard (Figs. J1 - J3). Remove old cone (e.g. cut open with knife). Take off chain. Place neck of new cone in hot water (approx 80° C / 180° F) and pull onto bearing housing (Fig. L1).
2. Turn guard cone into assembly position (Fig. L2). Further assembly instructions for guard (Figs. K1 - K5).
3. Reconnect chain if required (Fig. L3).





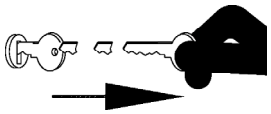


Hydraulic Jack Cylinder Replacement

⚠ WARNING

- **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 THE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR'S MANUAL FOR PROPER PROCEDURES.**
- **HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.**
- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**
- **UNHITCHING A LOADED CART CAN CAUSE SERIOUS INJURY OR DEATH DUE TO TONGUE RISING OR FALLING. ALWAYS HAVE A LOADED CART ATTACHED TO A TRACTOR. THE JACK IS INTENDED TO SUPPORT AN EMPTY CART ONLY.**
- **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 100 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

1. Park the empty unit on a firm, level surface. Block tractor and machine to keep it from moving. Set the tractor parking brake, shut off the engine and remove the ignition key. Completely disconnect the PTO from the cart and tractor.



2. Attach hydraulic jack hoses to tractor SCV.
3. Open valve and lower jack leg to ground.
   DO NOT raise tongue.
4. Relieve pressure on hydraulic jack circuit. See tractor operator manual for procedure.
5. Close valve.
6. Support the hydraulic jack assembly with a safe lifting device rated for a minimum of 100 lbs.
7. Remove hydraulic jack hoses from tractor SCV.
8. Remove cylinder pin (272587) and snap rings (91192) from the base end of the cylinder at the lug on top of the tongue. (FIG. 4-47)

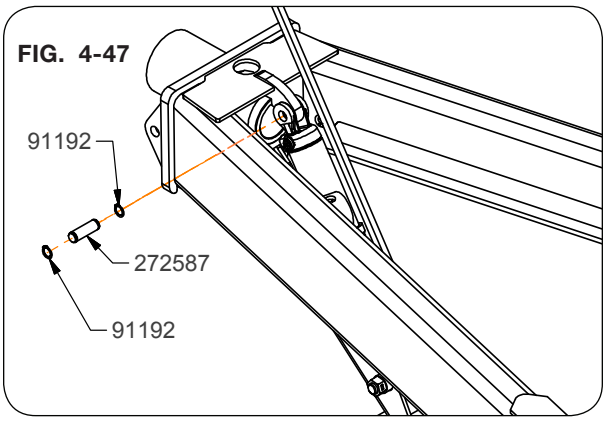


FIG. 4-47

Hydraulic Jack Cylinder Replacement (continued)

9. Remove hydraulic jack assembly from the tongue. (FIG. 4-48)

10. On new hydraulic assembly (296288B), attach hoses (9006068) and fittings to cylinder (9009047) as shown in FIG. 4-48. The valve needs to be assembled to the hose on the base end of the cylinder. Assemble the fittings on the cylinder so they face each other, then store the hydraulic hoses on the hose caddy.

11. To reassemble hydraulic jack, see "Install Hydraulic Jack (Optional)" in SET UP section.

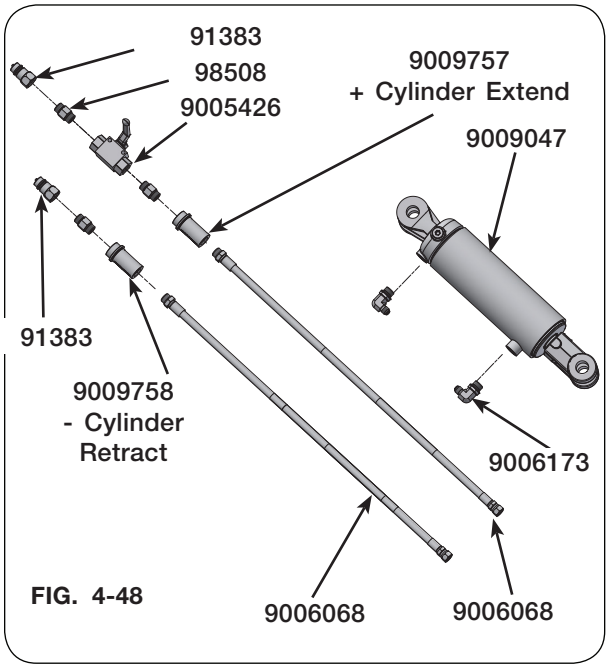


FIG. 4-48

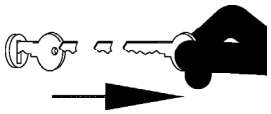
Horizontal Auger Removal and Replacement

⚠ WARNING

- **TO PREVENT PERSONAL INJURY OR DEATH WHILE SERVICING, ALWAYS ENSURE THAT THERE ARE PEOPLE WHO REMAIN OUTSIDE THE CART TO ASSIST THE PERSON WORKING INSIDE, AND THAT ALL SAFE WORKPLACE PRACTICES ARE FOLLOWED. THERE ARE RESTRICTED MOBILITY AND LIMITED EXIT PATHS WHEN WORKING INSIDE THE IMPLEMENT.**
- **NEVER ENTER CART WITH AUGER OR TRACTOR RUNNING. SERIOUS OR FATAL INJURY CAN OCCUR DUE TO ENTANGLEMENT WITH ROTATING COMPONENTS. ALWAYS STOP ENGINE AND REMOVE KEY BEFORE ENTERING CART.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.**
- **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 1,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

NOTE: Open the flow gates all the way.

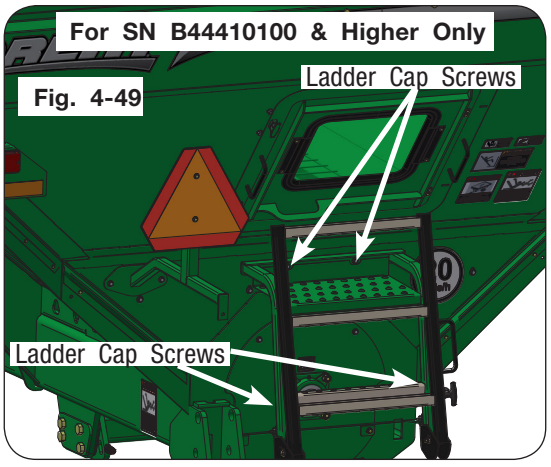
1. Park the unit on a firm, level surface. Block the machine to keep it from moving. Set the vehicle parking brake, shut off the engine and remove the ignition key and disconnect the PTO shaft from the tractor.



NOTE: For SN B44410099 & lower, skip to step 4.

2. Remove 4 rear ladder capscrews attached to the cart. Keep capscrews. (FIG. 4-49)

3. Remove rear ladder from the cart. (FIG. 4-49)



NOTE: For SN B44410100 & higher, skip to step 5.

NOTE: Keep all hardware for re-assembly.

Horizontal Auger Removal and Replacement (continued)

4. For SN B44410099 & lower, remove the SMV bracket located on the rear auger cover. (Fig. 4-50)
5. Remove the capscrews from the auger cover. (Fig. 4-50)
6. Pry the auger from the auger tube. (Fig. 4-51)
7. Using a safe lifting device rated for a minimum 1,000 lbs., pull the rear auger out of the cart. (Fig. 4-52)

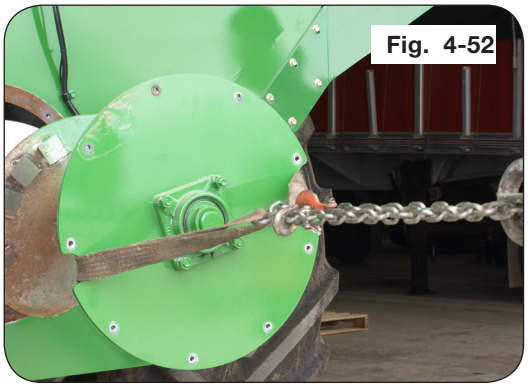


Fig. 4-52

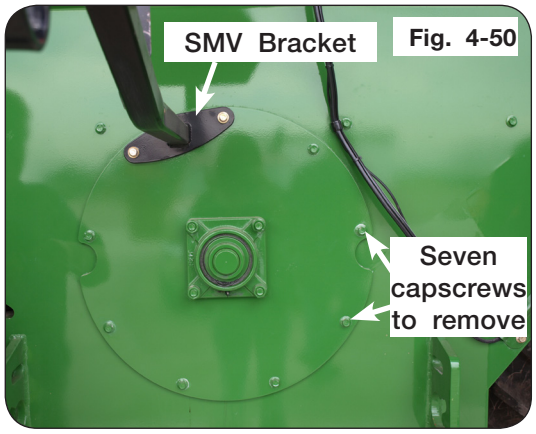


Fig. 4-50

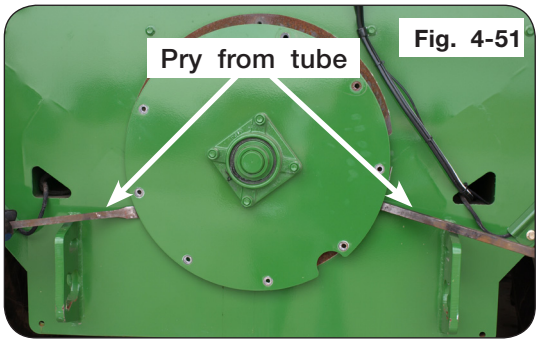


Fig. 4-51

Horizontal Auger Removal and Replacement (continued)

NOTE: If only servicing rear auger, skip to step 23. For 5-pin driver replacement, continue to step 8.

8. Remove the flange screws in both middle grates inside the cart. Remove the grates. (Fig. 4-53)

NOTE: Retain all hardware for reassembly.

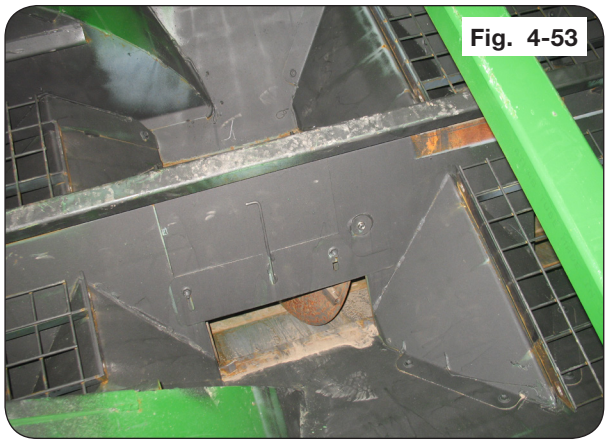


Fig. 4-53

9. Remove locknuts, baffle weldments and cover plates from the middle tent. (Fig. 4-54)

10. Disconnect grease line. (Fig. 4-54)

11. Remove the bearing mount bar bolts on each side of the auger.

12. Remove capscrews and lock washers holding bearing onto the bearing mount bar.

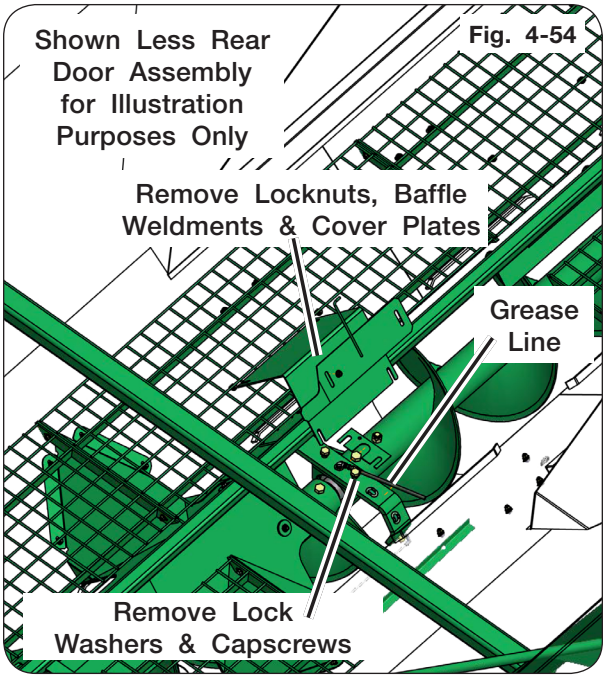


Fig. 4-54

13. Remove bearing mount bar to allow access to work on the bearing and shaft. Remove two center tube connecting capscrews, spacer bushings (283895B) and locknuts from the horizontal auger. (Fig. 4-55)

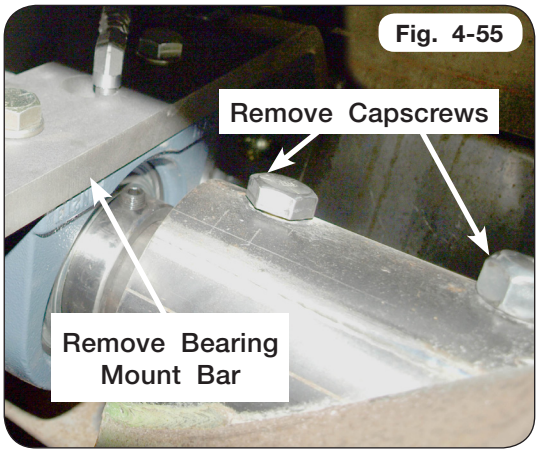


Fig. 4-55

Horizontal Auger Removal and Replacement (continued)

14. Remove the original 5-pin driver, bearing and the bushing insert. (Figure 4-56 & Figure 4-57)

15. Discard 5-pin driver.

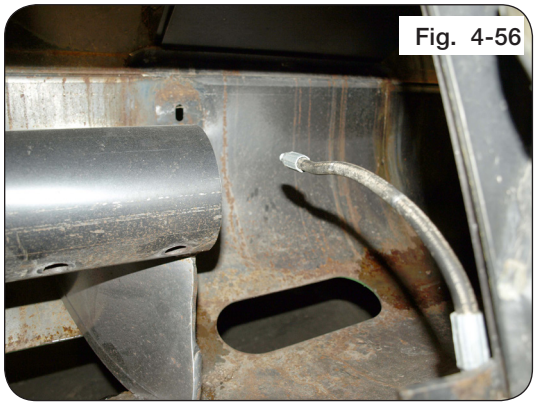
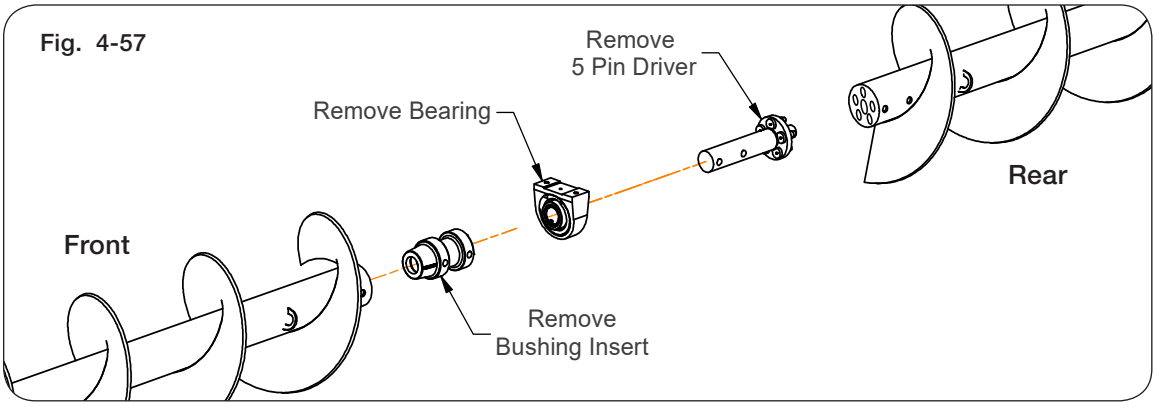


Fig. 4-56



16. Substantially coat bushing insert with anti-seize.

17. Slide bushing insert into front auger and ensure tube holes are aligned. (Figure 4-57 & Figure 4-58)

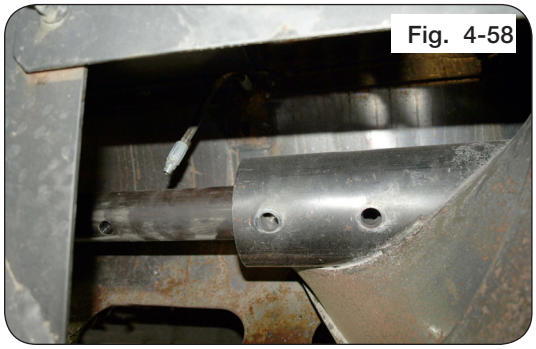


Fig. 4-58

NOTE: Make sure the set screws on bearing are towards the front of the cart. (Figure 4-59)

18. Slide bearing onto 5-pin driver. (Figure 4-59)

19. Insert new 5-pin driver into front auger and ensure tube holes are aligned.

20. Install front capscrews, spacer bushings and locknuts 180 degrees from each other and assemble spacer bushings on threaded side of capscrews. Hand tighten hardware. (Figure 4-59)

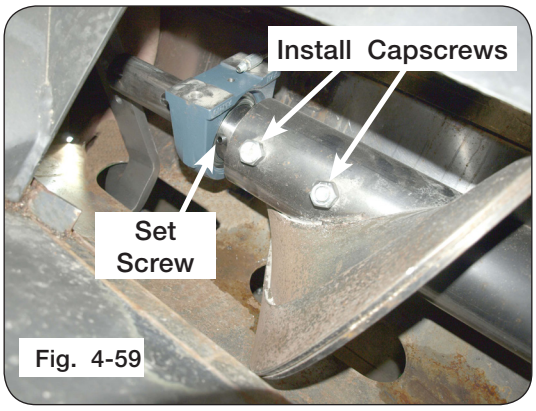


Fig. 4-59

Horizontal Auger Removal and Replacement (continued)

21. Install hanger bracket. Leave the capscrews loose attaching hanger bracket to the cart. Attach hanger bracket to the bearing. (Figure 4-60)

22. Reattach grease line components. (Figure 4-60)

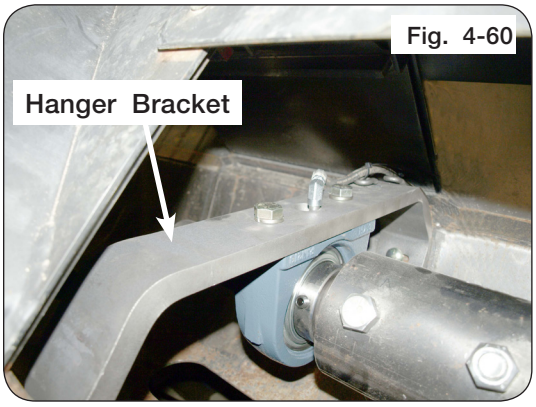


Fig. 4-60

NOTE: Rear auger flighting should lead the front auger flighting.

23. Slide the rear auger forward. Align the pins and holes with the rear auger pipe. (Figure 4-61)

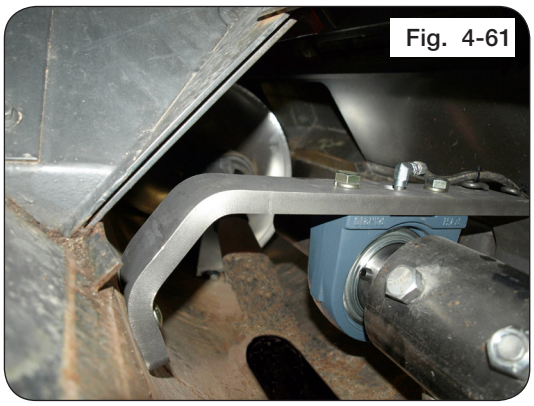


Fig. 4-61

24. Extend a string tightly from front to rear to check horizontal auger alignment. Measure the string to the auger tube either in front or behind the hanger bearing. If this dimension is 1/8" greater than the measurement taken in the front and rear, shims (8GA - 286419B or 12GA - 286424B) are required on top of the center hanger bearing. Ideally the center measurement should be equal to or 1/8" lower than the measurements on the ends of the augers. (Figure 4-62)

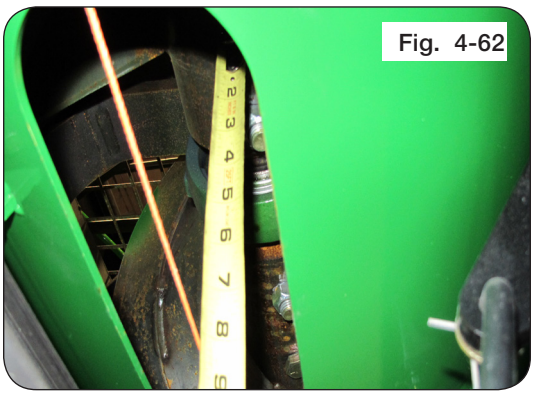


Fig. 4-62

NOTE: The shims are 1/8" thick each. Add as needed. See "Auger System - Horizontal Auger" in MAINTENANCE section for more details.

25. Torque hanger bracket capscrews to 130 ft.-lbs. See Figure 4-60.

26. Torque auger capscrews to 200 ft.-lbs. (Figure 4-63)

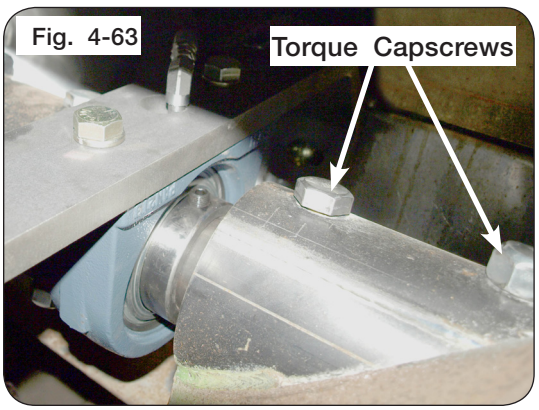


Fig. 4-63

Horizontal Auger Removal and Replacement (continued)

27. Torque hardware for the rear auger cover. (Fig. 4-64)

28. For SN B44410100 & higher, torque hardware for the rear ladder. (Fig. 4-65)

29. For SN B44410099 & lower, torque SMV bracket back onto the cart. (Figure 4-64)

30. Reinstall ALL the grates.

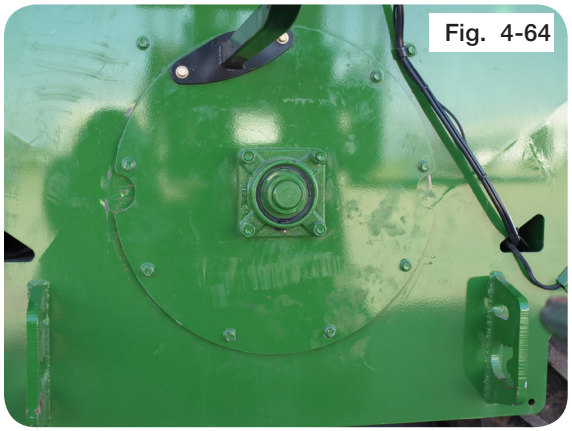


Fig. 4-64

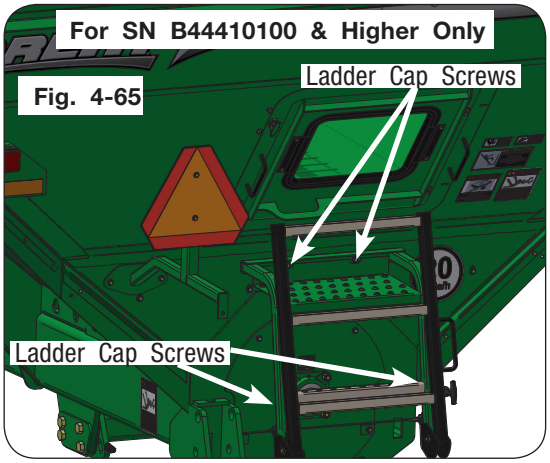


Fig. 4-65

Troubleshooting

Problem	Possible Cause	Corrective Action
No Manual Override (EOH / SCV Contolled) functions work	Not getting 12 Volt power supply to the power harness in the tractor	Check the connections to the main power harness in the tractor cab, and check the 5 AMP fuse in the fuse holder of the main power harness. Replace fuse if necessary.
	Not getting good connection at Deutch connectors in the harnesses	Unplug the Deutsch connectors at the hitch point and in the extension harness (if used). Clean up the connectors with electrical contact cleaner. Make sure the connectors are aligned correctly and re-connect them.
	Not pressurizing the correct hydraulic hose	Make sure the quick couplers are properly connected to the tractor SCV and the Hydraulic Pressure line is being pressurized when engaging the tractor SCV.
Auger unfolds, but won't fold back into a transport position	Rotating Spout is not in the folding position	Rotate the spout so it is positioned straight down or forward in order to fold the auger into a transport position.
	Rotating spout switch is faulty or out of adjustment	Make sure the spout is in the centered position. Refer to the manual override sections in order to fold the auger back into a transport position. Inspect the switch assembly near the rotating spout cylinder. The clearance between the end of the proximity switch and the barrel of the rotating spout cylinder must not exceed 1/4".
Auger unfolds part way and stops	Debris in the EOH block on the auger fold cylinder	Fold auger, remove the Coil and the cartridge valve on the EOH valve block. Remove any debris and reinstall cartridge and coil.
	Rotating Spout switch is out of adjustment or has been activated.	With the auger folded in to the road transport rest, have someone depress and hold the switch at the vertical auger hinge plate. Use any means necessary to depress the switch without placing your hands or other body parts near the pinch points. With the switch depressed, rotate the spout to the folding postion.

Troubleshooting (continued)

Problem	Possible Cause	Corrective Action
Rotating spout will not function	7 pin connector is not plugged into tractor.	Plug in 7 pin connector to same power source as the 5 function controller.
	Proximity Switch at the auger hinge is not getting Power or Ground.	Check power and ground to the proximity switch harness on the vertical auger. Make sure the center pin on the 7 pin plug has +12V key switch power.
	Proximity switch located at the hinge plate is not adjusted correctly.	This proximity switch has a 1/4" effective operating range. The upper auger hinge plate needs to be within that range when it is unfolded in to the operating position. Adjust the proximity switch in or out in order for the sensor to activate when it is in the operating position.
	Switch located at the hinge plate of the vertical auger is not getting power, ground or is defective	Check the ground wire located near the hydraulic valve at the base of the vertical auger and on the left hand standard just behind the front plate of the harness. Unplug the 3 pin connector on the hinge plate proximity switch. With a multi-meter or test light, confirm that the pin in socket B has +12V constant power and socket A has +12V when the sensor is activated.
One single function will not work	Defective coil on the EOH valve for that function	Loosen the cap for the coils associated with that function on the EOH valve. Depress the button on the remote, and determine if the coils are getting magnetized. Inspect the wiring connectors to these coils, and replace the coil if necessary.
	Defective valve on the EOH valve for that function	Remove the coil and the cartridge valve on the EOH valve block for that function. Replace the valve if it doesn't operate when the coil is magnetized.
	Debris in the EOH block at the base of the vertical auger	Remove the coil and the cartridge valve on the EOH valve block. Remove any debris and reinstall cartridge and coil.
Functions continue to operate after the button on the remote is released	Tractor hydraulic flow is set too high	Turn tractor hydraulic flow down so that flow doesn't exceed 6 gallons per minute.
	Defective valve on the EOH valve for that function	Remove the Coil and the cartridge valve on the EOH valve block for that function, and replace the cartridge.

Tarp Troubleshooting Inspection & Maintenance

PROBLEM	SOLUTION
TARP SAGS IN MIDDLE AREAS	1. BOWS MAY BE BENT OR ADJUSTED TOO LOW 2. MISSING OR LOOSE RIDGE STRAP REPLACE OR RETIGHTEN 3. TENSION MAY BE TOO LOOSE. U-JOINT MAY NEED TO BE ADJUSTED ON SPLINED SHAFT TO PROVIDE MORE TENSION
HOLES OR TEARS IN TARP	1. CONSULT YOUR LOCAL DEALER FOR REPAIRS 2. ORDER TARP REPAIR KIT (9005581) FROM DEALER 3. WHEN NEW TARP OR PARTS ARE NEEDED ALWAYS REPLACE WITH ORIGINAL PARTS

Inspection and Maintenance

⚠ WARNING

- **TO PREVENT PERSONAL INJURY OR DEATH, DO NOT ALLOW ANYONE ON A CLOSED TARP. TARP SYSTEM IS NOT DESIGNED TO SUPPORT A PERSON.**
- **FALLING OBJECTS CAN CAUSE SERIOUS INJURY OR DEATH. REMOVE ACCUMULATED WATER/SNOW/ICE OR ANY OTHER OBJECTS FROM TARP BEFORE OPENING TARP.**

IMPORTANT

- *Do not open or close tarp while moving or in high wind conditions. Damage to the tarp may occur.*
- *Tarp should not be used if it is torn or the bungee cords are frayed or show damage. Fully close tarp with tension on the latch plate to prevent water from pooling.*

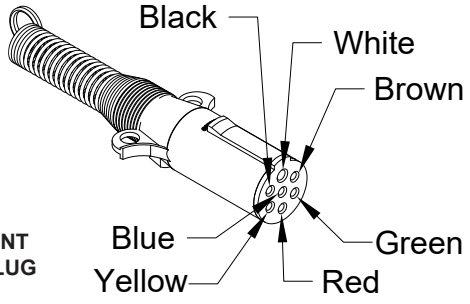
Periodic preventive maintenance should be practiced. Inspect tarp and hardware often for abrasions or loosened bolts that may need adjustment and/or repair. Check bungee cords for wear and adjust tension at the beginning of the season and again half way through the season.

Tears in tarp should be addressed before further tarp operation. If water pools on tarp, adjust tension of tarp cables and/or crank handle tension.

If installed correctly, tarp should always operate as well as when first installed. If tarp does not pass this simple inspection, make all appropriate repairs or adjustments immediately before serious damage occurs.

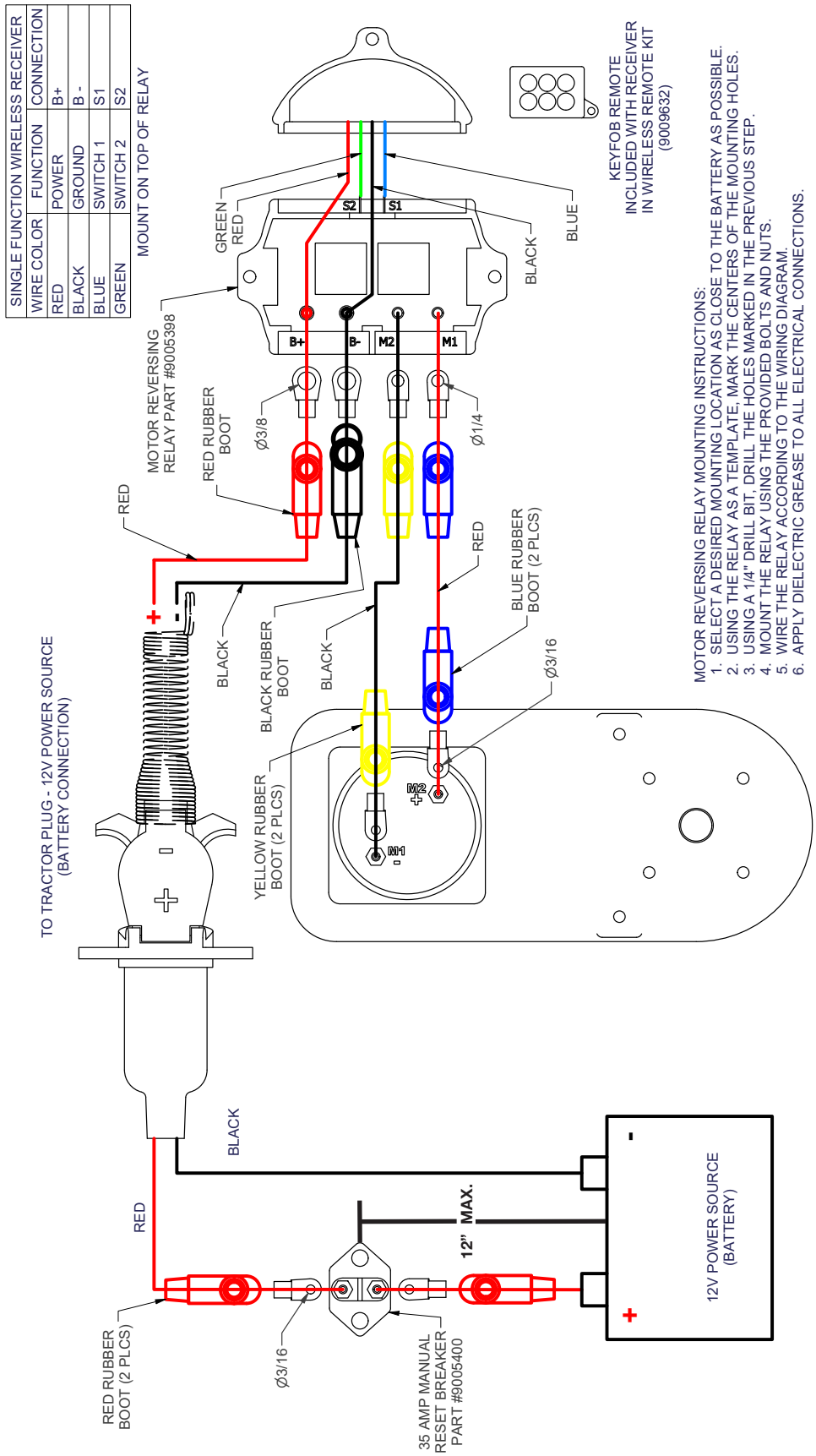
Electrical System Schematic

GRAIN CART WIRES
White -- Ground
Green -- Right amber flashing lamp
Yellow -- Left amber flashing lamp
Brown -- Amber Clearance and
Red Tail Lights (Low Filament)
Red -- Red Brake Lights (High Filament)
Black -- Work Lights
Blue -- 12V Key Switch Power

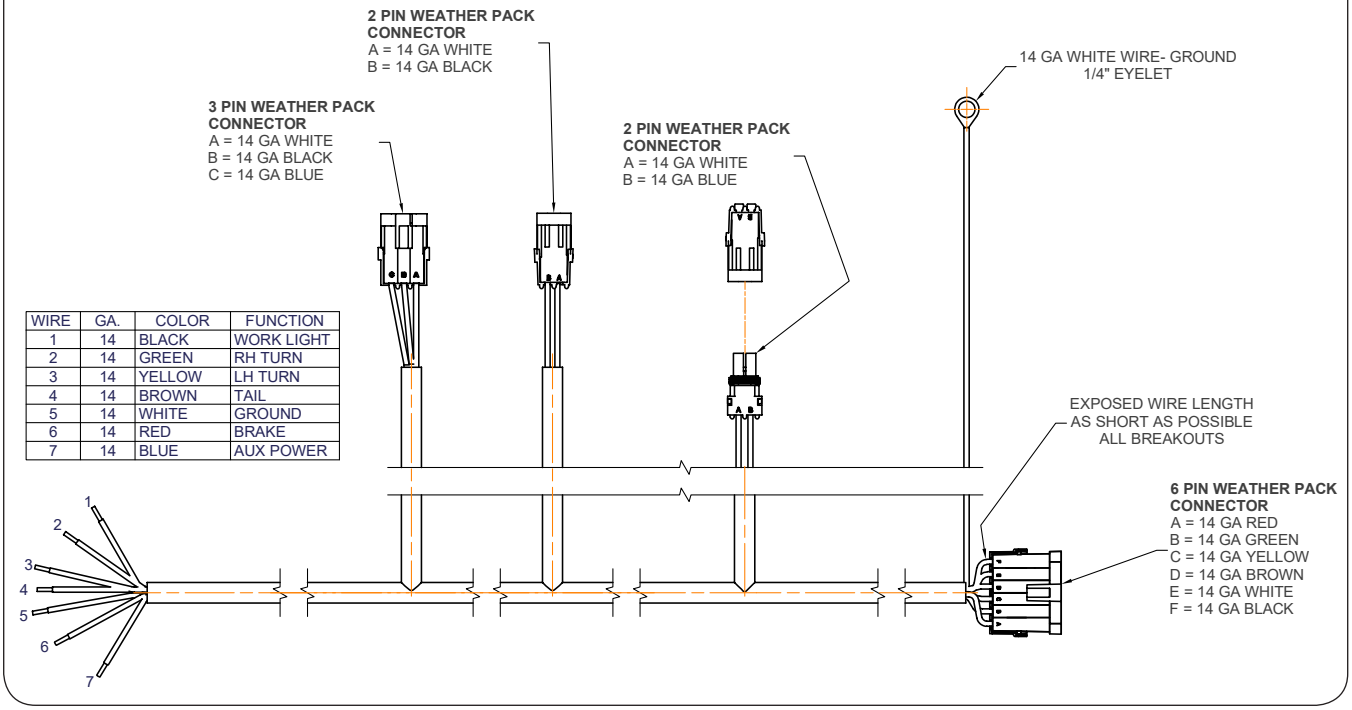


SAE SEVEN-POINT CONNECTOR PLUG

Electrical System Schematic



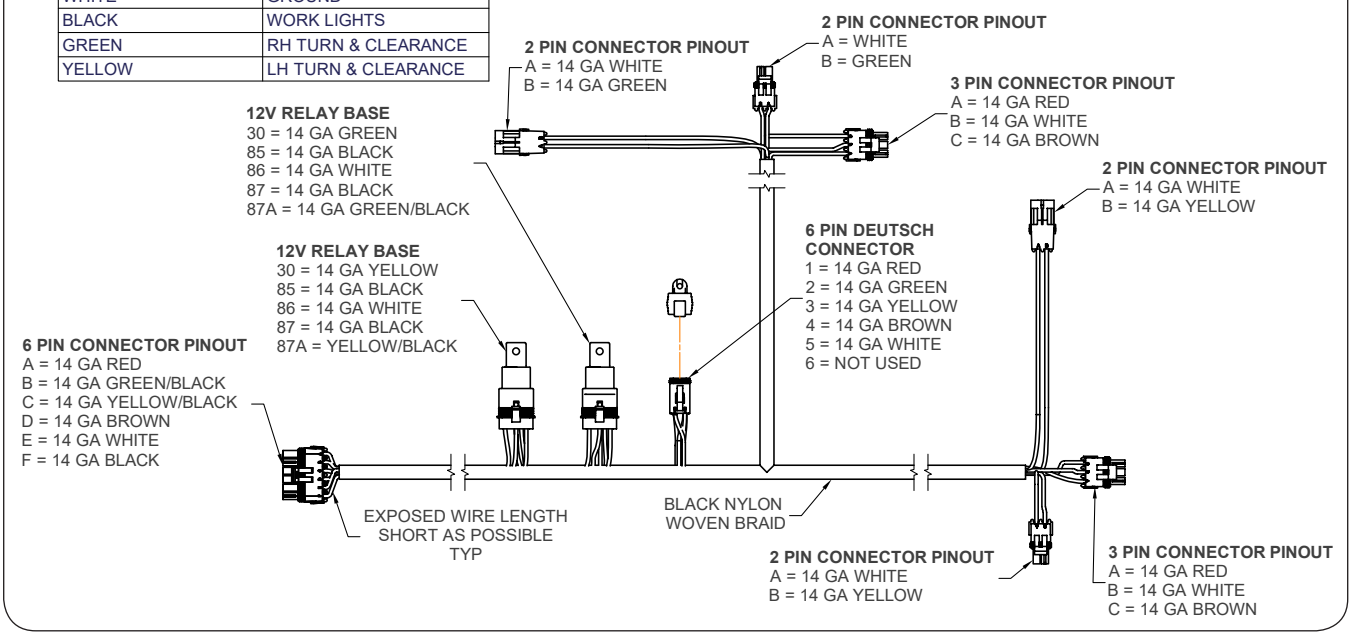
Electrical System Schematic - Front Harness #9009547



WIRE	GA.	COLOR	FUNCTION
1	14	BLACK	WORK LIGHT
2	14	GREEN	RH TURN
3	14	YELLOW	LH TURN
4	14	BROWN	TAIL
5	14	WHITE	GROUND
6	14	RED	BRAKE
7	14	BLUE	AUX POWER

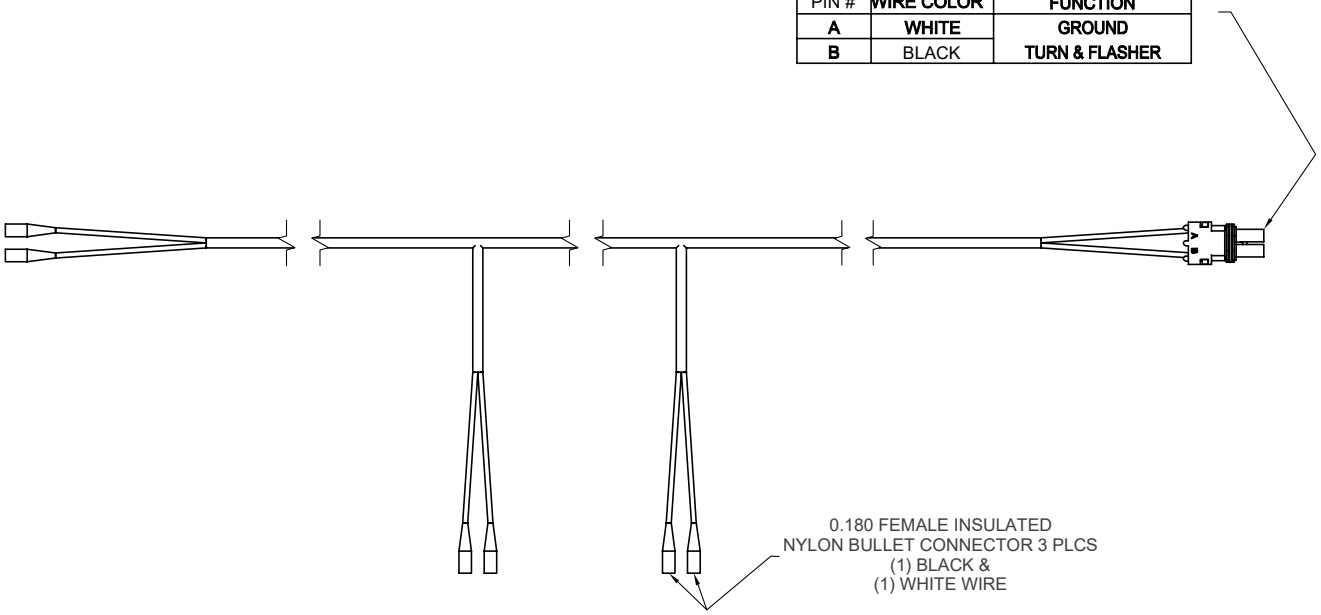
Electrical System Schematic - Rear Harness #9009586

WIRE COLOR	WIRE FUNCTION
RED	BRAKE
GREEN/BLK	RH TURN
YELLOW/BLK	LH TURN
BROWN	TAIL LIGHTS
WHITE	GROUND
BLACK	WORK LIGHTS
GREEN	RH TURN & CLEARANCE
YELLOW	LH TURN & CLEARANCE

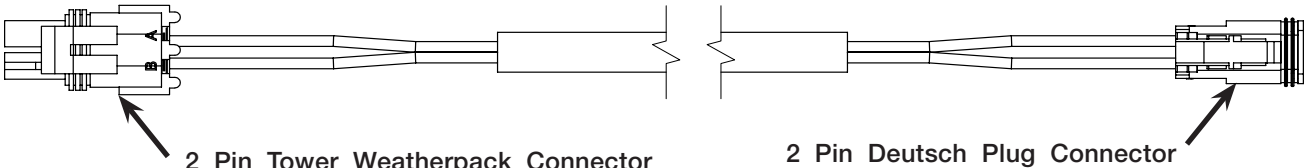


Electrical System Schematic Clearance Light Harnesses #9006481

CONNECTOR TYPE: 2 PIN TOWER WEATHERPACK		
PIN #	WIRE COLOR	FUNCTION
A	WHITE	GROUND
B	BLACK	TURN & FLASHER



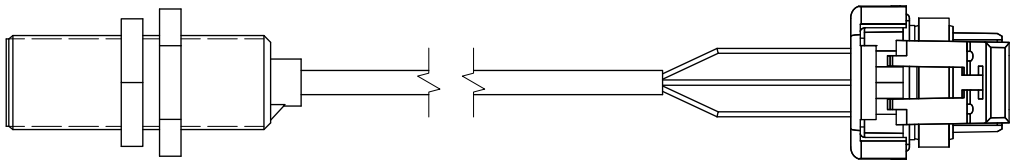
Electrical Diagram — Work Light Wiring Harness #9008969



2 Pin Tower Weatherpack Connector
Pin "A" - White - Ground
Pin "B" - Black - +12V Work Light

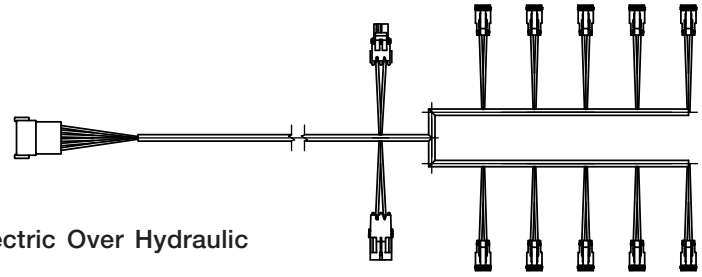
2 Pin Deutsch Plug Connector
Pin 1 - Black - Switched Work Light
Pin 2 - White - Ground

Electrical System Schematic - Proximity Switch #9007223

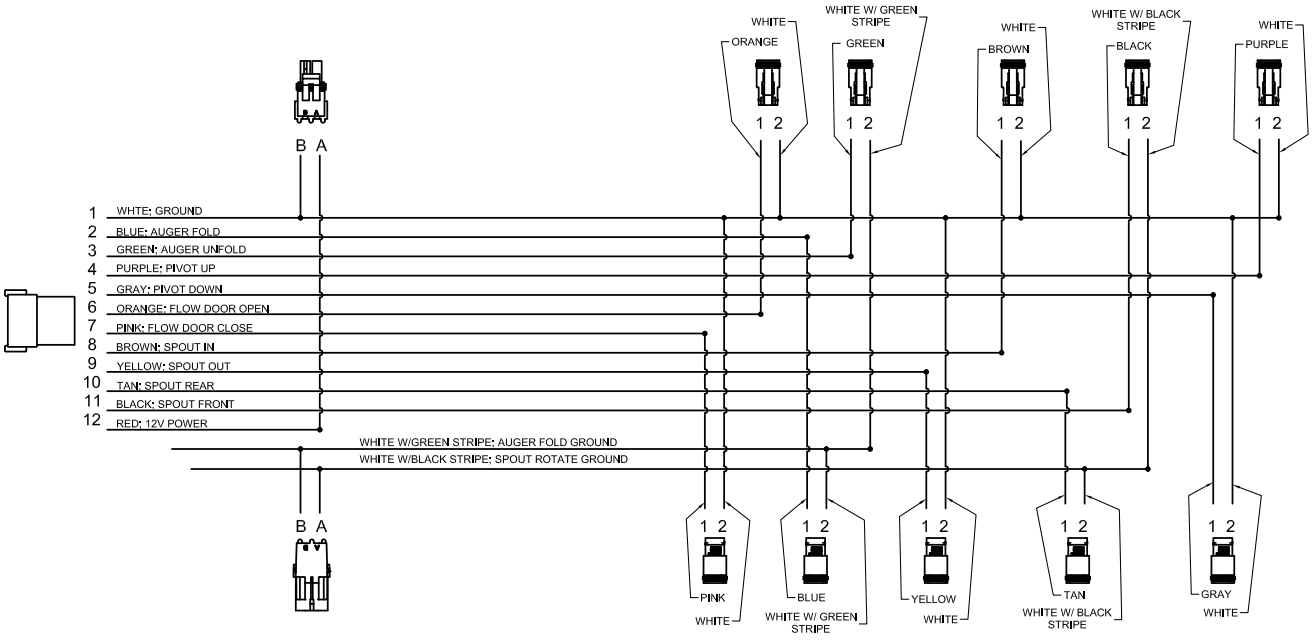


METRI-PACK 150 WIRING CHART		
WIRE COLOR	PIN NO.	FUNCTION
BLACK	A	SIGNAL
BROWN	B	+12 V DC
BLUE	C	GROUND

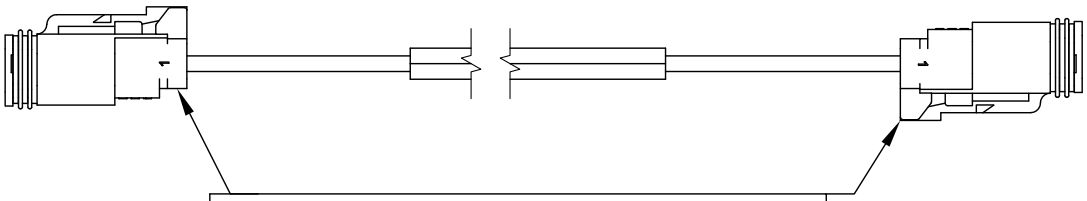
Electrical System Schematic - Main Harness #9007290 (Opt.)



NOTE: For Optional Electric Over Hydraulic 5 Function Valve.

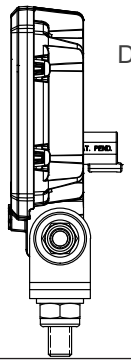


Electrical System Schematic - Diverter Harness #9007266



CONNECTOR TYPE: 2 PIN DEUTSCH PLUG		
PIN #	WIRE COLOR	FUNCTION
1	RED	+12V POWER
2	WHITE	GROUND

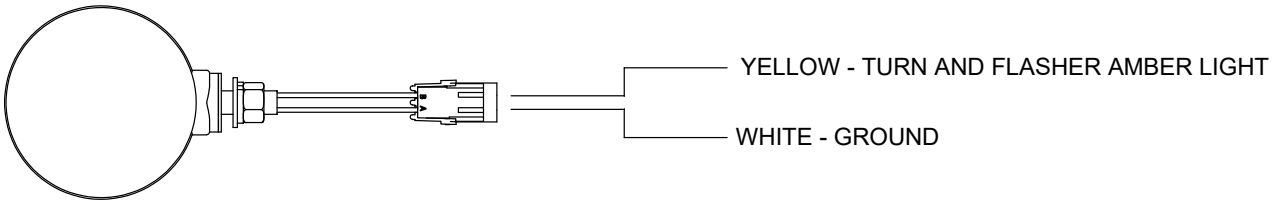
Electrical System Schematic - Work Flood Lamp #9008957



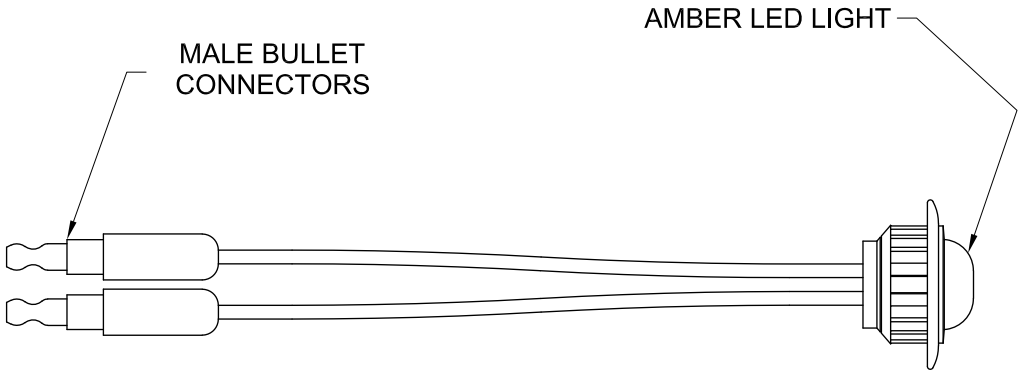
2 PIN INTEGRATED
DEUTSCH CONNECTOR

POWER (PIN #1)
GROUND (PIN #2)

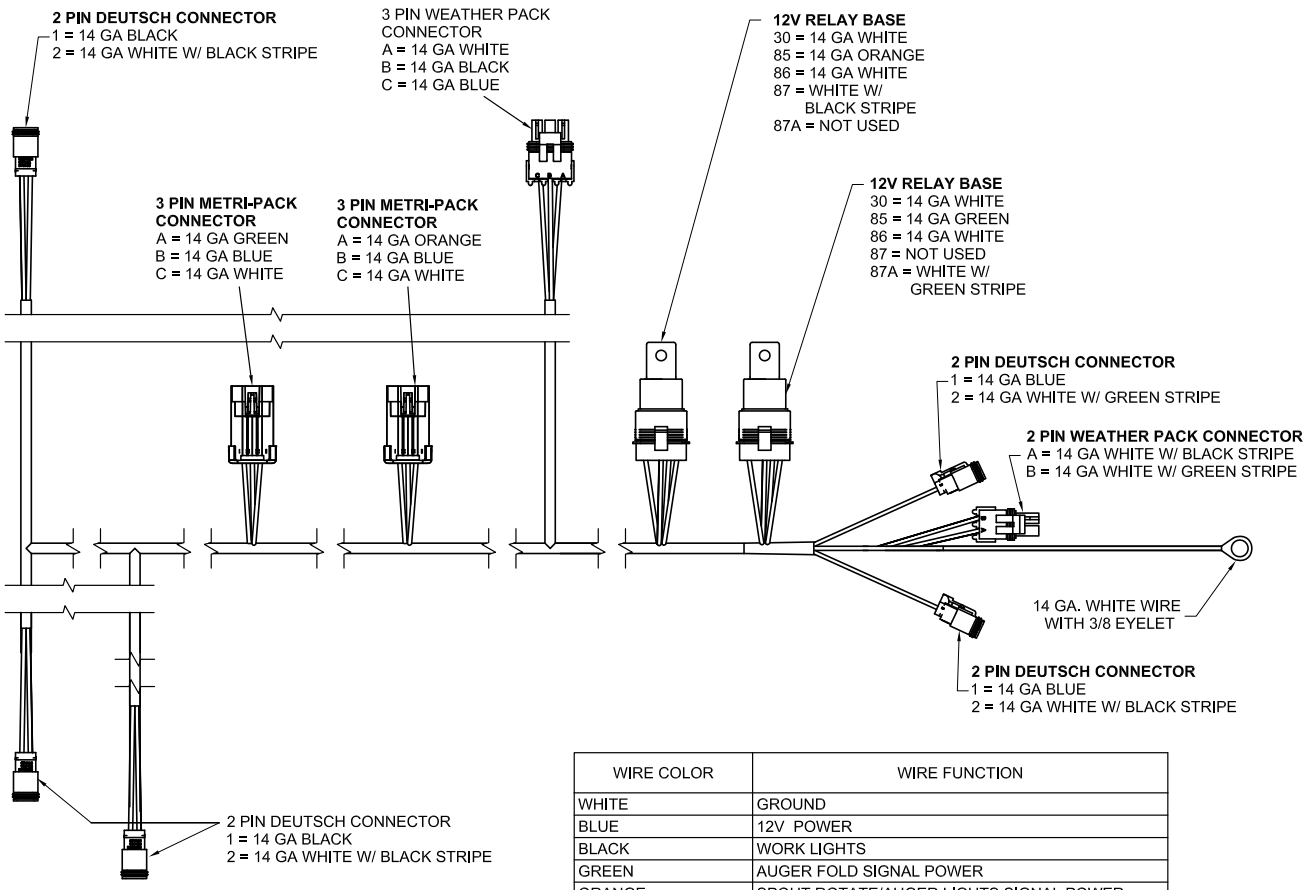
Electrical System Schematic - Amber Lamp #9005142



Electrical System Schematic - Micro Dot, LED Light #9006107

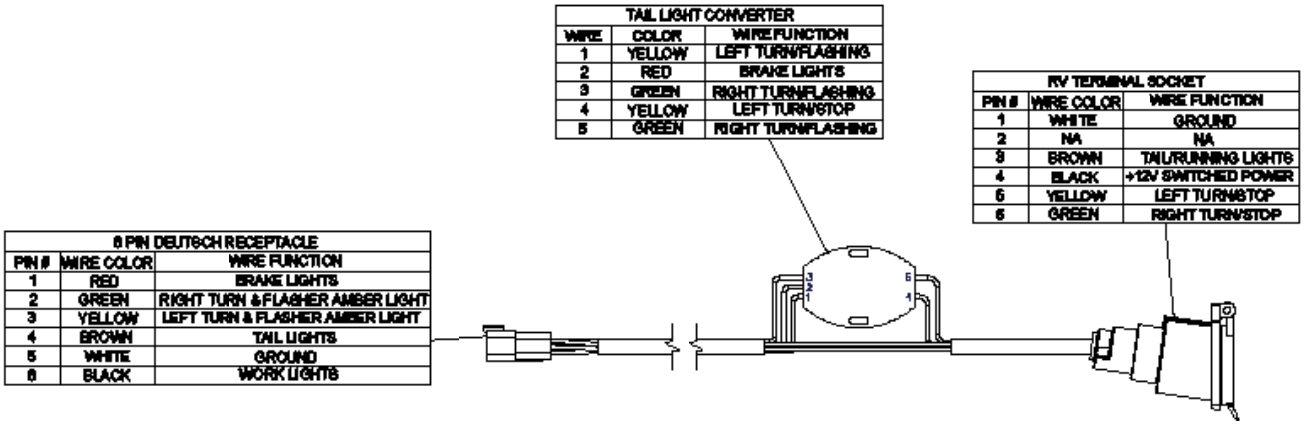


Electrical System Schematic - Auger Harness #9009531



WIRE COLOR	WIRE FUNCTION
WHITE	GROUND
BLUE	12V POWER
BLACK	WORK LIGHTS
GREEN	AUGER FOLD SIGNAL POWER
ORANGE	SPOUT ROTATE/AUGER LIGHTS SIGNAL POWER
WHITE W/GRN STRIPE	AUGER FOLD SWITCHED GROUND
WHITE W/BLK STRIPE	SPOUT ROTATE/AUGER LIGHTS SWITCHED GROUND

Electrical System Schematic - Adapter Harness, AG to RV #9009843 (Optional)

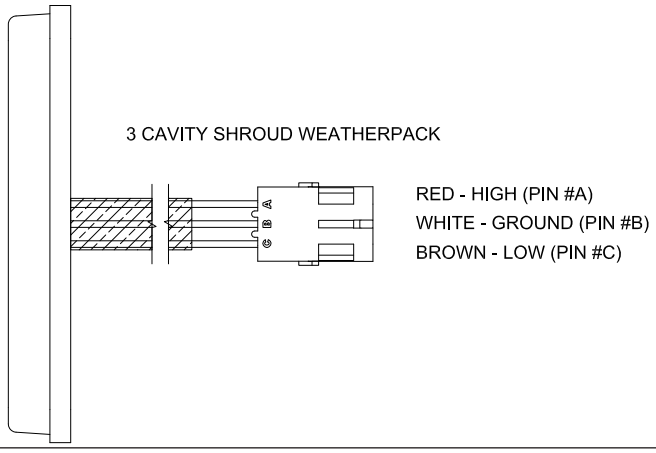


TAIL LIGHT CONVERTER		
WIRE	COLOR	WIRE FUNCTION
1	YELLOW	LEFT TURN/FLASHING
2	RED	BRAKE LIGHTS
3	GREEN	RIGHT TURN/FLASHING
4	YELLOW	LEFT TURN/STOP
5	GREEN	RIGHT TURN/FLASHING

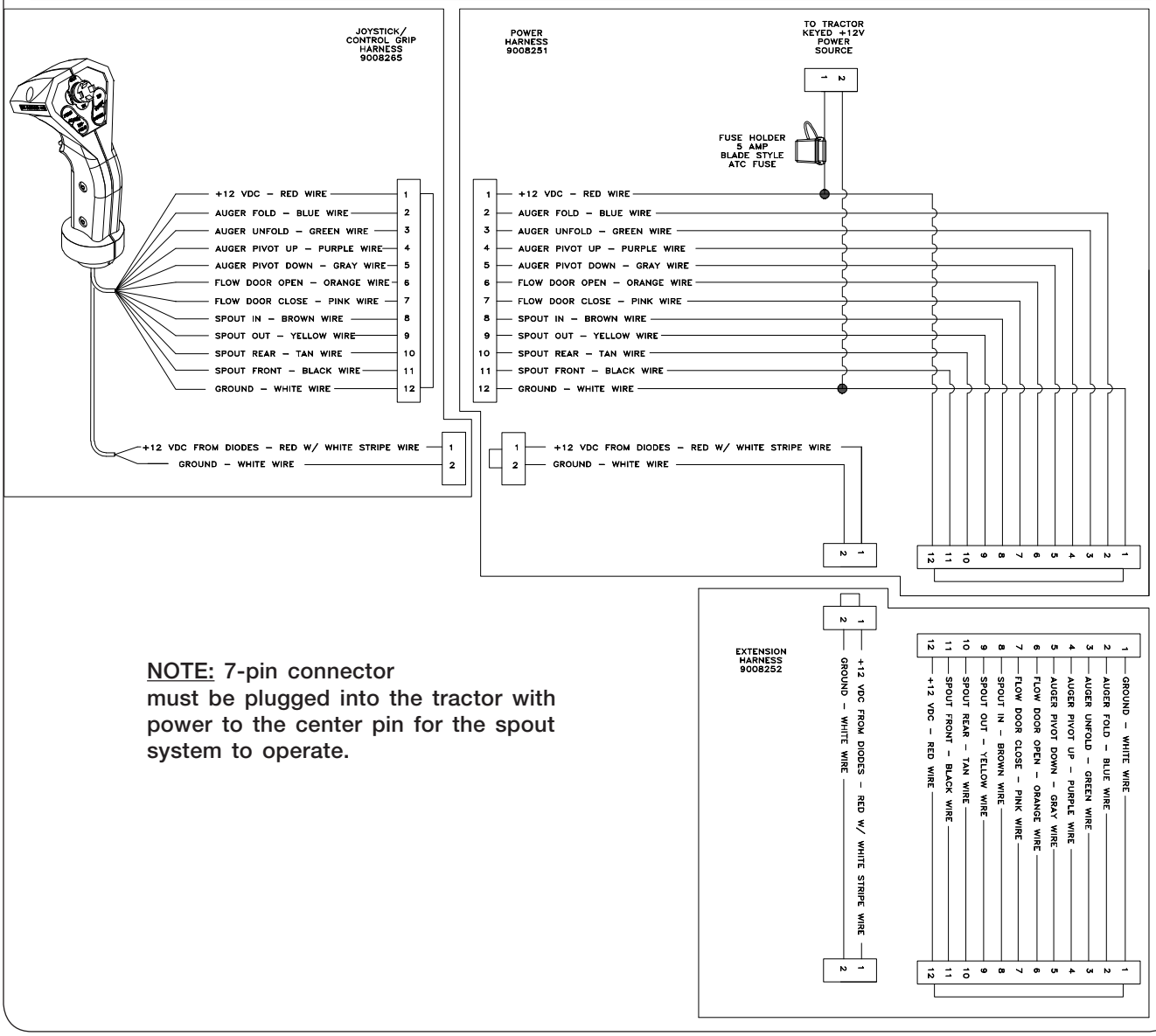
RV TERMINAL SOCKET		
PIN #	WIRE COLOR	WIRE FUNCTION
1	WHITE	GROUND
2	NA	NA
3	BROWN	TAIL/RUNNING LIGHTS
4	BLACK	+12V SWITCHED POWER
5	YELLOW	LEFT TURN/STOP
6	GREEN	RIGHT TURN/STOP

6 PIN DEUTSCH RECEPTACLE		
PIN #	WIRE COLOR	WIRE FUNCTION
1	RED	BRAKE LIGHTS
2	GREEN	RIGHT TURN & FLASHER AMBER LIGHT
3	YELLOW	LEFT TURN & FLASHER AMBER LIGHT
4	BROWN	TAIL LIGHTS
5	WHITE	GROUND
6	BLACK	WORK LIGHTS

Electrical System Schematic — Red Lamp #9006282

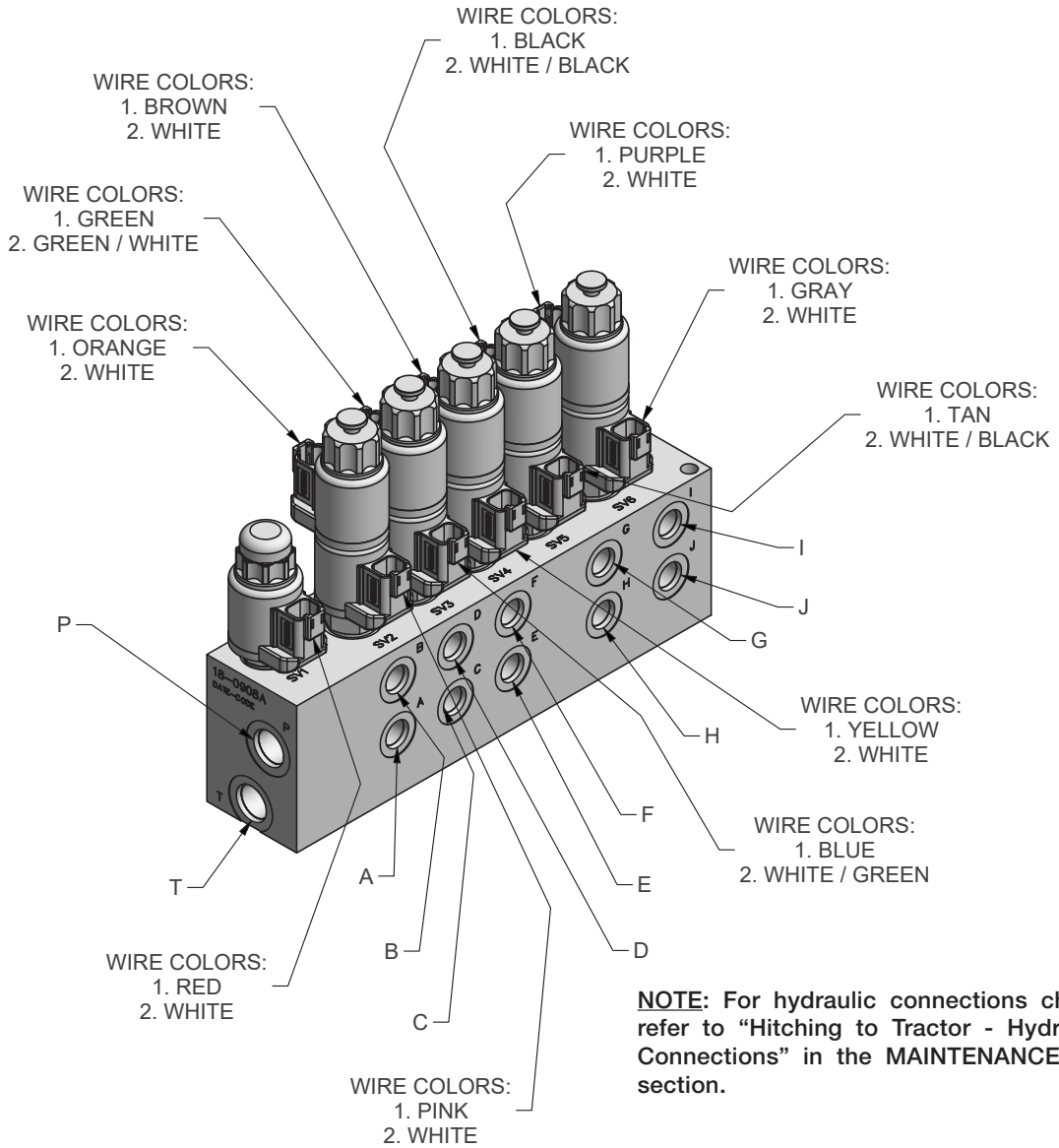


Electrical Over Hydraulic (EOH) System Schematic 5 Function Optional



NOTE: 7-pin connector must be plugged into the tractor with power to the center pin for the spout system to operate.

Optional Electric Over Hydraulic Valve Electric Schematic 5 Function

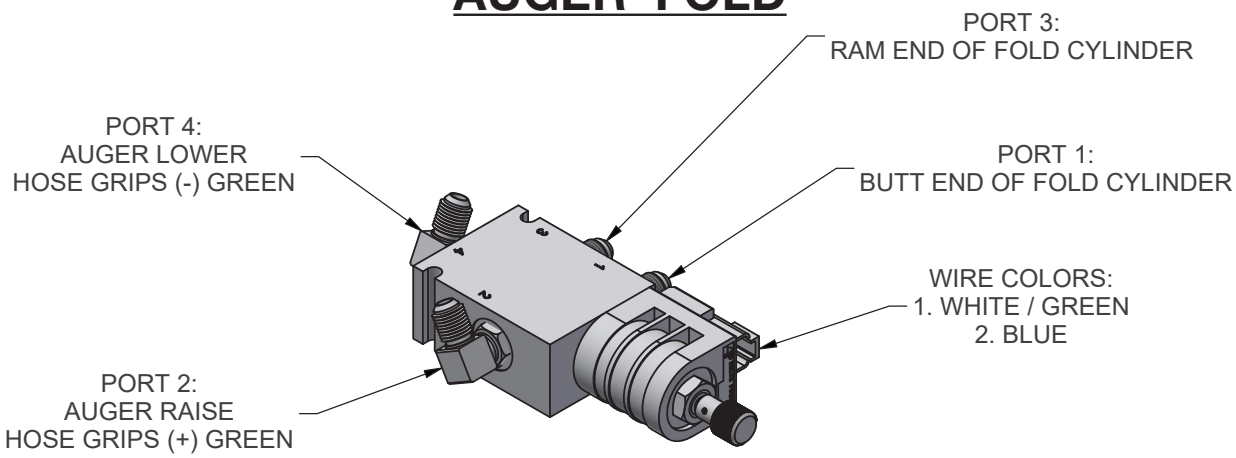


NOTE: For hydraulic connections chart, refer to "Hitching to Tractor - Hydraulic Connections" in the MAINTENANCE section.

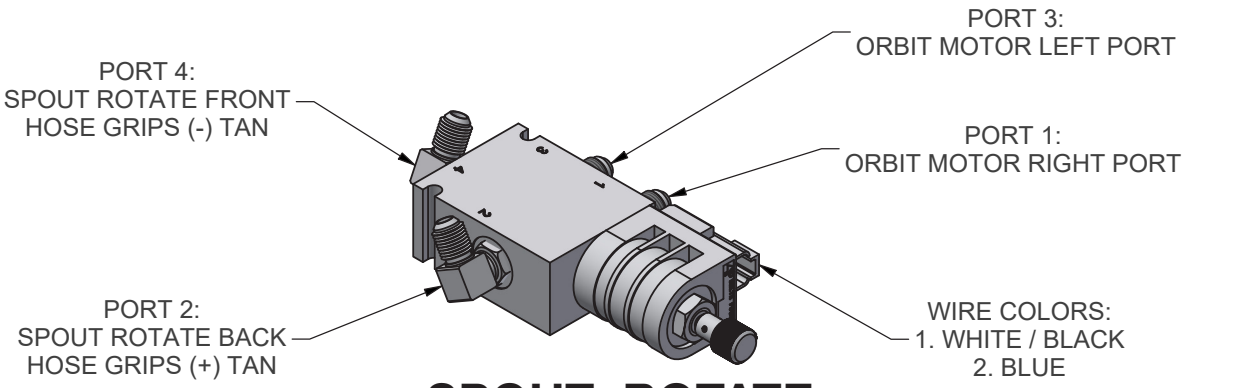
PORT	END OF CYLINDER	FUNCTION
A	BUTT END	FLOW DOOR
B	RAM END	FLOW DOOR
C	RAM END	AUGER FOLD
D	BUTT END	AUGER FOLD
E	RAM END	SPOUT TILT
F	BUTT END	SPOUT TILT
G	ORBIT MOTOR LEFT-HAND PORT	JOYSTICK / SPOUT ROTATE
H	ORBIT MOTOR RIGHT-HAND PORT	JOYSTICK / SPOUT ROTATE
I	BUTT END	AUGER PIVOT
J	RAM END	AUGER PIVOT
P		JOYSTICK / TRACTOR PRESSURE
T		JOYSTICK / TRACTOR RETURN

SCV Controlled Inline Valve Assemblies - Electric Schematic

AUGER FOLD



SPOUT ROTATE



NOTE: For hydraulic connections chart, refer to "Hitching to Tractor - Hydraulic Connections" in the MAINTENANCE section.

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 1/4-28	8-10 9-11	11-13 12-15
5/16-18 5/16-24	15-17 17-19	20-23 23-26
3/8-16 3/8-24	25-28 28-31	34-38 38-42
7/16-14 7/16-20	40-45 45-50	54-61 61-68
1/2-13 1/2-20	62-68 68-75	84-92 92-102
9/16-12 9/16-18	90-98 100-110	122-133 134-148
5/8-11 5/8-18	120-135 124-137	162-183 168-186
3/4-10 3/4-16	200-220 210-230	270-300 285-310
7/8-9 7/8-14	330-350 360-380	425-475 460-515
1-8 1-14	500-525 540-560	675-710 730-760
1 1/8-7 1 1/8-12	600-635 665-700	815-860 920-950
1 1/4-7 1 1/4-12	850-895 940-990	1150-1215 1275-1340
1 3/8-6 1 3/8-12	1125-1175 1280-1335	1525-1590 1735-1810
1 1/2-6 1 1/2-12	1500-1560 1685-1755	2035-2115 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 5/16-24	20-22 21-23	27-30 28-31
3/8-16 3/8-24	35-39 36-41	47-53 49-55
7/16-14 7/16-20	54-58 55-60	73-78 75-80
1/2-13 1/2-20	82-88 94-99	110-120 125-135
9/16-12 9/16-18	127-134 147-155	170-180 199-210
5/8-11 5/8-18	160-170 165-175	215-230 225-235
3/4-10 3/4-16	280-295 330-365	380-400 445-495
7/8-9 7/8-14	410-430 420-440	555-580 570-595
1-8 1-14	630-650 680-700	850-880 920-950
1 1/8-7 1 1/8-12	900-930 930-950	1220-1260 1260-1290
1 1/4-7 1 1/4-12	1250-1300 1280-1320	1695-1760 1735-1790

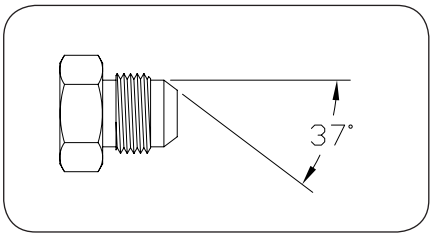
IMPORTANT

- *Follow these torque recommendations except when specified in text.*

Hydraulic Fittings – Torque and Installation

SAE Flare Connection (J. I. C.)

1. Tighten nut with finger until it bottoms the seat.
2. Using a wrench, rotate nut to tighten. Turn nut 1/3 turn to apply proper torque.



SAE Straight Thread O-Ring Seal

1. Ensure jam nut and washer are backed up to the back side of smooth portion of elbow adapter.
2. Lubricate o-ring.
3. Thread into port until washer bottoms onto spot face.
4. Position elbows by backing up adapter.
5. Tighten jam nut.