20-SERIES

DOUBLE AUGER GRAIN CARTS



MODEL 2520 DOUBLE AUGER GRAIN CART MAINTENANCE

MODEL 2020 DOUBLE AUGER GRAIN CART MAINTENANCE

MODEL 1620 DOUBLE AUGER GRAIN CART MAINTENANCE

MODEL 1320 & 1120 DOUBLE AUGER GRAIN CART MAINTENANCE

GRAIN HANDLING

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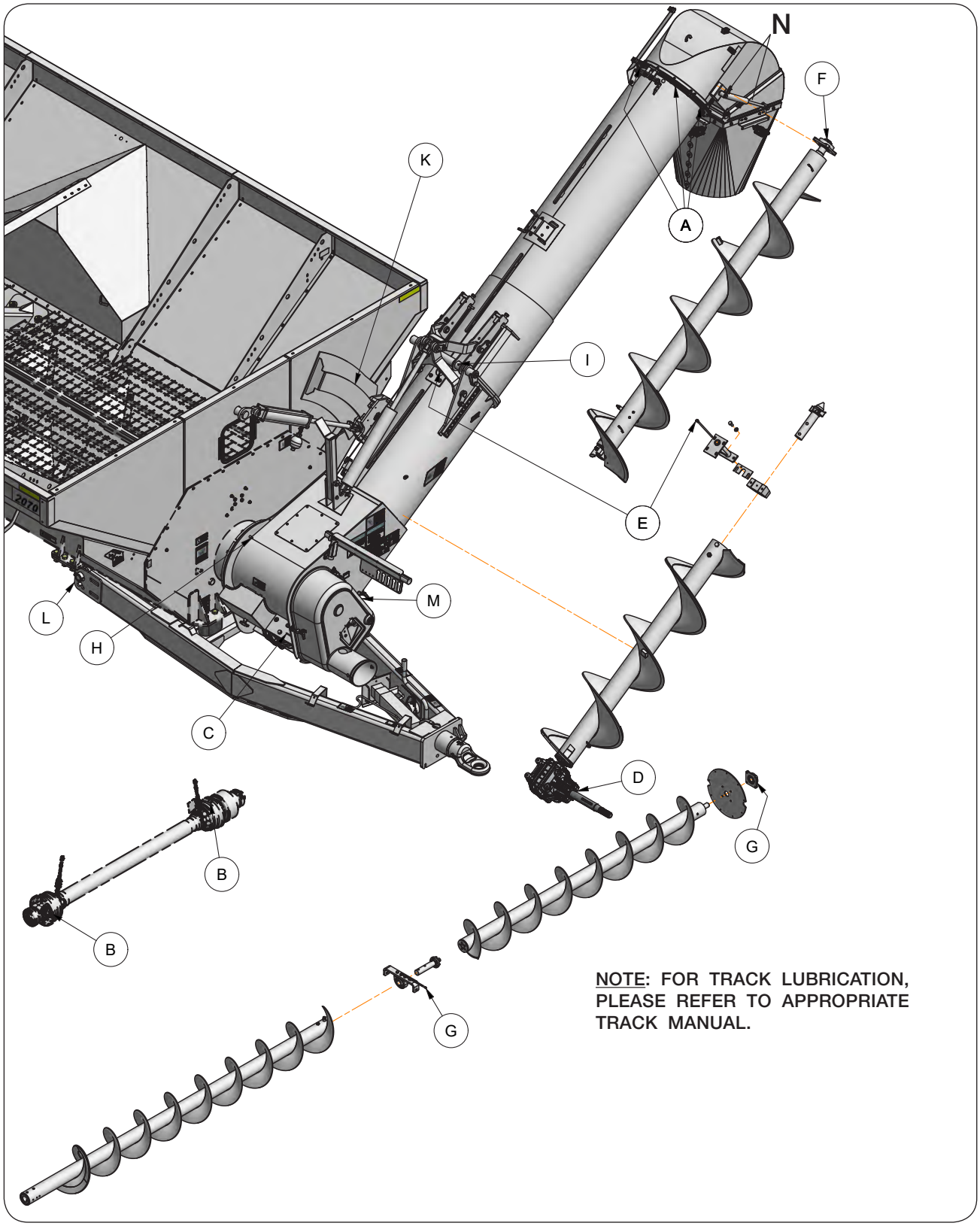
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FOR SCALE, TRACK, UHARVEST, ELECTRIC TARP, VIDEO SYSTEM OR OTHER OPTIONS, PLEASE REFER TO THE INDIVIDUAL MANUALS.

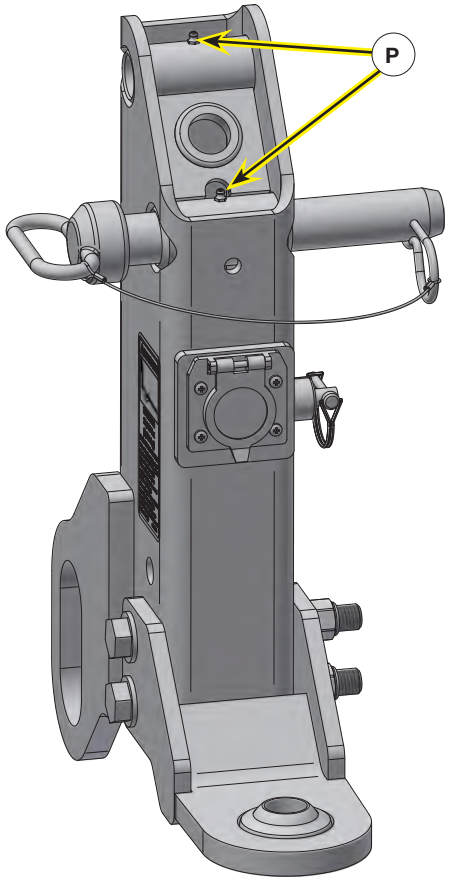
Lubrication

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.



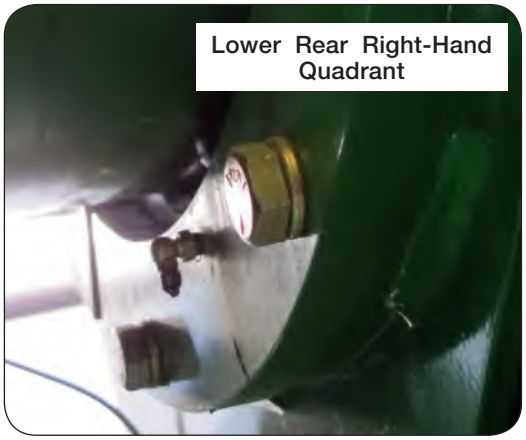
NOTE: FOR TRACK LUBRICATION, PLEASE REFER TO APPROPRIATE TRACK MANUAL.

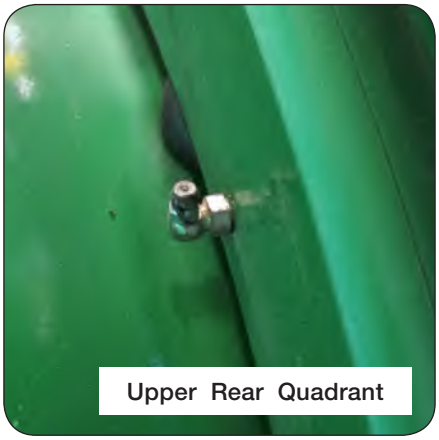
Lubrication (continued)

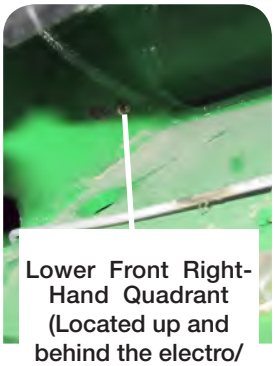


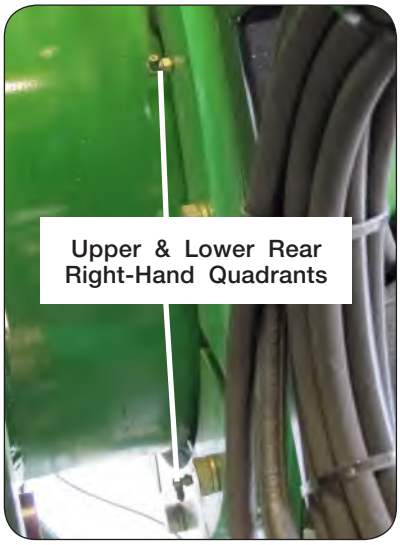
Lubrication (continued)

Lower Auger Pivot Housing Grease Points

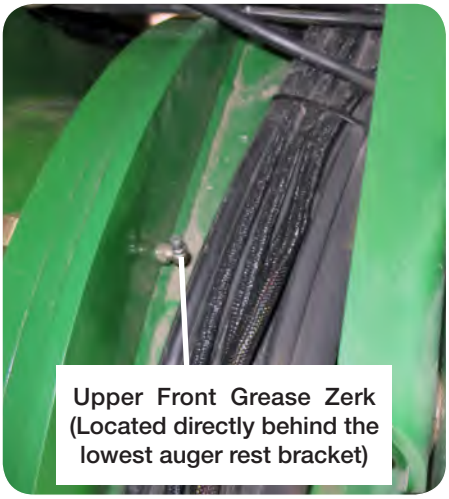












Hydraulic System

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.

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

- *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.

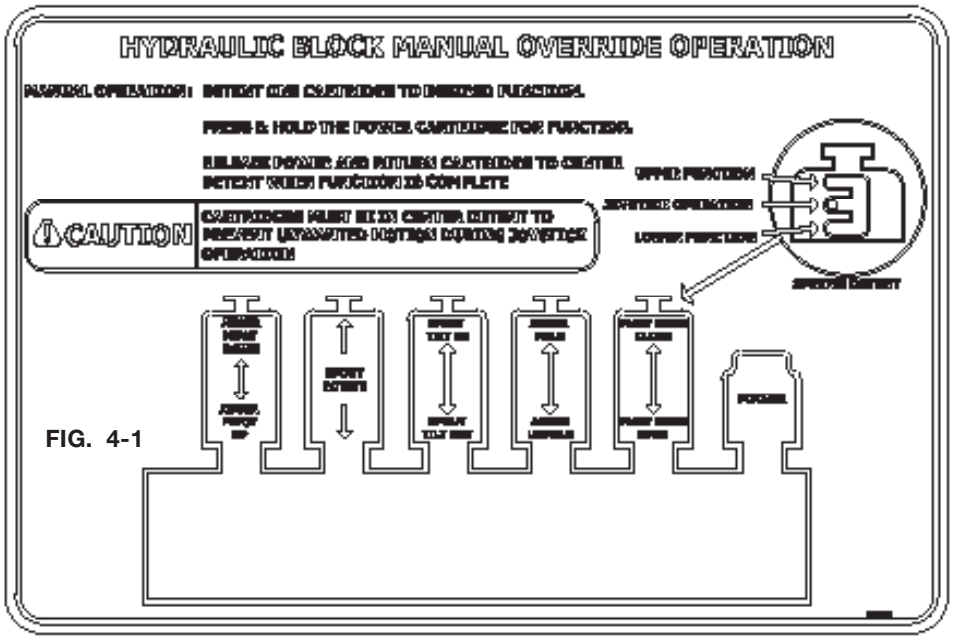


FIG. 4-1

1. Park the 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 (272606B) from the bottom of the lower auger housing to access the EOH block assembly. Keep cover plate. (FIG. 4-2)

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.

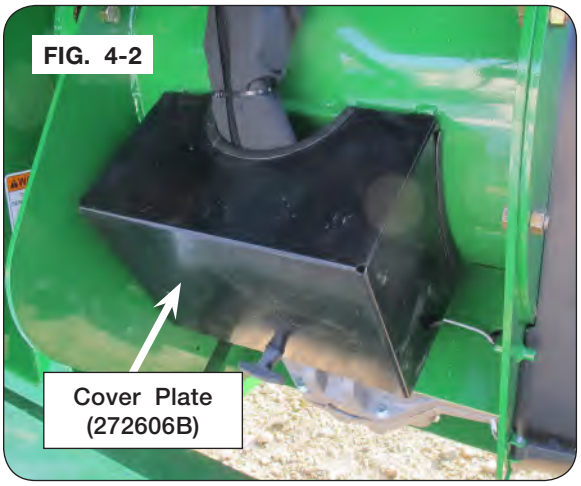


FIG. 4-2

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. 4-3 & 4-4)

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, & 4-6)

6. Push and hold the manual override button on valve (9008438). (FIG. 4-5)

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 & 4-6)

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. Place cover plate (272606B) from step 2 back onto the bottom of the lower auger housing.

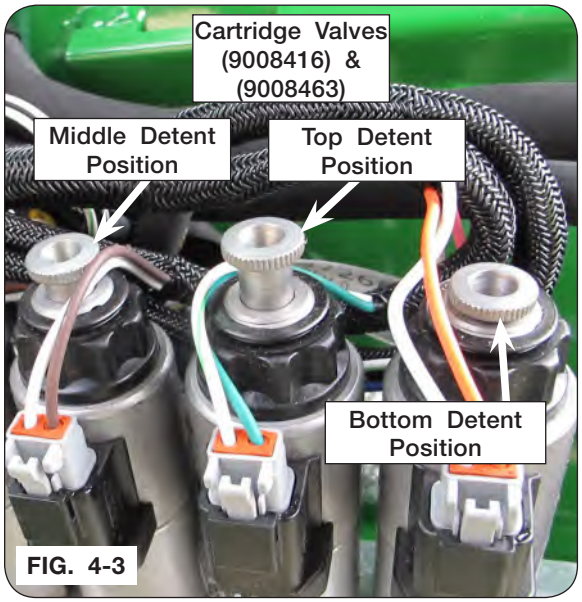


FIG. 4-3

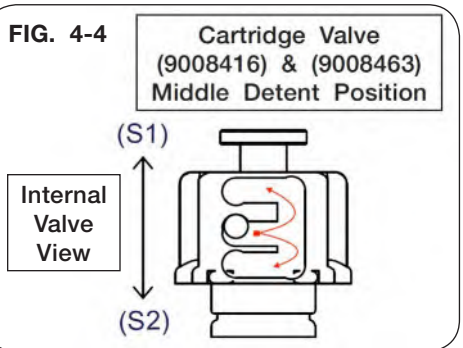


FIG. 4-4

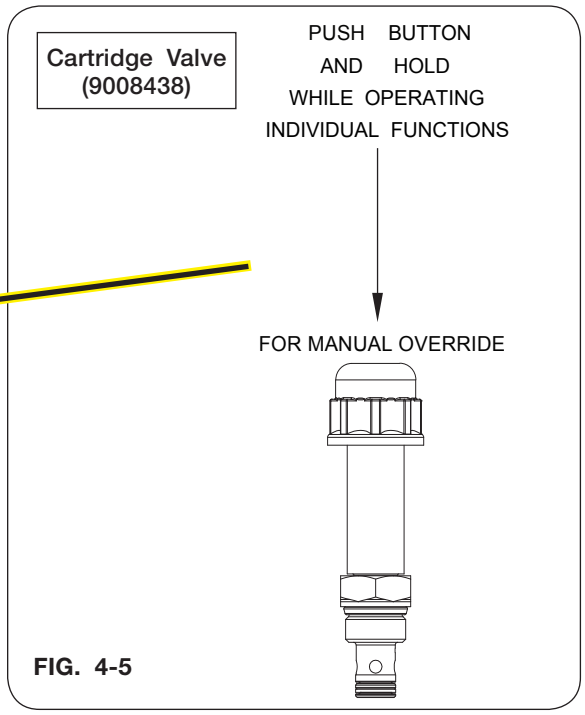


FIG. 4-5



FIG. 4-6

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.**

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. 4-7)

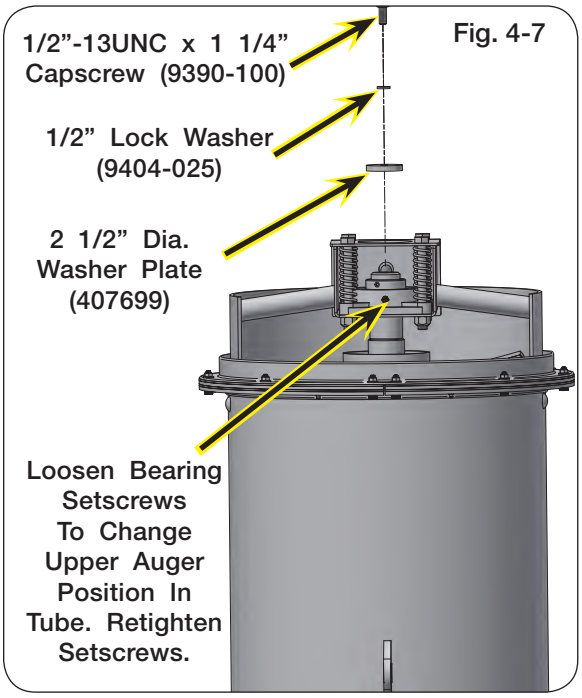


Fig. 4-7

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. 4-9 & 4-10)

FIG. 4-11

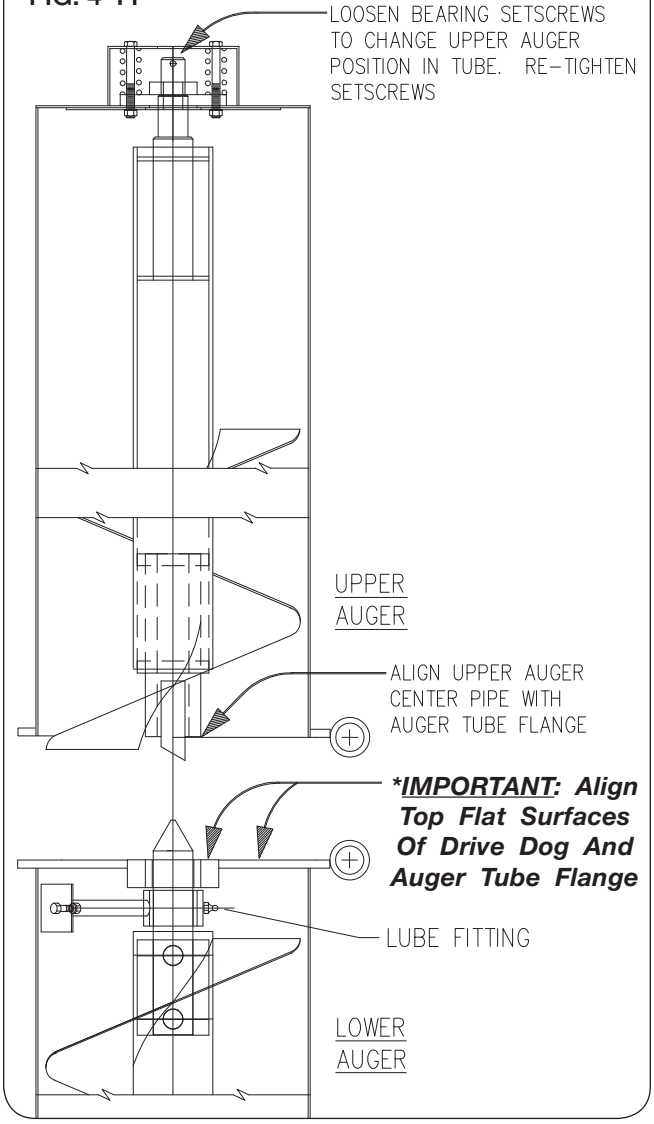


FIG. 4-8

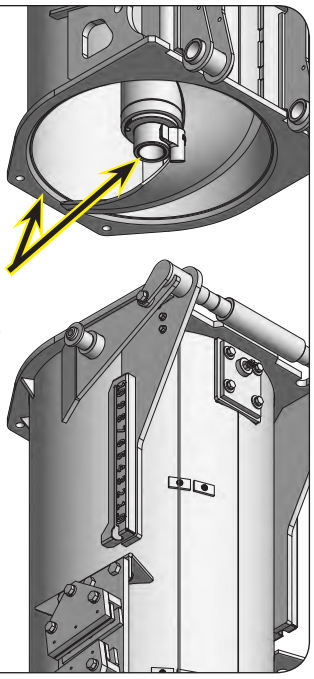
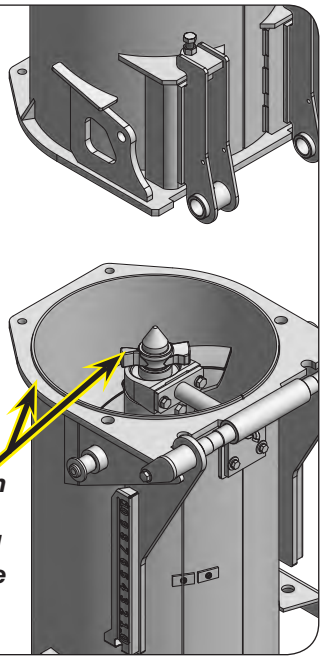


FIG. 4-10



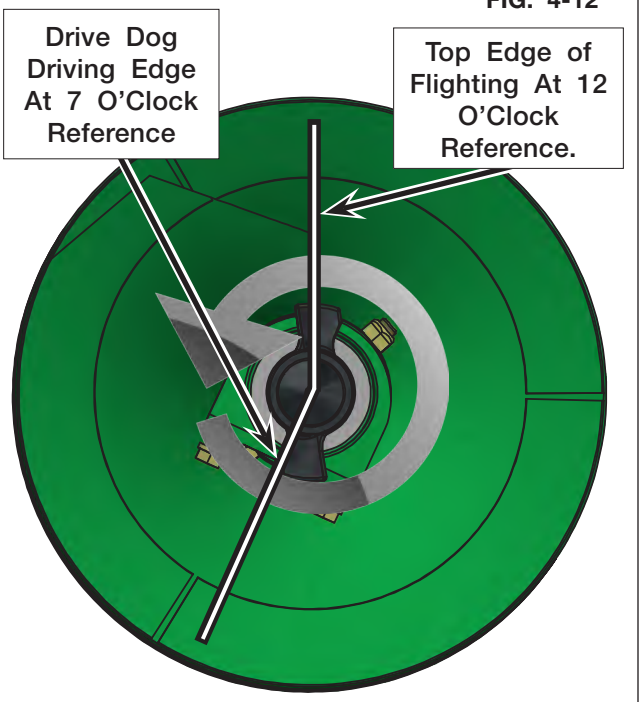
Auger System (continued)

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. 4-12)

NOTE: Looking down at the lower flighting (FIG. 4-12) the auger rotation will be counter-clockwise. When looking up at the upper flighting (FIG. 4-13) the auger rotation will be clockwise.

FIG. 4-12



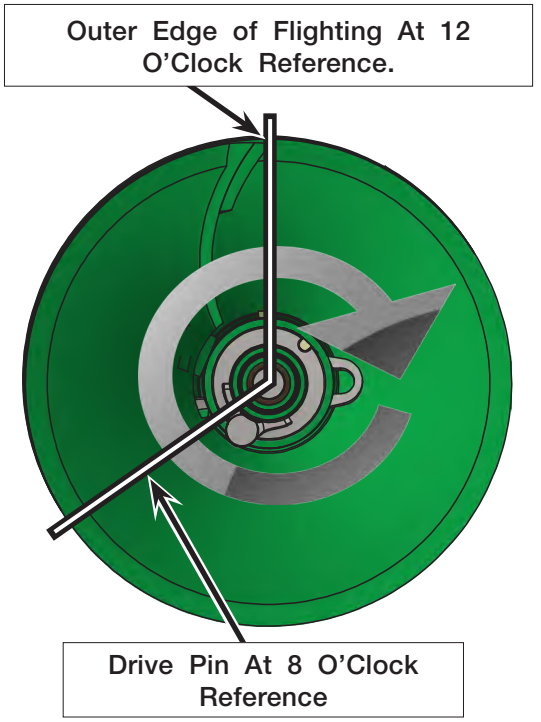
Lower Auger

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. 4-13.

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

Upper Auger

FIG. 4-13



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. 4-14.

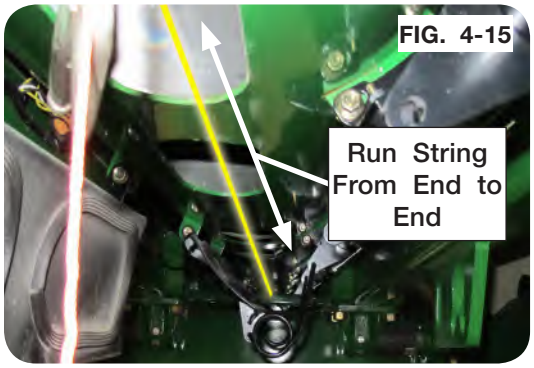
5. Attach the string to the bottom of the belly pan in the front side of the front opening. Place a 3/8”-1/2” spacer under the belly pan and clamp the string to the center of the opening as shown in FIG. 4-15.

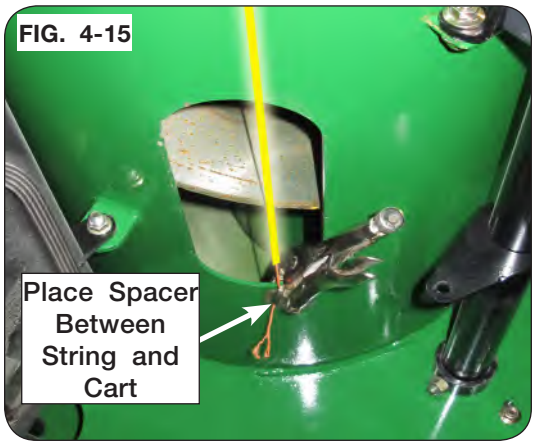
6. Attach the opposite end of the string to the back side of the rear belly pan opening. Place the same thickness of spacer as was used on the front in between the string and the belly pan. Pull the string tight and clamp to the center of the opening. (FIG. 4-16)

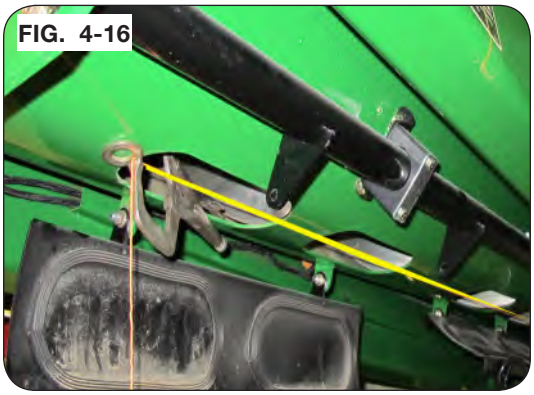
7. Measure the distance from the string to the bottom of the flighting center pipe in between the flighting pitch. Take a measurement through the front opening and the rear opening. If the measurement in the front and rear is different, add a shim under the smaller dimensioned end between the string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

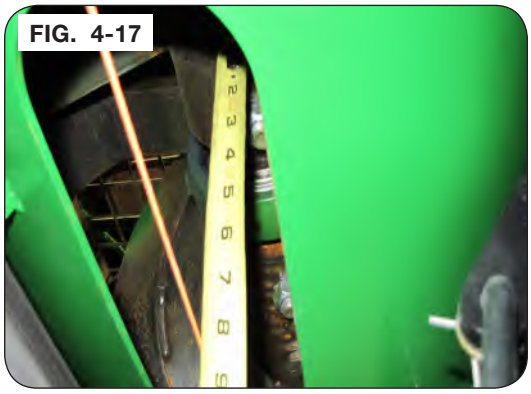
8. Measure the string to the auger tube either in front or behind the hanger bearing. If this dimension is 1/8” greater than the measurement taken in the front and rear, shims are required on top of the center hanger bearing. (FIG. 4-17)

NOTE: The shims are 1/8” thick each. Add as needed. Shims (286424B) are available from your Unverferth dealer.









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. 4-18)


FIG. 4-18

10. Remove the baffle weldment on the auger tent at the opening above the hanger bearing. (FIG. 4-19)

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. 4-19.

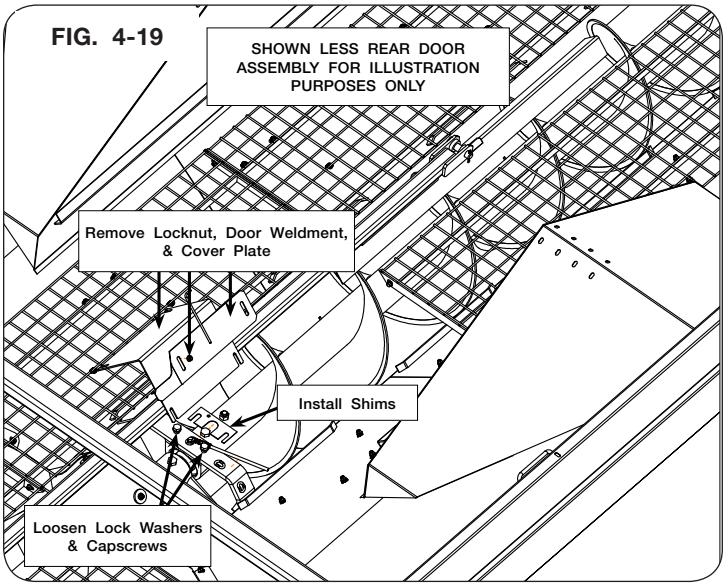


FIG. 4-19

12. If more than two shims are necessary to set the bearing height, replace 5/8" x 1 3/4" capscrews with 5/8" x 2" capscrews (9390-124). See your Unverferth dealer for capscrews.

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 baffle 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. (FIGS. 4-20 & 4-21)*

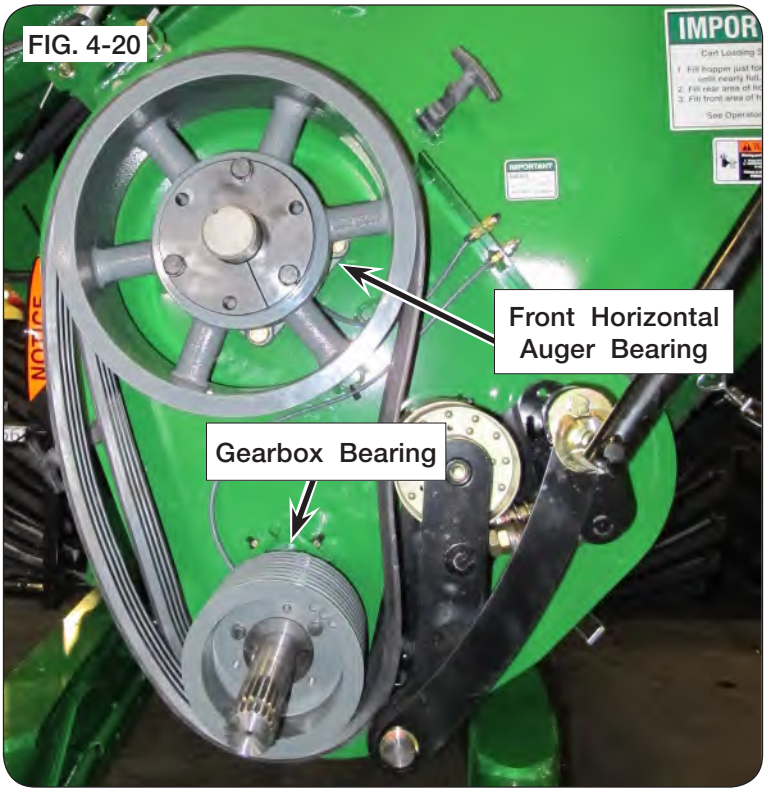


FIG. 4-20

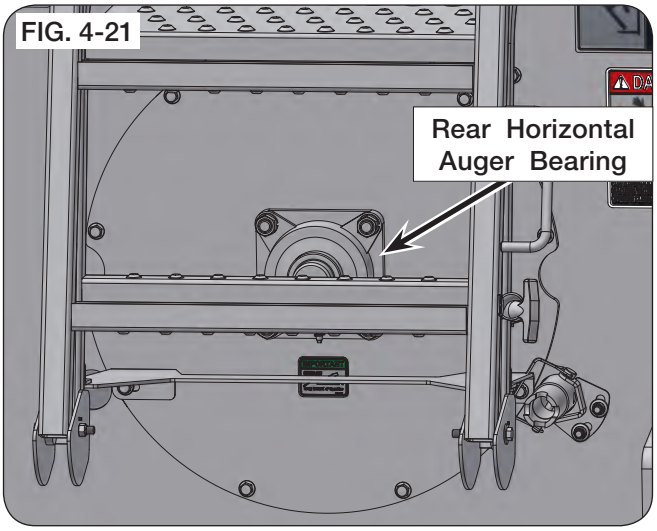


FIG. 4-21

Belt Tightener Adjustment

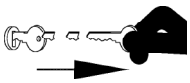
IMPORTANT

- *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. 4-24.



FIG. 4-22



FIG. 4-23


FIG. 4-24

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. 4-25)

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. 4-26)

7. Release and tighten belt multiple times to confirm positions and final adjustments. See Fig. 4-26 and Fig. 4-27.

8. Tighten belt. Install 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.

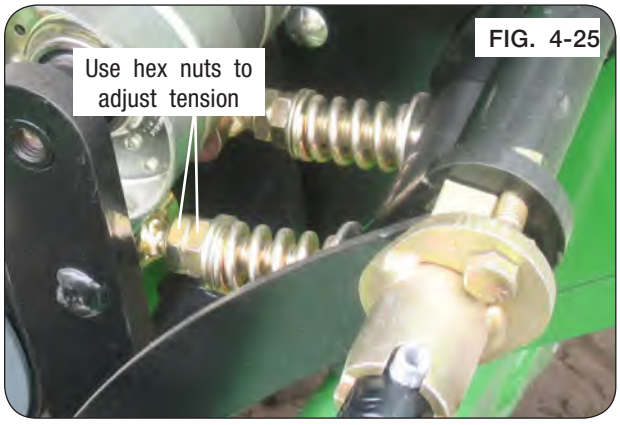


FIG. 4-25



FIG. 4-26



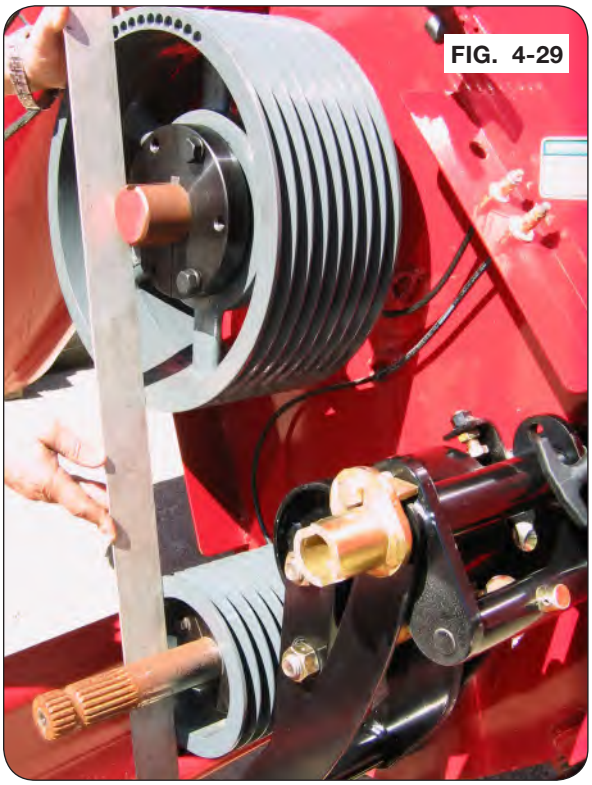
FIG. 4-27

V-Belt Alignment

1. Pulleys must be aligned with the fixed idler. Belts should be centered on idler for longest belt life. (Fig. 4-28)


FIG. 4-28

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. 4-29)


FIG. 4-29

V-Belt Alignment (continued)

Split Tapered Bushings

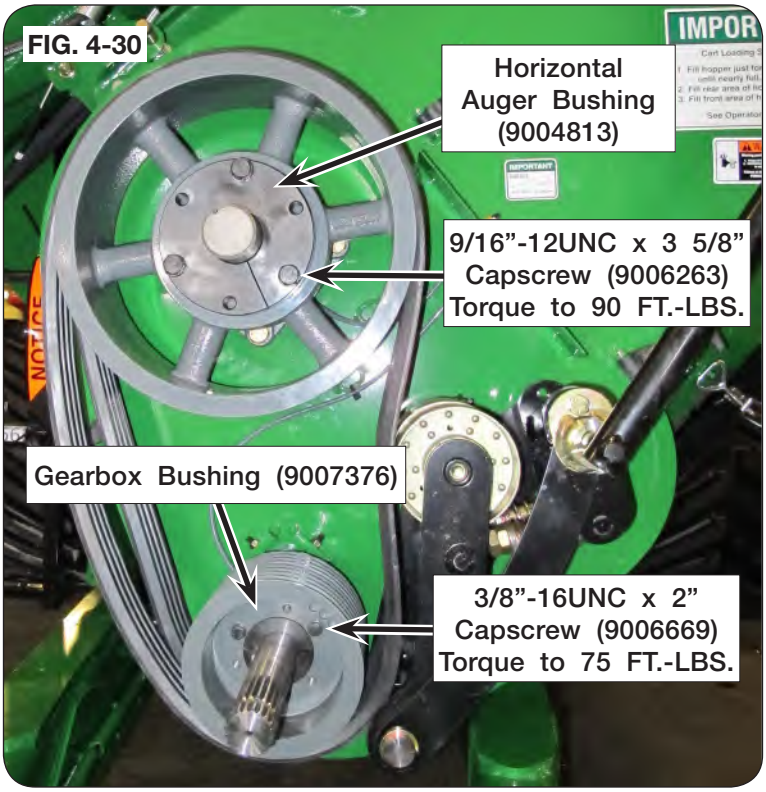
Check annually for tight engagement to driveshaft. Torque three bolts progressively to values shown in figure 4-30.

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.



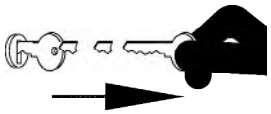
Horizontal Auger Removal and Replacement

⚠ 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.**
- **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.



2. Remove 4 rear ladder capscrews attached to the cart. (FIG. 4-31)

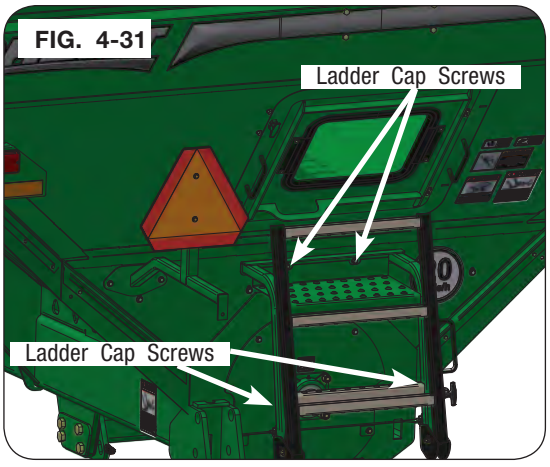


FIG. 4-31

NOTE: Keep all hardware for re-assembly.

3. Remove rear ladder from the cart. (FIG. 4-31)

Horizontal Auger Removal and Replacement (continued)

4. Remove the capscrews from the auger cover. (Fig. 4-32)
5. Pry the auger from the auger tube. (Fig. 4-33)
6. Using a safe lifting device rated for a minimum 1,000 lbs., pull the rear auger out of the cart. (Fig. 4-34)

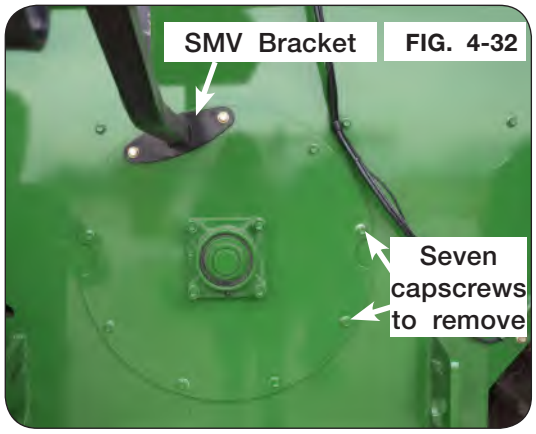


FIG. 4-32

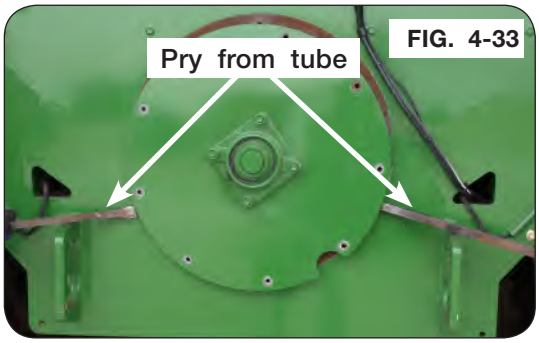
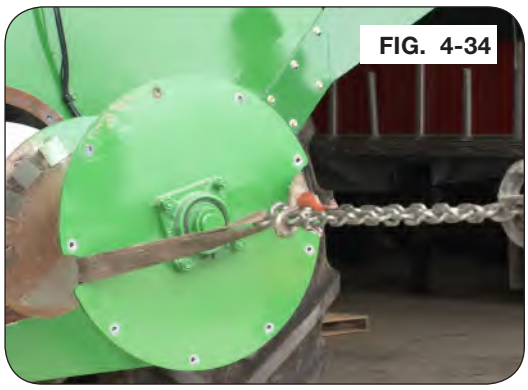


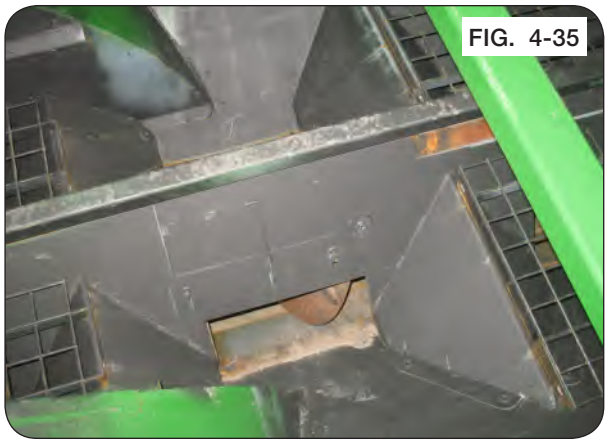
FIG. 4-33


FIG. 4-34

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. 4-35)


FIG. 4-35

9. Remove locknuts, baffle weldments and cover plates from the middle tent. (Fig. 4-36)

10. Disconnect grease line. (Fig. 4-36)

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.

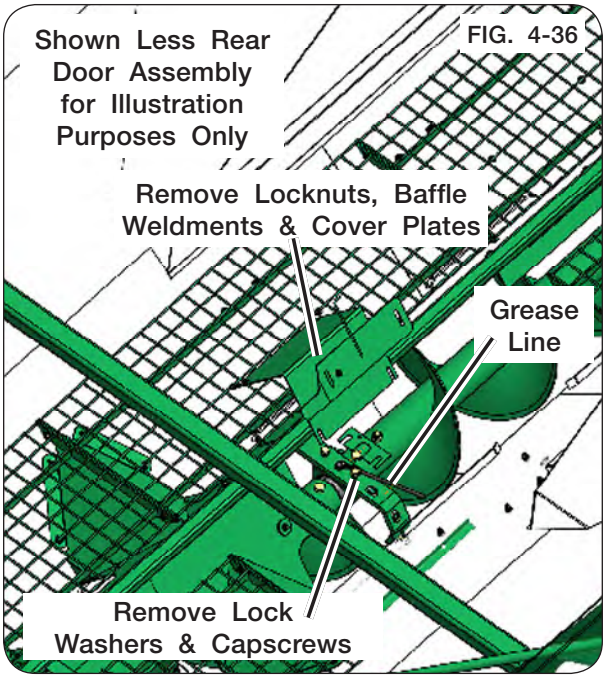


FIG. 4-36

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. 4-37)

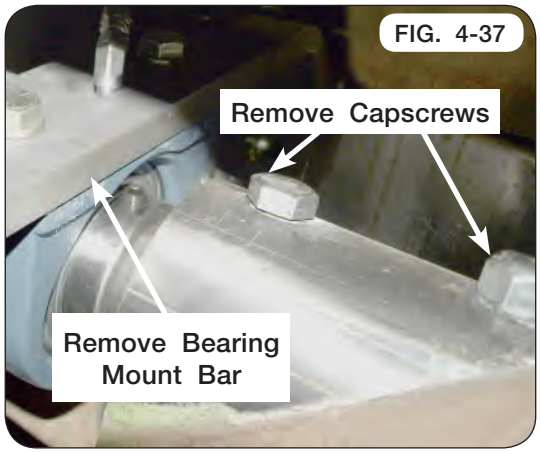


FIG. 4-37

Horizontal Auger Removal and Replacement (continued)

14. Remove the original 5-pin driver, bearing and the bushing insert. (Figs. 4-38 & 4-39)

15. Replace 5-pin driver and bushing insert, if needed.


FIG. 4-38

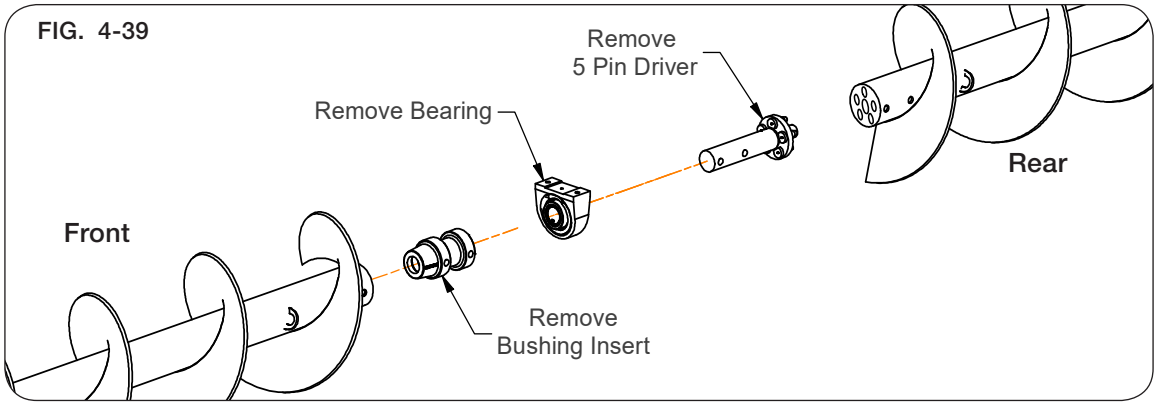


FIG. 4-39

16. Substantially coat bushing insert with anti-seize.

17. Slide bushing insert into front auger and ensure tube holes are aligned. (Figs. 4-40 & 4-41)


FIG. 4-40

NOTE: Make sure the set screws on bearing are towards the front of the cart. (Fig. 4-41)

18. Slide bearing onto 5-pin driver. (Fig. 4-41)

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

20. Insert capscrews from opposite sides through auger, bushing and driver. Slide spacer bushings over threads and install locknuts. Hand tighten hardware at this time. (Fig. 4-41)

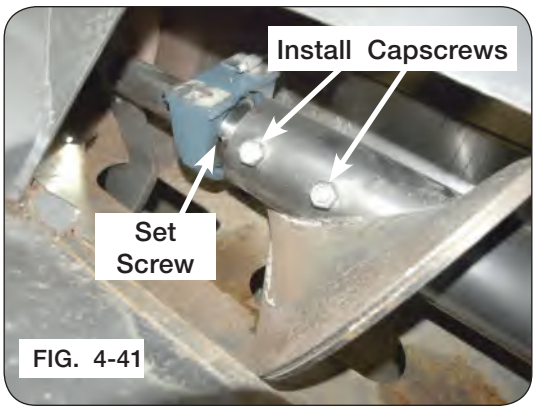


FIG. 4-41

Horizontal Auger Removal and Replacement (continued)

21. Install bearing mount bar. Leave the capscrews and lock washers loose attaching bearing mount bar to the cart. Attach bearing mount bar to the bearing. (Fig. 4-42)

22. Reattach grease line components. (Fig. 4-42)

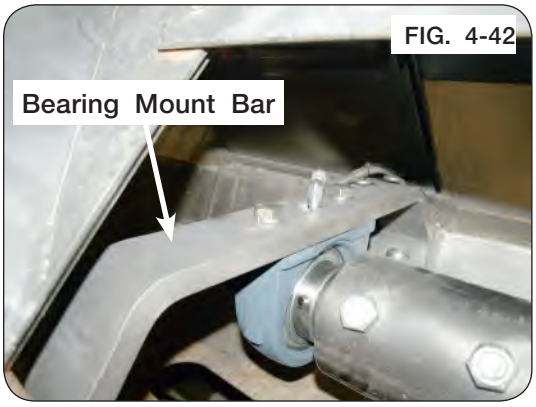
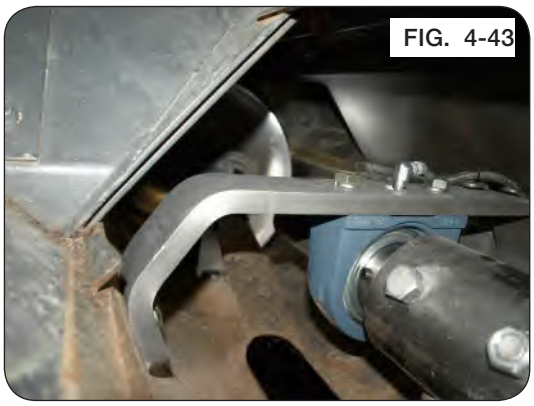


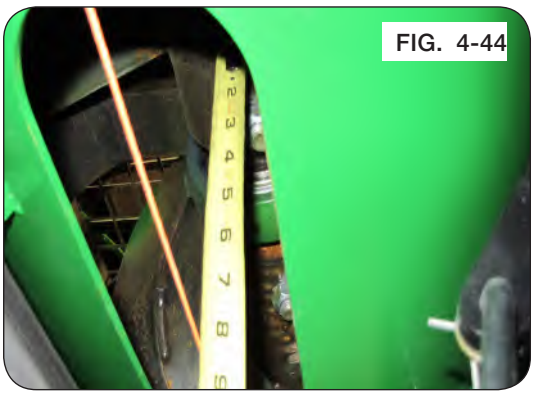
FIG. 4-42

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. (Fig. 4-43)


FIG. 4-43

24. Extend a string tightly from front to rear to check horizontal auger alignment. Measure the string to the auger tube near the hanger bearing. If this dimension is 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. (Fig. 4-44)


FIG. 4-44

NOTE: Add shims as needed. See "Auger System - Horizontal Auger Height Measurement" in MAINTENANCE section for more details.

25. Torque bearing mount bar capscrews to 130 ft.-lbs. See Fig. 4-42.

26. Torque front auger capscrews to 200 ft.-lbs. (Fig. 4-45)

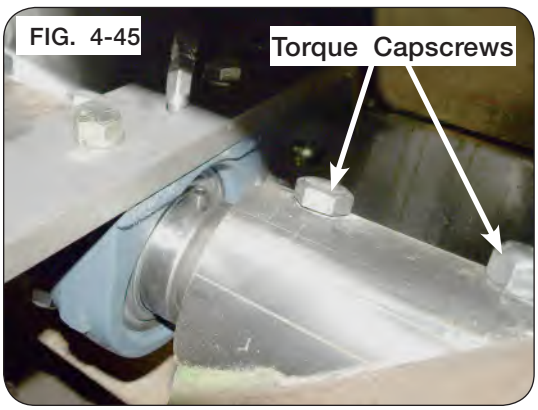


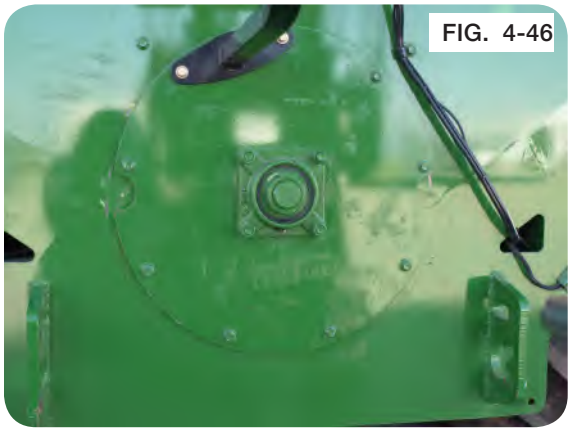
FIG. 4-45

Horizontal Auger Removal and Replacement (continued)

27. Insert hardware for rear auger cover, and rear ladder, if equipped. (Figs. 4-46 and 4-47)

28. Torque all hardware to specification. See "Torque Chart" in this section. (Figs. 4-46 and 4-47)

29. Reinstall ALL the grates.


FIG. 4-46

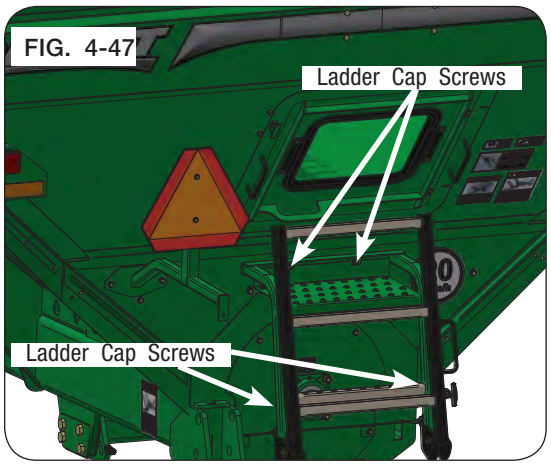


FIG. 4-47

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. ALWAYS DISCONNECT POWER SOURCE BEFORE SERVICING. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**

- **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.**

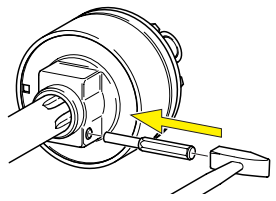
Gearbox shaft guard has access doors for installing and removing of driveline.

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. 4-48)

3. Once clamping cone/retaining bolt is removed, slide torque limiter off gearbox splined input shaft.

FIG. 4-48



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. 4-49)

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

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

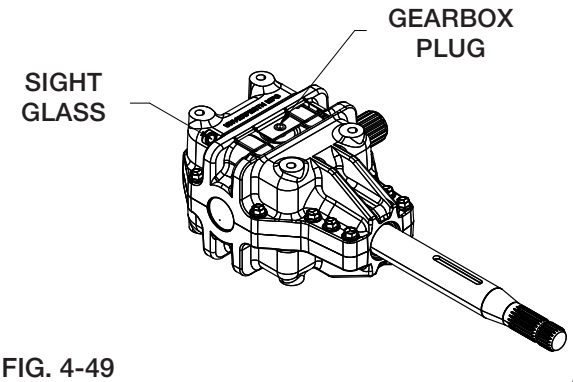


FIG. 4-49

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.**

- **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.**

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.

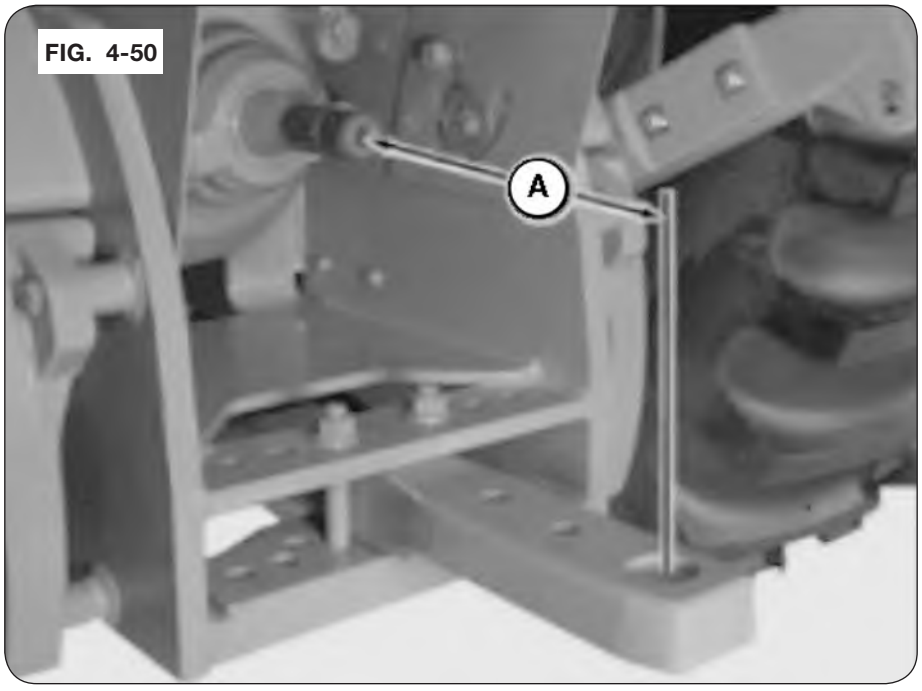


FIG. 4-50

PTO Shaft Length (continued)

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. 4-51).

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

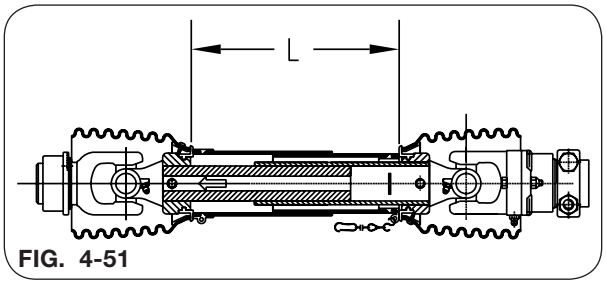


FIG. 4-51

2. Pull apart PTO telescoping shaft ends and measure lengths "T" & "C" (Fig. 4-52)

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

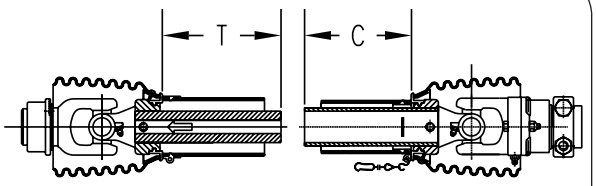


FIG. 4-52

3. Calculate maximum recommended extended length:

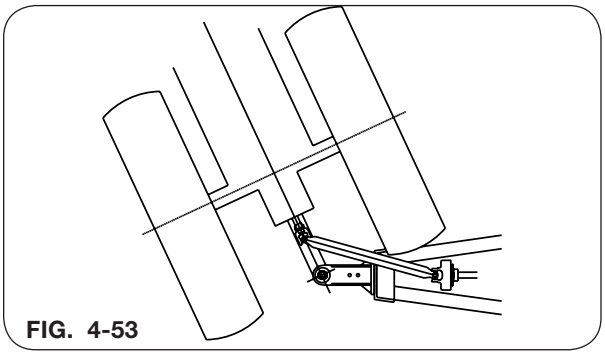
   a. Subtract line 1 from line 2
      Enter here:_____(a)
   b. Divide line (a) by 2
      Enter here:_____(b)
   c. Add line (b) to line 1.
      Enter here:_____(c)
   d. Subtract 3 inches from line (c)
      Enter here:_____(d)

This is the maximum recommended extended length.

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

5. Using a safe lifting device rated at a minimum 100 lbs., 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. 4-53)


FIG. 4-53

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. 4-54)

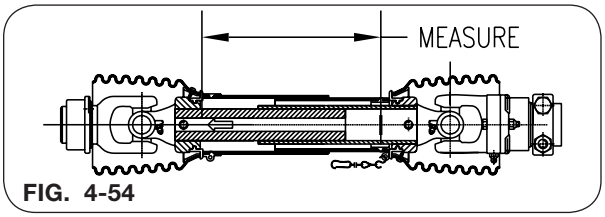


FIG. 4-54

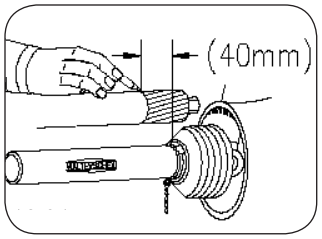
PTO Shaft Length Adjustment

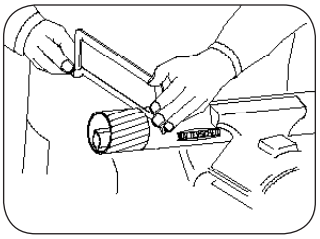
WARNING

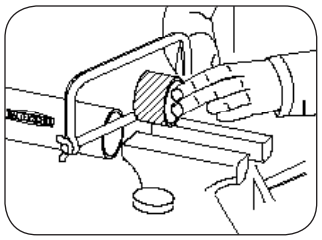
- **CHECK THE LENGTH OF THE TELESCOPING MEMBERS TO ENSURE THE DRIVELINE WILL NOT BOTTOM OUT OR SEPARATE WHEN TURNING AND/OR GOING OVER ROUGH TERRAIN.**

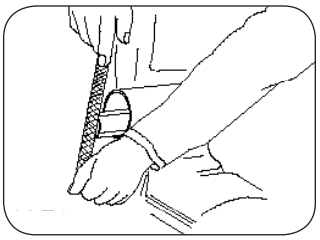
NOTE: Maximum operating length LB. (Refer to "Verify Telescoping PTO Shaft Length" in this section for LB length.)

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 - Benzi PTO

To Dismantle Guard (Figs. J1 - J3)

1. Pull the guard tube backwards and, using a screwdriver, disengage the three bearing ring tabs by pushing them inward. (FIG. J1)



2. Remove half-guard. (FIG. J2)



3. Open the bearing ring and remove from the yoke groove. (FIG. J3)



PTO Shaft and Clutch - Benzi PTO (continued)

To Assemble Guard (Figs. K1 - K3)

1. Clean and grease the bearing ring, yoke groove and inner profile tube. (FIG. K1)



2. Fit bearing ring in groove with three bearing ring tabs positioned as shown. (FIG. K2)

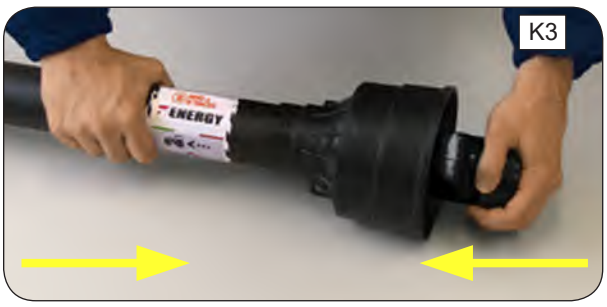
3. Slip on half-guard by aligning the holes on the cone with three bearing ring tabs and the cone inner key with the cut of the bearing ring.
(FIG. K2)



4. Push half-guard and yoke together causing the half-guard to engage. (FIG. K3)

NOTE: Ensure the three bearing ring tabs are positioned inside the grooves.

5. Confirm half-guard engagement by pulling backwards on the half-guard. (FIG. K3)



Track Wheels

Torque Requirements

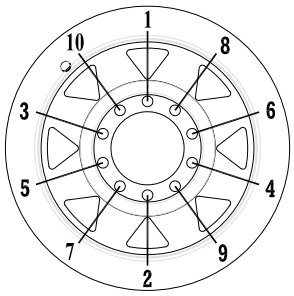
⚠ CAUTION

- **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 Diagram 1.

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

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



10 BOLT

DIAGRAM 1

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 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.

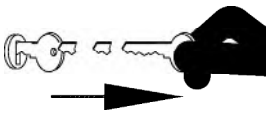
Baffle Adjustment (continued)

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 4-55. Use the lift handle to raise each baffle to the desired position, retighten both flange nuts, see figures 4-55 & 4-56.

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 4-56 for illustration only.



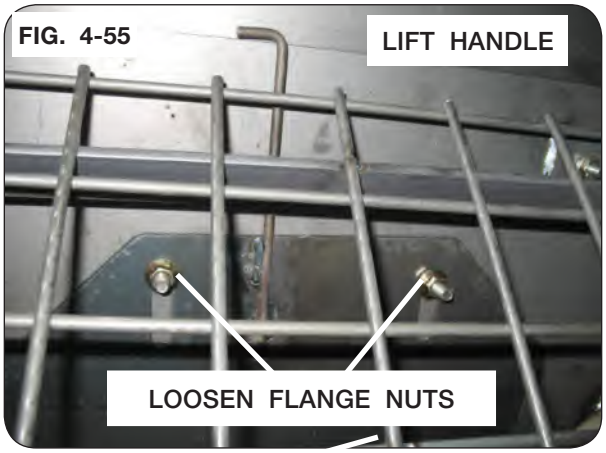


FIG. 4-55



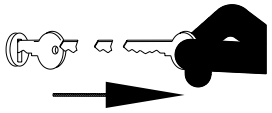
FIG. 4-56

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 tractor and 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. 4-57)

3. Starting at the front of the cart, using a jack, push the rockshaft up and toward the runner tube. (Fig. 4-57)



FIG. 4-57

NOTE: Ideal distance between the runner tube and rockshaft is 3 1/4". (FIG. 4-58)

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.

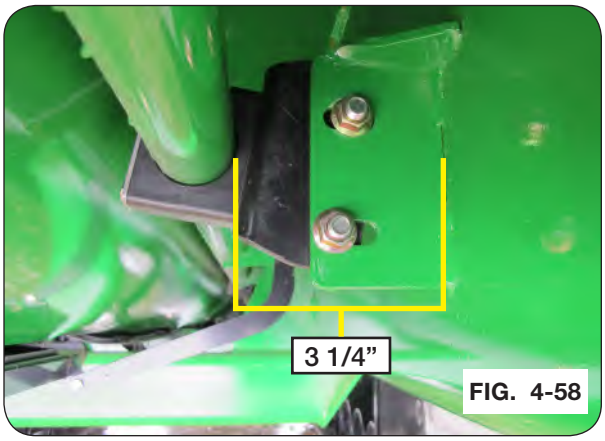


FIG. 4-58

Horizontal Cleanout Door Adjustment

10. Rotate the tensioner handle counter-clockwise to close the doors allowing the seals to fit into the belly pan. (Fig. 4-59)

11. Close the doors and ensure all doors seal. (Fig. 4-59)

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

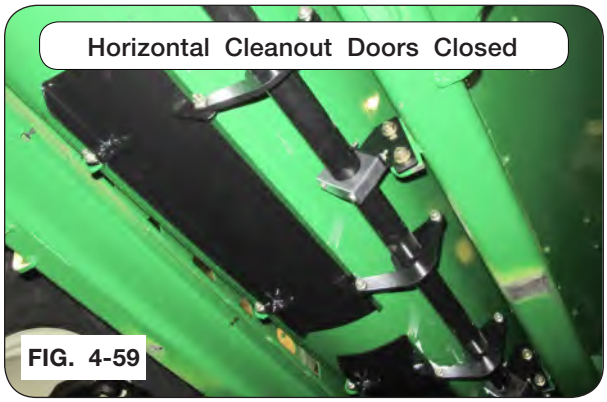


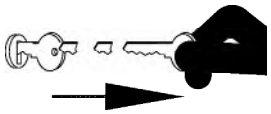
FIG. 4-59

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. 4-60)

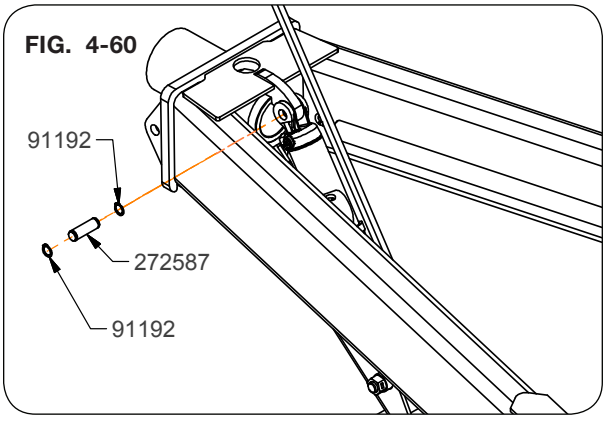


FIG. 4-60

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. 4-61)

10. Remove hydraulic jack assembly from the tongue. (FIG. 4-61)

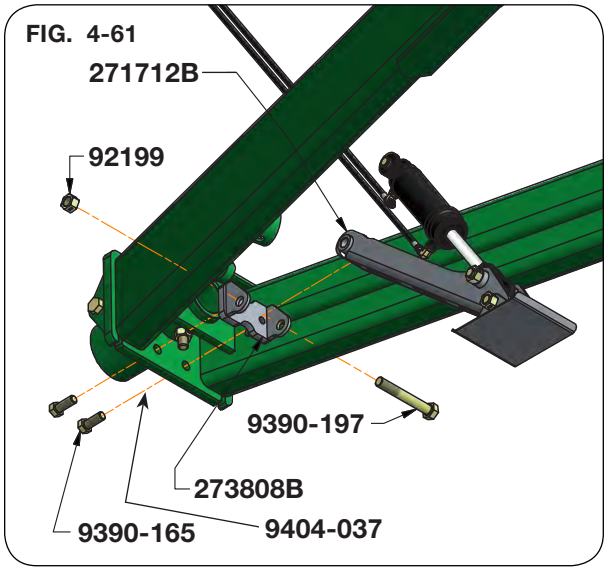


FIG. 4-61

11. On new hydraulic assembly (294143B), attach hoses (9006068) and fittings to cylinder (9009047) as shown in FIG. 4-62. 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 "Install Hydraulic Jack (Optional)" in SET UP section.

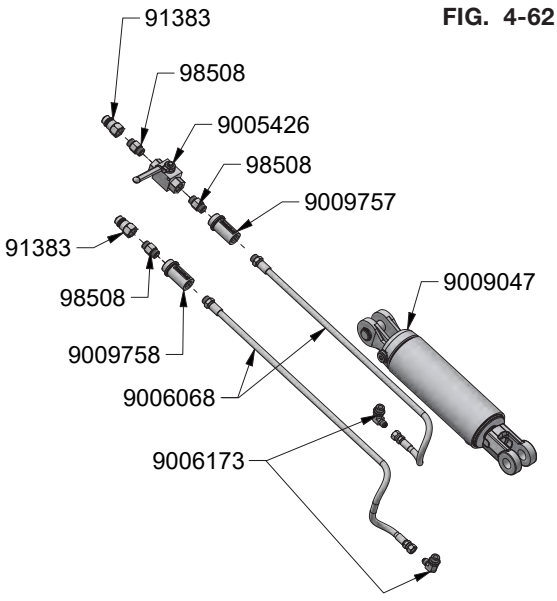


FIG. 4-62

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 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. 4-63

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.

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

Troubleshooting

Problem	Possible Cause	Corrective Action
No Electric Over Hydraulic (EOH) 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. Make sure the joystick and 7-pin connector are plugged into the same power source. If plugged into different power sources, the spout rotate and auger fold functions WILL NOT operate properly.
	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 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.

Auger lights will not function (For SN B45790100 and Higher) Rotating spout will not function (For SN B45790099 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.

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 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.

Auger Switch Troubleshooting

Auger Fold, Unfold & Auger Lights Switch

NOTE: For SN B45790100 and higher, the switch near the auger hinge pin controls the power and ground for the auger lights.

NOTE: For SN B45790099 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. 4-64)

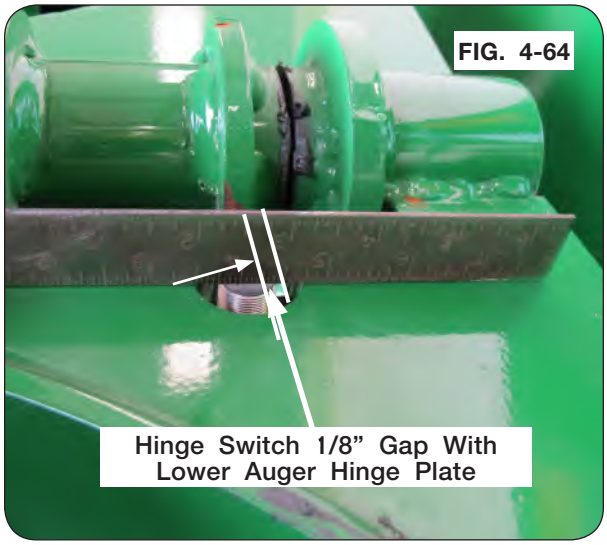
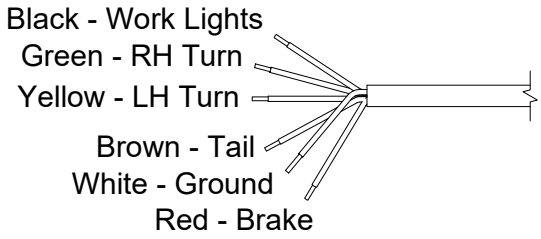


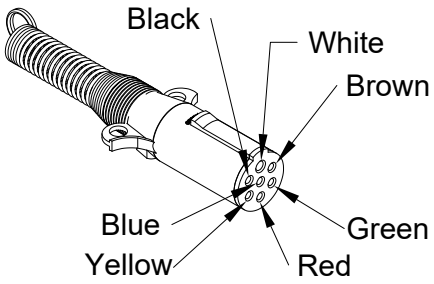
FIG. 4-64

Hinge Switch 1/8” Gap With Lower Auger Hinge Plate

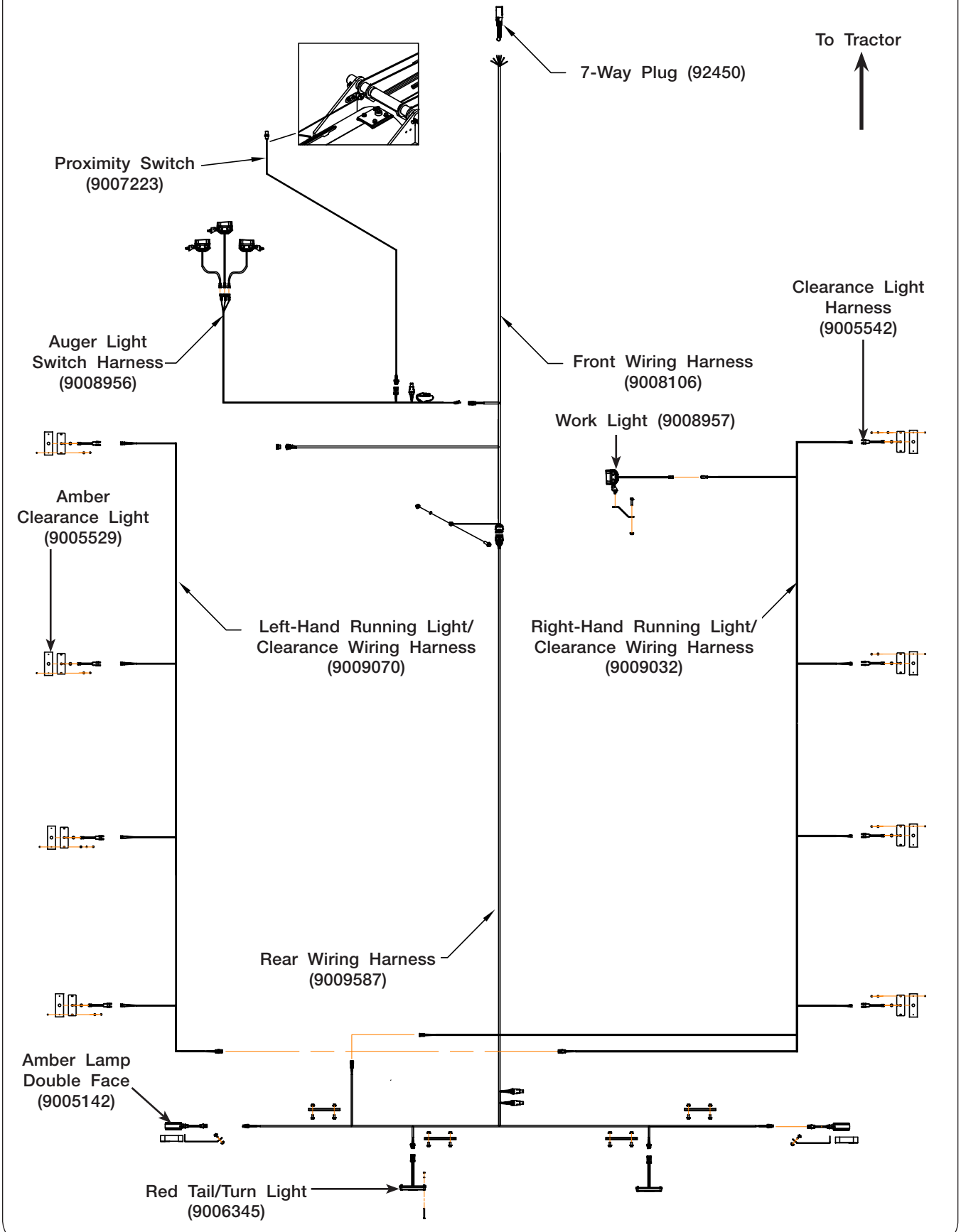
Electrical System Diagram — Plug #92450

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 -- **NOT USED**

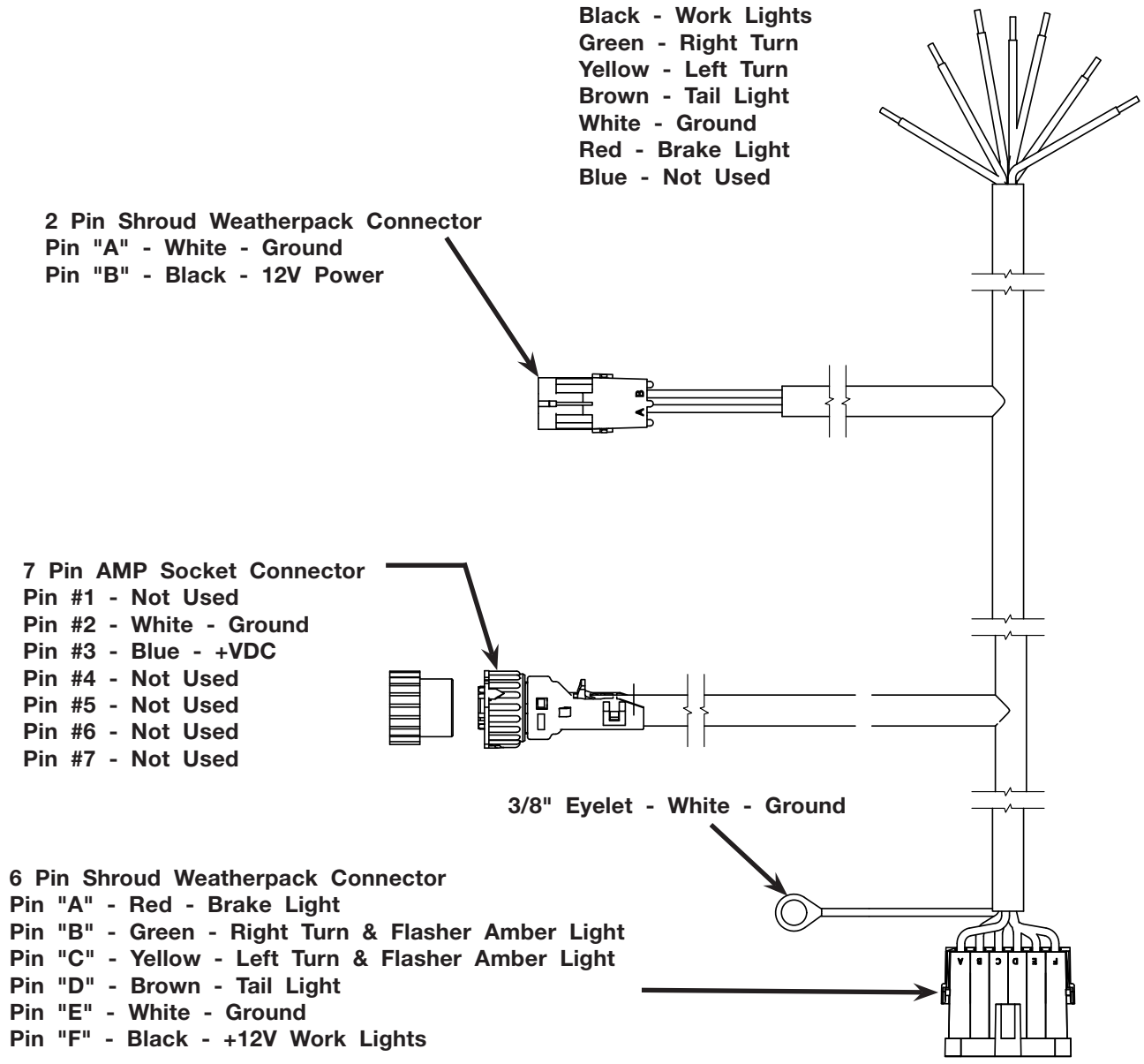




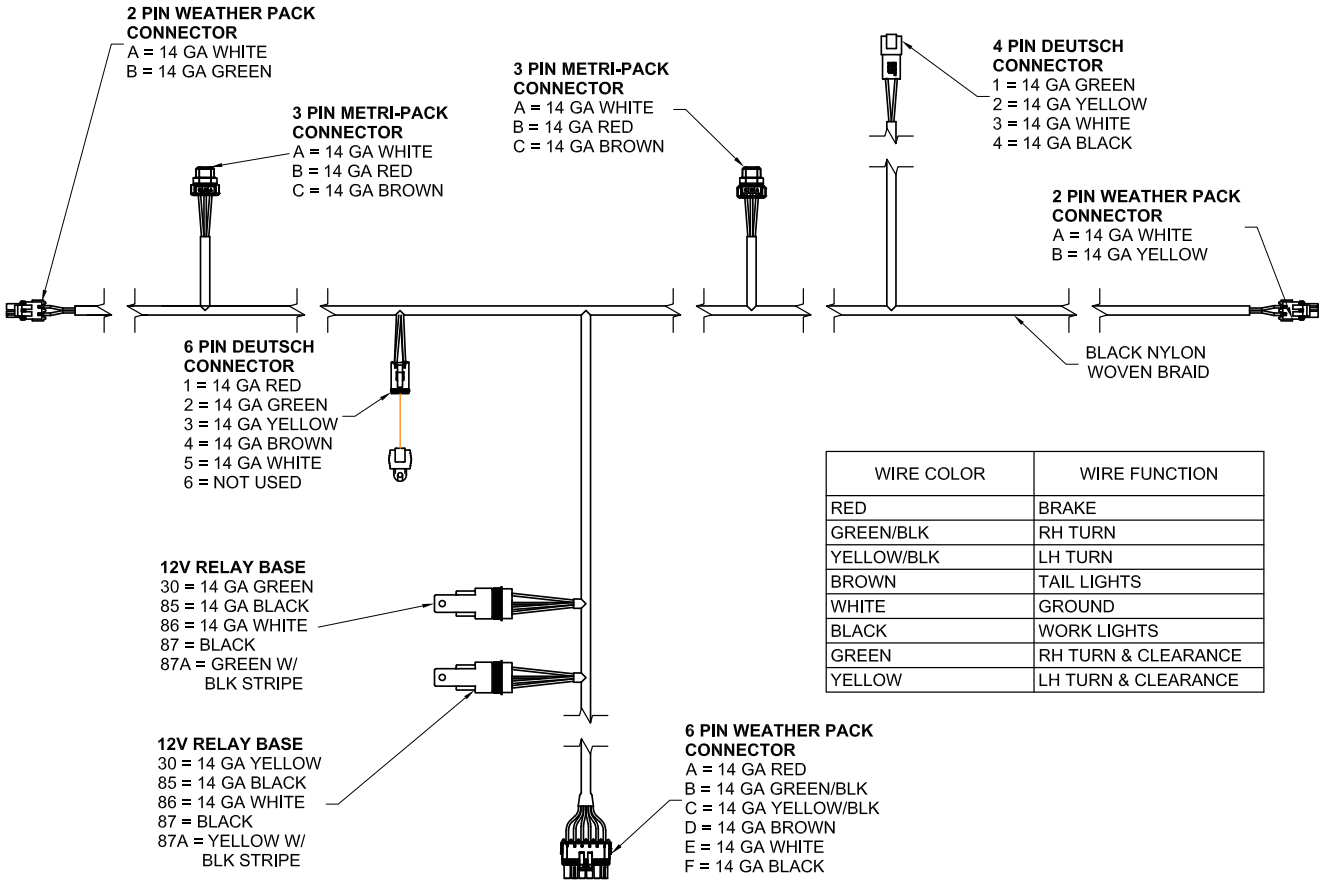
Electrical Diagram



Electrical Diagram — Front Harness #9008106

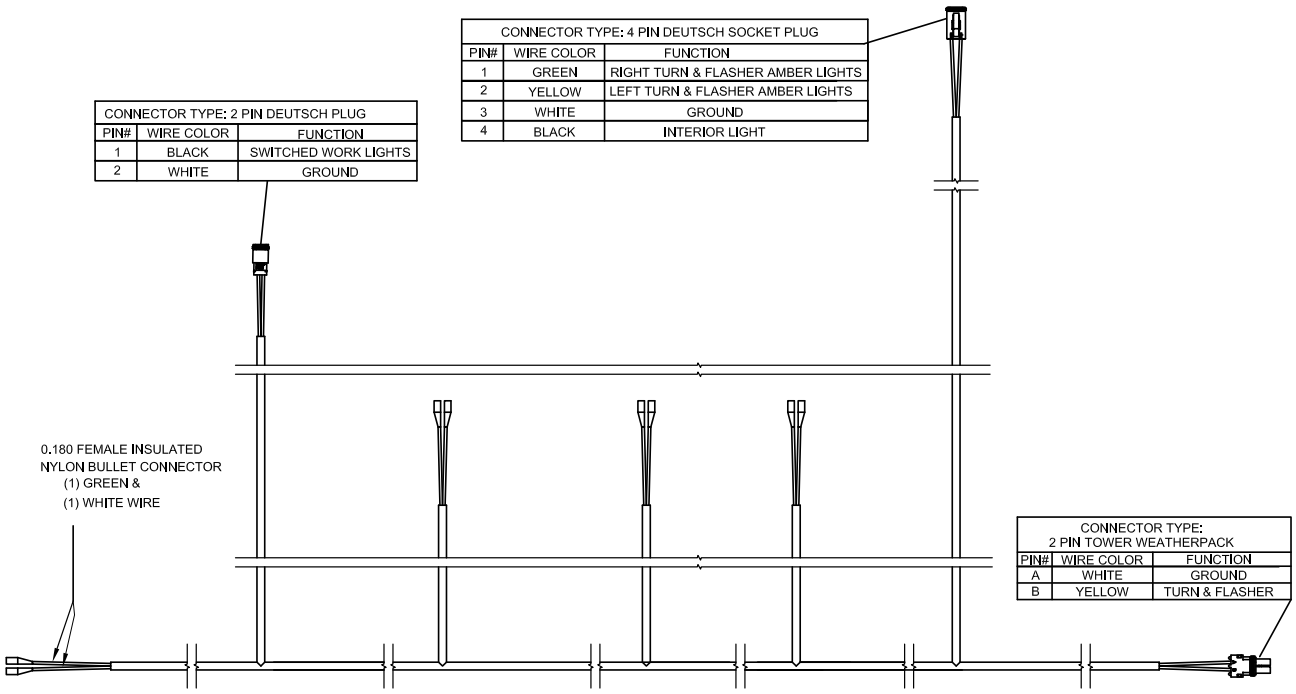


Electrical Diagram - Rear Harness #9009587

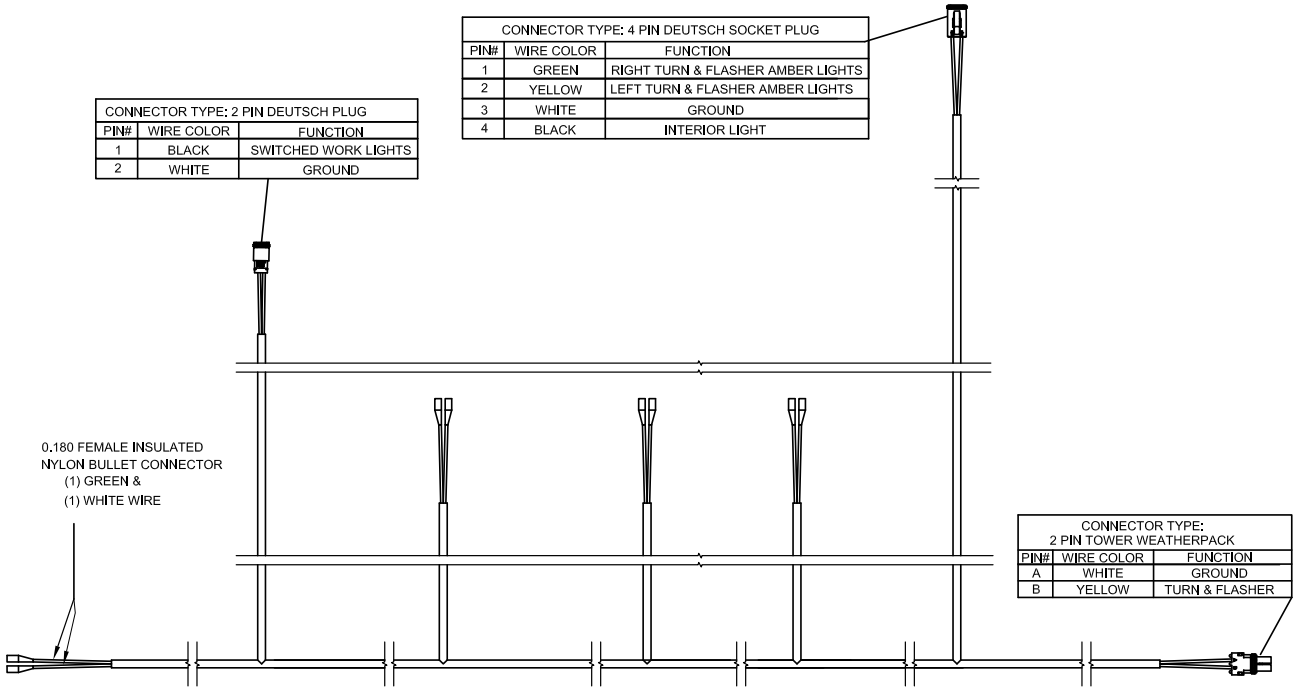


WIRE COLOR	WIRE FUNCTION
RED	BRAKE
GREEN/BLK	RH TURN
YELLOW/BLK	LH TURN
BROWN	TAIL LIGHTS
WHITE	GROUND
BLACK	WORK LIGHTS
GREEN	RH TURN & CLEARANCE
YELLOW	LH TURN & CLEARANCE

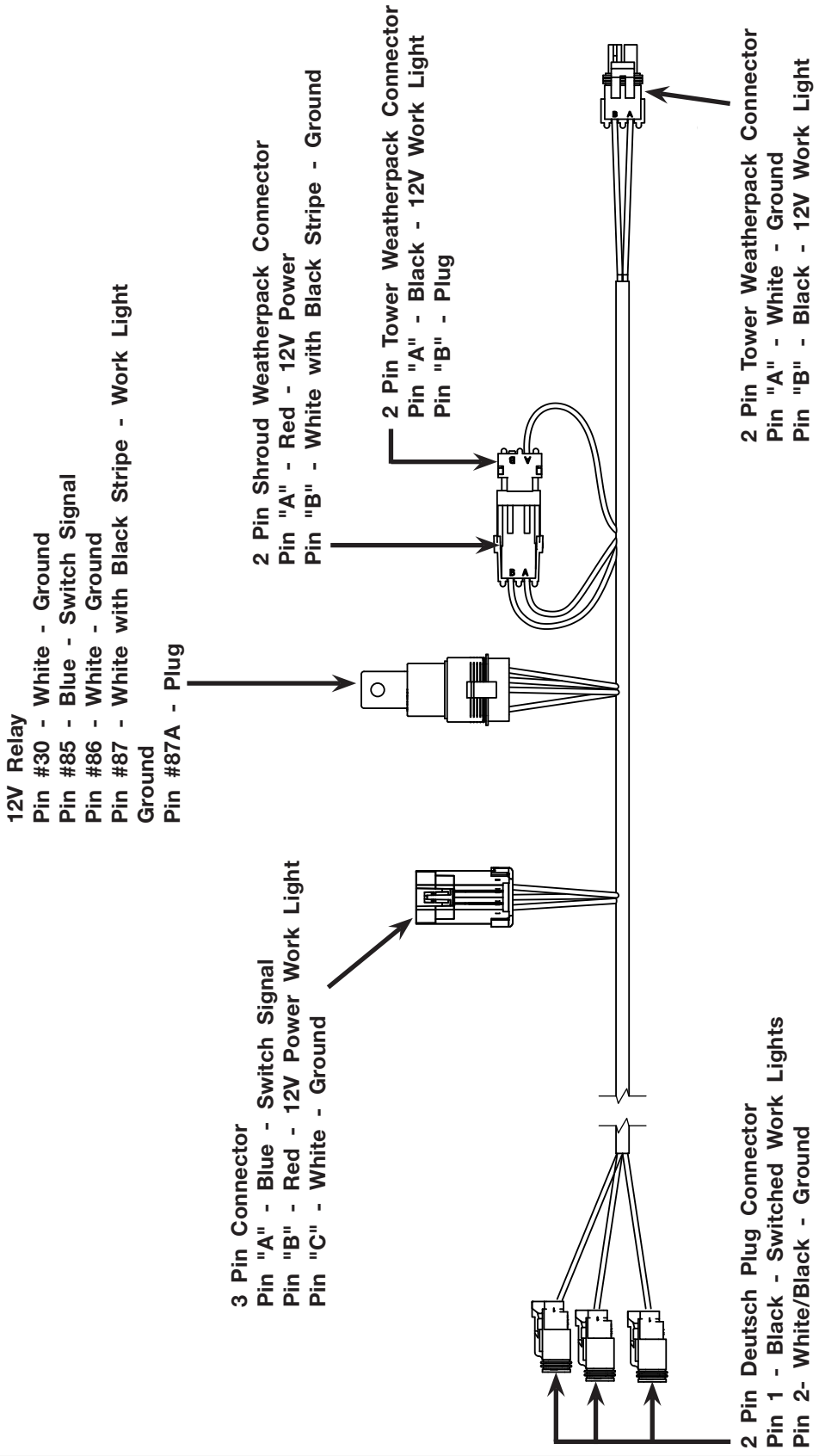
Electrical System Schematic
RH Clearance Light Harness #9009032



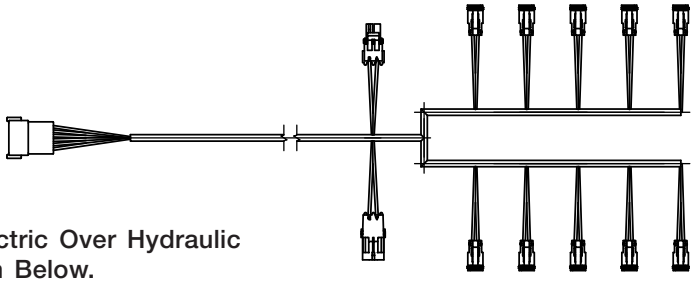
Electrical System Schematic
LH Clearance Light Harness #9009070



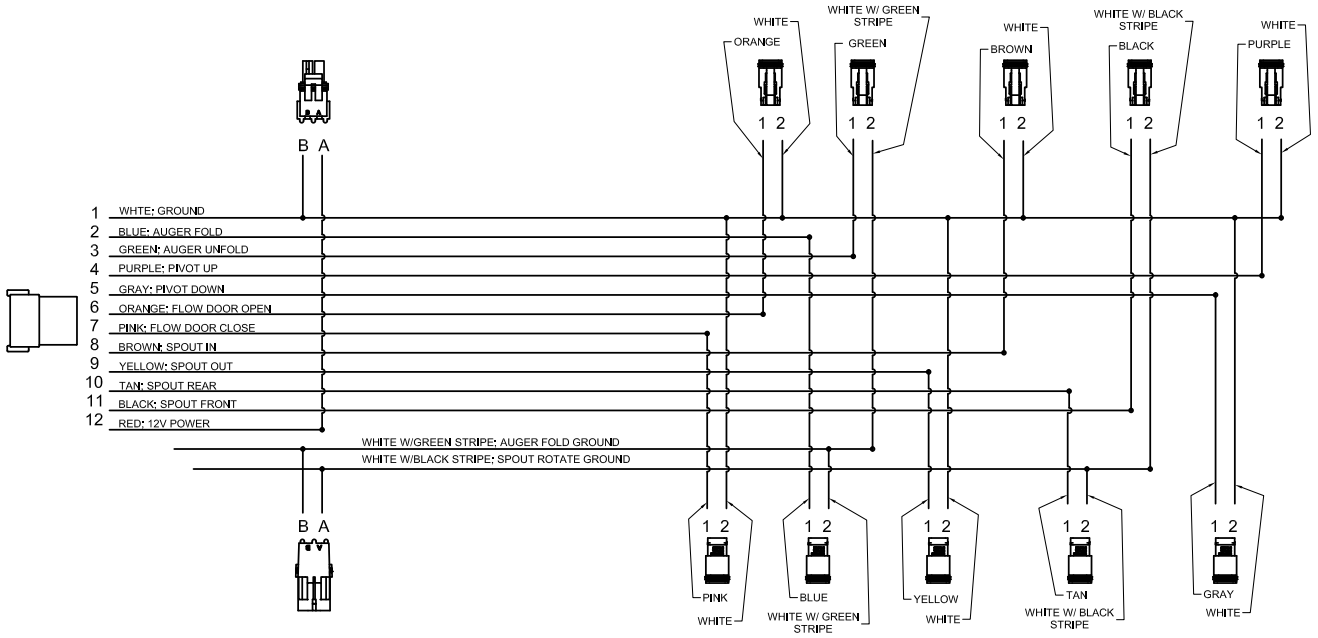
Electrical Diagram — Auger Wiring Harness #9008956

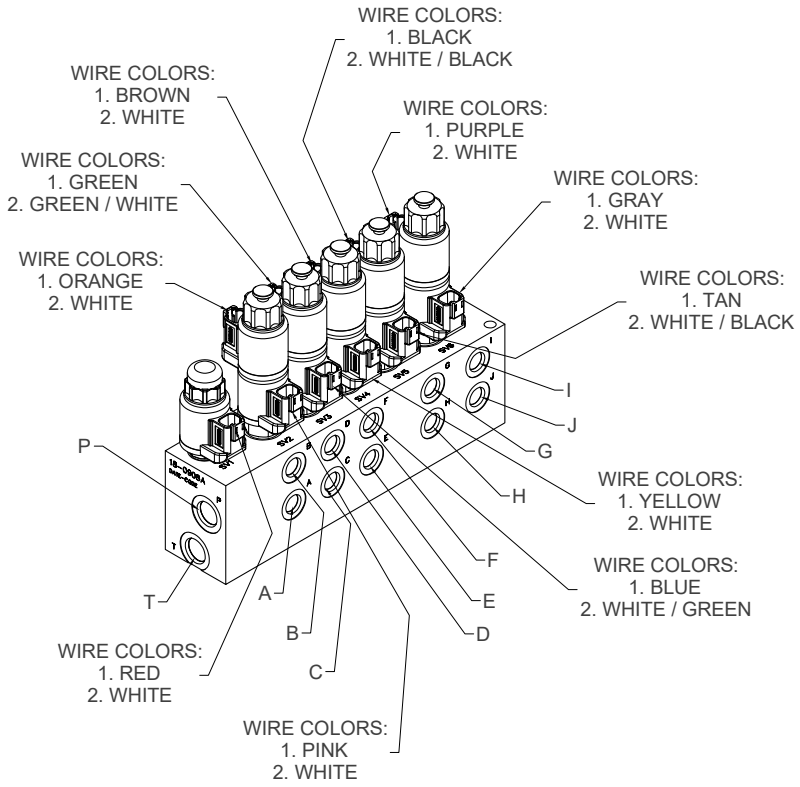


Electrical System Diagram - Main Harness #9010096 (Opt.)



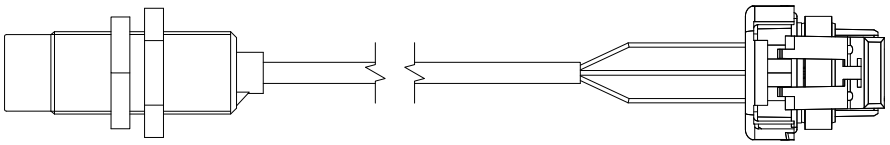
NOTE: For Optional Electric Over Hydraulic 5 Function Valve Shown Below.





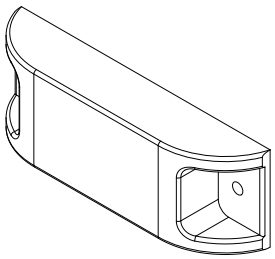
Electrical Diagram — Proximity Sensor #9007223

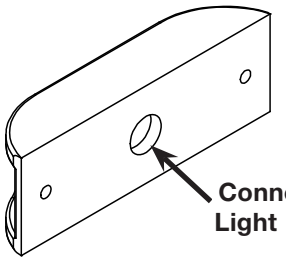
3 Pin Female Connector



Pin "A" - Black - Signal
Pin "B" - Brown - +12V DC
Pin "C" - Blue - Ground

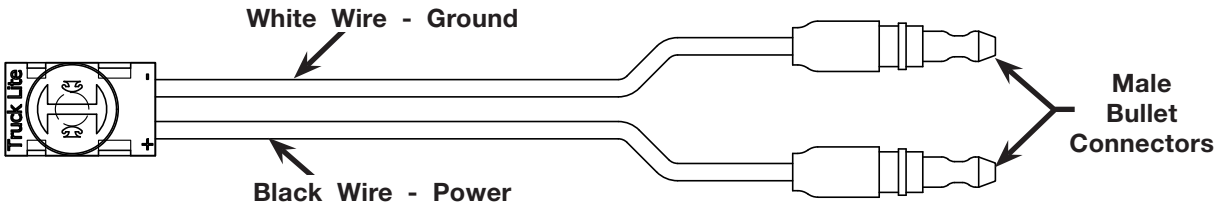
Electrical Diagram — Amber Clearance Light #9005529



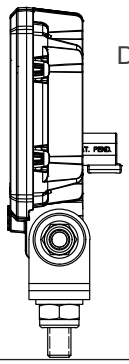


Connects To Clearance Light Harness #9005542

Electrical Diagram — Clearance Light Harness #9005542



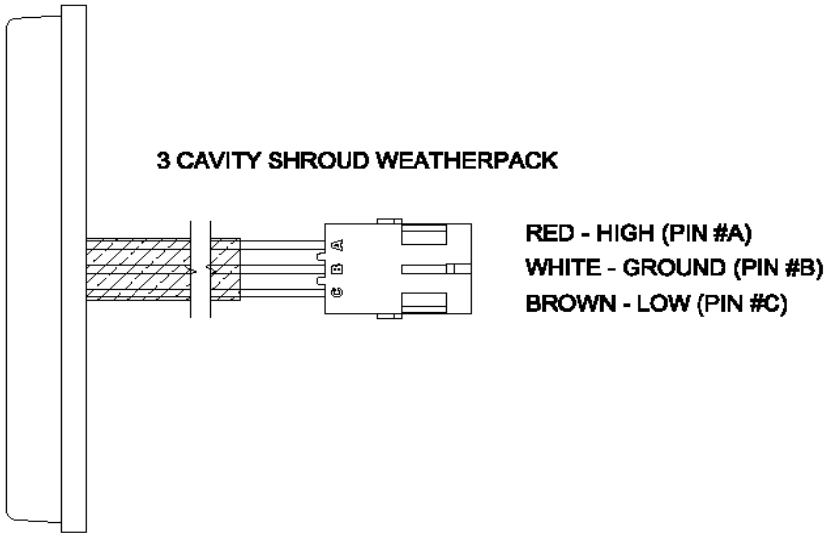
Electrical System Diagram - Work Flood Lamp #9008957



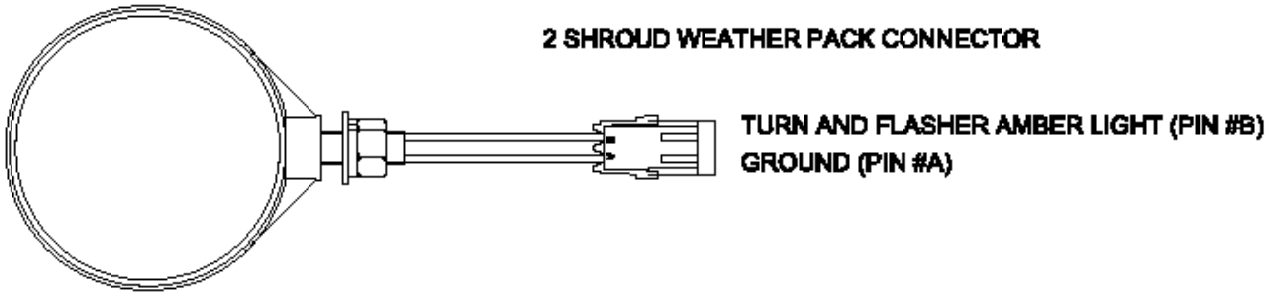
2 PIN INTEGRATED
DEUTSCH CONNECTOR

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

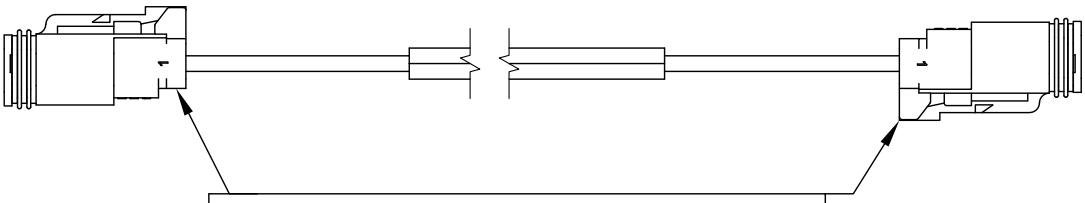
Electrical Diagram — Red Tail/Turn Light #9006345



Electrical Diagram — Amber Lamp Double Face #9005142



Electrical Diagram - Diverter Harness #9007266



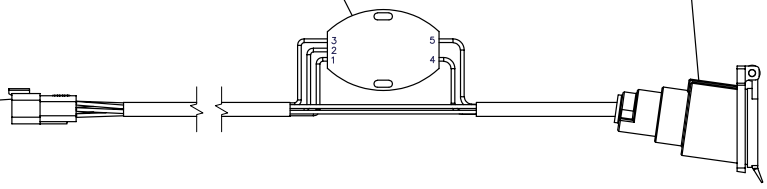
CONNECTOR TYPE: 2 PIN DEUTSCH PLUG		
PIN #	WIRE COLOR	FUNCTION
1	RED	+12V POWER
2	WHITE	GROUND

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

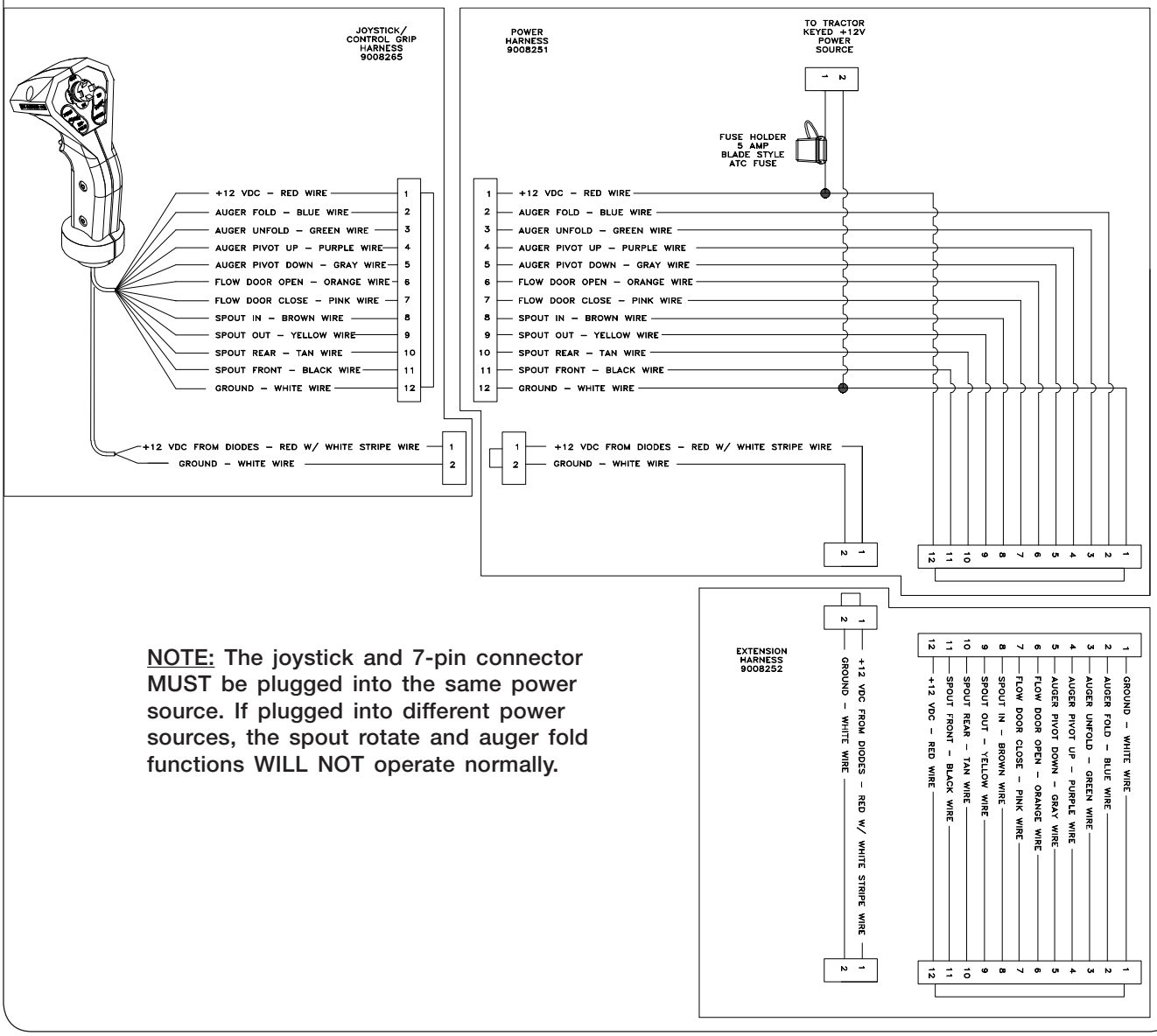
TAIL LIGHT CONVERTER		
WIRE	COLOR	WIRE FUNCTION
1	YELLOW	LEFT TURN/FLASHING
2	RED	BRAKE LIGHTS
3	GREEN	RIGHT TURN/FLASHING
4	YELLOW	LEFT TURN/STOP
5	GREEN	RIGHT TURN/FLASHING

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

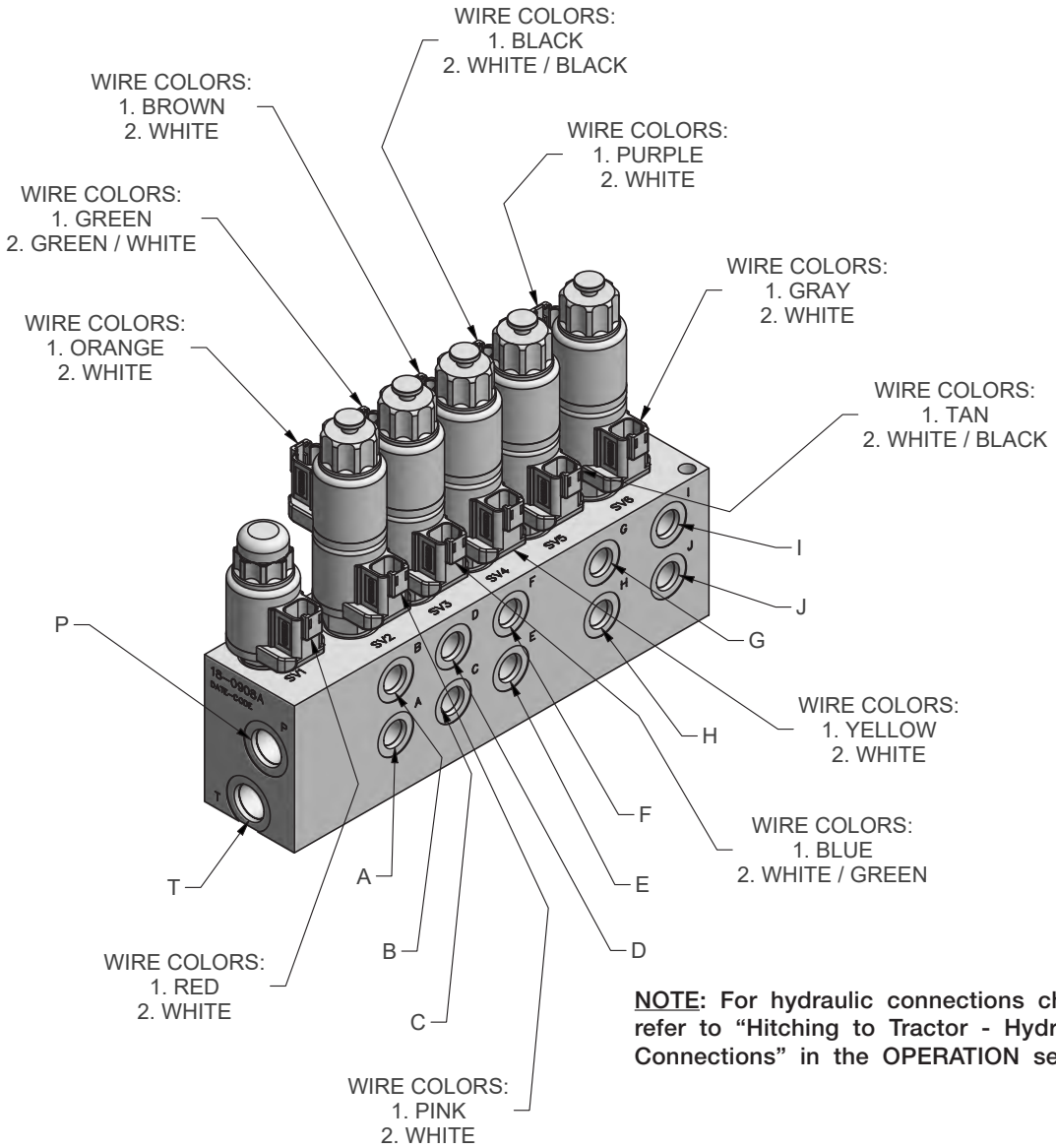


Electrical Over Hydraulic (EOH) System Schematic 5 Function



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.

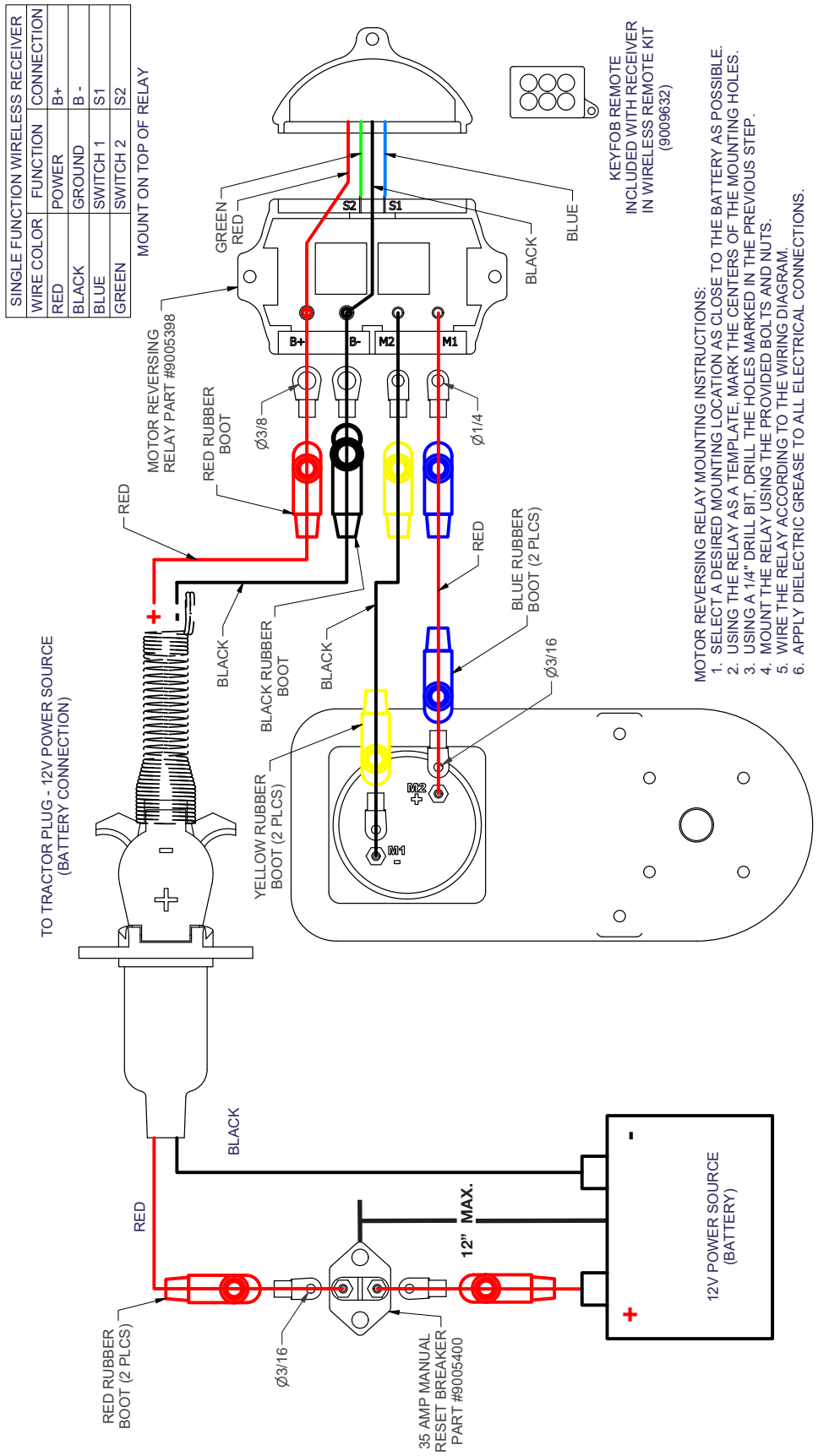
Electric Over Hydraulic Valve Electric Schematic 5 Function



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 CLOSE
B	RAM END	FLOW DOOR OPEN
C	RAM END	AUGER UNFOLD
D	BUTT END	AUGER FOLD
E	RAM END	SPOUT TILT OUT
F	BUTT END	SPOUT TILT IN
G	BUTT END	JOYSTICK / SPOUT ROTATE
H	RAM END	JOYSTICK / SPOUT ROTATE
I	BUTT END	AUGER PIVOT DOWN
J	RAM END	AUGER PIVOT UP
P		JOYSTICK / TRACTOR PRESSURE
T		JOYSTICK / TRACTOR RETURN

Electrical System Schematic - Optional Wireless Electric Tarp



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

⚠ WARNING

- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WARN WHILE SERVICING THE IMPLEMENT.**
- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. LEAKS OF HIGH-PRESSURE FLUIDS MAY NOT BE VISIBLE. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**



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

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

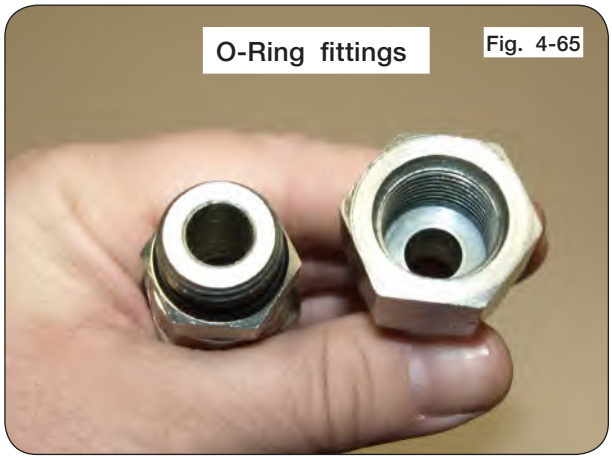


Fig. 4-65

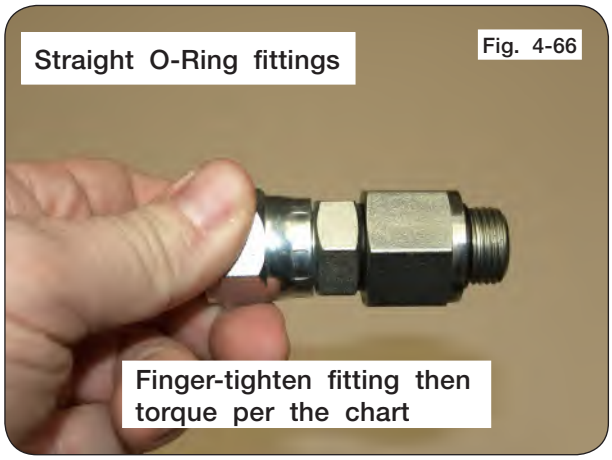


Fig. 4-66

Hydraulic Fittings – Torque and Installation

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. 4-67

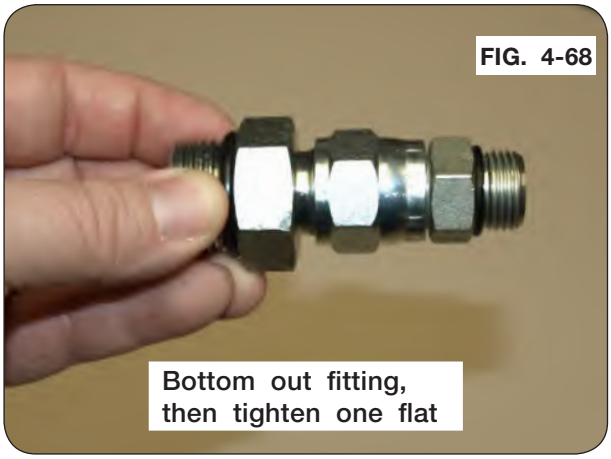


FIG. 4-68

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Maintenance

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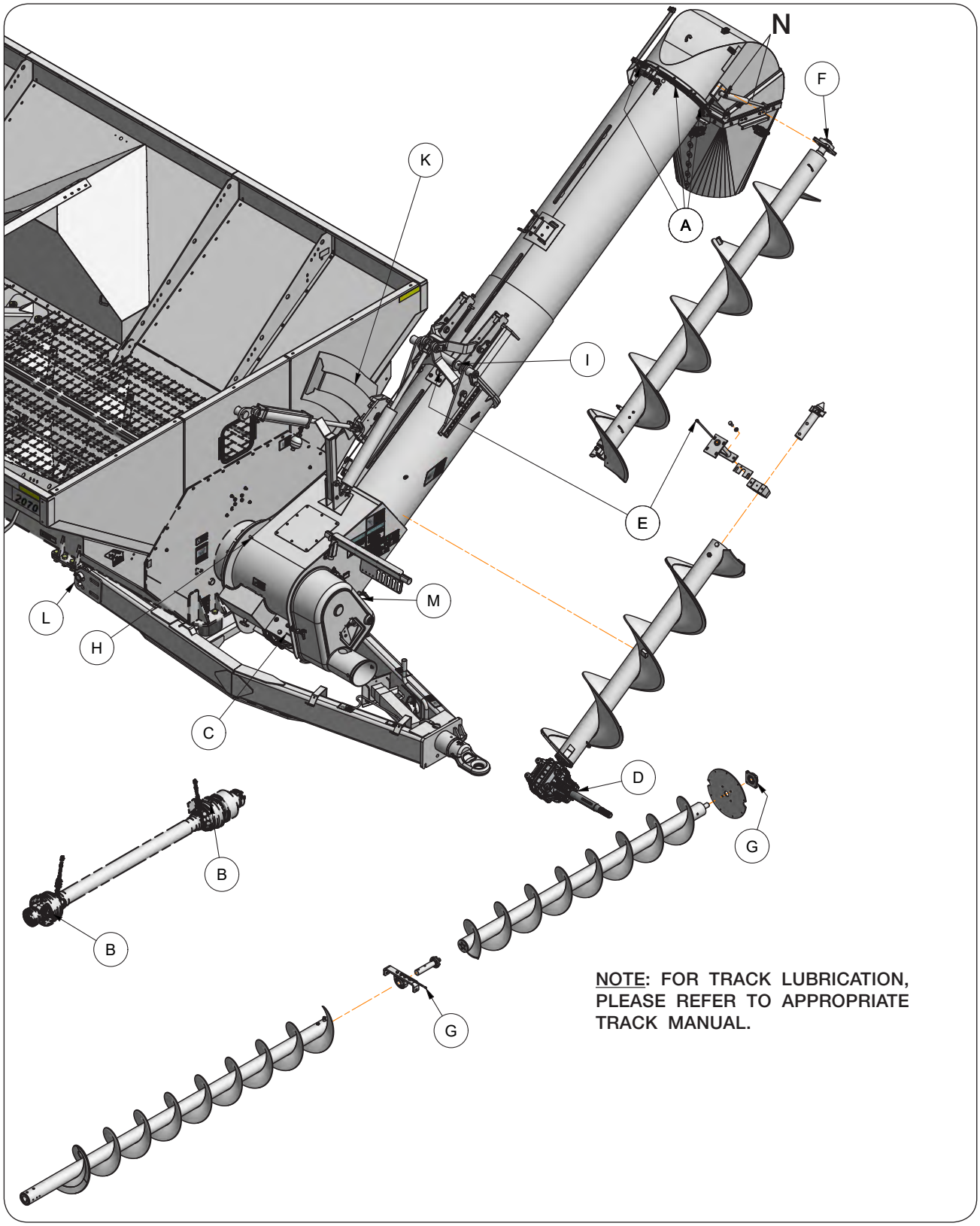
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FOR SCALE, TRACK, UHARVEST, ELECTRIC TARP, VIDEO SYSTEM OR OTHER OPTIONS, PLEASE REFER TO THE INDIVIDUAL MANUALS.

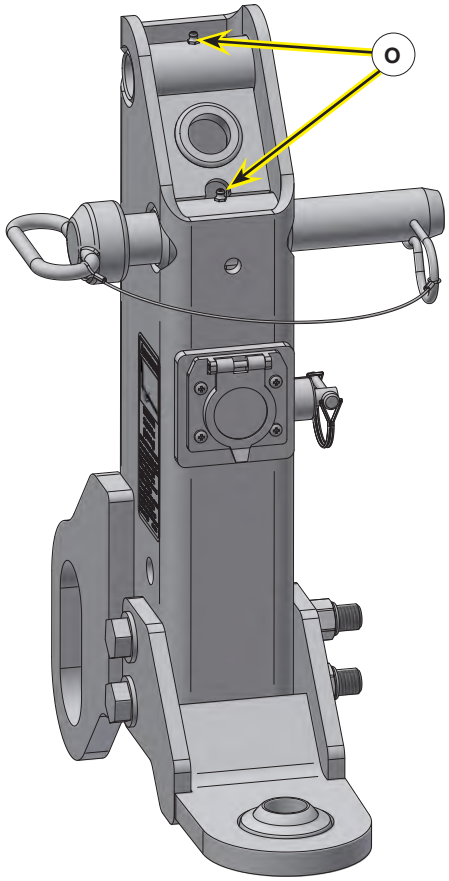
Lubrication

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.



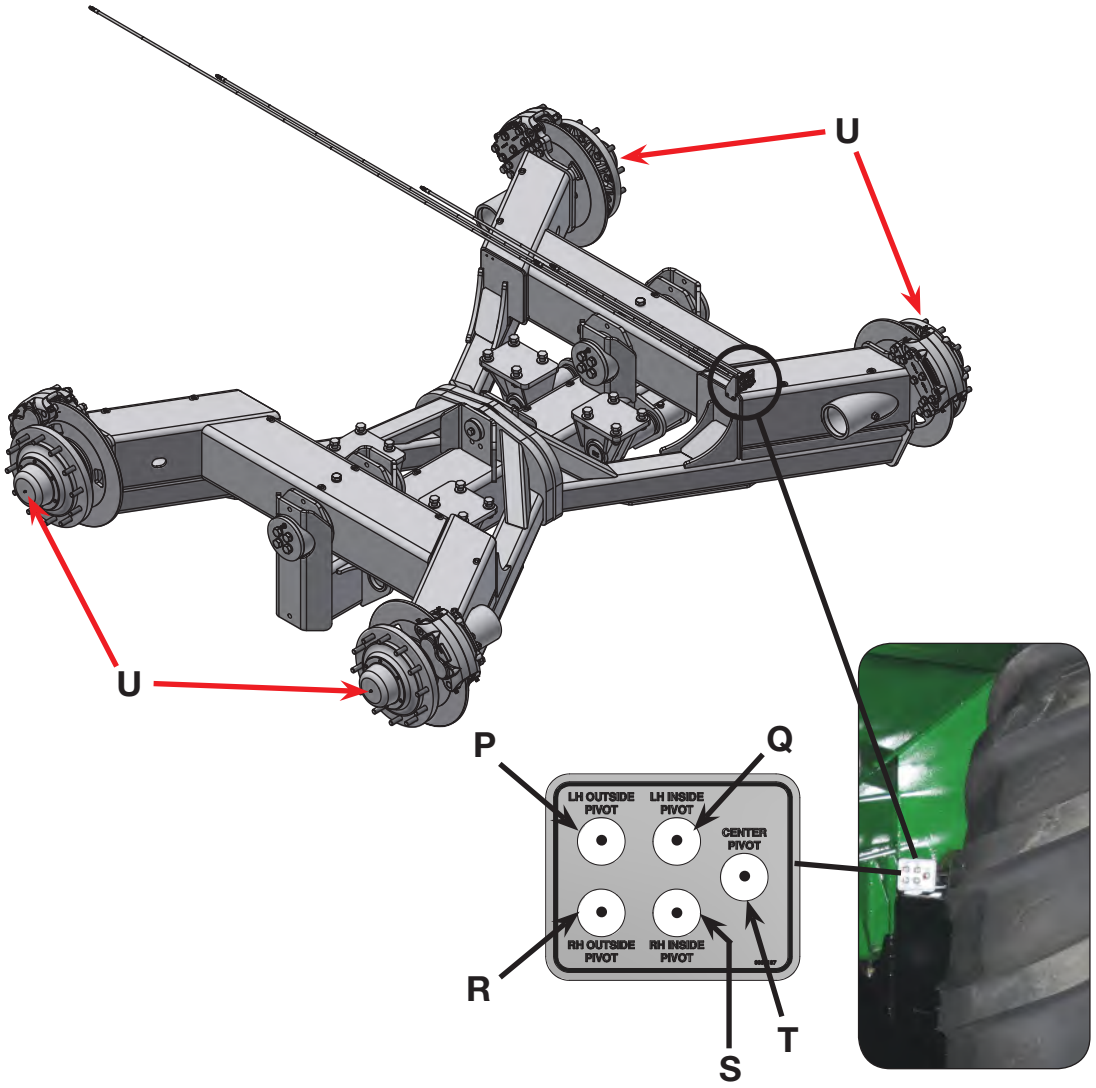
NOTE: FOR TRACK LUBRICATION, PLEASE REFER TO APPROPRIATE TRACK MANUAL.

Lubrication (continued)



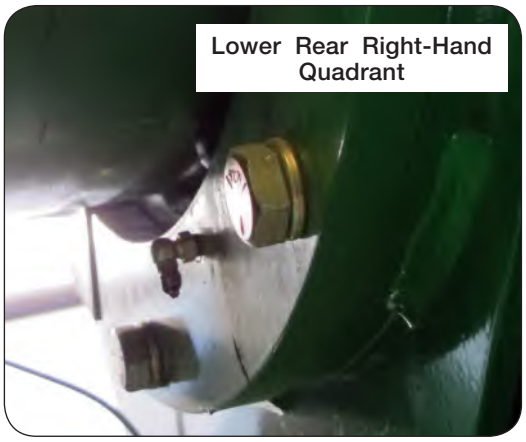
Lubrication (continued)

In-Line Tandem Lubrication Locations

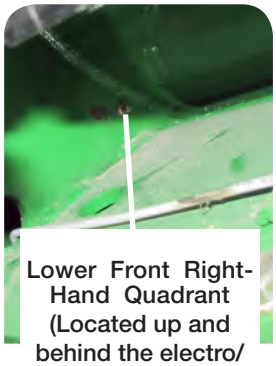


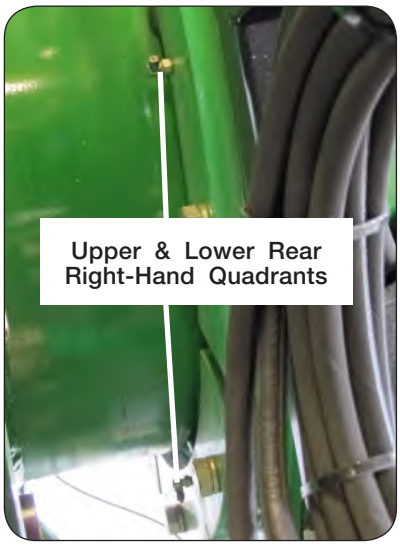
Lubrication (continued)

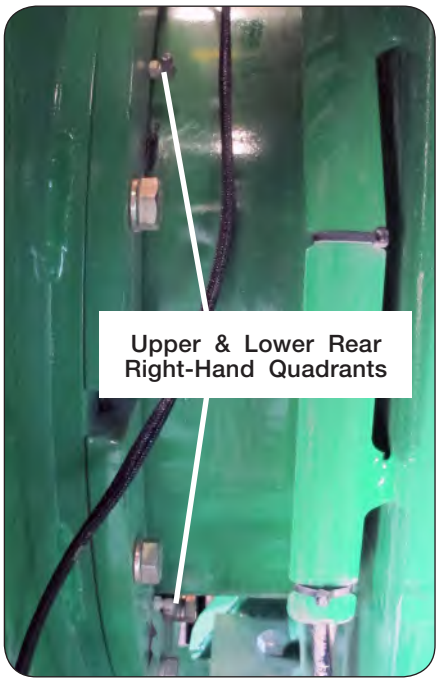
Lower Auger Pivot Housing Grease Points

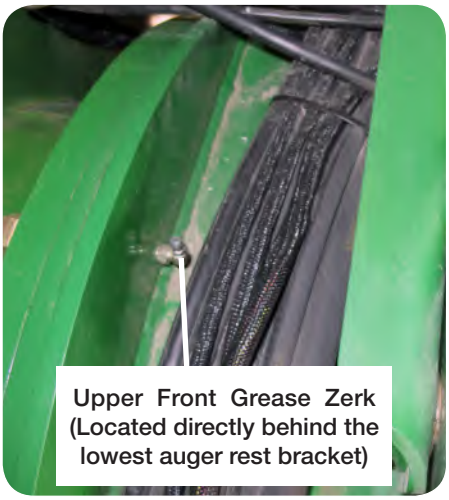












Lubrication (continued)

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	Discharge Spout Pivot Grease Points	6	EP-2	1 Shot	Monthly
B	PTO Driveshaft - Benzi or GKN Walterscheid	-	EP-2	1 Shot	See Next Pages
C	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
D	Gearbox Support Bearing	1	EP-2	1 Shot	Weekly
E*	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	Horizontal Auger End & Center Bearings	2	EP-2	2 Shots	Monthly
H	Auger Pivot Rings See previous page for zerk locations.	8	EP-2	2 Shots	Daily
I	Auger Pivot Pin	2	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 Drive Bearings	2	EP-2	1 Shot	Weekly
N	Spout Tilt Cylinder	2	EP-2	1 Shot	Each Season
O	Rear Hitch Pivot Pin (Optional)	2	EP-2	2 Shots	Monthly
P	Grease Bank for Tandem LH Outside Pivot	1	EP-2	6 Shots	Daily
Q	Grease Bank for Tandem LH Inside Pivot	1	EP-2	6 Shots	Daily
R	Grease Bank for Tandem RH Outside Pivot	1	EP-2	6 Shots	Daily
S	Grease Bank for Tandem RH Inside Pivot	1	EP-2	6 Shots	Daily
T	Grease Bank for Tandem Center Pivot	1	EP-2	6 Shots	Daily
U	Hubs	4	EP-2	Repack	Annually

*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.

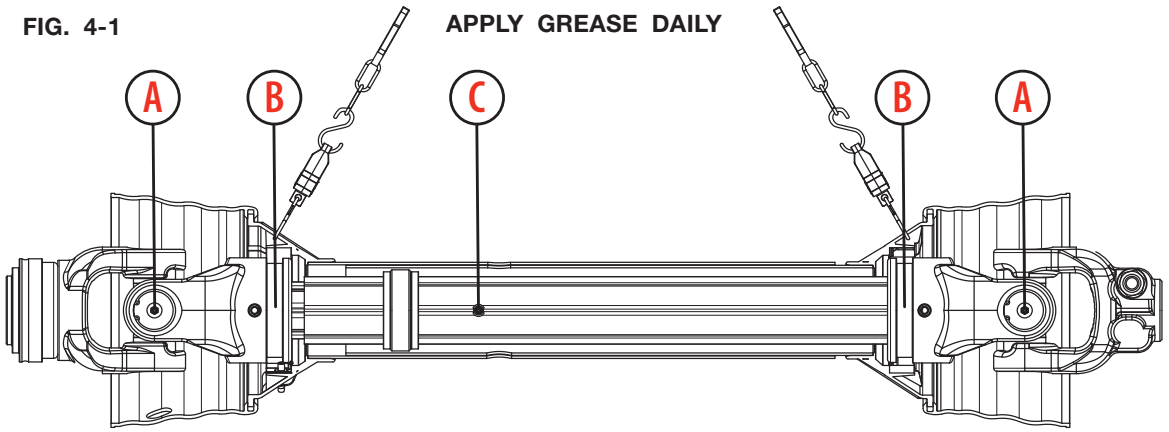
PTO Driveshaft Lubrication - Benzi PTO

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.

- Grease the overrunning clutch on front half driveline assembly every 50 operating hours.
- The CAM Cut Out clutch on rear half driveline assembly is pre-greased for 500 operating hours. Contact your dealer for more greasing information.

FIG. 4-1 APPLY GREASE DAILY



ITEM	DESCRIPTION	POINT	LUBRICANT	QTY.	HOURS
A	U-Joint Cross Kit	1	EP-2	1 Shot	8 Hours
B	Inner & Outer Yoke Groove	1	EP-2	Add Manually	8 Hours
C	Inner & Outer Profile Tube	1	EP-2	Add Manually	Start and End of Each Season

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.

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

- *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.

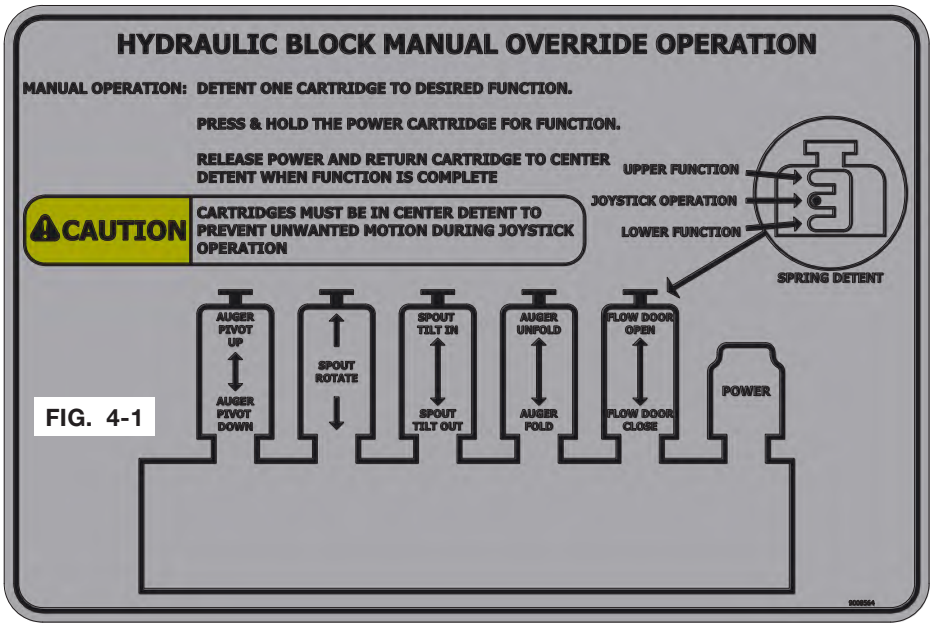


FIG. 4-1

1. Park the 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 (272606B) 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 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.



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. 4-5, 4-6, & 4-8)

6. Push and hold the manual override button on valve (9008438). (FIG. 4-7)

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. Place cover plate (272606B) from step 2 back onto the bottom of the lower auger housing.

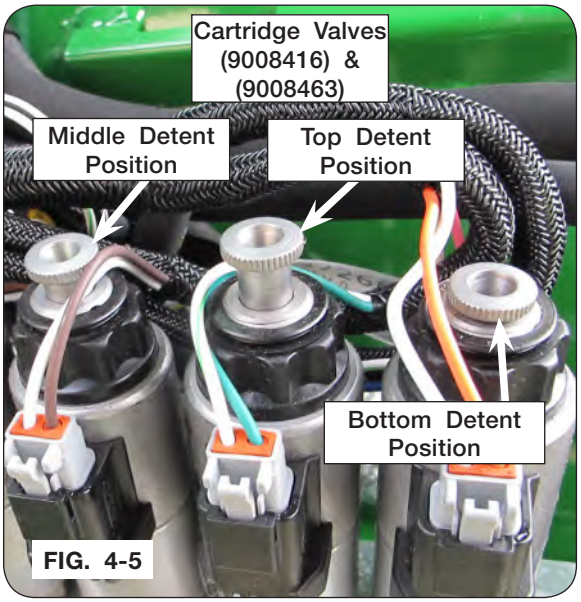


FIG. 4-5

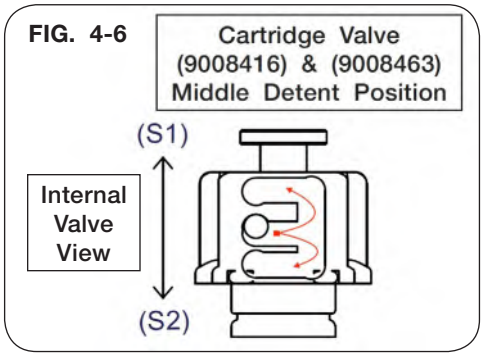


FIG. 4-6

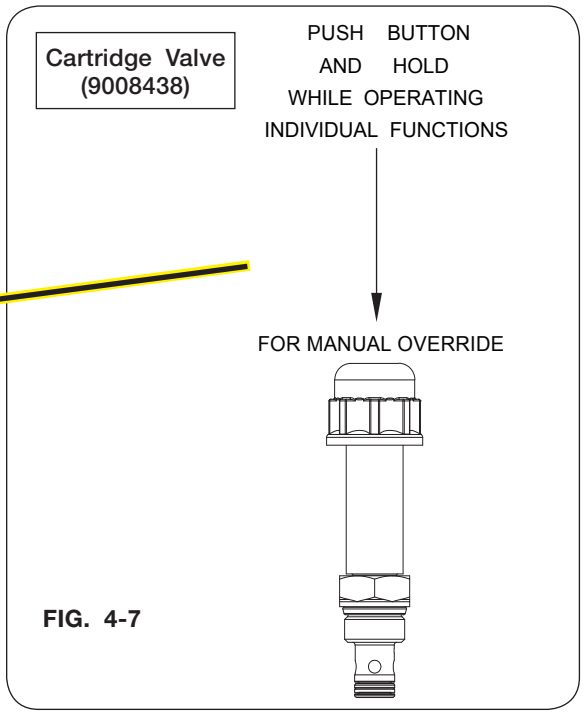


FIG. 4-7

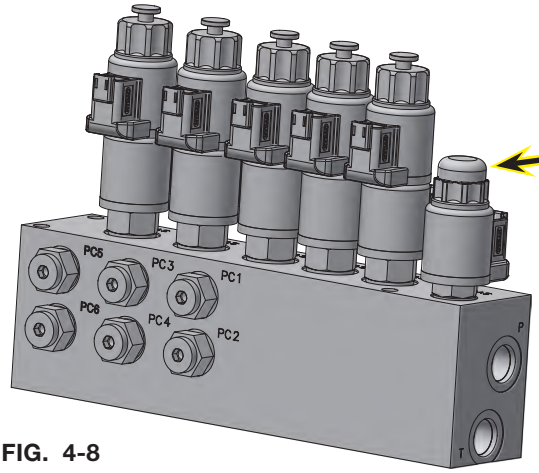


FIG. 4-8

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.**



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

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 13 5/8". (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 (284267) 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.

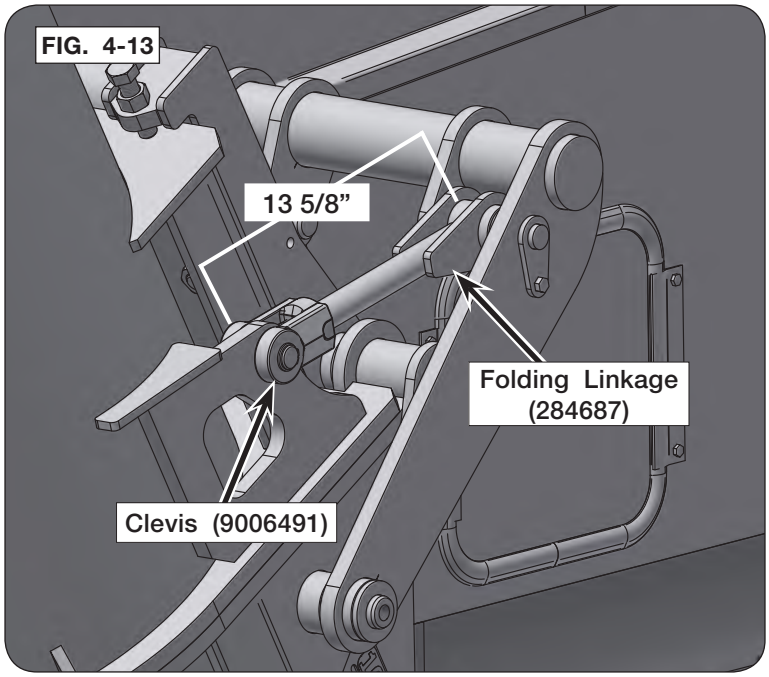


FIG. 4-13

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)

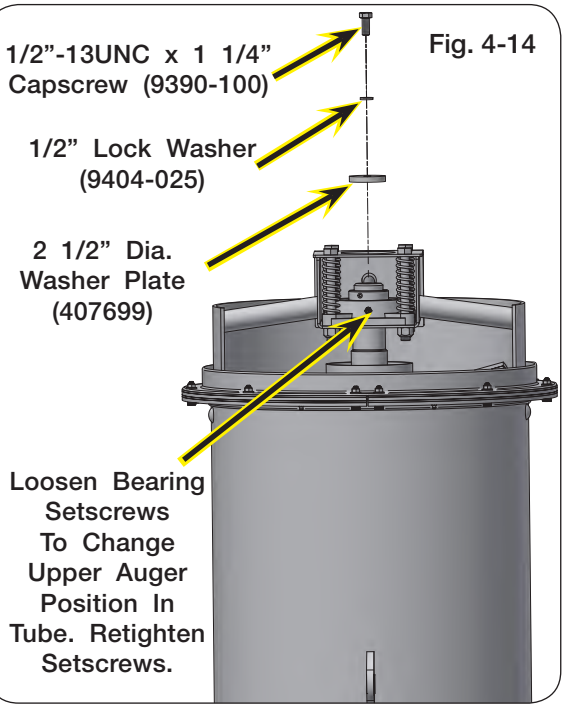


Fig. 4-14

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. 4-16 & 4-17)

Fig. 4-17

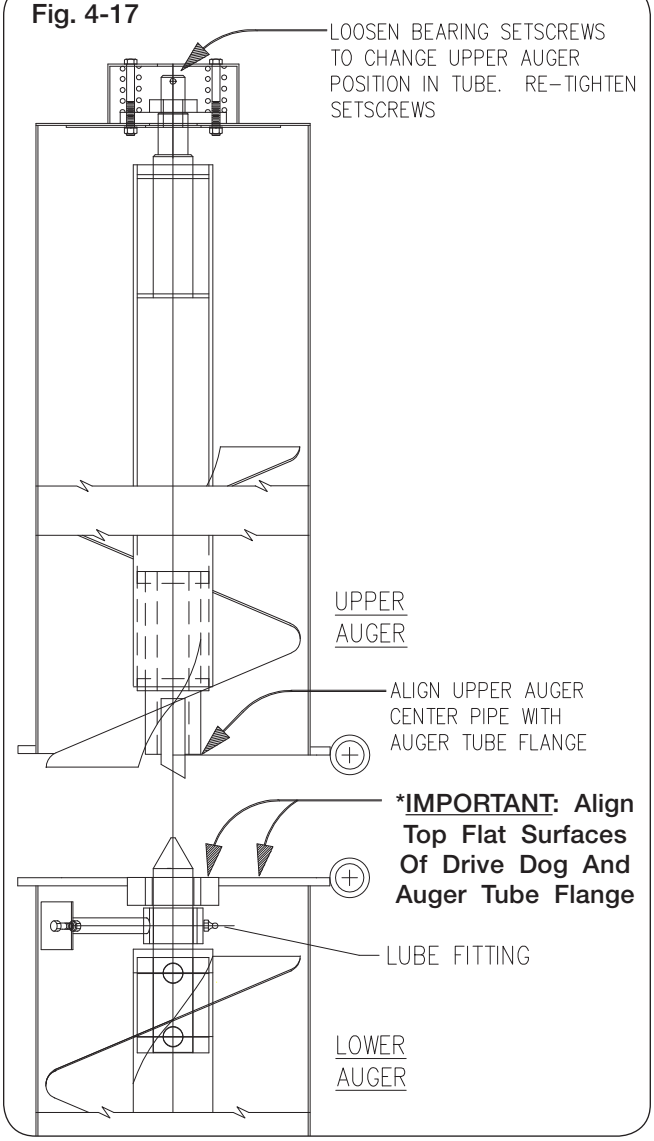
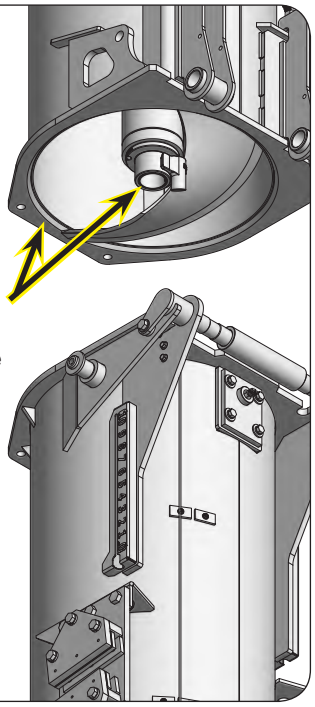
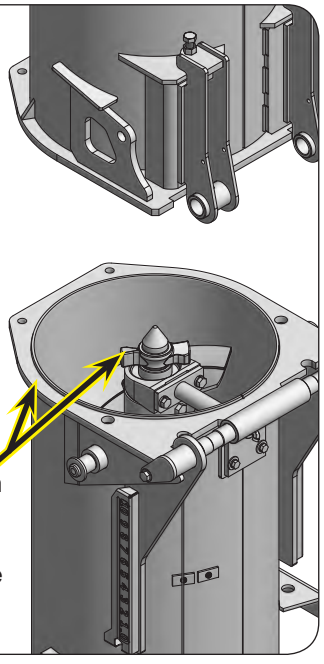


Fig. 4-15



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

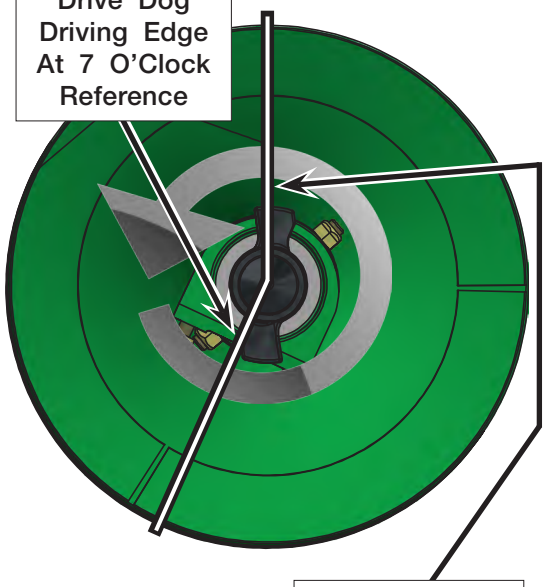
1. For the lower vertical auger, use the top edge of the flighting as a 12 o'clock reference. Position the drive dog so the driving edge is at the 7 o'clock position.

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 8 o'clock position. See Fig. 4-19.

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

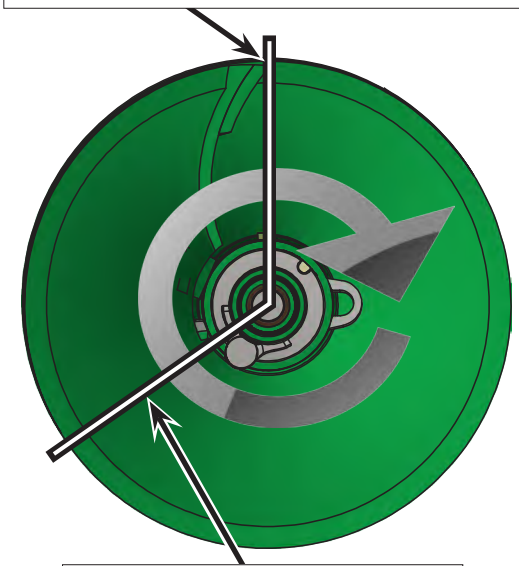
FIG. 4-18



Lower Auger

Upper Auger

FIG. 4-19



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. 4-20.

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. 4-21.

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. 4-22)

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. 4-23)

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

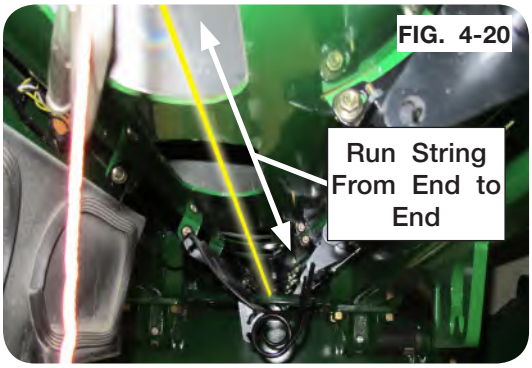


FIG. 4-20

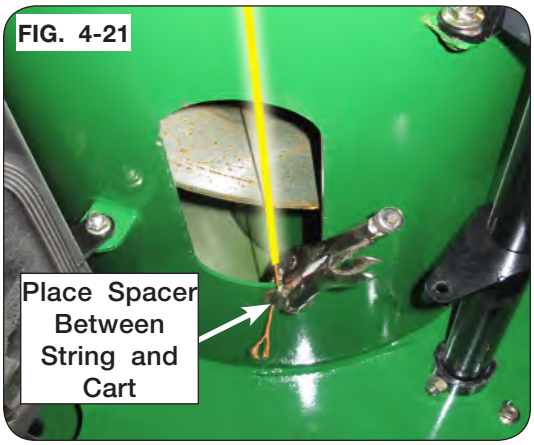
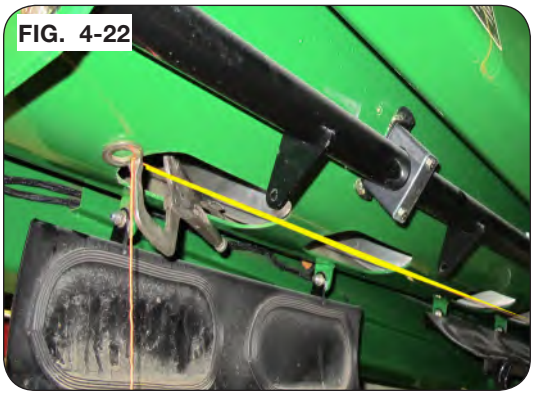
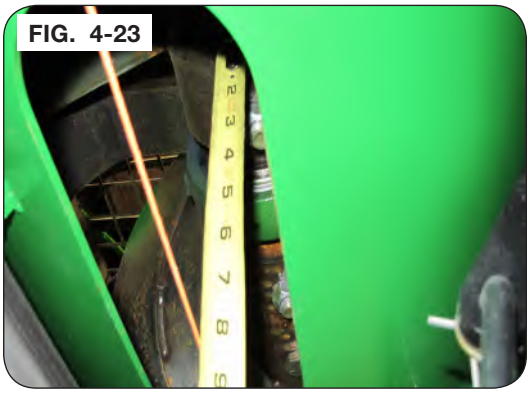


FIG. 4-21

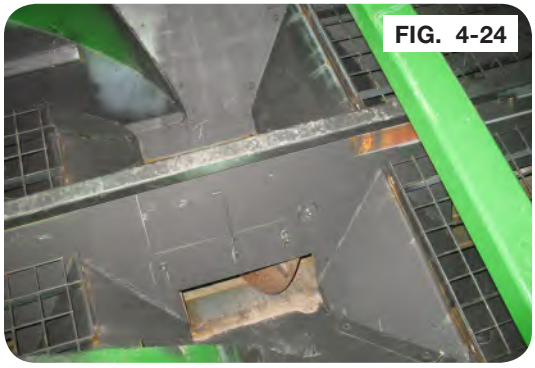

FIG. 4-22


FIG. 4-23

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. 4-24)


FIG. 4-24

10. Remove the baffle weldment on the auger tent at the opening above the hanger bearing. (FIG. 4-25)

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. 4-25.

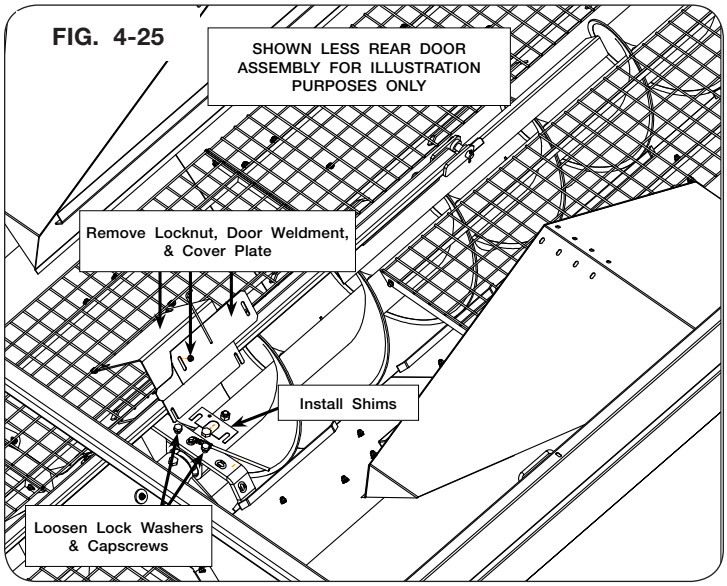


FIG. 4-25

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 baffle 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. (FIGS. 4-21, 4-22 & 4-23)*

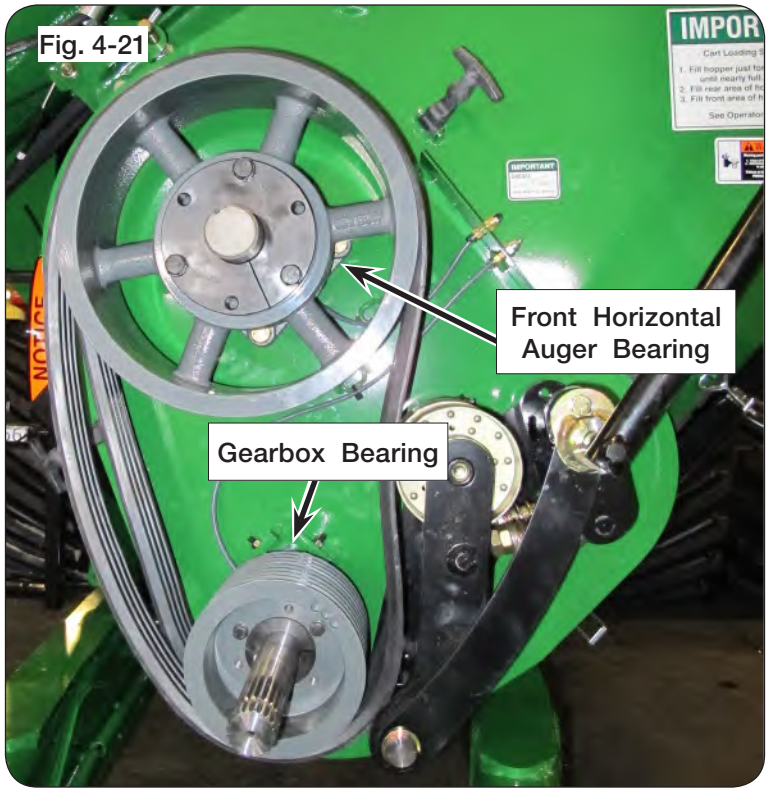


Fig. 4-21

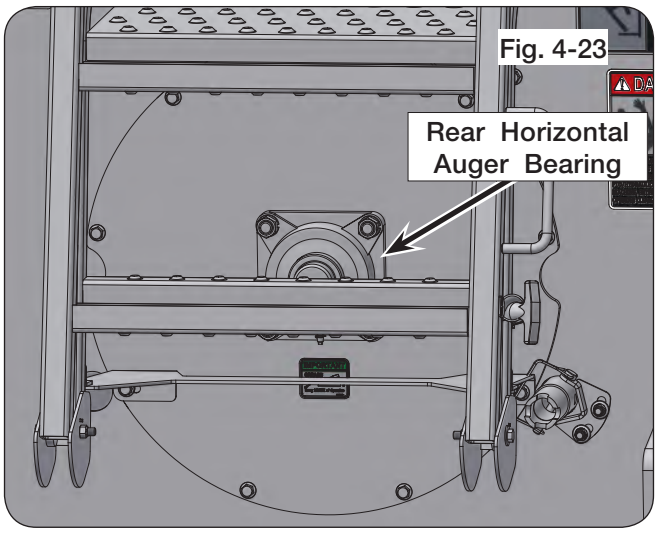


Fig. 4-23

Belt Tightener Adjustment

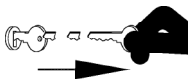
IMPORTANT

- *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 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. 4-26.

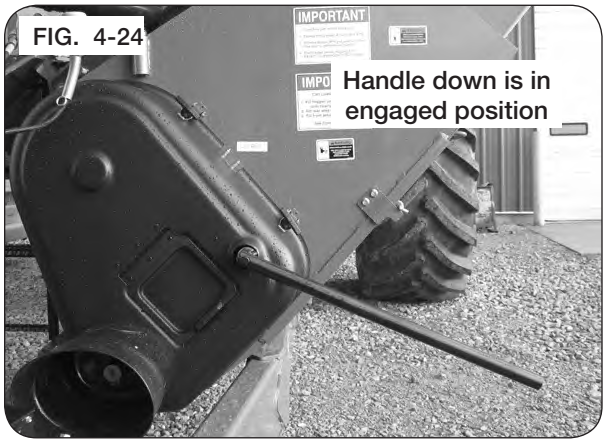


FIG. 4-24



FIG. 4-25


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. 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. 4-28)

7. Release and tighten belt multiple times to confirm positions and final adjustments. See Fig. 4-28 and Fig. 4-29.

8. Tighten belt. Install 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.

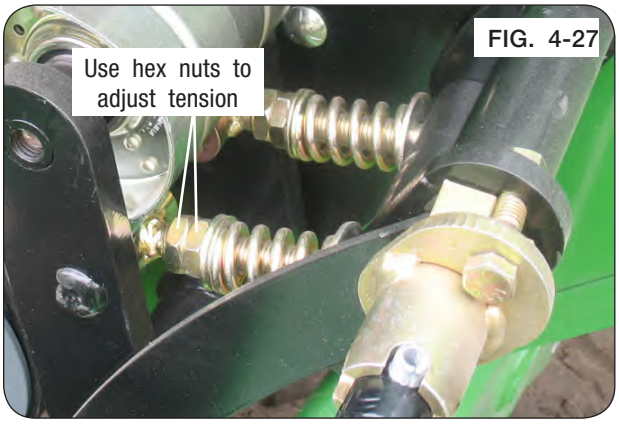


FIG. 4-27



FIG. 4-28



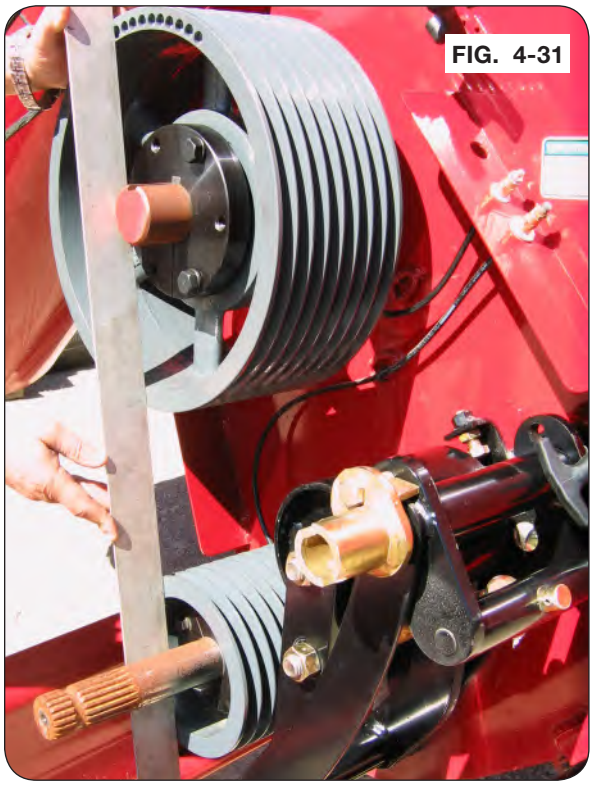
FIG. 4-29

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 values shown in figure 4-32.

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.

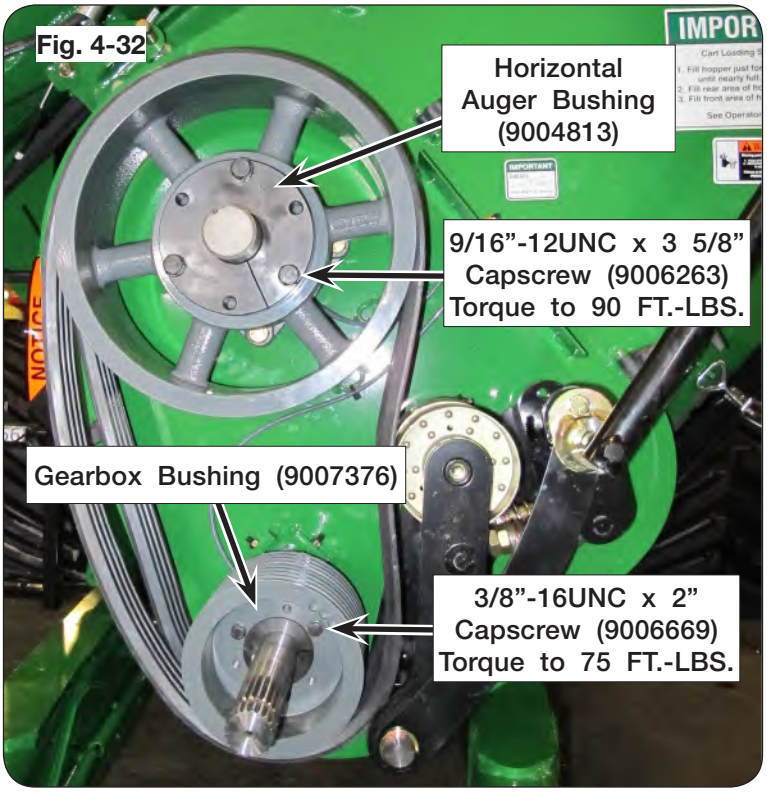


Fig. 4-32

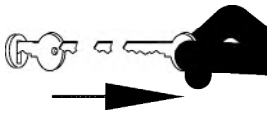
Horizontal Auger Removal and Replacement

⚠ 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.**
- **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.



2. Remove 4 rear ladder capscrews attached to the cart. (FIG. 4-33)

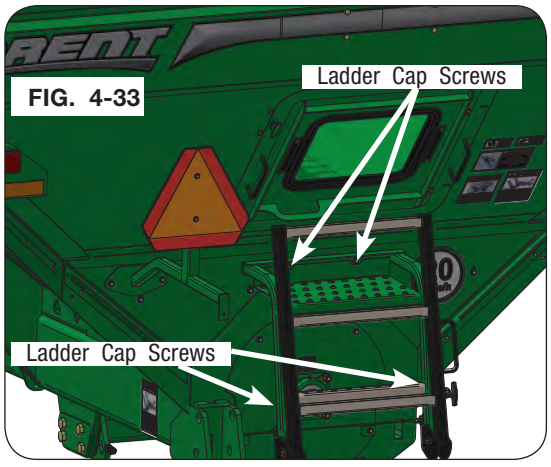


FIG. 4-33

NOTE: Keep all hardware for re-assembly.

3. Using a safe lifting device rated for a minimum of 100lbs. remove rear ladder from the cart. (FIG. 4-33)

Horizontal Auger Removal and Replacement (continued)

4. Remove the capscrews from the auger cover. (Fig. 4-34)
5. Pry the auger from the auger tube. (Fig. 4-35)
6. Using a safe lifting device rated for a minimum 1,000 lbs., pull the rear auger out of the cart. (Fig. 4-36)

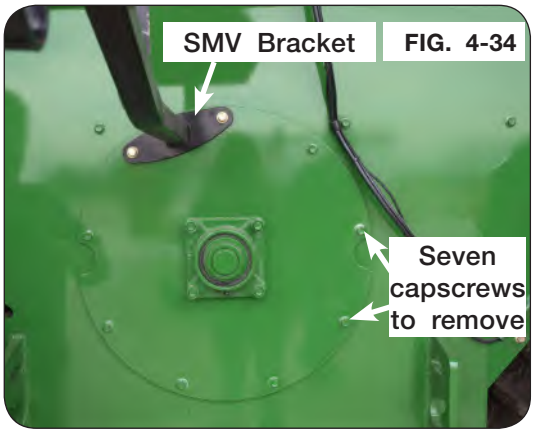


FIG. 4-34

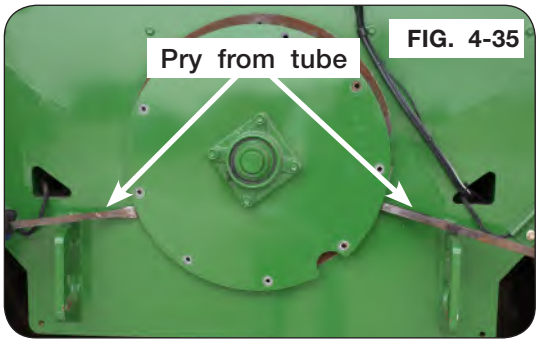
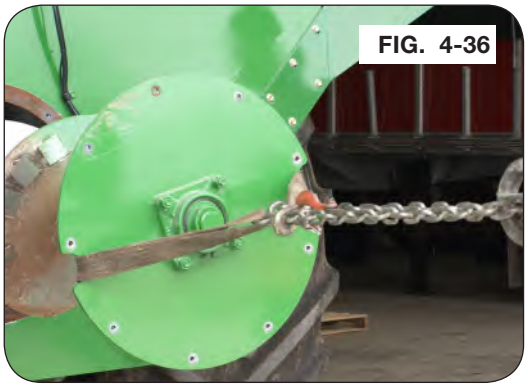


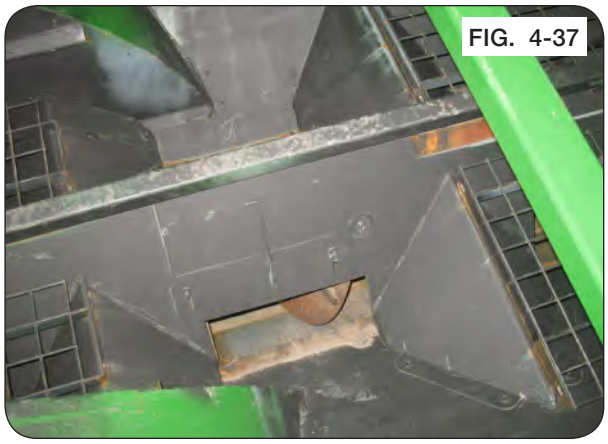
FIG. 4-35


FIG. 4-36

Horizontal Auger Removal and Replacement (continued)

NOTE: If only servicing rear auger, skip to step 26. 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. 4-37)


FIG. 4-37

9. Remove locknuts, baffle weldments and cover plates from the middle tent. (Fig. 4-38)

10. Disconnect grease line. (Fig. 4-38)

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.

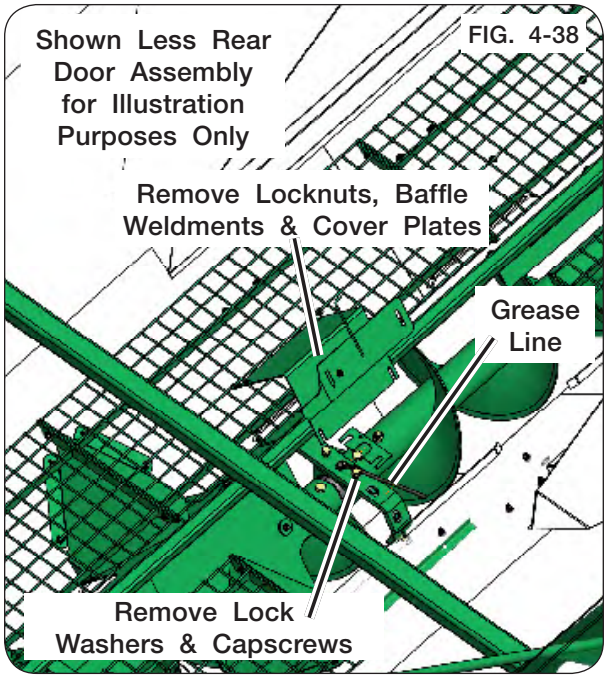


FIG. 4-38

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. 4-39)

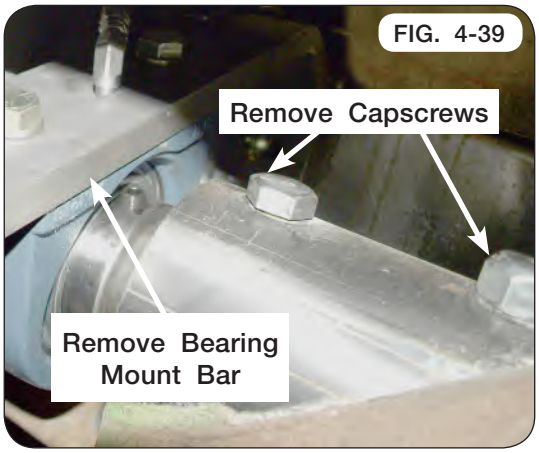


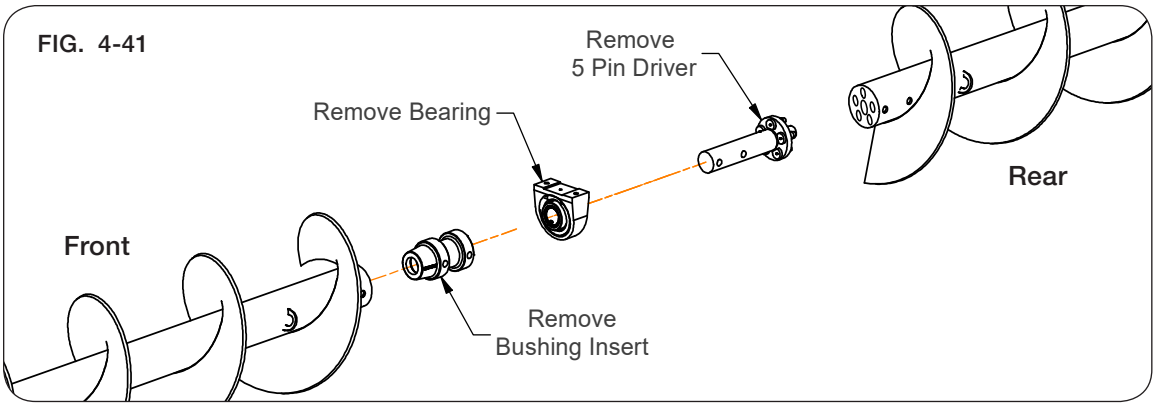
FIG. 4-39

Horizontal Auger Removal and Replacement (continued)

14. Remove the original 5-pin driver, bearing and the bushing insert. (Figs. 4-40 & 4-41)

15. Replace 5-pin driver and bushing insert, if needed.


FIG. 4-40



16. Substantially coat bushing insert with anti-seize.

17. Slide bushing insert into front auger and ensure tube holes are aligned. (Figs. 4-41 & 4-42)


FIG. 4-42

NOTE: Make sure the set screws on bearing are towards the front of the cart. (Fig. 4-43)

18. Slide bearing onto 5-pin driver. Hand tighten the set screw. (Fig. 4-43)

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

20. Insert capscrews from opposite sides through auger, bushing and driver. Slide spacer bushings over threads and install locknuts. Hand tighten hardware at this time. (Fig. 4-43)

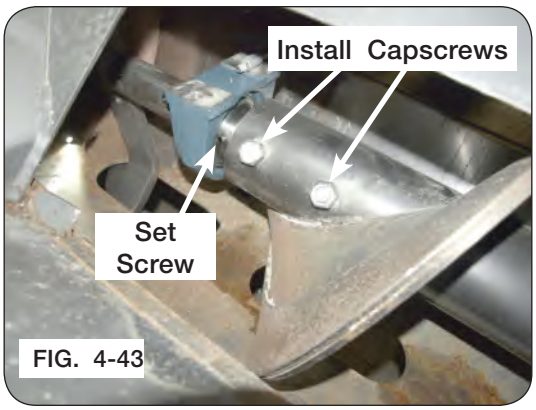


FIG. 4-43

Horizontal Auger Removal and Replacement (continued)

21. Install bearing mount bar. Leave the capscrews and lock washers loose attaching bearing mount bar to the cart. Attach bearing mount bar to the bearing. (Fig. 4-44)

22. Reattach grease line components. (Fig. 4-44)

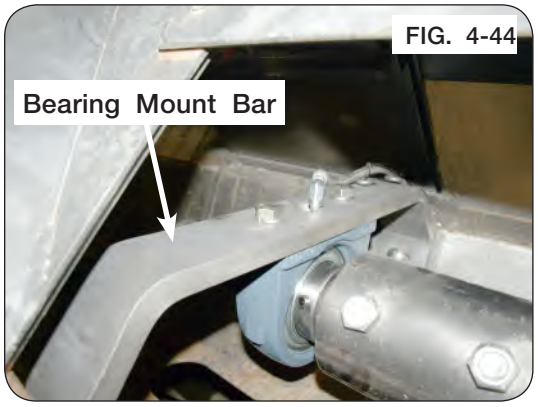
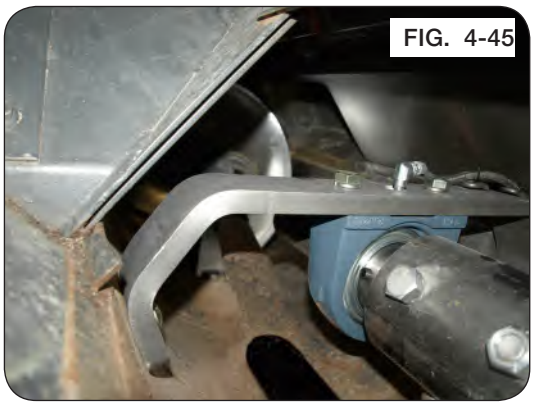


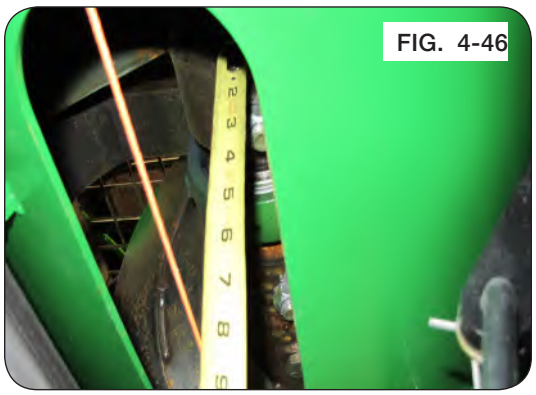
FIG. 4-44

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. (Fig. 4-45)


FIG. 4-45

24. Extend a string tightly from front to rear to check horizontal auger alignment. Measure the string to the auger tube near the hanger bearing. If this dimension is 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. (Fig. 4-46)


FIG. 4-46

NOTE: Add shims as needed. See "Auger System - Horizontal Auger Height Measurement" in MAINTENANCE section for more details.

25. Torque bearing mount bar capscrews to 130 ft.-lbs. See Fig. 4-44.

26. Torque front auger capscrews to 200 ft.-lbs. (Fig. 4-47)

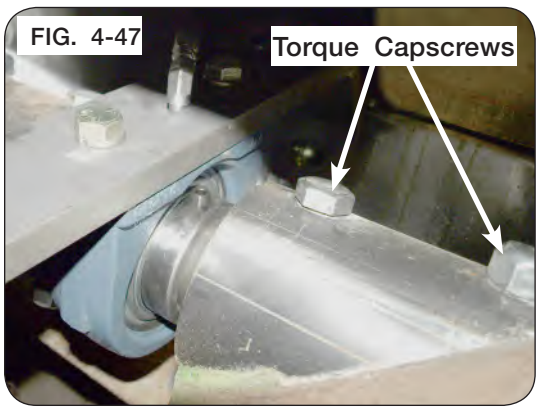


FIG. 4-47

Horizontal Auger Removal and Replacement (continued)

27. Insert hardware for rear auger cover, SMV bracket, and rear ladder, if equipped. (Figs. 4-48 and 4-49)

28. Torque all hardware to specification. See "Torque Chart" in this section. (Figs. 4-48 and 4-49)

29. Using a safe lifting device rated for a minimum of 100 lbs. reinstall ALL the grates.

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

31. 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.

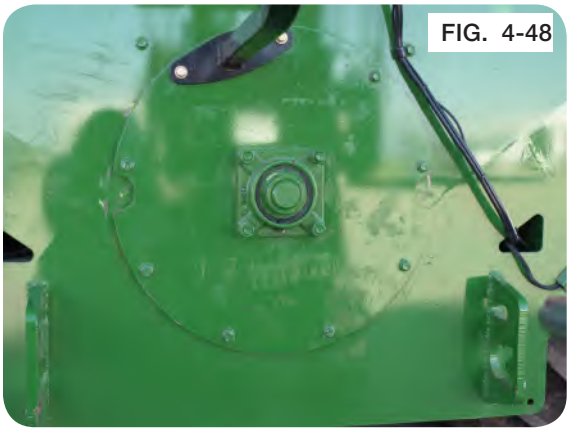


FIG. 4-48

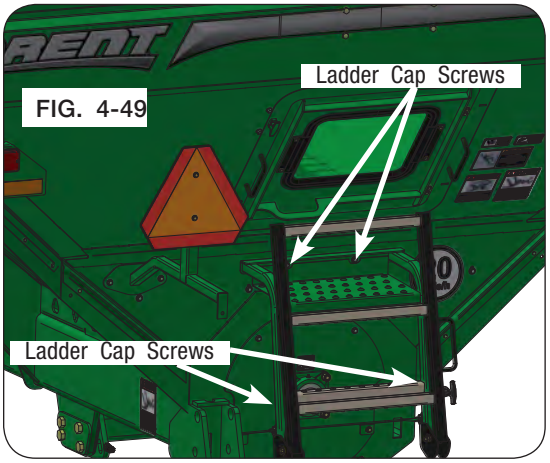


FIG. 4-49

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

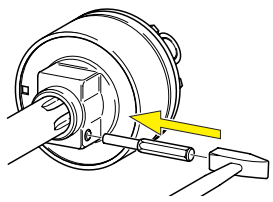
- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ALWAYS DISCONNECT POWER SOURCE BEFORE SERVICING. ENSURE SERVICE COVERS, CHAIN/BELT COVERS AND CLEAN-OUT DOOR ARE IN PLACE AND SECURELY FASTENED BEFORE OPERATING UNIT.**

- **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.**

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. 4-66)
3. Once clamping cone/retaining bolt is removed, slide torque limiter off gearbox splined input shaft.

Fig. 4-66



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. 4-67)

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

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

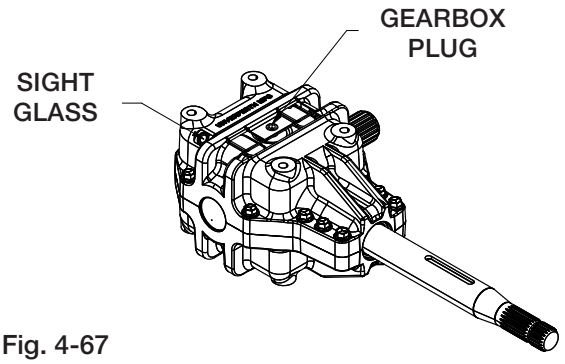


Fig. 4-67

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.**

- **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.**

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.

(Continued on next page)

Verify Telescoping PTO Shaft Length (continued)

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. 4-68).

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

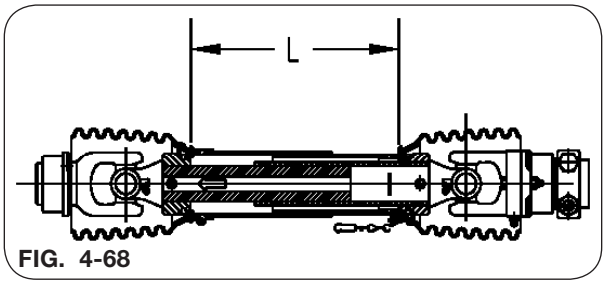


FIG. 4-68

2. Pull apart PTO telescoping shaft ends and measure lengths "T" & "C" (Fig. 4-69)

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

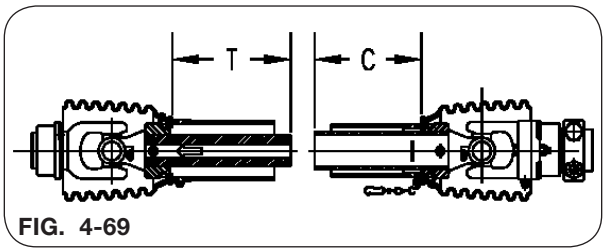


FIG. 4-69

3. Calculate maximum recommended extended length:

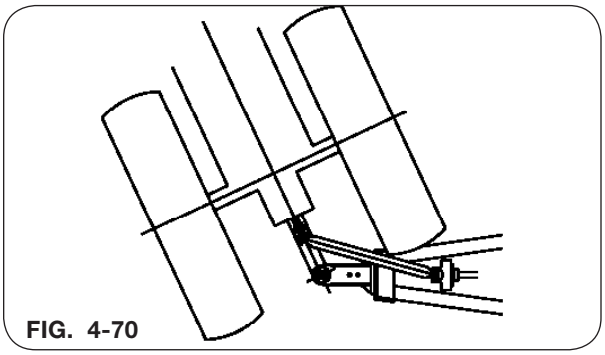
   a. Subtract line 1 from line 2
      Enter here:_____(a)
   b. Divide line (a) by 2
      Enter here:_____(b)
   c. Add line (b) to line 1.
      Enter here:_____(c)
   d. Subtract 3 inches from line (c)
      Enter here:_____(d)

This is the maximum recommended extended length.

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

5. Using a safe lifting device rated at a minimum 100 lbs., 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. 4-70)


FIG. 4-70

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. 4-71)

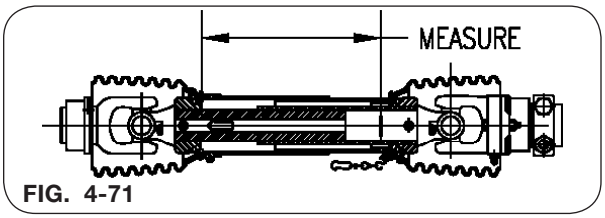


FIG. 4-71

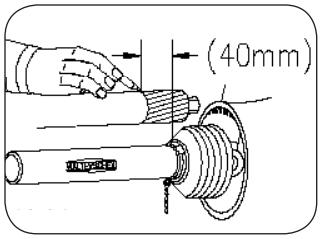
PTO Shaft Length Adjustment

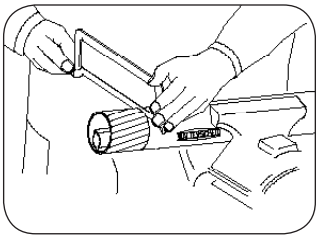
WARNING

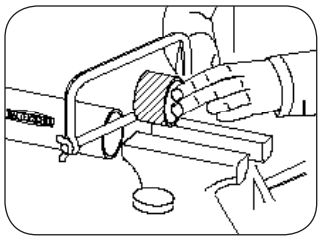
- **CHECK THE LENGTH OF THE TELESCOPING MEMBERS TO ENSURE THE DRIVELINE WILL NOT BOTTOM OUT OR SEPARATE WHEN TURNING AND/OR GOING OVER ROUGH TERRAIN.**

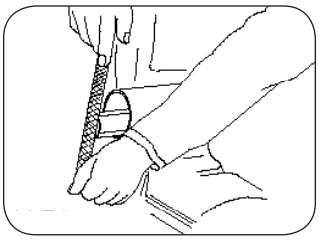
NOTE: Maximum operating length LB. (Refer to "Verify Telescoping PTO Shaft Length" in this section for LB length.)

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 - Benzi PTO

To Dismantle Guard (Figs. J1 - J3)

1. Pull the guard tube backwards and, using a screwdriver, disengage the three bearing ring tabs by pushing them inward. (FIG. J1)



2. Remove half-guard. (FIG. J2)



3. Open the bearing ring and remove from the yoke groove. (FIG. J3)



PTO Shaft and Clutch - Benzi PTO (continued)

To Assemble Guard (Figs. K1 - K3)

1. Clean and grease the bearing ring, yoke groove and inner profile tube. (FIG. K1)



2. Fit bearing ring in groove with three bearing ring tabs positioned as shown. (FIG. K2)

3. Slip on half-guard by aligning the holes on the cone with three bearing ring tabs and the cone inner key with the cut of the bearing ring.
(FIG. K2)



4. Push half-guard and yoke together causing the half-guard to engage. (FIG. K3)

NOTE: Ensure the three bearing ring tabs are positioned inside the grooves.

5. Confirm half-guard engagement by pulling backwards on the half-guard. (FIG. K3)



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 a minimum 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 during removal.

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 at a minimum 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. 4-72) Install until flush with back face of hub. Using a safe lifting device rated at a minimum 200 lbs., install hub assembly onto spindle. Install outer bearing, spindle washer and castle nut.

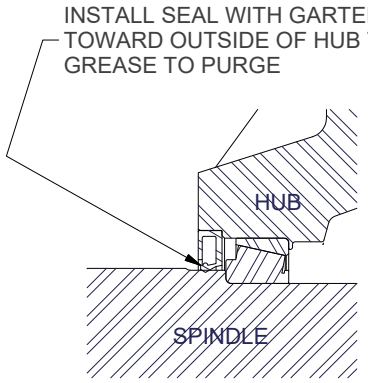


FIG. 4-72

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 and cart to the ground.

Wheels and Tires

Wheel Nut Torque Requirements

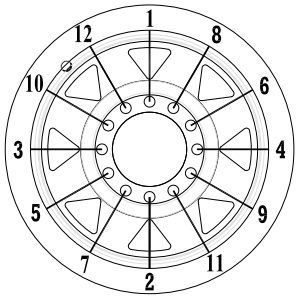
⚠ CAUTION

- **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	NEWTON METERS
M22x1.5	475	650



12 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
	IF1100/50R42 CFO R-1W	197B	46
	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
	800/65R32 R-1W	172D	34
	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

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. 4-73)
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.

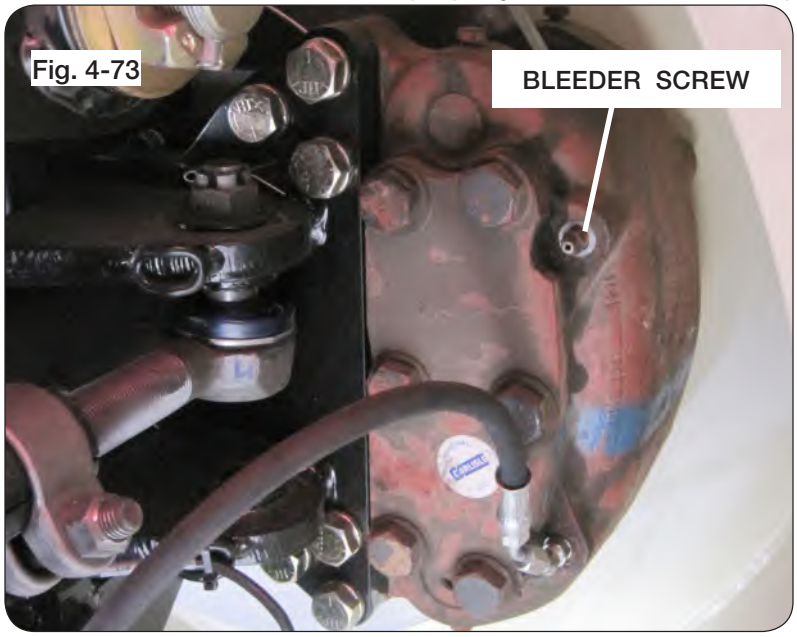


Fig. 4-73

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 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.

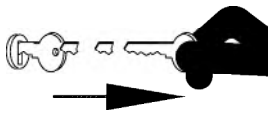
Baffle Adjustment (continued)

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 4-74. Use the lift handle to raise each baffle to the desired position, retighten both flange nuts, 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.



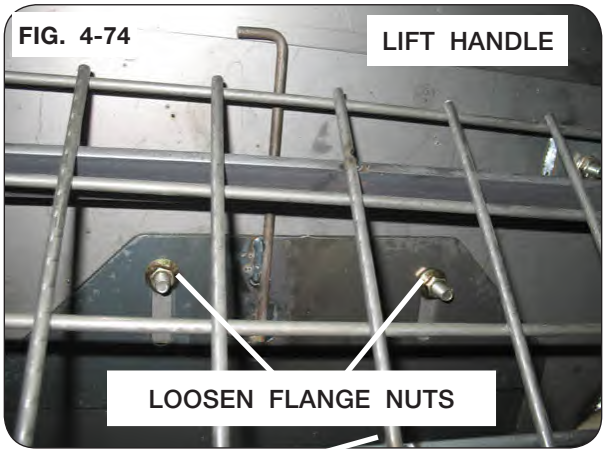


FIG. 4-74



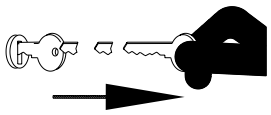
FIG. 4-75

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 tractor and 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.

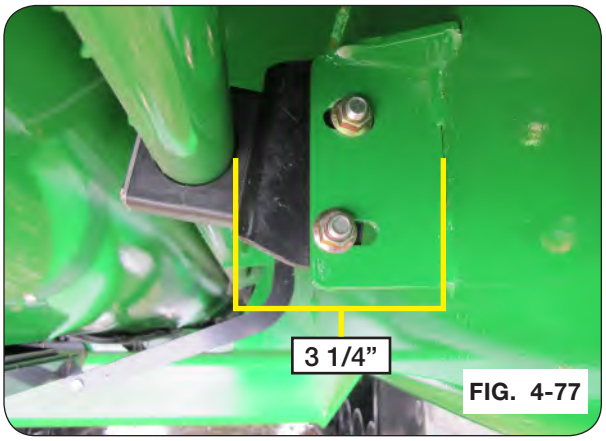


FIG. 4-77

Horizontal Cleanout Door Adjustment

6. To open the middle horizontal auger cleanout doors, unclasp the over center latch. (FIG. 4-78)

7. Unhook the eye bolt from the cleanout door and open. (FIG. 4-78)

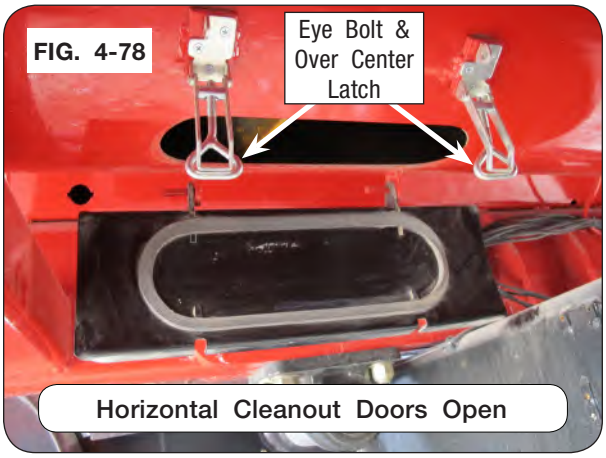
8. Inspect and verify all debris is removed from inside the horizontal auger housing and the cleanout doors that may prevent the doors from shutting completely. (FIG. 4-78)

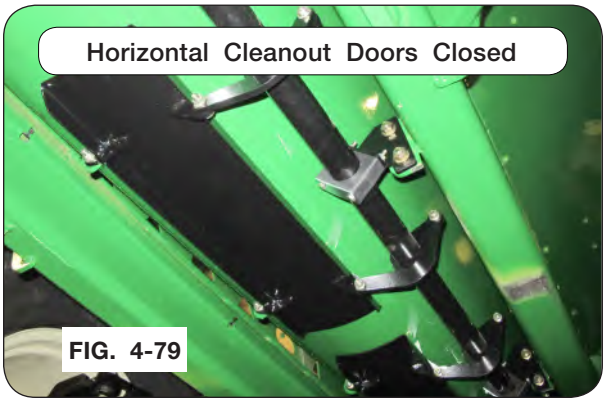
9. Close the middle horizontal auger cleanout doors and ensure the seals fit into the belly pan opening. (FIG. 4-78)

10. Rotate the tensioner handle counter-clockwise to close the doors allowing the seals to fit into the belly pan. (Fig. 4-79)

11. Close the doors and ensure all doors seal. (Fig. 4-79)

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



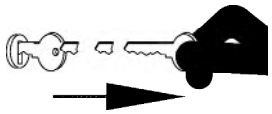


Hydraulic Jack Cylinder Replacement

⚠ 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)

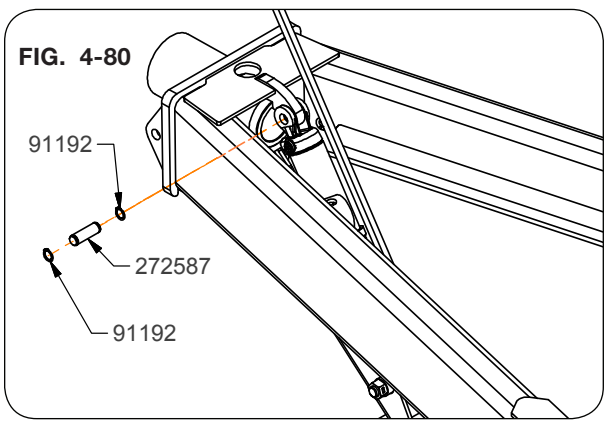


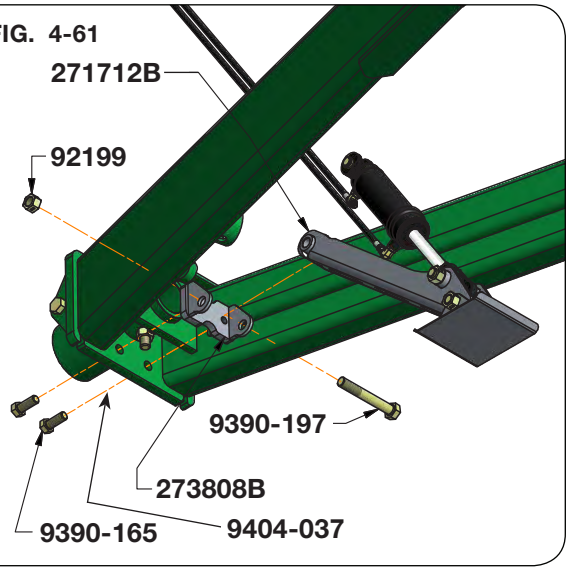
FIG. 4-80

Hydraulic Jack Cylinder Replacement (continued)

9. Remove two 7/8"-9UNC x 2 1/4" capscrews (9390-165) and 7/8" lock washers (9404-037) from mounting bracket (273808B). (FIG. 4-61)

10. Remove hydraulic jack assembly from the tongue. (FIG. 4-61)

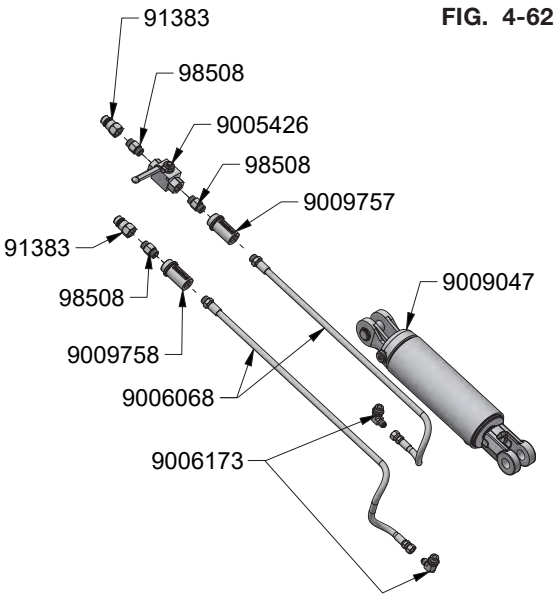
FIG. 4-61



11. On new hydraulic assembly (294143B), attach hoses (9006068) and fittings to cylinder (9009047) as shown in FIG. 4-62. 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 "Install Hydraulic Jack (Optional)" in SET UP section.

FIG. 4-62



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 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. 4-83

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.

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

Troubleshooting

Problem	Possible Cause	Corrective Action
No Electric Over Hydraulic (EOH) 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. Make sure the joystick and 7-pin connector are plugged into the same power source. If plugged into different power sources, the spout rotate and auger fold functions WILL NOT operate properly.
	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 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.

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.
	Switch located at the hinge plate of the vertical auger is not getting power, ground or is defective	Check the ground wire on the top plate of the lower 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.
	Cartridge valve(s) on the EOH valve block are not locked in center position.	Check the cartridge valve(s) on the EOH valve block are locked in center position. Remove any debris on the cartridge valve(s). Refer to "Manual Override for Opt. Electric Over Hydraulic System" in MAINTENANCE section.
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.*

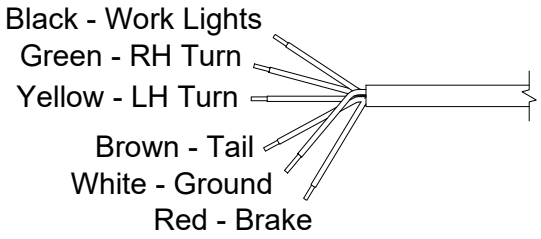
Periodic preventive maintenance should be practiced. Inspect tarp and hardware often for abrasions or loosened bolts that may need adjustment and/or repair. Check bungee cords for wear and adjust tension at the beginning of the season and again half way through the season.

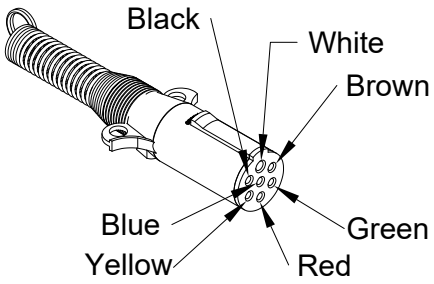
Tears in tarp should addressed before further tarp operation. If water pools on tarp, adjust tension of tarp cables and/or arm springs.

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.

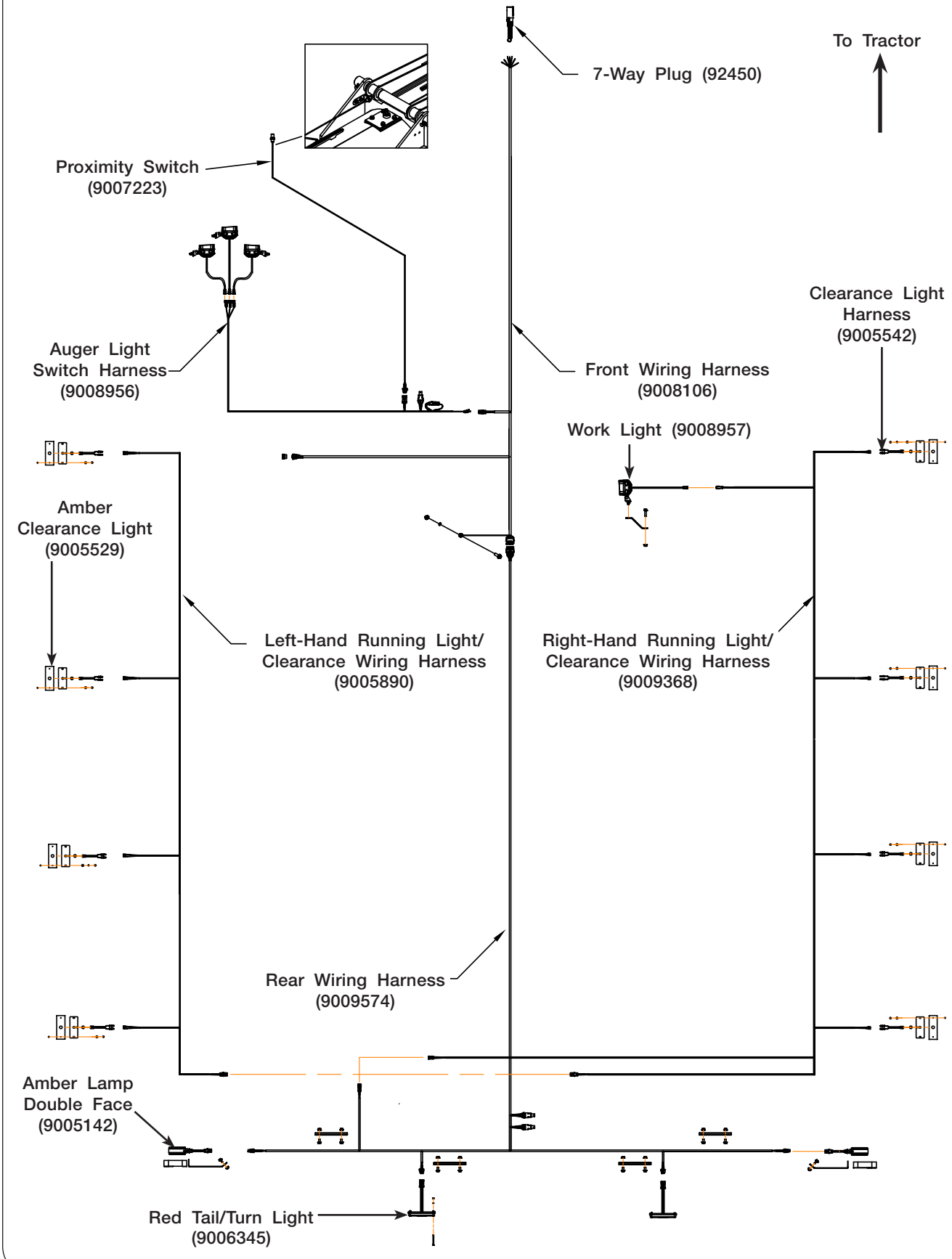
Electrical System Diagram — Plug #92450

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 -- **Aux Power**

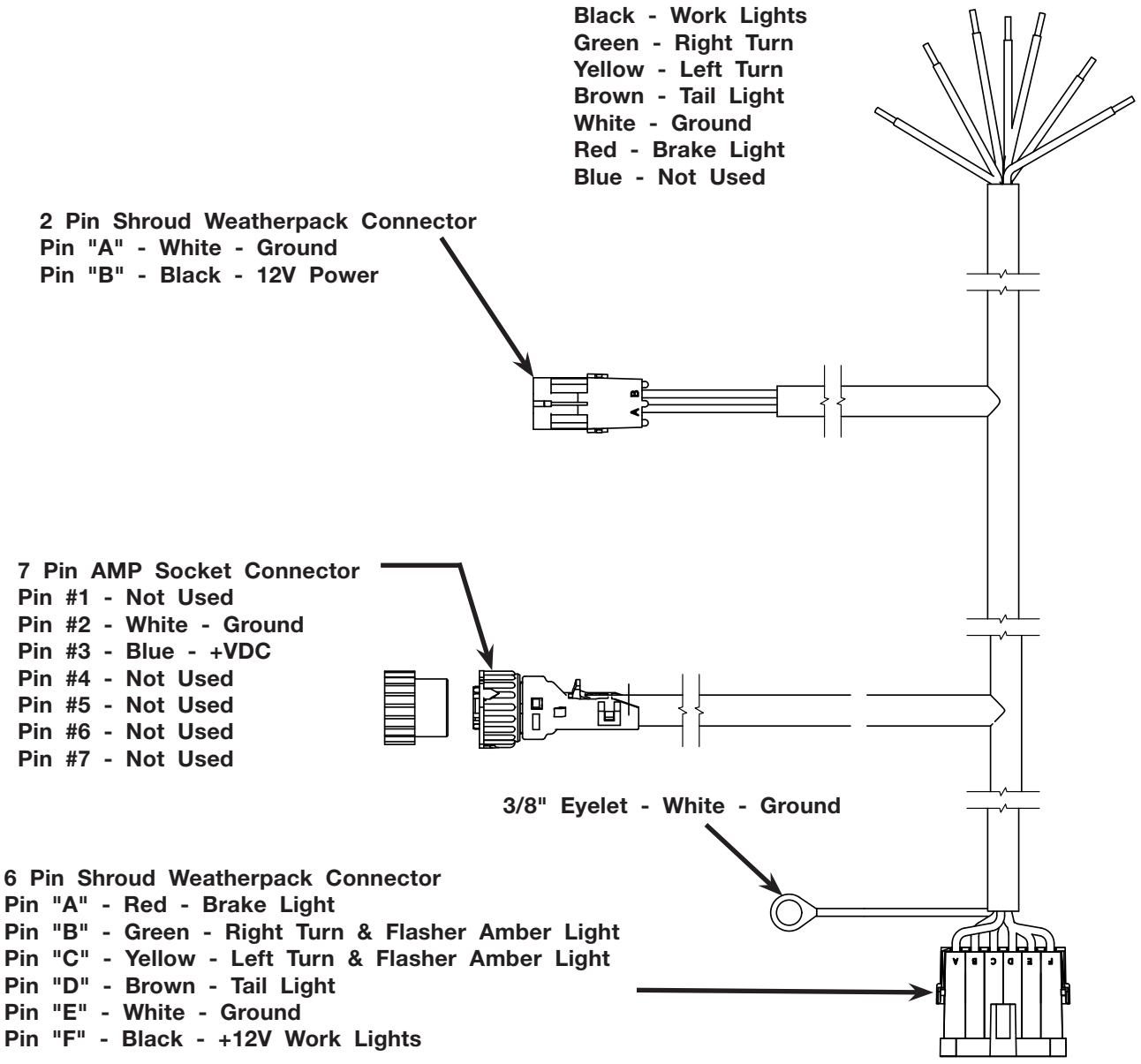




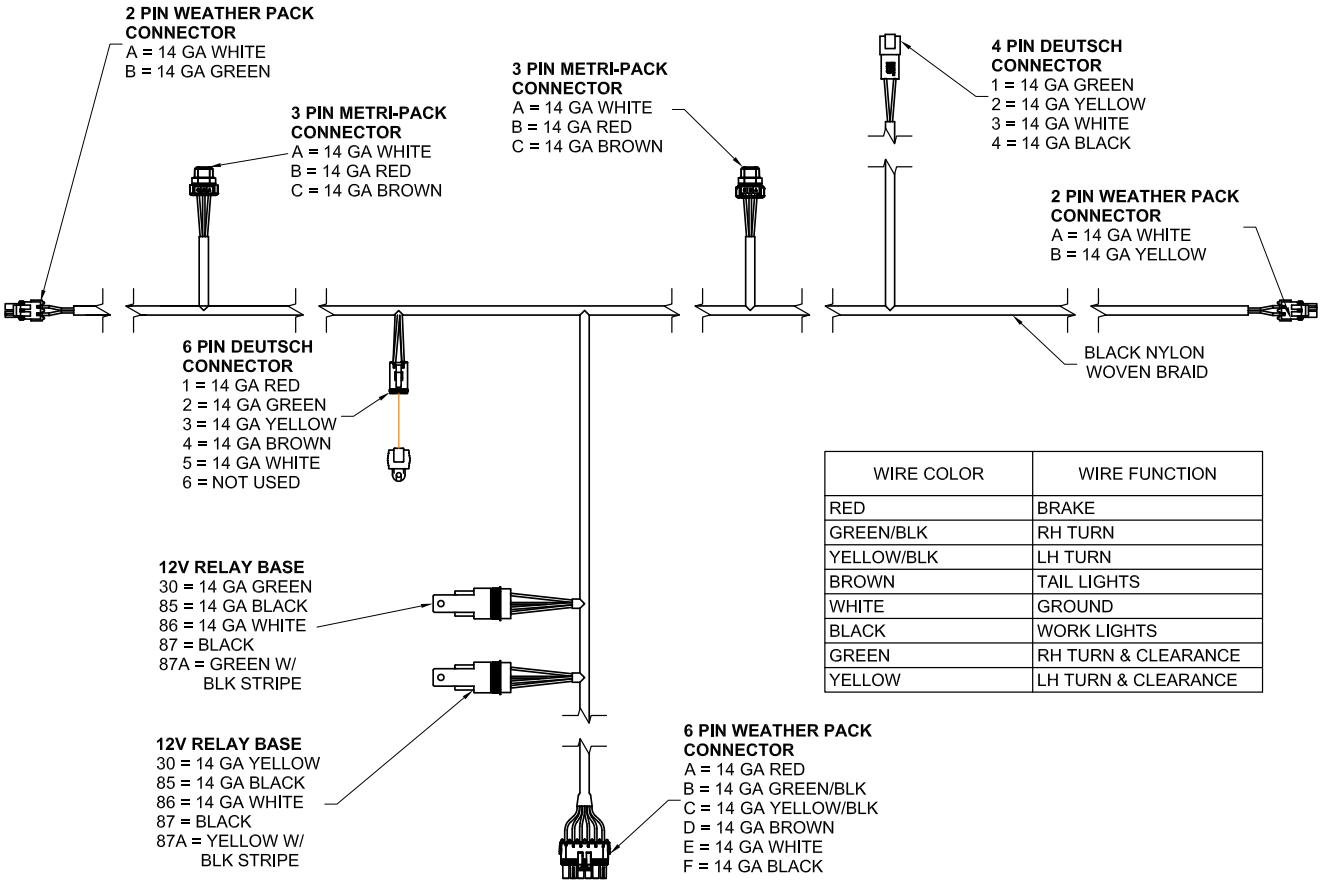
Electrical Diagram



Electrical Diagram — Front Harness #9008106



Electrical System Schematic - Rear Harness #9009574

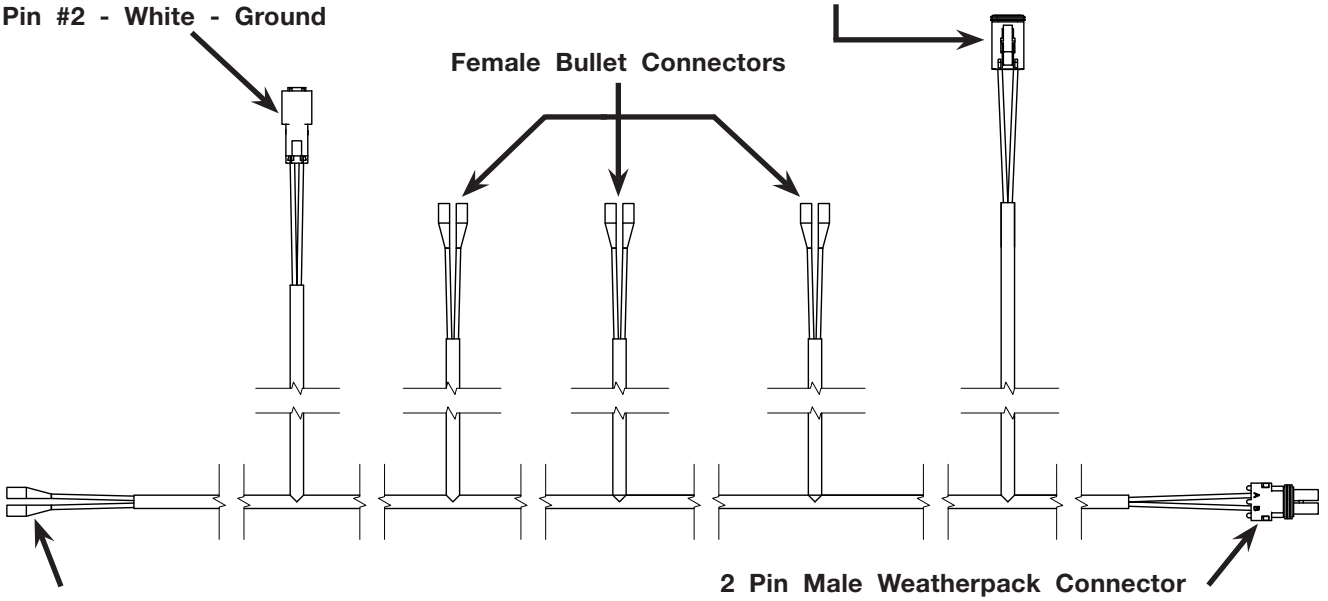


WIRE COLOR	WIRE FUNCTION
RED	BRAKE
GREEN/BLK	RH TURN
YELLOW/BLK	LH TURN
BROWN	TAIL LIGHTS
WHITE	GROUND
BLACK	WORK LIGHTS
GREEN	RH TURN & CLEARANCE
YELLOW	LH TURN & CLEARANCE

Electrical Diagram — Right-Hand Running Light/Clearance

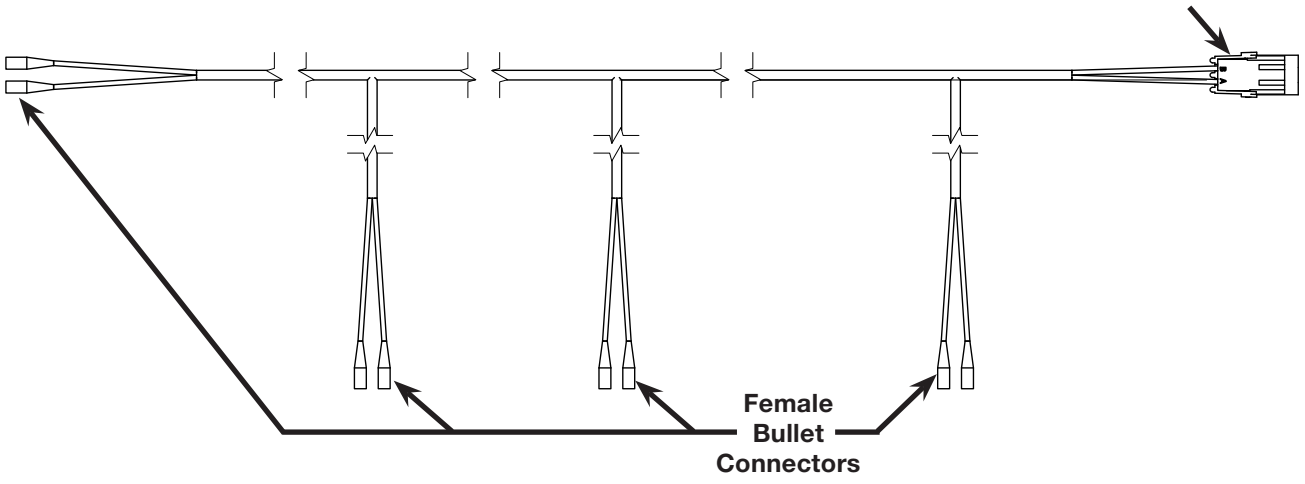
2 Pin Deutsch Plug Connector
SN B40550100 & Higher
2 Pin Deutsch Receptacle Connector
SN B40550099 & Lower
Pin #1 - Black - Switched Work Lights
Pin #2 - White - Ground

4 Pin Deutsch Socket Plug Connector
Pin #1 - Green - Right Turn & Flasher Amber Lights
Pin #2 - Yellow - Left Turn & Flasher Amber Lights
Pin #3 - White - Ground
Pin #4 - Black - Interior Light

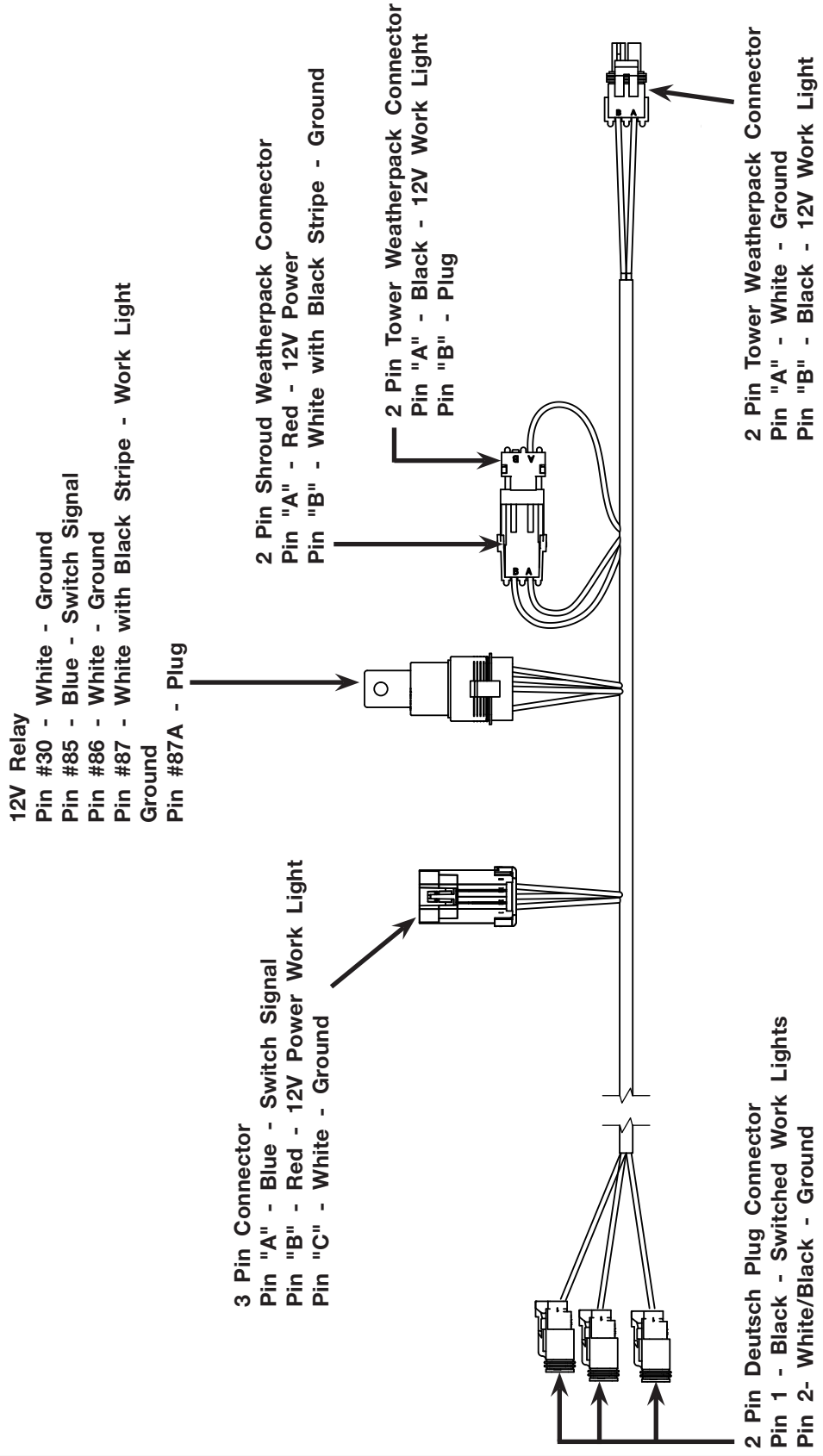


Electrical Diagram — Left-Hand Running Light/Clearance Wiring Harness #9005890

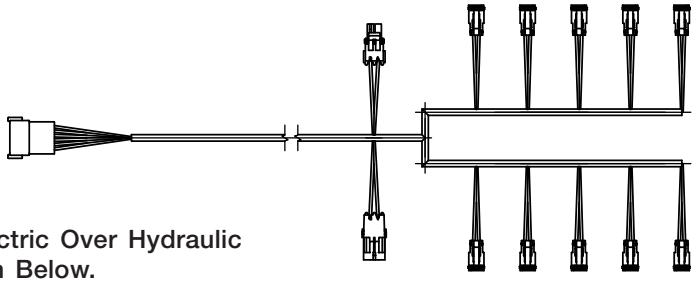
2 Pin Female Weatherpack Connector
Pin "A" - White - Ground
Pin "B" - Black - Turn & Flasher



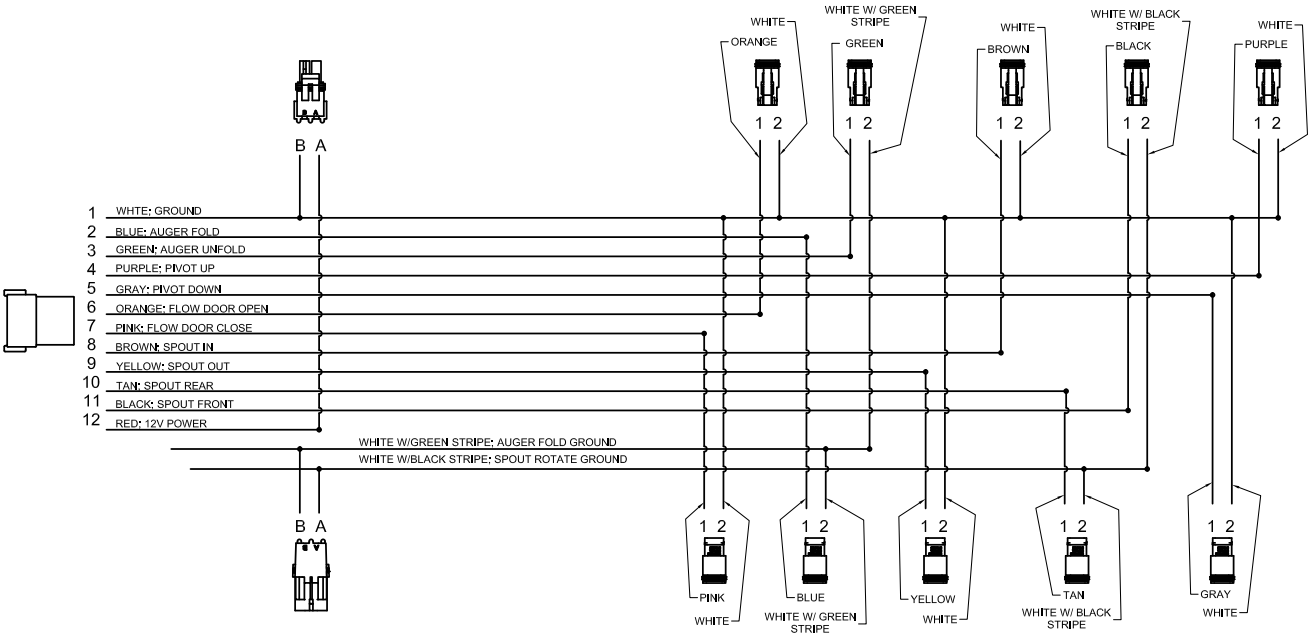
Electrical Diagram — Auger Wiring Harness #9010212

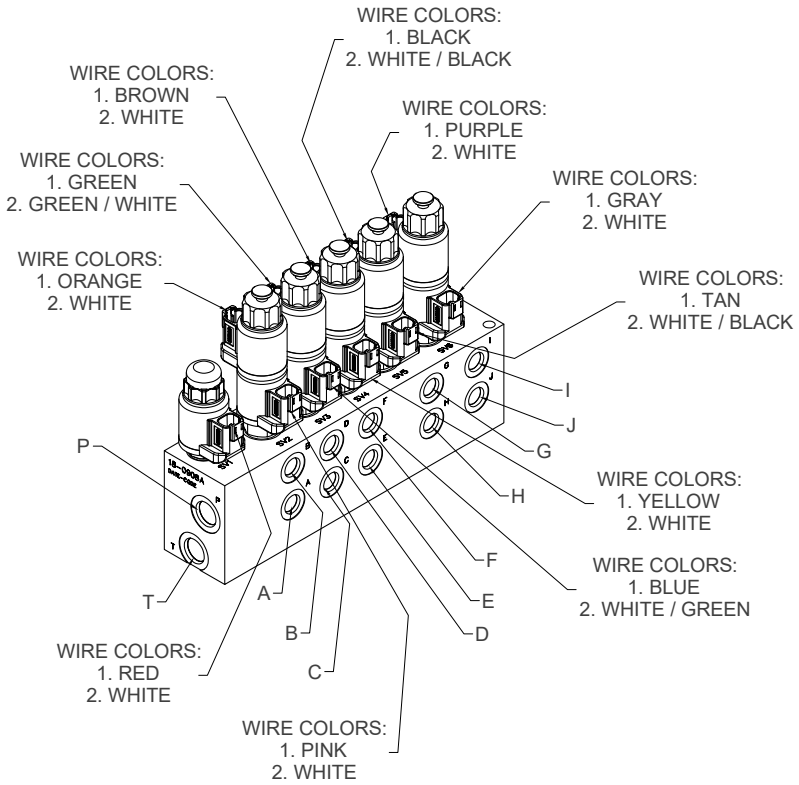


Electrical System Diagram - Main Harness #9007290 (Opt.)



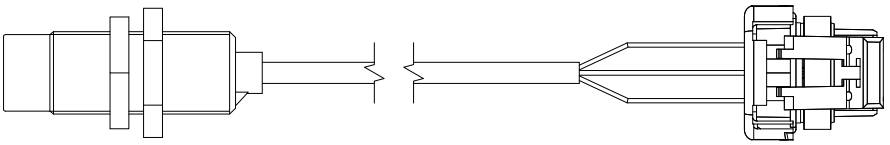
NOTE: For Optional Electric Over Hydraulic 5 Function Valve Shown Below.





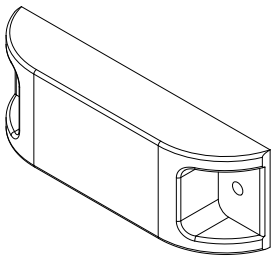
Electrical Diagram — Proximity Sensor #9007223

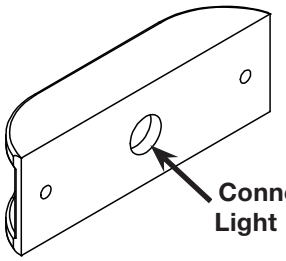
3 Pin Female Connector



Pin "A" - Black - Signal
Pin "B" - Brown - +12V DC
Pin "C" - Blue - Ground

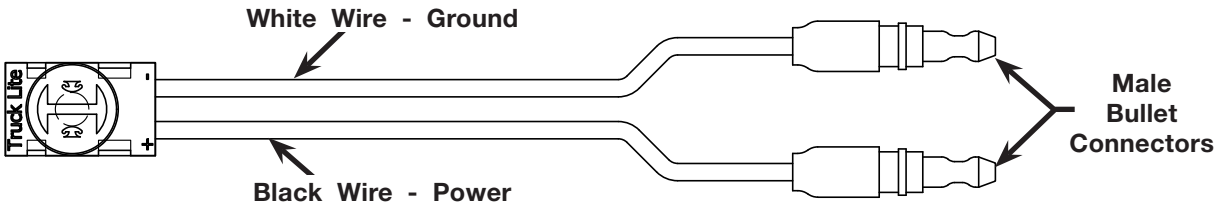
Electrical Diagram — Amber Clearance Light #9005529



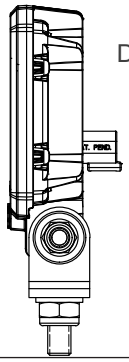


Connects To Clearance Light Harness #9005542

Electrical Diagram — Clearance Light Harness #9005542



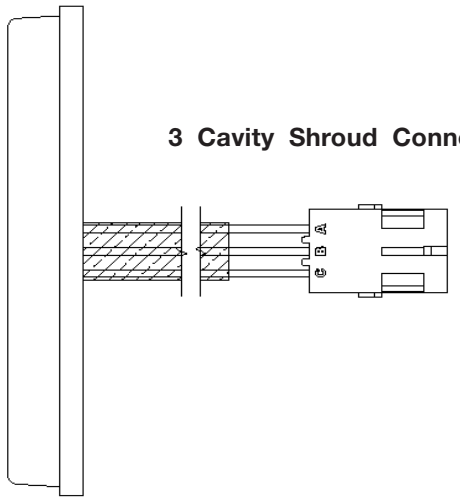
Electrical System Diagram - Work Flood Lamp #9008957



2 PIN INTEGRATED
DEUTSCH CONNECTOR

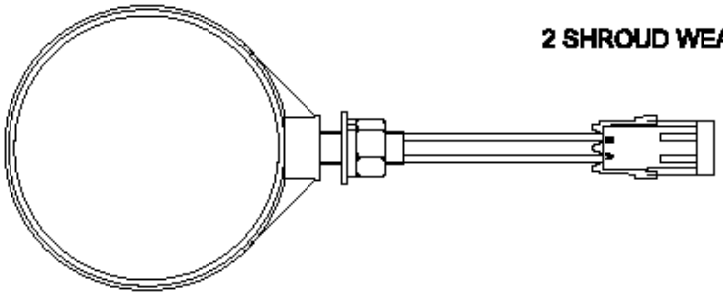
POWER (PIN #1)
GROUND (PIN #2)

Electrical Diagram — Red Tail/Turn Light #9006345

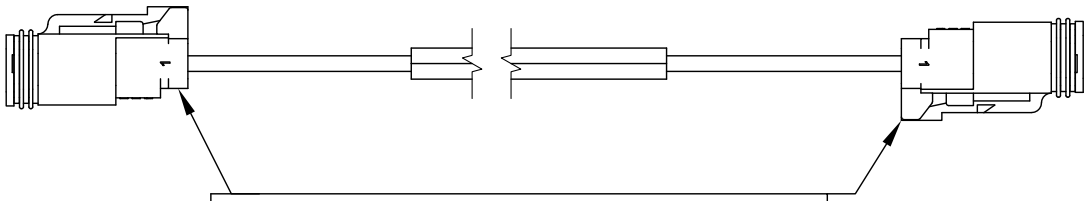


Pin "A" - White - Ground
Pin "B" - Red - High
Pin "C" - Brown - Low

Electrical Diagram — Amber Lamp Double Face #9005142



Electrical System Schematic - Diverter Harness #9007266



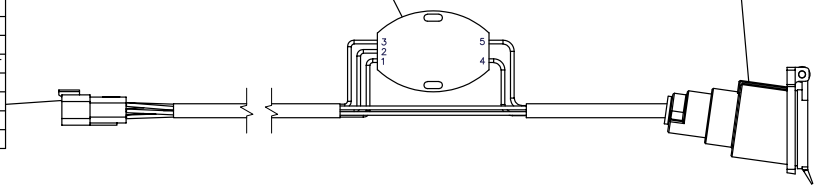
CONNECTOR TYPE: 2 PIN DEUTSCH PLUG		
PIN #	WIRE COLOR	FUNCTION
1	RED	+12V POWER
2	WHITE	GROUND

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

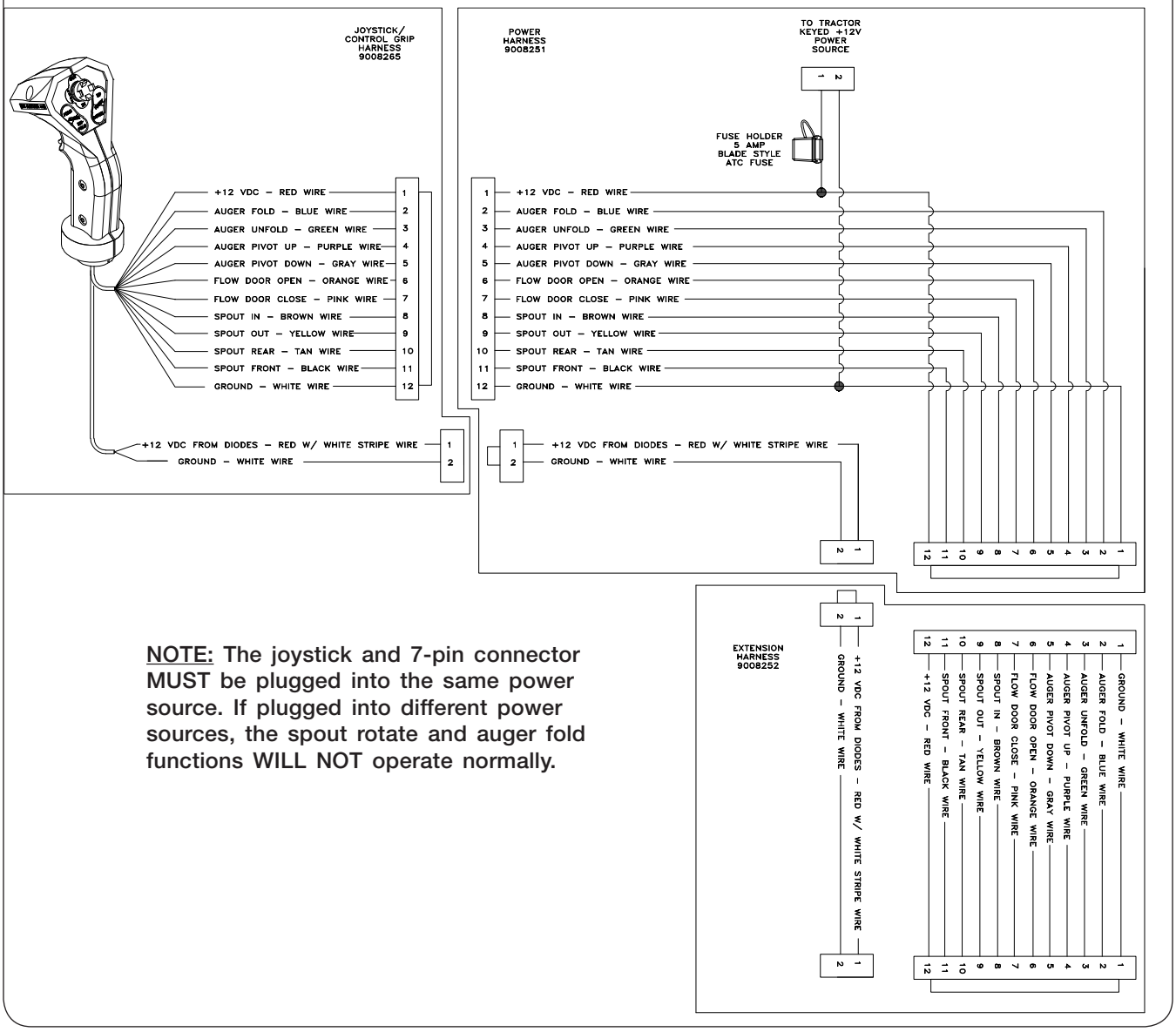
TAIL LIGHT CONVERTER		
WIRE	COLOR	WIRE FUNCTION
1	YELLOW	LEFT TURN/FLASHING
2	RED	BRAKE LIGHTS
3	GREEN	RIGHT TURN/FLASHING
4	YELLOW	LEFT TURN/STOP
5	GREEN	RIGHT TURN/FLASHING

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

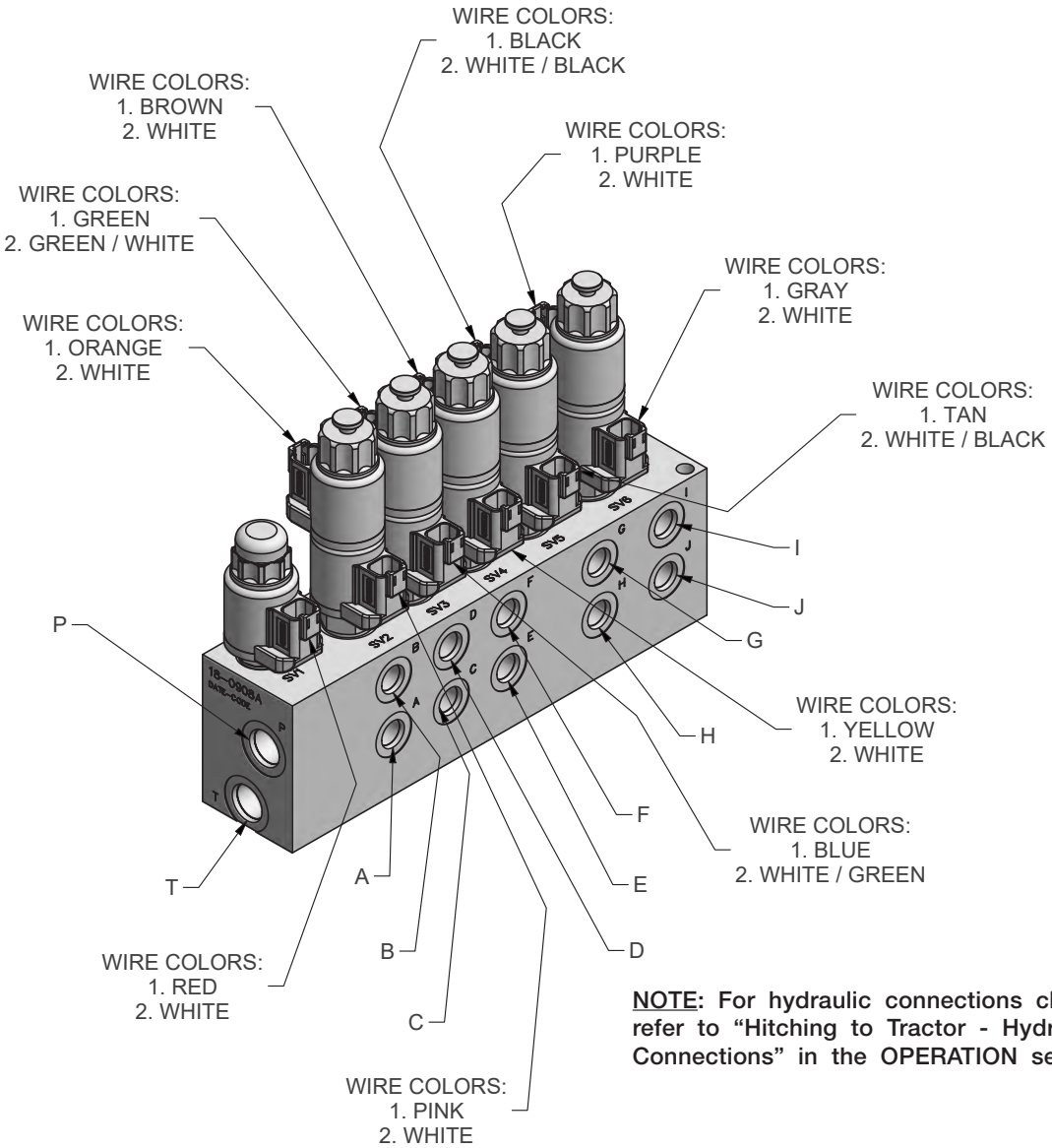


Electrical Over Hydraulic (EOH) System Schematic 5 Function Optional



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.

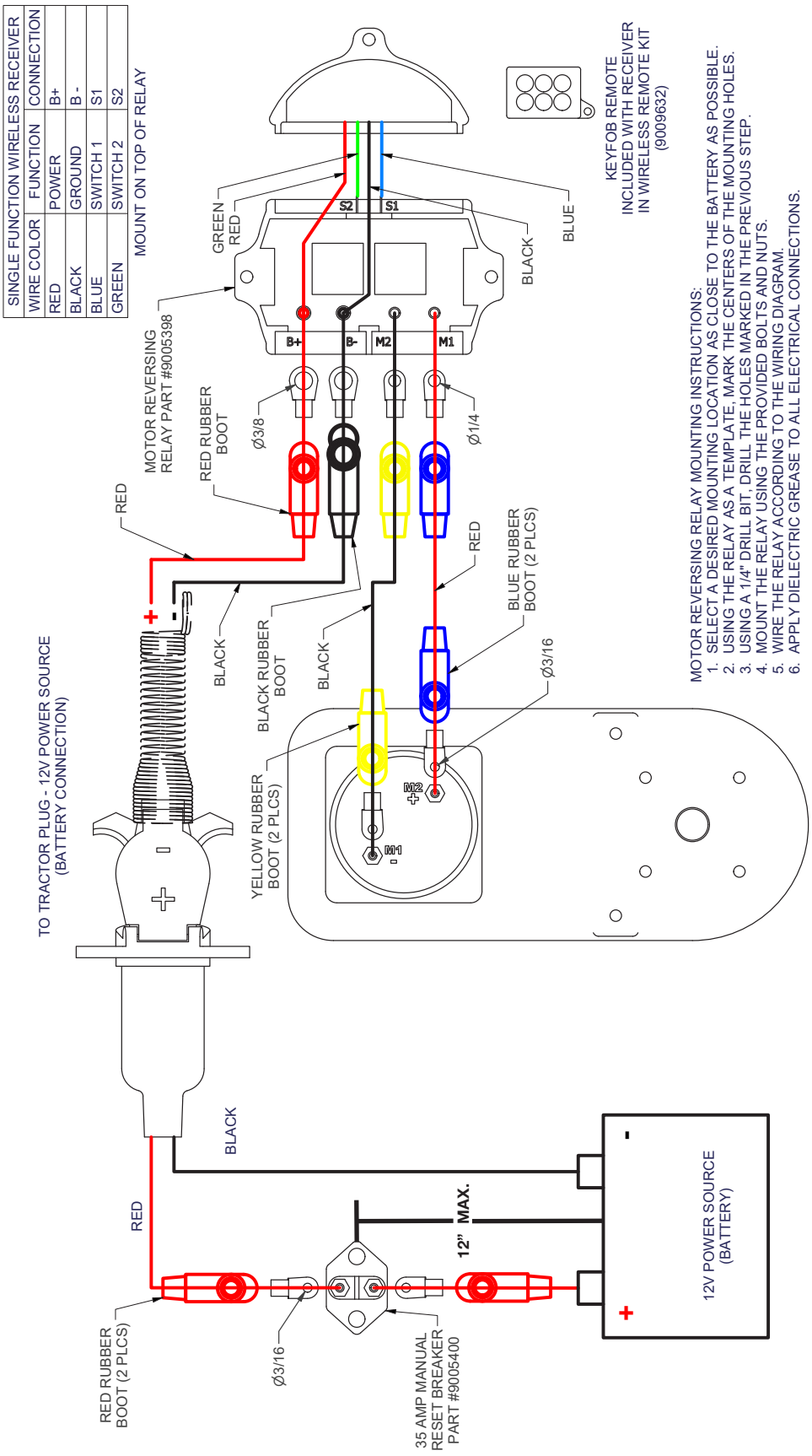
Electric Over Hydraulic Valve Electric Schematic 5 Function



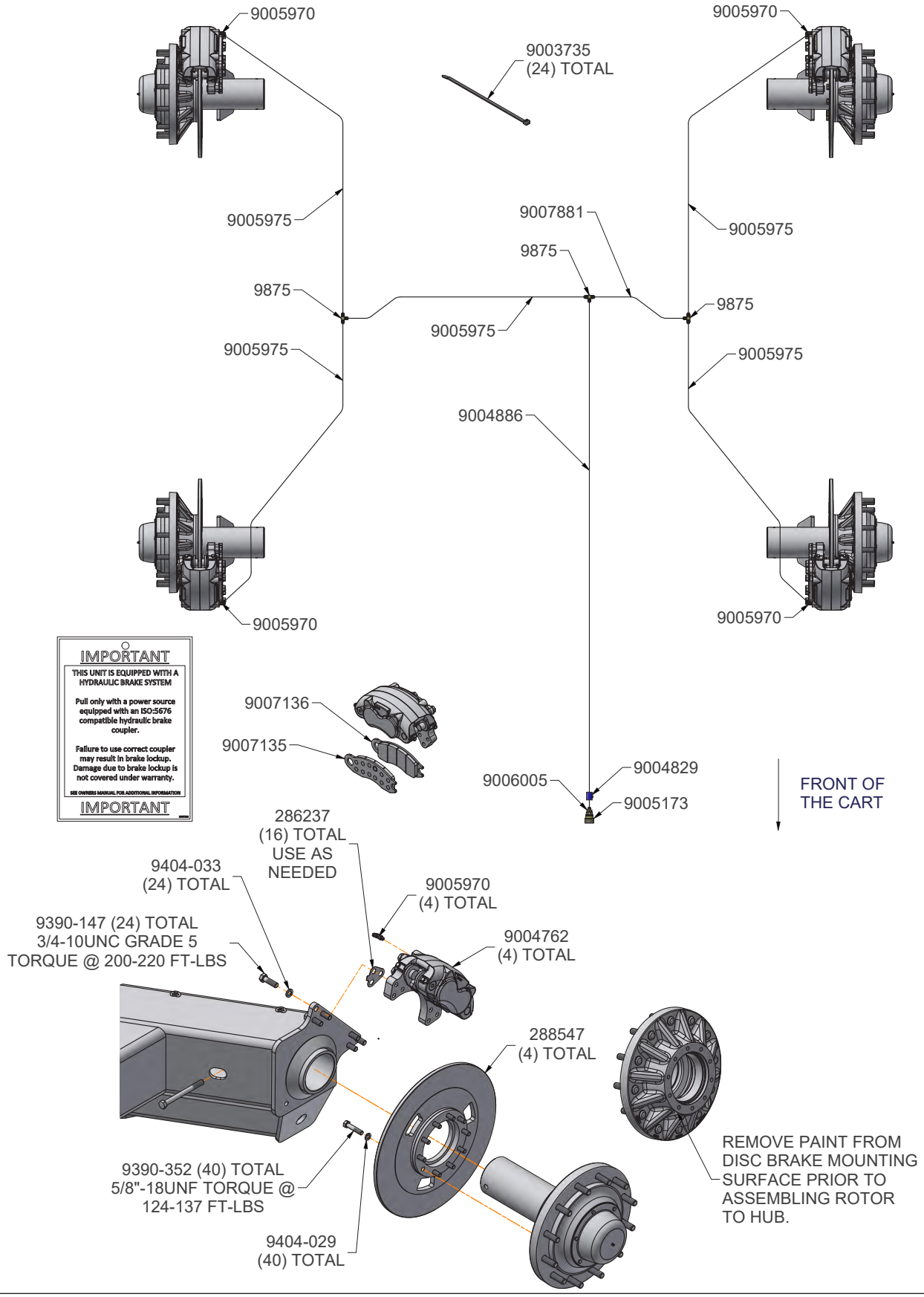
NOTE: For hydraulic connections chart, refer to "Hitching to Tractor - Hydraulic Connections" in the OPERATION section.

PORT	END OF CYLINDER	FUNCTION
A	BUTT END	FLOW DOOR CLOSE
B	RAM END	FLOW DOOR OPEN
C	RAM END	AUGER UNFOLD
D	BUTT END	AUGER FOLD
E	RAM END	SPOUT TILT OUT
F	BUTT END	SPOUT TILT IN
G	BUTT END	JOYSTICK / SPOUT ROTATE
H	RAM END	JOYSTICK / SPOUT ROTATE
I	BUTT END	AUGER PIVOT DOWN
J	RAM END	AUGER PIVOT UP
P		JOYSTICK / TRACTOR PRESSURE
T		JOYSTICK / TRACTOR RETURN

Electrical System Schematic - Optional Wireless Electric Tarp



Braking System Schematic (Optional)



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

⚠ WARNING

- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WARN WHILE SERVICING THE IMPLEMENT.**
- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. LEAKS OF HIGH-PRESSURE FLUIDS MAY NOT BE VISIBLE. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**



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

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

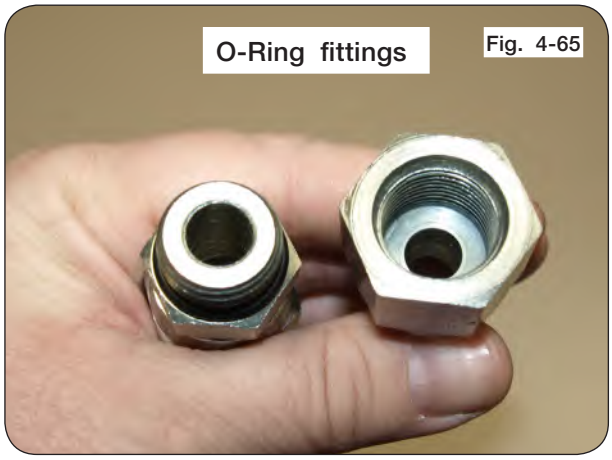


Fig. 4-65

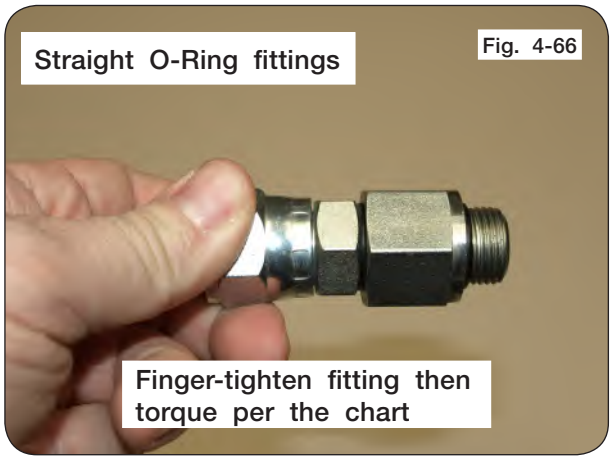


Fig. 4-66

Hydraulic Fittings – Torque and Installation

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.

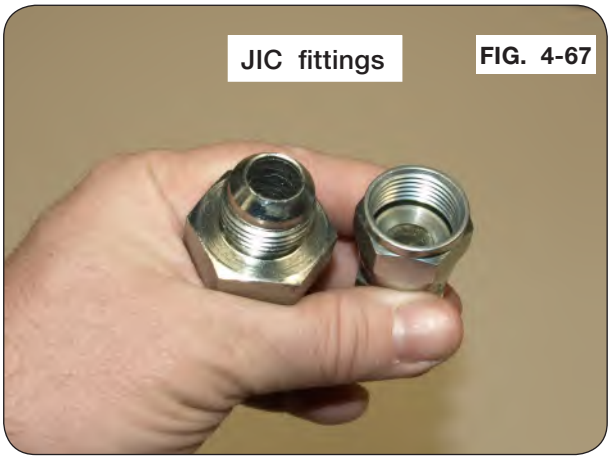


FIG. 4-67

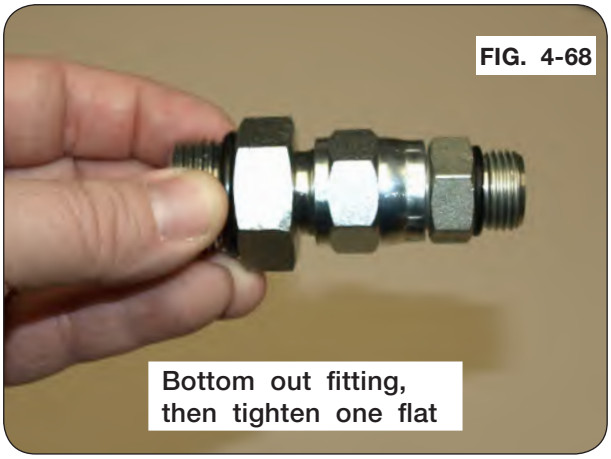


FIG. 4-68

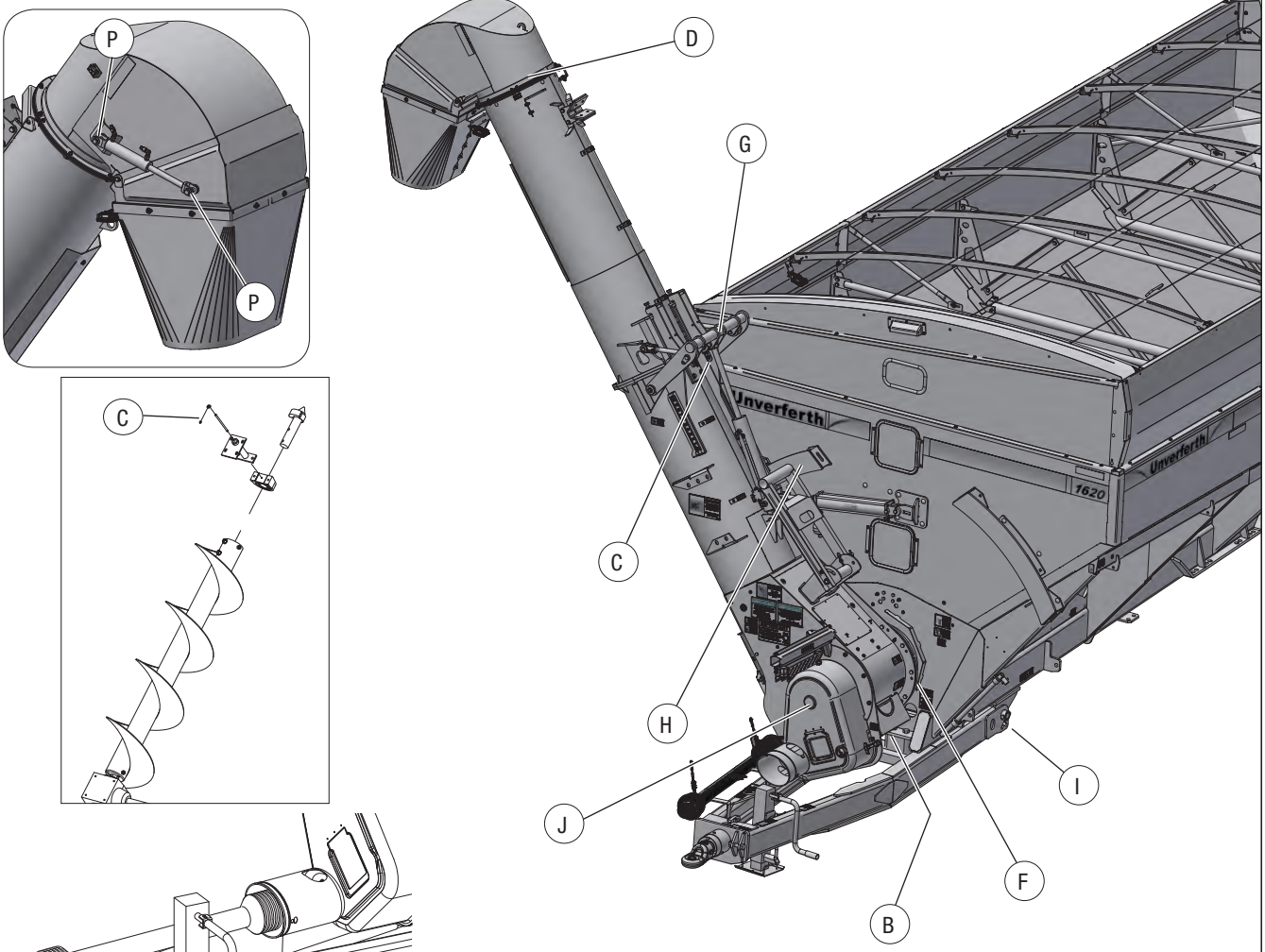
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Maintenance

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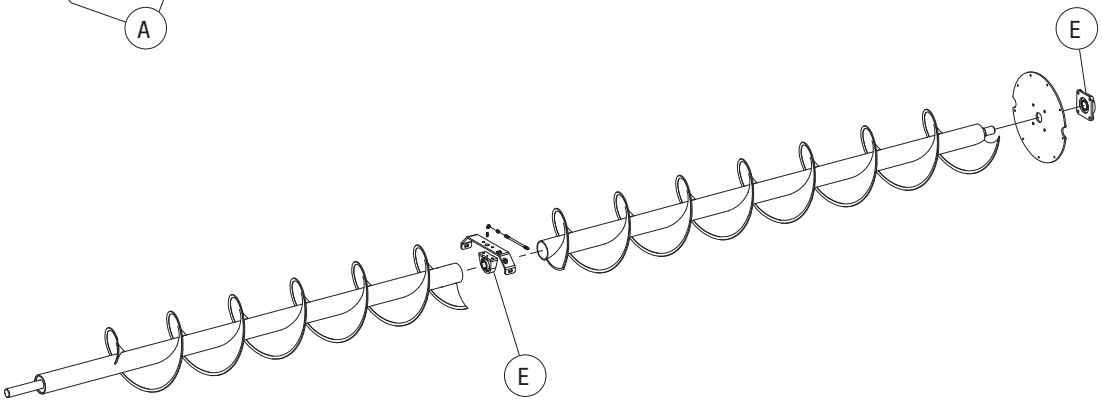
FOR SCALE, TRACK, UHARVEST, ELECTRIC TARP, VIDEO SYSTEM OR OTHER OPTIONS, PLEASE REFER TO THE INDIVIDUAL MANUALS.

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.

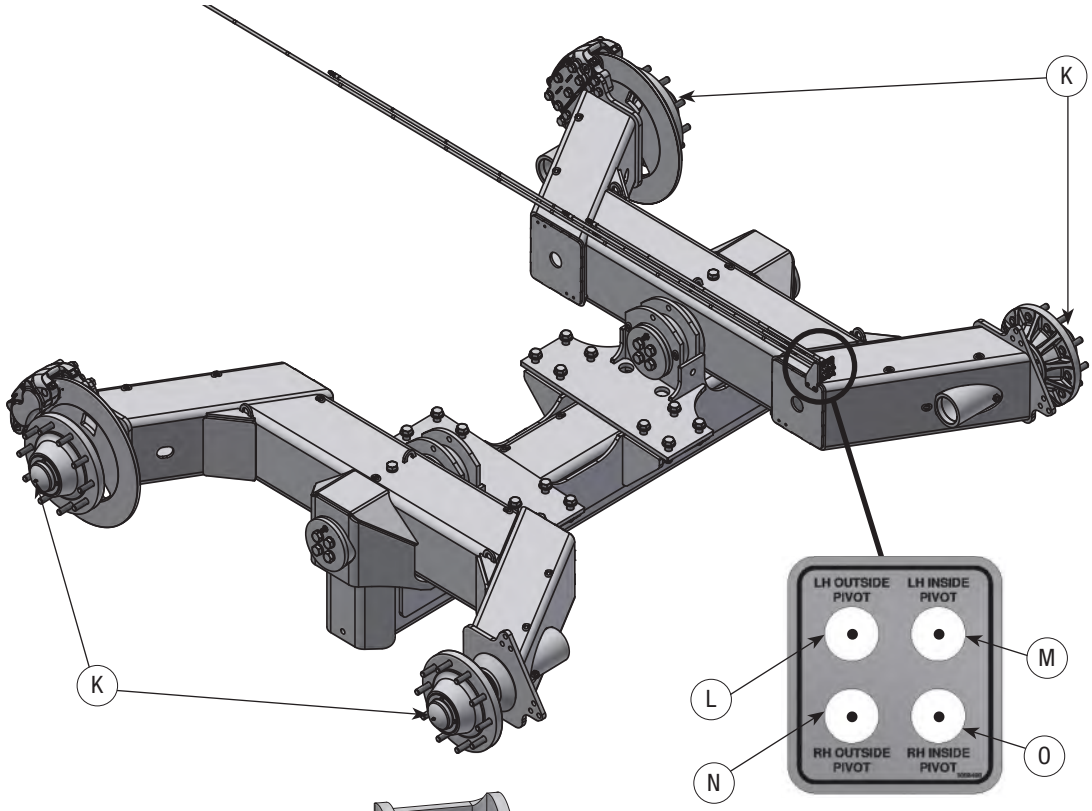


NOTE: FOR TRACK LUBRICATION, PLEASE REFER TO APPROPRIATE TRACK MANUAL.

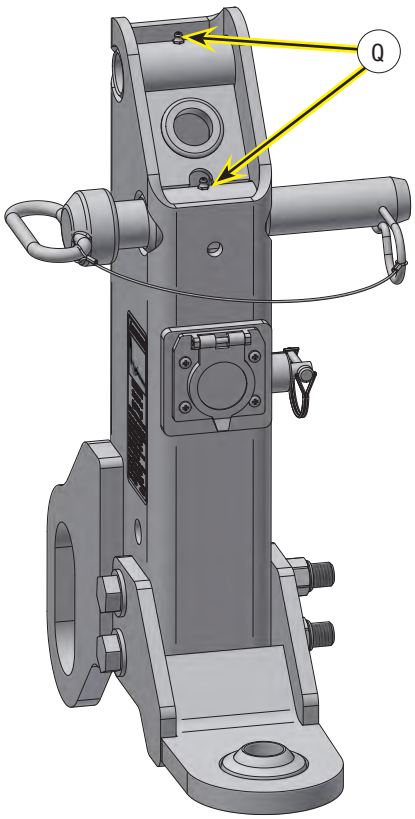


Lubrication (continued)

In-Line Tandem Lubrication Locations

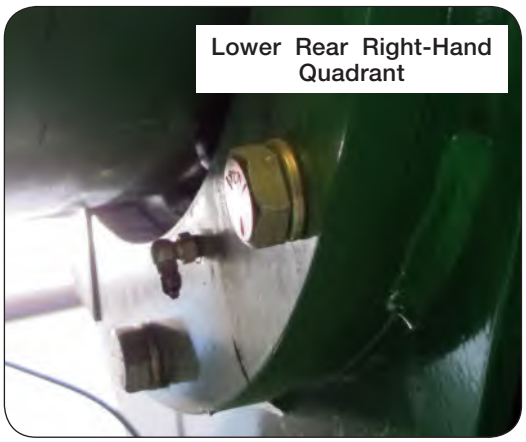


Optional Rear Hitch

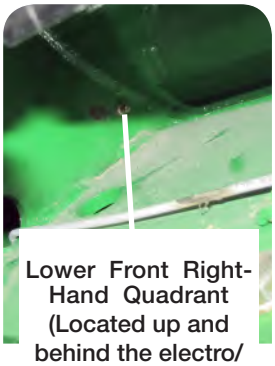


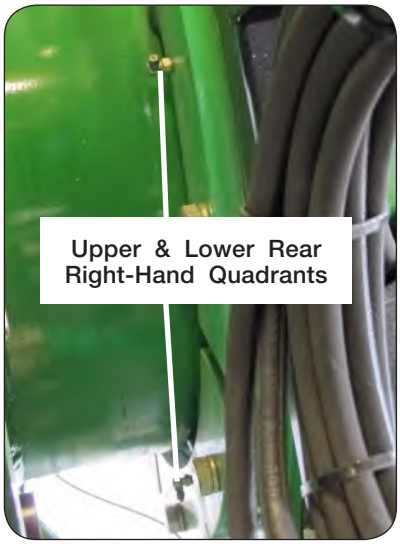
Lubrication (continued)

Lower Auger Pivot Housing Grease Points

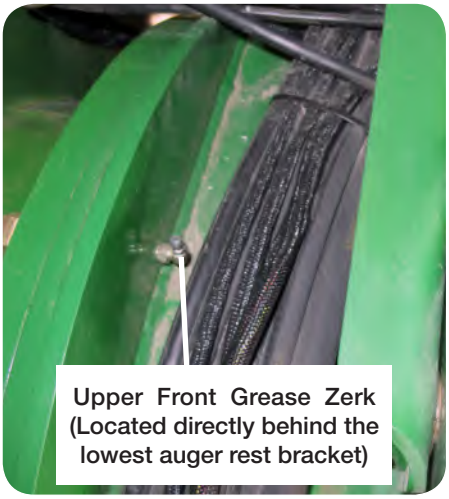












Lubrication (continued)

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 - Benzi or GKN Walterscheid	-	EP-2	1 Shot	See Next Pages
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*	Hanger Bearing - Vertical Lower Auger See note below*	1	EP-2	2 Shots*	Monthly
D	Top Bearing - Vertical Upper Auger	1	EP-2	1 Shot	Each Season
E	Horizontal Auger End & Center Bearings	2	EP-2	2 Shots	Monthly
F	Auger Pivot Rings - Vertical Lower Auger See previous page for zerk locations.	8	EP-2	2 Shots	Daily
G	Auger Pivot Pin - Vertical Upper Auger	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	Hubs	4	EP-2	Repack	Annually
L	Tandem Grease Bank - LH Outside Pivot	1	EP-2	6 Shots	Daily
M	Tandem Grease Bank - LH Inside Pivot	1	EP-2	6 Shots	Daily
N	Tandem Grease Bank - RH Outside Pivot	1	EP-2	6 Shots	Daily
O	Tandem Grease Bank - RH Inside Pivot	1	EP-2	6 Shots	Daily
P	Spout Tilt Cylinder	2	EP-2	1 Shot	Each Season
Q	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.

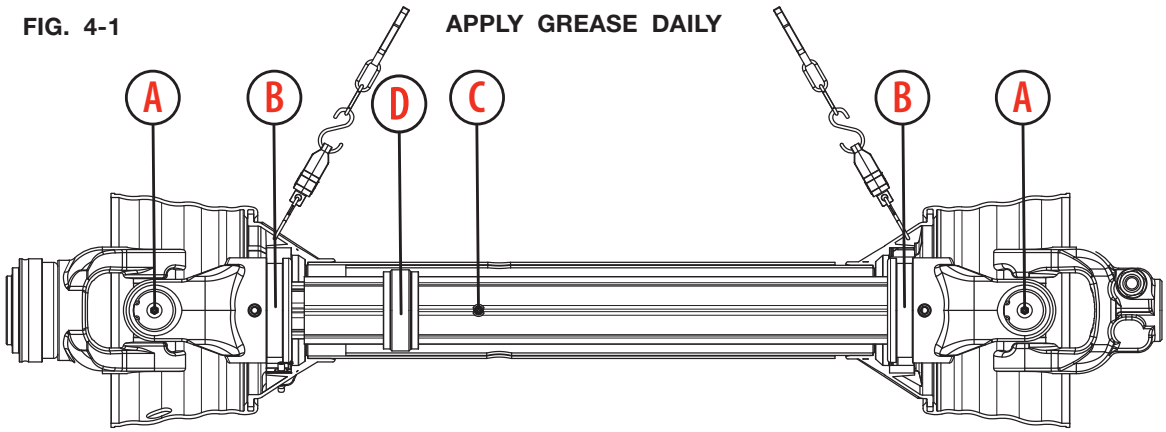
PTO Driveshaft Lubrication - Benzi PTO

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.

- Grease the overrunning clutch on front half driveline assembly every 50 operating hours.
- The CAM Cut Out clutch on rear half driveline assembly is pre-greased for 500 operating hours. Contact your dealer for more greasing information.

FIG. 4-1 APPLY GREASE DAILY



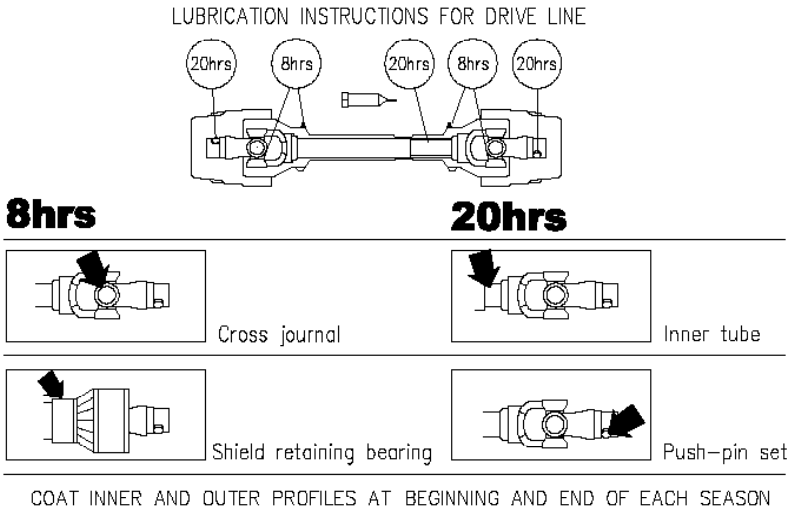
ITEM	DESCRIPTION	POINT	LUBRICANT	QTY.	HOURS
A	U-Joint Cross Kit	1	EP-2	2 Shots	8 Hours
B	Inner & Outer Yoke Groove	1	EP-2	1 Shot	8 Hours
C	Inner & Outer Profile Tube	1	EP-2	26 Shots	Start and End of Each Season 50 Hours
D	Anti-Vibration Bushing	1	EP-2	5 Shots	Start and End of Each Season 50 Hours

PTO Driveshaft Lubrication - GKN Walterscheid PTO

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. 4-2



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.**



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 system at full pressure for at least 5 seconds after cylinder rods stop moving, or hydraulic motors have completed the required movement. Check that all movements are fully completed.
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, or hydraulic motors have completed the required movement. Check that all movements are fully completed.
E. Check for hydraulic leaks using cardboard or wood. Tighten connections according to directions in Torque Chart in this section.
F. Repeat steps 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.

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.**

NOTE: Manual override operation is intended for emergency use ONLY and is not intended for continuous operation.

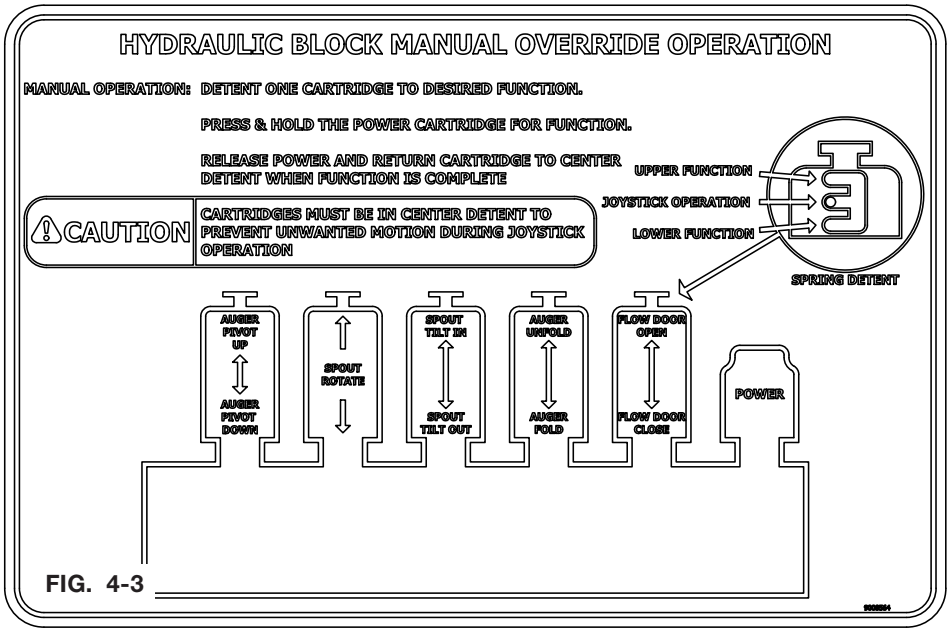


FIG. 4-3

1. Park the 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 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.



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. 4-5, 4-6, & 4-8)

6. Push and hold the manual override button on valve (9008438). (FIG. 4-7)

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. Place cover plate (295569B) from step 2 back onto the bottom of the lower auger housing.

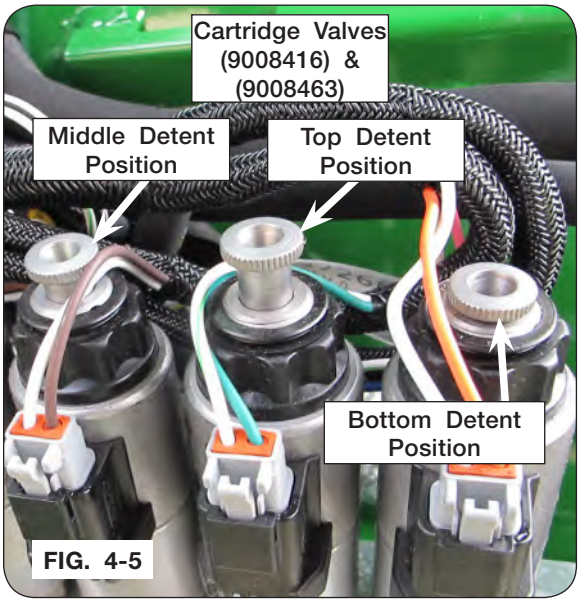


FIG. 4-5

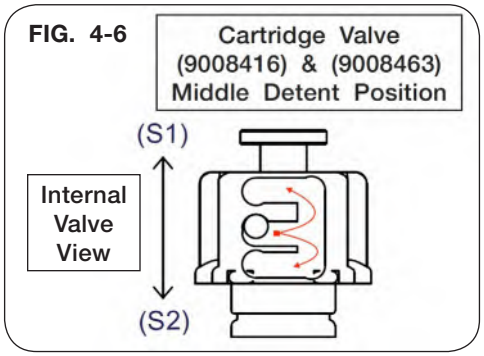


FIG. 4-6

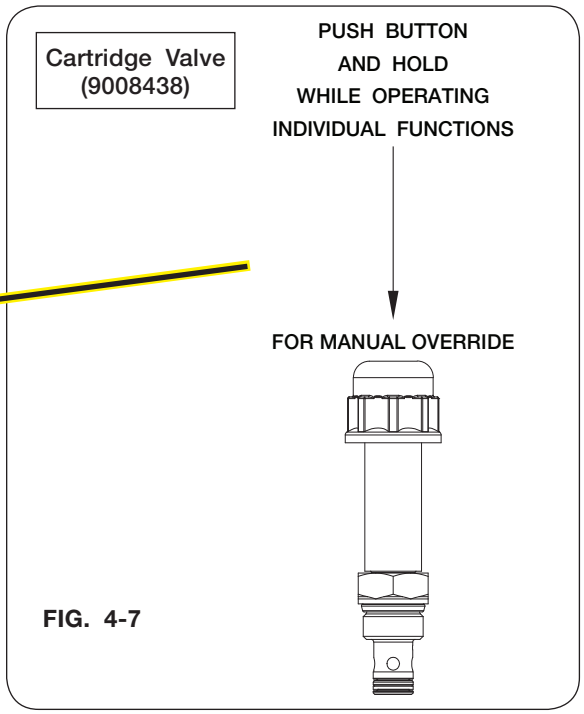


FIG. 4-7

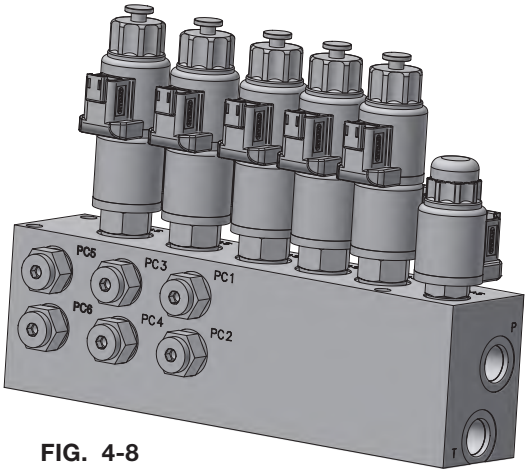


FIG. 4-8

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 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.**
- **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. 4-9)

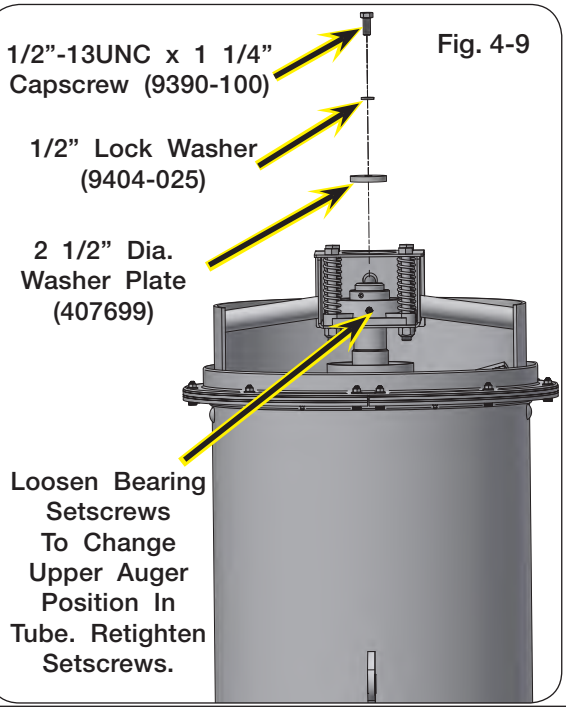


Fig. 4-9

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. 4-11 & 4-12)

Fig. 4-12

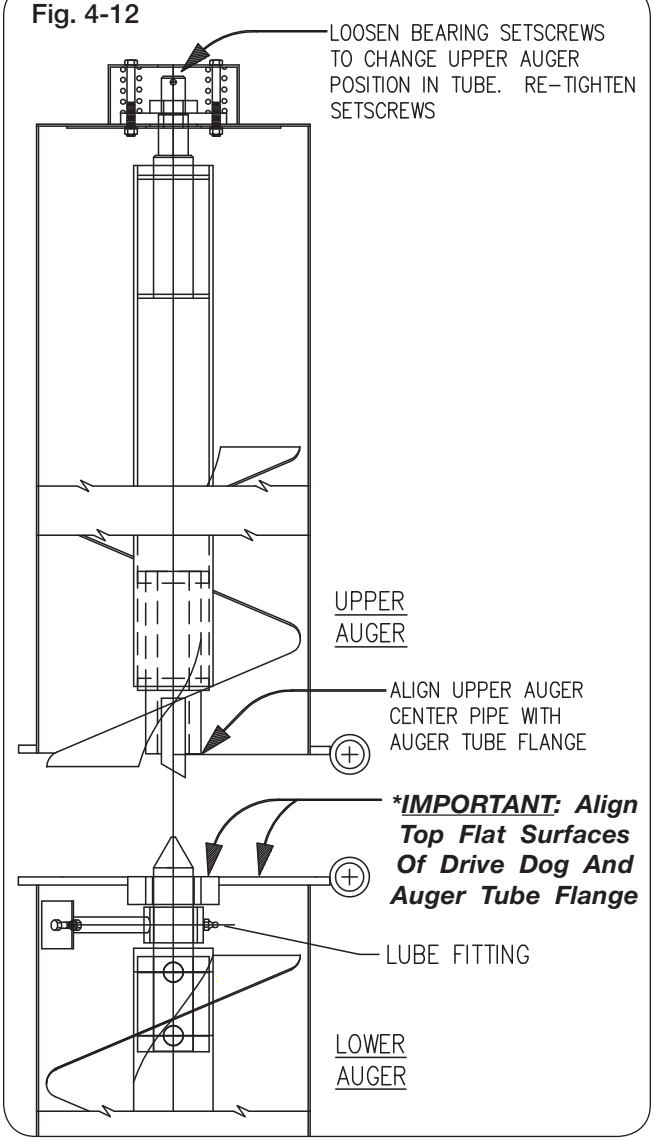
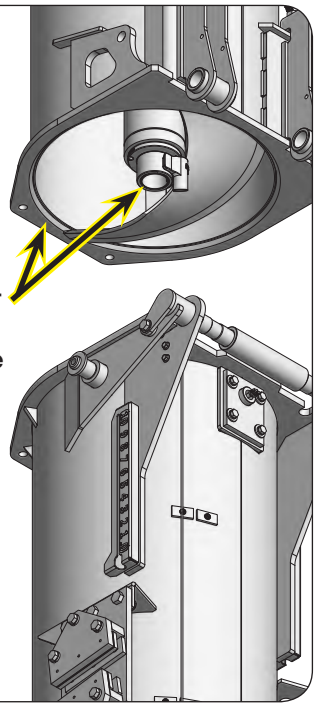
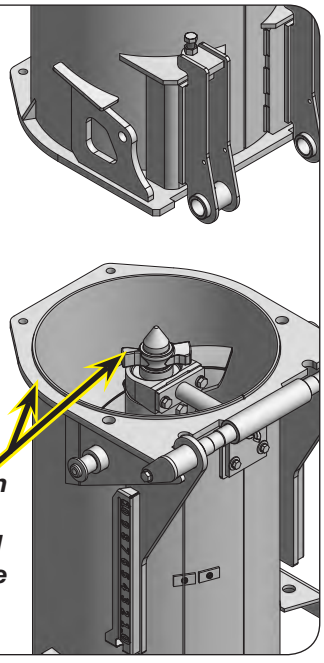


Fig. 4-10



Align Upper Auger Center Pipe With Auger Tube Flange

Fig. 4-11



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

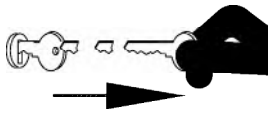
Auger System (continued)

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 wheels/tracks to keep the machine from moving. Set the tractor parking brake, turn off tractor engine, remove ignition key, and disconnect PTO shaft and hydraulic lines from tractor.



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

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

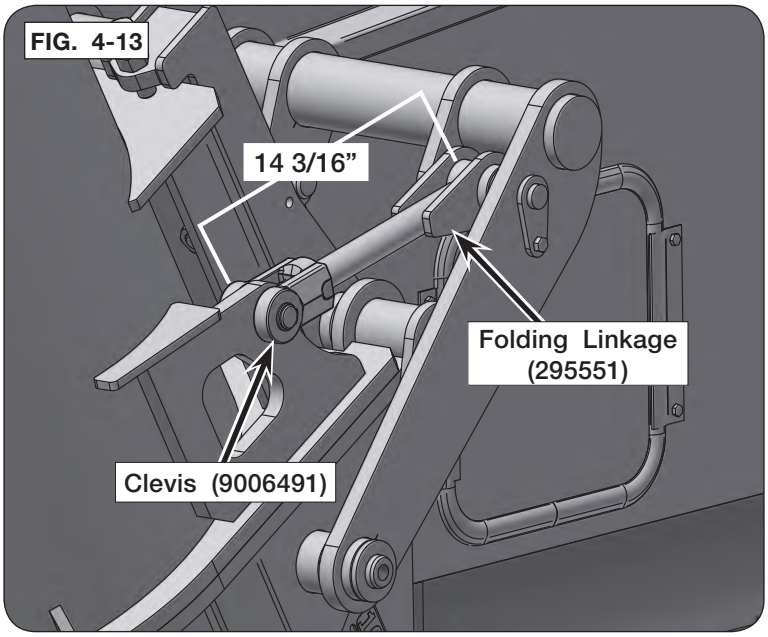
6. Repeat procedure for the folding linkage on the BACK of the auger.

7. Reattach PTO. Refer to "Driveline Installation" in SET UP section.

8. Reconnect hydraulic lines to tractor. Refer to "Hitching to Tractor" in OPERATION section.

9. Choose an area free from obstructions and unfold auger to operating position. Allow sufficient time for the cylinder to fully engage the two augers and over-center latch to fully engage.

10. Verify the upper auger picture frame is flush against the lower auger picture frame.



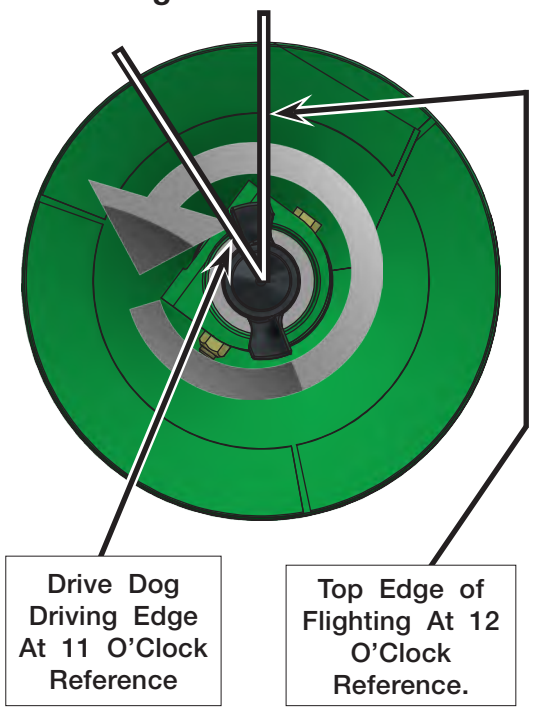
Auger System (continued)

Vertical Auger Timing

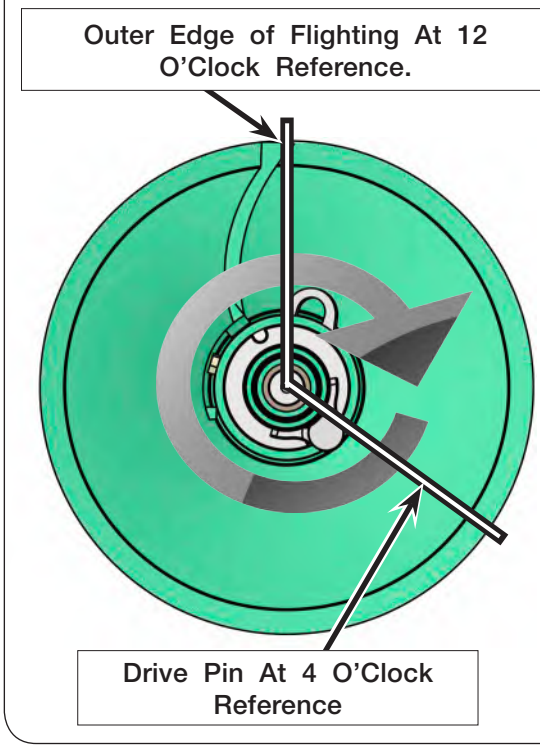
1. For the lower vertical auger, use the top edge of the flighting as a 12 o'clock reference. Position the drive dog so the driving edge is at the 11 o'clock position. (FIG. 4-14)

NOTE: Looking down at the lower flighting (FIG. 4-14) the auger rotation will be counter-clockwise. When looking up at the upper flighting (FIG. 4-15) the auger rotation will be clockwise.

Lower Auger FIG. 4-14



Upper Auger FIG. 4-15



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. 4-15)

3. When engaged, the upper flighting should follow the lower flighting. (FIG. 4-16)

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

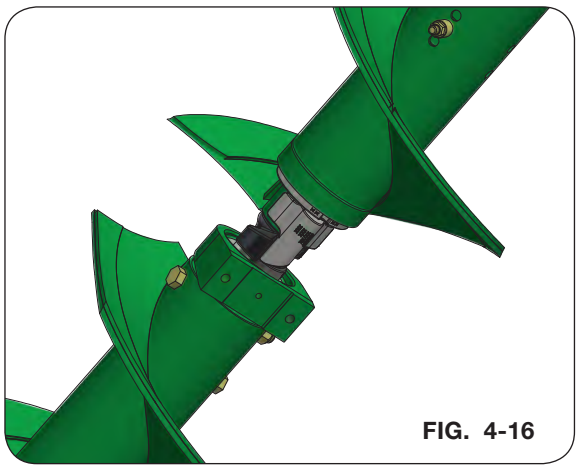


FIG. 4-16

Auger System (continued)

Horizontal Auger

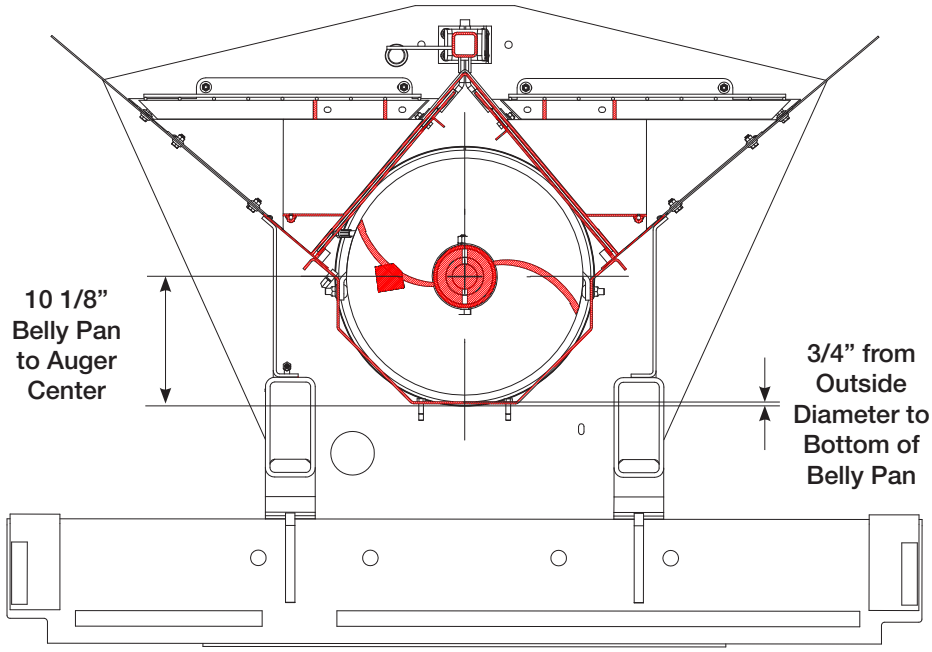
Annually check all bolts, nuts, and set screws. Perform lubrication as specified in "Lubrication" section.

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. 4-17.

NOTE: Shims (286424B) are available from your Unverferth 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. 4-17



Auger System (continued)

Horizontal Auger Driveline Bearings

IMPORTANT

- *Periodically check set screws in all bearings at either end of the driveline for tightness. (FIGS. 4-18 & 4-19)*

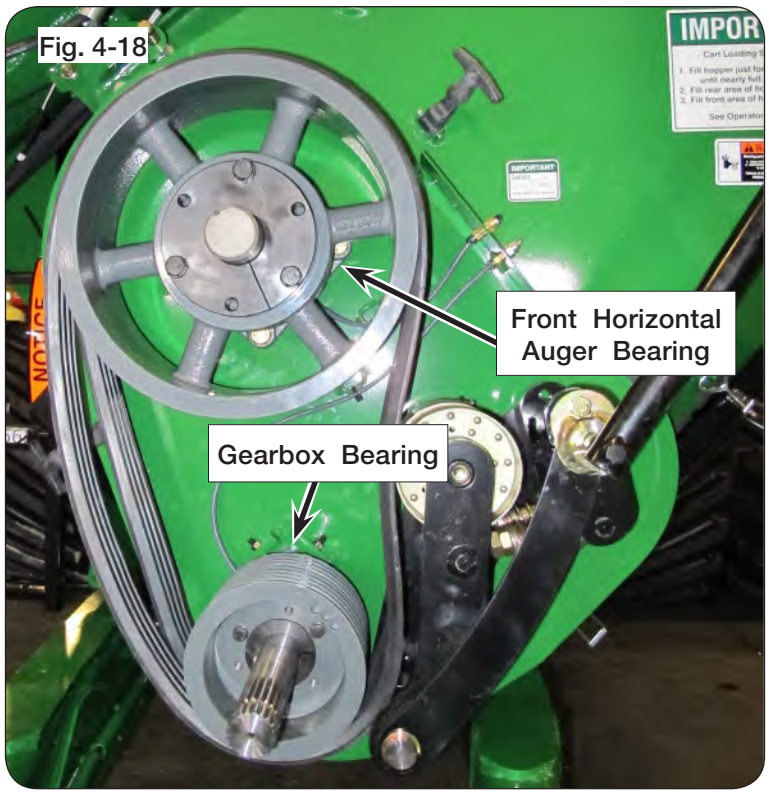


Fig. 4-18

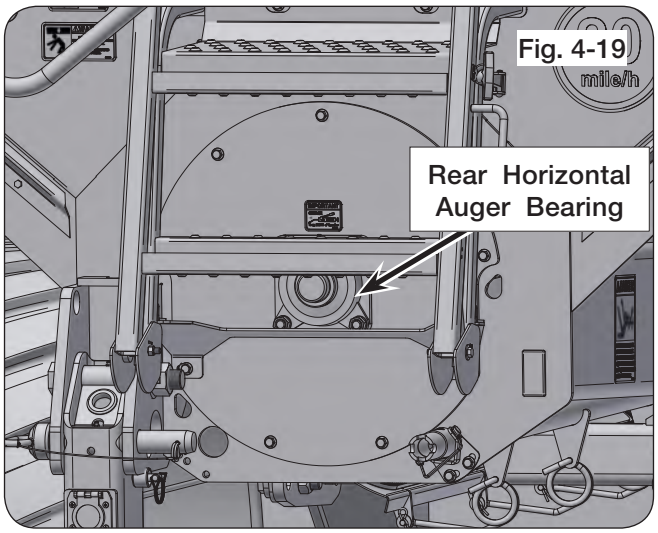


Fig. 4-19

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 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.**

Refer to the following reasons for baffle adjustment:

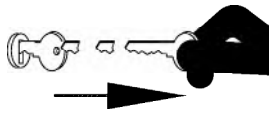
NOTE: To unload the cart evenly from front to back the openings should increase in height from back to front.

- 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)

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.

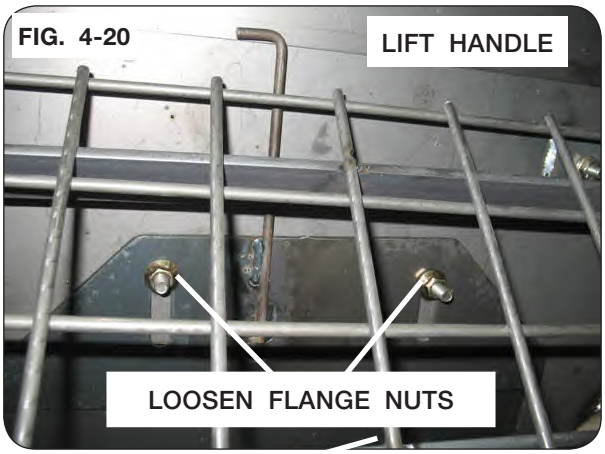
Before making any baffle adjustments, close horizontal auger flow door. Securely block the grain cart. Set the tractor parking brake, turn off tractor engine, remove ignition key, and disconnect PTO.



If a higher flow is desired and torque is not a factor, loosen the (2) flange nuts on each baffle, see figure 4-20. Use the lift handle to raise each baffle to the desired position, retighten both flange nuts, see figures 4-20 & 4-21.

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 4-21 for illustration only.



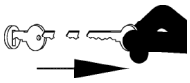


Horizontal Cleanout Door Adjustment

⚠ 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. 4-22)

3. Starting at the front of the cart, using a jack, push the rockshaft up and toward the runner tube. (Fig. 4-22)



FIG. 4-22

NOTE: Ideal distance between the runner tube and rockshaft is 3 1/4". (FIG. 4-23)

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.

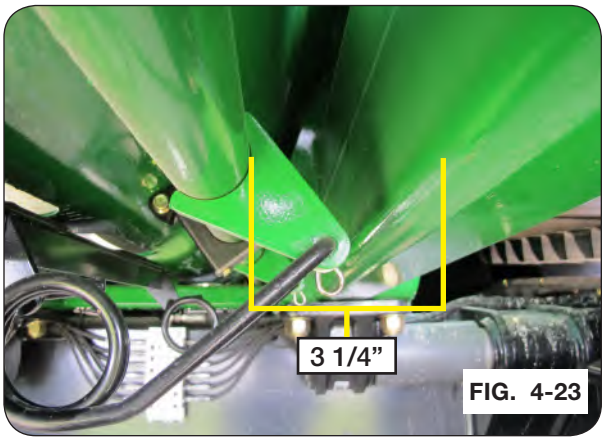


FIG. 4-23

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. 4-24)

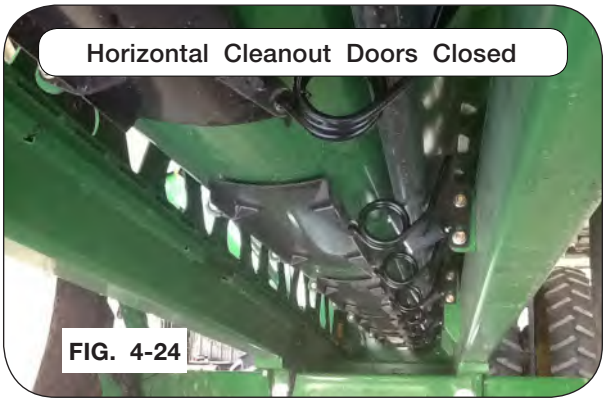


FIG. 4-24

7. If plate insert needs adjustment, loosen the two flat head machine screws holding the plate in position. (Fig. 4-25)

8. Ensure the plate inserts are aligned and fit into the belly pan cut-outs. (Fig. 4-25)

9. Close the doors and ensure all doors seal.

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

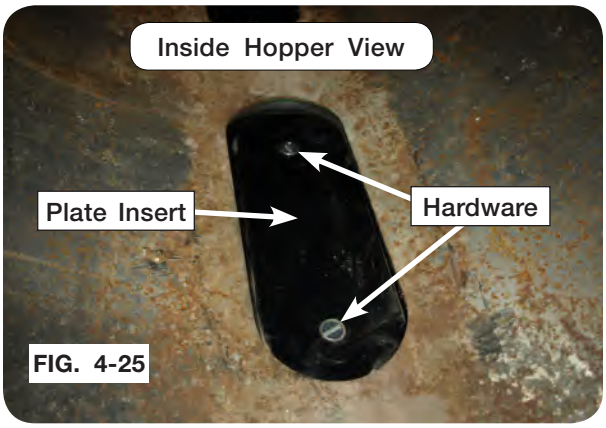


FIG. 4-25

Belt Tightener Adjustment

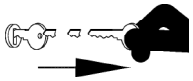
IMPORTANT

- *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 unit to keep it from moving. Set the vehicle parking brake, shut off the engine, remove the ignition key, and disconnect PTO shaft from tractor.



⚠ 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.

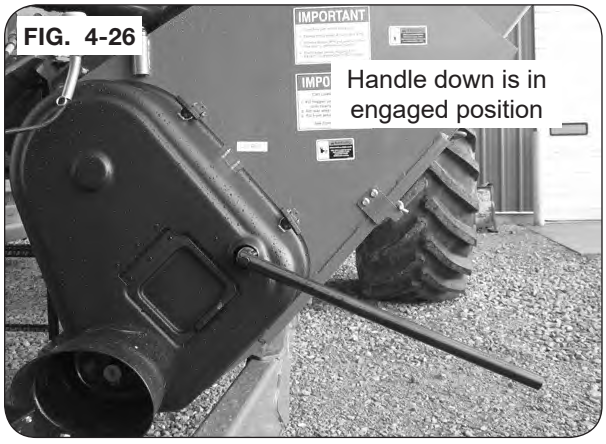


FIG. 4-26



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 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, 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.

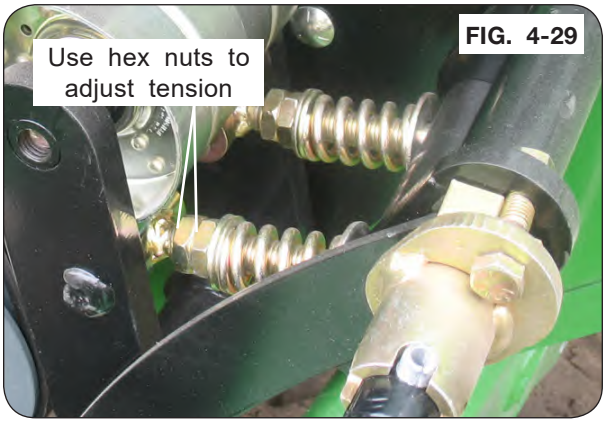


FIG. 4-29



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)

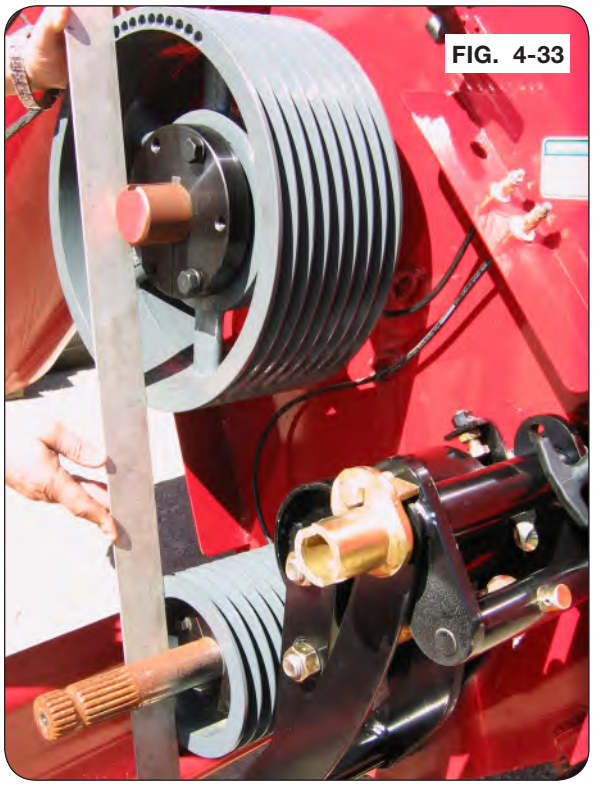


FIG. 4-33

V-Belt Alignment (continued)

Split Tapered Bushings

Check annually for tight engagement to driveshaft. Torque three bolts progressively to values shown in figure 4-34.

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.

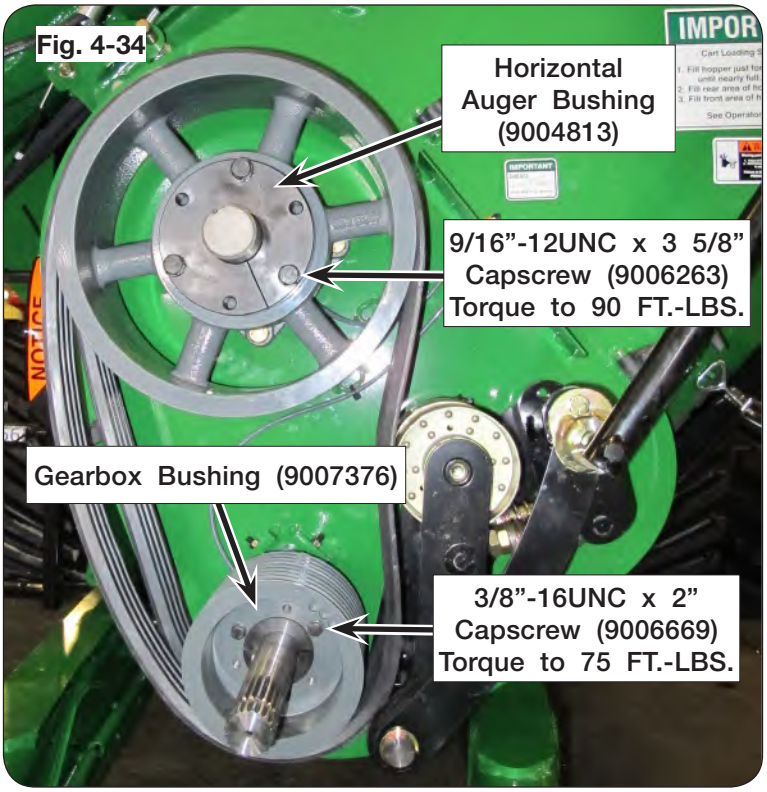


Fig. 4-34

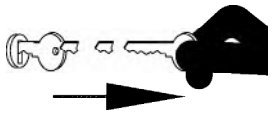
Horizontal Auger Removal and Replacement

⚠ 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 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.



2. Remove 4 rear ladder capscrews attached to the cart. (FIG. 4-35)

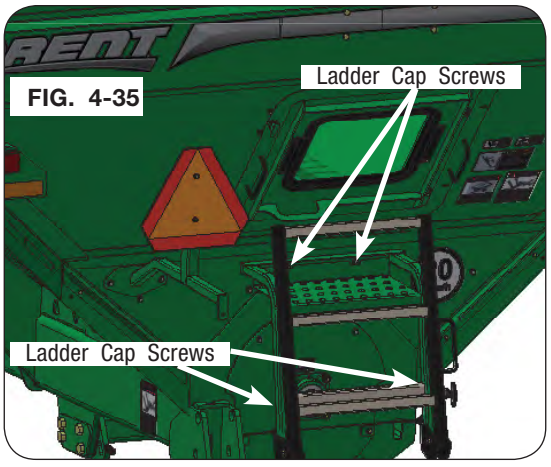


FIG. 4-35

NOTE: Keep all hardware for re-assembly.

3. Using a safe lifting device rated for a minimum of 100 lbs. remove the rear ladder from the cart. (FIG. 4-35)

Horizontal Auger Removal and Replacement (continued)

4. Remove the capscrews from the auger cover. (Fig. 4-36)
5. Pry the auger from the auger tube. (Fig. 4-37)
6. Using a safe lifting device rated for a minimum 1,000 lbs., pull the rear auger out of the cart. (Fig. 4-38)

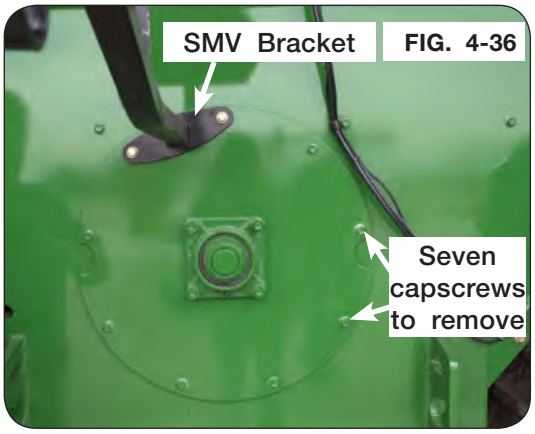


FIG. 4-36

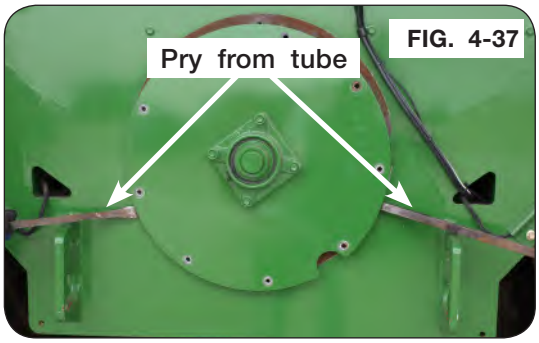
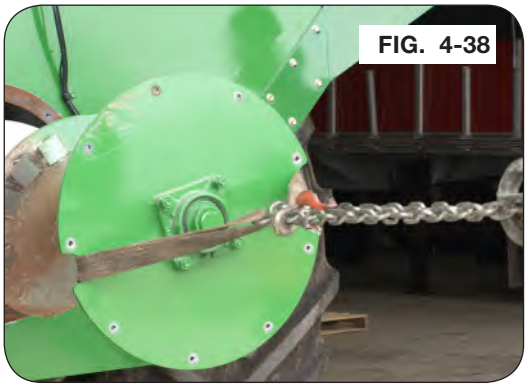


FIG. 4-37

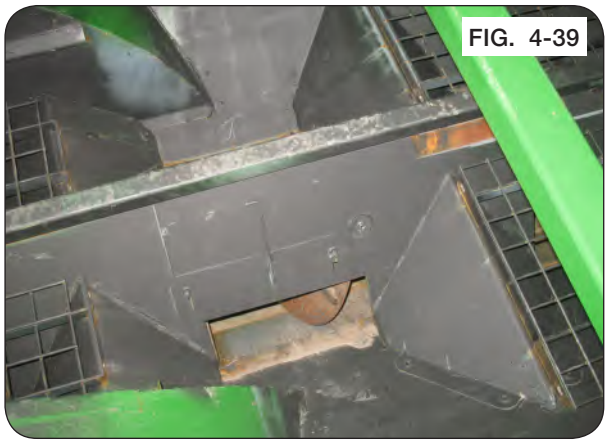

FIG. 4-38

Horizontal Auger Removal and Replacement (continued)

NOTE: If only servicing rear auger, skip to step 26. For 5-pin driver replacement, continue to step 8.

7. Remove the flange screws in both middle grates inside the cart. (Fig. 4-39)

8. Using a safe lifting device rated for a minimum of 100 lbs. remove the middle grates from the cart.


FIG. 4-39

9. Remove locknuts, baffle weldments and cover plates from the middle tent. (Fig. 4-40)

10. Disconnect grease line. (Fig. 4-40)

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.

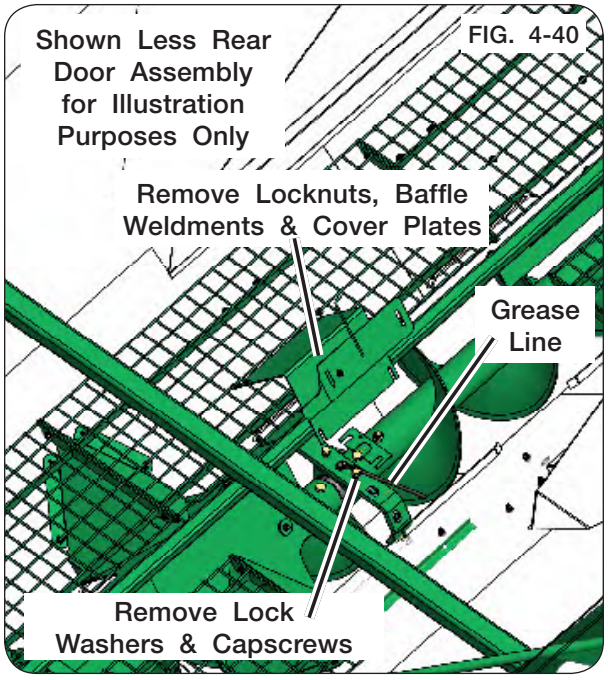


FIG. 4-40

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. 4-41)

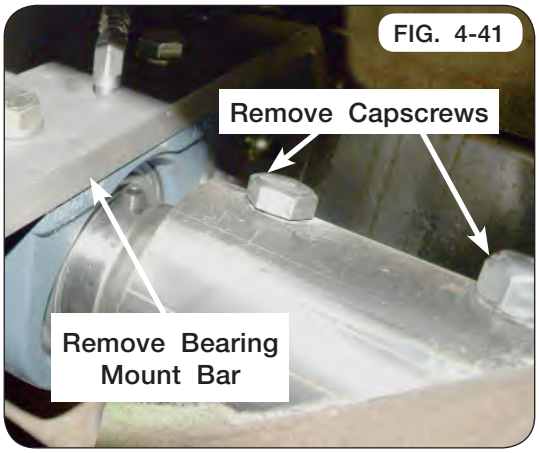


FIG. 4-41

Horizontal Auger Removal and Replacement (continued)

14. Remove the original 5-pin driver, bearing and the bushing insert. (Figs. 4-42 & 4-43)

15. Replace 5-pin driver and bushing insert if needed.



FIG. 4-42

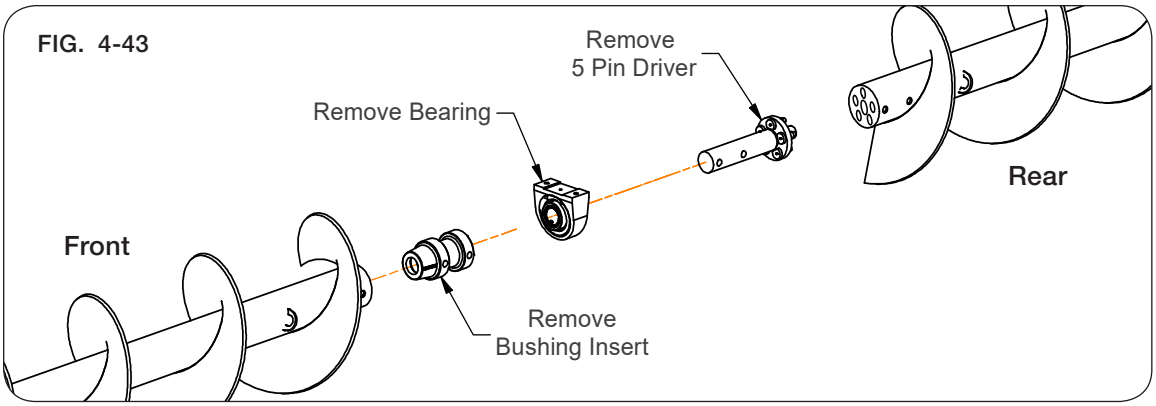


FIG. 4-43

16. Substantially coat bushing insert with anti-seize.

17. Slide bushing insert into front auger and ensure tube holes are aligned. (Figs. 4-43 & 4-44)



FIG. 4-44

NOTE: Make sure the set screws on bearing are towards the front of the cart. (Fig. 4-45)

18. Slide bearing onto 5-pin driver and hand tighten the set screw. (Fig. 4-45)

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

20. Insert capscrews from opposite sides through auger, bushing and driver. Slide spacer bushings over threads and install locknuts. Hand tighten hardware at this time. (Fig. 4-45)

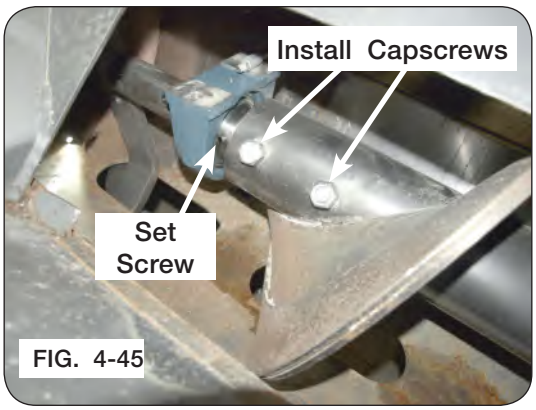


FIG. 4-45

Horizontal Auger Removal and Replacement (continued)

22. Install bearing mount bar. Leave the capscrews and lock washers loose attaching bearing mount bar to the cart. Attach bearing mount bar to the bearing. (Fig. 4-46)

23. Reattach grease line components. (Fig. 4-46)

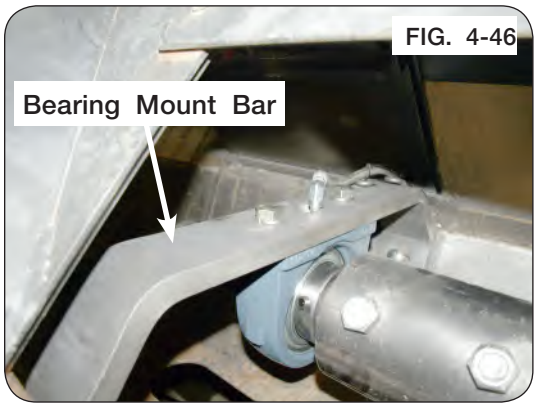
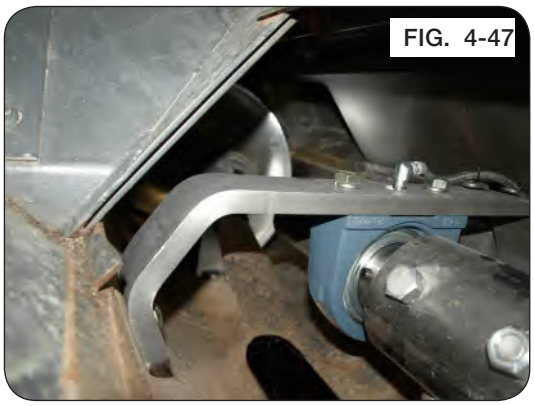


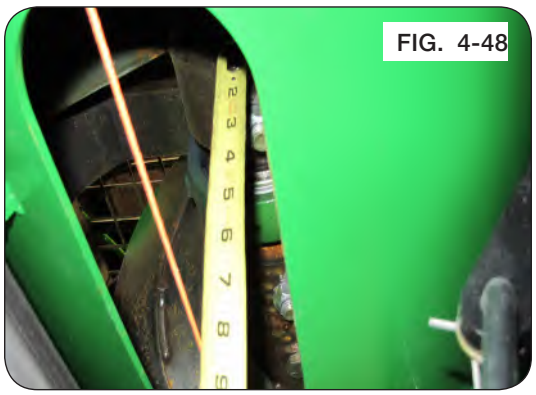
FIG. 4-46

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

24. Slide the rear auger forward. Align the pins and holes with the rear auger pipe. (Fig. 4-47)


FIG. 4-47

25. 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 4-48)


FIG. 4-48

NOTE: Add shims as needed. See "Auger System - Horizontal Auger Height Measurement" in MAINTENANCE section for more details.

26. Torque bearing mount bar capscrews to 130 ft.-lbs. See Fig. 4-46.

27. Torque front auger capscrews to 200 ft.-lbs. (Fig. 4-49)

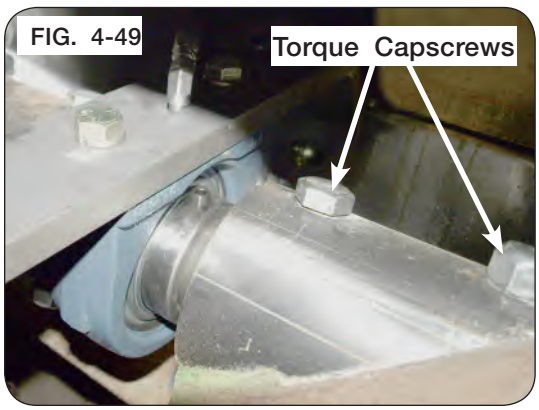


FIG. 4-49

Horizontal Auger Removal and Replacement (continued)

28. Insert hardware for rear auger cover, SMV bracket, and rear ladder, if equipped. (Figs. 4-50 and 4-51)

29. Torque all hardware to specification. See "Torque Chart" in this section. (Figs. 4-50 and 4-51)

30. Using a safe lifting device rated for a minimum of 100 lbs. reinstall ALL the grates.

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

32. 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.

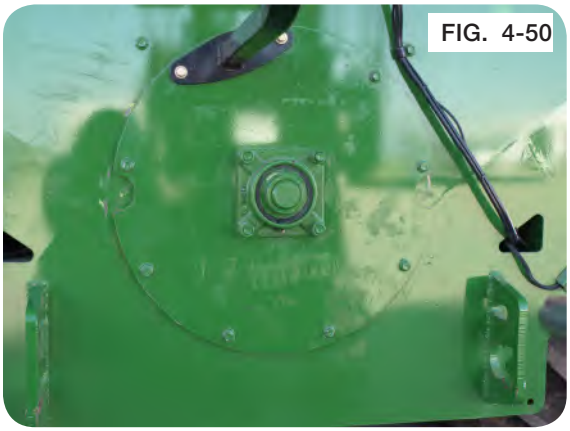


FIG. 4-50

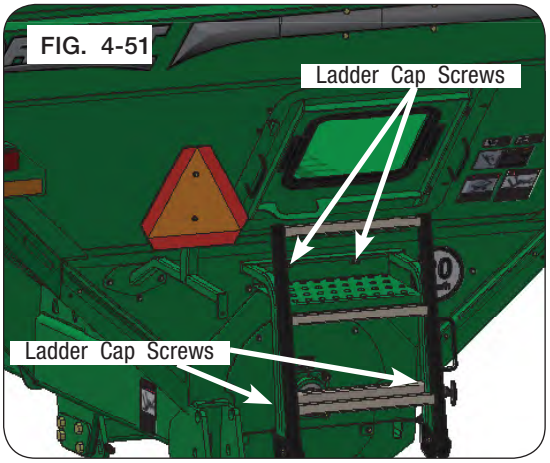


FIG. 4-51

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.**

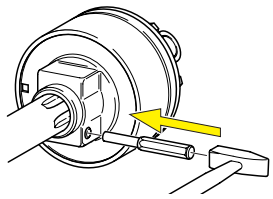
WARNING

- **MOVING OR ROTATING COMPONENTS CAN CAUSE SERIOUS INJURY OR DEATH. ALWAYS DISCONNECT POWER SOURCE BEFORE SERVICING. 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. 4-68)
3. Once clamping cone/retaining bolt is removed, slide torque limiter off gearbox splined input shaft.

Fig. 4-68



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. 4-52)

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

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

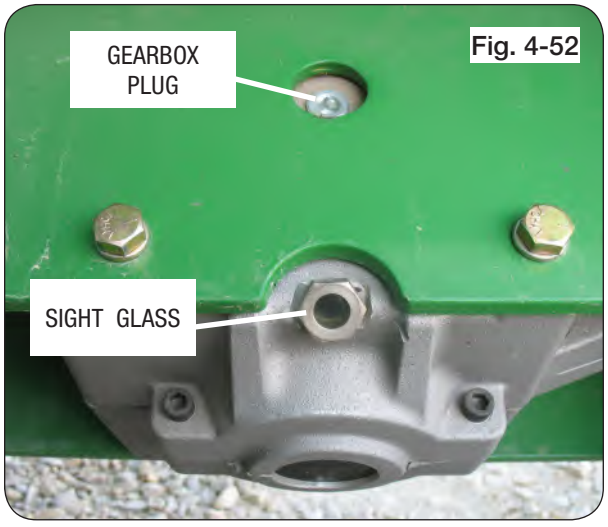


Fig. 4-52

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.*

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. 4-53).

   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. 4-54)

   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)

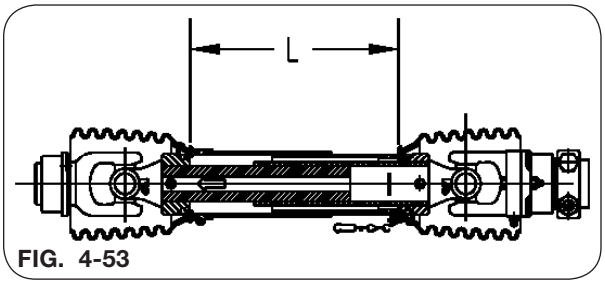


FIG. 4-53

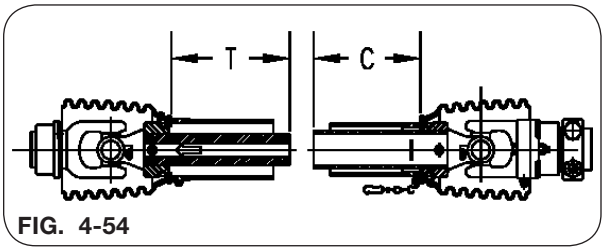


FIG. 4-54

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. 4-55).

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. 4-56)

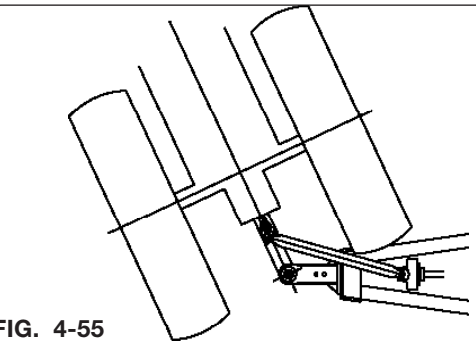


FIG. 4-55

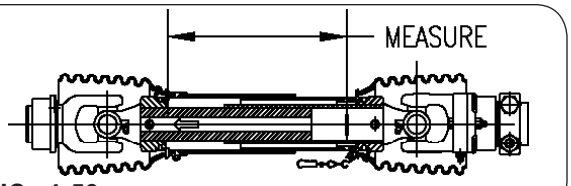


FIG. 4-56

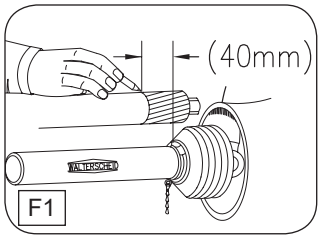
PTO Shaft Length Adjustment

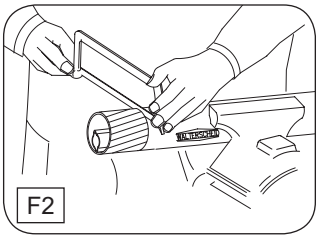
WARNING

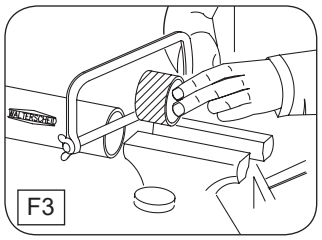
- **CHECK THE LENGTH OF THE TELESCOPING MEMBERS TO ENSURE THE DRIVELINE WILL NOT BOTTOM OUT OR SEPARATE WHEN TURNING AND/OR GOING OVER ROUGH TERRAIN.**

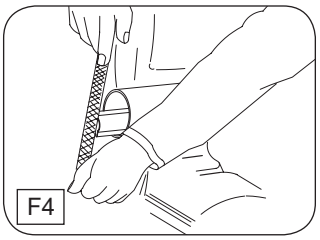
NOTE: Maximum operating length LB. (Refer to "Verify Telescoping PTO Shaft Length" in this section for LB length.)

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 - Benzi PTO

To Dismantle Guard (Figs. J1 - J3)

1. Pull the guard tube backwards and, using a screwdriver, disengage the three bearing ring tabs by pushing them inward. (FIG. J1)



2. Remove half-guard. (FIG. J2)



3. Open the bearing ring and remove from the yoke groove. (FIG. J3)



PTO Shaft and Clutch - Benzi PTO (continued)

To Assemble Guard (Figs. K1 - K3)

1. Clean and grease the bearing ring, yoke groove and inner profile tube. (FIG. K1)



2. Fit bearing ring in groove with three bearing ring tabs positioned as shown. (FIG. K2)

3. Slip on half-guard by aligning the holes on the cone with three bearing ring tabs and the cone inner key with the cut of the bearing ring. (FIG. K2)



4. Push half-guard and yoke together causing the half-guard to engage. (FIG. K3)

NOTE: Ensure the three bearing ring tabs are positioned inside the grooves.

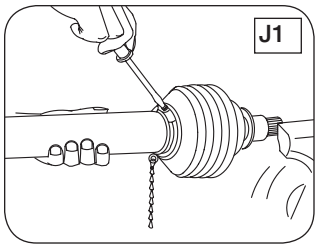
5. Confirm half-guard engagement by pulling backwards on the half-guard. (FIG. K3)

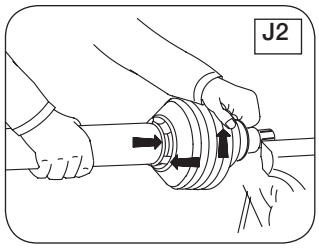


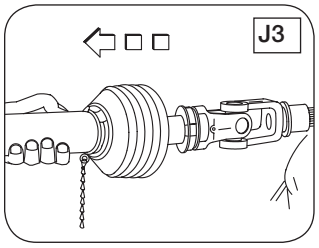
PTO Shaft and Clutch - GKN Walterscheid PTO

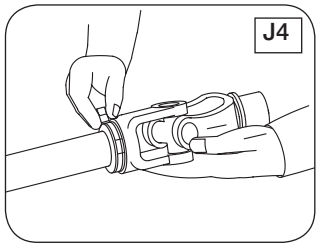
To Dismantle Guard (Figs. J1 - J4)

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





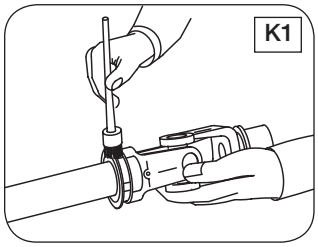


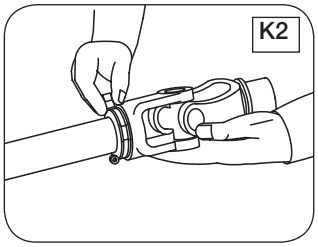


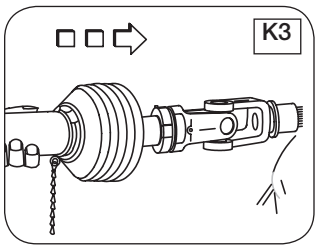
PTO Shaft and Clutch - GKN Walterscheid PTO (continued)

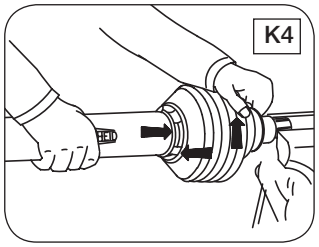
To Assemble Guard (Figs. K1 - K5)

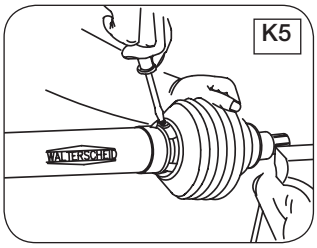
1. Grease yoke groove and inner profile tube.
2. Fit bearing ring in groove with recesses facing profile tube.
3. Slip on half-guard.
4. Turn cone until it engages correctly.
5. Install locking screw.





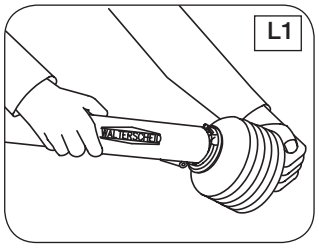


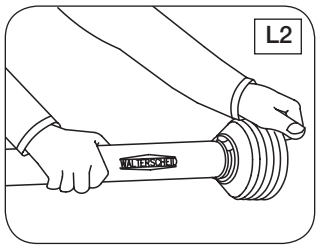


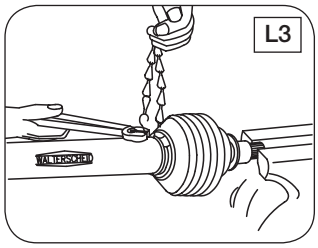


To Assemble Cone (Figs. L1 - L3)

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.**

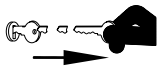
⚠ CAUTION

- **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 3,000 lbs. safe lifting device to support the wheel and tire during removal.

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 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. 4-57) 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.

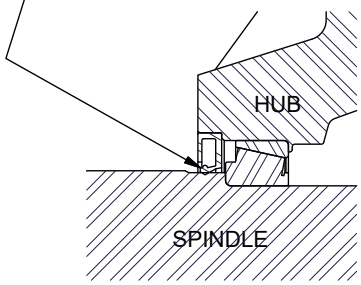


FIG. 4-57

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

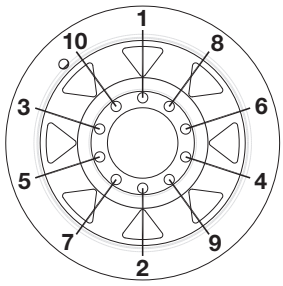
⚠ CAUTION

- **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. 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
	IF1100/50R42 CFO R-1W	197B	46
	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
	800/65R32 R-1W	172D	34
	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

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.**
- **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. 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 a clear 1/4" hose to fitting. Put hose in an approved container and submerge the end in brake fluid. 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 in the hose, tighten the bleeder screw. (Fig. 4-58)
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.

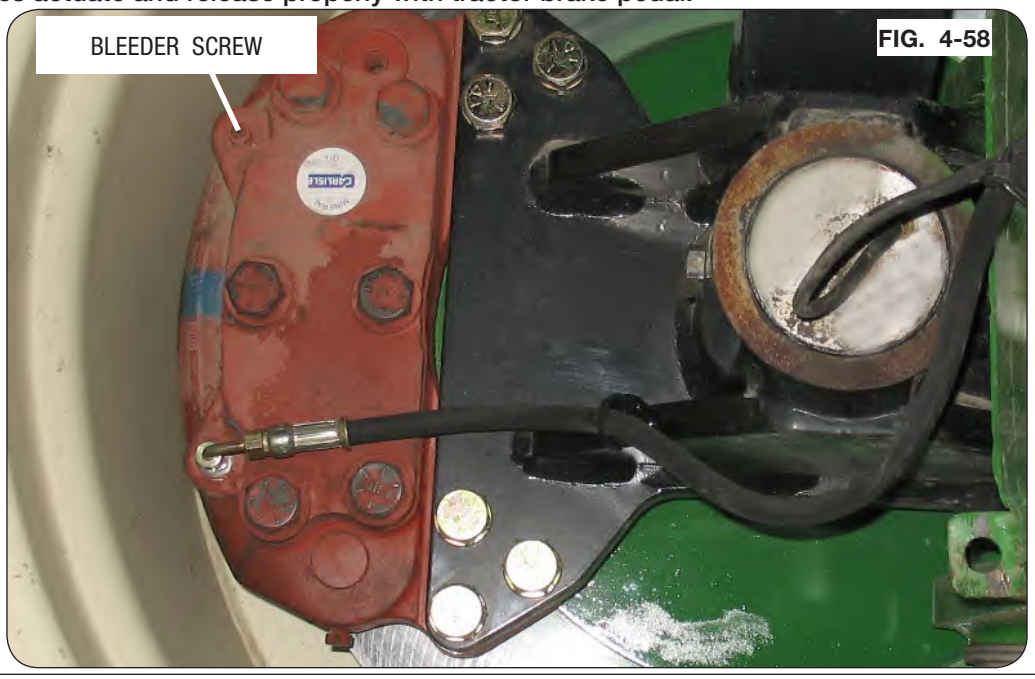


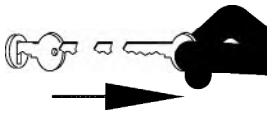
FIG. 4-58

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. 4-59)
9. Remove hydraulic jack assembly from the tongue. (FIG. 4-59)

(Continued on next page)

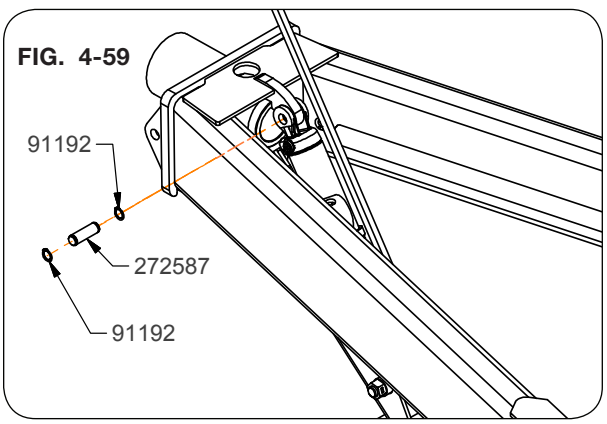


FIG. 4-59

Hydraulic Jack Cylinder Replacement (continued)

10. On new hydraulic assembly (296288B), attach hoses (9006068) and fittings to cylinder (9009047) as shown in FIG. 4-60. 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.

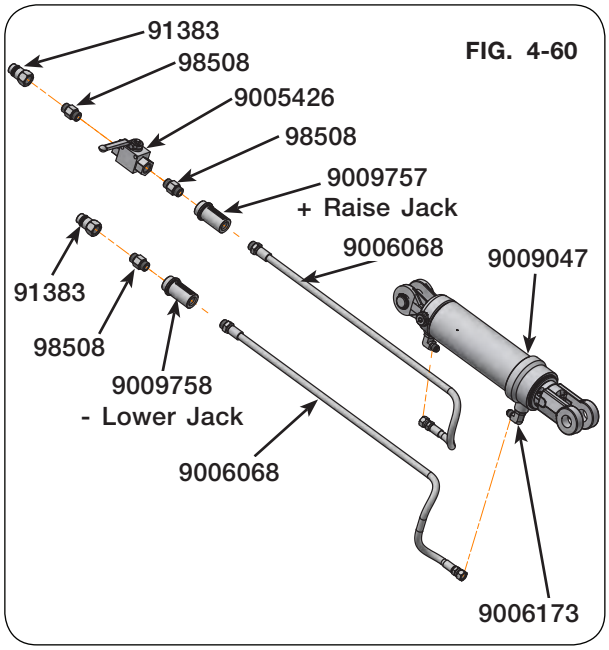


FIG. 4-60

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.

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. 4-61

If the 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.

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

Troubleshooting

Problem	Possible Cause	Corrective Action
No Electric Over Hydraulic (EOH) 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.
	Rotate and fold functions not working properly	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.
	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 part way and stops	Debris in the EOH block on the auger fold cylinder	Fold auger, remove hydraulic pressure, and remove the Coil and the cartridge valve on the EOH valve block. Remove any debris and reinstall cartridge and coil.
Rotating spout will not function	Cartridge valve(s) on the EOH valve block are not locked in center position.	Check the cartridge valve(s) on the EOH valve block are locked in center position. Remove any debris on the cartridge valve(s). Refer to "Manual Override for Opt. Electric Over Hydraulic System" in MAINTENANCE section.
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

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. 4-62)

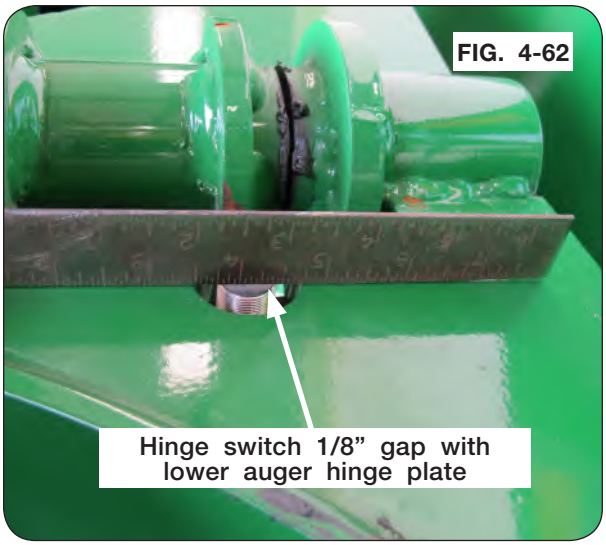


FIG. 4-62

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.

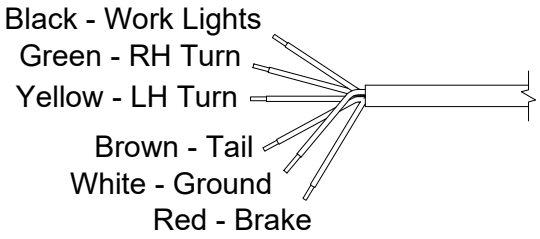
Tears in tarp should be addressed before further tarp operation. If water pools on tarp, adjust tension of tarp cables and/or arm springs.

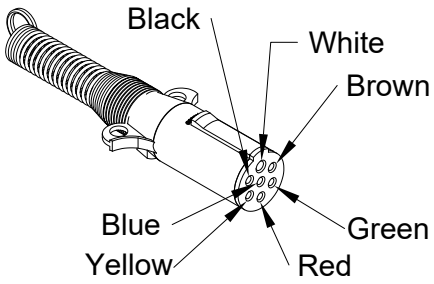
If installed correctly, tarp should always operate as well as when first installed. If tarp does not pass this simple inspection, make all appropriate repairs or adjustments immediately before serious damage occurs.

Electrical System Diagram — Plug #92450

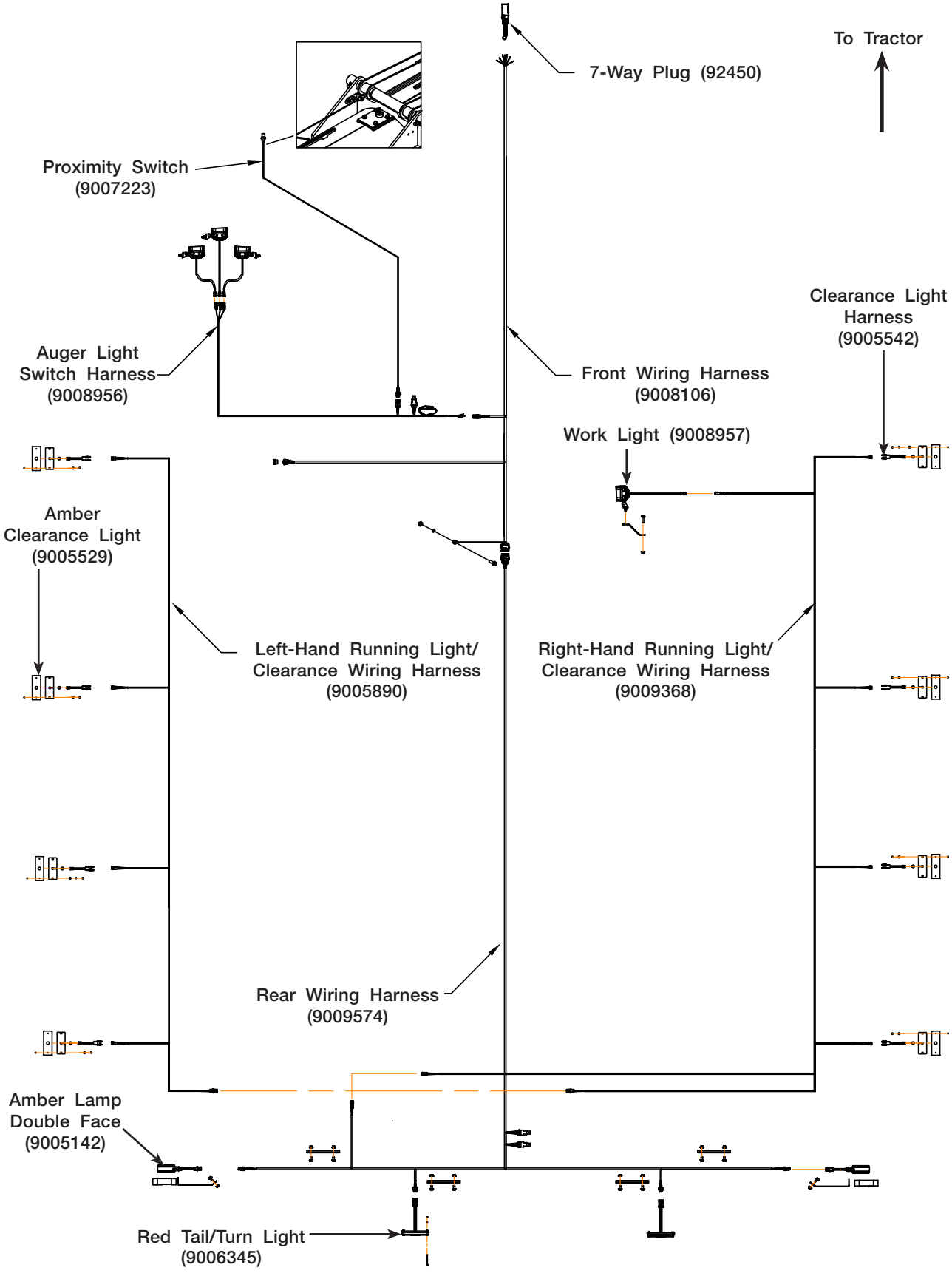
GRAIN CART WIRES

White -- Ground
Green -- Right Amber Flashing Lamp
Yellow -- Left Amber Flashing Lamp
Brown -- Tail Light
Black -- Work Lights
Red -- Brake Lights
Blue -- **NOT USED**

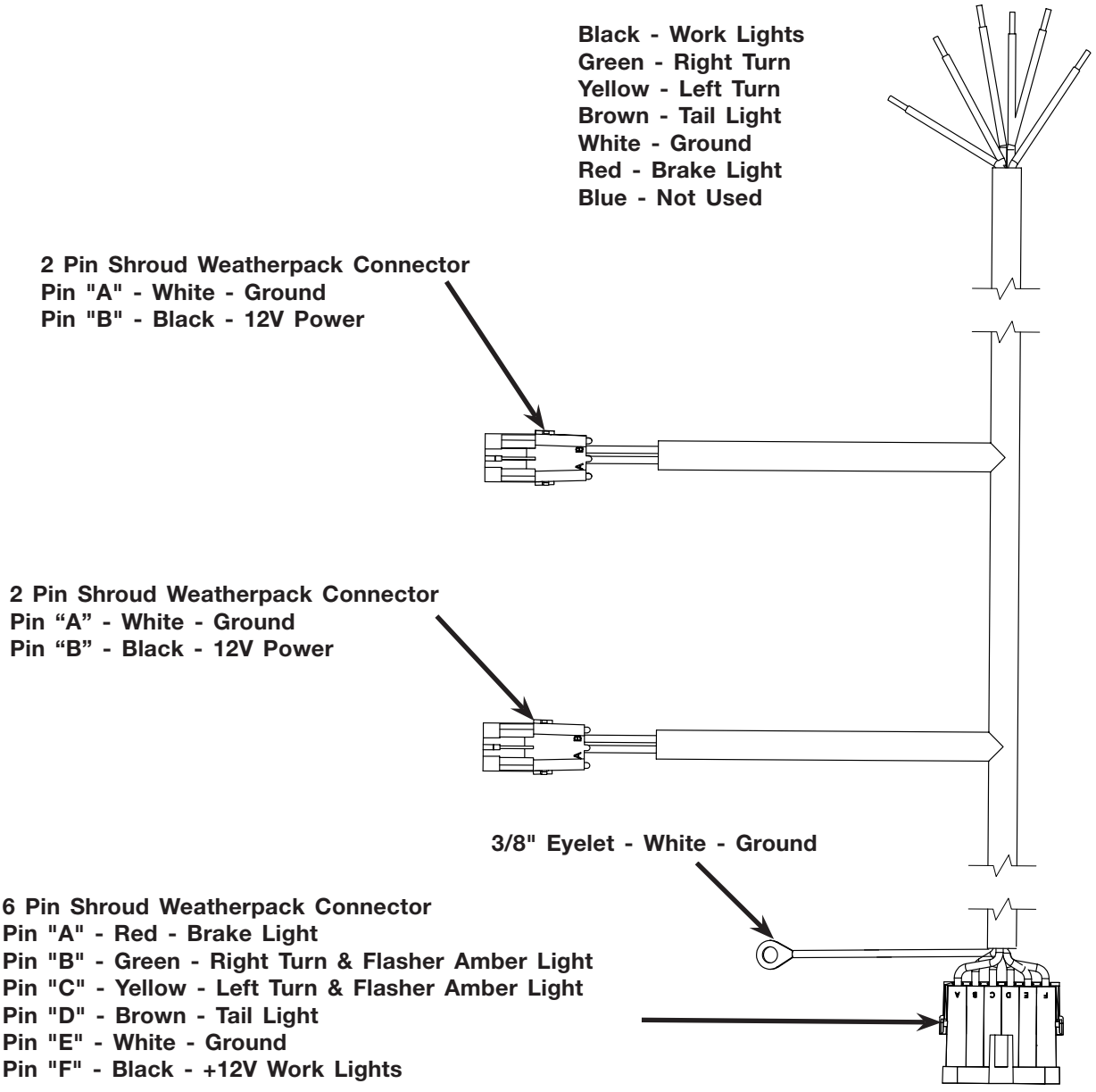




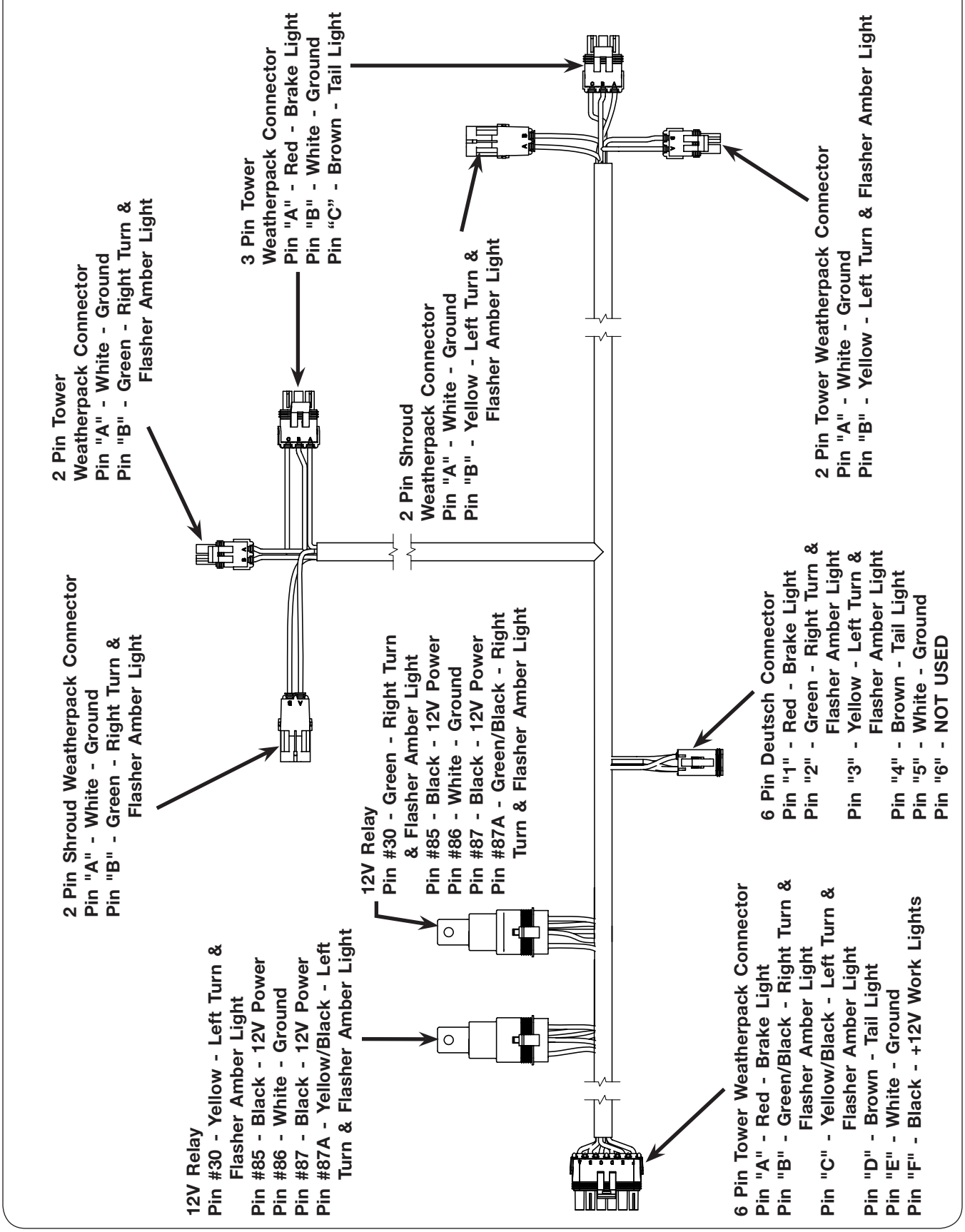
Electrical Diagram



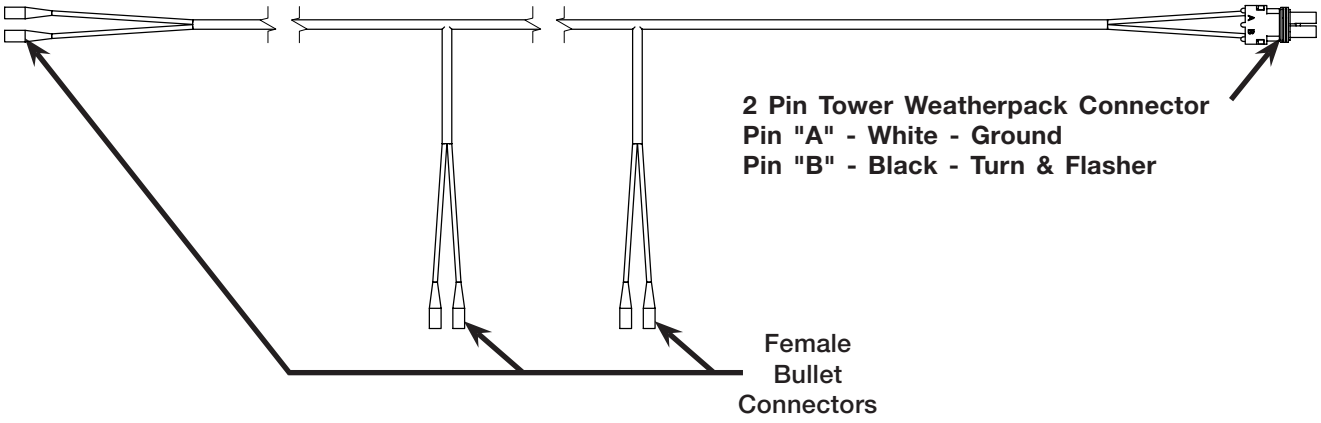
Electrical Diagram — Front Harness #9008501



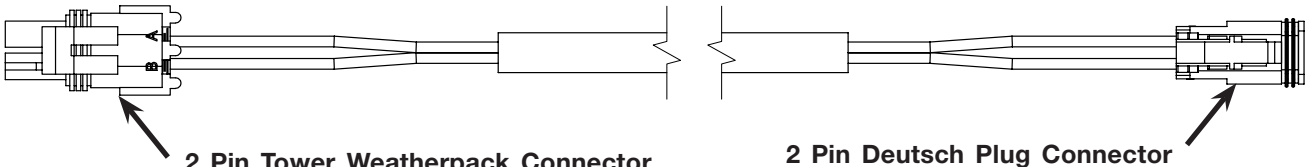
Electrical Diagram — Rear Wiring Harness #9009586



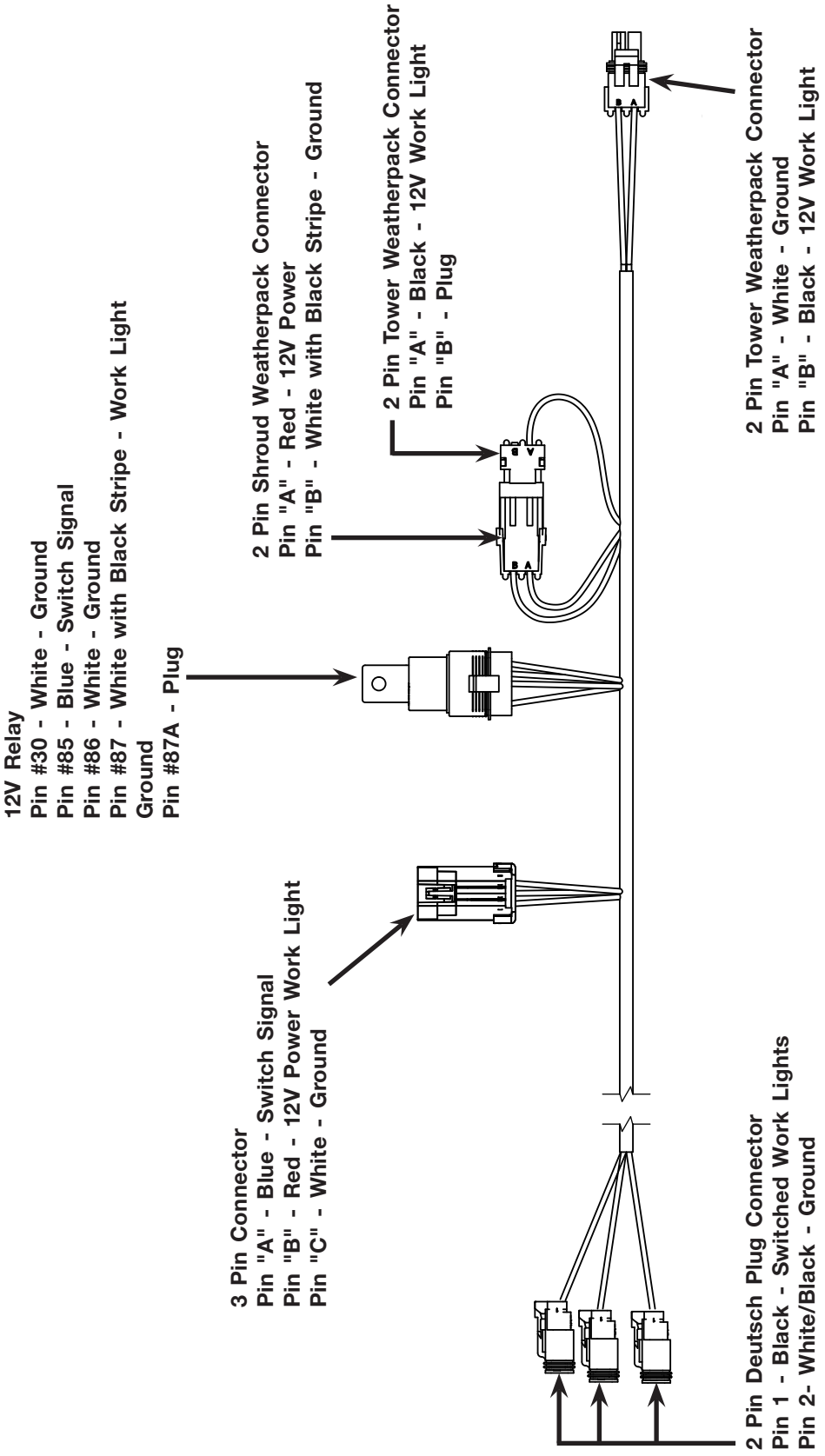
Electrical Diagram — Running Light/Clearance Wiring Harness #9006520



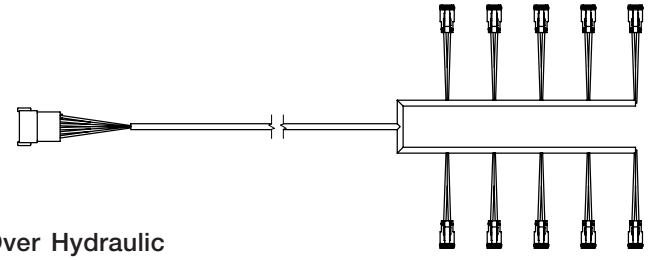
Electrical Diagram — Work Light Wiring Harness #9008969



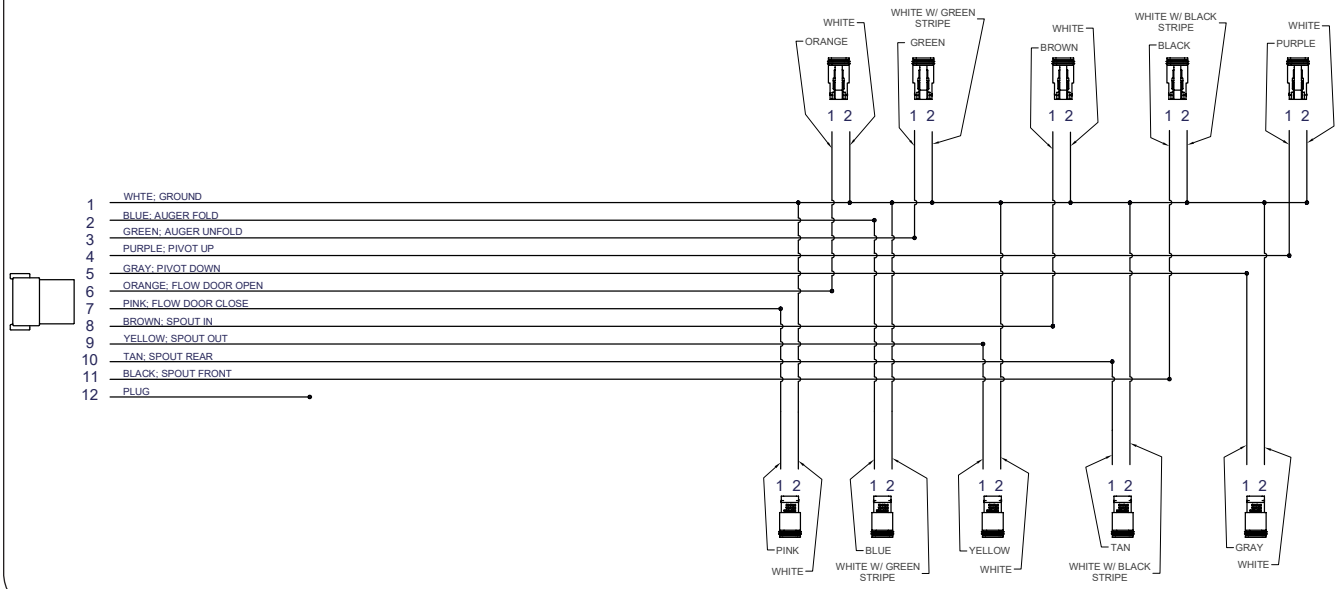
Electrical Diagram — Auger Wiring Harness #9010212



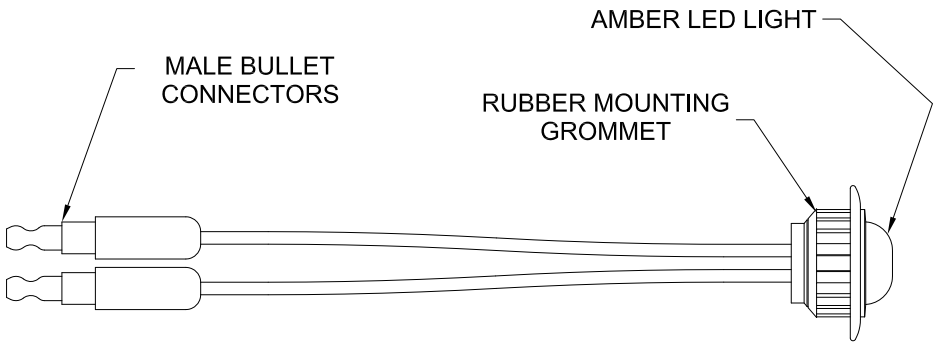
Electrical System Schematic - Main Harness #9010096 (Opt.)



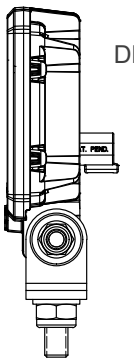
NOTE: For Optional Electric Over Hydraulic 5 Function Valve.



Electrical Diagram — Amber Light - Round Side Marker #9006107



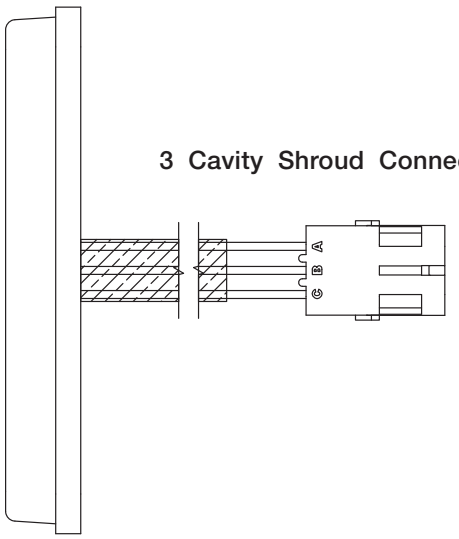
Electrical System Schematic - Work Flood Lamp #9008957



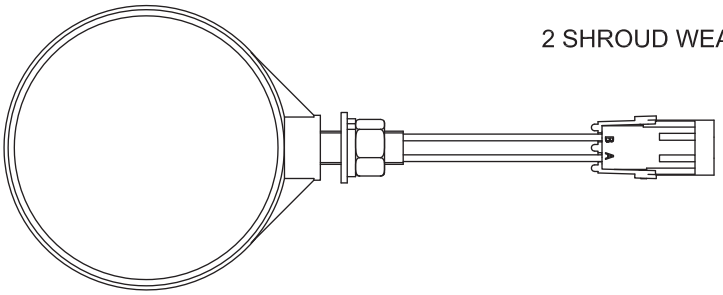
2 PIN INTEGRATED
DEUTSCH CONNECTOR

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

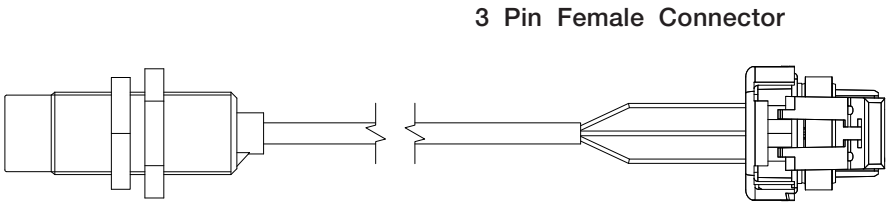
Electrical Diagram — Red Tail/Turn Light #9006282



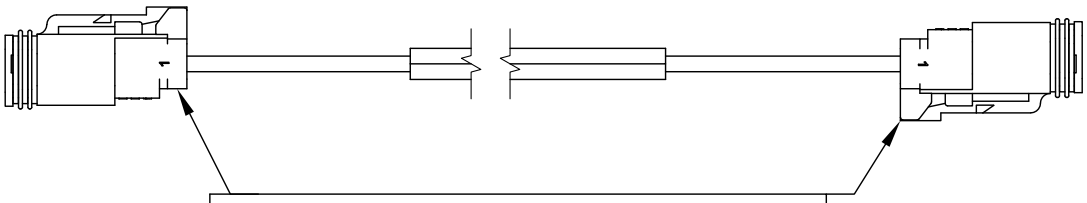
Electrical Diagram — Amber Lamp Double Face #9005142



Electrical Diagram — Proximity Sensor #9007223



Electrical System Schematic - Diverter Harness #9007266



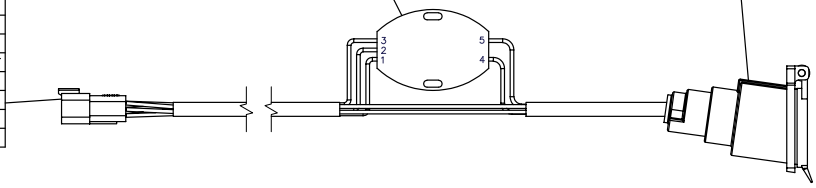
CONNECTOR TYPE: 2 PIN DEUTSCH PLUG		
PIN #	WIRE COLOR	FUNCTION
1	RED	+12V POWER
2	WHITE	GROUND

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

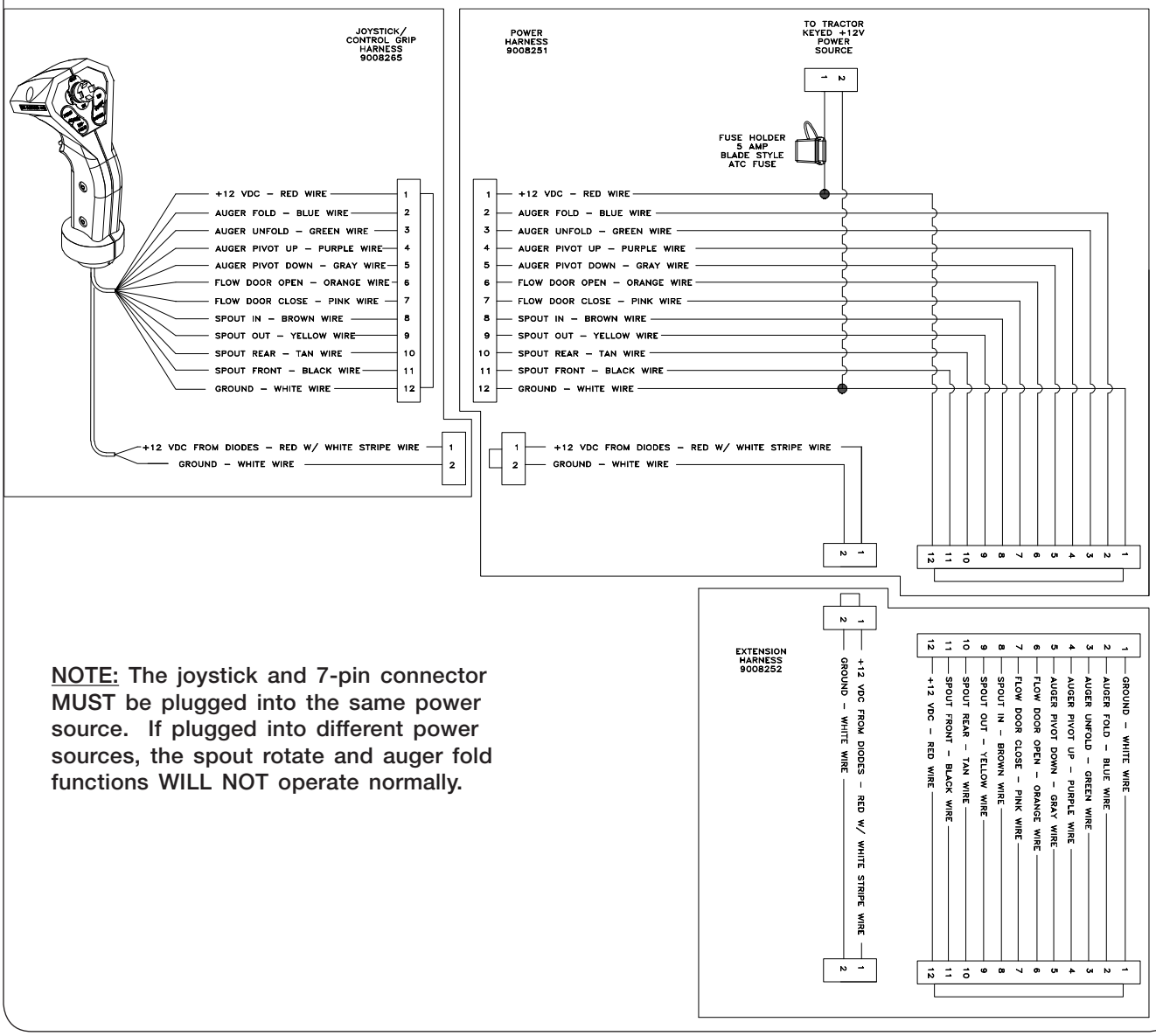
TAIL LIGHT CONVERTER		
WIRE	COLOR	WIRE FUNCTION
1	YELLOW	LEFT TURN/FLASHING
2	RED	BRAKE LIGHTS
3	GREEN	RIGHT TURN/FLASHING
4	YELLOW	LEFT TURN/STOP
5	GREEN	RIGHT TURN/FLASHING

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

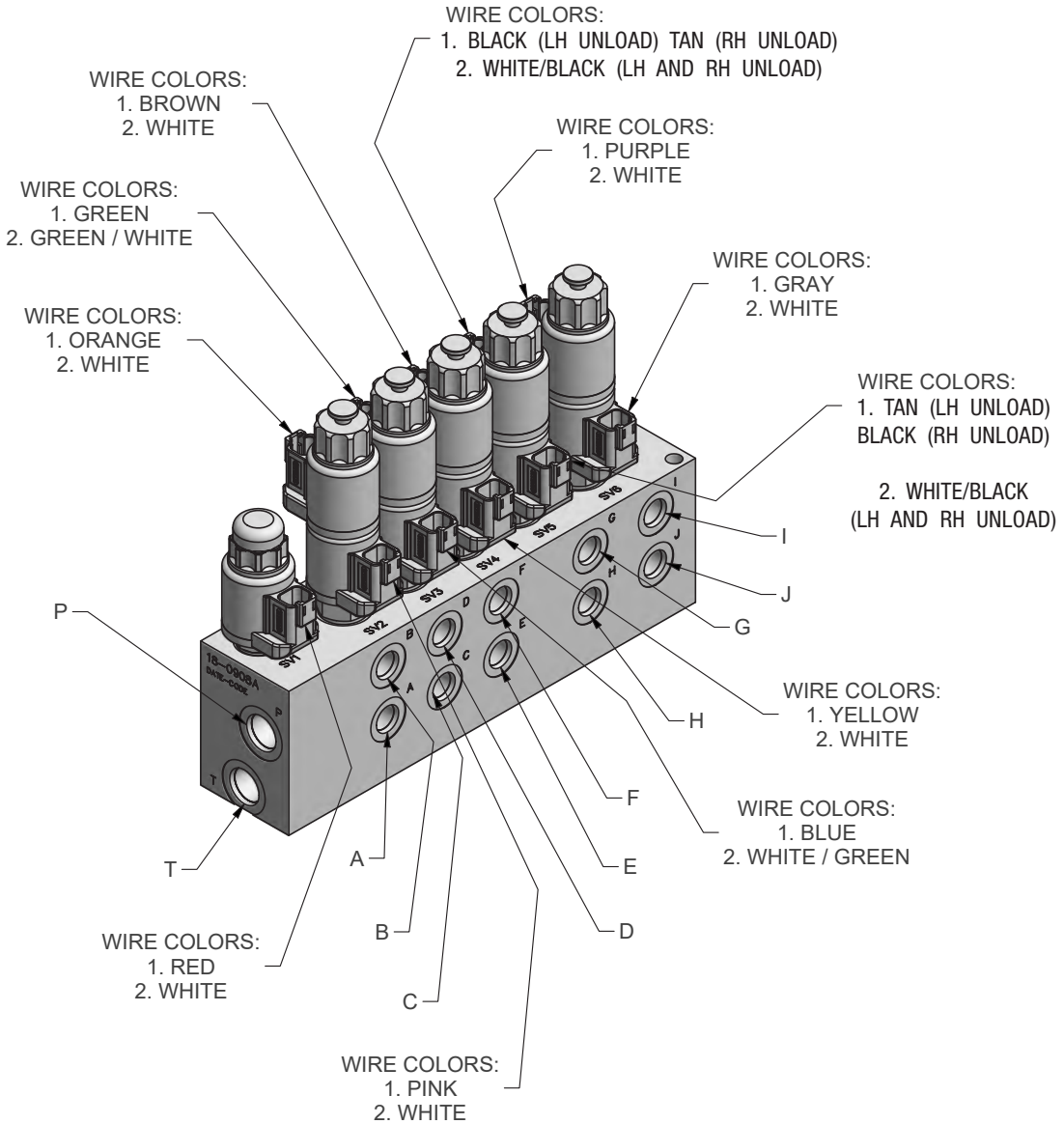


Electrical Over Hydraulic (EOH) System Schematic 5 Function Optional



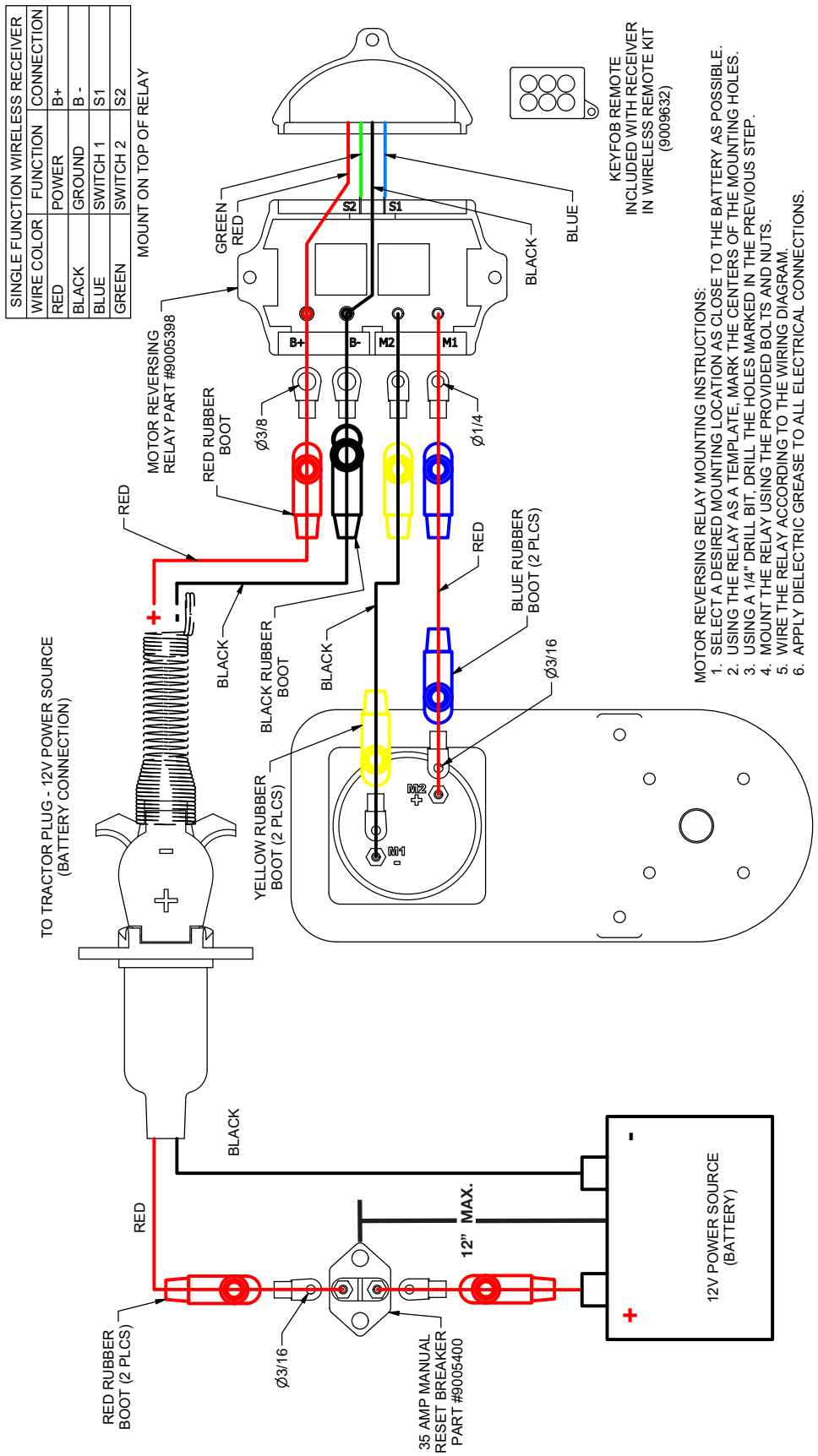
NOTE: The joystick and 7-pin connector MUST be plugged into the same power source. If plugged into different power sources, the spout rotate and auger fold functions WILL NOT operate normally.

Optional Electric Over Hydraulic Valve Electric Schematic 5 Spool

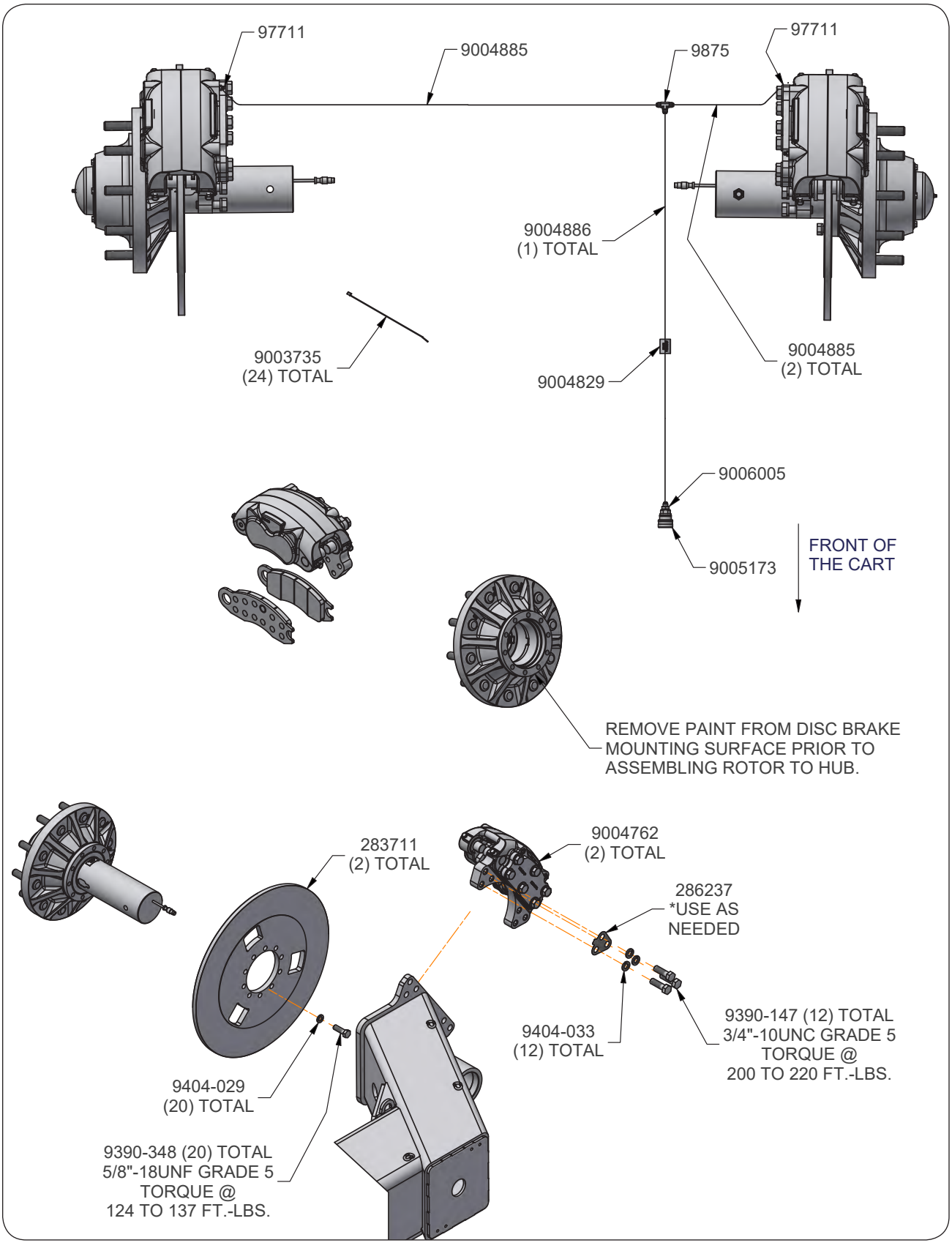


PORT	END OF CYLINDER	FUNCTION
A	BUTT END	FLOW DOOR
B	RAM END	FLOW DOOR
C	RAM END	AUGER FOLD
D	BUTT END	AUGER FOLD
E	RAM END	SPOUT TILT OUT
F	BUTT END	SPOUT TILT IN
G	RAM END	JOYSTICK / SPOUT ROTATE BACK
H	BUTT END	JOYSTICK / SPOUT ROTATE FRONT
I	BUTT END	AUGER PIVOT DOWN
J	RAM END	AUGER PIVOT UP
P		TRACTOR PRESSURE
T		TRACTOR RETURN

Electrical System Schematic - Optional Wireless Electric Tarp



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

⚠ WARNING

- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WARN WHILE SERVICING THE IMPLEMENT.**
- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. LEAKS OF HIGH-PRESSURE FLUIDS MAY NOT BE VISIBLE. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**



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

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

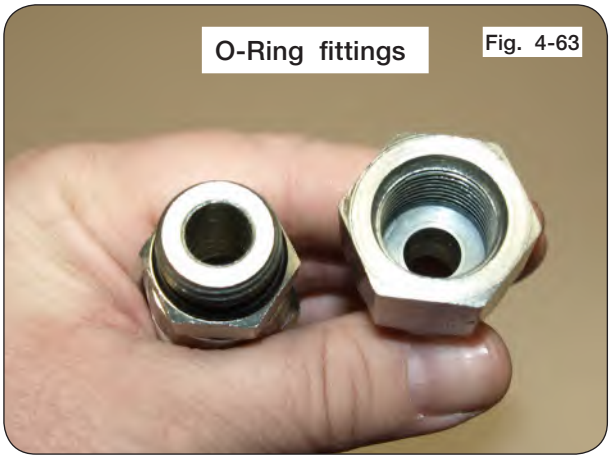


Fig. 4-63

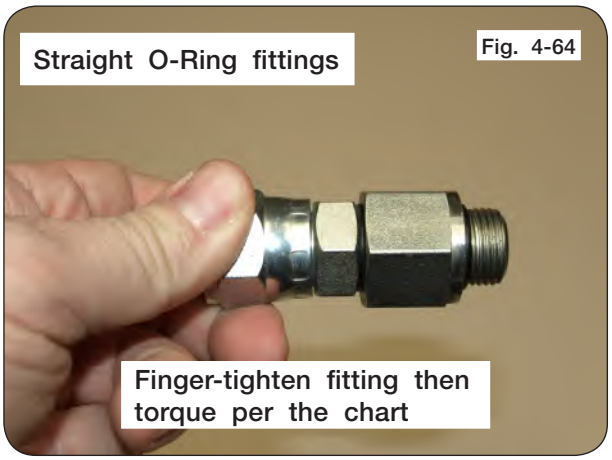


Fig. 4-64

Hydraulic Fittings – Torque and Installation

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.

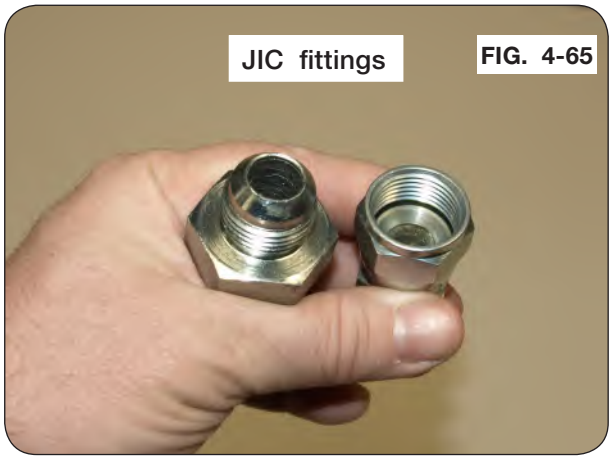


FIG. 4-65

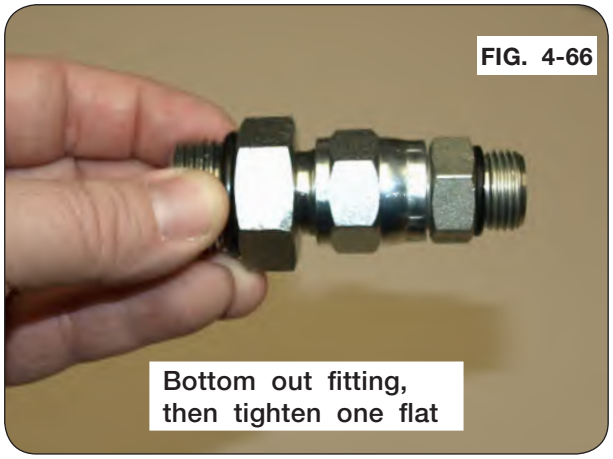


FIG. 4-66

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

Section IV
Maintenance

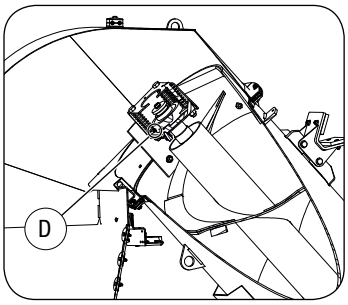
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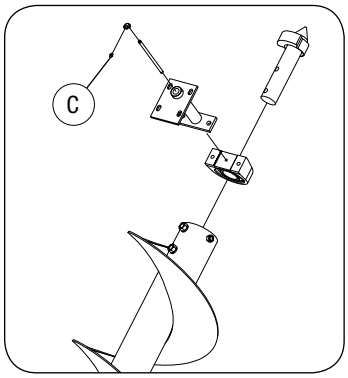
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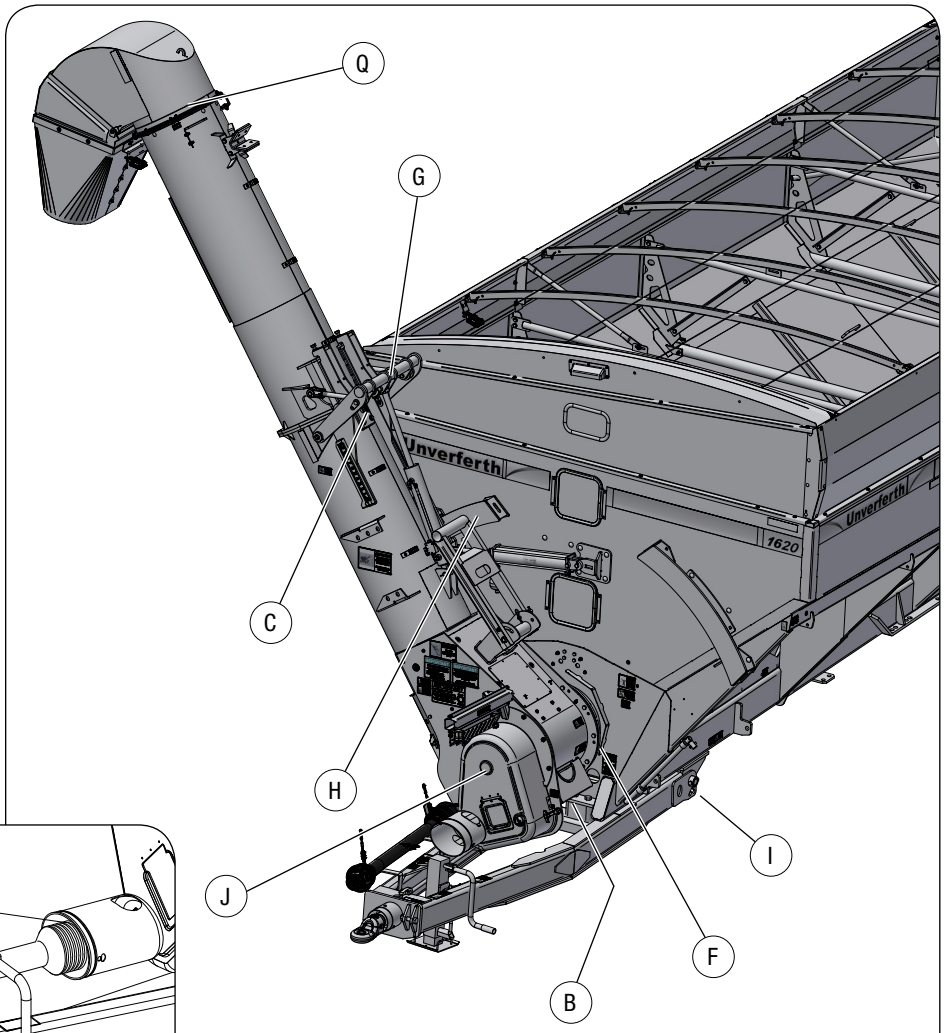
FOR SCALE, TRACK, UHARVEST, ELECTRIC TARP, AND / OR WATER DELIVERY SYSTEM INFORMATION, PLEASE REFER TO THE INDIVIDUAL MANUALS.

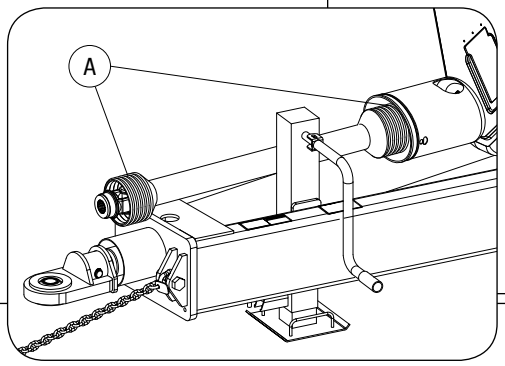
Lubrication

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.

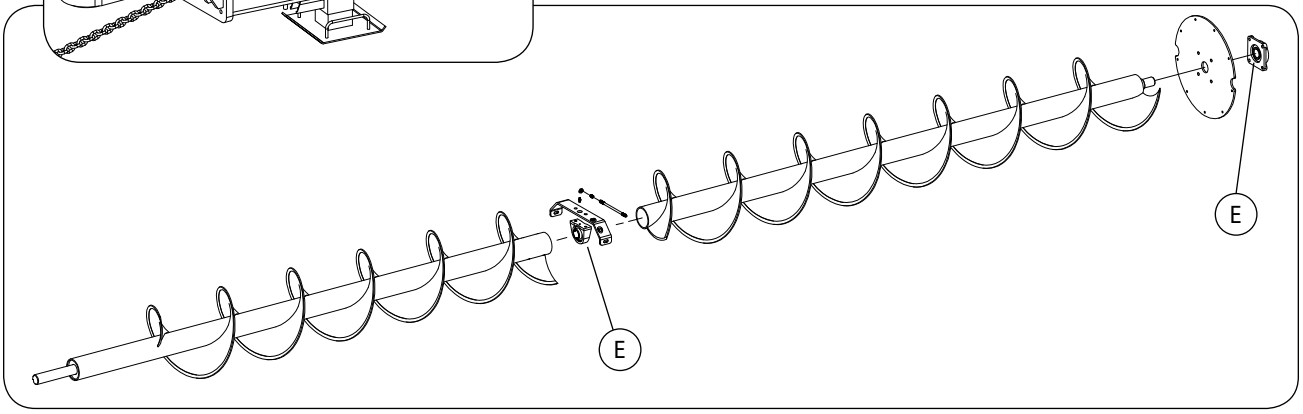






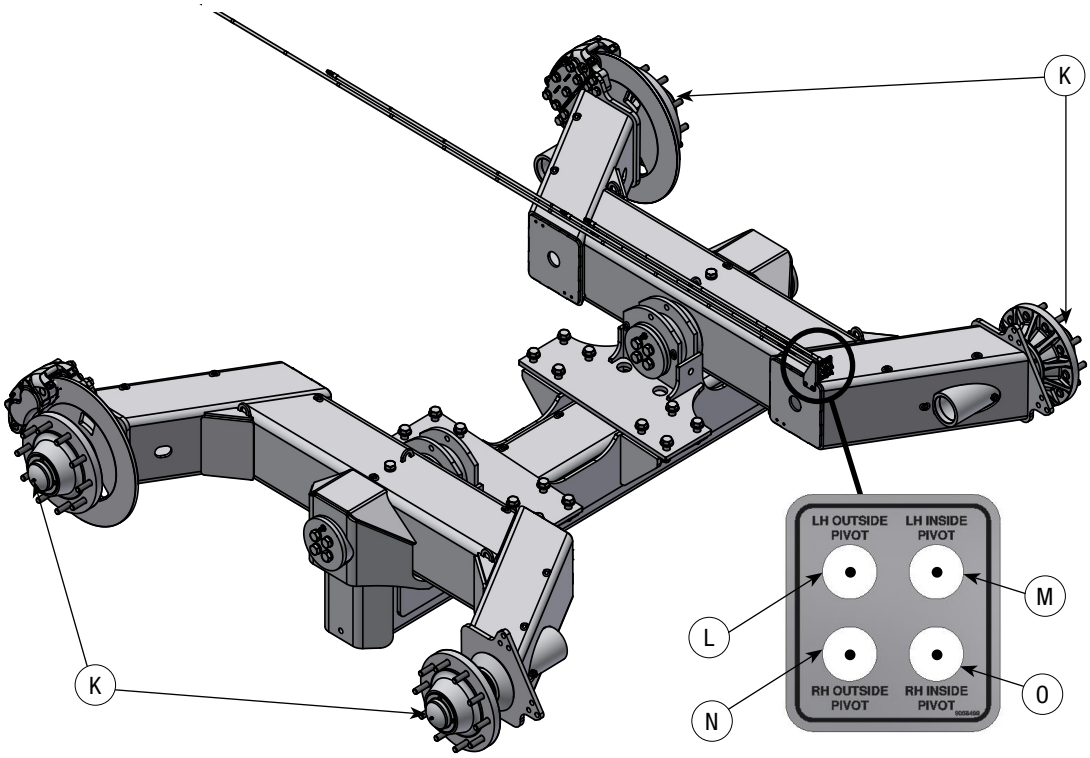


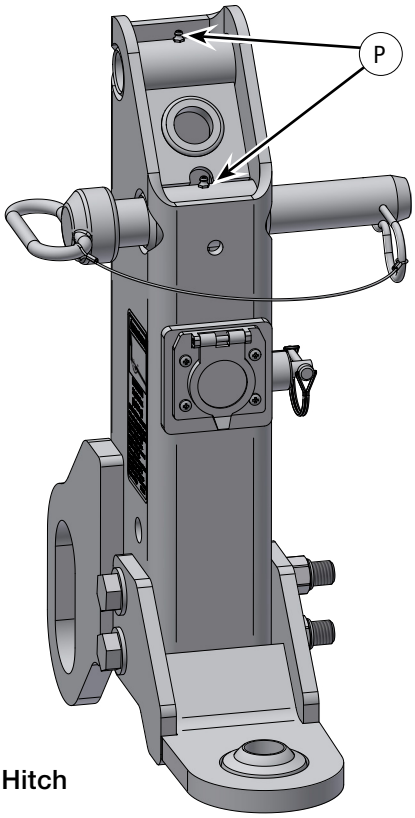
NOTE: For track lubrication, please refer to appropriate Track manual.



Lubrication (continued)

In-Line Tandem Lubrication Locations

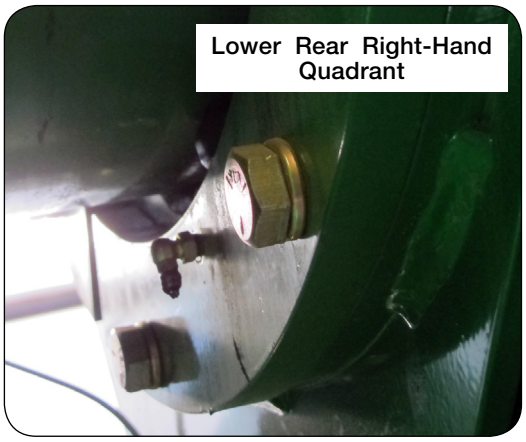


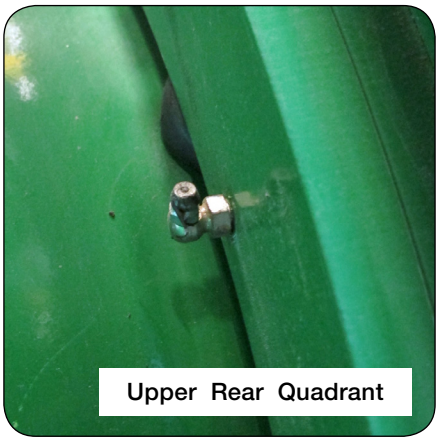


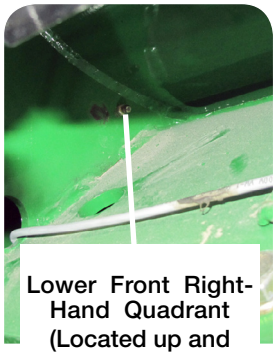
Optional Rear Hitch

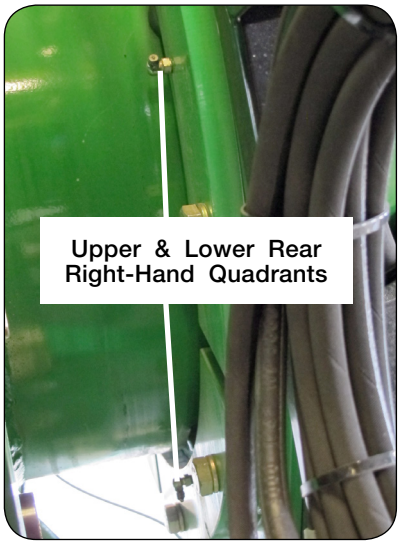
Lubrication (continued)

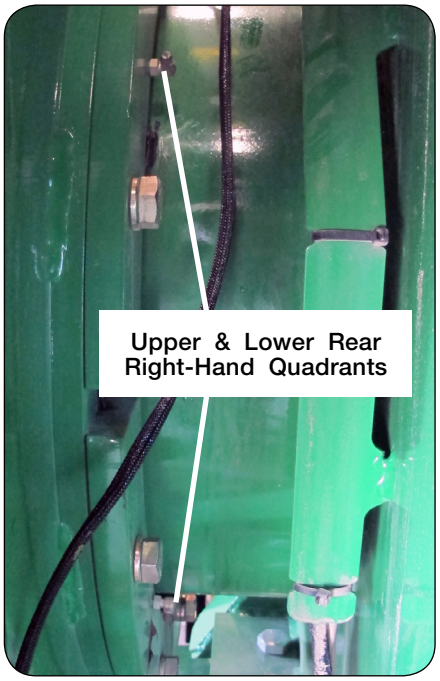
Lower Auger Pivot Housing Grease Points













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 - Benzi or GKN Walterscheid	-	EP-2	1 Shot	See Next Pages
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*	Hanger Bearing - Vertical Lower Auger **See note below	1	EP-2	2 Shots*	Monthly
D	Top Bearing - Vertical Upper Auger	1	EP-2	1 Shot	Each Season
E	Horizontal Auger End & Center Bearings	2	EP-2	2 Shots	Monthly
F	Auger Pivot Rings - Vertical Lower Auger See previous page (4-4) for zerk locations.	8	EP-2	2 Shots	Daily
G	Auger Pivot Pin - Vertical Upper Auger	2	EP-2	2 Shots	Daily
H	Grease Slide Plate	1	EP-2	1 Shot	Each Season
I	Tongue Pivot Bushing (1 per side)	2	EP-2	2 Shots	Daily
J	Front Horizontal Auger Bearing & Gearbox Support Bearing	2	EP-2	1 Shot	Weekly
K	Hubs	4	EP-2	Repack	Annually
L	Tandem Grease Bank - LH Outside Pivot	1	EP-2	6 Shots	Daily
M	Tandem Grease Bank - LH Inside Pivot	1	EP-2	6 Shots	Daily
N	Tandem Grease Bank - RH Outside Pivot	1	EP-2	6 Shots	Daily
O	Tandem Grease Bank - RH Inside Pivot	1	EP-2	6 Shots	Daily
P	Rear Hitch Pivot Pin (Optional)	2	EP-2	2 Shots	Monthly
Q	Chute Swivel Flange	5	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.

PTO Driveshaft Lubrication - Benzi PTO

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.

- Grease the overrunning clutch on the CAM Cut Out clutch assembly with 13 shots every 50 operating hours. Fig. 4
- The CAM Cut Out clutch on rear half driveline assembly is pre-greased for 500 operating hours. Contact your dealer for more greasing information.

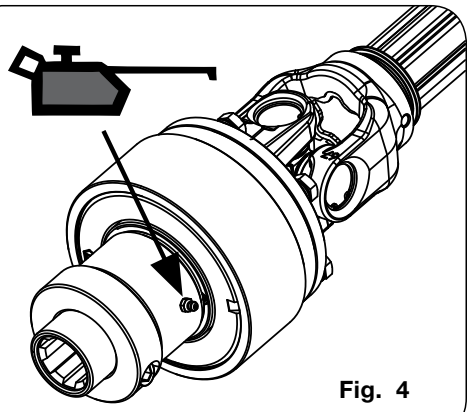
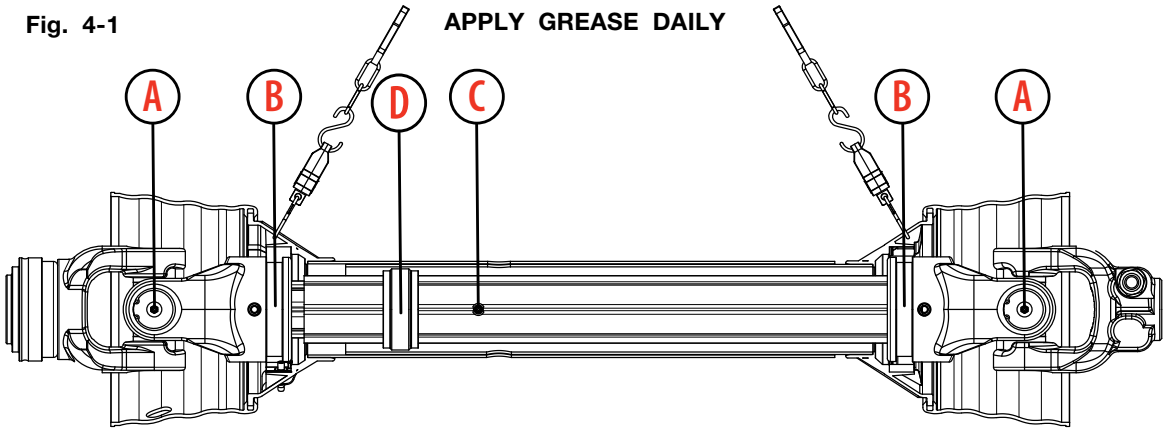


Fig. 4

Fig. 4-1



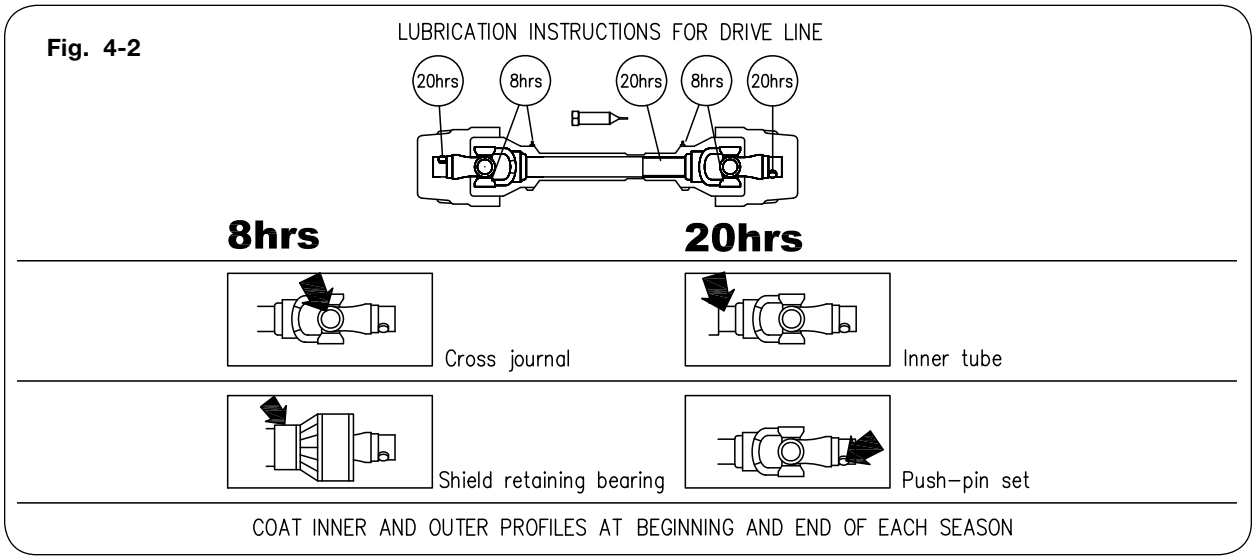
ITEM	DESCRIPTION	POINT	LUBRICANT	QTY.	HOURS
A	U-Joint Cross Kit	1	EP-2	1 Shot	8 Hours
B	Inner & Outer Yoke Groove	1	EP-2	Add Manually	8 Hours
C	Inner & Outer Profile Tube	1	EP-2	Add Manually	Start and End of Each Season
D	Anti-Vibration Bushing	1	EP-2	5 Shots	Start and End of Each Season 50 Hours

PTO Driveshaft Lubrication - GKN Walterscheid PTO

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. 4-2



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.**

Refer to parts section for hydraulic component detail listing.

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

Replacing Hoses/Fittings/Cylinders:

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

Purge Hydraulic System

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 system at full pressure for at least 5 seconds after cylinder rods stop moving, or hydraulic motors have completed the required movement. Check that all movements are fully completed.
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, or hydraulic motors have completed the required movement. Check that all movements are fully completed.
E. Check for hydraulic leaks using cardboard or wood. Tighten connections according to directions in Torque Chart in this section.
F. Repeat steps 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.

Manual Override for Optional Electric Over Hydraulic System

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.

⚠ 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.**

1. Park the 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 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.

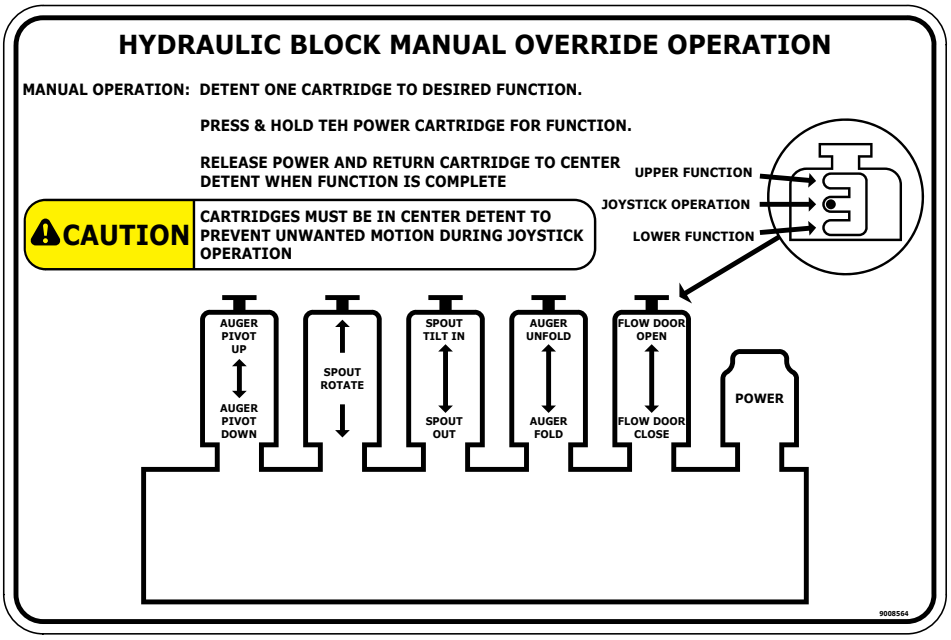


Fig. 4-3

Manual Override for OEO Hydraulic System (continued)

NOTE: Only one cartridge valve (9008416 & 9008463) may be in the top or bottom detent position at a time to function properly. All other valves must be in the middle detent position. (Figs. 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. (Figs. 4-4, 4-5, & 4-7)

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. (Figs. 4-4, 4-5, & 4-7)

NOTE: Refer to "Troubleshooting" and "Auger Switch 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.

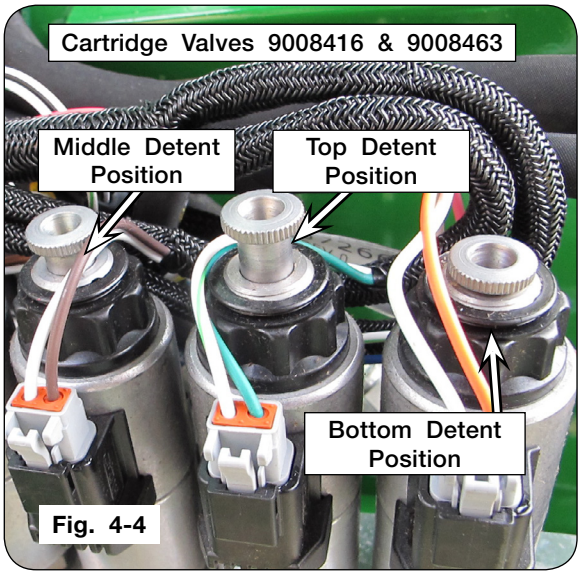


Fig. 4-4

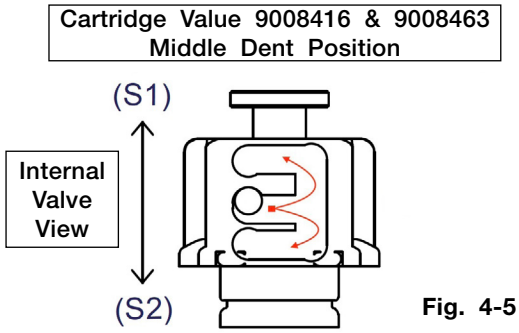


Fig. 4-5

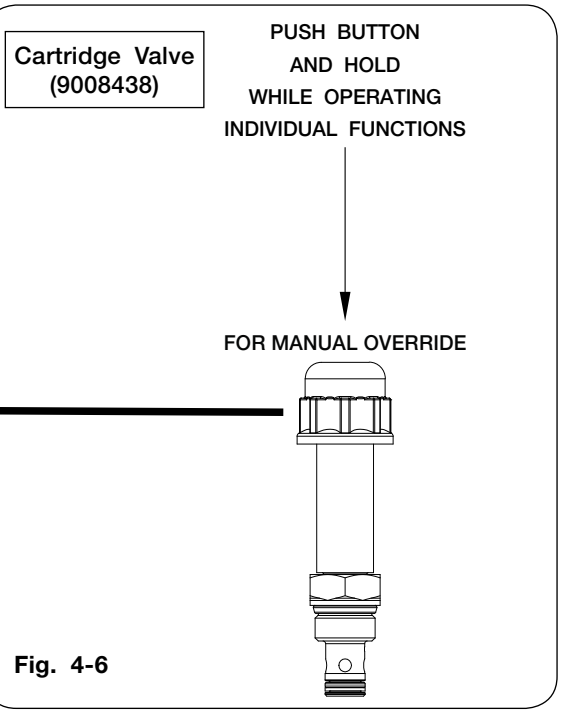


Fig. 4-6

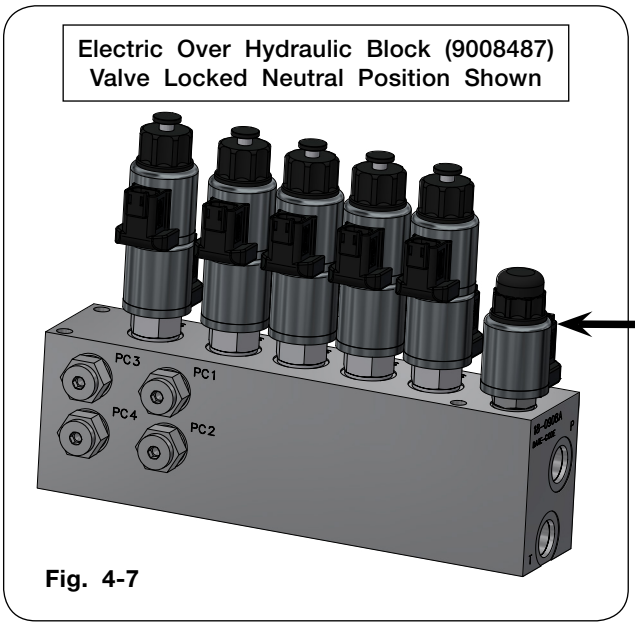


Fig. 4-7

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 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.**
- **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 and lubricate as specified in “Lubrication” section.

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

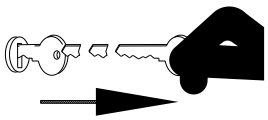
Auger System (continued)

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. 4-8)

3. At the FRONT of the auger, remove retaining rings (91192) from the pin (272587) on clevis (9006491). Keep retaining rings and pin. (Fig. 4-8)

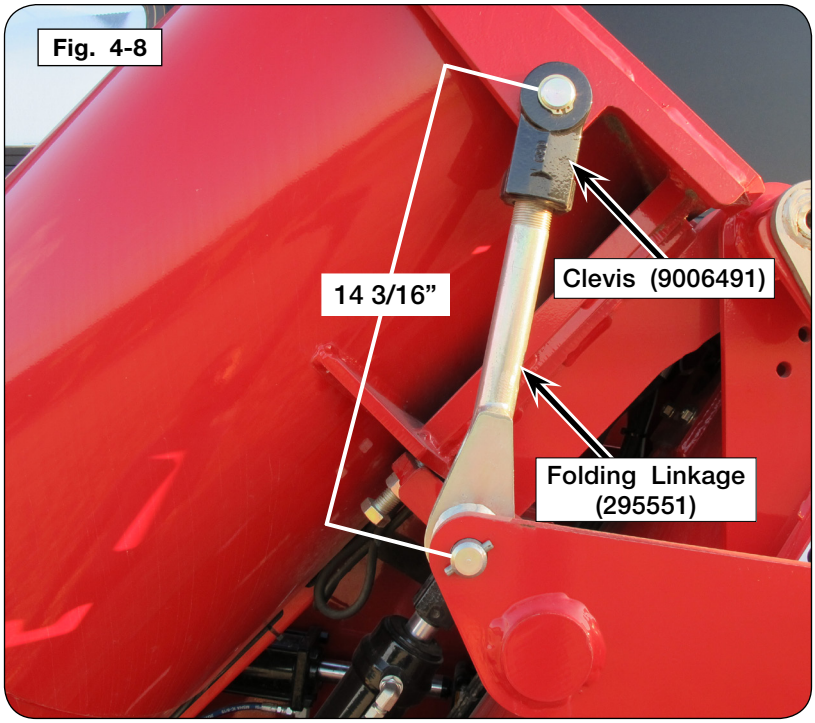
4. Adjust the folding linkage (295551) by turning the clevis in or out one full turn. (Fig. 4-8)

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. 4-12)

NOTE: The lower auger position is indexed from the drive dog / tube flange hinge surface as shown. (Figs. 4-11 & 4-12)

Fig. 4-10

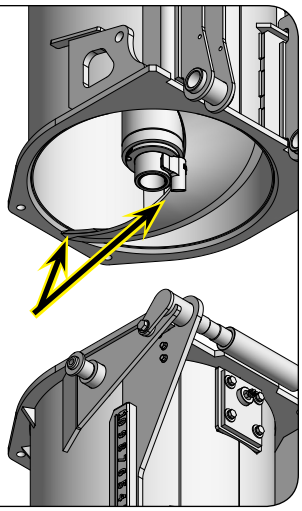


Fig. 4-11

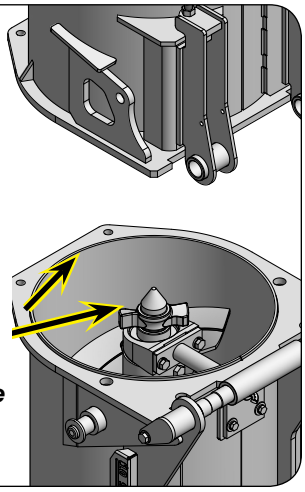
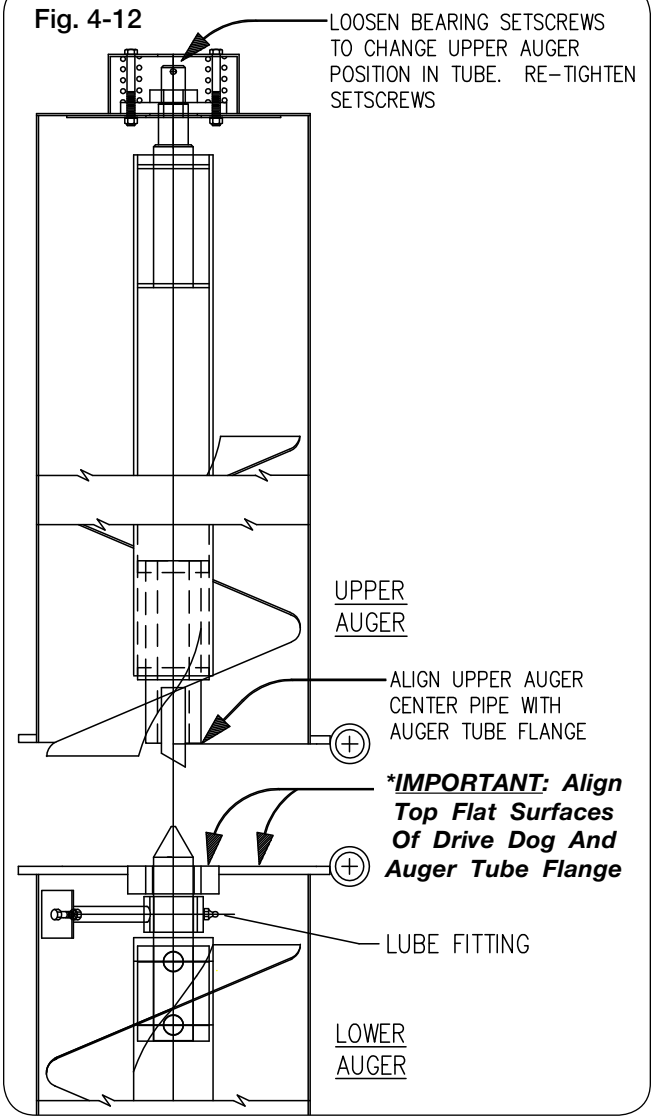


Fig. 4-12



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. 4-13)

NOTE: Looking down at the lower flighting (Fig. 4-13) the auger rotation will be counter-clockwise. When looking up at the upper flighting (Fig. 4-14) the auger rotation will be clockwise.

2. For the upper auger, use the outer edge of the flighting as a 12 o'clock reference. Position the driven edge of the drive pin at the 4 o'clock position. (Fig. 4-14)

3. When engaged, the upper flighting should follow the lower flighting. (Fig. 4-15)

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

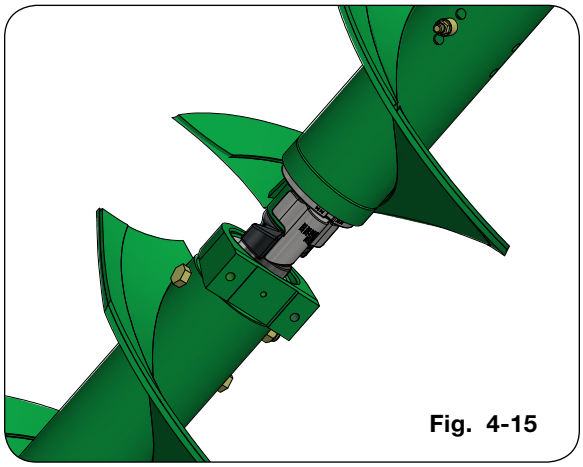
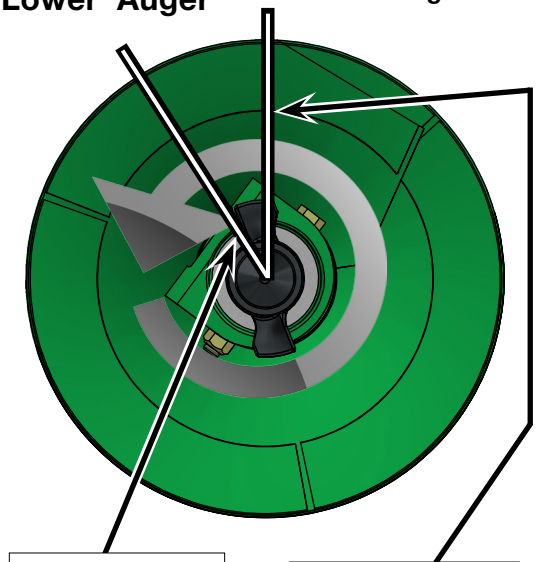
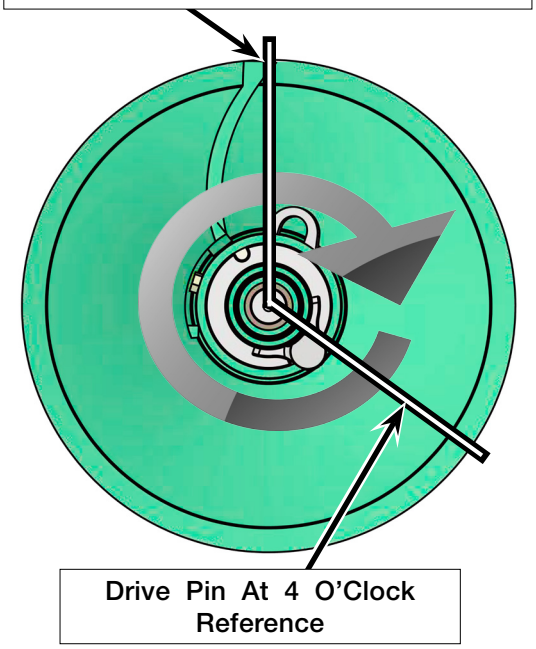


Fig. 4-15

Lower Auger Fig. 4-13



Upper Auger Fig. 4-14



Auger Driveline Bearings

IMPORTANT

- *Periodically check set screws in all bearings at both ends of the driveline for tightness. (Fig. 4-16 and 4-17)*

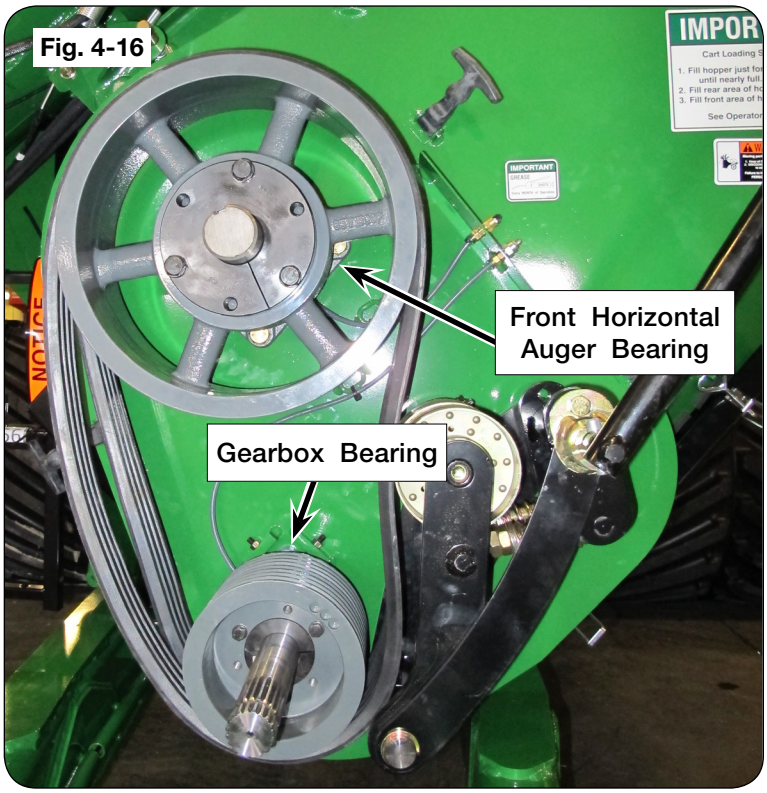


Fig. 4-16

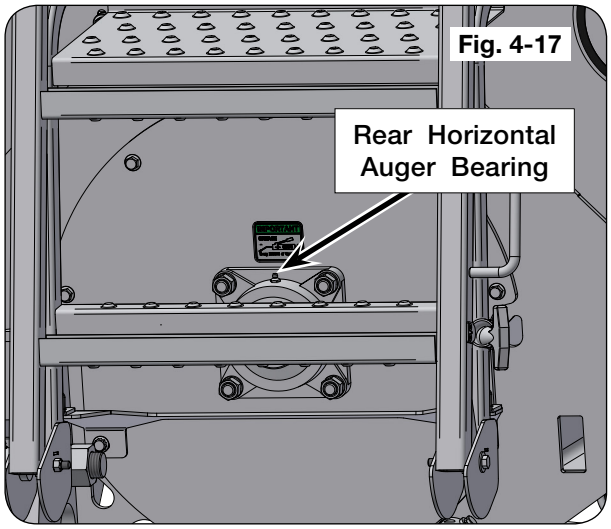


Fig. 4-17

Belt Tightener Adjustment

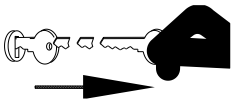
IMPORTANT

- *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 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. Relieve the belt tension as outlined in the 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. 4-20.

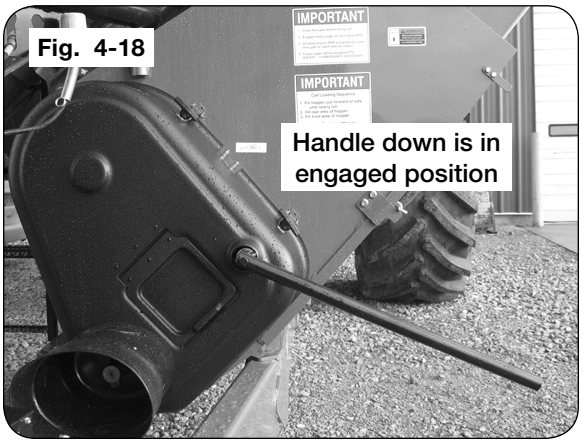


Fig. 4-18 Handle down is in engaged position



Fig. 4-19 Handle up is in disengaged position



Fig. 4-20

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. 4-21)

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. 4-22)

7. Release and tighten belt multiple times to confirm positions and final adjustments. See Fig. 4-22 and Fig. 4-23.

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.

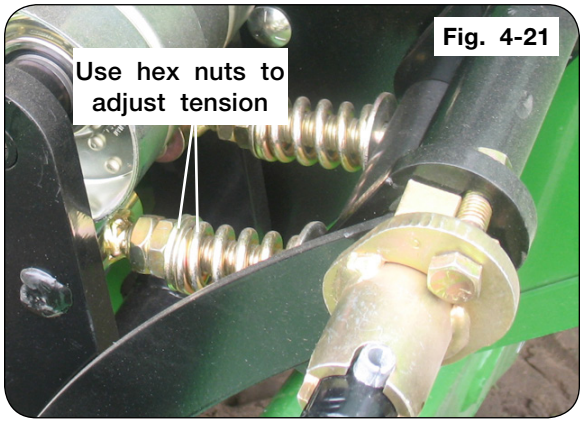


Fig. 4-21

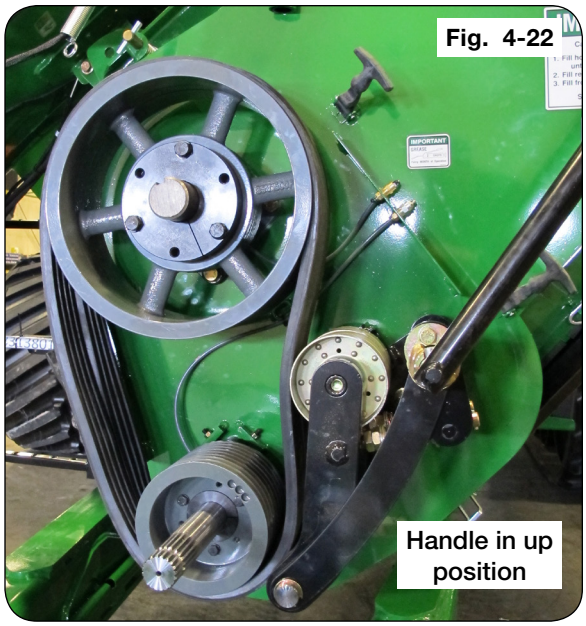


Fig. 4-22

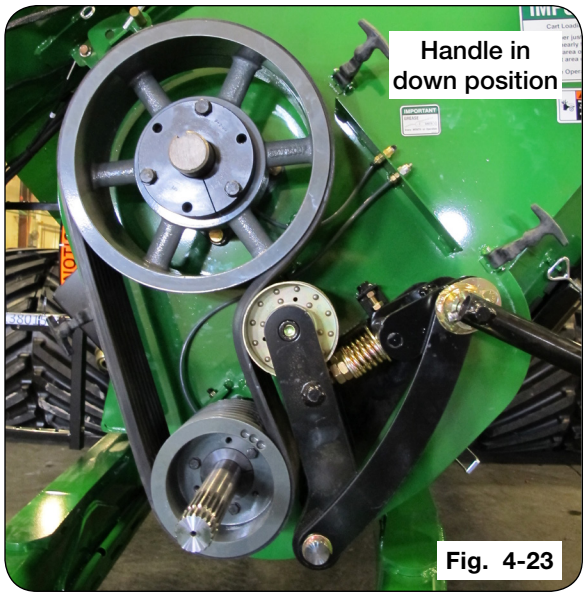


Fig. 4-23

V-Belt Alignment

1. Pulleys must be aligned with the fixed idler. Belts should be centered on idler for longest belt life. (Fig. 4-24)



Fig. 4-24

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. 4-25)

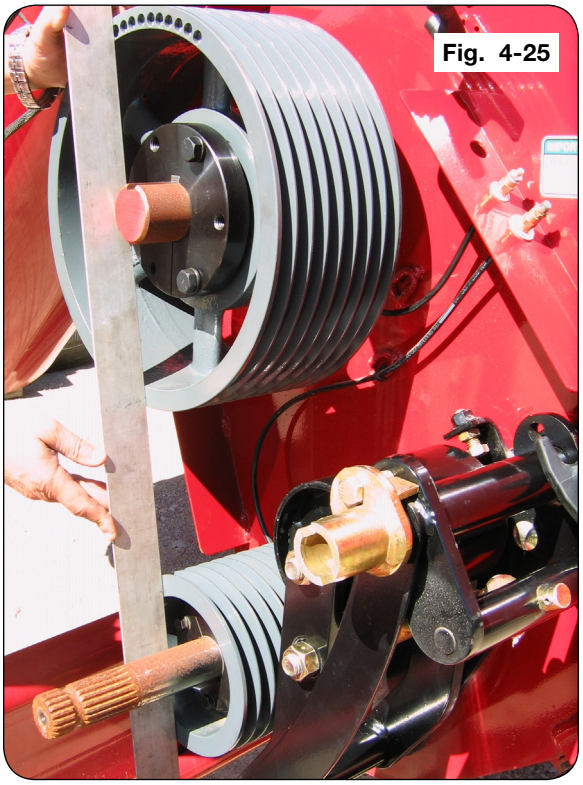


Fig. 4-25

V-Belt Alignment (continued)

Split Tapered Bushings

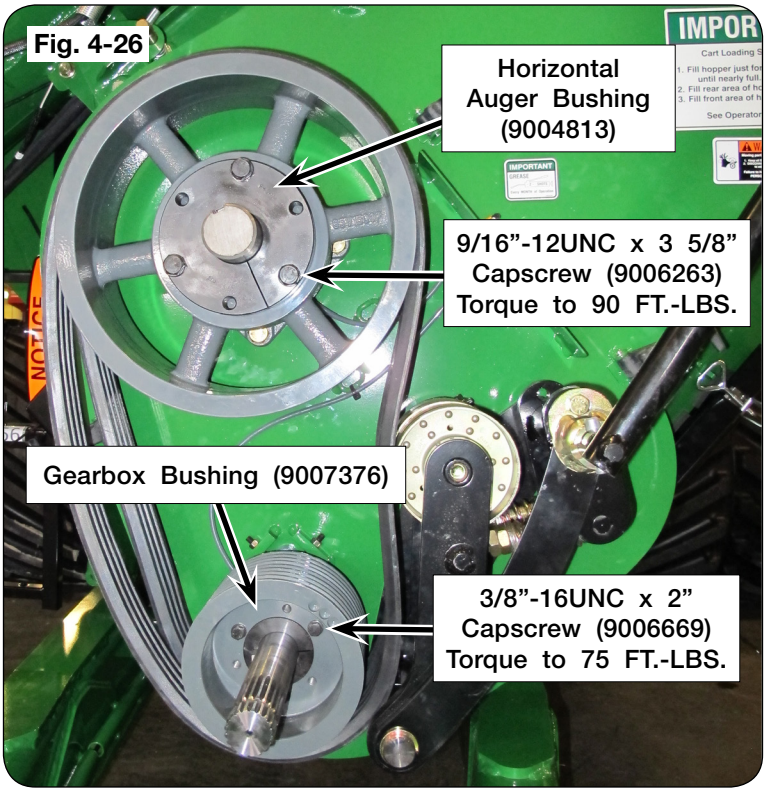
Check annually for tight engagement to driveshaft. Torque three bolts progressively to values shown in figure 4-26.

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.

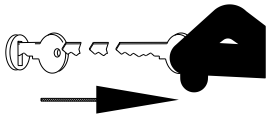


Horizontal Auger Removal and Replacement

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 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.
2. Remove 4 rear ladder capscrews attached to the cart. Keep capscrews. (Fig. 4-27)
3. Keep all hardware for re-assembly.
4. Remove rear ladder from the cart. (Fig. 4-27)

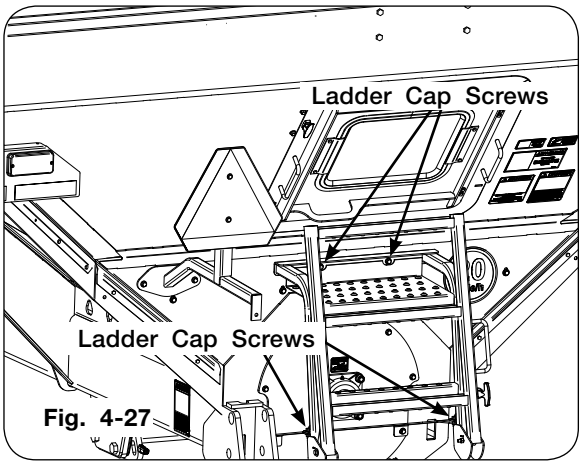


Fig. 4-27

Horizontal Auger Removal and Replacement (continued)

5. Remove the seven (7) capscrews from the auger cover. (Fig. 4-28)

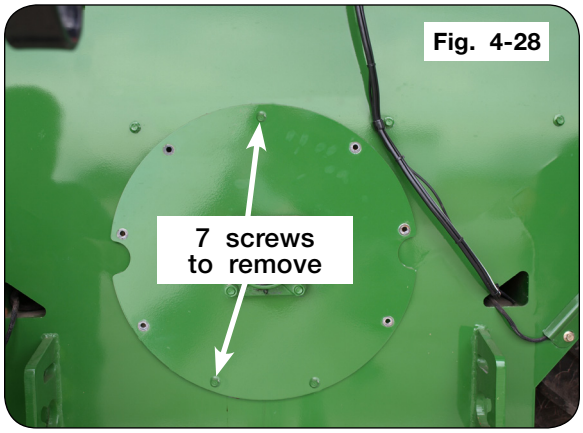


Fig. 4-28

6. Pry the auger from the auger tube. (Fig. 4-29)

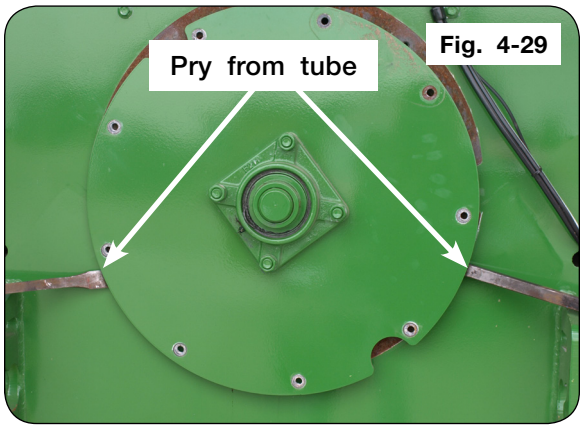
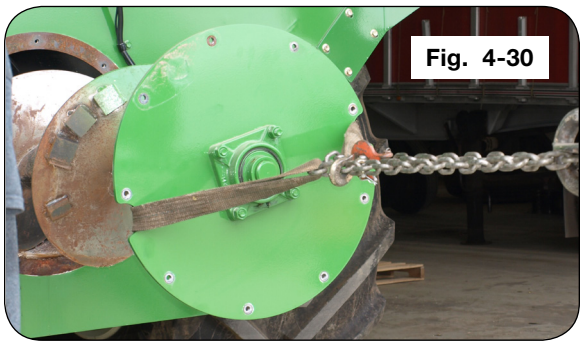


Fig. 4-29

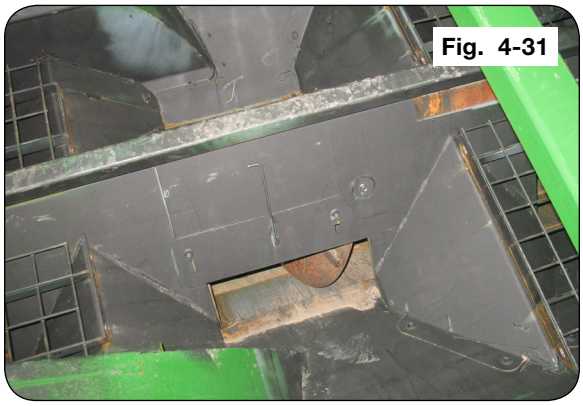
7. Using a safe lifting device rated at 1,000 lbs., pull the rear auger out of the cart. (Fig. 4-30)

NOTE: If only servicing rear auger, skip to step 26. For 5-pin driver replacement, continue to step 8.


Fig. 4-30

8. Remove the flange screws in both middle grates inside the cart. (Fig. 4-31)

9. Using a safe lifting device rated for 100 lbs., remove the grates. (Fig. 4-31)


Fig. 4-31

Horizontal Auger Removal and Replacement (continued)

10. Remove locknuts, baffle weldments and cover plates from the middle tent. (Fig. 4-32)

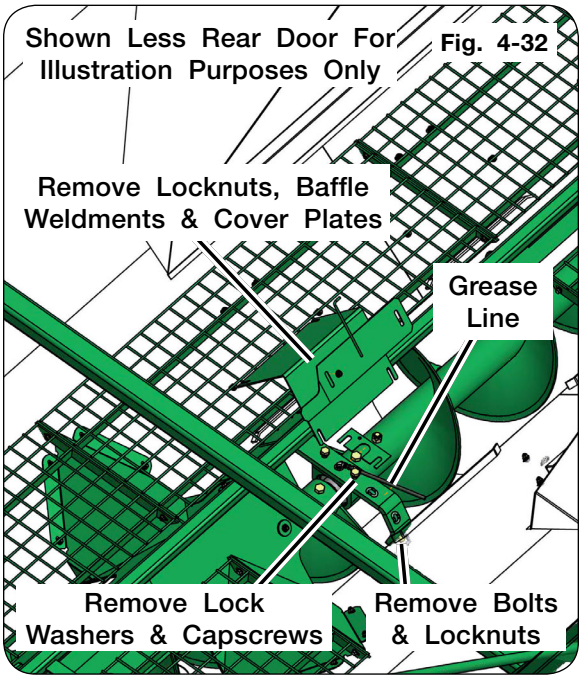
11. Disconnect grease line. (Fig. 4-32)

12. Using a safe lifting device rated for 600 lbs., block between the horizontal auger and belly pan as required.

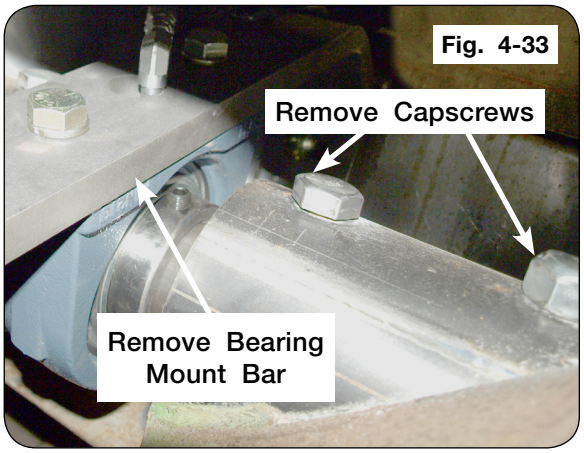
13. Loosen the pillow block bearing hardware evenly to lower horizontal auger onto the block or belly pan. (Fig. 4-32)

14. Remove capscrews and lock washers holding bearing onto the bearing mount bar. (Fig. 4-32)

15. Remove the bearing mount bar bolts and locknuts on each side of the auger. (Fig. 4-32)



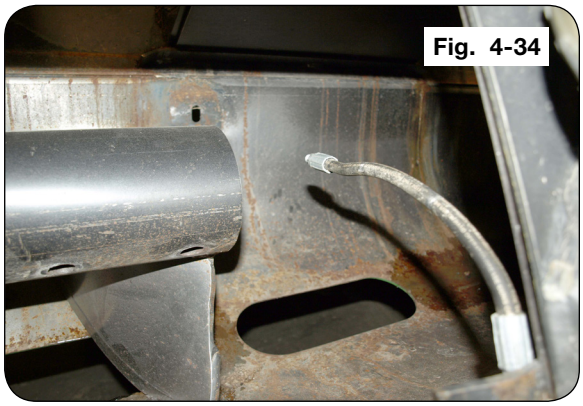
16. Remove bearing mount bar to allow access to work on the bearing and shaft. Remove two center tube connecting capscrews, spacer bushings (283895B) and locknuts from the horizontal auger. (Fig. 4-33)

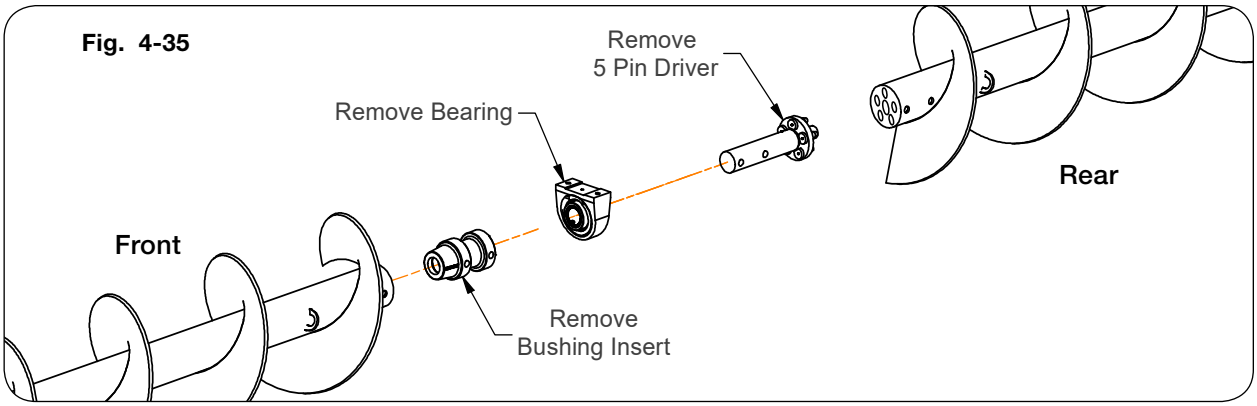


Horizontal Auger Removal and Replacement (continued)

17. Remove the original 5-pin driver, bearing and the bushing insert. (Figs. 4-34 & 4-35)

18. Replace 5-pin driver and bushing insert, if needed.

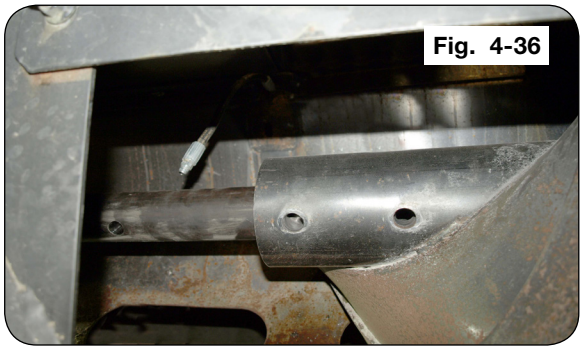

Fig. 4-34



19. Substantially coat bushing insert with anti-seize.

20. Slide bushing insert into front auger and ensure tube holes are aligned. (Figs 4-35 & 4-36)

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


Fig. 4-36

NOTE: Make sure the set screws on bearing are towards the front of the cart. (Fig. 4-37)

21. Slide bearing onto 5-pin driver. Hand tighten set screw. (Fig. 4-37)

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

23. Install front capscrews, spacer bushings and locknuts 180 degrees from each other and assemble spacer bushings on threaded side of capscrews. Hand tighten hardware. (Fig. 4-37)

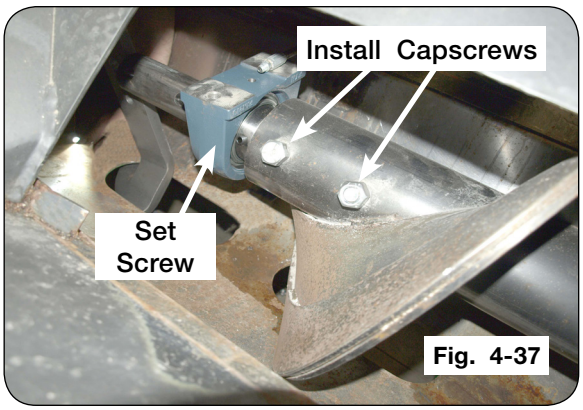


Fig. 4-37

Horizontal Auger Removal and Replacement (continued)

24. Install hanger bracket. Raise hanger bracket as high as possible. (Figs. 4-38 & 4-39)

25. Torque hanger bracket capscrews to 130 ft.-lbs. attaching hanger bracket to the cart. (Figs. 4-38 & 4-39)

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

NOTE: When installing rear auger, use blocking rated for 1,000 lbs., as required.

26. Using a safe lifting device rated for 1,000 lbs., slide the rear auger forward and engage it with the 5-pin driver. Align the pins and holes with the rear auger pipe. (Fig. 4-39)

27. Attach bearing to the hanger bracket. Raise horizontal auger and 5-pin driver into position by tightening the bearing hardware. (Figs. 4-38 & 4-39)

28. If used, remove blocking from between horizontal auger and belly pan.

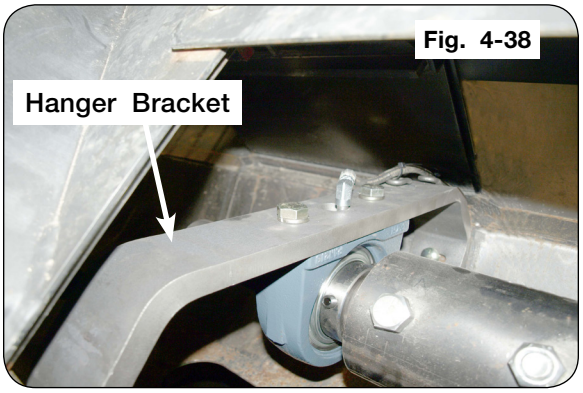


Fig. 4-38

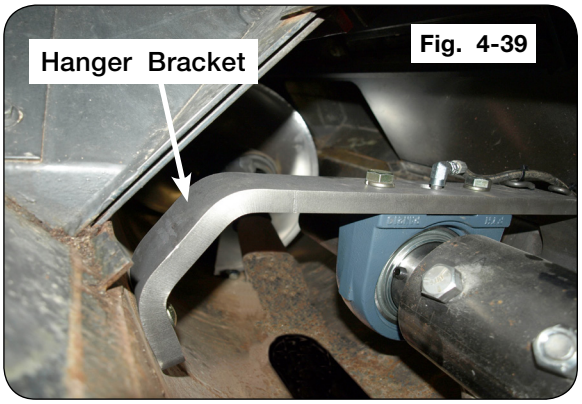


Fig. 4-39

29. Reattach grease line components. (Figs. 4-38 & 4-39)

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 center line measurement. See Fig. 4-40.

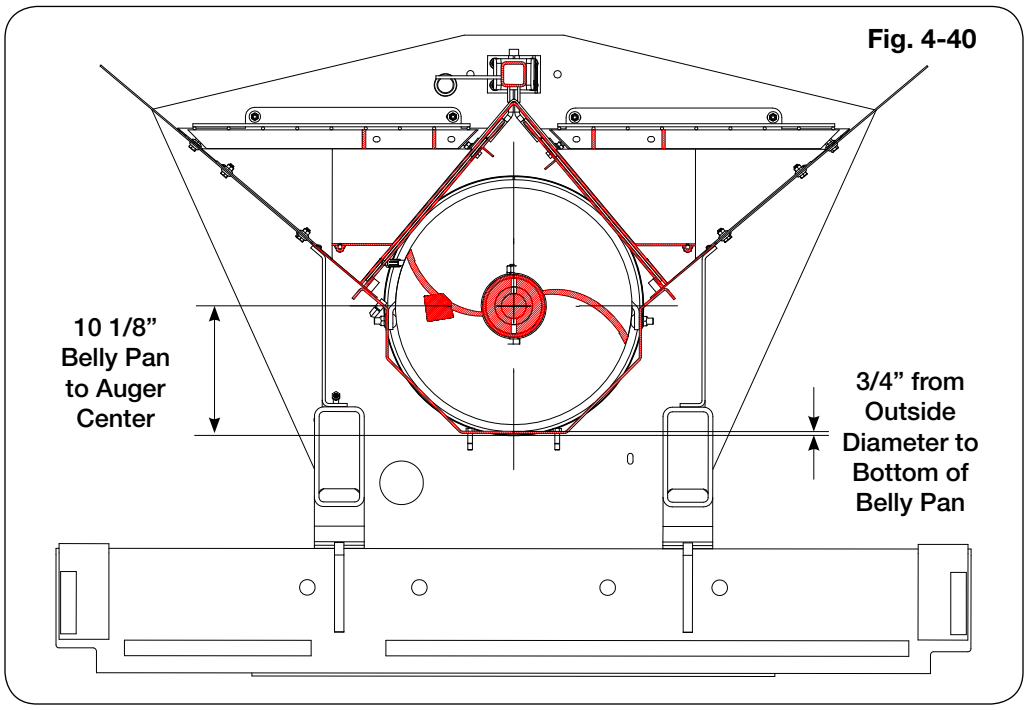
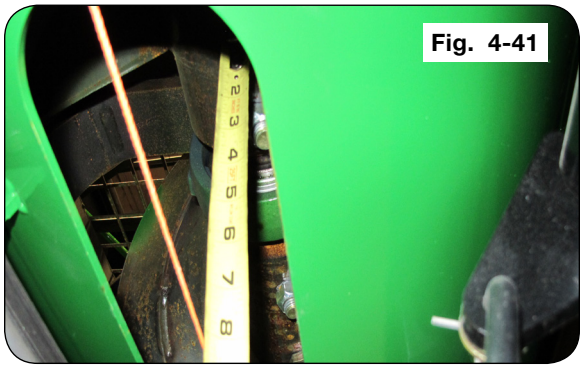


Fig. 4-40

Horizontal Auger Removal and Replacement (continued)

30. 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 4-41)


Fig. 4-41

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

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

32. 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.

33. If hanger bracket was adjusted up, torque hanger bracket capscrews to 130 ft.-lbs. (Fig. 4-42)

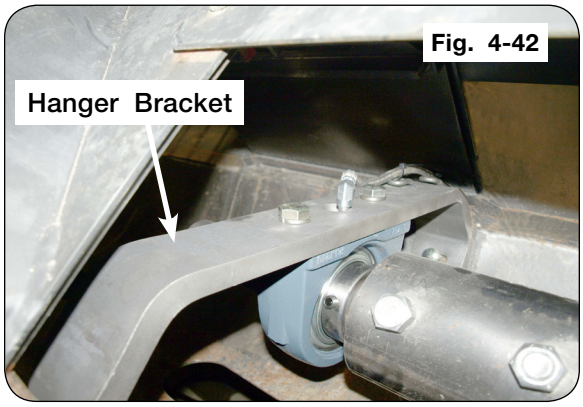


Fig. 4-42

34. Torque auger capscrews to 200 ft.-lbs. (Fig. 4-43)

35. Tighten bearing set screw. (Fig. 4-43)

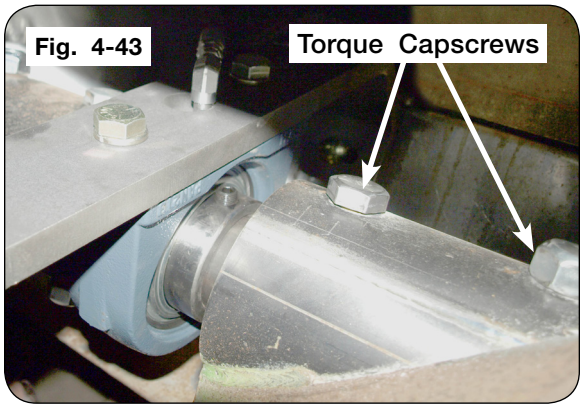


Fig. 4-43

Horizontal Auger Removal and Replacement (continued)

36. Insert hardware for rear auger cover. Tighten and torque hardware to specification. (Fig. 4-44 and 4-45)

37. Using a safe lifting device rated for 100 lbs., reinstall rear ladder. (Fig. 4-45)

38. Torque all hardware to specification. See "Torque Chart" in this section. (Figs. 4-44 and 4-45)

39. Reinstall ALL baffle weldments and cover plates.

40. Using a safe lifting device rated for 100 lbs., reinstall ALL the grates.

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

42. 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.

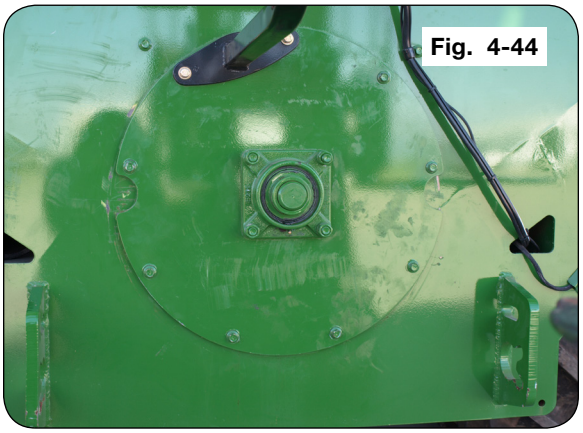


Fig. 4-44

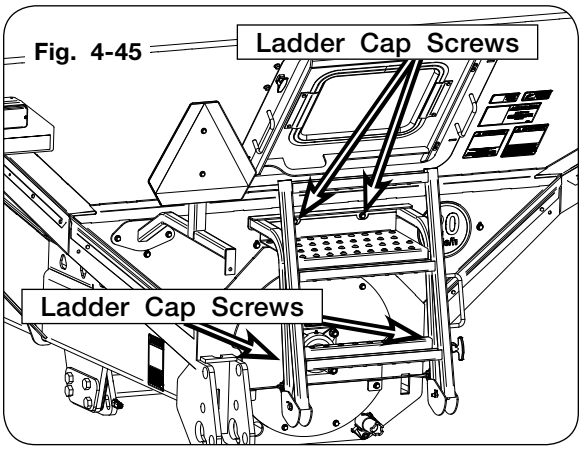


Fig. 4-45

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. ALWAYS DISCONNECT POWER SOURCE BEFORE SERVICING. 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. 4-64)
3. Once clamping cone/retaining bolt is removed, slide torque limiter off gearbox splined input shaft.

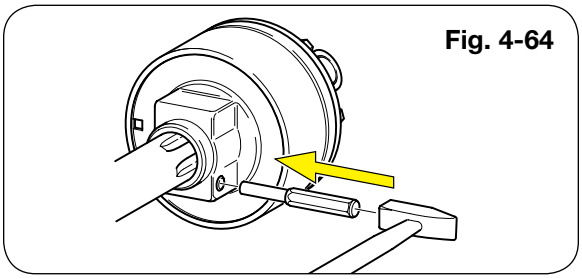


Fig. 4-64

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.

Maximum gearbox life:
Check oil level every 2 weeks.

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

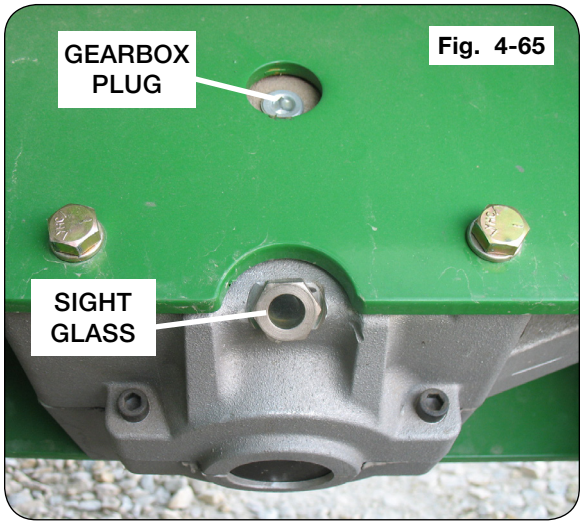


Fig. 4-65

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 4-66).

   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 4-67)

   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)

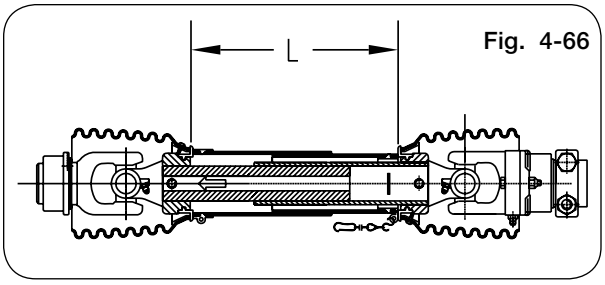


Fig. 4-66

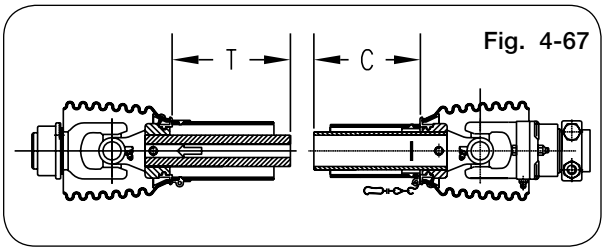


Fig. 4-67

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. 4-68).

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. 4-69)

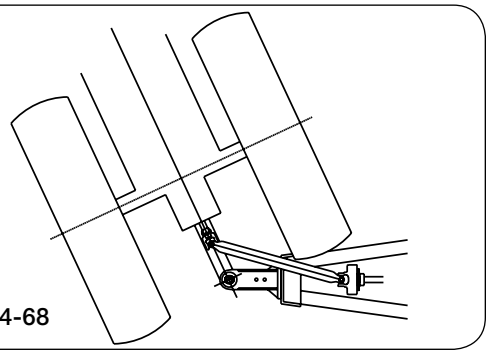


Fig. 4-68

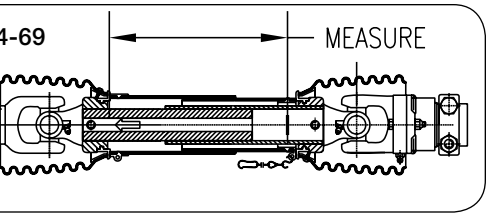


Fig. 4-69

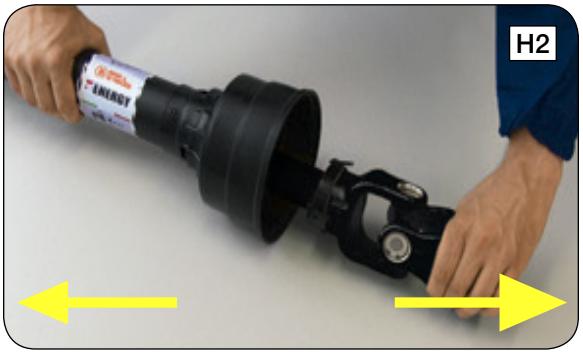
PTO Shaft and Clutch - Benzi PTO

To Dismantle Guard (Figs. H1 - H3)

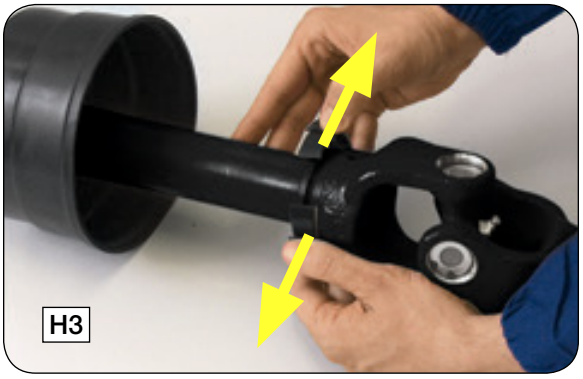
1. Pull the guard tube backwards and, using a screwdriver, disengage the three bearing ring tabs by pushing them inward. (Fig. H1)



2. Remove half-guard. (Fig. H2)



3. Open the bearing ring and remove from the yoke groove. (Fig. H3)



PTO Shaft and Clutch - Benzi PTO (continued)

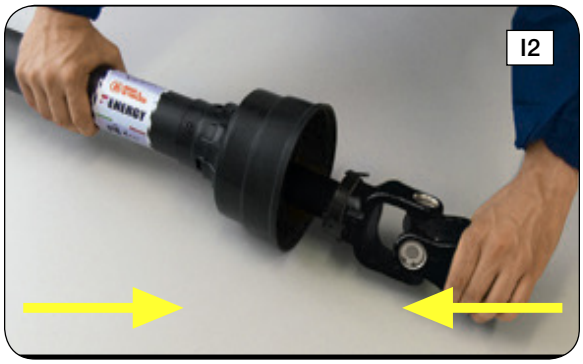
To Assemble Guard (Figs. I1 - I3)

1. Clean and grease the bearing ring, yoke groove and inner profile tube. (Fig. I1)



2. Fit bearing ring in groove with three bearing ring tabs positioned as shown. (Fig. I2)

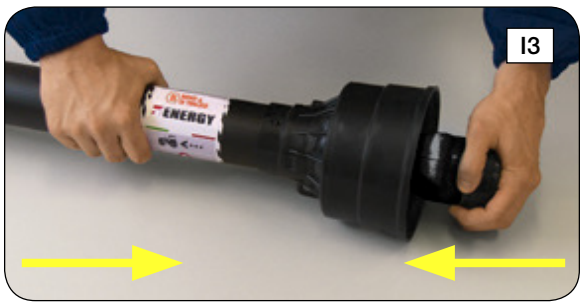
3. Slip on half-guard by aligning the holes on the cone with three bearing ring tabs and the cone inner key with the cut of the bearing ring. (Fig. K2)



4. Push half-guard and yoke together causing the half-guard to engage. (Fig. I3)

NOTE: Ensure the three bearing ring tabs are positioned inside the grooves.

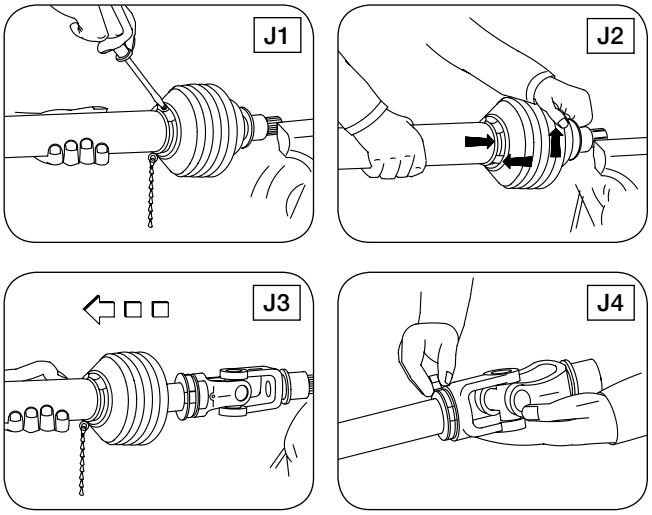
5. Confirm half-guard engagement by pulling backwards on the half-guard. (Fig. I3)



PTO Shaft and Clutch - GKN Walterscheid PTO

To Dismantle Guard (Figs. J1 - J4)

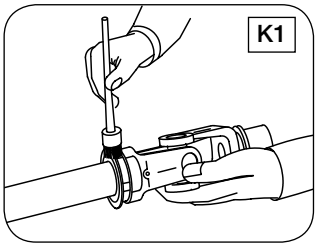
1. Remove locking screw.
2. Align bearing tabs with cone pockets.
3. Remove half-guard.
4. Remove bearing ring.

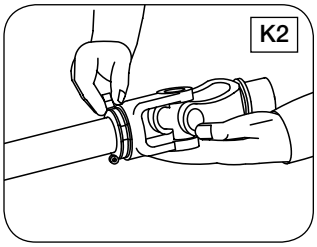


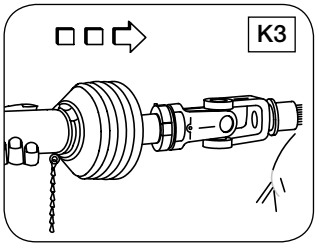
PTO Shaft and Clutch - GKN Walterscheid PTO (continued)

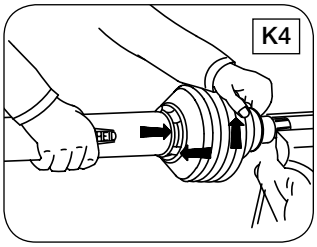
To Assemble Guard (Figs. K1 - K5)

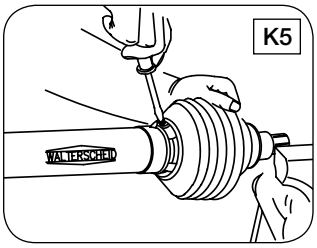
1. Grease yoke groove and inner profile tube.
2. Fit bearing ring in groove with recesses facing profile tube.
3. Slip on half-guard.
4. Turn cone until it engages correctly.
5. Install locking screw.





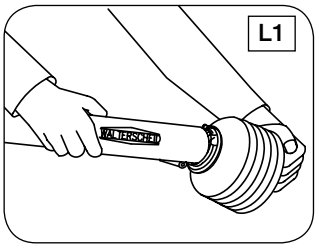


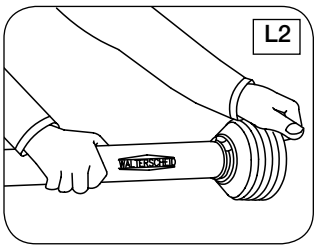


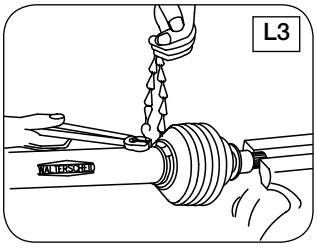


To Assemble Cone (Figs. L1 - L3)

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.**

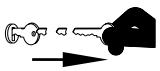
CAUTION

- **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 for 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 3,000 lbs to support the wheel and tire.

4. Remove the wheel and tire from the hub.

NOTE: If changing walking tandem inner wheel, refer to "Inner Dual Wheel Access" in MAINTENANCE section.

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.**

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.

Wheel, Hub and Spindle Disassembly and Assembly (continued)

6. Inspect the spindle and replace if necessary.
   If spindle does not need to be replaced, skip to Step 7; otherwise continue with Step 6.

   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.

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. 4-70) 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.

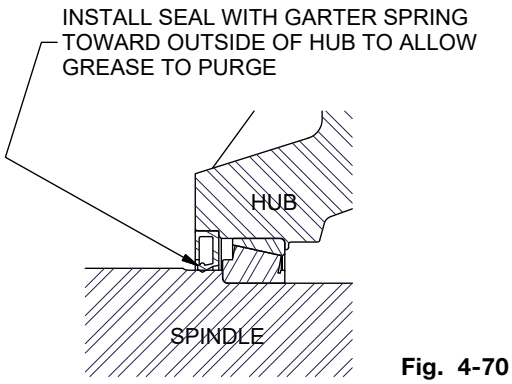


Fig. 4-70

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

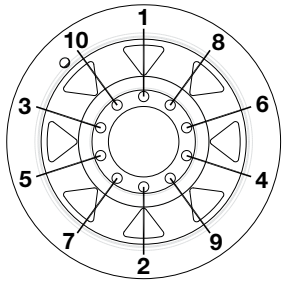
⚠ CAUTION

- **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 Diagrams 1 & 2.

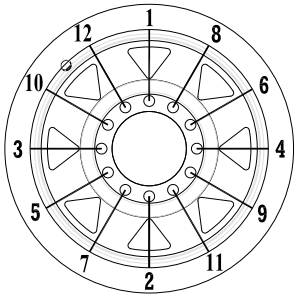
NOTE: Do not use anti-seize on wheel hardware.

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



10 BOLT - FOR 1120

DIAGRAM 1



12 BOLT - FOR 1320

DIAGRAM 2

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
	IF1100/50R42 CFO R-1W	197B	46
	420/80R46 R-1	151A8	44
	480/80R46 R-1	158A8	44
	380/90R46 R-1	152B	51

Wheels and Tires (continued)

Tire Pressure

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
	800/65R32 R-1W	172D	34
	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

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 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 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 rear retaining hardware, then pivot walking tandem assembly outward to access inner wheel.

5. Once pivoted out, block outer wheel to prevent movement. Remove inner wheel. Refer to "Wheel, Hub, Disassembly and Assembly" steps in this section.

(Continued on next page)

Walking Tandem Option (continued)

NOTE: Walking tandem assembly must be suitably supported during and after pivoting.

6. After inner wheel service is complete, pivot walking tandem back into position. (Fig. 4-71)
7. Reattach and torque capscrews removed in step 4.
8. Remove safe load holding devices.


Fig. 4-71

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. 4-58)

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.

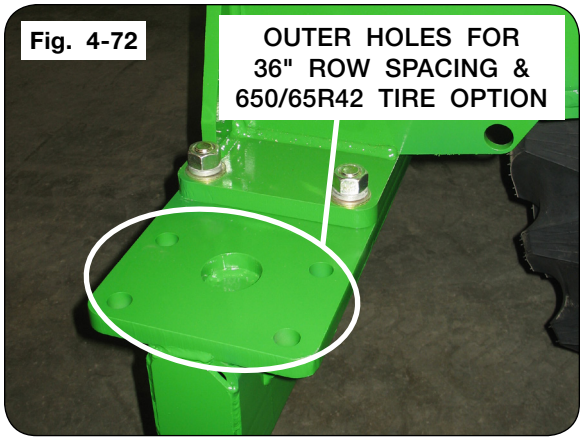


Fig. 4-72

NOTE: Walking tandem assembly must be suitably supported during and after pivoting.

5. Remove both inner and outer tires and wheels. Refer to steps in this section.
6. Remove the 1 1/8” bolt located toward the center of the front axle and loosen front axle beam clamp 5/8” bolts and slide front pivot beam out approximately 9 inches.
7. After front pivot beam is slid 9 inches, reinstall 1 1/8” bolt and torque 640 ft.-lbs. Reinstall front axle beam clamp 5/8” bolts and torque 260 ft.-lbs.
8. While keeping tread direction the same, swap rims so the dish places tires in widest dual spacing.
9. Pivot walking tandem assembly in towards the cart and align bracket mounting holes with cross beam mounting plate. Use outer holes.
10. Reinstall 5/8” rear retaining hardware 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.

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 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.**

Refer to the following reasons for baffle adjustment:

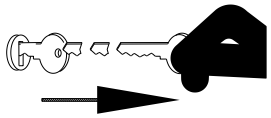
NOTE: To unload the cart evenly from front to back the openings should increase in height from back to front.

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.

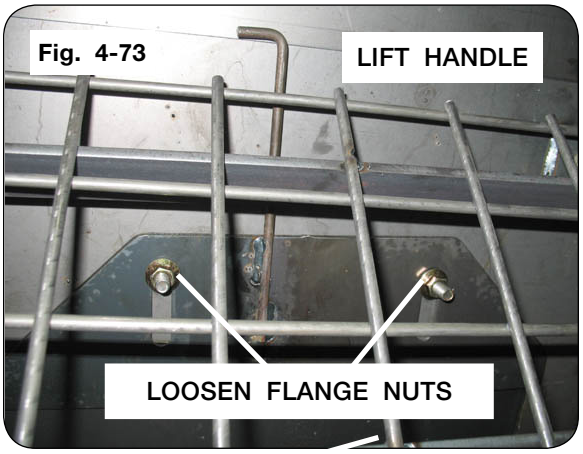
Before making any baffle adjustments, close horizontal auger flow door. Securely block the grain cart, set the tractor parking brake, turn off tractor engine and remove ignition key.



If a higher flow is desired and torque is not a factor, loosen the (2) flange nuts on each baffle, see figure 4-73. Use the lift handle to raise each baffle to the desired position, retighten both flange nuts, see figures 4-73 & 4-74.

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 4-74 for illustration only.





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. Inspect cleanout door gasket for damage, if damaged replace gasket and continue with cleanout door adjustment.
3. Loosen all the hardware in the slotted brackets connecting the cleanout door rockshaft to the grain cart tube. (Fig. 4-75)
4. Starting at the front of the cart, using a jack, push the rockshaft up and toward the runner tube. (Fig. 4-75)

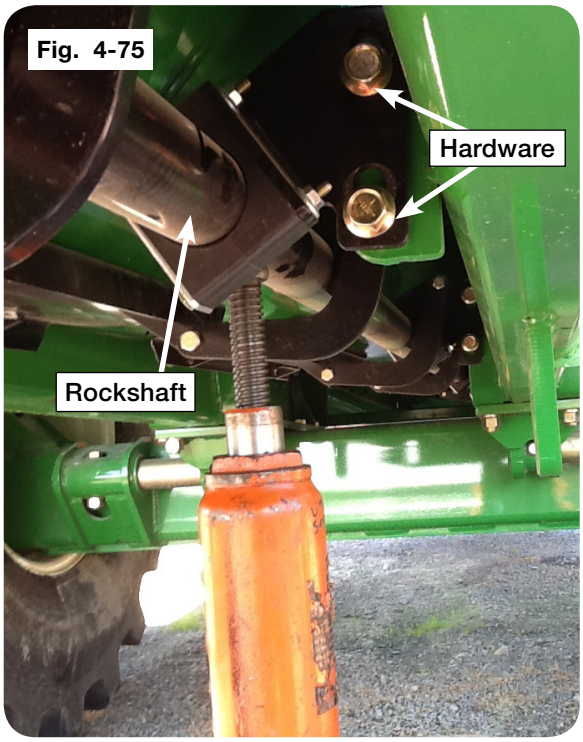


Fig. 4-75

NOTE: Ideal distance between the runner tube and rockshaft is 3 1/4". (Fig. 4-76)

5. When the rockshaft is in position, torque the hardware previously loosened to 28 ft.-lbs.
6. Continue repositioning the rockshaft moving toward the back of the cart.

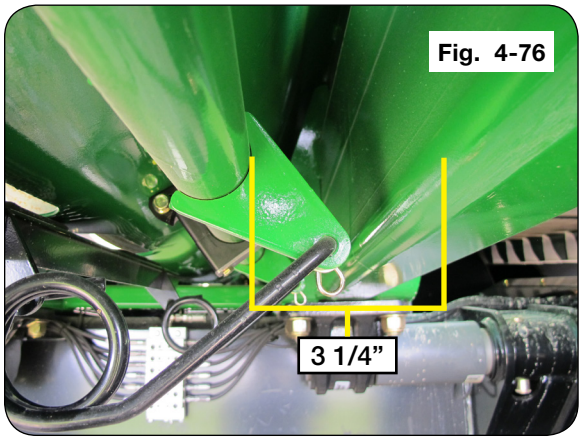


Fig. 4-76

Horizontal Cleanout Door Adjustment (continued)

7. Rotate the tensioner handle counter-clockwise to close the doors allowing the plate to fit and seal into the belly pan opening. (Fig. 4-77)

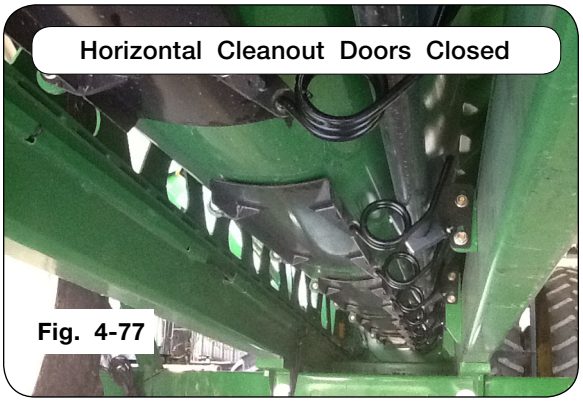


Fig. 4-77

8. If plate insert needs adjustment, loosen the two flat head machine screws holding the plate in position. (Fig. 4-78)

9. Ensure the plate inserts are aligned and fit into the belly pan cut-outs. (Fig. 4-78)

10. Close the doors and ensure all doors seal.

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

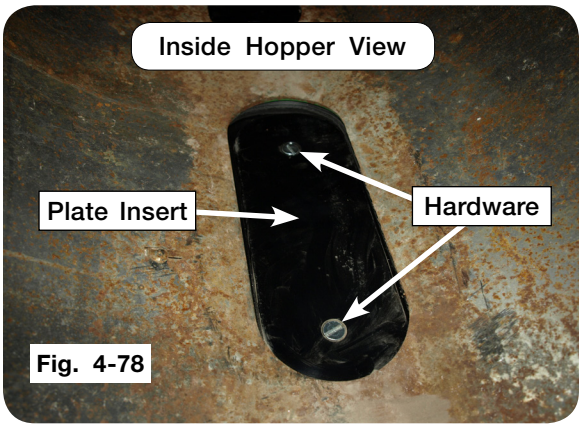


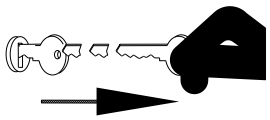
Fig. 4-78

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 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. 4-79)

(Continued on next page.)

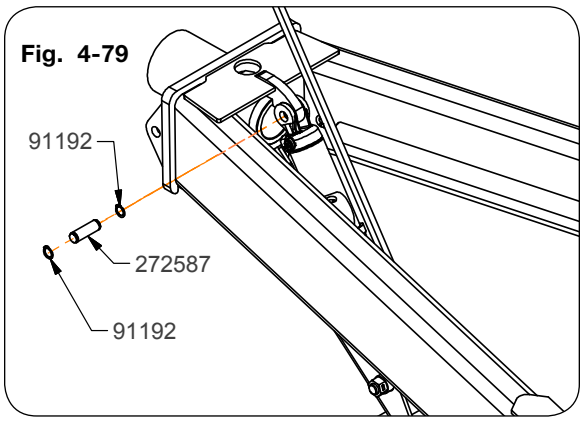


Fig. 4-79

Hydraulic Jack Cylinder Replacement (continued)

9. Remove hydraulic jack assembly from the tongue. (Fig. 4-80)

10. On new hydraulic assembly (296288B), attach hoses (9006068) and fittings to cylinder (9009047) as shown in Fig. 4-80. 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.

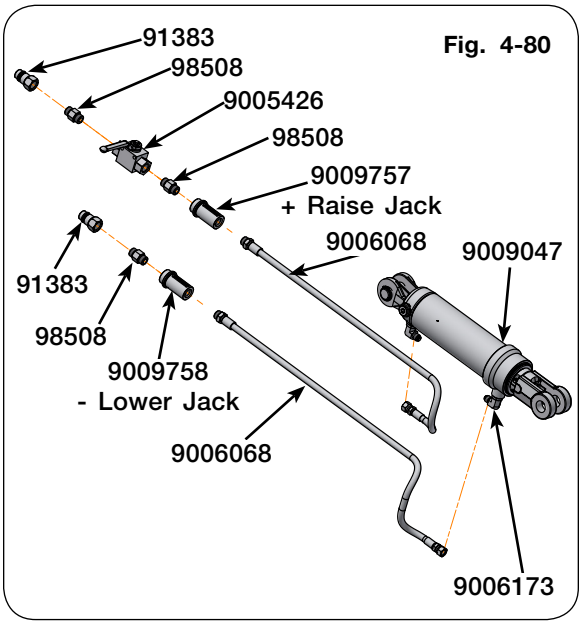


Fig. 4-80

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.



Fig. 4-81

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.

Troubleshooting

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
No Manual Override functions work (Electric Over Hydraulic All Serial Numbers)	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 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.
Auger lights 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.
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.

Auger Fold, Unfold & Auger Lights Switch

The switch near the auger hinge pin controls the power and ground for the 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, turn the switch in or out until the 1/8” gap is achieved. (Fig. 4-83)

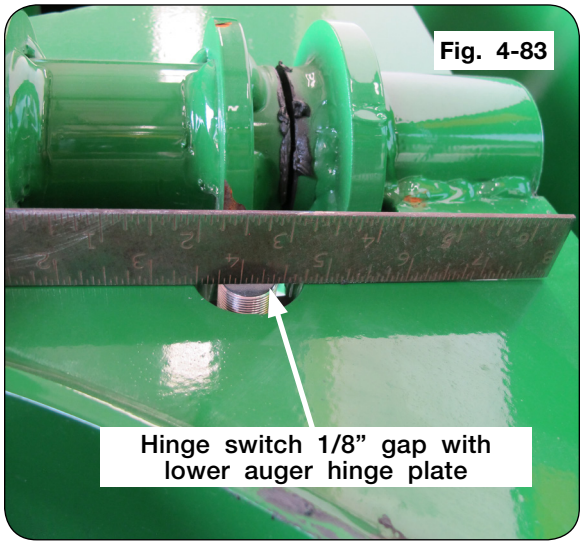
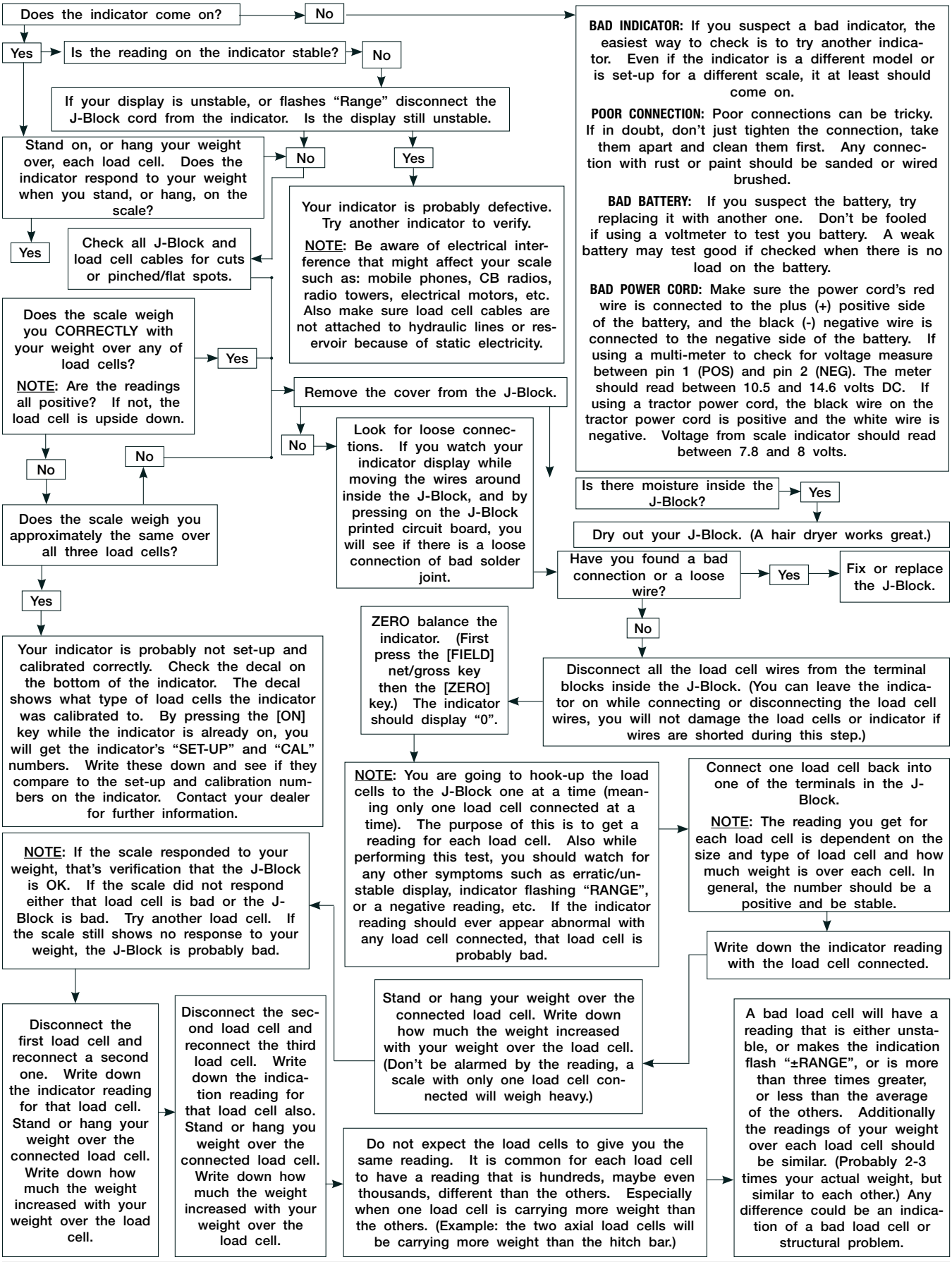


Fig. 4-83

Scale Troubleshooting



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

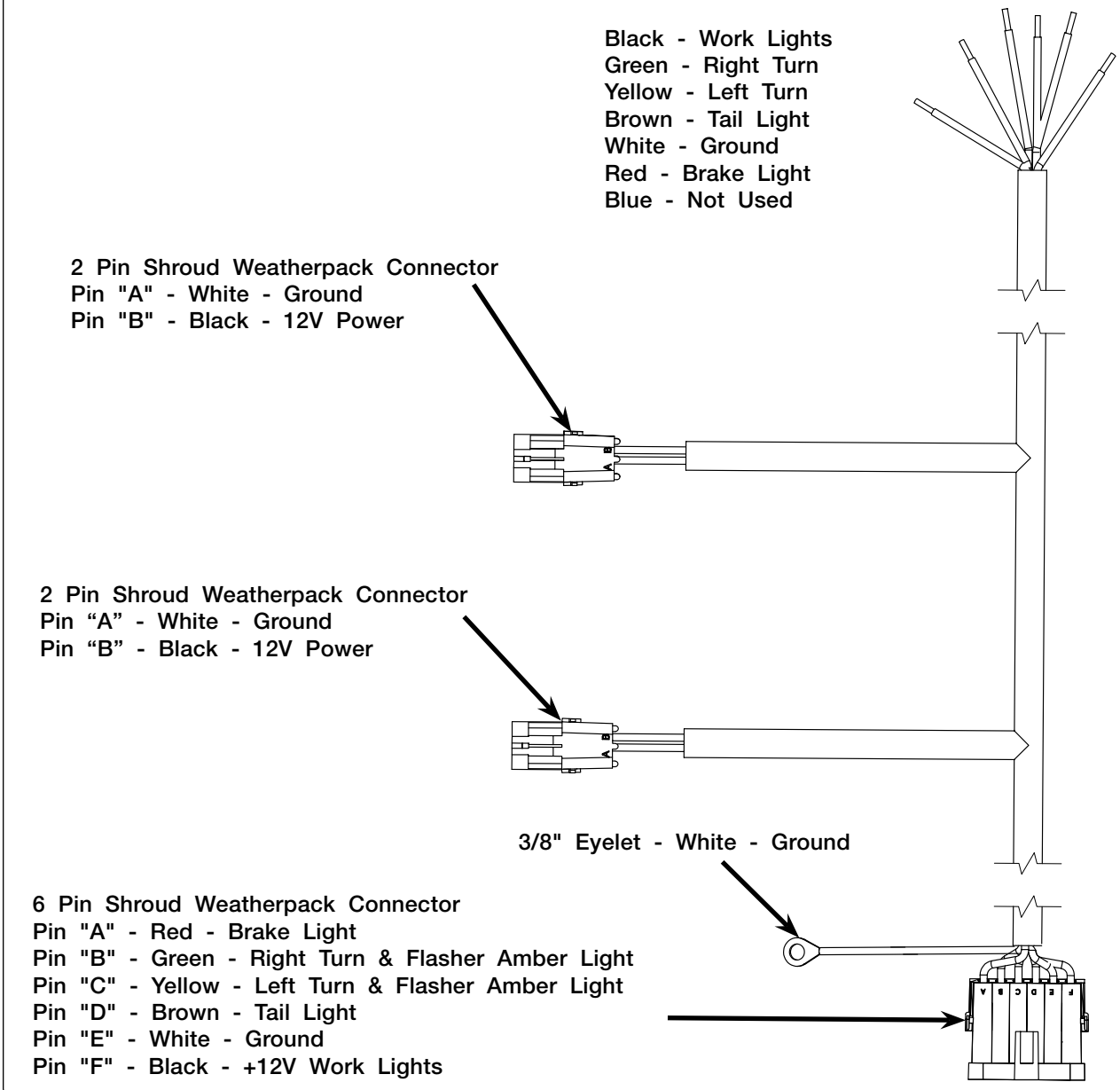
- *Do not open or close tarp while moving or in high wind conditions. Damage to the tarp may occur.*
- *Tarp should not be used if it is torn or the bungee cords are frayed or show damage. Fully close tarp with tension on the latch plate to prevent water from pooling.*

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.

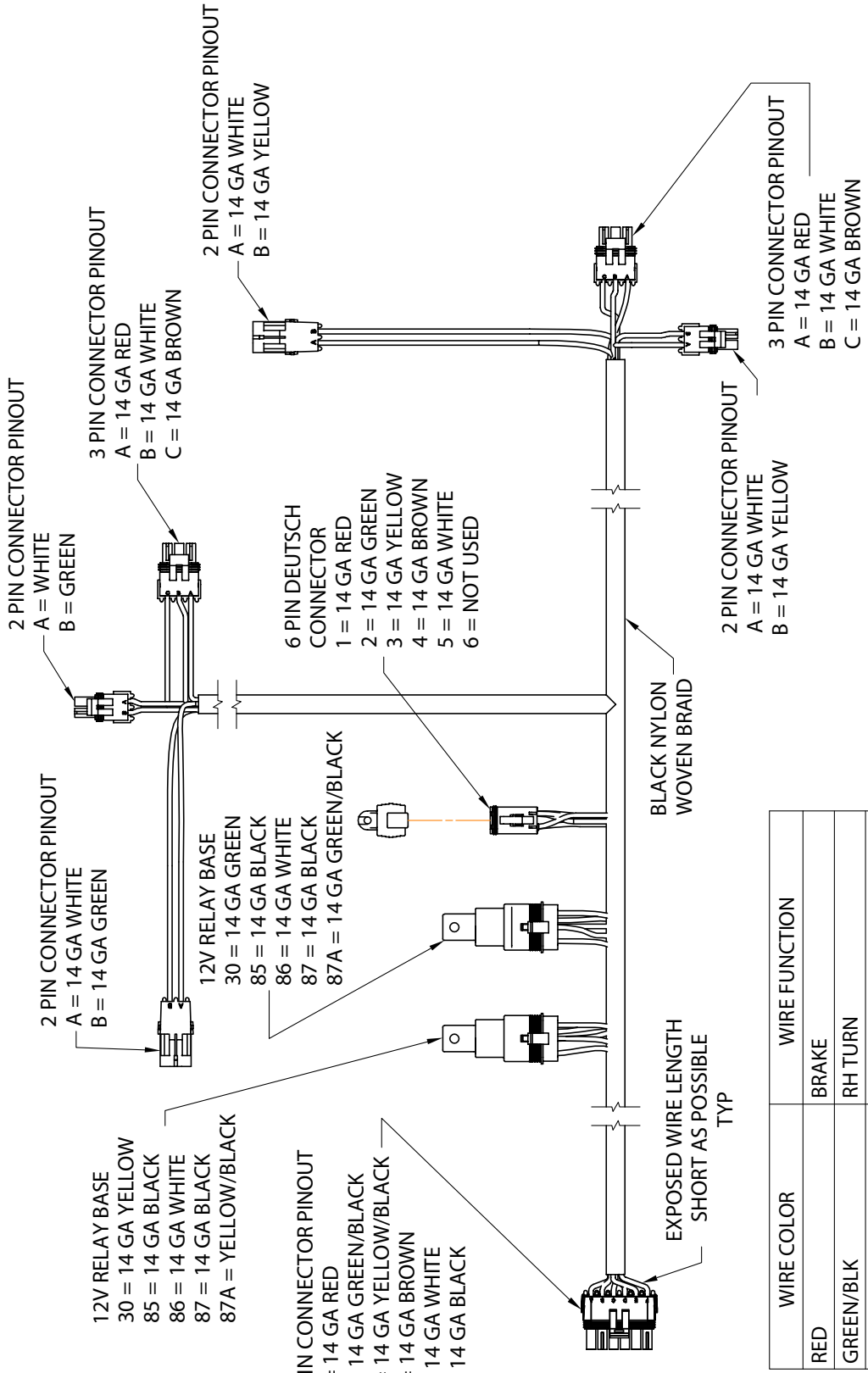
Tears in tarp should addressed before further tarp operation. If water pools on tarp, adjust tension of tarp cables and/or arm springs.

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 Diagram — Front Harness #9008501

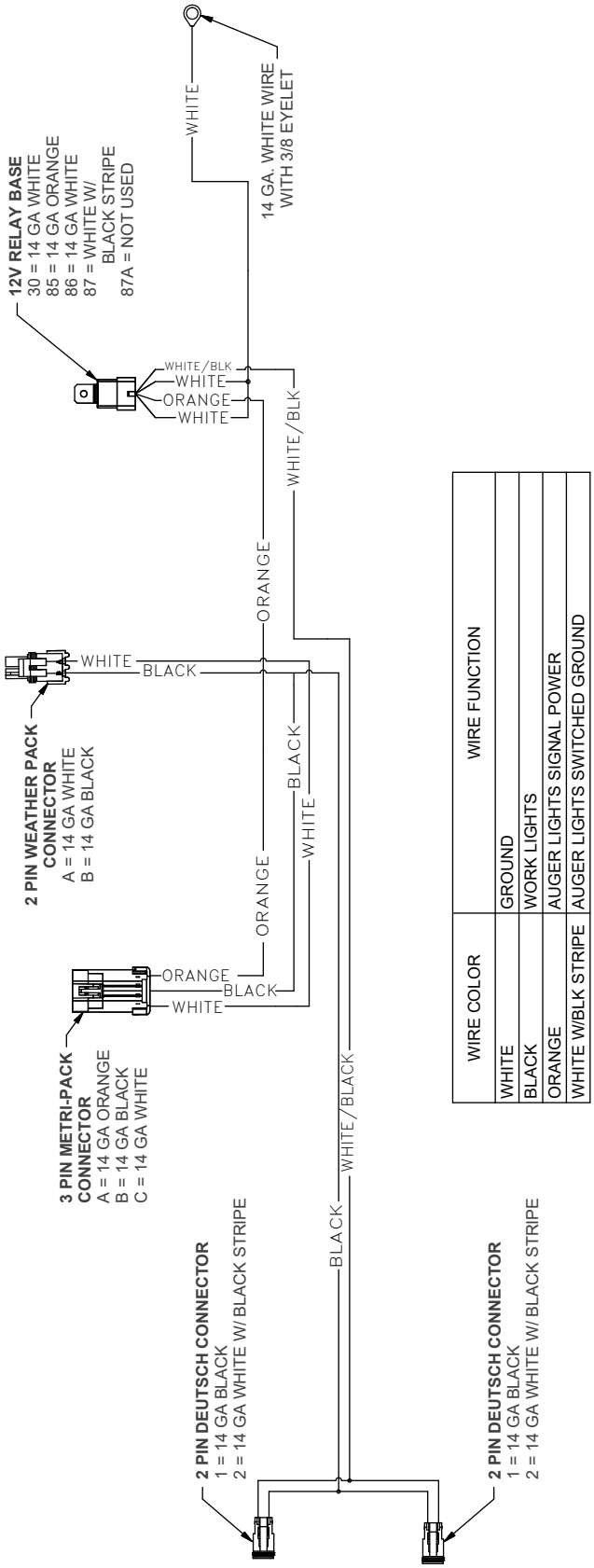


Electrical Diagram — Rear Wiring Harness #9009586



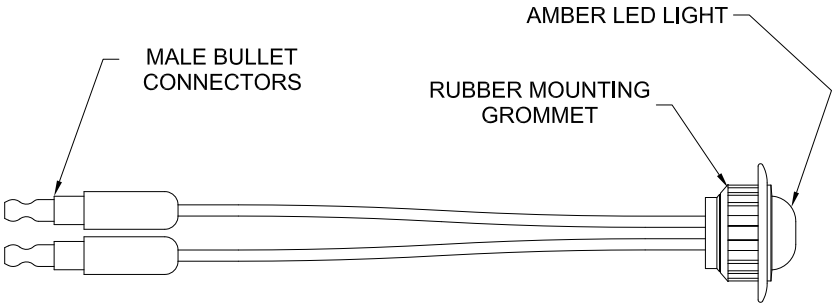
WIRE COLOR	WIRE FUNCTION
RED	BRAKE
GREEN/BLK	RH TURN
YELLOW/BLK	LH TURN
BROWN	TAIL LIGHTS
WHITE	GROUND
BLACK	WORK LIGHTS
GREEN	RH TURN & CLEARANCE
YELLOW	LH TURN & CLEARANCE

Electrical Diagram — Auger Wiring Harness #9010212

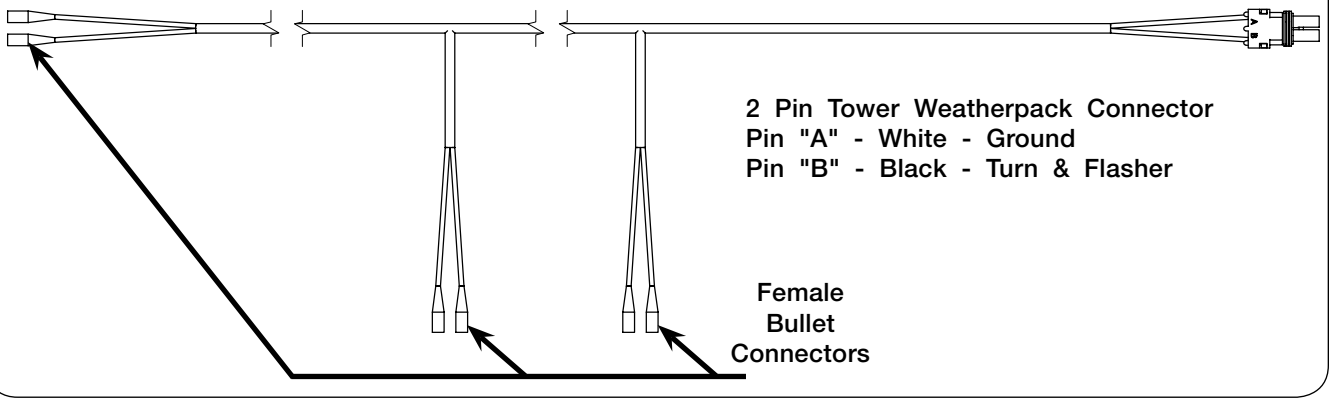


WIRE COLOR	WIRE FUNCTION
WHITE	GROUND
BLACK	WORK LIGHTS
ORANGE	AUGER LIGHTS SIGNAL POWER
WHITE W/BLK STRIPE	AUGER LIGHTS SWITCHED GROUND

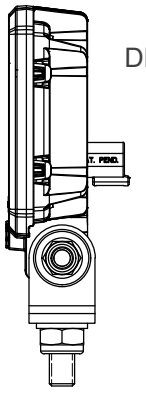
Electrical Diagram — Amber Round Side Marker #9006107



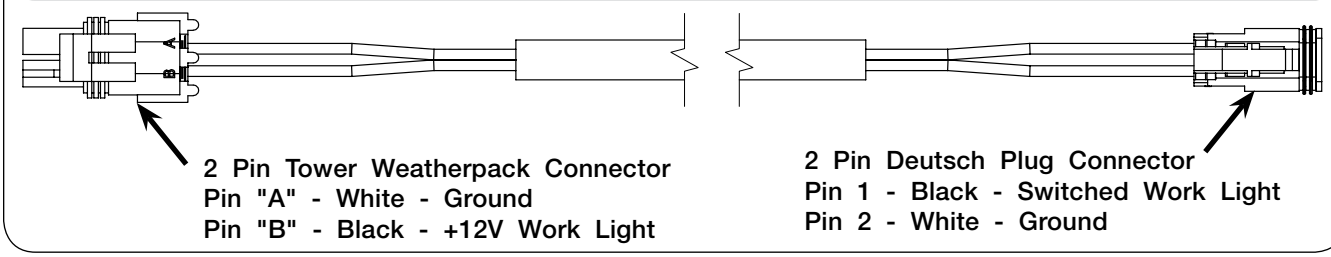
Electrical Diagram — Running Light/Clearance Light Wiring Harness #9006481



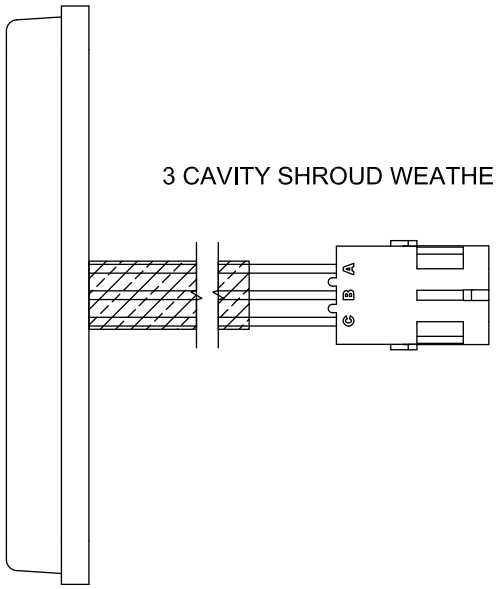
Electrical Diagram - Work Flood Lamp #9008957



Electrical Diagram — Work Light Wiring Harness #9008969

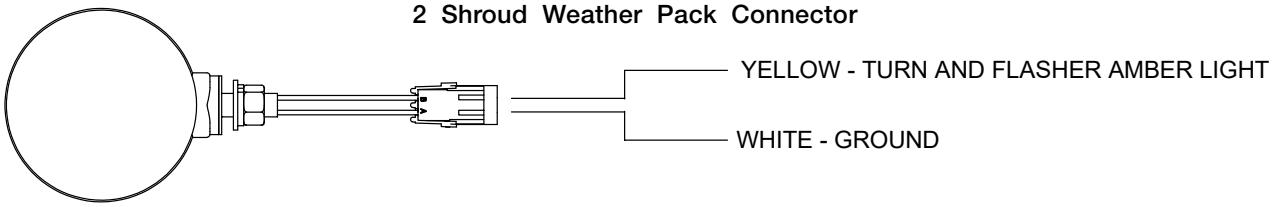


Electrical Diagram — Red Lamp #9006282

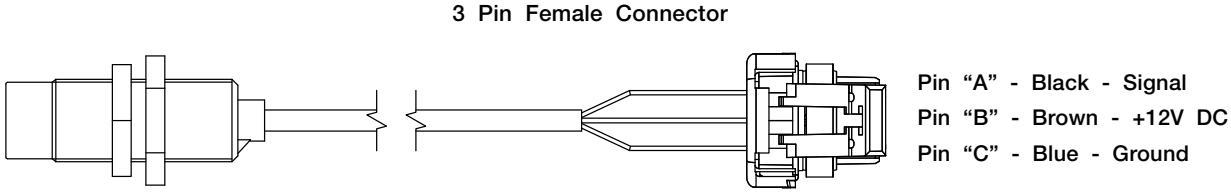


RED - HIGH (PIN #A)
WHITE - GROUND (PIN #B)
BROWN - LOW (PIN #C)

Electrical Diagram - Amber Lamp Double Face #9005142

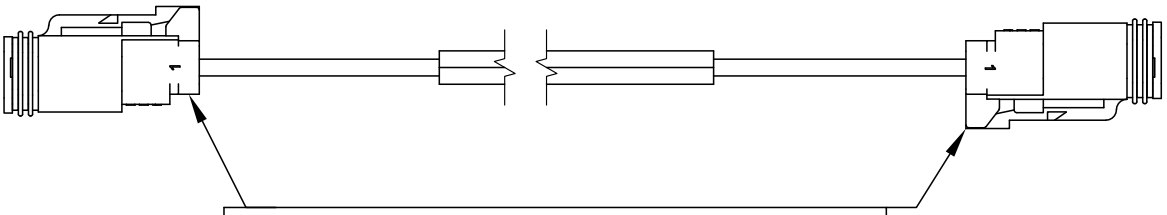


Electrical Diagram - Proximity Switch #9007223



Pin "A" - Black - Signal
Pin "B" - Brown - +12V DC
Pin "C" - Blue - Ground

Electrical Diagram — Diverter Harness #9007266



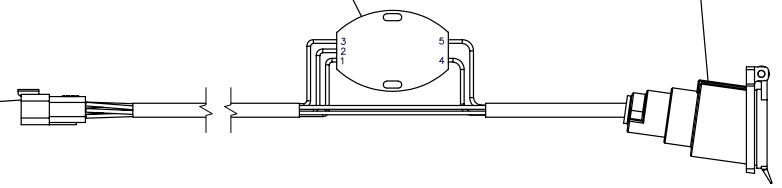
CONNECTOR TYPE: 2 PIN DEUTSCH PLUG		
PIN #	WIRE COLOR	FUNCTION
1	RED	+12V POWER
2	WHITE	GROUND

Electrical Diagram — 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

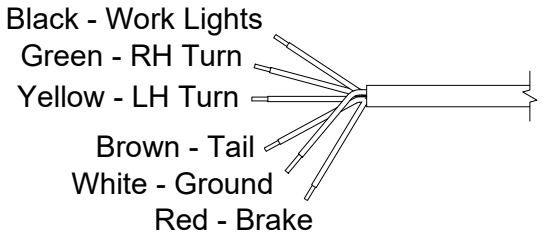
7-BLADE CONNECTOR		
PIN #	WIRE COLOR	WIRE FUNCTION
1	WHITE	GROUND
2	NA	NA
3	BROWN	TAIL/RUNNING LIGHTS
4	BLACK	+12V SWITCHED POWER
5	YELLOW	LEFT TURN/STOP
6	GREEN	RIGHT TURN/STOP

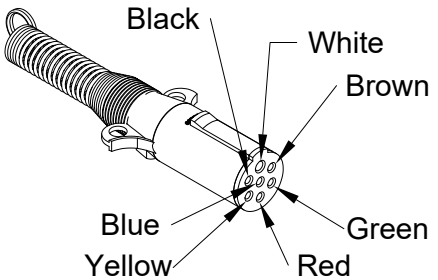
6 PIN DEUTSCH RECEPTACLE		
PIN #	WIRE COLOR	WIRE FUNCTION
1	RED	BRAKE LIGHTS
2	GREEN	RIGHT TURN & FLASHER AMBER LIGHT
3	YELLOW	LEFT TURN & FLASHER AMBER LIGHT
4	BROWN	TAIL LIGHTS
5	WHITE	GROUND
6	BLACK	WORK LIGHTS



Electrical Diagram — Plug #92450

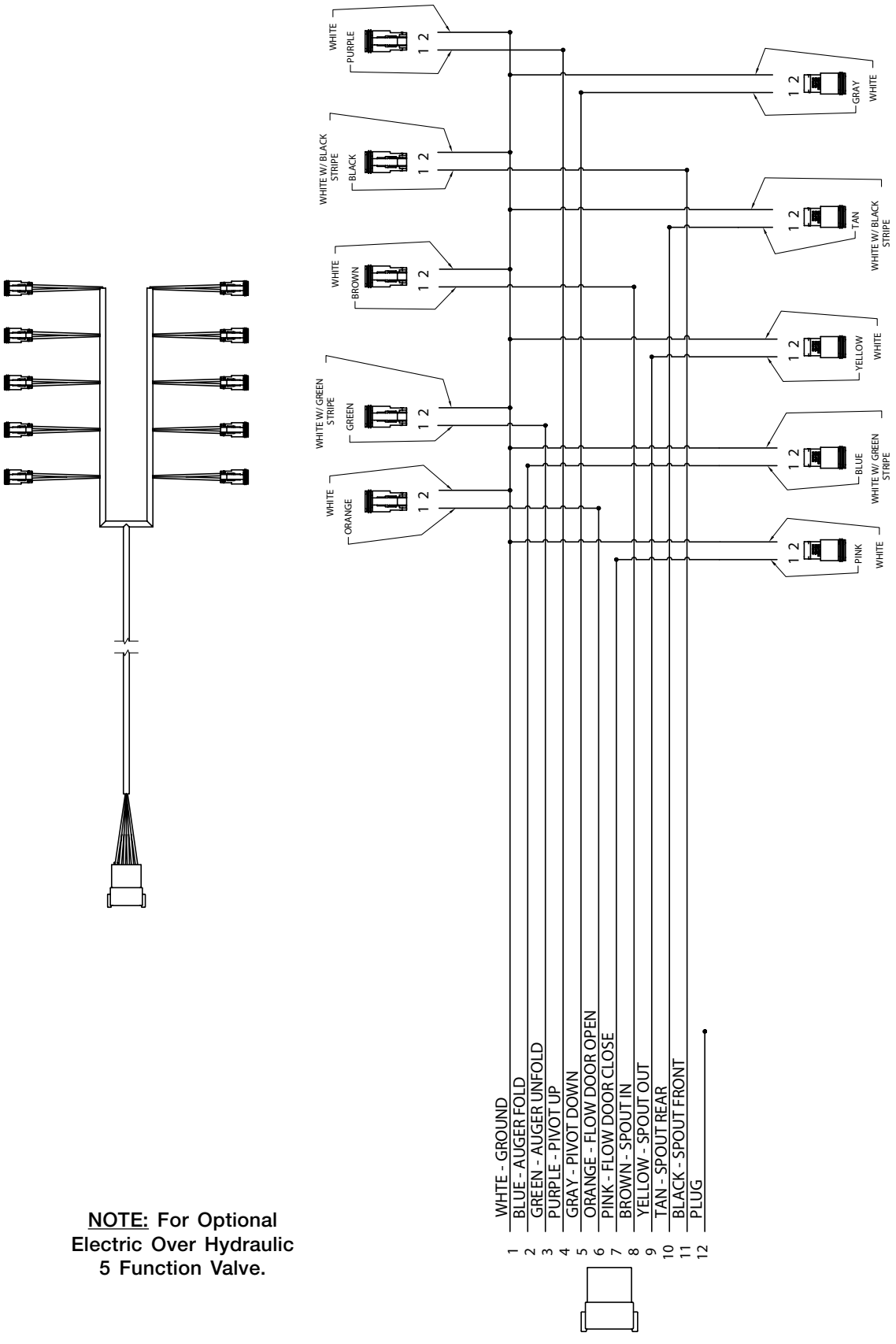
GRAIN CART WIRES
White -- Ground
Green -- Right Amber Flashing Lamp
Yellow -- Left Amber Flashing Lamp
Brown -- Tail Light
Black -- Work Lights
Red -- Brake Lights
Blue -- **NOT USED**





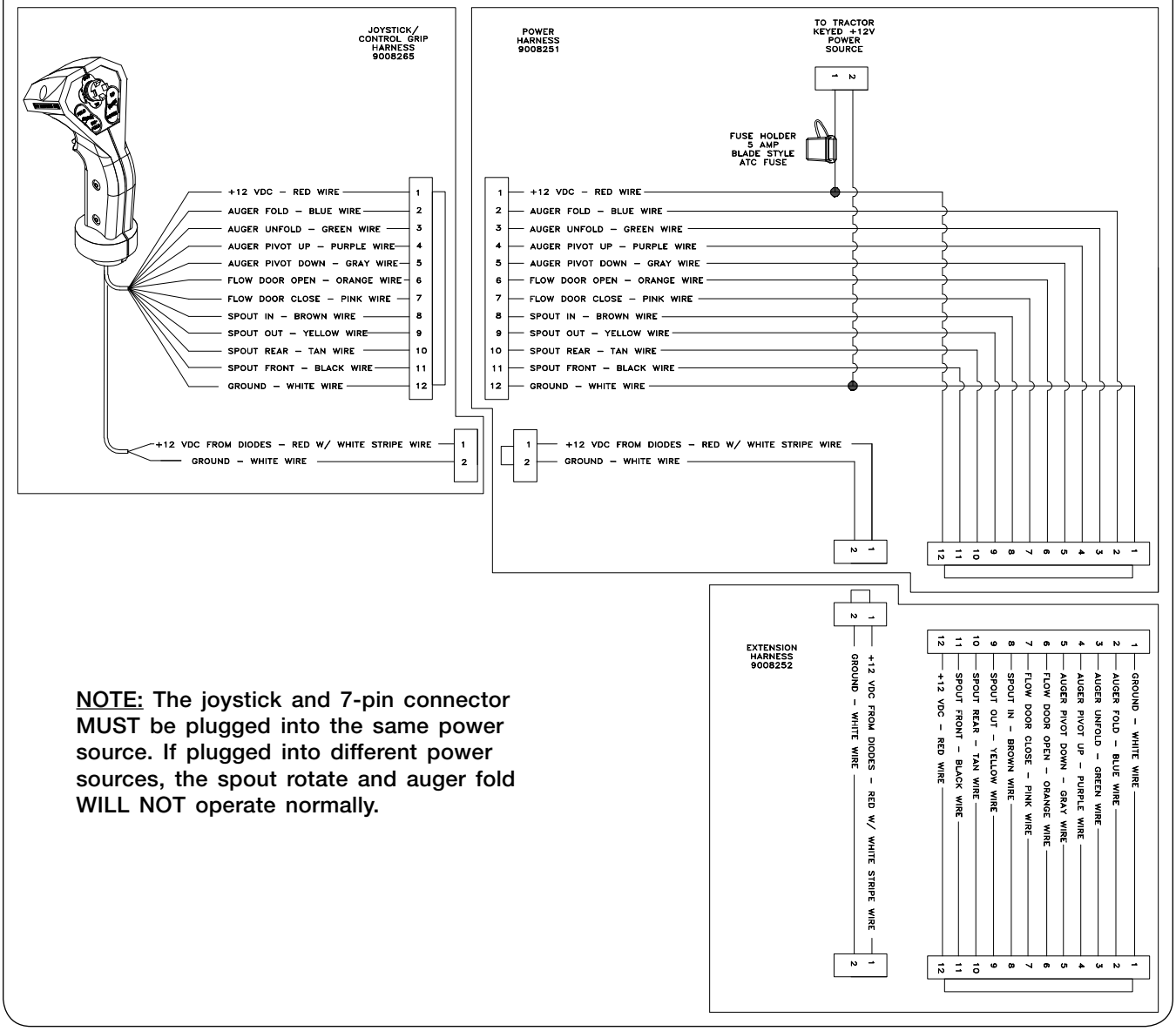
SAE SEVEN-POINT CONNECTOR PLUG

Electrical Diagram — Main Harness #9010096 (Optional)



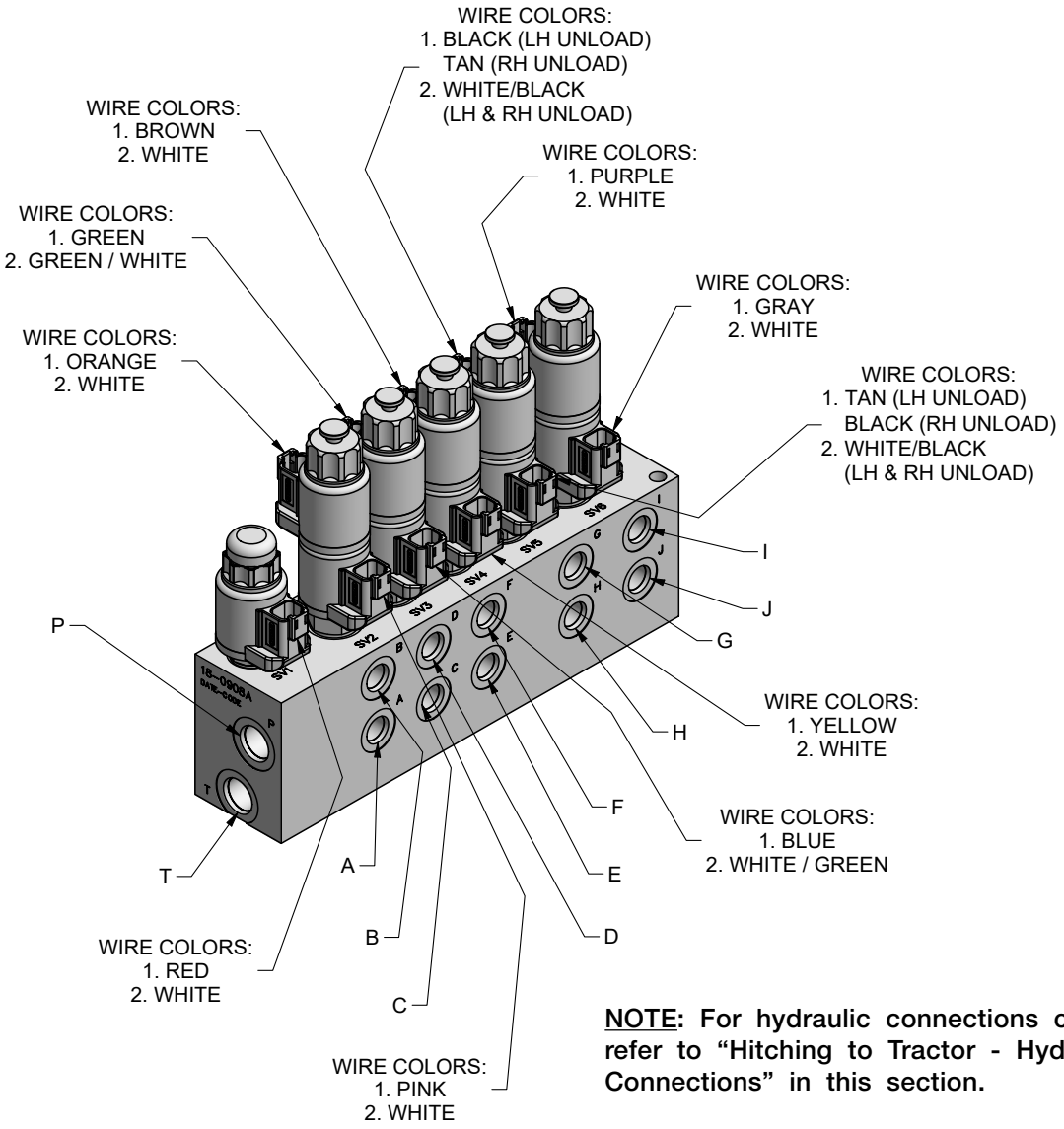
NOTE: For Optional Electric Over Hydraulic 5 Function Valve.

Electrical Diagram — Electrical Over Hydraulic (EOH) (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 WILL NOT operate normally.

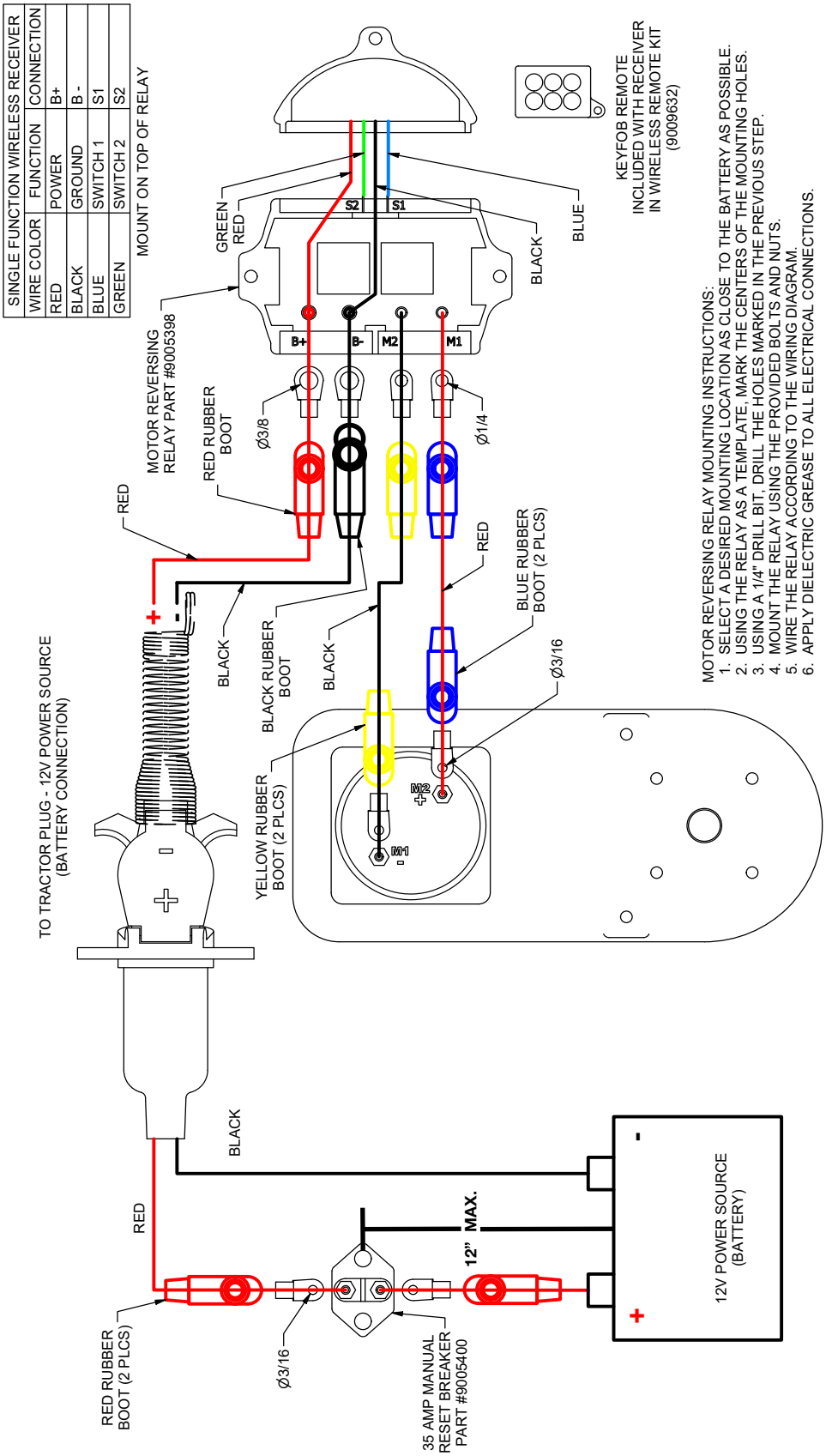
Electrical Diagram — (EOH) Valve Electric Schematic 5 Spool



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

PORT	END OF CYLINDER	FUNCTION
A	BUTT END	FLOW DOOR CLOSE
B	RAM END	FLOW DOOR OPEN
C	RAM END	AUGER UNFOLD
D	BUTT END	AUGER FOLD
E	RAM END	SPOUT TILT OUT
F	BUTT END	SPOUT TILT IN
G	BUTT END	JOYSTICK / SPOUT ROTATE
H	RAM END	JOYSTICK / SPOUT
I	BUTT END	AUGER PIVOT DOWN
J	RAM END	AUGER PIVOT UP
P		TRACTOR PRESSURE
T		TRACTOR RETURN

Electrical Diagram — Optional Wireless Electric Tarp



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.*

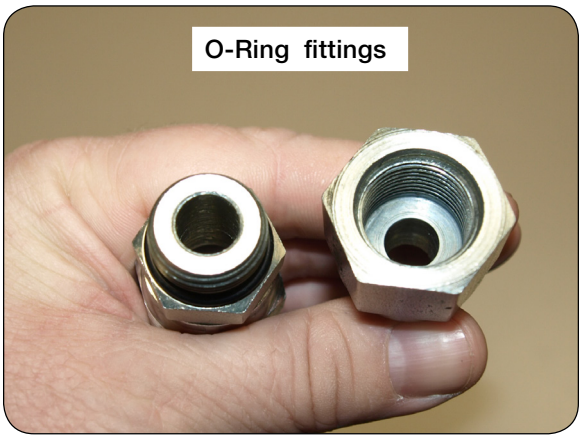
Hydraulic Fittings

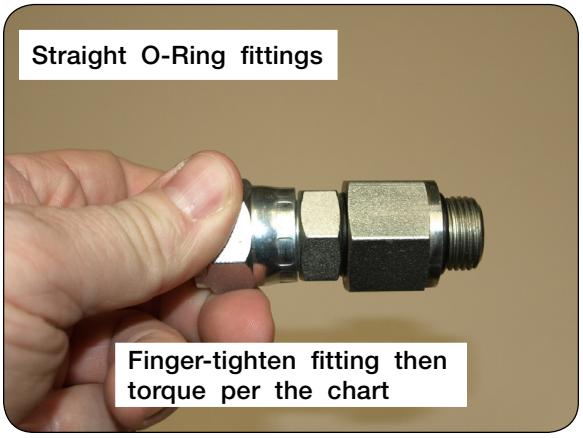
Tightening O-Ring Fittings

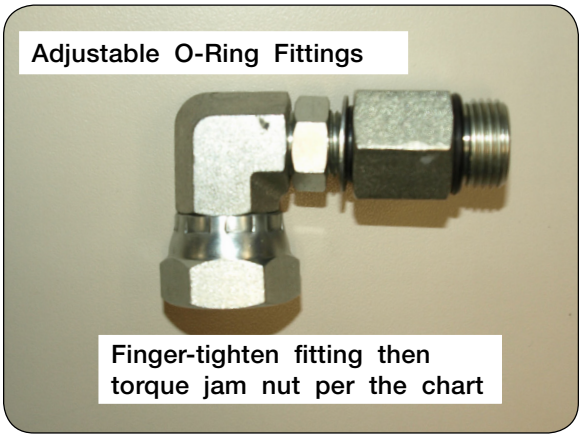
1. Inspect components for damage or contamination. Do not connect any other type of fitting to an O-ring fitting.
2. For adjustable fittings, insure the jam nut and washer are fully backed up.
3. Lubricate the O-ring and threads on the fitting.
4. Turn the fitting into the port until it is finger tight.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

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

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







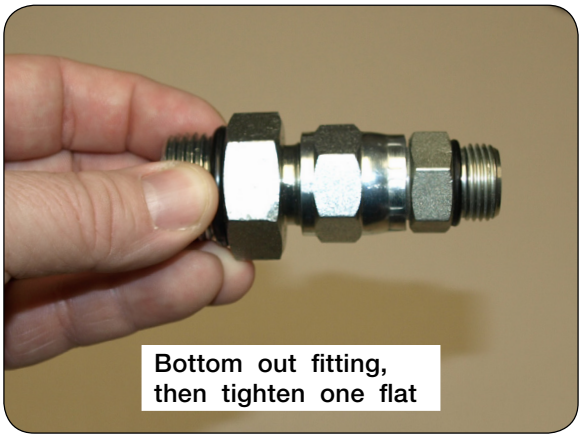
Hydraulic Fittings

Tightening O-Ring 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.


JIC fittings


Bottom out fitting, then tighten one flat