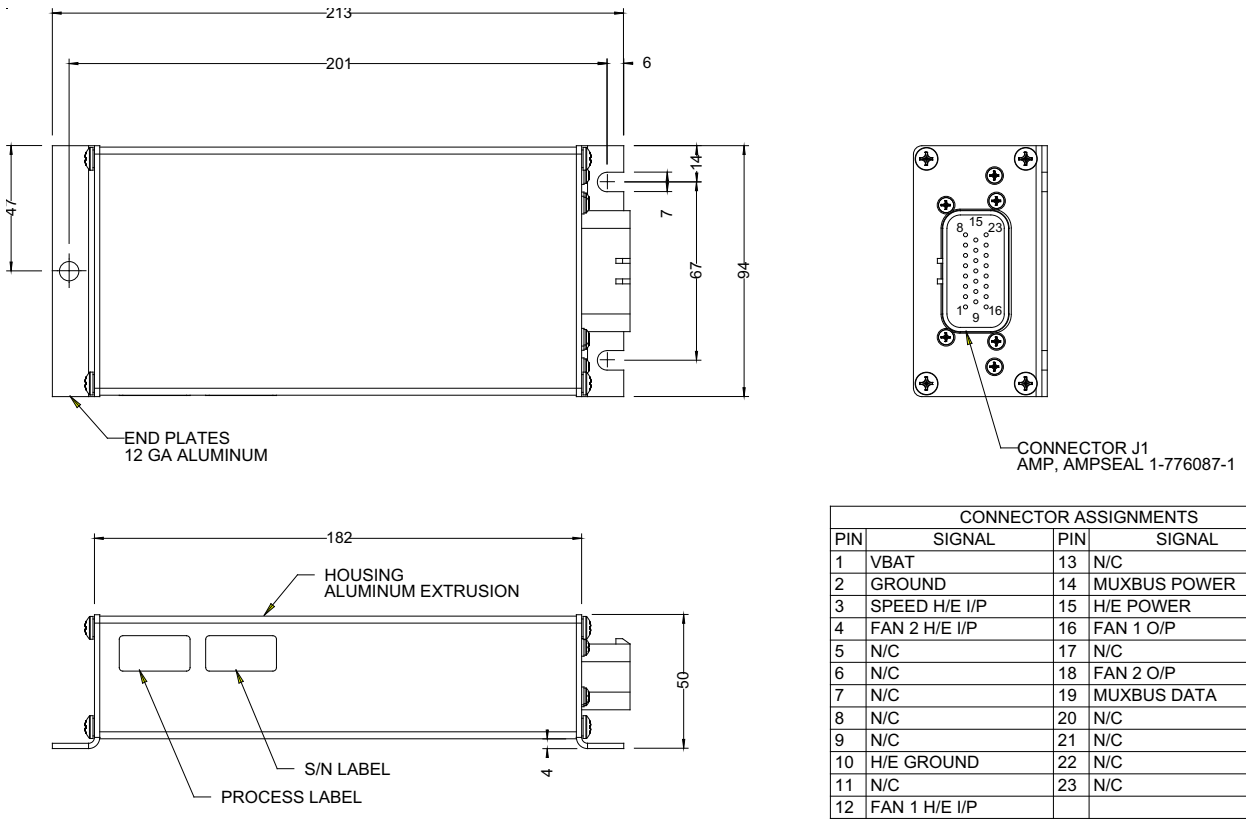

CONNECTOR ASSIGNMENTS			
PIN	SIGNAL	PIN	SIGNAL
1	VBAT	13	N/C
2	GROUND	14	MUXBUS POWER
3	SPEED H/E I/P	15	H/E POWER
4	FAN 2 H/E I/P	16	FAN 1 O/P
5	N/C	17	N/C
6	N/C	18	FAN 2 O/P
7	N/C	19	MUXBUS DATA
8	N/C	20	N/C
9	N/C	21	N/C
10	H/E GROUND	22	N/C
11	N/C	23	N/C
12	FAN 1 H/E I/P		

Figure 11.85 - Fan Controller Module (On the AIR SEEDER Chassis) - **3130-35**

313035A00.JPG

11.3.5 FAN SPEED CONTROLLER COMPONENTS

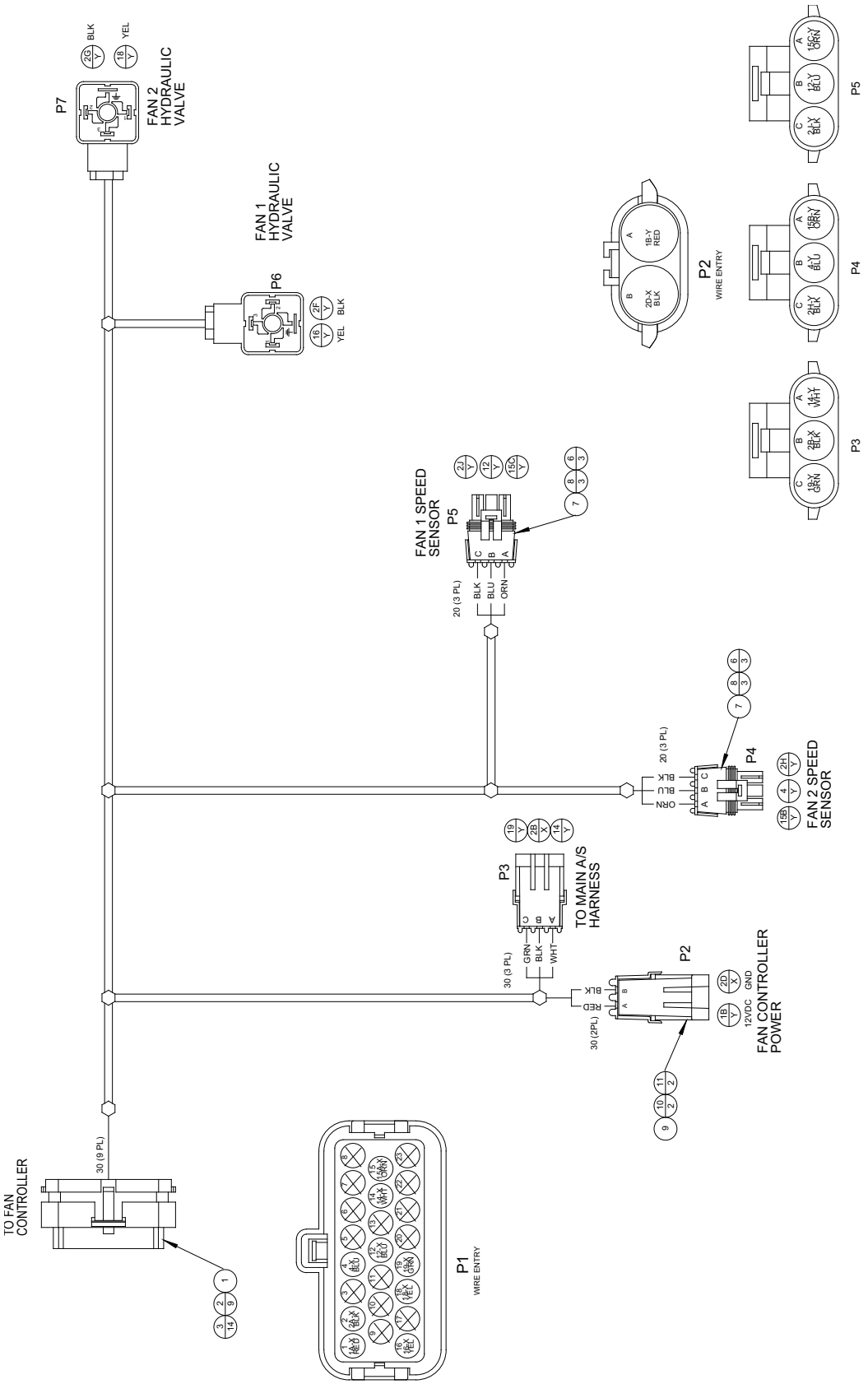

Figure 11.84 - Fan Controller Harness (On the AIR SEEDER Chassis) - **3130-36**

313036-01A00.CAD

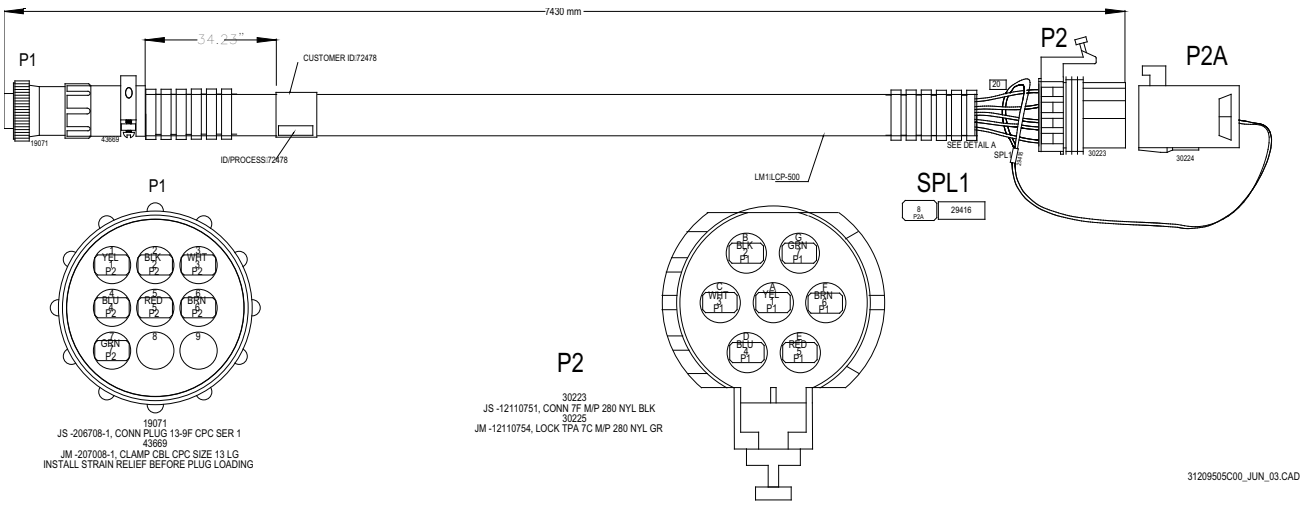

Figure 11.82 - Clutch Switch Box/CRA - Extension Cable
(from In-Cab box to back of TRACTOR Cab) - **3120-95-05**

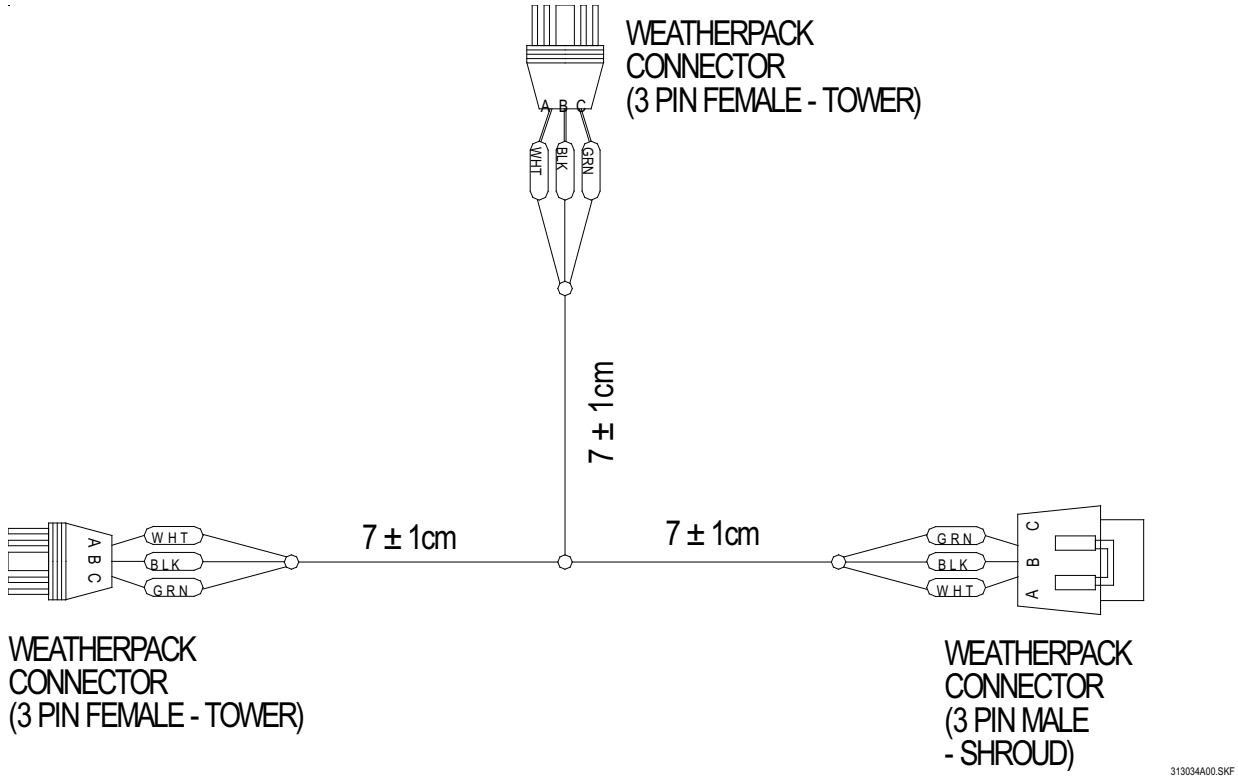

Figure 11.83 - ZRC Adaptor Cable (In the TRACTOR Cab) - **3130-34**

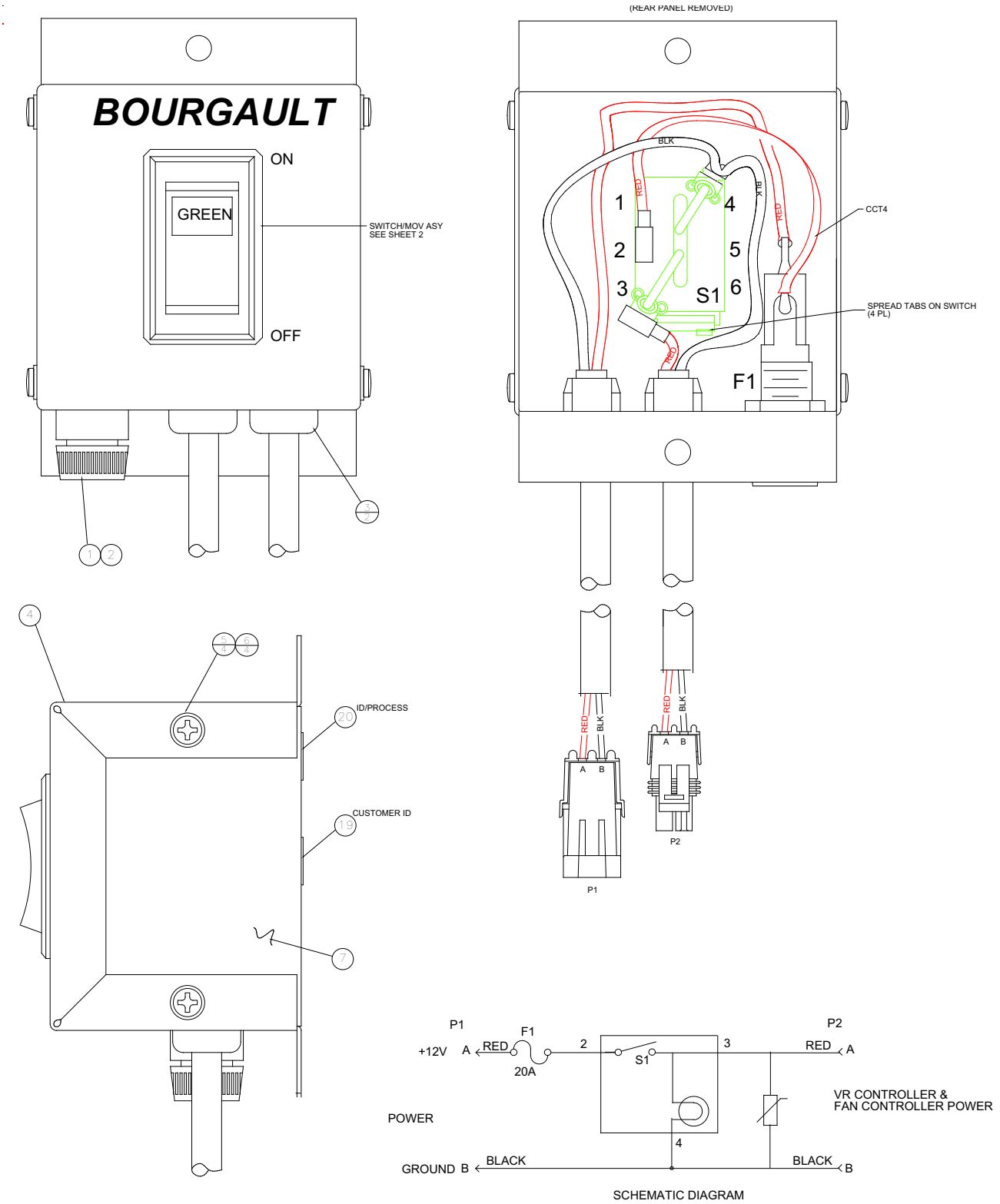

Figure 11.81 - VR Controller Power Switch (In the TRACTOR Cab) - **3130-33**

313033-01A00.CAD

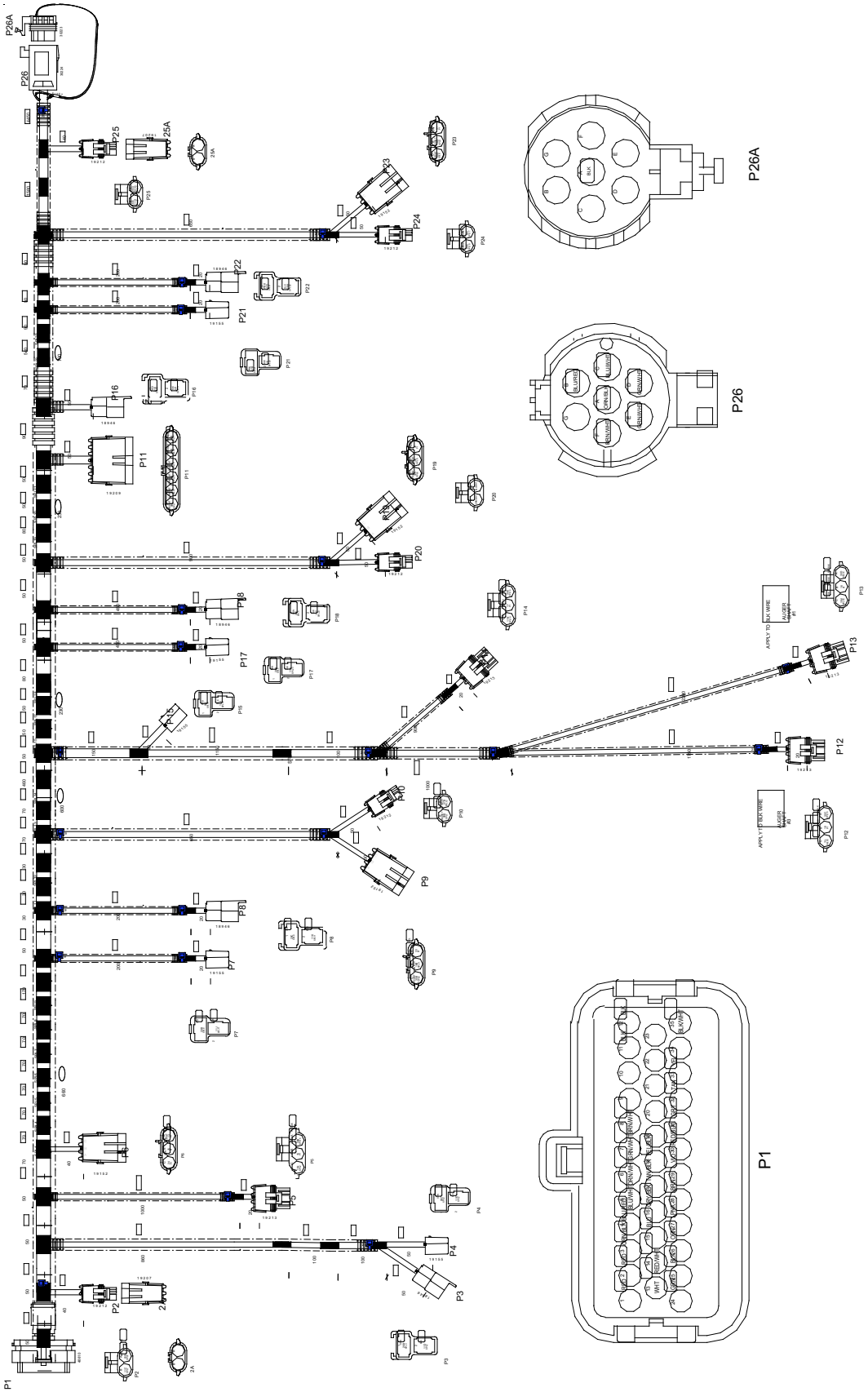

Figure 11.80 ZRC Harness (On the AIR SEEDER Chassis) - **3120-94-04**

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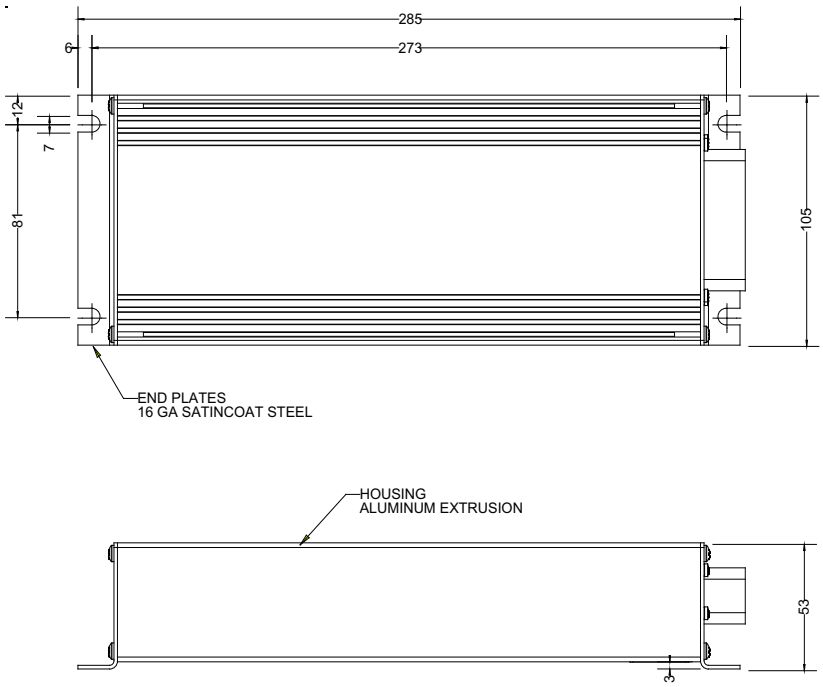
11.3.4 ZRC COMPONENTS



CONNECTOR ASSIGNMENTS			
PIN	SIGNAL	PIN	SIGNAL
1	VBAT	19	N/C
2	VBAT	20	N/C
3	SHAFT 1 O/P 0	21	N/C
4	SHAFT 1 O/P 1	22	N/C
5	SHAFT 2 O/P 0	23	N/C
6	SHAFT 2 O/P 1	24	MUXBUS DATA
7	SHAFT 3 O/P 0	25	MUXBUS GROUND
8	SHAFT 3 O/P 1	26	MASTER CLUTCH I/P
9	N/C	27	CLUTCH 1 I/P
10	N/C	28	CLUTCH 2 I/P
11	GROUND	29	CLUTCH 3 I/P
12	GROUND	30	H/E POWER
13	MUXBUS POWER	31	SHAFT 1 POT I/P
14	POT POWER	32	SHAFT 2 POT I/P
15	SPEED H/E I/P	33	SHAFT 3 POT I/P
16	SHAFT 1 H/E I/P	34	N/C
17	SHAFT 2 H/E I/P	35	POT GROUND
18	SHAFT 3 H/E I/P		

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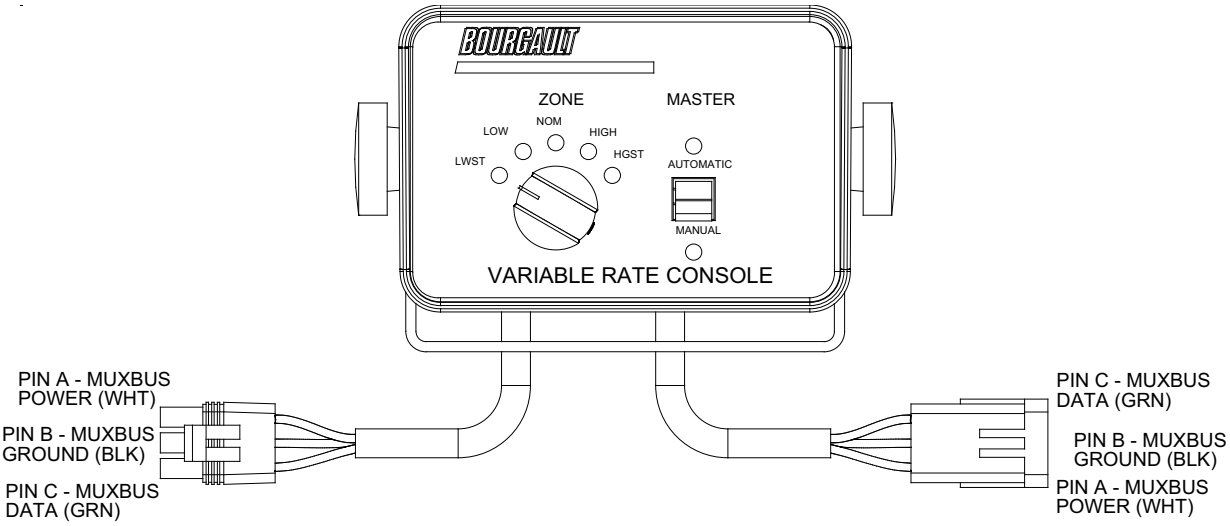
Figure 11.78 - VR Controller Module (On the AIR SEEDER Chassis) - **3130-30**



313031A00.CAD

Figure 11.79 - ZRC In-Cab Selector Module (In the TRACTOR Cab) - **3130-31**

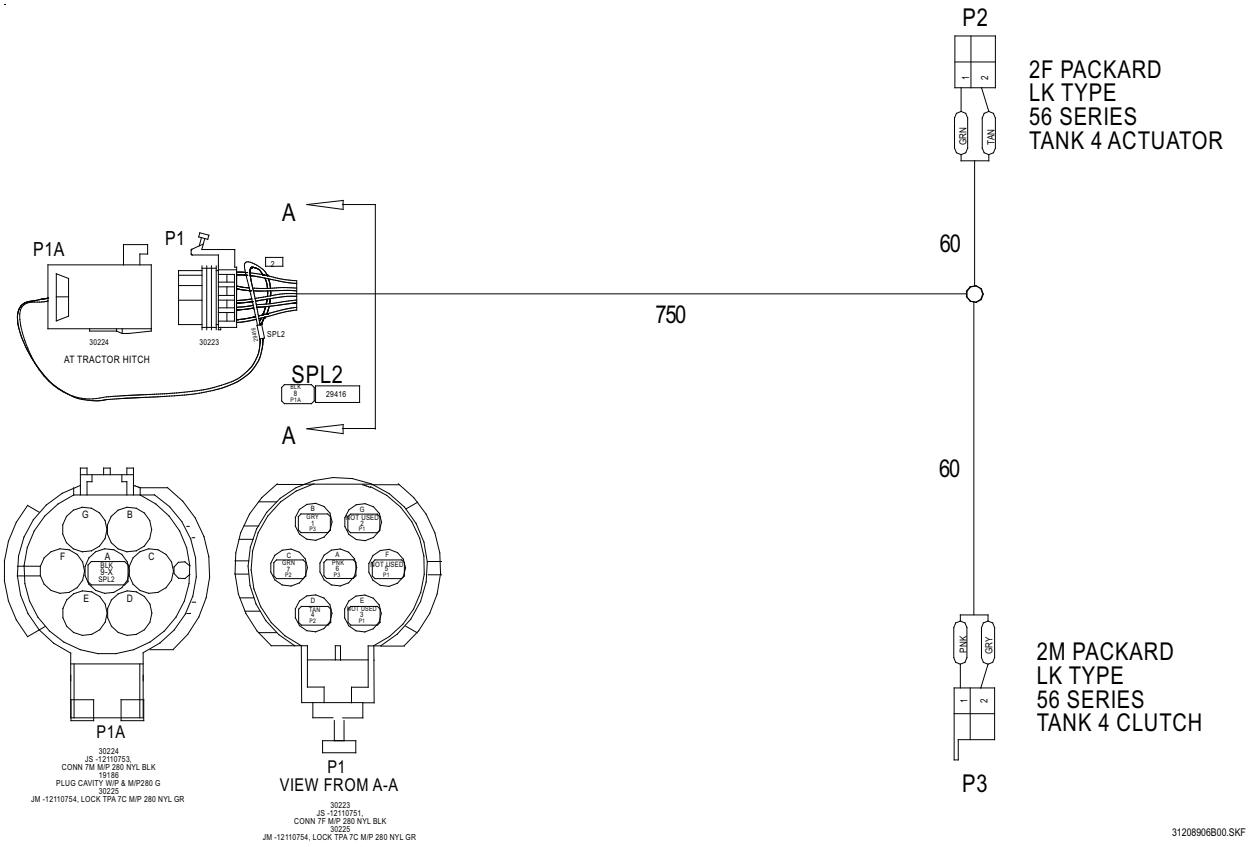


Figure 11.77 - 4th Actuator/Clutch Switch Box/ - Extension Cable (from In-Cab box to back of TRACTOR Cab) - **3120-89-06**

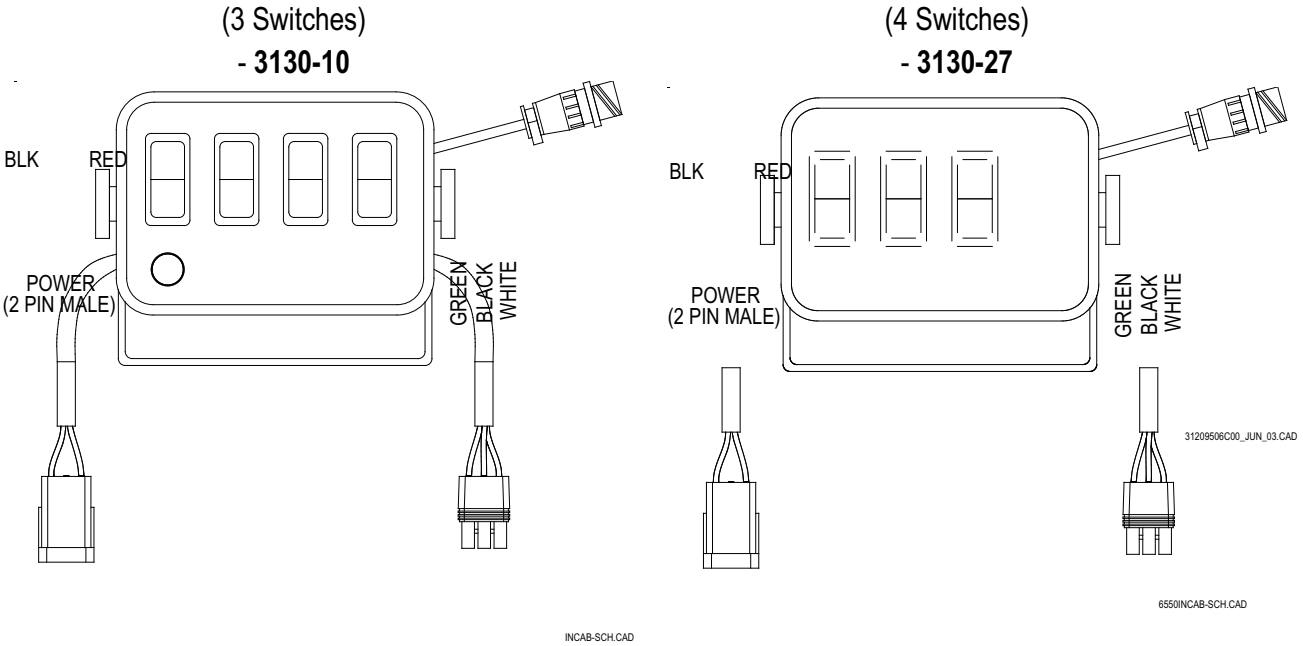


Figure 11.75 - CRA In-Cab Switch Box (In the TRACTOR Cab)

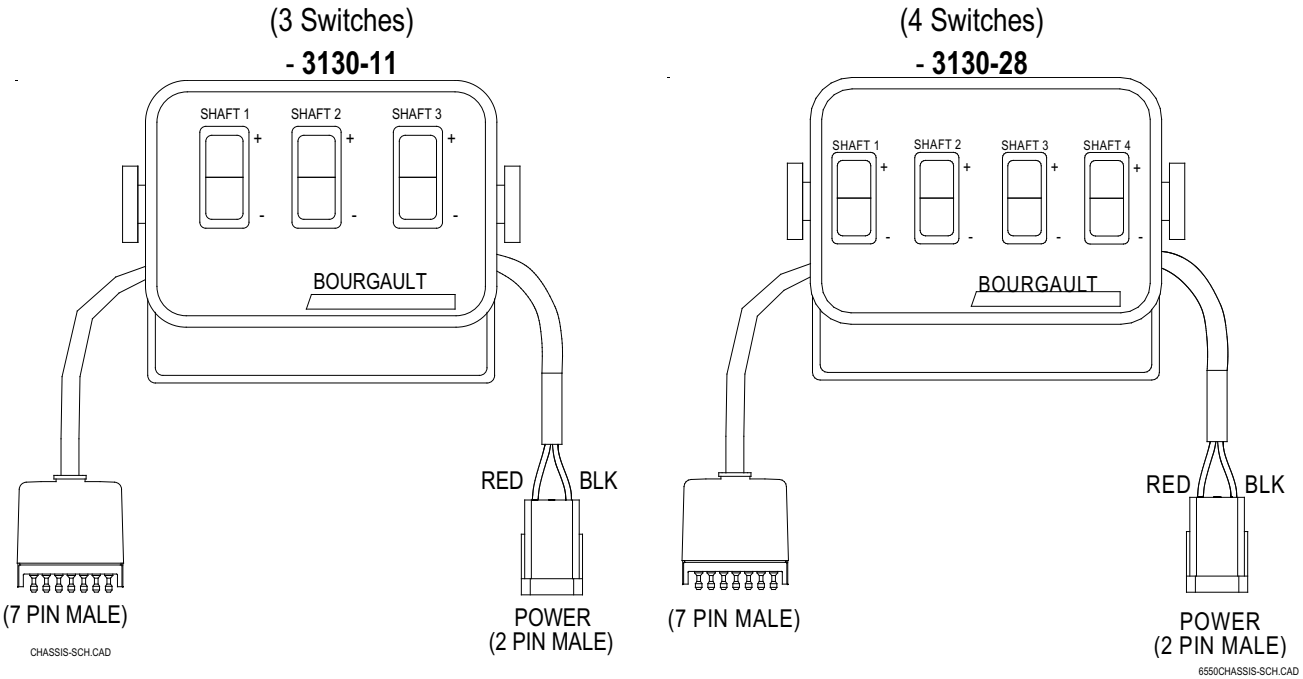


Figure 11.76 - CRA Remote Switch Box (On the AIR SEEDER Chassis)

11.3.3 CRA (CAB RATE ADJUST) COMPONENTS

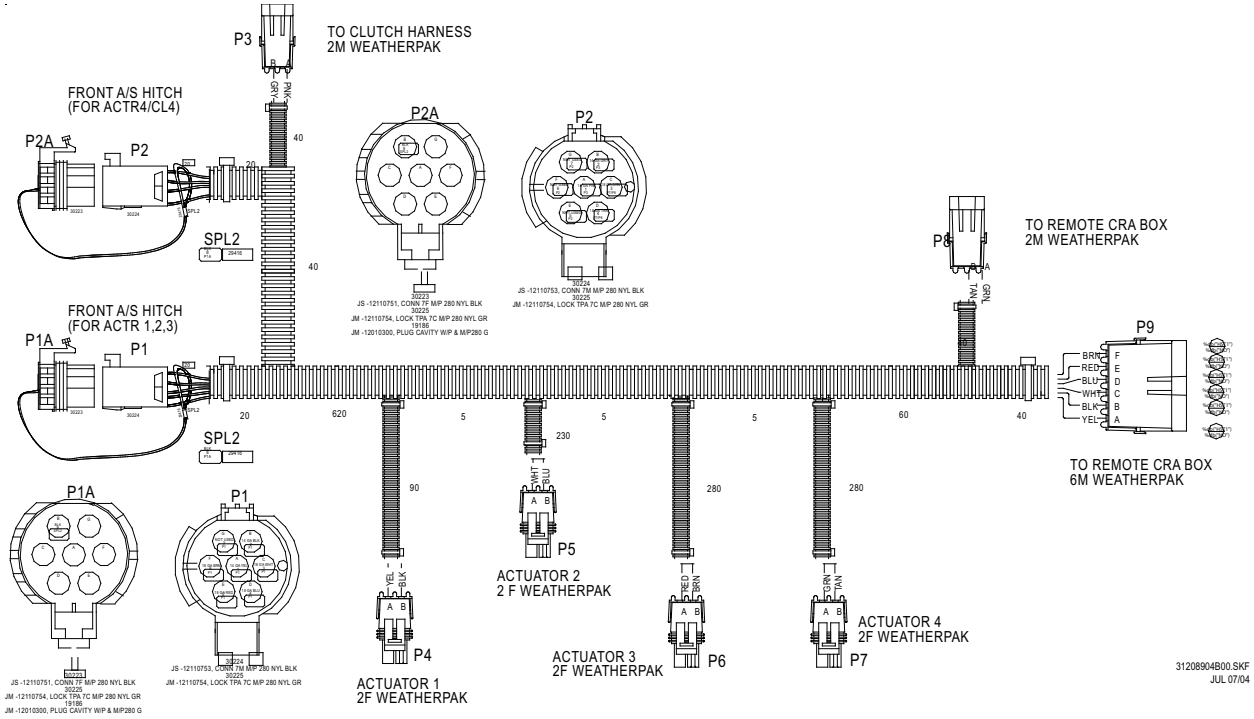


Figure 11.73 - CRA Harness (On the AIR SEEDER Chassis) - **3120-89-04**
(***All 6550/6450's***) and (***6350/6280/6200 Before L.N. 38334AS25***)

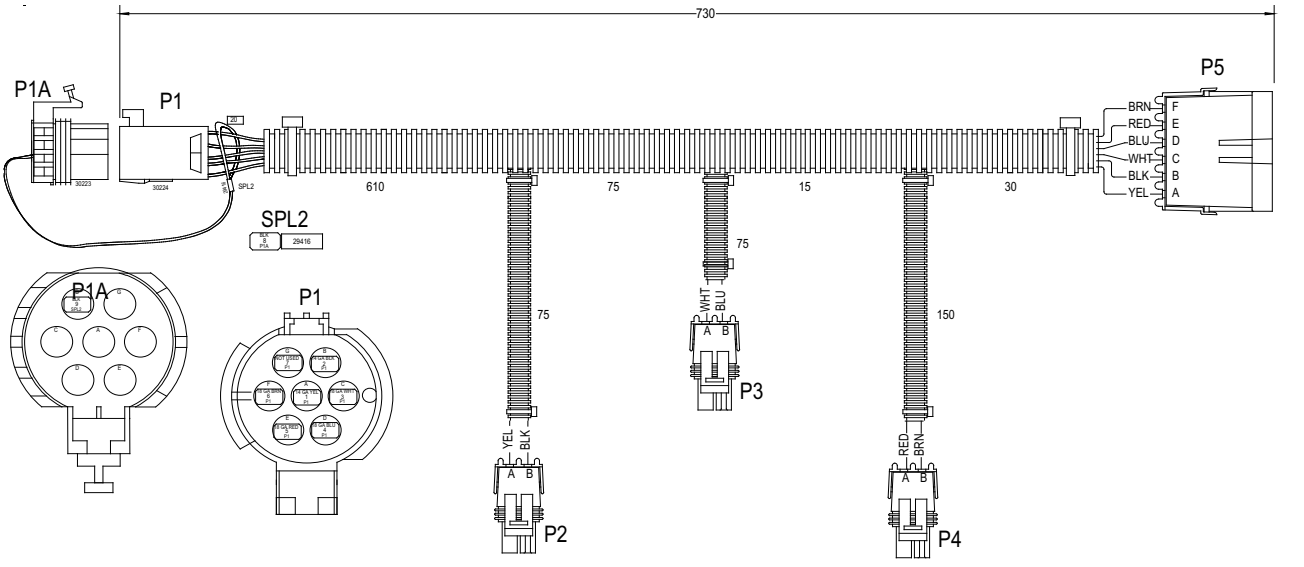


Figure 11.74 - CRA Harness (On the AIR SEEDER Chassis) - **3120-89-08**
(***6350/6280/6200's After L.N. 38358AS01***)

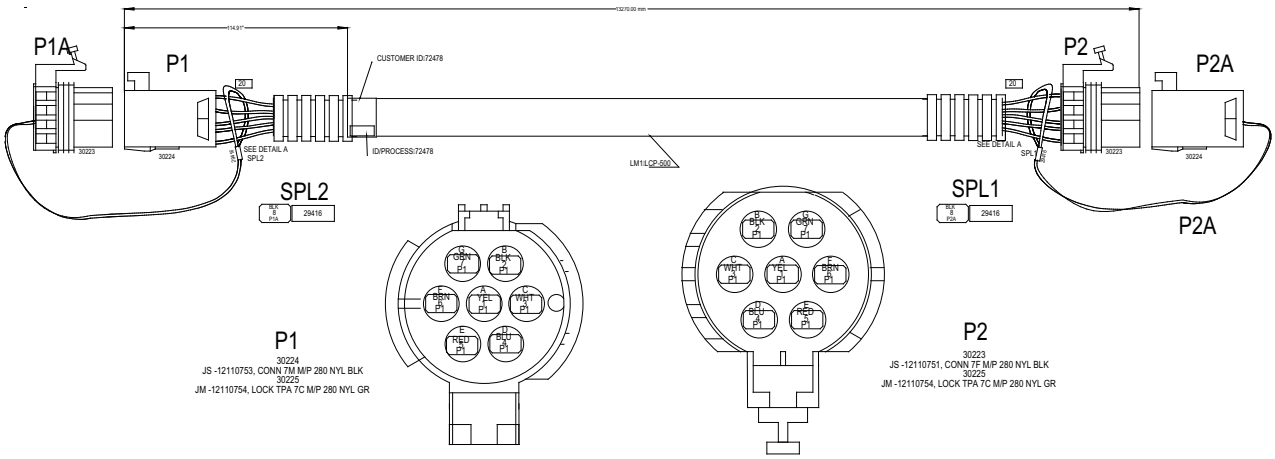


Figure 11.72 - Clutch Switch Box/CRA - Tillage Extension Cable (Across the TILLAGE Unit) - **3120-95-06**

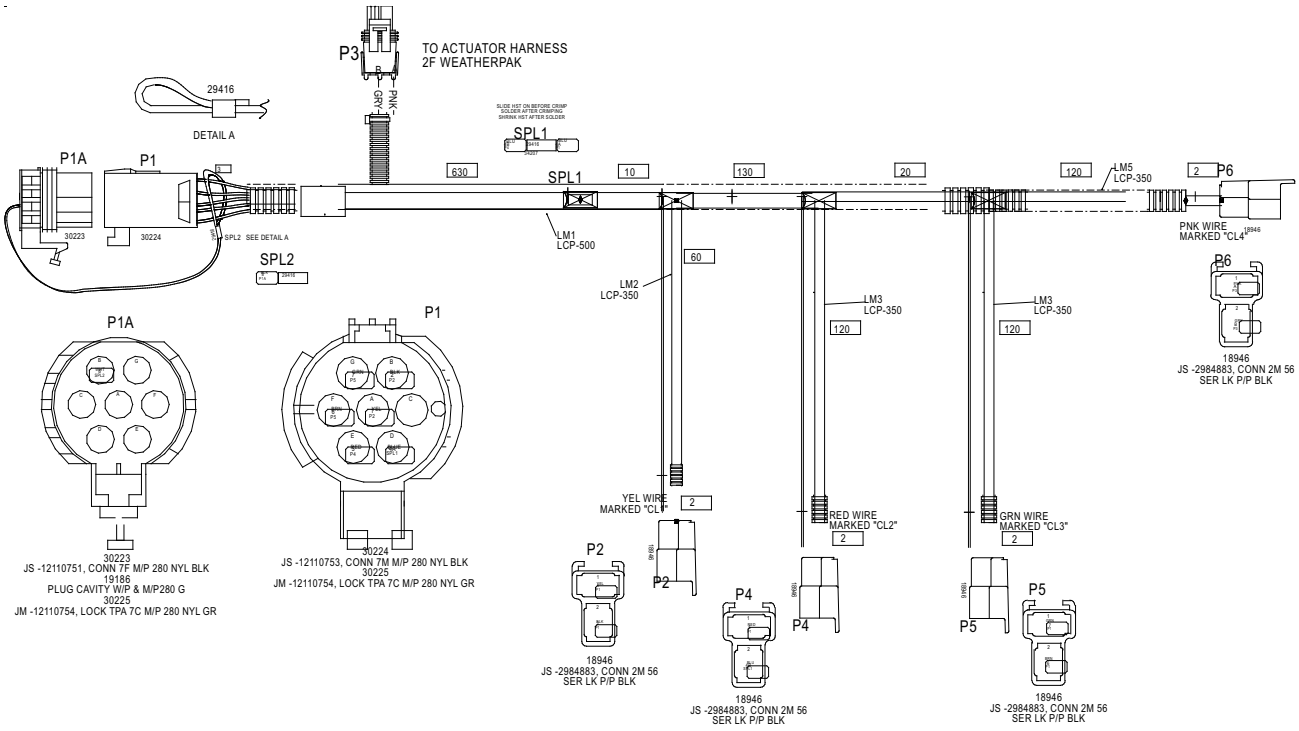


Figure 11.70 - Auxiliary Clutch Harness (On the AIR SEEDER Chassis) - **3120-89-05**
(***All 6550/6450's***) and (***6350/6280/6200 Before L.N. 38334AS25***)

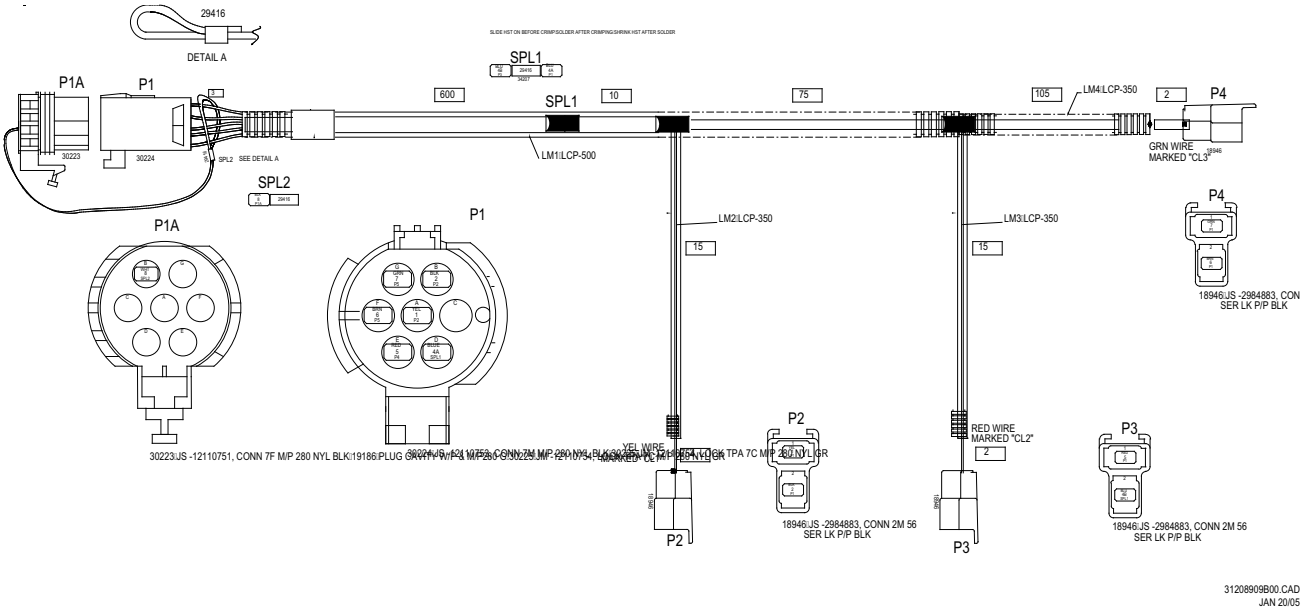


Figure 11.71 - Auxiliary Clutch Harness (On the AIR SEEDER Chassis) - **3120-89-09**
(***6350/6280/6200's After L.N. 38358AS01***)

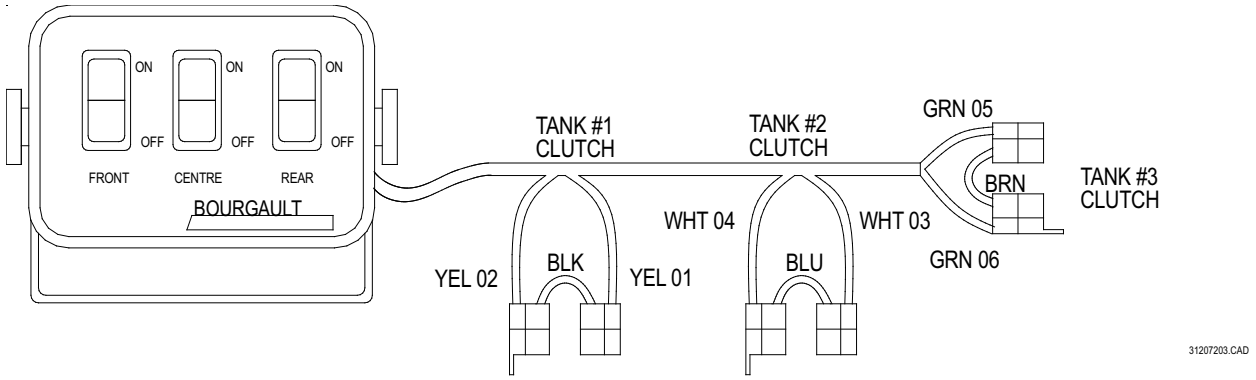


Figure 11.67 - Multi Clutch Remote Switch Box (3 Switches) (On the Air Seeder CHASSIS) - **3120-72-03**

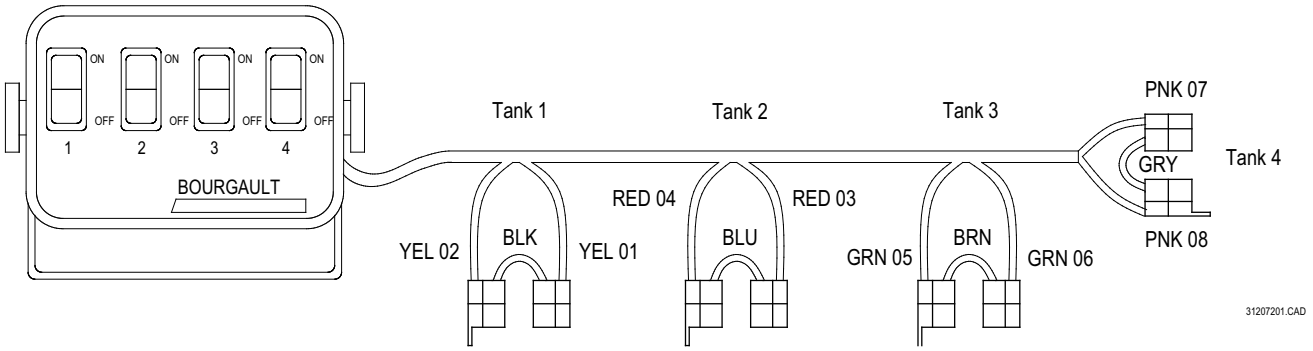


Figure 11.68 - Multi Clutch Remote Switch Box (4 Switches) (On the Air Seeder CHASSIS) - **3120-72-01**

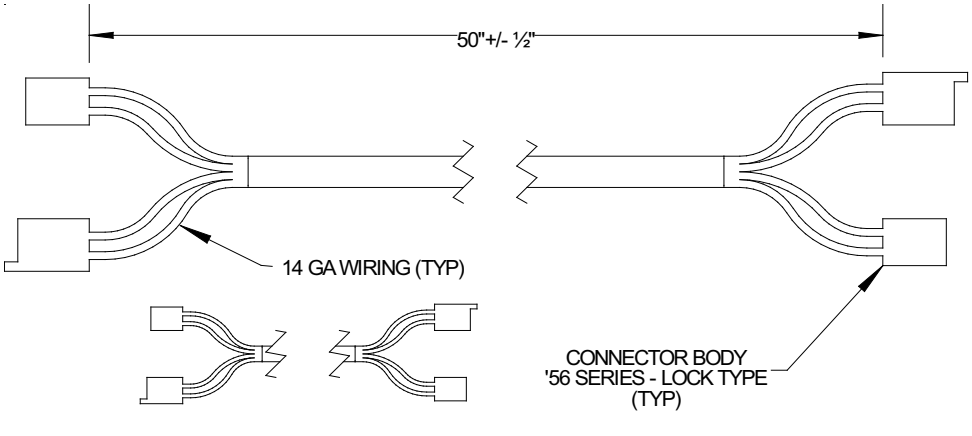


Figure 11.69 - Multi Clutch Switch Box Extension Harness (On the AIR SEEDER Chassis) - **3120-72-02**

11.3.2 MULTI-CLUTCH SWITCH BOX COMPONENTS

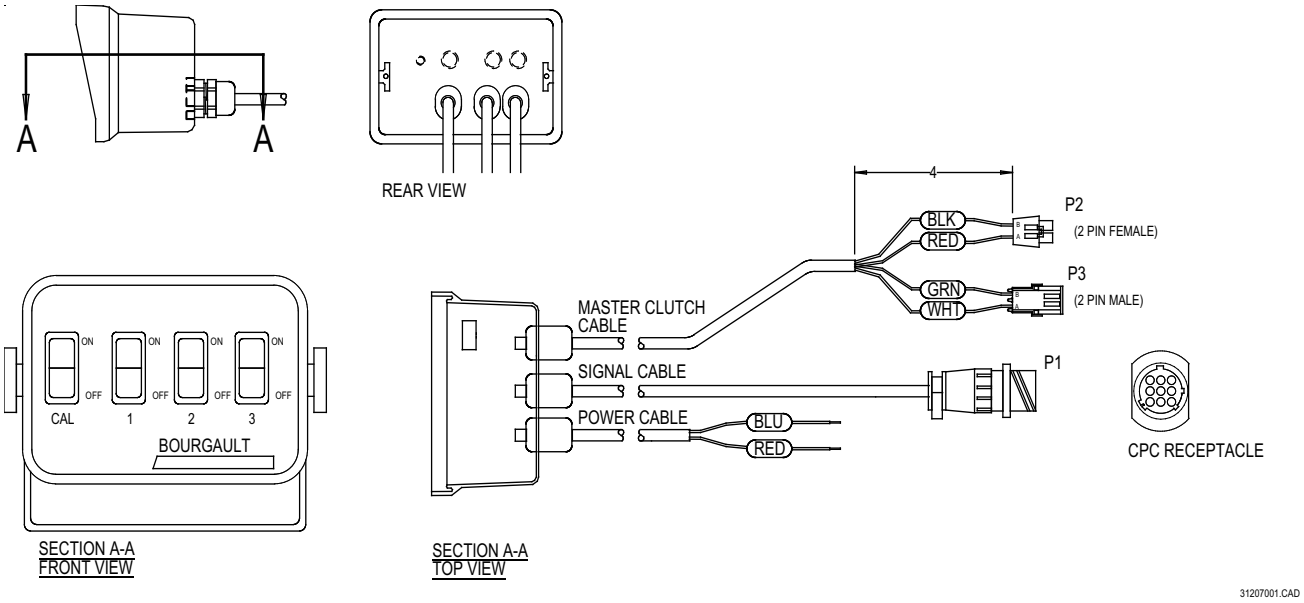


Figure 11.65 - Multi Clutch Switch Box (3 Switches) (In the TRACTOR Cab) - **3120-70-06**

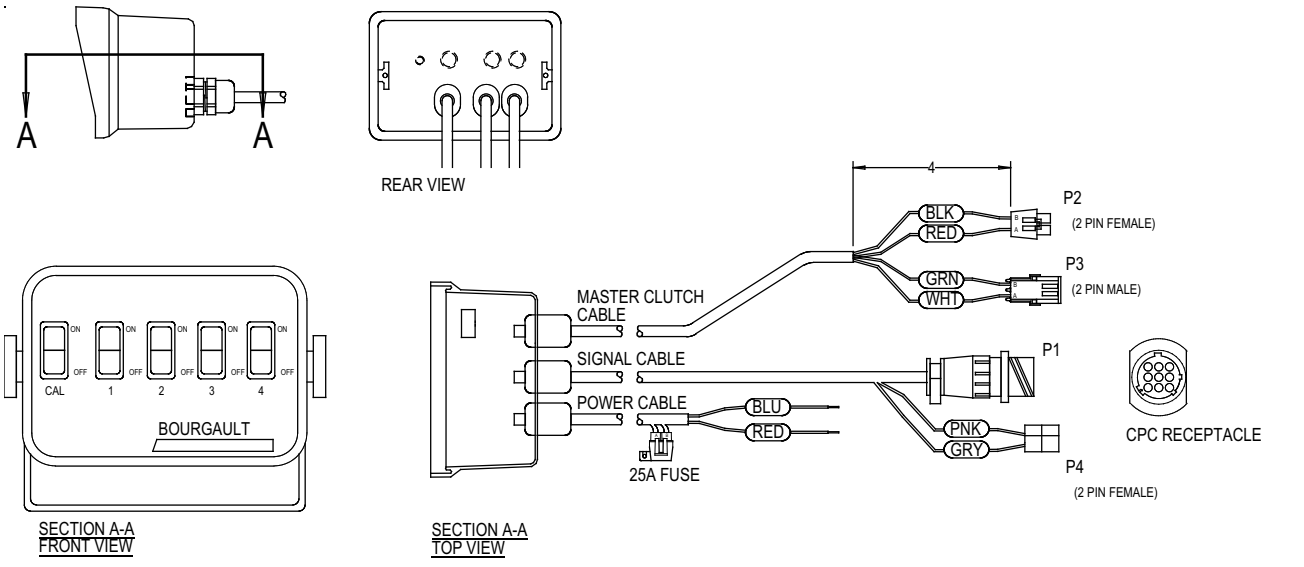


Figure 11.66 - Multi Clutch Switch Box (4 Switches) (In the TRACTOR Cab) - **3130-26**

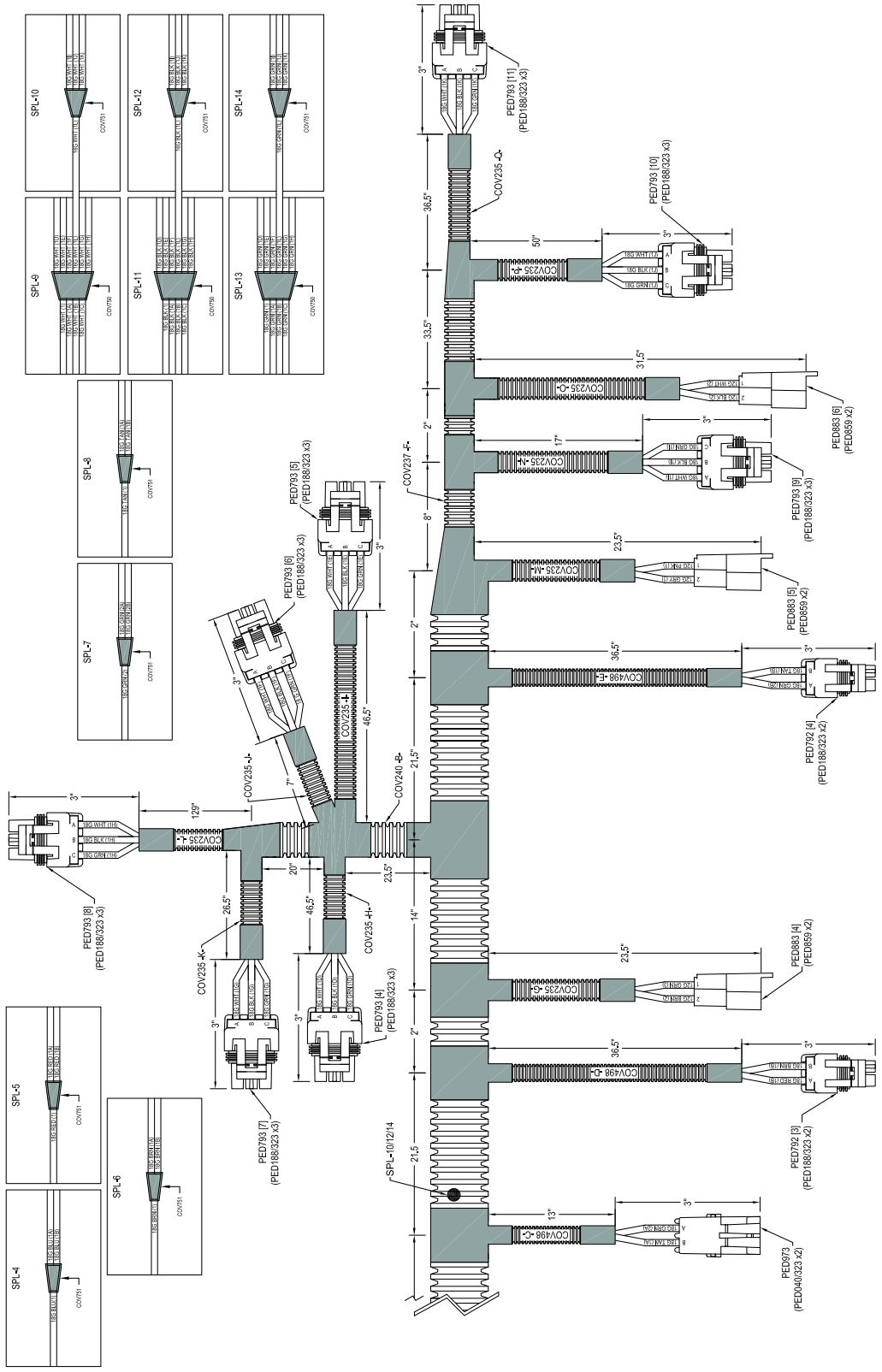


Figure 11.64b - Air Seeder Extension Harness for units with CRA & Multiple Clutches (Across the AIR SEEDER Chassis) - **3122-75-05**

(***All 6700ST Units***)

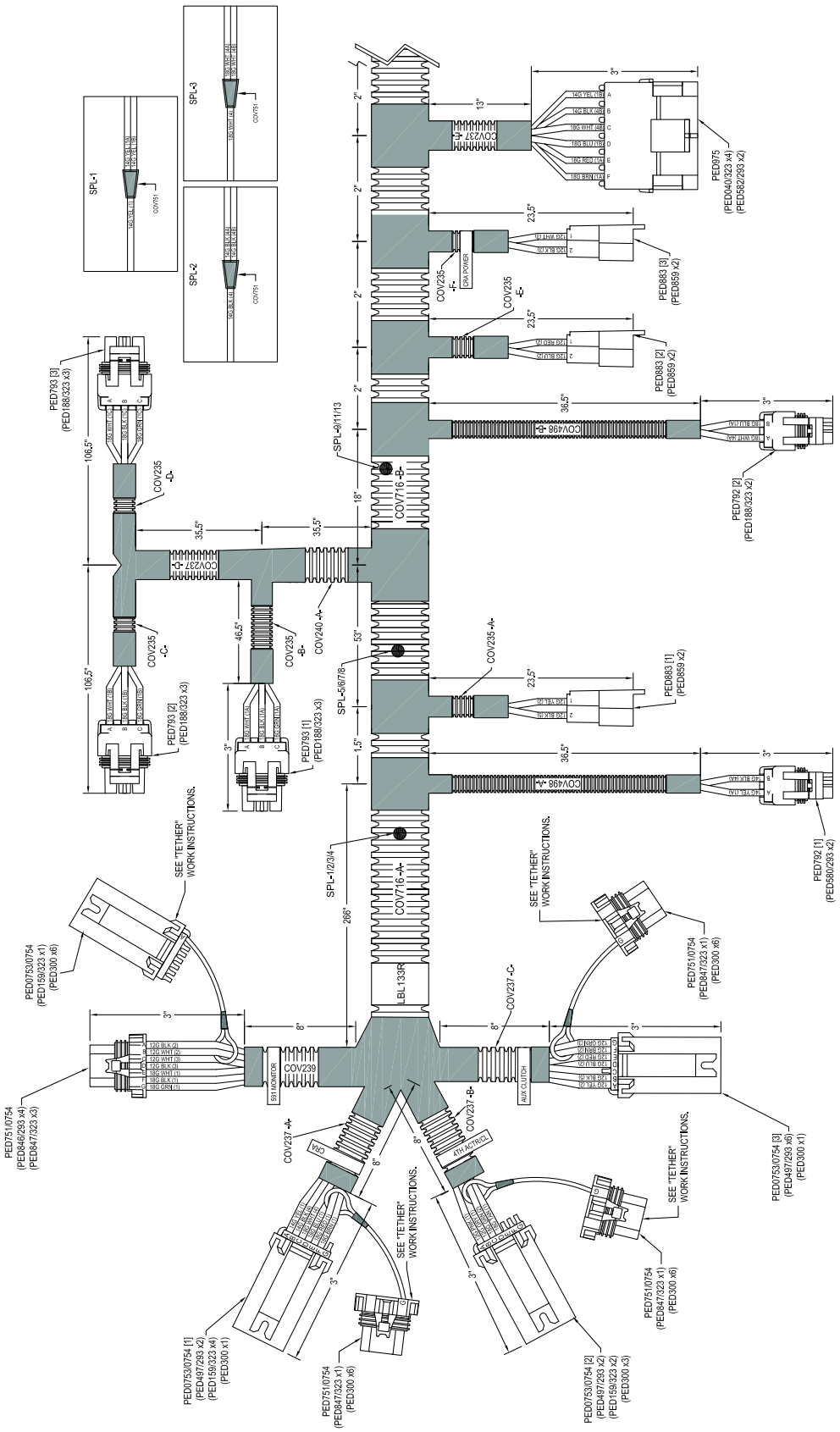


Figure 11.64a - Air Seeder Extension Harness for units with CRA & Multiple Clutches (Across the AIR SEEDER Chassis) - **3122-75-05**
(***All 6700ST Units***)

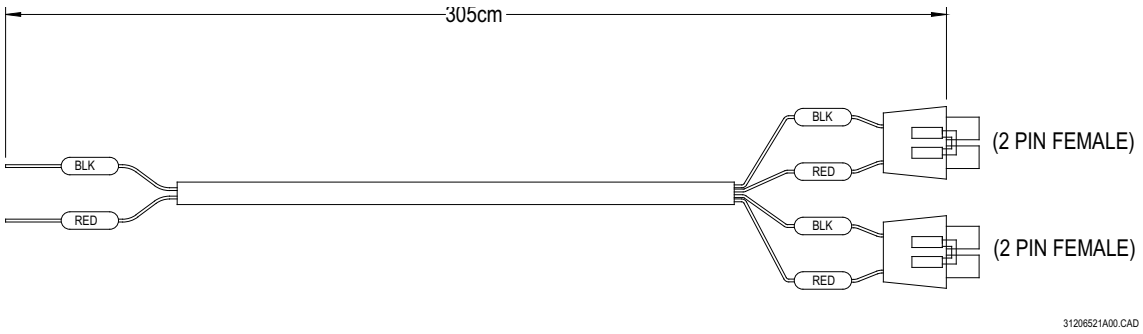


Figure 11.62 - Power Cable (In the TRACTOR Cab) - **3120-65-21**

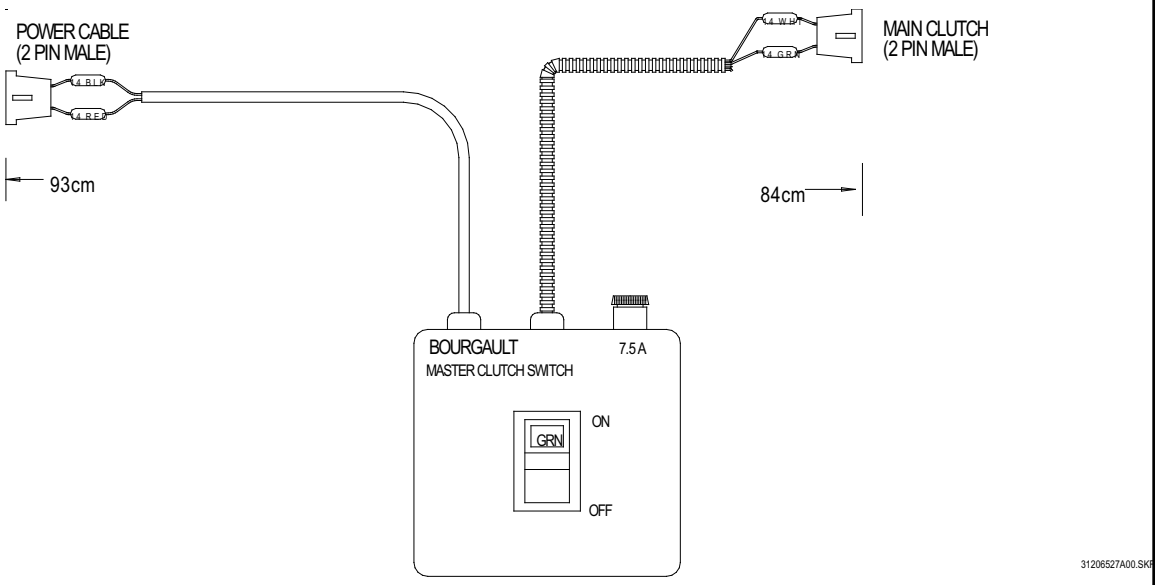


Figure 11.63 - Master Clutch Switch (In the TRACTOR Cab) - **3120-65-27**

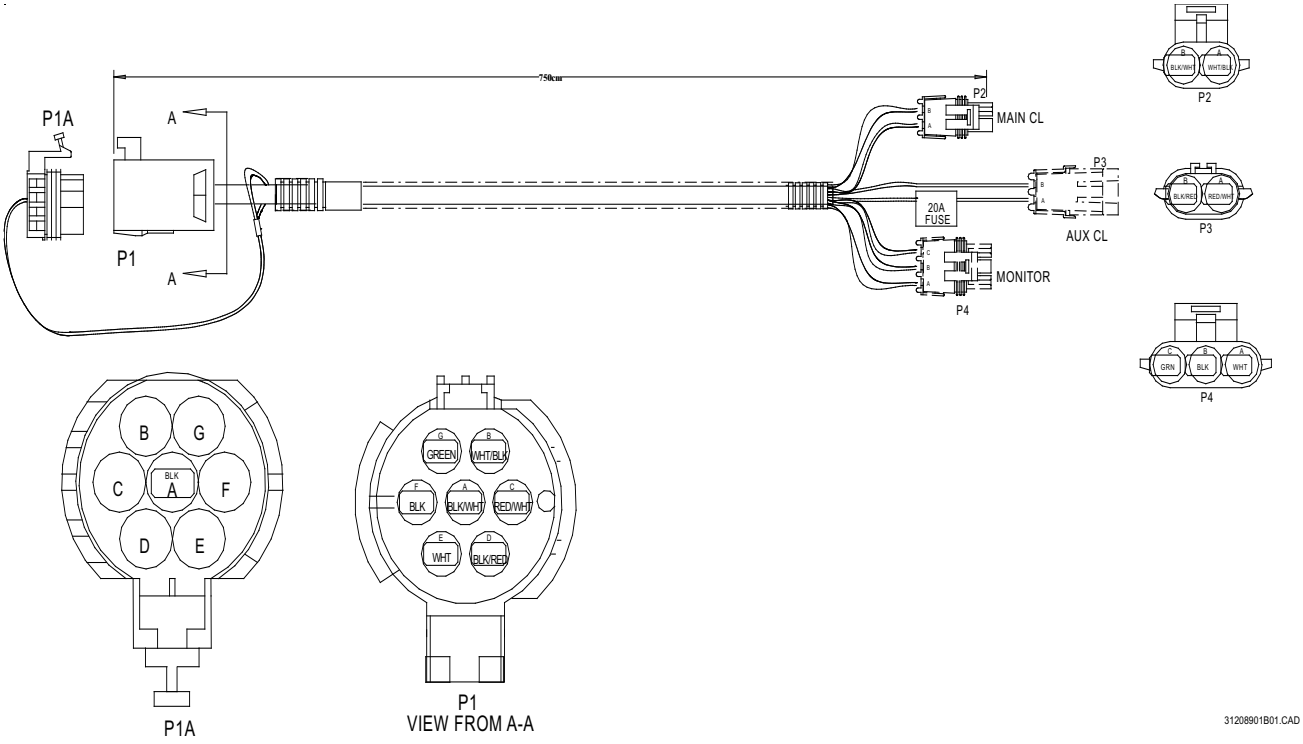


Figure 11.60 - Monitor Extension Harness (from Monitor to back of TRACTOR Cab) - **3120-89-01**

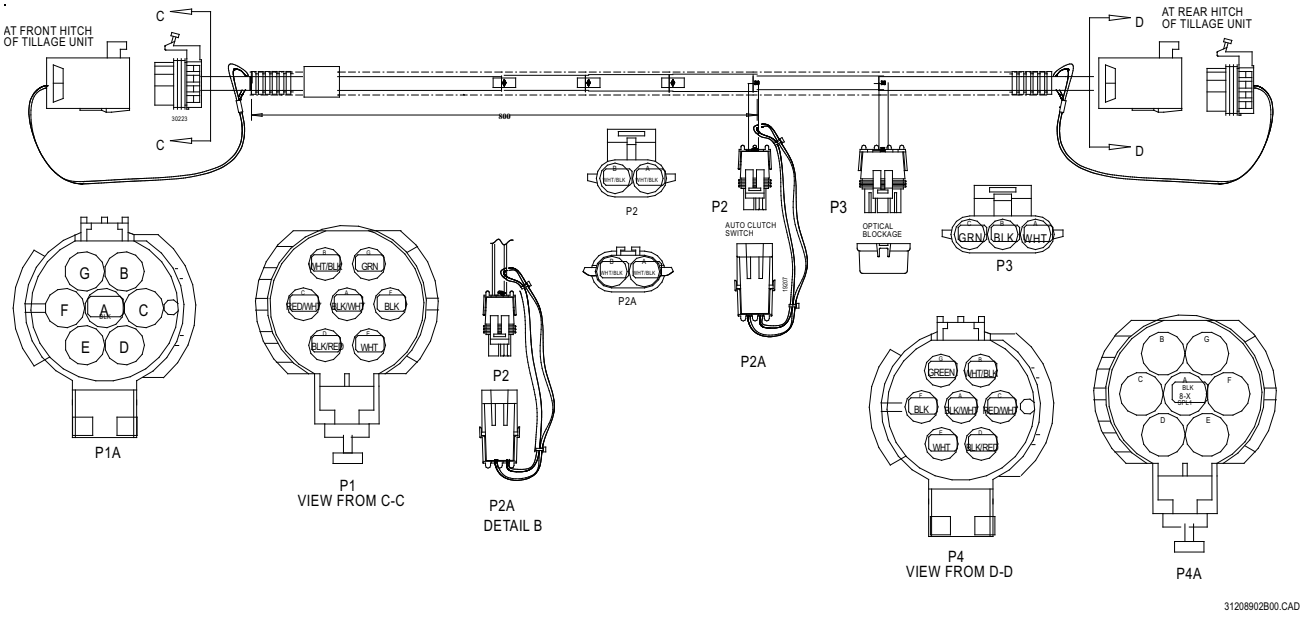


Figure 11.61 - Cultivator Extension Harness for the Monitor (Across the TILLAGE unit) - **3120-89-02**

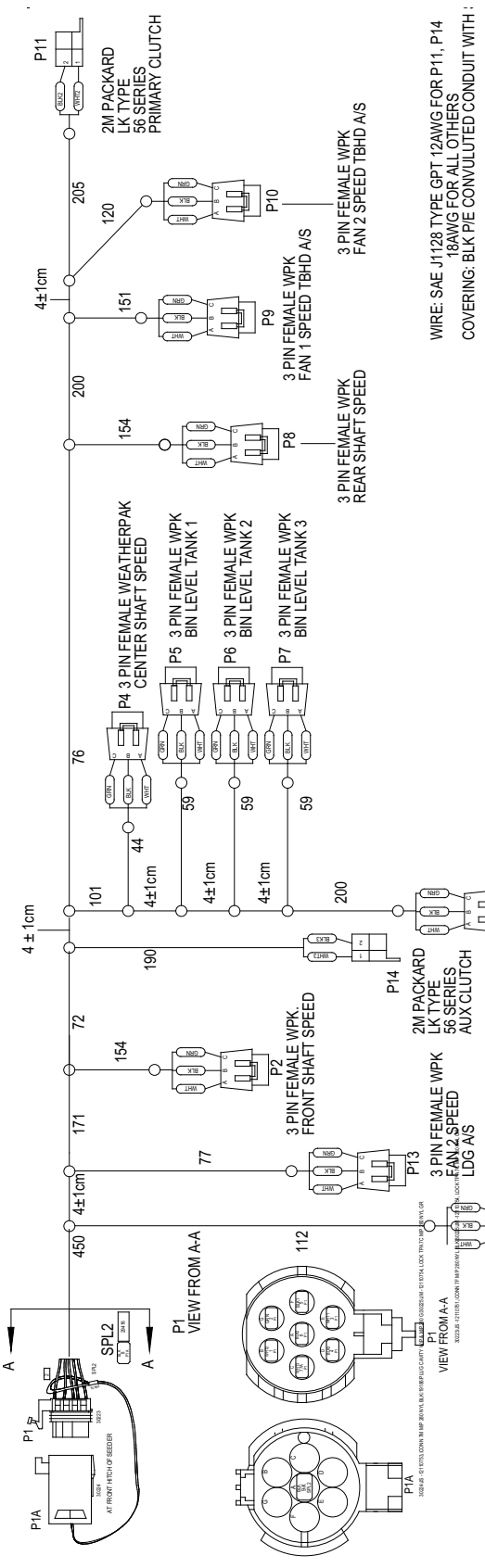


Figure 11.59 - Air Seeder Extension Harness for the Monitor (Across the AIR SEEDER Chassis) - **3120-89-07**

(***6350/6280/6200's After L.N. 38358AS01***)

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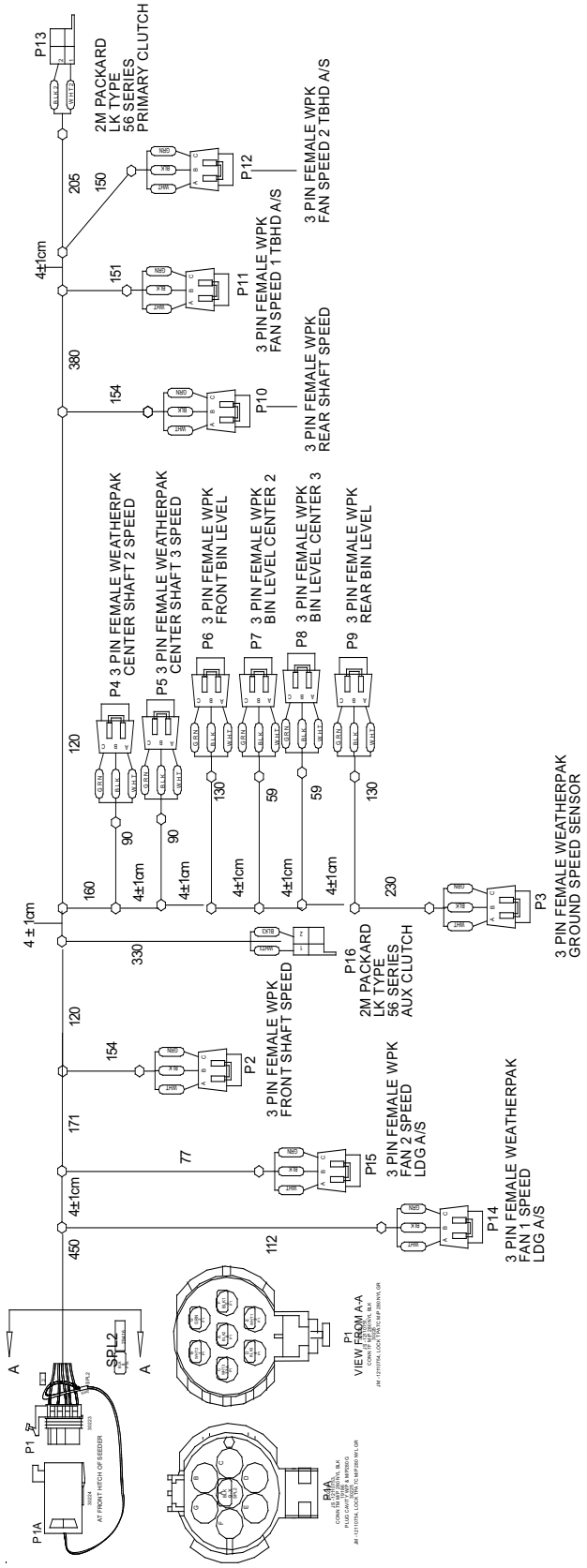

Figure 11.58 Air Seeder Extension Harness for the Monitor (Across the AIR SEEDER Chassis) - **3120-89-03**
(***All 6550/6450's***) and (***6350/6280/6200 Before L.N. 38334AS25***)

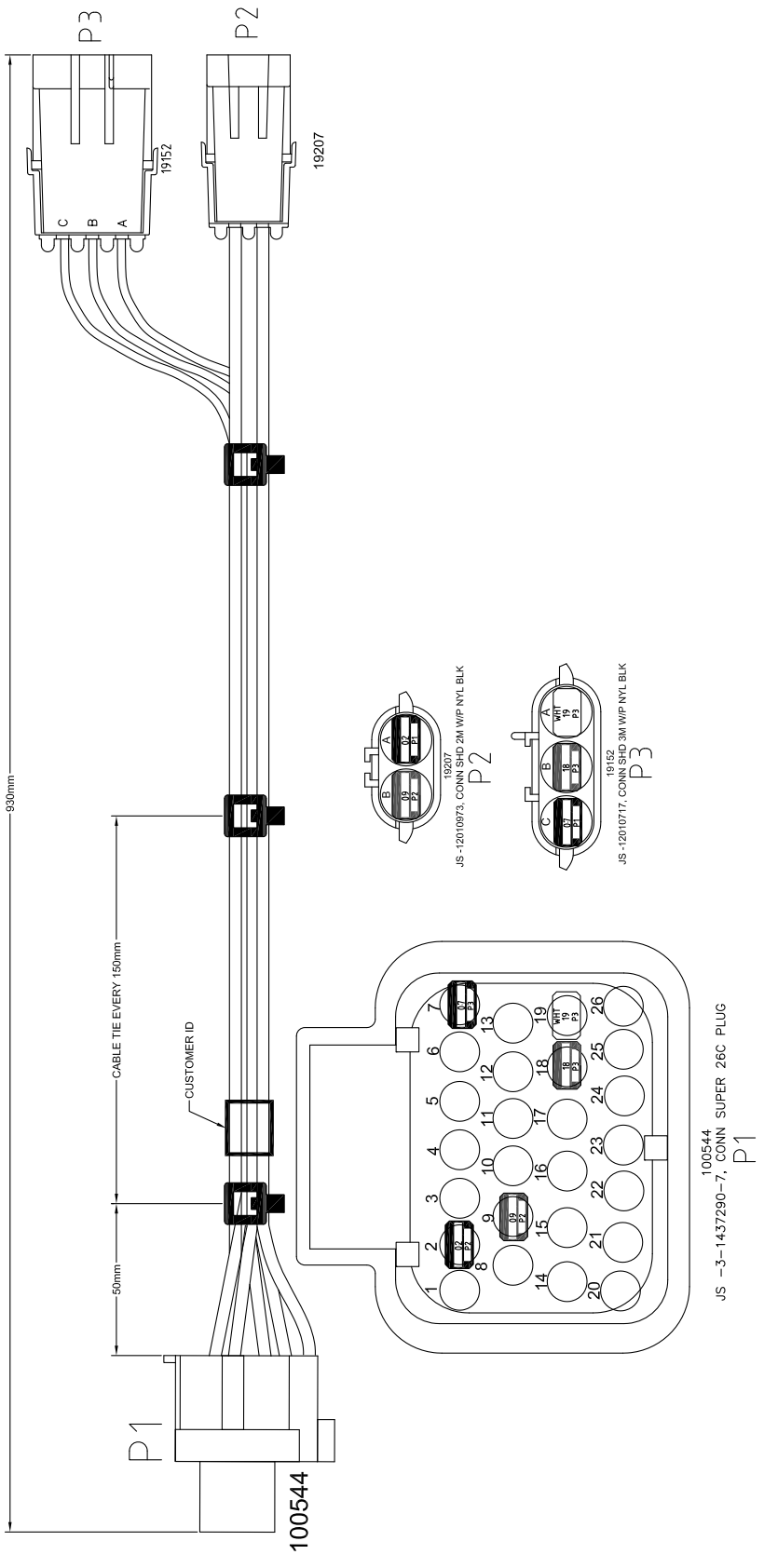

Figure 11.57 591 Monitor Power/Communication Harness (Power Supply to Monitor in TRACTOR Cab) - **3130-52**

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11.3 MONITOR & CLUTCH CABLE LAYOUTS

The layouts for the electronic cables are shown for the 591 Monitor. The schematics represent the layouts required for both with and without auxiliary clutches.

11.3.1 AIR SEEDER MONITOR COMPONENTS

Figure 11.56 - Air Seeder Monitor - Enclosure/Cable Assembly (In the TRACTOR Cab) - **3130-50**

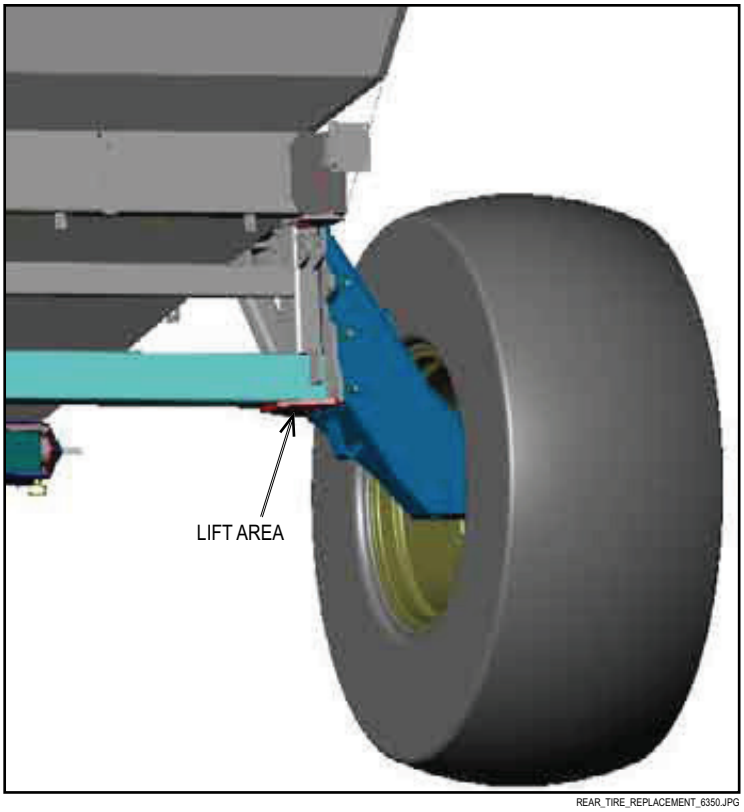


Figure 11.54 - Jack Location - Rear Wheels

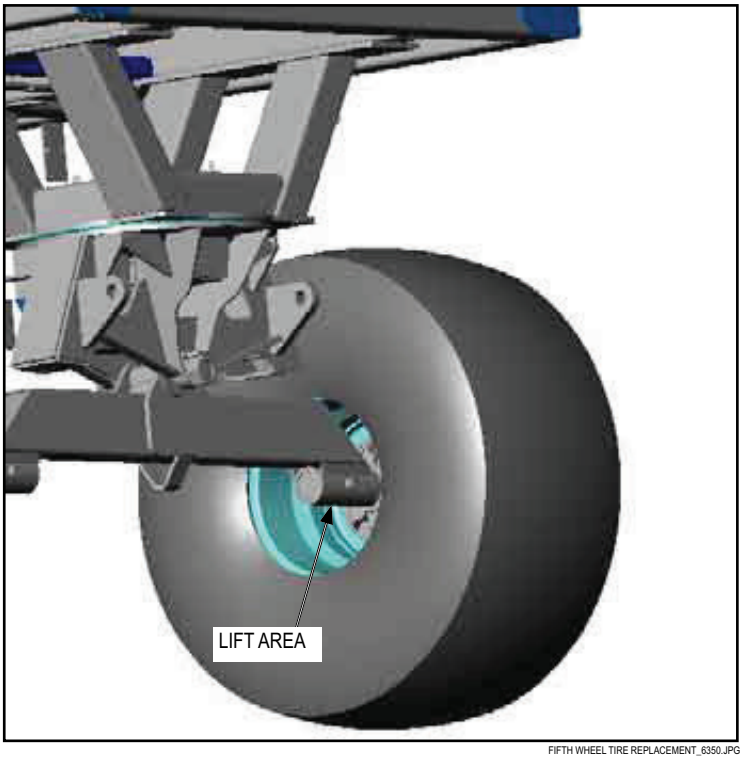


Figure 11.55 - Jack Location - Fifth Wheel

11.2.15 TIRES REPLACEMENT

Refer to *Figure 11.54 & 11.55.*

To replace tires follow instructions bellow.

1. Empty the Air Seeder for easier lifting and to reduce the strain on the lifting components and the Air Seeder.
2. Park the Air Seeder on a flat and level area of hard ground away from any high traffic areas.
3. Place a secure stop in front and behind all of the tires to ensure the unit does not move.
4. Loosen the wheel nuts (up to half a turn) while the Air Seeder is still on the ground.
5. Jack up the Air Seeder at the location indicated and place a block or stand under the same location. Only lift the unit as high as needed to replace the tire.
6. Remove the remaining wheel nuts and the wheel. Lay the wheel down flat in a safe location.
7. Install the new wheel with the correct side to the outside and tighten the wheel nuts up as much as possible while the Air Seeder is still on the block/stand.
8. Lower the Air Seeder to the ground and tighten the wheel nuts up to the correct torque.
9. Recheck the wheel nut torque as per recommendations in this manual.

CAUTION:

NEVER LIFT MORE THAN ONE TIRE AT A TIME OFF THE GROUND. THE UNIT COULD BECOME UNSTABLE AND FALL.

WARNING:

THE WHEELS ARE EXTREMELY HEAVY AND COULD FALL AS SOON AS THE WHEEL NUTS ARE REMOVED. USE CAUTION WHEN REMOVING WHEELS AND ENSURE ADEQUATE PERSONNEL AND EQUIPMENT ARE AVAILABLE TO CHANGE THE TIRE.

WARNING:

WHILE THE UNIT IS JACKED UP OR ON A STAND, NEVER WALK UNDER THE UNIT AND KEEP HANDS AND FEET CLEAR.

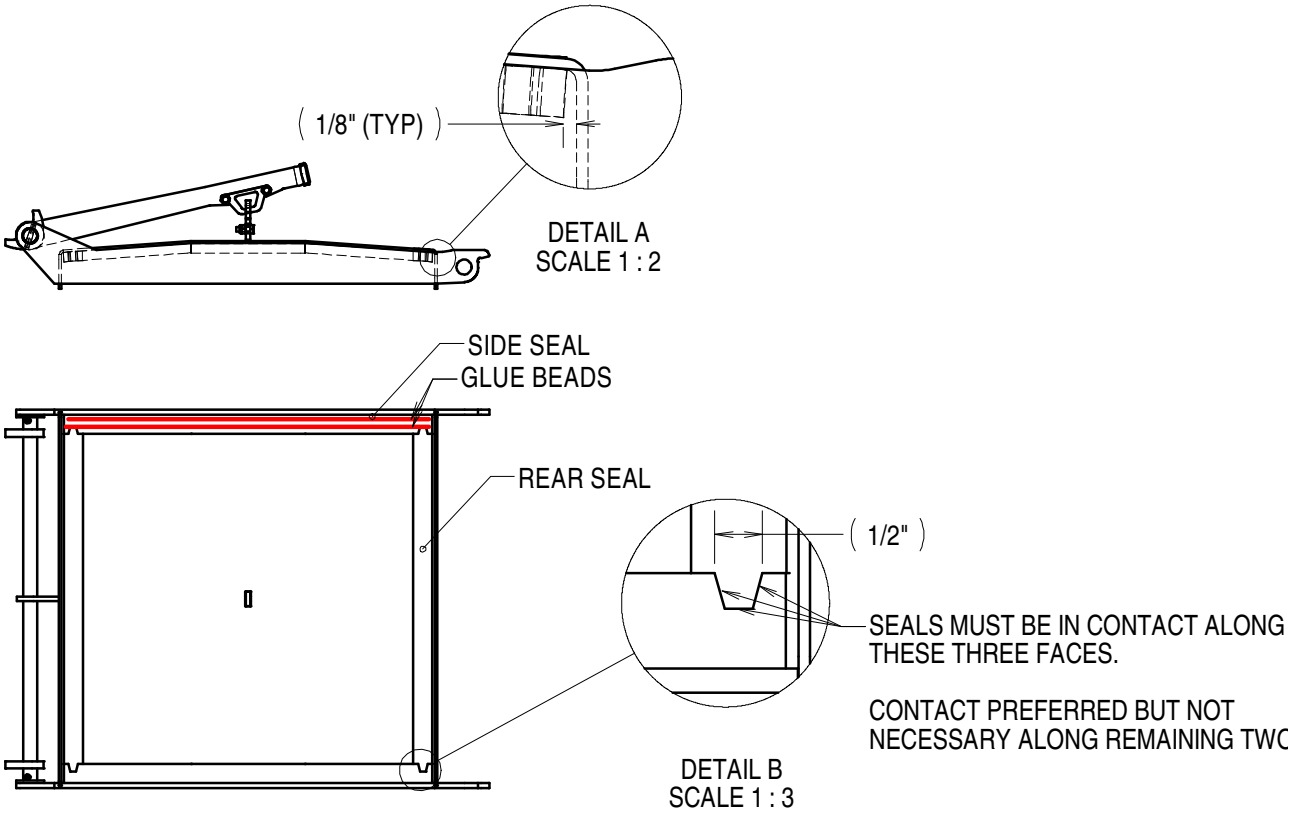


Figure 11.53 - Tank Lid Seal - Glue/Seal Requirements

11.2.14 TANK LID SEAL REPLACEMENT

Follow the steps below to repair or replace a lid seal on a 6000 Series Air Seeder.

IMPORTANT

*** GLUE WILL BOND SKIN INSTANTLY. WEAR GLOVES AND SAFETY GLASSES DURING INSTALLATION ***

** SUCCESSFUL ADHESION REQUIRES THE GLUED SURFACES TO BE CLEAN **

** LID AND SEALS MUST BE AT LEAST 10°C **

1. Setup a clean workspace.
2. Remove as much of the old seals as possible (refer to *Figure 11.52*).
3. Use clean 220 grit sandpaper to sand the seals. Only the side to be glued requires sanding.
4. Use clean 220 grit sandpaper to sand the lid where the old seals were glued. Remove loose particles.
5. Install the side seals first. Place two glue beads approximately 1/8" wide along one side of the lid. Use an instant adhesive for EPDM, rubber, and plastics, which has a high viscosity and medium set time (***3M Pronto-CA-40H*** glue is recommended). Approximately 5 ounces required for each lid, but actual quantities will vary.
6. Quickly place sanded seal surface on glue and apply pressure across entire seal for approximately 30 seconds. The seal should be tight against side of lid.
7. Repeat for other side seal.
8. Install front and rear seals using same procedure. Ensure seal contact in joint is as indicated in *Figure 11.53*.

Figure 11.52 - Tank Lid Seal - Acceptable Residue

11.2.13 TANK LID ADJUSTMENT

11.2.13.1 SETTING THE TANK LID PRE-LOAD

The preload on the tank lids (large and small) on the Air Seeder MUST be set to 1/2" as shown in *Figures 11.50 & 11.51*.

When checking the preload on the tank lids (for both large and small lids);

1. With the tank lid closed and latched, measure the distance on the four corners of the lid. Refer to *Figure 11.50*.
2. Loosen the nuts on the left and right sides of the tank lid and slide the whole lid assembly up or down in the adjustment slot, until the distance is 1/2" from the flange to the lip on the lid is attained. Refer to *Figure 11.51*.
3. Once the height is correct, tighten the nuts to secure the lid assembly in place.
4. Ensure that the adjustment is made on both the front and back edges of the lid (all four corners).

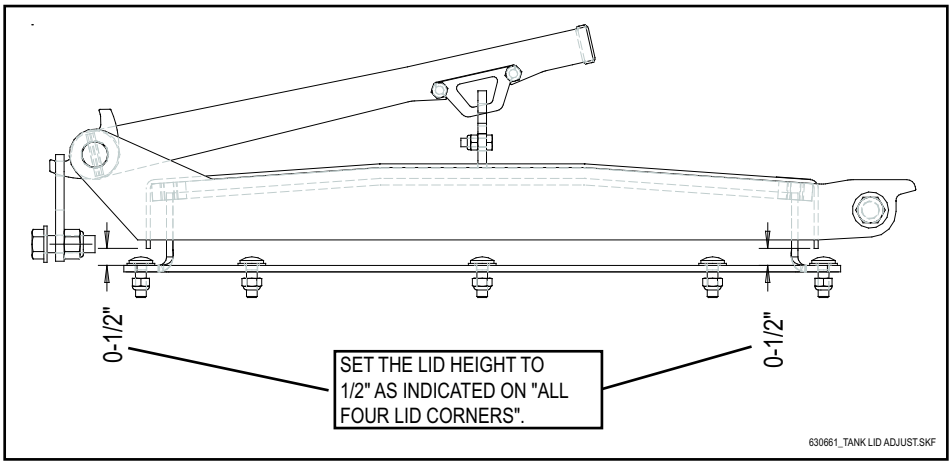


Figure 11.50 - Tank Lid Assembly - Distance Set (Small Lid Shown)

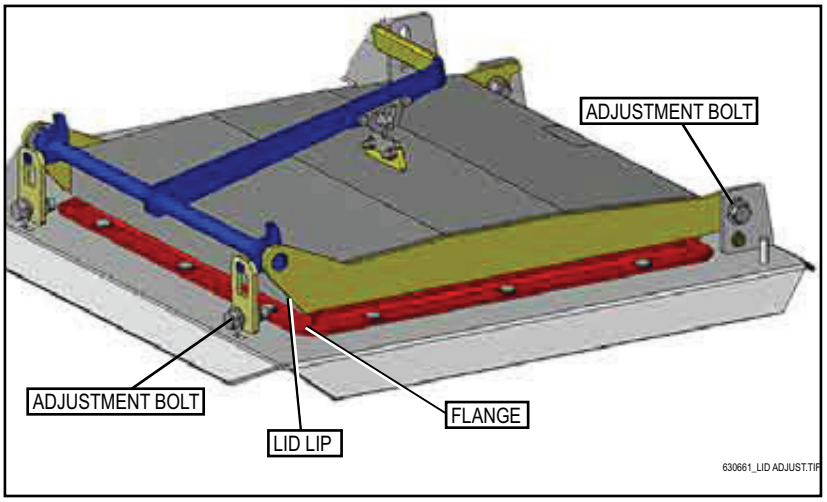


Figure 11.51 - Tank Lid Assembly (Small Lid Shown)

11.2.12 DRIVE CHAIN TENSION ADJUSTMENT

11.2.12.1 TBHD DRIVE CHAIN ADJUSTMENT

The Drive Chain tension on the TBHD Air Seeders is set with a spring loaded idler. Follow the steps below to set the correct tension of the idler.

When setting the tension of the drive chain;

1. Remove the adjustment bolt from the arm assembly.
2. Loosen the locknut on the mount bolt and slide the whole assembly up or down in the adjustment slot, until there is very little to no slack in the drive chain (There should be zero pressure on the chain). Refer to *Figure 11.49*.
3. Once the slack is taken out of the drive chain, tighten the locknut to secure the idler assembly in place.
4. Determine and mark the position of the spring arm in relation to the idler arm. Refer to *Figure 11.49*.
5. Remove the chain off of the idler assembly.
6. Install the adjustment bolt three holes *COUNTERCLOCKWISE* from the location that was marker for the spring arm.
7. Replace the chain. If the chain is too loose, move the adjustment bolt ahead one hole.

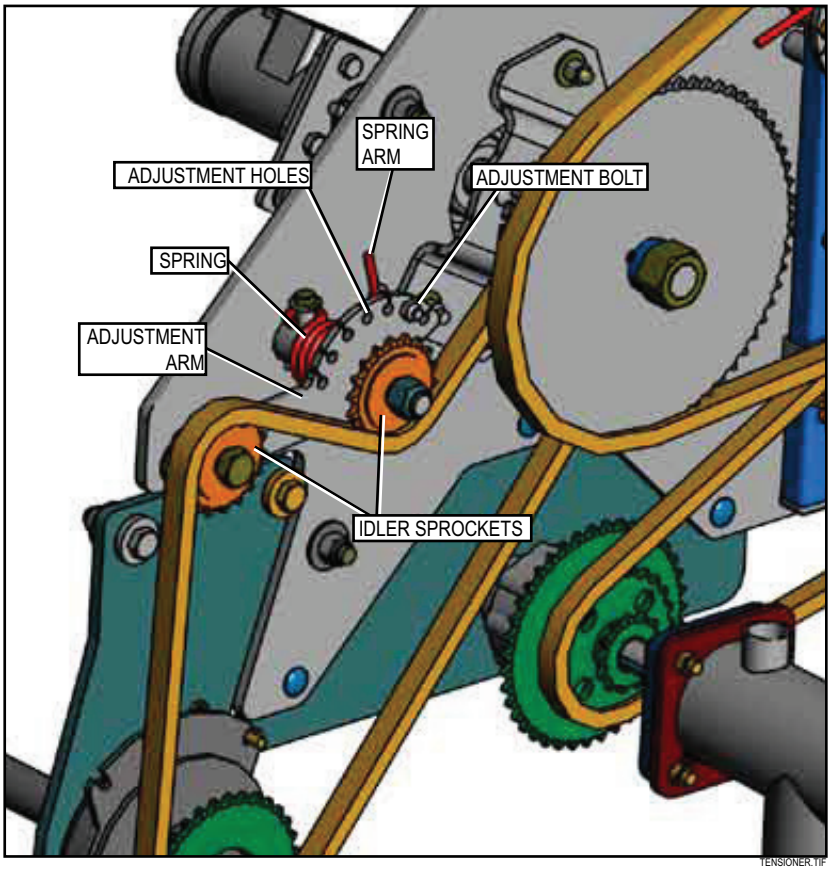


Figure 11.49 - Chain Tensioner

11.2.11.2 REPLACING AN AUGER

Use the procedure listed below when replacing the PDM Plus metering augers. Refer to *Figure 11.47 & 11.48*.

1. Slide in the metering auger shaft (#2). Slide the gasket (#11) over the auger shaft (#2) and bolt the bearing (#3) in place. Tighten the bolts (#4) until the bearing (#3) is tight against the end of the housing.

Note: If a different style metering auger is being installed, the metering orifice (#6) must also be changed.

2. Slide the metering auger shaft (#2) in until the flighting bottoms out on the metering orifice (#6), then tap the auger shaft out 1/4" (6 mm). Refer to *Figure 11.48*.

   a. A mark can be made on the auger shaft to mark the point where the flight bottoms out, then measure 1/4" (6 mm) from that point.

3. Lock the collars on the bearings (#3) on both ends of the metering auger shaft (#2).

4. Hand turn the auger flighting. Check if there is any rubbing of the flighting against the housing wall or sump wall.

   a. Adjust the auger position by loosening the bearing bolts and adjusting the bearing positions until there is no contact with the auger housing.

   b. Loosen the bearing locking collars and pull the auger flighting slightly ahead until there is no contact with the bolt in orifice adapter.

5. Grease the bearings as per *Section 11.1.3*.

NOTE

THE METERING ORIFICE MUST BE REMOVED FOR LARGE SEED SUCH AS LARGE FABA BEANS.

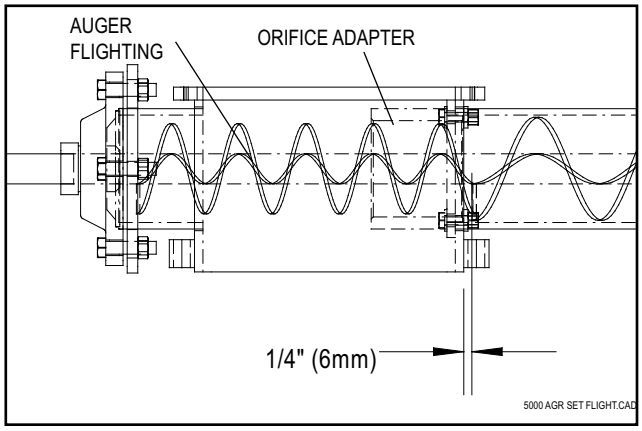


Figure 11.48 - Set Flighting Offset

11.2.11 METERING AUGER REMOVAL

11.2.11.1 REMOVING AUGER

Use the procedure listed below when removing the PDM Plus metering augers. Refer to *Figure 11.44*.

1. Ensure that the sensor end of the metering auger shaft (#2) is free of rust or corrosion.
2. Remove the plastic actuator or speed sensor sprocket from the end of the driveshaft.
3. Remove the chain and sprocket from the metering auger shaft.
4. Loosen the bearing locking collars from each end of the metering auger shaft (#2).
5. Remove the four bolts (#4) from the bearing housing on the driven end of the metering auger.
6. It may be necessary to gently tap the auger shaft on the left hand side with a soft punch or wooden block to loosen the shaft in the bearing.
7. Pull the metering auger flighting (#2) out of the metering auger housing. The gasket (#11) will also come out with the metering auger flight (#2).

CAUTION

METERING AUGER FLIGHTING MAY BECOME SHARP! DO NOT USE HANDS TO REMOVE PRODUCT THROUGH TANK CLEAN-OUTS.

IMPORTANT

CAREFULLY INSPECT THE METERING AUGER FOR WEAR OR DAMAGE. A DAMAGED METERING AUGER CAN ADVERSELY AFFECT METERING ACCURACY. NOTE THAT A CHARACTERISTIC OF THE UHMW AUGERS IS THEY TEND TO FLARE AT THE OUTER EDGES DUE TO FRICTION WITH THE PRODUCT. NOTE THAT THIS HAS NO SIGNIFICANT EFFECT ON THE AUGER'S OUTPUT.

IMPORTANT

IF THE AUGER FLIGHTING IS BEING CHANGED, THE BOLT IN ORIFICE ADAPTER MUST ALSO BE CHANGED. WHEN CHANGING THE LOCATIONS OF METERING AUGERS, MOVE BOTH THE FLIGHTING AND ORIFICE ADAPTER, OR MOVE THE ENTIRE METERING AUGER ASSEMBLY FROM ONE TANK TO ANOTHER. REFER TO *FIGURE 11.47*.

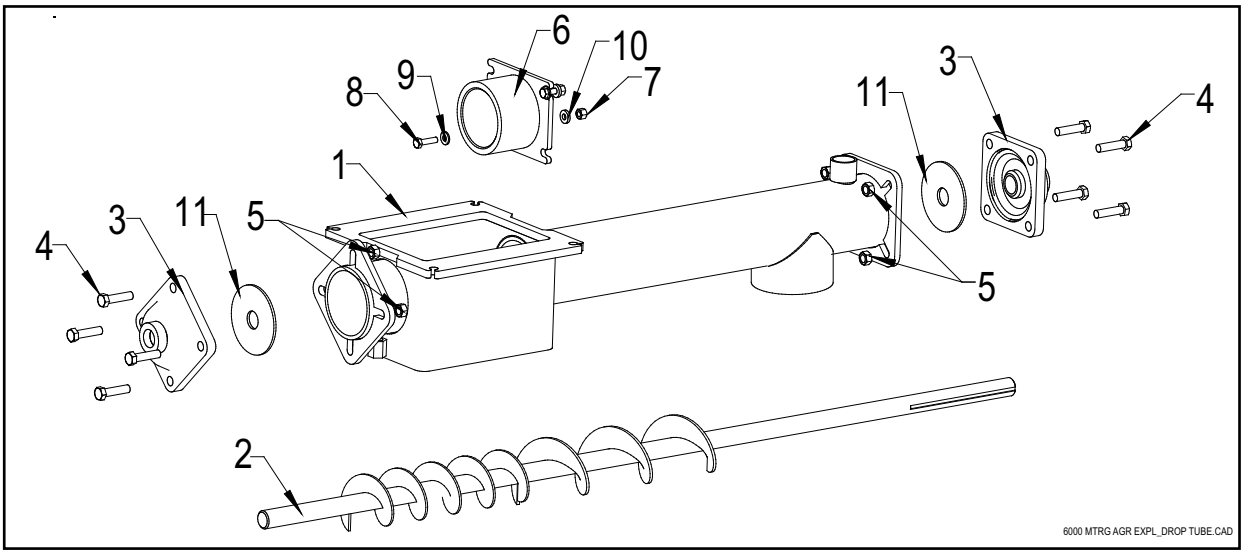


Figure 11.47 - PDM Plus Metering Auger Removal

11.2.10 METERING AUGER CARE

It is important to empty the metering augers of any residual material at the end of the season. If material is allowed to adhere to the augers metering accuracy can be adversely affected.

1. Remove the metering auger flighting from the housing. Refer to *Section 11.2.11*.
2. Ensure the flighting and housing are free from buildup (i.e.: fertilizer and seed treatments). To clean off any residual material, soak the auger flighting or housing in water until the buildup has softened. Remove the buildup.
3. Check auger diameter. If the auger diameter is less than the minimum specified below, the auger should be replaced.

UHMW Metering Auger Diameters

Flighting	Transitional Section		Metering Section	
	New	Minimum	New	Minimum
Single	3"	2-11/16"	2-5/8"	2-5/16"
Double	3"	2-11/16"	2-1/4"	2"
HO	3"	2-11/16"	3"	2-11/16"

4. Inspect the bearings and change any that are rough. Refer to *Section 11.2.11* for bearing replacement.
5. Reinstall the metering augers.

NOTE

A CHARACTERISTIC OF UHMW METERING AUGERS AUGERS IS THE DEVELOPMENT OF FLARE AT THE OUTER EDGES DUE TO FRICTION WITH THE PRODUCT. NOTE THAT THIS HAS NO SIGNIFICANT EFFECT ON THE AUGER'S OUTPUT.

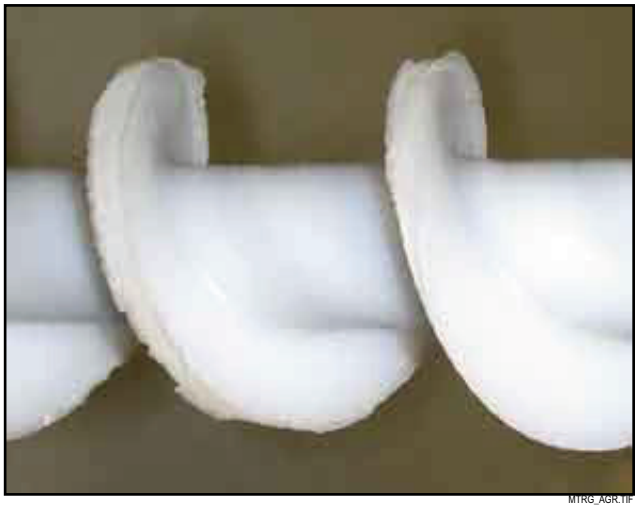


Figure 11.45 - PDM Plus Metering Auger - Normal Operational Flare

IMPORTANT

THIS MAINTENANCE SHOULD BE COMPLETED SEASONALLY OR AFTER MATERIAL HAS BEEN LEFT IN THE AUGER FOR ANY PERIOD OF TIME.

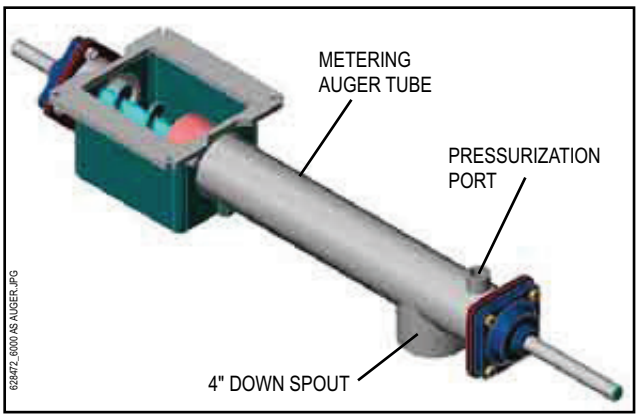


Figure 11.46 - Auger Transition Pipe

11.2.9.8 10" CONVEYOR SUPPORT ARM HEIGHT

The height of the conveyor support arm is adjusted using the tap bolt that rests on the air seeder frame gusset.

Prior to adjusting the front support bracket, remove the conveyor from the saddle.

1. Adjust the nuts shown in *Figure 11.44* by the desired amount.
2. Place the conveyor back into transport position and check the preload. Readjust if required.

When properly adjusted the head of the tap bolt should firmly contact the frame gusset.

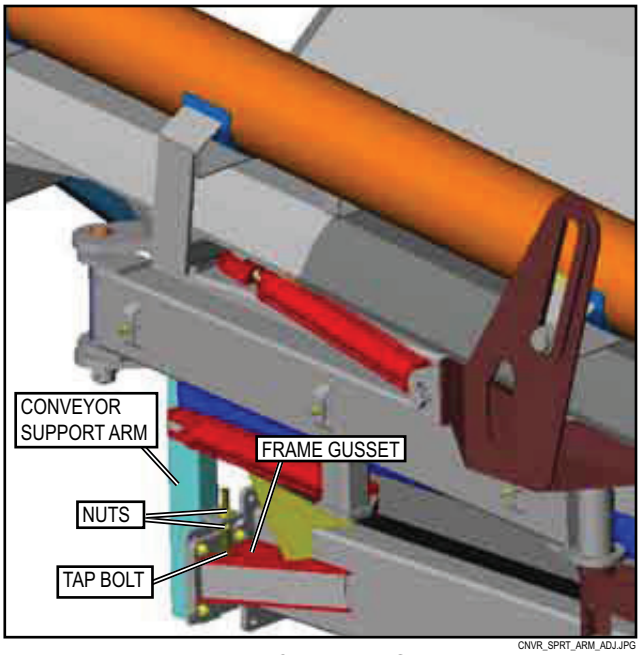


Figure 11.44 - Conveyor Support Arm

11.2.9.7 10" CONVEYOR FRONT SUPPORT BRACKET

The height of the front support bracket for the 10" conveyor is adjusted using the tap bolts that support the bottom mount bracket located on the conveyor tubing.

Prior to adjusting the front support bracket, remove the conveyor from the saddle.

1. Adjust the nuts on each tap bolt (two locations) by the desired amount. *Figure 11.43*
2. Place the conveyor back into transport position and check the preload. Readjust if required.

When properly adjusted the heads should be firmly contacting the bottom mount bracket.

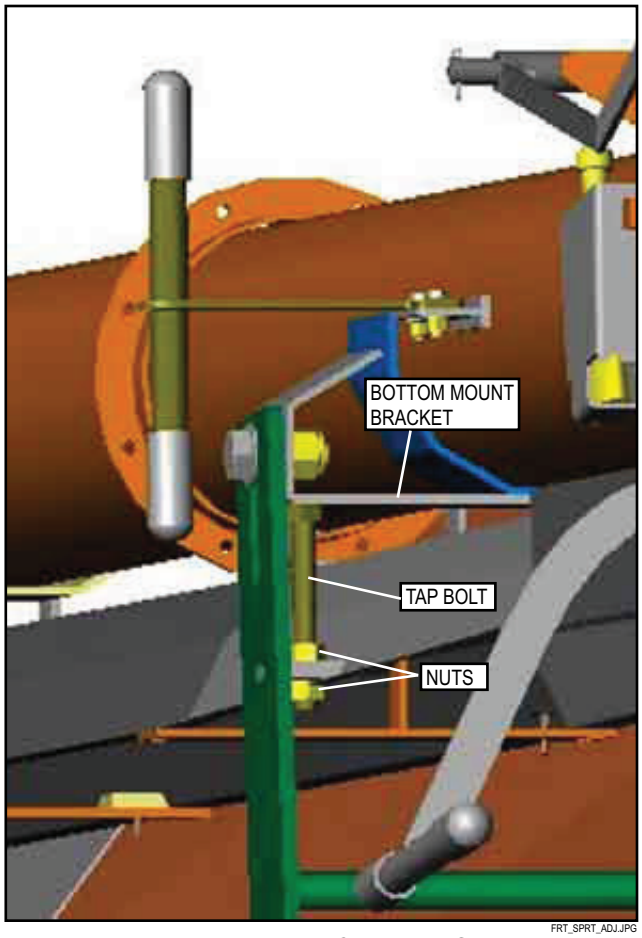


Figure 11.43 - Front Conveyor Support

11.2.9.5 8" STANDARD AUGER LOCK PLUNGER

If the auger base clamp does not hold the auger from moving, the plunger on the bottom of the over-centre lever can be adjusted out and locked in place with the jam nut. Refer to *Figure 11.42*.

The plunger should hold the auger from moving in normal operating conditions.

11.2.9.6 8" STANDARD OVER-CENTRE LEVER ADJUSTMENT

If the over-centre lever on the base clamp is over-centring too far and the auger is still moving, adjust the bolt/jam nut in the end of the lever "out" and tighten in place.

The lever should just over-centre enough to hold the auger from moving. If the lever over-centres too far, it will relieve the pressure on the plunger and allow the auger to move. Refer to *Figure 11.42*.

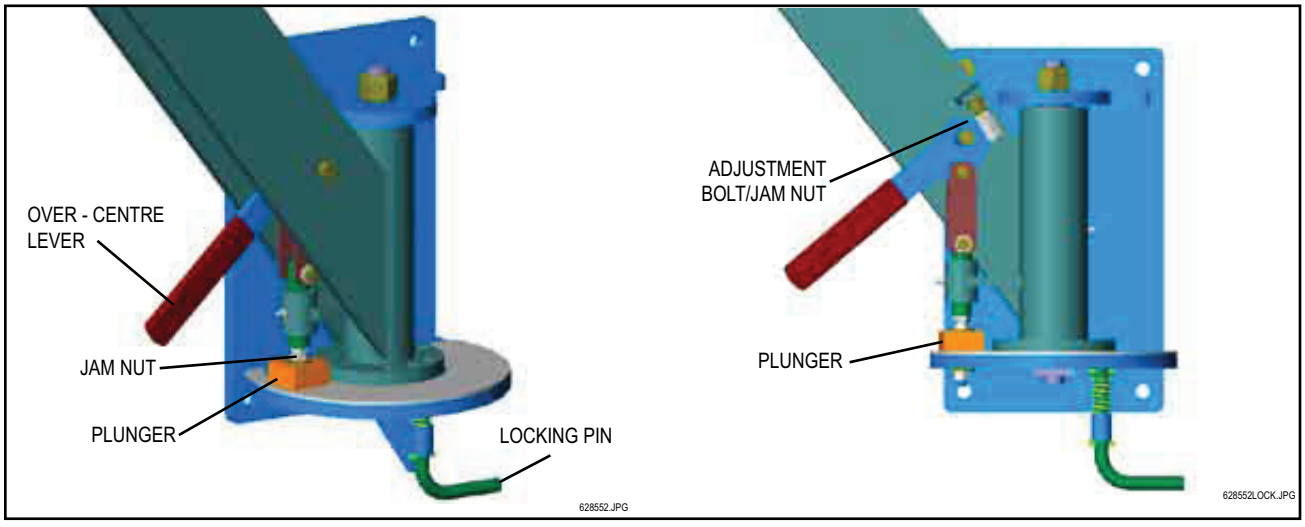


Figure 11.42 - 8" Standard Load/Unload Auger Base Clamp

11.2.9.3 10" DELUXE AUGER TRANSFER HOPPER LOCK

If there is a gap between the base auger and the transfer auger flange or if the latches are not firmly contacting the locking bar an adjustment is required. Refer to *Figure 11.40*.

1. Prior to any adjustment ensure the transfer hopper is fully extended and lifted off the ground.
2. Ensure the transfer hopper cylinder pin is positioned in the bottom of the slots.
3. Adjust the 5/8" nuts on the transfer hopper lock bar until there is a 1/32" gap between the locking bar and the inside of the latches.
4. Loosen the locknut on the linkage.
5. Turn the threaded linkage rods, on both sides until the transfer hopper locking bar is contacting the bottom of the hooks and there are no gaps between the auger flanges.
6. Tighten the locknut to secure the clevis.

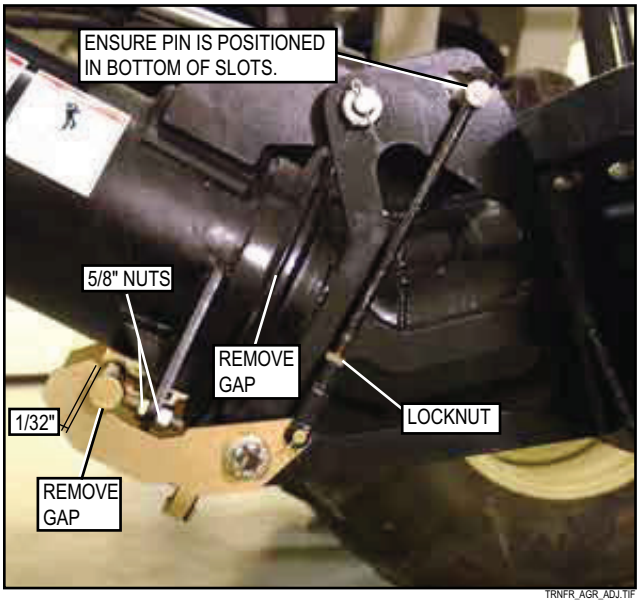


Figure 11.40 - 10" Deluxe Auger Transfer Hopper Lock Adjustment

11.2.9.4 10" STANDARD AUGER PIVOT LOCK

If the 10" standard auger is configured without a hopper, a bolt is installed in the safety lock location near the horizontal pivot (refer to *Figure 11.41*). This bolt must remain installed until such time as a hopper is installed on the flange end of the auger. If it is necessary to remove the hopper, replace the bolt in the pivot lock until the hopper is replaced.

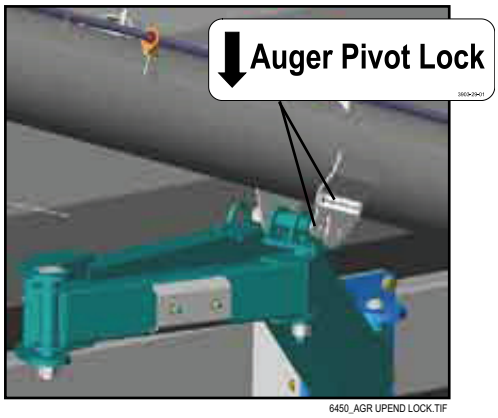


Figure 11.41 - 10" Standard Auger Pivot Lock

11.2.9 LOAD/UNLOAD AUGER/ CONVEYOR ADJUSTMENTS

11.2.9.1 TRANSPORT LOCK TENSION 10" DELUXE AUGER

The tension of the auger transport lock on the 10" Deluxe auger is adjusted using the front auger support lock linkage.

Prior to adjusting the transport lock tension, lift the transport lock lever to release the base auger from storage position.

1. Loosen the locknut shown in *Figure 11.39*.
2. Turn the threaded rod to adjust tension. Turning the threaded rod up will increase tension while turning the rod lower will reduce the tension.
3. Place the base auger into storage position and re-check the transport lock tension. Readjust if required.

When properly adjusted the transport lock lever will release and secure the base auger with moderate pressure.

11.2.9.2 TRANSPORT LOCK TENSION 8" & 10" STANDARD AUGER

The tension of the auger transport lock on the 8" & 10" Standard augers is adjusted using the front auger support lock linkage.

Prior to adjusting the transport lock tension, lift the transport lock lever to release the base auger from storage position.

1. Remove the pin that attaches the clevis to the lock lever. Refer to *Figure 11.39*.
2. Turn the clevis to adjust tension. Turning the clevis further up the threaded rod will increase tension while turning the clevis lower down on the threaded rod will reduce the tension.
3. Place the base auger into storage position and re-check the transport lock tension. Readjust if required.

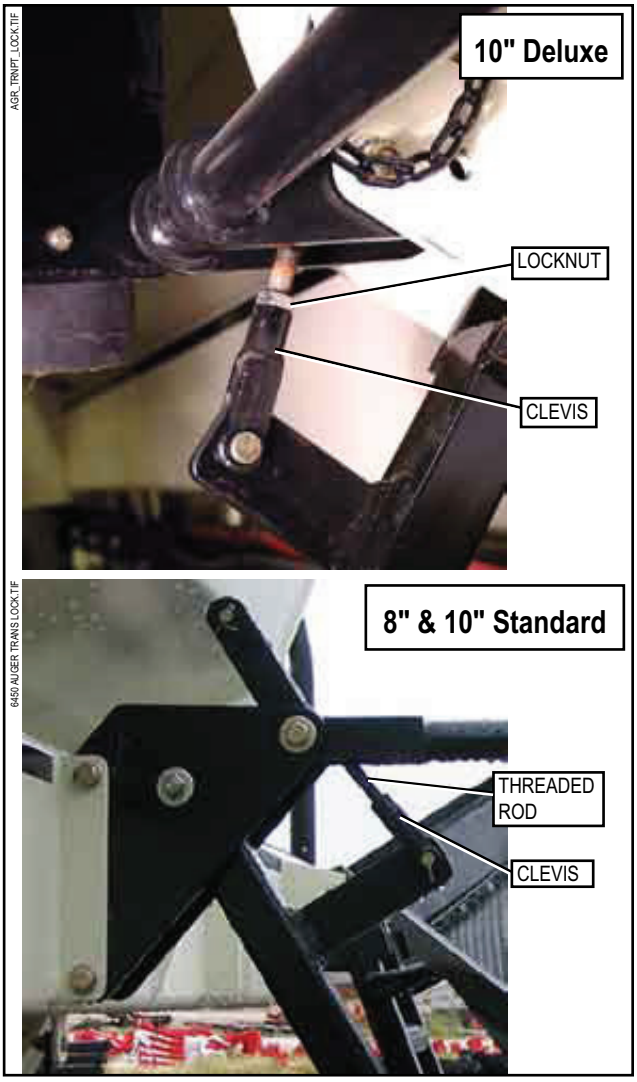


Figure 11.39 - Auger Transport Lock Adjustment

When properly adjusted the transport lock lever will release and secure the base auger with moderate pressure.

11.2.8 TBHD FIFTH WHEEL PLATE TENSION (6550ST - 6200)

The front axle on the TBHD units, attaches to the frame through a fifth wheel system. The connecting link must be kept tight to prevent frame wobble and provide stability.

When checking and adjusting the connecting link, follow this procedure:

1. Empty all the tanks.
2. Shake the Air Seeder frame back and forth and observe the amount of plate wobble.
3. If the gap between the plates exceeds 1/16" (1.6 mm), tighten the tension bolt located at the centre of the plates.
4. Tighten bolt until gap is less than 1/16" (1.6 mm).
5. Rotate steering wheel back and forth to check that the fifth wheel plate is not too tight.
6. The ideal adjustment is similar to a wheel bearing.


5TH_WHL_6550.TIF

Figure 11.38 - TBHD Fifth Wheel Plate

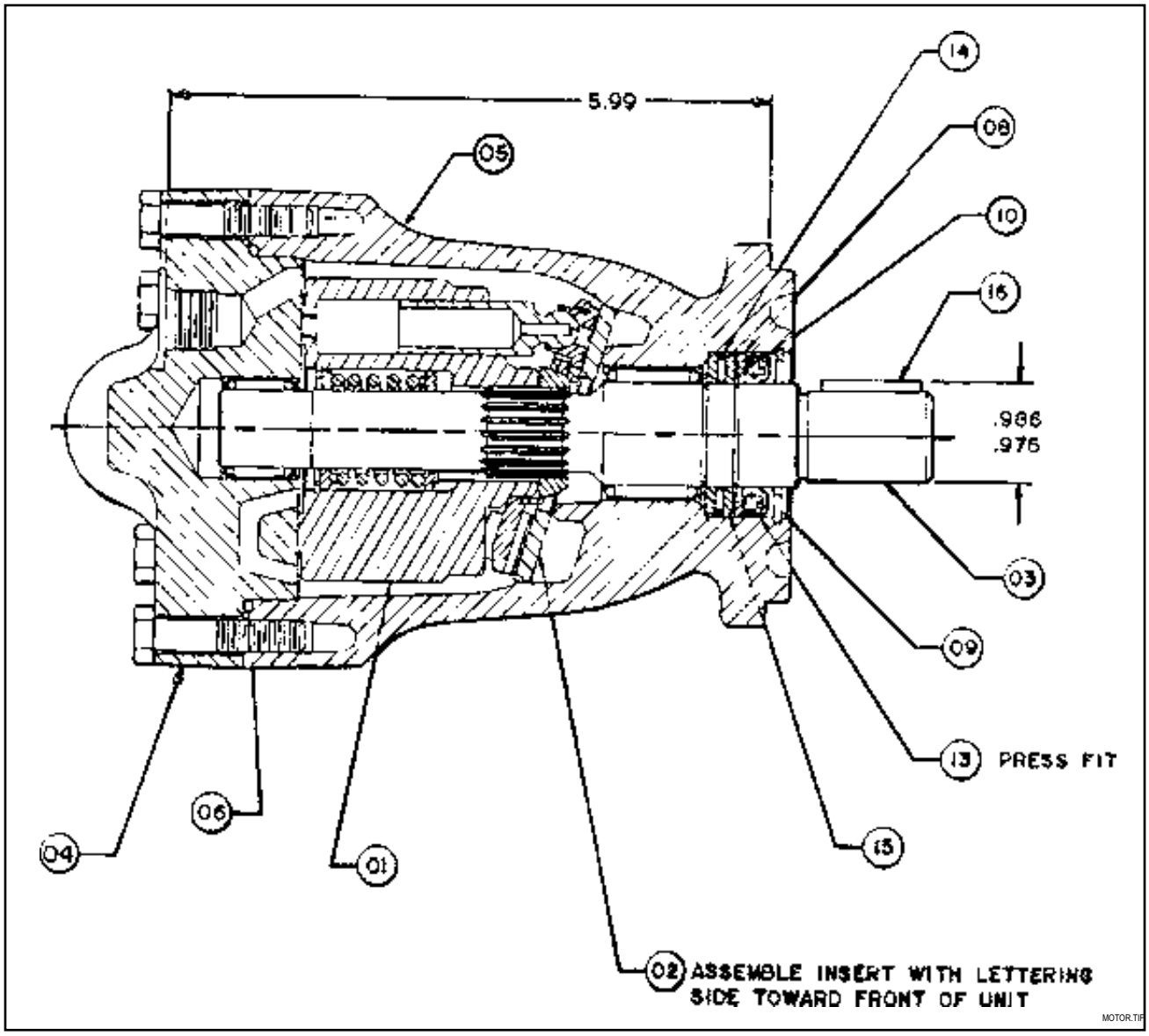


Figure 11.37 - Cessna/Eaton Piston Motor

NOTE

TRACTOR HYDRAULICS MUST HAVE A MINIMUM REMOTE PRESSURE OF 2250 PSI (15 513 KPA) AND 10 IMP GPM (45.5 L/MIN) OUTPUT.

11.2.7 SEALING PROCEDURE - CESSNA EATON PISTON MOTOR

11.2.7.1 MOTOR DISASSEMBLY

Refer to *Figure 11.37.*

1. Thoroughly clean all oil and contamination from the exterior of the motor housing.
2. Mark the backplate assembly (04) and the housing assembly (05) with a scribe so that the two will be aligned when reassembling. This is necessary because the housing assembly may or may not contain a positioning pin.
3. Remove the six cap screws (07) from the end plate assembly (04).
4. Remove the rotating kit assembly (01) from the drive shaft (03), being careful not to allow the pistons to fall from the rotating kit.
5. Remove the camplate insert (02) from the housing assembly, noting which side is facing the end plate.
6. Remove snap ring (09) from the front end of the housing assembly.

IMPORTANT

DO NOT USE A HARD OBJECT TO TAP THE SHAFT AS THE SHAFT MAY RIVET AND CAUSE EXTENSIVE DAMAGE.

7. Remove shaft seal from the shaft. Note that there is a snap ring (08) installed on the drive shaft behind the seal. Remove snap ring (08).

11.2.7.2 MOTOR REASSEMBLY

Refer to *Figure 11.37.*

1. Thoroughly clean all components before reassembly.
2. Install drive shaft (03) into housing assembly (05).
3. Place washer (08) onto drive shaft and then lubricate the new shaft seal (13) and push into place. Replace snap ring (09).
4. Replace O-ring (06) on backplate assembly.
5. With the rotating kit assembly (01) sitting on a flat surface with the pistons facing up, place the camplate insert on top of the pistons.

NOTE

ENSURE THAT THE LETTING ON THE CAMPLATE IS FACING UP TO ENSURE THAT THE SMOOTH SURFACE IS NEXT TO THE PISTONS.

6. Place the housing assembly and drive shaft over the rotating kit assembly. Maintain this upright orientation until the rotating kit has been pushed all the way into the housing assembly.
7. Turn the motor upside down and pour some clean hydraulic oil into the housing assembly. This will prevent rusting if the motor will not be used shortly after resealing.
8. Align the backplate assembly with the housing assembly using either the positioning pin if present or your scribe marks.
9. Replace the 6 cap screws and torque to 15-18 ft lbs (6.8-8.2 N m).

11.2.6 PRESSURIZATION CHECK

It is critical that there are no air leaks in the complete air system. Air leaks can lead to poor distribution of the product and improper seeding rates. An overall check of the product delivery system should be performed if air leaks are suspected.

11.2.6.1 AIR SEEDER LIDS AND DISTRIBUTION PIPES

1. Remove the main transfer pipe connection(s) between the seeding implement and the air seeder.
2. Block off the main transfer pipe(s) on the air seeder. Back pressure must be created in order for air leaks to show.
3. Ensure that the tank lids are closed and secured. Lid preload should be set to compress the lid seals ~ 1/8". Excessive lid preload will reduce the life of the seals.
4. Check the calibration ports are secured.
5. Power up the radial fan(s).
6. Begin the inspection at the air seeder lids. Check for air escaping around the lids.
7. Check the calibration ports and main transfer pipe(s) fittings for poor connections.
8. Check that the pressurization pipes are not damaged and leaking air.

If any air leaks are found, shut down the radial fans and repair the leak(s). Power up the radial fans after the repairs are complete to verify the leak has been corrected.

11.2.6.2 DISTRIBUTION KIT - SEEDING IMPLEMENT

1. Visually inspect the main transfer line(s) fittings for damage or poor connections.
2. Remove and inspect the main manifold(s). Remove any debris and clean if required.
3. Inspect the secondary transfer lines. Check for poor connections or damage.
4. Remove and inspect the secondary manifold(s). Remove any debris and clean if required.
5. Inspect the tertiary transfer lines and seed boots. Check for poor connections or damage.

⚠ CAUTION

TANK IS PRESSURIZED! DO NOT OPEN TANK LID WITH THE FAN OPERATING!

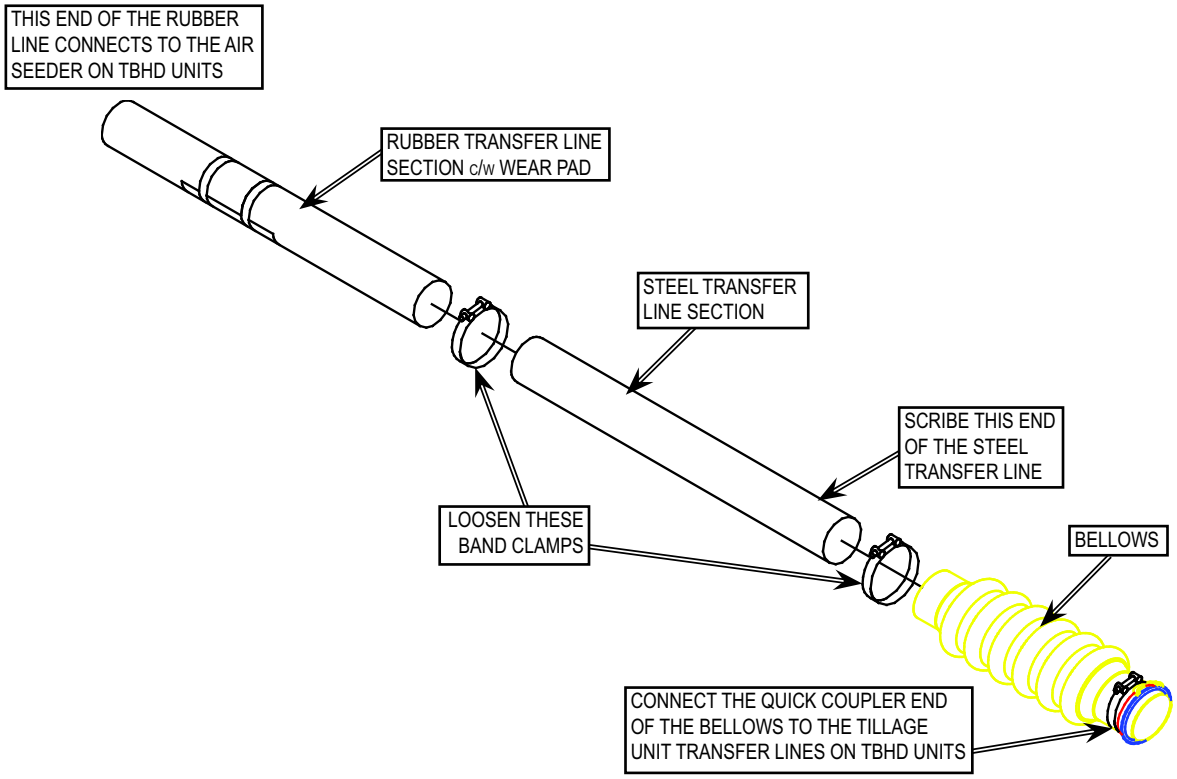


Figure 11.36a - TBHD Transfer Line with Bellows

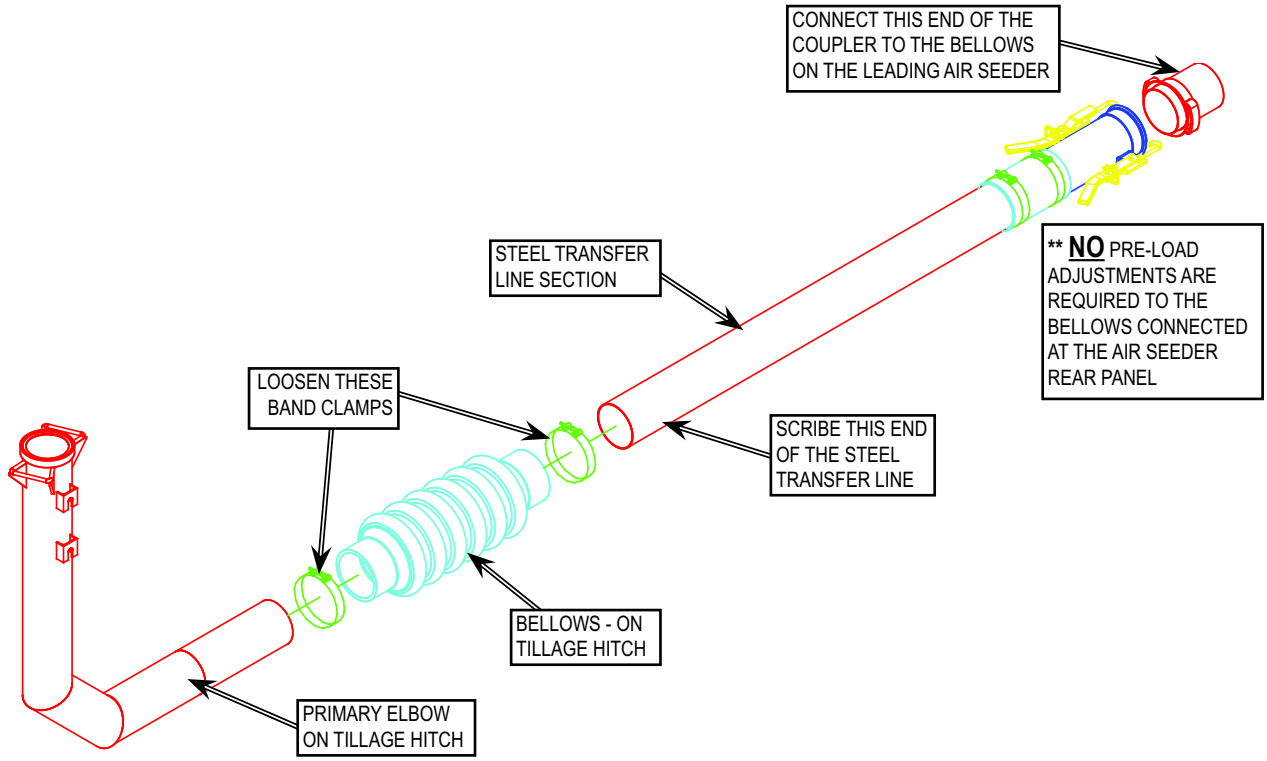


Figure 11.36b - LDG Transfer Line with Bellows

11.2.5 MAIN TRANSFER BELLOWS PRELOAD SETTING

It is important to set some compression (preload) to the Air Seeder bellows. The preload will give the bellows enough stretch when the seeding unit is turning in the headlands. Not enough preload may result in the bellows pulling out of the main transfer pipe.

Refer to *Figures 11.35 & 11.36*.

INSTRUCTIONS ARE GIVEN FOR A SINGLE TRANSFER LINE, COMPLETE THE PROCESS FOR EACH TRANSFER LINE ON THE UNIT.

1. Hook up the seeding unit as it would be used in the field. Refer to *Section 4.7* for this procedure. Park so that the air seeder and tillage units are straight.
2. Refer to *Figure 11.36a&b*. Unhook the quick coupler handles.
   a. For TBHD units, loosen the band clamps on either end of the steel transfer line and remove the bellows.
   b. For LDG units, loosen the clamps at the bellows near the primary elbow and remove the steel transfer line.
3. Refer to *Figure 11.35 - A*. Scribe a mark 4" (100 mm) and 7" (178 mm) from one end of the steel transfer pipe.
4. Slide the bellows onto the steel line to the 7" scribe mark as shown in *Figure 11.35 - B*. Tighten the band clamp so that the bellows is snug on the steel transfer line.

5a. **TBHD Units** - Slide the opposite end of the steel transfer line approximately 4" (100 mm) into the rubber transfer line. Hook the quick coupler end of the bellows to the seeding implement line. The line should be straight, but not in tension or compression.

5b. **LDG Units** - Slide the opposite end of the bellows onto the primary elbow approximately 4" (100 mm). Hook the quick coupler end of the tube to the air seeder. The line should be straight, but not in tension or compression.

6. Refer to *Figure 11.36*.
   a. **TBHD Units** - Tighten the band clamp at the rubber/steel transfer line connection.

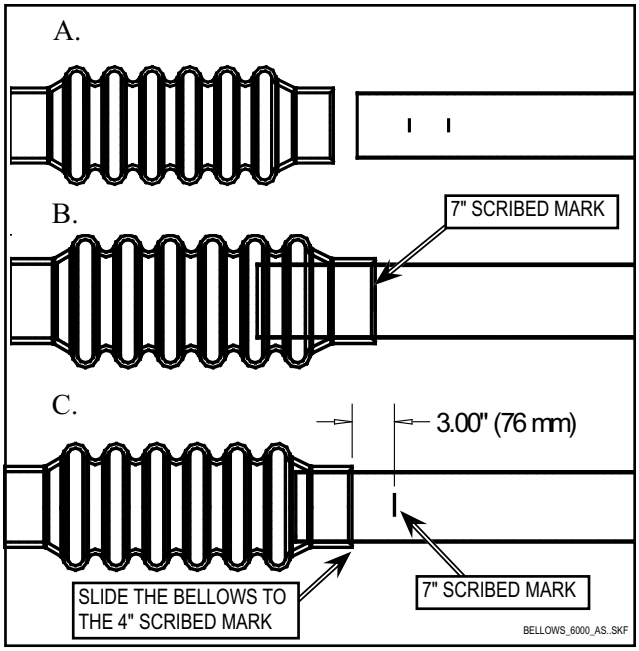


Figure 11.35 - Bellows Adjustment

   b. LDG Units - Tighten the band clamp at the bellows primary elbow connection.

Do not use plastic hand nuts to tighten the band clamps. Use a wrench to secure the clamps very tight.

7. Refer to *Figure 11.36*. Unhook the quick coupler handles.
   a. ALL Units - Loosen the band clamp holding the bellows to the steel transfer line.
8. Refer to *Figure 11.35 - C*. Slide the bellows to the 4" (100 mm) scribe mark. Tighten the band clamp around the bellows and steel transfer line.

IMPORTANT

FOR LDG UNITS - NO PRE-LOAD ADJUSTMENTS ARE REQUIRED TO THE BELLOWS CONNECTED AT THE AIR SEEDER REAR PANEL.

The bellows will now be slightly compressed when the seeding unit is straight. This will allow the transfer line to flex more when turning in headlands.

Turn the unit to see how well the bellows flex. Ensure that there is no excessive pulling on the bellows in a turn.

11.2.4 MAGNETIC CLUTCH SETTING

11.2.4.1 SECURING MAGNETIC CLUTCH

Ensure the tab of the electric clutch is positioned over the securing bolt or pin, but not held in place by a nut. The clutch must be allowed to move slightly to prevent binding and premature wear.

11.2.4.2 INSTALLING MAGNETIC CLUTCH

The main drive magnetic clutch is secured to the shaft with a backstop collar and a 3/8" x 2¼" fine thread bolt. This bolt is to be torqued to 30 ft/lbs (13.6 N/m).

The transmission magnetic clutch is secured to the shaft with a backstop collar and a 3/8" x 1" fine thread bolt. This bolt is to be torqued to 30 ft/lbs (13.6 N/m).

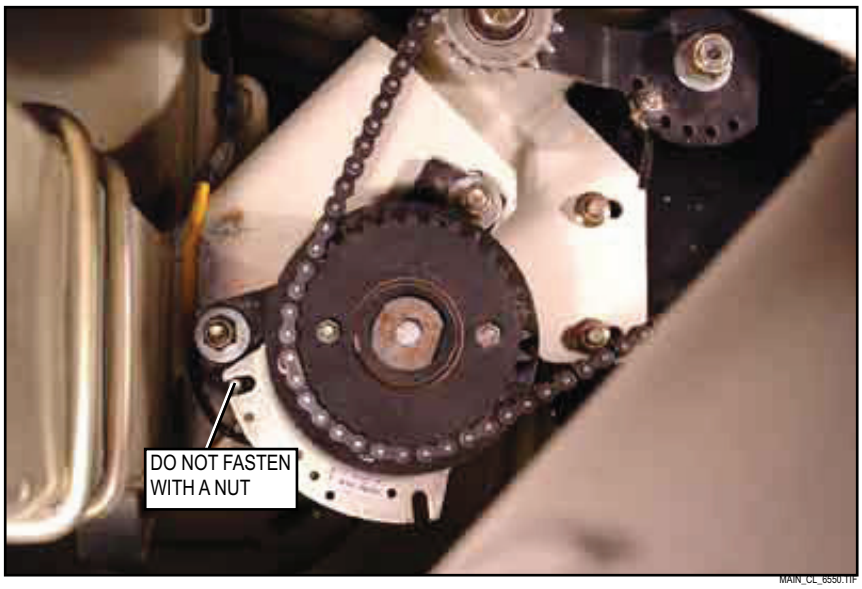


Figure 11.34 - Main Drive Magnetic Clutch

11.2.3.4.2 UNITS WITH ZRC (ZONE RATE CONTROL)

Units with the ZRC option installed DO NOT have Mux Bus adaptors installed. Controller boxes are installed on the units (these boxes are the "brains" of the system).

The target (sprocket) to Hall Effect sensor gap effects signal strength and is critical with these sensors.

a. The gap should be approximately 0.04" to 0.08" (1 mm to 2 mm), about the thickness of a coin.

Dirt that builds up on the sensor or the target can also affect signal strength. Keep them clean. Refer to *Figure 11.33* for the location of the ground speed sensors. The metering auger sensors are similar.

If the implement harness has been checked for continuity, power is reaching the sensor and the controller box and there is still a problem, contact your Bourgault Dealer for assistance or replacement parts.

11.2.3.5 BIN LEVEL SENSOR CHECKING

There are no LEDs to check on the optical bin level sensors. Check the implement harness for continuity and power reaching the sensor. Check that there is no objects or buildup obstructing the optical eye on the sensor If the readings do not agree, contact your Bourgault Dealer for assistance or replacement parts.

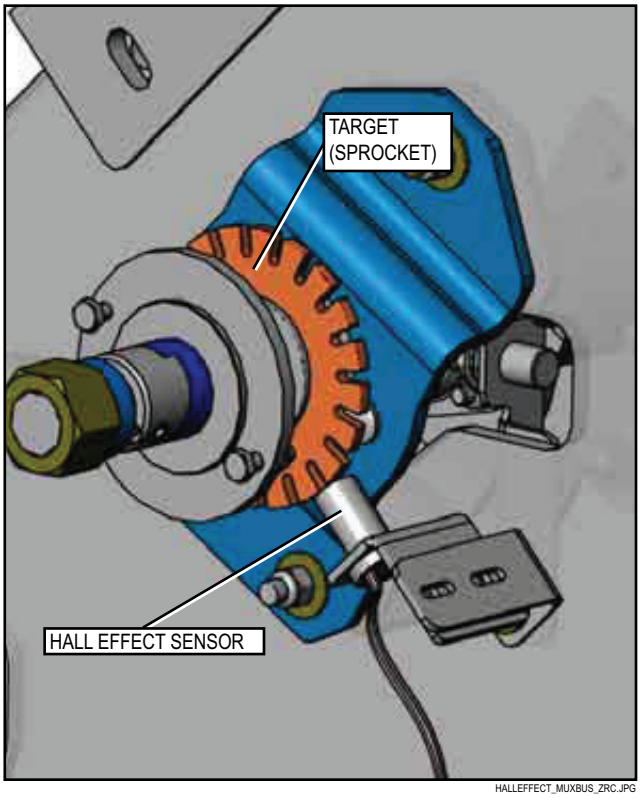


Figure 11.33 - Hall Effect for Ground Speed - Sensor Location

11.2.3.3 REPAIRING METRI-PACK CONNECTOR FAULTS

If a Metri-Pack connector at any junction shows signs of damage, disassemble the connector and look for problems. Refer to the following guidelines:

1. Remove the cover on the connector.
2. Clean all soil away from the pins as necessary. Check for broken or shorted wires and repair or replace.
3. Check if the correct colour wires go to the right pins as outlined in the wiring diagrams.

11.2.3.4 HALL EFFECT SENSOR/MUX BUS ADAPTOR CHECKING

11.2.3.4.1 UNITS WITH CRA (CAB RATE ADJUST) ONLY

Units with CRA installed, will have both the Hall Effect sensors and the Mux Bus adaptors installed.

To check that the Mux Bus adaptors are working, look on the adaptor for a red LED (Light Emitting Diode). This LED will flash at a low rate if the adaptor has power to it, but is not detected by the monitor. If the adaptor is not detected it must be relearned. Refer to *Section 5.3.3 Sensor Setup*.

- When the adaptor has power to it and is recognized, the LED will not flash. If a magnet is passed by the Hall Effect sensor, the LED on the adaptor will flash once for every pulse that it receives.
- If the LED fails to flash when the system is first powered up or if the light flashes indefinitely, then either the adaptor is faulty or some signals are not reaching the adaptor connector. There would also be a "Communication Alarm" message for that adaptor on the display at start-up. Refer to *Section 11.2.3.1 Harness Checking*.
- If the LED flashes a few times when the system is first powered up and then remains off while the shaft is rotating, then the monitor is able to communicate with the adaptor, but the adaptor is not picking up the signal from the Hall Effect sensor. Check the target to Hall Effect sensor gap. If this is okay, then the adaptor is faulty.

The target (sprocket) to Hall Effect sensor gap effects signal strength and is critical with these sensors.

a. The gap should be approximately 0.04" to 0.08" (1 mm to 2 mm), about the thickness of a coin.

Dirt that builds up on the sensor or the target can also affect signal strength. Keep them clean. Refer to *Figure 11.32* for the location of the ground speed sensors. The metering auger sensors are similar.

If the implement harness has been checked for continuity, power is reaching the sensor and the controller box and there is still a problem, contact your Bourgault Dealer for assistance or replacement parts.

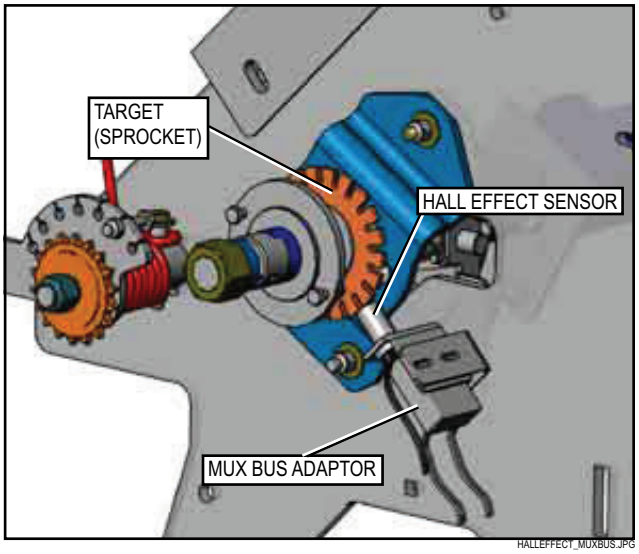


Figure 11.32 - Hall Effect with a Mux Bus Adaptor for Ground Speed

Refer to the harness drawings (*Figures 11.24 to 11.29*). Devise a test to help identify a fault in the circuit (such as: engage clutch and measure; disengage and measure again). At a suspect connector, with the system powered down, check for shorts from each pin to chassis ground and between adjacent pins. If the fault cannot be localized, or if it can be but is not visible, the harness may need replacement.

11.2.3.2.1 CONNECTION TERMINALS

- The connectors may be disassembled to check for damage, corrosion, or dirt.
- Check that the correct coloured wires are connected to the connector positions according to the harness drawings (this assumes that the system has not previously functioned properly with all the same equipment it now has). Refer to *Section 11.3 Monitor & Clutch Cable Layouts*.

11.2.3.2.2 LOOKING FOR OPEN CIRCUITS ON THE HARNESS

1. Start with the voltage measurements. Disconnect one sensor from the harness, preferably the problem sensor, if one has been identified. Check for pin to pin values as previously described.
    - If the measurements taken are good, the removed sensor is likely in need of repair or replacement.
    - If the measurements are bad, but the whole system, except one sensor, was functioning normally, the problem should be isolated to the branch feeding that sensor. The harness should be repaired or replaced.
2. Try to find out if levels are faulty at other points in the system. A good test is to measure on the monitor side of the junction bringing monitor signals to the rest of the system (rear of tractor).
    - If measurements there are bad, the problem is somewhere between the monitor and that junction. Isolate the fault to the monitor connector, the junction connector, or on either side of a monitor-to-monitor junction extended harness if present. Identify, and repair or replace the faulty connector, monitor, or monitor-to-junction harness.
    - If the signals reaching the junction are good, reconnect the monitor junction and take more voltage measurements across the harness.
    - If all sensors give the same faulty measurement, check the connector at the incoming junction.

NOTE

IF SOME SENSORS GIVE A FAULTY MEASUREMENT, WHILE OTHERS READ GOOD, THE PROBLEM IS INTERNAL AND THE HARNESS WILL NEED TO BE REPLACED.

11.2.3.2.3 SUGGESTIONS

- When looking for problems that are associated with pins other than those on the basic three wire bus, consult the wiring diagrams (*Figures 11.24 to 11.29*). A long wire can be used to extend to one of the meter leads to check the continuity from a pin on one harness connector to the corresponding pin at another connector on the harness.
- When possible, disassemble the connectors of a suspect harness and check for visible signs damage, such as broken wires or wires which have come out of their screws. If the fault is not visible, the harness may need to be replaced.
- If, after disassembling the connectors, no obvious faults have been found, check that the correct coloured wires are connected to the connector positions according to the wiring diagrams (this assumes that the system has not previously functioned properly with all the same equipment it now has). The harness may be incompatible with the system that has been introduced.

- *Example: In one reading, with the incoming supply was measuring 13.6V, while the supply to a sensor was 12.9V.*

The voltage between the data line and the ground rapidly alternates between a high state of about a volt less than the sensor supply voltage (when no messages are travelling), and a low state of less than 1V above ground. A DC voltmeter will tend to average out the fluctuations.

With everything operating normally, the average value on the data line is close to but less than the high state voltage.

- *Example: One sample measurement was 9.7V, while the supply to the sensor was 12.9V.*

These voltages should not vary extremely depending on how many sensors are connected to the harness.

If one or more of the sensors is absent at start-up, the monitor will display the "UNABLE TO LOCATE SENSOR" message and will wait for a new sensor to be connected. In this case, the data line will be much less busy than normal, and a slightly higher than average voltage may be expected.

Example: One sample measurement showed 11V.

Resistance measurements should be done with the monitor turned off. Readings on the harness connectors may differ slightly according to the number of sensors connected and whether or not the monitor is connected.

NOTE

EXPECT VERY HIGH OHMS (FROM HUNDREDS OF KILO-OHMS UP TO SEVERAL MEGA-OHMS) BETWEEN THE SUPPLY AND GROUND LINES. SIMILAR READINGS MAY BE EXPECTED BETWEEN THE SUPPLY AND DATA LINES. EXPECT LOWER VALUES, IN THE RANGE OF 100 OHMS (0.1K) TO 10 KILO-OHMS, BETWEEN THE DATA LINE AND GROUND. VALUES SHOULD DECREASE WITH EACH ADDITIONAL CONNECTED SENSOR.

Similar readings may be expected when measuring resistance values of a single disconnected sensor.

11.2.3.2 SHORT CIRCUITS ON THE HARNESS

For the three sensor bus lines (power, ground and data), all pin to pin resistance measurements should be at least 100 ohms or much higher. A short circuit will show much less resistance (a few ohms or less) between any two of those points.

Note that every ohms measurement sees all parallel paths. It may be necessary to disconnect harness junctions and the monitor and successive sensors until the measured short goes away.

If there is a suspicion of a short;

- Disconnect the rear tractor junction and measure on both sides:
  - If a short appears on the monitor side, the junction connector or monitor has the short.
  - If a short appears on the harness side, proceed to check the remaining harnesses.
- For tow behind units, disconnect the cultivator harness from the air seeder harness. Measure both ends:
  - If a short appears on the cultivator harness side, check the cable and connectors for shorts.
  - If a short appears on the air seeder harness side, continue to check the harness and sensors.
- Disconnect the individual sensors, with a measurement performed on the air seeder harness after each step. When the problem disappears after a disconnect, the last item removed was the problem item.
  - The sensor connections should be carefully examined for the short and repaired or replaced.
  - If the short persists after all of the sensors have been unplugged from the harness, the problem is in the harness itself. The entire span of the harness, and especially all of its connectors, should be carefully examined. Repair or replace the air seeder harness.

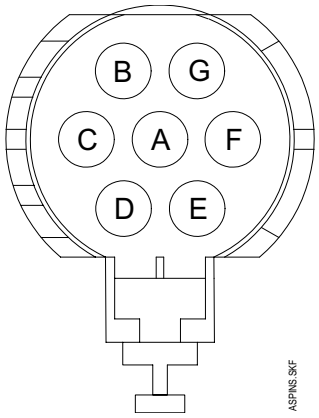
11.2.3 IMPLEMENT HARNESS AND SENSOR CHECKING

Most problems with agricultural electronics are mechanical in nature. Problems with the harness connections and sensors are the most common. The sensors used are Smart sensors and will report any problems that may occur on the monitor.

11.2.3.1 HARNESS CHECKING

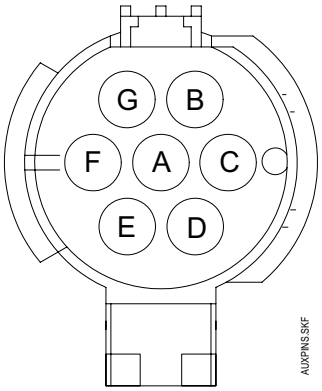
If a problem occurs with the continuity of the implement harness, check for broken connections, loose terminals or loose wires in the connectors at each terminal of the harness. An ohm meter can be used to check the continuity of the wiring harness through the connector pins on the terminals. Refer to *Figures 11.24 to 11.29* for electrical layouts, and *Figures 11.56 to 11.76* for harness and switch schematics.

11.2.3.1.1 MULTIPLEXED IMPLEMENT HARNESS



B ..... Main Drive Clutch
G ..... Sensor Data Transmission
C ..... Auxiliary Clutch Power
E..... Sensor Power
D ..... Auxiliary Clutch Ground
A ..... Drive Clutch Ground
F..... Sensor Ground

11.2.3.1.2 AUXILIARY CLUTCH HARNESS



A ..... Front Clutch Power
B ..... Front Clutch Ground
E..... Centre Clutch Power
D ..... Centre Clutch Ground
G ..... Rear Clutch Power
F..... Rear Clutch Ground

If you cannot find the problem, contact your Bourgault dealer for assistance.

11.2.3.1.3 METER MEASUREMENTS ON THE HARNESS CONNECTORS

The basic three wire connector at each sensor, consist of three conductors. Harness junctions have more than three lines because the clutch wires are also present. The pinout of the basic connectors that feed the sensors on the air seeder harness is as follows:

A) white or red.....positive supply

B) black .....ground

C) green .....data transmission

11.2.3.1.4 VOLTAGE MEASUREMENTS

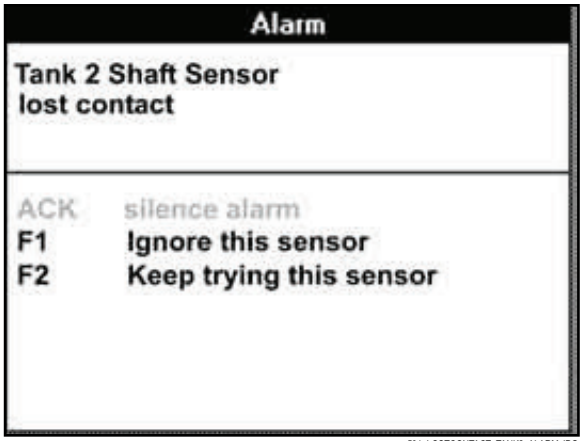
These measurements should be done on equipment that is powered up. With the monitor powered up, the voltage;

- between supply and ground at a sensor
- between supply and harness junction after the monitor

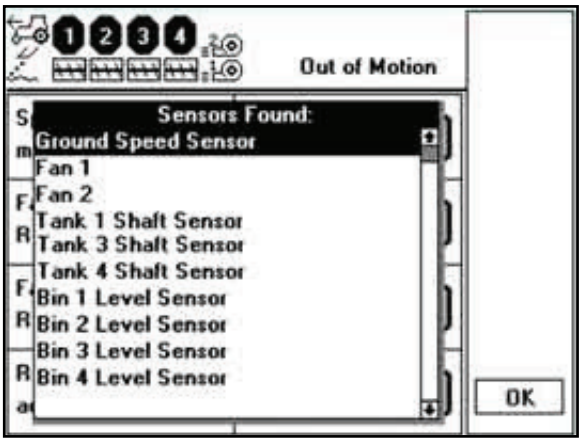
should be at about 0.7V less than the voltage between the incoming supply and ground (the two wire connection from the battery to the monitor).

11.2.2.3.2 COMMUNICATION FAILURE

- During operation, a **lost contact** is displayed for a specific sensor.
- Power down the monitor and start it again. If the monitor cannot locate a specific sensor, it will be missing from the sensors found screen.
- The next screen will prompt the operator to reinstall the problem sensor.
- Check the sensor and connection. If the connection is restored, the monitor will recognize the sensor again. A double beep will be emitted before resuming normal operation. If more than one sensor is being checked or replaced, it will be necessary to do a Sensor Setup. Refer to *Section 5.3.3 - Sensor Setup*.
- If the connections are good, but the monitor does not pick up the sensor, the sensor may need replacing.
- Intermittent error messages may be related to a short in the harness, sensor connection, or the sensor itself. Shaking or tugging at the harness in different locations can be very helpful in between or during tests. Moist soil in the harness connectors may also be responsible for intermittent operation. Refer to *Section 11.2.3 - Implement Harness and Sensor Checking* for their repair and cleaning.



591_LOSTCONTACT_TANK2_ALARM.JPG



591_SENSORSFOUND.JPG

11.2.2 MONITOR CHECKING - 591

11.2.2.1 MONITOR DISPLAY DOES NOT WORK WHEN TURNED ON

11.2.2.1.1 CHECK POWER SUPPLY

- Check that the power cable is connected correctly at the power source. The white or red wire should be connected to the positive "+" and the black wire should be connected to the negative "-".
- Check to see that the battery voltage is good. This monitor requires a voltage of 12V DC, and will not operate at a voltage lower than 8V DC.
    - Disconnect the power cable from the monitor box and check the voltage on the battery side. If it is not good, the problem is the wiring from the battery. Replace or repair any faulty components.
    - If all tests show that a good power supply is reaching the monitor, check for problems with the monitor itself or the wiring harness beyond the monitor.

11.2.2.1.2 CHECK MONITOR

- Disconnect the air seeder harness from the monitor at the tractor junction, isolating the monitor from the rest of the system. Turn the monitor "ON".
    - If the display now works (**lost contact** messages are expected since the sensors are not connected), the monitor and its supply are okay. The problem is beyond the disconnected junction. Refer to the sections on checking harnesses and sensors.
    - If the monitor display still does not work, it is likely that the monitor itself is faulty. Replace the monitor and try again.

11.2.2.2 DISPLAY BACKLIGHTING COMES ON BUT DISPLAY REMAINS BLANK

If the display backlighting comes on but the display remains blank or shows nonsense characters, the monitor is faulty and will need repair or replacement.

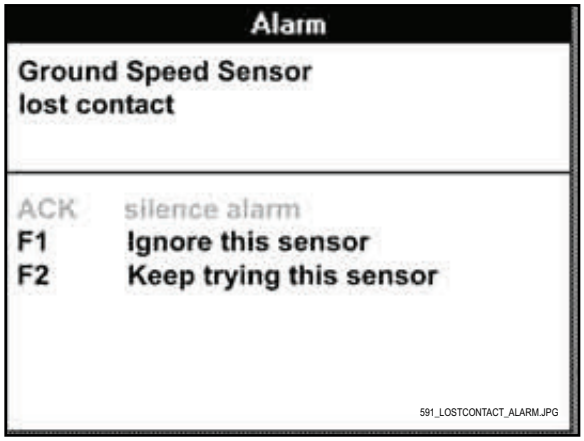
If the backlight fails to come on while the monitor functions correctly, the problem is internal and the monitor will need repair or replacement.

11.2.2.3 MONITOR STARTS UP, BUT FREQUENT "LOST CONTACT" MESSAGES

The **lost contact** message(s) appear when the monitor detects a loss of its ability to communicate with one or more sensors after a good start-up.

11.2.2.3.1 SYSTEM FAILURE

- During operation, a series of **lost contact** displays are activated. All of the sensors will display an error message.
- Power down the monitor and start it again. If the monitor cannot locate any sensors, the monitor will proceed to prompt the operator to connect/replace sensors.
- Check the air seeder harness for breaks or a disconnection.
- Refer to *Section 5.6.3 System Alarm*.



11.2.1.3 SEALING THE TRANSMISSION

Should a transmission be opened for repair or replacement of parts, reseal the transmission with a silicone sealant such as Loctite #5910RTV silicone.

11.2 MAINTENANCE

By following a careful service and maintenance program for your machine, you will enjoy many years of trouble-free service.

11.2.1 TRANSMISSION DRIVE

11.2.1.1 TRANSMISSION GAUGE ADJUSTMENT

All transmission gauges are calibrated to the transmission at the factory. It is critical for the transmission to be calibrated to accurately reflect the rate charts. If the transmission gauge has been moved or is out of adjustment, the gauge must be recalibrated. Follow the steps given in the Rate Chart Manual.

11.2.1.2 TRANSMISSION DRIVE RATIO CHECK

The transmission drive ratio for 6000 Series Air Seeders is a ***1:1.1 RATIO***.

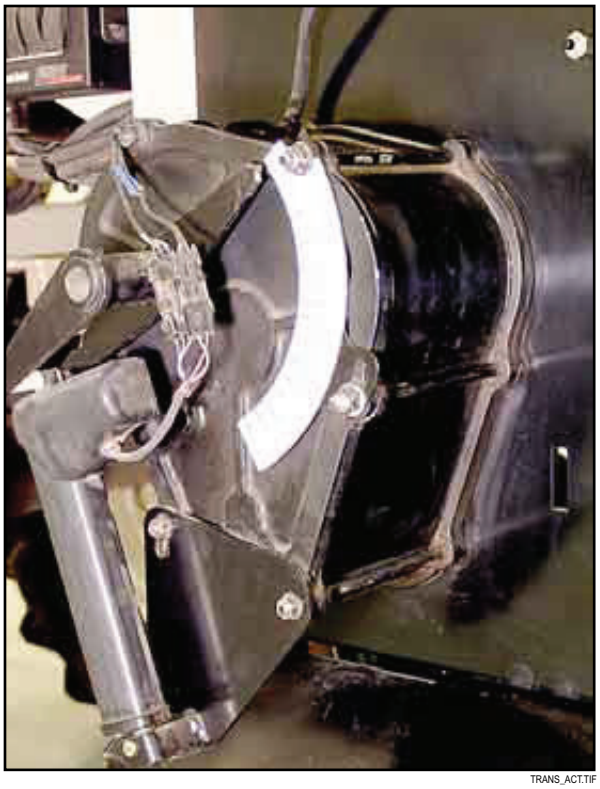
Refer to *Figure 11.30*.

To check that the transmission is working correctly;

1. Set the transmission (that is being checked) to the ***MAXIMUM*** setting (the indicator may go past the 100 setting on the decal). Set all other transmissions to ***ZERO***.
2. Make a mark on both the input and output shaft to mark the starting location of the sprockets.
3. Unhook the meter auger drive chain for the transmission that is being checked, so that there is no load on that drive.
4. If the unit has individual drive clutches, engage the clutch before starting.
5. Turn the input shaft ***one clockwise*** revolution. The output shaft should rotate approximately 1.1 revolutions.

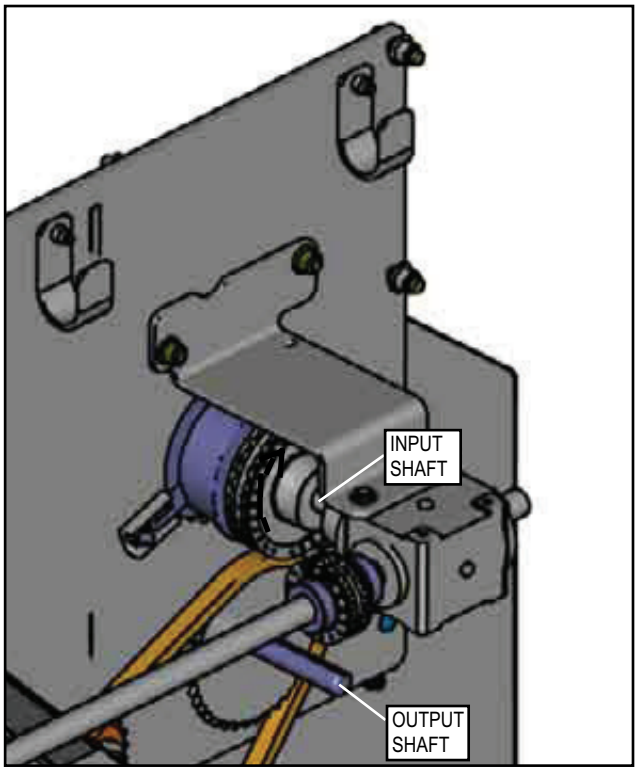
IMPORTANT

THIS CHECK MUST BE PERFORMED BY TURNING THE INPUT SHAFT ***CLOCKWISE***. IF THE SHAFT IS TURNED COUNTER CLOCKWISE, THE OUTPUT SHAFT WILL ONLY ROTATE ABOUT 0.8 OF A TURN - GIVING AN INCORRECT READING.



TRANS_ACT.TIF

Figure 11.30 - Transmission Drive



CHAIN_ASSY.TIF9

Figure 11.31 - Transmission Shafts

On the *AIR SEEDER Chassis*

AN EXTENSION HARNESS (3120-72-02) IS REQUIRED BETWEEN THE TANK #2 AND TANK #3 CLUTCHES AND THE MULTI-CLUTCH REMOTE SWITCH BOX (3120-72-03) AT THE POINTS MARKED **A** FOR 6450/6550 AIR SEEDERS

Attach these connectors to the *TILLAGE Unit CONNECTORS (for TBHD Units) or DIRECTLY to the Harnesses from the TRACTOR Cab (for LDG Units)* Shown on the adjacent page

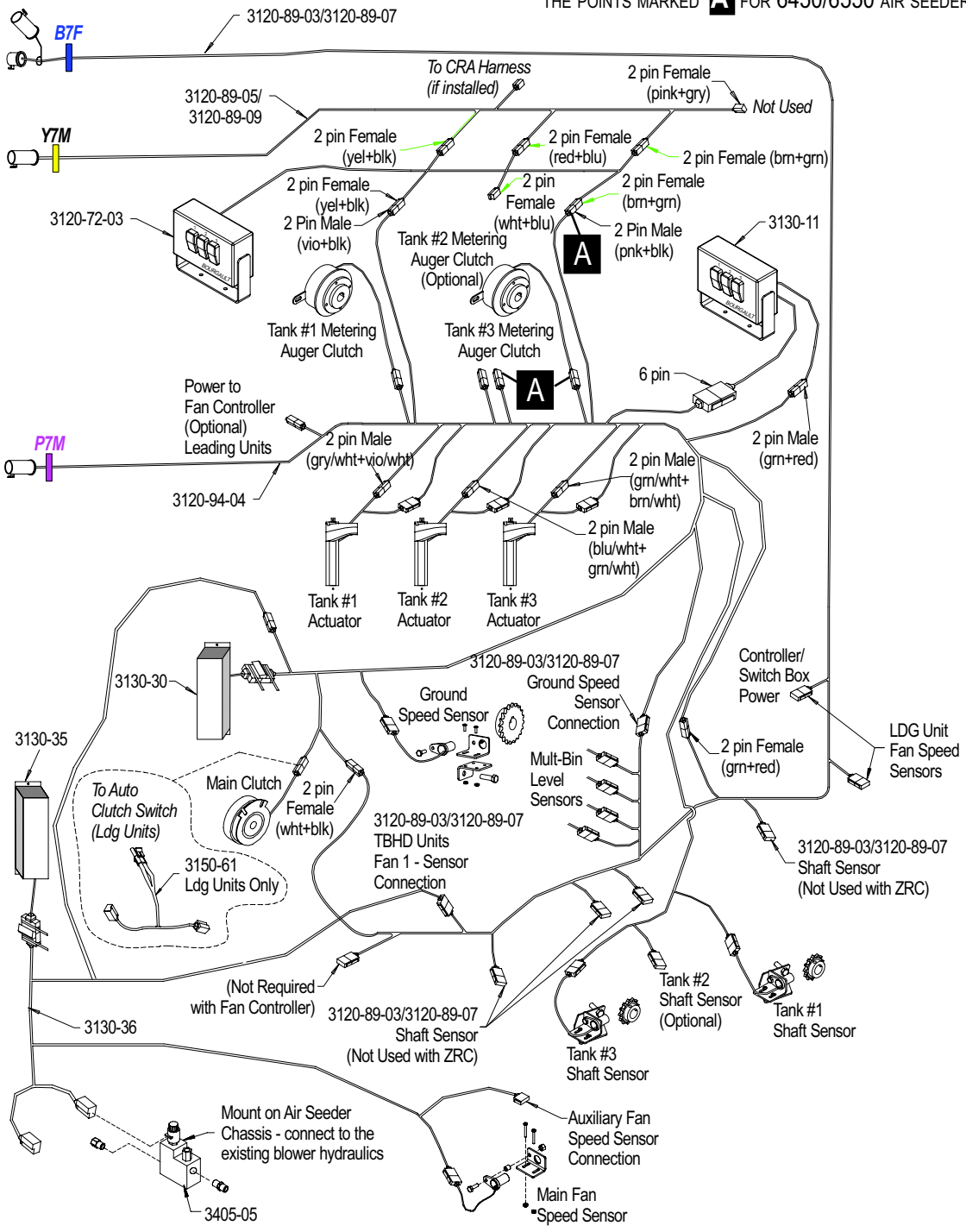


Figure 11.29 - 591 Monitor Wiring Schematic with ***ZRC, Multi-Clutch Switch Boxes and Fan Controller***

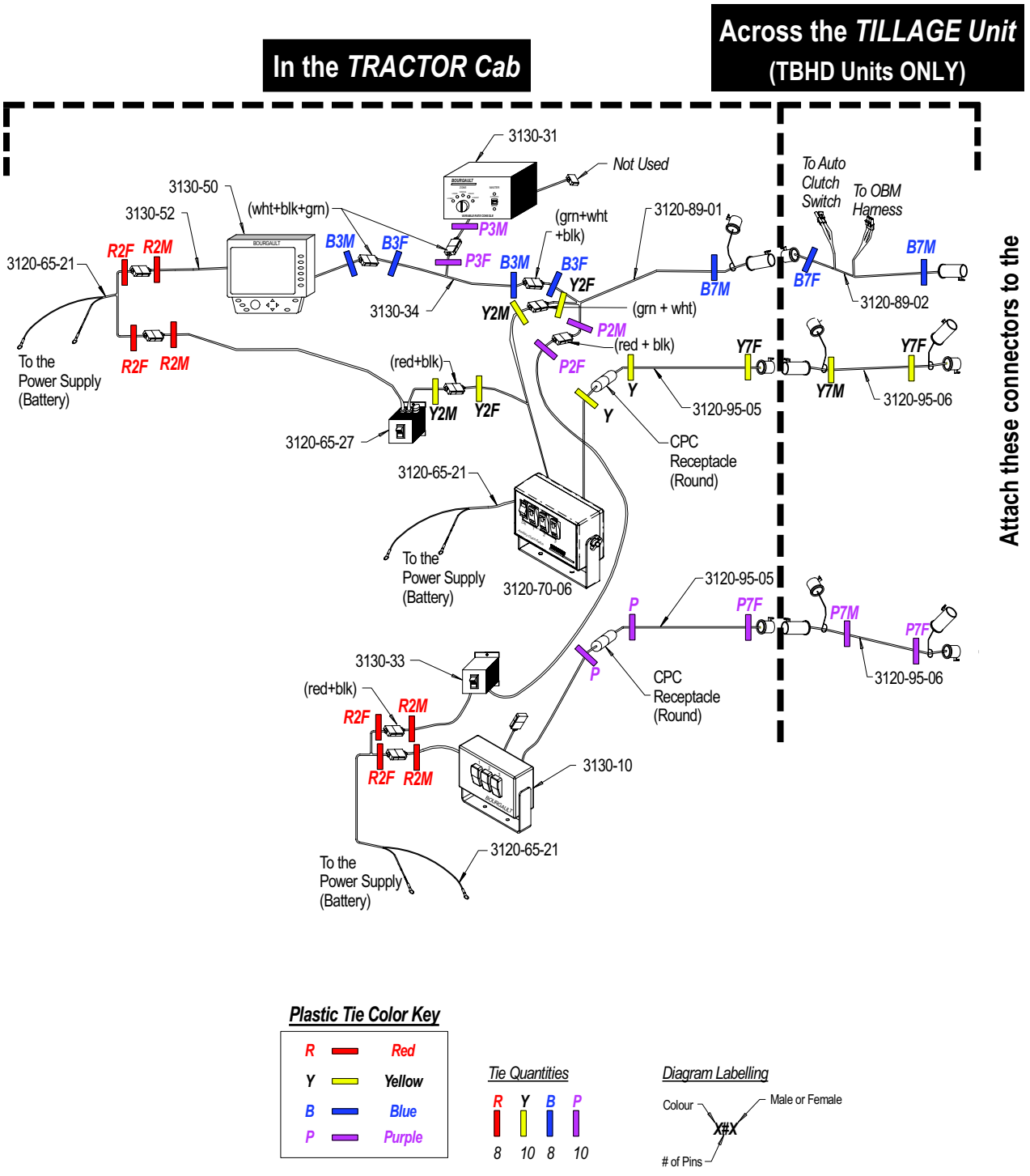


Figure 11.29 - 591 Monitor Wiring Schematic with ***ZRC, Multi-Clutch Switch Boxes and Fan Controller***

02529509_ZRC_CLTCH_HARN_TIES_6000FAN.SKF

On the *AIR SEEDER Chassis*

AN EXTENSION HARNESS (3120-72-02) IS REQUIRED BETWEEN THE TANK #2 AND TANK #3 CLUTCHES AND THE MULTI-CLUTCH REMOTE SWITCH BOX (3120-72-03) AT THE POINTS MARKED **A** FOR 6450/6550 AIR SEEDERS

Attach these connectors to the *TILLAGE Unit CONNECTORS (for TBHD Units) or DIRECTLY to the Harnesses from the TRACTOR Cab (for LDG Units)* Shown on the adjacent page

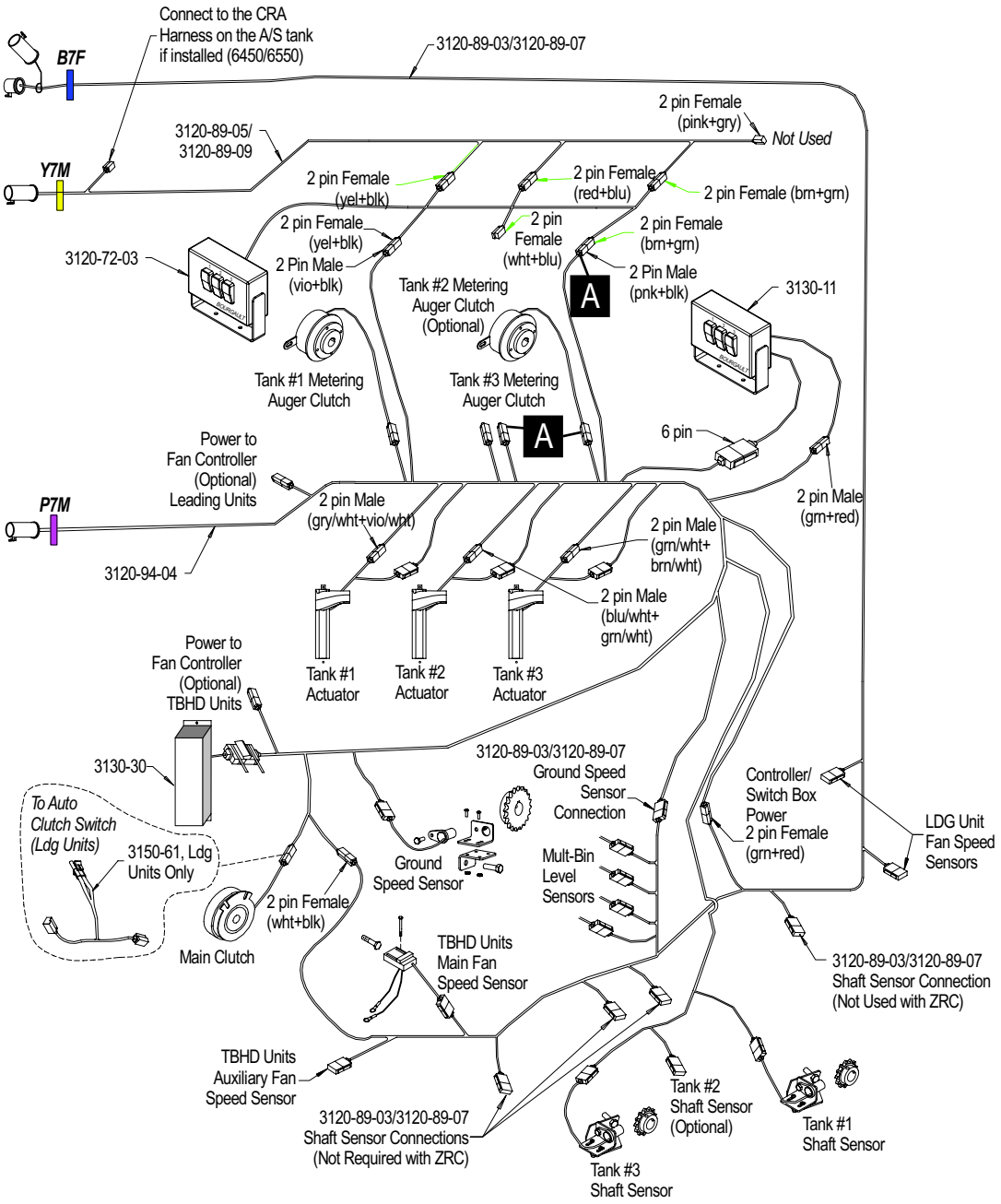


Figure 11.28 - 591 Monitor Wiring Schematic with ***ZRC and Multi-Clutch Switch Boxes***

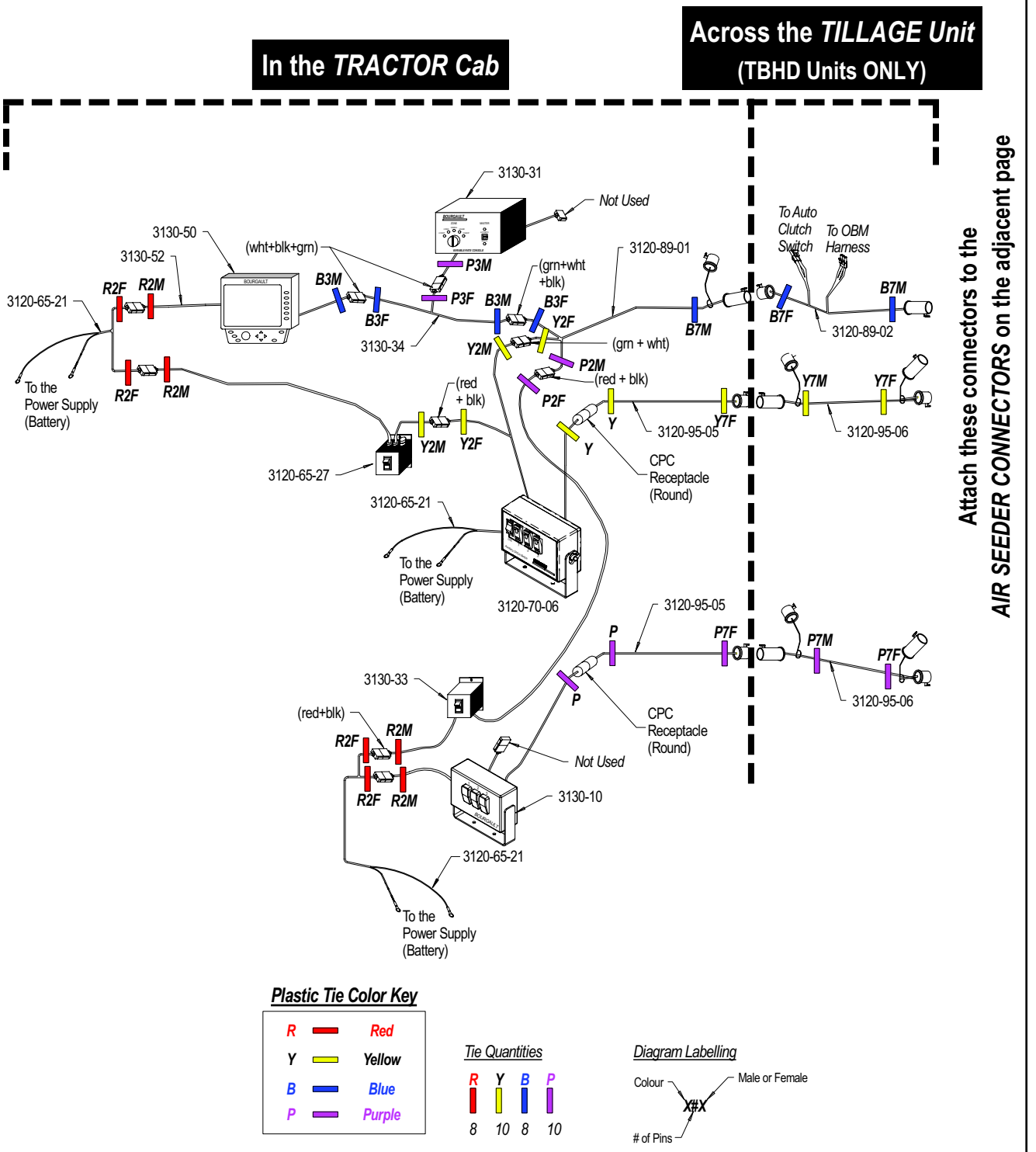


Figure 11.28 - 591 Monitor Wiring Schematic with ***ZRC and Multi-Clutch Switch Boxes***

On the *AIR SEEDER Chassis*

Attach these connectors to the *TILLAGE Unit CONNECTORS (for TBHD Units) or DIRECTLY to the Harnesses from the TRACTOR Cab (for LDG Units)* Shown on the adjacent page

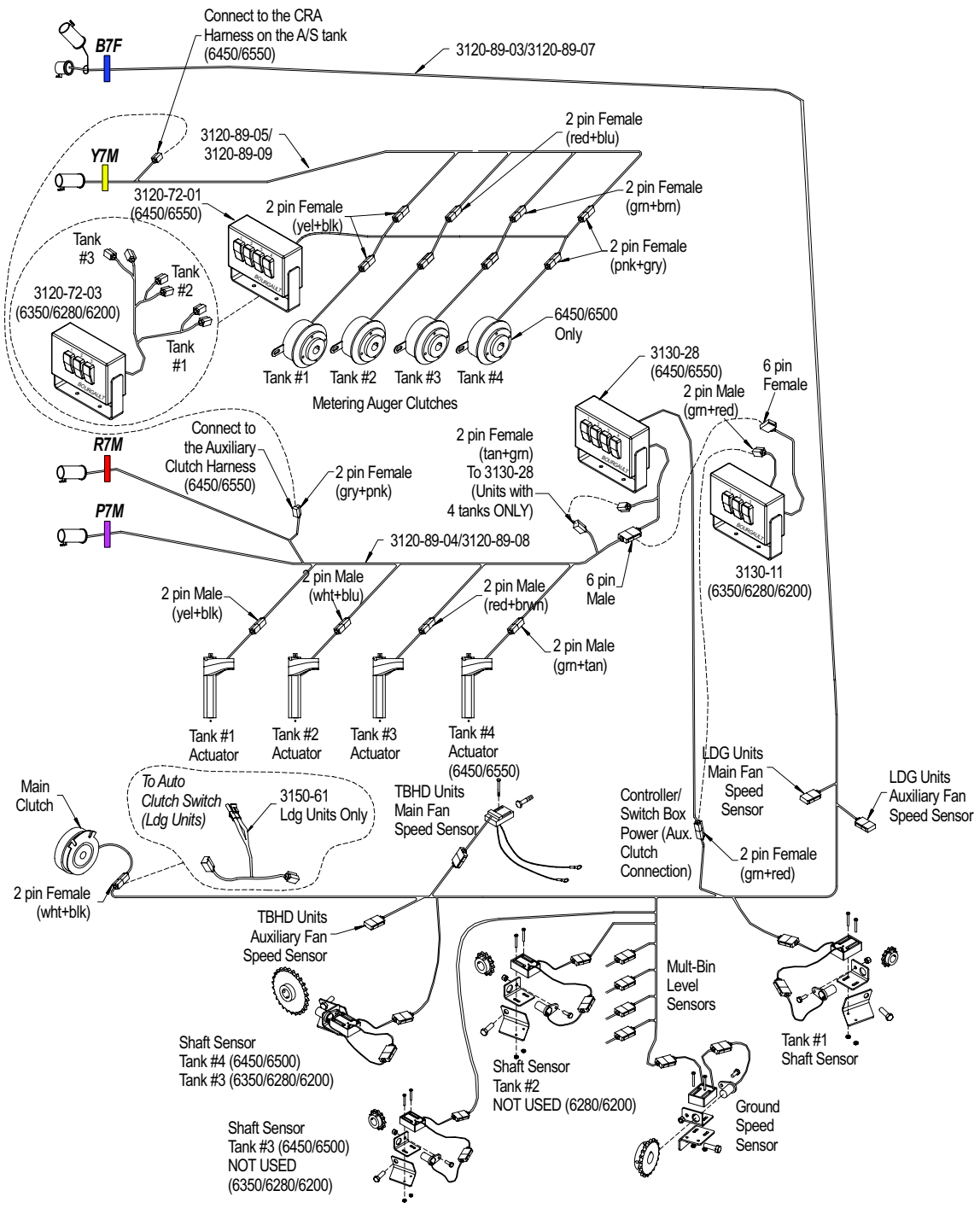


Figure 11.27 - 591 Monitor Wiring Schematic with ***CRA and Multi-Clutch Switch Boxes (6550ST - 6200)***

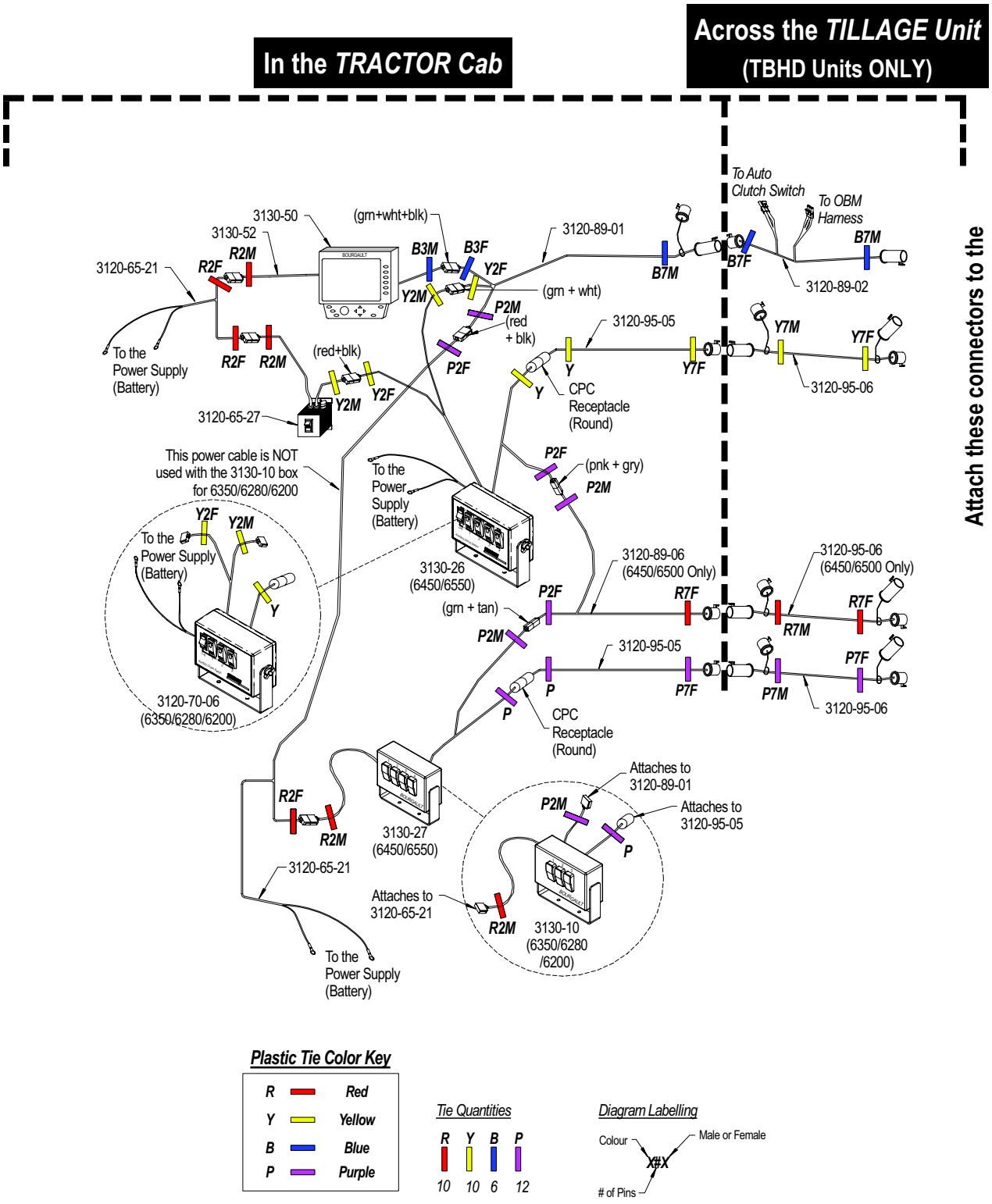


Figure 11.27 - 591 Monitor Wiring Schematic with ***CRA and Multi-Clutch Switch Boxes (6550ST - 6200)***

On the *AIR SEEDER Chassis*

Attach these connectors to the TILLAGE Unit CONNECTORS (for TBHD Units) or DIRECTLY to the Harnesses from the TRACTOR Cab (for LDG Units) Shown on the adjacent page

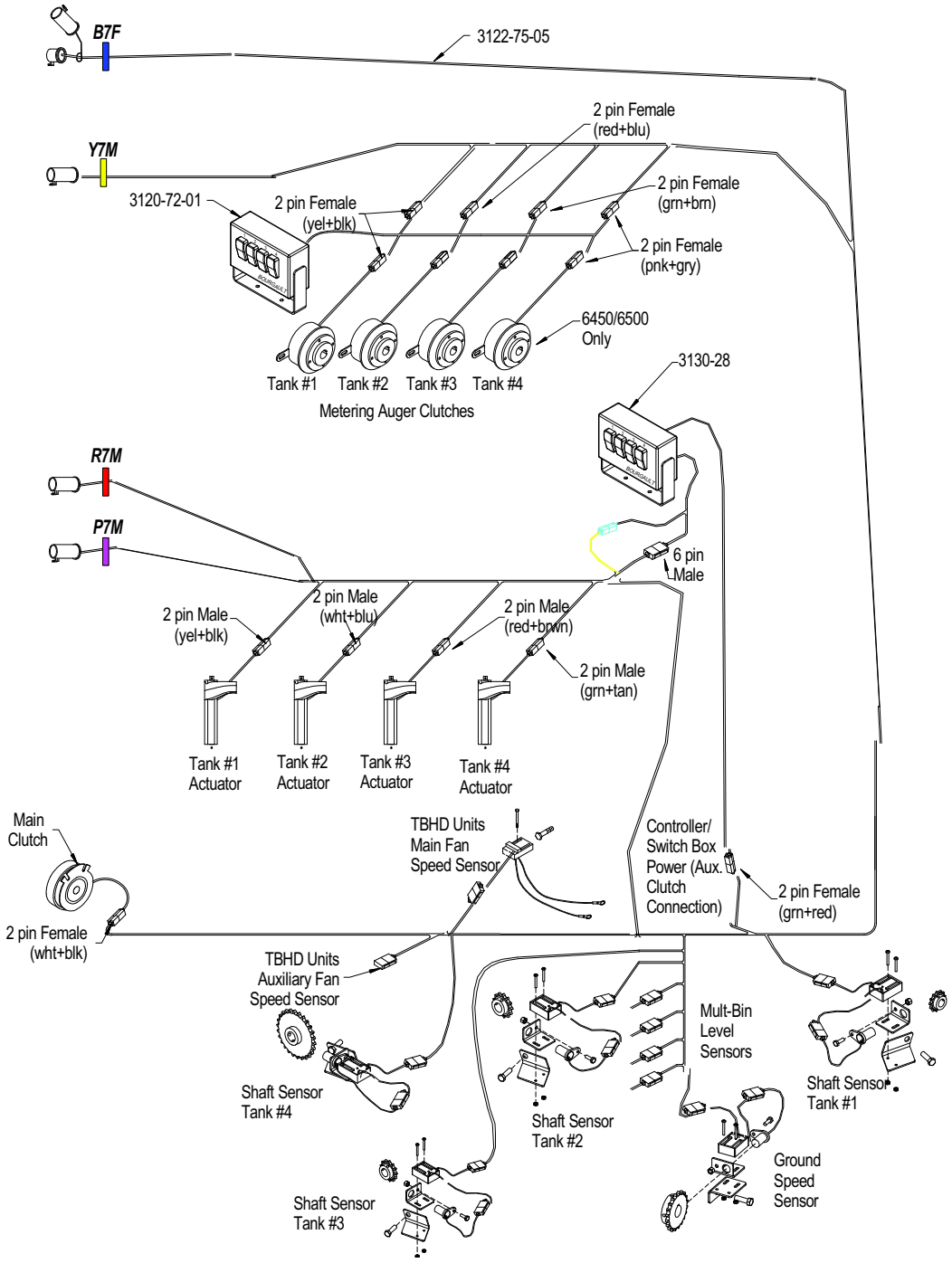


Figure 11.26 - 591 Monitor Wiring Schematic with ***CRA and Multi-Clutch Switch Boxes (6700ST)***

CRA_CLTCH_HARN_TIES_6700.SKF

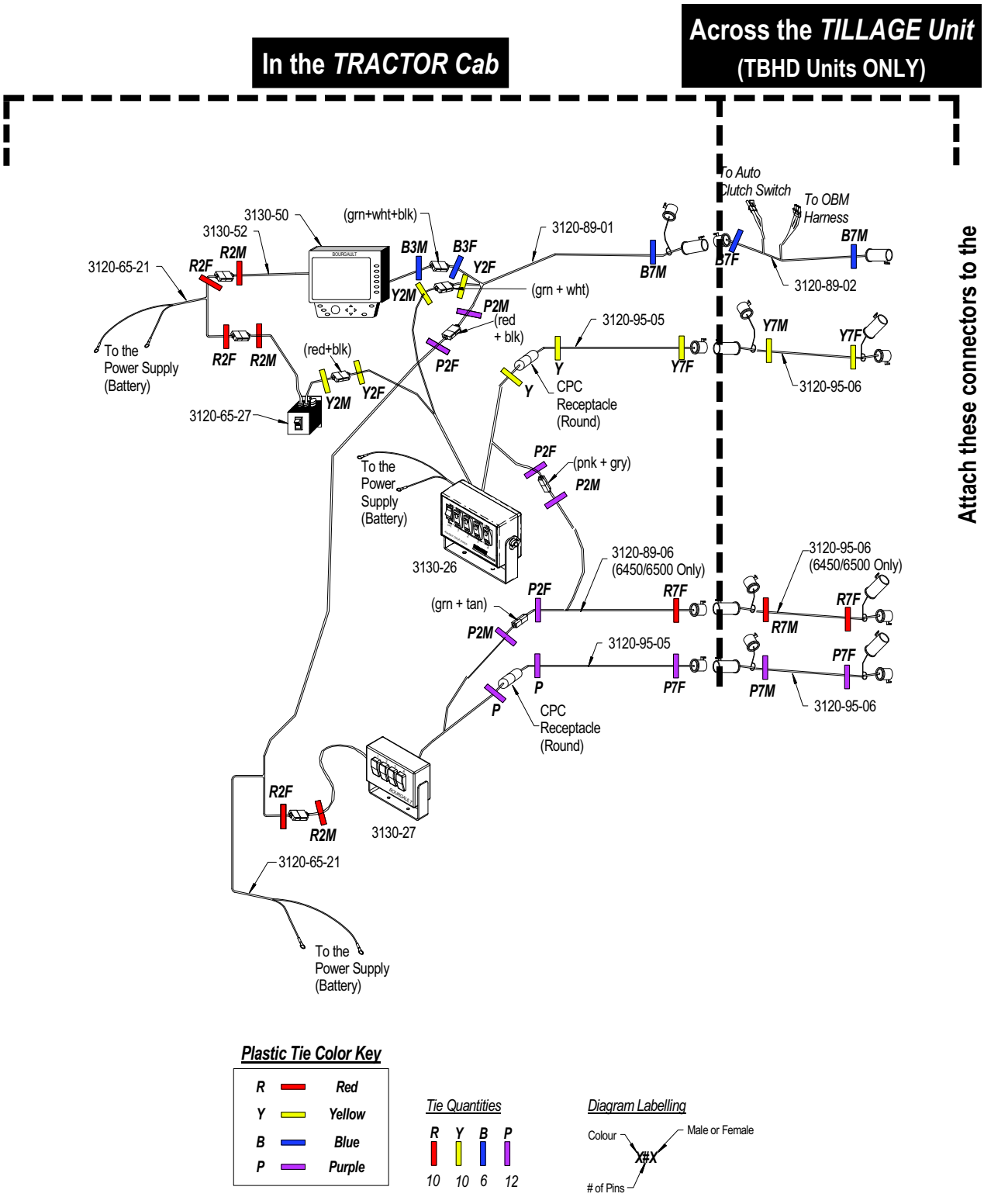


Figure 11.26 - 591 Monitor Wiring Schematic with ***CRA and Multi-Clutch Switch Boxes (6700ST)***

CRA_CLTCH_HARN_TIES_6700.SKF

Attach these connectors to the *TILLAGE Unit CONNECTORS (for TBHD Units) or DIRECTLY to the Harnesses from the TRACTOR Cab (for LDG Units)* Shown on the adjacent page

On the *AIR SEEDER Chassis*

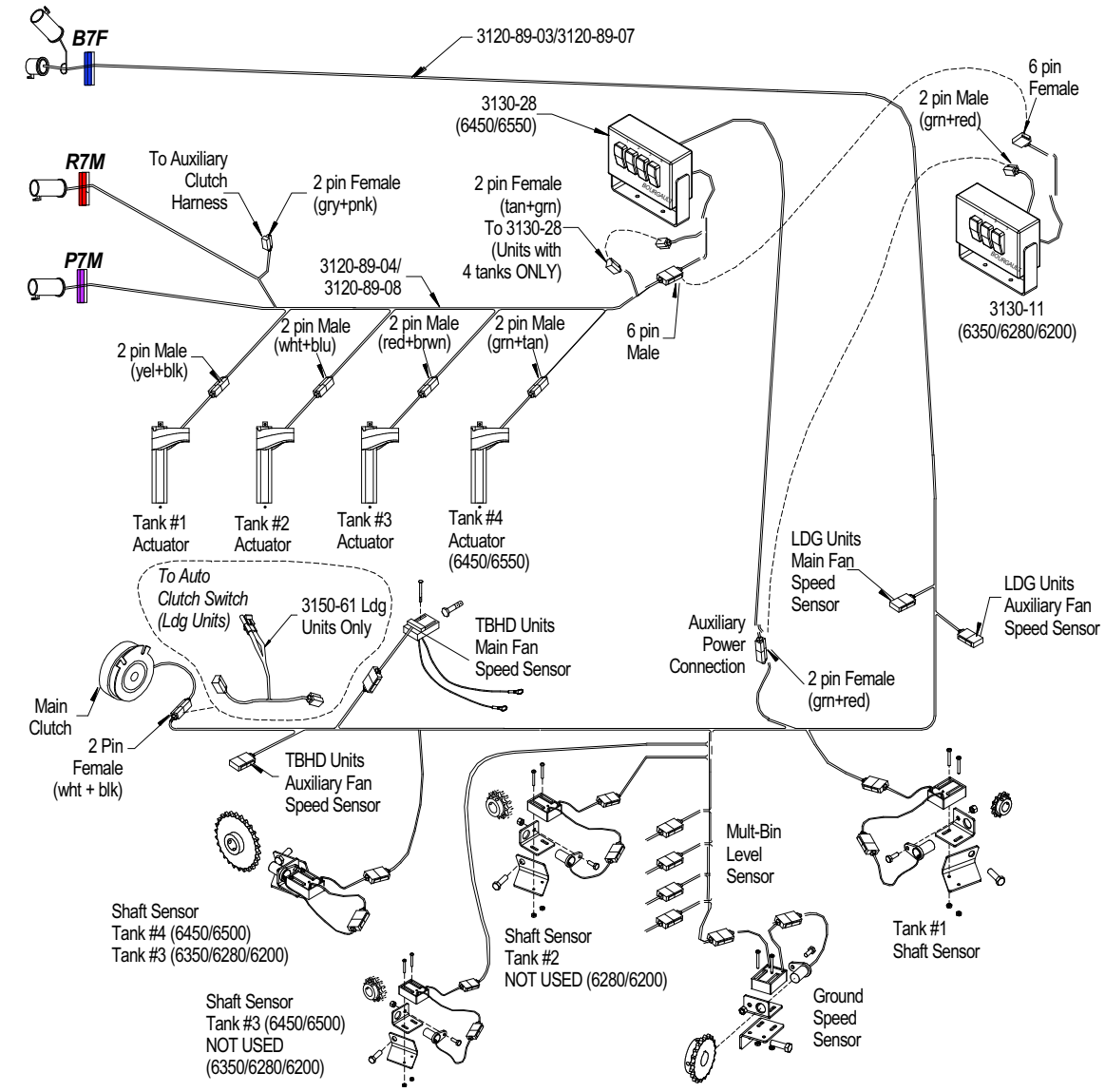


Figure 11.25 - 591 Monitor Wiring Schematic with ***CRA (No Clutches)***

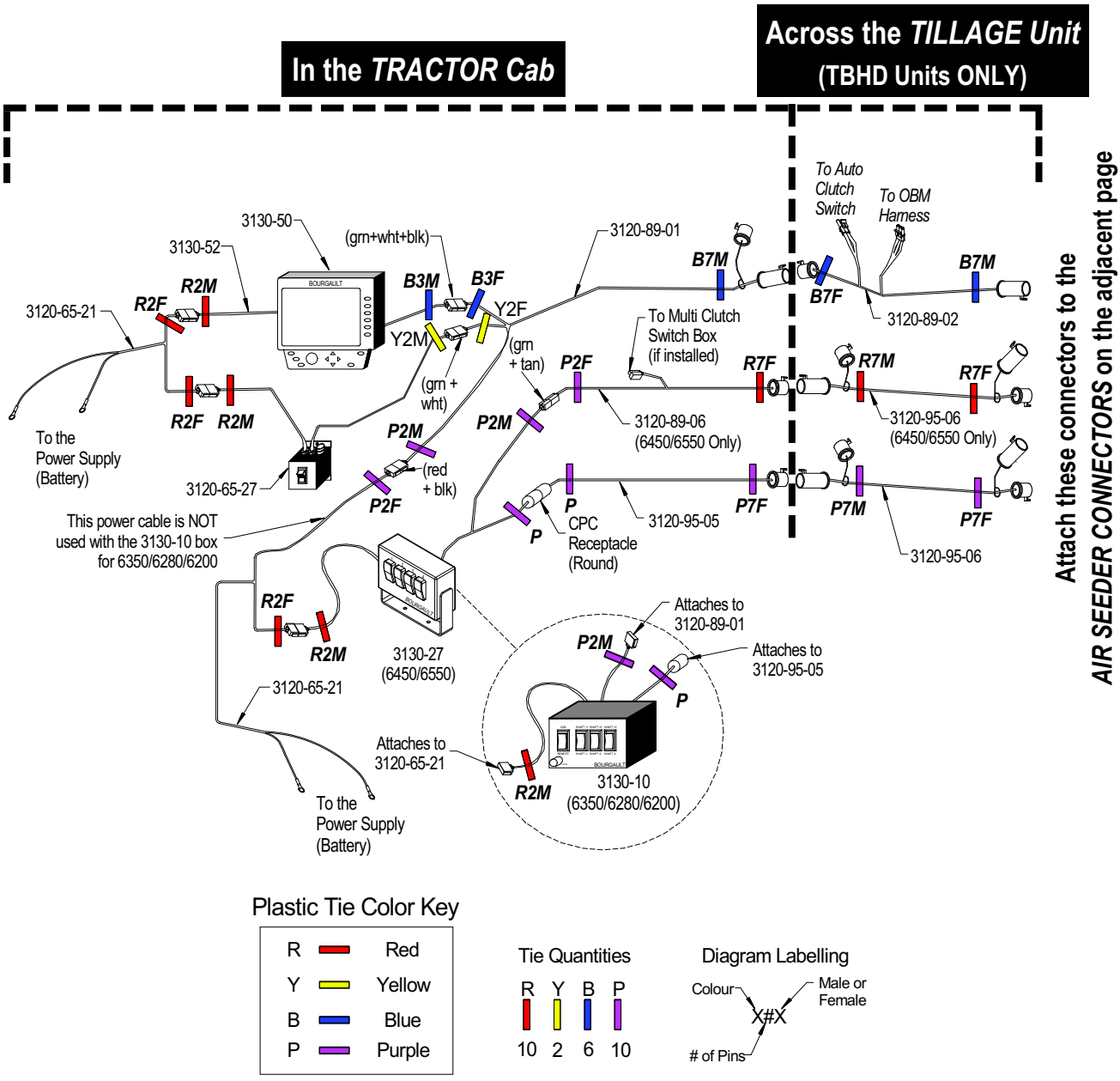


Figure 11.25 - 591 Monitor Wiring Schematic with ***CRA (No Clutches)***

On the *AIR SEEDER Chassis*

Attach these connectors to the *TILLAGE Unit CONNECTORS (for TBHD Units) or DIRECTLY to the Harnesses from the TRACTOR Cab (for LDG Units)* Shown on the adjacent page

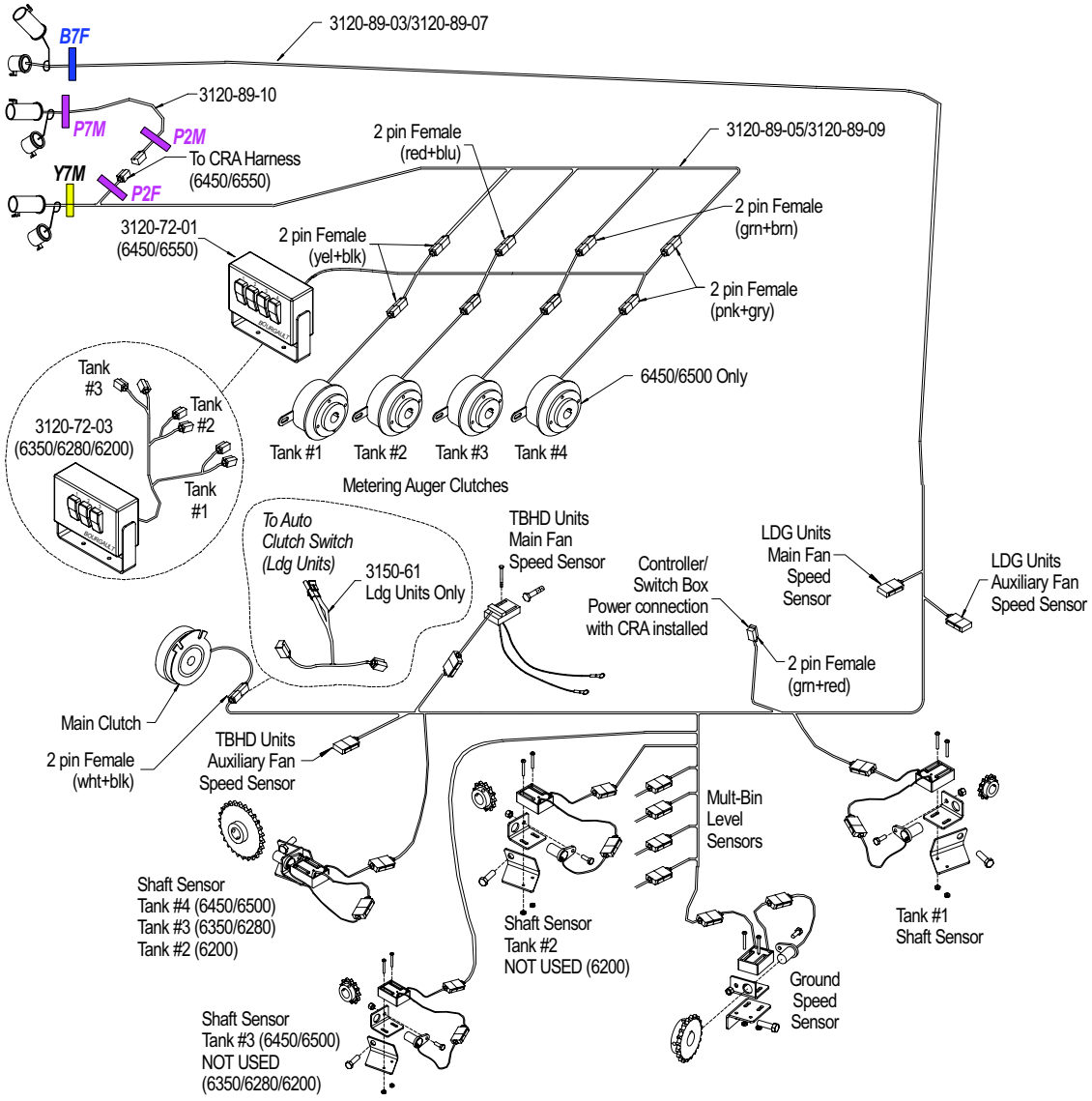


Figure 11.24 - 591 Monitor Wiring Schematic with ***Manual Rate Control***

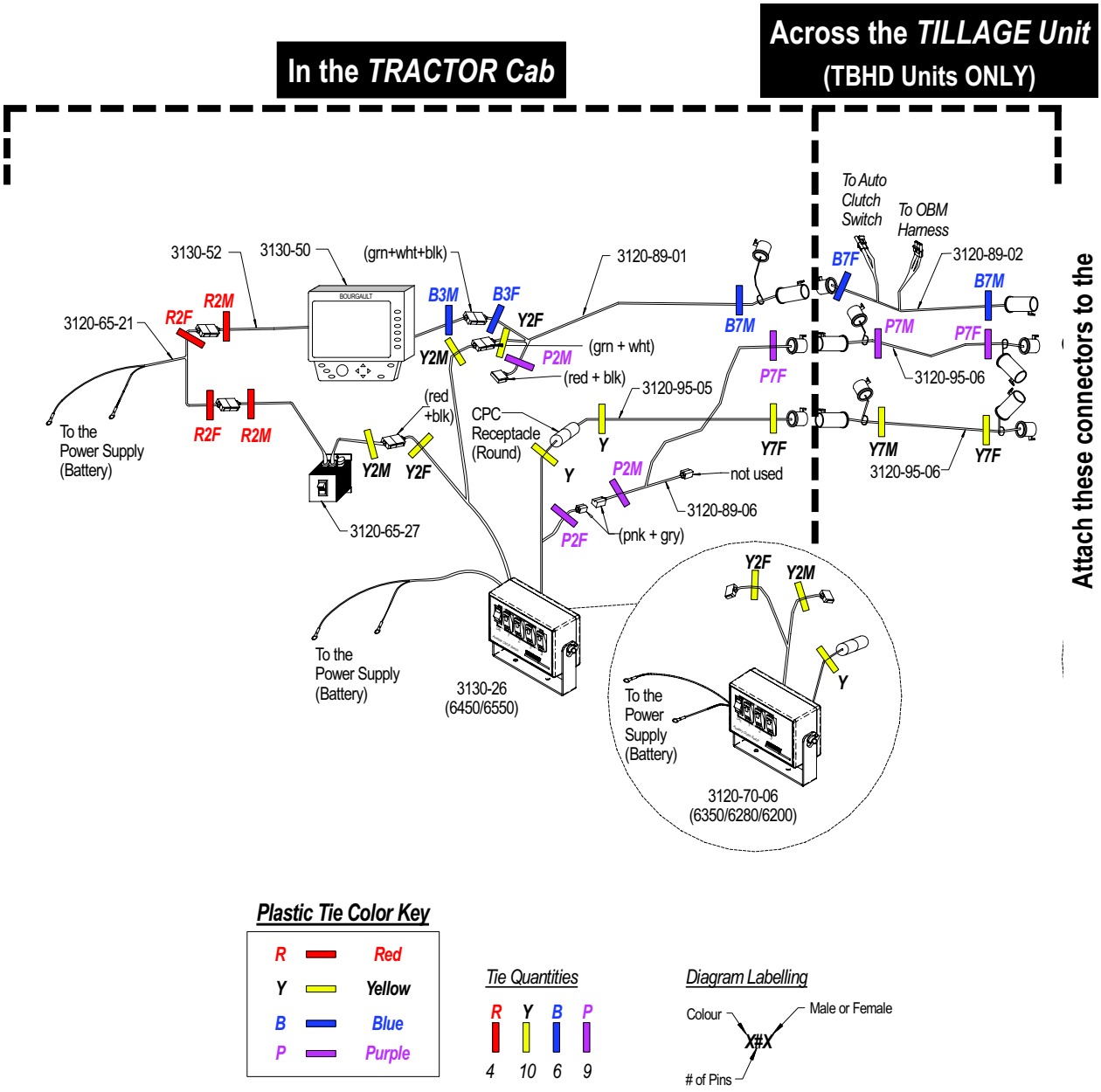


Figure 11.24 - 591 Monitor Wiring Schematic with ***Manual Rate Control***

11.1.4.8 ELECTRICAL SCHEMATICS & LEGEND

Use the following LEGEND with *Figures 11.24 to 11.29*, where part numbers are given for labelling the cables/control boxes.

Abbreviation Key	
CRA	***Cab Rate Adjust***
ZRC	***Zone Rate Control***
VR	***Variable Rate***
ZRC	***Zone Rate Control***

6000 Series Air Seeder Wiring Harness Legend

Part Number	Description
3120-65-21	Power Cable
3120-65-27	Master Clutch Switch
3120-70-06	Multi-Clutch Switch Box (3 Switches - In the TRACTOR Cab)
3120-72-01	Multi-Clutch Remote Switch Box (4 Switches - on the AIR SEEDER Chassis)
3120-72-02	Multi-Clutch Switch Box Extension Harness (on the AIR SEEDER Chassis)
3120-72-03	Multi-Clutch Remote Switch Box (3 Switches - on the AIR SEEDER Chassis)
3120-89-01	Monitor Extension Harness (from Monitor to back of TRACTOR Cab)
3120-89-02	Cultivator Extension Harness for the Monitor (across the TILLAGE Unit)
3120-89-03	Air Seeder Extension Harness for the Monitor (across the AIR SEEDER Chassis) (***All 6550/6450's***) and (***6350/6280/6200 Before L.N. 38334AS25***)
3120-89-04	CRA Harness (across the AIR SEEDER Chassis) (***All 6550/6450's***) and (***6350/6280/6200 Before L.N. 38334AS25***)
3120-89-05	Auxliary Clutch Harness (across the AIR SEEDER Chassis) (***All 6550/6450's***) and (***6350/6280/6200 Before L.N. 38334AS25***)
3120-89-06	4th Actuator/Clutch Switch Box - Extension Cable (from In-Cab box to back of TRACTOR Cab)
3120-89-07	CRA Harness (across the AIR SEEDER Chassis) (***6350/6280/6200's After L.N. 38358AS01***)
3120-89-08	Auxliary Clutch Harness (across the AIR SEEDER Chassis) (***6350/6280/6200's After L.N. 38358AS01***)
3120-89-09	4th Actuator/Clutch Switch Box - Extension Cable (from In-Cab box to back of TRACTOR Cab) (***6350/6280/6200's After L.N. 38358AS01***)

Part Number	Description
3120-94-04	ZRC Harness (across the AIR SEEDER Chassis)
3120-95-05	Clutch Switch Box/CRA - Extension Cable (from In-Cab box to back of TRACTOR Cab)
3120-95-06	Clutch Switch Box/CRA - Culitivator Extension Cable (across the TILLAGE Unit)
3122-75-05	591 Monitor with CRA and Auxiliary Clutches Harness (6700ST)
3130-10	CRA In-Cab Switch Box (3 Switches - In the TRACTOR Cab)
3130-11	CRA Remote Switch Box (3 Switches - on the AIR SEEDER Chassis)
3130-26	Multi-Clutch Switch Box (4 Switches - in the TRACTOR Cab)
3130-27	CRA In-Cab Switch Box (4 Switches - in the TRACTOR Cab)
3130-28	CRA Remote Switch Box (4 Switches - on the AIR SEEDER Chassis)
3130-30	VR Controller Module (on the AIR SEEDER Chassis)
3130-31	ZRC In-Cab Selector Module (In the TRACTOR Cab)
3130-33	VR Controller Power Switch (In the TRACTOR Cab)
3130-34	ZRC Adaptor Cable (In the TRACTOR Cab)
3130-35	Fan Controller Module (on the AIR SEEDER Chassis)
3130-36	Fan Controller Harness (on the AIR SEEDER Chassis)
3130-50	591 Monitor (In the TRACTOR Cab)
3130-52	Power Communication Harness (from Power Supply to Monitor in the TRACTOR Cab)
3150-61	Auto Clutch Switch Leading Harness (across the AIR SEEDER Chassis)
3405-05	Fan Controller Valve (on the AIR SEEDER Chassis - connected to the existing hydraulics)

WIRING HARNESS LEGEND.PDF

11.4.1.6 FAN CONTROLLER MODULE, HARNESS AND FAN CONTROLLER VALVE

When the optional fan controller is installed, the hydraulic flow to the fan motors can be adjusted to control the fan speeds. Refer to *Section 4* for components.

Refer to *Figure 11.29* to familiarize yourself with the circuit diagram, schematic and typical components.

1. **Mount and connect the Fan Contoller Harness (3130-36):**

   a. Connect the fan controller harness to the air seeder extension harness for the monitor (3120-89-03) at the "Fan 1" sensor connection. Refer to *Figure 11.29*.

   b. Route the fan controller harness so that the connectors reach to the fan speed sensors.

   c. The connectors for the fan contoller valves can be attached as shown in *Figure 11.29*.

2. **Mount and connect the Fan Controller Module (3130-35):**

   a. Mount the fan contoller module near the air seeder fans. Make sure that the fan controller harness will reach to the contoller before it is mounted on the air seeder chassis.

   b. The fan contoller module is connected to the fan contoller harness during the "Learn" sequence. Refer to *Section 5.3.3* for this procedure.

3. **Fan Controller Valve (3405-05):**

   Refer to the assembly instructions provided with these components for the correct installation procedure.

11.1.4.7 FINAL CONNECTIONS

Ensure that all connections between the different harness are made at the tractor/tillage unit hitch and at the tillage unit/air seeder hitches. Refer to *Figures 11.24 to 11.29* for all connection locations.

6. **Route the ZRC Harness (3120-94-04) on the Air Seeder Chassis and connect to the tank actuator/transmissions and CRA Remote Switch Box (3130-11):**

   a. Secure the ZRC harness to the Air Seeder chassis (refer to *Figures 11.28 and 11.29*).

      i. The 7-pin metri-pack connectors should be located at the end of the air seeder hitch.

      ii. Secure the ZRC harness to the existing monitor extension harness (3120-89-01) with plastic ties.

   b. A 2-pin and a 6-pin connector are found on the ZRC harness at each available actuator/transmission.

   c. Connect the 6-pin metri-pack connector from the ZRC harness to the CRA remote switch box (*Figure 11.21*).

      i. For the CRA remote switch box (3130-11), connect the 2-pin line to the 2-pin location on the ZRC harness (3120-94-04). Refer to *Figures 11.28 and 11.29*.

7. **Connect the ZRC Harness (3120-94-04) to the Monitor Extension Harness (3120-89-03/3120-89-07):**

   a. Refer to *Figures 11.28 and 11.29* for the connection locations for the CRA switch box power, the shaft sensors, the ground speed sensor and the main clutch.

   b. The shaft/ground speed sensors must be disconnected from the monitor extension harness (3120-89-03/3120-89-07) if they were previously connected and then they must be re-attached to the ZRC harness when asked for during the "Learn" sequence. Refer to *Section 5.3.3* for this procedure.

8. **Connect the CRA In-Cab Switch Box (3130-10) to the ZRC Harness (3120-94-04):**

   a. For the in-cab switch box, connect the cable with the round connector (CPC receptacle) to the clutch switch box/CRA - extension cable (3120-95-05). Push connectors firmly together to secure.

9. **Mount and connect the VR Controller Module (3130-30) to the ZRC Harness (3120-94-04):**

   a. Mount the VR controller module to the Air Seeder chassis

   b. The VR controller module is connected to the ZRC harness during the "Learn" sequence. Refer to *Section 5.3.3* for this procedure.

10. **For Tow-Behind Air Seeding units:**

    a. Route the clutch switch box/CRA - cultivator extension cable (3120-95-06) across the tillage unit, from the tillage unit hitch to the rear tow hitch. Refer to *Figures 11.28 and 11.29*.

11. **Mount and connect the VR Controller Power Switch (3130-33)**:

    a. Secure the VR contoller power switches in the tractor cab, using the mounting holes in the back plate.

    b. Attach the other VR controller power switch to the power cable (3120-65-21) for the CRA In-Cab Switch Box (3130-10). Connect the other end of this VR controller power switch to the monitor extension harness (3120-89-01). Refer to *Figures 11.28 and 11.29*.

    c. A 7.5 amp fuse is used in the VR controller power switches (3130-33). **Do not exceed this rating to prevent damage to the switch or controller(s).**

11.1.4.5 ZRC IN-CAB SELECTOR MODULE, VR CONTROLLER MODULE & POWER SWITCH

The ZRC option allows the operator to adjust product application rate on the go. Refer to *Section 4* for components.

Refer to *Figures 11.28 and 11.29* to familiarize yourself with the circuit diagrams, schematics and typical components.

When installing the ZRC In-Cab Selector Module (3130-31), follow this procedure:

1. **Secure the ZRC In-Cab Selector Module (3130-31) bracket:**
   a. Use the two bolt holes at the base of the bracket.
   b. Locate the monitor for easy access and in clear view of the operator.
   c. Ensure that the monitor will be free of moisture, direct sun, and excessive vibration.
2. **Connect the ZRC Adaptor Cable (3130-34) to the 591 Monitor (3130-50) and the Monitor Extension Harness (3120-89-01):**
   a. Disconnect the 591 monitor from the monitor extension harness and connect the ZRC adaptor cable between the two. Refer to *Figures 11.28 and 11.29*.
3. **Connect the ZRC In-Cab Selector Module (3130-31) to the monitor harness:**
   a. There are two connectors on the back side of the ZRC in-cab selector module. One connector (male end) is connected to the ZRC adaptor cable (3130-34) when it is called for in the "Sensor Learn".
   b. The other connector is not used at this time. Refer to *Figures 11.28 and 11.29*.

Figure 11.22 - ZRC In-Cab Selector Module (3130-31)

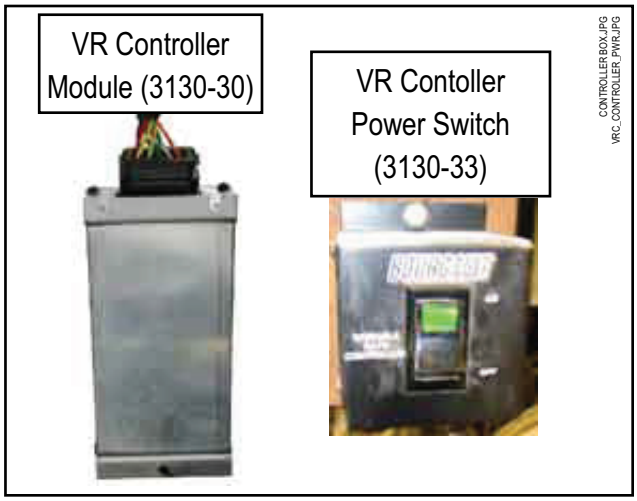


Figure 11.23 - VR Controller Power Switch (3130-33) & VR Contoller Module (3130-30)

4. Refer to *Section 11.1.4.2* to mount and connect the Multi-Clutch Switch Box (3120-70-06) and the Multi-Clutch Remote Switch Box (3120-72-03). Also refer to *Figures 11.28 and 11.29* for the wiring schematics.
5. Refer to *Section 11.1.4.4* to mount and connect the CRA In-Cab Switch Box (3130-10) and the CRA Remote Switch Box (3130-11). Also refer to *Figures 11.28 and 11.29* for the wiring schematics.

4. **Route the CRA Harness (3120-89-04/3120-89-08) on the Air Seeder Chassis and connect to the tank actuator/transmissions and CRA Remote Switch Box (3130-11 or 3130-28):**

NOTE

FOR UNITS WITH ZRC, REFER TO *SECTION 11.1.4.5* FOR STEPS 4-6.

   a. Secure the CRA harness to the Air Seeder chassis (refer to *Figures 11.24 to 11.29*).

      i. The 7-pin metri-pack connectors should be located at the end of the air seeder hitch.

      ii. Secure the CRA harness to the existing monitor extension harness (3120-89-01) with plastic ties.

   b. A 2-pin connector is found on the CRA harness at each available actuator/transmission. An extra set of 2-pin connectors are found on the 4 tank units for control of the 4th tank actuators/transmissions. This extra set of connectors are not used on units with only 3 tanks.

   c. Connect the 6-pin metri-pack connector from the CRA harness to the CRA remote switch box (*Figure 11.21*).

      i. For the 3 switch CRA remote switch box (3130-11), connect the 2-pin line to the **Auxiliary Clutch** location on the air seeder extension harness (3120-89-03/3120-89-07). Refer to *Figures 11.24 to 11.29*.

      ii. For the 4 switch CRA remote switch box (3130-28), connect the 2-pin line to the 2-pin connector next to the 6-pin connector, on the CRA harness (3120-89-04). Refer to *Figures 11.24 to 11.29*.

5. **Connect the In-Cab Switch Box (3130-10 or 3130-27) to the CRA Harness (3120-89-04):**

   a. For both in-cab switch boxes, connect the cable with the round connector (CPC receptacle) to the clutch switch box/CRA - extension cable (3120-95-05). Push connectors firmly together to secure.

Figure 11.21 - CRA Remote Switch Box - on the Air Seeder Chassis

   b. For the 4-switch box (3130-27) connect the 2 pin line to the 4th actuator/clutch switch box extension cable (3120-89-06). Refer to *Figures 11.24 to 11.29*.

   c. Route the 4th actuator/clutch switch box extension cable (3120-89-06) and the clutch switch box/CRA - extension cable (3120-95-05) out of the tractor cab to the hitch area.

   d. Four units with multi-clutches installed, there is a 2-pin connector on the CRA harness that must be connected to the auxiliary clutch harness (3120-89-05/3120-89-09). Refer to *Figures 11.24 to 11.29*.

6. **For Tow-Behind Air Seeding units:**

   a. Route two of the clutch switch box/CRA - cultivator extension cables (3120-95-06) across the tillage unit, from the tillage unit hitch to the rear tow hitch. Refer to *Figures 11.24 to 11.29*.

11.1.4.4 CRA IN-CAB SWITCH BOX & REMOTE SWITCH BOX

Refer to *Figures 11.24 to 11.29* to familiarize yourself with the circuit diagrams, schematics and typical components.

1. **Secure each CRA switch box using the holes in the mounting plate.**
   a. Mount the CRA in-cab switch box (3130-10 or 3130-27) shown in *Figure 11.20*.
      i. Use the two bolt holes at the base of the bracket.
      ii. Locate the switch box for easy access and in clear view of the operator.
      iii. Ensure that the monitor will be free of moisture, direct sun, and excessive vibration.
   b. The remote CRA switch box (3130-11 or 3130-28) (shown in *Figure 11.21*) should be mounted on the air seeder frame in the space provided on the metering drive frame.
2. **Connect the Power Cable (3120-65-21) (2 Wire) for the CRA system:**
   a. Connect the black wire of the power cable directly to the negative battery post.
   b. Connect the white or red wire directly to the positive battery post.

IMPORTANT

CONNECT BOTH POWER CABLE (3120-65-21) WIRES DIRECTLY TO THE BATTERY TO PREVENT INTERFERENCE, MINIMIZE CIRCUIT LOSSES AND ENSURE SUFFICIENT POWER TO OPERATE THE CLUTCHES.

NOTE

WIRES HAVE A MALE OR FEMALE CONNECTOR THAT MATES TO EACH ADJACENT COMPONENT.

Figure 11.20 - CRA In-Cab Switch Box - in the Tractor Cab

3. **Connect the In-Cab Switch Box (3130-10 or 3130-27) to the Power Cable (3120-65-21) and the Monitor Extension Harness (3120-89-01):**
   a. Extend the connectors on the power cable into the tractor cab.
   b. Connect one of the 2-pin connectors on the power cable to the in-cab switch box.
      i. For the 4-switch box (3130-27), connect the other 2-pin connector from the power cable to the monitor extension harness.
      ii. For the 3-switch box (3130-10) connect the other 2-pin connector from the back of the box to the monitor extension harness. There will be one connector from the power cable, in this setup, that is NOT connected to anything.
   c. Push connectors firmly together to secure.

11.1.4.3 591 MONITOR

The Model 591 Air Seeder Monitor uses a multiplexed data communication system to monitor the functions of an air seeder.

In the multiplexed system, all sensors communicate with the monitor through three wires. This permits a reduction in wiring complexity as well as a reduced number of connectors. The system also allows a simple means of selection of different configurations.

Refer to *Figures 11.24 to 11.29* to familiarize yourself with the circuit diagrams, schematics and typical components.

When installing the 591 monitor, follow this procedure:

1. **Secure the Model 591 monitor bracket:**
   a. Use the bolt holes at the base of the ball and socket mount bracket.
   b. Locate the monitor for easy access and in clear view of the operator.
   c. Ensure that the monitor will be free of moisture, direct sun, and excessive vibration.
2. **Connect the Power Cable (2 Wire) (3120-65-21) and Power Communication Harness (3130-52) to the 591 Monitor (3130-50)**:
   a. Connect the power/communication harness to the 591 monitor.
   b. Connect the 2-pin connector on the power/communication harness to the power cable. The power cable is connected to the battery and the master clutch switch (3120-65-27).
3. **Connect the 591 Monitor (3130-50) to the Monitor Extension Harness (3120-89-01)**:
   a. Connect the 3-pin connector on the monitor extension harness to the 3-pin connector on the 591 monitor.

Figure 11.19 - Model 591 Monitor

IMPORTANT

CONNECT BOTH POWER WIRES DIRECTLY TO THE BATTERY TO PREVENT INTERFERENCE, MINIMIZE CIRCUIT LOSSES AND ENSURE SUFFICIENT POWER TO OPERATE THE CLUTCHES.

3. **Connect In-Cab Multi-Clutch Switch Box (3120-70-06 or 3130-26) to the Monitor Extension Harness (3120-89-01) and Auxiliary Clutch Harness (3120-89-05/3120-89-09):**

   a. Extend the cable from the in-cab multi-clutch switch box with the round CPC connector out the back of the tractor cab and connect to the clutch switch box cable (3120-95-05). (Refer to *Figures 11.24 to 11.29*). Push connectors firmly together to secure.

   b. Route the clutch switch box cable (3120-95-05) out the tractor to the hitch area.

   c. Extend the other cable ends to the monitor extension harness and master clutch switch box (3120-65-27). Push connectors firmly together to secure.

4. **Connect Remote Multi-Clutch Switch Box (3120-72-03 or 3120-72-01) to the Auxiliary Clutch Harness (3120-89-05/3120-89-09) and Auxiliary Clutches:**

   a. Connect the multi-clutch remote switch box cable ends to the auxiliary clutch harness. Refer to *Figures 11.24 to 11.29*.

   b. Connect the Tank 1 to Tank 4 metering auger clutches to the remote multi-clutch switch box cable ends.

5. The 3 switch in-cab multi-clutch switch box (3120-70-06) (shown in *Figure 11.17*) is equipped with a circuit breaker. The circuit breaker resets automatically when the problem is removed. The 4 switch in-cab multi-clutch switch box (3130-26) uses a fuse.

6. **For Tow-Behind Air Seeding units:**

   a. Route the clutch switch box/CRA - cultivator extension cable (3120-95-06) across the tillage unit, from the tillage unit hitch to the rear tow hitch. Refer to *Figures 11.24 to 11.29*.

Refer to *Section 12 Troubleshooting*.

Figure 11.18 - Multi-Clutch Remote Switch Box - on the Air Seeder Chassis

6. A 7.5 amp fuse is used in the master clutch switch. **Do not exceed this rating** to prevent damage to the switch or clutch(es).

Refer to *Section 12 Troubleshooting*.

11.1.4.2 MULTI-CLUTCH SWITCH BOXES

Multi-clutch switch boxes (In-cab: 3120-70-06 or 3130-26 and Remote: 3120-72-01 or 3120-72-03) are used in conjunction with the master clutch switch (3120-65-27). The multi-clutch switches, when on, control the Tank 1 to Tank 4 meter clutches. The CAL switch, on the in-cab switch box (3120-70-06 or 3130-26), is also required to be on during calibration.

Refer to *Figures 11.24 to 11.29* to familiarize yourself with the circuit diagrams, schematics and typical components.

When installing the multi-clutch switch boxes:

1. **Secure each multi-clutch switch box using the holes in the mounting plate.**

   a. Mount the in-cab multi-clutch switch box (3120-70-06 or 3130-26) shown in *Figure 11.17*.

      i. Use the two bolt holes at the base of the bracket.

      ii. Locate the switch box for easy access and in clear view of the operator.

      iii. Ensure that the monitor will be free of moisture, direct sun, and excessive vibration.

   b. The remote multi-clutch switch box (3120-72-03 or 3120-72-01) should be mounted on the air seeder frame in the space provided on the metering drive as shown in *Figure 11.18*.

2. **Connect the In-Cab Multi-Clutch Switch Box (3120-70-06 or 3130-26) Power Cable (2 Wire):**

   a. The power cables for the in-cab multi-clutch switch boxes come directly out of the box.

Figure 11.17 - Multi-Clutch Switch Box - in the Tractor cab

   b. Connect the black wire of the power cable directly to the negative battery post.

   c. Connect the white or red wire directly to the positive battery post.

IMPORTANT

CONNECT BOTH POWER CABLE (3120-65-21) WIRES DIRECTLY TO THE BATTERY TO PREVENT INTERFERENCE, MINIMIZE CIRCUIT LOSSES AND ENSURE SUFFICIENT POWER TO OPERATE THE CLUTCHES.

11.1.4 INSTALLING SWITCHES, MODULES AND MONITOR

A monitor and clutch switch box(es) must be mounted in the tractor cab to control the machine. Each box should be mounted within easy reach and within good view of the operator. Select a place with minimal vibration and out-of-the-way to prevent damage.

Refer to *Figures 11.24 to 11.29* to familiarize yourself with the circuit diagrams, schematics and typical components.

Refer to *Section 4* for required components with each of the options to be installed.

11.1.4.1 MASTER CLUTCH SWITCH

The master clutch switch (3120-65-27) is standard on the 6000 Series Air Seeders. The switch, when on, engages the main drive clutch and metering augers on the Air Seeder. The master clutch switch (3120-65-27) is used to control the clutches and the master clutch switch (3120-65-27) also becomes a master power switch.

When installing the clutch switch in the tractor cab, follow this procedure:

1. **Secure the clutch switch using the mounting holes in the back plate.**
2. **Connect the Power Cable (3120-65-21) (2 Wire) for the monitor/clutch systems:**
   a. Connect the black wire of the power cable directly to the negative battery post.
   b. Connect the white or red wire directly to the positive battery post.

IMPORTANT

CONNECT BOTH POWER CABLE (3120-65-21) WIRES DIRECTLY TO THE BATTERY TO PREVENT INTERFERENCE, MINIMIZE CIRCUIT LOSSES AND ENSURE SUFFICIENT POWER TO OPERATE THE CLUTCHES.

Figure 11.16 - Master Clutch Switch (3120-65-27)

3. **Connect the master clutch switch (3120-65-27) to the power cable (3120-65-21):**
   a. Extend the connectors on the power cable into the tractor cab.
   b. Connect the master clutch switch to one of the 2-pin connectors on the power cable. Push connectors firmly together to secure.
4. **Connect the master clutch switch (3120-65-27) to the monitor extension harness (3120-89-01) or to the multi-clutch switch box (3120-70-06 or 3130-26):**
   a. If your unit has auxiliary clutches, connect the master clutch switch to the multi-clutch switch box.
   b. If there are no auxiliary clutches, connect the master clutch switch to the monitor extension harness.
   c. Push connectors firmly together to secure.
   d. Route the monitor extension harness out the tractor to the hitch area.
5. **For Tow-Behind Air Seeding units:**
   a. Route the cultivator extension harness for the monitor (3120-89-02) across the tillage unit, from the tillage unit hitch to the rear tow hitch. Ensure that the two connectors for the auto clutch switch and the OBM (Optical Blockage Module) are located towards the front of the tillage unit. Refer to *Figures 11.24 to 11.29*.

7. *Drive Wheel*: Check that the 12 tooth sprocket on the end of the drive shaft is well seated on the #60 double chain on the drive wheel sprocket. Check & adjust as required.

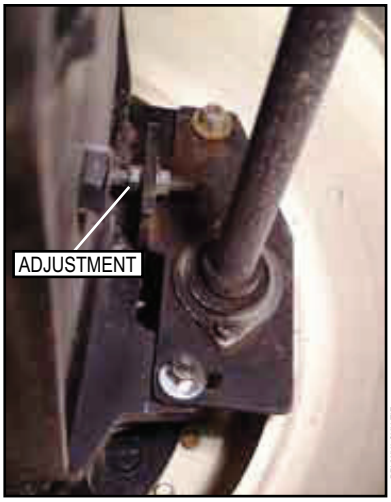


Figure 11.15 - Drive Wheel Chain Adjustment

11.1.3.3 ANNUALLY

1. If applicable, check fifth wheel tension on TBHD Units.
2. Tighten all fasteners to their specified torque.
3. Wash machine.
4. Apply a coat of oil to all metering drive roller chains and sprockets.

Figure 11.12 - TBHD Fifth Wheel

5. *Transmission Drive* - Each transmission drive must have 6½ pints (3.1 litres) of 5W-30 oil (to level of plug). Check oil level at the beginning of each season.

Figure 11.13 - Transmission Drive

6. *Drive Shaft Gearboxes* - Each gearbox must have 8 U.S. oz. (0.24 l) of 95 weight oil (to level of plug). Check oil level at the beginning of each season.

NOTE

95 WEIGHT OIL IS THE PREFERRED OIL FOR USE IN THESE GEARBOXES. 80W90 OIL IS ALSO AN APPROVED SUBSTITUTE FOR THESE GEARBOXES.

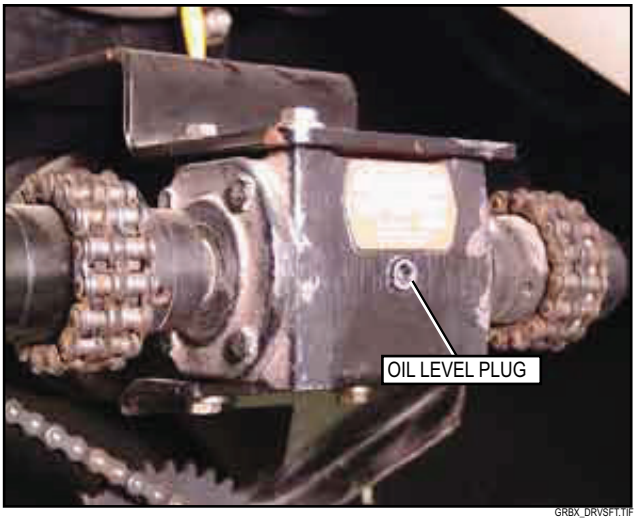


Figure 11.14 - Drive Shaft Gearbox

6. Check metering system drive chain tension and sprocket alignment. Chains should be snug but not tight. If the chains are too tight they may bind and cause inaccurate metering.

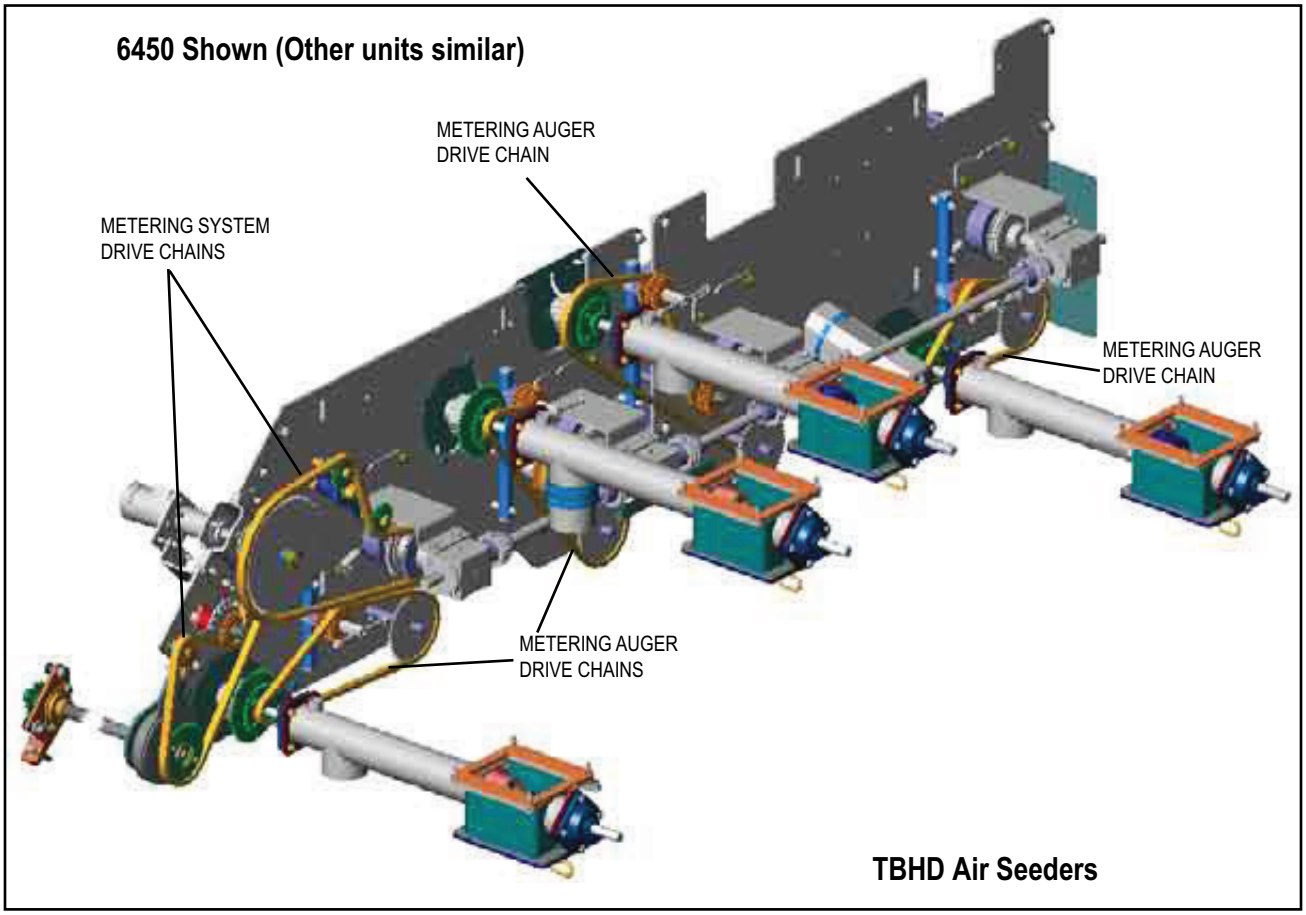


Figure 11.10 - Metering Drive Chains

7. Grease the torque limiting device (1 location on each torque limiting device).

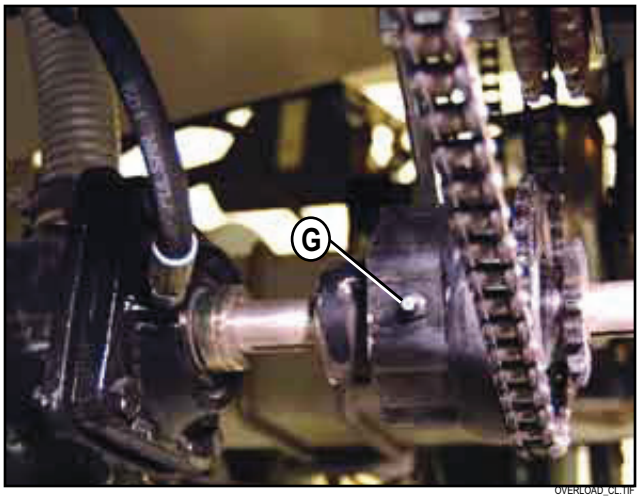


Figure 11.11 - Torque Limiting Device

4. Grease the hydraulic calibration assembly (1 location) with grease.

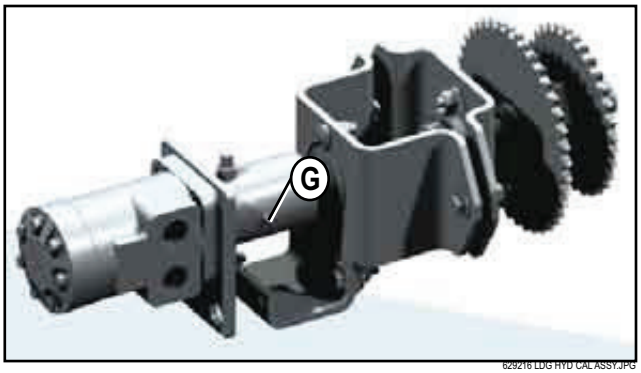


Figure 11.7 - Hydraulic Calibration Drive

5. Grease the wheel hubs (4 locations on tow behind, 2 on leading).

IMPORTANT

OVER GREASING MAY LEAD TO SEAL DAMAGE.

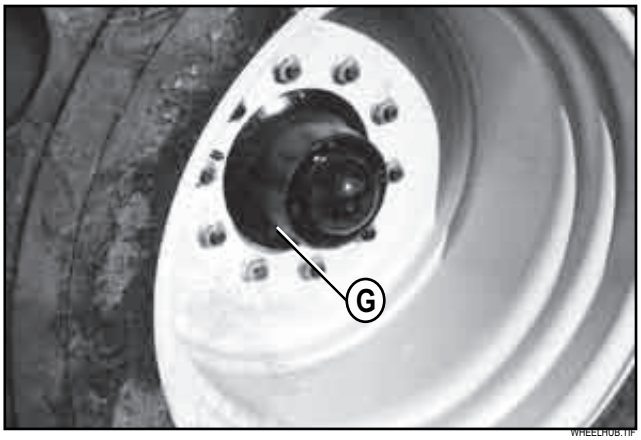


Figure 11.8 - Single Axle Wheel Hub

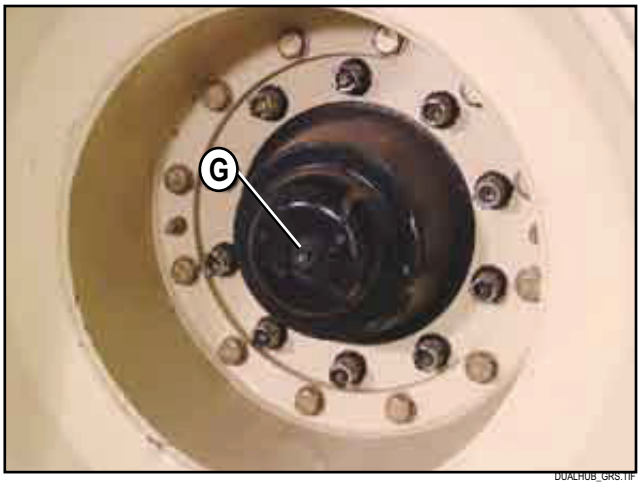


Figure 11.9 - Dual Axle Rear Hub

11.1.3.2 50 HOURS OR WEEKLY

1. Grease the TBHD front axle pivot (6700ST - 3 locations, 6550ST to 6200 units - 2 locations) with grease.
2. Grease the TBHD 5th wheel pivot pin (1 location) with grease.

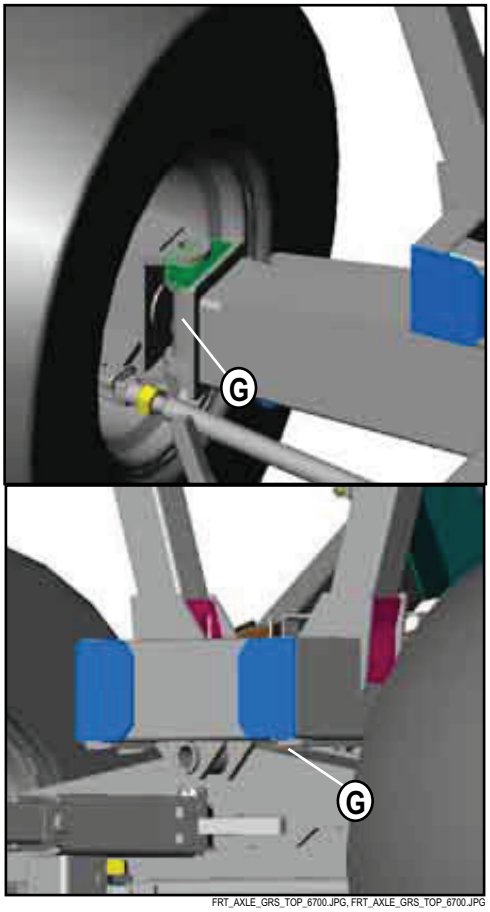


Figure 11.3 - 6700ST Front Axle

3. Grease the load/unload auger/conveyor upper arm pivot points (2 locations on 10" Deluxe Auger & 8" auger, 1 location on 10" Conveyor) with grease.

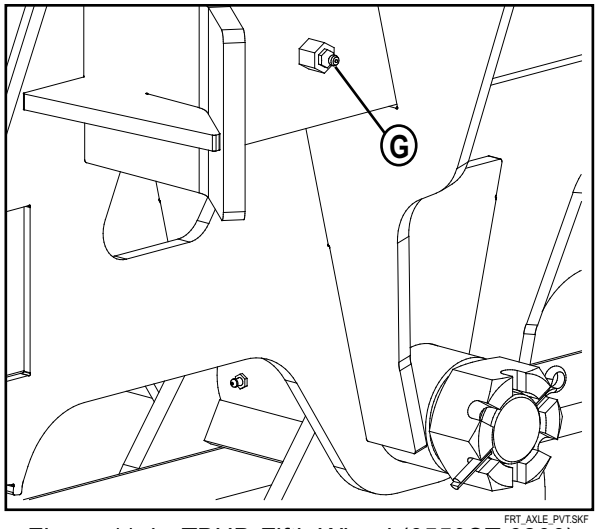


Figure 11.4 - TBHD Fifth Wheel (6550ST-6200)

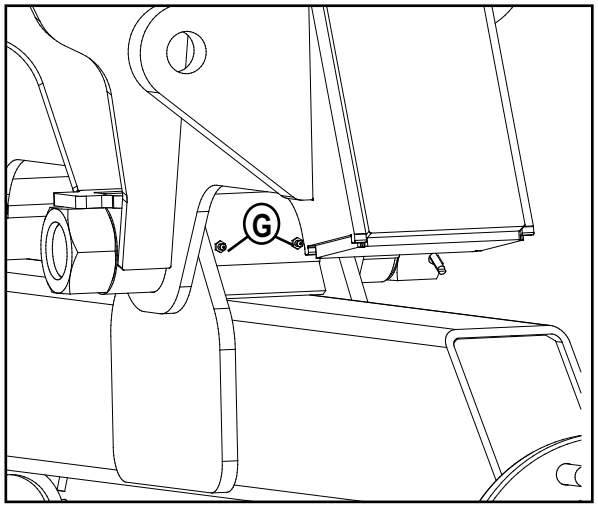


Figure 11.5 - TBHD Front Axle Pivot (6550ST-6200)

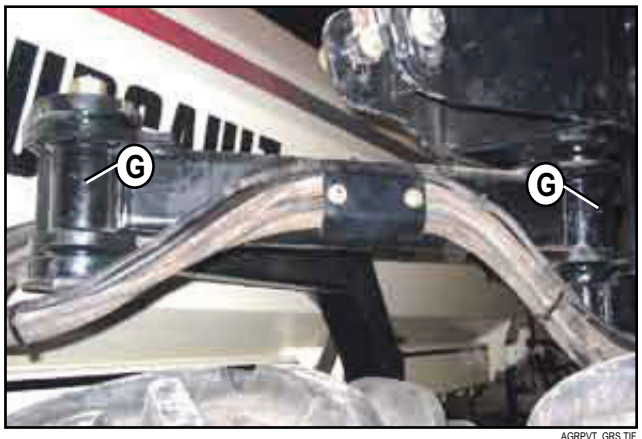


Figure 11.6 - Load/Unload Auger Pivot

11.1.3 SERVICING INTERVALS

11.1.3.1 10 HOURS OR DAILY

1. Grease the metering auger bearings (2 locations each auger).

Figure 11.1 - Metering Auger Bearings

NOTE

GREASE WILL FORM A PROTECTIVE BARRIER TO PREVENT DIRT, FERTILIZER, AND MOISTURE FROM ENTERING THE BEARING. FAILURE TO ADEQUATELY GREASE THE BEARING WILL RESULT IN PREMATURE FAILURE OF THE BEARING.

REFER TO *SECTION 11.2.10* FOR ***METERING AUGER CARE***. THIS SECTION OF MAINTENANCE SHOULD ALSO BE COMPLETED ***SEASONALLY***.

2. Grease the 10" Deluxe auger transfer gearbox (1 location) with grease. To access the zerk, the transfer hopper must be in transport position. The zerk is located in the transfer auger tube between the transition and transfer augers.

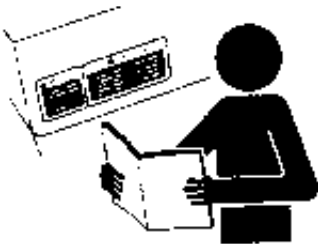
Figure 11.2 - 10" Deluxe Auger Transfer Auger Gearbox

11.1 SERVICE

11.1.1 FLUIDS AND LUBRICANTS

- Grease - Use an S.A.E. multipurpose high temperature grease with extreme pressure (EP) performance. Also acceptable is an S.A.E. multipurpose lithium base grease.
- Storing Lubricants - Your machine can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, dirt, moisture and other contaminants.

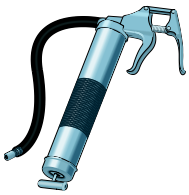
IMPORTANT



IT IS THE RESPONSIBILITY OF THE OWNER OR OPERATOR TO READ THIS MANUAL AND TO TRAIN ALL OTHER OPERATORS BEFORE THEY START WORKING WITH THE MACHINE. REFER TO THE SAFETY SECTION IN THIS MANUAL. BY FOLLOWING RECOMMENDED PROCEDURES, A SAFE WORKING ENVIRONMENT IS PROVIDED FOR THE OPERATOR, BYSTANDERS AND THE AREA AROUND THE WORK SITE.

11.1.2 GREASING

Refer to *Section 11.1.3 Servicing Intervals* for greasing locations.



- Use only a hand-held grease gun for all greasing.
- Wipe grease fitting with a clean cloth before greasing, to avoid injecting dirt and grit.
- Replace and repair broken fittings immediately.
- If a fitting will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.

WARNING

TO PREVENT SERIOUS INJURY OR DEATH, LOWER MACHINE TO THE GROUND, PLACE ALL CONTROLS IN NEUTRAL, STOP ENGINE, TURN MONITOR OFF, SET PARK BRAKE, REMOVE IGNITION KEY, WAIT FOR ALL MOVING PARTS TO STOP BEFORE SERVICING.

WARNING

TO PREVENT SERIOUS INJURY OR DEATH, PLACE STANDS OR BLOCKS UNDER THE FRAME BEFORE WORKING BENEATH THE MACHINE OR WHEN CHANGING TIRES.

11 SERVICE AND MAINTENANCE