

INSTALLATION INSTRUCTION

CPB-520
2P-0063

TRAILED TRACK SYSTEM

John Deere DB Series Planters



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Introduction

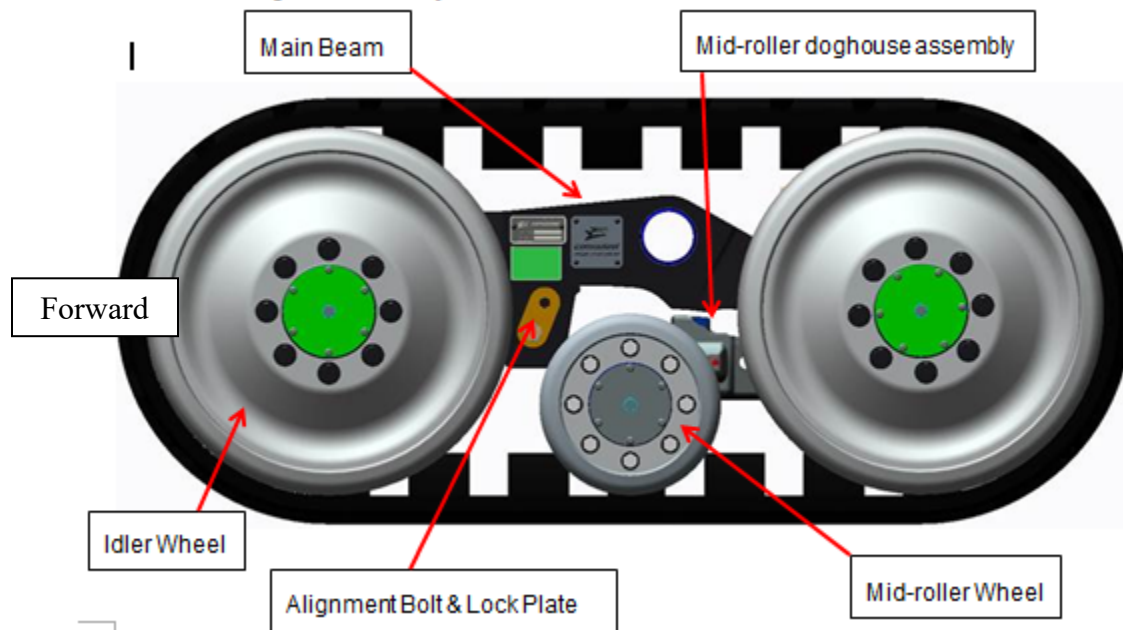
This installation guide is intended for use by distributors and dealers, providing basic information needed for installation of DB planter axle, undercarriage and row lifts. After final installation of the kit, alignment of the tracks/undercarriage is also required.

Notice:

When servicing track machines, follow all manufacturers recommended safety precautions. Failure to follow safe procedures can result in injury or death.

Track Terminology

For reference with the rest of the following document, the terms used are referenced below. Familiarize yourself with these terms before reading further instructions or working on any tracked machine.



General Tooling Requirements

Table 1 lists both the standard and specialized tools required for the removal, installation and alignment of the TTS kits for DB planters.

Safety Glasses Steel Toed Shoes Overhead hoist Fork Truck, engine hoist or pallet jack General hand tools, SAE/ Metric Air Impact Socket Set 42 mm Deep Well Socket	1" Air Impact Wrench(450ft-lb cap) Several large wood blocks (2) Lifting Eyes Long lifting bars or rods Assorted chains Fabric sling Torque Wrench (300 ft-lb cap.) (2) 15 Ton Min. Support Stands
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Table 1. Suggested Equipment and Tool List

Time Estimates - Removal, Installation and Alignment

The time required to install the TTS undercarriages and row lifts depends to a great degree on the skill of the technician and the tools available. Table 2 lists average times for removal, installation, and alignment. This estimate is based on a service technician of

average skills with the basic tools, working on a suitable floor. Working in adverse conditions can take longer and jeopardize safety. Two technicians are required to properly and safely install these kits.

	Axle/UC Remove and Install		Row Unit (per unit)	Hydraulics	Track Alignment		Total (varies)
	Axle (hrs)	UC (hrs)	Install lifts/offsets, update drives (hrs)	Install valve and hoses (hrs)	Single Track (hrs)	Machine (hrs)	Total Time (hrs)
DB44	4.0	2.0	3.0	0.0	0 – 0.5	0 – 1	10+
DB60	4.0	2.0	5.0	4.0	0 - 0.5	0 - 1	18+
DB80	4.0	2.0	10.0	4.0	0 – 0.5	0 - 1	22+

Table 2. Estimated man hours required for average track/undercarriage installation and alignment

Important:
Record undercarriage, axle, and track serial numbers in the operators guide, on the warranty certificate, and for your records.

Additional OEM Parts Requirements: (Suggested for Mechanical Driven Row Units Only)

Some additional parts are required to complete the installation. These are available from your local John Deere dealer and are listed below, depending on the planter series.

Note that most but not all of the listed parts are needed. Final configuration of the planter determines what specific parts are needed to complete an installation. These parts should be available at installation in order to be sure the installation can be completed.

Planter vacuum and seed delivery lines may need the length adjusted to accommodate routing over/around the additional drive brackets installed on this DB Planter kit. Material and fittings can be sourced from your Deere Parts department as needed.

Some wiring may also need lengthening with jumpers wires.

Additional OEM Parts List

DB44 (Mechanical Drive Row Units Only)

<u>Qty</u>	<u>Deere Part #</u>	<u>Description</u>	<u>Remarks</u>
4	AA35334	Chain Sprocket - 28 tooth	
8	A53746	Clamp	
8	19M7295	Cap Screw - M8x45	
8	14M7273	Nut - M8	
2	19M7158	Cap Screw - M12x45	
6	24M7047	Washer	
2	H140465	Bushing	
2	AA32729	Chain Sprocket - 14 tooth	
2	14M7275	Nut - M12	
5	AA35646	Bearing with housing	
10	19M7163	Cap Screw M8x25	
10	14M7298	Flange nut	
4	AA40416	Long Hose, air unit	
1	AA65895	Hose kit, CCS hose splice	
2	A54004	Hose , seed delivery	# is for 100', need 2x36"
2'	-	Countershaft	Hexagonal shaft 7/8 "
8	A46533	U-bolt	7 x 7 toolbar
16	14M7276	Nut - M16	M16 Rockshaft rows

DB60+ (Mechanical Drive Row Units Only)

<u>Qty</u>	<u>Deere Part #</u>	<u>Description</u>	<u>Remarks</u>
2	A52085	Quick Coupler	
2	11M7040	Cotter Pin	

DB80+ (Mechanical Drive Row Units Only)

<u>Qty</u>	<u>Deere Part #</u>	<u>Description</u>	<u>Remarks</u>
8	H103264	Pressed Flange Housing	
4	AA22097	Ball Bearing	
12	03M7184	Bolt M8	
12	14M7273	Nut M8	
4	A52085	Quick Coupler	
4	11M7040	Cotter Pin	
7'	1790DX	Roller Chain #40 5 Pitch long	
4	25195	Roller Chain Link	
4	A53746	Clamp	
4	19M7295	Cap Screw M8 x 45	
4	14M7273	Nut M8	
2	A52020	Plug, manifold end	
2	A47553	Elbow, manifold	
2	A47748	Manifold end	
4	T12282	O-Ring	

Preparation of the Planter

1. Clean the planter prior to working on it. Dirt and debris makes access to bolts difficult.
2. Perform the installation on a flat, firm concrete indoor surface. The planter can be supported and elevated much easier and will be more stable if track removal and installation is performed on a concrete surface. A hard surface also makes it easier to slide the axle and undercarriage assemblies from under the machine. This will allow for use of a forklift or overhead crane. Pallet jacks also make removal and installation of the axle assembly possible in tight quarters.
3. A tractor hydraulic system is required for installation, so make sure the planter remains hooked to the tractor and hydraulic circuits remain connected. This will assist in aligning lift eyes and raising the main planter beam if needed. It also provides stability to the front of the planter during installation of the TTS kit.

Axle Removal

1. **(DB 60+, 80+)** Remove first row unit on each side on wing closest to the folding pivot.
(DB 44) Remove first two row units on each side on wing closest to the folding pivot.
2. With weight supported on jack stands begin removal of the existing axle assembly.



3. Remove speed sensor from existing axle assembly (if equipped). Camso speed sensor is located on the right front idler wheel of the RH TTS undercarriage.

4. Disconnect height sensor linkage and cylinder transport stops for use on new axle assembly (if equipped).
5. Remove flag pins from lift ears on rod end of hydraulic cylinders.
6. With axle assembly properly supported, remove lower axle mount castings on both sides. (See illustration)



Illustration for Step 6

7. Lower assembly to the floor with proper restraint or lifting/lowering device.
8. Axle assembly can now be removed from underneath the planter. A fork truck with forks spaced to carry the outside tire works well for sliding the assembly out from underneath the planter.

New Axle Installation

1. Place axle assembly on wood pallet to aid sliding underneath the planter. Various methods such as lifting and pushing with hand trucks, pallet jacks, fork lifts etc will aid in positioning the axle assembly.
2. Begin installation of tracked axle assembly in reverse order of disassembly.
3. Raise front mounting beam into position using suitable lifting method and device.



4. Align side to side to be sure lift cylinders line up with mounting tabs on axle assembly.



5. Install cast axle pivot mounts (removed earlier) on both sides. Do not tighten pivot mounts until lift cylinders are aligned with mounting tabs on new axle assembly.



6. Insert flag pin through cylinder lift eyes and fasten retaining bolt and washer on flag.

Note: Utilizing tractor hydraulics or a floor lift may aid in re-alignment of the cylinder rod to axle ears.

7. **NOTE:** Some planters are equipped with longer pins on the original DB planter axle and will require installation of a cylinder pin spacer on each rod end. Insert the spacer frame ear and fasten with longer hardware supplied in the DB installation kit. See pictures below for units requiring this update.



8. Re-installation of the height (position) sensor.

For planters made before 2018.

If John Deere supplier height (position) sensor is on the wing of the planter, leave it there and move to the next numbered step.

If it's on the center axle, as seen below, it will need to be reconnected using the Camso supplied linkage and hardware (as needed to lengthen link). Check operation of switch and adjust length as needed to allow full travel of the switch arm with no binding.



For planters 2018 and newer planters.

- **DB44** is located on the wing wheels and no changes is needed.



- **DB60- DB66** will use kit 2A-2629-100 and will be assembled as shown below. Please note the kit comes with a longer lever arm that is timed and must be assembled with the rib facing the LH side of the planter only.

a.) Remove current sensor and replace the short lever with the longer lever from the kit.





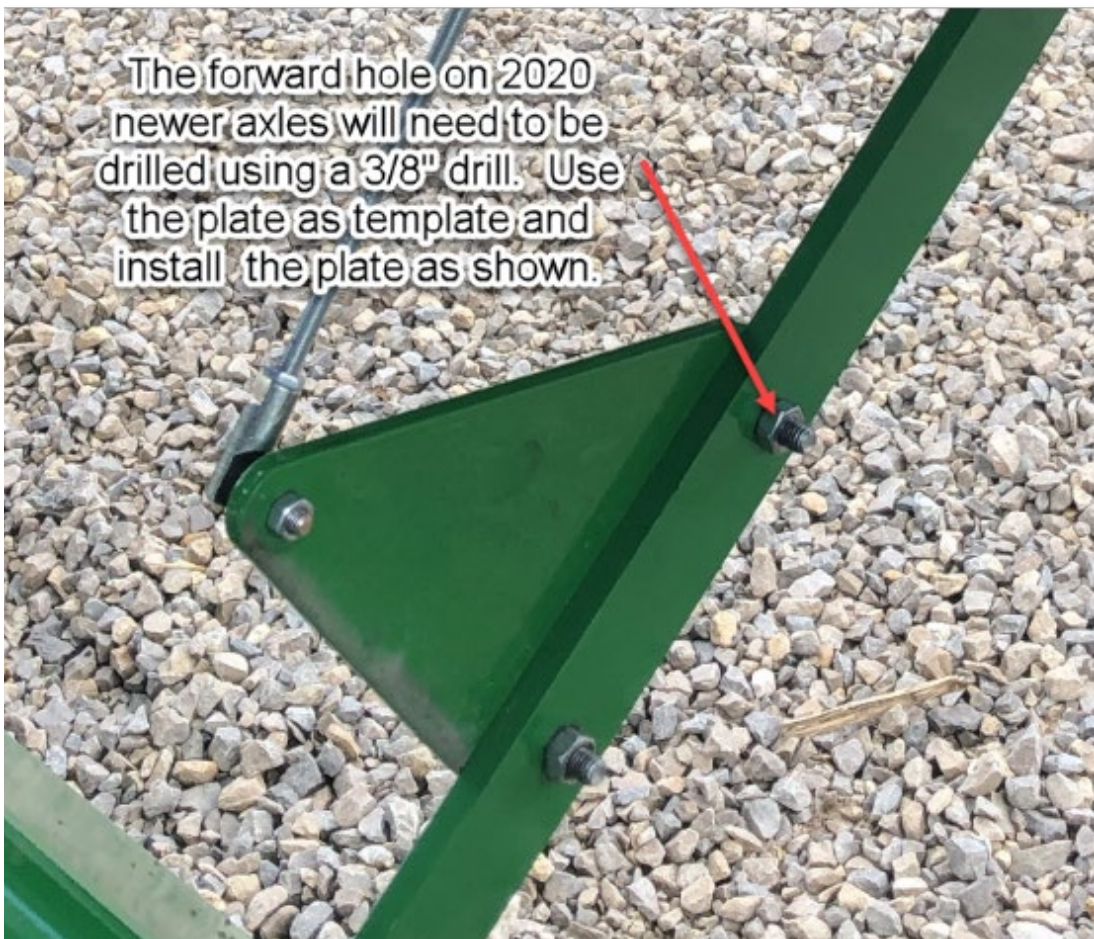
b.) Reassembly the sensor with the longer lever as shown.



c.) Assembly of the revised sensor to the new mounting plate.



d.) Axle connecting plate installation

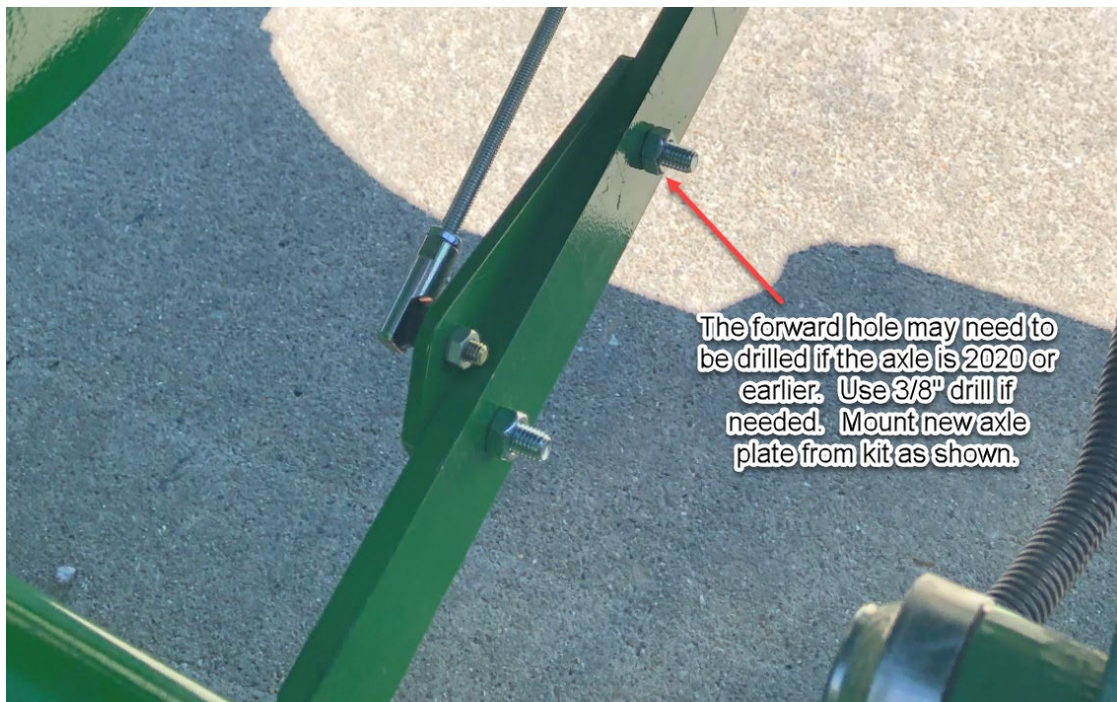


e.) Installed 2A-2629-100 kit on a 2018 or newer DB60-DB66 Planter



- **DB80-DB99** will use kit 2A-2630-100 and will be assembled as shown below

a.) Install new axle plate on axle strap



b.) Install current height (position) sensor on the new mounting bracket bolt sensor mounting palte in to position as shown.



c.) The final assembly with the kit supplied 12.25" connecting rod assembled



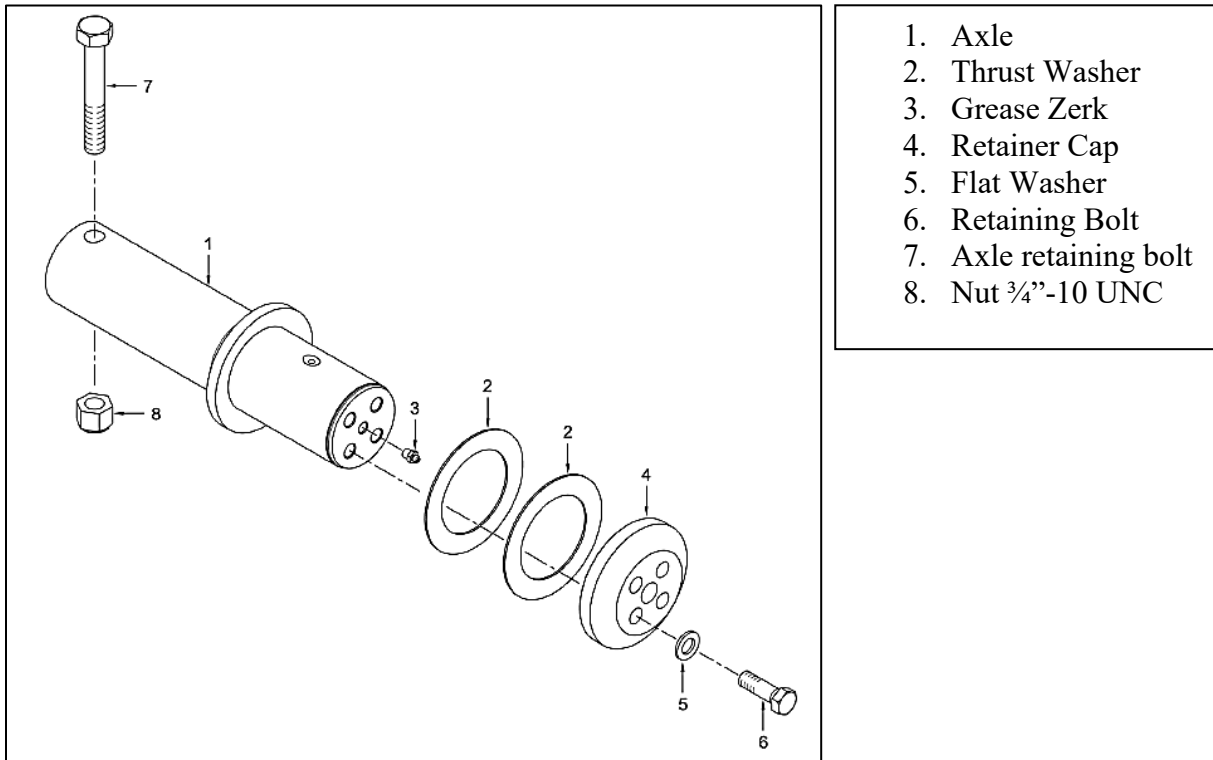
9. Check all fasteners, installed links etc. for proper installation and torque.

10. Grease the axle saddle mounts with recommended Deere grease.

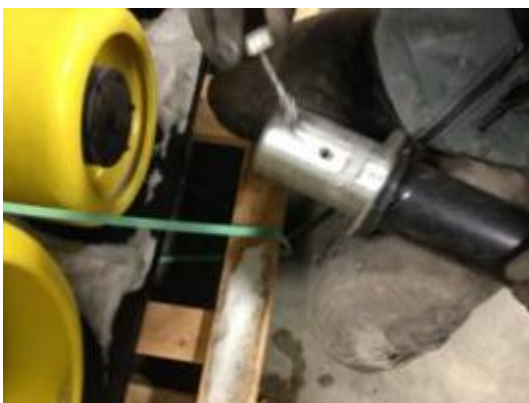
11. TTS DB Axle assembly installation is now complete.

New Axle Pin Installation

1. TTS undercarriages utilize a center pivot mount consisting of sintered bushings and lip seals allowing for ease of maintenance and smooth operation. Installing the axle pin into the undercarriage prior to undercarriage installation on the axle minimizes possible damage to the lip seals.
2. Refer to the drawing below for a pictorial representation of the pin to undercarriage mount configuration.



3. Slide 1 inner thrust washer (2) onto the axle pin (1) against the machined shoulder.
4. Insert the grease zerk (3) onto the end of the axle shaft and tighten.



5. Lightly grease the outer surface of the axle pin using Camso approved grease (NLGI GC-LB) or equivalent. Slide axle pin into the center mounting hole of the TTS undercarriage from the inside. **Note: Always position the undercarriage tension mechanism to the rear when installing u/c's. Serial # plates are located on the outside of each undercarriage for ease of identification. Track treads are in a non-traction application condition and mounted backwards by design.**

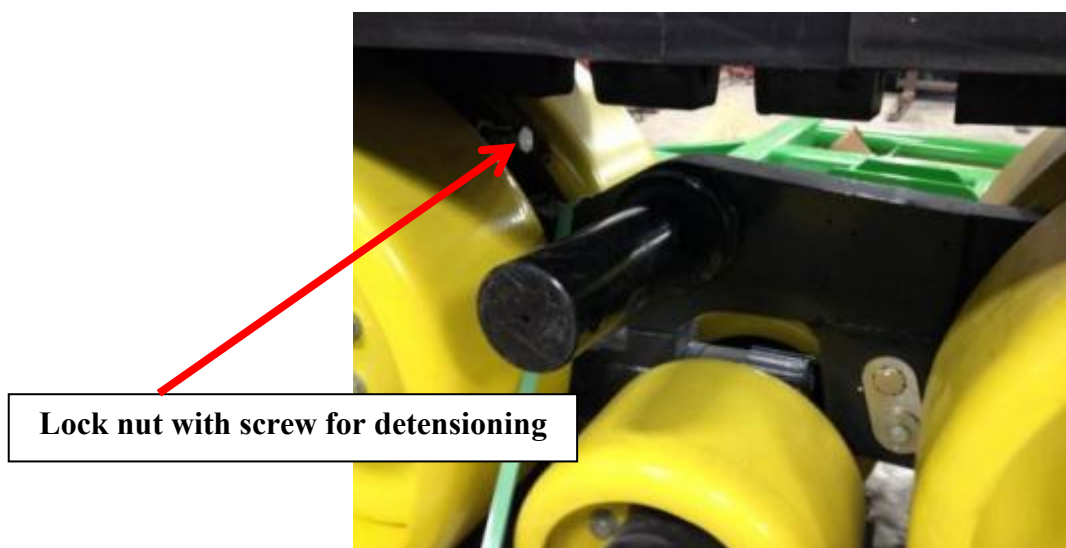


6. Install the second thrust washer (2) on the outside of the pin and mount the retaining cap (4) using bolts and washers (5,6). Tighten to 320 N-m +/- 64 N-m (236 ft-lbs +/- 64 ft-lbs). Grease the center pin zerk with Camso recommended grease, initially 8 pumps and 2 pumps weekly during field operation.
7. Repeat this procedure on the opposite side main pivot pin.
8. Installation of the main pivot pin in the TTS undercarriage is complete.

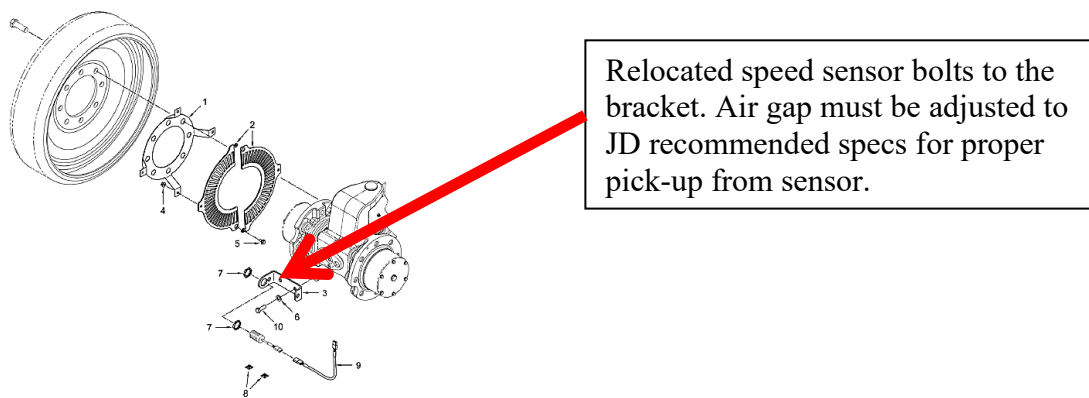
Speed Sensor Reinstallation (if needed)

The speed sensor removed from wheeled axle assembly earlier will need to be installed in the outer RH front TTS undercarriage assembly. Before this can be done, the tension on the system must be removed so the idler can be removed.

1. Locate the track detensioning bolt and lock nut. This mechanism is at the top of the rear tension link assembly between the idler wheels.



2. Loosen the lock nut using a 42 mm deep well socket (or similar). Compress the spring to detension the track by tightening screw (clockwise). Tighten the screw only far enough to loosen the track and allow for removal of the right front outside idler wheel. **Do not over tighten.**
3. Remove the (8) M20 x 60 bolts and washers holding the RH front outer idler wheel to the hub. Then remove the idler.



4. Install the original speed sensor removed from the tire assembly into the saddle bracket and tighten with jamb nuts. Gap sensor to tone wheel per JD planter specs (normally 1-1.5 mm).
5. Attach wiring harness and route wires out of undercarriage assembly to the inside to attach to the original planter sensor harness wire from the planter upright. This will be done after installation of the u/c to the axle.
6. Reinstall the idler wheel to the front idler hub. Torque the (8) hub bolts to 620 N-m +/- 124 N-m (457 ft lb +/- 91 ft lb).
7. Retension the track assembly by retracting the jack screw on the tension link assembly. Rotate the screw counterclockwise, extending the spring until there is no load on the screw. The spring is now fully extended and the track has maximum tension. Turn the screw in/clockwise until it touches the tension link and back off ¼ turn. Secure the jamb nut.
8. The speed sensor is now installed and the RH track assembly is now properly tensioned. Refer to Operators manual provided with this installation kit for further details if needed.

Undercarriage Installation onto Axle

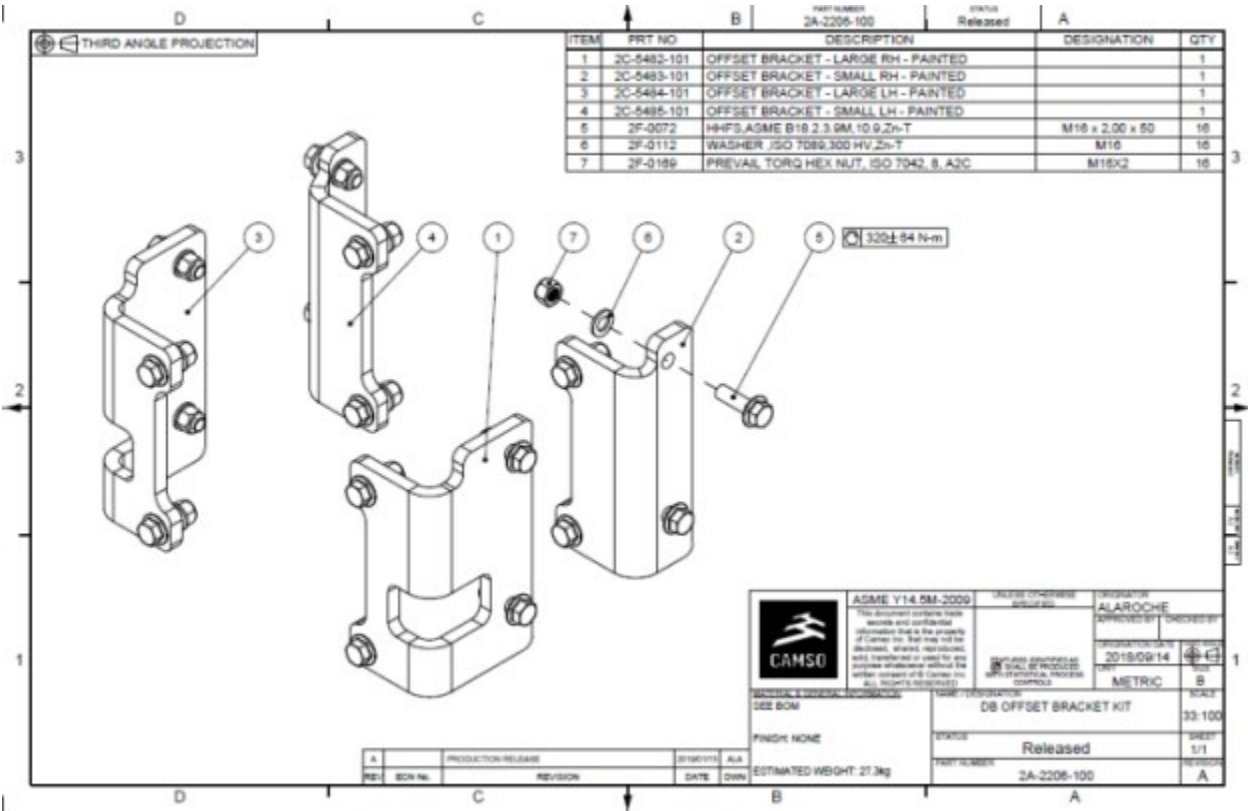
1. Prepare the inner pin surface for installation into the receiver tube on the TTS/DB axle. Apply Camso recommended grease (NLGI GC – LB) to the pin surface allowing for smoother removal if needed in the future.
2. Utilizing a pallet jack, fork truck or similar slide undercarriage assembly and pin assembly into receiver tube on planter axle.
3. Align the retaining bolt hole and insert the ¾" x 6" bolt. Install and torque nut to 266 ft-lb +/- 50 ft-lb.



4. Repeat this procedure for the opposite side.
5. Assembly of undercarriage to new tracked axle is now complete.
6. Grease pivot points on planter rock shaft axle with Deere approved grease. Attach the wheel speed sensor harness to the Deere lead and fasten to the planter upright. Recheck all hardware.
7. Remove any lifting devices under planter, start tractor and raise/lower undercarriage assemblies to check operation.

DB60+ planters with 20” rows

The row lift offset brackets that replaces the weld on roller relocation parts in the past Camso fitment kits after 04/01/19. This change is for all model year John Deere DB planters with 20” rows. The kit has the following parts



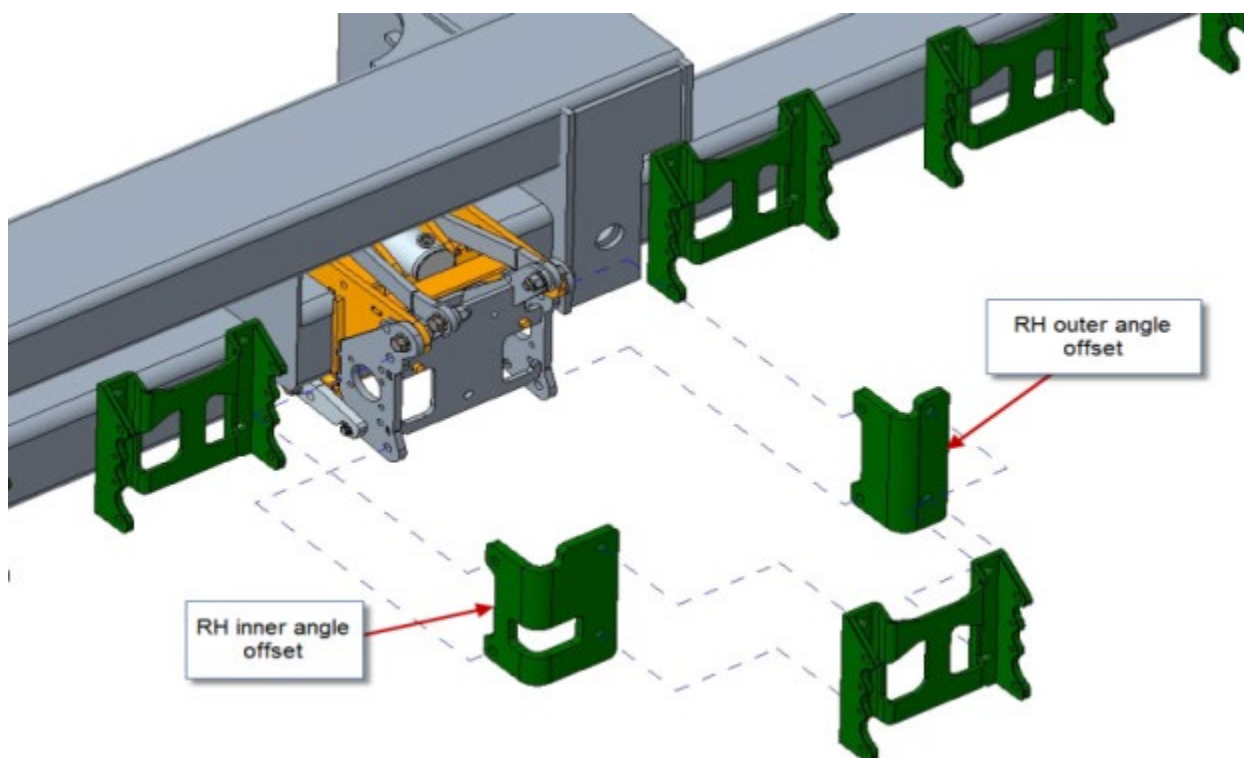
Before installation of the row lift units.

It's important to test fit the row lift units and trim the planter support tube as needed for clearance for the row lift unit. See picture below. The row lift should be fitted and measured for the the 20” spacing before adding the offset angles and row.



RH Offset Bracket Installation

When installing the row lift, only snug the bolts so you can adjust the row as needed. The 4 offset angle pieces are unique and must be installed in the correct orientation. Below is the RH side of the planter. It offsets the row 3", so you do not need to move the roller supports. Torque all 4 bolts holding each offset angle to 320Nm (236 ft-lbs).



Row Unit Modification

1. Replace Deere row unit backbone and install assemblies supplied with row lift kit on both sides of the planter. Reinstall all mounting hardware for drives, bags and/or fertilizer distribution systems.

Note: It is usually easier and safer to dis-mount and reassembly the parallel links to the Camso hinge assembly on the ground. Once the backbones are replaced the unit(s) can be hung from an engine hoist for installation on the planter bar.

NOTE: Planters equipped with various row cleaners, fertilizer attachments, downpressure kits etc may experience mounting and clearance issues with row units on the planter. Camso is not responsible for additional parts or labor to accommodate these unique situations. The Camso DB Row Lift kits are genaric in nature and do not fit all planters without some modification and revisions of Deere factory or short-line add-on systems. All efforts are made by Camso engineering to minimize these issues but Camso is not responsible for the possible added costs associated with installation of these kits.

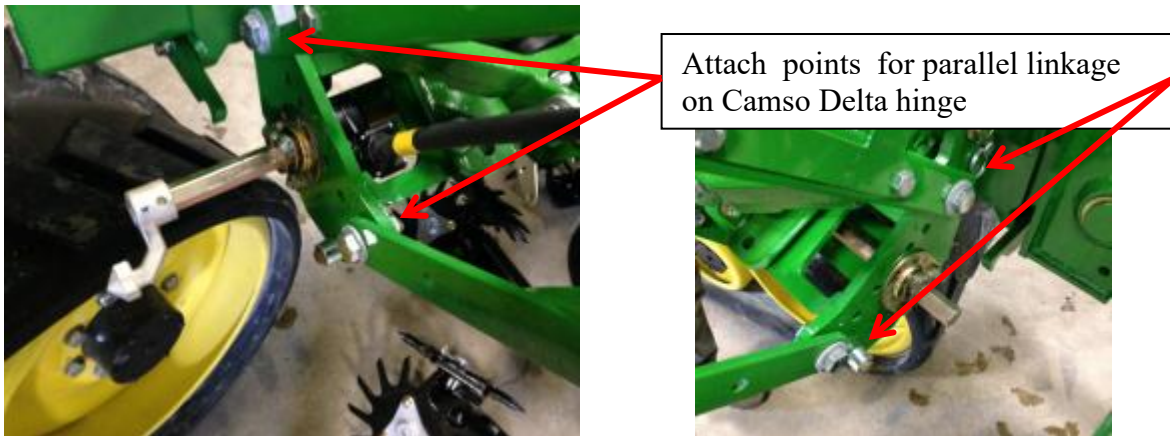


2. Ensure all factory linkage/hardware is reassembled on the completed row lift assembly. The original airbag (if equipped) yoke moves with the original parallel arm assembly to the Camso Row Lift hinge assembly.

3. Reinstall meter drive shaft and bearing assemblies on row unit. Tighten all hardware and check for binding or misalignment. **NOTE: Some units will need the meter drive shaft lengthened. Several shaft options are available from your Deere Parts Dept. If you are using the 20" row offsets please order 2 (29") cables from Deere Part # AA57542. If you have 22" or 30" rows, Dawn Manufacturing also makes a 3" extension which may be used to lengthen the existing meter drives. The Dawn part # is 300394. A Dawn extension is shown below.**



4. Lift unit into place using proper lifting device. Slide throat of row lift into position and check for proper row spacing per configuration of planter.



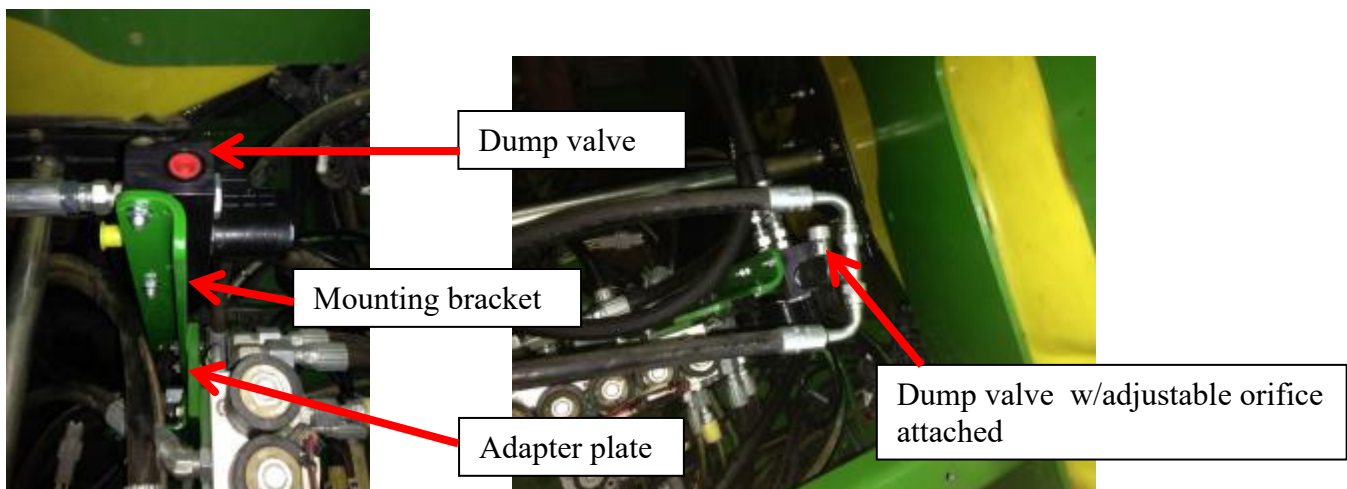
5. Remove latch mechanism, install rear backing plate and reinstall latch/lock assembly. Recheck row spacing and tighten hardware.



6. Reinstall any air lines, harnesses and distribution manifolds removed attached to the row unit. Mount distribution manifold removed earlier (if required) to a suitable location above and behind the row lift unit on both sides.

Installation of Hydraulic Dump Valve and Adjustable orifice

1. Position the dump valve on the left side of the main hydraulic block using the 90 degree mounting bracket, hardware and spacer plate supplied. The plate can be bolted to the valve body hole locations to space the mounting bracket away from the wire harness bulkhead if desired. There may be several locations or variations of mounting the valve assembly. **NOTE: Access to the adjustable orifice should be clear so operators may adjust the raise/lower speed of the row lifts from underneath the planter platform.**

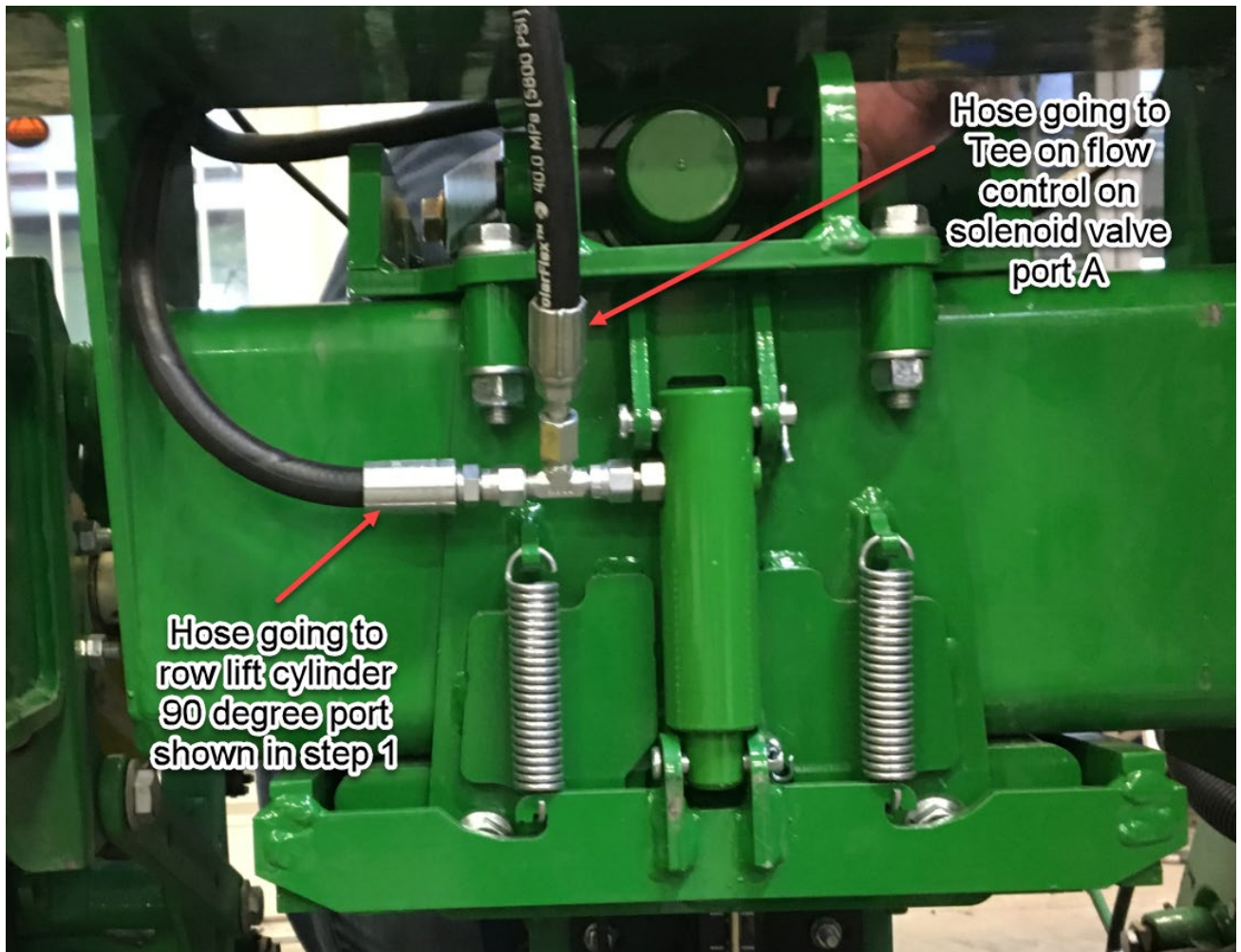


Hydraulic Installation for Row Lifts

1. Install 90 degree #6 - #4 flare fitting into top side port on lift cylinder located on top of the row unit. The fitting should face towards the front of the bar to accept the hydraulic line routed from the latch cylinder. **NOTE: Fittings may be positioned at various angles/configurations depending on hose routings chosen.**



2. Connect fittings as shown. Stretch tension springs from the bottom hook to the top hook connecting into tabs provided on the back plate. Route hose from small #4 port on the front port over the bar and connect to the 90 degree fitting on the lift cylinder. Assembly is the same on the opposite side. Tighten all connections. On 2013/14 planters with the roller relocated the connection to the latch cylinder and hydraulic line to the lift cylinder may be installed on one side of the cylinder with a T fitting if interference is present.

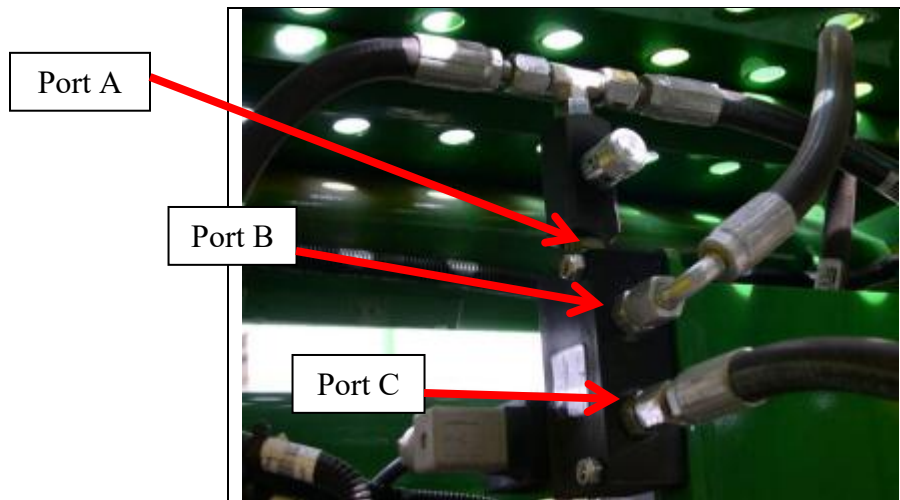


3.

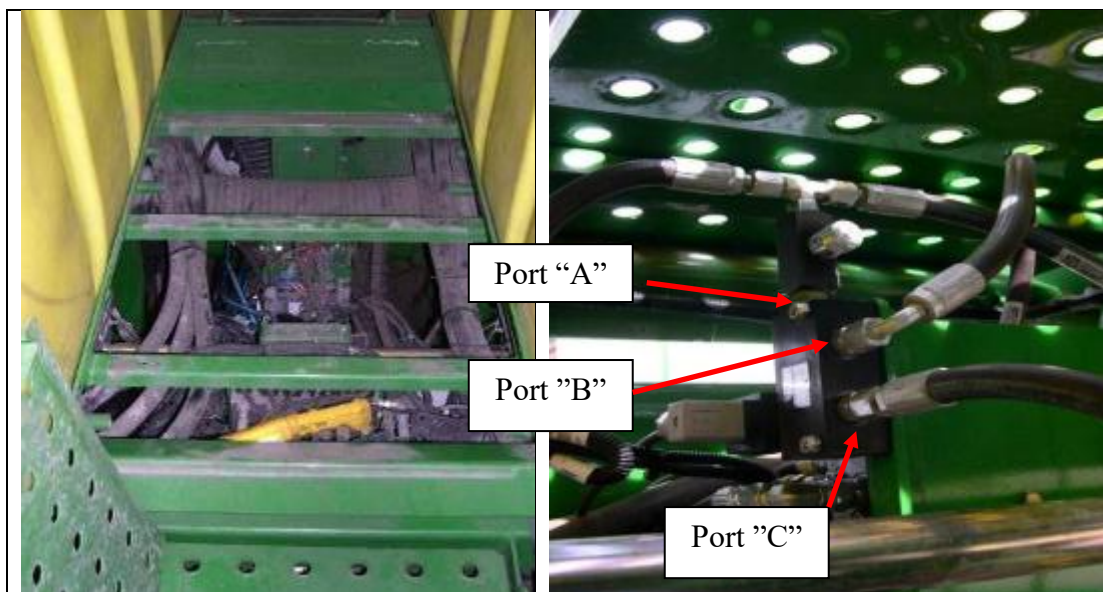
Hydraulic Valve Preparation

1. Install straight fitting (2H-0130) into port B of the hydraulic dump valve.
2. Install M6 orb x 6 orfs fitting (p/n 2H-0196) into port C of the hydraulic valve. This line will route the case drain (0 pressure/low flow) line back to the coupler at the tractor.

3. Install straight adapter fitting (p/n 2H-0158) into port A on the valve assembly.
4. Thread the flow control block (p/n 2H-0153) onto this fitting and align as desired to accept the hydraulic lines which route to the latch cylinders. Tighten all hydraulic fittings on the dump valve and adjustable orifice.



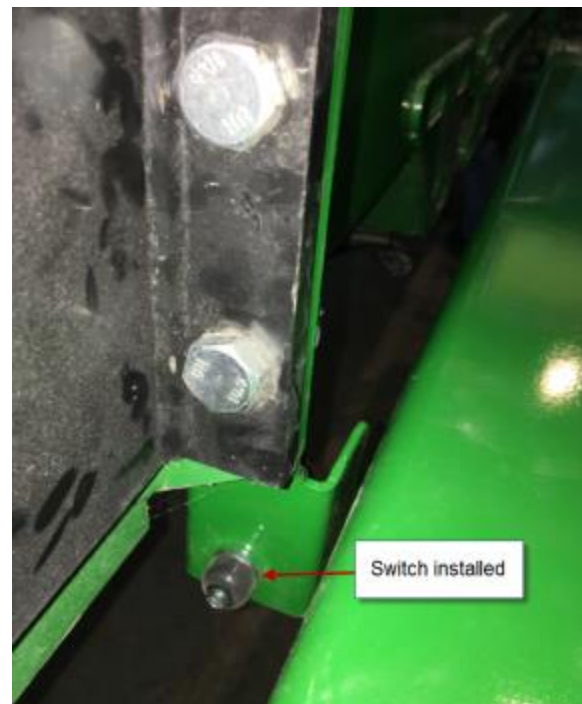
5. Remove the perforated platform above the main valve stack at the rear of the planter.



6. Installation of the dump valve control switch, bracket, wire harness and auxillary power hook up. Seen below in drawing.

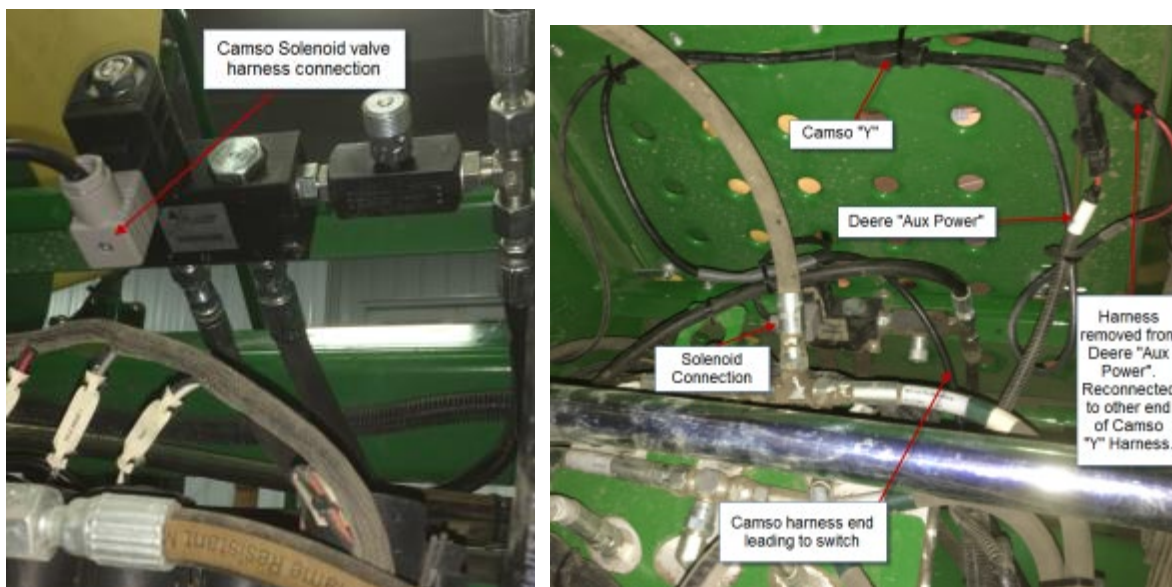


Remove the switch end cover. This will allow the switch to be inserted through the hole in the switch bracket. The lock washer stays between the back of the switch bracket and the lock nut., as shown in the LH picture below. Please note the switch depth is adjustable and will need to be adjusted so it stays engaged while the hitch latch is locked. After the proper distance is defined, tighten the lock nut to secure the switch.



Start with installing the Solenoid valve harness connection using a small Phillips screw driver, as shown in the LH picture below. Then find the Deere harness connection marked "Aux Power". If it connected to another harness, disconnect it. Then connect one end to

the “Aux Power” to one end of the Camso “Y” lead and the other Deere end to the other Camso “Y” lead. See RH picture below for details. Please note to zip tie the harness to the top bracing as shown



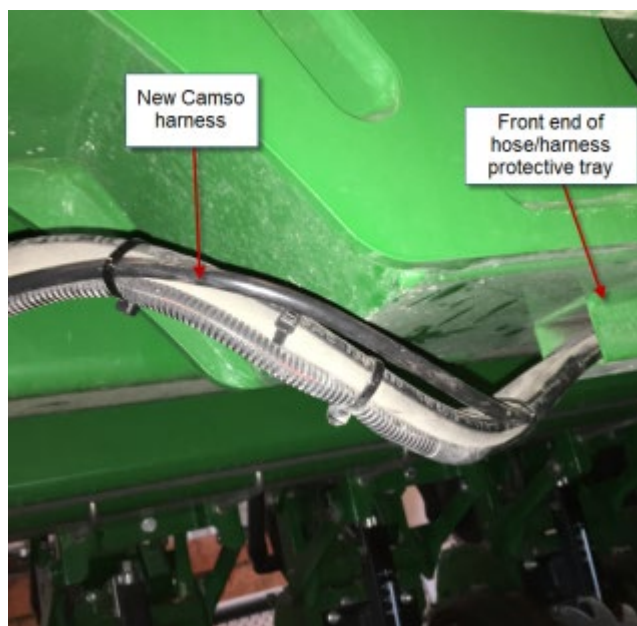
Route the new Camso harness down along the hydraulic hoses, zip tying as needed. See picture below for details



Route the new Camso harness through the opening, as shown in the LH picture. Zip tying as needed. Once through the opening use fish tape to pull the harness through the protective hose/harness tray under the main beam, as shown in the RH picture.

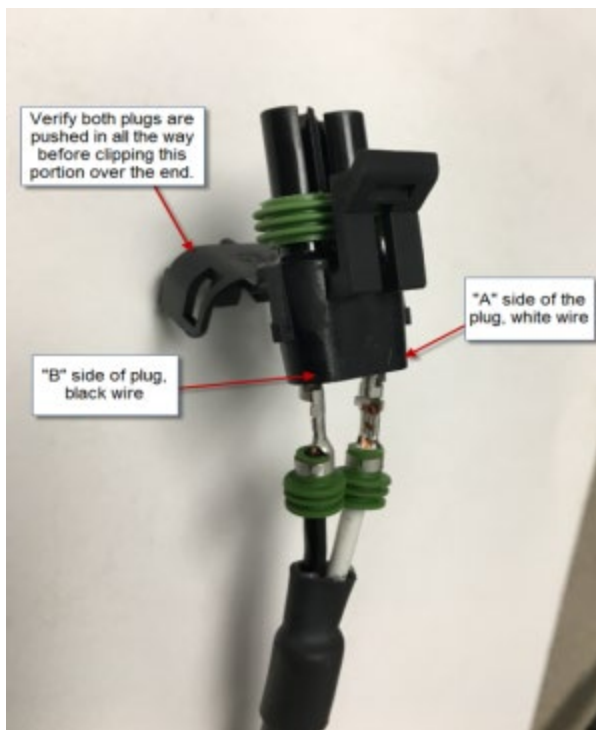


Pull all excess of the new Camso harness through protective hose/harness tray under the main beam and secure the harness to the hydraulic hoses and other harnesses as shown below.



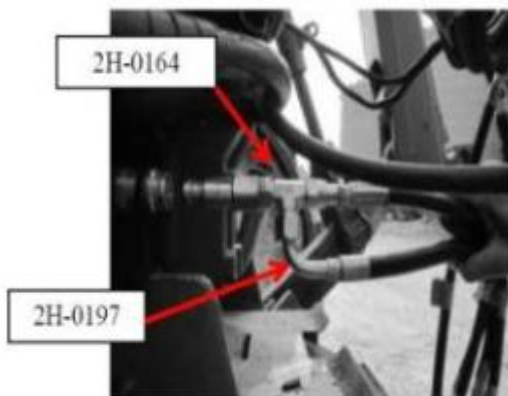
The harness is designed to be longer than required and will need to be cut before the weather pack plug is installed. Connect the weather pack plug, as shown in the LH picture

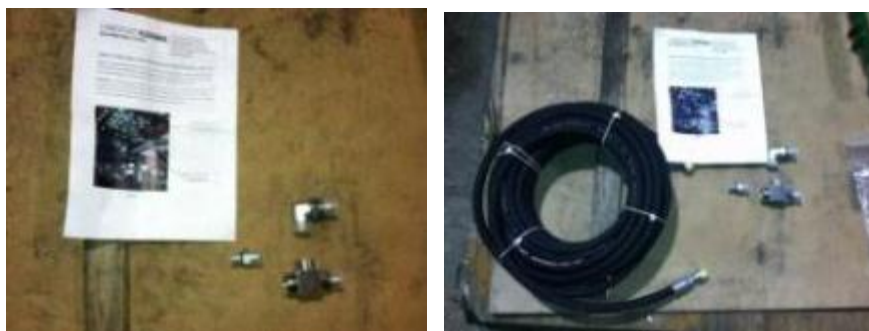
below. Verify the plug are pushed in properly, before snapping the end piece over rear of the plug. Once the weather pack plug installed, connect the harness to the switch, as shown in the RH picture below. Remember to zip tie the wire and connection to the holes provided on the switch bracket.



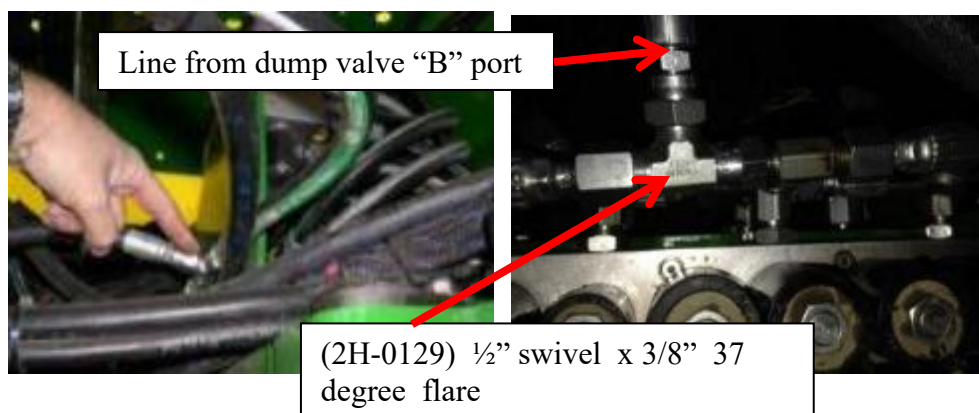
Once all the connections are complete, the switch bracket and switch depth may need to be adjusted. You will need lock and unlock the hitch latch to validate both. After both have been validated, the installation will be complete.

7. previously installed. **Note: The drain line may also be connected at the hydraulic bulkhead behind the planter hitch if desired. Locate the case drain and T into this 0 pressure/low flow line if desired.**





8. Route hydraulic line from “B” port on Camso dump valve to the rod end(s) of the fold cylinder(s) connecting, at a common point on the bulkhead with swivel nut run T. This “T” fitting can usually be installed at a common point using a T fitting and connecting in line with the existing T connector from the fold cylinder rod ends. See representative photos below.
9. **CAUTION: This line may be under pressure, remove slowly releasing pressure and oil.** It may be convenient to relieve the pressure at one of the lines on the rod end of the fold cylinder. Oil released may drop directly below the cylinder and collect in a suitable container. Bleeding the pressure initially at the multifunction block leaves little room for containers to collect oil.



10. Tighten all hydraulic fittings and check for binding and kinks.

11. Replace planter platform removed earlier.

NOTE: Some 2013 and later units may have a T-fitting forward of the main valve stack (see left picture above).

Safety Pins/Row Unit Locks

1. Pins are provided to lock Row Units in the raised position. When transporting the planter insert the pins on both sides of the hinge bracket through the holes provided.

2. **NOTE: Always pin the rows in the upright, locked position when transporting the planter.**
3. **Caution: Pins must be removed prior to beginning a fold or plant cycle for the planter. Damage may result if pins are not removed. Damage caused by failure to remove the lock pins is not a warrantable.**

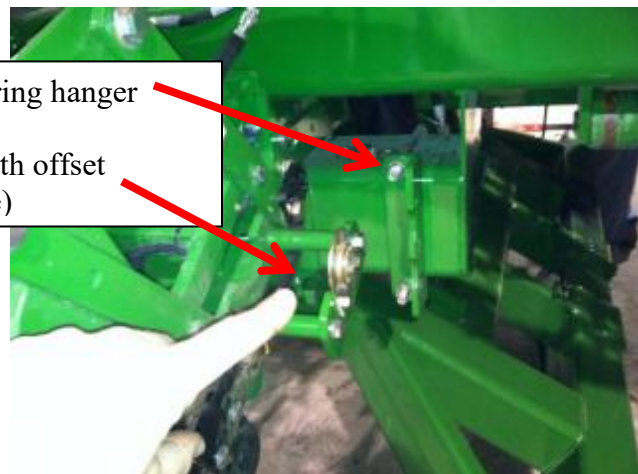


[DB 60/66] Row Unit Drive Lift

1. Reposition the drive shaft for the flex drive onto the Camso hinge assembly. Existing bearing hangers and hardware on the Deere backing plate are reused.
2. Install the offset bearing kit on the inside of the hinge assembly. This unit will transfer drive power from the rear drive motor to the lifted unit via finger drives. Ensure the centerlines of the 2 driven shafts are aligned and fingers have sufficient contact to provide constant power.



Original bearing hanger
(relocated with offset
bearing drive)





Note: Above pictures of the offset bearing drive show installation on a pre Delta hinge configuration (Units prior to 2015). Installation for 2015 and on similar except the drive shaft bearing hanger on the right side is configured towards the rear vs front as shown. Pictures below show a 2015 Delta hinge configured on a DB60 left and right wings with offset bearing drive installed.



[DB 88] Row Unit Drive Lift

On the main wing bars of the older DB88 planters the spuds will need removal to accommodate the lift hinge. Locate the vacuum spuds on the main bar. These will need to be removed as they interfere with the placement of the row unit after modification.

1. Using a suitable cutting device, cut and remove both spuds from the main bar. It is not necessary to recover the openings, however it is recommended to smooth the surface cut earlier, prepare and paint to prevent corrosion.



[DB80/88] Wing and Rear Bar Drive Extensions

1. DB80/88 planters require adding a second drive per row unit on the wing row units and the end units on the rear stationary bar. **NOTE: Installing elevated drives on main bar may require installation of the brackets prior to fitting the row unit(s). Bolt clearance may be limited depending on planter configuration, (see step 5 below)**
2. **NOTE:** Pictorial representations of drive brackets, bearing mounts and elevated drives are shown in the rear portion of the TTS Parts Manual (CPB-517) shipped with this kit. There may be multiple solutions and options to provide driven power from the planter hydraulic drive motors. Some owners may provide a solution differing from the pictures and steps highlighted in this manual.
3. Attach bearing mount extensions on inboard (end closest to rear stationary bar) side of each row unit on the left and right main bars of the planter. Bracket is used to secure the main drive shaft bearing outboard and provide clearance with upper drive fingers.





4. Attach 2 drive lift brackets on the inside of the back bone frame on each side. Bracket slots are sized to allow for adjustment as needed. These brackets will hold a second drive shaft, drive fingers, bearing holders and sprockets to match up with the elevated drives on the rear stationary bar added later in this modification procedure.



5. Attach drive sprockets, align with lower drive shaft sprockets and fasten chain. Check alignment of all shafts, sprockets and drive fingers. Ensure driveshaft connection is free to slide on the inner shaft when row lift is activated. **NOTE: Some planters have drive shaft connections and some utilize flex couplers depending on planter model year.**
6. After final checks and alignment, tighten all hardware and move to other side and duplicate the process. Once both row units are complete on the wing bars move to the rear stationary bar and begin a similar process on the 2 outer row units.

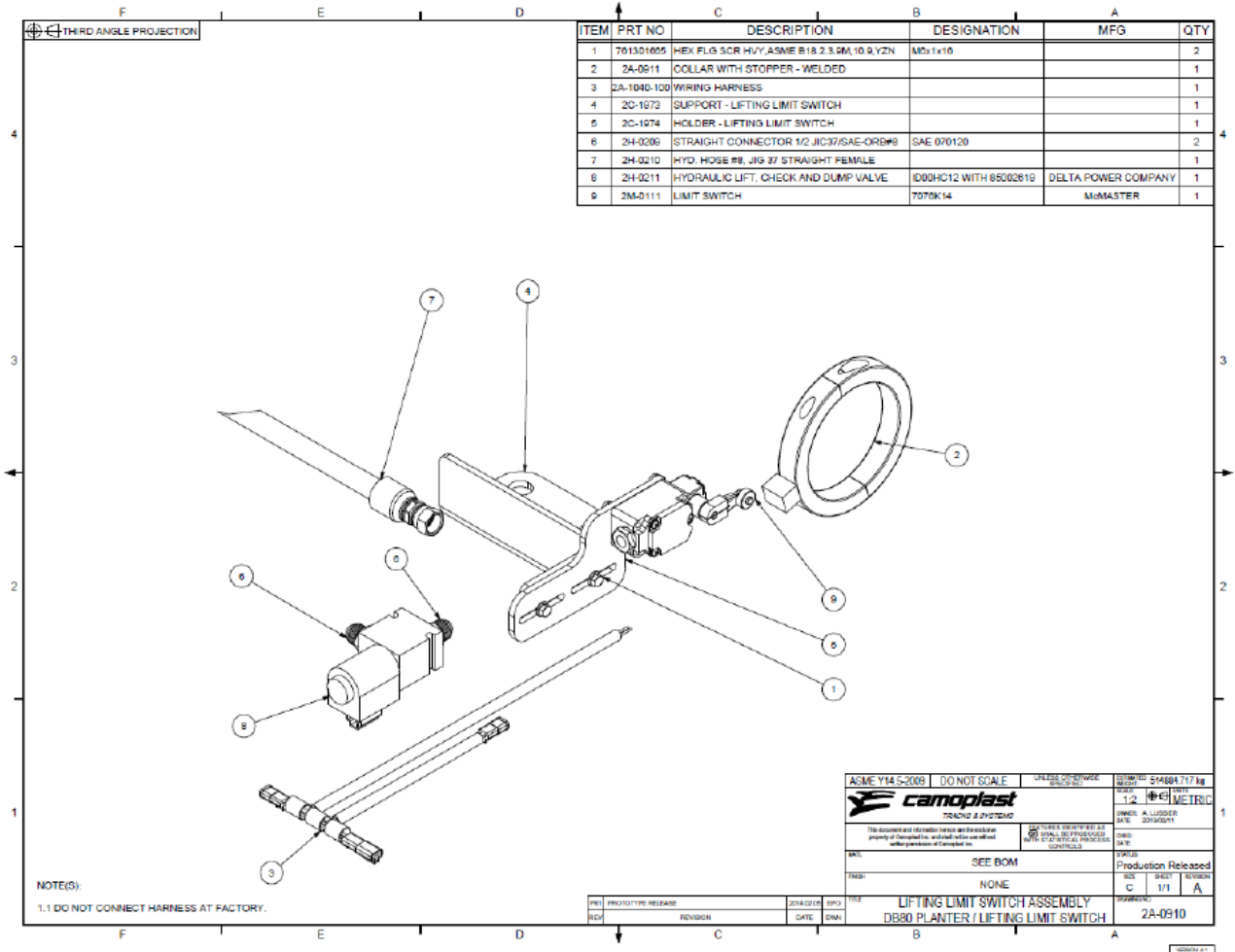
[DB 88] Rear Bar Row Unit Drive Additions

1. Attach 2 drive shaft brackets to the inside of the backbone of the outer rear bar row unit. Hardware may remain loose to allow for alignment and simplify addition of bearing holders and a second drive shaft.
2. Insert driveshaft, bearing holders and clamps into the mounting brackets. Add idler sprocket, install chain and check alignment with idler and upper and lower drive sprockets.
3. Tighten all hardware, vacuum lines and any electrical wires/connections removed previously. This process will now be replicated on the opposite end row unit.



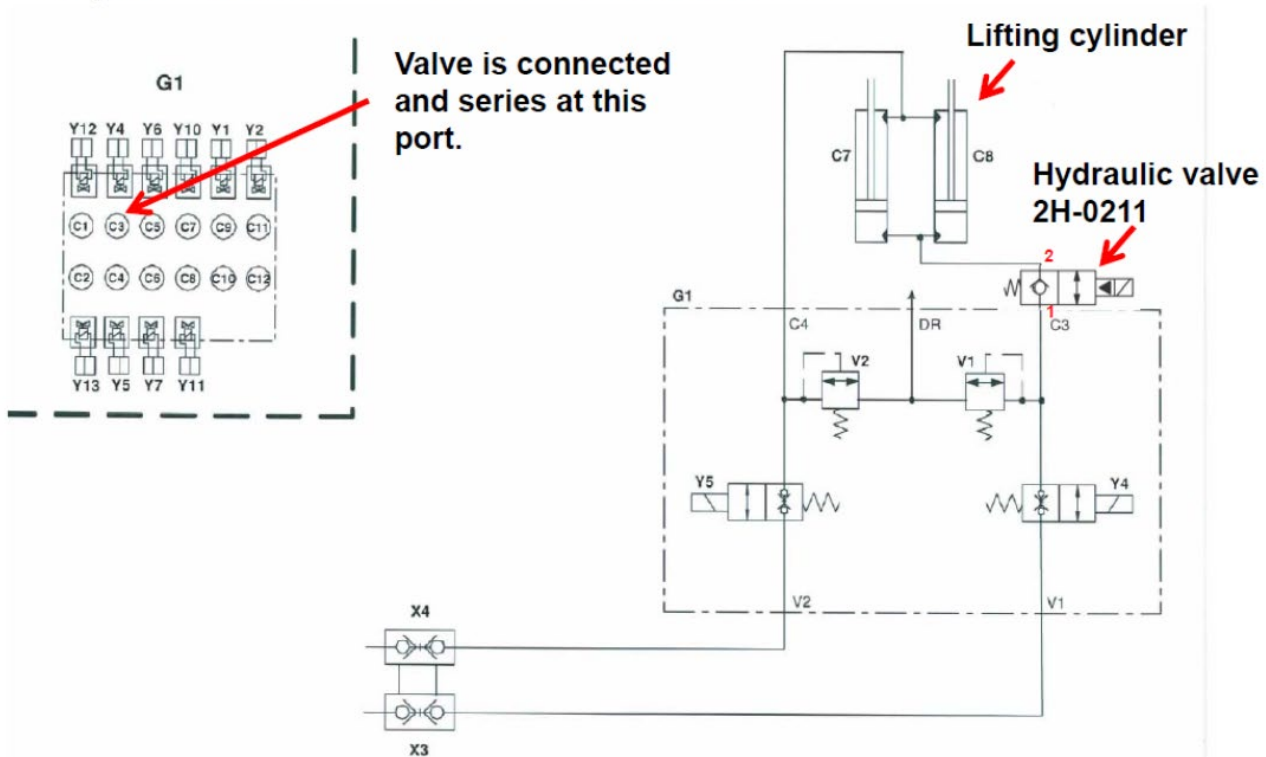
[DB 80/90] 20" Rows, Transport Height Limiter

DB80 and DB90 planter with 20" row spacings have the ability to run the track system into the first non-lifted row unit while raising to full transport height. In order to prevent damage to the row from the track system, we limit the maximum height of the planter by half the Transport height (about 4"). This is done by the installation of Camso height limiting kit 2A-0910.

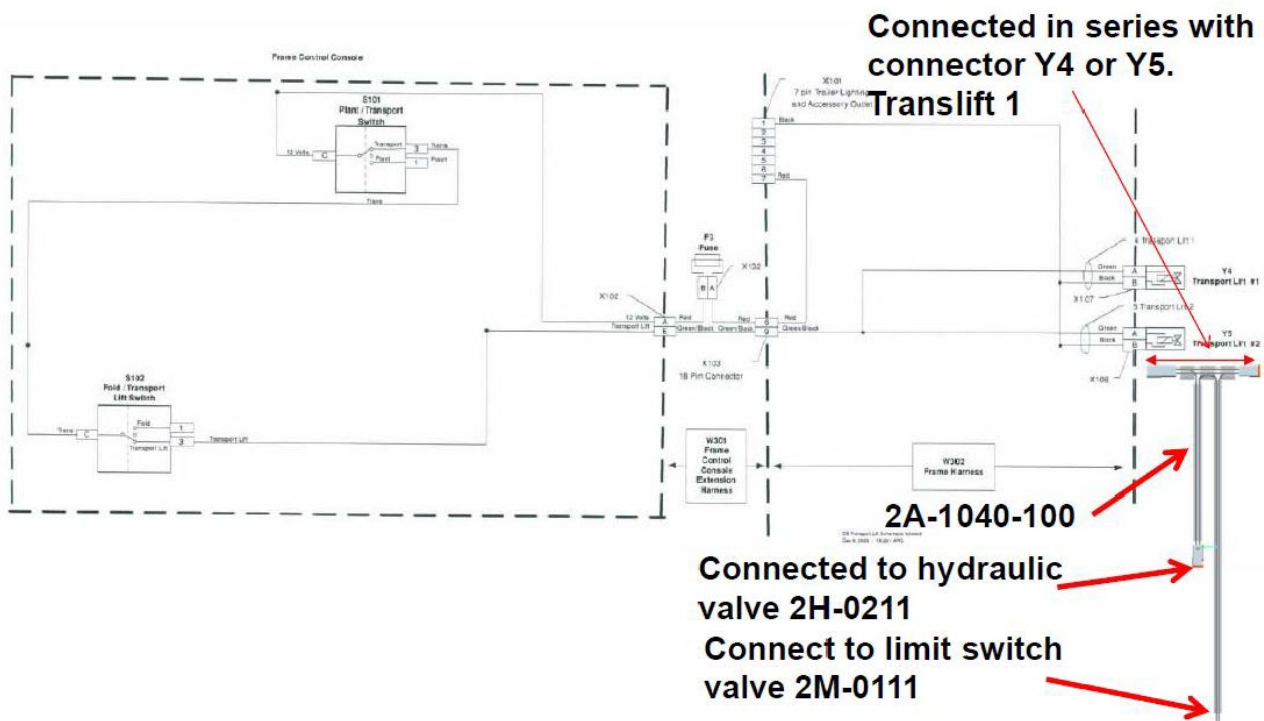


ITEM	PRT NO	DESCRIPTION	DESIGNATION	MFG	QTY
1	761301665	HEX FLG SCR HVY,ASME B18.2.3.9M,10.9,YZN	M6x1x16		2
2	2A-0911	COLLAR WITH STOPPER - WELDED			1
3	2A-1040-100	WIRING HARNESS			1
4	2C-1973	SUPPORT - LIFTING LIMIT SWITCH			1
5	2C-1974	HOLDER - LIFTING LIMIT SWITCH			1
6	2H-0209	STRAIGHT CONNECTOR 1/2 JIC37/SAE-ORB#8	SAE 070120		2
7	2H-0210	HYD. HOSE #8, JIG 37 STRAIGHT FEMALE			1
8	2H-0211	HYDRAULIC LIFT, CHECK AND DUMP VALVE	ID00HC12 WITH 85002619	DELTA POWER COMPANY	1
9	2M-0111	LIMIT SWITCH	7076K14	McMASTER	1

Hydraulic Valve Connection



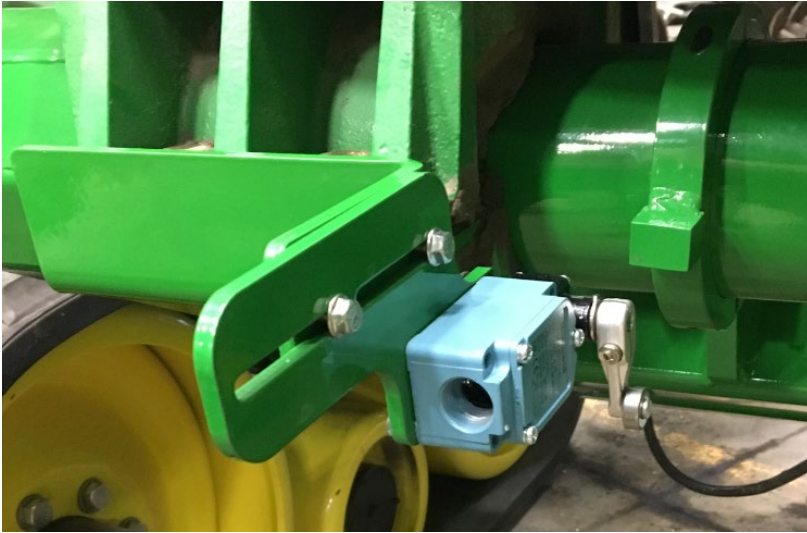
Electric Connection



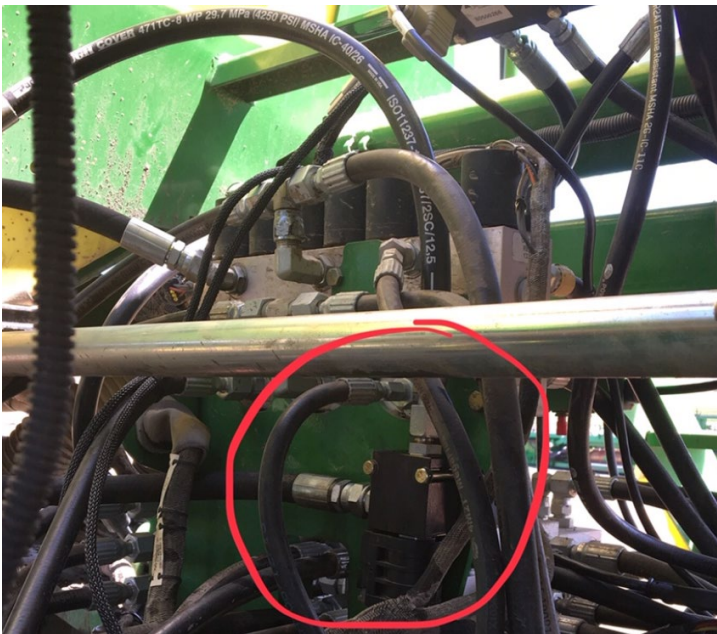
1. Once all other installation procedures are complete and the planter is unfolded, but is in **field** height with the lift cylinder safety stops in place, the height limiting kit can be installed.

Important Note: The transport side of the lift cylinder must be fully retracted (field height) in order to install the height limiting kit.

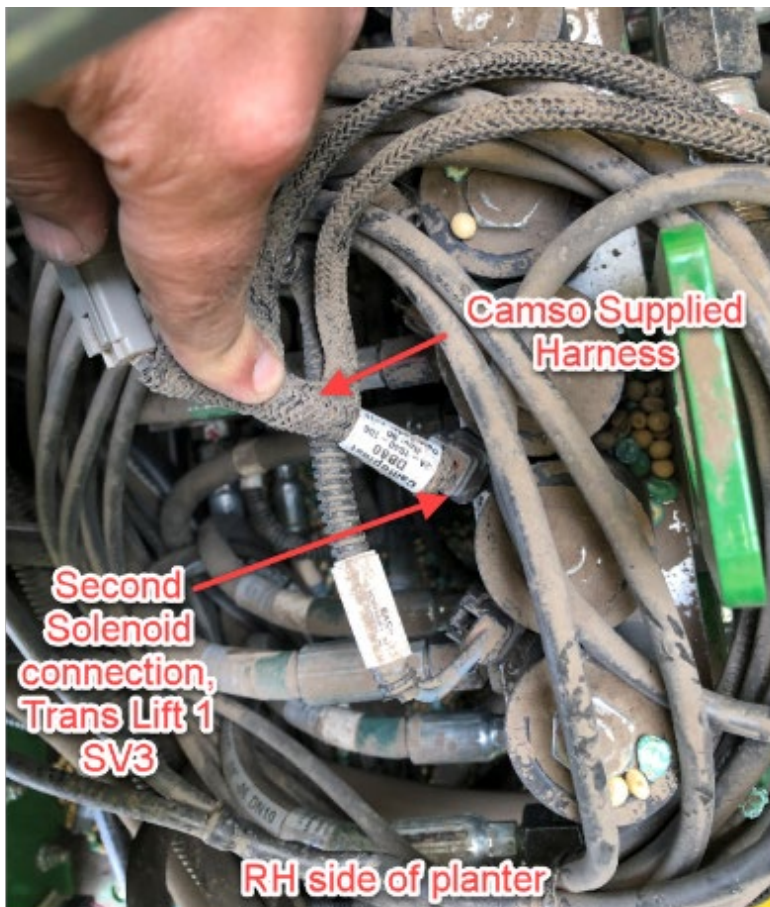
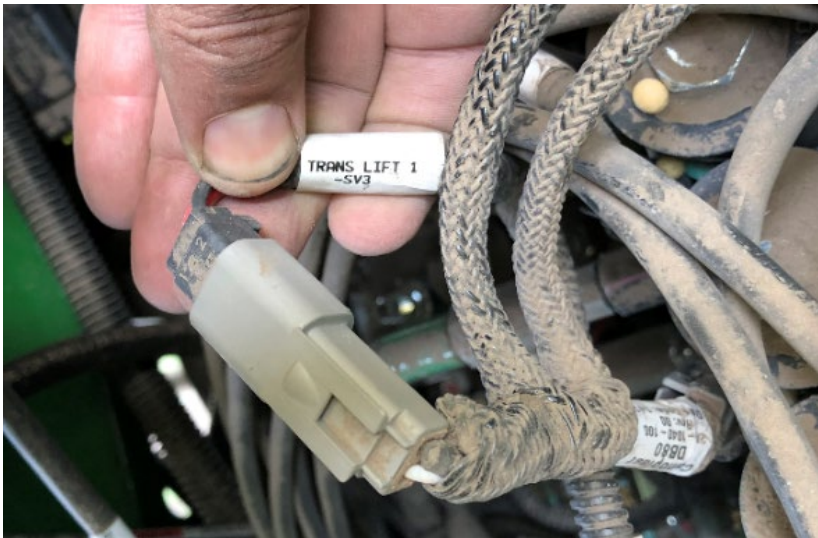
2. Start by installing the switch mounting brackets, switch, and tube switch activator baracket, on the RH side of the planter, on the front side of the pivoting axle mount, as shown.



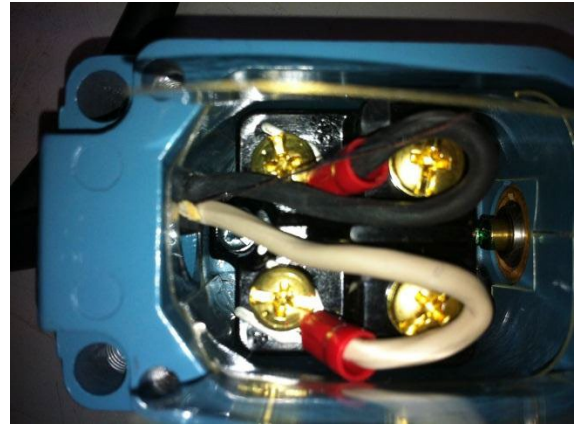
3. Install the kit supplied solenoid control valve can vary. Pictures below show it on the the front side of the main valve body LH side. Installation location is up to the installer, but the supplied harness and hydraulic hose must reach it's location.



4. Find and Disconnect the Trans-Lift 1 SV3 solnoid connection and install the Camso supplied wiring harness double end connecting point as shown, between the Trans lift solenoid and the supply wire connection (Trans Lift 1), as shown.



5. Route the short lead of the harness to the newly installed solenoid valve and connect it.
6. Route the the long lead down to the the switch and connect it as shown.
 - a. Install end as shown and add connections
 - b. Connect terminals as shown.



- c. Seal wire end with threaded fitting
- d. Finished assembly



7. Verify the transport side of the lift cylinders are fully retracted. then disconnect the hose end (connecting the tee between the lift side of the transport lift cylinder with the trans lift 1 solenoid) and attach the hose end to the side of the new solenoid valve as shown.



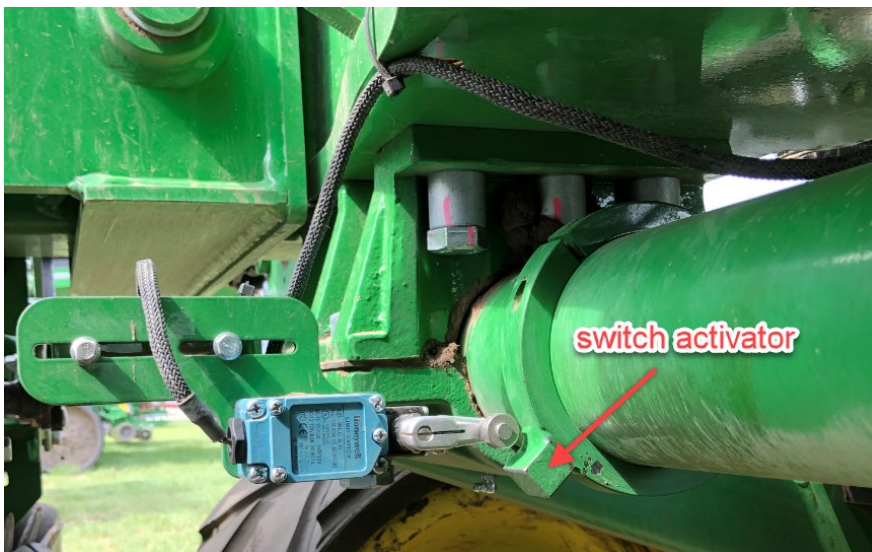
8. From the kit use the Camso hose to go from the top of the solenoid valve to the Tee connection, as shown. Be sure to route and secure the hoses as needed, so it is not compromised from the normal use of the planter.



9. The transport height limiting kit is installed and just need to be set. For this step 2 people will be helpful. The planter will need to in field height and folded. (Be sure the row 2 row units with lifts on, raise when folding). With one person watching the gap between the front planter tracks and the first row not raised on the wing, start raising the raising the planter to transport height. Stop the planter with 2-3" of clearance as shown.



10. Adjust the tube mounted switch activator to active the switch and tighten the mounting cap screws on the stop. Once this is complete test the system by lowering and raising the the Transport cylinder and verify it stops with 2-3" of clearance between the track and first non lifted wing rows. Check both sides. If clearance is good, installation is complete.



[DB 44] Row Spacer Extensions

DB44 planters do not require lifts on the 2 inner rows if the spacer option is ordered. Spacers are attached to the 2 inner rows, vacuum and seed distribution lines lengthened and a secondary jack shaft drive off the main drive added to drive the units. There is no hydraulic modification needed on this configuration as the row spacers allow for clearance with the track assembly.

Position additional U bolts ordered as part of the “additional parts” needed from your dealer to hold the spacer to the bar. There will be 3 clamps and one set of bolts used to hold the unit to the bar on some units. Clamps can be installed between the back bar spacer plate and the main bar, and then rotated 90 degrees into position.



1. Begin assembly of the row spacers to the back side of the row unit on each side of the planter bar. Spacers may either be installed onto the row units or bolted to the bar first and row unit attached. In both instances the U bolts are to remain loose so spacing may be set prior to tighten all hardware.
2. Position the unit on to the main bar, check row spacing and tighten hardware.



3. Working on the right side of the planter, assemble bearing hangers to the outboard side of the forward row unit. Add a new bearing hanger and idler assembly to the provided fittings on the row unit and spacer.
4. Position a secondary drive shaft through the row unit and hang on bearing holders, clamps and hex shaft ordered as part of the “additional parts” needed from the dealer.
5. Measure and install drive chain and fasten with proper chain links and check for proper alignment.



6. Ensure that there is sufficient shaft protruding on each end of the associated bearing holders. Main drive shaft may now be cut to proper length at the front of the main bar and the secondary shaft cut at the inner row unit. **(Note: Shaft lengths are not the same on the left and right sides of the planter, drive shafts are cut to fit the installation.)**



7. Replace the vacuum lines with the longer replacements ordered from the dealer. Cut nylon tie straps holding seed delivery lines to each row unit and place right side seed line on the left row unit. A splice can now be added to the remaining seed line and used on the right row unit.

8. Replace air lines to bags and route between the two modified row units.



9. Manufacture a 6-8" wire splice to connect the electrical connector removed from the row unit initially and reconnect (if needed).



Repeat the process for the left side of the planter row unit modifications. Pictures below show a slight variation of the mounting location of the main drive bearing hangers on the left side.



Final Operational Checks

System Checkout

1. Remove all lifting devices and supports. Recheck all hardware, hydraulic lines (if applicable), air bag lines, seed and vacuum lines. Move planter to suitable surface to test fold and unfold the main bars.
2. Perform operational check of planter by cycling the fold, unfold and plant cycles.
3. DB Planter row lifts will begin to raise when the hydraulic remote which folds the wings forward is engaged. **NOTE: Adjust the orifice at the top of the dump valve to desired raise/lower speed for row lifts. Lift raise speed should be sufficient to raise lifts fully before planter wings begin folding forward.**
4. Row Lift units will lower when wings are fully extended to the plant position and the Planter monitor in the cab has “plant” engaged. This relieves the pressure on the one way lift cylinders and allows oil to flow to the case drain circuit of the tractor.
5. Check for hydraulic leaks and correct if needed.
6. Instruct owner in proper procedure for break in, alignment and maintenance of undercarriages. It is critical to pre-condition/season the tracks prior to any road transport of the track system.

Track Alignment

On planters receiving this modification kit, it is very important to check the alignment after an installation. Tracks must always be aligned in order to maximize track and wheel life and reduce overall rolling resistance. Refer to the operator's manual provided with this kit for proper track alignment procedures.

Warranty Information

After alignment and installation is completed, make sure to provide customer with the following documents, which are included with your track system:

- Warranty certificate
- Track Operational Guidelines brochure
- Product registration card
- Operator's manual
- Parts Manual
- Installation Guide

Take a few minutes to review the information in the brochure, and to discuss the warranty period. Record track serial numbers on the warranty certificate for future reference.

If any of these documents are missing, please contact your Camso track system dealer .



