AirFLEX

AirFLEX®

Flex Header
Service Manual
Model Year 2019 and Above

#: 95280

Honey Bee

1 - Table of Contents

2 - Torque Recommendations

Note: All torques are dry threads

Size	Recommended Torque											
	Grade 2		Grade 5		Grade 8		18-8 S/S		Bronze		Brass	
	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine
* #4	-	-	-	-	-	-	5.2	-	4.8	-	4.3	-
* #6	-	-	-	-	-	-	9.6	-	8.9	-	7.9	-
* #8	-	-	-	-	-	-	19.8	-	18.4	-	16.2	-
*#10	-	-	-	-	-	-	22.8	31.7	21.2	29.3	18.6	25.9
1/4	4	4.7	6.3	7.3	9	10	6.3	7.8	5.7	7.3	5.1	6.4
5/16	8	9	13	14	18	20	11	11.8	10.3	10.9	8.9	9.7
3/8	15	17	23	26	33	37	20	22	18	20	16	18
7/16	24	27	37	41	52	58	31	33	29	31	26	27
1/2	37	41	57	64	80	90	43	45	40	42	35	37
9/16	53	59	82	91	115	129	57	63	53	58	47	51
5/8	73	83	112	128	159	180	93	104	86	96	76	85
3/4	125	138	200	223	282	315	128	124	104	102	118	115
7/8	129	144	322	355	454	501	194	193	178	178	159	158
** 1	188	210	483	541	682	764	287	289	265	240	235	212

* Sizes from 4 to 10 are in *in.-lbs.*
Sizes from 1/4 up are in *ft.-lbs.*
** Fine thread figures are for 1-14.
Grade 2, 5, and 8 values are for plated bolts.

Metric Bolts

Nominal Dia. (mm)	Pitch	4.6 Class 4.6				8.8 Class 8.8				10.9 Class 10.9			
		Clamp Load (lbs)	Tightening Torque			Clamp Load (lbs)	Tightening Torque			Clamp Load (lbs)	Tightening Torque		
			Lubricated (ft-lbs)	Zinc Plated (ft-lbs)	Plain&Dry (ft-lbs)		Lubricated (ft-lbs)	Zinc Plated (ft-lbs)	Plain&Dry (ft-lbs)		Lubricated (ft-lbs)	Zinc Plated (ft-lbs)	Plain&Dry (ft-lbs)
4	0.7	333	0.7	0.7	0.9	858	1.7	1.9	2.3	1228	2.4	2.7	3.2
5	0.8	538	1.3	1.5	1.8	1387	3.4	3.9	4.5	1985	4.9	5.5	6.5
6	1	763	2.3	2.6	3.0	1968	5.8	6.6	7.7	2816	8.3	9.4	11.1
7	1	1095	3.8	4.3	5.0	2822	9.7	11.0	13.0	4039	13.9	15.8	18.5
8	1.25	1389	5.5	6.2	7.3	3580	14.1	16.0	18.8	5123	20.2	22.9	26.9
10	1.5	2200	10.8	12.3	14.4	5671	27.9	31.6	37.2	8115	39.9	45.2	53.2
12	1.75	3197	18.9	21.4	25.2	8240	48.7	55.1	64.9	11792	69.6	78.9	92.8
14	2	4379	30.2	34.2	40.2	11289	77.8	88.1	103.7	16154	111.3	126.1	148.4
16	2	5943	47	53	62	15320	121	137	161	21924	173	196	230
18	2.5	7301	65	73	86	18822	167	189	222	26934	239	270	318
20	2.5	9286	91	104	122	23938	236	267	314	34256	337	382	449
22	2.5	11509	125	141	166	29669	321	364	428	42457	460	521	613
24	3	13372	158	179	211	34471	407	461	543	49329	582	660	777
27	3	17428	232	262	309	44924	597	676	796	64288	854	968	1139
30	3.5	21266	314	356	419	54819	809	917	1079	78448	1158	1312	1544
33	3.5	26310	427	484	570	67821	1101	1248	1468	97055	1576	1786	2101
36	4	30982	549	622	732	79866	1415	1603	1886	114291	2024	2294	2699

3 - Safety Information

3.1 - Recognize Safety Information

This is a safety-alert symbol. When you see this symbol, be alert to the potential for personal injury. Follow recommended precautions and safe operating practices.

3.2 - Understand Signal Words

The following are safety terms used around the equipment and throughout this manual. Please read and understand their descriptions.

DANGER

Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.

WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION

Indicates a potentially hazardous station that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

IMPORTANT

Warns of potential damage to the header if proper procedures are not followed.

NOTE

Notifies you of important information to which you should pay attention.

3.3 - Read and Understand Instructions and Warnings

Please read and understand all warnings and safety information contained within this manual and the signs located on your equipment.

You may find additional safety information on after-market equipment not included in this manual.

Only allow trained individuals to operate the header.

Unauthorized equipment modifications can cause injury or equipment failure that is not covered under warranty.

3.4 - Protective Clothing

WARNING!

When working around running equipment, secure all loose items such as long hair, jewelry, or loose clothing are secured so they do not contact moving parts. Failure to do so will result in injury or death.

Wear hearing protection to protect against hearing damage.

Operating equipment safely requires your full attention, do not wear headphones while operating the header.

3.5 - In Case of Emergency

NOTE:

Keep a first aid kit and fire extinguisher with your header at all times. Keep phone numbers for emergency services near your telephone.

3.6 - Store the Header Safely

WARNING!

Ensure your header and all attachments are secured when not in use. Keep bystanders away from equipment and storage area. Failure to comply can result in injury or death.

3.7 - Safety Around moving parts

⚠ DANGER!

Never attempt to service your equipment while in operation. Always shut off the combine and wait for all moving parts to come to a complete stop before approaching the header.

Keep guards and shields in place at all times. Ensure that they are serviceable and installed correctly.

Cutterbar, auger, reel, drive shafts, and drapers cannot be completely shielded due to their function. Stay clear of these moving elements during operation.

3.8 - High Pressure Hydraulics

⚠ DANGER!

High pressure hydraulic leaks can penetrate the skin causing serious injury. Always relieve pressure before disconnecting hydraulic lines and tighten all connections before applying pressure.

Hydraulic leaks can be extremely small and difficult to see. Search for leaks with a piece of cardboard. Protect hands and body from high-pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source.

3.9 - Transporting the Header

IMPORTANT!

When transporting the header, frequently check for traffic from the rear, especially in turns. Always use headlights, flashing warning lights, and turn signals (when turning) day and night. Follow local regulations for equipment lighting and marking. Keep lighting and marking visible, clean, and in good working order, replace if necessary.

Whenever possible avoid transporting the header on public roadways with header attached to the combine.

If combine must be transported with header attached, ensure all warning lights are operating, and reflective material is clean and visible.

Completely retract and lower the reel before transporting.

Use of a spotter or pilot vehicle is recommended on busy, narrow or hilly roads and when crossing bridges.

Drive at a speed safe for conditions.

Do not exceed 25 mph (40 kph) when transporting the header on the optional transport package.

3.10 - Using Correct Torque Values

IMPORTANT!

It is extremely important that you use the correct torque values when servicing your AirFLEX header. Failure to follow the torque recommendations on page 149 can result in equipment damage.

3.11 - Practice Safe Maintenance

WARNING!

Before attempting to service your equipment, ensure that you fully understand any procedure that you are about to attempt.

Ensure all equipment is secured against sudden drops.

Keep the work area clean and dry.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove buildup of grease, oil, or debris.

If welding on the header, first disconnect battery ground cable (-). before making adjustments to electrical systems or welding on the header.

The header must be lowered to the ground before servicing. If the work requires that the header or reel be lifted, provide secure support. If left in a raised position, hydraulically supported devices can settle or drop suddenly.

Do not support the header on cinder blocks, hollow tiles, or props that may crumble under continuous load. Do not work under a header that is supported only by a jack.

Do not attempt to clean drive belts or drapers with flammable cleaning solvents.

3.12 - Fire Safety

WARNING!

Build up of chaff and crop debris near moving parts is a fire hazard. Check and clean these areas frequently. Before inspection or service, shut off engine, engage the parking break, remove the key and wait for all moving parts to come to a stop.

Keep a fire extinguisher with your equipment at all times and ensure the operator is educated in its operation.

3.13 - Keep Equipment Clean

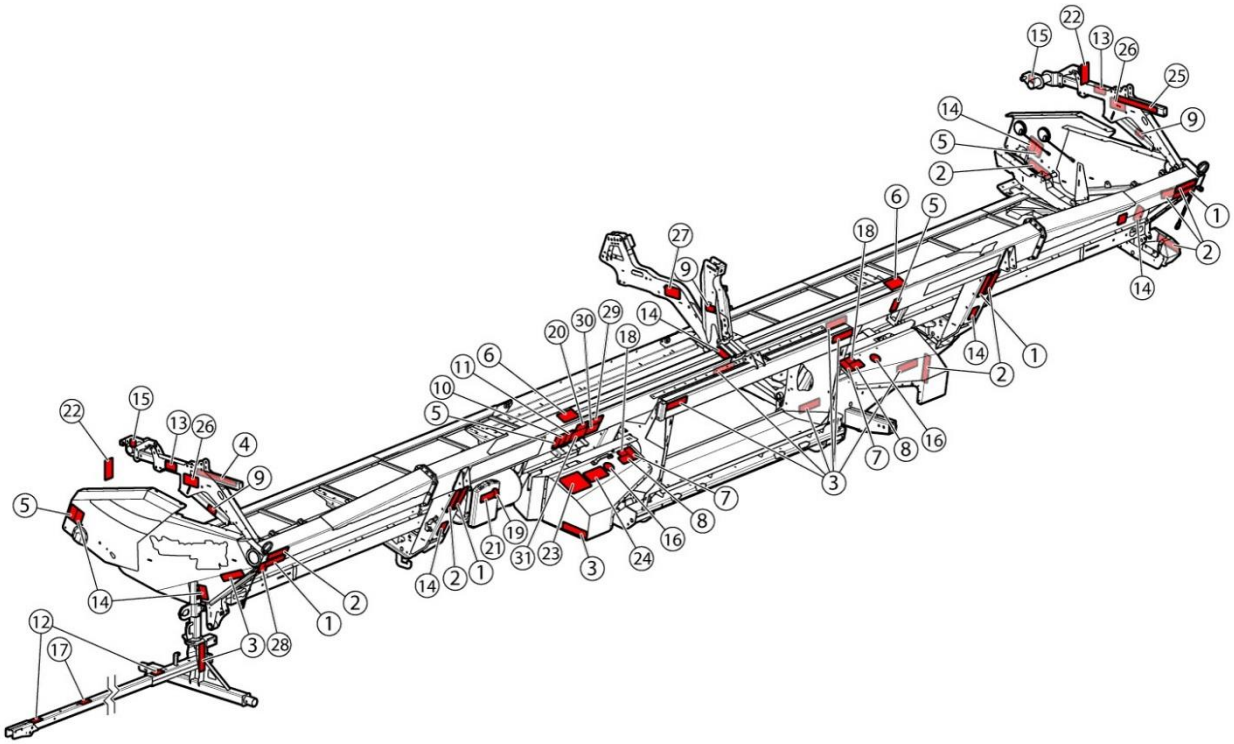
IMPORTANT!

Inspect and clean your equipment before every use. Clear away all material buildup. Pay special attention to all moving parts such as drive belts, drive shafts, and bearings. Failure to keep the equipment clean can result in fire.

4. Safety Decal Locations

Please take a moment to walk around your equipment and familiarize yourself with the safety decals and features on your equipment. Refer to the figure below and the decal list on the following pages for assistance.

Please ensure that you fully understand all safety warnings and instruction before operating this equipment.



1

2

3

4

5

6

7

8

9

10

11

12

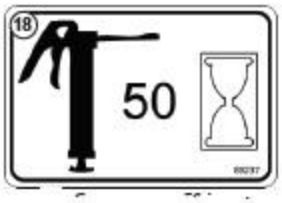
13


14


15
10h


16


17

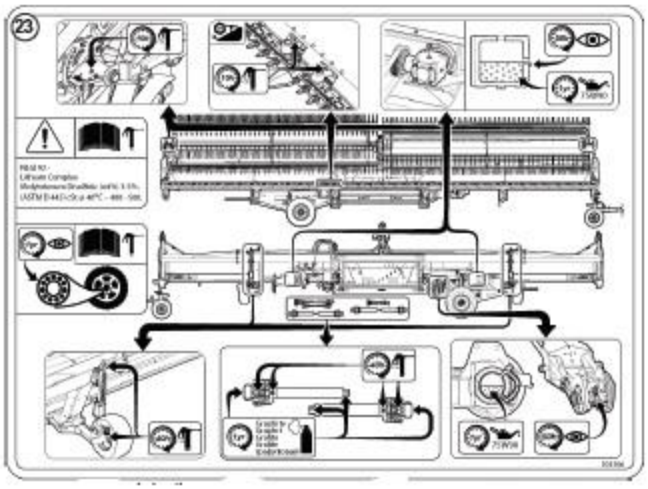

18
50

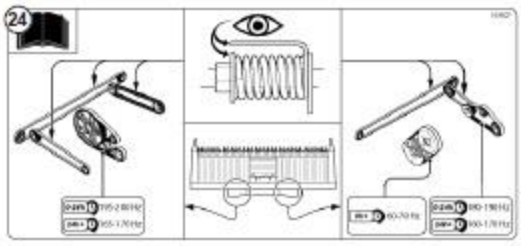

19

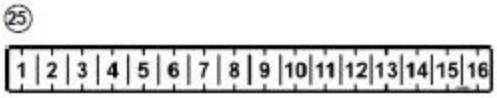

20

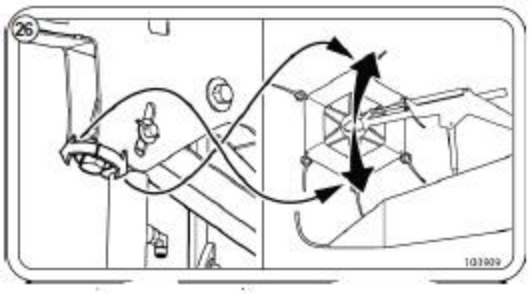

21

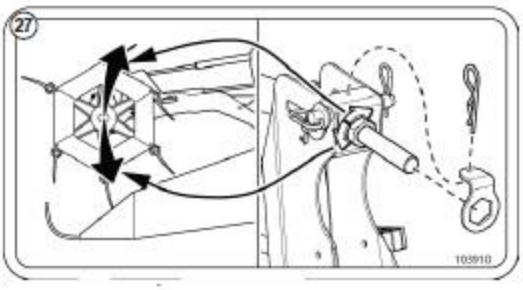

22

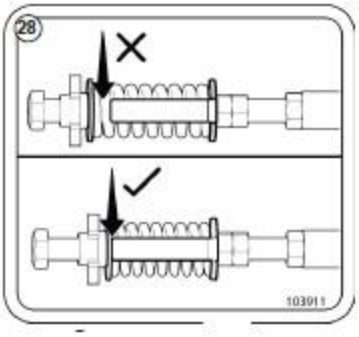

23

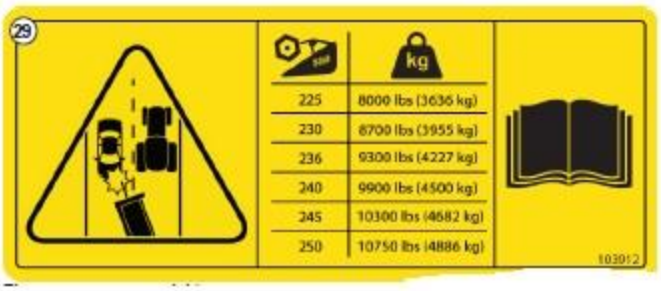


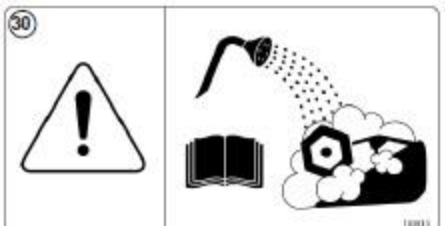












1. Red/Orange reflector
2. Red Reflector
3. Yellow Reflector
4. Left end reel fore/aft indicator
5. Crush warning keep safe distance
6. Fall warning do not step here
7. Rotating shaft warning do not touch
8. Entanglement Warning do not touch
9. Reel drop Warning, lock reel arm when servicing

10. Turn Off equipment and read manual before servicing
11. Read manual before operating
12. Crash warning do not exceed 32km/h(20 mph)
13. Rotating part warning turn off equipment and read manual before servicing
14. Pinch warning keep away from moving parts
15. Grease every 10 hours
16. This is not a step
17. Ensure air system is fully pressurized before transporting
18. Grease every 50 hours
19. Do not pressure wash this area
20. High Pressure oil do not expose skin to oil
21. Operators manual location
22. Secure reel tines before operating
23. Basic Lubrication instructions
24. Basic belt tension instructions
25. Right-Hand reel fore/aft indicator
26. Left and Right end reel arm height adjustments instructions
27. Center reel height adjustment instructions
28. Draper tension instructions
29. Transport weight warning. Be aware of equipment weight and read operators manual before transporting.
30. Wash equipment before use.
31. Tip warning, ensure combine is properly ballasted prior to operating.

5 - Main frame and Header Height Control

5.1. Cutterbar Drive Paddle Replacement

The cutterbar is held in place by a paddle assembly. There are three different paddles on each header.

- End Paddles
- Drive Paddle
- Common Paddle

5.1.1. Drive Paddle Replacement

⚠ WARNING!

Ensure your header and all attachments are secured when not in use. Keep bystanders away from equipment and storage area. Failure to comply can result in injury or death.

⚠CAUTION

Use Proper Lift Tools to Secure Parts As Moved

1. The drive paddle is held in place with two bolts in the rear and 10 carriage bolts in the front holding the paddle to the cutter bar.
2. Remove the air from the system allowing the cutterbar in the lowest position.
3. Place a suitable jack or lifting jack to the rear of the paddle.
4. Remove the feather plate over the knife-drive.
5. Attach a lifting device above the drive paddle and attach the drive paddle to the device.
6. Support the cutterbar by using a ratchet straps around the reel tube. Just tighten the straps to support the cutterbar. Too much pressure could bend the reel tube.
7. Remove the knife drive bearing assemblies. Save shims behind the bearing mounts as they will need to be re-installed during assembly. Keep track of their locations. Figure 1

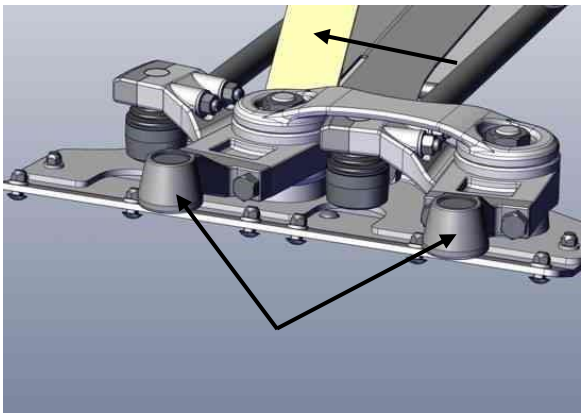


Figure 1

8. Remove the carriage bolts retaining the front of the paddle to the cutterbar. The carriage bolts are not the same length so note the locations. Figure 1
9. Raise the front of the paddle up and remove the strap from the paddle. Figure 1
10. Remove the knife drive belt as described in **6.5 - Knife Drive Belt Removal**
11. Remove the lines leading to the airbag. Remove the airbag by removing the bolts holding the airbag in place. **Note: Make sure to mark the location of the airbag in the mounting holes.**
12. Remove any header height attachments to the strut.
13. Remove the two large bolts and bushings at the rear of the paddle. **Note: Make certain the paddle is secured to the jack at the rear**.

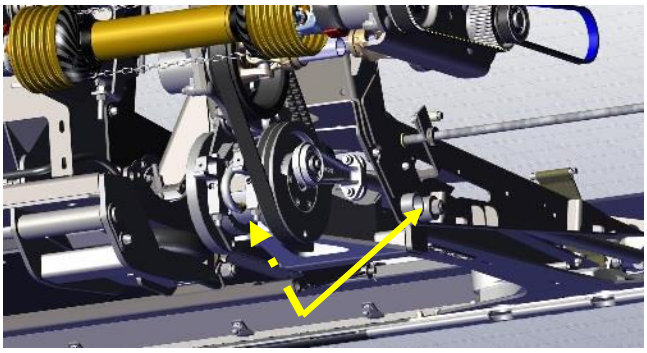


Figure 2

14. The paddle can then be lowered from the strut using the two lifting devices. Make certain to be careful when lowering the paddle to prevent it from falling.
15. Any repairs can now be done on the drive paddle.
16. Assemble in the reverse steps. It is best to get the front of the paddle lifted first and then move the rear of the paddle in place.
17. Install the bushings and bolts in the rear pivot of the paddle. Use red Loctite on the threads and torque the bolts to 200 ft. lbs. (271Nm).
18. Install the carriage bolts in the front of the paddle and torque to 31 ft. lbs (42Nm)
19. Install the airbag and air-lines.
20. Install the knife drive bearings as outline **8.2 - Knife Drive Assembly Low Profile Guards or 8.3 RH/LH Knife Drive Installation- Standard Knife**
21. Install all Header height parts.

5.1.2. Common Paddle Replacement

1. The common paddle is held in place with pin in the rear and carriage bolts in the front holding the paddle to the cutter bar.
2. Remove the air from the system allowing the cutterbar in the lowest position.
3. Place a suitable jack or lifting jack to the rear of the paddle.
4. Remove the feather plate over the front of the common paddle.
5. Attach a lifting device above the paddle and attach the paddle to the device.
6. Support the cutterbar by using a ratchet straps around the reel tube. Just tighten the straps to support the cutterbar.
7. Remove the bolts retaining the front of the paddle. Note: the carriage bolts are different lengths. Make locations for easier installation when assembling. Figure 3

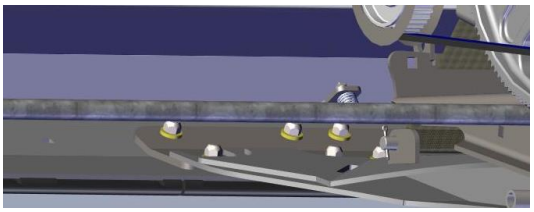


Figure 3

8. Remove the strap holding the front of the paddle.
9. Remove the air line from the airbag at the rear of the paddle. Remove the airbag from the paddle. **Note: Make sure to mark the location of the airbag in the mounting holes**.

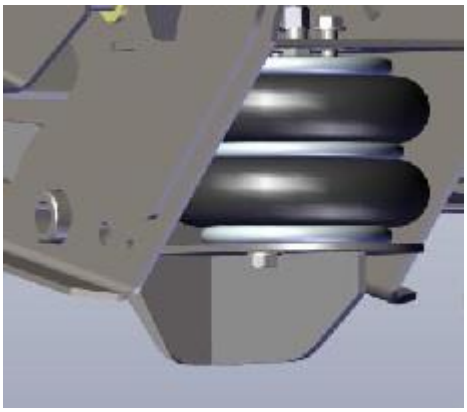


Figure 4

10. Remove any Header Height control parts that are attached to the paddle.
11. The common paddles with gauge wheels support the wheels and remove the large bolt holding the gauge wheel to the paddle.
12. On the 25-foot models remove the large bolt that goes through the gauge wheel fork.
13. Remove the carriage bolt that holds the pin in the fork.
14. On the remaining size headers, remove the pin holding the rear of the paddle. Figure 5

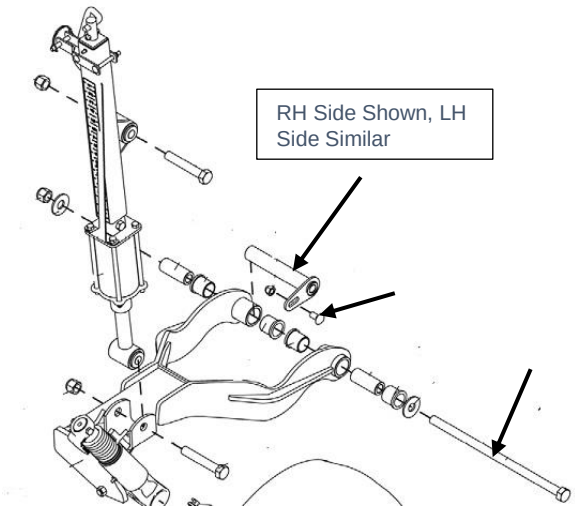


Figure 5

15. On **model year 2022 and above** with air bag gauge wheels the process is the same but the air will need to be let out of the system
16. Remove the bolt holding the pin at the rear of the paddle, and remove the bolt and then slide out the pin. Figure 6

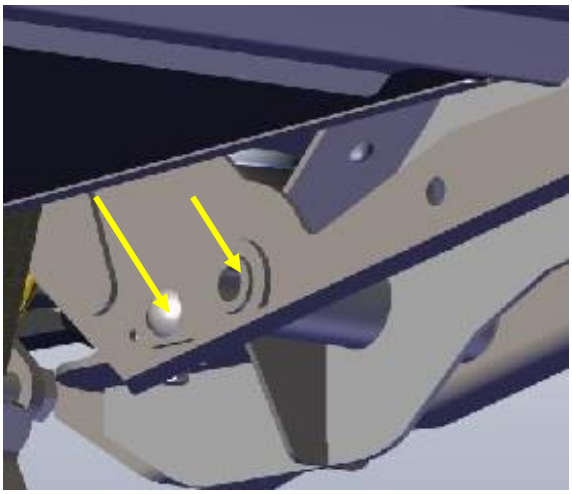


Figure 6

9. The paddle can then be lowered from the strut using the two lifting devices. Make certain to be careful when lowering the paddle to prevent it from falling.
10. Any repairs can now be done on the drive paddle.
11. Assemble in the reverse steps. It is best to get the front of the paddle lifted first and then move the rear of the paddle in place.
12. Install the pin at the rear pivot point. Install the carriage bolt and torque the nut to 31 ft. lbs (42 Nm)
13. Install the carriage bolts in the front of the paddle and torque to 31 ft. lbs (42Nm)
14. Install the airbag and airlines.
15. Install header height control parts

5.1.3. End Paddle Replacement

1. Remove the crop divider and the shield behind the crop divider to expose the front paddle attaching bolts.

Figure 7

2. Remove the shield covering the airbag. Figure 7
3. Remove the air from the system allowing the cutterbar in the lowest position.
4. Place a suitable jack or lifting jack to the rear of the paddle.
5. Remove the feather plate over the front of the end paddle.
6. Attach a lifting device above the paddle and attach the paddle to the device.
7. Support the cutterbar by using a ratchet straps around the reel tube. Just tighten the straps to support the cutterbar.
8. Remove the bolts retaining the front of the paddle. Note: The carriage bolts are different lengths. Make locations for easier installation when assembling.
9. Remove the strap holding the front of the paddle.
10. Remove the air line from the airbag at the rear of the paddle. Remove the airbag from the paddle. Note: Make sure to

mark the location of the airbag in the mounting holes.

Figure 8

11. Remove any header height control parts that are attached to the paddle.

12. Remove the bolt holding the pin at the rear of the paddle, and remove the bolt and then slide out the pin. Figure 9

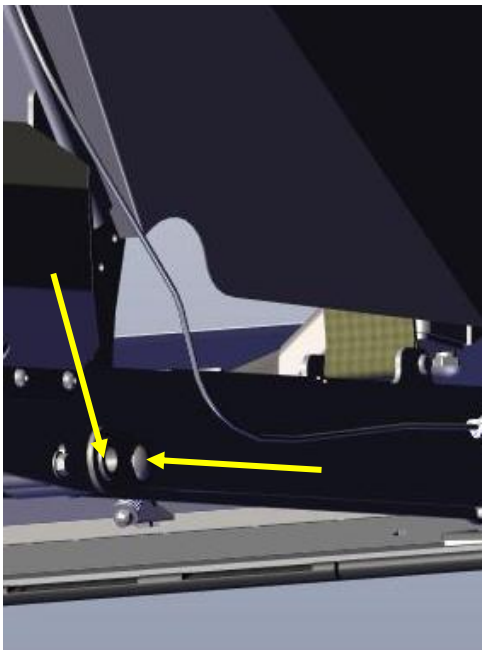


Figure 9

13. The paddle can then be lowered from the strut using the two lifting devices. Make certain to be careful when lowering the paddle to prevent it from falling.
14. Any repairs can now be done on the drive paddle.
15. Assemble in the reverse steps. It is best to get the front of the paddle lifted first and then move the rear of the paddle in place.
16. Install the pin at the rear pivot point. Install the carriage bolt and torque the nut to 31 ft. lbs(42 Nm)
17. Install the carriage bolts in the front of the paddle and torque to 31 ft. lbs (42Nm)
18. Install the airbag and airlines.
19. Install header height control parts
20. Replace all shields that were removed.

5.2 - Flex HHC

There is a Flex HHC (header height control) on the main frame.

This section of the manual covers the mechanical part of the system. See the electrical section for anything dealing with the wiring or troubleshooting the electrical section

The flex HHC system is split between the left and right side. All of the adjustments and repair are the same between the two sides.

The components of the system are:

A. The activation tabs
B. The strut sensing rollers.
C. The HHC tube
D. HHC sensors
E. HHC mechanical link between the tube and the sensors

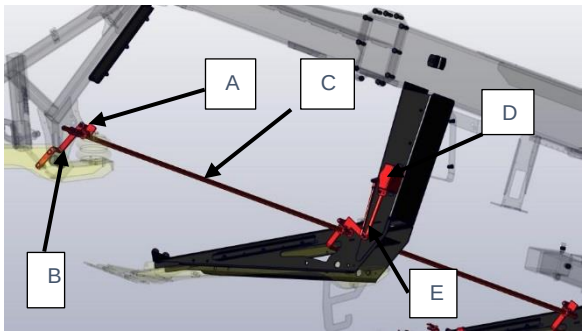


Figure 10

1. To remove the HHC flex tube, remove all of the activation tabs on the tube.
2. On the end of each tube is a lock collar on the inside of the outer strut. Loosen the inside lock collar. Leave the outside collar tight to help in positioning the tube. Figure 11.

3. This will allow you to slide the tube out of the bushings in each strut.
4. Before assembly make certain that the bushings in the struts are clean and free of rust. The HHC tube should also be clean. Figure 11

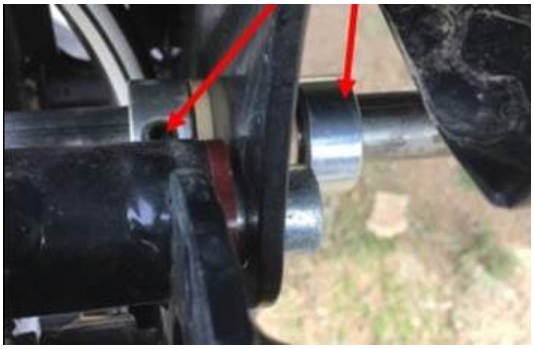


Figure 11

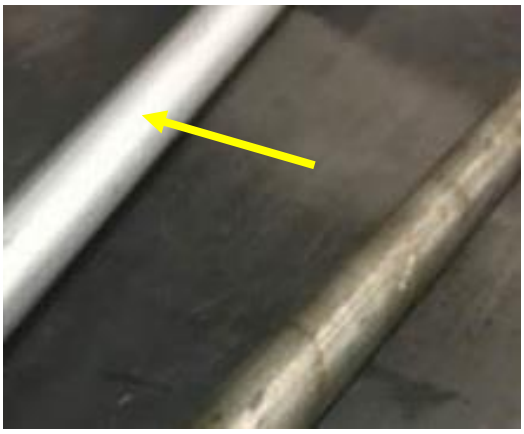


Figure 12

5. Install the tube and all of the activation tabs. Leave the tabs loose but snug the tab that is attached to the sensor
6. The activation tabs for each paddle need to be set properly. This will make sure that the sensor reads the movement of the paddles. The outside tab should be set slightly tighter than the middle tabs. This will account for the "wind up" of the tube.
7. The header must be on the combine and off the transport, lifted off the ground. The air system must have at least 100 psi.
8. All Flex HHC components are installed and the activation tabs (other than middle activation tab where spring is attached to) are loose on the HHC tube.

Note: The following steps are for adjusting the tabs on a MY 2019.

9. Place a 1/8" piece of steel spacer (sickle section, etc.) between the middle paddle activation tab (paddle where the sensor is installed) and the roller. Figure 13
10. Set the outside tab so that it is in the center of the roller and against the tab.
11. Roll the activation tab forward until it touches the roller and tighten the U-bolt nuts (must have 3-4 U-bolt threads showing past the top of each C-lock nuts, Figure 13 **Note: Make certain that all the tabs are set as close to the center of the roller as possible before the clamp nuts are tightened.**
12. When the end paddle activation tabs are set into place, remove the 1/8" spacer from the middle paddle.
13. After the spacer is removed, you will notice that the middle paddle activation tab (the one the sensor linkage is attached to) should relax back close to the roller. There should be less than a 1/16" gap between the middle paddle activation tab and the roller.
14. If there is more than 1/16" of gap then redo the following steps with a thinner spacer (thinner than 1/8")
15. If there is less than 1/16" of a gap and the activation tab is pushing hard on the roller, then a thicker spacer is needed in the above steps.
16. The roller should spin underneath the middle paddle activation tab, the roller underneath the end paddle activation tab should not spin.
17. Set the remaining tabs on the tube to a gap of 1/16" between the tabs and the rollers. Note: The wider the head the more tabs are on the tubes to set.
18. If more movement is needed reduce each of the stop bolts on the end struts so that there are only one thread showing on the stop bolts. Figure 15

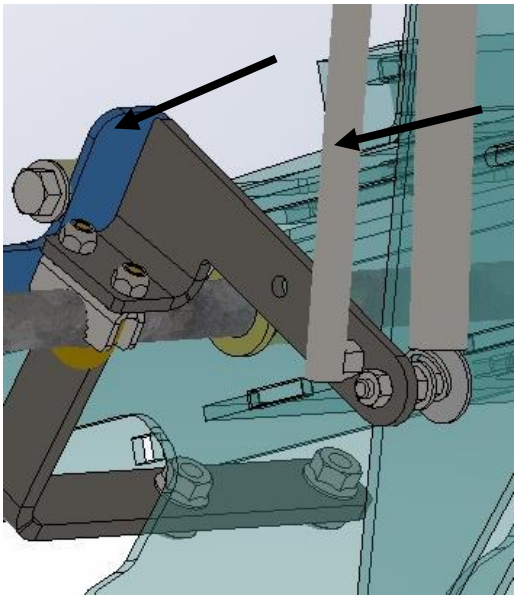


Figure 13

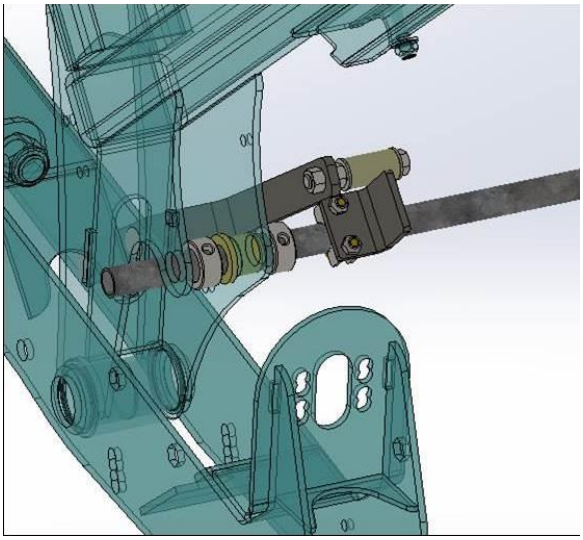


Figure 14

Figure 15

Flex Sensor Adjustment On Model Year 2020 and Above

The Flex sensors activation was changed. The spring for keeping pressure on the end paddles is moved to the end paddle. Figure 16

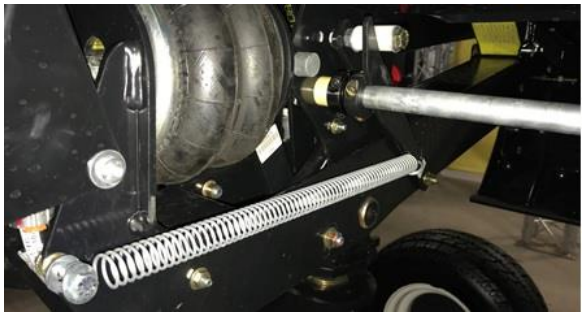


Figure 16

1. To adjust the activation tabs raise the header off the ground.
2. Inflate the air system to 100PSI
3. On the end paddle move the activation tab forward (with spring attached) until the activation tab touches the roller.
4. Tighten the cap screws on the activation tab collar. Figure 17

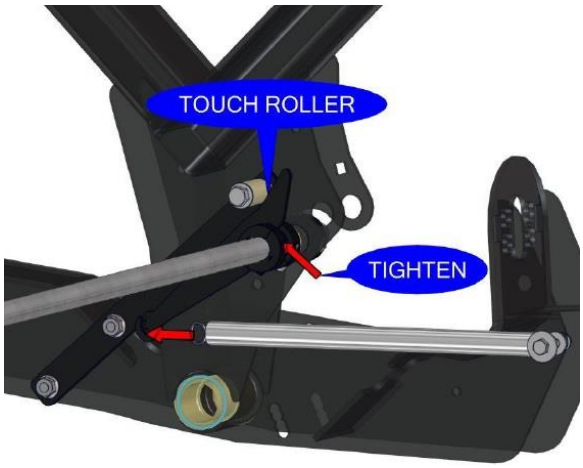


Figure 17

5. When the end paddle activation tab is set adjust the sensor activation tab at the struts next to the center. Set the activation tab (with the sensor linkage installed) until the activation tab is just touching the roller on the arm. Figure 18

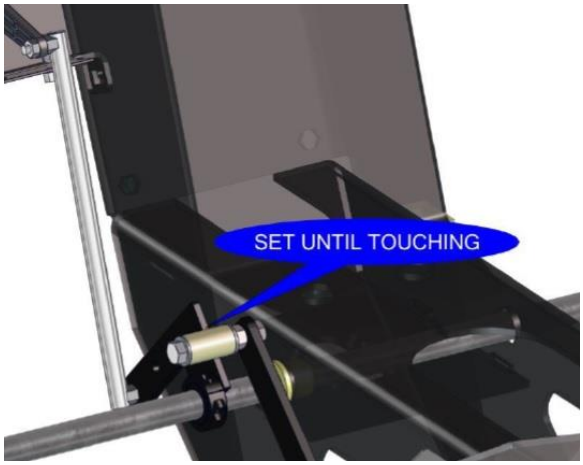


Figure 18

6. Set the remaining tabs until they just touch the roller. The number of tabs will depend on the size of the headers. Figure 19

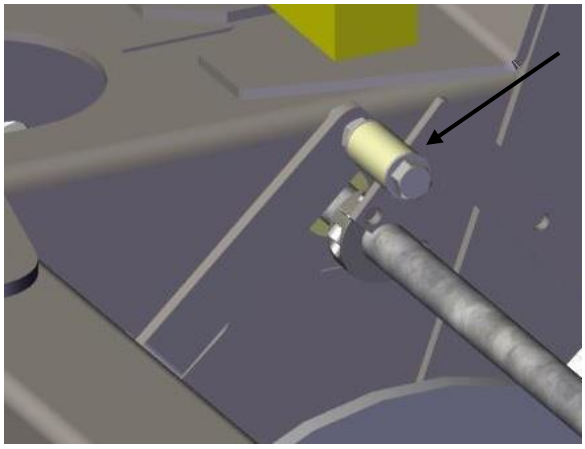


Figure 19

5.3. Rigid HHC

The AirFlex models have a Suspended Subframe. The suspended subframe are the only models that have gauge wheels. The mounts are welded to the frame.

1. The suspended subframe uses air bags to provide the suspension. The pressure in the suspension air bags must be the same as the pressure in the rest of the system, therefore the valve on the airlines for the suspension system should remain open. The sensors are mounted on the subframe. They are attached with 2 bolts.

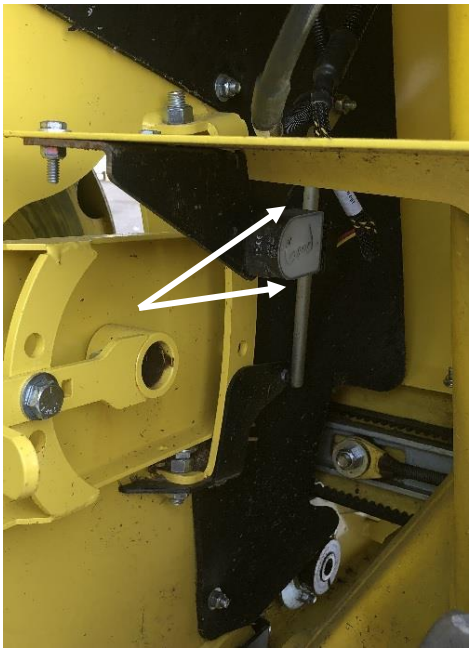


Figure 20

2. The subframe is controlled by the gauge wheels. The gauge wheels will move the frame and this will move the sensor.
3. The gauge wheels should be set so that wheels are on the ground and the rod is compressed 1.5 to 2 inches or half the distance of the rod.

Figure 21

4. To remove the gauge-wheels remove the clamp bolts. Figure 20
5. Remove the pin holding the wheel axle and slide the wheel and axle out as an assembly.
6. Support the rear for the paddle assembly.
7. Remove the ¾" bolt assembly from the front of the gauge wheel mount. **Note: On 30 foot and above units this bolt holds the rear of the cutterbar paddle. Make certain the paddle is supported before the bolt is removed.** Figure 22

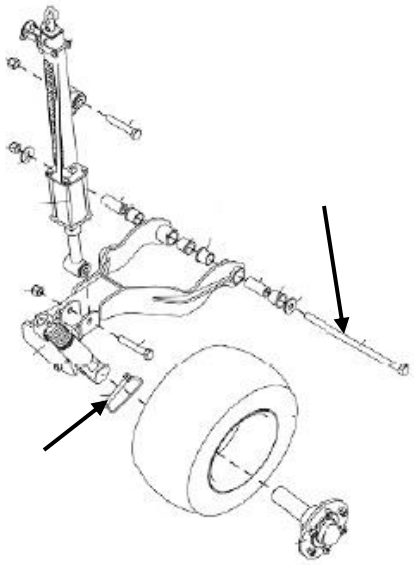


Figure 22

8. To install the gauge-wheels install the clamp loose to hold the gauge wheels on the frame. The wheels should be clamped 12 inches from the frame extension flange. Figure 20
9. Tighten the clamp bolts to 75 ft. lbs to secure the gauge wheels.

5.3.1. MY2022 and Above Airbag Gauge Wheels

The gauge wheels with the airbags are removed in a similar fashion.

1. Shut off the air valve on the front side of the strut for the gauge wheel. Figure 23

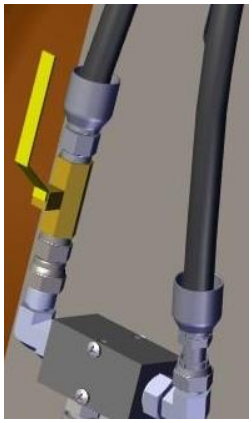


Figure 23

2. Remove the air lines from the gauge wheel air bags.
3. Attach a suitable lifting device to the airbag wheel support.

4. Remove the safety strap from the wheel mount. Figure 24

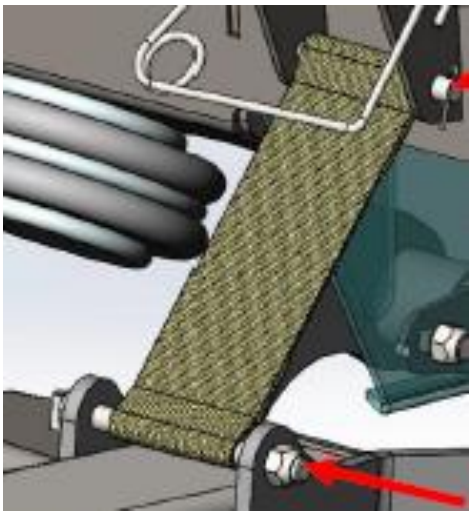


Figure 24

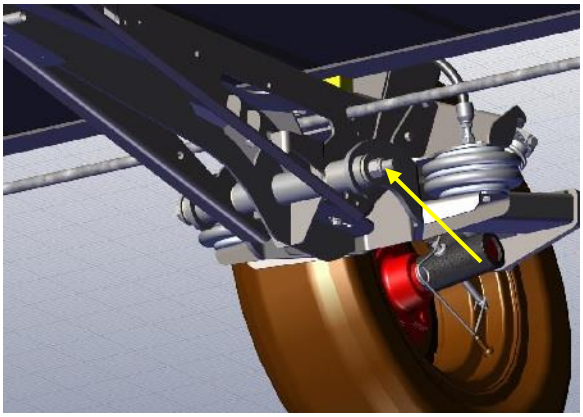


Figure 25

5. Remove the bolts retaining airbags to the top mount. Figure 26

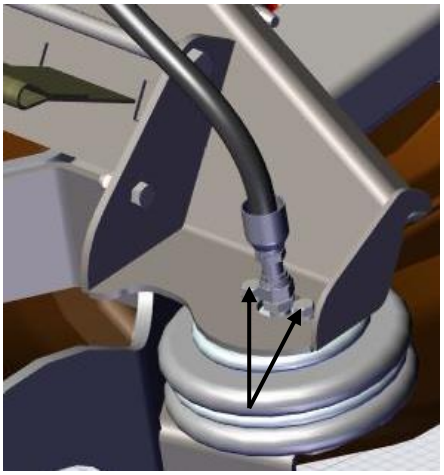


Figure 26

6. Remove the bolt retaining the mount to the main frame strut. **Note: Remember the position of all the bushings and washers.** Figure 25
7. This will allow the gauge wheel frame to be removed.
8. Assemble in the reverse order.

5.4 - Terrace Kit

If equipped, the terrace kit is typically installed on headers used for harvesting soybeans and when operating on terraced fields.

This kit includes:

- UHMW guides along the bottom of the cutter bar which protect the transition plate from damage (these can be purchased separately from the skis).
- End paddle skis helps prevent dirt and crop from building at the ends of the head. Figure 29

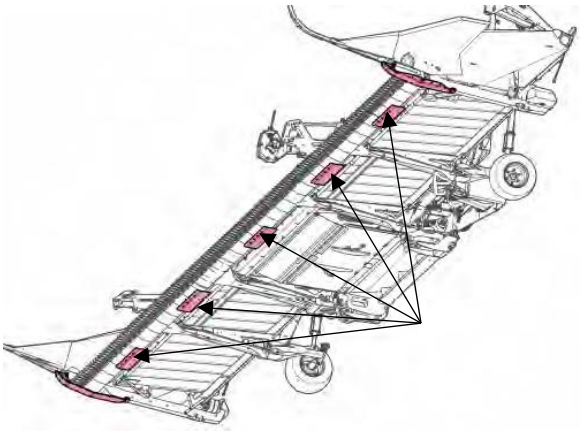


Figure 27

1. Each of the UHMW guides are positioned in the middle of each cutter bar section. They are retained to the cutter bar with four 3/8”X1” carriage bolts and lock nuts. The holes for the guides are in the cutter bar on Model Year 18 and newer. On older units the holes for mounting the guides will need to be drilled. Figure 28

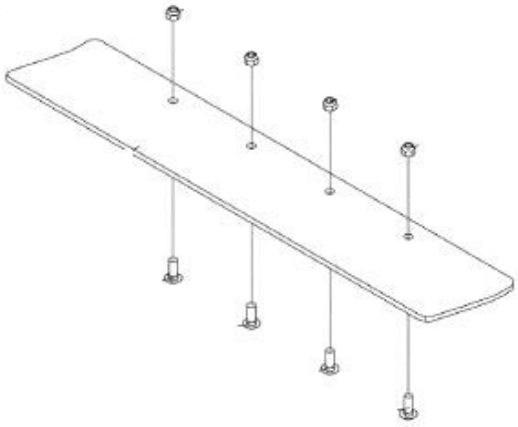


Figure 28

2. The end shoes are mounted to each end strut. They are mounted with a ½” X 4 ½” cap screw washers and lock nut on the rear of the shoe. The front is retained with two 3/8” X 1” Carriage bolts and luck nuts. Figure 29
3. On the bottom of each end shoe there is a UHMW plate. This plate is replaceable and is retained to the skid shoe with twenty-five 3/16” pop rivets and #10 washers. Figure 30

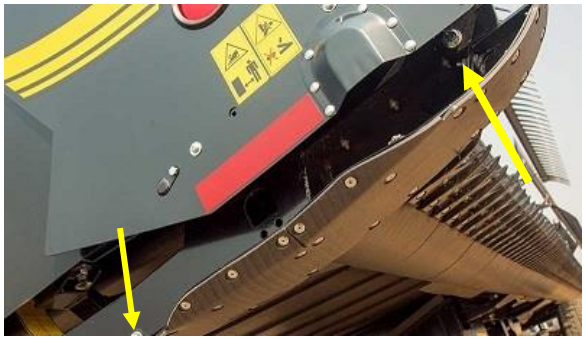


Figure 29

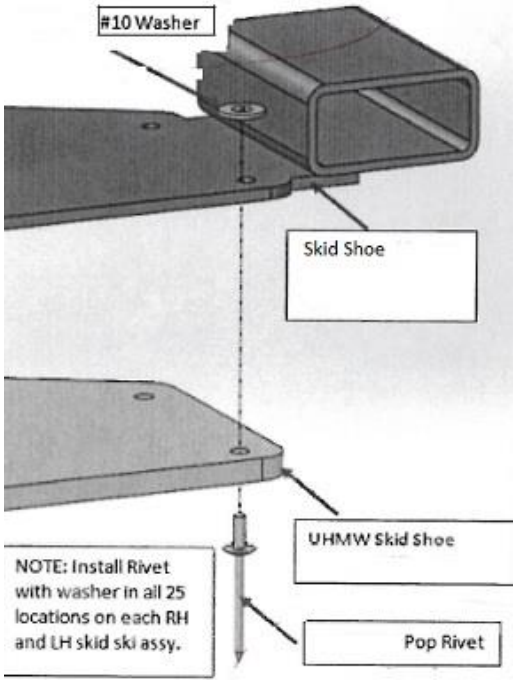


Figure 30

Subframe Assembly

5.5 - Subframe Auger

⚠ WARNING!

Ensure your header and all attachments are secured when not in use. Keep bystanders away from equipment and storage area. Failure to comply can result in injury or death.

To remove the auger, install the header on the transport or on the ground. This will allow you to lay the subframe assembly back to expose the auger.

Note: On later model headers the auger will be 69" long instead of 80" long. Disassembly and assembly will be the same but there will be more room between the auger and the side-sheets.

1. Remove the driveshafts that are attached to the subframe on the left-hand side.
2. Remove the feeder-deck drive belt or chain drive.
3. Attach a suitable lifting device to the subframe. Remove the bolts that retain the tilt cylinder and the safety strap to the subframe. Figure 31

Figure 31

4. With the lifting device the subframe can be lowered to the rear. Note: Support the drum with a 4X4 piece of wood. The subframe will not go all the way to the ground so it must be supported. ON a CNH adapter watch that the safety latch does not get bent when the subframe is lowered.
5. On the left-hand side remove the bearing flangette, limit stop bracket. Remove the mounting plate by removing the rear attachment bolt. Figure 32

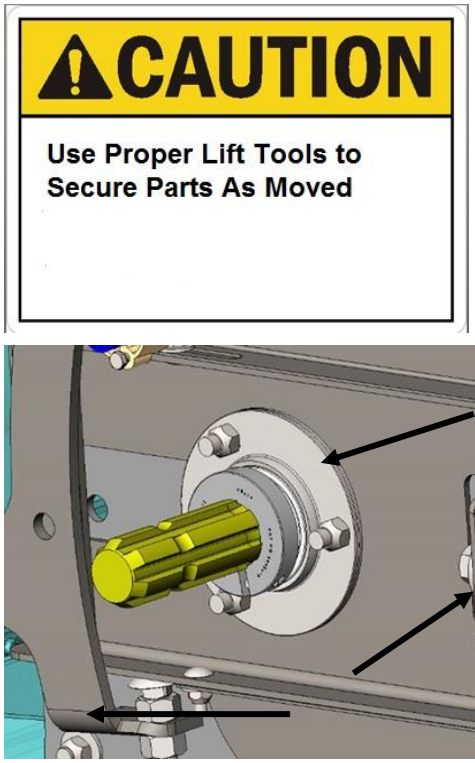


Figure 32

6. On the right-hand side remove the Finger timing arm and the limit bracket. The mounting plate assembly can now be removed by removing the rear mounting bolt. Figure 33

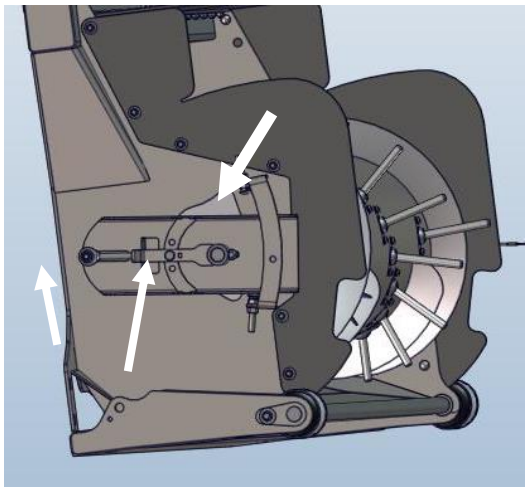


Figure 33

7. The auger can now be removed from the subframe by pushing the auger to the left and twisting it out of the subframe.
8. On headers with an 80” auger the spider and drum need to be removed as an assembly.
9. On headers with a 69” auger the spider can be removed from the auger and then the auger removed without the spider.
10. The lifting straps can be installed though the access panels in the auger as shown in Figure 34.
11. After the auger is out of the subframe the auger can be disassembled as needed.
12. The auger cross shaft can be removed. To gain access to the shaft remove all the covers on the auger tube. Figure 34

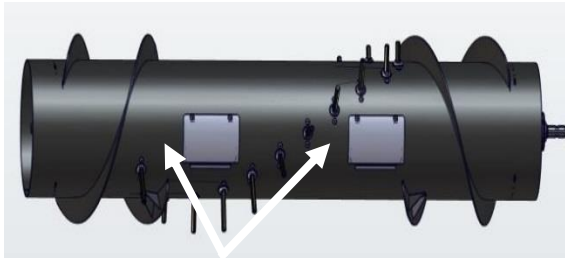


Figure 34

13. Remove the fingers by removing the lower retaining bolts. This will allow the fingers and the clamps to be removed. Figure 35

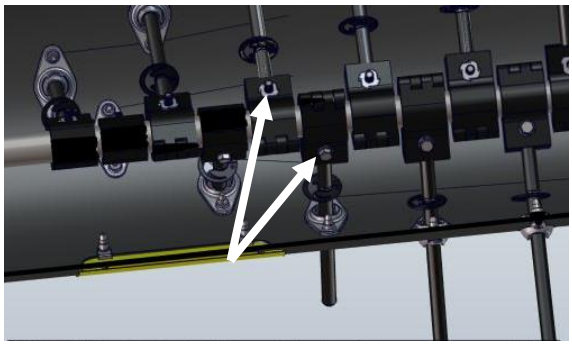


Figure 35

14. With all the fingers and the clamps removed the cross shaft can be removed. This will allow the cross shaft to be removed from the spider end of the auger. Note: The fingers do not need to be removed if the cross shaft is not removed.
15. On the right-hand side of the auger remove the lock collar and bearing.
16. On the left end of the auger remove the shaft and spider assembly. Remove the lock collar on the bearing. Take the remaining two bolts out to the end disc pulling the disc out of the auger. This will allow the cross shaft to be pulled out of the auger. Figure 36 Note: 80-inch auger configuration shown.

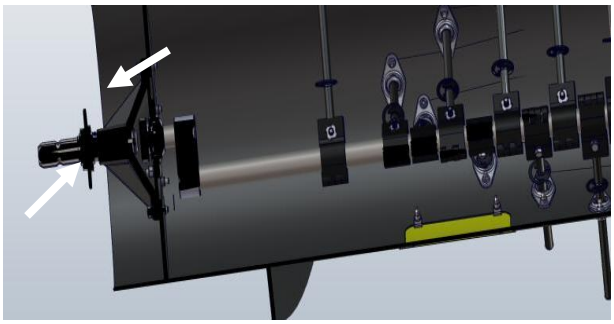


Figure 36

80 inch auger assemblies

17. To reassemble install all the finger clamps, leaving the fingers out of the clamps, on the shaft. Install the bearing in the right-hand side of the auger. Slide the shaft in from the left-hand end. Install the flanges and bearing on the disc. Slide the shaft in the auger and in the right-hand bearing. Bolt the disc in place.
18. Install each of the fingers in the clamps and through the bushings in the auger.

19. Install the lock collars but do not tighten. Align the cross shaft in the auger so all of the fingers align with the slides in the auger tube.
20. Install Left-hand spider on the auger. Use red Loctite on the mounting hardware and torque the bolts to 23 ft. lbs.
21. Tighten the set screws in the lock collars to 97 in. lbs.

69-inch Auger Assemblies

22. To reassemble install all the finger clamps, leaving the fingers out of the clamps, on the shaft.
23. Install the bearing in the right-hand side of the auger. Slide the shaft in from the left-hand end.
24. Support the left end of the shaft and adjust the shaft so that 7.9" (200.7mm) of the shaft extends through the bearing. Figure 37 Tighten the lock collar on the bearing

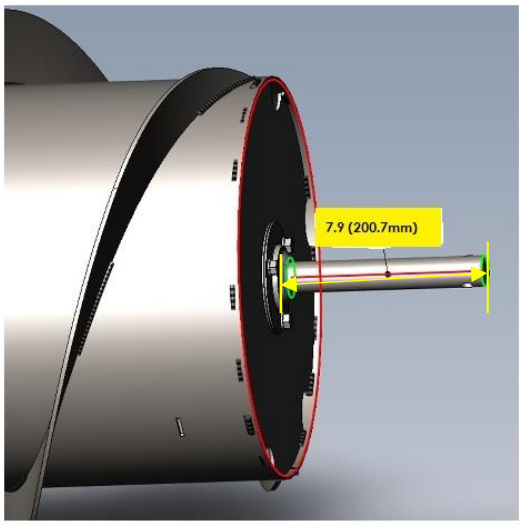


Figure 37

25. Install the end cap and shaft as shown in Figure 38

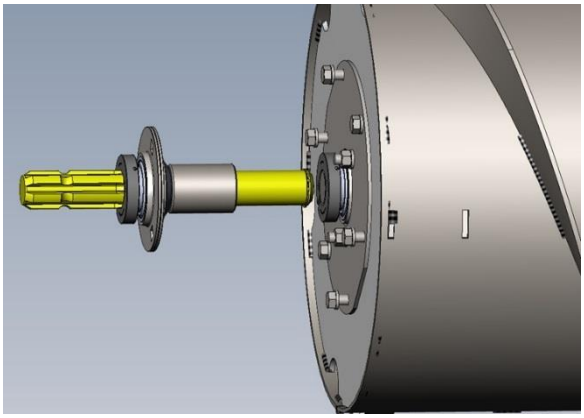


Figure 38

26. Install bearing and shaft assembly. Tighten the lock collars.
27. Install each of the fingers in the clamps and through the bushings in the auger.

Installing the Auger in the Subframe Both Auger Lengths

28. Place auger back in the subframe and install the right-hand bearing mount. Install the timing arm. Figure 39

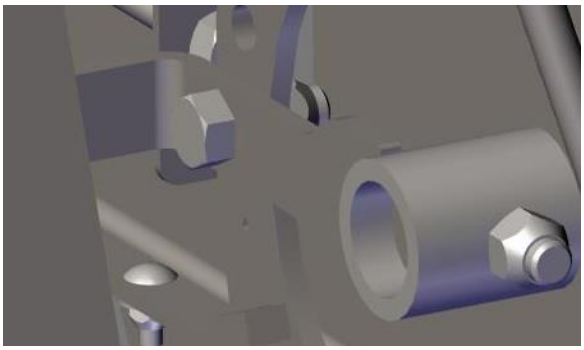


Figure 39

29. Assemble the auger mounting bracket on the left side and tighten all hardware.

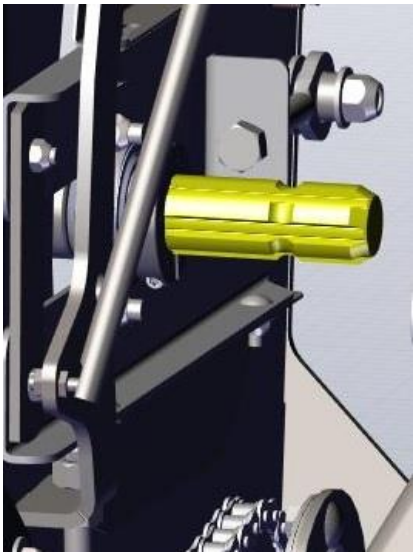


Figure 40

30. Raise the subframe back into place and attached safety strap and tilt cylinder. Figure 41

Figure 41

5.6 - Tilt Cylinder Position

5.6.1 - Model Year 2019 and below

On all model year 2019 and above headers the position of the tilt cylinder has three different positions depending on the combine. SDX headers use a 7.5-Inch-long cylinder.

- Position One (Factory position):
  Top hole for the front of the cylinder and lower hole for the rear position. Figure 42

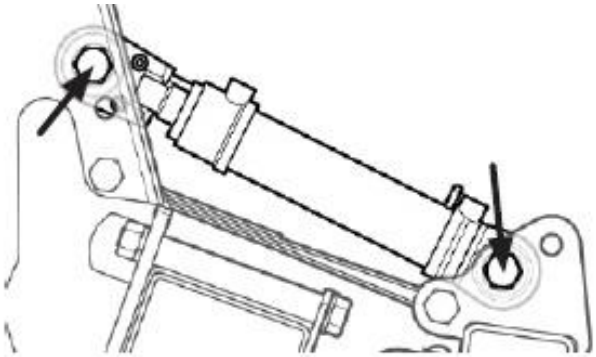


Figure 42

- Position Two:
  Bottom hole for the front of the cylinder and lower hole for the rear of the cylinder. This can be used in some crop conditions if the guards need to tilt forward or keep the guard's level to the ground. Figure 43

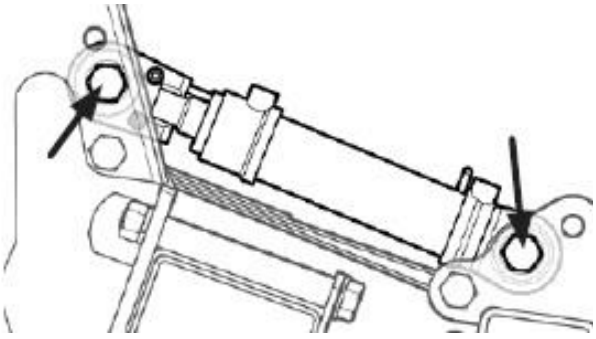


Figure 43

- Position 3:
  Top hole on the front of the cylinder and top hole on the bottom of the cylinder. This can be used on combines with a steeper feeder house angle to lower the guard angle. Figure 44

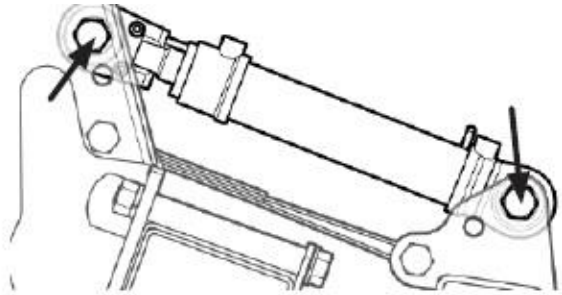


Figure 44

5.6.2. MY 2020 Tilt Cylinder

1. The model year 2020 has a new style cylinder. This cylinder is larger to assist in moving the head. The cylinder also uses cast end caps and welded clevises at each mounting point Figure 45 A safety strap still retains the cylinder from over-extending. The positions for the cylinder are the same as MY2019 cylinder.

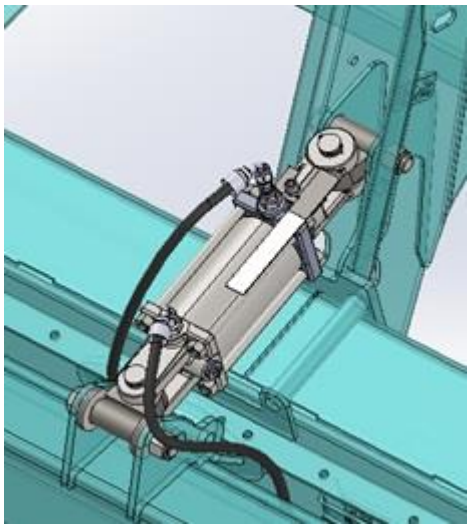


Figure 45

2. A manual turn buckle is available. This adjustable turnbuckle will still adjust the angle of the head but the combine must be shut off and the operator will need to get out of the cab to adjust the turnbuckle. Figure 46
3. The turnbuckle can be adjusted from 16.25”-19.25” (41.3cm-48.1cm)
4.

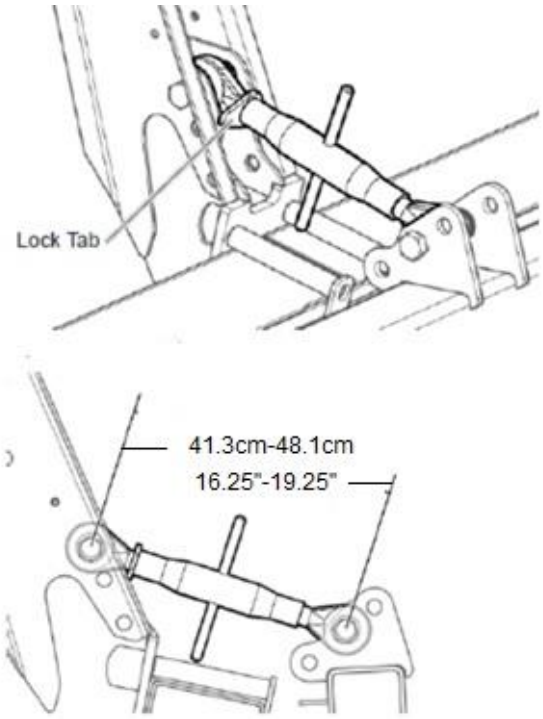


Figure 46

6 - Drives

Note: Adjust the tension when the belt is warm. If adjusted when the belt is cold can cause the belt to be to not be the proper tension when it is warmed up by operation. The belt tension should be checked after at least one hour of operation.

Note: Do not bend or fold the belts to less than a 4-inch diameter. If the belt is bent too small the cords could be damaged

Note: The pulleys for the drive on each brand of combine and Model Year of header are different sizes. See section 16.5

Note: On all drives without a spring-loaded idler the belts must be adjusted when at operating temperature.

There are two specifications

- A new belt (0-24 hours)
- A used belt (24+ hours)

1. The belts without a spring tension system will need to be adjusted to the correct HZ setting.
2. This is done by using an app on a smart phone.
3. Honey Bee recommends the following apps as they have been tested for accuracy. Take note of the app icon and developer name as there multiple apps with similar names.

NOTE:

Using an app to measure belt frequency requires a quiet location in order to take accurate measurements.

Please note this is a 3rd party application which is not published by Honey Bee. The software may be removed or changed without notice, this is beyond Honey Bee's control.

4. ***Apple Devices (IOS)***

   App Name: Fine Tuner

   Developer Name: 9928189 Canada Inc. **Link:** **http://www.finetunerapp.Com**

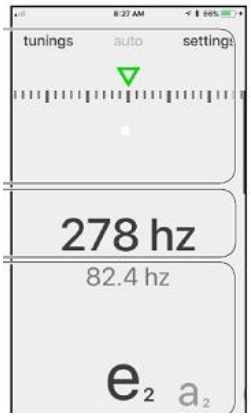


Figure 47

5. **Android Devices**

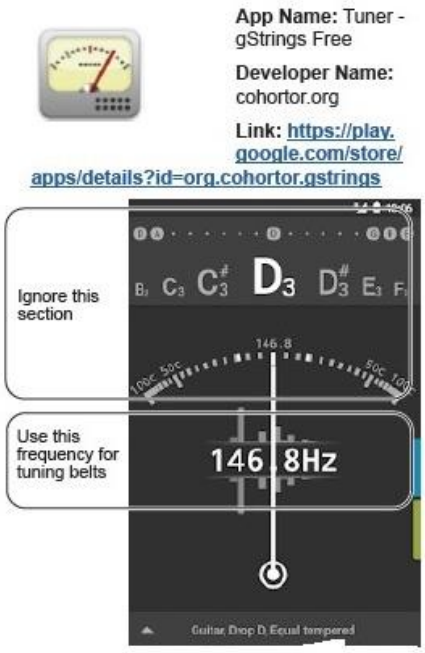


Figure 48

6.1 - Feed Auger Drive Removal

1. Remove the drive shafts from the left-hand GT case. This is done by pressing the release on each end of the shaft. Remove the bolt retaining the clutch shaft to the GT case. Figure 49
2. Loosen the lock nuts at the front of the GT case and remove the adjusting bolt under the left-hand GT case. Figure 50
3. Loosen the tension bolt for the feed left-hand GT drive belt, remove the bolt retaining the idler and remove the belt.
4. Remove the left-hand draper drive belt.
5. Remove the auger drive belt by removing the adjusting bolt and the idler retaining bolt.
6. Remove the pulleys by removing the allen-head screws in the pulley and use one of the screws to push the hub off the shaft.
7. All cogged pulleys on the Airflex use a tapered hub that tightens the pulley to its shaft.
8. To remove a cogged pulley from its shaft, remove both of the set-screws that keep it tight. Figure 52
9. If threading this set screw into the central hole does not separate the hub from pulley, tap with a pipe or similar press tool and a hammer.
10. Remove the 4 bolts retaining the bearing housings to the GT Case. Figure 51

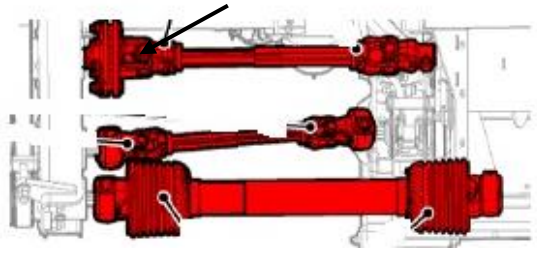


Figure 49

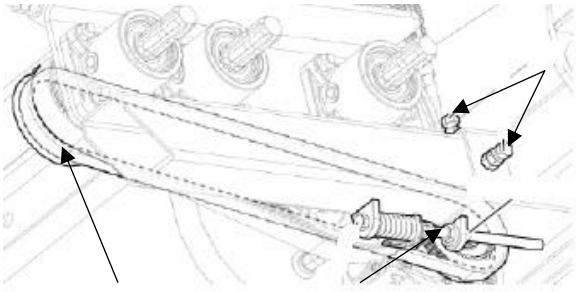


Figure 50

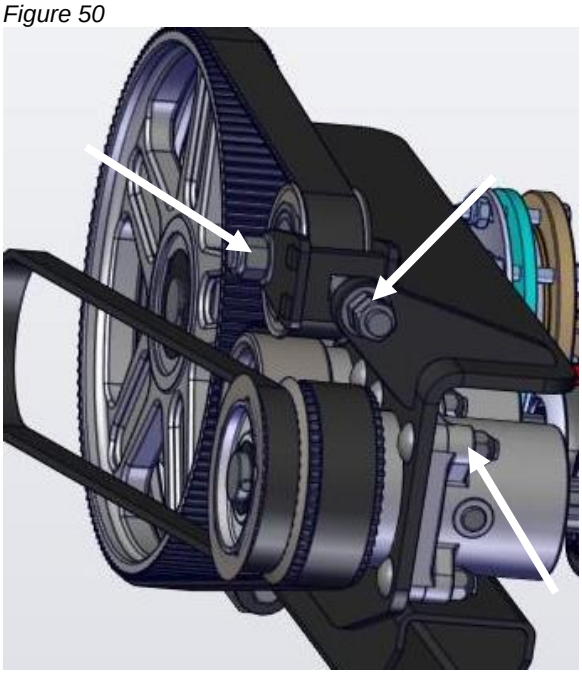


Figure 51

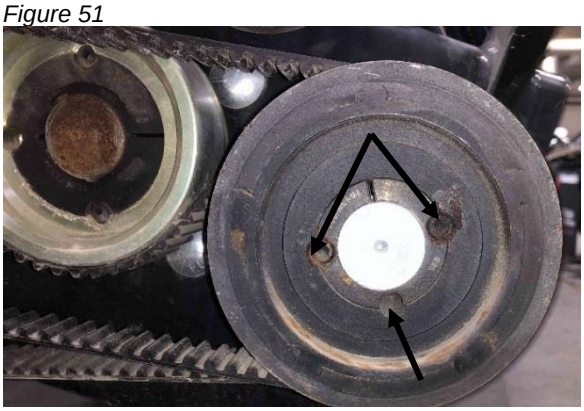


Figure 52

11. Replace the complete bearing housing assembly. (Note: In most cases if a bearing is out it is better to replace the complete assembly)

6.2 - Feed Auger Drive Installation

1. If any shims were found under the bearing housing replace the shims in the same positions.
2. Tighten mounting hardware on each housing replaced to 75 ft. lbs (101Nm).
3. Install the drive pulleys and hubs.
4. Torque the drive pulley hub set screws to the torque as described in Figure 53 and Figure 54.
    a. The 5/16” set-screws in the draper drive hubs are torqued to 15 ft. lbs.
    b. The 3/8” set-screws in the remaining pulleys are torqued to 24 ft. lbs.
    c. Note: Use Red Loctite on the set-screws.

    Note: Some units may have metric screws vs. standard.

Figure 53

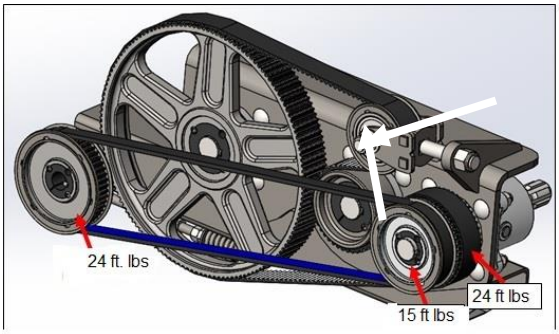


Figure 54

1. Install Idlers and tighten idler mounting bolts on the left-hand and right-hand drives Figure 53 and Figure 54 to 150 ft. lbs.
2. Install the auger drive belt and tighten it to
    a. 0-24 Hours of use 195-200HZ
    b. 24+ of use 165-170HZ.
3. Install the draper drive belt and use the tension bolt on the underside of the gearbox assembly to tighten the belt.
    a. Note: Pick up the end of the GT case and move around so that the GT case will “find home”. Then Recheck the tension of the belt.
4. Retighten the lock nut and lock bolts when desired tension is achieved. Figure 55

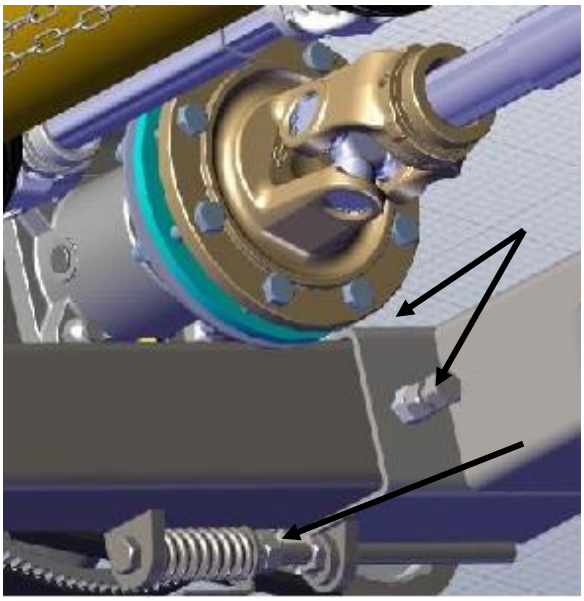


Figure 55

6.3 - Right-Hand Knife Drive Bearing Removal

1. Remove the right-hand drive shaft that connects the GT case to the combine. Remove the knife drive shaft by removing the 4 mounting bolts on each end of the shaft. Figure 56

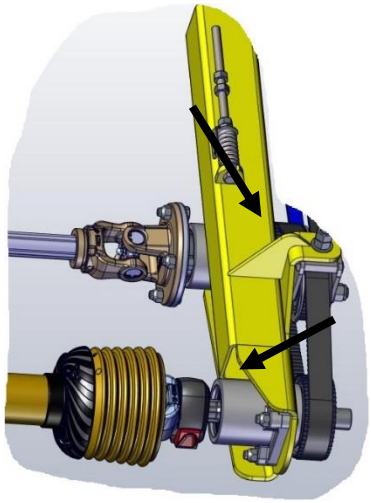


Figure 56

3. Loosen the jam nuts and spring assembly holing the right-hand draper belt. Figure 57

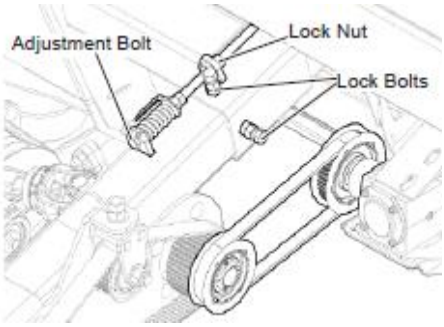


Figure 57

4. Remove the right-hand draper drive cog-belt
5. Remove the bearing housing assembly

6.4. Installation Right Hand Drive

1. If any shims were found under the bearing housing replace the shims in the same positions.
2. Tighten mounting hardware on each housing replaced to 75 ft. lbs (101Nm).
3. Install the right-hand GT drive cog-belt. Figure 58 Use the adjustment bolt to tighten the belt to

- 0-24 hours of use 180-190Hz
- 24+ hours of use 160-170Hz

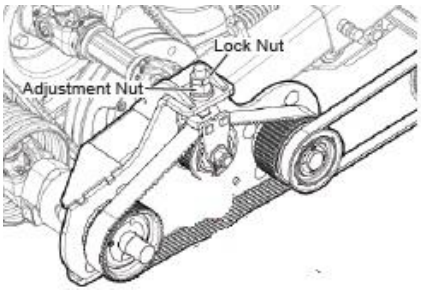


Figure 58

2. Install the Right-hand draper drive cog-belt.

3. Adjust the cog-belt tension via the adjustment bolt. Note: Pick up the end of the GT case and move around so that the GT case will “find home”. Then Recheck the tension of the belt.

4. Retighten the lock bolts and lock nut when desired tension is reached. Figure 57
5. Install the knife drive shaft on the front bearing mount. Tighten the mounting bolts to 75 ft. lbs (101Nm)

6.5 - Knife Drive Belt Removal

1. Remove the 4 bolts that retain the drive shaft to the bearing housing on the GT drive Figure 59

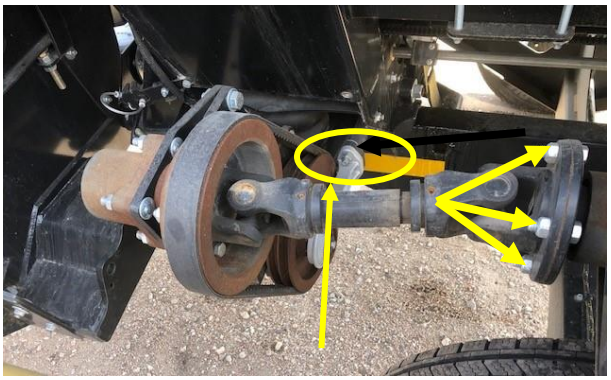


Figure 59

2. Remove the two bolts holding the tie rod arm. Figure 59
3. Loosen the lock nut and lock bolt but do not remove. Loosen the top bolt. Figure 60

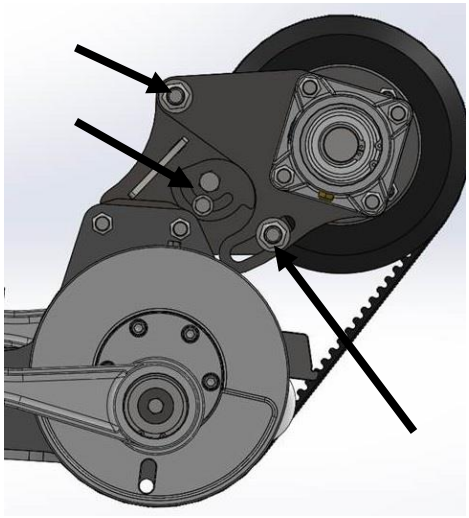


Figure 60

1. Remove the belt.
2. Replace the belt and tighten the belt using the locking cam.
3. Install the knife drive shaft on the front bearing mount. Tighten the mounting bolts to 75 ft. lbs (101Nm)
4. Correct tension is achieved when the belt vibrates at 60-70Hz when being tapped with a wrench.
5. **The tension can also be set by using a torque on the adjustment bolt**.
6. Slightly loosen the lock bolt and two lock nuts shown below. DO NOT remove them. Figure 61
7. While holding the lock bolt in place with one wrench, place a second wrench on the adjustment bolt and lift up with 180 ft/lb (244 Nm) of force. Ensure the lock bolt is tight. Figure 62
8. Tighten the lock nuts on the knife drive. Figure 63

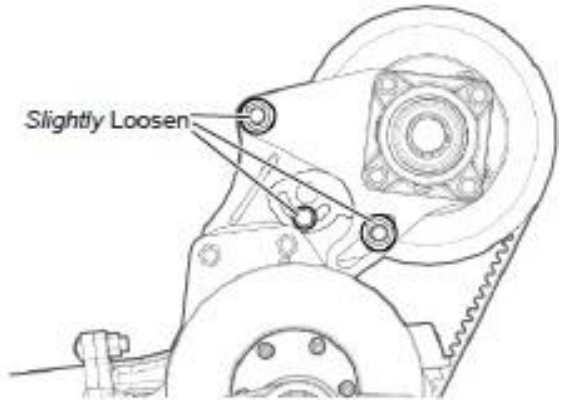


Figure 61

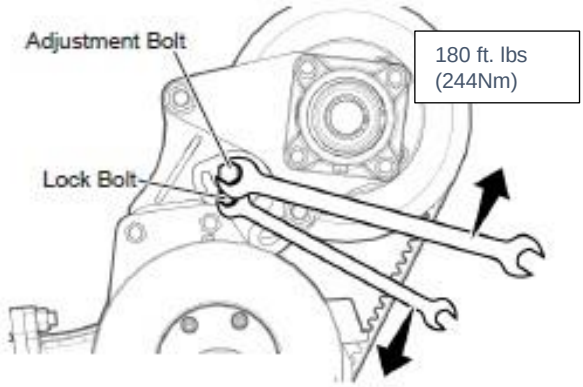


Figure 62

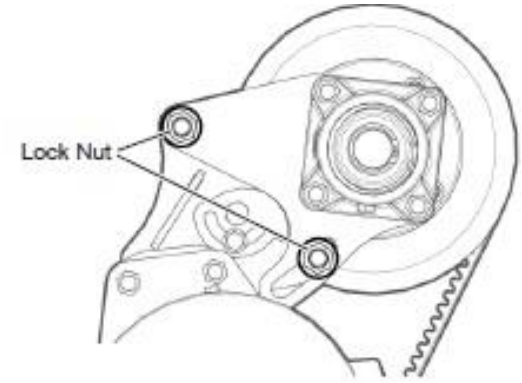


Figure 63

6.6 - Knife Drive Bearing

1. After removing the belt if the bearings need to be replaced remove the 4 bolts that retain the top pulley.
2. Remove the 4 bolts retaining the top bearing. Figure 64

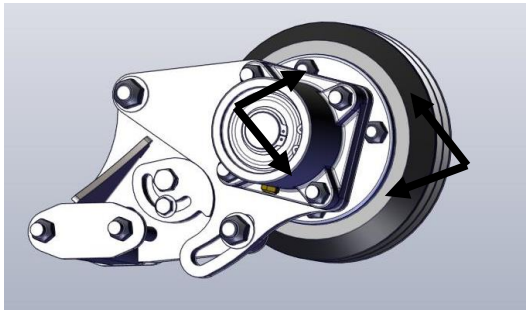


Figure 64

3. This bearing can be replaced as a complete assembly.
4. The lower knife drive bearing can be replaced by removing the connecting arms. Figure 65

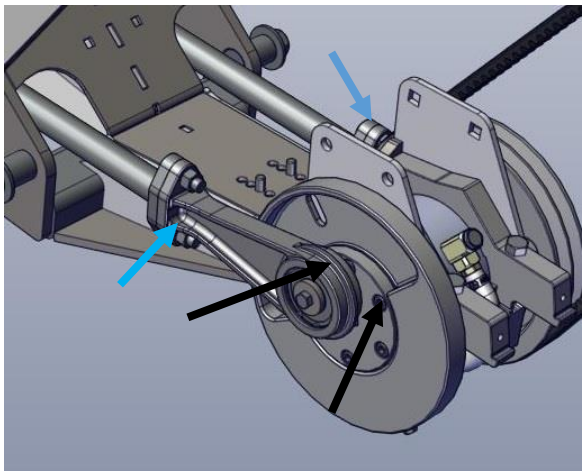


Figure 65

5. Remove the four ½" carriage bolts retaining the connecting rods to the pitman arms.
6. Note: The pitman arms can be removed with two long pry bars or with a gear puller. If using a gear puller be sure not to damage the threaded hole in the hub shaft. A 3/8" bolt should be threaded in the center hole and place the puller on the bolt when removing the pitman arms.
7. Remove the bolt through the center of the bearing and remove both flywheels.
8. Remove the hose, fittings and drain the oil from the bearing. Figure 66

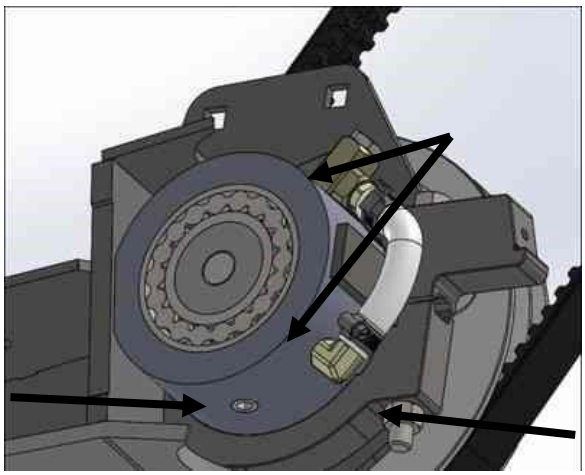


Figure 66

9. The bolts clamping the bearing to the drive paddle can be removed and the bearing can be slid out of the drive paddle. Note it may be necessary to drive a wedge in the clamp to loosen the clamps.

10. Install the new bearing assembly in the drive paddle. Tighten the clamp bolts enough to hold the bearing in place.
11. Install both flywheels. Make certain to line up the roll pins and cross-hatch on the flywheels and bearing housing. The bearing pin on the flywheels should be 180 degrees from each other. Retain the flywheels with the center bolt. Use Red Loctite and tighten the nut to 315 ft. lbs. Figure 67

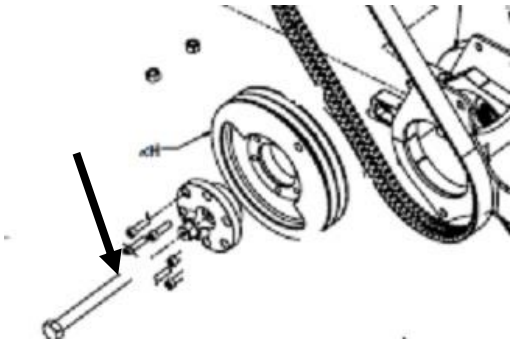


Figure 67

12. Center the bearing assembly in the drive paddle making certain that the flywheels are the same distance from the paddle. Use red Loctite #262 and tighten the bolts to 120 ft. lbs. Figure 68

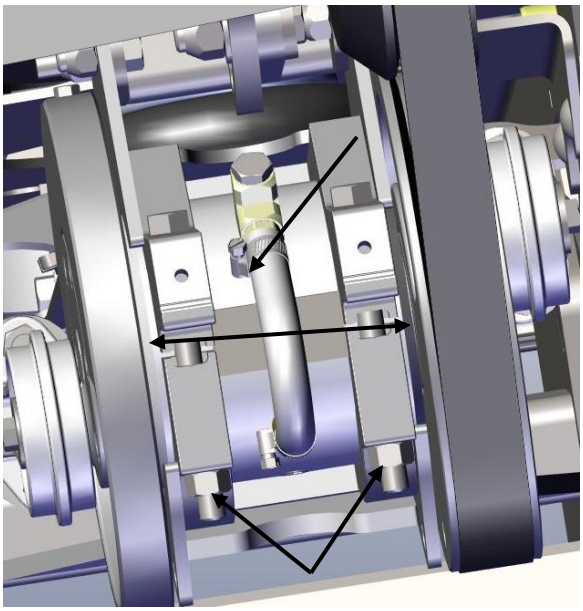


Figure 68

13. Install the pitman arms on the flywheels and torque the bolts to 23 ft. lbs.
14. Note: When installing the pitman arm, make certain the snap ring points to the outside of the flywheels. The inner race of the connecting rod bearing must be flush with the stub on the flywheel. Figure 69

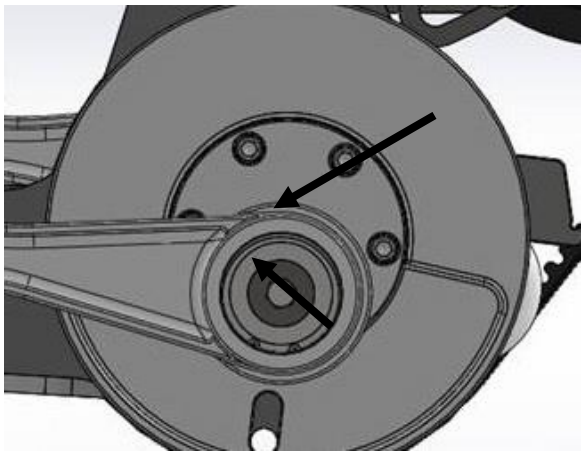


Figure 69

15. Install lower fitting and hose and fill the bearing housing with 75W-90 gear oil until it is halfway in the tube.
16. Install top fittings and hose.
17. Install the knife drive belt and tighten the belt to 60-70 Hz.
18. Install the tie rods to the pitman arms and torque the carriage bolts to 68 ft. lbs (92 Nm)

Note: Check timing after installation per section 8.4 - Knife Drive Timing

6.7. Slip Clutch Assembly and Adjustment

The slip clutch is a friction type clutch. It has two friction discs to maintain the torque on the auger drive.

1. With the header on the combine open the left-hand shield to expose the clutch.
2. Remove the slip clutch from the header. Figure 70

Figure 70

3. Loosen the bolts retaining the clutch spring. Figure 71

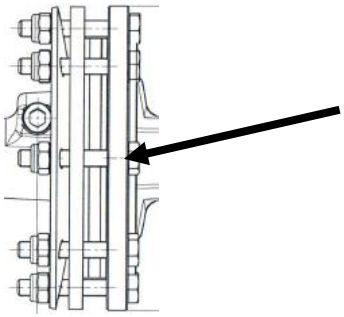


Figure 71

4. Disassemble the clutch and replace the friction discs.
5. Tighten the clutch bolts up finger tight.

6. Replace the clutch on the drive shaft on the drive.
7. Install the other end of the shaft on the auger stub shaft.
8. Run the header for about 2-3 seconds with the clutch slipping. This will burnish the new friction discs.
9. When tightening the bolts use a crossing pattern. Figure 72

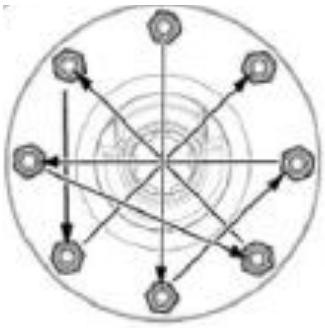


Figure 72

10. Once the clutch is burnished tighten the bolts in the same crossing pattern until the dimension of between the spring and plate is reached at each bolt location, Figure 72. Tighten the bolts 2 flats and then go to the next bolt.
11. The double spring was used on all clutches, Figure 74. On these clutches the distance between the spring and the top plate should be adjusted to 20.7mm + or – 0.2mm.

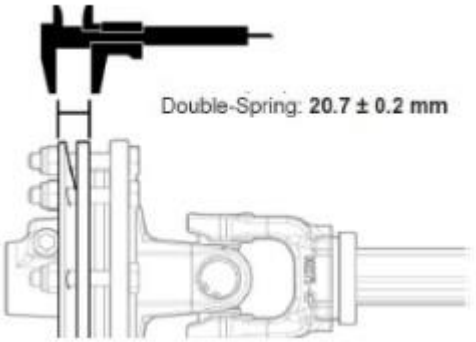


Figure 73

Figure 74

7 - Decks

The common (or center deck) is driven from a PTO shaft off the LH GT case. The drive goes through a belt or a chain, depending on Model Year, to a pulley on the drive roller of the draper drive.

7.1 - Center Deck Drive System

There are twodifferent drive systems for the center deck. On the model year 2019 a solid link controls the tension. On model year 2020 and above the center deck is driven by a chain.

7.1.1 - On model year 2019

1. Remove the tension rod by loosening the jam nuts and shorten the rod to remove the belt. Figure 75
2. The idler can be removed by removing the pin at the bottom of the idler mount.

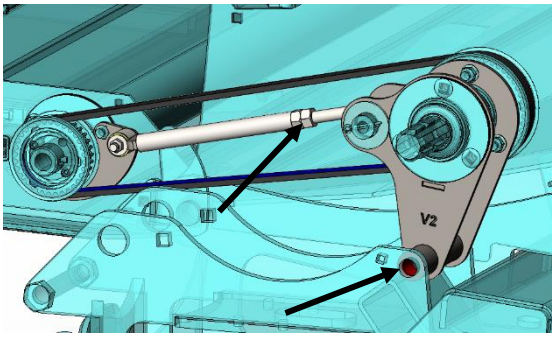


Figure 75

3. The idler can be disassembled for repair by removing the pulley.
4. To remove the pulley, take out the set screws and pull off the tapered hub. One of the set screws can be threaded in the additional hole to pull the hub out of the pulley.

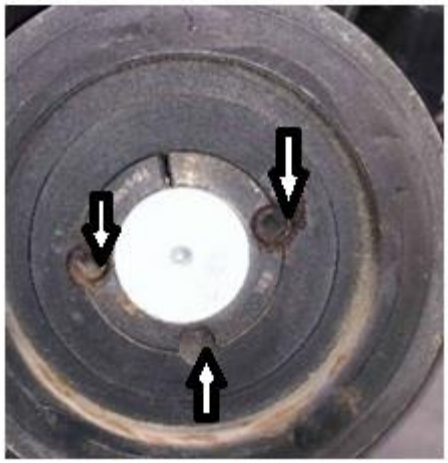


Figure 76

Figure 77

6. Remove the set screws from the lock collars on the shaft.
7. Remove the bearing flangettes and the bearings off the shaft. Figure 77
8. Assemble the idler in the reverse order.
9. The bearings are held on with a split lock collar bearing, Figure 77. Torque the Torx screws in this lock collar to 97 in. lbs
10. The belt is tensioned with the nuts on the adjustment rod, Figure 75.
11. The tension on this belt is measured in HZ. Tighten the bolt assembly until the following tension is reached.
    - 0-24 Hours use 90-95 Hz

- 24+ hours use 77-82 Hz
- Note: The belt should be checked at operating temperature.

IMPORTANT!

Re-check the center draper drive chain tension when the header is lifted off the ground by the combine and when the tilt cylinder is retracted as this may change the geometry of the center draper drive system.

7.1.2 - On Model Year 2020 and above.

1. Loosen the jam nut on the spring tension. Figure 78
2. Remove the connector link to allow the chain to be removed.
3. Once the chain is removed remove the bolt on the front of the tension system.
4. To remove the idler assembly, remove the bolt that secures the lower pivot pin in the idler assembly. Figure 78
5. Remove the pin and idler assembly. The idler can then be disassembled like the Model Year 2019.

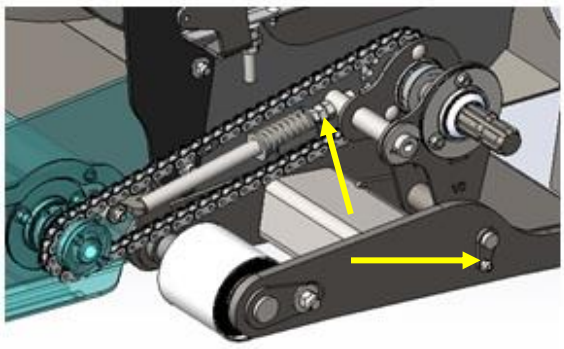


Figure 78

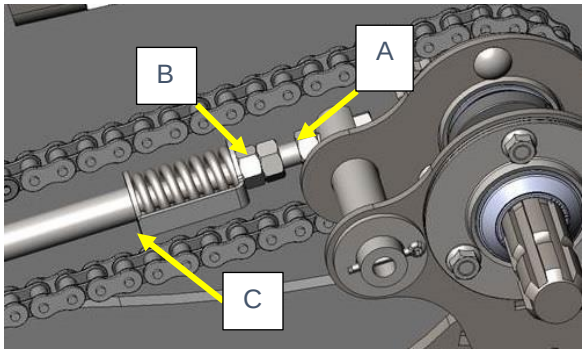


Figure 79

6. Install in the reverse order.
7. To adjust the chain, loosen the locknut (A) on the adjustment rod. Figure 79
8. Turn the adjustment nut (B) until the tension indicator is flush with the washer at the end of the spring.
9. Tighten the locknut against the adjustment nut to hold the spring in place.

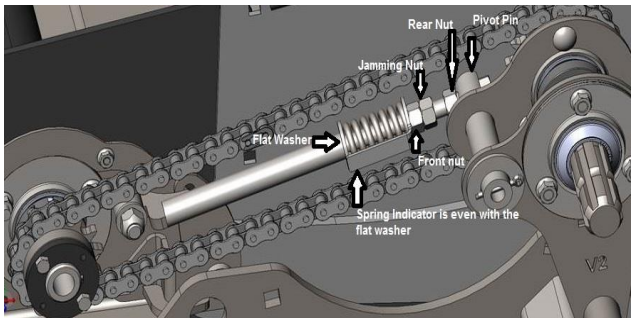


Figure 80

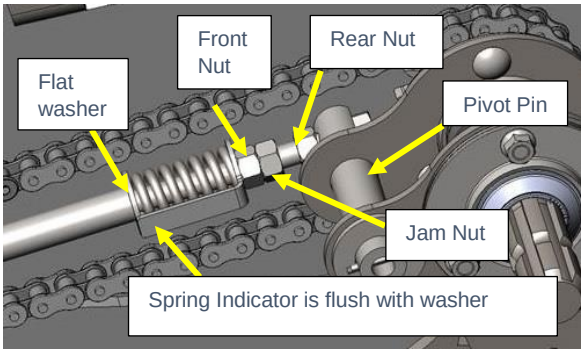


Figure 81

IMPORTANT!

Re-check the center draper drive chain tension when the header is lifted off the ground by the combine and when the tilt cylinder is retracted as this may change the geometry of the center draper drive system.

7.2 - Center Deck Draper Belt

The center deck has two rollers and a belt tension system. The following is disassembly of the deck.

1. Before the tension is off roll the draper belt around to expose the splice.
2. To remove the draper belt, loosen the tension off the belt by loosening the spring tension off on both sides of the deck. Figure 82
3. Remove all the bolts in the splice and pull the belt off the center frame Figure 82

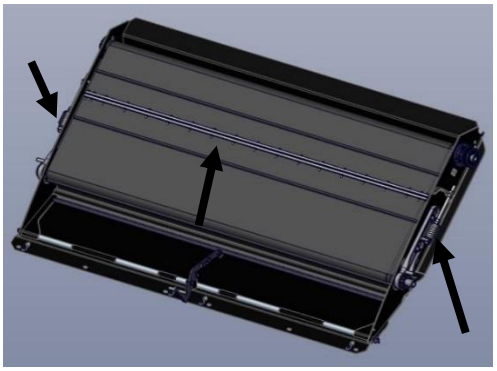


Figure 82

4. After the draper belt is removed the rollers can be removed from the frame.
5. On the right-hand side remove the bearing flange and bearing from the rear roller.
6. Remove the drive pulley on the left-hand side of the roller.
7. Remove the tension system from the front roller. The bearing can now be removed from the front roller. Figure 83

Figure 83

7. Remove the front tension assembly and bearing.
8. The rollers can now be removed from the right-hand side of the frame.
9. Note: If the belt on the center deck is damaged the belt will need to be replaced as it can not be repaired.

Assembly

10. Before installing the new bearing, the size of the shaft must be checked,
11. A new shaft is 1.250” in diameter.
12. If the shaft diameter is worn where the bearing is on the shaft measures 1.249” nothing else is needed and the bearing can be installed.
13. If the shaft diameter is 1.247” to 1.249”, clean the shaft and apply Loctite 648 to the shaft when installing the new bearing.
14. If the shaft diameter is below 1.247” a new roller must be installed.
15. Make certain that the V-guides on the rollers are aligned. If they are not aligned the belts will not track correctly.
16. Slide the collar on the bearing and tighten the set-screws on the collar to hold in place. Just tighten the screws enough to hold into place. DO NOT overtighten the set screws. Then tighten the Torx screw in the collar to 97 in.lbs. Figure 84

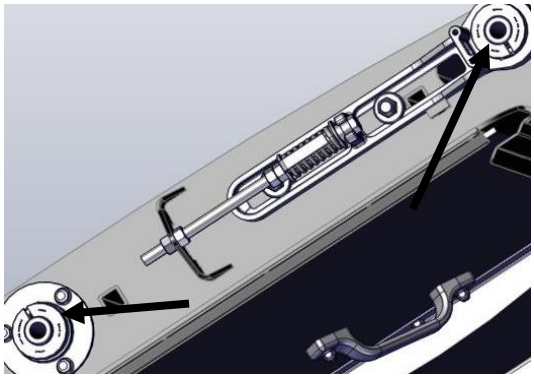


Figure 84

17. Install the drive pulley, belt or chain and sprocket depending on Model Year. Make certain that the belt is aligned with the idler pulley assembly on the subframe.
18. Make sure that the rock trap is in the open position prior to installing the draper belt on the deck. Place draper belt bundle on the top of deck runners, and unroll with the slats facing up. Be sure to align the v-guide with the notched side of the roller toward the rear end of the header. Wrap draper around one of the rollers and feed draper into the bottom runner of the deck. The bottom runners will support the draper, and prevent it from hanging down.
19. Pull draper through bottom runner, and wrap around the other roller. Pull the ends of the draper together.
20. Install a connector bar to close the joint. The curved sides of the connector bar are together. The heads of the screws for the connector bar should be installed pointing to the rear when the connector bar is on the top side of the feeder-deck. This helps prevent the crop being caught on the screws.

Tensioning the Center Draper Belt

1. Before tensioning the belt make certain that the idler roller is free to move and does not bind.
2. Locate the two tensioners on each side of the center draper on the underside of the header. Figure 85
3. Loosen the 1/2" UNC Jam Nut, hold the lock nut with a wrench to prevent it from moving and turn the adjuster bolt until the tension indicator is in line with the end of the spring. Retighten the jam nut.
4. Repeat the process for the adjuster bolt on the other side of the center draper.

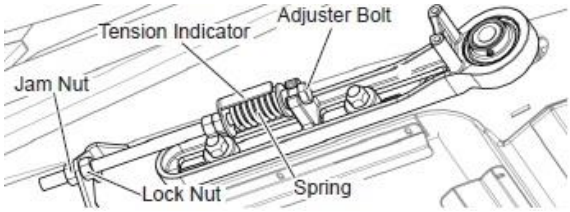


Figure 85

5. Measure the distance between the center of each roller on the center deck. Figure 86
6. If the distance is not the same tighten the adjuster on the side with the shortest measurement.
7. This will ensure that the draper is running straight and the V-belt on the back of the draper will stay in the groove.

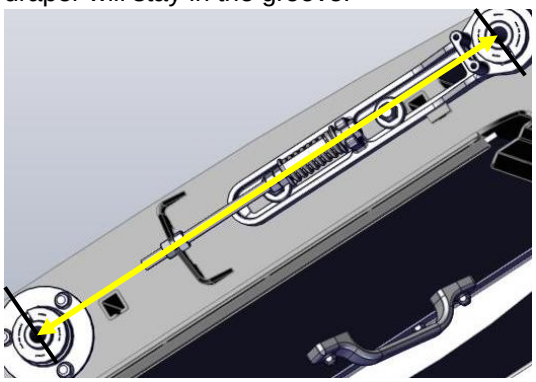


Figure 86

⚠ WARNING!

When working under platform always lower hydraulic cylinder safety stop onto cylinder rod to prevent platform from lowering.

NOTE:

For difficult crops, additional belt tension may be required. Increase belt tension only if necessary as belt life, tracking, and drive are affected.

7.3 - Lateral Deck Drive Rollers

The lateral deck is assembled in the same manner for all width headers.

1. To remove the draper and rollers loosen the tension by flipping the over-center latch on the outside of the draper.
2. Move the splice to the end of the header and remove all the bolts in the splice. Figure 87

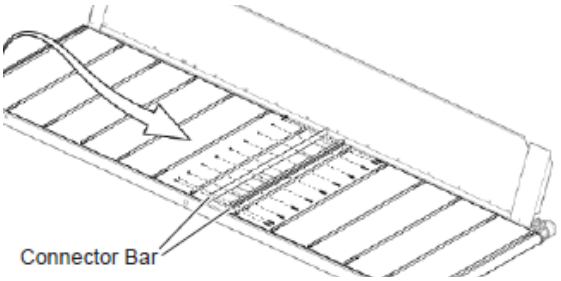


Figure 87

3. Loosen the bolts on the bottom of the gearbox. Remove the tension bolt and remove the belt from the gearbox. Figure 88
4. On the end of the deck, closest to the center deck, remove the shield, belt, and drive pulley. Figure 89

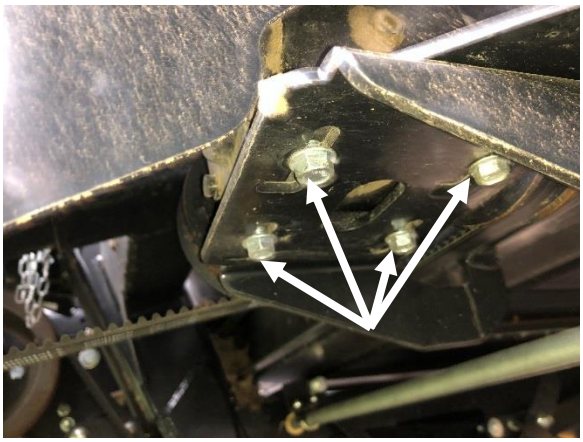


Figure 88

5. Remove the lock collars.
6. Remove bearings assemblies on the drive side by removing the two retaining bolts. Figure 89

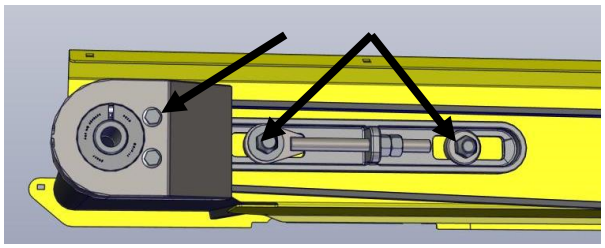


Figure 89

7. On the front side remove the retaining bolt the holds the roller in place. Figure 90 That will allow you to remove the roller. This figure shows Model Year 2015 and above. Model Year 2014 and below is slightly different.

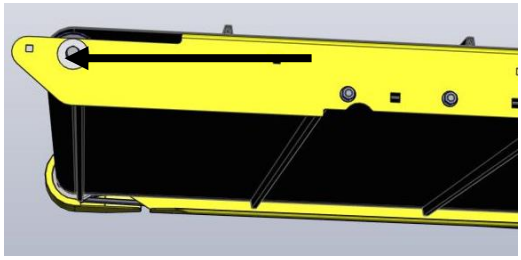


Figure 90

Idler Roller Removal

1. Remove the shield and lock collar. Remove the bolts holding the bearing holder and remove the bearing and holder. Figure 91

Figure 91

2. Remove the bolt from opposite side of the roller. This will allow the roller to be removed from the deck.

7.4 - Roller Bearing Replacement

1. The bearings in the non drive end of the rollers can then be replaced. The roller bearings are pressed into the rollers with a friction fit and held in place with a retaining ring.
2. Remove seal that holds the bearing assembly in place. Be prepared to replace the seal with a new one upon replacement. Remove the snap ring that secures the bearing in place.
3. Use a slide hammer to remove the stub shaft and bearing from the roller Figure 92

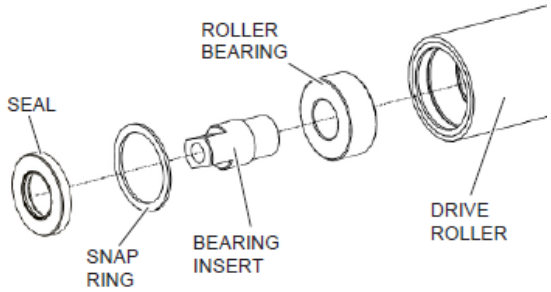


Figure 92

Assembly

1. Assemble the bearing and the stub shaft. Install the snap rings to the stub shaft to hold it in place. Install the bearing assembly and the seal in the roller Figure 93

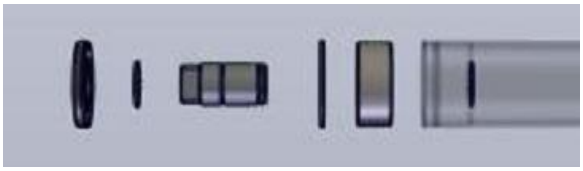


Figure 93

2. Install the rollers in the deck.
3. Install the bearings. Install the slider onto the shaft and the deck frame. Slide the collar on the bearing and tighten the set-screws on the collar to hold in place. Just tighten the screws enough to hold into place. DO NOT overtighten the set screws. Then tighten the Torx screw in the collar to 97 in.lbs. Figure 94

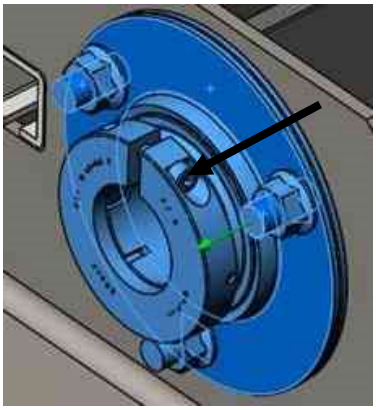


Figure 94

4. Install the drive pulley. Make certain that it is aligned with the pulley on the drive gearbox.

7.5. Draper Belt Repair

The lateral draper belts can be repaired. A repair kit is available through parts.

1. The draper, should be cut midway, between two slats to provide ample material for the new joint. With a measuring tape, measure, and mark a line six inches from a slat on a good portion of the draper to the side of the damaged section.
2. Ensure this line is straight and square. If this line is not straight and square, the draper will not track properly.
3. Measure 19 3/4" from the first line, ensuring the damaged section of the draper is included in this area and mark a second line, ensure this line is also straight and square. Figure 95

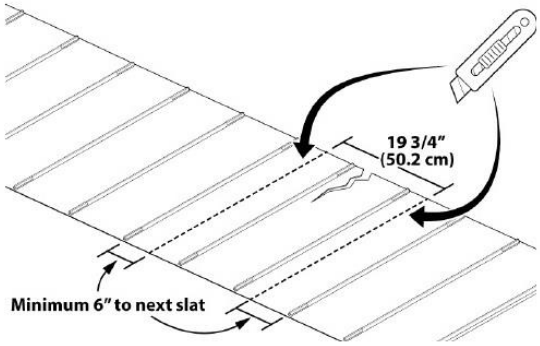


Figure 95

4. Place a board directly under the line you have marked, to support the section you will be cutting. With a utility knife and a straight edge cut the draper along the marks. This cut must be accurate, and square to assure that the draper will track properly. Repeat this step on the other side of the damaged area.

5. To mark the location for the connector bar holes, measure 1” in from each edge to be joined, and mark a line parallel to the cut edges. Figure 96

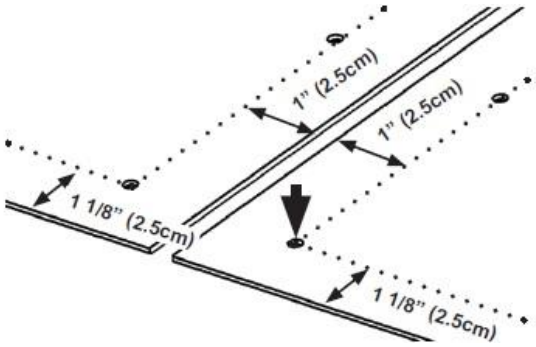


Figure 96

6. On each of these lines, measure 1-1/8” from the front edge of the draper, and make a mark for the first hole.
7. Drill 3/16” holes through each mark.
8. Place the backs of the draper together, lining up these drilled holes.
9. Place a connector bar on each side, line up the holes, and secure with a machine screw and nut.
10. Match up the edges of the draper and drill a hole at the opposite end on the 1” line, using the connector bar as a template. Insert a screw and secure in place.

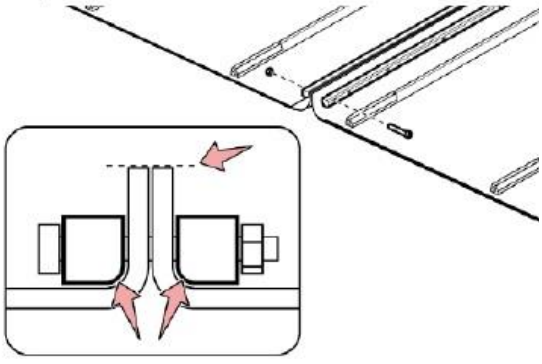


Figure 97

11. Drill the remaining holes through the holes in the connector bar, insert screws and secure.

12. Repeat steps 10 through 13 for the other cut. The splice section should be fully secured at this point. Figure 98

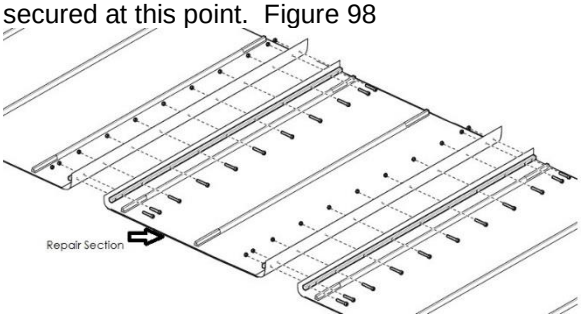


Figure 98

IMPORTANT!

Ensure the screw heads are facing the direction the draper will be traveling.

13. A set of complete instructions are sent with each kit.

7.6 - Lateral Draper Belt Installation

1. After the rollers are installed the rollers use a square to make certain the roller is perpendicular to the frame. Figure 99 If the roller is not square, loosen the lock nut and reposition the drive roller via the adjustment nut. Figure 100

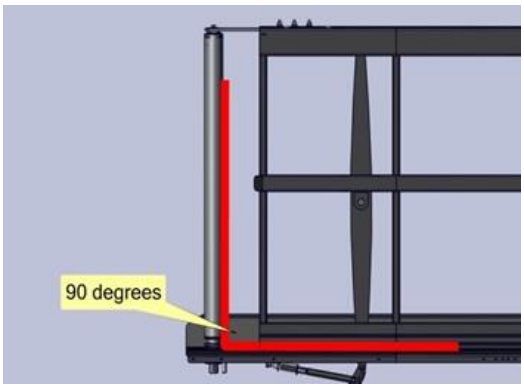


Figure 99

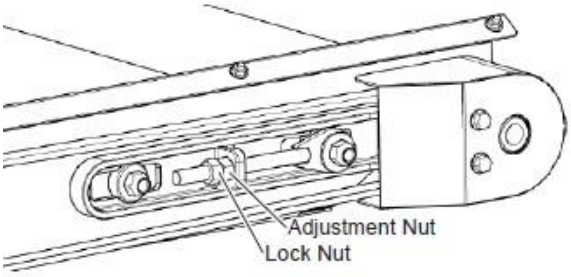


Figure 100

Make sure that the *quick release handle* is in the open position prior to installing the draper on the deck. Figure 101

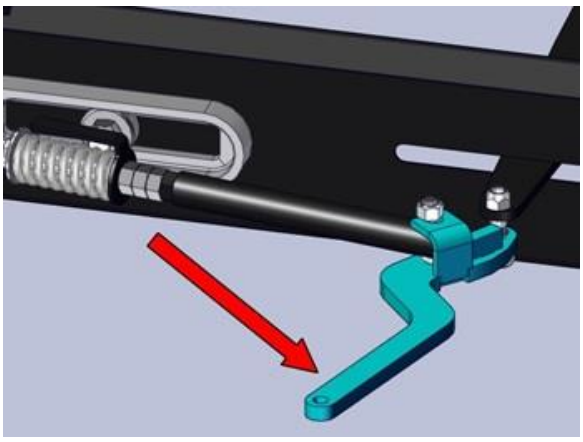


Figure 101

Place draper bundle on the top of deck runners, and unroll with the slats facing up. Be sure to align the v-guide with the notched side of the roller toward the rear of the header. Figure 102

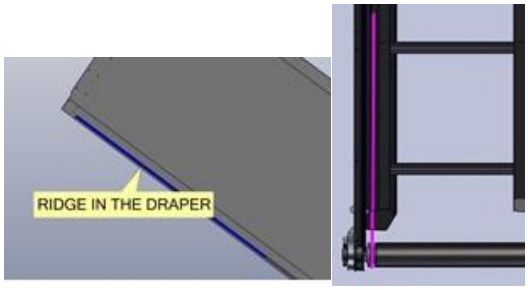


Figure 102

Wrap *draper* around one of the *rollers* and feed draper into the bottom runner of the deck. The bottom *runners* will support the *draper*, and prevent it from hanging down.

Pull draper through bottom runner, and wrap around the other roller. Pull the ends of the draper together on the top surface of the *deck*. Install a *connector bar kit* to close the joint. The heads of the screws for the connector bar should be installed pointing to the rear when the connector bar is on the top side of the feeder-deck.

The head of the *screws* for the *connector bar kit* should be installed in the direction of travel. This helps prevent crop being caught on the *screws*. Figure 103

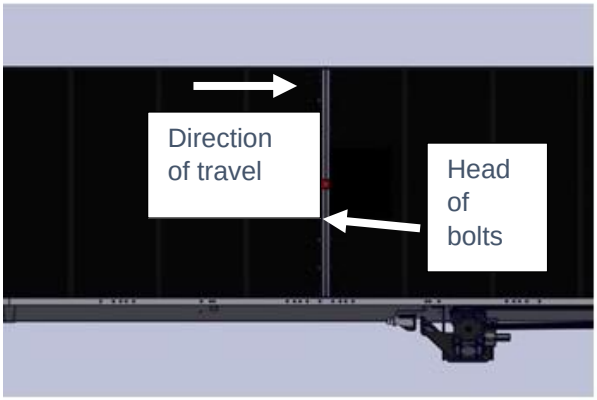


Figure 103

Once the draper is installed close the quick release lever to apply tension to the draper.

Turn the adjuster bolt until the indicator is aligned with the washer. Lock the handle and tighten the lock nut. Figure 104.

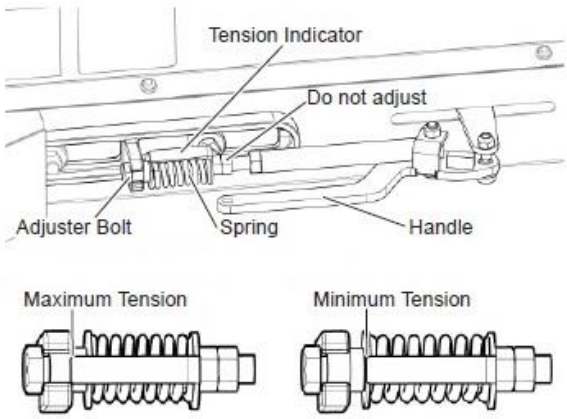


Figure 104

7.7 - Draper Drive Gearbox Replacement

Each lateral deck has a 90-degree gearbox that drive the draper. This gearbox is driven from either the Right-hand GT case or the left-hand GT case.

Right-Hand Draper drive Belt

1. Loosen the two jam nuts and bolts that secure the drive housing. Loosen the jam nut and tensioner spring bolt on top of the case. This will loosen the drive belt to the input gear and the belt can be removed. Figure 105.

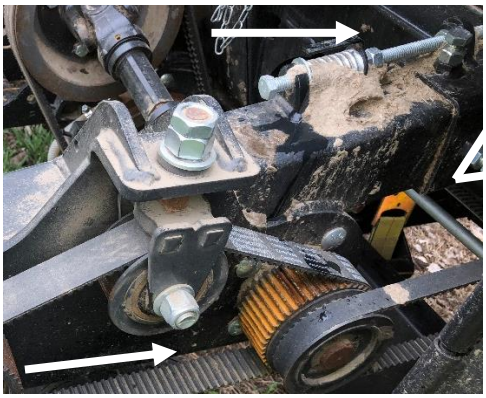


Figure 105

On the left-hand draper, loosen the two jam nuts on the GT case. Loosen the jam nut and bolt on the bottom of the case. This will loosen the drive belt to the input gear and the belt can be removed. Figure 106

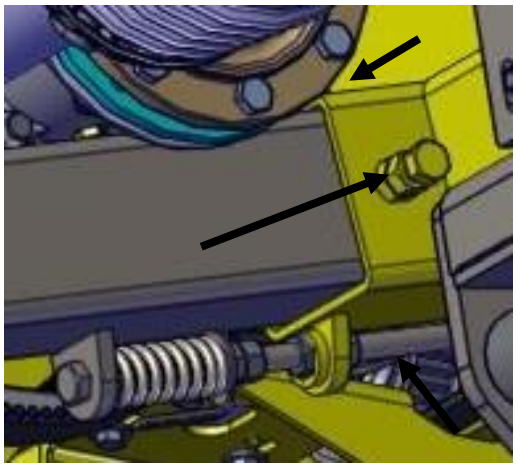


Figure 106

Note: The rest of the procedure works on either the left-or-right hand side gearbox removal.

Remove the spring tension system off the gearbox assembly. Loosen the gearbox mounting bolts to relieve the tension so the gearbox can slide over. Remove the drive belt. Figure 107

Figure 107

The bolts on the bottom of the gearbox can now be removed. Figure 4

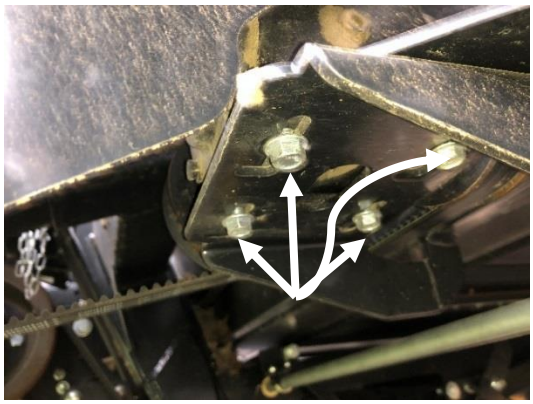


Figure 108

Note the locations of the pulleys on the gearbox shafts. Remove the pulleys from the gearbox by removing the set-screws in the tapered hub on the pulley and use one of the screws to “push” the hub out of the pulley. Figure 109

Figure 109

7.8. Draper Gearbox Seal Replacement

1. The input and output shaft seals are replaceable. Figure 110

Figure 110

2. To replace the output shaft-seal remove the four bolts retaining the shaft end cap.
3. Once the end cap is removed the seal can be pressed out of the housing
4. To replace the input shaft seal, the seal can be removed with a seal puller.
5. Use a seal puller to remove the seal from the neck of the gearbox. Figure 111
6. To install the seal use a pipe to press on the outside of the seal to push the seal in place.

Figure 111

7.9. Bearing Replacement on Draper Gearbox

In addition to the seals the bearings can be replaced in the gearbox. There are four tapered roller bearings in the gearbox. There are two bearings on the output shaft and two bearings in the end cap of the input shaft. Figure 112 Note: If the shafts, gears, or housing is damaged the entire gearbox must be replaced.

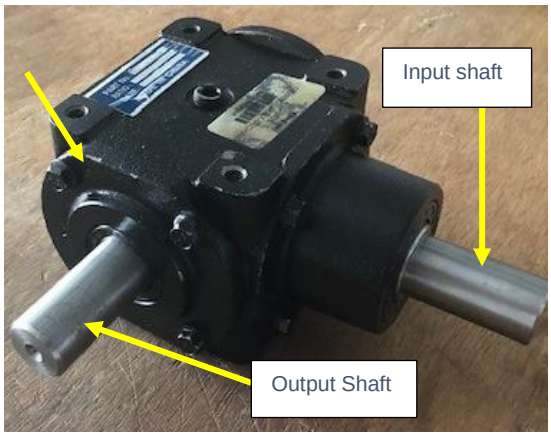


Figure 112

7.9.1. Output Shaft Bearings

1. To replace the bearings on the output-shaft remove the four bolts holding the cap. Figure 112
2. This will allow the output shaft and bearings to be removed from the gearbox.
3. Remove the cap from the shaft. A new seal can now be installed in the cap.

4. Press the gear and bearing off the end of the shaft. Figure 113
5. The bearing on the other end of the shaft can now be pressed off.

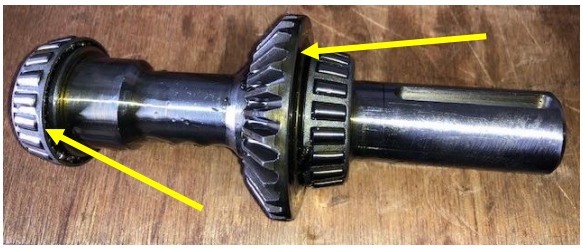


Figure 113

6. Remove and replace the outer bearing races in each of the end caps.
7. Clean the surfaces of the gearbox where the end cap mounts. Apply a thin layer of Loctite 515 or 518 or similar Anaerobic gasket maker to form the new gasket. Replace the solid end cap on the gearbox
8. Press the new bearing cone on the end of the shaft. Make certain that it is pressed against the shoulder of the shaft.
9. Place the gear on the shaft and press the new bearing cone and gear on the shaft. Make certain the gear is seated against the shoulder on the shaft and the bearing is seated against the gear.
10. Use a thread sealer on the cap bolts and torque the bolts to 76 in. lbs.

7.9.2. Input shaft Bearings

1. To replace the input-shaft bearings remove the four bolts retaining the input shaft end cap. Figure 112
2. Remove the nut from the end of the shaft. Note: There are two different style of nuts. One is locked by stacking the nut in the keyway and the other has a keeper that locks the nut in place. Both styles are adjusted the same way. Figure 114

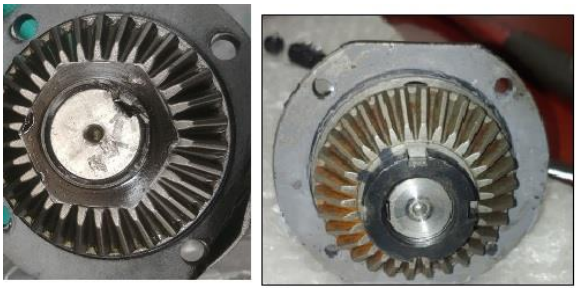


Figure 114

3. Press the input shaft out of the housing.
4. Remove the bearings from the shaft by pressing the bearings and gear off the shaft. Figure 115

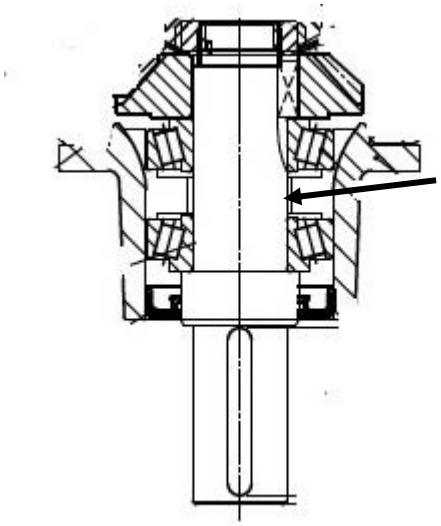


Figure 115

5. Install new bearings and cups on the shaft.
6. Make certain that the spacer is between the bearings. Press the bearings on the shaft until they are against the collar on the shaft. Figure 116

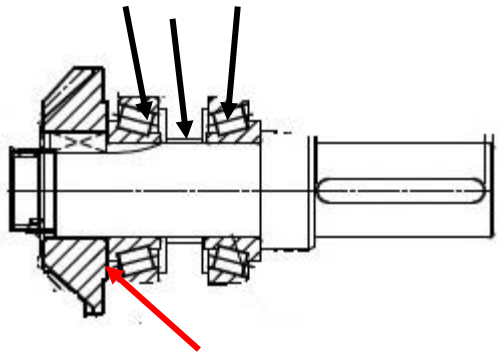


Figure 116

7. Install key and gear on the shaft and press the gear against the top bearing.
8. Install the nut on the end of the shaft

7.9.3. Gearbox Assembly and Adjustment

1. Install the seal in the input shaft housing.
2. Install output shaft in the housing. Press the shaft until there is 1.78" (49.9mm) of the shaft past the end of the housing. Figure 117

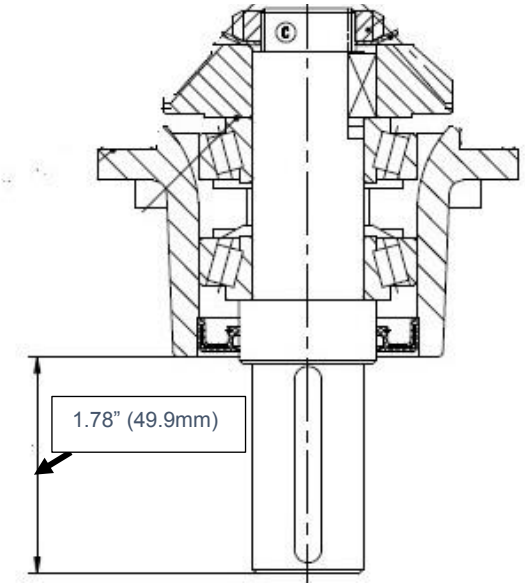


Figure 117

3. Install a paper gasket on the input housing and install the housing in the gearbox. Secure with the four bolts and torque to 76 in. lbs.
4. Check the backlash between the gears. The backlash should be between 0.016 and 0.025
5. If the backlash is too small install another paper shim under the input housing, 1, Figure 118
6. If the backlash is too large install a shim between the gear on the input shaft bearing and gear, 2, Figure 118

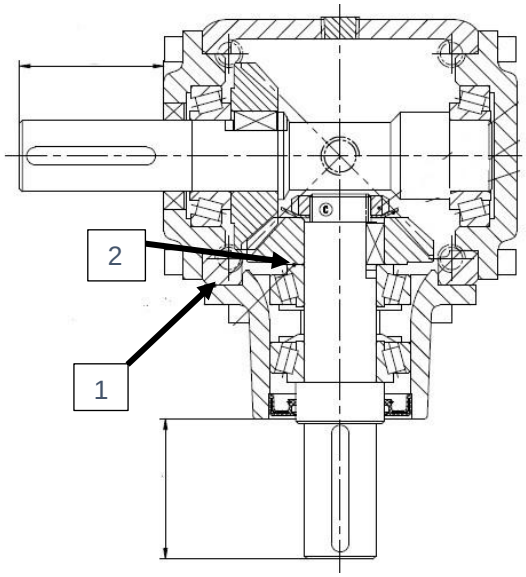


Figure 118

7.10 - Installation of the Draper Deck Gearbox.

1. Install the pulley on the gearbox before installing the gearbox on the mounting plate. Make certain there is clearance between the gear and the deck frame.
2. Set the pulley at the same location and tighten the set screws to 15 ft. lbs.
3. Install the gearbox on the plate and install the mounting bolts, leaving the bolts loose so the gearbox will slide.
4. Install the draper drive belt. Tighten the jam nuts on the tension system until the spring gauge is at the washer. Tighten the mounting bolts to 17 ft. Lbs. DO NOT USE LOCTITE. Recheck the spring gauge to make certain the tension did not change.
5. Install the belt from the GT case to the gearbox. Tighten the adjusting bolt pushing the GT case out. Tighten the bolt until the spring gauge is even with the edge of the spring. Pull up on the end of the case and tighten the jam nuts. Figure 119

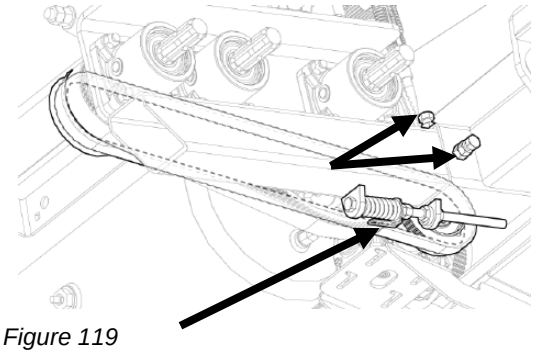


Figure 119

6. Fill the gearbox with 5.8 oz. (171 ml) 80-90W oil. Remove the plug on the top of the gearcase and fill until oil comes out the side plug. Figure 120

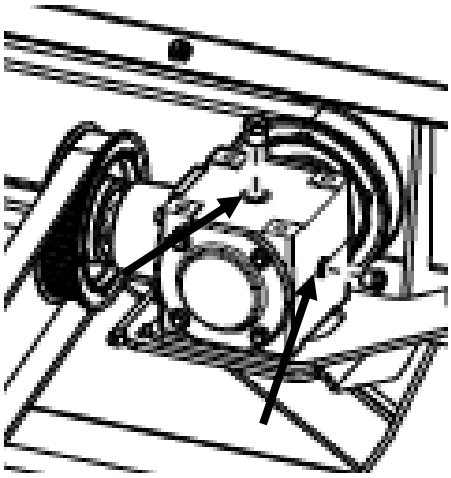


Figure 120

8 - Knife Assemblies

8.1.1. Knife Removal

⚠ WARNING!

Knife sections are sharp!

Wear protective gloves when handling knives.

Raise platform completely and engage feeder house safety stop. Raise reel completely and engage reel lift cylinder safety stops. Shut OFF engine, set parking brake, remove key.

1. In order to replace either the left- or right-hand knife, you must first remove the feather plate from above the knife head bearings.
2. Remove the grease zerk from the bearing. Figure 121
3. Remove 4 to 6 guards from around the right-hand knife head. Figure 122

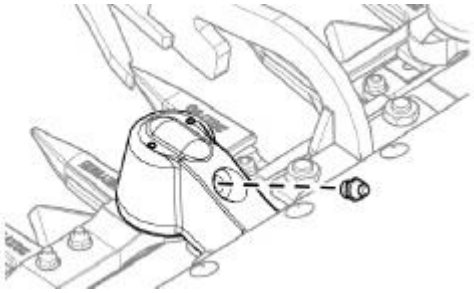


Figure 121

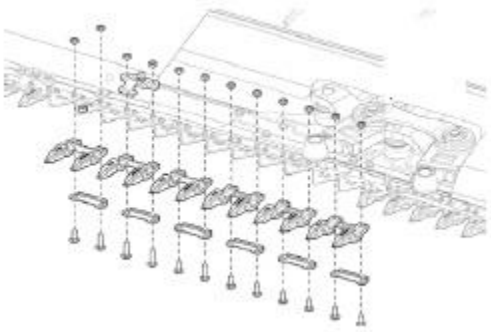


Figure 122

4. Remove the bearing housing from the right-hand knife head. Figure 123

STOP IMPORTANT!

There are a number of loose components within the knife head that you must take care to keep in place when reassembling. Take special precautions not to disturb the needle bearings within.

5. Wearing protective gloves, lift and pull knife head out from guards. Figure 124

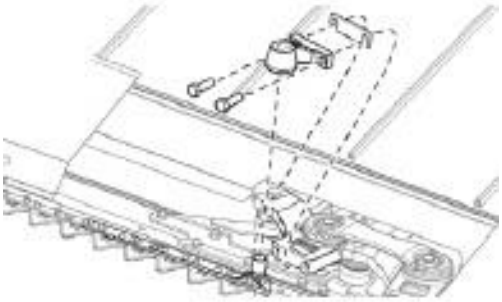


Figure 123

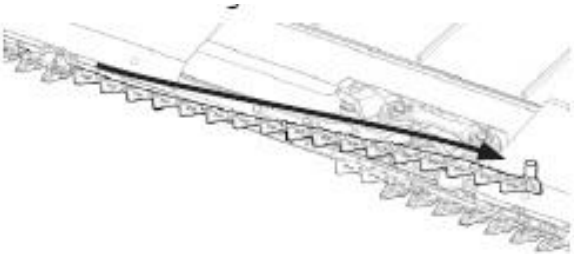


Figure 124

8.2 - Knife Drive Assembly Low Profile Guards

1. Install the guards and wear plates on the cutterbar. Between the cutterbar and the guards, spacers and wear plates are installed. These plates keep the guards at the proper spacing. The wear strips keep the cutterbar pushed forward. Figure 125
   a. Center Spacer Plates
   b. Wear Plates of rest of the cutterbar Model Year 2019 and 2020
   c. Milled wear plates on Model Year 2022 and Above

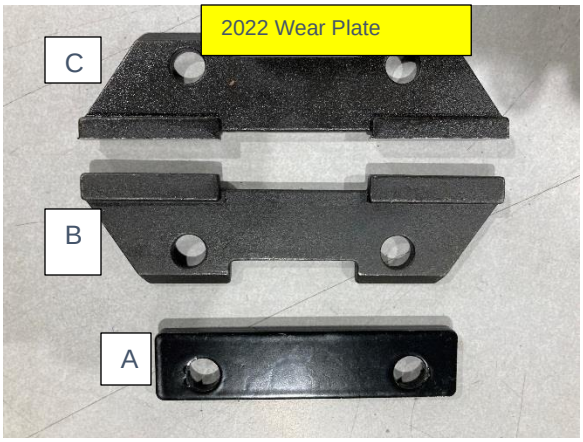


Figure 125

2. The wear plates go under the guards on the outer side of the cutterbar. The spacers go on the center guards. Figure 126

3. **On Model year 2019 and older** there are 6 spacers used in the center of the cutterbar. On **Model Year 2020 and newer** there are 10 spacers used.

4. On **Model Year 2022 and newer** three types of wear plates are used. The standard spacer plate A Figure 125 and a plate with the wear strip, B , Figure 125, and a wear plate that is .100 thinner C. There are a different number of the milled wear strips depending on the size of the header. Figure 127

25 ft.	8 per side
30 ft.	10 per side
36-45 ft.	12 per side
50-60 ft.	15 per side

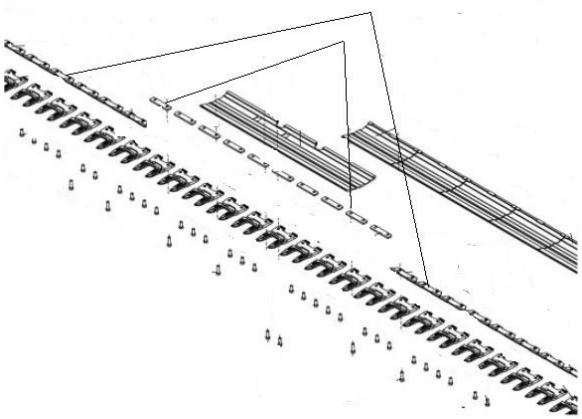


Figure 126

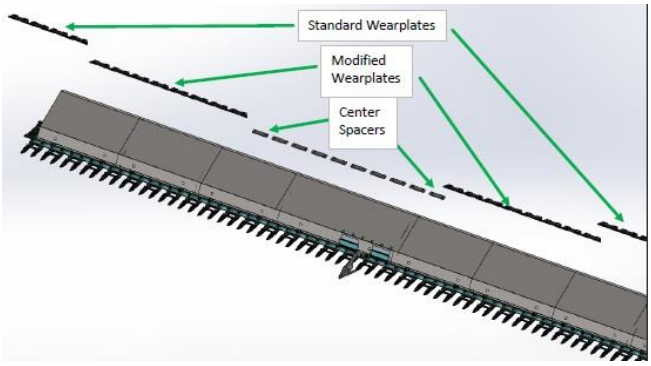


Figure 127

5. When installing the guards make certain that the guards and wear plates are adjusted properly. Use a pry bar to push the cutter bar to the rear. Tighten all the guard bolts. To 40 ft. Lbs. of torque on Model Year 2021 and below and 47 ft lbs on Model Year 2022 and above. Figure 128 Note: On MY 2022

the nuts retaining the guards were changed to full sized nuts instead of jam nuts.

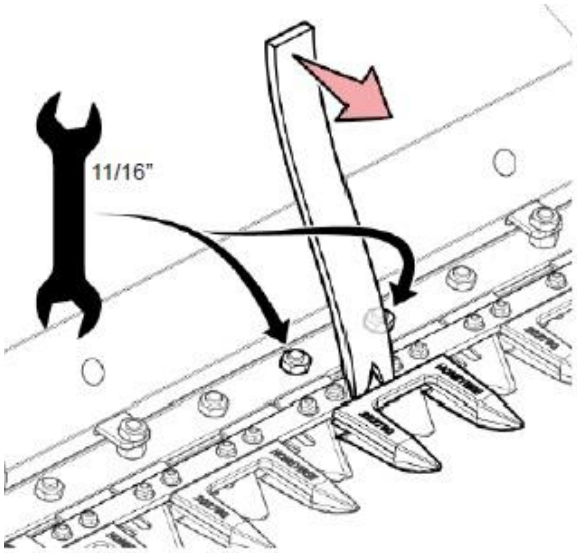


Figure 128

6. Install the knife head bearings on the knife heads.
7. Once the seal is on inner race, push the knife head further onto the inner race by hand. DO NOT use a hammer or bench top vise to install knife head bearing onto knife head. At the same time, you are pushing down slightly rotate back and forth to get the rollers aligned onto the inner race. It will be necessary to remove the grease fitting or at least press the check ball in while installing the knife head on the knife head. Figure 129

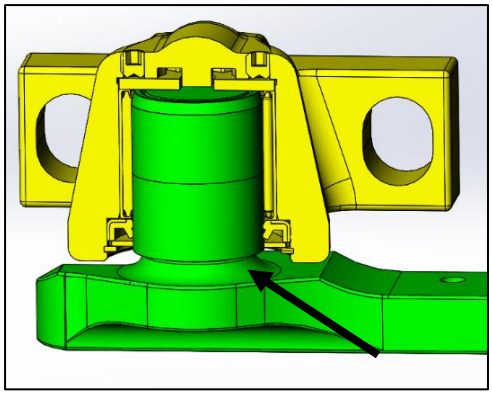


Figure 129

8. Reinstall grease zerk (if removed) once knife head bearing is fully installed onto the knife head. Put Red Loctite (High Strength) on knife head mounting bolts and loosely connect knife head to bell crank.
9. Re-install shims between the knife head and bell crank that were installed at the factory. Watch for clearance between the knife assembly (knife back on top) and guards. If adjustment is needed shims can be added or removed. The shims are 10 gauge and 16 gauge.
10. Clearance between the guard and the knife back should be 1-32" to 1/16" Figure 130

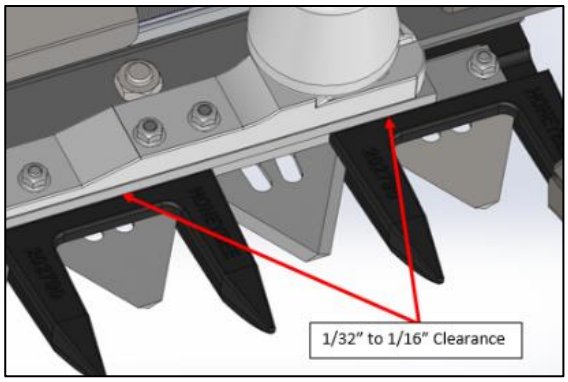


Figure 130

11. Make sure to optimize clearance with shims for both RH and LH knife.
12. Before the knife head bearing mount bolts are tightened, we need to make sure the knife head is bottomed onto the knife head and the knife is running along the bottom of the guard. Figure 131.

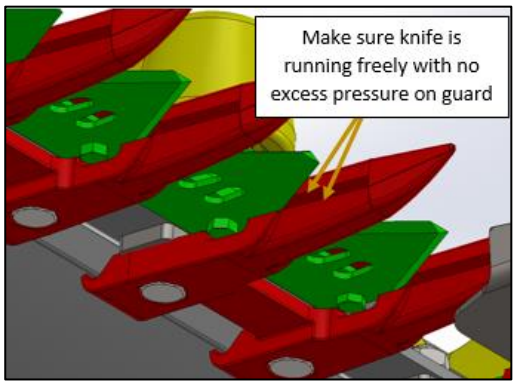


Figure 131

13. Pry up on the knife head while tightening the knife head mounting bolts to 170 ft-lbs. This will keep the knife from running hard along the top or bottom of the guard sickle section opening.
14. Now with everything tightened, have someone stroke the knife by hand (pull on

knife drive belt) and another person inspect the RH and LH knife for any tight spots.

15. Make sure the RH or LH knife is not interfering with the front/rear of the enter guards. If significant interference is present check out the shimming.
16. Ensure when the RH and LH knives come closest together that there is approximately 3/32” of clearance between the ends of the knives. If the clearance is less than this or more then 3/16” please recheck timing of pitman arms. Either one of these conditions tells us the timing of the pitman arms to the tie rod ends could be incorrect. Figure 132
17. Check timing per section 8.4 - Knife Drive Timing ..

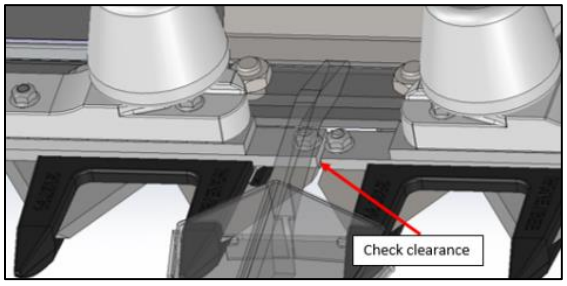


Figure 132

18. The knife head installation process can be verified during the run-in stage by checking the guard temperatures and examining for any excessive vibration or interference.
19. It is critical to check the knife head/knife head bearing temperature after it has been fully assembled. Run the knife at full speed for at least 10 minutes to check for abnormal temperature in the knife head/knife head bearing. It can be checked by grabbing the knife head with your hand and if it is too hot to hold onto then the bearing should be checked. If you have a laser temperature gun, check the knife head temperature close to the bearing and if over 175F/80^{o}C please check the bearing.

⚠ DANGER!

Never attempt to service your equipment while in operation. Always shut off the combine and wait for all moving parts to come to a complete stop before approaching the header.

Keep guards and shields in place at all times. Ensure that they are serviceable and installed correctly.

Cutterbar, auger, reel, drive shafts, and drapers cannot be completely shielded due to their function. Stay clear of these moving elements during operation.

8.3. RH/LH Knife Drive Installation- Standard Knife

1. With RH/LH knives installed in cutter bar and center guards installed it is time to properly shim the knife head off the bell crank.

2. Ensure timing rod is installed in drive paddle pulleys so bell cranks are parallel to one another.

3. Also ensure the knife head bearing mount is fully installed onto the knife head. The knife head should be able to be installed fully onto the knife head by hand. DO NOT use a hammer or bench top vise to install knife head onto knife head. If this is required, the bearing is not aligned onto the inner race properly or the bearing/inner race are too tight to start with. See instructions below.

Note: Special attention is needed when starting to install the knife head assembly onto the knife head. You need to first get the seal installed onto the inner race prior to installing the bearing onto the inner race. See below for instructions.

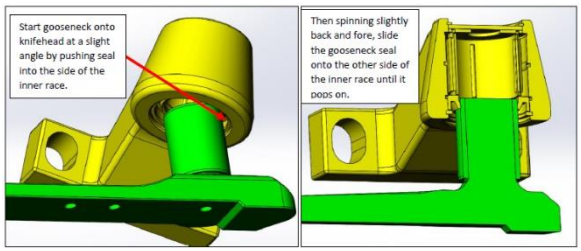


Figure 133

4. CRITICAL: Make sure the seal is installed this way to make sure it is not damaged

during installation. The knife head cannot be simply installed straight onto the knife head without damaging the seal.

5. At this point once, the seal is on inner race, push the knife head further onto the inner race by hand. DO NOT use a hammer or bench top vise to install knife head onto knife head. At the same time, you are pushing down slightly rotate back and forth to get the rollers aligned onto the inner race.

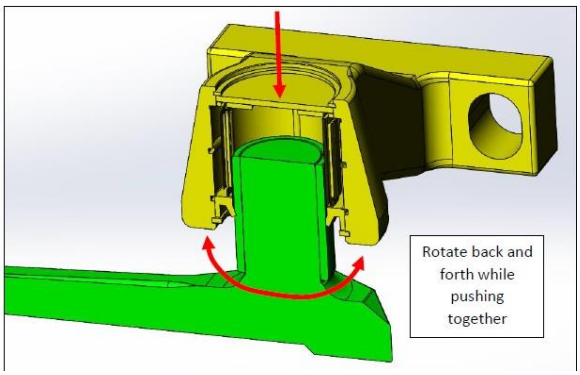


Figure 134

1. To install bearing fully onto inner race by rotating back and fore while pushing both together by hand.
2. Make sure the knife head in fully installed on the knife head until it bottoms out. There is a thrust washer installed in the knife head that allows the top of the knife head/inner race to run against it
3. Put Red Loctite on knife head mounting bolts and loosely connect knife head to bell crank.
4. Start installing shims between the knife head and bell crank and watch for clearance between the knife assembly (knife head on top and knife back on bottom

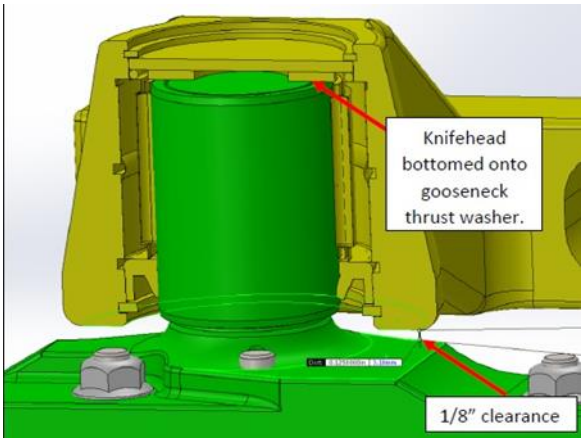


Figure 135

5. The knife head fully installed onto knife head. Roughly 1/8" clearance between bottom of knife head and face of knife head.
6. Adjusting the position of the Knife head bearings and knife assembly.
7. The minimum clearance (1/32" to 1/16") between knife assembly and center guards. Figure 136

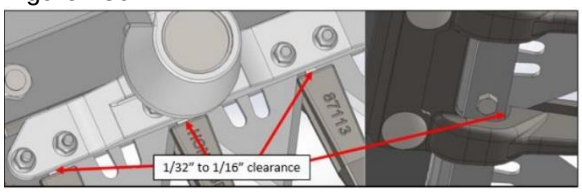


Figure 136

8. Before the knife head mounting bolts are tightened, we need to set the vertical position of both knifes.
9. Start with the LH knife and insert a 0.030" shim between the center guard (right in front of LH knife head) and the bottom of the sickle section. We install this shim in this area to make sure the LH knife does not have too much down pressure onto the guard Figure 137
10. With 0.030" shim installed, press with light hand pressure down onto top of LH knife head (will lightly pinch 0.030" shim between sickle section and guard) and tighten mounting bolts to 170 ft-lbs. Remove shim after tightening.

NOTE: This process may not work every time as when you tighten the two main mounting bolts it actually twists the knife head slightly downward onto the shim and puts a lot of pressure between the sickle section and guard. So, the shim may be stuck in place.

Minimal down pressure of the LH knife down onto the center guards is required. So, if the need to set without shim make sure there is hardly any down pressure of the LH knife onto the center guards. This process can be confirmed by checking cutting system temperature in this area after running the header for 5-10 minutes. We will now install the RH knife head onto the bell crank. Take the 0.050" shim and place between LH knife and RH knife head

11. With 0.050" shim installed, press with light hand pressure down onto top of RH knife head (will lightly pinch 0.050" shim between RH/LH knife assemblies) and tighten mounting bolts to 170 ft-lbs. Remove shim after tightening.
12. Now with everything tightened, remove timing pin on knife drive pulleys and have someone stroke the knife by hand (pull on knife drive belt) and another person inspect the RH and LH knife for any tight spots.
13. Make sure the RH or LH knife is not interfering with the front/rear of the center guards. If significant interference is present check out the shimming.
14. Also make sure the top and bottom of the LH/RH sickle sections are not interfering with the center guards through the whole range of travel. If significant interference is present between the sickle sections recheck shimming and check for any bent up/down guards.
15. Your last step is to install the grease zerks into the knife head assemblies. The grease zerk was left out in order to install knife head onto the knife head.
16. This process will be confirmed during the run-in stage and checking the guard temperatures.
17. It is also critical to check the knife head/knife head bearing temperature after it has been fully assembled. Run the knife at full speed for at least 10 minutes to check for any abnormal temperature in the knife head/knife head bearing. It can simply be checked by grabbing the knife head with your hand and if it is too hot to hold onto then the bearing should be checked. If you have a laser temperature gun, check the knife head temperature close to the bearing and if reading anything over 80C please check the bearing.

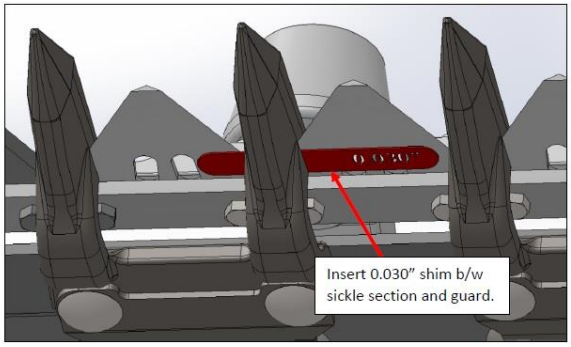


Figure 137

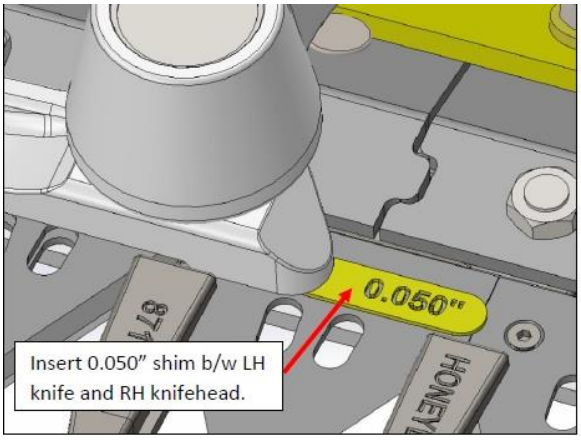


Figure 138

8.3.1. Knife Hold-Down Adjustment for Standard Cutting System

1. Stroke the knife so that the sickle sections are directly underneath the hold-downs (A).

2. Push the knife sickle section (B) down against the guard and insert a 0.020" shim (C) between the sickle section (B) and the hold down (A). If there is a large gap or shim is easily inserted or cannot insert the shim, then the hold down needs to be adjusted. When the hold down is properly adjusted the shim should be able to be inserted with light resistance while pushing down the sickle section against the guard.

3. Adjust hold-down (A) by turning the hold down adjustment bolt (D) clockwise to lower the front of the hold-down and decrease clearance, or counter clockwise to raise the front of the hold down and increase clearance.

4. NOTE: For larger adjustments, it may be necessary to loosen the hold down mounting nuts (E), turn adjuster bolt (D), and then retighten nuts (40 ft. Lbs)

5. Recheck clearance and readjust each hold down as required.

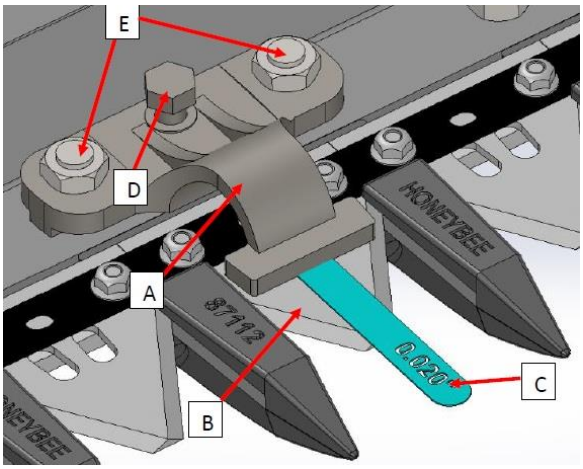


Figure 139

8.4 - Knife Drive Timing

1. Disconnect the drive shaft PTO from the knife drive system to allow you to move the knives freely while aligning.
2. Run a long bolt or rod through the alignment hole of the two flywheels to keep them aligned with each other. Figure 140
3. Remove the feather plate from above the two knife heads on the cutter bar.
4. Remove the knife head bearings and use a straight edge to set the bell cranks parallel. This is the starting point for the timing. Figure 141
5. Loosen the large jam nuts on the ball joints.
6. Remove the bolts from the rear of the tie rods. Adjust the tie rods until the bell cranks are parallel. Figure 140

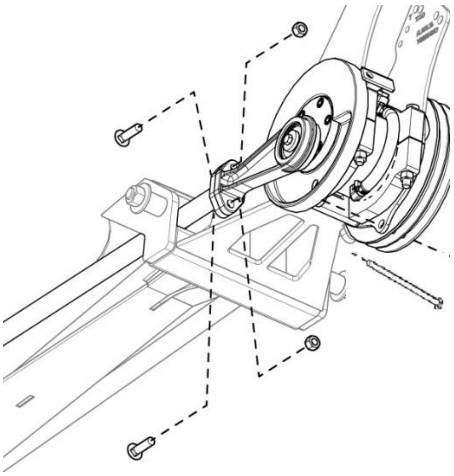


Figure 140

7. Once bell cranks are parallel screw RH tie rod joint in (clockwise rotation looking at back of tie rod) 3 turns.
8. Apply Loctite to jam nuts and tighten the jam nuts to 230 ft. lbs.
   Note: Make certain the tie rods stay straight when tightening the jam nuts. Use a pry bar to hold the tie rods in place while tightening the jam nut. Figure 141

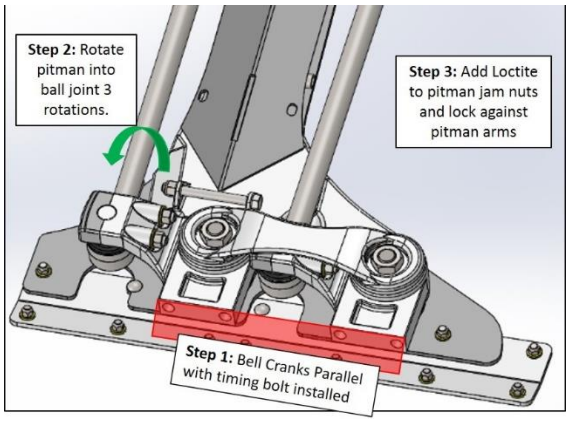


Figure 141

9. Install the carriage bolts to secure the connecting rods on the flywheel. Use red Loctite on the nuts and torque to 68 ft. lbs.

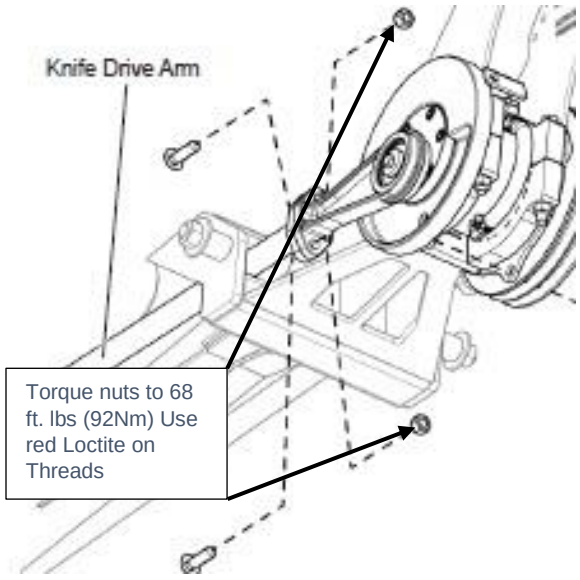


Figure 142

8.5 - Knife/Bell Crank Drive

The Knife drive bell crank assemblies have changed over the past years. The assembly is about the same with some added items.

1. To remove the bell crank assemblies, install a bolt in the rear bearing drive for timing. Figure 140 in timing section.
2. Remove the feather plates above the knife drive assembly.
3. Remove the knife head bearings by removing the bolts. Figure 143. Note the location of any shims behind the knife head bearings.

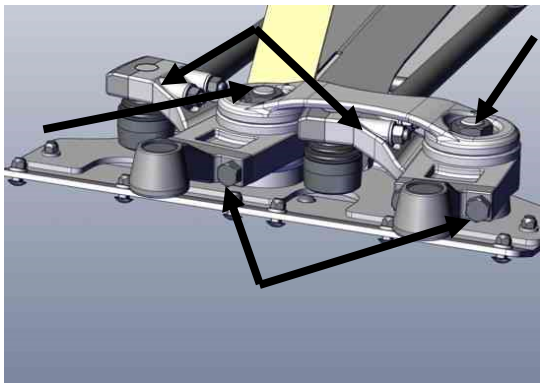


Figure 143

4. Remove the clamp bolts on the tie rods. Note: the clamps must be used with the bell crank that it came off of as it is a matched set.
5. Remove the two nuts retaining the bell cranks to the drive paddle. Remove the stabilizer arm between the bell cranks.
6. The bell cranks can be removed and the bearings replaced.
7. Remove the snap ring and press the bearing from the bell crank. Note the bell crank can be replaced as a complete assembly. If a complete assembly is installed follow the instructions in the kit for the Model Year of header that you are working on.
8. If replacing just the bearing follow the instructions in the bearing kit. Make certain that you use the tool provided to press on the OD of the bearing. The letters on the bearing are up when pressing in the bearing. If the bearing is replaced with the non-greaseable bearing the grease fitting in the head of the bolt must be removed and replaced with a plug. Figure 144.

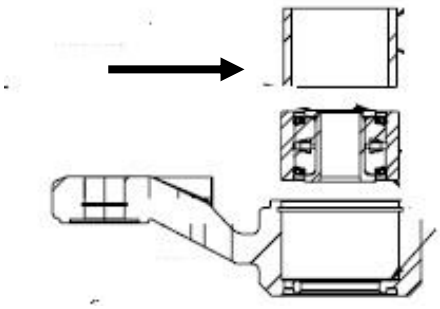


Figure 144

9. Install the bell cranks on the drive paddle. Insert the bolts from under the cutter bar and install the stabilizer bar with an O-ring between the top of the bearing and stabilizer. Figure 145 Use grease to hold the O-ring in place. Put the nuts on the bolts finger tight to hold in place. Figure 146

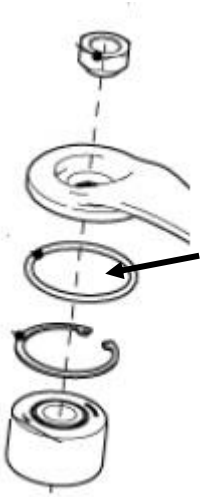


Figure 145

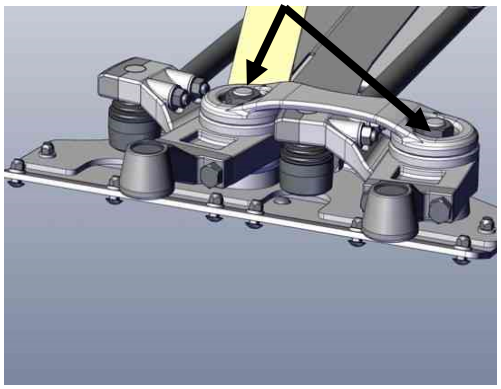


Figure 146

10. Use Green 648 Loctite on the shaft of the tie rod end before installing the clamps. During

assembly make certain the snap rings align with the grooves in the clamps. Figure 147

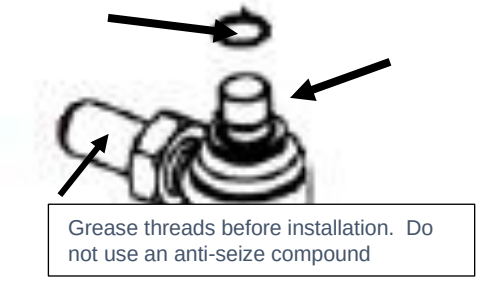


Figure 147

Note: Make certain that grease is put on the tie rod tubes before the end is threaded in the tie rod. Do not use anti-seize on the threads as this will break-down the Loctite on the jam nuts. After the tie rod end is installed use Red Loctite #262 on the trheads for the jam nut only Figure 147

11. **Note: Do not use Loctite on the bell crank nuts. Torque the nuts to 765 ft. lbs.** Figure 147
12. Install the clamps on the tie rods. **Use new clamp bolts every time the clamp bolts are removed**. If the bolts are reused too much they can fail. Use red Loctite #262 on the nuts for the clamp bolts. Tighten to clamp bolts to 100 ft. lbs. Figure 148

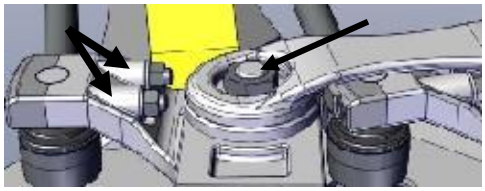


Figure 148

13. **Note: Do not use Loctite on the bell crank nuts. Torque the nuts to 765 ft. lbs.**
14. The stabilizer has a washer under the stabilizer between the stabilizer arm and inner race of the bearing. This washer goes between the stabilizer and the top of the bearing with the convex side down. Figure 149.

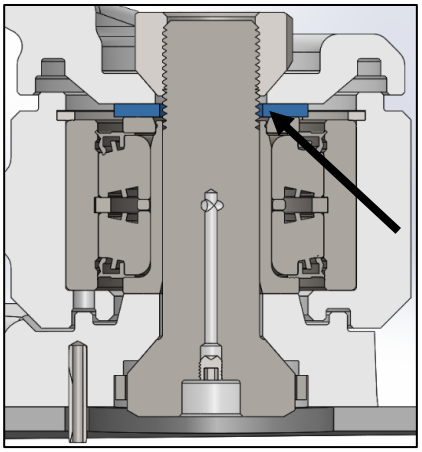


Figure 149

15. Two O-rings used under the stabilizer. The O-rings are placed between the stabilizer and the bearing and over the seal of the bearing. Figure 150
16. The O-ring between the stabilizer and bearing is used on all units, item 1. An O-ring around the bearing, item 2. Figure 150

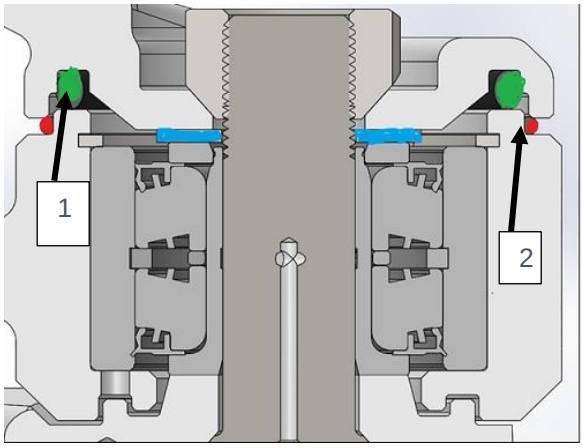


Figure 150

8.6 - Cutter bar Connector Kits

1. The connector bar is used to repair a broken knife back. The break should be cut out and ground smooth. A cutting section should bridge the break and the connector bar should be installed on the top of the knife back. Figure 151 Note: This is for the standard cutting system.

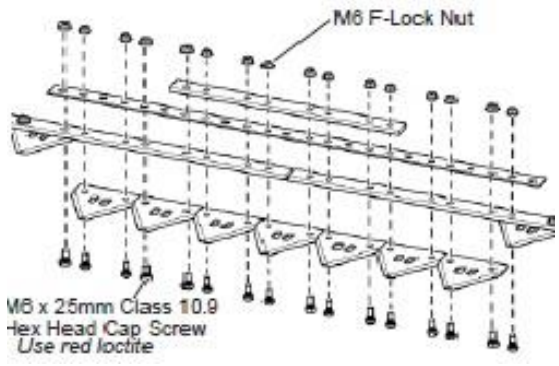


Figure 151

Note: Knife sections must be installed on the bottom side of the knife back.

9 - Electrical

9.1. Troubleshooting SDX

Note: The full wiring diagram is in the rear pages of the service manual.

The Header height control goes from the header sensors directly to the combine.

The control box in the cab provides a voltmeter to monitor the HHC sensors and to control the functions. The box Figure 152 has a switch for the:

a. Air Pressure increase or decrease

b. The header mode (Flex or Rigid) Note**:** On the SDX only the Flex mode has HHC

c. Tilt/Reel function

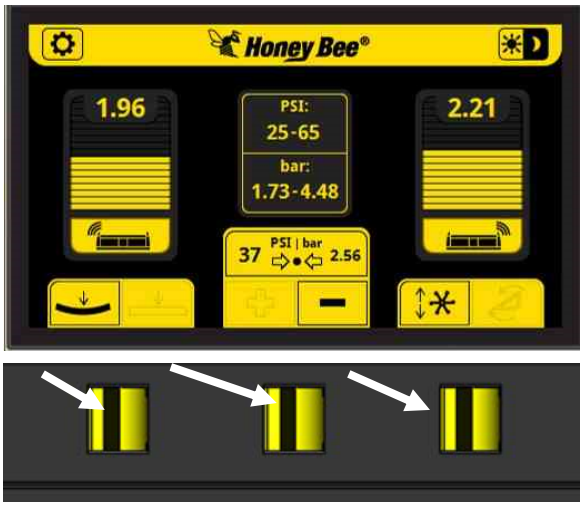


Figure 152

The power for the display is provided by the combine except on CNH and some Gleaners. On those combines an extra power harness is needed to supply display power. This harness connects to the cigarette lighter in the combine and between the display extension harness and the display harness. Figure 2

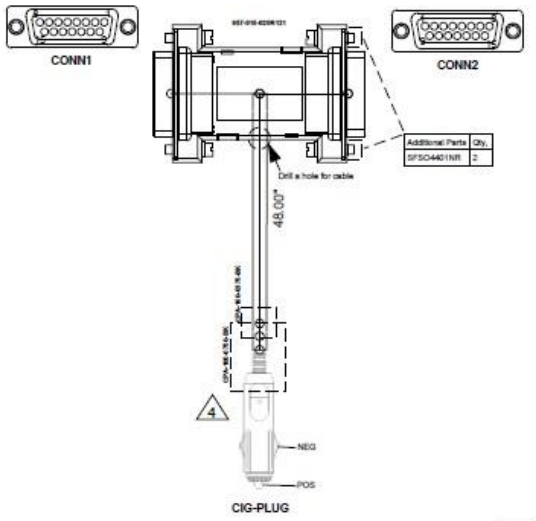


Figure 153

There are 3 relays mounted above the air tank. The relays control

- Air compressor Relay
- Air dump Relay
- Header Tilt valve

Figure 154 and Figure 155

Figure 154

Figure 155

9.1.1. Problem: Air Valve does not hold air in tank or does not regulate the air.

The air tank not filling on the SDX. There could be two issues

Issue 1: Air valve installed incorrectly. The air valve must have the arrow on the valve pointing down away from tank. If the valve is not installed correctly the air will continue to leak from the valve. The arrow on the valve must be turned pointing the ground. Figure 156

Figure 156

Issue 2: The solenoid is sticking or dirty.

1. Remove the diaphragm by removing the 4 screws on the back of the valve. Figure 157

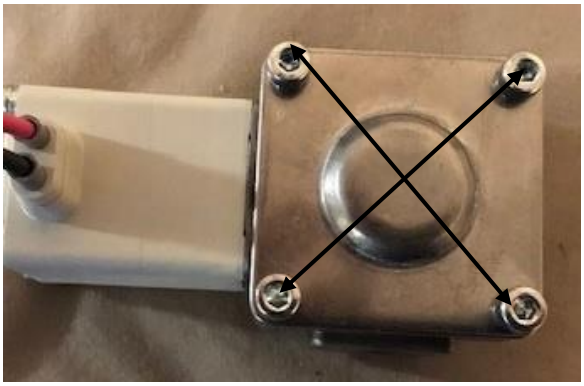


Figure 157

3. Remove the diaphragm and clean the surface area off the valve. Figure 158

Figure 158

9.1.2. Relay Function

1. There are three relays on the SDX.
2. All three relays are the same and operate the same way. Figure 159

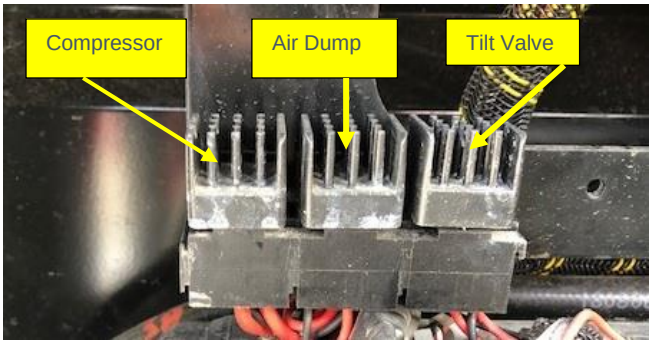


Figure 159

3. The power for the relays will come from two sources.
    a. Air compressor and dump relay get the power from the power harness on the combine.
    b. The tilt relay will get 12-volt power from the combine.

4. All the power goes through the multi-coupler harness.
5. The power for the air compressor and the dump relay will receive 12-volts to pin 30 on the relay from pin 8,16,18, on the round plug on the relay panel Figure 160 and Figure 160

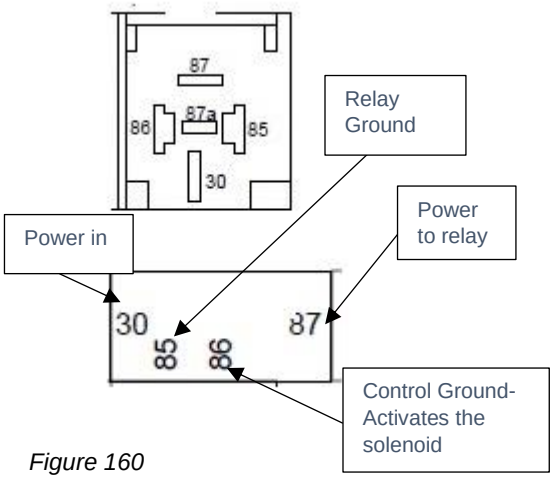


Figure 160

6. When the relay is energized power goes through the relay to the solenoid at pin 87 on the relay.
7. The relay is grounded through pin 85.
8. Pin 86 is also a ground that will engage the relay. When a switch is moved on the display, this terminal is grounded and energizes the relay sending power from pin 30 to pin 87.
9. The control ground comes from the display.
    a. The air dump relay control ground goes through pin15 on the display harness to pin V on the main harness.
    b. Air compressor add comes through pin 14 on the display harness to pin U on the main harness.
    c. The tilt relay come from pin 5 on the display to pin J on the main harness.

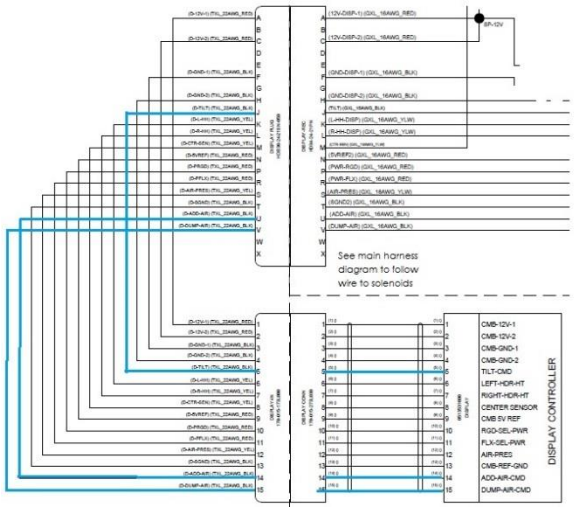


Figure 161

9.1.3. Diode Function in the Relay Circuit.

1. The diodes in the three relay circuits are just there to supress any electric surges when the relays are activated.
2. The diodes are located just below the relays and plug into the wire harness.

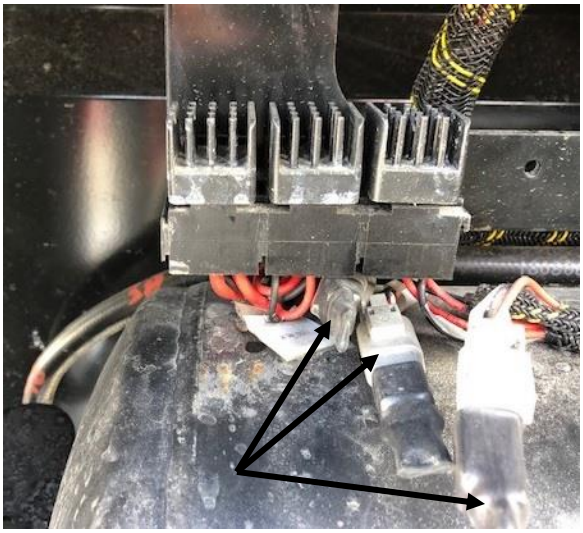


Figure 162

3. The diodes will only allow power in one direction and that is how they will stop the surges in the circuit. If there is an electrical surge when a relay fires it will dissipate the power through the relay ground circuit.

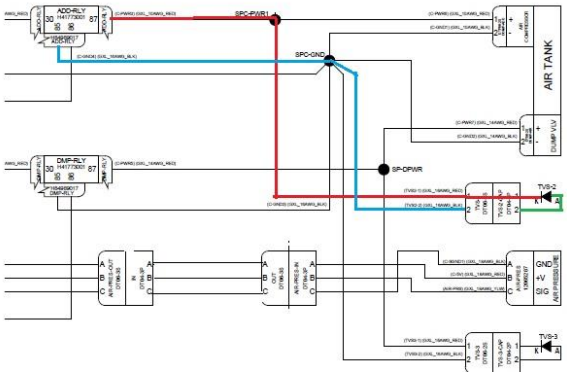


Figure 163

4. If the diode fails open the system will still function. With the diode open the system will not have protection against voltage spikes and this can cause failures of the relay or solenoid.
5. If the diode fails by shorting this will send voltage back to the relay base and could damage the relay or melt the contacts in the relay base.
6. To test the diode by using a multi meter in the diode mode. Figure 164
7. To test the diode, use a multimeter and black lead on one and the red lead on the other pin. The reading should be between 1 and 1000 Ohm. Figure 165
8. Reverse the leads and the multimeter should read OL.
9. If the multimeter has the same reading in both directions or reads OL in both directions , the diode is bad.

Figure 164

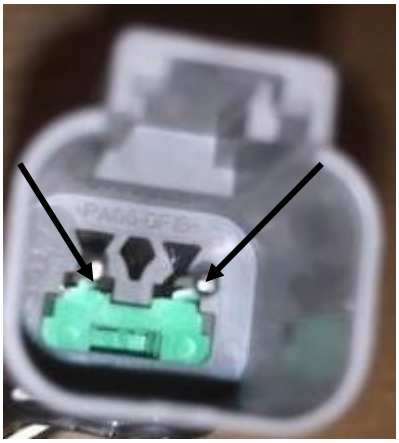


Figure 165

9.1.4. Problem: Air Compressor will not operate.

Turn the air compressor on by turning the switch on the display to add air. Does the compressor turn on?

Figure 166

1. Check for 12 volts and Ground at the air compressor connector. Figure 167

Name: COMP-ADD Conn PN: DTP06-2S				
Cav	No.	Col.	Spec	Type
1	C-PWR6	RED	10AWG	GXL
2	C-GND1	BLK	10AWG	GXL

Figure 167

2. If there is 12 volts present replace the compressor. If no voltage or ground is present go to next step.
3. Check for 12 volts at the Air compressor relay pin 87. Note: the relay can be removed for this step. Figure 169 and Figure 170 relay location and pin location. If voltage is present go to the next step. If voltage is not present, Check for power and ground at the compressor harness plug.

Name: AIR-COMP-MATE Conn PN: 992G2				
Cav	No.	Col.	Spec	Type
+	C-PWR	RED	10AWG	GXL
-	C-GND	BLK	10AWG	GXL

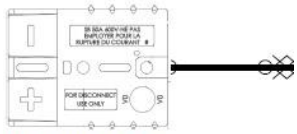


Figure 168

4. If there is no power or ground follow the circuit back to the combine power harness. If power and ground is present go to the next step.

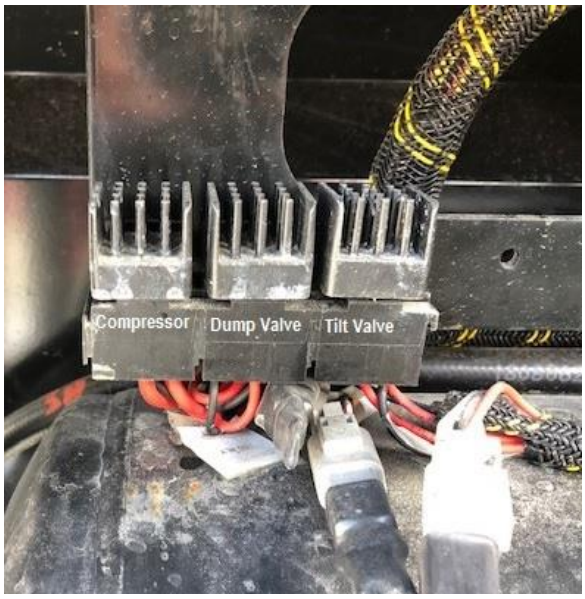
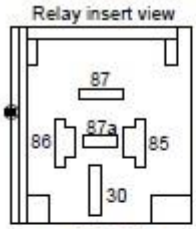


Figure 169



Name: ADD-RLY Conn PN: H84969017				
Cav	No.	Col.	Spec	Type
30	C-PWR1	RED	10AWG	GXL
85	C-GND4	BLK	16AWG	GXL
86	C-ADD-AIR	BLK	16AWG	GXL
87	C-PWR3	RED	10AWG	GXL
87a	-	-	-	-

Figure 170

5. Make certain the relay is installed and the switch on the display is set to add air. Check for power at pin 30 of the relay. If no power at pin 30 replace the relay.
6. If there is power at pin 30 check for ground at 86. The ground is supplied by the display. If there is no ground follow the wire back through the display extension harness. If there is a ground replace the relay. The dump relay can be used for testing purpose.

9.1.5. Problem: Header Height Sensors not showing voltage

Note: Larger wiring diagrams are in the rear of this manual.

The header height sensors send a signal to the display and to the combine. The sensors have three wires leading to them. The sensors have a 5-volt reference voltage, a ground, and an output signal wire. If there is not a reading on the display for a sensor the three wires will need to be checked. If the display is set for flex only the flex sensors will have power. If the display is set for rigid only the rigid sensors will have power. Figure 171 Note: When testing the system, it will be necessary to leave the plugs connected and check the voltage or ground from rear of the plug. This will also help to make sure there is connection at the plug.

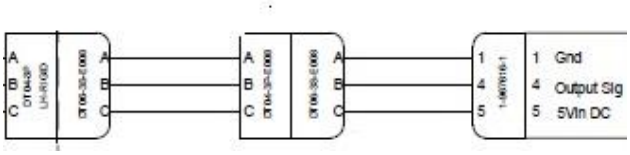


Figure 171

1. Check the pin-5 for 5-volt reference voltage. This voltage is from the combine through the display harness. If no voltage is present follow the wire back to the display harness
2. Check the ground at pin-1. The sensor receives the ground through the back side of the multi-coupler harness on the relay panel.
3. Check the connector at pin-4. The voltage should vary as the sensor is moved. The wire goes to the combine as well as the display. Each sensor (Left and right) will go on a separate pin to the combine.
4. There are splices in the main harness and on the signal wire. It is possible to have a signal going to the display and not to the combine. When testing make sure you test for signal at the combine and not just the display.
5. When diagnosing a wiring issue, the wires from the sensors go back to the main beam of the header. There is a connector at the header that can be checked to make certain the wires between the header and the sensors are good.

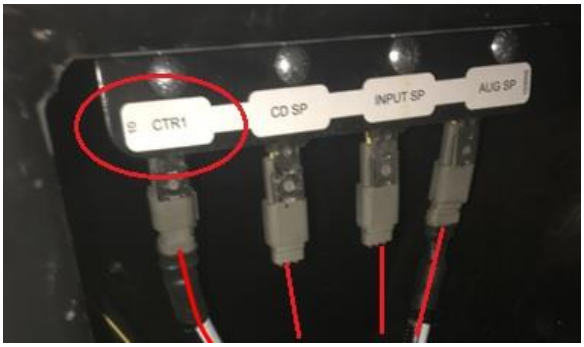


Figure 172

6. The 5 Volt power for the sensors come from the combine through the display harness.
7. The signal wire sends the voltage to the display and the combine for the HHC control.
8. The wires can be traced through the main wire harness as shown in Figure 173
9. Power for the Header Height sensors comes from the Flex/Rigid switch on the display. If 5 volts is not present at the sensor the red wire must be traced back to the display. Check before and after each connector including the connector at the display.
10. Note: To check the wires at the display connector it will be necessary to take the connector apart. Figure 177

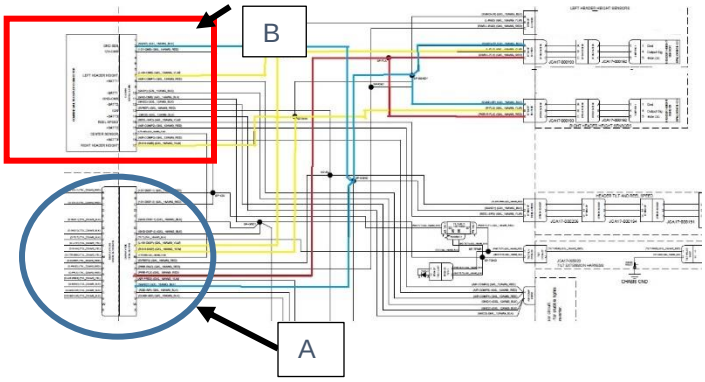


Figure 173

Note: Follow the wire harness to check for splices as well as the proper diagram for the combine brand. A complete wire harness can be found in the rear of the manual.

10. Section B Figure 173 and Figure 174 show a closer view of the pins in the 31 pin connector that is attached to the combine harness at the Multi-Coupler
11. Section A Figure 175 and Figure 176 shows a closer view of the connector that attaches the display to the main harness at the Multi-Coupler.
12. The serial connection must be disassembled to probe the wires.
13. To disassemble the connection, remove the three screws to remove the cap and the two nuts on the front of the connection. Figure 177
14. This will allow you to remove the wire connector and plug it back in to probe the wires. Figure 178
15. The number are on the front and back of the plastic connector. Figure 178 and Figure 179

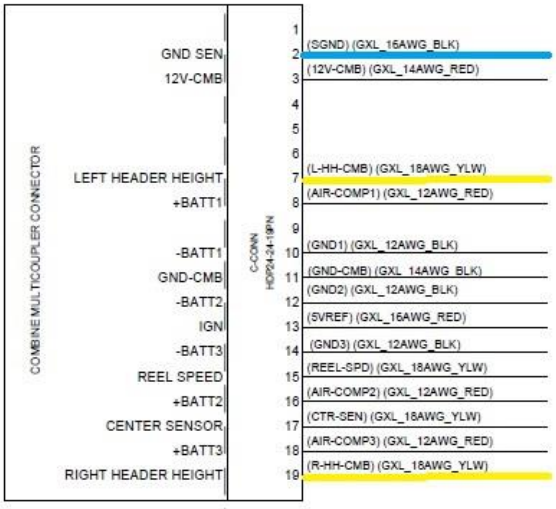


Figure 174

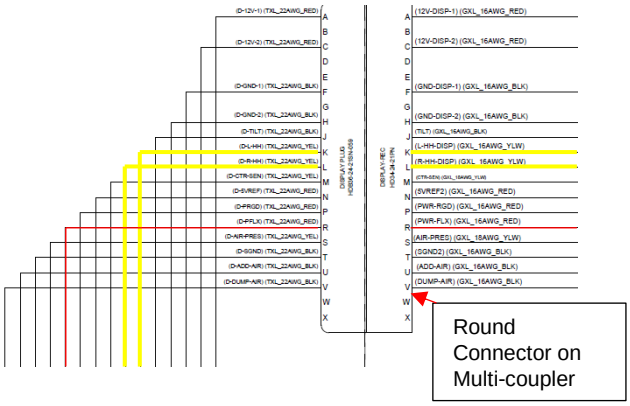


Figure 175

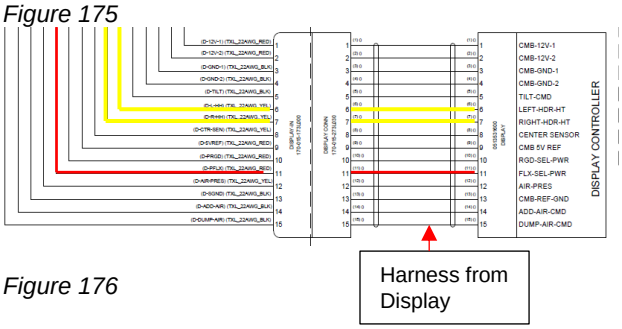


Figure 176

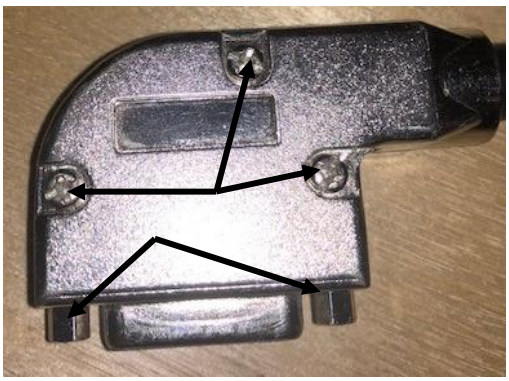


Figure 177

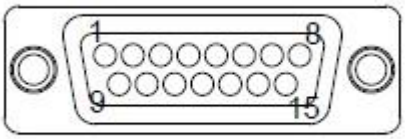


Figure 178

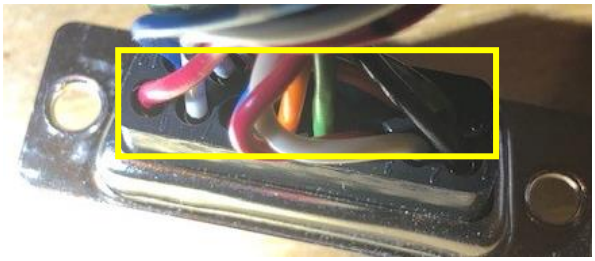


Figure 179

17. If the wires in the harness are good then the wires of the display box and the switch must be checked. Go to 9.4.1 - to find information on removing the printed circuit board and the wire harness from the board.
18. Check continuity on the wire harness from the printed circuit board connection to the serial port connection.
19. Check continuity between pins 9 and 11. Note: The pins on the circuit board are arranged in a different pattern then the pins on the serial connection. Figure 180
20. If the wires have continuity then the switch must be checked. Continuity between pin A and pin B, When the switch is in the flex position and pin A and C when the switch is in the rigid position. Figure 181
21. See Pin out for display harness to circuit board 17.3.4 Display Harness To Circuit Board
22. If there is not continuity between pin A and B the switch must be replace. The switch is available but must be solder in the circuit board. If the switch can not be solder in they the circuit board must be replaced.
23. If there is continuity between the pins then the circuit board must be replaced. See 9.4.1 - section Wire Harness, Screen and Circuit board Replacement

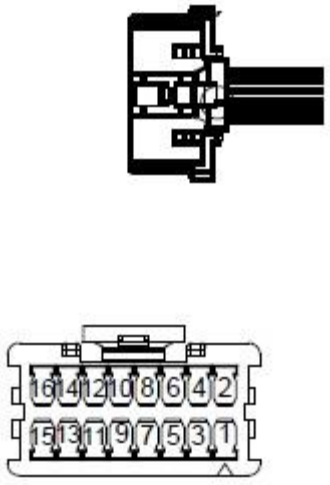


Figure 180

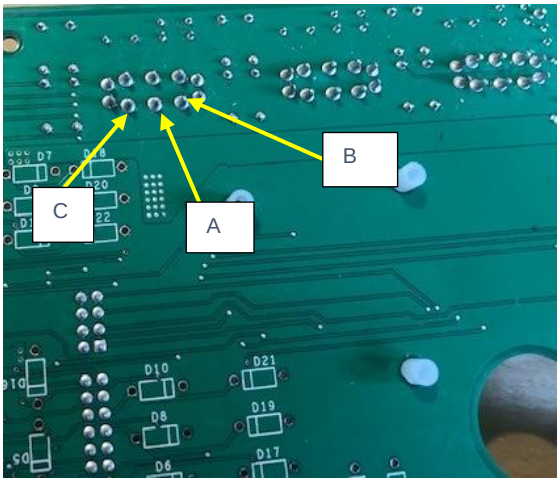


Figure 181

9.1.6. Problem: An error code "no Recognition Module" or 'Recognition module shorted" appear on the combine screen.

Note: This issue will only occur on a CNH combine.

The CNH combine needs a device to tell the combine what header is on the combine. If the combine does not see this signal it will not set the combine to the correct header. The error can be bypassed and the header can be chosen through the screen. The error may occur anytime the key is turned on.

The multi-coupler harness has a recognition module wired in the system. The module has resistors wired in.

1. Remove the module, Figure 182, from the harness. The module is 16 inches back from the combine connector at the single point.

Figure 182

2. Check the resistance across the terminals noted in Figure 153. If the readings are not correct the recognition module needs to be replaced.

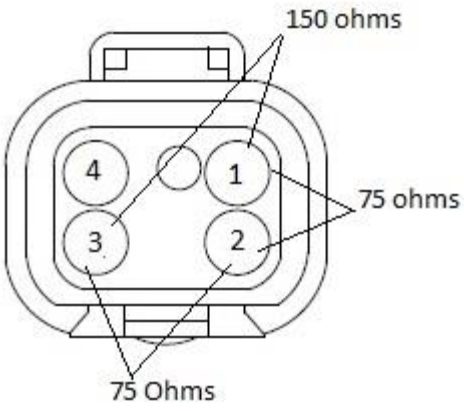
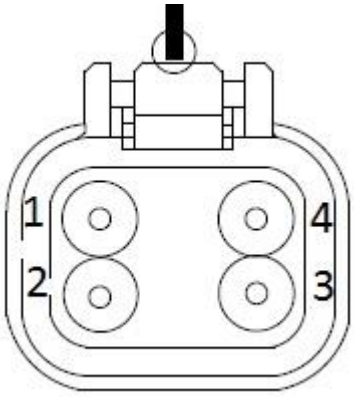


Figure 183

3. If the recognition module is working then the wire harness needs to be checked. Check the wires between the plug on the harness and the plug that goes into the combine harness per the list in Figure 184.



Pin on Recognition plug	Pin on combine connector
1	12
2	27
4	13

Figure 184

4. If continuity is found on all the pins then the issue is with the combine and not the header.

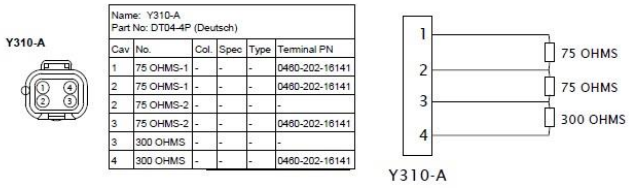


Figure 185

9.1.7. Problem: The Display will not come on but the air compressor operates. (Agco, John Deere, and Lexion Combines)

If the air system operates but the display does not the issue is no power from the combine. The CNH and Gleaner combines need the power adapter covered in this manual.

Note: On the Lexion 6/7/8000 the combine must be running before power will be provided from the combine.

1. Make certain on the multi-coupler harness the 12-volt combine connector, 2, is attached to the LED connector, 1. This provides power to the system. Figure 186

The cap, 3, is used on Model Year 2018 and below.

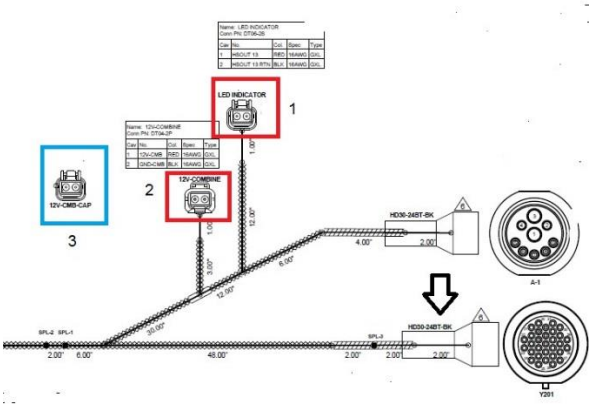


Figure 186

2. Use a voltmeter and check for power at the 12-volt combine plug. If no power ground the voltmeter to a good ground on the combine.
3. If there is 12 volts present the issue is the ground wire from the connector to the combine.
4. If there is still no power the issue on the red wire between the combine and the plug. The following figures show the pin locations. Figure 187

Name: Y201
Conn PN: HD34-24-31PT-B019

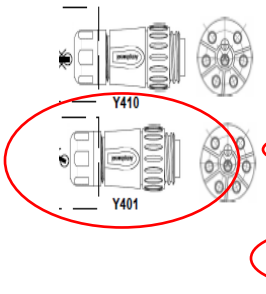
Cav	No.	Col.	Spec	Type	Cavity Plug	Cav	No.	Col.	Spec	Type	Cavity Plug
1	-	-	-	-	114017	17	HDR REC 2	PUR	18AWG	GXL	-
2	-	-	-	-	114017	18	-	-	-	-	114017
3	A/O 2-1	YLW	18AWG	GXL	-	19	-	-	-	-	114017
4	12V PWR	RED	16AWG	GXL	-	20	IGN-CMB	BLU	18AWG	GXL	-
5	-	-	-	-	114017	21	-	-	-	-	114017
6	-	-	-	-	114017	22	-	-	-	-	114017
7	A/O 1-2	YLW	18AWG	GXL	-	23	-	-	-	-	114017
8	F/O 1	YLW	16AWG	GXL	-	24	-	-	-	-	114017
9	A/O 3-2	YLW	18AWG	GXL	-	25	-	-	-	-	114017
10	GND SEN1	BLK	16AWG	GXL	-	26	-	-	-	-	114017
11	-	-	-	-	114017	27	-	-	-	-	114017
12	GND-1	BLK	16AWG	GXL	-	28	-	-	-	-	114017
13	LT/HZRD	RED	16AWG	GXL	-	29	-	-	-	-	114017
14	RT/HZRD	RED	16AWG	GXL	-	30	REEL-HGT	YLW	18AWG	GXL	-
15	-	-	-	-	114017	31	REEL-FA	YLW	18AWG	GXL	-
16	HDR REC 1	PUR	18AWG	GXL	-						

John Deere

Name: Y501
Conn PN: HD34-24-31PT-B019

Cav	No.	Col.	Spec	Type	Cavity Plug	Cav	No.	Col.	Spec	Type	Cavity Plug
1	F/O 1	YLW	16AWG	GXL	-	17	REEL ENA 1	PUR	18AWG	GXL	-
2	-	-	-	-	114017	18	REEL ENA 1	PUR	18AWG	GXL	-
3	GND SEN1	BLK	18AWG	GXL	-	19	-	-	-	-	114017
4	-	-	-	-	114017	20	-	-	-	-	114017
5	GND-1	BLK	16AWG	GXL	-	21	REEL-FA	YLW	18AWG	GXL	-
6	IGN-CMB1	BLU	18AWG	GXL	-	22	-	-	-	-	114017
7	GND SEN2	BLK	18AWG	GXL	-	23	-	-	-	-	114017
8	REEL-HGT	YLW	18AWG	GXL	-	24	-	-	-	-	114017
9	A/O 3-2	YLW	18AWG	GXL	-	25	12V-PWR	RED	16AWG	GXL	-
10	A/O 1-2	YLW	18AWG	GXL	-	26	-	-	-	-	114017
11	-	-	-	-	114017	27	-	-	-	-	114017
12	-	-	-	-	114017	28	-	-	-	-	114017
13	-	-	-	-	114017	29	-	-	-	-	114017
14	-	-	-	-	114017	30	-	-	-	-	114017
15	RT/HZRD-1	RED	16AWG	GXL	-	31	-	-	-	-	114017
16	LT/HZRD-1	RED	16AWG	GXL	-						

Agco



Name: Y401
Conn PN: C01610H00600012

Cav	No.	Col.	Spec	Type
1	GND SEN2	BLK	18AWG	GXL
2	IGN-CMB	BLU	18AWG	GXL
3	A/O 1-2	YLW	18AWG	GXL
4	A/O 3-2	YLW	18AWG	GXL
5	-	-	-	-
6	12V-CMB	RED	16AWG	GXL

Name: Y410
Conn PN: C01610H00600012

Cav	No.	Col.	Spec	Type
1	GND SEN3	BLK	18AWG	GXL
2	F/O 1	YLW	18AWG	GXL
3	REEL-VERT	YLW	18AWG	GXL
4	-	-	-	-
5	U+	BLU	18AWG	GXL
6	-	-	-	-

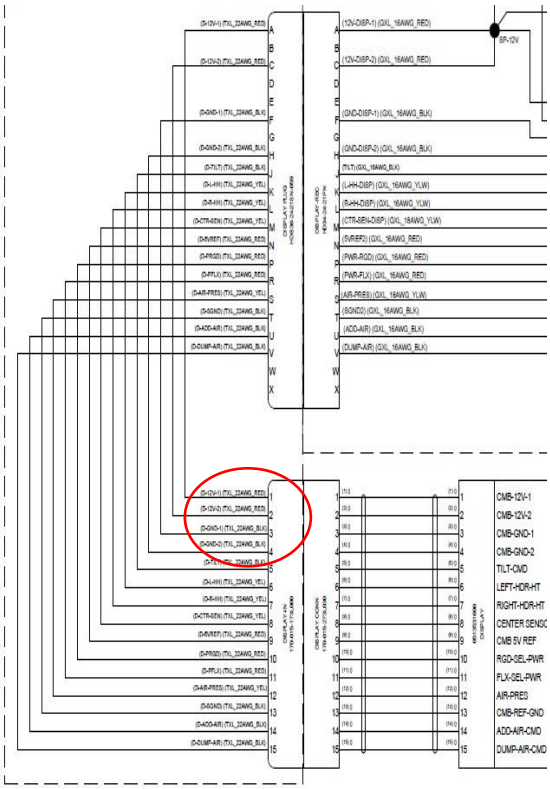
Lexion

Figure 187

5. If 12 volts is present at the combine side of the connector then check for power at the relay panel connector pin 3 plug and 11 for ground. Figure 188.
6. If no power is present then the issue between the connector at the relay plug and the 12-volt combine plug.

Figure 188

7. If power is present at the relay plug then check for power at pins 1 and 2. Ground is on pins 3 and 4 at the display plug. Figure 189.



8.

Figure 189

9. If power and ground is at the display plug then the issue is in the display or the harness on the display and the display will need to be replaced.

9.1.8. CNH and Gleaner Power Plug

On CNH and some Gleaner combines it is necessary to have an Aux 12-volt power supply as the combine does not have the provision to supply 12 volts to the display. An additional cable is supplied to provide the 12 volts from the cigarette lighter socket. Figure 190

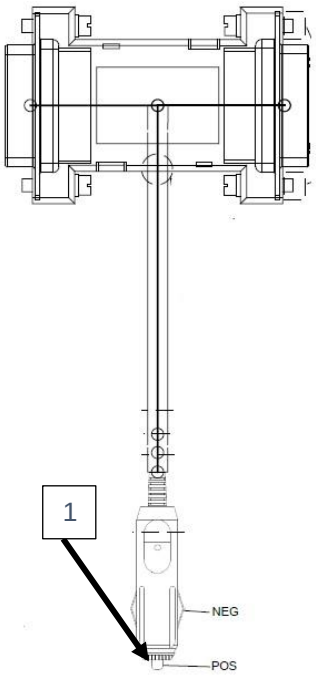


Figure 190

The large connector is then placed between the display harness and the display harness extension. Figure 191

Figure 191

1. If the display does not light up but the air compressor works make certain the cigarette lighter socket on the combine has 12 volts.
2. Check the fuse at the end of the power harness. The fuse can be accessed by taking the top off the cigarette light plug, 1, Figure 190.
3. If the fuse is good check for power at pin 1 of the connection to the power harness extension, at pin 1 Figure 192.

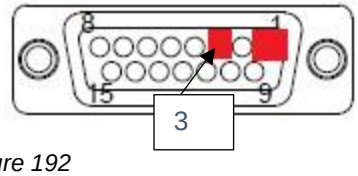


Figure 192

4. Check for a ground at pin 3 on the power harness. Figure 192
5. Check for 12-volts at the connector at the single point connection from the display harness at pin A. Figure 193
6. Check for a ground at pin H. Figure 193
7. If ground or power is not present the issue is with the display harness or connection.

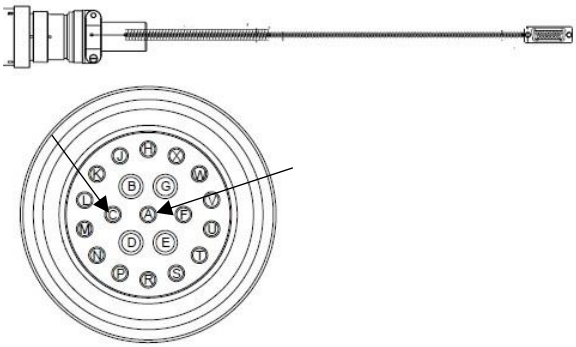


Figure 193

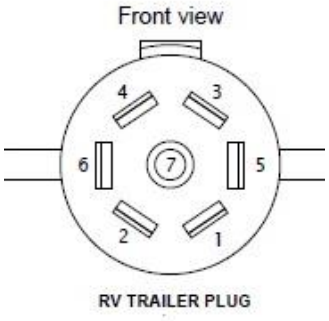
8. If power and ground are present Check for 12-volts at pin 3 on the main harness connection above the air tank.
9. If 12-volts is present check for a ground on pin 11 of the same connector

9.1.9. Transport Electrical System with Electric Brake Option

The transport system has two electric brakes on the trailer. It also provides the electrical control for the road lights on the header.

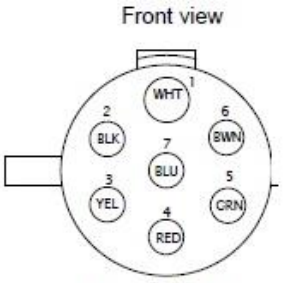
The front trailer has a harness to the tow vehicle. The harness either has an RV plug, Ag Plug, or a plug for European vehicles.

- Figure 194 RV Plug
- Figure 195 Ag Plug
- Figure 196 European Plug



Name: RV TRAILER PLUG Conn PN: 82-1056				
Cav	No.	Col.	Spec	Type
(1) WHT	GND	WHT	12AWG	PVC
(2) BLU	E-BRAKES	BLU	14AWG	PVC
(3) GRN	TAIL1	YEL	14AWG	PVC
(3) GRN	TAIL2	GRN	14AWG	PVC
(4) BLK	-	-	-	-
(5) RED	LT-TRN	RED	14AWG	PVC
(6) BWN	RT-TRN	BWN	14AWG	PVC
(7) YEL	-	-	-	-

Figure 194



AG TRAILER PLUG

Name: AG TRAILER PLUG Conn PN: 82-2140				
Cav	No.	Col.	Spec	Type
1-(WHT)	GND	WHT	12AWG	PVC
2-(BLK)	-	-	-	-
3-(YEL)	LT-TURN	YEL	14AWG	PVC
4-(RED)	STOP	RED	14AWG	GXL
5-(GRN)	RT-TURN	GRN	14AWG	PVC
6-(BWN)	TAIL	BWN	14AWG	PVC
7-(BLU)	-	-	-	-

Figure 195

EUROPE TRAILER PLUG

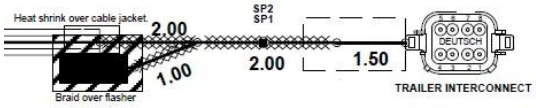
Name: EUROPE TRAILER PLUG Conn PN: EP01				
Cav	No.	Col.	Spec	Type
(1) YEL	LT-TRN	YEL	14AWG	PVC
(2) BLU	-	-	-	-
(3) WHT	GND	WHT	12AWG	PVC
(4) GRN	RT-TRN	GRN	14AWG	PVC
(5) BWN	R-TAIL	BWN	14AWG	PVC
(6) RED	STOP1	RED	14AWG	PVC
(6) RED	STOP2	BLU	14AWG	PVC
(7) BLK	L-TAIL	BLK	14AWG	PVC

Figure 196

On the RV plug a flasher is wired in the system to flash the yellow lights when the daytime running lights are on the tow vehicle. This flasher is wired in the system at the Rear of the adapter harness. Figure 197

SP2				
Cav	No.	Col.	Spec	Type
L	FLSHR-IN	GRY	-	-
R	FLSHR1	GRN	16AWG	GXL
R	FLSHR2	GRN	16AWG	GXL

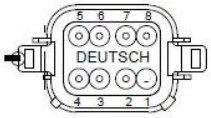
SP1				
Cav	No.	Col.	Spec	Type
L	FLSHR-OUT	BLK	-	-
L	TAIL1	YEL	14AWG	PVC



Name: TRAILER INTERCONNECT Conn PN: DT06-08SA-E008					
Cav	No.	Col.	Spec	Type	Cavity Plug
1	-	-	-	-	114017
2	GND	WHT	12AWG	PVC	-
3	RT-TRN	BWN	14AWG	PVC	-
4	LT-TRN	RED	14AWG	PVC	-
5	FLSHR1	GRN	16AWG	GXL	-
6	FLSHR2	GRN	16AWG	GXL	-
7	E-BRAKES	BLU	14AWG	PVC	-
8	TAIL2	GRN	14AWG	PVC	-

Figure 197

The Europe and Ag plugs do not have a flasher wired in the system. Figure 198 shows pin connections.



Ag trailer connector

Cav	No.	Col.	Spec	Type	Cavity Plug
1	-	-	-	-	114017
2	GND	WHT	12AWG	PVC	-
3	R-STOP	RED	14AWG	PVC	-
4	L-STOP	BLK	14AWG	PVC	-
5	LT-TURN	YEL	14AWG	PVC	-
6	RT-TURN	GRN	14AWG	PVC	-
7	-	-	-	-	114017
8	TAIL	BWN	14AWG	PVC	-

Europe Trailer connector

Cav	No.	Col.	Spec	Type	Cavity Plug
1	-	-	-	-	114017
2	GND	WHT	12AWG	PVC	-
3	STOP1	RED	14AWG	PVC	-
4	STOP2	BLU	14AWG	PVC	-
5	RT-TRN	GRN	14AWG	PVC	-
6	LT-TRN	YEL	14AWG	PVC	-
7	-	-	-	-	114017
8	TAIL	BWN	14AWG	GXL	-

Figure 198

The lights are on the right-hand shielding. There are two amber lights and two red taillights. The amber lights will flash anytime the tow vehicle has the lights on or if the tow vehicle is equipped with daytime running lights, when the RV plug is used. The red lights work as taillights and turn signals. Figure 199

Figure 199

9.2. Wire Connector Repair Deutsch Connectors

1. All wires and contacts are removed and installed from the rear of the connector. If you try to remove from the front or with out the correct removal tool the contact and connector will be damaged. The tool will release the barbs inside the connector. Figure 200.

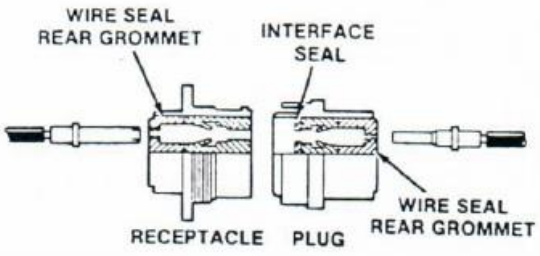


Figure 200

2. Put the handle of the removal tool over the wire. There are different tools for the different size of wires. While pulling the handle away from the wire carefully push the tip of the tools over the wire.
3. Slide the tool straight into the connector along the wire, without twisting the tool. Push the too into the connector until it unlocks the contact and you feel resistance. If you force the tool into the connector the tool will break. Figure 201.

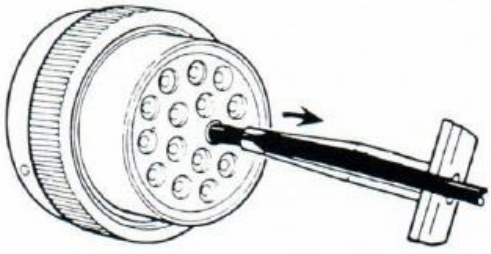


Figure 201
Figure 2

4. Carefully slide the wire contact and removal tool straight out of the connector. Figure 202

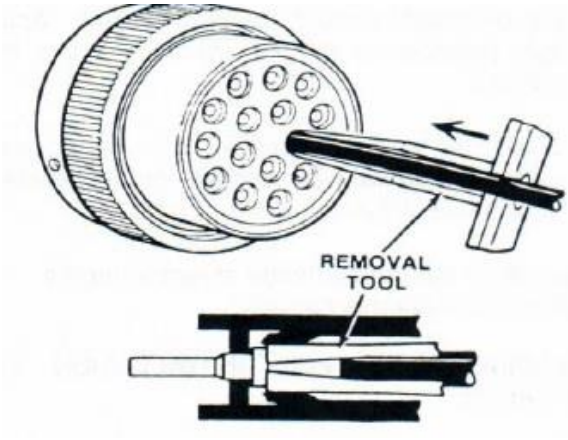


Figure 202

1. If the wire has pulled out of the contact leaving the contact in the receptacle the contact can be removed in the following manner:
2. Fully insert the proper size removal too into the receptable.
3. Locate a solid wire the proper size and grind a point on one end. Then grind one side of the pointed end flat so that it has a slight flat surface on it
4. Carefully insert the pointed end of the wire into the receptable through the removal tool. Apply light pressure to the wire to force it into the contact.
5. Once the wire has seated into the contact carefully slide the wire, removal tool and contact out of the receptable. Figure 203

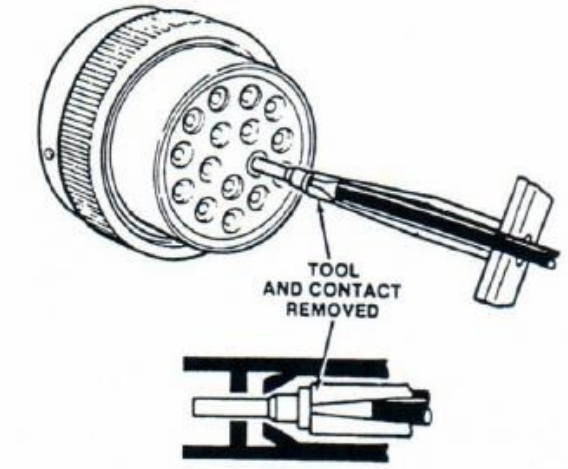


Figure 203

6. Choose the correct AWG for the contact being used.
7. Measure the end of the wire for the contact length
8. Use a wire stripping tool to remove the installation.
9. Remove a small portion of the insulation. Figure 204

Figure 204

10. Check for broken or dented strands of wires.
11. If broken or dented strands of wire are found cut and strip the wire again. Figure 205

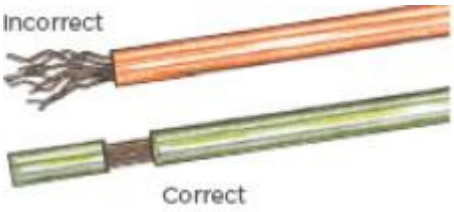


Figure 205

12. A special tool must be used to install a new contact on the wire end. The contact cannot simply be compressed with a pliers. Figure 206

Figure 206

13. The wire must be stripped correctly. There must not be any strands of the wire missing or any nicks in the wires.
14. Set the crimping tool for the proper size wire and contact.
15. Loosen the lock nut and turn the adjusting screw in until it stops Figure 207

Figure 207

16. Put the contact in the crimping tool with the opening for the wire out. Turn the adjusting screw out until the end of the contact is even with the indent cover. Tighten the lock nut and remove the wire.
17. Put the stripped end of the wire into the contact. Make sure that all the strands of wire are inside the contact. Make sure that you can see the strands of wire the hole in the side of the contact. Figure 208

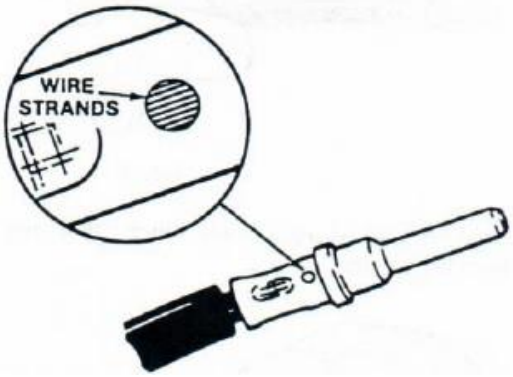


Figure 208

18. Put the contact and wire in the crimping tool with the contact centered between the stops in the crimping tools while holding the wire in the contact push the handles together until the stops are together.
19. Release the handle and removed the crimped contact and wire. Figure 209

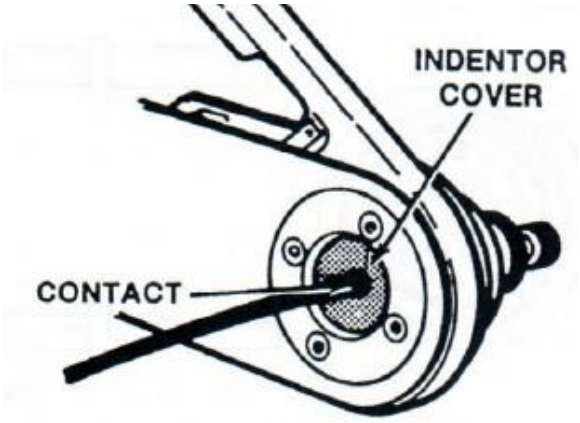


Figure 209

20. Make sure all of the wire strands are inside the crimped contact. Look through the hole in the side of the contact for the wire strands. Figure 208
21. To install the wire with the contact into the connector make certain that you are inserting the pin and the socket in the correct connector. The connector for the pins will have PIN and for the sockets SKT will be printed on the rear grommet (wire end) of the connector Figure 211

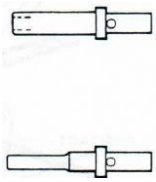


Figure 210

Figure 211

22. Hold the wire approximately 1 inch from the contact
23. Hold the connector with the rear grommet (wire end) toward you
24. Push the contact wire straight through the rear grommet and into the connector until movement is stopped. You will hear a snap as the locking tab fingers lock behind the contact. A small pull on the wire indicates that the contact is correctly locked in place. Figure 212

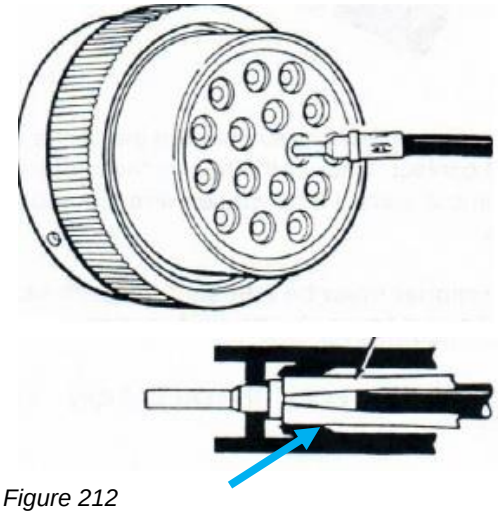


Figure 212

25. To remove the contacts on the smaller DT series connector, remove the wedge from the center of the connector using a needle nose pliers. Figure 213

Figure 213

26. To remove the contacts, gently pull the wire backwards while releasing the lock finger by pushing the contact to the center of the connector. Figure 214

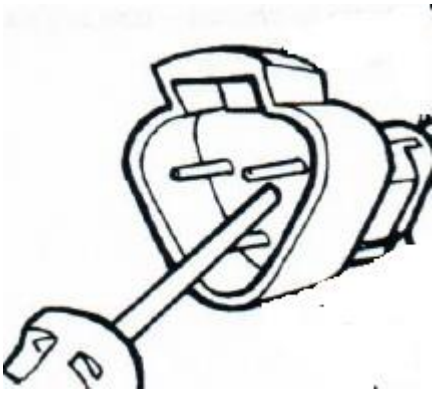


Figure 214

27. Hold the seal in place and remove the wire and the contact.
28. The contact installation is the same as the larger connectors. Make certain that you set the tool for the correct size contact and wire.
29. To install the wire in the connector, hold the wire about 1 inch from the contact. Hold the connector with the rear grommet (wire end) facing you.
30. Push the contact into the grommet until a click is heard. Tug on the wire slightly to confirm that the contact is locked into place. Figure 215

Figure 215

31. Once all the contacts are in place insert the wedge in the front of the connector. On three terminal connectors make certain that the arrow is pointing to the exterior locking mechanism. On the other connectors the wedge will only insert one way. Figure 216

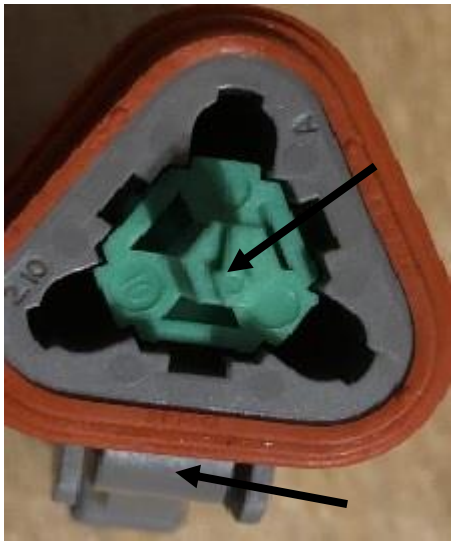


Figure 216

9.3. Downloading Software

1. Go to the Honeybee website under the dealer portal and download PanelPilotACE Design Studio. This will put an icon on your home screen. Figure 217

Figure 217

Remove the mounting bracket from the back of the display.

Connect the cord supplied with the display to the USB on the computer and then in the connection on the back of the display. Figure 218

Figure 218

Open the PanelPilot Design Studio. In the upper right-hand corner of the screen the software should show the device is connected. Figure 219

Go to file and open project Flex-UI-Lite-7.ppproj. Figure 220 Note: The number may be different depending on the software revision.

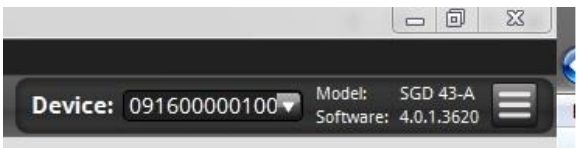


Figure 219

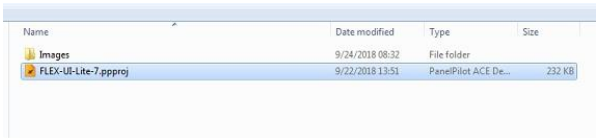


Figure 220

Go to file in the upper left-hand corner and select upload. Figure 221

The screen will ask if you want to up load and hit "YES". Figure 222

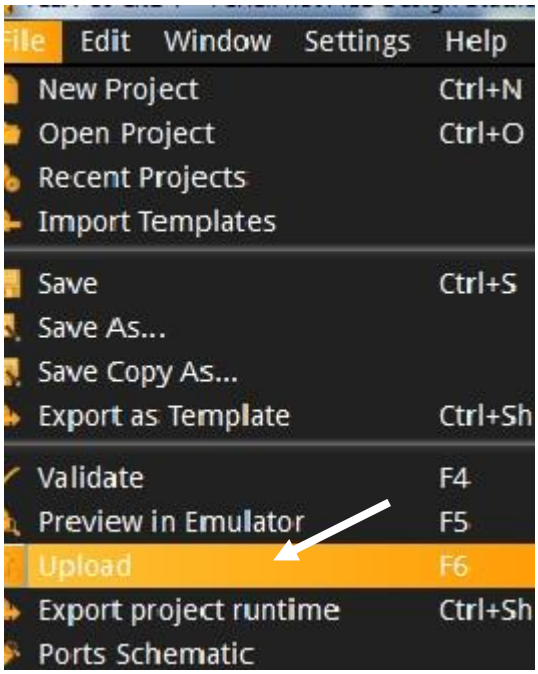


Figure 221

Figure 222

The program will begin to load. When it is done select close. Figure 223

To make sure the program loaded go to settings on the display screen. Figure 224

The software version that you loaded will be in the lower left of the display Figure 225

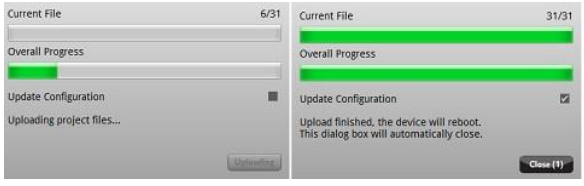


Figure 223

Figure 224

Figure 225

9.4 - Replacing Parts on the Display

9.4.1 - Wire Harness, Screen and Circuit board Replacement

1. The display needs to be disassembled to replace most of the parts on the display.
2. Remove the plate on the back that retains the suction cup/Ram Mount.
3. Loosen the 4 screws on the end cap opposite the wire harness.
4. Remove the 4 screws retaining the end cap with the harness. Figure 226

Figure 226

5. Slide the display, circuit board, and harness from the case. Figure 227

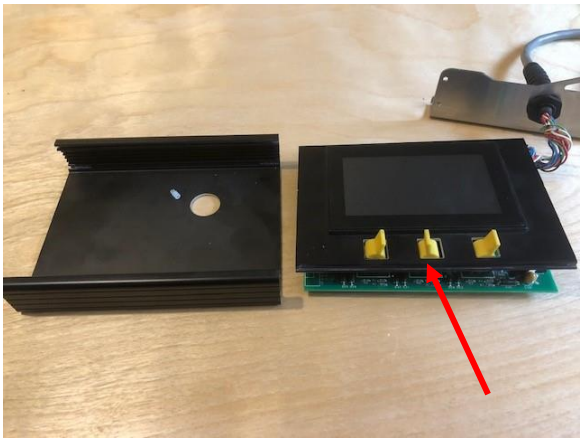


Figure 227

6. Carefully separate the screen from the circuit board by pulling the screen assembly from the circuit board. Do not bend or twist the circuit board as that could damage the board. Figure 228

Figure 228

7. Once the screen is separated from the board, the harness can be removed by pushing the tab on the side of the connector and pulling the connector straight out of the circuit board. Figure 229

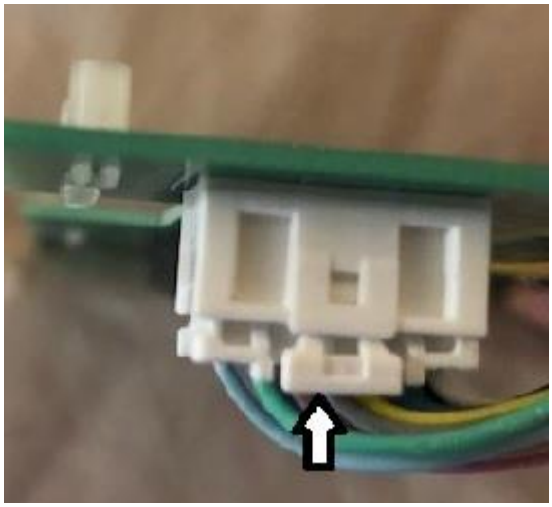


Figure 229

8. If the screen needs to be replaced the screen can be replaced without removing the harness.
9. The cover of the screen can be removed by pushing in the 4 clips on the side of the screen and pulling the front cover off the screen.
10. Replace the cover on the new screen and the screen assembly can be installed on the circuit board.

11. To replace the circuit board, remove all the parts leaving the circuit board.

9.4.2. Replacing the switches

1. As an alternative to replacing the switches the complete circuit board can be replaced.
2. The switches are soldered in the circuit-board. To replace the switch the switch must be de-soldered from the printed circuit board.
3. See Figure 230 for switch location
4. Flex/rigid switch, On-Off Item 1
5. Add/Dump Air switch, On-Off-Momentary Item 2
6. Tilt/Reel switch, On-Off, Item 3
7. When removing the switch from the board make certain not to overheat the board as it can damage the circuit.
8. Make certain the holes for the switches are clean of solder before installing the new switch
9. Install the new switch on the board and solder in place. Make certain that the area is clean of any flux.

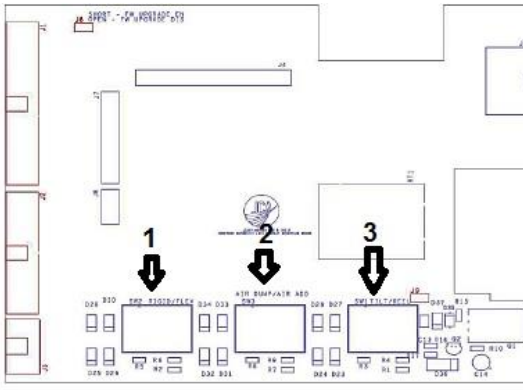


Figure 230

10. After the components are assembled slide the entire assembly into the case. Make certain that the front cover aligns with the top groove and the circuit board aligns with the bottom groove. Figure 231

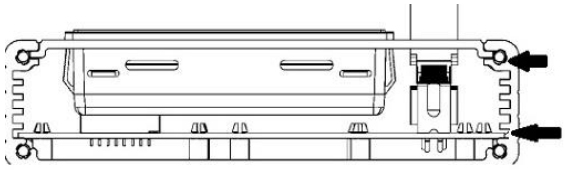


Figure 231

9.4.3. Switch Paddle Replacement

11. The switch paddle can be replaced without the disassembly of the display, however it is easier to replace the paddle with the assembly out of the case.
12. Remove any remnants of the paddle.
13. Make certain that switch toggle is in the center position. Figure 232
14. Insert the paddle cap into the switch on the circuit board. Make certain the toggle of the switch is inserted in the paddle. Figure 233
15. Push the cap into the tabs until a click is heard. Do not push too hard to crack the circuit board.

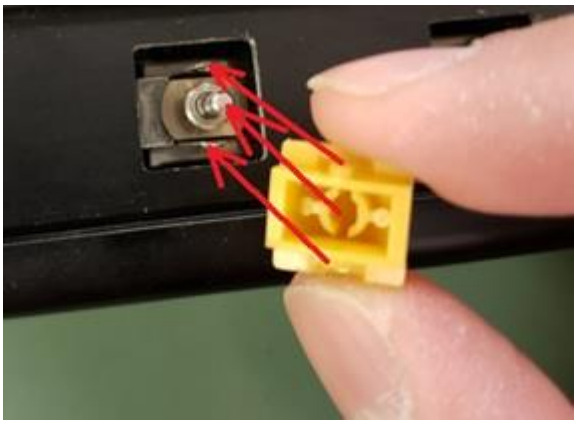


Figure 232

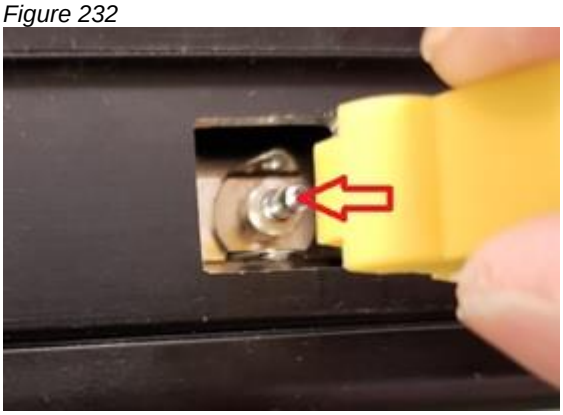


Figure 233

9.4.4. Replacing the Battery in the Display

1. On the side of the display remove the four screws holding the end cap on the box. Remove the bolts holding the back plate to the display. Note: Remove the side with the wire harness. Figure 234

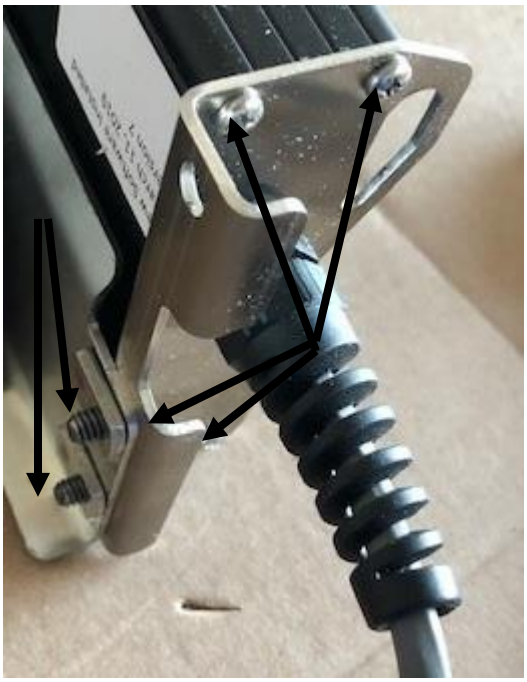


Figure 234

2. With the end cap removed pull the display screen and circuit board out of the box as an assembly.
3. Remove the circuit board by firmly pulling up on the board. Make sure that you do not crack the board. Figure 235

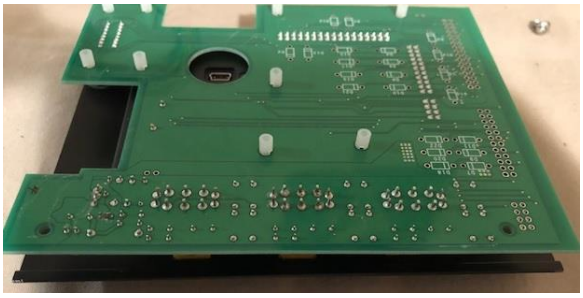


Figure 235

4. Once the board is pulled off the display the battery can be replaced Figure 236

Figure 236

9.5 - Function of the Blue Light

The light indicates when there is power to the Air Compressor. Figure 237

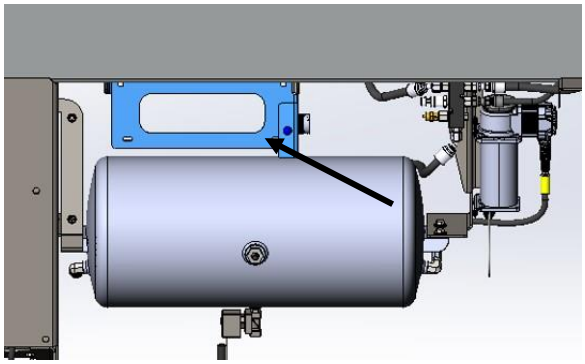


Figure 237

1. This light will come on with the center switch on the display is turned to the add air mode. Figure 238

Figure 238

2. Power is then sent back to the from a splice after the compressor relay. Figure 240
3. The ground for the light is from a splice on the extension harness from pin F and H. Figure 239
4. Anytime the light is on the air compressor should be adding air to the system.

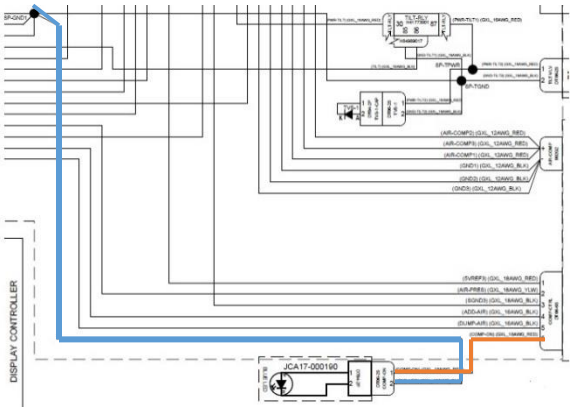


Figure 239

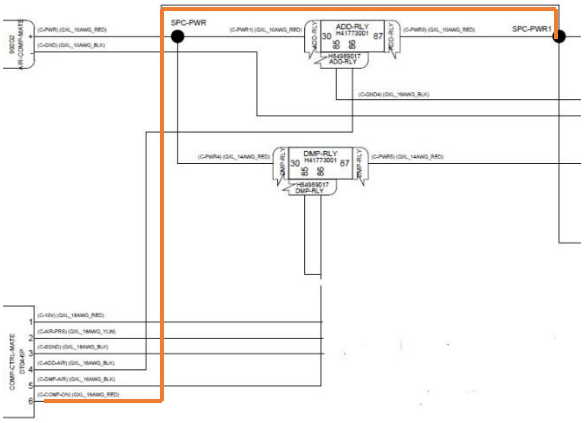


Figure 240

10 - Hydraulics

The hydraulic system is a simple system on both the AirFlex. Oil for any hydraulic function is supplied by the combine. The hydraulic diagram shows the oil flow for the headers

Figure 241. The manifold at the back of the header has all of the hydraulic connections.

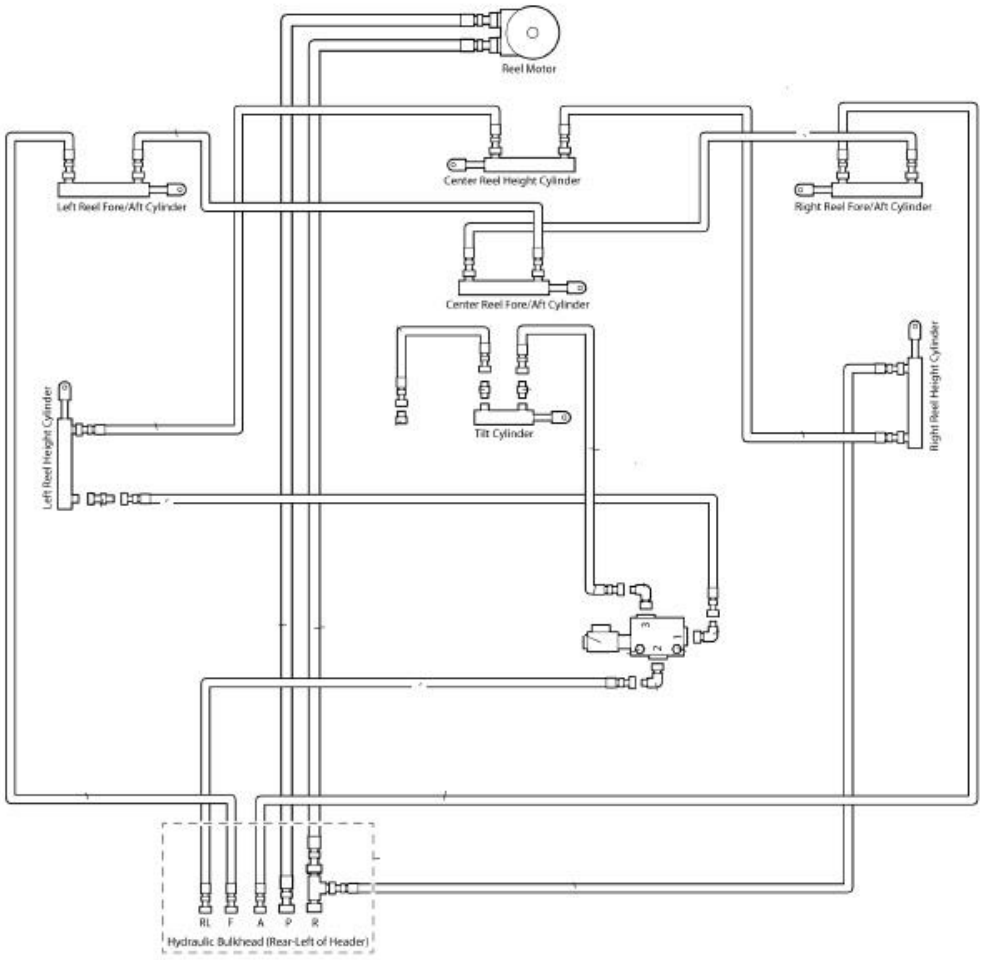


Figure 241

The Manifold Figure 242 directs oil from the combine to the rest of the header.

- RL- To the cylinders for reel lift. This circuit on Model Year 2017 and above also provides oil for the header tilt cylinder. The oil goes through an electric over hydraulic valve that sends the oil to the desired system
- F- The reel fore side of the cylinder
- A- This goes to the side of the cylinder for moving the reel to the rear. On Model Year 2016 and below this circuit also sends the oil to the tilt valve and then to the tilt cylinder.
- P-Goes to the reel drive motor to provide hydraulic flow to the reel motor in the center of the header
- R-Is the return oil for the reel drive motor. This is also the return of the oil from the right hand lift cylinder.

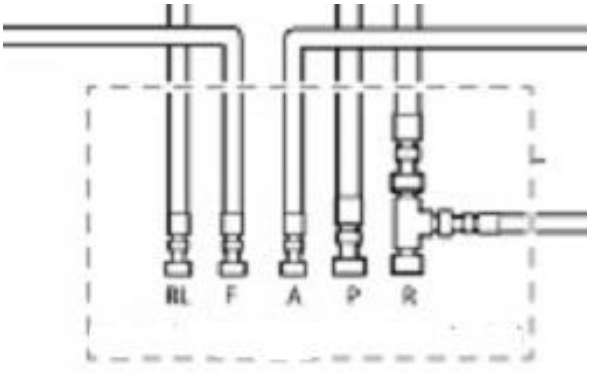


Figure 242

10.1 - Tilt Valve

1. The tilt valve is controlled by the display box in the combine cab. On all AirFlex the power comes from the display box.
2. The tilt valve has a solinoid that is activated by the display box. This valve has three ports. With no power to the valve oil flows from port 2 to port 1. When power to the solinoid is applied a spool shifts and send oil to port 3. Figure 243. The oil flows as follows:
3. RL port on hydraulic manifold to port 2 on valve.
4. No Power on solinoid oil flows from port 2 to port 1 LH reel lift cylinder.
5. Power to solinoid oil flows from port 2 to port 3 rod end of the tilt cylinder.

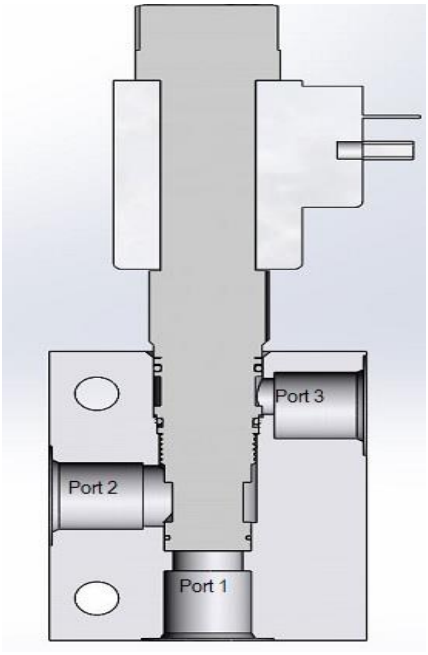


Figure 243

6. On CNH combines the tilt can be controlled by the button on the back of the Hydrostatic handle. By pressing this button, power is sent from the combine through the number 20 pin in the combine connector. Disconnect the wire connection at the solenoid valve from the main harness and connect it to the cmb tilt vlv on the multi-coupler harness. Figure 244
7. This will allow the header tilt cylinder to operate with the for/aft reel button when the button in front of the multi-function handle is used. When the front button is not depressed the reel fore/aft will work. This will provide 12 volts to power the solenoid through Pin 20 on the combine harness.

Figure 244

8. On some combines the function for the button on the back of the handle will need to be turned on. Consult the combine manufacture for this process.
9. Note: On some New Holland combines the hoses on the manifold will need to be changed for all functions to work properly. Refer to Knowledge Article 1104 Using New Holland Multi Function Handle For Tilt.

10.2 - Hydraulic Cylinders.

⚠ DANGER!

High pressure hydraulic leaks can penetrate the skin causing serious injury. Always relieve pressure before disconnecting hydraulic lines and tighten all connections before applying pressure.

Hydraulic leaks can be extremely small and difficult to see. Search for leaks with a piece of cardboard. Protect hands and body from high-pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source.

The reel lift cylinders are single acting cylinders. These cylinder are difficult to re-seal. If a reel lift cylinder leaks the cylinder should be replaced

The Fore and aft cylinders are double acting cylinders and should also be replaced.

10.3 - Tilt Cylinder MY2020 and Above

A new style tilt cylinder is used on all units Model Year 2020 and above. The cylinder is a barrel style held together with 4 threaded bolts. Figure 245

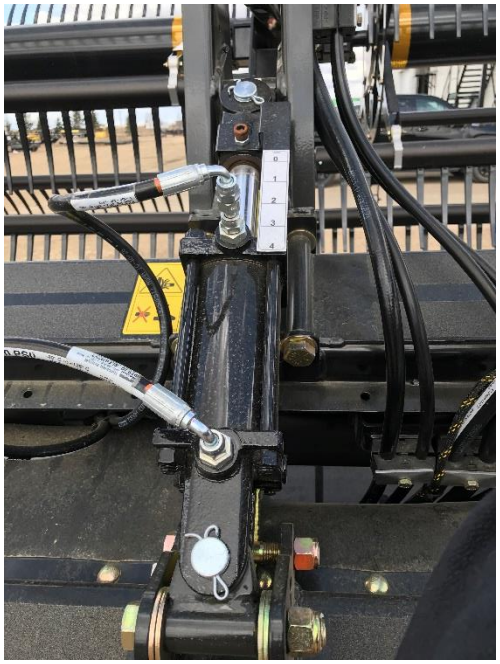


Figure 245

1. To disassemble the cylinder remove the four nuts at the head of the cylinder. Figure 246 This will allow the head of the cylinder to be removed and the seals replaced in the cylinder Figure 247.
2. If the piston nut was removed to install the seals, secure the piston with the nut and torque to 300-350 ft. lbs. (407-475Nm)

Note: Lubricate all seals and O-Rings before installation.

Figure 246

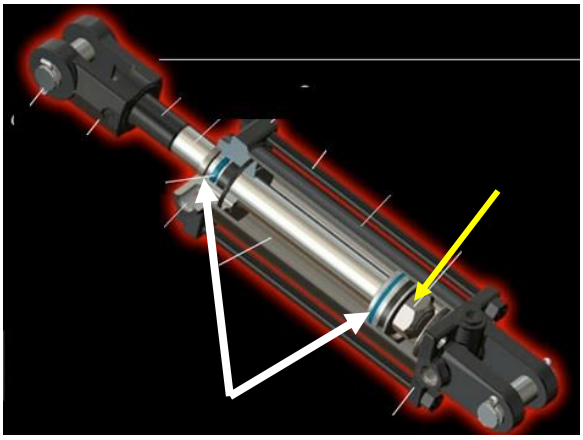


Figure 247

2. When reassembling the cylinder slide the cylinder rod and head into the barrel.
3. Attach the bottom end cylinder head to the barrel with the four threaded bolts.
4. Install the nuts on the threaded rods and tighten the nuts to 80 ft. lbs. Make certain there is at least one to two threads outside the nuts after tightening.

10.4 - Single Point Connector

1. The single point connector can be rebuilt if the couplings leak. To remove the couplings remove the valve assembly off the hoses.
2. Each cartridge can then be removed from the valve. Figure 248

Figure 248

3. To remove the cartridge unscrew the cartridge from the valve housing.
4. The cartidge can then be replaced as a complete assembly. When assembling the coupler make sure the ring is setting in the valve body completely and flat against the valve body. Figure 249

Figure 249

10.5 - Reel Drive Motor and Assembly

The reel drive is powered by a hydraulic motor with oil from the combine. The hydraulic motor drives a set of gears in a gearbox. There is no lubrication in this gearbox.

The oil is supplied by the combine. If the reel does not turn use a flow meter to check the flow at the motor. If there is no flow at the motor check at the single point connection. If no oil flow is present then the issue is a combine problem. The flow should be up to 9GPM. See the combine brand for more information and how to test the flow rate from the combine.

1. If there is flow at the motor, remove the motor from the gearbox. This is done by removing the two bolts on that retain the motor to the gearbox. Figure 250

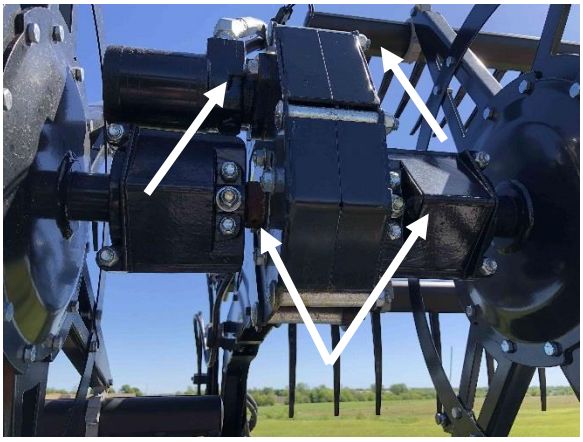


Figure 250

10.6 - Reel Drive Gearbox Repair

1. To remove the gearbox assembly support both reel assemblies.
2. Remove the coupler covers to remove the rubber couplings. Figure 250
3. Disconnect the hoses and the electrical connections. The bolts at the front of the reel arm can now be removed. This will allow the gearbox to be pulled from the reel arm. Figure 251

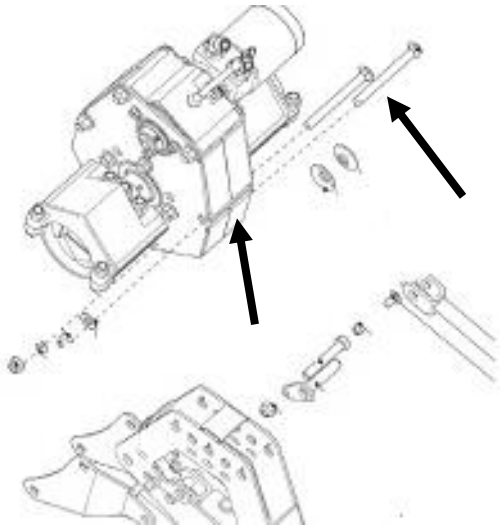


Figure 251

4. To disassemble the gearbox remove all the bolts that hold the covers to the gearbox. Figure 252

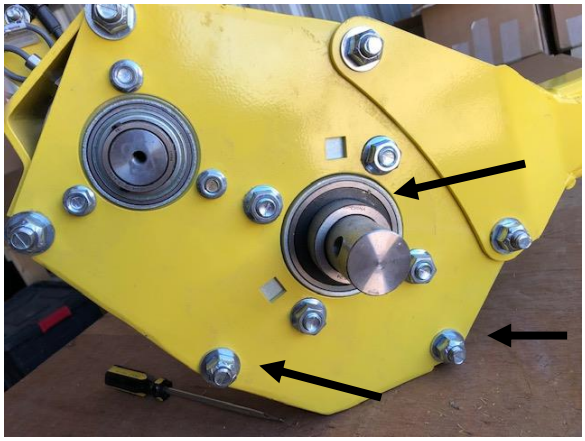


Figure 252

5. Remove the lock collars from the driveshafts. Remove the covers and bearing assemblies.
6. Replace the parts as needed. To assemble install the bearings in the RH case assembly. Figure 253

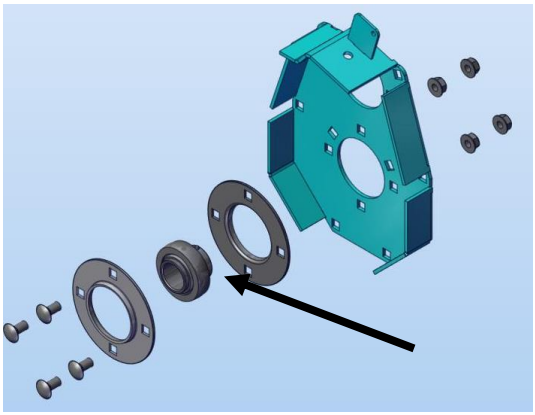


Figure 253

7. Assemble the motor on the gearcase. Install the input drive gear on the motor shaft.

   Figure 254

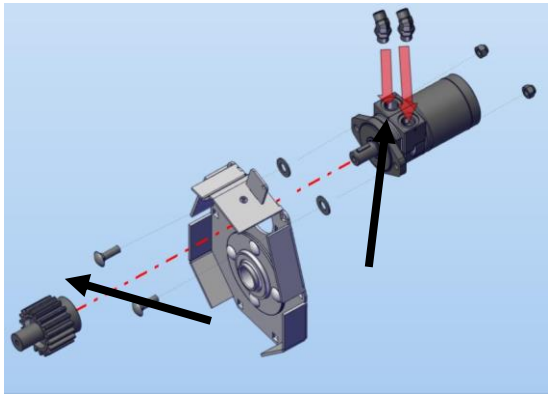


Figure 254

8. Install the drive key in the shaft. Press the drive gear on the output shaft. Install the washers on each side of the gear. Figure 255

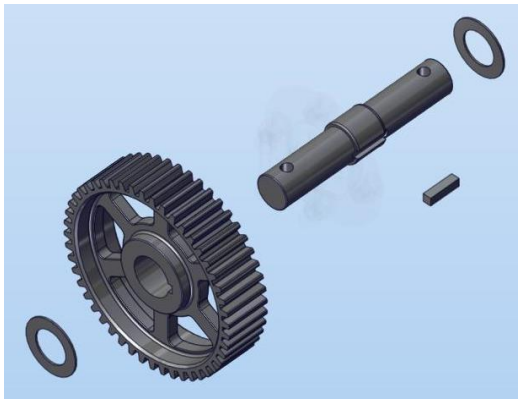


Figure 255

9. Install the output shaft in the gearcase. Figure 256

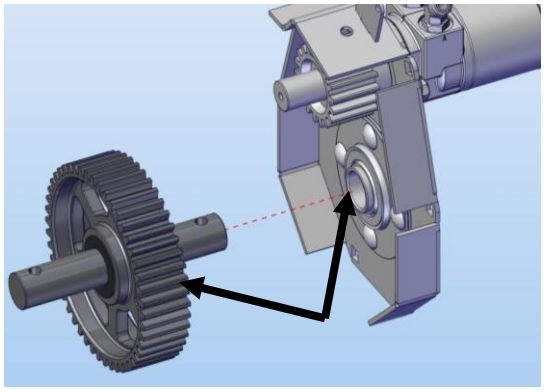


Figure 256

10. Assemble the LH side of the gearcase with the bearings and flanges. Figure 257

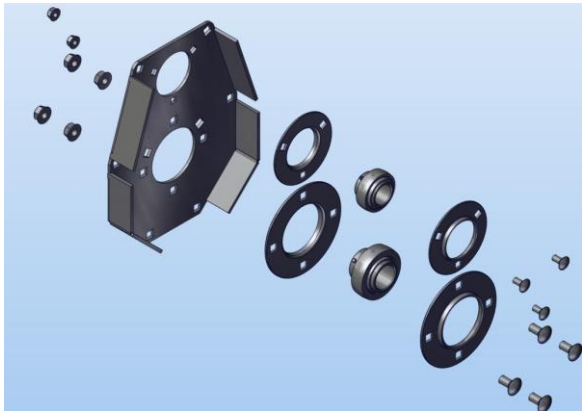


Figure 257

11. Install the left hand gearcase on the input and output shafts. Install spacers on each bolt as the bolts a placed in the right hand gearcase. Make certain the gears are aligned and tighten the lock collars. Figure 258

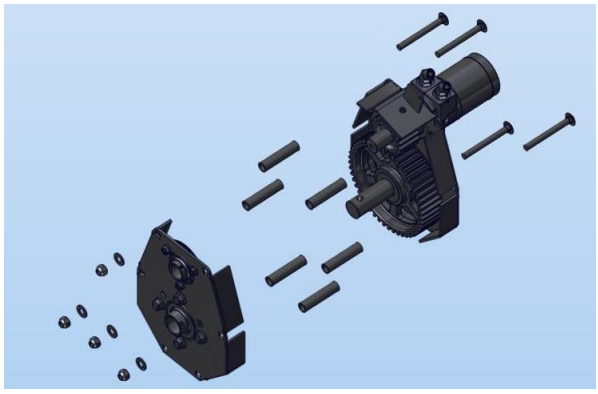


Figure 258

12. Once the gearbox is assembled install it back on the center arm. Make certain that the bolt holding the gearbox to the arm is secured. Figure 259

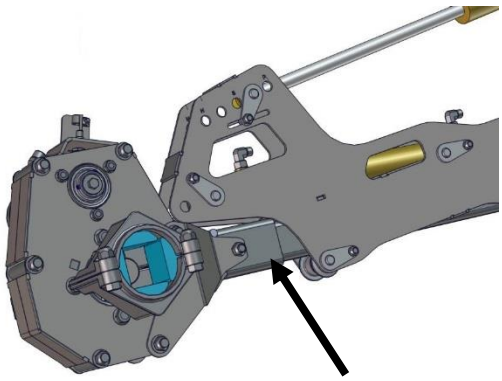


Figure 259

13. Install new flex couplers in the reel if the old couplers are damaged. Place the flex couplers on the reel shaft and wrap tape to hold them in place. Install the coupler covers in place and secrue the the mounting bolts. Figure 260

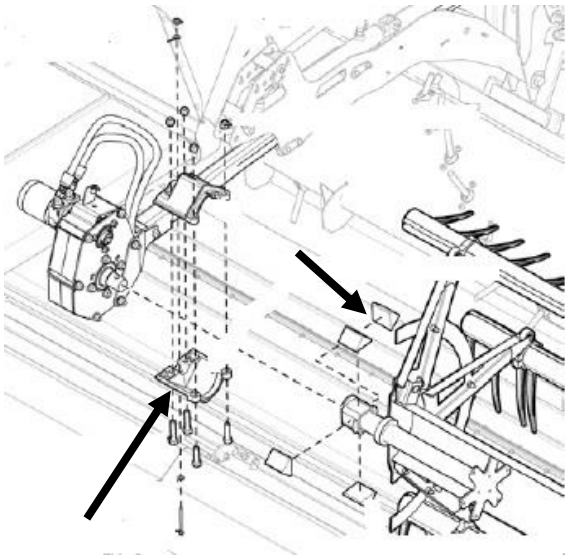


Figure 260

14. Install the hydraulic hoses to the reel drive motor.
15. Adjust the sensor to the gear in the gearbox to a .030 inch gap between the sensor and the gear. This is done by turning the sensor in by hand until it contacts the gear and then back it out by one turn. Figure 261 shows the sensor exposed but it is cover up on the header. Note: Some headers will not have a sensor as the combine can not read reel speed.

Figure 261

10.7 - JD Line Lock

1. On 2016 and newer John Deere combines a line lock must be installed on the header to keep the reel from drifting fore and Aft. In 2016 John Deere took the check valve out of the combine hydrualic system.
2. The line lock is a valve that is bolted on to the hydraulic manifold and provides the check valve needed on those combines. Figure 262.
3. Hydraulic oil is supplied from the manifold, “F” and “A” ports, through the valve then to the cylinders on the header.

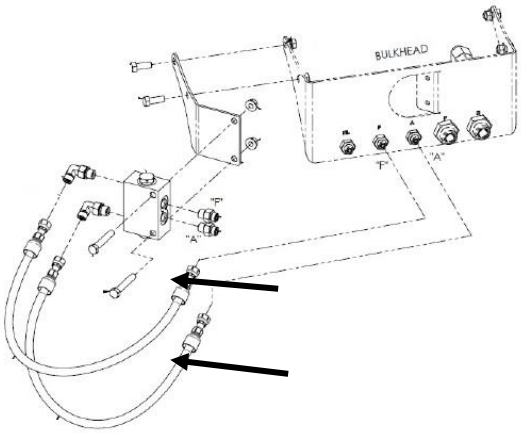


Figure 262

4. The lock valve has a spool inside that valve that will shift as oil is supplied to the reel
5. As oil is applied to one port the spool will shift to release the oil and allow the oil to flow through the valve.. When

the oil flow is stopped the spool shifts and blocks the oil. Figure 263

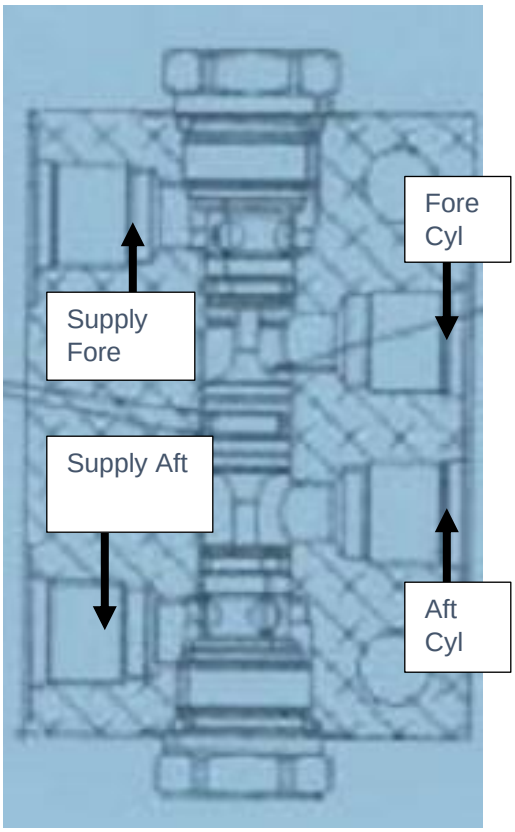


Figure 263

6. If the cylinders drift, remove the spool and make certain that it moves freely in the valve body.

11 - Reel

11.1 - Reel Bats

The Honeybee reel has 6 bats and Plastic teeth.

1. To remove a tooth on the reel remove the spacer between the teeth. This can be done by using a needlenose vise-grips and pulling the spacer out Figure 264

Figure 264

2. Once the spacer is removed the finger can be turned 90 degrees by a wrench and pulled out of the bat. Figure 265

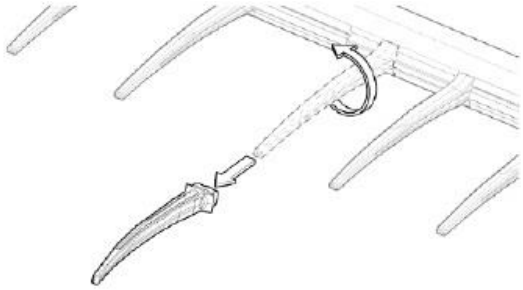


Figure 265

3. If more than one tooth needs to be replaced simply slide the spacers down to replace the teeth.

4. Replacing a Reel Bat

5. The reel bat can be replaced by removing the mounting bolt on each reel spider. This will allow the entire reel bat to be removed. Figure 266

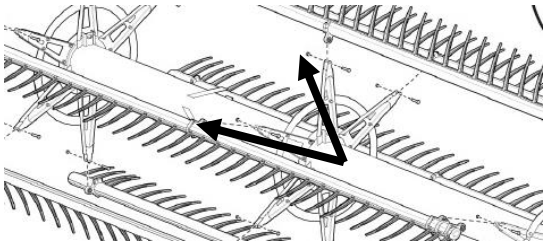


Figure 266

6. After the reel is removed the spider clamp can be removed by removing the clamp bolts. Figure 267

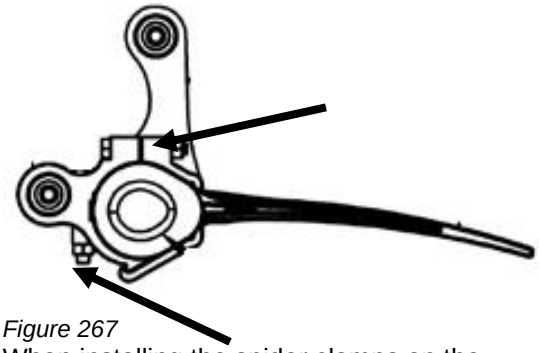


Figure 267

7. When installing the spider clamps on the reel tube the spacing should be checked. This will aid in assembling the reel bat back on the spiders. Make certain the diamensions for the clamps on the cam end of the reel are as shown in. Figure 268 for the standard Reel and Figure 269 Cam Reel. The only difference between the Standard reel and the Cam reel is the dimension for the control knuckle clamp.

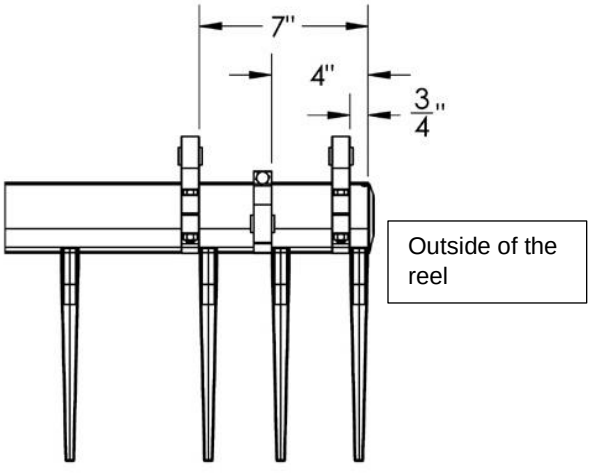


Figure 268 Standard Reel

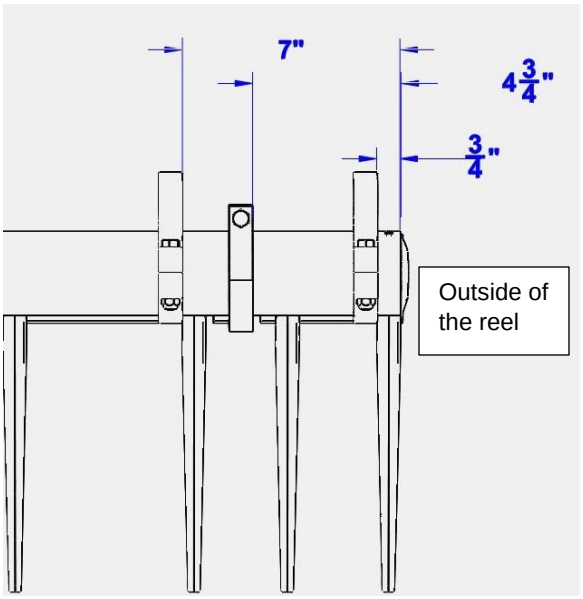


Figure 269 Cam Reel

8. On the inner end of the reel the outside clamp should be positioned to 8” from the end of the reel tube. Figure 270.

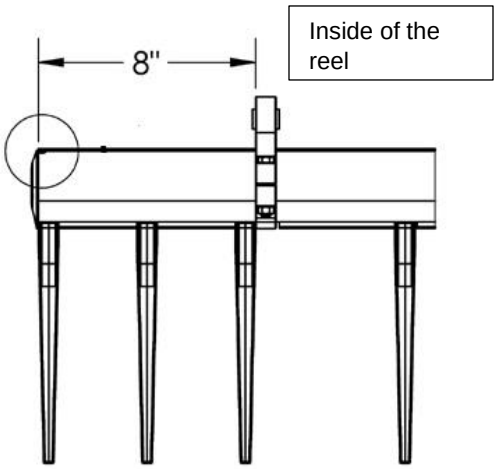


Figure 270

9. The center clamps are installed depending on the size of the header. On the 25 foot headers the clamps are installed 65 1/8” from the inside clamps. On the 30-50 foot headers the center clamps are placed 125 1/8” from the inside clamps. Figure 271

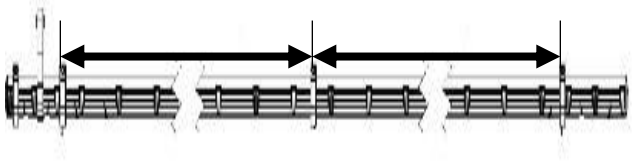


Figure 271

11.2 - Replacing and Adjusting the Reel Cam

Note: There are standard and Cam reels.

1. The cam adjustment on each side of the reel controls the pitch of the teeth on the reel. The reel support and the cam can be removed from the reel.
2. Support the reel with a lifting device on the reel tube.
3. Remove the bolt attaching the reel to the reel arm.Remove cylinder pin. Figure 272

Figure 272

4. This will allow you to move the reel forward past the divider. Remove the reel end shields. The snap ring on the end of the tube can now be removed.
5. Remove the bolts that attach the spider to each bat. This will allow you to remove the

cam assembly. Figure 273

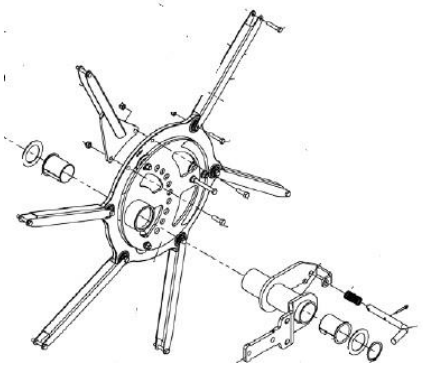


Figure 273

5. Check the bushings in the mount assembly. If there is wear on the bushings replace the bushings. There should be a grease fitting on the mounting tube. This grease fitting will lubricate both bushings. If a plug is present and not a fitting replace the plug with a 45 degree fitting. Figure 274

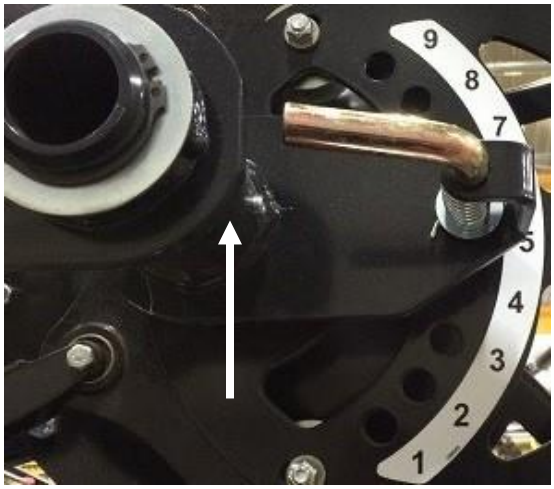


Figure 274

6. Remove the spider arms from the cam. The cam can now be removed by removing the bolts that hold the rollers on the cam. Figure 275

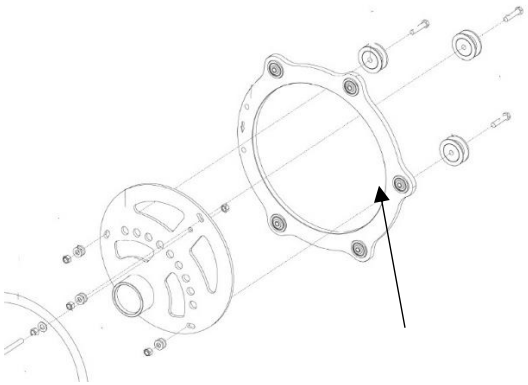


Figure 275

7. Replace worn parts. Note if the cam assembly is disassembled the rollers on the cam should be replaced if they have been used.
8. Install the bearings on the center ring. Leave the mounting bolts loose at this time. Install the center plate into the ring. Figure 14
9. **Note: Make certain that the arrow on the center ring is pointing in the direction of rotation for the reel.** Figure 276

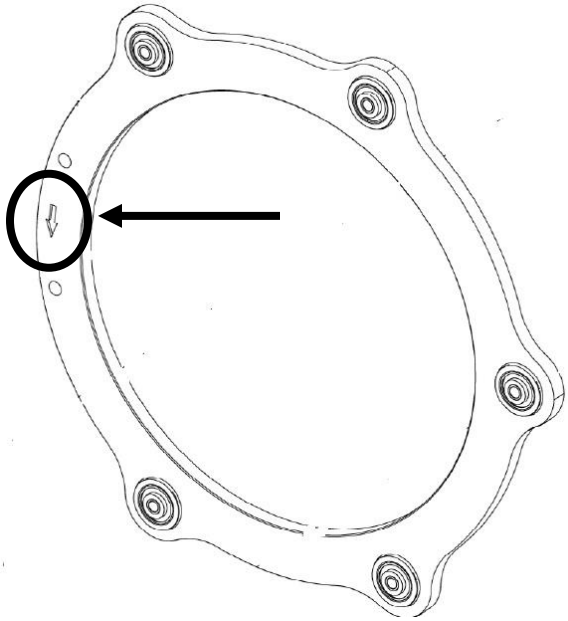


Figure 276

10. Install the spiders on the center ring. Slide the assembly on the shaft, bolt the spiders to the reel bats.
11. Slide the mounting plate on the shaft and secure the assembly with a washer and snap-ring. Slide the assembly back on the

reel arm and secure. The end shields can be installed on the outside spiders. Figure 277

Figure 277

12. The link from the cam to the reel bat control arm Figure 278 must be installed properly. If the hardware is not install properly control arm link wear is possible.

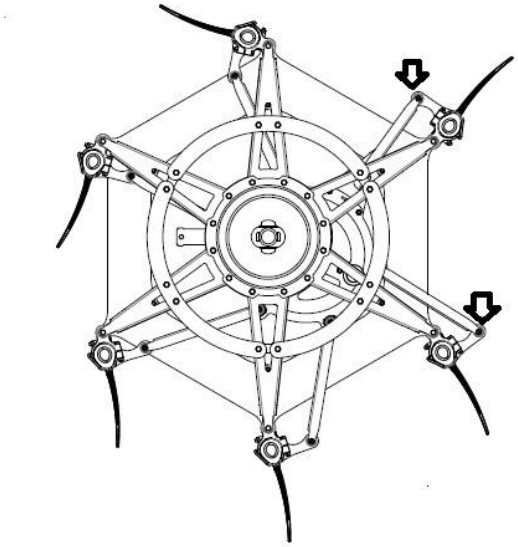


Figure 278

13. In order to retain the control, arm the 5/16" bolt should be torqued to 22 ft. lbs. (30 Nm) The head and nut of the bolt should be secured on the spacer that goes through the bushing. Figure 279. This will make sure that the arm turns on the bushing and not the nut or head of the bolt.

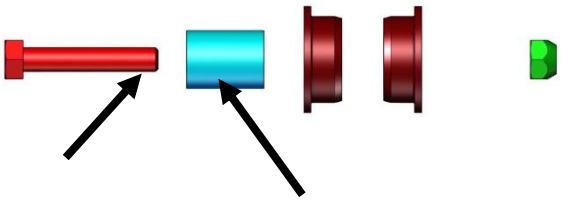


Figure 279

11.2.1. Cam Reel System

1. The cam reel on the headers have two separate cams that control the pitch of the teeth. The cam reel has the same bats but the spiders and the cams are different then the standard reel. The bats are controlled by the set of rollers on each side of the cam. Figure 280

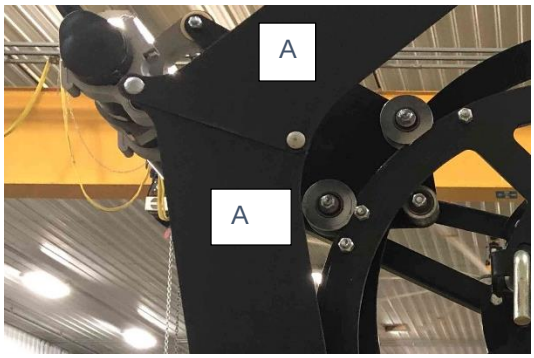


Figure 280

2. To remove the spider arms retaining the reel bats, remove the end shields, A, from the reel.
3. Remove the bolt and spacer that retains the spider to the reel bat.

Figure 281

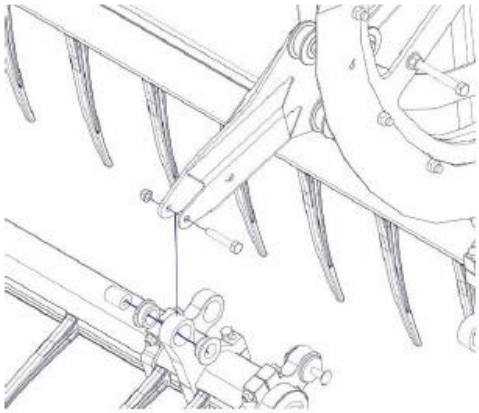


Figure 282

12 - Air System

The air system is made up of a

- Electric Air Pump
- Air Tank
- Air Manifold
- Air Lines
- Air Bags

12.1 - Air Compressor

Note: The electrical part of the system is described in Section 9.

1. The air compressor is mounted to the frame behind the shield on the left-hand side of the header. Figure 283

Figure 283

2. The compressor is powered through the power harness on the combine. (see electrical section for details)
3. The compressor keeps the tank filled with air so that the air bags maintain a constant pressure.
4. In the line leading to the tank is a check valve that keeps the air from escaping out the tank through the compressor Figure 284.

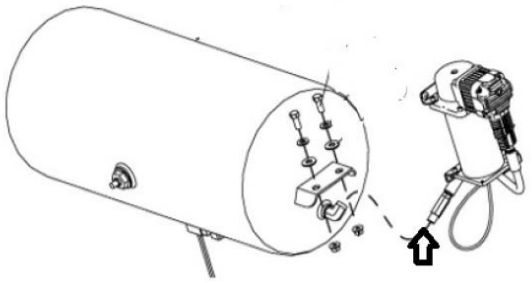


Figure 284

Model Year 2020 and below

Install the check valve in the air tank. using a 6-point socket to tighten the valve in the air tank. Using an open-end wrench or over-tightening the valve will cause the plunger in the valve to stick and cause a leak. Use a thread sealant on the end of the valve. DO NOT USE TEFLON TAPE. Torque the check valve to 12-15 ft. lbs (16-20 Nm). Figure 285

Figure 285

Note: A new check valve kit is available through service parts.

Model Year 2021 and above

On Model Year 2021 and above a check valve is still used at the base of the tank.

This check valve is a different design and is larger than older model years. A rubber hose connects the compressor to the tank. Figure 286

Note: Older headers can be upgraded to the Model Year 2021 check valve.

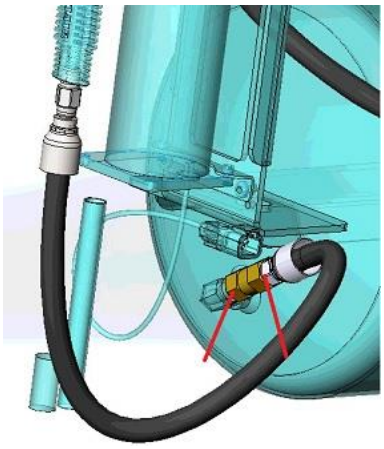


Figure 286

The check valve must be installed properly so the tank will hold air.

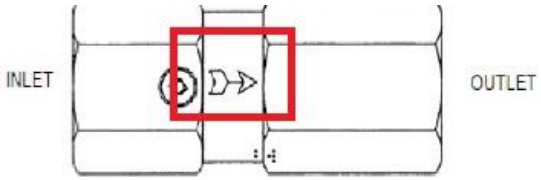


Figure 287

The hose should be installed on the inlet side of the valve. Tighten the fitting ton the hose to 10 ft. lbs. Make certain the arrow is pointing away from the hose. Figure 287

Note: This is a two-piece valve. The wrench must be placed on the end of the valve that is being tightened to hold it in place.

The pump has two filters in the head that should be changed once a year.

Remove the cap on the pump and replace the filter cartridge. Figure 288

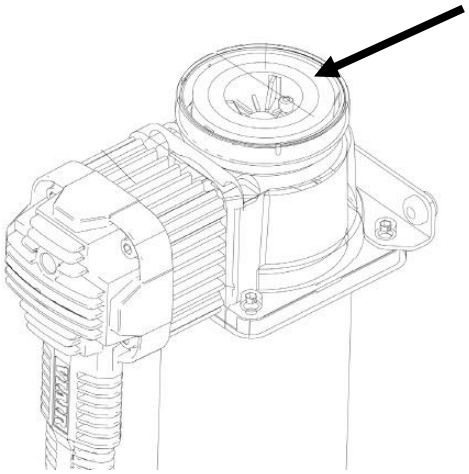


Figure 288

At the bottom of the tank is a dump valve. This dump valve will keep the pressure in the system. This valve is controlled by the electrical system when the air pressure needs to be changed. Figure 289

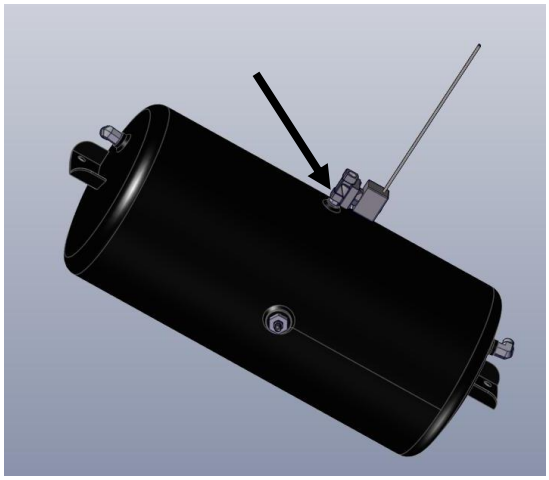


Figure 289

Figure 4

12.2 - Air Lines and Air bags

From the air compressor tank, the air goes through a manifold. This manifold directs the air to the different air bags on the header. In the valve is a relief valve that keeps the pressure in the tank below 125PSI. If the pressure goes above 125PSI the valve will relief the pressure in the tank. The air pressure is consistent through out the system. Figure 290

1. On Model Year 2021 and above the relief valve setting has changed to

150PSI. The higher relief valve can be installed in older headers.

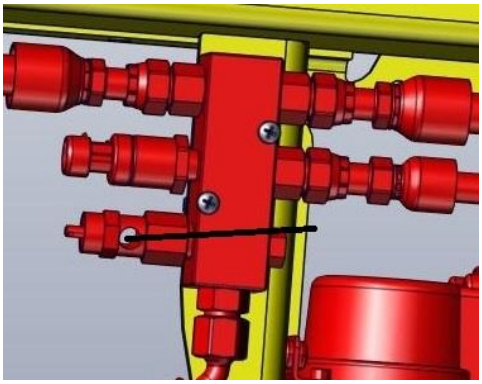


Figure 290

2. Through a series of lines, the air is directed to the air bags on the unit. There is an airbag on each of the cutter bar struts to support the cutter bar assembly. Figure 291

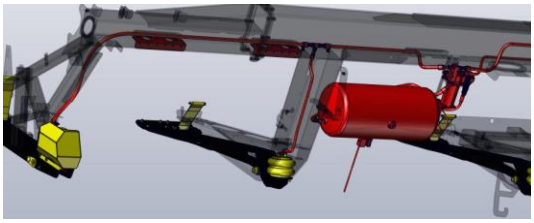


Figure 291

3. Each strut has a supply line and air bag that is retained by 4 bolts. Figure 292

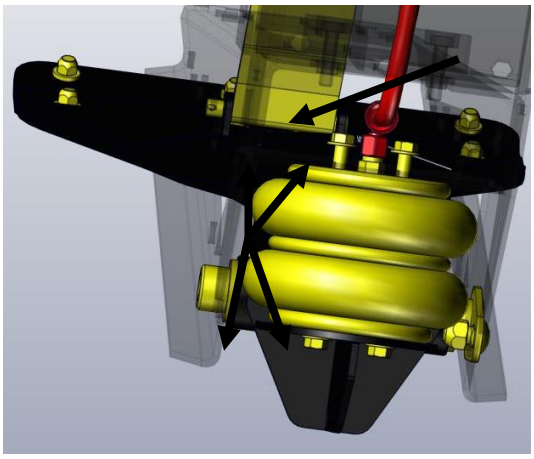


Figure 292

12.3. Checking for leaks

1. If the air system does not maintain pressure, there may be an air leak. To check for leaks: Fill a spray bottle with soapy water and spray the all the lines and the fittings to the air bags while watching for air bubbles. Figure 293 and Figure 294

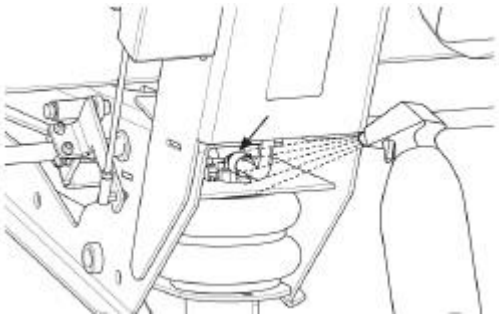


Figure 293

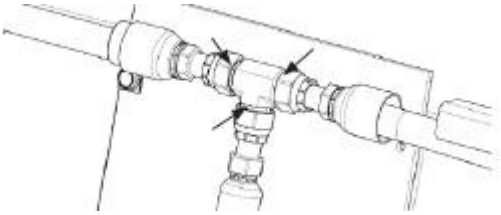


Figure 294

2. Re-seal all leaking fittings. Check the fittings on the air tank and air manifold located just to the left of the feeder house.
3. Remove the hose to the compressor and spray water on the check valve to see if it is leaking. Figure 295
4. Note: The figure shows the new style check valve.

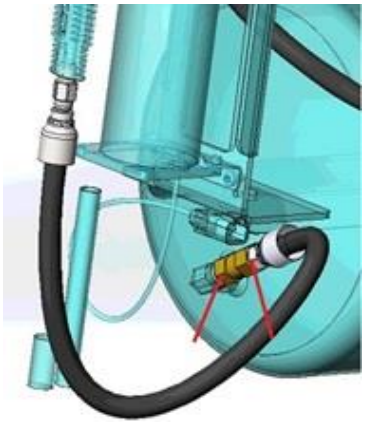


Figure 295

13. Skid shoes

Skid shoes can be added for extra header protection. The shoes are adjustable from 2-4". The skid shoes are either factory installed or can be installed at a later date. The shoes are bolted to each strut at the front of the strut. Note: the number of skid shoes depends on the size of the header. Figure 296 shows a 30-36-foot header.

NOTE:

Please add an additional 10 PSI if skid shoes are installed on the cutter bar. Accessories attached to the cutter bar require additional pressure to counteract their weight.

Recommended Air Pressures

Flex

Lower than 32 PSI for terraces.
- **32-35 PSI** for firm/fast ground conditions.
- **36-39 PSI** for normal ground conditions.
- **40-50 PSI** for soft/sticky/wet/slow ground conditions.
- **Higher than 50 PSI** in severe rocky conditions.

Rigid

25 ft-90 PSI	**40 ft.-95 PSI**
30 ft-95 PSI	**45 ft-105 PSI**
36 ft.-102 PSI	**50 ft-115 PSI**

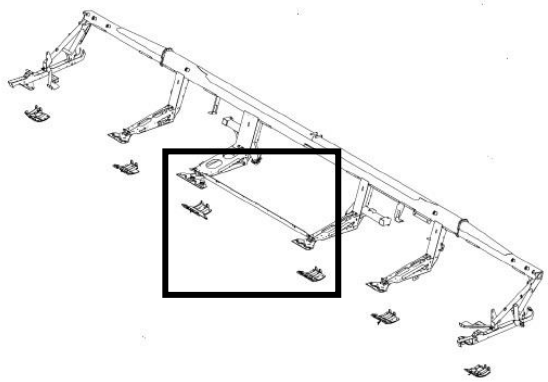


Figure 296

1. To install the skid shoes the common and transport shoes are installed.
2. The two skidshoes next to the subframe will need to be removed when the header is place on the transport trailer. Figure 296
3. Hook the two brackets over the lip on the paddle,
1. Then secure the skid shoe on the rear using a ½"X5.5" bolt. Use a spacer between the skid shoe and the drive paddle to fill the gap between the mounting brackets and the strut. *Figure 297*
4. Secure with a ½" lock nut and torque the nut to 75 ft. lbs.

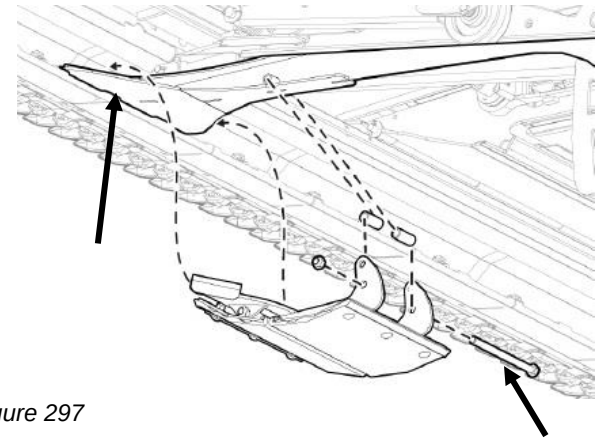


Figure 297

5. On the knife drive paddle strut the front of the skid shoe is slid on the front of the paddle and the rear is secured by a ½' X7" bolt and lock nut. Torque the nut to 75 ft. lbs. *Figure* 298

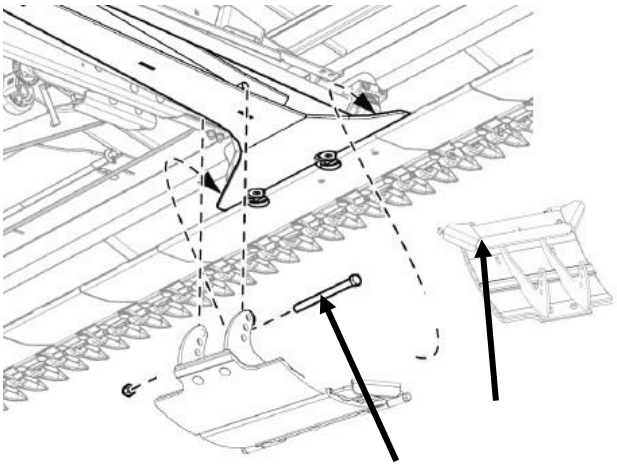


Figure 298

6. The end skid shoe is installed by sliding the rear of the shoe over the inside plate on the strut.
7. Place a spacer between the sides of the strut.

8. The skid shoe is secure on the front outside by a 5/16" X 1bolt, washer and lock nut.
9. The skid shoe is secured in the rear by a ½" X 4.5" bolt and lock nut. Torque the nut to 75 ft.lbs. *Figure 299*

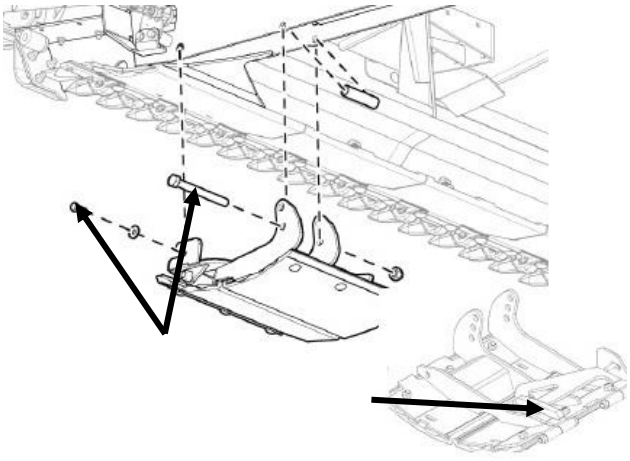


Figure 299

13.1. Skid Shoe Model Year 2022 and above

On Model Year 2022 and above the skid shoes have been changed. The range of these shoes is 3"-8". The shoes still attach to each of the struts under the header. These shoes are bolted to each strut in the front and a bolt in the rear adjusts the height of the shoe. Figure 300

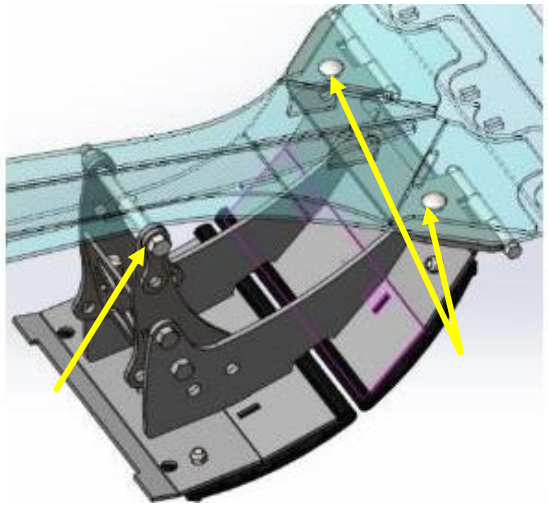


Figure 300

1. The shoe to the outside of the paddle strut will need to be removed to lace the header on the transport.
2. This is done by removing the rear adjustment bolt.
3. The front retaining bolts are then removed to allow the skid shoe to be removed. Figure 300
4. If the skid shoe on the drive paddle needs to be removed it can be done in a similar manner. The only difference is the skid shoe is wider. Figure 301

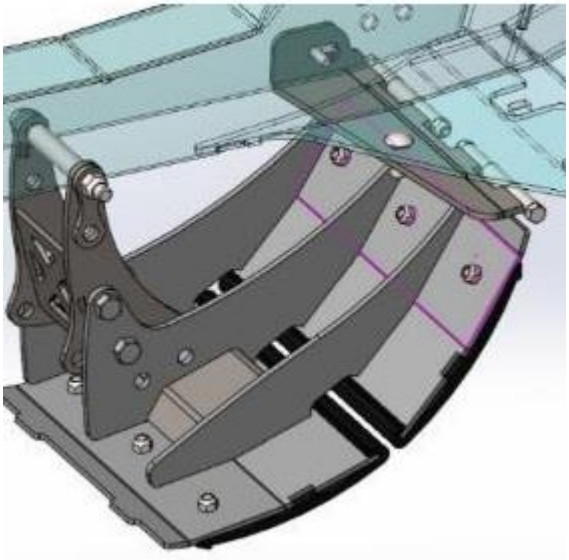


Figure 301

5. The end skid shoes are mounted with a bolt on the side of the strut and one on

the inside of the strut. A bolt retains the rear of the shoe and allows the height adjustment. Figure 302

Figure 302

6. The adjustment of the skid shoe is accomplished by moving the rear of the skid shoe down.
7. The position of the header tilt will affect the cutting height.
8. The lowest is approximately 3" with header tilt in the forward position.
9. The highest cut height is approximately 8" the header tilted to the rear.
10. The following figures show the different height positions. Note: the end shoe is shown but the other skid shoes are adjusted in the same configurations.

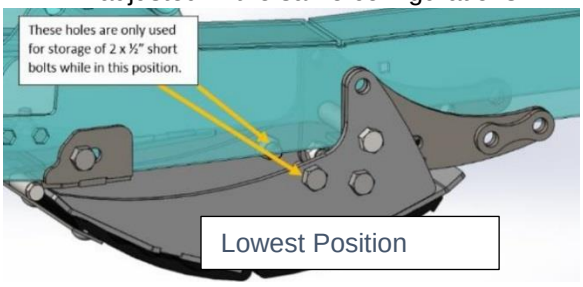


Figure 303

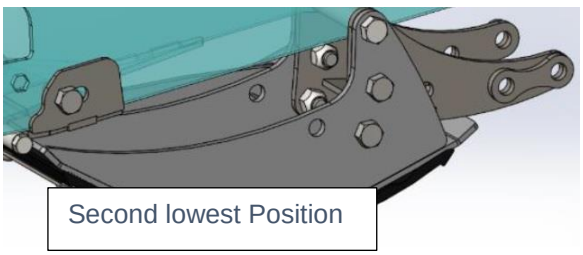


Figure 304

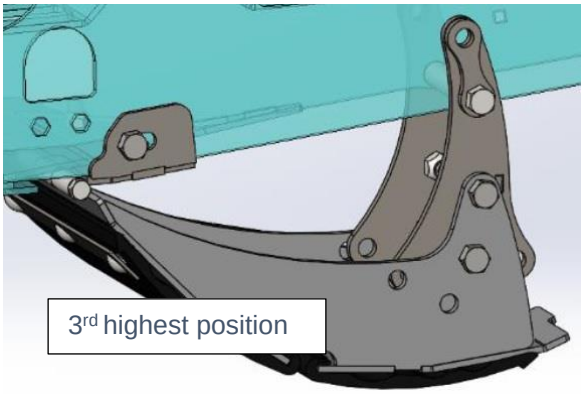


Figure 305

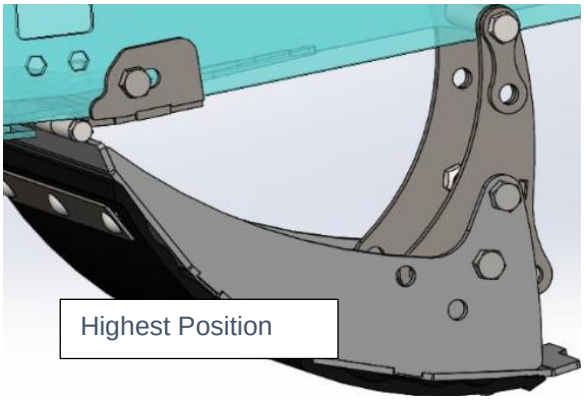


Figure 306

14. Cross Auger

The cross auger is optional. The cross auger is mounted on the rear beam of the header. It is supported by jack assemblies to allow the height to be changed. It is driven on the left side by a hydraulic motor with oil supplied by the combine reel circiut.Figure 307

Figure 307

14.1. Cross Auger Removal

1. To remove the motor, remove the shield on the auger. Support the end of the auger with a suitable lifting device.
2. The bolt retaining the drive joint can be removed. The hoses can be removed from the motor. Note: Cover the fittings and port on the motor after the hoses are removed to avoid getting dirt in the motor. Figure 308
3. Remove the bolts holding the motor. The motor can now be removed from the auger. A wedge may need to be driven in the drive joint to loosen the joint off the motor shaft.

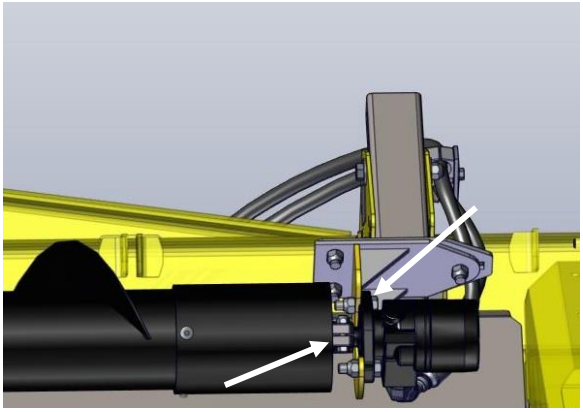


Figure 308

4. To remove the cross auger completely once the motor is removed , support the left hand end of the center auger and the entire left end of the auger .
5. Remove the shield covering the joint at the left and center auger.
6. With the cover removed and the augers supported the pin that retains the left-hand auger to the center auger can be removed. Figure 309
7. The bearing mount can now be removed by removing the nuts securing the bearing mount. The same process can be used to remove the right -hand bearing mount. This will allow the center auger to be removed.
8. The right-hand auger can be removed by removing the 3 bolts holding the bearing mount to the retaining tab. Figure 310

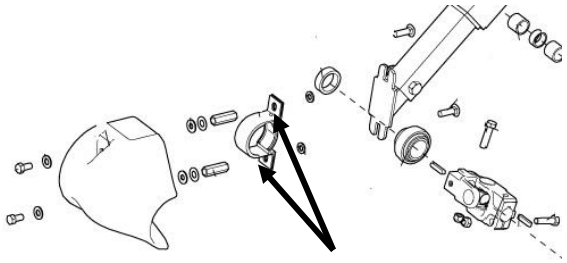


Figure 309

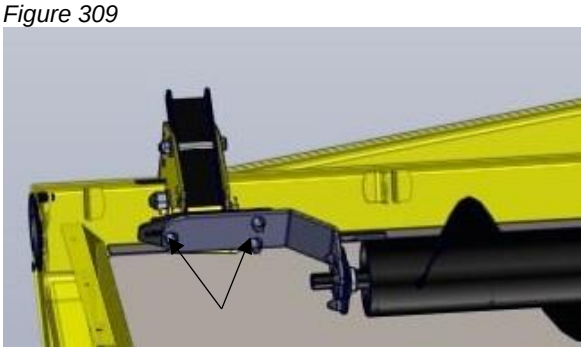


Figure 310

9. To install the auger, install the bearings and mounts on the auger. Support the center auger and secure each bearing with the bolts and nuts. Figure 311
10. Make certain that the auger is centered between the supports and lock the shaft in place with the lock collars. With the center auger on the header, install the yoke on the right-hand auger. Install the bearing mount on the end of the shaft and secure the

bearing mount to the tab on the frame. Do not tighten any hardware at this time. Figure 312

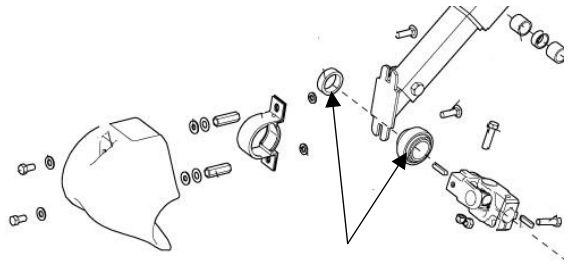


Figure 311

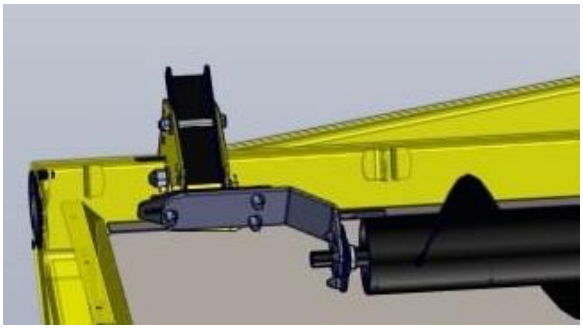


Figure 312

11. Install the left-hand auger to the center auger with the yoke and bolt. Do not tighten any hardware at this time. Install the yoke and motor on the left hand end of the shaft.
12. Tighten the motor mounting bolts. Center both the left and right augers between the tabs and tighten all hardware. Figure 313

Figure 313

14.2. Hydraulic Testing

1. This flow control valve allows the reel to reverse (if the combine brand allowed it) when the combine would reverse the header.
2. Note: In MY2021 a check valve was added to the CF port. This check valve could also be added to any MY2019 or 2020 headers. Figure 314. The check valve was used to make sure the reel would run in reverse and not the cross-auger.

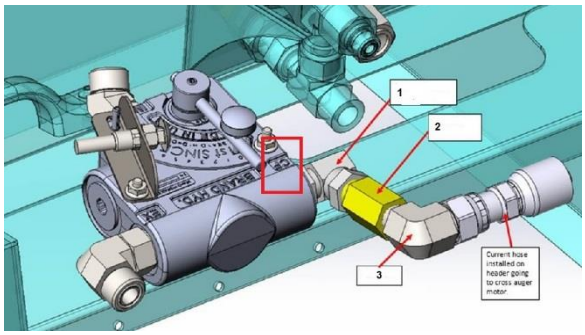


Figure 314

3. The reel pressure hose from the combine attaches to the “IN” port on the valve. The oil is then split between the reel and the cross auger. The return oil from the reel and the cross auger go directly the combine return line. Figure 315
4. The control handle is used to regulate the speed of the cross auger.
5. The oil goes through the valve ports as shown in. Figure 316
6. The valve does not have a relief valve in the system. The combine relief for the reel drive provides the protection.

7. To test the system, check the amount of oil flow into the “IN” side of the valve. This should be done with the combine reel drive in the manual mode so oil is always provided during testing.
8. If there is flow at this point then the flow should be checked at the CF port on the valve. If oil is flowing at this point then the issue is either with the hydraulic motor or the auger is binding and not able to turn.
9. If there is an issue with the reel then check the flow out of the “EX” port on the valve

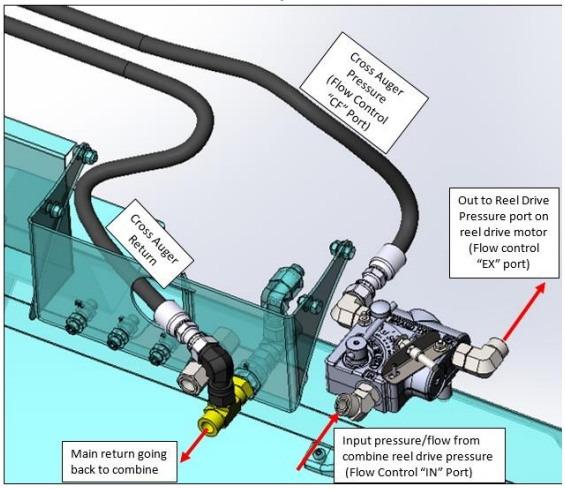


Figure 315

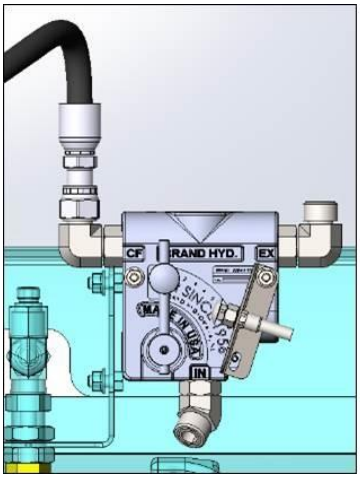


Figure 316

15. Options

15.1. Skid Shoes

1. The optional skid shoes provide extra protection for the header when harvesting crop. See **section 13** for more information. The skid shoes are adjustable from 2-4". The skid shoes are attached to each of the paddles. The shoes will slide over the front of the paddle and be attached to the rear with a bolt. The skid shoes can be adjusted by changing the mounting holes for either a 2", 3", or 4" cut height
2. The skid shoes are used when the header is being used in the rigid position.
3. There are skid shoe extensions that can be used to gain more height for the cutterbar. Figure 317

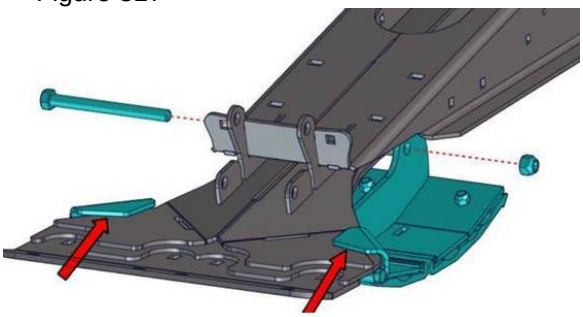


Figure 317

15.2. Terrace Kit

The terrace kit is used when the header is being used in the flex mode on terrace ground

1. The terrace kits include UHMW plastic on the rear of the cutterbar Figure 318. This plastic skid plate keeps material from coming up under the cutterbar when the header is operating on a terrace.
2. The terrace shoe kit includes
    a. Two shoes for 25' headers
    b. Five shoes for 30' and 36' headers
    c. Seven for 40'through50'
3. The plastic plate is secured to the rear of the cutterbar.at each outside strut.
4. Each plate is mounted to the cutterbar with four 3/8"X1" bolts and locknuts, Figure 318

Figure 318

5. The terrace kit also includes a skid shoe that is mounted on the outside strut
6. This shoe will help the ends of the cutterbar float over the terraces or any uneven ground.
7. Just the end skid shoe can be ordered without the center plastic plates. Figure 319
8. The end skid shoe is retained to the end strut with two 3/8"X1" carriage bolts, nuts and a one ½" Cap-screw with lock nuts in the front of the shoe.
9. One ½"X4 1/2" cap-screw in the rear of the shoe.

Figure 319

15.4. Header Tilt Options

The optional top link/tilt cylinder joins the header to the subframe and adjusts the forward angle of the table. This directly affects the angle of the cutter bar.

⚠ WARNING!

Engage the Parking Brake, shut down the engine and wait for all moving parts to stop before exiting the cab.

⚠ DANGER!

DO NOT EXTEND THE TILT CYLINDER BEYOND 48.1 cm-19.25") OR THE HEADER WILL UNEXPECTEDLY DROP FROM THE SUBFRAME.

1. To adjust the top link: Loosen the lock tab on the top link.
2. Adjust the length of the top link by turning the link clockwise to tilt the header back.
3. Turn the link counter-clockwise to tilt the header forward.
4. Retighten the lock tab once the desired header angle is reached. Failure to tighten the lock tab will allow the head to tilt during operation.
5. When adjusting the manual tilt cylinder do not exceed the range shown in the illustration below.

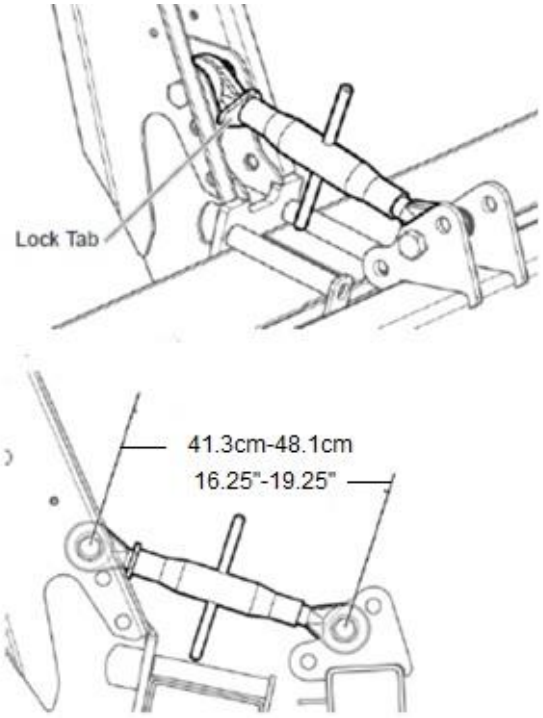


Figure 320

1. Hydraulic Tilt Option. A cylinder is installed in the center of the header and is controlled by the AX Lite box in the cab to energize a solenoid to divert oil from the fore/aft cylinders to the tilt cylinder. Figure 321

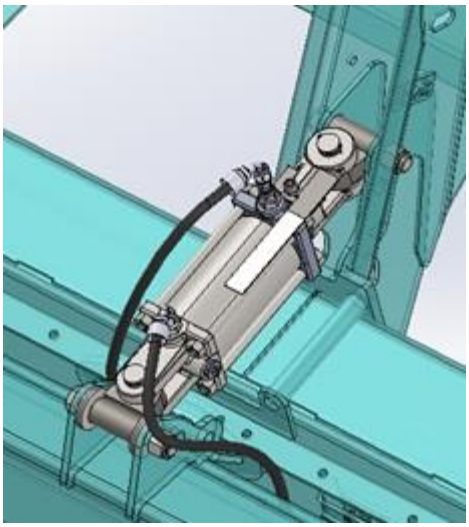


Figure 321

2. See section 9 of this manual for diagnostic information.

15.5. Narrow Reel Finger Spacing

The option for Narrow reel finger spacing is available on the header. The narrow spacing will help in short or thin crops This will change every other reel bat from 4.25” tine spacing to 1.75” tine spacing. This will give you a 2.5” spacing between the tips of the tines. Figure 322

Figure 322

1. The narrow spacing of the fingers can be installed on any reel on the SDX.
2. The extra fingers can be installed on every other bat. First remove the long spacer between the fingers. The spacer can be removed by using a needle nose vice-grips and pulling out the spacer.

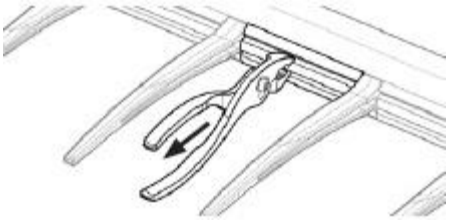


Figure 323

3. Once the 4.25” spacer is removed replace the spacer with a 1.75” spacer and add the extra tine by installing the extra tine in the bat by turning it ¼ turn. Continue this process over the remaining portion of the bat. Figure 324

Figure 324

15.6. The Cam Reel

If you have bushy crops like peas, inconsistent feeding can stall or plug your feeder house. The cam reel is more aggressive and helps deliver the crop from the cutterbar to draper belt.

Figure 325

15.7. Cross-Auger

A cross-auger is available to the header to help move a fluffy crop across the back of the header to the center draper.

1. The auger is driven with the oil from the reel drive. Figure 326
2. A control valve is mounted above the hydraulic manifold. This valve can be used to control the speed of the auger.
3. This valve will divert some of the oil from the reel drive to the cross auger. The flow of the oil will be provided by the combine.
4. The check valve on the cross-auger control valve will assist when the header is reversed. The check valve will stop the flow of oil from the cross-auger and divert the oil so the reel will run in reverse with the header. Note: MY2019 and above. Figure 327
5. When the cross-auger is installed the header must have the standard back panels installed.

Figure 326

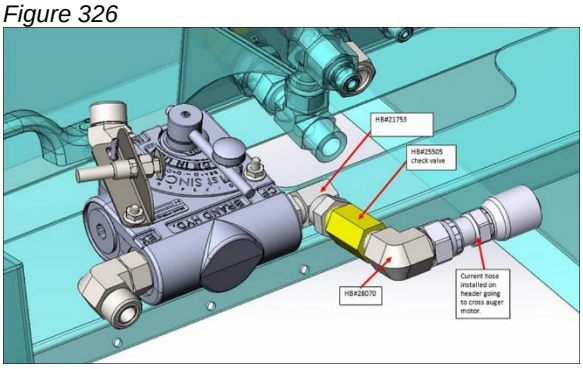


Figure 327

15.8. Back Panel

There are two style of back panels available that are installed behind the draper belt

1. The draper panel is a curved panel above the draper belt. This curved panel will help feed the crop to the center draper belt if the crop is light and moves up the panel. This panel does obstruct the view of the draper belt. Figure 328

Figure 328

2. The standard back panel is an option for a straight panel. In most standard crops it will keep material flowing to the center draper without bunching. Figure 329

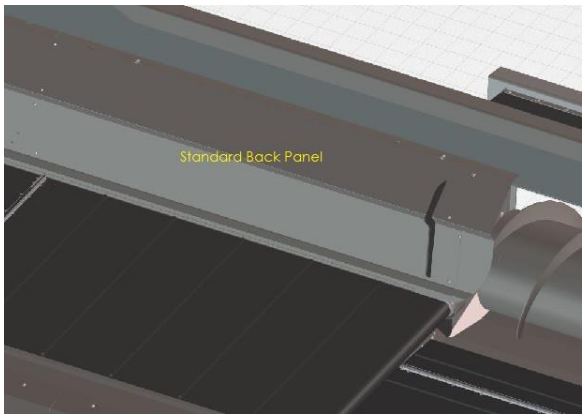


Figure 329

16. Specifications

Important Torque Specification	Torque Spec (Ft.lbs)	Torque Spec (NM)	Use Red Loctite
AirBag Mounting bolts	15-20 Ft. lbs.	20-27Nm	No
Bell Crank Nuts	765 Ft. Lbs.	1037Nm	No
Knife Head Bolts	170 Ft. Lbs	203 Nm	Yes
Tie Rod Clamp Bolts	100 Ft. Lbs	135Nm	Yes
Tie Rod Nut	230 Ft. Lbs.	311Nm	Yes
Connecting Rod Carriage Bolts	68 Ft. Lbs	92Nm	Yes
Guard Bolt Model Year 2021 and below	40 Ft. Lbs	54Nm	No
Guard Bolt Model year 2022 and Above The nuts will be a full-size nut	47 Ft Lbs	64Nm	No
Drive Paddle Mounting bolts	200 Ft. Lbs	271NM	Yes
Rear Bearing Clamp Bolts	120 Ft. Lbs	163Nm	Yes
Rear Bearing Center Bolt	315 Ft. Lbs	427Nm	Yes
Flywheel Drive Hub RH side	38 Ft. Lbs	52Nm	Yes
Flywheel drive Hub LH Side	28 Ft.Lbs	38Nm	Yes
Auger Spider Mounting Bolts	23 Ft.Lbs	31Nm	Yes
Connecting Rod Bearing Hub	23 Ft.Lbs	31Nm	Yes
End Shield bolts	16 ft.lbs	21Nm	No
Center Reel Tower Clamp Bolts **Note: the clamp bolts must be Grade 8 Bolts**	280 ft. lbs	380Nm	Yes

Note: Use Red Loctite #262 where noted. This Loctite will begin to cure in about 30 minutes and be fully cured in 24 hours.

This Loctite will break loose at a lower temperature should disassembly be required. This is the same Loctite that is used in the plant

16.1. Belt Adjustment Guide

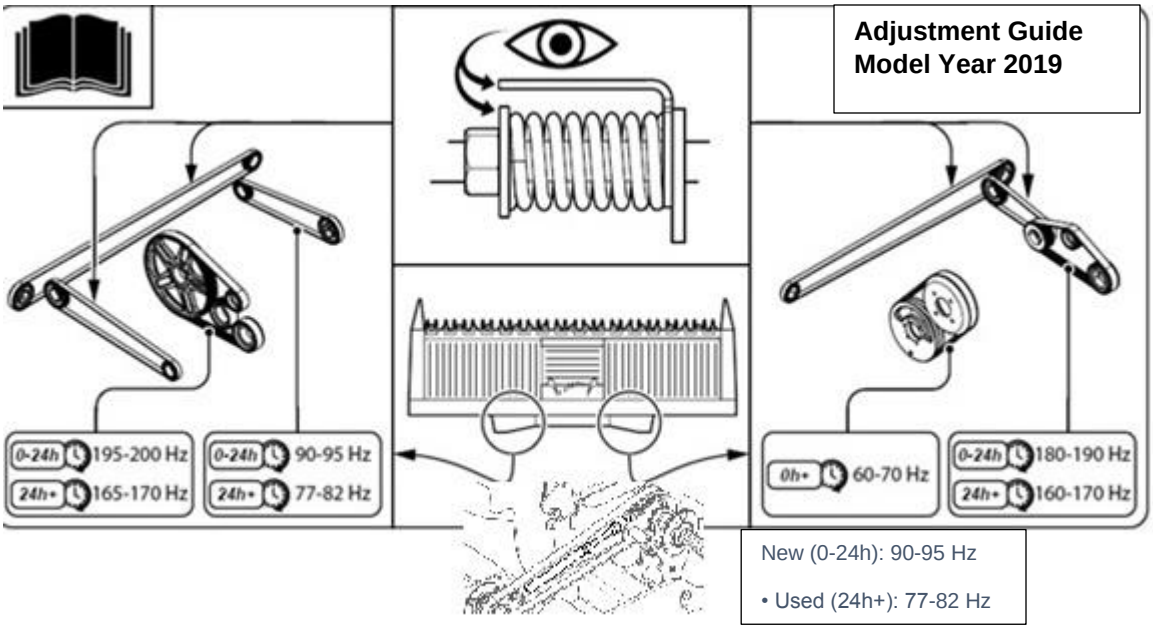


Figure 330

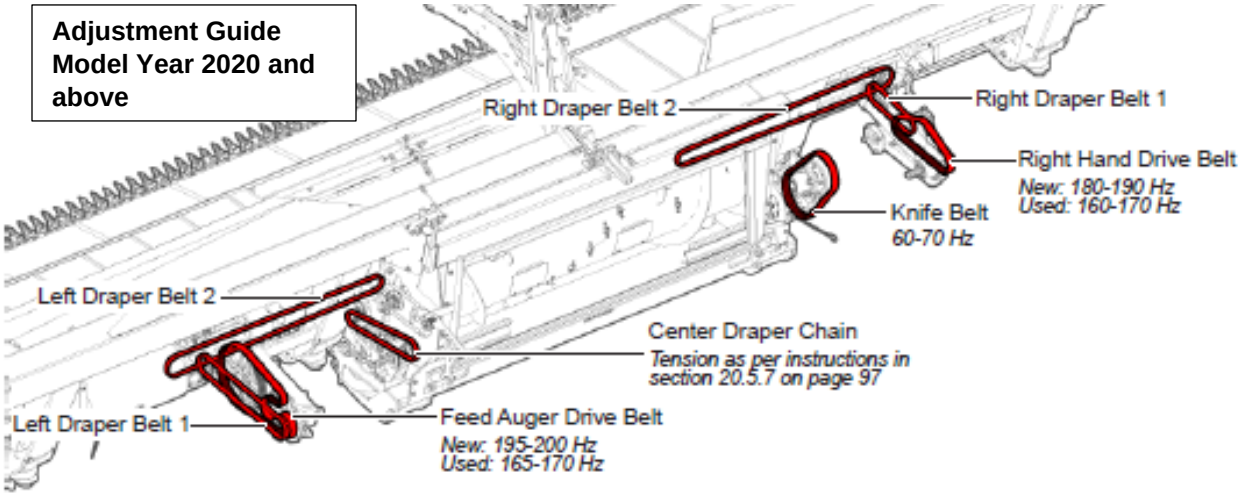


Figure 331

16.2. Lubrication Guide

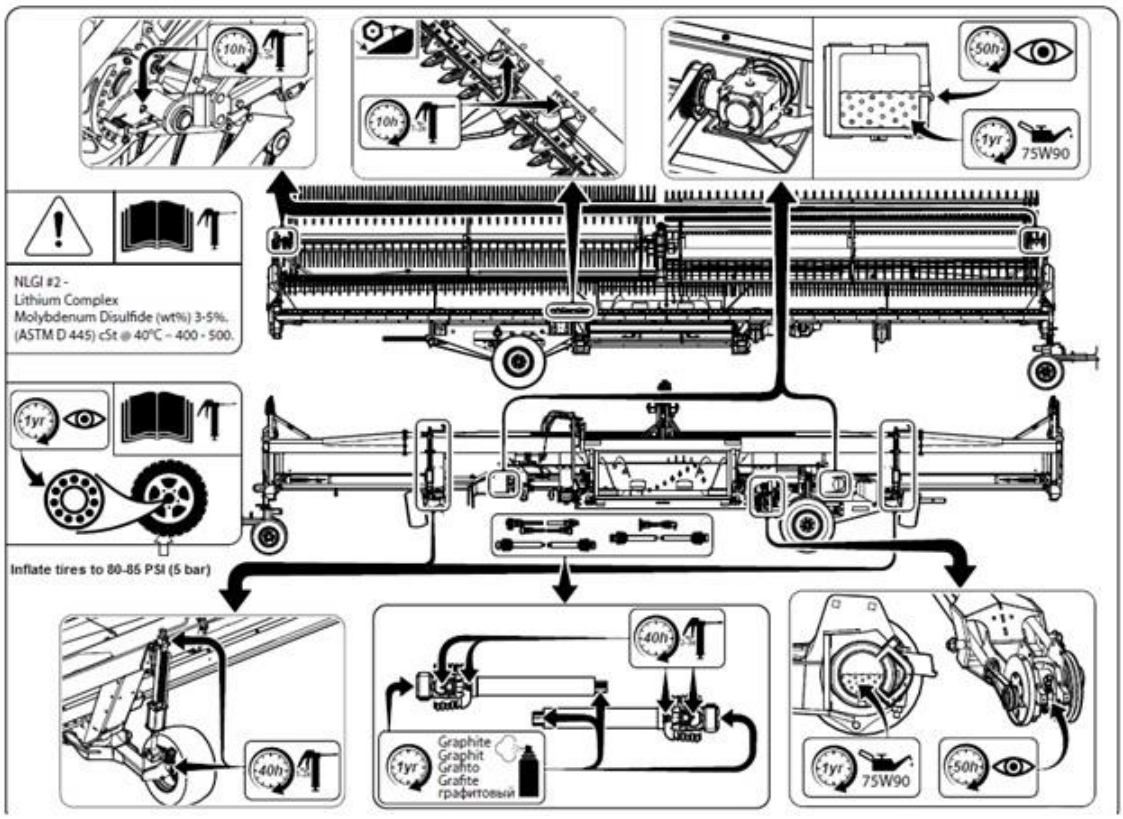


Figure 332

16.3. Drive Paddle Assembly Information

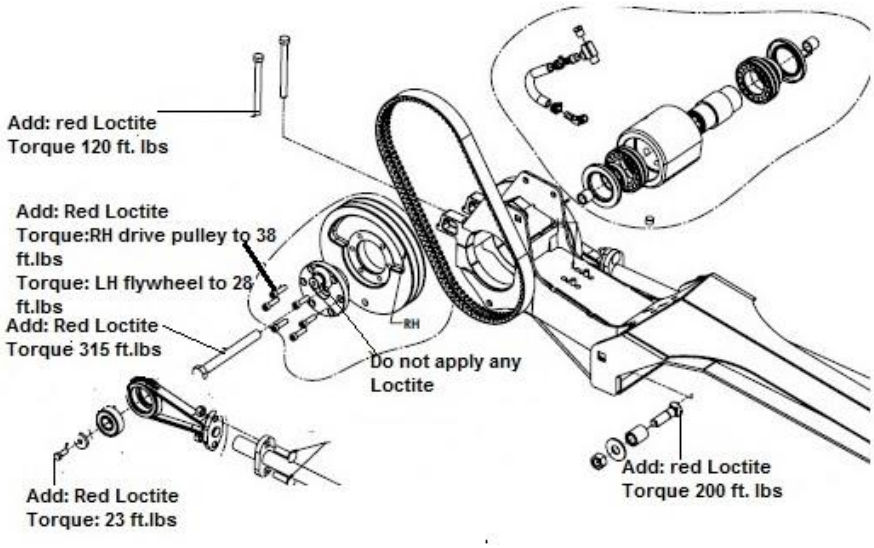


Figure 333

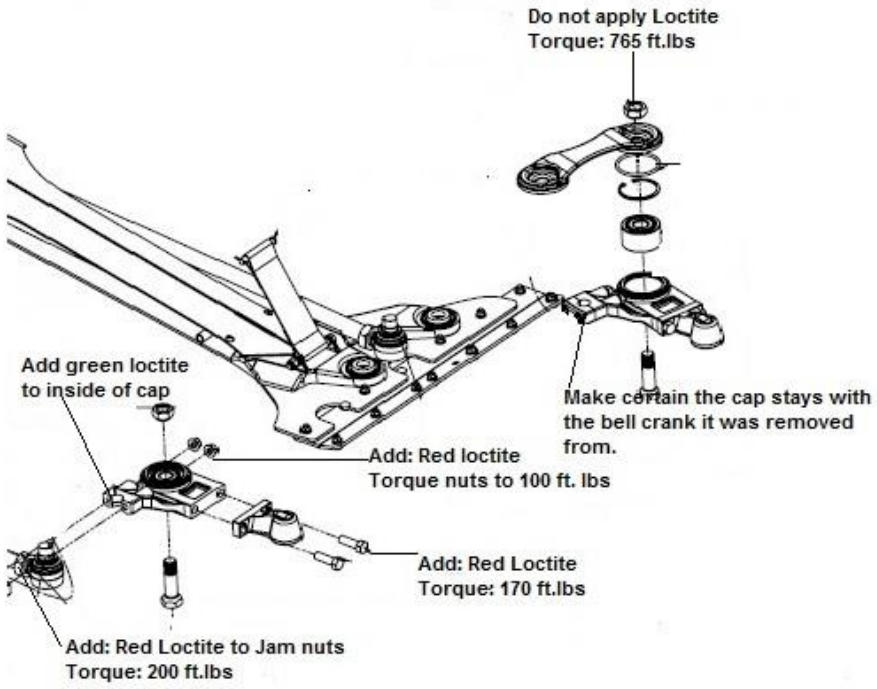

Do not apply Loctite
Torque: 765 ft.lbs
Add green loctite
to inside of cap
Make certain the cap stays with
the bell crank it was removed
from.
Add: Red loctite
Torque nuts to 100 ft. lbs
Add: Red Loctite
Torque: 170 ft.lbs
Add: Red Loctite to Jam nuts
Torque: 200 ft.lbs

Figure 334

16.4. Air Bag Position Charts

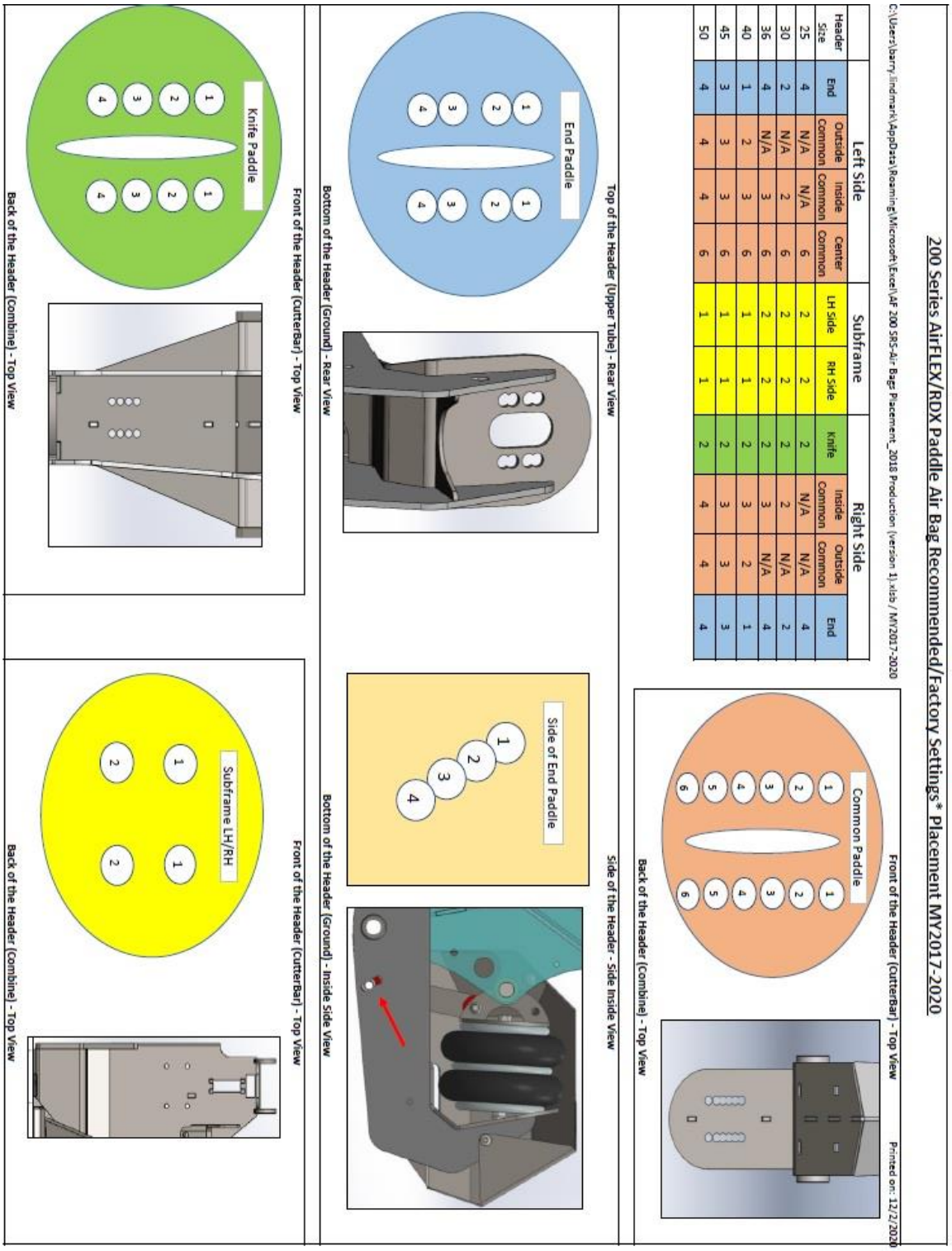


Figure 335

200 Series AirFLEX/RDX Paddle Air Bag Recommended/Factory Settings* Placement MY2021
C:\Users\barry.lindmark\AppData\Roaming\Microsoft\Excel\AF 200 SRS-Air Bags Placement_2018 Production (version 1).xlsb / MY2021
Printed on: 12/2/2021
Left Side
Subframe
Right Side
Header Size
End
Outside Common
Inside Common
Center Common
LH Side
RH Side
Knife
Inside Common
Outside Common
End
25 4 N/A N/A 6 6 6 2 N/A N/A 4
30 2 N/A 2 6 6 6 2 2 N/A 2
36 4 N/A 3 6 6 6 2 3 N/A 4
40 1 2 3 6 1 1 2 3 2 1
45 3 3 3 6 1 1 2 3 3 3
50 4 4 4 6 1 1 2 4 4 4
Front of the Header (CutterBar) - Top View
Common Paddle
Back of the Header (Combine) - Top View
Top of the Header (Upper Tube) - Rear View
End Paddle
Side of the Header - Side Inside View
Side of End Paddle
Bottom of the Header (Ground) - Rear View
Bottom of the Header (Ground) - Inside Side View
Front of the Header (CutterBar) - Top View
Knife Paddle
Back of the Header (Combine) - Top View
Front of the Header (CutterBar) - Top View
Subframe LH/RH
Back of the Header (Combine) - Top View

Figure 336

16.5. Pulley Size Information

16.5.1. Model Year 2019 and above Right-Hand Drive Pulleys

Combine		Rear pulley (Item #1)	Pulley PN (Item #1)	Front Knife Drive Pulley (Item #2)	Pulley PN (Item #2)	Front Draper Drive Pulley (Item #3)	Idler Tensioner Bolt
AGCO		50T	101448	50T	101448	32T 101452	4.5" 29080
Lexion		45T	101447	56T	101450	32T 101452	4.5" 29080
CNH		50T	101448	47T	203059	32T 101452	3.5" 29085
JD 490		56T	101450	45T	101447	32T 101452	4.5" 29080
JD 520		56T	101450	47T	203059	32T 101452	4.5" 29080
Rostselmash		50T	101448	45T	101447	32T 101452	3.5" 29085

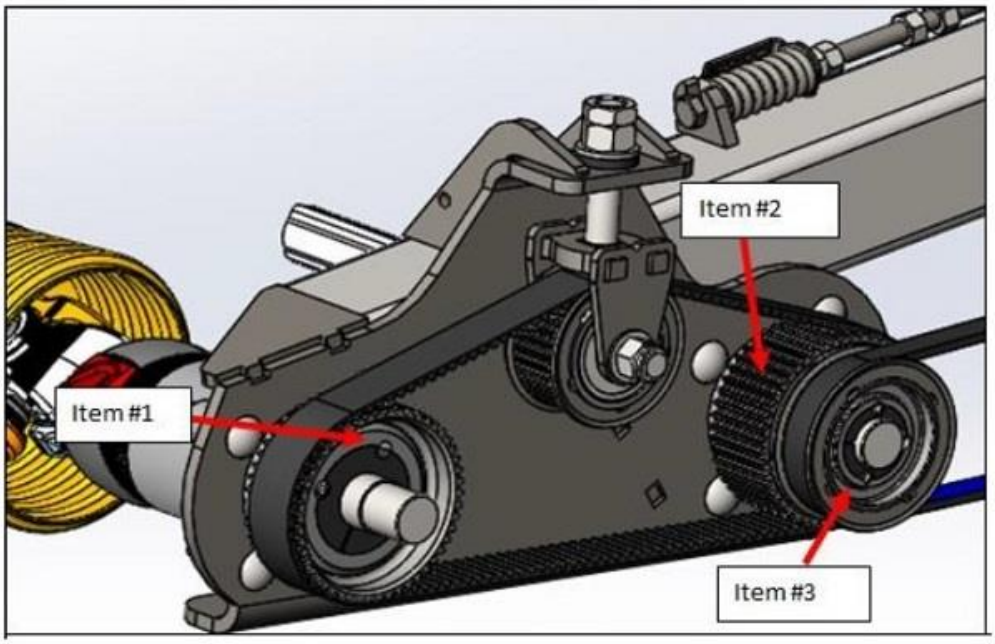


Figure 337

16.5.2. Model Year 2019 and above Left-Hand Auger Drive

Combine	Auger Drive Pulley (Item #4)	Pulley PN (Item #4)	Rear draper drive Pulley (Item #5)	Pulley PN (Item #5)	Front draper drive Pulley (Item #6)	Pulley PN (Item #6)
AGCO	45T	101447	32T	101452	45T	101454
Lexion	40T	101445	32T	101452	53T	101455
CNH	50T	101448	32T	101452	45T	101454
JD 490/520	56T	101450	40T	101453	45T	101454
Rostselmash	56T	101450	40T	101453	45T	101454

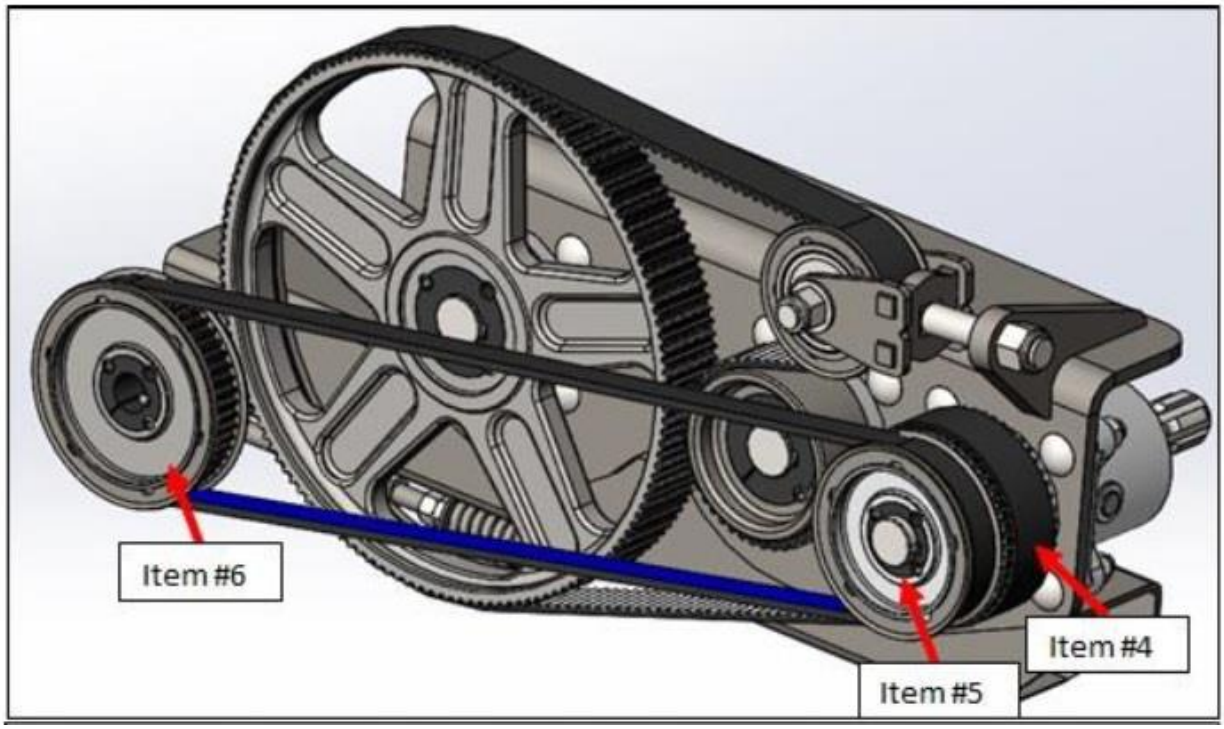
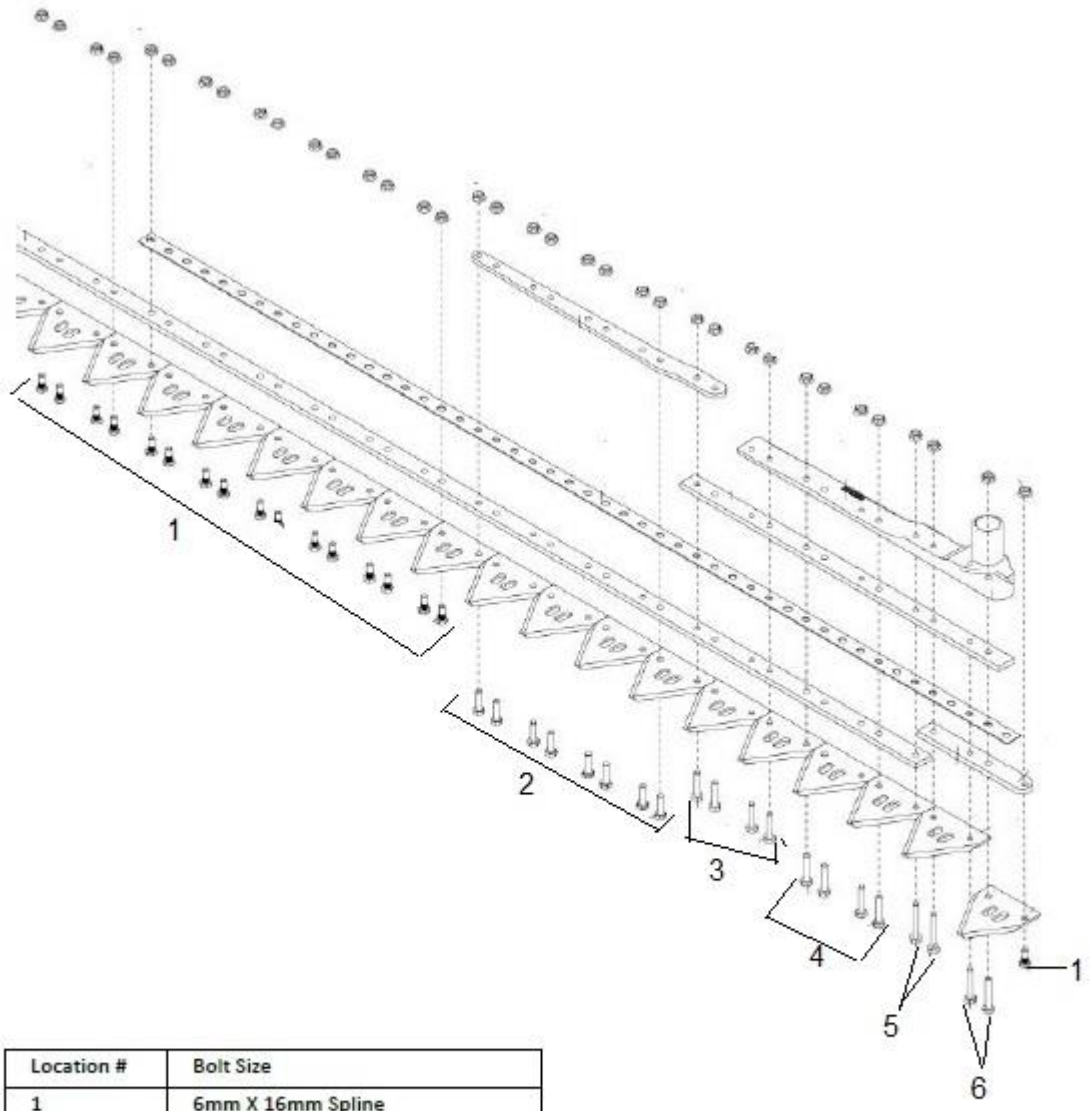


Figure 338

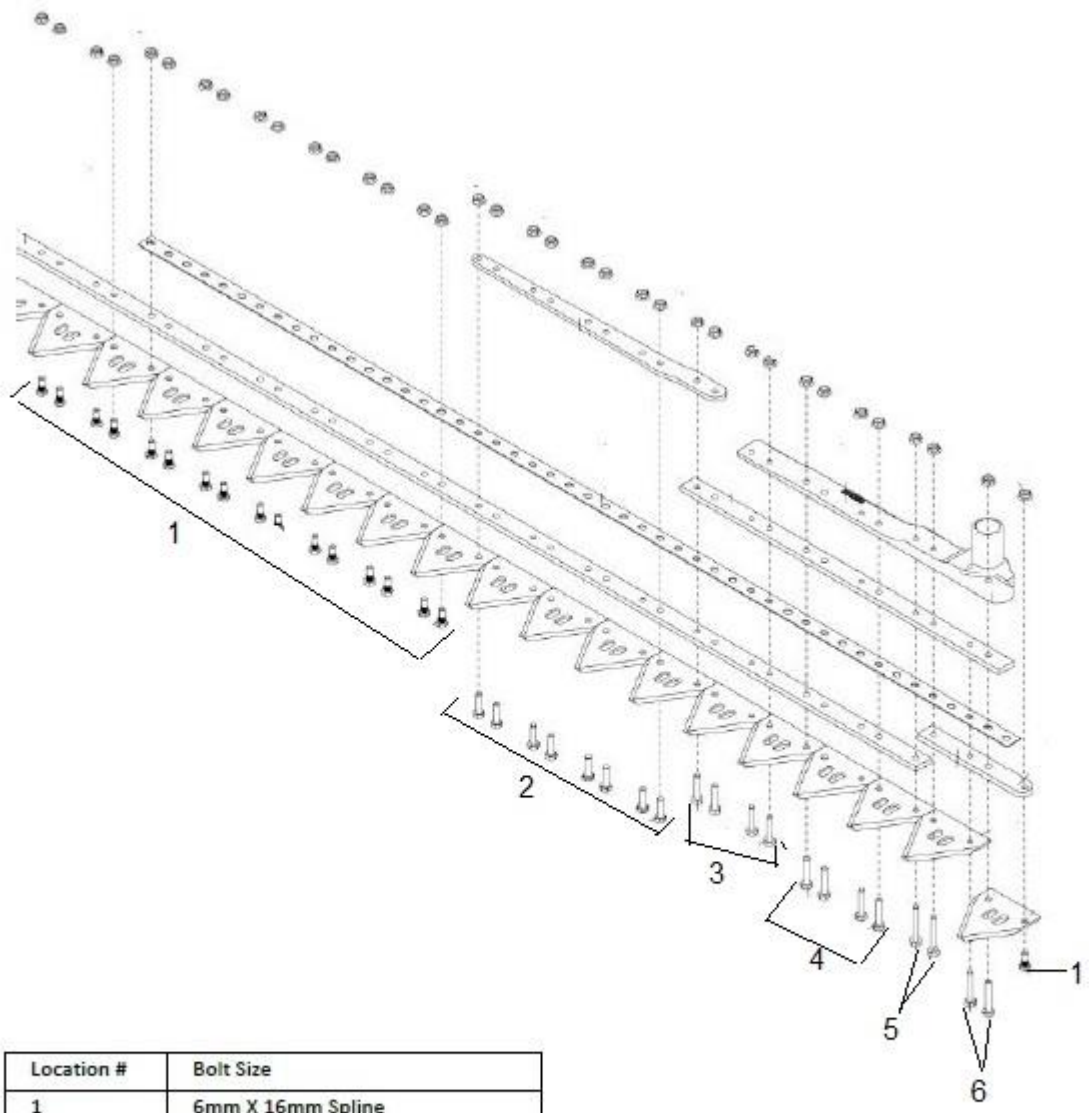
16.5.3. Low Profile Left-Hand Knife



Location #	Bolt Size
1	6mm X 16mm Spline
2	6mm X 22mm CL10.9 Bolt
3	6mm X 28mm CL 8.8 Loctite
4	6mm X 30mm CL 10.9
5	6mm X 40mm CL8.8
6	6mm X 35mm CL10.9

Figure 339

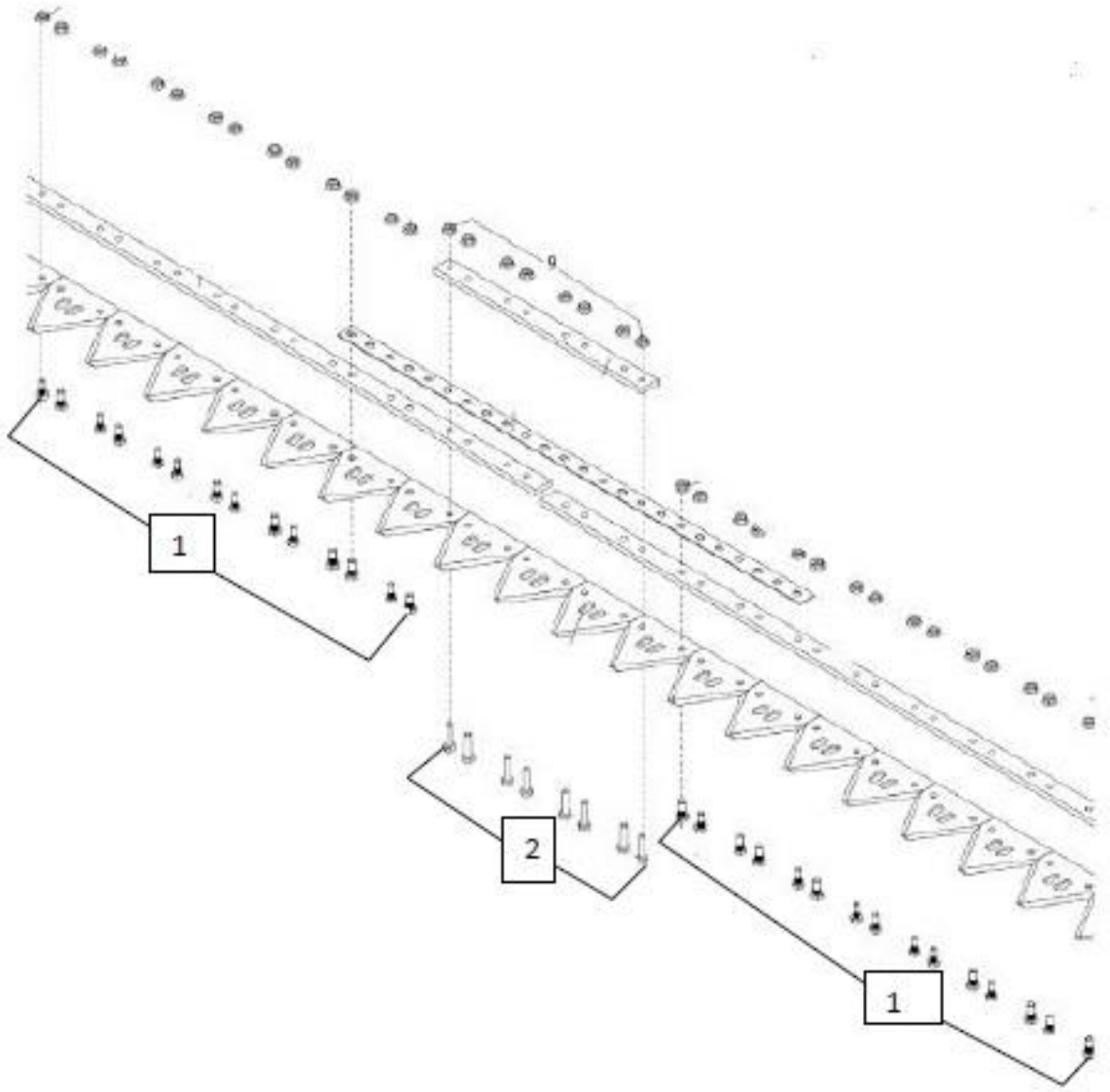
16.5.4. Low Profile Right-Hand Knife



Location #	Bolt Size
1	6mm X 16mm Spline
2	6mm X 22mm CL10.9 Bolt
3	6mm X 28mm CL 8.8 Loctite
4	6mm X 30mm CL 10.9
5	6mm X 40mm CL8.8
6	6mm X 35mm CL10.9

Figure 340

16.5.5. Knife Connector Joint Information for Both Standard and Low-Profile Knives



Location #	Bolt Size
1	6mm X 16mm Spline
2	6mm X 25mm CL 10.9 Bolt

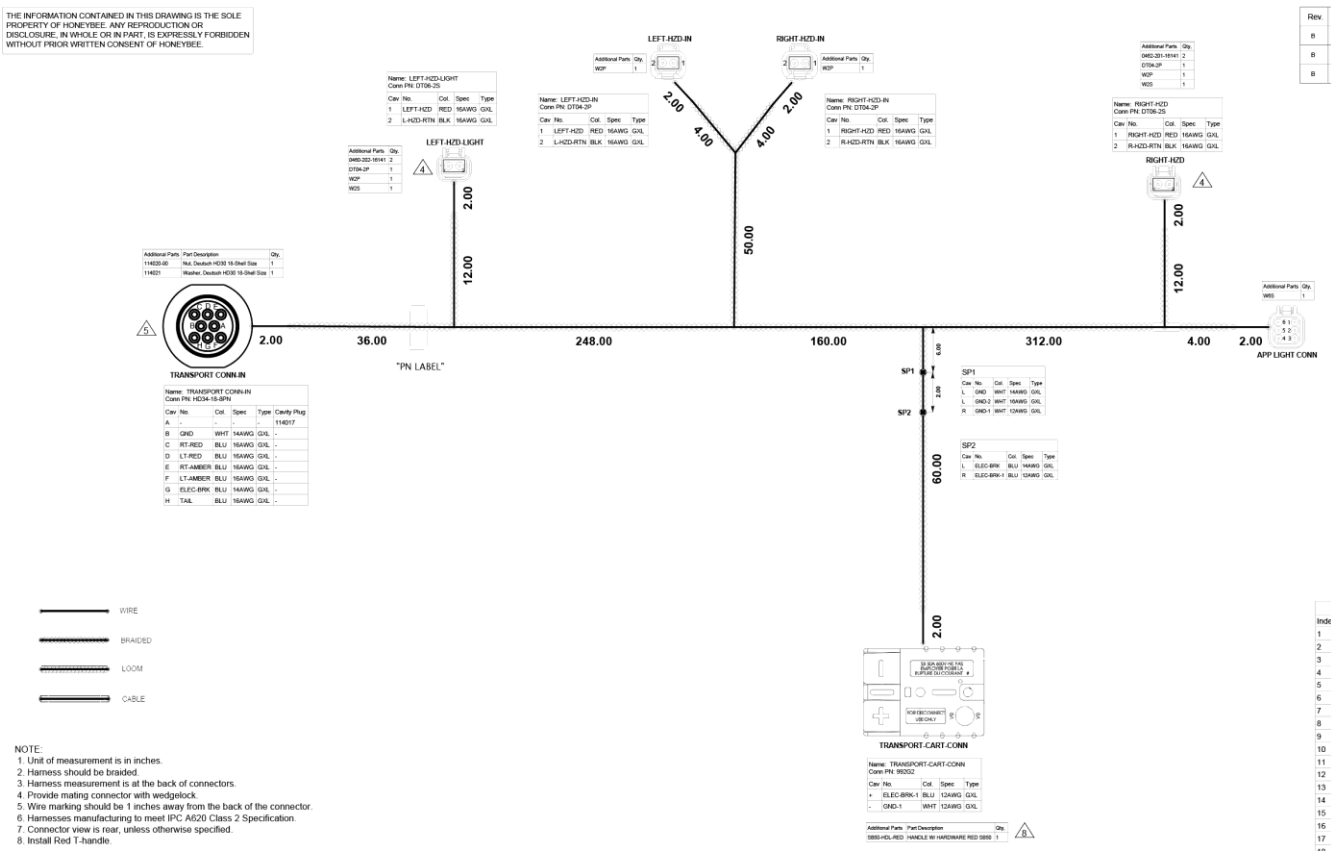
Figure 341

17. Wiring DiagramsWiring Diagrams

17.1. Transport System

17.1.1. Transport Harness

Rev.	Iss.	Description	By	Appd	Date
B	1	Rev up. Changed DT 8 pin connector to HD and DTP to anderson connector.	R.TAHIMIC	D.COOK	
B	2	Add Red T-handle to Anderson connector.	R.TAHIMIC	D.COOK	
B	3	Changed terminal gender of HD connector to pin.	R.TAHIMIC	D.COOK	



WIRE
BRAIDED
LOOM
CABLE

NOTE:
1. Unit of measurement is in inches.
2. Harness should be braided.
3. Harness measurement is at the back of connectors.
4. Provide mating connector with wedgelock.
5. Wire marking should be 1 inches away from the back of the connector.
6. Harnesses manufacturing to meet IPC A620 Class 2 Specification.
7. Connector view is rear, unless otherwise specified.
8. Install Red T-handle.

FROM-TO WIRE LIST

Index	Wire No.	Spec	Col.	From	Cav.	Connector 1	Terminal PN 1	To	Cav.	Connector 2	Terminal PN 2
1	GND-2	16AWG	WHT	APP LIGHT CONN	1	DT06-6S	1062-16-0122	SP1	L	SP-ULTRASONIC	
2	LEFT-HZD	16AWG	RED	LEFT-HZD-IN	1	DT04-2P	1060-16-0122	LEFT-HZD-LIGHT	1	DT06-2S	1062-16-0122
3	L-HZD-RTN	16AWG	BLK	LEFT-HZD-IN	2	DT04-2P	1060-16-0122	LEFT-HZD-LIGHT	2	DT06-2S	1062-16-0122
4	RIGHT-HZD	16AWG	RED	RIGHT-HZD-IN	1	DT04-2P	1060-16-0122	RIGHT-HZD	1	DT06-2S	1062-16-0122
5	R-HZD-RTN	16AWG	BLK	RIGHT-HZD-IN	2	DT04-2P	1060-16-0122	RIGHT-HZD	2	DT06-2S	1062-16-0122
6	GND-1	12AWG	WHT	SP1	R	SP-ULTRASONIC		TRANSPORT-CART-CONN	-	992G2	5953
7	ELEC-BRK-1	12AWG	BLU	SP2	R	SP-ULTRASONIC		TRANSPORT-CART-CONN	+	992G2	5953
8	RT-RED	16AWG	BLU	TRANSPORT CONN-IN	C	HD34-18-8PN	0460-204-12141	APP LIGHT CONN	2	DT06-6S	1062-16-0122
9	LT-RED	16AWG	BLU	TRANSPORT CONN-IN	D	HD34-18-8PN	0460-204-12141	APP LIGHT CONN	3	DT06-6S	1062-16-0122
10	RT-AMBER	16AWG	BLU	TRANSPORT CONN-IN	E	HD34-18-8PN	0460-204-12141	APP LIGHT CONN	4	DT06-6S	1062-16-0122
11	LT-AMBER	16AWG	BLU	TRANSPORT CONN-IN	F	HD34-18-8PN	0460-204-12141	APP LIGHT CONN	5	DT06-6S	1062-16-0122
12	TAIL	16AWG	BLU	TRANSPORT CONN-IN	H	HD34-18-8PN	0460-204-12141	APP LIGHT CONN	6	DT06-6S	1062-16-0122
13	GND	14AWG	WHT	TRANSPORT CONN-IN	B	HD34-18-8PN	0460-204-12141	SP1	L	SP-ULTRASONIC	
14	ELEC-BRK	14AWG	BLU	TRANSPORT CONN-IN	G	HD34-18-8PN	0460-204-12141	SP2	L	SP-ULTRASONIC	

BILL OF MATERIALS

Index	Part Number	Description	Qty/Length	Unit of Measure
1	0460-202-16141	Terminal, Deutsch, Solid Pin 16-20ga	2	Each
2	0460-204-12141	Terminal, Deutsch, Solid Pin 12	7	Each
3	0462-201-16141	Terminal, Deutsch, Solid Socket 16-20 ga	2	Each
4	992G2	ANDERSON CONN, SB50, 2 WAY, BLACK	1	Each
5	1060-16-0122	Terminal, Deutsch, Pin 18-14	4	Each
6	1062-16-0122	Terminal, Deutsch, Socket 18-14	10	Each
7	5953	Term, SB50 Silver Plated, 12-10 AWG	2	Each
8	114017	Cavity Plug, Deutsch 12-16awg	1	Each
9	114020-90	Nut, Deutsch HD30 18-Shell Size	1	Each
10	114021	Washer, Deutsch HD30 18-Shell Size	1	Each
11	DT04-2P	Connector, Receptacle, Deutsch, 2-Way Pi	4	Each
12	DT06-2S	Connector, Plug, Deutsch, 2-Way Soc	2	Each
13	DT06-6S	Connector, Plug, Deutsch, 6-Way Soc	1	Each
14	HD34-18-8PN	Deutsch-HD, Receptacle, 8-way Socket	1	Each
15	SB50-HDL-RED	HANDLE W/ HARDWARE RED SB50	1	Each
16	SP-ULTRASONIC	SPLICE,ULTRASONIC	2	Each
17	W2P	Wedge Lock, 2-way Receptacle, Deutsch	4	Each
18	W2S	Wedge Lock, 2-way Plug, Deutsch	2	Each
19	W6S	Wedge Lock, 6-way Plug, Deutsch	1	Each
20	GXL_12AWG_BLU	GXL 12awg, Blue	55	Per Length
21	GXL_12AWG_WHT	GXL 12awg, White	57	Per Length
22	GXL_14AWG_BLU	GXL 14awg, Blue	455	Per Length
23	GXL_14AWG_WHT	GXL 14awg, White	453	Per Length
24	GXL_16AWG_BLK	GXL 16awg, Black	864	Per Length
25	GXL_16AWG_BLU	GXL 16awg, Blue	3830	Per Length
26	GXL_16AWG_RED	GXL 16awg, Red	864	Per Length
27	GXL_16AWG_WHT	GXL 16awg, White	325	Per Length
28	VN-4000S	Yarn, Vinyl coated nylon, .040"Dia	0	Per Length

JCA Electronics Industries
116 KING EDWARD ST. S, WINNIPEG MANITOBA, CANADA R2H 0N8

	NAME	DATE (YYYY-MM-DD)
Drawn by:	R.TAHIMIC	2016-12-09
Checked by:	D.COOK	
Approved by:	D.COOK	
Customer Approval:		

Description: HONEYBEE
Airflex, Common Transport Harness-B

Drawing No.	Part No.	Rev.	Iss.
JCA17-000135-10	JCA17-000135	B	3
Scale: NTS		Sheet 1 of 1	

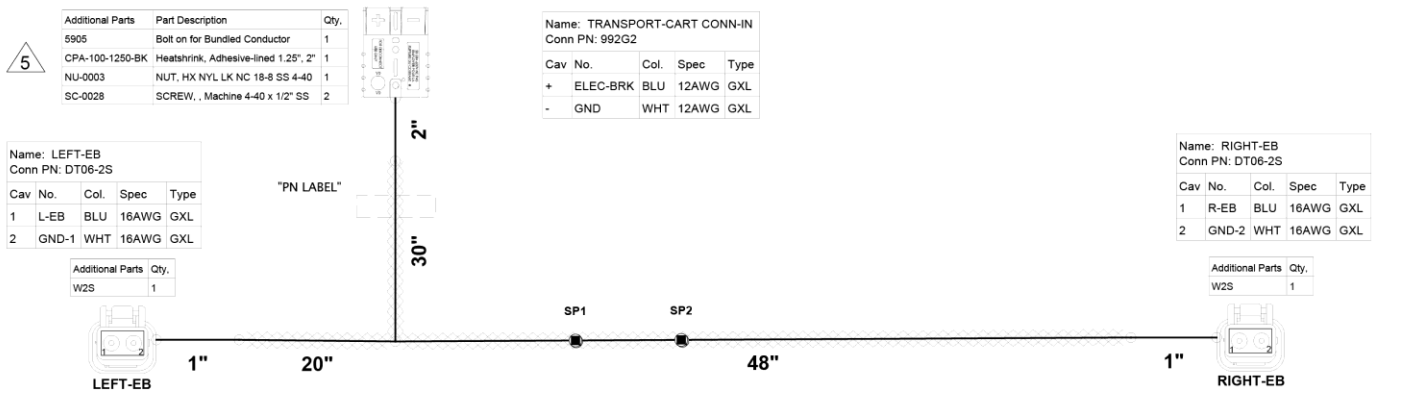
Rev.	Iss.	Description	By	Appd	Date
C	3	Changed length from 48" to 30".	R.TAHIMIC	D.COOK	
C	4	See note # 5. Replace self cutting screw of anderson connector clamp.	R.TAHIMIC	D.COOK	
D	1	Rev up. Changed splice to DT connector.	R.TAHIMIC	D.COOK	

TRANSPORT-CART CONN-IN

Additional Parts	Part Description	Qty.
5905	Bolt on for Bundled Conductor	1
CPA-100-1250-BK	Heatshrink, Adhesive-lined 1.25", 2"	1
NU-0003	NUT, HX NYL LK NC 18-8 SS 4-40	1
SC-0028	SCREW, , Machine 4-40 x 1/2" SS	2

Name: TRANSPORT-CART CONN-IN
Conn PN: 992G2

Cav	No.	Col.	Spec	Type
+	ELEC-BRK	BLU	12AWG	GXL
-	GND	WHT	12AWG	GXL



Name: LEFT-EB
Conn PN: DT06-2S

Cav	No.	Col.	Spec	Type
1	L-EB	BLU	16AWG	GXL
2	GND-1	WHT	16AWG	GXL

Additional Parts	Qty.
W2S	1

Name: RIGHT-EB
Conn PN: DT06-2S

Cav	No.	Col.	Spec	Type
1	R-EB	BLU	16AWG	GXL
2	GND-2	WHT	16AWG	GXL

Additional Parts	Qty.
W2S	1

SP1

Cav	No.	Col.	Spec	Type
L	GND	WHT	12AWG	GXL
L	GND-1	WHT	16AWG	GXL
R	GND-2	WHT	16AWG	GXL

SP2

Cav	No.	Col.	Spec	Type
L	ELEC-BRK	BLU	12AWG	GXL
L	L-EB	BLU	16AWG	GXL
R	R-EB	BLU	16AWG	GXL

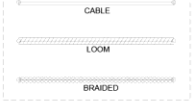
BILL OF MATERIALS

Index	Part Number	Description	Qty/Length	Unit of Measure
1	0462-201-16141	Terminal, Deutsch, Solid Socket 16-20 ga	4	Each
2	992G2	ANDERSON CONN, SB50, 2 WAY, BLACK	1	Each
3	5905	Bolt on for Bundled Conductor	1	Each
4	5953	Term, SB50 Silver Plated, 12-10 AWG	2	Each
5	CPA-100-1250-BK	Heatshrink, Adhesive-lined 1.25", BLK	1	Each
6	DT06-2S	Connector, Plug, Deutsch, 2-Way Soc	2	Each
7	NU-0003	NUT, HX NYL LK NC 18-8 SS 4-40	1	Each
8	SC-0028	SCREW, , Machine 4-40 x 1/2" SS	2	Each
9	SP-ULTRASONIC	SPLICE,ULTRASONIC	2	Each
10	W2S	Wedge Lock, 2-way Plug, Deutsch	2	Each
11	GXL_12AWG_BLU	GXL 12awg, Blue	41	Per Length
12	GXL_12AWG_WHT	GXL 12awg, White	39	Per Length
13	GXL_16AWG_BLU	GXL 16awg, Blue	72	Per Length
14	GXL_16AWG_WHT	GXL 16awg, White	72	Per Length

NOTE:
1. Unit of measurement in inches.
2. Install butt splices.
3. Harness is braided.
4. Install dust cap.
5. Install cable clamp PN:5905. Replace the 2 self cutting screw with SC-0028 and NU-0003. Apply heatshrink over strain relief and connector plug.

FROM-TO WIRE LIST

Index	Wire No.	Spec	Col.	From	Cav.	Connector 1	Terminal PN 1	To	Cav.	Connector 2	Terminal PN 2
1	L-EB	16AWG	BLU	LEFT-EB	1	DT06-2S	0462-201-16141	SP2	L	SP-ULTRASONIC	
2	R-EB	16AWG	BLU	RIGHT-EB	1	DT06-2S	0462-201-16141	SP2	R	SP-ULTRASONIC	
3	GND-1	16AWG	WHT	SP1	L	SP-ULTRASONIC		LEFT-EB	2	DT06-2S	0462-201-16141
4	GND-2	16AWG	WHT	SP1	R	SP-ULTRASONIC		RIGHT-EB	2	DT06-2S	0462-201-16141
5	GND	12AWG	WHT	TRANSPORT-CART CONN-IN	-	992G2	5953	SP1	L	SP-ULTRASONIC	
6	ELEC-BRK	12AWG	BLU	TRANSPORT-CART CONN-IN	+	992G2	5953	SP2	L	SP-ULTRASONIC	



JCA Electronics Industries
115 KING EDWARD ST. E. WINNIPEG MANITOBA, CANADA R2H 0N6

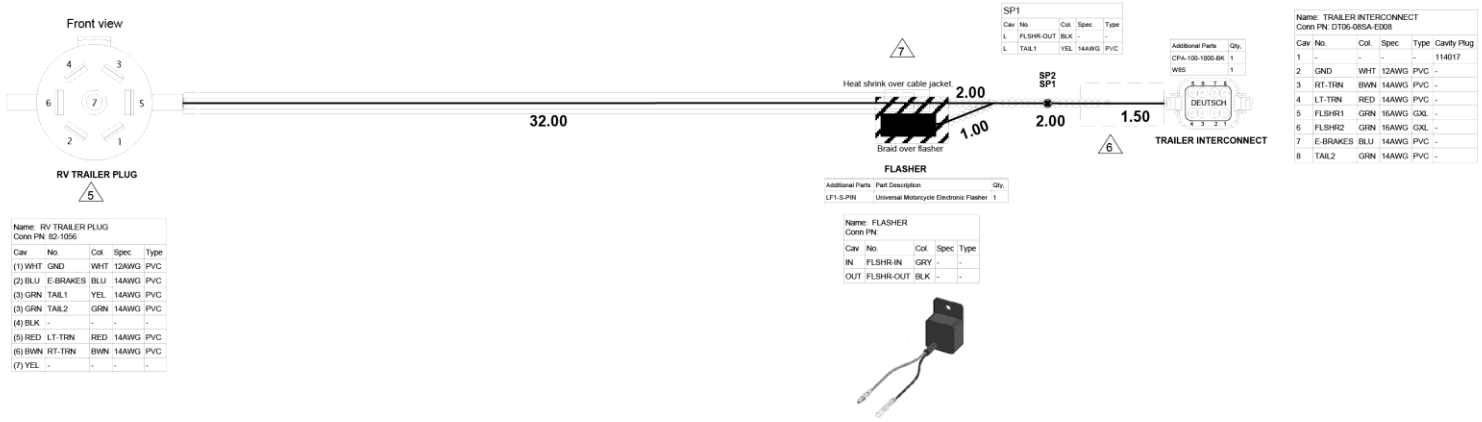
Description: HONEYBEE
Airflex, Transport Cart Harness

	NAME	DATE (YYYY-MM-DD)
Drawn by:	R.TAHIMIC	2017-11-29
Checked by:	D.COOK	
Approved by:	D.COOK	
Cust. Approval:		

Drawing No.: JCA17-000137-10
Part No.: JCA17-000137
Rev.: D
Iss.: 1
Scale: NTS
Sheet: 1 of 1

RV Plug

Rev.	Iss.	Description	By	Appd	Date
C	1	Rev up. Integrate flasher. Short version.	R.TAHIMIC	D.COOK	
C	2	Add note 7. Braid over the flasher module.	R.TAHIMIC	D.COOK	
D	1	Rev up. Changed flasher module.	R.TAHIMIC	D.COOK	



SP2

Cav	No.	Col.	Spec	Type
L	FLSHR-IN	GRY	-	-
R	FLSHR1	GRN	16AWG	GXL
R	FLSHR2	GRN	16AWG	GXL

SP1

Cav	No.	Col.	Spec	Type
L	FLSHR-OUT	BLK	-	-
L	TAIL1	YEL	14AWG	PVC

Additional Parts	Qty.
CPA-100-1000-BK	1
W8S	1

Name: TRAILER INTERCONNECT
Conn PN: DT06-08SA-E008

Cav	No.	Col.	Spec	Type	Cavity Plug
1	-	-	-	-	114017
2	GND	WHT	12AWG	PVC	-
3	RT-TRN	BWN	14AWG	PVC	-
4	LT-TRN	RED	14AWG	PVC	-
5	FLSHR1	GRN	16AWG	GXL	-
6	FLSHR2	GRN	16AWG	GXL	-
7	E-BRAKES	BLU	14AWG	PVC	-
8	TAIL2	GRN	14AWG	PVC	-

Name: RV TRAILER PLUG
Conn PN: 82-1056

Cav	No.	Col.	Spec	Type
(1) WHT	GND	WHT	12AWG	PVC
(2) BLU	E-BRAKES	BLU	14AWG	PVC
(3) GRN	TAIL1	YEL	14AWG	PVC
(3) GRN	TAIL2	GRN	14AWG	PVC
(4) BLK	-	-	-	-
(5) RED	LT-TRN	RED	14AWG	PVC
(6) BWN	RT-TRN	BWN	14AWG	PVC
(7) YEL	-	-	-	-

Additional Parts	Part Description	Qty.
LF1-S-PIN	Universal Motorcycle Electronic Flasher	1

Name: FLASHER
Conn PN:

Cav	No.	Col.	Spec	Type
IN	FLSHR-IN	GRY	-	-
OUT	FLSHR-OUT	BLK	-	-

FROM-TO WIRE LIST

Index	Wire No.	Spec	Col.	From	Cav.	Connector 1	Terminal PN 1	To	Cav.	Connector 2	Terminal PN 2
1	*	14AWG	BLK								
2	FLSHR-OUT		BLK	FLASHER	OUT			SP1	L		
3	FLSHR-IN		GRY	FLASHER	IN			SP2	L		
4	TAIL1	14AWG	YEL	RV TRAILER PLUG	(3) GRN	82-1056	19125-0074	SP1	L		
5	GND	12AWG	WHT	RV TRAILER PLUG	(1) WHT	82-1056	19125-0074	TRAILER INTERCONNECT	2	DT06-08SA-E008	
6	E-BRAKES	14AWG	BLU	RV TRAILER PLUG	(2) BLU	82-1056	160234	TRAILER INTERCONNECT	7	DT06-08SA-E008	0462-209-16141
7	TAIL2	14AWG	GRN	RV TRAILER PLUG	(3) GRN	82-1056	*TAIL1	TRAILER INTERCONNECT	8	DT06-08SA-E008	0462-201-16141
8	LT-TRN	14AWG	RED	RV TRAILER PLUG	(5) RED	82-1056	160234	TRAILER INTERCONNECT	4	DT06-08SA-E008	0462-209-16141
9	RT-TRN	14AWG	BWN	RV TRAILER PLUG	(6) BWN	82-1056	160234	TRAILER INTERCONNECT	3	DT06-08SA-E008	0462-209-16141
10	FLSHR1	16AWG	GRN	SP2	R			TRAILER INTERCONNECT	5	DT06-08SA-E008	0462-201-16141
11	FLSHR2	16AWG	GRN	SP2	R			TRAILER INTERCONNECT	6	DT06-08SA-E008	0462-201-16141

Note:
1. Unit of measurement is in inches.
2. Harness is braided.
3. Unless otherwise specified, connector view is back of connector.
4. Use fork terminal PN: 160234 in installing wire to the 7 way trailer connector. Used PN: 19125-0074 to pin 1 and 3.
5. Apply heatshrink.
6. Terminating to meet TE manufacturers specification.
7. Braid over the flasher module. Apply electrical tape to the flasher attach along the harness before braiding.

WIRE
BRAIDED
LOOM
CABLE

BILL OF MATERIALS

Index	Part Number	Description	Qty/Length	Unit of Measure
1	82-1056	Connector, Plug 7-Pole Trailer, RV Style	1	Each
2	0462-201-16141	Terminal, Deutsch, Solid Socket 16-20 ga	3	Each
3	0462-209-16141	Terminal, Deutsch, Solid Socket 14-16 ga	3	Each
4	19125-0074	Fork, #6, 12-10AWG, insul	2	Each
5	114017	Cavity Plug, Deutsch 12-16awg	1	Each
6	160234	FORK, #6, BLUE, 16-14GA, FLANGE	4	Each
7	CPA-100-1000-BK	Heatshrink, Adhesive-lined 1", 2"	1	Each
8	DT06-08SA-E008	Connector, Plug, Deutsch, 8-Way Soc	1	Each
9	LF1-S-PIN	Universal Motorcycle Electronic Flasher	1	Each
10	W8S	Wedge Lock, 8-way Plug, Deutsch	1	Each
11	82-5611	7 CONDUCTOR, TRAILER CABLE	39	Per Length
12	GXL_16AWG_GRN	GXL 16awg, Green	10	Per Length
13	VN-4000S	Yarn, Vinyl coated nylon, .040"Dia	0	Per Length

JCA Electronics Industries
116 KING EDWARD ST. E, WINNIPEG MANITOBA, CANADA R2H 0N6

	NAME	DATE (YYYY-MM-DD)
Drawn by:	R.TAHIMIC	2017-01-24
Checked by:	D.COOK	
Approved by:	D.COOK	
Customer Approval:		

Description: HONEYBEE
Airflex, American RV Drawbar Harness-D

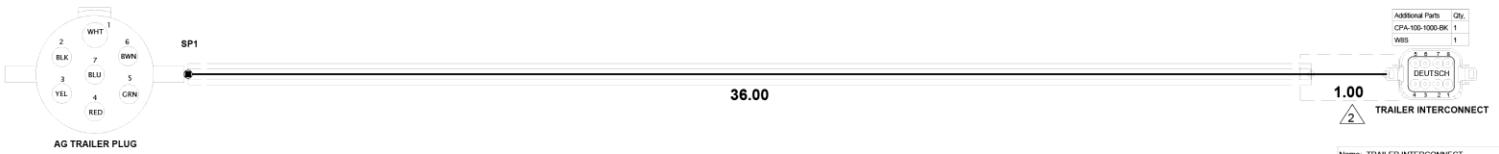
Drawing No.	Part No.	Rev.	Iss.
JCA17-000138-10	JCA17-000138	D	1

Scale: NTS
Sheet: 1 of 1

Ag Plug

Rev.	Iss.	Description	By	Appd	Date
A	5	Add breakaway switch.	R.TAHIMIC	D.COOK	
B	1	Rev up. Delete note that stating to cut the latch of DT connector.	R.TAHIMIC	D.COOK	
C	1	Rev up. Shorten the harness and modified.	R.TAHIMIC	D.COOK	

SP1				
Cav	No.	Col.	Spec	Type
L	L-STOP	BLK	14AWG	PVC
L	R-STOP	RED	14AWG	PVC
R	STOP	RED	14AWG	GXL



Additional Parts	Qty.
CPA-100-1000-BK	1
W8S	1

Name: AG TRAILER PLUG
Conn PN: 82-2140

Cav	No.	Col.	Spec	Type
1-(WHT)	GND	WHT	12AWG	PVC
2-(BLK)	-	-	-	-
3-(YEL)	LT-TURN	YEL	14AWG	PVC
4-(RED)	STOP	RED	14AWG	GXL
5-(GRN)	RT-TURN	GRN	14AWG	PVC
6-(BWN)	TAIL	BWN	14AWG	PVC
7-(BLU)	-	-	-	-

Name: TRAILER INTERCONNECT
Conn PN: DT06-08SA-E008

Cav	No.	Col.	Spec	Type	Cavity Plug
1	-	-	-	-	114017
2	GND	WHT	12AWG	PVC	-
3	R-STOP	RED	14AWG	PVC	-
4	L-STOP	BLK	14AWG	PVC	-
5	LT-TURN	YEL	14AWG	PVC	-
6	RT-TURN	GRN	14AWG	PVC	-
7	-	-	-	-	114017
8	TAIL	BWN	14AWG	PVC	-

WIRE
BRAIDED
LOOM
CABLE

Note:
1. Unit of measurement is in inches.
2. Apply heatshrink.
3. Terminating to meet TE manufacturers specification.
4. Connector view is rear, unless otherwise specified.
5. Install PN label.

FROM-TO WIRE LIST

Index	Wire No.	Spec	Col.	From	Cav.	Connector 1	Terminal PN 1	To	Cav.	Connector 2	Terminal PN 2
1	ELEC-BRK	14AWG	BLU								
2	STOP	14AWG	RED	AG TRAILER PLUG	4-(RED)	82-2140	0186100000	SP1	R	SP-ULTRASONIC	
3	GND	12AWG	WHT	AG TRAILER PLUG	1-(WHT)	82-2140	0373100000	TRAILER INTERCONNECT	2	DT06-08SA-E008	1062-16-1222
4	LT-TURN	14AWG	YEL	AG TRAILER PLUG	3-(YEL)	82-2140	0186100000	TRAILER INTERCONNECT	5	DT06-08SA-E008	0462-209-16141
5	RT-TURN	14AWG	GRN	AG TRAILER PLUG	5-(GRN)	82-2140	0186100000	TRAILER INTERCONNECT	6	DT06-08SA-E008	0462-209-16141
6	TAIL	14AWG	BWN	AG TRAILER PLUG	6-(BWN)	82-2140	0186100000	TRAILER INTERCONNECT	8	DT06-08SA-E008	0462-209-16141
7	R-STOP	14AWG	RED	SP1		L	SP-ULTRASONIC	TRAILER INTERCONNECT	3	DT06-08SA-E008	0462-209-16141
8	L-STOP	14AWG	BLK	SP1		L	SP-ULTRASONIC	TRAILER INTERCONNECT	4	DT06-08SA-E008	0462-209-16141

BILL OF MATERIALS

Index	Part Number	Description	Qty/Length	Unit of Measure
1	82-2140	Plug, 7 way round, AG	1	Each
2	0462-209-16141	Terminal, Deutsch, Solid Socket 14-16 ga	5	Each
3	1062-16-1222	Terminal, Deutsch, Socket 12-16	1	Each
4	114017	Cavity Plug, Deutsch 12-16awg	2	Each
5	0186100000	FERRULE, 14 AWG	4	Each
6	0373100000	FERRULE, 12 AWG	1	Each
7	CPA-100-1000-BK	Heatshrink, Adhesive-lined 1", 2"	1	Each
8	DT06-08SA-E008	Connector, Plug, Deutsch, 8-Way Soc	1	Each
9	SP-ULTRASONIC	SPLICE,ULTRASONIC	1	Each
10	W8S	Wedge Lock, 8-way Plug, Deutsch	1	Each
11	GXL_14AWG_RED	GXL 14awg, Red	4	Per Length

JCA Electronics Industries
119 KING EDWARD ST. S. WINNIPEG MANITOBA, CANADA R2H 0N8

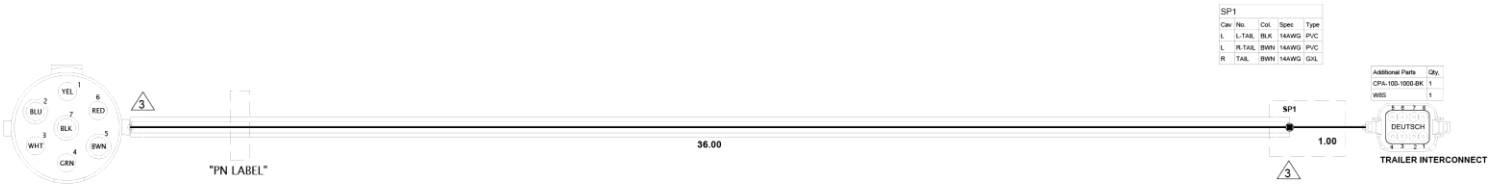
	NAME	DATE (YYYY-MM-DD)
Drawn by:	R.TAHIMIC	2016-11-22
Checked by:	D.COOK	
Approved by:	D.COOK	
Customer Approval:		

Description: HONEYBEE
Airflex, American Truck Drawbar Harness-C

Drawing No.	Part No.	Rev.	Iss.
JCA17-000139-10	JCA17-000139	C	1
	Scale: NTS	Sheet	1 of 1

Euro Plug

Rev.	Iss.	Description	By	Appd	Date
B	1	Rev up. Delete note stating that cut the latch of DT connector.	R.TAHIMIC	D.COOK	
B	2	Change length.	R.TAHIMIC	D.COOK	
C	1	Rev up.	R.TAHIMIC	D.COOK	



SP1

Cav	No.	Col.	Spec	Type
L	L-TAIL	BLK	14AWG	PVC
L	R-TAIL	BWN	14AWG	PVC
R	TAIL	BWN	14AWG	GXL

Additional Parts	Qty.
CPA-100-1000-BK	1
W8S	1

Name: EUROPE TRAILER PLUG
Conn PN: EP01

Cav	No.	Col.	Spec	Type
(1) YEL	LT-TRN	YEL	14AWG	PVC
(2) BLU	-	-	-	-
(3) WHT	GND	WHT	12AWG	PVC
(4) GRN	RT-TRN	GRN	14AWG	PVC
(5) BWN	R-TAIL	BWN	14AWG	PVC
(6) RED	STOP1	RED	14AWG	PVC
(6) RED	STOP2	BLU	14AWG	PVC
(7) BLK	L-TAIL	BLK	14AWG	PVC

Name: TRAILER INTERCONNECT
Conn PN: DT06-08SA-E008

Cav	No.	Col.	Spec	Type	Cavity Plug
1	-	-	-	-	114017
2	GND	WHT	12AWG	PVC	-
3	STOP1	RED	14AWG	PVC	-
4	STOP2	BLU	14AWG	PVC	-
5	RT-TRN	GRN	14AWG	PVC	-
6	LT-TRN	YEL	14AWG	PVC	-
7	-	-	-	-	114017
8	TAIL	BWN	14AWG	GXL	-

WIRE
BRAIDED
LOOM
CABLE

Note:
1. Unit of measurement is in inches.
2. Harness length at the back of connector.
3. Apply heatshrink.
4. Connector view is rear, unless otherwise specified.
5. Install PN label.

FROM-TO WIRE LIST

Index	Wire No.	Spec	Col.	From	Cav.	Connector 1	Terminal PN 1	To	Cav.	Connector 2	Terminal PN 2
1	LT-TRN	14AWG	YEL	EUROPE TRAILER PLUG	(1) YEL	EP01		TRAILER INTERCONNECT	6	DT06-08SA-E008	
2	GND	12AWG	WHT	EUROPE TRAILER PLUG	(3) WHT	EP01		TRAILER INTERCONNECT	2	DT06-08SA-E008	1062-16-1222
3	RT-TRN	14AWG	GRN	EUROPE TRAILER PLUG	(4) GRN	EP01		TRAILER INTERCONNECT	5	DT06-08SA-E008	
4	STOP1	14AWG	RED	EUROPE TRAILER PLUG	(6) RED	EP01		TRAILER INTERCONNECT	3	DT06-08SA-E008	0462-209-16141
5	STOP2	14AWG	BLU	EUROPE TRAILER PLUG	(6) RED	EP01		TRAILER INTERCONNECT	4	DT06-08SA-E008	0462-209-16141
6	R-TAIL	14AWG	BWN	SP1	L	SP-ULTRASONIC		EUROPE TRAILER PLUG	(5) BWN	EP01	
7	L-TAIL	14AWG	BLK	SP1	L	SP-ULTRASONIC		EUROPE TRAILER PLUG	(7) BLK	EP01	
8	TAIL	14AWG	BWN	SP1	R	SP-ULTRASONIC		TRAILER INTERCONNECT	8	DT06-08SA-E008	0462-209-16141

BILL OF MATERIALS

Index	Part Number	Description	Qty/Length	Unit of Measure
1	0462-209-16141	Terminal, Deutsch, Solid Socket 14-16 ga	3	Each
2	1062-16-1222	Terminal, Deutsch, Socket 12-16	1	Each
3	114017	Cavity Plug, Deutsch 12-16awg	2	Each
4	CPA-100-1000-BK	Heatshrink, Adhesive-lined 1", 2"	1	Each
5	DT06-08SA-E008	Connector, Plug, Deutsch, 8-Way Soc	1	Each
6	EP01	Connector, Plug 7-Pole Trailer, EU Style	1	Each
7	SP-ULTRASONIC	SPLICE,ULTRASONIC	1	Each
8	W8S	Wedge Lock, 8-way Plug, Deutsch	1	Each
9	82-5611	7 CONDUCTOR, TRAILER CABLE	39	Per Length
10	GXL_14AWG_BWN	GXL 14awg, Brown	5	Per Length

JCA Electronics Industries
115 KING EDWARD ST. E. WINNIPEG MANITOBA, CANADA R2H 0N8

	NAME	DATE (YYYY-MM-DD)
Drawn by:	R.TAHIMIC	2017-01-30
Checked by:	D.COOK	
Approved by:	D.COOK	
Customer Approval:		

Description: HONEYBEE
Airflex, Europe Drawbar Harness-B

Drawing No.	Part No.	Rev.	Iss.
JCA17-000140-10	JCA17-000140	C	1

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ARE: .X = ±.100 .XX = ±.010 .XXX = ±.005 ANGULAR = ± 1°

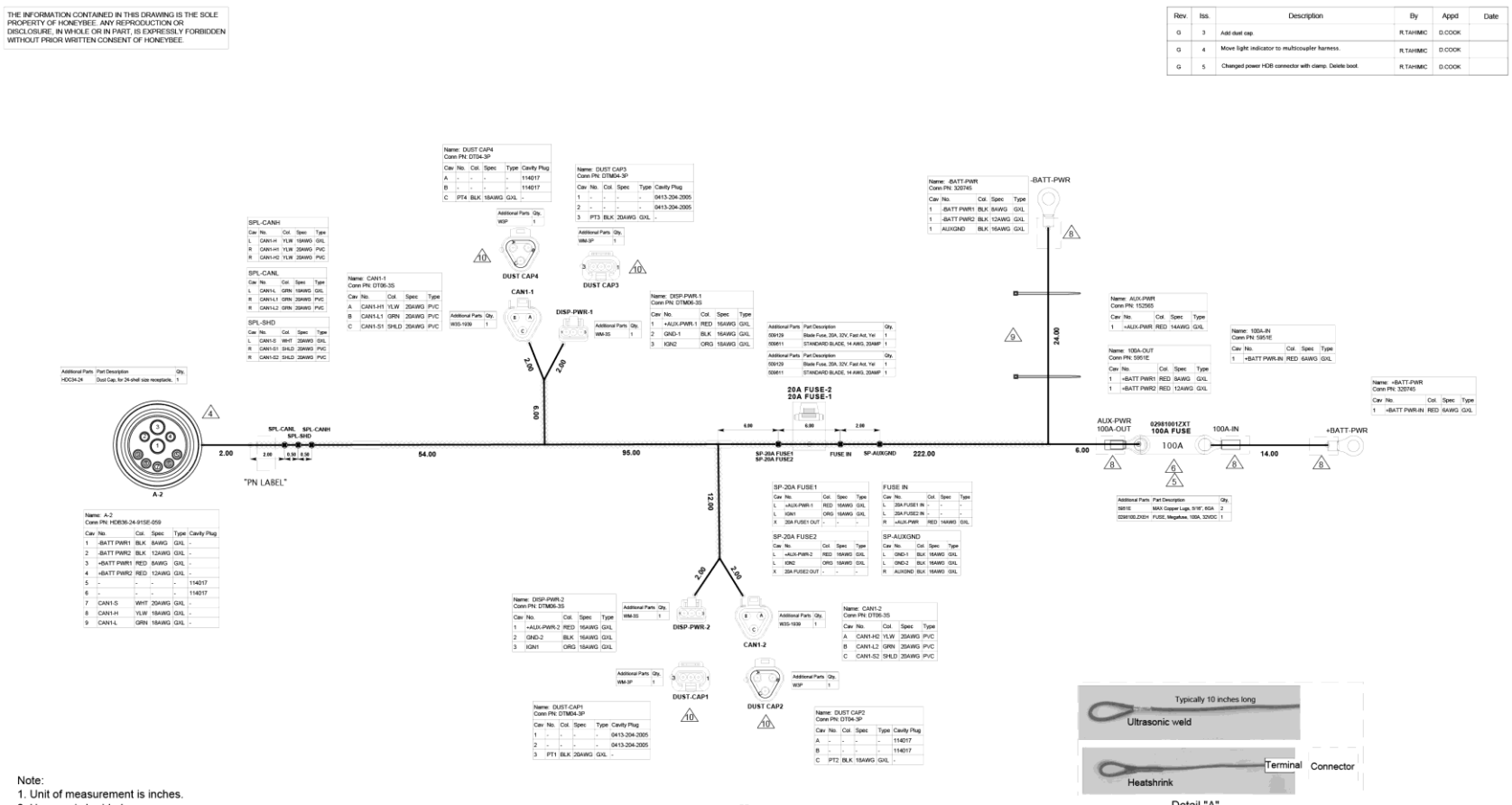
Scale: NTS

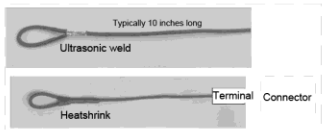
Sheet: 1 of 1

17.2. Combine Harness Model Year 2017 and above

17.2.1. Combine Power Harness

Rev.	Iss.	Description	By	Appd	Date
G	3	Add dust cap.	R.TAHMIC	D.COOK	
G	4	Move light indicator to multicoupler harness.	R.TAHMIC	D.COOK	
G	5	Changed power HDB connector with clamp. Delete boot.	R.TAHMIC	D.COOK	





Detail "A"

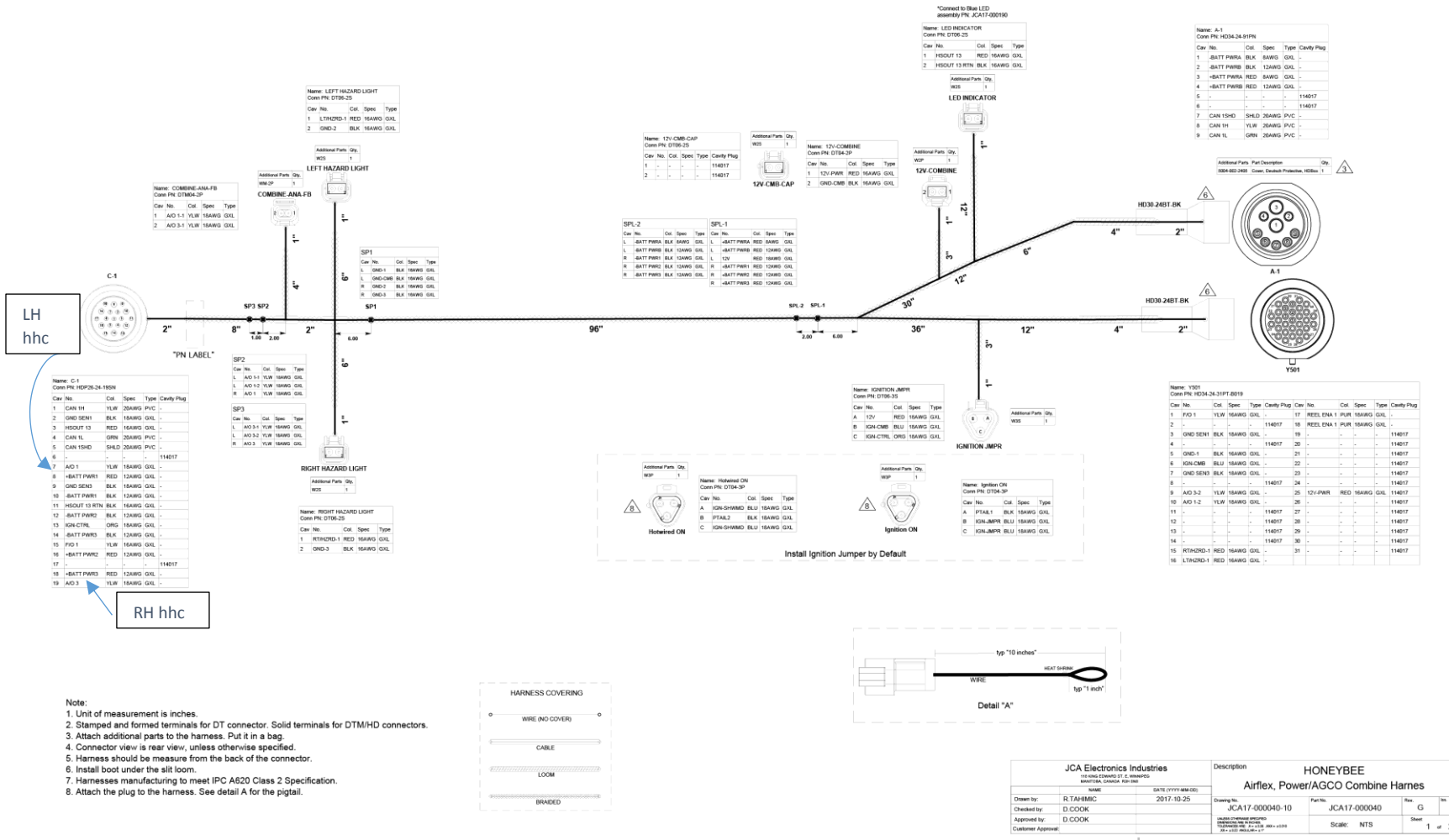
Note:
1. Unit of measurement is inches.
2. Harness is braided.
3. Stamped and formed terminals for DT connector. Solid terminals for DTM/HD connectors.
4. Add dust cap. PN: HDC34-24 and boot.
5. Install support strip on fuse holder and wire. (Zip tie holder and wires to holes in strap).
6. Torque for tightening the fuse nuts is 13-18 N.m.
7. Harnesses manufacturing to meet IPC A620 Class 2 Specification.
8. Install heatshrink.
9. Install cable tie.
10. Add dust caps. Add wire to the dust cap then loop back the wire to be attach to the harness see detail A.

WIRE
BRAIDED
LOOM
CABLE

JCA Electronics Industries			Description	HONEYBEE			
	NAME	DATE (YYYY-MM-DD)		Airflex, Power/Automatix Display Harness-G			
Drawn by:	R.TAHMIC	2016-11-21	Drawing No.	JCA17-000041-10	Part No.	JCA17-000041	Rev. G / Iss. 5
Checked by:	D.COOK				Scale:	NTS	Sheet 1 of 2
Approved by:	D.COOK						
Customer Approval:							

17.2.2. Agco Multi-Coupler Harness

Rev.	Iss.	Description	By	Appd	Date
F	12	Ignition dust cap to Hotwired ON and added jumper to pin A/C. Renamed Ignition Jumper to Ignition ON.	R.TAHIMIC	D.COOK	
G	1	Removed A/O 2 wire.	R.TAHIMIC	D.COOK	
G	2	Added 12V power from combine.	R.TAHIMIC	D.COOK	

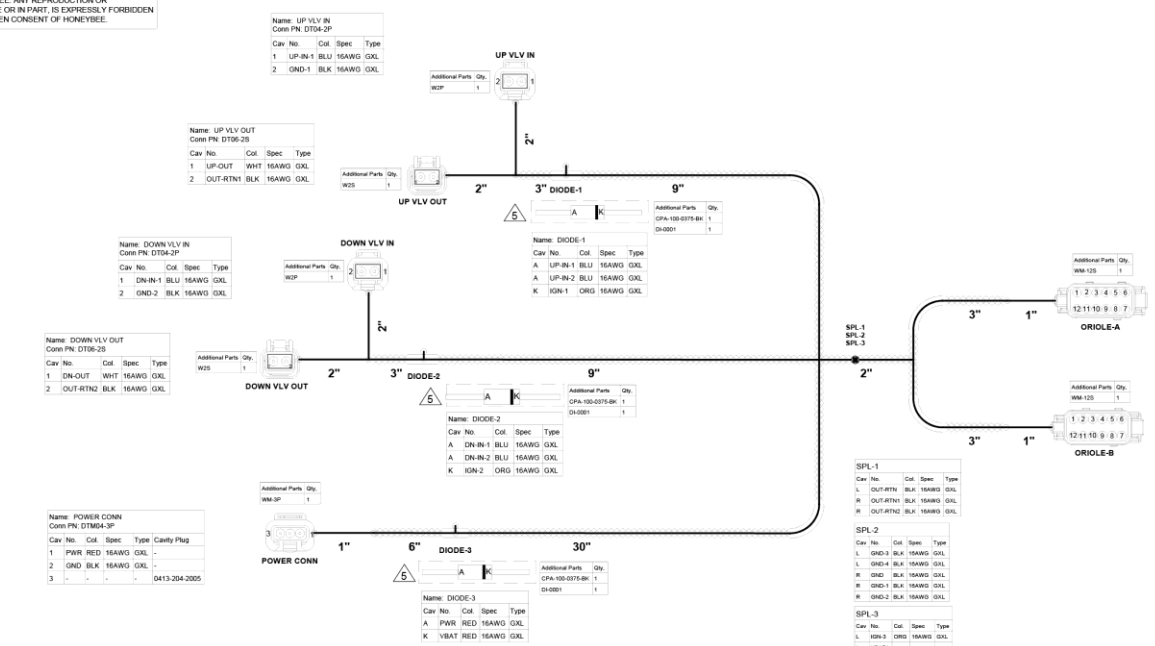


Note:
1. Unit of measurement is inches.
2. Stamped and formed terminals for DT connector. Solid terminals for DTM/HD connectors.
3. Attach additional parts to the harness. Put it in a bag.
4. Connector view is rear view, unless otherwise specified.
5. Harness should be measure from the back of the connector.
6. Install boot under the slit loom.
7. Harnesses manufacturing to meet IPC A620 Class 2 Specification.
8. Attach the plug to the harness. See detail A for the pigtail.

JCA Electronics Industries 110 KING EDWARD ST. E. WINNIPEG MANITOBA, CANADA R2H 0M8		Description	HONEYBEE Airflex, Power/AGCO Combine Harnes
NAME	DATE (YYYY-MM-DD)		
Drawn by: R.TAHIMIC	2017-10-25	Drawing No. JCA17-000040-10	Part No. JCA17-000040 Rev. G Iss. 2
Checked by: D.COOK			
Approved by: D.COOK		Scale: NTS	Sheet 1 of 2
Customer Approval:			

17.2.3. Agco “Bee-Box” Harness

Rev.	Iss.	Description	By	Appd	Date
B	2	Changed the location of the diodes. Added a sample picture of the splice diodes.	C.BORJA	D.COOK	2015-10-23
B	3	Delete note #2 stating of mating connector.	R.TAHIMIC	D.COOK	
C	1	Drawing converted to Vesys. Added power connector.	R.TAHIMIC	D.COOK	



Name: UP VLV IN
Conn PN: DT04-2P

Cav	No.	Col.	Spec	Type
1	UP-IN-1	BLU	16AWG	GXL
2	GND-1	BLK	16AWG	GXL

Name: UP VLV OUT
Conn PN: DT06-2S

Cav	No.	Col.	Spec	Type
1	UP-OUT	WHT	16AWG	GXL
2	OUT-RTN1	BLK	16AWG	GXL

Name: DOWN VLV IN
Conn PN: DT04-2P

Cav	No.	Col.	Spec	Type
1	DN-IN-1	BLU	16AWG	GXL
2	GND-2	BLK	16AWG	GXL

Name: DOWN VLV OUT
Conn PN: DT06-2S

Cav	No.	Col.	Spec	Type
1	DN-OUT	WHT	16AWG	GXL
2	OUT-RTN2	BLK	16AWG	GXL

Name: POWER CONN
Conn PN: DTM04-3P

Cav	No.	Col.	Spec	Type	Cavity Plug
1	PWR	RED	16AWG	GXL	-
2	GND	BLK	16AWG	GXL	-
3	-	-	-	-	0413-204-2005

Name: DIODE-1

Cav	No.	Col.	Spec	Type
A	UP-IN-1	BLU	16AWG	GXL
A	UP-IN-2	BLU	16AWG	GXL
K	IGN-1	ORG	16AWG	GXL

Name: DIODE-2

Cav	No.	Col.	Spec	Type
A	DN-IN-1	BLU	16AWG	GXL
A	DN-IN-2	BLU	16AWG	GXL
K	IGN-2	ORG	16AWG	GXL

Name: DIODE-3

Cav	No.	Col.	Spec	Type
A	PWR	RED	16AWG	GXL
K	VBAT	RED	16AWG	GXL

Name: ORIOLE-A
Conn PN: DTM06-12SA

Cav	No.	Col.	Spec	Type	Cavity Plug
1	-	-	-	-	0413-204-2005
2	-	-	-	-	0413-204-2005
3	-	-	-	-	0413-204-2005
4	-	-	-	-	0413-204-2005
5	-	-	-	-	0413-204-2005
6	-	-	-	-	0413-204-2005
7	OUT-RTN	BLK	16AWG	GXL	-
8	IGN-3	ORG	16AWG	GXL	-
9	-	-	-	-	0413-204-2005
10	UP-OUT	WHT	16AWG	GXL	-
11	DN-OUT	WHT	16AWG	GXL	-
12	-	-	-	-	0413-204-2005

Name: ORIOLE-B
Conn PN: DTM06-12SB

Cav	No.	Col.	Spec	Type	Cavity Plug
1	-	-	-	-	0413-204-2005
2	-	-	-	-	0413-204-2005
3	-	-	-	-	0413-204-2005
4	-	-	-	-	0413-204-2005
5	GND-3	BLK	16AWG	GXL	-
6	VBAT1	-	-	-	-
7	VBAT2	-	-	-	-
8	GND-4	BLK	16AWG	GXL	-
9	-	-	-	-	0413-204-2005
10	-	-	-	-	0413-204-2005
11	DN-IN-2	BLU	16AWG	GXL	-
12	UP-IN-2	BLU	16AWG	GXL	-

SPL-1

Cav	No.	Col.	Spec	Type
L	OUT-RTN	BLK	16AWG	GXL
R	OUT-RTN1	BLK	16AWG	GXL
R	OUT-RTN2	BLK	16AWG	GXL

SPL-2

Cav	No.	Col.	Spec	Type
L	GND-3	BLK	16AWG	GXL
L	GND-4	BLK	16AWG	GXL
R	GND	BLK	16AWG	GXL
R	GND-1	BLK	16AWG	GXL
R	GND-2	BLK	16AWG	GXL

SPL-3

Cav	No.	Col.	Spec	Type
L	IGN-3	ORG	16AWG	GXL
L	VBAT1	-	-	-
L	VBAT2	-	-	-
R	IGN-1	ORG	16AWG	GXL
R	IGN-2	ORG	16AWG	GXL
R	VBAT	RED	16AWG	GXL

FROM-TO WIRE LIST

Index	Wire No.	Spec	Col.	From	Cav.	Connector 1	Terminal PN 1	To	Cav.	Connector 2	Terminal PN 2
1	UP-IN-2	16AWG	BLU	DIODE-1	A	DIODE		ORIOLE-B	12	DTM06-12SB	0462-005-20141
2	IGN-1	16AWG	ORG	DIODE-1	K	DIODE		SPL-3	R		
3	DN-IN-2	16AWG	BLU	DIODE-2	A	DIODE		ORIOLE-B	11	DTM06-12SB	0462-005-20141
4	IGN-2	16AWG	ORG	DIODE-2	K	DIODE		SPL-3	R		
5	VBAT	16AWG	RED	DIODE-3	K	DIODE		SPL-3	R		
6	DN-IN-1	16AWG	BLU	DOWN VLV IN	1	DT04-2P	0460-202-16141	DIODE-2	A	DIODE	
7	GND-2	16AWG	BLK	DOWN VLV IN	2	DT04-2P	0460-202-16141	SPL-2	R		
8	DN-OUT	16AWG	WHT	DOWN VLV OUT	1	DT06-2S	0462-201-16141	ORIOLE-A	11	DTM06-12SA	0462-005-20141
9	OUT-RTN2	16AWG	BLK	DOWN VLV OUT	2	DT06-2S	0462-201-16141	SPL-1	R		
10	OUT-RTN	16AWG	BLK	ORIOLE-A	7	DTM06-12SA	0462-005-20141	SPL-1	L		
11	PWR	16AWG	RED	POWER CONN	1	DTM04-3P	0460-010-20141	DIODE-3	A	DIODE	
12	GND-3	16AWG	BLK	SPL-2	L			ORIOLE-B	5	DTM06-12SB	0462-005-20141
13	GND-4	16AWG	BLK	SPL-2	L			ORIOLE-B	8	DTM06-12SB	0462-005-20141
14	GND	16AWG	BLK	SPL-2	R			POWER CONN	2	DTM04-3P	0460-010-20141
15	IGN-3	16AWG	ORG	SPL-3	L			ORIOLE-A	8	DTM06-12SA	0462-005-20141
16	VBAT1			SPL-3	L			ORIOLE-B	6	DTM06-12SB	0462-005-20141
17	VBAT2			SPL-3	L			ORIOLE-B	7	DTM06-12SB	0462-005-20141
18	UP-IN-1	16AWG	BLU	UP VLV IN	1	DT04-2P	0460-202-16141	DIODE-1	A	DIODE	
19	GND-1	16AWG	BLK	UP VLV IN	2	DT04-2P	0460-202-16141	SPL-2	R		
20	UP-OUT	16AWG	WHT	UP VLV OUT	1	DT06-2S	0462-201-16141	ORIOLE-A	10	DTM06-12SA	0462-005-20141
21	OUT-RTN1	16AWG	BLK	UP VLV OUT	2	DT06-2S	0462-201-16141	SPL-1	R		

Note:
1. Unit of measurement is in inches.
2. Harness cover is braided. PN: VN4000S with yellow stripe.
3. Install PN and connector ID label.
4. Put cavity plug in unused cavities.
5. Solder wire to diode and apply heatshrink for covering.

BILL OF MATERIALS

Index	Part Number	Description	Qty/Length	Unit of Measure
1	0413-204-2005	Cavity Plug, Deutsch 20awg	15	Each
2	0460-010-20141	Terminal, Solid Pin 20, 16-18ga	2	Each
3	0460-202-16141	Terminal, Deutsch, Solid Pin 16-20ga	4	Each
4	0462-005-20141	Terminal, Solid Soc 20, 16-18ga	10	Each
5	0462-201-16141	Terminal, Deutsch, Solid Socket 16-20 ga	4	Each
6	DI-0001	DIODE, 3A 1000V, 1N5408	3	Each
7	DT04-2P	Connector, Receptacle, Deutsch, 2-Way Pi	2	Each
8	DT06-2S	Connector, Plug, Deutsch, 2-Way Soc	2	Each
9	DTM04-3P	Connector, Plug, Deutsch, 3-Way Soc, End	1	Each
10	DTM06-12SA	Connector, Plug, Deutsch, 12-Way Soc	1	Each
11	DTM06-12SB	Connector, Plug, Deutsch, 12-Way Soc	1	Each
12	W2P	Wedge Lock, 2-way Receptacle, Deutsch	2	Each
13	W2S	Wedge Lock, 2-way Plug, Deutsch	2	Each
14	WM-3P	Wedge Lock, 3-way Recep mini, Deutsch	1	Each
15	WM-12S	Wedge Lock, 12-way Plug, Deutsch	2	Each
16	CPA-100-0375-BK	Heatshrink, Adhesive-lined 3/8"	3	Per Length
17	GXL_16AWG_BLK	GXL 16awg, Black	118.5	Per Length
18	GXL_16AWG_BLU	GXL 16awg, Blue	41.5	Per Length
19	GXL_16AWG_ORG	GXL 16awg, Orange	26.3	Per Length
20	GXL_16AWG_RED	GXL 16awg, Red	38.3	Per Length
21	GXL_16AWG_WHT	GXL 16awg, White	42.5	Per Length
22	VN-4000S	Yarn, Vinyl coated nylon, .040"Dia	0	Per Length

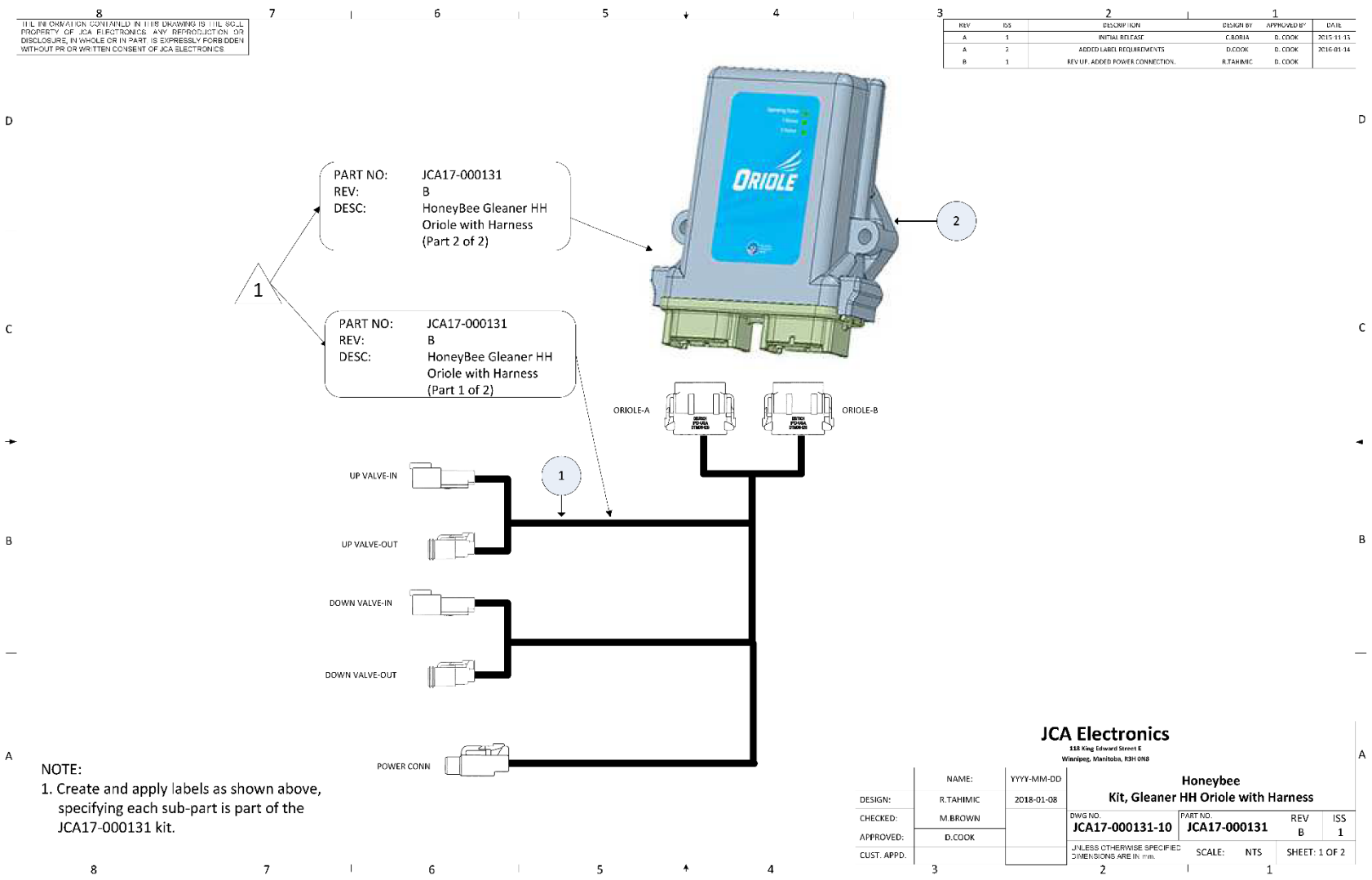
JCA Electronics Industries
115 KING EDWARD ST. E. WINNIPEG MANITOBA, CANADA R2H 0N8

	NAME	DATE (YYYY-MM-DD)
Drawn by:	R.TAHIMIC	2017-10-12
Checked by:	D.COOK	
Approved by:	D.COOK	
Customer Approval:		

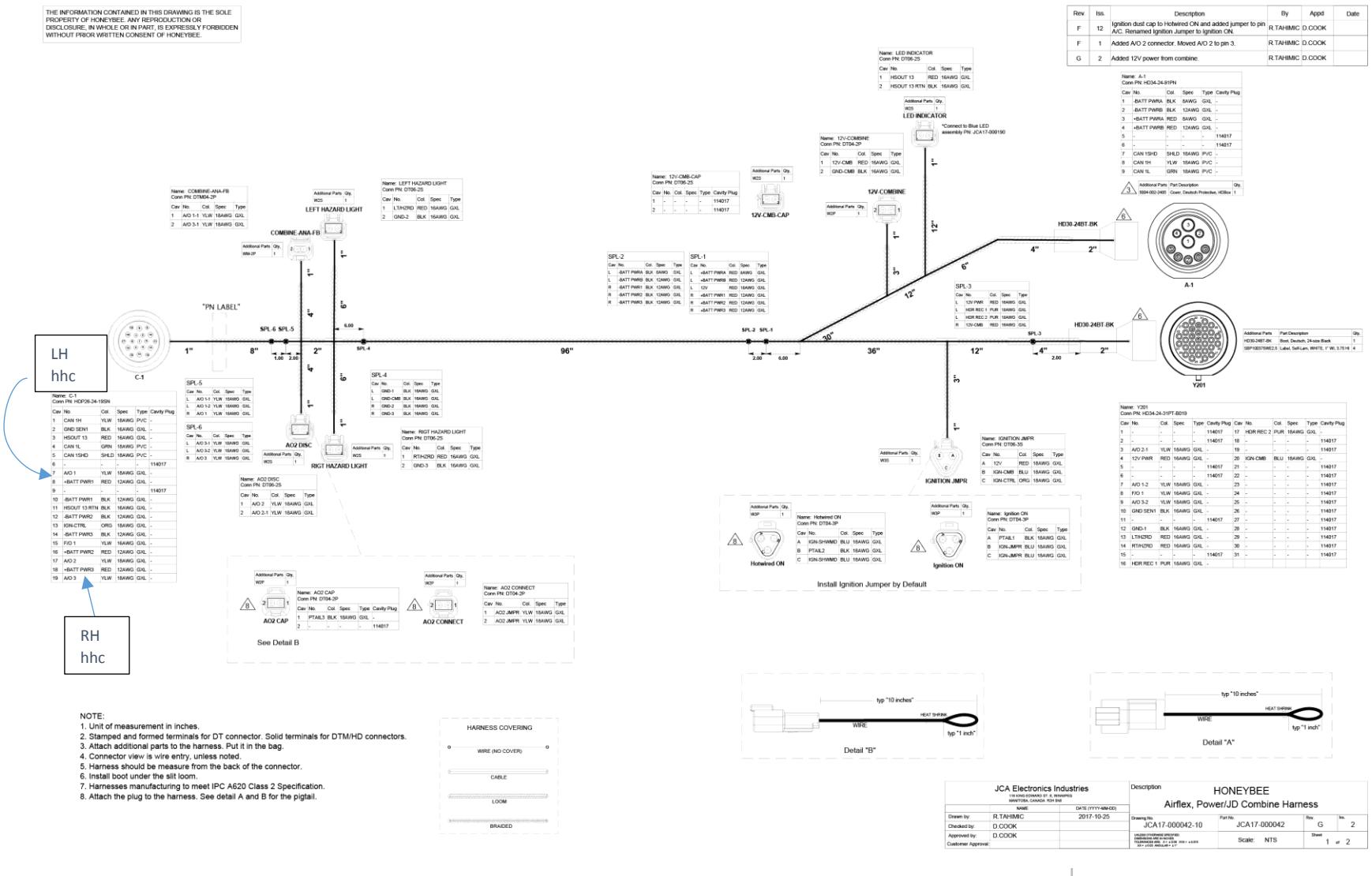
Description: HONEYBEE
Oriole Gleaner Valve Control Harness

Drawing No.	Part No.	Rev.	Iss.
JCA17-000128-10	JCA17-000128	C	1
Scale: NTS		Sheet 1 of 1	

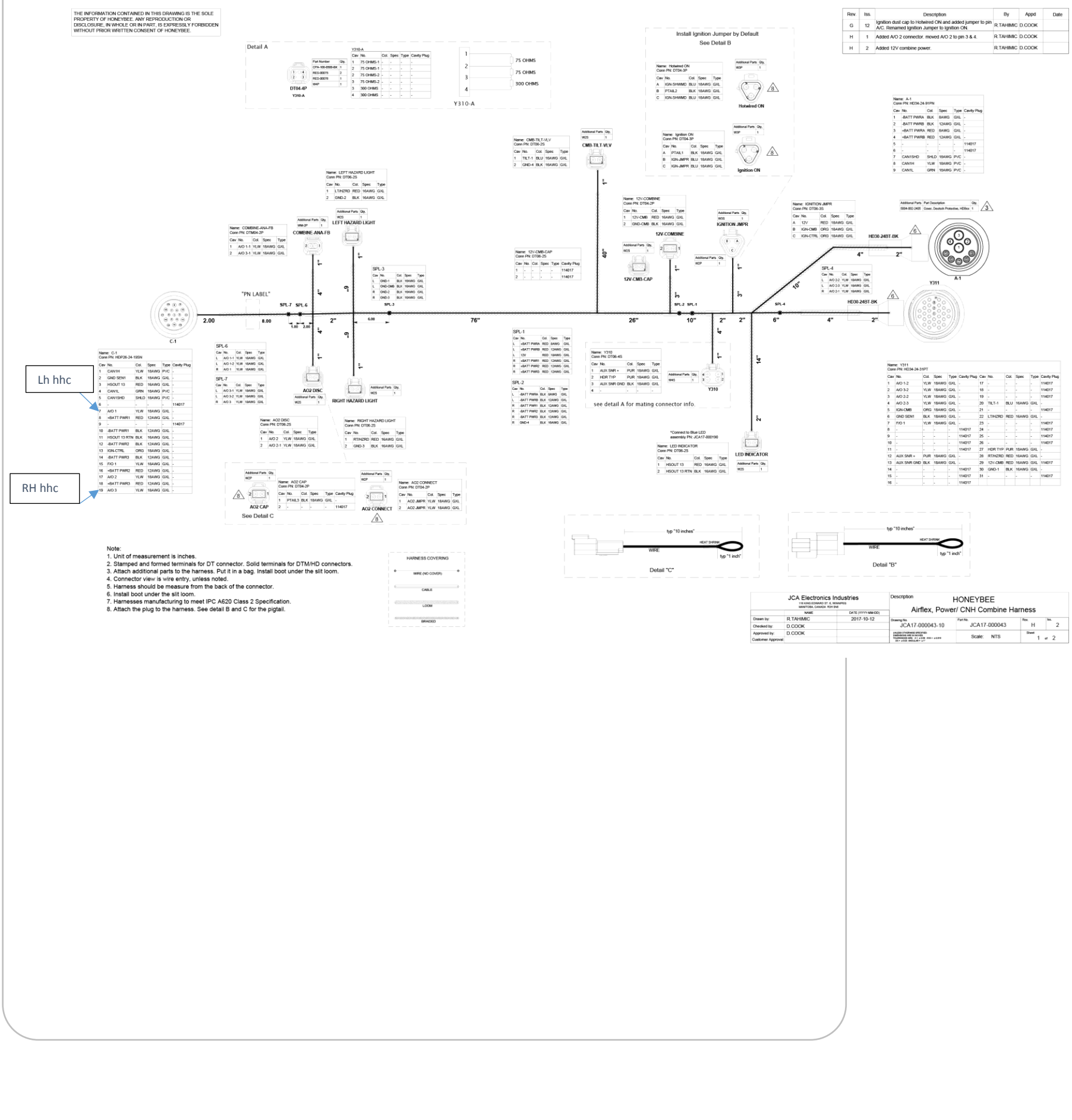
17.2.4. Agco “Bee-Box System



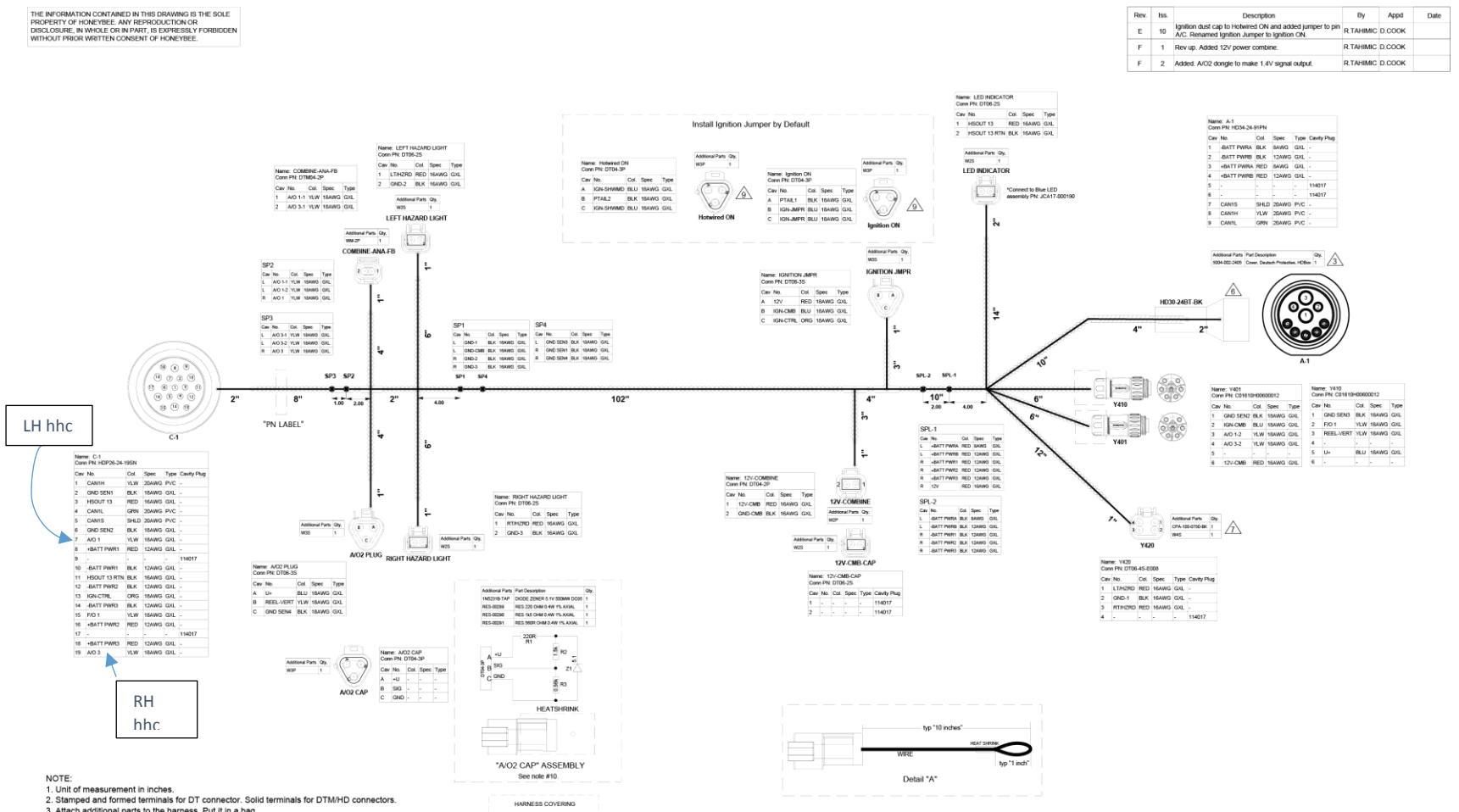
17.2.5. John Deere Multi-Coupler Harness



17.2.6. CNH Multi-Coupler Harness

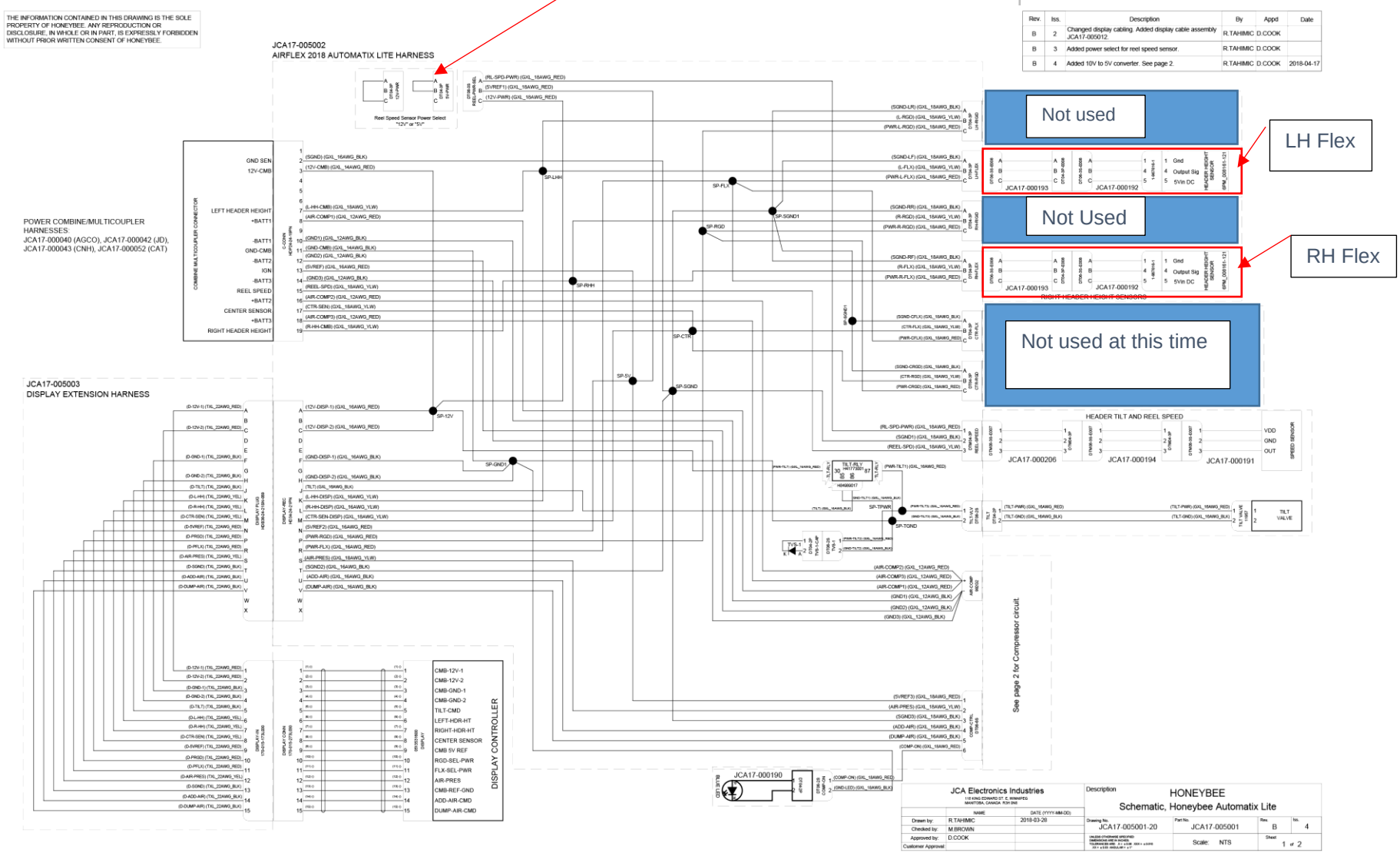


17.2.7. Lexion/Cat Multi-Coupler Harness

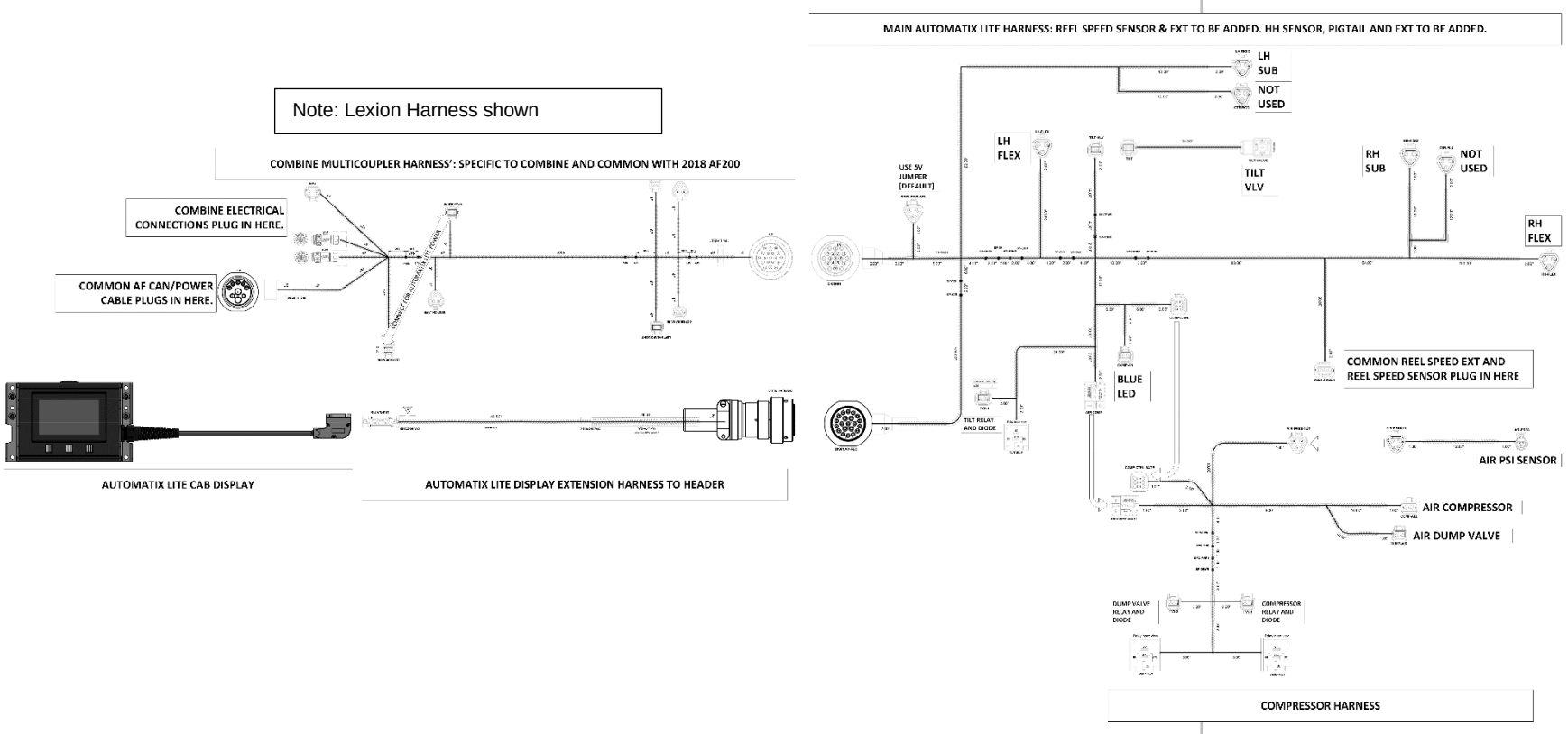


17.3. Automatix Lite SDX

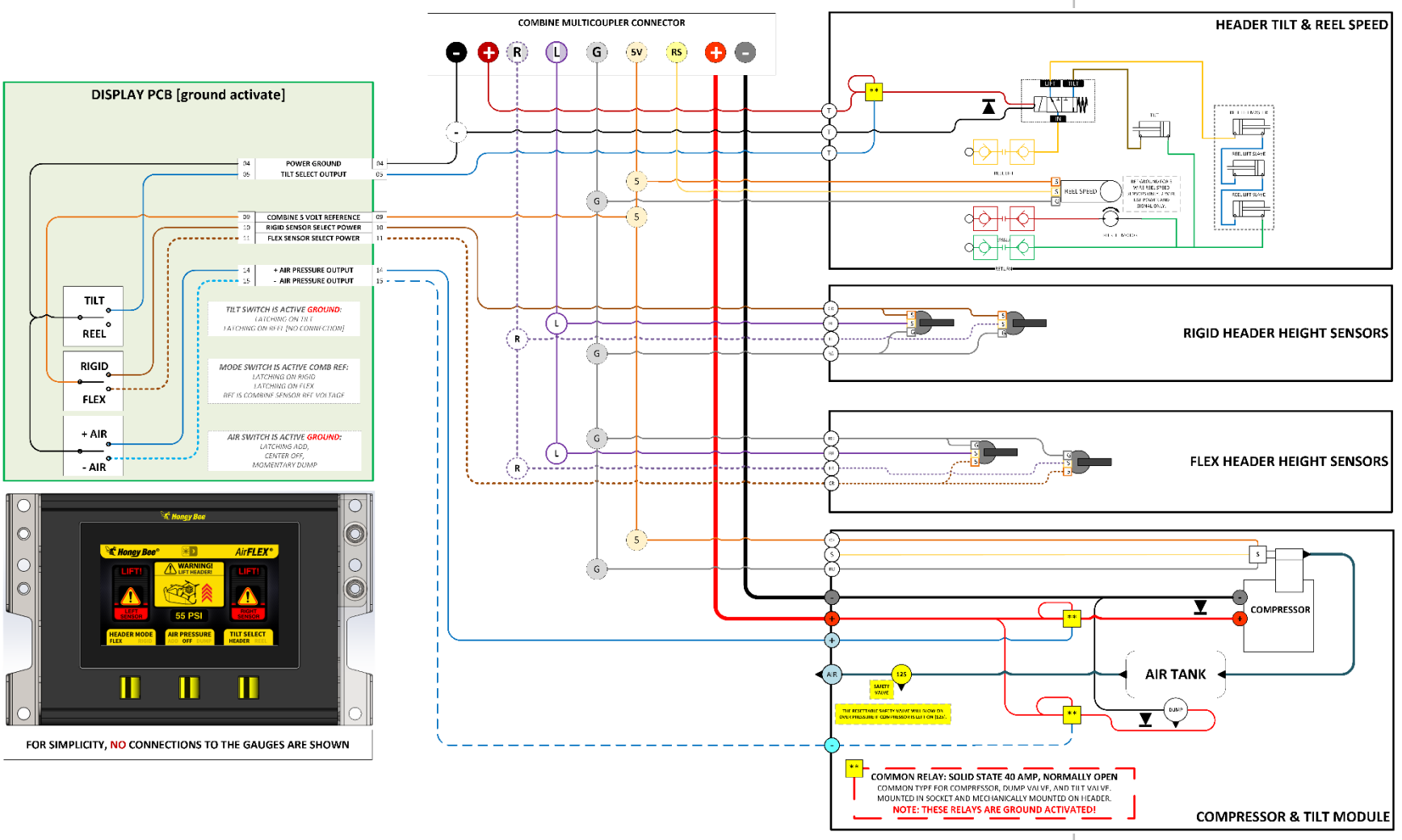
17.3.1. Main Harness



17.3.2. Harness Layout



17.3.3. Control Box Basic Function



17.3.4. Display Harness To Circuit Board

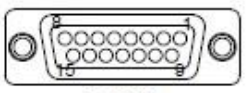
Conn: 513531600	
Pin	Function
1	12VDC
2	12VDC
3	Ground
4	Ground
5	Tilt Out
6	Left Sen
7	Right Sen
8	Center Sen
9	5VREF
10	Rigid Out
11	Flex Out
12	Air PSI
13	Ground
14	Air Add
15	Air Dump
16	-

Note: On some units the wire may be routed to pin 16. This will not affect operation

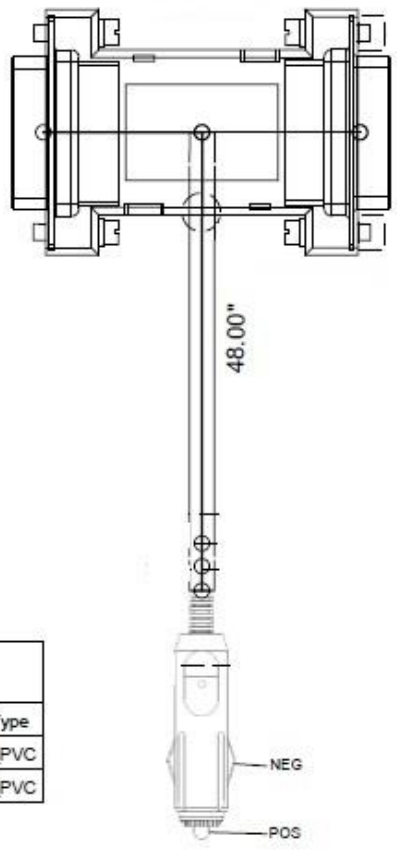
Conn: 170-015-273L030E5	
Pin	Function
1	12VDC
2	12VDC
3	Ground
4	Ground
5	Tilt Out
6	Left Sen
7	Right Sen
8	Center Sen
9	5VREF
10	Rigid Out
11	Flex Out
12	Air PSI
13	Ground
14	Air Add
15	Air Dump

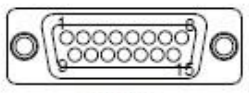
17.3.5. CNH/Agco Cigarette Lighter Adapter

Name: CONN1 Part No: 170-015-173L000				
Cav	No.	Col.	Spec	Type
1	RED	RED	_AWG_22	_PVC
2	12V	RED	22AWG	TXL
3	BLK	BLK	_AWG_22	_PVC
4	GND	BLK	22AWG	TXL
5	TILT	BLK	22AWG	TXL
6	L-HH	YLW	22AWG	TXL
7	R-HH	YLW	22AWG	TXL
8	CTR-SEN	YLW	22AWG	TXL
9	5VREF	RED	22AWG	TXL
10	PRGD	RED	22AWG	TXL
11	PFLX	RED	22AWG	TXL
12	AIR-PRES	YLW	22AWG	TXL
13	SGND	BLK	22AWG	TXL
14	ADD-AIR	BLK	22AWG	TXL
15	DMP-AIR	BLK	22AWG	TXL



CONN1



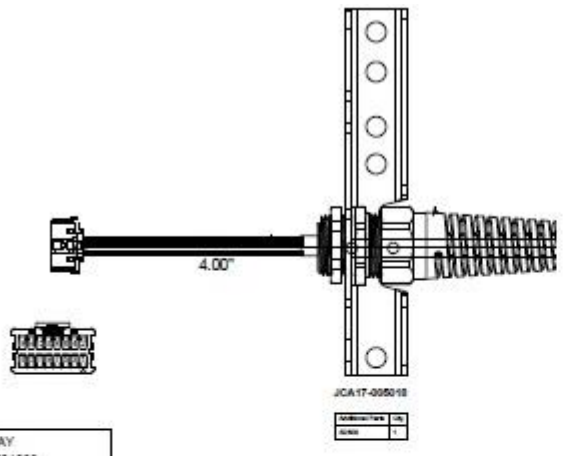


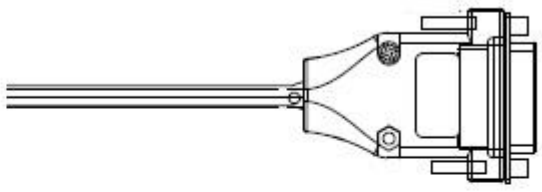
CONN2

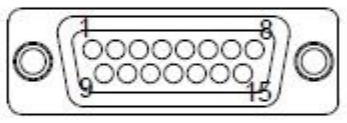
Name: CONN2 Part No: 170-015-273L030				
Cav	No.	Col.	Spec	Type
1	-	-	-	-
2	12V	RED	22AWG	TXL
3	-	-	-	-
4	GND	BLK	22AWG	TXL
5	TILT	BLK	22AWG	TXL
6	L-HH	YLW	22AWG	TXL
7	R-HH	YLW	22AWG	TXL
8	CTR-SEN	YLW	22AWG	TXL
9	5VREF	RED	22AWG	TXL
10	PRGD	RED	22AWG	TXL
11	PFLX	RED	22AWG	TXL
12	AIR-PRES	YLW	22AWG	TXL
13	SGND	BLK	22AWG	TXL
14	ADD-AIR	BLK	22AWG	TXL
15	DMP-AIR	BLK	22AWG	TXL

Name: CIG-PLUG Part No: AP-129				
Cav	No.	Col.	Spec	Type
POS	RED	RED	_AWG_22	_PVC
NEG	BLK	BLK	_AWG_22	_PVC

17.3.6. Model Year 2022 Display Harness







Name: DISPLAY
Part No: 0513531600

Cav	No.	Col.	Spec	Type
1	1	BLK	22AWG	PVC
2	2	WHT	22AWG	PVC
3	3	RED	22AWG	PVC
4	4	GRN	22AWG	PVC
5	5	ORG	22AWG	PVC
6	6	BLU	22AWG	PVC
7	7	WHTB	22AWG	PVC
8	8	REDB	22AWG	PVC
9	9	GRNB	22AWG	PVC
10	10	ORGB	22AWG	PVC
11	11	BLUB	22AWG	PVC
12	12	BLKW	22AWG	PVC
13	13	REDW	22AWG	PVC
14	14	GRNW	22AWG	PVC
15	15	BLUW	22AWG	PVC
16	-	-	-	-

Note: On some units the wire may be routed to pin 16. This will not affect operation

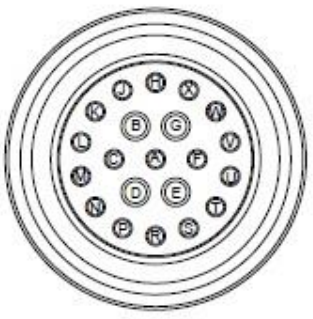
Name: DISPLAY CONN
Conn PN: 170-015-273L000

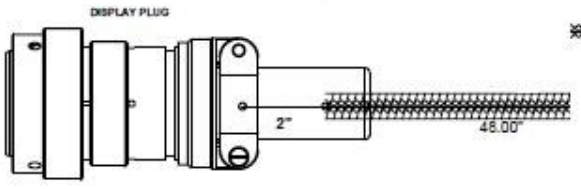
Cav	No.	Col.	Spec	Type
1	1	BLK	22AWG	PVC
2	2	WHT	22AWG	PVC
3	3	RED	22AWG	PVC
4	4	GRN	22AWG	PVC
5	5	ORG	22AWG	PVC
6	6	BLU	22AWG	PVC
7	7	WHTB	22AWG	PVC
8	8	REDB	22AWG	PVC
9	9	GRNB	22AWG	PVC
10	10	ORGB	22AWG	PVC
11	11	BLUB	22AWG	PVC
12	12	BLKW	22AWG	PVC
13	13	REDW	22AWG	PVC
14	14	GRNW	22AWG	PVC
15	15	BLUW	22AWG	PVC

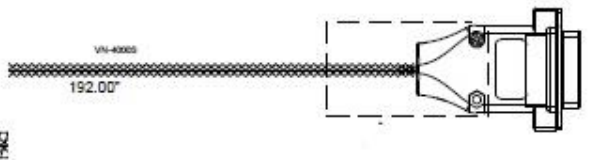
17.3.7. Model Year 2022 Display Multi-Coupler Harness

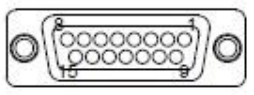
Name: DISPLAY PLUG
Part No: HDB26-24-21SN-059 (Deutsch)

Cav	No.	Col.	Spec	Type	Terminal PN	Cavity Plug	Cav	No.	Col.	Spec	Type	Terminal PN	Cavity Plug
A	-	-	-	-	-	114017	M	D-CTR-SEN	YLW	22AWG	TXL	0462-201-16141	-
B	-	-	-	-	-	114017	N	D-5VREF	RED	22AWG	TXL	0462-201-16141	-
C	D-12V-2	RED	22AWG	TXL	0462-201-16141	-	P	D-PRGD	RED	22AWG	TXL	0462-201-16141	-
D	-	-	-	-	-	114017	R	D-PFLX	RED	22AWG	TXL	0462-201-16141	-
E	-	-	-	-	-	114017	S	D-AIR-PRES	YLW	22AWG	TXL	0462-201-16141	-
F	D-GND-1	BLK	22AWG	TXL	0462-201-16141	-	T	D-SGND	BLK	22AWG	TXL	0462-201-16141	-
G	-	-	-	-	-	114017	U	D-ADD-AIR	BLK	22AWG	TXL	0462-201-16141	-
H	D-GND-2	BLK	22AWG	TXL	0462-201-16141	-	V	D-DUMP-AIR	BLK	22AWG	TXL	0462-201-16141	-
J	D-TILT	BLK	22AWG	TXL	0462-201-16141	-	W	-	-	-	-	-	114017
K	D-L-HH	YLW	22AWG	TXL	0462-201-16141	-	X	-	-	-	-	-	114017
L	D-R-HH	YLW	22AWG	TXL	0462-201-16141	-							









Name: DISPLAY-IN
Part No: 170-015-173L000 (NorComp Inc.)

Cav	No.	Col.	Spec	Type	Terminal PN
1	-	-	-	-	-
2	D-12V-2	RED	22AWG	TXL	170-201-170L003
3	D-GND-1	BLK	22AWG	TXL	170-201-170L003
4	D-GND-2	BLK	22AWG	TXL	170-201-170L003
5	D-TILT	BLK	22AWG	TXL	170-201-170L003
6	D-L-HH	YLW	22AWG	TXL	170-201-170L003
7	D-R-HH	YLW	22AWG	TXL	170-201-170L003
8	D-CTR-SEN	YLW	22AWG	TXL	170-201-170L003
9	D-5VREF	RED	22AWG	TXL	170-201-170L003
10	D-PRGD	RED	22AWG	TXL	170-201-170L003
11	D-PFLX	RED	22AWG	TXL	170-201-170L003
12	D-AIR-PRES	YLW	22AWG	TXL	170-201-170L003
13	D-SGND	BLK	22AWG	TXL	170-201-170L003
14	D-ADD-AIR	BLK	22AWG	TXL	170-201-170L003
15	D-DUMP-AIR	BLK	22AWG	TXL	170-201-170L003