RDX Grain Belt

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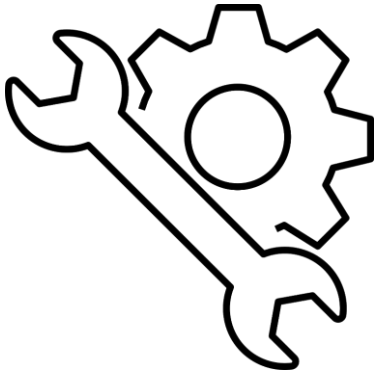
Grain Belt Header
Service Manual



#: 95283

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

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

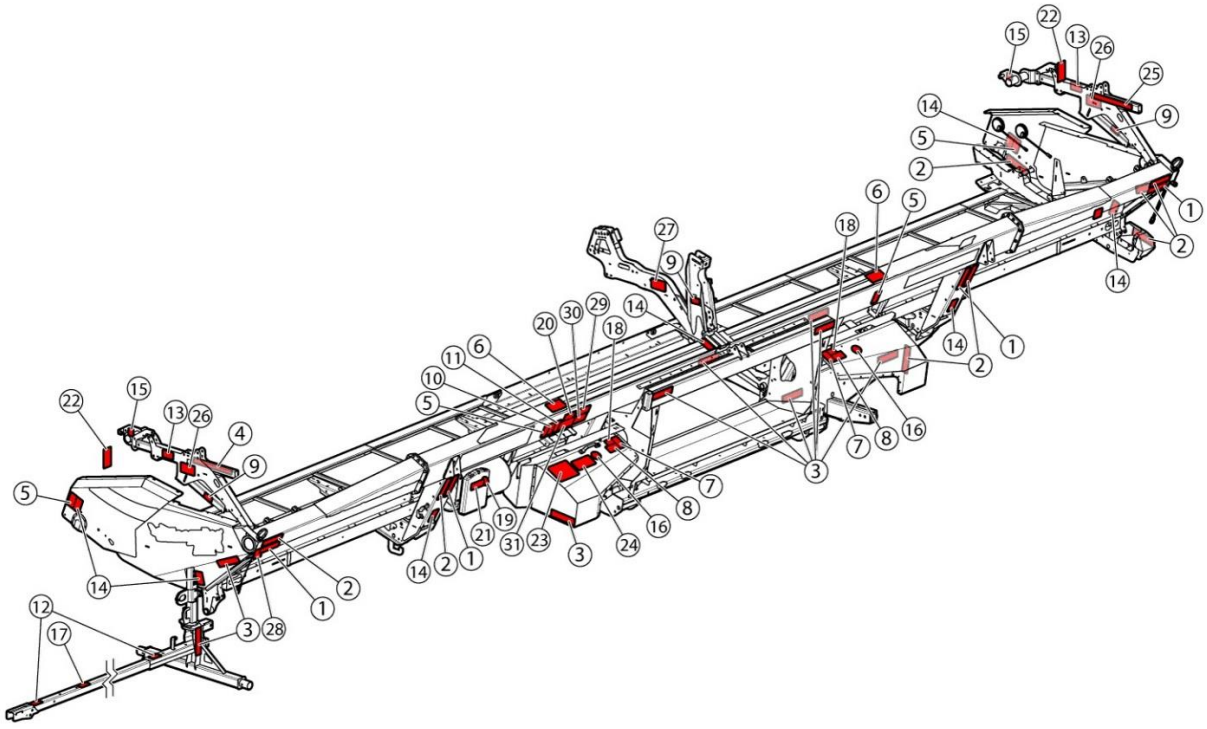
IMPORTANT!

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.



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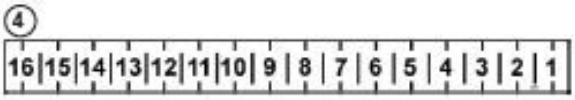

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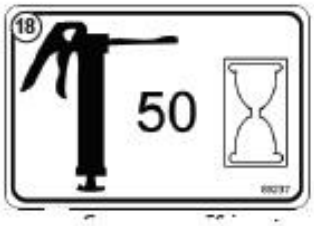
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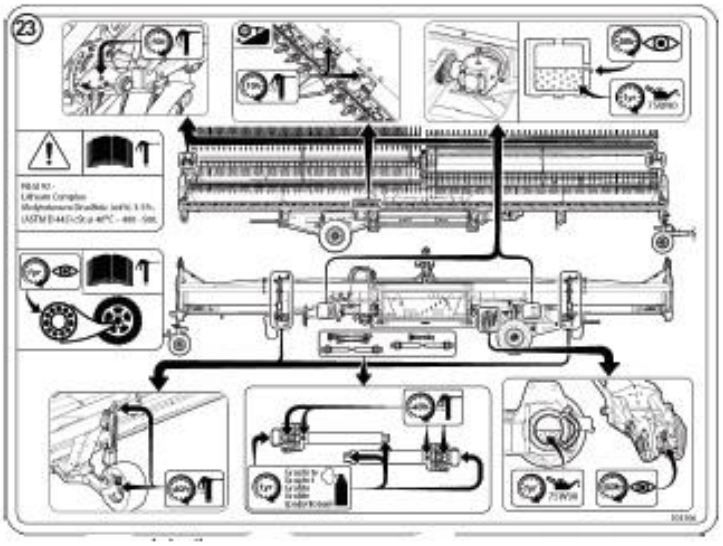
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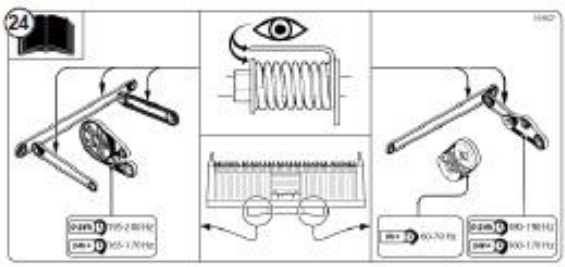
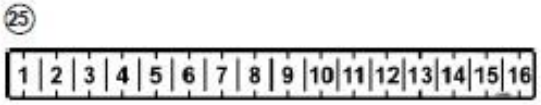
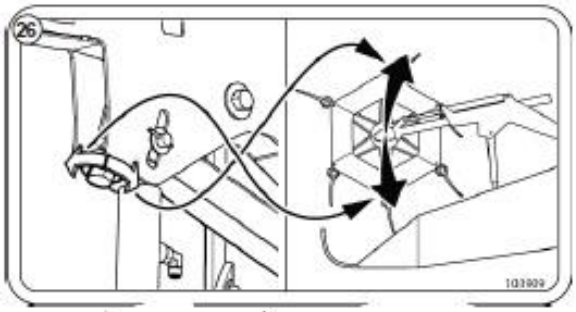
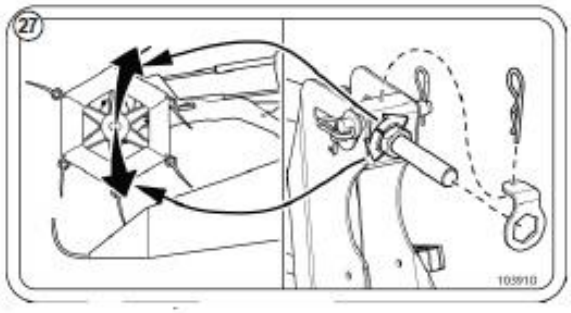
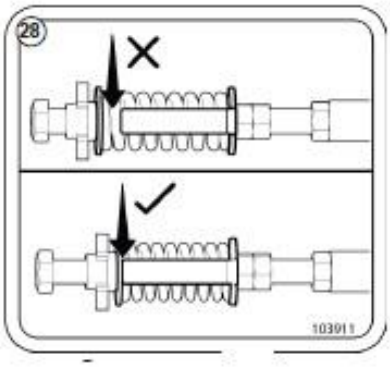
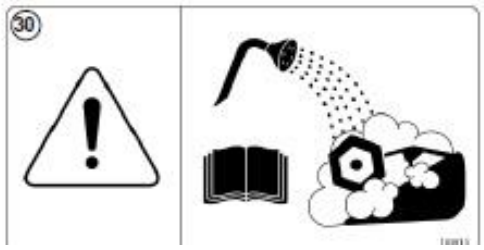












1. Red/Orange reflector
2. Red Reflector
3. Yellow Reflector
4. Left end reel fore/aft indicator
5. Crush warning keep safe distance
6. Fall warning do not step here

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 Header Height Control

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.

5.1 - Rigid HHC

RDX models have a Suspended subframe. The suspended subframe are the only models that have gauge wheels.

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 1
2. The subframe is controlled by the gauge wheels. The gauge wheels will move the frame and this will move the sensor.

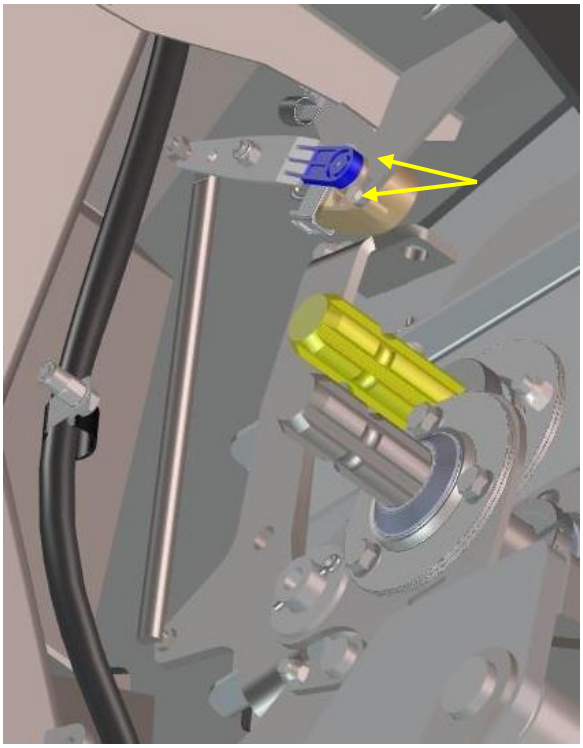


Figure 1

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 2

Figure 2

4. To remove the gauge-wheels remove the clamp bolts. Figure 2
5. 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 2
6. Tighten the clamp bolts to 75 ft. lbs to secure the gauge wheels.

5.2 - Airbag Controlled Gauge Wheels

On Model Year 2022 and above headers the gauge wheel height is controlled by two airbags under each gauge wheel. Figure 3

The gauge wheel will receive the air supply from the airbag on the subframe. Each side wil have a valve at the front of the strut to lock the air in or out of the gauge wheel bags.

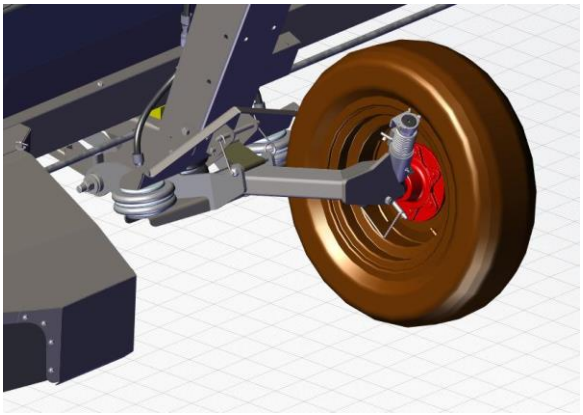


Figure 3

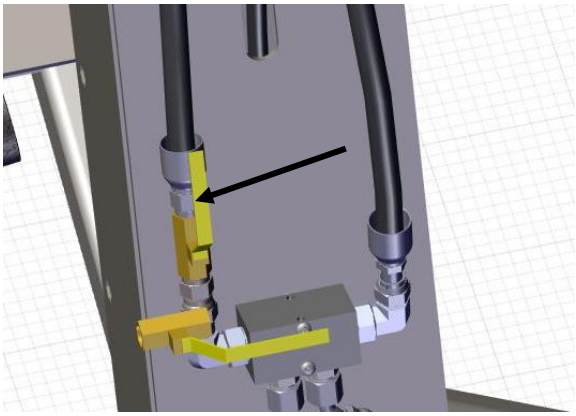


Figure 4

5.2.1 - Gauge Wheel Airbag Removal

1. Place the unit on the combine raide the unit off the ground and lock the header up using the fedderhouse cylinder lock on the combine.
2. Support the gauge wheel with a lifting strap or jack.
3. To remove the gauge wheel Airbag move the valve on the front of the strut Figure 4 90 degrees to to the air line.
4. Remove the air line on the bag you would like to remove. Use caution as there may be some air in the bag or the line.
5. Remove the two bolts that attach the airbag to the frame. Figure 5
6. Remove the bottom bolts from the airbag. Figure 6
7. The airbag can now be removed from the frame. Note: It maybe necessary to move the gauge wheel frame up and down to pull the airbag out.
8. To install the gauge wheel revers the order.
9. Torque the airbag mounting bolts to 15-20 Ft. lbs (20-27 Nm) of torque. **Do Not use Loctite on these bolts.**

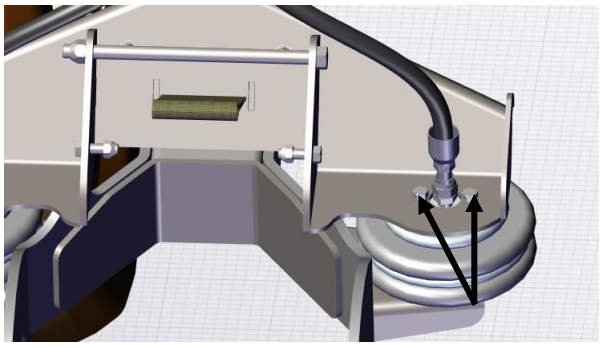


Figure 5

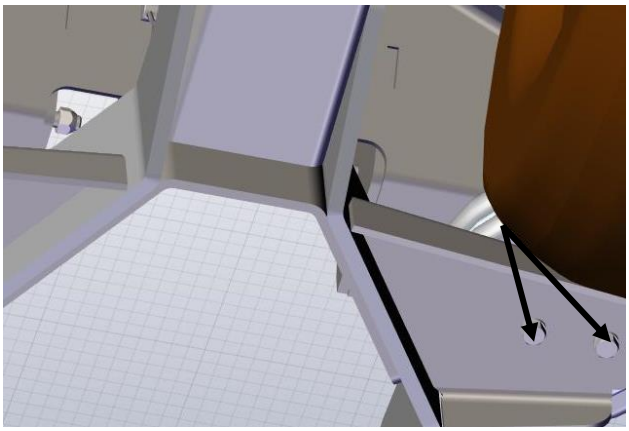


Figure 6

5.2.2 - Gauge Wheel frame Removal

1. To remove the frame follow the airbag removal for both bags in section 5.2.1 - Gauge Wheel Airbag Removal
2. Once both airbags are removed make certain the wheel arm is supported.
3. Remove the front bolt that attaches the frame to the main frame strut. Figure 7
4. Reassemble in the reverse order.
5. Make certain that all spacers and washers were replaced.
6. Install bolt and torque to XXX ft lbs

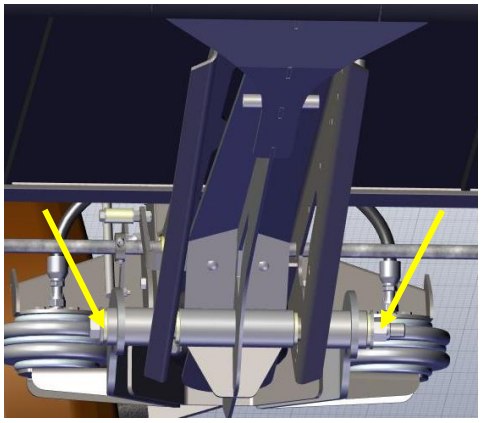


Figure 7

Subframe Assembly

5.3 - 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.

1. Remove the driveshafts that are attached to the subframe on the left-hand side. Remove the feeder-deck drive belt or chain drive.
2. Attach a suitable lifting device to the subframe. Remove the bolts that retain the tilt cylinder and the safety strap to the subframe. Figure 8

Figure 8

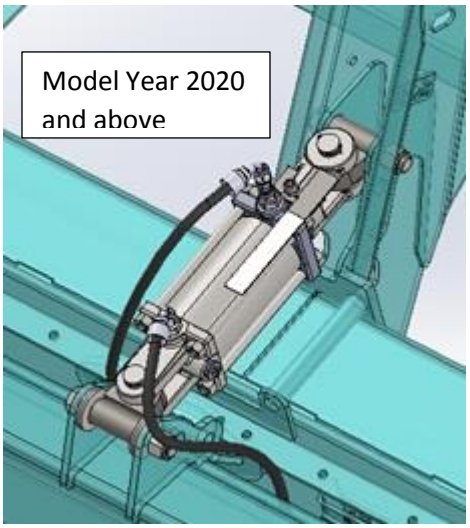
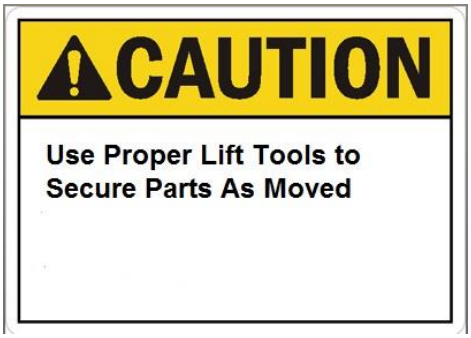


Figure 9

3. 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.
4. On the left-hand side remove the bearing flangette, limit stop bracket, and the sensor if equipped. Remove the mounting plate by removing the rear attachment bolt. Figure 10



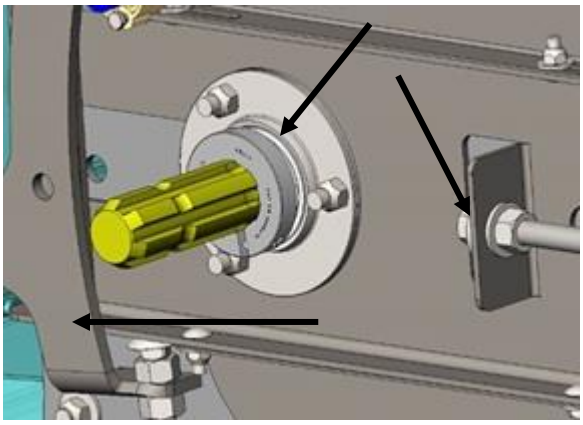


Figure 10

5. 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 11

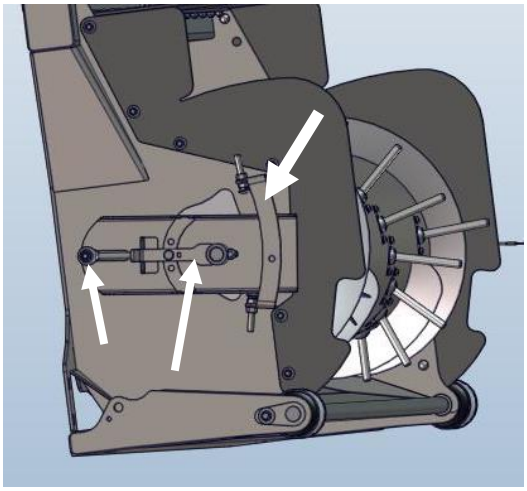


Figure 11

6. The auger can now be removed from the subframe by pushing the auger to the left and twisting it out of the subframe.
    - The auger spider can be removed from the auger and then the auger removed without the spider.
    - The lifting straps can be installed though the access panels in the auger as shown in Figure 12.
7. After the auger is out of the subframe the auger can be disassembled as needed.
8. The auger cross shaft can be removed. To gain access to the auger remove all the covers on the auger tube. Figure 12

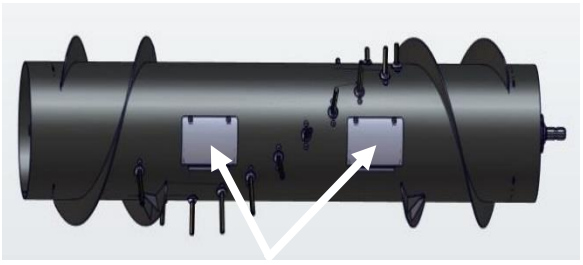


Figure 12

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

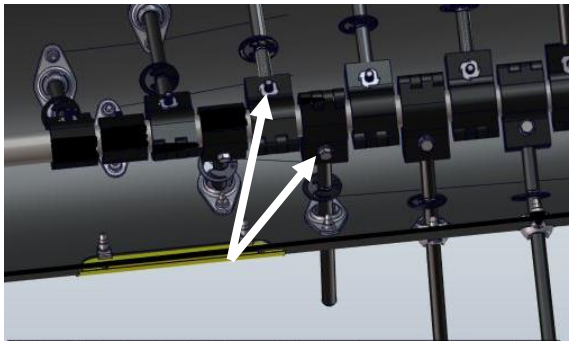


Figure 13

10. 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.
11. On the right-hand side of the auger remove the lock collar and bearing.
12. On the left end of the auger remove the shaft and spider assembly. Remove the lock collar on the bearing. Take the six 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 14

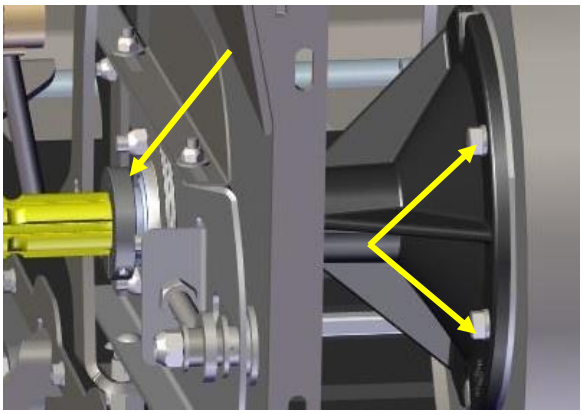


Figure 14

13. 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 shaft assembly in place.
14. Install each of the fingers in the clamps and through the bushings in the auger.
15. Install the lock collars but do not tighten. Align the cross shaft in the auger so all of the fingers are centered in the bushings.
16. Install both collars on the bearings and tighten the set screws in the lock collars to 97 in. lbs
17. Install Left-hand spider on the auger. Use red Loctite on the mounting hardware and torque the bolts to 23 ft. lbs.
18. Place auger back in the subframe and install the right-hand shaft.
19. Center the auger in the subframe and tight the lock collars.
20. Assemble the auger mounting bracket on each side and tighten all hardware.
21. Raise the subframe back into place and attached safety strap and tilt cylinder. Figure 15

Figure 15

5.4 - Tilt Cylinder Position

5.4.1 - Model Year 2019 and above

On all model year 2019 and above headers the position of the tilt cylinder has three different positions depending on the combine.

- Position One (Factory position): Top hole for the front of the cylinder and lower hole for the rear position. Figure 16

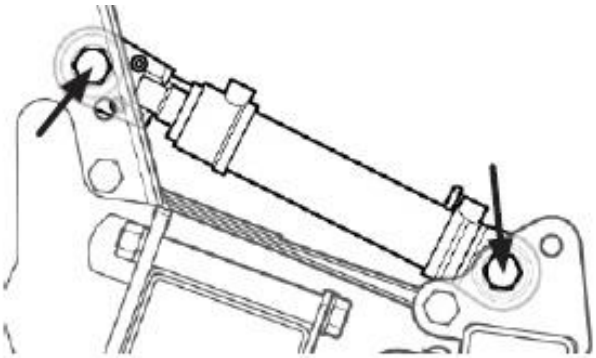


Figure 16

- 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 17

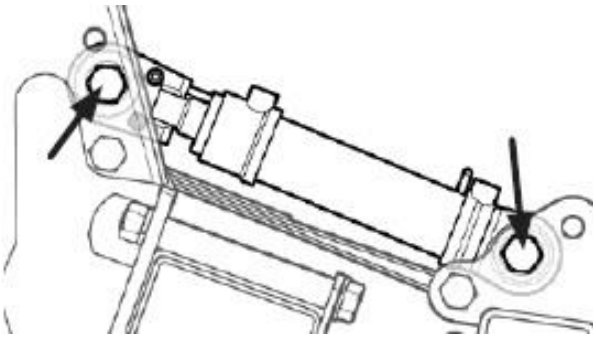


Figure 17

- 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 18

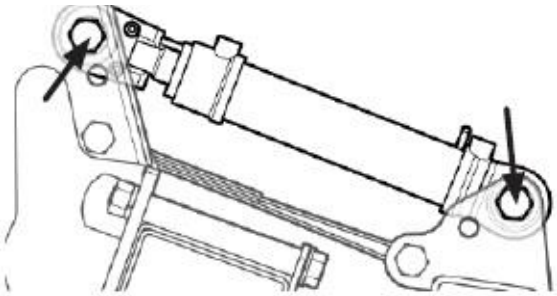


Figure 18

5.4.2 - 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 19 A safety strap still retains the cylinder from over-extending. The first two positions for the cylinder are the same as MY2019 cylinder. There is no third position
2. There are two possible positions for the tilt cylinder. This will vary between combines depending on the angle of the feederhouse of the combine.
3. **Position 1** is the factory position and should work for most combines.
4. **Position 2** are for combines with a steeper angle and allows the header to be pulled back to make flatten the angle of the cutterbar.

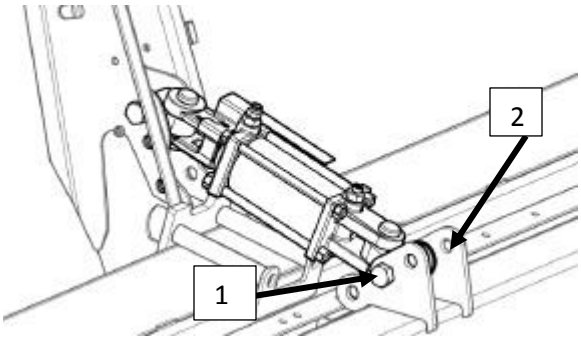


Figure 19

5.4.3 - Manual Tilt Cylinder

The subframe can also have a manual tilt turnbuckle to change the angle of the header. The length of the turnbuckle can be changed as shown in Figure 20

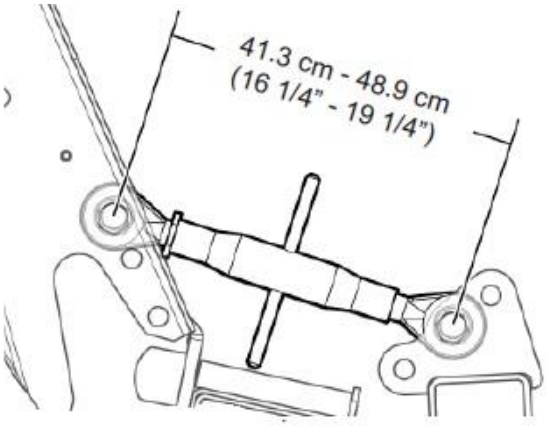


Figure 20

6 - Drives

Note: The tension should be adjusted when the belt is at room temperature. Adjusted when the belt is cold can cause tit to be the incorrect 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 will be damaged.

Note: The pulleys for the drive on each brand of combine and Model Year of header are different sizes. See section 16.4 -

Note: On all drives 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**

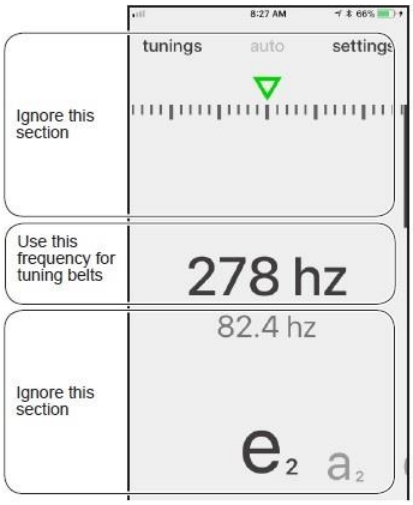


Figure 21

5. ***Android Devices***

Figure 22

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 23
2. Loosen the lock nuts at the front of the GT case and remove the adjusting bolt under the left-hand GT case. Figure 24
3. Loosen the tension bolt for the feed auger drive belt, remove the bolt retaining the idler and remove the belt.
4. Remove the left-hand draper drive belt.
5. 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.
6. To remove a cogged pulley from its shaft, remove both of the set-screws that keep it tight. Figure 26
7. 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.
8. Remove the 4 bolts retaining the bearing housings to the GT Case. Figure 25 Replace the complete bearing housing assembly. (Note: In most cases if a bearing is out it is better to replace the complete assembly)

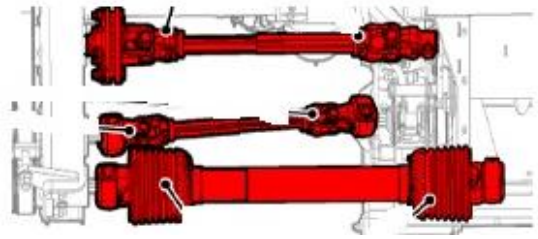


Figure 23

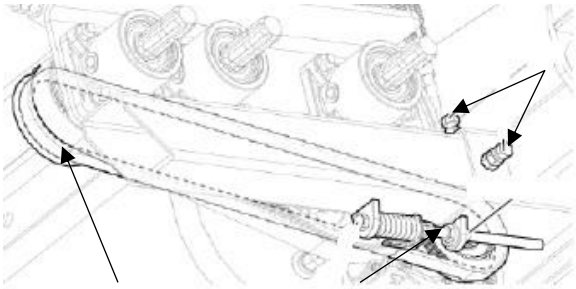


Figure 24

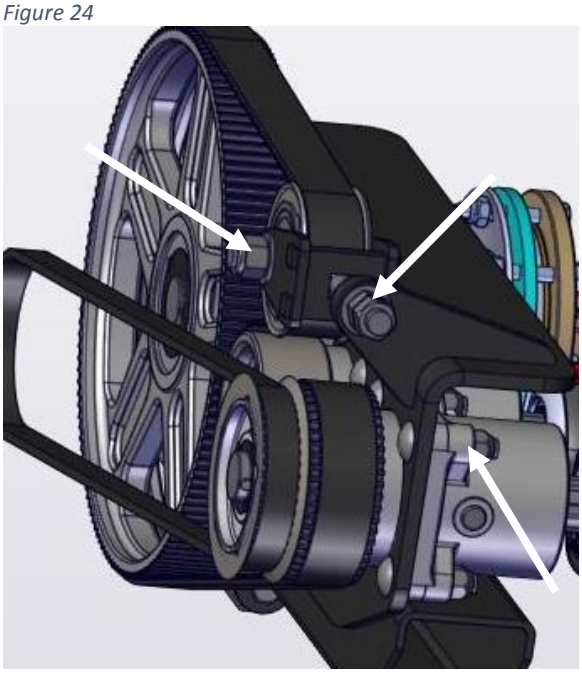


Figure 25

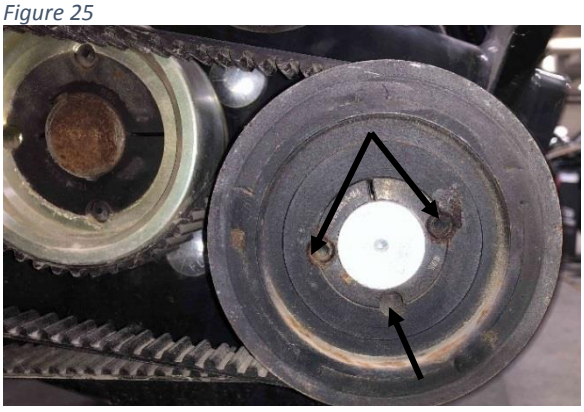


Figure 26

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. Align the pulleys with the drive pulley on the draper gearbox.
4. Torque the drive pulley hub set screws to the torque as described in Figure 27.
    - The 5/16” setscrews in the draper drive hubs are torqued to 15 ft. lbs.
    - The 3/8” setscrews in the remaining pulleys are torqued to 24 ft. lbs.

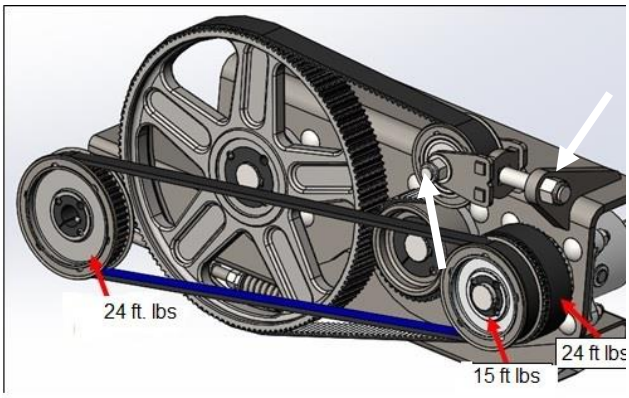


Figure 27

5. Install the auger drive belt and tighten it to
    - 0-24 Hours of use 195-200HZ on new belt
    - 24+ of use 165-170HZ on used belt.
6. Install the draper drive belt and use the tension bolt on the underside of the gearbox assembly to tighten the belt.
    - Note: Pick up the end of the GT case and move around so that the GT case will “find home”. Then check the tension of the belt again.
7. Retighten the lock nut and lock bolts when desired tension is achieved. Figure 28

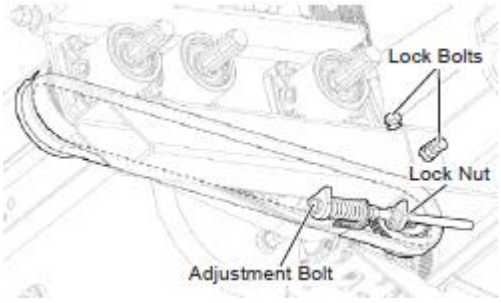


Figure 28

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 the GT case side of the knife drive shaft. Figure 29

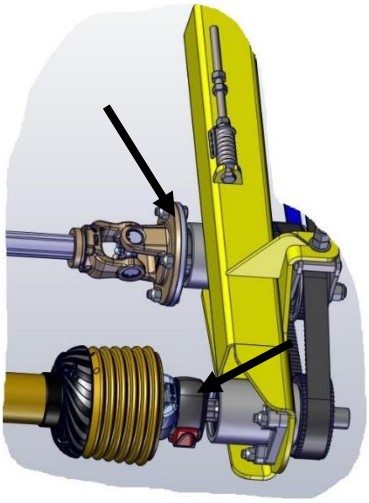


Figure 29

2. Loosen the jam nuts and spring assembly holding the right-hand draper belt. Figure 30

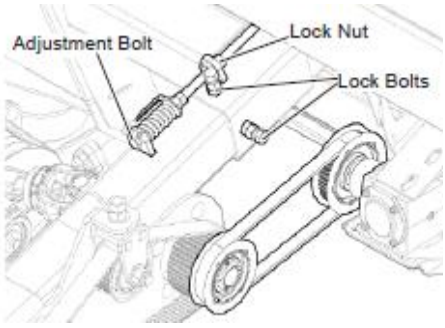


Figure 30

3. Remove the right-hand draper drive cog-belt.
4. Remove the drive belt from the two drive pulleys by loosening the idler jam nut and tension nut. Figure 31
5. Remove the idler assembly and belt if the belt needs to be replaced.
6. Once the idler assembly is removed remove the bolt retaining the idler to the idler bracket. Figure 31
7. Remove the bearing housing assembly.

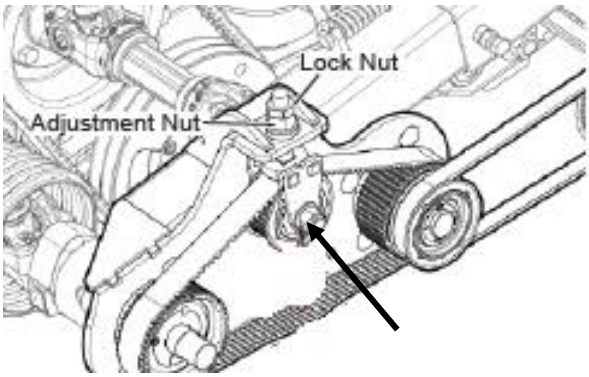


Figure 31

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 32 Use the adjustment bolt to tighten the belt to
   - 0-24 hours of use 180-190Hz on a new belt.
   - 24+ hours of use 160-170Hz on a used belt.

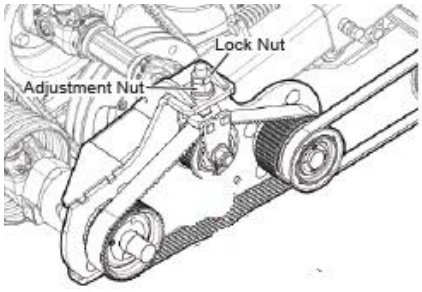


Figure 32

4. Install the Right-hand draper drive cog-belt.
   - 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 check the tension of the belt again.

5. Retighten the lock bolts and lock nut when desired tension is reached. Figure 30
6. Install the knife drive shaft on the front bearing mount. Tighten the mounting bolts to 75 ft. lbs (101Nm)
7. Install the PTO shaft back on the gearbox and combine.

6.5 - Knife Drive Belt Removal

1. Remove the 4 bolts that retain the drive shaft to the knife drive Figure 33

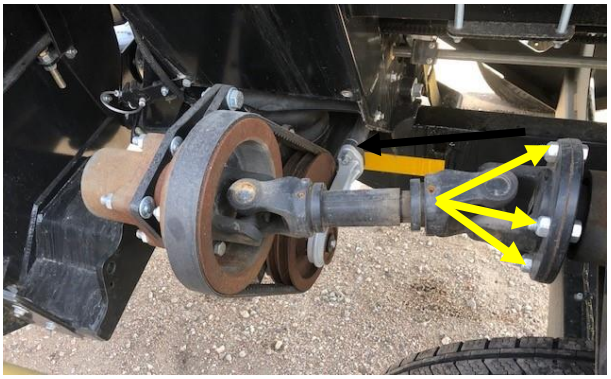


Figure 33

2. Remove the two bolts holding the right-hand tie rod arm.
3. Loosen the large lock nuts and cam lock bolt but do not remove. Figure 34

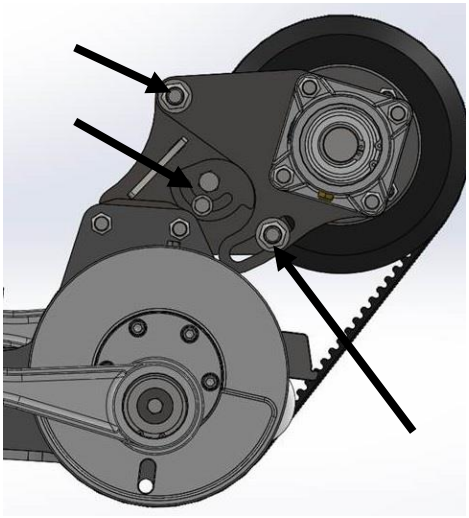


Figure 34

4. Remove the belt.
5. Replace the belt and tighten the belt using the locking cam.
6. Correct tension is achieved when the belt vibrates at 60-70Hz when being tapped with a wrench.
7. If unable to tension the belt using HZ, 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 35

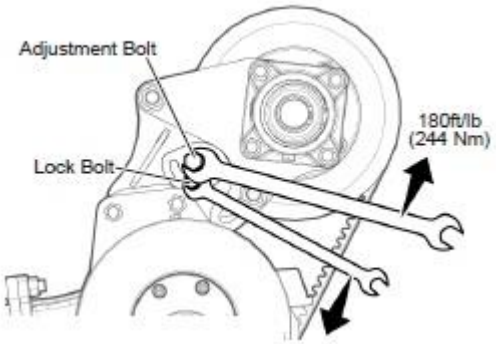


Figure 35

8. Install the right-hand tie rod to the connecting rod and torque the carriage bolts to 68 ft. Lbs (92 Nm) with red Loctite on the nuts
9. Install the knife drive shaft on the front bearing mount. Tighten the mounting bolts to 75 ft. lbs (101Nm)

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 36

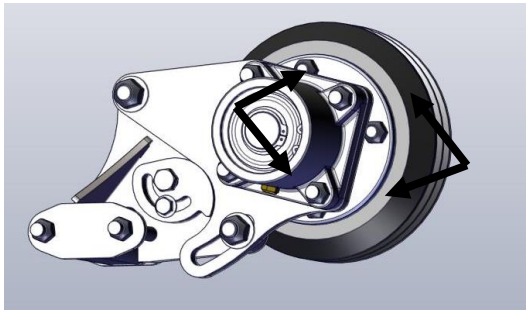


Figure 36

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 37

Note: The pitman arms will need to be removed before the connecting arms can be removed. The connecting 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 connecting arms.

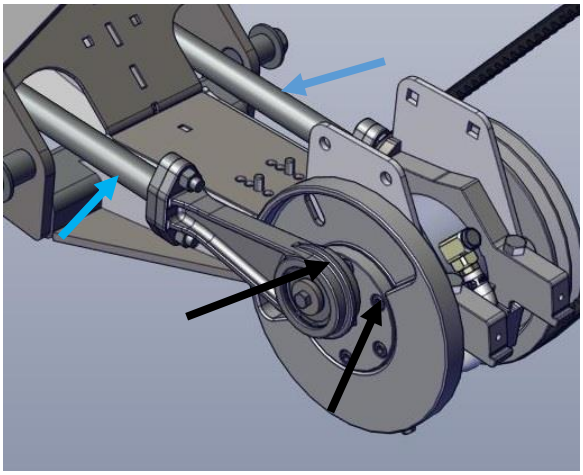


Figure 37

5. Remove the bolt through the center of the bearing and remove both flywheels.
6. Remove the hose, fittings and drain the oil from the bearing. Note on model year 2019 and newer the drain plug on the bottom of the bearing will need to be removed to drain the oil. Figure 38

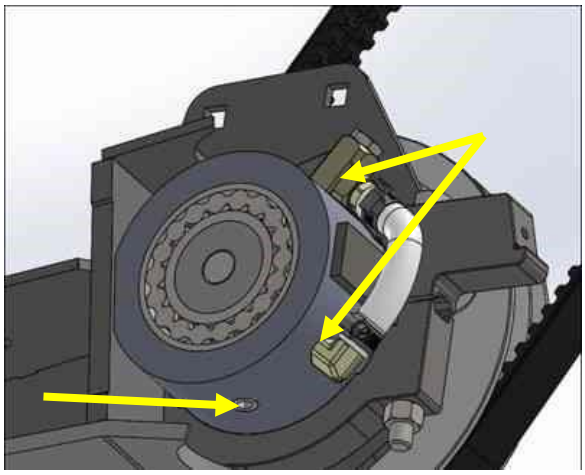


Figure 38

7. 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.
8. Install the new bearing assembly in the drive paddle. Tighten the clamp bolts enough to hold the bearing in place.
9. 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 39

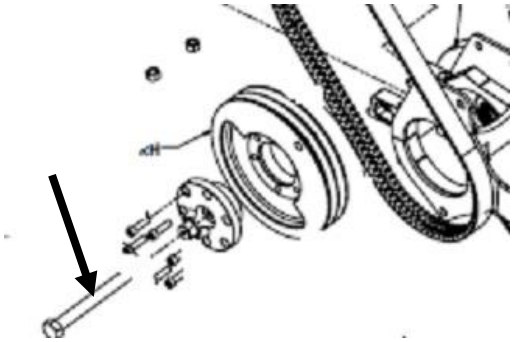


Figure 39

10. Center the bearing assembly in the drive paddle making certain that the flywheels are the same distance from the paddle. Use red Loctite and tighten the bolts to 120 ft. lbs. Figure 40

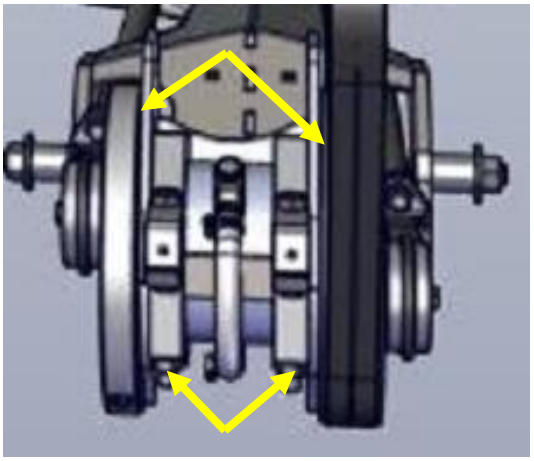


Figure 40

11. Install the connecting arms on the flywheels and torque the bolts to 23 ft. lbs.

Note: When installing the connecting 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 41

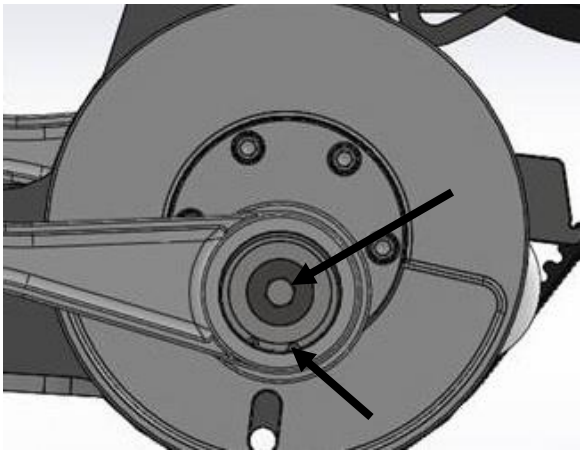


Figure 41

12. Install lower fitting and hose and fill the bearing housing with 75W-90 gear oil until it is halfway in the tube.
13. Install top fittings and hose.
14. Install the knife drive belt and tighten the belt to 60-70 Hz.
15. Install the tie rods to the connecting arms and torque the carriage bolts to 68 ft. lbs (92 Nm) with red Loctite on the nuts

Note: Check timing after installation per section 8.3 - Knife Drive Timing

6.7 - Slip Clutch

6.7.1 - 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 by holding the lock bolt holding it to the gearbox shaft. Figure 42

Figure 42

Loosen the bolts retaining the clutch spring. Figure 43

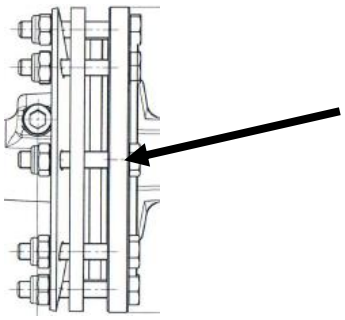


Figure 43

3. Disassemble the clutch and replace the friction discs.
4. Tighten the clutch bolts up finger tight.
5. Replace the clutch on the drive shaft on the drive.
6. Install the other end of the shaft on the auger stub shaft.
7. Run the header for about 2-3 seconds with the clutch slipping. This will burnish the new friction discs.
8. When tightening the bolts use a crossing pattern. Figure 44

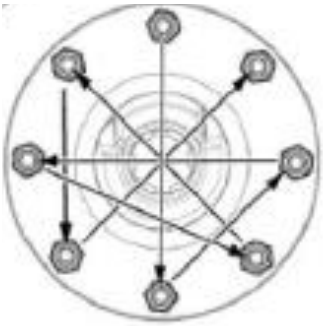


Figure 44

9. 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 44. Tighten the bolts 2 flats and then go to the next bolt.
10. The distance between the spring and the top plate should be 17.5 +or – 0.3 mm
12. After installation make certain that all of the shields are reinstalled.
13. During the Model Year 2017 and all Model years after a double spring was used, Figure 46. On these clutches the distance between the spring and the top plate should be adjusted to 20.7mm + or – 0.2mm.

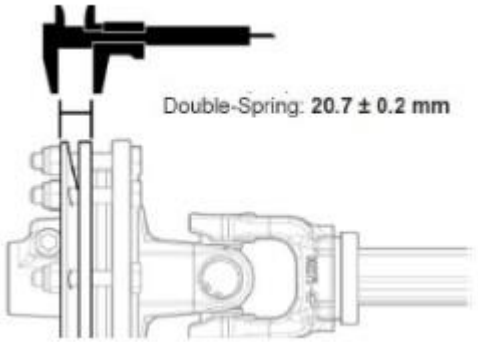


Figure 45

Figure 46

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 three different drive systems for the center deck. Model year 2018 and below a spring controls the tension on the drive belt. 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 and Below

1. Remove the tension rod by loosening the jam nuts and shorten the rod to remove the belt. Figure 47
2. The idler can be removed by removing the pin at the bottom of the idler mount. Figure 47

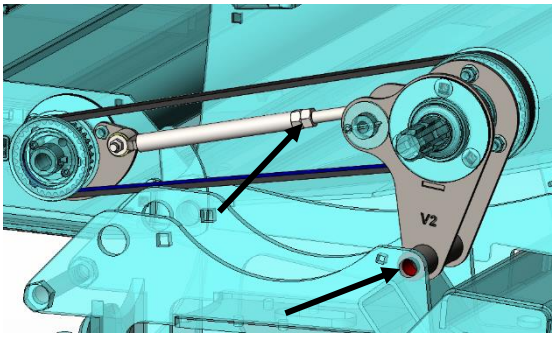


Figure 47

3. The idler can be disassembled for repair by removing the pulley. 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.

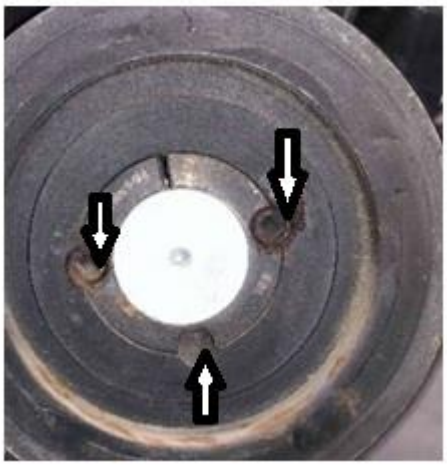


Figure 48

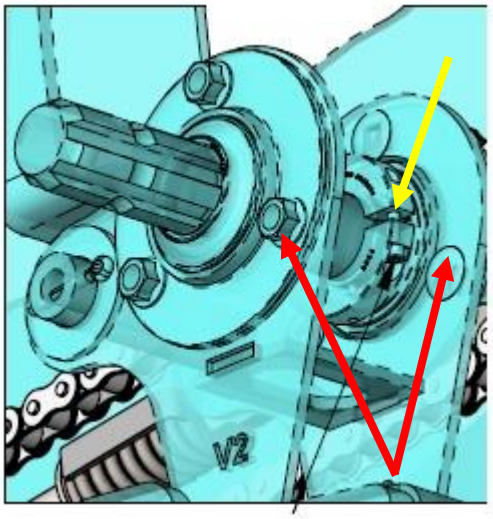


Figure 49

4. Remove the set screws from the lock collars on the shaft.
5. Remove the bearing flangettes and the bearings off the shaft. Figure 49
6. Assemble the idler in the reverse order.
7. The bearings are held on with a split lock collar bearing, Figure 49. Torque the Torx screws in this lock collar to 97 in. lbs
8. The belt is tension with the nuts on the adjustment rod, Figure 47.
9. 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 50
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 50
5. Remove the pin and idler assembly. The idler can then be disassembled like the earlier Model years.

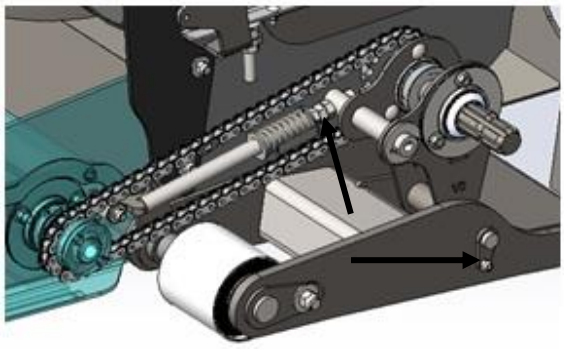


Figure 50

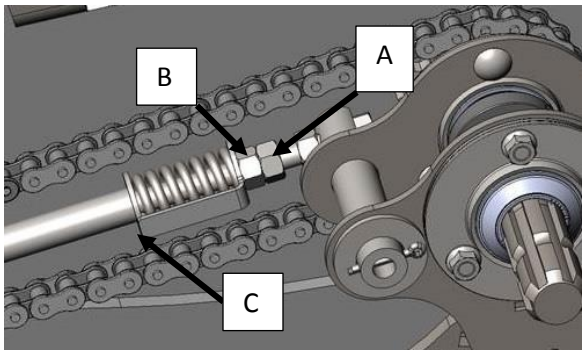


Figure 51

6. The idler assembly is disassembled in same manner as the previous years.
7. Install in the reverse order.
8. To adjust the chain, loosen the locknut (A) on the adjustment rod. Figure 51
9. Turn the adjustment nut (B) until the tension indicator is flush with the washer at the end of the spring.
10. Tighten the locknut against the adjustment nut to hold the spring in place.

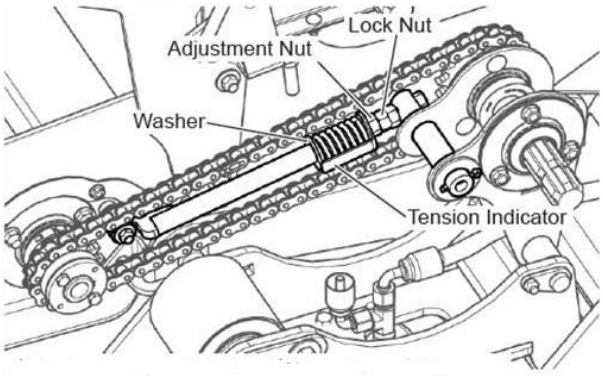


Figure 52

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 53
3. Remove all the bolts in the splice and pull the belt off the center frame Figure 53

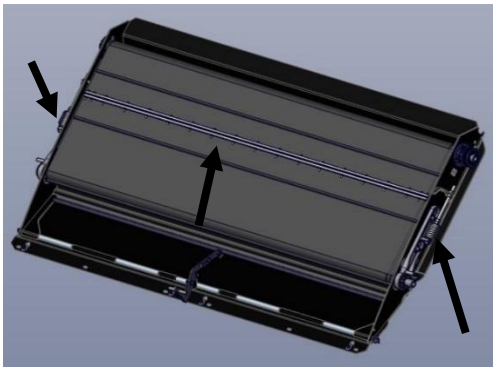


Figure 53

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 54

Figure 54

8. Remove the front tension assembly and bearing.
9. The rollers can now be removed from the right-hand side of the frame.

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 55

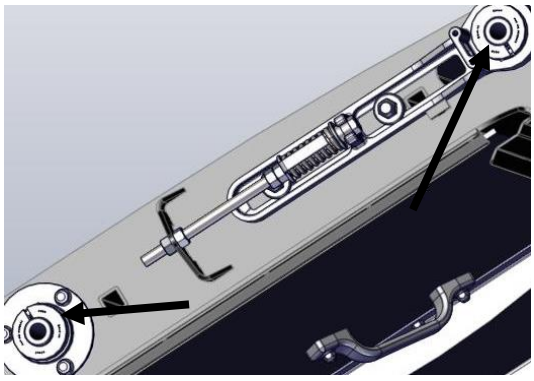


Figure 55

17. Install the drive pulley, or sprocket on the drive roller.
18. Install the belt or chain depending on Model Year.
19. Make certain that the belt is aligned with the idler pulley assembly on the subframe. Figure 56 and Figure 57.

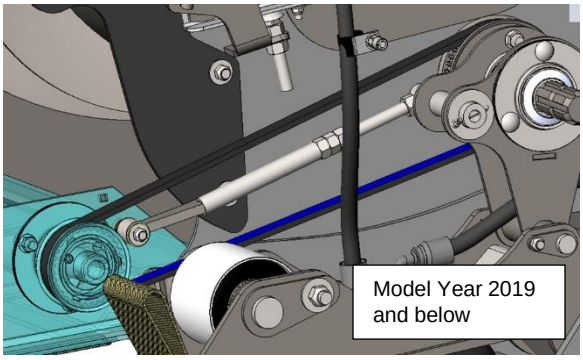


Figure 56

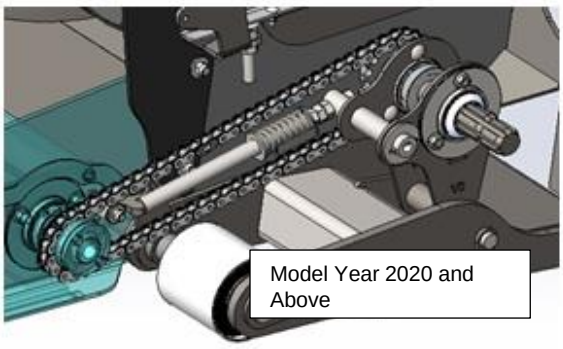


Figure 57

20. 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.
21. Pull draper through bottom runner, and wrap around the other roller. Pull the ends of the draper together.
22. 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.

7.2.1 - Tensioning the Center Draper Belt

⚠ 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.

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 58
3. Loosen the ½" 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.

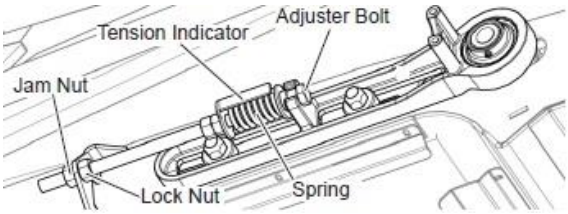


Figure 58

5. Measure the distance between the center of each roller on the center deck. Figure 59
6. If the distance between the center of the two rollers is not the same tighten the adjuster on the shortest dimension until they are the same measurement.
7. This will ensure that the draper belt is running straight and the V-belt on the back of the draper will stay in the groove.

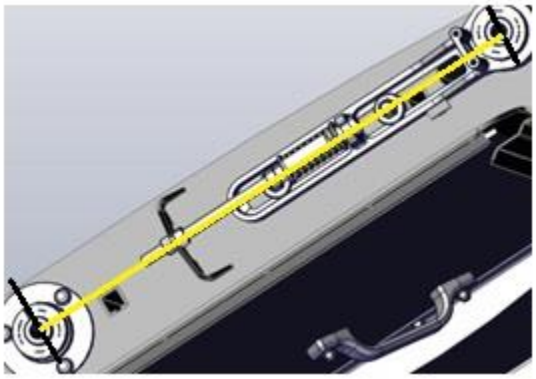


Figure 59

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 60

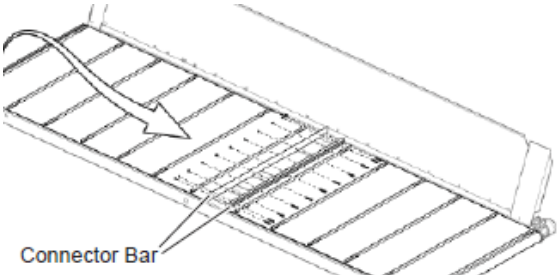


Figure 60

3. Loosen the bolts on the bottom of the gearbox. Remove the tension bolt and remove the belt from the gearbox. Figure 61
4. On the end of the deck, closest to the center deck, remove the shield, belt, and drive pulley. Figure 62

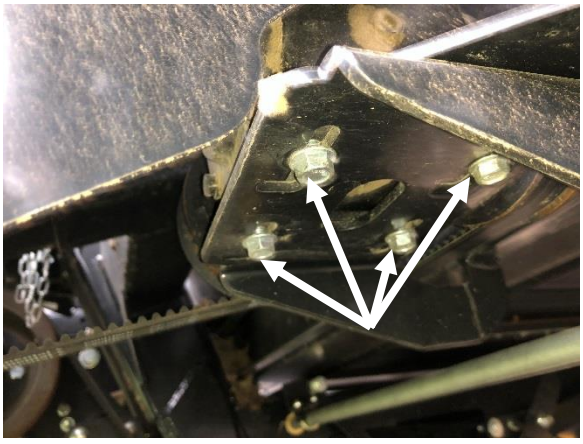


Figure 61

5. Remove bearings assemblies on the drive side by removing the two retaining bolts. Figure 62

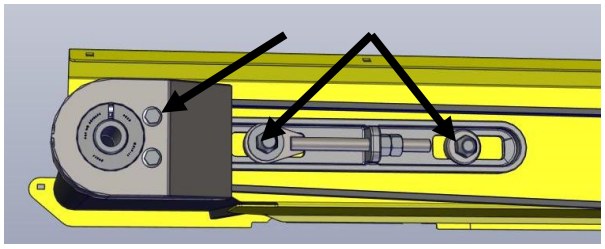


Figure 62

6. On the front side remove the retaining bolt the holds the roller in place. Figure 63 That will allow you to remove the roller. This figure shows Model Year 2015 and above. Model Year 2014 and below is slightly different.

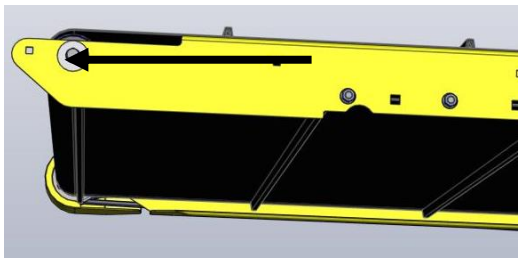


Figure 63

Idler Roller Removal

7. Remove the shield and lock collar. Remove the bolts holding the bearing holder and remove the bearing and holder. Figure 64

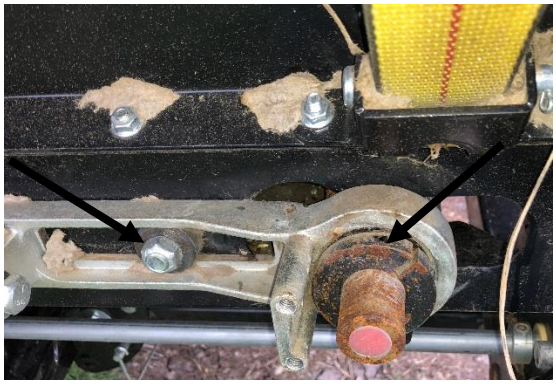


Figure 64

8. 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 65

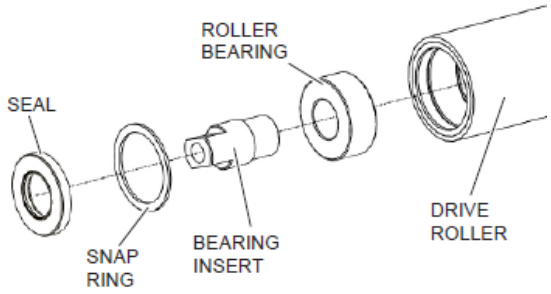


Figure 65

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 66

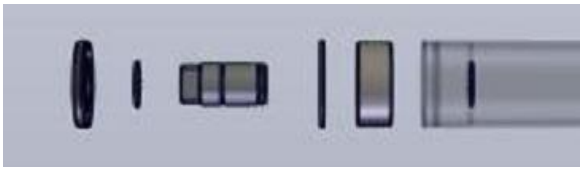


Figure 66

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 67

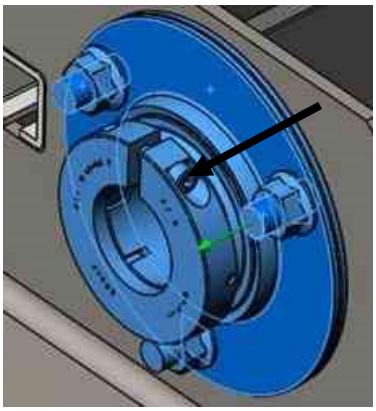


Figure 67

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 68

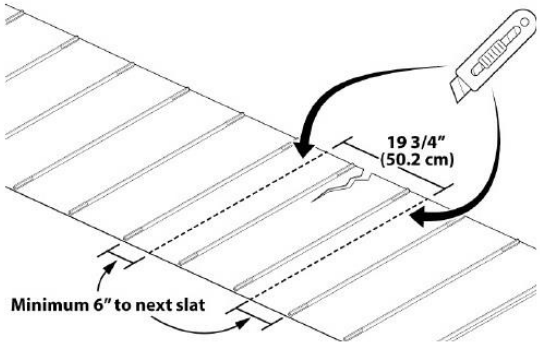


Figure 68

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 69

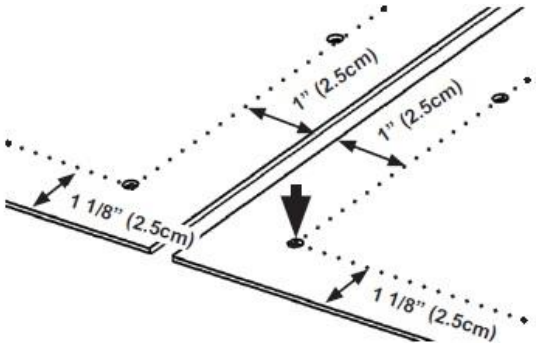


Figure 69

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.

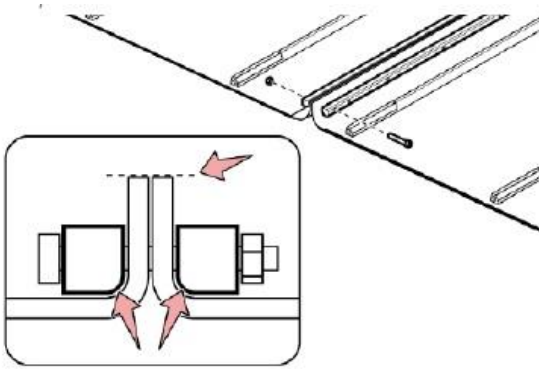


Figure 70

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 71

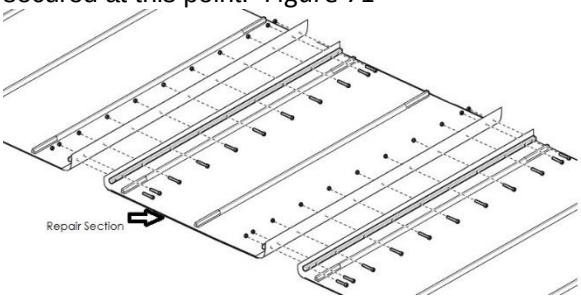


Figure 71

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 - Draper Belt Installation

1. After the rollers are installed the rollers need to be square to the frame. Use a square to make certain the roller is perpendicular to the frame. Figure 72 If the roller is not square, loosen the lock nut and reposition the drive roller via the adjustment nut. Figure 73

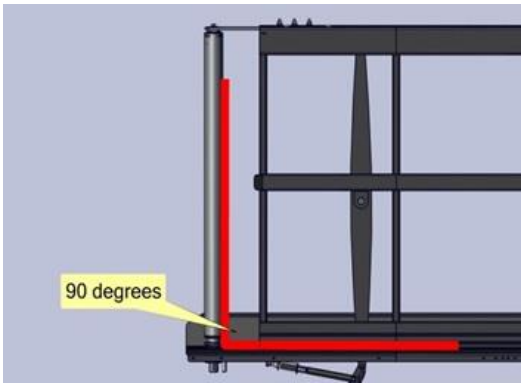


Figure 72

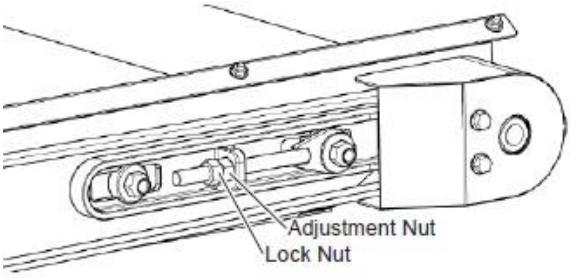


Figure 73

2. Make sure that the *quick release handle* is in the open position prior to installing the draper on the deck. Figure 74

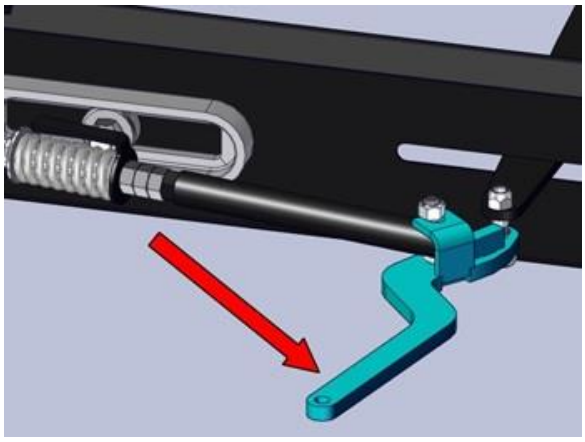


Figure 74

3. 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 75

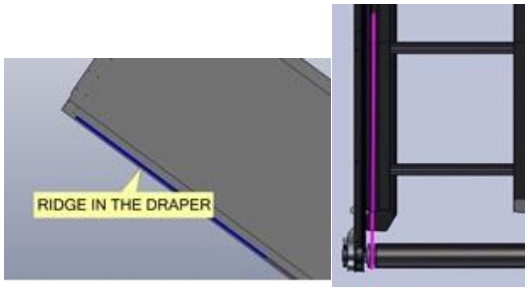


Figure 75

4. 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.
5. 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.
6. 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 76

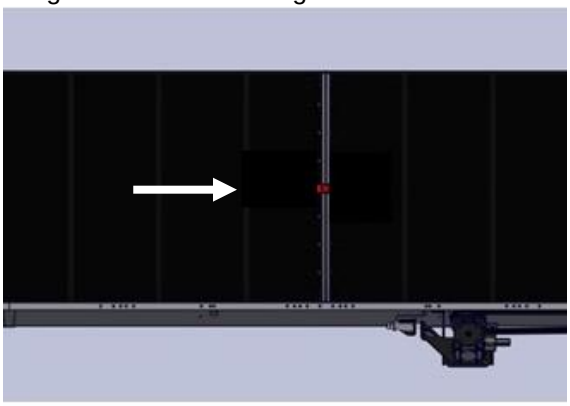


Figure 76

7. Once the draper is installed close the quick release lever to apply tension to the draper.
8. Turn the adjuster bolt until the indicator is aligned with the washer. Lock the handle and tighten the lock nut. Figure 77.

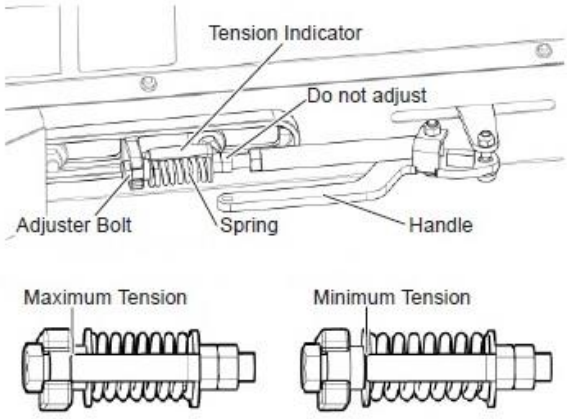


Figure 77

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. If there is an issue in the gearbox it is best to replace the gearbox.

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 78.

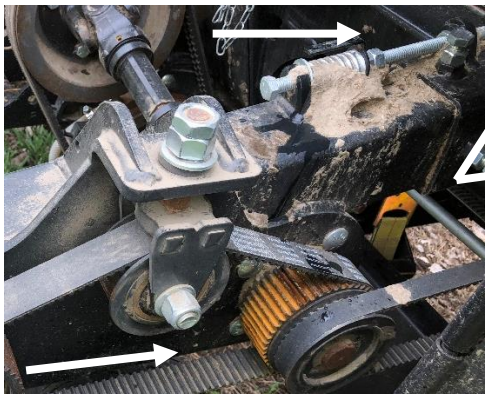


Figure 78

2. 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 79

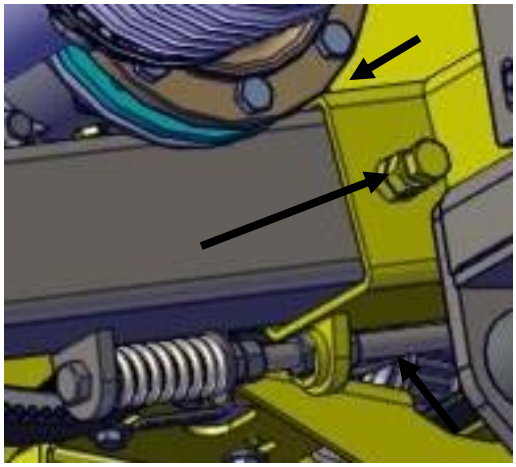


Figure 79

3. Note: The rest of the procedure works on either the left-or-right hand side gearbox removal.
4. Remove the spring tension system off the gearbox assembly. Loosen the gearbox mounting bolts and remove the drive belt. Figure 80

Figure 80

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

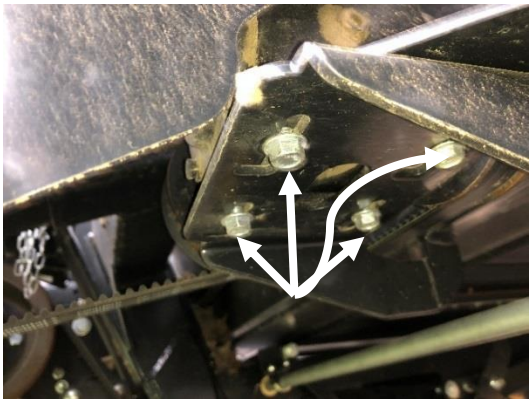


Figure 81

6. 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 82

Figure 82

7.8 - Draper Gearbox Seal Replacement

1. The input and output shaft seals are replaceable. Figure 83

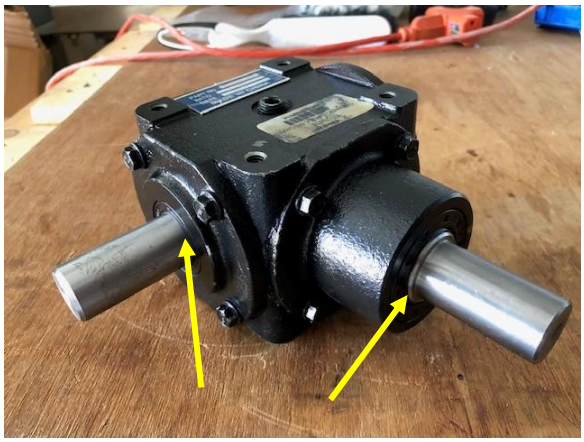


Figure 83

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 84
6. To install the seal use a pipe to press on the outside of the seal to push the seal in place.

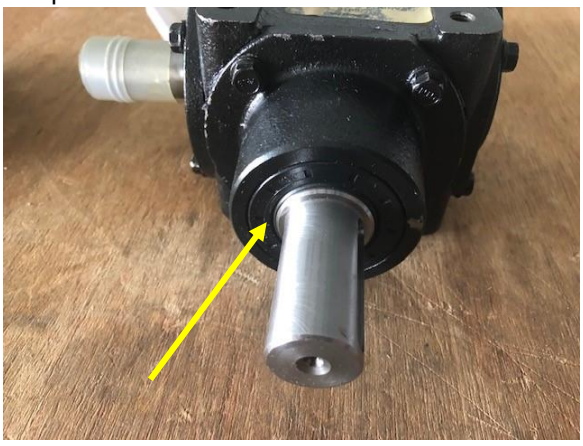


Figure 84

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 85 Note: If the shafts, gears, or housing is damaged the entire gearbox must be replaced.

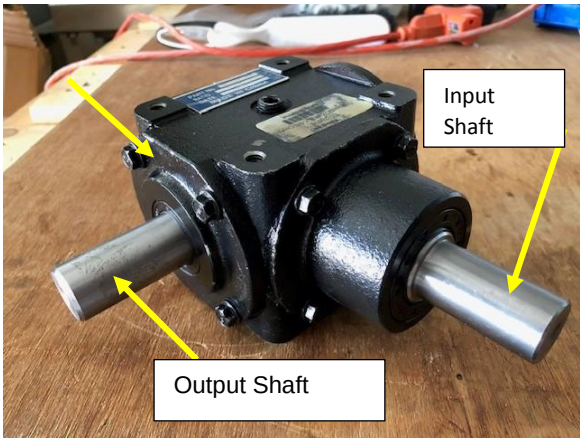


Figure 85

7.9.1 - Output Shaft Bearings

1. To replace the bearings on the output-shaft remove the four bolts holding the cap. Figure 85
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 86
5. The bearing on the other end of the shaft can now be pressed off.

Figure 86

6. Remove and replace the outer bearing races in each of the end caps.
7. Install the shaft in the gearbox.
8. 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
9. Press the new bearing cone on the end of the shaft. Make certain that it is pressed against the shoulder of the shaft.
10. 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.
11. 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 85

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 87

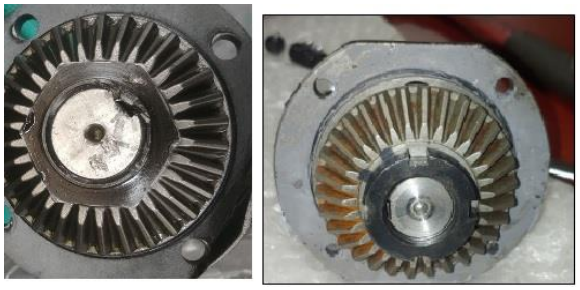


Figure 87

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 88

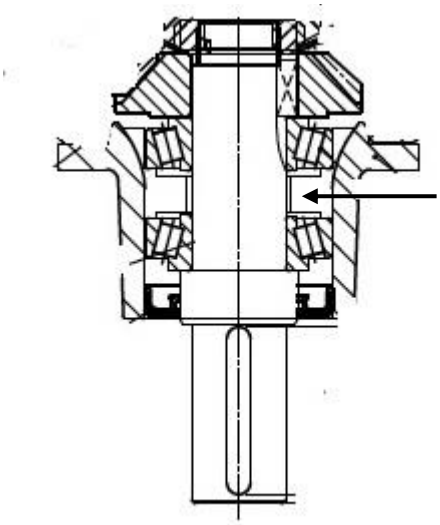


Figure 88

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 88
7. Install new bearings and cups on the shaft.
8. Make certain that the spacer is between the bearings. Press the bearings on the shaft until they are against the collar on the shaft.
9. Install key and gear on the shaft and press the gear against the top bearing.
10. Install the nut on the end of the shaft. Figure 89

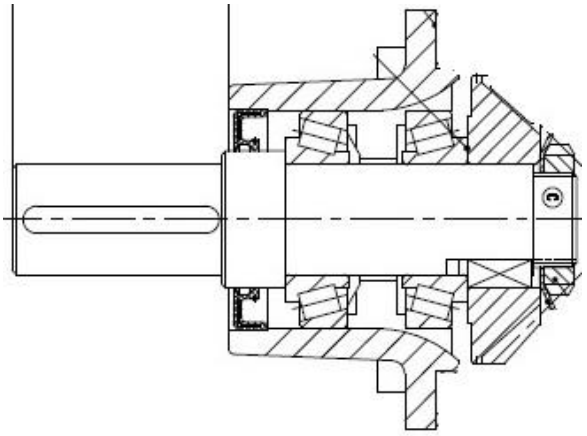


Figure 89

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 90

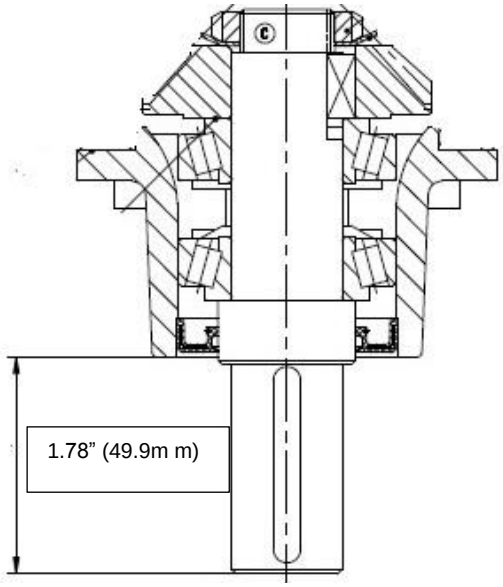


Figure 90

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.
5. The backlash should be between 0.016 and 0.025

6. If the backlash is too small install another paper shim under the input housing, 1, Figure 91
7. If the backlash is too large install a shim between the gear on the input shaft bearing and gear, 2, Figure 91

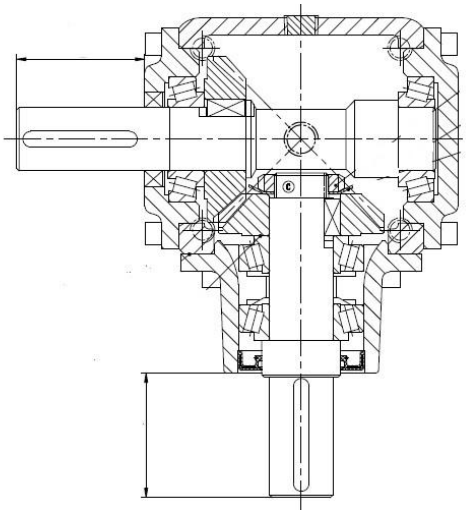


Figure 91

7.10 - Installation of the Draper Deck Gearbox.

1. Install the pulleys on the gearbox before installing the gearbox on the mounting plate. Make certain there is clearance between the gear and the deck frame. Set the pulley at the same location and tighten the set screws to 15 ft. lbs.
2. Install the gearbox on the plate and install the mounting bolts, leaving the bolts loose so the gearbox will slide.
3. 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.
4. 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 92

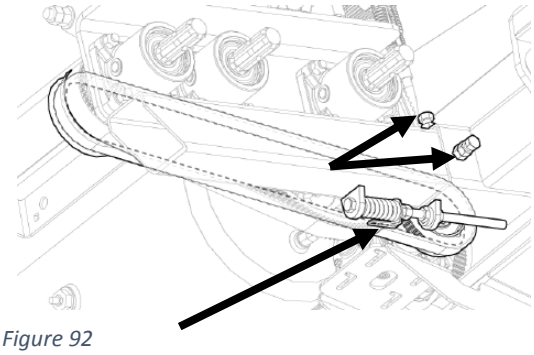


Figure 92

5. Fill the gearbox with 75W90 oil. Remove the plug on the top of the gearcase and fill until oil comes out the side plug. Figure 93

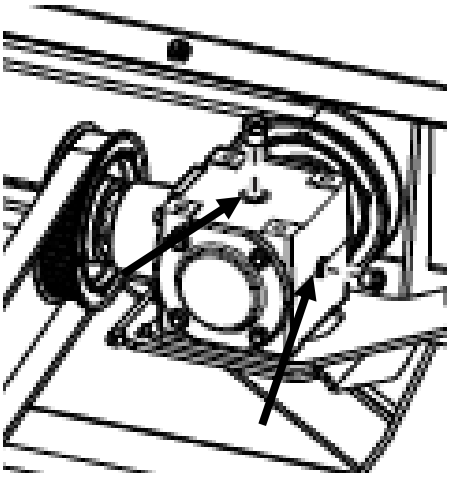


Figure 93

8 - Knife Assemblies

8.1 - 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 94

Figure 94

2. The wear strips go under the guards on the outer side of the cutterbar. The spacers go on the guards in front of the knife drive. Figure 95

3. **On Model year 2019 and older** there are 6 spacers used in the center of the cutterbar.
4. On **Model Year 2020 to 2022** there are 10 spacers used.
5. On **Model Year 2022 and above** the wear strip will be ".100" thinner, Figure 94 to allow more area for the knife to move and not cause it to arc. The new wear strips will be on each side of the center spacer per the following chart.
6. Header width # of new wear strips

- 25FT 8 PER SIDE
- 30FT 10 PER SIDE
- 36FT 12 PER SIDE
- 40FT 12 PER SIDE
- 45FT 12 PER SIDE
- 50FT 15 PER SIDE
- 60FT 15 PER SIDE

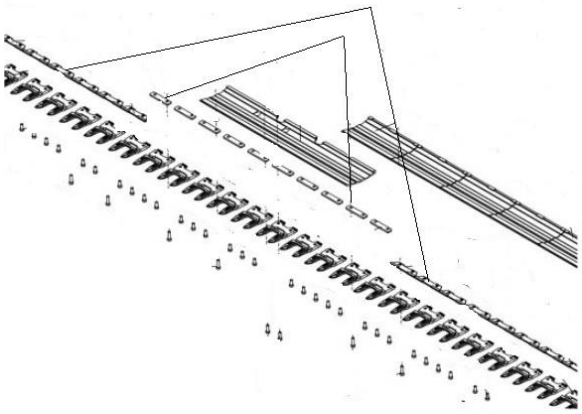


Figure 95

7. 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 37 ft. Lbs. of torque. Figure 96

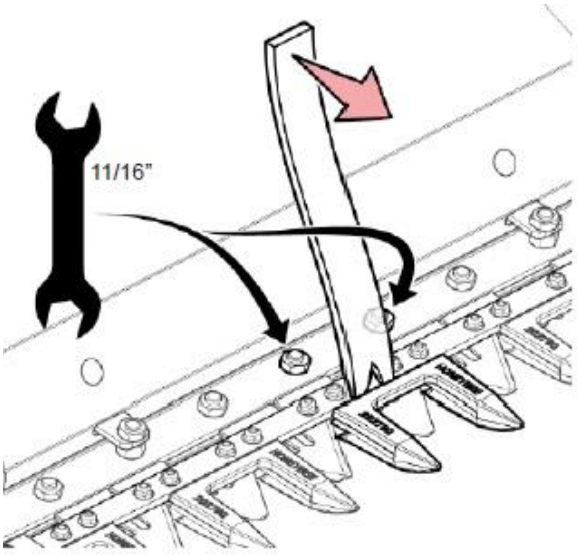


Figure 96

3. Install the knife head bearings on the knife heads.
4. 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. It may 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 97

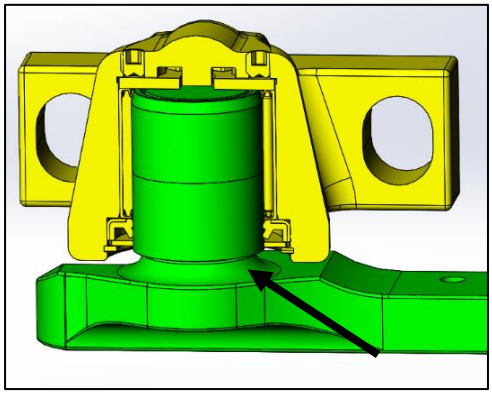


Figure 97

5. Reinstall grease zerk (if removed) once knife head 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.
6. Install the 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.
7. Clearance between the guard and the knife back should be 1-32” to 1/16” Figure 98

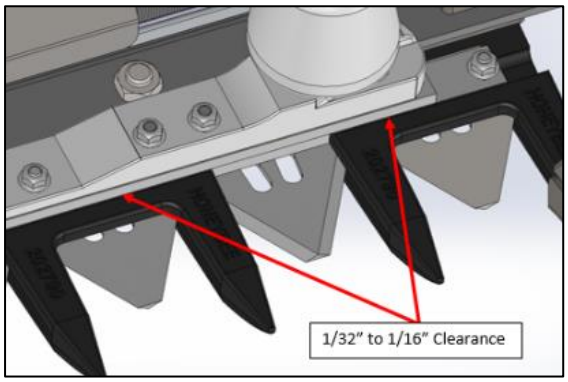


Figure 98

8. Make sure to optimize clearance with shims for both RH and LH knife.
9. Before the knife head bearing housing mounting bolts are tightened, we need to make sure the knife head bearing housing is bottomed onto the knife head and the knife is running along the bottom of the guard. Figure 99.

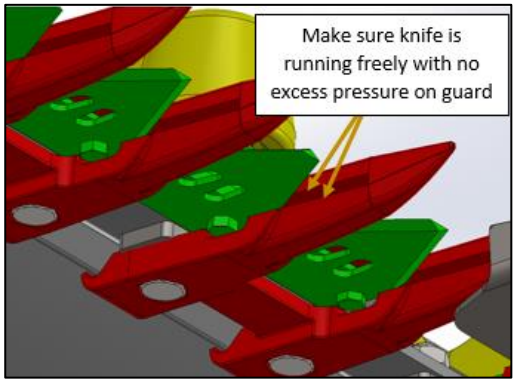


Figure 99

10. Tighten the knife head bearing housing mounting bolts to 170 ft-lbs. Use a pry bar to make certain the bearing housing does not twist when the bolts are tightened.
11. 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.
12. 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.
13. 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 100
14. Check timing per section 8.3 - Knife Drive Timing ..

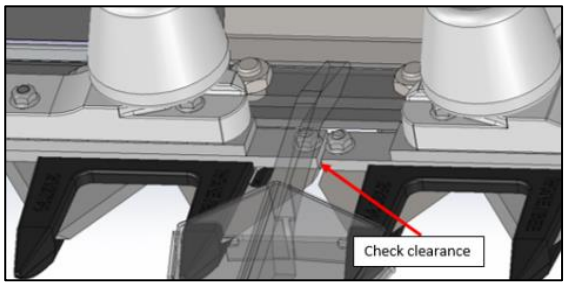


Figure 100

15. 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.

16. 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°C please check the bearing.

8.2 - 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.

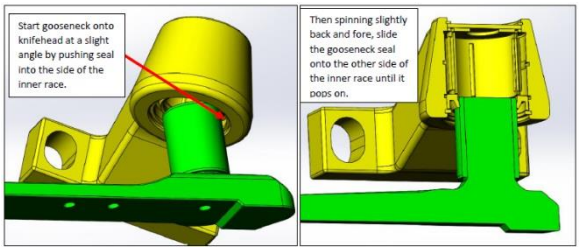


Figure 101

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 102

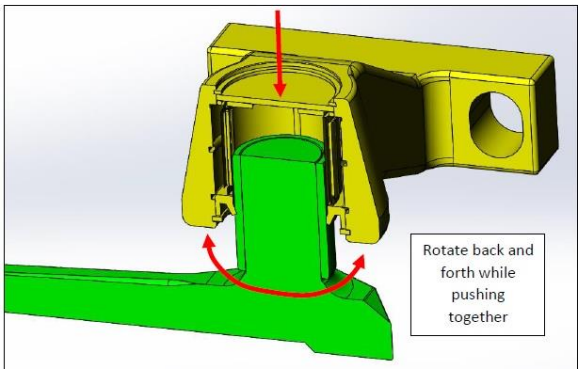


Figure 102

6. Image showing how to install bearing fully onto inner race by rotating back and fore while pushing both together by hand. Figure 102
7. 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
8. Put Red Loctite on knife head mounting bolts and loosely connect knife head to bell crank.
9. 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.

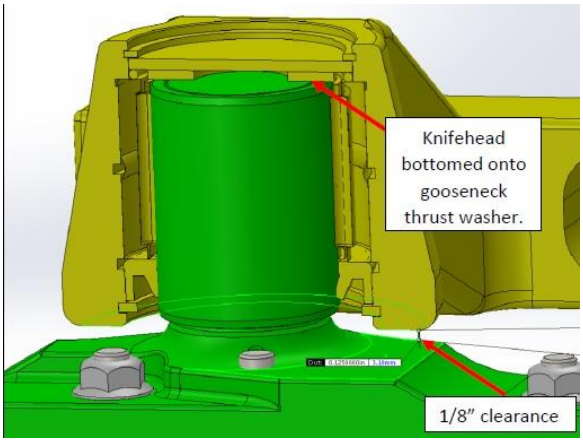


Figure 103

10. Image showing the knife head fully installed onto knife head. Roughly 1/8" clearance between bottom of knife head and face of knife head. Figure 104
11. Adjusting the position of the Knife head bearings and knife assembly.

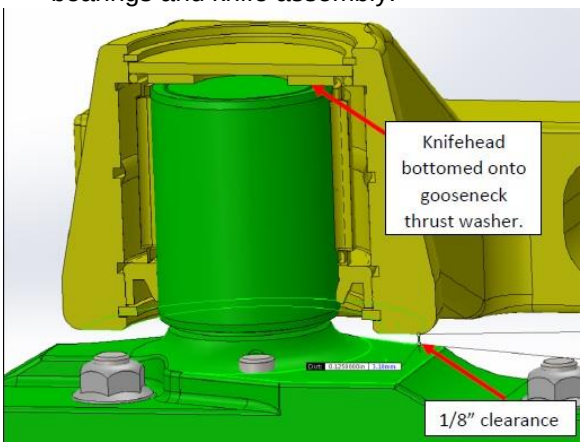


Figure 104

12. The minimum clearance (1/32" to 1/16") between knife assembly and center guards. Figure 105

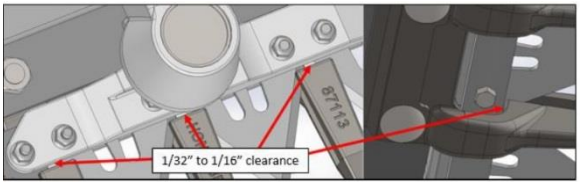


Figure 105

13. Before the knife head mounting bolts are tightened, we need to set the vertical position of both knifes.
14. 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 106
15. 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. We are most worried about having minimal down pressure of the LH knife down onto the center guards. This is all we are worried about. So, if you need to set without shim try to make sure there is hardly any down pressure of the LH knife down 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. Figure 107

16. 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.
17. 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.
18. 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.
19. 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.

20. 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.
21. This process will be confirmed during the run-in stage and checking the guard temperatures.
22. 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.

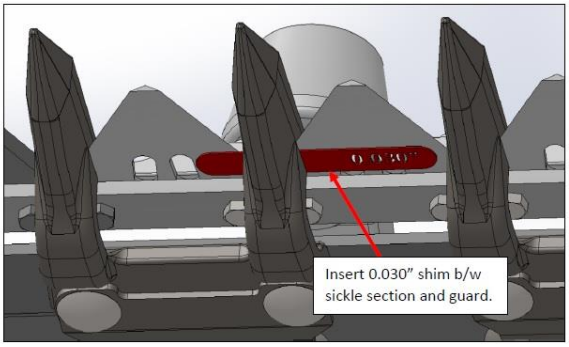


Figure 106

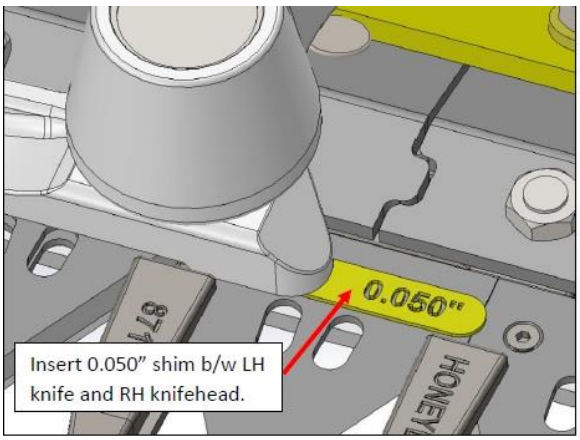


Figure 107

8.2.1 - Knife Hold-Down Adjustment for Standard Cutting System

1. Stroke the knife so that the sickle sections are directly underneath the hold-downs (A). Figure 108
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 (49 ft. Lbs)
5. Recheck clearance and readjust each hold down as required.

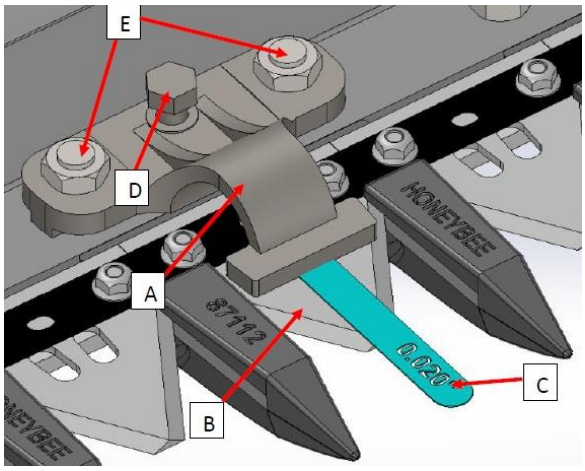


Figure 108

8.3 - 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 109
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 110
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 109

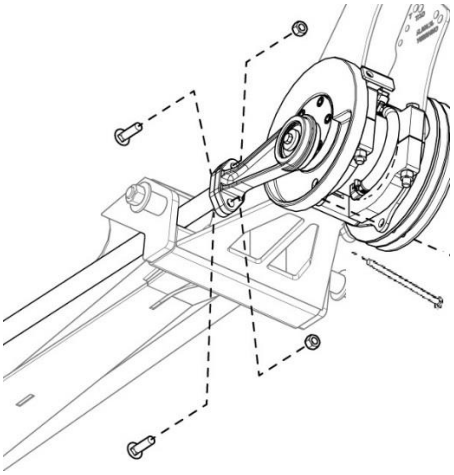


Figure 109

7. Once bell cranks are parallel screw RH pitman arm in (clockwise rotation looking at back of pitman arm) 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 110

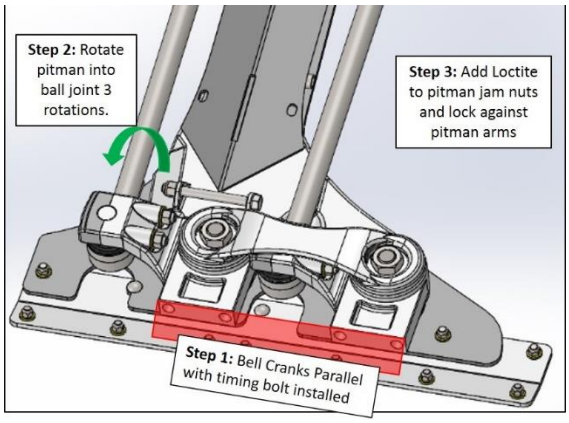


Figure 110

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.

8.4 - 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 109 in timing section.
2. Remove the feather plates above the knife drive assembly.
3. Remove the knife head bearings by removing the bolts. Figure 111. Note the location of any shims behind the knife head bearings.

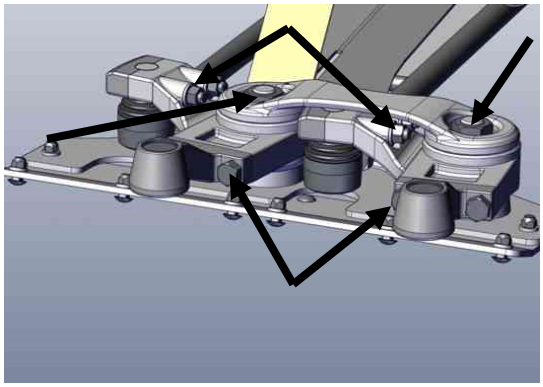


Figure 111

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 112.

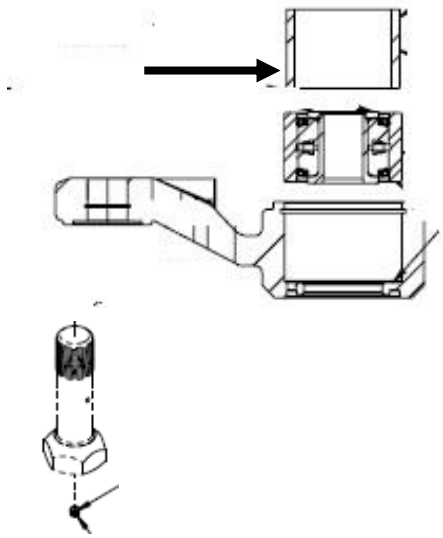


Figure 112

9. Install the bell cranks on the drive paddle. Insert the bolts from under the cutter bar and install the stabilizer bar with O-rings between the top of the bearing and stabilizer. Figure 113 Use grease to hold the O-ring in place. Put the nuts on the bolts finger tight to hold in place. Figure 114

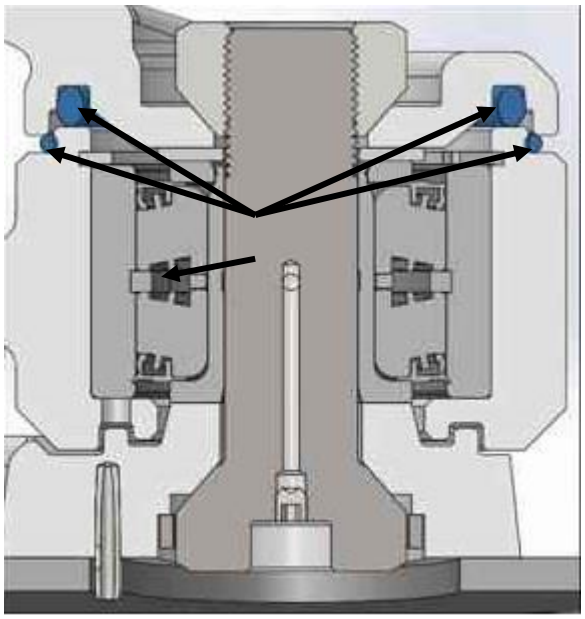


Figure 113

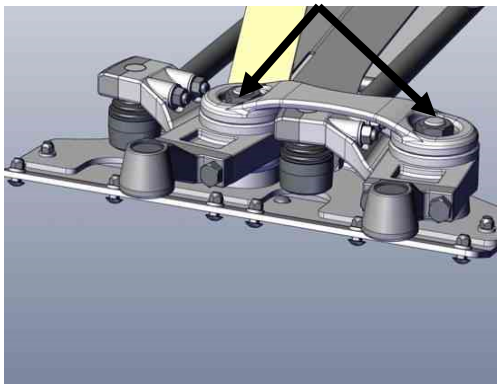


Figure 114

Figure 5

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 115

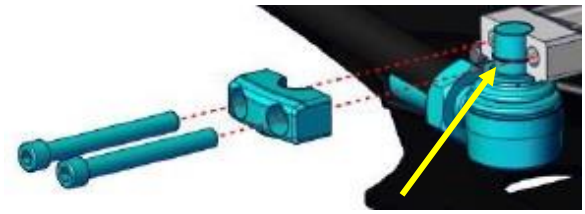


Figure 115

11. 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 the threads can stretch which will cause the bolts to fail. Use red Loctite on the nuts for the clamp bolts. Tighten to clamp bolts to 100 ft. lbs. Figure 116

Figure 116

Note: Do not use Loctite on the bell crank nuts. Torque the nuts to 765 ft. lbs. Figure 114

12. **On Model year 2019** and above a stabilizer with a 1 3/16" hole is being used. 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 117.

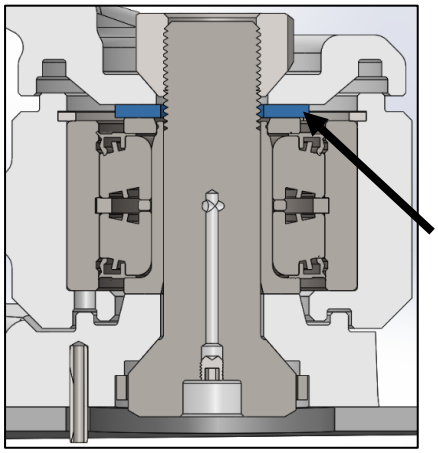


Figure 117

13. 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 118
14. The O-ring between the stabilizer and bearing is used on all units, item 1. The O-ring around the bearing is used on Model Year 2019 and above, item 2.

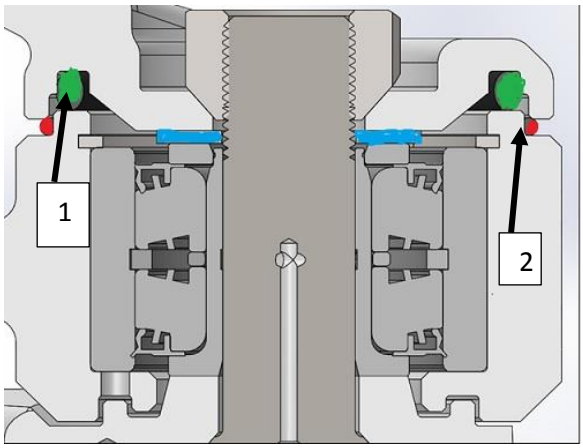


Figure 118

15. **Torque the Bell-Crank-nuts to 765 ft. lbs.** Figure 114 **Do not use Loctite**

8.5 - 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 119 Note: This is for the standard cutting system.

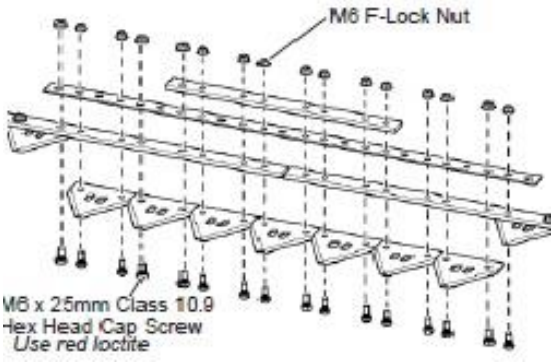


Figure 119

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

9 - Electrical

9.1 - Rigid Sensor System

1. The Rigid sensor system has two potentiometers mounted on the side of the subframe. They are connected to the suspended frame by a rod See section 5.1 - for mechanical adjustments of the rigid sensors. Figure 120
2. The sensors can be adjusted in the slots. The sensors should have a minimum range 1.5 volt to work properly.
3. The sensors follow the movement of the struts through the sensing tube. Power is provided through the combine to the sensor.
4. The sensor has three wires connected to the sensor. Figure 121
    - Power wire (this is combine sensor voltage). Red wire (C)
    - A ground wire. Black wire (A)
    - A signal wire which sends voltage from the sensor to the controller. Yellow wire (B)

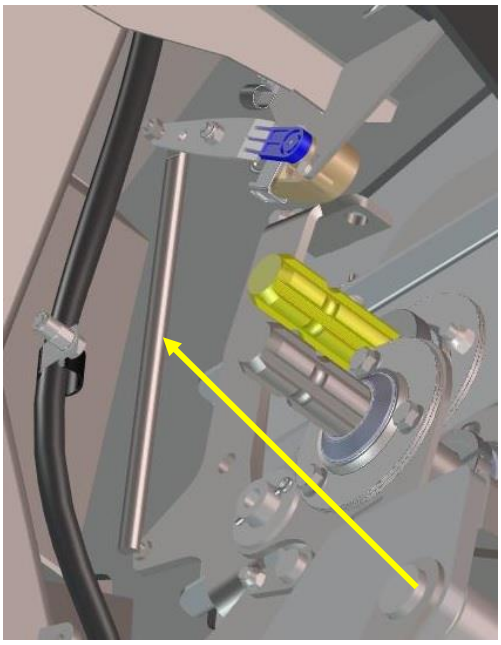


Figure 120

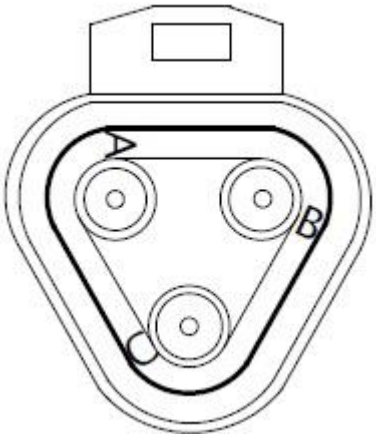


Figure 121

9.2 - Electrical System RDX

1. The rigid HHC system on the header goes directly to the combine through the multi-coupler system. There are several pins on this connector that are not used.
2. The wires used are:
    - Sensor Ground
    - LH Header Height
    - Combine Ground
    - 5 volt Reference (Ign)
    - Reel Speed Signal
    - RH Header Height
    - Note: A dummy plug must be used in t display connector on the single point if the header does not have a tilt cylinder. Figure 123

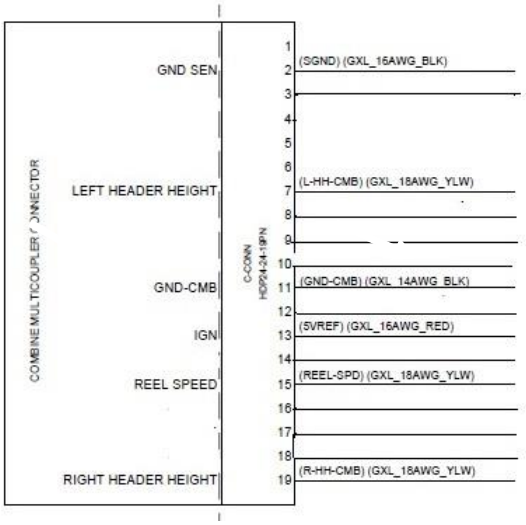


Figure 122

3. If the header has a hydraulic tilt on as an option there is a control box in the cab. This control box provides 12 volts for the solenoid to switch the reel lift to the header tilt.
4. The control box is attached to the cigarette light socket to provide the power to the solenoid.

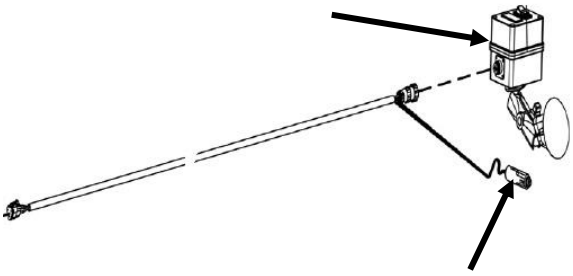


Figure 123

5. The control box attaches to the display connector on the multi-coupler. The box sends power to the tilt solenoid to change from reel to tilt.
6. Figure 124 shows the pin locations for the control box in the cab.

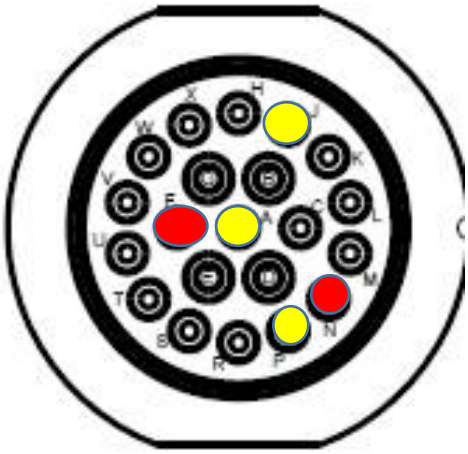


Figure 124

Pin ID	Wire color	Function
A	Green/Red	12V Pwr
F	Black	Ground
J	White	Tilt En
N	Orange	Jumper
P	Orange	Jumper

.

9. **Note: Either a control box or the HHC Jumper connection must be attached to the Display harness. Figure 125**

10. **Note: The Multi-coupler harnesses are different for each combine.**

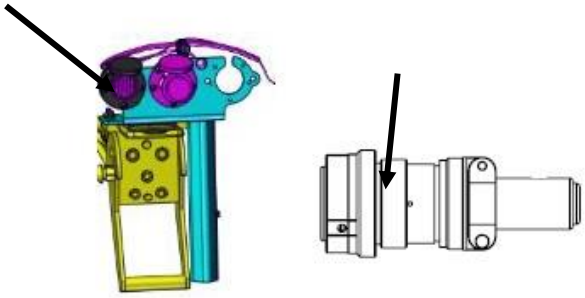


Figure 125

9.2.1 - Problem: Header Height Sensors not showing voltage

The header height sensors send a signal 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 combine display for a sensor the three wires will need to be checked. Figure 126

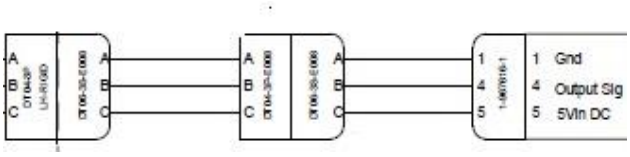


Figure 126

1. Make certain the display plug or the tilt control box is attached to the display harness.
2. Use a voltmeter, check pin 5 and pin 1 for 5-volt reference voltage. This voltage is from the combine through a jumper at the display harness.
3. If there is 5 volts check for voltage at pin 4 using pin 1 as ground. This voltage should change when the sensor is moved. If it does not the issue is the sensor.
4. If the voltage does change the issue is with the signal wire going back to the combine.
5. If 5 volts is not present at pin 1, check voltage again with the voltmeter going to a known ground.
6. If there is 5 volts the issue is with the ground wire.
7. If 5 volts is not present check for continuity between Pin 5 at the sensor and Pin P at the display connector.
8. If continuity is not present the issue is a broken wire in the main harness.
9. If continuity is present check for 5 volts at Pin N at the display harness plug.
10. If 5 volts is present there the issue is the dummy connector at the display connector.
11. If 5 volts is not present check for 5 volts at pin 13 check for voltage at the IGN wire on the combine. Note: this will be a different pin on each brand of combine.
12. If voltage is present the issue is the multi-coupler harness.
13. If voltage is not present the issue is a combine issue.
14. If there is not 5 volts check between pin 13 and the IGN. wire pin on the combine harness. If there is 5 volts the issue is with the multi-coupler harness. Note: the pin for 5 volts is different for each combine the combine harness.

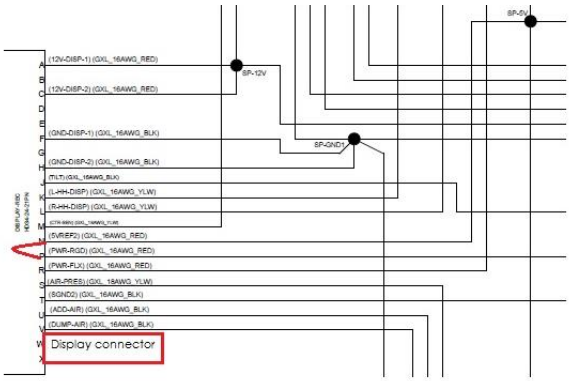


Figure 127

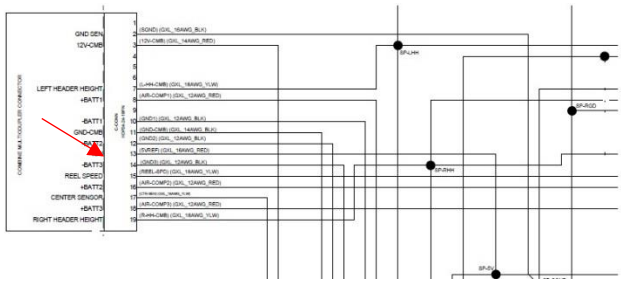


Figure 128

9. Check the ground at pin A on the sensor harness. If there is a ground at Pin A the issue is the sensor.
10. If there is no ground connection at pin 1 check for continuity between Pin 1 and pin 2 on the main harness. Figure 128
11. If there is no continuity the issue is a broken wire in the main harness.
12. If there is continuity check the mutli-coupler harness between Pin 2 and the Gnd Sensor wire on the combine.
13. If 5 volt and ground is present the signal wire that send information to the combine must be checked. With the connectors still attached check Pin 4 at the sensor. Move the sensor. If the voltage does not change the issue is the sensor. If the voltage changes go to the next step.
14. Check for continuity between Pin 4 and Pin 7 for the left-hand sensor and Pin 19 for the Right-hand sensor and the combine connector.
15. **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.

9.2.2 - Wiring for the Tilt Control Box

1. The tilt cylinder is controlled by energizing the tilt solenoid on the rear of the header. The solenoid will change the hydraulic flow from the reel lift hoses to the header tilt hoses while using the reel fore/aft button on the combine MFH handle.
2. The tilt control box is attached to the display harness on the multi-coupler. The switch energizes the solenoid when the switch is changed from reel to header on the control box. Figure 129

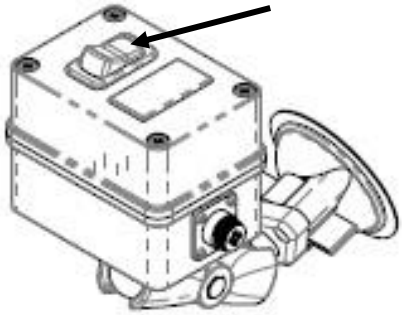
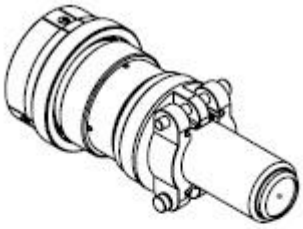


Figure 129

3. The wiring in the box also has a jumper wire to provide 5 volts to the HHC sensors.
4. If manual tilt is used a jumper plug must be installed in place of the control box. This jumper plug provides the 5 volts needed for the HHC sensors.



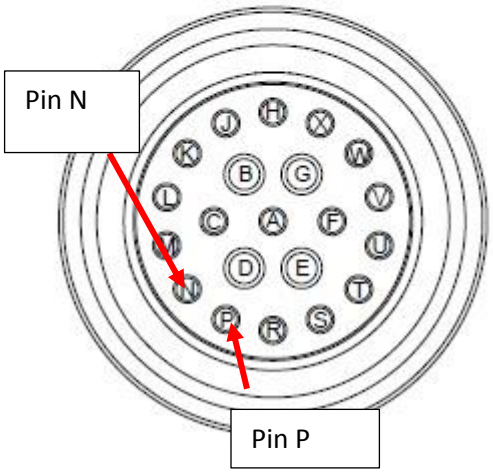


Figure 130

5. The control box receives 12V power through a plug that uses the cigarette lighter.

9.2.3 - Tilt Cylinder Will Not Move

1. Check for power at pin 1 of the header tilt solenoid. Make certain the switch on the control box is set to tilt and the combine is powered on. Figure 131

Name: TILT-VLV
Conn PN: DT06-2S

Cav	No.	Col.	Spec	Type
1	PWR-TILT3	RED	16AWG	GXL
2	GND-TILT3	BLK	16AWG	GXL

Figure 131

2. If there is power the issue is the solenoid on the tilt valve.
3. If 12 volts is not present check for power at Pin 87 on the tilt relay found on the panel above the air tank. Figure 132

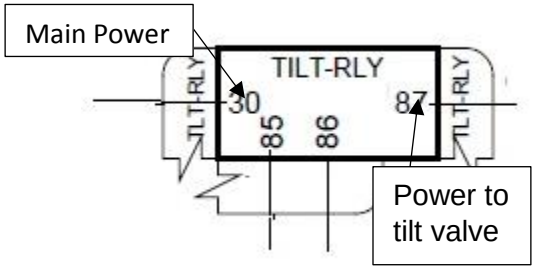


Figure 132

4. **Note: The relay must be left in the socket when checking all the connections.**
5. If 12 volts is not present then check for 12 volts at Pin 30 on relay base.
6. If there is power at Pin 30 then the two ground connections must be checked.
7. Check for a ground at Pin 86. If there is ground at pin 86 check for ground at pin 85.
8. If there is ground at pin 85 and 86 the issue is the relay.
9. Replace the relay.
10. If ground is not present at pin 85 or 86 then the continuity for the wires between these pins and the display plug must be checked
11. Check continuity between pin 86 on the relay to pin F at the display plug. If no continuity is found the issue is a broken wire in the main harness. Figure 133
12. If continuity is not found check for continuity between Pin 85 on the relay and pin J the issue is in the main harness. Figure 133
13. If all this checks out proceed to **9.2.4 -** No Power from Tilt Control Box

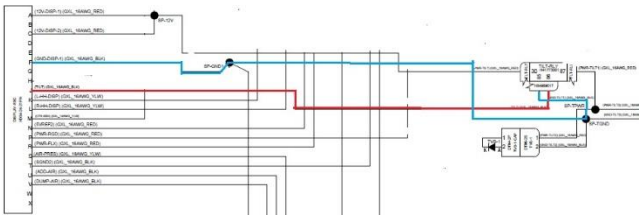


Figure 133

9.2.4 - No Power from Tilt Control Box

There are 3 parts to the control box and harness.

- The control box with harness connector, Figure 134
- The control box harness Figure 135
- The display harness Figure 137 and Figure 137

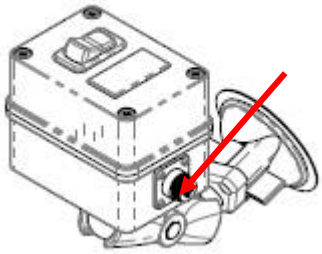
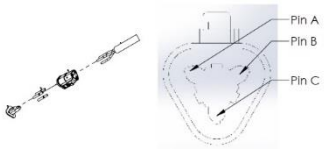
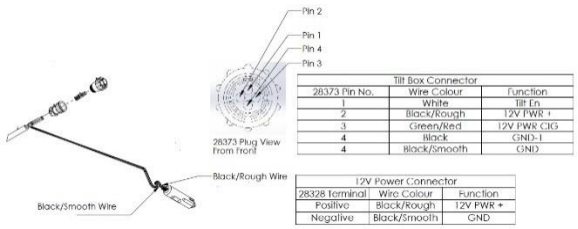


Figure 134



Extension Connector		
28389 Pin No.	Wire Colour	Fuction
A	White	Tilt En
B	Black	GND-1
C	Green/Red	12V PWR CIG

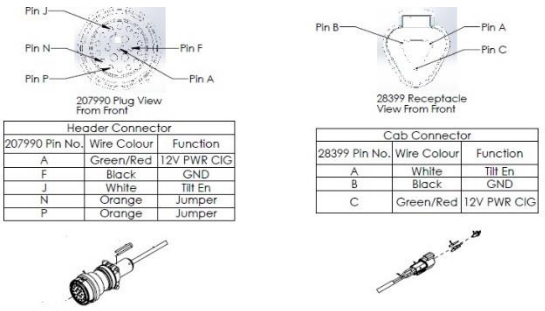
Figure 135



Tilt Box Connector		
28373 Pin No.	Wire Colour	Function
1	White	Tilt En
2	Black/Rough	12V PWR +
3	Green/Red	12V PWR CIG
4	Black	GND-1
4	Black/Smooth	GND

12V Power Connector		
28328 Terminal	Wire Colour	Function
Positive	Black/Rough	12V PWR +
Negative	Black/Smooth	GND

Figure 136



Header Connector		
207990 Pin No.	Wire Colour	Function
A	Green/Red	12V PWR CIG
F	Black	GND
J	White	Tilt En
N	Orange	Jumper
P	Orange	Jumper

Cab Connector		
28399 Pin No.	Wire Colour	Function
A	White	Tilt En
B	Black	GND
C	Green/Red	12V PWR CIG

Figure 137

Note: Larger diagrams can be found on 17.1.4 - Control Box Wire Harness from Connector to Control Box

2. The control box can be checked without having the box connected to the header. The box just needs to be powered through the cigarette lighter.
3. With the switch on the control box set to tilt and checking the display plug that connects to the plug on the header.
4. 12 volts should be present at the pin A on the connector.
5. If there is no power at Pin A disconnect the harness and check for power at Pin C at the three-pin connector.
6. If power is not present at Pin C check for power at the pin 3 on the control box.
7. If power is present at pin 3 the issue is the control box harness.
8. If power is not present the issue is the cigarette lighter plug.
9. Ground should be present at Pin F and Pin J
10. Pin N and P should have continuity. Note: This is part of the header height circuit and does not control anything in the tilt circuit with the jumper wire.
11. If any Pin F or J does not have ground disconnect the three in connector at the end of the control box harness and check the wires at the end of the control box harness.
12.

9.2.5 - 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.

1. 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.
2. The multi-coupler harness has a recognition module wired in the system. The module has resistors wired in.
3. Remove the module, Figure 138, from the harness. The module is 16 inches back from the combine connector at the single point.

Figure 138

4. Check the resistance across the terminals noted in Figure 139. If the readings are not correct the recognition module needs to be replaced.

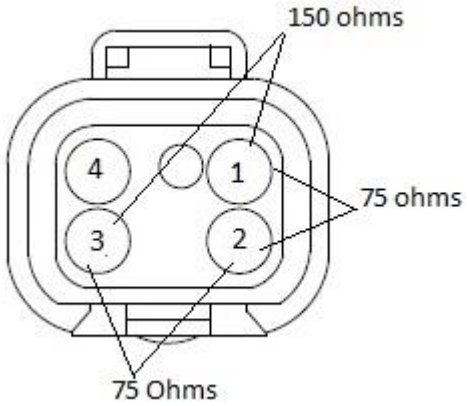
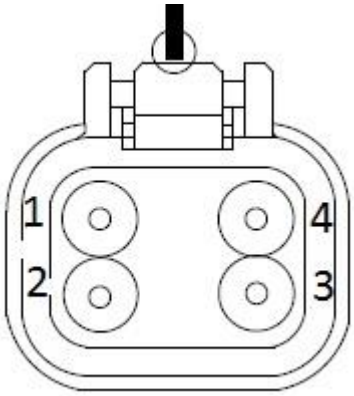


Figure 139

5. 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 140.



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

Figure 140

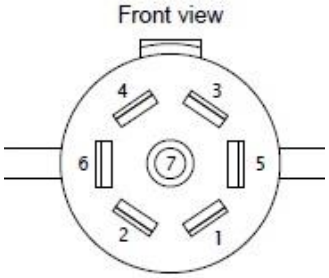
6. If continuity is found on all the pins then the issue is with the combine and not the header.

9.2.6 - Transport Electrical System

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

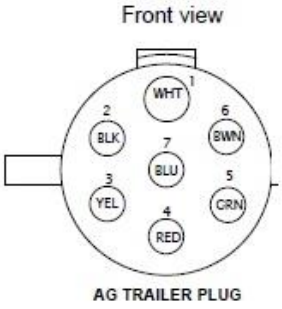
The front trailer has a harness to the tow vehicle. The harness either has an RV plug, Ag Plug, or a plug for European vehicles.

- Figure 141 RV Plug
- Figure 142 Ag Plug
- Figure 143 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 141



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 142

EUROPE TRAILER PLUG

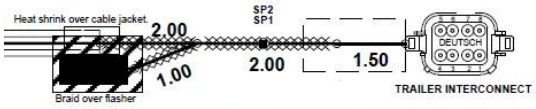
Name: EUROPE TRAILER PLUG Conn PN: EP01				
Cav	No.	Col.	Spec	Type
(1) YEL	LT-TRN	YEL	14AWG	PVC
(2) BLU	-	-	-	-
(3) WHT	GND	WHT	12AWG	PVC
(4) GRN	RT-TRN	GRN	14AWG	PVC
(5) BWN	R-TAIL	BWN	14AWG	PVC
(6) RED	STOP1	RED	14AWG	PVC
(6) RED	STOP2	BLU	14AWG	PVC
(7) BLK	L-TAIL	BLK	14AWG	PVC

Figure 143

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 144

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

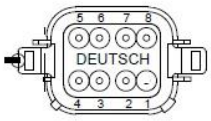
SP1				
Cav	No.	Col.	Spec	Type
L	FLSHR-OUT	BLK	-	-
L	TAIL1	YEL	14AWG	PVC



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 144

The Europe and Ag plugs do not have a flasher wired in the system. Figure 145 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 145

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 146

Figure 146

9.3 - 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 147.

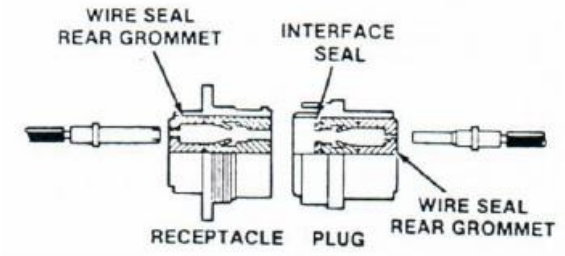


Figure 147

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 148.

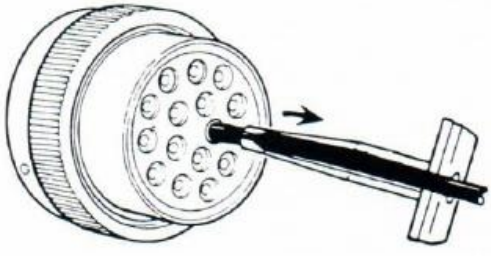


Figure 148

Figure 2

4. Carefully slide the wire contact and removal tool straight out of the connector. Figure 149

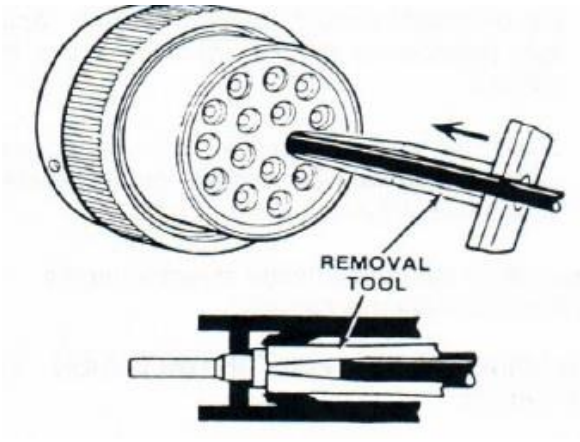


Figure 149

5. If the wire has pulled out of the contact leaving the contact in the receptacle the contact can be removed in the following manner:
   A. Fully insert the proper size removal too into the receptable.
   A. 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
   B. 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.
   C. Once the wire has seated into the contact carefully slide the wire, removal tool and contact out of the receptable. Figure 150

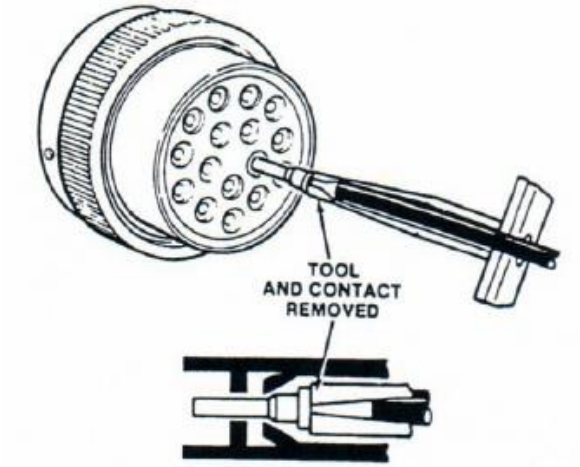


Figure 150

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 151

Figure 151

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 152

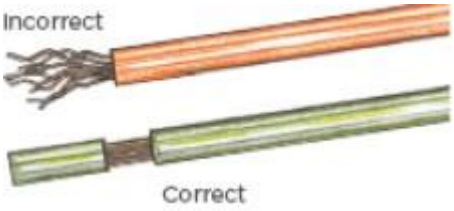


Figure 152

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 153

Figure 153

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 154

Figure 154

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 155

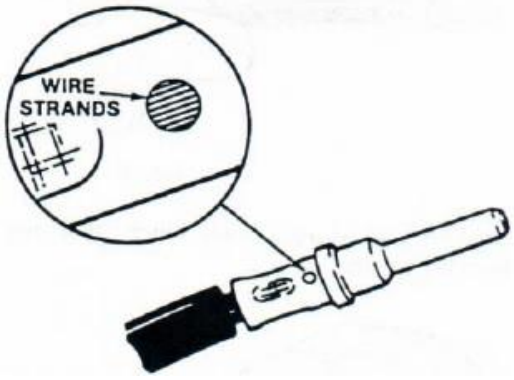


Figure 155

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. Release the handle and removed the crimped contact and wire. Figure 156

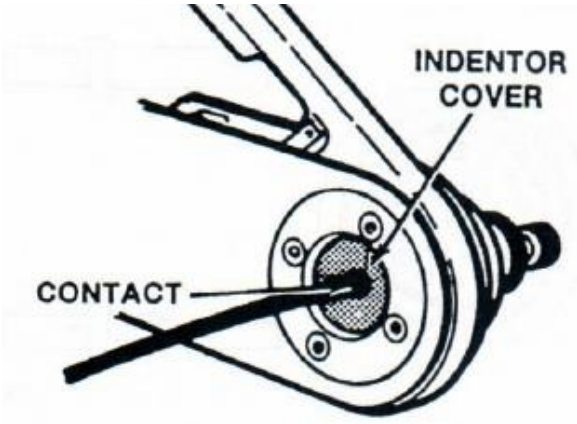


Figure 156

19. 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 155
20. 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 158

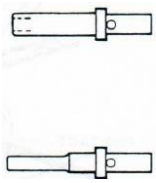


Figure 157

Figure 158

21. Hold the wire approximately 1 inch from the contact
22. Hold the connector with the rear grommet (wire end) toward you
23. 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 159

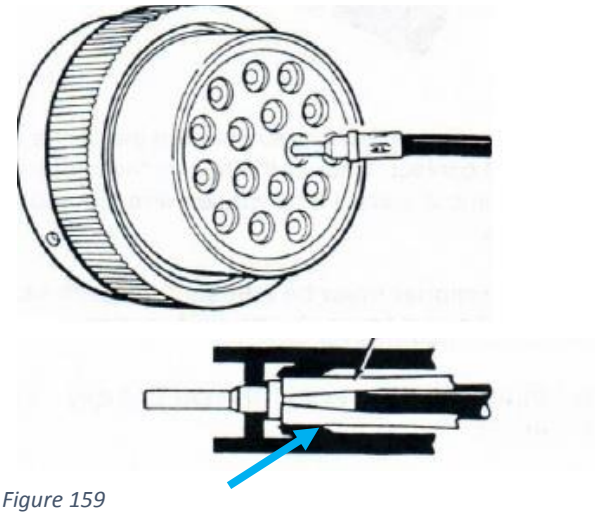


Figure 159

24. 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 160

Figure 160

25. 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 161

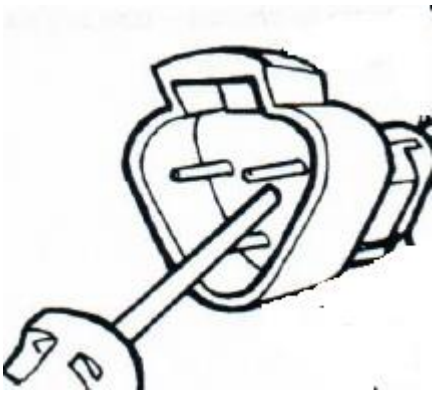


Figure 161

26. Hold the seal in place and remove the wire and the contact.
27. The contact installation is the same as the larger connectors. Make certain that you set the tool for the correct size contact and wire.
28. 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.
29. 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 162

Figure 162

30. 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 163

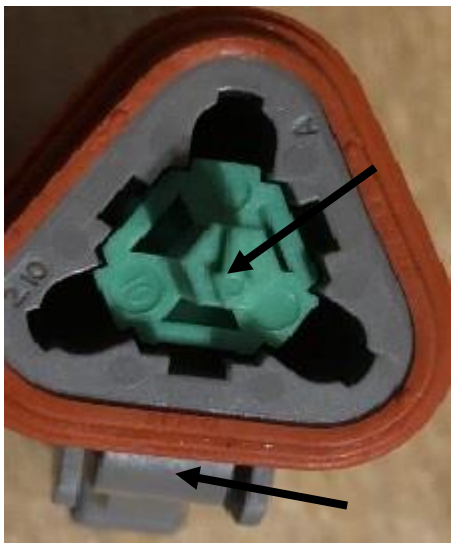


Figure 163

10 - Hydraulics

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

Figure 164. The bulkhead at the back of the header has all of the hydraulic connections.

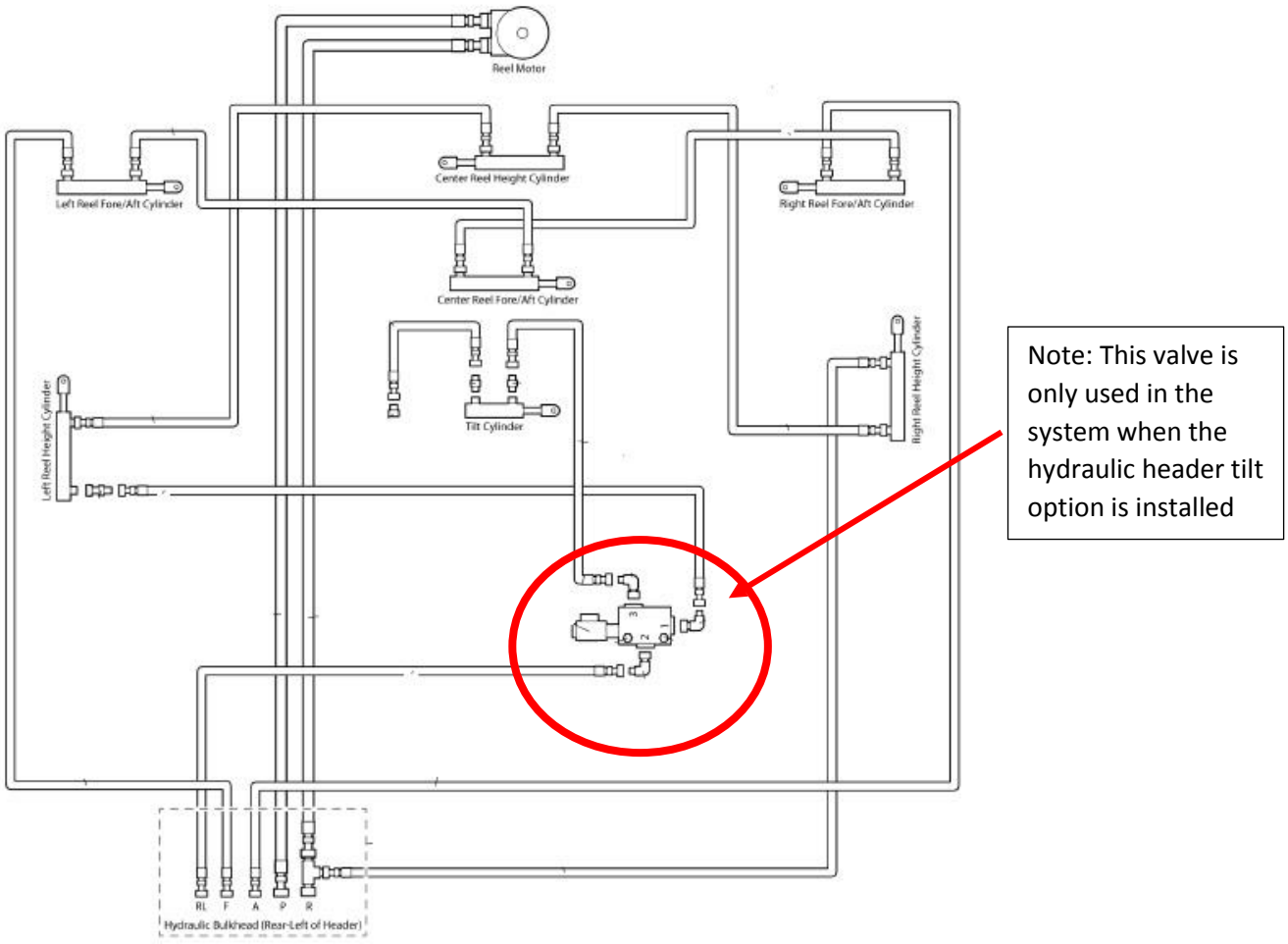


Figure 164

The Manifold Figure 165 directs oil from the combine to the rest of the headers.

- RL- To the cylinders for reel lift. This circuit 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.
- 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.

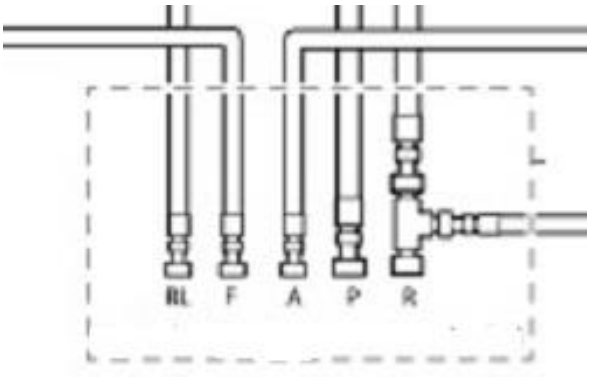


Figure 165

10.1 - Tilt Valve (Optional)

The tilt valve is controlled by the display box in the combine cab.

1. 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 On the valve and provides oil to the reel lift cylinders. Figure 166 and Figure 167

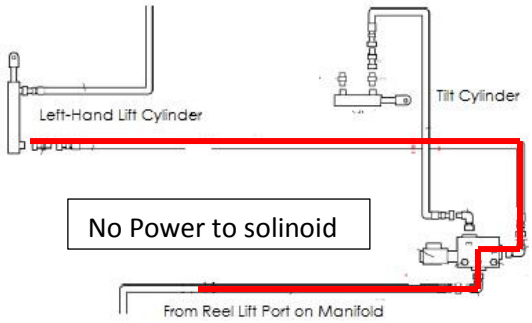


Figure 166

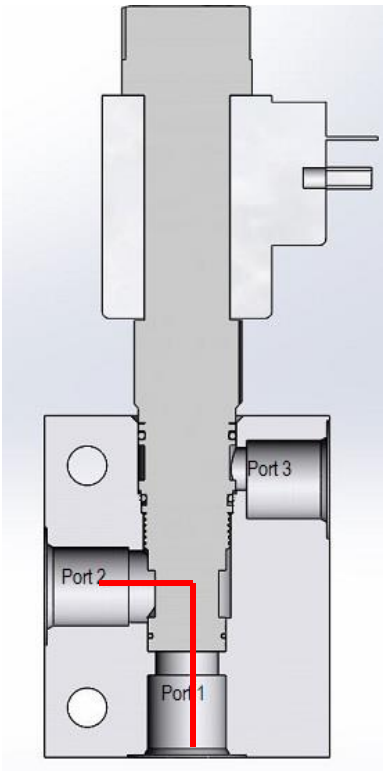


Figure 167

2. When power is applied to the solinoid a spool shifts and send oil to port 3 to the tilt cylinder. Figure 168 and Figure 169

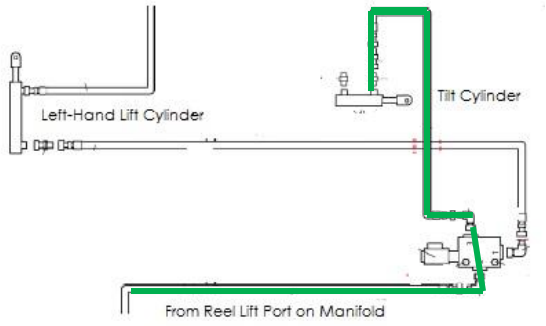


Figure 168

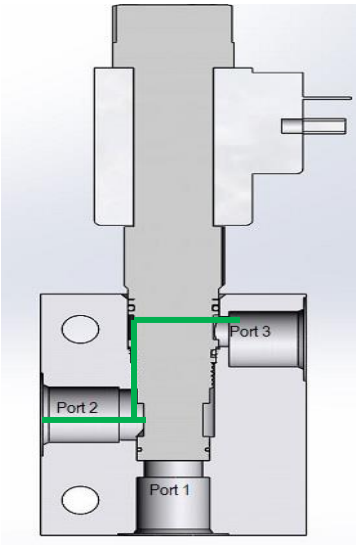


Figure 169

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 throught the number 20 pin in the combine connector. This can be done by plugging in the one connector on the tilt valve. Figure 170.

Figure 170

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.

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 171

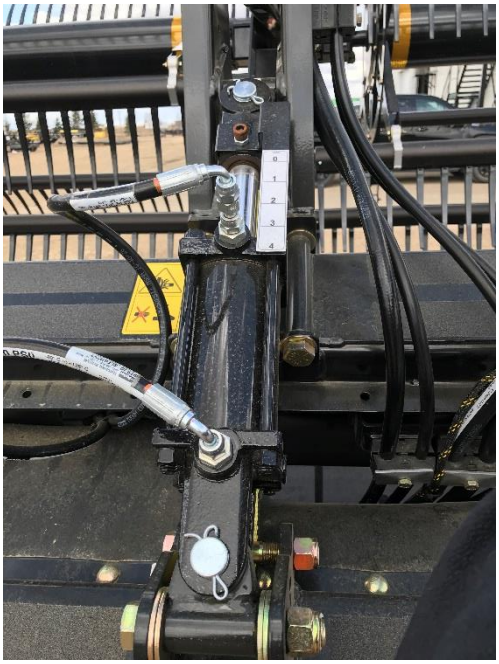


Figure 171

1. To disassemble the cylinder remove the four nuts at the head of the cylinder. Figure 172
   This will allow the head of the cylinder to be removed and the seals replaced in the cylinder **Error! Reference source not found.**.
2. If the piston nut was removed to install seals the nut securing the piston should be torqued to 300-350 ft. lbs. Figure 173

Figure 172

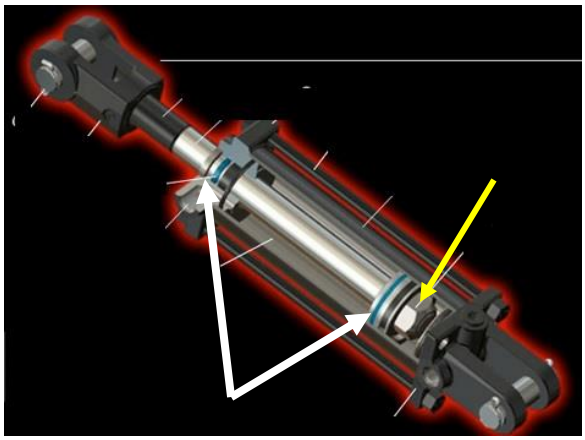


Figure 173

3. When reassembling the cylinder slide the cylinder rod and head into the barrel.
4. Attach the bottom end cylinder head to the barrel with the four threaded bolts.
5. 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 - MY2020 and above Manual Tilt

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.

To adjust the top link: Figure 174

1. 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. Turn the link counter-clockwise to tilt the header forward.

3. 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.
4. When adjusting the manual tilt cylinder do not exceed the range shown in the illustration below.

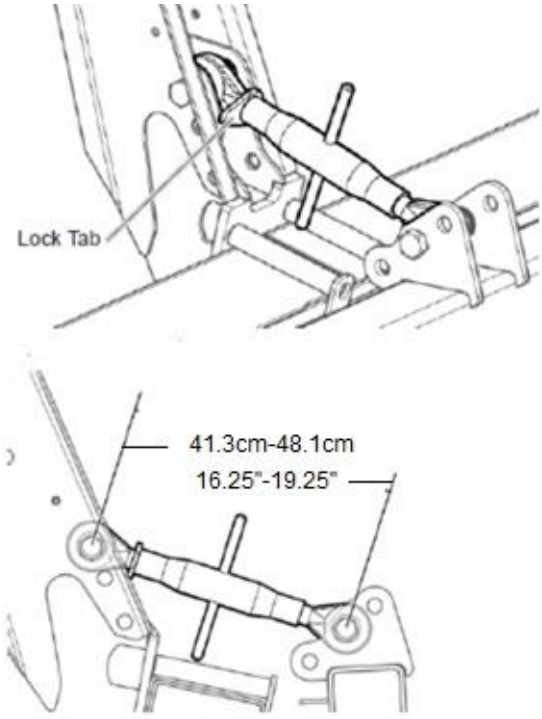


Figure 174

10.5 - 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 175

Figure 175

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 176

Figure 176

10.6 - Reel Drive Motor and Assembly

The reel drive is powered by a hydrualic 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 177

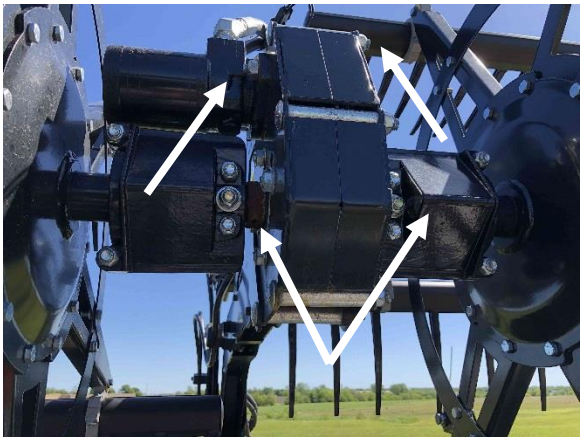


Figure 177

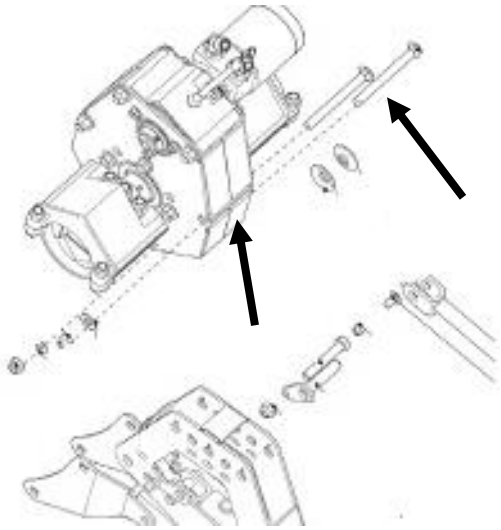


Figure 178

4. To disassemble the gearbox remove all the bolts that hold the covers to the gearbox. Figure 179

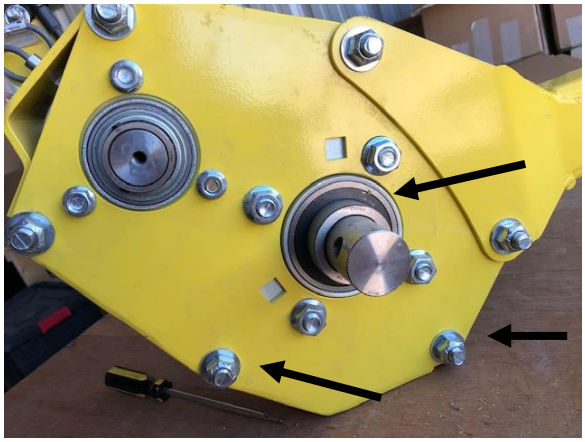


Figure 179

10.7 - 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 177
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 178
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 180

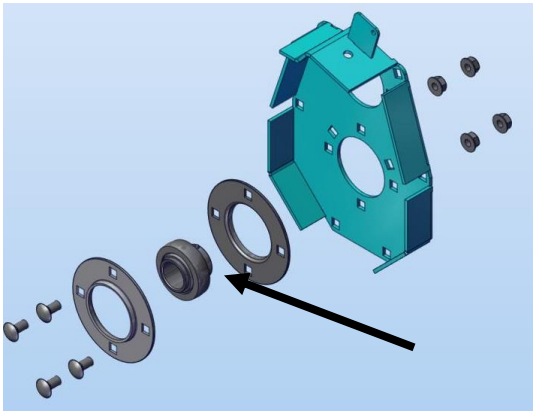


Figure 180

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

Figure 181

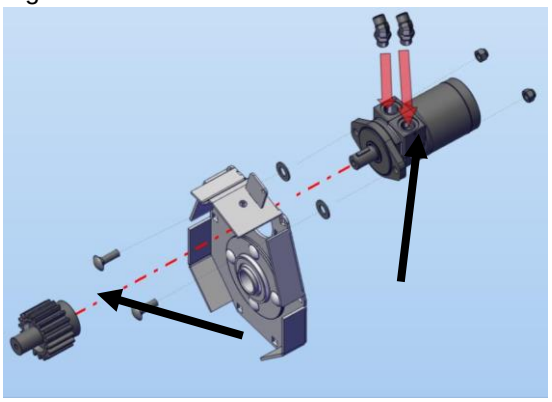


Figure 181

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 182

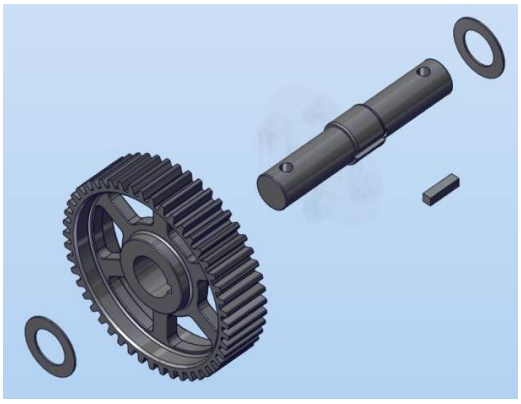


Figure 182

9. Install the output shaft in the gearcase. Figure 183

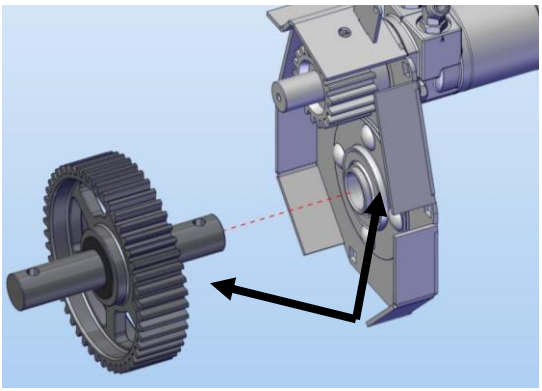


Figure 183

10. Assemble the LH side of the gearcase with the bearings and flanges. Figure 184

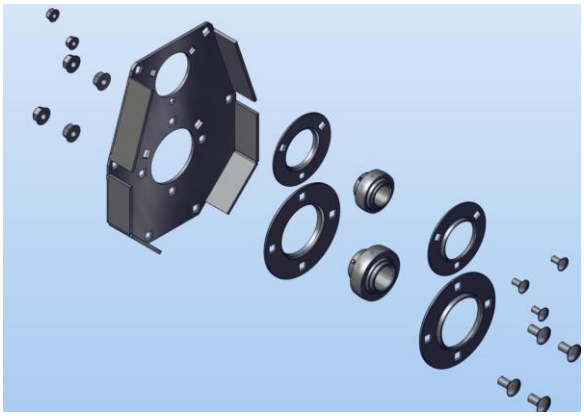


Figure 184

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 185

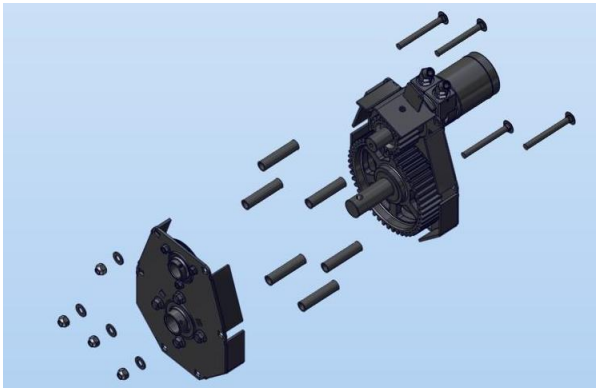


Figure 185

12. Once the gearbox is assembled install it back on the center arm. Make certain that the bolt holding the gearbox to the center reel arm is secured. Figure 186

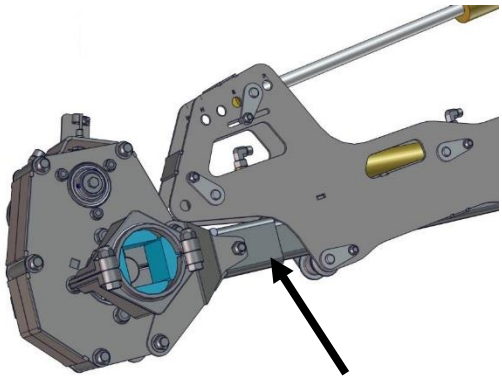


Figure 186

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 187

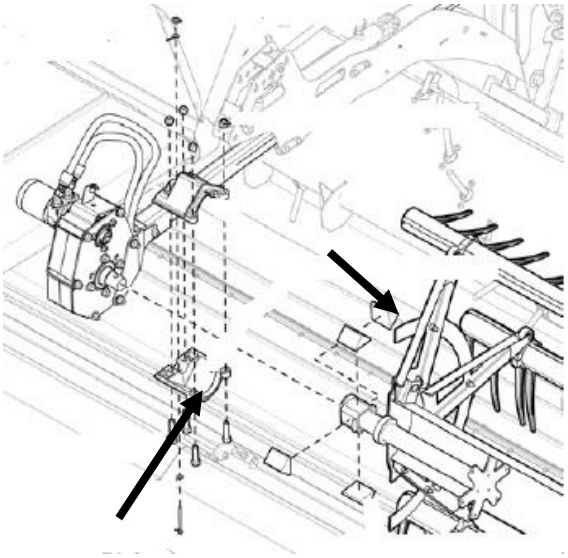


Figure 187

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. Figure 188. Note: Some headers will not have a sensor as the combine can not read reel speed.

Figure 188

10.8 - JD Line Lock

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.

The line lock is a valve that is bolted on to the hydraulic manifold and provides the check valve needed on those combines. Figure 189.

Hydraulic oil is supplied from the manifold, “F” and “A” ports, through the valve then to the cylinders on the header.

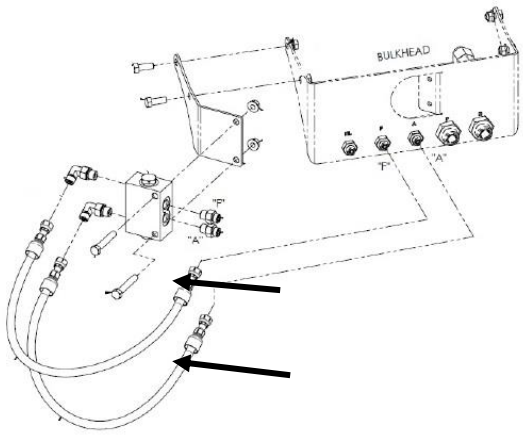


Figure 189

The lock valve has a spool inside that valve that will shift as oil is supplied to the reel

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 190

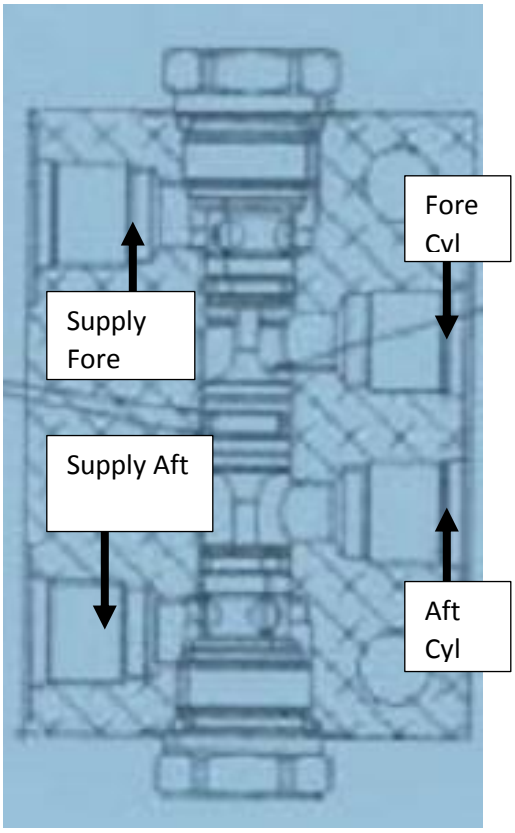


Figure 190

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 191

Figure 191

2. Once the spacer is removed the finger can be turned 90 degrees by a wrench and pulled out of the bat. Figure 192

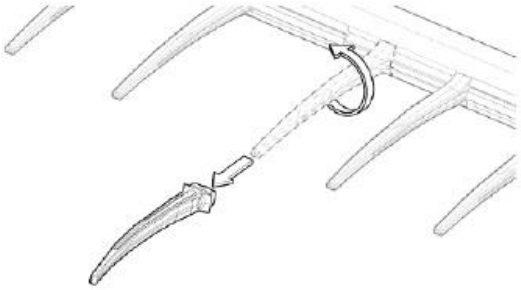


Figure 192

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

11.2 - Replacing a Reel Bat

1. 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 193

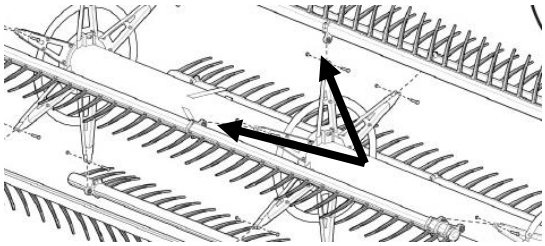


Figure 193

2. After the reel is removed the spider clamp can be removed by removing the clamp bolts. Figure 194

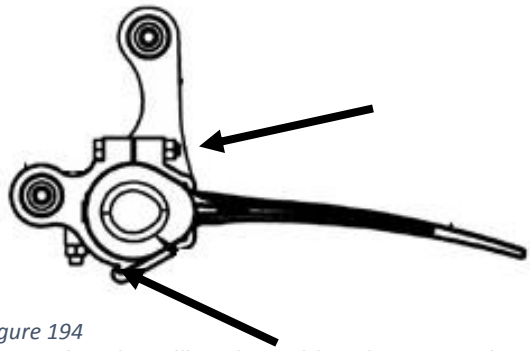


Figure 194

3. 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 195 for the standard Reel and Figure 196 Cam Reel. The only difference between the Standard reel and the Cam reel is the dimension for the control knuckle clamp.

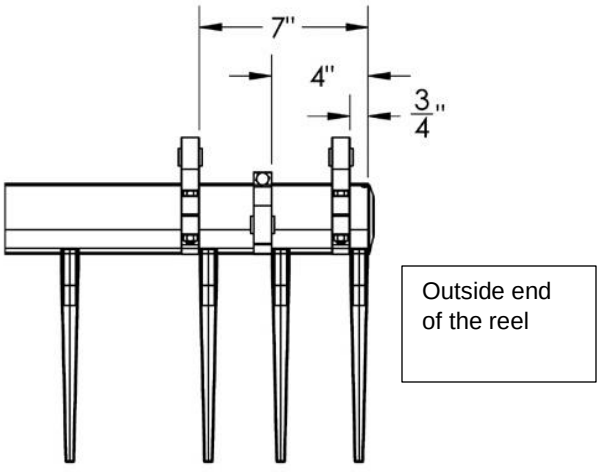


Figure 195 Standard Reel

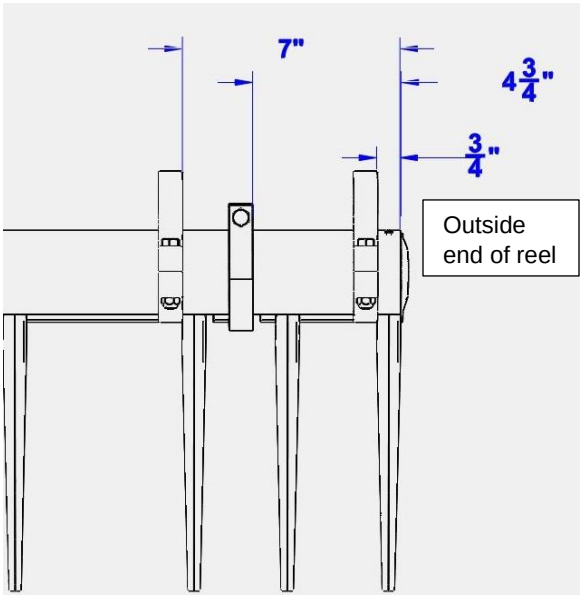


Figure 196 Cam Reel

4. On the inner end of the reel the outside clamp should be positioned to 8” from the end of the reel tube. Figure 197.

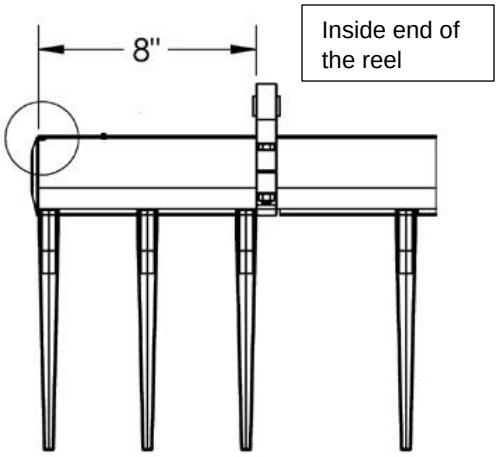


Figure 197

5. 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 198

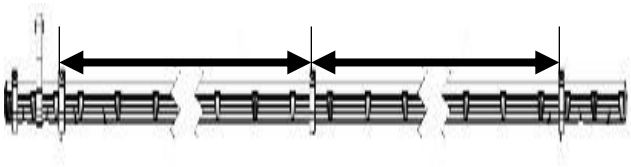


Figure 198

11.3 - 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 199

Figure 199

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 200

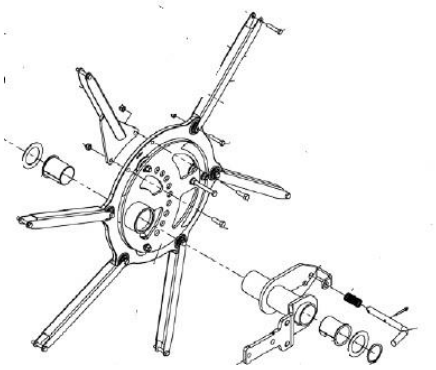


Figure 200

6. 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 201

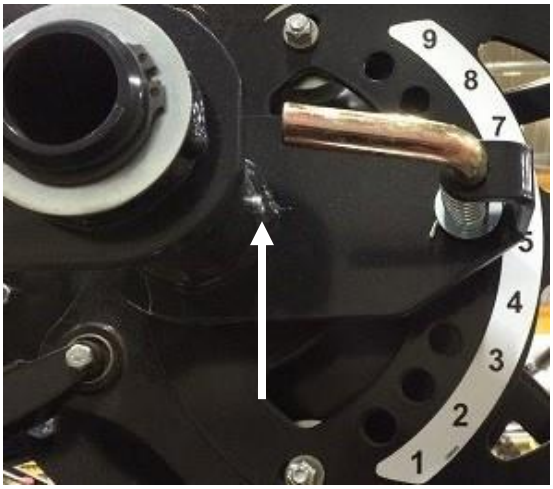


Figure 201

7. 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 202

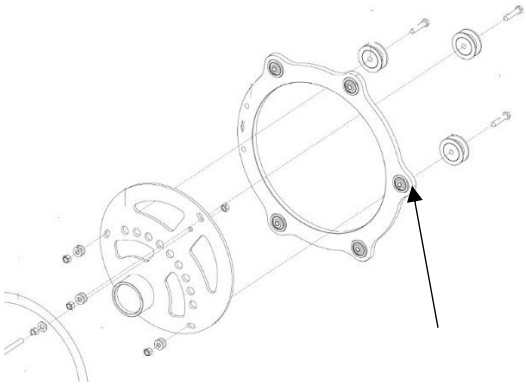


Figure 202

8. Replace worn parts. Note if the cam assembly is disassembled the rollers on the cam should be replaced if they have been used.
9. Install the bearings on the center ring. Leave the mounting bolts loose at this time. Install the center plate into the ring. Figure 14
10. **Note: Make certain that the arrow on the center ring is pointing in the direction of rotation for the reel.** Figure 203

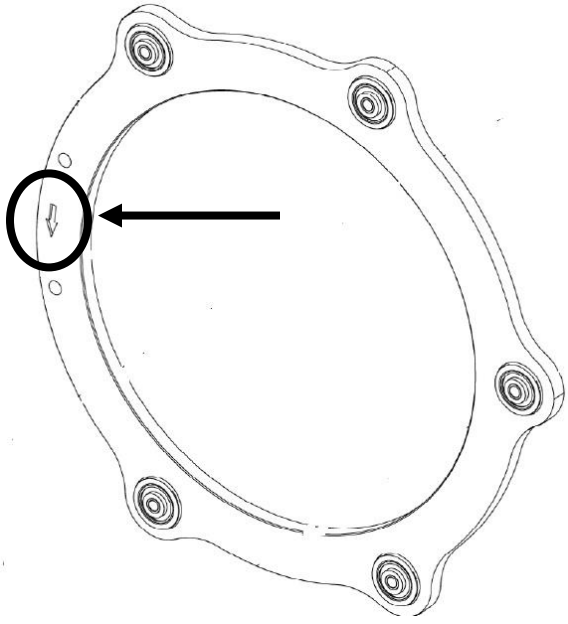


Figure 203

11. Install the spiders on the center ring. Slide the assembly on the shaft, bolt the spiders to the reel bats.
12. 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 204

Figure 204

13. The link from the cam to the reel bat control arm Figure 205 must be installed properly. If the hardware is not install properly control arm link wear is possible.

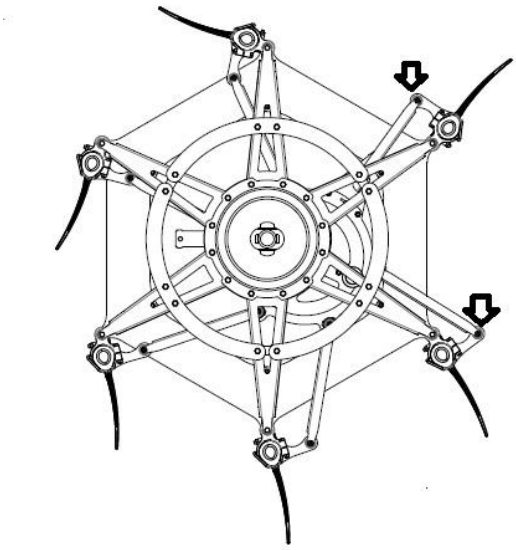


Figure 205

14. 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 206. This will make sure that the arm turns on the bushing and not the nut or head of the bolt.

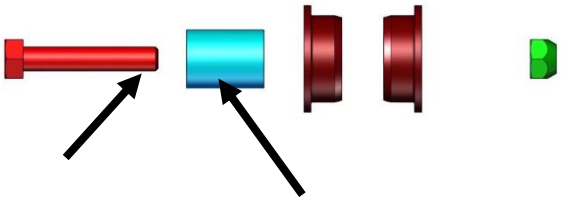


Figure 206

11.3.1 - 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 207

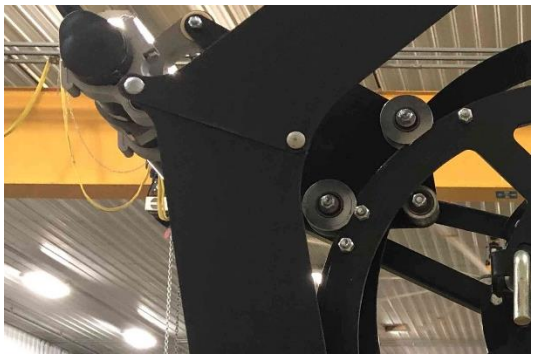


Figure 207

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 208

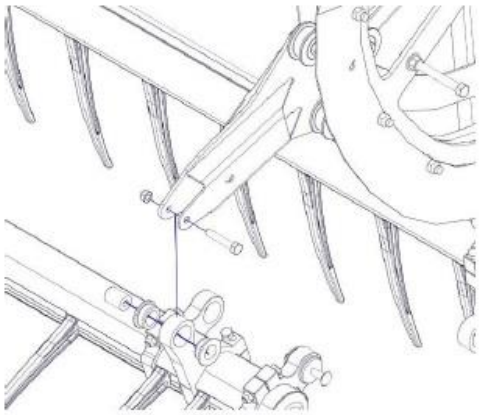


Figure 209

12 - Air System

The air system is made up of a

- Air Tank with Schrader valve
- Air Pressure Gauge (Model Year 2021 and above)
- Air Lines
- Shut off valve
- Air Bags for subframe only

12.1 - Air Lines and Air bags

1. The air tank has a valve at the rear of the tank to fill the tank with air. There is not an air compressor on board with the header.
2. The compressed air is added to the tank as needed at the Schrader valve. Figure 210 There is a 150 PSI relief valve at the bottom of the tank. The gauge is only on Model Year 2021 and above headers.

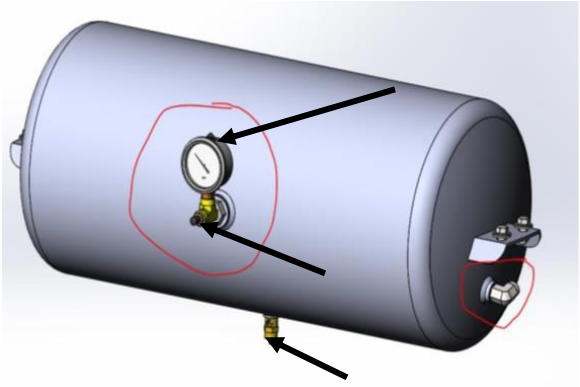


Figure 210

3. The pressure in the tank should be regulated by the width of the header. The following chart shows the recommended operating pressure for the subframe air system.

25 ft - 90 psi	40 ft – 95 psi
30 ft – 95 psi	45 ft – 105 psi
36 ft – 102 psi	50 ft – 115 psi

4. The shut off valve in the line to the subframe airbags should remain open when the header height control is used. Figure 211

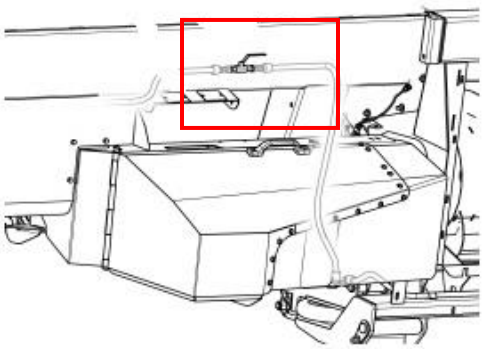


Figure 211

5. If the system does not hold air the lines to the subframe airbags can be checked by spraying soapy water on the fittings to check for bubbles that would indicate a leak. Figure 212

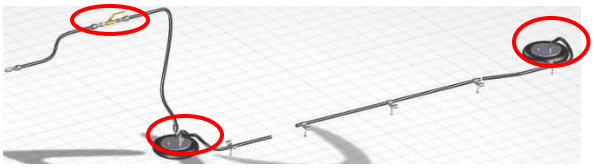


Figure 212

6. The position of the air bags can be changed on the subframe. This will change the amount of flotation the subframe has. The further to the rear the more flotation the subframe will have with the same air pressure in the airbags.
7. On Model Year 2020 and below the airbags on the subframe could only be adjusted in two locations. Factory setting is number 1 position. Figure 213
8. On Model Year 2021 and above the airbags have 6 different positions. Factory setting is still number 1. Figure 214

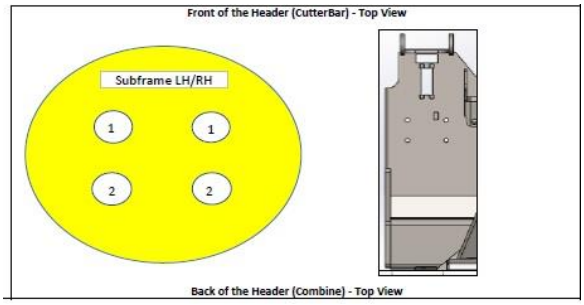


Figure 213

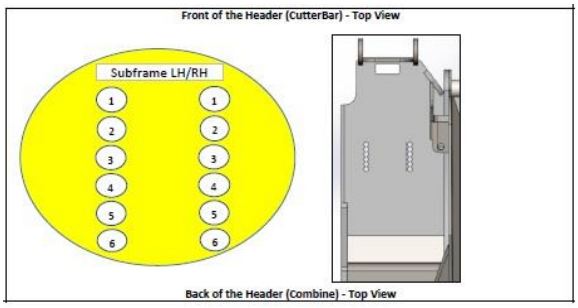

Front of the Header (CutterBar) - Top View
Subframe LH/RH
1
2
3
4
5
6
1
2
3
4
5
6
Back of the Header (Combine) - Top View

Figure 214

13 - Cross Auger

The cross auger is optional and can be installed on all RDX headers. 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 215

Figure 215

13.1 - 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 216
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.

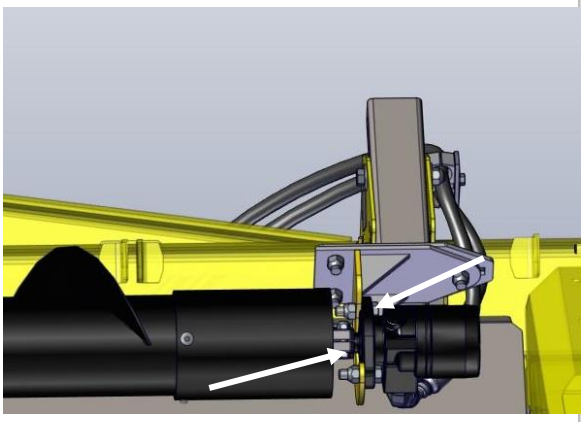


Figure 216

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 217
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 218

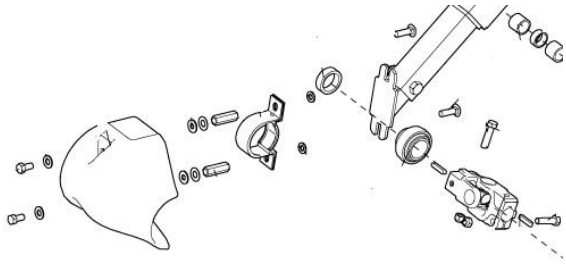


Figure 217

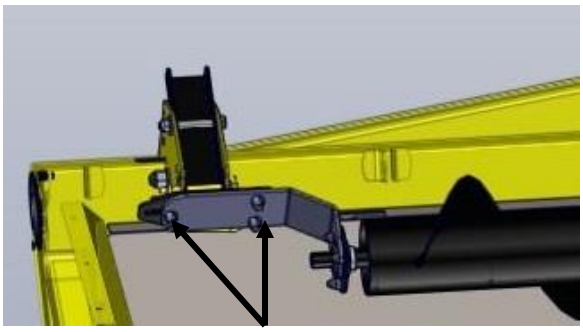


Figure 218

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 219
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 220

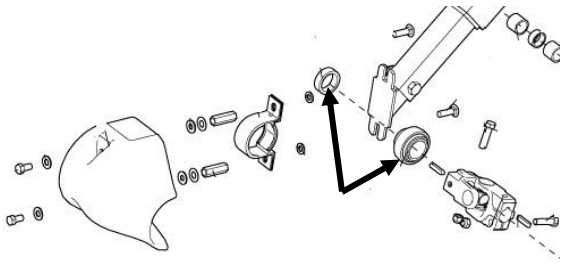


Figure 219

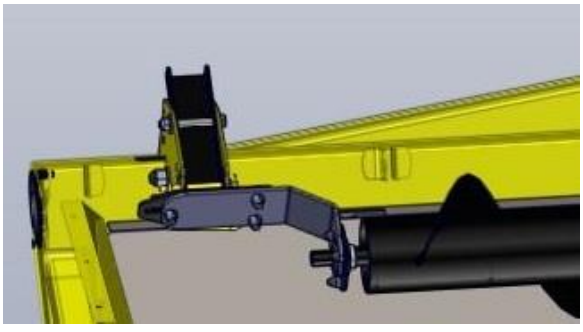


Figure 220

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 221

Figure 221

13.2 - Cross Auger 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 to only allow the reel to reverse. This check valve could also be added to any MY2019 or 2020 headers. Figure 222

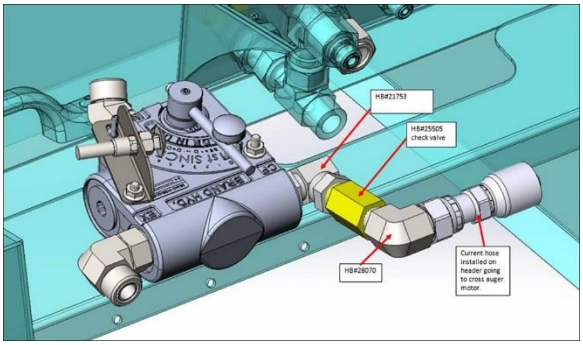


Figure 222

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 223
4. The oil goes through the valve ports as shown in. Figure 224
5. The valve does not have a relief valve in the system. The combine relief for the reel drive provides the protection.
6. 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.
7. 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.
8. If there is an issue with the reel then check the flow out of the “EX” port on the valve.

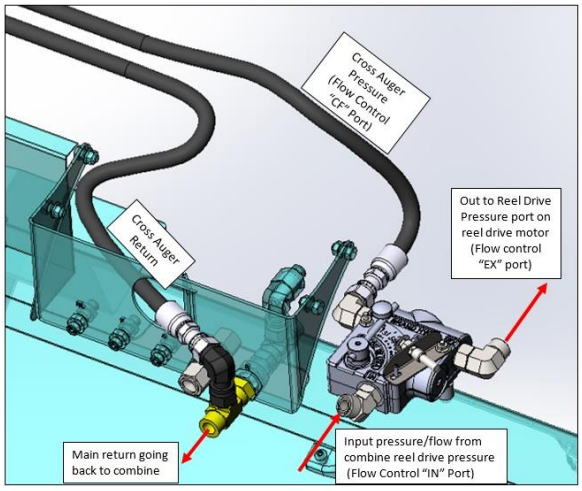


Figure 223

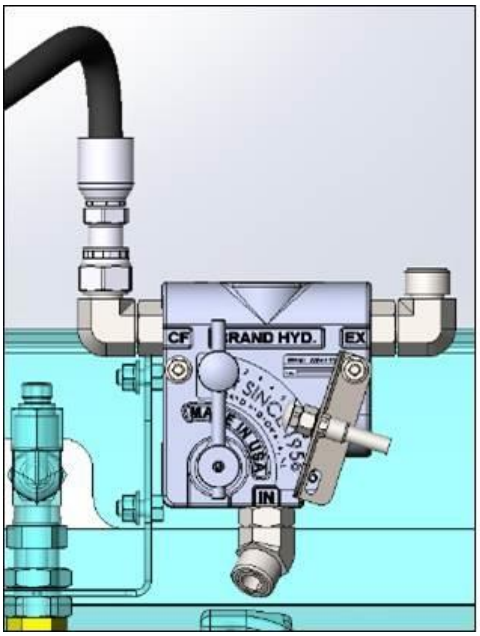


Figure 224

14 - Vertical Shears

The vertical shears are mounted on each side of the header and help the side of the header when crops are tangle but cutting a clear edge of the field.

The shears are mounted in the place of the end divider and are mechanically driven from the end of the knife.

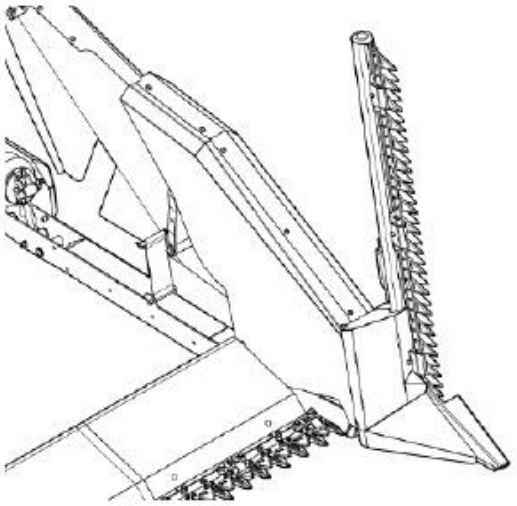


Figure 225

14.1 - Vertical Shear Drive

1. The knives for the vertical shear are driven by the end of the cutterbar knife with a drive head and hub.
2. The drive goes through an activation arm and is connected to two arms driving the knives. Figure 226

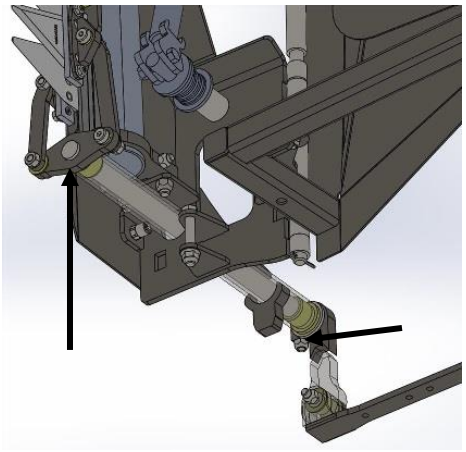


Figure 226

3. To remove the knife drive shaft from the assembly, remove the arms attached to the knife. Note: there are bushings in the arms be careful the bushings do not drop out. Figure 227
4. Remove the activation tab on the rear of the shaft by loosening up the clamp bolt in the tab.
5. This will allow you to slid out the drive shaft out of the housing.

Figure 227

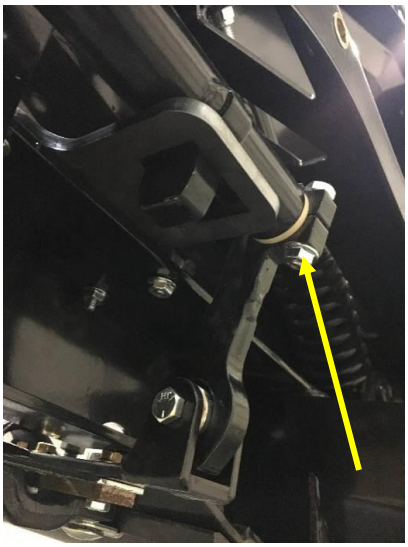


Figure 228

6. Assemble in the reverse order. Tighten the clamp bolt at the rear of the shaft to 30 ft. lbs.

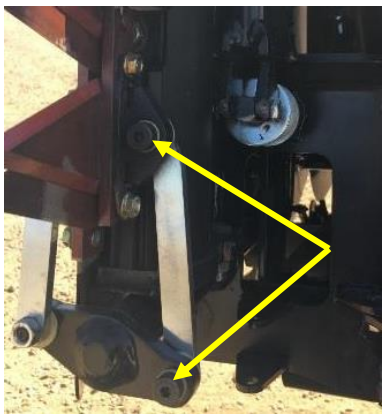


Figure 229

7. Install the connecting arms from the knives on the front of the shaft and tighten the bolts to 17 ft.lbs. Figure 229

15 - Options

15.1 - Skid Shoes

1. The optional skid shoes provide extra protection for the header when harvesting crop. 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 capscrew. 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 can be used to gain more height for the cutterbar. Figure 230

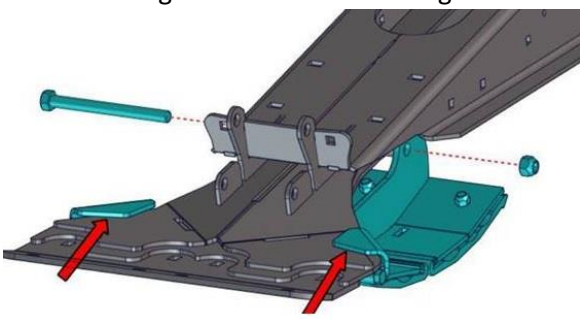


Figure 230

15.2 - Header Tilt Options

There are two option for header tilt

1. Manual tilt. This is a turnbuckle that is installed in the center of the header to control the angle of the cutterbar. Figure 231

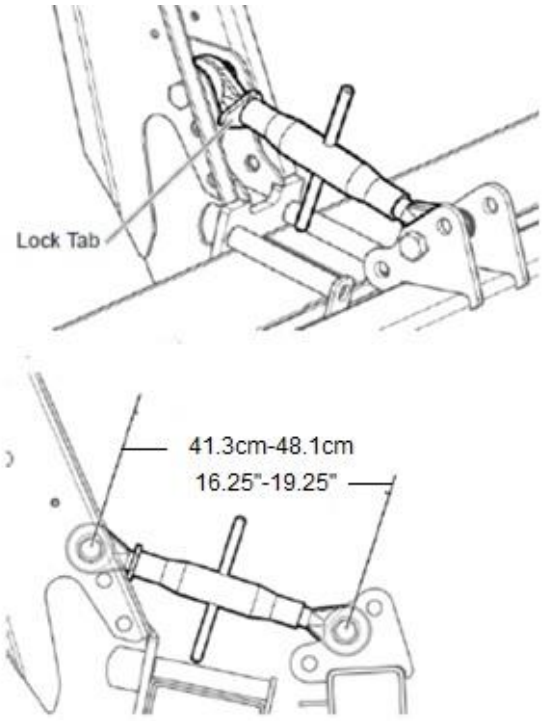


Figure 231

2. Hydraulic Tilt Option. A cylinder is installed in the center of the header and is controlled by the tilt switch box in the cab to energize a solenoid to divert oil from the fore/aft cylinders to the tilt cylinder. Figure 232

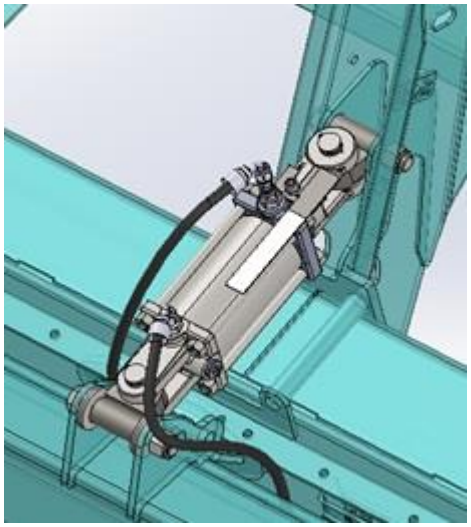


Figure 232

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

15.3 - 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 233

Figure 233

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.

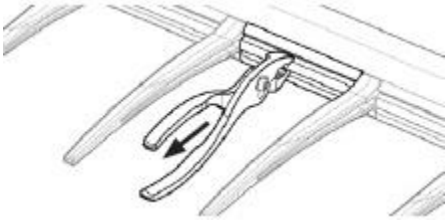


Figure 234

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 235

Figure 235

15.4 - The Cam Reel

Every field is different. If you have bushy crops like peas, inconsistent feeding can stall or plug your feederhouse. You may want the ability to adjust on the fly.
The custom built, fully adjustable reel is always just aggressive enough to grab the crop and transition it gently and consistently from cutterbar to draper belt. Honey Bee’s unlimited finger spacing options are designed to leave no crop behind.

Figure 236

15.5 - 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 237
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 on MY2019 and above. Figure 238
5. On Model Year 2021 and above a check vavle was added to the system to only allow the reel to reverse and the cross-auger will not turn in reverse. Figure 238
6. When the cross-auger is installed the header must have the standard back panels installed.

Figure 237

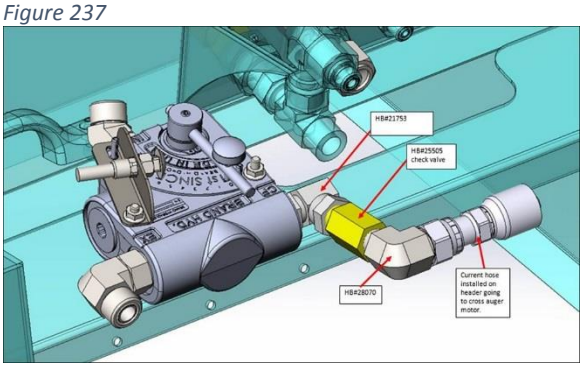


Figure 238

15.6 - 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 239

Figure 239

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 240

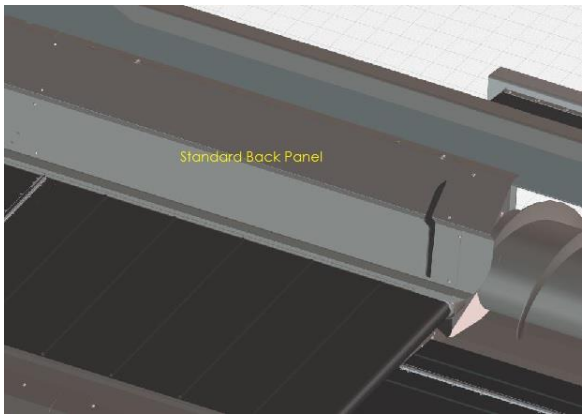


Figure 240

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 MY2021 and below	40 Ft. Lbs	54Nm	No
Guard Bolt MY2022 and above	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 Mounting Bolts **Note: Must be Grade 8 bolts**	280 ft lbs	380 Nm	Yes

16.1 - Belt Adjustment Guide

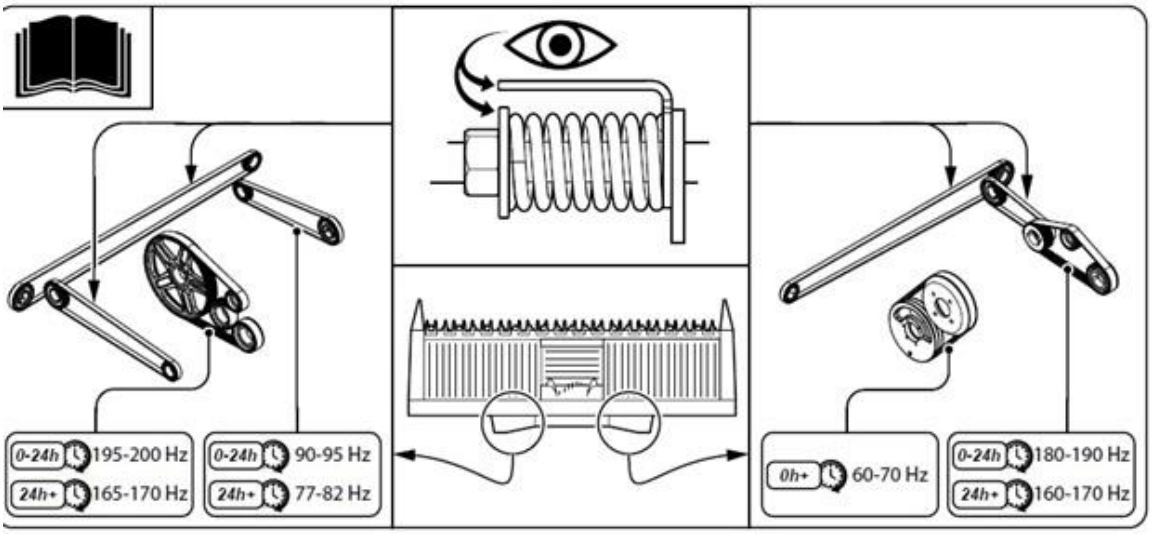


Figure 241

16.2 - Lubrication Guide

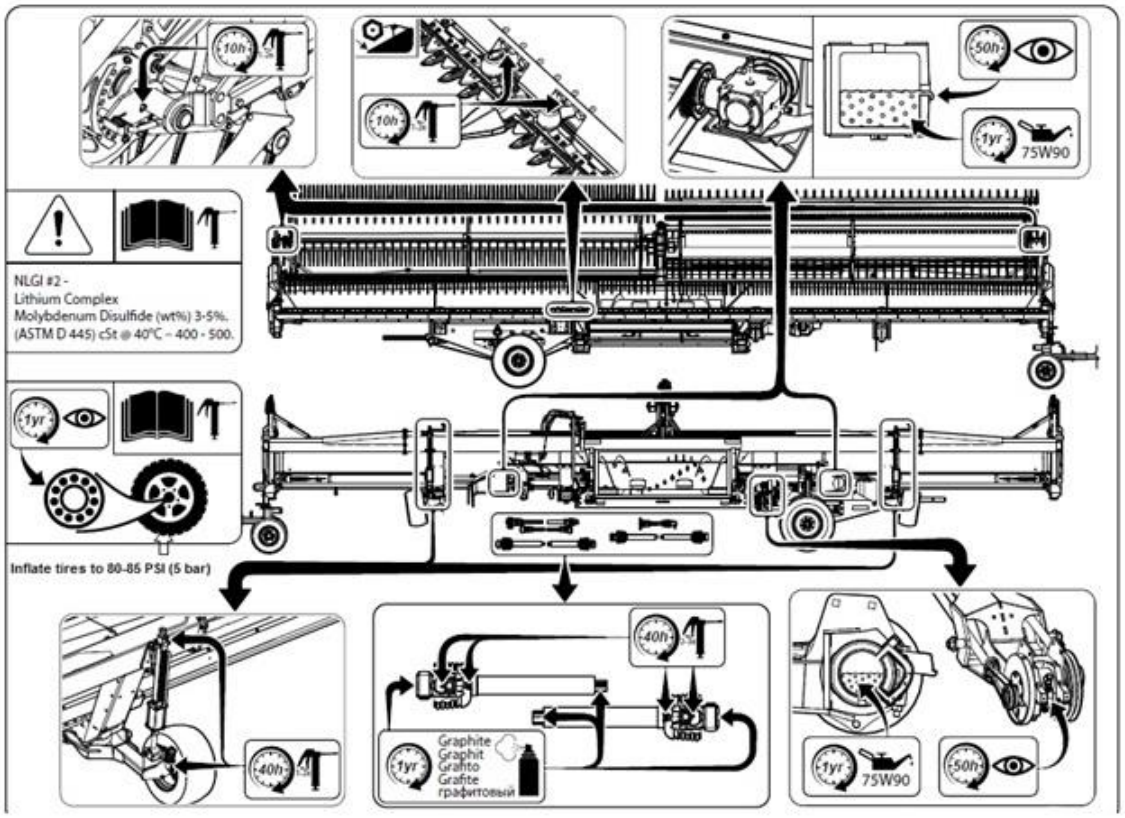


Figure 242

16.3 - Drive Paddle Assembly Information

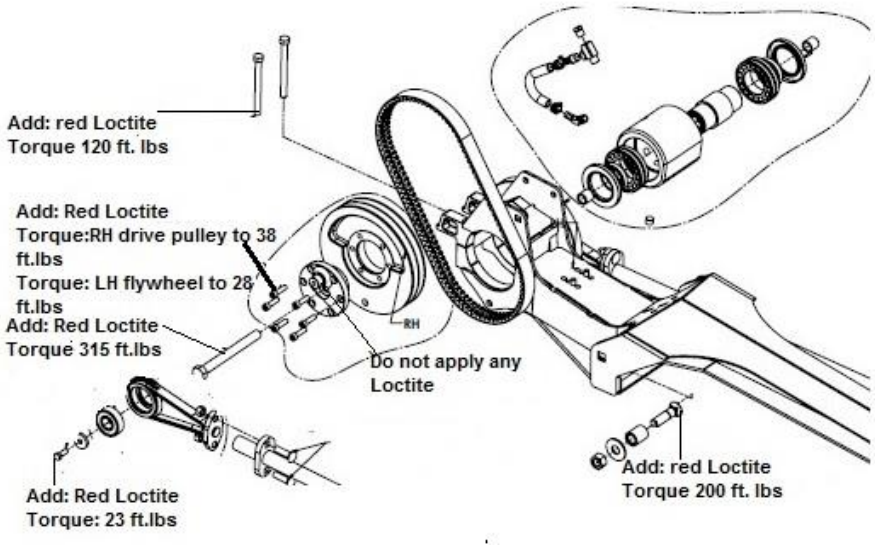


Figure 243

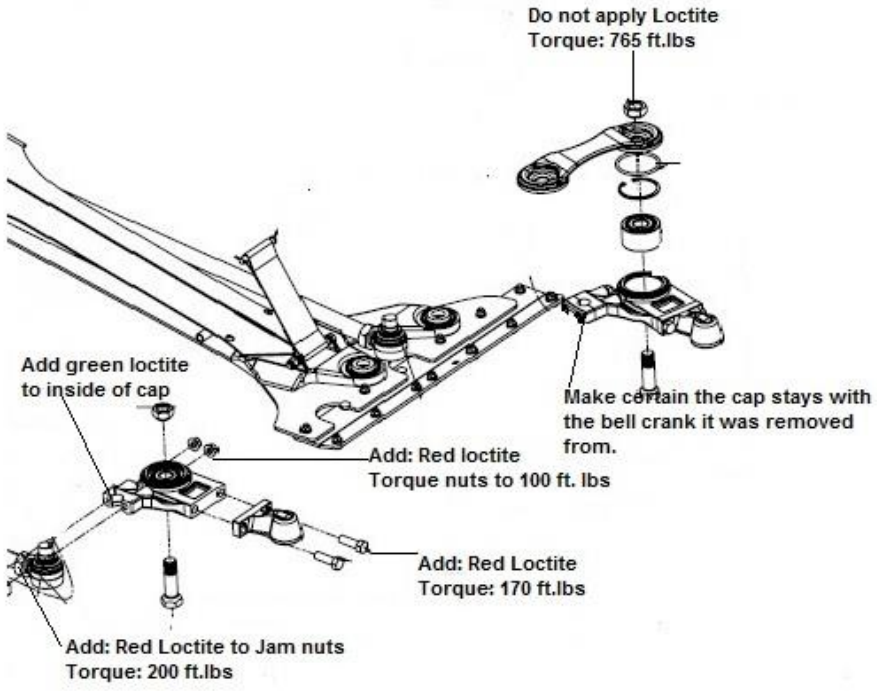


Figure 244

16.4 - Pulley Size Information

16.4.1 - 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

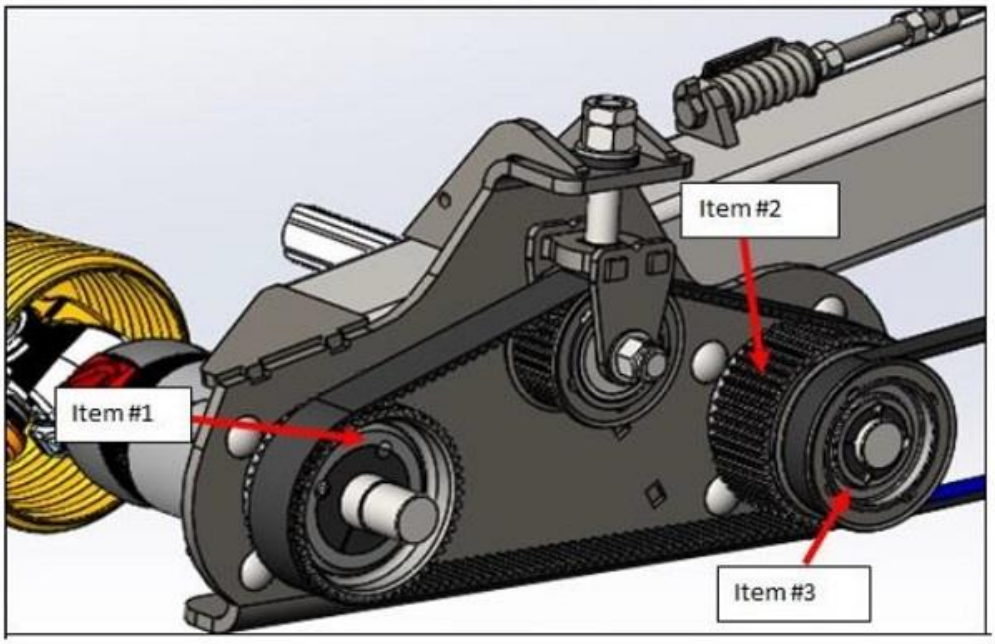


Figure 245

16.4.2 - 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

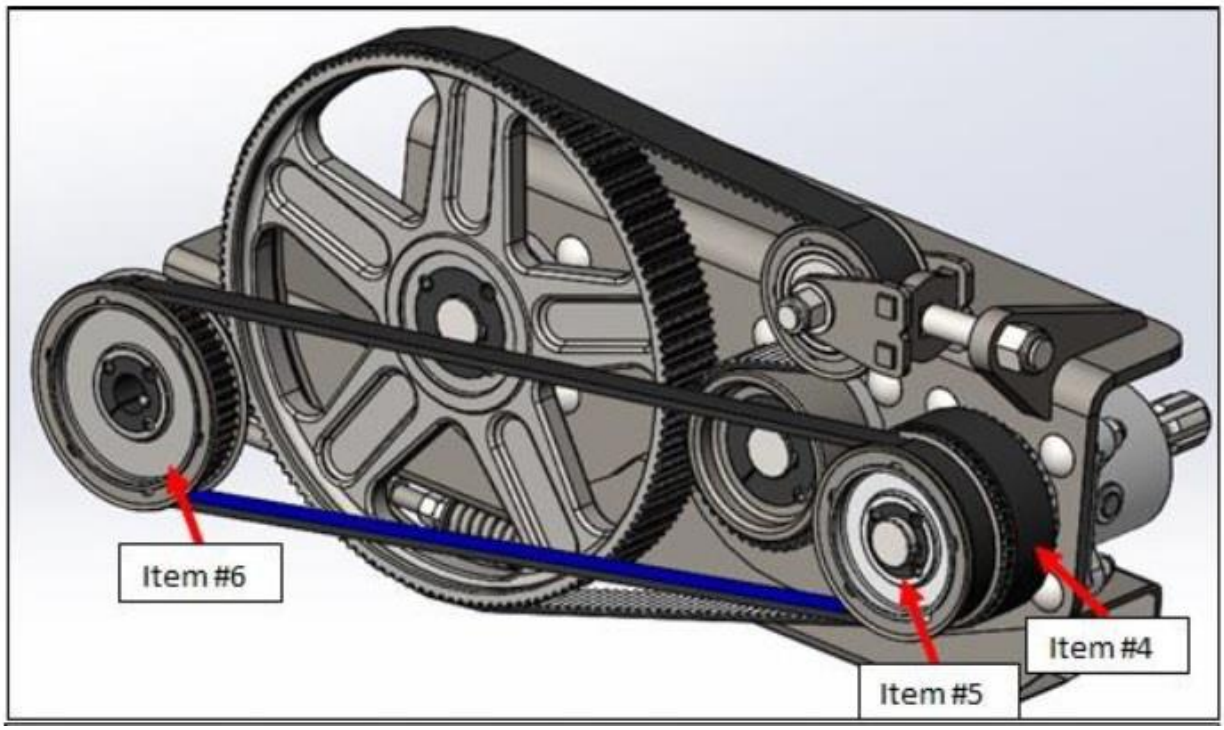


Figure 246

16.4.3 - Model Year 2018 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	Knife Speed (RPM)
AGCO	50T	101448	50T	101448	40T (PN#101453)	4" (HB#29079)	612
Claas/Lexion	45T	101447	56T	101450	40T (PN#101453)	4.5" (HB#29080)	608
CNH	50T	101448	47T	203059	40T (PN#101453)	3.5" (HB#29085)	604
JD 490	56T	101450	45T	101447	40T (PN#101453)	4.5" (HB#29080)	602
JD 520	56T	101450	47T	203059	40T (PN#101453)	4.5" (HB#29080)	612
CIH 2100-2500	50T	101448	45T	101447	40T (PN#101453)	4.5"(HB#29080)	592
Rostselmash	50T	101448	45T	101447	40T (PN#101453)	3.5" 29085	579

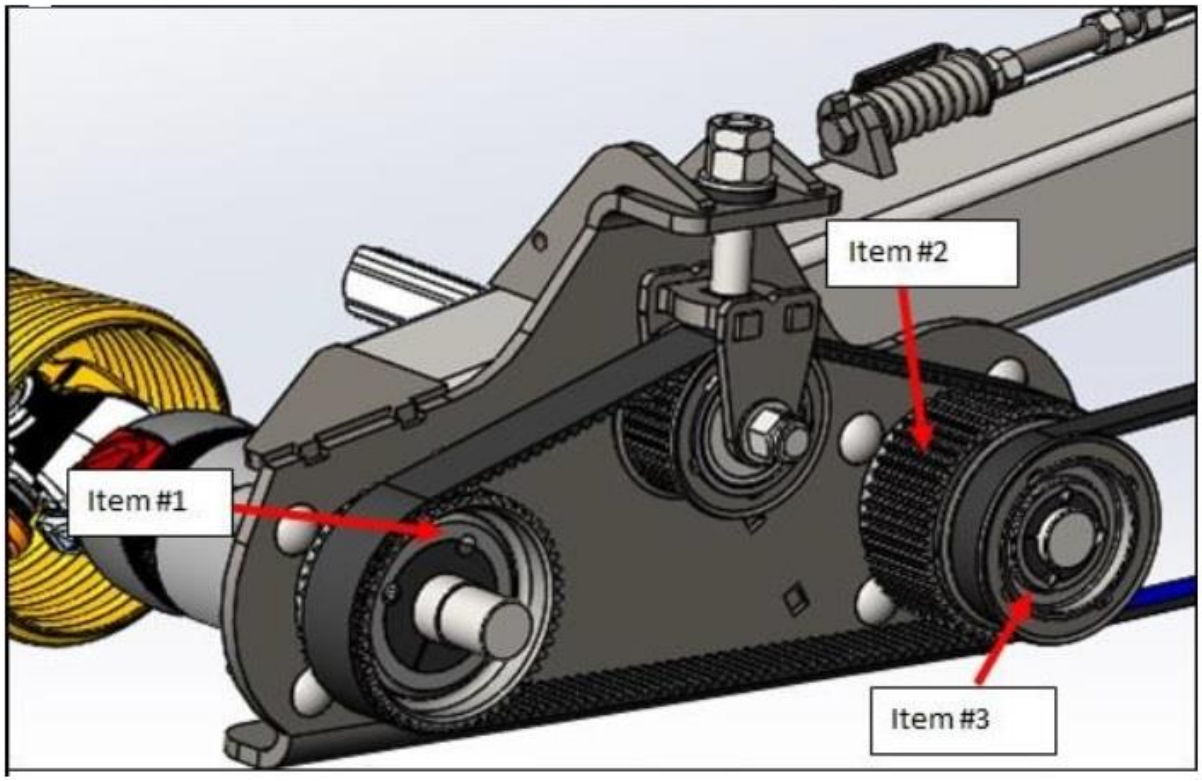


Figure 247

16.4.4 - Model Year 2018 Left-Hand Drive Pulleys

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	40T	101453	45T	101454
Claas/Lexion	40T	101445	32T	101452	45T	101454
CNH	50T	101448	45T	101454	45T	101454
JD 490/520	56T	101450	53T	101455	45T	101454
CIH 2100-2500	50T	101448	45T	101454	45T	101454
Rostselmash	56T	101450	45T	101454	45T	101454

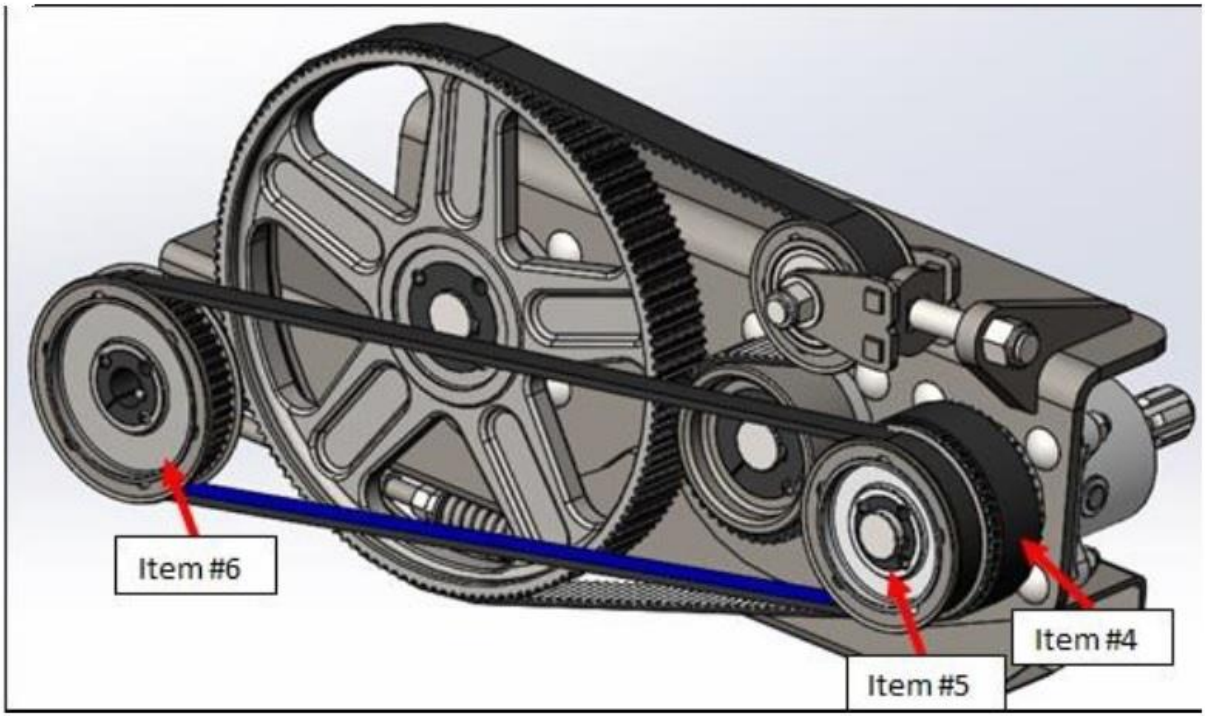
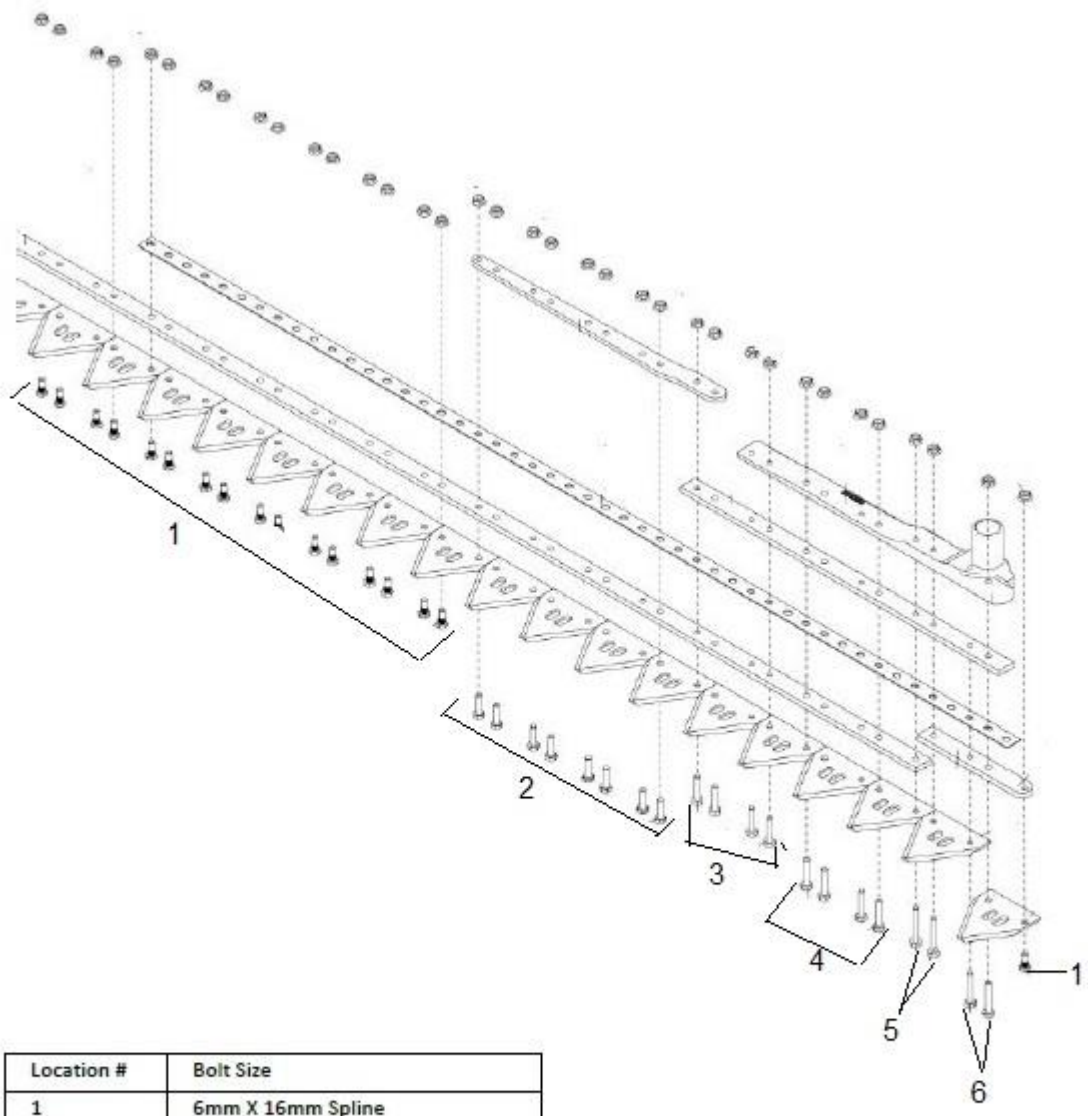


Figure 248

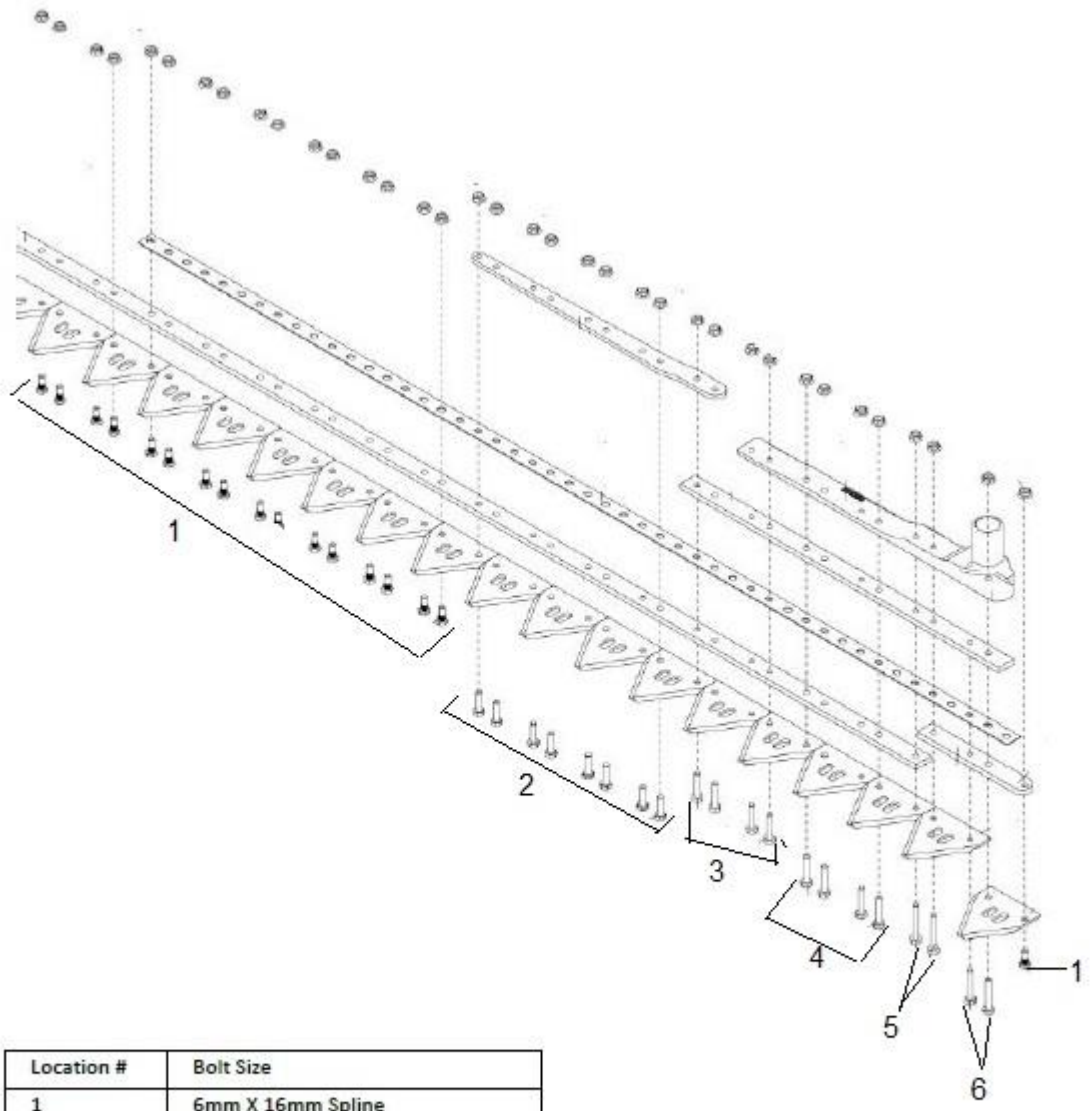
16.4.5 - Low Profile Left-Hand Knife



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 249

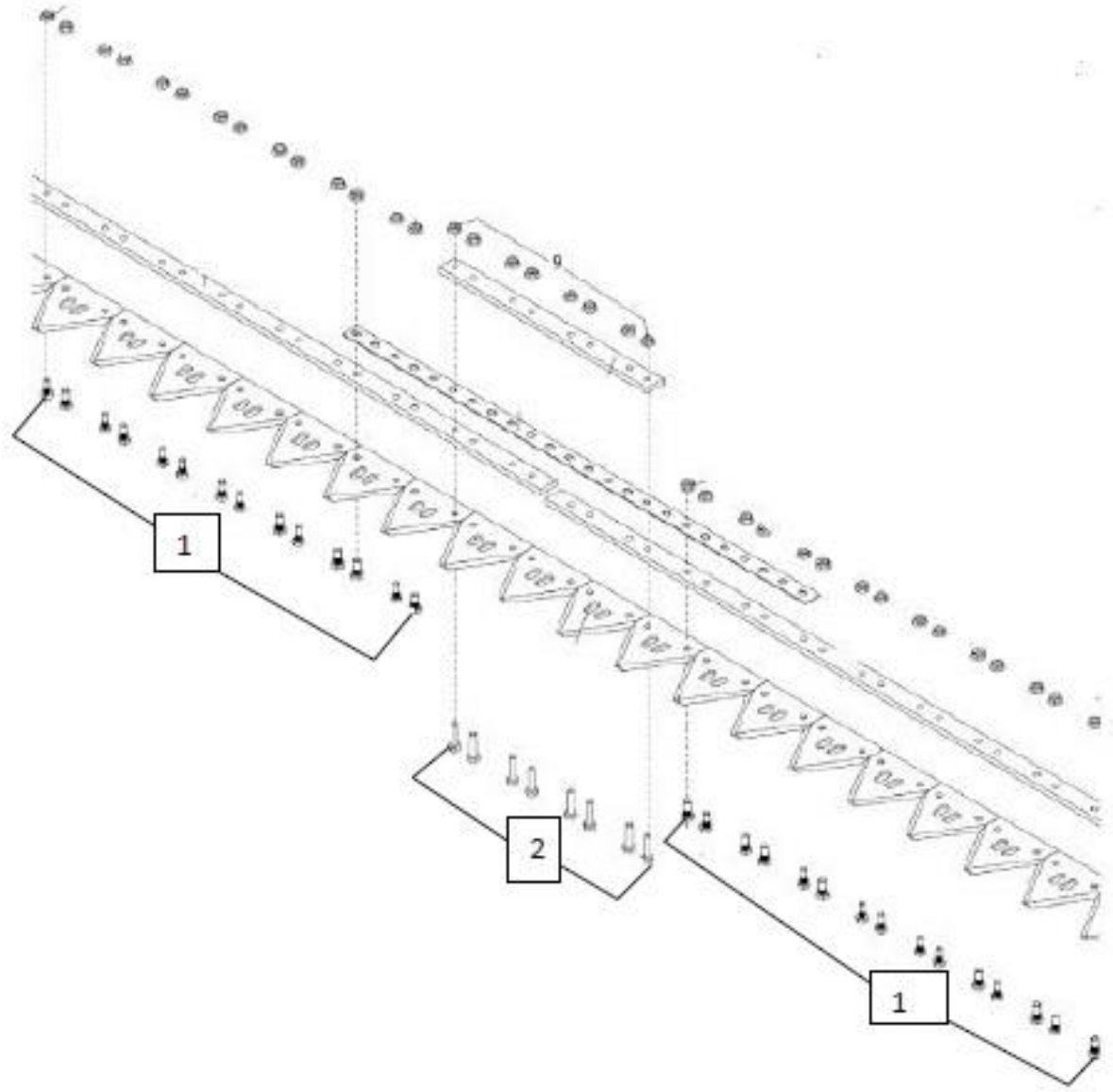
16.4.6 - Low Profile Right-Hand Knife



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 250

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

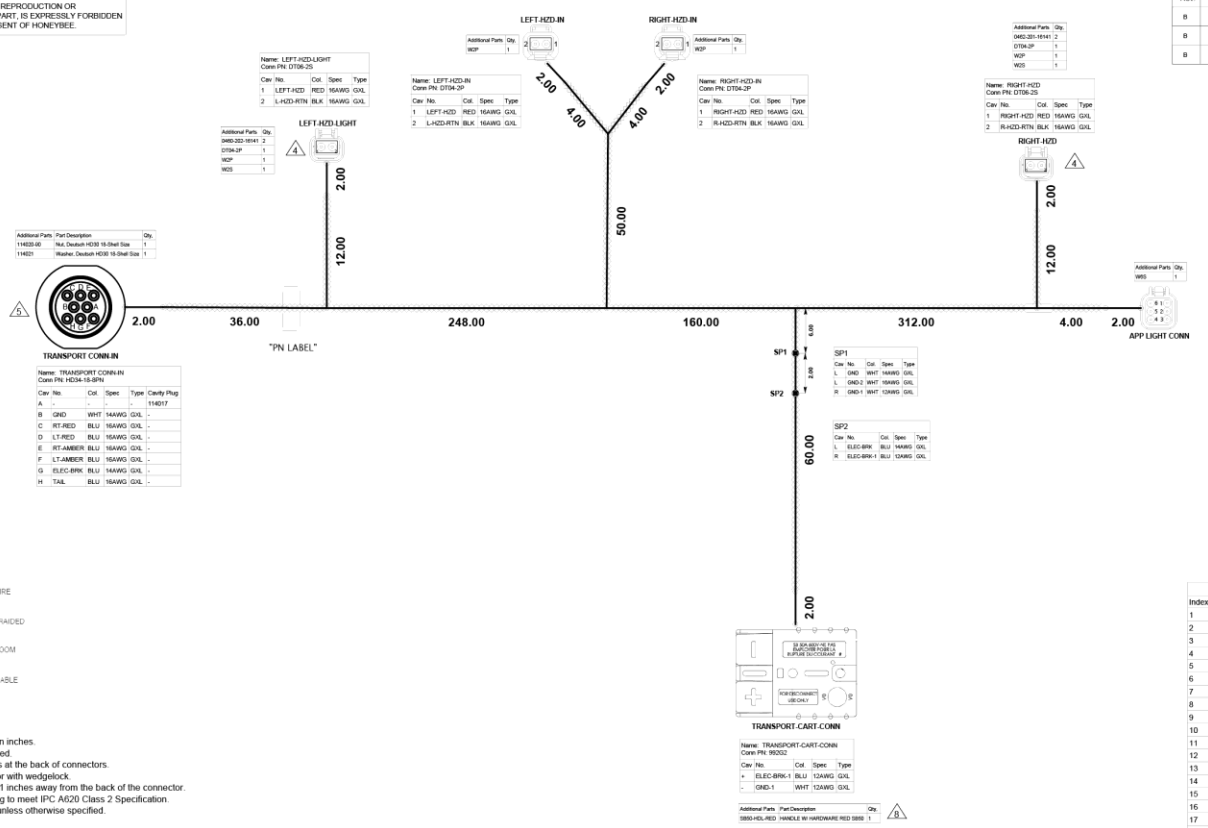


Location #	Bolt Size
1	6mm X 16mm Spline
2	6mm X 25mm CL 10.9 Bolt

Figure 251

17 - Wiring 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.TAHMIC	D.COOK	
B	2	Add Red T-handle to Anderson connector.	R.TAHMIC	D.COOK	
B	3	Changed terminal gender of HD connector to pin.	R.TAHMIC	D.COOK	



Name: LEFT-HZD-LIGHT
Conn PN: DT06-2S

Cav	No.	Col.	Spec	Type
1	LEFT-HZD	RED	16AWG	GXL
2	L-HZD-RTN	BLK	16AWG	GXL

Name: LEFT-HZD-IN
Conn PN: DT04-2P

Cav	No.	Col.	Spec	Type
1	LEFT-HZD	RED	16AWG	GXL
2	L-HZD-RTN	BLK	16AWG	GXL

Name: RIGHT-HZD-IN
Conn PN: DT04-2P

Cav	No.	Col.	Spec	Type
1	RIGHT-HZD	RED	16AWG	GXL
2	R-HZD-RTN	BLK	16AWG	GXL

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

Cav	No.	Col.	Spec	Type
1	RIGHT-HZD	RED	16AWG	GXL
2	R-HZD-RTN	BLK	16AWG	GXL

Name: APP LIGHT CONN
Conn PN: DT06-6S

Cav	No.	Col.	Spec	Type
1	GND-2	WHT	16AWG	GXL
2	RT-RED	BLU	16AWG	GXL
3	LT-RED	BLU	16AWG	GXL
4	RT-AMBER	BLU	16AWG	GXL
5	LT-AMBER	BLU	16AWG	GXL
6	TAIL	BLU	16AWG	GXL

Name: TRANSPORT CONN-IN
Conn PN: HD34-18-8PN

Cav	No.	Col.	Spec	Type	Cavity Plug
A		-			114017
B	GND	WHT	14AWG	GXL	-
C	RT-RED	BLU	16AWG	GXL	-
D	LT-RED	BLU	16AWG	GXL	-
E	RT-AMBER	BLU	16AWG	GXL	-
F	LT-AMBER	BLU	16AWG	GXL	-
G	ELEC-BRK	BLU	14AWG	GXL	-
H	TAIL	BLU	16AWG	GXL	-

SP1

Cav	No.	Col.	Spec	Type
L	GND	WHT	14AWG	GXL
L	GND-2	WHT	16AWG	GXL
R	GND-1	WHT	12AWG	GXL

SP2

Cav	No.	Col.	Spec	Type
L	ELEC-BRK	BLU	14AWG	GXL
R	ELEC-BRK-1	BLU	12AWG	GXL

Name: TRANSPORT-CART-CONN
Conn PN: 99202

Cav	No.	Col.	Spec	Type
+	ELEC-BRK-1	BLU	12AWG	GXL
-	GND-1	WHT	12AWG	GXL

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.TAHMIC	2016-12-09
Checked by:	D.COOK	
Approved by:	D.COOK	
Customer Approval:		

Description: HONEYBEE
Airflex, Common Transport Harness-B

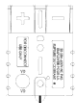
Drawing No.	Part No.	Rev.	Iss.
JCA17-000135-10	JCA17-000135	B	3
Scale: NTS		Sheet 1 of 1	

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

5



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

LEFT-EB

2"

"PN LABEL"

30"

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

RIGHT-EB

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

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	

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

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

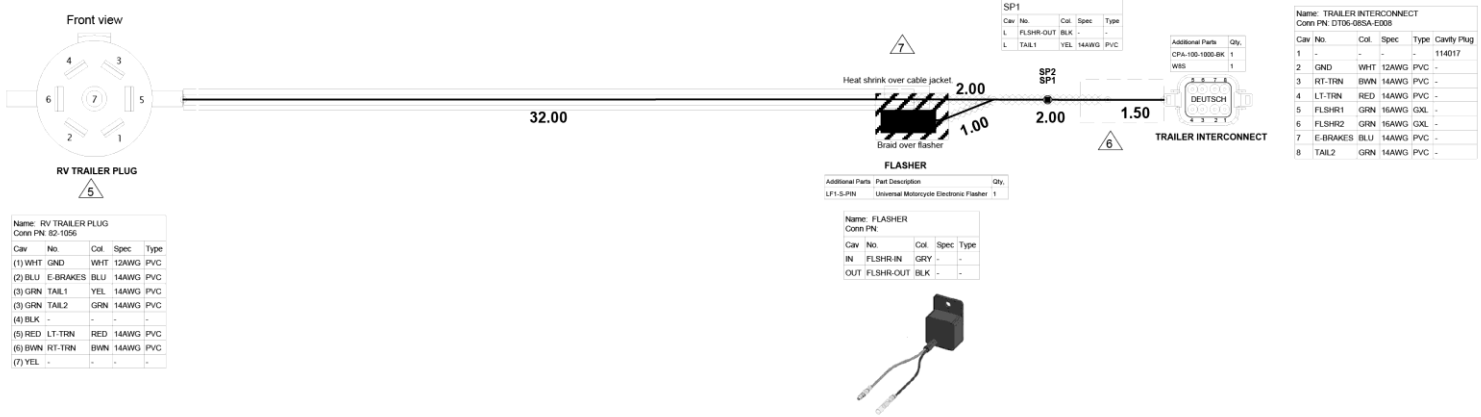
Description: HONEYBEE
Airflex, Transport Cart Harness

	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.TAHMIC	D.COOK	
C	2	Add note 7. Braid over the flasher module.	R.TAHMIC	D.COOK	
D	1	Rev up. Changed flasher module.	R.TAHMIC	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

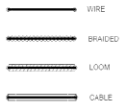
Cav	No.	Col.	Spec	Type
(1) WHT	GND	WHT	12AWG	PVC
(2) BLU	E-BRAKES	BLU	14AWG	PVC
(3) GRN	TAIL1	YEL	14AWG	PVC
(3) GRN	TAIL2	GRN	14AWG	PVC
(4) BLK	-	-	-	-
(5) RED	LT-TRN	RED	14AWG	PVC
(6) BWN	RT-TRN	BWN	14AWG	PVC
(7) YEL	-	-	-	-

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	-	-

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.



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

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

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

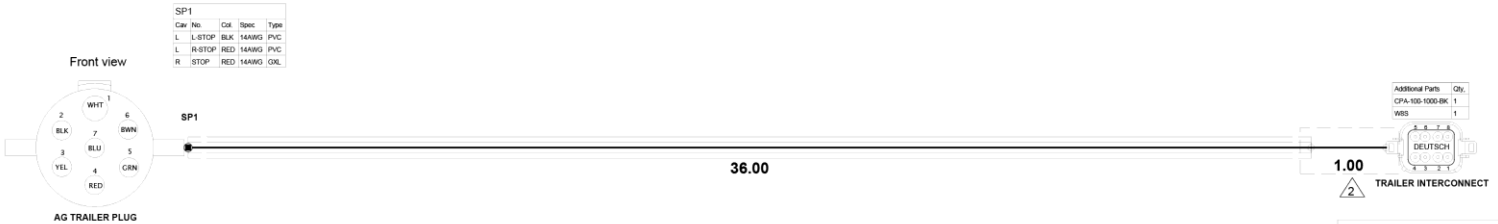
	NAME	DATE (YYYY-MM-DD)
Drawn by:	R.TAHMIC	2017-01-24
Checked by:	D.COOK	
Approved by:	D.COOK	
Customer Approval:		

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
WBS	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	WBS	Wedge Lock, 8-way Plug, Deutsch	1	Each
11	GXL_14AWG_RED	GXL 14awg, Red	4	Per Length

JCA Electronics Industries
170 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.TAHMIC	D.COOK	
B	2	Change length.	R.TAHMIC	D.COOK	
C	1	Rev up.	R.TAHMIC	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
WBS	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	WBS	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
170 KING EDWARD ST. E. WINNIPEG MANITOBA, CANADA R2H 0N8

	NAME	DATE (YYYY-MM-DD)
Drawn by:	R.TAHMIC	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

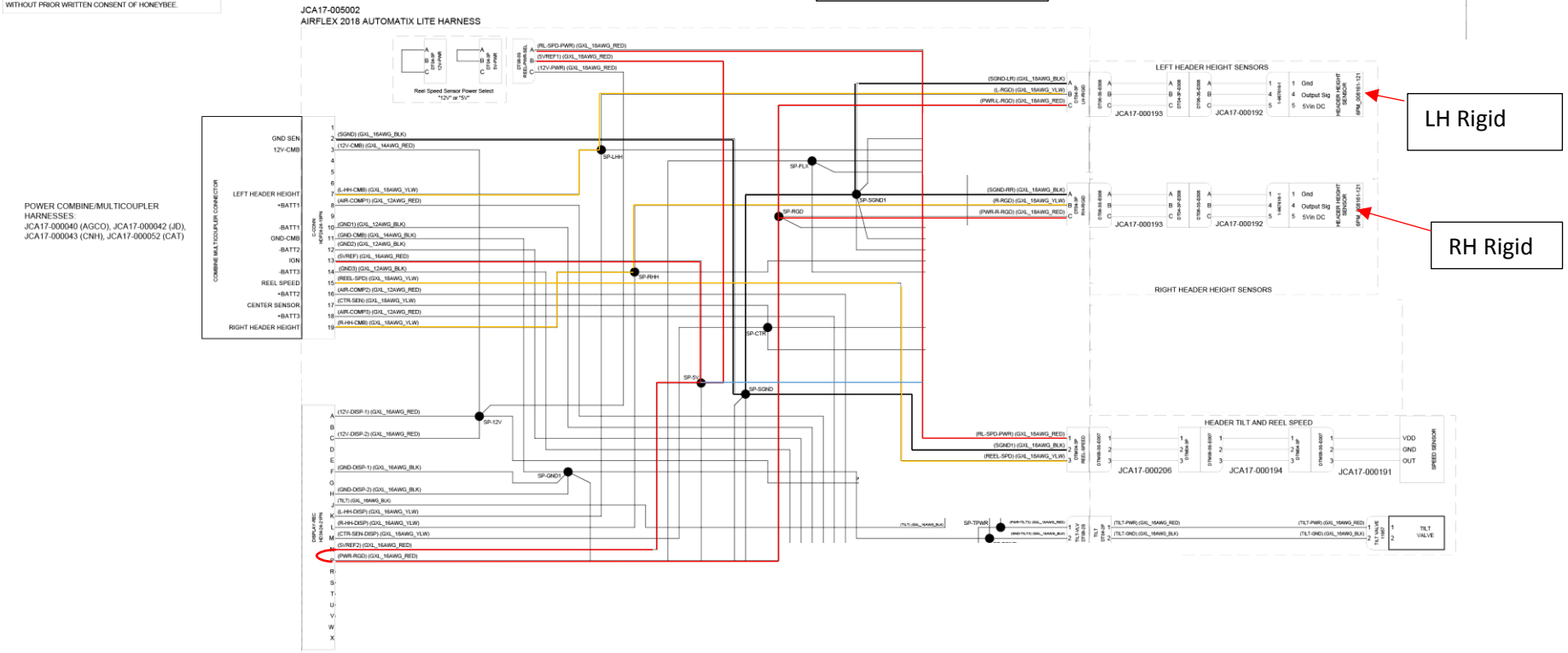
Scale: NTS

Sheet: 1 of 1

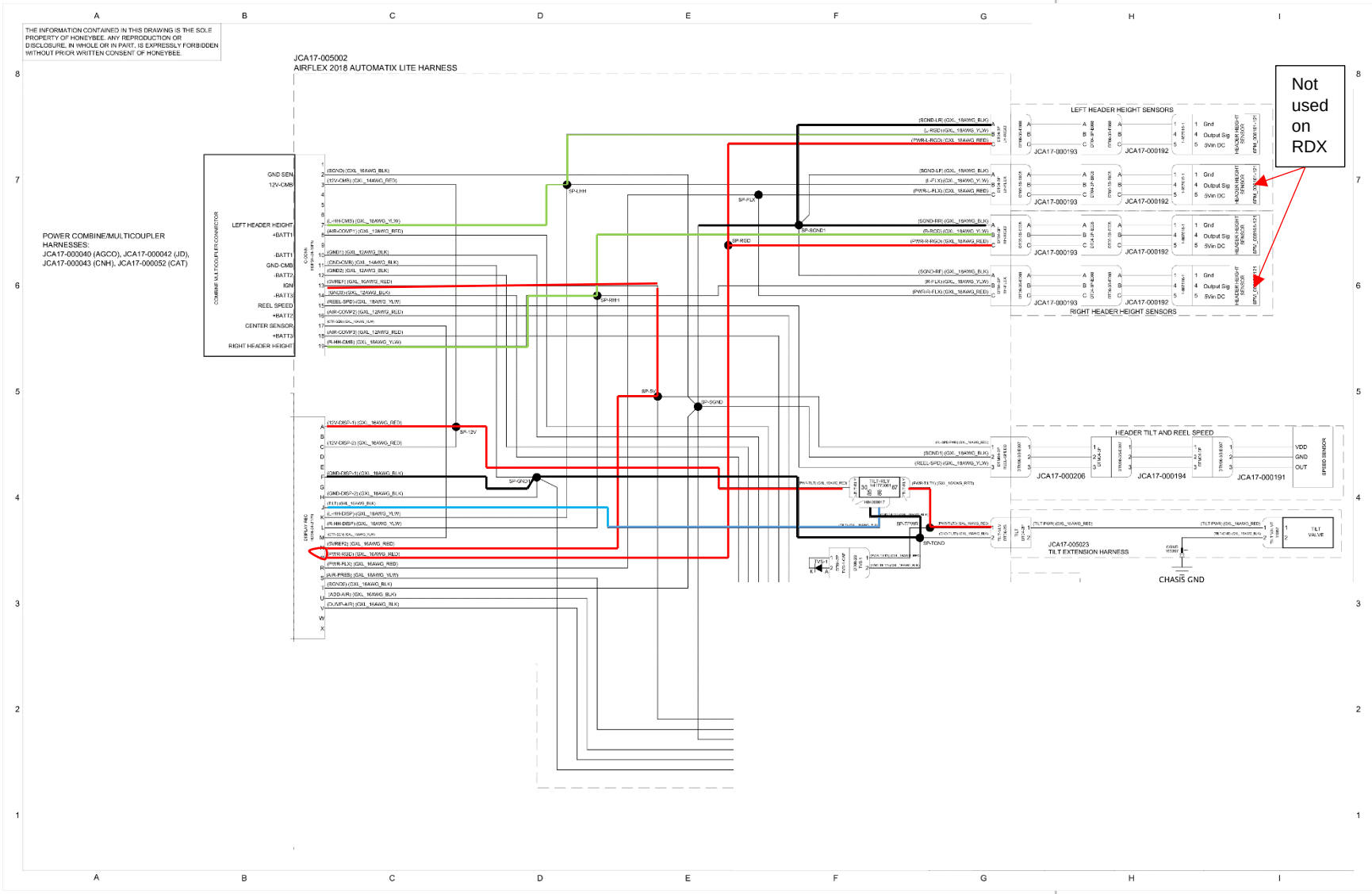
17.1 - RDX

17.1.1 - Main Harness Model Year 2018

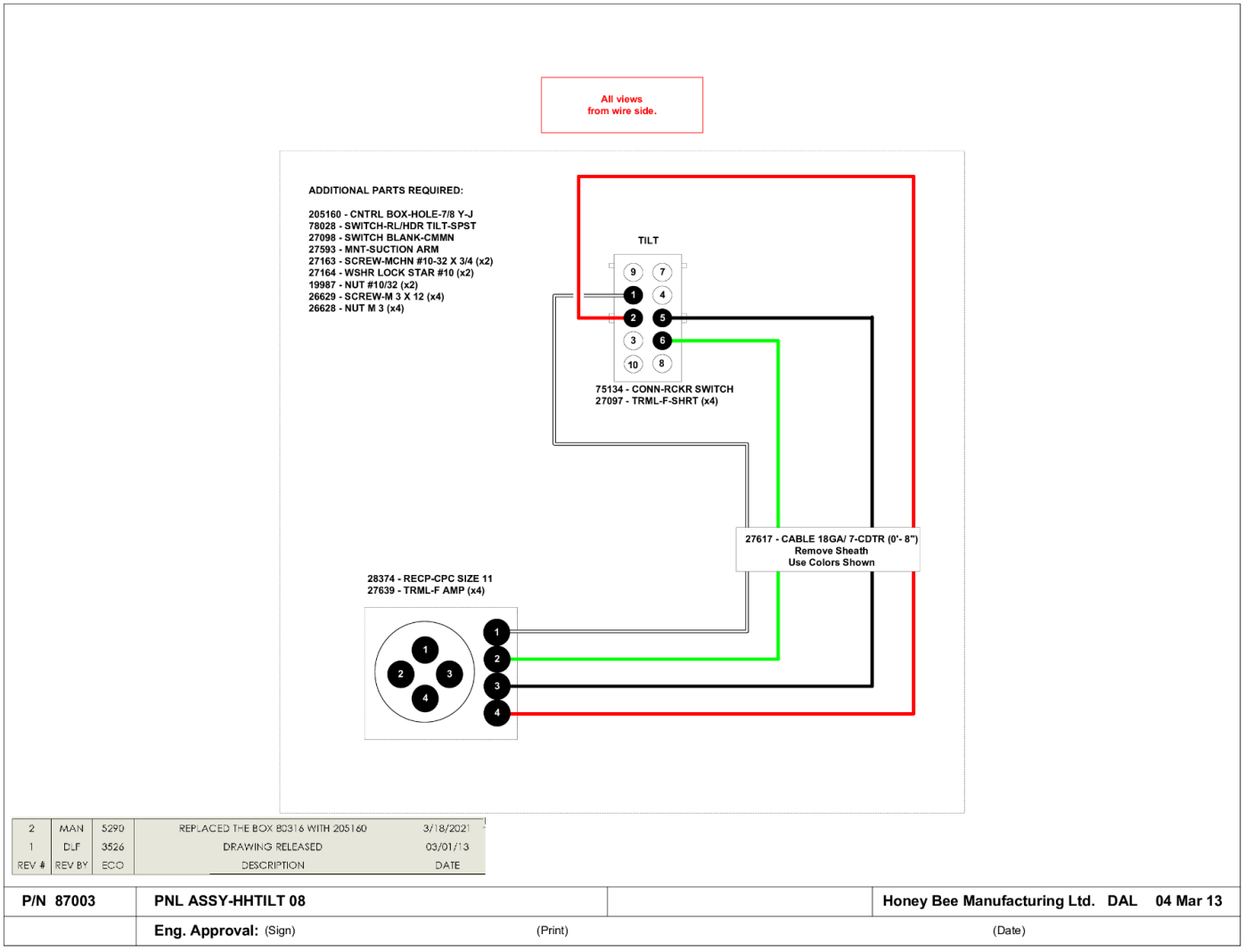
Note: Colored wires are the only ones used on RDX Same main harness as SDX

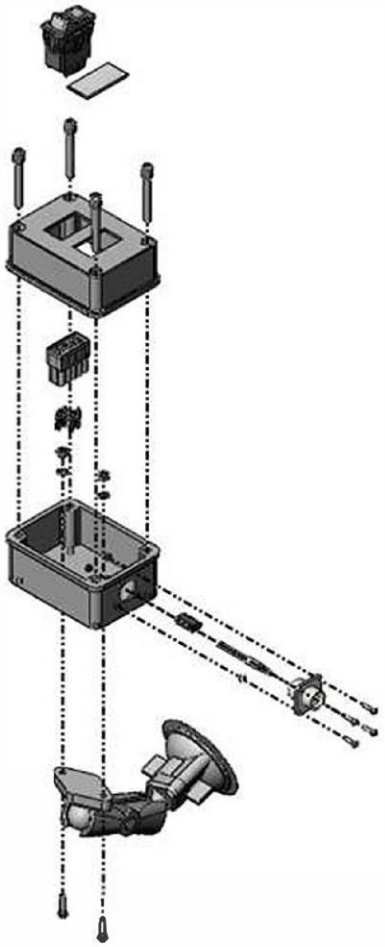


17.1.2 - Main Harness Model Year 2019 and above

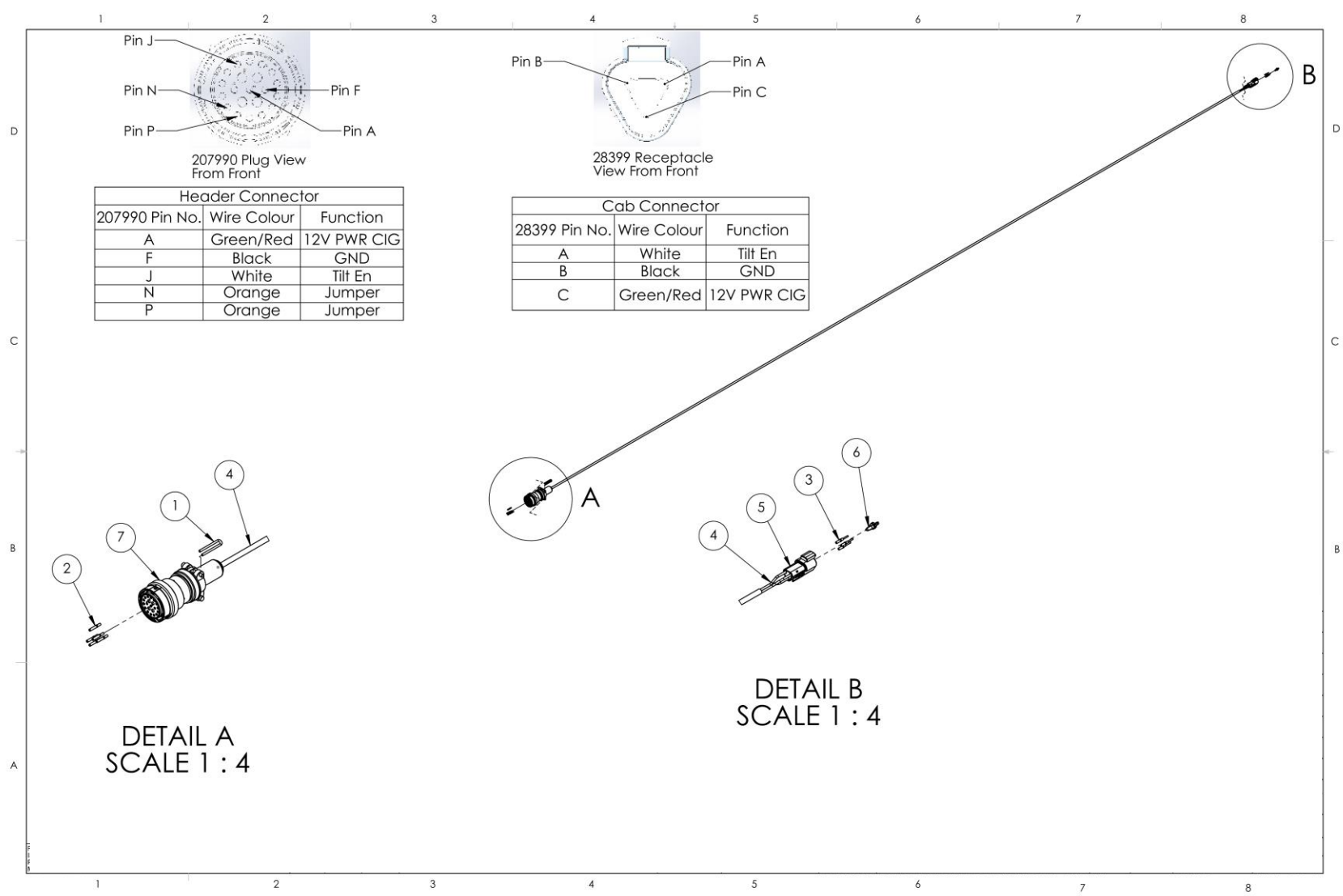


17.1.3 - Tilt Cylinder Control Box



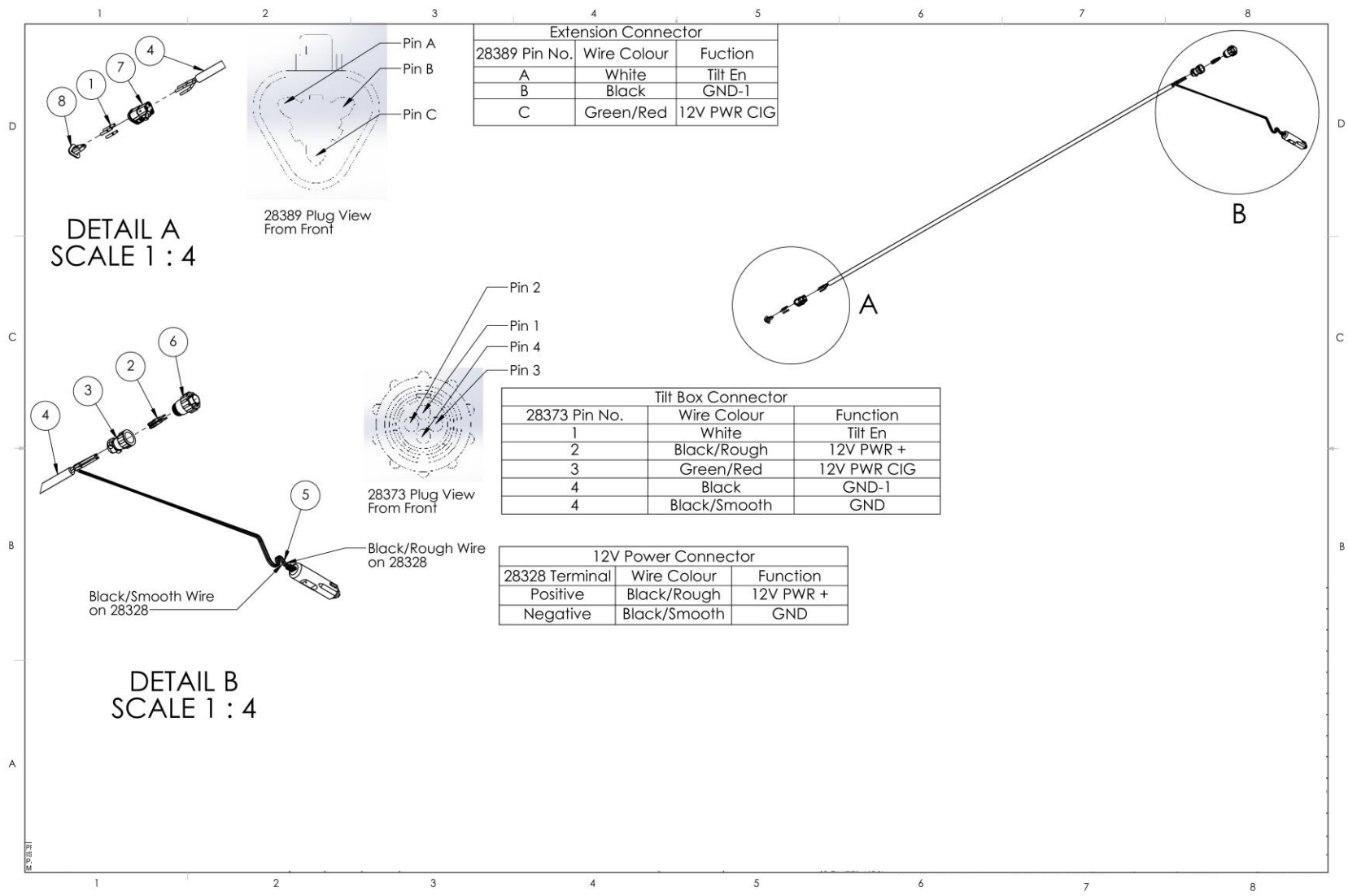


17.1.4 - Control Box Wire Harness from Connector to Control Box



Header Connector		
207990 Pin No.	Wire Colour	Function
A	Green/Red	12V PWR CIG
F	Black	GND
J	White	Tilt En
N	Orange	Jumper
P	Orange	Jumper

Cab Connector		
28399 Pin No.	Wire Colour	Function
A	White	Tilt En
B	Black	GND
C	Green/Red	12V PWR CIG

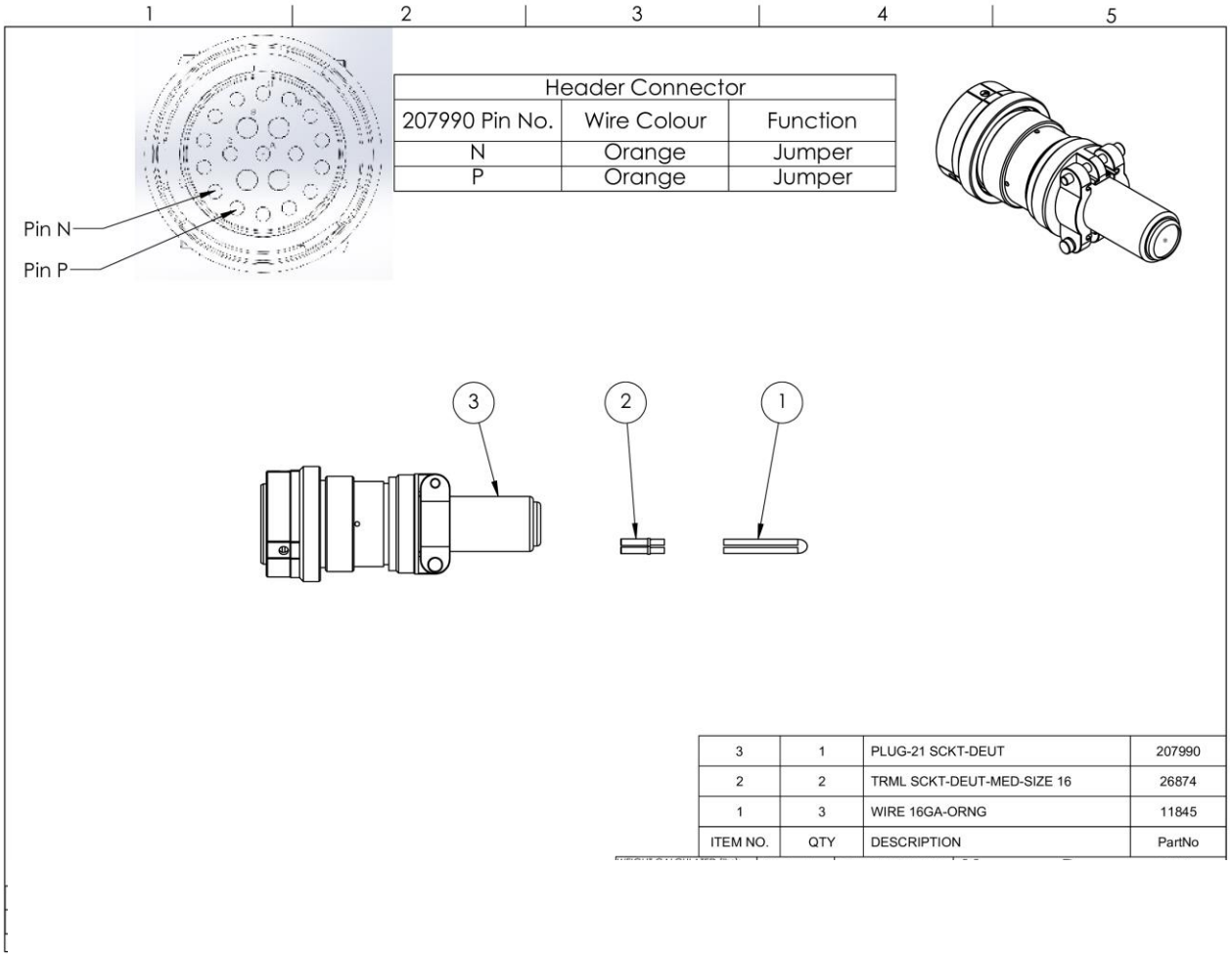


Extension Connector		
28389 Pin No.	Wire Colour	Fuction
A	White	Tilt En
B	Black	GND-1
C	Green/Red	12V PWR CIG

Tilt Box Connector		
28373 Pin No.	Wire Colour	Function
1	White	Tilt En
2	Black/Rough	12V PWR +
3	Green/Red	12V PWR CIG
4	Black	GND-1
4	Black/Smooth	GND

12V Power Connector		
28328 Terminal	Wire Colour	Function
Positive	Black/Rough	12V PWR +
Negative	Black/Smooth	GND

17.1.5 - Dummy Plug for Display Connector if Manual Tilt



Header Connector		
207990 Pin No.	Wire Colour	Function
N	Orange	Jumper
P	Orange	Jumper

3	1	PLUG-21 SCKT-DEUT	207990
2	2	TRML SCKT-DEUT-MED-SIZE 16	26874
1	3	WIRE 16GA-ORNG	11845
ITEM NO.	QTY	DESCRIPTION	PartNo