

MacDon®



Draper Clinic Handout

FD2 FlexDraper®

The Harvesting Specialists.



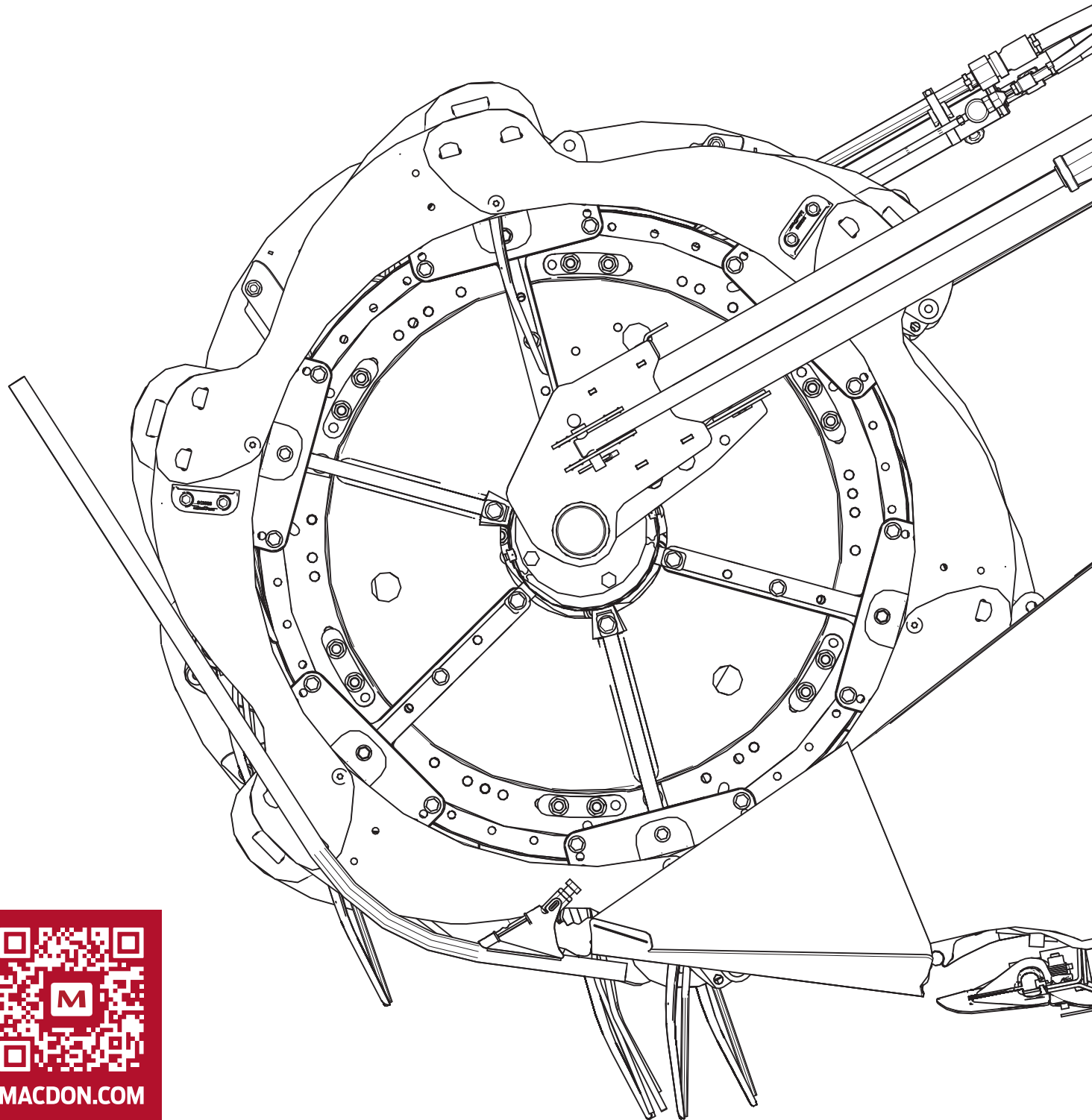


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Intro

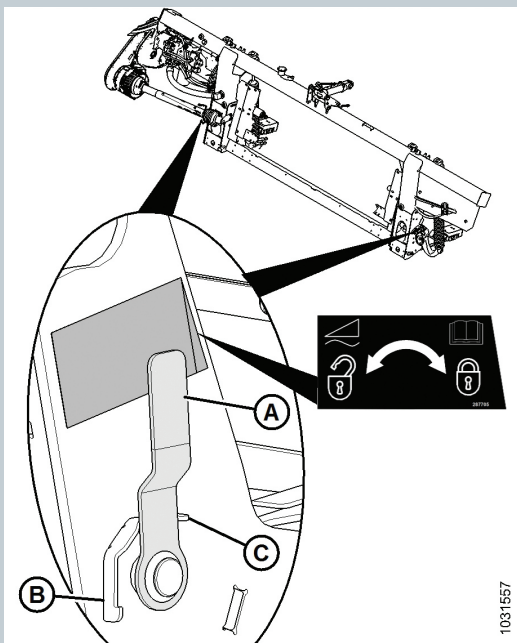
This document is meant as a quick reference guide. Please refer to your Operator's Manual for complete information and instructions for procedures.



Flex vs Float

Float – Refers to the vertical separation (movement) of the header from the Float Module

Flex – Refers to the movement of the 3 piece header frame including the knife



Float

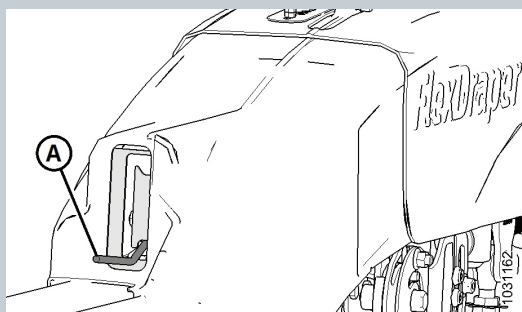
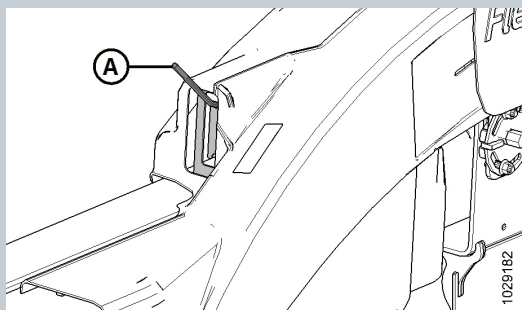
Always **Lock Float** for transport or when disconnecting the header from the combine.

Always **Unlock** Float when operating in the field

To disengage (unlock) float locks, pull float lock handle (A) into position (B). In this position, the header is unlocked, and can float with respect to the float module.

To engage (lock) float locks, push float lock handle (A) into position (C). In this position, the header cannot move with respect to the float module.

2 latches – one on either side.



Flex

Always **Lock Flex** for transport

Unlock for cutting on the ground

May be used locked or unlocked for off ground cutting.

2 latches – one on either side. Each wing operates independently to follow the ground contours. When the wings are unlocked, they are free to move up and down.

Top picture shows wing is locked.

Lower picture shows wing is unlocked.

Please refer to your Operator's Manual for a more information.

Break-In Interval

Break-in inspection involves checking belts, fluids, and performing general machine inspections for loose hardware or other areas of concern.

Break-in inspections ensure that all components can operate for an extended period without requiring service or replacement.

The break-in period is the first 50 hours of operation after the machine's initial start up. Please refer to your Operator's Manual for complete instruction procedures.

Inspection Interval	Description
5 Minutes	Check hydraulic oil level in reservoir. (check after first run-up and after the hydraulic hoses have filled with oil)
5 Hours	Check for loose hardware and tighten to required torque
10 Hours	Check auger drive chain tension
10 Hours	Check knife drive box mounting bolts
10 Hours	Grease the feed draper bearings
50 Hours	Change header drive main gearbox oil
50 Hours	Change header drive completion gearbox oil
50 Hours	Change float module hydraulic oil filter
50 Hours	Change knife drive box lubricant
50 Hours	Check gearbox chain tension (both the header drive and completion gearboxes)

Maintenance

10 Hours or Daily

Inspect hydraulic hoses and lines for leaks.

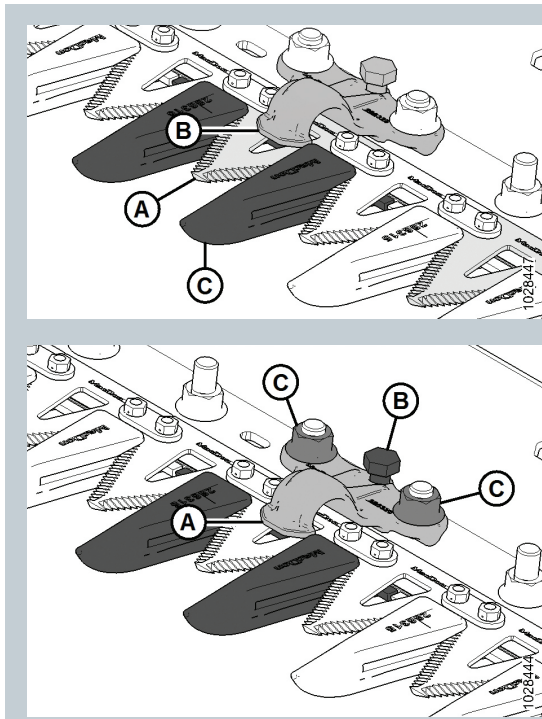
Check tire pressure (if applicable)

Inspect knife components for damage and hold-downs for proper setting to ensure optimal performance.

Replace and adjust as required.

Note: Check part numbers of the guards. The first four guards from the knife head do not have wear bars.

Pointed Knife Guard



1. Manually stroke the knife to position knife section (A) under hold-down (B).

2. Push down on knife section (A) with approximately 44 N (10 lbf) and use a feeler gauge to measure the clearance between hold-down (B) and the knife section. Ensure the clearance is 0.1– 0.5 mm (0.004 – 0.020 in.).

To lower the front of hold-down (A) and decrease clearance, turn adjuster bolt (B) clockwise.

To raise the front of hold-down (A) and increase clearance, turn adjuster bolt (B) counterclockwise.

NOTE:

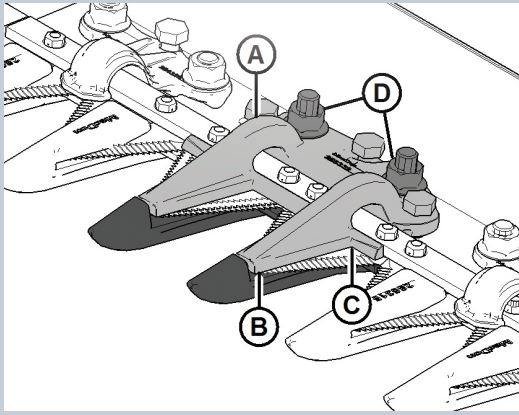
For larger adjustments, it may be necessary to loosen nuts (C) before turning adjuster bolt (B). After adjustment, retighten nuts to 85 Nm (63 lbf ft).

After making the hold-down adjustments, run the header at low engine speed and listen for noise caused by insufficient clearance.

IMPORTANT:

Insufficient hold-down clearance will result in overheating of the knife and guards —readjust as necessary.

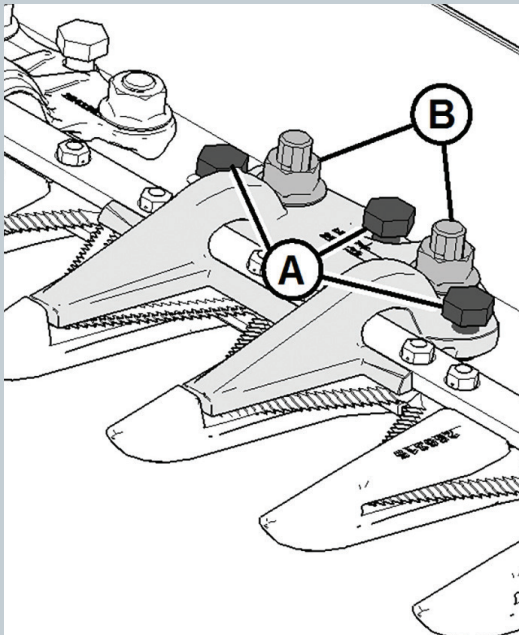
Pointed Knife Guard Center Hold-Down (Double Knife)



1. Manually stroke both knives to their inboard end so that knife sections are under hold-down (A).

2. Push down on knife section with approximately 44 N (10 lbf) and use a feeler gauge to measure the clearance between hold-down (A) and the knife section. Ensure the clearance is as follows:

- At tip (B) of hold-down: 0.1–0.5 mm (0.004 – 0.020 in.)
- At rear (C) of hold-down: 0.1–1.0 mm (0.004 – 0.040 in.)



If increasing the clearance, loosen mounting hardware (B) before adjusting bolts (A).

To decrease clearance, turn adjuster bolts (A) clockwise (tighten).

To increase clearance, turn adjuster bolts (A) counterclockwise (loosen).

NOTE:

To adjust clearance at tip only, adjust using only center (rear) adjustment bolt.

Tighten nuts (B) to 85 Nm (63 lbf ft).

Recheck clearances and make further adjustments if necessary.

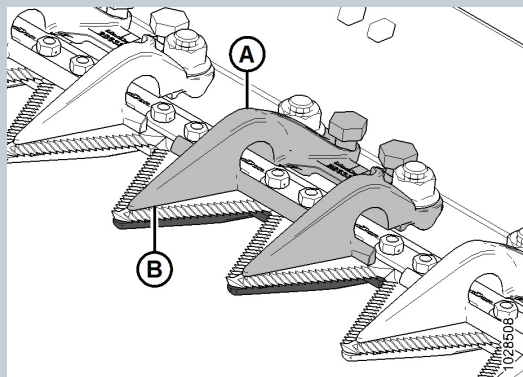
After making the hold-down adjustments, run the header at low engine speed and listen for noise caused by insufficient clearance.

IMPORTANT:

Insufficient hold-down clearance will result in overheating of the knife and guards —readjust as necessary.

Maintenance

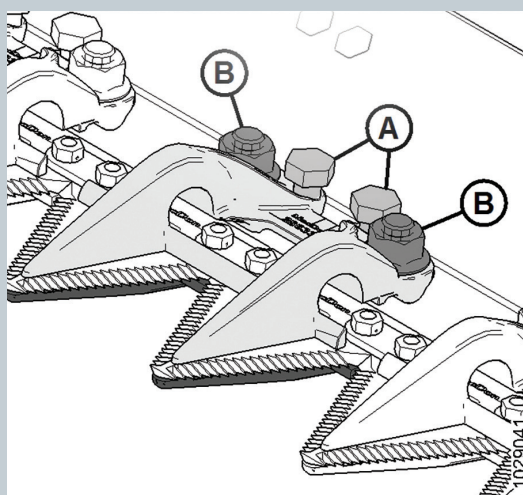
Plug Free Knife Guard



1. Manually stroke knife to position section under hold-down (A).

2. Push down on knife section with approximately 44 N (10 lbf) and use a feeler gauge to measure the clearance between the tip of hold-down (B) and the knife section.

Ensure the clearance is 0.1 – 0.5 mm (0.004 – 0.020 in.).



To decrease clearance, turn adjuster bolts (A) clockwise.
To increase clearance, turn adjuster bolts (A) counterclockwise.

NOTE:

For larger adjustments, it may be necessary to loosen nuts (B) before turning adjuster bolts (A).

After adjustment, retighten nuts to 85 Nm (63 lbf ft).

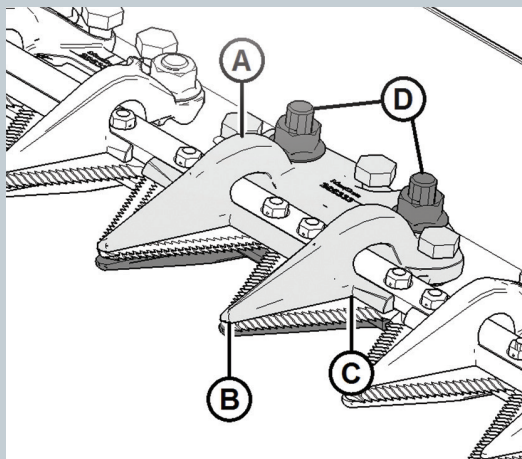
Recheck clearances, and make further adjustments if necessary.

After making the hold-down adjustments, run the header at low engine speed, and listen for noise caused by insufficient clearance.

IMPORTANT:

Insufficient hold-down clearance will result in overheating of the knife and guards —readjust as necessary.

Plug Free Knife Guard Center Hold-Down (Double Knife)



Manually stroke both knives to their inboard end so that knife sections are under hold-down (A).

Push down on knife section with approximately 44 N (10 lbf), and use a feeler gauge to measure the clearance between hold-down (A) and the knife section.

Ensure the clearance is as follows:

- At tip (B) of hold-down: 0.1–0.5 mm (0.004 – 0.020 in.)
- At rear (C) of hold-down: 0.1–1.0 mm (0.004 – 0.040 in.)

If increasing the clearance, loosen the mounting hardware (B) before adjusting bolts (A).

To decrease clearance, turn adjuster bolts (A) clockwise (tighten).

To increase clearance, turn adjuster bolts (A) counterclockwise (loosen).

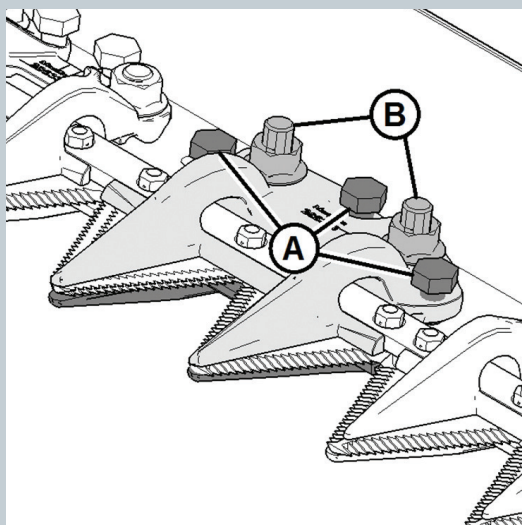
NOTE:

To adjust clearance at tip only, adjust using only center (rear) adjustment bolt.

Tighten nuts (B) to 85 Nm (63 lbf ft).

Recheck clearances, and make further adjustments if necessary.

After making the hold-down adjustments, run the header at low engine speed, and listen for noise caused by insufficient clearance.

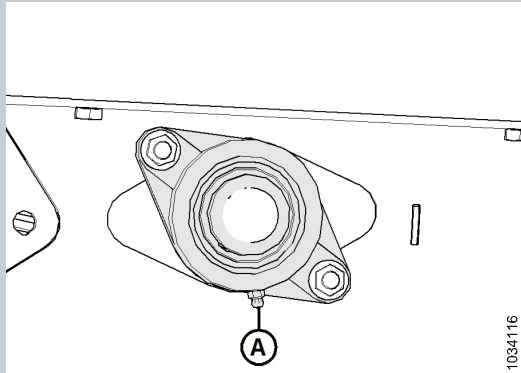


IMPORTANT:

Insufficient hold-down clearance will result in overheating of the knife and guards —readjust as necessary.

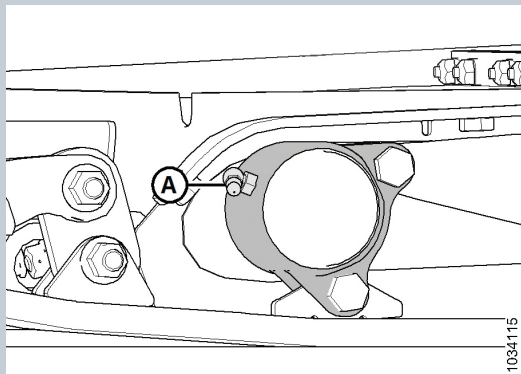
Maintenance

Feed Draper Rollers



Feed draper drive roller

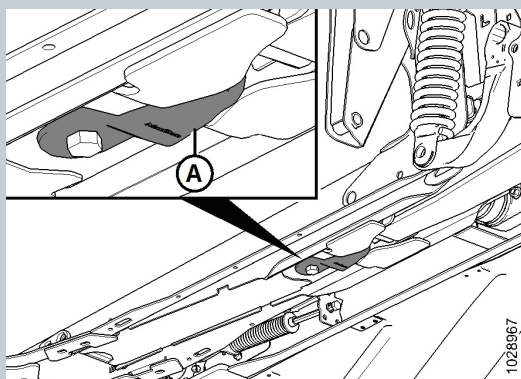
When greasing, clear any debris and excess grease from around the bearing and bearing housing. Inspect the condition of the bearing and bearing housing. Grease the feed draper drive roller bearing until grease comes out of the seal. Wipe any excess grease from area after greasing.



Feed draper idler roller

When greasing, clear any debris, and excess grease from around the bearing housing. Inspect the condition of the roller and bearing housing. Grease the feed draper idler roller bearing until grease comes out of the seal. Wipe any excess grease from area after greasing.

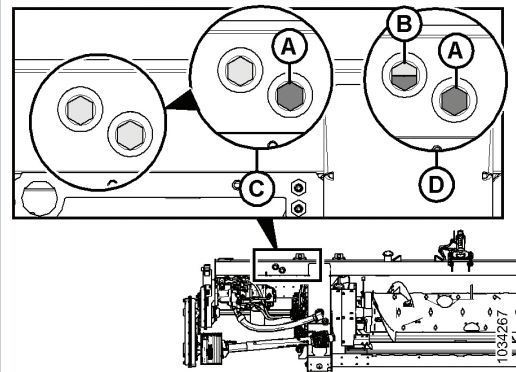
Link Holder Hooks (Breakaways)



Before operation, ensure both link holder hooks (A) are engaged on the float module under the feed deck as shown. Inspect link holder hooks for any damage or wear. Replace if damaged/broken or missing.

25 Hours

Check the Hydraulic Oil Level in the Reservoir Every 25 Hours.



Check the level when the oil is cold.

1. Check the oil level using lower sight (A) and upper sight (B) with the cutterbar just touching the ground and with the center-link retracted.

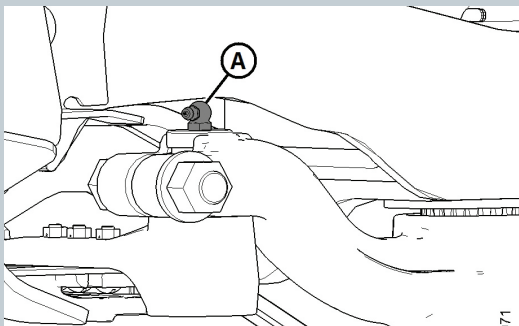
2. Ensure the oil is at the appropriate level for the terrain as follows:

- Normal terrain (C): Maintain level so lower sight (A) is full, and upper sight (B) is empty.
- Hilly terrain (D): Maintain level so lower sight (A) is full, and upper sight (B) is up to one-half filled.

Add oil as required.

Refer to chart (page 51) for lubrication specifications.

Knifehead



Lubricate the knifehead(s) (A) every 25 hours.

One to two pumps using a mechanical grease gun.

Check for signs of excessive heating on the first few guards after greasing.

If over greased, remove zerk and push up on the bottom of the knife head to remove excess grease. Re-install zerk.

IMPORTANT:

Do NOT overgrease the knifehead. Apply only one to two pumps using a mechanical grease gun (do NOT use an electric grease gun).

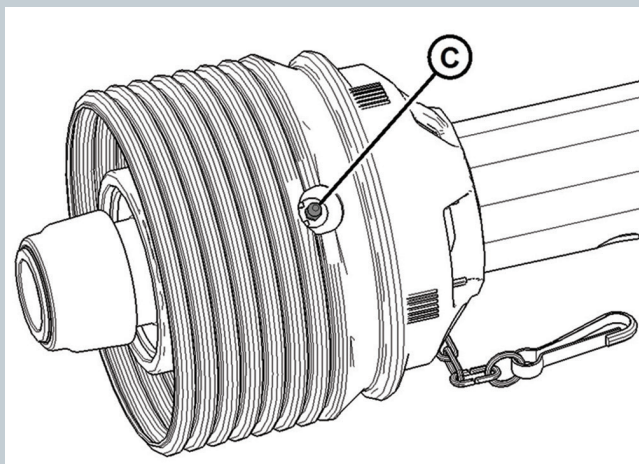
Overgreasing may lead to knife damage or breakage.

Overgreasing the knifehead puts pressure on the knife, causing it to rub against the guards, resulting in excessive wear from binding.

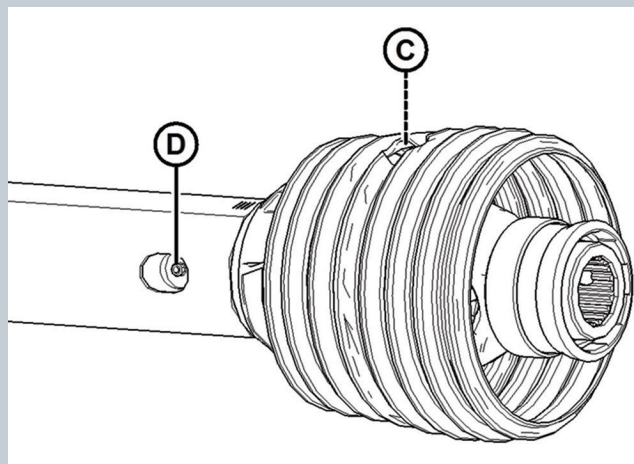
Maintenance

50 Hours

Driveline Universals



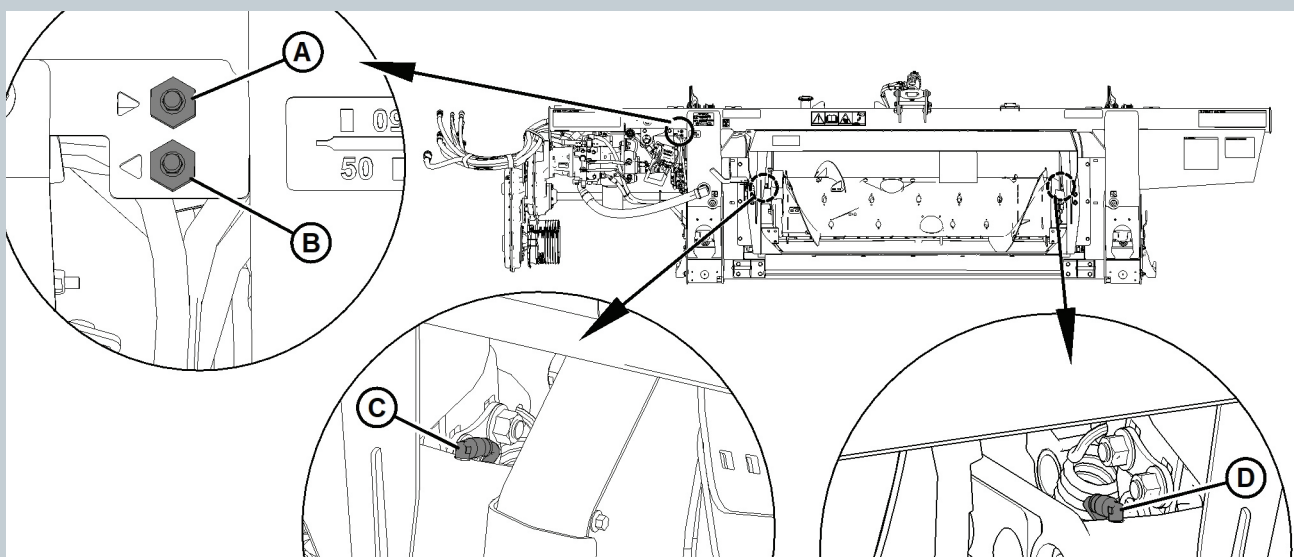
C - Driveline Universal (Two Places)



D - Driveline Slip Joint*

*Use high temperature extreme pressure (EP2) performance grease with 10% max molybdenum disulphide (NLGI Grade 2) lithium base.

Auger Pivots



A - Remote Grease Line for Auger Pivot (Right Side)

B - Remote Grease Line for Auger Pivot (Left Side)

C - Auger Pivot (Left Side)

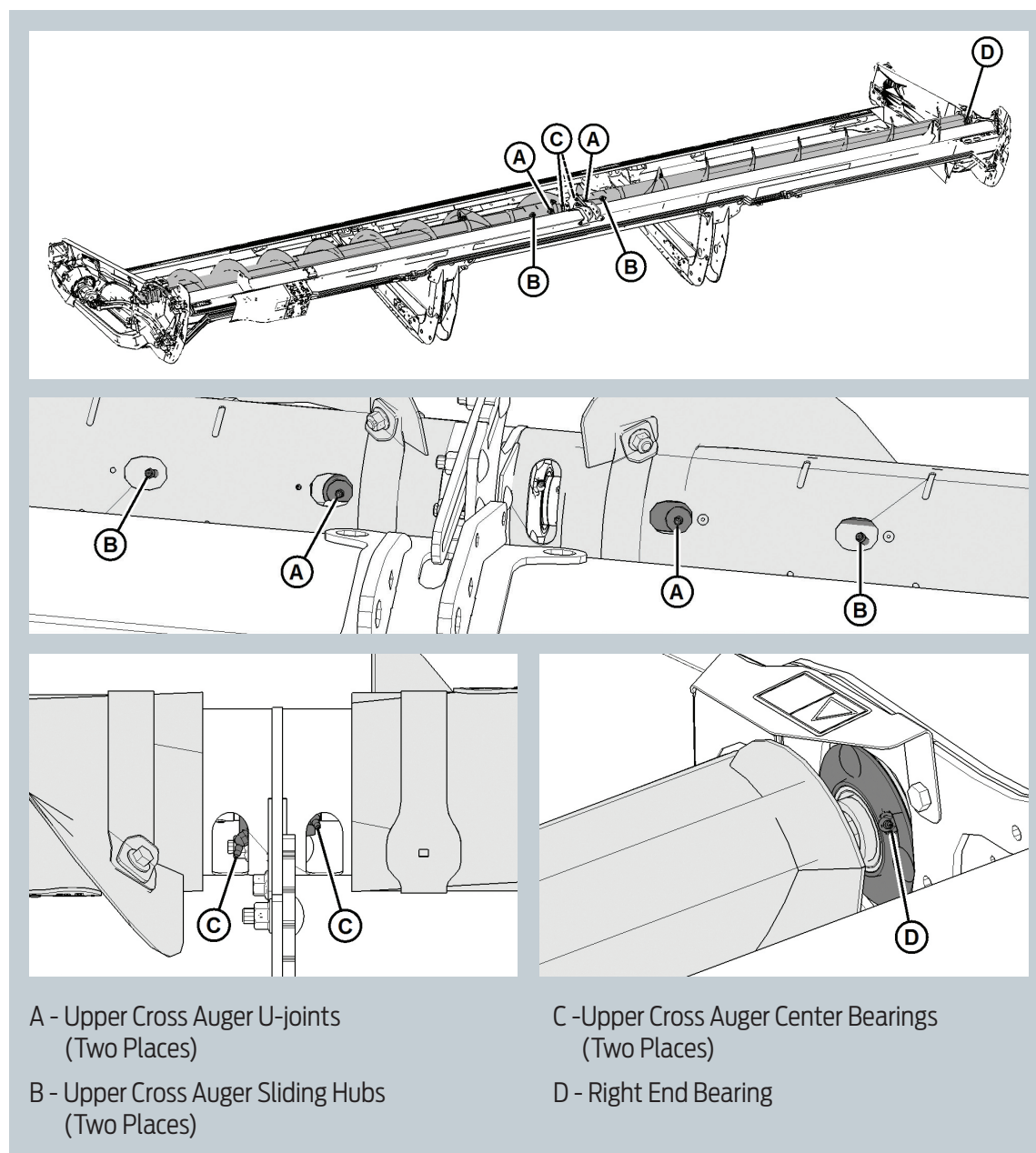
D - Auger Pivot (Right Side)

Upper Cross Auger Bearings and Sliding Hubs (Optional) – two piece and three-piece UCAs

IMPORTANT:

The Upper Cross Auger must be greased regularly even when turned off as components of the UCA move when the header flexes, regardless of whether the auger is turning or not.

Two Piece Upper Cross Auger

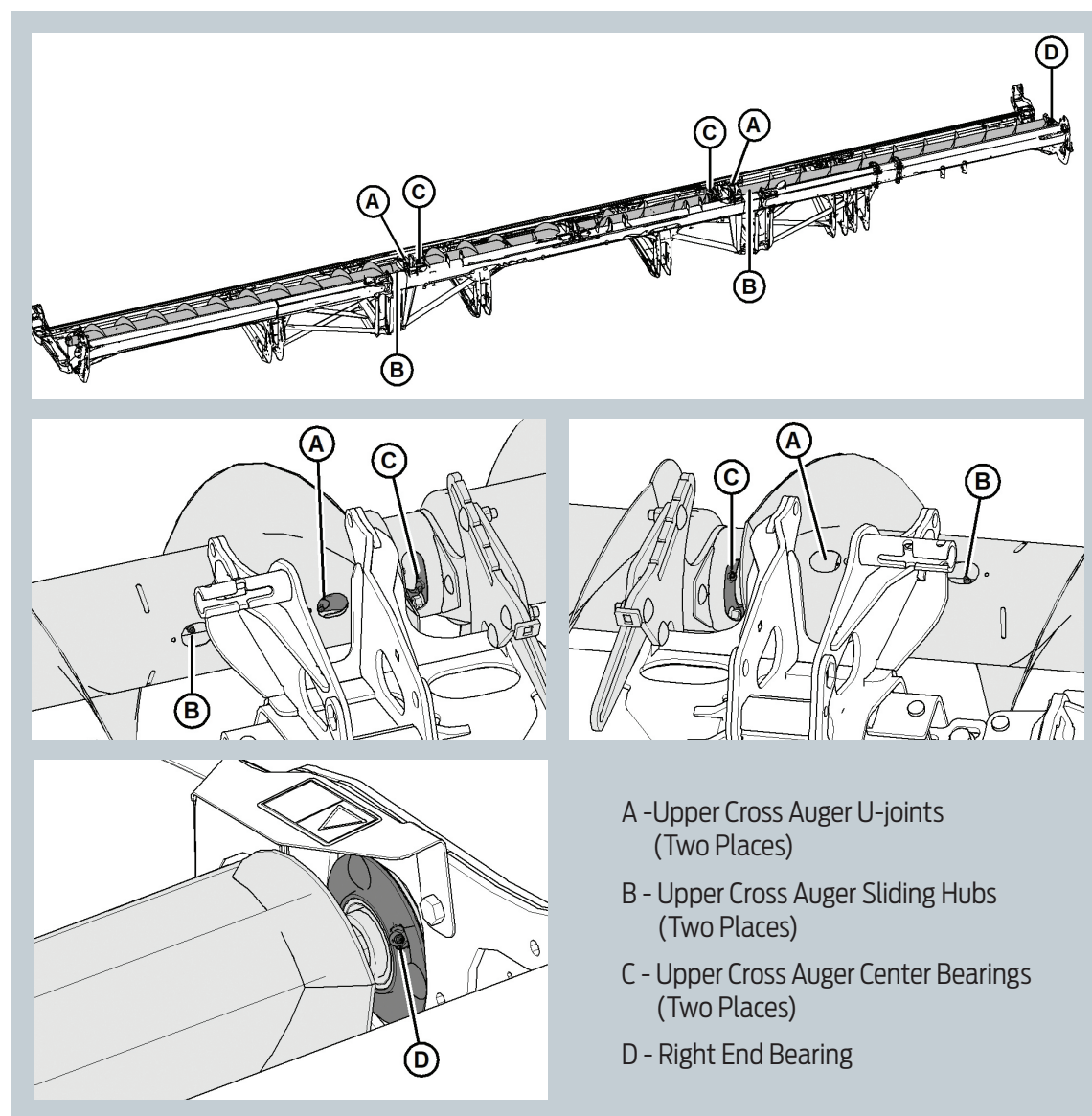


Maintenance

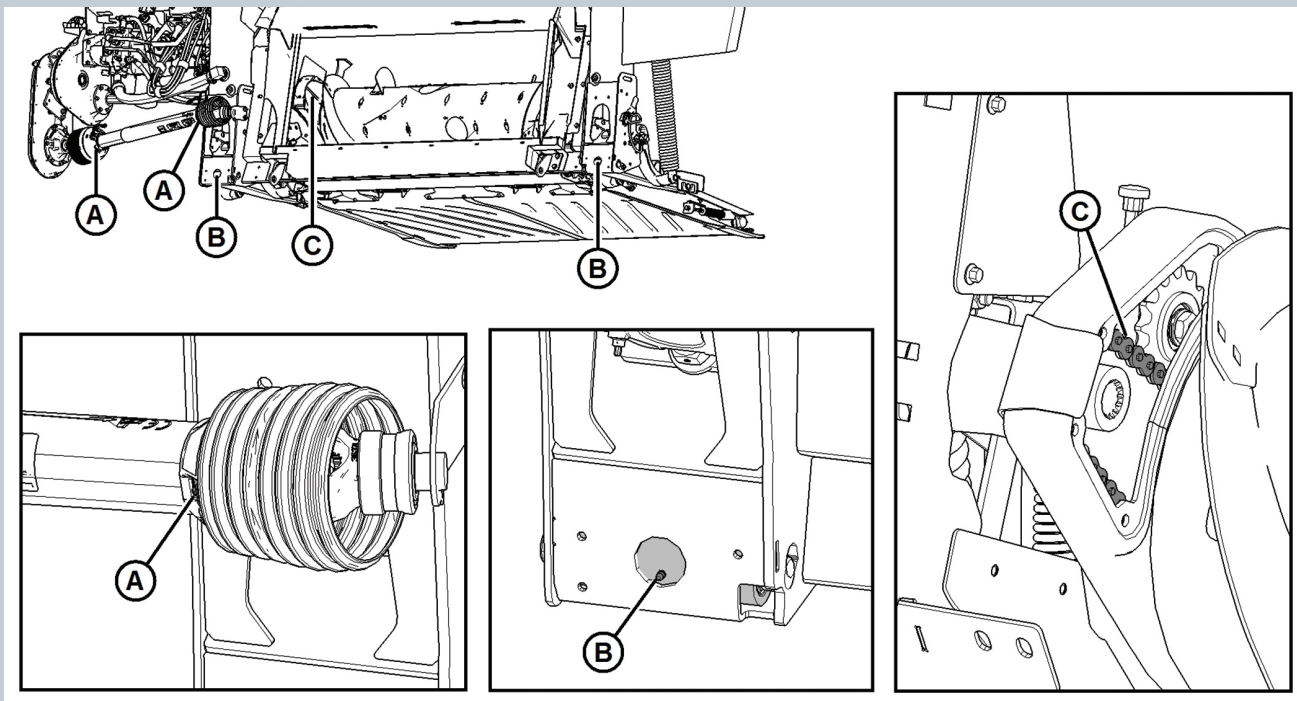
IMPORTANT:

The Upper Cross Auger must be greased regularly even when turned off as components of the UCA move when the header flexes, regardless of whether the auger is turning or not.

Three Piece Upper Cross Auger



100 Hours

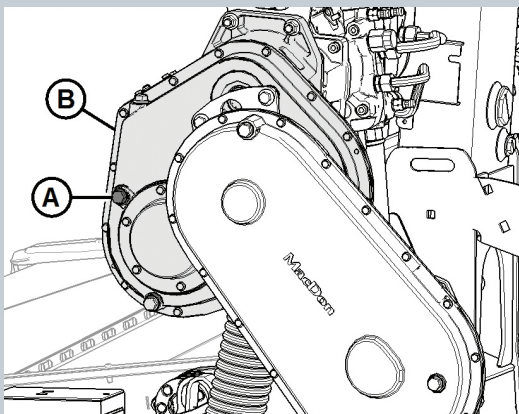


A- Driveline Guards (Both Ends)

B- Float Pivots (Right and Left)

C - Auger Drive Chain.

Header Drive Main Gearbox Lubricant Level



1. Lower the cutterbar to the ground and ensure main gearbox (B) is in working position.

2. Remove oil level plug (A) from the main gearbox and check that the oil level is up to the bottom of the hole.

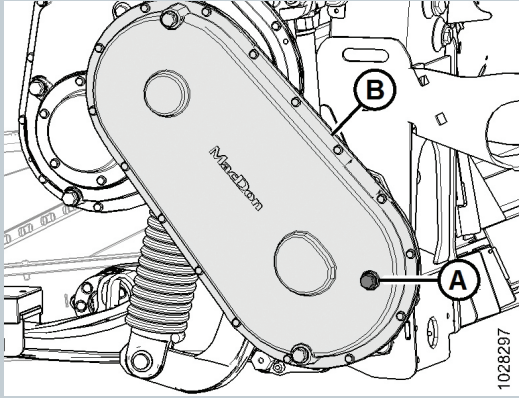
3. Add oil if required.

4. Reinstall oil level plug (A).

Refer to chart (page 51) for lubrication specifications.

Maintenance

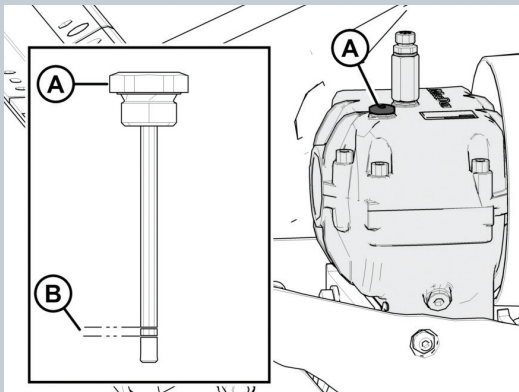
Header Drive Completion Gearbox Lubricant Level



1. Lower the header to the ground and ensure the completion gearbox (B) is in working position.
2. Remove oil level plug (A) from the completion gearbox and check that the oil level is up to the bottom of the hole.
3. Add oil if required.
4. Reinstall oil level plug (A)

Refer to chart (page 51) for lubrication specifications.

Knife Drive Box Lubricant Level



1. Remove oil level dipstick (A) and check the oil level. The oil level must be within range (B).

NOTE:

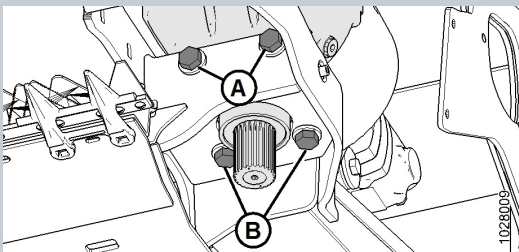
Check the oil level with the top of the knife drive box horizontal and with oil level dipstick (A) screwed in.

2. Reinstall oil level dipstick (A), and tighten to 23 Nm (17 lbf-ft).

Refer to chart (page 51) for lubrication specifications.

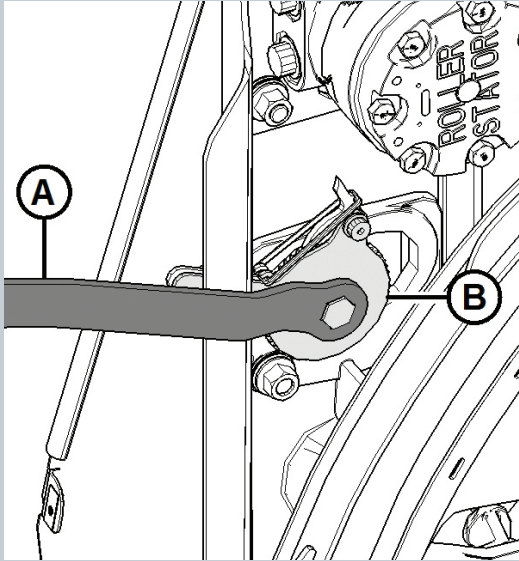
Knife Drive Box Mounting Hardware

Check the torque on the four knife drive box mounting bolts (A) and (B) after the first 10 hours of operation and every 100 hours thereafter.



1. Torque side bolts (A) first, then torque bottom bolts (B).
2. Torque all bolts to 343 Nm (253 lbf-ft)

Reel Drive Chain Tension and Lubrication



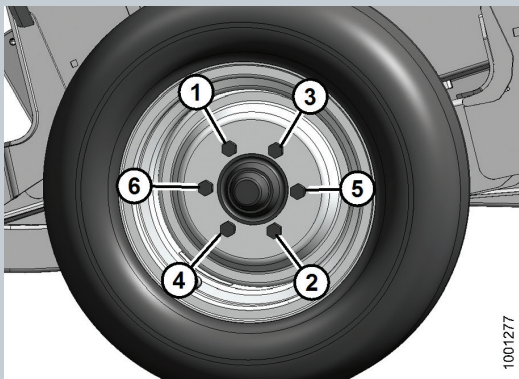
1. Remove multi-tool (A), from inside LH header end panel and remove the upper cover from the reel drive.
2. Place multi-tool onto chain tensioner (B).
3. Rotate multi-tool downward until chain is tight.

IMPORTANT:

There should be approximately 38 mm (1 1/2 in.) of play on one side of the chain, while it is tight on the other side.

4. Apply a liberal amount of grease to the chain.
5. Replace cover and return the multi-tool to the storage location.

Wheel Bolt Torque



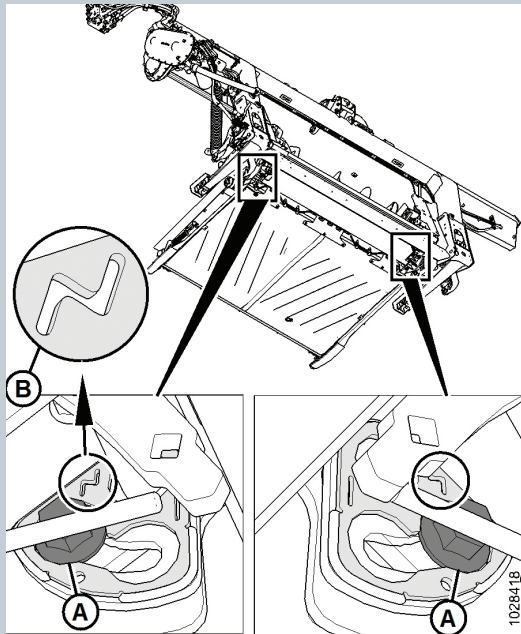
Follow the bolt tightening sequence shown and torque the wheel bolts to 110–120 Nm (80–90 lbf·ft).

IMPORTANT:

Whenever a wheel is removed and reinstalled, check the wheel bolt torque after one hour of operation and every 100 hours thereafter.

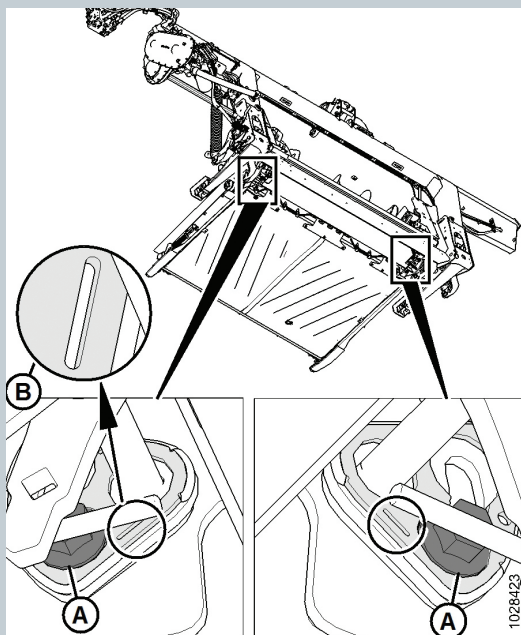
Maintenance

Feed Auger to Pan Clearance



1. Extend the center-link to the steepest angle.
2. Before adjusting the auger to pan clearance, check the auger float position to determine how much clearance is required:

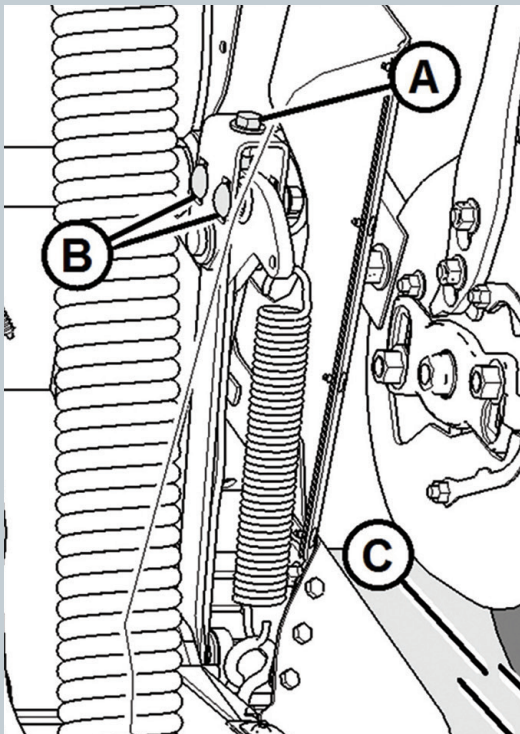
If bolt head (A) is closest to floating symbol (B), the auger is in the floating position. The clearance required is 11.5 –15.5 mm (7/16–5/8 in.).



If bolt head (A) is closest to fixed symbol (B), the auger is in the fixed position. The clearance required is 24– 28 mm (15/16 –1 1/8 in.).

IMPORTANT:

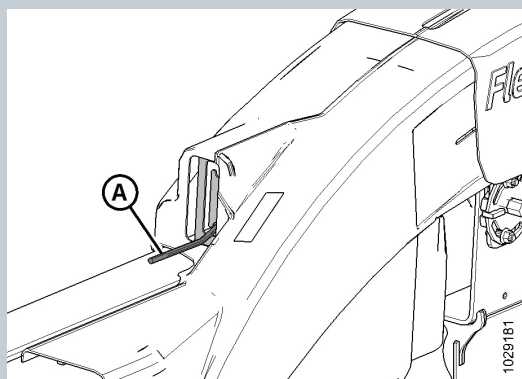
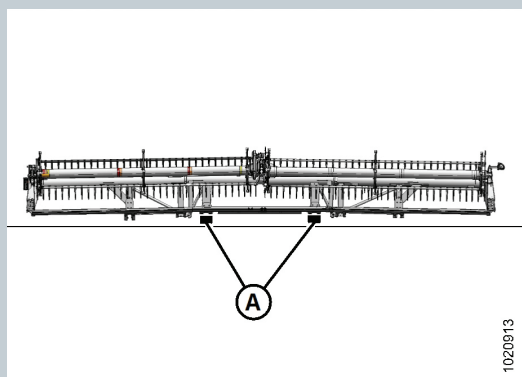
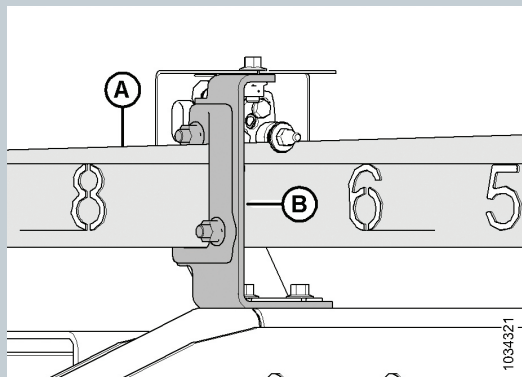
Make sure bolts (A) are set at the same location on both ends of the auger to prevent damaging the machine during operation.



1. Ensure that header float is set correctly.
2. Position header so it is 250-300 mm (10-14 in) off the ground.
3. Lock the header wings.
4. Measure the clearance at (C).
To adjust, loosen two nuts at (B) and rotate the auger to position the flighting over the feed pan.
5. Turn bolt (A) clockwise to increase clearance at (C); turn bolt (A) counterclockwise to decrease clearance at (C).
6. Repeat steps 6 and 7 for the opposite side of the auger.
7. Tighten nuts (B) on both ends of the feed auger to 93– 99 Nm (68– 73 lbf·ft).
8. Rotate the drum and double-check clearances.

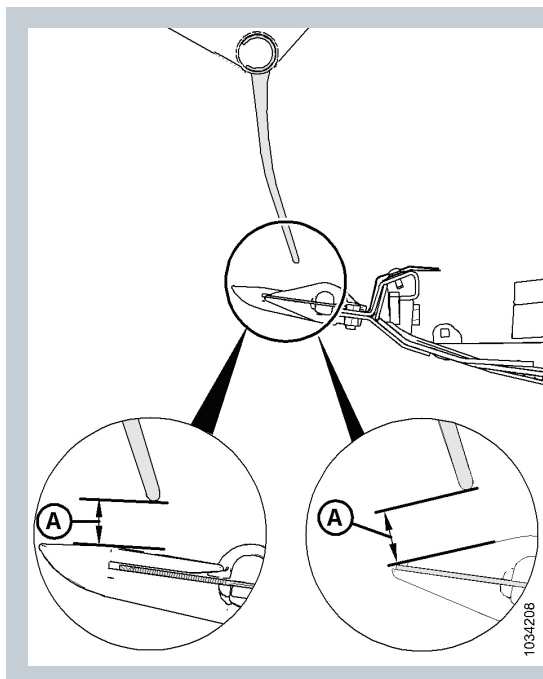
Maintenance

Reel Finger Clearance to Cutterbar



1. Park the combine on a level surface.
2. Adjust the reel fore-aft position until the number seven on fore-aft indicator (A) is hidden by sensor support (B).
3. Place two 254 mm (10 in.) blocks (A) under the cutterbar, just inboard of the wing flex points.
4. Move wing lock spring handles (A) down to UNLOCK position.
5. Lower header fully, allowing it to flex into full frown mode.

Reel Finger Clearance to Cutterbar (Continued)



6. Double Reel Headers: Measure clearance (A) at the outer ends of the reels and at both hinge points (four places).

7. Triple Reel Headers: Measure clearance (A) at both ends of three reels (six places)

Clearances are listed below.

Double Reel Header

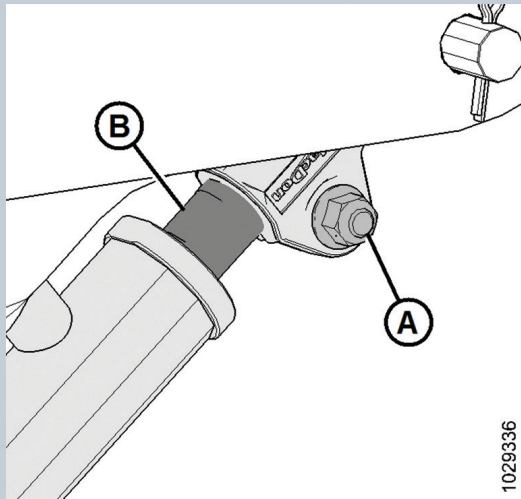
Header	Outer Ends of Reels	At Hinge Points
FD230	20 mm (13/16")	45 mm (1 3/4")
FD235 FD240 FD241	20 mm (13/16")	20 mm (13/16")

Triple Reel Header

Header	Outer Ends of Reels	At Hinge Points
FD240 FD245 FD250	20 mm (13/16")	20 mm (13/16")

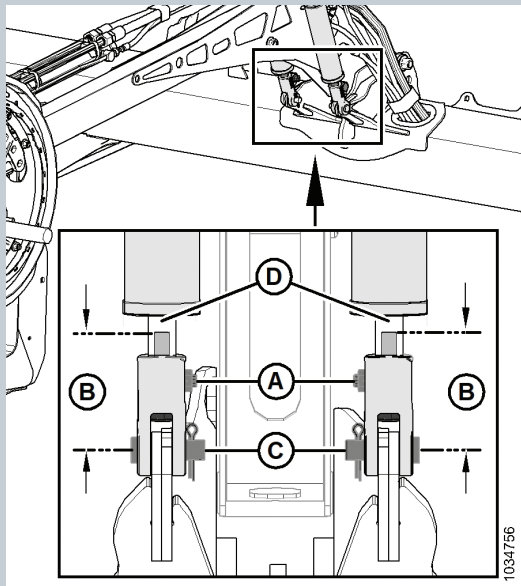
Maintenance

Adjusting Reel Clearance



Outboard reel arms.

1. Loosen bolt (A)
2. Adjust cylinder rod (B) as required:
 - To increase clearance to the cutterbar, turn cylinder rod (B) out of clevis to raise the reel.
 - To decrease clearance to the cutterbar, turn cylinder rod (B) into clevis to lower the reel.
3. Tighten bolt (A).
4. Repeat at opposite side of the header as required.



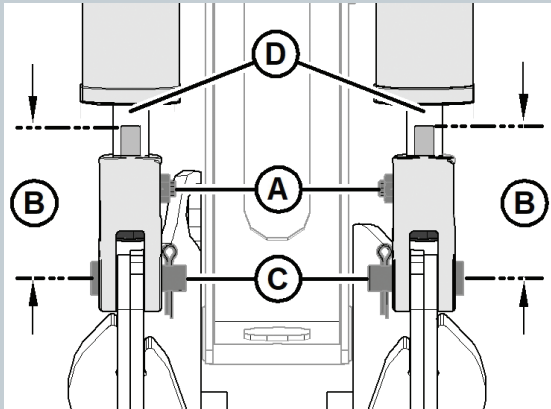
Inboard reel arms.

5. Loosen bolts (A).
6. Adjust the clearance as follows:

IMPORTANT:

Adjust both cylinder rods equally.

- To increase clearance to the cutterbar, turn cylinder rods (D) out of clevis to raise the reel.
- To decrease clearance to the cutterbar, turn cylinder rods (D) into clevis to lower the reel.



7. Ensure measurement (B) is equal on both cylinders.

8. Verify that both mounting pins (C) cannot be rotated by hand. If one of the mounting pins is free to rotate, then adjust cylinder rod as required.

9. Tighten bolts (A).

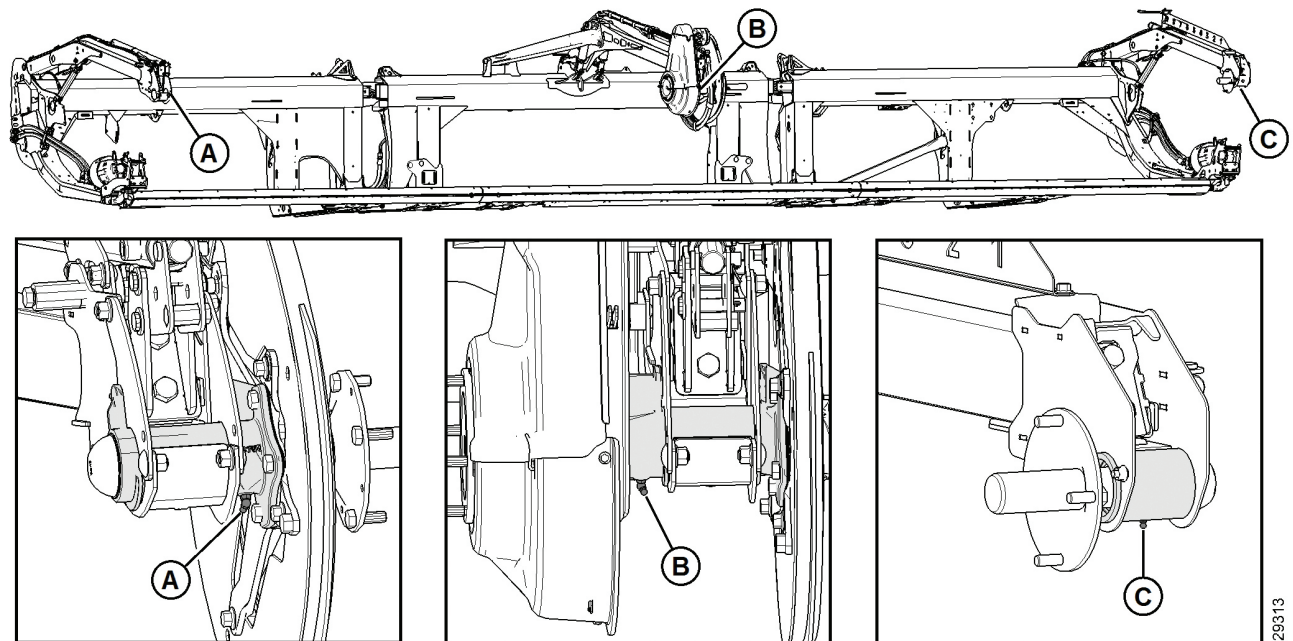
10. Recheck measurements and, if necessary, repeat adjustment procedures.

11. Move the reel back to ensure the steel end fingers do not contact the deflector shields.

12. If contact occurs, adjust the reel upward to maintain the clearance at all reel fore-aft positions. If contact cannot be avoided after adjusting the reel, trim the steel end fingers to obtain proper clearance.

250 Hours

Reel Bearings



A - Reel Right Bearing (One Place)

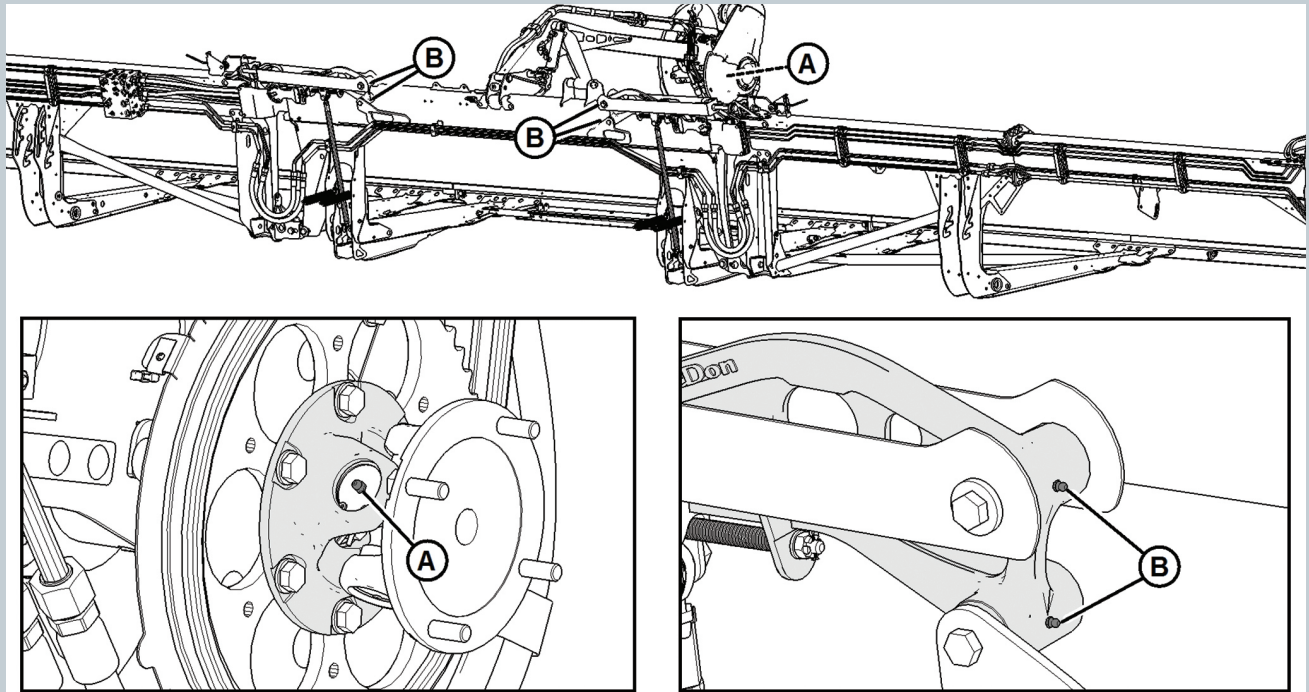
B - Reel Center Bearing (One Place)

C - Reel Left Bearing (One Place)

1029313

Maintenance

Reel U-joint and Bell Crank Bearings

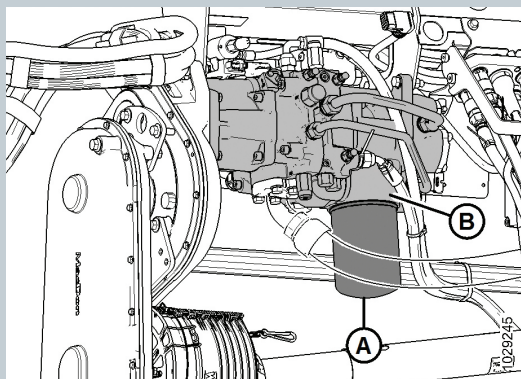


A - Reel U -joint (One Place) **

B - Flex Linkage (Two Places) – Both Sides

** U-joint has an extended lubrication cross and bearing kit. Stop greasing when greasing becomes difficult or if U-joint stops taking grease. Overgreasing will damage U-joint. Increase grease interval as U-joint wears and requires more than six pumps.

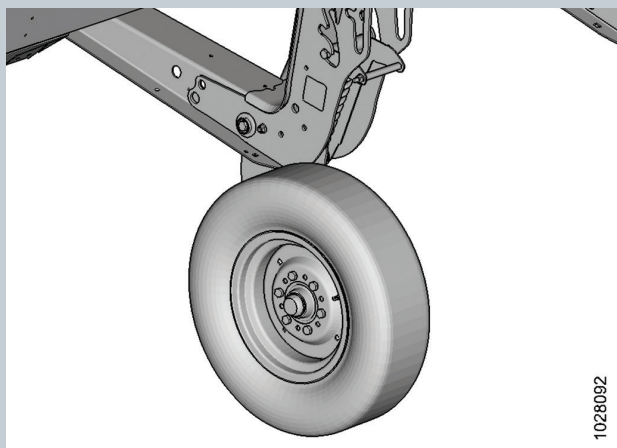
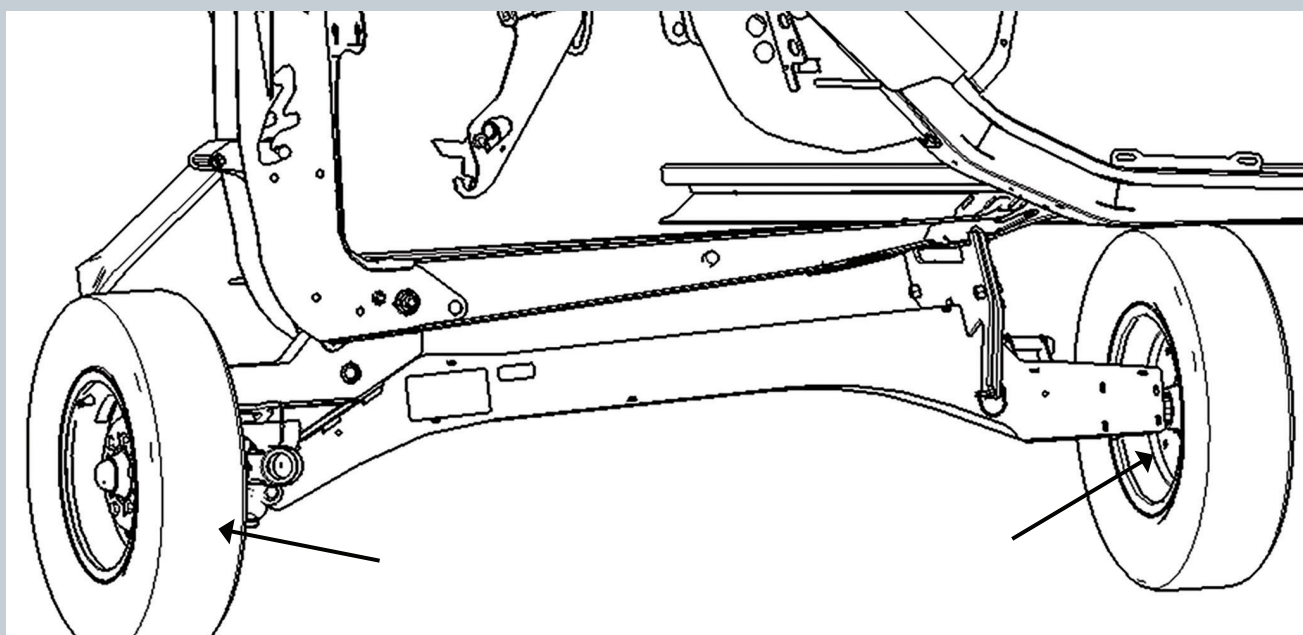
Hydraulic Oil Filter



Change the oil filter after the first 50 hours of operation and every 250 hours thereafter.

500 Hours

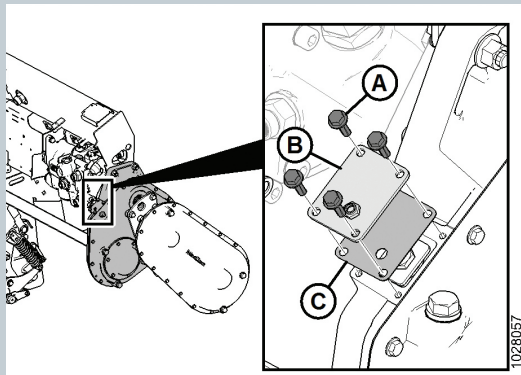
Gauge Wheel/Transport Wheel Bearings



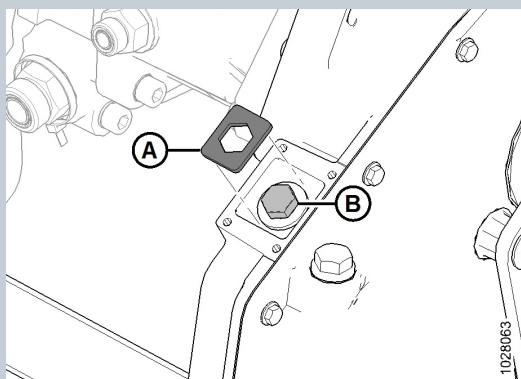
Lubricate wheel hubs, one zerk per wheel.

Maintenance

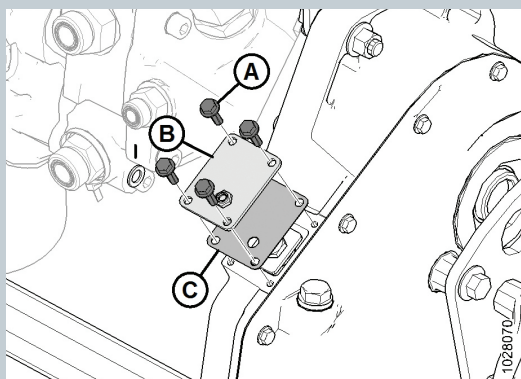
Header Drive Main Gearbox Chain Tension



1. Remove four bolts (A), cover (B), and gasket (C) from the main gearbox.

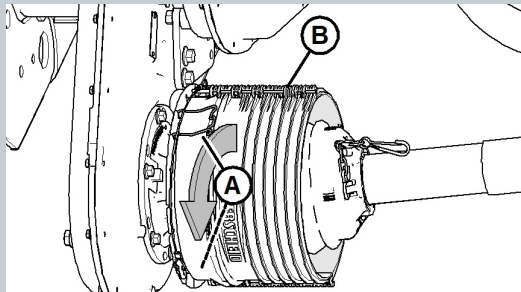


2. Remove retainer plate (A).
3. Tighten bolt (B) 250 Ncm (22 lbf-in).
4. Back off (loosen) bolt (B) 3 flats (1/2 turn).
5. If required, turn bolt (B) slightly until retainer plate (A) can be installed

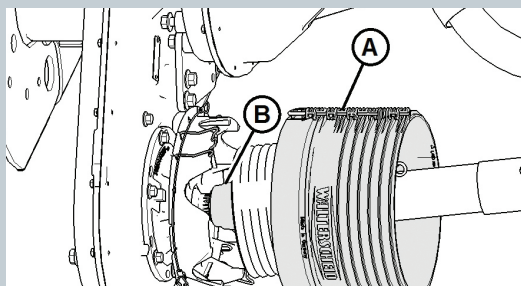


6. Reinstall chain adjusting cover (B) and gasket (C).
7. Install four bolts (A). Torque hardware to 9.5 Nm (84 lbf · in).

Header Drive Completion Gearbox Chain Tension



1. Pry clips (A) up to release shield (B).

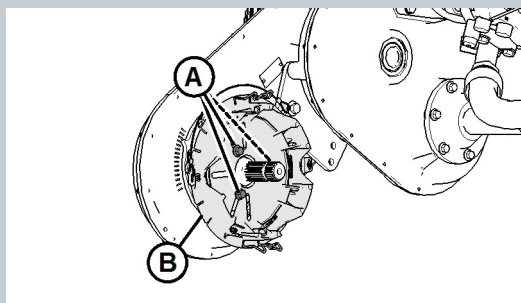


2. Slide shield (A) along driveline to access quick disconnect collar (B).

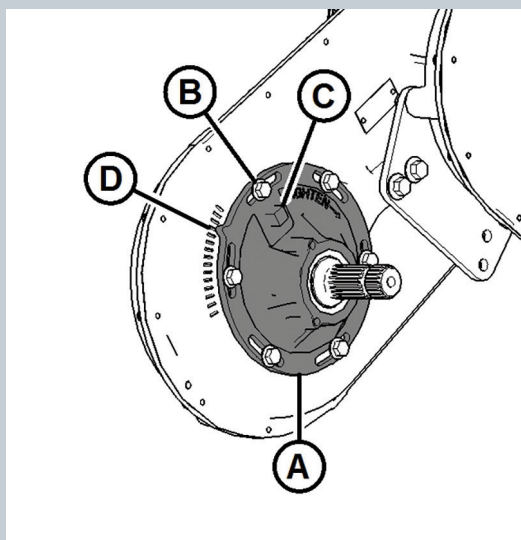
NOTE:

If the cover does not slide, use a prying tool.

3. Slide the driveline through the shield, then lower it to the ground.



4. Remove three bolts (A) that secure input driveline guard base (B).



5. Loosen six bolts (B), that secure chain tension hub (A) to the gearbox.

6. Locate machined feature (C). Using a wrench, turn hub (A) clockwise to tighten the chain

7. With light pressure on the wrench, determine which mark (D) on the gearbox housing aligns with the indicator pointer on the hub.

8. Set proper chain tension by slightly turning hub (A) back one mark.

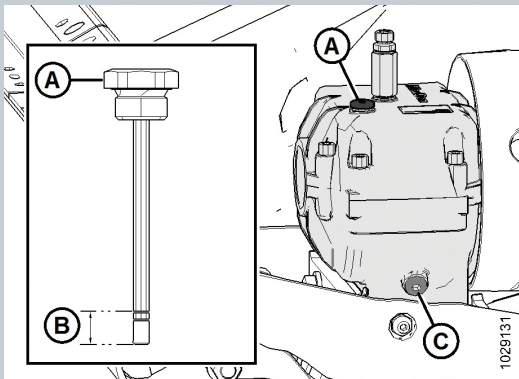
9. Tighten six bolts (B), that secure cover (A). Torque bolts to 23– 26 Nm (17– 19 lbf-ft).

Maintenance

1000 Hours

Changing Knife Drive Box Lubricant

Change the knife drive box lubricant after the first 50 hours of operation and every 1000 hours (or 3 years) thereafter.



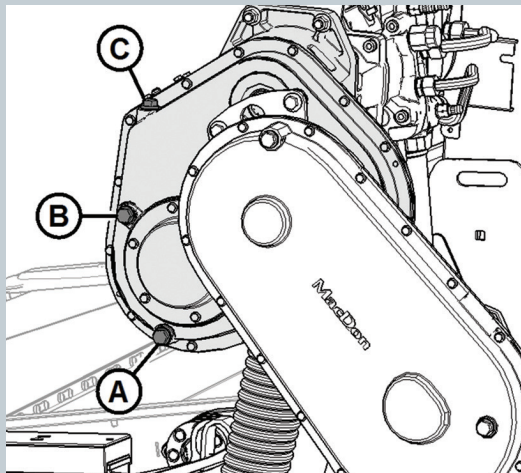
1. Raise the header and place a container large enough to hold approximately 1.5 L (1.3 quarts) under the knife drive box to collect the oil.
2. Remove dipstick (A) and drain plug (C).
3. Allow the oil to drain from the knife drive box and into the container placed below it.
4. Reinstall drain plug (C).
5. Add 1.5 L (1.3 quarts) of oil to the knife drive box.
Refer to chart (page 51) for lubrication specifications.
6. Check that oil level is within range (B).

NOTE: Check oil level with top of knife drive box horizontal and with the oil level dipstick (A) screwed in.

Changing Header Drive Main Gearbox Lubricant

Change the header drive gearbox oil after the first 50 hours of operation and every 1000 hours (or 3 years) thereafter.

Warm oil prior to changing.



1. Position header so that oil drain plug (A) is at its lowest point.
2. Place a suitably sized container (approximately 4 liters [1 US gal]) underneath the gearbox drain to collect the oil.
3. Remove oil drain plug (A) and filler plug (C), and allow the oil to drain.
4. Replace oil drain plug (A) and remove oil level plug (B).
5. Add oil through filler plug (C) until it runs out of oil level hole (B).

Refer to chart (page 51) for lubrication specifications.

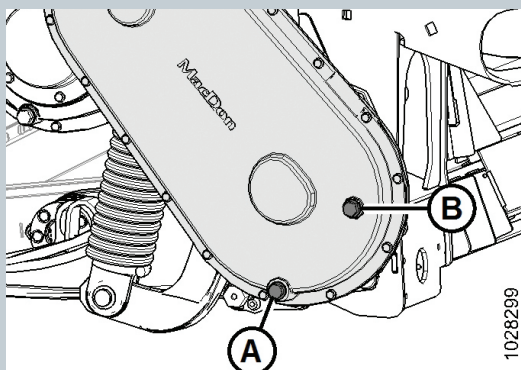
6. Replace oil level plug (B) and filler plug (C)

NOTE: The header drive main gearbox holds approximately 2.75 liters (2.9 quarts) of oil.

Changing Header Drive Completion Gearbox Lubricant

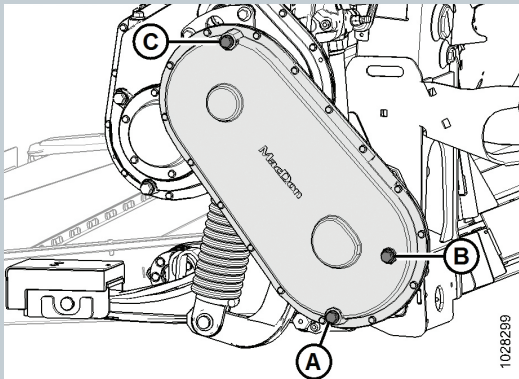
Change the header drive gearbox oil after the first 50 hours of operation and every 1000 hours (or 3 years) thereafter.

Warm oil prior to changing.



1. Position header so that oil drain plug (A) is at its lowest point.
2. Place a suitably sized container (approximately 4 liters [1 US gal]) underneath the gearbox drain to collect the oil.
3. Remove oil drain plug (A) and filler plug (C), and allow the oil to drain.
4. Replace oil drain plug (A) and remove oil level plug (B).

Maintenance



5. Add oil through filler plug (C) until it runs out of oil level hole (B).

Refer to chart (page 51) for lubrication specifications.

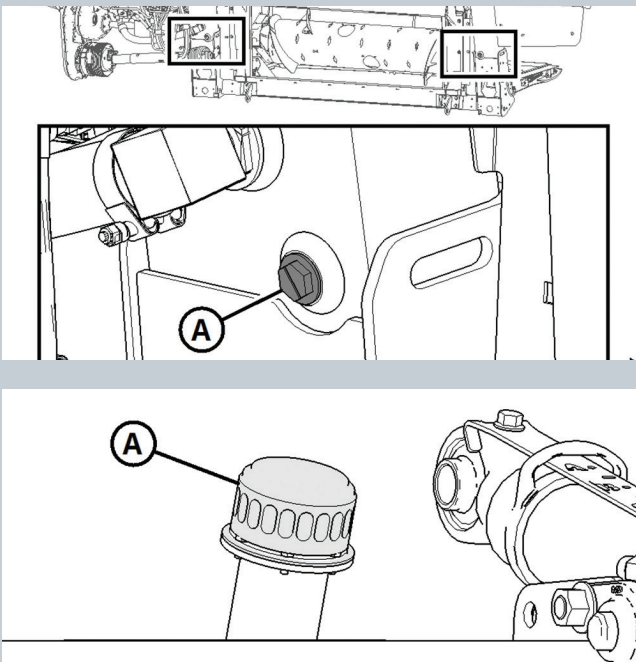
6. Replace oil level plug (B) and filler plug (C)

NOTE:

The header drive completion gearbox holds approximately 2.25 liters (2.4 quarts) of oil.

Changing Oil in the Hydraulic Reservoir

Warm oil prior to changing.



1. Place a suitably sized container (at least 40 liters [10 gallons]) under each of the two oil drain plugs (A) located at the back on each side of the frame.

2. Remove oil drain plugs (A) with a 7/8 in. hex socket and allow the oil to drain.

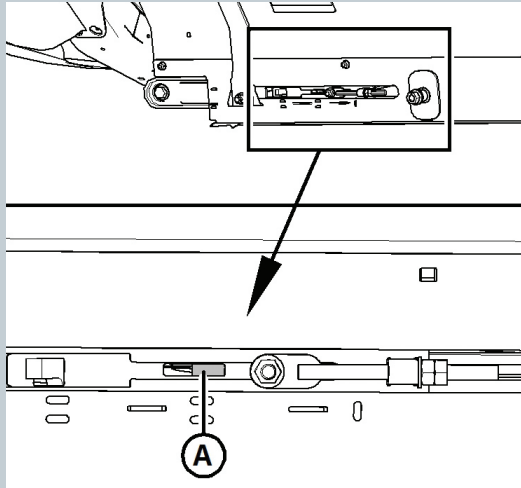
3. Replace oil drain plugs (A) when reservoir is empty.

4. Change the oil filter if required.

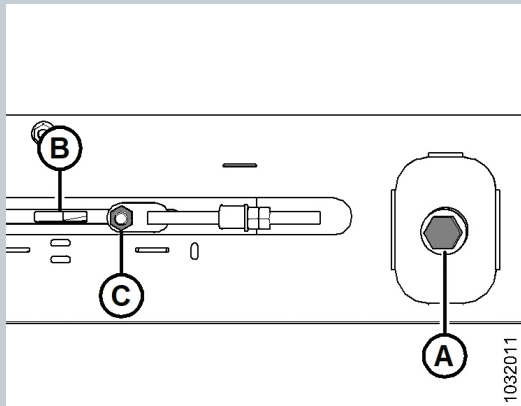
5. Add approximately 95 liters (25 US gallons) of oil to the reservoir at filler cap (A)

Refer to chart (page 51) for lubrication specifications.

Side Draper Tension



Ensure tensioner indicator (A) is approximately halfway in the window (covers the inboard half of the window).

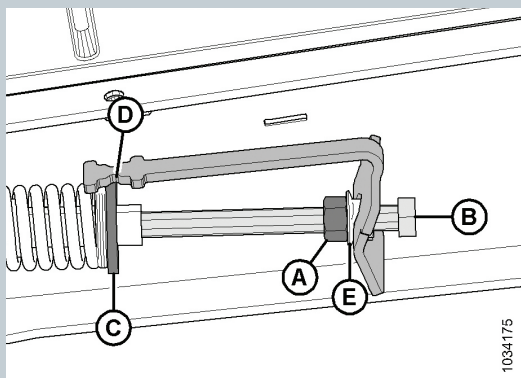


Turn adjuster bolt (A) counterclockwise to loosen. Turn adjuster bolt (A) clockwise to tighten. Tensioner indicator (B) will move inboard to indicate that the draper is tightening. Tighten until the bar is about halfway in the window (covers the inboard half of the window)

IMPORTANT:

Do NOT adjust nut (C). This nut is used for draper alignment only.

Center Draper Tension

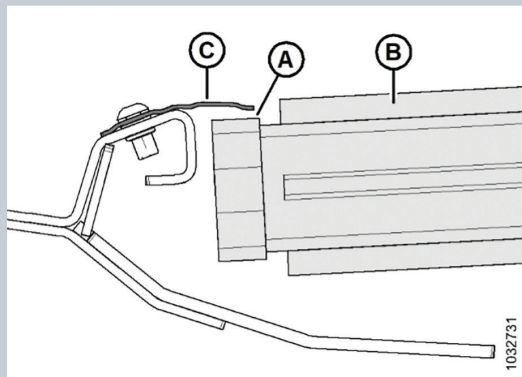


Adjust the draper tension by loosening jam nut (A) and turning bolt (B) clockwise to increase draper tension or counterclockwise to decrease draper tension.

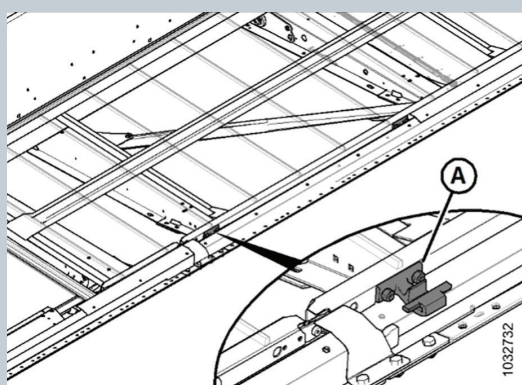
Retainer disc (C) should be in the middle of indicator (D) however it is permissible to be under tensioned by 3 mm (1/8 in) or over tensioned by 6 mm (1/4 in) to allow for proper tracking of the feed draper.

Maintenance

Checking and Adjusting Deck Height

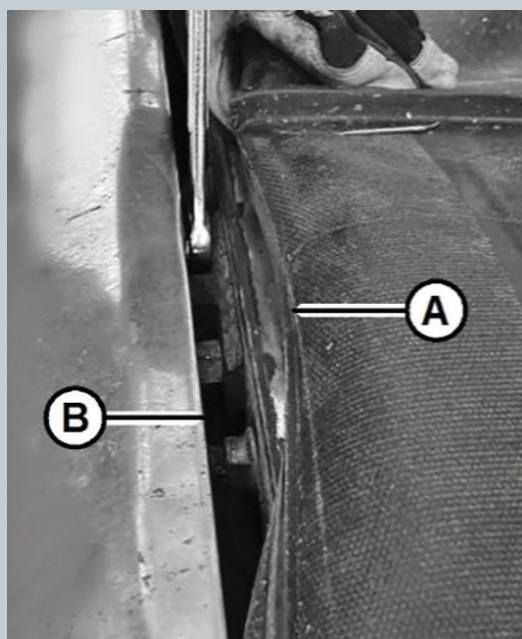


Check that clearance (A) between draper (B) and metal seal (C) is 0 – 2 mm (0.004– 0.08 in.).



Take measurements at deck supports (A) with the header in the working position.

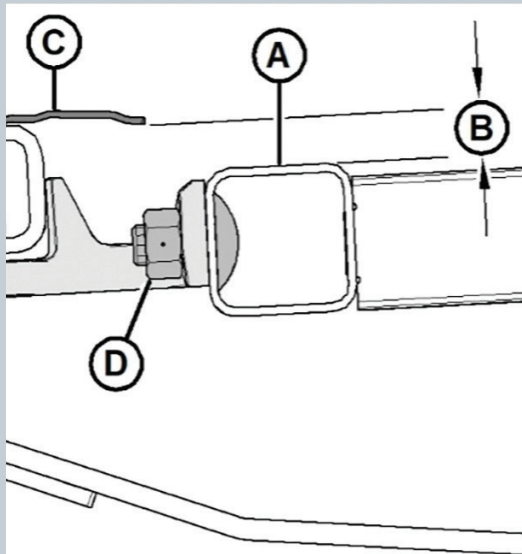
Depending on the header size, there are between two and four supports per deck.



If adjustment is required, remove metal seal then loosen draper tension.

Lift front edge of draper (A) to expose the deck support.

Measure and note the thickness of the draper belt.



Use a gauge that is the same thickness as the draper belt, plus 1 mm (0.04 in.).

Slide the thickness gauge along deck (A) under the metal seal (C) to properly set the gap.

To create a seal, adjust deck (A) so that clearance (B) between metal seal (C) and deck is the same thickness as the draper belt plus 1 mm (0.04 in.).

Tighten deck support hardware (D).

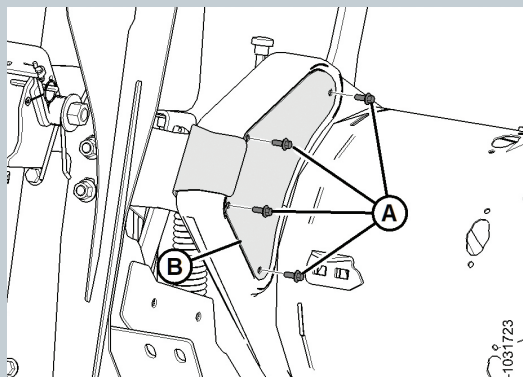
NOTE: When checking clearance at either roller, measure from the roller tube, NOT the deck.

After adjustment, run draper and check for any heating on the deck seal.

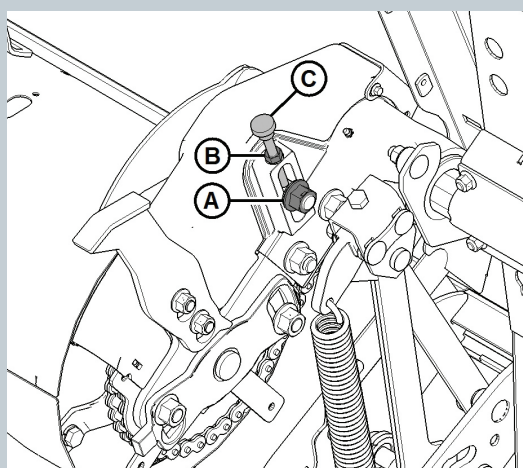
Maintenance

Adjusting Feed Auger Drive Chain Tension

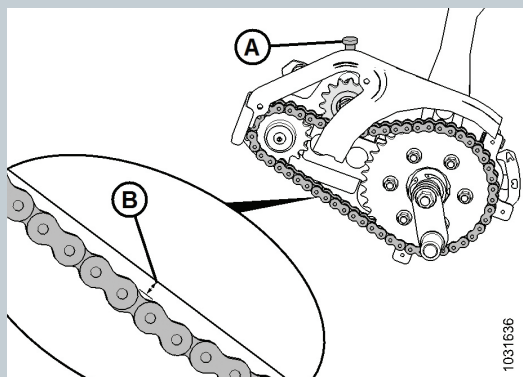
Prior to adjusting the feed auger drive chain tension, raise the reel, set the reel safety stops, lower the header to the ground and detach the header from the combine.



1. Remove four bolts (A) and inspection panel (B) to view chain.



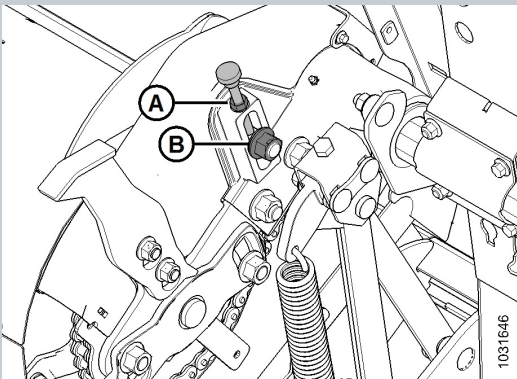
2. Loosen jam nut (B)
3. Loosen idler nut (A) slightly to allow idler to move by turning adjuster (C)
4. Rotate auger in reverse to take up slack in upper strand of chain.



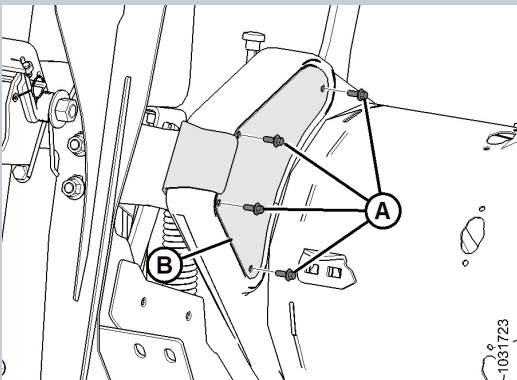
5. Turn adjuster thumbscrew (A) clockwise to increase tension until chain deflection (B) is 4 mm (0.16 in.) at midspan

IMPORTANT:
Do NOT overtighten.

NOTE: Covers removed from illustration.



6. When adjustment is complete, tighten jam nut (A).
7. Tighten the idler nut (B) and torque to 258– 271 Nm (190 –200 lbf ·ft)
8. Recheck midspan chain deflection after tightening idler and jam nut.



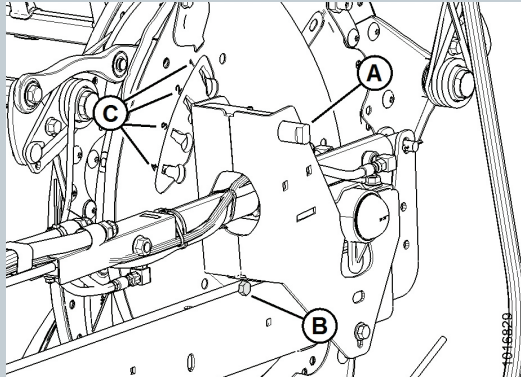
9. Install inspection panel (B) and secure with four bolts (A).
10. Torque bolts (A) to 2.7– 4.1 Nm (24 – 36 lbf·in).

Operation Tips

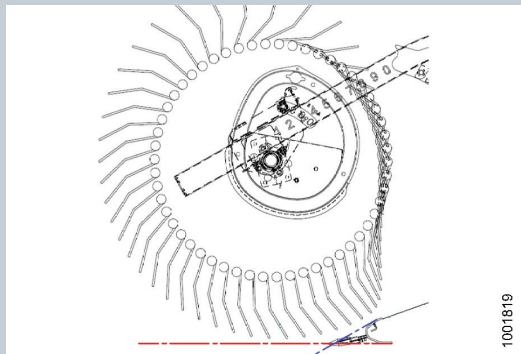
Adjusting Reel Cam Position

The FD2 Series headers feature a 4 position reel cam adjustment (C) on the right end of each reel.

The factory setting is position 2.



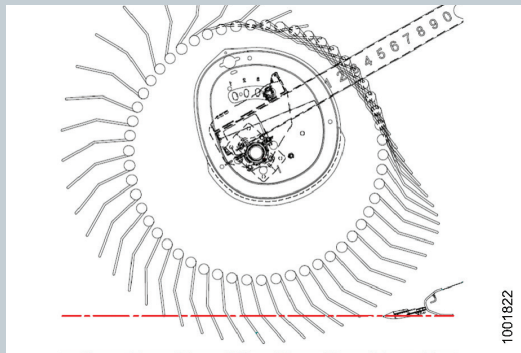
1. Remove the multi-tool from inside LH header end panel and use to rotate pin (A) counterclockwise to release cam disc
2. Using multi-tool, adjust cam at (B) to desired setting.
- 3 Turn pin (A) clockwise to engage and lock cam disc.



Reel cam position 1 is recommended for straight cut canola where the reel will be pulled back behind the cutterbar and you want minimal reel finger engagement in the crop to limit loss.

Reel cam position 2 is for most straight standing cereals and soybeans.

Reel cam position 3 is for moderately lodged crop conditions.



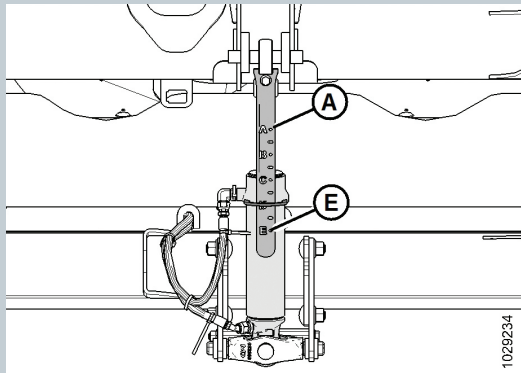
Reel cam position 4 is for severely lodged crops where the reel will be placed in front of and possibly below the cutterbar.

For best lifting action.

Header Angle

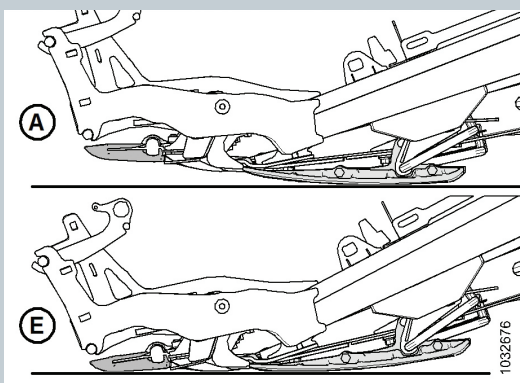
Header angle is the relationship between the knife guard tips and the ground.

Header angle is adjustable to accommodate different crop conditions and/or soil types and can be adjusted using the center-link between the float module and the header for on the go adjustment as the conditions change.



Use shallower settings (A) (position A on the indicator) for normal cutting conditions and wet soil to reduce soil buildup at the cutterbar. Shallow angle settings also minimize damage to the knife in stony fields.

Use steeper settings (E) (position E on the indicator) for lodged crops and crops that are close to the ground such as lentils or soybeans.



Shallowest angle (A) (center-link fully retracted) produces the highest stubble when cutting on the ground.

Steepest angle (E) (center-link fully extended) produces the lowest stubble when cutting on the ground.

Operation Tips

Repositioning Fore-Aft Cylinders (Canola Position)

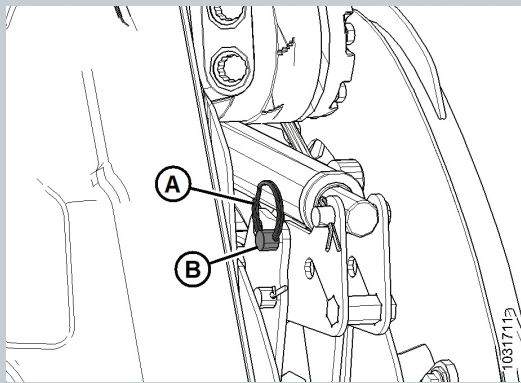
The reel can be moved approximately 155 mm (6 in.) farther aft by repositioning the fore-aft cylinders on the reel arms. This may be desirable when straight-combining canola.

IMPORTANT:

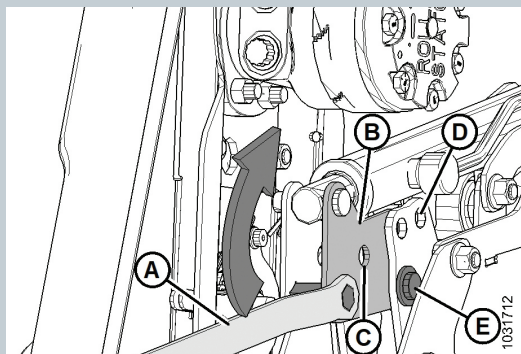
Ensure all fore-aft cylinders are set to the same position.

Reposition the center cylinder:

NOTE: There are two center cylinders on triple reel headers.

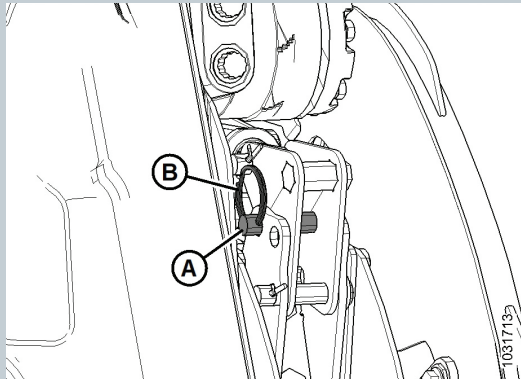


1. Hydraulically position reel fully aft with support arms horizontal.
2. Retrieve multi-tool (B) from left endsheet.
3. Remove split ring (A), clevis pin (B), and washer securing the center fore-aft cylinder in the forward position.



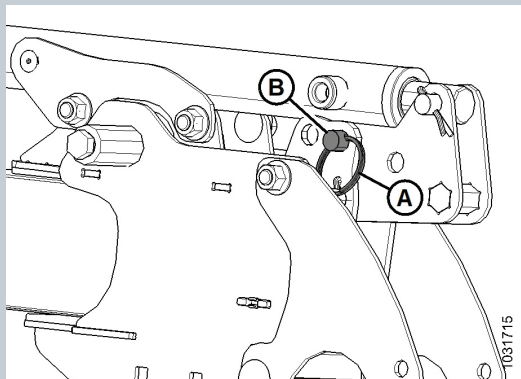
4. Use wrench (A) to push bracket (B) rearward until hole (C) aligns with hole (D). The reel will move rearward as bracket (B) rotates on bottom pin (E)

Reposition the center cylinder:

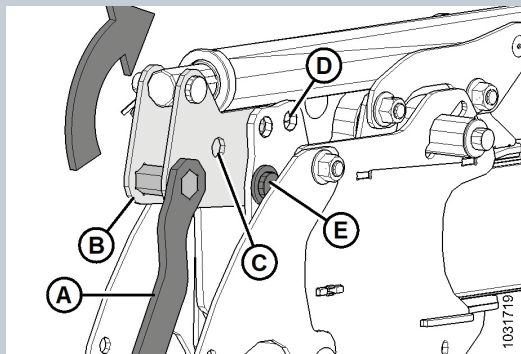


5. When the bracket holes are lined up, secure in aft position with clevis pin (A), washer, and split ring (B).

Reposition the outer right cylinder:

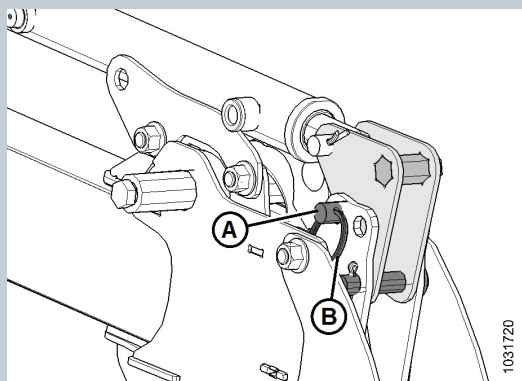


1. Remove split ring (A), clevis pin (B), and flat washer securing the right fore-aft cylinder in the forward position.



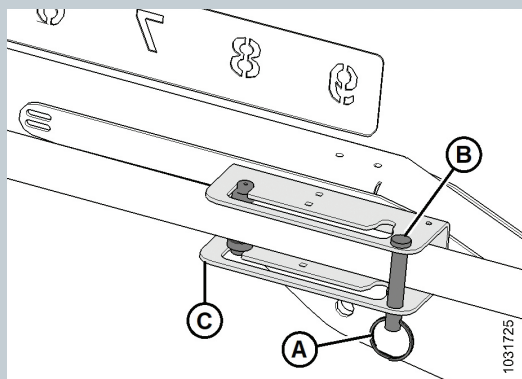
2. Use wrench (A) to push bracket (B) rearward until hole (C) aligns with hole (D). The reel will move rearward as bracket (B) rotates on bottom pin (E).

Operation Tips

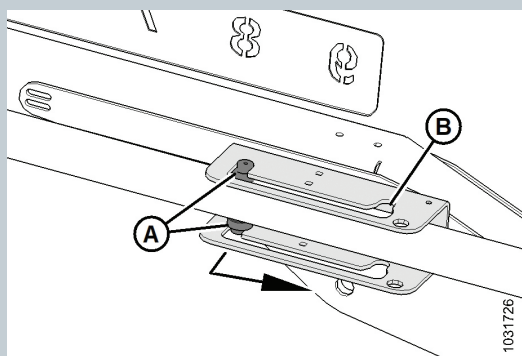


3. When the bracket holes are lined up, secure in aft position with clevis pin (A), washer, and split ring (B).

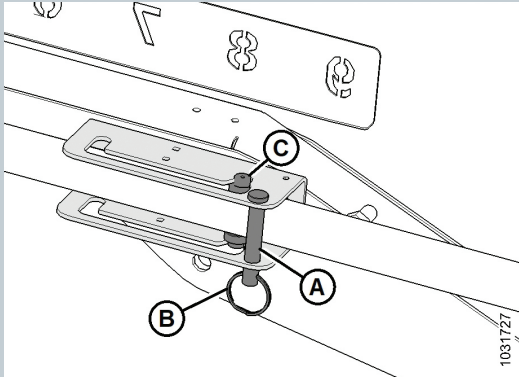
Reposition the outer left cylinder:



1. Remove split ring (A) and clevis pin (B) securing the left cylinder in forward position on cylinder bracket (C).



2. Grab hold of the cylinder, and use guides (A) to slide the cylinder along the bracket slot and into aft position (B).



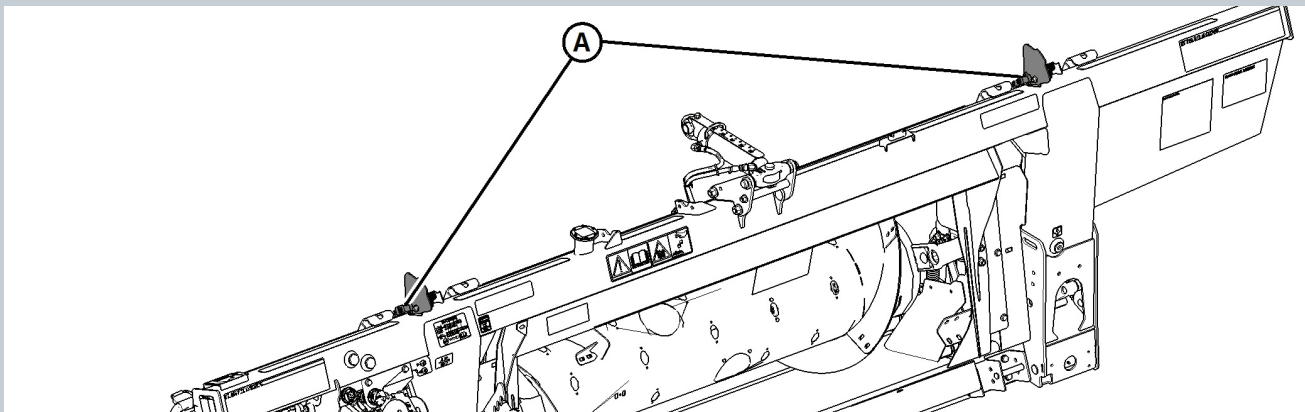
3. Reinstall clevis pin (A) and split ring (B) to secure the cylinder in aft position (C) on the bracket

4. Check reel clearance to backsheet, upper cross auger (if installed), and reel braces.

5. Adjust reel tine pitch (if required).

Auto Header Height Control

MacDon's auto header height control (AHHC) feature works in conjunction with the AHHC option available on most current model combines.



There are two float height sensors (A) installed on the float setting indicators on the float module. These sensors send signals to the combine allowing it to maintain a consistent cutting height and an optimum float as the header follows ground contours.

1. Disengage header float locks.
2. Ensure that header float is set correctly.
3. Perform header calibration.
4. Set combine presets through the combine console or control handle.

NOTE: Refer to Combine Operator's Manual and Header Operators Manual for more information on header calibration and settings.

Performance Options

Please contact your local dealership or visit www.macdon.com for more information regarding Performance Options for your FD2 header and float module.

EasyMove™ Transport System

Quick deploy, self-contained, slow speed transport system for towing behind a combine.

ContourMax™ Contour Wheels

Stubble height management with in cab on the go height adjustment.

Header Tilt Foot Switch

An alternative to the console switch. Allows operators to switch between reel fore/aft and header tilt.

Stabilizer Wheels

Spring-loaded stabilizer wheels help to steady the header when cutting off the ground in bumpy field conditions creating an even stubble height.

Crop Lifters and Storage Rack

Crop lifters attach to the cutterbar and aid in lifting downed crop.

Divider Storage Bracket

Allows for quick removal and storage of the divider cones or VertiBlade™ vertical knife for transport.

Rice Divider Rods

For heavy crop; divides crop at header ends to prevent pushing over. Particularly in rice.

VertiBlade™ Vertical Knife

Vertical knives significantly reduce seed shatter loss from dividing interferences in shatter-prone crops such as canola.

Upper Cross Auger

To aid in feeding tall, bushy crops such as peas or canola.

Rock Retarder Kit

Helps prevent rock ingestion in “on the ground, rocky” conditions.



Hydraulic Reservoir Extension

Allows headers to operate on steep hillsides, maintaining oil supply to the pump.

Side Hill Stabilizer kit

Helps stabilize the header when on side hills providing improved ground following capabilities.

Stubble Light Kit

For lighting behind the header, outboard of the header legs. John Deere only.

Stripper Bar Kit

For improved feeding in certain crops, such as rice.

Lateral Tilt Module

Allows combine lateral tilt to function with Automatic Header Height Control.

Extended Center Filler

Helps reduce loss in some crops and conditions such as peas and beans.

Rice Divider Rods

Provides extended wear in abrasive conditions.

Steel construction, not recommended for use in mud or conditions vulnerable to sparking.

Full Interface Filler Kit

Provides additional sealing between float module and header.

European market only.

High Wear Flighting Kit

For improved feeding green/wet straw conditions or rice.

Quick Card - Setting Header Float and Header Wing Balance

SETTING HEADER FLOAT AND WING BALANCE

Follow these five steps in order to set the header float and wing balance:

NOTE:

Read your operator's manual and complete all the setup tasks before setting the header float.

Step 1: Preadjustments

- Park combine on a level surface, and ensure the combine feeder house is level. Use bubble level on float module.
- Adjust header so cutterbar is 250 mm (10 in.) (A) off the ground.
- Set the header angle hydraulic cylinder to D on indicator (B).
- Set the reel fore-aft to 6 on reel arm fore-aft indicator (C).
- Lower the reel completely, shut down the combine, and remove key from the combine ignition.

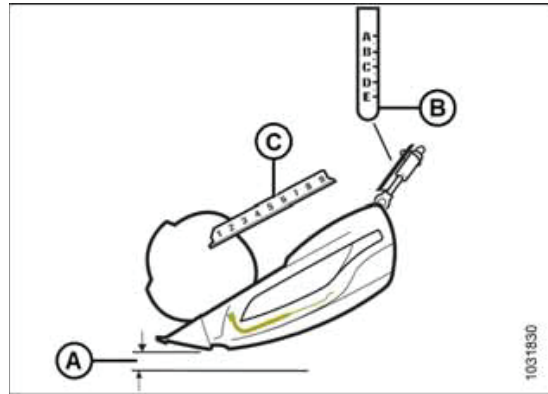


Figure 1: Header – Side View

- Remove linkage cover (A).
- Place both left and right wing lock spring handle (B) in the locked (upper) position. You should hear the lock engaged. If not, move the wings up and down, so that the lock engages.

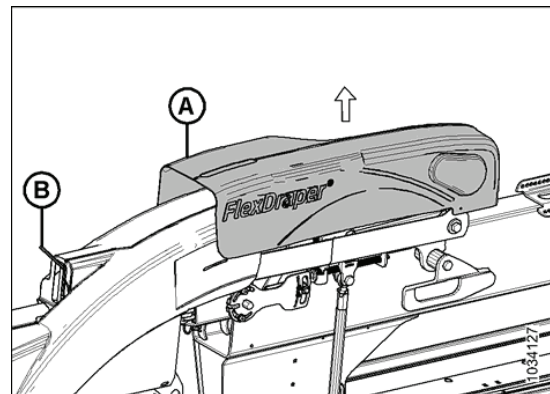


Figure 2: Wing Lock Spring Handle in Locked Position – Left Side Shown

- Place both left and right header float locks in unlocked (lowered) position (A).
- Set stabilizer/transport wheels or contour wheels (if equipped) to upper most position.

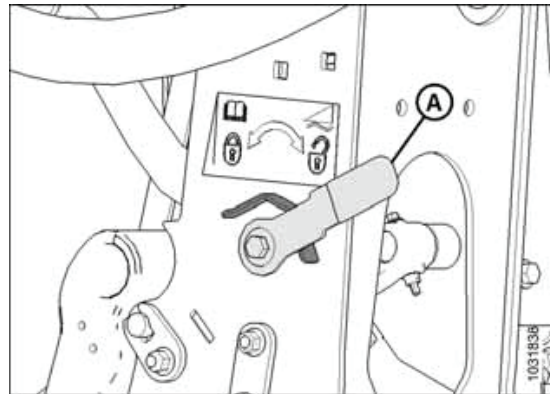


Figure 3: Float Unlocked – Left Side Shown

Step 2: Checking Header Float

NOTE: Oil reservoir tank made transparent in Figure 4 to show tool engaged on the float setting lever at the front of the header.

- Lift float setting lever (A) by hand to remove any slack.
- Place tool (B) on the float setting lever. The tool should be slightly angled towards the front of the header.
- Pull down on tool (B) towards the back of the header until lever (A) is over center and will not return to its original position. Remove the tool and repeat on the opposite side. It is important that float setting levers on both sides are engaged while adjusting.
- On the side that you are adjusting, move header up and down by hand, and release to reduce the effect of friction.

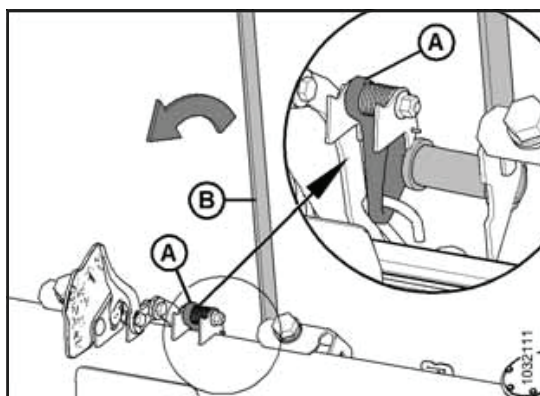


Figure 4: Checking Float – Left Side Shown, View from Rear

- Check the numbers in small print (A) on float setting indicator (FSI) for the current float value. The pointer arm (B) on the FSI should be on number 2.

- If the reading on FSI is higher than 2, the header is heavy.
- If the reading on FSI is lower than 2, the header is light.

NOTE: The numbers in large print (B) are for the float height indicator and used when operating the header in the field.

NOTE:

If necessary, set float values to suit crop and field conditions. For more information, refer to the header operator's manual.

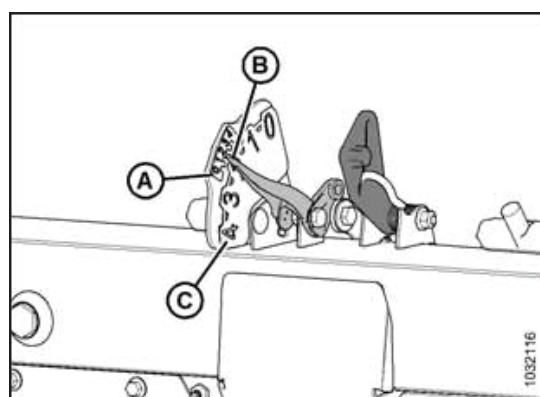


Figure 5: Checking Float – Left Side Shown, View from Rear

Step 3: Setting Header Float

- Loosen bolts (C), and rotate spring locks (B).
- To decrease header weight, turn both adjustment bolts (A) clockwise (decrease number on float setting indicator [FSI]).
- To increase header weight, turn both adjustment bolts (A) counterclockwise (increase number on FSI).

NOTE: Ensure float setting indicator readings are equal on both sides of the float module.

- Lift end of header by hand after adjusting and recheck reading.
- Once complete, use the tool and return the float setting lever to its original location.

NOTE: If adequate header float cannot be achieved using all the available adjustments, an optional heavy duty spring is available. See your MacDon Dealer or refer to the parts catalog for ordering information.

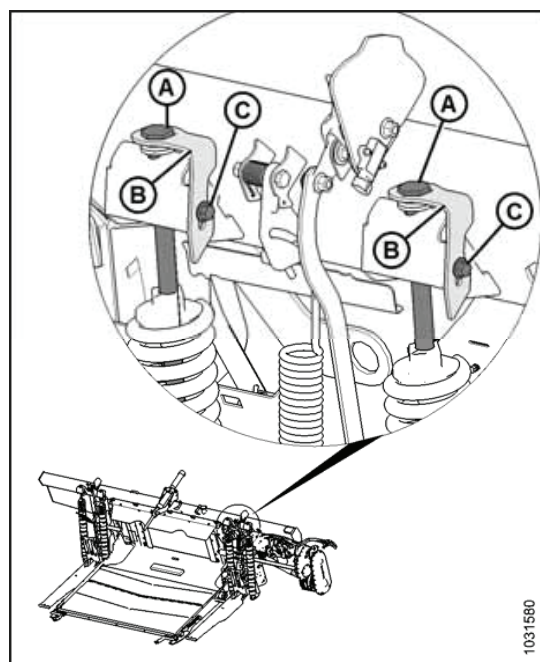


Figure 6: Float Adjustment Bolts – Left Side Shown

Subject to change without notice

Step 4: Checking Wing Balance

NOTE: Before proceeding, the header float must be set properly. Refer to Step 3: Setting Header Float.

- a. Attach flex checker cable (A) to flex checker cable lock (B).

NOTE: Images shown are from the left side.

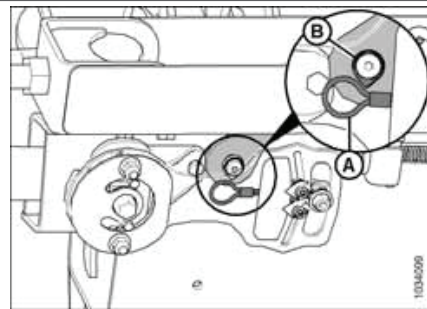


Figure 7: Flex Checker Cable

- b. Move spring handle (A) on the side that you are adjusting to the lower (UNLOCK) position. You should hear the lock disengaged. If not, use tool (B) to rotate mechanism so that the lock disengages.

NOTE: Keep the opposite wing locked.

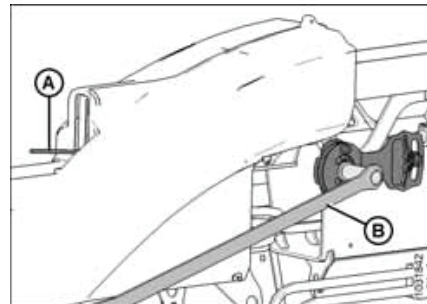


Figure 8: Wing Balance Linkage

- c. On flex checker plate, pinch indicators (A) and (B) together with your fingers.
- d. Use tool (C) to rotate flex checker plate up until pin reaches the end of slot. The lower indicator (B) will move down to give the first reading.
- e. Use tool (C) to rotate flex checker plate down until pin reaches the end of slot. The upper indicator (A) will move up to give the second reading.
- f. Repeat Steps c and d.
- g. Refer to Figure 10 and compare the two readings as follows:
 - Condition A – the wing is too light; make wing heavier.
 - Condition B – the wing is too heavy; make wing lighter.
 - Condition C – wing balance correctly adjusted. Reinstall the linkage cover, and repeat the procedure on the opposite wing.

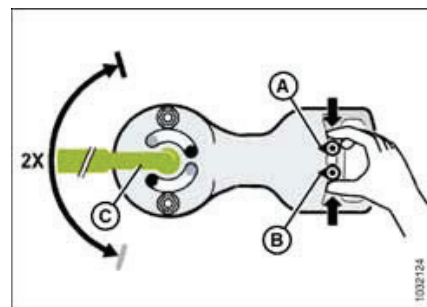


Figure 9: Wing Balance Adjustment

Step 5: Adjusting Wing Balance

- a. If the wing is too light (Condition A), make it heavier by turning adjuster bolt (A) to move clevis (B) in direction (C).
- b. If the wing is too heavy (Condition B), make it lighter by turning adjuster bolt (A) to move clevis (B) in direction (D).
- c. Recheck wing balance. Adjust as required until wing is balanced (Condition C).
- d. Move the spring handle to the upper (LOCK) position.
- e. If the lock does not engage, move the wing up and down with tool until it locks.
- f. Detach the flex checker cable from the flex checker lock.
- g. Repeat on the other side.
- h. Return the tool to its storage location, and reinstall the linkage cover.

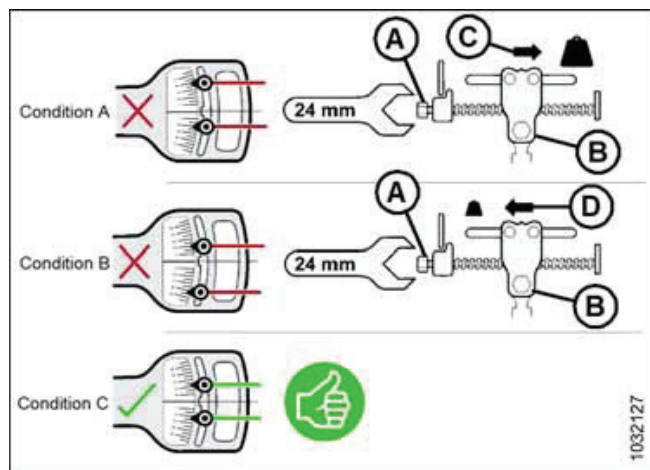
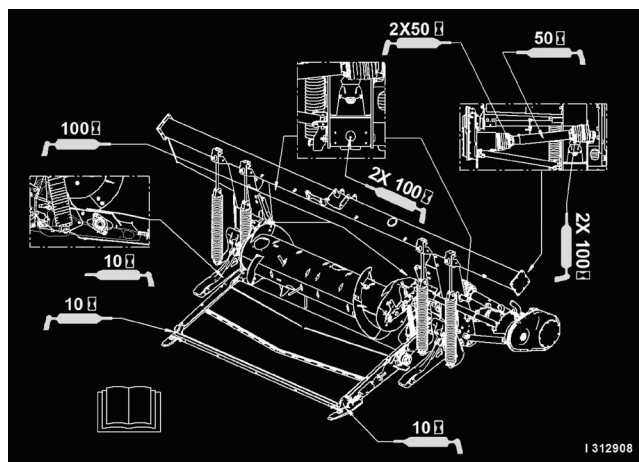


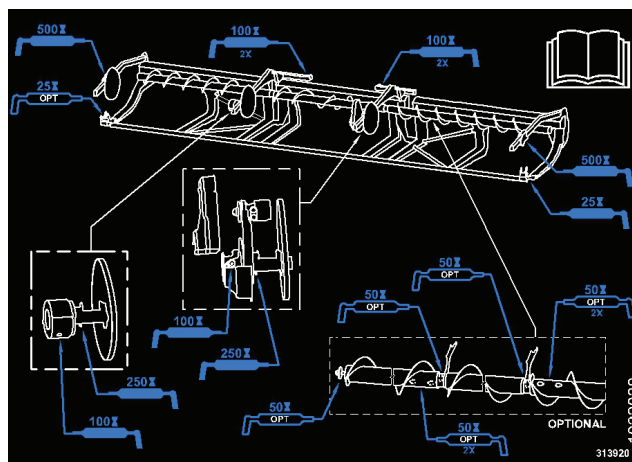
Figure 10: Wing Balance Adjustment

Recommended Fluids and Lubricants

Recommended Fluids and Lubricants				
Lubricant	Specification	Description	Use	Capacities
Grease	SAE multi-purpose	High temperature extreme pressure (EP) performance with 1% max. molybdenum disulphide (NLGI Grade 2) lithium base	As required unless otherwise specified	---
		High temperature extreme pressure (EP) performance with 10% max. molybdenum disulphide (NLGI Grade 2) lithium base	Driveline slip-joints	---
Gear Lubricant	SAE 85W-140	API service class GL-5	Knife drive box	1.5 liters (1.3 quarts)
			Main gearbox	1.5 liters (1.3 quarts)
			Completion gearbox	1.5 liters (1.3 quarts)
Hydraulic Oil	Single grade trans-hydraulic oil. Recommend viscosity: • 60.1 cSt @ 40° C (104° F) • 9.5 cSt @ 100° C (212° F) Recommended brands: • Petro-Canada Duratran • John Deere Hy-Gard J20C • Case Hy-Tran Ultraction • AGCO Power Fluid 821 XL	Lubricant trans / hydraulic oil	Header drive systems reservoir	95 liters (25.1 US gallons)



FM 200 Grease Point Layout



FD2 Header Grease Point Layout

Notes



