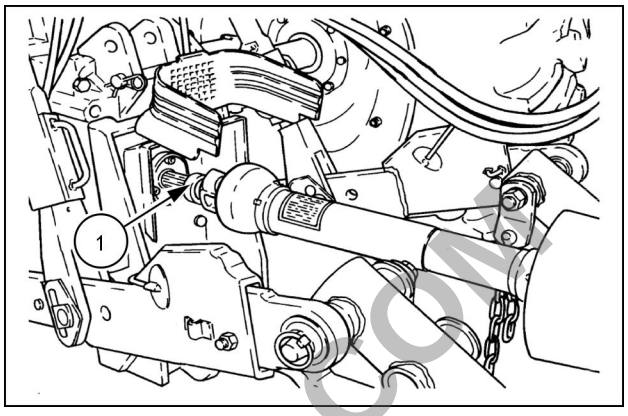
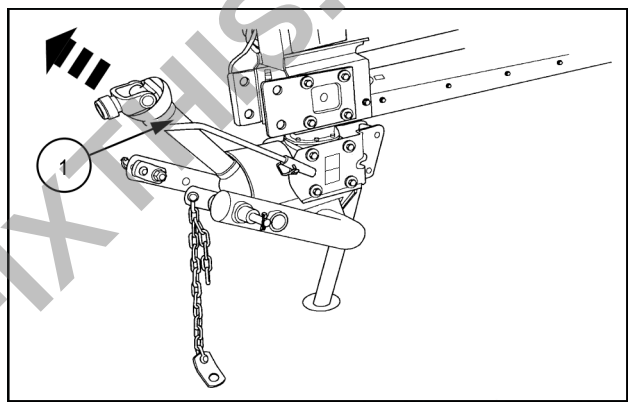
Front half drive shaft - Remove

1. Pull back on the locking collar **(1)** and detach the Power Take-Off (PTO) shaft assembly from the towing tractor.



97-1539RN 1

2. Slide the front Power Take-Off (PTO) shaft **(1)** off of the rear PTO shaft **(2)**.

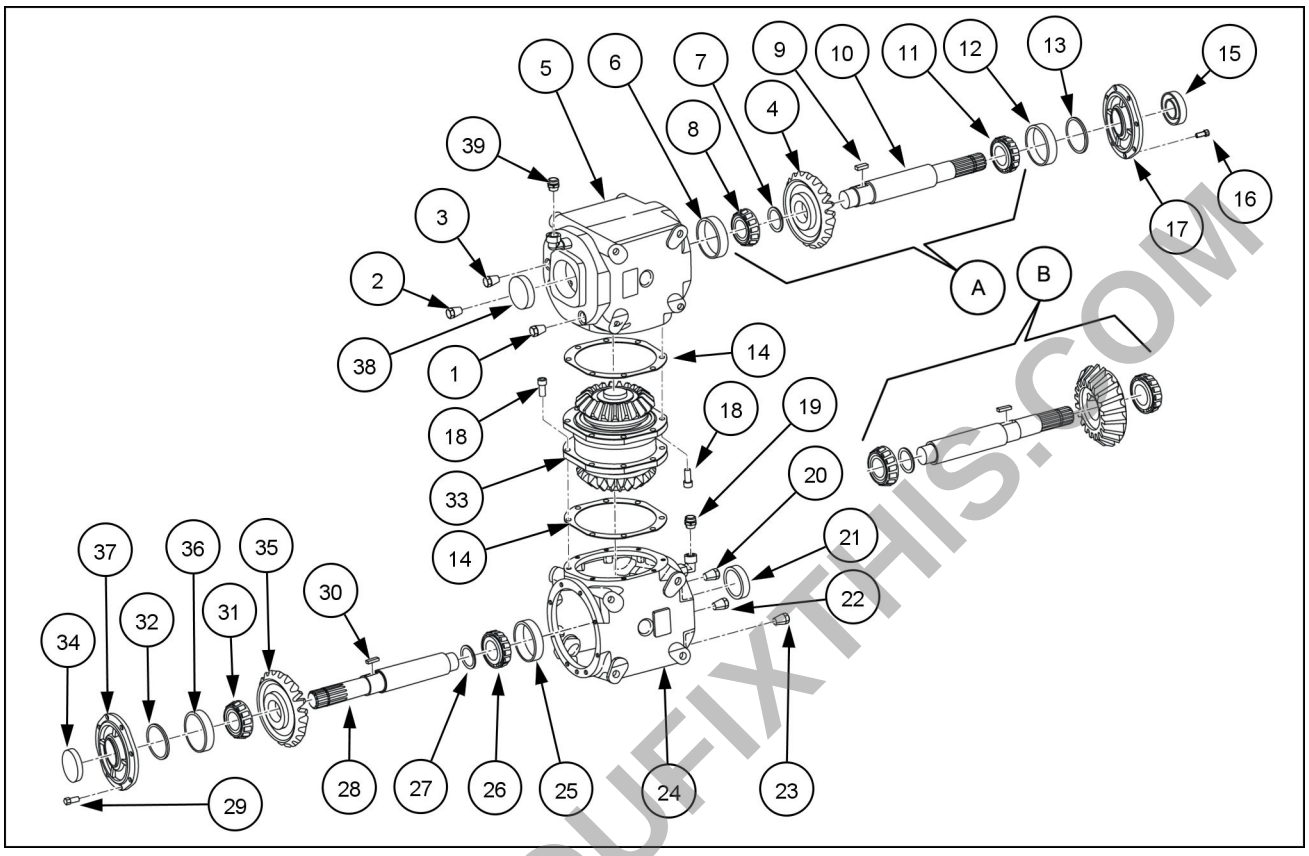


NHIL16HT00055AA 2

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Gearbox - Exploded view - Swivel gearboxes



NHIL16HT00879FA 1

Swivel gearboxes – Exploded view

Shaft component orientation:

(A) – Reversing swivel gearbox

(B) – Swivel hitch gearbox

(1) – Drain plug, 3/8 inch NPT
(2) – Oil level check plug, 3/8 inch NPT
(3) – Plug, 3/8 inch NPT
(4) – Gear
(5) – Upper gearbox housing
(6) – Bearing cup
(7) – Shim
(8) – Bearing cone
(9) – Key
(10) – Shaft
(11) – Bearing cone
(12) – Bearing cup
(13) – Shim
(14) – Gasket
(15) – Cap
(16) – Bolt, M10 x 22
(17) – Cover
(18) – Screw, hex socket, M10 x 25
(19) – Breather / fill plug, 3/8 inch NPT
(20) – Oil level check plug, 3/8 inch NPT
(21) – Cap
(22) – Plug, 3/8 inch NPT
(23) – Drain plug, 3/8 inch NPT
(24) – Lower gearbox housing
(25) – Bearing cup
(26) – Bearing cone
(27) – Shim
(28) – Shaft
(29) – Bolt, M10 x 22
(30) – Key
(31) – Bearing cone
(32) – Shim
(33) – Neck assembly – See **Gearbox - Exploded view - Swivel gearbox neck (31.220)**.
(34) – Cap
(35) – Gear
(36) – Bearing cup
(37) – Cover
(38) – Cap
(39) – Breather / fill plug, 3/8 inch NPT

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Safety rules

Personal safety



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible death or injury.

Throughout this manual you will find the signal words DANGER, WARNING, and CAUTION followed by special instructions. These precautions are intended for the personal safety of you and those working with you.

Read and understand all the safety messages in this manual before you operate or service the machine.

⚠ DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury.

⚠ WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.

⚠ CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

FAILURE TO FOLLOW DANGER, WARNING, AND CAUTION MESSAGES COULD RESULT IN DEATH OR SERIOUS INJURY.

Machine safety

NOTICE: *Notice indicates a situation that, if not avoided, could result in machine or property damage.*

Throughout this manual you will find the signal word Notice followed by special instructions to prevent machine or property damage. The word Notice is used to address practices not related to personal safety.

Information

NOTE: *Note indicates additional information that clarifies steps, procedures, or other information in this manual.*

Throughout this manual you will find the word Note followed by additional information about a step, procedure, or other information in the manual. The word Note is not intended to address personal safety or property damage.

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Universal joint - Service instruction

As the procedure is the same, service of the Power Take-Off (PTO) for front half drive shaft and the rear drive shaft universal joints in the primary shaft is covered in the disassemble and assemble procedures listed as follows.

NOTE: *Replacement of the universal joint requires the disassembly of the drive shaft.*

See the following areas for the proper service procedure:

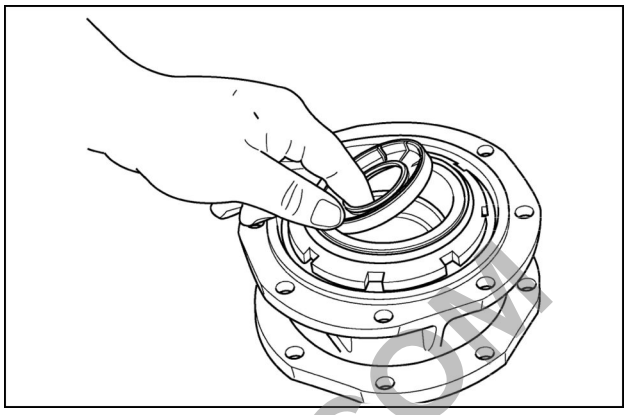
- **Front half drive shaft - Disassemble (31.201)**
- **Front half drive shaft - Assemble (31.201)**

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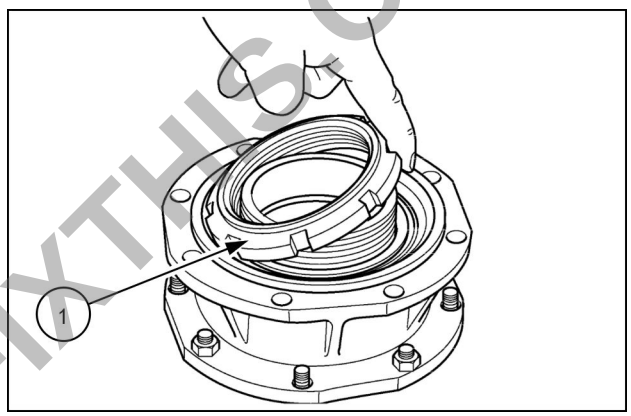
8. Remove the seal from the outer neck assembly.

NOTICE: *Replace all seals that you remove from the gearbox. Seals are damaged when removed.*



10992658N 8

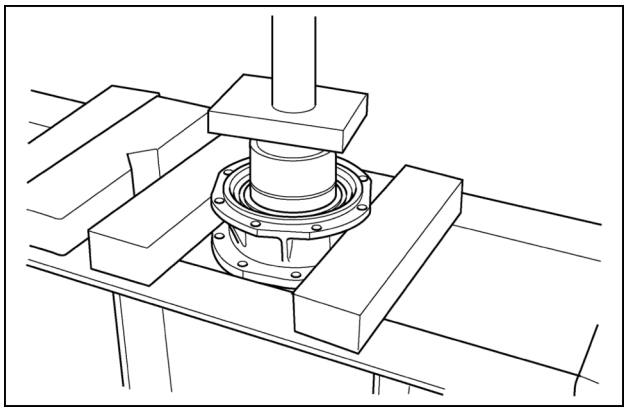
9. Remove the locknut **(1)** from the outer neck assembly.
   - Use the special locknut tool; see **Gearbox - Special tools - Swivel neck tools - Neck locknut tool (locally manufacture) (31.220)** (local manufacture).
   - Leave two or more of the neck bolts and nuts assembled to hold the inner neck in place during locknut removal.



10992659N 9

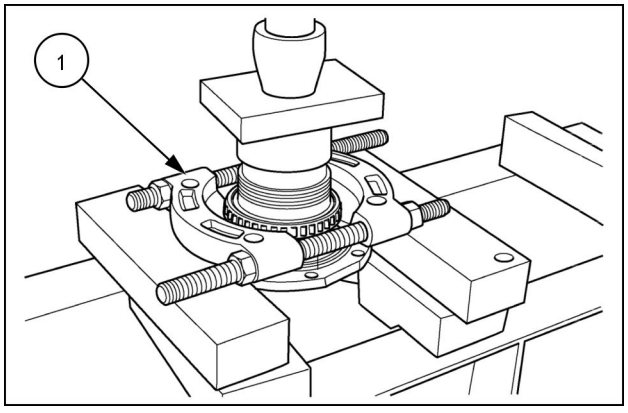
NOTE: *The locknut is assembled with a thread-locking sealant. Use heat if necessary to loosen the locknut.*

10. Press the inner neck out of the outer neck, removing the bearings and thrust washers in the process.



10992660N 10

11. Use a bearing separator tool **(1)** or equivalent tool to press the inner neck bearing off the neck.
    - Remove the O-ring from the lower neck.



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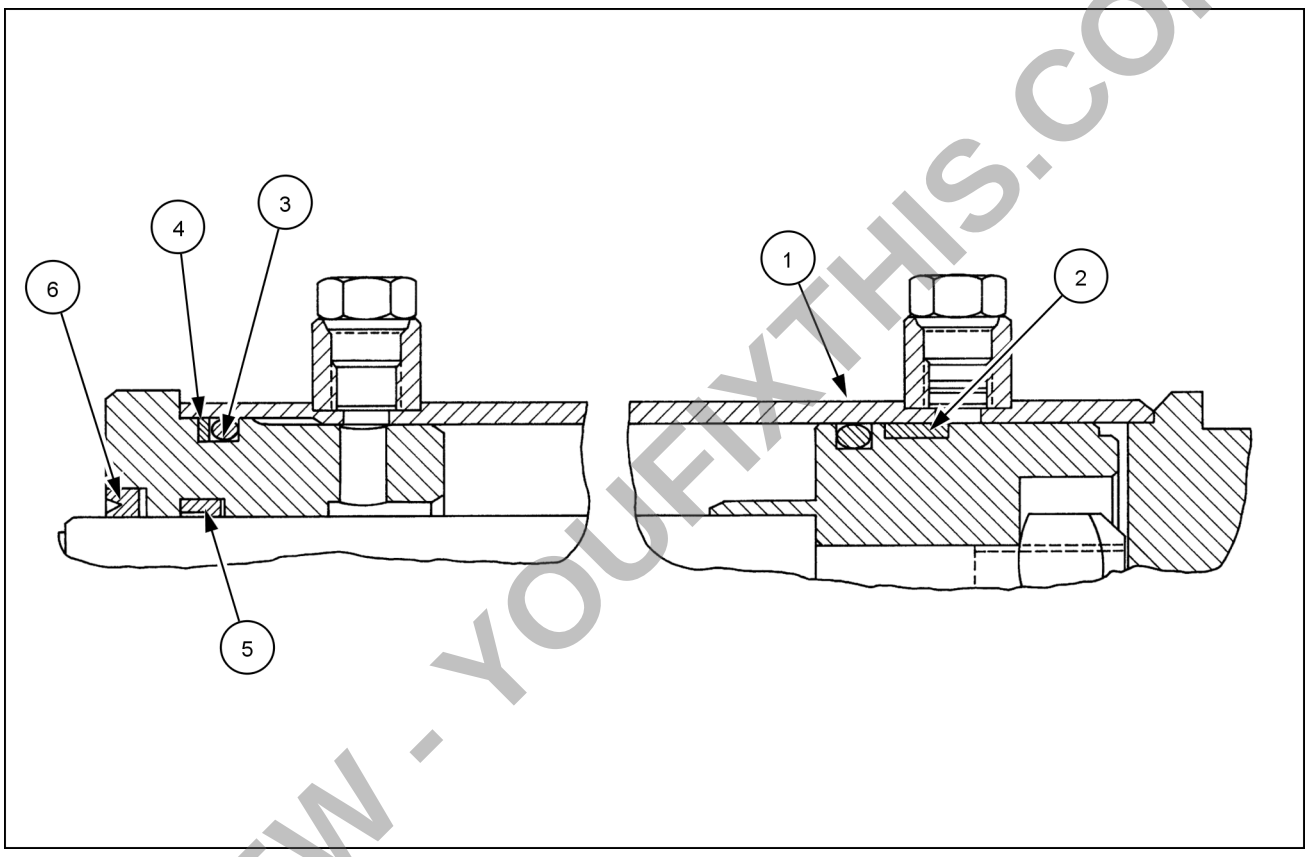
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Cylinder - Assemble

Prior operation:
Cylinder - Inspect (35.947)

1. Remove the worn seals from the piston and cylinder head.
2. Apply a light coating of **NEW HOLLAND AMBRA MASTERTRAN® ULTRACTION** to lubricate the cylinder head, piston, and seals prior to installing them.



20002690N 1

3. Install the 3-piece seal **(1)** onto the piston.
4. Install the wear ring **(2)** onto the piston.
5. Install the O-ring **(3)** and backup ring **(4)** onto the cylinder head.
6. Install the inner seal **(5)** onto the cylinder head.
7. Install the oil seal **(6)** into the end of the cylinder head.

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Crop deflector - Remove - Push bar

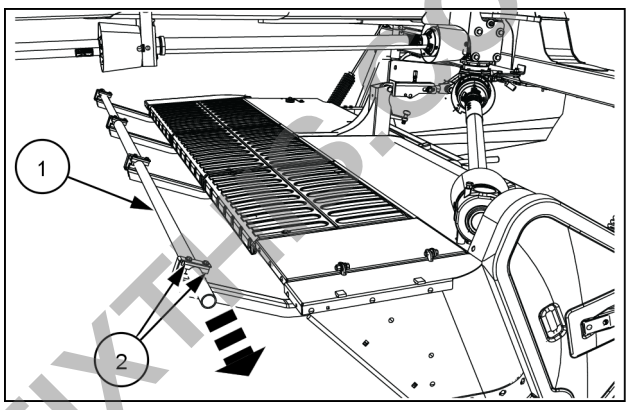
Discbine® 313	
Discbine® 316	

NOTE: *This instruction covers the complete removal of all the push bar kit assembly components with the exception of the push bar tube clamping hardware, assuming there is a necessity to remove all of the components from the machine. The instructions are applicable to both the* ***Discbine®*** *313 and the* ***Discbine®*** *316 disc mower-conditioner.*

Push bar tubes – Remove

Left-hand

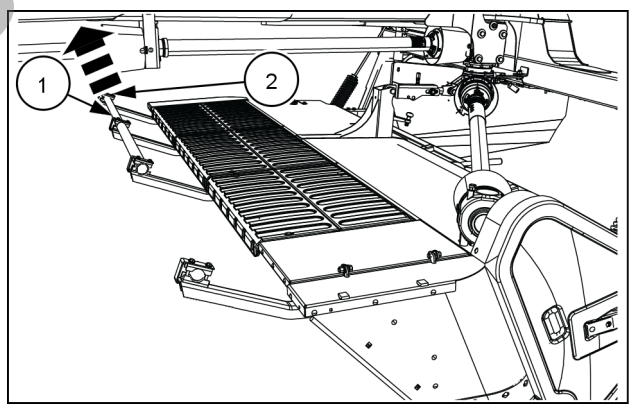
1. Remove the left-hand tube **(1)**, as follows:
   A. Loosen only, the outside end clamping hardware **(2)** of the left-hand tube.
   B. Slide the left-hand tube outward from the center tube left-hand end clamp.



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Right-hand

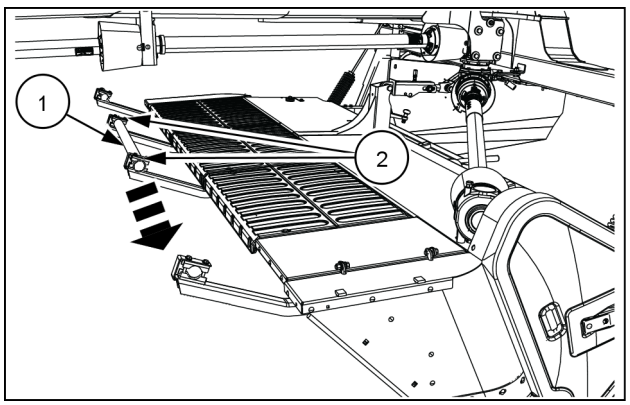
2. Remove the right-hand tube **(1)**, as follows:
   A. Loosen only, the outside end clamping hardware **(2)** of the left-hand tube.
   B. Slide the left-hand tube outward from the center tube right-hand end clamp.



NHIL16HT00810AA 2

Center

3. Remove the center tube **(1)**, as follows:
   A. Loosen only, the both sets of the clamping hardware **(2)**.
   B. Slide the center tube outward from the clamping hardware.



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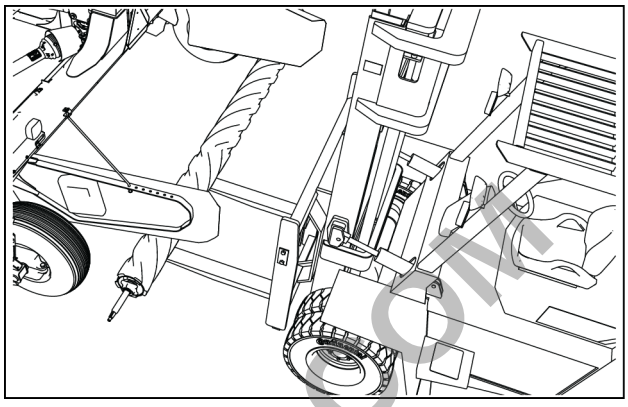
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Lower conditioner roll - Install

1. With the lower conditioner roll on a lifting device, install the conditioner roll through the slots in the header frame.

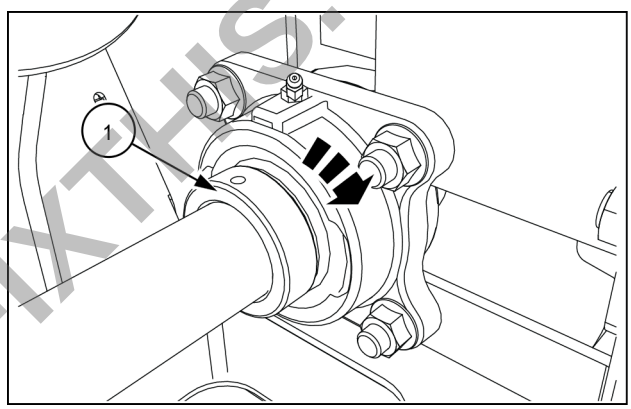
NOTE: *A longer stub shaft protrudes from the left-hand side of the lower conditioning roll. Pivot the right-hand side of the lower conditioning roll in first, and then slide the left-hand side in.*

2. Secure the flange bearings to the header frame with four 1/2 x 1-1/2 inch carriage bolts and 1/2 inch flange nuts.

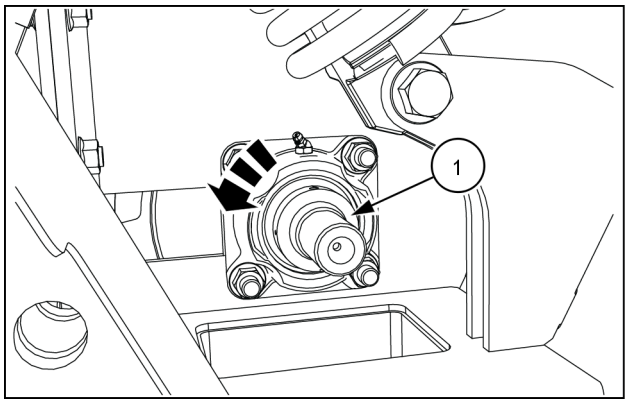


NHIL14HT00191AA 1

3. On both sides of the lower conditioner roll:
   A. Center the lower conditioner roll between the header frame side sheets.
   B. Install and tighten the lock collar **(1)** by placing a punch in the drift hole and striking it sharply with a hammer in the direction of shaft rotation, as indicated by the arrow in Figures **2** and **3**.
   C. Tighten the set screw on the lock collar.



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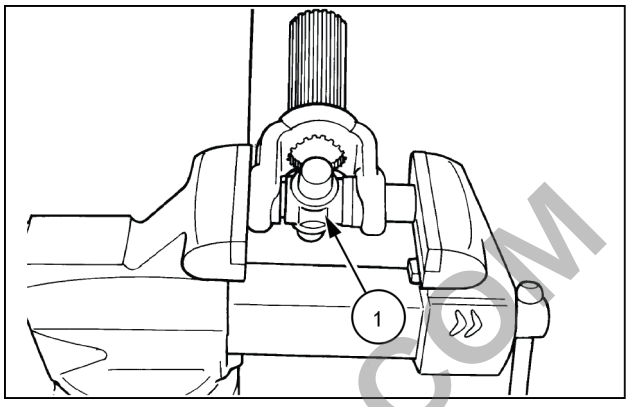
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Upper conditioner roll - Assemble - Drive shaft

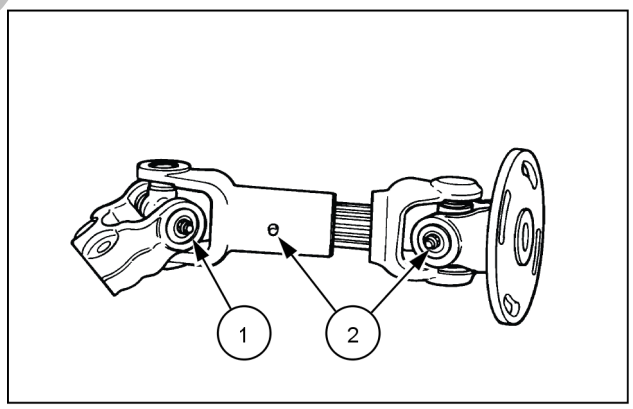
1. To assemble the Universal joint (U-joint), position the cross **(1)** in the yoke so that the bearing journals are positioned in each yoke ear.
2. Insert the bearings in the outside of the yoke ears, and then position the assembly in a vise.
3. Press the bearings in until they are flush with the edge of the yoke.
4. Using a socket of the same diameter as the bearing, press the bearing into the yoke ear until the retaining ring groove is exposed on the inside of the yoke ear.
5. Install the retaining ring over the bearing cup.
6. Reposition the yoke and cross in the vise.
   - Use the socket to press the opposite bearing fully into the yoke ear while rotating the cross to make sure that it does not bind up
7. Continue to press the bearing into the yoke ear until you can install the retaining ring.
   A. Push the bearing in as far as possible with the vise.
   B. Remove the yoke assembly and strike the yoke ears with a sharp blow from a hammer to spring the yoke enough to install the retaining ring.
8. Assemble the second yoke to the cross, repeating Steps **1** through **7**.

NOTE: *The lubrication fitting **(1)** should be oriented to line up with the other lubrication fittings **(2)** on the drive shaft for ease of lubrication. Make note of the positioning of the bearing up for the lubrication fitting during assembly to make sure that it aligns with the other lubrication fittings.*

9. After completing the assembly of the U-joint, strike the forged surfaces of all yoke ears with a sharp blow from a hammer.
   - Striking the yoke ears with a hammer will make sure that all of the bearings seat properly, and eliminates any possible tightness for a free flexing joint.



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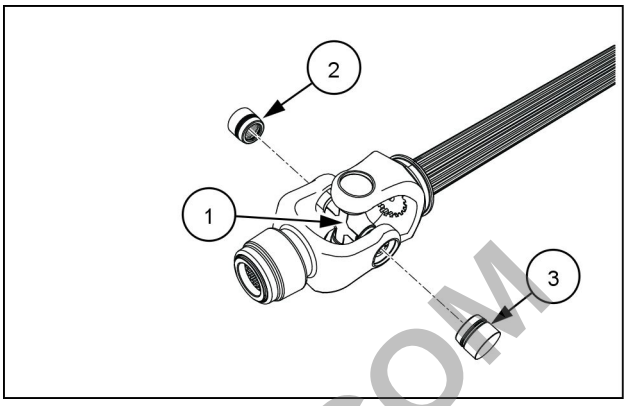
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NOTICE: *Use caution not to strike the bearing bore area of the yoke, as this will damage the bore and may cause premature cross bearing failure.*

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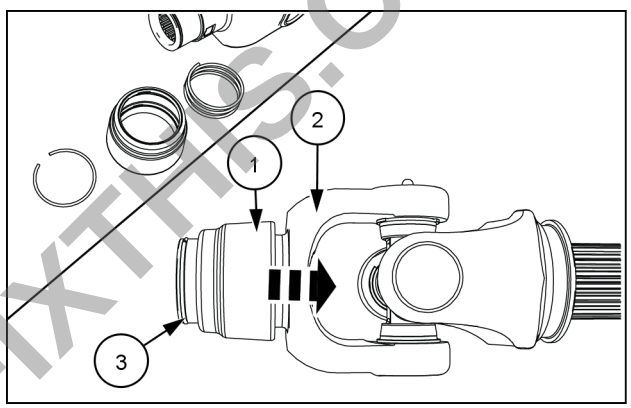
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8. Position the second yoke on the U-joint **(1)** and repeat Step **3** through Step **7** to install the bearing caps **(2)** and **(3)**.
9. Install the 1/4–28 inch grease fittings into the bearing caps and grease the U-joint per the maintenance schedule for the machine.



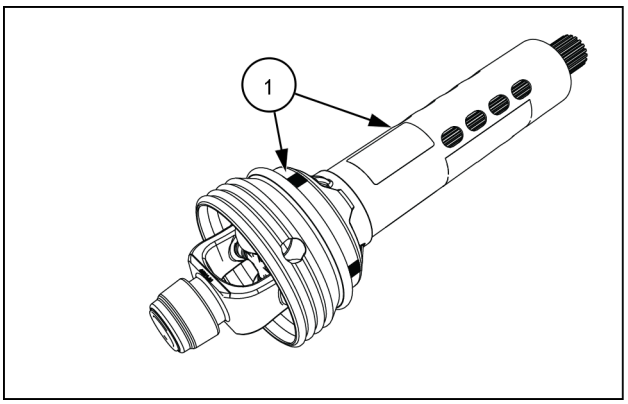
NHIL16HT00429AA 4

10. If you removed the quick-coupler assembly:
    A. Install the spline retainers into the yoke.
    B. Install the spring and the collar onto the yoke.
    C. Slide the collar **(1)** toward the yoke **(2)**.
    D. Install the retaining ring **(3)**.



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11. Install the Power Take-Off (PTO) shaft guards **(1)**. See **Front half drive shaft - Install - Guard (31.201)**.

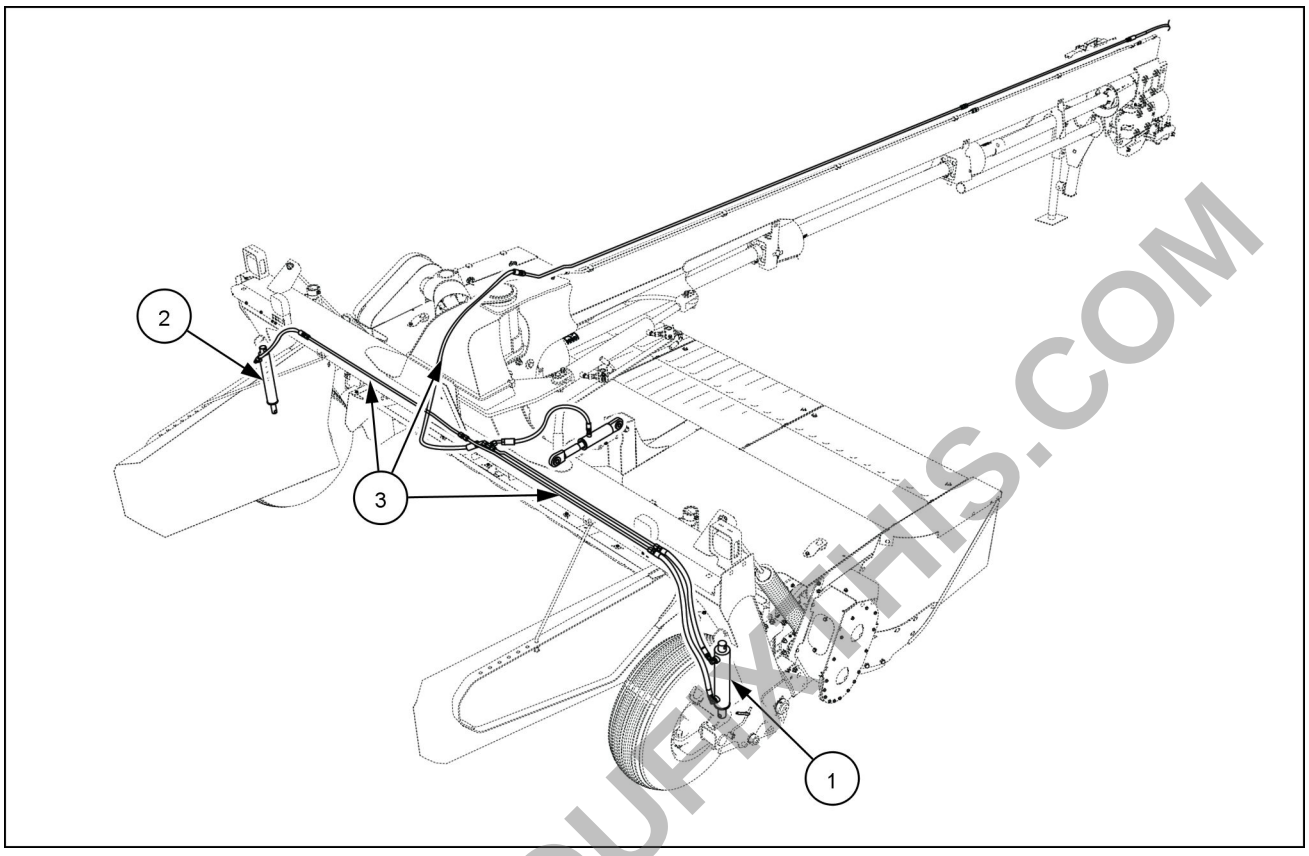


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Header or attachment height system - Overview



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Header lift circuit

The header lift circuit consists of a master cylinder **(1)**, a slave cylinder **(2)**, and hoses **(3)** that allow the operator to raise, lower, or adjust the levelness of the header from the operator's platform.

When the operator lowers the header, oil from the auxiliary hydraulic outlet on the tractor flows to the base of the master cylinder, and oil from the rod of the master cylinder flows to the base of the slave cylinder. This combination allows the master and slave cylinders to extend equally under any load.

An out-of-phase condition, when the left-hand and right-hand sides of the machine raise unevenly, is a possible occurrence for the master and slave cylinder. See **Positioning cylinder - Bleed (35.410)** for more information on the procedure for re-phasing the header lift circuit.

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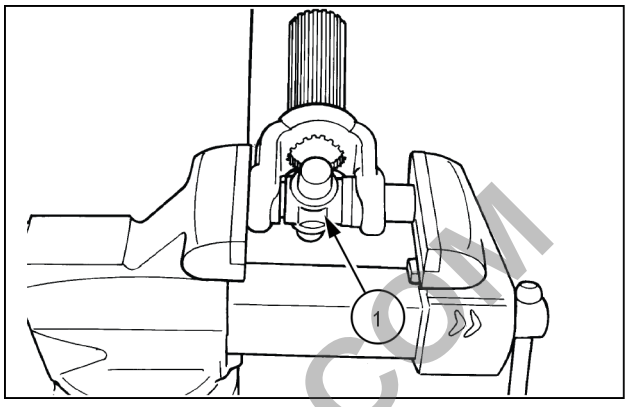
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Lower conditioner roll - Assemble - Drive shaft

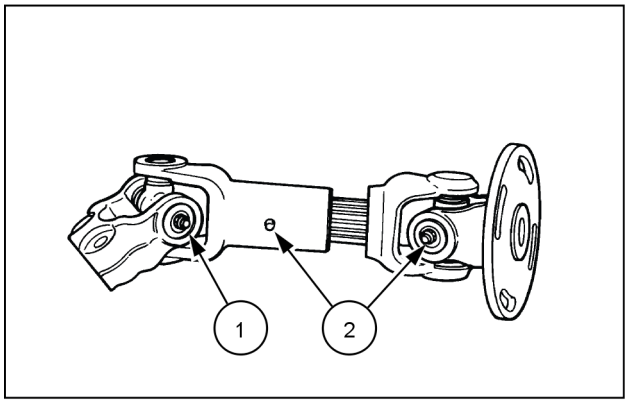
1. To assemble the Universal joint (U-joint), position the cross **(1)** in the yoke so that the bearing caps are positioned in each yoke ear.
2. Insert the bearings in the outside of the yoke ears, and then position the assembly in a vise.
3. Press the bearings in until they are flush with the edge of the yoke.
4. Using a socket of the same diameter as the bearing, press the bearing into the yoke ear until the retaining ring groove is exposed on the inside of the yoke ear.
5. Install the retaining ring over the bearing cup.
6. Reposition the yoke and cross in the vise, and then use the socket to press the opposite bearing fully into the yoke ear while rotating the cross to make sure that it does not bind up.
7. Continue to press the bearing into the yoke ear until you can install the retaining ring.
   A. Push the bearing in as far as possible with the vise.
   B. Remove the yoke assembly and strike the yoke ears with a sharp blow from a hammer to spring the yoke enough to install the retaining ring.
8. Assemble the second yoke to the cross, repeating Steps **1** through **7**.

NOTE: *The lubrication fitting **(1)** should be oriented to line up with the other lubrication fittings **(2)** on the drive shaft for ease of lubrication. Make note of the positioning of the bearing up for the lubrication fitting during assembly to make sure that it aligns with the other lubrication fittings.*

9. After completing the assembly of the U-joint, strike the forged surfaces of all yoke ears with a sharp blow from a hammer.
   - Striking the forged surfaces will make sure that all bearings seat properly, and eliminates any possible tightness for a free flexing joint.



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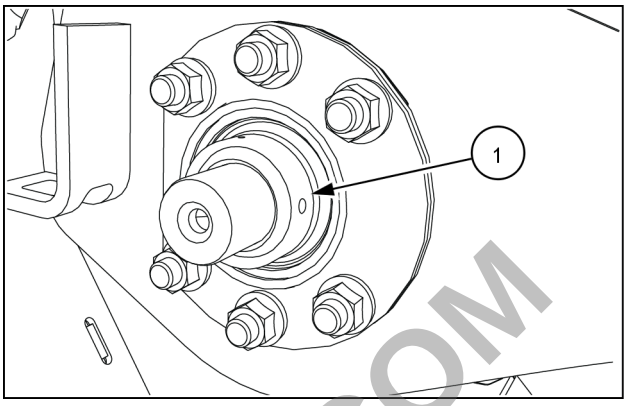
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NOTICE: *Use caution not to strike the bearing bore area of the yoke, as this will damage the bore and may cause premature cross bearing failure.*

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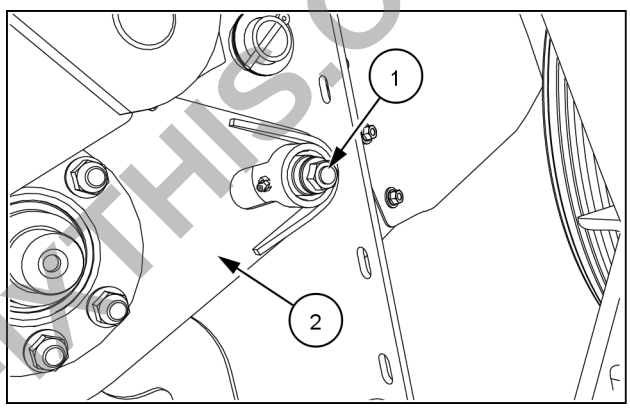
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7. Loosen the set screw on the lock collar **(1)**.
8. Loosen and remove the lock collar by inserting a punch into the drift hole and striking it sharply with a hammer in the opposite direction of shaft rotation.



NHIL14HT00124AA 5

9. Remove the pivot nut and bolt **(1)** at the rear of the left-hand pivot plate **(2)**.
10. Support the upper conditioner roll using a floor jack and appropriate blocking.
11. Slide the bearing arm and bearing off of the end of the upper conditioner roll.



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