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TerraFlex™ 3020
Auger Header

SERVICE MANUAL

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CASE IH AGRICULTURE

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Personal safety

Your machine may be equipped with special guarding or other devices in compliance with local legislation. Some of these require active use by the operator.

Therefore, check local legislation on the usage of this machine.

Hydraulic system safety

- Hydraulic oil leaking under pressure can penetrate the skin and cause infection or other injury. To prevent personal injury:
  - Relieve all pressure before disconnecting fluid lines.
  - Before applying pressure, make sure all connections are tight and components are in good condition.
  - Never use your hand to check for suspected leaks under pressure. Use a piece of cardboard or wood for this purpose.
  - If injured by leaking fluid, seek medical attention immediately.
- The hydraulic hoses and fittings on your machine meet engineering specifications for the particular function. When replacing damaged, blown or worn hoses or fittings, use only manufacture authorized service parts.
- Care in hydraulic hose installation is a must:
  - Make sure pressure is relieved before starting installation procedure.
  - DO NOT kink or twist a hose, failure may occur.
  - Properly route the hose.
  - Have a certified hydraulic technician install the hose.
  - Remove air from the hydraulic system after installing any hydraulic component.
- Periodically check hydraulic system for leaks or damage. check for:
  - Leaks at hose fitting or in hose.
  - Damaged hoses and/or fittings.
  - Kinked, crushed, flattened, hard blistered, heat cracked, charred, twisted, soft or loose covered hoses.
  - Corroded or damaged fittings.
  - Leaking ports.
  - Excessive dirt and debris around hoses and/or fittings.
  - Damaged or missing hose retaining clamps, guards, shields, etc.
- DO NOT stand on or use a hose as a step. DO NOT pull or apply external forces to the hose. The hose may fail and cause injury.
- Keep all persons away from the working area. Mechanisms controlled by fluid power can become hazardous if a hose fails. Lifted mechanisms can fall to the ground, machine steering may fail, etc.
- Stay clear of a pressurized hose assembly that has blown apart. Hose fittings can be thrown off at high speed and a loose hose can whip around with great force.
- Hydraulic fluid can reach high temperatures. Allow fluid to cool before servicing the system.
- Escaping fluid under pressure may form a mist or fine spray which can flash or explode upon contact with an ignition source.
- Vibration can reduce hose service life. Make sure all retaining clamps and/or devices are secured.
- Environmental conditions can cause hose and fittings to deteriorate. Inspect hydraulic hoses periodically. Replace worn or damaged hoses and fittings.

Safety requirements for fluid power systems and components - hydraulics (EUROPEAN STANDARD PR EN 982)

- Flexible hose assemblies must not be constructed from hoses which have been previously used as part of a hose assembly.

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Torque - Minimum tightening torques for normal assembly

METRIC NON-FLANGED HARDWARE

NOM. SIZE	CLASS 8.8 BOLT and CLASS 8 NUT		CLASS 10.9 BOLT and CLASS 10 NUT		LOCKNUT CL.8 W/CL8.8 BOLT	LOCKNUT CL.10 W/CL10.9 BOLT
	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr		
M4	2.2 N·m (19 lb in)	2.9 N·m (26 lb in)	3.2 N·m (28 lb in)	4.2 N·m (37 lb in)	2 N·m (18 lb in)	2.9 N·m (26 lb in)
M5	4.5 N·m (40 lb in)	5.9 N·m (52 lb in)	6.4 N·m (57 lb in)	8.5 N·m (75 lb in)	4 N·m (36 lb in)	5.8 N·m (51 lb in)
M6	7.5 N·m (66 lb in)	10 N·m (89 lb in)	11 N·m (96 lb in)	15 N·m (128 lb in)	6.8 N·m (60 lb in)	10 N·m (89 lb in)
M8	18 N·m (163 lb in)	25 N·m (217 lb in)	26 N·m (234 lb in)	35 N·m (311 lb in)	17 N·m (151 lb in)	24 N·m (212 lb in)
M10	37 N·m (27 lb ft)	49 N·m (36 lb ft)	52 N·m (38 lb ft)	70 N·m (51 lb ft)	33 N·m (25 lb ft)	48 N·m (35 lb ft)
M12	64 N·m (47 lb ft)	85 N·m (63 lb ft)	91 N·m (67 lb ft)	121 N·m (90 lb ft)	58 N·m (43 lb ft)	83 N·m (61 lb ft)
M16	158 N·m (116 lb ft)	210 N·m (155 lb ft)	225 N·m (166 lb ft)	301 N·m (222 lb ft)	143 N·m (106 lb ft)	205 N·m (151 lb ft)
M20	319 N·m (235 lb ft)	425 N·m (313 lb ft)	440 N·m (325 lb ft)	587 N·m (433 lb ft)	290 N·m (214 lb ft)	400 N·m (295 lb ft)
M24	551 N·m (410 lb ft)	735 N·m (500 lb ft)	762 N·m (560 lb ft)	1016 N·m (750 lb ft)	501 N·m (370 lb ft)	693 N·m (510 lb ft)

NOTE: *M4 through M8 hardware torque specifications are shown in pound-inches. M10 through M24 hardware torque specifications are shown in pound-feet.*

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Technical data

Power Take-Off (PTO) drive	Free motion PTO.
Knife	
Type	Over serrated knife
Speed	575 cycles/min (1150 cuts/min)
Drive	**1HC** belt from main header shaft to wobble box
Reel	
Drive	Hydraulically
Speed adjustment	Electrically controlled from the combine
Speed range	Variable from **0 - 60 RPM**
Diameter	**1070 mm** (**42.1 in**)
Horizontal stroke	**400 mm** (**15.7 in**)
Vertical stroke	**380 mm** (**15.0 in**)
Reel position sensors	Standard
Header recognition sensor	Standard
Maximum lift height (header bottom to center of reel)	**1845 mm** (**72.6 in**)
Bars	6
Tines/bars	**1 ft** cutting width
Auger	
Tube diameter	**406 mm** (**16.0 in**)
Flighting height	**127 mm** (**5 in**)
Speed range	
With 43 Tooth (T) sprocket	**147 RPM**
Protection	Slip clutch on PTO shaft
Slip clutch set at:	**800 Nm** (**590 lb ft**)
Drive	Chain drive from main shaft
Weight (*) — Single drive	
20 ft	**1750 kg** (**3859 lb**)
25 ft	**2188 kg** (**4824 lb**)
30 ft	**2626 kg** (**5789 lb**)
35 ft	**3070 kg** (**6754 lb**)
Weight (*) — Double drive	
30 ft	**2930 kg** (**6460 lb**)
35 ft	**3380 kg** (**7452 lb**)

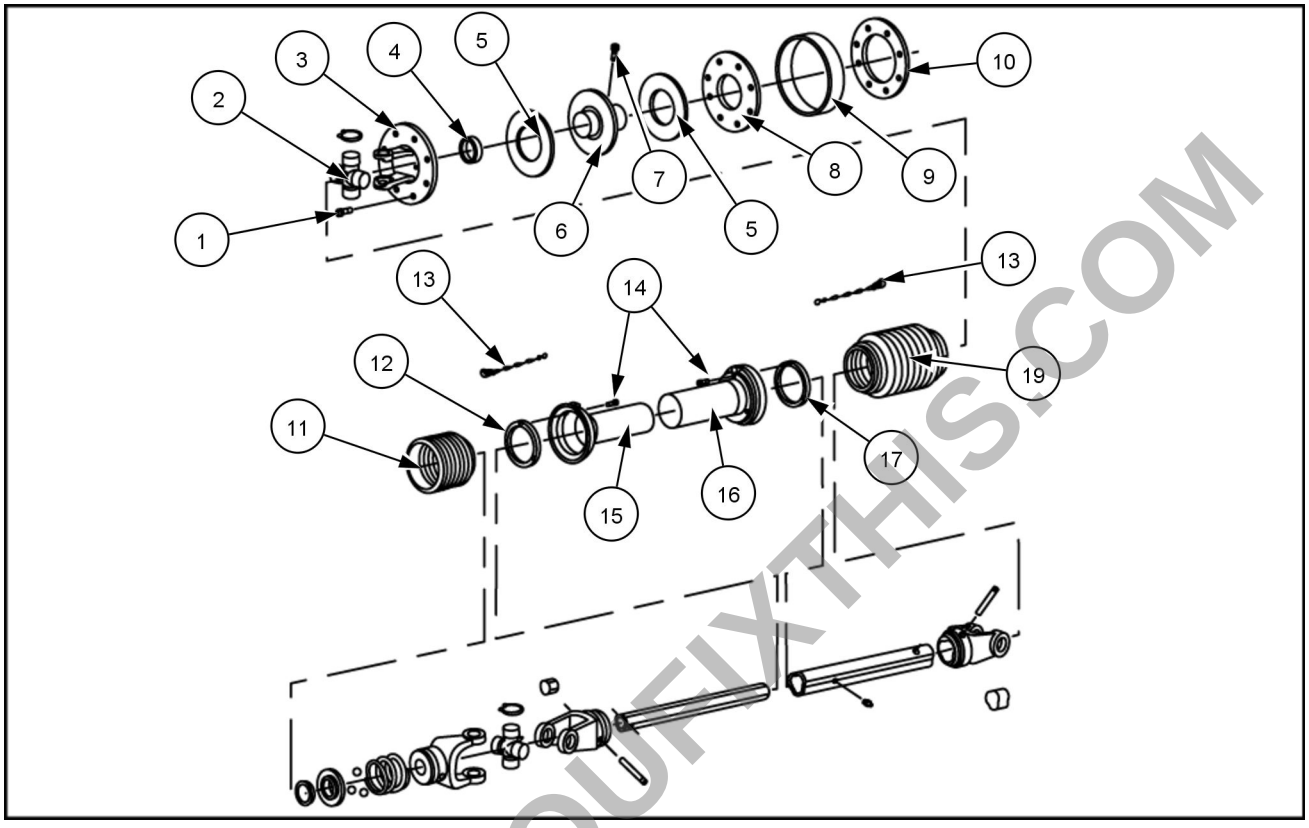
NOTE: *(*): without dividers or crop lifters.*

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Power Take-Off (PTO) shaft - Exploded view - PTO drive shaft

NOTE: *Parts are similar for single and double drive PTO drive shafts.*



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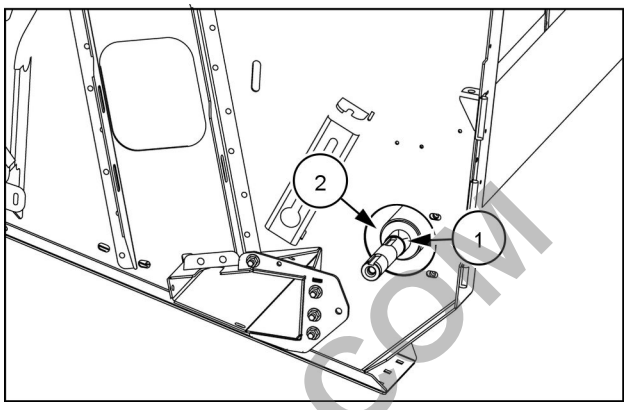
Item	Description	Quantity
(1)	Bolt	8
(2)	Universal joint kit	1
(3)	Yoke	1
(4)	Bushing	1
(5)	Disc	2
(6)	Hub	1
(7)	Screw	1
(8)	Plate	1
(9)	Band	1
(10)	Spring	1
(11)	Shield	1
(12)	Support	1
(13)	Chain	2
(14)	Screw	6
(15)	Inner shield	1
(16)	Shield	1
(17)	Ring nut	1
(18)	Cone	1

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Main gearbox and drive - Install - Main drive

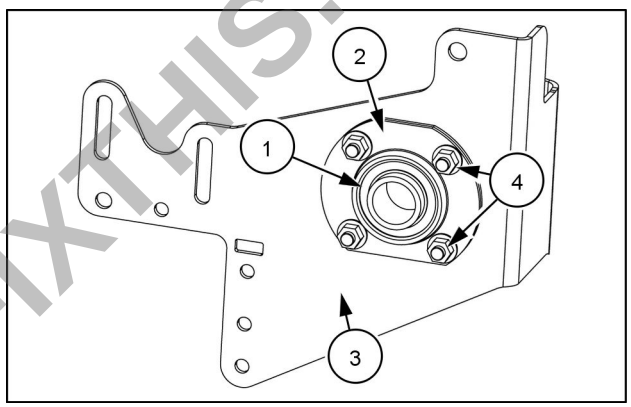
1. Insert main shaft **(1)** into tube **(2)**.



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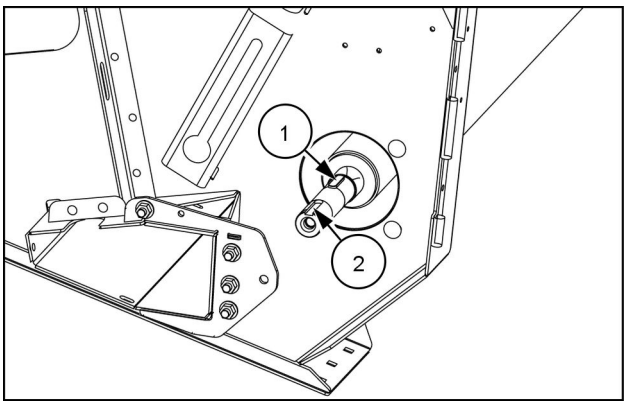
2. Install bearing **(1)** between flangettes **(2)** onto plate **(3)** using four M12 x 30 mm bolts **(4)**, Belleville washers, and nuts.

NOTE: *Both flangettes must be installed on outer face of plate.*



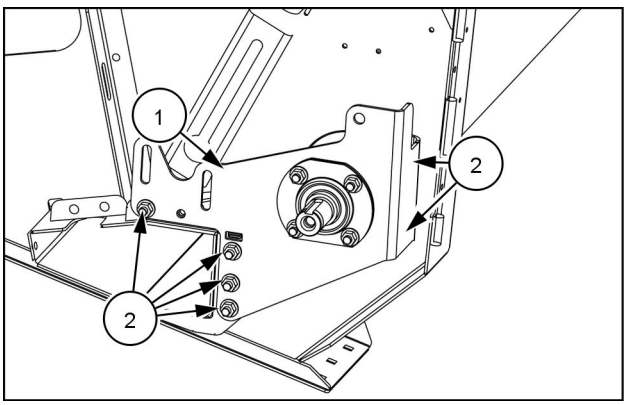
NHPE13GH00049AA 2

3. Insert key **(1)** into shaft **(2)**.
4. Slide sprocket onto shaft, making sure to align the key-way with the key.



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5. Install plate assembly **(1)** onto left-hand side of header using six M12 x 30 mm bolts **(2)**, Belleville washers, and nuts.



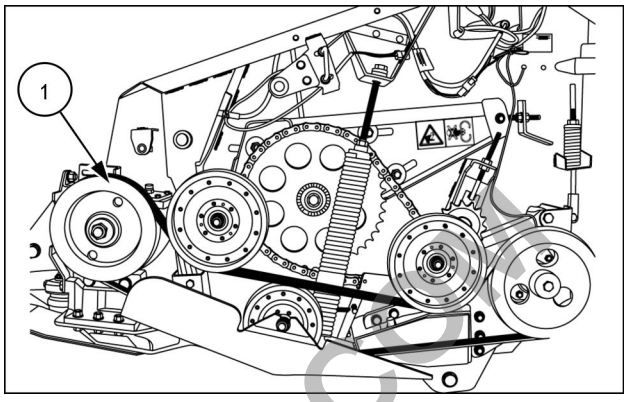
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Main gearbox and drive - Service instruction

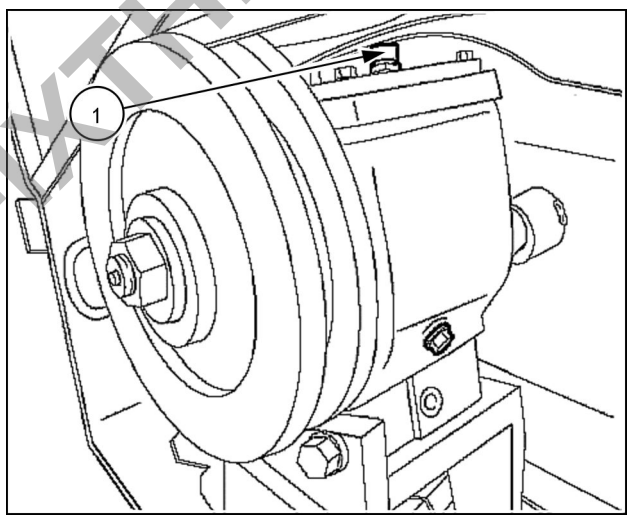
Check the oil level in the knife drive gearbox **(1)** every 50 operating hours.



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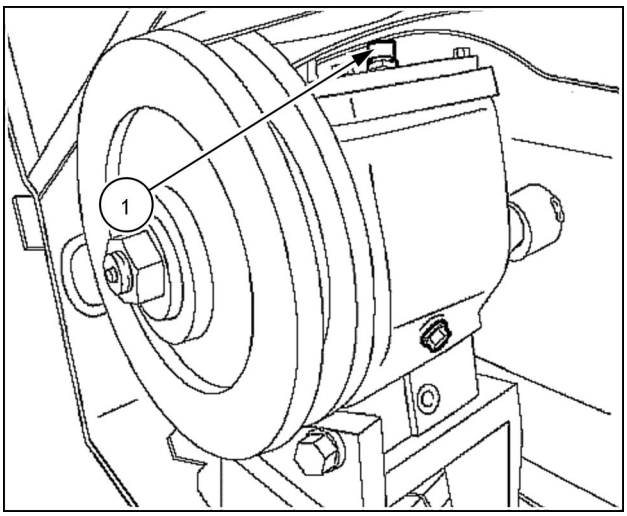
To check, proceed as follows:

1. Lower the header to the ground.
2. Loosen the plug **(1)** with dipstick and clean it from oil.
3. Screw in the plug fully, and check that the dipstick is covered by oil up to the reference notch.



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4. If the oil level is low, add oil into the plug hole **(1)**.

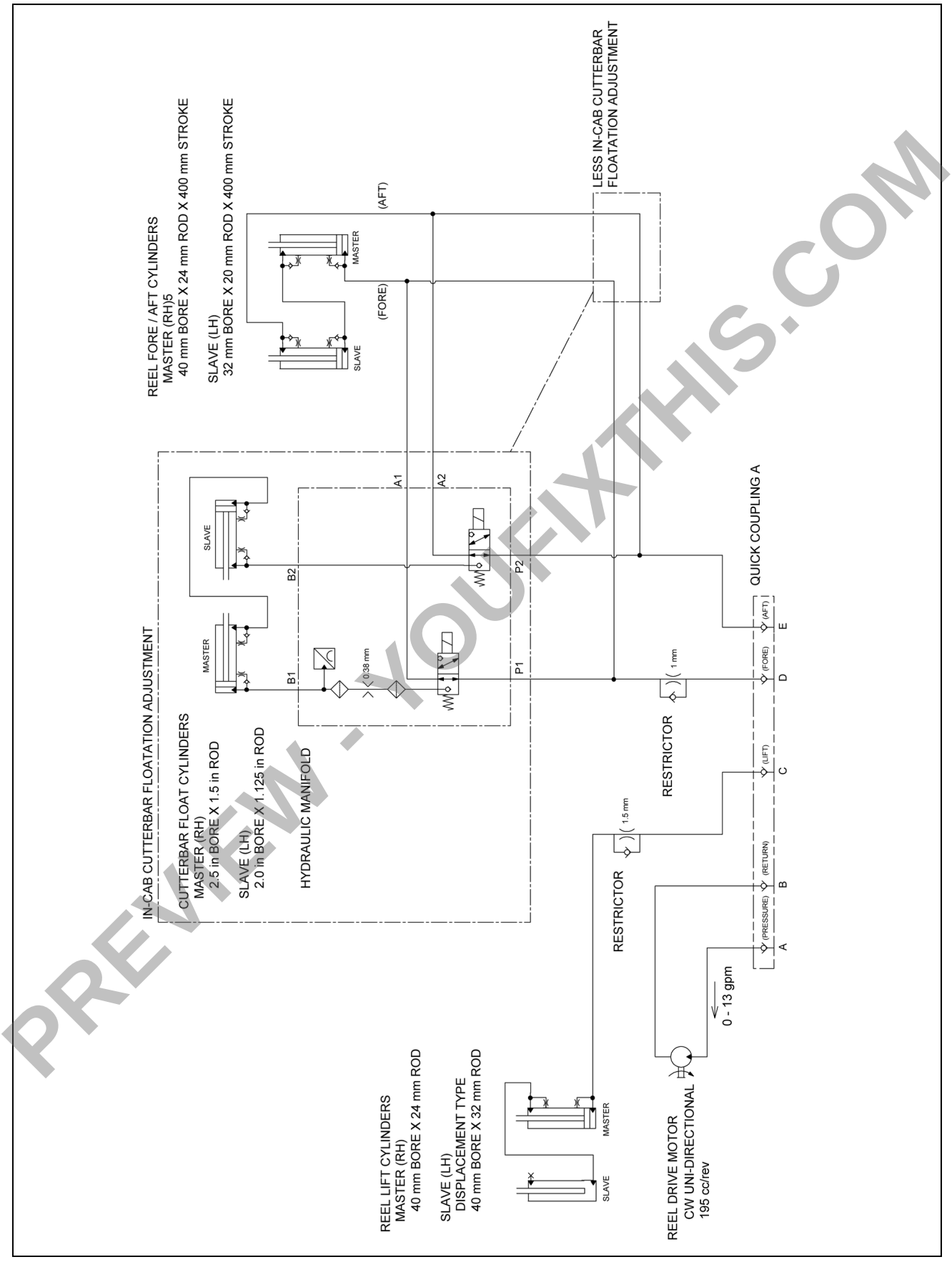


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Hydraulic systems - Hydraulic schema - Hydraulic schematic



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Hydraulic schematic

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Hydraulic systems - Testing - Flex solenoid 1

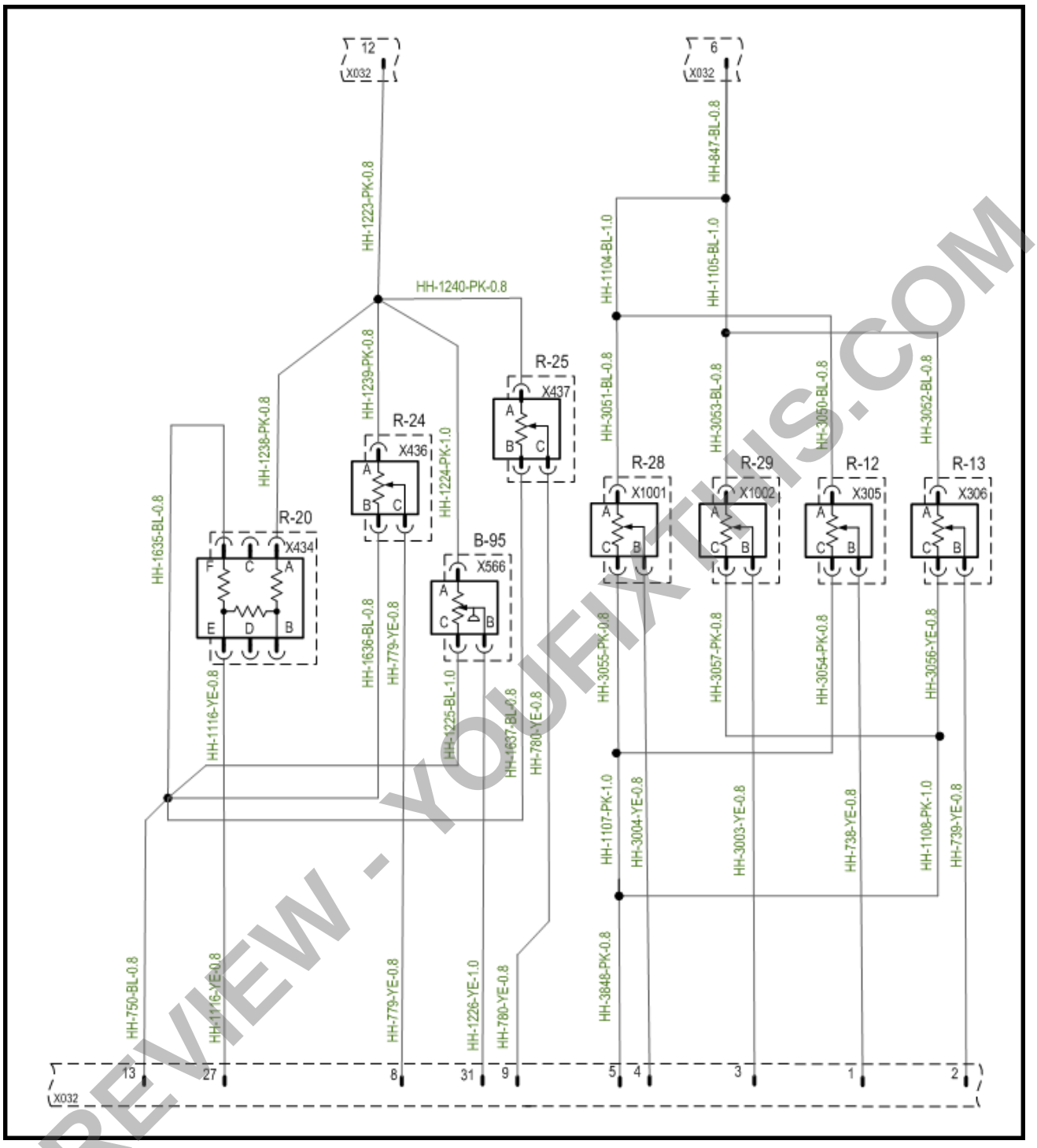
NOTE: *See* ***Electrical system - Overview - Solenoids (55.000)*** *for general solenoid information.*

NOTE: *Use schematics*
Wire harnesses - Electrical schematic frame 02 (55.100)

N°	Test Point	Expected Result	Other Result (Possible Cause)
1	**Condition** Inspect Flex solenoid 1 **L-77** and harness for damage. **Check** Visually check sensor for loose electrical connections, damaged mounting holes, missing hardware etc.	**Result** No visible damage. **Action** Go to test **2**	**Result** Solenoid or harness is damaged. **Action** Replace solenoid or repair harness.
2	**Condition** Disconnect connector **X032** from the combine. **Check** for voltage from the Feeder Harness side of connector **X032** pin 20 and ground.	**Result** **12 V** **Action** Go to test **3**	**Result** **0 V** **Action** There is a problem in the wiring of the combine. See combine service manual for more information.
3	**Condition** Disconnect connector **X522** from the Flex solenoid 1 **L-77**. **Check** for resistance between Flex solenoid 1, pins 1 and 2.	**Result** **8 Ω** **Action** Go to test **4**	**Result** **0 Ω**, or infinite. **Action** Flex solenoid 1 has failed. Replace the solenoid.
4	**Condition** Use **Electrical system - Testing - General Wire Testing (55.000)** to **Check** wire condition between **X032** pin 20 and connector **X522** pin 1.	**Result** No wire problems. **Action** Go to test **5**	**Result** Wire problems are found. **Action** Locate and repair or replace broken wire 711 (Grey) / 713 (Orange) or adjacent wiring.
5	**Condition** Use **Electrical system - Testing - General Wire Testing (55.000)** to **Check** wire condition between **X522**pin 2 and connector **X032** pin 30.	**Result** No wire problems. **Action** The fault may be intermittent. Visually inspect the relevant harnesses and connectors for damage, bent or dislocated pins, corroded terminals or broken wires. Verify that the connectors are fully installed. Flex the harnesses involved to reveal intermittent breaks or shorts in the wiring concerned. If no damage is found, continue operation.	**Result** Wire problems are found. **Action** Locate and repair or replace broken wire 1110/775 (Black) or adjacent wiring.

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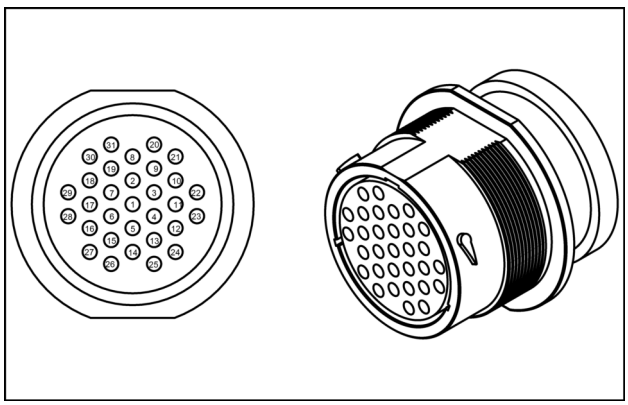
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Wire connectors - Component diagram 01 - Connectors X032 - X436

Connector X032 - Header harness to feeder harness (on combine)

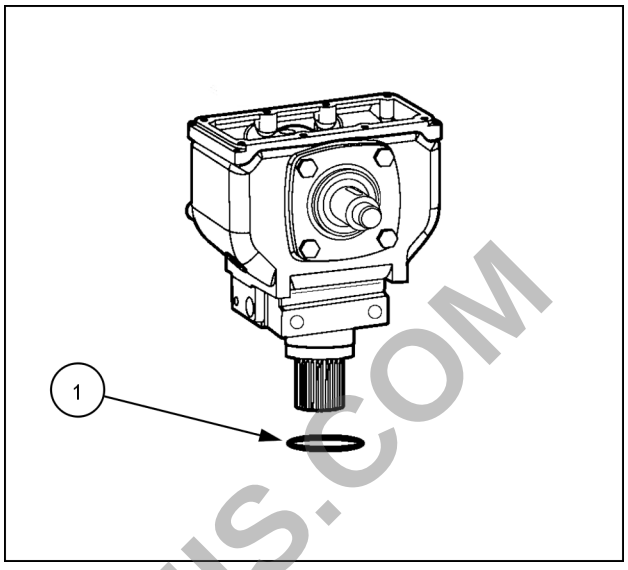
Connector X032 - Feeder harness			
Pin number	Wire number	Circuit reference	Electrical schematics frame
1	738 (YE)	Sense - Left-hand height / tilt sensor	**Wire harnesses - Electrical schematic frame 01 (55.100)**
2	739 (YE)	Sense - Right-hand height / tilt sensor	
3	3003 (YE)	Sense - Right center height sensor	
4	3004 (YE)	Sense - Left center height / tilt sensor	
5	848 (PK)	+5V supply - Height sensors	
6	847 (BL)	Reference ground - Height sensors	
7	-		
8	779 (YE)	Sense - Reel horizontal position sensor	**Wire harnesses - Electrical schematic frame 01 (55.100)**
9	780 (YE)	Sense - Reel vertical position sensor	
10	-		
11	-		
12	1223 (PK)	+5V supply - Header type module, reel position and flex pressure sensors	**Wire harnesses - Electrical schematic frame 01 (55.100)**
13	750 (BL)	Reference ground- Header type module, reel position and flex pressure sensors	
14	-		
15	-		
16	-		
17	-		
18	-		
19	-		
20	713 (OR)	+12V Supply - Flex solenoids	**Wire harnesses - Electrical schematic frame 02 (55.100)**
21	-		
22	613 (PU)	+12V Supply - Left-hand flashing light	**Wire harnesses - Electrical schematic frame 02 (55.100)**
23	-		
24	-		
25	-		
26	-		
27	1116 (YE)	Sense - Header type module	**Wire harnesses - Electrical schematic frame 01 (55.100)**
28	618 (PU)	+12V Supply - Right-hand flashing light	**Wire harnesses - Electrical schematic frame 02 (55.100)**
29	-		
30	775 (BK)	Reference ground - Flex solenoids	**Wire harnesses - Electrical schematic frame 02 (55.100)**
31	1226 (YE)	Sense - Flex pressure sensor	**Wire harnesses - Electrical schematic frame 01 (55.100)**



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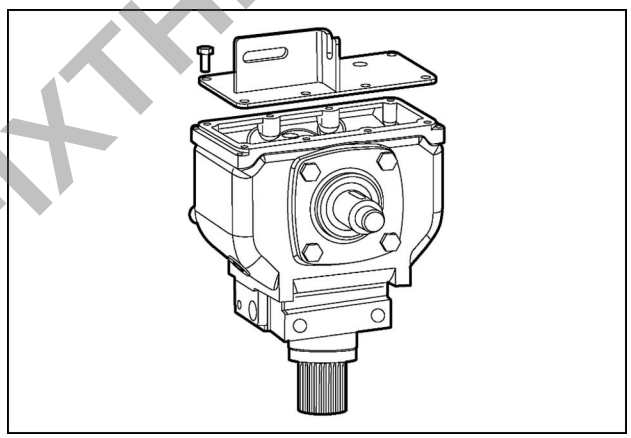
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25. Install oil seal **(1)**.



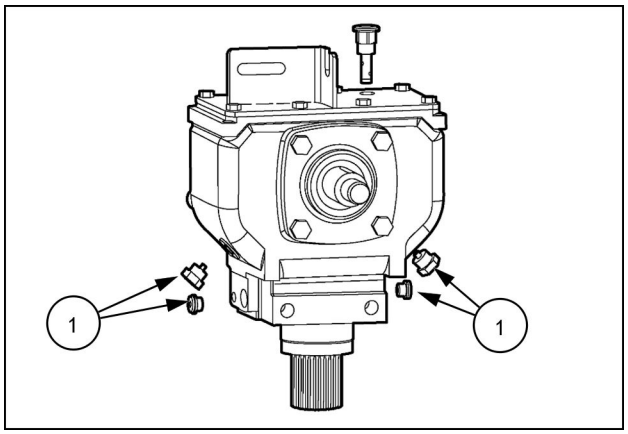
86092338A 15

26. Apply silicone film between housing and cover. Use **LOCTITE® 270** on bolts threads and install cover.
27. Tighten bolts to **24.5 - 31 N·m** (**18 - 23 lb ft**).



86092338 16

28. Install plugs **(1)**.
29. Tighten to **29.5 N·m** (**22 lb ft**).



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30. Fill gearbox with **2.4 l** (**2.5 US qt**) **CASE IH AKCELA GEAR 135 H EP 80W-90**.

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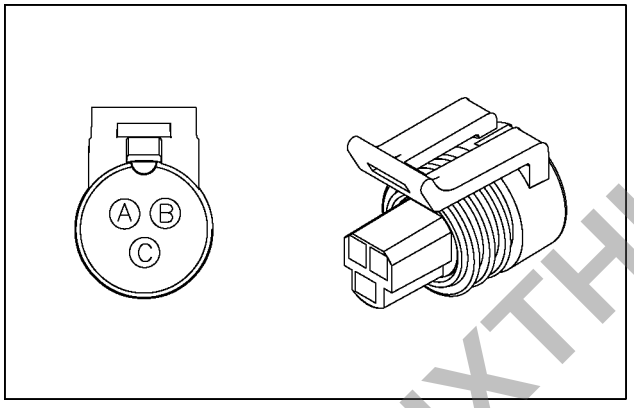
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Wire connectors - Component diagram 02 - Connectors X437 - X1002

Connector X437- Reel vertical position sensor

Connector X437 - Reel vertical position sensor			
Pin number	Wire number	Circuit reference	Electrical schematics frame
A	1240 (PK)	**+5 V**	**Wire harnesses - Electrical schematic frame 02 (55.100)**
B	1637 (BL)	Ground	
C	780 (YE)	Sense	

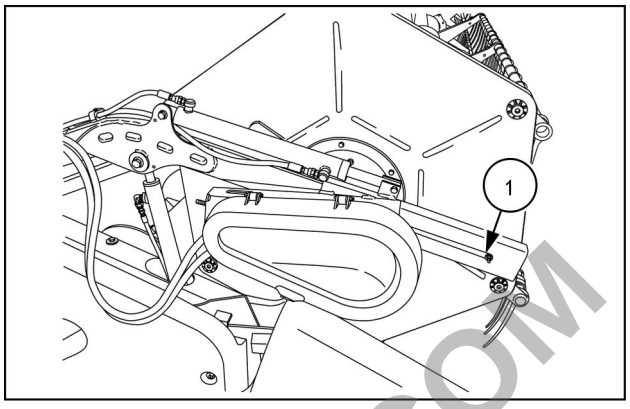


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31. Close the reel drive shield on the right end of the reel.
32. Install the front stop bolt **(1)** on both of the reel arms.

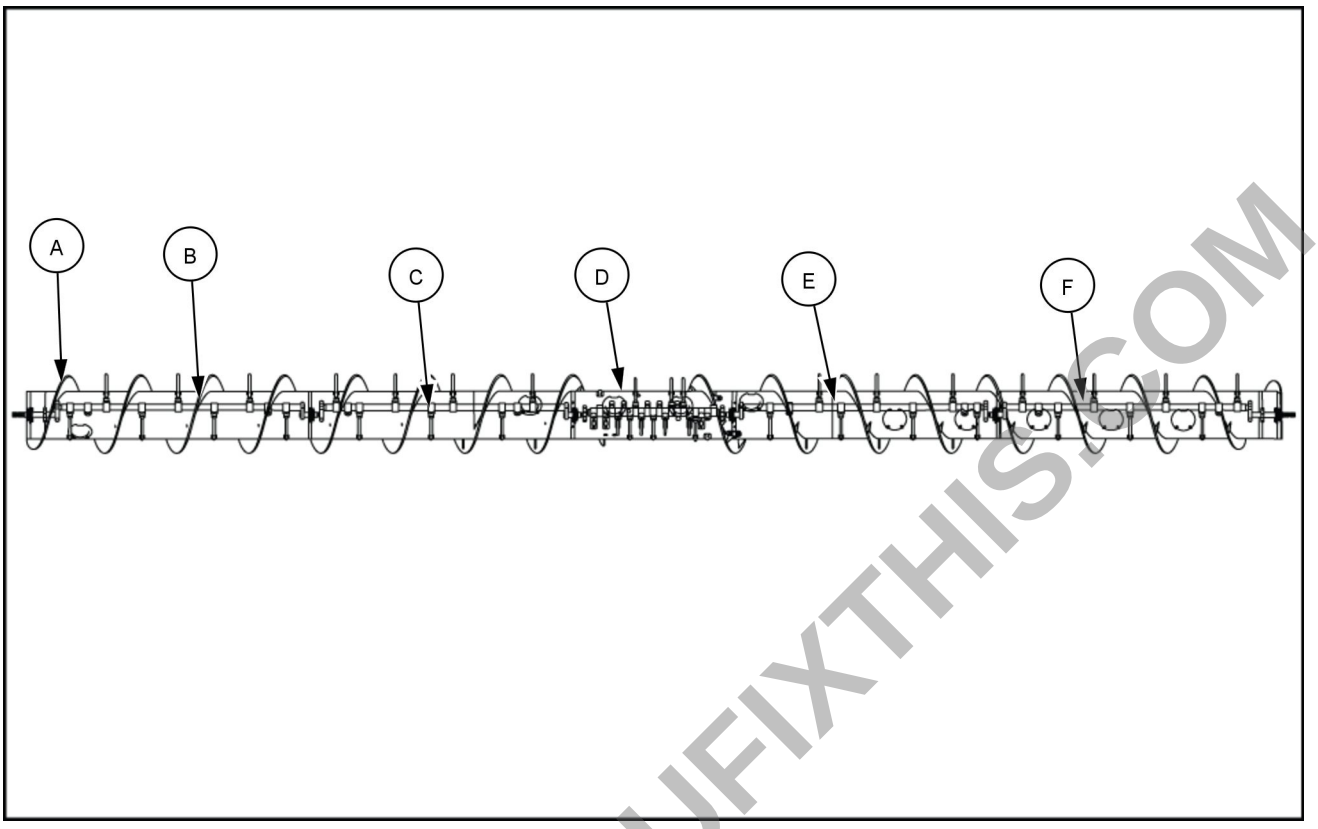


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Retractable finger assembly - Exploded view



93111786 1

Reference	Description
(A)	Right-hand flange of auger
(B)	Right-hand end of auger
(C)	Right-hand center of auger
(D)	Center of auger
(E)	Left-hand side of auger
(F)	Left-hand end of auger

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