



135 Draper Platform



JOHN DEERE

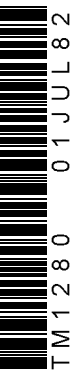
TECHNICAL MANUAL

135
Draper Platform

TM1280 (01JUL82) English

Ottumwa Works
TM1280 (01JUL82)

LITHO IN U.S.A.
ENGLISH



135 DRAPER PLATFORM TECHNICAL MANUAL TM-1280 (JUL-82)

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INTRODUCTION

This technical manual is part of a twin concept of service:

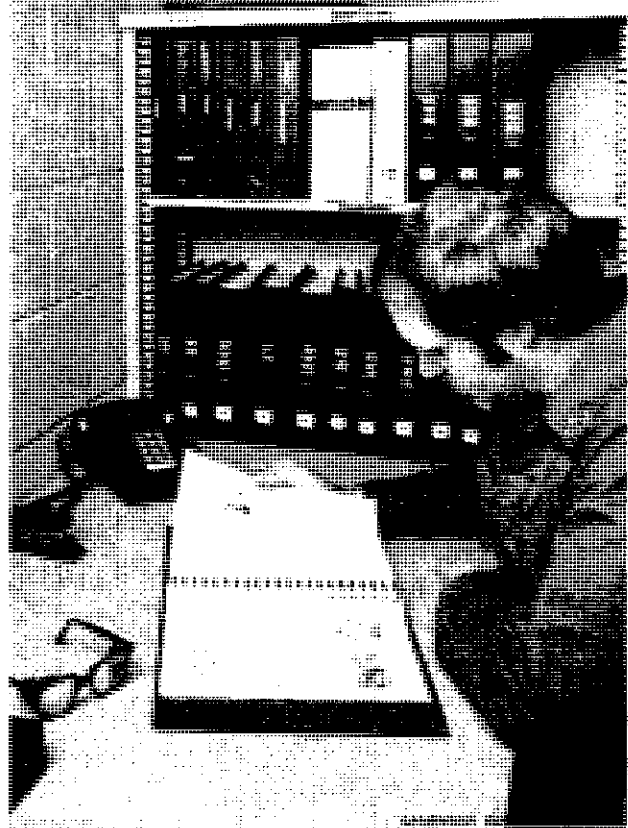
FOS Manuals—for reference

Technical Manuals—for actual service

The two kinds of manuals work as a team to give you both the general background and technical details of shop service.

Fundamentals of Service (FOS) Manuals cover basic theory of operation, *fundamentals* of trouble shooting, *general* maintenance, and *basic* types of failures and their causes. FOS Manuals are for training new people and for reference by experienced technicians.

Technical Manuals are *concise* service guides for a *specific* machine. Technical Manuals are on-the-job guides containing only the vital information needed by an experienced technician.

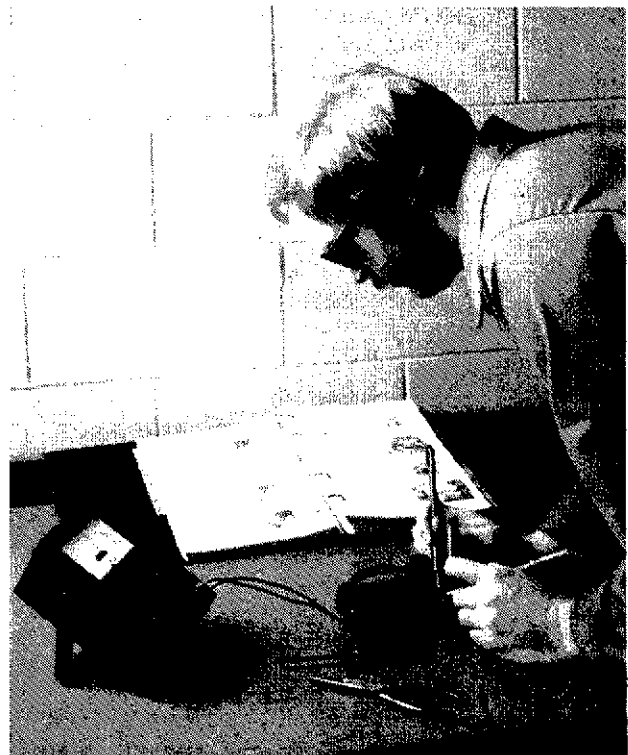


FEATURES OF THIS TECHNICAL MANUAL

- John Deere ILLUSTRATION format emphasizing more detailed pictures and fewer words.
- Instructions and illustrations grouped together in easy-to-use modules.
- Removal and installation groups preceding some repair groups. These groups show how to remove and install components from the machine rather than from major components. They also show how to acquire access to major components of a machine.
- *Exploded views showing parts relationship.*

This technical manual was planned and written for you—an experienced technician. Keep it in a permanent binder in the shop where it is handy. Refer to it whenever in doubt about correct service procedures or specifications.

Using the technical manual as a guide will reduce error and costly delay. It will also assure you the best in finished service work.



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Section 10 GENERAL

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SAFETY MESSAGES



This safety alert symbol and the word **CAUTION** identify important safety messages in this manual and on the platform. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.

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IMPORTANT

The **IMPORTANT** message identifies potential problems which may cause consequential damage to the platform. Following the recommended procedure will instruct the technician how to avoid the problem.

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NOTES

The word *NOTE* is followed by a statement that identifies a qualification or exception to a previous statement. A "NOTE" may also identify nice-to-know information pertinent to, but not directly related to the previous statement.

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USE ADEQUATE SERVICE FACILITIES

Keep the service area clean and dry. Wet or oily floors are slippery. Wet spots can be dangerous when working with electrical equipment.

Make sure the service area is adequately vented.

Periodically check the shop exhaust system for leakage. Engine exhaust gas is dangerous.

Be sure all electrical outlets and tools are properly grounded.

Use adequate light for the job at hand.

Use lifting equipment and safety stands which have adequate strength for the job being performed.

Wear fairly tight clothing.

Know where the first aid kit and fire extinguishers are located, and know how to use them.

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PRACTICE SAFE MAINTENANCE

Before servicing or adjusting the platform or removing material from it always:

1. Disengage all drives.
2. Shut off windrower engine,
3. THEN WAIT until all moving parts have stopped rotating.

Do not leave windrower unattended with platform raised. Always lower it to the ground. When platform is raised for servicing, secure hydraulic stop on each side of the windrower.

Always engage both hydraulic cylinder stops on reel when working on platform with reel raised.

Keep hands, feet and clothing away from moving parts.

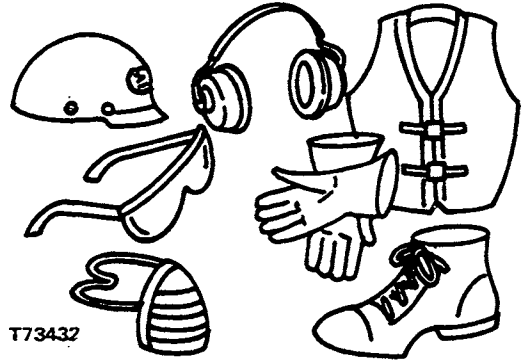
Never attempt to clear obstructions off the platform unless the windrower engine is shut off.

Replace any guards and shields removed for servicing.

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Safety

Wear safety equipment.



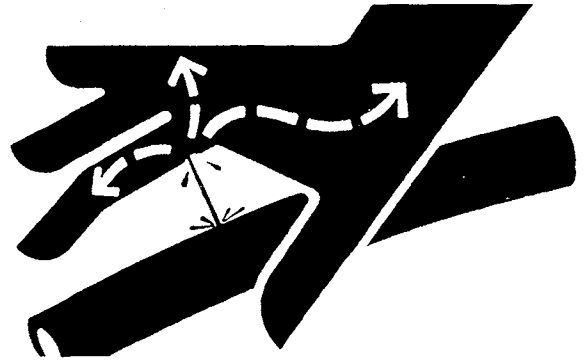
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AVOID HIGH-PRESSURE FLUIDS

Escaping fluid under pressure can penetrate the skin, causing serious injury. Relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject fluids under high pressure. Use a piece of cardboard or paper to search for leaks. Do not use your hand.

If ANY fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type injury or gangrene may result.



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AVOID FIRE HAZARDS

Be prepared if an accident or fire should occur. Know where the first aid kit and the fire extinguishers are located-know how to use them.

Don't smoke while refueling or handling highly flammable material.

Shut off the engine when refueling.

Use care in refueling if the engine is hot.

Don't use open pans of gasoline or diesel fuel for cleaning parts. Use good commercial, nonflammable solvents.

Provide adequate ventilation when charging batteries.

Don't check battery charge by placing metal objects across the posts.

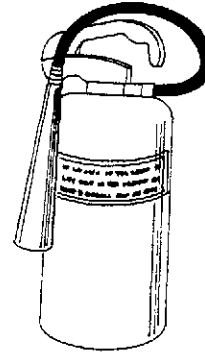
Don't allow sparks or open flame near batteries.,

Don't smoke near battery.

Never check fuel, battery electrolyte, or coolant levels with an open flame.

Never use an open flame to look for leaks anywhere on the equipment.

Never use an open flame as light anywhere on or around the equipment.



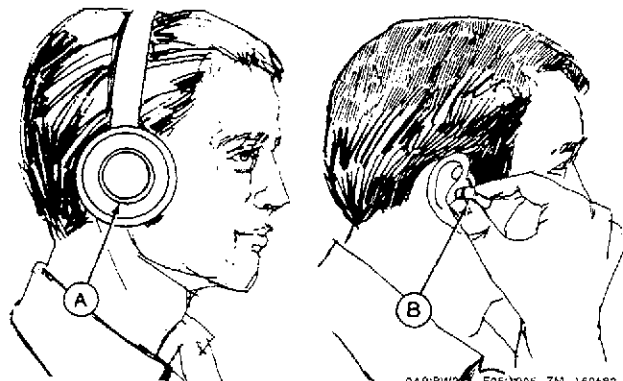
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PROTECT AGAINST NOISE

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device such as earmuffs (A) or earplugs (B) to protect against objectionable or uncomfortable loud noises.



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SPECIFICATIONS AND TORQUES

PLATFORM

WIDTH

Platform 3658 mm (12 ft.)

CUTTERBAR

Type of Drive Enclosed, running in oil
 Speed 730 rpm, 1460 strokes per min.
 Guards Double tine
 Guard Angle Variable, 6 to 12 degrees
 Knives Underserrated standard
 (Overserrated and smooth knives available)

REEL

Type Pickup
 Speed Variable, mechanical 35-66 rpm
 Variable, hydraulic 5-76 rpm

Adjustments:

Vertical 762 mm (30 in.)
 Horizontal 305 mm (12 in.)

CONVEYOR CANVASSES

Drive V-belt
 Draper Tension Spring loaded

SPEED

Platform 122-152 m/min (400-500 ft/min)

PLATFORM CUTTING HEIGHT

Range -102 to 610 mm (-4 to 24 in.)

ANGLE

Platform Variable, 17 to 23 degrees

CANVAS

Distance Between . Variable, 965-1118-1270 mm
 (38-44-50 in.)

HYDRAULIC RESERVOIR 17.4 L (4.6 gal.)

WEIGHT (Less Conditioner) . 810 kg (1800 lbs)

SERIAL NUMBER ... Located on the upper rear
 portion of the frame on
 the left-hand side.

TORQUE CHART

U.S. MEASUREMENT

Bolt Diameter "A"	Bolt Torque in N-m (Lb-Ft)		
	SAE 2	SAE 5	SAE 8
1/4	Not Used	10 (14)	14 (19)
5/16"	Not Used	20 (27)	30 (41)
3/8"	31 (23)	47 (35)	68 (50)
7/16"	47 (35)	75 (55)	108 (80)
1/2"	75 (55)	115 (85)	163 (120)
9/16"	102 (75)	176 (130)	237 (175)
5/8"	142 (105)	231 (170)	325 (240)
3/4"	251 (185)	407 (300)	576 (425)
7/8"	217 (160)	603 (445)	929 (685)
1"	339 (250)	910 (670)	1396 (1030)
1-1/4"	450 (330)	1235 (910)	1979 (1460)

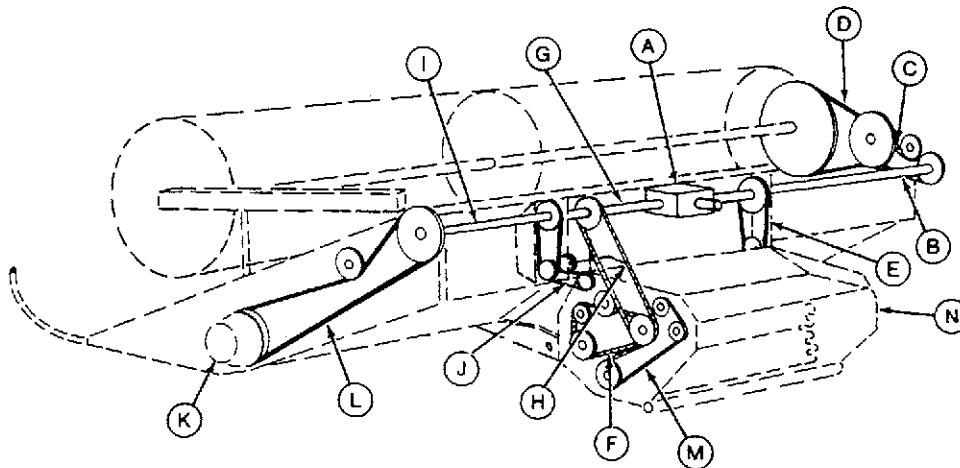
Replace hardware with same strength bolt.

METRIC MEASUREMENT

Bolt Diameter "A"	Bolt Torque in N-m (Lb-Ft)	
	8.8	10.9
5 mm	6 (5)	9 (7)
6 mm	11 (9)	17 (13)
8 mm	28 (20)	40 (30)
10 mm	55 (40)	80 (59)
12 mm	95 (70)	140 (103)
16 mm	235 (173)	350 (258)
20 mm	475 (350)	675 (498)
24 mm	825 (608)	1170 (863)
30 mm	1630 (1201)	2320 (1712)

NOTE: Bolts having lock nuts should be torqued to approximately 65% of amounts shown in above chart.

PLATFORM WITH MECHANICAL REEL DRIVE



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- | | | | |
|--------------------------|---------------------------|-------------------------|--------------------------|
| A—Platform Gear Case | E—Right-Hand Drive Belt | I—Left-Hand Cross shaft | L—Cutterbar Drive Belt |
| B—Right-Hand Cross Shaft | F—Upper Roll Drive Chain | J—Left-Hand Drive Belt | M—Lower Roll Drive Chain |
| C—Reel Drive Chain | G—Conditioner Cross Shaft | K—Cutterbar Drive Case | N—Conditioner |
| D—Reel Drive Belt | H—Conditioner Drive Chain | | |

Power to the draper platform is transmitted from the gear case (A) with right-hand and left-hand cross shafts.

The right-hand cross shaft (B) drives the reel with a roller chain (C) and V-belt combination (D). The roller chain is under tension from an adjustable idler. A spring-loaded idler pulley applies tension to the V-belt. Also, the right-hand draper canvas is driven directly from the cross shaft (B) through a V-belt drive (E).

The hay conditioner rolls are driven by individual roller chains (F) and a triple sprocket. The triple sprocket is driven directly from the conditioner cross shaft (G) by a roller chain (H). All the drive chains have separate adjustable idler sprockets.

The left-hand cross shaft (I) drives the left-hand draper canvas and cutterbar. The left-hand canvas is driven by a V-belt (J). The cutterbar drive case (K) is driven by a V-belt (L) with an adjustable idler pulley.

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SPECIFICATIONS

Item	Measurement	Specifications
Reel Shaft	End Play	0.79 mm (1/32-in.)
Reel Assembly	Vertical Height (Tooth to Cutterbar)	13 mm (1/2-in.)
Reel Drive Belt	Snubber Dimension	3.2 mm (1/8-in.)
Reel Drive chain	Deflection	3.2 mm (1/8-in.)

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NOTES

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DIAGNOSING MALFUNCTIONS

Problem	Possible Cause	Possible Remedy	Page Reference
Crop Loss at Cutterbar			
Shattering of grain ahead of cutterbar.	Excessive agitation of grain heads due to incorrect entry of reel slats into crop.	Set reel so reel slats feed material smoothly to cutterbar and canvases.	20-05-08
	Reel speed not coordinated with ground speed, causing excessive agitation before crop is cut.	Change reel drive to coordinate reel speed with ground speed so reel will move material smoothly and evenly.	See Operator's Manual.
Cut crop building up and falling from front of cutterbar or loss of grain heads at cutterbar.	Ground speed too fast for condition of crop.	Reduce ground speed so reel will not bat crop, causing shattering of grain heads.	See Operator's Manual
	Reel not adjusted low enough for proper delivery of cut crop to canvases.	Set reel low enough to sweep material from cutterbar to canvases.	20-05-08
	Cutting platform too high, cutting stalks too short for proper delivery.	Lower cutting platform so stalks of crop will be long enough for smooth, even feeding and to support windrow.
Poorly formed windrows.	Reel cam set for early release.	Check setting of reel and adjust.	20-05-08
	Ground speed too slow.	See Operator's Manual
	Incorrect forming shield position.	Adjust forming shields for uniform windrows.	See Operator's Manual.
	Worn cutterbar components	Check and replace as necessary.	Section 40.
Bunching windrow.	Incorrect reel location.	Locate for smooth crop delivery.	20-05-08
	Wrong cam angle.	Rotate cam.	20-05-08
	Reel speed too fast.	Slow down reel.	See Operator's Manual
	Forming deflectors too low.	Raise deflectors.	See Operator's Manual.

Reel

Problem	Possible Cause	Possible Remedy	Page reference
Improper Reel Delivery			
Reel wrapping in tangled and weedy crops	Incorrect location and height of reel.	Place reel well ahead and down.	20-05-08
	Reel speed too fast.	Reduce speed of reel to allow weedy crops to fall into platform.
Reel carrying crop over.	Tall grain or nodding varieties of crops catch on reel slats and arms.	Increase width of reel slats with wire screen or canvas for nodding varieties of crops.
	Reel speed too fast.	Reduce speed of reel so crop will not carry over top of reel. Reel should turn just enough faster than ground travel so that crop heads are laid well back on cutting platform.
	Reel height too low.	Raise reel height to reduce amount of crop gathered by reel.	20-05-08
Down crop left uncut.	Incorrect location of reel.	Check horizontal adjustment.	20-05-10
	Ground speed too fast.	See Operator's Manual.
	Reel too slow.	Adjust as necessary.	See Operator's Manual.
Leaf loss or crop damage.	Reel speed not coordinated with ground speed.	Adjust reel speed to crop condition.
	Ground speed too fast for condition of crop.	See Operator's Manual.
Reel hesitation.	Reel running too fast.	Adjust as necessary.	See Operator's Manual.
	Inadequate tension.	Adjust reel drive belt (chain).	20-05-11
	Heavy, lodged material.	Large windrows, slow down.
	Reel too low.	Check horizontal adjustment.	20-05-10

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Reel

Problem	Possible Cause	Possible Remedy	Page Reference
IMPROPER REEL DELIVERY (CONTINUED)			
Reel belts breaking.	Reel running too fast.	Reduce reel speed.	See Operator's Manual.
	Belt idler pulley too tight.	Lubricate pulley. Check for worn bushings.
	V-belt too tight.	Adjust drive belt.	20-05-11.

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REMOVE REEL

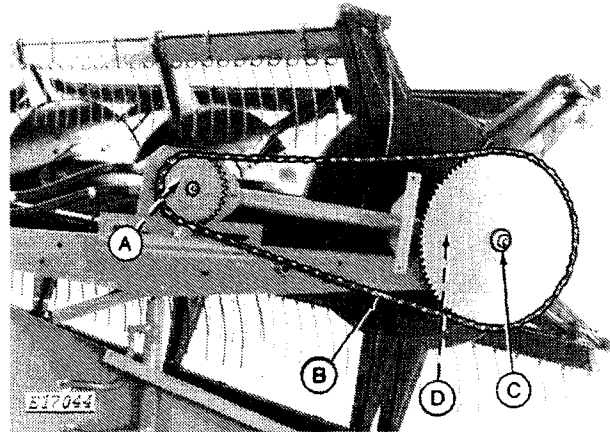
NOTE: Most repairs can be made with the reel in the platform.

1. Remove reel drive shield (Not illustrated).
2. Loosen mounting bolts (A) and slide motor to loosen chain.
3. Remove coupler link (B) and chain.



CAUTION: Secure reel using chain hoist before removing any hardware.

4. Remove cap screw (C) and sprocket.
5. Remove cap screw (D), securing support arm.



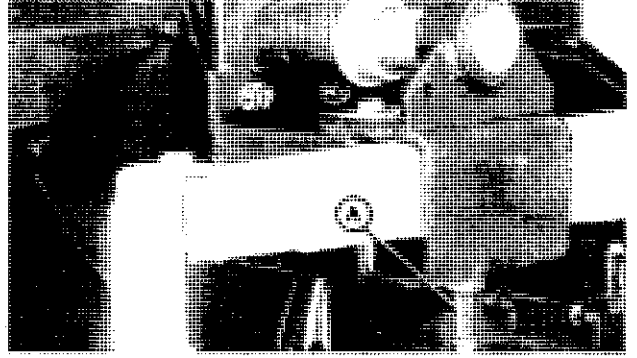
A—Motor Mounting Bolts
(4 Used)
B—Chain Coupler

C—Cap Screw (C)
D—Support Arm Cap Screw

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Reel

6. Loosen lock bolt (A) on each end of reel and remove reel from platform.



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REPAIR REEL

Replacing Tooth

1. Drill out old rivet (A).
2. Replace tooth and secure with new rivet.

Replacing End Tooth

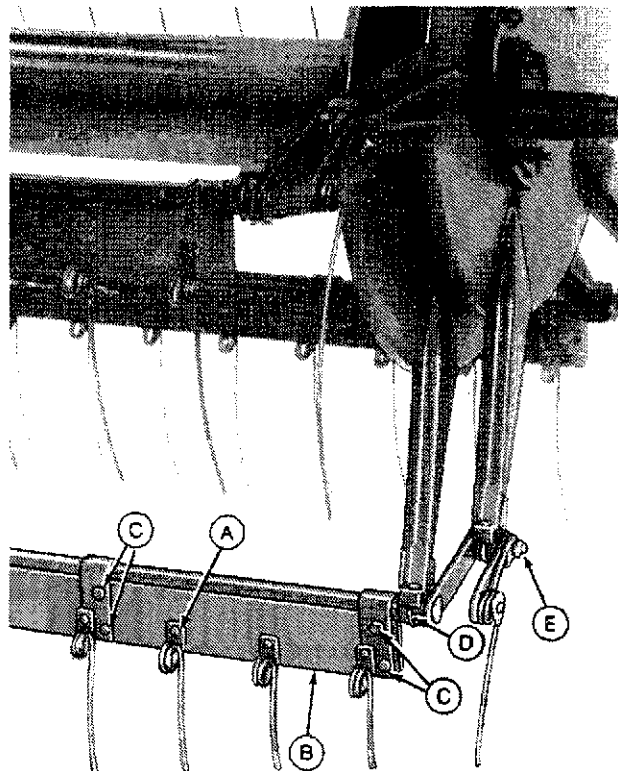
1. Remove cap screw (E) and unscrew broken tooth.
2. Thread on new tooth and replace cap screw. Tighten securely.

Replacing Bat

1. Remove cap screws (C).
2. Replace bat assembly and secure with cap screws.

Replacing Batshaft

1. Remove cap screw and nut (E) at each end of reel.
2. Remove U-bolt (D) at each support and remove shaft.
3. Replace shaft and secure with U-bolts (D) and cap screws (E).



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- A—Tooth Rivet
- B—Bat
- C—Cap Screws and Nuts
- D—U-Bolt
- E—Cap Screw

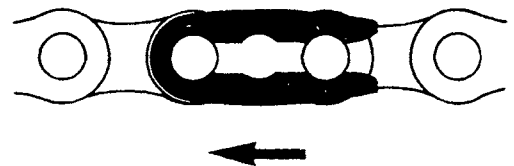
INSTALLATION

Reverse removal procedure to install reel.

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COUPLE THE CHAIN

1. When securing a chain coupler link, be sure the closed end of spring lock faces in the direction the chain will run.
2. See below for adjustments.

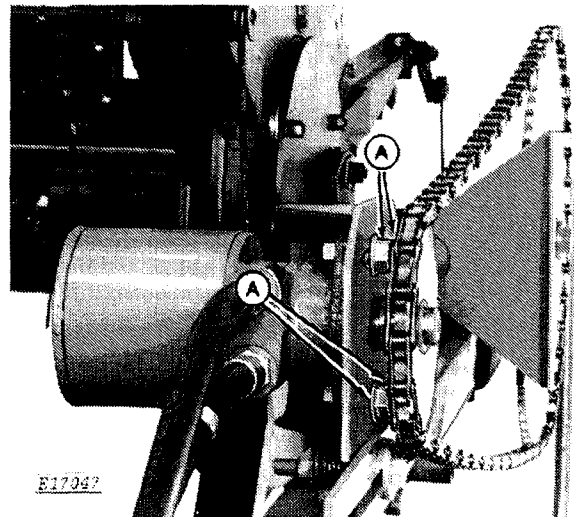


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ADJUST HYDRAULIC DRIVE CHAIN

1. Keep the hydraulic drive chain adjusted to allow 6.4 mm (1/4-in.) midspan movement on the side of the chain opposite the mounting bracket.
2. Loosen four cap screws (A).
3. Slide motor back to tighten chain. Tighten cap screws securely.



E17047

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NOTE:

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ADJUST REEL PARALLEL

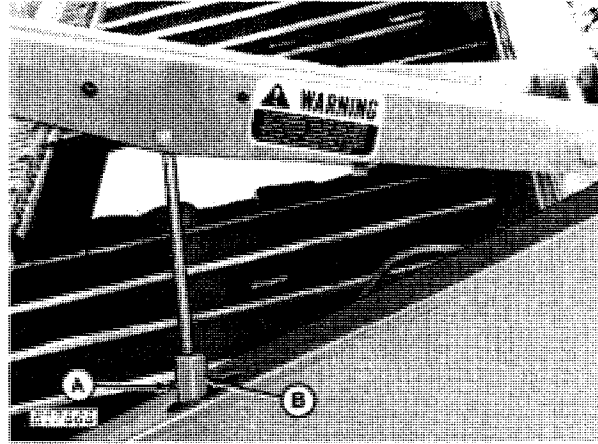
NOTE: In operation, reel height is changed by hydraulic cylinders. The hydraulic lift is a master-slave system that will keep the reel parallel to cutterbar. The master cylinder has an internal phasing port at the top of the stroke and the slave cylinder has a bleed port. If reel does not lift parallel to cutterbar, it will need to be rephased.

If right-hand side is higher than left-hand side:

1. Raise reel as high as possible and hold lever a few seconds against relief.
2. Loosen bleed screw (A) on left-hand cylinder (B) and allow all air to escape. Tighten screw.
3. Repeat holding reel up against relief a few seconds; reel should be in phase.

If left side is higher than right side:

1. Lower reel until right side is completely down, and hold.
2. Left side will lower to place reel in phase.



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ADJUST PICKUP REEL CAM

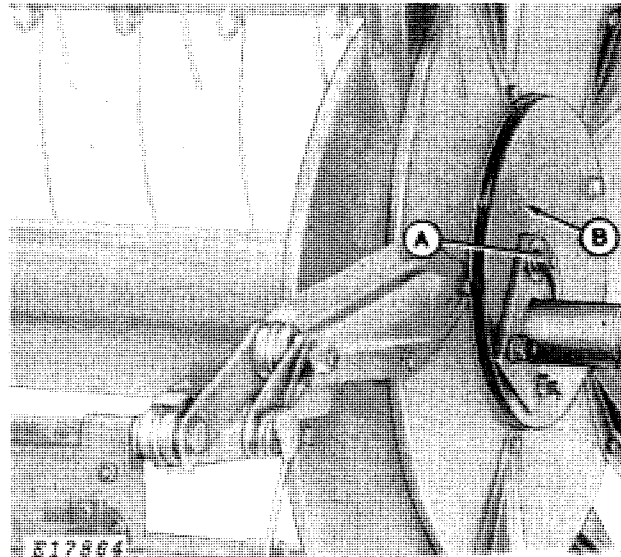
The reel speed will affect the cam adjustment. Fast reel speed will require material to be released sooner than a slow reel speed.

1. To adjust cam, loosen the cam adjusting nuts (A) on each side and rotate cam forward for a late material release, or rearward for early material release. Tighten nuts.

NOTE: Make sure adjusting nuts are in the same position in the adjusting slot on both sides.

2. If cam followers are binding, readjust cams. Check reel drive belt tension, see page 11.

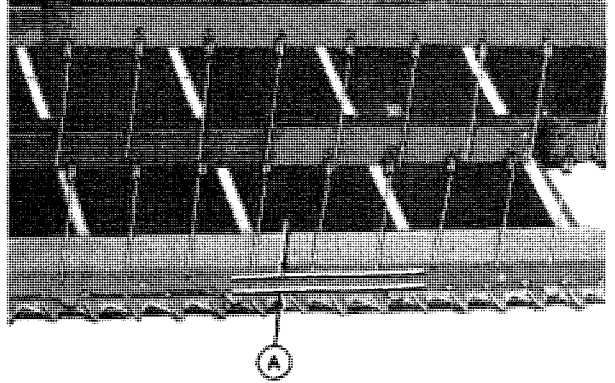
A—Adjusting Nut
B—More Pitch



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Reel

3. Check reel clearance of 13 mm (1/2-in.) (A) above the cutterbar and canvas.



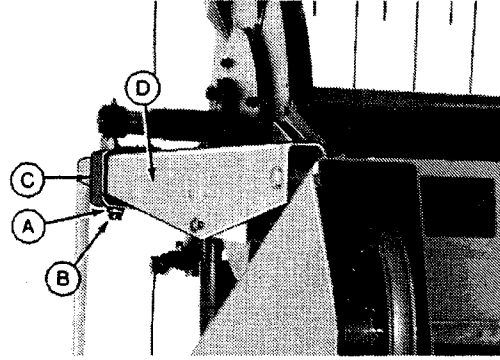
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ADJUST REEL HORIZONTALLY

NOTE: Normal reel position horizontally will be centered above the cutterbar. Down, tangled, or crops leaning away from direction of cut will require reel to be moved forward. Bushy crops will require the rearward position to apply force down on canvas.

1. To adjust reel horizontally, loosen the lock nut (A) and the adjusting bolt (B).
2. Slide the mounting brackets (C) forward or rearward, depending on material being cut.
3. Make sure the adjusting bolt is in the same adjusting hole underneath reel lift arm (D) on both sides. Tighten adjusting bolt (B) and lock nut (A). The adjusting range is 305 mm (12 inches).
4. After reel has been moved horizontally or pickup reel cam adjustment changed, reel clearance to cutterbar and canvas should be checked with reel lift cylinder fully retracted. Clearance should be checked along the entire length of the reel and equal at both ends. See opposite column.

NOTE: After adjusting the reel horizontally, check reel drive belt tension. See page 11. Be sure reel does not contact canvases or the knife.



A—Lock Nut
B—Adjusting Bolt

C—Mounting Bracket
D—Reel Lift Arm