

PETER PINGATORE

1990

OPERATOR'S MANUAL

MacDon

DOUBLE WINDROW AND CENTER DELIVERY DRAPER HEADERS WITH HAY CONDITIONER

for Model 7000 Self-Propelled Windrower



MacDon Industries Ltd.
680 Moray St. Winnipeg, Manitoba
Canada R3J 3S3
(204) 885-5590, Telex 07-57849
Fax (204) 832-7749



INTRODUCTION

Your new Draper Header, teamed with the model 7000 Self Propelled Windrower power unit; is designed to cut, and lay in windrows, a wide variety of grain and specialty crops. Windrowing allows starting the harvest earlier, protects the crop from wind damage, and gives you more flexibility in scheduling combine time.

The header, power unit, and optional hay conditioner provide a package which incorporates many features and improvements in design requested by Owner/Operators like yourself.

NOTE: This manual contains information on the Draper Header and optional Hay Conditioner. It is to be used in conjunction with the Model 7000 Self Propelled Windrower Operator's Manual which provides information on the power unit (tractor).

CAREFULLY READ BOTH MANUALS TO BECOME FAMILIAR WITH ALL RECOMMENDED PROCEDURES BEFORE ATTEMPTING TO UNLOAD, ASSEMBLE OR USE THE WINDROWER.

Use the manual as your first source of information about the machine. If you follow the instructions given in this manual, your Windrower will work well for many years.

The manual contains instructions for "Safety", "Operation", and "Maintenance/Service". In addition "Unloading and Assembly" information is given towards the back of this book.

Use the Table of Contents and the Index to guide you to specific areas. Study the Table of Contents to familiarize yourself with how the material is organized.

Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your Windrower dealer if you need assistance, information, or additional copies of the manuals.

NOTE: Right hand (R/H) and left hand (L/H) designations are determined from the operator's position, facing forward.

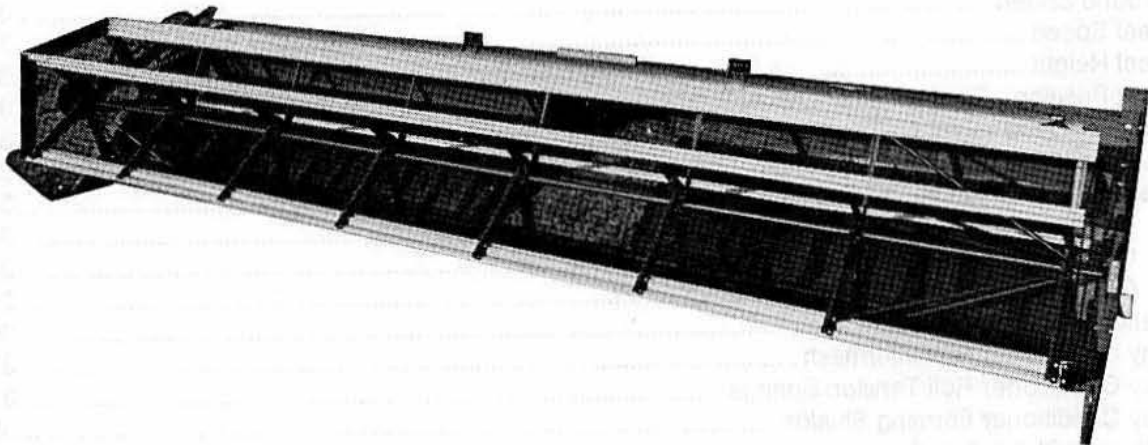


TABLE OF CONTENTS

	PAGE
INTRODUCTION	1
SERIAL NUMBER LOCATIONS	4
SAFETY	
Safety Alert Symbol	5
Signal Words	5
Safety Signs	6
General Farm Safety	7, 8
SPECIFICATIONS	
Draper Header and Hay Conditioner	9
Hardware Torque Specifications	10
Hydraulic Fittings Torque Specifications	11
OPERATION	
Your Responsibilities as an Owner/Operator	12
To the New Operator	12
Preparing the Windrower Tractor	13
Preparing the Header (and Conditioner)	14
Attaching the Header	15 - 17
Attaching the Hay Conditioner	18, 19
Detaching the Hay Conditioner	20
Detaching the Header	21 - 23
Break-In Period	24
Pre-starting Checks: Annual	25
Pre-starting Checks: Daily	26
Operate Correctly	26
Header Drive Clutch	27
Header Lift Cylinder Stops	27
Reel Props	28
Operating Variables	28
Cutting Height	29
Header Lift	29
Cutterbar Height Indicator	29
Skid Shoes	30
Gauge Wheels	30
Divider Angle	30
Ground Speed	31
Reel Speed	32
Reel Height	32
Reel Position - Fore & Aft	32
Draper Speed	33
Cutting Width	33
Delivery Opening - 21, 25 and 30 foot	34
Double Windrowing	34
Changing Delivery Mode	34
Center Delivery Opening Width	35
Header Flotation	36
Hay Conditioner Roll Intermesh	37
Hay Conditioner Roll Tension Springs	37
Hay Conditioner Forming Shields	38
Windrow Characteristics	39, 40
Transporting the Header	41
Storage Procedure	41
MAINTENANCE/SERVICE	
Service Procedures	42
Recommended Lubricants	43
Enclosed Drive Lubricant Capacities	43
Sealed Bearing Installation	43

TABLE OF CONTENTS

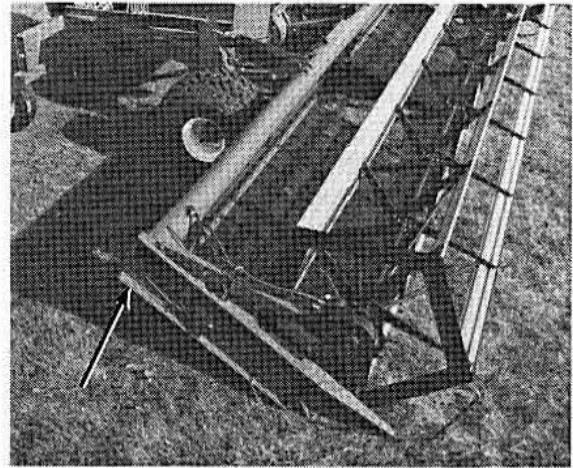
	PAGE
MAINTENANCE/SERVICE (continued)	
Greasing the Header and Conditioner	44, 45
Header Levelling	46
Hydraulic System	
Hydraulic System Safety	47
Hoses and Lines	47
Header Lift Control Valve: Drop Rate	47
Header Lift Control Valve; Relief Pressure	48
Draper Speed Control Valve: Linkage Adjustment	49
Knife and Knife Drive	
Knife Lubrication	50
Knife Sections	50
Knife Removal and Installation	51
Knife Guards	52
Excessive Breakage	52
Knife Clips	52
Knife Drive Belt Tension	53
Wobble Box Mounting Bolts	53
Wobble Box Lubricant	53
Reel and Reel Drive	
Reel Clearance from Cutterbar	54
Reel Drive Chain Tension	54
Reel Drive Chain Lubrication	54
Drapers	
Draper Care	55
Draper Tracking	55, 56
Drive Roller Adjustment	57
Draper Tension Adjustment	57
Right Hand Shifting Deck to Short Deck Clearance	58
Replacing Drapers	58
Hay Conditioner	
Hay Conditioner Drive Chains Lubrication	59
Hay Conditioner Drive Chains Tension	59
Hay Conditioner Roll Timing	59
Maintenance Schedule	60, 61
Maintenance Record	62
TROUBLE SHOOTING	63 - 67
OPTIONS AND ATTACHMENTS	
Pick-Up Reel	68
Skid Shoes	68
Gauge Wheels	69
UNLOADING AND ASSEMBLY	
Prepare to Unload	70
Unloading Equipment Requirements	70
Unload Header	71
Lower Header	72
Header Support Stand	72
Install Breather in Wobble Box	72
Install Driveline	73
Assemble Bat Reel	73 - 76
Install Drapers	77
Install End Deflectors	78
Bleed Hydraulic System	79
Assemble Conditioner Forming Shields	80
Assemble Conditioner Support Chain	80
INDEX	81, 82

SERIAL NUMBER LOCATIONS

Record the serial numbers in the space provided.

Draper Header: _____

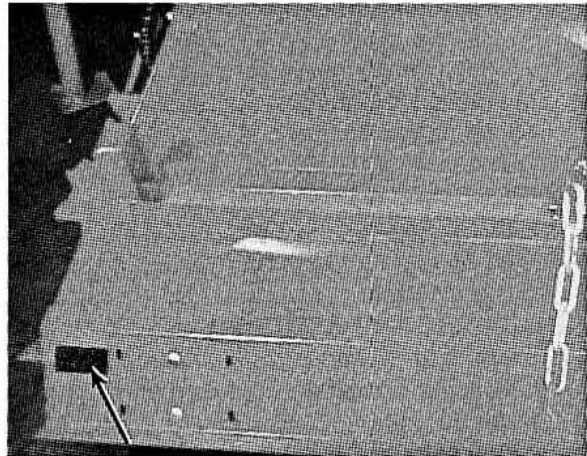
Plate is located on right hand end sheet,
below main tube.



DRAPER HEADER SERIAL PLATE LOCATION

Hay Conditioner: _____

Plate is located at left end of rear shield.



HAY CONDITIONER SERIAL PLATE LOCATION

NOTE: When ordering parts and service, be sure
to give your dealer the complete and
proper serial number.

SAFETY

SAFETY ALERT SYMBOL



This safety alert symbol indicates important safety messages in this manual and on safety signs on the header.

This symbol means: **ATTENTION!
BECOME ALERT!
YOUR SAFETY IS INVOLVED!**

Carefully read and follow the safety message accompanying this symbol.

Why is SAFETY important to you?

3 BIG REASONS

- ACCIDENTS DISABLE AND KILL
- ACCIDENTS COST
- ACCIDENTS CAN BE AVOIDED

SIGNAL WORDS

Note the use of the signal words DANGER, WARNING and CAUTION with safety messages. The appropriate signal word for each message has been selected using the following guidelines:

 **DANGER**

- an immediate and specific hazard or forbidden practice which **WILL** result in severe personal injury or death if the message is not followed.

 **WARNING**

- a specific hazard or unsafe practice which **COULD** result in severe personal injury or death if the message is not followed.

 **CAUTION**

- unsafe practice which **COULD** result in personal injury if the message is not followed, or a reminder of good safety practices.

SAFETY

SAFETY SIGNS

- The safety signs reproduced below appear on the header at the locations listed.
- Keep safety signs clean and legible at all times.
- Replace safety signs that are missing or become illegible.
- If original parts on which a safety sign was installed are replaced, be sure the repair part also bears the current safety sign.
- Safety signs are available from your Dealer Parts Department.

To install safety signs:

1. Be sure the installation area is clean and dry.
2. Decide on the exact position before you remove the backing paper.
3. Remove the smaller portion of the split backing paper.
4. Place the sign in position and slowly peel back the remaining paper, smoothing the sign as it is applied.
5. Small air pockets can be smoothed out or pricked with a pin.



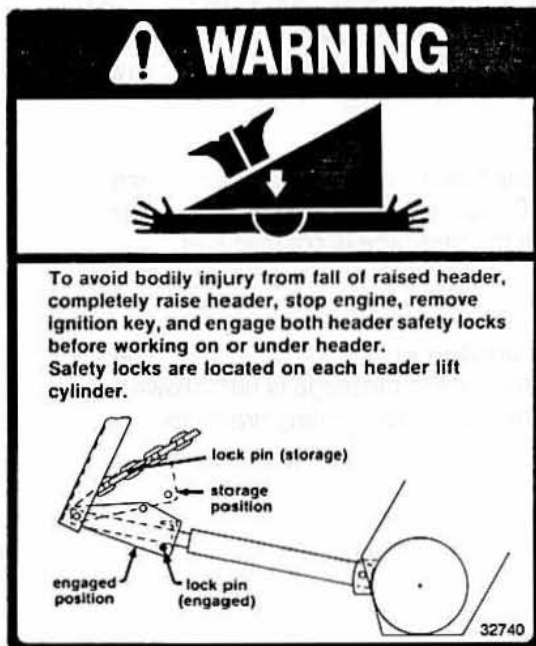
LEFT HAND SHIELD



DRIVE SHIELDS



DRIVELINE



HEADER BACK TUBE



LEFT AND RIGHT END FRAMES

SAFETY



GENERAL SAFETY

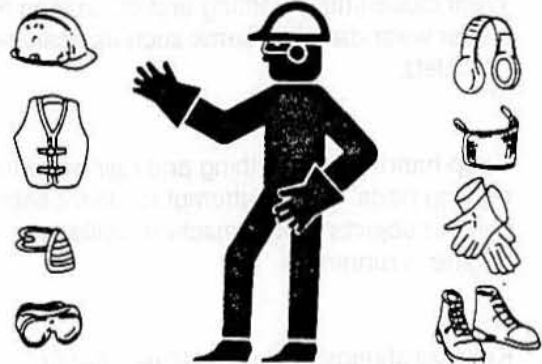
The following are general farm safety precautions that should be part of your operating procedure for all types of machinery.

1. Protect Yourself

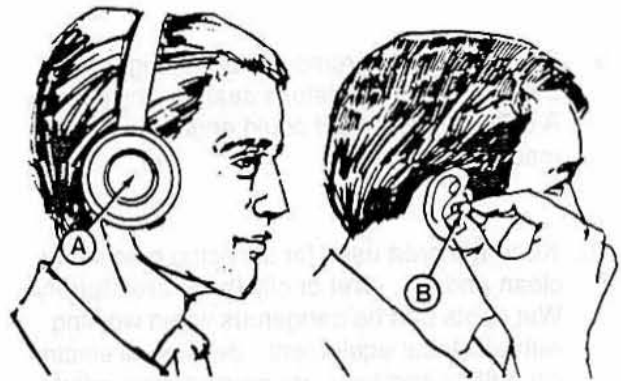
When assembling, operating and servicing machinery, wear all the protective clothing and personal safety devices that **COULD** be necessary for the job at hand. Don't take chances.

You may need:

- a hard hat
- protective shoes with slip resistant soles
- protective glasses or goggles
- heavy gloves
- wet weather gear
- respirator or filter mask
- hearing protection. Be aware that prolonged exposure to loud noise can cause impairment or loss of hearing. Wearing a suitable hearing protective device such as ear muffs (A) or ear plugs (B) protects against objectionable or loud noises.



PROTECT YOURSELF



PROTECT AGAINST NOISE

2. Provide a first-aid kit for use in case of emergencies.
3. Keep a fire extinguisher on the machine. Be sure the extinguisher is properly maintained and be familiar with its proper use.
4. Keep young children away from machinery at all times.



BE PREPARED FOR EMERGENCIES

SAFETY



GENERAL SAFETY (continued)

5. Wear close-fitting clothing and cover long hair. Never wear dangling items such as scarves or bracelets.
6. Keep hands, feet, clothing and hair away from moving parts. Never attempt to clear obstructions or objects from a machine while the engine is running.
7. Keep all shields in place. Never alter or remove safety equipment.
8. Do not substitute parts, especially safety related, that may not meet strength or design requirements of the manufacturer.
9. Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.
10. Keep the area used for servicing machinery clean and dry. Wet or oily floors are slippery. Wet spots can be dangerous when working with electrical equipment. Be sure all electrical outlets and tools are properly grounded.
11. Use adequate light for the job at hand.
12. Keep machinery clean. Straw and chaff on a hot engine are a fire hazard. Do not allow oil or grease to accumulate on service platforms, ladders or controls. Clean machines before storage.
13. Never use gasoline, naphtha or any volatile material for cleaning purposes. These materials may be toxic and/or flammable.
14. When storing machinery cover sharp or extending components to prevent injury from accidental contact.



NEVER WEAR LOOSE
OR DANGLING CLOTHES



KEEP AWAY FROM MOVING PARTS



KEEP SERVICE AREA
CLEAN AND DRY

SPECIFICATIONS

DRAPER HEADER:

OVERALL WIDTH	Nominal (12 ft, 15 ft etc.) plus 10 ¼ in. (260 mm)
KNIFE DRIVE	Wobble Box (enclosed oil bath)
KNIFE SPEED	1450 S.P.M. (except 30 ft. - 1324 S.P.M.)
KNIFE TYPE	Over-serrated
DELIVERY OPENING WIDTH between rollers	
12, 15, 18 ft.	39.8" (1010 mm)
21 ft.	43" (1090 mm), 50.5" (1280 mm), 58" (1470 mm)
25, 30 ft.	49" (1240 mm), 56.5" (1430 mm), 64" (1620 mm)
DELIVERY OPENING HEIGHT at 8" (200 mm) cutting height	
12, 15, 18 ft.	36" (915 mm)
21, 25, 30 ft.	34.5" (880 mm)
DECK SHIFT	Hydraulic (where applicable)
DRAPER DRIVE	Hydraulic
DRAPER SPEED	0-900 RPM (on roller), 0-530 ft./min. (161 m/min.)
variable from cab	
REEL TYPE	5 Bat Metal (Standard) Cam Action Pick-up Reel (Optional)
REEL DRIVE	Hydraulic
REEL SPEED	Approx. 10-50 RPM
variable from cab	
CUTTERBAR RANGE	2" (50 mm) below ground to 35" (890 mm) above ground (measured to guard tip)
DRAPER ANGLE at 8" (200 mm) cutting height	
12, 15, 18 ft.	18°
21, 25, 30 ft.	13°
WEIGHT (with bat reel)	
12 ft.	1480 lbs. (670 kg)
15 ft.	1600 lbs. (725 kg)
18 ft.	1850 lbs. (840 kg)
21 ft.	2200 lbs. (1000 kg)
25 ft.	2525 lbs. (1145 kg)
30 ft.	2850 lbs. (1295 kg)

HAY CONDITIONER:

TYPE	Crimper - Intermeshing Steel Rolls, Header Mounted
ROLL WIDTH	54" (1370 mm)
ROLL DIAMETER	8" (200 mm)
ROLL SPEED	850 RPM

(SPECIFICATIONS AND DESIGN ARE SUBJECT TO CHANGE WITHOUT
NOTICE OR OBLIGATION TO REVISE UNITS PREVIOUSLY SOLD.)

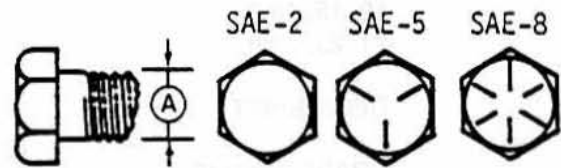
TORQUE SPECIFICATIONS

CHECKING BOLT TORQUE

The tables shown below give correct torque values for various bolts and capscrews. Tighten all bolts to the torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt torque chart as a guide. Replace hardware with the same strength bolt.

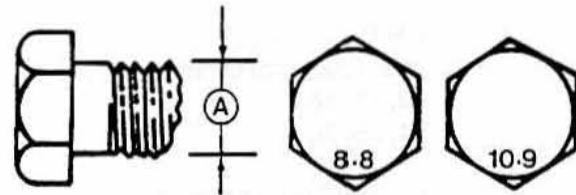
ENGLISH TORQUE SPECIFICATIONS

Bolt Diameter "A"	Bolt Torque *					
	SAE 2		SAE 5		SAE 8	
	N.m	(lb-ft)	N.m	(lb-ft)	N.m	(lb-ft)
1/4"	8	(6)	12	(9)	17	(12)
5/16"	13	(10)	25	(19)	36	(27)
3/8"	27	(20)	45	(33)	63	(45)
7/16"	41	(30)	72	(53)	100	(75)
1/2"	61	(45)	110	(80)	155	(115)
9/16"	95	(70)	155	(115)	220	(165)
5/8"	128	(95)	215	(160)	305	(220)
3/4"	225	(165)	390	(290)	540	(400)
7/8"	230	(170)	570	(420)	880	(650)
1"	345	(225)	850	(630)	1320	(970)



METRIC TORQUE SPECIFICATIONS

Bolt Diameter "A"	Bolt Torque			
	8.8		10.9	
	N.m	(lb-ft)	N.m	(lb-ft)
M3	.5	(.4)	1.8	(1.3)
M4	3	(2.2)	4.5	(3.3)
M5	6	(4)	9	(7)
M6	10	(7)	15	(11)
M8	25	(18)	35	(26)
M10	50	(37)	70	(52)
M12	90	(66)	125	(92)
M14	140	(103)	200	(148)
M16	225	(166)	310	(229)
M20	435	(321)	610	(450)
M24	750	(553)	1050	(774)
M30	1495	(1103)	2100	(1550)
M36	2600	(1917)	3675	(2710)



Torque figures indicated above are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or capscrews unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

* Torque value for bolts and capscrews are identified by their head markings.

TORQUE SPECIFICATIONS

TIGHTENING O-RING FITTINGS *

1. Inspect O-ring and seat for dirt or obvious defects.
 2. On angle fittings, back the lock nut off until washer bottoms out at top of groove.
 3. Hand tighten fitting until back-up washer or washer face (if straight fitting) bottoms on face and O-ring is seated.
 4. Position angle fittings by unscrewing no more than one turn.
 5. Tighten straight fittings to torque shown.
 6. Tighten angle fittings to torque shown while holding body of fitting with a wrench.
- * The torque values shown are based on lubricated connections as in reassembly.

Thread Size (in.)	Nut Size Across Flats (in.)	Torque Value*		Recommended Turn to Tighten (After Finger Tightening)	
		(N.m)	(lb-ft)	(Flats)	(Turns)
3/8	1/2	8	6	2	1/3
7/16	9/16	12	9	2	1/3
1/2	5/8	16	12	2	1/3
9/16	11/16	24	18	2	1/3
3/4	7/8	46	34	2	1/3
7/8	1	62	46	1-1/2	1/4
1-1/6	1-1/4	102	75	1	1/6
1-3/16	1-3/8	122	90	1	1/6
1-5/16	1-1/2	142	105	3/4	1/8
1-5/8	1-7/8	190	140	3/4	1/8
1-7/8	2-1/8	217	160	1/2	1/12

TIGHTENING FLARE TYPE TUBE FITTINGS *

1. Check flare and flare seat for defects that might cause leakage.
 2. Align tube with fitting before tightening.
 3. Lubricate connection and hand tighten swivel nut until snug.
 4. To prevent twisting the tube(s), use two wrenches. Place one wrench on the connector body and with the second tighten the swivel nut to the torque shown.
- * The torque values shown are based on lubricated connections as in reassembly.

Tube Size OD (in.)	Nut Size Across Flats (in.)	Torque Value*		Recommended Turns to Tighten (After Finger Tightening)	
		(N.m)	(lb-ft)	(Flats)	(Turns)
3/16	7/16	8	6	1	1/6
1/4	9/16	12	9	1	1/6
5/16	5/8	16	12	1	1/6
3/8	11/16	24	18	1	1/6
1/2	7/8	46	34	1	1/6
5/8	1	62	46	1	1/6
3/4	1-1/4	102	75	3/4	1/8
7/8	1-3/8	122	90	3/4	1/8

OPERATION

YOUR RESPONSIBILITIES AS AN OWNER/OPERATOR



CAUTION:

1. It is your responsibility to read and understand this manual and the Windrower Operator's Manual completely before operating the header. Contact your dealer if an instruction is not clear to you.
2. Follow all safety messages in the manual and on safety signs on the machine.
3. Remember that **YOU** are the key to safety. Good safety practices protect you and the people around you.
4. Before allowing anyone to operate the machine, for however short a time or distance, make sure they have been instructed in its safe and proper use.
5. Review the manual and all safety related items with all operators annually.
6. Be alert for other operators not using recommended procedures or not following safety precautions. Correct these mistakes immediately, before an accident occurs.
7. Do not modify the machine. Unauthorized modifications may impair the function and/or safety and affect machine life.
8. The safety information given in this manual does not replace safety codes, insurance needs, or laws governing your area. Be sure your machine meets the standards set by these regulations.



READ THE OPERATOR'S MANUAL



FOLLOW SAFETY RULES

TO THE NEW OPERATOR


It's natural for an operator to be anxious to get started with a new machine. Please take the time to familiarize yourself with the header by reading the Operator's Manuals and safety signs before attempting operation.

OPERATION

PREPARING THE WINDROWER TRACTOR

The following instructions are related specifically to preparing the tractor unit for the draper header.

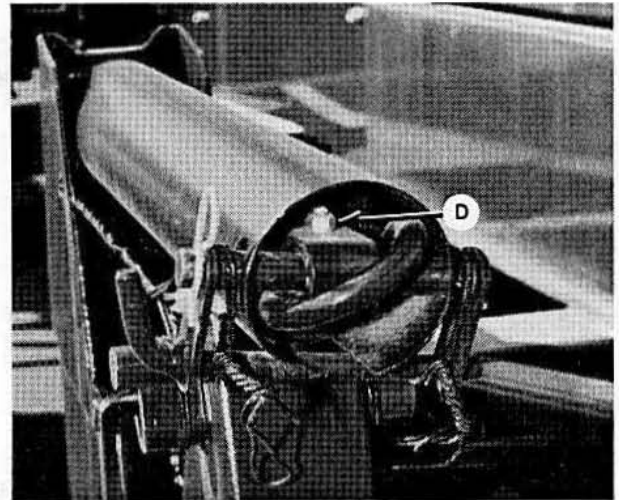
For other tractor preparation, see Windrower Operator's Manual.

1.  **CAUTION: For increased tractor stability, add weights to weight bar at rear of tractor.**

- 12 ft. to 21 ft. headers - not required
- 25 ft. header - 150 lbs. (70 kg)
- 30 ft. header - 350 lbs. (160 kg)

Additional weight may be required in hilly areas.

2. For 12 and 15 ft. headers, remove bolt (D), both sides, to release inner float springs, allowing more float range for these lighter headers.

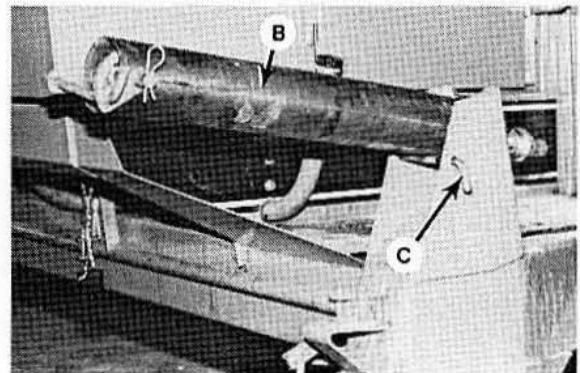


DISCONNECT INNER FLOAT SPRINGS
12 AND 15 FT. HEADERS

3. For 30 ft. headers only, if a pick-up reel is to be installed, it will be necessary to add an "Auxiliary Float Spring Kit" to the tractor to achieve required float.

Installation instructions are included with the kit, available from your Windrower dealer.

4. Support float springs (B) with header retainer pins (C) to avoid interference during hook-up.

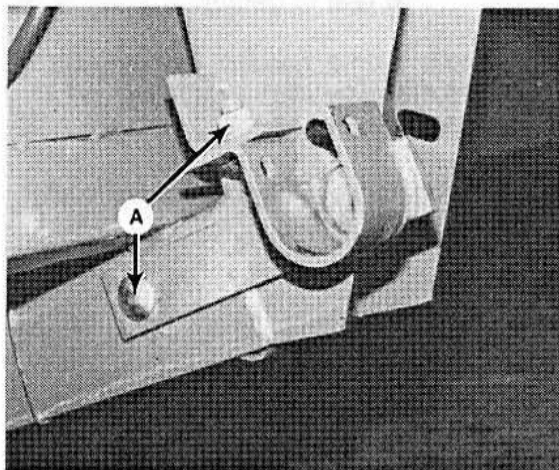


SUPPORT FLOAT SPRINGS

OPERATION

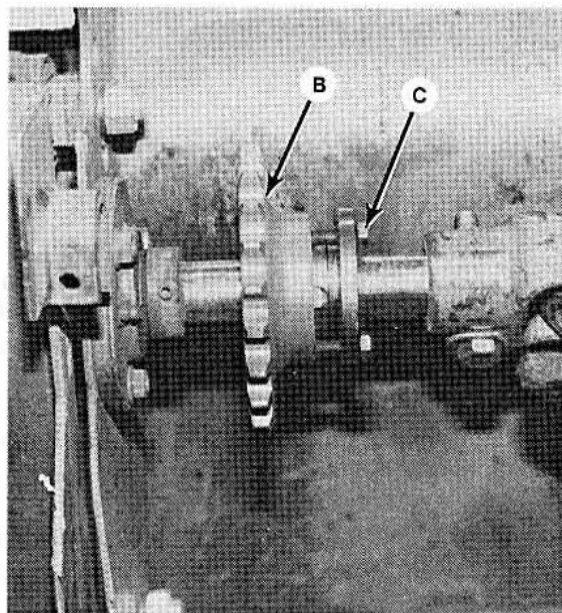
PREPARING THE HEADER (AND CONDITIONER)

1. Lubricate the header and conditioner completely and check the oil level of the knife drive wobble box. See Maintenance/Service section.
2. Ensure wobble box breather has been installed in place of plug. If not, see your Windrower dealer; obtain and install breather before operating header.
3. Check for proper assembly and adjustment and make sure all bolts are tightened securely.
4. Check the tension of the knife drive belt and adjust if required. See Maintenance/Service section.
5. If hay conditioner is to be attached, install right support bracket at inside of header right lift leg with 5/8 bolts (A).



INSTALL SUPPORT BRACKET AT RIGHT HEADER LEG (HAY CONDITIONER)

6. If hay conditioner is to be attached, install drive sprocket (B) on header drive shaft at left leg. When conditioner is attached, install chain and align sprockets, then tighten bolts (C) to secure the position.



INSTALL SPROCKET ON HEADER DRIVE SHAFT (HAY CONDITIONER)

OPERATION

ATTACHING THE HEADER

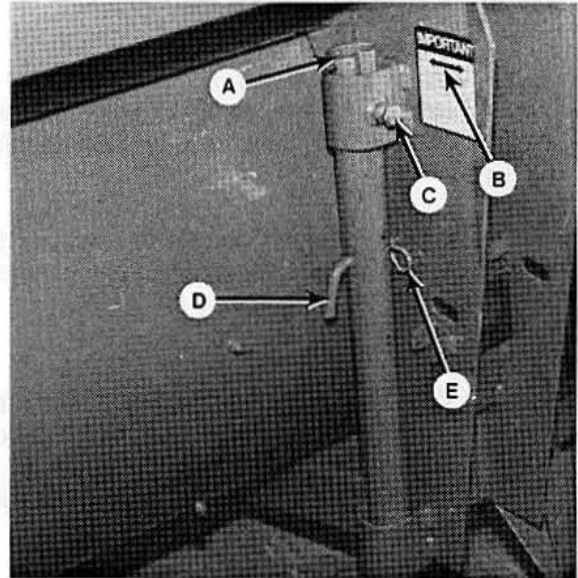


CAUTION: Do not carry anything on the tractor linkage except the headers designed for use with it.

1. With cutterbar blocked 6" (150 mm) off ground, set support stand so that top of stand tube (A) is in line with arrow(B) on stand location decal. Secure by turning bolt (C) into groove in stand tube.



WARNING: Be sure to properly install "L" pin (D) and hairpin (E), as shown, to prevent header from falling to the ground should bolt (C) be accidentally loosened.



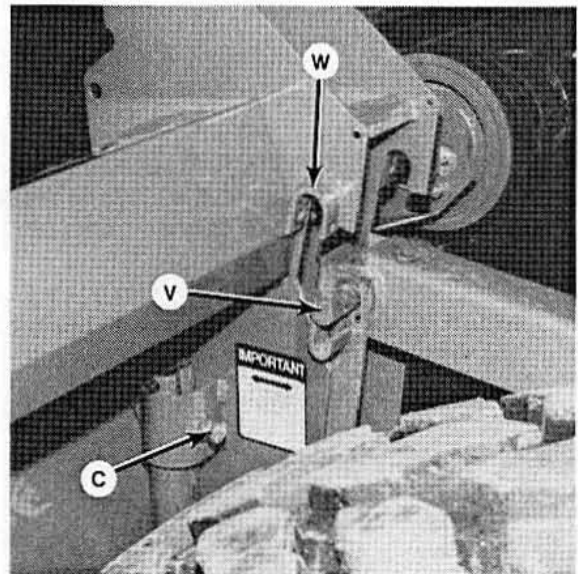
HEADER SUPPORT STAND

2. Retract header lift cylinders as follows:

- Be sure area is clear of bystanders, then start engine.
- Slowly drive tractor straight forward until tractor lift linkages enter header legs.
- Depress toe of header lift (extreme right) pedal and continue slowly forward, pushing header lift cylinders until fully retracted.
- Be careful not to push header forward.
- Release header lift pedal and back tractor away slightly to allow lift linkages to drop.

3. Slowly drive tractor straight forward again until pins (V) on lift channels are directly under lugs (W) on header legs.

4. Stop engine and remove key from ignition. Carefully loosen bolt (C), allowing header to lower until pins (V) engage lugs (W).



ALIGN LIFT LINKAGE

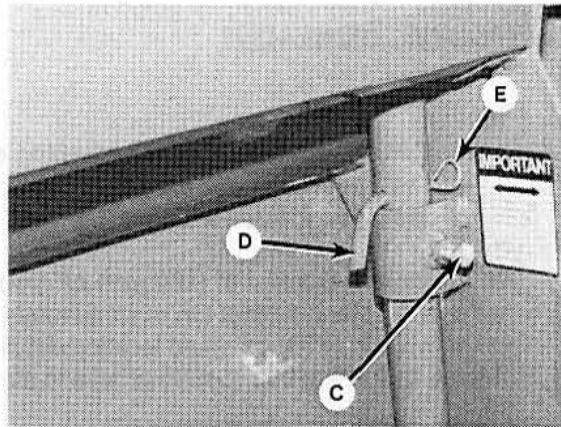
OPERATION

ATTACHING THE HEADER (continued)

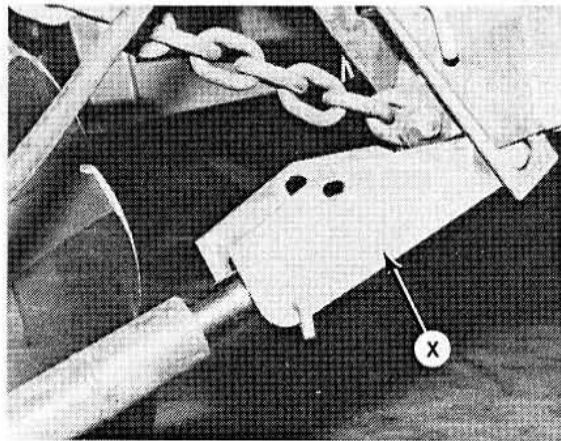
5. Remove "L" pin (D) and raise support stand completely. Tighten bolt (C) to secure position. Store pin (D) as shown, securing with hairpin (E).
6. Start engine. Activate header lift (extreme right) pedal to raise header fully. Stop engine and remove key from ignition.



WARNING: To avoid bodily injury from fall of raised header, always engage header lift cylinder stops (X) when working on or around raised header.

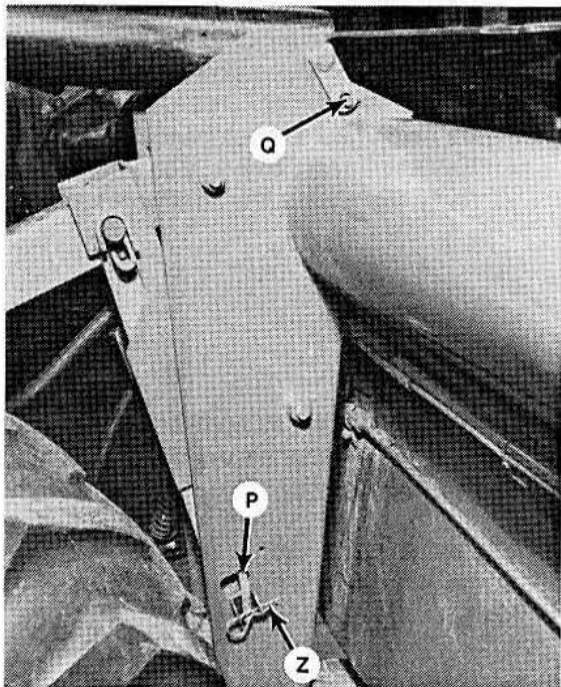


SUPPORT STAND - STORAGE



ENGAGE LIFT CYLINDER STOPS

7. Remove pins supporting float springs at tractor anchors. Attach float springs to header anchors and secure with spring retainer pin (Q).
8. Secure lift linkage to header leg with header retainer pin (P). Lock retainer pins (P) and (Q) with hairpins (Z).

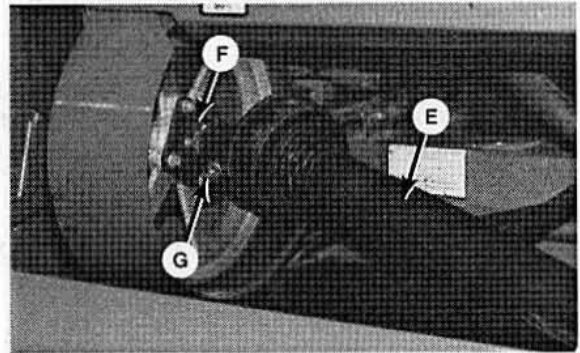


RETAINER PIN INSTALLATION

OPERATION

ATTACHING THE HEADER (continued)

9. Connect driveline (E) to header drive pulley shaft (F). Tighten clamping hardware (G).

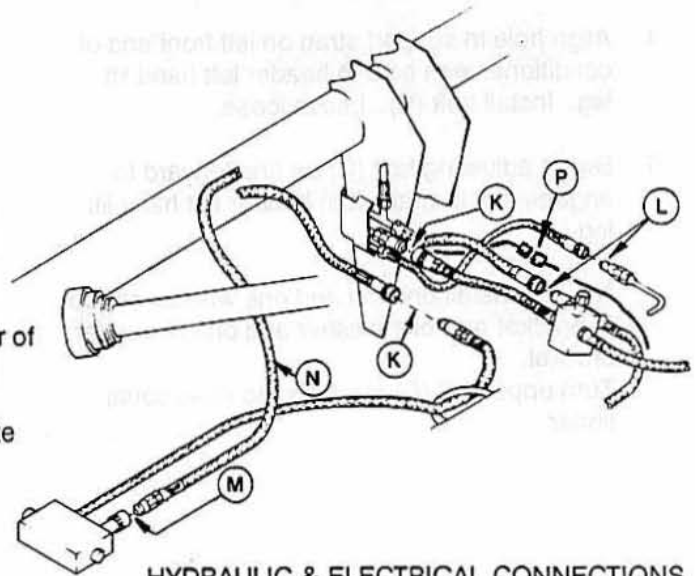


CONNECT DRIVELINE

10. Make the five hydraulic line connections:

- Two at the header right hand leg (K)
- Two at the tractor right hand leg (L).
- One at 4-way valve under left front corner of cab. (M)

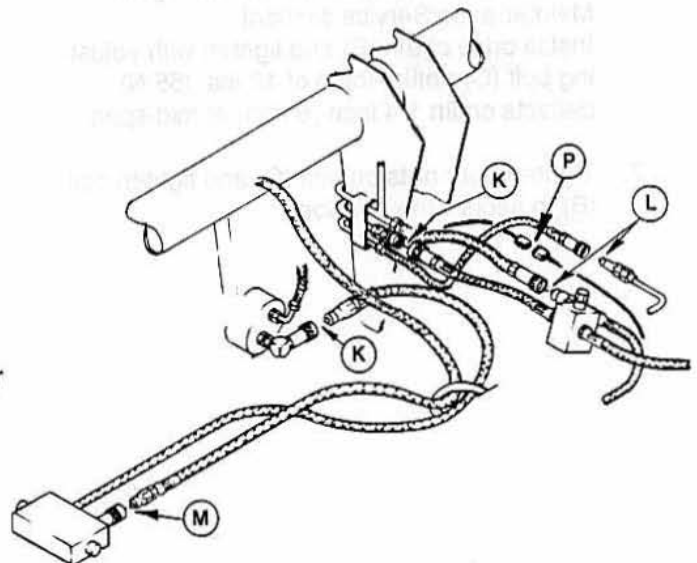
NOTE: For 21, 25 and 30 ft. headers - Route hose (N) under driveline to 4-way valve.



HYDRAULIC & ELECTRICAL CONNECTIONS
21, 25, 30 FT.

11. Connect the electrical wiring harness (P).

12. Attach hay conditioner (if equipped). See "Attaching the Hay Conditioner".
13. Disengage header lift cylinder stops and lower header to ground. Check header flotation and adjust if required. See Header Flotation in Operation section.

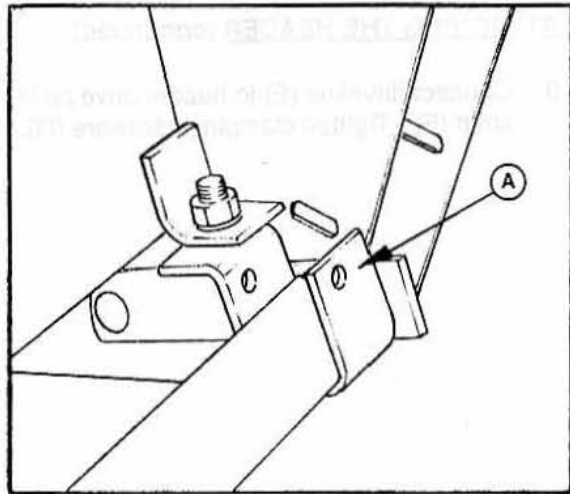


HYDRAULIC & ELECTRICAL CONNECTIONS
12, 15, 18 FT.

OPERATION

ATTACHING THE HAY CONDITIONER

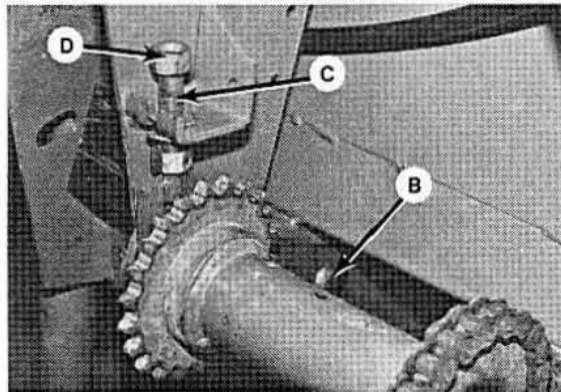
1. Attach header to tractor as detailed under "Attaching the Header".
2. Approaching conditioner from the rear, drive header over top of conditioner. Lower header to ground so conditioner is positioned immediately behind center opening.
3. Place right end of conditioner front cross pipe into saddle bracket (A), attached to header right hand lift leg.



LIFT CROSS PIPE INTO SADDLE BRACKET

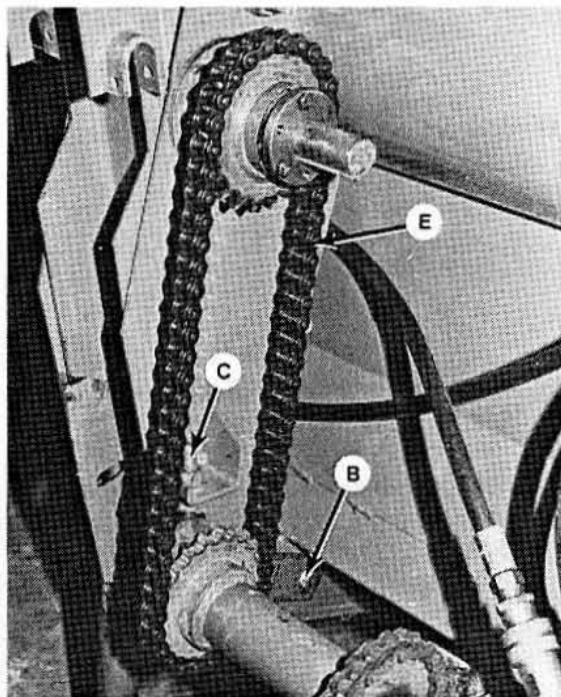
4. Align hole in support strap on left front end of conditioner with hole in header left hand lift leg. Install bolt (B). Leave loose.
5. Swing adjusting bolt (C) up and forward to engage slot in bracket at header left hand lift leg.

NOTE: Install one nut and one washer on top of bracket and one washer and one nut under bracket.
Turn upper nut (D) clockwise to raise conditioner.



ATTACH LEFT SIDE OF CONDITIONER

6. Ensure the conditioner rolls are properly timed. (See "Conditioner Roll Timing" in Maintenance/Service section). Install drive chain (E) and tighten with adjusting bolt (C) until a force of 12 lbs. (55 N) deflects chain 1/4 inch (6 mm) at mid-span.
7. Tighten both nuts on bolt (C) and tighten bolt (B) to secure the position.

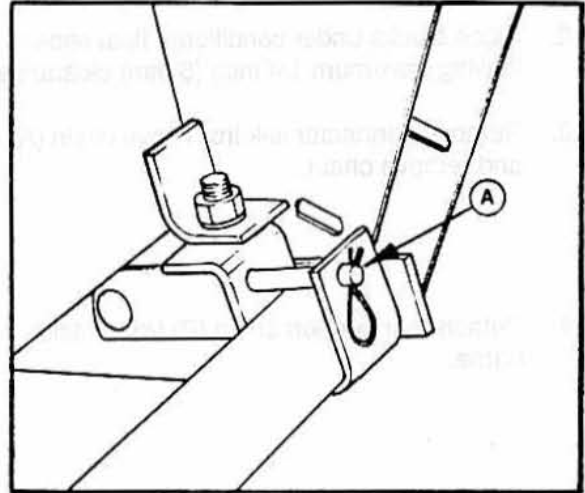


INSTALL AND TIGHTEN CHAIN

OPERATION

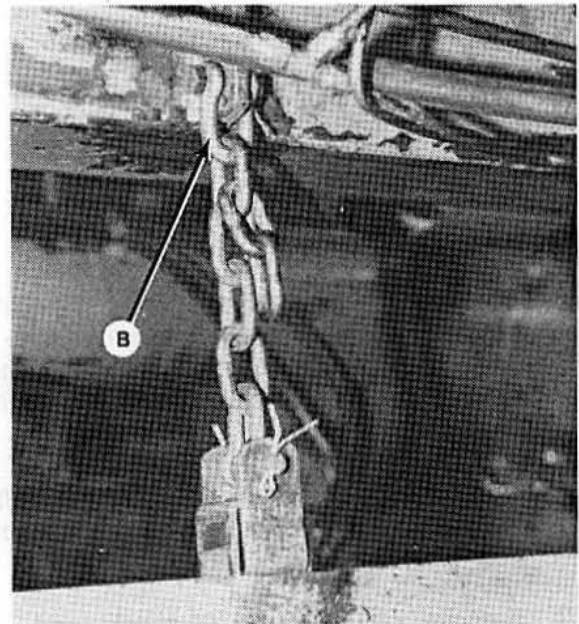
ATTACHING THE HAY CONDITIONER (continued)

8. Install pin (A) to secure right side of conditioner.



INSTALL PIN - RIGHT SIDE

9. Raise rear of conditioner approximately 19 inches (480 mm) and attach support chain clevis (B) to lug on tractor frame.



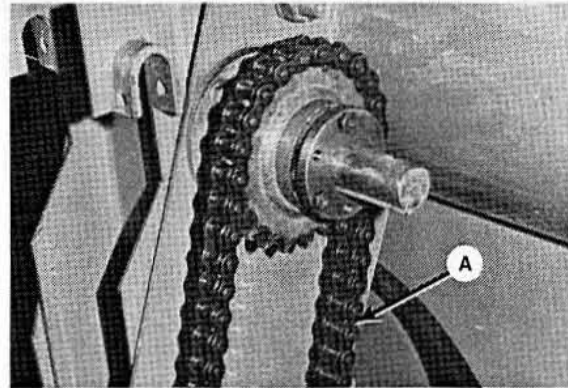
ATTACH CLEVIS TO TRACTOR

10. Adjust float springs for additional weight. See Header Flotation in Operation section.

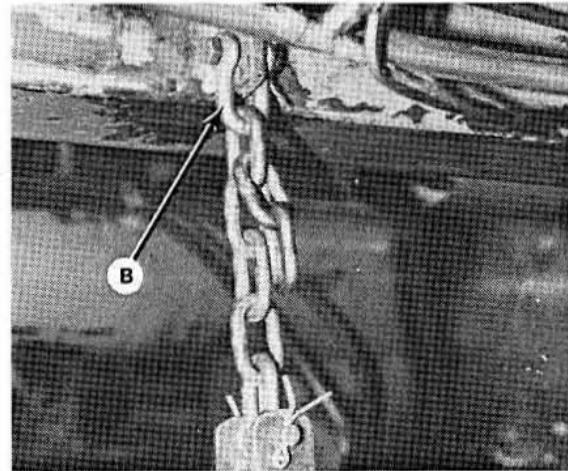
OPERATION

DETACHING THE HAY CONDITIONER

1. Lower header to ground. Stop engine and remove key from ignition.
2. Place blocks under conditioner float shoes, leaving maximum 1/4 inch (6 mm) clearance.
3. Remove connector link from drive chain (A) and remove chain.
4. Detach rear support chain (B) from tractor frame.

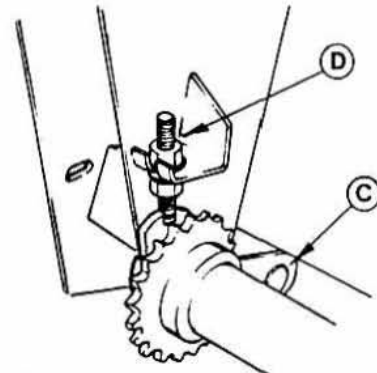


REMOVE DRIVE CHAIN

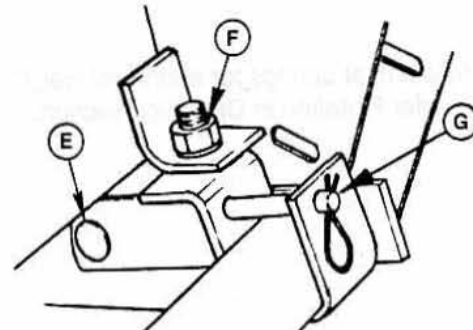


DETACH SUPPORT CHAIN

5. Loosen two bolts (C) and (E) at left and right hand front support straps, then lower conditioner onto blocks by loosening two nuts, one at left hand adjusting bolt (D) and one at right hand support bracket (F).
6. With conditioner resting on blocks, swing left hand adjusting bolt (D) out of header bracket and remove bolt (C) at left support strap.
7. Remove bolt (F) and pin (G) at right hand support bracket. Bracket will swing free of conditioner.
8. Raise header and SLOWLY back machine away from conditioner. Lower header to ground. Stop engine and remove key from ignition.
9. Reattach right hand support bracket to header lift leg. Attach all loose hardware to conditioner for storage.



LOOSEN AND LOWER LEFT END



LOOSEN AND LOWER RIGHT END

OPERATION

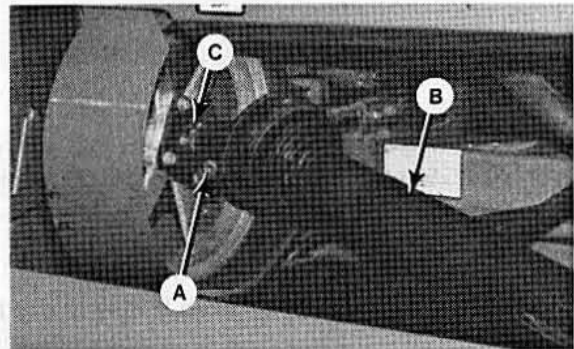
DETACHING THE HEADER

1. Lower header to level ground and lower the reel.
Stop engine and remove key.



DANGER: Wait for all movement to stop. A rotating driveline can cause entanglement resulting in serious personal injury or death.

Loosen clamping hardware (A) and disconnect driveline (B) from header drive pulley (C) at tractor.



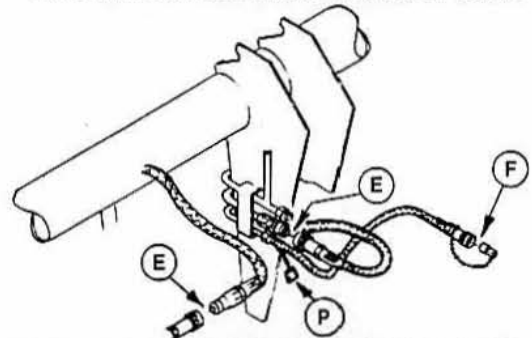
DISCONNECT DRIVELINE AT TRACTOR

2. Store driveline (B) on tab (D) located on header back tube. Secure with clamping hardware (A).



STORE DRIVELINE ON HEADER TUBE

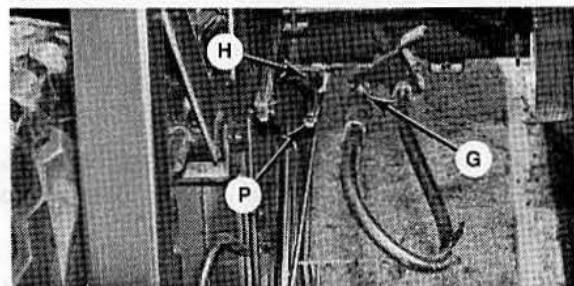
3. Disconnect five hydraulic hoses at quick couplers.
 - Two at header right hand leg.
 - Two near tractor right hand leg.
 - one at 4-way valve under left front corner of cab.



STORE HEADER HOSES & DISCONNECT WIRING

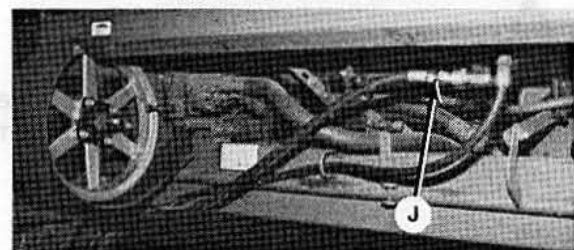
Couple the header hoses to the mating couplers (E) for storage. Plug reel lift line coupler (F).

Couple the hose from the relief valve to the coupler at the relief valve (G) for storage. Cap reel lift line coupler (H).



STORE RELIEF VALVE HOSE & CAP REEL LIFT LINE

Couple the hose from the 4-way valve to the coupler at the 4-way valve (J) for storage.



STORE 4-WAY VALVE HOSE

IMPORTANT: Be sure hoses stored on header are not entangled with those stored on tractor.

4. Disconnect electrical wiring harness (P).

NOTE: If hay conditioner is installed, detach support chain from tractor frame. See "Detaching Hay Conditioner" in this section.

OPERATION

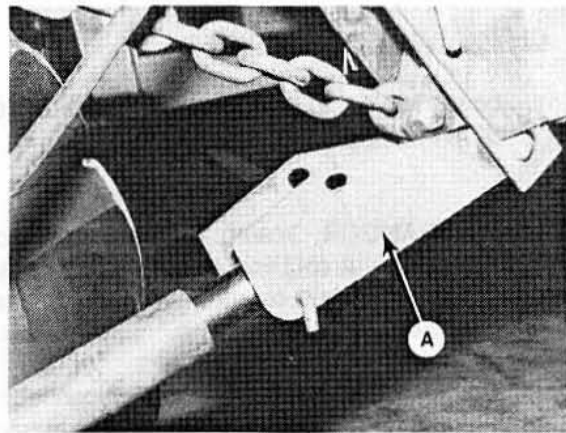
DETACHING THE HEADER (continued)

5. Start engine. Activate header lift (extreme right) pedal to raise header fully. Stop engine and remove key from ignition.

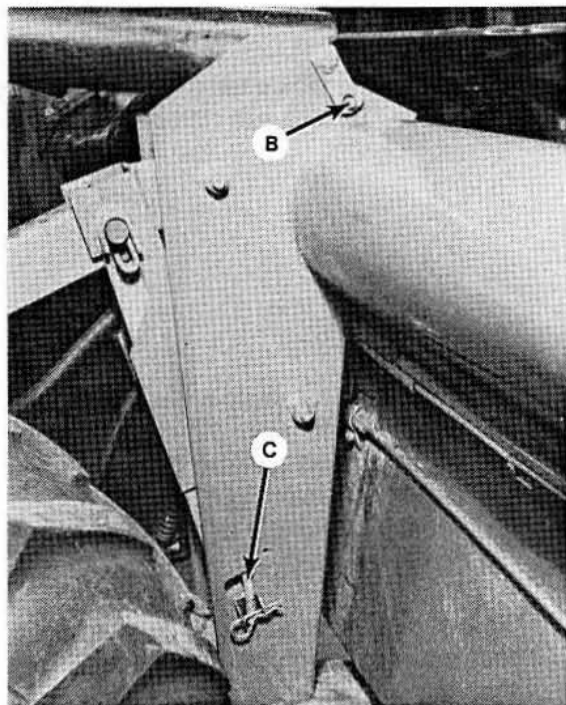


WARNING: To avoid bodily injury from fall of raised header, always engage header lift cylinder stops (A) when working on or around raised header.

6. Release float springs from header anchors by removing spring retainer pins (B). Remove header retainer pins (C) from lower header legs.



ENGAGE LIFT CYLINDER STOPS

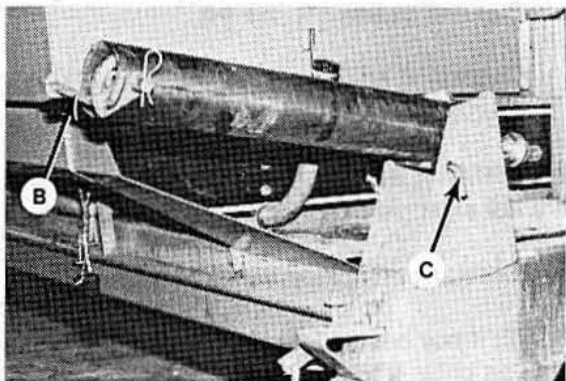


RETAINER PINS

7. Raise float springs to storage position, supporting with header retainer pin (C). Replace spring retainer pin (B) in float spring.
8. Set 6 inch (150 mm) blocks beneath the cutter-bar.



CAUTION: For best stability, place blocks as close as possible to each end of the header (maximum 2 ft. [600 mm]).



FLOAT SPRINGS - STORAGE POSITION

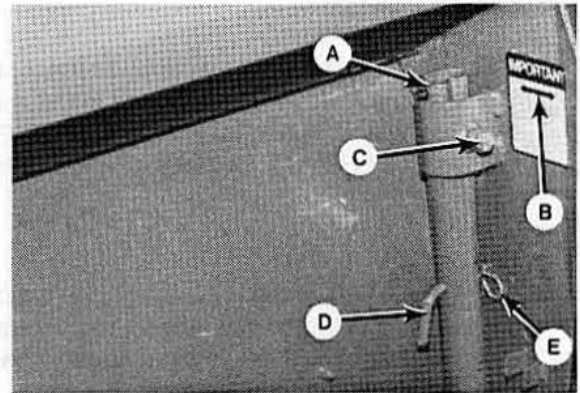
OPERATION

DETACHING THE HEADER (continued)

9. Lower the support stand so that top of stand tube (A) is in line with arrow (B) on stand location decal. Secure by turning bolt (C) into groove in stand tube.



WARNING: Be sure to properly install "L" pin (D) and hairpin (E) as shown to prevent header from falling to ground should bolt (C) be accidentally loosened.

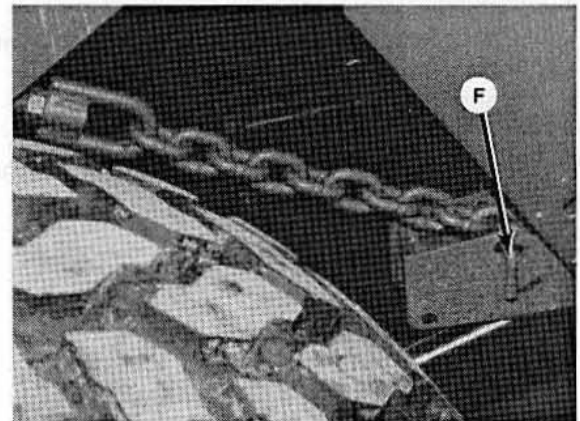


HEADER-SUPPORT STAND

10. Raise header lift cylinder stop to storage position (F).
11. Start engine and lower header onto blocks. Hold the header lift pedal in the down position while using the variable ground speed lever to slowly rock tractor back and forth. This will fully retract cylinders and lift channel pins will disengage lugs on header legs.
12. Slowly back tractor away from header. If hay conditioner is attached, watch clearances at left and right sides.



CAUTION: Avoid driving machine with header removed, tractor alone is less stable and more difficult to control. If necessary to drive machine with header removed, do not exceed half maximum engine speed and avoid slopes.



CYLINDER STOPS - STORAGE POSITION

OPERATION

BREAK-IN PERIOD

1. After attaching header to windrower tractor for the first time, operate the machine slowly for 5 minutes, watching and listening FROM THE OPERATOR'S SEAT for binding or interfering parts.



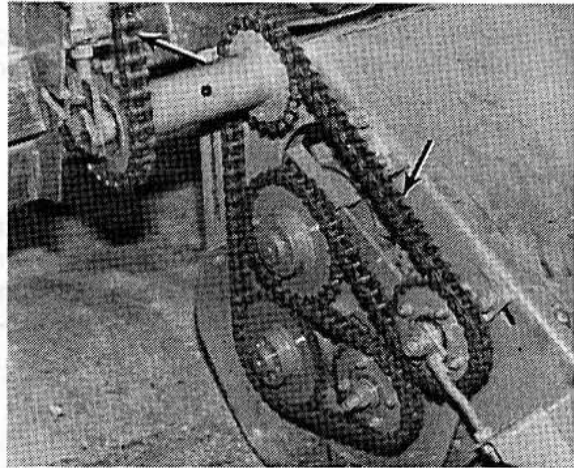
CAUTION: Before investigating an unusual sound or attempting to correct a problem, shut off engine, engage parking brake and remove key.

2. Check hay conditioner drive chain tension after two hours for proper tension. See Maintenance/Service section.
3. Check knife drive belt after 5 hours operation for initial stretch. Tighten as necessary. (See Maintenance/Service section).

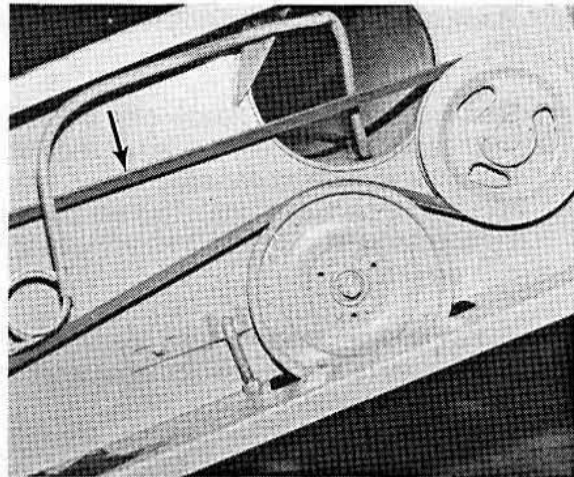
Continue to check the belt periodically for the first 50 hours.

4. Check hardware after 5 hours operation. Tighten as necessary. See Specifications section for recommended torques.
5. Tighten the bottom and side wobble box mounting bolts (C) after 10 hours operation and every 100 hours thereafter. Torque to 200 ft. lbs. (270 N.m), starting with the side mounting bolts.

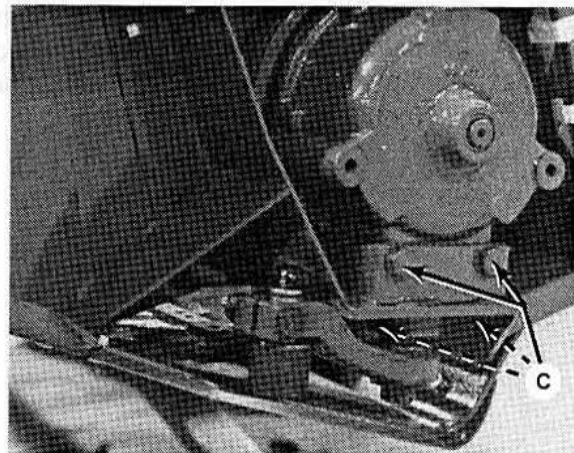
6. Until you become familiar with the sound and feel of your new header, be extra alert and attentive.



CHECK CONDITIONER CHAIN TENSION



CHECK KNIFE DRIVE BELT TENSION



TIGHTEN WOBBLE BOX MOUNTING BOLTS

OPERATION

PRE-STARTING CHECKS

Do the following at the start of each operating season.

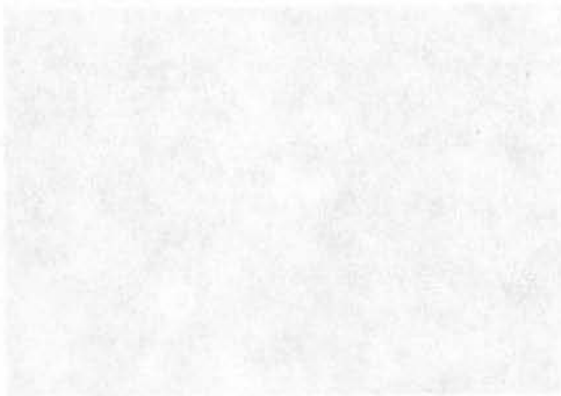


CAUTION:

1. **Review the Operator's Manuals to refresh your memory on safety and operating recommendations.**
2. **Review all safety signs and other decals on the machine and note hazard areas.**
3. **Be sure all shields and guards are properly installed and secured. Never alter or remove safety equipment.**
4. **Reacquaint yourself with the controls before beginning operation.**

Also:

5. Install drapers. See "Drapers" in Maintenance/Service section.
6. Adjust tension on drapers and knife drive belt. Also adjust reel and hay conditioner drive chains. See Maintenance/Service section.
7. Perform all Annual maintenance. See Maintenance/Service section.



OPERATION

PRE-STARTING CHECKS

Do the following each day before start-up:



CAUTION:

1. Clear the area of other persons, pets, etc. Keep children away from machinery. Walk around the header to be sure no one is under, on or close to it.
2. Remove foreign objects from the machine and surrounding area.
3. Wear close fitting clothing and protective shoes with slip resistant soles.

As well, carry with you any protective clothing and personal safety devices that **COULD** be necessary through the day. Don't take chances.

You may need:

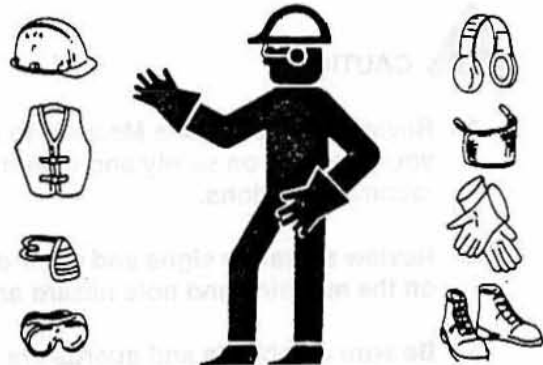
- a hard hat
- protective glasses or goggles
- heavy gloves
- respirator or filter mask
- wet weather gear.

4. Protect against noise. Wear a suitable hearing protective device such as ear muffs (A) or ear plugs (B) to protect against objectionable or uncomfortable loud noises.
5. Check the machine for leaks or any parts that are missing, broken, or not working correctly. Use proper procedure when searching for pressurized fluid leaks. See "Hydraulic System" in Maintenance/Service section.
6. Clean lights and reflectors on the header.
7. Apply draper tension by rotating tension levers (C) towards center of drapers
8. Perform all Daily maintenance. See Maintenance/Service section.

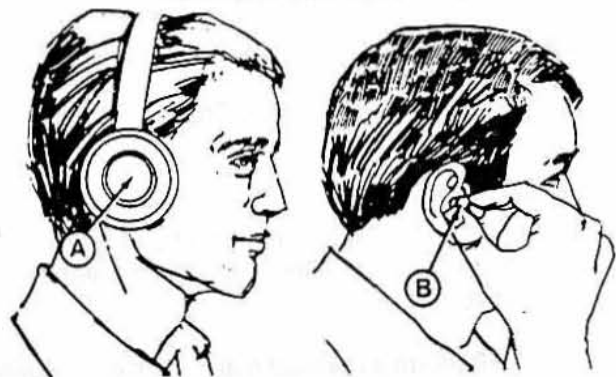
OPERATE CORRECTLY

IMPORTANT: See Windrower Operator's Manual for information on the following:

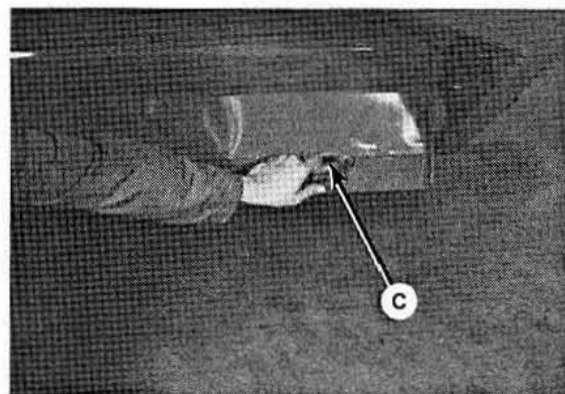
Start-Up Procedure
Driving the Windrower
Stopping Procedure



PROTECT YOURSELF



PROTECT AGAINST NOISE



APPLY DRAPER TENSION

OPERATION

HEADER DRIVE CLUTCH

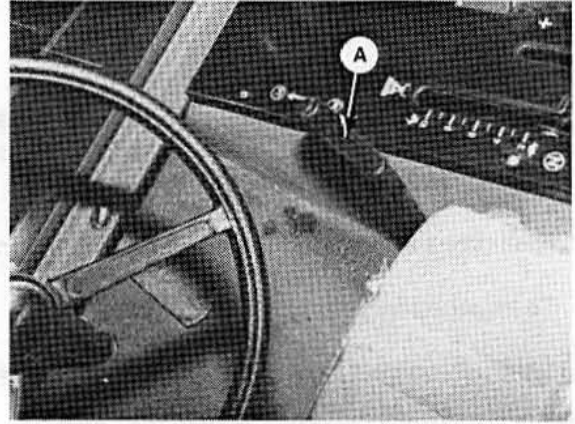


CAUTION: Be sure all bystanders are clear of machine before starting windrower or engaging header drive clutch.

To engage header drives, push lever (A) slowly to forward position.

To disengage, pull lever back.

NOTE: Engine will not start with header drive clutch engaged.



HEADER DRIVE CLUTCH

HEADER LIFT CYLINDER STOPS



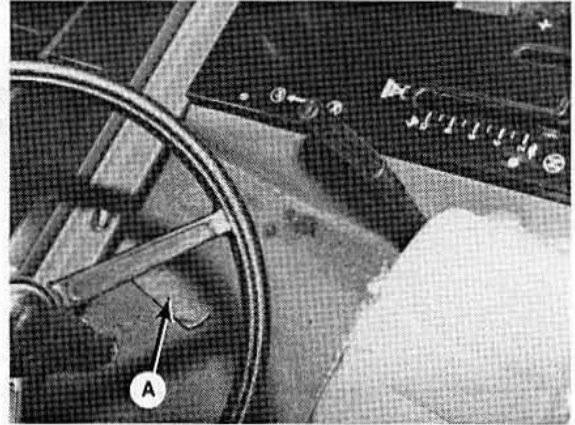
WARNING: To avoid bodily injury or death from fall of raised header, always engage cylinder stops before going under header for any reason.

Cylinder stops are located on each header lift cylinder.

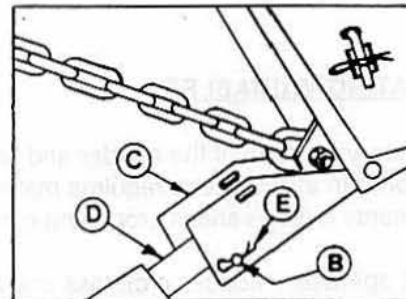
To engage cylinder stop:

1. Push on heel of extreme right pedal (A) to raise header to maximum height.
2. Pull pin (B) and position stop (C) over cylinder rod (D). Install pin (B) through hole in stop, under cylinder rod. Secure with hairpin (E).

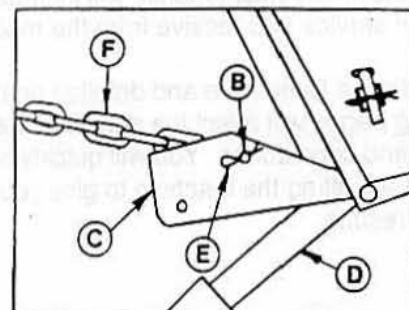
NOTE: When placing cylinder stop in storage position, always have chain (F) tight (header up) to ensure proper positioning of pin.



HEADER LIFT PEDAL



LIFT CYLINDER STOP - ENGAGED



LIFT CYLINDER STOP - STORAGE

OPERATION

REEL PROPS



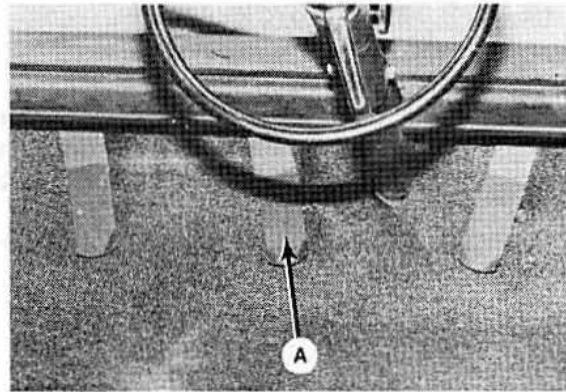
WARNING: To avoid bodily injury from fall of raised reel, always engage reel props before going under raised reel for any reason.

Reel props are located at each reel support arm.

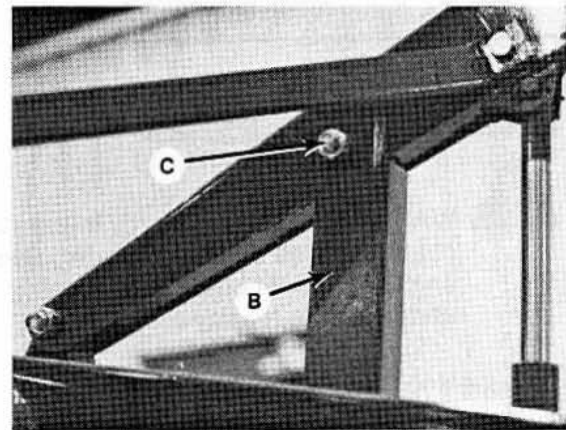
To engage reel props:

1. Push on heel of center pedal (A) to raise reel to maximum height.
2. Move props (B) to engaged position.
3. Push on toe of pedal to lower reel until props contact end frames.

NOTE: Keep pivot bolt (C) properly tightened so prop remains in stored position when not in use, yet can be engaged with hand force.



REEL LIFT PEDAL



REEL PROP - ENGAGED

OPERATING VARIABLES

Satisfactory function of the header and hay conditioner in all situations requires making proper adjustments to suit various crops and conditions.

Correct operation reduces crop loss and allows cutting of more acres. As well, proper adjustments and timely maintenance will increase the length of service you receive from the machine.

The variables listed here and detailed on the following pages will affect the performance of the header and conditioner. You will quickly become adept at adjusting the machine to give you the desired results.

DRAPER HEADER

1. Cutting Height
2. Divider Angle
3. Ground Speed
4. Reel Speed
5. Reel Height
6. Reel Fore-Aft Position
7. Draper Speed
8. Cutting Width
9. Delivery Opening
10. Header Flotation

HAY CONDITIONER

11. Roll Intermesh
12. Roll Tension
13. Forming Shield Position

OPERATING VARIABLES

OPERATION

CUTTING HEIGHT

For grain crops the windrow should normally be laid on stubble from 6 to 8 inches high (150 to 200 mm).

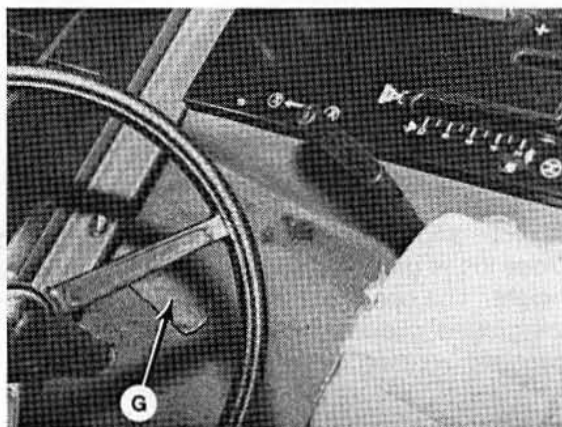
Stubble of this height:

1. Allows free circulation of air under the windrow for more even drying.
2. Supports the windrow without bending.
3. Keeps grain heads from contacting ground. Heads that touch the ground are difficult to pick up and will sprout in damp weather.

HEADER LIFT

Header lift is controlled by the extreme right pedal (G) in cab. Push on heel of pedal to raise header. Push on toe to lower header.

If the header lowers too slowly, the drop rate may be increased. See "Header Lift Control Valve: Drop Rate" in Maintenance/Service section.

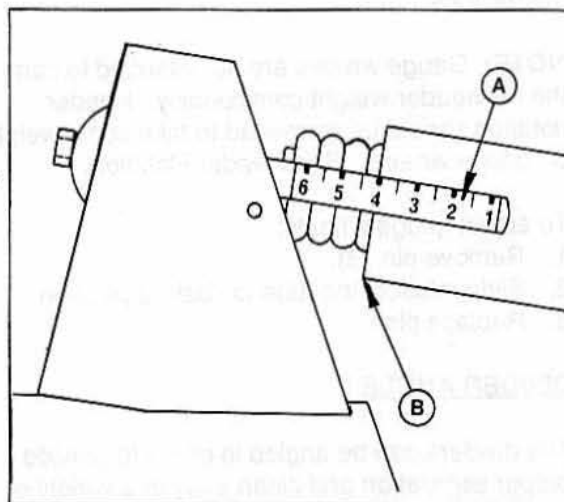


HEADER LIFT PEDAL

CUTTERBAR HEIGHT INDICATOR

Use the gauge decal (A) at the left hand spring anchor to identify desired cutting heights. Back end of tube (B) is gauge indicator.

NOTE: The gauge numbers do not correspond to a specific unit of measure, that is, a gauge reading of 4 is not 4 inches off the ground. The numbers are an indication of relative header height, for example, height 4 cuts shorter than 5 but higher than 3.



CUTTERBAR HEIGHT INDICATOR - SHOWN AT CUTTING HEIGHT 4

OPERATION

CUTTING HEIGHT (continued)



WARNING: To avoid bodily injury or death from unexpected start-up or fall of raised header; stop engine, remove key and engage header lift cylinder stops before going under header to adjust skid shoes or gauge wheels (or for any reason). See "Header Lift Cylinder Stops".

SKID SHOES

Skid shoes are standard equipment for center delivery headers (12' - 18') and are optional for double windrow headers (21' - 30'). See "Skid Shoes" in Options and Attachments section for assembly instructions.

In crops and conditions where it is desirable to cut close to the ground, use skid shoes to vary cutting height. The operator can then lower the header to the ground, allowing the shoes to provide a consistent cutting height.

To adjust cutting height with skid shoes, reposition lug (A) to one of the three positions shown.

GAUGE WHEELS

In crops and conditions where it is desirable to cut close to the ground, some operators prefer to use gauge wheels to vary cutting height. Gauge wheels are available as an attachment. See Options and Attachments section for assembly instructions.

NOTE: Gauge wheels are not intended to carry the full header weight continuously. Header flotation should be increased to take some weight off gauge wheels. See Header Flotation.

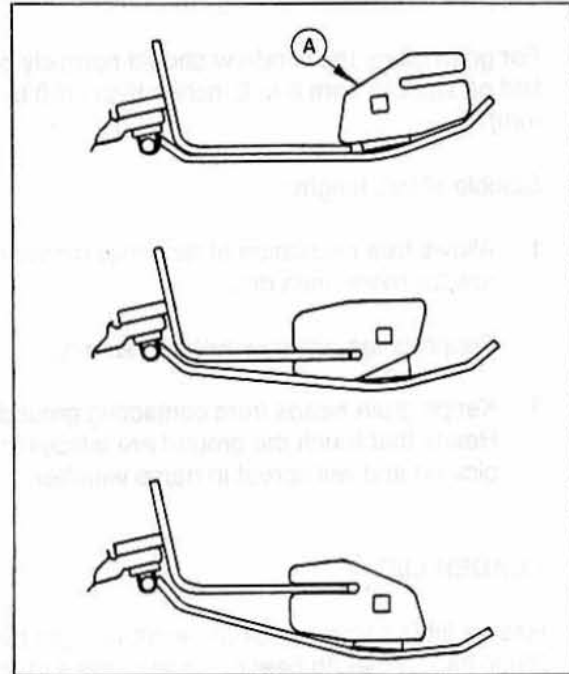
To adjust gauge wheels:

1. Remove pin (B).
2. Slide telescoping tube to desired position.
3. Replace pin.

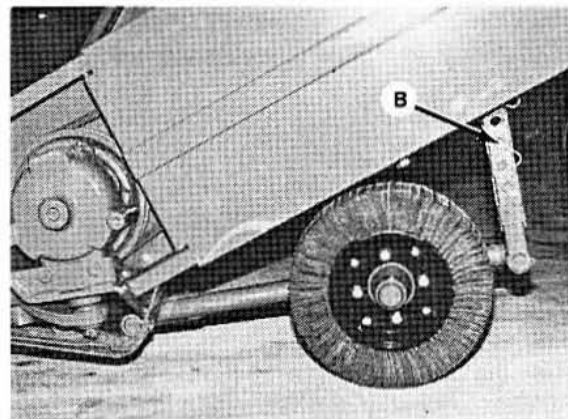
DIVIDER ANGLE

The dividers can be angled in or out to provide proper separation and clean entry in a variety of crops.

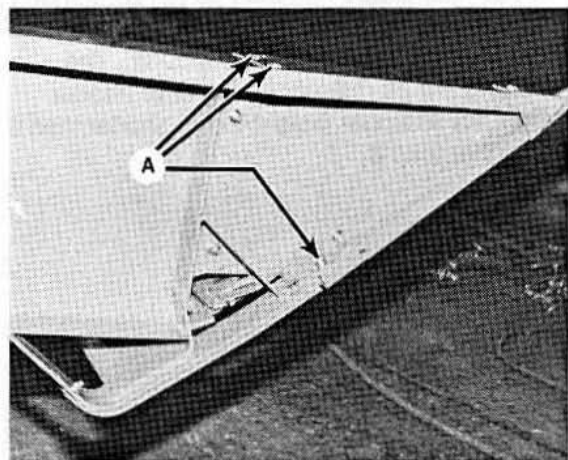
To adjust angle, loosen hardware (A), position divider and tighten hardware.



SKID SHOE POSITIONS



GAUGE WHEEL HEIGHT ADJUSTMENT



DIVIDER ANGLE ADJUSTMENT

OPERATION

GROUND SPEED

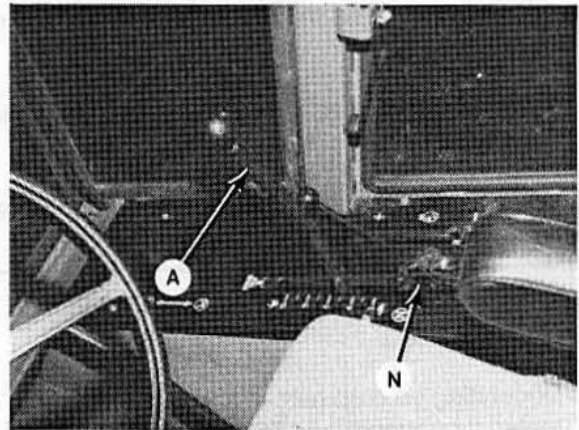
Ground speed of windrower should be such that knife can cut crop smoothly and cleanly, while giving the desired windrow formation.

NOTE: Ground speed affects the orientation of stalks in the windrow. Increasing ground speed will cause the configuration of the windrow to go from parallel or angled formation to herringbone or dovetail. See "Windrow Characteristics" in this section.

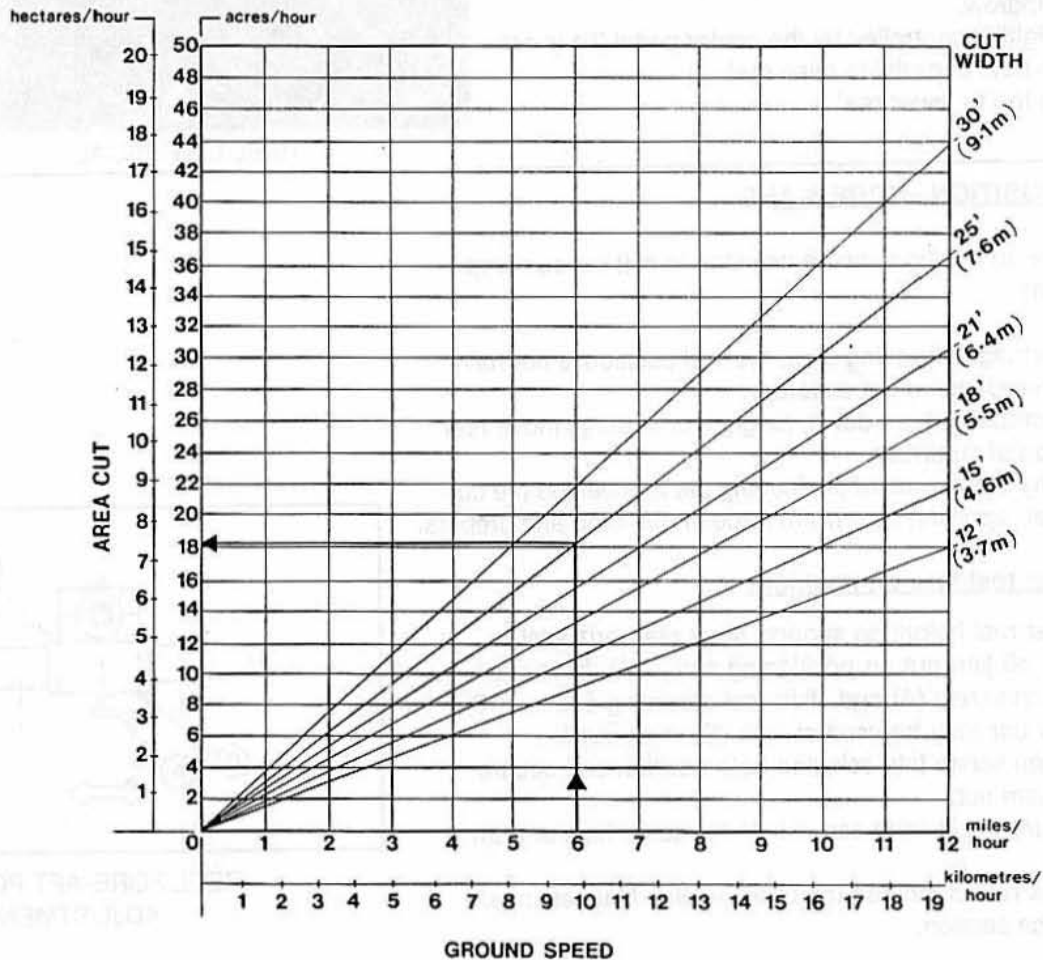
Ground speed is increased by moving lever (A) forward. To decrease forward speed move lever rearward to neutral (N).

As ground speed is increased, draper and reel speed should be increased to handle the extra material. The chart below indicates the relationship between ground speed and area cut for the six draper header sizes.

Example Shown: At a ground speed of 6 miles per hour (9.7 km/h) with a 25 ft. header, the area cut per hour would be just over 18 acres (7 1/2 hectares).



GROUND SPEED LEVER



OPERATION

REEL SPEED

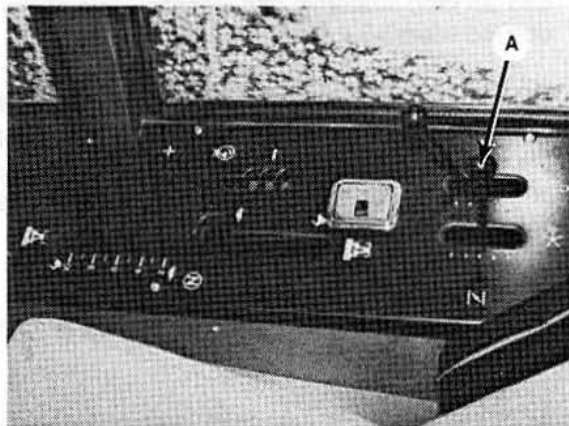
Reel speed affects the smoothness and evenness of the windrow. Operating the reel too fast or too slow relative to ground speed will cause bunching in the windrow.

In standing crop, reel speed should be just faster than ground speed, to sweep the crop across the knife.

A faster reel speed may be necessary in leaning or down crop.

Excessive shattering of grain heads may be an indication that reel speed is too fast.

Move lever (A) forward to increase reel speed and rearward to decrease. Range is 10 to 50 RPM.



REEL SPEED CONTROL

REEL HEIGHT

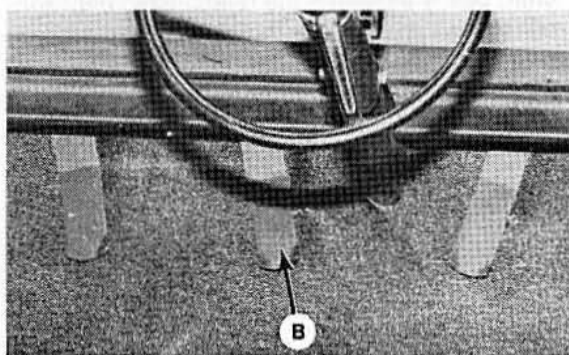
Depending on crop height, adjust reel height to carry material through the knife onto the drapers.

Down crop will require a lower reel height while bushy crop may require raising the reel to prevent unevenness in the windrow.

Reel height is controlled by the center pedal (B) in cab.

Push on heel of pedal to raise reel.

Push on toe to lower reel.



REEL LIFT PEDAL

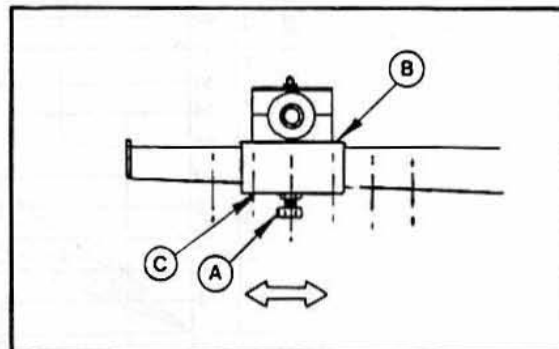
REEL POSITION - FORE & AFT

Reel fore-aft position can be adjusted to suit various crop conditions:

- For straight standing crop, the reel position is normally centered above the cutterbar.
- For crops that are down, tangled, or leaning, move reel ahead of cutterbar.
- Bushy crops require positioning the reel behind the cutterbar, applying downward force on the crop and drapers.

To adjust reel fore-aft position:

1. Adjust reel height so support arms are horizontal.
2. Back off jam nut on positioning screw (A), both ends.
3. Loosen screw (A) and slide reel mounting channel (B). A pry bar may be used at hole (C) in channel.
4. Tighten screw into selected hole position and secure with jam nut.
5. Be sure positioning screw is in the same hole at both ends.
6. Check reel clearance to cutterbar. See Maintenance/Service section.



REEL FORE-AFT POSITION ADJUSTMENT

OPERATION

DELIVERY OPENING - 21', 25' AND 30' (continued)

CENTER DELIVERY OPENING WIDTH

The width of the center delivery opening affects the width and configuration of the windrow. The decision to widen or narrow the opening should be based on the following factors:

- Combine pickup capability
- Type and yield of crop
- Weather conditions (rain, humidity, wind)
- Drying time available

See "Windrow Characteristics" in this section for the strengths and weaknesses of the various windrow configurations with respect to these factors.

Delivery opening can be adjusted to one of three widths (measured between rollers).

HEADER SIZE	OPENING WIDTHS		
	Narrow	Medium	Wide
21 ft. (6.4 m)	43" (1090 mm)	50.5" (1280 mm)	58" (1470 mm)
25 & 30 ft. (7.6 & 9.1 m)	49" (1240 mm)	56.5" (1430 mm)	64" (1620 mm)

NOTE: 21 ft. headers - Factory set at the narrowest center delivery opening. End delivery can only be made at this setting.

25 and 30 ft. headers - Factory set at the medium center delivery opening with longer draper on left hand deck. End delivery possible at any setting.

To adjust center delivery opening width:

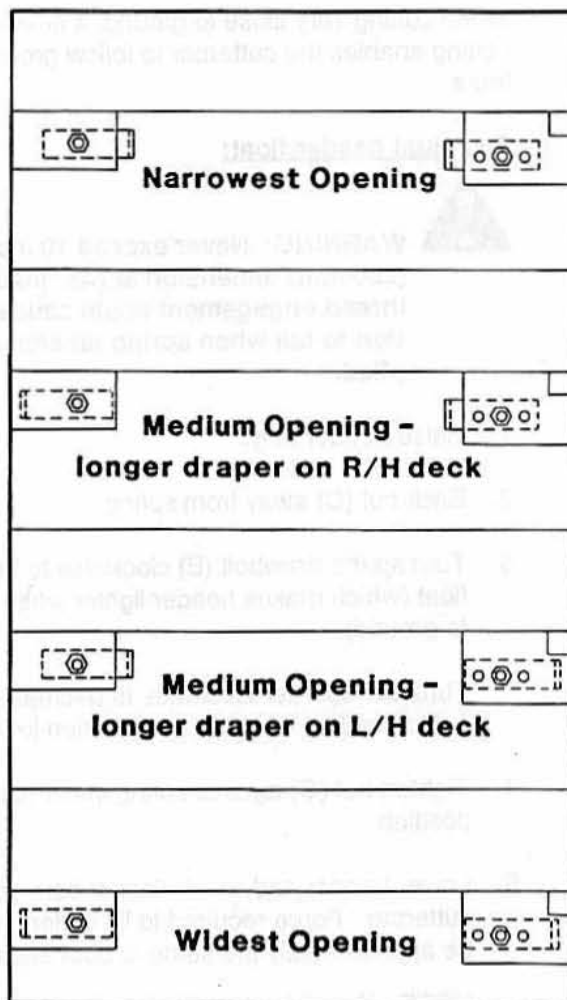
1. Depending on present opening size, change draper overall length by 15 inches (380 mm) by either cutting off or adding a piece of draper to achieve desired length.

NOTE: A short section of draper is available as a repair part.

2. Adjust springs at both ends of idler roller to move roller to new position. See "Draper Tension" in Maintenance/Service section.
3. Connect draper.
4. Position deck stops as illustrated to change opening size. Deck stops are under main frame tube at lift legs.

NOTE: In medium opening, longer draper on left hand deck will result in more closely balanced conveyor lengths.

5. Check "Draper Tracking" and "Right Hand Shifting Deck to Short Deck Clearance". See Maintenance/Service section.



DELIVERY OPENING ADJUSTMENT - DECK STOP POSITIONS

OPERATION

HEADER FLOTATION

Under normal conditions, float spring tension should be adjusted so 75 to 100 lbs. force (335 to 445 N) is required to lift cutterbar off ground at each end.

Excessively heavy float can cause more frequent breakage of knife components and soil build-up at cutterbar in wet soil conditions.

In rough or stony conditions, it may be desirable to adjust springs for lighter float, so 60 to 70 lbs. force (265 to 310 N) is sufficient to lift header.

When cutting very close to ground, a heavier float setting enables the cutterbar to follow ground contours.

To adjust header float:



WARNING: Never exceed 10 inch (250 mm) dimension at (A). Insufficient thread engagement could cause connection to fail when spring tension is applied.

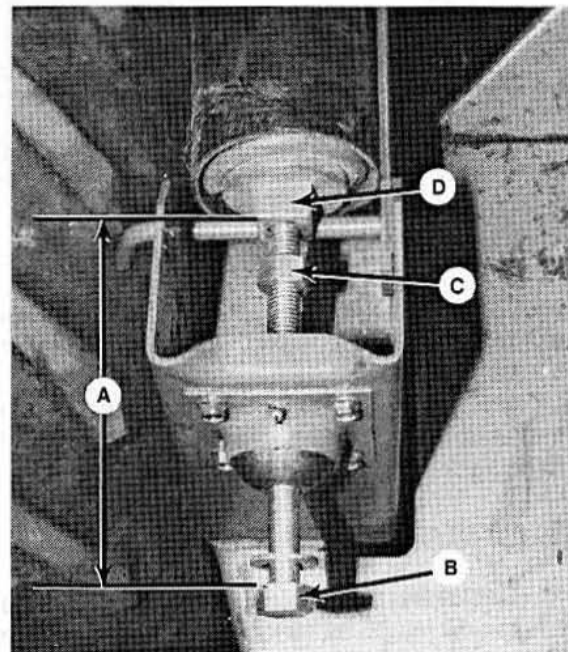
1. Raise header fully.
2. Back nut (C) away from spring.
3. Turn spring drawbolt (B) clockwise to increase float (which makes header lighter when lowered to ground).

Turn bolt counter-clockwise to decrease float (which makes header heavier when lowered).

4. Tighten nut (C) against spring insert (D) to lock position.
5. Lower header and check float at both ends of cutterbar. Force required to lift cutterbar should be approximately the same at both ends.

NOTE: If a pick-up reel is installed on a 30 ft. header, it will be necessary to install an auxiliary float spring kit to achieve required float. This kit (# 23770) is available from your Windrower dealer.

NOTE: For 12 and 15 foot headers, disconnect inner float springs to allow more float range. See "Preparing the Windrower Tractor", page 13.



FLOAT SPRING TENSION

OPERATION

HAY CONDITIONER ROLL INTERMESH

The intermeshing steel rolls of the hay conditioner crimp the plant stems in several places, allowing moisture release and quicker drying.

The degree to which the stems are conditioned (crimped) depends on the amount of roll intermesh and the roll spring tension (see below).

Correct conditioning of alfalfa, clover and other legumes is usually indicated when 90% of the stems show crimping but no more than 5% of the leaves are damaged.

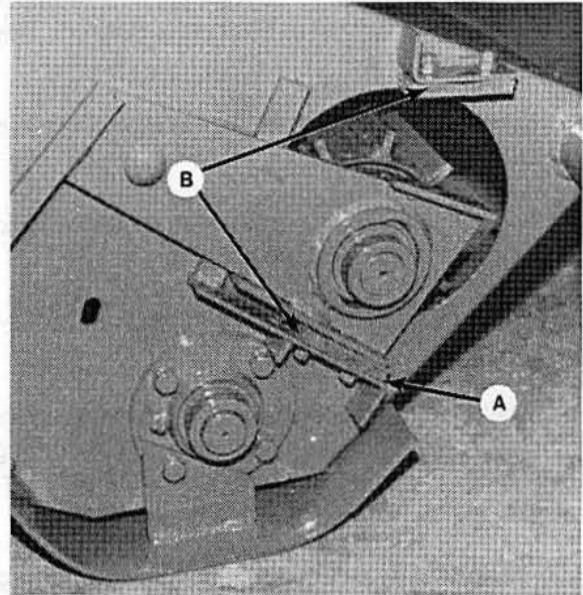
Roll intermesh is factory set for normal operation. In thick stemmed, cane-type crops, slightly less intermesh may be desirable; however, too little intermesh will cause feeding problems.

To adjust roll intermesh:

IMPORTANT: Make equal adjustments on both sides of conditioner to achieve consistent intermesh across the rolls.

1. To increase roll intermesh, remove shims at (A) between lower bumper and bracket.
2. To decrease roll intermesh, add shims at (A).

NOTE: To prevent severe crop damage, excessive noise and rapid roll destruction, replace rubber bumpers (B) if they become worn or damaged.



ROLL INTERMESH ADJUSTMENT

HAY CONDITIONER ROLL TENSION SPRINGS

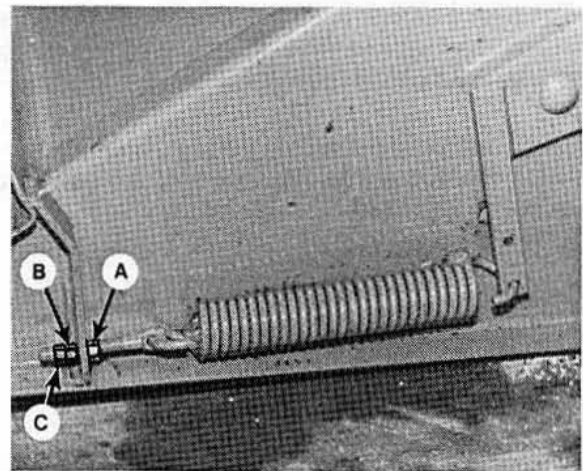
The conditioner roll intermesh is maintained by two tension springs to provide adequate pressure for correct conditioning of the crop (see above).

These springs also allow the rolls to open to allow passage of small solid objects without damage to the rolls.

The tension has been factory set for normal operating conditions.

To adjust spring tension:

1. Back off nuts (A) and (C).
2. To increase tension (making it harder to force the rolls open) turn nut (B) clockwise.
3. To decrease tension, turn nut (B) counter-clockwise.
4. Hold nut (B) with a wrench and securely tighten nut (A) against bracket to secure the position.
5. Tighten nut (C) against nut (B).



ROLL TENSION ADJUSTMENT

OPERATION

HAY CONDITIONER FORMING SHIELDS



CAUTION: Do not allow anyone to stand behind the machine while operating. Stones or other foreign objects may be ejected from the conditioner with force.

Use the inner deflectors to adjust the windrow width to your preference.

To adjust deflectors: Loosen bolts (A), remove bolts (B) and position deflectors as desired. Replace and tighten bolts.

In deciding on windrow width, the following factors should be considered:

- weather conditions (rain, sun, humidity, wind)
- type and yield of crop
- drying time available
- method of processing (bales, silage, "green-feed")

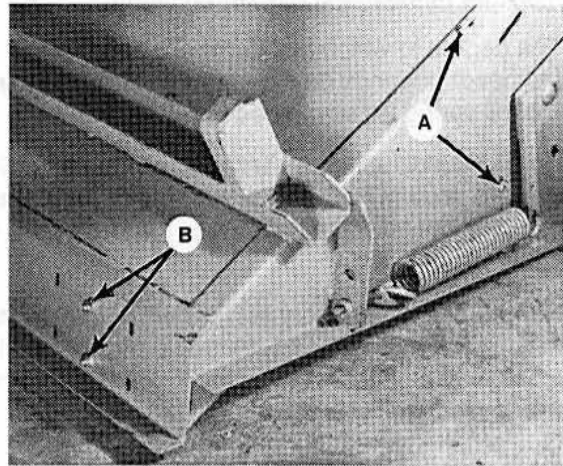
A wider windrow will generally dry faster and more evenly, resulting in less protein loss. Fast drying is especially important in areas where the weather allows only a few days to cut and bale.

Where weather conditions permit or when drying is not critical, for example, when cutting for silage or "green-feed", a narrower windrow may be preferred for ease of pick-up.

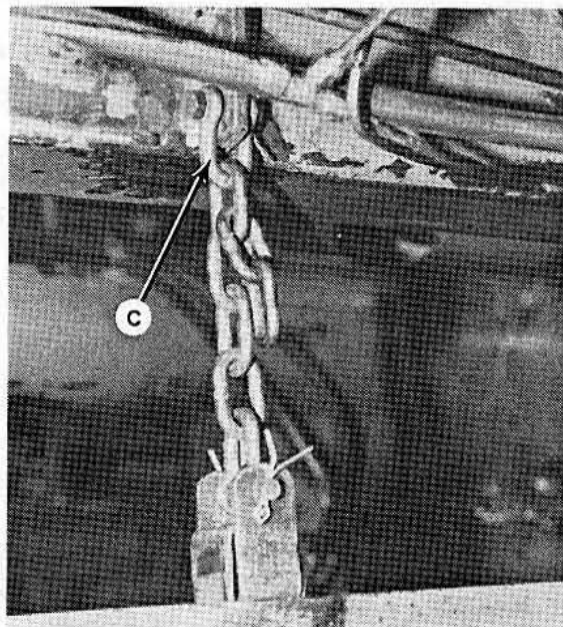
Depending on the amount of crop material, the forming shields can be raised or lowered to properly deflect the crop.

Too high a setting does not allow the deflectors to shape the windrow, while too low a setting will cause uneven and poorly formed windrows.

To adjust forming shield height: Shorten or lengthen support chain by inserting clevis (C) into different chain links.



INNER DEFLECTOR ADJUSTMENT



FORMING SHIELD HEIGHT ADJUSTMENT

OPERATION

WINDROW CHARACTERISTICS

Factors such as ground speed, reel speed, draper speed and delivery opening will all affect the resulting windrow. You will quickly become adept at adjusting these variables to achieve the desired results.

NOTE: Crop condition is a major factor in forming a good windrow. While standing or uniformly leaning crops can generally be easily formed into an acceptable windrow, such is not the case when stalks are tangled or leaning in several directions.

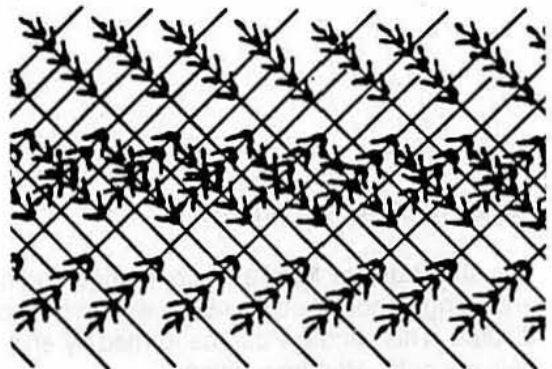
There are three basic criteria by which the quality of a windrow is measured:

1. Weight Distribution - heads and stalks distributed evenly across full width of windrow.
2. Good Curing - a loose, open windrow for better drying.
3. Good Weatherability - a well formed windrow that holds heads off ground and holds together in extreme weather conditions.

HERRINGBONE WINDROW

The most desirable form of windrow, stalks are crossed and interwoven. Heads are distributed across full width of windrow. This windrow can be formed by center delivery only. Windrow rating:

Weight Distribution: Good
Curing Characteristics: Good
Weatherability: Excellent

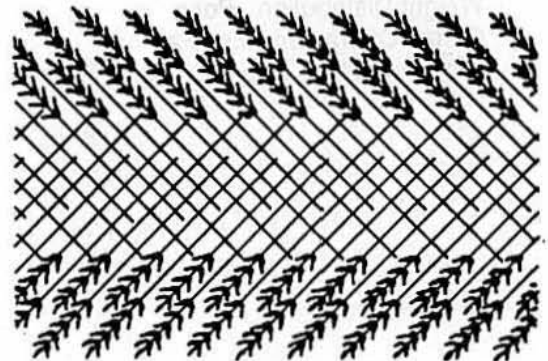


HERRINGBONE WINDROW

FANTAIL WINDROW

The stalk tips are crossed in center and heads are in line along outside edges. This windrow can be formed by center delivery only. Windrow rating:

Weight Distribution: Fair
Curing Characteristics: Fair
Weatherability: Fair

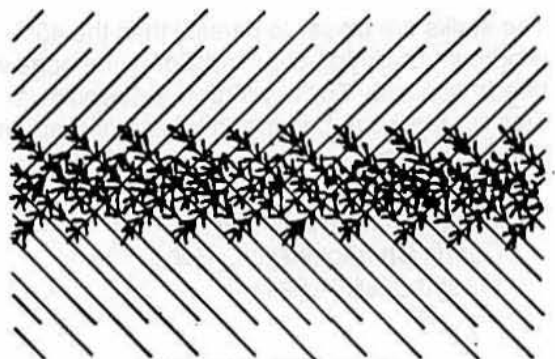


FANTAIL WINDROW

DOVETAIL WINDROW

The stalk tips are lined along outside edges of windrow and heads are crossed in center. This windrow can be formed by center delivery only. Windrow rating:

Weight Distribution: Poor
Curing Characteristics: Fair
Weatherability: Poor



DOVETAIL WINDROW

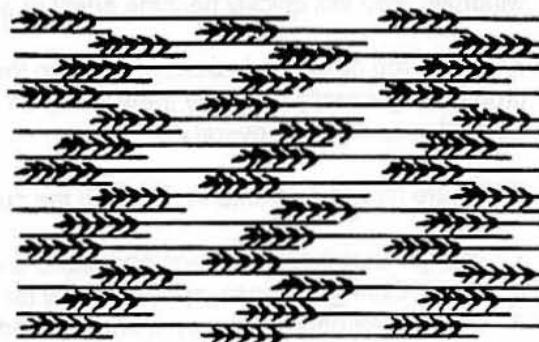
OPERATION

WINDROW CHARACTERISTICS (continued)

PARALLEL WINDROW

The stalks are parallel to windrow and heads evenly distributed across width of windrow. This windrow can be formed by center delivery or end delivery. Windrow rating:

Weight Distribution: Good
Curing Characteristics: Good
Weatherability: Good

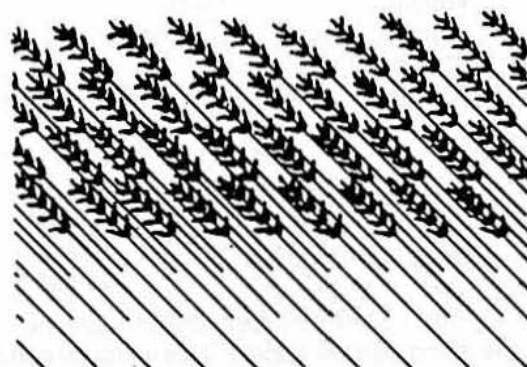


PARALLEL WINDROW

45° DIAGONAL WINDROW

The stalk tips are lined along one edge and heads are along opposite edge, 45° to windrow perpendicular. This windrow can be formed by end delivery only. Windrow rating:

Weight Distribution: Poor
Curing Characteristics: Fair
Weatherability: Poor

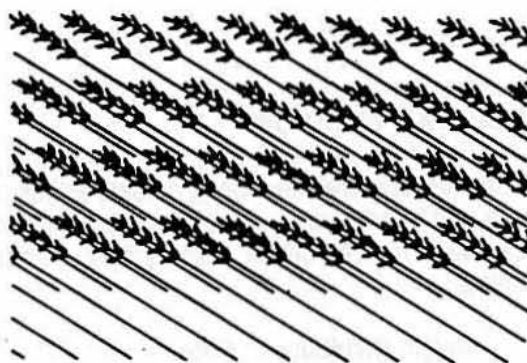


45° DIAGONAL WINDROW

75° DIAGONAL WINDROW

The stalks are closer to parallel than the 45° windrow. Stalk tips are lined along one edge with heads opposite, 75° to windrow perpendicular. This windrow can be formed by end delivery only. Windrow rating:

Weight Distribution: Fair
Curing Characteristics: Good
Weatherability: Fair



75° DIAGONAL WINDROW

TRANSPORTING THE HEADER

See "Transporting the Windrower" in the Windrower Operator's Manual for recommended procedures for:

- Driving the Windrower on Roads
- Towing the Windrower on a Trailer
- Towing the Windrower without a Trailer

STORAGE PROCEDURE

Do the following at the end of each operating season:



CAUTION:

1. **Clean the windrower thoroughly. Never use gasoline, naphtha or any volatile material for cleaning purposes. These materials may be toxic and/or flammable.**
2. **Store machine in a dry, protected place if possible.**
3. **Cover cutterbar and knife guards to prevent injury from accidental contact.**

Also:

4. Remove drapers and store in a dark, dry place.

NOTE: If drapers are not removed, release tension and angle header so water/snow will not accumulate on drapers. This accumulation of weight can stretch draper material and put excessive stress on draper slats and draper tracks.

5. Lower header onto blocks to keep cutterbar off ground.
6. Lower reel completely. If stored outside, tie reel to frame to prevent rotation caused by wind.
7. Repaint all worn or chipped painted surfaces to prevent rust.
8. Loosen knife drive belt.
9. Lubricate the windrower thoroughly, leaving excess grease on fittings to keep moisture out of bearing. Oil cutterbar and apply grease to exposed threads and sliding surfaces of components.
10. Check for worn components and repair.
11. Check for broken components and order replacements from your dealer. Attention to these items right away will save time and effort at beginning of next season.
12. Tighten loose hardware and replace any missing hardware. See Specifications section for torque charts.

MAINTENANCE/SERVICE

SERVICE PROCEDURES



CAUTION: To avoid personal injury, before servicing machine or opening drive covers:

1. Fully lower header and reel. If it is necessary to service in the raised position, first engage header lift cylinder stops and reel props.
2. Disengage header drive clutch.
3. Stop engine and remove key.
4. Engage park brake.
5. Wait for all moving parts to stop.

Wear close-fitting clothing and cover long hair. Never wear dangling items such as scarves or bracelets.

Wear protective shoes with slip-resistant soles, a hard hat, protective glasses or goggles and heavy gloves.

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

Keep the service area clean and dry. Wet or oily floors are slippery. Wet spots can be dangerous when working with electrical equipment. Be sure all electrical outlets and tools are properly grounded.

Use adequate light for the job at hand.

Replace all shields removed or opened for service.

Do not substitute parts, especially safety related, that may not meet strength or design requirements of the manufacturer.

Keep the header clean. Never use gasoline, naphtha or any volatile material for cleaning purposes. These materials may be toxic and/or flammable.

MAINTENANCE/SERVICE

RECOMMENDED LUBRICANTS

GREASE

Use an SAE Multi-Purpose High Temperature Grease with Extreme Pressure (EP) Performance and containing at least 1.5% molybdenum disulfide.

Also acceptable is an SAE Multi-Purpose Lithium Base Grease.

WOBBLE BOX LUBRICANT

In knife drive wobble box, use SAE 85W-140 gear lubricant. (API Service Classification GL-5)

CAPACITIES

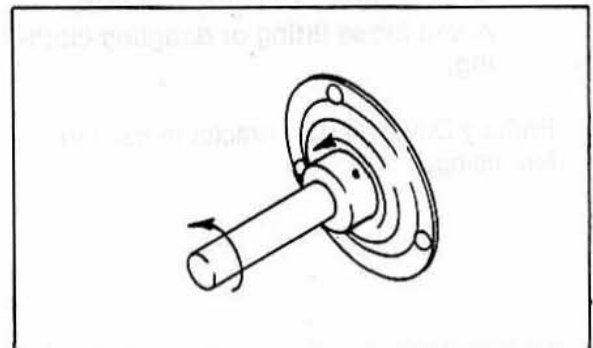
Wobble Box - 900 ml (1.0 U.S. quart)

STORING LUBRICANTS

Your machine can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture and other contaminants.

SEALED BEARING INSTALLATION

1. Clean shaft and coat with rust preventative.
2. Install flangette, bearing, flangette and lock collar. The locking cam is only on one side of the bearing.
3. Install (but do not tighten) the flangette bolts.
4. When the shaft is located correctly, lock the lock collar with a punch. The collar should be locked in the same direction the shaft rotates. Tighten the set screw in the collar.
5. Tighten the flangette bolts.
6. Loosen the flangette bolts on the mating bearing one turn and re-tighten. This will allow the bearing to line up.



TIGHTEN COLLAR IN DIRECTION
SHAFT ROTATES

MAINTENANCE/SERVICE

GREASING THE HEADER AND CONDITIONER

See "Recommended Lubricants" in this section for recommended greases.

The following greasing points are marked on the header by decals showing a grease gun (A), and grease interval (B) in hours of operation. Use the hour meter in the windrower cab and the "Maintenance Checklist" provided to keep a record of scheduled maintenance.

Procedure:

1. Wipe grease fitting with a clean cloth before greasing, to avoid injecting dirt and grit.
2. Inject grease through fitting with grease gun until grease overflows fitting, except where noted.
3. Leave excess grease on fitting to keep out dirt.
4. Replace any loose or broken fittings immediately.
5. If fitting will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.

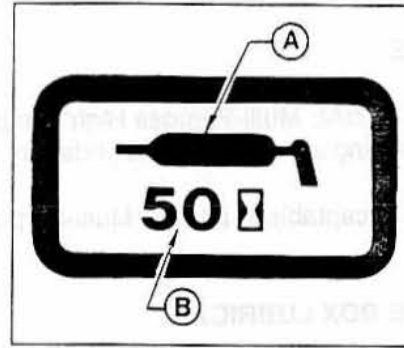
10 Hours or Daily:

1. Knife Head (C) - one fitting

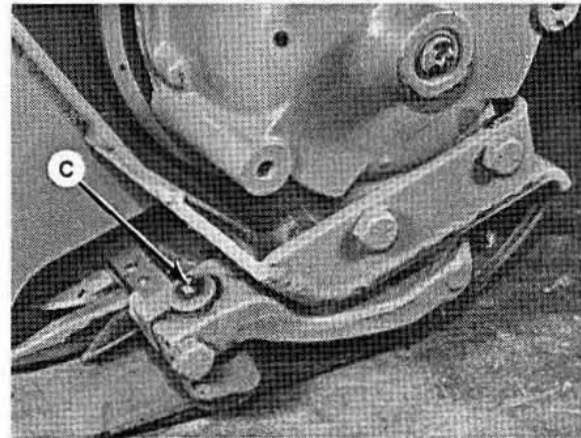


DANGER: Stay clear of driveline until all movement has stopped. Entanglement with rotating driveline will cause serious personal injury or death. Avoid loose fitting or dangling clothing.

2. Primary Driveline (D) - (tractor to header): four fittings



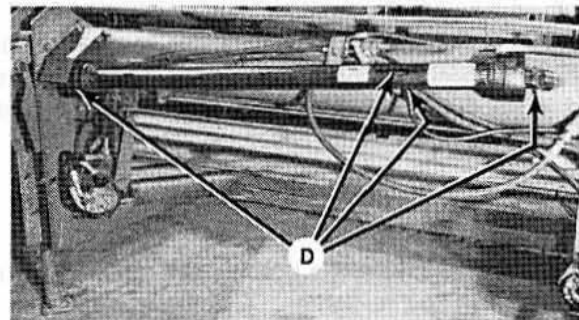
SAMPLE GREASE DECAL



KNIFE HEAD



STAY CLEAR OF ROTATING DRIVELINES



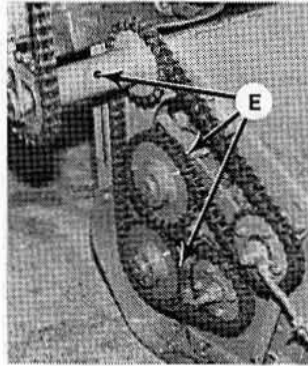
PRIMARY DRIVELINE

MAINTENANCE/SERVICE

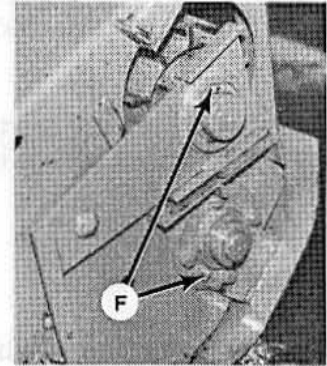
GREASING THE HEADER AND CONDITIONER (continued)

50 Hours:

1. Hay Conditioner Bearings (E) & (F)
 - five fittings



LEFT SIDE

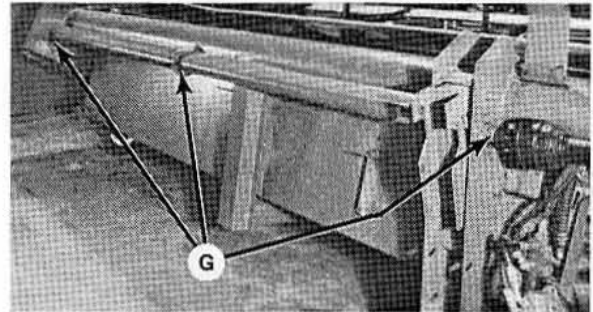


RIGHT SIDE

HAY CONDITIONER BEARINGS

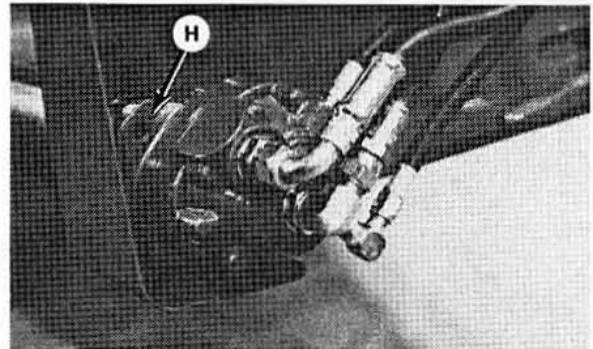
100 Hours or Annually

1. Knife Drive Shaft Support Bearings (G)
 - three fittings



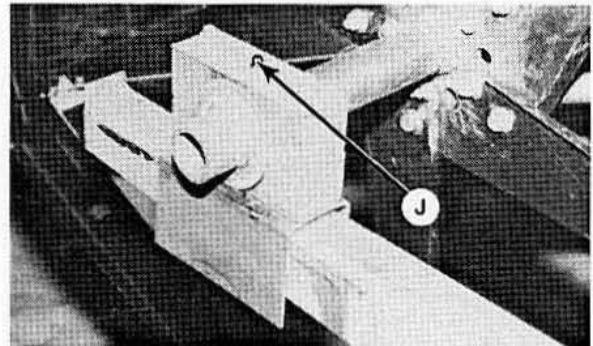
KNIFE DRIVE SHAFT SUPPORT BEARINGS

2. Draper Drive Rollers Rear Bearings (H)
 - (one fitting per roller)
 - 12, 15, 18 ft. - 2 fittings
 - 21, 25, 30 ft. - 3 fittings



DRAPER DRIVE ROLLER REAR BEARING

3. Reel Shaft Bearing (J) - one fitting



REEL SHAFT BEARING

MAINTENANCE/SERVICE

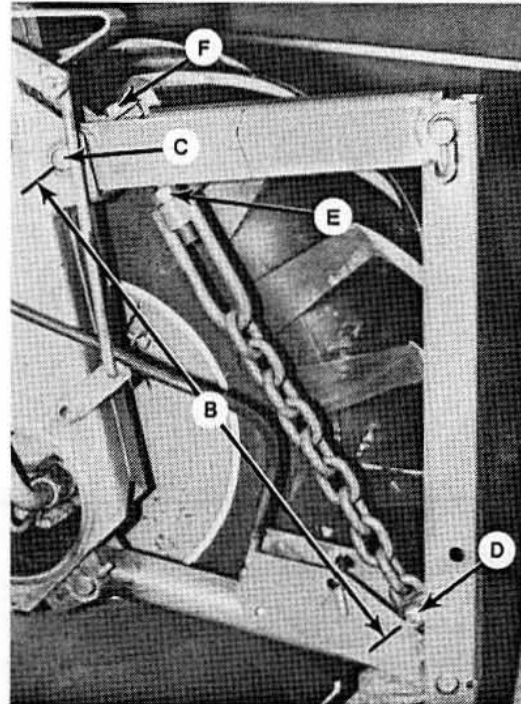
HEADER LEVELLING

The length (B) of the diagonal chain (measured from top link pin [C] to bottom chain bolt [D]) should be 26.0 inches (660 mm).

If header is not level, shorten chain length (B) on the lower side until header is level.

To adjust chain length:

1. Lower header onto a block so diagonal chain slackens.
2. Loosen jam nut (E).
3. Turn bolt (F) until desired chain length is reached.
4. Tighten jam nut (E).



HEADER LEVELLING

FAX → -Justy-

→ Darren Fisher
SERVICE

DATE: _____

MAINTENANCE/SERVICE

HYDRAULIC SYSTEM

Hydraulic Hoses and Lines

Check hydraulic hoses and lines daily for signs of leaks.



WARNING: Avoid high-pressure fluids. Escaping fluid can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic lines. Tighten all connections before applying pressure. Keep hands and body away from pin-holes and nozzles which eject fluids under high-pressure. Use a piece of cardboard or paper to search for leaks. 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.



AVOID HIGH-PRESSURE FLUIDS

IMPORTANT: Dirt, dust, water and foreign material are the major causes of trouble developing in the hydraulic system. DO NOT attempt to service hydraulic system in the field. Precision fits require WHITE ROOM CARE during overhaul.

The header's hydraulic circuits require no periodic maintenance. See "Hydraulic System" in the Maintenance/Service section of the Windrower Operator's Manual for total system care.



CHECK PROPERLY FOR LEAKS

Header Lift Control Valve: Drop Rate

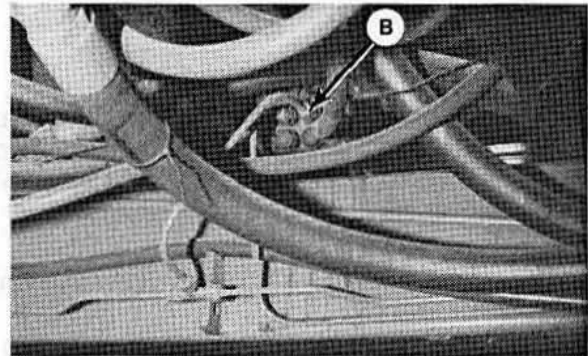
The header lift control valve is mounted to the tractor frame front cross member, and is connected to the right hand and center pedals in the cab.

If the header lowers too slowly, the drop rate may be increased (without affecting raising speed) as follows:

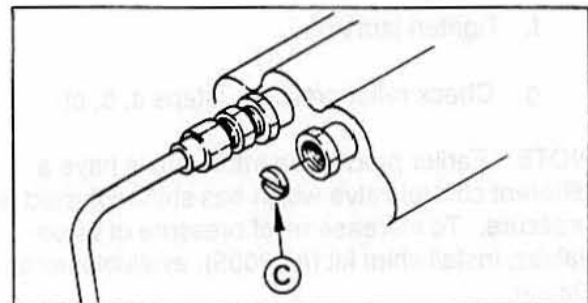


DANGER: To avoid bodily injury or death from fall of raised header, LOWER HEADER TO GROUND, shut off engine and remove key before removing hydraulic line.

1. Remove hydraulic line and male connector from port (B) at rear of valve.
2. Remove hexagonal orifice plate (C) from the port.
3. Reinstall male connector and hydraulic line.



LOCATE HEADER LIFT PORT -REAR OF VALVE



REMOVE ORIFICE PLATE

MAINTENANCE/SERVICE

HYDRAULIC SYSTEM (continued)

Header Lift Control Valve: Relief Pressure

The header lift control valve is mounted to the tractor frame front cross member, and is connected to the right hand and center pedals in the cab.

The control valve relief pressure is factory set to provide sufficient lift for all headers.

If you encounter lift capacity problems (for example, insufficient lift to attach float springs) the probable cause is low relief pressure.

To check and adjust relief pressure:

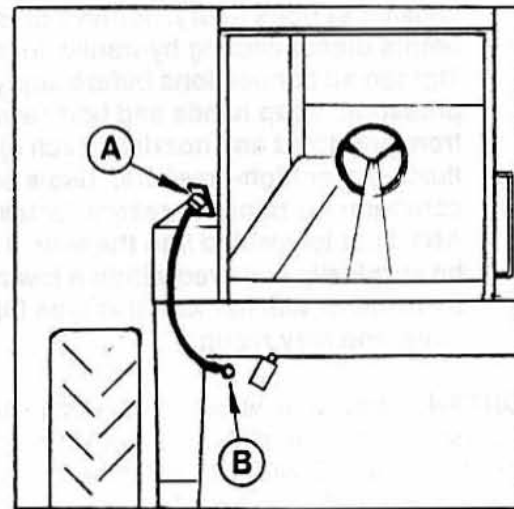
1. Lower header to ground, shut off engine and remove key from ignition.
2. Attach a 3000 psi (20 MPa) pressure gauge (A) to the reel lift line quick coupler (B) at tractor right hand leg. Position gauge so it can be read from the operator's seat.
3.
 - a. Start engine as described in Windrower Operator's Manual.
 - b. Move throttle lever fully forward.
 - c. Depress heel of reel lift (center) pedal and check pressure reading on gauge. Pressure should be 2300 to 2400 psi (15.8 to 16.5 MPa). If pressure is too low, proceed with steps d) to f).



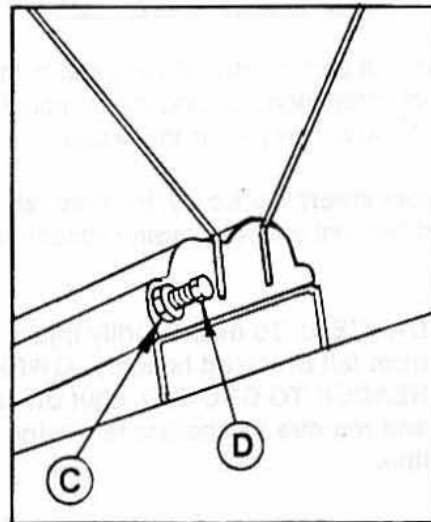
WARNING: To avoid bodily injury from fall of raised header, and/or machine damage, do not exceed 2400 psi (16.5 MPa) relief pressure.

- d. Shut off engine and remove key from ignition.
- e. Loosen jam nut (C) and turn adjuster (D) 1/8 turn inward.
- f. Tighten jam nut.
- g. Check relief pressure (steps a, b, c).

NOTE: Earlier production tractor units have a different control valve which has shim-adjusted relief pressure. To increase relief pressure of these valves, install shim kit (# 33005), available from your Dealer.



PRESSURE GAUGE ATTACHMENT



CONTROL VALVE RELIEF PRESSURE ADJUSTMENT

MAINTENANCE/SERVICE

HYDRAULIC SYSTEM (continued)

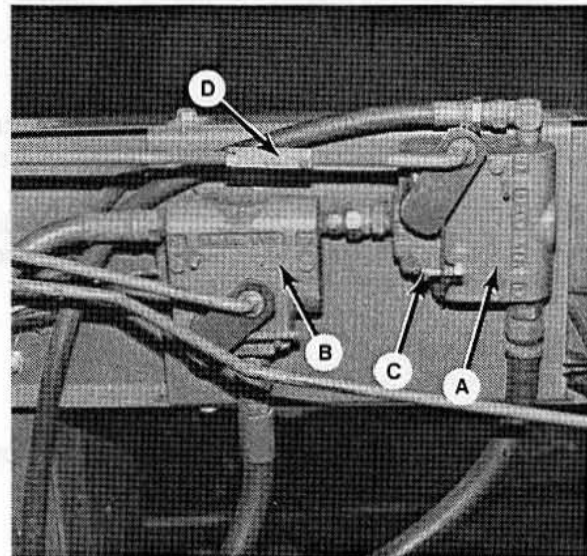
Draper Speed Control Valve: Linkage Adjustment

The linkage of the draper speed control valve (A) is factory adjusted so that the head of the stop bolt contacts the lower stop pin when the control lever in the cab is stroked fully forward. This provides maximum flow of approximately 6 US gallons per minute (gpm) to the draper motors.

The linkage of the reel speed control valve (B) is factory adjusted so that the stop rod contacts the lower stop pin when the control lever is stroked fully forward. This provides maximum possible flow (approximately 8 US gpm) to the reel drive motor.

If higher draper speed is required, turn in the stop bolt (C) on the rear valve and lengthen the rear valve linkage (D) so that greater valve stroke is obtained. This will provide increased flow to the draper motors to a maximum of approximately 8 US gpm.

NOTE: In order to obtain greater than 6 US gpm flow to the drapers, reel speed control lever (in cab) must be backed off proportionally to make extra oil available to achieve the desired increase in draper speed.



DRAPER SPEED CONTROL
LINKAGE ADJUSTMENT

MAINTENANCE/SERVICE

KNIFE AND KNIFE DRIVE



WARNING: Keep hands clear of the area between guards and knife at all times.

Knife Lubrication

Apply SAE 10 or equivalent light weight oil daily (one or two drops per section) along entire length of knife.

NOTE: Do not oil knife if operating in sandy conditions. Oil will cause sand to adhere to knife components, resulting in excessive wear.

Knife Sections

Check daily that sections are firmly riveted to the knife back and are not worn or broken. Replace as required.

To replace knife section:



CAUTION: Always wear protective eyewear when removing old rivet heads. Wear heavy gloves when working around or handling sharp knives.

IMPORTANT: Strike rivet heads from side rather than the front when removing old rivets.

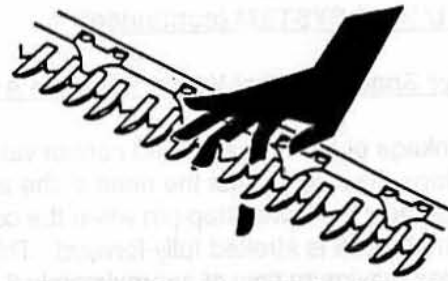
1. A worn or broken knife section (A) can be replaced without removing knife from cutterbar.

IMPORTANT: Do not punch out old rivets, this enlarges hole in knife back.

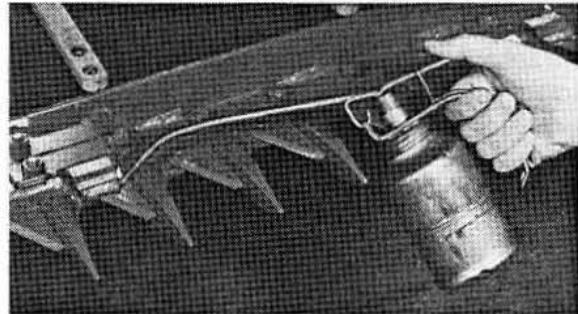
2. Shear old rivet heads (C) with chisel and hammer.
3. Remove old rivets using tool (D) and remove old knife section.

IMPORTANT: Do not mix heavy and light knife sections on same knife.

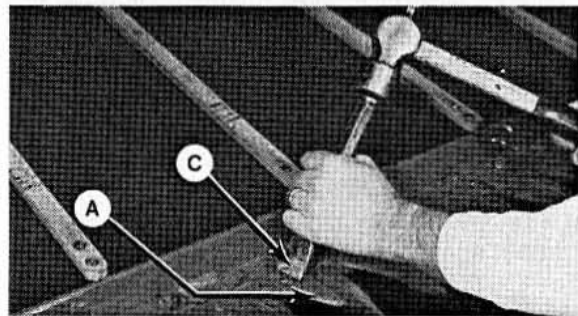
4. Position new knife section, insert new rivets from below and secure using riveting tool.



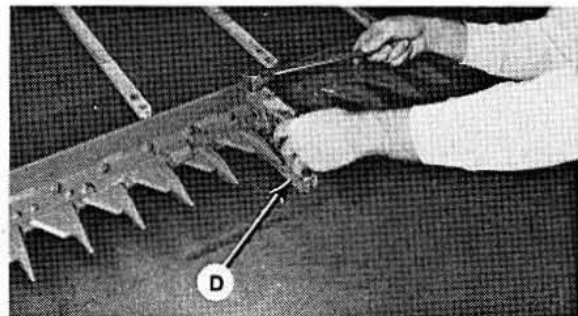
KEEP HANDS AWAY FROM KNIFE



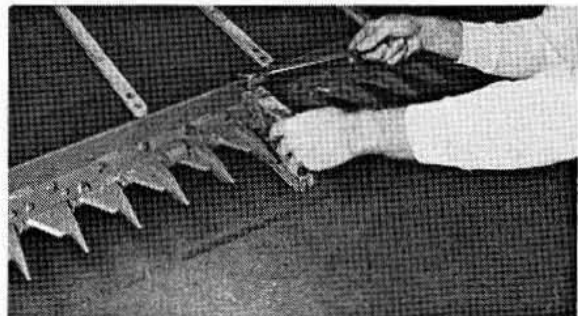
OIL KNIFE DAILY EXCEPT
IN SANDY SOIL



SHEAR OLD RIVETS



REMOVE OLD RIVETS



INSTALL NEW RIVETS

MAINTENANCE/SERVICE

KNIFE AND KNIFE DRIVE (continued)

To Remove Knife

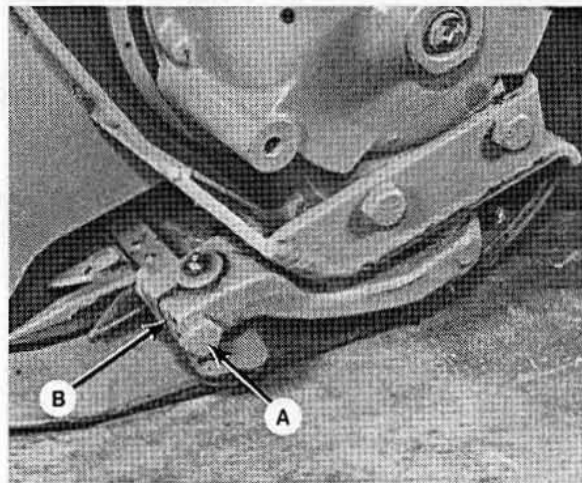


WARNING: Always stand to rear of knife during removal to reduce risk of injury from cutting edges. Wear heavy gloves when handling knife.

1. Clean area around knife head. Stroke knife to its outer limit and remove bolt (A).
2. Insert screwdriver in slot (B) and pry up on knife head pin to free knife.
3. Pull knife out.

NOTE: For two piece knives, remove bolts from splice plate and pull knife out from both ends.

4. Cover knife head to shield bearing from dirt.



REMOVING KNIFE

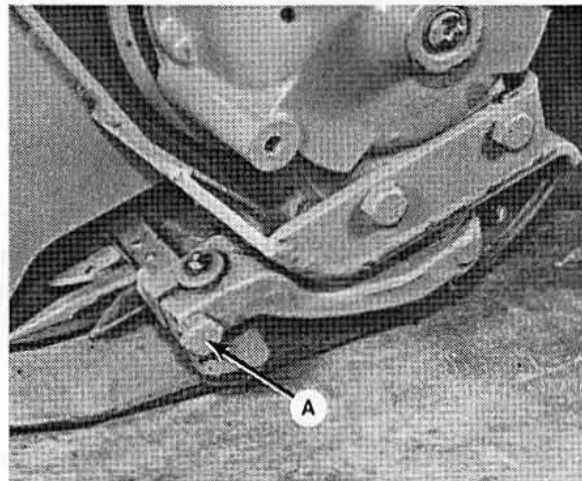
To Install Knife



WARNING: Always stand to rear of knife during installation to reduce risk of injury from cutting edges. Wear heavy gloves when handling knife.

IMPORTANT: Always align guards and re-set knife clips while replacing knife. See "Guards" and "Knife Clips" in this section.

1. Slide knife into place and replace bolt (A).
NOTE: Notch in knife head pin must align with bolt.
2. Tighten bolt (A) to 160 ft.lbs. (217 N·m).
3. Align guards and adjust knife clips.



INSTALLING KNIFE

MAINTENANCE/SERVICE

KNIFE AND KNIFE DRIVE (continued)

Guards



CAUTION: Always engage reel props before working under reel.

Check daily that guards are aligned to obtain proper shear cut between knife section and guard.

To align guards, strike each guard tip up or down as necessary. Knife sections should contact shear surface of each guard.

Excessive Breakage

Excessive breakage of knife sections and guards is an indication that the cutterbar is operating too low in stony conditions, or that header float is set too heavy. See "Cutting Height" and "Header Flotation" in Operation section.

Knife Clips

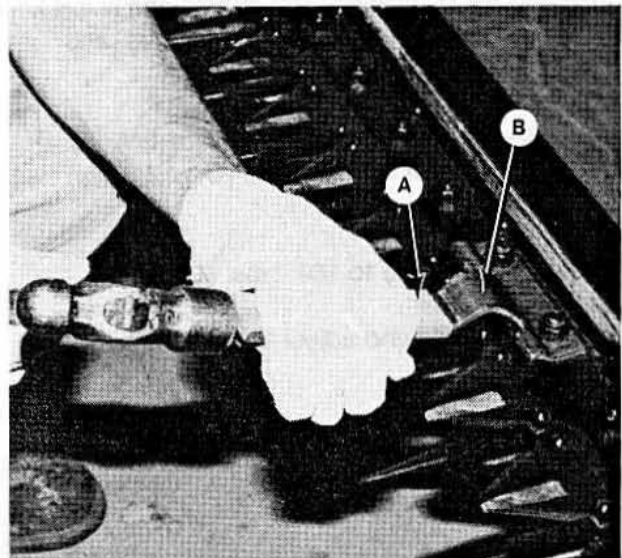


CAUTION: Always engage reel props before working under reel.

Check daily that knife clips are set to prevent knife sections from lifting off guards but still permit knife to slide without binding. Clips should be set after guards are aligned.

To set clips:

1. Using a flat piece of bar (A), tap end of clip as shown. This allows adjustment of clip arch (B) without "pinching" knife. Clearance from clip to knife section should be .020 in. (0.5 mm).
2. After adjusting all knife clips, run header at a low engine speed and listen for noise due to insufficient clearance. Re-adjust as necessary by placing a .020 in. (0.5 mm) shim between clip and section, then striking the clip arch (B) with a hammer.



SETTING KNIFE CLIPS

MAINTENANCE/SERVICE

KNIFE AND KNIFE DRIVE (continued)

Knife Drive Belt Tension

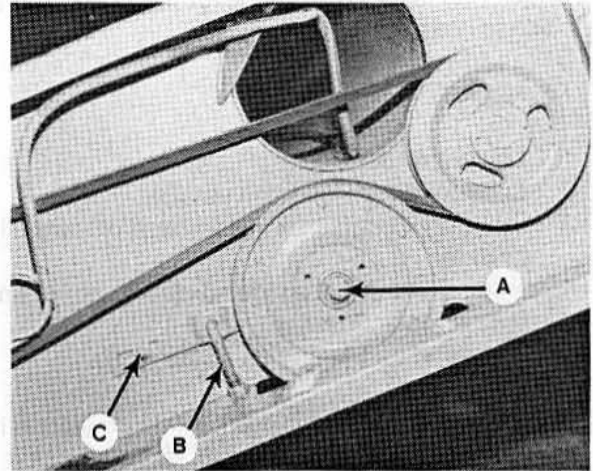
Check knife drive belt tension after the first 5 hours operation and every 100 hours thereafter.

IMPORTANT: To prolong belt and drive life, do not overtighten belt. Operate at minimum tension required to prevent slipping or excessive belt whip. When installing a new belt, never pry over pulley. Loosen adjusting device sufficiently to allow easy installation.

To adjust:

1. Loosen idler pulley mounting bolt (A).
2. Turn nut on adjusting rod (B) to position idler pulley so that a force of 12 lbs. (55 N) deflects belt 3/4 inch (19 mm) at mid-span.
3. Tighten bolt (A).

NOTE: Locknut on pivot bolt (C) should be kept one turn loose to permit sliding of the idler arm during adjustment.

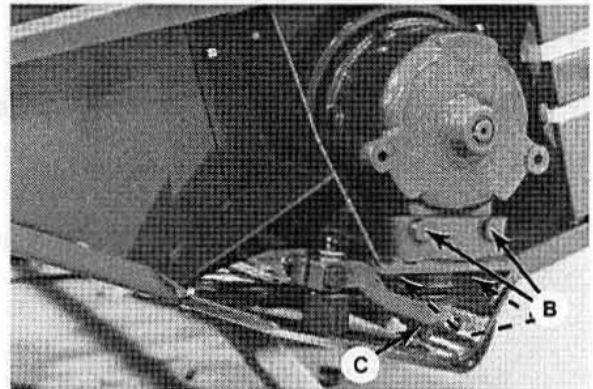


KNIFE DRIVE BELT TENSION ADJUSTMENT

Wobble Box Mounting Bolts

Check four wobble box mounting bolts (B) torque after the first 10 hours operation and every 100 hours thereafter. Torque should be 200 ft. lbs. (270 N.m). When tightening, start with the side mounting bolts.

If slotted nut (C) securing drive arm is removed, torque to 200 ft. lbs. (270 N.m) when replacing.



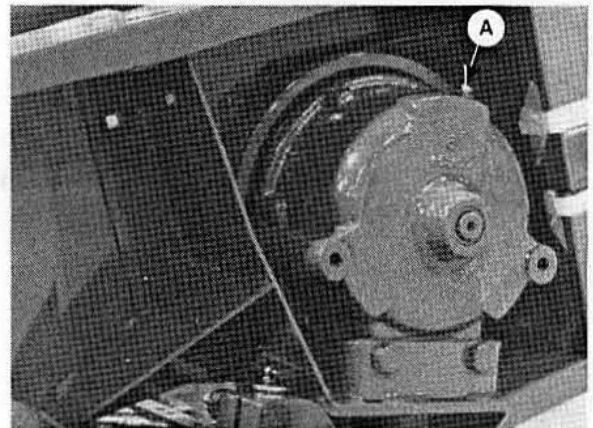
WOBBLE BOX MOUNTING BOLTS

Wobble Box Lubricant

Check wobble box lubricant level before first operation and every 100 hours thereafter.

To check:

1. Raise header to a point where the wobble box base is approximately level.
2. Remove breather (A) and measure down. Use a somewhat flexible measuring device to allow insertion past internal components. Oil level should be 2 1/2 to 3 1/2 inches (65 to 90 mm) from top of hole.
3. Add as required. See "Recommended Lubricants" for specified gear lube and capacity of box.



CHECK WOBBLE BOX OIL

MAINTENANCE/SERVICE

REEL AND REEL DRIVE

Reel Clearance From Cutterbar

The reel should be adjusted to provide 1 inch (25 mm) clearance above cutterbar and/or drapers with reel fully lowered.

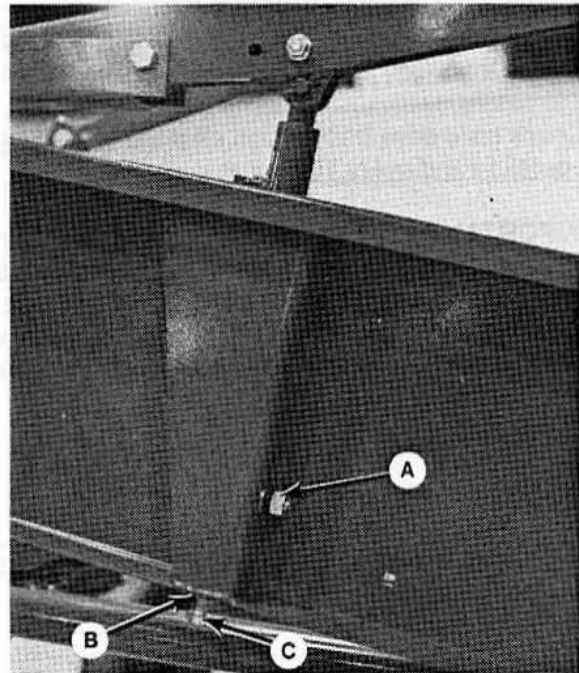
Check reel clearance whenever the reel fore-aft position is changed.

To adjust:

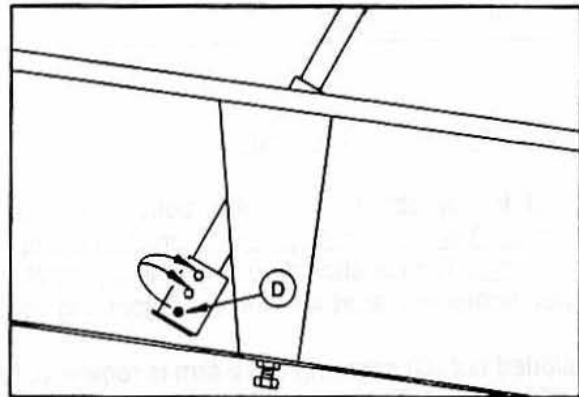
1. Lower header and reel fully.
2. Loosen nut (A) and jam nut (B).
3. Turn adjusting screw (C) to raise or lower lift cylinder.
4. Repeat at opposite side so clearance is consistent across cutterbar.
5. Tighten nuts (A) and (B), both sides.

IMPORTANT: To provide adequate clearance if a pick-up reel is installed, the reel lift cylinders on both sides must be raised to the middle or upper hole in the mounting bracket, as follows:

1. Engage both reel props and lower reel onto them.
2. Remove nut (A) and swing bottom of cylinder back to expose pin (D).
3. Remove pin and relocate in alternate hole. Both sides must be the same.
4. Reinstall nut (A) and adjust reel clearance as above.



REEL CLEARANCE ADJUSTMENT



RELOCATE CYLINDER PIN FOR PICK-UP REEL

Reel Drive Chain Tension

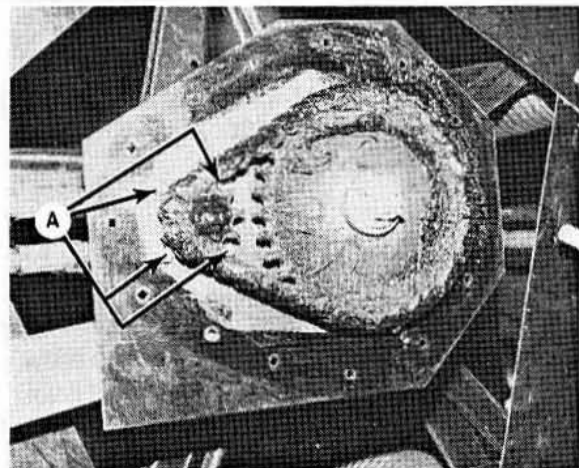
Check the reel drive chain tension annually.

To adjust:

1. Loosen four bolts (A).
2. Slide motor away from reel shaft until a force of 11 lbs. (50 N) deflects chain 1/8 inch (3 mm) at mid-span.
3. Tighten bolts (A).

Reel Drive Chain Lubrication

Lubricate full length of chain annually with Multi-Purpose Grease.



REEL DRIVE CHAIN TENSION AND LUBRICATION

MAINTENANCE/SERVICE

DRAPERS

Draper Care

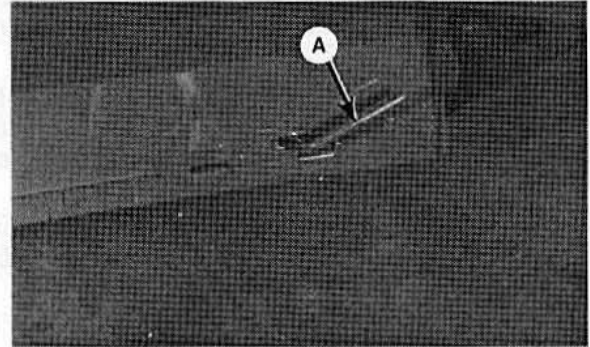
IMPORTANT: The investment in time to be sure drapers are properly adjusted and running true will greatly increase draper life.

Follow these draper care tips:

1. Release draper tension at the end of each day's operation. Use hand or foot to move lever (A) over-center.



CAUTION: Spring loaded over-center action causes handle to kick back when tension is released. To avoid possible injury, do not hold lever when releasing tension.



RELEASE DRAPER TENSION

2. At the end of each day's operation, especially if machine will not be moved for several days, lower cutterbar to prevent water build-up on the drapers. The additional weight of an accumulation of water will stretch drapers and put excessive stress on the draper slats and draper tracks.
3. Set draper tension just high enough to prevent slipping.
4. Adjust draper rollers so drapers track properly. See "Draper Tracking" below.

Draper Tracking

IMPORTANT: When first checking draper tracking, operate drapers slowly. Drapers can then be stopped quickly to prevent damage caused by excessive misalignment.

Adjustments are made at both the drive roller and the idler roller for proper draper tracking. Use the "Drive Roller" and "Draper Tension" adjustments in this section so that:

1. Drapers track parallel to cutterbar, running between draper guides, not rubbing hard against one edge.
2. Drapers just contact cutterbar with header at cutting height.

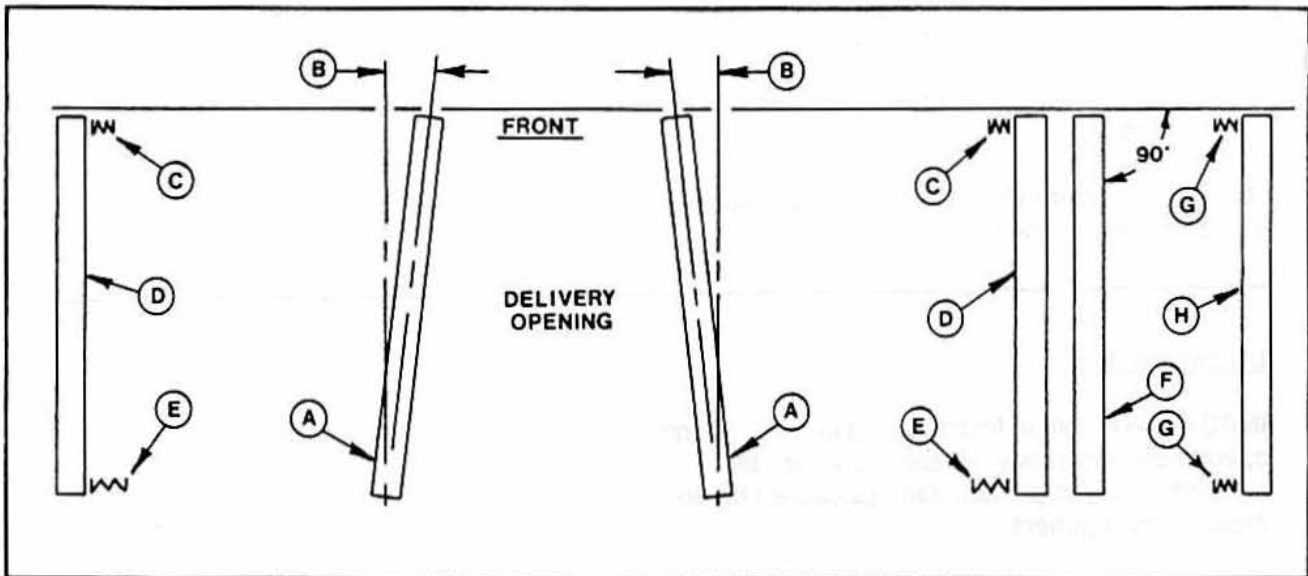
MAINTENANCE/SERVICE

DRAPERS

Draper Tracking (continued)

The following settings and adjustments have been found to suit normal conditions:

1. For long drapers: Front of drive rollers (A) are angled out by dimension (B):
1/16 to 1/4 inch (2 to 6 mm).
Tension on front springs (C) on idler rollers (D) is set to compress 1/2 to 3/4 inch (12 to 20 mm) more than rear springs (E).
2. For shorter drapers (including short deck draper on double window headers):
Drive roller (F) is set closer to perpendicular (90°) to cutterbar.
Tension on front and rear springs (G) on idler roller (H) is closer to equal.
3. If draper rubs on front edge at DRIVE ROLLER (A), move front of drive roller to increase dimension (B). See "Drive Roller Adjustment" in this section.
4. If draper rubs on front edge at IDLER ROLLER (D), increase tension on front spring (C) and decrease tension on rear spring (E). See "Draper Tension Adjustment" in this section.



DRAPER TRACKING

MAINTENANCE/SERVICE

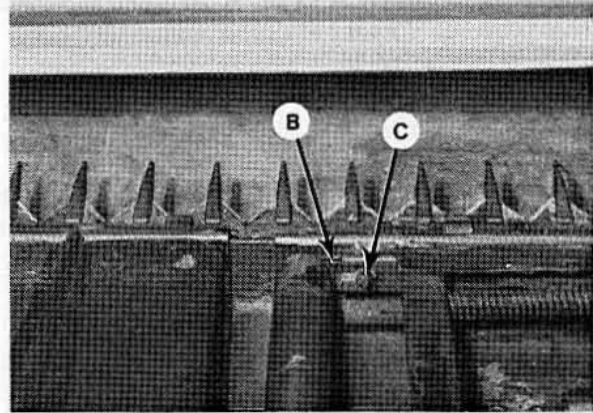
DRAPERS (continued)

Drive Roller Adjustment

Adjustment of the cutterbar end of the drive roller is made to modify draper tracking. See "Draper Tracking" in this section.

To adjust:

1. Release draper tension. See Draper Tension Adjustment below.
2. Mark roller bracket (B) before moving roller, to show original position.
3. Loosen nut (C).
NOTE: Best access to this nut is from underside if a wrench is used or topside if a ratchet is used.
4. Move front of roller in or out in 1/8 inch (3 mm) increments until draper runs parallel to cutterbar.
5. Tighten nut (C) to secure the position and reapply draper tension.



DRIVE ROLLER ADJUSTMENT

Draper Tension Adjustment

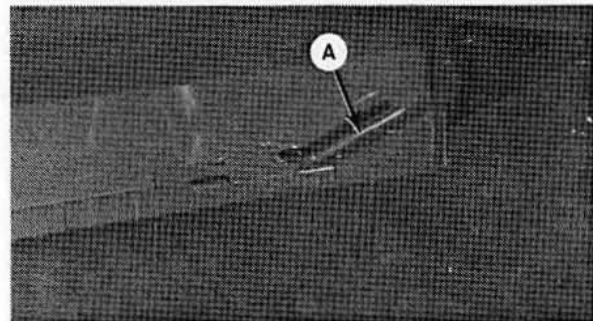
Draper tension is adjusted with spring assemblies at each end of the idler roller. Tension should be adjusted just tight enough to prevent slippage. Also, by varying the front and rear spring settings with respect to each other, draper tracking can be modified. See "Draper Tracking" in this section.

To adjust:

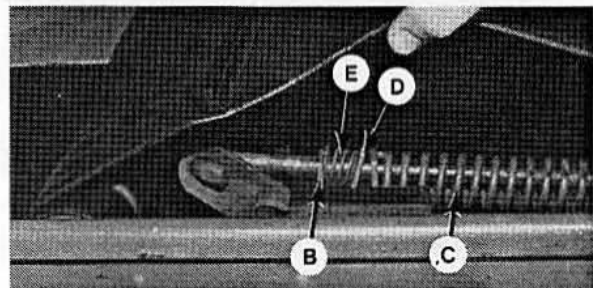
1. Release draper tension by using hand or foot to move lever (A) over-center.



CAUTION: Spring-loaded over-center action causes handle to kick back when tension is released. To avoid possible injury, do not hold lever when releasing tension.



RELEASE DRAPER TENSION



DRAPER TENSION ADJUSTMENT

2. Locate draper tension spring (C) at each end of idler roller.
3. To increase draper tension, slide U-shaped channel (B) toward spring (C). Repeat on opposite end of roller.
4. To decrease draper tension, push washer (D) against channel spring (E) to release grip on rod, then slide channel (B) away from spring (C).
5. Reapply draper tension by rotating lever (A) toward center of draper. Medium hand force should be sufficient.
IMPORTANT: If drapers must be excessively tightened to prevent slippage, a drive roller lagging kit is available from your dealer.
6. On double window headers, check "Right Hand Shifting Deck to Short Deck Clearance". See this section.

MAINTENANCE/SERVICE

DRAPERS (continued)

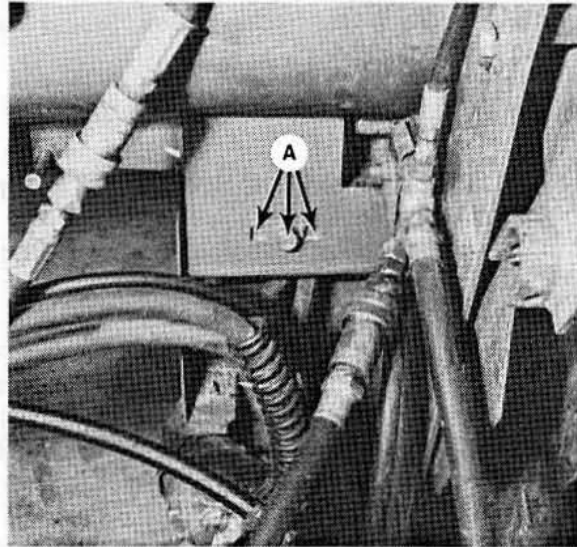
Right Hand Shifting Deck To Short Deck Clearance - 21, 25, 30 ft.

There should be a minimum 1 3/4 inch (45 mm) clearance between the right hand shifting deck and the short deck at extreme right end of header. This prevents contact at draper slats.

Check this clearance whenever center delivery opening width or draper tension is changed.

To adjust, reposition right shifting deck stop to one of three adjustment holes (A). Deck stop is under main frame tube at right lift leg.

If more adjustment is required than can be achieved by moving the stop (for example, due to excessive draper stretch), shorten right shifting deck draper by repositioning draper connector hardware.



DECK-TO-DECK CLEARANCE
ADJUSTMENT

Replacing Drapers

When installing drapers:

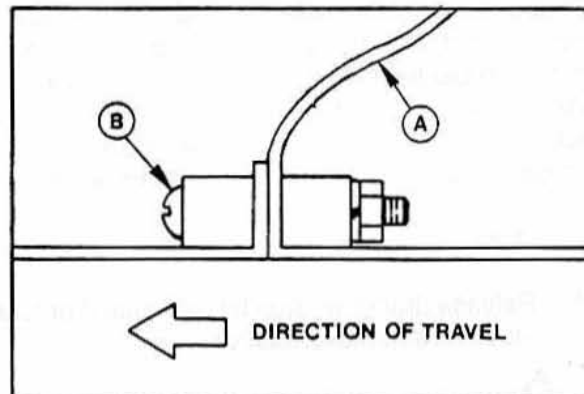
1. Right and left shifting deck drapers are different lengths (except for 21 ft. header). Be sure you have them properly positioned before cutting a draper you think is too long.

See "Draper Installation" in Assembly section for positioning of drapers with decks in factory set positions.

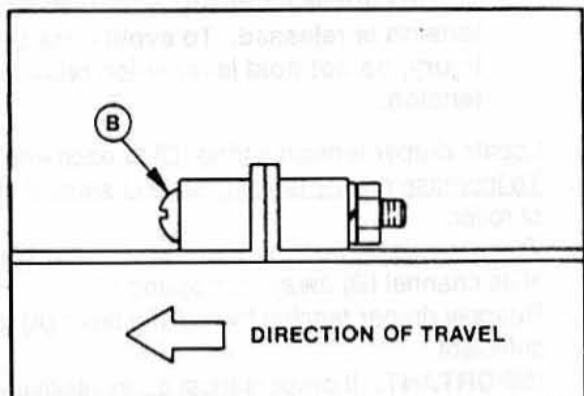
2. For 12, 15 and 18 ft. headers, install drapers with flaps (A) trailing in direction of travel.

For 21, 25 and 30 ft. headers, position connector slat at appropriate row of holes for center delivery opening width setting.

3. Install screws (B) with heads leading in direction of travel (in center delivery mode).
4. For 12, 15 and 18 ft. headers, pull flaps evenly through connector slats until screws are at end of flap slots.



DRAPER INSTALLATION - 12, 15, 18 FT.



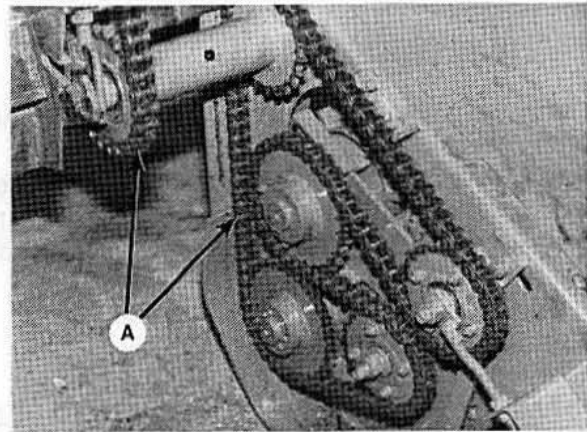
DRAPER INSTALLATION - 21, 25, 30 FT.

MAINTENANCE/SERVICE

HAY CONDITIONER

Hay Conditioner Drive Chains Lubrication

Lubricate chains (A) daily with a light weight oil (SAE 30).



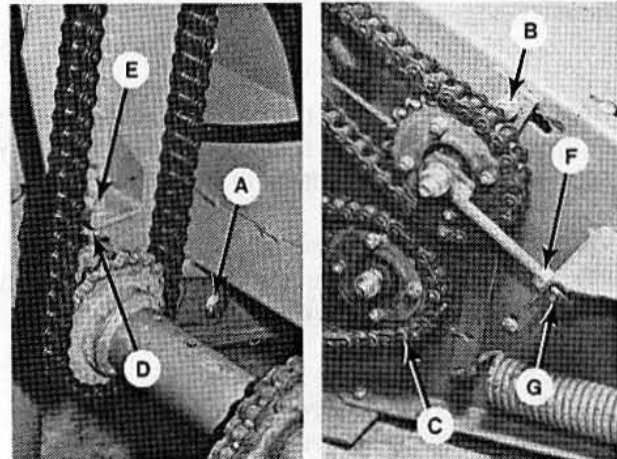
OIL HAY CONDITIONER CHAINS

Hay Conditioner Drive Chains Tension

Check hay conditioner drive chains tension after the first 2 hours operation and every 100 hours thereafter.

To adjust both chains:

1. Loosen bolts (A), (B) and (C).
2. Back off nut (D) and turn nut (E) counter-clockwise. Weight of conditioner will pull main drive chain down to increase tension.
3. Back off nut (F) and turn nut (G) clockwise to increase roll drive chain tension.
4. Increase tension until a force of 12 lbs. (55 N) deflects chain 1/4 inch (6 mm) at midpoint of longest span of each chain.
5. Tighten all hardware securely.

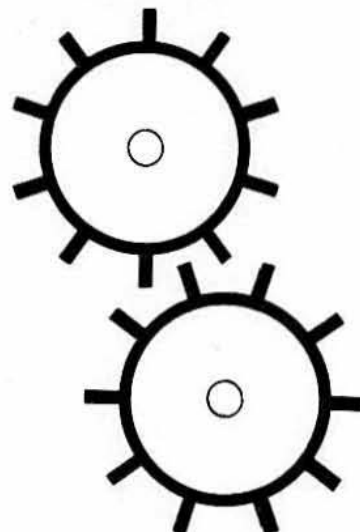


CONDITIONER DRIVE CHAINS
TENSION ADJUSTMENT

Hay Conditioner Roll Timing

Rolls must be timed to prevent contact between bars. Bars of one roll must be half-way between bars of the other roll as illustrated.

If roll drive chain is removed; before reinstallation rotate rolls to position which allows chain installation and maintains correct roll timing.



PROPER ROLL TIMING

MAINTENANCE/SERVICE

MAINTENANCE SCHEDULE

The following maintenance schedule is a listing of periodic maintenance procedures, organized by service intervals. For detailed instruction, see the specific headings in Maintenance/Service section. Use "Recommended Lubricants" as specified under that heading.

SERVICE INTERVALS

The recommended service intervals are in hours of operation. Use the hour meter in the windrower cab to indicate when the next service interval has been reached.

IMPORTANT: Recommended intervals are for average conditions. Service header more often if operated under adverse conditions (severe dust, extra heavy loads, etc.)

Regular maintenance is the best insurance against early wear and untimely breakdowns. Following this schedule will increase machine life.

Where a service interval is given in more than one time frame, eg. "100 hours or Annually", service the header at whichever interval is reached first.



CAUTION: Carefully follow safety messages given under "Service Procedures".

MAINTENANCE/SERVICE

MAINTENANCE SCHEDULE

AT FIRST USE: See "Preparing the Header (and Conditioner)" and "Break-In Period" in Operation section.

10 HOURS OR DAILY

1. Grease knife head.
2. Grease primary drive line.
3. Oil knife (except in sandy conditions).
4. Check knife sections, guards and clips.
5. Check hydraulic hoses and lines for leaks.
6. Oil hay conditioner drive chains.
7. Release draper tension (end of day).

50 HOURS

1. Grease hay conditioner bearings.

100 HOURS OR ANNUALLY *

1. Grease knife drive shaft support bearings.
2. Grease draper drive rollers rear bearings.
3. Grease reel shaft bearing.
4. Check knife drive belt tension.
5. Check wobble box mounting bolt torque.
6. Check wobble box lubricant level.
7. Check reel drive chain tension.
8. Grease reel drive chain.
9. Check hay conditioner drive chain tension.

* It is recommended that Annual Maintenance be done prior to start of operating season.

END OF SEASON: See "Storage Procedure" in Operation section.

MAINTENANCE RECORD

Header No. _____

Serial No. _____

Hay Conditioner No. _____

Serial No. _____

matched with Windrower No. _____

Combine this record with Windrower Maintenance Record for "complete unit" service.
See Maintenance/Service section for details on each procedure. Copy this page to continue record.

ACTION CODES:		✓ - Check	🔸 - Lubricate
ACTION CODE	Hour Meter Reading/ Serviced By:		
	Maintenance Procedure		
	BREAK-IN See "Preparing the Header/Hay Conditioner" and "Break-In Period" in Operation section for checklist.		
	10 HOURS OR DAILY		
🔸	Knife Head		
🔸	Primary Drive Line		
🔸	Knife Assembly		
✓	Sections, Guards, Clips		
🔸	Conditioner Drive Chains		
✓	Hydraulic Hoses and Lines		
✓	Release Drapers (end of day)		
	50 HOURS		
🔸	Hay Conditioner Bearings		
	100 HOURS OR ANNUALLY		
🔸	Knife Drive Shaft Support Brgs.		
🔸	Reel Shaft Bearing		
🔸	Draper Drive Roller Bearings		
🔸	Reel Drive Chain		
✓	Knife Drive Belt Tension		
✓	Wobble Box Bolt Torque		
✓	Wobble Box Lube Level		
✓	Reel Drive Chain Tension		
✓	Conditioner Dr. Chain Tension		
	STORAGE See "Storage Procedure" in Operation Section for checklist		

TROUBLE SHOOTING

<u>PROBLEM</u>	<u>CAUSE</u>	<u>REMEDY</u>	<u>REF.</u>
HYDRAULICS			
Header lift insufficient to allow float spring installation.	Control valve relief pressure too low.	Increase relief pressure.	48
Reel will not lift.	Reel lift quick couplers not compatible.	Change quick coupler.	—
CROP LOSS AT CUTTERBAR			
Heads shattering or breaking off.	Reel speed too fast.	Reduce reel speed.	32
	Ground speed too fast.	Reduce ground speed.	31
	Crop too ripe.	Windrow earlier or at night when humidity is higher.	—
Cut grain falling ahead of cutterbar.	Reel too high.	Lower reel.	32
	Cutterbar too high.	Lower cutterbar.	29
Does not pick up down crop.	Cutterbar too high.	Lower cutterbar.	29
	Reel too high.	Lower reel.	32
	Reel too far back.	Move reel forward on support arms.	32
	Ground speed too fast for reel speed.	Reduce ground speed or increase reel speed.	31 32
	Bat reel unsuitable for conditions.	Install pick-up reel.	68
	Crop left at dividers.	Divider not gathering crop.	Change divider angle.
Strips of uncut material.	Crowding uncut crop.	Allow enough room for crop to be fed to cutterbar.	—
	Broken knife sections.	Replace.	50
CUTTING COMPONENTS			
Excessive breakage of knife sections or guards.	Cutterbar operating too low in stony field conditions.	Raise cutterbar, using skid shoes and check header height.	30 29
	Improper header float spring adjustment.	Adjust float springs.	36
	Bent or broken guard.	Straighten or replace.	52

TROUBLE SHOOTING

<u>PROBLEM</u>	<u>CAUSE</u>	<u>REMEDY</u>	<u>REF.</u>
CUTTING COMPONENTS (continued)			
Knife back breakage.	Bent or broken guard.	Straighten or replace.	52
	Worn knife head pin.	Replace.	51
	Dull knife.	Sharpen or replace.	51
Ragged and uneven cutting of crop.	Knife is not operating at recommended speed.	Check engine speed of windrower.	*
	Cutterbar plugged with material.	Adjust reel to sweep material off cutterbar.	32
	Various parts of cutterbar, such as knife sections, guards are worn, damaged, or broken.	Check and replace all worn and broken parts of cutterbar to obtain even cutting of crop.	50
	Bent knife, causing binding of cutting parts.	Straighten a bent knife. Check guard alignment and align if necessary for a smooth cut.	51
			52
	Knife clips not adjusted to permit knife to work freely.	Adjust knife clips so knife will work freely, but still keep knife sections from lifting off guards.	52
	Cutting edge of guards not close enough or parallel to knife sections.	Adjust guards.	52
	Lips of guard out of adjustment or bent, causing poor shearing action.	Adjust lips of guards so they are parallel to shear edge of guards.	52
Reel speed too slow.	Increase reel speed.	32	
Ground speed too fast.	Reduce ground speed.	31	
Loose knife drive belt.	Adjust knife drive belt tension.	53	
Excessive vibration of cutting parts.	Knife is not operating at recommended speed.	Check engine speed of windrower.	*
	Excessive looseness of cutting parts and knife drive.	Remove all excessive play from cutterbar and knife drive to eliminate vibration. After removing excessive play, make certain cutterbar and knife drive are properly adjusted.	50

* See Windrower Tractor Operator's Manual.

TROUBLE SHOOTING

JE

<u>PROBLEM</u>	<u>CAUSE</u>	<u>REMEDY</u>	<u>REF.</u>
CUTTING COMPONENTS (continued)			
Knife plugging.	Loose knife drive belt.	Adjust belt tension.	53
	Dull or broken knife sections.	Sharpen or replace.	50
	Bent or broken guards.	Align or replace.	52
	Improper knife clip adjustment.	Adjust knife clip.	52
	Improper reel adjustment.	Adjust to sweep material off cutterbar.	32
	Improper header float adjustment.	Adjust float springs.	36
	Mud or dirt buildup on cutterbar.	Raise cutterbar.	29
REEL DELIVERY			
Reel wrapping in tangled and weedy crops causing improper reel delivery.	Incorrect location and height of reel.	Place reel well ahead and down.	32
	Reel speed too fast.	Reduce speed of reel to allow weedy crops to fall onto drapers.	32
Reel carrying crop over causing improper reel delivery.	Tall grain or nodding varieties of crops catch on reel bats and arms.	Increase width of reel bats 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 drapers.	32
	Reel height too low.	Raise reel height to reduce amount of crop gathered by reel.	32
DRAPER TRACKING & DRIVE			
Draper not running parallel to cutterbar.	Draper rubbing on front edge at drive roller.	Adjust drive roller.	56
	Draper rubbing on front edge at idler roller.	Adjust draper tension springs at idler roller.	56

TROUBLE SHOOTING

<u>PROBLEM</u>	<u>CAUSE</u>	<u>REMEDY</u>	<u>REF.</u>
DRAPER TRACKING & DRIVE (continued)			
Draper rubbing at cutterbar.	Draper tension springs misadjusted.	Adjust draper tension springs.	57
Draper running too far from cutterbar.	Draper tension springs misadjusted.	Adjust draper tension springs.	57
Draper will not drive.	Drive or idler roller wrapped with material.	Loosen draper and clean rollers.	57
	Idler roller tension not engaged.	Engage idler roller tension.	26
	Deck shift pedal improperly positioned.	Position pedal heel-down for center delivery.	33
	Slat or connector bar jammed by frame or material.	Loosen draper and clear obstruction.	57
	Insufficient clearance at right shifting deck.	Adjust clearance.	58
	Roller bearing seized.	Replace.	43
	Valve spools not positioned properly.	Check and adjust controls.	49
	Low hydraulic oil.	Fill reservoir to full level.	*
Drapers run backwards.	Deck shift pedal improperly positioned.	Position pedal heel-down for center delivery.	33
WINDROW FORMATION - GRAIN			
Heads on ground (flowered out).	Draper speed too slow.	Increase draper speed.	33
	Ground speed too slow.	Increase ground speed.	31
	Crop too ripe.	Cut material before too mature.	—
Hollow in center.	Draper speed too slow.	Increase draper speed.	33
	Delivery opening too wide.	Decrease delivery opening width.	35
Heads in center (too much herringbone).	Draper speed too fast.	Reduce draper speed.	33
	Ground speed too fast.	Reduce ground speed.	31
	Crop too green.	Allow to mature.	—

* See Windrower Tractor Operator's Manual.

TROUBLE SHOOTING

<u>PROBLEM</u>	<u>CAUSE</u>	<u>REMEDY</u>	<u>REF.</u>
WINDROW FORMATION - GRAIN (continued)			
Uneven windrow.	Ground speed too fast for drapers	Reduce ground speed or increase draper speed.	31 33
	Reel too low.	Raise reel.	32
	Reel too fast.	Reduce reel speed.	32
Windrow falls through stubble.	Stubble too high.	Reduce cutting height.	29
	Stubble too thin.	Reduce plant spacing at next seeding.	—
	Seed rows too wide.	Reduce row spacing at next seeding.	—

WINDROW FORMATION - HAY

Narrow windrow.	Draper speed too fast.	Reduce draper speed.	33
	Windrow forming shields too narrow.	Widen forming shields.	38
	Rear of conditioner too high.	Lower rear of conditioner.	38
Wide windrow.	Draper speed too slow.	Increase draper speed.	33
	Windrow forming shields too wide.	Narrow forming shields.	38
	Rear of conditioner too low.	Raise rear of conditioner.	38
Bunching windrow.	Reel position, height or speed incorrect.	Adjust for smooth crop delivery.	32
	Rear of conditioner too low.	Raise rear of conditioner.	38

OPTIONS AND ATTACHMENTS

Consult your Windrower Dealer for details on the following options and attachments.

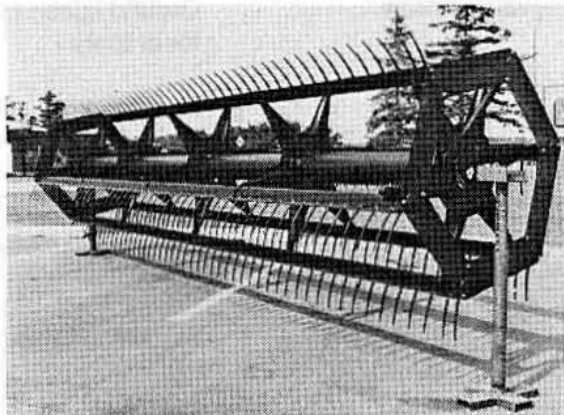
PICK-UP REEL

Available for all header sizes, the cam-action pick-up reel is ideal for downed-crop conditions.

Available with replaceable plastic or steel fingers.

A separate Operator's Manual is provided with the pick-up reel.

NOTE: If pick-up reel is installed on a 30 ft. header it will be necessary to install an auxiliary float spring kit. This kit (including assembly instructions) is available from your Dealer.



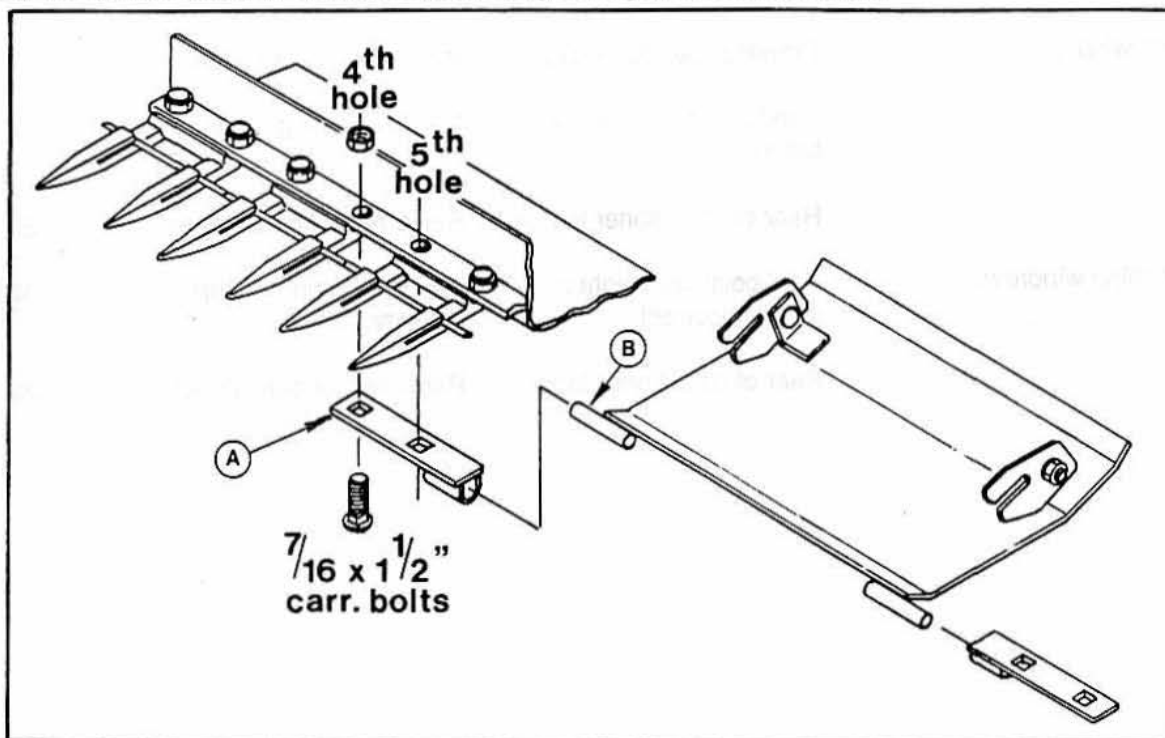
PICK-UP REEL

SKID SHOES

Skid shoes (standard equipment for 12, 15, 18 ft. headers) may be attached to 21, 25 and 30 ft. headers for crops and conditions where it is desirable to cut close to the ground.

To install:

1. Attach skid shoe hinge (A) to cutterbar (under guards) at the fourth and fifth holes from each end. Replace guard bolts with 7/16 NC x 1 1/2" long carriage bolts as illustrated.



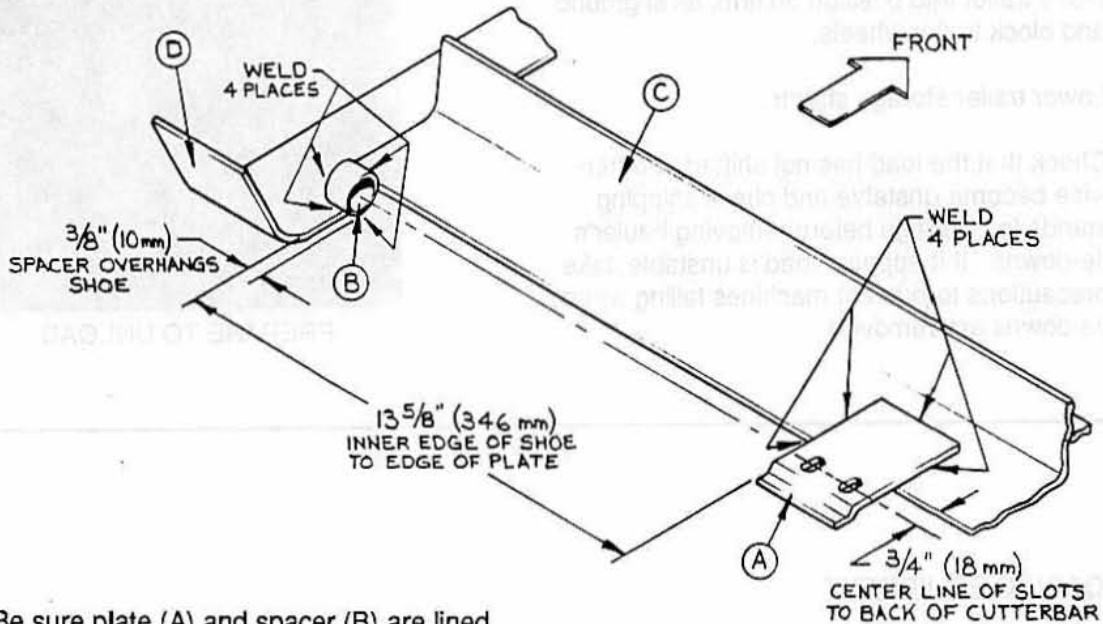
2. Slide skid shoe rod (B) into fastened hinge; slide on second hinge and fasten to cutterbar, again replacing guard bolts with 7/16 NC x 1 1/2" long carriage bolts provided.
3. Set skid shoe height. See "Cutting Height" in Operation section.

OPTIONS AND ATTACHMENTS

GAUGE WHEELS

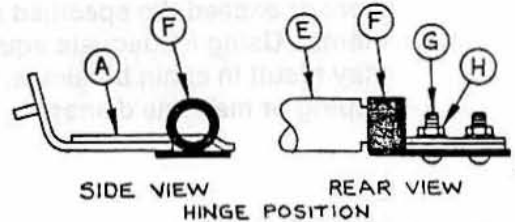
Gauge wheels are available as an attachment. See "Cutting Height" in Operation section for adjustment instructions. To install:

1. Weld plate (A) to cutterbar (C) at both ends of header.
2. Weld spacer (B) to cutterbar (C) and shoe (D) at both ends of header.

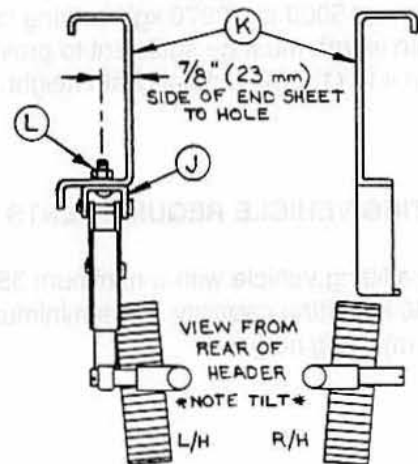
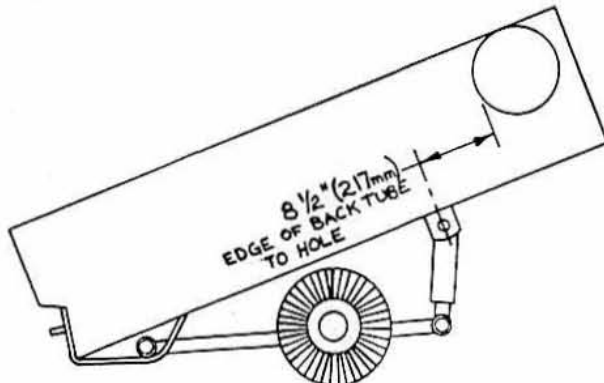


NOTE: Be sure plate (A) and spacer (B) are lined up so gauge wheels will trail straight behind cutterbar. Use the gauge wheel assembly to help in alignment before welding.

3. Insert outboard end of carrier frame (E) in spacer (B) welded in Step 2. Ensure left and right gauge wheel assemblies are on proper sides (wheels tilted as shown below). Insert inboard end of carrier frame (E) in hinge (F). Attach hinge (F) to plate (A) welded in Step 1 with two 1/2" x 1 1/2" long carriage bolts (G) and flange nuts (H).



4. Bolt channel (J) (part of gauge wheel assembly) to bottom of end sheet (K) with a 1/2" x 1 1/2" long carriage bolt and flange nut (L). If holes are not provided in end sheets, drill using dimensions shown.



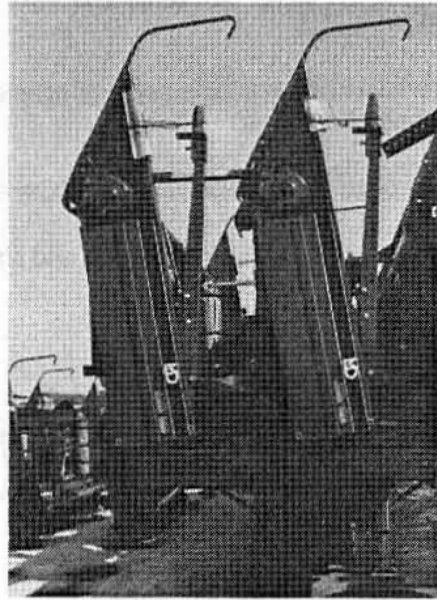
UNLOADING & ASSEMBLY

PREPARE TO UNLOAD



CAUTION: To avoid injury to bystanders from being struck by machinery, do not allow persons to stand in unloading area.

1. Move trailer into position on firm, level ground and block trailer wheels.
2. Lower trailer storage stands.
3. Check that the load has not shifted or otherwise become unstable and check shipping stands for damage before removing hauler's tie-downs. If it appears load is unstable, take precautions to prevent machines falling when tie-downs are removed.



PREPARE TO UNLOAD

UNLOADING EQUIPMENT



CAUTION: Unloading equipment must meet or exceed the specified requirements. Using inadequate equipment may result in chain breakage, vehicle tipping or machine damage.

CHAIN REQUIREMENTS

Use overhead lifting quality chain (1/2 inch) with minimum 5000 lb. (2270 kg) working load limit. Chain length must be sufficient to provide minimum 4 ft. (1.2 m) vertical chain height.

LIFTING VEHICLE REQUIREMENTS

Use a lifting vehicle with a minimum 3500 lb. (1590 kg) lifting capacity and a minimum 15 ft. (4.5 m) lifting height.

UNLOADING & ASSEMBLY

UNLOAD HEADER

1. Attach chain hooks at points (A) and (B) marked "Lift Here".



CAUTION: To avoid injury from shifting or falling machines, remove hauler's tie-downs from one header at a time, after it is secured to unloading vehicle.

2. Remove hauler's tie-down straps and chains.



CAUTION: Be sure hooks are secure before moving away from load. Stand clear when lifting, machine may swing. Do not allow anyone to walk under or near the header as it is unloaded or moved.

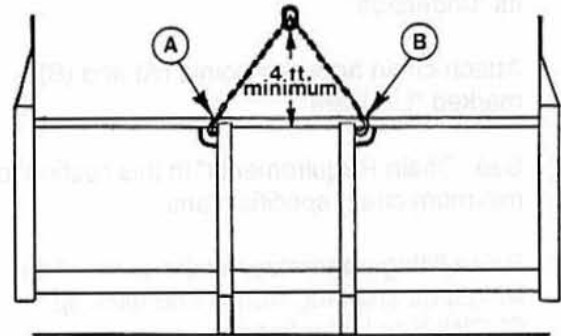
3. Raise header 12 inches (300 mm), remove from trailer.
4. Take to storage or set-up area.
5. Set header down securely on level ground. Check for shipping stand damage and damaged or missing parts.
6. Remove chain hooks.



WARNING: Header shipping stands are designed for shipping economy. They do not provide a base broad enough for storage of units in an upright position.

To avoid personal injury, death or machine damage from headers falling or blowing over, proceed with instructions to "Lower Header" (next page) before leaving units in storage.

If it is necessary to store machines upright on shipping stands, ensure that the ground is firm and level. Take factors such as exposure to wind, and the effects of snow melt and ground thaw into consideration. Tie units together and brace on both sides, or place against a secure backstop and brace the unsupported side.



ATTACH CHAIN HOOKS

UNLOADING & ASSEMBLY

LOWER HEADER

1. Drive lifting vehicle to approach header from its "underside".

Attach chain hooks to points (A) and (B) marked "Lift Here".

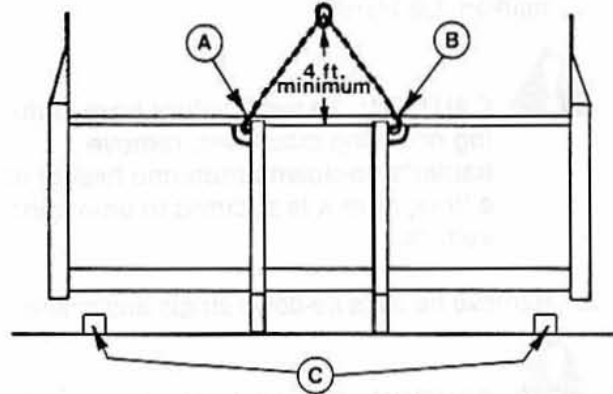
See "Chain Requirements" in this section for minimum chain specifications.

2. Raise lifting apparatus to take some of the weight off shipping stands and back up SLOWLY to lower header.



CAUTION: Stand clear when lowering, as machine may swing.

3. Place 6" (150 mm) blocks (C) under each end of cutterbar.



ATTACH CHAIN HOOKS

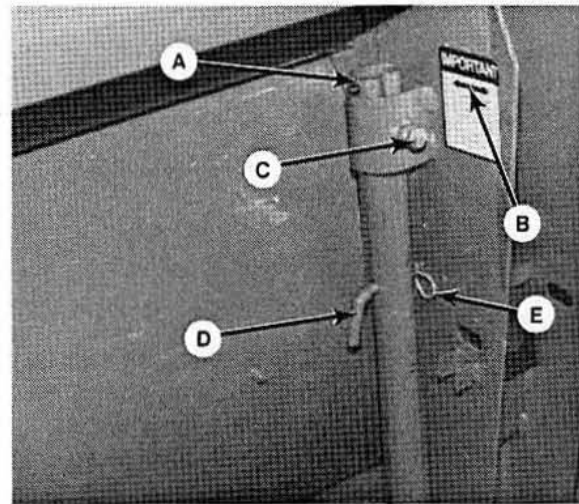
SET HEADER SUPPORT STAND

1. Remove chain hooks and move lifting vehicle to rear of header. Raise rear of header and set the support stand so that top of stand tube (A) is in line with arrow (B) on stand location decal. Secure by turning bolt (C) into groove in stand tube.



WARNING: Be sure to properly install "L" pin (D) and hairpin (E), as shown, to prevent header from falling to the ground should bolt (C) be accidentally loosened.

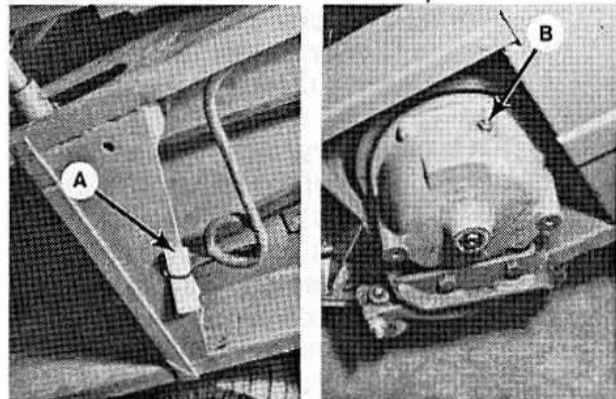
2. Remove shipping stands.



SET HEADER SUPPORT STAND

INSTALL BREATHER IN WOBBLE BOX

1. Untie plastic bag (A) and replace pipe plug (B) in wobble box with breather from bag.



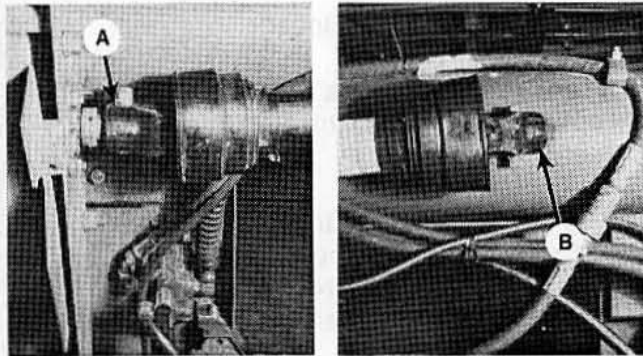
INSTALL BREATHER IN WOBBLE BOX

UNLOADING & ASSEMBLY

INSTALL DRIVELINE

Driveline is shipped with the tractor unit. Remove from floorboard and attach to header drive shaft (A) at left lift leg and to storage tab (B) on frame tube.

Tighten clamp yoke hardware.



INSTALL DRIVELINE

ASSEMBLE BAT REEL



CAUTION: Wire and strapping are under pressure. Be careful when cutting. Remove wire and strapping from assembly area once removed from machine.

1. Remove all strapping and shipping wire.
2. Raise reel support arms and engage reel props (A).

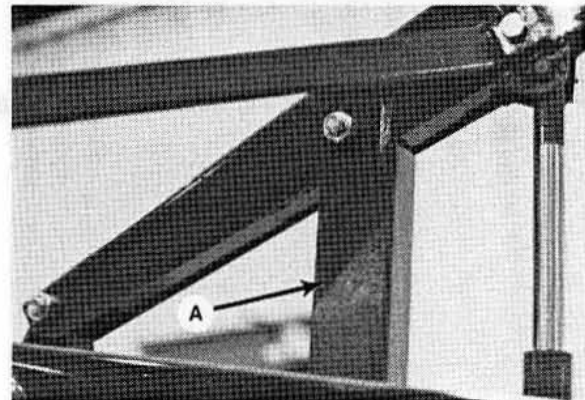
NOTE: Reel hardware is shipped in two bags, separated by size.

3. Remove ten 3/8 x 1" bolts (five per side) fastening the reel braces (B) to reel flanges (C) and reel arms (D). Loosen all remaining hardware at flanges (C) to allow arms to swing freely.

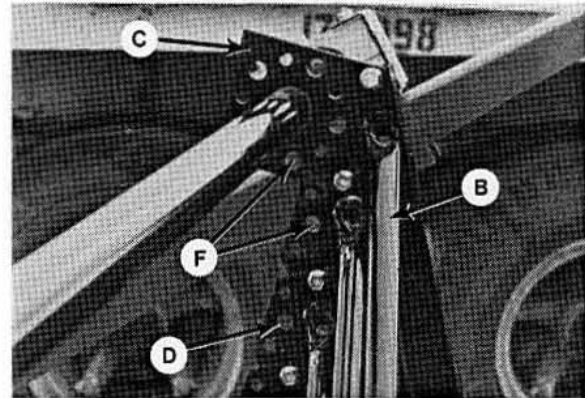
NOTE: 12, 15 and 18 ft. headers do not have reel braces. Instructions regarding braces are not relevant for these sizes.

4. Rotate (lift) the first bat up 1/5 turn, to align the second set of reel arms (E). Using a punch in the "line-up" holes (F) install 3/8 x 3/4" bolts (G) fastening the second reel arms to the reel flanges.

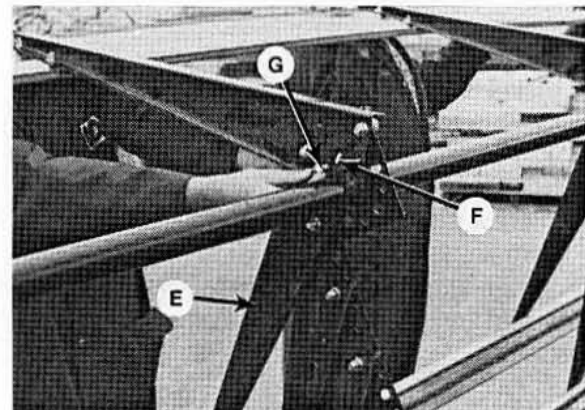
NOTE: Install all hardware finger tight to allow straightening after assembly.



ENGAGE REEL PROPS



REMOVE BRACE HARDWARE AT ARMS



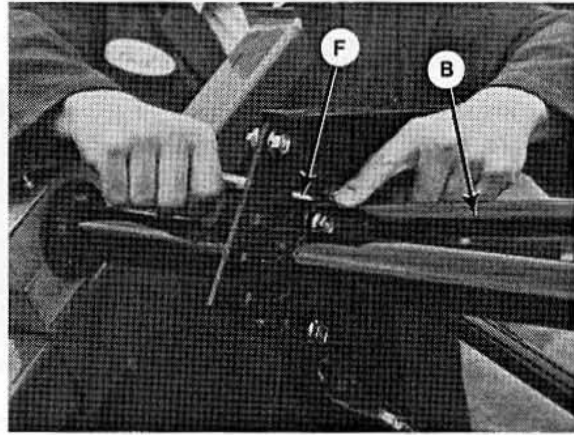
ALIGN & FASTEN REEL ARM SET # 2

UNLOADING & ASSEMBLY

ASSEMBLE BAT REEL (continued)

5. With punch in line-up holes (F), fasten the first reel brace (B) to the reel arm and flange at each end.

NOTE: Use the 3/8 x 1" flange bolts removed in step 3 when fastening reel braces to reel flanges. These bolts are 1/4" longer than the others to accommodate the reel brace thickness.



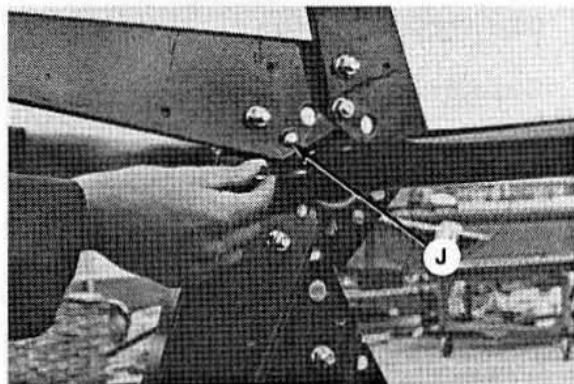
ATTACH FIRST REEL BRACE - BOTH ENDS

6. Lift second reel bat to align the third set of reel arms (H).



ALIGN REEL ARM SET # 3

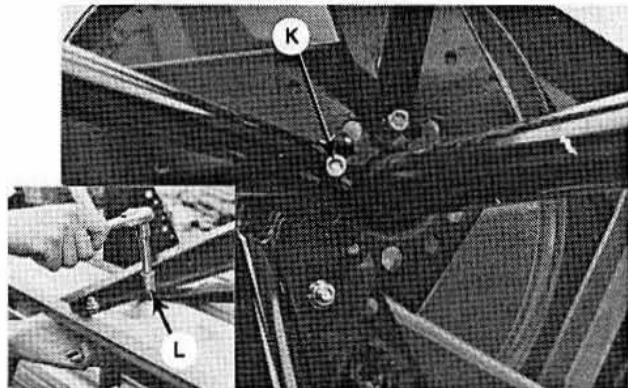
Using a punch in line-up holes, install 3/8 x 3/4 bolts (J) to fasten third set of reel arms to reel flanges.



ATTACH REEL ARM SET # 3

Install 3/8 x 1" bolts (K) to fasten the second reel brace at each end.

NOTE: Loosen second reel brace at bat (L) to allow fastening at left hand end reel flange. Remaining three braces at left end may also require loosening at the bat to allow fastening to reel flange.

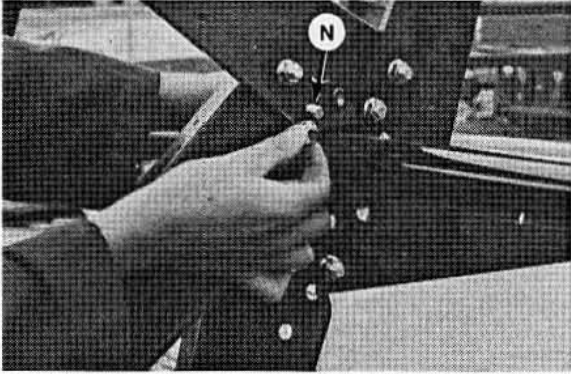


ATTACH SECOND REEL BRACE - BOTH ENDS

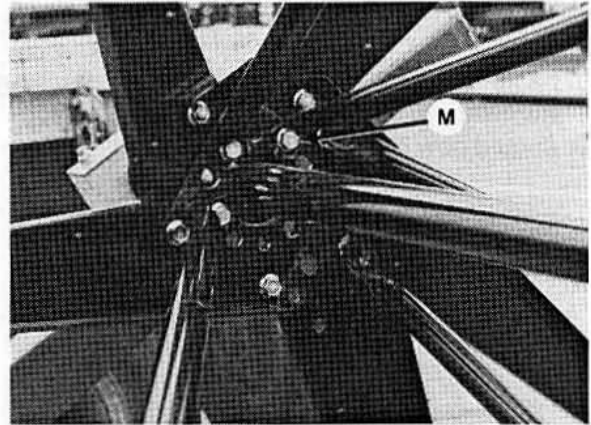
UNLOADING & ASSEMBLY

ASSEMBLE BAT REEL (continued)

7. Rotate reel again, now lifting the third bat and fasten the third reel braces (M) and the fourth reel arms (N).

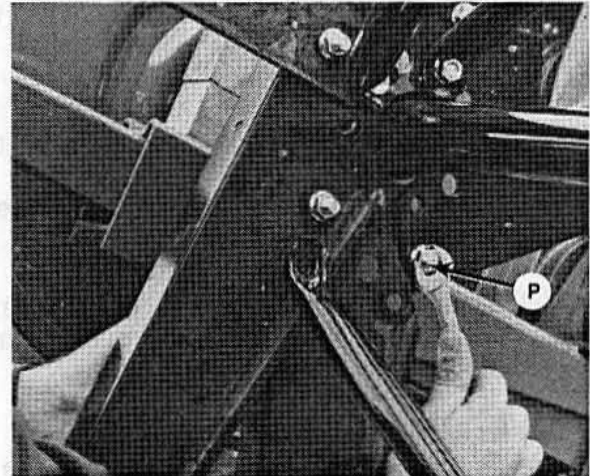


ATTACH REEL ARM SET # 4



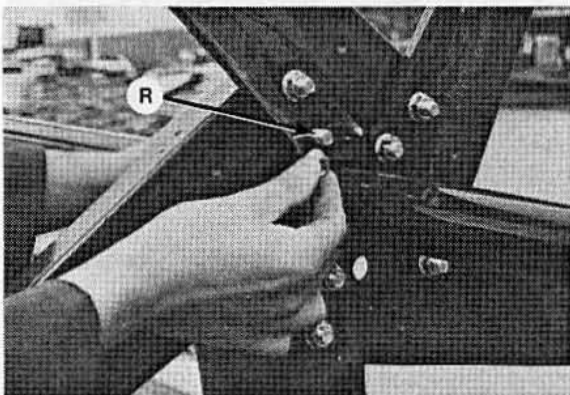
ATTACH THIRD REEL BRACE - BOTH ENDS

8. Remove the flange bolt (P) (one at each reel flange) securing the first reel arm to the reel flange.

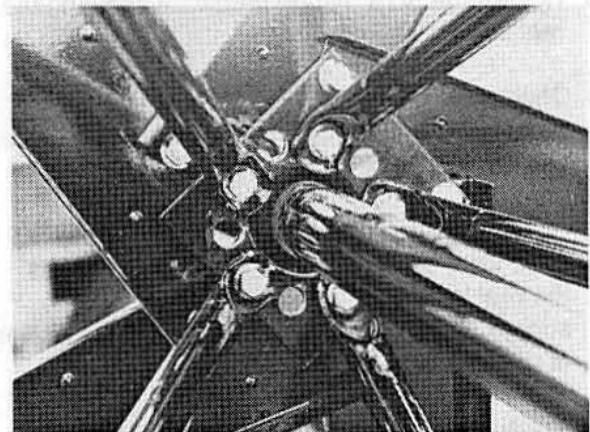


REMOVE BOLT FROM REEL ARM SET # 1

9. Rotate the reel the final 1/5 turn, so the fifth reel arm slides past the first reel arm to its proper position. Use a punch in "line-up" holes and fasten the fourth and fifth reel braces and the fifth reel arms (R).



ATTACH REEL ARM SET # 5

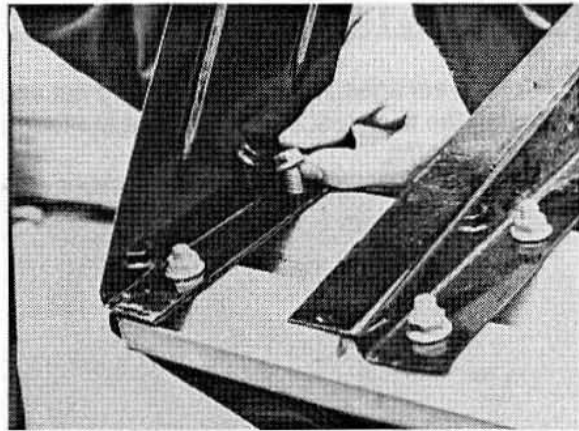


ALL REEL BRACES INSTALLED

UNLOADING & ASSEMBLY

ASSEMBLE BAT REEL (continued)

10. Fasten the reel ends to the bats using the 5/16" hardware (finger tight only). All hardware should now be on the reel.

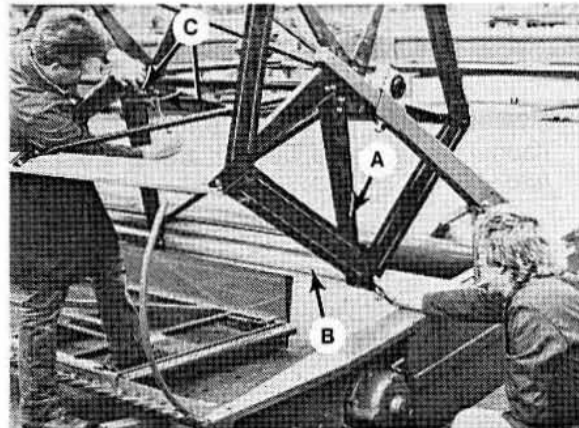


ATTACH REEL ENDS - 5/16 HARDWARE

11. With one set of reel arms pointing vertically downwards (A) look down the length of the bat (B) and make adjustments to straighten the bat. When this bat is acceptably straight, tighten the two 3/8 flange bolts (C) at each reel flange which are lined up vertically and are common to the reel arms attached to the straightened bat.
12. Rotate the reel 1/5 turn so the next set of reel arms is pointing vertically downwards. Repeat the straightening and tightening procedure in Step # 11. Continue this sequence until all reel arm flange hardware is tight.

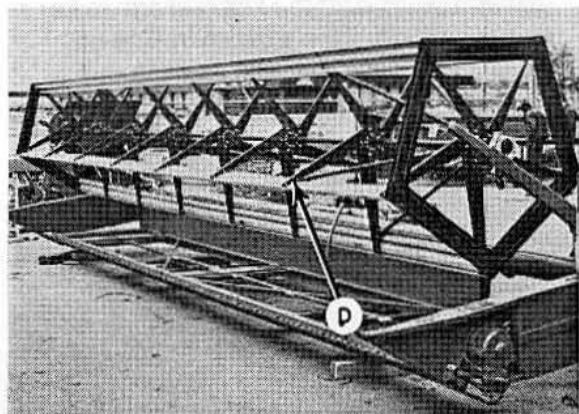
NOTE: In order to straighten the last bat it may be necessary to loosen the first set of bolts that were tightened in Step # 11.

If, after this procedure, bats do not appear straight, loosen hardware as required to adjust.



STRAIGHTEN BATS - TIGHTEN HARDWARE

13. Tighten the 5/16" flange hardware securing the reel ends.
14. Check that all hardware is sufficiently tight, (50 ft. lbs. [68 N.m] for 3/8" hardware and 35 ft. lbs. [47 N.m] for 5/16" hardware).
15. Check that the reel shaft is straight. The clearance from bat to cutterbar should not vary as the reel is turned. The reel shaft may be straightened by adjusting the reel brace position at the reel bats (D).
16. Adjust reel clearance from cutterbar (see Maintenance/Service section) and reel fore-aft position (see Operation section).



COMPLETE REEL

UNLOADING & ASSEMBLY

INSTALL DRAPERS

NOTE: For 25 and 30 ft. headers, the drapers provided are for the medium center delivery opening width and are of different lengths. Shifting deck stops are factory set for this size of opening, with longer draper on left side for more closely balanced conveyor lengths.

Be sure you have the drapers and decks properly matched. Drapers are marked with an identification number. Install as follows:

12, 15, 18, 21 ft. headers: same both sides.

25 ft. header: Right side # 33795
Left side # 33796

30 ft. header: Right side # 33797
Left side # 33798

To install:

For 12, 15 and 18 ft. headers:

1. Install drapers with flaps (A) trailing in direction of travel.
2. Install screws (B) with heads leading in direction of travel.
3. Pull flaps evenly through connector slats until screws are at end of flap slots.

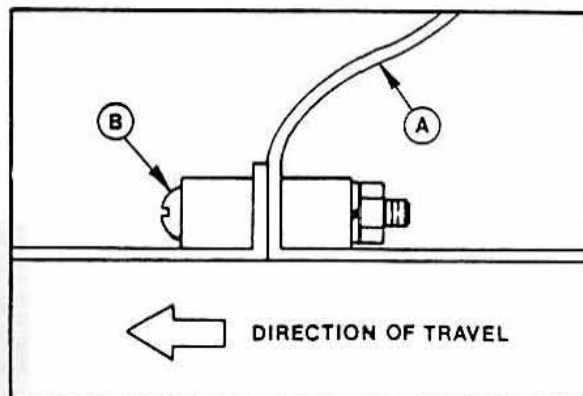
For double windrow headers:

1. 21 and 30 ft. headers - Position connector slats at extreme end rows of holes in draper.

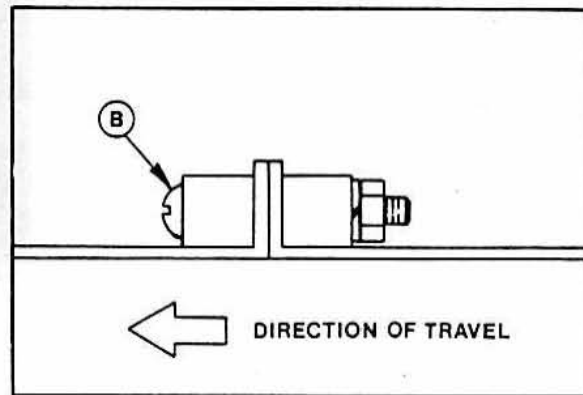
25 ft. header - Couple one end row of holes to the second row of holes at opposite end.
2. Install screws (B) with heads leading in direction of travel (in center delivery mode).

Adjust draper tension. See "Drapers" in Maintenance/Service section.

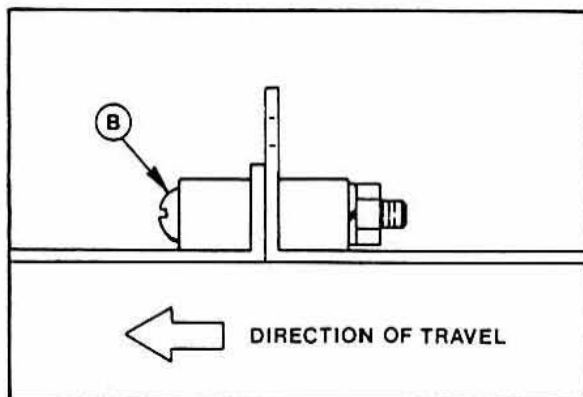
See "Center Delivery Opening Width" in Operation section for procedure to change to an alternate opening width (21, 25, 30 ft. headers only).



DRAPER INSTALLATION - 12, 15, 18 FT.



DRAPER INSTALLATION - 21 & 30 FT.

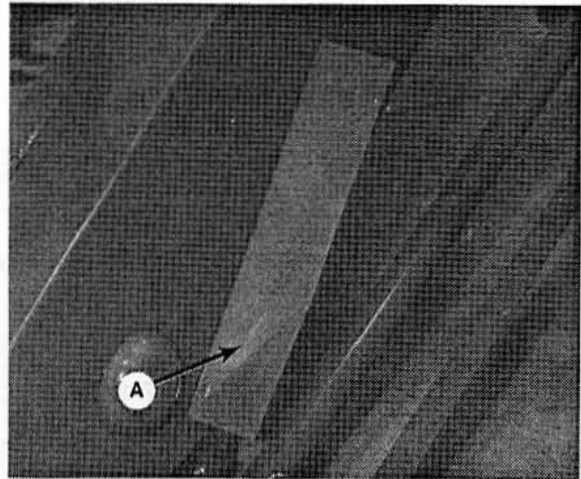


DRAPER INSTALLATION - 25 FT.

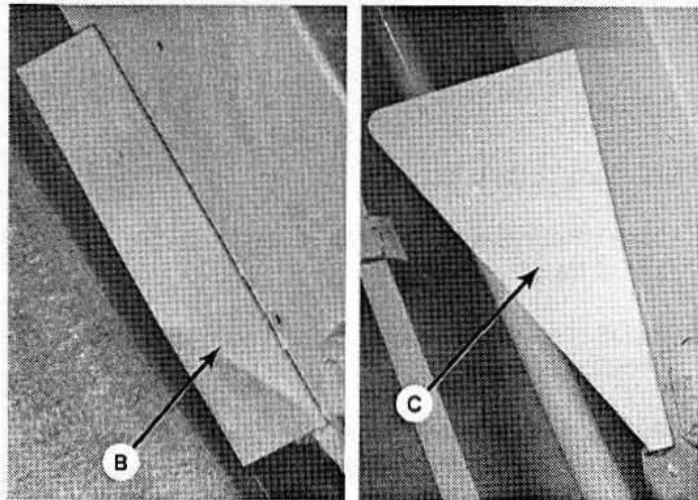
UNLOADING & ASSEMBLY

INSTALL END DEFLECTORS

1. Install right end deflector (A) with 3/8 x 3/4 carriage bolts and nuts.
2. 12, 15, 18 ft. Headers - Install left end deflector (B) with 3/8 x 3/4 carriage bolts and nuts.
21, 25, 30 ft. Headers - Install left end deflector (C) with 3/8 x 3/4 carriage bolts, rectangular washers (D) and nuts, positioned as shown.



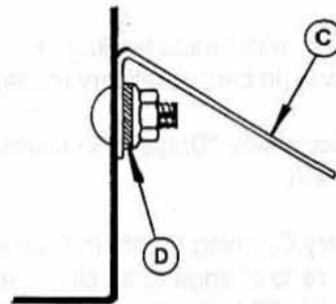
INSTALL RIGHT DEFLECTOR



12, 15, 18 FT. HEADER

21, 25, 30 FT. HEADER

INSTALL LEFT DEFLECTOR



HARDWARE LOCATION - LEFT DEFLECTOR
21, 25, 30 FT. HEADER

UNLOADING & ASSEMBLY

BLEED HYDRAULIC SYSTEM



CAUTION: Read the Operator's Manuals carefully to familiarize yourself with procedures and controls before attaching header to tractor for bleeding procedure.

Header Lift Cylinders

Raise and lower header a few times to allow trapped air to pass back to the reservoir.

Reel Lift Cylinders



CAUTION: Take care during this procedure as air in the system can cause the reel to raise and lower erratically. Keep body and hands out from under reel and reel support arms.

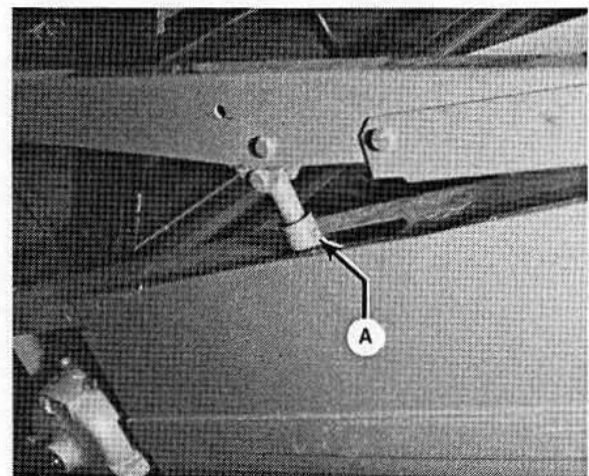
IMPORTANT: If a pick-up reel is installed: To prevent twisting damage to reel, complete this procedure before installing finger pitch adjustment bolts. See Pick-Up Reel Operator's Manual.

1. Fully lower header and reel.



CAUTION: Bleed screw (A) may be forced from hole by hydraulic pressure. Do not loosen screw too quickly or too far.

2. SLOWLY loosen bleed screw (A) in left hand reel lift cylinder.
3. Start engine and hold reel lift pedal in heel-down position. Right hand cylinder will reach full extension first, then oil will pass to left hand cylinder.
4. Continue to hold reel lift pedal in heel-down position until oil comes out around bleed screw.
5. Tighten bleed screw.

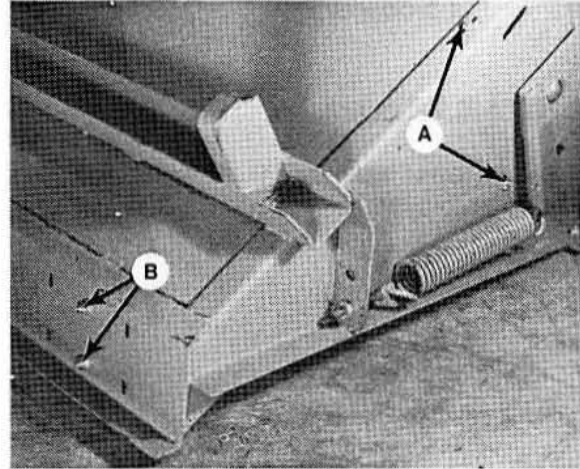


REEL LIFT CYLINDER
BLEED SCREW

UNLOADING & ASSEMBLY

ASSEMBLE CONDITIONER FORMING SHIELDS

Assemble inner deflectors by attaching to frame at front (A) and center position (B) at rear.

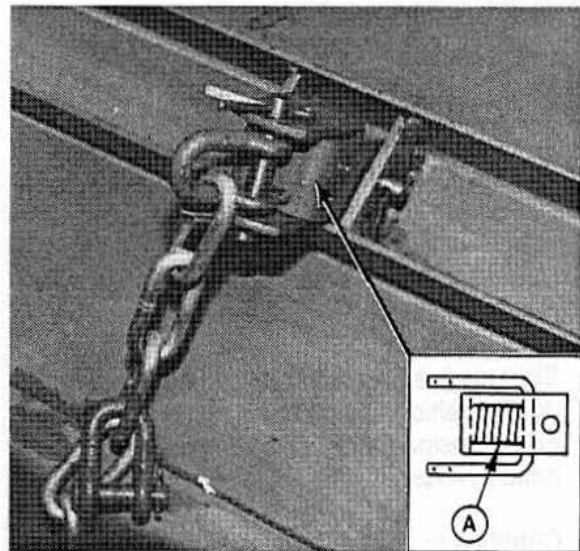


ASSEMBLE FORMING SHIELDS

ASSEMBLE CONDITIONER SUPPORT CHAIN

Attach rear support chain assembly to rear conditioner cross member.

NOTE: Install spring (A) between the two clevises.



ASSEMBLE SUPPORT CHAIN

INDEX

	PAGE
A	
Assembly	72
Attaching the Hay Conditioner	18
Attaching the Header	15
Attachments	68

B	
Bearing Installation	43
Break-In Period	24

C	
Capacity, Wobble Box Lubricant	43
Cutterbar Height Indicator	29
Cutting Height	29
Cutting Width	33

D	
Deck Clearance	58
Delivery Mode, changing	34
Delivery Opening Width Adjustment	35
Detaching the Hay Conditioner	20
Detaching the Header	21
Divider Angle	30
Double Windrowing	34
Draper Care	55
Draper Drive Roller Adjustment	57
Draper Replacement	58
Draper Speed	33
Draper Speed Control Valve:	
Linkage Adjustment	49
Draper Tension Adjustment	57
Draper Tracking	55

F	
Forming Shields - Hay Conditioner	38

G	
Gauge Wheels Adjustment	30
Gauge Wheels Installation	69
Greasing the Header and Hay Conditioner ...	44
Ground Speed	31
Guards, knife	52

	PAGE
H	
Hay Conditioner Drive Chains Lubrication	59
Hay Conditioner Drive Chains Tension	59
Header Drive Clutch	27
Header Flotation	36
Header Levelling	46
Header Lift	29
Header Lift Control Valve - Drop Rate	47
Header Lift Control Valve - Relief Pressure ..	48
Header Lift Cylinder Stops	27
Hydraulic Hoses and Lines	47
Hydraulic System Safety	47

K	
Knife Drive Belt Tension	53
Knife Guards and Clips	52
Knife Lubrication	50
Knife Removal and Installation	51
Knife Sections	50

L	
Lubricants, recommended	43

M	
Maintenance Record	62
Maintenance Schedule	61

O	
Operating Variables	28
Owner/Operator Responsibilities	12

P	
Pick-Up Reel (Option)	68
Preparing the Header (and Conditioner)	14
Preparing the Windrower Tractor	13
Pre-Starting Checks - Annual	25
Pre-Starting Checks - Daily	26

INDEX

R	PAGE
Reel Clearance from Cutterbar	54
Reel Drive Chain Lubrication	54
Reel Drive Chain Tension	54
Reel Height	32
Reel Position - Fore & Aft	32
Reel Props	28
Reel Speed	32
Roll Intermesh - Hay Conditioner	37
Roll Tension Springs - Hay Conditioner	37
Roll Timing - Hay Conditioner	59

S	PAGE
Safety - Alert Symbol	5
- General Farm	7
- Header Lift Cylinder Stops	27
- Hydraulic System	47
- Operate Correctly	26
- Pre-starting Checks: Annual	25
- Pre-Starting Checks: Daily	26
- Reel Props	28
- Service Procedures	42
- Signal Words	5
- Signs	6
- Storage Procedure	41
- Your Responsibilities	12
Serial Number Locations	4
Service Procedures	42
Skid Shoes Adjustment	30
Skid Shoes Installation	68
Specifications - Header and Conditioner	9
- Torque Values	10
Storage Procedure	41

T	PAGE
Torque Specifications	10
Transporting the Header	41
Trouble Shooting	63

U	PAGE
Unloading the Header	70

W	PAGE
Windrow Characteristics	39
Windrow Forming Shields	38
Wobble Box Lubricant	53
Wobble Box Mounting Bolts	53

NOTES

NOTES

MacDon . . . "cutting a wide swath towards
more profitable farming."