MacDon

# Model 940
# Multi-Crop Header
# and Hay Conditioner

# OPERATOR'S
# MANUAL

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# INTRODUCTION

Your new Model 940 Multi-Crop Header, teamed with the MacDon Self Propelled Windrower power unit; is designed to cut, and lay in windrows, a wide variety of grain, hay 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 940 Multi-Crop Header and optional Hay Conditioner. It is to be used in conjunction with the 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.

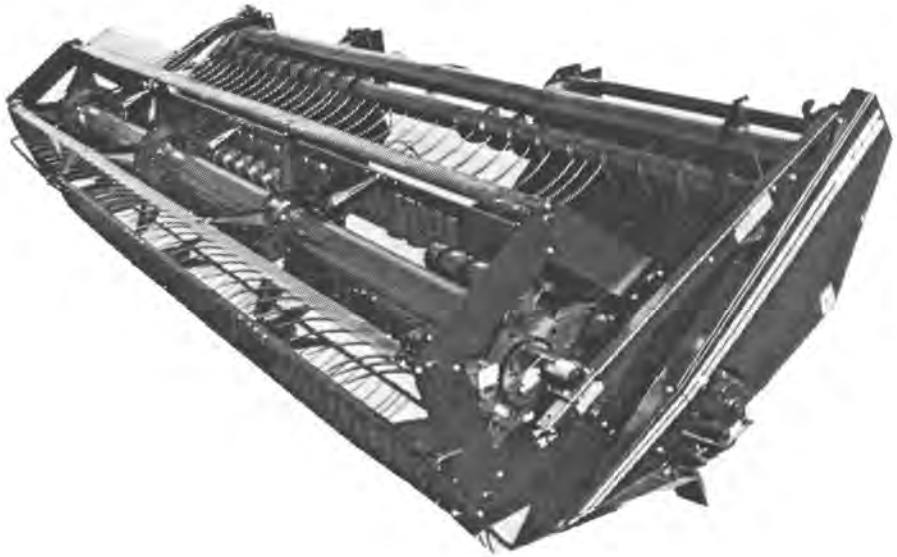
Use this manual as your first source of information about the machine. If you follow the instructions given in this manual, your Windrower will work well for many years.

The manual contains instruction 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.



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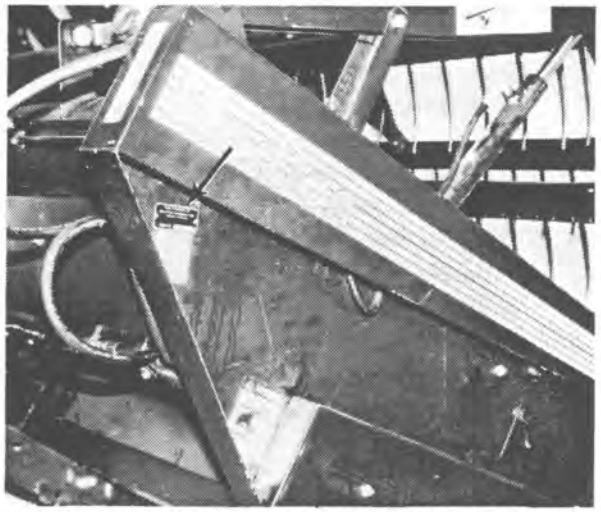
# SERIAL NUMBER LOCATIONS

Record the serial numbers in the space provided.

Multi-Crop Header: _____

Plate is located on top of right hand end sheet, near main tube.



MULTI-CROP HEADER SERIAL PLATE LOCATION

Hay Conditioner: _____

Plate is located at rear left side of top sheet.

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. The part number is printed in the lower R/H corner of each safety sign.

To install safety signs:

1. Be sure the installation area is clean and dry.
2. Decide on the exact location before you remove the decal 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 & RIGHT REEL ENDS


DRIVE SHIELDS


DRIVELINE


UPPER CROSS AUGER END SHIELDS


LEFT & RIGHT REEL SUPPORT ARMS

# SAFETY

## GENERAL SAFETY

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

PROTECT YOURSELF

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 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

## 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.

NEVER WEAR LOOSE
OR DANGLING CLOTHES

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.

KEEP AWAY FROM MOVING PARTS

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.

KEEP SERVICE AREA
CLEAN AND DRY

13. Never use gasoline, naptha 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.

# SPECIFICATIONS

## Multi-Crop Header

| | |
|---|---|
| CUT WIDTH | 12 ft. 9 in. (3.89 m) / 15 ft. 9 in. (4.80 m) / 18 ft. 9 in. (5.71 m) |
| SICKLE DRIVE | "C" belt to single Wobble Box (enclosed oil bath) |
| SICKLE SPEED | 1500 strokes per minute |
| SICKLE TYPE | Over-serrated sections, double heat-treated guards |
| CUTTERBAR RANGE | 2.4 in. (60 mm) below ground to 43.3 in. (1100 mm) above ground (measured to guard tip) |
| GUARD ANGLE | 6.5° to 13.5° below horizontal (cutterbar on ground) |
| DELIVERY OPENING WIDTH | |
| 12 & 15 FT. | 43.3 in. (1100 mm) between augers |
| | 68.0 in. (1730 mm) between back sheets |
| 18 FT. | 53.8 in. (1365 mm) between augers |
| | 68.0 in. (1730 mm) between back sheets |
| DELIVERY OPENING HEIGHT | 33 in. (840 mm) (cutterbar on ground) |
| AUGER DRIVE | Hydraulic to chain final drive |
| AUGER SPEED | 175 - 470 rpm (variable from cab) |
| AUGER TYPE | Open center, dual cantilevered, overshot |
| AUGER SIZE | Front - 9" (230 mm) |
| | Rear - 12" (305 mm) |
| REEL DRIVE | Hydraulic to chain final drive |
| REEL SPEED | 22 to 60 rpm (variable from cab) |
| REEL TYPE | 5 Bat cam action Pick-Up Reel |
| | Fingers: Plastic (standard) or Steel (optional) |
| WEIGHT (with reel) | |
| 12' | 1945 lbs. (880 kg) |
| 15' | 2205 lbs. (1005 kg) |
| 18' | 2470 lbs. (1165 kg) |

## Options

| | |
|---|---|
| UPPER CROSS AUGER | |
| DRIVE | Hydraulic |
| SPEED | 140 to 390 rpm (varies with dual augers) |
| TYPE | 9 in. diameter, center feed |
| HAY CONDITIONER | |
| TYPE | Crimper - Intermeshing steel rolls, Header mounted |
| ROLL WIDTH | 54 in. (1370 mm) |
| ROLL DIAMETER | 8 in. (200 mm) |
| SPEED | 850 rpm |
| WEIGHT | 560 lbs. (255 kg) |

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

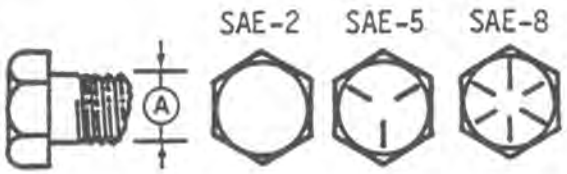
# TORQUE SPECIFICATIONS

## 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 N.m | (lb-ft) | SAE 5 N.m | (lb-ft) | SAE 8 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) |



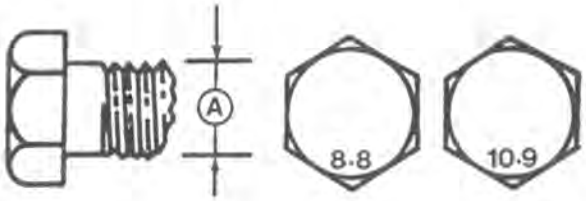

## PICK-UP REEL HARDWARE

The flanged, distorted thread hardware used on the reel has special torque specifications:

3/8" - 30 N.m (22 lb-ft) 5/16" - 16 N.m (12 lb-ft). Measure torque on locknuts.

## METRIC TORQUE SPECIFICATIONS

| Bolt Diameter "A" | Bolt Torque 8.8 N.m | (lb-ft) | 10.9 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* (N.m) | (lb-ft) | Recommended Turn to Tighten (After Finger Tightening) (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* (N.m) | (lb-ft) | Recommended Turns to Tighten (After Finger Tightening) (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

## ATTACHING THE HAY CONDITIONER

**IMPORTANT:** Before first use, prepare the header for attachment of hay conditioner. See Assembly section for instruction regarding installation of left and right support brackets and drive sprocket.

1. Attach header to tractor. (For instruction, depending on which model tractor is being used, see "Model 9000 Windrower Tractor Operator's Manual" or "7000 Tractor: Adapter Supplement".)

2. Raise header fully and slowly back over top of conditioner. Lower header to ground so conditioner is positioned immediately behind delivery opening.

3. Place right end of conditioner front cross pipe into saddle bracket (A), attached to header right leg.

4. Align holes in channel on left front end of conditioner with holes in header left leg. Install two 5/8 x 2 1/2 bolts (B) and (D). (Use a flatwasher at slotted hole in channel.) Tighten bolt (D). Leave bolt (B) loose.

5. Swing adjusting bolt (C) up and forward to engage slot in bracket at left leg.

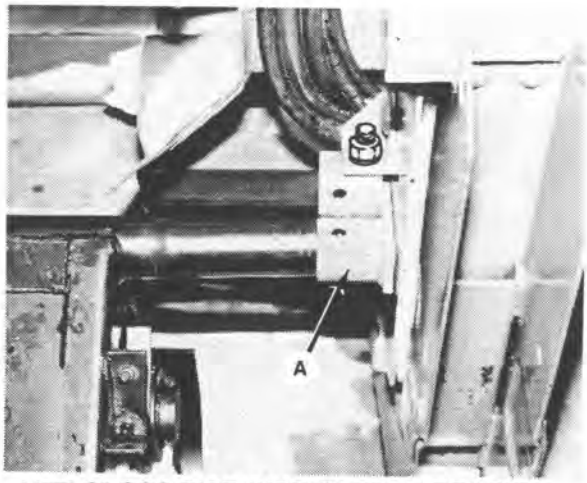
   **NOTE:** Install one nut and one washer on top of bracket, and one washer and one nut under bracket.

6. Ensure the conditioner rolls are properly timed. (See "Conditioner Roll Timing" in Maintenance/ Service section).

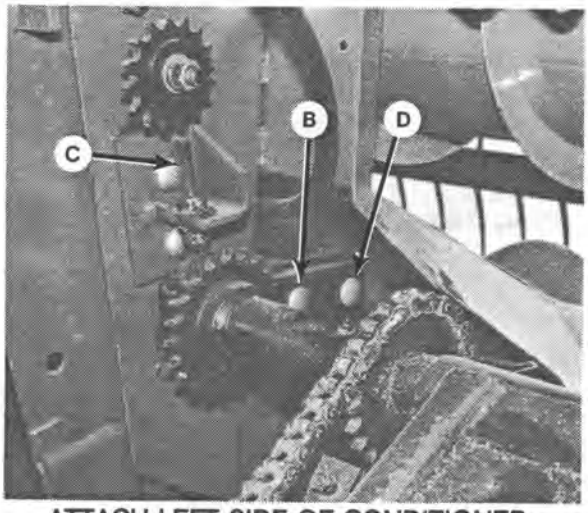
   Install drive chain (E) and tighten with adjusting bolt (C) until a force of 12 lbs. (55 N) deflects chain 1/4 inch (6 mm) at mid-span.

   **NOTE:** Idler sprocket (F) is intended to steady the chain travel only. Do not position idler to increase chain tension.

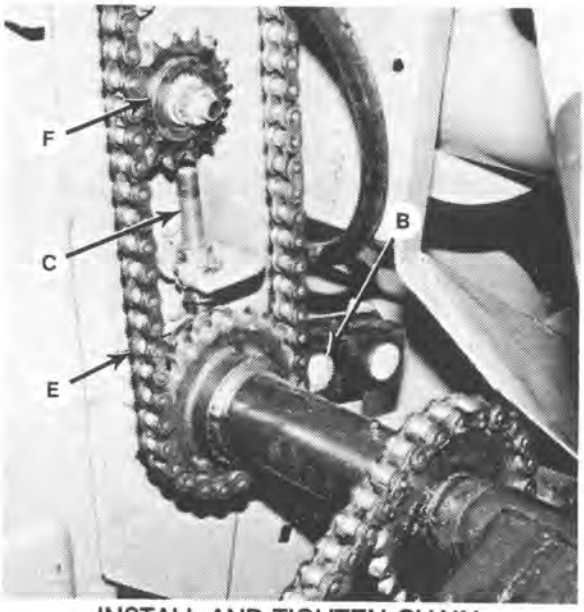
7. Tighten both nuts on bolt (C) and tighten bolt (B) to secure the position.



LIFT CROSS PIPE INTO SADDLE BRACKET



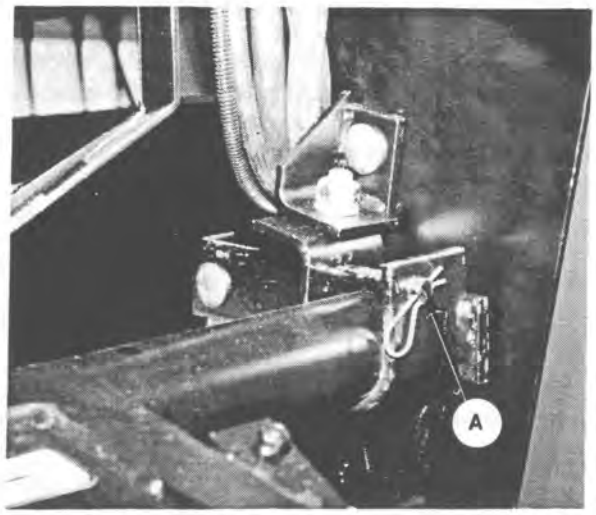
ATTACH LEFT SIDE OF CONDITIONER



INSTALL AND TIGHTEN CHAIN

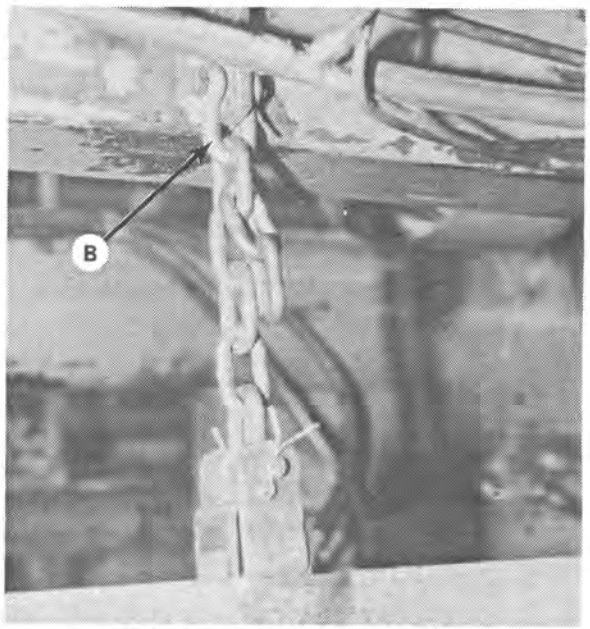
ATTACHING THE HAY CONDITIONER (continued)

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.



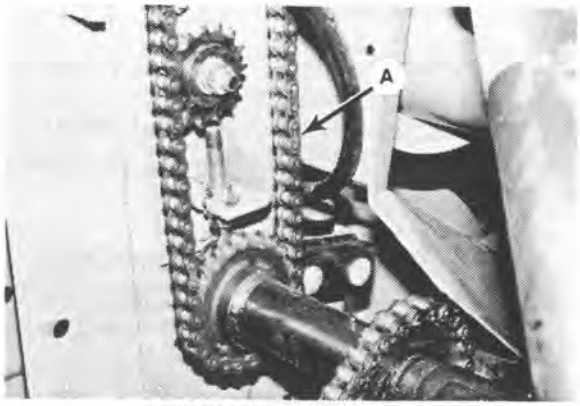

ATTACH CLEVIS TO TRACTOR

10. Adjust float springs for additional weight. (For instruction on float spring adjustment see "Model 9000 Windrower Tractor Operator's Manual" or "7000 Tractor: Adapter Supplement".

# OPERATION

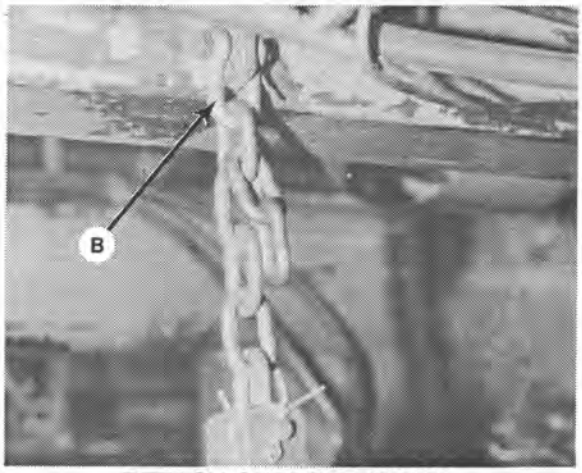
## DETACHING THE HAY CONDITIONER

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.



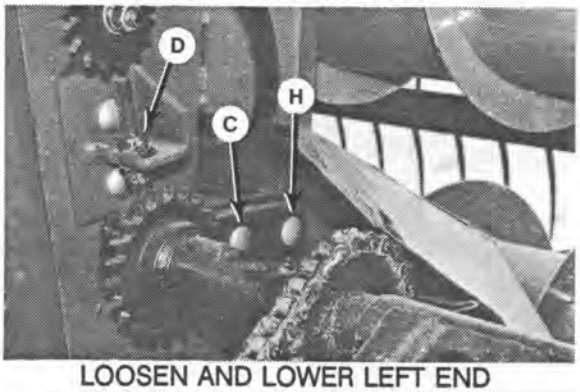
REMOVE DRIVE CHAIN

4. Detach rear support chain (B) from tractor frame.



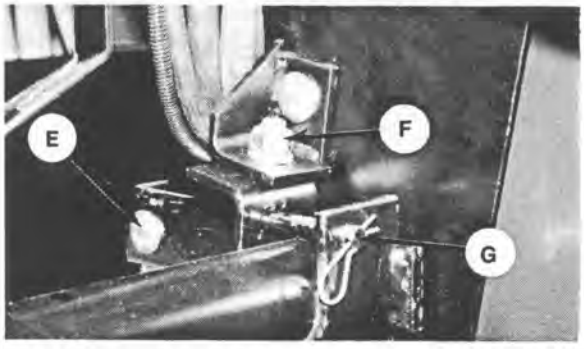
DETACH SUPPORT CHAIN

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 bolts (C) and (H) at left support strap.



LOOSEN AND LOWER LEFT END

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, or remove bracket completely if installing forming rods. Attach all loose hardware to conditioner for storage.



LOOSEN AND LOWER RIGHT END

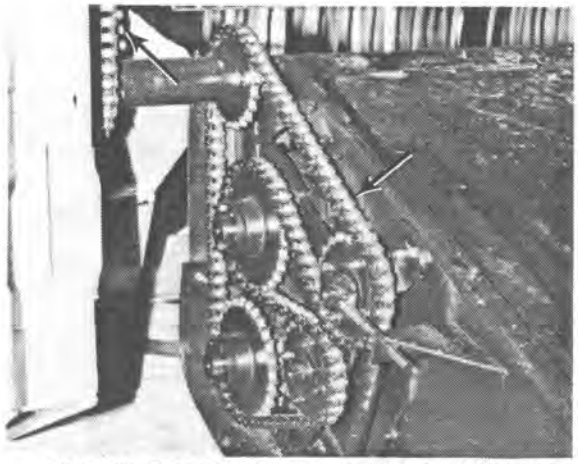
# OPERATION

## 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 park brake and remove key.**

2. Check hay conditioner chain tension after 2 hours for proper tension. See Maintenance/ Service section.

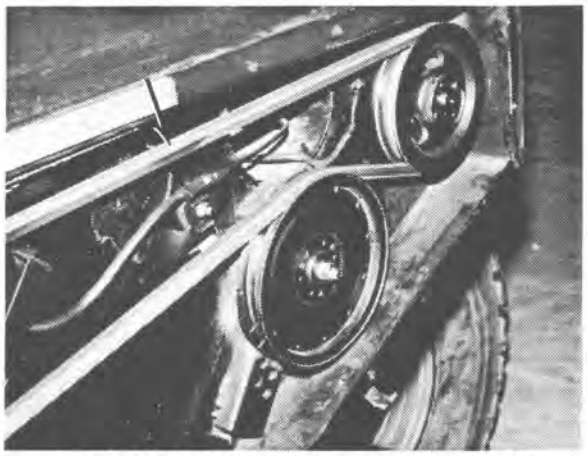


CHECK CONDITIONER CHAIN TENSION

3. Check sickle drive belt after 5 hours operation for initial stretch. Tighten as necessary. See Maintenance/Service section.

   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.



CHECK SICKLE DRIVE BELT TENSION

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.


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. **Reaquaint yourself with the controls before beginning operation.**

Also:

5. Adjust tension on all belts and chains. See Maintenance/Service section.
6. 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. Perform all Daily maintenance. See Maintenance/Service section.

PROTECT YOURSELF


PROTECT AGAINST NOISE

## OPERATE CORRECTLY

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

Start-Up Procedure
Driving the Windrower
Stopping Procedure

# OPERATION

## HEADER CONTROLS

**CAUTION: Be sure all bystanders are clear of machine before starting windrower or engaging any header drives.**

See the Windrower Tractor Operator's Manual for identification of in-cab controls for:

- Header Drive Clutch
- Header Height
- Ground Speed
- Reel Speed
- Reel Height
- Auger Speed

## HEADER LIFT CYLINDER STOPS

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

See the "Model 9000 Tractor Operator's Manual" or "7000 Tractor Adapter Supplement" for instruction regarding the use and storage of header lift cylinder stops.

## REEL PROPS

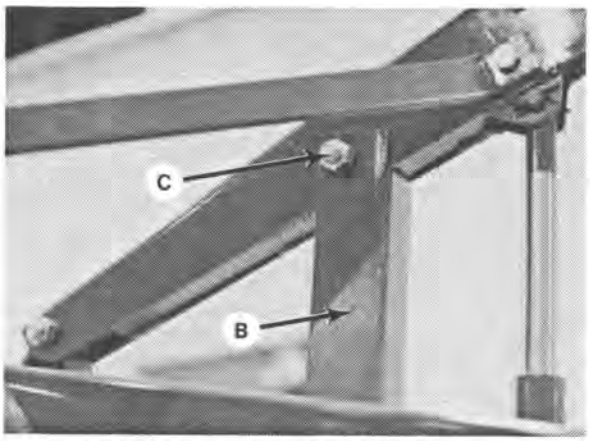
**WARNING: To avoid bodily injury from fall of raised reel, always engage reel props before going under raised reel for any reason.**

Reel props are located at each reel support arm.

To engage reel props:

1. Raise reel to maximum height.
2. Move props (B) to engaged position.
3. 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 PROP - ENGAGED

# OPERATION

## 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.

**MULTI-CROP HEADER**

1. Cutting Height
2. Ground Speed
3. Reel Speed
4. Reel Height
5. Reel Fore-Aft Position
6. Reel Pick-Up Finger Pitch
7. Auger Speed
8. Header Angle
9. Header Flotation
10. Upper Cross Auger
11. Forming Rods

**HAY CONDITIONER**

12. Roll Intermesh
13. Roll Tension
14. Forming Shields

OPERATING VARIABLES

# OPERATION

## CUTTING HEIGHT

See Windrower Tractor Operator's Manual for identification and instructions for use of header height control.

## GRAIN CROPS

For grain crops the windrow should normally be laid on stubble from 6 to 8 inches high (150 to 200 mm). Benefits of a stubble of this height:

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

**NOTE:** Both windrower tractor models (7000 & 9000) have a "Cut Height Indicator" to help identify desired cut heights. See Tractor Operator's Manual for details.

## HAY AND SPECIALTY CROPS

### Skid Shoes

In hay and other specialty 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.

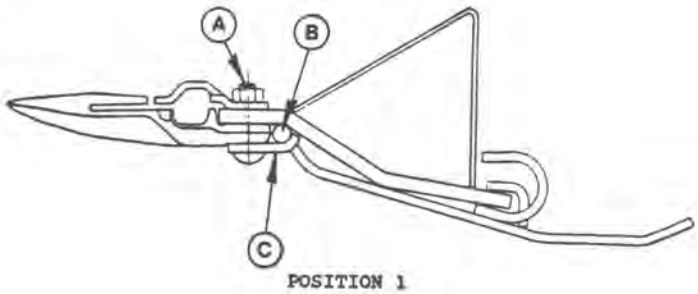
**NOTE:** Lowering the skid shoes raises the cutting height. This may be desirable in stony conditions, to reduce damage to cutting components. Other benefits include reduced plugging due to mud or dirt build-up and longer stubble for faster drying.

**DANGER: 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 for any reason).**

To adjust cutting height with skid shoes:

1. Loosen bolts (A), two per shoe, sufficiently to release rods (B) from supports (C).
2. Position shoe at the desired setting.
3. Adjust both shoes to the same position to provide an even cutting height.
4. Engage rods in supports, tighten bolts (A).

**NOTE:** Additional skid shoes may be installed if required.




POSITION 1

POSITION 2

SKID SHOE POSITIONS

# OPERATION

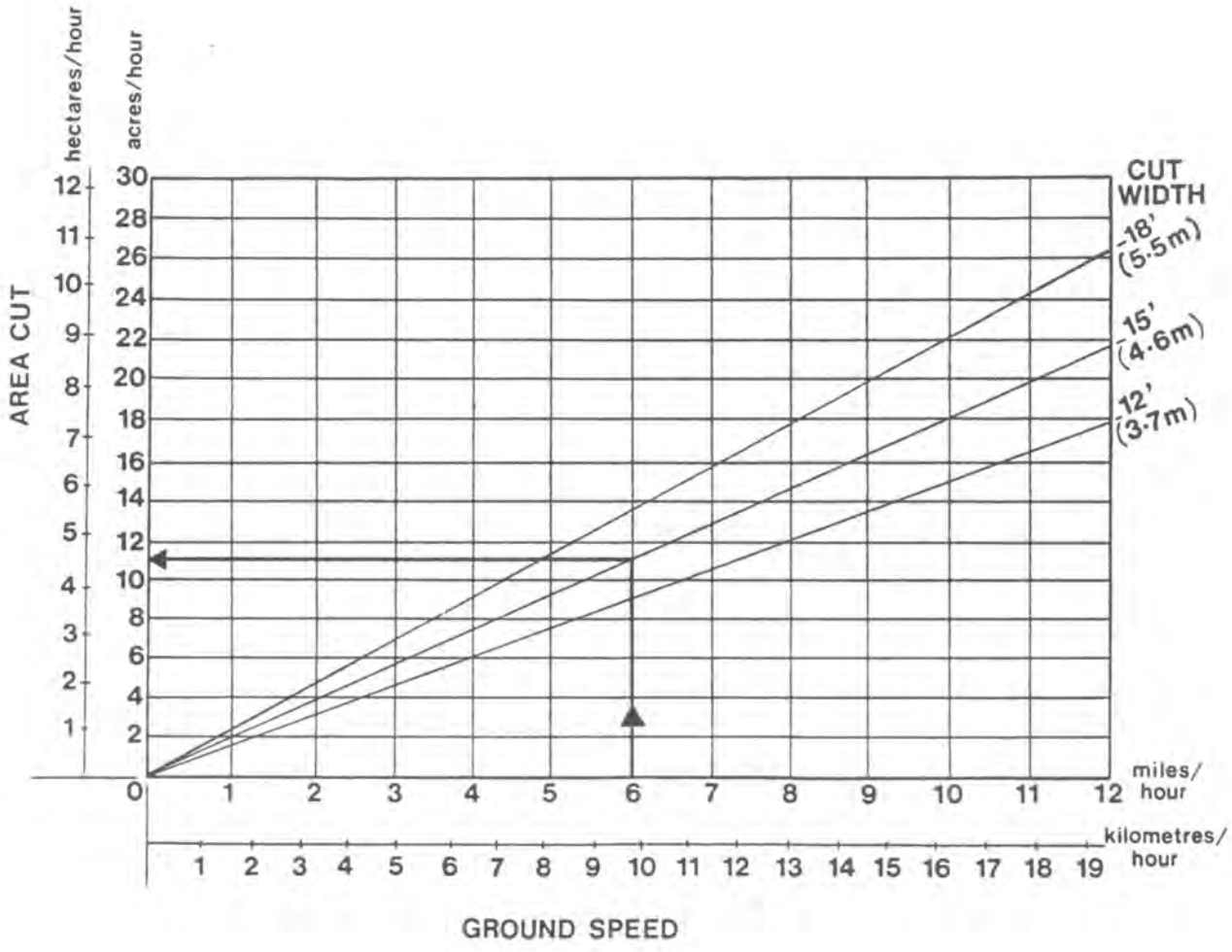
## GROUND SPEED

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

See Windrower Tractor Operator's Manual for identification and instructions for use of ground speed control.

As ground speed is increased, auger 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 three header sizes.

Example shown: At a ground speed of 6 miles per hour (9.7 km/h) with a 15 ft. header, the area cut per hour would be approximately 11 acres (4-1/2 hectares).



## REEL SPEED

Reel speed affects feeding of crop into the sickle and augers, as well as 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. This gently sweeps crop across sickle onto the augers.

The more "down" the crop, the faster the reel speed should be in relation to ground speed. This can be achieved by increasing reel speed, decreasing ground speed, or both.

Excessive shattering of grain heads may be an indiction that reel speed is too fast. Excessive reel speed causes undue wear of reel components and unnecessary load on reel drive, resulting in uneven reel motion.

See Windrower Tractor Operator's Manual for identification and instructions for use of reel speed control.

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## REEL HEIGHT

Depending on crop height, adjust reel height to carry material through the sickle onto the augers. Down crop will require a lower reel height while bushy crop may require raising the reel to prevent unevenness in the windrow.

See Windrower Tractor Operator's Manual for identification and instructions for use of reel height control.

# OPERATION

## REEL POSITION - FORE & AFT

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

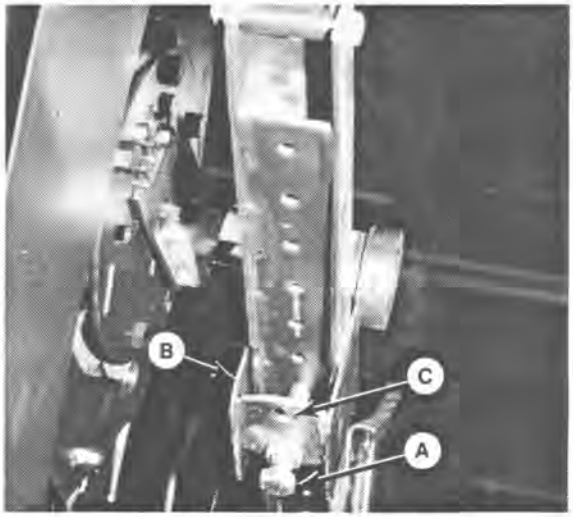
- For straight standing crop, the reel position is normally centered above the cutterbar. The eighth hole from the front of the support arms is a good starting point.
- For crops that are down, tangled or leaning, move reel ahead of cutterbar*. This allows raising cutterbar to clear dead material or rocks and lowering the reel to pick up the down material while maintaining finger to sickle clearance.

* **IMPORTANT:** To prevent damage from contact with divider rods, do not operate reel forward of the sixth hole position.

- Bushy crops require positioning the reel behind the cutterbar, applying downward force on the crop.

To adjust reel fore-aft position:

1. Lower reel so support arms are approximately 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).
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.
7. Check reel clearance to augers. Minimum clearance should be 5/8" (15 mm).



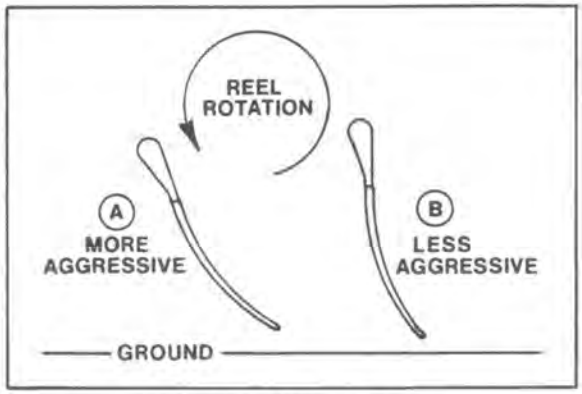

REEL FORE-AFT POSITION ADJUSTMENT

## REEL PICK-UP FINGER PITCH

Another factor in effective feeding of crop into the sickle and augers is finger pitch angle (the angle the fingers operate at in relation to the ground).

**NOTE:** In the illustration at right, pitch angle (A) is more aggressive than pitch angle (B).

**IMPORTANT:** Due to its efficient finger action, this reel should be operated at the least aggressive pitch angle possible and over a narrower range of adjustment than conventional pick-up reels.




FINGER PITCH ANGLE

Different crop types and conditions may require adjustment of the finger pitch to achieve best results. Remember, before adjusting the pitch:

1. Too much pitch will not allow the reel to release the crop, resulting in crop carry-over.
2. Adjust reel position. In down crop the reel should be forward and down. See "Reel Position - Fore & Aft" and "Reel Height" in this section.
3. Adjust reel speed. See "Reel Speed" in this section.

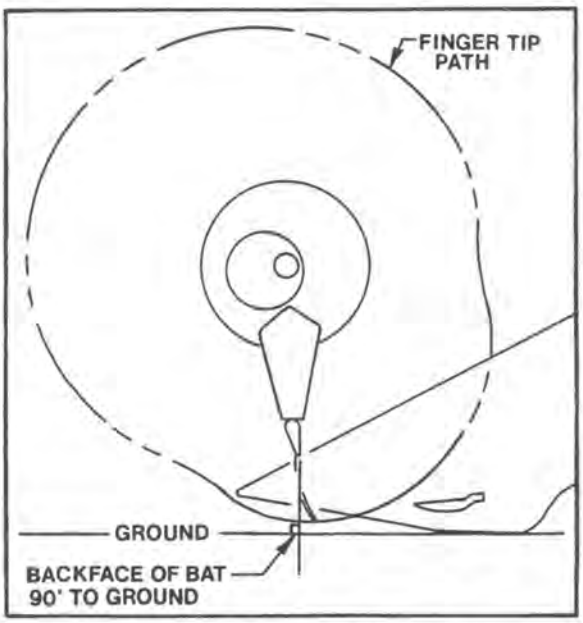
REEL PICK-UP FINGER PITCH (continued)

The following pitch settings are usually preferred:

1. If crop is partially down, set pitch so that the backface of the bat is vertical (90° to the ground) WHEN THE BAT IS AT ITS LOWEST POINT.

   This position allows the fingers to lift the crop sufficiently for proper cutting without carrying crop over the reel.

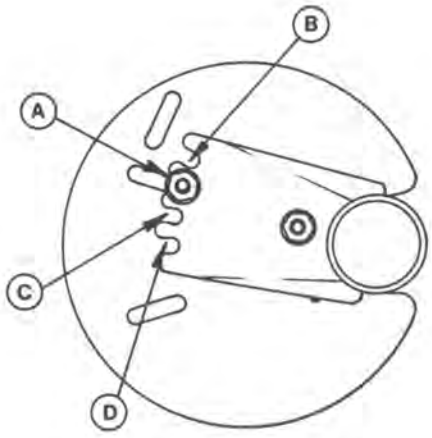
   **NOTE:** Adjustment position (A) will normally provide the vertical pitch setting recommended, however this may vary with reel height, cutting height etc.




BAT BACKFACE VERTICAL FOR PARTIALLY STANDING CROP

2. For standing crop, the pitch can normally be set one position less aggressive, at position (B). This provides a more gentle reel motion to minimize crop damage.

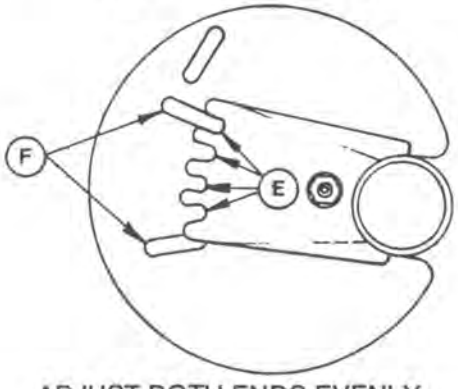
3. If the crop is nearly all down, set the finger pitch one position (C) or two positions (D) more aggressive. Choose a position which allows the fingers to lift the crop as much as possible without carrying crop over the reel. The crop should be lifted sufficiently to pass it through the sickle guards easily for a clean cut.




FINGER PITCH SETTINGS

The pitch of the reel fingers is controlled by the plates at each end of the reel shaft.

**IMPORTANT:** To avoid reel damage, both ends of the reel must be evenly adjusted. Be sure the same notch (E) and range slot (F) are being used at both ends.

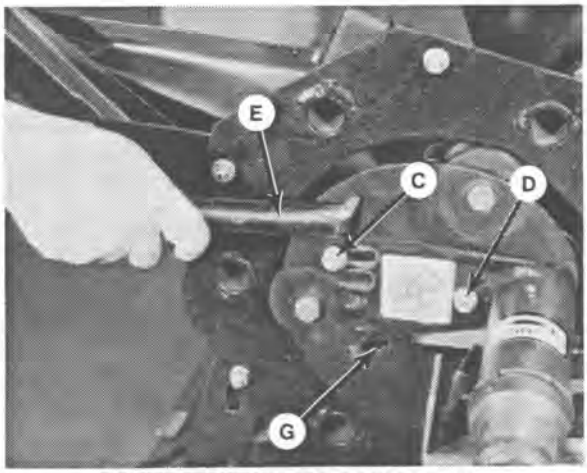



ADJUST BOTH ENDS EVENLY

REEL PICK-UP FINGER PITCH (continued)

To adjust:

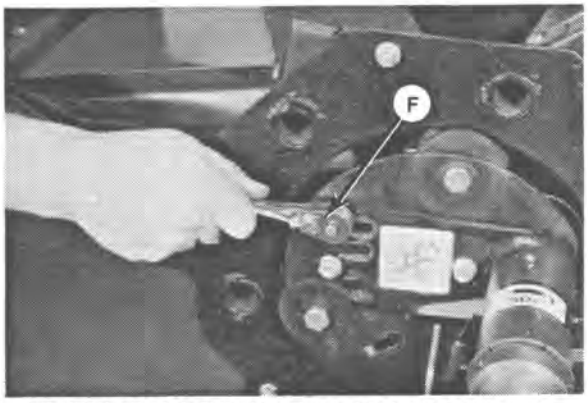
1. Lower the reel and header fully.
2. Loosen the carriage bolts (C) and (D) on both L/H and R/H cam assemblies.
3. Slide the front carriage bolt (C) out of the notch at each end.
4. Adjust to desired position using adjuster tool (E) or a 3/8 drive ratchet handle (F) to rotate cam. Slide carriage bolt (C) into new slot and tighten bolts (C) and (D) to 22 ft. lbs. (30 N.m).
5. Check clearance to cutterbar and augers.



FINGER PITCH ADJUSTMENT

To change to alternate adjustment range:

1. Lower the reel and header fully.
2. Remove carriage bolt (C) from both L/H and R/H cam assemblies.
3. Loosen carriage bolt (D) at each end.
4. Adjust to desired position using adjuster tool (E) or 3/8" drive ratchet handle (F) to rotate cam so alternate slot (G) in control plate is used at each end.
5. Replace bolt (C) in new slot and tighten bolts (C) and (D) to 22 ft. lbs. (30 N.m).
6. Check clearance to cutterbar and augers.



ADJUSTMENT USING RATCHET HANDLE

AUGER SPEED

Auger speed affects the orientation of stalks in the windrow. Select an auger speed that provides the desired windrow formation. See "Windrow Characteristics" in this section.

Auger speed range is 175 to 470 rpm.

See Windrower Tractor Operator's Manual for identification and instructions for use of auger (conveyor) speed control.

## HEADER ANGLE

The header angle is adjustable between 6.5° and 13.5° below horizontal. Choose an angle that maximizes performance for your crop and field conditions.

**IMPORTANT:** A flatter header angle is recommended for normal conditions. A flatter angle reduces sickle section breakage and reduces soil build-up at the cutterbar in wet conditions.

Use a steeper angle to cut very close to the ground, or for better lifting action of down crops.

See Windrower Tractor Operator's Manual for adjustment procedure.

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## HEADER FLOTATION

As a starting point for normal conditions, adjust float spring tension so 75 to 100 lbs. force (335 to 445 N) is required to lift cutterbar off ground at each end.

Your specific requirements and conditions may require heavier or lighter float.

Benefits of lighter float settings:

1. Less cutting component breakage in rough or stony conditions.
2. Avoids soil build-up at cutterbar in wet conditions.

Benefits of heavier float settings:

1. When cutting very close to the ground, enables cutterbar to follow ground contours.

See Windrower Tractor Operator's Manual for adjustment procedure.

UPPER CROSS AUGER (Optional)

For tall or bulky crops, the optional upper cross auger (D) will aid crop flow across the header and through the delivery opening.

The position of the upper cross auger is adjustable for best feeding of the crop. A suggested setting is 4 inches (100 mm) from cross auger flighting to rear deck as shown. Extremely tall crops will require a higher setting.

To adjust:

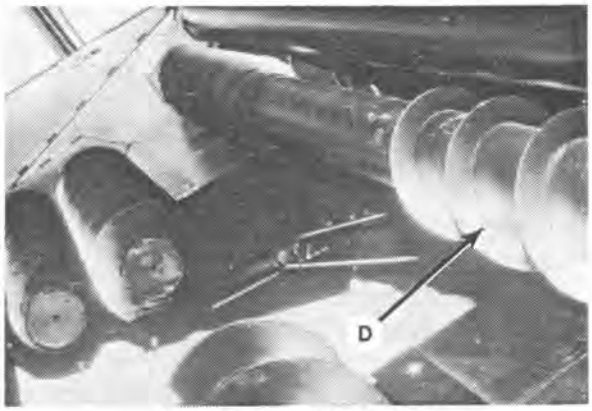
1. Lower reel fully.
   **IMPORTANT:** To avoid machine damage caused by contact of reel and cross auger, always position the cross auger with the reel fully lowered. This prevents positioning the auger too high.

2. Loosen auger mounting clamp bolt (F) at both ends of header.

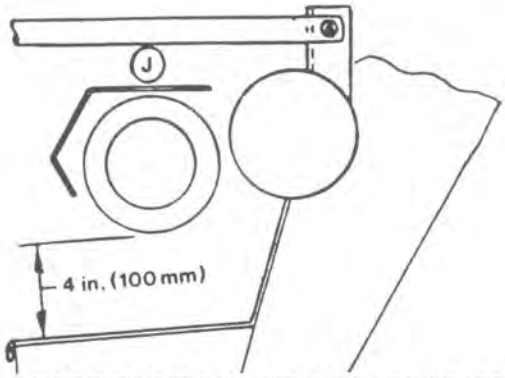
   **CAUTION: Be aware of a pinch point at (J) between cross auger end shield and reel brace as auger is raised.**

3. Rotate the auger around the frame tube to desired location.

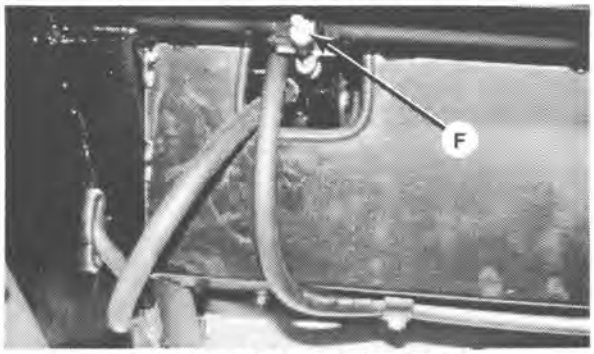
4. Tighten clamp bolts (F) to secure the position.



UPPER CROSS AUGER



CROSS AUGER POSITION - NORMAL CONDITIONS



CLAMP BOLT - BOTH SIDES

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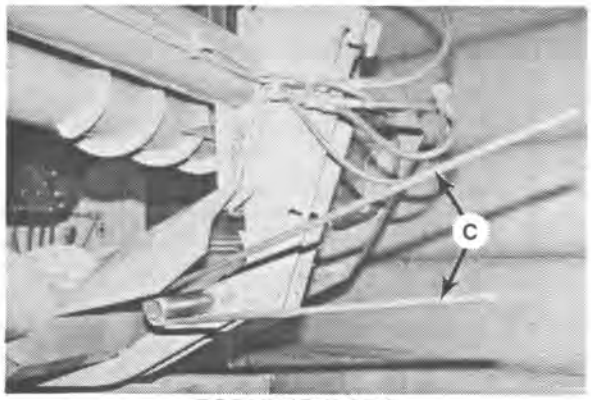
FORMING RODS

Bend forming rods (C) as required to assist formation of desired windrow formation when hay conditioner is not installed.



FORMING RODS

# OPERATION

## HAY CONDITIONER ROLL INTERMESH

The intermeshing steel rolls of the optional 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.

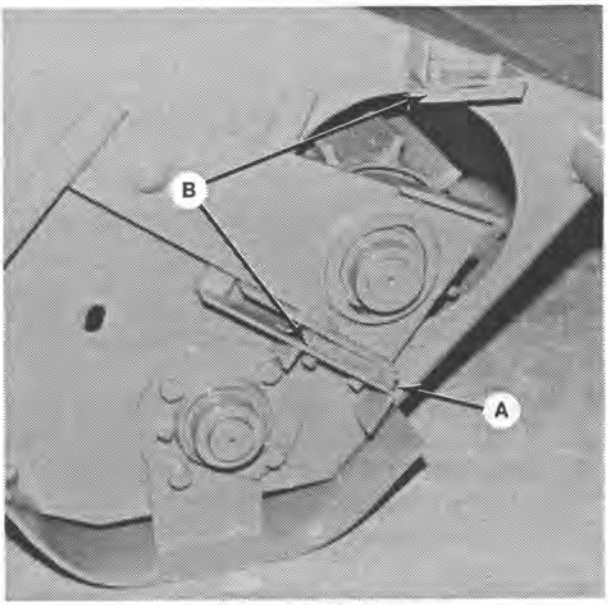
Roll intermesh is factory set for normal operation. In thick stemmed, cane-type crops, slightly less intermesh may be desirable; however, too little intermesh will cause feeding problems.

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

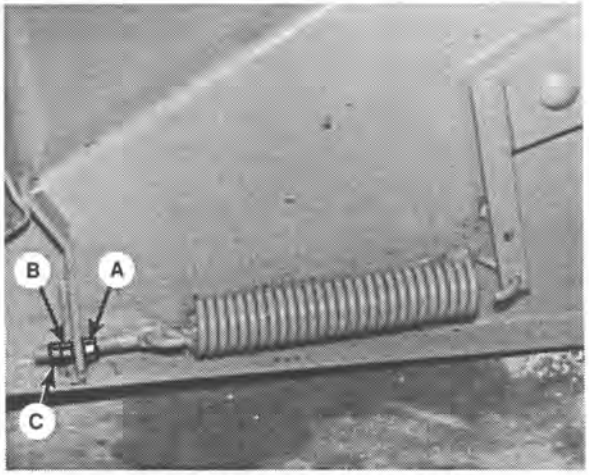
The conditioner roll intermesh is maintained by two tension springs to provide adequate pressure for correct conditioning of the crop (see above).

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

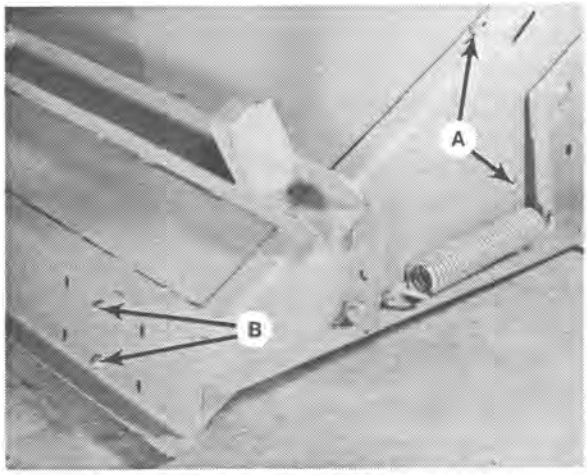
# OPERATION

## 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 defelctors 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.



INNER DEFLECTOR ADJUSTMENT

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")

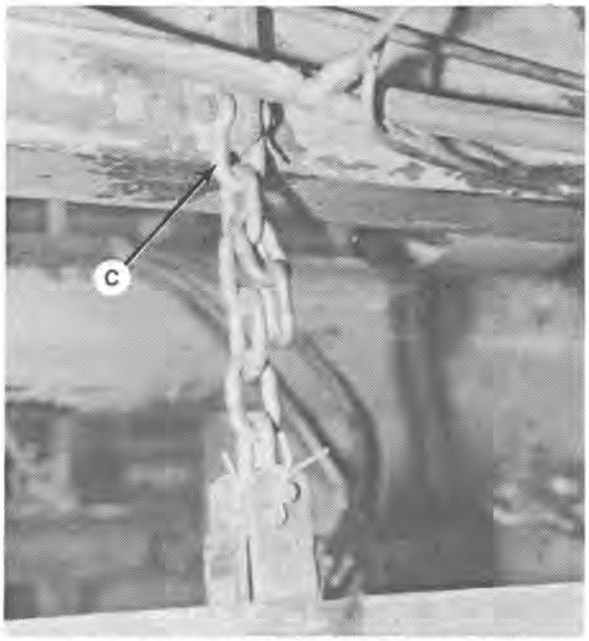
A wider windrow will generally dry faster and more evenly, resulting in less protein loss. Fast drying is especially important in areas where the weather allows only a few days to cut and bale. See "Haying Tips" in this section for more information.

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.



FORMING SHIELD HEIGHT ADJUSTMENT

# OPERATION

## HAYING TIPS

The following information may be useful when using the header in hay crops:

There is one certainty when making hay - a fast cure will maintain top quality. It is critical to have the cured hay baled as soon as possible, for two reasons:

1. Every day hay lies on the ground, 5% of the protein is lost.

2. The sooner the cut hay is off, the earlier the start for next growth.

Generally, leaving the windrow as wide and thin as possible makes for the quickest curing, however there are other factors which affect curing time:

1. TOPSOIL MOISTURE

   When the ground is wetter than the hay, moisture from the soil is absorbed by the hay above it. Determine topsoil moisture level before cutting. Use a moisture tester or estimate level:

   Over 45 % - WET - Soil will be muddy
   25 - 45% - DAMP - Walking on soil leaves tracks
   Under 25% - DRY - Soil will be dusty on top

   When ground is wet due to irrigation, wait until soil moisture drops below 45%. When ground is wet due to frequent rains, cut when weather allows and let the forage lie on wet ground until it dries to the moisture level of the ground. At this point, the cut hay will dry no more until the ground under it dries, so consider moving the windrow to drier ground.

   On wet soil, the general rule of "wide and thin" does not apply. A narrower windrow will dry faster than hay left flat on wet ground.

2. CLIMATE AND TOPOGRAPHY

   a. Try to have as much hay cut as possible by midday, when drying conditions are best.

   b. Fields sloping south get up to 100% more exposure to the sun's heat than do north sloping fields. If you bale and chop, consider baling the south facing fields and chopping those facing north.

   c. When relative humidity is high, the evaporation rate is low and hay dries slower. If there is no wind, saturated air becomes trapped around the swath, further hindering the drying process. Raking or tedding will expose the hay to fresher, less saturated air. Cutting hay perpendicular to the direction of the prevailing winds may also help.

**HAYING TIPS (continued)**

3. WINDROW CHARACTERISTICS

   See "Operating Variables" in this section. Control the factors listed to produce a windrow with the following characteristics:

   a. High and fluffy for good air flow.

   b. Consistent formation, not bunchy.

   c. Even distribution, not piled in the middle.

   d. Properly conditioned without excessive leaf damage.

4. RAKING AND TEDDING

   Raking or tedding will speed up drying, however the benefits must be weighed against the additional leaf losses which will result. When the ground beneath the down hay is dry, raking or tedding is probably not worthwhile.

   Big windrows on damp or wet ground should be turned over when they reach 40-50% moisture. Hay should not be raked or tedded at less than 25% moisture, or excessive yield losses will result.

5. CHEMICAL DRYING AGENTS

   Hay drying agents work by removing wax from legume surfaces, enabling water to escape and evaporate faster. However, treated hay lying on wet ground will also absorb ground moisture faster.

   Before deciding to use a drying agent, costs and benefits relative to your area should be carefully compared.

---

**GRAIN WINDROW CHARACTERISTICS**

Factors such as ground speed, reel speed, auger speed and cutting height 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 to look for in a quality windrow:

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.

## UNPLUGGING THE HEADER

**WARNING: Stop engine and remove key from ignition before removing plugged material from header.**

If the sickle plugs:

1. Stop forward movement of the windrower and disengage header drive clutch.
2. With header on ground, back up several feet and engage header drive clutch.
3. If plug does not clear, disengage header drive clutch and raise header fully.
4. Shut off engine, remove key and engage park brake.
5. Engage header lift cylinder stops.

**WARNING: Wear heavy gloves when working around sickle.**

6. Clean off cutterbar.

If sickle plugging persists, see Trouble Shooting section.

If augers or conditioner plug:

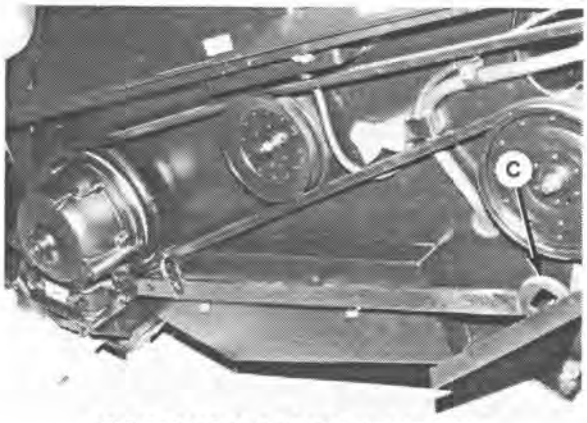
1. Stop forward movement of the windrower, disengage header drive clutch and raise header fully.
2. Shut off engine, remove key and engage park brake.
3. Engage header lift cylinder stops.

**WARNING: Wear heavy gloves when working around sickle.**

4. Clean off cutterbar and area under reel.
5. Position rocking wrench (A) over end of drive shaft (B) and rotate counter-clockwise (from left end). This reverses augers and conditioner rolls to loosen a wad of crop material or foreign object.
6. Remove wad or foreign object from front of augers and/or hay conditioner.
7. Store wrench at left end of header, securing wrench end at tab (C) as shown.

If plugging persists, see Trouble Shooting section.


CLEARING PLUGGED AUGERS OR ROLLS




ROCKING WRENCH STORAGE

# OPERATION

## TRANSPORTING THE HEADER

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

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

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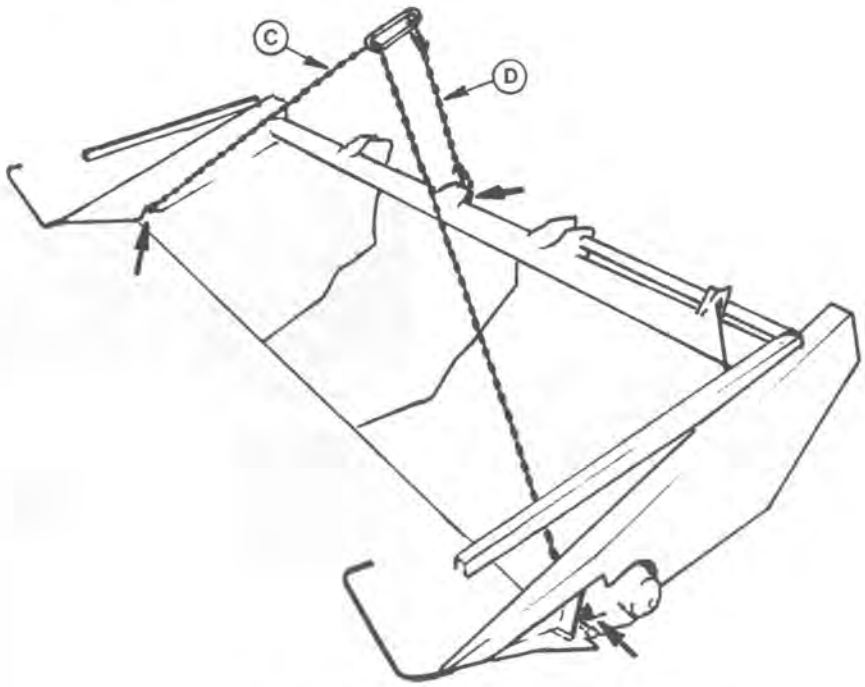
## LIFTING HEADER IN WORKING POSITION

If it is necessary to lift header once it has been lowered from shipping position to working position, see "Lifting Vehicle Requirements" and "Chain Requirements" in Unloading & Assembly section before proceeding.

Attach one chain (C) from lifting vehicle to both end panels at cutterbar. Attach a second chain (D) from lifting vehicle to center link anchor on frame tube as shown.

**CAUTION: Be sure hooks are secure before lifting header. Stand clear when lifting, as machine may swing.**




LIFTING HEADER IN WORKING POSITION

# OPERATION

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 sickle guards to prevent injury from accidental contact.**

Also:

4. Repaint all worn or chipped painted surfaces to prevent rust.
5. Loosen sickle drive belt.
6. Lubricate the windrower thoroughly, leaving excess grease on fittings to keep moisture out of bearing. Apply grease to exposed threads and sliding surfaces of components.
7. Pick-Up Reel: Grease the steel bushings in the cam rollers (3 each end) and oil all plastic bearings at reel bats to prevent rusting of shafts.
8. Check for worn or broken components and repair or order replacements from your dealer. Attention to these items right away will save time and effort at beginning of next season.
9. Tighten loose hardware and replace any missing hardware. See Specification 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, naptha or any volatile material for cleaning purposes. These materials may be toxic and/or flammable.

**NOTE:** The L/H drive shield, in the open position, rests in a hinge "pocket" to prevent it from falling. To close left hand drive shield, lift up on shield to clear hinge pocket at (B), then lower shield and secure with rubber latch.

CLOSING L/H DRIVE SHIELD

# 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 disulphide.

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

### WOBBLE BOX LUBRICANT

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

### CAPACITIES

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

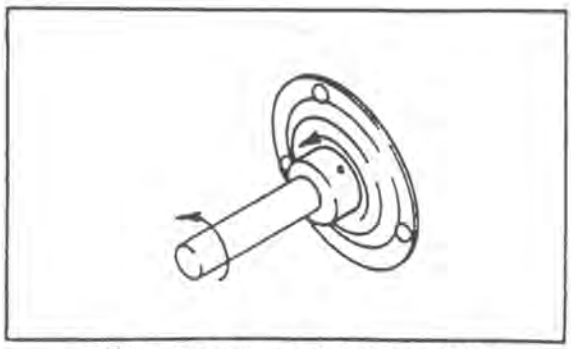
### STORING LUBRICANTS

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.

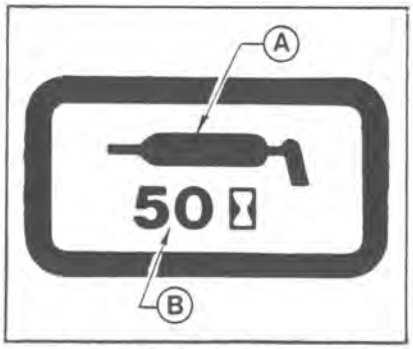


TIGHTEN COLLAR IN DIRECTION SHAFT ROTATES

## 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.



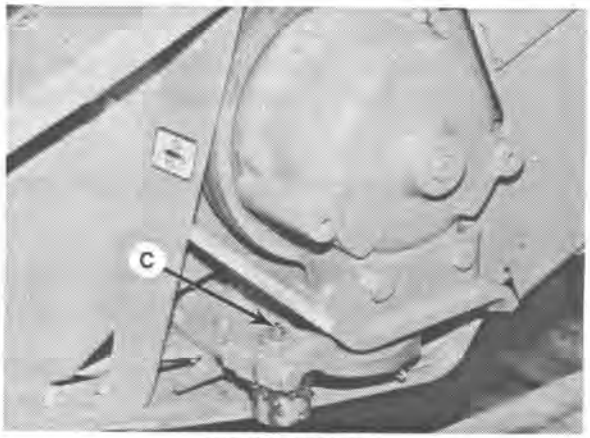
SAMPLE GREASE DECAL

**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. Inject grease slowly to prevent seal damage.
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. Sickle Head (C) - one fitting

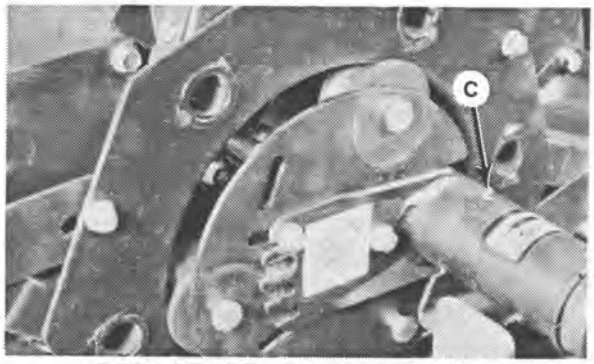


SICKLE HEAD

GREASING THE HEADER AND CONDITIONER (continued)

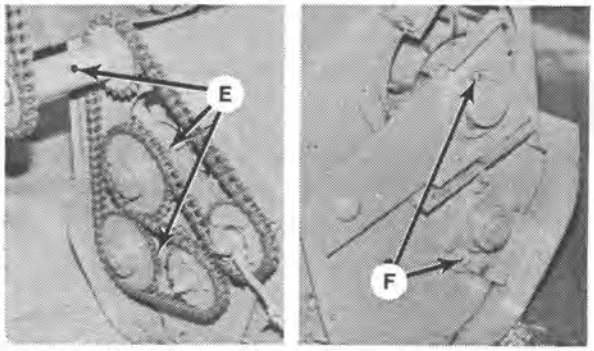
50 Hours:

1. Reel Center Tube Bearings (C) - two fittings




REEL CENTER TUBE BEARINGS

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




LEFT SIDE RIGHT SIDE
HAY CONDITIONER BEARINGS

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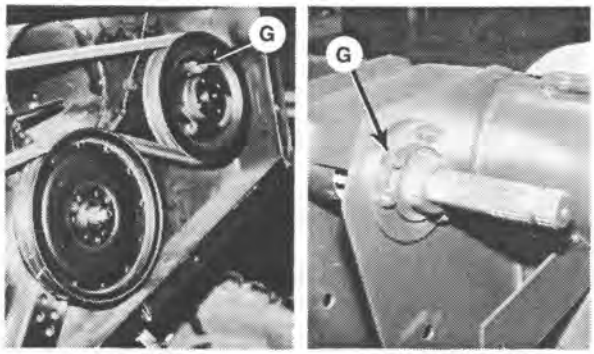
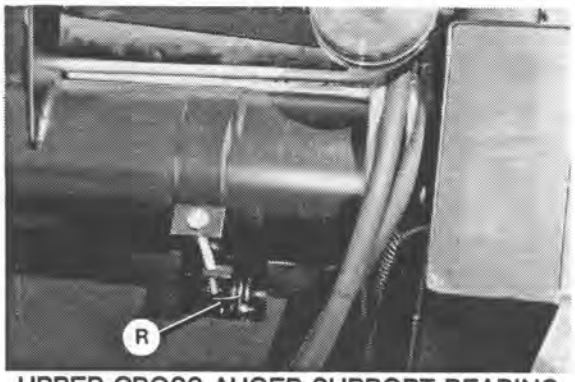
100 Hours or Annually

1. Sickle Drive Shaft Support Bearings (G) - two fittings.




LEFT END RIGHT END
SICKLE DRIVE SHAFT SUPPORT BEARINGS

2. Upper Cross Auger Support Bearing (optional) (R) - one fitting




UPPER CROSS AUGER SUPPORT BEARING

# MAINTENANCE/SERVICE

## SICKLE AND SICKLE DRIVE

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

**CAUTION: Wear heavy gloves when working around or handling sickles.**

KEEP HANDS AWAY FROM SICKLE

### Sickle Lubrication

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

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

OIL SICKLE DAILY EXCEPT
IN SANDY SOIL

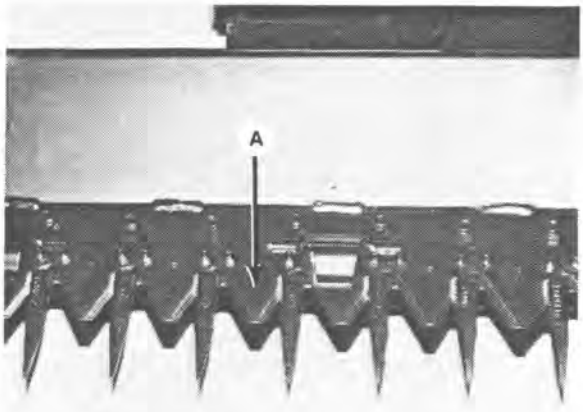
### Sickle Sections

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

To replace sickle section:

1. A worn or broken sickle section (A) can be replaced without removing sickle from cutterbar.
2. Remove lock nuts and lift section off of bolts.

   **IMPORTANT:** Do not mix heavy and light sickle sections on same sickle.
3. Clean any dirt off of sickle back and position new sickle section on bolts. Secure with lock-nuts.



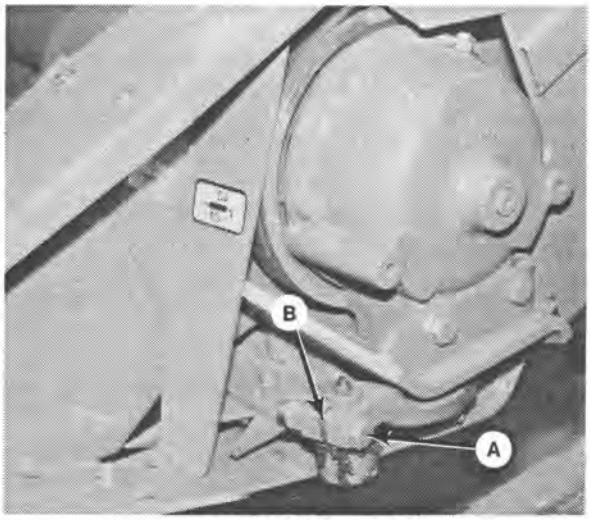

BOLT-ON SECTIONS

SICKLE AND SICKLE DRIVE (continued)

To Remove Sickle

**WARNING: Always stand to rear and grasp rear edge of sickle during removal to reduce risk of injury from cutting edges. Wear heavy gloves when handling sickle.**

1. Clean area around sickle head. Stroke sickle to its outer limit and remove bolt (A).
2. Insert screwdriver in slot (B) and pry up on sickle head pin to free sickle.
3. Stroke pitman arm to clear bearing in sickle head. Insert sickle head pin in sickle head to shield bearing from dirt.
4. Wrap a chain around sickle head and pull sickle out.
5. If sickle is not being immediately reinstalled, cover sickle head to shield bearing from dirt.



REMOVING SICKLE

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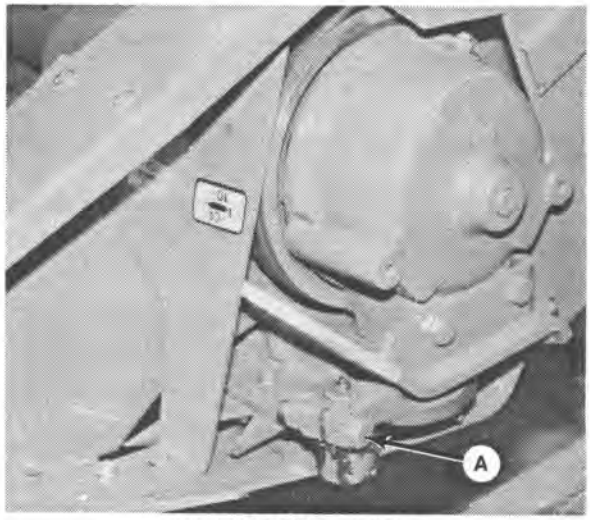
To Install Sickle

**WARNING: Always stand to rear and grasp rear edge of sickle during installation to reduce risk of injury from cutting edges. Wear heavy gloves when handling sickle.**

**IMPORTANT:** Always align guards and re-set sickle hold-downs while replacing sickle. See "Guards" and "Sickle Hold-Downs" in this section.

1. Slide sickle into place and replace bolt (A). **NOTE:** Notch in sickle head pin must align with bolt.
2. Tighten bolt (A) to 160 ft.lbs. (220 N.m).



INSTALLING SICKLE

SICKLE AND SICKLE DRIVE (continued)

Guards

**CAUTION: Always engage reel props before working under reel.**

Check daily that guards are aligned to obtain proper shear cut between sickle section and guard. Sickle sections should contact shear surface of each guard.

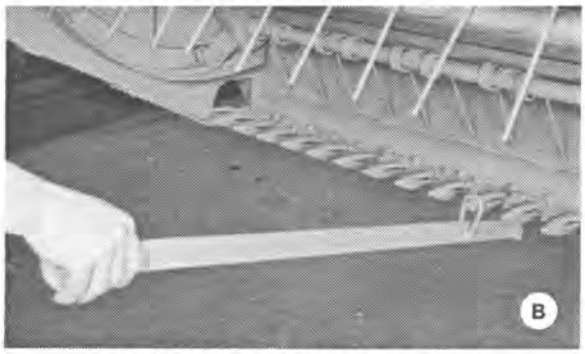
Align guards with guard straightening tool provided as shown:

To bend guard tips up, position tool as shown at (A) and pull up.

To bend tips down, position tool as at (B) and push down.

See "Unplugging the Header" in Operation section for tool storage.


BENDING GUARD TIPS UP




BENDING GUARD TIPS DOWN

Sickle Hold-Downs

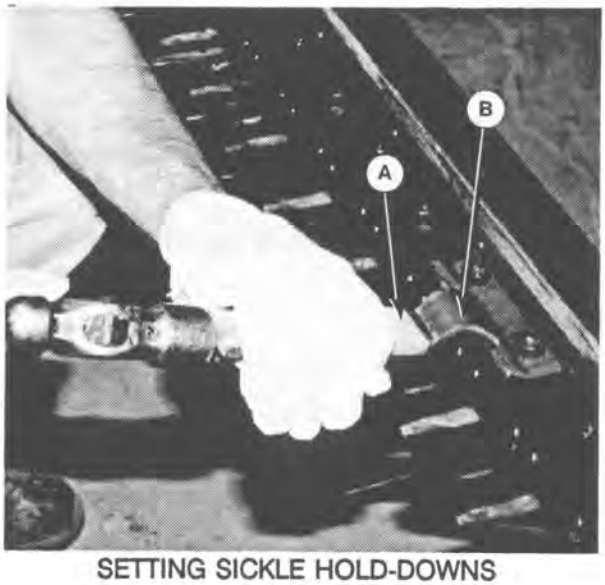
**CAUTION: Always engage reel props before working under reel.**

Check daily that sickle hold-downs are set to prevent sickle sections from lifting off guards but still permit sickle to slide without binding. Set hold-downs after guards are aligned.

To set hold-downs:

1. Using a flat piece of bar (A), tap end of hold-down as shown. This allows adjustment of hold-down arch (B) without "pinching" sickle. Clearance from hold-down to sickle section should be .020 in. (0.5 mm).

2. After adjusting all sickle hold-downs, 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 hold-down and section, then striking the hold-down arch (B) with a hammer.




SETTING SICKLE HOLD-DOWNS

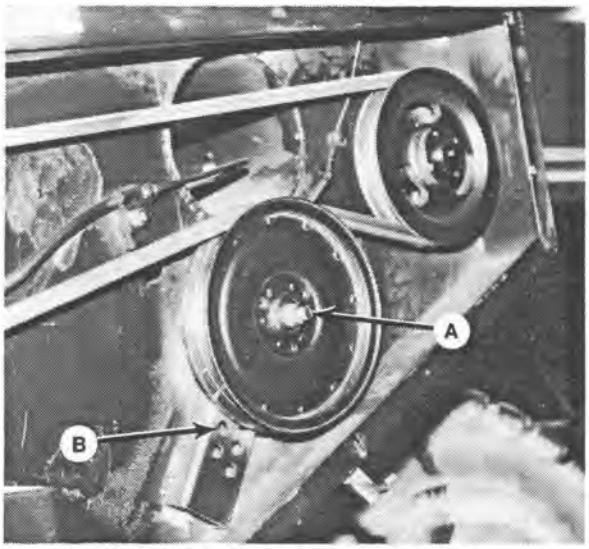
SICKLE AND SICKLE DRIVE (continued)

Tightening Sickle Drive Belt

**IMPORTANT:** To prolong belt and drive life, do not over tighten belt. Operate at minimum tension required to prevent slipping or excessive belt whip.

To adjust:
1. Loosen idler mounting bolt (A).
2. Use a punch or screwdriver in pry holes (B) to raise idler until a force of 12 lbs, (55 N) deflects belt 1/2 inch (13 mm) at mid-span.
3. Tighten bolt (A).

When installing a new belt:
1. Loosen bolt (A) and move idler fully down.
2. Remove bolt-on panel in left end sheet (at wobble box) for belt removal or installation.
3. Install belt and adjust belt tension as above.
4. Re-adjust belt tension after a short run-in period. (About 5 hours).



SICKLE DRIVE BELT TENSION

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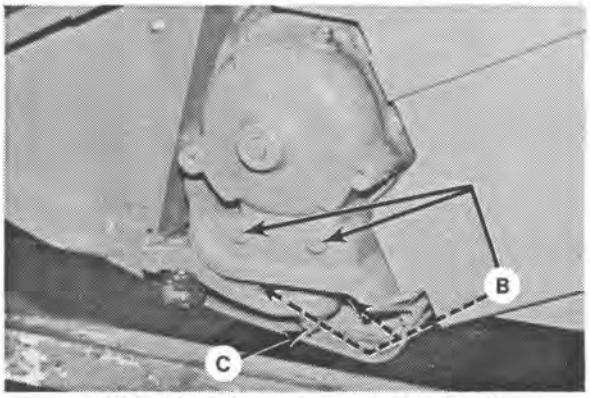
Wobble Box Mounting Bolts

Check torque of four wobble box mounting bolts (B) 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

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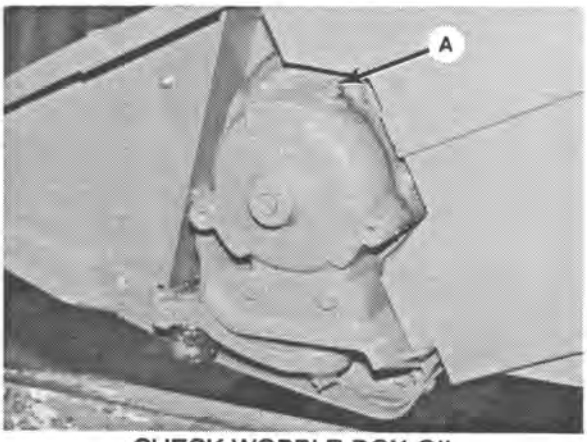
Wobble Box Lubricant

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 Finger Replacement

To replace a pick-up reel finger:

a. Insert screwdriver in slot in finger button and tap to push button into bat and down.

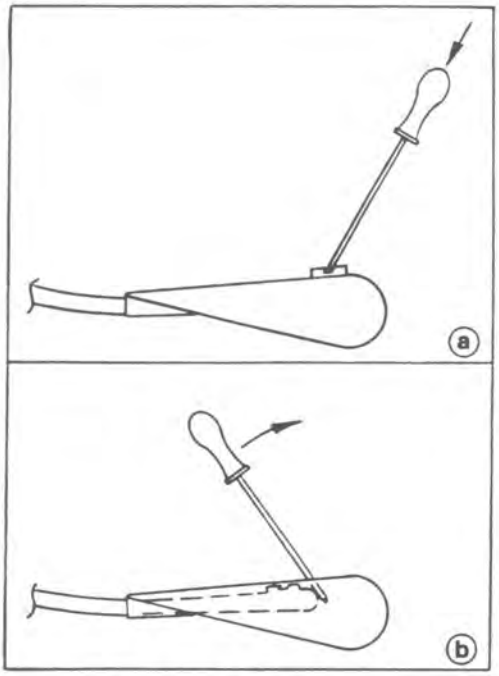
   **NOTE:** On the end bats, the 5/16 flange nut (C) must be loosened to allow finger removal.

b. Insert screwdriver into buttonhole in bat and pry top of finger down until it can be removed from pocket.

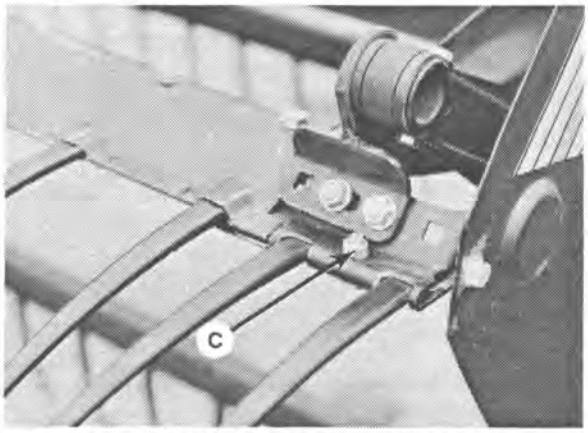
c. Use tool supplied to install new finger.

   Be sure finger button snaps into hole in bat.

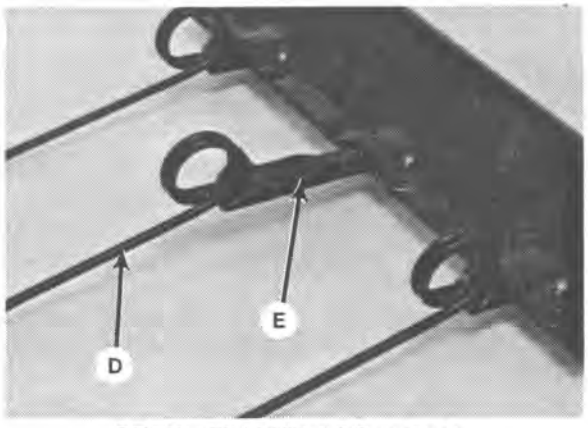
   For steel fingers, pre-assemble finger (D) and adaptor (E) and install.




FINGER REMOVAL




LOOSEN BOLT TO REMOVE END BAT FINGERS




STEEL FINGER ASSEMBLY

## REEL AND REEL DRIVE (continued)

### Reel Clearance to Cutterbar

With plastic fingers, the reel should be adjusted to provide a minimum 1/4 inch (6 mm) clearance to knife with reel fully lowered.

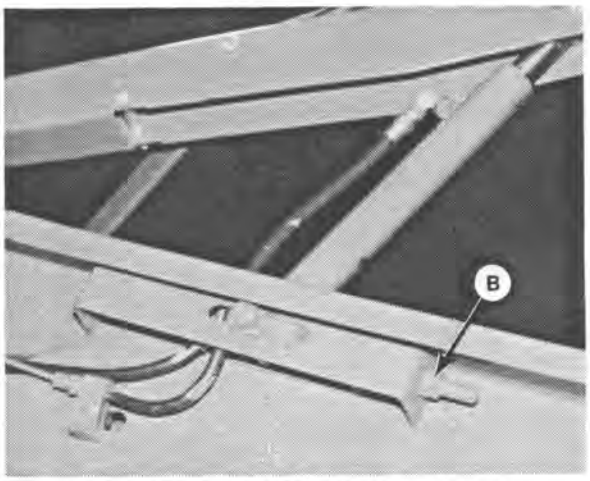
With steel fingers, the reel should be adjusted to provide a minimum 1 inch (25 mm) clearance to knife with reel fully lowered.

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

**NOTE:** Also maintain a minimum 5/8 inch (15 mm) clearance from reel fingers to augers.

To adjust reel clearance to cutterbar:

1. Lower header and reel fully.
2. Turn nut (B) clockwise to increase clearance to cutterbar, or counter-clockwise to decrease.
3. Repeat at opposite side so clearance is consistent across cutterbar.



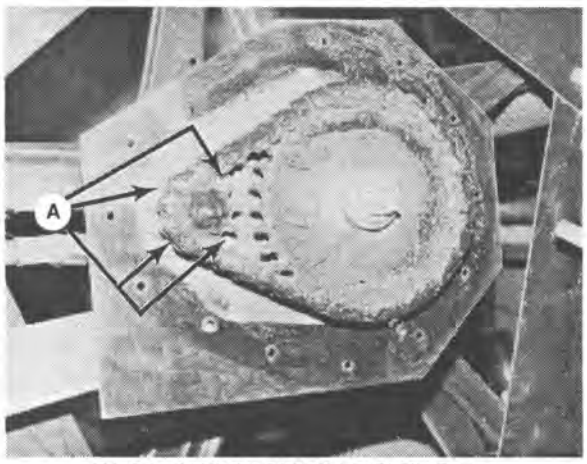

REEL CLEARANCE ADJUSTMENT

### 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 TENSION AND LUBRICATION

### Reel Drive Chain Lubrication

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

# MAINTENANCE/SERVICE

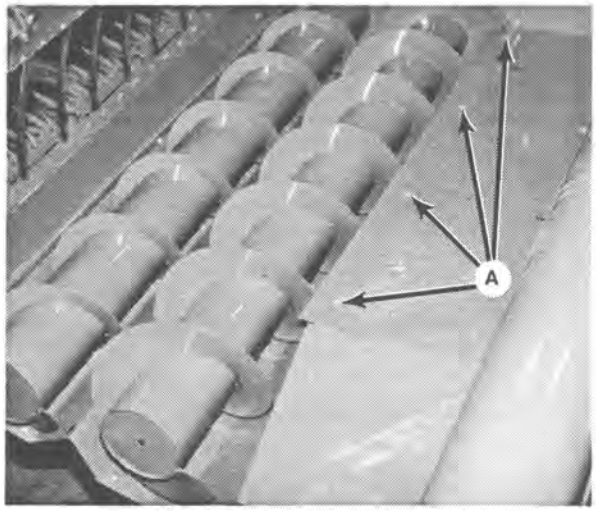
## AUGERS AND AUGER DRIVE

### Stripper Bars

Stripper bars have been factory set and should not normally require adjustment. Generally, crop flow is best when the stripper bars are set as close as possible to the augers without rubbing. This is especially important in grass and other crops which have a tendency to wrap. Component wear may cause clearances to become excessive, resulting in feeding problems and uneven windrows.

Should adjustment be required:

1. Loosen stripper bar mounting bolts (A).
2. Position stripper bars as close as possible to augers.
3. Check that bars do not rub augers at any point.
4. Tighten bolts (A).



STRIPPER BAR ADJUSTMENT

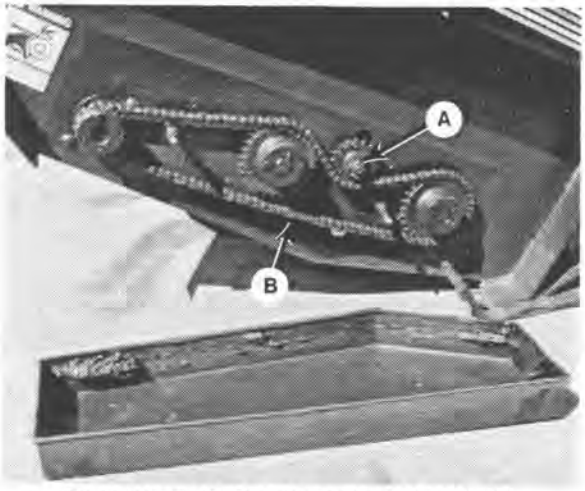
AUGERS AND AUGER DRIVE (continued)

Front Augers Drive Chain Tension

Check auger drive chain tension annually.

To tighten front augers drive chain:

1. Remove chain drive shield.
2. Loosen idler sprocket mounting bolt (A).
3. Move idler downward until deflection at (B) is 1/4 inch (6 mm).
4. Tighten bolt (A) and replace drive shield.
5. Repeat on opposite side of header.



CHAIN TENSION AND LUBRICATION (BOTH SIDES)

Front Augers Drive Chain Lubrication

Lubricate chain (both sides of header) annually with Multi-Purpose Grease.

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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 of 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 Tractor Operator's Manual for total system care.

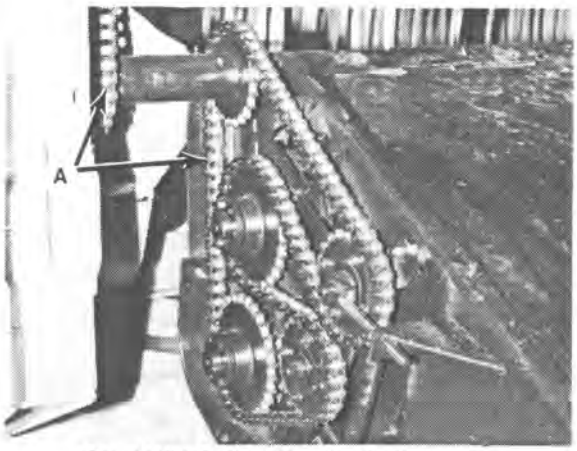

CHECK PROPERLY FOR LEAKS

# MAINTENANCE/SERVICE

## HAY CONDITIONER

### Hay Conditioner Drive Chains Lubrication

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




OIL HAY CONDITIONER CHAINS

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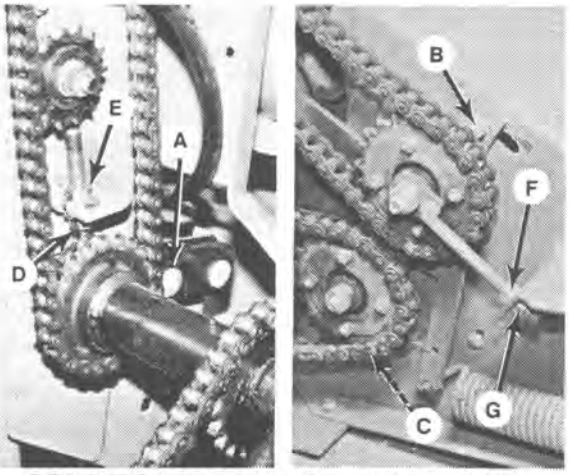
### Hay Conditioner Drive Chains Tension

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

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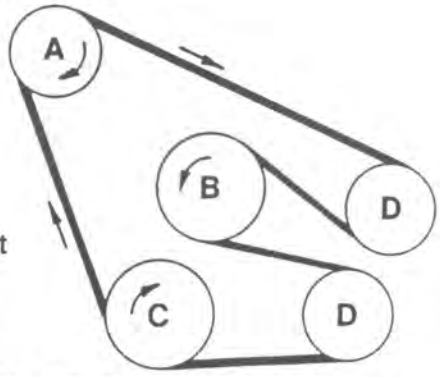
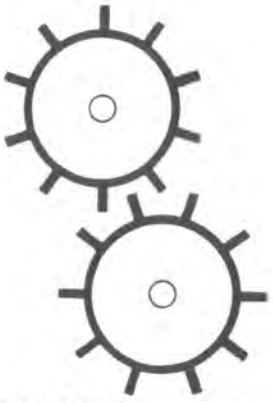
### Hay Conditioner Roll Timing

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.




A - Driver Sprocket
B - Top Roll
C - Bottom Roll
D - Idlers

CONDITIONER ROLL DRIVE CHAIN ROUTING



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 "Break-In Period" in Operation section.

---

### 10 HOURS OR DAILY

1. Grease sickle head.
2. Oil sickle (except in sandy conditions).
3. Check sickle sections, guards and hold-downs.
4. Check hydraulic hoses and lines for leaks.
5. Oil hay conditioner drive chains.

---

### 50 HOURS

1. Grease reel center tube bearings.
2. Grease hay conditioner bearings.

---

### 100 HOURS OR ANNUALLY *

1. Grease sickle drive shaft support bearings.
2. Grease upper cross auger support bearing. (Option)
3. Check wobble box mounting bolt torque.
4. Check wobble box lubricant level.
5. Check reel drive chain tension.
6. Grease reel drive chain.
7. Check auger drive chains tension.
8. Grease auger drive chains.
9. Check hay conditioner drive chains tension.

* It is recommended that Annual Maintenance be down 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 | **(O) - Optional Equipment**

| ACTION CODE | Maintenance Procedure / Hour Meter Reading / Serviced By: | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **BREAK-IN** | See "Preparing the Header/Hay Conditioner" and "Break-In Period" in Operation section for checklist. | | | | | | | | | | | | | | | | | | | |
| | **10 HOURS OR DAILY** | | | | | | | | | | | | | | | | | | | | |
| 🩸 | Sickle Head | | | | | | | | | | | | | | | | | | | | |
| 🩸 | Sickle Assembly | | | | | | | | | | | | | | | | | | | | |
| ✔ | Sections, Guards, Hold-downs | | | | | | | | | | | | | | | | | | | | |
| ✔ | Hydraulic Hoses & Lines | | | | | | | | | | | | | | | | | | | | |
| 🩸 | Conditioner Drive Chains | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | **50 HOURS** | | | | | | | | | | | | | | | | | | | | |
| 🩸 | Reel Center Tube Bearings | | | | | | | | | | | | | | | | | | | | |
| 🩸 | Hay Conditioner Bearings | | | | | | | | | | | | | | | | | | | | |
| | **100 HOURS OR ANNUALLY** | | | | | | | | | | | | | | | | | | | | |
| 🩸 | Sickle Drive Shaft Support Brgs. | | | | | | | | | | | | | | | | | | | | |
| 🩸 | Upper Cross Auger Bearing (O) | | | | | | | | | | | | | | | | | | | | |
| ✔ | Wobble Box Bolt Torque | | | | | | | | | | | | | | | | | | | | |
| ✔ | Wobble Box Lube Level | | | | | | | | | | | | | | | | | | | | |
| ✔ | Reel Drive Chain Tension | | | | | | | | | | | | | | | | | | | | |
| 🩸 | Reel Drive Chain | | | | | | | | | | | | | | | | | | | | |
| ✔ | Auger Drive Chains Tension | | | | | | | | | | | | | | | | | | | | |
| 🩸 | Auger Drive Chains | | | | | | | | | | | | | | | | | | | | |
| ✔ | Conditioner Dr. Chains Tension | | | | | | | | | | | | | | | | | | | | |
| | **STORAGE** | See "Storage Procedure" in Operation Section for checklist | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |

# TROUBLESHOOTING

| PROBLEM | CAUSE | REMEDY | REF. |
|---|---|---|---|
| **CROP LOSS AT CUTTERBAR** | | | |
| Heads shattering or breaking off. | Reel speed too fast. | Reduce reel speed. | 23 |
| | Reel too low. | Raise reel. | 23 |
| | Ground speed too fast. | Reduce ground speed. | 22 |
| | Crop too ripe. | Operate at night when humidity is higher. | — |
| Cut grain falling ahead of cutterbar. | Ground speed too slow. | Increase ground speed. | 22 |
| | Reel speed too slow | Increase reel speed. | 23 |
| | Reel too high. | Lower reel. | 23 |
| | Cutterbar too high. | Lower cutterbar. | 21 |
| | Reel too far forward. | Move reel back on support arms. | 24 |
| Does not pick-up down crop. | Cutterbar too high. | Lower cutterbar. | 21 |
| | Header angle too flat. | Steepen header angle. | * |
| | Reel too high. | Lower reel. | 23 |
| | Reel too far back. | Move reel forward (maximum sixth hole). | 24 |
| | Ground speed too fast for reel speed. | Reduce ground speed or increase reel speed. | 22<br>23 |
| | Reel fingers not lifting crop sufficiently. | Increase finger pitch aggressiveness. | 24 |
| Strips of uncut material. | Crowding uncut crop. | Allow enough room for crop to be fed to cutterbar. | — |
| | Broken sickle sections. | Replace. | 40 |
| **CUTTING COMPONENTS** | | | |
| Excessive breakage of sickle sections or guards. | Cutterbar operating too low in stony conditions. | Raise cutterbar, using skid shoes. | 21 |
| | Header float is set too heavy. | Adjust float springs for lighter float. | * |
| | Bent or broken guard. | Straighten or replace. | 42 |
| | Header angle too steep. | Flatten header angle. | * |

* See your Windrower Tractor Operator's manual.

# TROUBLESHOOTING

| PROBLEM | CAUSE | REMEDY | REF. |
|---|---|---|---|
| CUTTING COMPONENTS (continued) | | | |
| Sickle back breakage. | Bent or broken guard. | Straighten or replace. | 42 |
| | Worn sickle head pin. | Replace. | 41 |
| | Dull sickle. | Replace. | 41 |
| Ragged and uneven cutting of crop. | Sickle is not operating at recommended speed. | Check engine speed of windrower. | * |
| | Reel fingers not lifting crop properly ahead of sickle. | Increase finger pitch aggressiveness. | 24 |
| | Header angle too flat. | Steepen header angle. | * |
| | Sickle sections or guards are worn or broken. | Check and replace all worn and broken cutting parts. | 40 |
| | Bent sickle, causing binding of cutting parts. | Straighten a bent sickle.<br>Align guards. | 41<br>42 |
| | Sickle hold-downs not adjusted properly. | Adjust hold-downs so sickle works freely, but still keep sections from lifting off guards. | 42 |
| | Cutting edge of guards not close enough or parallel to sickle sections. | Align guards. | 42 |
| | Reel speed too slow. | Increase reel speed. | 23 |
| | Reel too far back. | Move reel forward. (Maximum sixth hole.) | 24 |
| | Ground speed too fast. | Decrease ground speed. | 22 |
| | Loose sickle drive belt. | Adjust sickle drive belt tension. | 43 |
| Excessive header vibration. | Sickle not operating at recommended speed. | Check engine speed of windrower. | * |
| | Excessive sickle wear. | Replace sickle. | 41 |
| | Loose or worn sickle head pin or drive arm. | Tighten or replace parts. | 41 |

* See your Windrower Tractor Operator's Manual.

# TROUBLESHOOTING

| PROBLEM | CAUSE | REMEDY | REF. |
|---|---|---|---|
| **CUTTING COMPONENTS (continued)** | | | |
| Sickle plugging. | Loose sickle drive belt. | Adjust belt tension. | 43 |
| | Dull or broken sickle sections. | Replace. | 40 |
| | Bent or broken guards. | Align or replace. | 42 |
| | Improper sickle hold-down adjustment. | Adjust hold-down so sickle is held against guard cutting surface. | 42 |
| | Reel fingers not lifting crop properly ahead of sickle. | Increase finger pitch aggressiveness. | 24 |
| | Header float too heavy. | Adjust float springs for lighter float. | * |
| | Mud or dirt build-up on cutterbar. | Raise cutterbar by lowering skid shoes. | 21 |
| | | Flatten header angle. | * |
| **REEL DELIVERY** | | | |
| Reel wrapping in tangled and weedy crops causing improper reel delivery. | Incorrect location and height of reel. | Position reel forward and down. | 24<br>23 |
| | Reel speed too fast. | Reduce speed of reel to allow weedy crops to fall onto augers properly. | 23 |
| | Finger pitch too aggressive. | Decrease finger pitch. | 24 |
| Reel carrying crop over causing improper reel delivery. | 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 the crop feeds up onto augers. | 23 |
| | Reel finger pitch too aggressive. | Decrease finger pitch aggressiveness. | 24 |
| | Reel too far back. | Move reel forward (maximum sixth hole). | 24 |
| Reel releases crop too quickly. | Finger pitch not aggressive enough. | Increase finger pitch aggressiveness. | 24 |
| | Reel too far forward. | Move reel back. | 24 |

* See your Windrower Tractor Operator's Manual.

# TROUBLESHOOTING

| PROBLEM | CAUSE | REMEDY | REF. |
|---|---|---|---|
| **REEL (continued)** | | | |
| Reel will not lift. | Reel lift couplers are incompatible. | Change quick coupler. | — |
| Reel will not turn. | Control set at 0. | Activate reel speed control. | * |
| | Quick couplers not properly connected. | Connect couplers. | * |
| | Final drive chain disconnected. | Connect chain. | 45 |
| Reel motion is uneven in heavy crop. | Reel speed too fast. | Reduce reel speed. | 23 |
| | Reel finger pitch too aggressive. | Decrease finger pitch aggressiveness. | 24 |
| | Relief pressure too low. | Increase relief pressure. | * |
| | Relief valve malfunction. | Replace relief valve. | - |
| **AUGERS** | | | |
| Augers will not turn. | Control set at 0. | Activate conveyor speed control. | * |
| | Quick couplers not properly connected. | Connect couplers. | * |
| | Final drive chain disconnected. | Connect chain. | 47 |
| **HEADER** | | | |
| Header lift insufficient. | Low relief pressure. | Increase relief pressure. | * |
| Header suddenly stops turning. | Sickle or hay conditioner plugged. | Turn mechanism in reverse and remove wad. | 33 |
| **HAY CONDITIONER** | | | |
| Hay conditioner rolls will not turn. | Obstruction or wad in conditioner rolls. | Turn mechanism in reverse and remove wad. | 33 |
| | Drive chains too loose or disconnected. | Tighten conditioner drive chains. | 48 |
| Over-conditioning of crop. | Excessive intermesh of hay conditioner rolls. | Reduce intermesh of rolls. | 29 |
| Under-conditioning of crop. | Insufficient intermesh of hay conditioner rolls. | Increase intermesh of rolls. | 29 |

* See your Windrower Tractor Operator's Manual.

# TROUBLESHOOTING

| PROBLEM | CAUSE | REMEDY | REF. |
|---|---|---|---|
| WINDROW FORMATION - HAY | | | |
| Windrow too wide. | Windrow forming shields positioned too far apart. | Position shields closer together. | 30 |
| Windrow too narrow. | Windrow forming shields positioned too close together. | Position shields farther apart. | 30 |
| Windrow uneven. | Hay conditioner too low. | Raise rear of conditioner. | 30 |
| | Excessive clearance between augers and stripper bars. | Position stripper bars closer to augers. | 46 |
| Running over previous windrow or irrigation row when turning. | Model 9000 tractor wheelbase too long. | Reverse walking beam. | ** |

** - See your Windrower Dealer.

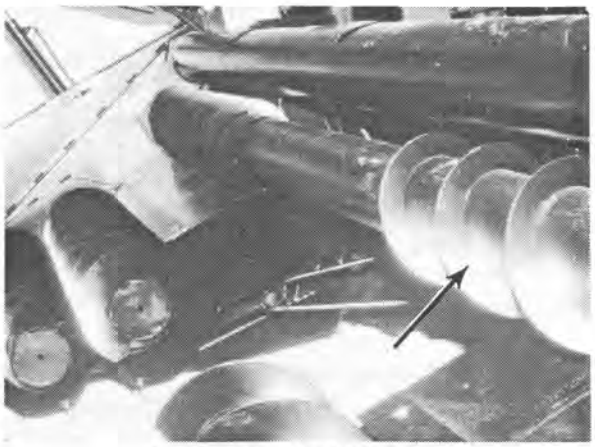
# ATTACHMENTS

Consult your Windrower Dealer for details on the following Options and Attachments.

## UPPER CROSS AUGER

For tall or bulky crops, the upper cross auger will aid crop flow across the header and through the delivery opening.

Installation instructions are included in the cross auger kit. Maintenance and operating instructions are included in this manual.

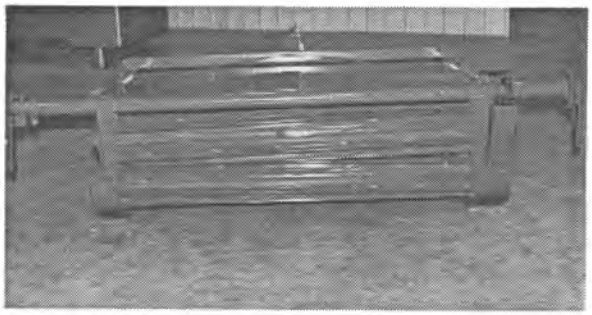


UPPER CROSS AUGER

## HAY CONDITIONER

The header mounted hay conditioner, with intermeshing steel rolls, crimps plant stems in several places, allowing moisture release for quicker drying.

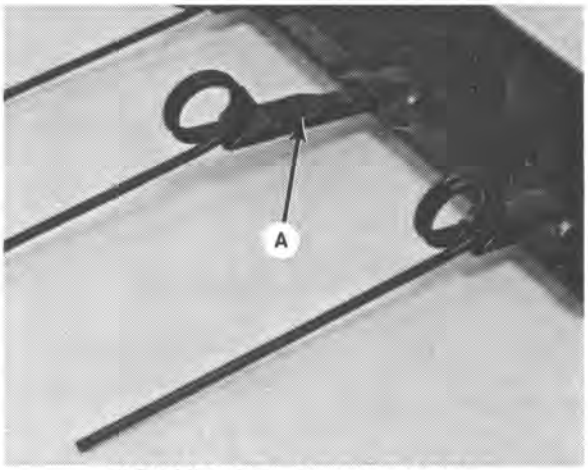
Information on attaching, operating and servicing the hay conditioner is included throughout this manual.



HAY CONDITIONER

## STEEL PICK-UP FINGERS

Attaching to reel bat with plastic adapter (A), the steel finger is available as an alternative to the standard plastic finger.



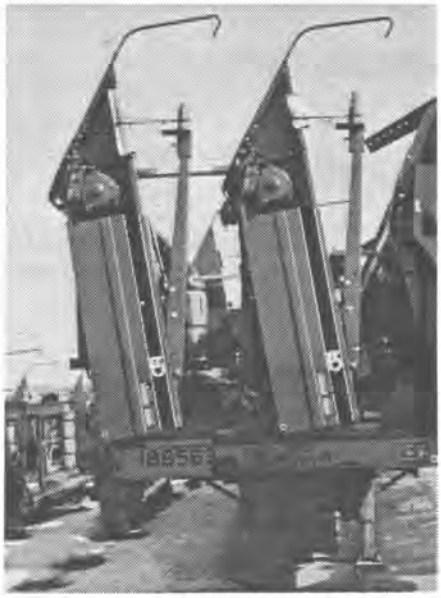

PICK-UP REEL STEEL FINGER

# 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.

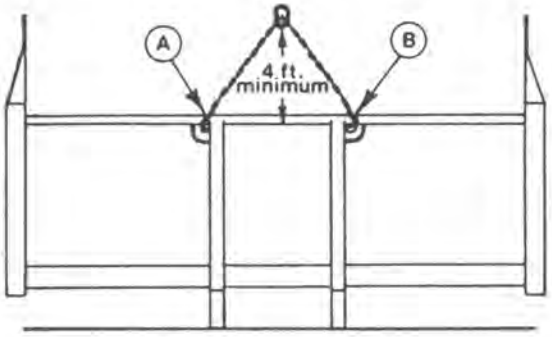
**CAUTION: Be sure hooks are secure before moving away from load. Stand clear when lifting, machine may swing. Do not allow anyone to walk under or near the header as it is unloaded or moved.**

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 remove dividers and other attachments wired to underside of header.
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

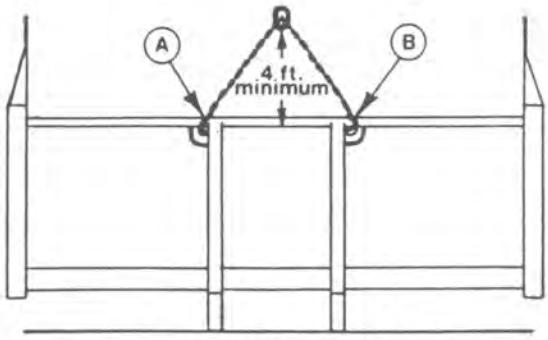
1. Drive lifting vehicle to approach header from its "underside".

   Attach chain hooks to points (A) and (B) marked "Lift Here". See "Chain Requirements" in this section for minimum chain specs.

2. Set blocks to support header at cutterbar and header support stand as specified under "Attaching the Header" in your Windrower Tractor Operator's Manual.

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

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



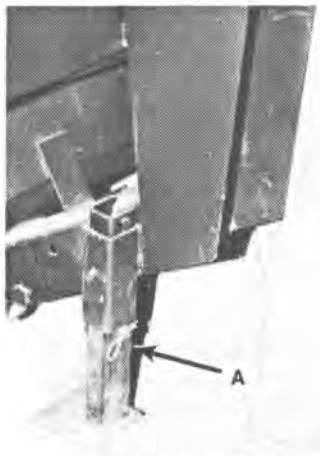

ATTACH CHAIN HOOKS

## SET HEADER SUPPORT STAND

1. Remove chain and move lifting vehicle to rear of header.

2. Attach chain to center link anchor on frame tube, raise rear of header and lower header stand into position (A).

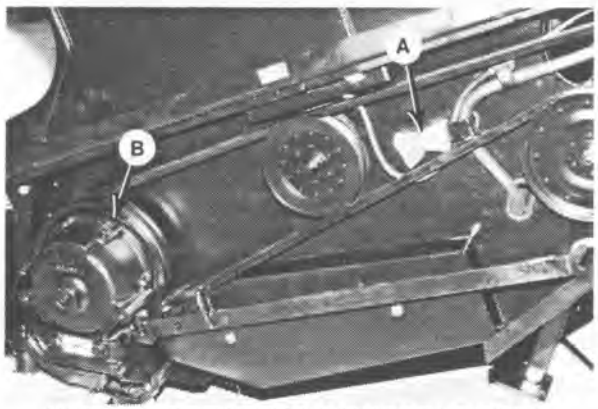
3. Lower header onto stand. Remove shipping stands.




HEADER STAND - LOWERED

## 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

## ASSEMBLE AND MOUNT PICK-UP REEL

See Assembly Instructions in booklet shipped in wooden crate of reel parts.

**IMPORTANT:** To prevent damage to the reel from contact with divider rods, do not position reel forward of the sixth hole from the front of the reel support arms. The eighth hole is recommended as a starting point.

**IMPORTANT:** To prevent twisting damage to the reel, bleed reel lift hydraulics before installing finger pitch adjustment bolts. See "Bleed Hydraulic System" in this section.

---

## ADJUST REEL CLEARANCE TO CUTTERBAR

See "Reel Clearance to Cutterbar" in Maintenance/Service section.

---

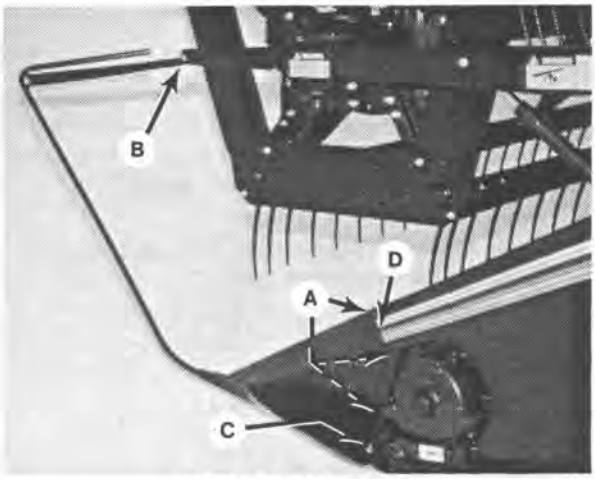
## ATTACH DIVIDERS

**IMPORTANT:** To prevent damage to divider brace arms, do not attach dividers until reel is positioned properly on support arms and reel clearance to cutterbar is set. (See above.)

1. Remove hardware (C) securing skid shoe, position divider shoe under skid shoe, and replace hardware (C), (bolt head down).

2. Attach dividers to header end panels, using three 3/8 x 3/4 carriage head bolts (A) and flange nuts per divider. Install bolt heads to the top and inside, where crop will contact the divider.
   **NOTE:** Divider is positioned to retain the left hand drive shield hinge pin. Leave a 1/8" (3 mm) gap between divider and shield at (D). Check that shield can be opened freely without binding.

3. Attach divider brace arm (B) to reel support arm using 3/8 x 2 3/4 hex bolt and nut, (bolt head outside). Do not over tighten, as brace arm must pivot as reel is raised and lowered.



ATTACH DIVIDERS

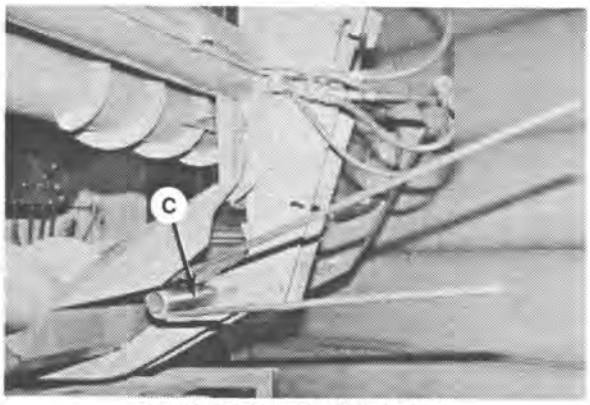
**NOTE:** Depending on reel height, it may be necessary to deflect divider rod and bend brace arm to align parts for installation of hardware. During operation, divider rod will deflect as reel is raised and lowered.

---

## ATTACH FORMING RODS

Attach forming rods (C) to left and right header lift legs.

**NOTE:** Longer rod goes on top, and large washer goes between bolt head and header leg.



ATTACH FORMING RODS

## 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

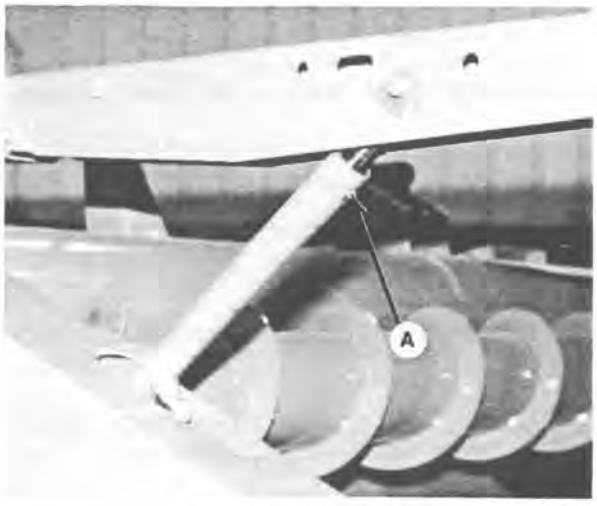
**CAUTION: Take care during this procedure as air in the system can cause the reel to raise and lower erratically. Keep body and hands out from under reel and reel support arms.**

**IMPORTANT:** To prevent twisting damage to pick-up reel and lean bar supports, complete the following procedure before installing finger pitch adjustment bolts and before installing lean bar.

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 right hand reel lift cylinder.
3. Start engine and activate reel lift control in cab. Left hand cylinder will reach full extension first, then oil will pass to right hand cylinder.
4. Continue to activate reel lift until oil comes out around bleed screw.
5. Tighten bleed screw.

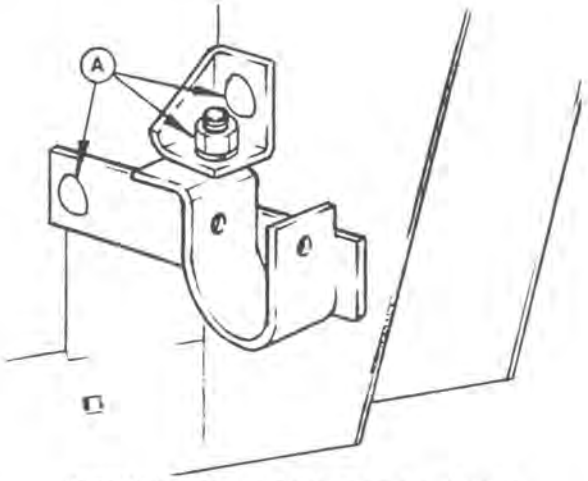



REEL LIFT CYLINDER
BLEED SCREW

# UNLOADING & ASSEMBLY

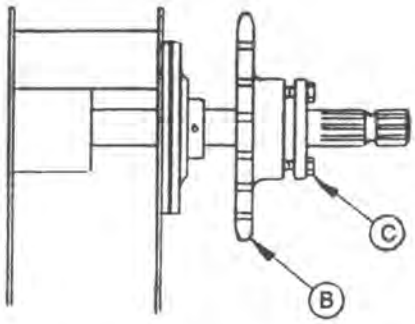
## PREPARING HEADER FOR HAY CONDITIONER

1. Install right support bracket at inside of header right lift leg with three 5/8 x 1-1/2 bolts (A). (Remove forming rods if previously installed.)




INSTALL RIGHT SUPPORT BRACKET

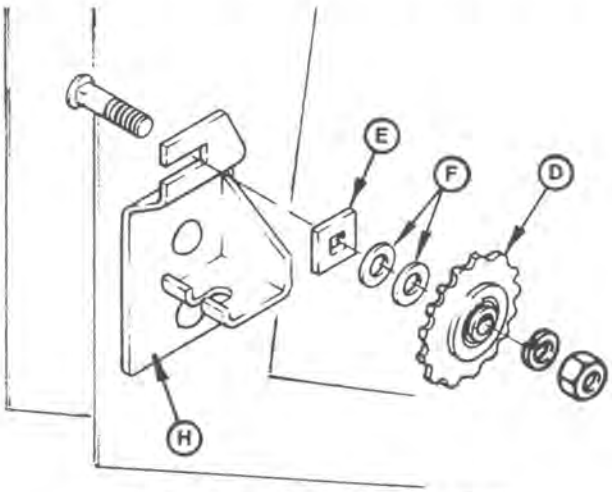
2. Install drive sprocket (B) on header drive shaft at keyway near left leg. When conditioner is attached, install chain and align sprockets, then tighten bolts (C) to secure the sprocket position.




INSTALL SPROCKET ON HEADER SHAFT

3. Install left support bracket (H) at inside of header left lift leg with two 5/8 x 1-1/2 bolts.

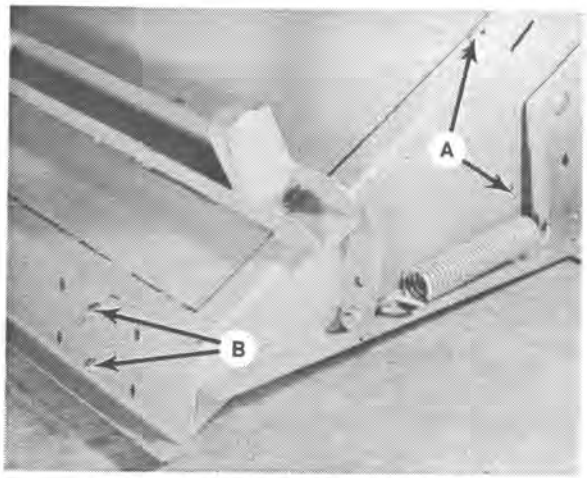
4. Attach idler sprocket (D) to bracket (H) as shown.
   **NOTE:** Square washer (E) is positioned against support bracket. Use washers (F) to align the sprocket.




ATTACH LEFT SUPPORT BRACKET AND IDLER SPROCKET

## ASSEMBLE CONDITIONER FORMING SHIELDS

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

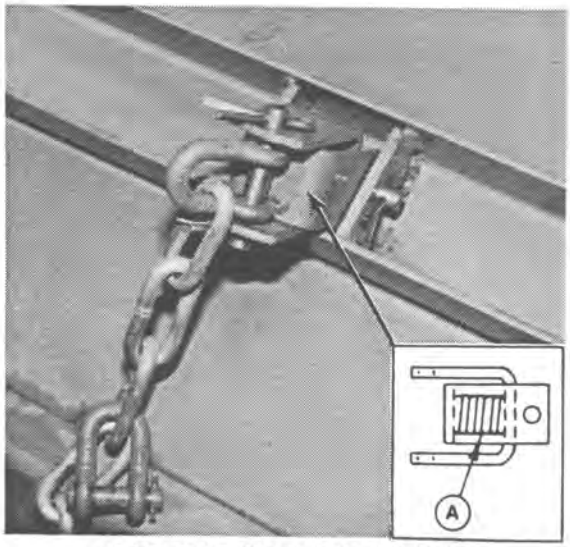



ASSEMBLE FORMING SHIELDS

## 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

## ADJUSTMENTS AND CHECKS

Perform the final checks and adjustments as listed on the "Pre-Delivery Checklist" (yellow insert) to ensure the machine is field-ready. Use the Operator's Manual for directions.

**IMPORTANT:** To avoid machine damage, check that no shipping dunnage has fallen down between augers and feed pans.

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MacDon

Designed to Deliver!

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