

MacDon

**Model 910 / 920
Auger Header
and 921 Hay Conditioner**

**Model 932
Grass Seed Special
Auger Header**

**OPERATOR'S
MANUAL**

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INTRODUCTION

Your new Model 910 or 920 Auger Header and 721 Hay Conditioner, teamed with the MacDon Self Propelled Windrower power unit, is designed to cut, condition, and lay in windrows, a wide variety of hay and specialty crops. The Model 932 Grass Seed Special Header is designed specifically for the unique requirements of growers of this crop.

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

NOTE: This manual contains information on the Auger Header and 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.

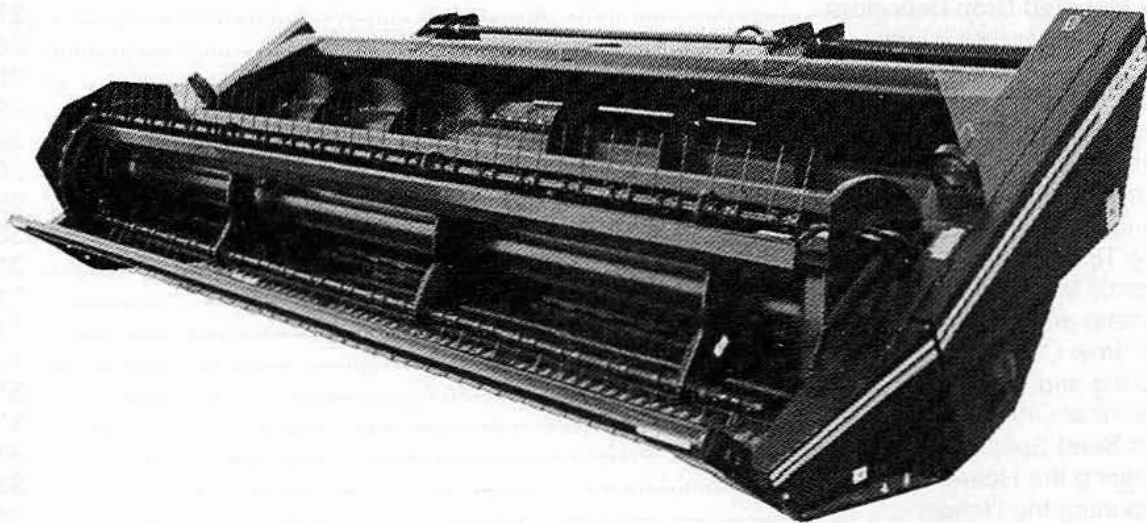


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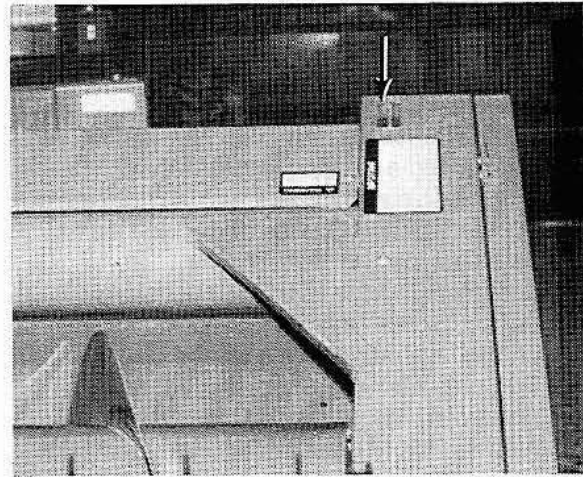
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SERIAL NUMBER LOCATIONS

Record the serial numbers in the space provided.

Auger Header: _____

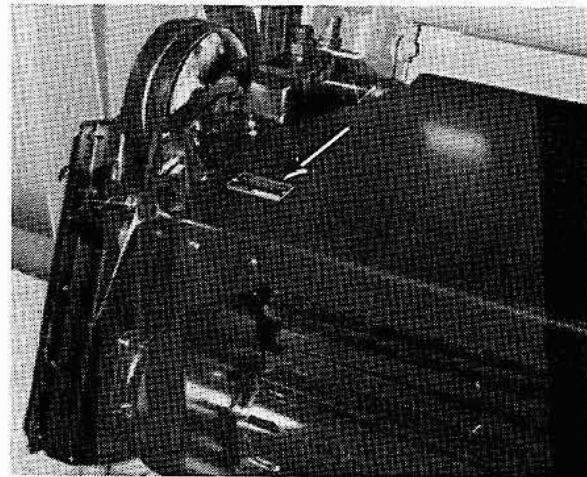
Plate is located on top of left hand end sheet.



AUGER HEADER SERIAL PLATE LOCATION

Hay Conditioner: _____

Plate is located on 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.



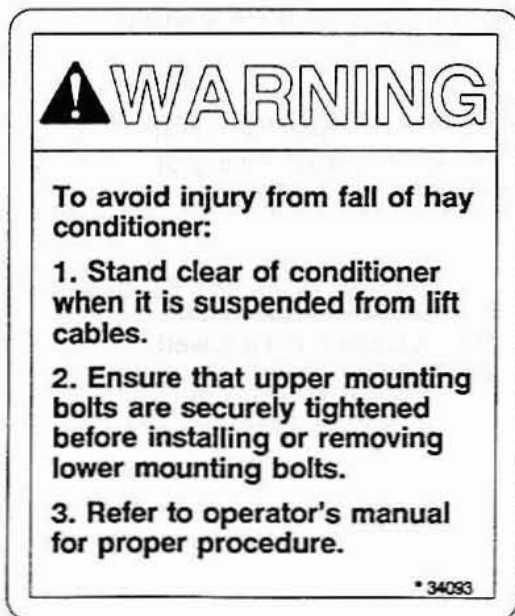
DRIVELINE



LEFT END SHEET



DRIVE SHIELDS



CONDITIONER TOP SHEET



LEFT AND RIGHT REEL ENDS

SAFETY

GENERAL SAFETY



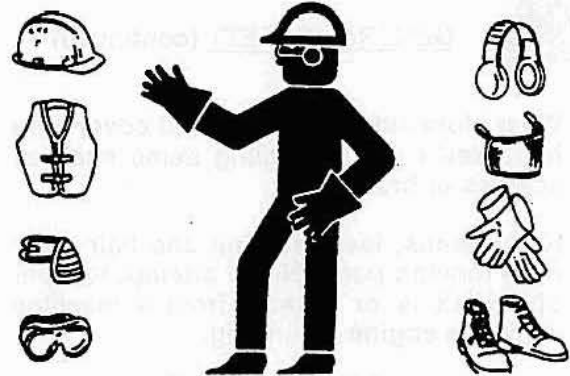
The following are general farm safety precautions that should be part of your operating procedure for all types of machinery.

1. Protect yourself.

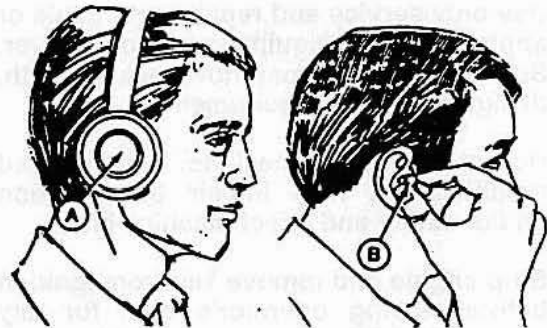
When assembling, operating and servicing machinery, wear all the protective clothing and personal safety devices that COULD be necessary for the job at hand. Don't take chances.

You may need:

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



PROTECT YOURSELF



PROTECT AGAINST NOISE

2. Provide a first-aid kit for use in case of emergencies.
3. Keep a fire extinguisher on the machine. Be sure the extinguisher is properly maintained and be familiar with its proper use.
4. Keep young children away from machinery at all times.
5. Be aware that accidents often happen when the operator is tired or in a hurry to get finished. Take the time to consider the safest way. Never ignore warning signs of fatigue.



BE PREPARED FOR EMERGENCIES

SAFETY

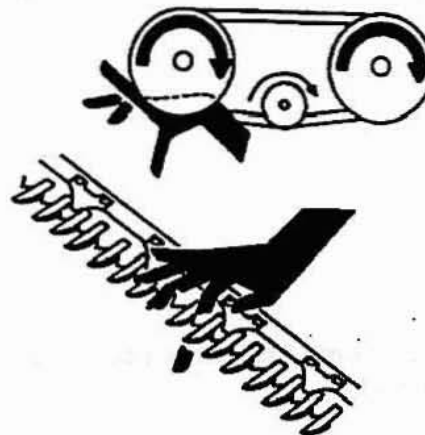


GENERAL SAFETY (continued)

6. Wear close-fitting clothing and cover long hair. Never wear dangling items such as scarves or bracelets.
7. 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.
8. Keep all shields in place. Never alter or remove safety equipment. Make sure driveline guards can rotate independently of the shaft and can telescope freely.
9. Use only service and repair parts made or approved by the equipment manufacturer. Substituted parts may not meet strength, design, or safety requirements.
10. Do not modify the machine. Unauthorized modifications may impair the function and/or safety and affect machine life.
11. 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.
12. 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.
13. Use adequate light for the job at hand.
14. 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.
15. Never use gasoline, naphtha or any volatile material for cleaning purposes. These materials may be toxic and/or flammable.
16. When storing machinery, cover sharp or extending components to prevent injury from accidental contact.



NEVER WEAR LOOSE
OR DANGLING CLOTHES



KEEP AWAY FROM MOVING PARTS



KEEP SERVICE AREA CLEAN AND DRY

SPECIFICATIONS

AUGER HEADERS

AVAILABLE SIZES

910 Single Sickle Header: 12 ft., 14 ft.
 920 Single Sickle Header: 12 ft., 14 ft.
 920 Double Sickle Header: 14 ft., 16 ft., 18 ft.
 932 Grass Seed Header (Double Sickle): 12 ft., 14 ft.

CUT WIDTHS

12' 3" (3.73 m) / 14' 3" (4.34 m) / 16' 3" (4.95 m) / 18' 3" (5.56 m)

SINGLE SICKLE DRIVE DOUBLE SICKLE DRIVE

"C" belt to enclosed oil bath wobble box
 Timing belts to enclosed oil bath wobble boxes

SINGLE SICKLE SPEED DOUBLE SICKLE SPEED

1450 S.P.M.
 1875* or 1450 S.P.M. (* - factory assembled)

STANDARD SICKLE TYPE GRASS SEED SICKLE TYPE

Over-serrated (bolted) sections, double heat-treated guards
 Fixed lower stub guards and forged adjustable upper hold-downs

CUTTERBAR RANGE

6 in. (150 mm) below ground to 35.5 in. (900 mm) above ground
 (measured to guard tip)

GUARD ANGLE

8° to 16° below horizontal (cutterbar on ground)

DELIVERY OPENING WIDTH

910/920 Header: 60 in. (1520 mm)
 932 Grass Seed Header: 68, 59, or 50 in. (1720, 1490, 1260 mm)

AUGER DRIVE

910 Header: "C" belt to chain final drive
 920/932 Header: Enclosed gearbox

AUGER SPEED

910 Header: 210 rpm Standard, 186 rpm Optional
 920 Header: 205 rpm
 932 Grass Seed Header: 170 rpm

AUGER TYPE

24 in. (610 mm) diameter - center feed

REEL DRIVE

910 Header: "C" belt from auger drive
 920/932 Header: Hydraulic to chain final drive

REEL SPEED

910 Header: 71 rpm Standard, 63 or 80 rpm Optional
 920 Header: 30 to 75 rpm (variable from cab)
 932 Grass Seed Header: 30 to 69 rpm (variable from cab)

REEL TYPE

910/920 Header: 5 Bat (standard), 4 or 6 bat (optional)
 932 Grass Seed Header: 6 bat standard
 Pick-up Reel, cam action, replaceable steel fingers

HEADER WEIGHT

12' 910/920 single sickle - 2500 lbs. (1135 kg)
 14' 910/920 single sickle - 2710 lbs. (1230 kg)
 14' 920 double sickle - 2885 lbs. (1310 kg)
 16' 920 double sickle - 3180 lbs. (1440 kg)
 18' 920 double sickle - 3480 lbs. (1575 kg)
 12' 932 Grass Seed double sickle - 2745 lbs. (1245 kg)
 14' 932 Grass Seed double sickle - 2965 lbs. (1345 kg)

HAY CONDITIONER

TYPE

Crimper - Intermeshing steel rolls, Header mounted

ROLL WIDTH

63.5 in. (1615 mm)

ROLL DIAMETER

8" (200 mm)

SPEED

850 rpm

WEIGHT

725 lbs. (330 kg)

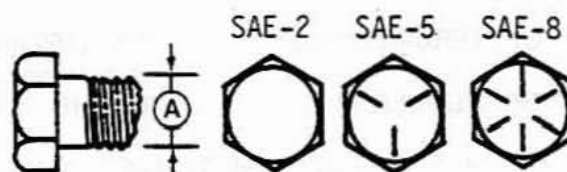
TORQUE SPECIFICATIONS

CHECKING BOLT TORQUE

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

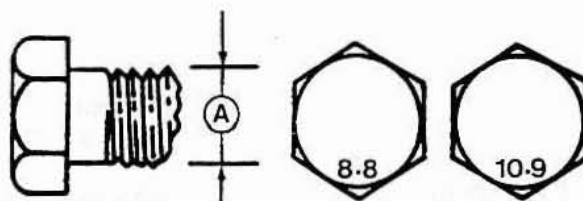
ENGLISH TORQUE SPECIFICATIONS

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



METRIC TORQUE SPECIFICATIONS

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



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

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

TORQUE SPECIFICATIONS

TIGHTENING O-RING FITTINGS*

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

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

TIGHTENING FLARE TYPE TUBE FITTINGS*

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

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

OPERATION

YOUR RESPONSIBILITIES AS AN OWNER/OPERATOR

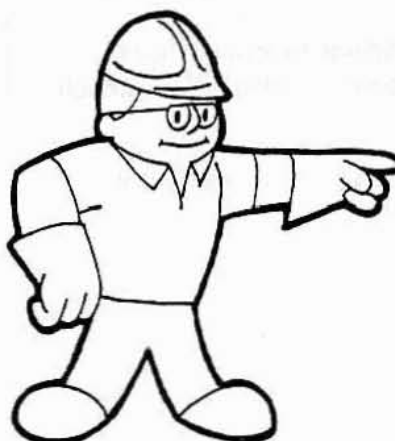


CAUTION:

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



READ THE OPERATOR'S MANUAL



FOLLOW SAFETY RULES

TO THE NEW OPERATOR

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

OPERATION

ATTACHING THE HAY CONDITIONER



WARNING: Avoid possible injury or death from fall of hay conditioner.

- a. Stand clear of hay conditioner whenever it is suspended from lift cables only.
- b. Be sure that upper mounting bolts are securely tightened before installing or removing lower mounting bolts. Hay conditioner weighs approximately 600 lbs. (270 kg) and will fall suddenly if lift system becomes disengaged.

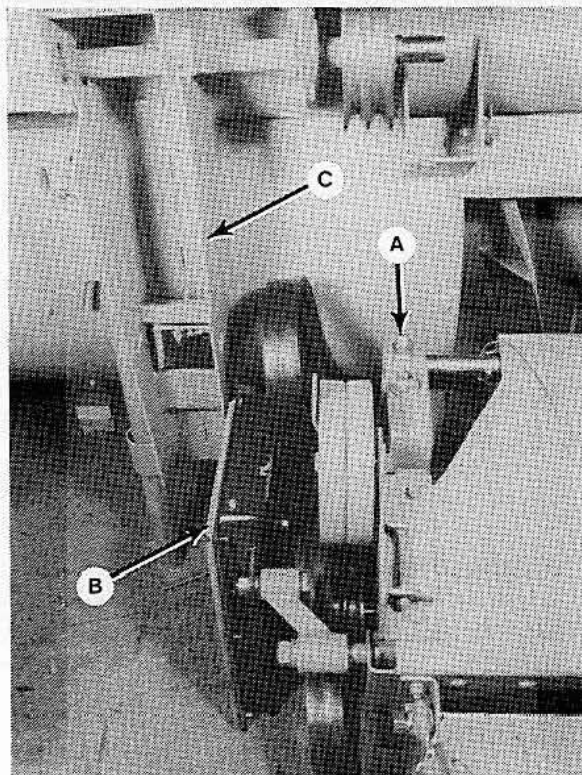
1. Position hay conditioner behind header, approximately in center of swath opening. Be sure mounting hardware (A) (5/8 mounting bolt, flatwasher, lockwasher and nut) is in place on both sides.

NOTE: Watch clearance at gear case (B) and L/H header leg (C).

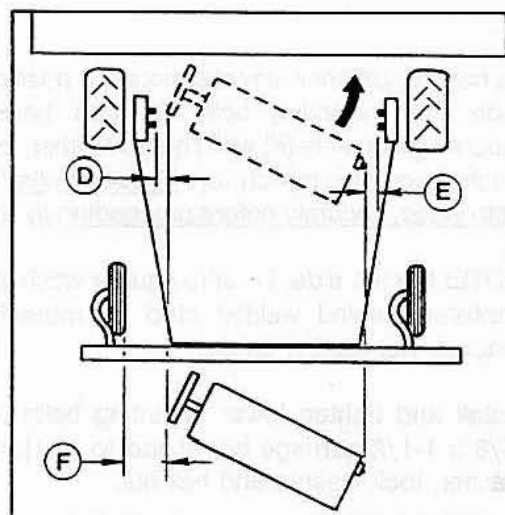
IMPORTANT: For ease of installation, it is recommended the hay conditioner be attached when header is detached from tractor.

If header is attached to tractor, follow steps a.- d. to prepare for attachment of hay conditioner:

- a. Position hay conditioner behind tractor as shown.
- b. Check alignment of hay conditioner with tractor to ensure sufficient clearance at (D), (E) and (F).
- c. Slowly drive tractor straight back so the hay conditioner is positioned as shown by dotted lines.
- d. Manually rotate right side of hay conditioner so winch cables can be installed.



POSITION HAY CONDITIONER
FOR INSTALLATION

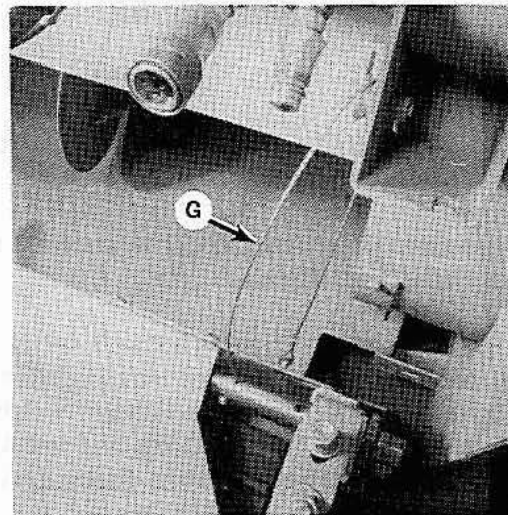


CHECK CLEARANCES IF HEADER
IS ATTACHED TO TRACTOR

OPERATION

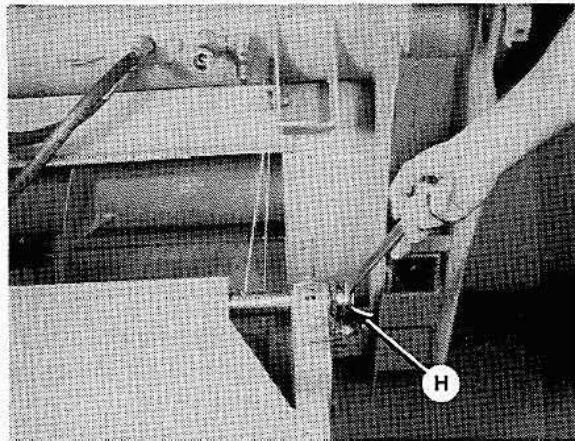
ATTACHING THE HAY CONDITIONER (continued)

2. Attach winch cables (G) both sides.



ATTACH WINCH CABLES

3. Standing clear of the hay conditioner, use a 1-1/8 inch wrench on winch nut (H). Pull wrench upward to raise the conditioner into position.

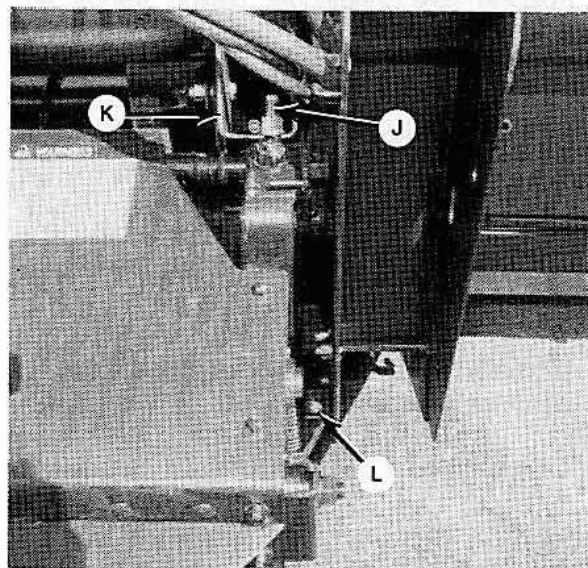


RAISE HAY CONDITIONER WITH WINCH

4. As hay conditioner reaches mounted position, slide top mounting bolts (J) into header mounting brackets (K) with square washer, lock washer and hex nut on top. Tighten bolts (J), both sides, securely before proceeding to step 5.

NOTE: On left side, be sure square washer is captured behind welded stop on mounting bracket, not resting on top.

5. Install and tighten lower mounting bolts (L). (5/8 x 1-1/2 carriage bolt [head to rear], flat washer, lock washer and hex nut.



INSTALL AND TIGHTEN MOUNTING BOLTS - TOP FIRST

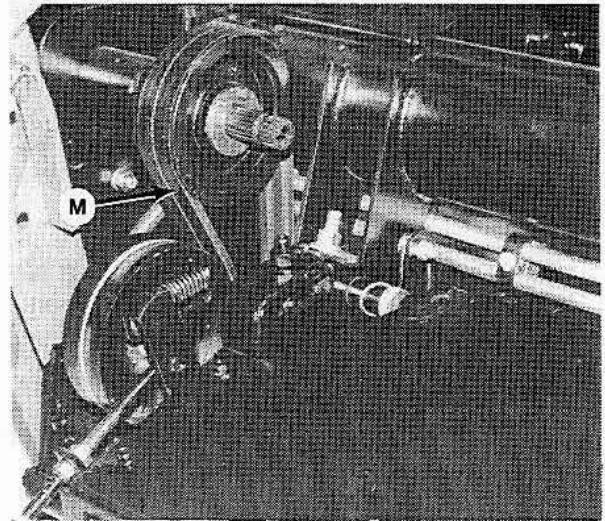
OPERATION

ATTACHING THE HAY CONDITIONER (continued)

6. Install belt over pulley (M) on header drive shaft.*

NOTE: Do not pry belt over pulley. Loosen spring loaded idler to allow installation, then adjust belt tension. See "Hay Conditioner Drive Belt" in Maintenance/Service section.

* **IMPORTANT:** Before first use, position drive pulley (M) on shaft to align the belt. See "Adjustments and Checks" in Assembly section.



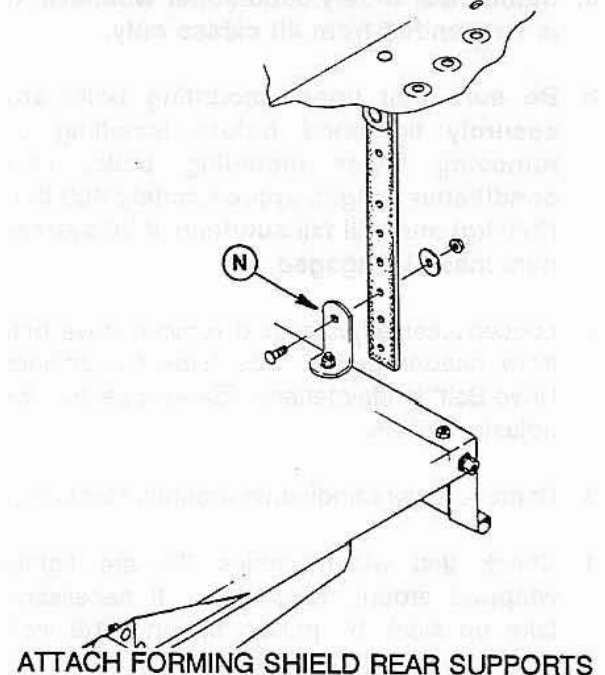
INSTALL BELT

7. Attach header to tractor. See Windrower Tractor or Adapter Operator's manual.

8. Attach forming shield rear support straps to lower brackets at (N).

NOTE: See Assembly section for instruction regarding attaching forming shields to conditioner and/or tractor.

9. Adjust header float springs for additional weight. See Windrower Tractor or Adapter Operator's manual.



ATTACH FORMING SHIELD REAR SUPPORTS

OPERATION

DETACHING THE HAY CONDITIONER

1. For ease of removal, it is recommended that the header first be detached from the tractor. See Windrower Tractor or Adapter Operator's Manual.

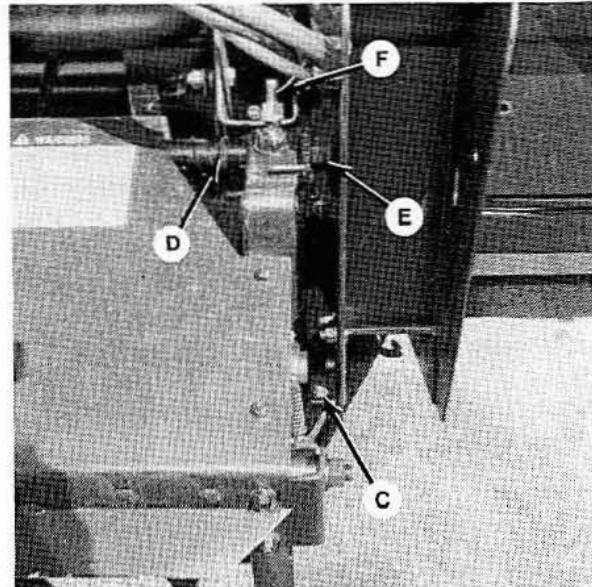
NOTE: If front of conditioner forming shield is attached to conditioner, remember to detach rear support straps at lower brackets.

If header is not to be detached before hay conditioner removal, lower header to ground, stop engine and remove key from ignition.



WARNING: Avoid possible injury or death from fall of hay conditioner:

- a. Stand clear of hay conditioner whenever it is suspended from lift cables only.
 - b. Be sure that upper mounting bolts are securely tightened before installing or removing lower mounting bolts. Hay conditioner weighs approximately 600 lbs. (270 kg) and will fall suddenly if lift system becomes disengaged.
2. Loosen idler adjuster and remove drive belt from header pulley. See "Hay Conditioner Drive Belt" in Maintenance/Service section for adjuster details.
 3. Remove lower conditioner mounting bolts (C).
 4. Check that winch cables (D) are tightly wrapped around winch tube. If necessary, take up slack by pulling up on 1-1/8 inch wrench on winch nut (E).
 5. Standing clear of hay conditioner, loosen and disengage top mounting bolts (F) from brackets on header.



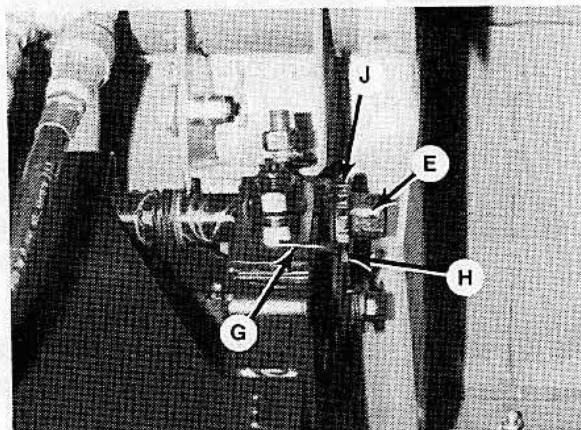
**REMOVE MOUNTING BOLTS -
LOWER BOLTS FIRST**

OPERATION

DETACHING THE HAY CONDITIONER (continued)

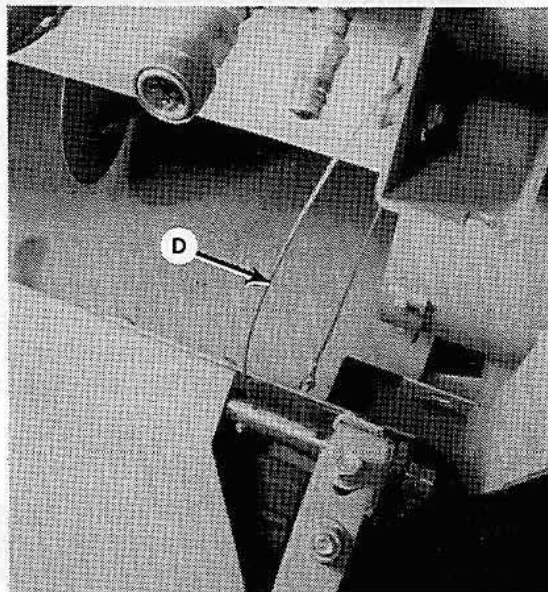
6. Standing clear of hay conditioner, lower as follows:

- a. Position a 1-1/8 wrench on winch nut (E) and pull firmly up. Push lever (G) down to disengage winch pawl (H) from ratchet wheel (J).
- b. Turn winch nut (E) down as far as possible and release lever (G), ensuring winch pawl (H) engages ratchet wheel (J).
- c. Remove and reposition the wrench on the winch nut and repeat steps 6a and 6b until the conditioner is on the ground and winch cables (D) are slack.



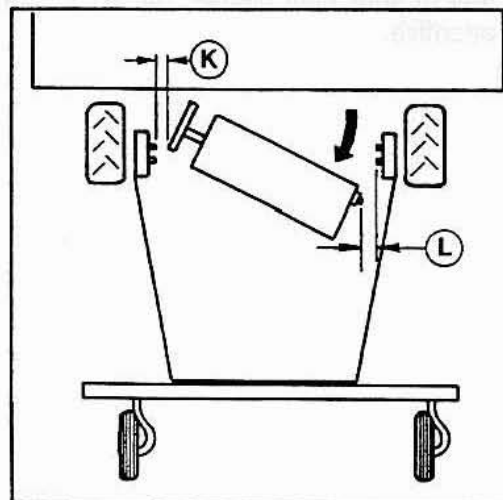
LOWER CONDITIONER WITH WINCH

7. Detach winch cables (D) from header.



DETACH WINCH CABLES

8. If header is attached to tractor, manually rotate right side of hay conditioner as shown. Be sure that there is sufficient clearance to hydraulic lines at (K) and (L). Slowly drive tractor straight ahead.



ROTATE CONDITIONER FOR MORE CLEARANCE
IF HEADER ATTACHED TO TRACTOR

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.

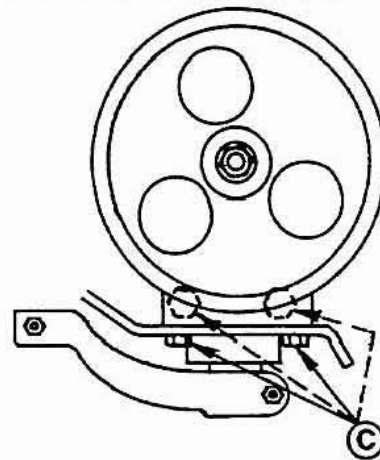


CAUTION: Before investigating an unusual sound or attempting to correct a problem; shut off engine, engage park brake and remove key.

2. Check all belts after 5 hours operation for initial stretch. Tighten as necessary. (See Maintenance/Service section.

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

3. Tighten any loose hardware after 5 hours operation. See Specifications section for recommended torques.
4. 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.
5. Change wobble box lubricant after 50 hours operation and every 1000 hours (or 3 years) thereafter. See Maintenance/Service section.
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. Reacquaint 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:



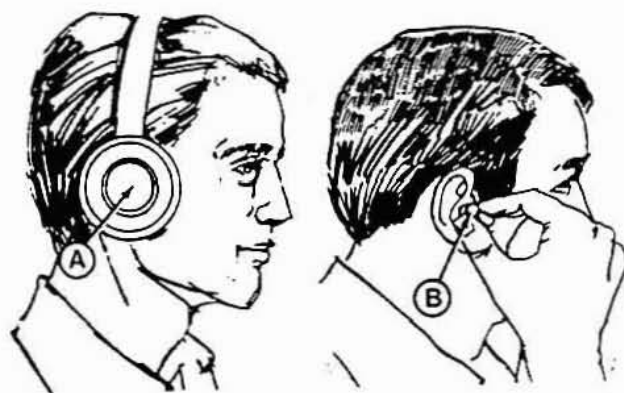
CAUTION:

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 Reel Drive" in Maintenance/Service section.
 6. Clean lights and reflectors on the header.
 7. Perform all Daily maintenance. See Maintenance/Service section.



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

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.

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 ten 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.

AUGER HEADER

1. Lean Bar Position
2. Ground Speed
3. Reel Speed
4. Reel Pick-Up Finger Pitch
5. Cutting Height
6. Header Angle
7. Header Flotation
8. Auger Mounted Crop Deflectors

HAY CONDITIONER

9. Roll Intermesh
10. Roll Tension
11. Forming Shields

OPERATING VARIABLES

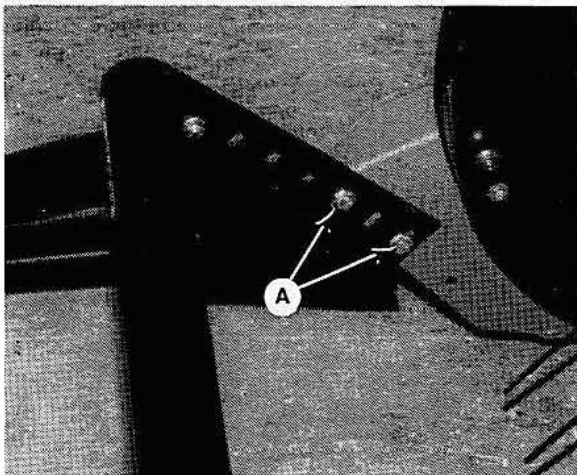
LEAN BAR POSITION

IMPORTANT: To prevent structural damage to header, do not operate with lean bar removed.

Use the lean bar adjustment to accommodate different crop heights.

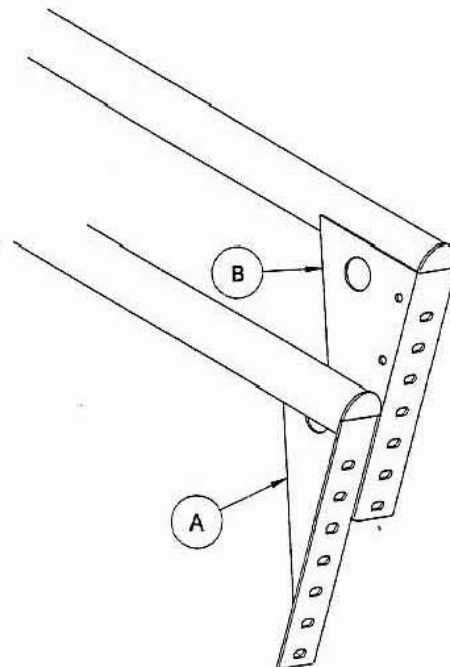
The lean bar should strike the upper portion of crop, leaning it away from the header and exposing the stalks to the sickle.

To extend or retract lean bar, re-position hardware (A) in adjustment holes as required.



LEAN BAR ADJUSTMENT

In very tall crops, a second lean bar may be installed as shown, mating top two holes in flange (A) of lower lean bar with bottom two holes in flange (B) of upper lean bar. Secure with 1/2 inch hardware.



103512

SECOND LEAN BAR FOR TALL CROPS

OPERATION

GROUND SPEED

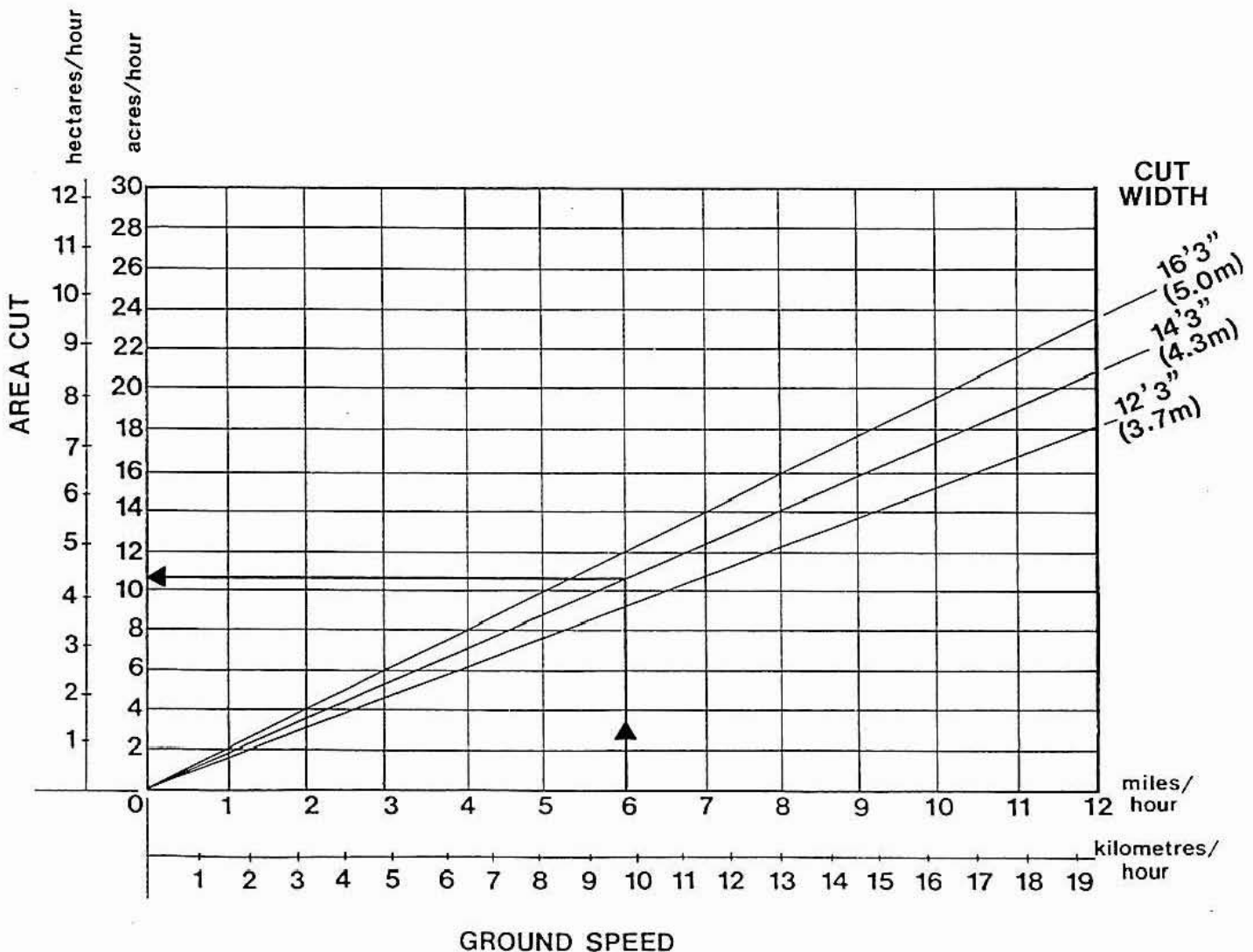
Ground speed of windrower should be such that sickle can cut crop smoothly and cleanly.

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

The chart below indicates the relationship between ground speed and area cut for the three auger header sizes.

Example shown: At a ground speed of 6 miles per hour (9.7 km/h) with a 14 ft. header*, the area cut per hour would be 10-1/2 to 11 acres (4-1/4 to 4-1/2 hectares).

- * A 14 ft. header has a cut width of 14 ft. 3 in. (4.3 m)
- A 12 ft. header has a cut width of 12 ft. 3 in. (3.7 m)
- A 16 ft. header has a cut width of 16 ft. 3 in. (5.0 m)



OPERATION

REEL SPEED

For best feeding of crop into the sickle and auger, reel speed should be just faster than ground speed. This gently sweeps crop across sickle into auger. Excessive reel speed causes undue wear of reel components and unnecessary load on reel drive, resulting in uneven reel motion.

920 and 932 Headers

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

910 Header

See "Reel and Reel Drive" in Maintenance/Service section for instructions regarding changing reel speed.

OPERATION

REEL PICK-UP FINGER PITCH

Another factor in effective feeding of crop into the sickle and auger 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).

Generally it should not be necessary to adjust the finger pitch angle, however in certain crop types and conditions adjustment of the finger pitch may be required to achieve best results.

The pitch should be just aggressive enough to provide adequate crop lifting action for proper cutting.

Pitch angle can be adjusted by rotating the cam.

Rotating the cam forward (higher in the back), results in a more aggressive pitch angle.

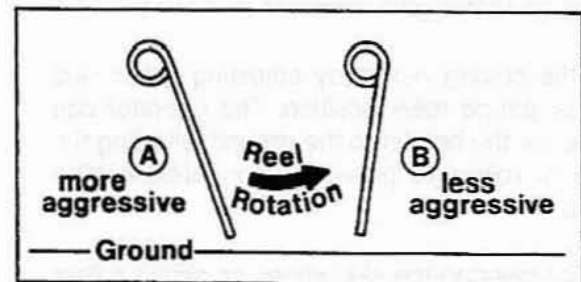
Rotating the cam rearward (higher in the front), results in a less aggressive pitch angle.

To adjust cam position:

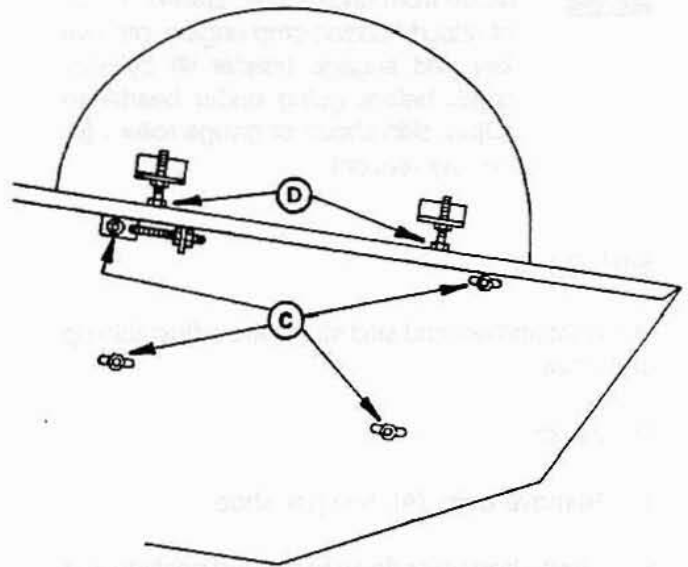
1. Loosen four bolts (C), both ends of reel.
2. Turn bolts (D) at cam end to move cam up or down at front or rear until desired position is obtained.
NOTE: 910 Header not exactly as shown. (Bolt heads up.)
3. Tighten four bolts (C), both ends, to secure reel position.
4. Rotate reel slowly by hand and check finger clearance at guards and pan. Flex fingers to simulate crop loaded position to ensure finger tip clearances to guards and auger pan are adequate for working conditions.
5. If necessary, adjust reel fore-aft position to achieve proper clearances. See Maintenance/Service section.

NOTE: For optimum header performance in all crops:

1. Position the reel so that finger tips are as close as possible to guards and pan without interfering.
2. Position the reel rearward as much as possible to ensure smooth crop delivery into auger.



FINGER PITCH ANGLE



FINGER PITCH ADJUSTMENT

OPERATION

CUTTING HEIGHT

Your header will be equipped with either:

- wide adjustable outer skid shoes, or
- gauge rollers plus narrower skid shoes.

Vary the cutting height by adjusting either skid shoe or gauge roller position. The operator can then lower the header to the ground, allowing the shoes or rollers to provide a consistent cutting height.

NOTE: Lowering the skid shoes or gauge rollers raises the cutting height. (Gauge rollers allow higher settings than skid shoes.) 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.



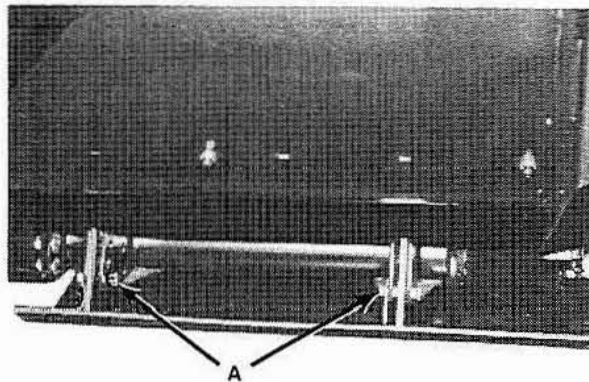
WARNING: To avoid bodily injury or death from unexpected start-up or fall of raised header; stop engine, remove key and engage header lift cylinder stops before going under header to adjust skid shoes or gauge rollers (or for any reason).

Skid Shoes

The right and left end skid shoes are adjustable up and down.

To adjust:

1. Remove bolts (A), two per shoe.
2. Move shoe up or down to desired position and replace bolts (A).

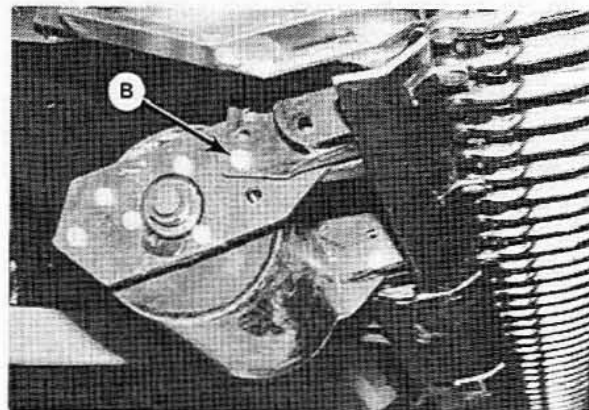


SKID SHOE ADJUSTMENT

Gauge Rollers

To adjust gauge roller height:

1. Remove bolts (B), two per wheel.
2. Move roller to desired position and replace bolts (B).



GUAGE ROLLER ADJUSTMENT

OPERATION

HEADER ANGLE

The header angle is adjustable between 8° and 16° 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 and/or auger pans in wet conditions or where ground is uneven (gopher mounds, etc.).

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.

HEADER FLOTATION

As a starting point for normal conditions, adjust float spring tension so 100 to 120 lbs. force (445 to 535 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 the cutterbar and/or auger pans in wet conditions or where ground is uneven (gopher mounds, etc.).

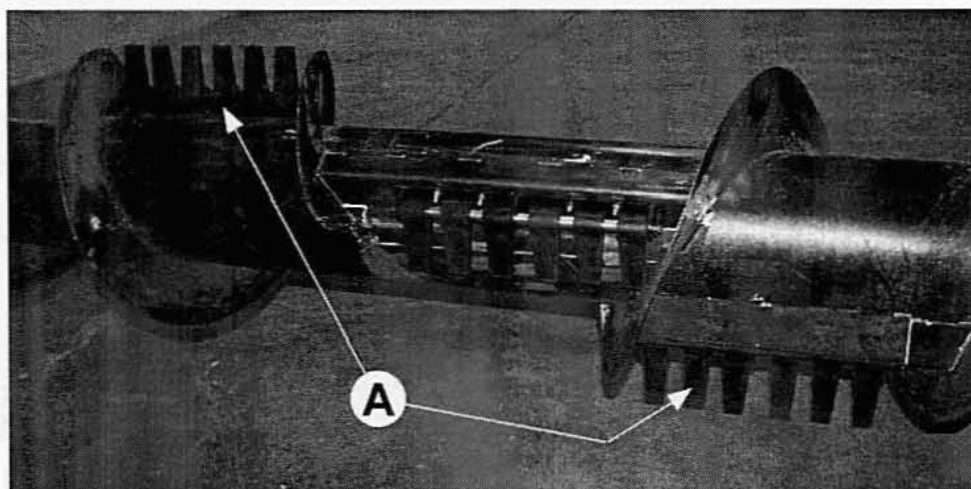
Benefits of heavier float settings:

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

See Windrower Tractor Operator's Manual for adjustment procedure.

AUGER MOUNTED CROP DEFLECTORS – 910 & 920 HEADERS

Four rubber finger assemblies are mounted to the auger to direct crop rearward to the hay conditioner such that material is evenly distributed across the full width of the conditioner. If too much "end feeding" of conditioner rolls is occurring, remove two outboard rubber finger assemblies (A).



AUGER MOUNTED CROP DEFLECTORS

OPERATION

HAY CONDITIONER ROLL INTERMESH

The intermeshing steel rolls of the hay conditioner crimp the plant stems in several places, allowing moisture release and quicker drying. The degree to which the stems are conditioned (crimped) depends on the amount of roll intermesh and 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. To achieve this, roll intermesh is factory set so that dimension (D) is 1/2 inch (12 mm) for normal operation.

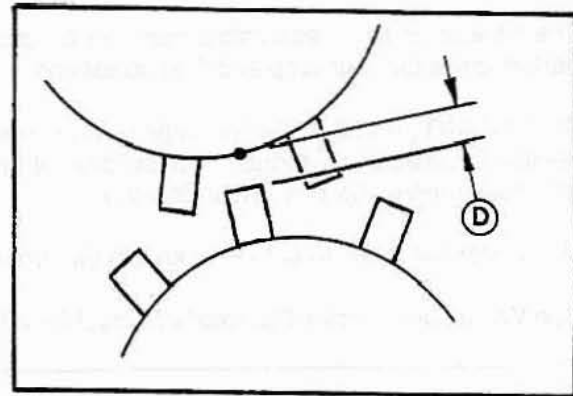
In thick stemmed cane-type crops, heavy oats, winter forage, etc., less intermesh may be desirable (D = approximately 1 inch); however too little intermesh may cause feeding problems.

In lighter crops, a closer intermesh may be required for optimum conditioning, however setting rolls too close may cause excessive stem and leaf damage.

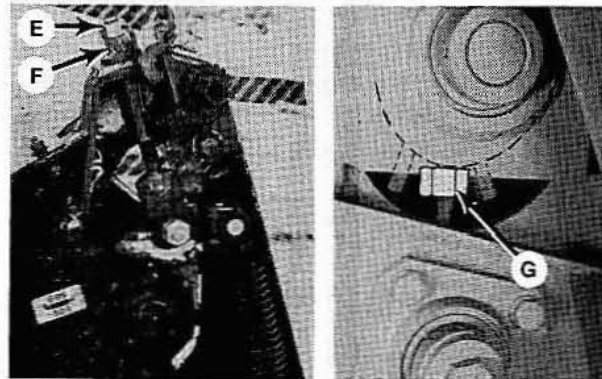
To adjust roll intermesh:

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

1. Loosen nut (E).
2. Turn nut (F) clockwise to decrease intermesh, or counter-clockwise to increase intermesh.
NOTE: Nut (F) is welded to adjuster tube, so complete assembly will turn.
3. Check intermesh with a 1/2 inch nut (G). (A 1/2 inch nut is 1/2 inch (12 mm) high.)
4. When intermesh is correct, tighten nut (E) while holding nut (F) with another wrench to lock the position securely.



ROLL INTERMESH
(Maintain 1/2" (12 mm) bar-to-roll gap)



ROLL INTERMESH ADJUSTMENT

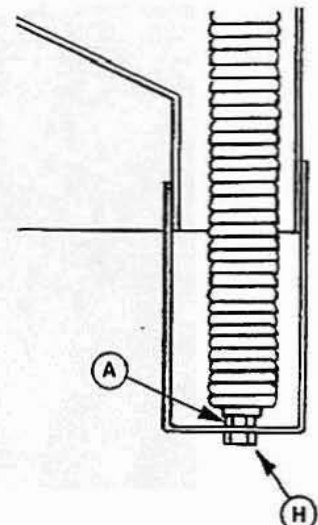
HAY CONDITIONER ROLL TENSION SPRINGS

The conditioner roll intermesh is maintained by two tension springs to provide roll pressure for correct conditioning of the crop. These springs also allow the rolls to open to allow passage of small solid objects without damage to the rolls. The roll tension has been factory set for normal operating conditions and generally does not require adjustment.

In some conditions, less aggressive conditioning may be desirable, and roll tension can be reduced as required. To avoid excessive conditioner banging, back off tension only as much as required for desired conditioning action.

To decrease spring tension:

1. Loosen jam nut (A).
2. Turn bolt (H) out of spring to decrease tension (easier to force rolls open.)
3. Hold spring plug (K) with a wrench and tighten nut (A) securely against plug to secure the position.
4. Repeat at other side.



ROLL TENSION ADJUSTMENT

OPERATION

HAY CONDITIONER FORMING SHIELDS



CAUTION: Keep forming shields installed at all times conditioner is in use. Do not allow anyone to stand behind the machine while operating. Stones or other foreign objects may be ejected from the conditioner with considerable force.

The side and rear deflectors, and deflector fins are adjustable to shape the windrow to your preference.

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.

Windrow Width

Move the side deflectors (H) to the desired width. There is no hardware to be loosened.

NOTE: If side deflectors are too loose or too difficult to move; adjust torque of nut (J) to 100 ft.lbs. (135 N-m). Then, holding nut (J) with a wrench, tighten nut (K) securely against nut (J).

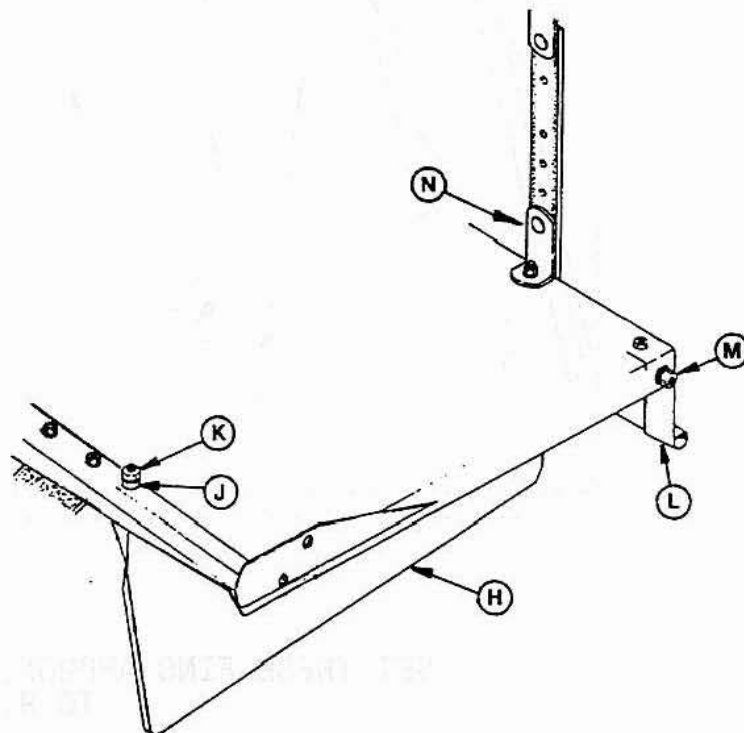
Rear Deflector

The rear deflector (L) slows the crop exiting the conditioner rolls, directs the flow downward, and "fluffs" the material.

Adjust rear deflector nearer to the high end of the adjustment range for heavier crops and nearer the low end for lighter crops. Optimum position for best windrow uniformity must be determined for each crop condition.

To adjust rear deflector, loosen bolts (M), one per side, position deflector and tighten bolts (M).

For even windrow formation, be sure deflector is not twisted.



HAY CONDITIONER FORMING SHIELDS

Forming Shield Height

Depending on the amount of crop material, the rear of the forming shield assembly can be raised or lowered to properly deflect the crop. For heavier crops use the higher settings (4th or 5th hole from the bottom on the rubber strap). For lighter crops, lower forming shield as required to form the most uniform windrows. Note that too low a setting will cause uneven and poorly formed windrows.

To adjust forming shield rear height, remove hardware at (N), both sides, and raise or lower shields to desired height.

NOTE: For normal operation, front of forming shield assembly is attached to conditioner top cover. If a higher position is desired, front of shield assembly can be attached to top rear pin of tractor lift linkage. See Assembly section for details.

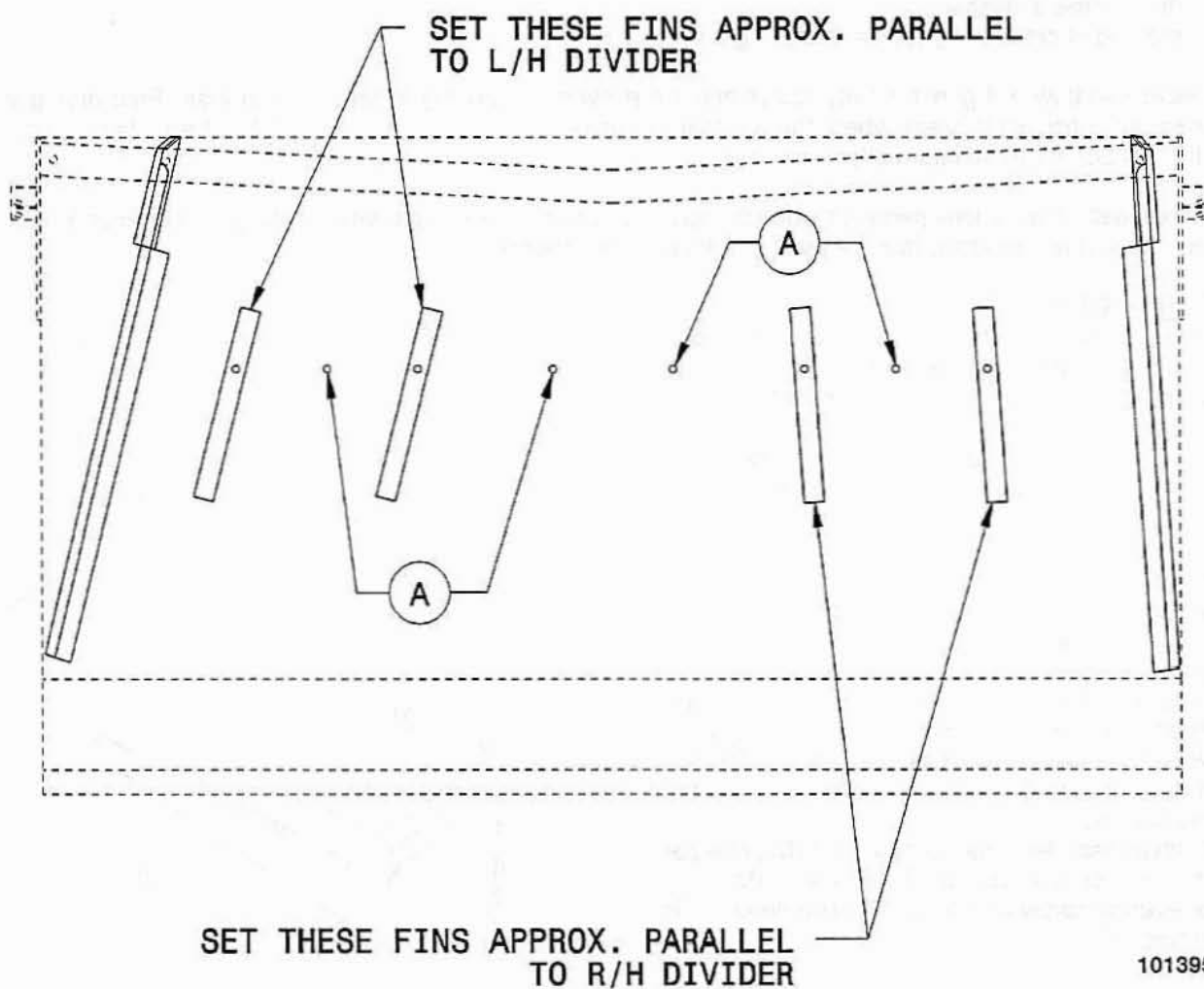
OPERATION

HAY CONDITIONER FORMING SHIELDS (continued)

DEFLECTOR FINS

Use deflector fins (D) to evenly distribute material when laying swaths wider than 6 feet (1830 mm). Fin position can be adjusted without loosening mounting bolt. Set fins approximately parallel to side deflectors for wide swath and adjust as required for even distribution of crop across full width. For narrow windrow, remove fins.

NOTE: Four additional fins may be mounted in holes (A) for even crop distribution in swaths over 7 feet (2130 mm) wide.



DEFLECTOR FINS

OPERATION

HAYING TIPS

There is one certainty when making hay - a quick cure will maintain top quality. It is critical to have the cured hay baled as quickly 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 windrow, 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.

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. The movement of air through the windrow is more important to the curing process than direct sunlight.
- b. Consistent formation, not bunchy. A uniform windrow permits an even flow of material into the baler, chopper etc.
- c. Even distribution, not piled in the middle or higher on one side. A windrow that is higher or heavier on one side could cause stacks to lean, round bales to have one end smaller and loose, or small square bales to be heavy on one side, causing handling and stacking problems.
- d. Properly conditioned without excessive leaf damage.

4. RAKING AND TEDDING

Raking or tedding will speed up drying, however the benefits must be weighted 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 tilled 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.

OPERATION

"GRASS SEED SPECIAL" HEADER

The grass seed auger header has several features to adapt it to this special application. These features include:

Stub Guards and Hold-downs: The cutterbar is equipped with stub guards for effective cutting in tough grass crops. See "Sickle and Sickle Drive" in Maintenance/Service section for maintenance of these components.

Special Auger Design: The center beaters and beater supports have been removed to reduce auger wrapping.

Slower Auger Speed: The slower auger speed of 170 RPM (compared with 205 RPM for standard header) also reduces auger wrapping.

Adjustable Stripper Bars: The two upper sets of stripper bars are adjustable for more effective stripping of grass crops.

To adjust:

1. Loosen bolts (G) along upper stripper bars.
2. Slide extension bars (H) in or out to obtain approximately 1/8 inch (3 mm) clearance to auger flighting (J) along entire auger length.
3. Tighten bolts (G).

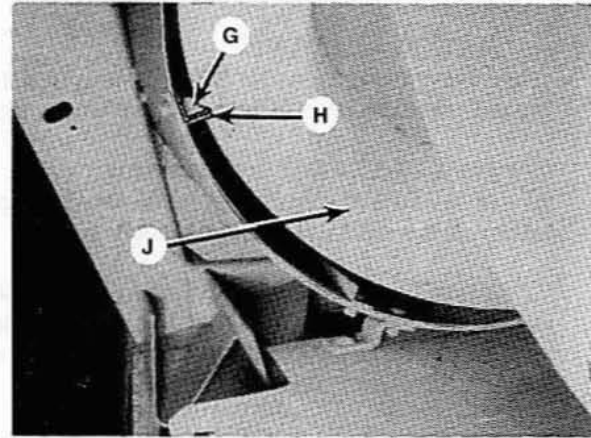
Auger Pan Extensions: One pan extension is provided to reduce delivery opening from the maximum 68 inches (1720 mm) to 59 inches (1490 mm). A second pan extension may be ordered to further reduce opening to 50 inches (1260 mm).

NOTE: When installing auger pan extensions (A):

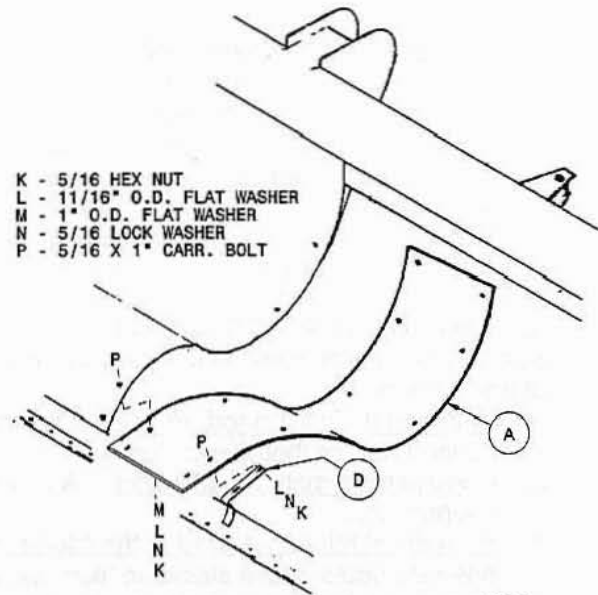
1. The pan supplied is factory assembled to be installed on the **right** side of the delivery opening, with cutterbar support (D) at inboard side. Install hardware supplied as shown.
2. Move the two upper sets of stripper bars (B) so end of stripper is flush with edge of pan extension. The lowest (most forward) set of stripper bars (C) should remain in standard pan position as shown.

Windrow Forming Rods: Forming rods are provided to assist in forming the narrow windrows preferred for this application. Bend the rods to modify the windrow shape. Use the forming rods in conjunction with the auger pan extensions to achieve the width and shape of windrows you desire.

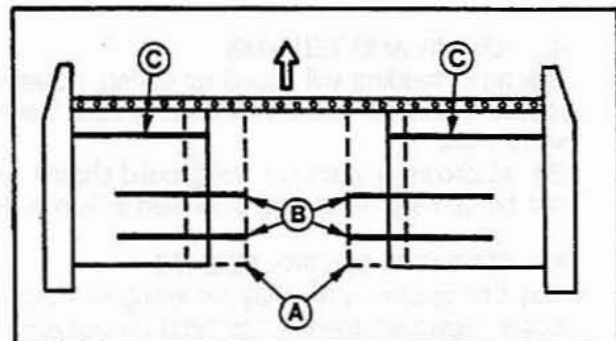
Six-Bat Reel: A sixth bat is added to the reel body, for smoother reel action and better crop feed into the header.



STRIPPER BAR ADJUSTMENT



INSTALLING AUGER PAN EXTENSION



POSITION UPPER STRIPPER BARS
FLUSH WITH PAN EXTENSIONS

OPERATION

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 plugging persists, see Trouble Shooting section.

If auger or conditioner plugs:

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.



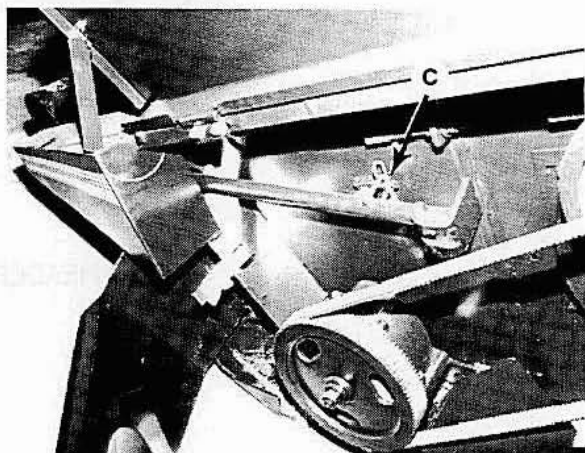
WARNING: Wear heavy gloves when working around sickle.

4. Clean off cutterbar and area under reel.
5. Position wrench (A) over end of drive shaft (B) and rotate counter-clockwise (from left end) until plug clears.
6. Store wrench in left end divider and secure with hair pin at (C).

If plugging persists, see Trouble Shooting section.



CLEARING PLUGS



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

NOTE: For headers with divider rods, when transporting on a side-mount trailer, remove divider rods to narrow the transport width.

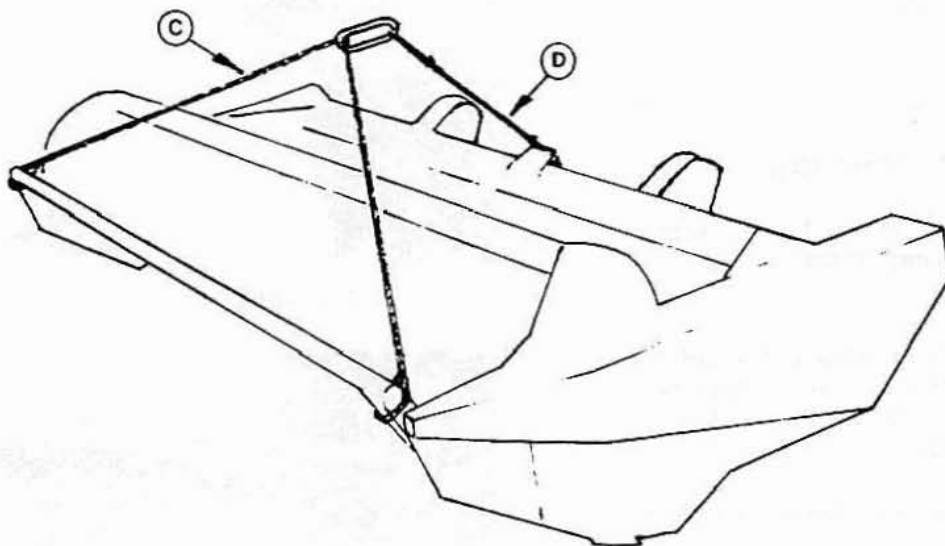
LIFTING HEADER IN WORKING POSITION

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 ends of lean bar. 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

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 all drive belts.
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. 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.
8. Tighten loose hardware and replace any missing hardware. See Specification section for torque charts.
9. Remove divider rods (if equipped) to reduce space required for inside storage.
10. Units with stub guards - To prevent stub guard adjuster bar bolts from becoming seized, apply penetrating oil at bolts prior to storage.

MAINTENANCE/SERVICE

SERVICE PROCEDURES



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

1. Fully lower header. If necessary to service in the raised position, first engage header lift cylinder stops.
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 extinguishers 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.

Use only service and repair parts made or approved by the equipment manufacturer. Substituted parts may not meet strength, design or safety requirements.

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

MAINTENANCE/SERVICE

RECOMMENDED LUBRICANTS

GREASE

Use an SAE Multi-Purpose High Temperature Grease with Extreme Pressure (EP) Performance and containing at least 1.5% molybdenum disulphide. (NLGI Grade 2)
Also acceptable is an SAE Multi-Purpose Lithium Base Grease.

GEAR LUBRICANT

Wobble Box and Hay Conditioner Gear Case: Use SAE 85W-140 gear lube (API Service Class. GL-5)

Auger Drive Gear Case: Use grease as specified above.

CAPACITIES

Wobble Box – 2.2 litres (2.3 U.S. quarts)

Hay Conditioner Gear Case - 1100 ml (1.2 U.S. quart)

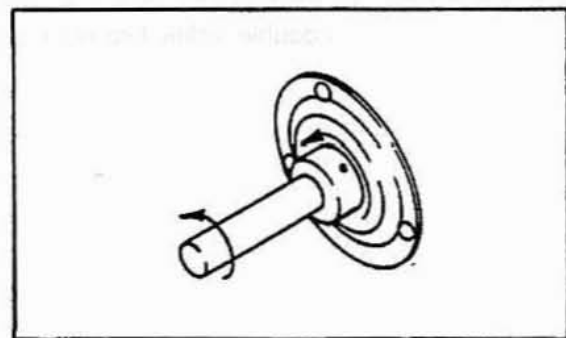
Auger Drive Gear Case - 600 grams (1.5 tubes)

STORING LUBRICANTS

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

SEALED BEARING INSTALLATION

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



TIGHTEN COLLAR IN DIRECTION
SHAFT ROTATES

MAINTENANCE/SERVICE

GREASING THE HEADER AND CONDITIONER

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

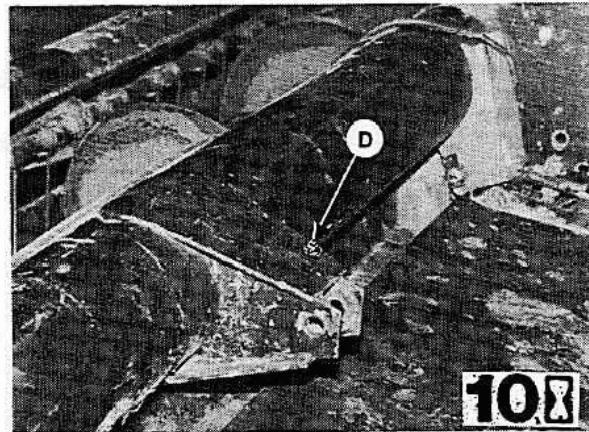
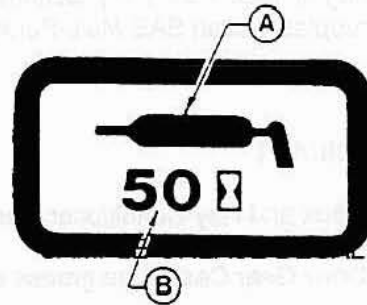
The following greasing points are marked on the header by decals showing a grease gun (A), and grease interval (B) in hours of operation. Use the hour meter in the windrower cab and the "Maintenance Checklist" provided to keep a record of scheduled maintenance.

Procedure:

1. Wipe grease fitting with a clean cloth before greasing, to avoid injecting dirt and grit.
2. Inject grease through fitting with grease gun until grease overflows fitting, except where noted. 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:

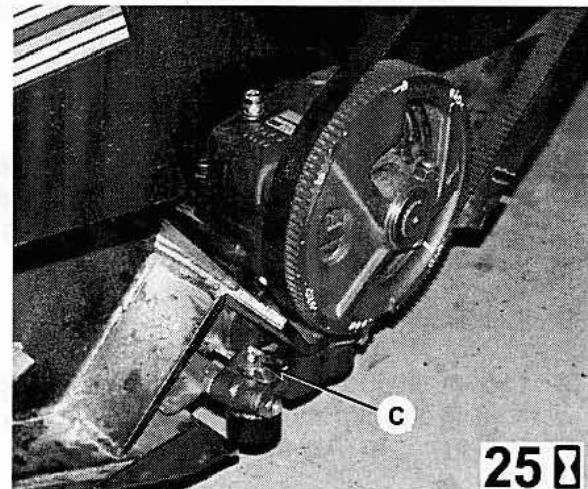
1. Cross-Shaft Center Support Bearing (D)
- one fitting on Double Sickle Header



CROSS-SHAFT CENTER SUPPORT BEARING
DOUBLE SICKLE HEADER

25 Hours

1. Sickle Head (C) - single sickle: one fitting
- double sickle: two fittings



SICKLE HEAD

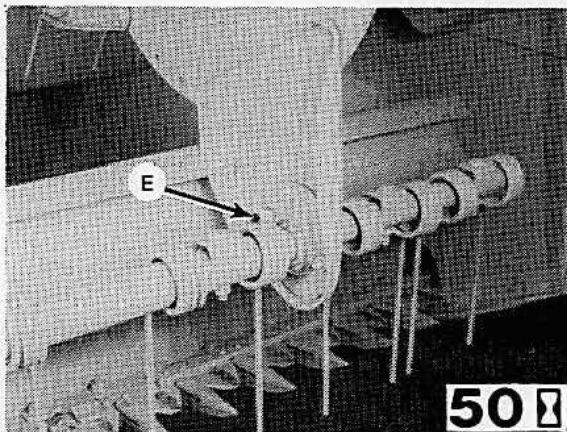
MAINTENANCE/SERVICE

GREASING THE HEADER AND CONDITIONER (continued)

50 Hours:

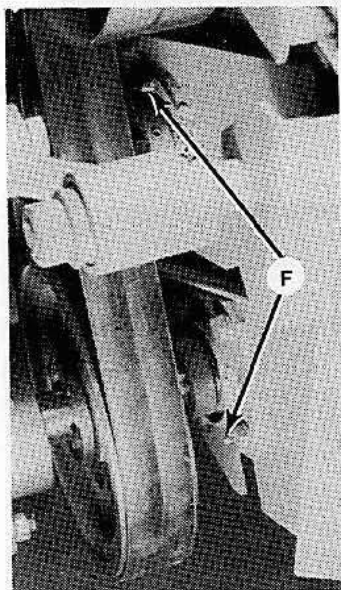
1. Reel Finger Tube Bearings (E)
 - twenty* fittings on 14' and 16' 920/930 Headers.
 - fifteen* fittings on 12' 920/930 Headers.

* with 5 bat reel

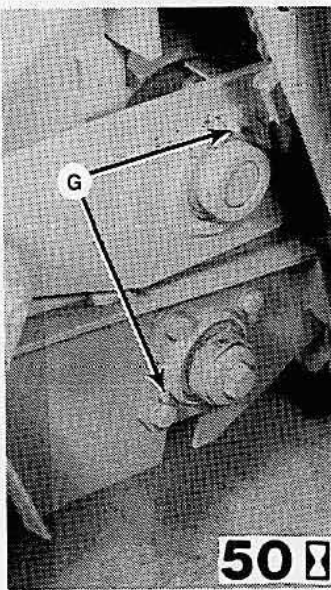


REEL FINGER TUBE BEARINGS
920 & 930 HEADERS

2. Hay Conditioner Roll Shaft Bearings (F) & (G)
 - four fittings.



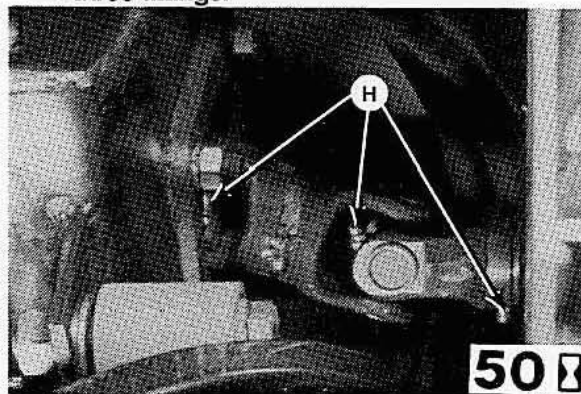
LEFT SIDE



RIGHT SIDE

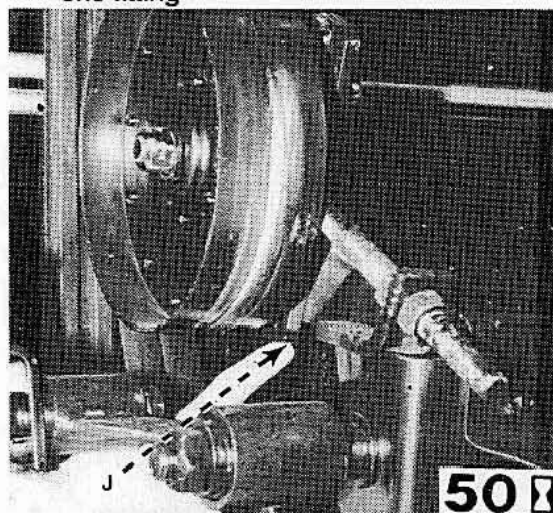
CONDITIONER ROLL BEARINGS

3. Hay Conditioner Universal Shaft (H)
 - three fittings.



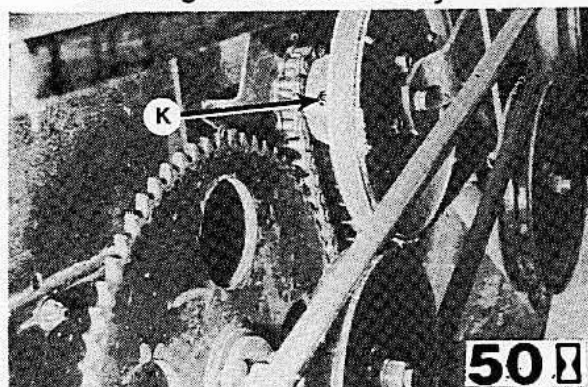
CONDITIONER UNIVERSAL

4. Hay Conditioner Idler Pivot (J)
 - one fitting



CONDITIONER IDLER PIVOT

5. Auger Drive Jackshaft Bearings (K)
 - one fitting on 910 Header only

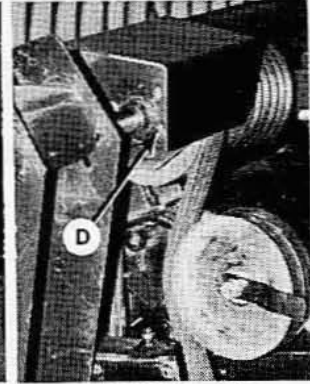
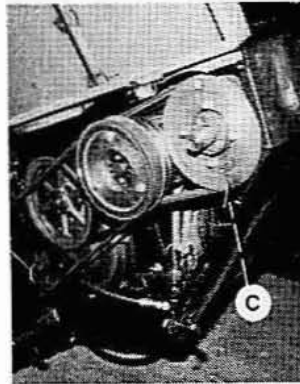


JACKSHAFT BEARINGS - 910 HEADER

MAINTENANCE/SERVICE

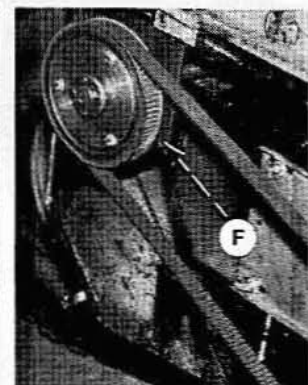
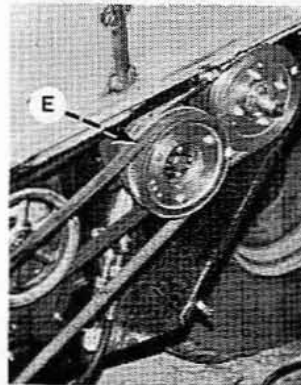
100 Hours or Annually:

1. Drive Shaft Support Bearings (C) & (D)
- two fittings



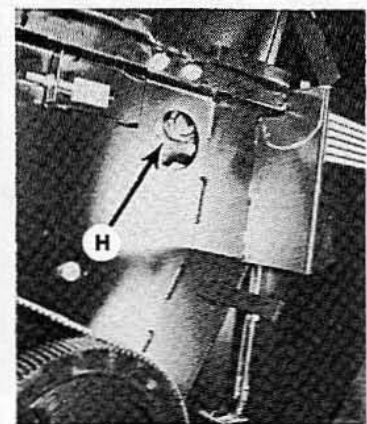
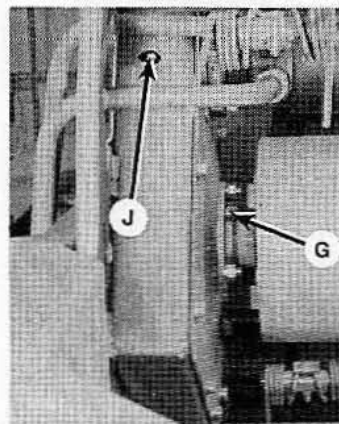
LEFT END RIGHT END
DRIVE SHAFT SUPPORT BEARINGS

2. Cross-Shaft End Support Bearings (E) & (F)
- two fittings on Double Sickle Header



LEFT END RIGHT END
CROSS-SHAFT END SUPPORT BEARINGS
DOUBLE SICKLE HEADER

3. Reel Shaft Bearings (G) & (H)
- two fittings on 920 and 930 Headers
4. Reel Drive Chain (J) - one fitting on 920 and 930 Headers. (Four to six pumps of grease gun will be sufficient.)



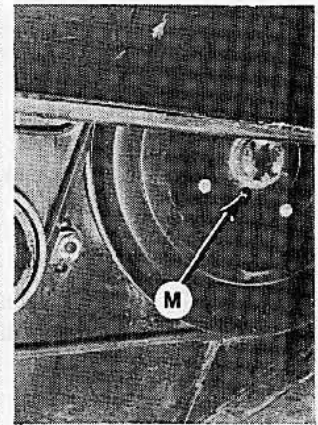
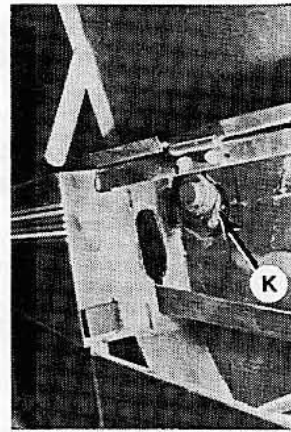
LEFT END RIGHT END
REEL SHAFT BEARINGS & DRIVE CHAIN
920 & 930 HEADERS

MAINTENANCE/SERVICE

GREASING THE HEADER AND CONDITIONER

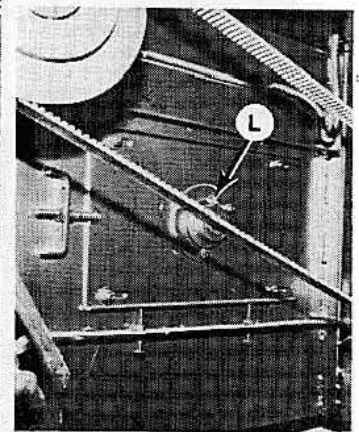
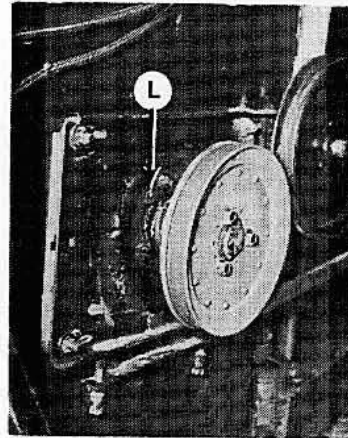
100 Hours or Annually (continued)

5. Reel Shaft Bearings (K) and (M)
- two fittings on 910 Header



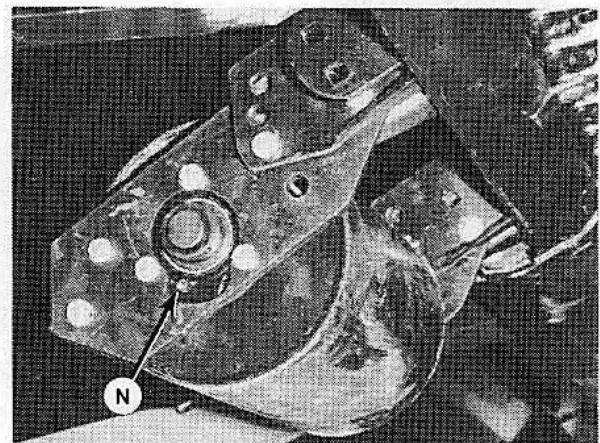
LEFT END RIGHT END
REEL SHAFT BEARINGS - 910 HEADER

6. Auger Shaft Bearing (L) - one fitting



910 HEADER 920/930 HEADERS
AUGER SHAFT BEARING

7. Gauge Roller Bearings (N) - four fittings
(Optional Equipment)



GAUGE ROLLER BEARINGS

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.

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.

Units with stub guards - Keep adjuster screws and top guard adjuster bar well lubricated, especially before storage to prevent corrosion.

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.

To Remove Sickle

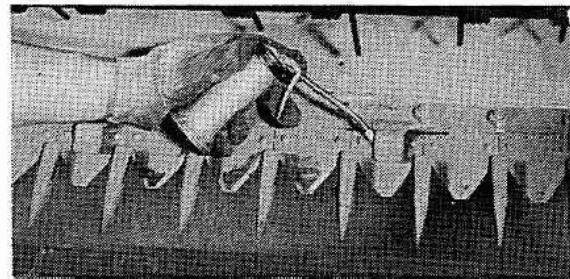


WARNING: Always stand to rear and grasp rear edge of sickle during removal to reduce risk of injury from cutting edges. Wear heavy gloves when handling sickle.

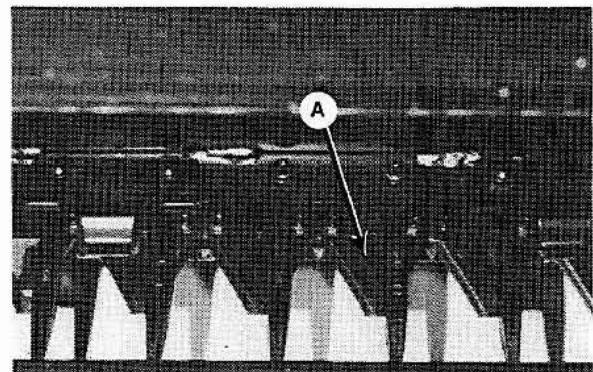
1. Clean area around sickle head. Stroke sickle to its outer limit and remove bolt (A).
2. Insert screwdriver in slot (B) and pry up on sickle head pin to free sickle.
3. Stroke pitman arm to clear bearing in sickle head. Insert sickle head pin in sickle head to shield bearing from dirt.
4. Wrap a chain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



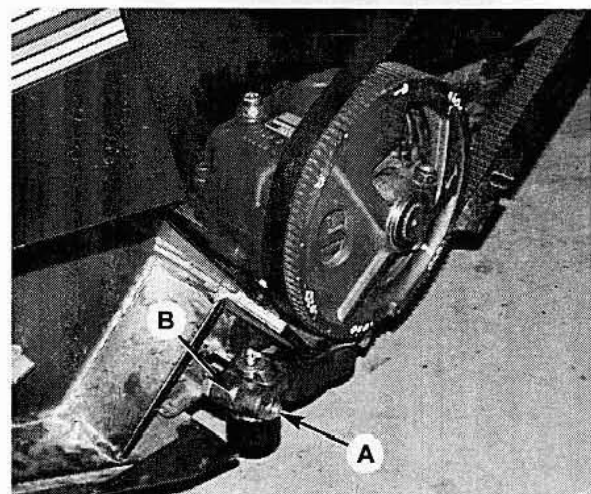
KEEP HANDS AWAY FROM SICKLE



OIL SICKLE DAILY EXCEPT
IN SANDY SOIL



BOLT-ON SECTIONS



REMOVING SICKLE

MAINTENANCE/SERVICE

SICKLE AND SICKLE DRIVE (continued)

Sickle Head Needle Bearing Installation

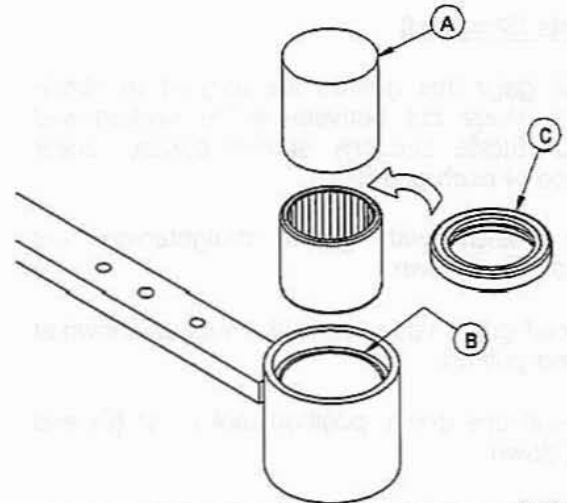
Using a flat-ended tool (A) with approximately the same diameter as the bearing, push the bearing into the sickle head until the top of the bearing is flush with the step (B) in sickle head.

IMPORTANT: Assemble the bearing with the stamped end (the end with identification markings) against the tool.

Install seal (C) in top of sickle head with lip facing outwards.

IMPORTANT: To avoid premature sickle head or wobble box failure, be sure there is no looseness in:

- a) Fit of sickle head pin and needle bearing.
- b) Fit of sickle head pin and pitman arm.



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NEEDLE BEARING INSTALLATION

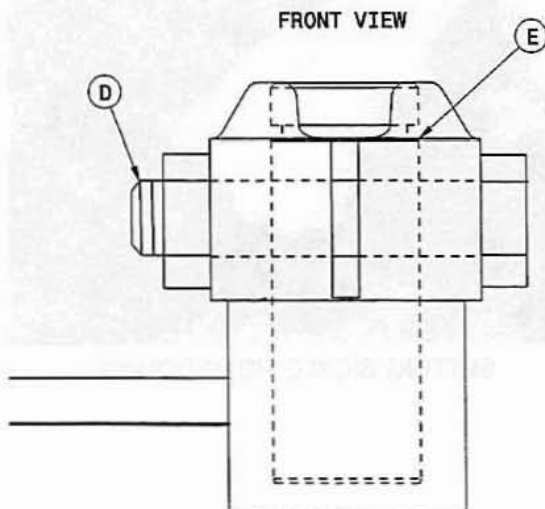
To Install Sickle



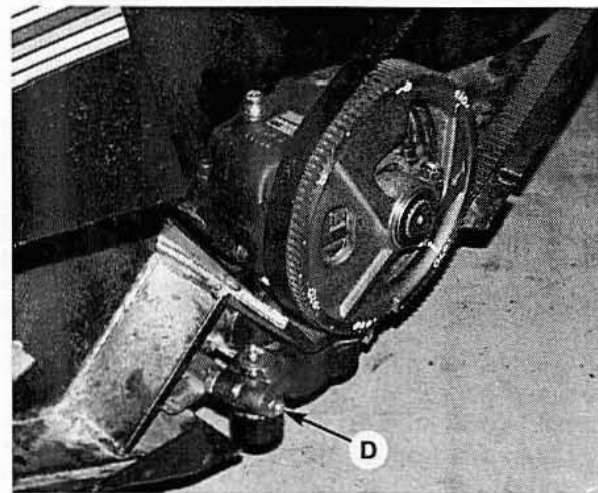
WARNING: Always stand to rear and grasp rear edge of sickle during installation to reduce risk of injury from cutting edges. Wear heavy gloves when handling sickle.

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 (D).
NOTE: Bottom of groove in sickle head pin must be flush with top face (E) of pitman arm.
2. Tighten bolt (D) to 160 ft.lbs. (220 N.m)



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INSTALLING SICKLE

MAINTENANCE/SERVICE

SICKLE AND SICKLE DRIVE (continued)

Guards (Standard)

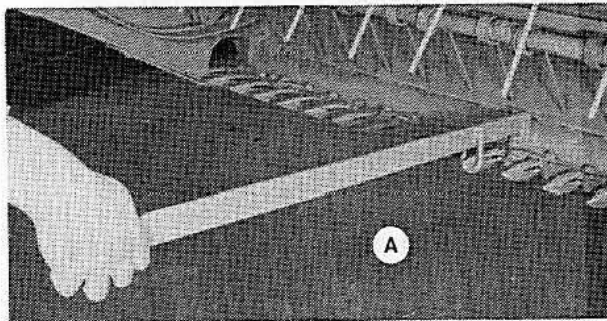
Check daily that guards are aligned to obtain proper shear cut between sickle section and guard. Sickle sections should contact shear surface of each guard.

Align guards with guard straightening tool provided as shown:

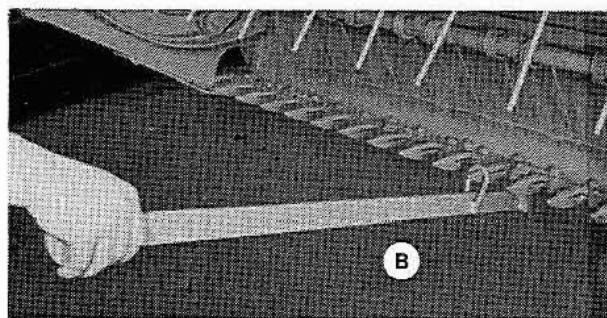
To bend guard tips up, position tool as shown at (A) and pull up.

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



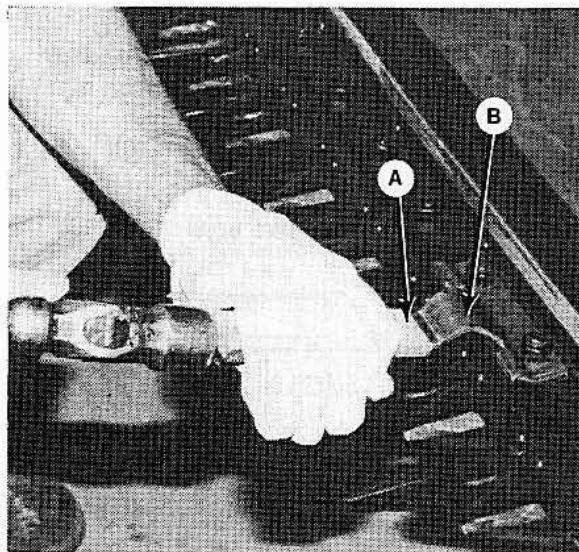
BENDING GUARD TIPS DOWN

Sickle Hold-Downs (for Standard Guards)

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

MAINTENANCE/SERVICE

SICKLE AND SICKLE DRIVE (continued)

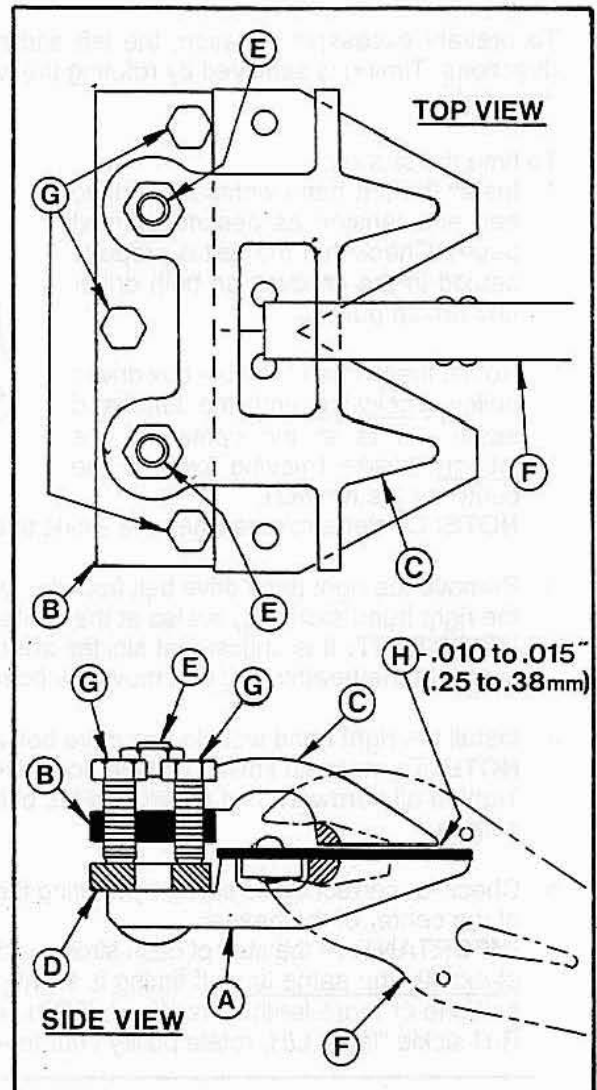
Stub Guards and Hold-Downs

Stub guards are standard equipment on the "Grass Seed" header, but may be installed on the standard header as well. Kits are available for conversion.

To install stub guards and hold-downs:

1. Stroke sickle to center the sections on guard points.
2. Install stub guard (A), adjuster bar (B), and hold-down (C) onto guard support bar (D) with two mounting bolts (E). Finger tighten only.
3. Clamp the trash bars of guard and hold-down together with vise-grip (F) at center of guard.
4. Turn three adjusting screws (G) down so they just contact the guard support bar (D).
5. Tighten guard mounting bolts (E) securely.
6. Remove vise-grip (F).
7. Using a feeler gauge at (H), turn adjusting screws (G) as required to obtain .010 to .015 inch (.25 to .38 mm) clearance between hold-down and sickle section at each guard point.
8. After adjusting all hold-downs, run header at a low engine speed and listen for noise due to insufficient hold-down clearance. Re-adjust as necessary.

Check hold-down clearances daily. Adjust as required, using screws (G).



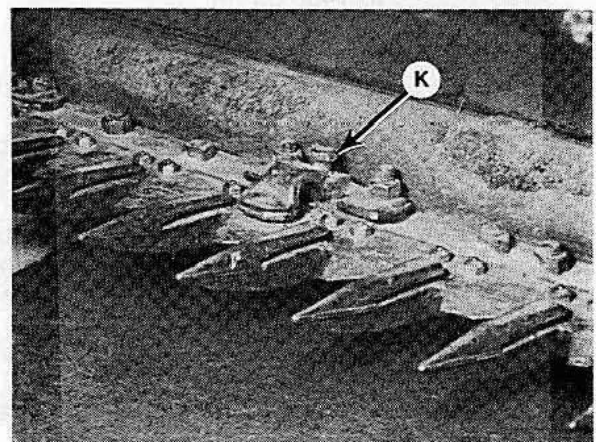
STUB GUARDS AND HOLD-DOWNS

Cast Hold-Downs (Optional)

Adjustable cast hold-downs are available for use with standard guards.

To adjust cast hold-downs:

1. Loosen guard bolts.
2. Using a feeler gauge between hold-down and sickle section, turn bolt (K) to obtain .020 inch (0.5 mm) clearance.
3. Tighten guard bolts.
4. After adjusting all hold-downs, run header at a low engine speed and listen for noise due to insufficient hold-down clearance. Re-adjust as necessary.



ADJUSTING CAST HOLD-DOWNS

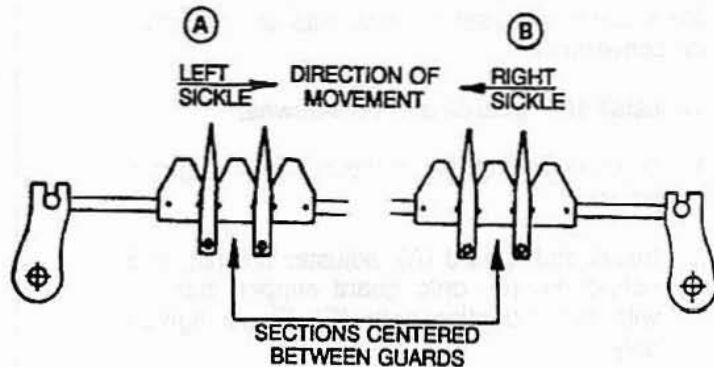
MAINTENANCE/SERVICE

Sickle Timing (Double Sickle Headers)

To prevent excessive vibration, the left and right sickles must be accurately timed to move in opposite directions. Timing is achieved by rotating the wobble box pulley as required when installing the wobble box drive belts.

To time the sickles:

1. Install the left hand wobble box drive belt and tension as described (next page). Check that the belt is properly seated in the grooves on both driver and driven pulleys.
2. Rotate the left hand wobble box driven pulley clockwise until the left hand sickle (A) is at the center of the inboard stroke (moving towards the center of the header).



NOTE: Center stroke is when the sickle sections are centered between the guard points as shown.

3. Remove the right hand drive belt from the wobble box pulley and rotate the pulley counter-clockwise until the right hand sickle (B) is also at the center of the inboard stroke.

IMPORTANT: It is critical that sickles are centered at guard points while both are moving towards the center of the header, not one moving inboard and one moving outboard.

4. Install the right hand wobble box drive belt and tension as described (next page).

NOTE: To maintain timing, wobble box driver and driven pulleys must not rotate as the belt is tightened. Tighten all hardware and check that the belt is properly seated in the grooves on both driver and driven pulleys.

5. Check for correct sickle timing by rotating the rear cross-shaft slowly. Observe sickles where they over-lap at the center of the header.

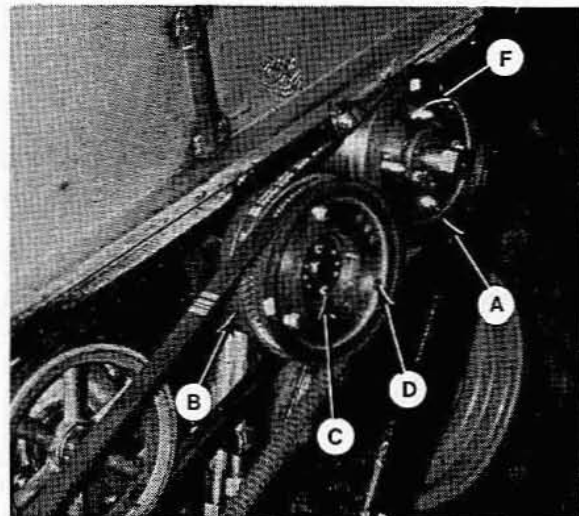
IMPORTANT: At the start of each stroke, sickles must move in opposite directions and must begin to move at exactly the same time. If timing is slightly off, loosen right hand belt just enough to allow skipping the belt one or more teeth as required: If R/H sickle "leads" L/H, rotate right hand driven pulley clockwise. If R/H sickle "lags" L/H, rotate pulley counter-clockwise. Tighten right hand belt.

Changing Double Sickle Speed

Sickle drive is factory assembled for sickle speed of 1875 strokes per minute (S.P.M.). By exchanging pulleys (A) and (B) sickle speed can be decreased to 1450 S.P.M.

To change sickle speed:

1. Loosen auger drive belt. See "Auger Drive Belt Tension".
2. Loosen and remove L/H sickle drive timing belt and cross shaft drive belt. See "Tightening Double Sickle Drive Belts", next page.
3. Remove taper lock bushing (C) and remove pulleys. Remove three nuts (D) and separate the timing belt pulley from the inner "double B" pulley (B).
4. Remove three nuts (F) and separate "double B" pulley (A) from auger drive pulley.
5. Exchange positions of pulleys (A) and (B) and reassemble.
6. Tension all belts and time the sickles as described above.

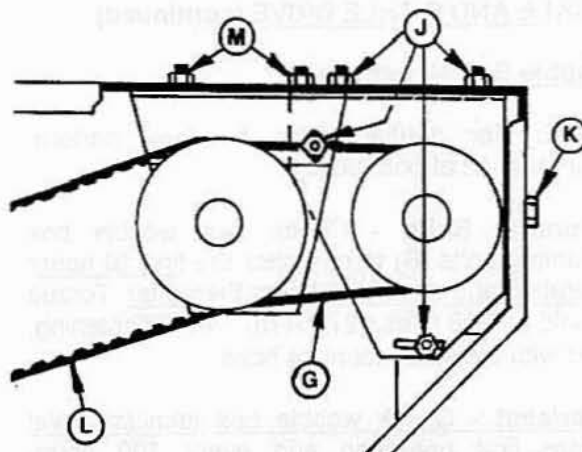


CHANGING SICKLE SPEED

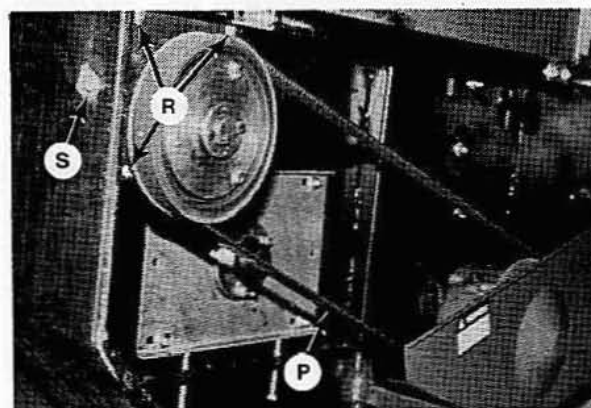
MAINTENANCE/SERVICE

Tightening Double Sickle Drive Belts

1. To tighten cross-shaft drive belt (G) only:
NOTE: If timing belt also requires tightening, go to step 2.
 - a) Loosen auger drive belt. See "Auger Drive".
 - b) Loosen four nuts (J) at driver pulley mounting plate.
 - c) Turn adjusting bolt (K) clockwise until a force of 12 lbs. (55 N) deflects belt (G) 1/8 inch (3 mm) at mid-span.
 - d) Tighten nuts (J) to lock the position, then tighten auger drive belt. See "Auger Drive".
2. To tighten L/H timing belt (L):
 - a) Loosen auger drive belt. See "Auger Drive".
 - b) Loosen four nuts (J) and two nuts (M) at pulley mounting plates.
 - c) Turn adjusting bolt (K) clockwise until a force of 6 lbs. (28 N) deflects timing belt (L) 1/2 inch (13 mm) at mid-span.
 - d) Tighten two nuts (M) to lock the timing belt tension.
 - e) Tighten cross-shaft and auger drive belts as described in steps 1 c) and 1 d).
3. To tighten R/H timing belt (P):
 - a) Loosen three nuts (R) at R/H driver pulley mounting plate.
 - b) Turn adjusting bolt (S) clockwise until a force of 6 lbs. (28 N) deflects timing belt (P) 1/2 inch (13 mm) at mid-span.
 - c) Tighten nuts (R) to lock the position.



L/H SICKLE DRIVE BELTS



R/H SICKLE DRIVE BELT

Tightening Single Sickle Drive Belt

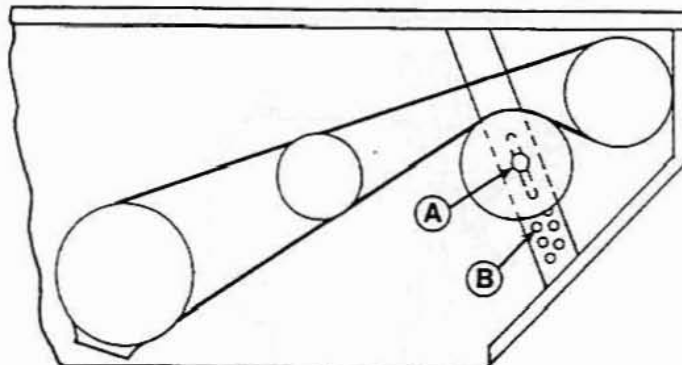
IMPORTANT: To prolong belt and drive life, do not over tighten belt. Operate at minimum tension required to prevent slipping or excessive belt whip.

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. Never pry belt over pulley.
2. Loosen bolt (A) and move idler fully down.
3. Install belt and adjust belt tension as above.
4. Re-adjust belt tension after a short run-in period. (About 5 hours).



SINGLE SICKLE DRIVE BELT TENSION

MAINTENANCE/SERVICE

SICKLE AND SICKLE DRIVE (continued)

Wobble Box Maintenance

NOTE: For double sickle headers, perform maintenance at both boxes.

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

Lubricant - Check wobble box lubricant level before first operation and every 100 hours thereafter. To check:

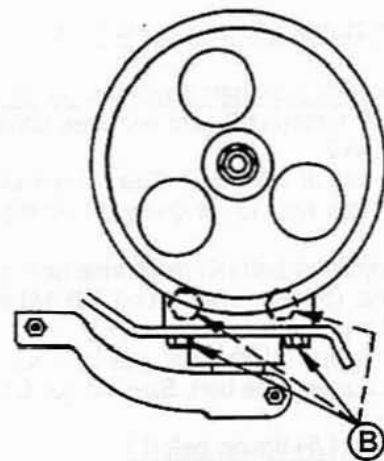
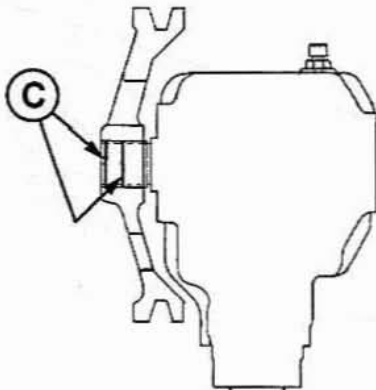
1. Raise header to a point where the wobble box base is approximately level.
2. Remove breather/dipstick (A). Oil level must be between end of dipstick and bottom hole in dipstick.
3. Add as required. See "Recommended Lubricants" for specified gear lube and capacity of box.
4. Replace breather/dipstick.

Change wobble box lubricant after the first 50 hours operation and every 1000 hours (or 3 years) thereafter.

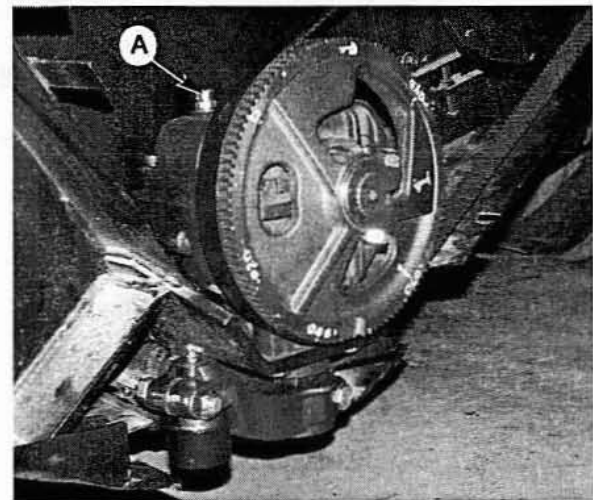
Assembly/Disassembly

When reinstalling drive arm or pulley:

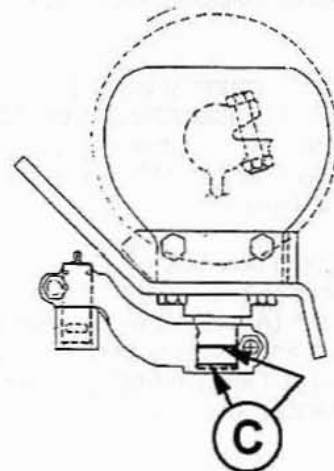
1. Remove any rust or paint from inner spline. For replacement parts, remove oil/grease with degreasing agent.
2. Before assembly, apply Loctite® #243 adhesive (or equivalent) to spline. Apply in two bands (C) as shown, with one band at end of spline and one band approximately mid-way.



WOBBLE BOX MOUNTING BOLTS



WOBBLE BOX LUBRICANT



USE ADHESIVE FOR ASSEMBLY

MAINTENANCE/SERVICE

REEL AND REEL DRIVE

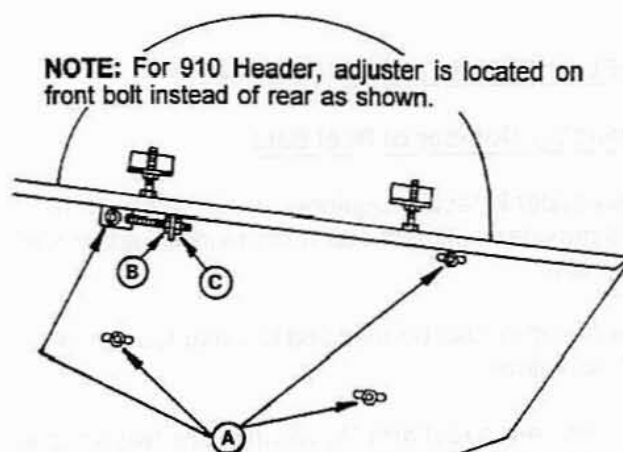
Reel Position - Fore and Aft

The reel fore-aft position has been factory set and should not normally require adjustment. For nearly all conditions, the reel should be set as close as possible to guard tips and auger pan. Component wear may cause these clearances to become excessive, resulting in feeding problems and uneven windrows. Changing the reel finger pitch (see "Operating Variables") may also affect reel clearances.

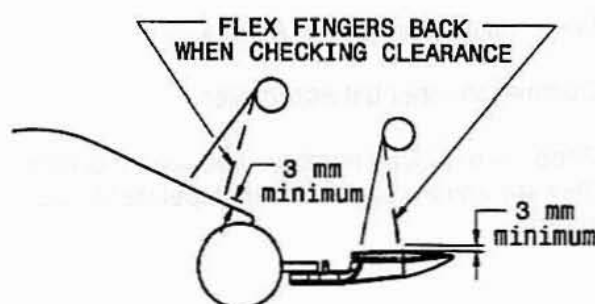
Should adjustment be required:

1. Loosen four bolts (A), both ends of reel.
2. To move reel forward, loosen nut (B) and turn nut (C) clockwise. To move reel rearward, loosen nut (C) and turn nut (B) clockwise. Repeat at other end of reel.
3. Tighten bolts (A) and nut (B) or (C).
4. Rotate reel slowly by hand, checking for interference.

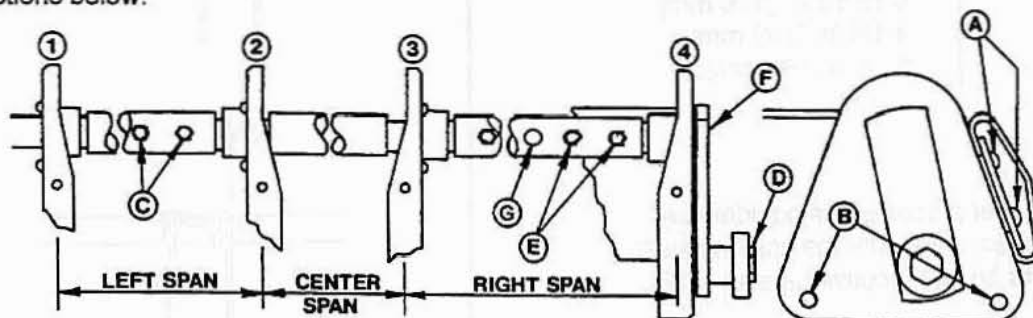
IMPORTANT: Do not set reel too low. Flex the fingers back as shown to simulate crop load when checking clearance at guards and auger pan.



REEL FORE-AFT POSITION



Replacing reel fingers - 920 & 930 Headers: Depending on location of fingers to be replaced, follow instructions below.



LEFT SPAN:

- Remove bat mounting bolts (A) and reel arm mounting bolts (B) at reel arm #1.
- Remove reel arm #1 complete with bearing.
- Replace fingers and reassemble.

CENTER SPAN:

- Remove bat mounting bolts (A) and reel arm mounting bolts (B) at reel arm #1.
- Remove bolts (C) connecting left hand and center finger bar sections.
- Remove complete left hand finger bar assembly (including reel arm #1).
- Remove bat mounting bolts (A) and reel arm mounting bolts (B) at reel arm #2.
- Remove reel arm #2 complete with bearing.
- Replace fingers and reassemble.

RIGHT SPAN:

- Remove cam follower bearing bolt (D). (For access to bolt, remove cover over hole in cam, align bearing with hole.)
- Remove bat mounting bolts (A) and reel arm mounting bolts (B) at reel arm #4.
- Remove reel arm mounting bolts (B) at arm #3.
- Remove bolts (E) and (G) connecting cam arm to finger bar.
- Remove cam arm assembly (F), complete with reel arm #4.
- Replace fingers and reassemble.

IMPORTANT: When replacing bearing bolt (D), install distorted thread end of nut towards bolt head. Tighten to 125 ft.lbs. (170 N-m). Replace cover on cam.

IMPORTANT: When replacing hardware (C) and (E), ensure tapered end of locknut seats in countersunk hole in tube. Tighten 5/16" bolt at (C), (E) and (G) to 35 ft.lbs. (47 N-m).

MAINTENANCE/SERVICE

REEL AND REEL DRIVE (continued)

Changing Number of Reel Bats

The header is factory equipped with a five bat reel. This provides optimum reel performance under most conditions.

The reel may also be modified to either four or six bat, as follows:

1. Locate the reel arm (A) which spans two holes in reel disc that are $6 \frac{15}{16}$ inches (176 mm) apart with no other holes in between.

Leave this bat assembly in place.

2. Remove all other bat assemblies.
3. Reposition desired number of bat assemblies so they are equally spaced around reel discs. See chart:

Number of Bats	Bat Spacing (X)
4	$6 \frac{15}{16}$ in. (176 mm)
5	$4 \frac{1}{4}$ in. (108 mm)
6	$2 \frac{3}{8}$ in. (60 mm)

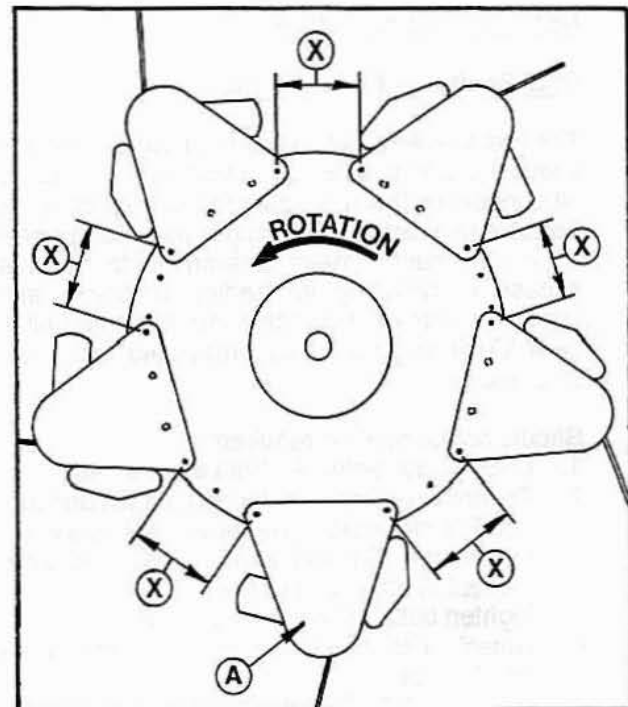
IMPORTANT: Finger placement is not identical on all bat assemblies. Alternate the assemblies to stagger the fingers on consecutive bats as at (B).

NOTE: On five bat reel, two consecutive bats will have identical finger placement.

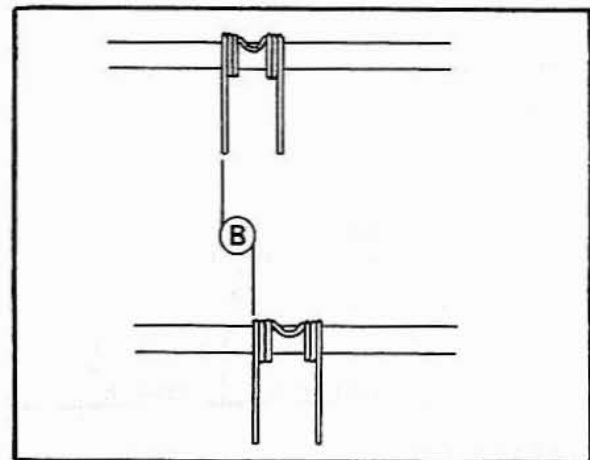
4. When installing a new bat assembly:
It may be necessary to loosen bat hardware (C) to properly align reel arms with reel discs.

Tighten reel arm bolts (D) first, then tighten bat hardware (C).

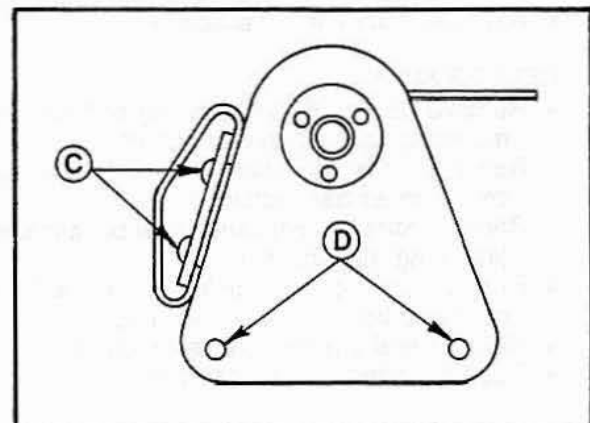
Rotate reel by hand to check for proper operation of cam arm at right end. Reposition finger tube laterally if necessary, then tighten all bearing locking collars.



REEL BAT PLACEMENT



STAGGER FINGERS ON CONSECUTIVE BATS



LOOSEN HARDWARE TO ALIGN
NEW BATS

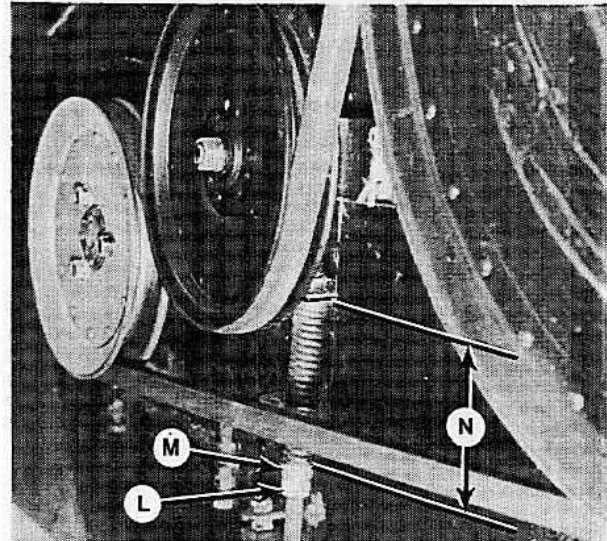
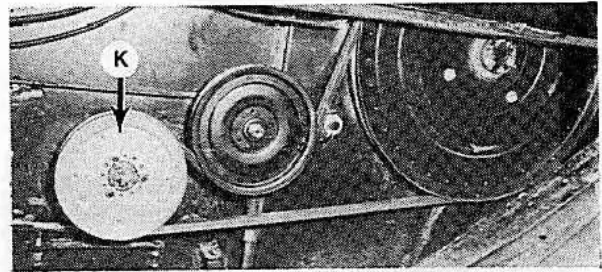
MAINTENANCE/SERVICE

REEL AND REEL DRIVE (continued)

Reel Speed - 910 Header

The reel drive is factory assembled for reel speed of 71 rpm. Reel speed may be increased to 80 rpm by changing pulley (K). The alternate pulley is available from your dealer.

NOTE: Reel speed may also be slowed to 63 rpm by changing the auger drive pulley at the left end of the header. This will also slow auger speed. See "Auger Speed - 910 Header" in this section for details.



REEL DRIVE - 910 HEADER

Reel Drive Belt Tension - 910 Header

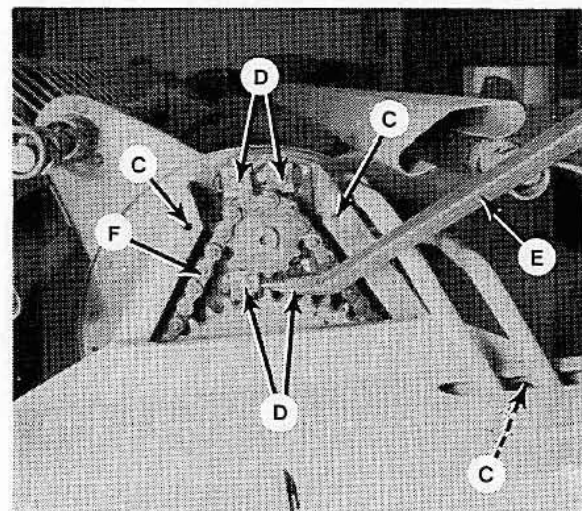
To adjust reel drive belt tension:

1. Back nut (L) away from nut (M).
2. Turn nut (M) to compress spring until dimension (N) is 4-3/8 inches (110 mm), measured from bottom of frame bracket to bottom of spring.
3. Tighten nut (L) against nut (M) to secure the position.

Reel Drive Chain Tension - 920 & 930 Headers

To tighten reel drive chain:

1. Remove three bolts at (C) and remove drive cover.
2. Loosen four mounting bolts (D).
3. Use a pry bar (E) between sprockets to tighten chain until deflection at (F) is 1/4 to 3/8 inch (6 to 10 mm) maximum.
4. Tighten four mounting bolts (D).
5. Replace cover and secure with three bolts.



REEL DRIVE CHAIN ADJUSTMENT
920 & 930 HEADERS

MAINTENANCE/SERVICE

REEL AND REEL DRIVE (continued)

Hydraulic Reel Drive - 920 & 930 Headers

Check hydraulic hoses 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.

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

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



AVOID HIGH PRESSURE FLUIDS



CHECK PROPERLY FOR LEAKS

MAINTENANCE/SERVICE

AUGER AND AUGER DRIVE

Auger Position

The auger position has been factory set and should not normally require adjustment. For nearly all conditions, the auger performs best when set as close as possible to the stripper bars without rubbing. This is especially important in grass and other crops which have a tendency to wrap. In alfalfa and other crops, component wear may cause clearances to become excessive, resulting in feeding problems and uneven windrows.

To position auger:

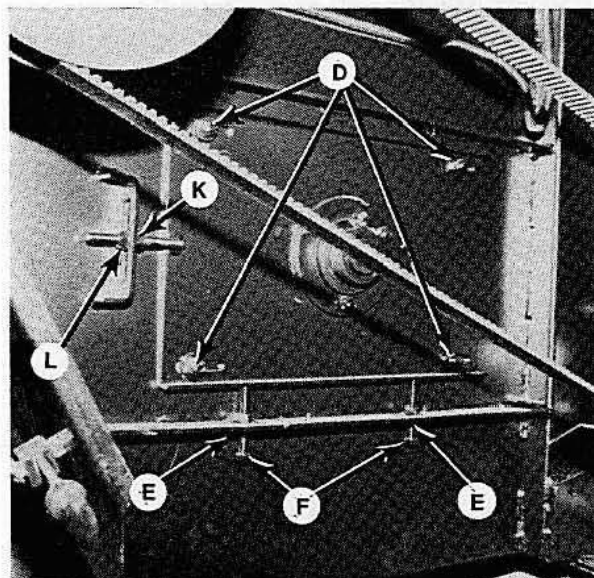
1. Drop auger down and move it rearward to cradle it in the center and rear strippers.
2. Raise auger just enough to obtain 1/8 inch (3 mm) clearance to both strippers.
3. Check auger to stripper clearances with header up and header down.

Vertical adjustment

1. Loosen bolts (D), four per side.
2. Loosen nuts (E), two per side.
3. Loosen nuts (K) and (L), both sides.
4. Turn push bolts (F), two per side, to lower or raise auger.
5. Tighten nuts (E), (K), and (L) and bolts (D) to secure the position.

Fore-Aft Adjustment

1. Loosen bolts (D), four per side.
2. To move auger rearward, loosen nut (K) and turn nut (L) clockwise. To move auger forward, loosen nut (L) and turn nut (K) clockwise.
3. Repeat adjustment at other end of auger.
4. Tighten nuts (K), (L), and bolts (D) to secure the position.



AUGER POSITION ADJUSTMENTS

MAINTENANCE/SERVICE

AUGER AND AUGER DRIVE (continued)

Auger Speed - 910 Header

The auger drive is factory assembled for auger speed of 210 rpm. Auger speed may be slowed to 186 rpm by changing pulley (F). The alternate pulley is available from your dealer.

NOTE: Installing alternate pulley to slow auger speed will also slow reel speed from 71 rpm standard to 63 rpm.

Auger Primary Drive Belt - 910 Header

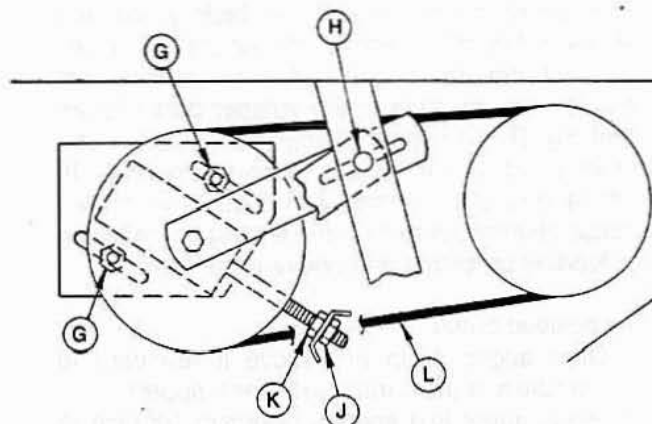
To adjust auger primary drive belt tension:

1. Loosen two nuts (G) at drive support plate.
2. Loosen nut (H) at mounting arm.
3. Back off jam nut (J) on adjuster bolt.
4. Turn nut (K) counter-clockwise to tighten auger drive belt until a force of 20 lbs. (92 N) deflects belt 1/2 inch at mid-span (L).
5. Tighten nuts (G), (H) and (J) to secure the position.
6. Check and adjust auger drive chain tension as required, (see below).

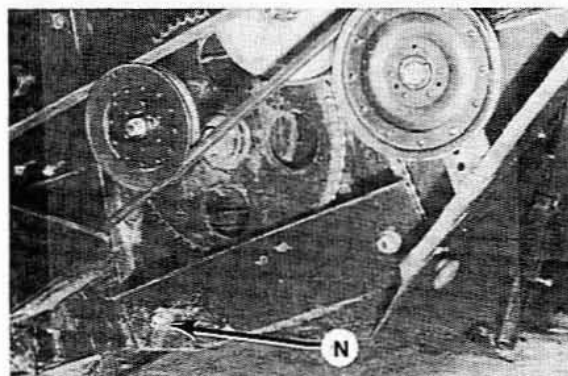
Auger Drive Chain - 910 Header

To adjust auger drive chain tension:

1. Loosen nut (N).
2. Slide idler sprocket forward in slot until chain deflection is 1/4 inch (6 mm) at mid-span.
3. Tighten nut (N) to secure the position.



AUGER DRIVE BELT - 910 HEADER



AUGER DRIVE CHAIN - 910 HEADER

Auger Speed - 920 & 930 Headers

The auger speed is factory set at 205 rpm for 920 Header and 170 rpm for 930 Grass Seed Header.

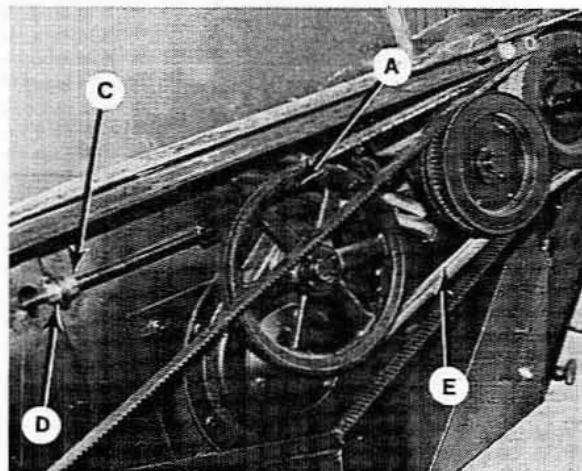
The change in auger speed is accomplished by changing the driven pulley (A) at the auger gear drive. The alternate pulleys are available from your dealer.

Auger Drive Belt Tension - 920 & 930 Headers

To adjust auger drive belt tension:

1. Loosen jam nut (C) on adjuster bolt.
2. Turn nut (D) clockwise to tighten auger drive belt until a force of 12 lbs. (55 N) deflects belt (E) 1/2" (13 mm) at mid-span.

NOTE: Adjustment of double sickle drive belts will require loosening the auger drive belt prior to the adjustment, and re-tightening afterwards.



AUGER DRIVE BELT
920 & 930 HEADERS

MAINTENANCE/SERVICE

HAY CONDITIONER

Hay Conditioner Drive Belt Tension

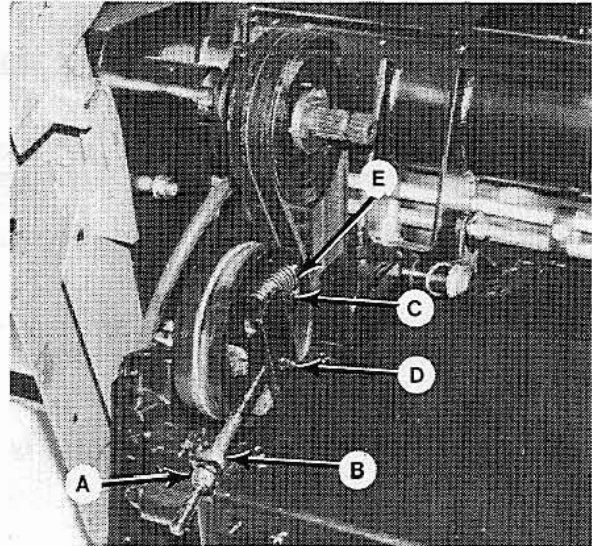
IMPORTANT: To prolong belt and drive life, do not over-tighten belt.

Operate at minimum tension required to prevent slipping or excessive belt whip.

To adjust:

1. Loosen rear nut (A) on adjuster.
2. Turn nut (B) clockwise until spring (C) is collapsed, then turn nut (B) an additional two turns for proper tension.
3. Tighten nut (A) to lock the position.

NOTE: Nut (D) must not be over tightened as assembly pivots at this point.



HAY CONDITIONER DRIVE BELT
TENSION ADJUSTMENT

When installing a new belt:

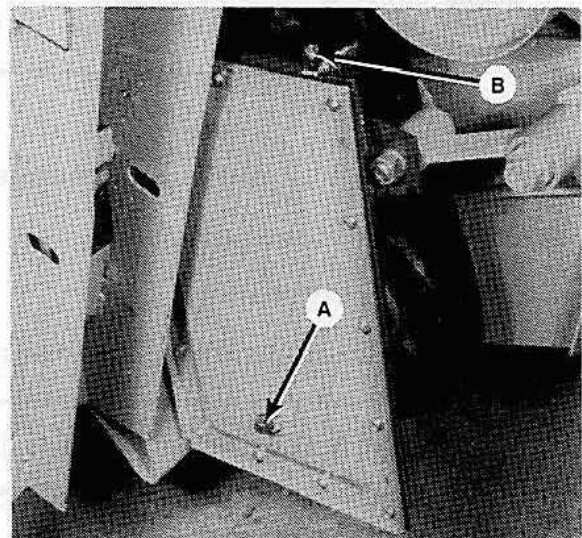
1. Never pry belt over pulley.
2. Loosen nut (B). Turn nut (A) to fully loosen the adjuster.
3. Apply rearward force on spring at (E), (pushing with wrench works well) to "pop" spring off of retaining nut. This allows full retraction of idler for easy belt installation.
4. Install belt, reassemble spring and adjust belt tension as above.
5. Re-adjust belt tension after a short run-in period, (about 5 hours).

Hay Conditioner Gear Case Lubricant

Check gear case lubricant level before first operation and every 100 hours thereafter.

To check:

1. With gear case approximately level, remove level plug (A).
2. Remove fill plug with breather (B).
3. Fill to level plug hole. See "Recommended Lubricants" for specified gear lube and capacity of case.
4. Replace both plugs.



CHECK GEAR CASE LUBRICANT LEVEL

MAINTENANCE/SERVICE

MAINTENANCE SCHEDULE

The following maintenance schedule is a listing of periodic maintenance procedures, organized by service intervals. For detailed instructions, see the specific headings in Maintenance/Service section. Use "Recommended Fluids and 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 the machine 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 machine at whichever interval is reached first.



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

AT FIRST USE: See "Break-In Period" in Operation section.

10 HOURS OR DAILY

1. Grease cross-shaft center support bearing - double sickle headers.
 2. Oil sickle (except in sandy conditions).
 3. Check sickle sections, guards and hold-downs.
 4. Check hydraulic hoses for leaks.
-

25 HOURS

1. Grease sickle head(s).
-

50 HOURS

1. Grease reel finger tube bearings.
 2. Grease hay conditioner roll shaft bearings.
 3. Grease hay conditioner universal shaft.
 4. Grease hay conditioner idler pivot.
 5. Grease auger drive jackshaft bearings. (910 Header)
-

100 HOURS OR ANNUALLY *

- | | |
|---|---|
| 1. Grease drive shaft support bearings. | 6. Grease gauge roller bearings (Option). |
| 2. Grease cross-shaft end support bearings - double sickle headers. | 7. Check wobble box(es) mounting bolt torque. |
| 3. Grease reel shaft bearings. | 8. Check wobble box(es) lubricant level. |
| 4. Grease reel drive chain. | 9. Check hay conditioner gear case lubricant level. |
| 5. Grease auger shaft bearing. | |
-

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

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

1000 HOURS OR 3 YEARS

1. Change wobble box(es) lubricant.

MAINTENANCE RECORD

Header Serial No. _____

Hay Conditioner Serial 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.

(D) - Double Sickle Headers Only

(O) - Optional Equipment

ACTION:		✓ - Check	● - Lubricate	▲ - Change
Hour Meter Reading:				
Served By:				
Maintenance Procedure				
BREAK-IN	See "Break-In Period" in Operation section for checklist.			
10 HOURS OR DAILY				
● Cross-Shaft Cntr. Bearing (D)				
● Sickle Assembly				
✓ Sections, Guards, Hold-downs				
✓ Hydraulic Hoses				
25 HOURS				
● Sickle Head(s)				
50 HOURS				
● Reel Finger Tube Bearings				
● Cond. Roll Shaft Bearings				
● Conditioner Universal Shaft				
● Conditioner Idler Pivot				
● Auger Jackshaft Brgs. (910)				
100 HOURS OR ANNUALLY				
● Drive Shaft Support Bearings				
● Cross-Shaft End Bearings (D)				
● Reel Shaft Bearings				
● Reel Drive Chain				
● Auger Shaft Bearing				
● Gauge Roller Bearings (O)				
✓ Wobble Box Bolt Torque				
✓ Wobble Box Lubricant Level				
✓ Cond. Gear Case Lube Level				
STORAGE	See "Storage Procedure" in Operation section for checklist.			
1000 HOURS OR 3 YEARS				
▲ Wobble Box Lubricant				

TROUBLESHOOTING

<u>SYMPTOM</u>	<u>PROBLEM</u>	<u>SOLUTION</u>	<u>REF.</u>
Excessive breakage of sickle sections or guards.	Cutterbar operating too low in stony conditions.	Raise cutterbar, using skid shoes or gauge rollers.	26
	Header float is set too heavy.	Adjust float spring for lighter float.	*
	Bent or broken guard.	Straighten or replace.	44
	Header angle too steep.	Flatten header angle.	*
Sickle back breakage.	Bent or broken guard.	Straighten or replace.	44
	Worn sickle head pin and/or drive arm.	Replace.	43
	Dull sickle.	Replace.	43
	Sickle hold-downs not adjusted properly.	Adjust hold-downs so sickle works freely, but still keep sections from lifting off guards.	44
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.	25
	Header angle too flat.	Steepen header angle.	*
	Sickle sections or guards are worn or broken.	Check and replace all worn and broken cutting parts.	42
	Bent sickle, causing binding of cutting parts.	Straighten a bent sickle. Align guards.	43 44
	Sickle hold-downs not adjusted properly.	Adjust hold-downs so sickle works freely, but still keep sections from lifting off guards.	44
	Cutting edge of guards not close enough or parallel to sickle sections.	Align guards.	44
	Reel speed too slow.	Increase reel speed.	24
	Ground speed too fast.	Decrease ground speed.	23
	Loose sickle drive belt.	Adjust sickle drive belt tension.	47

* - See your Windrower Tractor Operator's Manual.

TROUBLESHOOTING

<u>SYMPTOM</u>	<u>PROBLEM</u>	<u>SOLUTION</u>	<u>REF.</u>
Long stubble.	Cutterbar too high.	Lower cutterbar.	26
	Ground speed too fast.	Decrease ground speed	23
	Reel speed too slow.	Increase reel speed.	24
	Guard angle too flat	Increase guard angle	*
	Header flotation too light.	Decrease header float	*
Excessive header vibration.	Sickle not operating at recommended speed.	Check engine speed of windrower.	*
	Excessive sickle wear.	Replace sickle.	43
	Loose or worn sickle head pin or drive arm.	Tighten or replace parts.	43
	Soil build-up on conditioner rolls.	Remove soil build-up	—
Sickle plugging.	Loose sickle drive belt.	Adjust belt tension.	47
	Dull or broken sickle sections.	Replace.	42
	Bent or broken guards.	Align or replace.	44
	Improper sickle hold-down adjustment.	Adjust hold-down so sickle is held against guard cutting surface.	44
	Reel fingers not lifting crop properly ahead of sickle.	Increase finger pitch aggressiveness.	25
	Header float too heavy.	Adjust float springs for lighter float.	*
	Mud or dirt build-up on cutterbar.	Raise cutterbar by lowering skid shoes or gauge rollers.	26
Reel wrapping in tangled and weedy crops causing improper reel delivery.		Flatten header angle.	*
	Reel speed too fast.	Reduce speed of reel to allow weedy crops to feed into auger properly.	24
Reel carrying crop over causing improper reel delivery.	Reel speed too fast.	Reduce reel speed so crop will not carry over top of reel. Reel should turn just enough faster than ground travel so the crop feeds up auger pan and into auger.	24
	Reel finger pitch too aggressive.	Decrease finger pitch aggressiveness.	25
	Crop not releasing into auger.	Adjust reel timing to release crop sooner.	25

* - See your Windrower Tractor Operator's Manual.

TROUBLESHOOTING

<u>SYMPTOM</u>	<u>PROBLEM</u>	<u>SOLUTION</u>	<u>REF.</u>
Auger carrying crop over back onto reel.	Dirt build up in auger stripper bars.	Clean out dirt accumulation in auger strippers.	—
Reel will not turn.	Control(s) set at 0.	Activate reel speed control.	*
	Quick couplers not properly connected.	Connect couplers.	*
	Final drive chain disconnected.	Connect chain.	51
Reel motion is uneven in heavy crop.	Reel speed too fast.	Reduce reel speed.	24
	Reel finger pitch too aggressive.	Decrease finger pitch aggressiveness.	25
	Relief pressure too low.	Increase relief pressure.	*
	Relief valve malfunction.	Replace relief valve.	-
Reel damages fragile crop (e.g. grass seed).	Reel speed too fast at lowest control setting (9000 Windrower).	Adjust flow control on tractor.	*
Auger will not turn.	Loose belt.	Tighten auger drive belt.	54
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 rolls will not turn.	Obstruction or wad in conditioner rolls.	Turn mechanism in reverse and remove wad.	33
	Drive belt too loose.	Tighten conditioner belt.	55
Auger is excessively end-feeding into conditioner.	Outboard rubber fingers mounted to auger are deflecting too much material away from center.	Remove outboard sets of rubber fingers on auger.	27
Auger is excessively center-feeding into conditioner.	Outboard rubber fingers at auger have been removed.	Install outboard finger assemblies mounted to auger.	27
Over-conditioning of crop.	Excessive intermesh of hay conditioner rolls.	Reduce intermesh of rolls.	28
Under-conditioning of crop.	Insufficient intermesh of hay conditioner rolls.	Increase intermesh of rolls.	28
Windrow too wide or too narrow.	Windrow forming shields improperly positioned for desired width.	Position shields to width desired.	29

* - See your Windrower Tractor Operator's Manual.

TROUBLESHOOTING

<u>SYMPTOM</u>	<u>PROBLEM</u>	<u>SOLUTION</u>	<u>REF.</u>
Windrow uneven.	Unclean cutting due to sickles and/or guards excessively worn.	Replace sickles and guards.	43
	Sickle hold-downs incorrectly set causing poor cutting.	Adjust hold-downs.	44
	Excessive dirt build-up in front of auger and along stripper bars.	Remove dirt accumulation in auger pans to clear stripper bars. Increase header flotation and reduce guard angle to prevent dirt being carried into header.	*
	Reel not clearing crop off of sickle.	Move reel down, closer to sickle.	25
	Crop hesitating on auger pans in front of auger, especially in short crops.	Move reel down, closer to pan and rearward, closer to auger.	25/49
	Excessive clearance between auger and stripper bars.	Move auger down and rearward for close clearance (1/8" [3 mm]) to primary (center) stripper bar and rear stripper bar.	53
	Auger flighting is bent, has large nicks in OD, or is excessively worn causing poor feed across header.	Straighten flighting, repair or replace if excessively worn.	—
	Conditioner rolls set too close.	Increase clearance between rolls.	28
	Auger pans and/or conditioner feed pan pushed down in front of or below auger	Raise pan to its original position.	—
	Lean bar too high in medium height crops.	Lower lean bar	22
	Lean bar too low in tall crops.	Raise lean bar or install second lean bar to prevent hair-pinning over primary lean bar.	22
	Conditioner forming shield too low.	Raise forming shield.	29
	Forming shield rear deflector too low.	Raise rear deflector to mid-slot position.	29
Windrow/Swath slow to dry.	Forming shield fins incorrectly positioned.	Position fins parallel to side deflectors. Use fins <u>only</u> for swaths 6 ft. and wider.	30
	Ground speed too fast.	Reduce ground speed.	23
	Windrow uneven.	See previous section.	—
	Insufficient crop conditioning.	Increase conditioner roll intermesh.	28
	Excessive crop conditioning. (Windrow/swath too flat.)	Decrease conditioner roll intermesh.	28
Running over previous windrow or irrigation row when turning.	Windrow too narrow.	Increase windrow width. Use fins on conditioner forming shield for swaths wider than 6 feet.	29/30
	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.

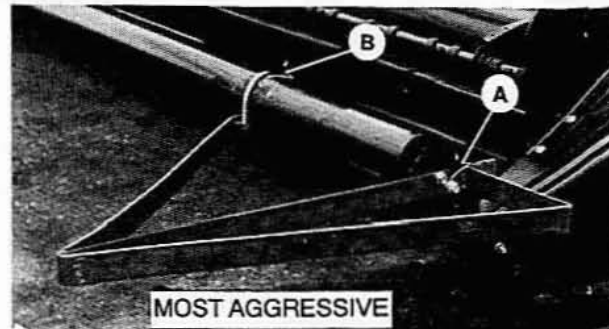
Crop Dividers – WholeGoods order no.: B2539
Mount to lean bar for clean crop dividing and reel entry in tall crops. Left and right dividers are included in kit.

The amount of crop "gathered" by the divider is adjustable. For the most aggressive gathering, mount the divider at the two forward holes (A) and position the U-bolt (B) farther inboard on the lean bar.

For the least aggressive gathering, mount the divider at the two rearward holes (C) and position the U-bolt (B) farther outboard on the lean bar.

Use minor adjustments of U-bolt position to achieve best results in specific conditions.

Crop dividers should be removed for side-mount trailer transport or for storage.



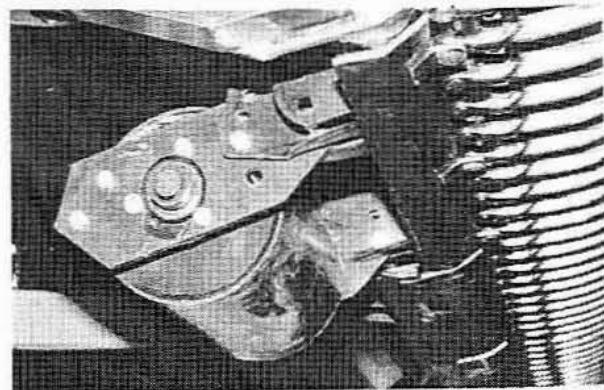
CROP DIVIDERS

Gauge Rollers (Optional to Skid Shoes)

WholeGoods order number: B2365

For stony conditions, gauge rollers allow higher cutterbar settings than skid shoes. This allows the operator to lower the header to the ground and let the gauge rollers follow ground contours. See "Cutting Height" in Operation section for adjustment of gauge rollers.

NOTE: The gauge roller kit includes special narrow outer skid shoes for use with gauge rollers. Standard width outer skid shoes (shown below) can not be used with gauge rollers.

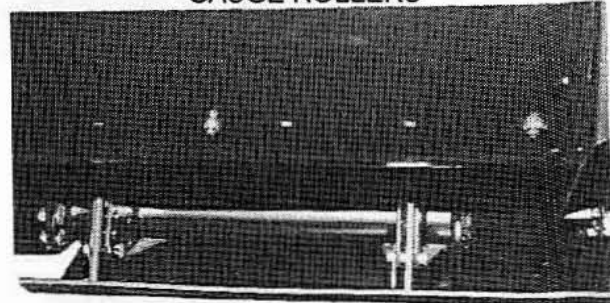


GAUGE ROLLERS

Adjustable Skid Shoes (Optional to Rollers)

WholeGoods order number: B2458

Where higher cutting height settings are not necessary, adjustable outer skid shoes perform the same function as gauge rollers, following ground contours to provide consistent cutting height. See "Cutting Height" in Operation section for adjustment of skid shoes.



ADJUSTABLE SKID SHOES

Four or Six Bat Reel

WholeGoods order number:

Model 910 12' – B2145 Model 920 14' – B1867

Model 910 14' – B2146 Model 920 16' – B1868

Model 920 18' – B2696

A complete bat assembly can be added to, or removed from, the standard five bats without changes to the reel body.

Stub Guards

WholeGoods order number:

Model 910 12' – B2515 Model 920 14' – B2518

Model 910 14' – B2516 Model 920 16' – B2519

Model 920 18' – B2771

May be installed in place of standard guards for effective cutting in tough grass crops. Conversion kits are available.



STUB GUARDS

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 and block trailer wheels.
2. Lower trailer storage stands.



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

LIFTING VEHICLE REQUIREMENTS

Use a lifting vehicle with minimum 4600 lb. (2085 kg) lifting capacity.

CHAIN REQUIREMENTS

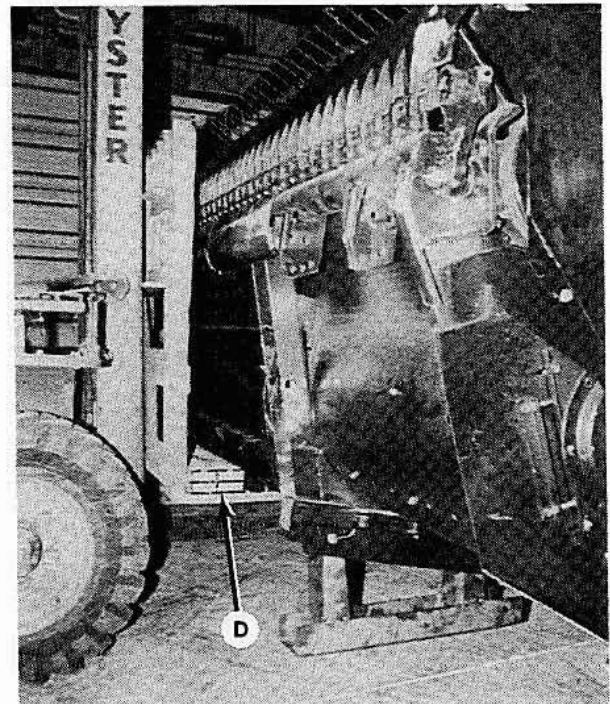
Use overhead lifting quality chain (1/2 in.) with minimum 5000 lb. (2270 kg) working load limit.

UNLOAD HEADER



CAUTION: Be sure header is secure on forks before moving away from load. Stand clear when lifting.

1. Drive lifting vehicle to position forks under frame tube and feed pan.
2. To prevent header from sliding back and contacting forklift mast, stack four 2 x 4's (two wide and two high) at rear of forks as shown at (D).
3. Remove hauler's tie down straps and chains.
4. Raise header and remove from trailer.
5. Take to storage or set-up area.
6. Set machine down securely on level ground, leaving forks in place. Check for shipping stand damage and damaged or missing parts.
7. Lower forks and back away from unit.
8. Remove any attachments wired under cutterbar.



UNLOAD HEADER

UNLOADING & ASSEMBLY

INSTALL SKID SHOES OR GAUGE ROLLERS

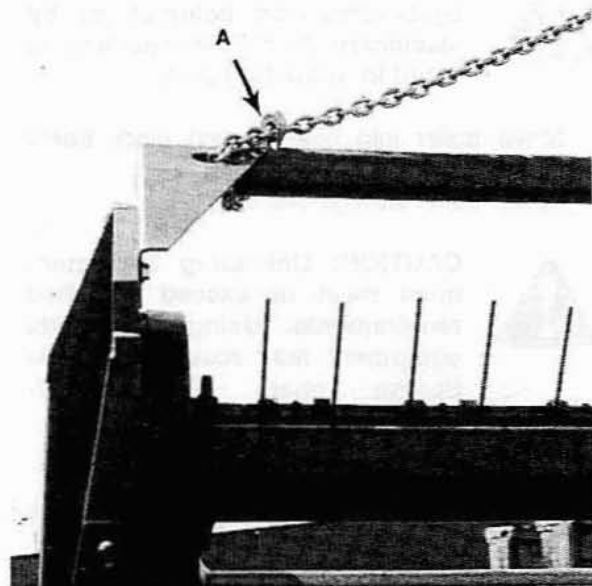
NOTE: Before lowering header, install either adjustable skid shoe or gauge roller option at cutterbar. Installation instructions are packaged with the option kit.

LOWER HEADER TO GROUND

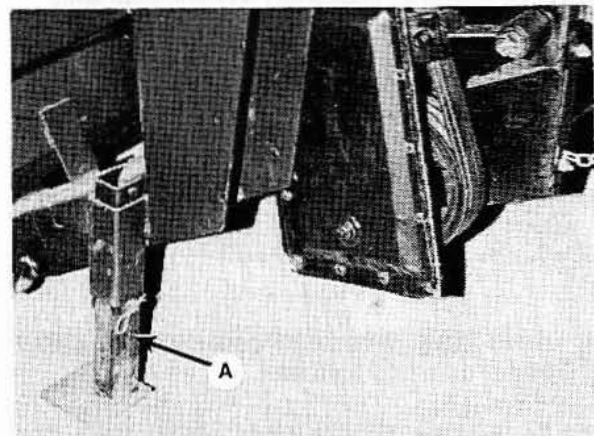
1. Drive lifting vehicle to approach header from its "underside".
2. Attach chain (A) to both ends of lean bar as shown.
IMPORTANT: See "Chain Requirements" in this section for minimum chain specifications. Also, chain length must be sufficient to provide a minimum 4 feet (1.2 m) vertical distance between forks and lean bar.
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.



LOWERING HEADER



HEADER STAND - LOWERED

SET HEADER SUPPORT STAND

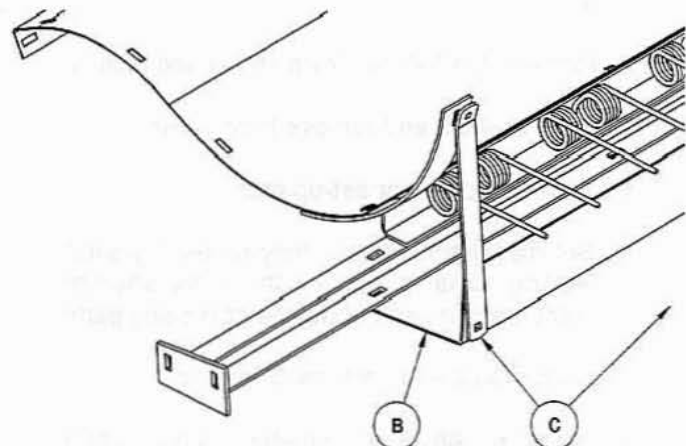
1. Remove chain and move lifting vehicle to rear of header.
2. Attach chain to center link anchor on frame tube, raise rear of header and lower header stand into position (A).
3. Lower header onto stand. Remove shipping stands.
4. Remove lift pan (B) and two vertical braces (C).

LEAN BAR

Lean bar is fully retracted for shipping. Reposition lean bar to an appropriate height. See "Lean Bar Position" in Operation section.

LIGHTS

Loosen light guard hardware and raise to upright position. Tighten light guard hardware securely.



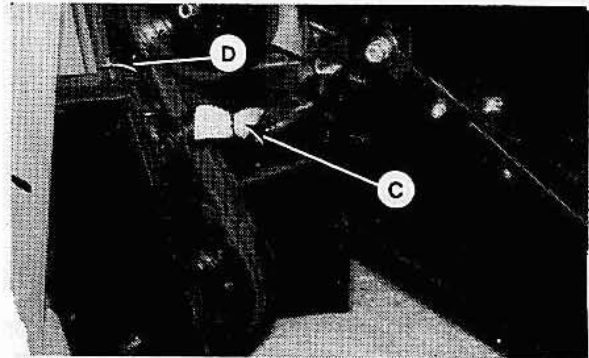
REMOVE LIFT PAN & BRACES

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UNLOADING & ASSEMBLY

INSTALL BREATHER IN DRIVE CASE

1. Untie plastic bag (C) and replace plug (D) in hay conditioner gear case with breather from bag.



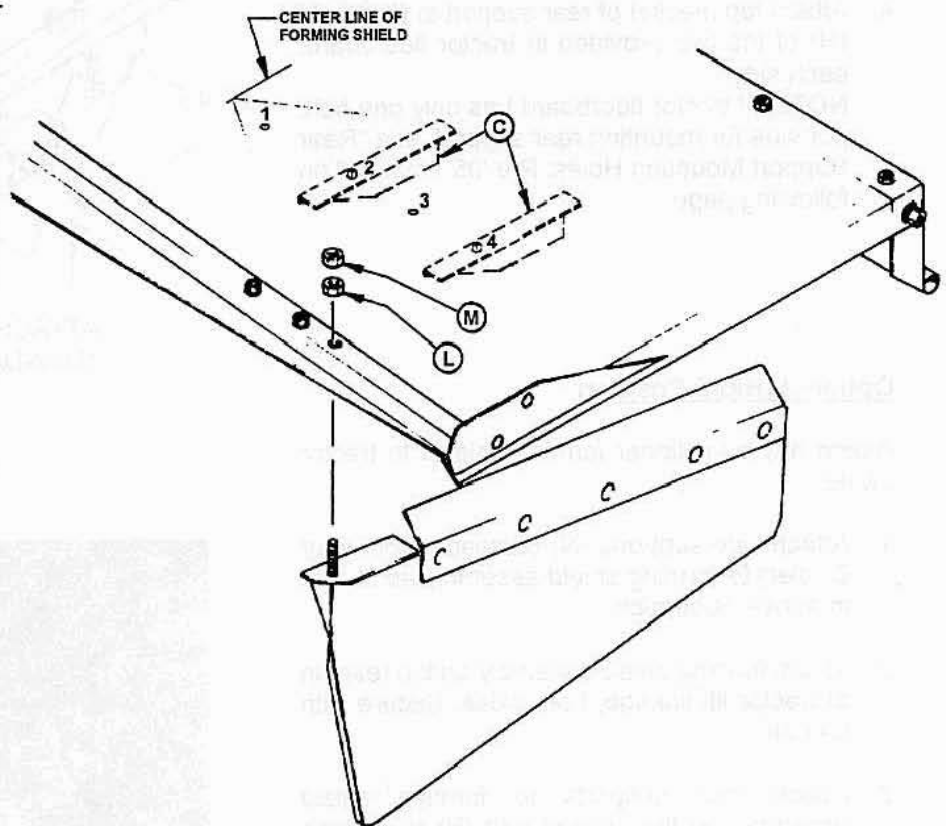
INSTALL BREATHER IN
CONDITIONER GEAR CASE

INSTALL SIDE DEFLECTORS AND FINS ON HAY CONDITIONER FORMING SHIELD ASSEMBLY

1. Insert threaded rod of side deflector through hole at front corner of top shield.

IMPORTANT: Do not confuse left and right side deflectors. The rod must be positioned to the inside of the forming shield assembly.

2. Install two 5/8 hex nuts (L) and (M) on threaded rod.
3. Tighten nut (L) to 100 ft.lbs. (135 N-m).
4. Hold nut (L) with a wrench and tighten nut (M) securely against nut (L).
5. For laying swaths wider than 6 feet (1830 mm), install deflector fins (C) in holes 2 & 4 on each side of forming shield center line. Position fins approximately parallel to side deflectors and tighten bolt securely.



INSTALL SIDE DEFLECTORS & FINS - HAY CONDITIONER FORMING SHIELDS

UNLOADING & ASSEMBLY

ATTACH HAY CONDITIONER FORMING SHIELDS

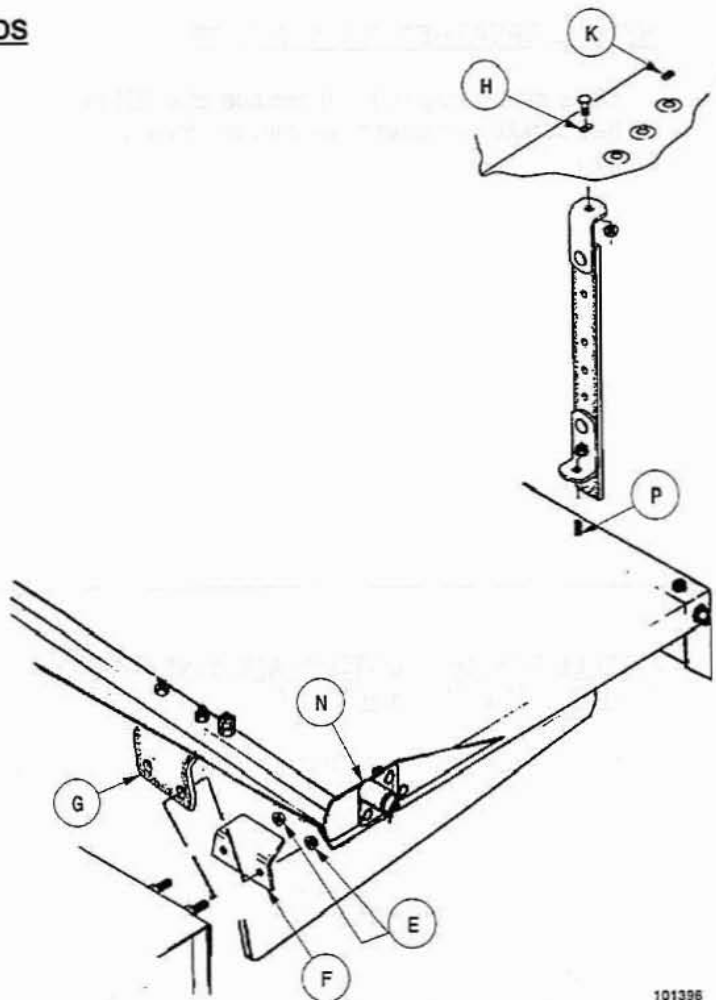
NOTE: If attaching header to a 9030 Bi-Directional Tractor, see Adapter Operator's Manual Supplement for instructions.

Standard (Low) Position

Attach hay conditioner forming shields to conditioner top cover:

1. Remove nuts (E) and front hinge support (F) at rear of hay conditioner, both sides.
2. Attach forming shield by positioning rubber hinges (G) on bolts at rear of hay conditioner, and reassembling support (F) and nuts (E) as shown.
3. Attach rear supports to forming shield assembly, at the second bolt (P) from each end as shown.
4. Attach top bracket of rear support to front hole (H) of the two provided in tractor floorboard, each side.

NOTE: If tractor floorboard has only one hole per side for mounting rear support, see "Rear Support Mounting Holes: Pre '95 Tractors" on following page.



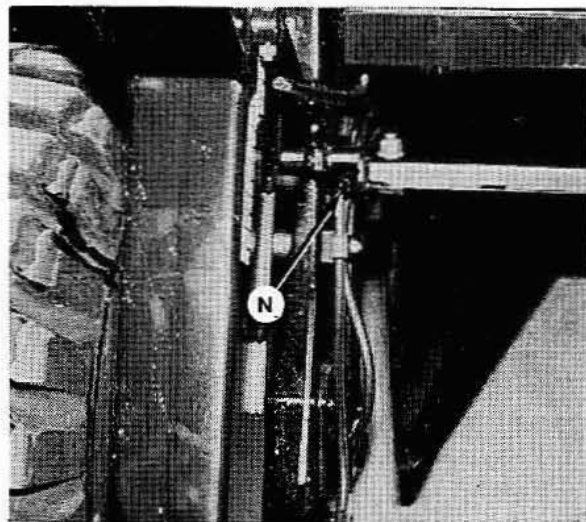
ATTACH FORMING SHIELDS -
STANDARD (LOW) POSITION

Optional (High) Position

Attach hay conditioner forming shields to tractor frame:

1. Attach side supports (N) (available from your Dealer) to forming shield assembly as shown in above illustration.
2. Mount forming shield assembly on top rear pin of tractor lift linkage, both sides. Secure with hair pin.
3. Attach rear supports to forming shield assembly, at the second bolt (P) from each end as shown in above illustration.
4. Attach top bracket of rear support to rear hole (K) of the two provided in tractor floorboard, each side. See above illustration.

NOTE: If tractor floorboard has only one hole per side for mounting rear support, see "Rear Support Mounting Holes: Pre '95 Tractors" on following page.



ATTACH FORMING SHIELDS -
OPTIONAL (HIGH) POSITION

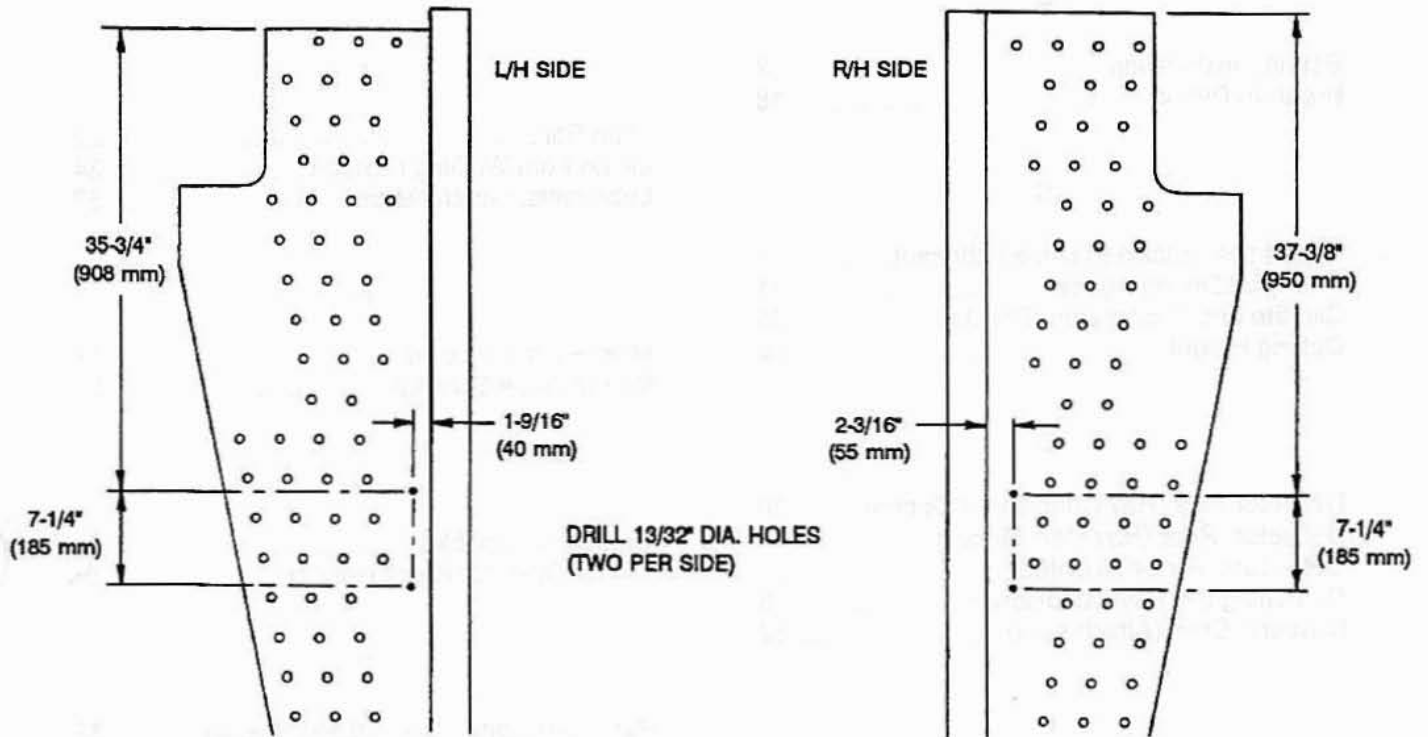
UNLOADING & ASSEMBLY

ATTACH HAY CONDITIONER FORMING SHIELDS (continued)

Rear Support Mounting Holes: Pre '95 Tractors

For tractors with serial number suffix "-94" or earlier, drill forming shield rear support mounting holes in tractor floorboards as shown below. Use front hole when front of shield is conditioner mounted. Use rear hole when front of shield is tractor mounted.

NOTE: The one hole provided in the floorboards of these units is improperly positioned for use with this forming shield support.

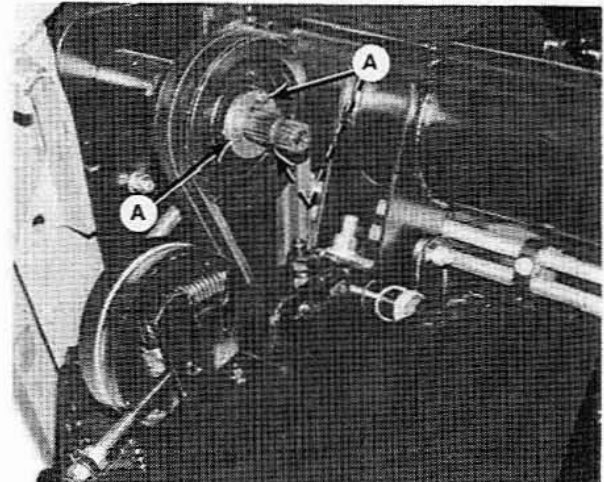


ADJUSTMENTS AND CHECKS

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: If hay conditioner is to be attached, install pulley on header drive shaft at left leg. When conditioner is attached, install belt and align pulleys, then tighten three bolts (A) to secure the position.

IMPORTANT: To avoid machine damage, before running header, check that no shipping dunnage has fallen down between the auger and feed pans.



ALIGN CONDITIONER DRIVE PULLEY

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Auger Header Pre-Delivery Checklist

Perform these checks and adjustments prior to delivery to your customer. See the Operator's Manual for adjustment details.



CAUTION: Carefully follow the instructions given. Be alert for safety related messages which bring your attention to hazards and unsafe practices.

HEADER: Serial Number _____

- ☐ Check for shipping damage or missing parts. Be sure all shipping dunnage is removed.
- ☐ Check tension of sickle drive belt(s) and auger drive belt.
- ☐ Check header flotation. (100 lbs. [445 N])
- ☐ Check that header is level.
- ☐ Grease all bearings and driveline(s).
- ☐ Check wobble box(es) lube level.
- ☐ Check skid shoes / gauge wheels are evenly adjusted at a setting appropriate for first crop.
- ☐ Run machine for 15 minutes, STOP ENGINE and check drives for belt/idler alignment and heated bearings. Check sickle sections for discolouration caused by misalignment of components.
- ☐ Check hydraulic hose and wiring harness routing, ensuring adequate clearance with header up or down.
- ☐ Check lights are functional.

HAY CONDITIONER: Serial Number _____

- ☐ Grease all bearings
- ☐ Check conditioner gear case lube level.
- ☐ Install breather in gear case.
- ☐ Align conditioner drive pulley on header drive shaft and check conditioner drive belt tension.
- ☐ Adjust forming shields to position suitable for conditions.
- ☐ Check roll spacing hardware is securely tightened.

Date Checked: _____

Checked by: _____

MacDon

The Quiet Leader