PETER PINGATORE

B2215

1992

MacDon

900 Series Headers to Model 7000 Windrower Tractor

ADAPTER SUPPLEMENT

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900 Series Headers to 7000 Tractor
Adapter Supplement

This supplement is to be used in conjunction with the Operator's Manuals for the 900 Series Header and the Model 7000 Windrower Tractor. The supplement contains only information related specifically to the coupling of a 900 series header with a Model 7000 Tractor. Contact your dealer if you need copies of the Operator's Manuals.

Table of Contents

PREPARING THE TRACTOR

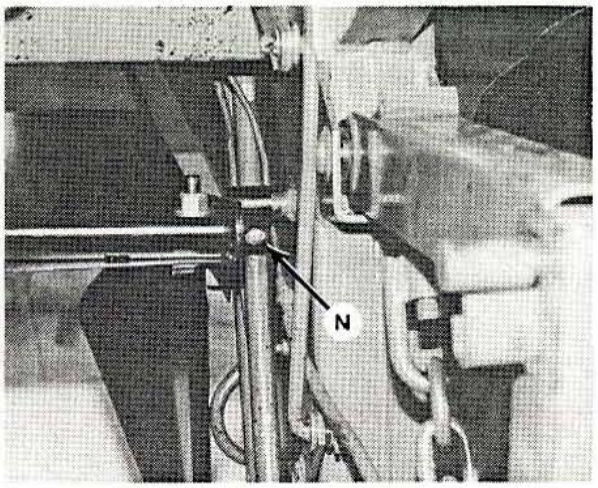
1. Attach auxiliary float springs, following instructions packaged with float spring kit.

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

   Up to six tractor weights totalling 450 lbs. (205 kg) can be added to the weight bar. See 7000 Tractor Manual for instructions regarding addition of weights.

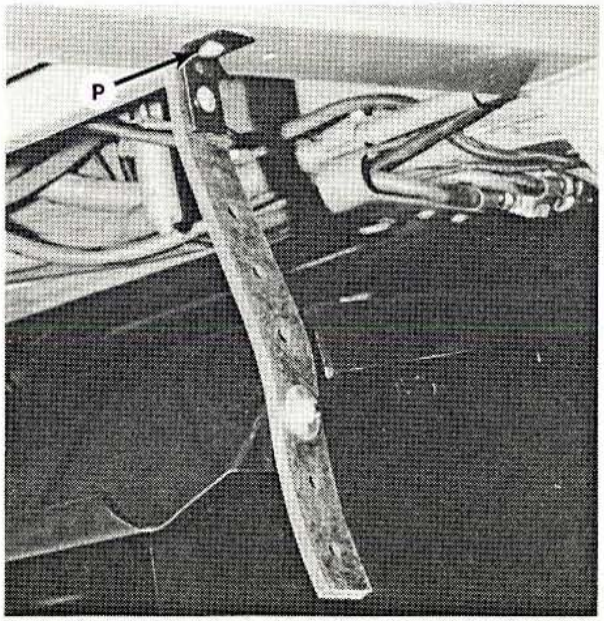
3. If auger header with hay conditioner is to be attached, install forming shields on tractor frame as follows:

   - Attach front of forming shield assembly to pins at left and right tractor legs. Secure with 3/8 x 2 inch carriage bolt and nut (N).



ATTACH FORMING SHIELDS - FRONT
(AUGER HEADER HAY CONDITIONER)

   - Attach rear of forming shield assembly to tractor frame both sides. Secure with 3/8 x 3/4 inch carriage bolt and nut at (P).

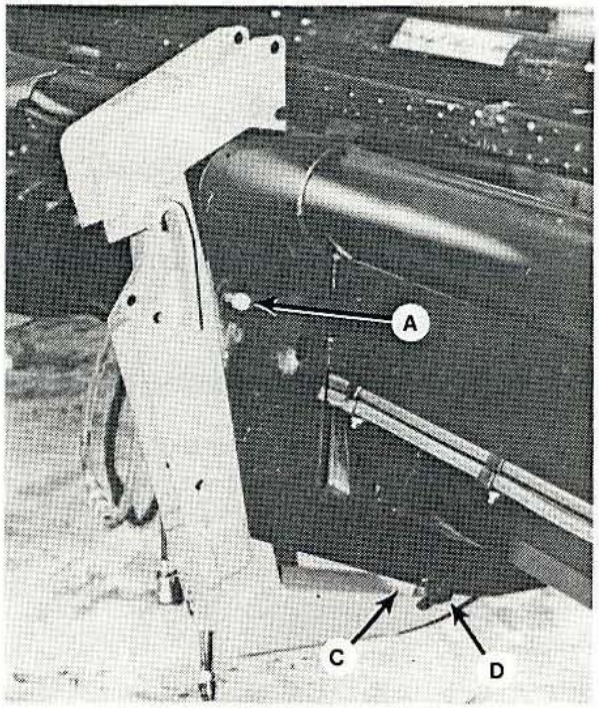


ATTACH FORMING SHIELDS - REAR
(AUGER HEADER HAY CONDITIONER)

PREPARING THE HEADER

Auger and Multi-Crop Headers

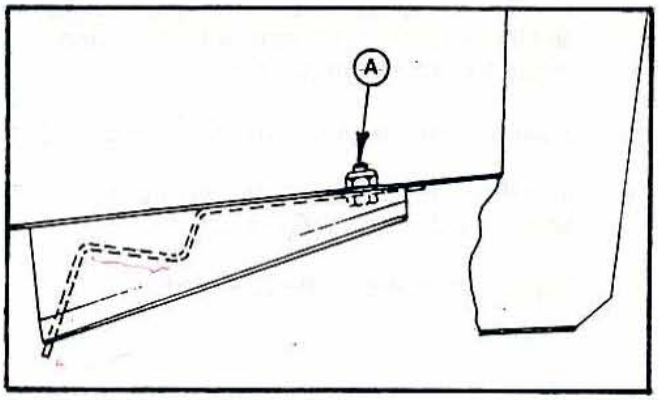
1. Bolt linkage adapter to header leg at (A).
2. Install "L" pin through header leg, engaging U-bracket (C) of adapter. Secure pin behind keeper lug (D).
3. Repeat steps **1** and 2 at the other leg.



ATTACH LINKAGE ADAPTER:
AUGER & MULTI-CROP HEADERS

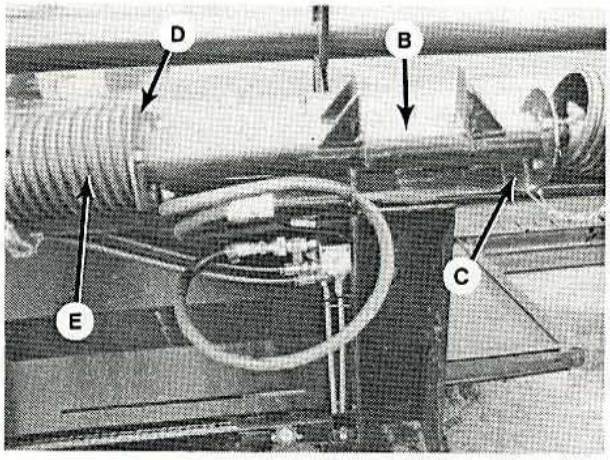
Harvest Header

1. Attach lift linkage supports to lower header legs with 5/8 locknut at (A).



ATTACH LINKAGE SUPPORTS TO HEADER LEGS:
HARVEST HEADER

2. Attach connector shaft assembly (B) to header back tube as follows:
   - With carriage bolt and nut installed loosely in plate (C) of shaft assembly, engage head of carriage bolt in key-hole slot in header back tube near left leg.
   - Holding left side of shaft assembly slightly away from tube, slide shaft assembly to the left, so bolt enters narrow section of key-hole slot and plate (D) aligns with outboard side of lug welded to header back tube.
   - Fasten plate (D) to lug with two 3/8 x 1 carriage head bolts and flange locknuts.
   - Tighten nut to secure shaft assembly at plate (C).
3. Attach header driveline to outboard end of connector shaft at (E). (Pull back yoke collar, slide onto spline shaft, release collar.)



INSTALL CONNECTOR SHAFT AND
ATTACH DRIVELINE

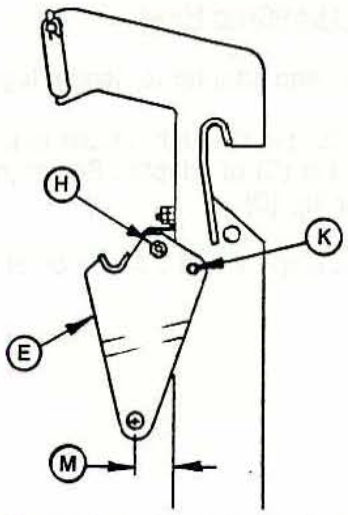
PREPARING THE HEADER

Harvest Header (continued)

4. Bolt bracket (E) to linkage adapter.

   NOTE: Attach at hole (H) for flatter cutterbar angle, or hole (K) for steeper cutterbar angle. See "Cutterbar Angle", page 12, for benefits of each setting.

   - If using hole (H), set dimension (M) to 2 5/8" (66 mm).
   - If using hole (K), set dimension (M) to 4" (102 mm).



POSITION BRACKET ON LINKAGE ADAPTER: HARVEST HEADER

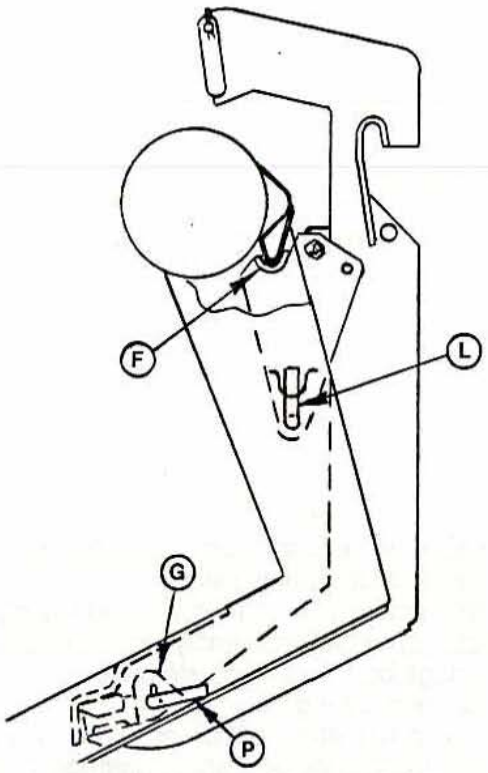
5. Position adapter so that bracket properly cradles header at top end (F). Install top "L" pin (L) through header leg and bracket.

   NOTE: Rotate pin to align roll pin with key slot for installation and removal. Roll pin locks inside to secure the position.

   Position retainer as shown to secure pin (L).

6. Install bottom "L" pin (P) through header leg, engaging U-bracket (G) of adapter.

7. Repeat steps 4-6 at the other leg.



ATTACH LINKAGE ADAPTER: HARVEST HEADER

8. To prevent improper mixing of oils, if header is to be switched back and forth from combine to windrower, change oil in windrower hydraulic system to match combine hydraulic system. See 7000 Tractor Operator's Manual for oil change procedure.

ATTACHING THE HEADER

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

NOTE: For Harvest Headers with gauge wheels, instructions under "Attaching" and "Detaching the Header" which refer to the "header stand" do not apply. Use the "stand" position of the gauge wheels to support rear of header. All gauge wheel positions are identified on a decal located at each gauge wheel. Be sure to reposition gauge wheels to field position before operating.

1. **NOTE:** Choose an area that is as level as possible.

   Set header stand (A) in the down position on a 2 to 3 inch (50 to 75 mm) block and block cutterbar (both ends) as noted below:
   Auger Header - 6 inch (150 mm)
   Multi-Crop Header - 8 inch (200 mm)
   Harvest Header - 8 inch (200 mm)

   NOTE: Height of blocks required may vary with ground contours.

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

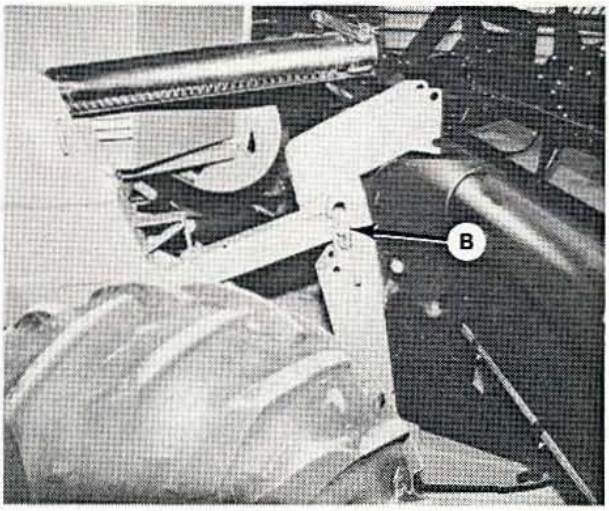
3. Tap the heel of header lift pedal to slowly raise linkage pins (B) into lugs on header adapter.

   NOTE: If bottom of linkage pushes header forward before pins engage in lugs, increase the height of the cutterbar blocks.

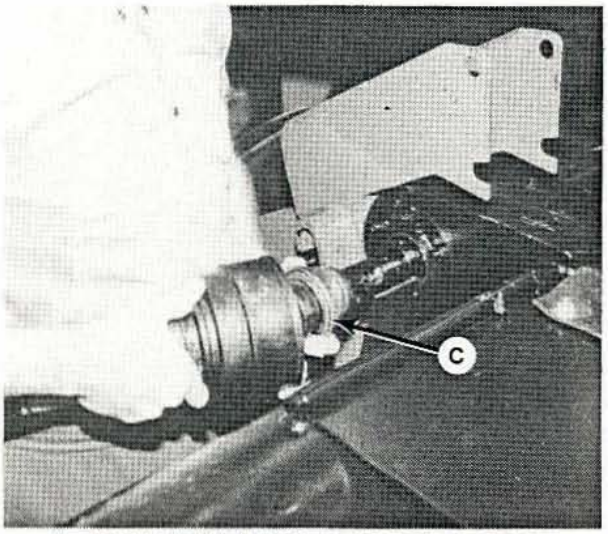
4. When pins are properly engaged, stop engine and remove key from ignition.

5. Connect driveline to header shaft as follows: Pull back spring loaded collar (C) on driveline yoke and slide yoke onto header shaft. Release collar, ensuring yoke locks in position on shaft.

BLOCK CUTTERBAR AND STAND



ENGAGE LIFT LINKAGE

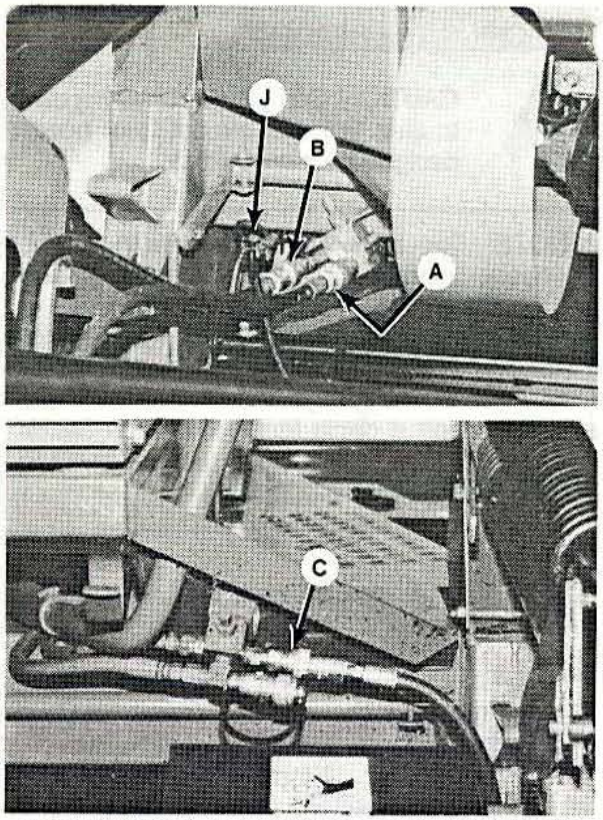


ATTACH DRIVELINE TO HEADER SHAFT

ATTACHING THE HEADER (continued)

6. Hydraulic Connections:

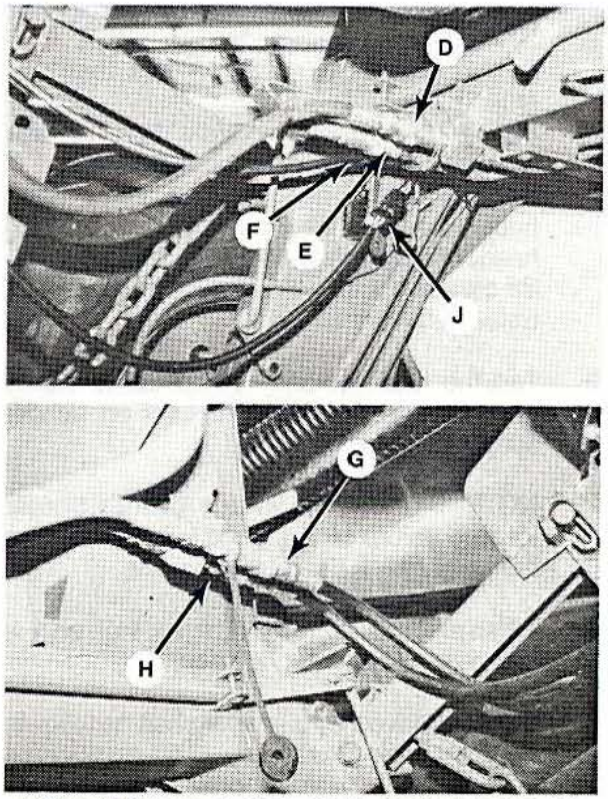
   Auger Header: Two connections (A) and (B) are made at the tractor right hand leg. One connection (C) is made at the tractor left hand leg.



HYDRAULIC & ELECTRICAL CONNECTIONS
AUGER HEADER

   Multi-Crop and Harvest Headers: Three connections (D), (E) and (F) are made at the tractor right hand leg. Two connections (G) and (H) are made at the tractor left hand leg.

7. Connect the electrical wiring harness (J).

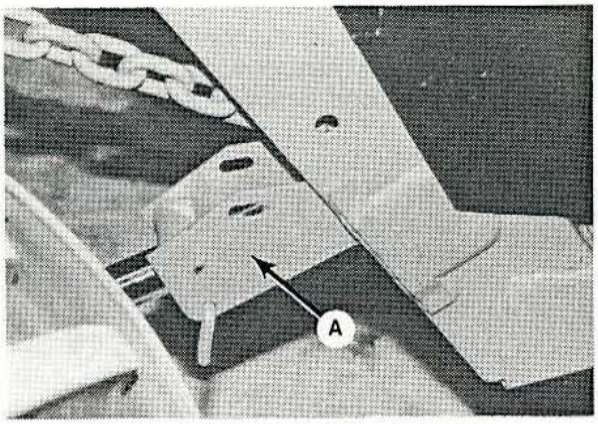


HYDRAULIC & ELECTRICAL CONNECTIONS
MULTI-CROP & HARVEST HEADERS

ATTACHING THE HEADER (continued)

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

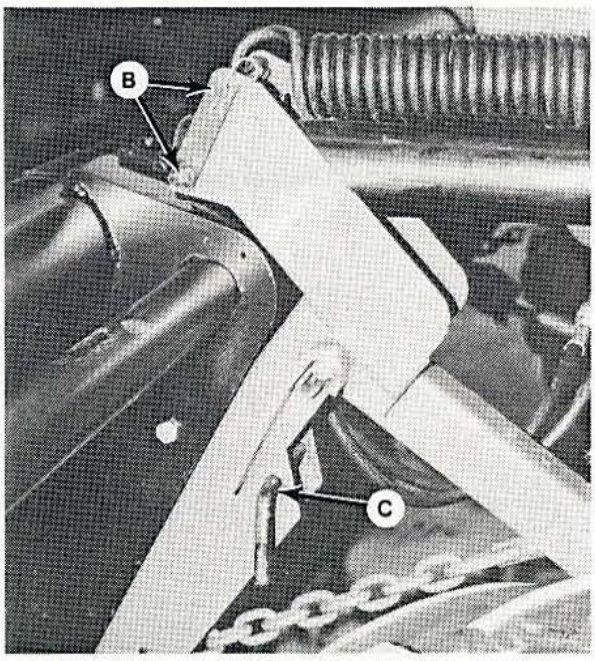
9. **DANGER: To avoid bodily injury from fall of raised header, always engage header lift cylinder stops (A) when working on or around raised header.**



ENGAGE LIFT CYLINDER STOPS

10. Remove pins supporting float springs at tractor anchors. Attach float springs to adapter anchors with two spring retainer pins (B) and hair pins (both sides).

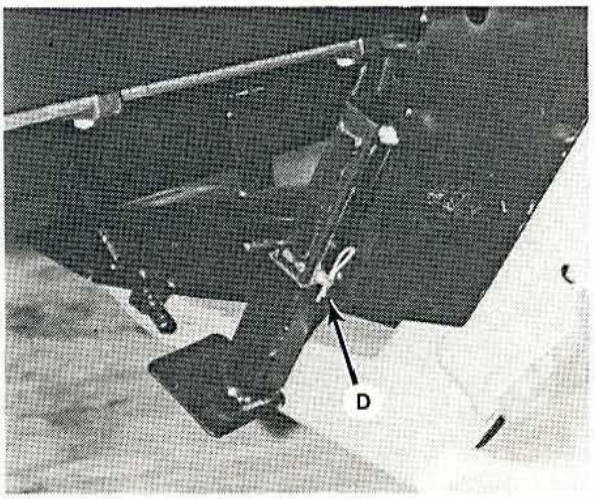
11. Secure lift linkage to adapter leg with retainer pin (C) and hair pin (both sides).



INSTALL SPRINGS & RETAINER PINS

12. Raise header stand to storage position (D).

13. Disengage header lift cylinder stops and lower header to ground. Check header flotation and adjust if required. See "Header Flotation" in this Supplement.

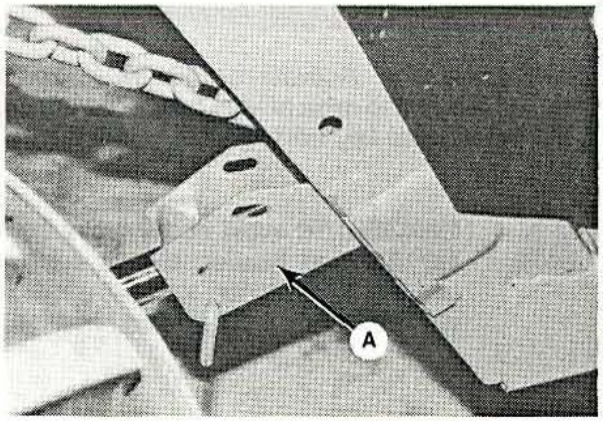


HEADER STAND - STORAGE POSITION

DETACHING THE HEADER

1. Activate header lift cylinders (extreme right pedal) to raise header fully. Lower the reel. Stop engine and remove key.

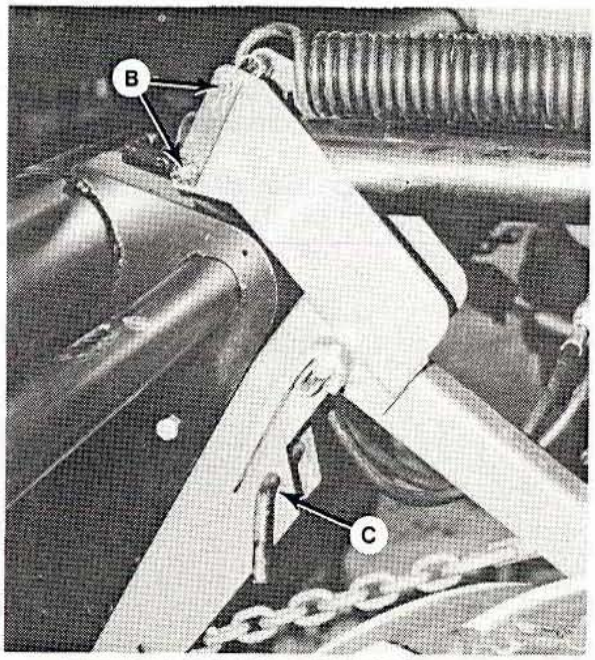
2. **DANGER: To avoid bodily injury from fall of raised header, always engage header lift cylinder stops (A) when working on or around raised header.**



ENGAGE LIFT CYLINDER STOPS

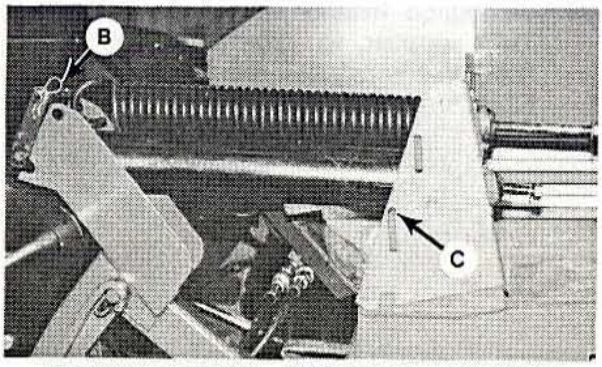
3. Release float springs from adapter anchor by removing spring retainer pins (B) (both sides).

4. Remove header retainer pin (C) from adapter leg (both sides).



DETACH SPRINGS & REMOVE PINS

5. Raise float springs to storage position, supporting with header retainer pin (C). Replace spring retainer springs (B) in float springs.



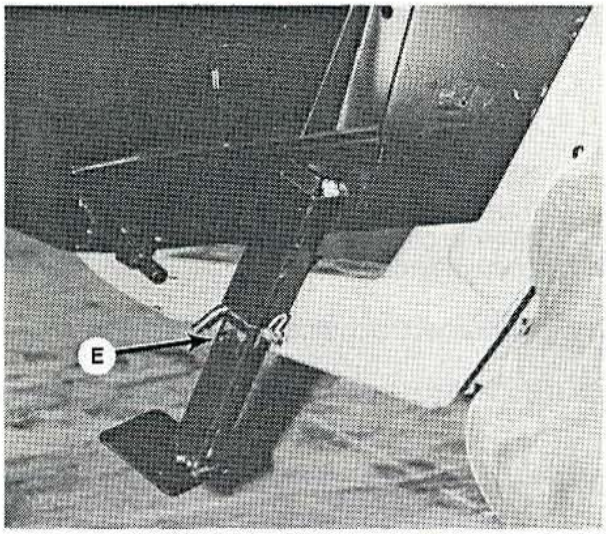
FLOAT SPRINGS - STORAGE POSITION

DETACHING THE HEADER (continued)

6. Lower header stand into position (E).

7. Set a 2 to 3" (50 to 75 mm) block under header stand and blocks under both ends of cutterbar as noted below:
   Auger Header - 6 inch (150 mm)
   Multi-Crop Header - 8 inch (200 mm)
   Harvest Header - 8 inch (200 mm)

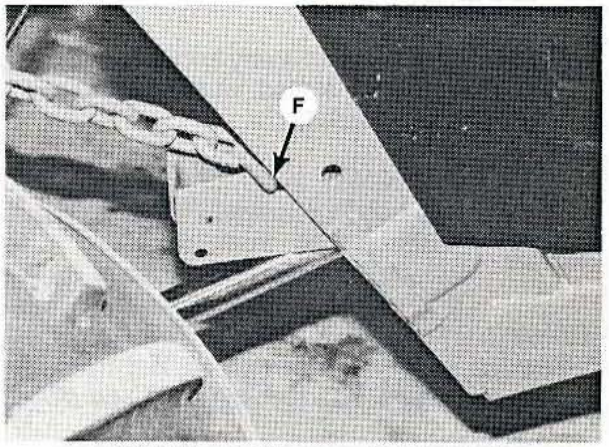
CAUTION: for best stability, place blocks as close as possible to each end of the header (maximum 2 ft. [600 mm]).



LOWER HEADER STAND

8. Raise header lift cylinder stops to storage position (F).

9. Be sure area is clear of bystanders, then start engine. Retract lift cylinders to lower header onto the blocks. Stop engine and remove key from ignition.



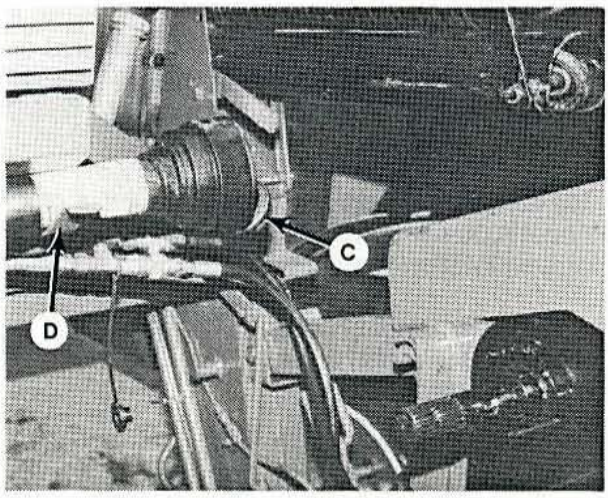
CYLINDER STOPS - STORAGE

10.

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

Disconnect driveline from header shaft as follows: Pull back spring loaded collar (C) on driveline yoke and remove yoke from header shaft.

Store driveline on tractor at support (D).



DETACH AND STORE DRIVELINE

DETACHING THE HEADER (continued)

11. Disconnect hydraulic hoses at quick couplers at tractor right and left legs.

    IMPORTANT: Where possible, connect header hoses to each other for storage. Plug or cap all other couplers to prevent hydraulic system contamination.

12. Disconnect electrical wiring harness.

NOTE: If Multi-Crop Header Hay Conditioner is installed, detach support chain from tractor frame.

13. Start engine and hold the header lift pedal in the down position while using the variable ground speed lever to slowly rock tractor back and forth. This will fully retract cylinders and linkage pins will disengage lugs on header adapter.

14. Slowly back tractor away from header. If hay conditioner is installed, watch clearances at left and right sides.

WARNING: Avoid driving the tractor with header removed. Removing header shifts weight from controlled drive wheels to uncontrolled casters, leaving the machine less stable and more difficult to control. If necessary to drive tractor with header removed, do not exceed half maximum engine speed and avoid loose gravel and slopes.

HEADER CONTROLS

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

See the "Instruments and Controls" section of the Model 7000 Windrower Tractor Operator's Manual for identification of in-cab controls for:

- Header Drive Clutch
- Header Height
- Reel Height
- Reel Speed
- Conveyor Speed

NOTE: For triple delivery Harvest Headers, a deck shift switch must be mounted to the side console. Mounting and operating instructions are packaged with the switch.

HEADER LIFT CYLINDER STOPS

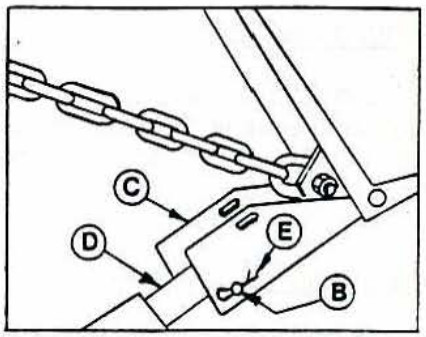
DANGER: To avoid bodily injury or death from fall of raised header, always engage cylinder stops before going under header for any reason.

Cylinder stops are located on both header lift cylinders on the windrower.

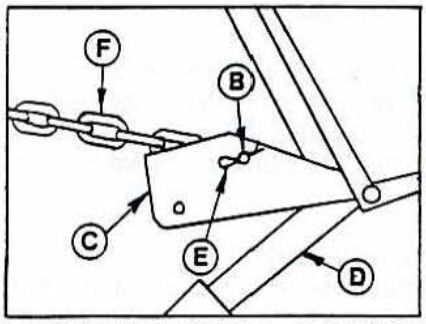
To engage cylinder stops:

1. Raise header to maximum height.
2. Pull pin (B) and position stop (C) over cylinder rod (D). Install pin (B) through hole in stop, under cylinder rod. Secure with hairpin (E).

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



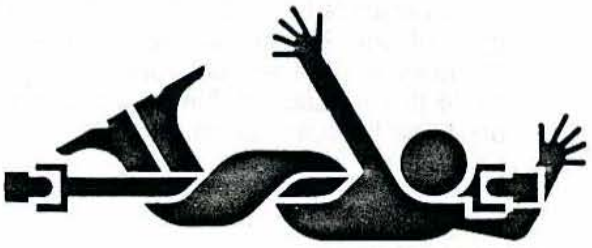
LIFT CYLINDER STOP-ENGAGED



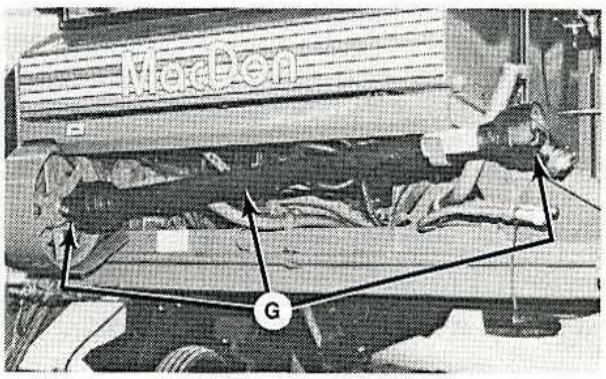
LIFT CYLINDER STOP - STORAGE

HEADER DRIVELINE

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


STAY CLEAR OF ROTATING DRIVELINES

Grease three fittings (G) on driveline every 10 hours or daily.



HEADER DRIVELINE

CUTTERBAR ANGLE

A flatter cutterbar angle is recommended for normal conditions. A flatter angle reduces sickle section breakage and reduces soil scooping or build-up at the cutterbar in wet conditions. Use a steeper angle to cut very close to the ground and for better lifting action of down crops. Choose an angle that maximizes performance for your crop and field conditions.

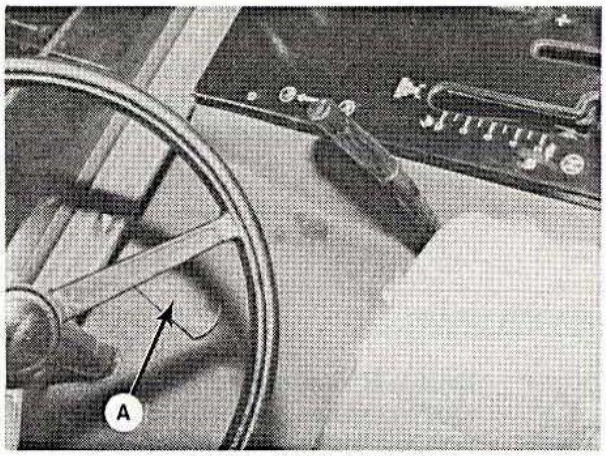
Auger and Multi-Crop Headers

When cutting on the ground, the guard or cutterbar angle can be varied from 8° to 11° below horizontal.

IMPORTANT: The cutterbar angle is adjustable "on-the-go" from the operator's position. Familiarize yourself with how the header reacts during this adjustment to take full benefit of the feature.

To adjust cutterbar angle:

1. Lower header by depressing toe of header lift pedal (A) until cutterbar just touches ground. At this point cutterbar is at the flattest guard angle (approximately 8° below horizontal).
2. If a steeper guard angle is desired, continue depressing toe of pedal. This will steepen the guard angle until lift cylinders are fully retracted, providing a guard angle of approximately 11° below horizontal.
3. To adjust angle from steeper to flatter, tap the heel of the header lift pedal to extend cylinders a small amount. Once the flattest angle (8°) is reached, further activating the pedal will lift cutterbar off ground.

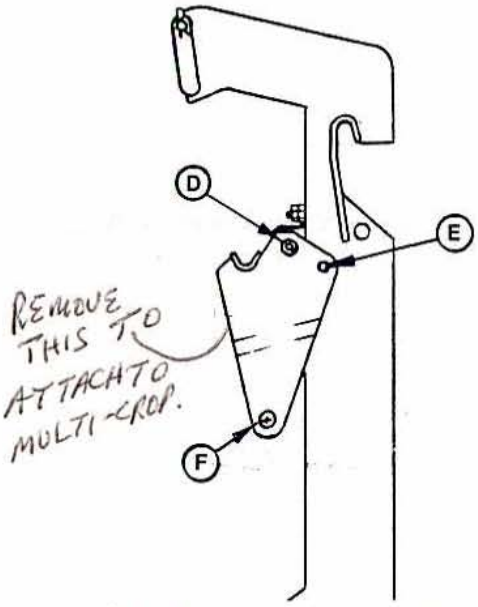


CUTTERBAR ANGLE
AUGER & MULTI-CROP HEADERS

Harvest Header

The cutterbar angle can be set at either 10° or 13° below horizontal. The adjustment is made at the adapter between header leg and tractor linkage, and is shipped in the flatter (10°) setting. Besides the benefits of flatter and steeper angles listed above, draper angle (also affected by this adjustment) will affect windrow formation. Steeper draper angles tend to form herringbone or dovetail windrows, while flatter draper angles form parallel or fantail windrows.

To adjust cutterbar angle, install bolt securing bracket to bushing assembly at hole (D) for flatter angle, or hole (E) for steeper angle. Align hole (F) with hole in header leg and tighten bolt.



CUTTERBAR ANGLE - HARVEST HEADER

HEADER FLOTATION

The following suggested header float settings are a starting point for normal conditions. Your specific requirements and conditions may require heavier or lighter float.

Force required to lift the cutterbar off ground at each end of the header

Auger Header:	100 to 120 lbs. (445 to 535 N)
Multi-Crop Header:	75 to 100 lbs. (335 to 445 N)
Harvest Header:	50 to 75 lbs. (225 to 335 N)

Benefits of lighter float settings:

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

Benefits of heavier float settings:

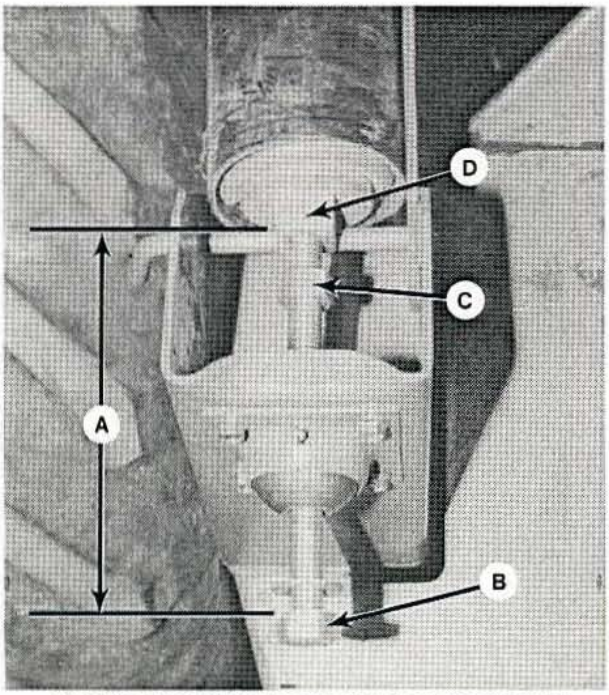
1. When cutting very close to the ground, enables cutterbar to follow ground contours.

To adjust header float:

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

NOTE: When auxiliary float spring is installed, turn main spring drawbolt fully into spring and adjust flotation with auxiliary spring.

1. Choose a level area and raise header fully.
2. Back nut (C) away from spring.
3. Turn spring drawbolt (B) clockwise to increase float (which makes header lighter when lowered to ground).
   Turn bolt counter-clockwise to decrease float (which makes header heavier when lowered).
4. Tighten nut (C) against spring insert (D) to lock the position.
5. Lower header until cutterbar just touches the ground and check float at both divider rods. Force required to lift cutterbar should be approximately the same at both ends.



FLOAT SPRING TENSION ADJUSTMENT

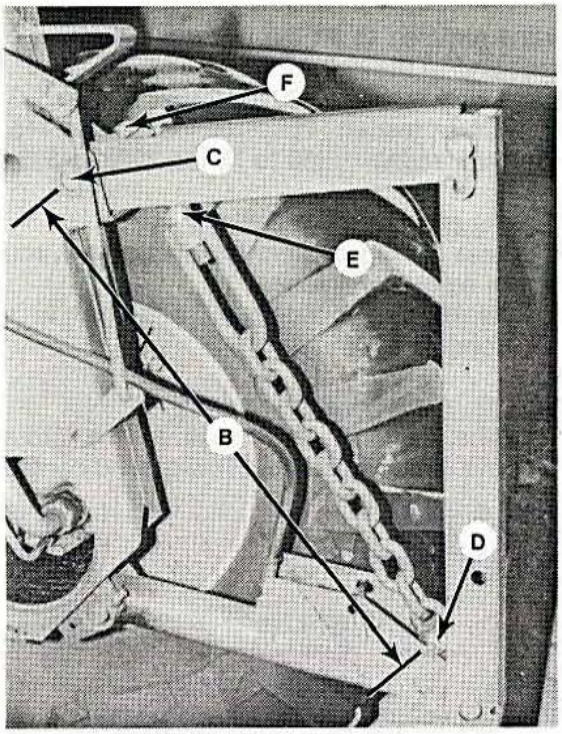
HEADER LEVELLING

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

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

To adjust chain length:

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



HEADER LEVELLING

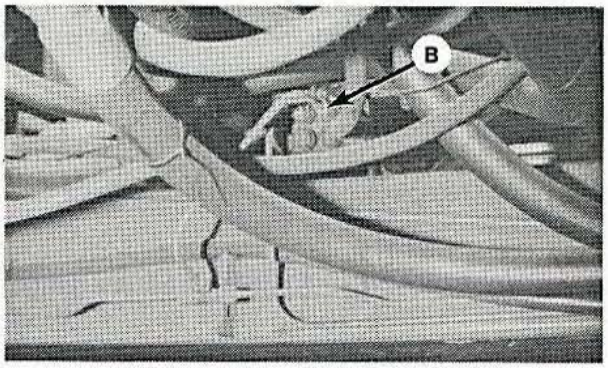
HEADER LIFT CONTROL VALVE: DROP RATE

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

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

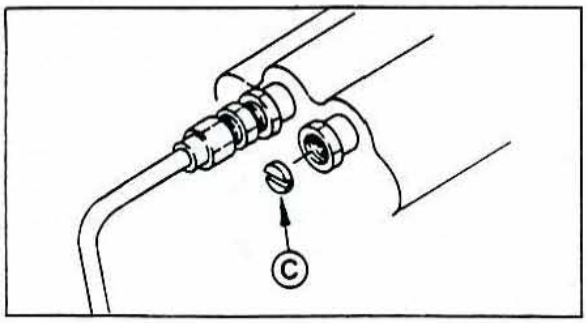
DANGER: To avoid bodily injury or death from fall of raised header, LOWER HEADER TO GROUND, shut off engine and remove key before removing hydraulic line.

1. Remove hydraulic line and male connector from port (B) at rear of valve.



LOCATE HEADER LIFT PORT - REAR OF VALVE

2. Remove hexagonal orifice plate (C) from the port.
3. Reinstall male connector and hydraulic line.



REMOVE ORIFICE PLATE

HEADER LIFT CONTROL VALVE: RELIEF PRESSURE

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

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

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

To check and adjust relief pressure:

1. Lower header to ground, shut off engine and remove key from ignition.

2. Attach a 3000 psi (20 MPa) pressure gauge (A) to the reel lift line quick coupler (B) at tractor right hand leg. Position gauge so it can be read from the operator's seat.

3 a. Start engine as described in Windrower Tractor Operator's Manual.

b. Move throttle lever fully forward.

c. Depress heel of reel lift pedal and check pressure reading on gauge. Pressure should be 2300 to 2400 psi (15.8 to 16.5 MPa). If pressure is too low, proceed with steps d. to f.

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

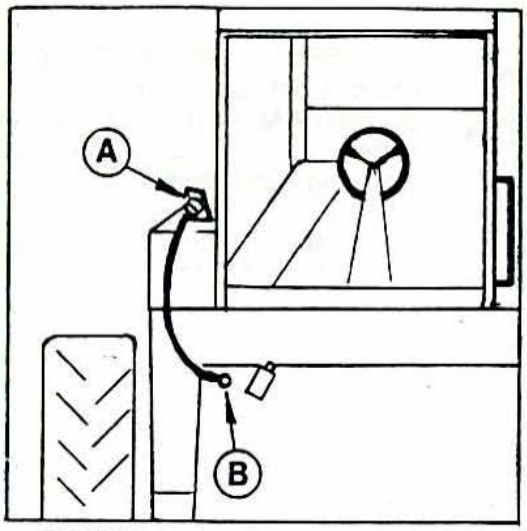
d. Shut off engine and remove key from ignition.

e. Loosen jam nut (C) and turn adjuster (D) 1/8 turn inward.

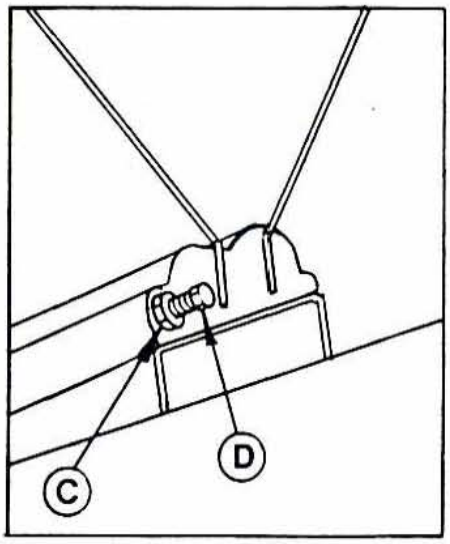
f. Tighten jam nut.

g. Check relief pressure (steps a, b, c).

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



PRESSURE GAUGE ATTACHMENT



CONTROL VALVE
RELIEF PRESSURE ADJUSTMENT

REEL & CONVEYOR DRIVE RELIEF VALVES

Should problems be encountered with one of the header hydraulic circuits, check relief pressures as follows:

NOTE: For Auger Header, flow from both valves (C) and (D) is combined for reel circuit pressure.

To check relief pressure at reel circuit relief valve (C) or conveyor circuit relief valve (D):

1. Attach a 3000 psi (20 MPa) pressure gauge to a hose that is long enough to allow pressure gauge to be read from the operator's seat.
   For reel circuit valve (C): Attach pressure gauge hose to female coupler (E) at the relief valve and position the gauge near the seat.
   For conveyor circuit valve (D): Attach pressure gauge hose to male coupler (F) at the relief valve and position the gauge near the seat.

2. Start engine and move throttle lever to half of maximum engine speed. Move header clutch lever forward to engaged position.

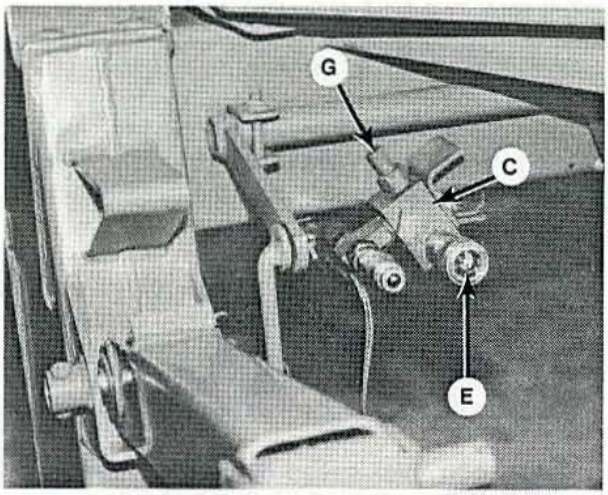
3. Pressure should be 1900 psi (13.1 MPa)

   If pressure is not as specified, proceed with adjustment:

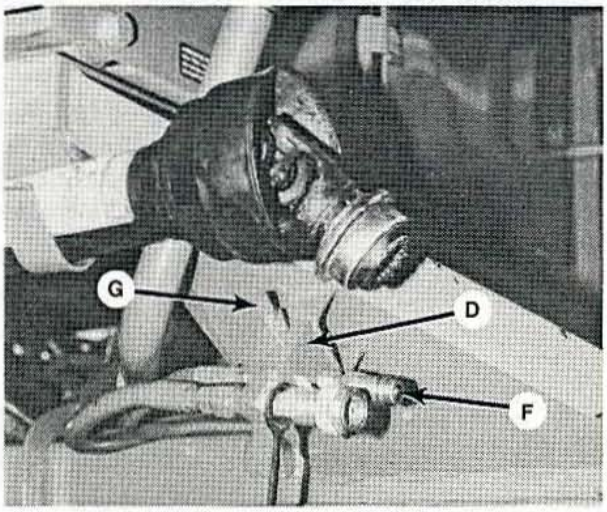
4. Move header clutch lever rearward to disengaged position. Shut off engine and remove key.

5. To adjust relief setting:
   - Remove cap nut (G).
   - Using a 3/16 inch hex head socket wrench turn the adjustment screw clockwise to increase pressure, counter-clockwise to decrease.

   NOTE: 1/4 turn of adjustment screw = 150 psi (1 MPa) change in pressure.



REEL CIRCUIT RELIEF VALVE



CONVEYOR CIRCUIT RELIEF VALVE

CONVEYOR SPEED CONTROL VALVE: LINKAGE ADJUSTMENT

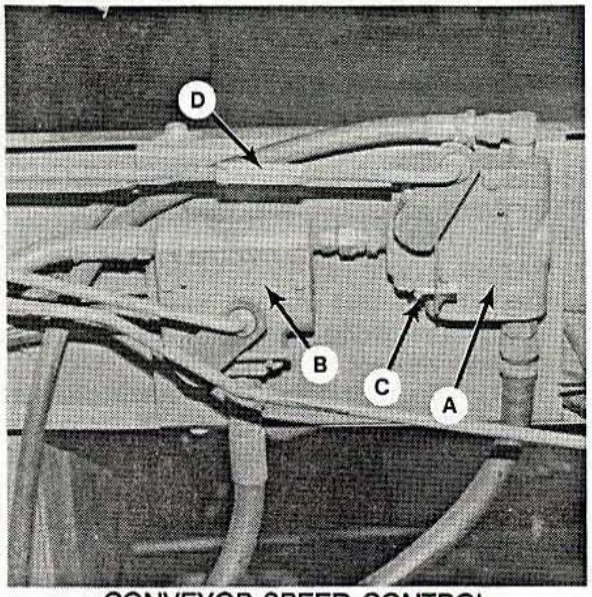
Harvest Headers and Multi-Crop Headers

The linkage of the conveyor speed control valve (A) is factory adjusted so that the head of the stop bolt contacts the lower stop pin when the control lever in the cab is stroked fully forward. This provides maximum flow of approximately 6 US gallons per minute (gpm) to the conveyor motors. (Conveyors are drapers in the case of a Harvest Header and double augers in the case of a Multi-Crop Header.)

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

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

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



CONVEYOR SPEED CONTROL LINKAGE ADJUSTMENT

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