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RXvs Shelbourne Header

OPERATORS MANUAL

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THE QUEEN'S AWARD FOR TECHNOLOGICAL ACHIEVEMENT 1992

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OPERATORS MANUAL

CONTENTS

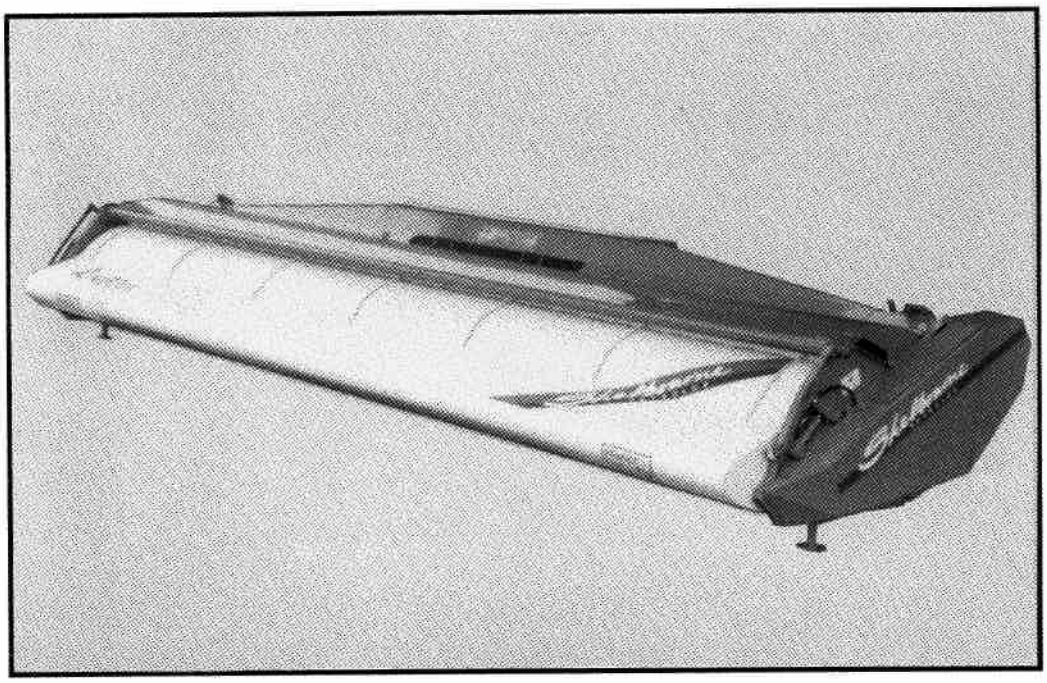
SECTION 1 INTRODUCTION

1.1

FOREWORD

This manual will assist the operator in setting the ***RXvs*** and ***CXvs*** *Shelbourne* Header and combine combination to give optimum throughputs and loss levels in particular crops and field conditions when used in conjunction with the combine manufacturers operators manual.

The *Shelbourne* Header has been successfully tested in a wide range of crops and crop conditions in terms of throughput and crop recovery with a *Shelbourne* Header and combine combination, when compared against a conventional cutterbar and combine combination of similar size in the same crop and conditions.



PATENTS

The ***RXvs*** and ***CXvs*** *Shelbourne* Header (***v***ari-***s***peed) is protected by world-wide Patents:

PCT/GB/85/00442 and others.

1.2

IMPROVEMENTS AND CHANGES

Shelbourne Reynolds Engineering are continually improving their products to meet the farmers needs and therefore reserve the right to make improvements and changes when practical to do so, without incurring any obligation to make changes and additions to equipment which has been sold previously.

1.3

SERVICE PARTS

Use guaranteed and genuine Shelbourne Reynolds Engineering service parts on Shelbourne Reynolds machinery to ensure maximum life and best performance. These are available through your Shelbourne Reynolds Engineering dealer.

When ordering service parts always quote the model, serial number and machine number.

1.4

MACHINE IDENTIFICATION

The serial and machine numbers of the *Shelbourne* Header are located on the top right hand corner of the machine.

The machine number of the adapter plate is located on the top right hand corner of the adapter plate.

1.5

SHELBOURNE REYNOLDS ENGINEERING LTD - WARRANTY TERMS AND CONDITIONS TO THE PURCHASER

GENERAL

1. This warranty will become available to you when you have paid for the equipment and returned, duly completed, the delivery and warranty registration forms. It will expire on the anniversary of purchase from the dealer. After that date Shelbourne Reynolds will have no further liability under this warranty to you except in respect of claims already notified. This warranty is not transferable and is available only to the original purchaser from our dealer. In the case of purchasers having leasing or similar arrangements the first user shall be deemed the original purchaser and you shall be deemed to have paid for the equipment.

USE AND MAINTENANCE

2. To maintain the benefit of the warranty throughout the twelve month period you must have the machine serviced in accordance with our recommendations and use the machine properly. If on inspection the machine appears to have been either misused, overloaded, improperly operated, neglected, not properly maintained, altered or repaired without our consent this will invalidate the warranty. We shall have no further liability under it to you at all. (If you require any guidance as to use you should contact the dealer.)

3. Our liability under this warranty is dependent upon your making the equipment and facilities available, for inspection and testing.

4. In this warranty the expression, "defective product" means any part of the equipment you have purchased which shows evidence of a defect in the materials, design (due regard being given for the state of the art at the time we designed it) or Shelbourne Reynolds' workmanship. Wearing parts, such as belting, are excluded. Parts not manufactured by Shelbourne Reynolds, for example tyres and alternators, are also excluded.

OUR OBLIGATIONS

5. If you discover a defective product you should contact the dealer from whom your machine was purchased. The dealer will notify us of your claim. Our obligation will then be to either replace, or if we consider it appropriate, repair the defective product. Alternatively, we may arrange for our dealer to carry out this work. YOU MUST NOTIFY THE DEALER OF THE DEFECT WITHIN SEVEN DAYS OF THE DAY ON WHICH IT IS DISCOVERED AND YOU MUST NOT USE THE EQUIPMENT AFTER DISCOVERY. FAILURE TO OBSERVE EITHER OF THESE OBLIGATIONS WILL INVALIDATE THE WARRANTY AS IS APPLIED TO THAT DEFECT. Any defective products replaced must be returned to SRE for inspection.

NO ADMISSION

6. On occasions we may, to preserve goodwill, replace parts even though they are not in our opinion defective. Accordingly, our agreeing to repair or replace a part cannot in any circumstance be deemed an admission that it was defective.

LIMITATIONS

7. This warranty shall not apply to products made up in accordance with customer originated designs.

8. No warranty, condition or other term implied by statute or common law as to the merchantability or fitness for a particular purpose, is intended or given by this warranty. All such warranties which may apply between Shelbourne Reynolds and yourself are excluded to the fullest extent permitted by law.

9. In any case, except in respect of death or personal injury caused by our negligence, we shall not be liable to you by reason of any representation or implied warranty, condition or other term, or any duty at, law or under the express terms of any contract, for the consequential loss or damage (whether for loss or profit or otherwise and including delay in harvesting, loss of crops, expense incurred for labour, additional or substitute material, rental whatsoever and whether caused by our negligence, the negligence or our employees or agents or otherwise) which arises out of or in connection with the use of the goods by you.

10. Time of repair is not of the essence.

11. No person or persons are authorised to alter, modify or enlarge this warranty on behalf of Shelbourne Reynolds.

Shelbourne Reynolds shall not be liable for any failure to comply with any part of the warranty where such failure is due to circumstances beyond their reasonable control, including difficulty in obtaining materials or replacement parts.

CALL OUT CHARGES

13. Shelbourne Reynolds and all dealers reserve the right to make a reasonable charge for call outs made at your request which do not turn out to relate to defective products.

YOUR STATUTORY RIGHTS ARE UNAFFECTED.

SECTION 2 **SAFETY PROCEDURES**

2.1

⚠ACCIDENT PREVENTION

Accident programmes can only prevent accidents with the co-operation of the persons responsible for the operation of the equipment.

For safety of yourself and others, operate equipment with care and do not take unnecessary risks which could cause an accident.

The combine manufacturers operators manual safety precautions should be adhered to along with the following additional safety precautions listed when using a *Shelbourne* Header

⚠CAUTION

In addition to the following list, this symbol will appear throughout this manual whenever your safety is involved.

PRECAUTIONS

2.2

BEFORE STARTING THE MACHINE

1. Read the manual thoroughly.
2. Check that all guards are properly secured.
3. Ensure that no person is working on or inside the machine.
4. Check that all observers are clear of the machine. Warn bystanders by sounding the horn several times.

2.3

THE MACHINE IN THE FIELD

5. Do not brake abruptly to avoid tipping the combine.
6. Do not permit anyone other than the operator to ride on the combine.
7. Always stop the engine and apply handbrake before removing or opening any guards or clearing a blockage.
8. Do not go under the *Shelbourne* Header unless it is securely blocked or the combine feed elevator safety latch is lowered onto the lifting cylinder.
9. Engage front cowl safety lock before working on rotor.
10. NEVER go in front of the machine whilst the rotor is rotating.

11. Always use locktight, (or self locking bolts) for rotor stripping element attachment.
12. Always replace all guards after making any adjustments or lubricating the machine. Replace or repair any damaged or missing guards immediately.
13. Do not work around the machine in loose clothing that might get caught in moving parts.
14. Keep hands away from moving parts.
15. Keep children away from and off the machine at all times.

2.4

LEAVING THE MACHINE

16. Park the machine on reasonably level ground.
17. Apply the parking brake.
18. Lower the header, and front cowl to the ground.
19. Stop the engine and remove ignition key.

2.5

SERVICING THE *SHELBOURNE* HEADER

20. Ensure that the header is on the ground or if in the raised position, that it is securely blocked or the header safety latch is lowered onto the lifting cylinder.
21. Stop engine and apply handbrake before performing any adjustments or lubrication and before opening or removing any guard.
22. Always re-install all safety guards on completion of servicing.

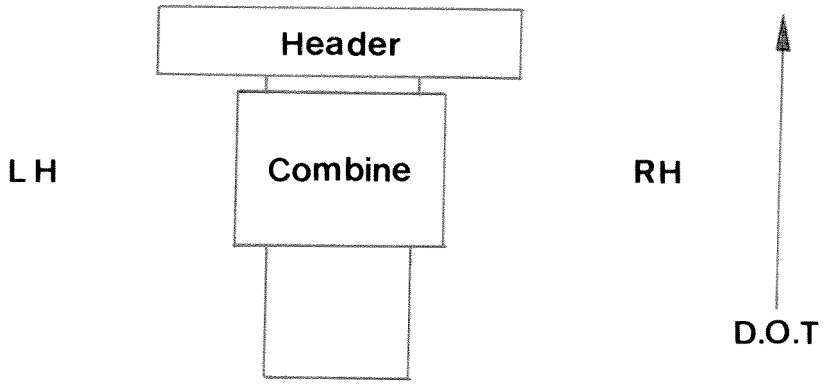
2.6

HEADER ATTACHMENT AND TRANSPORTATION

23. Follow the procedure described in the combine operators manual for header attachment and detachment.
24. When using the *Shelbourne* Header trailer ensure header is situated correctly in its seats and that all securing hooks are locked in position.
25. When removing the header onto the ground, put the foot supports, which are stowed on the rear right hand side of the machine, under the front corners. They fit between the anti-wrap dividing plate securing bolts, inline with the centre of the rotor. These will prevent the header from rolling forward, and make attachment easier.
26. Ensure coupling guards are in place.

SECTION 3 SPECIFICATION & DESCRIPTION

RIGHT AND LEFT HAND OF THE MACHINE AS TERMED IN THE MANUAL IS AS VIEWED WHEN IN THE DRIVERS SEAT.



RXvs and *CXvs SHELBOURNE* HEADERS

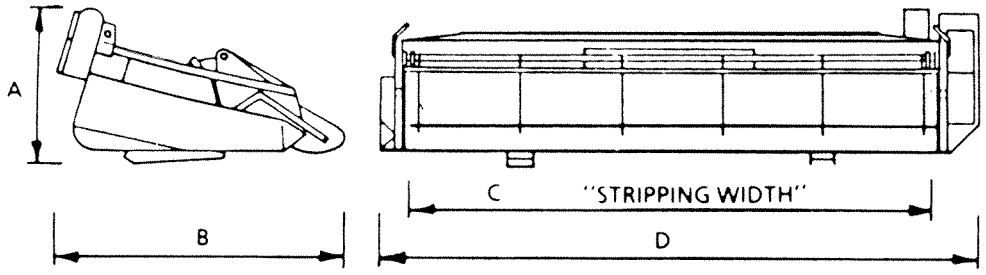
Multi-plate	- Mounts on combine standard mounting points. - Interchangeable adapter plates and drive kits for mounting the *Shelbourne* Header to other popular combine types.
Auger	- Speed fixed approx 200 rpm, diameter 584mm (23") over flights with fixed lower stripper bar, adjustable upper stripping plates and retractable fingers. - Outside retractable fingers, and flight extensions, removable to suit various combines. - Heavy duty drive chain, with slip clutch protection.
Transfer system	- *RXvs* Headers are fitted with a moving non-adjustable stepped shakerpan transfer system. Speed approx 435 rpm. - *CXvs* Headers have a fixed Stainless Steel covered feed chute.
Stripping rotor	- Octagonal construction with 8 rows of flexible stripping elements in 600mm sections, backed up with steel wear plates. - *RXvs* and *CXvs* Headers have a split rotor, with flexible division support. - Division plate and rotor ends are fitted with Patented anti-wrap system.
Rotor speed ***vs*** (***v***ari-***s***peed) system	- Infinitely variable pulley drive belt, range 360 to 950 Rpm. Speed controlled electronically from the cab with the *Shelbourne* Header controller unit. Drive belt tension is controlled hydraulically.

Rotor and auger speed monitor	- *Shelbourne* Header controller has a performance monitor with a visual digital electronic display, and audible warning alarm.
Top cowl deflector cover	- Access cover with gas strutt assistors.
Adjustable crop deflector	- Operated by combine hydraulics (reel lift). - Visual colour coded position indicator.
Dividers	- Adjustable height, torpedo type with fixed inner wing, as standard. - Hoop type also available.
Adjustable skids	- With reversible wear plates. - Extensions available for greater rotor clearance if required.
Centre Protection pans	- Available for *RXvs* models only.
Front stands	- Detachable front feet for use only when the header is removed onto the ground.
Compact side drives	- Slimline side drives, the rotor and auger are driven from the LH side. *RXvs* machines only have a shakerpan drive on the RH side.
Side guards	- Hinged for ease of access.

RANGE OF SIZES

Sizes are as follows:-

	A	B	C	D	WEIGHT
RX54vs	1160mm 3'10"	2100mm 6'11"	5400mm 18'0"	5750mm 18'10"	1780kg 3915 lbs
RX60vs	1160mm 3'10"	2100mm 6'11"	6000mm 20'0"	6350mm 20'10"	1880kg 4135 lbs
RX66vs	1160mm 3'10"	2100mm 6'11"	6600mm 22'0"	6950mm 22'10"	1980kg 4355 lbs
CX72vs	1160mm 3'10"	2060mm 6'9"	7200mm 24'0"	7550mm 24'9"	1960kg 4312 lbs
CX78vs	1160mm 3'10"	2060mm 6'9"	7800mm 26'0"	8150mm 26'9"	2160kg 4752 lbs
CX84vs	1160mm 3'10"	2060mm 6'9"	8400mm 28'0"	8750mm 28'9"	2360kg 5200 lbs



For complete details of the correct sizes and fitting for the combine on which the *Shelbourne* Header is intended to be used, please contact your local SHELBOURNE REYNOLDS Dealer or the factory direct.

SECTION 4 TRANSPORTATION

To prevent damage to the *Shelbourne* Header, the machine should be moved either by:

- Attaching to combine
- By slings through the lifting lugs provided for overhead lifting.
- On a trailer which gives suitable support in the correct positions of the header and provides adequate stability.

DO NOT

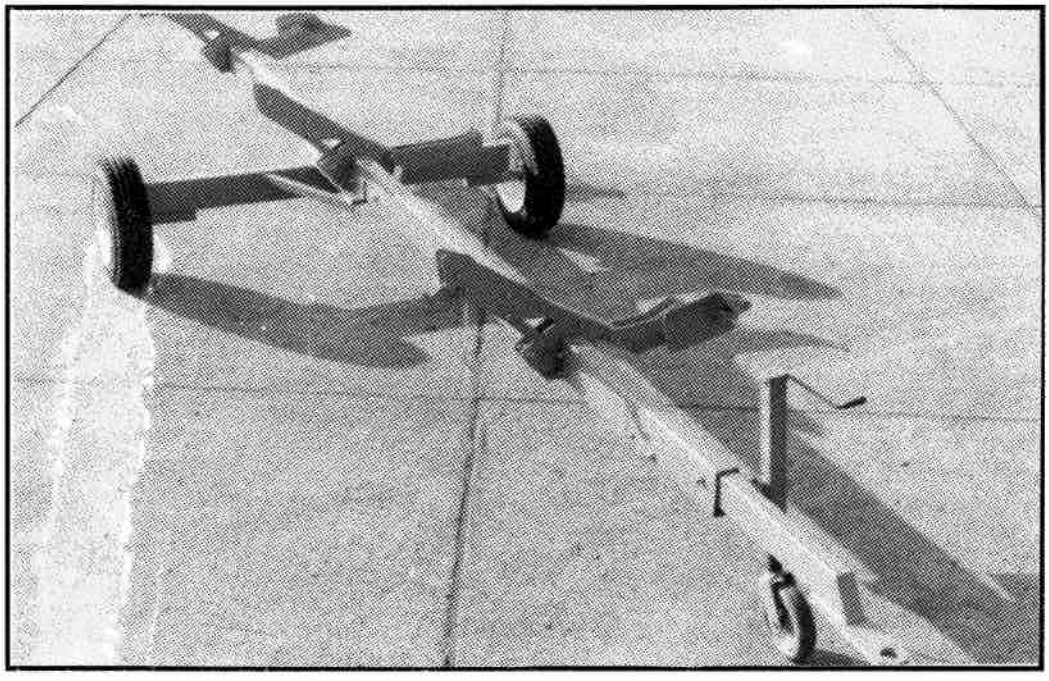
- Attempt to lift under the header with a fork lift, unless the header is on an adequately supportive pallet.
- Remove header onto floor without placing the foot stands under the front corners of the machine.
- Never support machines weight on the front beam or front of the skids under the header.

4.1

SHELBOURNE REYNOLDS TRANSPORT TRAILER

The Shelbourne Reynolds Engineering transport trailer is specially designed for the *Shelbourne* Header. It is engineered to reduce down time and to make it easy for the operator to attach, transport and detach the header safely and efficiently on his own.

FIG 1

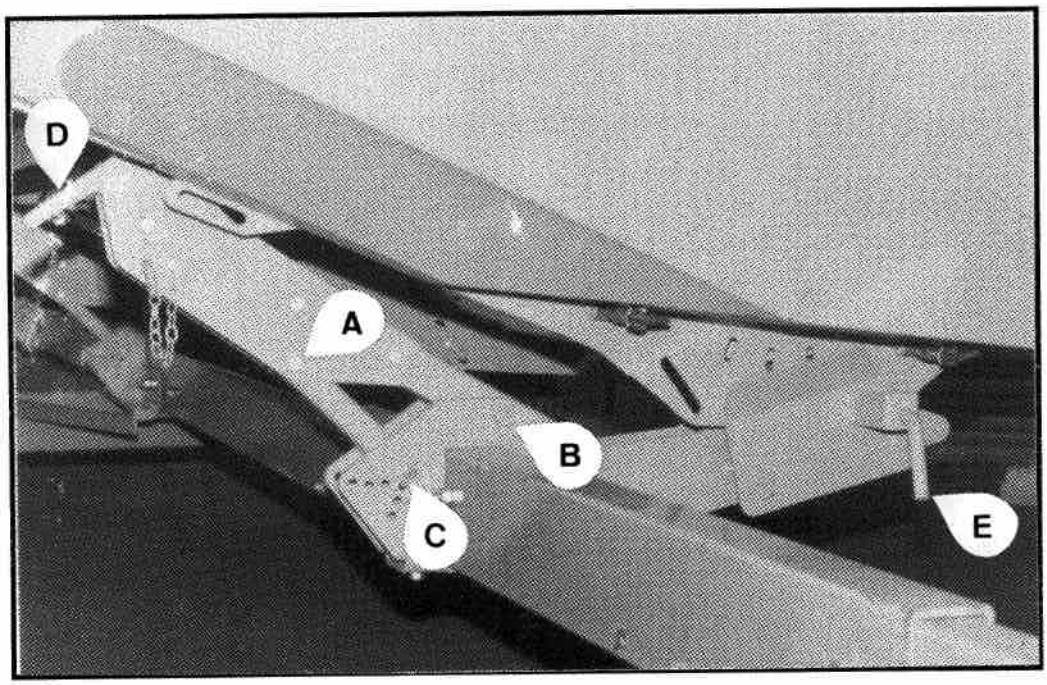


ATTACHMENT AND DETACHMENT PROCEDURE

DETACHMENT

1. Drive the combine and *Shelbourne* Header over the header trailer.
2. If the trailer is not on level ground, then ensure that the trailer tilts more towards the combine and header than away.
   i.e. further wheel on higher ground.
3. Adjust the trailer screw jack so that the trailer beam is approximately parallel to the angle of the header on the combine.
4. Disconnect the header drive, hydraulic pipe and elecrical connections. Then release the bottom securing clamps of the header to combine elevator attachment.
5. Gently lower the header, when positioned correctly, approximately 150mm of the support brackets of the trailer should be seen emerging from under the header. The front of the skids will sit on the front of the trailer support brackets first, allowing the bottom of the combine feeder housing to move away from the bottom of the header.

FIG 2



⚠ **CAUTION**
If you are in doubt at any stage that the header is not aligning correctly on the brackets, then get out of the combine and check.

6. Stop lowering the header when the combine feeder housing starts to move away from the header top beam, or top mounting lugs.

7. Lift the two hooks `D' fig 2 on the front of the two end trailer mounting brackets over the front beam and lock into position with the locking pin.
8. Engage the two lower locking pins `E' fig 2.
9. Lower the combine feeder housing and drive backwards until clear of the machine.

The header is now ready for transport.

ATTACHMENT

1. Drive combine to align with header.
2. If necessary, adjust trailer screw jack to make the top beam of the header parallel to the combine feeder housing.
3. Lift feeder housing to locate top mounting lugs.
4. Remove the locking pins located on the trailer mounting brackets, and drop the hooks back from the front beam to release the header from the trailer.
5. Lift header clear of trailer.
6. Connect lower locking clamps of feeder housing to header and also connect drive, hydraulic and electrical connections.
7. Drive clear of trailer.

4.2

SETTING TRAILER TO SUIT COMBINE

When first using the Shelbourne Reynolds header trailer, it may be necessary to adjust the support clamps to suit the machine.

Procedure

⚠ The drive end of the machine must be nearest to the front of the trailer i.e. towing end. Machine and trailer must be on level ground for setting up.

When positioning the header on the trailer, the end of the machine should be approximately level with the end of the main beam of the trailer.

The centre support bracket should then be positioned in the most suitable holes in the axle with the axle being as near to the centre of the machine as possible. The axle position on the main beam is also adjustable to achieve this.

The outer brackets are then located setting them to allow approximately 50mm each side for error when putting the machine on the trailer.

The front telescopic drawbar can then be put in a suitable position, where, when the trailer is attached to the combine, the combine does not hit the *Shelbourne* Header when turning a corner.

Drive the header over the trailer brackets and lower until just clear of the brackets.

The front of the skids behind the rotor, under the machine, should just touch the front of the support plates, when the rear location is approximately 30 to 40mm above their seating. This will enable the feeder housing to move away from the bottom of the header for detachment.
If this setting is not correct then the bolt `A' & `B' fig 2 should be slackened and bolt `C' fig 2 should be removed. The angle of the bracket can now be changed, and bolt `C' can be relocated in another hole. Each hole position changes the bracket angle by approx 3 degrees. Re-tighten all bolts and ensure that all three brackets angle positions are set exactly the same.

⚠ Never adjust these brackets with the header mounted on the trailer.

4.3

TRAILER ROUTINE MAINTENANCE

Daily: Check tyre pressures 94 PSI
6.5 BAR

Weekly: Check wheel nuts - Torque 110 lb.ft
150 N.m

Check all bolts

SECTION 5 PREPARATION AND ADJUSTMENTS FOR USE

⚠ Read this section carefully before use.

If in any doubt of adjusting the following, consult your dealer.

When using the *Shelbourne* Header, the following features are required on your combine. (Some of these features may already be fitted as standard to your combine.)

5.1

1. **HEADER DRIVE**
   Due to the extra power required to drive the *Shelbourne* Header compared to the conventional cutterbar, some makes and model of combine require a maize header drive kit which will increase the power available to drive the *Shelbourne* Header.

   Shelbourne Reynolds dealers should be consulted to select the correct drive for your machine.

2. Combine grain loss monitors, mainly on the sieves.

3. De-awner or concave blanking plates.

4. Lights on top corners of cab for night work. The lights which are mounted at the bottom of the cab are designed to throw the light through the cutterbar reel, but as the *Shelbourne* Header has a solid cowl, the light cannot shine through it. The operator will require light at the front of the nose where the crop enters the header.

5. A straw chopper will be useful for dealing with straw intake in laid and lodged crops.

The following adjustments need to be checked and carried out:-

5.2

CONCAVE SETTING - conventional cylinders
As there is less straw intake in most crop conditions, it is necessary to adjust the concave to give a minimum clearance of 3-4mm on the first 5 bars.

This is achieved by putting the concave lever(s) into the top hole to give minimum clearance between the drum and concave.

Refer to the combine manufacturers operators manual to reduce this clearance, which is usually adjusted by threaded studs on each side of the combine supporting the concave. The clearance is normally measured by removing side covers at the end of the drum on each side of the machine, and using a piece of flat metal to the depth of 3-4mm to check the clearance between the concave bar and drum bars.

⚠ **CAUTION**

After adjusting but before running, check that the concave cannot hit the drum when the concave hand adjusting lever is released from the top notch and pulled up as far as it will go, ie. until it hits the stop.

If when this is carried out the concave touches the drum rasp bars, it is necessary to adjust the stop on the concave, adjusting lever to prevent it from going up so high. The stop is often a bolt in the top of the lever ratchet plate.

Cleaning shoe sieves (screens) need to be opened further than usual, the best result is usually achieved by fully opening the top screen and then cleaning on the lower screen.

Higher cleaning fan speeds are also used.

- axial flow cylinders:
See section 5.9

5.3

HEADER LOWERING SPEED

⚠ **Beware until set**

The *Shelbourne* Header is heavier than most types of conventional cutterbar header, therefore, when on the combine, it may drop at a very fast speed until adjusted.

This is usually adjusted on the hydraulic feeder housing direction control valve which may be mounted under the cab floor, or on the side of the machine. When set correctly, the header will gently lower to the ground without banging on the skids. Header damage can be caused if the drop is to fast ! .

⚠ Refer to the combine manufacturers operator manual for adjustment of the header lowering speed.

5.4

COMBINE FRONT ELEVATOR DUST COVERS

Most of the *Shelbourne* Header adapter plates for various combine models with the exception of New Holland and John Deere, have an elevator dust cover built into the header adapter plate itself. For this reason it is necessary to remove the dust cover from the combine elevator if fitted. If this cover is not removed, uneven feeding and blockage may occur.

It is not necessary to remove the cover on New Holland, Case IH, or John Deere combines, but often feeding will be improved if the centre section of the cover is removed, leaving the outer side deflectors of the cover in place.

5.5

LEVELLING THE HEADER

The header should be parallel with the front axle of the combine, if it is not, then it should be adjusted according to the combine operators manual, as adjustment method is the same as that for the conventional cutterbar.

Note-

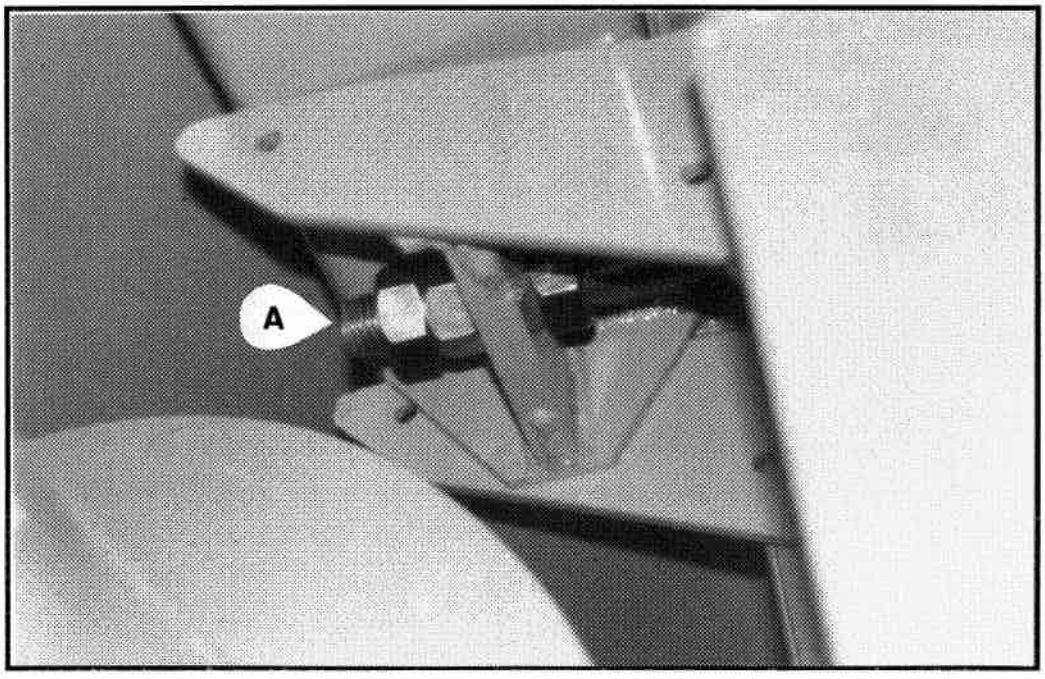
If levelling a USA built John Deere, it is necessary to remove the existing spacer plates from under the pick-up lugs and put the Shelbourne Reynolds spacer plates under the LH side lug only.

5.6

TILT ADJUSTMENT AND ROTOR CLEARANCE HEIGHT OF THE *SHELBOURNE* HEADER

The angle of the *Shelbourne* Header is adjustable. The bolt in adapter plate attaching the header to your combine has two fixing studs at the top, (A) Fig.3 located just under the top beam near the centre opening. These fixing studs are adjustable and will therefore change the angle of the *Shelbourne* Header, and hence the auger to feed elevator clearance, and rotor height from the ground.

FIG 3



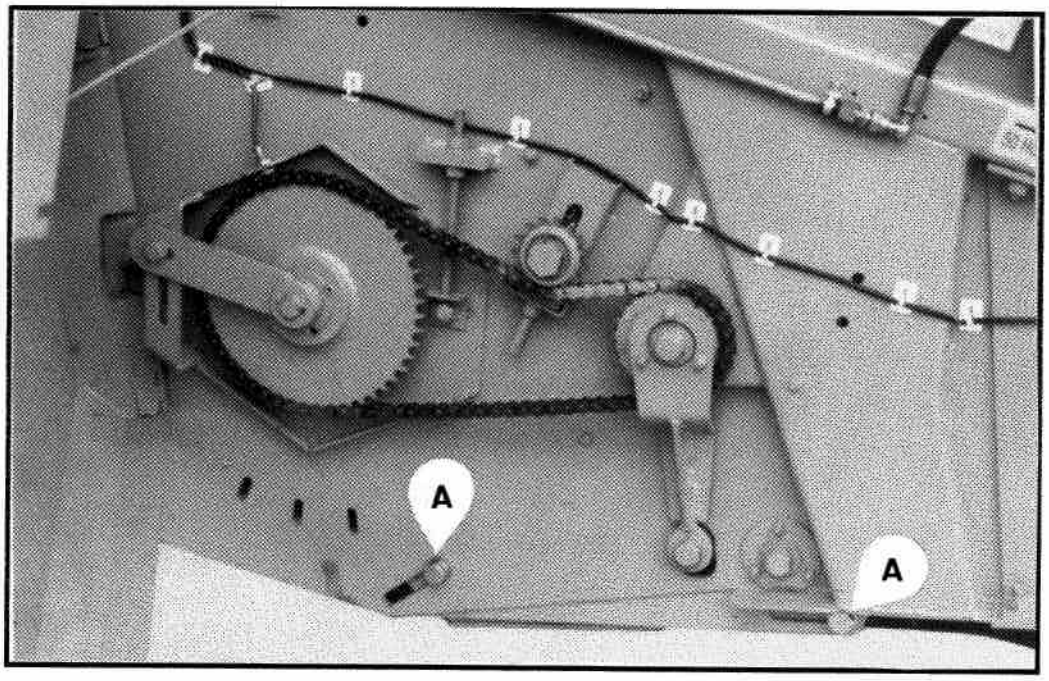
Skids

The function of the adjustable skids under the header is to prevent the rotor from hitting the ground, and to keep the rotor at a constant height above the ground when working at low levels e.g.. laid crops.

Important-

When on level ground the skids must be set so as to never allow the rotor element tips to get closer than 50mm to the ground.

FIG 4



The skids under the *Shelbourne* Header are adjustable FIG 4, and can be moved by slackening off the 4 bolts (A) and sliding the skid in the slots.

⚠ ***CAUTION -***

Raise the header fully and engage the header safety latch before going under to inspect or adjust.

To correctly set the header tilt and rotor to ground clearance:-

- If your machine is fitted with a bearing box drive input, which is fitted to the *Shelbourne* Header main frame and not the adapter plate i.e. JD then DISCONNECT the drive coupling.

- Set the *Shelbourne* Header skids in the middle position.

- On level concrete lower the *Shelbourne* Header to the ground i.e. so the skids touch the concrete.

- The side plates of the header should be approximately horizontal to the ground line or tilted back very slightly.

- If adjustment is required, before adjusting the studs, the bolts securing the auger stripper plates on the adapter plate only should be loosened to prevent jamming.

- Adjust the studs (A) Fig.3 of the adapter plate equal amounts until the setting is approximately correct.

- Lock the adjusting stud nuts.

- In such position the rotor clearance to the ground should be approx 50mm to 75mm. This clearance is adjusted by moving the skids on the slots.

- If the rotor is still too close to the ground then a skid extension kit should be fitted, this is available through your dealer (Ref. Bulletin TSB-01005).This requirement will vary between different combines, depending on feeder length, and wheel and tyre size etc.

- Re-set the auger stripper plates on the adaptor plate, FIG10 section 7.4, to give approx 5mm clearance from the auger flights.

- For machines fitted with the bearing box on the header main frame, realign the header drive as described below.

NOTE: When making this adjustment the auger to feed elevator clearance will also change. Before operating the machine, check that the auger and feed elevator do not hit each other, re-adjust the auger, or elevator if necessary.

5.7

ALIGNING HEADER DRIVE

If your *Shelbourne* Header is fitted with a standard PTO shaft e.g.. Case IH or Claas, no adjustment is required to align the shaft. Simply press in the button of the coupling and push onto the shaft. Ensure that the coupling seats correctly i.e.. when the pin pops out again.

If your *Shelbourne* Header is fitted with a bearing box assembly supporting the header drive shaft, on initial header attachment, tilt or levelling adjustment the drive will need aligning with the combine drive shaft as described below:

- Remove guard and slacken the 4 bolts which hold the bearing box as shown in Fig 5 (A).

- Move the bearing box to align the shaft in the correct position and engage the coupling connector to the drive shaft on the feed elevator.

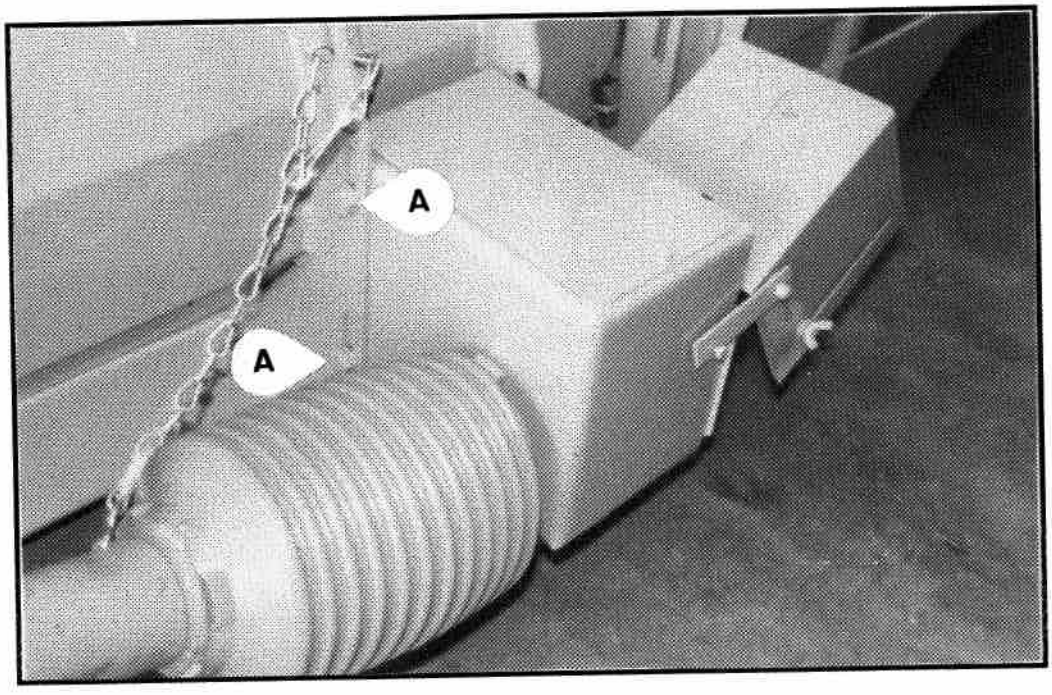
- Tighten the 4 bolts which hold the bearing box to lock the shaft in the set position.

- Replace the guard.

JD American combines.

9600 and 8820 When aligning the drive on these combines, the female drive sleeve on the header is required. The grub screw on the male hub should be removed to allow the whole assembly to slide so that the header can be taken off and put on without the drives interfering. When fitting to other JD American combines the female sleeve should be removed, and the male hub locked with the grub screw so it does not slide.

FIG 5



5.8

AUGER FINGERS AND FLIGHT EXTENSIONS

Different combines have different width feed elevators.
To accomodate this the *Shelbourne* Header has removable retractable fingers, and flight extensions available so feed adjustment can be made.

To prevent auger plugging and uneven feed it is important to ensure that the outer retractable fingers are not feeding in a position wider than the feed elevator of the combine.

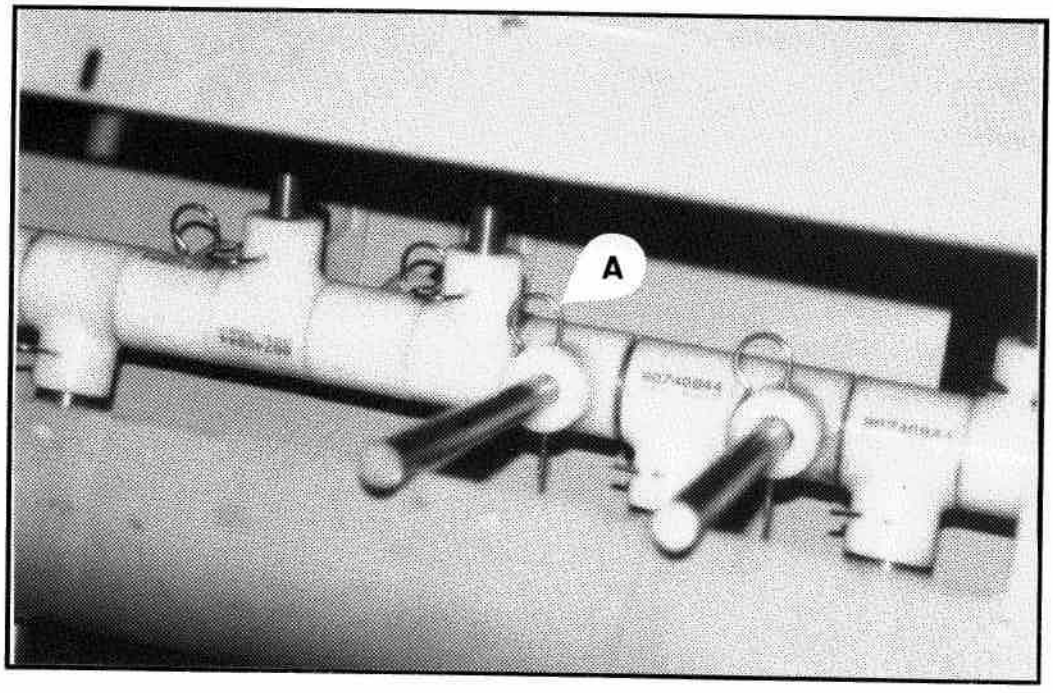
The outer fingers should be removed until the outermost finger is in board of the feed chain by at least 100mm (4"), otherwise wrap in the ends of the elevator roller may occur.

To remove the fingers;

1. Remove the cover plates near the auger centre FIG 6.
2. Remove the `R' clip FIG 6.(A) securing the finger in the plastic holder, and pull the finger out of the holder.
3. To prevent dust and particals filling the auger tube through the remaining hole, remove the ball guide from the auger tube and replace with filler plate. (Pt No. 190735 01)
4. When enough fingers have been removed, replace the auger cover plates.

The auger flights should pass the end of the combine feeder chain by at least 75mm, if required fit flight extensions (Ref. Bulletin TSB-01010). It will be necassary to cut out the corners of the rubber flap above the auger, so that the flights do not catch on it.

FIG 6



5.9

HEADER HEIGHT INDICATOR
This should be set as described in the combine operators manual.

5.10

AXIAL FLOW COMBINES -

All crops except rice:-

When fitting the *Shelbourne* Header to an axial flow combine it will be necessary to adjust the following for efficient separation of stripped material.

The axial flow concave will consist of front concaves, usually in 3 sections and a rear separating grate also usually in 3 sections.

The front concaves will adjust in relation to the rotor, the back separating grate is fixed.

For harvesting **most** crops of wheat and barley and other small seed crops, it will be necessary when using the "small wire concaves" to put concave wires in all the holes of the first concave. Second and third concave should have the wires fitted in every other hole. The rear grate which is a welded construction should be of the small hole type. The rotor and concave clearance should be 1mm to 3mm.

If all the crop is not threshed, then it may be necessary to fill the second concave with wires in each hole, or fit blanking plates on the first half of the concave to block it completely.
However, if the crop is damp it may be necessary to remove wires from the concaves, and/or open the rotor to concave clearance to allow the damp crop to flow through. If the drum to concave clearance is opened above 3mm, short straw etc. may block the concaves due to centrifugal force, if this occurs the clearance should be reduced.

The rotor speed settings will be set the same as for a conventional cutterbar.

Cleaning shoe sieves (screens) need to be opened further than usual, the best result is usually achieved by fully opening the top screen and then cleaning on the lower screen.

Higher cleaning fan speeds are also used.

Axial flow combines have a narrow feeder housing, it may be necessary to raise the front roller to the top position and lock the float of the roller to allow even feed.
Adjustment method is described in the combine manufacturers operators manual.

Rice

When harvesting rice with axial flow combines it will be necessary to raise the front roller of the feeder housing to the top position, and lock the float of the roller to enable an even feed. Adjustment method is described in the combine manufacturers operators manual.

On Case IH 2188, 1688, 1680, 1480 combines it is preferred to have 4 ears on the front of the rotor to keep the feed even, ensure smooth operation, and optimum performance. The front 3 concaves should be of the "large wire" type. The rear grates should be changed to the SRE modified type KIT-00903, and best results are achieved with the speciality rotor fitted with spiked raspbars in the area of the rear grates only.
It is important to ensure that the rotor is adjusted central to the concaves for even material flow. It may be necessary fit an adjustment kit to some of the earlier models. Adjustment method will be explained in the combine manufacturers operator manual.

Best results are usually achieved with an axial rotor speed of 660 rpm.

On smaller Case IH combines i.e.. 2166, 1666, 1660, 1460 it will also be necessary to fit the SRE modified grates, consult your dealer for details.

SECTION 6

FIELD OPERATION

It is important to read this section of the manual before operating the *Shelbourne* Header.

This section contains tables and other references to the basic settings of certain components of the *Shelbourne* Header and combine in various crops.

As the *Shelbourne* Header does not feed much straw into the combine the settings may vary to those you would normally set with a conventional cutterbar.

It is impractical to give the settings for every crop variety and conditions in the various soil types and weather conditions, so the settings given in the tables are initial settings to be used as a starting point.

This section then follows on to indicate further adjustments which can be made to suit specific conditions.

Read and carry out the procedures in section 5 before attempting to operate the machine.

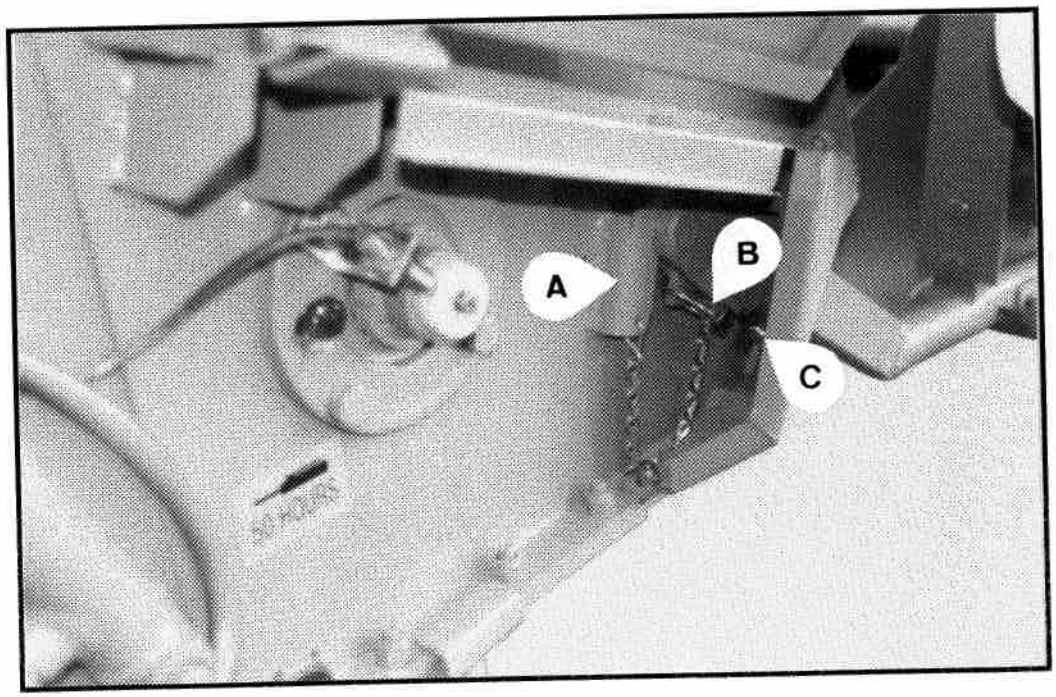
Field adjustment details are only given for the *Shelbourne* Header. For combine adjustment details use the combine manufacturers operators manual.

6.1

FIELD ADJUSTMENTS

Crop Dividers

FIG 7



Torpedo type dividers are quick release. To fit the dividers, open the side guards, put the divider through the slot in the side frame, and hook into the catch at point (A) as shown in FIG 7. Place the clip (B) in the catch to prevent the divider falling out. The height of the divider can be adjusted by slackening the bolt and moving the adjusting bracket (C) to set the divider to the correct height.

The wings of the divider are fixed and set inboard to push the crop into the rotor away from the header edge.

A hoop divider is available if required (Ref. Bulletin TSB-01015). This bolts onto the end plate of the header replacing the existing lower anti-wrap dividing plate.

6.2

Header Height

The height of the header is adjusted from the combine cab by the operator using the header height hydraulic adjusting lever.

6.3

Adjustable Deflector

This to is adjusted hydraulically by the operator from the combine cab using the conventional header reel lift lever.

6.4

***vs* Stripping Rotor Speed Change**

The rotation speed of the stripping rotor is infinitly variable. This is adjusted from the combine cab using the self centreing switch on the *Shelbourne* Header controller.

To adjust the speed, the header drive from the combine must be enguaged so the stripping rotor is rotating.
Running the header at operating speed, ensure the header controller power switch is on, move the self centreing toggle switch to either the + or - as prefered, holding the switch until the required No Load speed is set. The rotor speed is displayed on the digital monitor.

6.5

Shelbourne Header controller Performance Monitor

For fitting instructions refer to RDS Installation manual.

The tacho performance monitor will monitor the shaft speed of the feed auger and the stripping rotor shaft. For operation and adjustment procedure see *Shelbourne* header monitor operating instruction manual.

The tacho is fitted with an audible alarm. As the speed of the rotor and or auger reduce due to overload or blockage, the alarm will warn the driver to slow down, raise the header a little, or stop. The arrow on the tacho display panel will automatically indicate which shaft has reduced speed during operation.

Auger - This is monitored only to alert the driver that the auger is blocked. The alarm speed should be set at 100rpm.

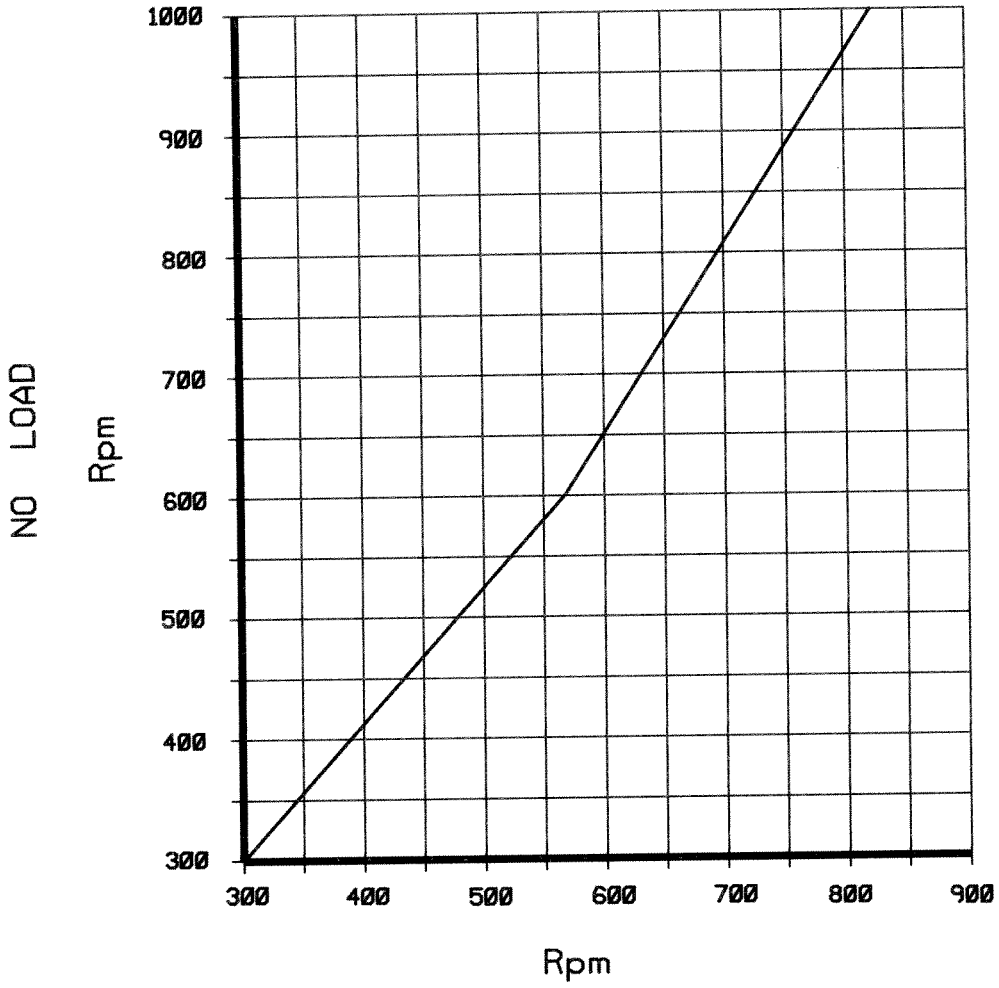
Rotor speed - Monitoring the rotor speed enables the driver to monitor the effort required by the rotor to strip the crop. It is *important* that the audible alarm speed is correctly set to prevent drive line overload.

Setting the alarm speed should be carried out with the header running at operating speed, with NO LOAD, and the required rotor speed set.

To initially set the alarm speed for various rotor speeds use the following graph.
- Read the NO LOAD speed of the rotor from the vertical axis of the graph.
- Follow horizontally across the graph until you meet the line.
- From this point go down vertically to the lower axis.
- Read the TACHO WARNING SETTING at this point on the lower scale.
- Set this value in the monitor as described in the *Shelbourne* header monitor operating instruction manual.

Example:-
The NO LOAD speed is when the machine is running empty. If the NO LOAD speed of the tacho is 650rpm follow the graph horizontally across until you meet the line. Then go vertically down and read the TACHO WARNING SETTING from the bottom scale.

Note:
The graph is only a guide, as engine power, and combine drive design to the *Shelbourne* Header will affect the value the alarm needs to be set.



TACHO WARNING SETTING

6.6 *BASIC MACHINE SETTING TABLE*

TYPE OF CROP	DIVIDERS	STRIPPING ROTOR SPEED Rpm (APPROX)	FRONT COWL POSITION. (For standing unless stated)	COMBINE DRUM SPEED Rpm
WHEAT DURAM TRITICALE RYE	MOSTLY	500 WHEN DRY. UPTO 700 WHEN TOUGH	YELLOW TO LOWER RED	900 to 1000
WINTER / SPRING BARLEY	NOT USUALLY YES IF 4 / 6 ROW BARLEY	500 to 600	YELLOW, GREEN IF SHORT	900 to 1000
OATS	USUALLY	500 to 600	YELLOW	600 to 700
RYE GRASS, ALL TYPES	NO	400 to 700	UPPER RED TO BLUE IF LAID. GREEN IF STANDING.	800 to 900
GRASS FESCUE	YES	600	GREEN to YELLOW	800 to 900
RICE	YES	400 to 500	YELLOW	RICE DRUM 450 to 700. RASP BAR 550 TO 800.
LINSEED	YES	700	YELLOW	MAX
CLOVER	NO	400	UPPER RED	MAX
PEAS	NO	400 to 500	UPPER RED	500 to 600

NOTE: When harvesting peas best results are achieved with a soil kit fitted to the combine

Lower red = Front cowl up. Upper red = Front cowl down.

CONCAVE CLEARANCE	CONCAVE BLANKING PLATES	COMBINE FAN SETTING	COMBINE SCREEN (SIEVE) OPENNING SETTING
3 - 5 mm	USUALLY BOTH SETS	FULL	TOP: FULLY OPEN BTM: 1/3 OR MORE OPEN
3 - 5 mm	USUALLY BOTH SETS	FULL TO JUST BELOW FULL	TOP: FULLY OPEN BTM: 1/3 OR MORE
7 - 15 mm	YES FRONT SET ONLY	APPROX 3/4 OPEN	TOP: FULLY OPEN BTM: 1/3 TO 1/2 OPEN
6 - 15 mm	NONE OR FRONT SET	1/2 TO 2/3 OPEN	TOP: 1/4 TO 1/2 OPEN BTM: 1/4 OPEN
3 - 10 mm	NONE OR FRONT SET	1/2 TO 2/3 OPEN	TOP: 1/4 TO 1/2 OPEN BTM: 1/4 OPEN OR LESS
RICE DRUM 1 - 3 mm. RASP BAR 3 mm.	N/A NO	FULL	TOP: FULLY OPEN BTM: FULLY OPEN
3 - 5 mm	YES BOTH SETS	3/4 TO FULL	TOP: 3/4 OPEN BTM: 1/4 OPEN
3 mm	YES BOTH SETS	LOW TO 1/4 OPEN	TOP: 1/4 OPEN BTM: ALMOST FULLY CLOSED
15 - 20 mm	NO	3/4 TO FULLY OPEN	TOP: FULLY OPEN BTM: 1/2 TO 3/4 OPEN

6.7

HARVESTING WITH THE *SHELBOURNE* HEADER

To get optimum performance from your *Shelbourne* Header the operator should follow the procedures and checks of operation:

1. **Ensure** that all the necessary procedures of preparation for use described in this manual have been carried out.

2. **Set** the combine and header to the basic setting chart for the particular crop to be harvested.

3. **Engaging the drive:** In order to prevent drive line overload when engaging the header drive follow procedure below:
   - Run combine engine at idle speed.
   - If manual engagement, engage the drum of the combine and then gently operate the lever to engage the *Shelbourne* Header, avoiding snatch in the drive.
   - If your combine is fitted with electric or hydro-electric clutch engagement, the header drive should be engaged before the separator, therefore the separator of the combine and the header will engage at the same time, thus reducing the snatch in the header drive line. Alternatively, hydro-electric clutches maybe fitted with a restrictor (Ref. Bulletin TSB-01025).
   - Increase combine engine speed to the working rpm.

4. **Stripping rotor speed setting:** The minimum speed should be selected to ensure that all grain/seed is stripped from the ear of the crop. It is unnecessary to run the rotor faster than that required to strip all the crop, as this only causes the machine to intake more straw and also will reduce the life of the stripping elements.
   The ***vs*** drive line allows the rotor speed to be set infinitely within the required working range, enabling the optimum rotor speed to be set for maximum efficiency in various crop conditions. This means higher outputs and efficiency can be achieved.

   Higher rotor speeds are required for crops which are damp, unripe or tough to strip. Lower rotor speeds are required for crops which strip easily ie.Rice or very dry, or fragile crops.

Important-

Take note that if the rotor speed is rotating too slowly, it will not strip the crop. Therefore if changing the rotor speed during operation check to ensure that the crop is removed from the stems.

Rotor speed should be set and checked initially in each field. Changing the rotor speed during harvesting, without checking, can result in the crop not being stripped properly from the stems.

Never operate the machine continously with accesive load on the rotor ie. when the rotor speed has "pulled down" below the value the alarm is set, or it is noted by sound, that the load on the drive is accessive.

The header should be carried during operation. The skids under the header are to protect the rotor from hitting the ground. When operating close to the ground the header height should be set so that the skids only occasionally bumb on the ground and do not rub hard, on the ground.

5. **Front cowl setting** - (Adjustable deflector)

   This deflector is usually set first, then the header height is is adjusted to suit.

   The front cowl setting is an important adjustment to ensure optimum performance of your *Shelbourne* Header.

   When correctly set in standing crop the front nose of the cowl should deflect crop below it, the top of the crop being level to 100mm below the top of the nose. Therefore creating a seal between the crop and the lower edge of the cowl.

   When correctly set in laid crops, the front nose of the cowl should ride over the top of the crop, the aim being not to push the crop down any further but to close the gap at the front to prevent grain losses.

   When harvesting laid and standing crop in the same pass, lower the nose to recover the laid crop, therefore pushing over the standing crop, so it becomes laid.

   The height indicator on the RH side will assist the operator to set the deflector in the best position for various crop conditions as described below -

Upper Red	-	Deflector fully down	-	Laid crops, grass, clover etc.
Blue	-		-	Lodged crops.
Green	-		-	Short crops.
Yellow	-		-	Normal operation.
Lower Red	-		-	Very tall crops.
Above	-	Out of working range	-	Do not use

6. **Header height setting:** This is an adjustment which the operator will have to continually adjust to suit the crop height as the machine travels across the field. When correctly set in standing crops the heads of the crop should be approximately level with the top to 100mm below the top of the adjustable deflector.

When working in laid crops the header should be allowed to float over the ground contours using the header skids and combine header float system. Do not exert too much of the header weight onto the skids as this will cause the skids to dig into the ground.

The aim is to carry the rotor as high as possible to reduce the amount of straw intake, but it must be low enough to lift and remove heads which maybe attached to stems low down in the crop, E.g.. bent over stems. Be sure that the front cowl is set, so that the the seal is maintained between the crop and the lower edge of the cowl.

7. **Forward speed:**
   The *Shelbourne* Header is capable of very fast forward speeds due to its rotary action, unlike a conventional cutterbar.

   The forward speed will depend on the following:

1. Crop ripeness
2. Moisture level
3. Standing or laid
4. Levelness of the field
5. Power available to drive the rotor
6. Combine capacity
7. Crop yield

Normal operating speeds in standing crops are expected to be between 4 - 12 km/hour (2.5 - 7.5 mph).
In laid crops the speed may be slower.

8. **Harvest** approximately 50 metres of crop, at a comfortable forward speed.

9. **Stop** the machine and look at the stripped crop for the following:-

- Check that all grain is stripped from the heads.
- Check that there are no heads which have been missed low down in the crop. Note: The *Shelbourne* Header will not recover pre-harvest losses.
- Check combine sieve and straw walker losses.

Note:
Do not do this from behind the combine where you have just stopped. The check should be carried out in an area where there has been continuous crop flow through the machine, whilst it has been on the move.

- Check header losses:
  This should again not be carried out where the machine has just stopped.
  An easy check is to back the combine away from the crop. Look in the area 2 - 3 metres back from where the header stopped, but before you get to the area where the sieves of the combine has blown out unwanted material.

10. **Also** check the grain sample for cleanliness and cracked grains.

11. **Use** adjustment charts to correct the results.

12. **Go** back to step 8 and repeat until satisfactorily set.

13. **Reset performance monitor** if required, see Section 6.5.

6.8

Useful harvesting tips:-

During Operation:
When operating the machine in the field it is important to keep the *Shelbourne* Header front cowl, and header height to the correct settings to suit the crop as it varies across the field. This means the operator will have to raise and lower the header and front cowl continually to suit the crop. If the crop is very even then very little adjustment will be necessary. If the crop is very uneven then the operator will have to adjust the header to suit the conditions much more frequently.

Use the combine grain loss monitors to determine the forward speed, unless the field is too rough or if the stripping rotor power requirement is high. This can occur in unripe or damp crops, and should be indicated by the audible alarm on the rotor performance monitor before accesive overload occurs.

Important:
Rotor speed should be set and checked initially in each field. Changing the rotor speed during harvesting, without checking, can result in the crop not being stripped properly from the stems.

Never operate the machine continously with accesive load on the rotor.

Never operate the header with the skids rubbing hard on the ground, or the tips of the rotor touching the ground.

Standing Crops:
The adjustable crop deflector can usually be set in one position, and only the header height will need adjusting to suit slight crop height variations.
When operating in even standing crops the rotor will usually be carried between 150-300mm from the ground.

Laid Crops:
When operating in laid crops it will be necessary to operate with the rotor as close to the ground as possible but without digging up dirt. This is achieved by floating the header on the skids. When set correctly, the skids will prevent the rotor touching the ground.

To keep header losses to a minimum, it may be preferred in dry laid cereal crops (not Rice) to approach by harvesting either across or towards the way of lay, losses will increase if harvesting with the way of lay as the rotor is unable to lift the heads of the crop clear of the ground. However, if harvesting standing crop and small patches are laid, Eg. at headlands, these patches can be harvested with the way of lay providing that the header and front cowl are lowered enough. Also see front cowl setting 6.3.

When operating in laid crops, forward speed will be limited due to higher straw intake, and higher rotor power requirement.

Harvesting standing and lodged or laid crop in the same pass:
There will be occasions where standing and laid crop will need to be harvested in the same pass. In these situations the header should be lowered down to lift and recover the laid crop,.

Performance monitor audible alarm speed adjustments:
When operating the machine it will be noted that the power required to drive the rotor depends mainly on forward speed and the height of the rotor from the ground.

i.e. - The closer the rotor to the ground, the more the power requirement and hence the rotor speed will reduce.
- The faster the forward speed, the more the power requirement and hence the rotor speed will reduce.

If the rpm warning has been selected from the graph, yet the machine drives are "pulling too hard" (this is quite easy to sense by sound) before the audible warning is heard, then the rpm warning value should be raised. (For adjustment method see *Shelbourne* Header monitor operating instructions manual section B3).
Raise the value in increments of 5 rpm.

Should a fault occur with the monitor, reset the tacho as described in the *Shelbourne* Header monitor operating instruction manual. If this fails consult your Shelbourne Reynolds or RDS dealer see appendixes.

6.9

ADJUSTMENT CHARTS

PROBLEM	CAUSE	REMEDY
Grain left in stripped heads.	Rotor rotation speed too slow.	Speed up the rotor. (see section 6.4)
	Stripping elements worn or broken.	Check elements, replace if necessary (see section 7. 8 & 7.9)
	Rotor too high when harvesting crop.	Lower rotor.
	Front cowl too low, pushing the crop away from the stripping rotor.	Lift the front cowl.
	Rotor drive line slipping causing loss of rotor speed.	Reduce forward speed. Lift the header. Check tension of drive belts
Heads unstripped at division plate between the two rotors.	Rotor clearances and element clearance to the division plate incorrect.	Adjust the stripping element as close as possible to the division plate.
	Stripping fingers broken off at division plate.	Replace the element (see section 7.8 & 7.9)
	Fingers at division plate worn.	Replace the element (see scetion 7.8)
	Vee strip bent out of shape	Straighten strip or replace

PROBLEM	CAUSE	REMEDY
Excessive shedding of seeds at side of machine.	Crop not separating properly	Fit torpedo dividers (see section 6. 1)
	Header side crop deflectors badly bent.	Replace or repair
	Torpedo dividers are too aggressive	Install hoop type dividers
Crop wrapping around rotor.	Rotor rotation too slow.	Speed up the rotor (see section 6. 4)
	Drive belts slipping	check tension of drive belts.
Material not feeding to the header auger	Shakerpan drive failure	Investigate drive chain, and drive crank
	Shakerpan speed too slow	Check correct drive kit for combine is fitted
	Shakerpan steps plugged with mud	Clean the pan
Auger torque limiter slipping	Auger blocked by foreign object.	Clear blockage
	Retractable fingers feeding wider than feeder.	Remove outer fingers as described in section 5.8.
	Auger not feeding enough to the centre.	Fit auger flight extensions. (see section 5.8.
	Auger to low to auger trough	Adjust the auger clearance. (See section 7.2)
	Auger torque limiter spring tension incorrectly set	Re-adjust springs, (see section 7.1)

PROBLEM	CAUSE	REMEDY
Irregular feeding into feed elevator	Elevator feed chain too low at entrance.	Raise chain. (See combine manufacturers manual.
	Elevator feed chain too far away from auger	Move auger back or move elevator chain forward. (see section 7.2)
	Crop building up on feed elevator dust cover	Remove the centre section of the elevator dust cover
	Retractable fingers feeding wider than feeder.	Remove outer fingers as described in section 5.8.
	Auger not feeding enough to the centre.	Fit auger flight extensions. (see section 5.8)
Excessive shelling of seeds at header.	Rotor too high in relation to the ground.	Lower header.
	Front adjustable cowl too high.	Lower cowl.
	Front adjustable cowl too low.	Lift front cowl.
	Crop is laid and leaning away from direction of travel.	Approach crop from different angle.
	Shakerpan behind rotor not working.	Check for broken drive to pan
	Forward speed too slow.	Increase forward speed.

PROBLEM	CAUSE	REMEDY
Grain sample not properly cleaned.	No concave blanking plates fitted.	Fit concave blanking plates. (See C.M.O.M.)
	Concave to drum clearance not close enough.	Adjust clearance (See C.M.O.M.)
	Bottom sieve open too wide.	Close the sieve slightly. (See C.M.O.M.)
	Drive speed too slow.	Increase drive speed (See C.M.O.M.)
Excessive cracked grain in grain sample	Drum speed too fast	Reduce drum speed. (See C.M.O.M.)
	Concave set too close to drum.	Increase drum to concave clearance. (See C.M.O.M.)
	Concave blanking plates fitted.	Remove plates one set at a time. (See C.M.O.M.)
	Bottom sieve not open enough	Open bottom sieve
Grain loss over the sieves.	Sieves blocked	Increase air blast. (See C.M.O.M.
	Top sieve blocked air blast full.	Close top sieve slightly, (See C.M.O.M.)
	Too much air blast from the cleaning fan.	Reduce air blast or increase forward speed if possible to load more material onto the sieves. (See C.M.O.M.)

cont.

PROBLEM	CAUSE	REMEDY
Grain loss over the sieves	Excessive short straw on the sieves.	1. Reduce drum speed 2. Open concave 3. Remove concave blanking plates. (See C.M.O.M.) For other causes see C.M.O.M.
Stripping rotor drive line excessively overloaded.	Rotor hitting the ground.	Raise header. Check skid clearance adjustment.
	Forward speed too fast.	Slow down.
	Crop too unripe.	Allow crop to ripen.
	Rotor rotating too slow.	Increase rotor speed. (See section 6.4)
	Audible warning device rpm value set too low.	Check value setting from graph. (See section 6.5) Check audible device is switched on. Raise the alarm speed value.
Crop wrapping in rotor ends and centre.	Anti-wrap plates out of adjustment	Adjust (see section 7.8)
	Anti-wrap plates not fitted	Fit plates
	Centre vee strip worn	Replace vee strip

SECTION 7 STRIPPER HEADER ADJUSTMENTS AND MAINTENANCE

7.1

AUGER SLIP CLUTCH SETTING

The auger slip clutch on the ***RXvs*** and ***CXvs*** *Shelbourne* Headers is located inside the LH end of the auger. The clutch is pre-set and should not need adjusting.
(Ref. Bulletin TSB-01011)

RXvs *and* ***CXvs*** *Shelbourne* Headers have clutches fitted with 6 springs. The spring length is pre-set by a spacer to a length of 55mm.

To check the adjustment of the springs:-

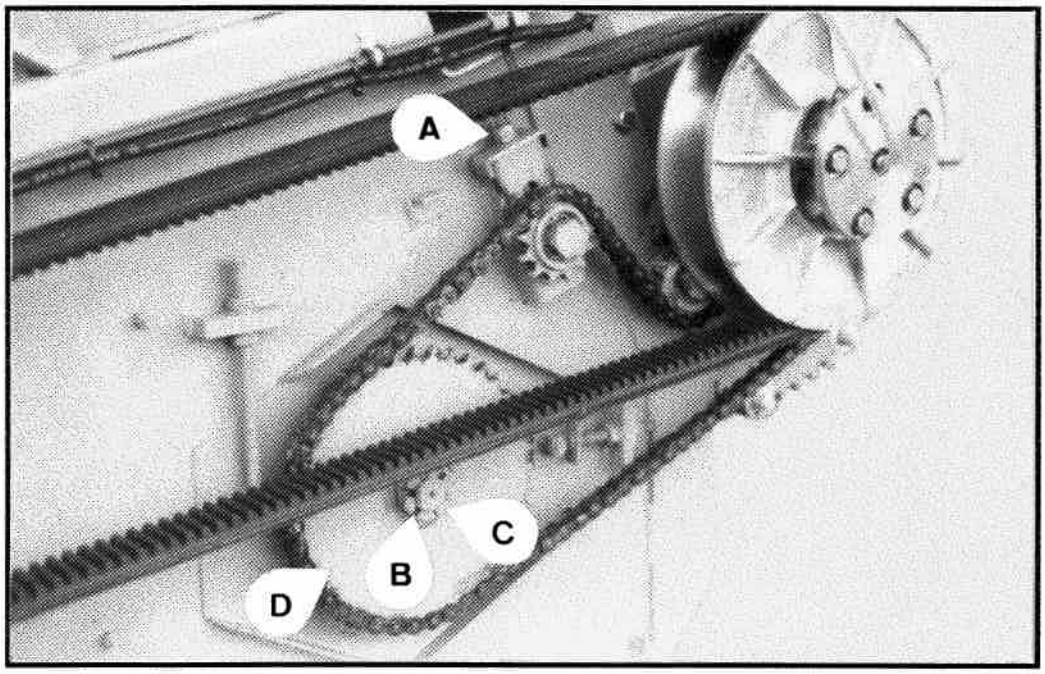
1. Loosen the auger drive chain by slackening the chain tensioner FIG 9.(A), and release the joining link allowing the chain to be removed.
2. Remove the cotter pin (B) from the centre of the auger drive sprocket, wedge the auger flight with a block of wood and release the auger sprocket retaining nut (C). Slide the sprocket (D) off the auger drive shaft.
3. Through the access hole in the auger support plate, align one of the spring adjusting studs. Loosen the locknut on the stud.
4. Turn the inner nut until the spring is compressed to the length of the spacer.
5. Tighten the outer locknut.
6. Repeat for all the other studs.
7. Replace the sprocket and retaining nut, Torque setting 325Nm (240lb/ft)
8. Replace the drive chain and re-tension as described in section 7.5.

⚠ Replace all guards.

Note;

If the clutch has slipped accessively the clutch plate teeth maybe worn, in such case they will need to be replaced.

FIG 9

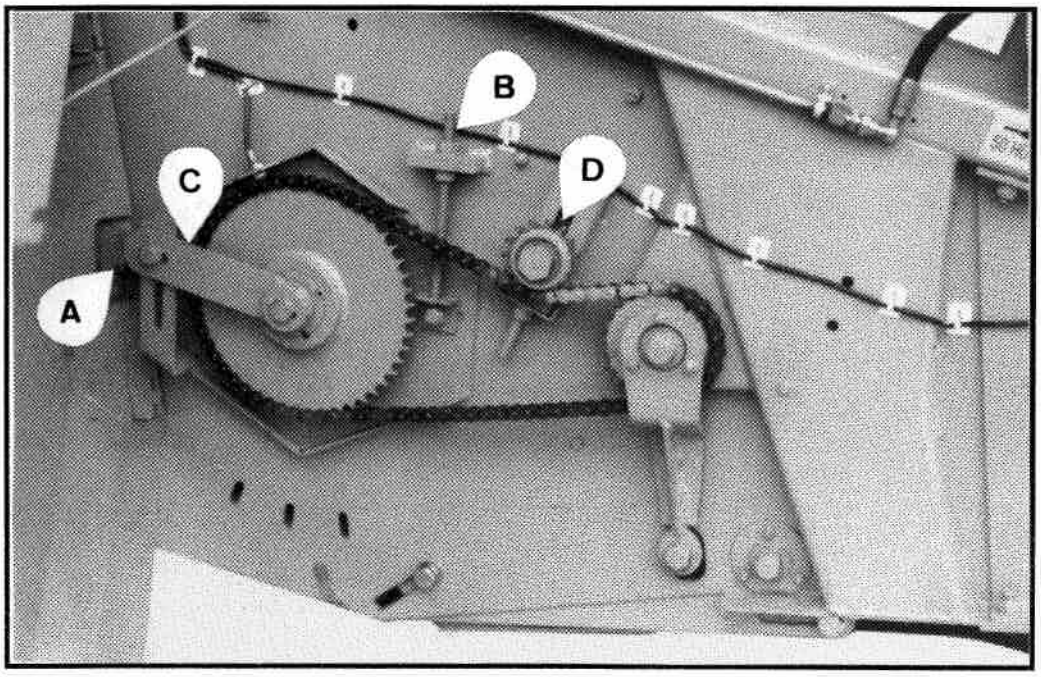


7.2

AUGER POSITION SETTING

The auger position is set at the factory. This pre-set position should be suitable for most crops and conditions, however, if the position needs to be altered the auger can be adjusted up or down FIG 10(B), and fore or aft, FIG 10(A).

FIG 10



NOTE: **When adjusting**, first slacken the LH auger drive chain, the RH shakerpan drive chain (*RXvs* only), and all stripper plate securing bolts.

1. To **move up or down**, slacken off the auger support plate locking bolt and adjust stud '**B**' as indicated. Adjust both ends of the auger equal amounts.
2. For **fore and aft** movements, slacken off the auger support plate locking bolt and adjust stud '**A**' as indicated. Again adjust both sides of the auger equal amounts.
3. Tighten bolts and locknuts when adjustment is complete.
4. Reset auger stripper plates (see section 7.4).

IMPORTANT -

After adjusting the auger, it should be rotated by hand to ensure that nothing on the auger fouls. There is a fixed stripper angle on the frame to the back of the auger, it is not adjustable and the auger may have to be repositioned slightly so the flights do not foul on it.

5. Re-adjust the drive chains to the correct tension.

⚠ Replace all guards.

7.3

AUGER FINGER ANGLE

The position of the auger finger retraction is pre-set at the factory. It is adjusted by opening the guard on the right hand side, slacken off the bolt on the handle as shown in FIG 10(C) and move the handle to the required position.

7.4

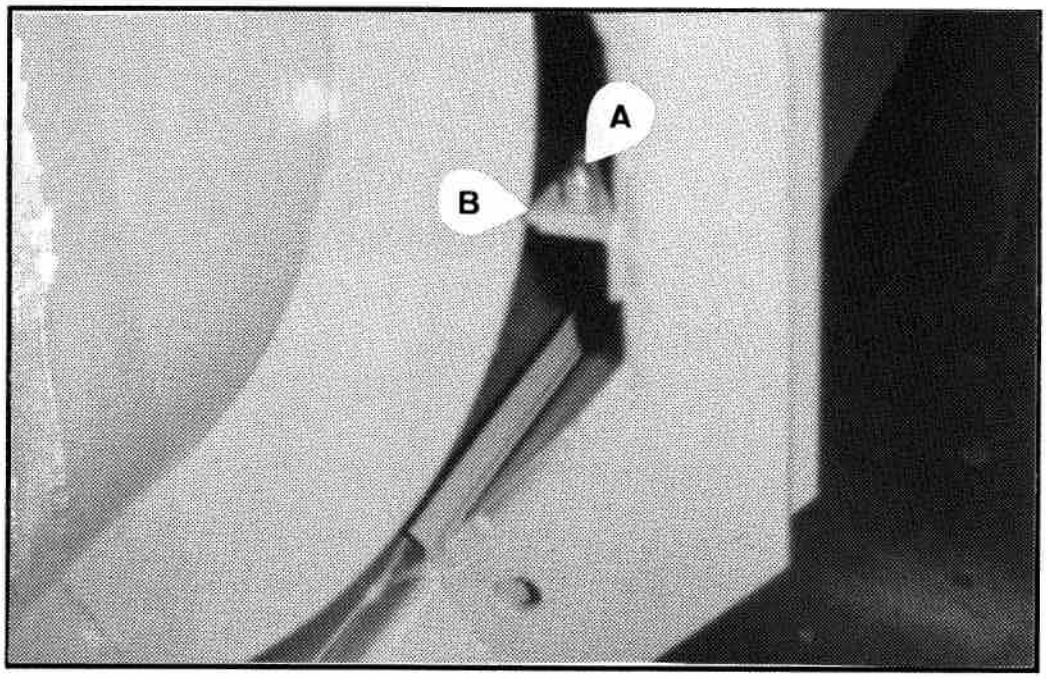
AUGER STRIPPER PLATES

There are two stripper plates each side of the header behind the auger across the width of the machine. The lower plate is fixed and cannot be adjusted, the upper rear stripper plate is adjustable FIG 11(B).

The upper stripper plates should be set approximately 3 to 5mm from the auger flight. They are adjusted by slackening all the bolts FIG 11(A) on the stripper plate and moving it on the slots before re-tightening.

The stripper plates on the adapter plate, are adjusted independently. These should be set back slightly in relation to the stripper plates on the frame so the crop does not catch on a leading edge.

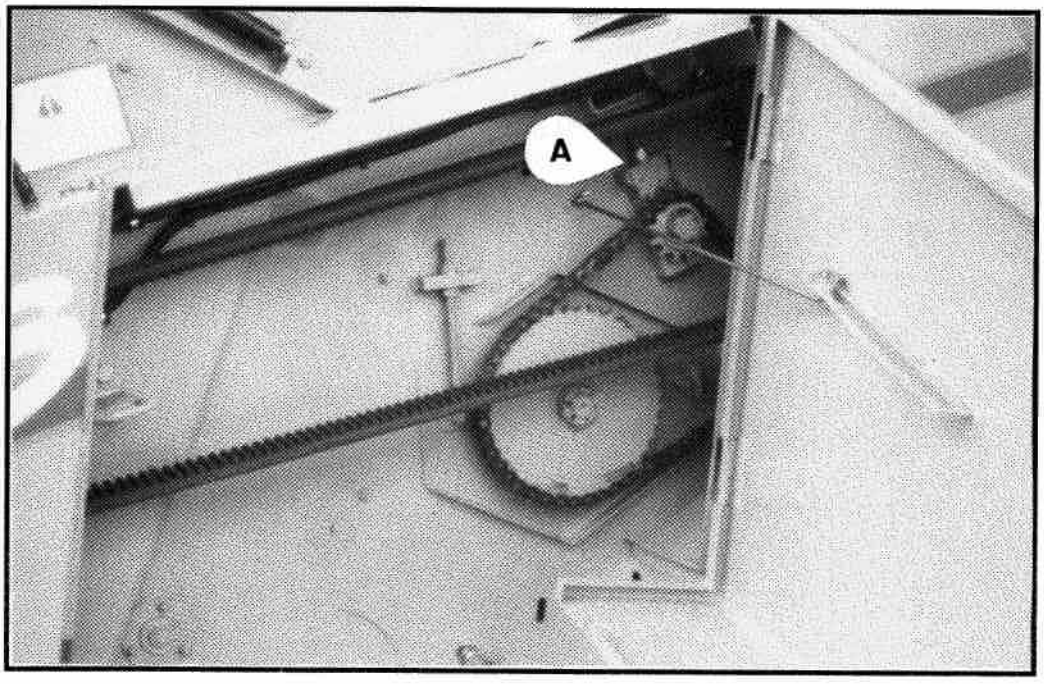
FIG 11



7.5

CHAIN TENSIONING

FIG 12



The LH auger drive and RH shakerpan (*RXvs* only) chains are fitted with jockey sprockets and idler adjusters, so that the chains can be correctly tensioned. The position of the adjusting idler for the auger is as shown in FIG 12(A).
The positon for the adjusting idler for the shakerpan is as shown in FIG 10(D).

To adjust the tension slightly loosen the centre idler support bolt. Then turn the nut on the adjusting stud to the correct chain tension. When complete tighten the centre idler support bolt, be sure to check that the chain tension does not increase as the support bolt is tightened.

7.6

SHAKERPANS

The shakerpans are a low maintenance design. The speed and stroke are fixed and do not need adjusting.

The back edge of the pan rests on a nylon wear strip and is held down with tension springs. The rubbing edge should be occasionally lubricated with silicon grease to ensure the pan runs smoothly.

7.7

STRIPPING ROTOR

⚠**CAUTION**
- Block or fit header safety latch before carrying out adjustments on the rotor.
- Engage the front cowl stop to the LH side arm.

Stripping elements

The plastic stripping elements, or crop engaging elements are sectioned into 600mm lengths, and secured with 4 bolts to allow replacement of individual sections.

Metal anti-wear plates bolt in front of the flexible plastic crop engaging elements, Fig.13 (B) these too are replaceable in sections.

Note; The joints of the plastic elements and metal anti-wear plates are staggered, therefore the ends are different to the centres and are handed left or right. This means different bolts need to be removed to change either the plastic element or the metal anti-wear plate.

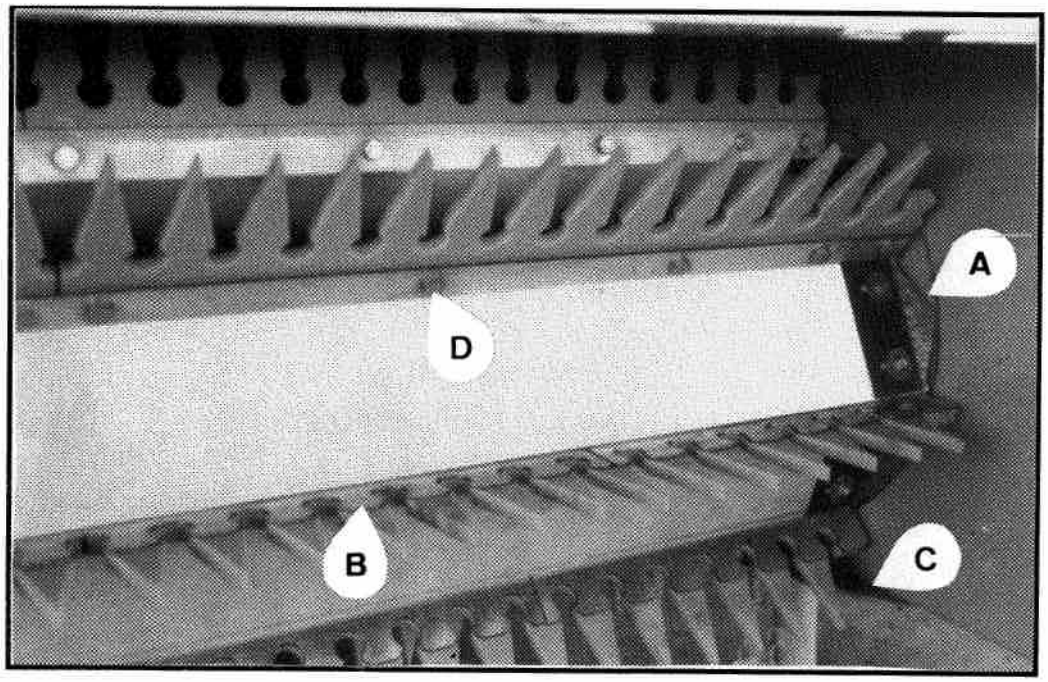
Anti-wrap plates

The ends of the rotor are fitted with a fixed dividing plate FIG 13(C) just below the rotor, and spring anti-wrap plates around the rotor circumference - FIG 13(A) to prevent the crop entering and wrapping in the rotor ends.

The spring anti-wrap plates around the rotor circumference are pre-set at the factory but if they need adjusting, follow the procedure below:

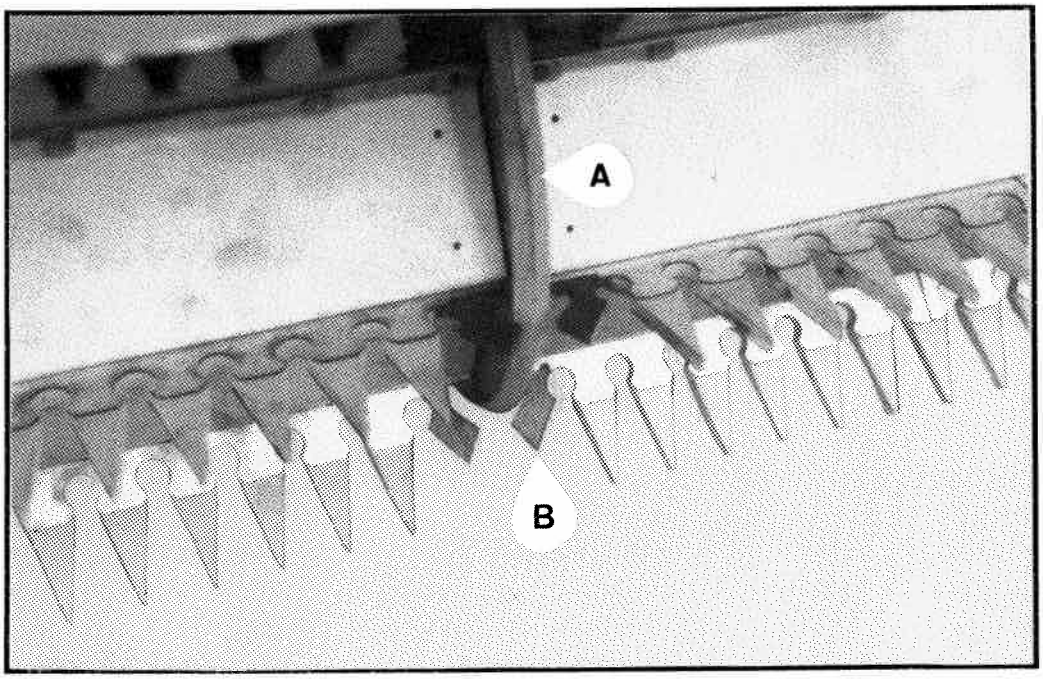
1. Loosen the two screws securing the plate as shown. FIG 13(A)
2. Push the anti-wrap plate to the machine side plate until the tip just touches.
3. Move the anti-wrap plate in a further 2mm, to apply slight spring pressure.
4. Tighten the two securing screws.
5. Repeat for the other plates.

FIG 13



The centre of the rotor is fitted with a replacable `vee' divider plate FIG 14(A), and anti-wrap finger (B). It is important to ensure that the vee strip overlaps the finger as shown.

FIG 14



7.8

STRIPPING ELEMENT WEAR ASSESSMENT

During the first hours of use, it will be noticed that the corners of the plastic stripping elements will round off, this is normal. The plastic elements can be used until the distance from the end of the anti-wear plate to the tip of the element is about 20 to 15mm, stripping efficiency will be poor if they are worn more than this.
Do not reverse the plastic elements!.

The metal anti-wear plates should be replaced when the holes become distorted or enlarged by approx 50%.

All rows of elements do not have to be replaced at the same time. However it is important that at least 4 opposing rows have good shaped elements for effective stripping. The **selected rows must be opposite** each other to keep the rotor in balance (180 degrees). This along with the partially worn ones, will give effective stripping.

If a single finger breaks off a section of a stripping element, the other fingers on the other rows around the rotor will compensate for it and stripping will still be just as efficient.

If a few fingers break off in the same area around or along the rotor, then these stripping element sections should be replaced.

Procedure to replacing stripping elements and anti-wear plates:-

1. ⚠ If the machine is on the combine, lift header and securely block or engage lift ram safety catch.
2. Lift the front cowl with the combine hydraulics and engage safety stop.
3. Each individual stripping element and anti-wear strip is secured to the rotor by 4 bolts. Each section can be clearly seen by the joints. Note that the stripping element joint is staggered with the anti-wear plate joint.
   Remove the 4 bolts FIG 13(D) securing the element or the anti-wear plate, and pull from the rotor.

Important:-

To prevent bolt holes becoming mis-aligned and the rotor becoming out of balance, loosen, remove and replace no more than 1 or 2 sections from the rotor at a time, tightening as they are changed.
Sometimes it may be necessary to slacken the first bolt of the neighbouring element to release the one you want to remove.

4. Place the new section in position. If it is difficult to push into the rotor, it may be tapped into place with a small bar in the bottom of the stripping holes.
5. Replace the 4 bolts including the spring washer.

⚠ ***CAUTION*** - Nut Lock (loctite) or locking bolts must be used on the element section securing bolts.

Do not overtighten the bolts, when correctly tightened they should just nip up the stripping elements.
Torque setting is approx 17lb/ft.

Important:-

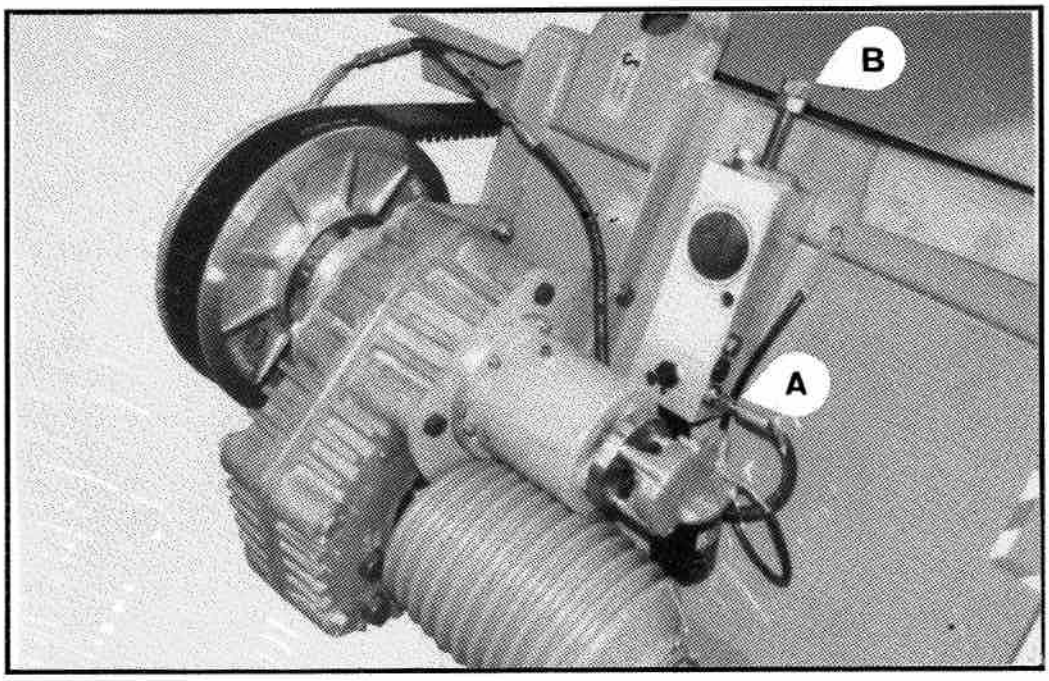
Do not remove the rotors from the header without consulting your dealer. The rotors should only be removed with reference to Bulletin TSB-01030. Failure to do this may result in rotor flexible coupling damage !

7.9

***vs* DRIVE BELT TENSION SYSTEM.**

The stripping rotor ***vs*** (***v***ari-***s***peed) drive belt is tensioned hydraulicaly. The maximum No load belt tension is pre-set by the belt tension control valve mounted on the rear top LH side of the *Shelbourne* Header. The accumulator on this control valve will automatically ensure belt tension is maintained during operation.
(Ref. Bulletin TSB-01040)

FIG 15



To check or to set the ***vs* drive belt tension:-**

Ensure the oil level in the reservoir covers the level window, before following procedure below. Top up with SAE 10W30 multi-grade engine oil.

1. Slacken the pipe fitting (A) FIG 15 on the valve block. Allow the oil to leak from the fitting, **do not** remove as this will let air in the system. The moment the oil stops flowing tighten the fitting.
2. Using a 24mm (15/16") socket and ratchet, turn the pump stud (B) FIG 15 fully anti-clockwise to withdraw the piston from the pump.
3. Wait about 5 seconds for the pump cylinder to fill with oil, then turn the pump stud clockwise to force oil to the belt tension pistons.
   Screw the pump as many times as required, turning the rotor by hand until the belt has tension on it. If the tension is only being checked the piston will only need to be pumped once.
   When the belt has some tension, screw the pump piston in about half way.
4. Engage the combine seperator and header drive and run for a few seconds.

5. Disengage the seperator and stop the combine.
6. Using the socket, screw the pump piston fully in.
7. The belt tension is now reset to the correct tension.

Bleeding the system-

If it is necassary to bleed air from the pistons:-

1. Remove all LH side guards by removing the securing bolts.
2. Slacken the pipe fitting (A) FIG 15 on the valve block. Allow the oil to leak from the fitting, **do not** remove as this will let more air in the system.The moment the oil stops flowing tighten the fitting.
3. Bleed the lower pulley piston first. Remove the front pulley protection plate (A) FIG 17. Tie this plate so that it does not hang on the hydraulic tension pipe.
4. Remove the five bolts (B) FIG 17 from the front pulley.
5. Using a 24mm (15/16") socket and ratchet, turn the pump stud (B) FIG 15 fully anti-clockwise to withdraw the piston from the pump.
6. Wait about 5 seconds for the pump cylinder to fill with oil, then turn the pump stud clockwise to force oil to the belt tension pistons.
7. This will push the front piston out of the bore. Hold the piston in the end of the bore while someone is pumping the oil through, until a stream of oil and no air is coming from the piston.
8. Slacken the pipe fitting (A) FIG 15 on the valve block. Allow the oil to leak from the fitting, **do not** remove as this will let more air in the system.
9. Push the front piston back into the bore, replace and tighten the screws (B) FIG 17.
10. Tighten the pipe fitting (A) FIG 15 on the valve block.
11. Repeat steps 3 to 10 for the top piston.
12. Tension the drive belt as described earlier in this section.
    Note- Do not slacken the hydraulic pipe (A) FIG 15 on the valve block when tensioning.

⚠ Replace all the guards before use.

7.10

***vs* DRIVE BELT POSITION ADJUSTMENT.**

The maximum and minimum rotor speed is pre-set on delivery. The speed range should be from approx 380rpm to 950rpm.

It is **important** that the top of the drive belt, when positioned for maximum or minimum rotor speed, is flush with the outer diameter of the pulley sheaves.
It **must not** protrude above the outer diameter of the pulley sheaves.

The position of the drive belt in the pulley sheaves is adjusted by rotating the front rotor drive gearbox in its mounting ring. Adjustment may occasionally be neccassary to reset the drive belt position as it wears during use.
To adjust the drive belt position:-

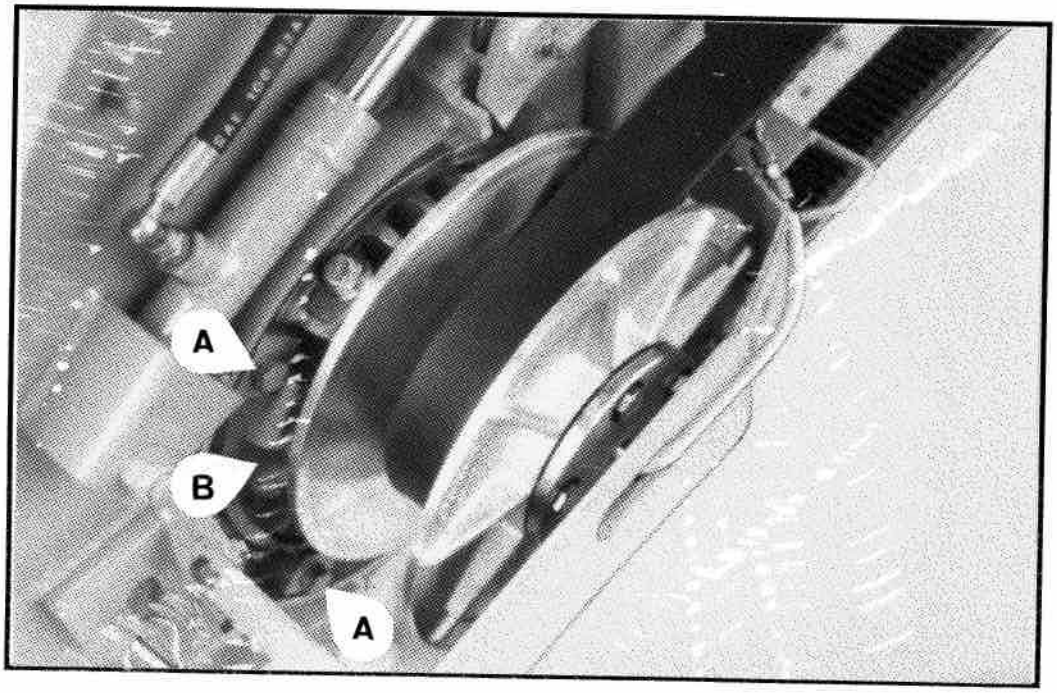
1. Remove all LH side guards by removing the securing bolts.
2. Run the header at idle (slowly), and operate the electrical switch vari-speed change to set the rotor speed at its minimum, (until the top input pulley sheave is fully open and at the end of its travel).
3. Stop the machine.
4. Look at the position of the drive belt on the front pulley sheaves, and note that if the drive belt is protruding the outside diameter, then the gearbox will need to be rotated anti-clockwise. If the drive belt is set in from the diameter of the pulley sheave then the gearbox will need to be rotated clockwise.
5. Slacken the hydraulic tension pipe at the fitting (A) FIG 15 on the tension valve block.
6. Push the belt along its length to force the front pulley open therefore slackening the belt tension.
7. Tighten the hydraulic tension pipe fitting, to prevent air getting in the line.
8. Slacken the 4 bolts holding the clamps around the gearbox casing (A) FIG 16.
9. Put a bar in the slot (B) FIG 16, and rotate the gearbox in the required direction.
10. Tighten the 4 clamp bolts.
11. Tension the belt as described in section 7.9.
12. Check the position of the drive belt on the front pulley sheaves and if necassary repeat the above procedure, until the outer edge of the drive belt is set flush with the outer diameter of the pulley sheaves.

⚠ Replace all the guards before use.

Note-

Setting the pulleys as described above will automatically set the drive belt position correct on the top (input) pulley sheaves, when the rotor speed is changed to maximum.

FIG 16



7.11

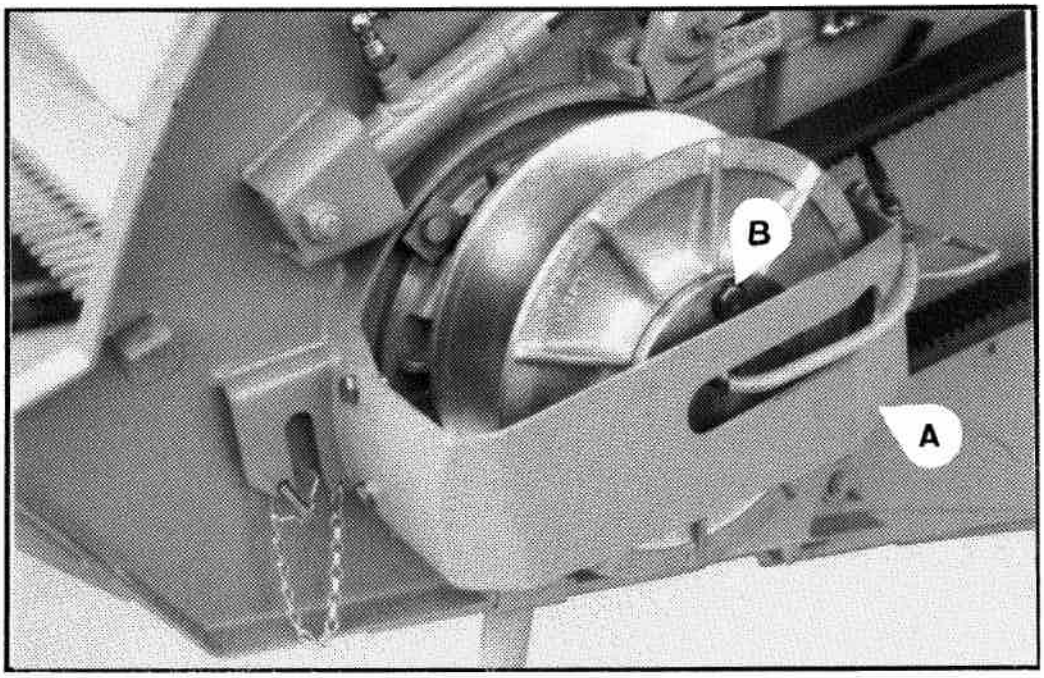
CHANGING THE *vs* DRIVE BELT.

To change the drive belt:-

1. Remove all LH side guards by removing the securing bolts.
2. Run the header at idle (slowly), and operate the electronic rotor speed adjuster to maximum (top pulley fully closed).
3. Stop the machine.
4. Slacken the hydraulic tension pipe at the fitting (A) FIG 15 on the tension valve block.
5. Turn on the power switch of *Shelbourne* Header controller unit. Operate the rotor speed switch to -, **Do not run the header**, to **almost** fully open the top pulley sheaves, the oil will leak from the hydraulic pipe. The belt will now be slack.
6. Tighten the hydraulic tension pipe fitting, to prevent air getting in the line.
7. Break the line at the fitting where the flexible joins the steel pipe of the top pulley piston. KEEP THE END UPRIGHT so the oil does not run from the steel pipe.
8. Remove the belt from the top pulley sheaves.
9. Reconnect the steel pipe, but it is not neccasary to tighten.
10. Remove the front pulley protection plate (A) FIG 17. Tie this plate so that it does not hang on the hydraulic tension pipe.
11. Remove the drive belt from the front pulley.
12. Fit the new drive belt to the front pulley.
13. Replace the front pulley protection plate (A) FIG 17.
14. Break the line again at the fitting where the flexible joins the steel pipe of the top pulley piston. KEEP THE END UPRIGHT so the oil does not run from the steel pipe.
15. Reconnect the line, leave loose, and operate the *Shelbourne* Header controller unit speed switch to - (do not go the wrong way or the system will have to be bled). This will leak oil and air at the fitting. Tighten the fitting.
16. Tension the belt as described in section 7.9. If neccassary bleed the top pulley. Note- It will be necassary to pump the piston several times before running the machine ensuring the belt has some tension on it.

⚠ Replace all guards

FIG 17



7.12

ADAPTOR AND DRIVE KIT VARATIONS

Combine type - Different adaptor plates are available for most modern combine models. The adaptor is in the rear of the header, and is interchangable with four bolts.
The input drive speed varies between different combine makes, therefore there are 2 interchangable select gears inside the input gearbox which determine the rotor drive output speed for the combine type. The gearbox has to be split to change the gears. These gears, and the auger drive sprocket will have to be changed for different combine models, to ensure the machine runs at the correct speeds.

⚠ **Do not run the machine with the wrong gears and sprocket fitted.**

Consult your dealer if you need to change the header to fit a different combine.

SECTION 8 LUBRICATION

Your *Shelbourne* Header is designed to reduce down time and therefore requires the minimum amount of lubrication.

Most of the bearings are of the sealed type, requiring no maintenance.

⚠**CAUTION** - Stop engine before lubricating.

Chains

All chains as indicated, should be lubricated daily, and after work so that the oil will adhere to the chain to provide good lubrication.

Use an aerosol chain lubricant or SAE 90 gear oil.
Note: If your combine has a maize drive kit, with a chain to drive the header, this too should be lubricated daily.

Pivot points

It is recommended that all pivot points which may become stiff from corrosion should be occasionally oiled.

Input *vs* gearbox

To check the level of the gearbox, lower the header onto the skids, on level ground.

The oil level should just cover the top of the clear level plug. Remove the top filler breather plug on the side of the gearbox. Replenish with (synthetic) MOBILUBE S.H.C. oil or equivalent to the level of the plug.

The gearbox capacity is 0.75 litre (1.65 pints)

Rotor *vs* gearbox

To check the oil level in the rotor gearbox the oil must be drained from the plug in the bottom of the gearbox. Ensure the header height is set so the plug is in the lowest position. When drained replace the plug.
Remove the top filler plug and replenish with 0.75 litre of oil type (synthetic) MOBILUBE S.H.C. or equivalent.

The gearbox capacity 0.75 litre (1.65 pints)

Note - all gearboxes

After the first 20 hours of use the oil should be drained from all gearboxes and replaced with the recommended type.

Oil should then be changed annually.
Only the recommended lubricant oils should be used.

The pulley tension pistons and sleeves through the outer pulley should be oiled occassionally to prevent corrosion.

Grease the following points at 10 hour intervals;

1. Universal joints.

Grease the following at 50 hour intervals;

1. Rotor RH end bearing.
2. Adjustable deflector pivot arm bushes.
3. Top cowl pivot bushes.

NOTE:- Grade of grease to be used - Mobilux EP3 or equivalent.

SECTION 9 STORAGE OF THE HEADER

The following procedure should be followed prior to off-season storage of your *Shelbourne* Header to preserve and protect your machine.

1. If removing the *Shelbourne* Header from the combine, support on the trailer, or on the back of the skids and the front stands provided to prevent header damage.

2. Thoroughly clean the interior and exterior of the header, as any chaff, straw and dirt left on the machine will draw moisture and cause corrosion.

3. Clean and lubricate all chains with oil.

4. Dismantle the auger slip clutch, check and lubricate before reassembly. When assembling leave the springs slack for storage.

5. Lubricate the machine thoroughly as described in the lubrication section of this manual.

6. Coat all the bright parts with paint or anti-rust preservative to protect them.

IMPORTANT:

Do not put any oil, paint, preservative etc on the plastic stripping fingers as it may damage them.

7. Retract the hydraulic rams of the front deflector.

8. Release rotor drive belt tension. (See section 7.9)

9. Lubricate the pulley tension pistons and sleeves.

10. Store the header in a dry place protected from the weather and rodents.

11. Use the combine operators manual for storage procedure of your combine.

SECTION 10 APPENDIXES

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