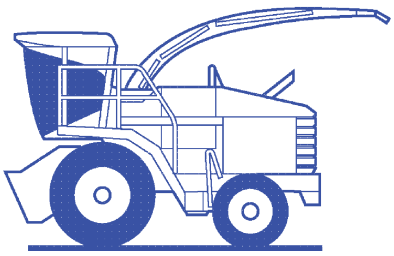
NEW HOLLAND

FX30
FX40
FX50
FX60

OPERATOR'S MANUAL



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NEW HOLLAND

NEW HOLLAND

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OPERATOR'S MANUAL

NEW HOLLAND

CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT

Your Warranty Rights and Obligations

The California Air Resources Board and New Holland are pleased to explain the emission control system warranty on your engine. In California, new 1997 and later heavy-duty off-road engines from 100 to 150 HP must be designed, built, and equipped to meet the State's stringent anti-smog standards. New Holland must warrant the emission control system on your engine for the periods of time listed below, provided there has been no abuse, neglect, or improper maintenance of your engine.

Your emission control system includes parts such as the fuel injection system and the air induction system.

Where a warrantable condition exists, New Holland will repair your heavy-duty off-road engine at no cost to you, including diagnosis, parts, and labor.

Manufacturer's Warranty Coverage:

The 1997 and later heavy-duty off-road engines are warranted from the original date of delivery for five years or 3,000 hours of operation, whichever occurs first. If any emission-related part on your engine is defective, the part will be repaired or replaced by New Holland.

Owner's Warranty Responsibilities:

- As the heavy-duty off-road engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual. New Holland recommends that you retain all receipts covering maintenance on your heavy-duty off-road engine, but New Holland cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
- As the heavy-duty off-road engine owner, you should, however, be aware that New Holland may deny you warranty coverage if your heavy-duty off-road engine or a part has failed due to abuse, neglect, improper maintenance, or unapproved modifications.
- Your engine is designed to operate on commercially available diesel fuel only. Use of any other fuel may result in your engine no longer operating in compliance with California's emissions requirements.
- You are responsible for initiating the warranty process. The ARB suggests that you present your heavy-duty off-road engine to a New Holland dealer as soon as a problem exists. The warranty repairs should be completed by the dealer as expeditiously as possible.

If you have questions regarding your warranty rights and responsibilities, you should contact your Branch Office at the address and phone number listed on the Owner Assistance page of your equipments operator manual.

- Prior to the expiration of the warranty, you must give notice of any failure of an emission control warranted part. Such notice must be given to New Holland or an authorized dealer, and you must deliver the engine to the repair location.
- You, the owner, are responsible for incidental costs incurred by yourself or your employees as a result of a warrantable failure. Examples of such costs are communication expenses, meals and lodging.
- The owner is responsible for any business costs or losses, any "downtime" expenses and any "cargo" damage which result from the failure of a warranted part. New Holland is not responsible for other incidental or consequential damages, including but not limited to fines, theft, vandalism or collisions.

Parts covered:

This emission control system warranty applies to the following emission control parts.

Fuel Injection Pump
Fuel Injectors
Turbocharger
Intake Manifold
Exhaust Manifold
Boost Pressure Tubing-connection to Aneroid Device ON F.I.P.

Any replacement part, equivalent in performance and durability, may be used in the performance of any maintenance or repairs and must be provided without charge to the owner. The use of these parts does not reduce the warranty obligations of New Holland. However, New Holland recommends the use of new, genuine New Holland service parts or New Holland approved rebuilt parts and assemblies. New Holland also recommends that the engine be serviced by a New Holland authorized dealer.

New Holland Responsibilities

Warranty work will be provided at no charge to the owner at any authorized dealer, using new genuine New Holland service parts or New Holland approved rebuilt parts or assemblies..

The owner will not be charged for diagnostic labor which leads to the determination that a warranted part is defective, if the diagnostic work was performed at a warranty station.

New Holland is liable for damages to other engine components caused by the failure under warranty of any warranted part.

Warranty Limitations

New Holland is not responsible for failures resulting from abuse or neglect by owner or operator.

New Holland warrants to the ultimate purchaser and each subsequent purchaser that the engine is designed, built, and equipped so as to conform with all applicable regulations adopted by the Air Resources Board, and that it is free from defects in materials and workmanship which cause the failure of a warranted part.

Any warranted part which is not scheduled for replacement as required maintenance, or which is scheduled only for regular inspection to the effect of "repair or replace as necessary" is warranted for the warranty period.

Any warranted part which is scheduled for replacement as required maintenance is warranted for the period of time prior to the first scheduled replacement point for that part.

New Holland is liable for damages to other engine components caused by the failure under warranty of any warranted part.

FEDERAL EMISSIONS WARRANTY

(California owner's emissions warranty is covered elsewhere)

New Holland warrants that your new 1996 and later heavy-duty off-road diesel engine was designed, built, and equipped to conform to applicable U.S. Environmental Protection Agency regulations for a period of use of five years or 3,000 hours of operation, whichever occurs first.

The new model year, class of diesel engine, and emission application determination for your engine are identified on the emission control information label affixed to the top of your engine's rocker arm cover. The warranty period begins on the date the new equipment is sold to the first retail purchaser.

Any emission control system parts which are proven defective during normal use will be repaired or replaced during the warranty period. The warranty repairs and service will be performed by any authorized New Holland dealer at the dealer's place of business, with no charge for parts or labor (including diagnosis).

As the engine owner, you are responsible to perform all the required maintenance listed in your owner's manual. New Holland will not deny an emission warranty claim solely because you have no record of maintenance; however, a claim may be denied if your failure to perform maintenance resulted in the failure of a warranted part. Receipts covering regular maintenance should be retained in the event of questions and these receipts should be passed on to each subsequent owner of the engine.

It is recommended replacement parts used for maintenance or repairs be New Holland Service Parts to maintain the quality originally designed into your emission certified engine. The use of non-New Holland parts does not invalidate the warranty on other components unless the use of such parts causes damage to warranted parts.

New Holland wishes to assure the emission control systems warranty is being properly administered. If you believe you have not received the service entitled to under this warranty, you should contact the nearest New Holland Branch Office for assistance. The address and phone number of each Branch Office is in your vehicle owner's manual. If additional assistance or information is needed, contact:

Service Department
New Holland North America, Inc.
500 Diller Avenue
New Holland, PA 17557
(717) 355-1121

Please note that the Emission Warranty does not cover:

1. Systems and parts that were not first installed on the new equipment or engine as original equipment by New Holland.
2. Part malfunctions caused by abuse, misuse, improper adjustment, modification, alteration, tampering, disconnection, improper or inadequate maintenance, or use of non-recommended fuels and lubricating oils.
3. Accident caused damage, acts of nature, or other events beyond New Holland's control.
4. Replacement of expendable items made in connection with scheduled maintenance.
5. Parts requiring replacement, inspection or adjustment maintenance intervals for reasons other than being defective.
6. Parts which are not New Holland Service Parts.
7. Loss of time, inconvenience, loss of use of equipment/engine or commercial loss.
8. Equipment with altered or disconnected hourmeter where the hours cannot be determined.
9. Equipment normally operated outside the United States.
10. Non-defective parts replaced by other than New Holland dealers.

Coverage

This emission control system warranty applies to the following 675TA/V emission control parts.

Fuel Injection Pump
Fuel Injectors
Turbocharger
Intake Manifold
Charge Air Cooler
Exhaust Manifold
Boost Pressure Tubing-connection to Aneroid Device ON F.I.P.

(North America Only)
(California Only)

CALIFORNIA

Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.

GENERAL

This manual has been prepared to assist you in the correct procedure for running in, driving, operating, adjusting and maintaining your new machine.

This machine has been designed and built to give maximum performance, economy and ease of operation under a wide variety of crops and conditions.

Prior to delivery, your machine was carefully inspected both at the factory and by your dealer to ensure that it reaches you in optimum condition. To maintain this condition and ensure trouble-free operation it is important that routine services, as specified in this manual, are carried out at the recommended intervals.

Before attempting to drive or operate your machine, read this manual carefully (especially the chapter covering the Safety Precautions) and keep it in a convenient place for future reference.

”Left” and ”right” used throughout this manual are determined from the rear, facing in the direction of travel of the machine during operation.

If at any time you require advice concerning your machine, do not hesitate to contact your authorised dealer. He has factory–trained personnel, genuine service parts and the necessary equipment to carry out your service requirements.

IMPORTANT:

This machine has been designed and built according to the European Directive EEC/89/392.
Always use genuine New Holland Service Parts when servicing and repairing your machine and do not modify your machine without a written permission of the manufacturer. Failure to do so will void the responsibility of the manufacturer.

An EC Declaration of Conformity is separately delivered with your machine.
Store this EC Declaration into the storage space for your Operator’s Manual (refer to section 2 - Controls, Instruments and Operation).

The maximum road speed of your machine is limited and sealed. Do not remove the seal.

Check local road legislation before driving the machine on public roads.

When operating interchangeable New Holland built equipment, ensure the equipment is CE approved.

As this publication is distributed throughout our international network, the equipment illustrated, either as standard or as an accessory, may vary according to the country in which the equipment is to be used. Low cost configurations, as chosen by the customer, may deviate from the specifications given.

Several figures in this manual show the safety guarding or the additional guards, legally required by certain countries, open or removed to illustrate better a particular feature or adjustment. The machine must not be used in this condition. For your own safety, ensure that all guards are closed or replaced before operating the machine.

OWNER ASSISTANCE

We at New Holland and your New Holland dealer want you to be completely satisfied with your investment. Normally your dealer's Service Department will handle any problems with your equipment. Sometimes, however, misunderstanding can occur. If your problem has not been handled to your satisfaction, we suggest contacting the owner or General Manager of the dealership, explaining the problem, and requesting assistance. When additional assistance is needed, your dealer has direct access to our branch office.

COMPANY POLICY

Company policy, which is one of continuous improvement, reserves the right to make changes in design and specification at any time without notice and without obligation to modify units previously built.

All data given in this book is subject to production variations. Dimensions and weights are approximate only and the illustrations do not necessarily show the machine in standard condition. For exact information about any particular machine please consult your Dealer.

ACCESSORIES AND OPTIONS

Your machine has been designed to operate in a wide variety of crops and conditions. Nevertheless additional equipment may, in certain cases, be required to improve the machine performance. A list of this additional equipment is given in the "Accessories" section in this manual.

PARTS AND ACCESSORIES

Genuine New Holland parts and accessories have been specifically designed for New Holland machines.

We would like to point out that "non-genuine" parts and accessories have not been examined and released by New Holland. The installation and/or use of such products could have negative effects upon the design characteristics of your machine and thereby affect its safety. New Holland is not liable for any damage caused by the use of "non-genuine" parts and accessories.

Rely on your authorised dealer to supply you with genuine New Holland parts only. These parts are covered by our warranty and will give you the best performance.

When ordering service parts, always quote the model and serial number, as well as the year of manufacture printed on the manufacturer's identification plate (refer to chapter General Information).

LUBRICANTS

Your dealer sells a selection of specially formulated lubricants based on own engineering specifications.

Recommended lubricants for your machine are listed on the inside back cover of this manual.

WARRANTY

Your machine is warranted according to legal rights in your country and the contractual agreement with the selling dealer. No warranty shall, however, apply if the machine has not been used, adjusted and maintained according to the instructions given in this Operator's Manual.

It is prohibited to carry out any modifications to the machine unless specifically authorised, in writing, by a New Holland representative.

CLEANING YOUR MACHINE

Your machine is a state-of-the-art machine with sophisticated, electronic controls. Even though every precaution has been taken to safeguard electronic components and connections, the pressure generated by some pressure washers is such that complete protection against water ingress cannot be guaranteed.

When using a high pressure washer, do not stand too close to the machine and avoid directing the jet at electronic components, electrical connections, breathers, seals, filler caps, etc.

IMPORTANT ENVIRONMENTAL CONSIDERATIONS

Soil, air and water are vital factors of agriculture and of life in general. Where legislation does not yet rule the treatment of some of the substances, which are required by advanced technology, common sense should govern the use and the disposal of the products of a chemical and a petrochemical nature.

The following are recommendations, which may be of assistance:

Become acquainted with and respect the relative legislation applicable in your country.

Where no legislation exists, obtain information from suppliers of oils, fuels, antifreeze, cleaning agents, etc. for their effect on man and nature and for safe ways of storage, usage and disposal. Agricultural consultants will, in many cases, be able to help you as well.

HELPFUL HINTS

Avoid filling fuel tanks using jerrycans or inappropriate pressurized fuel delivery systems which may cause considerable spillage.

In general, avoid skin contact with all oils, acids, solvents, etc. Most of them contain substances which can be harmful to your health.

Use biodegradable oils for chain lubrication where oils cannot be recuperated. In many countries rapeseed oils or other agro-based lubricants have become available.

Modern oils contain additives. Do not burn contaminated fuels and/or waste oils in ordinary heating systems.

Avoid spillage when draining off used engine coolant mixtures, engine, gearbox and hydraulic oils, brake fluids, etc. Do not mix drained brake fluids, fuels or coolant mixtures with lubricants. Store them safely until they can be disposed of in a proper way to comply with local legislation and available resources. They should not be allowed to get into the soil but should be collected and disposed of safely.

Do not open the air-conditioning system yourself; it contains gases, which should not be released into the air. Your dealer has a special extractor for this purpose and will have to do the recharging of the system anyway.

Repair any leaks or defects in the engine cooling or the hydraulic system immediately.

Do not increase the pressure in a pressurized circuit as this may lead to bursting of the components.

Protect hoses during welding as penetrating weld splatter may burn a hole or weaken them, causing the loss of oils, coolant, etc.

Battery recycling
Batteries and electric accumulators contain various components which can damage the environment if they are not properly recycled after usage. New Holland strongly recommends that you return all used batteries (starting batteries and small ”dry” batteries which may be used in electric or electronic systems) to your New Holland dealer who will ensure proper disposal or recycling. In certain countries this is a legal requirement.

SECTION QUICK REFERENCE

TABLE OF CONTENT

section 1 - General information and Safety

section 2 - Controls, Instruments and Operation

section 3 – Field and Site operation

section 4 - Lubrication and Maintenance

section 5 - Fault finding

section 6 - Vehicle storage

section 7 - Accessories

section 8 - Specification

section 9 - 1st 50 hour service sheets

section 10 - INDEX

SECTION 1 - GENERAL INFORMATION AND SAFETY

INTENDED USE

The New Holland Forage Harvesters are designed as self-propelled units and are powered by an on-board diesel engine.

They are intended to be used to cut or pick up, chop and blow forage crops including, but not limited to, mixed hay/grasses, high-moisture cereals, maize and luzerne for agricultural or industrial purposes on cultivated land.

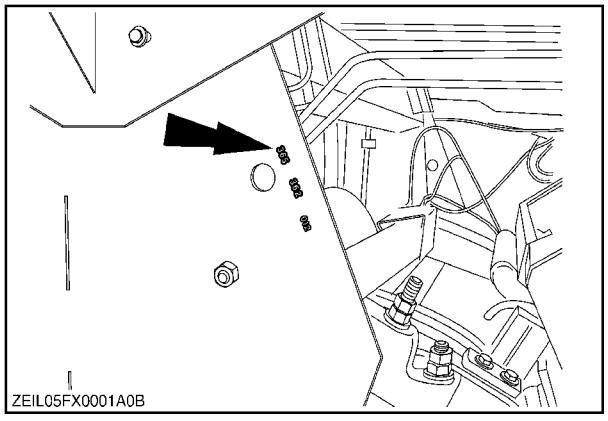
PRODUCT IDENTIFICATION

The serial numbers of the forage harvester, its engine, certain components and attachments can be found in the following locations:

BASE UNIT

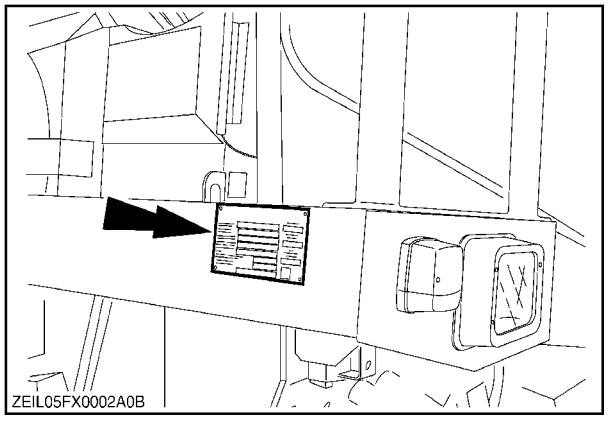
The forage harvester serial number and model number are located in two places:

- stamped in the right-hand side of the frame, just under the cab.



1

- on the manufacturer's identification plate, attached to the right-hand side platform.



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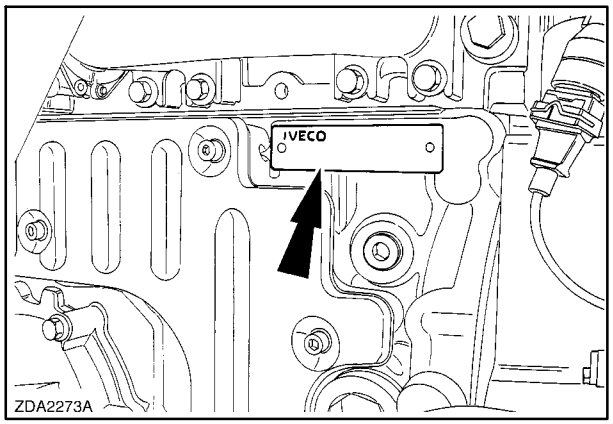
ENGINE

The engine serial number is stamped in an identification plate:

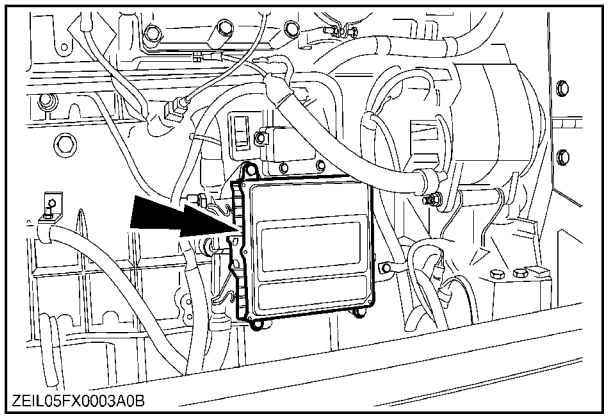
Model FX30-40-50

- On the serial number plate located on the right-hand side of the cylinder block.



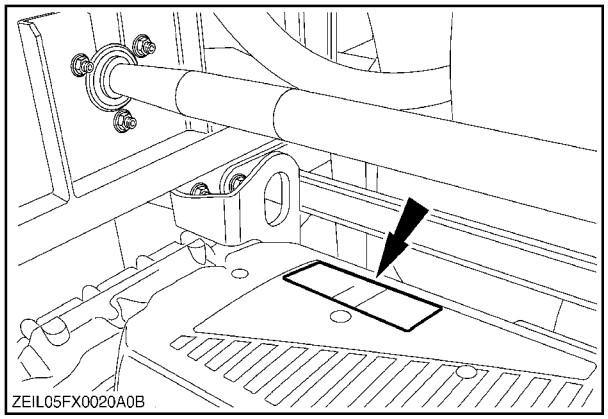
3

- On the Engine Control Unit (ECU) information plate located on the left-hand side of the engine.



4

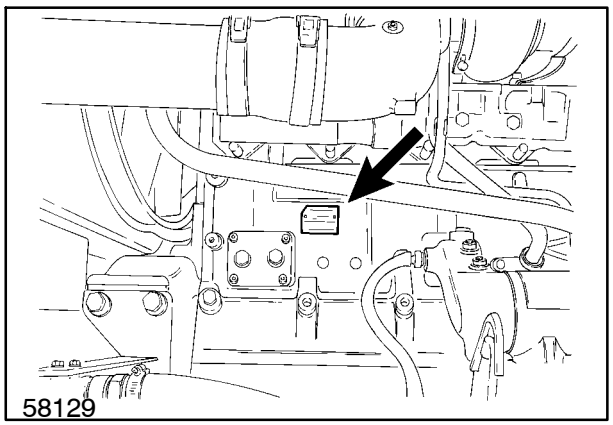
- On the information plate located on the top of the valve cover.



5

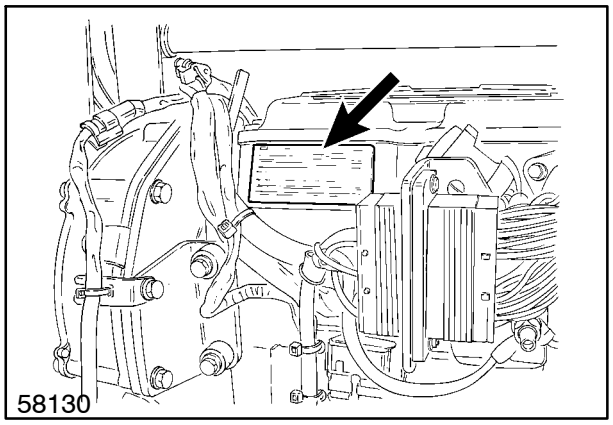
Model FX60

- On the serial number plate located on the left-hand side of the cylinder block.



6

- On the information plate located on the right-hand side on the valve cover.

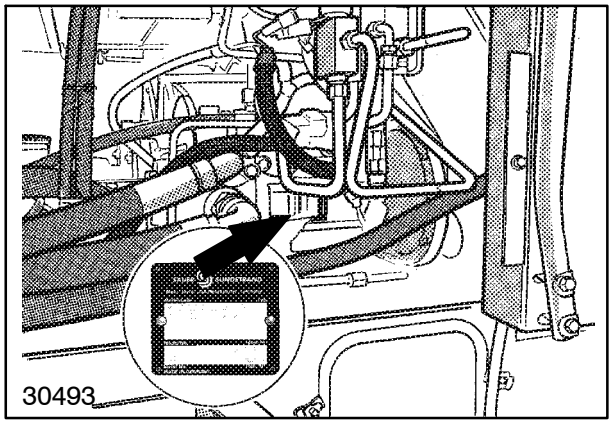


7

HYDROSTATIC PUMPS

The hydrostatic pump serial number is printed on the manufacturer's identification plate attached to the pump. The pumps are located on the left-hand side of the forage harvester, behind a guard.

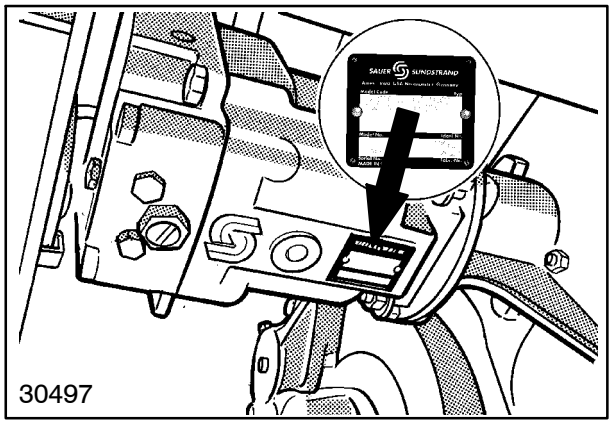
NOTE: *In the illustration shown the guard has been removed for clarity.*



8

HYDROSTATIC MOTORS

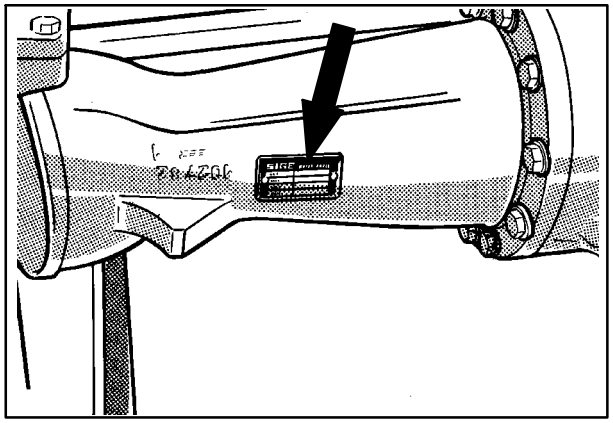
The hydrostatic motor serial number is printed on the manufacturer's identification plate attached to the motor, on the left-hand side underneath the base unit and on the left-hand side of the cutterhead.



9

POWERED REAR AXLE

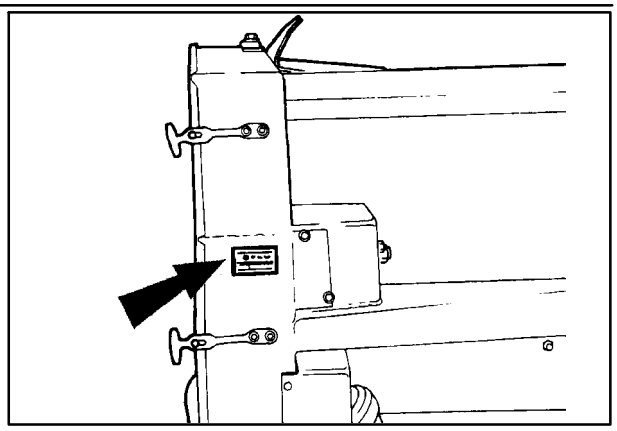
The serial number of the mechanical 4-wheel drive rear axle is printed on the manufacturer's identification plate located on the right-hand front side of the rear axle.



10

PICK-UP

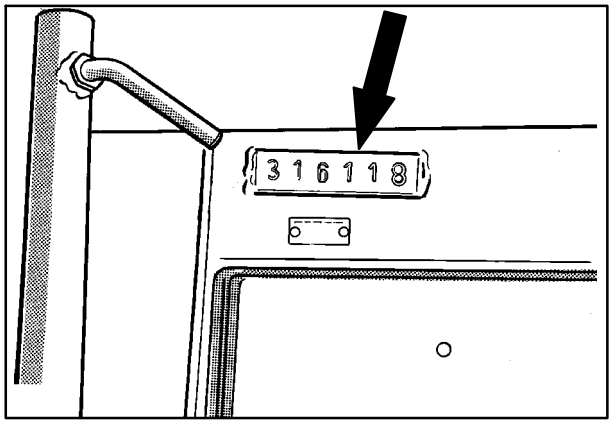
The serial number of pick-up models 346W, 356W and 366W is stamped on the manufacturer's plate located on the left-hand rear side of the attachment.



11

MAIZE HEADER 300N6

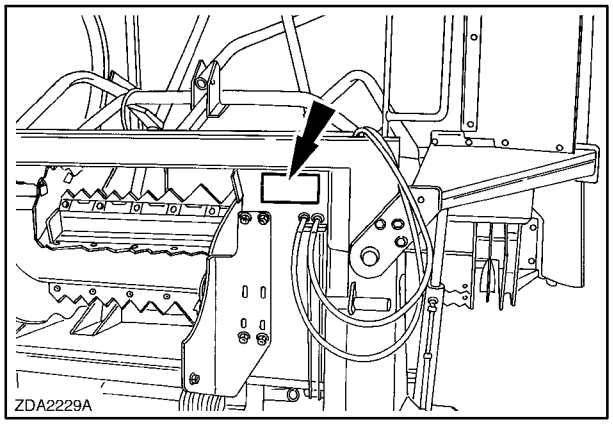
The serial number of 6-row crop attachment model 300N6 is stamped on the manufacturer's plate and in the frame, on the rear side of the left-hand upper frame member.



12

ROW INDEPENDENT HEADER

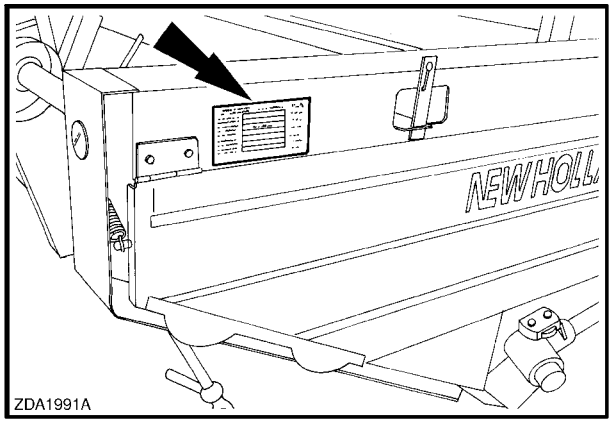
The serial number of row independent corn headers RI450 and RI 600 is stamped on the manufacturer's plate located on the right-hand rear side of the attachment.



13

DIRECT CUT HEADER

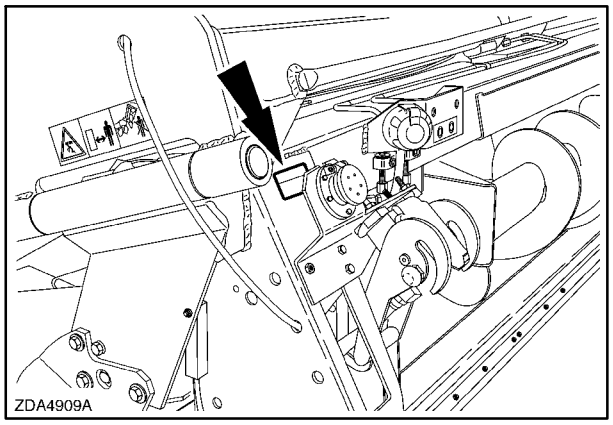
The serial number of the Direct Cut header model DC510 is stamped on the manufacturer's plate located on the right-hand side of the attachment.



14

MAIZE SNAPPER HEADER

The serial number of the maize snapper header models MF600 and MF800 is stamped on the manufacturer's plate located on the left-hand front side of the attachments top main beam.



15

Record below the serial numbers of your machine for quick reference:

Forage harvester model . . . . . .

Forage harvester serial number . . . . . .

Engine model . . . . . .

Engine serial number . . . . . .

Pick-up attachment model . . . . . .

Pick-up attachment serial number . . . . . .

Row crop attachment model . . . . . .

Row crop attachment serial number . . . . . .

Other attachment model . . . . . .

Other attachment serial number . . . . . .

Hydrostatic pump serial number . . . . . .

Hydrostatic motor serial number . . . . . .

Mechanical 4-wheel drive rear axle serial number . . . . . .

Start-off date of the machine . . . . . .

ATTACHMENT INFORMATION

Your forage harvester can be equipped with the following New Holland attachments:

Attachment	FX30	FX40	FX50	FX60
Pick-up				
346W	x	x	x	x
356W	x	x	x	x
366W	x	x	x	x
Row crop				
300N6	x	x	x	x
RI450	x	x	x	x
RI600			x	x
MF600	x	x	x	x
MF800			x	x
Direct Cut				
DC 510	x	x	x	x

AIRBORNE NOISE EMISSION

In line with the European directive (EEC/86/188) and national legislation, listed below are the noise levels at the operator's ear, measured in dBa, according to the ISO 5131 standard.

The noise is measured with the engine and all mechanisms engaged and running at normal operating speed for the specified use of the product and without crop flow through the machine. The noise is measured with all windows and doors closed and also in the open position.

It should be noted that the noise level may exceed 85 dBa if the machine is equipped with a cabin, but operating with doors and/or windows open.

In these cases, the use of ear protection gear is recommended. In several countries this is mandatory, so check local legislation.

Machine model	Engine	Noise level (dBa)
		Cabin doors and windows closed
FX30	IVECO CURSOR F3A	81
FX40	IVECO CURSOR F3B	82
FX50	IVECO CURSOR F3B	82
FX60	CATERPILLAR C15	83

VIBRATION LEVEL INFORMATION

The vibration level for the arms to which the operator of this machine is exposed under normal operating conditions is below the 2.5 m/sec^2 weighted root means square (RMS) value. The vibration level for the whole body is below the 0.5 m/sec^2 RMS value.

This information and measuring methods are in line with the European Machinery Directive 89/392 EEC paragraph 3.6.3.

ELECTRO MAGNETIC COMPATIBILITY (EMC)

This product complies with the EEC directive 89/336 on Electromagnetic Interferences on electronic equipment if it is used in conjunction with equipment which bears the CE mark.

New Holland will take no liability for any problem arising as a result of its product working in an environment of other equipment which does not comply with the EEC directive.

Disturbances remain possible if added equipment does not meet the standards. As these interferences may result in serious malfunction of the machine and/or create unsafe situations the following instructions must be observed:

- Each element of non New Holland equipment added to this New Holland product must bear a CE mark.
- The maximum power of emission equipment (radio, telephones, etc.) must not exceed the limits imposed by the national authorities of the country of usage of the machine.
- The electromagnetic field generated by the added system must not exceed 24 V/m at any moment and at any location in the proximity of electronic components and the network between them over the entire machine.

SAFETY REQUIREMENTS FOR FLUID POWER SYSTEMS AND COMPONENTS - HYDRAULICS (EUROPEAN STANDARD PR EM 982)

Flexible hose assemblies must not be constructed from hoses which have been previously used as part of a hose assembly.

Do not weld hydraulic piping.

When flexible hoses or piping are damaged, replace them immediately.

It is forbidden to modify a hydraulic accumulator by machining, welding or any other means.

Before removing hydraulic accumulators for servicing, the liquid pressure in the accumulator must be reduced to zero.

Pressure check on hydraulic accumulators shall be carried out by method recommended by the accumulator manufacturer.

Care must be taken not to exceed the maximum allowable pressure of the accumulator. After any check of adjustment there must be no leakage of gas.

LEGAL OBLIGATIONS

Your machine may be equipped with special guarding or other devices in compliance with local legislation. Some of these require active use by the operator.

Therefore, check local legislation on the usage of this machine.

SAFETY PRECAUTIONS

Farm accidents can be prevented with your help

No accident prevention programme can be successful without the wholehearted cooperation of the person who is directly responsible for the operation of the equipment.

To read of accident reports from all over the country is to be convinced that a large number of accidents can be prevented only by the operator anticipating the result before the accident is caused and doing something about it.

It is said that "The best kind of safety device is a careful operator who with care and mature consideration can save more lives and limbs than any accident prevention programme which is not adhered to".

Further in this section you will find a list of the most important safety precautions.

⚠ CAUTION ⚠

This symbol is used throughout this manual whenever your personal safety is involved.

Take time to read and follow the instructions and furthermore, be careful!

Some pictures in this manual may show the safety guarding open or removed to better illustrate a particular feature or adjustment.

Ensure to close or replace all guards before operating the machine.

PRECAUTIONARY STATEMENTS

PERSONAL SAFETY

Throughout this manual and on machine decals, you will find precautionary statements ("CAUTION", "WARNING", AND "DANGER") followed by specific instructions. These precautions are intended for the personal safety of you and those working with you. Please take the time to read them.

⚠ CAUTION ⚠

The word "CAUTION" is used where a safe behavioural practice according to operating and maintenance instructions and common safety practices will protect the operator and others from accident involvement.

⚠ WARNING ⚠

The word "WARNING" denotes a potential or hidden hazard which could possibly cause serious injury. It is used to warn operators and others to exercise due care and attention to avoid a surprise accident with machinery.

⚠ DANGER ⚠

The word "DANGER" denotes a forbidden practice in connection with a serious hazard.

FAILURE TO FOLLOW THE "CAUTION", "WARNING", AND "DANGER" INSTRUCTIONS MAY RESULT IN SERIOUS BODILY INJURY OR DEATH.

Machine safety

Additional precautionary statement ("IMPORTANT") is followed by specific instructions. This statement is intended for machine safety.

IMPORTANT: *The word "IMPORTANT" is used to inform the reader of something he needs to know to prevent minor machine damage if a certain procedure is not followed.*

GENERAL RECOMMENDATIONS

Most farm machinery accidents can be avoided by the observance of a few simple safety precautions.

1. Read this manual thoroughly before starting off, operating, servicing, refuelling or carrying out any other operation on the machine. A few minutes reading will save you time and hassle later. Lack of knowledge can lead to accidents.

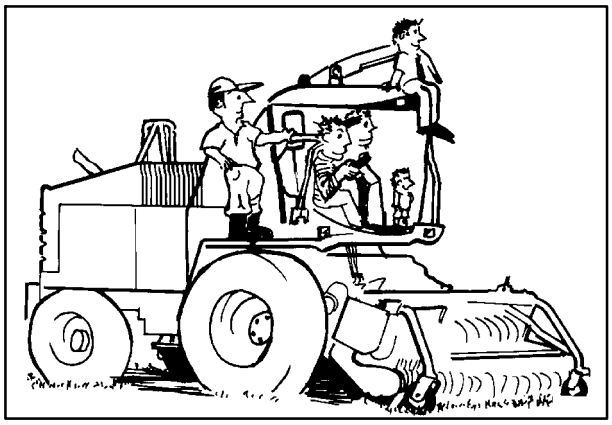
2. Your self-propelled forage harvester was designed with safety very much in mind. However, there is no real substitute for caution and attention in preventing accidents. Once an accident has happened it is too late to think about what you should have done!

3. The machine must only be used by a skilled operator familiar with all the controls and harvesting techniques on cultivated land with slopes up to maximum 25% (15°), provided good even ground and sufficient tire adherence conditions exist.

4. The forage harvester must be operated only by responsible persons who have been adequately trained and authorised to use the machine.

5. Keep children away from and off the forage harvester at all times.

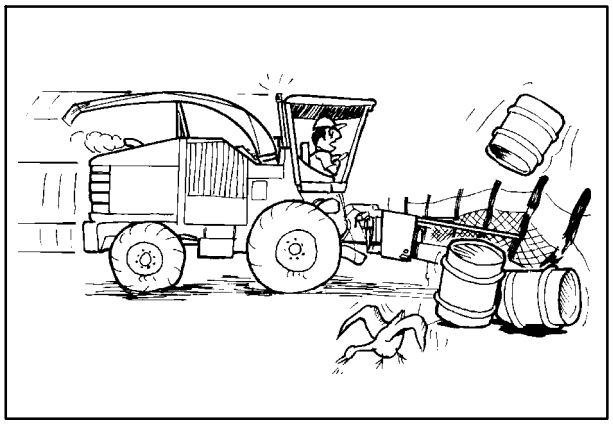
6. Do not permit anyone other than the operator to ride on the machine.



16

7. No-one should be standing on the ladder when the machine is moving.

8. Before starting the forage harvester, always make sure that there are no persons or obstacles nearby.
   Warn bystanders by sounding the horn several times.



17

9. When installing any attachment other than those offered by New Holland, ensure that traffic regulations (e.g. no obstruction of the headlights and signal plates) and the stability of the machine (counterweights) are still met. In case of doubt, contact your New Holland dealer.

10. Read all the safety decals adhered to the machine and follow the instructions. Replace any damaged or missing decals immediately and place orders for these with your local New Holland dealer. Keep the safety decals free from dirt or grime.

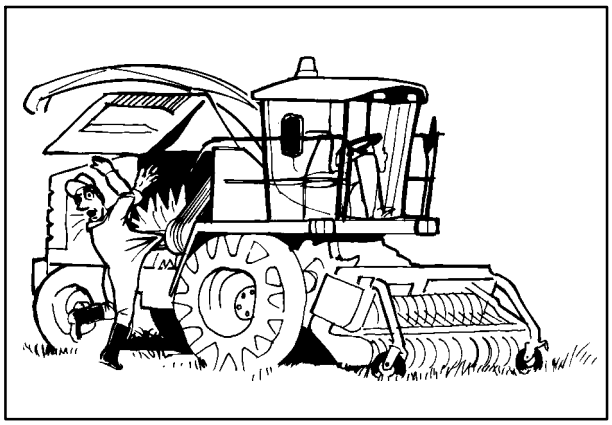
11. Always keep a first aid kit handy.

12. Do not alter the position of or remove the fire extinguisher. Ensure to replace it by a similar type of fire extinguisher or have it checked or refilled after every usage and/or date of expiry.

13. Always use the steps and grab handles provided when getting on or off the machine.

14. Do not step on the operator's cab roof.

15. Do not work around the machine wearing loose garments that could get caught in any of the moving parts. Ensure that all rotating parts are properly guarded.



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16. Do not alter the injection pump governor setting as this will invalidate the warranty and the homologation of your machine.

17. Do not alter the relief valve setting of the hydraulic systems (i.e. hydrostatic steering, hydraulic lift, remote control valves, etc.).

18. Do not modify, alter or permit anyone else to modify or alter the forage harvester or any of its components or functions without first contacting your New Holland dealer.

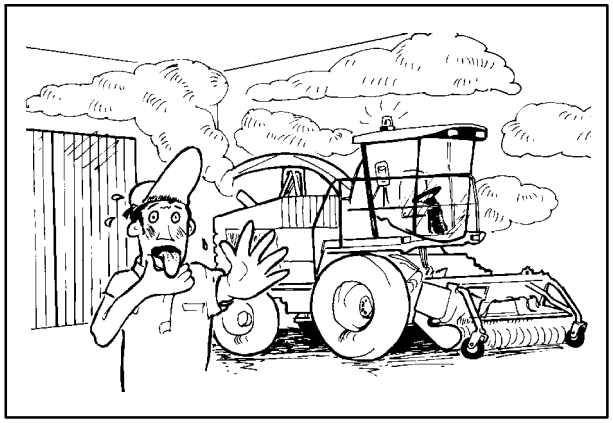
STARTING UP THE FORAGE HARVESTER

1. Do not attempt to start up or manoeuvre the forage harvester unless you are sitting in the operator's seat.

2. Before starting up the forage harvester (e.g. the first time after a long standstill period), make sure that there are no detached loose parts in the attachment, the chopper body, the drive line area and/or on the rotary screens.

3. Before starting the engine, make sure that the handbrake is engaged, the multifunction lever is in neutral position and the safe harvest switch is in ROAD position.

4. Never run the engine in an enclosed area without ensuring adequate ventilation as exhaust fumes are toxic and, if inhaled, may be fatal.



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TRAVELLING ON PUBLIC ROADS

1. Make sure the safe harvest switch is in ROAD position.

2. Always observe the local regulations. Should the width of the attachment be wider than the permitted road width, contact the local authorities for assistance.

3. Observe traffic regulations, adapt your speed to road and traffic conditions and ensure all lights are working properly.

4. Where required by local traffic regulations, ensure the hazard warning plates are fitted at the front and rear of the machine.

5. Use the rotating amber traffic warning beacon to indicate the vehicle has abnormal size and is slow-moving.

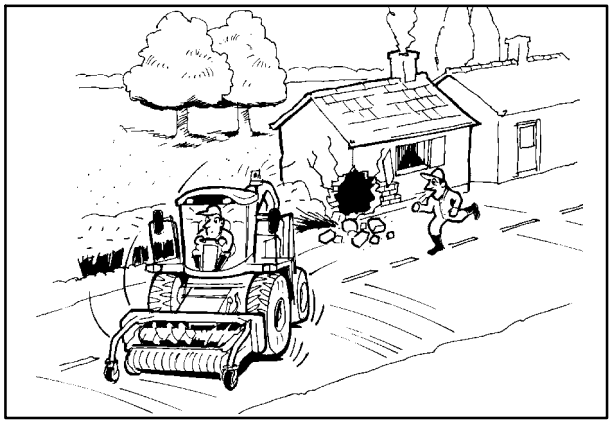
6. Do not drive on public roads with the operating lights and spotlight switched on.

7. Dip the headlights when meeting a vehicle at night. Make sure the lights are adjusted to prevent blinding the driver of an oncoming vehicle.

8. Before travelling on the road it is important to turn the spout to the rear and lower it onto its support to relieve the weight.

9. Avoid taking corners at high speed.

10. Before travelling on the road, link the brake pedals together with the coupling provided. Braking with the pedals uncoupled may cause the machine to swerve.
    Also, avoid excessive use of the brakes.



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11. Always depress the brake pedal gently to avoid tipping of the machine.

12. Do not rest your feet on the brake pedals when the machine is in motion.

13. When manoeuvring the machine off the field, always raise the attachment fully to avoid contact with obstructions.

14. When descending a hill, always keep the forage harvester transmission in gear; never shift into neutral. If the slope is steep, select a low gear before descending the hill and do not exceed 20 km/h.

15. When installing an attachment on the forage harvester, be sure that you have at least 20% of the total weight on the rear axle. If necessary, add counterweights.

16. When installing an attachment, check the distance from the middle of the steering wheel, set in normal road traffic position, up to the foremost point of the equipment.
    When this distance is greater than 3.5 m, a pilot vehicle is required to lead the forage harvester.

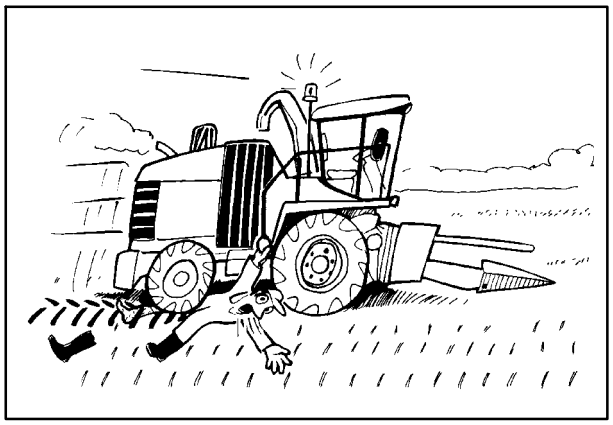
OPERATING THE FORAGE HARVESTER

1. Before operating the forage harvester, make sure that all the covers and guards are properly fitted and secured.

2. When operating the machine, always remain seated in the operator's seat.

3. For safety's sake never leave the operator's platform without first disengaging the harvester drive mechanisms, lowering the attachment, stopping the engine, applying the handbrake and removing the ignition key.

4. Never climb on or off the machine when it is in motion as there is a risk of being run over.



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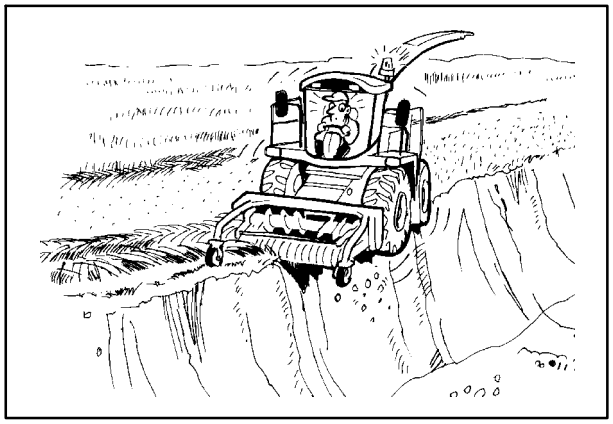
5. Use extreme caution when operating close to the edge of a ditch or a steeply dropping embankment.



22

6. Avoid changing direction abruptly, especially when reversing, to avoid dangerous pitching of the machine. Lower the attachment if the machine tends to lift at the rear.

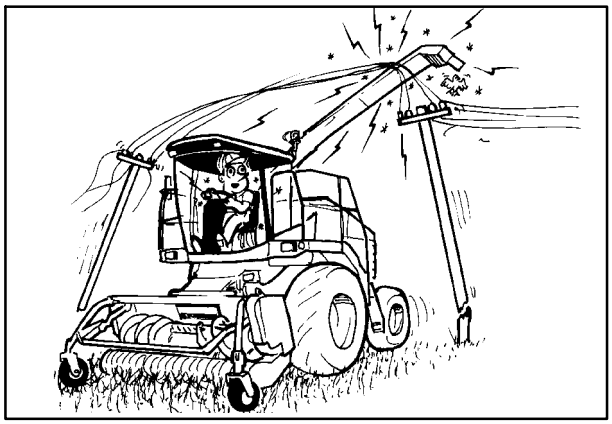
7. Always operate the forage harvester at a safe speed in accordance with the ground conditions. On uneven ground, proceed with the utmost caution to ensure proper stability.

8. When operating on gradients, do not drive too fast, especially when turning.

9. Danger of death by electrocution!
   Pay special attention to the overhead power lines. Make sure the machine has sufficient clearance to pass in all directions (also with raised or opened machine components). Also think of the radio aerial(s) or any other factory-fitted accessory or parts which may have been added afterwards.

   Should a contact between the machine and an electric power line occur, then the following precautions must be taken: Stop the machine movement immediately, stop the engine and apply the handbrake.

   Check if you can safely leave the cab or your actual position without direct contact with electric wires. If not, stay in your position and call for help. If you can leave your position without touching the lines, jump off the last step or support position to ensure that there is no contact between any part of your body and the ground at any time. Do not touch the machine afterwards until power to the lines has been shut off. When people approach the machine, warn them not to touch the machine but to ask the electric power supply company to shut off the power to the lines.



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10. Never apply the differential lock when turning. When engaged, the differential lock will prevent the forage harvester from turning.

11. Ensure the engine is shut off and wait until the machine has completely stopped before opening any of the guards.

    THERE ARE ROTATING PARTS UNDER THE GUARDS WHICH MAY CONTINUE ROTATING AFTER THE MACHINE HAS BEEN STOPPED.

    Look and listen for evidence of rotating parts before opening any of the guards.

12. Should the spout or blower become blocked, shut off the engine and ensure the cutterhead and blower have stopped turning before attempting to unblock the machine.

13. Dust can cause “farmer’s lung” disease. The dust may also contain harmful spraying residues. Therefore, keep the cab door and windows closed during operation. Wear a mask when cleaning the air filters, radiators or accumulated dust on the machine.

14. Check the wheel nuts torque daily during the first week of operation and thereafter on a weekly basis. Tighten as required.

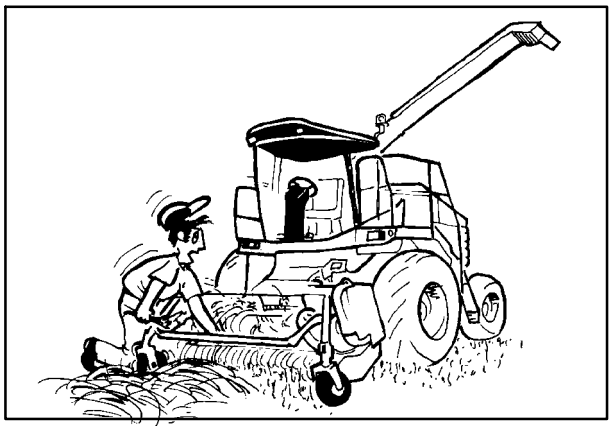
OPERATING THE ATTACHMENTS

1. When coupling an attachment to the base unit, never stand between the machine and the attachment.

2. Make sure that no one is standing in front of the machine when detaching an attachment.

3. Before operating the attachment, make sure that there is no one on or near the machine.

4. Never attempt to remove crop or residues from a plugged attachment while the machine is running. Such an imprudence could cost life or limb. In the event of a blockage, always disengage the chopping mechanism, switch off the harvester engine and apply the parking brake before clearing the blockage.



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STOPPING THE FORAGE HARVESTER

1. Always lower the attachment to the ground when parking the machine.

2. For safety's sake never leave the operator's platform without first returning the ground speed control lever to neutral, switching off the cutterhead, engaging the parking brake and stopping the engine. Furthermore, if leaving the machine unattended, always remove the ignition key and switch off the switch on the battery.

3. When parking, always try to leave the machine on level ground and apply the parking brake. If the ground is sloping, apply the parking brake and wedge the wheels.

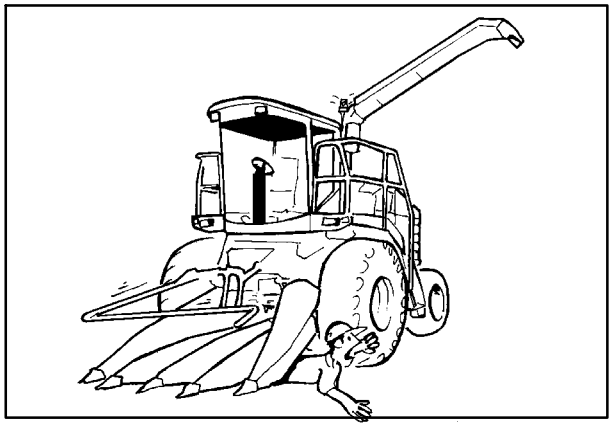
MAINTENANCE

1. Follow the maintenance schedule with regard to the machine servicing intervals. Remember that the machine requires minor attention from time to time. Also remember that the time taken on maintenance will greatly extend the life of the machine.

2. Do not attempt to clean, lubricate or carry out any adjustments on the forage harvester while it is in operation or while the engine is running.

3. Keep hands, feet and/or garments away from moving parts. Check that all rotating parts are correctly guarded.

4. Never work under the attachment without first ensuring that the chopper body hydraulic cylinder safety latch is engaged or that it is securely supported on wooden blocks.



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5. Always use suitable jack stands when carrying out maintenance on the traction on the steering axle.

6. Keep the forage harvester, particularly the brakes and steering, maintained in a reliable and satisfactory condition to ensure your safety and compliance with legal requirements.
Regularly check the efficiency of the brakes and replace the brake pads before they are totally worn out.

7. Daily clean the area between the blower and the traction gearbox, especially when working in dry crop conditions, to avoid the build up material becoming hot and to prevent the possibility of fire.

8. Carry out all cutterhead knife adjustments with extreme care. The knives are razor sharp. Wear safety gloves when working on the cutterhead and block the cutterhead with wooden blocks to prevent it from turning.

9. If sharpening the knives manually be sure to wear safety goggles to protect the eyes from sparks.

10. Ensure that no one is standing or walking under the spout or is in front of the feed rolls when sharpening the knives or when adjusting the shearbar.

11. Any leakage of hydraulic oil under pressure may cause severe injury, so always use a shield, goggles and gloves when tracing oil leaks.

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12. Do not construct flexible hose assemblies from hoses which have been previously used as part of a hose assembly.

13. Do not weld to the piping.

14. When flexible hoses or pipings are damaged, replace them immediately.

15. Always replace worn or frayed belts before they fail.

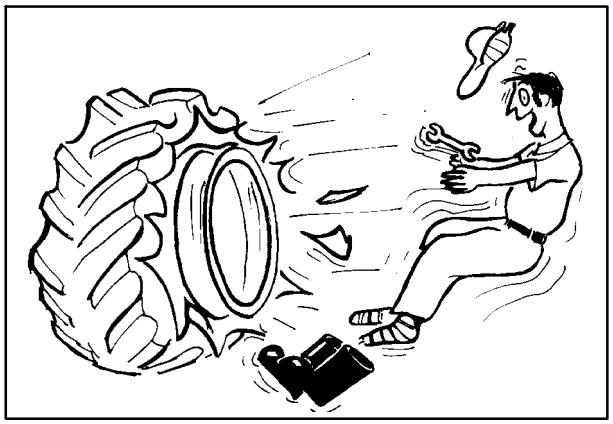
16. Always disconnect the battery earth lead before carrying out any work on the electrical system.

17. Disconnect the alternator wires and the battery cables before carrying out any electrical welding on the machine. In addition, attach the earth cable of the electric welder as close as possible to the area to be welded.

18. Remove all tools from the machine after carrying out any lubrication, maintenance or repair work. Also, make sure that all components have been securely tightened and all guards properly fitted. Replace or repair damaged guards immediately.

19. Forage harvester wheels are very heavy. Handle with care and ensure, when stored, that they cannot topple over and cause injury.

20. Do not work on the tyres unless you have the special tools and the necessary experience. Incorrect fitting could be a serious safety hazard. If in doubt, call in qualified personnel.



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21. Do not attempt to service the air conditioning system. You may be severely frost bitten or injured by escaping refrigerant. Special equipment and instruments are required to service the air conditioning system. Contact an authorised dealer for service.

22. Adhere to all recommendations that are mentioned in this manual such as service intervals, torques, lubricants, etc.

ENGINE

1. Never run the engine in an enclosed area without ensuring adequate ventilation as exhaust fumes are toxic and can cause death.

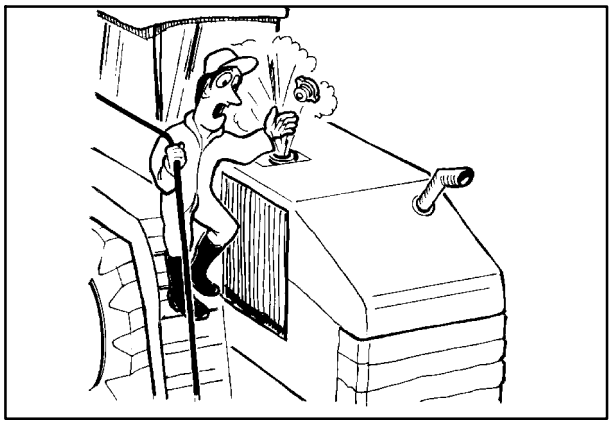
2. Wear a suitable hearing protective device, such as ear muffs or ear plugs, if you are exposed to noise which you feel is uncomfortable.

3. The cooling system operates under pressure which is controlled by the shunt tank. It is dangerous to remove the cap while the engine is hot.

4. Switch off the engine and wait until it has cooled. Even then, use extreme care when removing the cap. Cover the cap with a rag and turn it slowly to the first stop to allow the pressure to escape before removing the cap completely. Stand clear of the shunt tank opening as hot coolant may splash out.

   Never add cold water to a hot shunt tank.

   Failure to follow these instructions may result in serious personal injury from hot coolant or steam blowout and/or damage to the cooling system or engine.



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5. Antifreeze contains mono-ethylene glycol and other chemicals which are toxic if taken internally and can be absorbed in toxic amounts through repeated or prolonged skin contact. Follow these precautions when working with antifreeze.

   - Do not take antifreeze internally. If antifreeze is swallowed accidentally, obtain medical attention immediately.

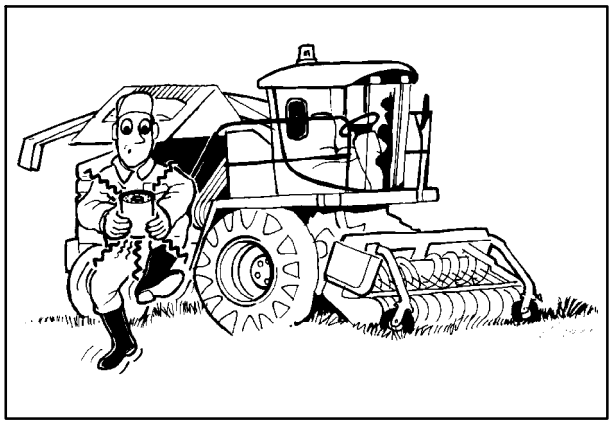
   - Keep antifreeze in sealed containers out of the reach of children, livestock or pets.

6. The fuel oil in the injection system operates under high pressure and can penetrate the skin causing serious injury. Unqualified persons should not remove or attempt to adjust a fuel injector pump, injector, nozzle or any other part of the fuel injection system. Failure to follow these instructions can result in serious injury.

   If fuel is injected through the skin, obtain medical attention immediately.

7. Be very careful to avoid contact with hot engine oil. If the engine oil is extremely hot, allow the oil to cool to a moderately warm temperature for safe removal.

8. Do not handle a hot oil filter canister with bare hands.



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9. Continuous and prolonged contact with used engine oil may cause skin cancer. Protect your skin by wearing heavy plastic gloves. If oil gets onto the skin, wash promptly with soap and water.

10. Due to the presence of hot surfaces, any accumulation of dust, crops, etc., creates a fire hazard. Clean the whole engine area daily with compressed air after the engine has cooled down.

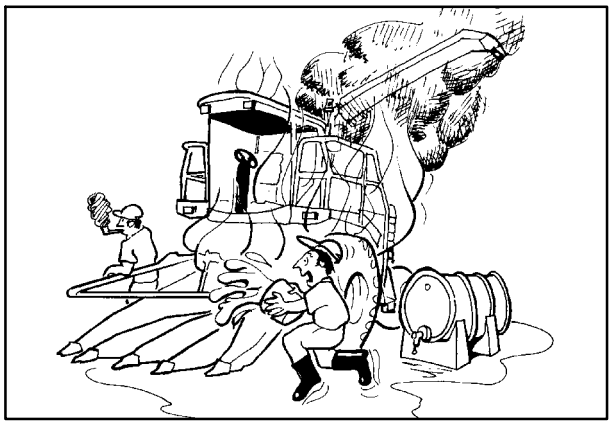
DIESEL FUEL

1. Under no circumstances should gasoline, alcohol or blended fuels be added to diesel fuel. These combinations can create an increased fire or explosive hazard. In a closed container such as a fuel tank these blends are more explosive than pure gasoline. Do not use these blends.

2. Never remove the fuel cap or refuel with the engine running or hot.

   Refuel the harvester only when the engine has been turned off.

3. Do not smoke or use a naked flame while refuelling or when standing near fuel tanks.



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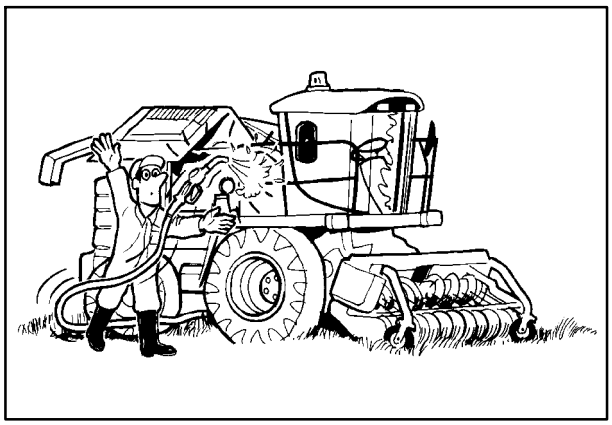
4. Maintain control of the fuel filler pipe nozzle when filling the tank.



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5. Do not fill the fuel tank to capacity. Allow room for expansion.

6. Wipe up spilled fuel immediately.

7. Always tighten the fuel tank cap securely.

8. If the original fuel tank cap is lost, replace it with an approved cap. A non-approved, proprietary cap may not be safe.

9. Keep fuel equipment clean and properly maintained.

10. Do not drive equipment near open fires.

11. Never use fuel for cleaning purposes.

12. Arrange fuel purchases so that summer grade fuels are not held over and used in the winter.

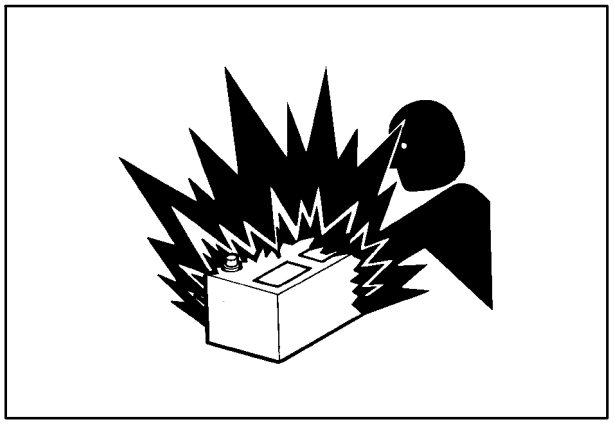
BATTERY WARNING

⚠ CAUTION ⚠

The battery contains a sulphuric acid electrolyte which may cause severe burns and also produces explosive gases. Avoid contact with the skin, eyes or clothing. Do not take internally.

The essential precautions listed must be observed.

1. Do not use a naked flame to check the electrolyte level. Keep sparks, flames and lighted tobacco away.



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2. Do not produce sparks with cable clamps when charging the battery or starting the engine with a slave battery.

3. Wear eye protection when working near batteries.

4. Provide ventilation when charging or using in an enclosed space.

5. Ensure the vent plugs are correctly installed and tight.

If the electrolyte comes into contact with the skin, eyes or is taken internally, treat as follows:

Skin:	Flush with cold water.
Eyes:	Flush with cold water for 10 minutes and get prompt medical attention.
Internal:	Call a doctor immediately.

ILLUSTRATIONS

NOTE: *Some of the illustrations in this Manual have been obtained by photographing prototypes. Standard production machines may differ in some details.*

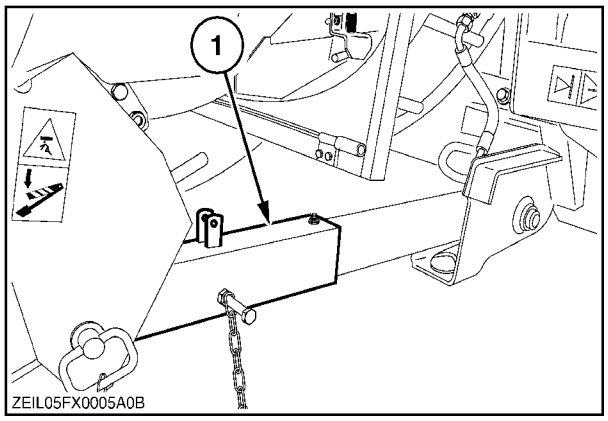
⚠ CAUTION ⚠

In some of the illustrations in this Manual the guards or covers have been removed for clarity. Never operate the machine with these protective guards or covers removed.

PROTECTIVE DEVICES

CHOPPER BODY STANDARD SAFETY LATCH

Whenever work is carried out underneath the chopper body or in between the upper feed rolls module and the cutterhead, the latch 1 must be lowered onto the cylinder rod as shown at Figure 33. This is to prevent accidental lowering of the chopper body.

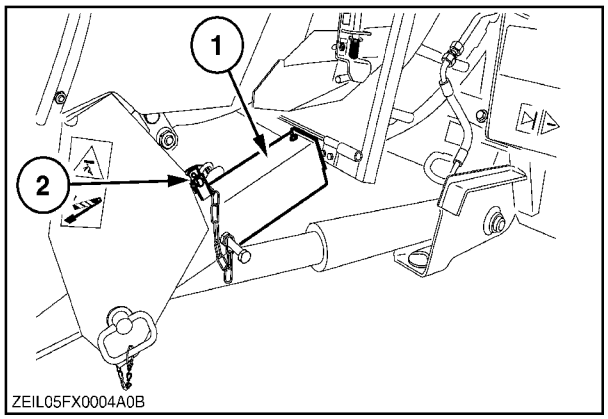


33

When not in use, the latch must be stored with the lynch pin 2 as shown at Figure 34.

⚠ WARNING ⚠

Do not use the safety latch in lowered position as support for the chopper body when travelling along public roads otherwise damage may occur to the cylinder.



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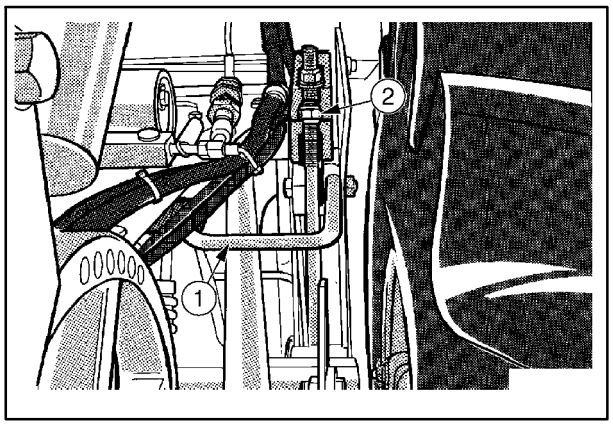
LOCK PIN

The lock pin is located on the left-hand side of the chopper body. The pin 1 limits the chopper body's way of travel around the cutterhead shaft. This is necessary when inspection has to be done between the cutterhead (or crop processor) and blower or when the chopper body has to be taken from the machine.

In all other cases pin 1 must be in its out-position (away from the cutterhead).

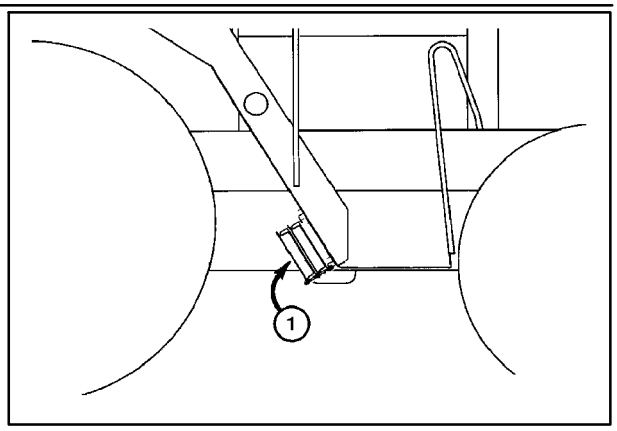
Do not try to install both pin 1 and clamping rods 2 (both on the left and right-hand side) at the same time. Doing this and afterwards lifting the chopper body will result in irreparable damage to the chopper body's triangular frame.



35

WHEEL CHOCK

For some countries metal wedges 1 are stored underneath the stairs on the left-hand side.



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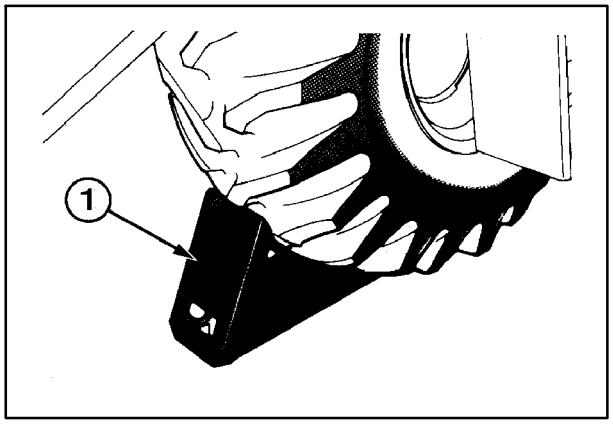
When the machine is parked on a non-level surface, the wedge 1 has to be placed at the lowest side, against the traction wheel.

CAUTION

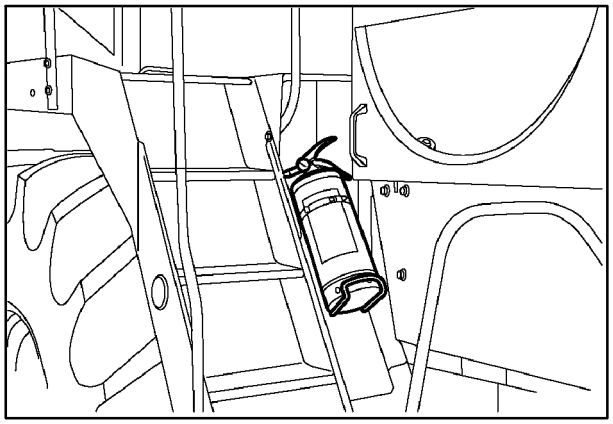
Do not place the wedges against the steering wheels.



37

FIRE EXTINGUISHER

The fire extinguisher is located on the left-hand side of the machine between the stairs to the cab and the machine frame.



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Check the extinguisher pressure at least once a year before the start of the season.

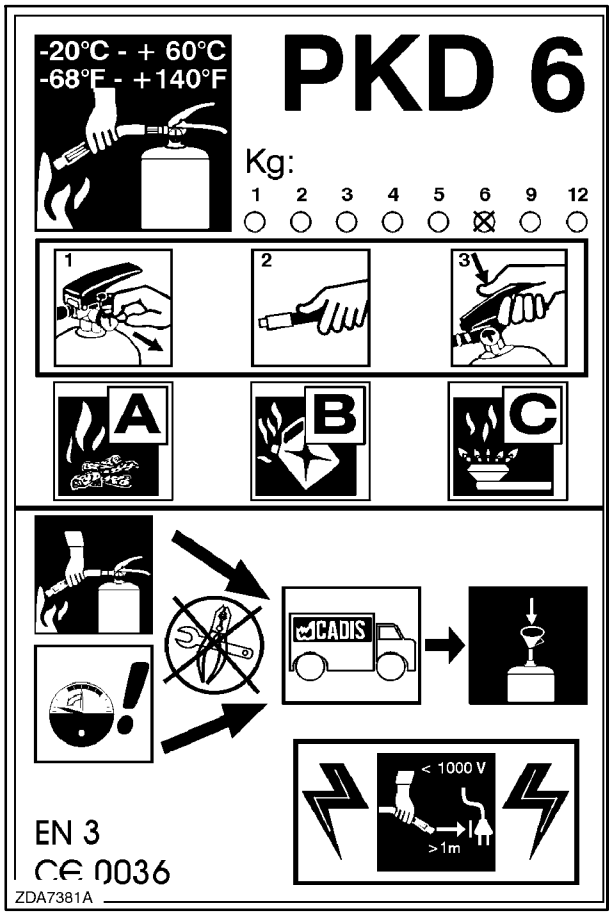
To check if the extinguisher is still under pressure, proceed as follows:

1. Unscrew the pressure gauge from the valve.
2. The needle will go from the green area to ”0” in the red area.
3. Rescrew the pressure gauge on the valve. The needle will go from ”0” in the red field to the green field.

If the needle remains in the ”0” of the red field, the extinguisher has a leakage. The extinguisher has to be repaired by a recognised extinguisher dealer.

Once the extinguisher is discharged, no matter for how long, it must be recharged.

The decal on the fire extinguisher is explained below:



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- The extinguisher can be used and has been tested at temperatures of −20° C (−68° F) and +60° C (+140° F).

- The type of the extinguisher "PKD 6", this means: Dry chemical powder and the capacity is 6 kg (13.2 lbs).

1. Remove the safety pin.

2. Aim nozzle at base of fire.

3. Press on the handle.

The extinguisher can be used on
"**A**" class fires = dry fires
"**B**" class fires = liquid fires
"**C**" class fires = gas fires

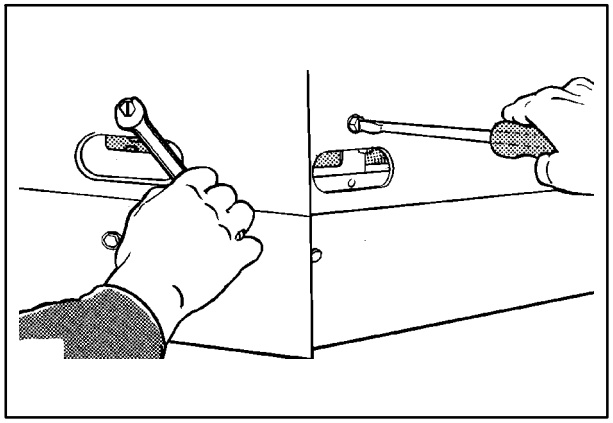
- After use of the extinguisher on a fire, the pressure gauge needle will go to zero pressure.

- Do not try to repair or refill the extinguisher yourself. Bring the used or leaking extinguisher to a recognised extinguisher dealer.

- Do not use the extinguisher on objects under electrical tension of more than 1000 Volt and at less than one meter (3,3 ft) distance.

SAFETY GUARDS

For safety reasons and according to European directives, safety guards now have locking devices which can only be opened by means of a spanner (13 mm) or a screwdriver.
The locking devices must not be altered nor removed. Ensure the self-locking function is maintained.



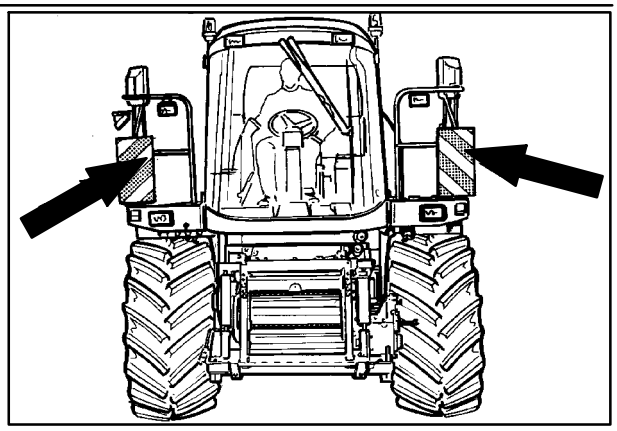
40

SIGNAL PLATES

Base unit

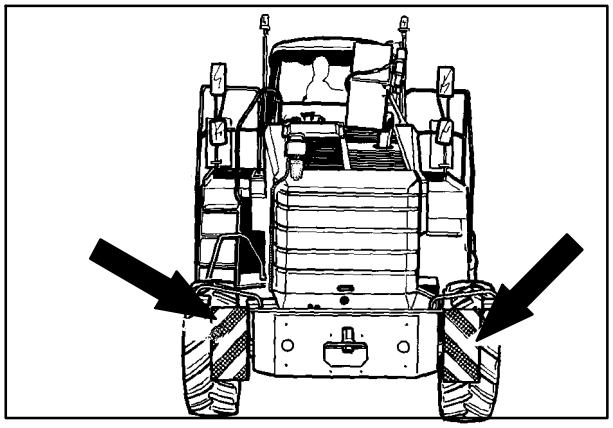
For some countries, signal plates must be installed for road transport:

- at the front (Fig. 41) on the railing (left and right-hand side)
- at the rear (Fig. 42) on both sides of the bumper.



41

The signal plates at the front can be removed. The signal plates at the rear can be removed or pushed inward.

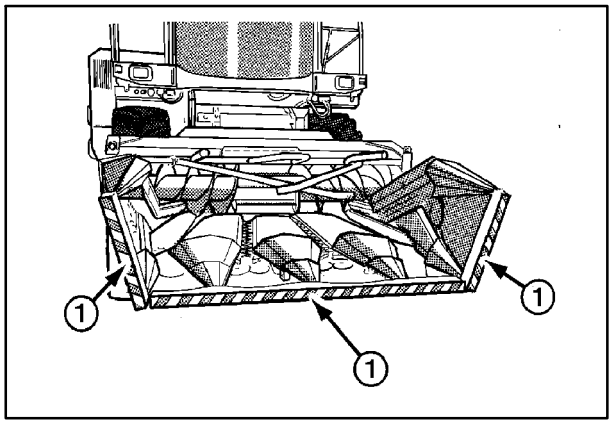


42

Row crop attachments

For some countries, signal plates 1 must be installed on the row crop attachments for road transport.

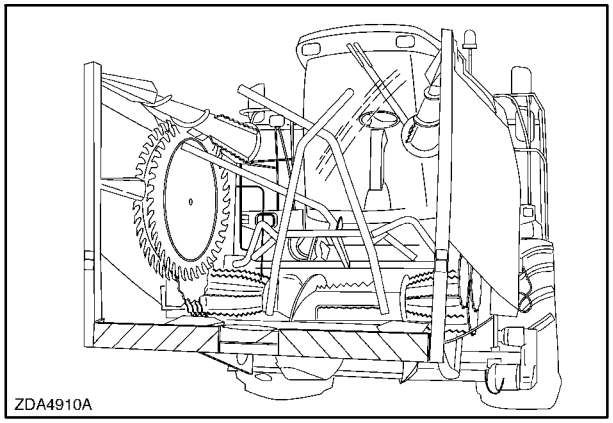
- 300N6 6-row attachment



43

- RI450-600 attachments

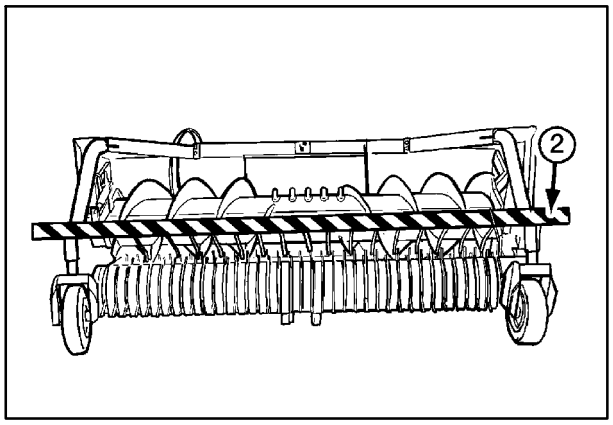
NOTE: *In case the attachment obstructs the head lights when driving on the road, it is necessary to disable these headlights and to install additional lights.*
It depends on local regulations whether these additional lights must be installed on the forage harvester operator's platform railing or on the attachment itself. Contact your local dealer.



44

Pick-up attachments

For some countries, signal plates 2 must be installed on the pick-up attachment for road transport.



45

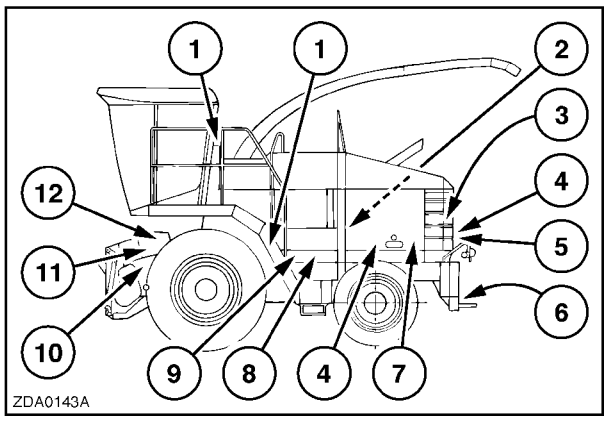
SAFETY DECALS - NA

The following safety decals have been placed on your machine in the areas indicated. They are intended for the personal safety of you and those working with you.

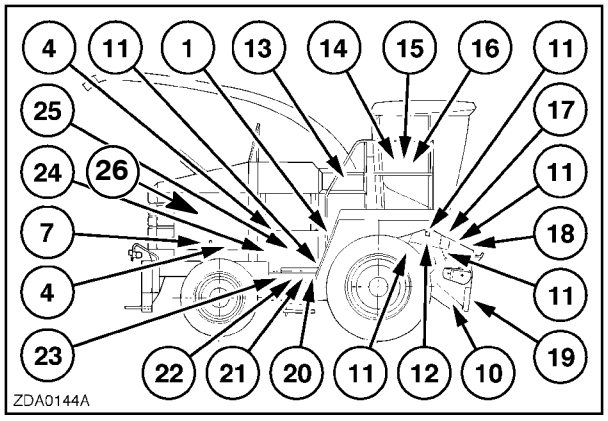
Please take this manual, walk around your machine and note the content and location of these warning signs.

Review these decals and the operating instructions in this manual with your machine operators.

Keep the decals legible. If they are not, obtain replacements from your dealer.



46



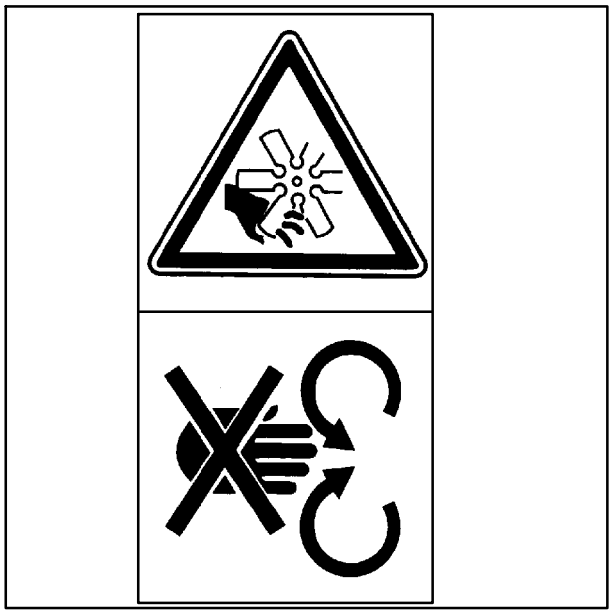
47

Decal 1

DANGER: This machine is designed to be operated by one person. Additional personnel should only be allowed in the cab for instructional or diagnostic purposes. Failure to comply will result in death or serious injury.

Part #86630510

Decal 2



Do not open or remove safety guard while engine is running.

Part #84015359

Decal 3

WARNING: SHIELD IS OPEN. STAND CLEAR. Replace or close shield before operating machine. Failure to comply could result in death or serious injury.

Part #86626959

Decal 4

WARNING: Moving parts under this cover. Do not open cover while operating. Failure to comply could result in death or serious injury.

Part #86626958

Decal 5

CAUTION: Keep off. Failure to comply may result in injury.

Part #174117

Decal 6

WARNING: Install safety chains and locking pin. Failure to comply could result in death or serious injury.

Part #86541948

Decal 7

CAUTION: Stand clear. Door is spring loaded open. Failure to comply may result in injury.

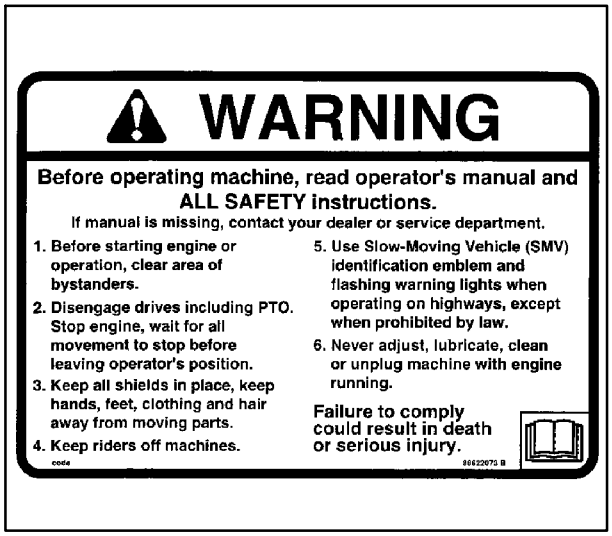
Part #688443

Decal 8

DANGER: Contacting electrical power lines with this unit can cause death or serious injury.

Part #87015483

Decal 9



CAUTION: Read the complete operator's manual and become familiar with starting, operating and safety instructions in the operator's manual and on the unit.

Part #86622073

Decal 10

DANGER: Do not work around a raised header without cylinder locks in place or resting header on ground. Failure to comply will result in death or serious injury.

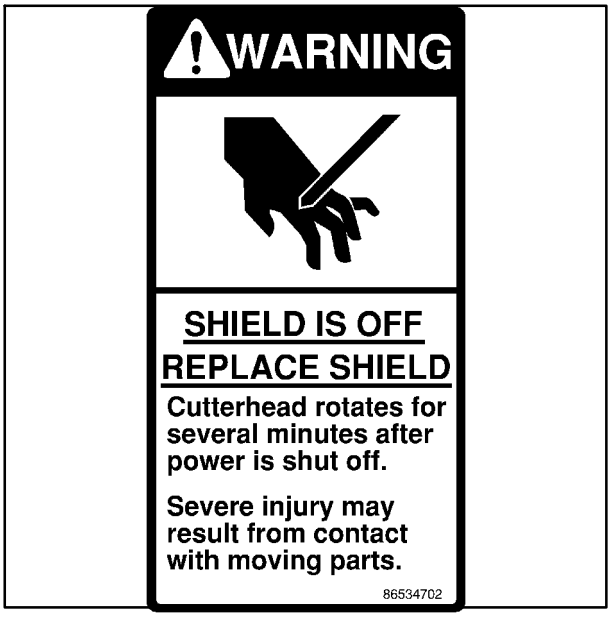
Part #86531883

Decal 11

WARNING: Rotating parts under this cover continue rotating after power is shut off. Look and listen for evidence of rotation before opening cover. Failure to comply could result in death or serious injury.

Part #86630943

Decal 12



WARNING: Shield is off. Replace shield before operating. Failure to comply may result in serious injury.

Part #86534702

Decal 13

WARNING: Rotating parts. Read operator's manual. Failure to comply could result in serious injury.

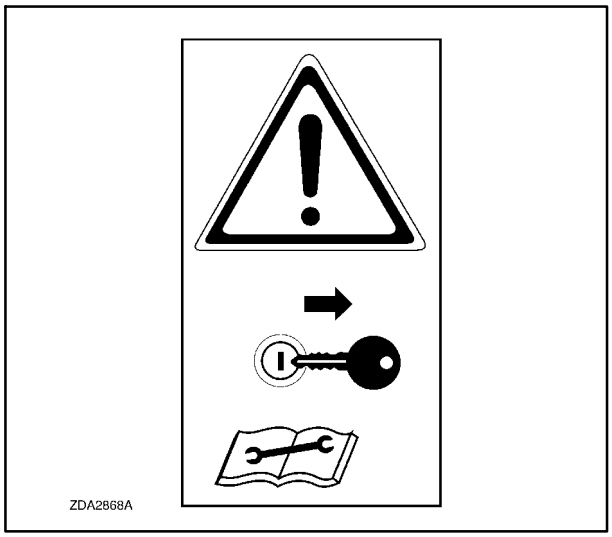
Part #9806879

Decal 14

Sound the horn 3 times before starting the engine.

Part #84012892

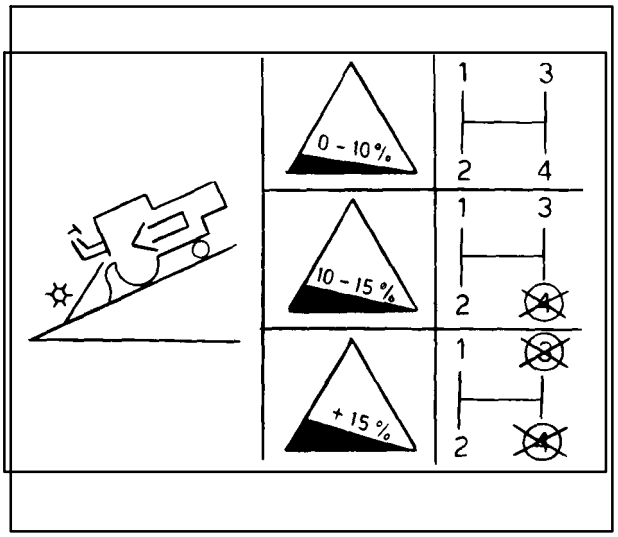
Decal 15



Shut off engine and remove ignition key before performing maintenance or repair work.

Part #84012893

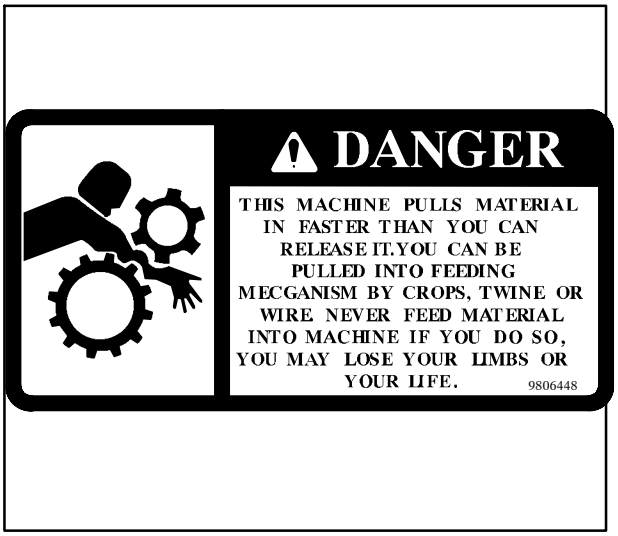
Decal 16



To prevent runaway of the forage harvester (i.e. when the ground speed increases during downhill driving and it is impossible to reduce speed with the ground speed control lever), it is necessary to shift into a lower gear appropriate to the steepness of the hill before starting the descent.
This information is given on a decal situated near the gearshift lever on the operator's platform.

Part #426052

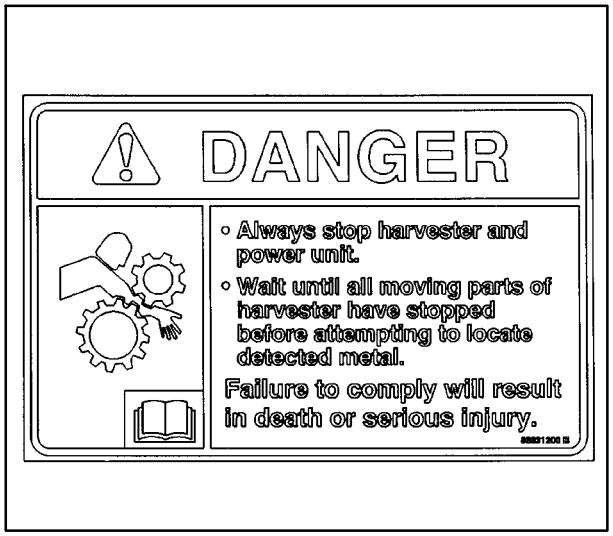
Decal 17



DANGER: Do not manually feed material into this machine. The machine pulls material in faster than you can release it. Failure to comply will result in death or serious injury.

Part #9806448

Decal 18



DANGER: Wait for all moving parts to stop before attempting to locate detected metal. Failure to comply will result in death or series injury.

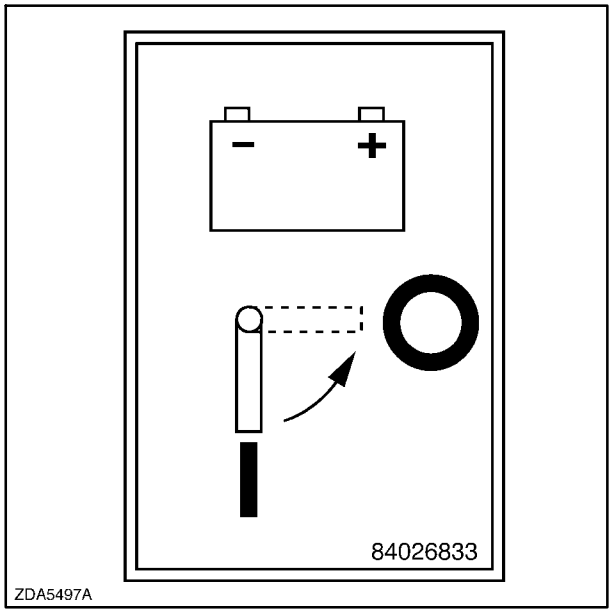
Part #86631200

Decal 19

Read operator's manual

Part #84038468

Decal 20



The battery must be switched off with the battery switch whenever the operator leaves the machine or whenever welding has to be carried out on the machine.

Part #84026833

Decal 21

WARNING: To jump start.

Part #84038581

Decal 22

Diesel fuel only.

Part #256302

Decal 23

DANGER: Explosive / Acid-Poison

Part #84038582

Decal 24

DANGER: Do not operate this unit with the shield missing. Failure to comply will result in death or serious injury.

Part #849472

Decal 25

Hydraulic accumulators contain gas and oil under pressure. For removal and repair, contact your local New Holland dealer.

Part #84005363

Decal 26

WARNING: Start engine only from operator's seat. Failure to comply could result in serious injury.

Part #83929338

ACCESS TO MACHINE COMPONENTS

Before reading this chapter, read the following safety warnings first.

DANGER

Never allow anyone to stand or hang on the forage harvester access ways while the forage harvester is in motion. These access ways are only provided for entering and servicing the (stopped) forage harvester in a safe way.

CAUTION

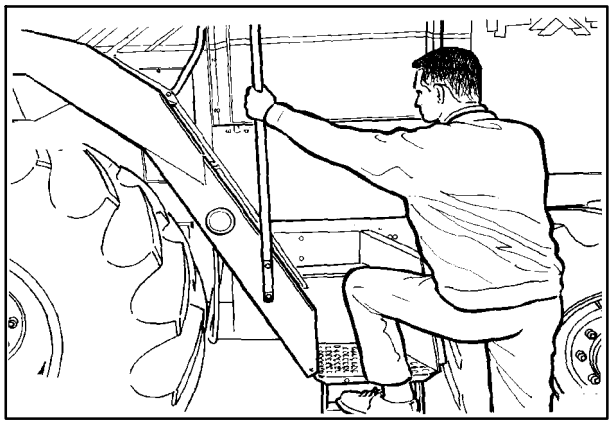
Always mount and leave the forage harvester in a safe way, i.e. use the steps and guard rails provided and maintain a 3-point contact at all times.

Left-hand side platform

This platform on the left-hand side of the cab gives access to the cab. How to properly use the stairs that lead to the platform is shown in Figure 48.

CAUTION

Keep hand on rail.



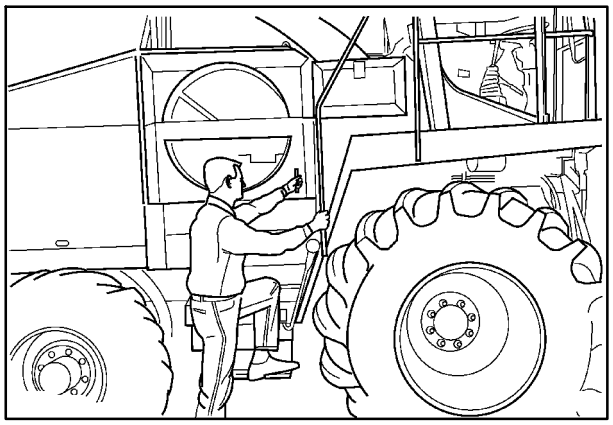
48

Right-hand side platform

This platform gives access to the right-hand side of the cab. When the emergency exit is opened, the mechanism underneath the console module can be reached. How to properly reach this platform is shown in Figure 49.

CAUTION

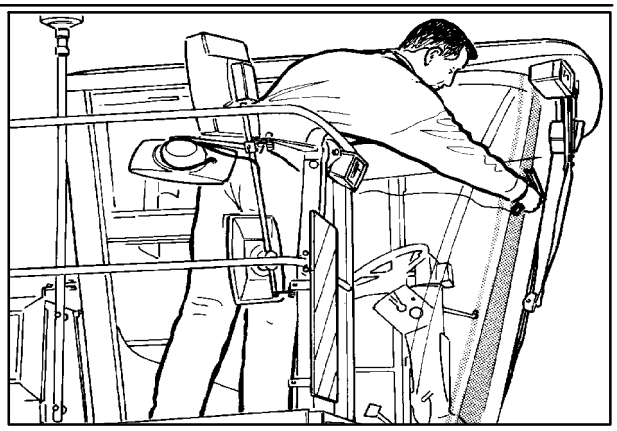
Keep hand on rail.



49

Cleaning the windscreen

The windscreen can be wiped off by standing on the left and right-hand side platform, as described above.



50

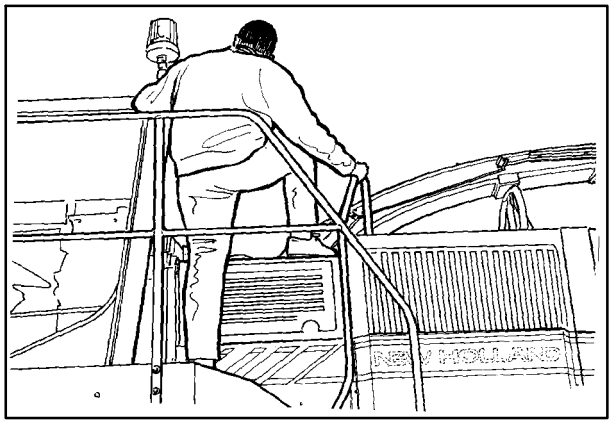
Radiator shunt tank

⚠ WARNING ⚠

Make sure the spout is in transport position.

In order to safely reach the shunt tank, proceed as follows:

1. Go to the left-hand side platform.
2. Step on the cab air filter box.
3. Step on the forage harvester hood and walk to the shunt tank, putting your feet on the anti-slip strips and holding one hand on the spout.



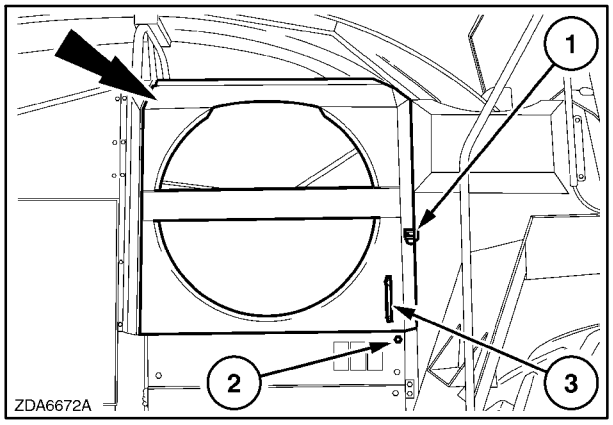
51

Right-hand door

To open the right-hand door, proceed as follows:

1. Open lock 1.
2. Open safety lock 2.
3. Pull at hand grip 3 to open the right-hand door.

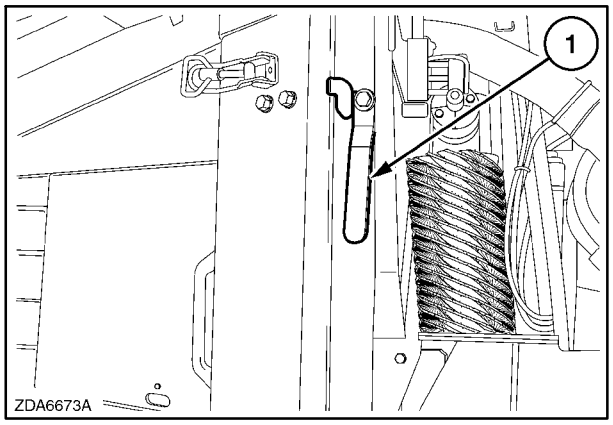
The right-hand door exists of an inner and an outer door.



52

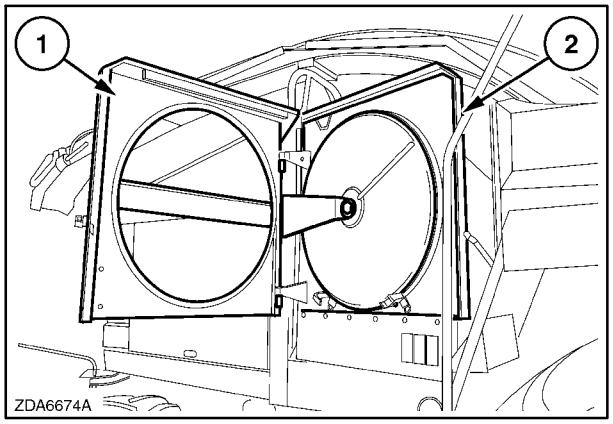
To separate the inner door from the outer door use lever 1.

NOTE: *This lever can only be reached when the complete door is opened.*



53

To clean the rotary screen, unlock the outer door from the inner door.



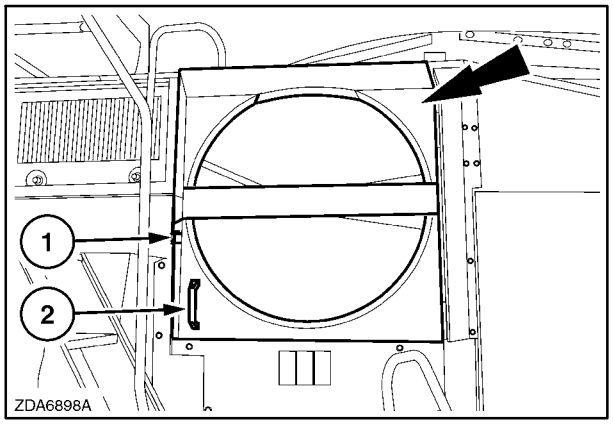
54

Left-hand door

To open the left-hand door, proceed as follows:

1. Open lock 1.
2. Pull at hand grip 2 to open the left-hand door.

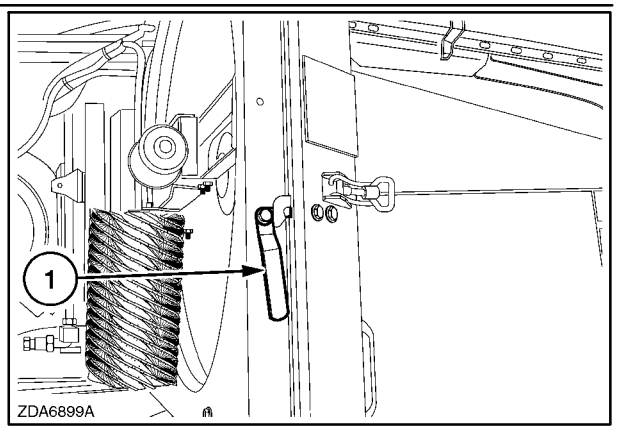
Also the left-hand door exists of an inner and an outer door.



55

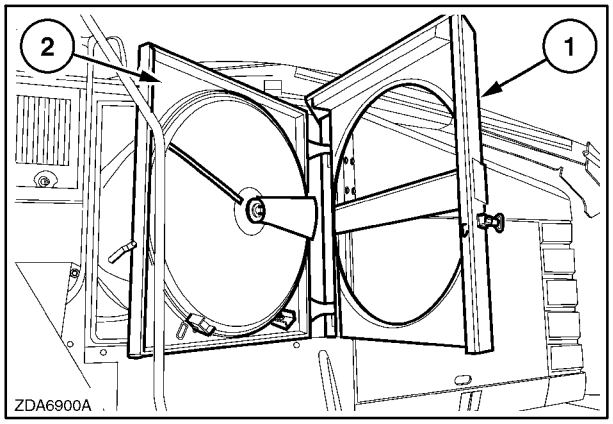
To separate the inner door from the outer door use lever 1.

NOTE: *This lever can only be reached when the complete door is opened.*



56

To clean the rotary screen, unlock the outer door from the inner door.

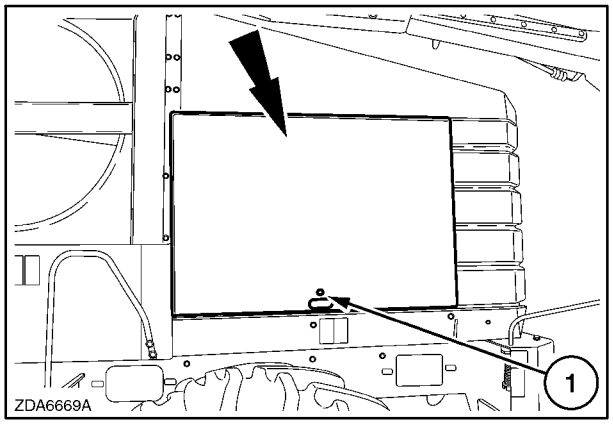


57

Engine side shielding

Open safety lock 1 to open the engine side shielding.

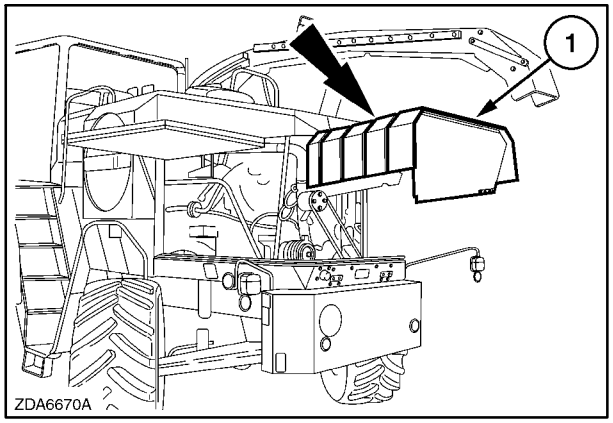
NOTE: *There is a shielding on the other side too.*



58

Engine rear shielding

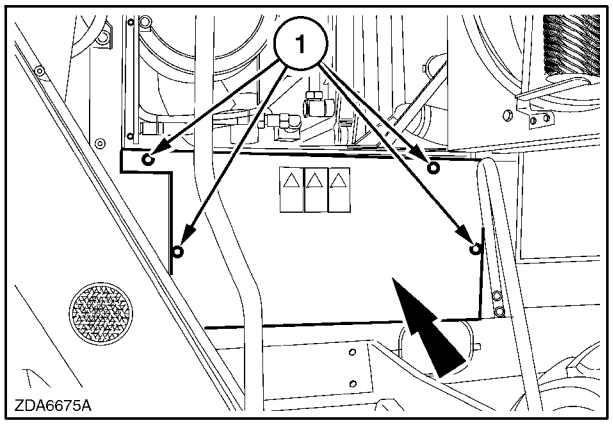
When the two engine side shieldings are open, pull at hand-grip 1 to open the engine rear shielding.



59

Hydraulics safety guard

Open four safety locks 1 and the shielding to obtain access to the hydraulic and hydrostatic components.

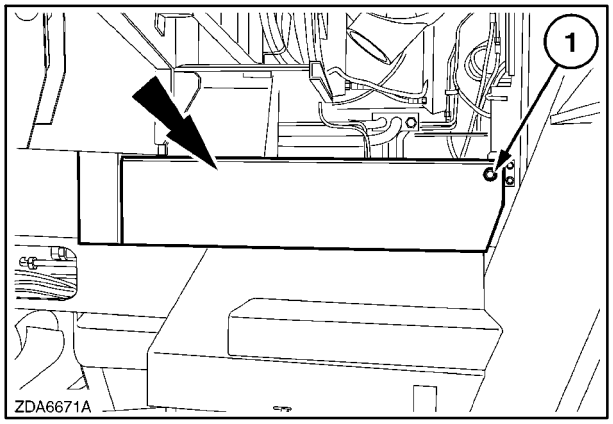


60

Cutterhead pto shielding

To obtain access to the cutterhead drive pto, open safety lock 1 and the cutterhead pto shielding.

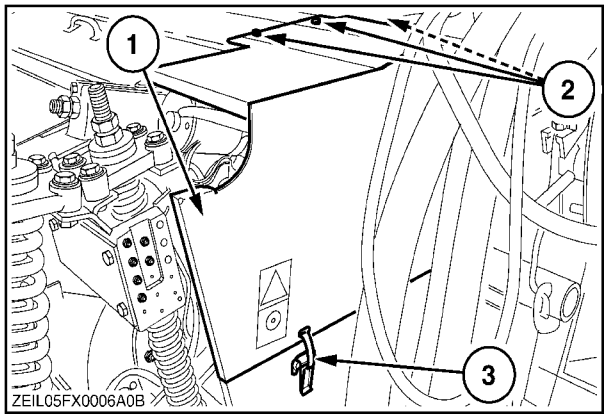
NOTE: *The right-hand access door must be open before the cuterhead pto shielding can be opened.*



61

Chopper body upper safety guard

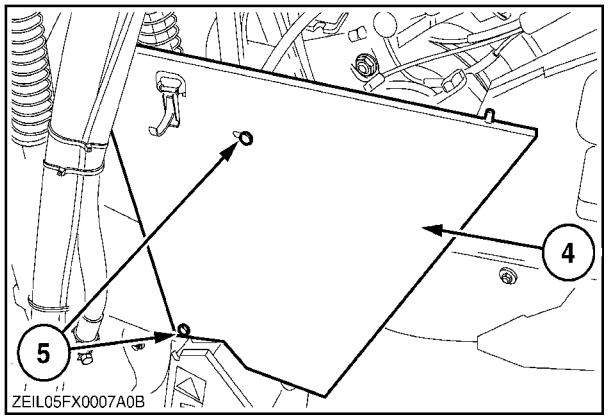
Loosen the three bolts 2 and open the safety lock 3 to remove the chopper body upper safety guard 1.



62

Chopper body lower safety guard

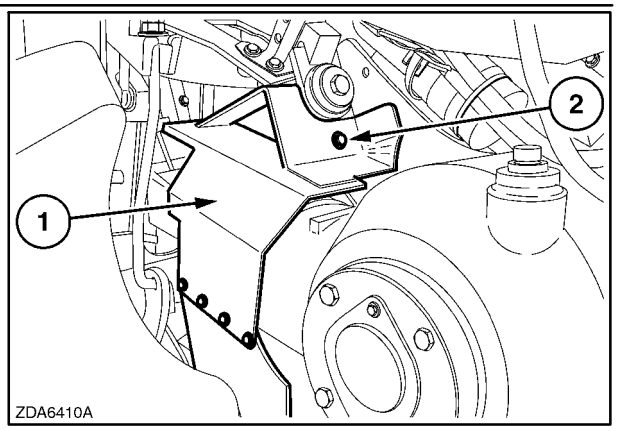
Remove the bolts 5 to remove the chopper body lower safety guard 4.



63

Cutterhead drive shaft safety guard

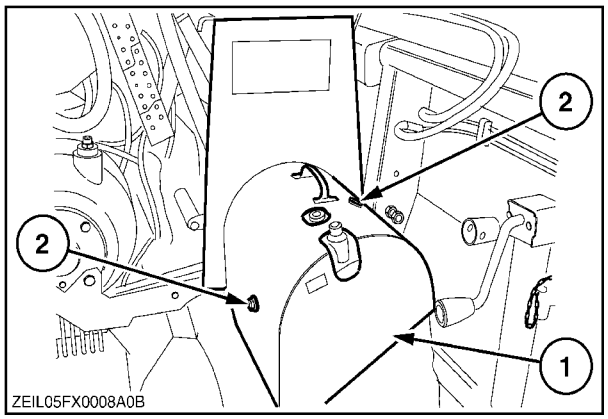
Remove bolt 2 to remove the cutterhead drive shaft safety guard.



64

Upper feed roll drive shaft safety guard

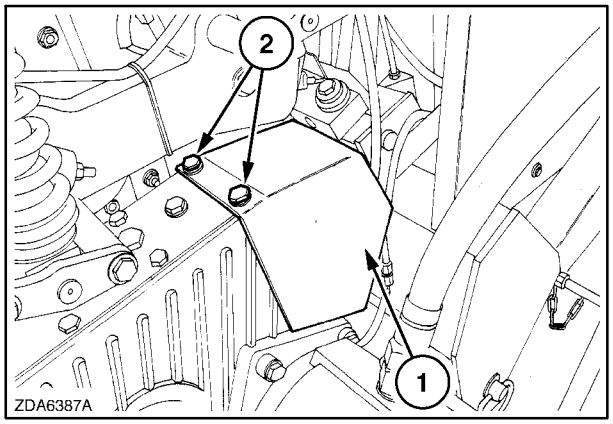
Remove two bolts 2 and safety guard 1 to obtain access to the upper feed rolls drive shaft.



65

Smooth roll bearing safety guard

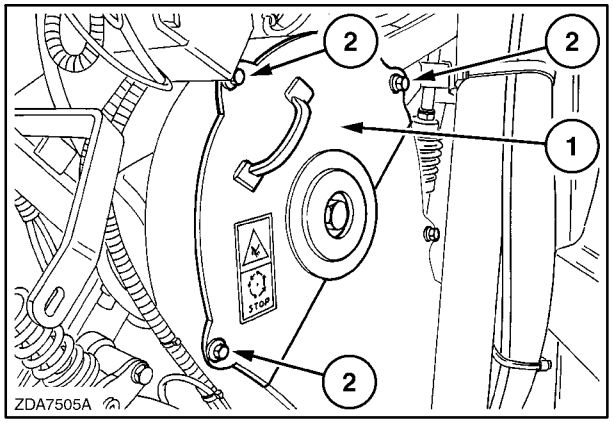
Remove two bolts 2 and safety guard 1 to have access to the smooth roll bearing.



66

Crop processor upper safety guard

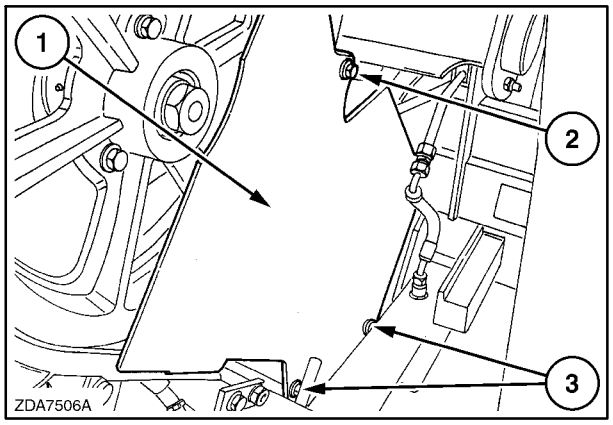
Open safety locks 2 and remove safety guard 1 to have access to the crop processor overrun clutch grease zerk.



67

Crop processor lower safety guard

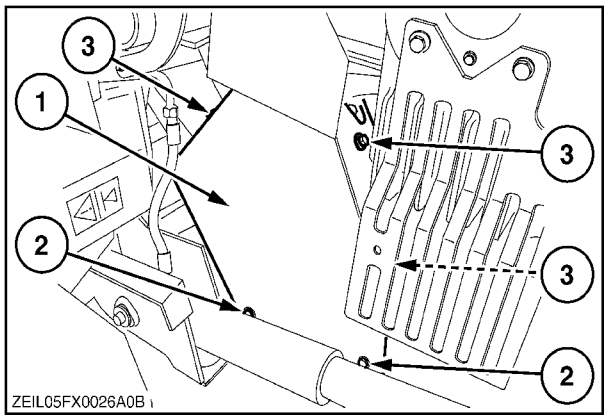
To remove the crop processor lower safety guard 1, open safety lock 2 and remove two bolts 3.



68

Crop processor double drive safety guard

To remove the crop processor double drive safety guard (1), remove two bolts (2) and open the three safety locks (3).

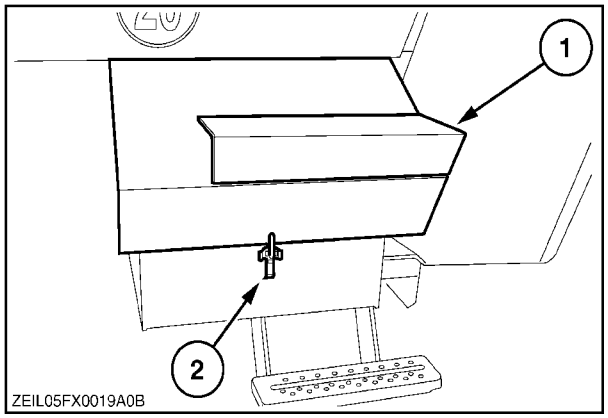


69

Battery box cover

To remove the battery box cover unlock safety lock 2 and remove the cover 3.

NOTE: *The right-hand side engine shielding and the cutterhead pto shielding must be open before the battery box cover can be removed.*



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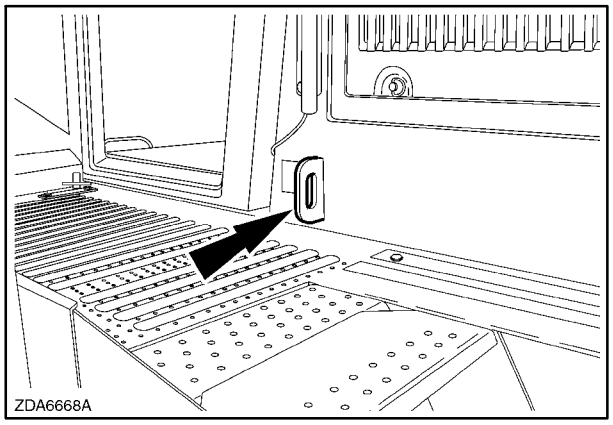
LIFTING THE FORAGE HARVESTER

To lift the forage harvester (for example to park the forage harvester on a trailer for road transport), the lifting hooks must be used.

On the forage harvester there are four lifting hooks, two at the front and two at the rear:

- At the front

The front lifting hooks are located on the left-hand and right-hand side platform just behind the cab.

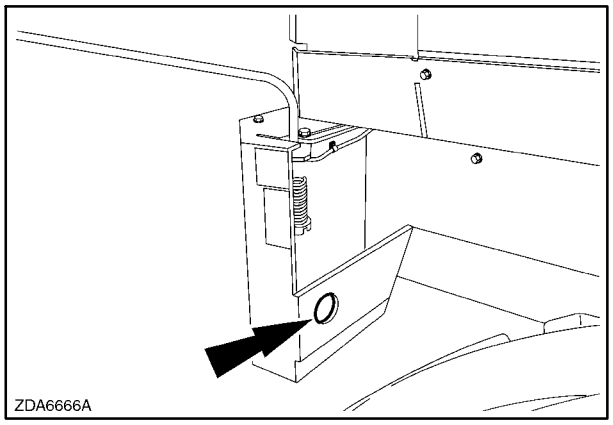


71

- At the rear

The lifting hooks at the rear are located in the rear bumper on both sides.

NOTE: *This lifting hook is also used to hook-up the forage harvester to the trailer.*



72

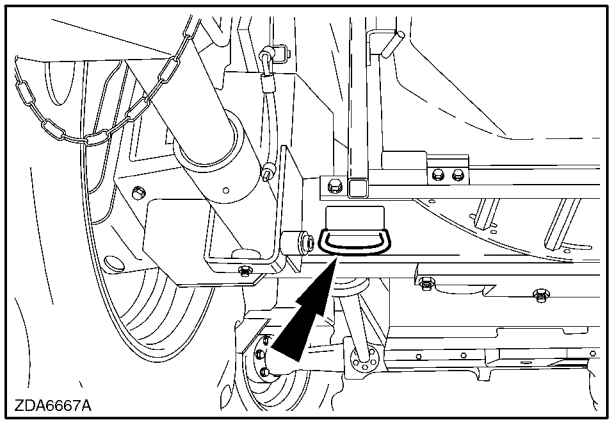
HOOKING-UP THE FORAGE HARVESTER

To hook-up the forage harvester (e.g. on a trailer), the fixation hooks must be used.

On the forage harvester there are four fixation hooks, two at the front and two at the rear:

- At the front

Underneath the forage harvester on the traction beam, next to the attachment lift cylinder support, on both sides are two fixation hooks.



73

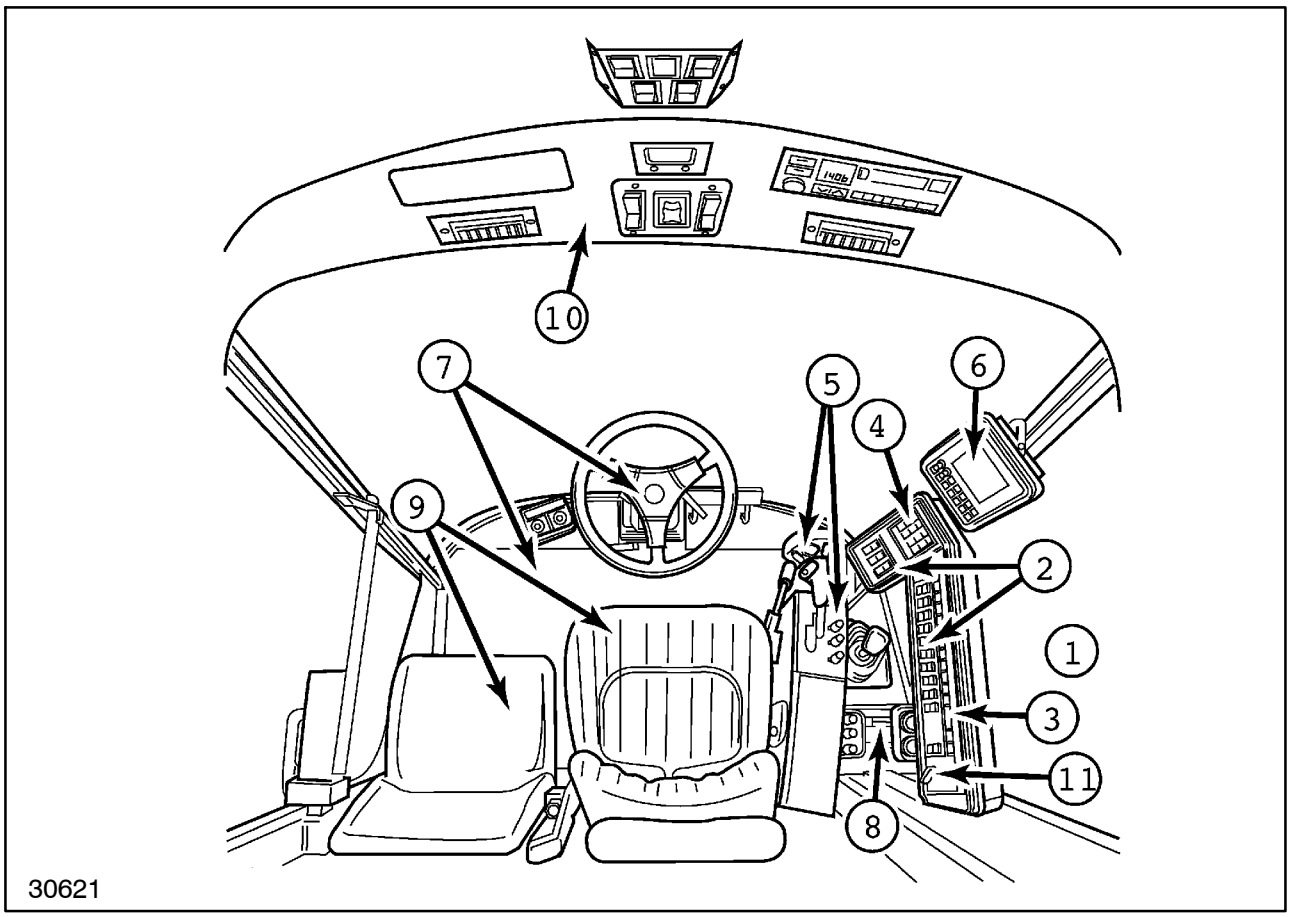
- At the rear

The same hooks as foreseen to lift the forage harvester can be used, see Fig. 72.

SECTION 2 - CONTROLS, INSTRUMENTS AND OPERATION

In this section the operation of the forage harvester is discussed and the machine function is explained.

Furthermore, in several functional groups the functions inside the cab are explained.



1

1. Emergency exit
2. Control switches
3. Warning lights
4. Adjust-O-Matic™ panel
5. Multifunction lever and arm rest module
6. InfoView™ monitor
7. Steering column and floor pedals
8. Console module
9. Operator's seat and surroundings
10. Cab roof
11. Ignition key

EMERGENCY EXIT

The emergency exit is to be found on the right-hand side of the operator, opposite the door that gives access to the cab.

To escape from the cab through the emergency exit, proceed as follows:

- Unlock the emergency exit door handle in three steps:

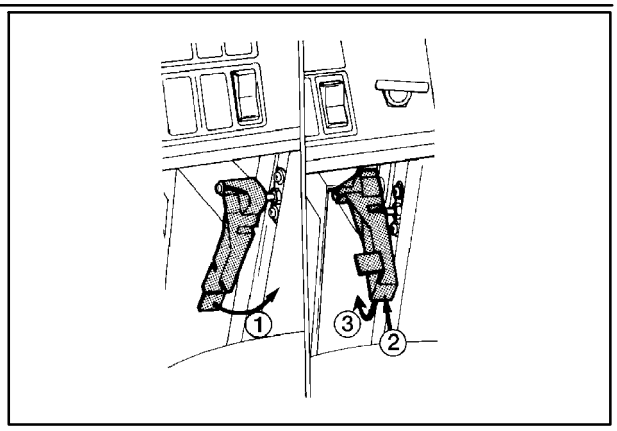
  1. Flip up the handle until it is in horizontal position.

  2. Push the door slightly open until the metal pin that is attached to the cab frame is visible through the notch in the handle.

  3. Flip down the handle in order to release the handle from the pin. Now the door can be pushed open completely.

- Pivot the InfoView™ monitor away from the emergency exit.

- Step over the dashboard and leave the cab.



2

CONTROL SWITCHES

The instrument panel is situated on the operator's right-hand side. It contains the control switches, warning lights and the Adjust-O-Matic™ panel. The control switches in the instrument panel control the major part of the machine functions.

- **Tumbler switches**

These switches have two positions (e.g. ON/OFF or SLOW/FAST). They will stay in the position in which they are pushed.

- **Rocker switches**

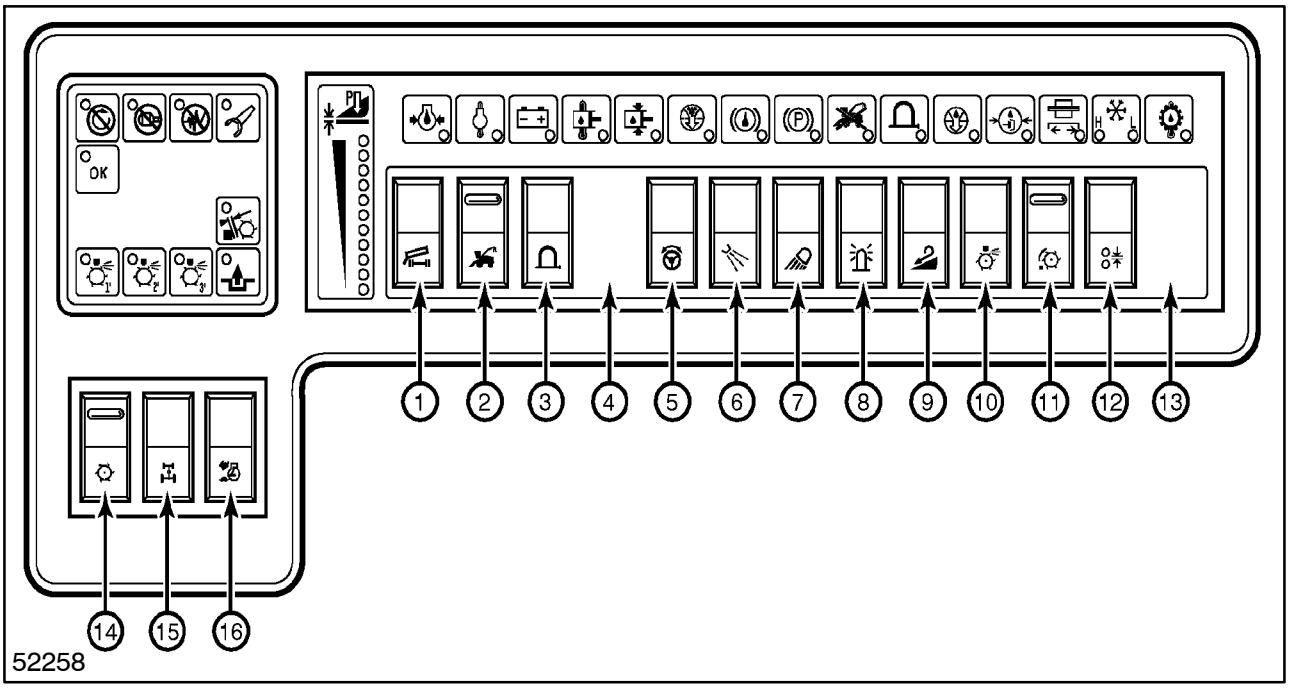
These switches have three positions. Apart from the ON/OFF or SLOW/FAST positions, they also have a NEUTRAL position. These switches will always return to their neutral position once the pressure is released.

Three switches are fitted with a safety button

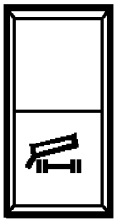
Switch 2	Harvest function
Switch 11	Reverse cutterhead drive
Switch 14	Cutterhead engagement

This safety button must be pressed before the switch itself can be switched. The safety button prevents accidental switching.

Some other functions are to be found in the hydrostatic lever: spout rotation, spout deflector command and feed roll/attachment control, or in the steering column: lights, Auto-Pilot centering control, or in the cab floor: spout height control, auxiliary hydraulics.



3



UP

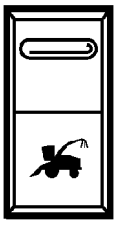
NEUTRAL

DOWN

High capacity hydraulics rocker switch [if installed]

By pressing the UP or DOWN position the high capacity hydraulics can be controlled.

ATTENTION: *The harvest safety switch must be in HARVEST position.*



ROAD

HARVEST

Harvest safety tumbler switch

Following functions will be operational when this switch is switched to its HARVEST position:

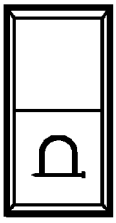
- Full engine speed (1700 - 2100 rpm)
- Cutterhead engagement and, therefore, feed rolls and attachment
- Normal attachment height operation
- Reverse cutterhead drive
- Spout height
- Spout rotation
- Automatic attachment height control
- Metal detector
- Adjust-O-Matic™ automatic sharpening and shearbar adjustment

- 4-wheel drive [if installed]
- Auto-Pilot [if installed]
- Spout light
- Silage additive applicator
- Power Reverse™
- Auxiliary hydraulics (front, rear and high capacity)
- Reverse drive operating light [if installed]
- Crop processor roll clearance

The harvest function will be inactivated when:

- Harvest switch is switched to ROAD position
- Right-hand side door of radiator compartment is opened
- Ground speed exceeds 90% of the maximum ground speed
- Quick-stop button is used

3



OFF

NEUTRAL

ON

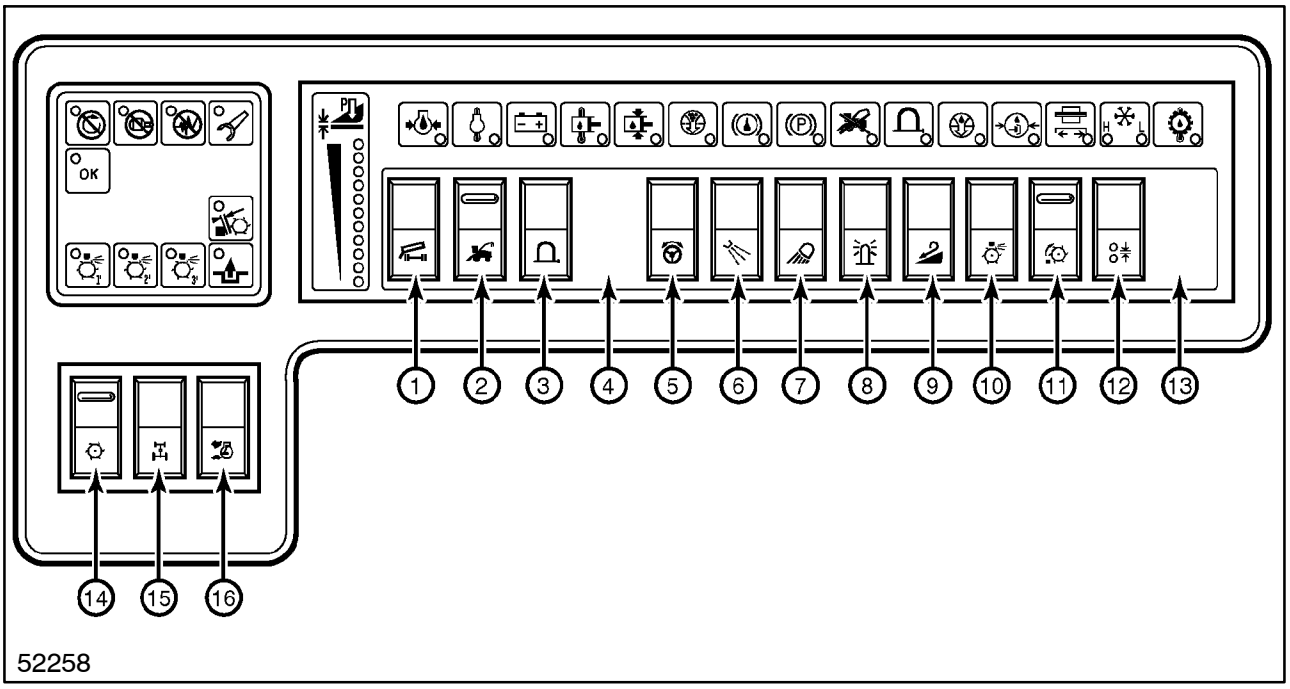
Metal detector rocker switch

The metal detector is automatically activated when the cutterhead is engaged. The metal detector can then be switched off by pushing the OFF position. When switched off, the metal detector can be switched on again by pushing the ON position. When the buzzer sounds with the metal detector switched on, the feed rolls must be reversed by pushing the reverse position of the feed roll switch on the multifunction lever.

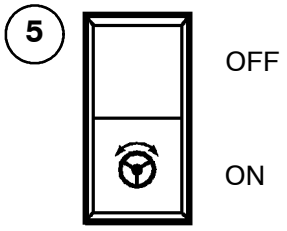
A user message appears on the InfoView™ to inform the operator the metal detector is switched off.

4

Not used



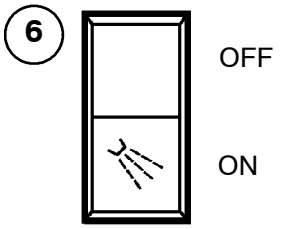
4



Auto-Pilot main switch [if installed]

When switched ON, the Auto-Pilot system is ready to be used.
By pushing the Auto–Pilot engagement button on the multifunction handle, the Auto-Pilot system will be switched on. By turning the steering wheel, the Auto-Pilot will be switched off.

ATTENTION: *The harvest safety switch must be in HARVEST position.*



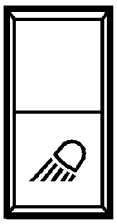
Silage additive applicator tumbler switch

When this switch is switched ON**,** a 12V socket on the front side of the electronic control box is powered, provided:

- The feed rolls are engaged
- The machine is moving forward
- The attachment height is within the range that activates the hectare counter.

NOTE: *This switch and the 12V socket mentioned above can also be used to activate the high capacity front hydraulics.*

7



OFF

(a) CLOSE ANGLE

(b) FAR ANGLE

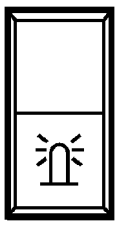
Operating lights tumbler switch

When this switch is switched in the CLOSE ANGLE position, the twin operating lights (inner and outer) mounted on the safety railing will illuminate (15 seconds after ignition). When switched in the FAR ANGLE position, the operating lights in the cab roof will illuminate and the outer twin operating lights will extinguish.

ATTENTION: *In order to control the spout operating light, the harvest switch must be in the HARVEST position.*

WARNING: *It is not allowed to drive on public roads with the operating lights switched on.*
Do not disturb road users with operating lights while working on the field.

8



OFF

ON

Beacon tumbler switch

When travelling on public roads, this switch has to be switched **ON**. The two beacons on the sides of the cab will light up.

9

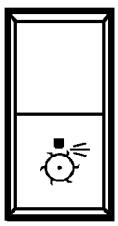
OFF

ON

Power Reverse™ tumbler switch

When this switch is switched ON, the power reverse system on your pick-up attachment [if installed] will automatically be activated whenever and for as long as the feed rolls are reversed. When harvesting maize, this switch has to be switched OFF**.**
When the feed rolls are re-engaged the power reverse will be activated so that the windguard and retractable auger fingers return to their working position.

10



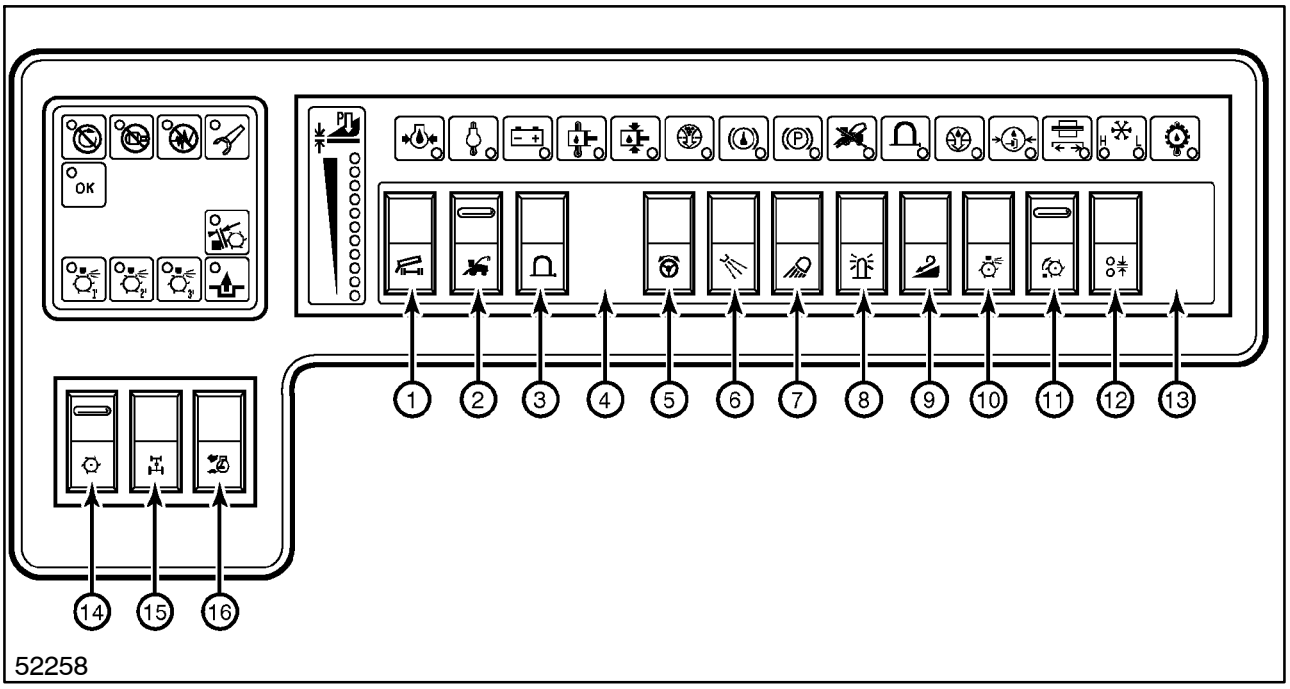
OFF

ON

Adjust-O-Matic™ tumbler switch

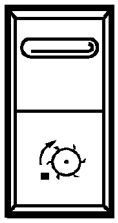
When this switch is switched ON, the automatic knife sharpening system and the automatic shearbar adjustment system will be ready to use. The OK-light of the Adjust-O-Matic™ panel will light up. When knife sharpening and shearbar adjustment are finished, switch OFF**.** For details of the knife sharpening and shearbar adjustment procedure, see section 3 “Field and Site operation” paragraph headed “Adjust-O-matic system“.

ATTENTION*: The harvest safety switch must be in HARVEST position.*



5

11



OFF

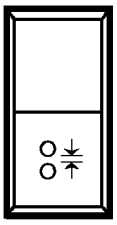
REVERSE

Cutterhead reverse drive tumbler switch

When switched in REVERSE, the cutterhead will start turning in the opposite direction. This reverse drive of the cutterhead is recommended for the knife sharpening and shearbar adjustment routine.
If the cutterhead is still turning forward when switched in REVERSE, the machine will disengage the cutterhead drive first.
The cutterhead reverse drive switch then has to be switched OFF first and then back to REVERSE before the reverse drive will actually be engaged.

ATTENTION: *The harvest safety switch must be in HARVEST position.*

12



OPEN

NEUTRAL

CLOSE

Crop processor roll clearance rocker switch

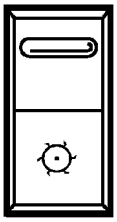
When pushed on OPEN, the crop processor rolls will open up until their maximum clearance (20 mm) is reached. When pushed on CLOSE, the rolls will go to their minimum clearance (2 mm). As soon as the switch is pushed OPEN or CLOSE, the crop processor roll distance will automatically be displayed on the InfoView™ monitor. When the switch is released, it will go to its NEUTRAL position and the motion will stop.

ATTENTION: *The harvest safety switch must be in HARVEST position.*

13

Not used

14



OFF

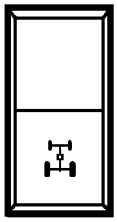
ON

Cutterhead drive tumbler switch

When switched ON, the cutterhead drive will be engaged. When the engine speed is above a certain level, engine speed will first automatically be reduced to low idle before the cutterhead is actually engaged.

ATTENTION: *The harvest switch must be in HARVEST position.*

15



OFF

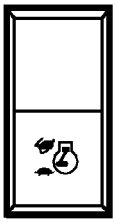
ON

4-wheel drive tumbler switch [optional]

The 4-wheel drive can be engaged by pushing this switch ON**.** This can either be done on the move or standing still.

ATTENTION: *The harvest switch must be in HARVEST position.*

16



UP

NEUTRAL

DOWN

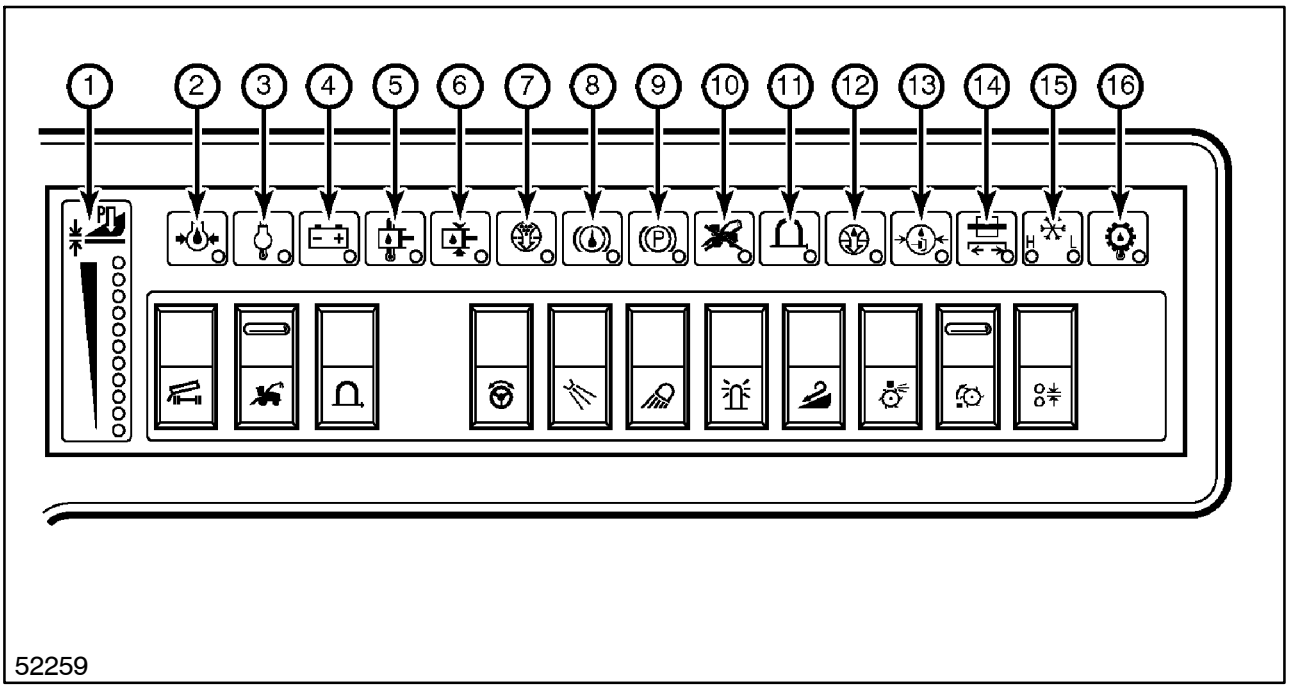
Throttle control rocker switch

When the harvest function is not activated, the engine can only be throttled up to 1690 rpm**.** When harvest function is activated, full engine speed (2100 rpm) can be reached.

WARNING LIGHTS

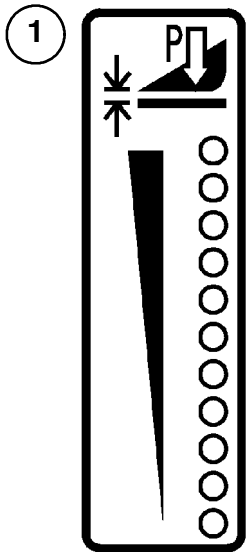
Whenever a situation arises that requires the immediate attention of the operator, a warning light will start flashing and the buzzer will sound. This means that when a warning light is continuously illuminated there is no alarm situation. This will, for instance, happen when the ignition key is turned on. Several warning lights, such as engine oil pressure and battery charge, will illuminate.

When the warning lights start illuminating sequentially, it means that the optical fibre between the dashboard and the central electronic box is not connected properly or another error in the network occurs. The lights will also illuminate in this way when the software of the machine electronic system (CAN system) is updated.



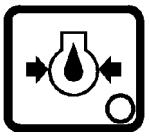
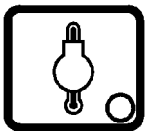
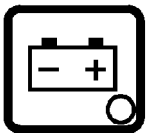
6

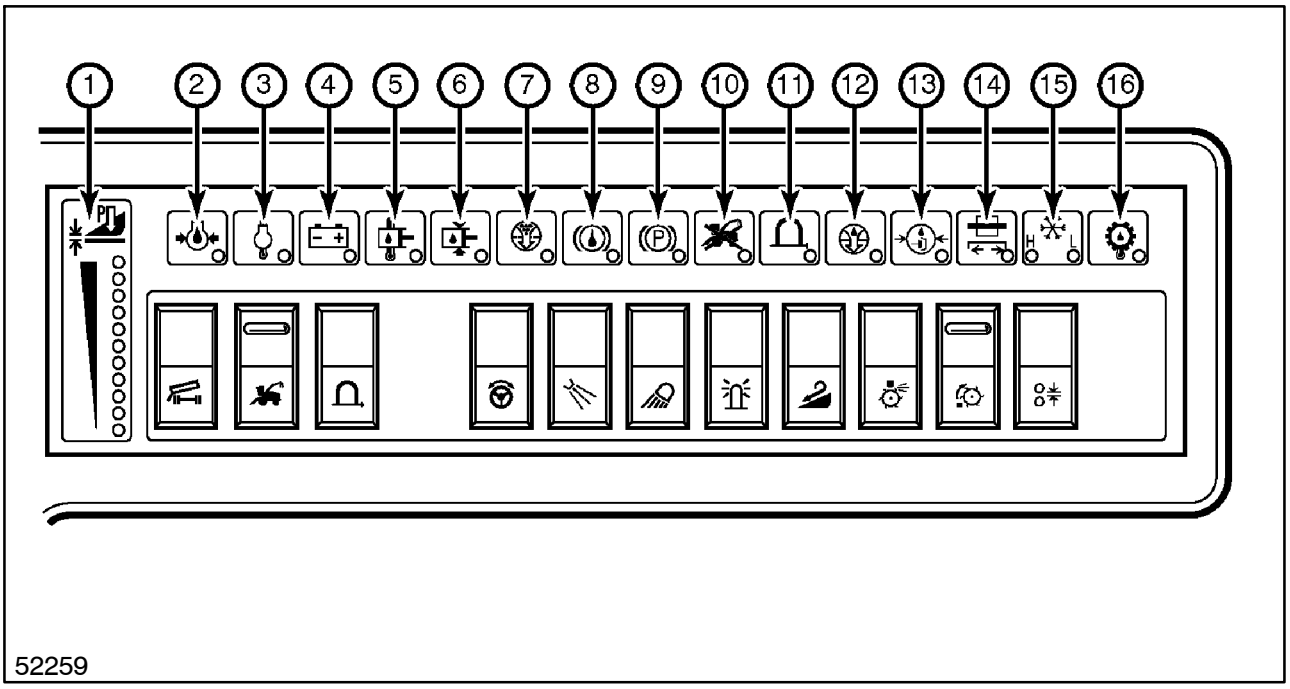
Symbol



Attachment height indicator

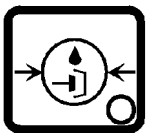
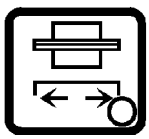
When some of the lights illuminate (not the bottom one), the attachment is within the range preset in the InfoView™ monitor. The amount of illuminated lights indicates the attachment's relative position within this preset range. Hectare counting will only take place when the lights are within this range. When all lights are illuminated, the attachment is above the preset range and hectare counting will be interrupted. When the bottom light (which is red) is illuminated, it means the attachment is under the preset range, but hectare counting still continues.
Details on the calibration and use of the hectare counter can be found in paragraph headed "InfoView™ monitor", further in this section.

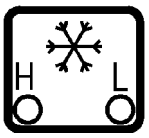
Symbol	Warning	Action
2 	Engine oil pressure too low.	Feed rolls will stop immediately. After five seconds the engine will automatically slow down to low idle giving the blower and spout time to clear. After ten seconds the engine will stall automatically. Check engine oil level. If oil level is OK: contact your local dealer.
3 	Excessive oil and engine coolant temperature.	Feed rolls will stop immediately. After five seconds the engine will automatically slow down to low idle giving the blower and spout time to clear. After ten seconds the engine will stall automatically. Check engine coolant level. Check radiators and screens, and clean, if necessary. If clean, contact your local dealer.
4 	Battery not charged or battery voltage too low.	Check battery, battery wiring or alternator.
5 	Excessive hydraulic and hydrostatic oil temperature.	Check hydrostatic system oil level and clean the oil cooler and the radiator.



7

Symbol	Warning	Action
6	Low hydrostatic oil pressure.	Feed rolls will stop immediately. After five seconds the engine will automatically slow down to low idle giving the blower and spout time to clear. After ten seconds the engine will stall automatically. Contact your local dealer.
7	Engine air filter obstruction.	Clean or replace air filter element.
8	Brake linings worn down or low brake fluid level.	Check brake linings and brake fluid level. If these are in good condition, contact your local dealer.
9	Parking brake engaged.	Release parking brake before driving the machine.

Symbol	Warning	Action
10 	Harvest function disengaged**:** starts illuminating when harvest function is disengaged.	In case you want to harvest: switch harvest switch ON**.**
	Right-hand side door of radiator compartment is not properly closed.	Check if the door is properly closed. Check sensor function.
	Quick stop button is pressed.	
11 	Metal detected.	The feed roll motion will stop immediately. Reverse feed rolls and remove any found metal from crop.
	Metal detector is activated but feed rolls have to be reversed.	Reverse feed rolls.
12 	Obstruction of main drive oil filter**.**	This alarm is no longer used. In order to check the main drive oil filter a visual check has to take place.
13 	Main drive clutch oil pressure too low (less than 24 bar).	Check main drive clutch oil level. If level is OK, contact your dealer.
14 	Light flashes: door over cutterhead is moving either to open or to close. Light illuminates: door over cutterhead is open. This door is automatically opened and closed whenever the automatic knife sharpening routine starts or ends.	

Symbol	Warning	Action
15 	Air conditioning pressure too high (H) or too low (L).	Contact your local dealer.
16 	Cutterhead gearbox oil temperature too high.	Check cutterhead gearbox coolant tubes. Check temperature sensor and its wiring. If tubes and sensor are in good condition, contact your local dealer.

Override of the automatic engine shutdown system in an emergency situation

To restart the engine after an automatic engine shut-down, proceed as follows:

1. Do not switch off the ignition.
2. Turn the ignition key clockwise to restart the engine.

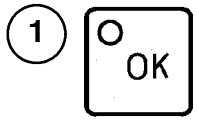
⚠ WARNING ⚠

Overriding the automatic engine shut- down system may cause serious damage to the machine. You override the automatic engine shutdown system only in case of an emergency and at your own risk.

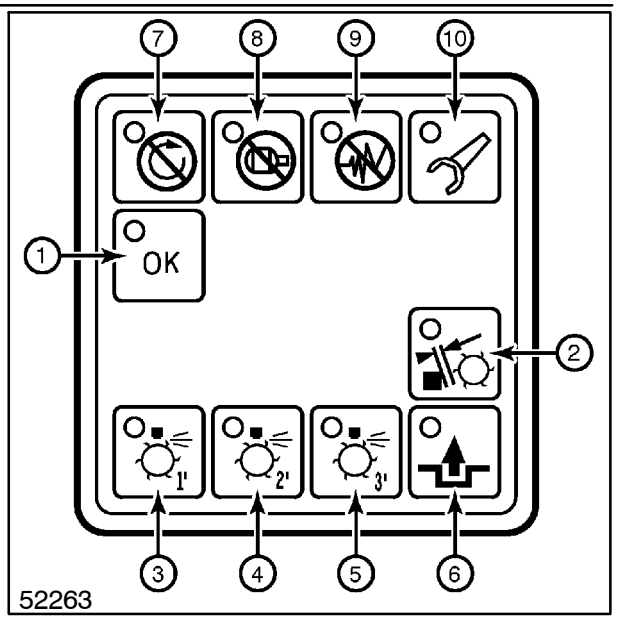
ADJUST-O-MATIC™ PANEL

A full description of the automatic knife sharpening system and the automatic shearbar adjustment can be found in section 3 “Field and Site operation”, paragraph headed “Adjust-O-Matic™ system.

It is advised that whenever knife sharpening or shearbar adjustment is performed, the cutterhead drive is reversed.

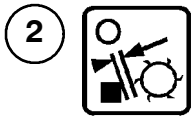


The OK-light will light up when the Adjust-O-Matic™ control switch is switched ON and the Adjust-O-Matic™ system is ready to be used.

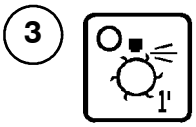


8

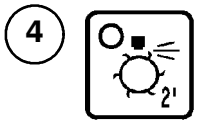
ADJUST-O-MATIC™ CONTROL BUTTONS



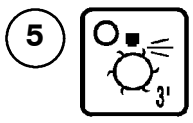
Start automatic shearbar adjustment routine: engine speed will drop to low idle.
When the automatic shearbar adjustment is completed successfully, the OK-light 1 will light up.



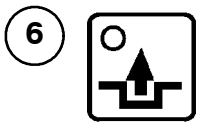
Start automatic knife sharpening routine for one minute: the sharpener door will be opened.
When the automatic knife sharpening is completed successfully, the sharpener door will be closed and the OK-light 1 will light up.



Start automatic knife sharpening routine for two minutes: the sharpener door will be opened.
When the automatic knife sharpening is completed successfully, the sharpener door will be closed and the OK-light 1 will light up.



Start automatic knife sharpening routine for three minutes**:** the sharpener door will be opened.
When the automatic knife sharpening is completed successfully, the sharpener door will be closed and the OK-light 1 will light up.



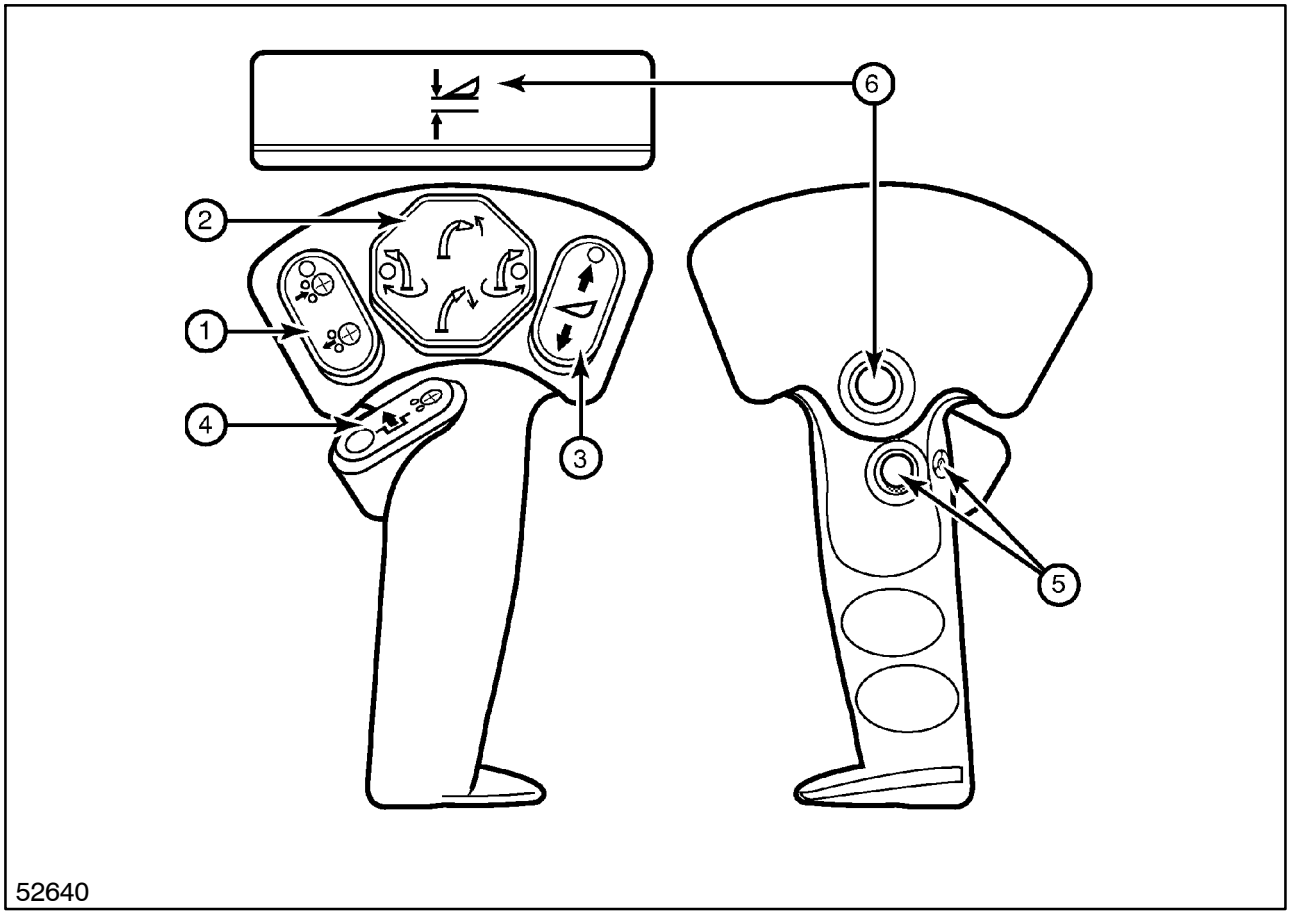
Interrupt automatic knife sharpening or shearbar adjustment routine

ADJUST-O-MATIC™ WARNING LIGHTS

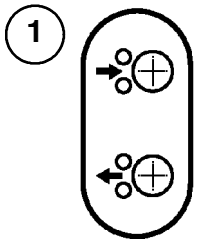
Symbol	Warning	Action
7 	Knife sharpening: Cutterhead speed too low to perform proper knife sharpening.	Throttle up until a cutterhead speed of 750 rpm is reached.
	Shearbar adjustment: Cutterhead speed too low to perform proper shearbar adjustment.	Throttle up until a cutterhead speed of at least 250 rpm is reached.
8 	Knife sharpening: Failure or seizure of sharpening stone drive motor.	Check motor and wiring. Check fuse F18.
	Shearbar adjustment: Failure or seizure of shearbar adjustment motor.	Check motors and wiring. Check fuse F18.
9 	Shearbar adjustment: Knock sensor in shearbar adjustment arm is not working properly or is not receiving a (powerful enough) signal.	Check knock sensor, test signal generator and wiring.
	Too much machine noise	Check machine for noise. Check cutterhead bearings.
10 	Knife sharpening: Sharpening stone has worn down too much.	Readjust sharpening stone.
	Shearbar adjustment: Cutterhead knives have worn down so much that the shearbar has reached its end of travel.	Move shearbar forward and readjust cutterhead knives.

MULTIFUNCTION LEVER AND ARM REST MODULE

MULTIFUNCTION LEVER



9



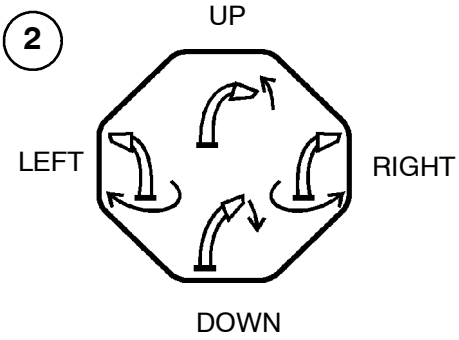
2x: FORWARD

1x: STOP
2x: REVERSE

Feed roll and attachment drive rocker switch

With this switch the feed roll and attachment drive can be controlled, provided the cutterhead is running. Push FORWARD twice in order to feed crop into the cutterhead.
When the lower part of the switch is pushed, the feed rolls and the attachment will STOP. When pushed a second time, both the feed rolls and the attachment will REVERSE. Reversing will continue until the switch is released.

2

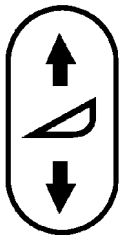


Spout deflector and spout rotation rocker switch

With the upper and lower part of this switch the spout deflector can be moved UP and DOWN respectively.
With the left and right side of the switch the spout can be rotated to the LEFT and RIGHT-hand side of the machine.

The spout rotation switch offers two spout rotation speeds. If the switch is pushed to its first stop, both in LEFT and RIGHT position, spout rotation speed will be slow**.**
When pushed to the second stop**,** spout rotation will be fast**.**
The slow speed can be calibrated.
Refer to section 3 “Field and Site operation”, paragraph “InfoView™ monitor”, subparagraph “Calibration mode” for the slow spout speed calibration.

3

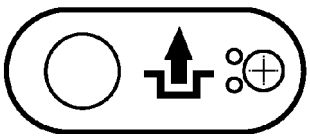


Attachment height control rocker switch

Both in transport mode and in the automatic attachment height control mode, attachment height can be set manually with this switch.

NOTE: *Automatic attachment height is controlled with the automatic attachment height control button (see item 6).*

4



Quick-stop button

Hitting this button will immediately interrupt the motion of the feed rolls and the attachment**.** This may be necessary in order to avoid damage to the attachment, feed rolls or cutterhead.

5

Auto-Pilot button [if installed] + shift function

1 When the Auto-Pilot system has been activated, the Auto-Pilot can be switched ON with this button. Turning the steering wheel will switch OFF the Auto-Pilot.

Rear auxiliary hydraulics control shift switch

Shift When this button is pushed, the rear hydraulics can be operated with the spout height control switch in the cab floor. Also refer to section 3 “Field and site operation”, paragraph headed “Hydraulic system” .

6

1 Automatic attachment height control button + shift function

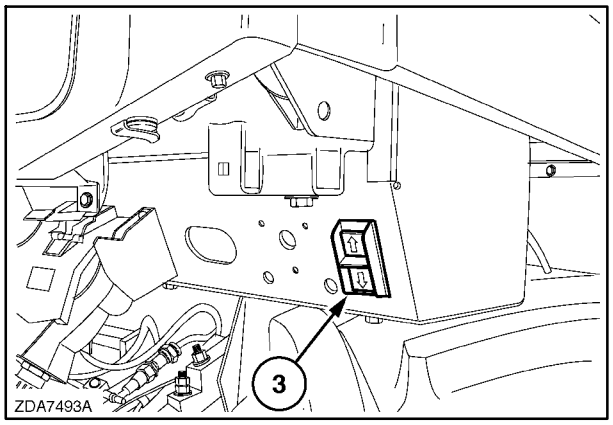
When this button is pressed and released the attachment will automatically lower (or rise) to a height that is preset by one of the automatic attachment height potentiometers.

NOTE: *In order to do this the attachment height control selector switch has to be either in the stubble height or ground pressure position and the cutterhead has to be engaged.*

Shift Front auxiliary hydraulics control shift switch

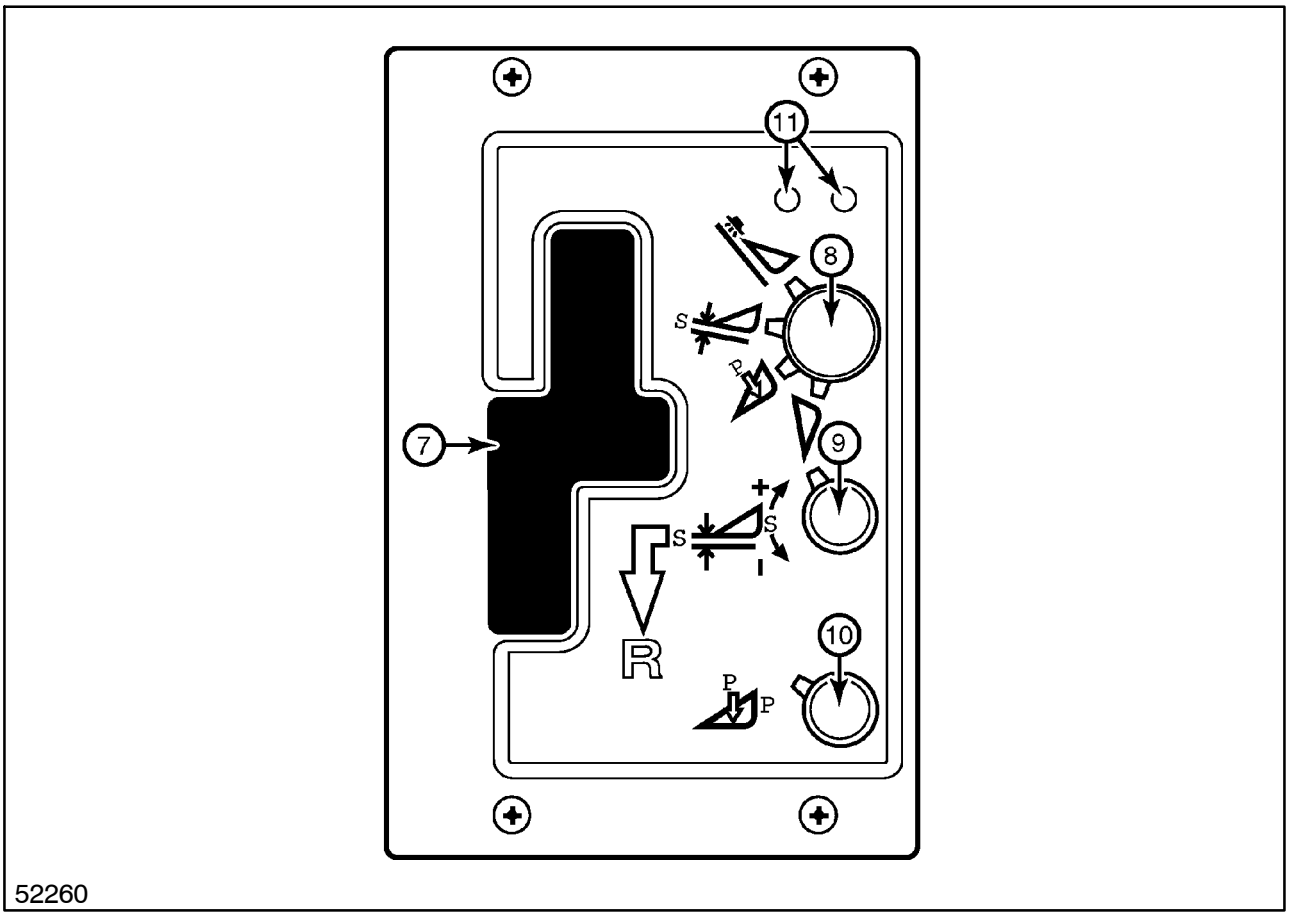
When this button is pushed, the front hydraulics can be operated by the spout height control switch in the cab floor.

NOTE: *The cutterhead can be raised and/or lowered using buttons 3 on the left-hand side of the forage harvester.*

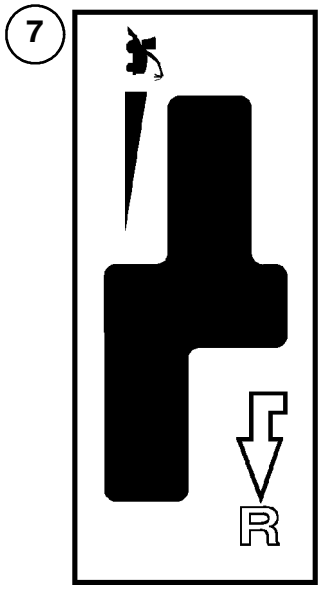


10

ARM REST MODULE



11



Multifunction lever

FORWARD

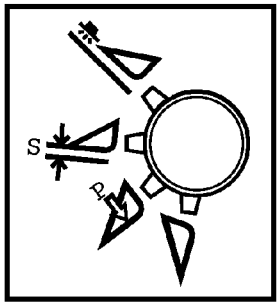
With this lever FORWARD and REVERSE ground speed of the forage harvester can be controlled. By putting the lever in NEUTRAL**,** the machine will be stopped.
The machine can be started in any position of the lever. However, before you can drive, the lever will have to be shifted to NEUTRAL first.

NEUTRAL

WARNING: *In case of an emergency stop it will not be enough just to shift the multifunction lever to NEUTRAL; also apply the brakes.*

REVERSE

8



1: STUBBLE

2: STUBBLE

3: PRESSURE

4: MANUAL

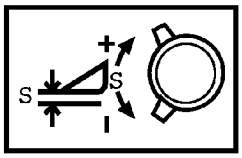
Attachment height control selector switch

This switch has four positions, each position selects a specific way to control the attachment height

1 + 2	stubble height control
3	ground pressure or flotation
4	manual control or transport mode

For a complete explanation of the attachment height control system, refer to section 3 “Field and Site operation”, paragraph headed “Attachment height control”.

9



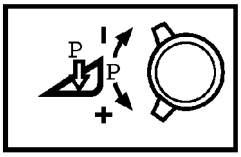
LONG

SHORT

Stubble height potentiometer

With this knob, a certain stubble height can be selected. When switch 8 is in STUBBLE position, the attachment will automatically lower to that preset position when the automatic attachment height control button is pressed and released.

10



LOW

HIGH

Ground pressure potentiometer

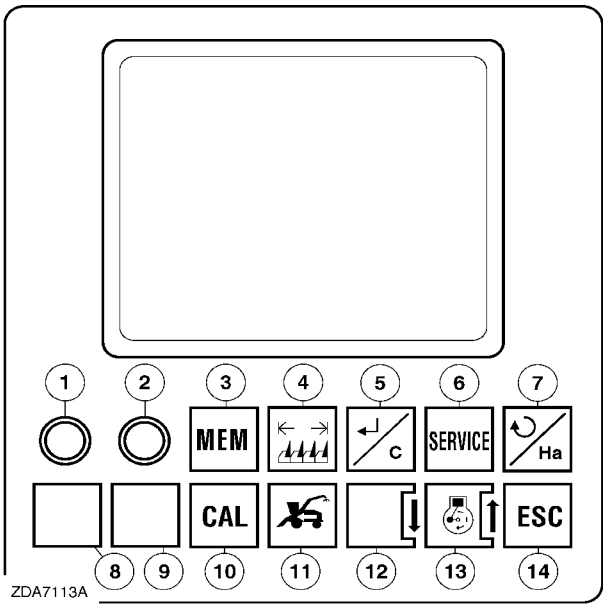
With this knob high and low ground pressure can be selected. When switch 8 is in GROUND PRESSURE position, the attachment will automatically lower to a preset position (which corresponds with a certain hydraulic pressure in the system) when the automatic attachment height control button is pressed and released.

11

Attachment height control autodiagnostics control indicators (refer to section 3 “Field and Site operation”, paragraph headed “Attachment height control”).

INFOVIEW™ MONITOR

A full description of the use of the InfoView™ monitor can be found in section 3 “Field and Site operation”, paragraph headed “InfoView™ monitor“.



12

1 Feed rools reverse speed potentiometer

2 Length Of Cut potentiometer

With the cutterhead engaged, the length of cut can be set with this potentiometer.

3 MEM

Memory mode

When in the hectare counting mode, data about harvested areas (area count, hour count, average area, date + time) can be recalled.

4

Attachment width correction

When the hectare counter is activated, the actual attachment width will be reduced by a quarter or 1 row, each time the button is pressed.

5 C

Enter

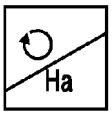
Clear

Data can be entered or calibrations confirmed with this button. In the service mode, this button is used to erase errors in the error overview and to reset service intervals.

6 SERVICE

Service mode

Information on service intervals can be recalled, as well as engine and cutterhead hour count and error overview.

7 

Hectare counting mode

With this button you can choose between:
- harvested area and elapsed cutterhead time
- standard forage harvester speed mode (ground speed or engine speed and cutterhead speed)

8 Not used

9 Not used

10 

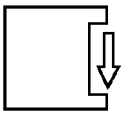
Calibration mode

Press this button to enter the calibration mode where the machine calibration can be checked or changed.

11 

Ground speed display

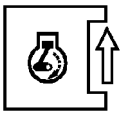
With this button the forage harvester ground speed can be selected instead of engine speed (cutterhead speed is also displayed).

12 

Scroll down

With this button, one can scroll down through a menu (e.g. calibration mode, service intervals) or change yes/no in the calibration mode
When this key is pressed when in the speed mode, the metal detector diagnostic page will be recalled.

NOTE: *This diagnostic page will automatically be shown when metal is detected.*

13 

Scroll up

With this button, one can scroll up through a menu (e.g. calibration mode, service intervals) or change yes/no in the calibration mode.

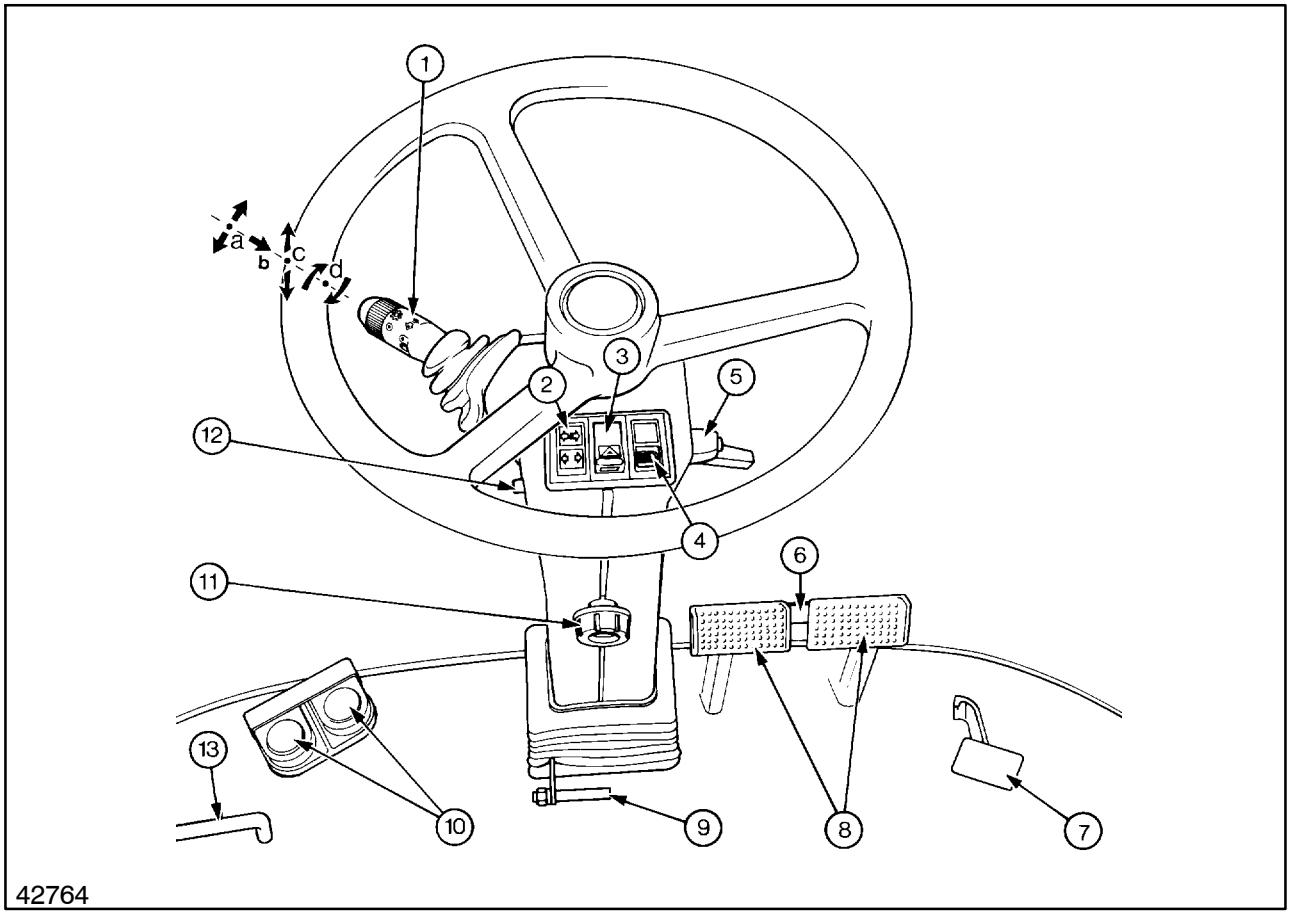
In the forage harvester operation mode, engine speed can be selected instead of ground speed.

14 

Escape

When this button is pressed once or twice, you will escape from any mode back to the forage harvester speed mode (engine speed, ground speed, etc.) or previous level.

STEERING COLUMN AND CAB FLOOR PEDALS

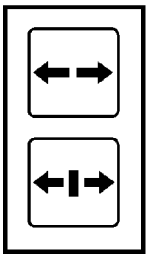


13

1 Lights control stalk

- a Direction indicators (left and right)
- b Horn (push)
- c Main beam (up) and dipped (down) headlights selector
- d Parking lights (1 stop) and headlights (2 stops) turn switch

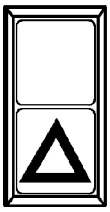
2



Direction indicator warning light

When there is no trailer behind the forage harvester, only the BASE UNIT light will flash. When a trailer is hooked up and the wires are properly connected, both BASE UNIT and TRAILER warning light will flash.

3



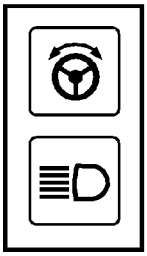
OFF

ON

Hazard warning light tumbler switch

When this switch is switched ON, the four direction indicator lights on the corners of the machine will start flashing and a buzzer will sound in the cab.

4



AUTO-PILOT

Auto-Pilot warning light
When the Auto-Pilot is switched ON this light is illuminated.

HEADLIGHT MAIN BEAM

Main beam headlight warning light
When the main beam headlight is switched ON, this light is illuminated.

5 Steering wheel tilt control

6 Brake pedal coupler

⚠ CAUTION ⚠

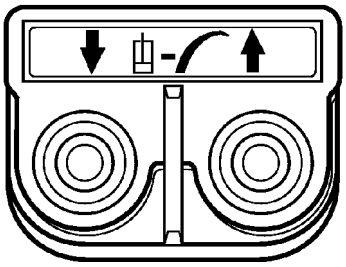
For safety reasons, always couple brake pedals by means of pedal coupler 6 when driving on public roads. This ensures the brakes are actuated together.

7 Differential lock

8 Brake pedals left and right

9 Steering column tilt control

10



DOWN UP

1. Spout height control switches

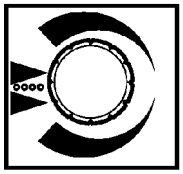
2. Auxiliary hydraulics control switches

   Front auxiliary hydraulics can be operated with these switches provided the automatic attachment height control button on the multifunction lever is pressed.

   Rear auxiliary hydraulics can be operated with these switches provided the Auto-Pilot button on the multifunction lever is pressed.

11 Steering wheel height control
Loosen this screw and adjust the steering wheel to a comfortable height.

12



RIGHT

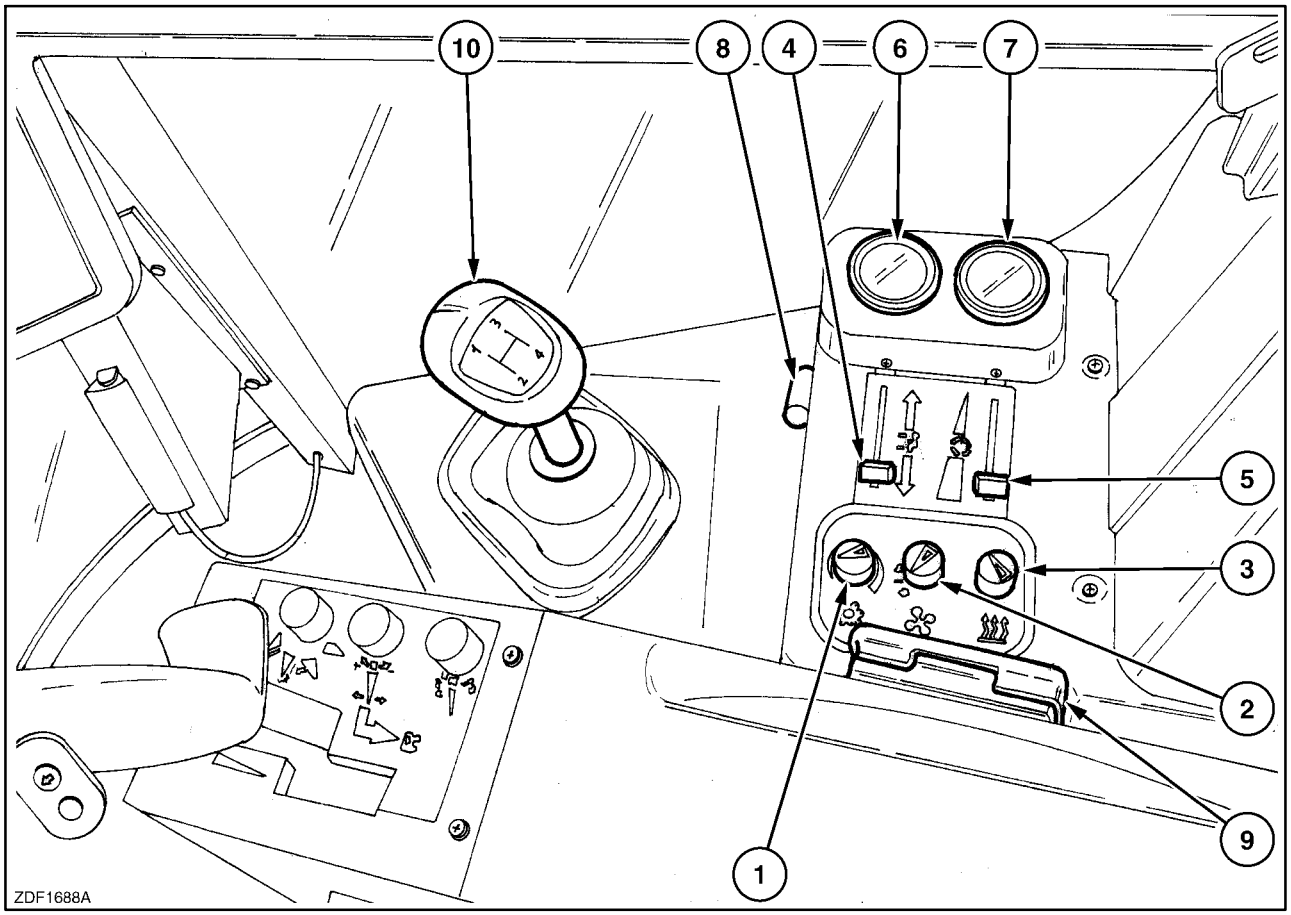
LEFT

Auto-Pilot centering knob [if installed]
By turning this knob either to the LEFT or to the RIGHT, small deviations of the Auto-Pilot system (e.g. on slopes) can be corrected.

For the explanation of the use of the Auto-Pilot refer to section 3 “Field and site operation”, paragraph headed “Auto-Pilot”.

13 Passenger foot support

CONSOLE MODULE

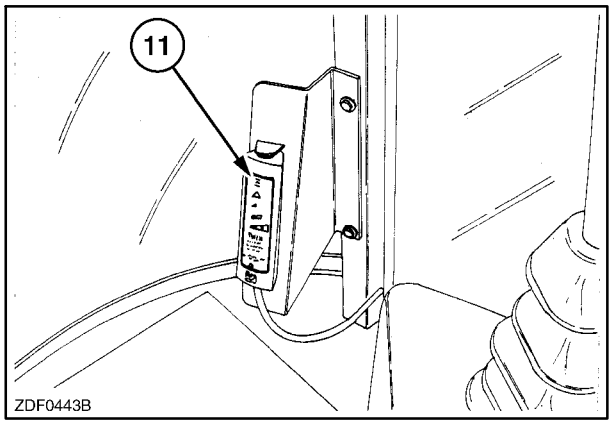


14

1. Air conditioning control knob
2. Fan speed control switch
3. Heater control knob
4. Air vent control lever
5. Air recycling control lever
6. Engine coolant temperature gauge
7. Fuel gauge
8. 12 V socket
9. Cup holder
10. Gearshift lever – 4 speeds can be selected

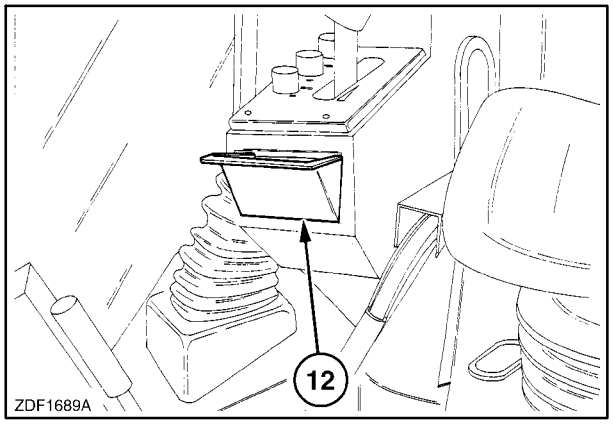
11. Automatic central greasing display [if installed]

NOTE: *For use of the automatic central greasing system, refer to the Operator's Manual Supplement on this subject.*



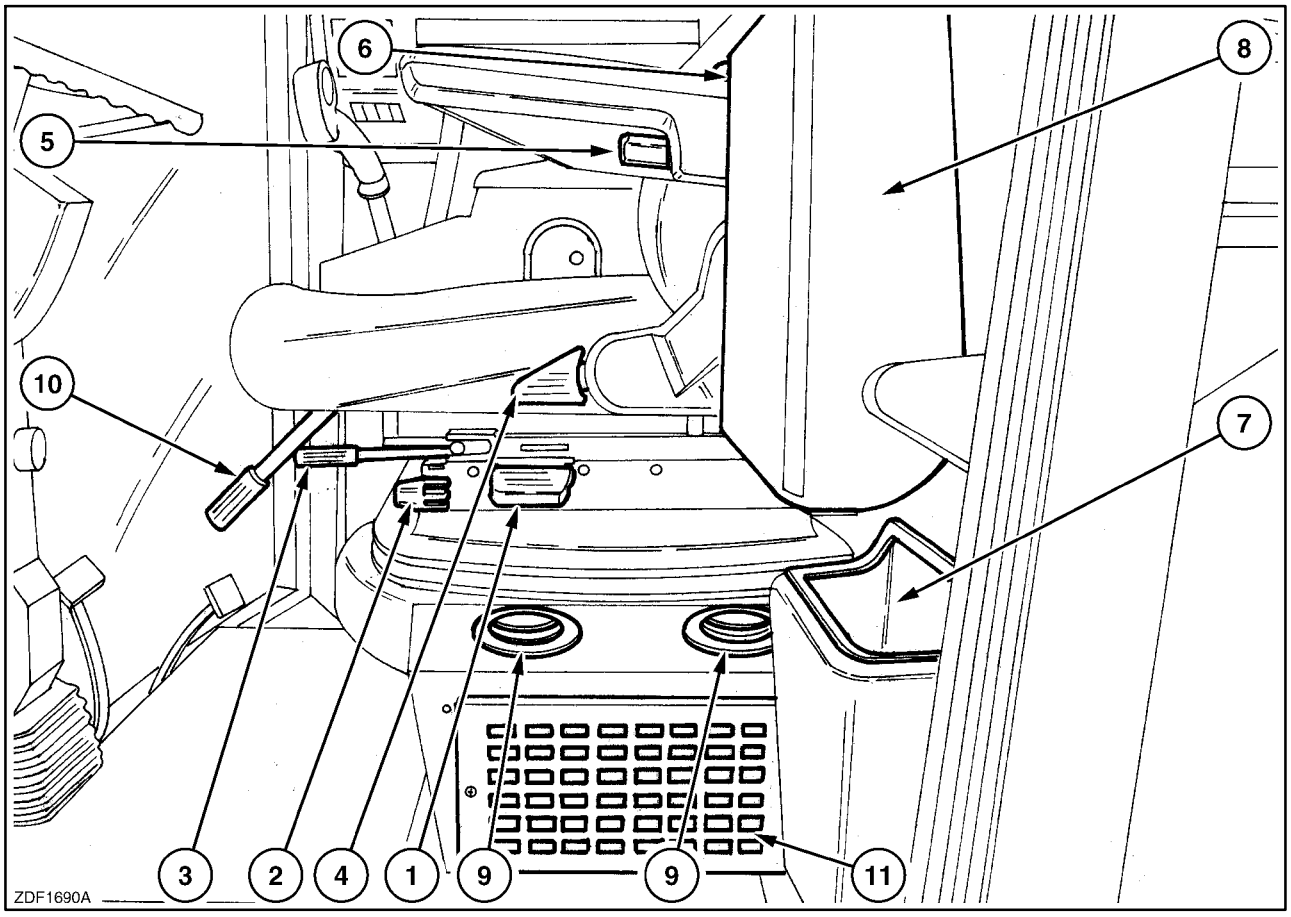
15

12. Ashtray



16

OPERATOR'S SEAT AND SURROUNDINGS



17

1. Weight and seat height adjustment lever (air suspended seat)

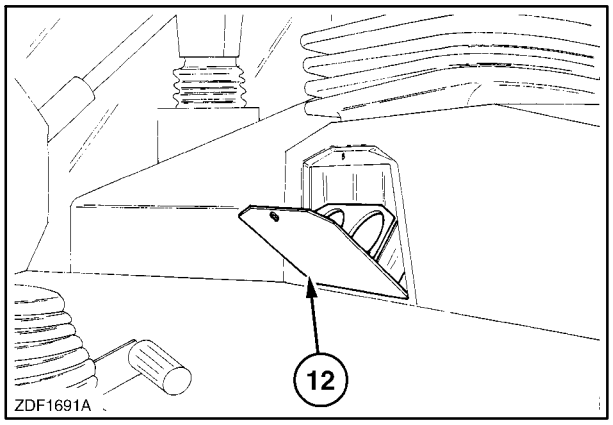
   Lift the lever briefly and the seat will automatically be adjusted to the operator's weight.

   Moving the lever up or down will adjust the height of the seat until the lever is released.

2. Fore and after seat suspension locking lever
3. Seat for and after adjustment
4. Seat back rest inclination adjustment
5. Armrest angle adjustment
6. Lumbar adjustment
7. Storage space for Operator's Manual
8. Instructional seat
9. Adjustable air vent (two on both sides of the seat)
10. Parking brake
11. Air recycling filter

12. Drink storage space

IMPORTANT: *Always close the drink storage space after use to maintain the ventilation and cooling capacity.*



18

⚠ WARNING ⚠

When the operator leaves the operator's seat for more than five seconds, the following will happen for safety reasons:

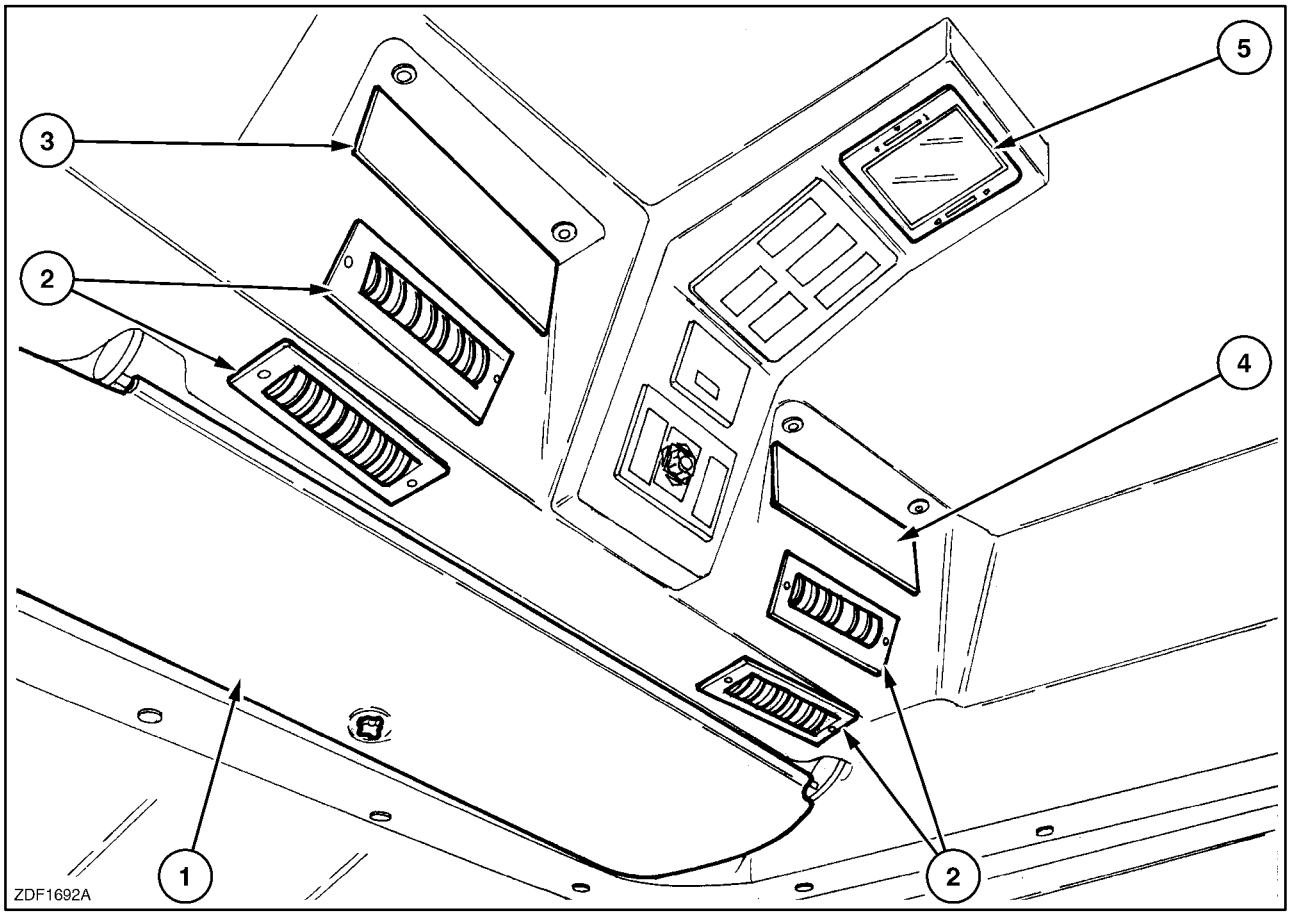
The feed rolls will stop.

The Auto-Pilot will be disengaged.

The engine will slow down to low idle.

(When sharpening the knives, the sharpener stone will return to the home position first)

CAB ROOF



19

1. Sunshade

2. Adjustable air vents

3. CB location

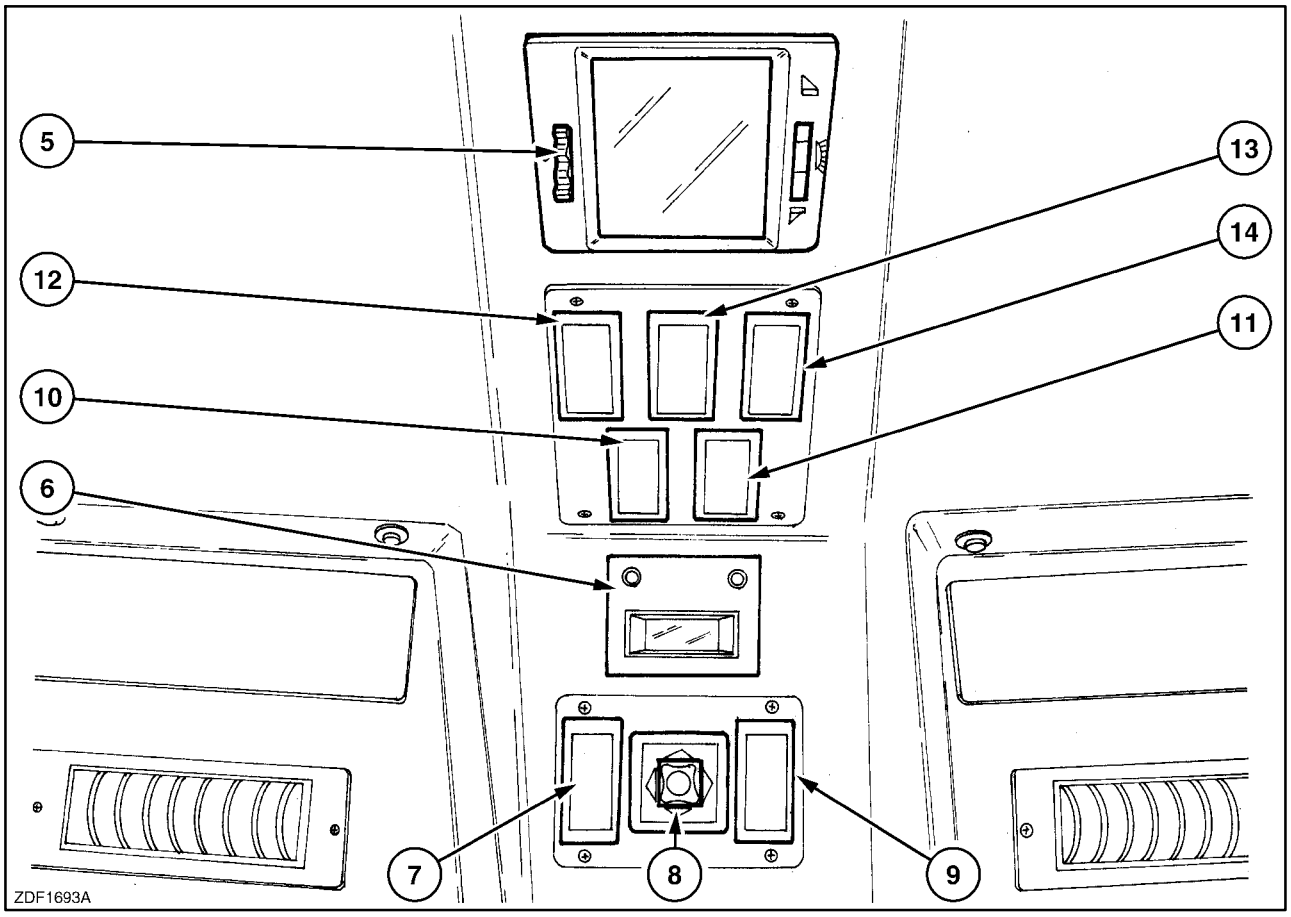
   Socket for 12 V and aerial are ready behind this cover. An aerial socket is located in the left rear corner of the cab, just under the cab roof.

4. Radio location

   Connectors for aerial, 12V and loudspeakers are ready behind this cover. The aerial itself is located under the cab roof.

5. Cab interior light

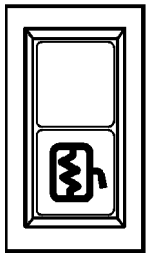
   Left-hand side: ON/OFF switch
   Right-hand side: beam direction control



20

6. Clock

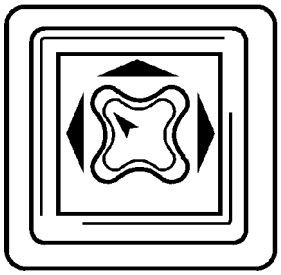
   Hours can be set by pushing h, minutes by pushing m.

7. 

   OFF

   ON

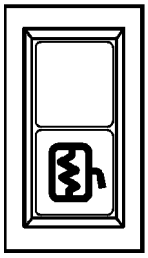
   Mirror heating tumbler switch
   When switched ON, the mirrors on both sides of the machine will be heated as well as the rear windscreen.

8. 

   Mirror adjustment knob

   1: Select LEFT or RIGHT first.

   2: The position of one of the mirrors can be adjusted in 4 directions by pushing the knob in either one of these directions.

9. 

Additional mirror adjustment tumbler switch (Germany only)

OFF

When in the ON position, the additional mirror on the right-hand side can be adjusted with the mirror adjustment knob.

ON

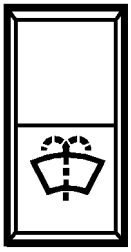
10. 

Windscreen wiper tumbler switch

OFF

INTERMITTENT

CONTINUOUS

11. 

Windscreen washer rocker switch (if installed)

OFF

ON

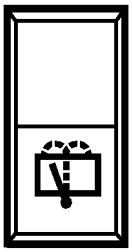
12. 

Rear window wiper/washer rocker switch (if installed)

OFF

ON

13. Not used

14. 

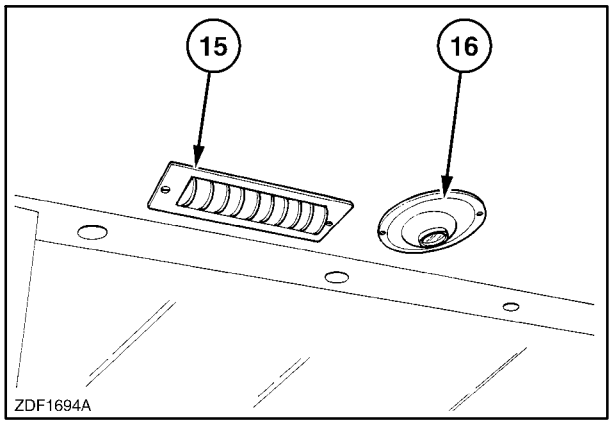
Side windows wiper/washer rocker switch (if installed)

OFF

ON

15. Adjustable air vent

16. Adjustable spotlight with On/Off switch



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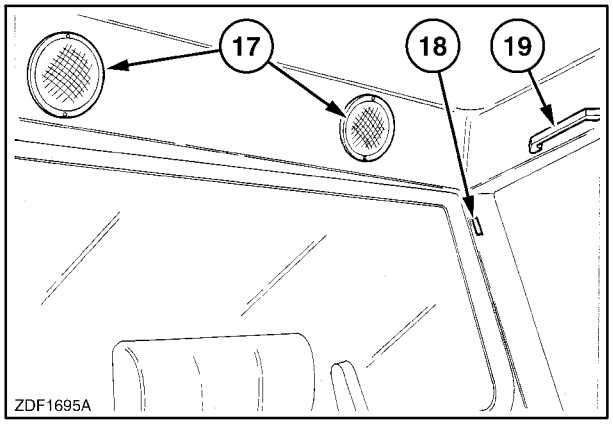
17. Loud speakers

18. Hook for clothes

19. Handgrip



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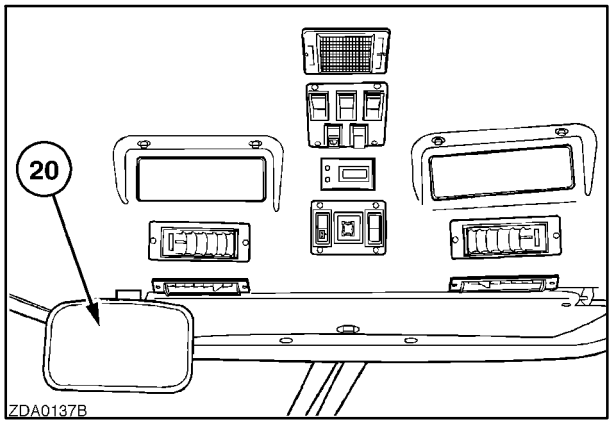
20. Rear view mirror (if installed)



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LIGHTS AND SOCKETS

The lights on the forage harvester are meant for use both on the road (headlights, brake lights, parking lights, direction indicators, beacon) and in the field (operating lights, spotlights). When the operating lights and spotlights are switched ON immediately after the ignition key was switched ON, it will take 15 seconds before they are actually switched ON.

⚠ CAUTION ⚠

It is not allowed to drive on public roads with the operating lights and spotlights switched on.
Do not disturb road users with operating lights or spotlights while working on the field.

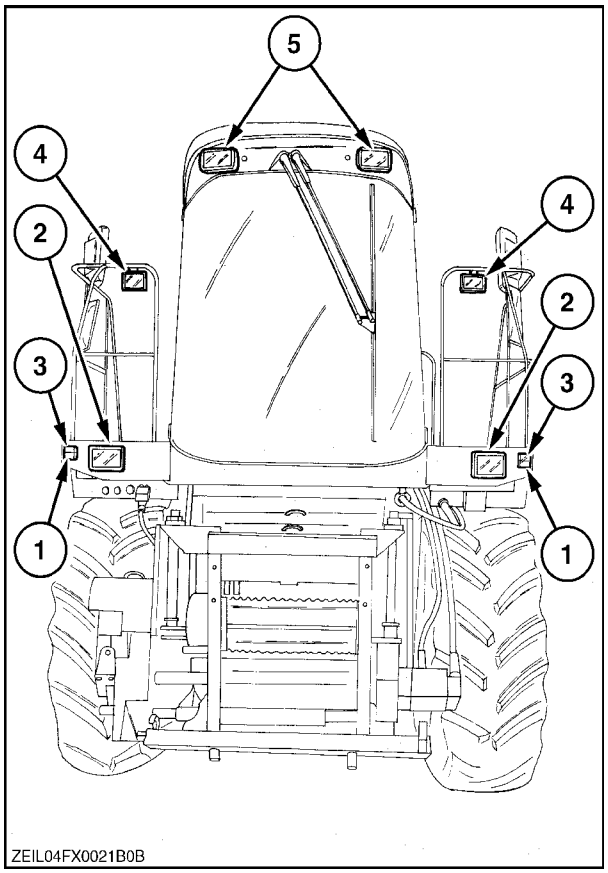
1. Parking light

2. Head light

3. Direction indicator

4. Twin operating lights on safety railing

5. Operating lights on cab



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1. Parking lights

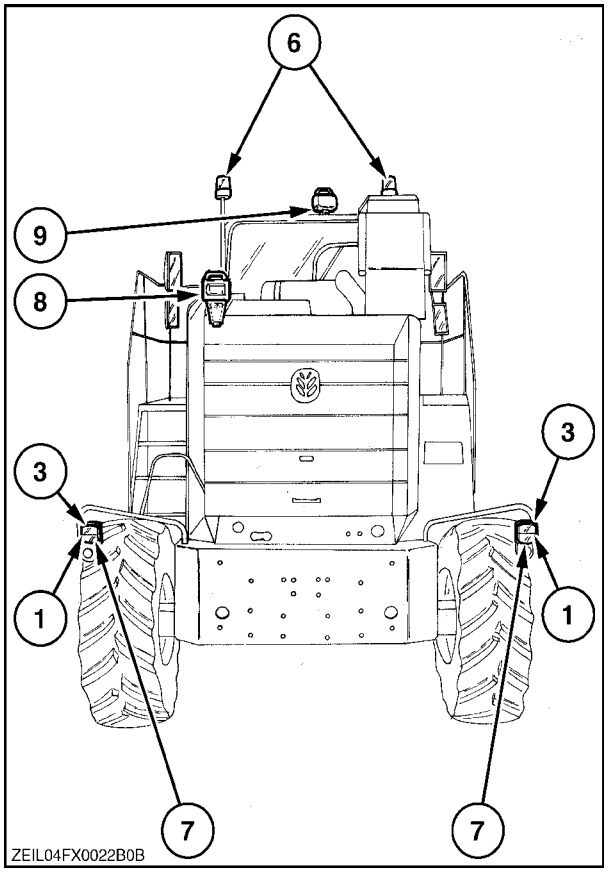
3. Direction indicators

7. Brake lights

6. Beacons

8. Rear drive operating light (if installed)

9. Spout operating light



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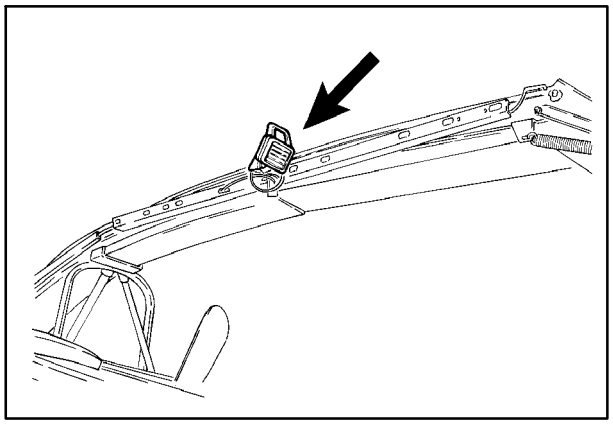
9. Spout operating light



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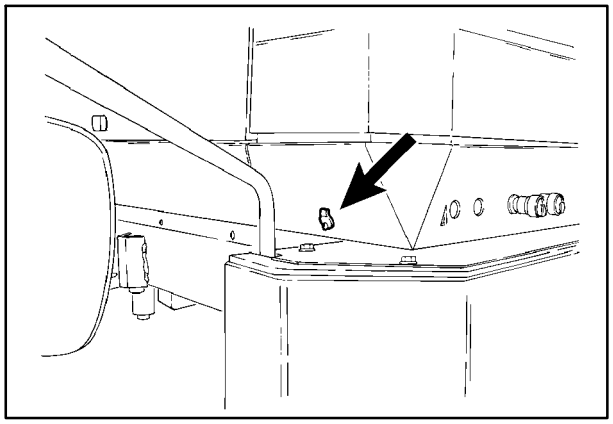
10. 12-Volt DC socket at left rear side



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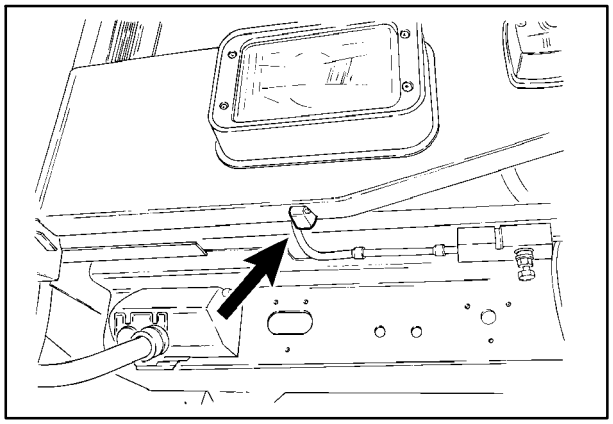
11. 12-Volt DC socket at left-hand and right-hand side under the head lights



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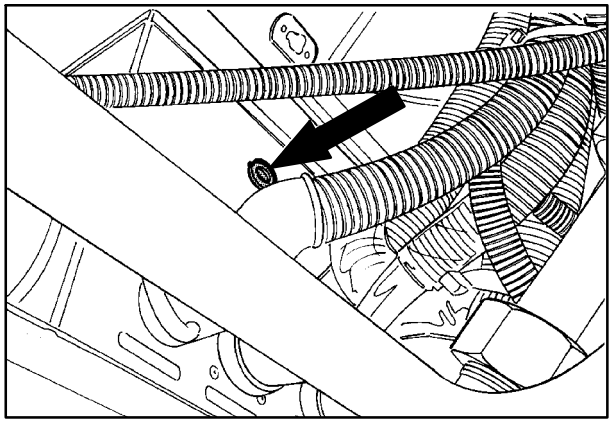
12. Silage additive 12-Volt DC socket



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Lights and sockets control summary:

Light	Location	Control	Ignition key position
Parking lights (1)	On all 4 corners of the machine (front: white; rear: red)	Rotate the light control stalk to the first position	ON/OFF
Headlights (2) **Main beam headlight (2a)** **Dipped headlight (2b)**	Left and right-hand side of the machine, just under the platform (white lights) and at the rear (red lights)	Rotate the light control stalk to the second position With the headlights switched on, push the light control stalk down With the headlights switched on, push the light control stalk up	ON/OFF
Flash main beam head- light (2a)	See headlights	Pull the light control stalk up, against the spring pressure	ON/OFF
Direction indicators (3)	On all 4 corners of the machine, next to the parking lights	Move the light control stalk forward (right-hand side) or rearward (left-hand side)	ON
Hazard warning lights (3)	See direction indicators	Switch the hazard warning light tumbler switch ON	ON/OFF
Twin operating lights (4)	Mounted on the safety railing left and right of the cab	Switch the operating lights tumbler switch in CLOSE ANGLE position, inner and outer twin operating lights will illuminate Switch the operating lights tumbler switch in FAR ANGLE position, only the inner twin operating lights will illuminate	ON + 15 seconds
Operating lights on cab (5)	Mounted on the front of the cab, just under the cab roof	Switch the operating lights tumbler switch in FAR ANGLE position	ON + 15 seconds
Beacons (6)	On the two rear corners of the cab, above cab roof level	Switch the beacon tumbler switch in ON position	ON + 3 seconds

Light	Location	Control	Ignition key position
Brake lights (7)	At the rear of the machine, on the left-hand and right-hand side	Will illuminate when applying the brake pedals or reducing the speed of the machine with the multifunction lever - will also illuminate when backing up the machine	ON
Spout operating light (9)	On the spout	When the operating lights are switched on (CLOSE ANGLE or FAR ANGLE) and the harvest function is engaged	ON + 15 seconds
Rear drive operating light (8) [if installed]	On top of the engine hood. It can also be used as a portable light. Connection to 12-Volt socket on left-hand rear side of engine compartment	Will illuminate when: - Operating lights are switched ON - Machine is driven rearward	ON
12 V sockets (10) & (11)	Left and right of the machine, just under the headlights and at the left-rear side of the forage harvester	Power when PARKING LIGHTS are switched on (Rotate the light control stalk to the first position)	ON/OFF
Silage additive 12 V socket (12)	On the front side of the central electronic box	Power when: - silage additive applicator tumbler switch is switched ON - feed rolls engaged - attachment within hectare counting range - machine moving forward	ON

IMPORTANT: *We would like to point out that "non-genuine" parts and accessories (including electrically driven accessories such as additional operating lights, automatic greasing systems, silage additive applicators, ...) have not been examined and released by New Holland. The installation and/or use of such products could thus have negative effects on the design characteristics of your machine and thereby affect its safety. New Holland is not liable for any damage caused by the use of "non-genuine" parts and accessories.*

BATTERY BOX

The batteries of the forage harvester are situated on the right-hand side of the machine, between the traction wheel and the rear wheel.

There are two 12 V 90 Ah batteries. A 24 V relay switches the two batteries in series when the engine is started, providing 24 V to the starter motor.

The battery box is equipped with a battery switch, located at the front of the battery box.

When the battery switch is pointing to the centre of the machine, the batteries are OFF**.** The battery switch can be taken out of its socket.

When the battery switch is pointing down, the batteries are ON. The battery switch is now locked in its socket.

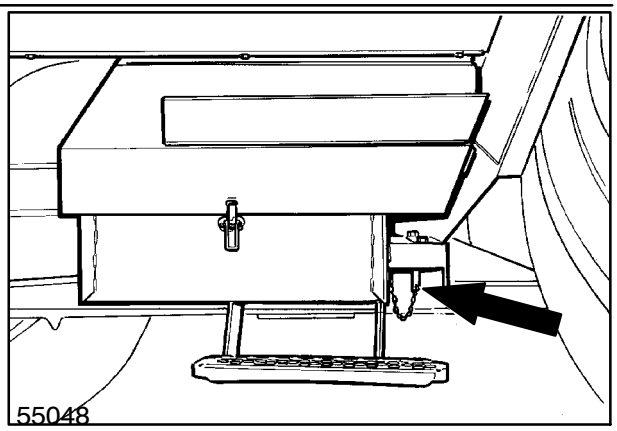
Obviously, in order to start the engine the battery switch must be in the ON position**.**

WARNING

Whenever you are working in or around the machine, it is advisable to switch the battery switch OFF, in order to prevent accidental starting of the machine.

Switching off the battery switch will not stall the engine once it is running. In order to stall the engine, switch off the ignition key in the dashboard.

IMPORTANT: *Do not switch OFF the battery switch before you turn off the ignition key, for this may cause loss of data in the InfoView ™ monitor.*



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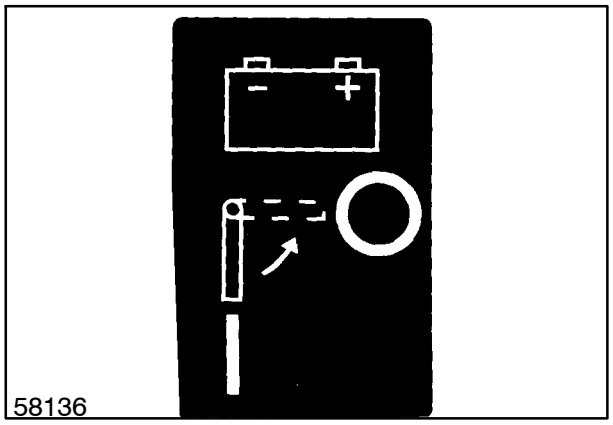

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STARTING, STOPPING AND DRIVING THE FORAGE HARVESTER

BEFORE DRIVING THE FORAGE HARVESTER

1. Read this manual carefully, especially chapters “Safety” and “Safety Precautions”.
2. Check all belt tensions and drive lines and verify their condition.
3. Check all tyre pressures daily. Keep the tyres inflated to the prescribed pressures.
4. Check the wheel nuts torque daily during the first week of operation and thereafter on a weekly basis.
5. Check the engine oil and coolant level (ensure the machine is standing on level ground).
6. Check the hydraulic and hydrostatic oil reservoir level with all hydraulic cylinders retracted and the cutterhead (attachment) in its highest position (machine on level ground). Add oil, if necessary.
7. Check the oil level in the gearboxes. Add oil, if necessary.
8. Lubricate the forage harvester completely.
9. Sit down on the operator’s seat and adjust it according to your weight and size.
10. Adjust the steering wheel to the desired position.
11. Adjust the rear view mirrors, if necessary.
12. Start the engine.
13. Ensure the spout is in its transport position and the harvest switch is in the ROAD position.
14. Disengage the parking brake.
15. With the throttle switch, increase the engine speed to maximum.
16. Raise the attachment to its highest position.

STARTING THE ENGINE

Ensure you are thoroughly familiar with the instruments and controls before starting the engine for the first time.

To start the engine safely, follow the points as outlined below.

⚠ CAUTION ⚠

Before starting the engine, ensure there is enough ventilation and everyone is standing clear of the forage harvester.

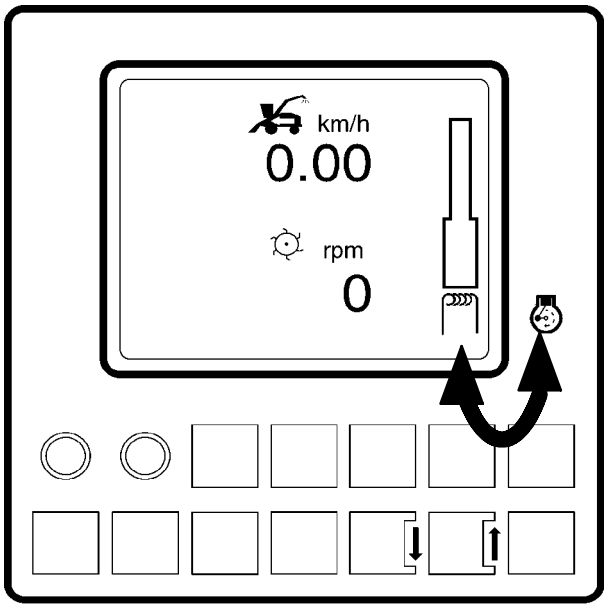
IMPORTANT: *Starting the engine after long periods of idleness, after an oil change or after carrying out repairs, ensure the bearings of the turbocharger are sufficiently lubricated. To do this, crank the engine without starting it for 5 to 10 seconds.*
To do this, disconnect the connector of the engine control unit (ECU) at the left-hand side of the engine.

DAILY START-UP PROCEDURE

Proceed as follows:

1. Carry out the routine engine service, i.e. check coolant, oil and fuel tank levels. Ensure the battery switch is in the ON position.
2. Ensure the switches for the cutterhead and harvest function are in OFF position.
3. Check that both brake pedals are coupled together and that the parking brake is engaged.
4. Ensure the gearshift lever and the multifunction lever are in the neutral position.
5. Make sure the harvest switch is in ROAD position and all control switches are switched OFF.
6. Insert the key into the ignition-and-stop switch and turn the key clockwise to the ignition position. Inspect engine oil pressure, hydrostatic oil pressure and battery charge warning lights for proper functioning.
7. Before starting the engine, warn bystanders by sounding the horn several times.

8. For FX30-40-50 wait until the pre heating symbol has changed into the engine symbol.



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9. Turn the ignition key clockwise to engage the starter motor.
   If the engine fails to start after 30 seconds, release the ignition key for about 1 minute before re-engaging the starter motor.

10. As soon as the engine starts, release the ignition key.

NOTE: *The table shows a summary of the starting conditions:*

IMPORTANT: *Allow the engine to run for one minute at low idle before switching it off, to ensure adequate lubrication of the turbocharger bearings.*

If the audible alarm does not stop functioning when the parking brake is disengaged, or if the warning lights for the engine oil pressure or hydrostatic charge pressure do not extinguish after the first few seconds of idling, stop the engine immediately and contact your dealer for assistance.

Sequence	Position
Battery key	ON
Harvest switch	ROAD
Control switches	OFF
Multifunction lever	NEUTRAL
Gearshift lever	NEUTRAL
Ignition key	ON

STOPPING THE ENGINE

Proceed as follows

1. Throttle down engine speed to low idle. Let the engine run at idling speed for one minute.

2. Turn the ignition key counterclockwise to stop the engine.

3. Remove the key from the ignition-and-stop switch.

4. Apply the parking brake.

IMPORTANT: *Should the engine be stalled under load conditions, restart immediately and idle for some minutes to prevent turbine damage due to freewheeling without lubrication. Restarting also prevents "heat soak" damage to the turbine housing and seals.*

DRIVING THE FORAGE HARVESTER

⚠ CAUTION ⚠

The forage harvester's rear end swings out when changing direction. Take care when taking turns.

1. Ensure that the multifunction lever is in the neutral position.

2. Move the gearshift lever into the desired gear.

   - For field operation, use first, second or third gear, depending upon the circumstances.

   - For manoeuvring in confined spaces, use first gear.

   - For road transport, use third or fourth gear.

3. Release the handbrake.

4. Move the multifunction lever slightly forward from the neutral position to advance, or from the neutral position rearwards to reverse.

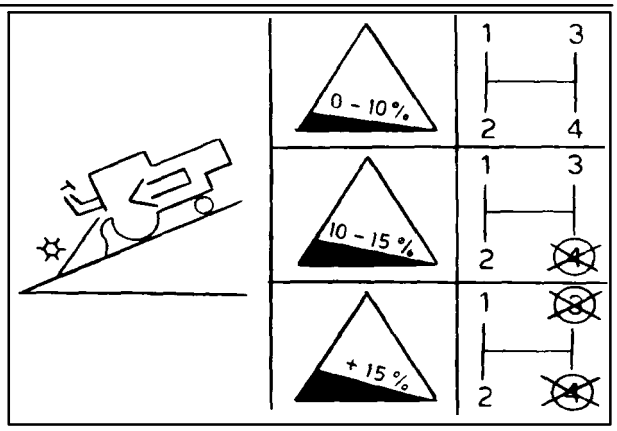
NOTE: *When reversing the forage harvester, an audible alarm will automatically warn bystanders.*

5. Familiarize yourself with the different steering and driving characteristics.

WARNING

To prevent runaway of the forage harvester (i.e. when the ground speed increases during downhill driving and it is impossible to reduce speed with the ground speed control lever), it is necessary to shift into a lower gear appropriate to the steepness of the hill before starting the descent.

This information is also given on a decal situated near the gearshift lever on the operator's platform.



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TOWING THE FORAGE HARVESTER

Towing the forage harvester is not recommended, but if it must be towed, the following steps must be taken:

1. Move the hydrostatic lever to neutral and switch off the 4-wheel drive.

2. Place the gearshift lever in neutral, release the parking brake and tow at a maximum speed of 16 km/h.

3. Provide the adequate warning signals to make other road users aware of the fact that the forage harvester is being towed.

IMPORTANT: *Towing the forage harvester with the gearshift lever in gear will immediately lead to IRREPARABLE hydrostatic damage.*

Special care must be taken to cover or plug the exhaust outlet when towing or shipping the forage harvester. This will prevent the turbocharger turbine from unlubricated freewheeling due to air flow through the engine.

CAUTION

Do not use a rope. Should the rope break, energy stored in it could cause bodily injury.

SECTION 3 - FIELD AND SITE OPERATION

The self-propelled forage harvester has the advantage of cutting its own path in the field thus making field operation more efficient. Crop and time losses may be reduced in opening up the fields. Time may be saved by opening up additional “lands” to reduce travel time across the ends of the fields or “lands”.

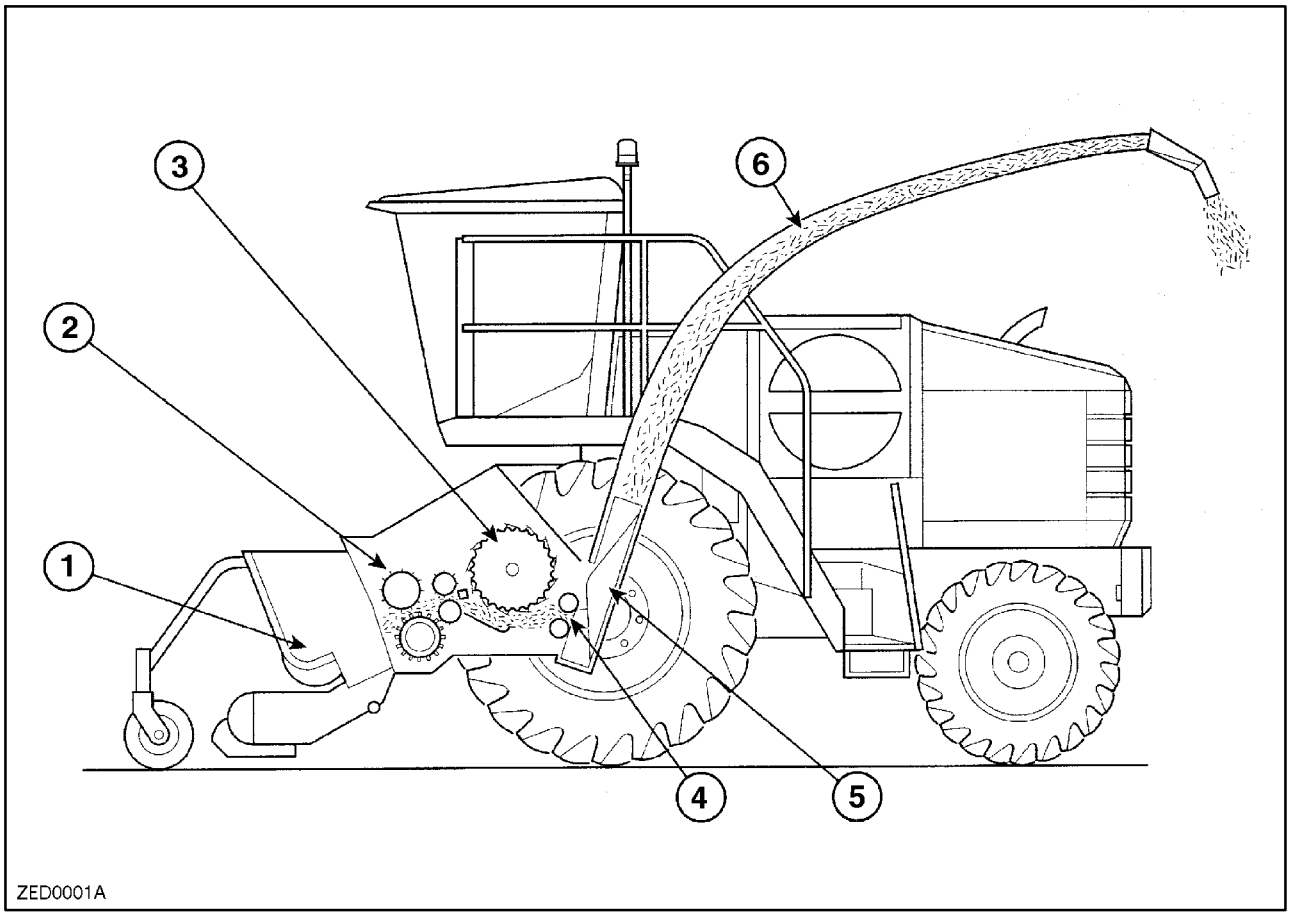
Planting several rows or forming a number of windrows around the perimeter of the field may be the best way of opening some field for efficient operation.

Direct cut operation (e.g. in maize) may be handled efficiently in any direction when the crop is standing. However, direction of travel should be carefully considered when the crop is partly blown down. The attachment will cut cleaner when operating in the opposite direction of the blown down material.

Other material (e.g. grass) can be cut first and then harvested using a pick-up attachment.

DESCRIPTION OF OPERATION

The forage harvester performs 4 basic functions:



1

1. Attachment
2. Feed rolls
3. Cutterhead
4. Crop processor
5. Blower
6. Spout

FEEDING

The crop is fed into the machine by the attachment. For operation in grass, a pick-up attachment is used. A row crop attachment is used for operation in maize. The attachment transfers the crop to the feed rolls by means of an auger. On the pick-up attachment, this auger is equipped with retractable fingers.

The feed rolls transport the crop towards the cutterhead. The lower feed rolls are in a fixed position, while the upper feed roll module can move up and down depending on the amount of crop that is passing between the rolls.

As the upper feed roll module is spring-loaded, the crop that passes between the rolls is compressed. In this way the crop is presented to the cutterhead as a firm package, which guarantees an optimal cutting action.

The whole of attachment, feed rolls and cutterhead hinges around the cutterhead shaft. This means the crop is always fed into the cutterhead under the same optimal angle.

By changing the speed of the feed rolls, the speed at which crop is fed into the cutterhead is changed, and therefore also the length of cut.

The lower front feed roll contains the Metalert III™ metal detector. Any ferrous metal that passes over this metal detector causes the power to the electromagnetic valve to be activated and block the hydrostatic feedrolls drive. This means the feed rolls are stopped in a split second and the feed roll drive is shifted to neutral. In this way both cutterhead and drive lines are protected.

CUTTING

As soon as the crop is presented to the cutterhead, razor-sharp spiral knives cut the crop in a scissor-like manner.

The shearbar acts as the counterknife during the cutting of the crop.

Two different shearbars are available: one for operation in grass and one for operation in maize. Each of these shearbars offers maximum cutting efficiency for each crop. They can both be used on two sides.

Depending on the speed of the feed rolls and the amount of cutterhead knives used, the crop is cut into 4 to 40 mm long pieces.

NOTE: *The lengths of cut mentioned in this manual are theoretical lengths (calculated).*
In reality it happens that part of the crop does not enter the cutterhead in a perpendicular way. Therefore, longer pieces can be found.

The chopper body of your forage harvester is equipped with the Adjust-O-Matic™ automatic knife sharpening and shearbar adjustment system. With this system, knives can be sharpened and the shearbar adjusted to a 0.2 mm clearance in a matter of minutes.

When the crop has passed underneath the cutterhead it is presented to the blower. If the machine is equipped with the accessory crop processor**,** the crop will pass through this cracking device first. Maize kernels will be cracked virtually up to 100 % when they pass the crop processor rolls.

BLOWING

The large diameter high speed blower accelerates the crop while it is transferred from the cutterhead to the discharge spout.

For certain light crops, such as alfalfa and wilted silage, the blower speed can be increased by 10 % providing maximum blowing action in these crops [if installed].

EJECTING

The discharge spout**,** which can be operated at two speeds, can rotate over a 210˚ angle. In this way the crop flow to the trailer can comfortably be controlled by the operator.

A double-acting hydraulically controlled spout deflector ensures the trailer can be filled up to maximum capacity.

BEFORE STARTING OPERATION

⚠ WARNING ⚠

Some functional moving parts of the forage harvester cannot have safety guards, therefore:
Ensure everyone is clear of the forage harvester before starting the engine.

The following safety precautions should become a habit:
Sound the horn 3 times before starting the engine.

Be careful:

When engaging the cutterhead, the feed rolls and the attachment.

When raising and lowering the attachment.

When turning the spout.

1. Check the wheel nut torques (refer to section 8 – Specifications).

2. Check the engine coolant level, engine oil level, low pressure (main clutch) hydraulic oil level, hydraulic and hydrostatic oil level and fuel level (refer to Section 4 - Lubrication and Maintenance).

3. Check all belt tensions (refer to section 4 – Lubrication and Maintenance).

4. Adjust the following according to the type of crop and the demands of the customer:

   - Length of cut
   - Attachment speed adjustments
   - Crop processor rolls clearance
   - Blower speed

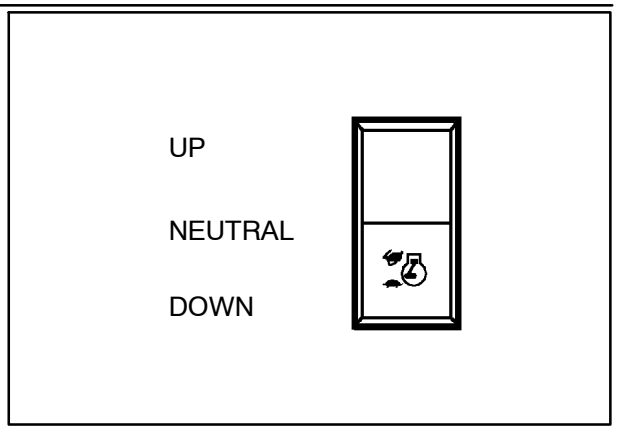
5. Ensure the battery switch is in the ON position.

6. Start the engine and let it warm up at idle speed for one minute.

STARTING IN THE FIELD

1. Determine how to open the field and ensure nobody is near the machine.

2. Throttle DOWN the engine to low idle speed with the throttle control switch (instrument panel).



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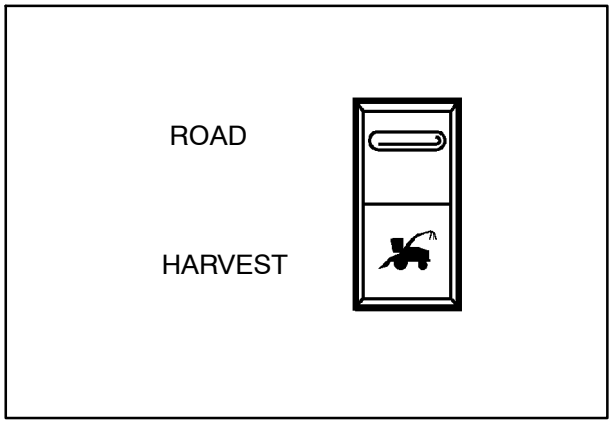
3. Switch the harvest switch (instrument panel) to its HARVEST position.



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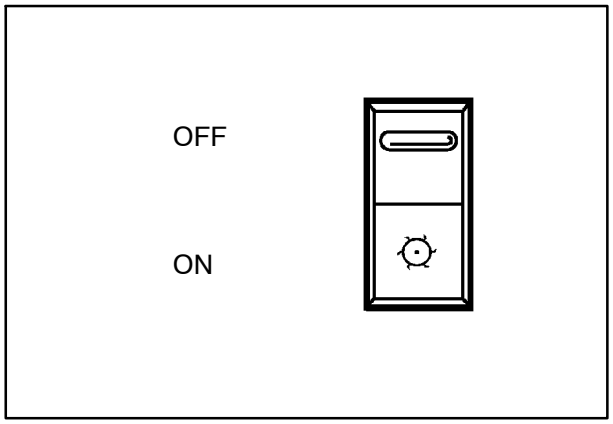
4. Switch ON the cutterhead with the cutterhead drive switch (instrument panel).

NOTE: *If the engine speed would be too high when engaging the cutterhead, the engine speed will automatically be reduced to low idle speed.*

⚠ CAUTION ⚠

Before switching on the cutterhead drive, ensure that nobody is standing near the machine or in the projection range of the spout.



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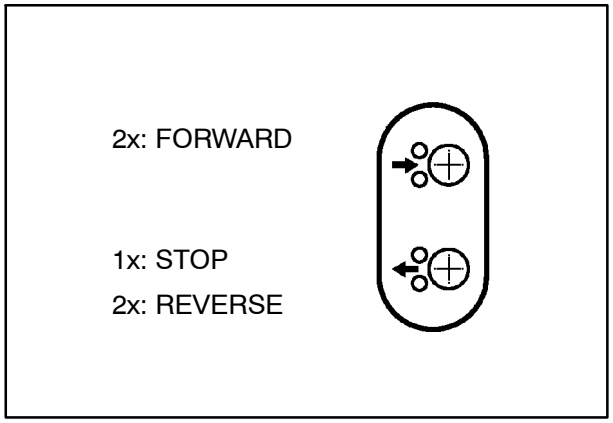
5. Few seconds after the cutterhead was engaged, the metal detector alarm will sound. Now push the REVERSE position of the feed roll drive switch twice in order to activate the metal detector stop system.

NOTE: *Keep the reverse switch pressed until you see the attachment rotating in reverse, then the Hydroloc ™ gearbox is positively in gear.*



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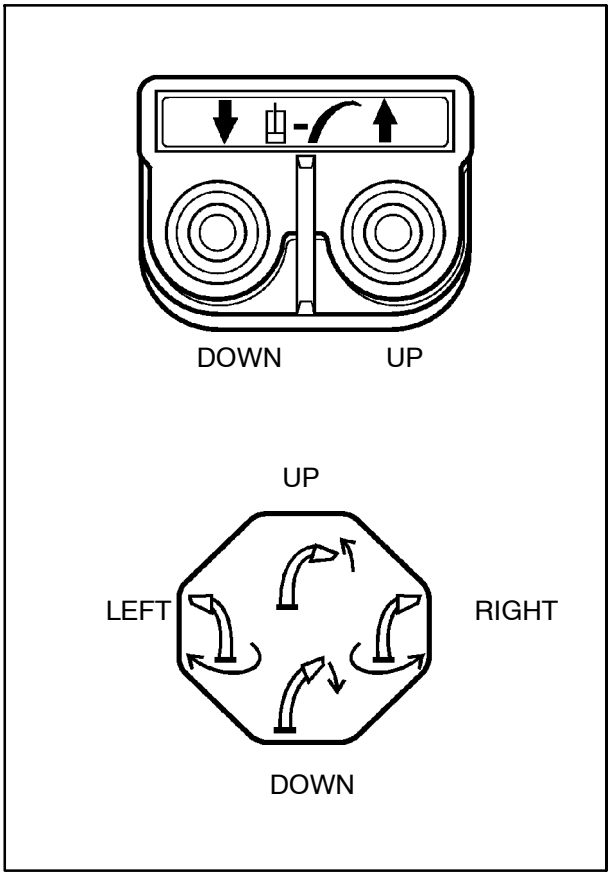
6. Throttle up the engine until maximum speed is reached. Position the spout in the most suitable position with the spout height control switch (cab floor) and the spout rotation switch (multifunction lever).

⚠ CAUTION ⚠

When changing the spout position, ensure nobody is standing in its projection range.



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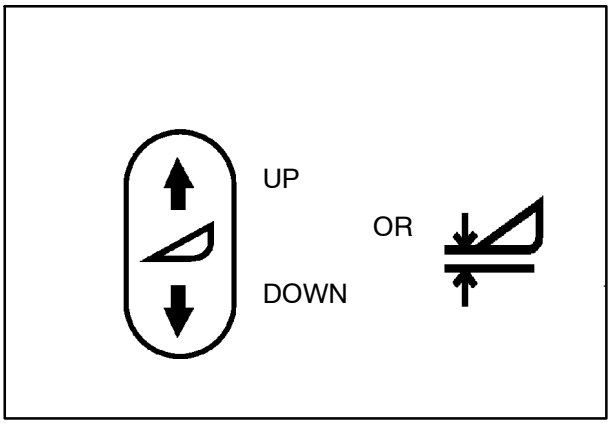
7. Lower the attachment with the attachment height control switch or with the automatic attachment height control button (both on multifunction lever).

NOTE: For a full description of the automatic attachment height control system, refer to paragraphs headed “Attachment height control” further in this section.



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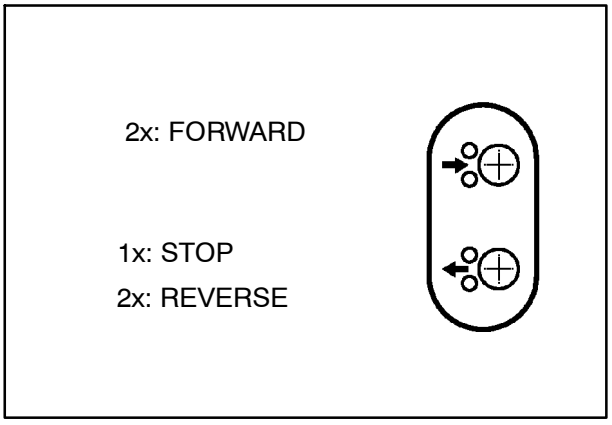
8. Engage the feed rolls and the attachment drive with the feed roll drive switch.

9. With the multifunction lever (hydrostatic speed control) in neutral, shift the transmission into first, second or third gear. Move into the crop by slowly pushing the multifunction lever forward.



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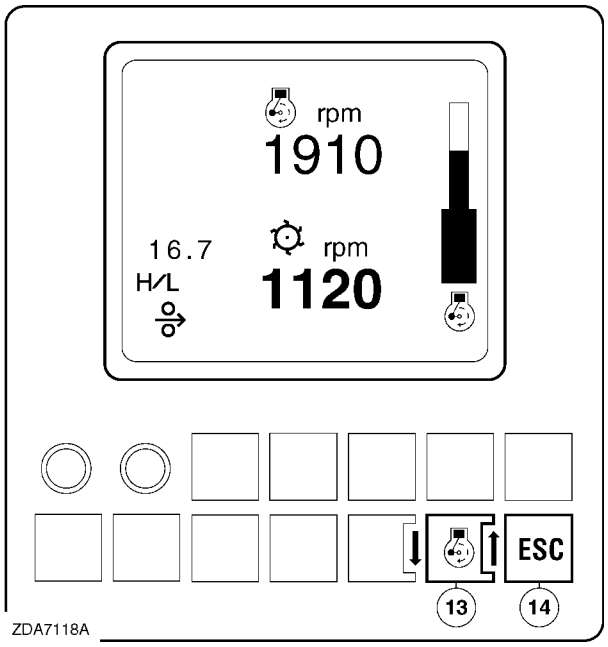
10. After becoming accustomed to the forage harvester, increase the ground speed as crop and ground conditions permit. Maintain an engine speed of at least 1800 rpm to ensure sufficient speed of the machine's functional components.

    The engine rpm is graphically displayed by means of an engine rpm bargraph on the InfoView™ monitor.



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ATTACHMENT HEIGHT CONTROL

CHANGING THE ATTACHMENT

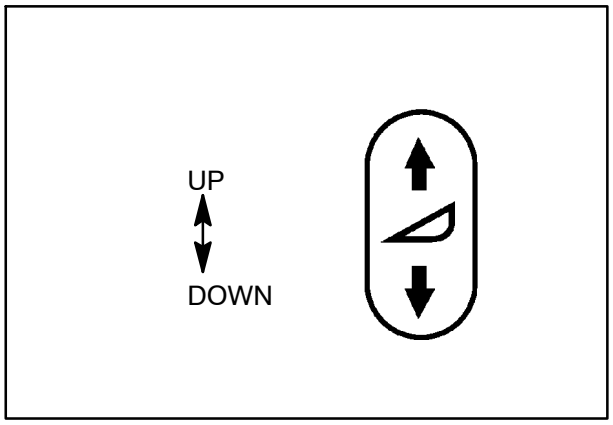
When the attachment has to be changed from maize attachment to pick-up, or vice versa, the pressure in the lift cylinders changes because of the difference in weight. This difference affects the required start-of-compensation pressure level.

Therefore, changing the attachment implies a recalibration of the automatic attachment height control system, both stubble height and ground pressure and attachment width. Refer to the paragraph headed "InfoView™ Monitor", subheading "Calibration" further in this section.

It might even be necessary to check the potentiometer adjustment (measuring the height of the attachment). Refer to section 4 "Lubrication and Maintenance", paragraph headed "Electrical system", subheading "Attachment height sensor".

SELECTOR SWITCHES

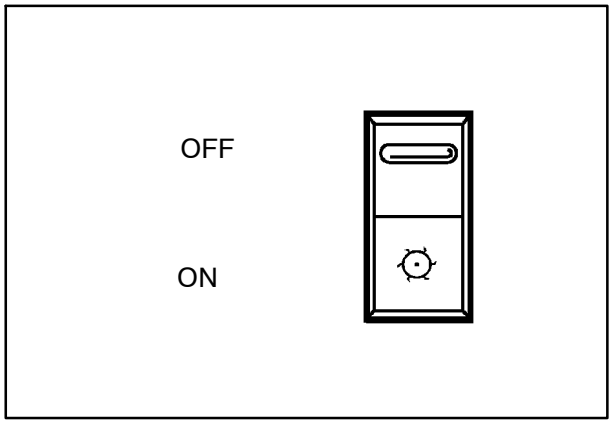
Operating the attachment height control switch always has priority on the selected automatic attachment height control mode (i.e. compensation or stubble height).



10

To enter an automatic attachment height control mode (compensation or stubble height), proceed as follows:

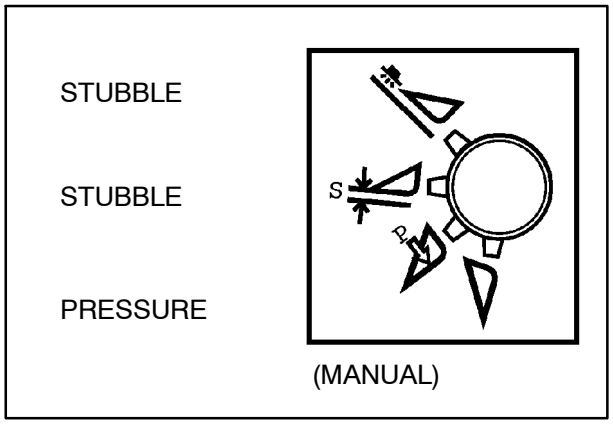
1. Engage the cutterhead with the cutterhead drive switch.



11

2. Select the desired mode with the attachment height control selector switch.

3. Give a pulse on the automatic attachment height button (on the front side of the multifunction lever).

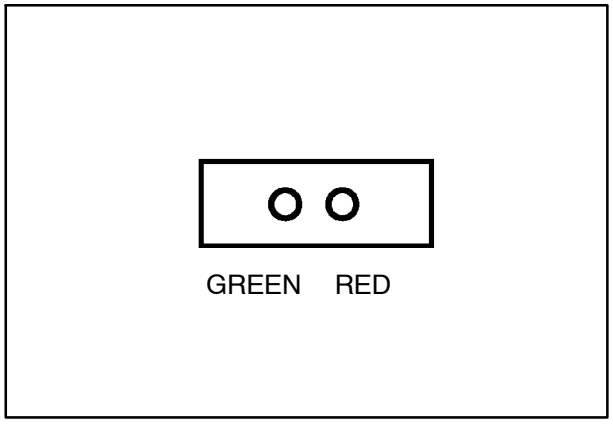


12

The green autodiagnostic indicator illuminates when an automatic attachment height control mode was selected, i.e. with a preselected stubble height or a preselected pressure (compensation).

To switch from one automatic mode to the other, select the desired mode with the attachment height control selector switch and give a pulse on the automatic attachment height button.

IMPORTANT: *Always use the MANUAL (TRANSPORT) mode for road transport or when attaching or detaching an attachment.*

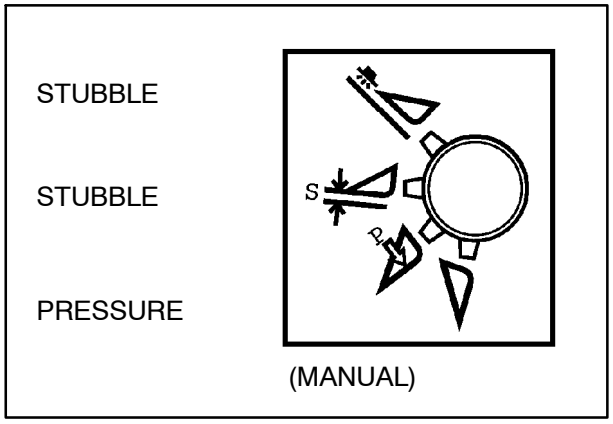


13

TRANSPORT POSITION

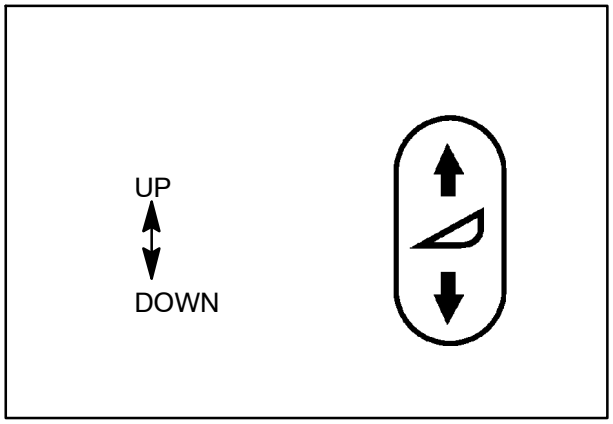
Use this mode for transport, attaching and detaching the attachment.

Turn the attachment height control selector switch fully counterclockwise (MANUAL position).



14

The attachment height control is achieved through the attachment height control switch on the multifunction lever only.

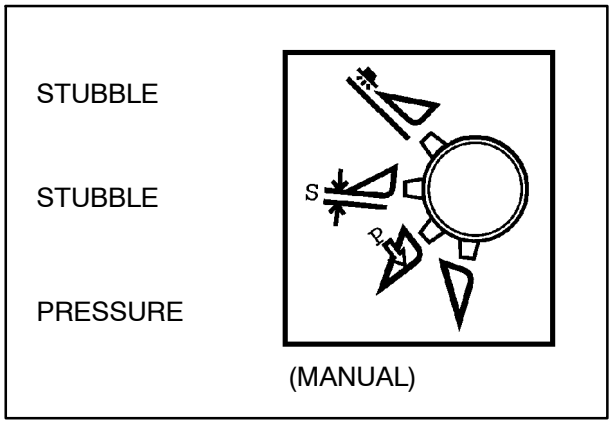


15

COMPENSATION MODE(GROUND PRESSURE)

This mode is recommended when using a pick-up attachment (e.g. when operating in grass). In this mode the attachment slides over the ground with a preselected pressure.

Turn the attachment height control switch into the PRESSURE position. The attachment compensation will only operate when the cutterhead is engaged.



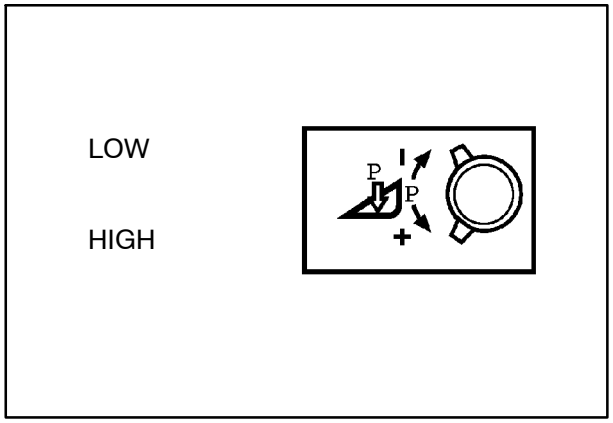
16

The required ground pressure can be selected and adjusted during harvesting by means of the ground pressure potentiometer:

+: more pressure on the ground

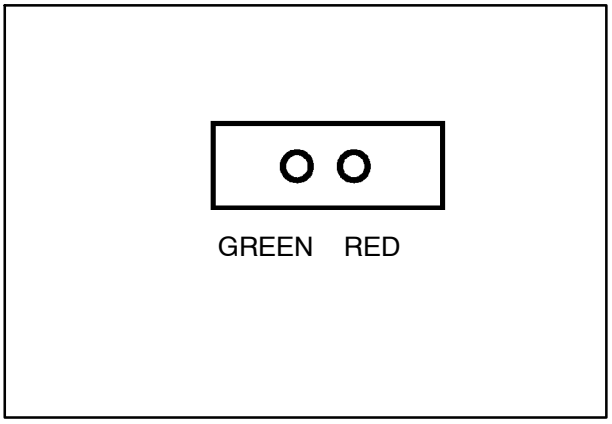
– : less pressure on the ground

A pulse on the automatic attachment height button will lower the attachment automatically to the preselected pressure (with the cutterhead engaged).



17

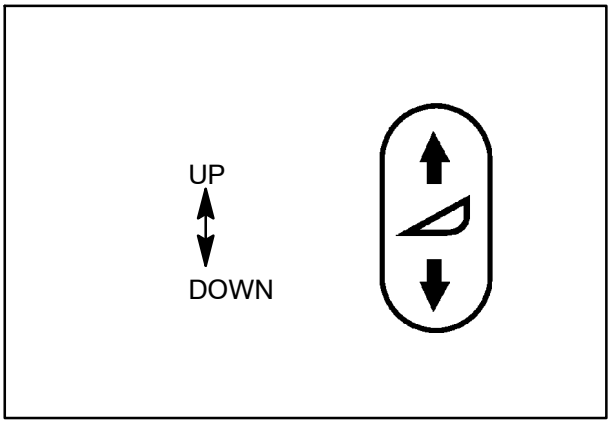
The green autodiagnostic indicator starts blinking until the preselected pressure is achieved, and will then remain illuminated as long as the attachment remains in the compensation mode.



18

Operating the attachment height control switch disengages the attachment compensation mode. From that moment the attachment is in manual mode (priority) and the green autodiagnostic indicator extinguishes.

To return to the preselected pressure, give a pulse on the automatic attachment height button.

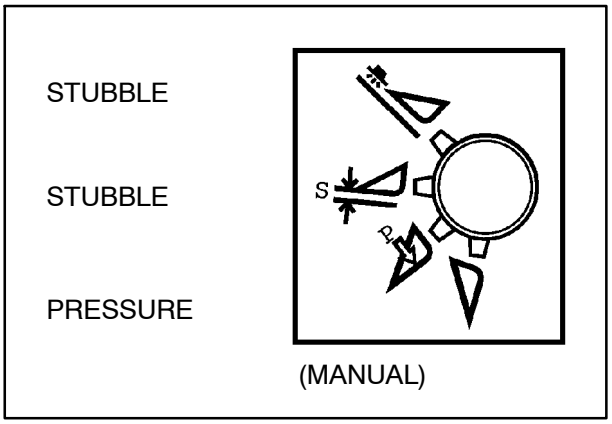


19

STUBBLE HEIGHT POSITION

The attachment cuts the crop at a preselected stubble height. Use this mode when harvesting standing crops (e.g. maize) or when operating in stony conditions.

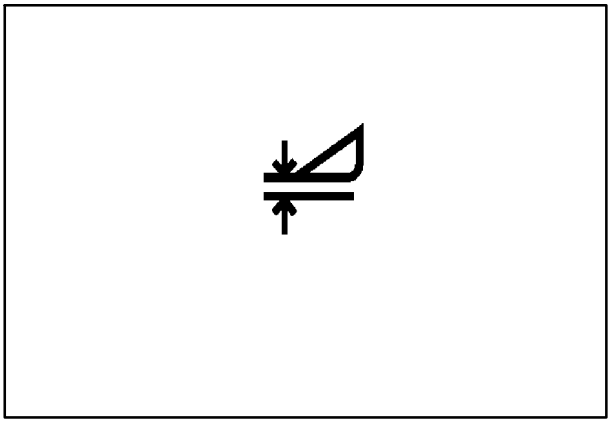
Turn the attachment height control selector switch fully clockwise (position STUBBLE 1) or in the next counterclockwise position (position STUBBLE 2).



20

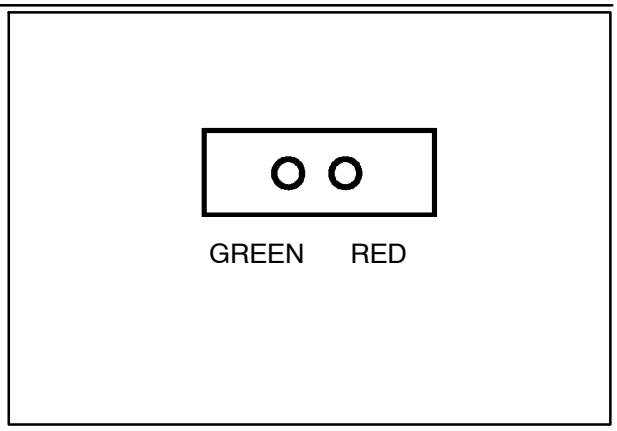
The stubble height control will only operate when the cutterhead is engaged.

A pulse on the automatic attachment height button will lower or lift the attachment automatically to the preselected stubble height (with the cutterhead engaged).



21

The green autodiagnostic indicator is blinking while adjusting the attachment height and remains illuminated as the attachment is operating at the preselected stubble height.

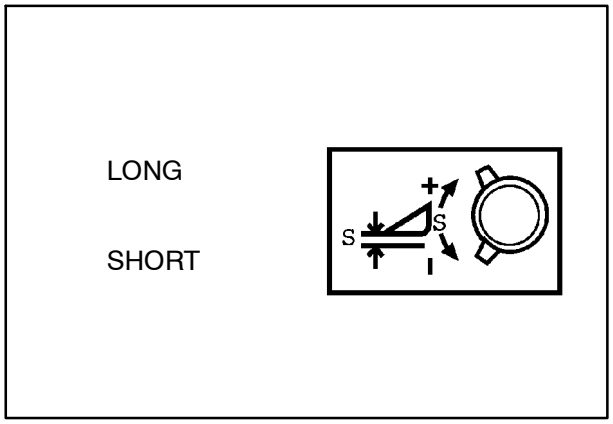


22

The preselected stubble height can always be adjusted during harvesting by means of the stubble height potentiometer.

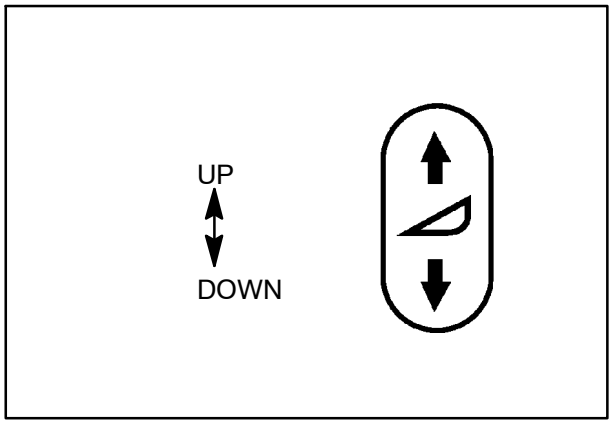
+: higher stubble

- : shorter stubble



23

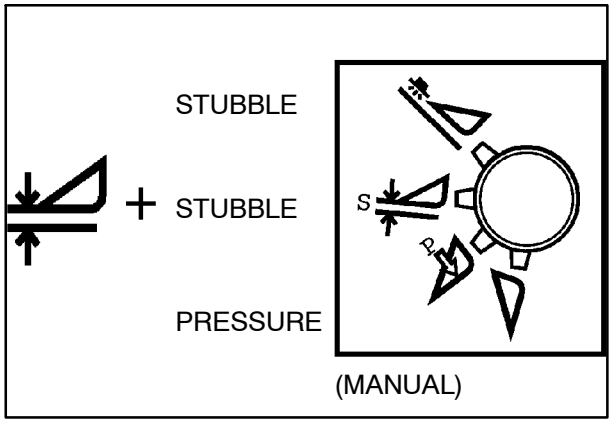
Operating the attachment height control switch disengages the stubble height mode.
From that moment the attachment is in manual mode (priority) and the green autodiagnostic indicator extinguishes.
To return to the preselected stubble height, give a pulse on the automatic attachment height button.



24

NOTE: *Switching from "stubble height" to "compensation": Turn the attachment height control selector switch from "STUBBLE HEIGHT" to "COMPENSATION" position and give a pulse on the automatic attachment height button.*

Switching from "compensation" to "stubble height": Turn the attachment height control selector switch from "COMPENSATION" to "STUBBLE HEIGHT" position and give a lifting pulse on the automatic attachment height button.



25

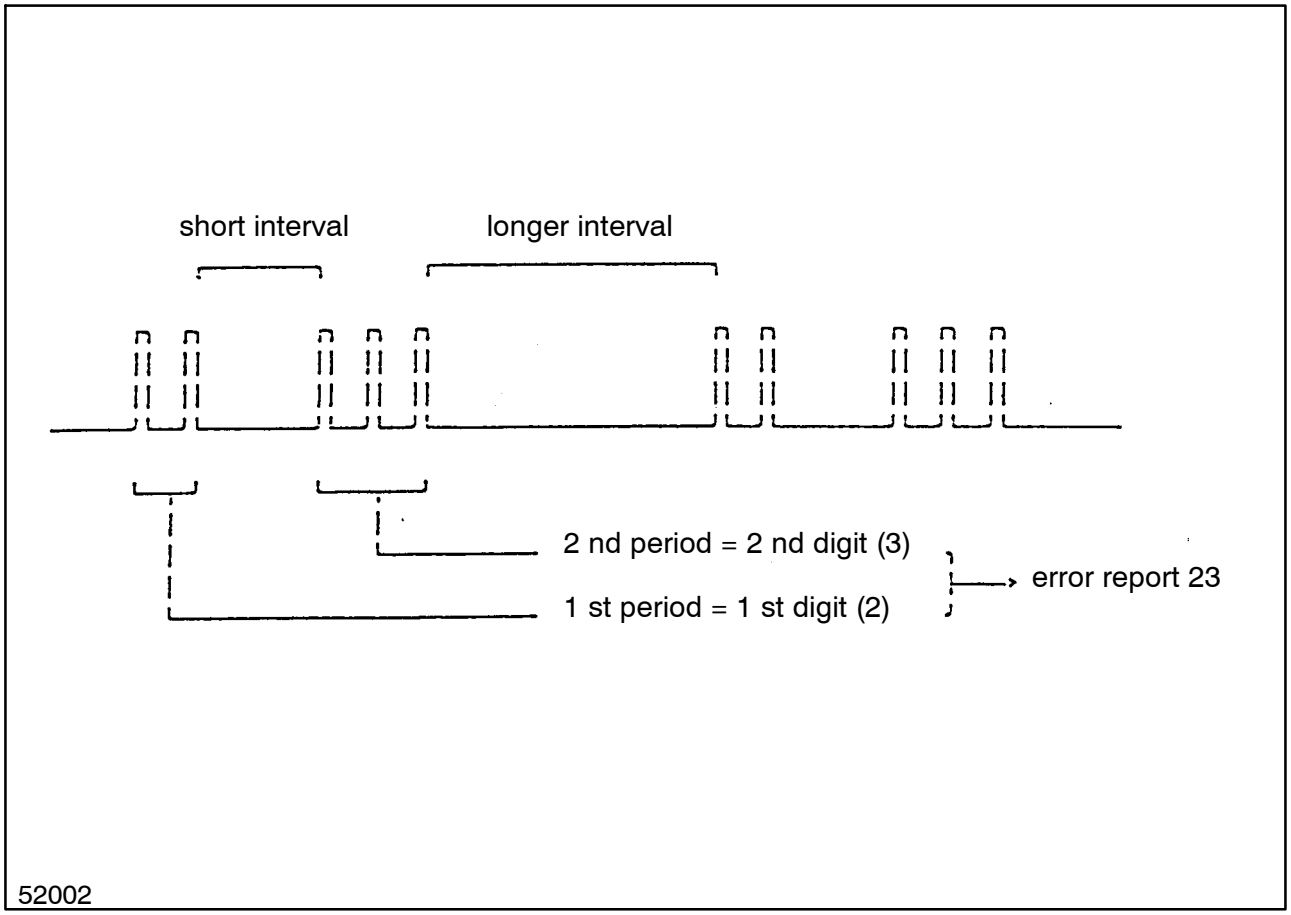
SELF-DIAGNOSTICS

The blinking sequence of the red self-diagnostic control light identifies an error report.

The blinking sequence always consists of 2 periods separated by a short interval. Then, after a longer interval, the blinking sequence will repeat again.

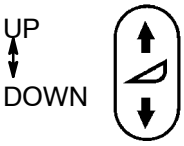
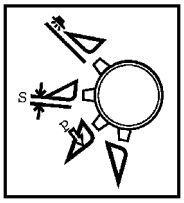
The first period indicates the first digit of the error report, the second period indicates the second digit.

Example
Error report 23



26

ERROR REPORTS

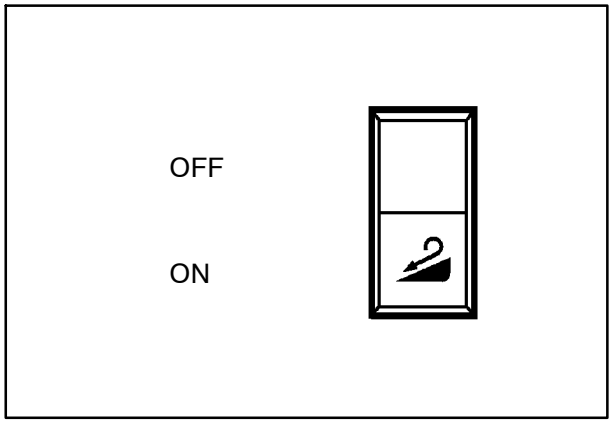
Error ref.	Description
11	Failure or interruption of the solenoid to raise the attachment
12	Failure or interruption of the solenoid to lower the attachment
13	Short circuit in the stubble height and compensation control wiring loom
14	Interruption of the stubble height and compensation control wiring loom
15	Failure or interruption of the attachment height control switch 
16	No power supply to the control switches
17	Battery voltage higher than 18 V
18	Failure of the attachment height control selector switch 
21	Failure of the wiring loom to the attachment height sensor
22	Incorrect stubble height signal
23	Failure or interruption of the attachment cylinder pressure sensor
24	Incorrect pressure sensor signal
33	Failure of the automatic attachment height control button wiring loom 
35	Battery voltage lower than 12 V
36	Failure of the hydraulic attachment height control valve (electrical control: OK)

ATTACHMENT AND FEED ROLLS REVERSING SYSTEM

The forage harvester is equipped with a system to reverse the feed rolls and the attachment feeding mechanism:

PICK-UP ATTACHMENT

- Hydraulic lifting of the windguard (if the Power Reverse™ system is installed)
- Hydraulic inversion of the eccentric position of the retractable pick-up tines (if the Power Reverse™ system is installed)
- Reversing of the auger and pick-up tines



27

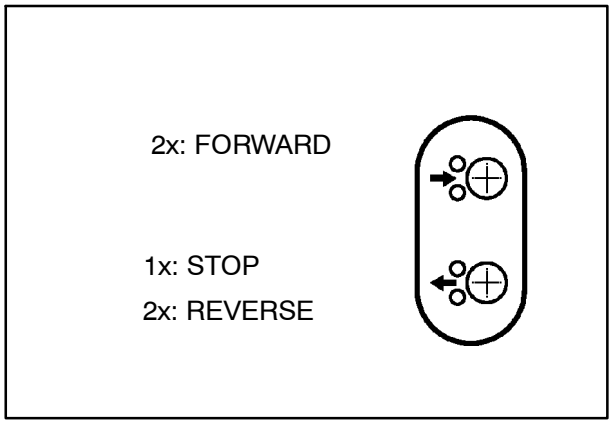
ROW CROP ATTACHMENT

- Reversing of the gathering chains
- Reversing of the auger

This reversing system allows a quick removal of material out of the feed rolls and the auger when a blockage occurred and/or when metal has been detected.

If, during operation, a blockage [which causes the slip clutch(es) to slip] or a metal detection occurs (feeding stops automatically), proceed as follows:

1. Stop the forage harvester immediately by moving the multifunction lever to neutral.
2. In the case of a blockage, immediately stop the feeding system by pressing the feed roll drive switch (multifunction lever) with one single push. In the case of a metal detection, feeding will stop automatically.



28

3. Reverse the forage harvester a couple of metres.

4. Reverse the feed rolls and the attachment by pressing the feed roll drive switch as long as required.

NOTE: *If the Power Reverse ™ system is installed on the pick-up attachment, it is necessary to switch ON the Power Reverse ™ switch on the instrument panel.*

This will automatically activate the Power Reverse ™ system on the pick-up attachment for as long as the feed rolls are reversed.

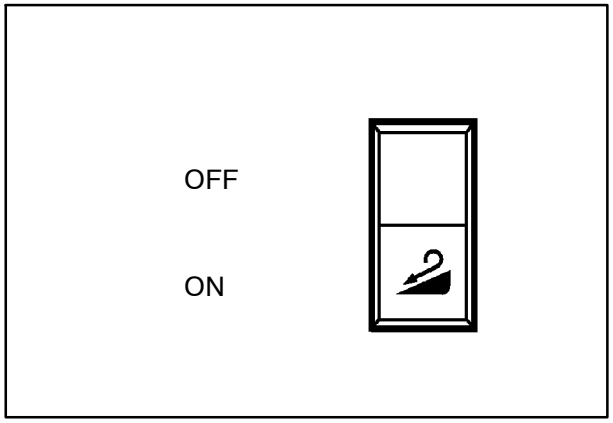
NOTE: *The Power Reverse ™ system lifts the windguard and inverses the eccentric position of the retractable pick-up fingers.*

⚠ DANGER ⚠

When the front hydraulics are used for a purpose other than for the pick-up Power Reverse ™, the Power Reverse ™ switch must be in its OFF position.

⚠ CAUTION ⚠

If the blockage cannot be removed by means of the reversing system, disengage all drives, shut down the engine and wait until all rotating parts have come to a standstill before attempting to remove the blockage manually.



29

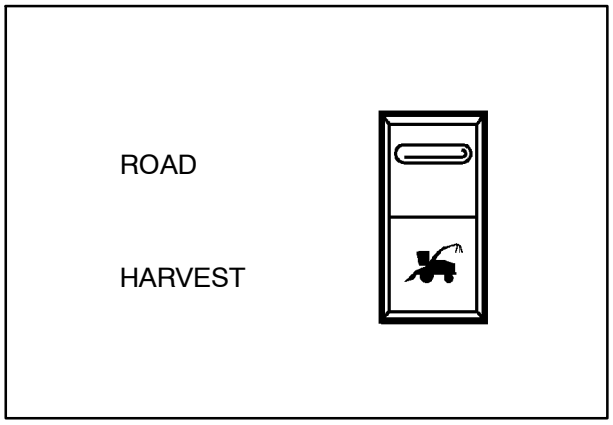
AUTO-PILOT [IF INSTALLED]

The automatic steering mechanism must be switched ON ONLY during field operation when working in row crops.

WARNING

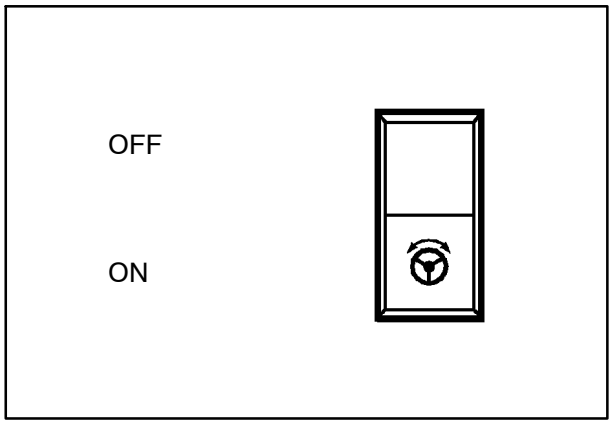
Before travelling on public roads, farm roads or lanes, switch the harvest switch to its ROAD position. This will switch OFF, among others, the Auto-Pilot system.

1. Switch the harvest switch (instrument panel) to its HARVEST position.



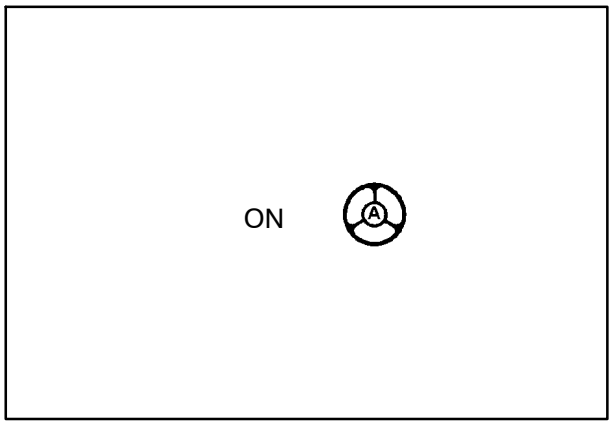
30

2. Switch ON the Auto-Pilot main switch. Now the Auto-Pilot system is ready to be used.



31

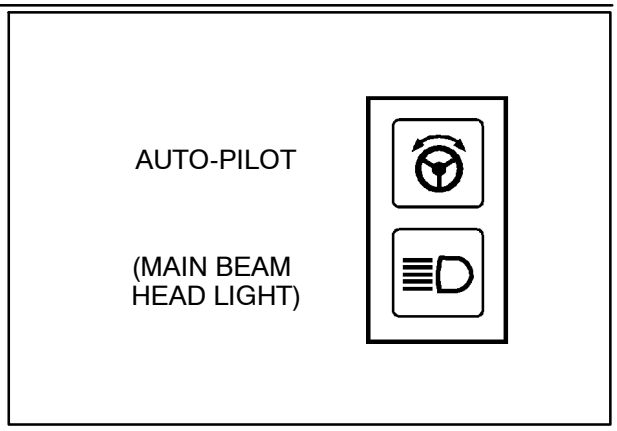
3. When entering the field, first steer the machine manually. As soon as regular row conditions allow automatic operation, continue to drive for a couple of metres and then engage the automatic steering mechanism by pressing the Auto-Pilot button (multifunction lever).



32

As long as the Auto-Pilot system is engaged, the Auto-Pilot warning light on the steering column will be illuminated. Do not turn the steering wheel while the automatic steering control is engaged for this will switch off the Auto-Pilot.

4. The Auto-Pilot now guides the harvester along the maize rows by way of the touch sensor arms. The system also keeps the harvester on course when there are short gaps within the rows.

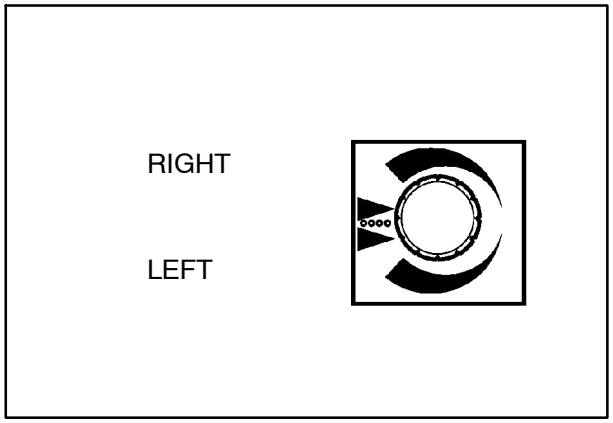


33

5. If it is necessary to override the system or to switch off the automatic control for headland turns, turn the steering wheel. Then continue to steer manually.

NOTE: *When the operator leaves his seat, the Auto-Pilot system will be switched OFF automatically after 5 seconds.*

6. When the crop row spacing does not fully match the attachment row or when driving on slopes, better driving results may be obtained by allowing the "contact row" to pass slightly to the right or left of the centre line. However, as a rule, always try to drive with the Auto-Pilot centering knob (steering column) in the centre position.



34

METAL DETECTOR

The Metalert III™ Electronic Metal Detector is a device designed to prevent ferrous objects, i.e. metal containing iron, from entering the cutterhead and causing serious damage to the harvester and/or livestock.

NOTE: *The system only detects FERROUS METAL OBJECTS. However, these objects represent the vast majority of the foreign objects which are usually picked up by forage harvesters and cause cutterhead damage and/or livestock diseases.*

The detection rate will depend on shape, volume and entering position of the ferrous metal. A 100 % detection rate cannot be guaranteed.

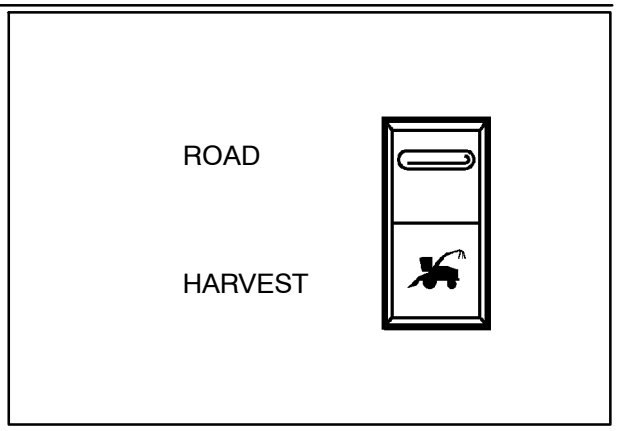
Detectable objects (examples)

- Rake tines
- Steel spanners, hammers and other tools
- Drawbar hitch pins, tractor ball ends, etc.
- Pieces of steel wire
- Steel fence posts

Non-detectable objects (examples)

- Stones and rocks
- Bricks, concrete without steel
- Stainless steel
- Aluminium
- Wood
- Copper and brass

The Metalert III™ detector can be used with all current attachments which can be attached to the forage harvester. The Metalert III™ detector is operational from the moment the harvest switch is switched into the HARVEST position and the cutterhead is engaged.



35

The Metalert III™ detector works as follows:

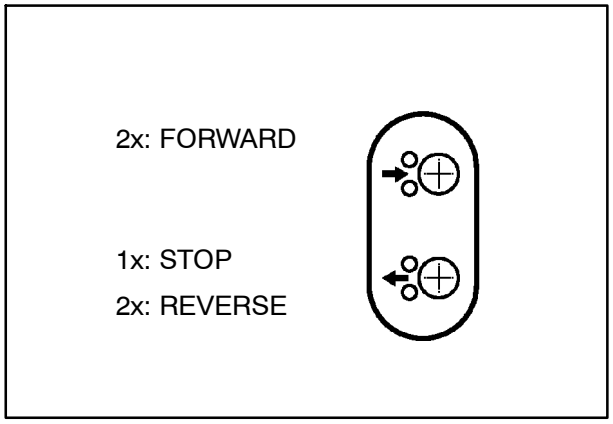
When a piece of ferrous metal enters between the front feed rolls, a "magnetic field" created by a series of magnets surrounded by coils in the lower front feed roll is disturbed.

This generates an electric impulse which is immediately registered and filtered by an amplifier.

The amplifier sends a signal to the CAN-system (electronic network). This system will react as follows:

1. It powers the stop valve solenoid, which immediately stops the motion of the feed rolls and the attachment.
2. It activates the hydrostatic servovalve in the hydrostatic pump to neutral.
3. It activates the buzzer and the metal detection warning light on the instrument panel.
4. The metal detector diagnostic page shows up on the InfoView™ monitor.

As soon as the operator realises that the metal detector system has stopped the harvester feeding mechanism, he should stop forward travel, lift the attachment, drive a few metres backward and reverse the feeding system with the feed roll drive switch on the multifunction lever. Reversing the feed rolls will automatically re-activate the metal detector and desactivates the stop valve solenoid.



36

IMPORTANT: *Operating the feed rolls for too long in reverse may result in the foreign object being carried over the upper feed rolls (i.e. backfeeding) into the cutterhead. It may also result in serious blockages.*

Never switch the feed rolls back and forth too quickly in an attempt to get rid of the tramp metal. This will result in excessive wear and may catapult the material into the cutterhead.

The material should be reversed just far enough to expose it for inspection for tramp metal. Feeding the material further backward will mix the crop, that came from the feed rolls and contained the tramp metal, with “clean” crop in the attachment.

After reversing the feed rolls to expose the tramp metal, the operator should stop the harvester and the harvester engine and remove the foreign object or, if the object is not found, leave the suspect crop at the side of the windrow.

⚠ WARNING ⚠

Wait until all moving parts of the forage harvester and harvester engine have stopped before searching for tramp material.

After finding the tramp metal, the forage harvester will be ready for continued operation as the detector system resets automatically when reversing the feed rolls.

In case not all of the tramp metal was removed, the detector will again stop the feeding system when the tramp metal passes over the lower front feed roll. If this occurs, follow the same procedure as described for the initial detection.

LENGTH OF CUT

The length at which a crop that is fed into the machine's cutterhead is cut, is controlled by two factors:

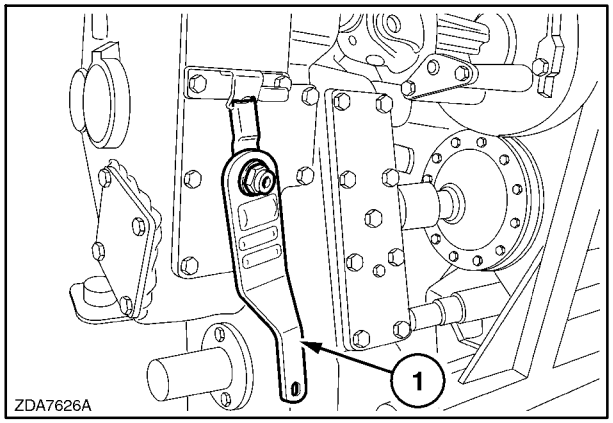
- The speed of the feed rolls (i.e. the speed at which the material is fed into the cutterhead)
- The number of knives installed on the cutterhead (i.e. cuts per revolution of the cutterhead).

NOTE: *The speed of the cutterhead is constant.*

The Hydroloc™ gearbox which drives the feed rolls is situated on the right-hand side of the chopper body. The speed of the four feed rolls is synchronized, in order to provide a smooth crop flow towards the cutterhead.

By changing the gear ratio inside this gearbox, the speed of the output shafts are changed.

The Hydroloc™ gearbox offers two different speed ranges for the feed rolls, High and Low, which can be selected by the gearshift lever 1.



37

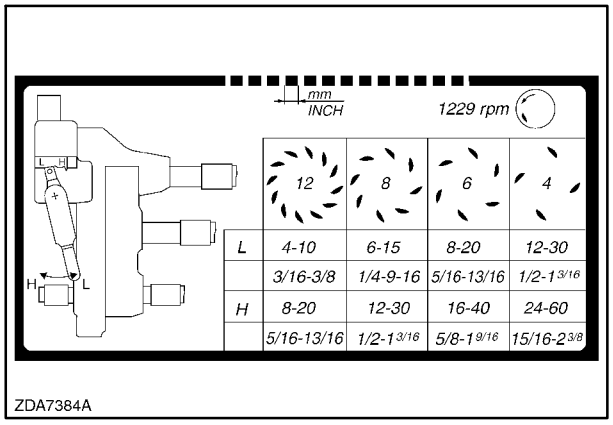
The length of cut is also determined by the number of knives installed. Refer to section 4 - Lubrication and Maintenance, paragraph headed "Number of knives" for more information.

With the cutterhead running at 1229 rpm, the possible length of cut ranges are shown in the table below in relation to the number of knives installed:

	Number of knives installed			
	12	8	6	4
L	4 - 10	6 - 15	8 - 20	12 - 30
H	8 - 20	12 - 30	16 - 40	24 - 60

NOTE: *This information is also on a decal on the machine.*

IMPORTANT: *It is recommended to reduce the number of knives installed when longer lengths of cut are desired. This results in a reduction of the feed roll speed which reduces wear and ensures a timely stopping when metal is detected.*



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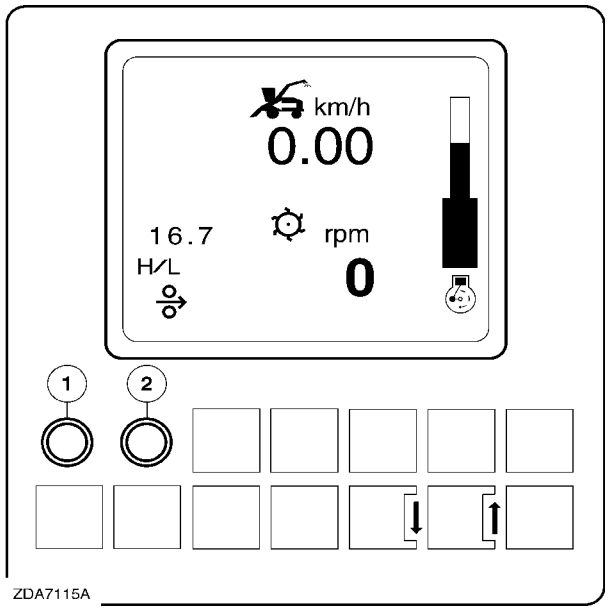
With the potentiometer 2 on the InfoView™ monitor, the speed of the feed rolls can be adjusted to obtain the required length of cut.

With the potentiometer 1, the reverse speed of the feed rolls can be adjusted.

The InfoView™ monitor screen shows the desired length of cut. Below the desired length of cut is the speed range of the Hydroloc™ gearbox, High or Low, which should be selected to obtain the desired length of cut.

NOTE: *As there is a overlap between the High speed range and the Low speed range, i.e. length of cut 16.7 mm with 8 knives installed, both speed ranges "H/L" are shown on the InfoView ™ monitor.*

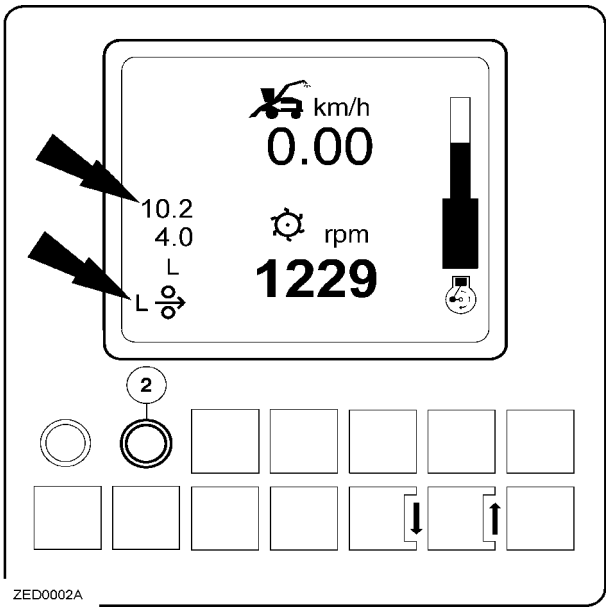


39

When the desired length of cut, set with the potentiometer, can not be obtained because the Hydroloc™ gearbox ratio is wrong, a "L" or a "H" will start blinking in front of the feed roll symbol and the actual length of cut will appear above the desired length of cut.

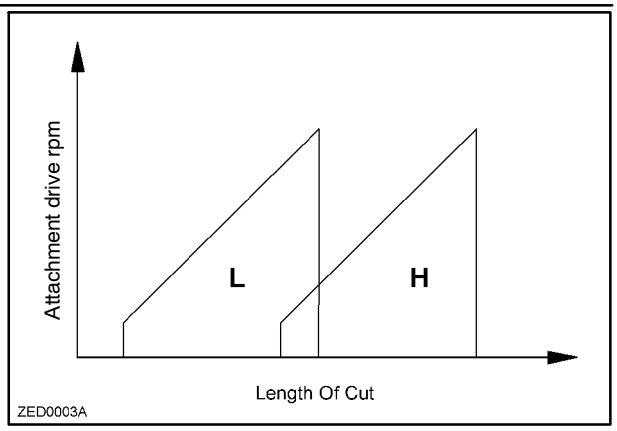
NOTE: *The actual length of cut can only be shown when the cutterhead and the feedrolls are running.*

IMPORTANT: *The gearshift lever just tensions the command spring which shift the gears. The actual gearshift only happens when the involved gears match.*
For full gear engagement, reverse the feed rolls until you see the attachment rotating in reverse and increasing speed of the reversing.



40

ATTACHMENT SPEED ADJUSTMENTS



41

NOTE: *Take care to regulate the speed of the attachment when changing the Hydroloc ™ gearbox range. In the overlap area, the same length of cut can be achieved in "High" or "Low". However the attachment drive speed in "Low" is double as in "High" and therefore it is required to compensate the attachment drivelines.*

NOTE: *When selecting a longer length of cut, the speed of the hydrostatic motor increases. It will be necessary to slow down the attachment speed to avoid from running too fast.*

NOTE: *When selecting a shorter length of cut, the speed of the hydrostatic motor decreases. It will be necessary to speed up the attachment speed to avoid from running too slow.*

PICK-UP ATTACHMENT MODELS 346W/356W/366W

To obtain the best possible crop flow:

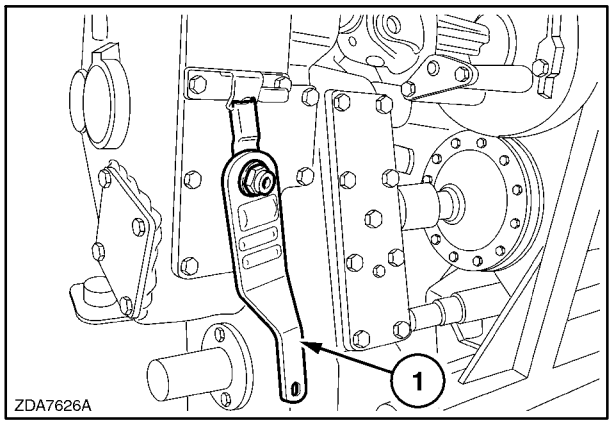
- the auger speed should match the feed roll speed
- the reel speed should match the ground speed.

Auger speed

Depending on the desired length of cut, select the Hydroloc™ speed and the auger drive sprocket A as described in the table below:

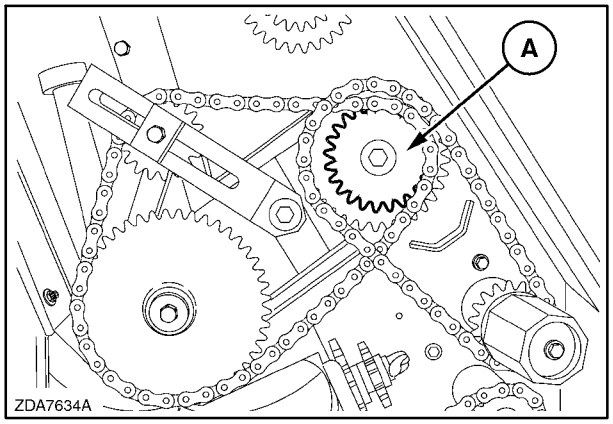
Length of cut				Hydroloc™ gearbox	Auger drive sprocket A
Knives installed					
12	8	6	4		
4-6	6-9	8-12	12-18	L	17T
7-10	10-15	13-20	20-30		13T
8-14	12-21	16-28	24-42	H	21T
15-20	22-30	29-40	44-60		17T

The Hydroloc™ gearbox speed, High or Low, can be selected with the gearshift lever 1 (refer also to the paragraph headed “Length of cut” in this section).



42

To replace the auger speed sprocket (A), refer to the pick-up Operator’s Manual.



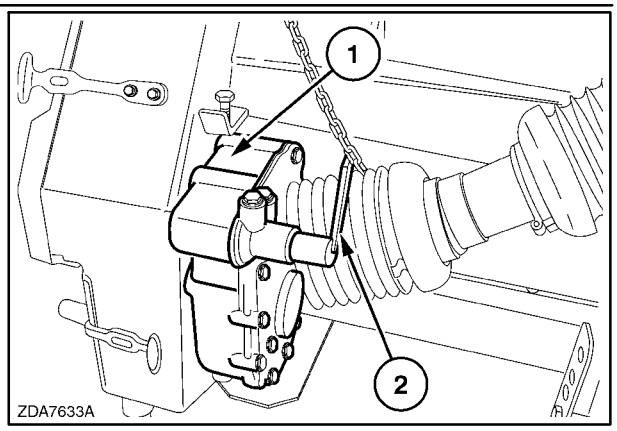
43

Reel speed

Depending on the lentgh of cut and the Hydroloc™ gearbox speed selected in previous step and the groundspeed, select the pick-up drive gearbox speed and the reel drive sprocket (B) in the table below:

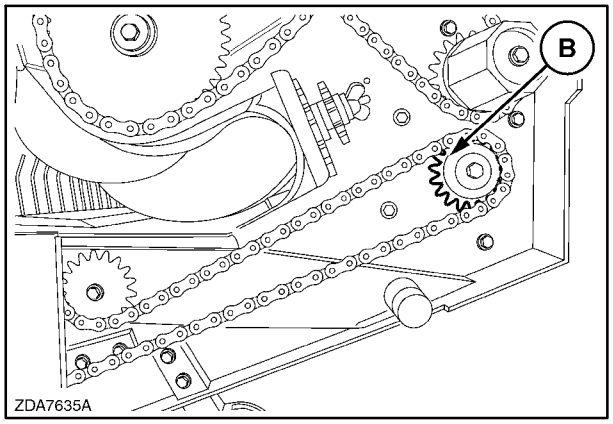
Length of cut				**Hydroloc™ gearbox**	**Reel drive sprocket B**		**Pick-up drive gearbox**
Knives installed					Ground speed (km/h)		
12	8	6	4		3-6	7-15	
4-6	6-9	8-12	12-18	**L**	14T	17 T	OUT
7-10	10-15	13-20	20-30		10T	14 T	IN
8-14	12-21	16-28	24-42	**H**	14T	17 T	OUT
15-20	22-30	29-40	44-60		10T	14 T	IN

The pick-up drive gearbox speed can be selected with the lever (2). The lever (2) has two positions: IN or OUT.



44

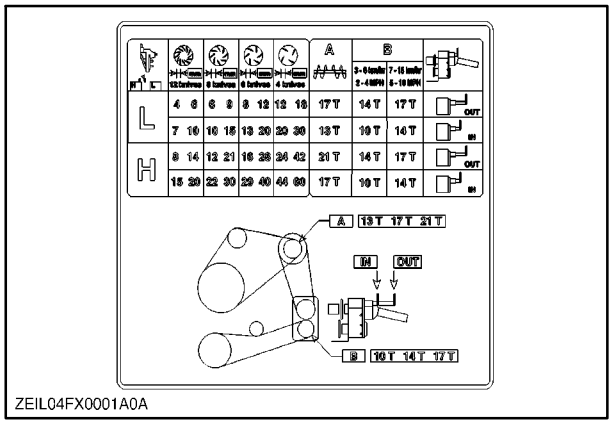
To replace the reel drive sprocket (B), refer to the pick-up Operator's Manual.



45

The info explained above is placed on one decal.

The decal is placed on the inside of the left side shield door.



46

MAIZE ATTACHMENT MODEL 300N6

To obtain the best possible crop flow:

- the auger speed should match the feed roll speed
- the gathering chain speed should match the ground speed.

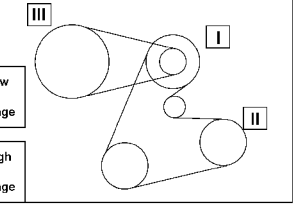
NOTE: *When selecting a longer length of cut, the speed of the hydrostatic motor increases. It will be necessary to slow down the attachment to avoid the gathering chains are running too fast.*

NOTE: *When selecting a shorter length of cut, the speed of the hydrostatic motor decreases. It will be necessary to speed up the attachment to avoid the gathering chains are running too slow.*

To meet the statements above, adjust the attachment as described in the table shown.

Speed adjustment auger and chains 300N6

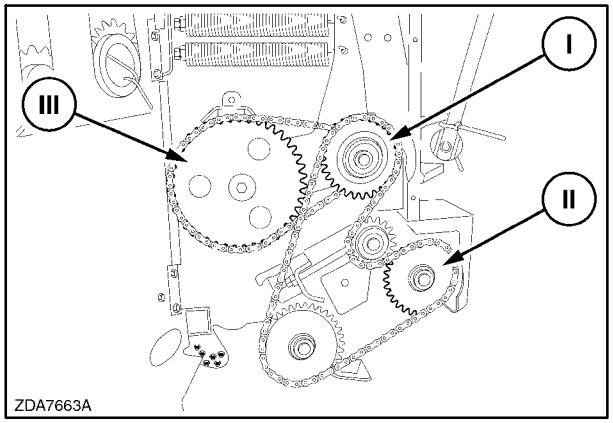
I	II	III	12 kn mm	mm	
22	18	37	4 - 6	6 - 9	low
18	13	37	6 - 10	9 - 15	range
22	18	20	8 - 14	12 - 21	high
18	13	20	14 - 20	21 - 30	range



ZDA7632A

47

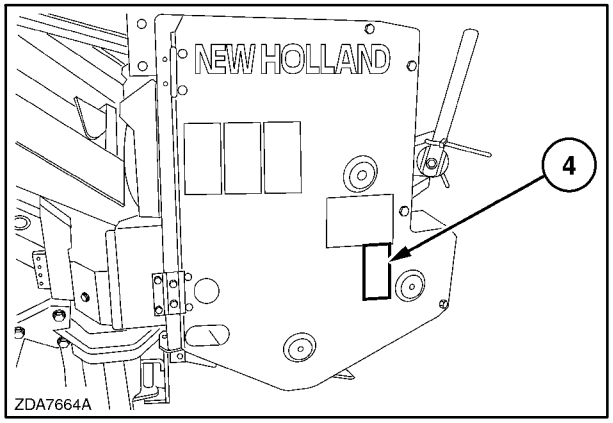
To change the sprockets I, II and III refer to the Operator's Manual of the attachment.



ZDA7663A

48

A decal is placed on the left-hand shield of the attachment.



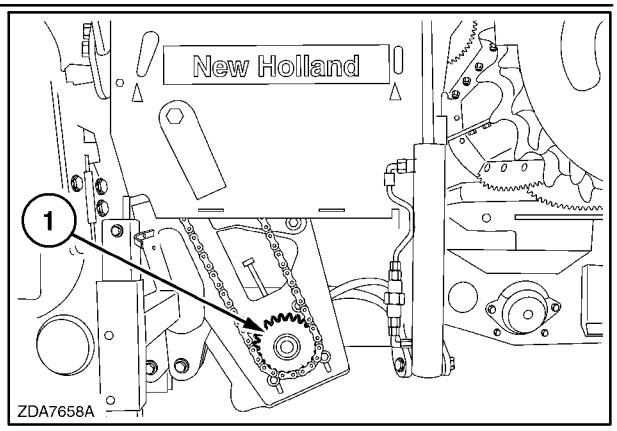
ZDA7664A

49

MAIZE ATTACHMENT MODEL RI450-600

To obtain the best possible crop flow:

- the auger speed should match the feed roll speed
- the disc speed should match the ground speed.



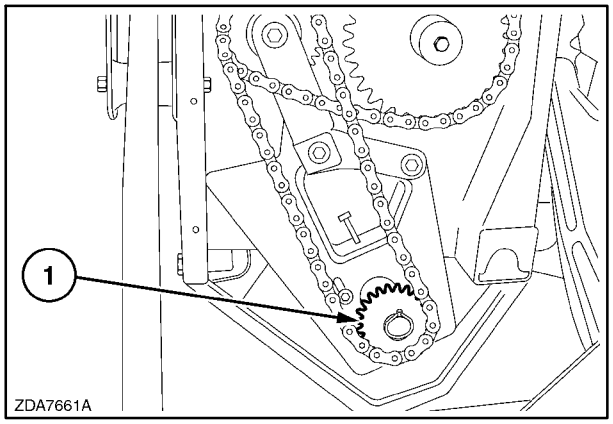
RI450 50

Auger speed

To adjust the auger speed, change the sprocket at 1.

Select the sprocket to be installed as described in the table below:

Hydroloc™ gearbox	Auger speed sprocket 1
L	16T
H	30T

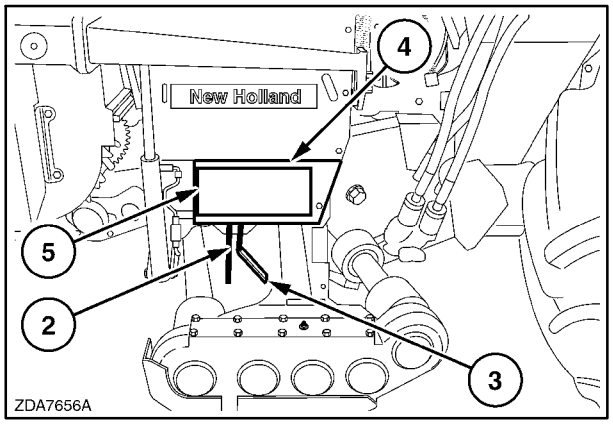


RI600 51

To change the sprockets, refer to the Operator's Manual of the attachment.

Disc speed

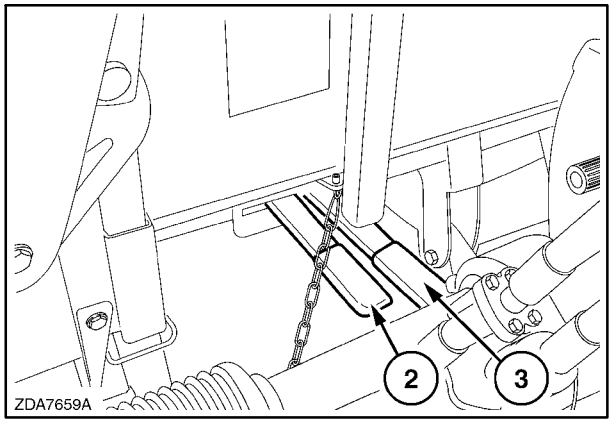
Adjust the disc speed by changing the gear ratio in the main drive gearbox of the attachment. This can be done with lever 2 and lever 3.



RI 450 52

NOTE: *When selecting a longer length of cut, the speed of the hydrostatic motor increases. It will be necessary to slow down the disc speed to avoid them from running too fast.*

NOTE: *When selecting a shorter length of cut, the speed of the hydrostatic motor decreases. It will be necessary to speed up the disc speed to avoid them from running too slow.*

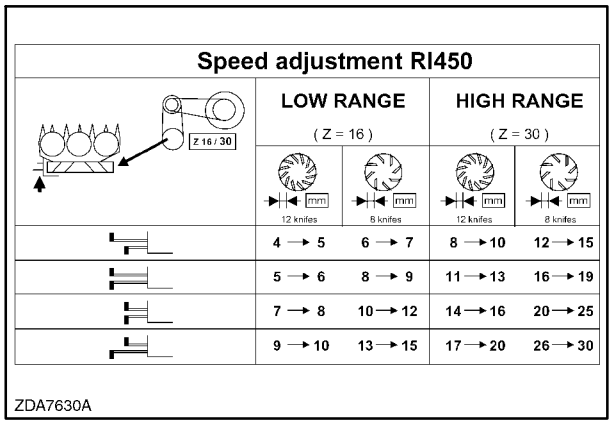


RI600 53

To meet the statements above, adjust the attachment as described in the tables shown.

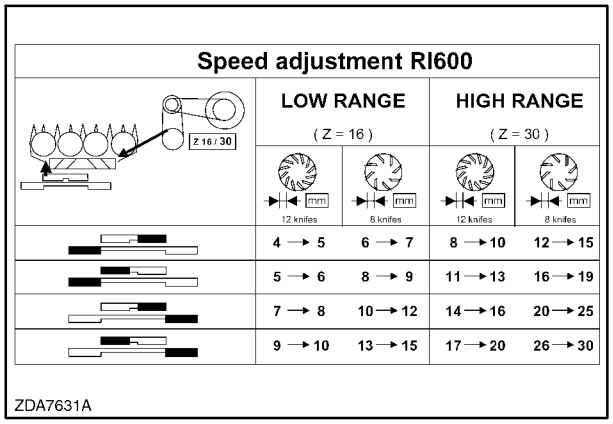
- RI450

  This decal is on the attachment on the left-hand cover at 4 (fig. 52).



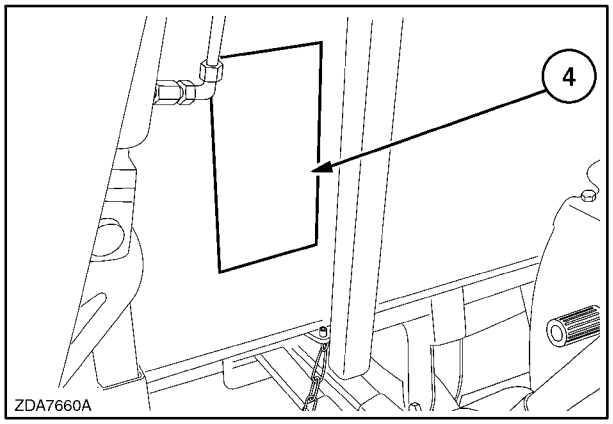
RI450 54

- RI600



RI600 55

This decal is on the rear of the attachment at 4.



56

DIRECT CUT ATTACHMENT MODEL DC510

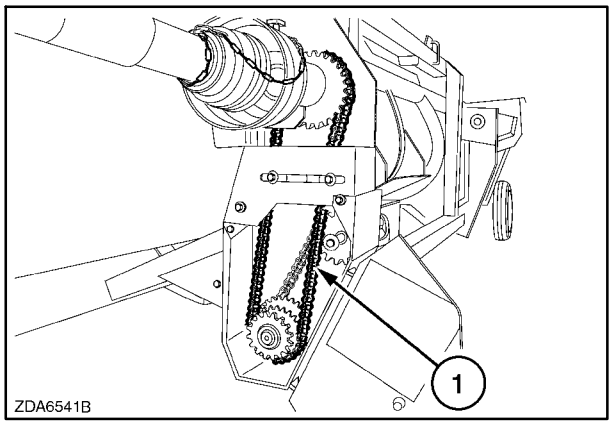
To obtain the best possible crop flow:

- The knife drive speed should be constant
- the auger speed should match the feed roll speed
- the reel speed should match the ground speed.

Knife speed

To keep the knife speed between the limits in relation to the hydrostatic motor speed, select the knife speed as described in the table below:

Hydro-loc™	Length of cut		Knife drive sprocket
	12 knives	8 knives	
L	4 – 5.5	8 – 11.5	1
	5.5 – 7.5	11.5 – 15	2
	7.5 – 10	15 – 20	3
H	8 – 11.5	16 – 22.5	1
	11.5 – 15	22.5 – 30.5	2
	15 – 20	30.5 – 40	3

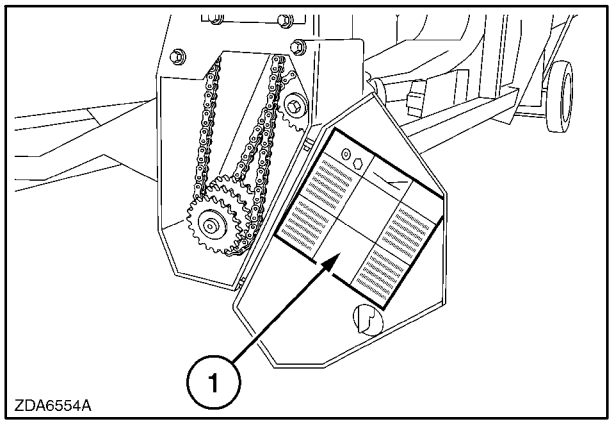


57

To change the speed, change the position of the knife drive chain 1 to position 1, 2 or 3 as indicated on the knife drive chain safety guard.

To change the position of the knife drive chain, refer to the Operator's Manual of the attachment.

This information is on a decal located at the inside of attachment drive chain guard at 1.



58

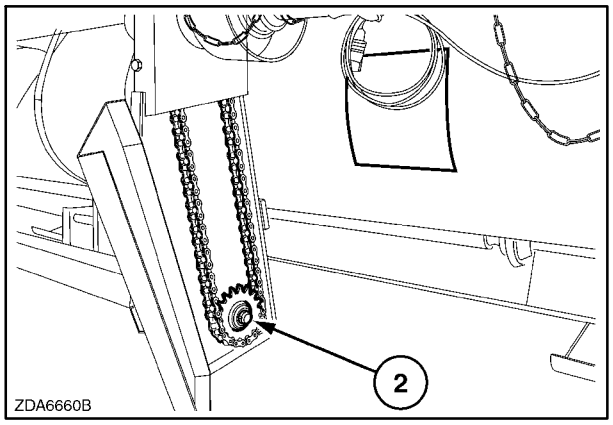
Auger speed

To obtain the correct speed of the auger in relation to the feed rolls speed, change the drive sprocket 2 of the auger intermediate drive chain as described in the table below:

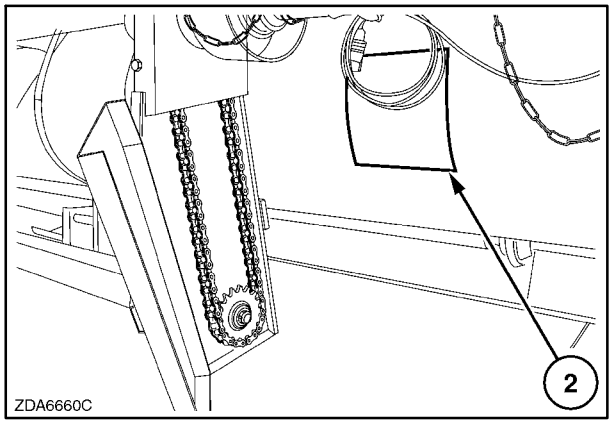
Hydroloc™ gearbox	Number of teeth
L	13
H	17

To change the sproket, refer to the Operator's Manual of the attachment.

This information is on a decal located at the rear of the attachment at 2.



59



60

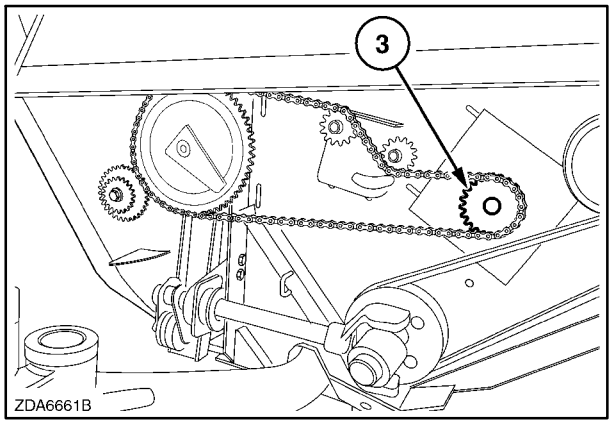
Reel speed

Depending on the crop conditions and the forward speed, the reel speed can be adjusted by changing the sprocket at 3.

Three sprockets are available: 17T, 21T and 27T. Speed up the reel by installing a larger sprocket, lower the reel speed by installing a smaller sprocket at 3.

To change the sprocket, refer to the Operator's Manual of the attachment.

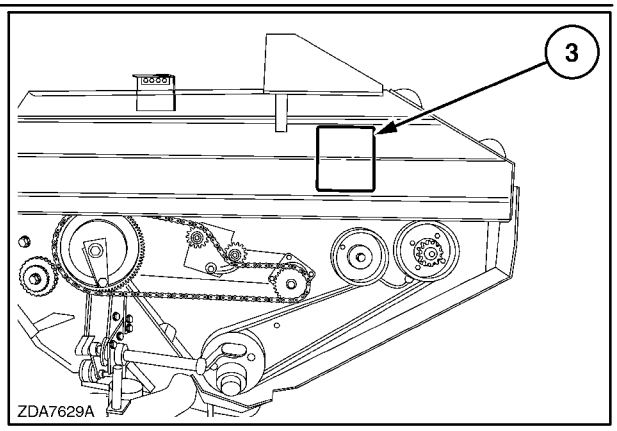
For standing crop, select the sprocket to be used as described in the table below:



61

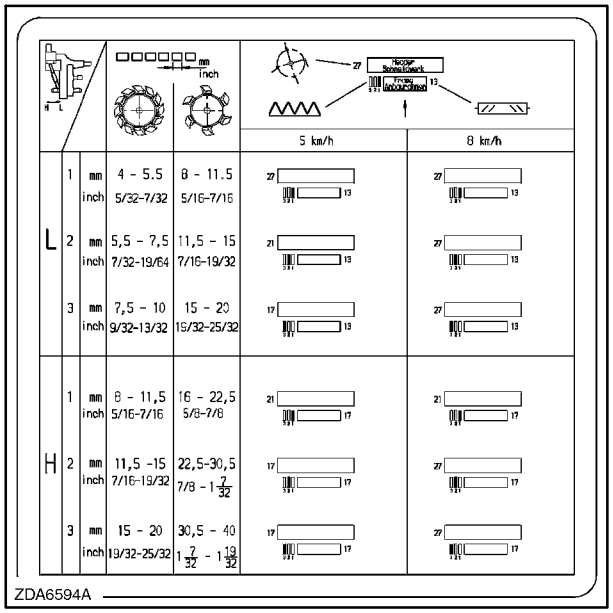
Hydro-loc™	Knife drive speed	Reel chain drive sprocket	
		Groundspeed	
		5 Km/h	8 Km/h
L	1	27T	27T
	2	21T	27T
	3	17T	27T
H	1	21T	21T
	2	17T	27T
	3	17T	27T

This information is on a decal located at the inside of the LH side cover of the attachment at 3.



62

All the info explained in the three tables is on one decal that is on three places on the attachment.



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ADJUST-O-MATIC™ SYSTEM

AUTOMATIC KNIFE SHARPENING

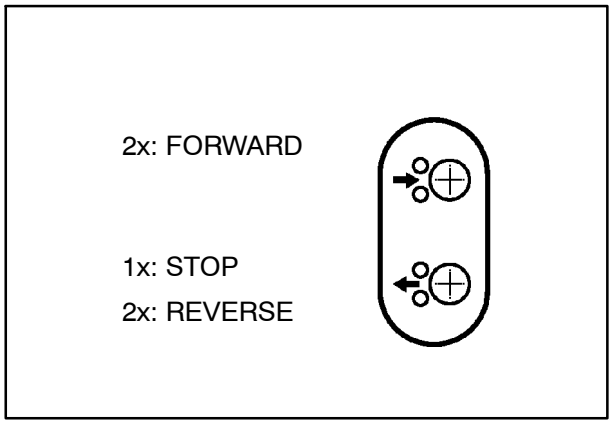
⚠ CAUTION ⚠

Before carrying out the following procedure, ensure that nobody is standing near the chopper body or under the spout and that all covers and safety guards are closed.
For safety reasons, never sharpen the knives with the upper feed roll module removed.

Proceed as follows:

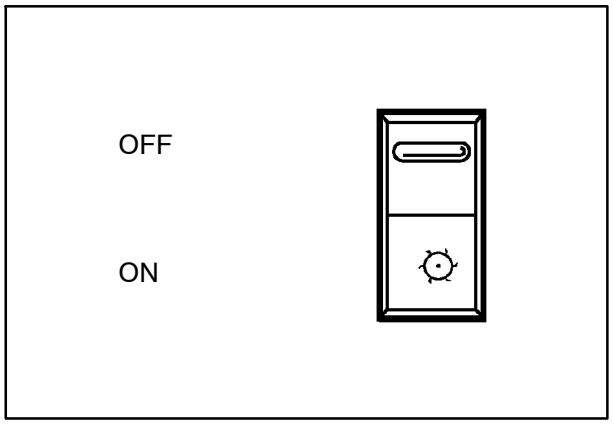
1. Set engine at low idle speed.

2. Disengage the feed rolls by pushing the feed roll drive switch (multifunction lever).



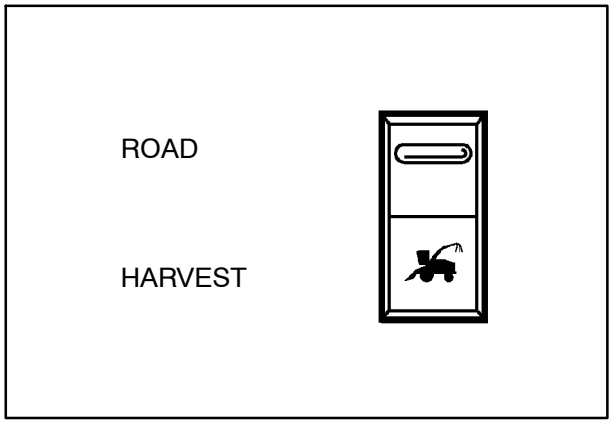
64

3. Disengage the cutterhead by switching OFF the cutterhead drive switch (instrument panel). Wait until the cutterhead has stopped rotating.



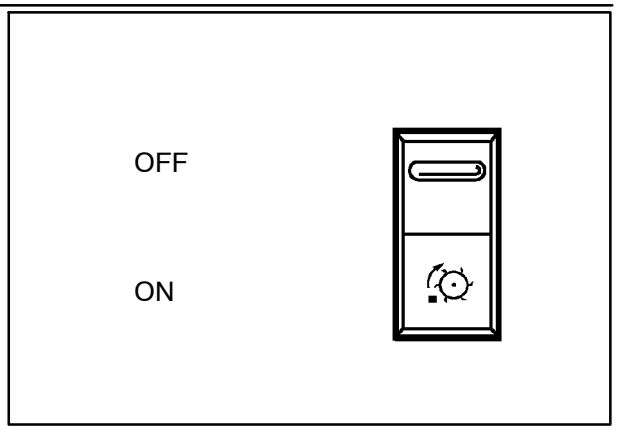
65

4. Ensure the harvest switch is switched to its HARVEST position.



66

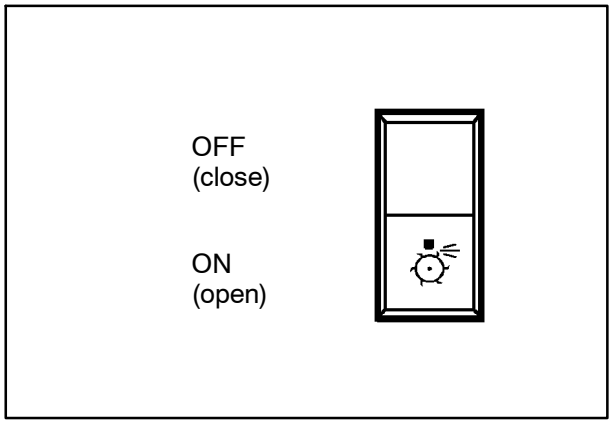
5. Switch ON reverse drive cutterhead switch (instrument panel).



67

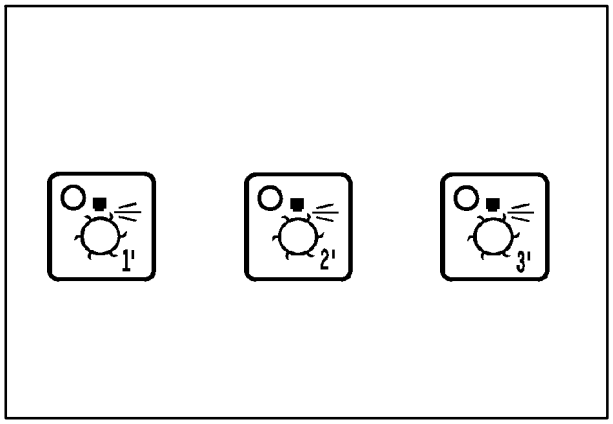
6. Throttle up the engine speed until the cutterhead speed is at least 750 rpm**.** This will ensure a good sharpening quality. The higher the speed, the better the sharpening.

7. Switch ON the Adjust-O-Matic™ switch (instrument panel). The OK-light on the Adjust-O-Matic™ panel is illuminated.



68

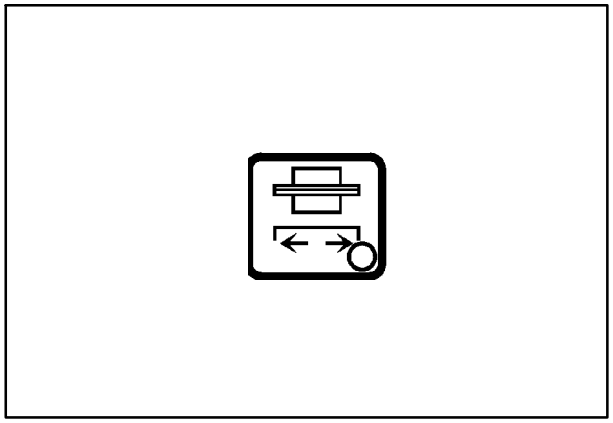
Press one of the automatic knife sharpening routine keys (1, 2 or 3 minutes). As a guideline, the shortest time (one minute) is recommended, unless the knives are really worn. The light on the chosen key will illuminate during the sharpening operation.



69

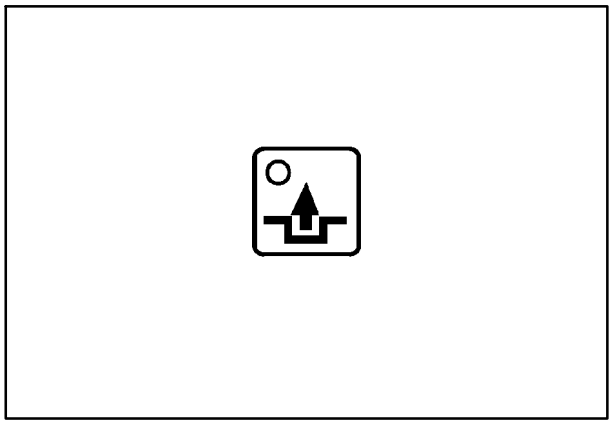
8. The sharpener door warning light will start flashing, meaning the sharpener door is opening.

9. The Adjust-O-Matic™ system will now start sharpening the knives during 1, 2 or 3 minutes, depending on the selection that was made. During sharpening the sharpener door warning light will be illuminated.



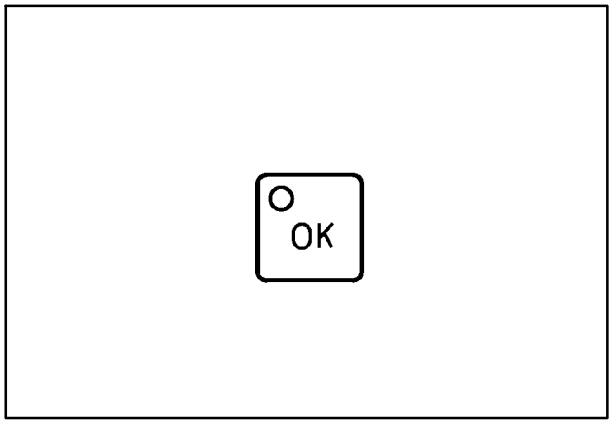
70

10. The sharpener routine will stop after 1, 2 or 3 minutes, unless the routine is interrupted with the interrupt key.
    At the end of the sharpening cycle, the stone will travel across the cutterhead knives slowly for at least half a cycle. This is done to make sure the knives are properly sharpened and burrs are removed.



71

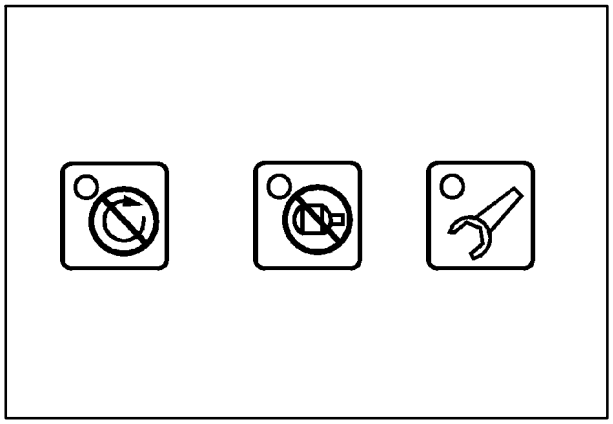
11. When sharpening is finished, the sharpener door closes automatically and the OK-light (Adjust-O-Matic™ panel) will illuminate.



72

12. Now continue with the automatic shearbar adjustment.

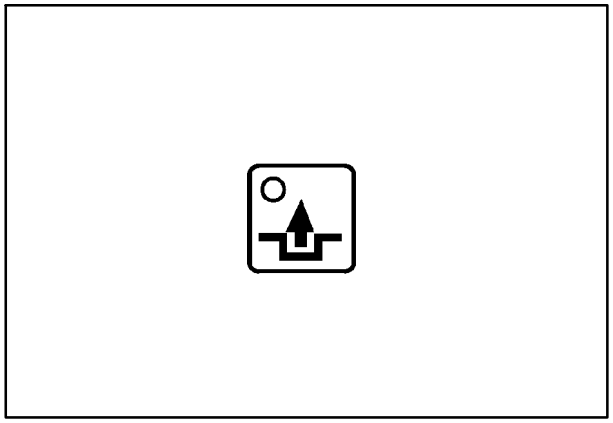
    In case one of the warning lights on the Adjust-O-Matic™ panel illuminates and/or the sharpening procedure stalls, refer to section 2 paragraph headed “Adjust-O-Matic panel” or to section 4 paragraph “Knives” subparagraph “Knife sharpening”.



73

IMPORTANT: *If you want to interrupt the sharpening operation or when an emergency situation arises, the sharpening cycle can be stopped by pressing the interrupt button on the Adjust-O-Matic™ panel.*

IMPORTANT: *If after finishing one sharpening cycle the knives are insufficiently sharp, a second sharpening cycle can be performed. Experience will tell how long the sharpening cycle should last to obtain perfectly sharpened knives.*



74

IMPORTANT: *The period of time to be selected depends upon knife sharpness desired, frequency of sharpening and degree of knife wear.*

IMPORTANT: *After sharpening the knives, the shearbar should be adjusted since sharpening increases the distance between the knives and the shearbar.*

AUTOMATIC SHEARBAR ADJUSTMENT

NOTE: *It is recommended to adjust the shearbar with the cutterhead rotating in reverse.*

⚠ CAUTION ⚠

Before carrying out the following procedure, ensure that nobody is standing near or in front of the chopper body and that all covers and safety guards are closed.
For safety reasons, never adjust the shearbar with the upper feed roll module removed.

Although the shearbar can be adjusted independently of the sharpening system, it is recommended to sharpen the knives first.

It is assumed the Adjust-O-Matic™ system is still activated, as was described in previous paragraph headed “Automatic knife sharpening”.

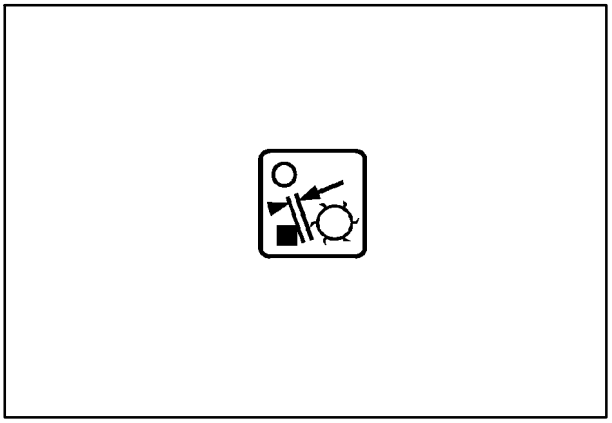
Proceed as follows:

1. Throttle down the engine to low idle.

NOTE: *At low idle the cutterhead speed should be equal or exceed 250 rpm. This is necessary to perform proper shearbar adjustment.*
If this is not the case, throttle up the engine until the cutterhead speed is at least 250 rpm.

2. Press the shearbar adjustment key (Adjust-O-Matic™ panel).

NOTE: *If the engine speed was not reduced as described in step 1, the engine speed will automatically be reduced when pressing the shearbar adjustment key.*



75

3. The machine will now start the automatic shearbar adjustment routine:

   a) For safety reasons, the shearbar is moved away from the cutterhead: one cycle on the left-hand-side, one cycle on the right-hand side.

   b) Then the system measures the background noise of the machine during 20 seconds.

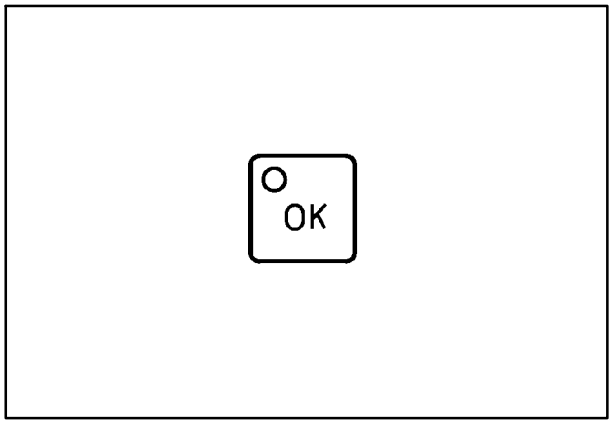
   c) The test signal generator is activated in order to check the knock sensor function.

   d) Now the shearbar adjustment routine starts. The shearbar moves alternately on the left and the right-hand side toward the knives.

   e) When the shearbar touches the knives, it backs off until the shearbar is clear of the knives, then it backs off for an extra half turn of the adjuster rod.

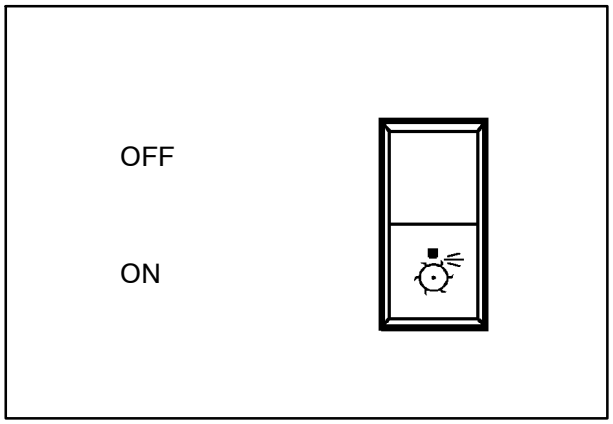
   f) When the shearbar has touched the knives for two successive times, both on the left and the right-hand side, the shearbar adjustment routine has finished.

4. When the shearbar adjustment routine is finished, the OK-LED on the Adjust-O-Matic™ panel wil light up.



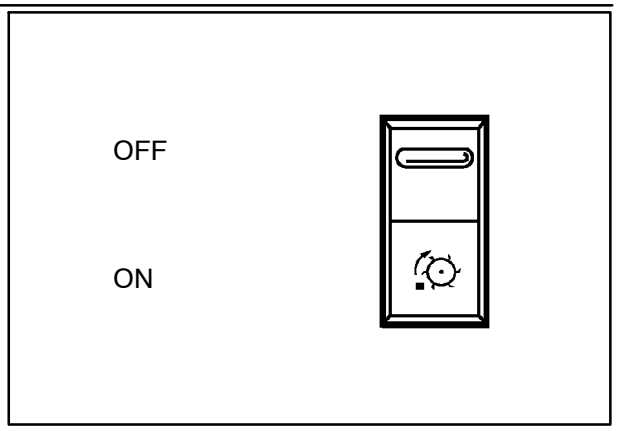
76

5. Now switch OFF the Adjust-O-Matic™ switch.



77

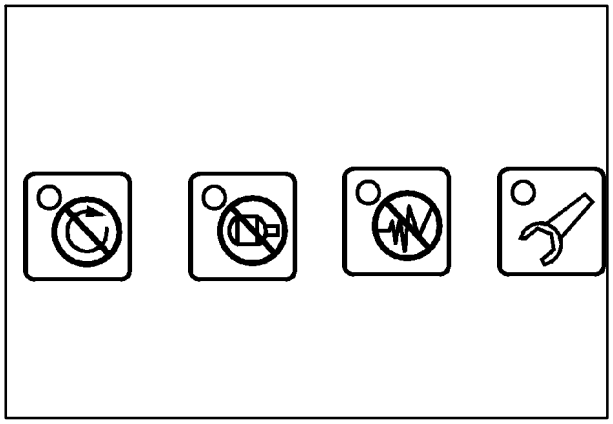
6. Switch OFF the reverse cutterhead drive and throttle down to low idle.



78

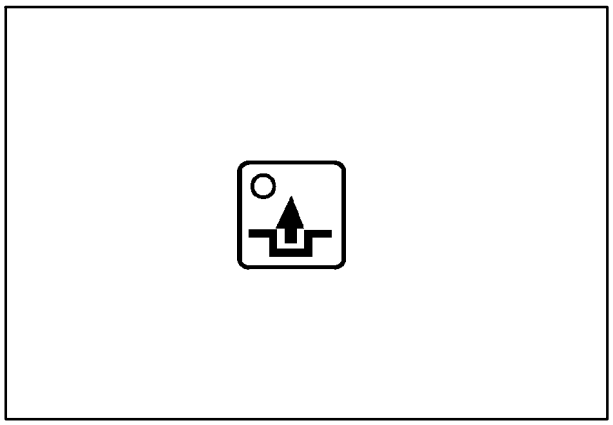
7. Stall the engine.

If during operation one of the warning lights on the Adjust-O-Matic™ panel illuminates and/or the adjusting procedure stalls, refer to section 2 – Controls, instruments and Operation, paragraph headed “Adjust-O-Matic™ warning lights” or section 4 – “Lubrication and Maintenance”, paragraph headed “Shearbar adjustment”.



79

IMPORTANT: *If you want to interrupt the shearbar adjusting operation, or when an emergency situation arises, the adjusting cycle can be stopped by pressing the interrupt button on the Adjust-O-Matic™ panel.*



80

CROP PROCESSOR [IF INSTALLED]

The crop processor can be used when harvesting maize or whole crop silage to “crack” the kernels between two fast rotating serrated steel rolls.

For grass harvesting, remove the crop processor.

NOTE: *It is possible to harvest small areas of grass during the maize season with the crop processor installed. In this case the crop processor rolls must be opened up to their maximum clearance (20 mm). Keep in mind that in this case the crop processor rolls will wear faster because of the risk of stone damage.*

For installation and removal of the crop processor, refer to section 4 “Lubrication and Maintenance”, paragraph headed “Crop processor”.

The crop processor is driven directly from the cutterhead shaft and is therefore engaged whenever the cutterhead is engaged.

NOTE: *Since the crop processor drive pulley is equipped with an overrun clutch, the crop processor will not be driven when driving the cutterhead in reverse, e.g. when sharpening the knives.*

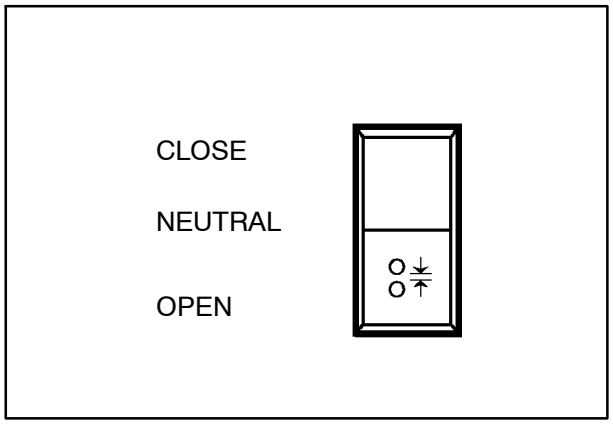
The crop processor roll clearance can be adjusted within a range of 2 to 20 mm.

The crop processor clearance can be adjusted electrically with the crop processor roll clearance switch (instrument panel). The crop processor roll clearance will be displayed on the InfoView™ monitor during adjustment.

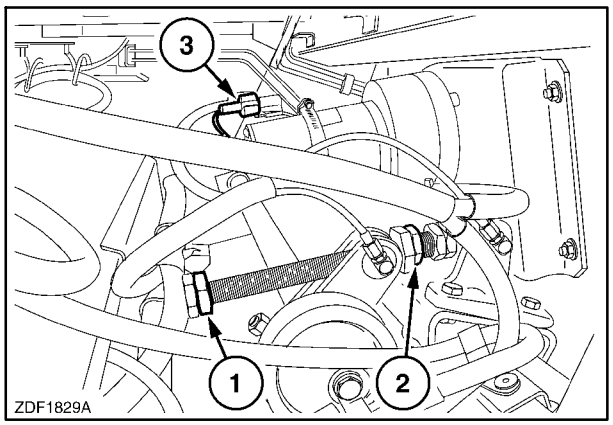
The roll pressure is factory-set.

NOTE: *In case the electrical system fails, the crop processor rolls distance can be adjusted manually by using a spanner at 1 or at 2.*

IMPORTANT: *Disconnect the electric connector 3 to the electric motor before manual adjustment.*



81



82

BLOWER

The blower is engaged whenever the cutterhead is engaged.

Blower speed

The blower speed is factory-set at 739 rpm which is the most efficient speed in almost all conditions.

However, for some conditions a higher blower speed of 818 rpm [accessory] may be required. The high speed blower kit increases the blower speed by 10 %.

A high speed blower gearbox 1 can be installed to increase the blower speed from 739 rpm to 818 rpm. A high blower speed ensures a more powerful unloading and can be used when harvesting grass silage with relatively high dry matter content (> 35%), e.g. in wilted silage and alfalfa.

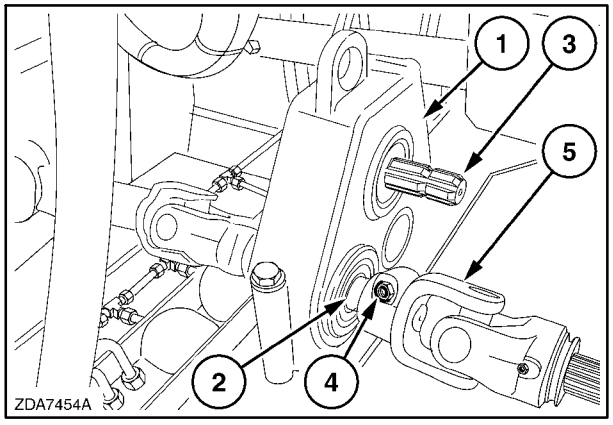
It is therefore recommended in areas where strong winds are prevailing or where frequently preference is given to rear loading.

To change the blower speed, proceed as follows:

⚠ CAUTION ⚠

Switch OFF the cutterhead and main drive, stop the engine and switch OFF the battery switch before carrying out adjustments.

1. Remove conical bolt 4.
2. Move drive shaft 5 from the standard speed shaft 2 to the high speed shaft 3 and reinstall conical bolt 4.



83

NOTE: *An increased blower speed will result in:*

- *A faster wear of the blower liner and the paddle wear plates*
- *An increased power consumption*

Cover plates on rear sheet

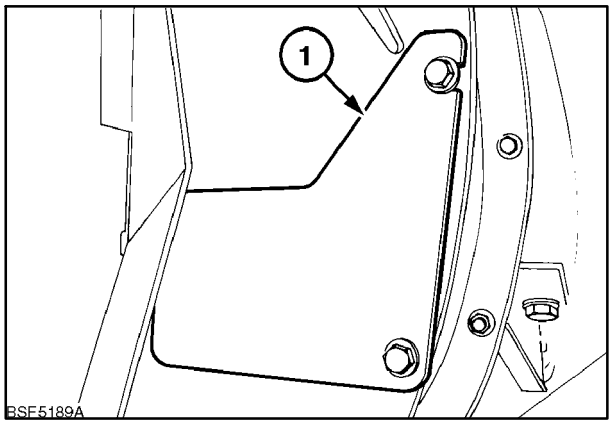
In particular crop conditions (Hay and Alfalfa with low moisture and high sugar content) in certain regions, crop built up between the rear of the blower cone and the blower assembly rear sheet.

To alleviate this specific concern, the cover plates (1) on both sides at the blower assembly rear sheet can be removed.

To remove the cover plate, remove the lower bolt and slacken the top bolt. After removal of the cover plates, install and tighten the two bolts.

IMPORTANT: *Reinstall the cover plates (1) as soon as it is appropriate to do so.*

IMPORTANT: *The cover plates (1) should only be removed when crop conditions dictate.*

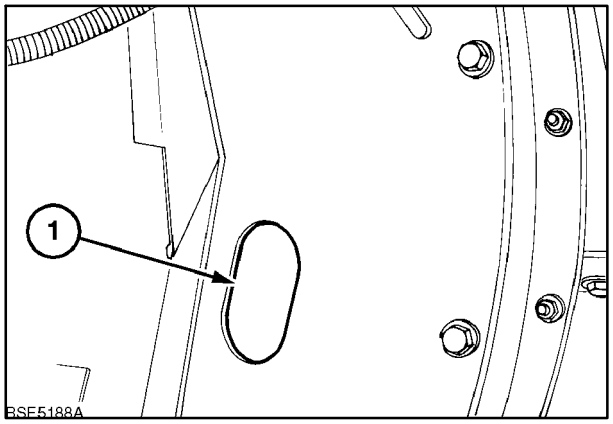


84

⚠ WARNING ⚠

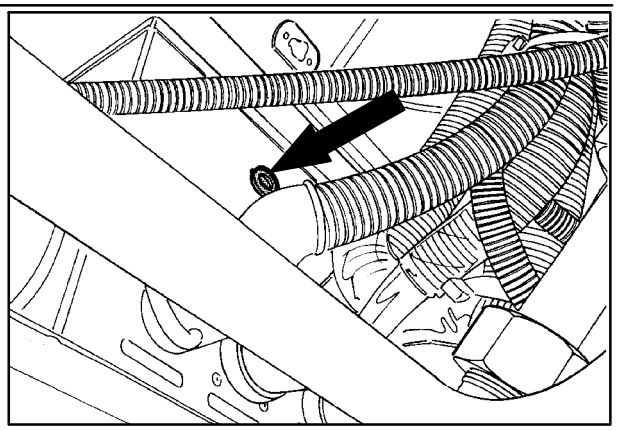
The holes (1) are identified as a primary source of crop material build up around the transmission and brakes while harvesting grass and maize silage.

When operating with cover plates removed, regularly check for crop residue accumulation in the area around the transmission and brakes, and remove it.



85

SILAGE ADDITIVE APPLICATION



86

The electronic box provides a 12 V socket for customer purposes, e.g. silage additive application.

Adhere to the following recommendations when installing a silage additive kit yourself:

- Install the nozzle in the transition zone between blower and spout
- Install the silage additive tank in one of following locations:
  - On the right-hand side platform

⚠ WARNING ⚠

Ensure the emergency exit is ready to be used at any time.

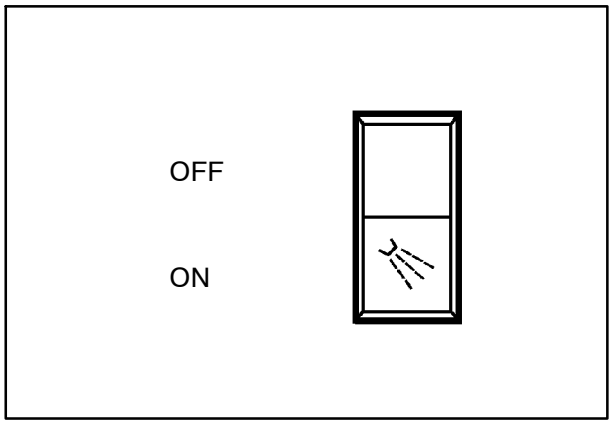
  - On the rear bumper
- Make sure that the silage additive tank is secured in a way that it cannot fall from the machine and that it cannot be damaged by other objects such as trees, tractors, trailers, etc.

⚠ WARNING ⚠

Make sure that when a silage additive tank is installed, traffic safety regulations are still observed (no obstruction of lights, decals and signal plates).

- Connect the silage additive pump to the 12 V socket in the electronic box.

The silage additive application system can be switched ON and OFF by the silage additive application switch on the instrument panel.



87

12 V is supplied to the silage additives application socket when:

1. The silage additives application switch is switched ON.
2. The attachment height is within the hectare counting range.
3. The feed rolls are engaged.
4. The machine is moving forward.

NOTE: *Since New Holland does not sell a silage applicator, it cannot accept any liability for the installation, operation and safety of the silage applicator. It may refuse warranty on certain components when silage additives are used. Contact your local dealer.*

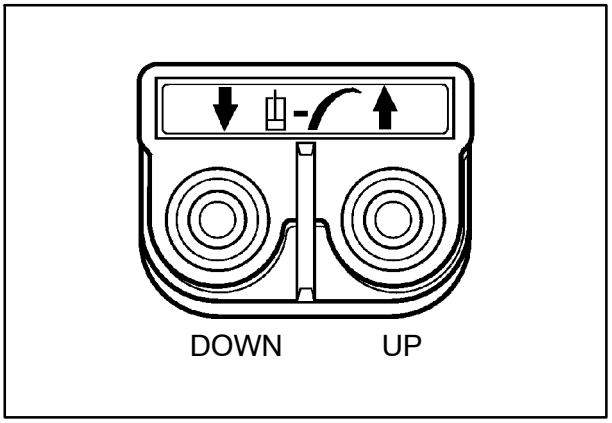
To check the 12V socket output and the silage additive pump, proceed as follows:

1. Stop the engine.
2. Turn the ignition key ON, without starting the engine.
3. Switch the HARVEST switch into road position.
4. Switch ON the silage additives application switch.

SPOUT

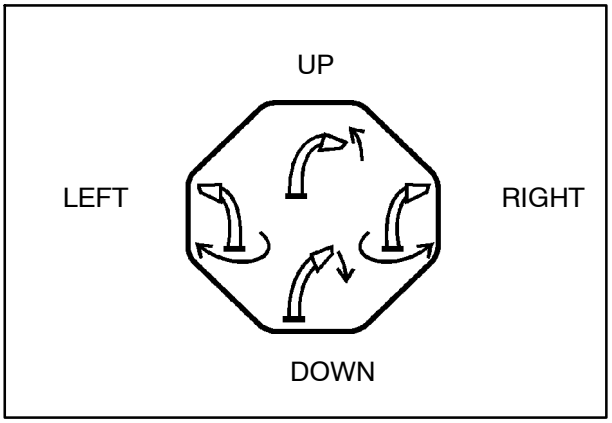
The spout is built in such a way that it can easily fill all types of trailers or trucks.

The spout can be raised by the spout height control switch (cab floor) to adapt the spout height.



88

It can be moved from left to right with the spout rotation switch (multifunction lever) within a reach of 210° which allows to fill the trailer or truck from front to rear, on both sides of the forage harvester.



89

The spout rotation has two speeds.

When the spout rotation switch is pushed to its first stop, spout speed is slow.
When pushed to its second stop, spout speed is fast.

The slow spout speed can be changed by means of the spout slow rotation calibration. For this calibration, refer to the paragraph headed "InfoView™ Calibration" further in this section.

The deflector at the end of the spout is meant to direct the crop flow. The deflector can be moved up and down with the spout deflector switch (multifunction lever).

With the deflector, every corner of the trailer or truck can be filled, also in case of rear loading.

⚠ CAUTION ⚠

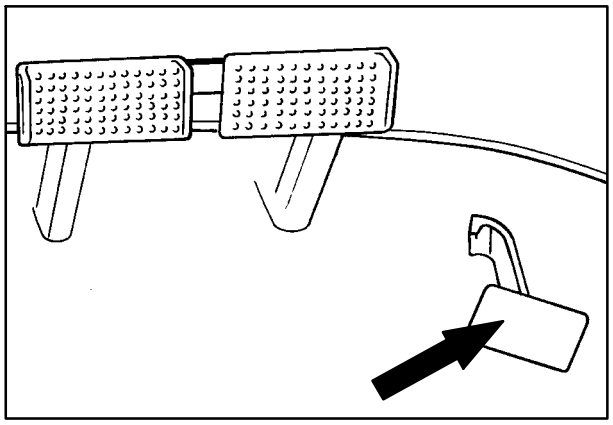
Ensure nobody comes in the spout projection range or the spout travel path before moving the spout or the spout deflector.

TRACTION

DIFFERENTIAL LOCK

When operating in slippery or muddy ground conditions the differential lock may be engaged to provide better traction.

If one of the traction wheels starts spinning, immediately depress the differential lock pedal. Now both traction wheels will turn at the same speed. Keep the pedal depressed until the machine has passed the obstacle.



90

Release the pedal to disengage the differential lock.

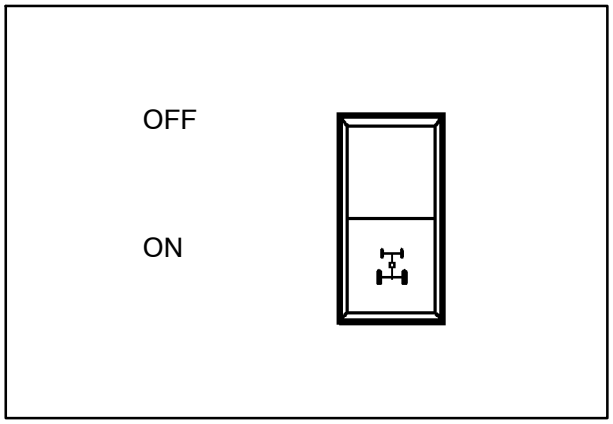
IMPORTANT: *Do not make turns with the differential lock pedal depressed.*

It may be necessary to slow down the forage harvester speed to allow engagement of the differential lock.

FOUR-WHEEL DRIVE [IF INSTALLED]

Some conditions are such that four-wheel drive is indispensable: operation on slopes, in slippery or muddy conditions, when pulling a trailer, etc.

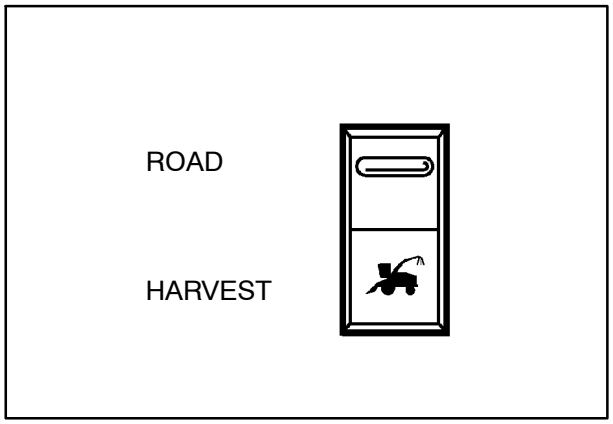
The four-wheel drive can be engaged and disengaged with the 4-wheel drive switch (instrument panel).



91

NOTE: *Never drive on the road with the four-wheel drive engaged because the different circumferential velocity of the front and rear wheels will result in high wear of the tyres.*

NOTE: *When driving on the road, the harvest switch must be switched into its ROAD position. When switched in this position, it disengages, among others, the four-wheel drive.*



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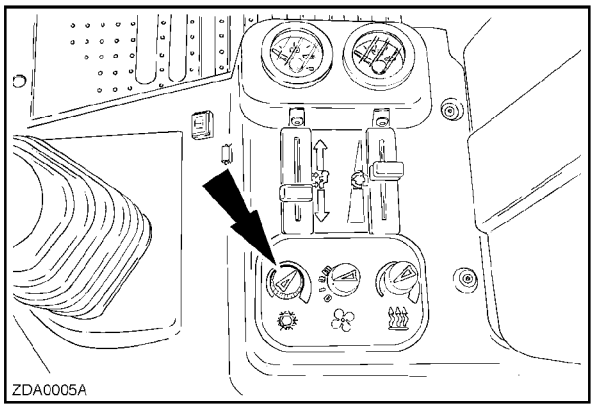
AIR CONDITIONING

The air conditioning system can be controlled by means of a switch on the console module.

The system must only be operated when the engine is warm and the interior temperature of the cab is 15° C (59° F) minimum.

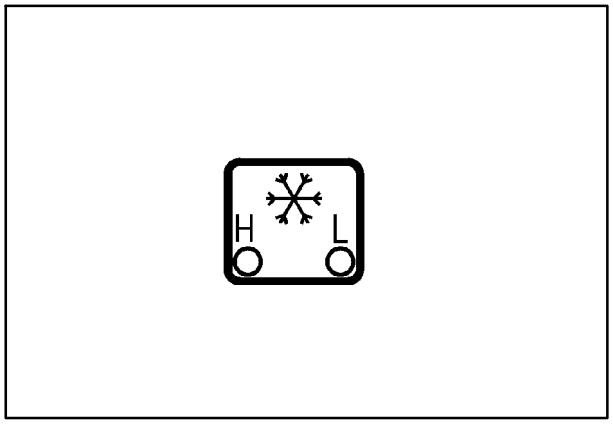
IMPORTANT: *Ignoring this precaution may cause damage to the system.*



93

IMPORTANT: *If you want to use the air conditioning system in winter, first heat up the cab before switching on the air conditioning.*

If the ambient temperature is approximately 15 ° C (59° F)*, the low pressure warning light may illuminate. This warning is generated by the low ambient temperature and may be ignored.*



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AUDIBLE ALARM

There are two warning buzzers inside the cab.

One buzzer is linked to the direction indicator lever only.

The other buzzer indicates that something is wrong. Every buzzer alarm is accompanied by a visible warning on the InfoView™ monitor, the instrument panel, the Adjust-O-Matic™ panel, etc.
All these alarms concern an error message and the kind of signal produced by this buzzer indicates the seriousness of the defect, i.e.:

NON-STOP SIGNAL

This signal warns the operator that there is a major defect which can damage vital parts of the machine or a defect concerning important safety functions, e.g. engine temperature too high.

Stop the forage harvester immediately, disengage all engagement systems and shut off the engine. Try to locate and repair the defect or contact your local dealer for assistance before operating your forage harvester again.

LONG INTERVAL SIGNAL (FIVE SECONDS)

This signal indicates an important but not a vital error, e.g. the forage harvester was driven with the handbrake engaged.

TWO SERIES OF THREE BEEPS FOLLOWED BY A LONGER PAUSE

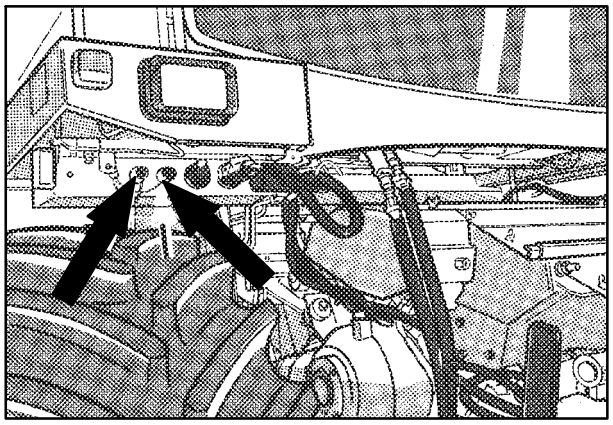
This indicates a warning of a lower importance level.

IMPORTANT: *Any defect which is signalled by the buzzer is serious and requires immediate or short term action.*

HYDRAULIC SYSTEM

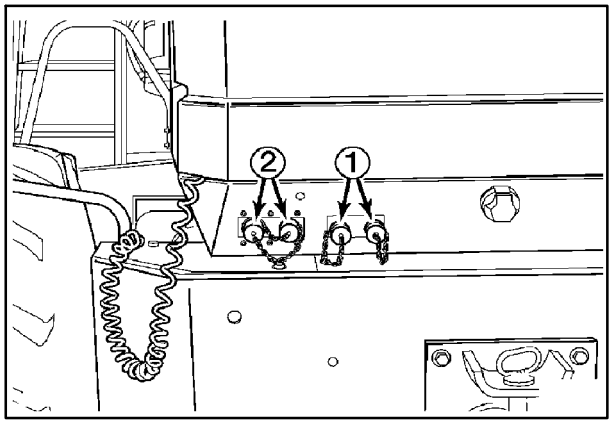
The forage harvester is equipped with auxiliary hydraulics**.** They supply hydraulic pressure for external use, such as:

- **Auxiliary front hydraulics** [standard]
  - Power Reverse™ for the pick-up attachment.
  - Hydraulic attachment flip-up (of certain attachments) for road transport.



95

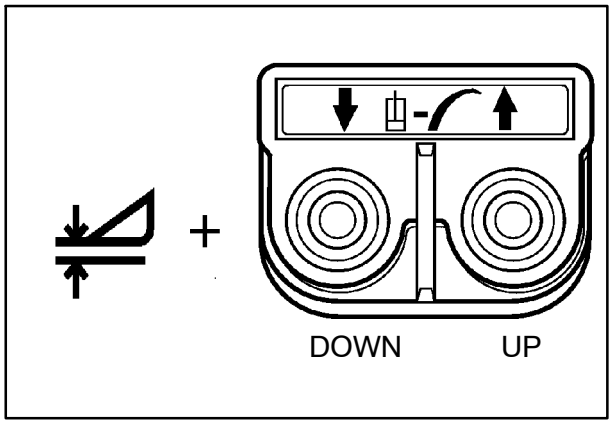
- **Auxiliary rear hydraulics 1** [accessory]
  - Trailer hydraulic hitch
  - Trailer hydraulics



96

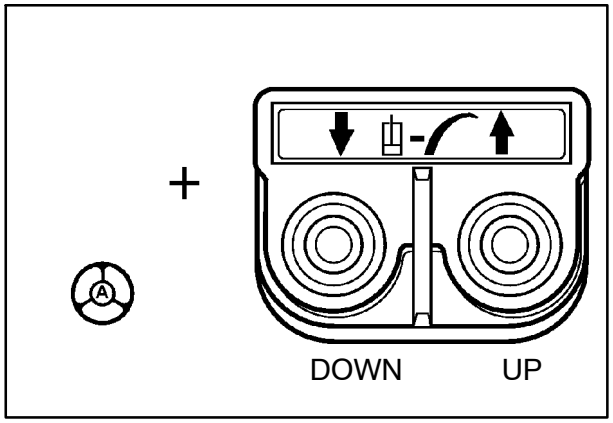
The maximum pressure of the auxiliary hydraulics is 160 bar (2320 lbs/in^2) and the maximum output is 15 litres/min (4 gallons/min). Both hydraulic systems are double-acting.

The auxiliary front hydraulics are controlled with the attachment height override button (multifunction lever) in combination with the spout height control switch (cab floor)



97

The auxiliary rear hydraulics are controlled with the Auto-Pilot button (multifunction lever) in combination with the spout height control switch (cab floor)



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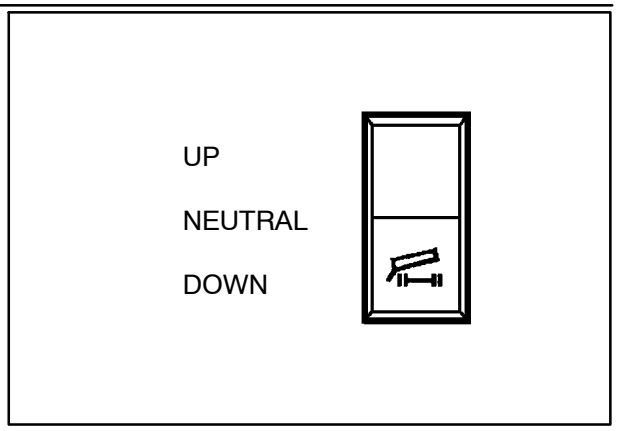
- **High capacity hydraulics 2** [accessory]
    - For dump-type trailers

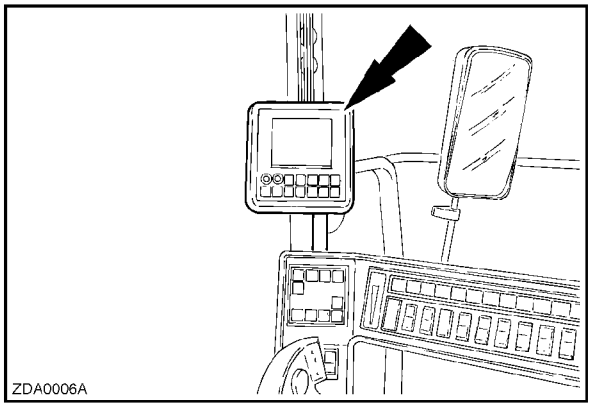
The high capacity hydraulics are controlled with a switch in the dashboard.



99

INFOVIEW™ MONITOR

The forage harvester is monitored in the cab by means of the InfoView™ monitor. The InfoView™ monitor is situated on the operator's right-hand side, just above the dashboard.



100

The InfoView™ monitor performs seven basic pages or modes for the operator:

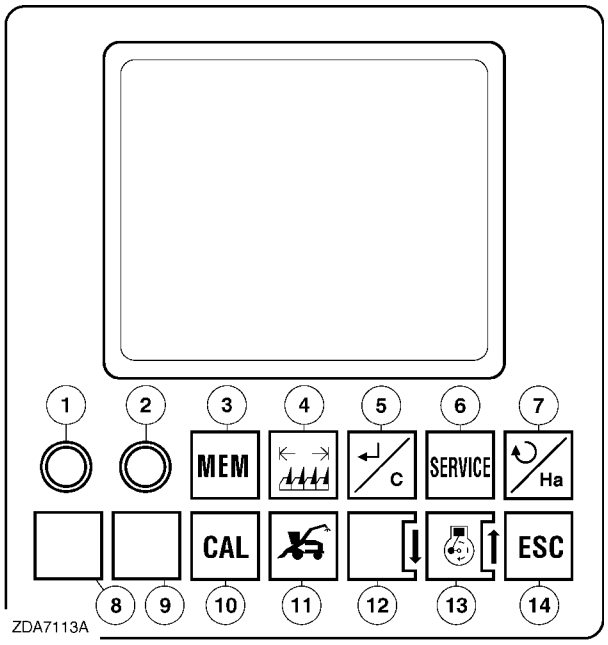
- **Speed mode**
- **Hectare counter mode**
- **Memory mode**
- **Service mode**
- **Calibration mode**
- **Metal detector diagnostic page**
- **User messages**

Apart from these 7 basic pages or modes, the InfoView™ monitor provides valuable diagnostic information for your dealer.

An overview of the monitor's control buttons as well as a basic description of their functions can be found in section 2 – "Controls, Instruments and Operation".

Throughout this paragraph the following names will be used for the buttons:

1. Feed rolls reverse speed potentiometer
2. Length Of Cut potentiometer
3. Memory button
4. Attachment width button
5. Enter and clear button
6. Service button
7. Hectare button
8. Not used
9. Not used
10. Calibration button
11. Ground speed button
12. Scroll down and metal detector diagnostic page button
13. Scroll up and engine button
14. Escape button

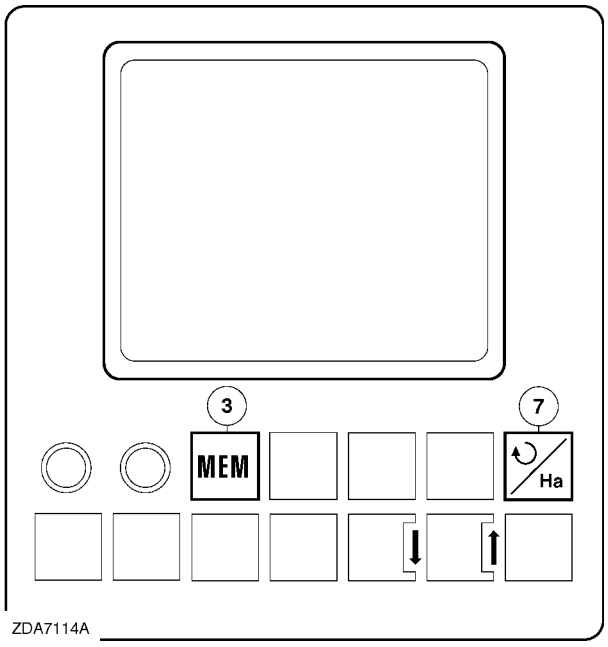


101

In the text these names will be used as follows:

Press **7 hectare** and
3 memory

The buttons that are mentioned will be shown in the illustration on the right-hand side of the text.



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SPEED MODE

The following machine speed information is available on the InfoView™ monitor:

- Engine rpm bargraph
- Ground speed / Engine speed
- Length of cut
- Cutterhead speed / crop processor roll clearance

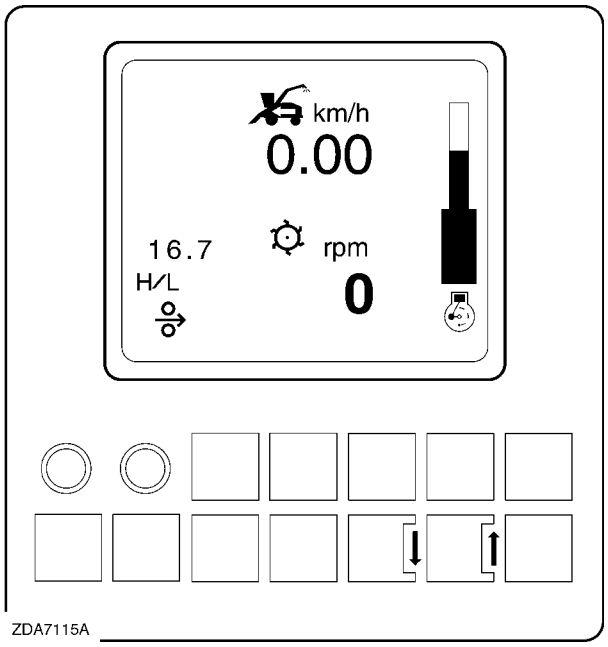
Engine rpm bargraph

The engine rpm bargraph is shown on the right-hand side of the screen as soon as the ignition is switched on.

It is a graphic display of the top 12% of the engine's speed range.

The top (narrow) segment represents the engine speed range from 1950 to 2100. The lower (wide) segment represents the engine speed range from 1850 to 1950%.

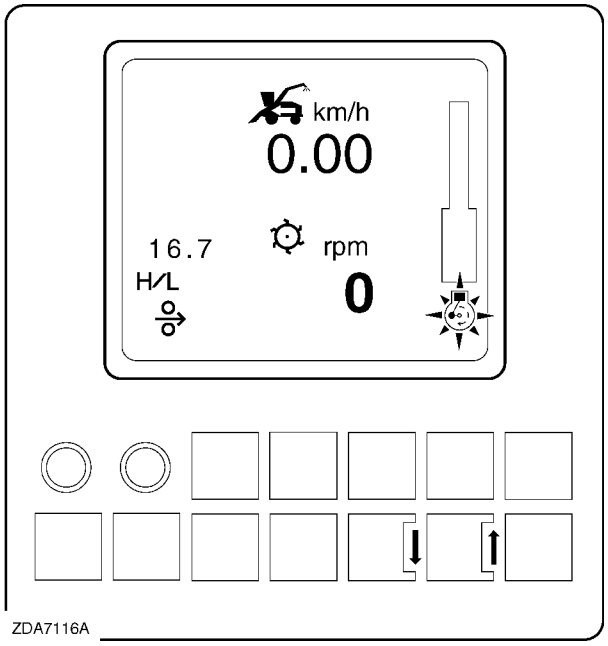
NOTE: *Full engine speed with the harvest safety switch in road position is limited to 1700 rpm.*



103

As soon as the engine speed drops below 1800 rpm, the engine symbol will start to flash and the buzzer will warn the driver to slow down. Slow down the machine until the engine symbol remains solid.

It is advisable to keep the engine speed within the wide segment since this engine speed range offers the best combination of power and torque while the speed of the machine's functional components is still high enough to ensure good harvesting.



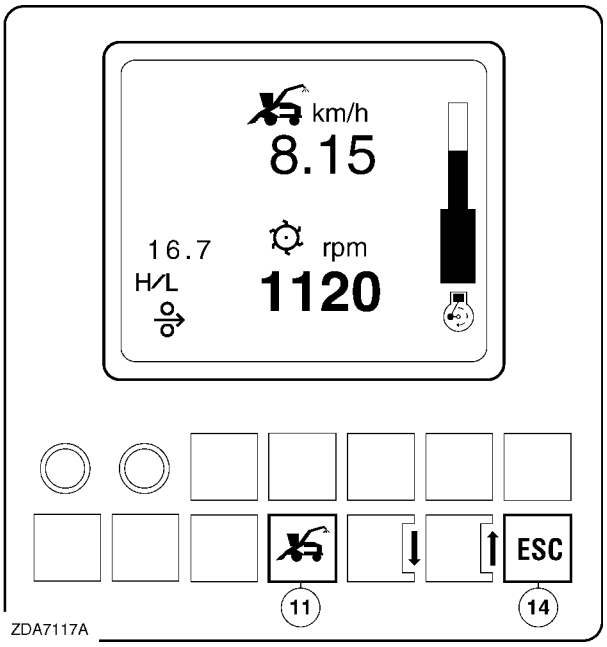
104

Ground speed

Ground speed is displayed when the ignition key is switched ON. As soon as the machine starts driving, the actual ground speed will be displayed on the screen.

In order to return from any other mode to ground speed,

press **11 ground speed** or
14 escape and
11 ground speed



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Engine speed

Engine speed can be displayed instead of ground speed

press **13 engine speed**

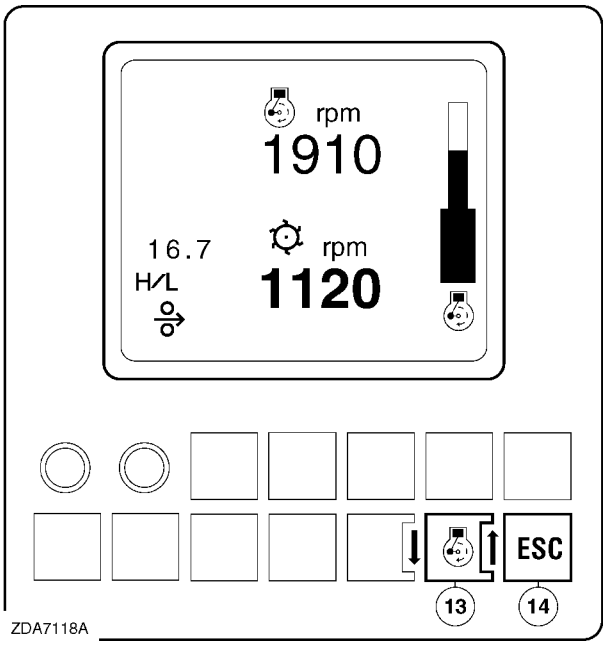
To return from any mode to engine speed,

press **14 escape** and
13 engine speed

Cutterhead speed

Cutterhead speed is always displayed when in the speed mode. In order to return from any mode to speed mode,

press **14 escape**



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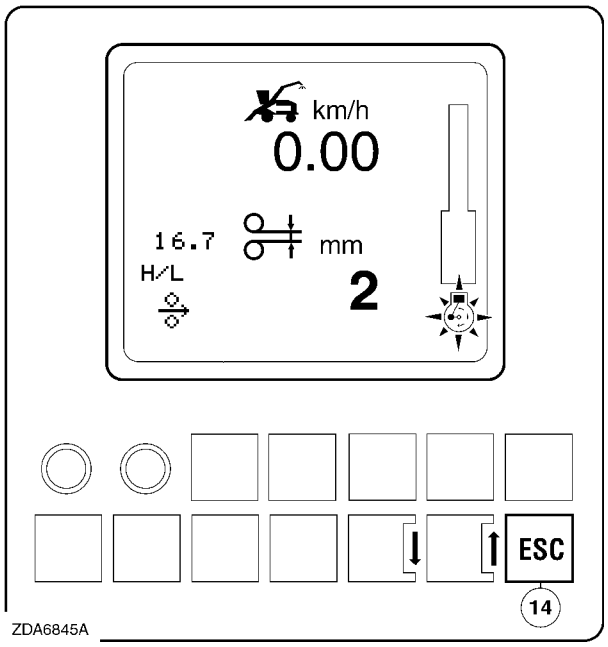
Crop processor roll clearance

When the crop processor roll clearance switch is pressed, either to increase or decrease the roll clearance, the actual roll clearance in mm is shown on the screen, provided the InfoView monitor is in the speed mode**.**

If this is not the case,
press **14 escape**

When the crop processor roll clearance switch is released, the cutterhead speed will replace the crop processor roll clearance after a few seconds.



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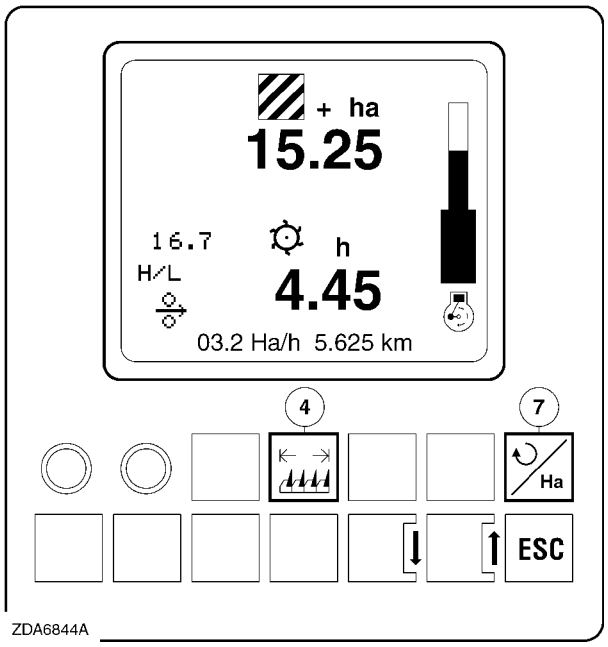
HECTARE COUNTING MODE



108

To display the hectare counting mode,
press **7 hectare**

When in the hectare counting mode, following information is available on the InfoView™ monitor:

- harvested area
- elapsed cutterhead time
- Engine load bargraph
- Length of cut
- Area per hour and drive distance

NOTE: *In order to obtain accurate results attachment height, attachment width and the ground speed constant have to be calibrated properly (see paragraph headed "Calibration" further in this section).*

The hectare counter starts counting when:

- The cutterhead is engaged
- The feed rolls and attachment are engaged
- The attachment height is within the calibrated height range (see relevant paragraph).

When hectare counting takes place, the symbol **"+"** appears next to the area symbol on the screen.

When the full attachment width is not used, the attachment width can be corrected:
press **4 attachment width**
(cutterhead and feed rolls must be engaged).

Each pulse (+ audible signal) will reduce the attachment width by one quarter (in case of a grass pick-up) or one row (in case of a row crop attachment).

To store hectare counting data in the InfoView™ monitor memory, refer to paragraph headed "Memory mode".

To return to speed mode,
press **7 hectare**

NOTE: *Do not switch off the battery switch before switching off the ignition as this will cause loss of the latest hectare counting results.*

MEMORY MODE

In the hectare counting mode, the harvested area as well as the time it took to harvest that area can be displayed.

The information collected in this mode can be stored in the InfoView™ monitor's memory mode for later reference.

Storing, selecting and clearing information in the memory mode is explained in this paragraph.

Storing hectare counter results

Hectare counter results can be stored in the memory mode. These results can be from one field, one customer or one day.

First the current hectare count has to be recalled:
press **7 hectare**

Subsequently the **memory mode** has to be opened and the current results can be stored:
press **3 memory** and
5 enter

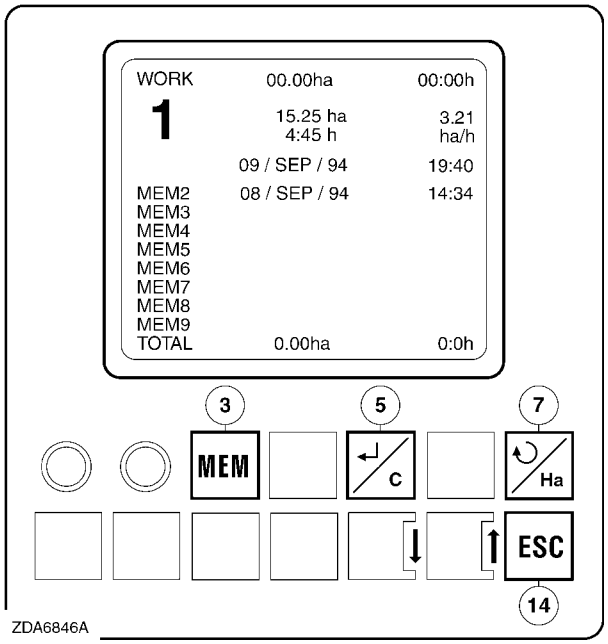
The results will automatically be stored in memory 1.

The results that had been stored before automatically move down one memory.

When the messages memory full and clear memory appear on the screen, refer to heading "Clear memories" in this paragraph.

To return to the speed mode,
press **7 hectare** and
14 escape

NOTE: *The memory mode can only be selected when in the hectare counting mode.*



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Selecting memories

In order to check hectare counter results that were stored in the memory mode, proceed as follows:

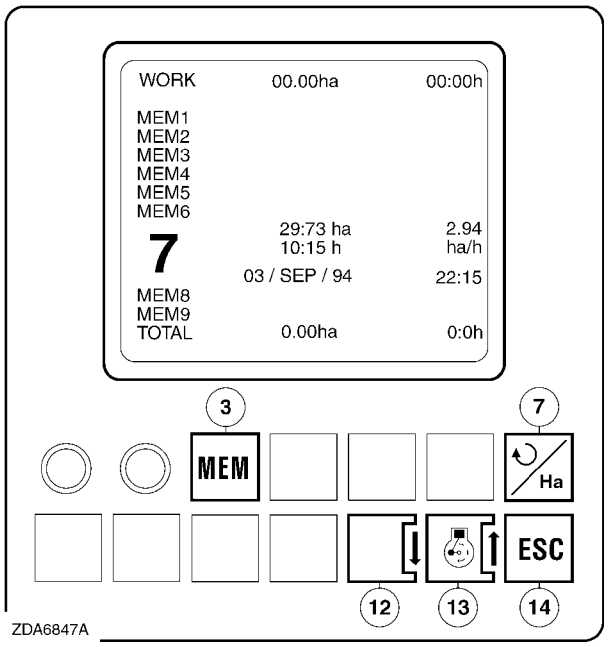
Open up the memory mode:
press **7 hectare** and
3 memory

Select one of the 9 memories by moving down through the memory menu:
press **3 memory** to scroll down through the memories or
press **12 scroll down** and/or
13 scroll up

Detailed info on the selected memory will now show up on the screen

To return to the hectare counting mode,
press **7 hectare** or
14 escape

NOTE: *When memory 9 is selected and button 3 memory or 12 scroll down is pressed once will cause memory 1 to be selected.*



110

Clear memories

When in the memory mode the messages memory full and clear memory appear on the screen, it means all 9 memories are in use.

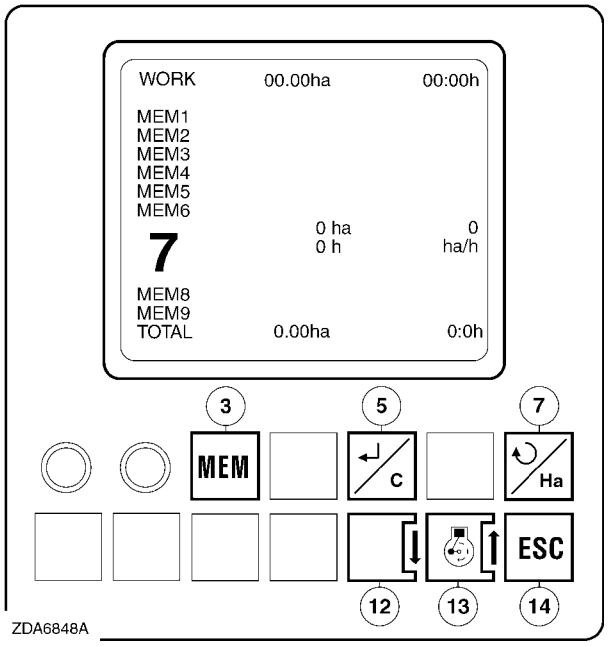
In order to clear one or more memories (memory 1 cannot be cleared), proceed as follows:

Select the memory that has to be cleared:
press **12 scroll down** and/or
13 scroll up

Clear memory:
press **5 clear** and
14 escape

The InfoView™ monitor will return to the hectare counter mode automatically.

To return to the speed mode,
press **14 escape**



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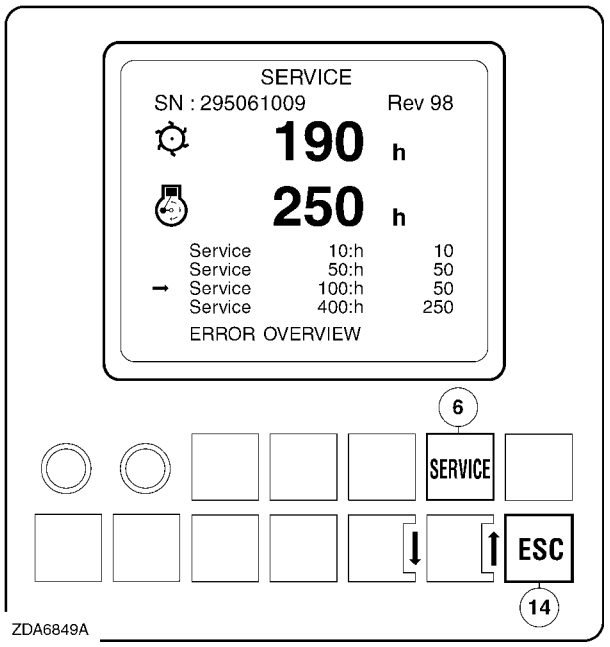
SERVICE MODE

In order to display the service mode on the InfoView™ monitor screen, press **6 service**.

In the service mode following information is on the InfoView™ monitor:

- **Machine serial number**
- **Software revison**
- **Cutterhead hour count**
- **Engine hour count**
- **Service intervals**
- **Error overview**



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Machine serial number

The machine serial number is shown in the left-hand upper corner of the screen. It is factory set and can not be changed.

Software revision

The actual installed software revision is shown in the right-hand upper corner of the screen.

Cutterhead / Engine hour count

In the service mode the cutterhead hour count and engine hour count are permanently updated.

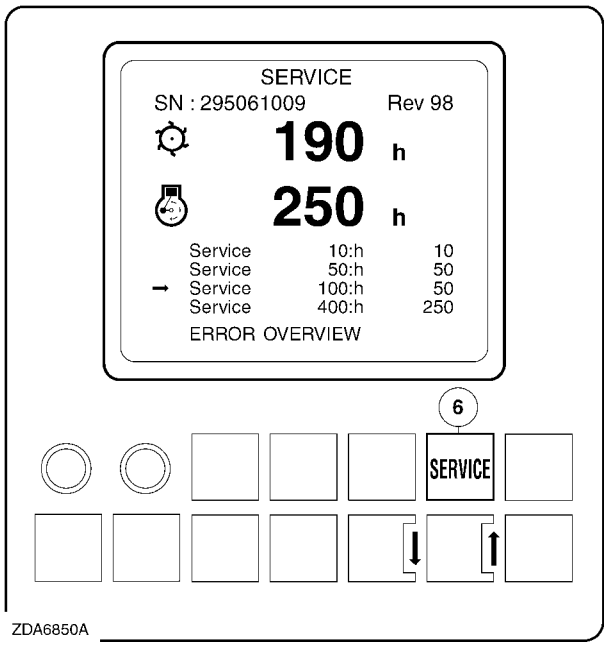
To return to speed mode, press **14 escape**.

Service Intervals

The service mode also provides information on the forage harvester's service intervals.

Underneath the hour counts, four service intervals are displayed. Behind the service intervals the engine hours elapsed since the last service are displayed.

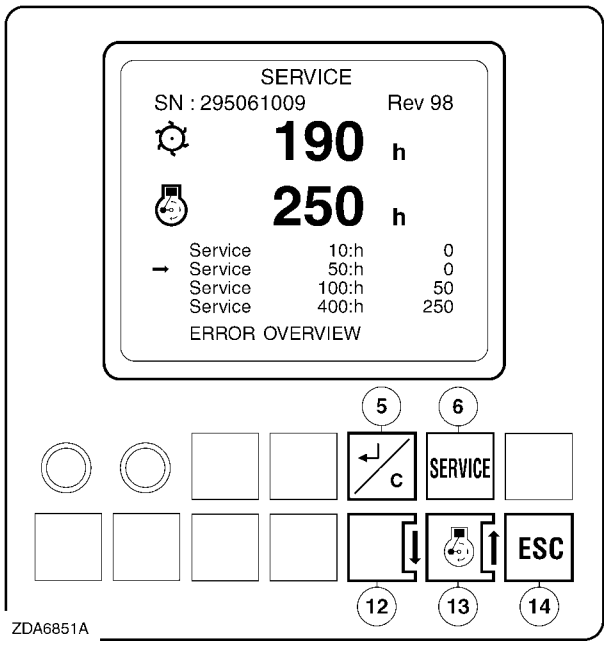
When the elapsed engine hours exceed the hours of that particular service interval, the hour count starts to blink; the service has to be carried out. (For a full description of these services, refer to section 4 "Lubrication and Maintenance", paragraph headed "Maintenance schedule").



113

When the service has been carried out, the related service interval has to be reset.

1. Press **6 service** to select the service mode.
2. Select the related service interval using **12 scroll down** or **13 scroll up**.
3. Press **5 clear** to reset the related service interval. The hour count will be reset to zero.
4. To return to speed mode, press **14 escape**.



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Error Overview

The InfoView™ monitor keeps track of errors that occur in the forage harvester's electric/electronic system and of some mechanical errors.

Errors are divided in 3 priority levels:

- **High priority errors**

  Errors 1 - 99
  These errors are displayed continuously for as long as the error exists. The system cannot function properly unless this error is solved. It does, however, not mean the machine has to be stopped immediately.

- **Medium priority errors**

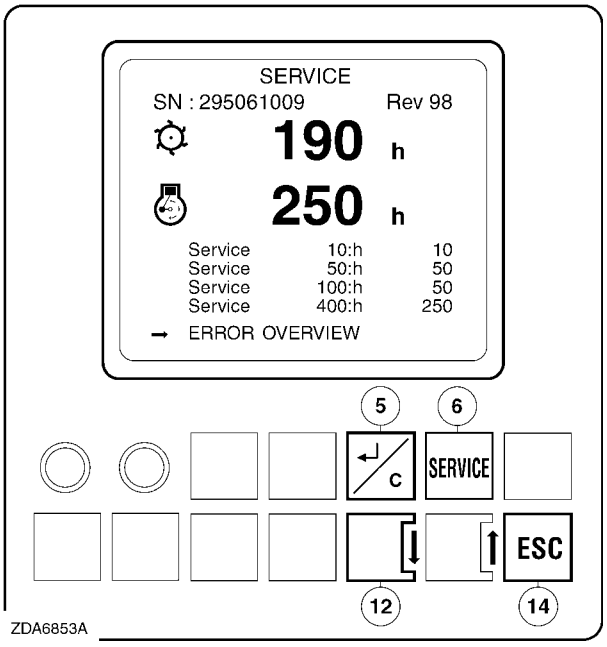
  Errors 100 - 499
  Medium priority errors are displayed for 5 seconds when they occur.

- **Low priority errors**

  Errors 500 - 999
  These errors are **not** displayed when they occur, but can only be recalled in the service mode error overview.

All errors can be recalled in the service mode error overview:

1. Press **6 service** to select the service mode.
2. Select error overview (bottom line) using **12 scroll down** and/or **13 scroll up**.
3. Press **5 enter**.



115

4. On the InfoView™ monitor screen the errors that have occurred will appear in order of priority and in numerical order.

5. To recall the next error, press **12 scroll down** and/or **13 scroll up**.

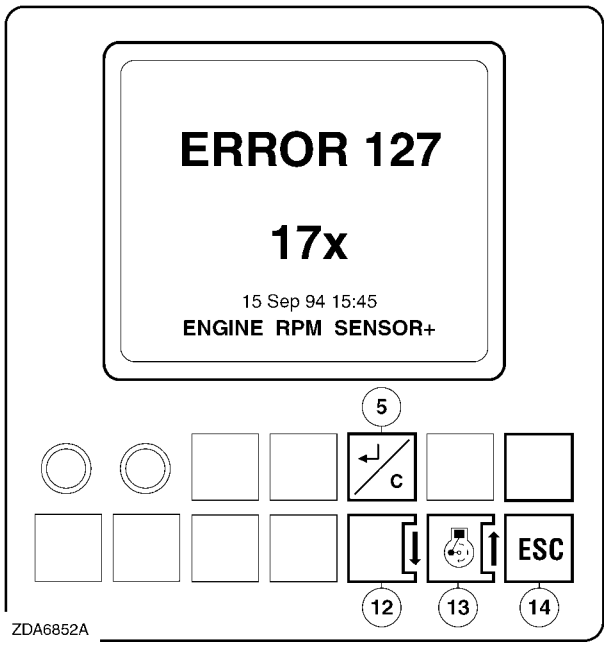
The errors that appear on the screen provide the following information:

- the number of the error
- error frequency
- date and time when error first occurred
- description of the error

To delete an error that has been solved, proceed as follows:

1. Let the error appear on the screen as described above.
2. Press **5 enter/clear**. The error frequency will change to zero.
3. Press **12 scroll down** or **13 scroll up** to view another error.
4. To return to speed mode: press **14 escape**.

NOTE: *Error 171 is always appearing (error frequency 0) and can not be deleted.*



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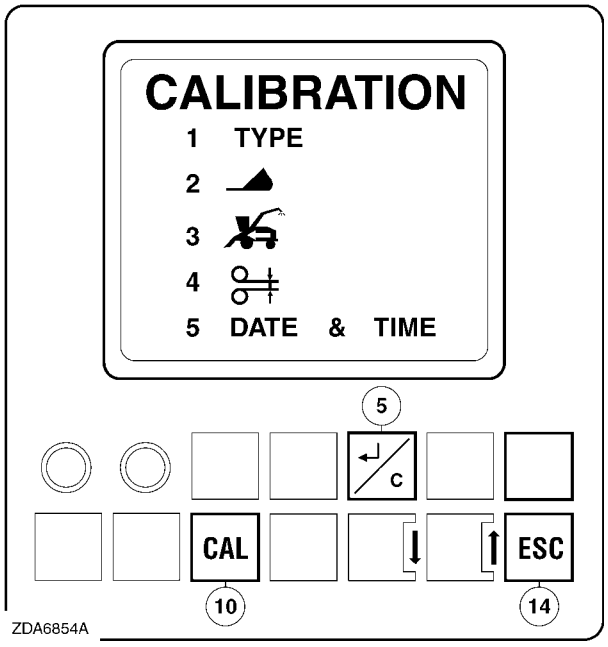
CALIBRATION MODE

The calibrations of the forage harvester electric/electronic system are carried out by means of the InfoView™ monitor.

1. To select the calibration mode, press **10 calibration**.
2. The different calibrations are divided on 5 pages. An arrow at the left-hand side of the InfoView™ points to the selected page.

NOTE: *When entering the calibration mode, page 2 is always selected.*

3. Scroll through the calibration pages using **12 scroll down** and/or **13 scroll up**.
4. Press **5 enter** to enter the selected page.



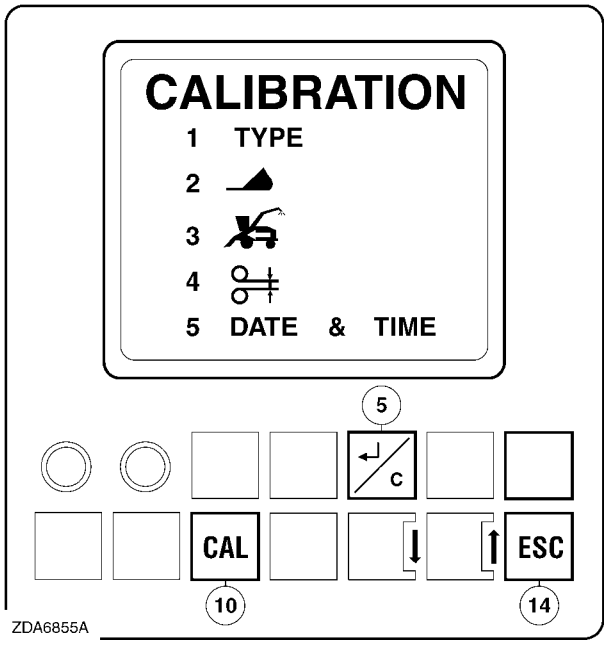
117

The following calibrations can be carried out:

1. Type
    - Number of knives
    - Language
    - Units
    - Rotary screen brush
    - Left minimum spoutspeed
    - Right minimum spoutspeed
    - Simultaneous movement of spout and deflector
    - User messages
    - Monitor screen contrast
2. Attachment
    - Attachment width
    - Knife speed protection
    - Semi-automatic attachment height control
    - Attachment height for hectare counting
3. Ground speed
    - Ground speed tuning
4. Crop processor
    - Crop processor
5. Date and time
    - Date and time

To validate a calibration, press **5 enter**.

To return from anywhere in the calibration mode to the speed mode, press **14 escape**.



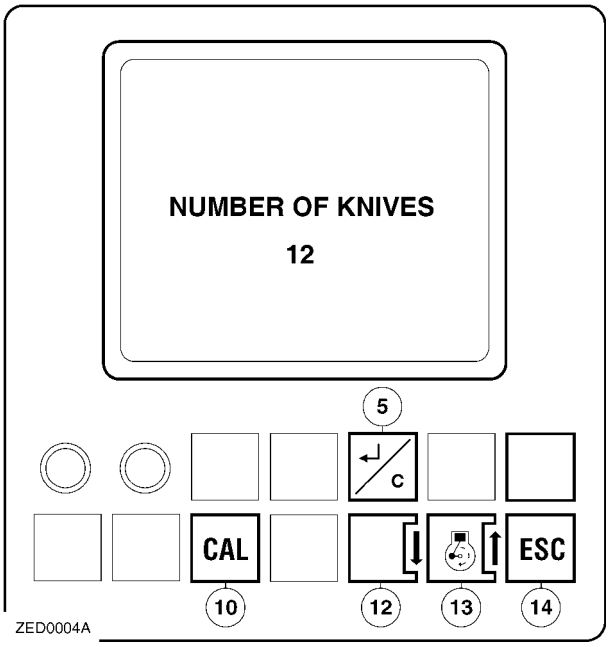
118

Number of knives

To obtain a correct length of cut indication on the InfoView™ monitor, the installed number of knives must be calibrated.

Proceed as follows:

1. Press **10 calibration** to select the calibration mode.
2. Select **Page 1**/ **type** , using **13 scroll up** and press **5 enter**. The calibrated number of knives appears on the screen.
3. Change the value to the correct number of knives installed using **12 scroll down** or **13 scroll up**.
4. Press **5 enter** to validate your choice. The next calibration will appear on the screen.
5. Continue with the next step or press **14 escape** to exit the calibration mode.



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Language

The text on the InfoView™ monitor can be displayed in 8 different languages. The available languages are split up in two language groups. Depending on the country of origin of the machine one of the two language groups is installed on your machine:

Language group 1:

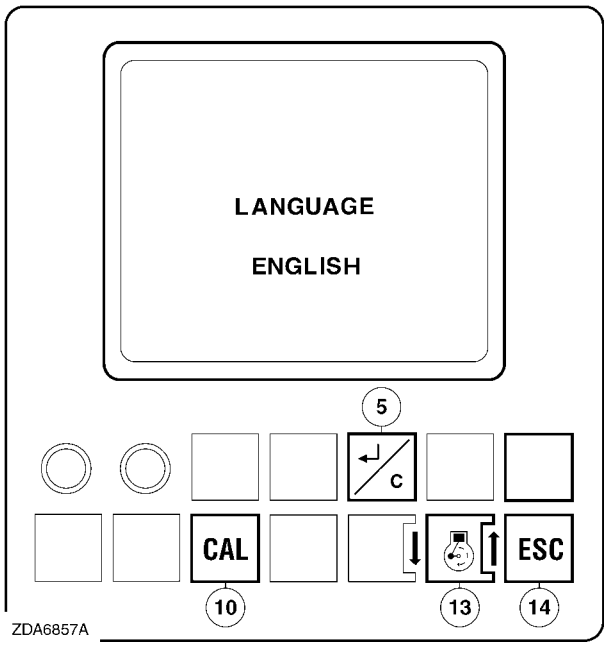
- English
- Français
- Deutsch
- Nederlands
- Espanõl

Language group 2:

- English
- Nederlands
- Italiano
- Espanõl
- Dansk

To change to another language, proceed as follows:

1. Press **10 calibration** to select the calibration mode.
2. Select **Page 1**/ **type** , using **13 scroll up** and press **5 enter** until “Language” appears on the screen.
3. Select the language of your choice using **12 scroll down** or **13 scroll up**.
4. Press **5 enter** to validate your choice. The next calibration will appear on the screen.
5. Continue with the next step or press **14 escape** to exit the calibration mode.



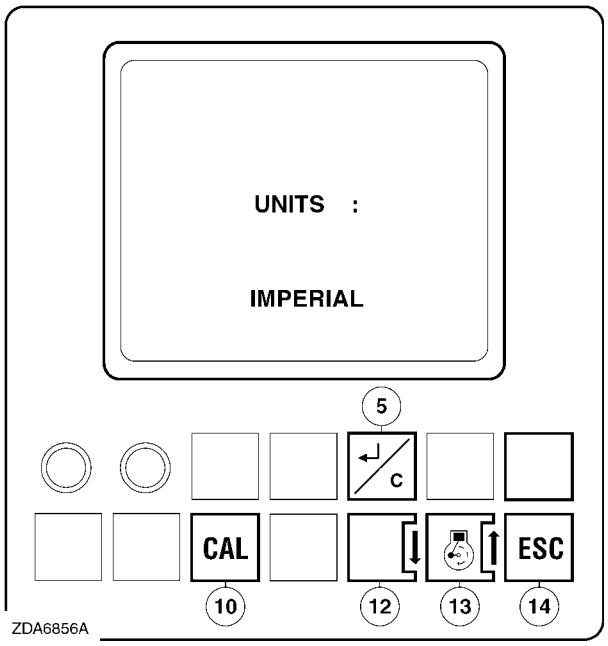
120

Units

The machine has been calibrated **metric** ex factory. Units can be displayed metric or imperial.

To change to **imperial**, proceed as follows:

1. Press **10 calibration** to select the calibration mode.
2. Select **Page 1**/ **type** , using **13 scroll up** and press **5 enter** until “Units” appears on the screen.
3. Select the unit system of your choice using **12 scroll down** or **13 scroll up**.
4. Press **5 enter** to validate your choice. The next calibration will appear on the screen.
5. Continue with the next step or press **14 escape** to exit the calibration mode.



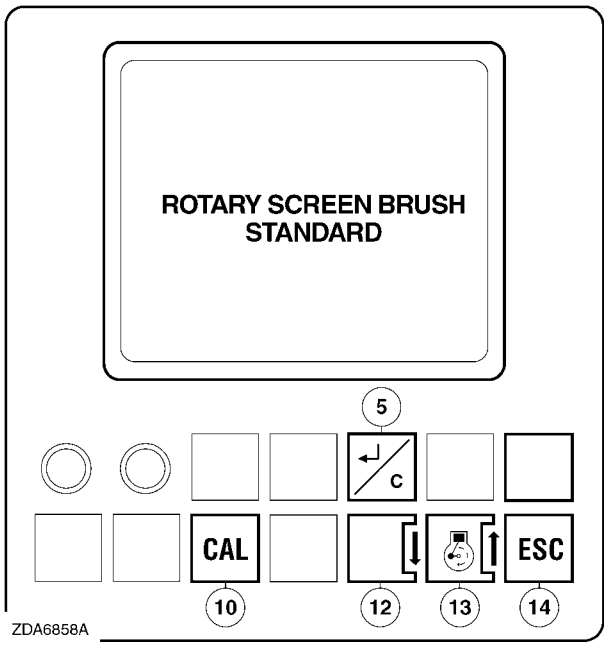
121

Rotary screen brush

If rotary screen brushes are installed inside the rotary screens, it is possible to change their frequency of operation: standard or frequent.

Proceed as follows:

1. Press **10 calibration** to select the calibration mode.
2. Select **Page 1**/ **type** , using **13 scroll up** and press **5 enter** until “Rotary screen brush” appears on the screen.
3. Select “standard” or “frequent” using **12 scroll down** or **13 scroll up**.
4. Press **5 enter** to validate your choice. The next calibration will appear on the screen.
5. Continue with the next step or press **14 escape** to exit the calibration mode.



122

Left minimum spoutspeed

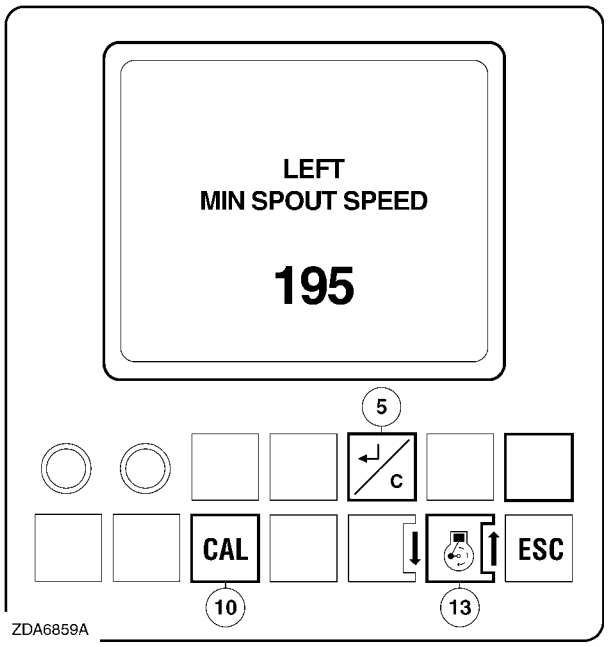
The spout rotation speed is controlled by means of a proportional valve. This means the oil flow through the valve can be changed by means of the voltage level on the valve’s solenoids.

Through this calibration we can calibrate the voltage to the valve. A value can be selected between 80 and 245. These values correspond with spout rotation speeds between very slow and maximum speed.

NOTE: *A value of 195 will correspond with a full rotation time of approximately 25 seconds.*

For the left minimum spoutspeed, proceed as follows:

1. Press **10 calibration** to select the calibration mode.
2. Select **Page 1**/ **type** , using **13 scroll up** and press **5 enter** until “Left min spout speed” appears on the screen.
3. Select a value between 80 and 245 using **12 scroll down** or **13 scroll up**.
4. Press **5 enter** to validate your choice. The next calibration will appear on the screen.
5. Continue with the next step or press **14 escape** to exit the calibration mode.



123

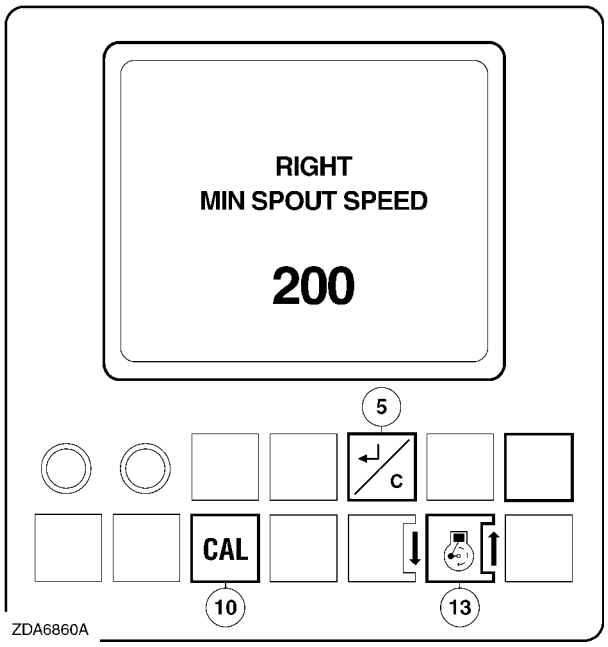
Right minimum spoutspeed

The spout speed to the left and to the right can be calibrated differently.

NOTE: *The same value for the left and right minimum spoutspeed does not necessary result in a same speed.*

To calibrate right minimum spoutspeed, proceed as follows:

1. Press **10 calibration** to select the calibration mode.
2. Select **Page 1**/ **type** , using **13 scroll up** and press **5 enter** until “Right min spout speed” appears on the screen.
3. Select a value between 80 and 245 using **12 scroll down** or **13 scroll up**.
4. Press **5 enter** to validate your choice. The next calibration will appear on the screen.
5. Continue with the next step or press **14 escape** to exit the calibration mode.



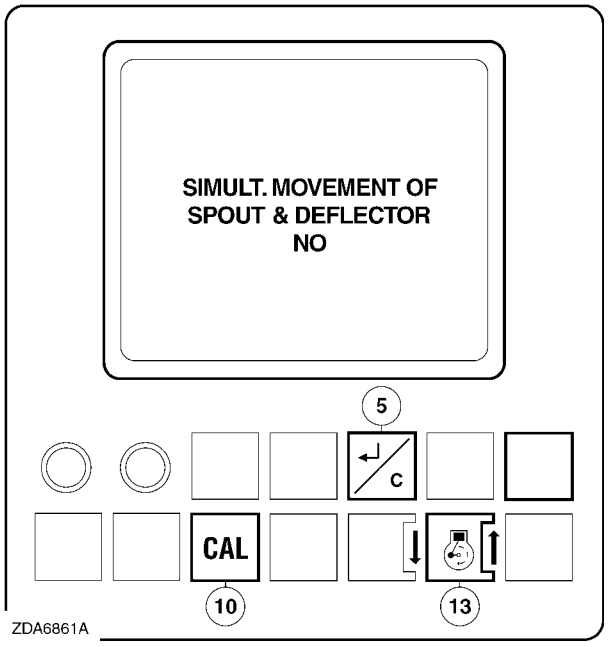
124

Simultaneous movement of spout and deflector

The spout rotation and the spout deflector are controlled by means of a switch in the multifunction lever. Normally these two functions cannot be operated simultaneously.

To control both functions at the same time, calibrate as follows:

1. Press **10 calibration** to select the calibration mode.
2. Select **Page 1**/ **type** , using **13 scroll up** and press **5 enter** until “Simult. movement of spout & deflector” appears on the screen.
3. Select “No” or “Yes” using **12 scroll down** or **13 scroll up**.
4. Press **5 enter** to validate your choice. The next calibration will appear on the screen.
5. Continue with the next step or press **14 escape** to exit the calibration mode.



125

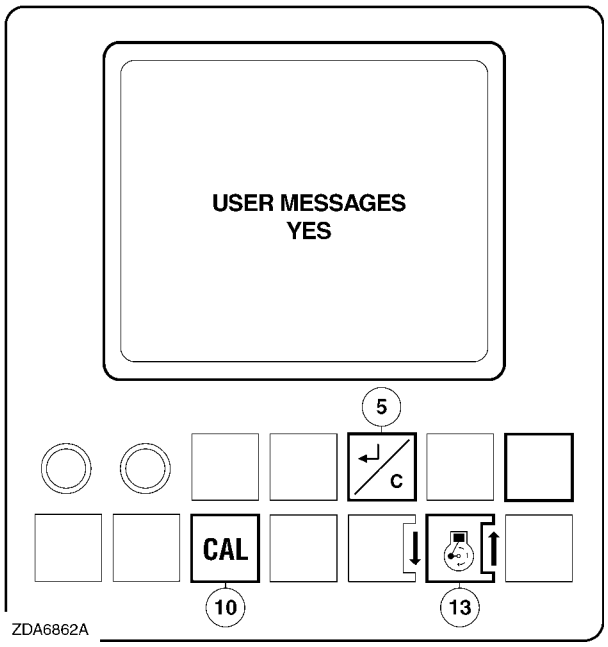
User messages

If a wrong operation is carried out, a user message will be displayed on the InfoView™ monitor screen in order to inform the operator.

This is also the case when certain errors or alarms occur.

In order to suppress these messages, the following calibration has to be carried out:

1. Press **10 calibration** to select the calibration mode.
2. Select **Page 1**/ **type** , using **13 scroll up** and press **5 enter** until “User messages” appears on the screen.
3. Select “No” or “Yes” using **12 scroll down** or **13 scroll up**.
4. Press **5 enter** to validate your choice. The next calibration will appear on the screen.
5. Continue with the next step or press **14 escape** to exit the calibration mode.



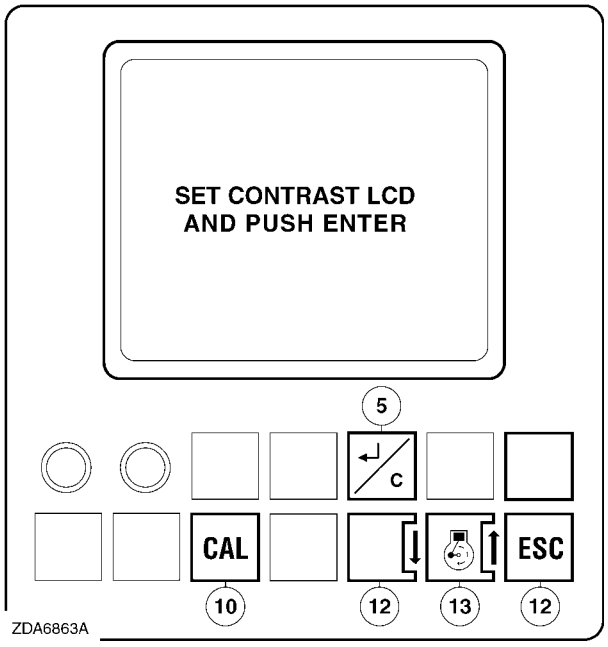
126

Monitor screen contrast

The InfoView™ monitor screen contrast can be adjusted as follows:

1. Press **10 calibration** to select the calibration mode.
2. Select **Page 1**/ **type** , using **13 scroll up** and press **5 enter** until “Set contrast LCD” appears on the screen.
3. Select the correct monitor contrast using **12 scroll down** or **13 scroll up**.
4. Press **5 enter** to validate your choice.
5. At the bottom of the screen “CAL/SET COMPLETE” will appear indicating all calibrations of **page 1**/**Type** are done.
6. Press **14 escape** to exit the calibration mode.

NOTE: *If 14 escape is not pressed within 5 seconds, the monitor will automatically exit the calibration mode.*



127

Attachment width

It is important to calibrate the attachment width correctly to obtain an accurate hectare count.

When setting the attachment width for grass the total width of the grass that was mown and/or raked for one swath should be taken into account.

For maize, the number of rows of the row crop attachment and the row spacing have to be calibrated.

To calibrate the attachment width, proceed as follows:

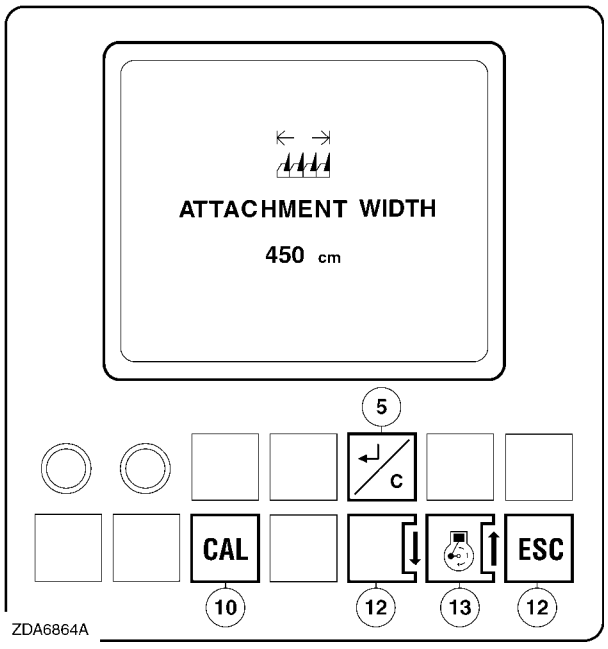
1. Press **10 calibration** to select the calibration mode.
2. **Page 2**/**attachment** is automatically selected when you enter the calibration mode.
   Press **3 enter**.
3. “Attachment width” appears on the screen.

NOTE: *A number will be displayed. This will either be a width that is used for a pick-up attachment as shown in Figure 128, or for row crop attachments, as shown in Figure 129.*

4. Press **12 scroll down** or **13 scroll up** to select the correct attachment.

NOTE: *When these buttons are pressed for a longer period, the speed at which the number changes will increase. The number will automatically change from “grass” to “maize” and vice versa.*

5. Press **5 enter** to validate your choice. The next calibration will appear on the screen.
6. Continue with the next step or press **14 escape** to exit the calibration mode.



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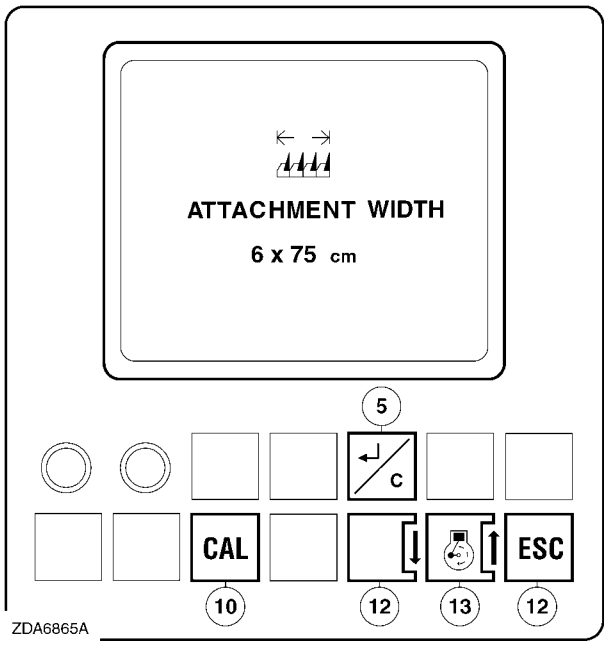


129

Knife speed protection

1. Press **10 calibration** to select the calibration mode.

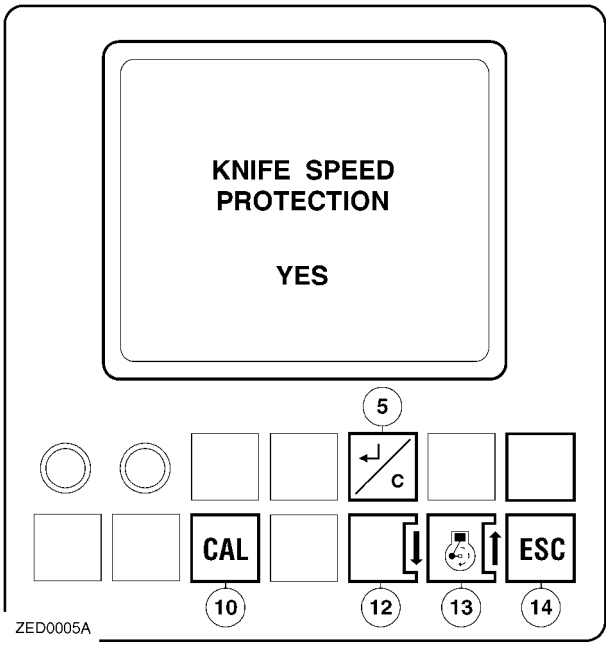
2. **Page 2**/**attachment** is automatically selected when you enter the calibration mode.
   Press **3 enter** until “Knife speed protection” appears on the screen.

3. Select “No” or “Yes” using **12 scroll down** or **13 scroll up**.

4. Press **5 enter** to validate your choice. The next calibration will appear on the screen.

5. Continue with the next step or press **14 escape** to exit the calibration mode.

NOTE: *When working with the DC510 Direct cut attachment, the knife speed protection must be activated.*



130

Attachment height control calibration

Purpose

To obtain a correct functioning of the attachment compensation and stubble height.

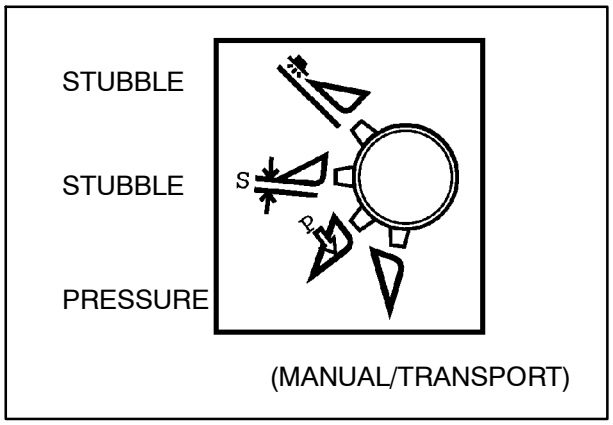
When to calibrate

The calibration is carried out:

- At the first start-up (i.e. at the factory)
- When changing the wheel size
- When changing the attachment
- When system components are replaced.

NOTE: *To perform the calibration, the attachment has to be attached.*

Before carrying out the calibration, check the adjustment of the attachment height potentiometer.



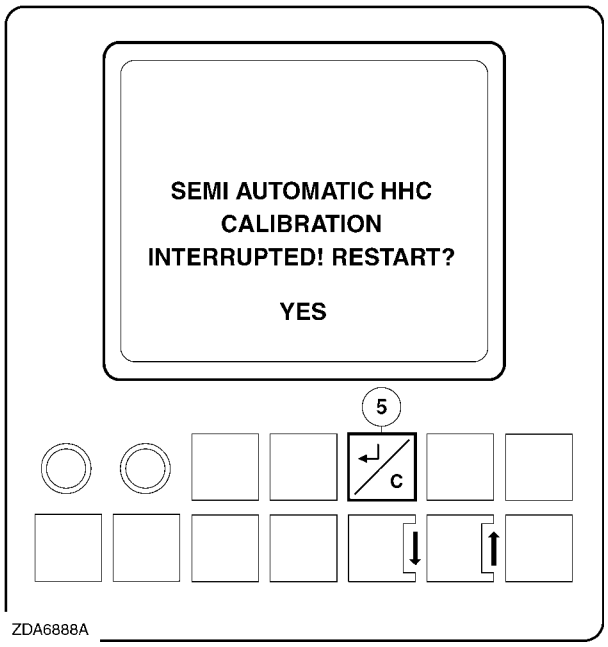
131

Whenever the semi-automatic attachment height control calibration is interrupted, this screen (Fig. 132) will appear.

In order to restart the calibration:
press **3 enter**

The interrupted part of the calibration sequence will now be restarted.
Previous parts of this calibration sequence will be kept.

NOTE: *In case the calibration sequence was interrupted by pressing ESC or switching off the ignition, the calibration sequence has to be repeated completely.*



132

Calibration of header height control

The attachment height control can be calibrated as follows:

1. Lift the attachment.

2. Press **10 calibration** to select the calibration mode.

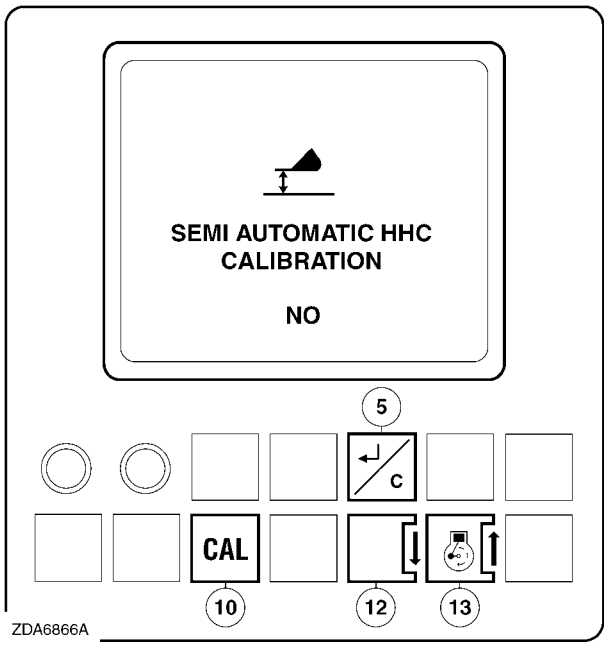
3. **Page 2**/**attachment** is automatically selected when you enter the calibration mode.
   Press **5 enter** until "Semi automatic HHC calibration" appears on the screen.

4. Select "No" or "Yes" using **12 scroll down** or **13 scroll up**.

NOTE: *Select "YES" to proceed with the HHC calibration, select "NO" to skip the HHC calibration and continue with the next calibration.*

NOTE: *For the following steps it is assumed "YES" has been selected and so, the following steps will explain the HHC calibration.*

5. Press **5 enter** to validate your choice. The next step of the HHC calibration will appear on the screen (Fig. 134).

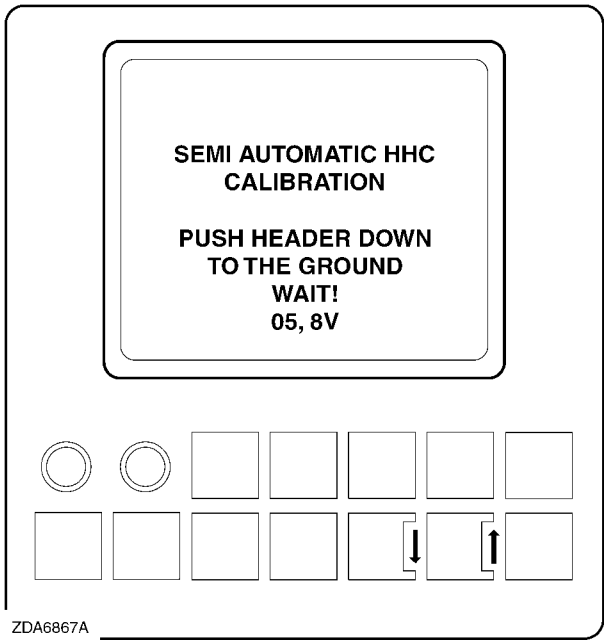


133

Calibration of ground level and sensor range

Now the semi-automatic attachment height control calibration sequence is started.

Push attachment down for at least two seconds. The attachment will now automatically lower to ground level.



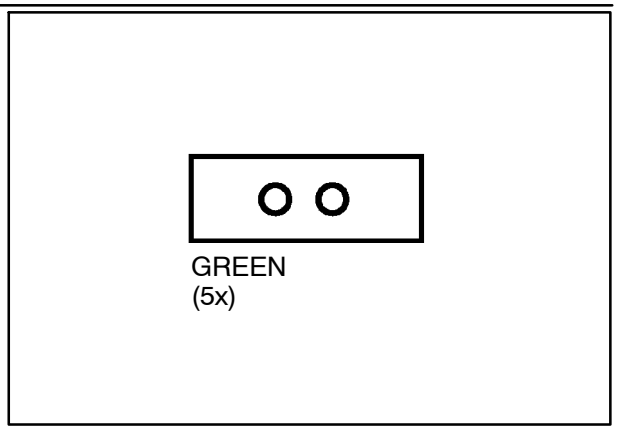
134

Wait until the green LED has blinked five times and the InfoView™ monitor has beeped.

⚠ CAUTION ⚠

The automatic lowering of the attachment can be interrupted by pushing ATTACHMENT UP.

The InfoView™ monitor will automatically switch to the next page (Figure 136).



135

Push attachment up for at least two seconds. The attachment will now automatically be raised to its upper position.

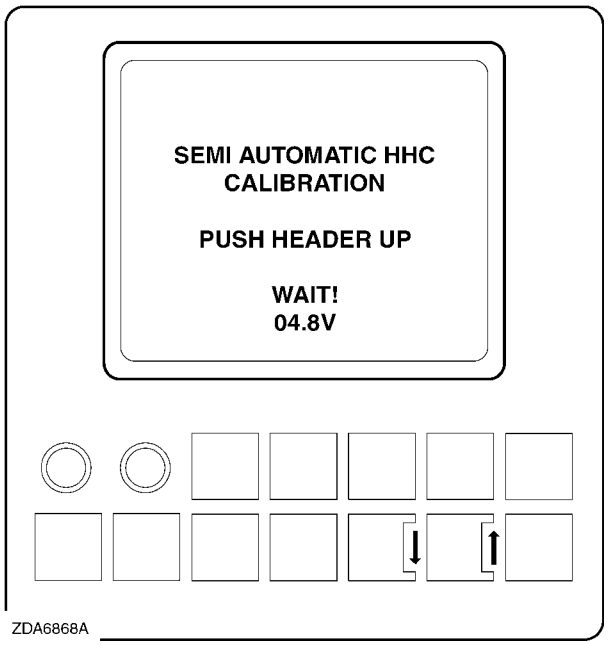
Wait until the InfoView™ monitor has beeped.

Ground level has now been calibrated and the attachment height sensor range has been checked.

⚠ CAUTION ⚠

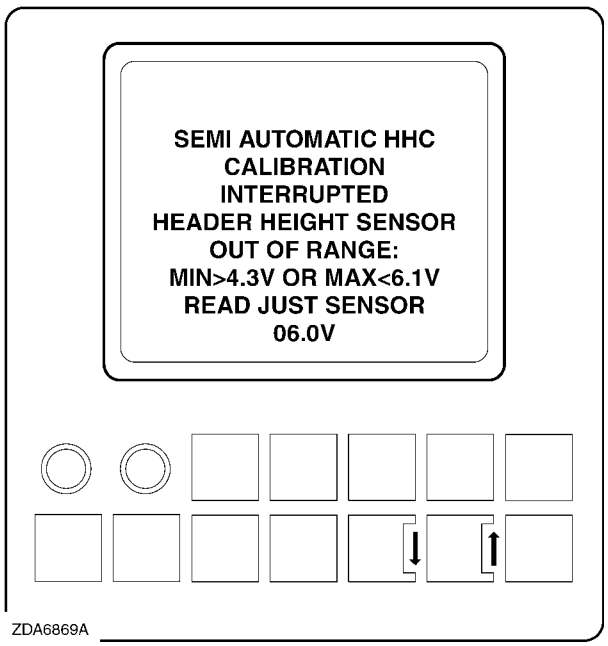
The automatic lifting of the attachment can be interrupted by pushing attachment DOWN.

The InfoView™ monitor will automatically switch to the next step (Figure 138).



136

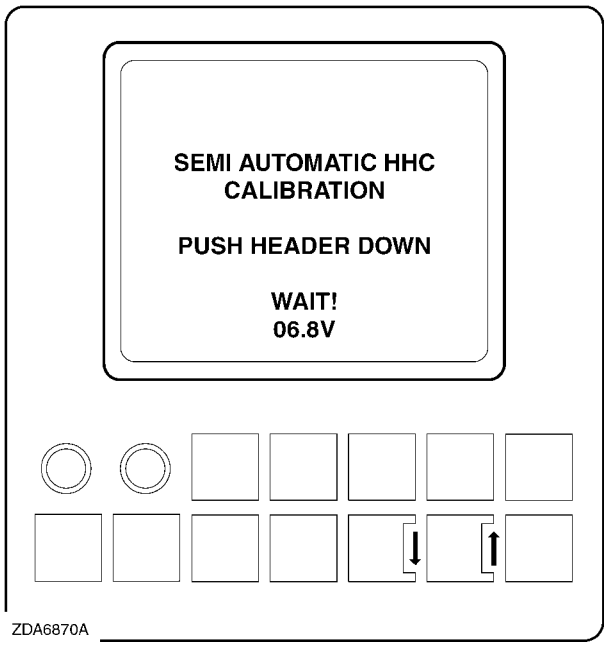
NOTE: *In case the attachment height sensor range is not correct, the calibration sequence will be interrupted by the following screen on the InfoView ™ monitor screen.*
Readjust the sensor as described in section 4 "Lubrication and Maintenance", paragraph headed "Attachment height sensor".



137

Calibration of pressure in the hydraulic cylinders

Push attachment down for at least two seconds. The attachment will automatically lower to just above ground level.



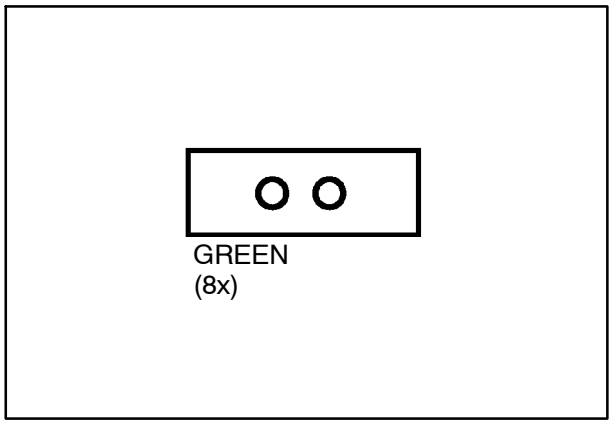
138

Wait until green LED has blinked eight times and the InfoView™ monitor has beeped!

CAUTION

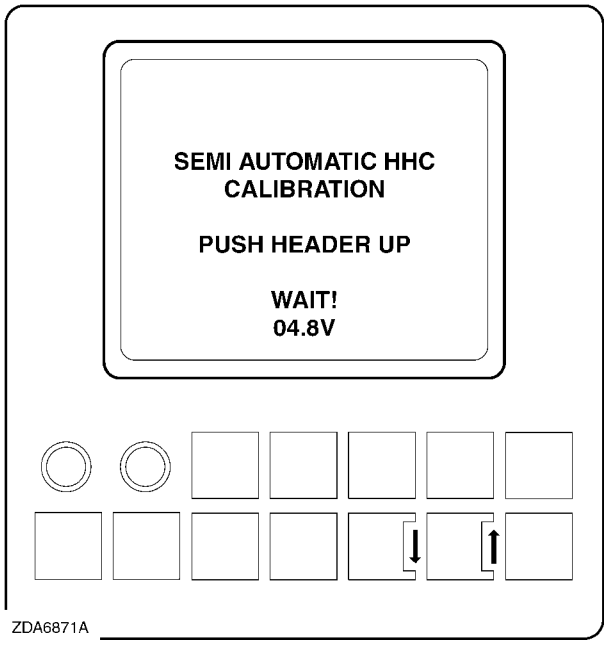
The automatic lowering of the attachment can be interrupted by pushing ATTACHMENT UP

The InfoView™ monitor will automatically switch to the next step (Figure 140).



139

Push attachment up for at least two seconds. The attachment will automatically be raised to its upper position and then lowered to a level just under the upper position.

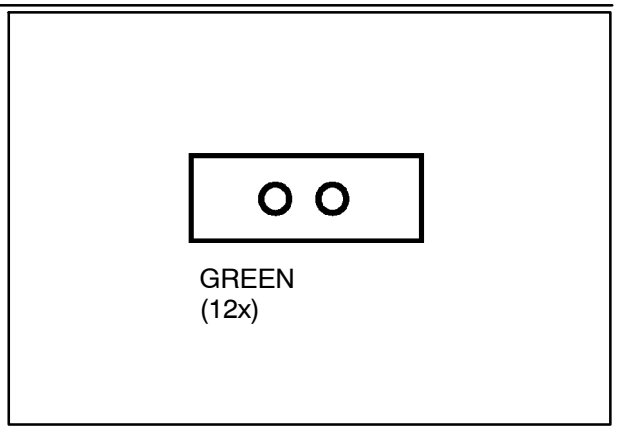


140

Wait until the green LED has blinked 12 times and the InfoView™ monitor has beeped.

CAUTION

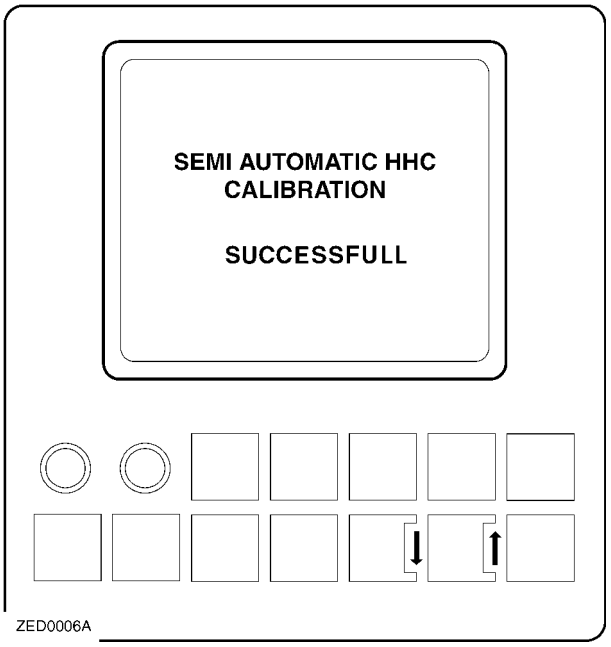
The automatic lifting of the attachment can be interrupted by pushing ATTACHMENT DOWN. As the attachment has to lower automatically after it has reached its upper level, is it important not to push ATTACHMENT UP longer than necessary, otherwise the calibration will be interrupted.



141

The pressure in the hydraulic cylinders has now been calibrated.

The text "semi automatic HHC calibration successful" will appear on the screen. After a few seconds the InfoView™ monitor will automatically switch to the calibration of the attachment height.



142

Attachment height

NOTE: *Before calibrating the attachment height, start the engine first.*

The correct calibration of the attachment height will give an accurate read-out of the attachment height indication and an accurate hectare counting.

The attachment height has to be recalibrated whenever the wheels or the attachment are changed. In this case, also the attachment height sensor has to be readjusted (refer to section 4 "Lubrication and Maintenance", paragraph headed "Attachment height sensor").

1. Press **10 calibration** to select the calibration mode.

2. **Page 2**/**attachment** is automatically selected when you enter the calibration mode.
   Press **5 enter** until "Calibrate height" appears on the screen.

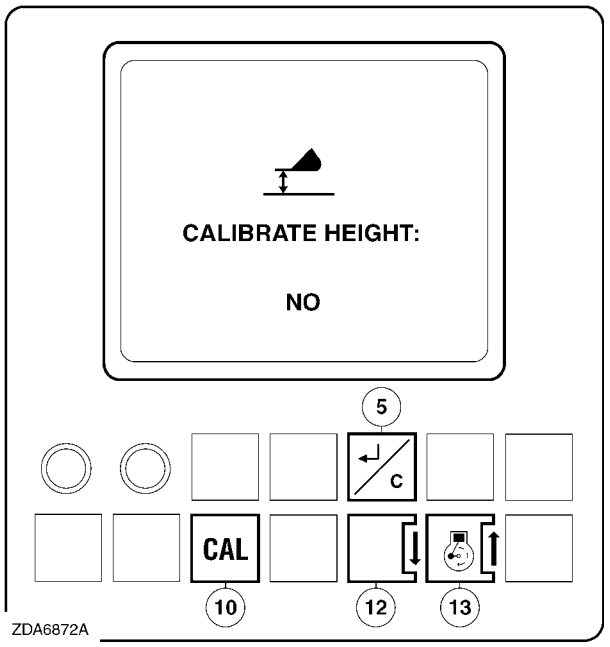
3. "No" is automatically selected when you enter the height calibration.

   Press **5 enter** to skip the height calibration.
   "CAL/SET COMPLETE" will appear at the bottom of the screen indicating all calibrations of **page 2**/**attachment** are done.

NOTE: *If 14 escape is not pressed within 5 seconds, the monitor will automatically exit the calibration mode.*

4. Select "Yes" using **12 scroll down** or **13 scroll up** to proceed with the height calibration.

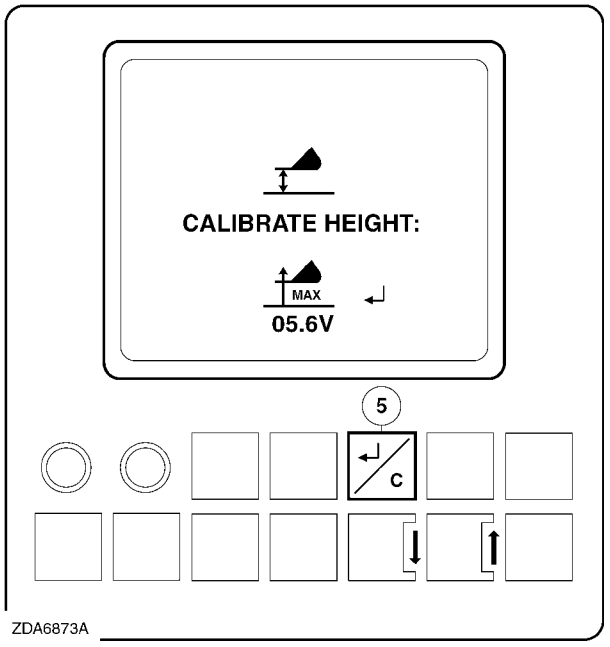
5. Press **5 enter** to validate your choice. The next step will appear on the screen.



143

6. Set the attachment in the **maximum height** position [own choice]. Above this height the hectare counter will stop counting.

7. Press **5 enter** to validate.



144

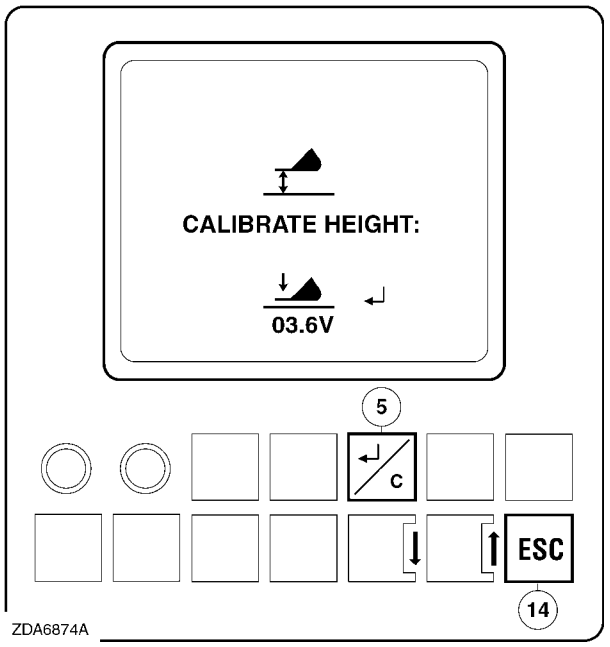
8. Lower the attachment to the ground or lowest level of operation.

9. Press **5 enter** to validate.

10. "CAL/SET COMPLETE" will appear at the bottom of the screen indicating all calibrations of **page 2**/**attachment** are done.

11. Press **14 escape** to exit the calibration mode.

NOTE: *If 14 escape is not pressed within 5 seconds, the monitor will automatically exit the calibration mode.*



145

Ground speed tuning

The ground speed tuning has to be changed when a different size of traction wheels is installed on the machine.

In this case the ground speed tuning has to be changed for 2 reasons:

- To obtain an accurate ground speed read-out on your InfoView™ monitor.
- To perform accurate hectare counting.

The ground speed tuning is set at 1000 when the original tyres are installed.

There are 2 ways to determine the right ground speed tuning:

- Tyre dynamic radius
- Driving a determined distance

1 - Tyre dynamic radius

Change the ground speed tuning upon installation of different tyres in the following way:

$$\frac{\text{Tyre dynamic radius new tyres (mm)}}{\text{Tyre dynamic radius old tyres (mm)}} \times \text{old ground speed tuning}$$

NOTE: *All machines have the ground speed tuning set at 1000 ex-factory.*

Find in the table below the correction factor for the different tyres (between brackets the tyre dynamic radius).

New tyre size / **Old tyre size**	750/65R26 (765)	620/75R30 (810)	650/75R32 800/65R32 (863)	900/55R32 (873)	1050/50R32 (875)
750/65R26 (765)	1	1.059	1.128	1.141	1.144
620/75R30 (810)	0.944	1	1.065	1.078	1.080
650/75R32 (863) 800/65R32	0.886	0.939	1	1.012	1.014
900/55R32 (873)	0.876	0.928	0.989	1	1.002
1050/50R32 (875)	0.874	0.926	0.986	0.998	1

Example:

620/75R30 tyres are installed ex-factory.
Ground speed tuning = 1000

New tyres 650/75R32 are installed.
Correction factor = 1.065
Ground speed tuning = 1.065 x 1000 = 1065

If again new tyres 900/55R32 are installed.

Correction factor = 1.012 (old tyre 650/75R32)
Ground speed tuning = 1.012 x 1065 = 1078

which equals to

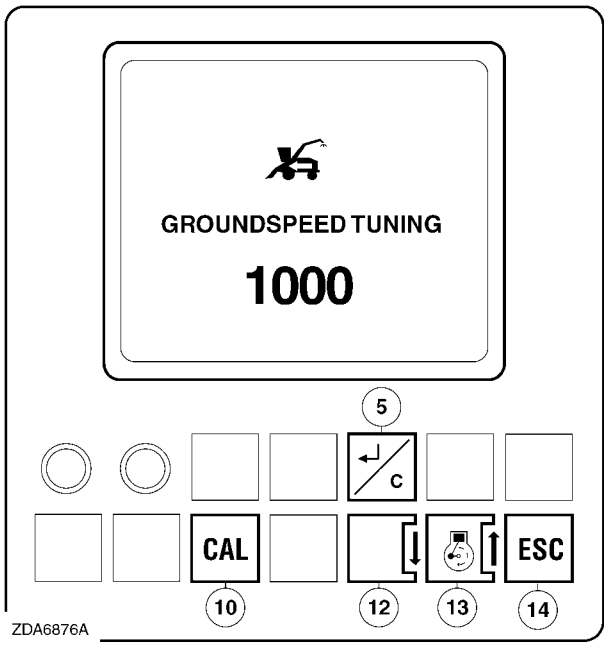
Correction factor = 1.078 (old tyre 620/75R30)
Ground speed tuning = 1.078 x 1000 = 1078

2 - Driving a determined distance

For this method, a known distance (e.g. 1 km or 1 mile) has to be driven.

Proceed as follows:

1. The ground speed tuning has to be set at 1000.



146

2. Press **7 hectare** to select the hectare counter mode.

   On the right-hand side of the bottom line a distance will be displayed (Figure 147). Now position the forage harvester at the beginning of the known distance.

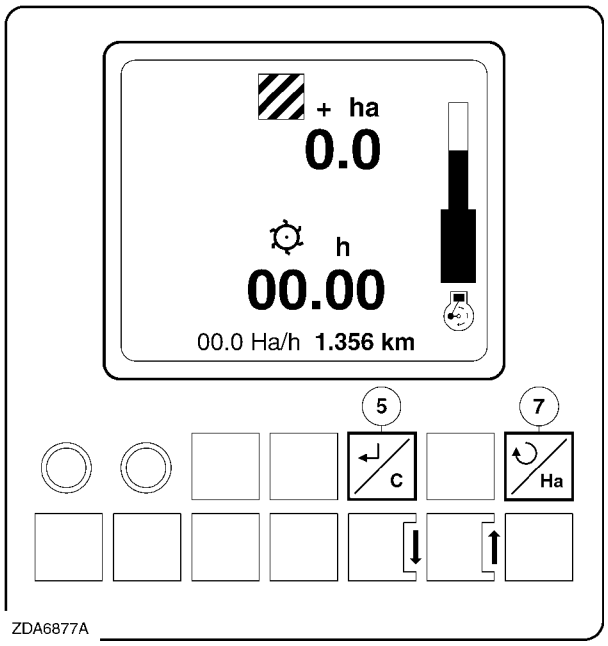
3. Press **5 clear** to reset the distance on the screen.

4. The distance shown on the screen will now be 0. Now drive the determined distance.

5. When the determined distance has been driven, a distance will be displayed on the monitor screen.

   Calculate the groundspeed tuning as follows:

$$\text{Ground speed tuning} = \frac{1000 \times \text{distance on monitor}}{\text{Real distance}}$$



147

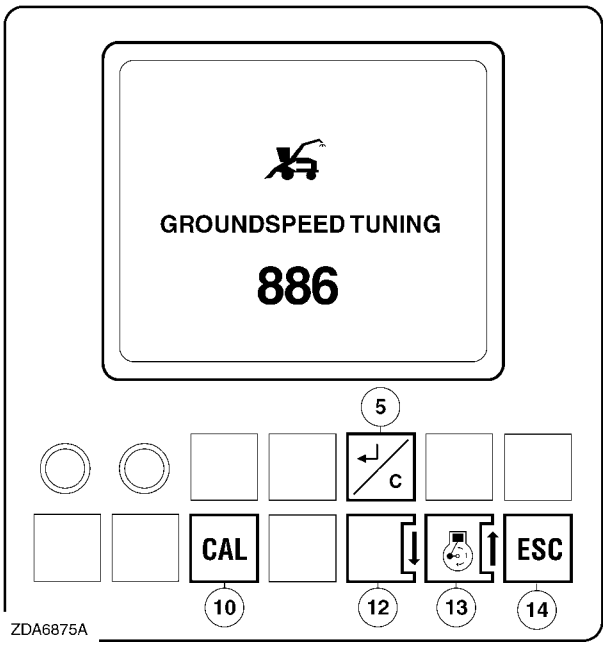
To change the ground speed tuning, proceed as follows:

1. Press **10 calibration** to select the calibration mode.
2. Select **Page 3/groundspeed** , using **12 scroll down** and press **5 enter**.
3. Set the correct groundspeed tuning using **12 scroll down** and/or **13 scroll up**.

NOTE: *A value can be set from 500 to 5000.*

4. Press **5 enter** to validate.
5. "CAL/SET COMPLETE" will appear at the bottom of the screen indicating all calibrations of **page 3/ground speed** are done.
6. Press **14 escape** to exit the calibration mode.

NOTE: *If 14 escape is not pressed within 5 seconds, the monitor will automatically exit the calibration mode.*



148

Crop processor

If a crop processor is installed, it has to be calibrated.

The calibration is carried out either ex factory or by your dealer.

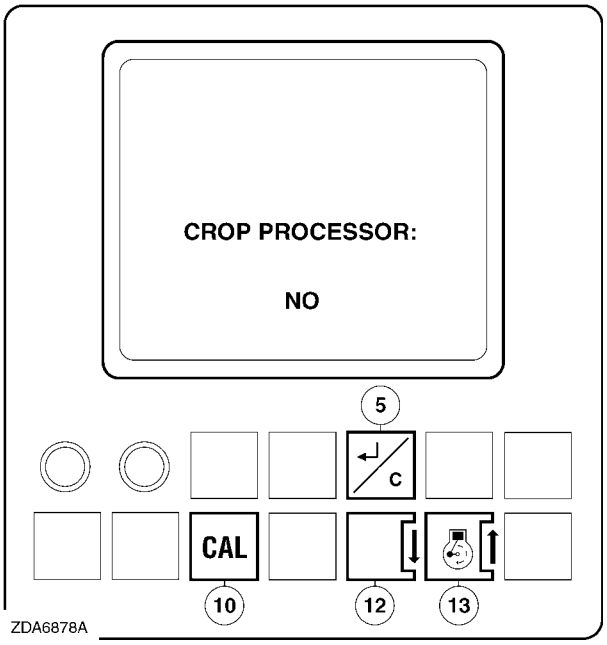
NOTE: *Every time the crop processor is removed from the machine (e.g. for repair or for the grass season) or reinstalled, these calibrations have to be made again.*

Proceed as follows:

1. Press **10 calibration** to select the calibration mode.
2. Select **Page 4/Crop processor** , using **12 scroll down** and press **5 enter**.
3. If a crop processor is installed, select "YES" or if no crop processor is installed, select "NO" using **12 scroll down** and/or **13 scroll up**.
4. Press **5 enter** to validate.

   If "NO" is selected, "CAL/SET COMPLETE" will appear at the bottom of the screen indicating all calibrations of **page 4/crop processor** are done. Press **14 escape** to exit the calibration mode.

NOTE: *If 14 escape is not pressed within 5 seconds, the monitor will automatically exit the calibration mode.*



149

If “YES” is selected, Continue with step 5.

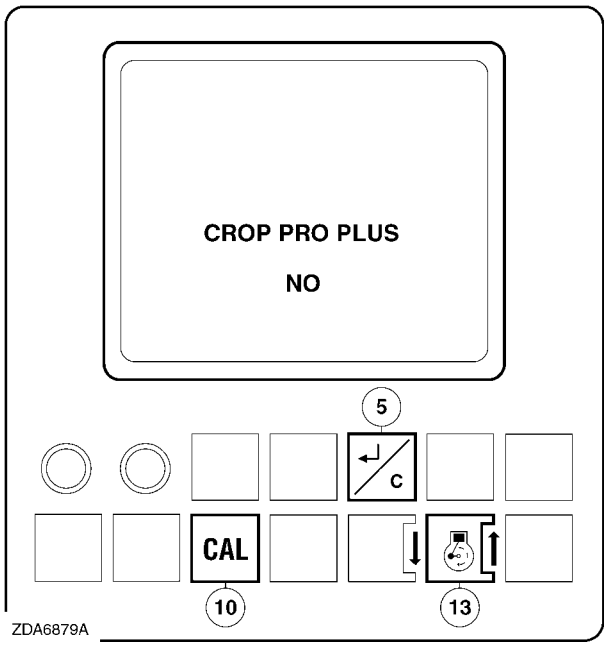
5. The forage harvester can be equipped with a standard crop processor or with a Crop Pro Plus processor.

   Select “YES” if a Crop pro Plus processor is installed or “NO” if a standard crop processor is installed using **12 scroll down** and/or **13 scroll up**.

6. Press **5 enter** to validate.

   If “YES” is selected, the calibration will continue with step 8.

   If ’NO” is selected, the next step will appear on the screen.



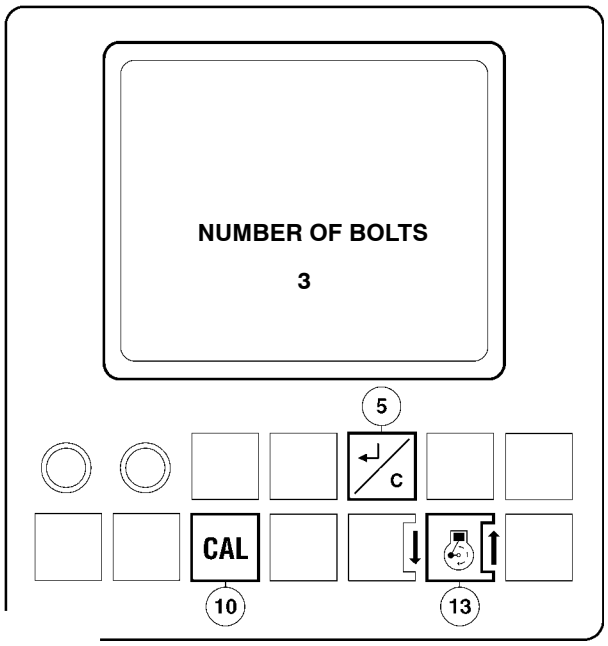
150

7. To give an accurate read-out of the actual crop processor roll speed in the speed mode of the InfoView™ monitor, the number of bolts of the lower crop processor roll fixation must be calibrated.

   Select the number bolts installed, “3” or “6” using **12 scroll down** and/or **13 scroll up**.

   Press **5 enter** to validate. The next step will appear on the screen.

NOTE: *This calibration is only required when a standard crop processor is installed.*

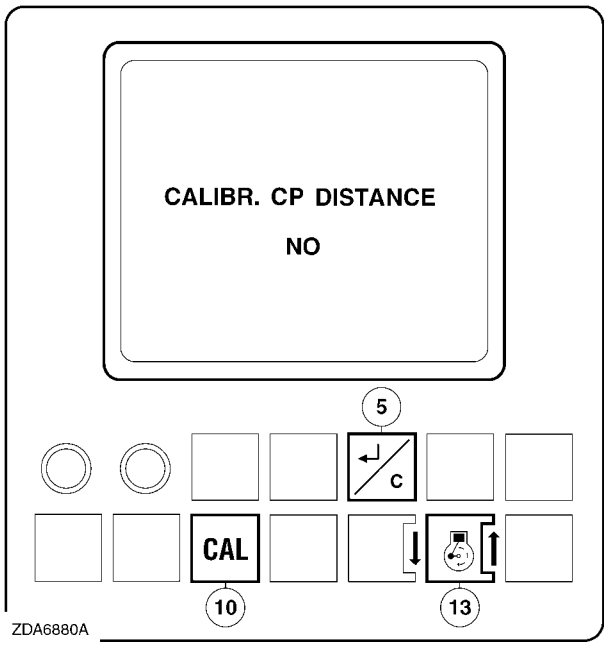


151

8. To give an accurate read-out of the actual crop processor roll clearance in the speed mode of the InfoView™ monitor, the crop processor roll clearance must be calibrated.

   Select “YES” or “NO” using **12 scroll down** and/or **13 scroll up**.

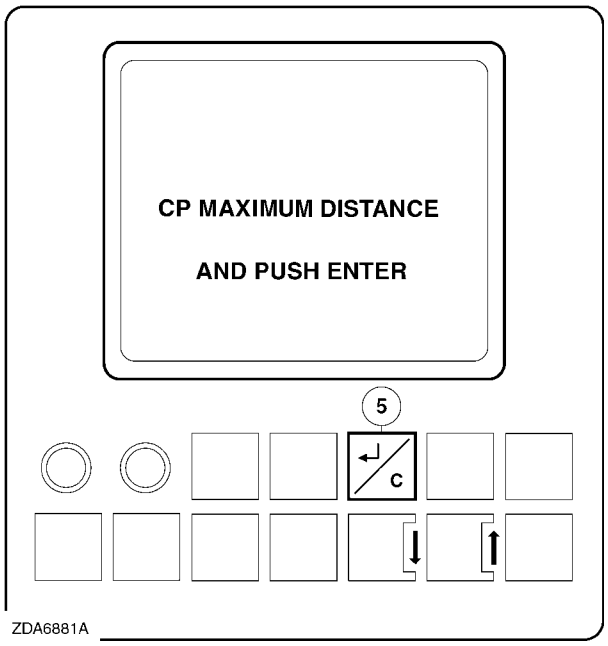
9. Press **5 enter** to validate. The next step will appear on the screen.



152

10. Set the crop processor rolls their maximum clearance (20 mm or 18 mm for Crop pro Plus), either manually or electrically.

11. To confirm maximum clearance: press **3 enter**. The next step will appear on the screen.



153

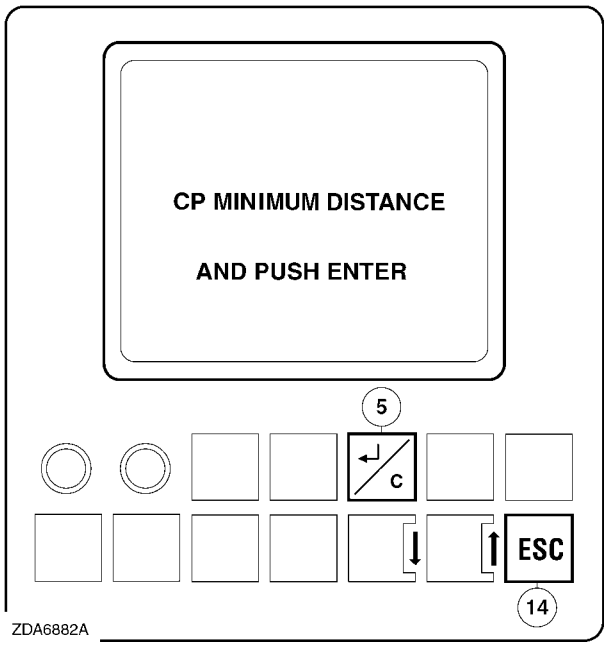
12. Set the crop processor rolls to their minimum clearance of 2 mm.

13. To confirm minimum clearance: press **3 enter.**

14. "CAL/SET COMPLETE" will appear at the bottom of the screen indicating all calibrations of **page 4/crop processor** are done.

15. Press **14 escape** to exit the calibration mode.

NOTE: *If 14 escape is not pressed within 5 seconds, the monitor will automatically exit the calibration mode.*



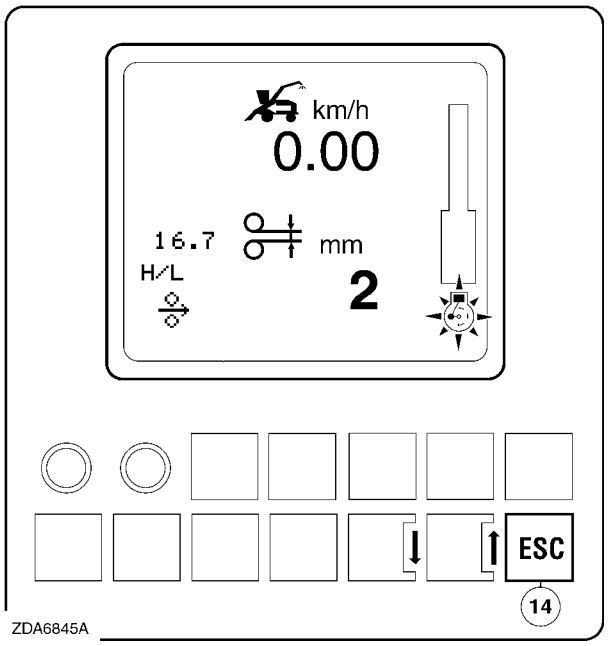
154

To check whether calibration was successful:

1. Select the speed mode.

2. Press the crop processor roll clearance switch.

3. A roll clearance of 2 mm should show up on the InfoView™ monitor screen.



155

Date & Time

It is necessary to correctly calibrate the date and time in order to accurately store data (hectare counter results) or to obtain the accurate dates on the error read-outs.

To calibrate date and time, proceed as follows:

1. Press **10 calibration** to enter the calibration mode.

2. Select **Page 5/date and time**
   press **12 scroll down** 3 times
   5 enter

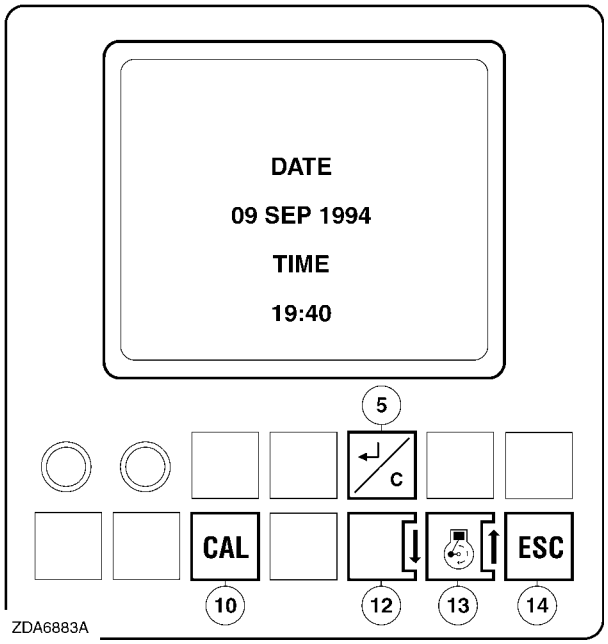
   On the monitor screen date and time will appear

   The date (day and month), **year** and **time** can be selected separately
   press **5 enter**

   The selected item will start blinking. At that time it can be adjusted:
   press **12 to scroll down** or
   13 scroll up and
   5 enter

NOTE: *Pressing the scroll buttons for more than two seconds will increase the speed of change.*

   To return to speed mode,
   press **14 escape**



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METAL DETECTOR DIAGNOSTIC PAGE

General

The InfoView™ monitor of your forage harvester contains a metal detector diagnostic page.

This diagnostic page is recalled whenever:

- The scroll down key 10 of the InfoView™ monitor is pressed.
- A metal detection has taken place.

NOTE: *The numbers beside the bargraph are not shown in the illustrations.*

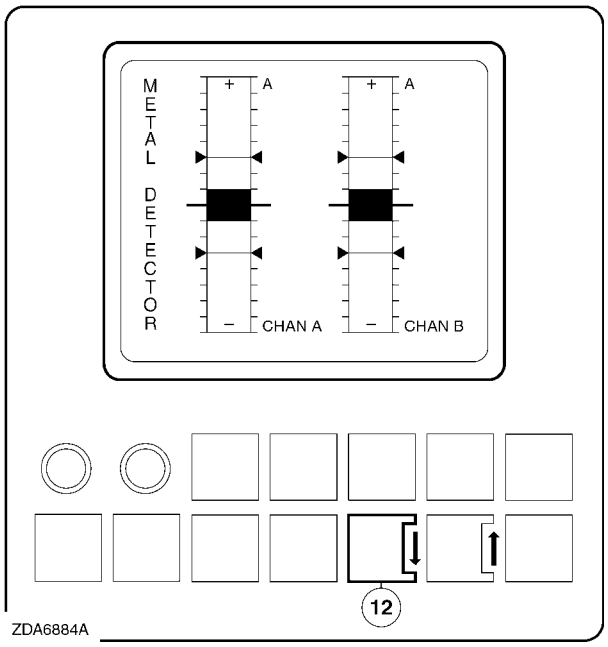
The metal detector diagnostic page provides the following information:

- The Mode in which the metal detector is working. The bargraphs will either be marked “A” or “F” at the top.

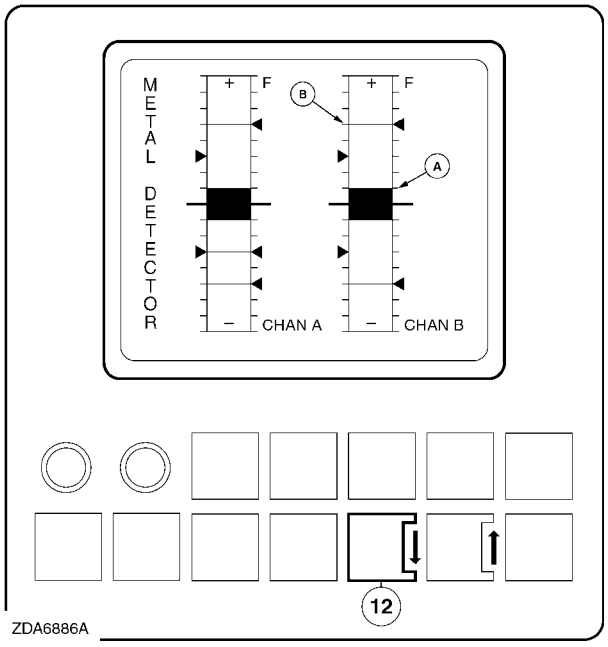
  “A” stands for Adaptive Mode.

  “F” stands for Fixed Mode.

- The magnetic noise A of the feed rolls.
  A good magnetic noise (with the feed rolls engaged, engine at full speed) is situated between 1 to 4 blocks above and 1 to 4 blocks below the centre line that divides positive and negative measurements.
  This black section will grow in time, due to wear of the feed rolls (stone damage,...).
- The sensitivity levels B are represented by lines across the width of the bargraphs. In total there are 4 of these lines.
- Noise created by metal detection.
  When the magnetic noise exceeds the sensitivity levels, a metal detection will take place.



157



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Adjustment

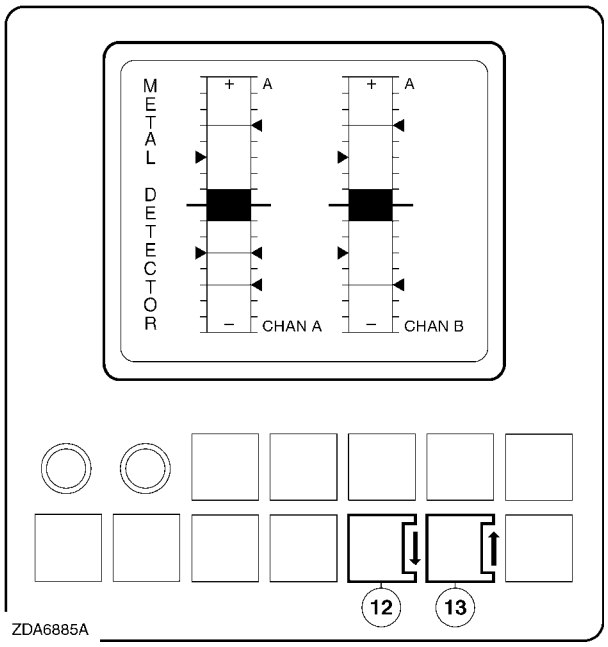
In the Adaptive Mode the sensitivity will automatically be adjusted in function of the level of the magnetic noise of the feed rolls.

To override the Adaptive Mode manually, switch into the Fixed Mode.

To switch from one mode to the other:

simultaneously press **12 scroll down** and **13 scroll up** .

The sensitivity level of your metal detector in Fixed Mode can be adjusted through the InfoView™ monitor:



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1. Select the highest feed roll speed or the highest speed normally used for grass harvesting.

NOTE: *It is not necessary to fit any attachment.*

2. Start the engine, and engage the cutterhead and the feed rolls. Do not increase throttle to maximum rpm.

⚠ WARNING ⚠

Make sure all the safety guards are properly closed, exhaust fumes are aspirated and nobody is standing near the machine, especially not in front of the chopper body.

3. Press **12 scroll down** to recall the metal detector diagnostic page on the InfoView™ monitor.

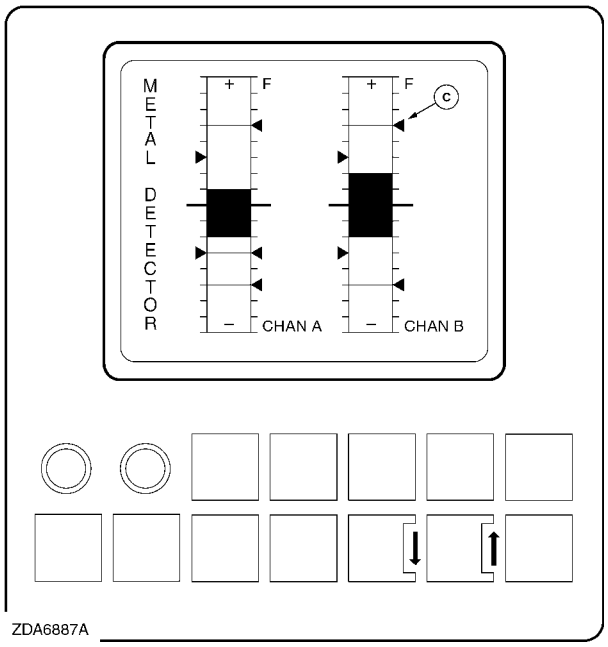
   If the metal detector diagnostic page is in Adaptive Mode, switch to Fixed Mode first.

4. Run the engine to 2100 rpm with the cutterhead and the feed rolls still engaged.

5. You will see the black section A in both bargraphs slightly increase in size.

6. To the right-hand side of the line are arrows C.

NOTE: *The arrows to the left-hand side of the bargraph indicate the adaptive sensitivity level. In the Fixed Mode, these are purely informative.*



160

The sensitivity levels have to be adjusted manually to 1 1/2 blocks away from the maximum noise level.

press **12 scroll down** or
13 scroll up

The arrows will all move simultaneously.

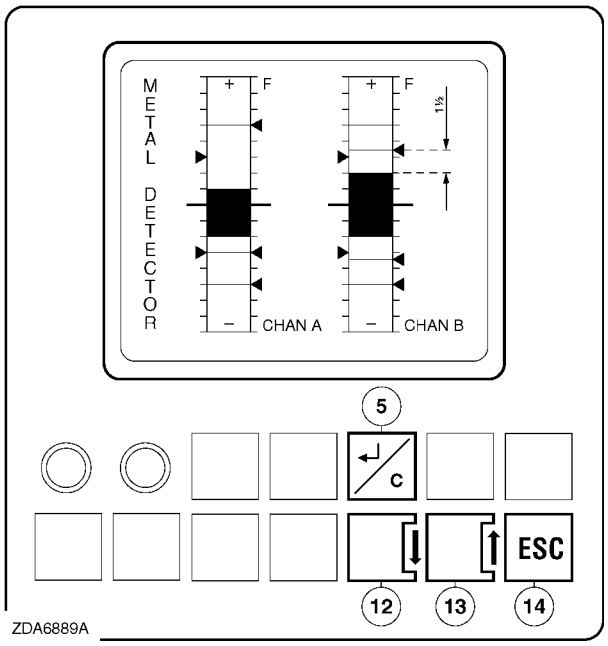
Confirm the new settings,

press **5 enter**

The sensitivity level lines will line up with the right-hand side arrows.

Return to the speed mode

press **14 escape**



161

7. Reduce the engine rpm, disengage all drives and stop the engine.

8. Your machine is now ready for work and will offer the best combination of:

   - Maximum sensitivity, and
   - Minimum risk of false detections.

USER MESSAGES

In order to help the operator to become acquainted to the way the machine is operated and to draw his attention to a wrong operation, so-called user messages appear on the screen.

User messages are also used to inform the operator about potentially dangerous situations, e.g. when the metal detector is switched off or when the automatic engine shutdown safety device is disabled.

In the following situations user messages will appear on the InfoView monitor:

SITUATION	USER MESSAGE
A function that requires the engagement of the SAFE HARVEST function (e.g. cutterhead, spout control, Adjust-O-Matic™ - See chapter 2.3) is tried to be activated although the safe harvest function is not engaged.	ENGAGE SAFE HARVEST FUNCTION
The SAFE HARVEST switch is switched ON, but the SAFE HARVEST function is not activated, e.g. because the ignition was switched OFF and ON, and a harvest function is tried to be activated.	RESET SAFE HARVEST FUNCTION
The SAFE HARVEST function can be disengaged in three ways without switching OFF the SAFE HARVEST switch:	
• Opening the right-hand side door of the radiator compartment.	DOOR OPEN SAFE HARVEST DISENGAGED
• Ground speed exceeds 90 % of the maximum ground speed.	MAX SPEED SAFE HARVEST DISENGAGED
• Quick-stop button is pressed.	QUICK STOP USED SAFE HARVEST DISENGAGED
When the operator leaves his seat for more than five seconds while harvesting, the following user message will appear on the InfoView monitor.	SEAT SWITCH OPENED
FEED ROLL switch is pressed while cutterhead is not engaged.	ENGAGE CUTTERHEAD
SAFE HARVEST switch is switched ON when right-hand side door is still open OR door sensor does not receive proper signal.	CLOSE RHS DOOR
When the automatic engine shutdown system is overridden, the following user message will appear on the InfoView™ monitor	AUTOMATIC ENGINE SHUT OFF DISABLED
Metal detector is switched off.	METAL DETECTOR OFF

NOTE: *It is possible to override the automatic engine shutdown safety device in emergency cases. Refer to chapter 2.4.*

⚠ WARNING ⚠

Overriding the automatic engine shutdown system may cause serious damage to the machine. You override the automatic engine shutdown system at your own risk.

Apart from the user messages mentioned above, a number of other messages can be displayed.
These other messages provide additional information when an alarm occurs.

SECTION 4 - LUBRICATION AND MAINTENANCE

GENERAL

Your forage harvester and attachments are designed to require a minimum of lubrication. However, regular lubrication is the best insurance against delays and repairs and greatly increases the life of the machine.

All gearboxes and reservoirs should be checked for leakage daily.

Use only top grade lubricants stored in clean vessels. Recommended lubricants and amounts are summarised at the end of this manual in "Lubrication schedule".

⚠ CAUTION ⚠

Never work on or adjust any part of the forage harvester unless all moving parts have stopped. Ensure the engine is stopped, the ignition key is removed and the battery switch is switched off to prevent accidental starting. Failure to observe these rules could result in serious injury.

ALWAYS disconnect the relevant connector to the electronic box before applying 12 V current from an external source to a solenoid or other wire that is connected to the electronic box. Negligence to follow this instruction may destroy one or several components in the electronic circuit.

⚠ CAUTION ⚠

Always stop the machine before lubricating and observe the following precautions:

Disengage all drives (base unit and attachment drive).

Lower the attachment to the ground or raise the attachment and engage the hydraulic lift cylinder safety latch.

Shut off the engine, engage the parking brake and remove the ignition key before leaving the cab.

Switch off the battery switch.

GREASE ZERKS AND INTERVALS

Before greasing the machine always wipe any dirt from the grease zerks and then apply a good grade of grease.

All grease zerks, except those with special notations, should be lubricated until the grease is forced out around the bearings and then the excess grease should be wiped off.

All machines are equipped ex-factory with a centralised greasing system. Several grease points are connected to grease banks on four locations on the forage harvester. The centralised greasing system provides for the greasing up to 37 grease points (variable depending on machine configuration).

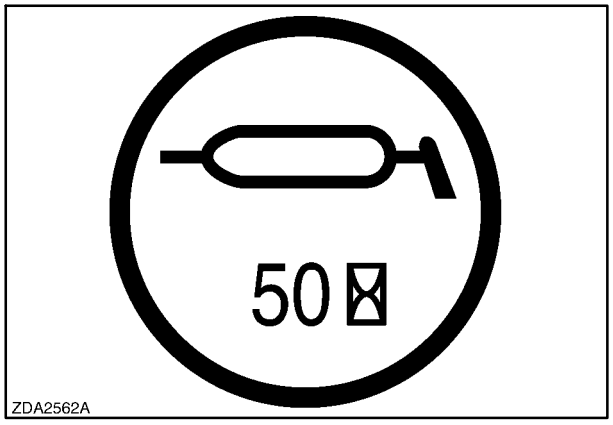
Grease points on rotating or moving parts are not centralized on a grease bank.

GREASE SPECIFICATION

Use AMBRA GR75MD (ref. NH720A) or AMBRA GR9 (ref. NH 710A) grease, or grease classified under NLGI class 2.

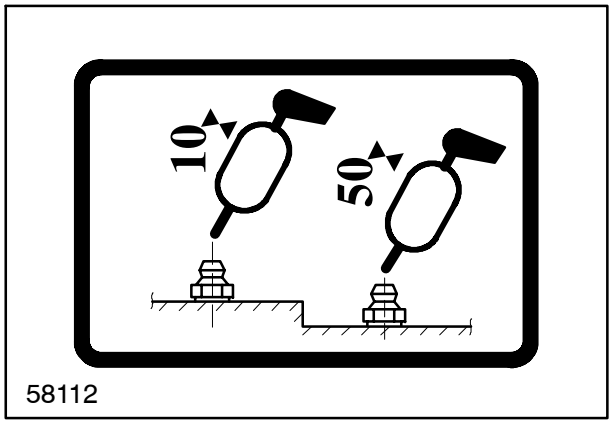
GREASE INTERVAL

All grease zerks on the machine are indicated with a grease decal on which the time interval is mentioned.



1

The grease zerks on the grease banks (centralized greasing system) are mounted on two different levels. The upper level indicates the 10 hour interval grease zerks, the lower level indicates the 50 hour interval grease zerks.



2

CENTRALIZED GREASING SYSTEM

The centralized greasing system exists out of four grease banks:

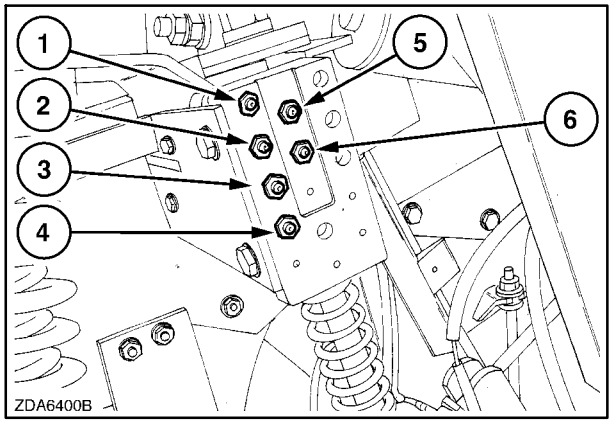
1. Upper feed rolls module grease bank
2. Cutterhead grease bank
3. Crop processor grease bank (if installed)
4. Spout rotation grease bank

An overview is given in this paragraph.

1. UPPER FEED ROLLS MODULE GREASE BANK

The upper feed rolls module grease bank is located on the left-hand side and on top of the cutterhead.

Grease can be supplied to 6 grease points.



3

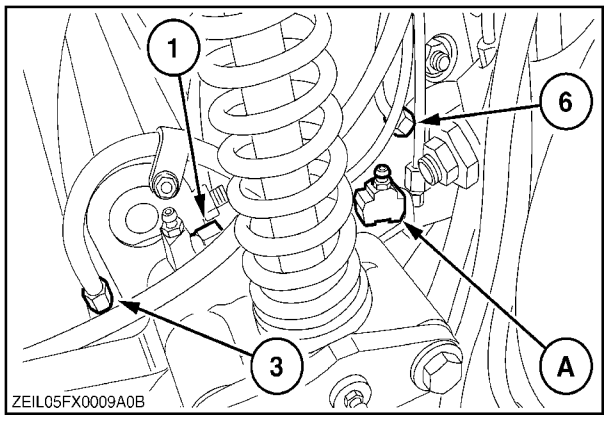
1. Upper rear feed roll bearing (LH)

NOTE: *An extra grease zerk is foreseen at (1).*

3. Upper feed roll pivot arm front bearing (LH)

NOTE: *An extra grease zerk is foreseen at (A).*

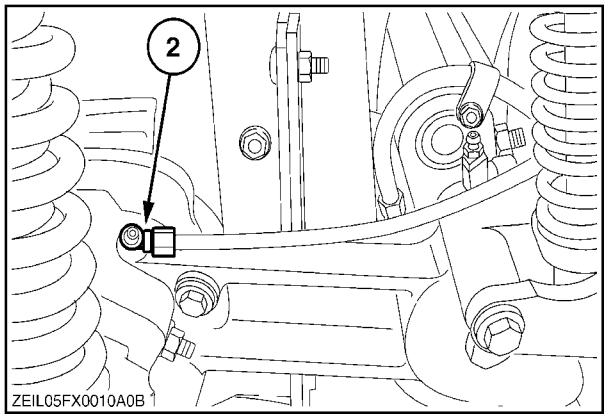
6. Upper feed roll pivot arm rear bearing (LH)



4

2. Upper front feed roll bearing (LH)

NOTE: *An extra grease zerk is foreseen at (2).*

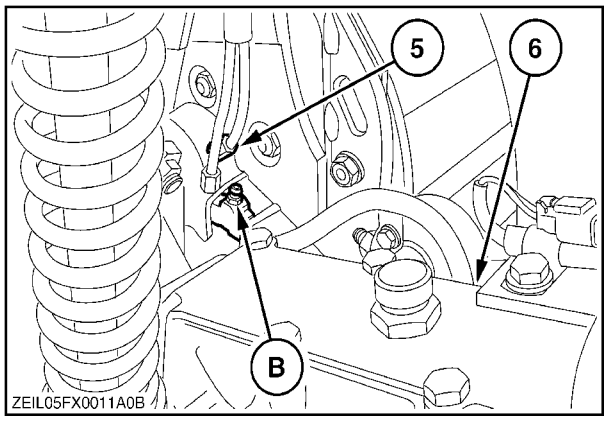


5

4. Upper feed roll pivot arm front bearing (RH)

5. Upper feed roll pivot arm rear bearing (RH)

NOTE: *An extra grease zerk is foreseen at (B).*

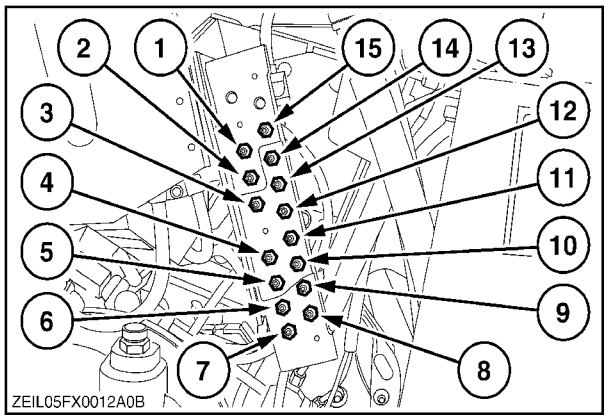


6

2. CUTTERHEAD GREASE BANK

The cutterhead grease bank is located on the right-hand side of the cutterhead.

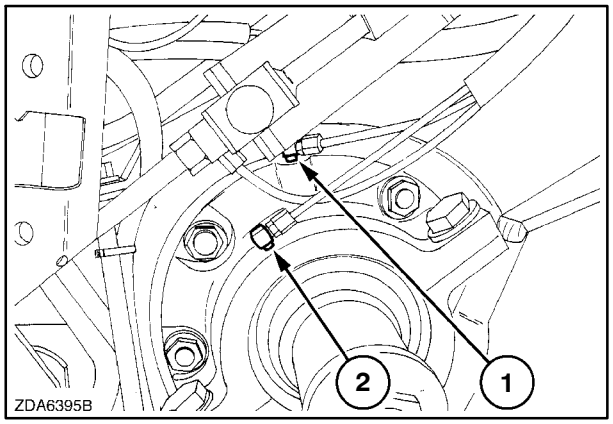
Grease can be supplied to 15 grease points.



7

1. Cutterhead main bearing (LH)

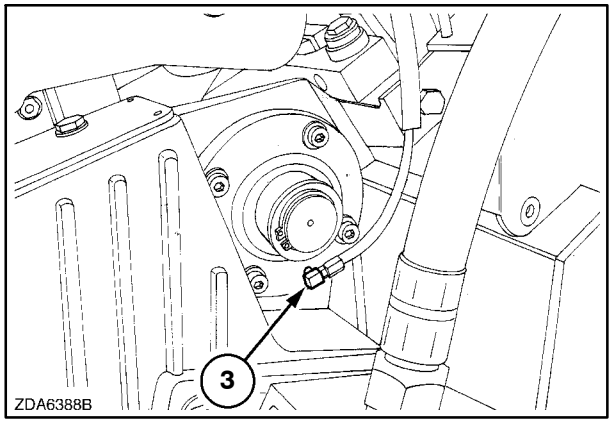
2. Chopper body pivot bearing (LH)



8

3. Smooth roll bearing (LH)

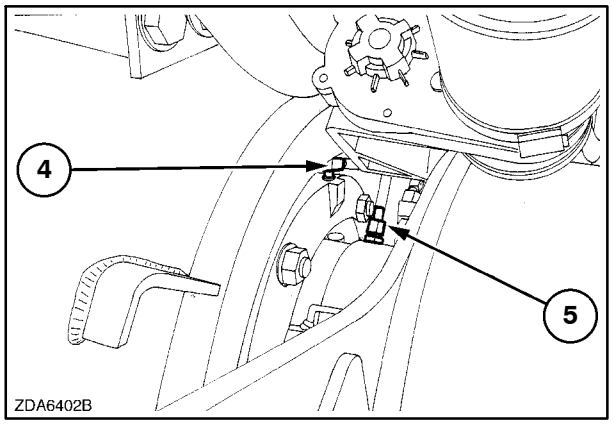
NOTE: *First remove the smooth roll bearing safety guard.*



9

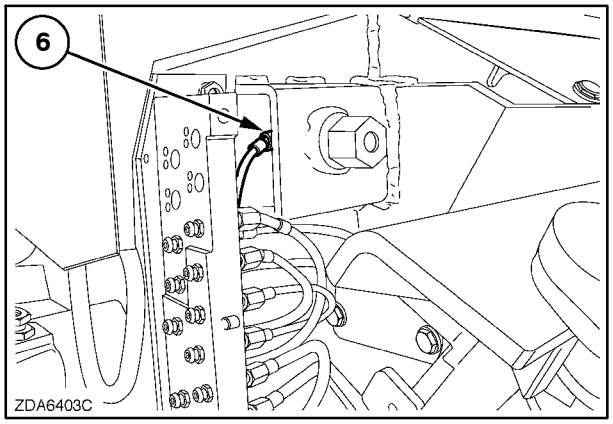
4. Chopper body pivot bearing (RH)

5. Cutterhead main bearing (RH)



10

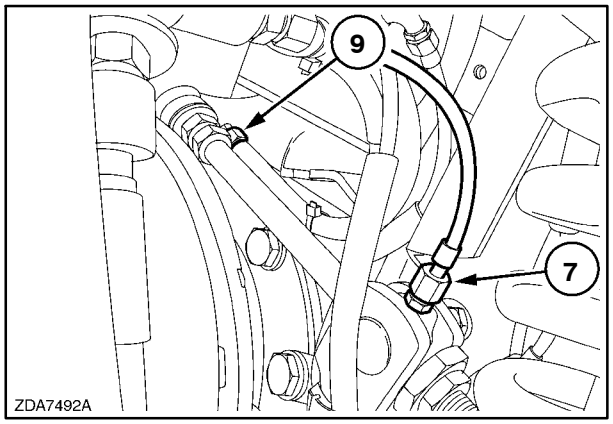
6. Sharpener drive chain sprocket bearing (RH)



11

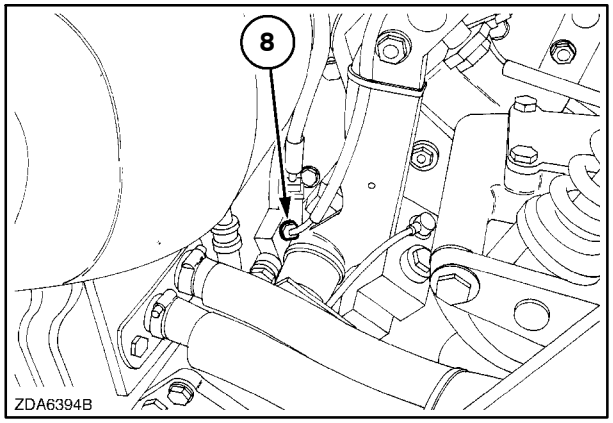
7. Front fastening point of shearbar adjuster rod (RH)

9. Shearbar adjuster motor rod fastening point (RH)



12

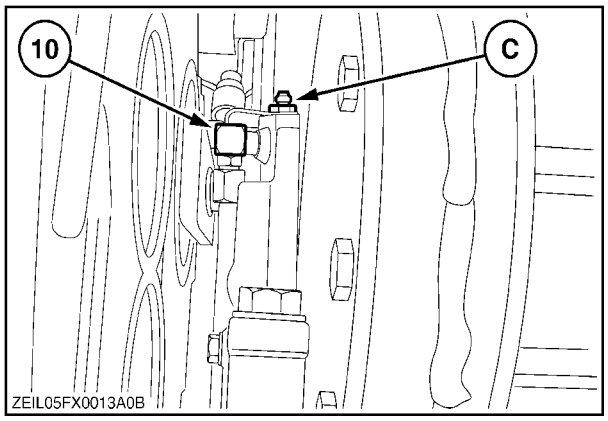
8. Counter knife adjuster arm pivot bearing (RH)



13

10. Metal detector roll bearing (LH)

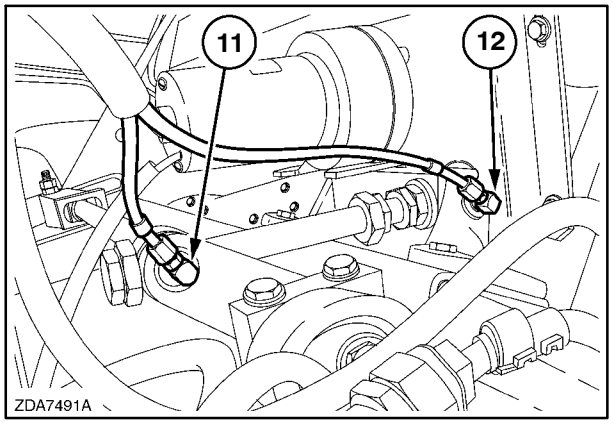
NOTE: *An extra grease zerk is foreseen at (C).*



(View from underneath the machine) 14

11. Crop processor rolls clearance adjustment (rear)

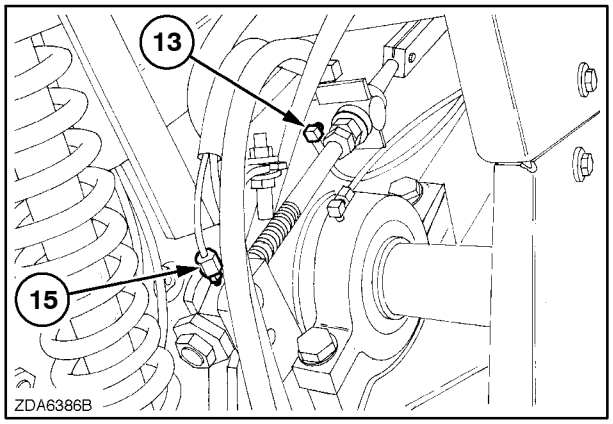
12. Crop processor rolls clearance adjustment (front)



15

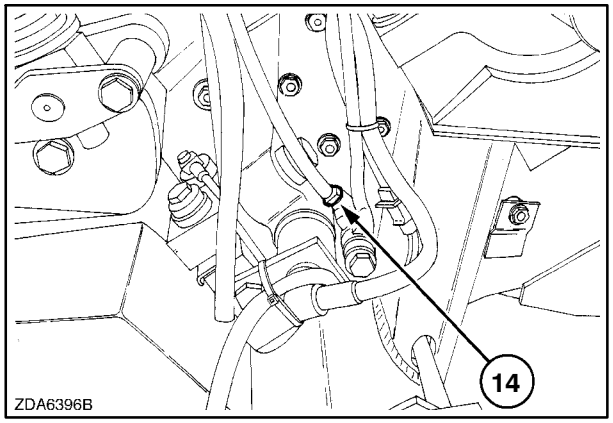
13. Shearbar adjuster motor rod fastening point (LH)

15. Front fastening point of shearbar adjuster rod (LH)



16

14. Counter knife adjuster arm pivot bearing (LH)



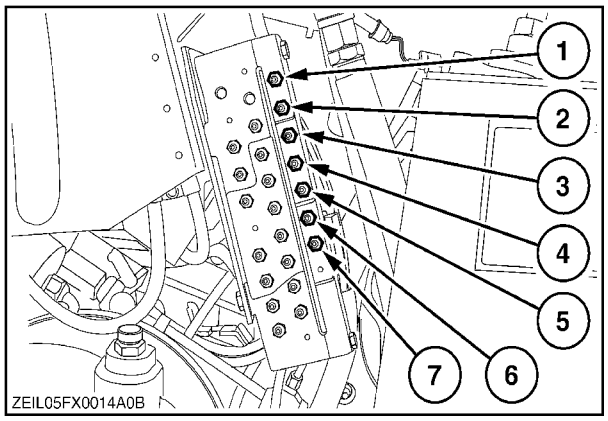
17

3. CROP PROCESSOR GREASE BANK (IF INSTALLED)

The crop processor grease bank is located on the right-hand side of the cutterhead next to the cutterhead grease bank.

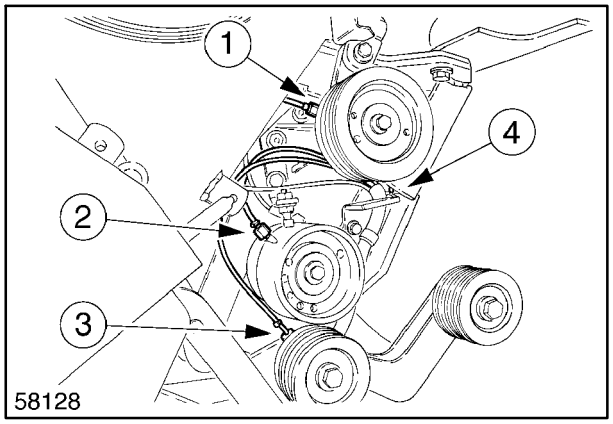
NOTE: *This grease bank is only installed if the crop processor is installed.*

Grease can be supplied to 7 grease points.



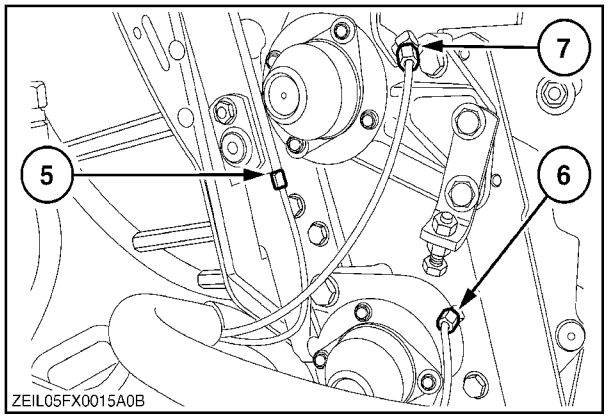
18

1. Crop processor upper roll bearing (LH)
2. Crop processor lower roll bearing (LH)
3. Crop processor idler pivot bearing (LH)
4. Crop processor upper roll pivot bearing (LH)



19

5. Crop processor upper roll pivot bearing (RH)
6. Crop processor lower roll bearing (RH)
7. Crop processor upper roll bearing (RH)

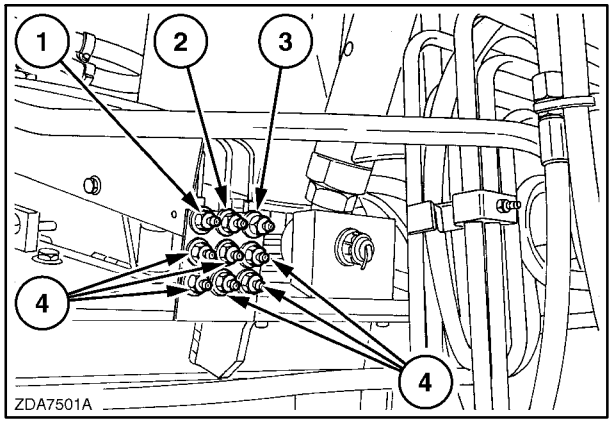


20

4. SPOUT ROTATION GREASE BANK

The spout rotation grease bank is located underneath the spout. It is inside the machine and can be reached through the right-hand screen door.

Grease can be supplied to 9 grease points.

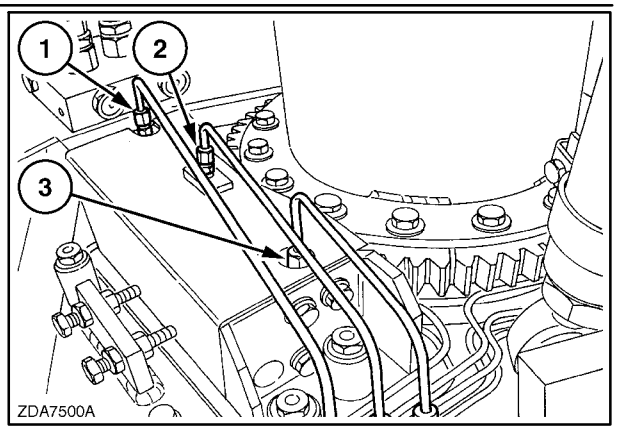


21

1. Worm wheel bearing

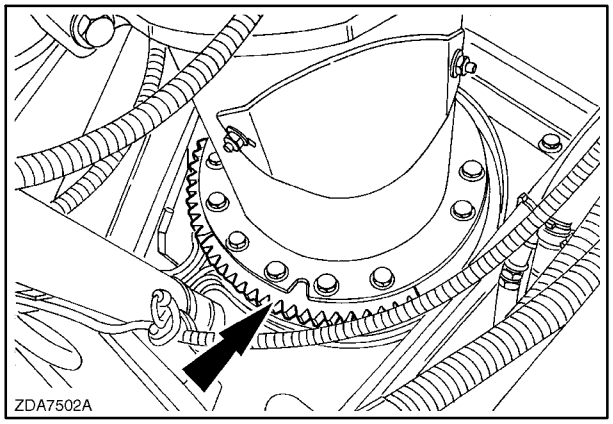
2. Worm wheel

3. Worm wheel bearing



22

4. Spout rotation lower support



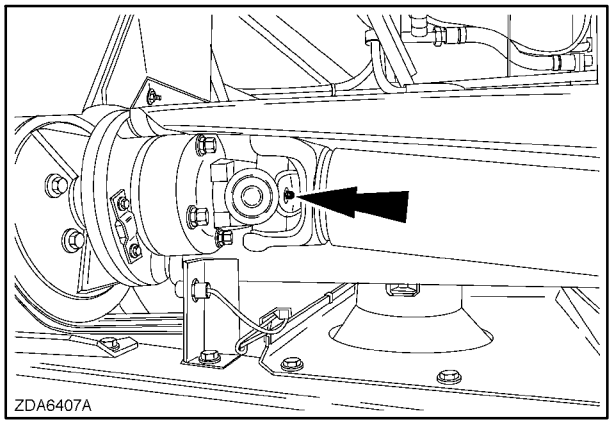
23

REMAINING CONVENTIONAL GREASE ZERKS

DAILY OR EVERY 10 HOURS GREASE INTERVAL

1. Cutterhead drive shaft rear end yoke

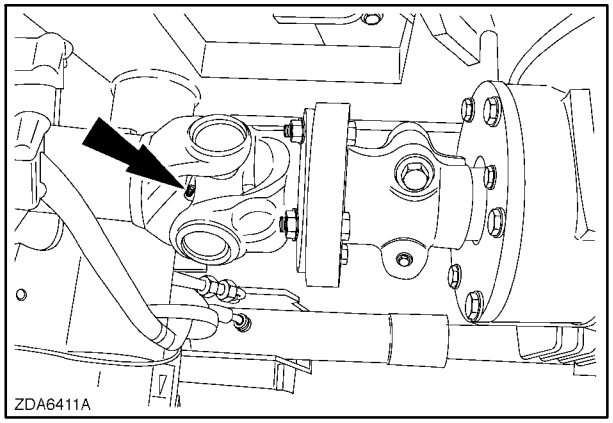
NOTE: *This lubrication point is inside the machine and can be reached by opening the upper and lower right-hand screen doors.*



24

2. Cutterhead drive shaft front end yoke.

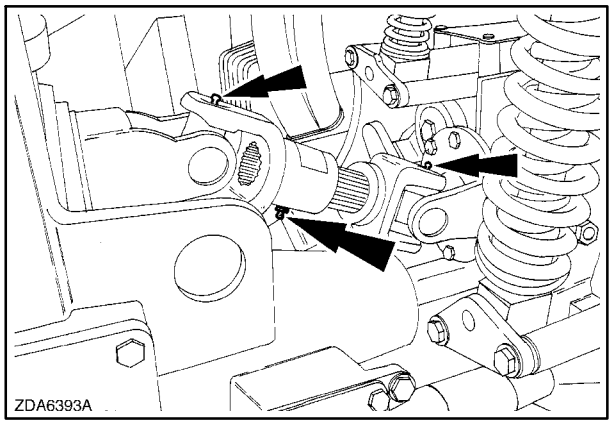
NOTE: *Remove the cutterhead drive shaft safety guard to have access to the grease zerk shown.*



25

3. Upper feed rolls drive shaft (3) (RH).

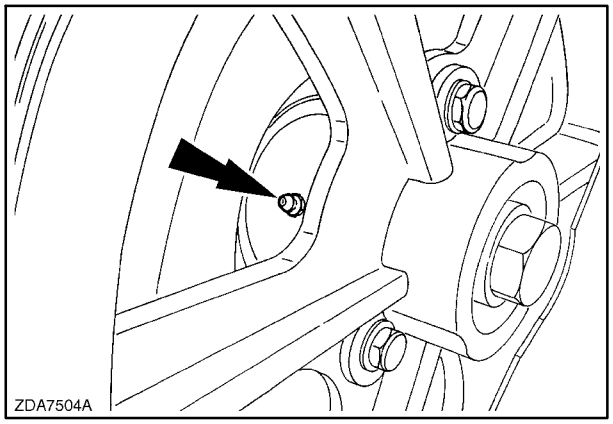
NOTE: *Remove the upper feed rolls drive shaft safety guard to obtain access to the upper feed rolls drive shaft.*



26

4. Crop processor overrun clutch (if installed).

NOTE: *Remove the crop processor upper shield to have access to the grease zerk.*



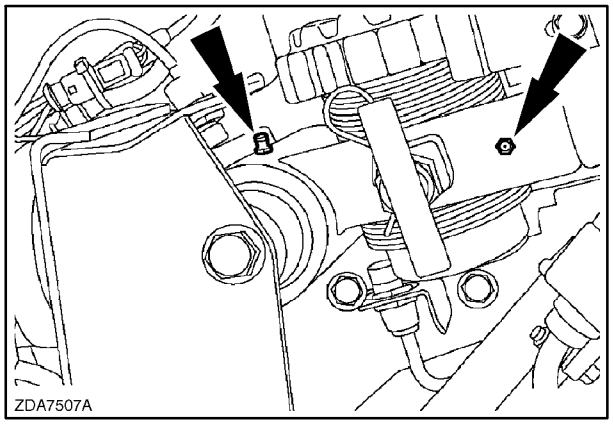
27

WEEKLY OR 50 HOURS GREASE INTERVAL

1. Sharpening stone support (grease sparingly).

2. Sharpening stone holder (grease sparingly).

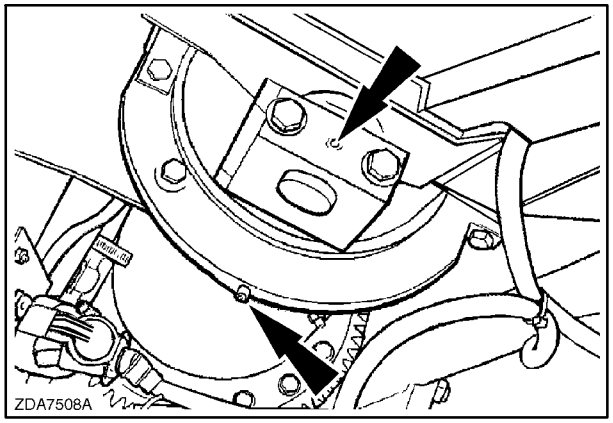
NOTE: *Remove the upper left-hand guard of the chopper body to have access to the grease zerks.*



28

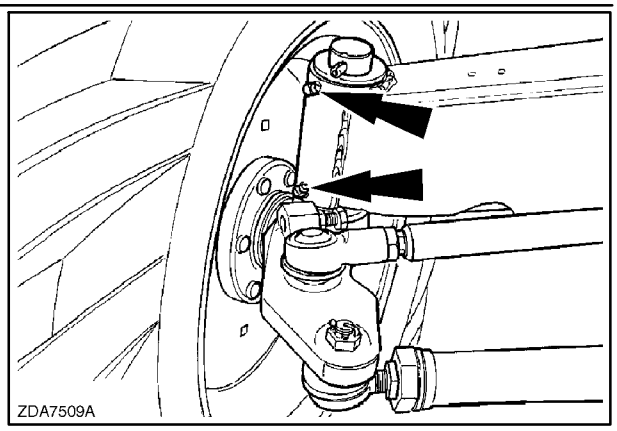
3. Spout pivot bearing (left-hand side).

4. Spout rotation upper support (left-hand side).



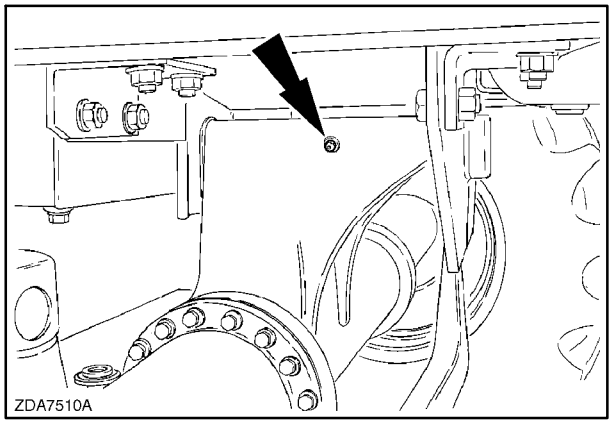
29

5. 2WD - Steering wheel spindle (2) (left-hand side).



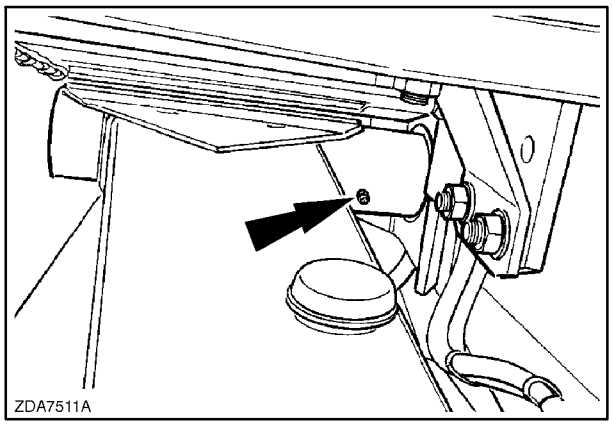
30

6. 4WD - Steering axle frame suspension shaft.



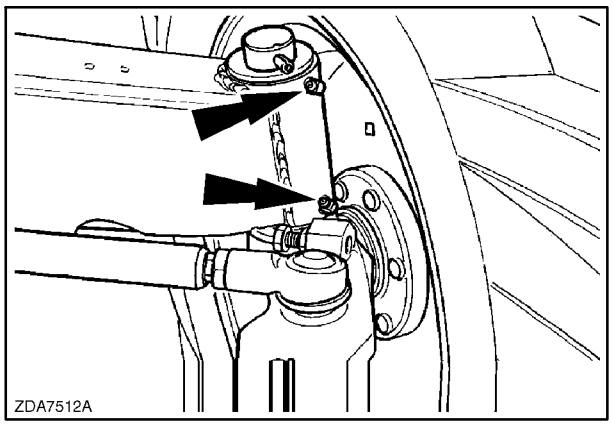
31

7. 2WD - Steering axle suspension shaft.



32

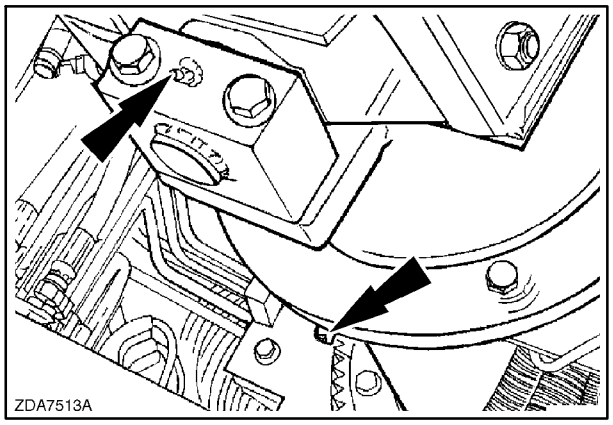
8. 2WD - Steering wheel spindle (2) (right-and side).



33

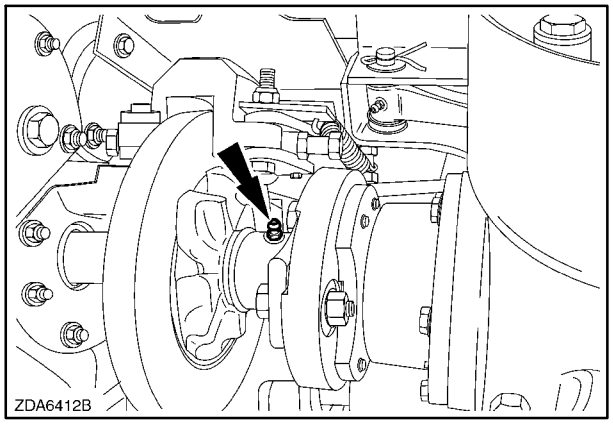
9. Spout pivot bearing (right-hand side).

10. Spout rotation upper support (right-hand side).



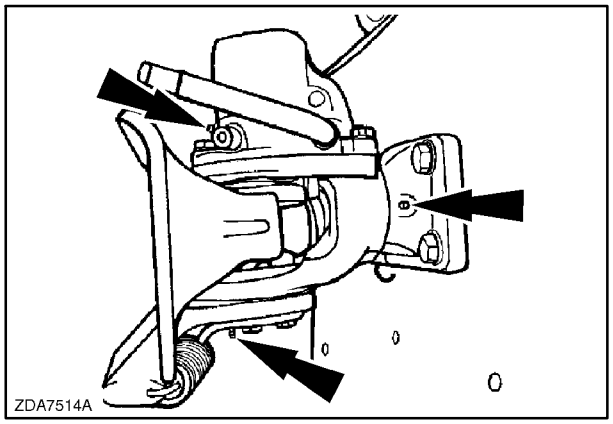
34

11. Central drive flange of the 4WD gearbox (If installed) [view from underneath].



35

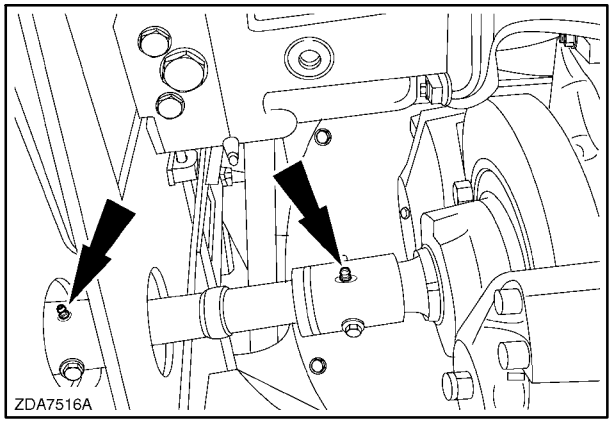
12. Trailer hitch (3).



36

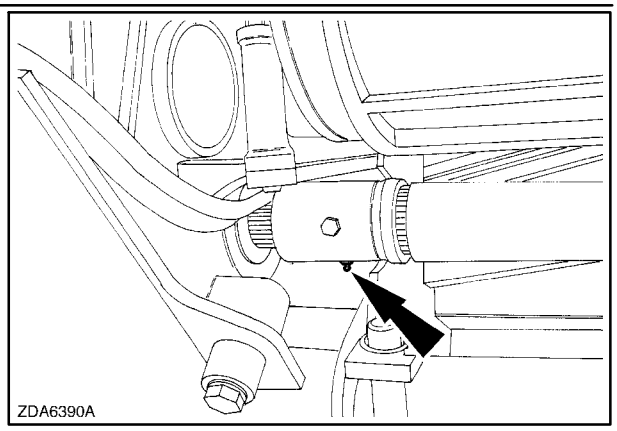
100 HOURS SERVICE INTERVAL

1. Drive shaft connecting sleeves (2) (left-hand side).



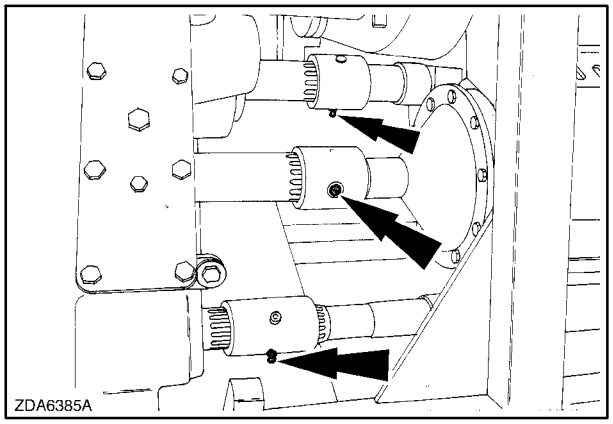
37

2. Hydroloc™ gearbox drive shaft connecting sleeve (LH) (View from underneath chopperbody).



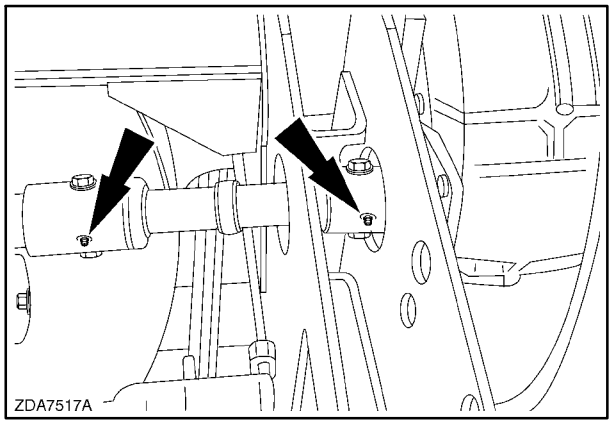
38

3. Smooth roll drive connecting sleeve (RH).
4. Metal detector roll drive connecting sleeve (RH).
5. Hydroloc™ gearbox drive shaft connecting sleeve (RH).



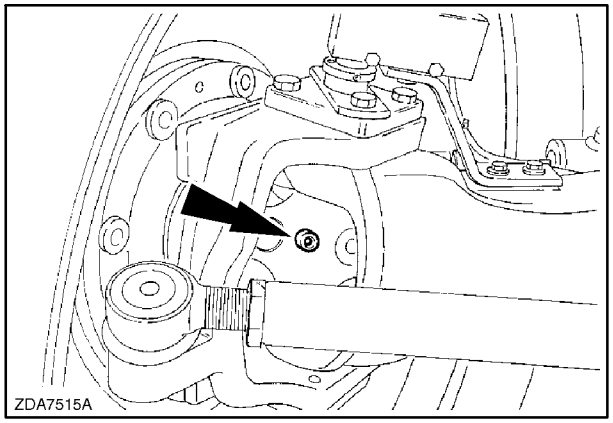
39

6. Final drive shaft connecting sleeves (2) (right-hand side).



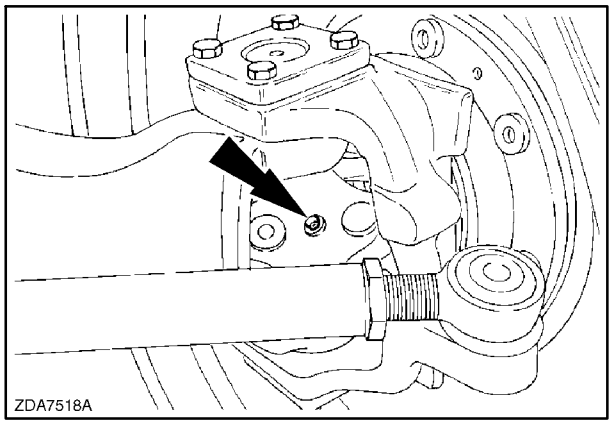
40

7. Constant speed yoke - 4WD (left-hand side) (if installed).



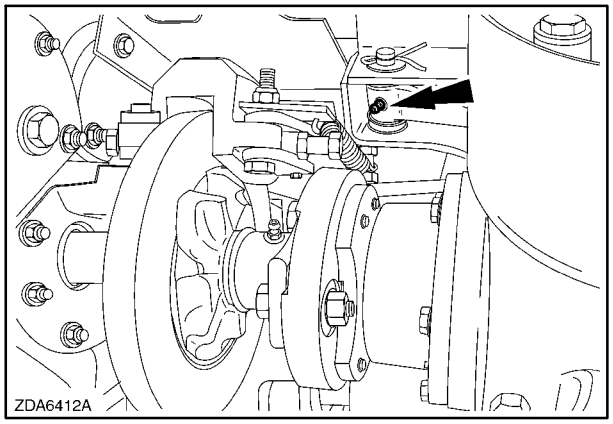
41

8. Constant speed yoke – 4WD (right–hand side) (if installed).



42

9. Gear shift linkage [view from underneath].



43

10. Engine output shaft pulley bearing.

NOTE: *Maximum two grease gun strokes.*

NOTE: *Grease also every time a shearbolt is replaced.*

NOTE: *Grease fittings shown in Fig. 45 to Fig. 48 are inside the machine and can be reached through the right–hand side screen door.*

11. Idler pulley of the cutterhead drive.

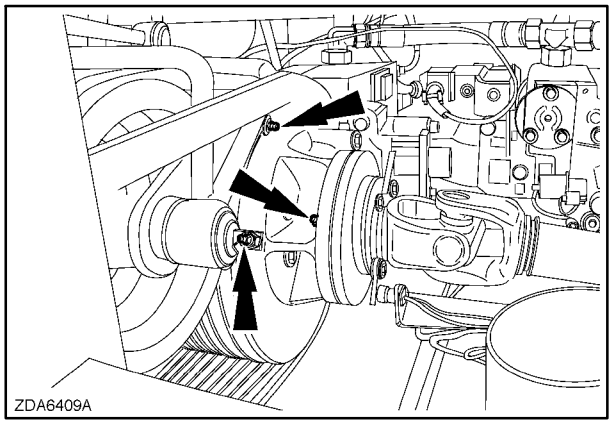
NOTE: *Maximum two grease gun strokes.*

12. Cutterhead drive pulley.

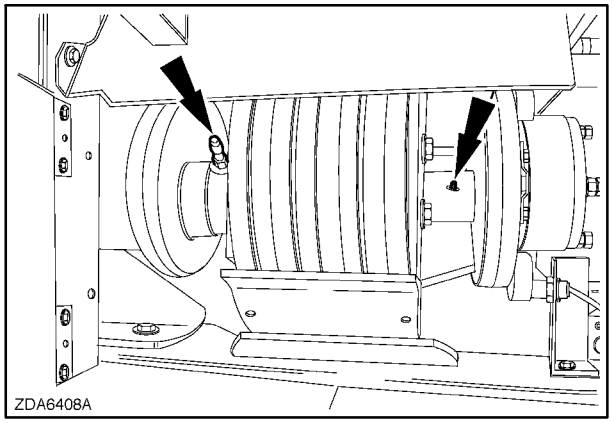
NOTE: *Grease also every time a shearbolt is replaced.*

13. Reverse drive hydraulic motor bearing.

NOTE: *Maximum two grease gun strokes.*

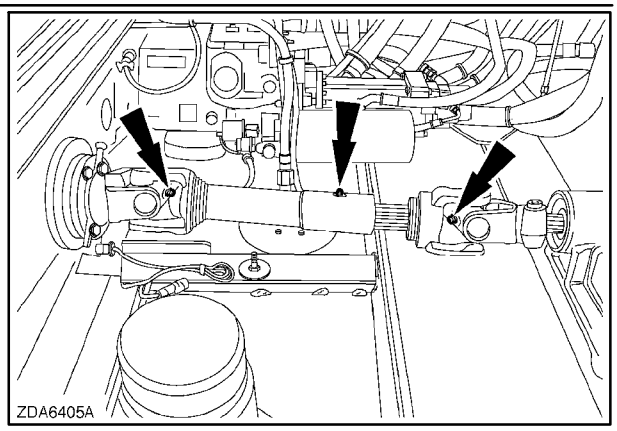


44



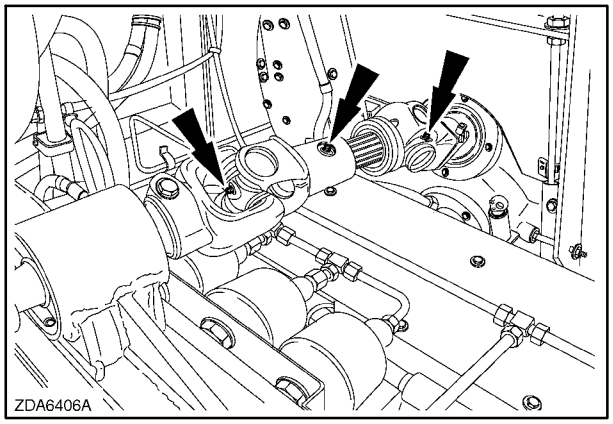
45

14. Blower intermediate drive shaft (3).



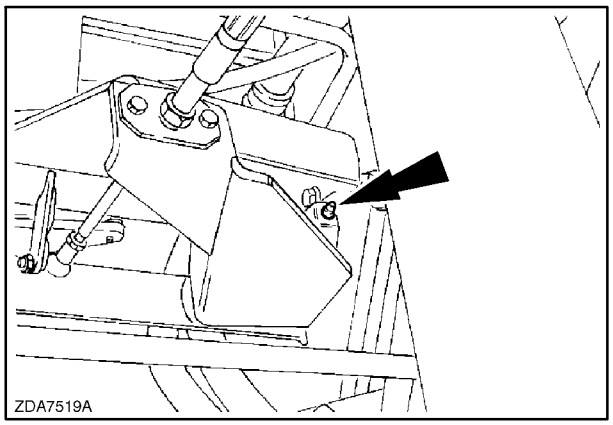
46

15. Blower drive shaft (3).



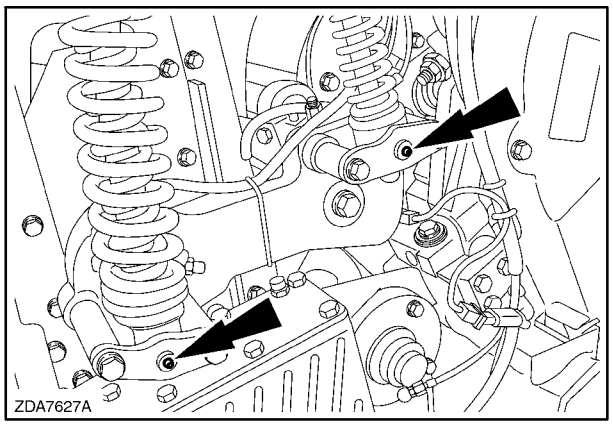
47

16. Gearshift linkage shaft bearing.



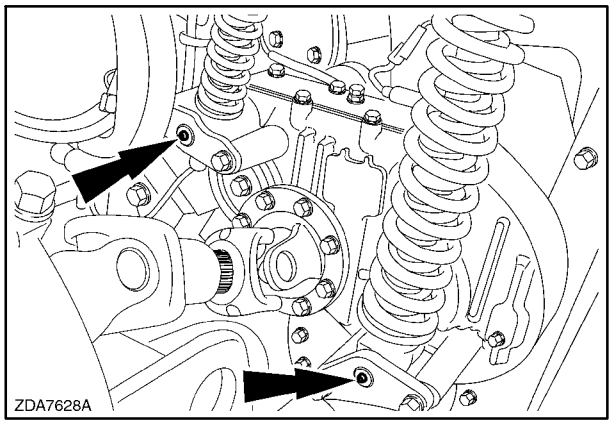
48

17. Upper feed rolls spring support (2) (left-hand side).



49

18. Upper feed rolls spring support (2) (right-hand side).



50

CHAINS, THREADED RODS AND PIVOT POINTS

CHAINS

Lubricate the following chains weekly using AMBRA HYPOIDE 90 (ref. NH520A).

- Sharpener drive chain
- Rotary screen drive chain

THREADED RODS

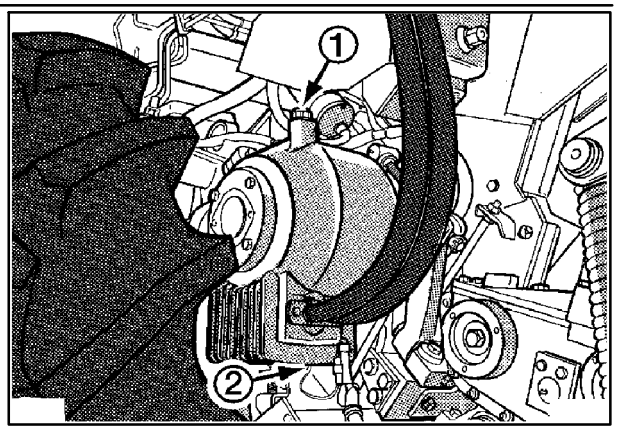
Lubricate the following rods every 200 operating hours.

- Adjuster rod of the shearbar
- Adjuster rod of the crop processor

PIVOT POINTS

It is recommended to oil all pivot points (including guard pivot points) which may become stiff from corrosion or dirt every 200 operating hours.

CUTTERHEAD GEARBOX



51

OIL LEVEL

Check the oil level every week or every 50 hours of operation.

Maintain the oil level to the indicator mark on the dipstick (1). When necessary, add oil through the opening (1).

OIL CHANGE

- After the first 100 operating hours.
- Thereafter, every 600 operating hours or annually.

Drain the oil through the plug (2), which is also a temperature sensor.

OIL CAPACITY

4.3 litres (1.14 US gal)

OIL SPECIFICATION

Use AMBRA HYPOIDE 90 oil (NH520A) or an oil meeting the following specifications:

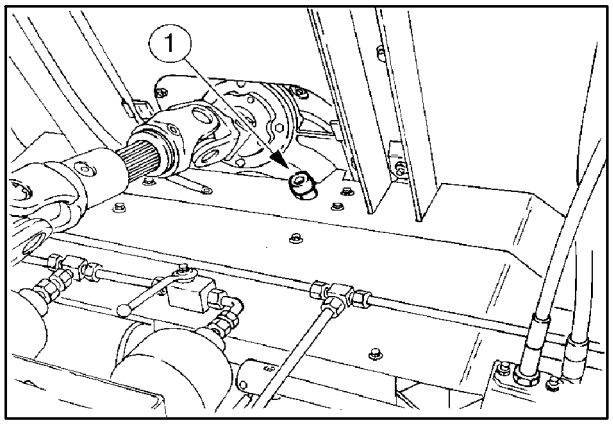
- API GL5 or MIL-L-2105D
- Viscosity grade: SAE 80W-90

BLOWER GEARBOX

OIL LEVEL

Check the oil level every week or every 50 hours of operation.

Maintain the oil level to the indicator mark on the dipstick (1). When necessary, add oil through the opening (1).

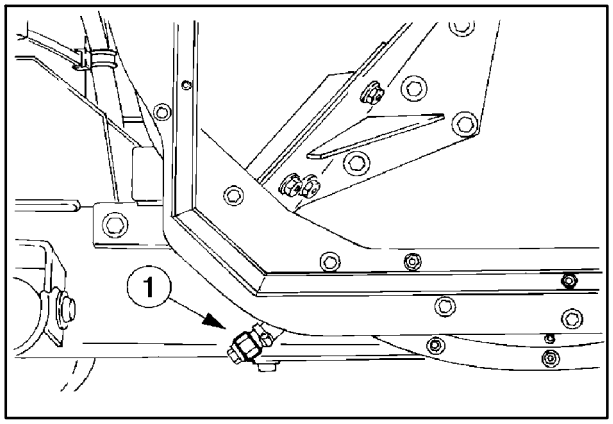


52

OIL CHANGE

- After the first 100 operating hours.
- Thereafter, every 600 operating hours or annually.

Drain the oil through the plug (1).



53

OIL CAPACITY

1.4 litres (0.37 US gal)

OIL SPECIFICATION

Use AMBRA HYPOIDE 90 oil (NH520A) or an oil meeting the following specifications:

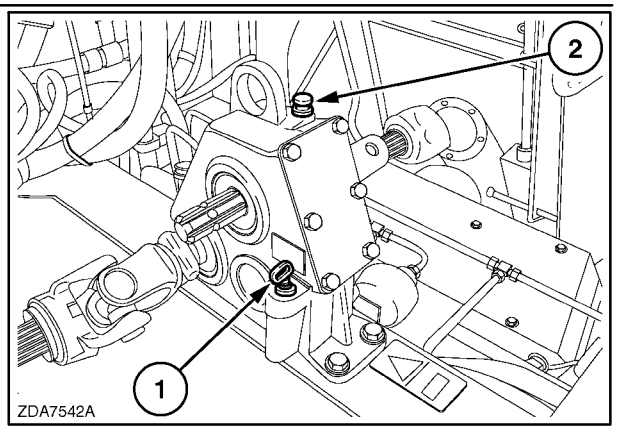
- API GL5 or MIL–L–2105D
- Viscosity grade: SAE 80W–90

HIGH SPEED BLOWER GEARBOX (IF INSTALLED)

OIL LEVEL

Check the oil level every week or every 50 hours of operation.

Maintain the oil level to the indicator mark on the dipstick 1. When necessary, add oil through the opening 1 or through the breather opening 2.

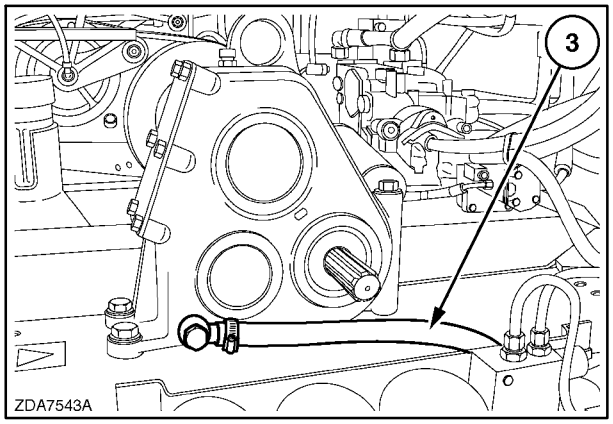


54

OIL CHANGE

- After the first 100 operating hours.
- Thereafter, every 600 operating hours or annually.

Drain the oil through the drain hose 3.



55

OIL CAPACITY

0.7 litres (0.18 US gal)

OIL SPECIFICATION

Use AMBRA HYPOIDE 90 oil (NH520A) or an oil meeting the following specifications:

- API GL5 or MIL–L–2105D
- Viscosity grade: SAE 80W–90

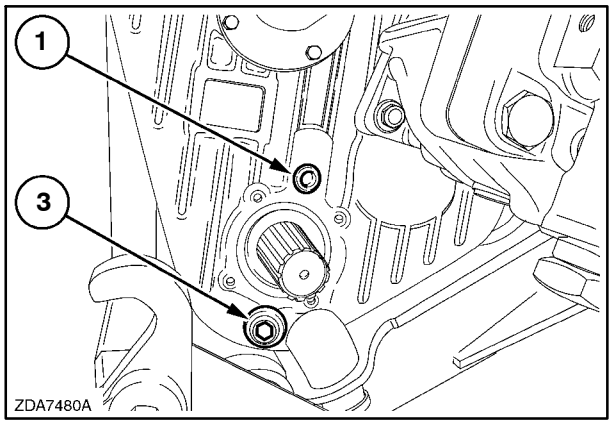
ATTACHMENT DRIVE GEARBOX

OIL LEVEL

Check the oil level every week or every 50 hours of operation.

Maintain the oil level to the level plug (1). When necessary, add oil through the opening (2).

IMPORTANT: *When checking the oil level, the cutterhead must be in its upper position.*

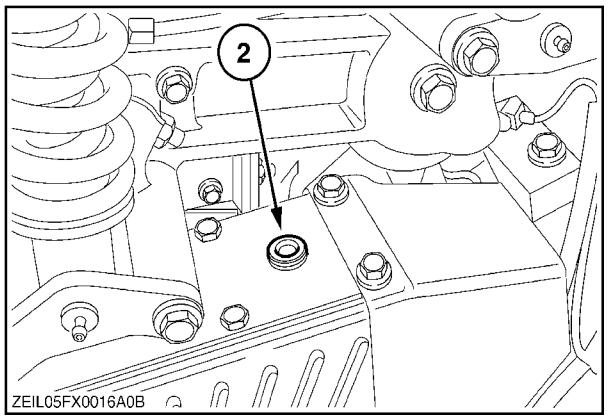


56

OIL CHANGE

- After the first 100 operating hours.
- Thereafter, every 600 operating hours or annually.

Drain the oil through the opening (3).



57

OIL CAPACITY

1.8 litres (0.48 US gal)

OIL SPECIFICATION

Use AMBRA HYPOIDE 90 oil (NH520A) or an oil meeting the following specifications:

- API GL5 or MIL–L–2105D
- Viscosity grade: SAE 80W–90

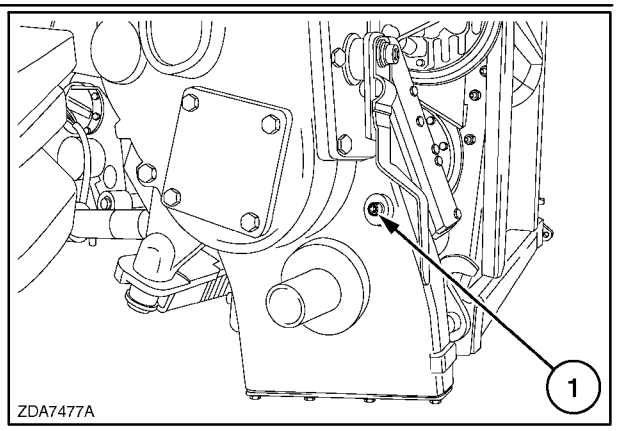
HYDROLOC™ GEARBOX

OIL LEVEL

Check the oil level every week or every 50 hours of operation.

Maintain the oil level to the level plug (1). When necessary, add oil through the opening (2).

IMPORTANT: *When checking the oil level, the cutterhead must be in its upper position.*

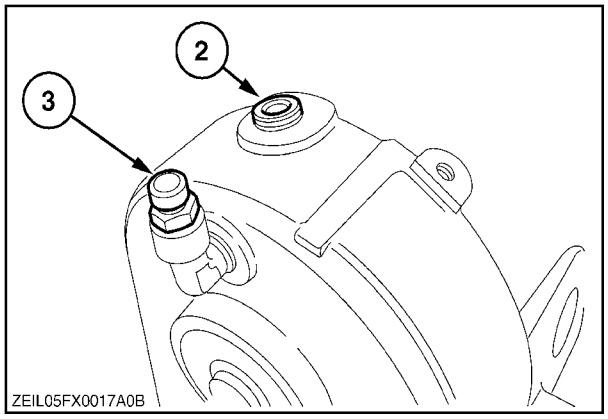


58

OIL CHANGE

- After the first 100 operating hours.
- Thereafter, every 600 operating hours or annually.

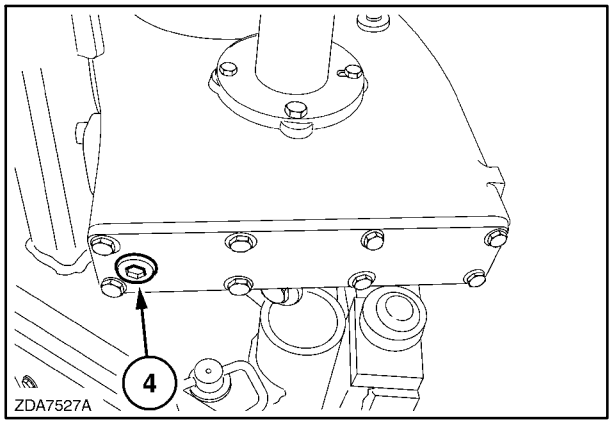
Drain the oil through the opening (4).



59

OIL CAPACITY

7.25 litres (1.92 US gal)



60

OIL SPECIFICATION

Use AMBRA HYPOIDE 90 oil (NH520A) or an oil meeting the following specifications:

- API GL5 or MIL-L-2105D
- Viscosity grade: SAE 80W-90

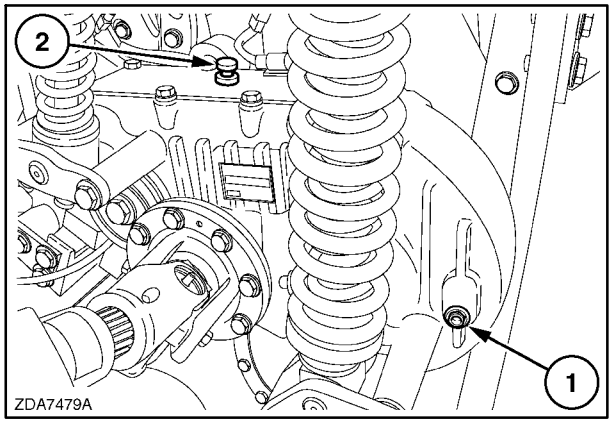
UPPER FEED ROLLS DRIVE GEARBOX

OIL LEVEL

Check the oil level every week or every 50 hours of operation.

Maintain the oil level to the level plug (1). When necessary, add oil through the opening (2).

IMPORTANT: *When checking the oil level, the cutterhead must be in its upper position.*

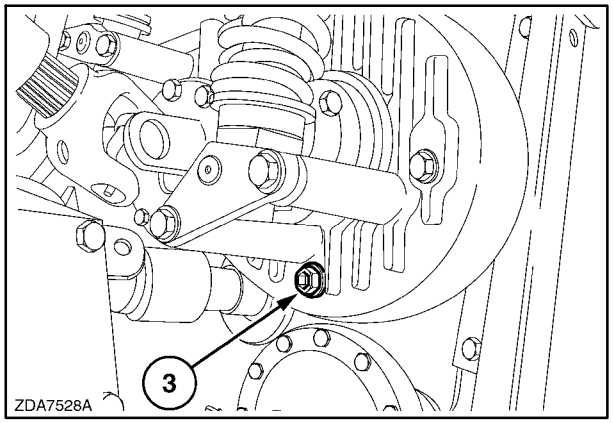


61

OIL CHANGE

- After the first 100 operating hours.
- Thereafter, every 600 operating hours or annually.

Drain the oil through the plug (3).



62

OIL CAPACITY

1.4 litres (0.37 US gal)

OIL SPECIFICATION

Use AMBRA HYPOIDE 90 oil (NH520A) or an oil meeting the following specifications:

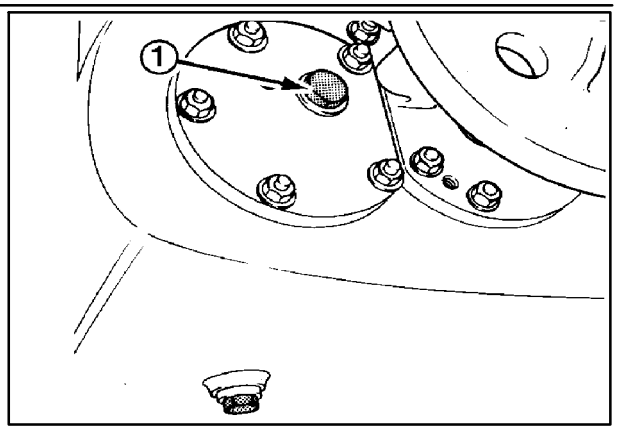
- API GL5 or MIL–L–2105D
- Viscosity grade: SAE 80W–90

TRACTION GEARBOX

OIL LEVEL

Check the oil level every week or every 50 hours of operation.

Maintain the oil level to the level plug (1). When necessary, add oil with a pipe through the level plug (1) or if the blower is removed through the breather plug (2) (Fig. 64).

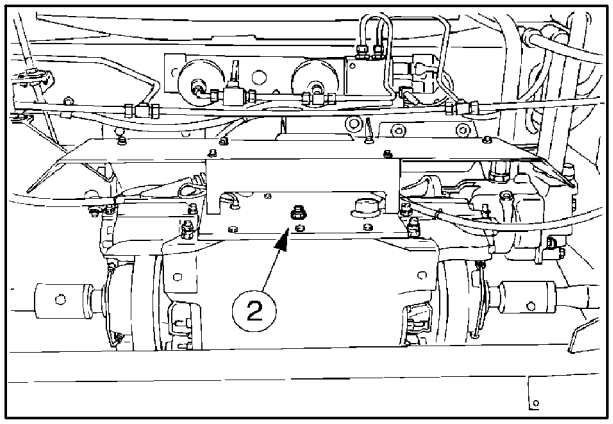


63

OIL CHANGE

- After the first 100 operating hours.
- Thereafter, every 600 operating hours or annually.

Drain the oil through the opening (3) (Fig. 65).



64

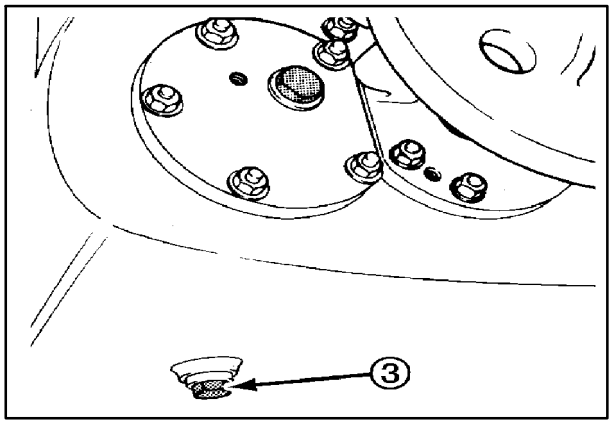
OIL CAPACITY

15 litres (4 US gal)

OIL SPECIFICATION

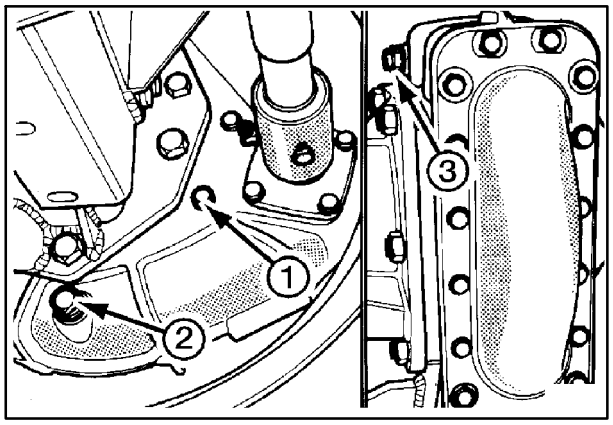
Use AMBRA HYPOIDE 90 oil (NH520A) or an oil meeting the following specifications:

- API GL5 or MIL-L-2105D
- Viscosity grade: SAE 80W-90



65

FINAL DRIVE GEARBOX



66

OIL LEVEL

Check the oil level every week or every 50 hours of operation.

Maintain the oil level to the level plug (1). When necessary, add oil through the filler/breather opening (3).

OIL CHANGE

- After the first 100 operating hours.
- Thereafter, every 600 operating hours or annually.

Drain the oil through the opening (2). Fill the final drive gearbox with new oil through the filler/breather opening (3).

Tighten the drain plug (2) and the breather plug (3) to 100 Nm (74 Ft.lbs).

Proceed the same on the other side.

OIL CAPACITY

5 litres (each gearbox) (1.32 US gal)

OIL SPECIFICATION

Use AMBRA HYPOIDE 90 oil (NH520A) or an oil meeting the following specifications:

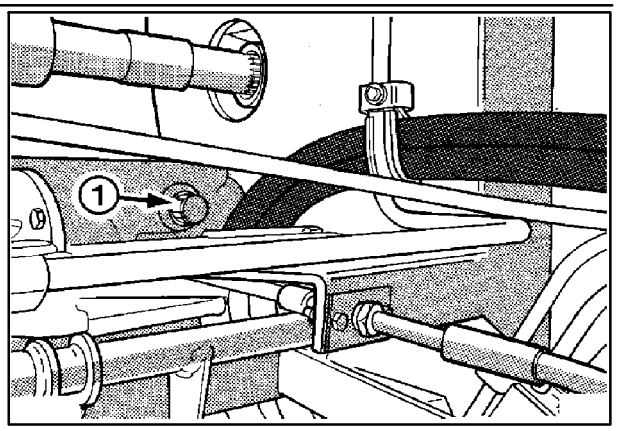
- API GL5 or MIL-L-2105D
- Viscosity grade: SAE 80W-90

4WD GEARBOX (IF INSTALLED)

OIL LEVEL

Check the oil level every week or every 50 hours of operation.

Maintain the oil level to the indicator mark on dipstick (1). When necessary, add oil through the opening (1).



67

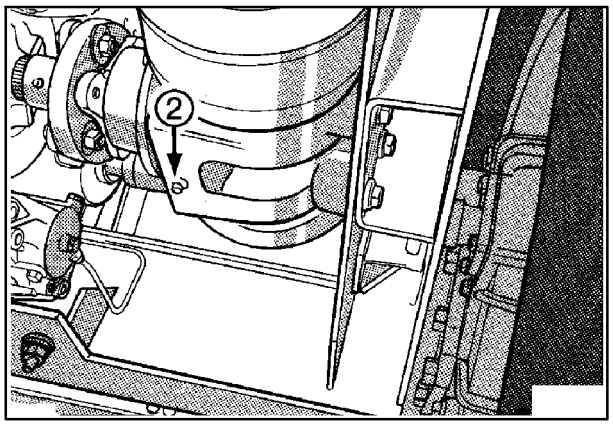
OIL CHANGE

- After the first 100 operating hours.
- Thereafter, every 600 operating hours or annually.

Drain the oil through the opening (2).

OIL CAPACITY

1.4 litres (0.37 US gal)



68

OIL SPECIFICATION

Use AMBRA HYPOIDE 90 oil (NH520A) or an oil meeting the following specifications:

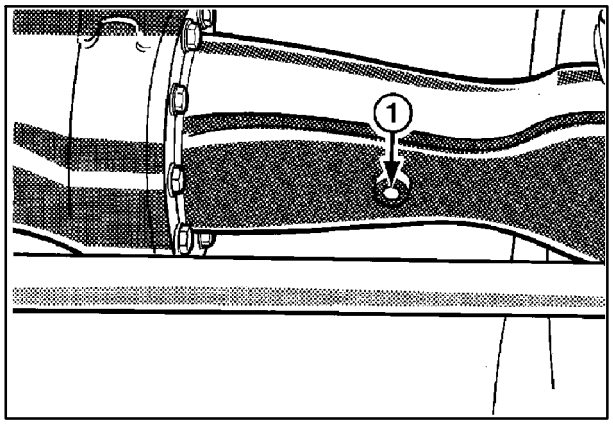
- API GL5 or MIL-L-2105D
- Viscosity grade: SAE 80W-90

4WD STEERING AXLE (IF INSTALLED)

OIL LEVEL

Check the oil level every week or every 50 hours of operation.

Maintain the oil level to the level plug (1). When necessary, add oil through the opening (3).

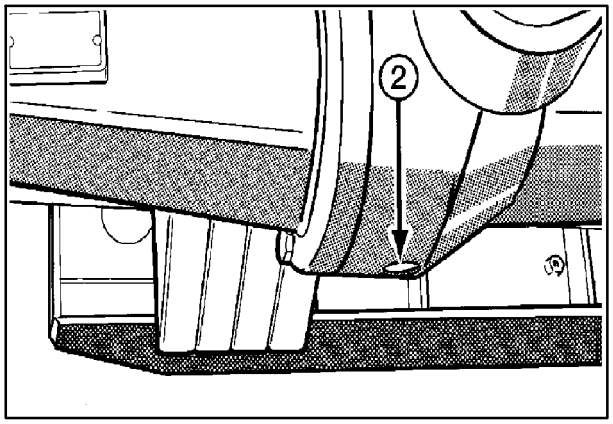


69

OIL CHANGE

- After the first 100 operating hours.
- Thereafter, every 600 operating hours or annually.

Drain the oil through the opening (2). Fill the steering axle with new oil through the opening (3).



70

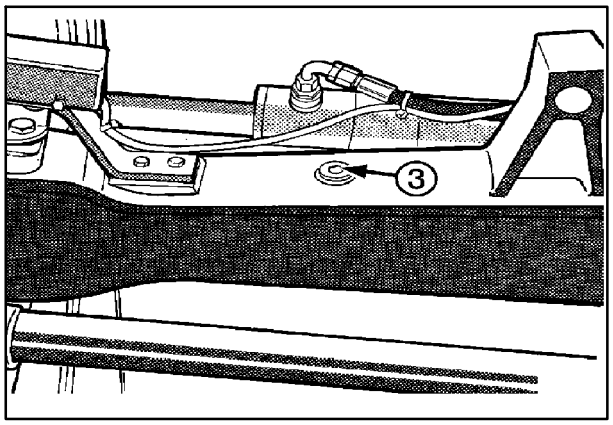
OIL CAPACITY

10 litres (2.64 US gal)

OIL SPECIFICATION

Use AMBRA HYPOIDE 90 oil (NH520A) or an oil meeting the following specifications:

- API GL5 or MIL–L–2105D
- Viscosity grade: SAE 80W–90



71

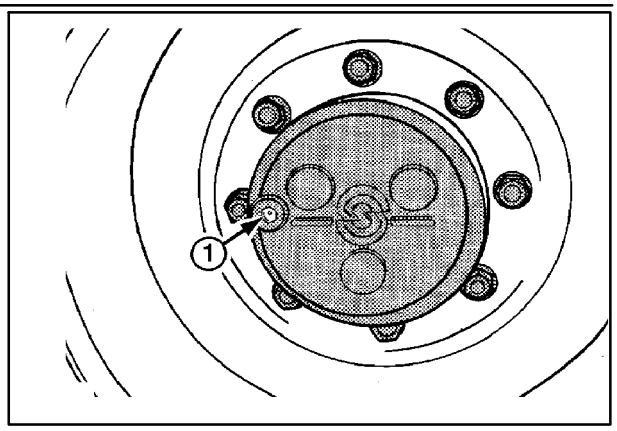
4WD STEERING AXLE PLANETARY FINAL DRIVES (IF INSTALLED)

OIL LEVEL

Check the oil level every week or every 50 hours of operation.

Maintain the oil level to the level plug (1). When necessary, add oil through the opening (1).

NOTE: *To check the oil level, the level plug (1) must be in a position as shown.*



72

OIL CHANGE

- After the first 100 operating hours.
- Thereafter, every 600 operating hours or annually.

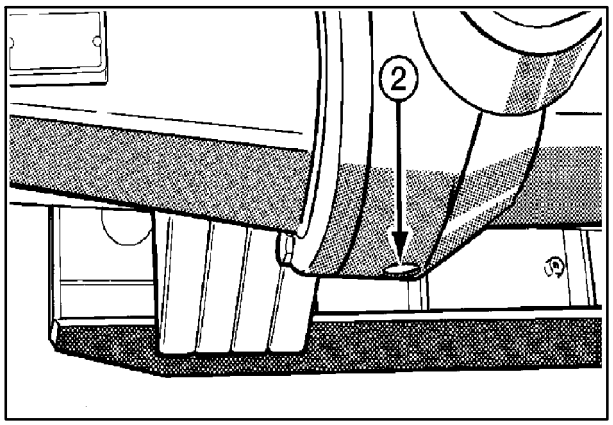
Lift the 4WD steering axle so the steering wheels are free from the ground.

Turn the opening (1) to its lowest position and drain the oil through the opening (1) (Fig. 72).

Turn the steering wheel so that the opening (1) is in a position as shown in Fig. 72.

Fill the steering axle planetary final drive with new oil through the opening (1).

Proceed the same on the other side.



73

OIL CAPACITY

1 litres (each side) (0.26 US gal)

OIL SPECIFICATION

Use AMBRA HYPOIDE 90 oil (NH520A) or an oil meeting the following specifications:

- API GL5 or MIL-L-2105D
- Viscosity grade: SAE 80W-90

ENGINE

NOTE: *Use a fuel with a sulphur content below 0.5%. If not available, change oil and filters as detailed below:*

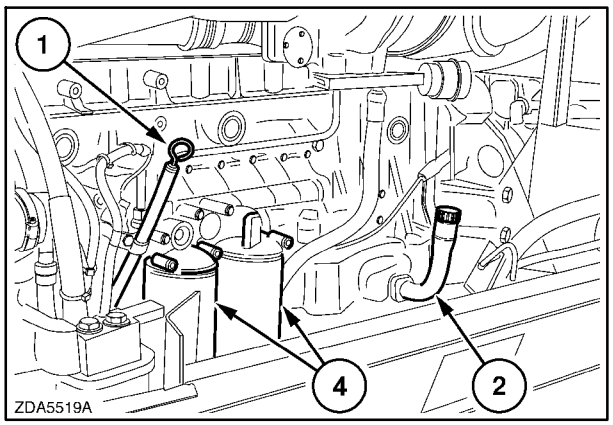
Fuel sulphur content	Oil filter change
0.5 % - 1 %	100 hours
1 % - 1.3 %	50 hours

The use of fuel with a sulphur content above 1.3% is not recommended.

OIL LEVEL

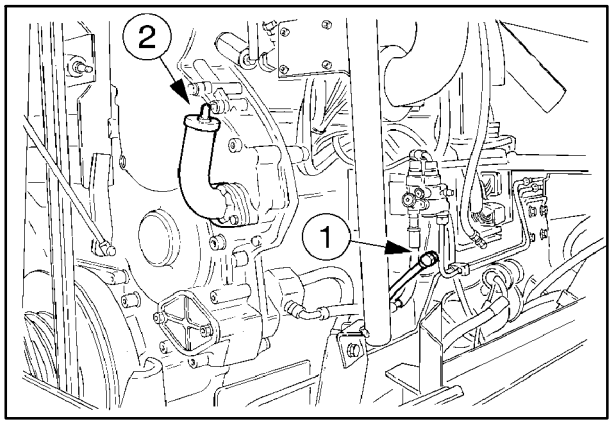
Check the oil level daily on the dipstick (1).

If necessary, add oil through the filler hole (2) until the oil level reaches the maximum mark on the dipstick (1).



FX30-40-50 74

IMPORTANT: *At no time should the oil level be allowed to fall below the minimum level.*



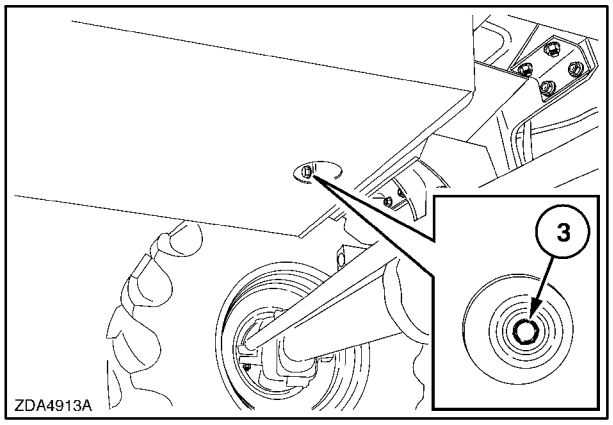
FX60 75

OIL AND FILTER CHANGE

- After the first 100 operating hours.
- Thereafter,

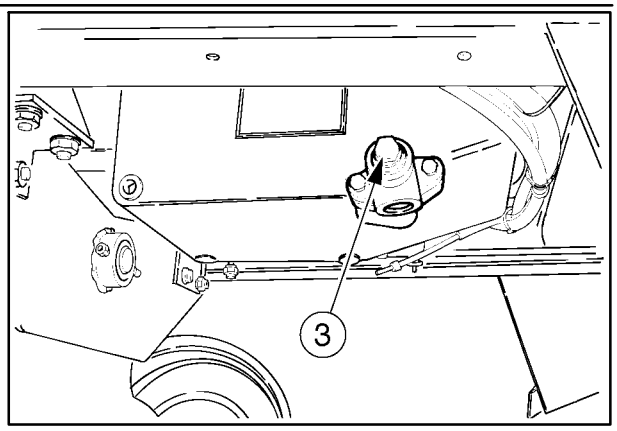
  FX30-40-50: every 600 operating hours or annually.

  FX60: every 500 operating hours or annually.



FX30-40-50 76

Drain the oil through the opening (3) while the engine is warm. Fill new oil through the filler opening (2) until the oil level on the dipstick reaches the maximum mark.



FX60 77

OIL CAPACITY INCLUDING FILTERS

FX30: 29 litres (7.7 US gal)
FX40-50: 35 litres (9.25 US gal)
FX60: 34 litres (9 US gal)

OIL SPECIFICATION

Use AMBRA MASTER GOLD Multigrade engine oil (NH330H) or an oil meeting the following specifications:

- API CH4 or ACEA E3/E5
- Viscosity grade: SAE 15W-40

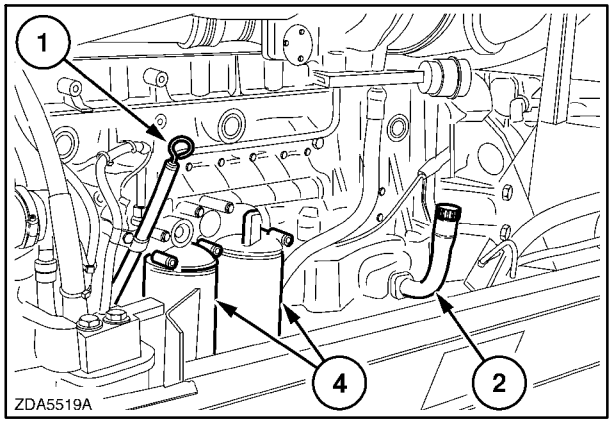
OIL FILTER CHANGE

The oil filters should be changed every time the oil is changed.

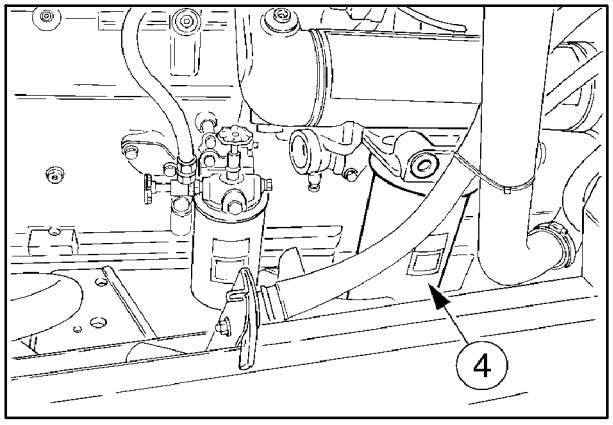
Proceed as follows:

1. Remove the spin-on filters (4).
2. Fill the new filters with oil and apply a film of oil to the seal ring.
3. Screw on the filters by hand. Tighten firmly but DO NOT USE TOOLS!
4. Renew the engine oil. Refer to the paragraph headed “Oil and filter change”.
5. Start the engine and check the oil filters for leaks.

IMPORTANT: *After an oil change, a special start-up procedure must be followed to prevent damage to the turbocharger (refer to section 2, paragraph headed “Starting, stopping and driving the forage harvester”).*



FX30-40-50 78



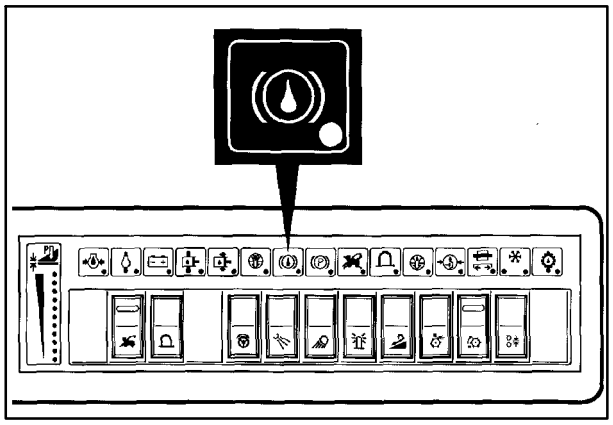
FX60 79

BRAKES

FLUID LEVEL

The fluid level is electrically controlled. The warning light (Fig. 80) will illuminate whenever the fluid level is too low or the brake linings are worn.

The reservoir is accessible from the outside of the cab after opening the right-hand cab door (emergency exit) (Fig. 81).

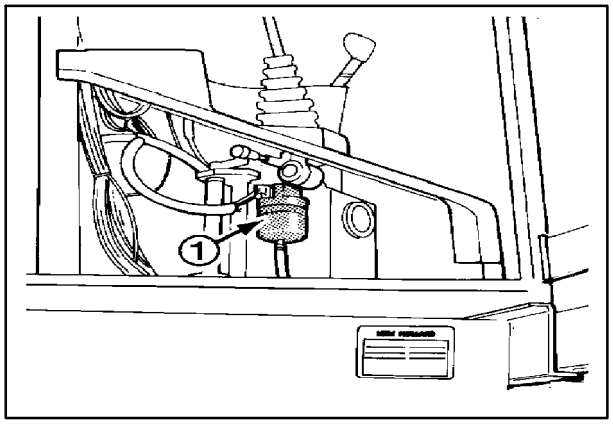


80

FLUID CHANGE

The brake fluid has to be changed every two years.

When refilling the system, a special bleeding procedure will have to be followed. Contact your local dealer to carry out this job.



81

CAPACITY

Reservoir 1: 0.5 litre (0.13 US gal)

Entire brake system: 2 litres (0.53 US gal)

FLUID SPECIFICATION

Use AMBRA SYNTFLUID 4 (ref. NH800A) or a fluid meeting the following specification:

- NHTSA 116 – DOT 4 or ISO 4925

IMPORTANT: *Brake fluid has a tendency to absorb moisture and break down over time. Therefore it should be replaced every two years. As brake fluid contains substances which, when mixed with engine or other oils, create problems for recycling the oil, do not mix oils, but collect separately. In the event of leakage or malfunction of the brake fluid system, contact your local dealer.*

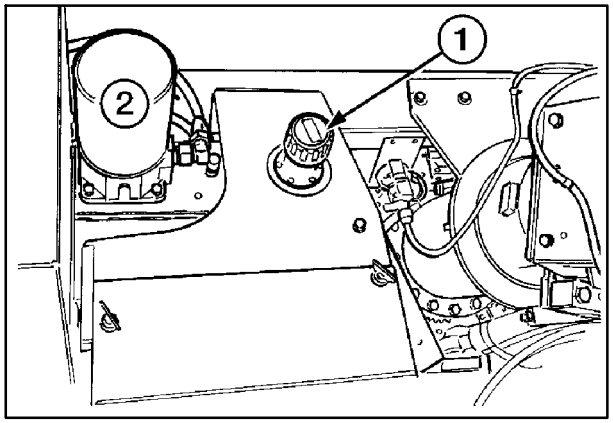
MAIN HYDRAULIC AND HYDROSTATIC SYSTEM

A single oil reservoir is fitted for the hydraulic and hydrostatic system. Both systems draw their oil from the same reservoir but the oil for each circuit goes through a separate filtering system.

OIL LEVEL

ENSURE THAT THE CHOPPER BODY IS IN ITS MOST UP POSITION AND ALL OTHER HYDRAULIC CYLINDERS ARE RETRACTED BEFORE CHECKING THE OIL LEVEL.

The oil level should be checked daily on the dipstick fitted to the filler opening cap (1). If necessary, add oil through the filler opening.



82

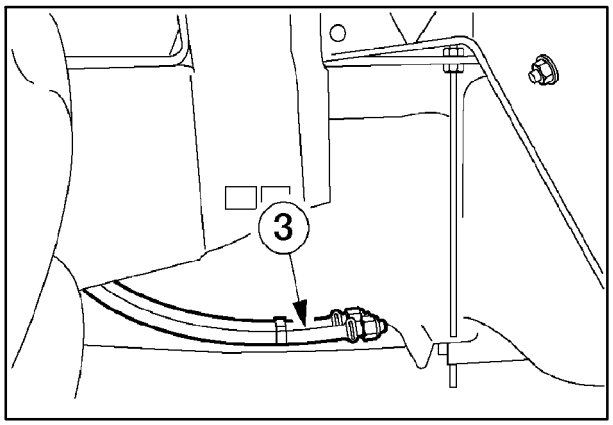
OIL AND FILTER CHANGE FOR BOTH HYDRAULIC AND HYDROSTATIC SYSTEM

- After the first 100 operating hours.
- Thereafter, every 600 operating hours or annually.

IMPORTANT: *The filters should be changed at every oil change.*

To change the oil and the filters of both the hydraulic and the hydrostatic system, proceed as follows:

1. Retract all hydraulic cylinders.
2. Clean the reservoir filler cap (1) and the surrounding area (with compressed air, if possible).
3. Drain the oil from the reservoir through the hose (3).

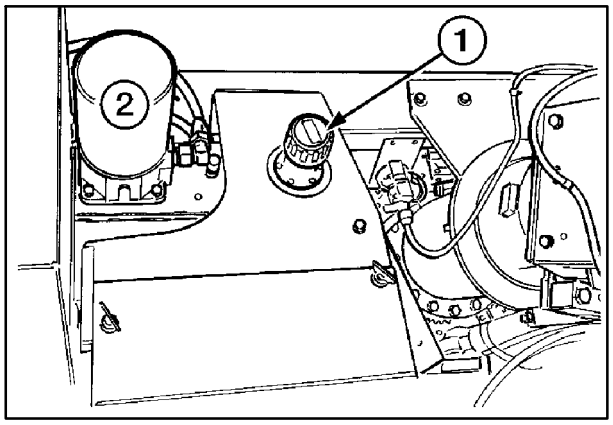


83

4. Remove the “spin-on” filter (2) with a filter wrench.

5. Apply a film of oil to the gasket of the new filter.

6. Screw on the new filter by hand. Tighten firmly but DO NOT USE TOOLS.

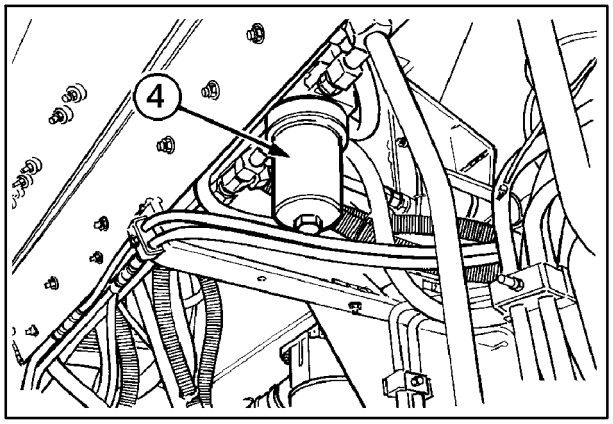


84

7. Remove the high pressure filter bowl (4) (spanner width: 32 mm)

8. Change the high pressure filter element.

9. Tighten the high pressure filter bowl with a spanner to a torque of 80 Nm (59 Ft.lbs).

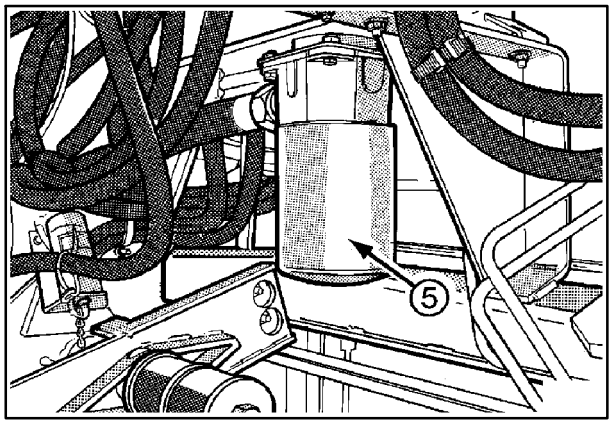


85

10. Remove the hydrostatic feed roll drive suction filter (5).

11. Fill the new filter bowl with oil.

12. Apply a film of oil to the gasket and screw on the new filter by hand. Tighten firmly but DO NOT USE TOOLS.



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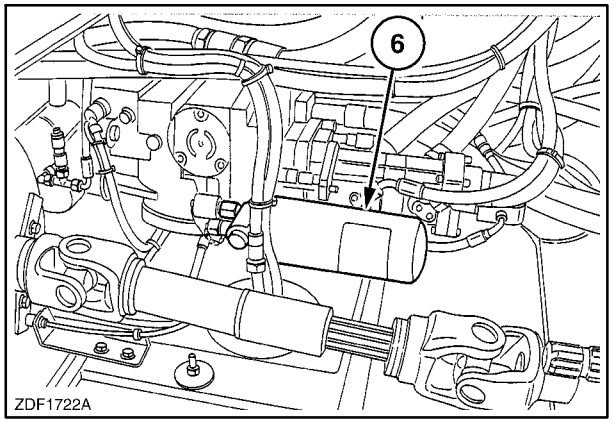
13. Remove the hydrostatic groundspeed pressure filter (6).

14. Apply a film of oil to the gasket and screw on the new filter by hand. Tighten firmly but DO NOT USE TOOLS.

15. Fill the reservoir up to the maximum mark on the oil level dipstick (1) (Fig. 84).



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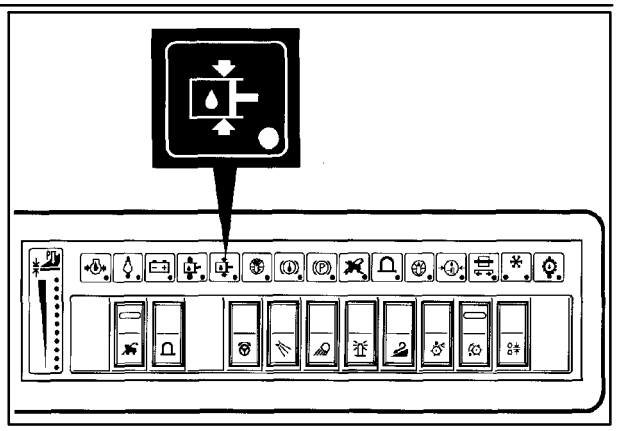
16. Start the engine. The low hydrostatic charge pressure warning light must extinguish as soon as the engine starts. If not, contact your dealer for assistance.



88

17. Run the engine at idle speed for five minutes and move the ground speed control lever slowly forward and backward with the gearshift lever in neutral and the rear-wheel drive [if installed] disengaged. Also operate the header and the spout a few times.

18. Check the oil level at the dipstick 1 and add oil, if necessary.

NOTE: *The hydraulic and hydrostatic filters are not the same. Make sure to install the correct filters.*

IMPORTANT: *Always clean the reservoir filler cap and the surrounding area before removing the cap to top up or replace the oil.*

CAPACITY

Reservoir capacity: 46 litres (12.15 US gal)
Entire system capacity: 130 litres (34 US gal)

OIL SPECIFICATION

Use AMBRA HYDROSYSTEM 46HV oil (ref. NH646H) or an oil meeting the following specification:

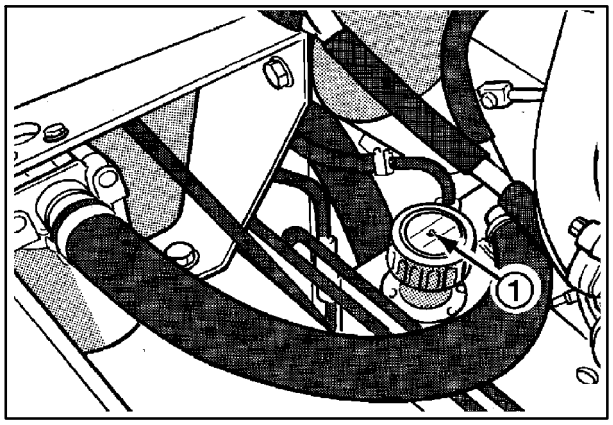
- DIN 51524 Part 2 or ISO VG46
- Viscosity grade: 46

MAIN HYDRAULIC CLUTCH

The main hydraulic clutch is operated by a separate low pressure hydraulic circuit.

OIL LEVEL

The oil level should be checked daily on the dipstick of filler cap 1.



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OIL CHANGE

A special bleeding procedure should be adhered to. Ask your dealer to do this job.

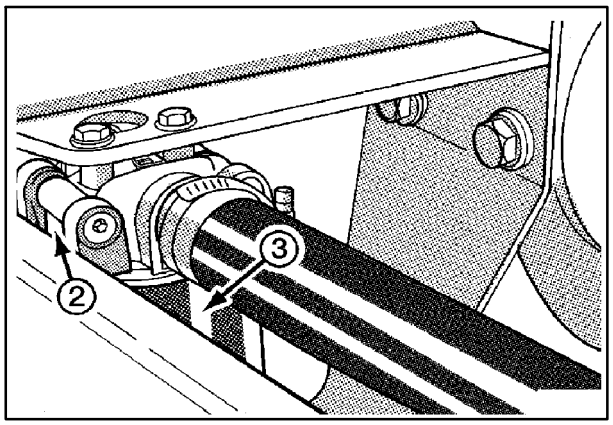
The oil has to be changed:

- After the first 100 operating hours
- Thereafter, when flow indicator 2 becomes red, or every 600 operating hours, or once every year.

OIL FILTER

The self indicating filter must be changed at every oil change.

NOTE: *Check the flow indicator with the engine running.*



90

OIL CAPACITY

Reservoir: 7 litres (1.85 US gal)
Entire system capacity: 10 litres (2.65 US gal)

OIL SPECIFICATION

Use AMBRA HYDROSYSTEM 46HV oil (ref. NH646H) or an oil meeting the following specification:

- DIN 51524 Part 2 or ISO VG46
- Viscosity grade: 46

HIGH CAPACITY REAR HYDRAULICS [IF INSTALLED]

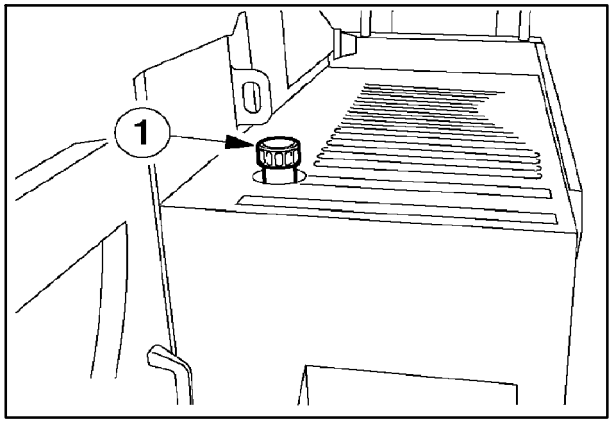
GENERAL

A separate oil reservoir for the high capacity rear hydraulics is installed under the right-hand side cab platform.

OIL LEVEL CHECK

ENSURE THAT ALL HYDRAULIC CYLINDERS THAT ARE CONNECTED TO THE SYSTEM ARE RETRACTED BEFORE CHECKING THE OIL LEVEL.

The oil level should be checked daily on the dipstick fitted to the filler opening cap 1. If necessary, add oil through the filler opening.



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OIL AND OIL FILTER CHANGE

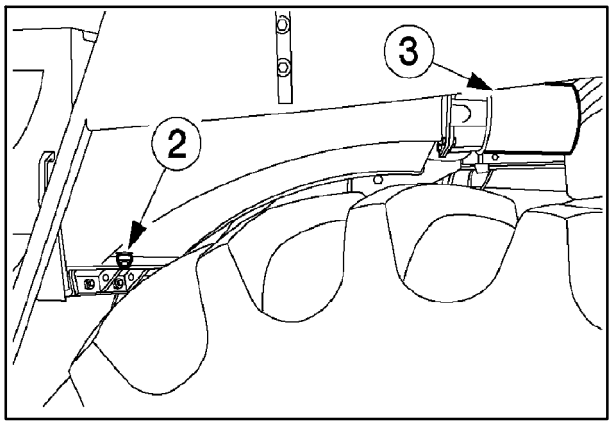
The oil has to be changed:

- After the first 100 operating hours
- Thereafter, every 600 operating hours or once every year.

IMPORTANT: *The oil filter should be changed at every oil change.*

To change the oil and the filters, proceed as follows:

1. Retract all hydraulic cylinders that are connected to the circuit.
2. Clean the reservoir filler cap 1 (fig. 91) and the surrounding area (with compressed air, if possible).
3. Drain the oil from the reservoir through plug 2.
4. Remove “spin-on” filter 3 with a filter wrench.
5. Apply a film of oil to the gasket of the new filter.
6. Screw on the new filter by hand. Tighten firmly but DO NOT USE TOOLS.



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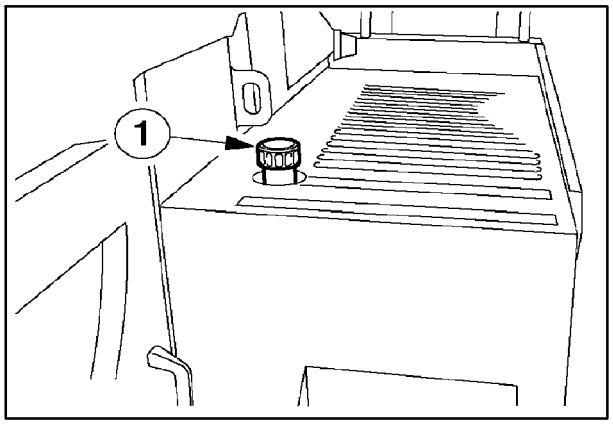
7. Fill the reservoir up to the maximum mark on the oil level dipstick 1.



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IMPORTANT: *Always clean the reservoir filler cap and the surrounding area before removing the cap to top up or replace the oil.*

OIL CAPACITY

Reservoir: 70 litres (18.5 US gal)
Entire system capacity: 77 litres (20 US gal)

OIL SPECIFICATION

Use AMBRA HYDROSYSTEM 46HV oil (ref. NH646H) or an oil meeting the following specification:

- DIN 51524 Part 2 or ISO VG46
- Viscosity grade: 46

LUBRICATION SCHEDULE

A new line of specially formulated Ambra-NH Lubricants, based on own engineering specifications, is available from your NEW HOLLAND dealer.

Item	Servicing interval	Amount/unit litres (US gal)	NEW HOLLAND Brand name	NEW HOLLAND Specification	Lubricant grade	International specification
Grease fittings	10h 50h 100h	- - -	AMBRA GR9 or AMBRA GR75 MD	NH710A or NH720A	EP#2	
Cutterhead gearbox	Change: - after first 100 h - every 600 h or annually	4.3 (1.14l)	AMBRA HYPOIDE 90 NH80W90	NH520A	SAE 80W-90	API GL5 MIL-L-2105 D
Blower gearbox	Change: - after first 100 h - every 600 h or annually	1.4 (0.37)	AMBRA HYPOIDE 90 NH80W90	NH520A	SAE 80W-90	API GL5 MIL-L-2105 D
High speed blower gearbox [if installed]	Change: - after first 100 h - every 600 h or annually	0.7 (0.18)	AMBRA HYPOIDE 90 NH80W90	NH520A	SAE 80W-90	API GL5 MIL-L-2105 D
Attachment drive gearbox	Change: - after first 100 h - every 600 h or annually	1.8 (0.48)	AMBRA HYPOIDE 90 NH80W90	NH520A	SAE 80W-90	API GL5 MIL-L-2105 D
Hydroloc™ gear-box	Change: - after first 100 h - every 600 h or annually	7.25 (1.92)	AMBRA HYPOIDE 90 NH80W90	NH520A	SAE 80W-90	API GL5 MIL-L-2105 D

Item	Servicing interval	Amount/unit litres (US gal)	NEW HOLLAND Brand name	NEW HOLLAND Specification	Lubricant grade	International specification
Upper feed roll drive gearbox	Change: - after first 100 h - every 600 h or annually	1.4 (0.37)	AMBRA HYPOIDE 90 NH80W90	NH520A	SAE 80W-90	API GL5 MIL-L-2105 D
Traction gear-box	Change: - after first 100 h - every 600 h or annually	15 (4)	AMBRA HYPOIDE 90 NH80W90	NH520A	SAE 80W-90	API GL5 MIL-L-2105 D
Final drive gearbox	Change: - after first 100 h - every 600 h or annually	5 (1.32)	AMBRA HYPOIDE 90 NH80W90	NH520A	SAE 80W-90	API GL5 MIL-L-2105 D
Four-wheel drive gearbox [if installed]	Change: - after first 100 h - every 300 h or annually	1.4 (0.37)	AMBRA HYPOIDE 90 NH80W90	NH520A	SAE 80W-90	API GL5 MIL-L-2105 D
Four wheel drive steering axle [if installed]	Change: - after first 100 h - every 600 h or annually	10 (2.64)	AMBRA HYPOIDE 90 NH80W90	NH520A	SAE 80W-90	API GL5 MIL-L-2105 D
4WD steering axle planetary fi-nal drives [if installed]	Change: - after first 100 h - every 600 h or annually	1 (0.26)	AMBRA HYPOIDE 90 NH80W90	NH520A	SAE 80W-90	API GL5 MIL-L-2105 D

Item	Servicing interval	Amount/unit litres (US gal)	NEW HOLLAND Brand name	NEW HOLLAND Specification	Lubricant grade	International specification
Engine (oil + filters)	Check daily Change: - after first 100 h FX30-40-50: - every 600 h FX60: - every 500 h	FX30: 29 (7.7) FX40-50: 35 (9.25) FX60: 34 (9)	AMBRA MASTER GOLD, HSP, SAE 15W-40.	NH330H	SAE 15W-40	API CH-4 ACEA E3/E5
Brake system	Change every two years	Reservoir 0.5 (0.13) System 2 (0.53)	AMBRA SYNTFLUID 4/DOT4	NH800A	-	NHTSA 116 DOT4, ISO 4925
Hydraulic and hydrostatic system (oil + filters)	Check daily Change: - after first 100 h - every 600 h or annually	Reservoir 46 (12.15) System 130 (34)	AMBRA HYDRO-SYSTEM 46HV NH134D	NH646H	ISO VG 46	DIN 51524 Part 2
Main hydraulic clutch	Check daily Change: - after first 100 h - every 600 h or annually	Reservoir 7 (1.85) System 10 (2.65)	AMBRA HYDRO-SYSTEM 46HV NH134D	NH646H	ISO VG 46	DIN 51524 Part 2
High capacity rear hydraulics (oil + filter) [if installed]	Check daily Change: - after first 100 h - every 600 h or annually	Reservoir 70 (18.5) System 77 20)	AMBRA HYDRO-SYSTEM 46HV NH134D	NH646H	ISO VG 46	DIN 51524 Part 2
Chains **Threaded rods** **Pivot points**	Weekly - every 200 h - every 200 h	Sparingly	AMBRA HYPOIDE 90 NH80W90	NH520A	SAE 80W-90	API GL5 MIL-L-2105 D

MAINTENANCE

⚠ CAUTION ⚠

Never work on or adjust any part of the forage harvester unless all moving parts have stopped. Ensure the engine is stopped, the ignition key is removed and the battery switch is switched off to prevent accidental starting. Failure to observe these rules could result in serious injury.

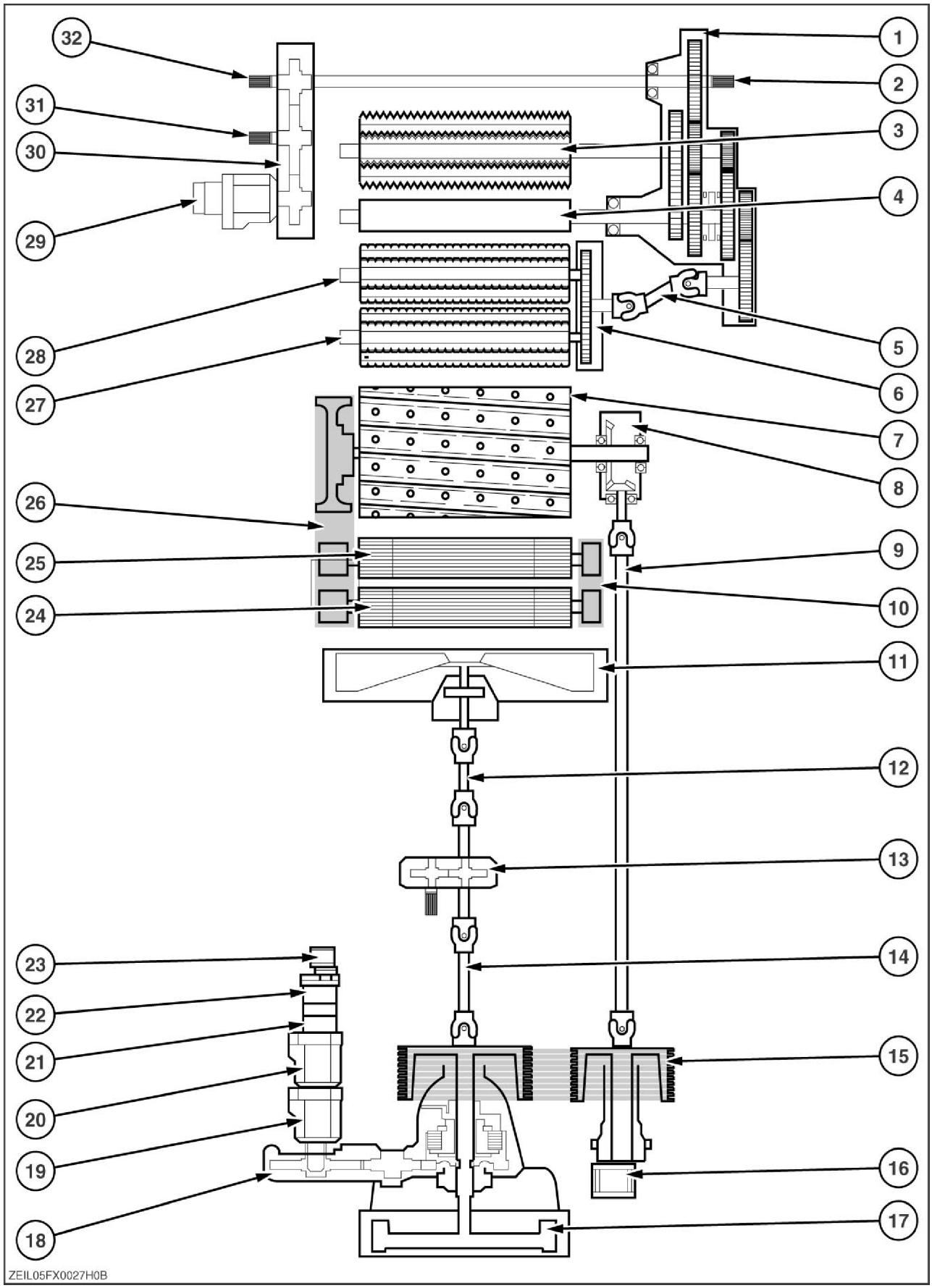
ALWAYS disconnect the relevant connector to the electronic box before applying 12 V current from an external source to a solenoid or other wire that is connected to the electronic box. Negligence to follow this instruction may destroy one or several components in the electronic circuit.

DRIVELINE AND COMPONENTS

Listed below and in Figure 94 are all the forage harvester functional components and their drives.

The speeds and torques mentioned apply to the nominal engine speed of 2100 rpm. At this speed the engine will deliver its maximum power.

	Speed (rpm)
1. Hydroloc™ gearbox	
2. Transfer shaft	
3. Lower front feed roll (or metal detector roll)	68 – 171 / 138 – 345
4. Smooth roll	131 – 327 / 264 – 660
5. Upper feed rolls drive pto	
6. Upper feed rolls gearbox	
7. Cutterhead	1229
8. Cutterhead gearbox	
9. Cutterhead drive shaft	2765
10. Crop processor double drive belt (If installed)	
11. Blower	739 (818)
12. Blower drive shaft	2100
13. High speed blower gearbox	
14. Blower drive shaft	2100
15. Main drive belt	
16. Cutterhead reverse drive hydraulic motor	800 - 860
17. Engine	2100
18. Main drive transfer gearbox	
19. Hydrostatic pump (Feed rolls)	3006
20. Hydrostatic pump (Groundspeed)	3006
21. Work hydraulics pump	3006
22. Steering hydraulics pump	3006
23. Low pressure hydraulics pump	3006
24. Lower crop processor roll	4070
25. Upper crop processor roll	3620
26. Crop processor drive belt	
27. Upper rear feed roll	121 – 303 / 244 – 611
28. Upper front feed roll	68 – 171 / 138 – 344
29. Hydrostatic motor feed rolls drive	1200 – 3000
30. Attachment drive gearbox	
31. Attachment drive shaft 346W – 356W – 366W 300N6 MF600 – MF800	300 – 750
32. Transfer drive shaft RI450 – RI600 DC510	505 – 1263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MAIN DRIVE

MAIN DRIVE HYDRAULIC CLUTCH

The main hydraulic clutch is incorporated in the main drive transfer gearbox and does not require any adjustment. In case of a malfunction, refer to Section 5 – "Fault finding" or contact your local dealer.

MAIN DRIVE BELTS

REPLACING MAIN DRIVE BELTS

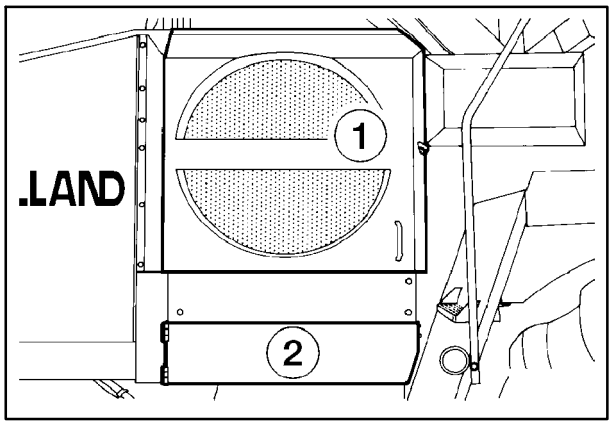
⚠ CAUTION ⚠

Switch OFF the cutterhead drive and stop the engine before working inside the forage harvester. Never open the covers until all parts have stopped rotating. Take the ignition key with you and switch OFF the battery switch.

Proceed as follows:

1. Switch OFF all drives, stop the forage harvester engine and wait until all parts have stopped rotating.

2. Open the right-hand side screen doors 1 and 2.



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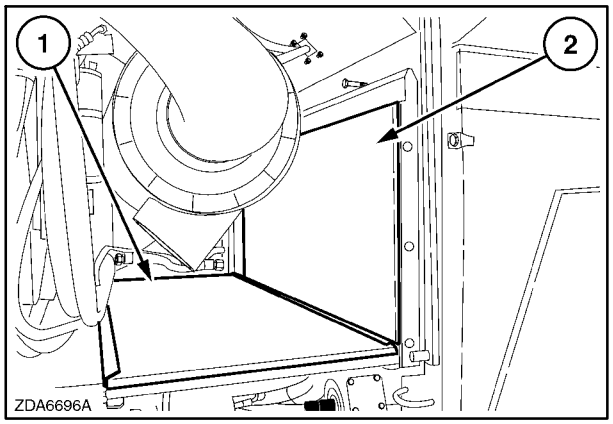
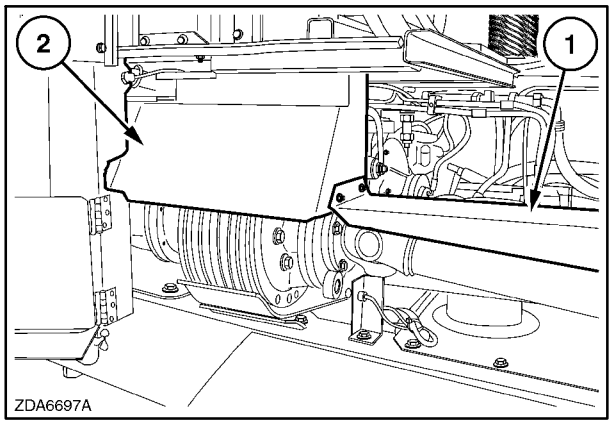
3. Remove plates 1 and 2.



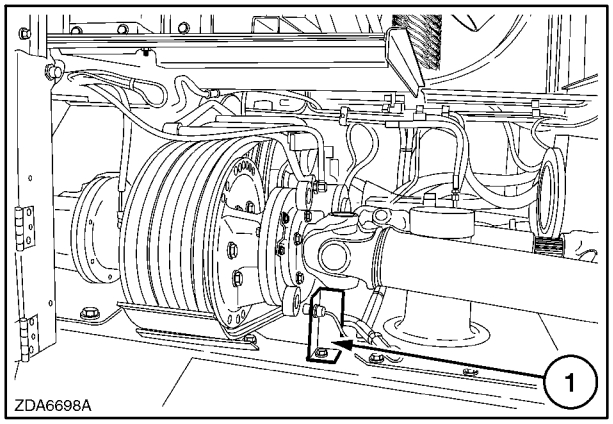
96

4. Remove guards 1 and 2.



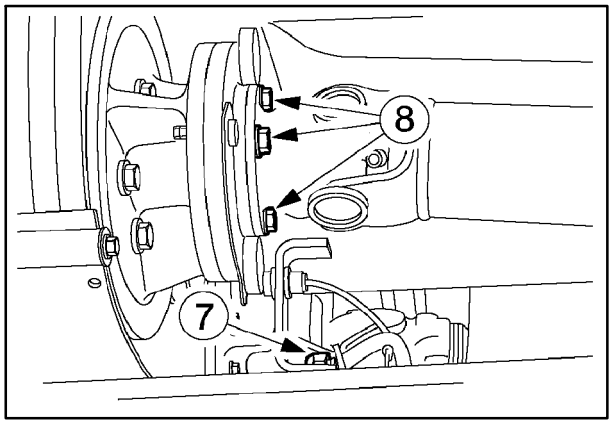
97

5. Disconnect and remove cutterhead speed sensor 1 with its support.



98

6. Disconnect the cutterhead drive shaft from the drive pulley by removing the four bolts 8.



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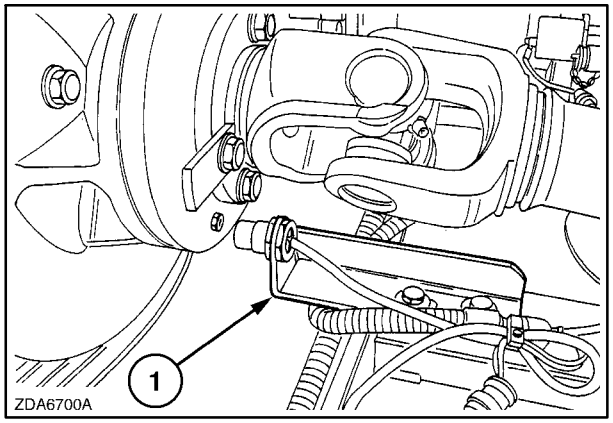
7. Disconnect and remove blower speed sensor 1 with its support.



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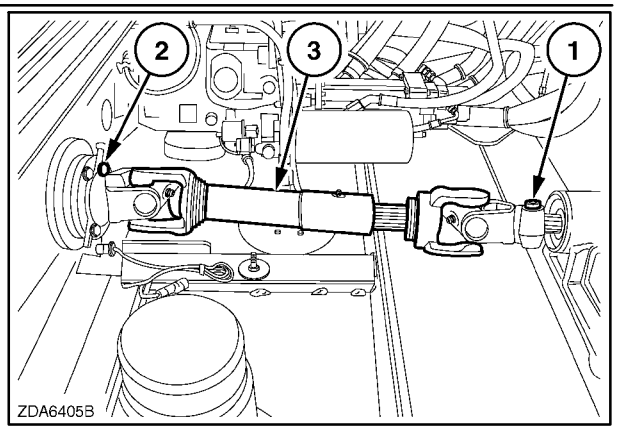
8. Remove two conical bolts 1 and 2 and remove blower drive pto 3.

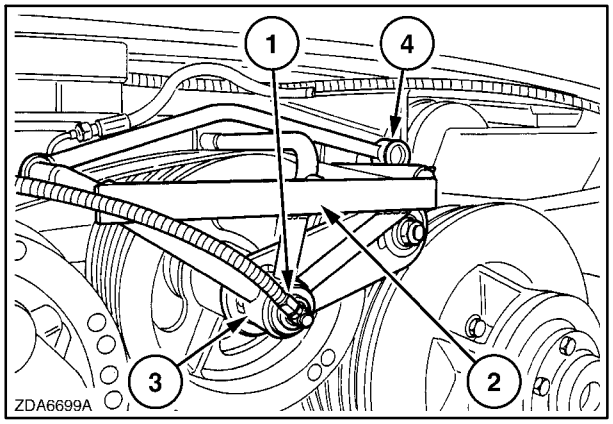


101

9. Remove the grease line at 1 (if installed).

10. Remove the bolts at 3 and 4 and pull away the upper belt guide 2.

NOTE: *Note down where to install shims and washers.*



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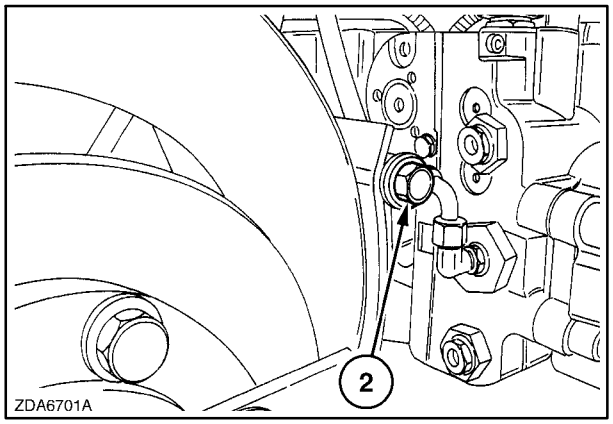
11. Remove bolt 2.



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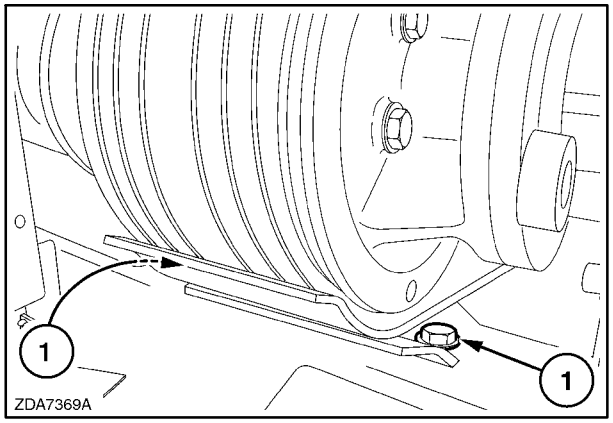
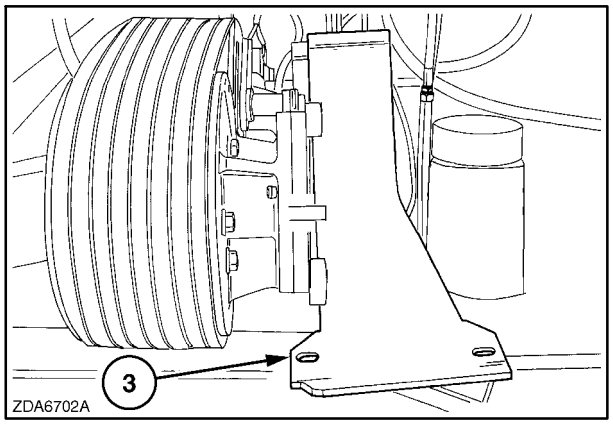
12. Remove two bolts 1.



104

13. Remove the belt guide plate 3.



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14. Remove the belts.

15. Clean the pulley grooves.

IMPORTANT: *Always replace the belts by a matched set of new belts.*

Never mix belts of matched sets.

16. Install the new belts in reverse order of the removal sequence.

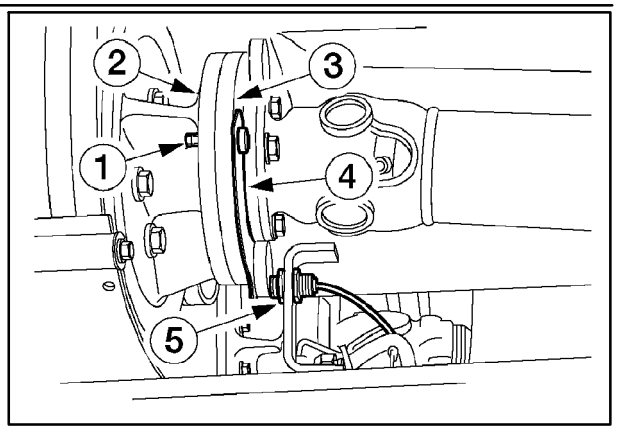
17. Adjust the speed sensors, refer to the paragraph headed “Sensors” further in this section.

MAIN DRIVE BELT TENSION

The main drive belts are tensioned hydraulically. No manual adjustment is needed.

IMPORTANT: *Check the condition of the belts daily.*

CUTTERHEAD DRIVE



106

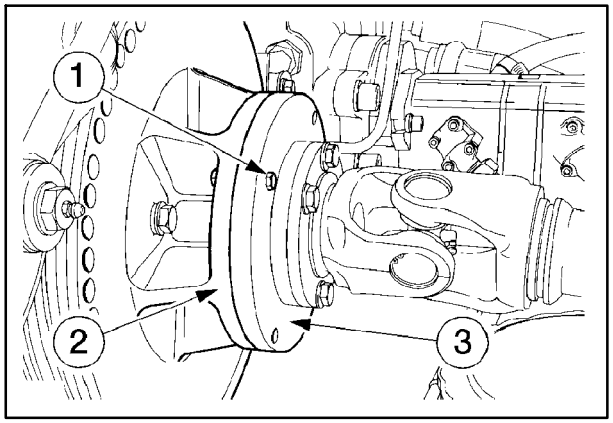
The cutterhead is protected by two shearbolts 1. If the shearbolts shear, determine the cause before installing new shearbolts. Use only genuine shearbolts from your dealer.

When installing new shearbolts make sure that flanges 2 and 3 are parallel and contact each other. Do not overtighten the shearbolts.

Place springs 4 over shearbolts 1. These springs will keep the shearbolts in place after they have sheared, to avoid contact between the shearbolts and sensor 5.

IMPORTANT: *Engaging the cutterhead when it is blocked with crop may cause the shearbolts to shear.*

BLOWER DRIVE



107

The blower is protected by one shearbolt 1. If the shearbolt shears, determine the cause before installing the new shearbolt. Use only genuine shearbolts from your dealer.

When installing the new shearbolt make sure that flanges 2 and 3 are parallel and contact each other. Do not overtighten the shearbolt.

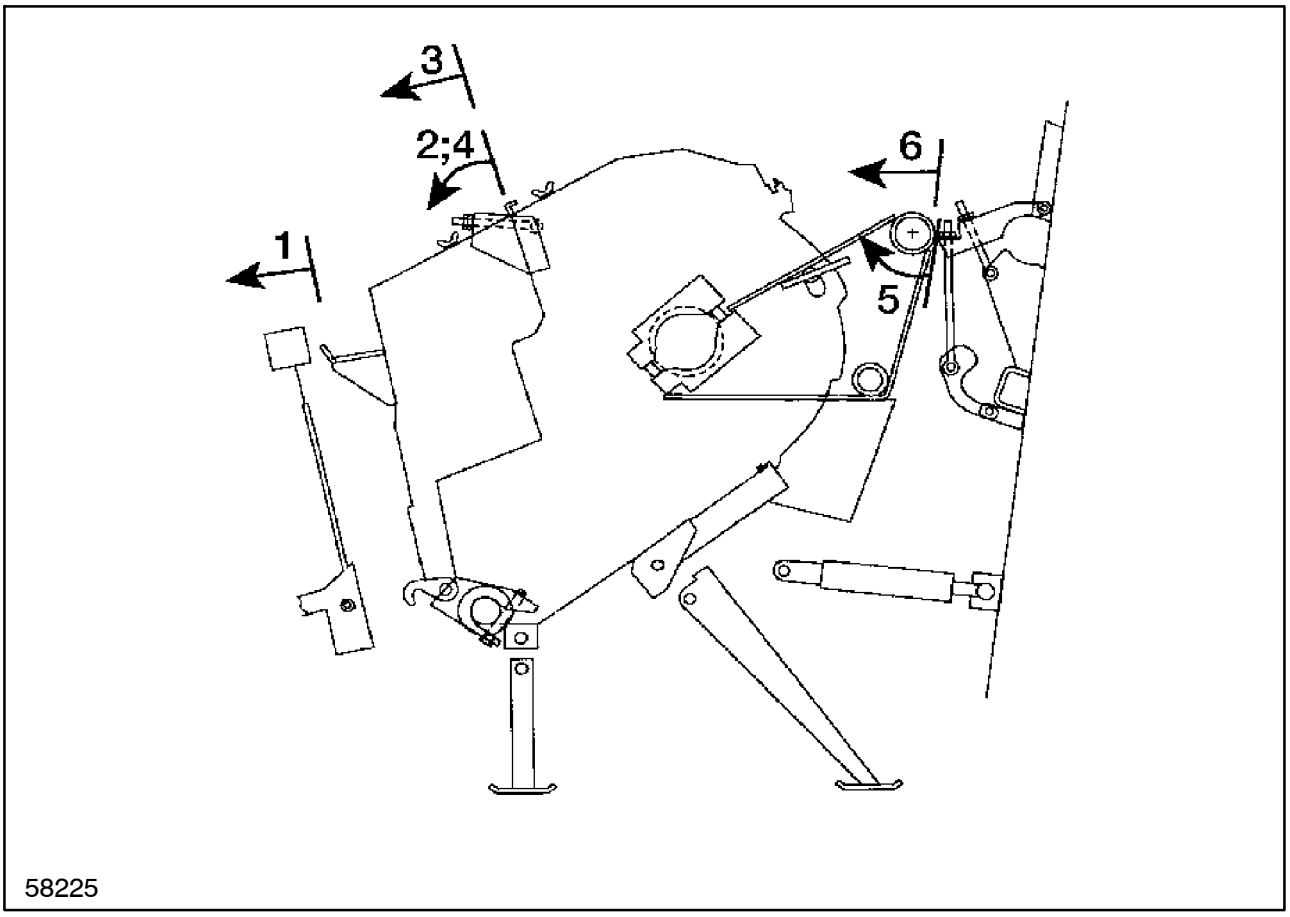
IMPORTANT: *Engaging the main drive when the blower is blocked may cause the shearbolt to shear.*

SPLITTING OF COMPONENTS

⚠ WARNING ⚠

Splitting of components must always be carried out with the utmost care and attention. Failure to do so may lead to severe injuries or even death.

The forage harvester offers several possibilities to detach functional elements of the machine in an easy way. These possibilities allow you to check, repair or replace almost every part of the chopper body and the blower in a quick way.



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1. Attaching and detaching the attachment
2. Inspection between the upper feed rolls and the cutterhead
3. Attaching and detaching the attachment with the upper feed rolls
4. Flip down the upper feed rolls
5. Inspection between the cutterhead (or the crop processor) and the blower
6. Dismounting and mounting the chopper body

⚠ WARNING ⚠

Follow the correct sequence of the proper procedure as detailed further in this paragraph.

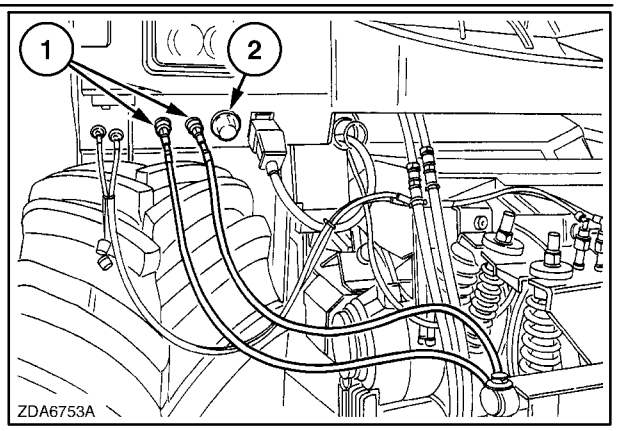
DETACHING AND ATTACHING THE ATTACHMENT

Detaching

To remove the attachment from the base unit, proceed as follows:

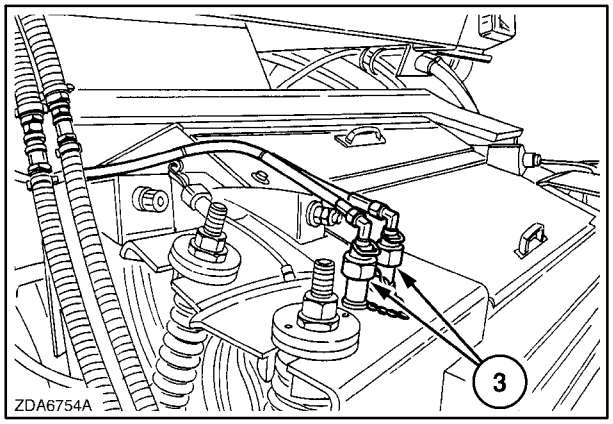
1. Disconnect the two quick-release hydraulic couplings 1.

2. Maize attachment with Auto-Pilot only:
   Disconnect electric cable 2.



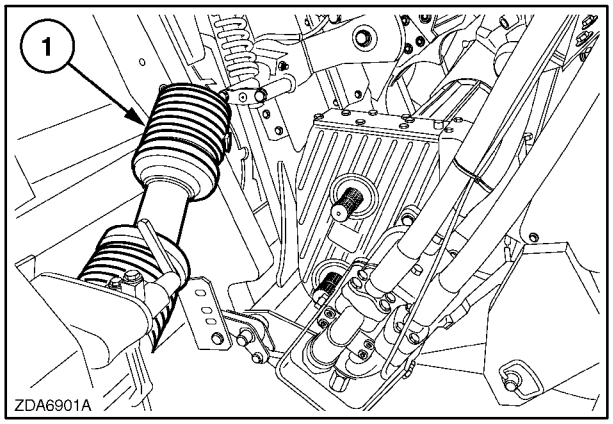
109

3. If the attachment is fitted with an automatic greasing system, disconnect the grease line(s) to the attachment.



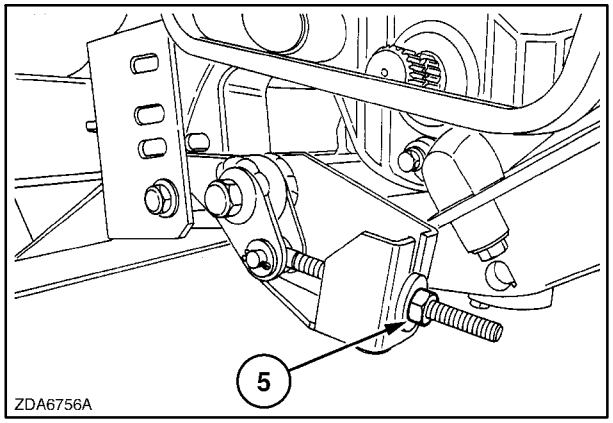
110

4. Disconnect attachment drive pto 1.



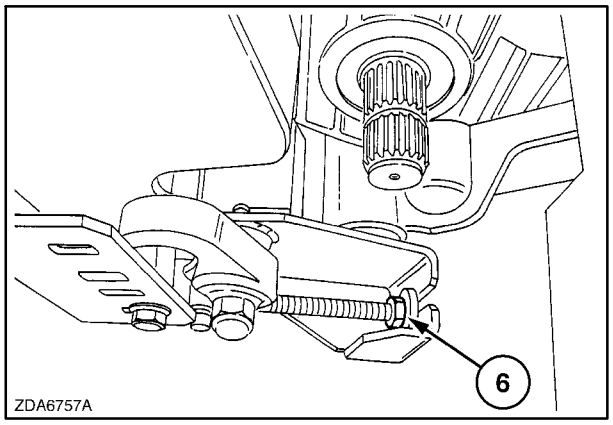
111

5. Remove nut and washer 5.



112

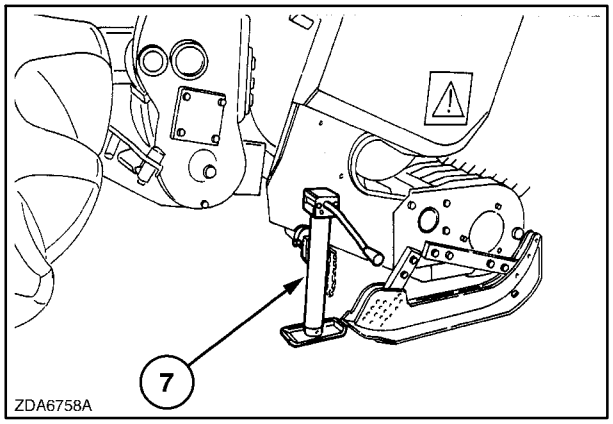
6. Release the attachment safety hooks completely and prevent them from engaging with nut 6.



113

7. Install jack stands 7 on both sides of the pick-up attachment.

NOTE: *Refer to the Operator's Manual of the attachments.*



114

8. Pick-up: Lower the pick-up until the skid shoes or the gauge wheels touch the ground (Do not lower completely). Lengthen the jack stands on both sides simultaneously until the pick-up is free from the hook on the chopper body.

   Row independent: Lower the attachment completely until it rests on its supports. Lower further until the chopper body is completely released from the attachment.

9. Carefully reverse the machine and ensure the attachment is released from the chopper body.

Attaching

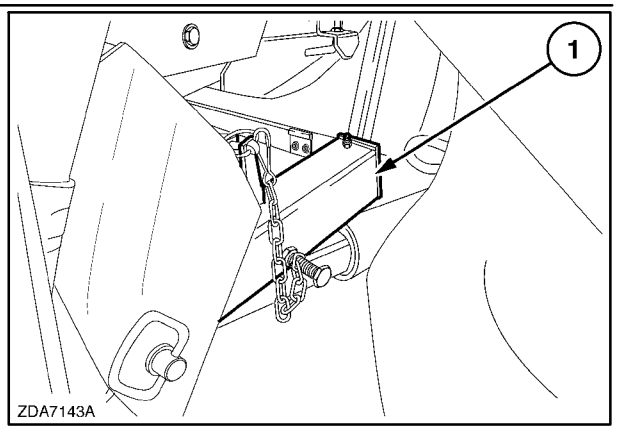
1. Line up the base unit with the attachment. Lower the chopper body until the hook mounted on the front of the chopper body can enter the attachment. Drive forward until the chopper body is against the attachment.

2. Pick-up: Lower the jack stands on both sides simultaneously until the attachment rests completely on the hook of the chopper body. Lift the chopper body and the pick-up completely.

   Row independent: Lift the chopper body and the attachment completely.

3. Engage the attachment safety latch 1.

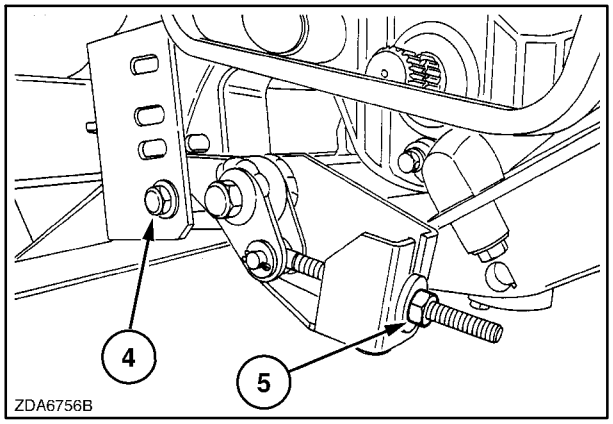
4. Remove and store the jack stands (refer to the Operator's Manual of the attachment).



115

5. Engage the attachment safety hooks and tighten nut 5.

NOTE: *If necessary, adjust bolts 4 so that the hooks are in full contact with them.*

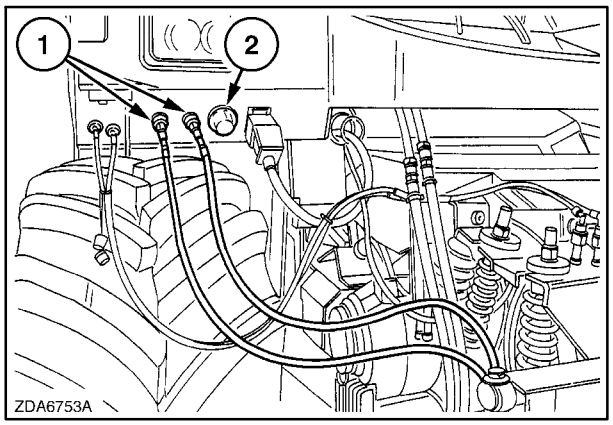


116

6. If the attachment is fitted with an automatic greasing system, connect the grease line(s) to the attachment.

7. Connect the two quick-release hydraulic couplings 1.

8. Maize attachment with Auto-Pilot only:
   Connect the electric cable 2.

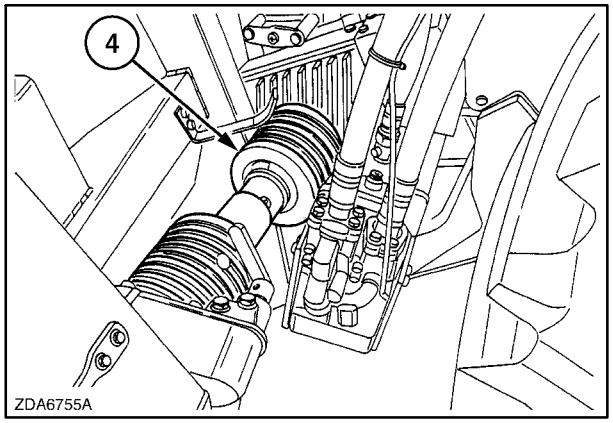


117

9. Install attachment drive pto 4.

IMPORTANT: *Make sure that the drive yokes on each end of the attachment drive p.t.o. shaft are in phase.*

Make sure that the attachment drive shaft is installed in such a way that the shaft end cannot touch the feed rolls gearbox.



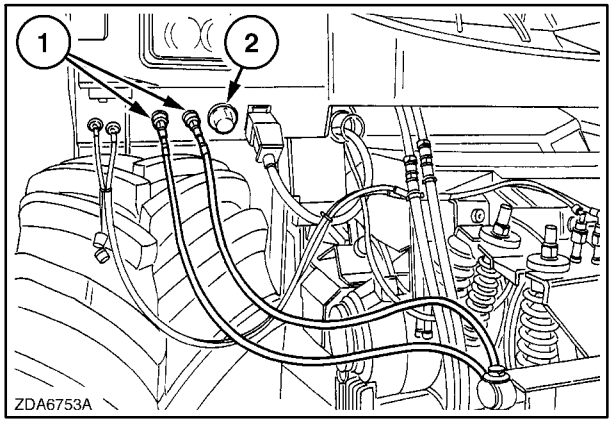
118

INSPECTION BETWEEN UPPER FEED ROLLS AND CUTTERHEAD

NOTE: *The attachment must remain attached to the forage harvester.*

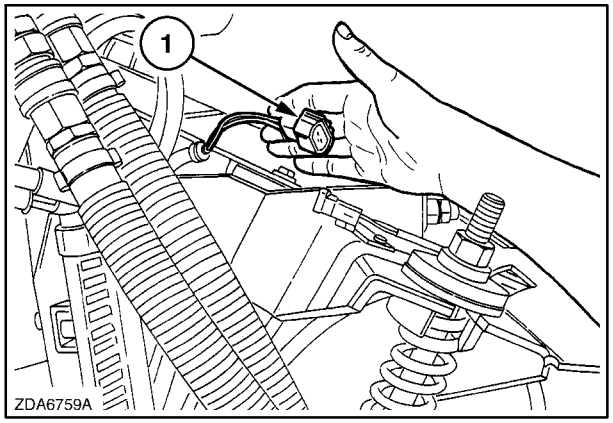
Opening upper feed rolls with attachment

1. Lower the chopper body until the attachment rests on the ground.
2. Disconnect the two quick-release hydraulic couplings 1.
3. Maize attachment with Auto-Pilot only: Disconnect the electric cable 2.



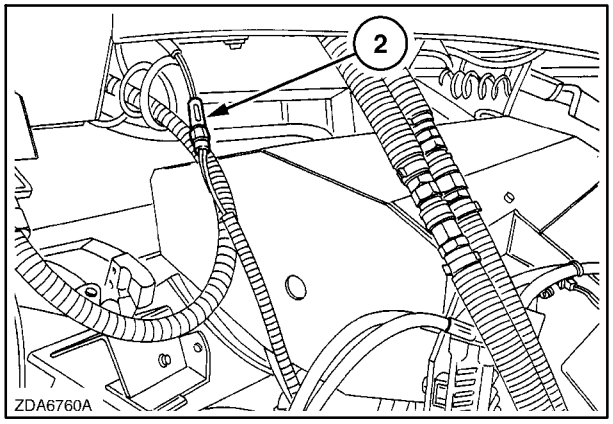
119

4. Disconnect the connector 1.



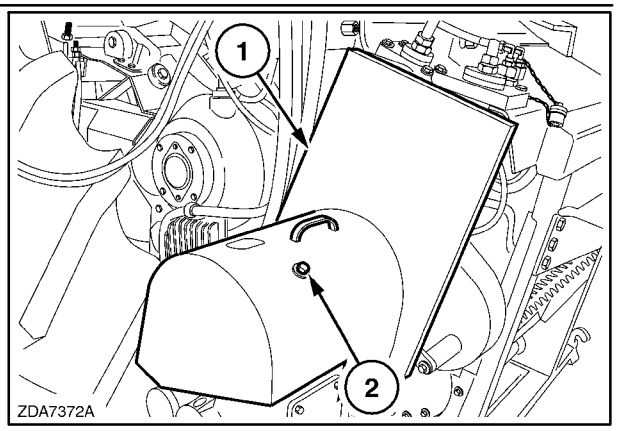
120

5. Disconnect the connector 2.



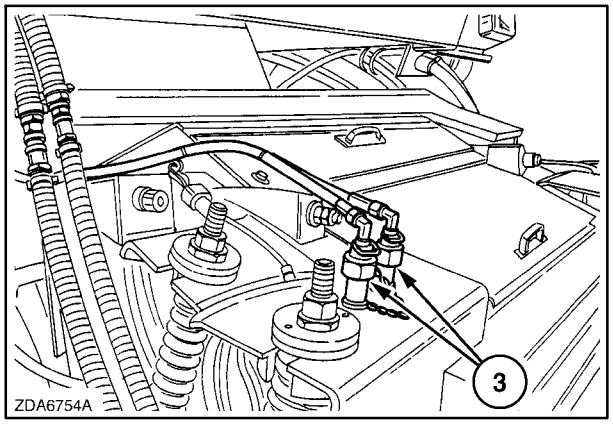
121

6. Remove two bolts 2 to remove cover 1.



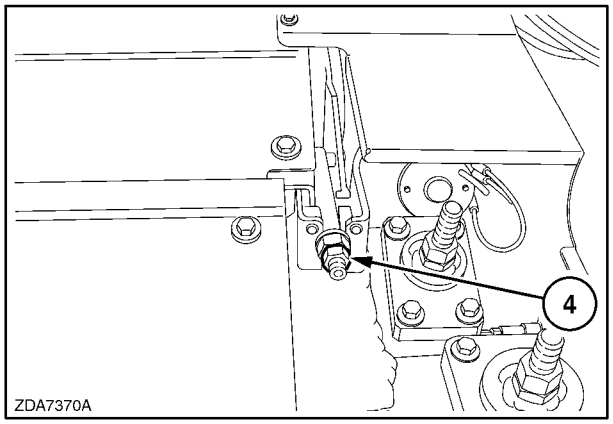
122

7. If the chopper body is fitted with an automatic greasing system, disconnect the grease line(s) (3) between the upper feed roll module and the chopper body. If there is a grease line to the attachment, disconnect that one as well.



123

8. Loosen nuts 4 and swing over the clamping rods between the upper feed roll module and the chopper body.

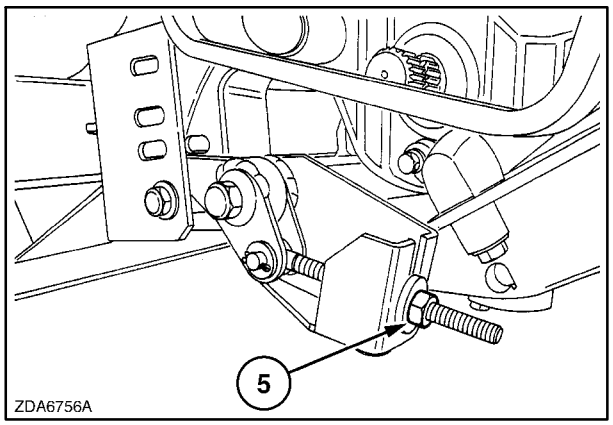


124

IMPORTANT: *Be sure the attachment hooks are good installed and nut 5 is tightened well as the upper feed rolls module will stay attached to the attachment..*

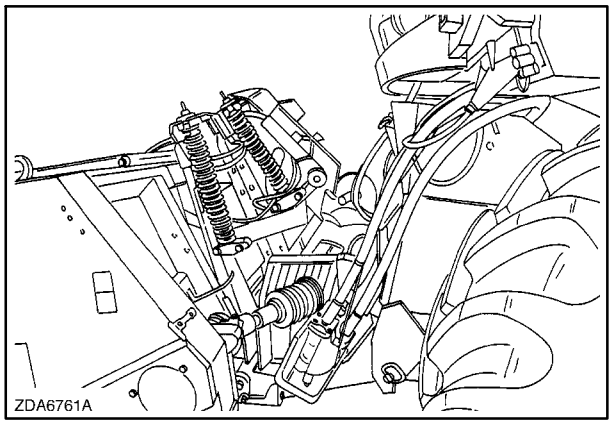
9. Fully extend the hydraulic cylinders by giving the "attachment up" command from the multifunction lever.

10. Install the cylinder safety latch.



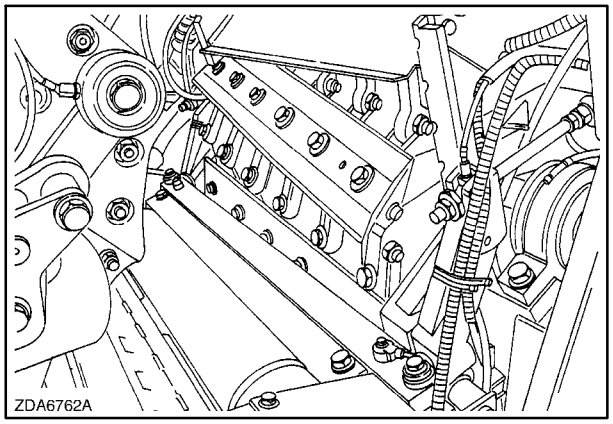
125

11. A V-shaped gap will appear between the feed rolls and the cutterhead.



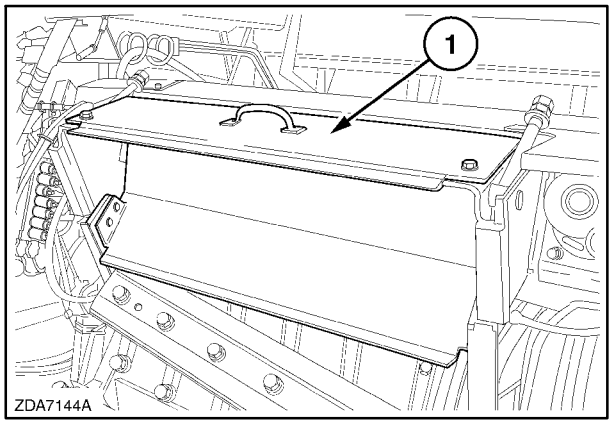
126

12. This will enable you to inspect the cutterhead knives and the shearbar in a quick way.



127

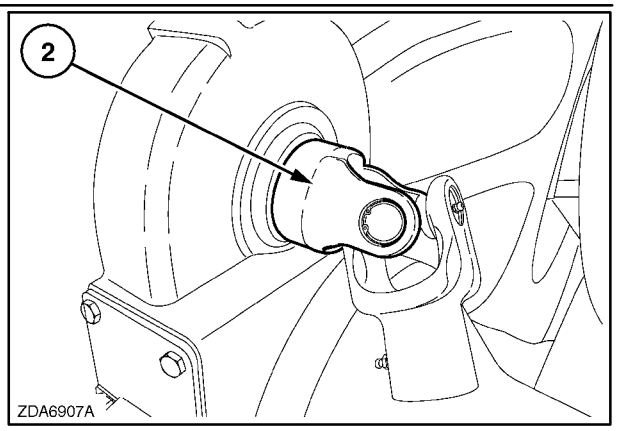
NOTE: *The accessibility to the cutterhead can be improved when removing the cover 1 above the cutterhead.*



128

Closing the inspection opening

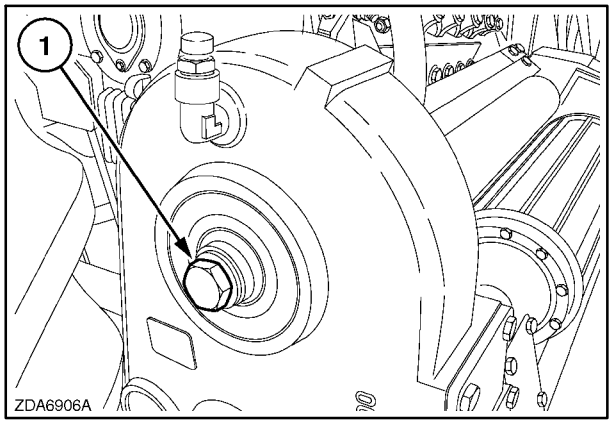
1. Remove yoke 2 from the Hydroloc™ gearbox.



129

NOTE: *To remove yoke 2, remove bolt 1 and insert a M30 bolt at 1 and press off yoke 2.*

IMPORTANT: *Do not loosen bolt 1 and hit on it to remove yoke 2 as this may damage the bolt*

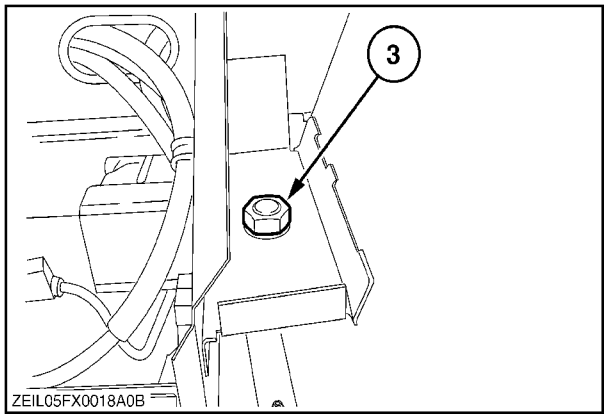


130

NOTE: *A M30 bolt is located on the right-hand side of the machine at 3. First remove the battery cover to obtain access to the bolt..*

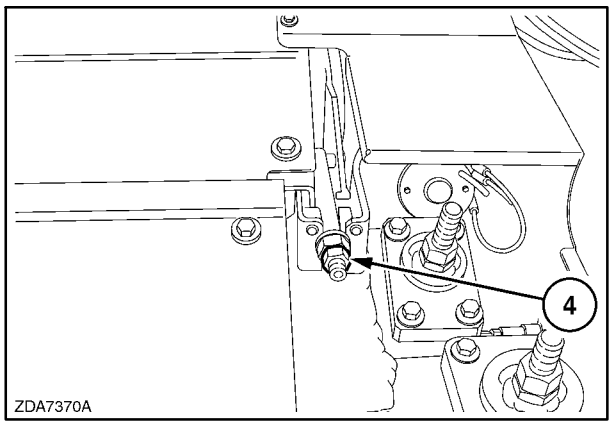
2. Disengage the cylinder safety latch.

3. Start the engine and give the “attachment down” command from the multifunction lever to retract the hydraulic cylinders after ensuring nobody is near the machine.



131

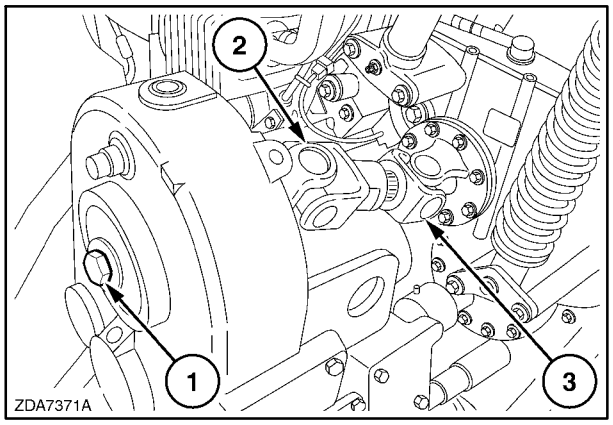
4. Reinstall the clamping rods between the upper feed roll module and the cutterhead and tighten nuts 4.



132

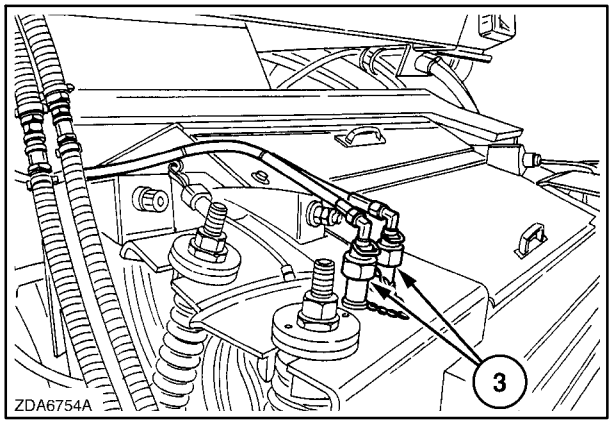
5. Install yoke 2 on p.t.o.-shaft 3 and secure to the Hydroloc™ gearbox with bolt 1.

NOTE: *A notch is foreseen so the drive yokes on each end of the upper feed rolls drive p.t.o. shaft are in phase.*



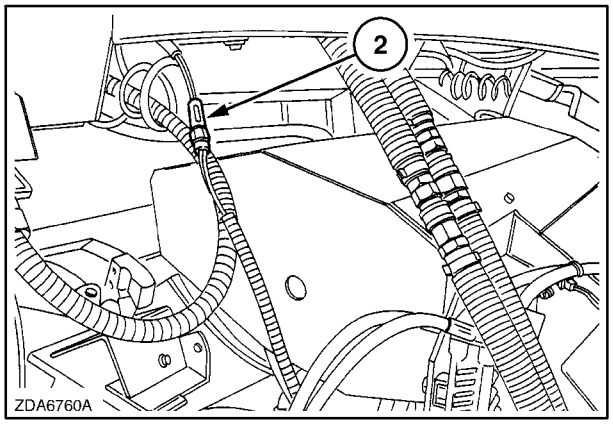
133

6. If the machine is fitted with an automatic greasing system, connect the grease line(s) 3 to the upper feed roll module and the attachment.



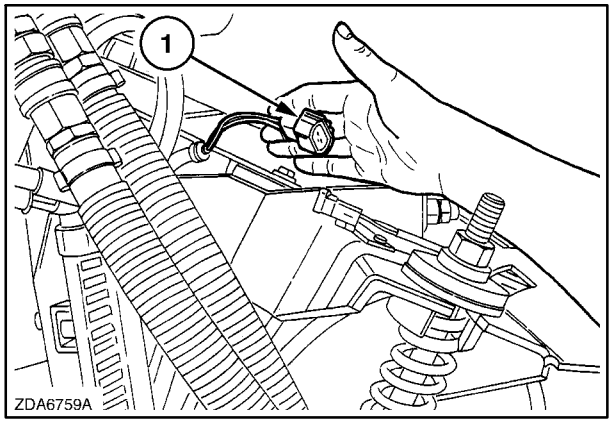
134

7. Connect connector 2.



135

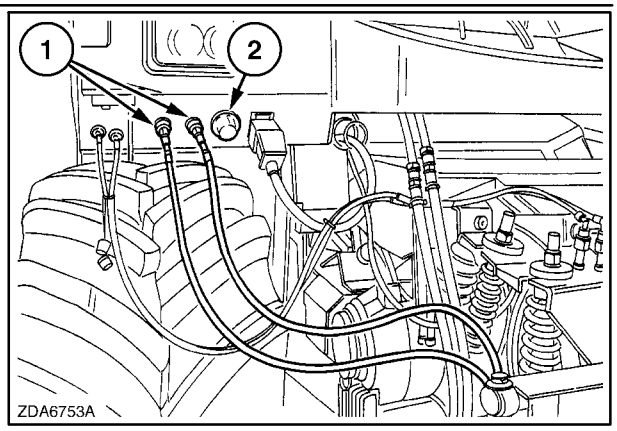
8. Connect connector 1.



136

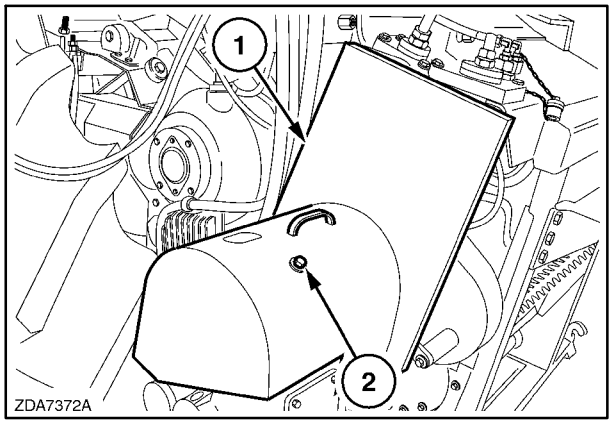
9. Maize attachment with Auto-Pilot only: Connect electric cable 2.

10. Connect two quick-release couplings 1.



137

11. Install cover 1.



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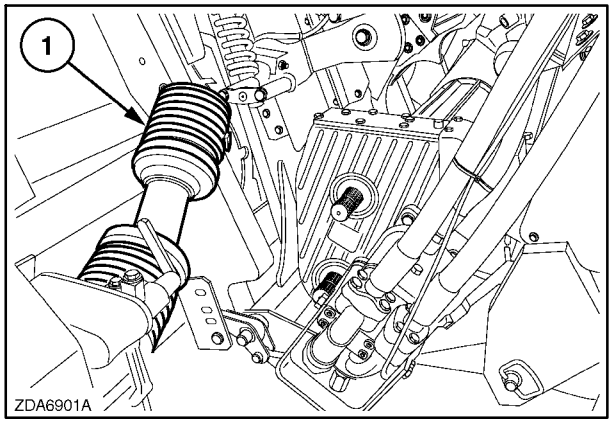
ATTACHING AND DETACHING THE ATTACHMENT WITH THE UPPER FEED ROLLS

Removal

1. Open the upper feed rolls with the attachment as described above.

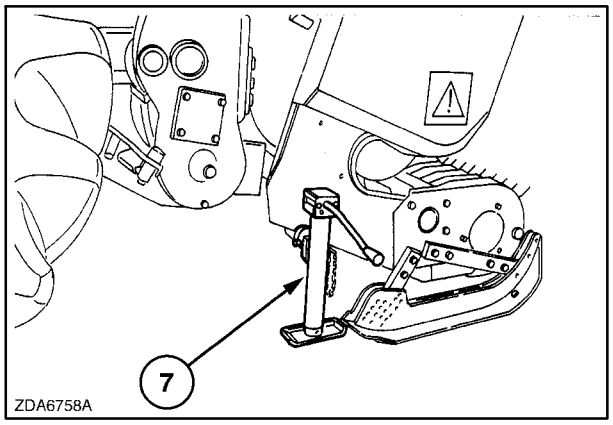
NOTE: *Do not engage the attachment safety latch.*

2. Disconnect attachment drive pto 1.



139

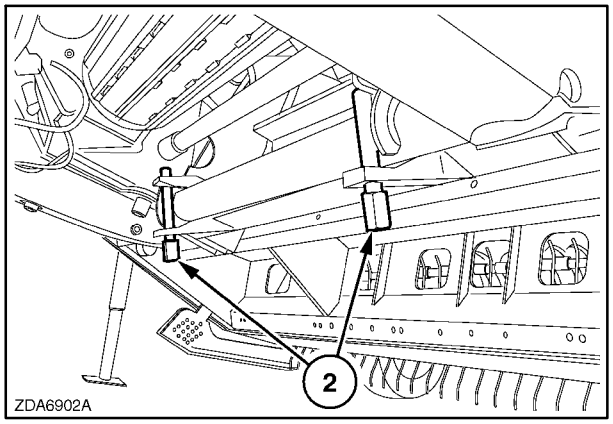
3. Install jack stands 7 on both sides of the pick-up and fully extend them.



140

4. Remove the lynch pins and pins 2.

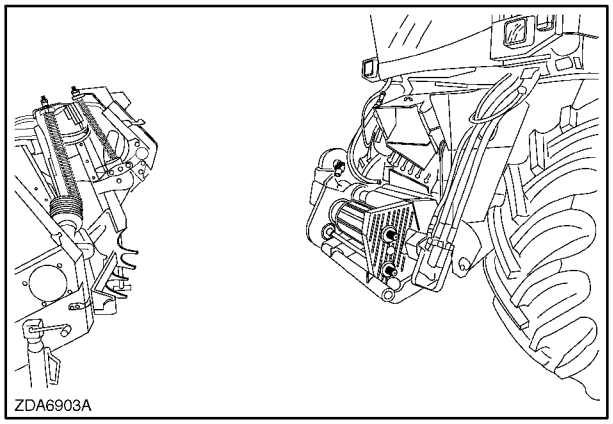
NOTE: *Only in the fully lifted position, the pins 2 are loose. Normally they will fall out when the chopper body is in its upper position.*



141

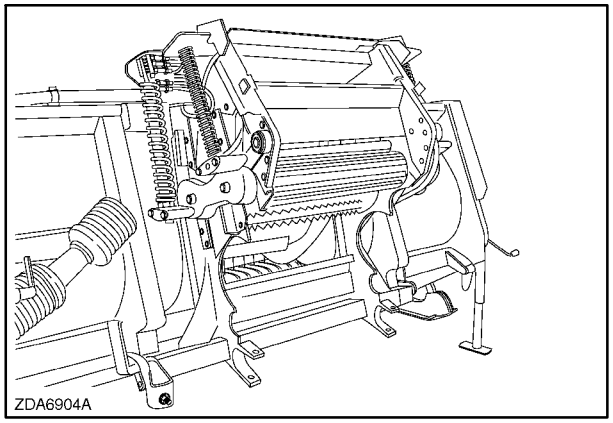
5. Lower the cutterhead until the attachment rests on its supports.

6. Carefully reverse the harvester.



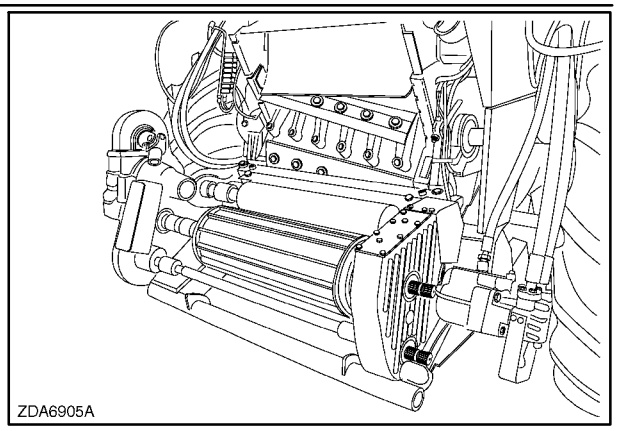
142

7. The upper feed rolls stay with the attachment.



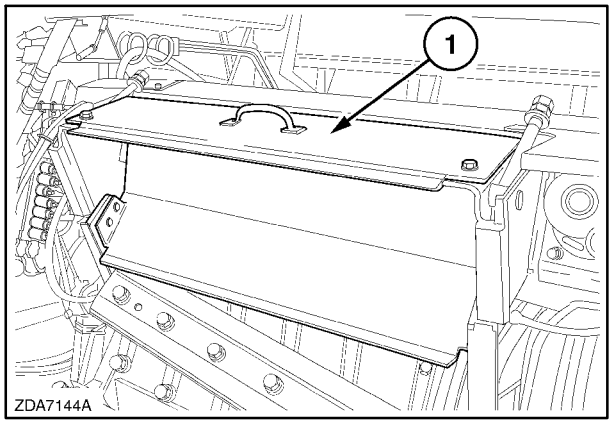
143

8. The metal detector roll and the smooth roll, the cutterhead and the shearbar are very well accessible.



144

NOTE: *The accessibility to the cutterhead can be improved when removing the cover above the cutterhead.*



145

Attaching

1. Drive up to the attachment with the upper feed roll module.

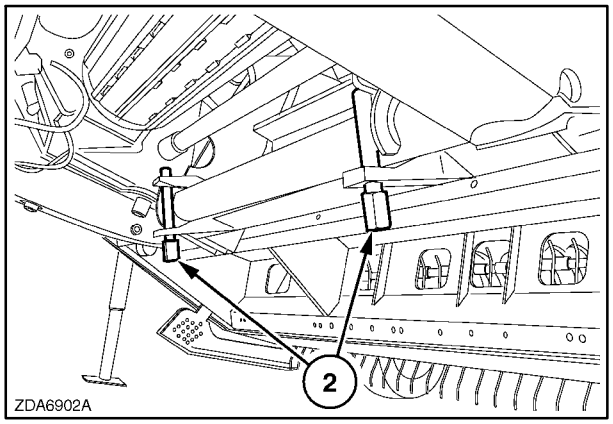
2. Fully extend the hydraulic cylinders by giving the “attachment up” command from the multifunction lever and stop the engine.

3. Engage the header safety latch.

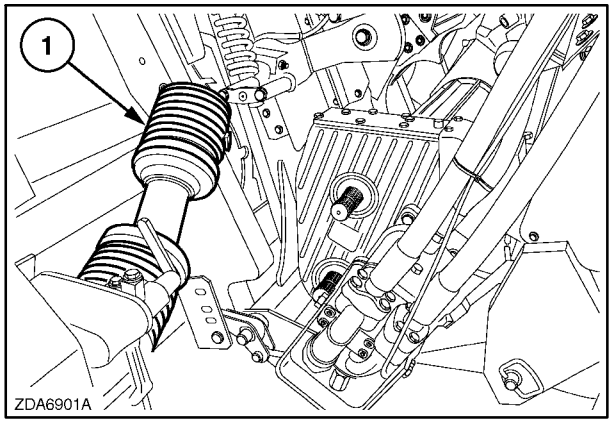
4. Reinstall the two pins 2 and the lynch pins underneath the chopper body connecting the upper feed roll module to the chopper body.

5. Withdraw the jack stands on both sides of the pick-up and place them in their storage place.

6. Install the attachment drive pto 1.



146



147

7. Continue the procedure “Closing the inspection opening” as described in previous paragraph.

FLIP DOWN UPPER FEED ROLLS

Opening the upper feed roll module

NOTE: *For pictures refer to paragraph headed "Inspection between upper feed rolls and cutterhead"*

1. Detach the attachment as described in paragraph headed "Detaching and attaching the attachment".

2. Disconnect connector 1 (fig. 120) and connector 2 (fig. 121).

3. Remove two bolts 2 to remove cover 1 (fig. 122).

4. If the forage harvester is fitted with an automatic greasing system, disconnect the grease line(s) 3 (fig. 123).

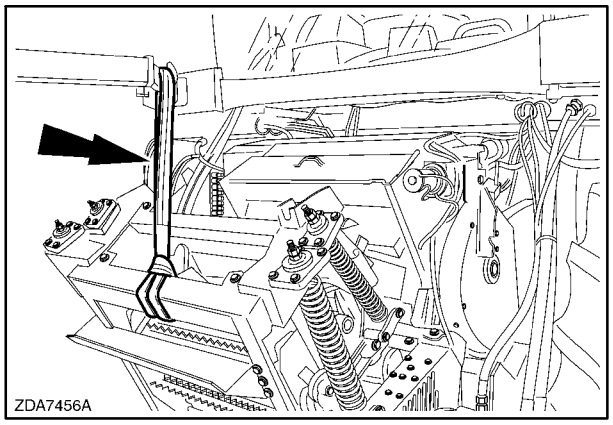
5. Support the upper feed roll module as shown using a adequate lifting device.

⚠ WARNING ⚠

Utmost care should be taken as the upper feed rolls module is very heavy.

6. Loosen nuts 4 and swing over the clamping rods between the upper feed roll module and the cutterhead (fig. 124).

7. Flip down the upper feed roll module onto the ground.



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Closing the upper feed rolls module

1. Remove the yoke from the Hydroloc™ gearbox (fig. 129 and 130).

2. Lift up and close the upper feed rolls module.

3. Reinstall the clamping rods between the upper feed roll module and the cutterhead and tighten the nuts firmly.

4. Install yoke 2 on p.t.o.-shaft 3 and secure to the Hydroloc™ gearbox with bolt 1.

NOTE: *A notch is foreseen so the drive yokes on each end of the upper feed rolls drive p.t.o. shaft are in phase.*

5. If the machine is fitted with an automatic greasing system, connect the grease line(s) to the upper feed roll module and the attachment.

6. Connect connector 1 (fig. 120) and connector 2 (fig. 121).

7. Install the upper feed rolls p.t.o. safety cover.

INSPECTION BETWEEN CUTTERHEAD OR CROP PROCESSOR AND BLOWER

Opening up the assembly

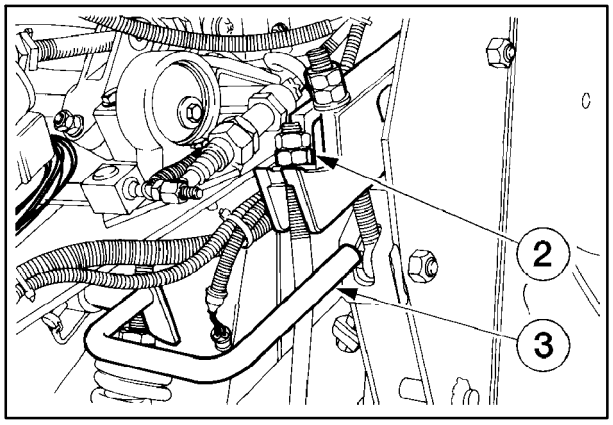
1. Lower the chopper body with the attachment to the ground.

2. Remove the chopper body upper safety guard on the left-hand side.

3. On both sides, unscrew the front clamping rods 2.

4. Unlock pin 3 and push it toward the cutterhead. This pin will limit the chopper body's rotation. Lock the pin in that position.

IMPORTANT: *Do not try to install both pin 3 and clamping rods 1 and 2 at the same time. Doing this and lifting the chopper body afterwards would cause irreparable damage to the chopper body's triangular frame.*



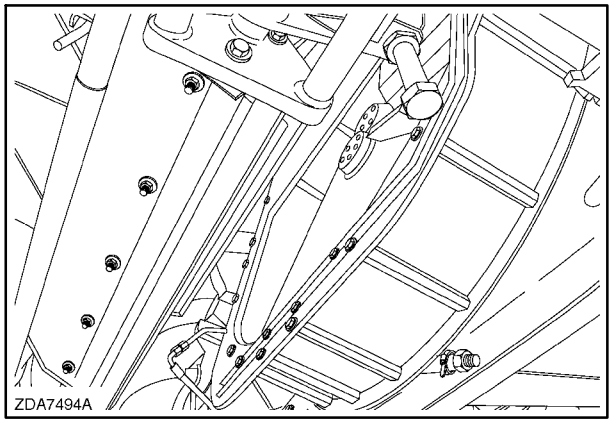
149

5. Lift the chopper body.

   A Λ-shaped gap will appear between the cutterhead (or crop processor) and the blower.

6. Install the attachment safety latch.

   Inspection of the blower and the rear side of the cutterhead or the crop processor can now take place.



150

Closing the assembly

1. Lift the attachment safety latch.
2. Lower the chopper body.
3. Unlock pin 3, pull it out and lock it.
4. Reinstall the front clamping rods 2 and tighten them firmly.
5. Reinstall the chopper body upper safety guard on the left-hand side.

DISMOUNTING AND MOUNTING THE CHOPPER BODY

⚠ WARNING ⚠

This operation should be carried out with utmost care and attention. Only an experienced tractor driver should be allowed to do this job.

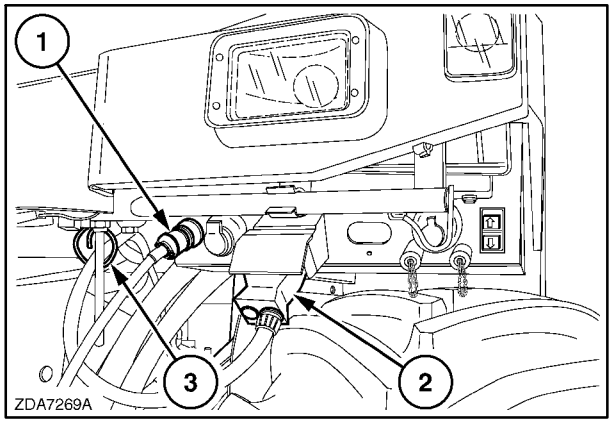
The cutterhead is removed from the machine with an A-frame that is mounted in a tractor's 3-point hitch. This tractor must be at least 110 à 120 hp and sufficient front weight should be installed. The weight of the cutterhead/feed roll combination is almost 2380 kg. The tractor hydraulics should be in good condition to allow precise height control.

Dismounting

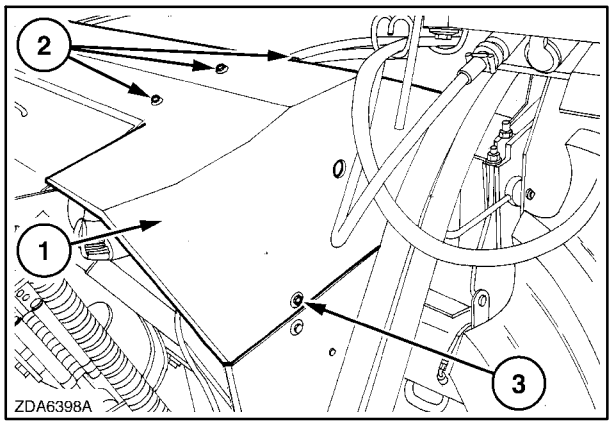
1. Detach the attachment as described in paragraph headed "Detaching and Attaching the attachment".
2. Lower the cutterhead to its lowest position.
3. Disconnect electric cables 1 and 2 and remove them from hooks 3.

NOTE: *Keep them in a safe place so that they cannot be pinched between the cab and the chopper body.*

4. Remove the chopper body upper safety guard 1.

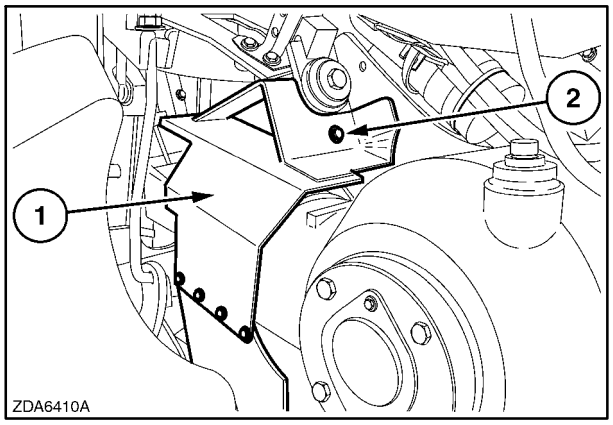


151



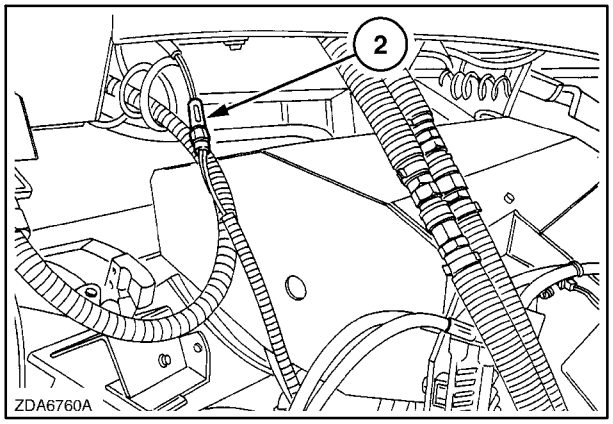
152

5. Remove the cutterhead drive shaft safety guard 1 on the right-hand side of the chopper body.



153

6. Disconnect connector 2.



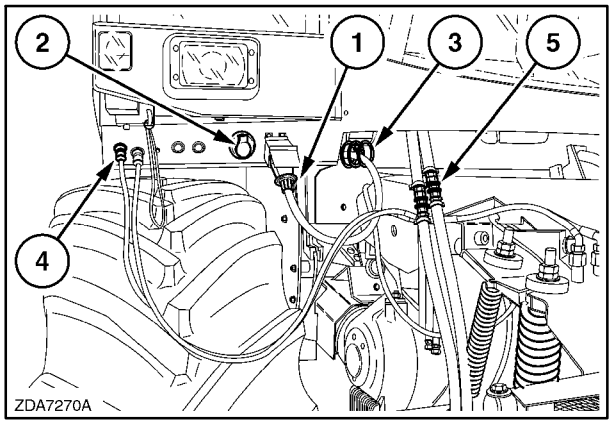
154

7. Disconnect electric cables 1 and 2 (if installed) and remove them from hooks 3.

NOTE: *Keep them in a safe place so that they cannot be pinched between the cab and the chopper body.*

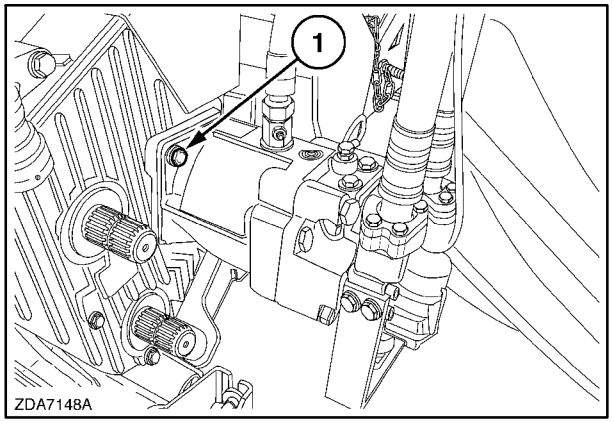
8. Disconnect coolant tubes 5 to the cutterhead gearbox.

9. If the machine is fitted with an automatic greasing system, disconnect the grease line(s) 4 to the chopper body.



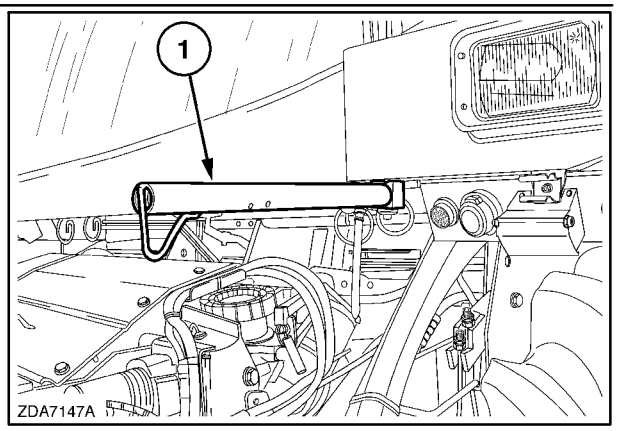
155

10. Remove four nuts 1 of the hydrostatic motor.



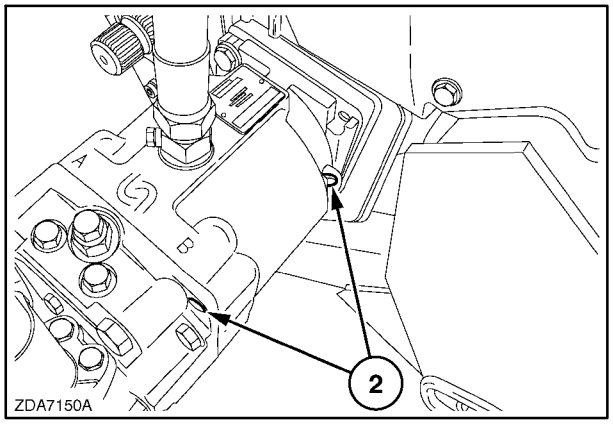
156

11. Unlock lever 1.



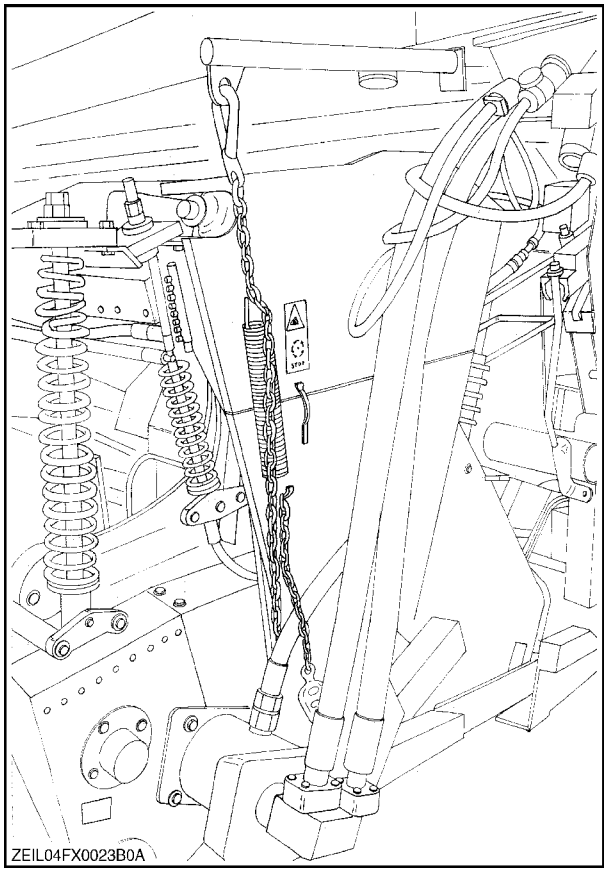
157

12. Apply a chain through the lifting eyes 2 of the hydrostatic motor and fix it to lever 1.



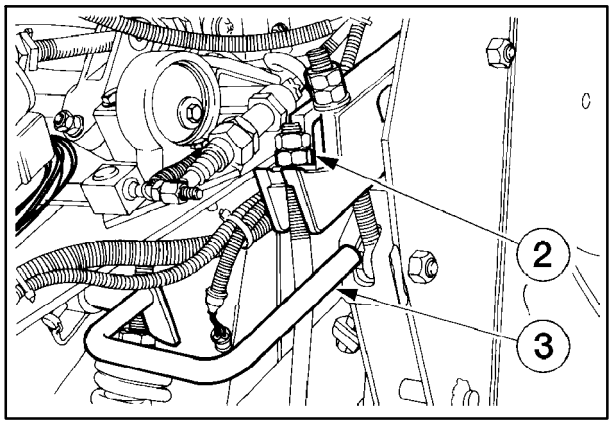
158

13. Remove the hydrostatic motor and place it in front of the traction wheel.



159

14. On both sides, unscrew clamping rods 2.



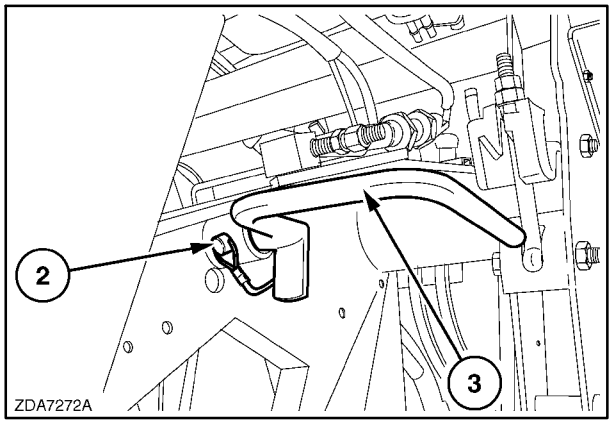
160

15. Remove lock pin 2, push pin 3 towards the cutterhead.

16. Lock pin 3 in that position by installing lock pin 2.

NOTE: This pin will limit the chopper body's rotation.

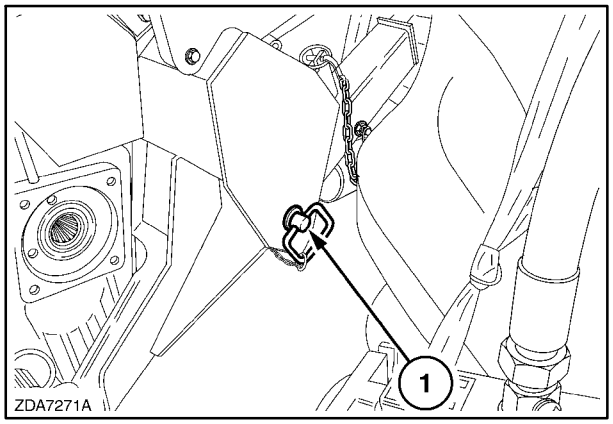
IMPORTANT: *Do not try to install both pin 3 and clamping rods 2 at the same time. Doing this and lifting the chopper body afterwards would cause irreparable damage to the chopper body's triangular frame.*



161

17. On both sides, remove the hydraulic cylinder pins 1 underneath the chopper body.

NOTE: *On the right-hand side, two rings and two washers installed on both sides of the hydraulic cylinder will fall on the ground.*



162

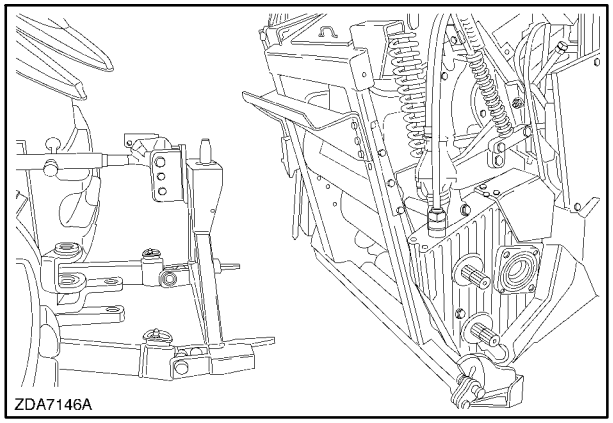
18. Now install the A-frame on the tractor and drive towards the chopper body. The tractor must be perfectly in line with the chopper body.

⚠ WARNING ⚠

Do not use the A-frame for anything else than to carry the chopper body.

Check the A-frame, and especially the pin on the upper part, for cracks before using it.

Do not use the A-frame for transporting the chopper body on the road.



163

19. Pick up the chopper body with the pin that is welded on top of the A-frame.

NOTE: *Adjust the third hitch point until the lower guides of the A-frame are close to the lower cross bar of the upper feed rolls frame.*

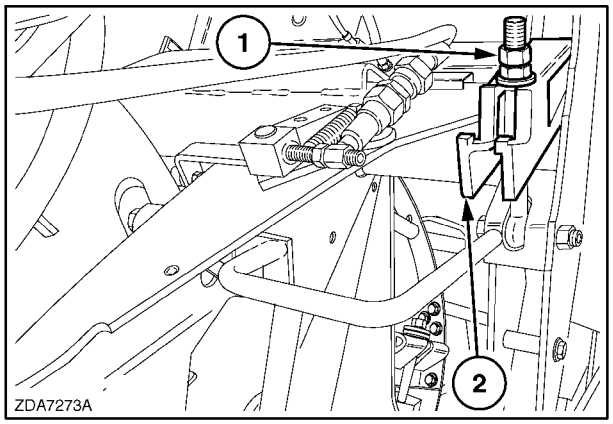
20. Lift the tractor hitch until the lower part of the A-frame is pushing firmly against the chopper body.

21. Install the chain safety bolt on the top pin of the A-frame.

22. On both sides, remove the upper clamping rods 1 and flip up the clamps 2.

23. Lift the chopper body with the tractor hydraulics until the chopper body's triangular frame is completely released from its brackets.

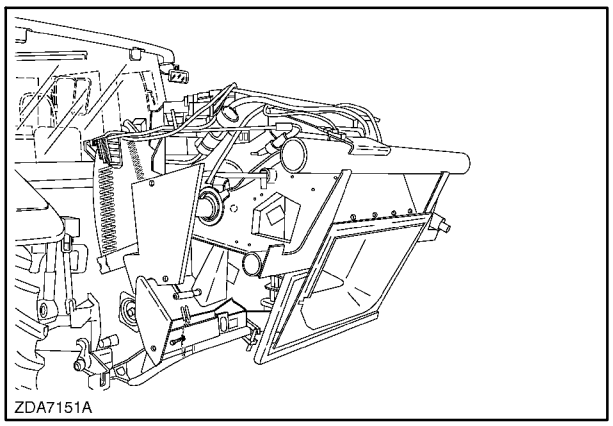
NOTE: *Do not lift the chopper body higher than necessary as this will damage the steering platform.*



164

24. Slowly drive forward ensuring that the chopper body does not interfere with the underside of the cab. Keep in mind that the chopper body now stands completely free of the base unit.

NOTE: *The cutterhead drive pto must not be removed as this will slide apart.*

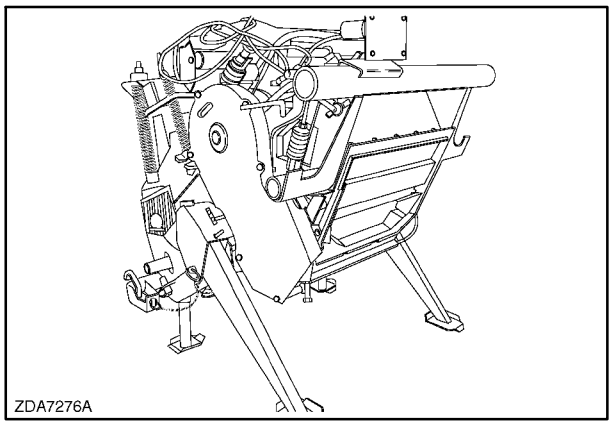


165

25. Install the support legs under the chopper body. For the rear legs, use the hydraulic cylinder pins. Secure the pins!

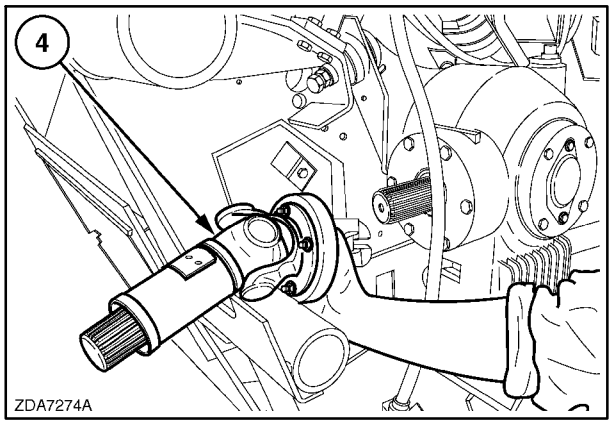
26. Lower the 3-point hitch until the A-frame is released from the chopper body.

27. Drive the tractor away.



166

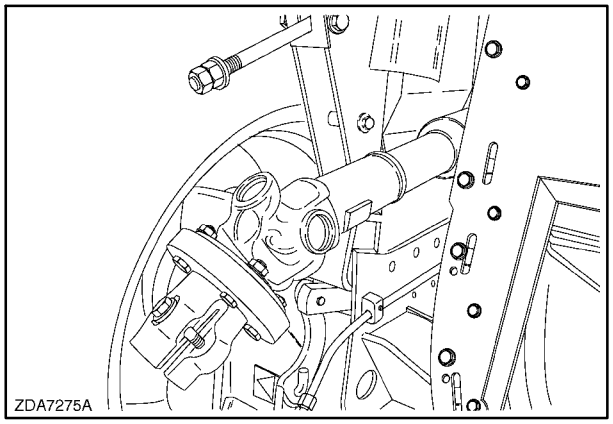
28. Remove part 4 of the cutterhead drive shaft from the cutterhead gearbox.



167

29. Reinstall this part on cutterhead drive shaft.

IMPORTANT: *Make sure the drive yokes on each end of the cutterhead drive shaft are in phase.*



168

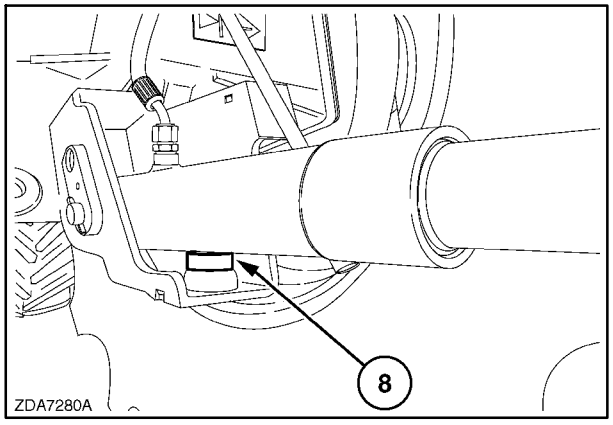
Mounting

1. Pick up the chopper body with the A-frame [mounted in the 3-point hitch of the tractor].

2. Remove the support legs from the chopper body.

IMPORTANT: *Make sure the cutterhead drive shaft is lifted in such a way that it does not interfere with the chopper body.*

NOTE: *On both sides, place a ring 8 underneath the hydraulic cylinders as shown. Use the rings that are installed on both sides of the right-hand hydraulic cylinder.*



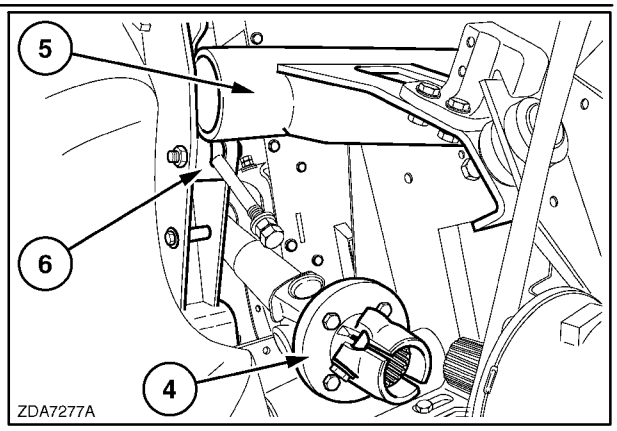
169

3. Carefully drive backward to the harvester until the upper tube 5 of the chopper body's triangular frame is against supports 6 on both sides.

4. Place the cutterhead pto shaft as shown.

5. Drive further backward to push the upper tube 5 in the supports 6.

NOTE: *Do not lift the chopper body, the triangular frame will rotate and allow the upper tube to fit into the supports 2.*



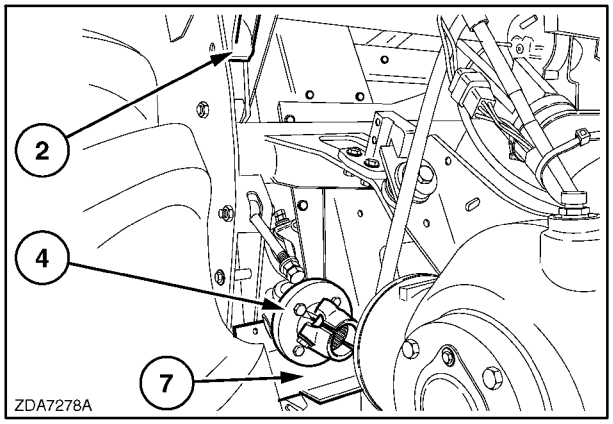
170

IMPORTANT: *Make sure the distance between the tube and the frame of the forage harvester is equal on both sides.*

6. Lower the chopper body until lower tube 7 rests on the base unit.

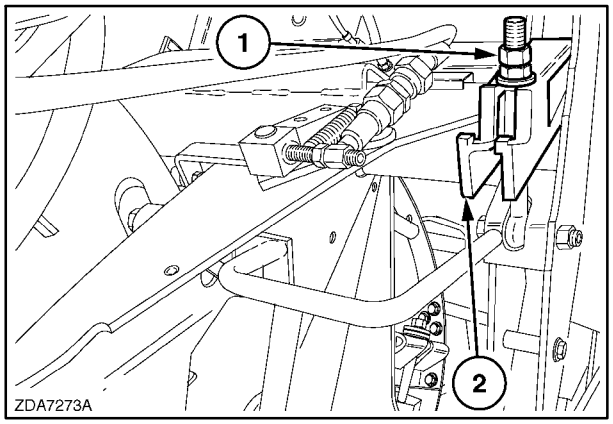
7. Lower the tractor hitch

8. On both sides, flip down the clamps 2.



171

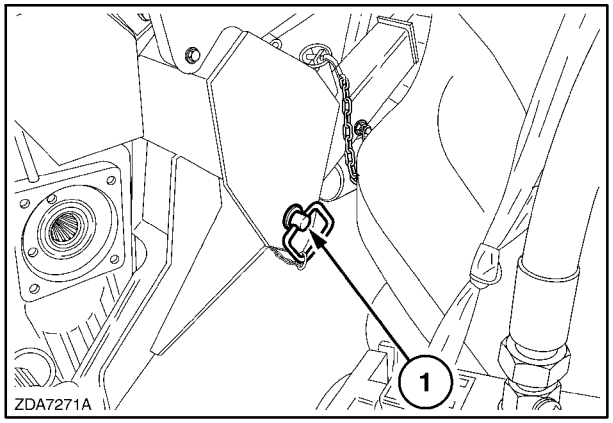
9. On both sides, reinstall clamping rods 1 around the upper tube and tighten the nuts firmly.



172

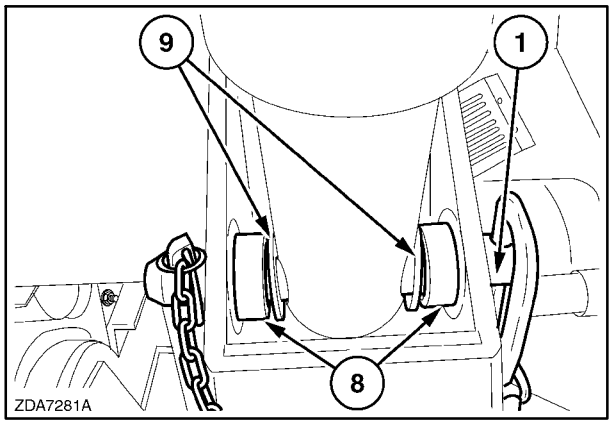
10. Reinstall the hydraulic cylinders with pins 1.

11. Lock the pins with a lynch pin.



173

NOTE: *On both sides of the right-hand hydraulic cylinder install rings 8 and washers 9.*



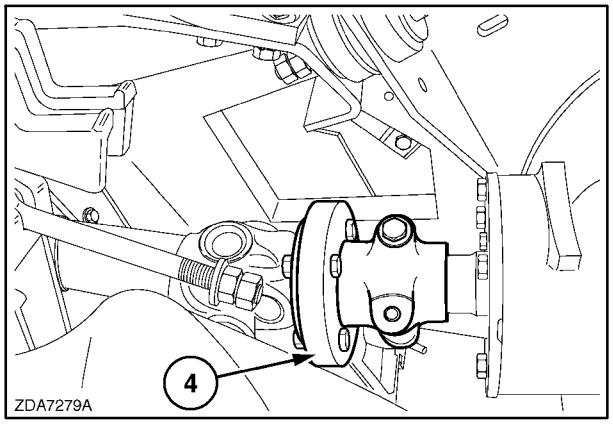
174

12. Lower the tractor hitch until it is released from the chopper body.

13. Drive the tractor away.

14. Reinstall cutterhead drive shaft 4. It should be separated some 5 mm (3/16") from the end of the cutterhead gearbox input shaft so that, when tightening the bolts on the splined end, the splines do not clamp on the broader spline-free end of the cutterhead gearbox input shaft.

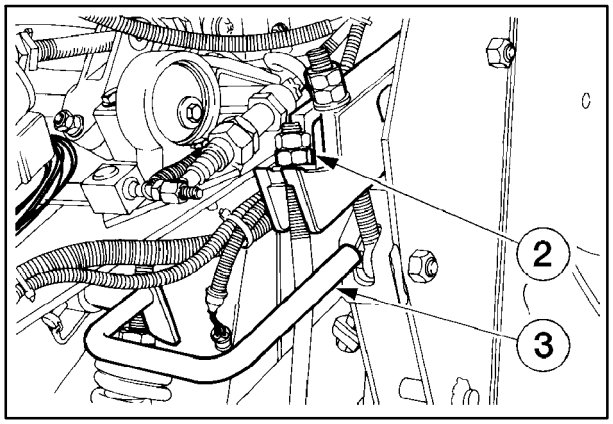
IMPORTANT: *Make sure the drive yokes on each end of the cutterhead drive shaft are in phase.*



175

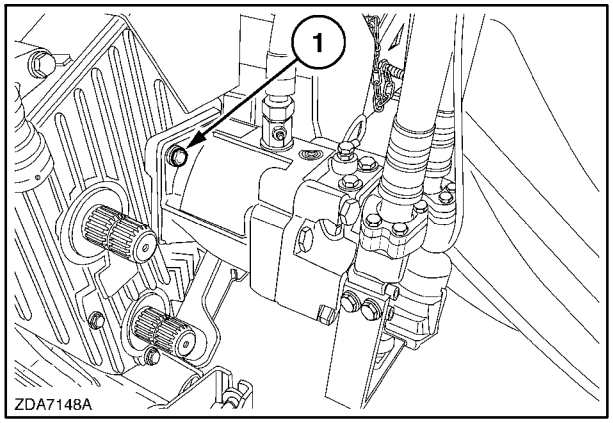
15. Unlock pin 3, pull it out and lock it.

16. On both sides, reinstall the front clamping rods 2.



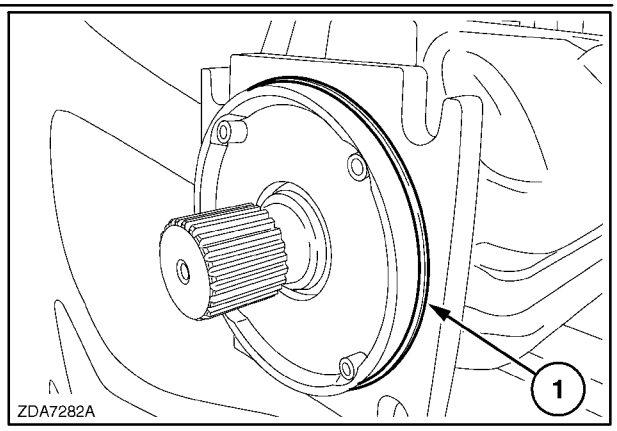
176

17. Install the hydrostatic motor and fix with nuts 1.



177

NOTE: Be sure the O-ring 1 is correct installed and mounting faces are clean.

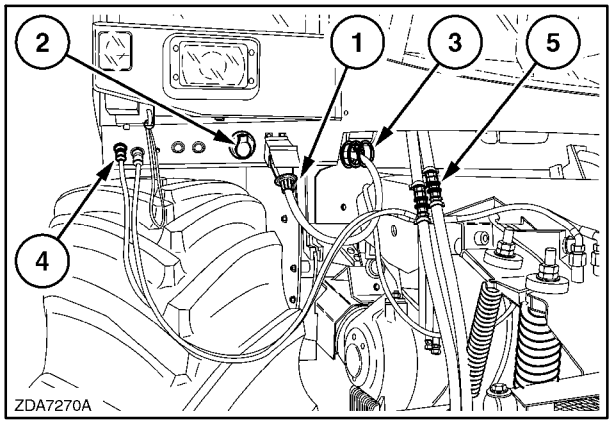


178

18. Connect the cutterhead gearbox coolant tubes 5.

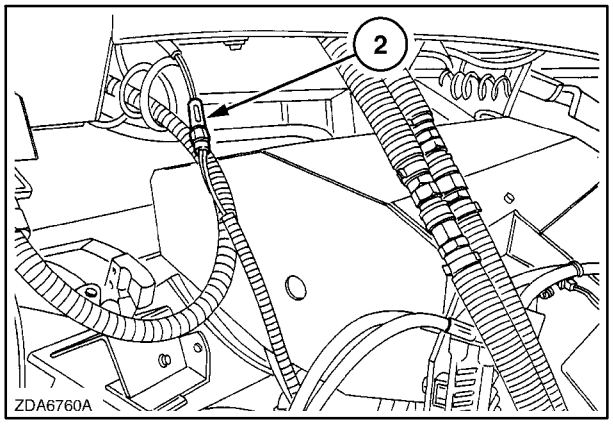
19. Connect electric cables 1 and 2 and route them through hooks 3.

20. If the machine is fitted with an automatic greasing system, connect the grease line(s) 4 to the chopper body.



179

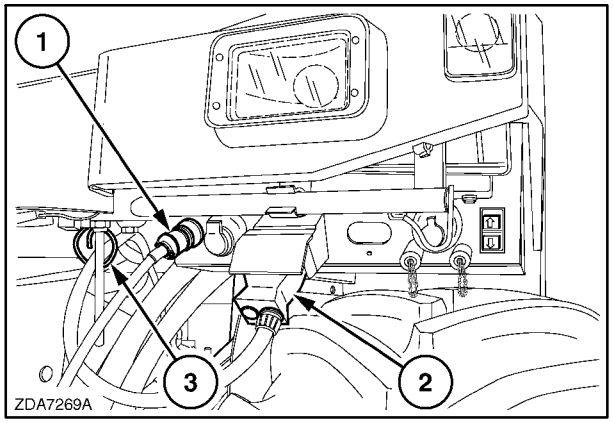
21. Connect connector 2.



180

22. Connect electric cables 1 and 2 and route them through hooks 3.

23. Reinstall the chopper body upper safety guard on the left-hand side.



181

REMOVE CHOPPER BODY WITH HYDRAULIC JACK

Dismounting

WARNING

This operation should be carried out with utmost care and attention on a level-paved surface. Only an experienced machine operator should be allowed to do this job.

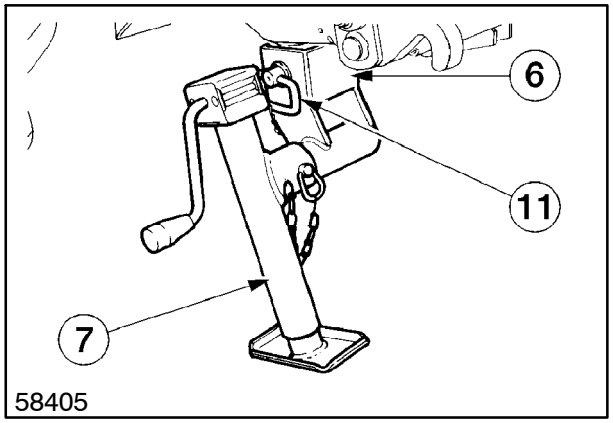
1. Detach the attachment as described in paragraph headed “Detaching and attaching the attachment”.

2. Lower the chopperbody to its minimum and remove the cylinder pins.

3. Raise the chopper body to its highest position by giving the “attachment up” command on the left-hand side connector box.

4. Install the right-hand and left-hand front jack mounts 6 and secure them in place with the hydraulic cylinder pins 11.
   Turn in the jacks completely.

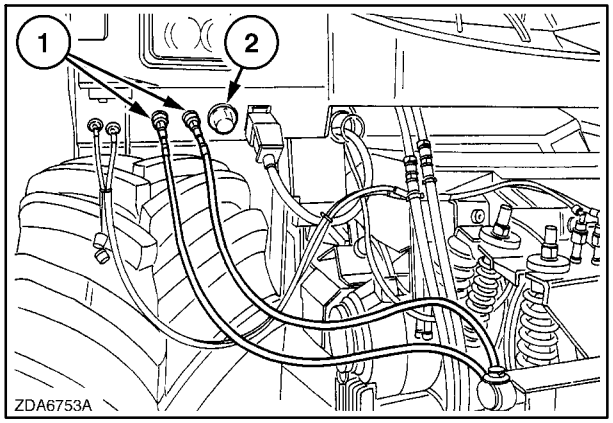
5. Lower the chopperbody until one of the front jacks touches the ground. Adjust the other front jack until it touches the ground.



182

6. Connect quick-coupler hose ends to the auxiliary front hydraulic ports 1.

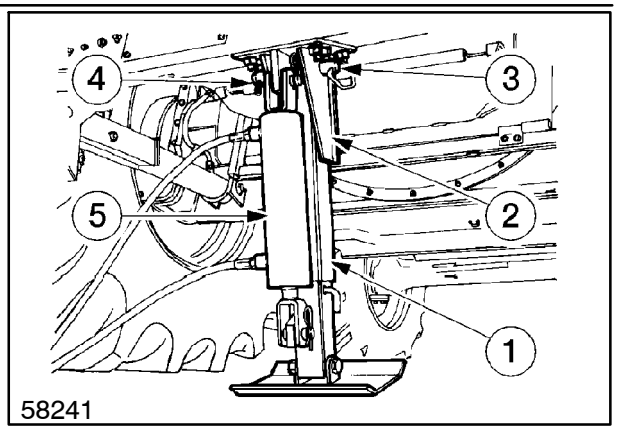
7. Completely retract the hydraulic jack cylinder 5 (Fig. 184) with the front auxiliary hydraulics control button.



183

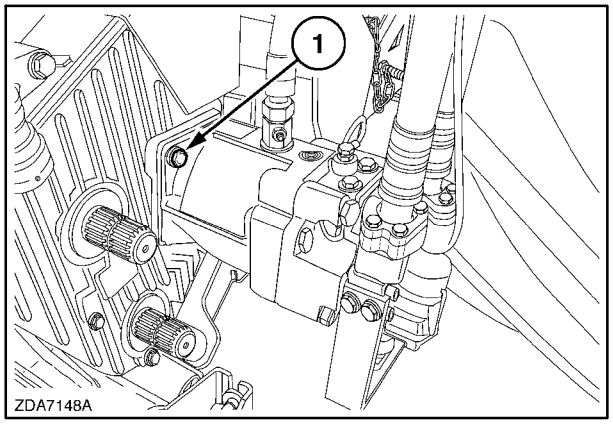
8. Install the hydraulic jack assembly 1 into the mounting bracket 2 and secure with pin 3 and hairpin cotter 4.

NOTE: *The hydraulic cylinder 5 must be facing forwards and the hydraulic hoses must be positioned facing the right-hand side of the machine.*



184

9. Remove the hydrostatic motor 1 as described in previous paragraph.



185

10. Disconnect all electric cables from the base unit to the chopperbody.

NOTE: *Keep them in a safe place so that they cannot be pinched between the cab and the chopper body.*

11. Remove the chopper body upper safety guard.

12. Remove the cutterhead drive shaft cover on the right-hand side of the chopper body.

13. If the machine is fitted with an automatic greasing system, disconnect the grease line(s) to the chopper body.

14. Disconnect the coolant tubes to the cutterhead gearbox.

15. Lower the hydraulic jack 1 (Fig. 184) using the front auxiliary hydraulic control button , until the jack foot contacts the ground surface.

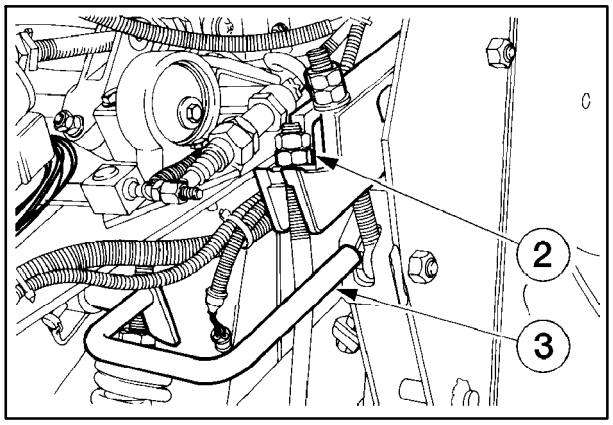
16. Unscrew clamping rods 2 on both sides.

17. Unlock pin 3 and push it towards the cutterhead.

18. Lock pin 3 in that position.

NOTE: This pin will limit the chopper body's rotation.

IMPORTANT: *Do not try to install both pin 3 and clamping rods 2 at the same time. Doing this and lifting the chopper body afterwards would cause irreparable damage to the chopper body's triangular frame.*

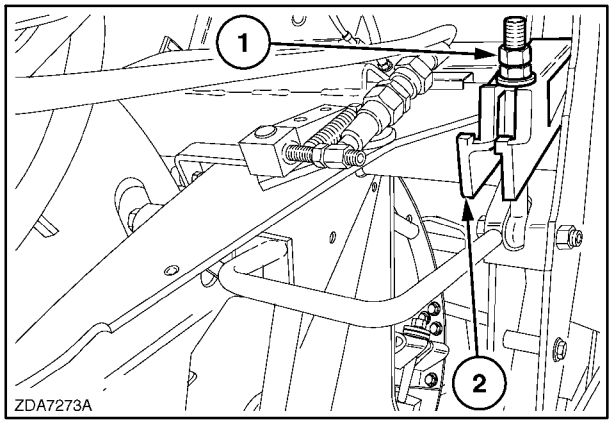


186

19. On both sides, remove the upper clamping rods 1 and flip up the clamps 2.

20. Make sure that the forage harvester's steering wheels are in straight position allowing the forage harvester to move in a straight line.

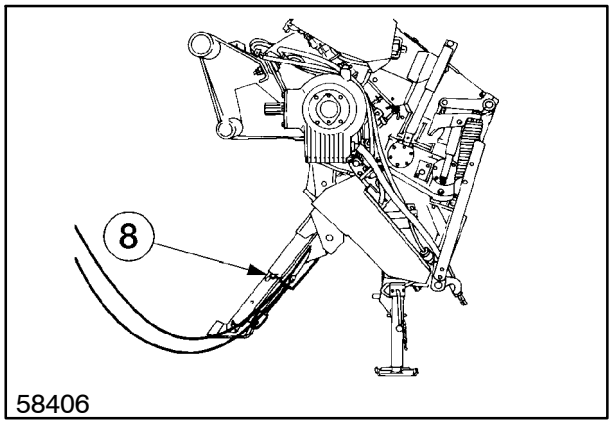
21. Now raise the rear of the chopper body with the hydraulic jack by activating the front auxiliary hydraulic system until the rear of the chopper body clears the top mount area on the machine's main frame.



187

22. Do not touch the steering wheel!!
Slowly reverse the machine away from the chopper body. Travel rearward approximately 1m from the rear of the chopper body.

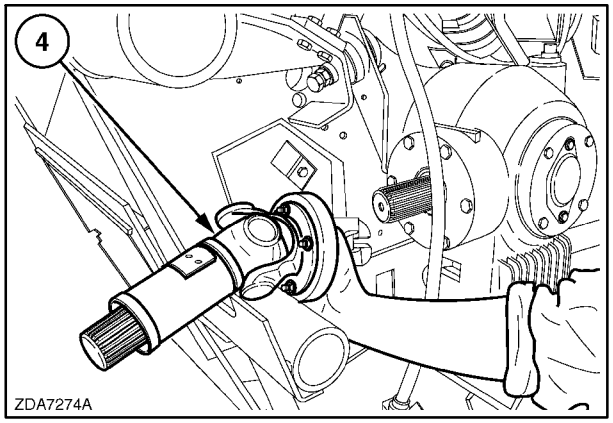
23. Lock the hydraulic jack in place with pin 8.



188

24. Now the jack's hydraulic hoses can be disconnected from the forage harvester.

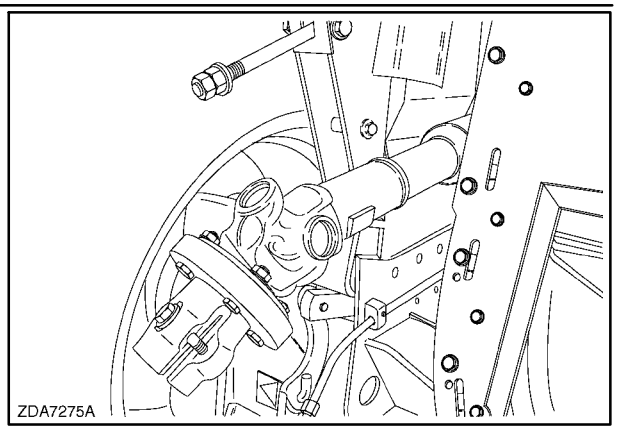
25. Remove part 4 of the cutterhead drive shaft from the cutterhead gearbox.



189

26. Reinstall this part on the cutterhead drive shaft.

IMPORTANT: *Make sure the drive yokes on each end of the cutterhead drive shaft are in phase.*



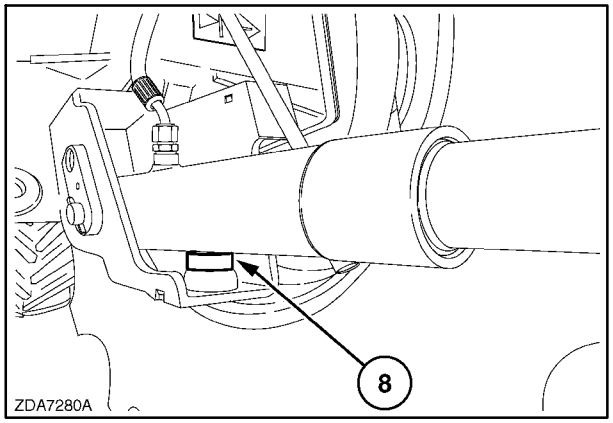
190

Mounting

1. Line up the forage harvester straight behind the chopper body and drive it to a distance of about 1 m behind it.

2. Connect the hydraulic hoses of jack cylinder 5 (Fig. 184) to the auxiliary front hydraulic ports 2 (Fig. 183).

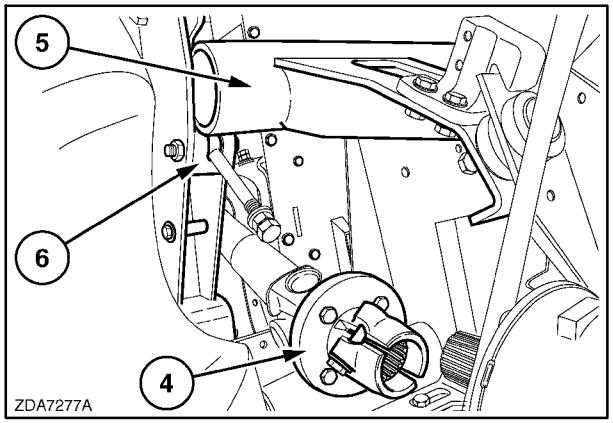
3. On both sides, place a ring 8 underneath the hydraulic cylinders as shown. Use the rings that are installed on both sides of the right-hand hydraulic cylinder, so that the cylinder pin mounts enter the chopper body.



191

4. Slowly drive the forage harvester up to the chopper body and check that the chopper body is at the correct height to be attached to the forage harvester. Adjust for height and inclination with the jacks, if necessary. Drive forward until the upper tube of the chopper body's triangular frame fits smoothly in its supports.

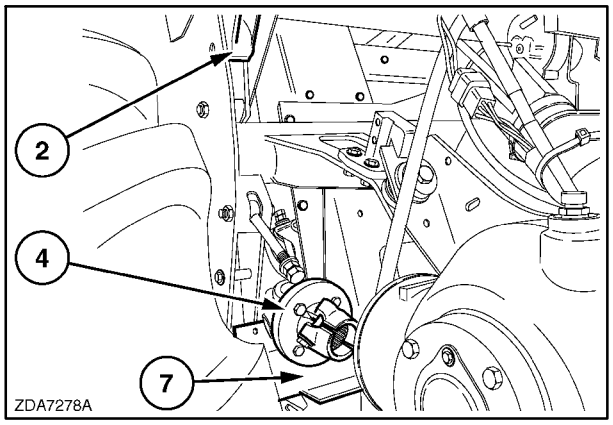
IMPORTANT: *Make sure that the cutterhead drive shaft is lifted in such a way that it does not interfere with the chopper body.*



192

5. Lower the chopper body's rear end until lower tube 7 rests on the base unit and flip down clamps 2.

6. Reinstall the clamping rods around the upper tube and tighten the nuts firmly.



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7. Unlock pin 3, pull it out and lock it.

8. On both sides, reinstall front clamping rods 2.

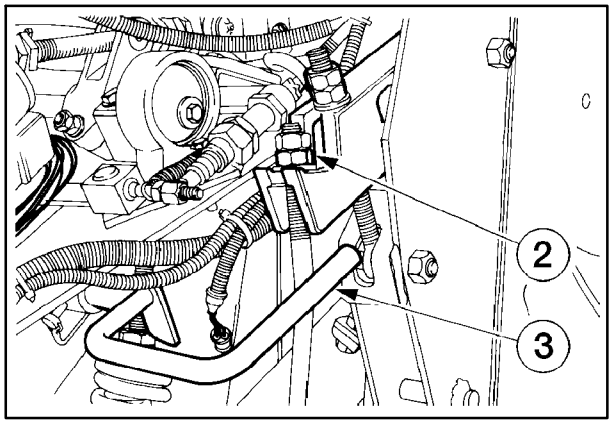
9. Retract the hydraulic jack completely.

10. Remove the hydraulic jack.

11. Raise the chopperbody.

12. Remove the two front jacks.

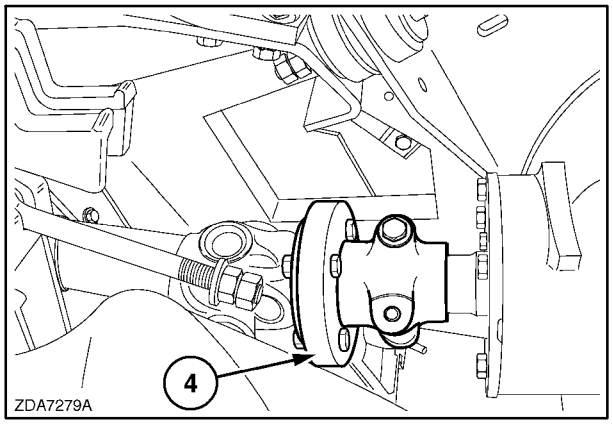
13. Reinstall the hydraulic cylinder pins.



194

14. Reinstall the cutterhead drive shaft 4. It should be separated some 5 mm (3/16") from the end of the cutterhead gearbox input shaft so that, when tightening the bolts on the splined end, the splines do not clamp on the broader spline-free end of the cutterhead gearbox input shaft.

IMPORTANT: *Make sure the drive yokes on each end of the cutterhead drive shaft are in phase.*

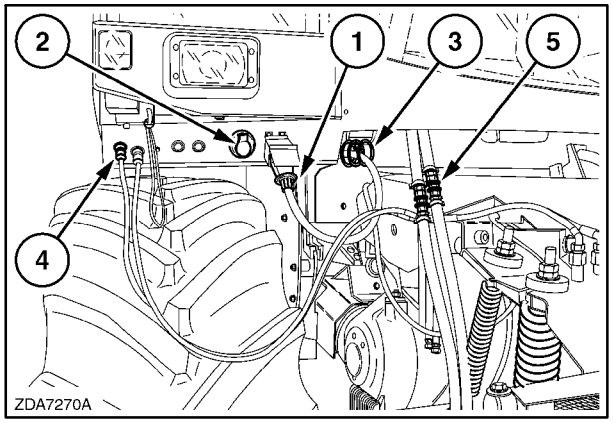


195

15. Connect the cutterhead gearbox coolant tubes 5.

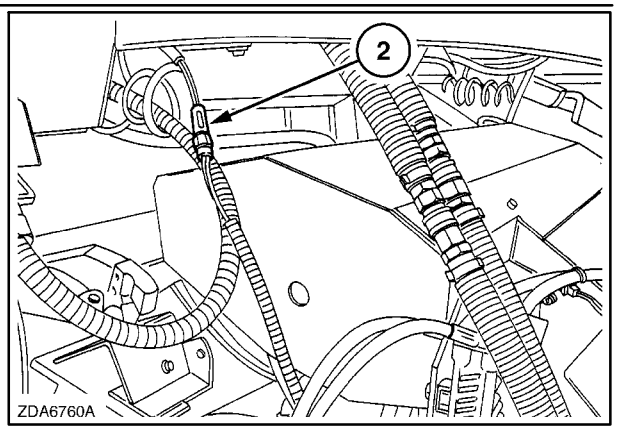
16. Connect electric cables 1 and 2 and route them through hooks 3.

17. If the machine is fitted with an automatic greasing system, connect the grease line(s) 4 to the chopper body.



196

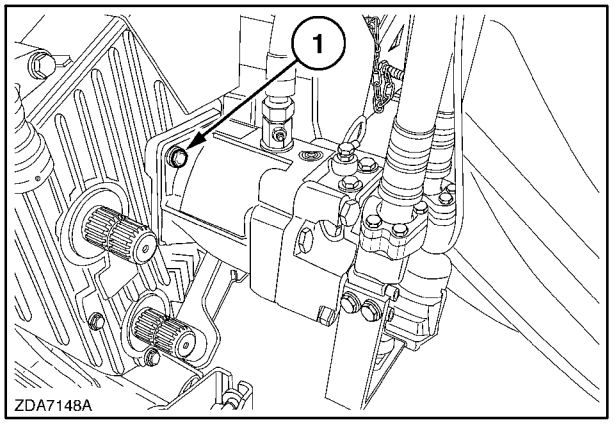
18. Connect connector 2.



197

19. Reinstall the hydrostatic motor.

20. Reinstall the chopper body upper safety guard on the left-hand side.



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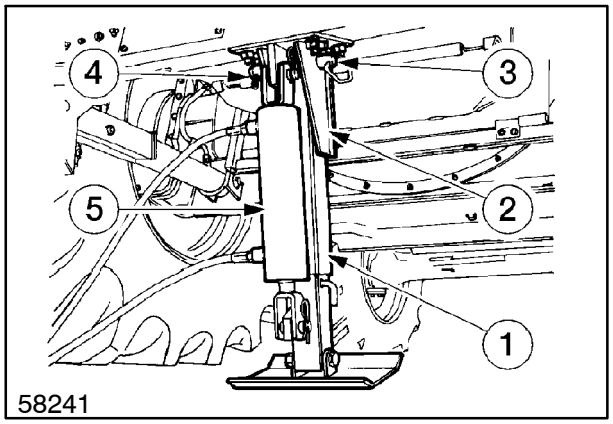
21. Lift the chopper body to its highest position and engage the attachment safety latch.

22. Remove the hydraulic jack assembly 1 from underneath the chopper body.



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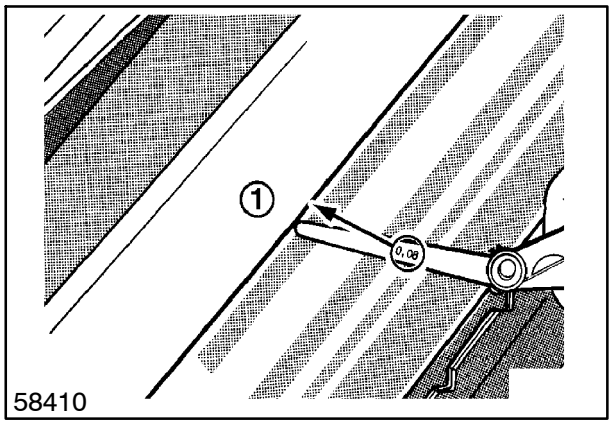
FEED ROLLS

SMOOTH ROLL SCRAPER ADJUSTMENT

The smooth roll scraper 1 must be adjusted to maintain a clearance of 0.1 mm (0.004 in) or less between the scraper and the smooth roll.

NOTE: *Do not adjust the scraper to exercise pressure on the smooth roll. This may result in overheating of the scraper and damage to the scraper and the smooth roll.*

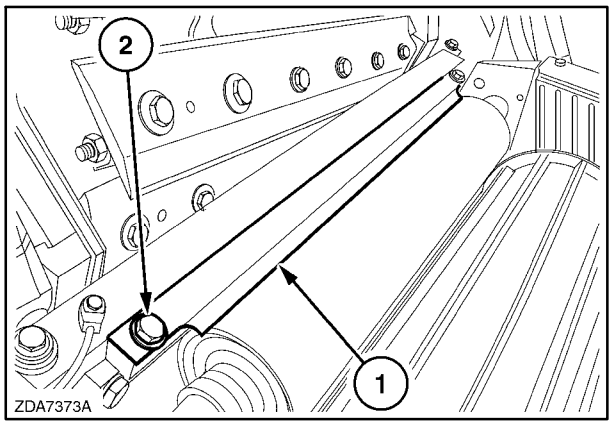
If the scraper is not properly adjusted, a build-up of material on the smooth roll will cause excessive pressure on the smooth roll bearings. Excessive clearance may also cause the incoming material to stop and backfeed around the upper roll or downfeed between the lower feed rolls.



200

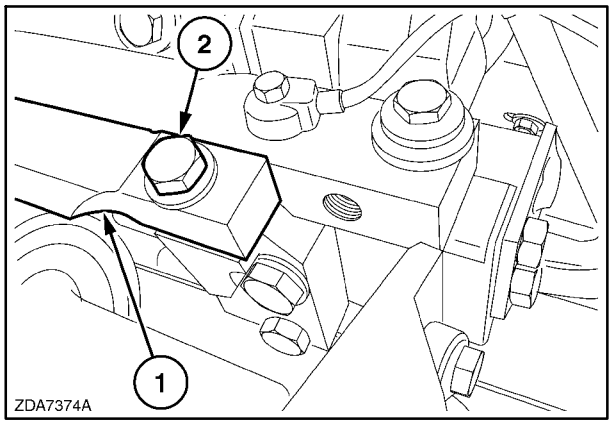
To adjust the scraper, proceed as follows:

1. Remove or flip down the upper feed rolls.
2. Loosen the scraper mounting bolts 2 on both sides of the chopper body. Clean the space between the shearbar and the scraper, and the space between the scraper and the smooth roll.
3. Reinstall the scraper and tighten bolts 2 so that it is still possible to adjust scraper 1 by tapping it with a hammer.



201

4. Tap the scraper into place. The clearance between the scraper and the smooth roll should be 0 – 0.1 mm (0 – 0.004”) (Fig. 200). Tighten the scraper mounting bolts 2 on both sides of the chopper body. Check the clearance at different places all over the smooth roll diameter and width. Turn the smooth roll one full turn to ensure the adjustment is correct.



202

SMOOTH ROLL SCRAPER REPLACEMENT

The scraper must be replaced if:

- Correct adjustment cannot be obtained due to the slotted holes bottoming out.
- The top surface of the scraper is below the top surface of the shearbar.

NOTE: *With time the smooth roll also wears down, so it will need to be replaced. When replacing the smooth roll, always install a new scraper.*

To replace the scraper, proceed as follows:

1. Remove or flip down the upper feed rolls.
2. Remove bolts 2 and tap out the scraper to the right-hand side.
3. Install the new scraper in reverse order of the removal sequence, and adjust as described above.

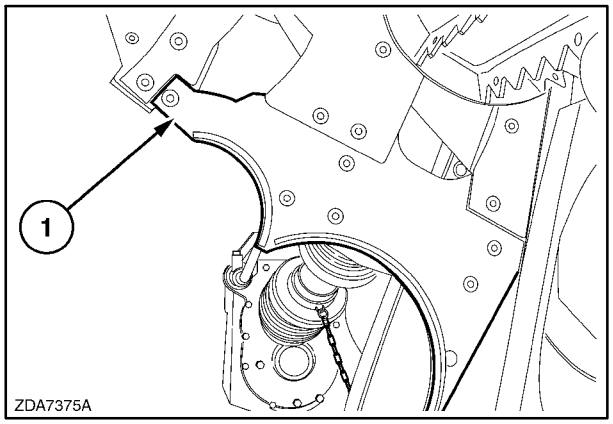
CROP GUIDES

The crop guides 1 on both sides of the machine prevent uncut material from wrapping around the ends of the lower feed rolls. When they are worn thin, they must be replaced.

IMPORTANT: *Failure to replace these guides in time may cause severe cutterhead damage.*

To replace the crop guides, proceed as follows:

1. Open/Remove the upper feed rolls module with the attachment or flip down the upper feed roll module.
2. Remove the spring assemblies 3 and 4 on both sides of the upper feed rolls module.
    - Remove bolts 5 on top of each spring assembly



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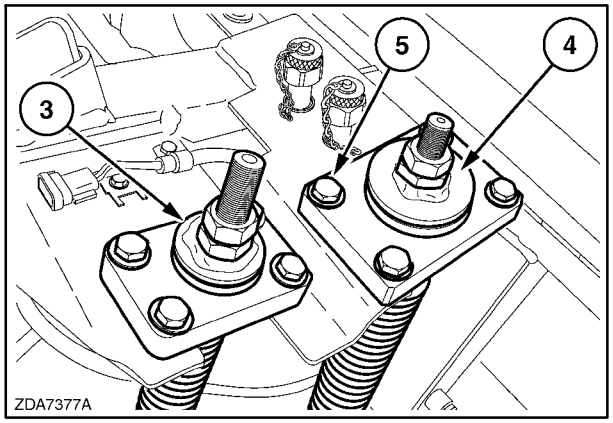

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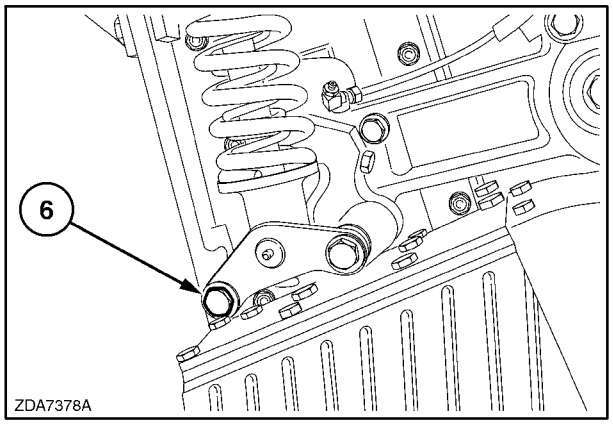
- Remove bolts 6 at the bottom of each spring assembly.



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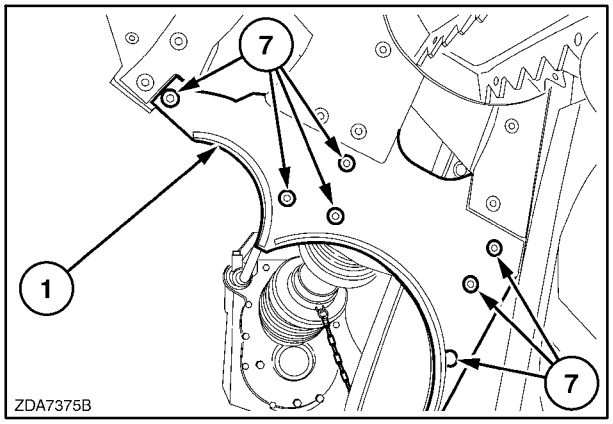
3. With a hoist, lift the upper feed rolls.

4. Remove the seven plough bolts 7 holding the crop guides 1.

NOTE: *Replace the plough bolts if they show any signs of damage.*



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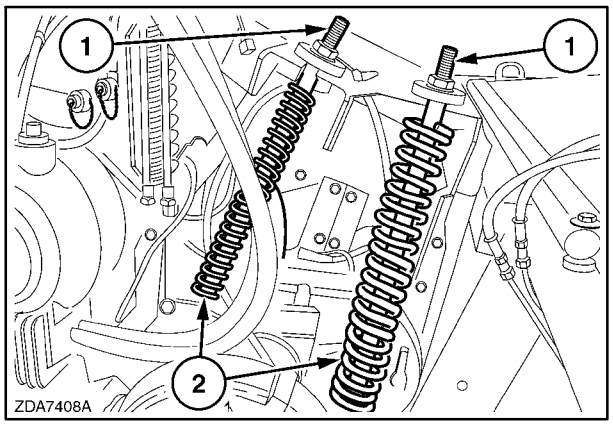
UPPER FEED ROLLS

When there is no crop between the rolls, the rods 1 prevent the upper feed rolls from running against the lower feed rolls.

At the same time, the upper feed rolls are tensioned by springs 2, two on each side of the machine.

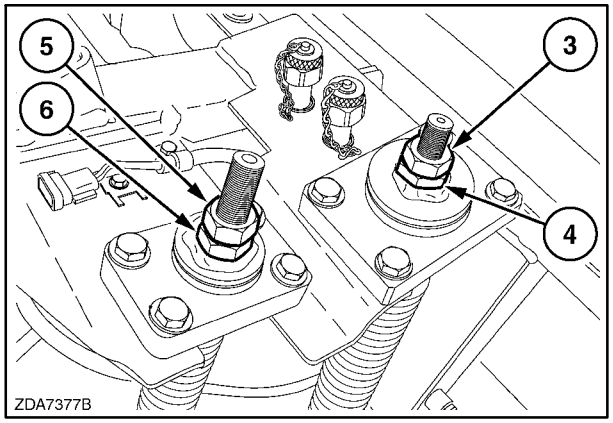
These springs apply a slight tension on the upper feed rolls when there is no crop between the rolls.



207

Normally, the rods and springs do not need to be adjusted. If for any reason the rod/spring assembly is disassembled, adjust as follows on both sides:

1. Hold nut 4 and loosen locknut 3.



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2. Adjust the length of the front upper feed roll spring to distance A = 472 – 474 mm (18.58 – 18.66 in) with nut 4.

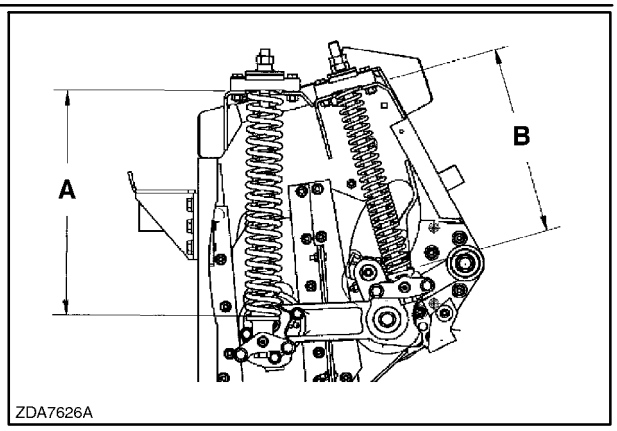
3. Hold nut 4 and tighten locknut 3.

4. Hold nut 6 and loosen locknut 5.

5. Adjust the length of the rear upper feed roll spring to distance B = 394 – 396 mm (15.51 – 15.59 in) with nut 6.

6. Hold nut 6 and tighten locknut 5.

NOTE: *Make sure the springs are equally adjusted on both sides.*



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CUTTERHEAD

⚠ WARNING ⚠

To protect you from serious bodily injuries whenever a maintenance or adjustment job has to be carried out on or near the cutterhead, the cutterhead must be prevented from rotating with wooden blocks.

GENERAL INFORMATION

To maintain a uniform length of cut and to keep the power requirement to a minimum, the shearbar must be maintained in good condition and adjusted close to the cutterhead knives. The knives must be sharpened when they become dull or show uneven wear.

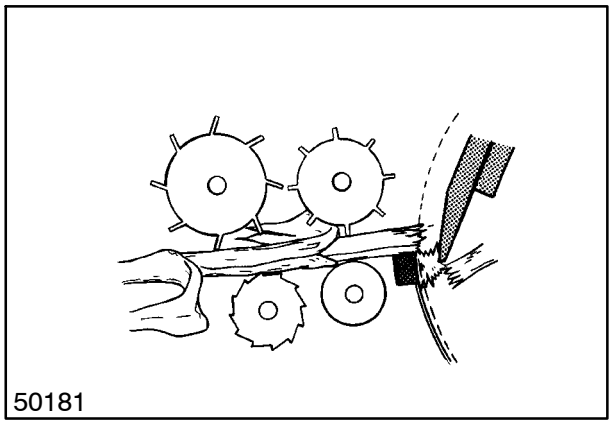
IMPORTANT: *These components are the main part of the forage harvester and must have frequent attention (i.e. every three to eight hours) depending on conditions.*

With dull knives and too much clearance between the knives and the shearbar, the material is torn apart rather than cut and it tends to wedge between the knives and the shearbar. This takes extra power and may cause the shearbar or the knives to break.

When the knives are sharpened, cutting action improves. But, unless the shearbar is adjusted, power will be wasted because the material will continue to wedge. The knives will also dull very quickly and excessive sharpening will be required.

With sharp knives and a properly adjusted shearbar, less power is consumed in the cutterhead and a uniform length of cut will be obtained.

NOTE: *For best cutting performance always sharpen the knives before adjusting the shearbar.*



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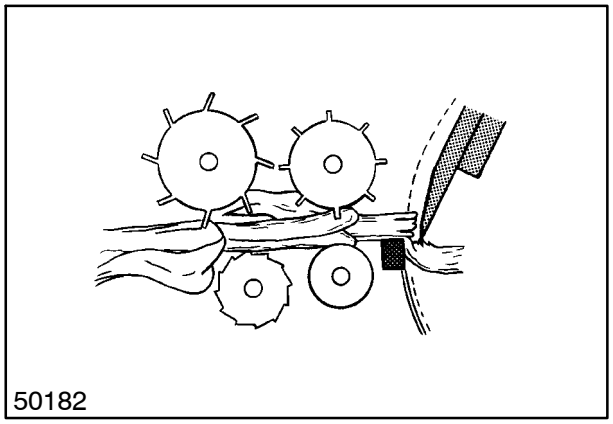

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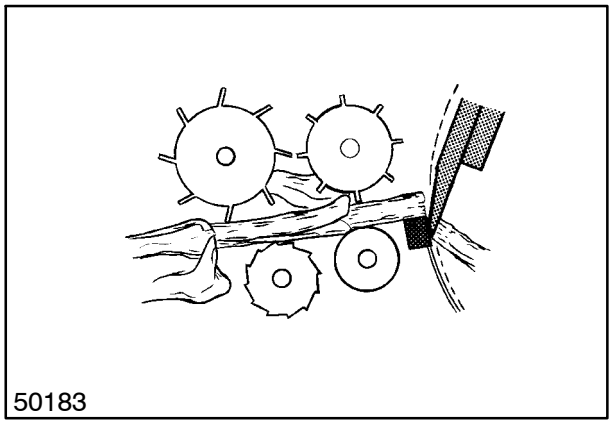

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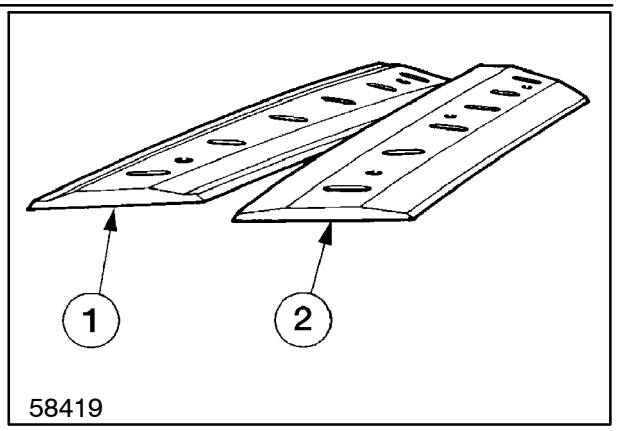
KNIVES



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Available knife types

Two types of knives are available:

- **Prebevelled knives 1**

  These knives are specially designed for maize harvesting.

- **Standard knives 2**

  These knives are for universal use. The standard knives need to be rebevelled from time to time.

Standard knife rebevelling

NOTE: *Prebevelled knives do not require rebevelling.*

When the knives are sharpened, the ground surfaces on the knives increase in width. As these surfaces increase, the length of time required to grind the knives increases and the stone life decreases. In addition, as the width of the knife bevel increases, the power requirement also increases, since the uncut material moving into the cutterhead creates a braking action against this ground surface.

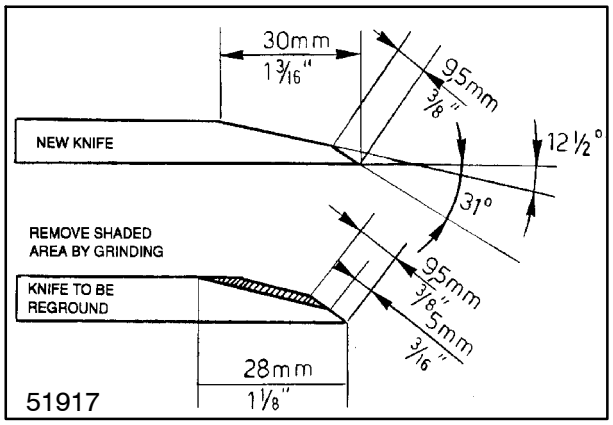
In order to alleviate these conditions, the knives can be rebevelled by removing them from the cutterhead and having them reground to the original shape.

The knives may be reground (i.e. rebevelled) at any time. However, the optimum time is when the ground surface at the centre of the knife is 9 – 10 mm (0.35 – 0.39 in).

NOTE: *When grinding the knives extreme care should be taken to prevent annealing (overheating) as this would reduce the wear resistance and strength.*

⚠ CAUTION ⚠

Wear safety goggles and gloves when rebevelling knives.
Do not rebevel knives with a hand grinder when they are still installed on the cutterhead.



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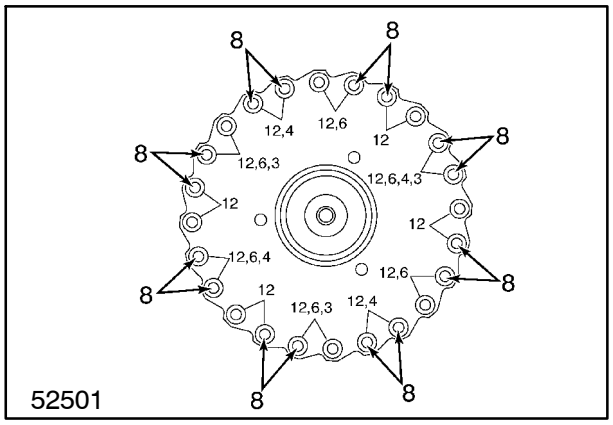
NUMBER OF KNIVES

When the number of knives on the cutterhead is changed, the knives must be positioned so that a perfect cutterhead balance is maintained.

If knives are added, the knives must be positioned as outlined under heading "Regauging the knives".

⚠ WARNING ⚠

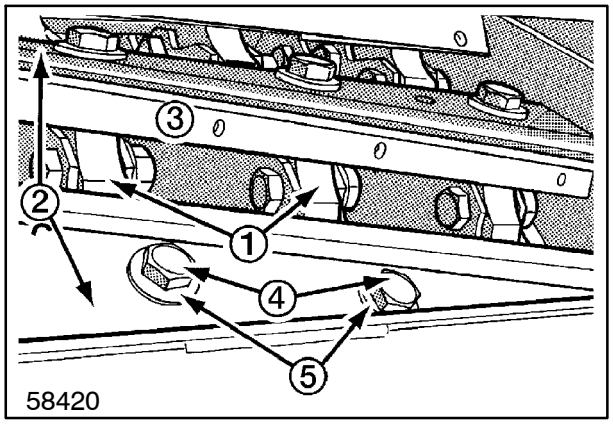
Failure to remove the knife baffle plate when the knife is removed may cause serious cutterhead damage.



215

The cutterhead can be fitted with 12, 6 or 4 knives without the need to reposition the knife support blocks. When eight knives are installed, repositioning of the knife support blocks is required.

The chopped material is most uniform when the maximum number of knives are installed. Install the knives as shown in Figure 215.

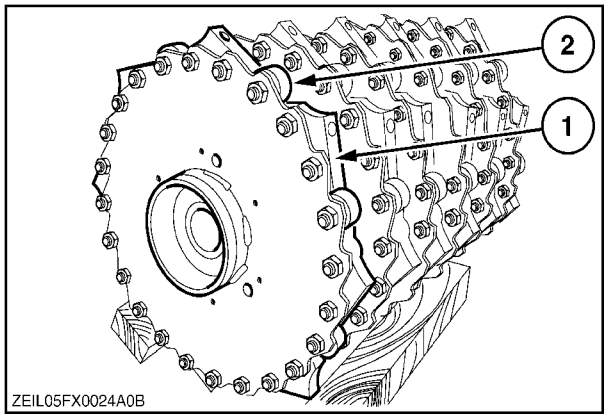


216

It is not necessary to remove the knife support blocks (1) when the knives (2) and the baffles (3) are removed. The knife bolts (4) should be reinstalled in the knife support blocks (1) to protect the threads. Install the bolts (4) with a sufficient number of washers (5) to prevent the bolts from bottoming out in their holes.

IMPORTANT: *Whenever knives are removed from the cutterhead, also remove the baffle plate underneath each removed knife.*
Whenever knives are installed on the cutterhead, also install a baffle plate under each knife.

When changing the cutterhead to eight knives, four equally spaced knives with support blocks may be left on the cutterhead.
Install one knife and baffle on repositioned mounting blocks in between each of the four previously installed knives. Install the protection rings (2) in between the knife support blocks to protect the cutterhead.
When changing from eight knives to twelve, six or four knives, always install all the knife support blocks.



217

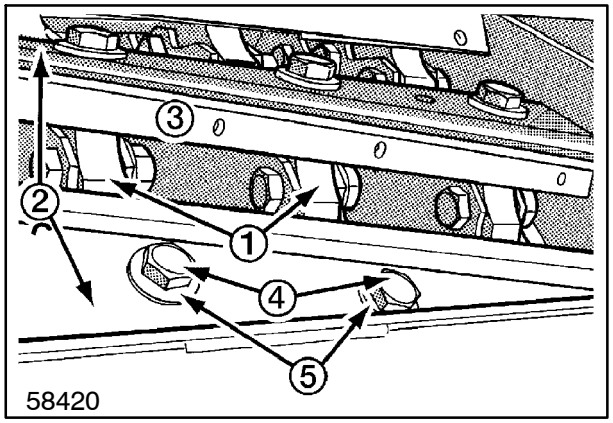
Reinstall baffles and knives on the cutterhead, ensuring all knives are equally spaced around the cutterhead and knives opposite to each other on the cutterhead have the same weight. Torque the support block bolts to 240 Nm and the knife bolts to 270 Nm.

KNIFE BAFFLES

Under each knife, a knife baffle 3 must be installed:

- to function as a spacer
- to prevent non-chopped material from entering and turning in the cutterhead
- to improve the material flow to the blower
- to act as a fastening bracket for the corn crusher kit

NOTE: *Every time a knife is removed, the baffle must also be removed. Every time a knife is installed, a baffle must also be installed.*



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TURNING OR REPLACING CUTTERHEAD KNIVES

⚠ WARNING ⚠

Whenever a maintenance or adjustment job has to be carried out on or near the cutterhead, the cutterhead has to be blocked, e.g. with wooden blocks. This is to protect you from serious bodily injuries if the cutterhead would accidentally rotate.

When the knives are worn down completely, they cannot be adjusted close enough to the shearbar for efficient operation. The knives must then be turned to use the second edge or they must be replaced.

IMPORTANT: *When installing a partial set of new knives with used knives on the cutterhead, position the new knives uniformly around the cutterhead to maintain cutterhead balance.*
If the knives are damaged severely, do not turn them to use the other edge but replace them, as they may cause an unbalance in the cutterhead.

NOTE: *The cutterhead knives are delivered as matched sets of two.*

To position the new knives on the cutterhead, proceed as follows:

1. Clean the space between the scraper and the shearbar.

2. Move the shearbar away from the cutterhead as described under heading "Regauging the knives" further in this section.

3. Screw the sharpening stone upwards as described under heading "Replacing the sharpening stone" further in this section.

4. Position one of the knives (either original but turned, or new) in place using a punch. Tap the knife towards the shearbar and adjust to the minimum 0.2 mm (1/128") clearance on both knife ends.

5. Continue installing and adjusting knives as described under heading "Regauging the knives", as from step 13 onwards.

REGAUGING THE KNIVES

Knives must be regauged, i.e. readjusted to the cutterhead maximum diameter, for any of the following reasons:

- When installing new knives.

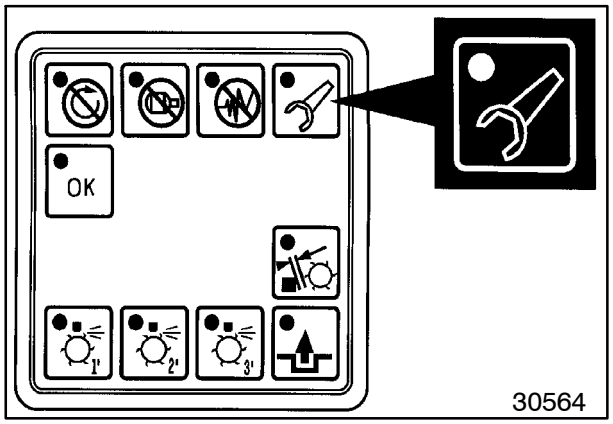
- When turning the knives (to use the second edge).

- When increasing the number of knives on the cutterhead.

- When the shearbar can no longer be adjusted to the knives, i.e. when the "adjust knives" warning light is illuminated (Fig. 219).

NOTE: *The above light may also indicate that the sharpening stone needs to be lowered.*

IMPORTANT: *Always remove any material that has accumulated between the shearbar and the smooth roll scraper. If this material is not removed, excessive pressure will be applied to the smooth roll and the scraper when adjusting the shearbar back away from the knives. As a result, the load on the adjuster linkage will become so great the motors will not function properly.*



219

When the knives have been ground down and all the shearbar adjustment has been used up, the knives must be moved out to the original cutterhead diameter again.

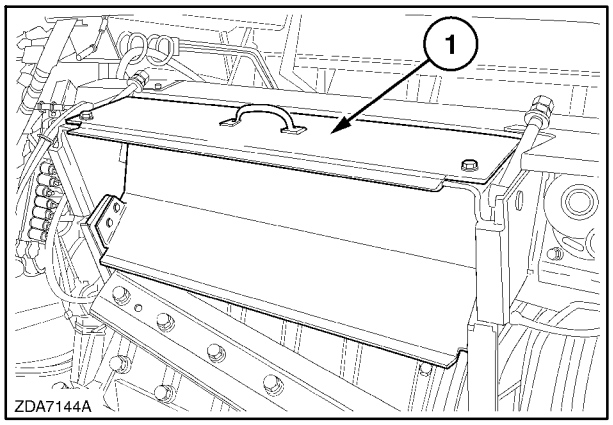
To regauge the knives, proceed as follows:

1. Sharpen the knives, if possible.
2. Remove the upper feed roll module.
3. Switch off the cutterhead drive. Lower the chopper body to its lowest position. Stop the engine and wait until all rotating parts have come to a complete standstill.

⚠ WARNING ⚠

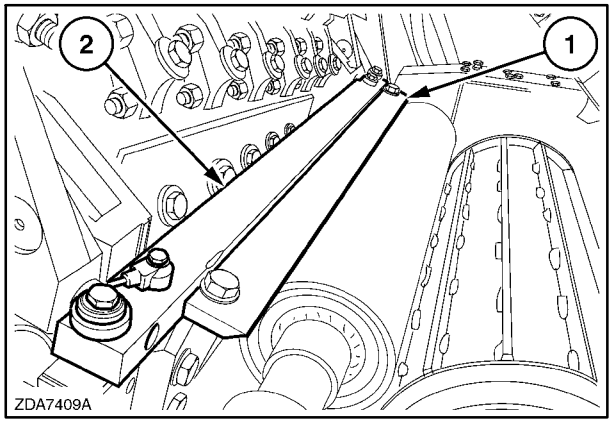
Whenever a maintenance or adjustment job has to be carried out on or near the cutterhead, the cutterhead has to be blocked, e.g. with wooden blocks. This is to protect you from serious bodily injuries if the cutterhead would accidentally rotate.

4. Remove cover 1.



220

5. Thoroughly clean the space between the scraper 1 and the shearbar 2 with a knife or a screwdriver until it is absolutely clean. Use compressed air, if available.



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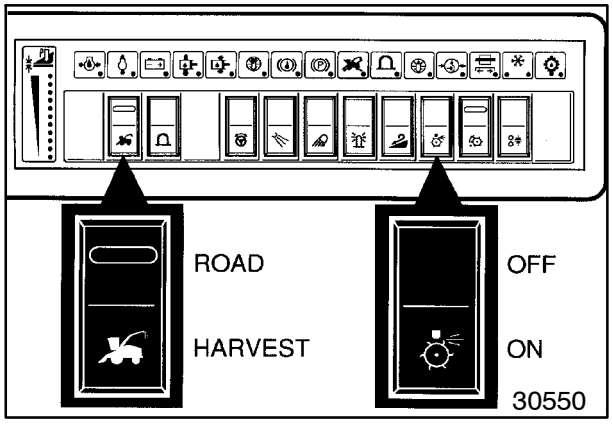
6. Move the shearbar away from the cutterhead using the automatic shearbar adjuster motors. Proceed as follows:

   - Turn the ignition key on, but do not start the engine. Switch on the harvest tumbler switch and then the Adjust-O-Matic™ tumbler switch. Wait until the OK light on the Adjust-O-Matic™ panel will illuminate.



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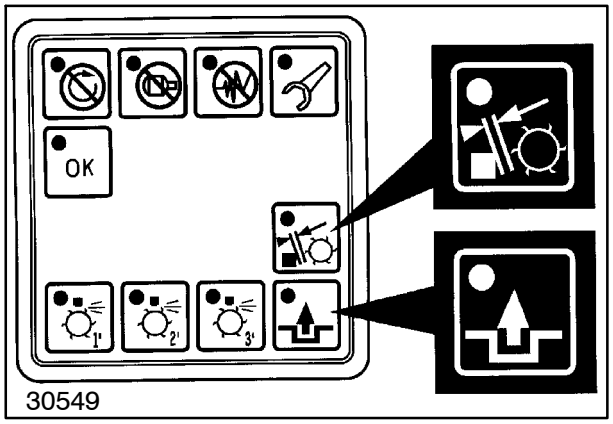
   - While pressing the INTERRUPT button, simultaneously press the ADJUST SHEARBAR button. The shearbar will now automatically be moved on both sides to its foremost position.



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   - While the shearbar is moving forward, the ADJUST SHEARBAR light is blinking and the buz-zer beeps with short intervals. When the shearbar reaches its foremost position, the blinking light will extinguish and the buzzer stops beeping. The OK light will illuminate.
     The shearbar is pushed away from the knives by the adjuster motors, operating alternately on the left and the right-hand side, until the shearbar, or the adjuster arms, meet(s) a mechanical stop. Then each side is pulled towards the cutterhead three times. Check if the shearbar is really fully forward, but does not touch the scraper.

   - Switch off the Adjust-O-Matic™ and the harvest tumbler switches. Turn off the ignition key. Check that the shearbar-to-chopper body frame clearance is the same on both sides of the chopper body. If not, adjust to the smaller clearance by turning the adjuster rod.

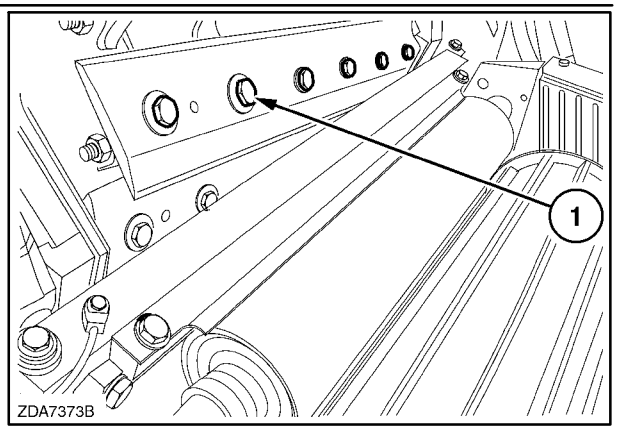
⚠ WARNING ⚠

Adjusting the shearbar by turning the adjuster rods without turning of the ignition key will cause electric motor failure.

7. Screw the sharpening stone upwards as described under heading "Replacing the sharpening stone" further in this section.

8. Loosen all bolts 1 on one knife until the knife can be adjusted with a hammer and a punch.

9. Tap the knife towards the shearbar using a punch. Adjust the knife to 0.2 mm (1/128") distance from the shearbar at each end of the knife and tighten the bolts 1 slightly. It is important that both knife ends are at the same distance from the shearbar.



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10. Rotate the cutterhead by hand one full turn to make sure it rotates freely.

11. Move the sharpening stone above the cutterhead at one side and lower the sharpening stone until it slightly touches the adjusted knife.

12. Move the sharpening stone to the other side of the cutterhead and check if the adjusted knife slightly touches the stone. If necessary, adjust the knife so it slightly touches the sharpening stone equally on both ends.

NOTE: *Do not lower or raise the sharpening stone while doing this job.*

13. Adjust all other knives until they touch the sharpening stone equally at both ends.

14. When all knives are correctly adjusted, torque all knife bolts 1 to 270 Nm (200 lbf.ft).

IMPORTANT: *Correct bolt torque is important. If the bolts are not tight enough, they may loosen and fail. If they are overtight, the bolts may be overstretched and weakened! Both cases can lead to extensive damage.*

Replace the knife bolts and washers every time new knives are installed.

Any damaged bolt or washer should always be replaced immediately. Only use genuine parts, since the bolts and washers are special.

15. Adjust the sharpening stone back away from the knives (about two turns) and rotate the cutterhead by hand one full turn to make sure it rotates freely.

16. Sharpen the knives (refer to the paragraph headed “Knife sharpening” further in this section).

17. Adjust the shearbar (refer to the paragraph headed “Shearbar adjustment” further in this section).

KNIFE SHARPENING

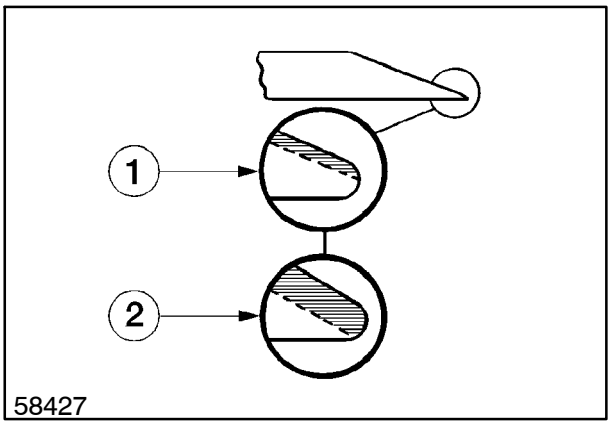
Ensure the cutterhead is cleaned of all material by running the cutterhead at full rated forward speed just prior to sharpening or removing any guards.

Grinding the knives smoothens the uneven cutting edges caused by foreign objects and normal wear. This is just as important as having a sharp edge because it allows the Adjust-O-Matic™ system to adjust the shearbar close to the knife all the way across.

ALWAYS SHARPEN THE KNIVES UNTIL EVERY KNIFE HAS A SHARP EDGE ALL THE WAY ACROSS.

The knives should be sharpened completely every time.

A sharp knife will look like the one shown at 2.
A partially sharpened knife will look like 1.
A partially sharpened knife will dull very quickly.



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⚠ CAUTION ⚠

Stop the engine and wait until all rotating parts have come to a complete stop before working around the cutterhead.

While sharpening the knives, do not stand in front of the chopper body or under the spout.

During sharpening sparks fly around. Be careful, wear safety goggles.

Automatic knife sharpening

For automatic knife sharpening refer to section 3 “Field and site operation”, paragraph headed “Automatic knife sharpening”.

NOTE: *It is recommended to always sharpen the knives with the cutterhead running in reverse and with a minimum cutterhead speed of 800 rpm.*
Always sharpen with the engine running at maximum speed.

Manual knife sharpening

In the event of a failure of the automatic sharpening system, it is possible to sharpen the knives manually. To do this, follow the procedure described below.

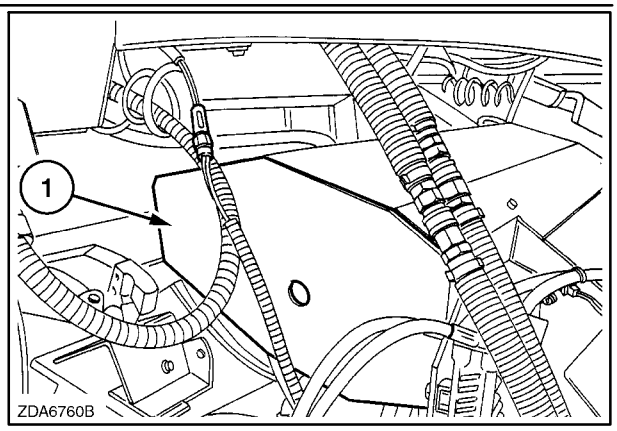
1. Disengage the cutterhead drive. Stop the engine, apply the handbrake and make sure that all rotating parts have come to a complete stop.

2. Remove right-hand guard 1. Ensure the ignition key has been switched off. This will release the electric lock to the sharpener stone cover drive motor.

3. Turn nut 4 to move the sharpening stone cover to its rearmost position.

⚠ WARNING ⚠

Opening sharpening stone cover with ignition key switched on will cause electric motor failure.



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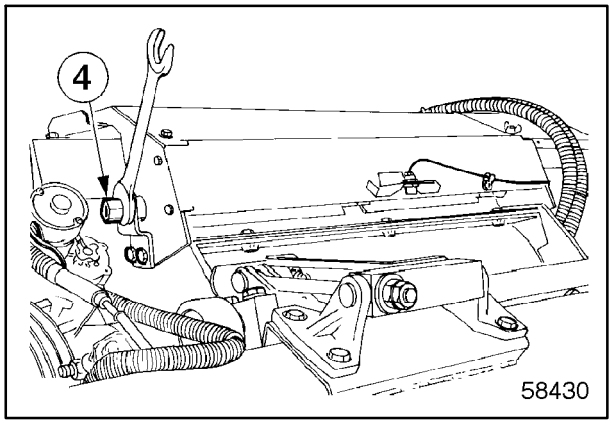

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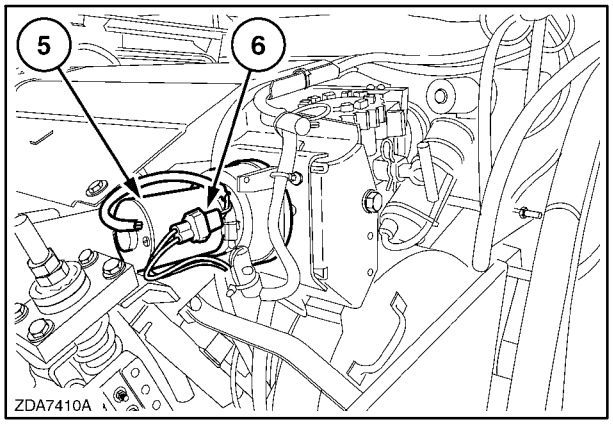
4. Disconnect the connector 6 to sharpener drive motor 5.

5. Start the forage harvester engine. Switch on the cutterhead, preferably in reverse. Increase the cutterhead speed to above 800 rpm.

⚠ CAUTION ⚠

When sharpening the cutterhead knives manually, always wear goggles and noise protective devices.



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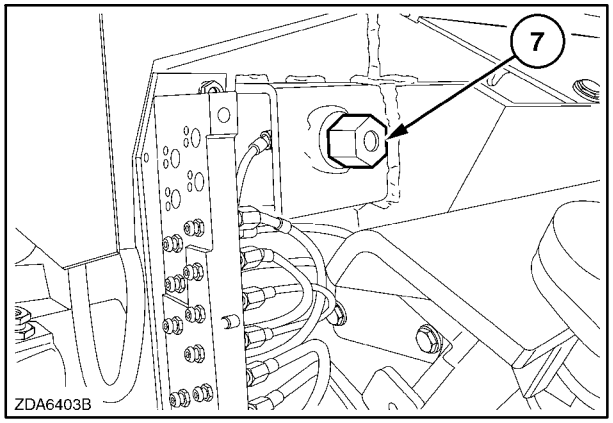
6. With a hand crank, a battery, or an electrically driven hand drill, move the sharpening stone back and forth with an even speed by turning nut 7. The stone speed should be about 10 double strokes per minute.

7. When knife sharpening is finished, switch off the cutterhead drive, stop the engine, close the sharpening stone cover, connect the wiring to the motors, close all covers and adjust the shearbar.



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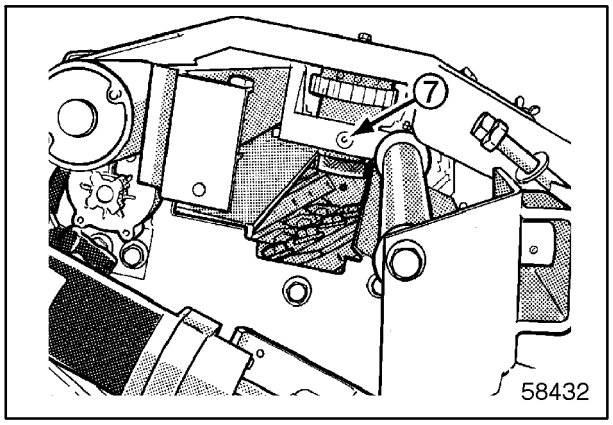
It is also possible to screw a long rod (available through your dealer) into the stone carrier hole 7 and pull the sharpening stone back and forth with the rod.

NOTE: *Before sharpening with the rod, remove the sharpener drive chain. After sharpening, reinstall the chain as described in paragraph headed "Chain adjustment and tensioning".*

⚠ DANGER ⚠

Install the rod and remove the sharpener drive chain before engaging the cutterhead.



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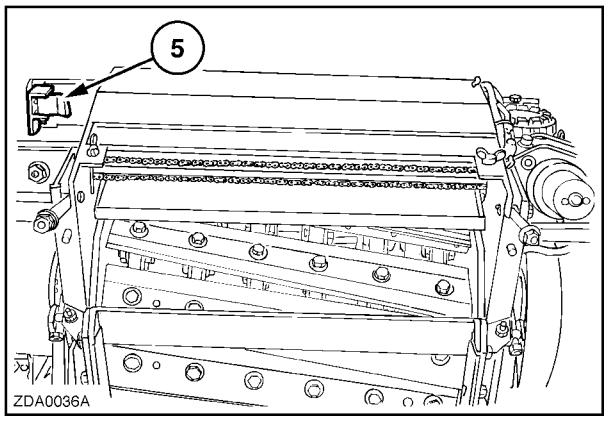
SHARPENING STONE

Sharpening stone lowering

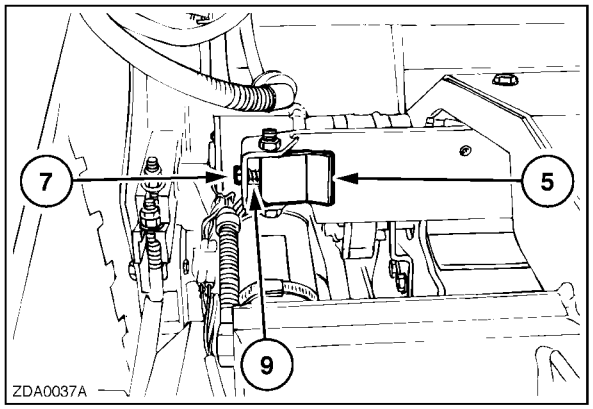
The sharpening stone should turn one notch on the ratchet cap at each stroke of the stone against pawl 5.

This is approximately 0.1 mm (0.004 in) for each stroke.

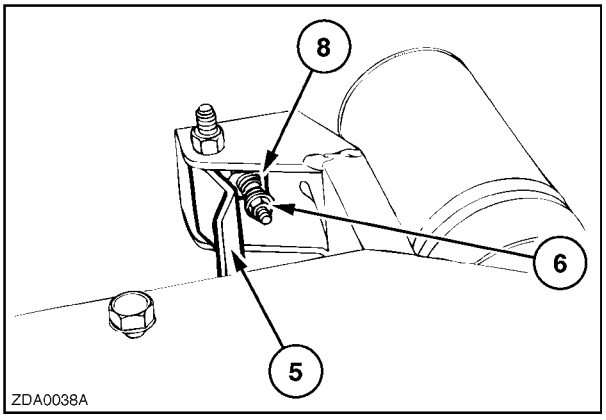


231

NOTE: *If necessary, adjust pawl 5 to the tooth of the stone holder with nut 6, bolt 7, and springs 8 and 9.*



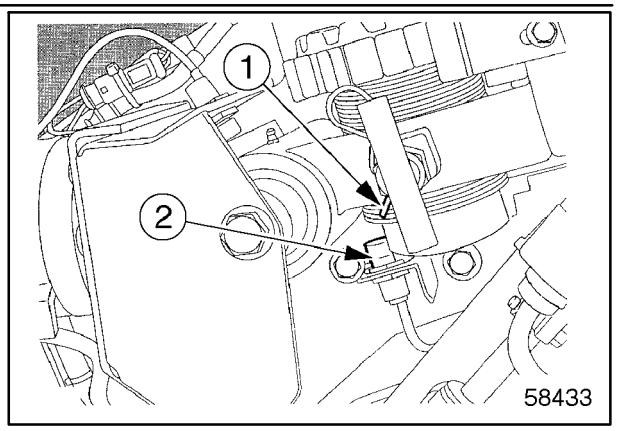
232



233

Adjustment of the sharpening stone depth

The sharpening stone depth adjustment should be performed if the stone holder 1 is coming too close to sensor 2.



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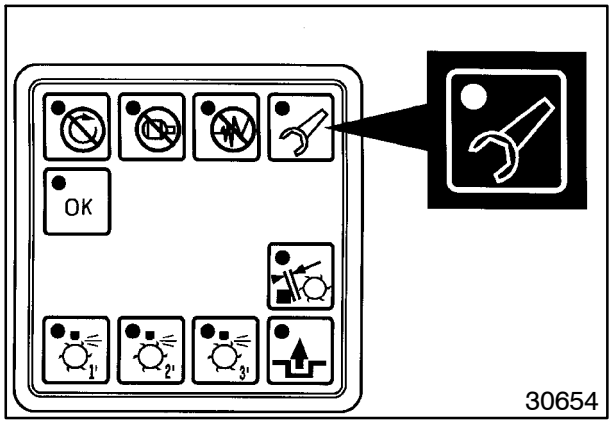
When the stone holder 1 is coming too close to sensor 2, the ADJUST light will illuminated.

NOTE: *An illuminated ADJUST light may also indicate that the shearbar touches the chopper body frame, i.e. that the cutterhead knives must be adjusted out to a bigger diameter.*



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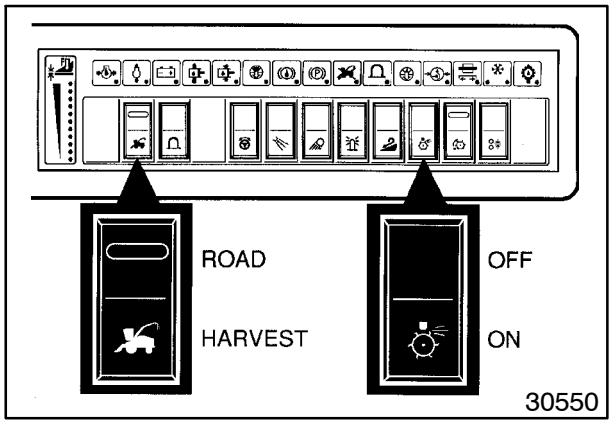
To adjust the sharpening stone depth, proceed as follows:

1. Stop the engine
2. Open the sharpener door as follows:
   - Switch on the ignition key.
   - Switch on the harvest switch.
   - Switch on the Adjust-O-Matic™ switch.
   - Wait until the OK light illuminates.



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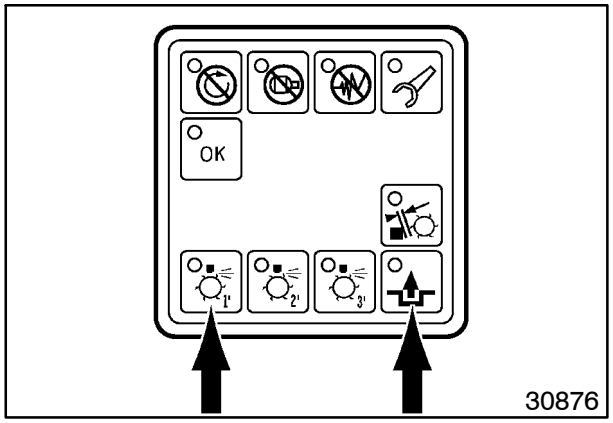
   - Press the STOP and the 1 minute sharpening keys simultaneously.
   - Wait until the door is fully open.
   - Switch off the ignition key.

⚠ CAUTION ⚠

Always switch off the cutterhead drive, stop the engine, remove the ignition key and switch off the battery main switch before carrying out any adjustments.



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3. Remove the left-hand cover.

4. Remove hairpin cotter 3. Remove or turn away spring clamp 4. Unscrew clamp screw 5 and screw up stone holder 6 about 25 mm (1").

5. Fully retighten clamp screw 6. Unscrew ratchet cap 7 until it turns freely.

6. Tap the sharpening stone carefully down until it protrudes approximately 25 mm (1") beyond stone holder 6.

7. Tighten ratchet cap 7 to 120Nm (88.5 ft.lbs).

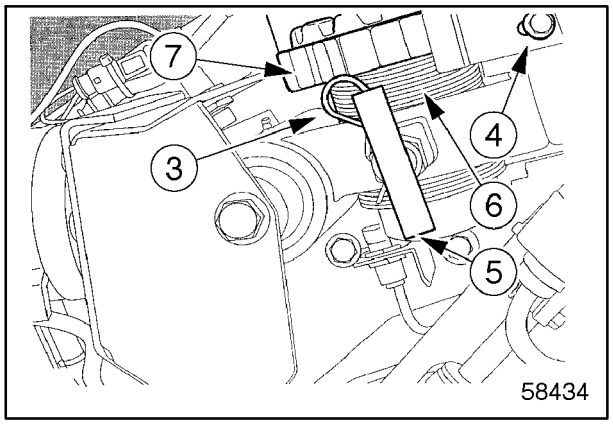
8. Unscrew clamp screw 5 and screw down the stone holder until the sharpening stone almost touches the knives.

9. Retighten clamp screw 5 and then unscrew it 2 to 3 turns. Reinstall hairpin cotter 3.

10. Close the left-hand cover.

11. Close the sharpener door

NOTE: *This adjustment should be repeated whenever the "adjust stone" warning light is illuminated. This means that stone holder 1 is coming too close to sensor 2.*



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Replacing the sharpening stone

When the sharpening stone has worn down to 70 mm (2 – 49/64") of the stone holder or if it has become simply impossible to lock the stone in the stone holder, it will have to be replaced.

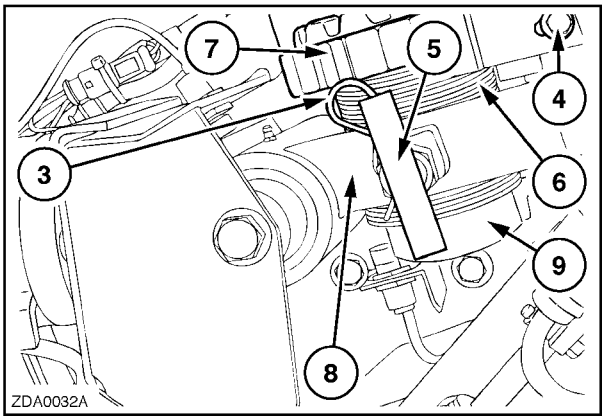
Proceed as follows:

1. Remove the left-hand cover.

2. Remove hairpin cotter 3 and tighten clamp screw 5 completely. Remove or turn away spring clamp 4.
3. Loosen ratchet cap 7 until it is handtight.

4. Unscrew clamp screw 5 so that stone holder 6 can be unscrewed from stone carrier 8.

5. Unscrew ratchet cap 7 completely from stone holder 6 and remove the worn sharpening stone 9. Retain rubber rings 10 and spacer bushings 11.



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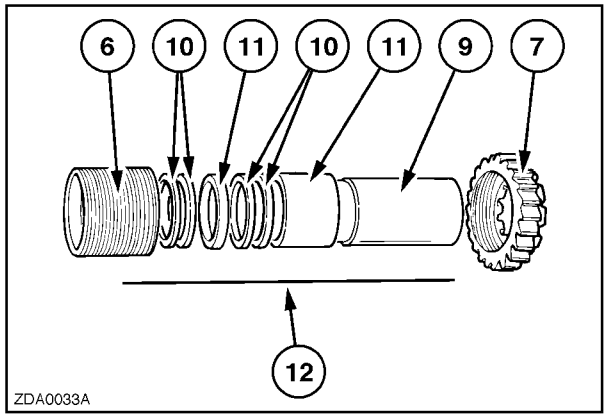
6. Slide rubber rings 10 and spacer bushings 11 over the new sharpening stone 9, as shown.

IMPORTANT: *Ensure the bevelled inner sides of the bushings face downwards.*

7. Slide assembly 12 into stone holder 6. Screw ratchet cap 7 onto stone holder 6 to lock the stone in position. Tighten ratchet cap 7 to 120Nm (88.5 ft.lbs).

8. Screw the assembly into stone carrier 8 and adjust the sharpening stone as described under the heading “Adjustment of the sharpening stone depth”.



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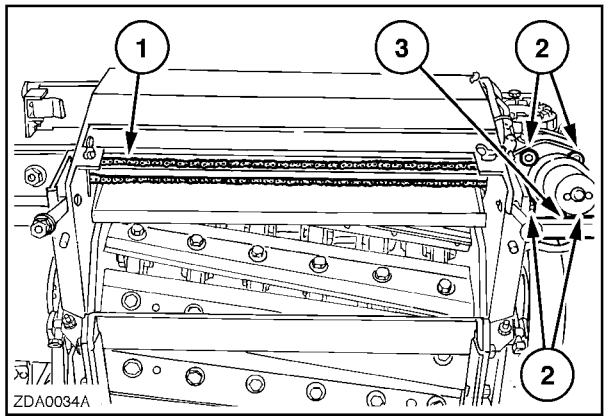
Sharpening stone drive chain

⚠ WARNING ⚠

Switch OFF the cutterhead drive, stop the engine, remove the ignition key from the machine and switch OFF the battery switch before carrying out any adjustments.

The sharpener drive chain 1 is tensioned by loosening the four bolts 2 and moving motor bracket 3 in the slotted holes. The chain should be well tensioned at all times.



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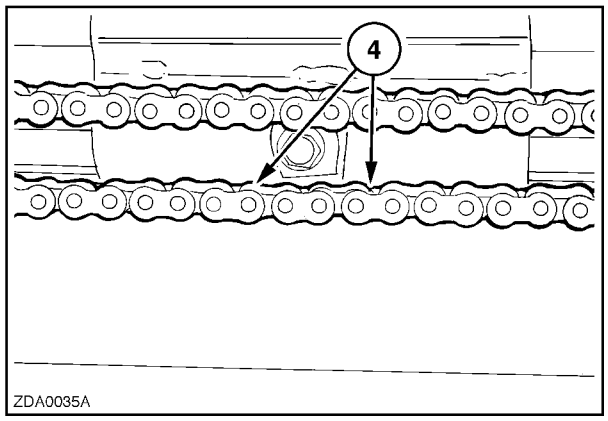
To replace the sharpener drive chain, proceed as follows:

1. Loosen the chain as described above.

2. Remove the chain connector at drive crank 4.

3. Remove the old chain and install the new one in reverse order of removal.



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Adjusting the sharpening stone cover

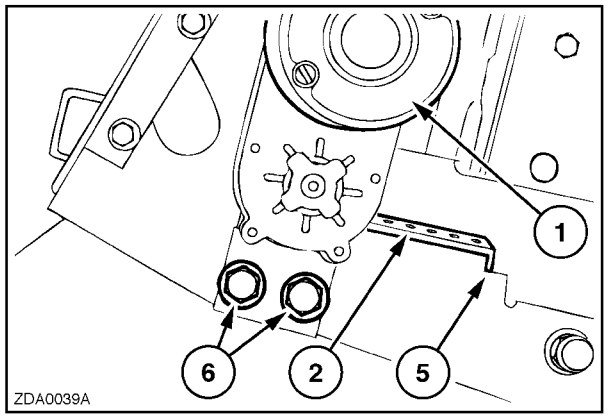
The sharpening stone cover is correctly adjusted when the harvester leaves the factory.

If, for any reason, the cover was removed from the machine, or it does not open or close properly when the knife sharpening system is used, adjust as follows:

1. Switch OFF the drives and stop the engine.
2. Ensure the ignition has been switched off. This will release the electric lock to drive motor 1 of the sharpener stone cover 2.
3. If the cover is installed, move it fully rearward or out of the chopper body by turning nut 3 with a wrench.
4. Clean the cover and the rails on which it is moving.
5. Reinstall cover 2 parallel to drive shaft 4.
6. Move the cover forward by turning nut 3 with a wrench until the front edge of cover 2 is level with notch 5 on both sides of the machine.
7. If out of line, loosen nuts 6 on both sides of the chopper body and adjust the drive shaft by moving the shaft holding brackets until the front edge of plate 2 is in line with plate 5 on both sides of the chopper body.
8. Retighten nuts 6.

NOTE: *The gears on the cover drive shaft should not apply pressure to the cover but prevent it from moving up.*

9. For correct limit switch adjustment, refer to paragraph headed “Sensors” further in this section.



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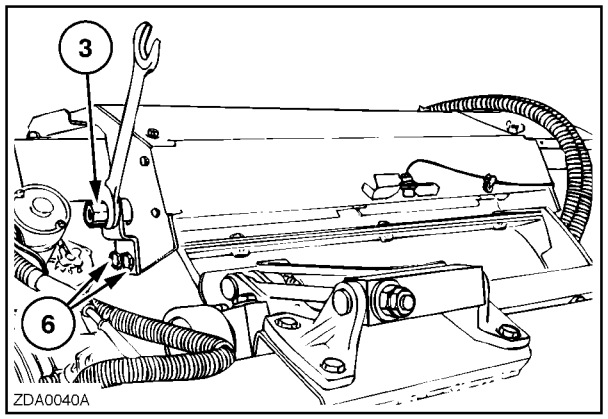

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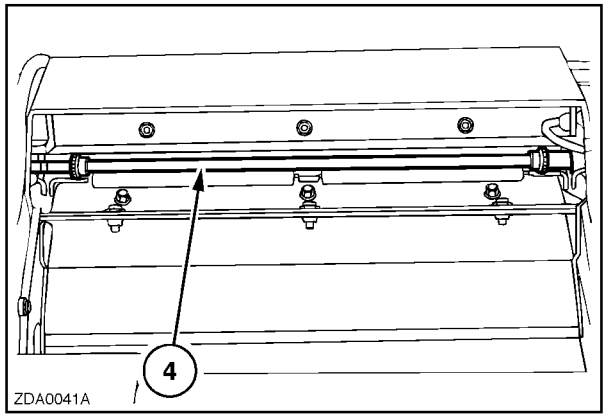

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SHEARBAR

Shearbar adjustment

The life of a shearbar depends on maintaining proper shearbar-to-knife clearance, the type of material being cut and the soil conditions. To save fuel and horsepower and to obtain a quality cut, it pays to replace the shearbar when it becomes worn.

For maximum efficiency and a quality product, the clearance between the shearbar and the knives must not exceed 0.3 mm (0.012 in). If the shearbar is not adjusted and kept close to the knives, the knives and the shearbar will wear much faster.

Different crop conditions will determine how often the knives need to be sharpened. The shearbar should be **adjusted** after each sharpening operation. A properly adjusted shearbar at all times will keep the knives sharp and, thus, reduce the sharpening frequency.

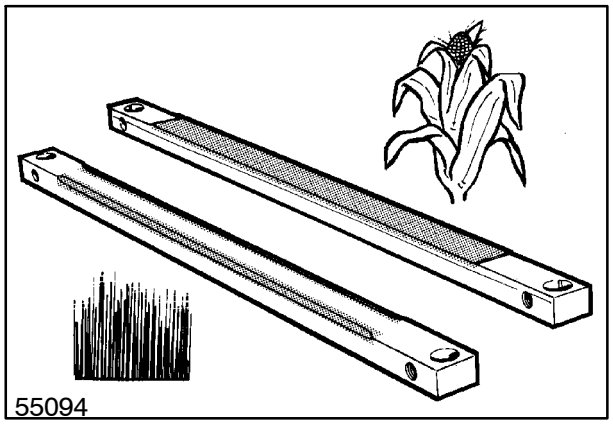
Available shearbars

To achieve a maximum wear resistance, two types of shearbars are available: one for grass and one for maize harvesting.

The grass shearbar has two hardened cutting edges. The upper surface of the maize shearbar is completely covered with a special hard material. These hard edges must always be on the upper side. Refer to the heading “Shearbar removal”.

IMPORTANT: *Always sharpen the knives before adjusting the shearbar. The cutting edges of the knives must be a true cylinder before adjusting the shearbar.*

To adjust the shearbar to the knives, proceed as described in section 3 “Field and Site operation”, paragraph headed “Automatic shearbar adjustment”.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Manual shearbar adjustment

In the event of a failure of the automatic shearbar adjusting system, it is possible to adjust the shearbar manually. To do this, follow the procedure described below.

1. Switch off the cutterhead drive. Stop the forage harvester engine, apply the handbrake and make sure that all rotating parts have come to a complete stop.

2. Remove the safety guards on both sides of the chopper body.

3. Disconnect the electric connectors 1 to the adjuster motors on both sides of the machine. This releases the electric locking system of the motors.

4. Check that the adjusting rod mounting to the chopper body frame at 2 has no free play. If there is free play, then tighten the mounting as described under the heading “Adjusting or replacing adjuster motor and adjuster rod” below.

ATTENTION: *Before starting the engine make sure nobody is standing around the machine.*

5. Start the engine. Switch on the cutterhead drive in reverse. Run the engine at low idle.

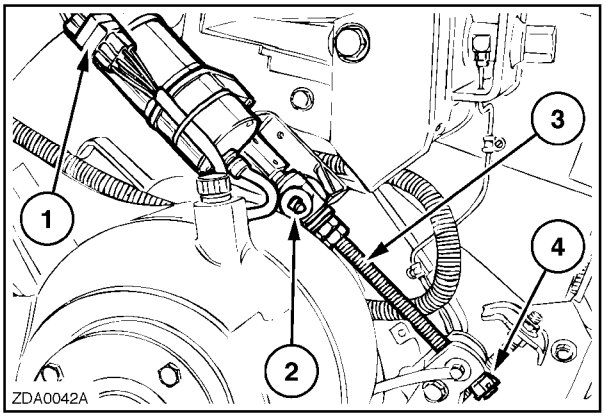
6. Turn the adjusting rod 3 by turning nut 4 counterclockwise (view from the front) until the shearbar slightly touches the cutterhead knives. Then reverse the shearbar by turning nut 4 clockwise (view from the front) 3/4 of a turn.

7. Repeat this procedure three times on each side of the machine. During the fourth time, reverse the shearbar until it stops touching the knives, then turn nut 4 clockwise 1/2 of a turn.

8. Stop the engine, switch off the cutterhead drive and check that the shearbar is correctly adjusted. The shearbar-to-cutterhead clearance should be less than 0.2 mm (1/128”) at its closest point.

9. Connect the electric connectors to the adjuster motors on both sides of the machine.

10. Reinstall and close all guards.



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Turning or replacing the shearbar

⚠ CAUTION ⚠

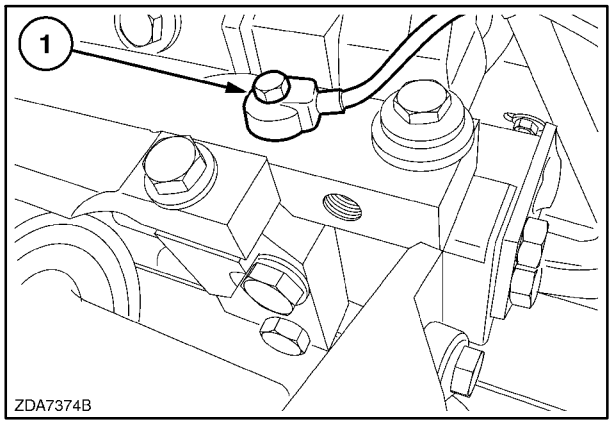
Whenever a maintenance or adjustment job has to be carried out on or near the cutterhead, the cutterhead has to be blocked, e.g. with wooden blocks. This is to protect you from serious bodily injuries if the cutterhead would accidentally rotate.

In the following cases, it will be necessary to remove the shearbar and to regauge the knives:

- When all the shearbar adjustment has been used up and one shearbar edge is worn out.
- When changing from a grass shearbar to a maize shearbar (refer to Section 8).

To remove the shearbar, proceed as follows:

1. Move the shearbar adjusting arms fully forward as described under heading “Regauging the knives”, steps 6 to 10.
2. Remove the sensors 1 on both sides.



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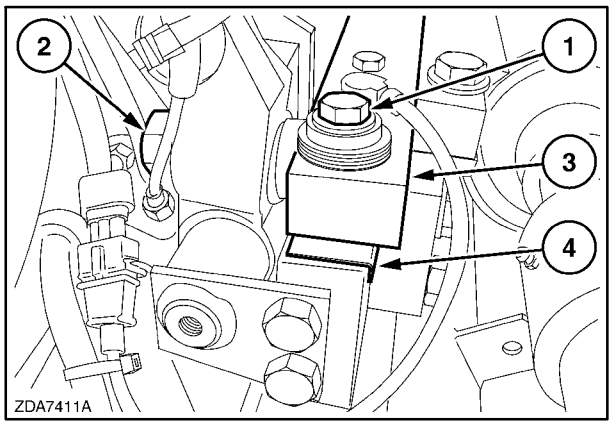
3. Remove clamping bolts 1 on both sides of the chopper body.



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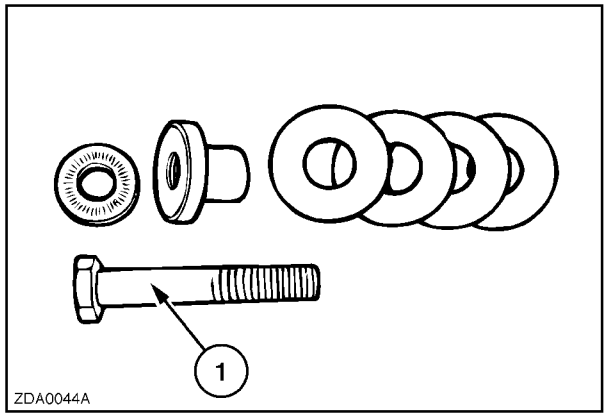
NOTE: *Observe the assembly order of the Belleville springs and spacer, and retain them (Fig. 250).*



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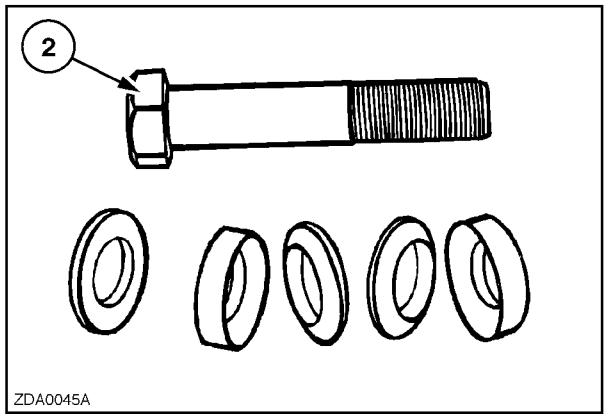
4. Remove mounting bolts 2 on both sides of the machine.

NOTE: *Observe the order of the washers and retain them (Fig. 251).*



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5. Remove the shearbar and the slide plate from the right-hand side of the machine.

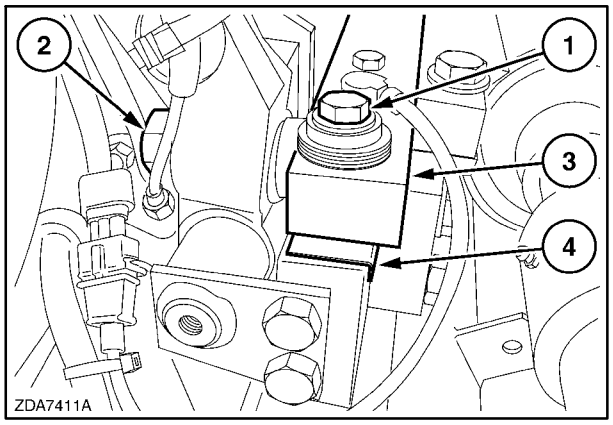
6. Clean the shearbar and the shearbar support thoroughly (use an emery cloth to remove eventual rust). Install the slide plate and the new shearbar or turn the old one. Spread a thin film of grease on the shearbar and the shearbar support before installing the shearbar.

IMPORTANT: *The shearbar has two cutting edges. It can be turned end for end, but never turned over.*

7. Reinstall mounting bolts 2 on both sides of the machine and make sure the washers are installed in the correct order (the thin ones should be installed towards the arm).

   Tighten bolts 2 to a torque of 180 Nm (132 lbf.ft). Check that distance X is equal on both sides of the machine (X is the distance between the shearbar and the cutterhead frame).

   If not, adjust manually to the smaller measurement.



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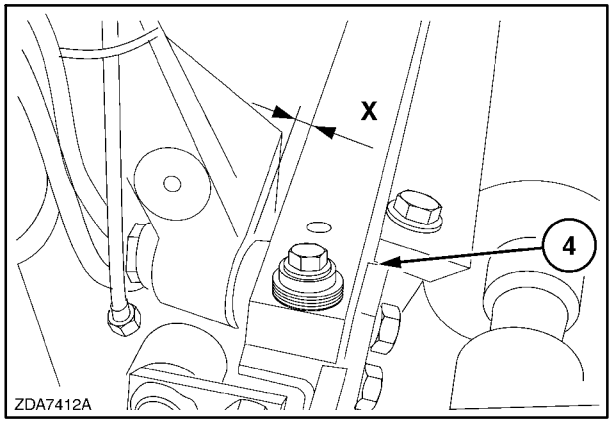
8. Install clamping bolts 1 on both sides of the machine. Make sure to install the washers and the spacer in the correct order. Preferably use new bolts.

   Tighten bolts 1 to a torque of 91 Nm (67 lbf.ft).

IMPORTANT: *Spread a thin film of grease between the clamping bolt washers and the shearbar. This is to prevent the washers from binding onto the shearbar.*



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9. Readjust the cutterhead knives as described under heading “Regauging the knives”.

10. Sharpen the knives as described in section 3 “Field and Site operation”, paragraph headed “Automatic knife sharpening”.

11. Adjust the shearbar as described in section 3 “Field and Site operation”, paragraph headed “Automatic shearbar adjustment.

IMPORTANT: *Ensure all guards and covers are reinstalled and all shearbar hardware is securely tightened.*

CROP PROCESSOR / GRASS EQUIPMENT

When harvesting maize or full crop silage and there is a requirement to crack practically every kernel, the forage harvester can be equipped with a crop processor.

When harvesting grass silage, the crop processor assembly must be removed from the machine.

NOTE: *It is possible to harvest small acreages of grass during the maize season with the crop processor installed. In that case, just open up the roll distance to maximum. Be careful: stones that enter the machine may damage the crop processor rolls.*

⚠ WARNING ⚠

For safety's sake, never carry out any adjustments while the machine is running. Always switch OFF the main drive, stop the engine and apply the brakes before any adjustment or service work is carried out.

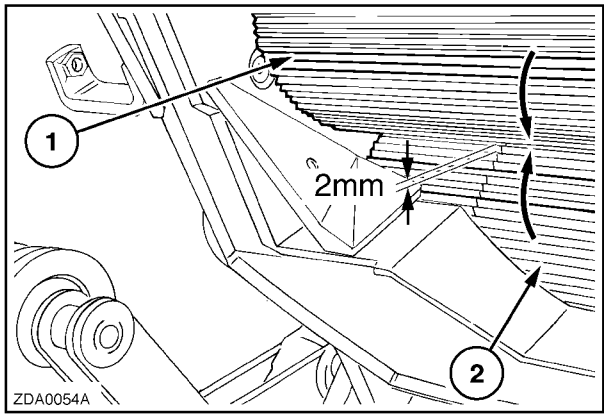
Always install all safety guards after adjusting or repairing the machine.

Replace or repair missing or damaged guards immediately.

CROP PROCESSOR ROLLS CLEARANCE

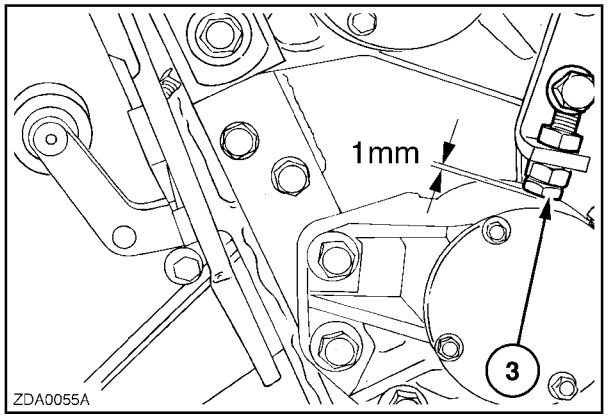
The minimum clearance between the crop processor rolls is factory-set at 2 mm (5/64") on the closest point between upper roll 1 and lower roll 2.

The minimum clearance of the safety bolts 3 to the bearing housing is factory-set at 1 mm (3/64").



254

The adjustment of the crop processor roll clearance is explained in section 3 “Field and Site operation”, paragraph headed “Crop processor”.

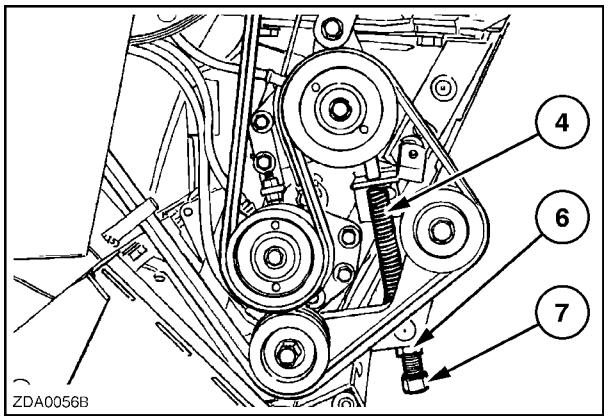


255

CROP PROCESSOR DRIVE BELT TENSION

The belt tension is correct when the spring 4 is compressed to a length of 170 mm (6.7 in).

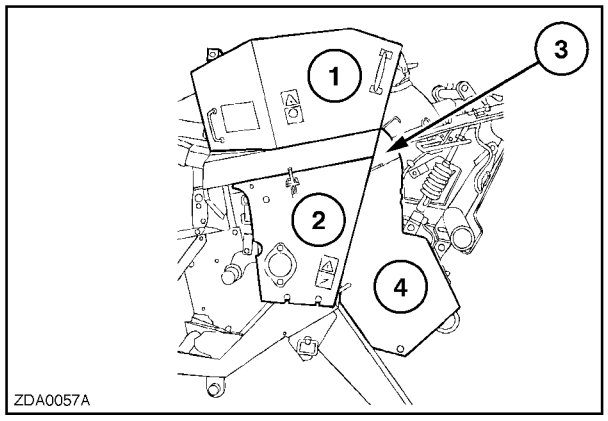
To adjust, loosen the lock nut 6 and screw in the rod 7 until the spring 4 is compressed to a length of 170 mm (6.7 in). Lock the rod 7 in place with the lock nut 6.



256

REPLACE THE CROP PROCESSOR DRIVE BELT

1. Remove the chopper body from the base unit.
2. Remove the chopper body upper safety guard 1 and the chopper body lower safety guard 2.
3. Remove the crop processor upper safety guard 3 and the crop processor lower safety guard 4.
4. Loosen the lock nut 6 and screw out and remove the rod 7. Remove the spring 4.

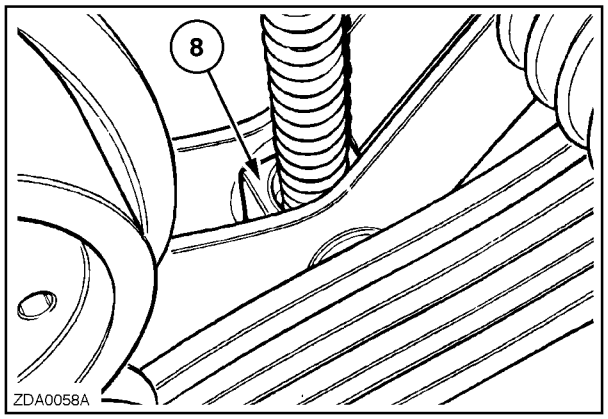


257

5. Replace the crop processor drive belt. Note the belt routing.
6. Reinstall the rod 7.

NOTE: *Rotate the shaft 8 so that the lock nut 6 can be tightened against it.*

7. Adjust the spring 4 to a length of 170 mm (6.7 in). Lock the rod 7 in place with the lock nut 6.

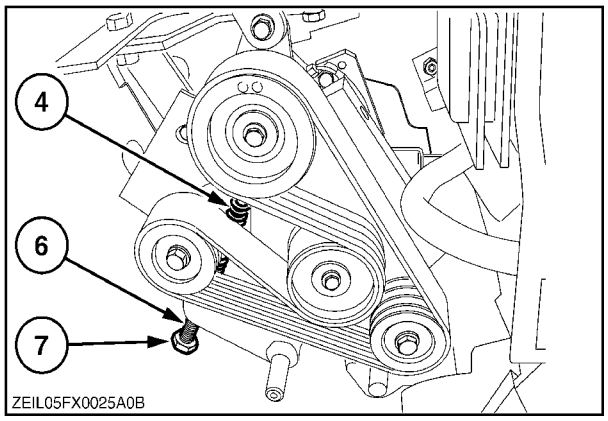


258

CROP PROCESSOR DOUBLE DRIVE BELT TENSION (IF INSTALLED)

The double drive belt tension is correct when the spring 4 is compressed to a length of 170 mm (6.7 in).

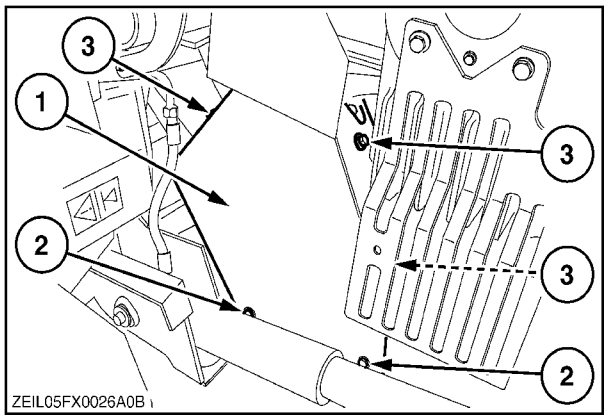
To adjust, loosen the lock nut 6 and screw in the rod 7 until the spring 4 is compressed to a length of 170 mm (6.7 in). Lock the rod 7 in place with the lock nut 6.



259

REPLACE THE CROP PROCESSOR DOUBLE DRIVE BELT (IF INSTALLED)

1. Remove the chopper body from the base unit.
2. Remove the crop processor double belt safety guard 1.
3. Loosen the lock nut 6 and screw out and remove the rod 7. Remove the spring 4.
4. Replace the crop processor double drive belt. Note the belt routing.
5. Reinstall the rod 7.
6. Adjust the spring 4 to a length of 170 mm (6.7 in). Lock the rod 7 in place with the lock nut 6.



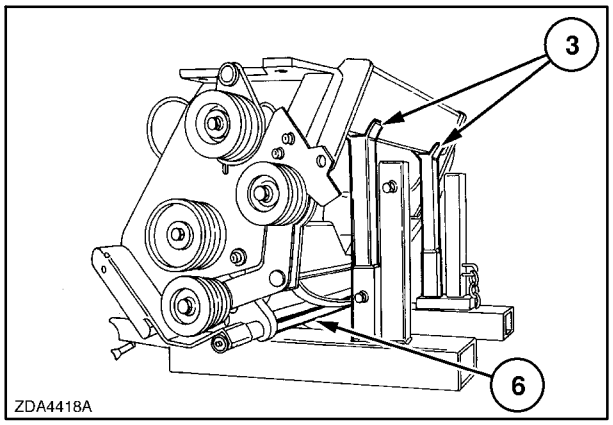
260

REMOVAL OF THE CROP PROCESSOR

1. Adjust the crop processor roll clearance to minimum.
2. Remove the chopper body from the base unit.
3. Remove the chopper body upper and lower safety guard.
4. Remove the crop processor upper and lower safety guard.
5. Support the crop processor well during disassembly.

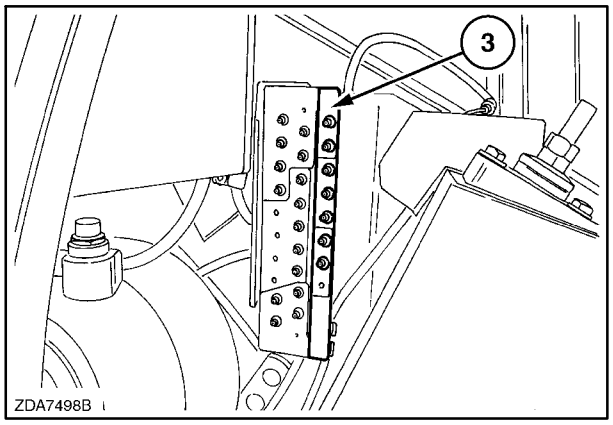
NOTE: *Use the crop processor removal tool.*

6. Remove the crop processor drive belt as described under heading “Replace the crop processor drive belt” in this paragraph.



261

7. Remove the crop processor grease bank 3.



262

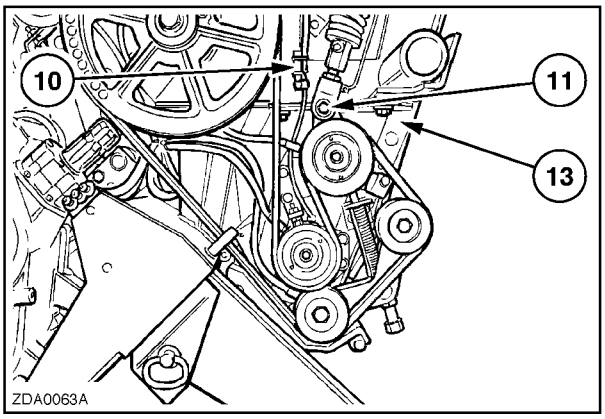
Left-hand side

8. Disconnect connector 10 and make sure the lower part of the sensor wire is free to be removed with the crop processor.

9. Remove bolt 11.

NOTE: *Note there is no spring tension from the roll tensioning system.*

10. Remove the two bolts 13.



263

Right-hand side

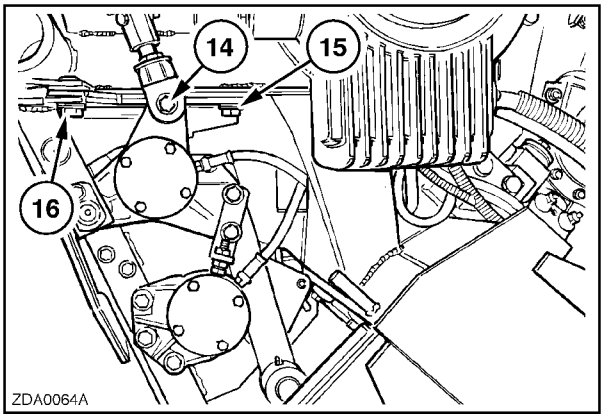
11. Remove bolt 14.

NOTE: *Note there is no spring tension from the roll tensioning system.*

12. Remove bolt 15 and loosen bolt 16.

13. Carefully remove bolts 13 and 16 and pull the crop processor away from the chopper body.

NOTE: *The crop processor is installed in reverse order of the removal sequence.*



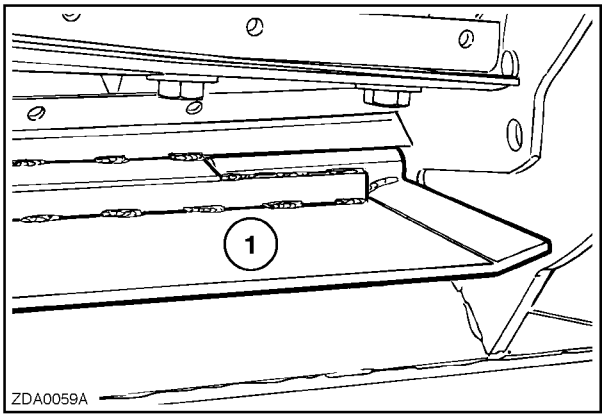
264

14. Remove the maize plate.

GRASS PLATES

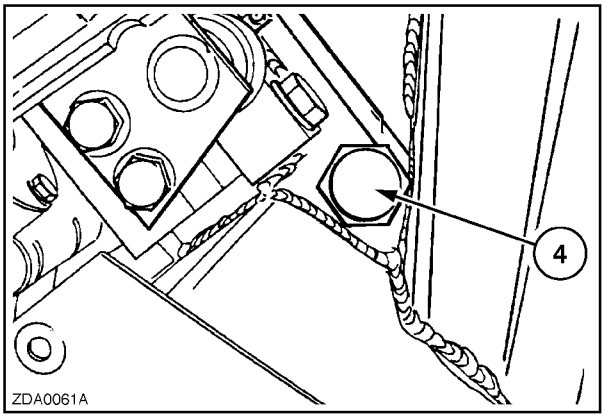
To remove the grass/maize plate, proceed as follows:

1. Lift up grass/maize plate 1.



265

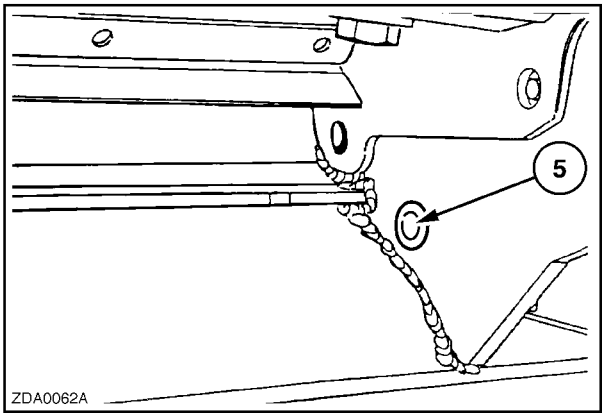
2. Remove pin 4 from both sides of the cutterhead and remove grass/maize plate 1.



266

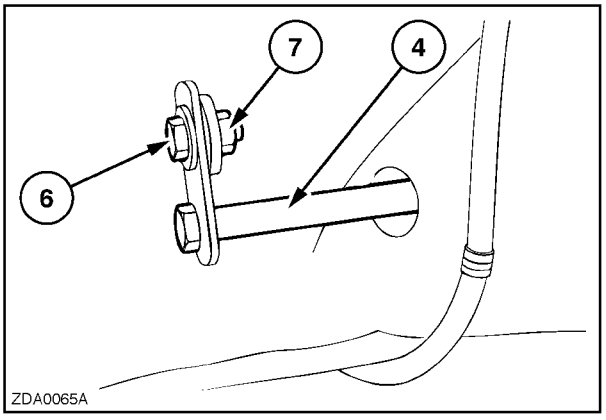
To install the grass/maize plate, proceed as follows:

1. Install the grass plate so that pivot pin 4 engages in hole 5.



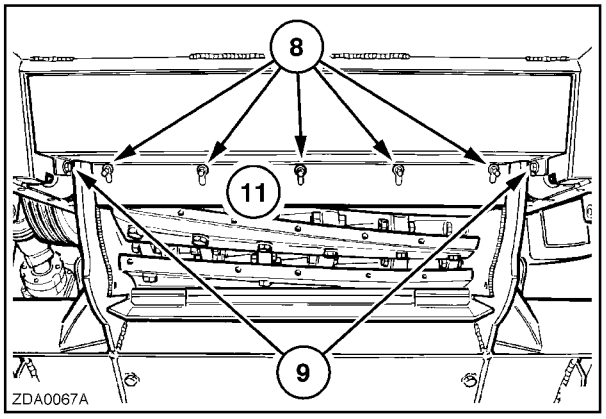
267

2. Introduce pin 4 from the outside and secure in place with bolt 6 and nut 7 on both sides of the machine.



268

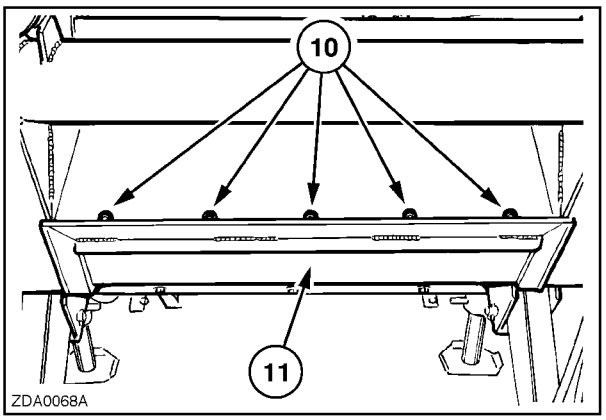
3. Remove bolts 8, 9 and 10, and remove plate 11.



269

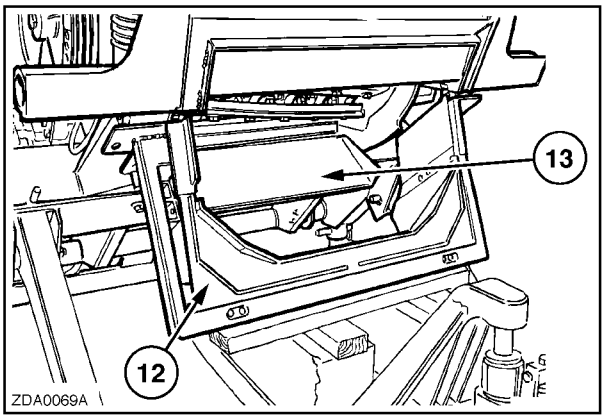
4. Swing the plate that was installed at 8 rearwards and secure it with bolts 10.

NOTE: *During assembly, pull plate 11 to the rear so it gives sufficient space to the cutterhead knives to rotate freely.*



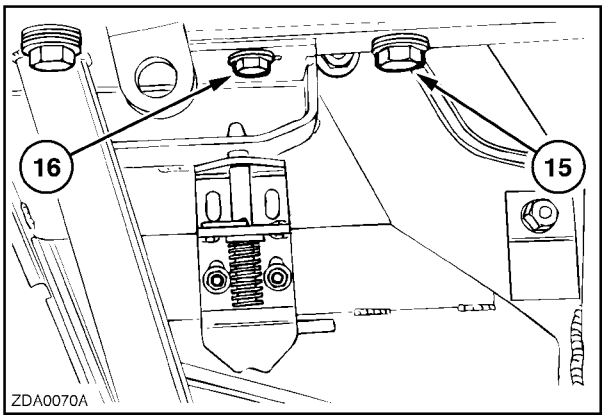
270

5. Lift the front end of the grass door assembly 12 in between grass plate 13 and the chopper body frame.



271

6. Lift the end of the grass door assembly into place and secure with bolts 15 and 16 provided, on both sides of the chopper body.



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BLOWER

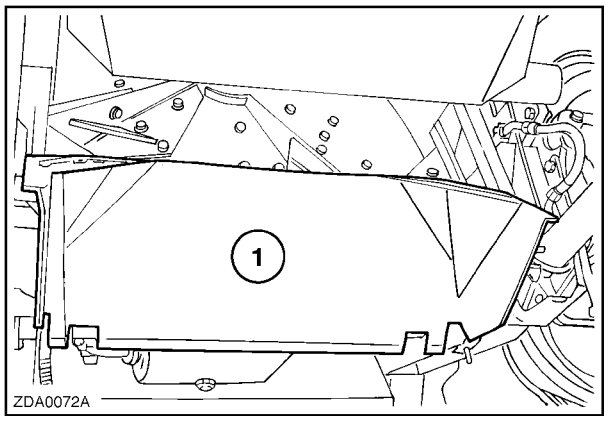
ACCESS TO THE BLOWER

1. **Access via the bottom door**

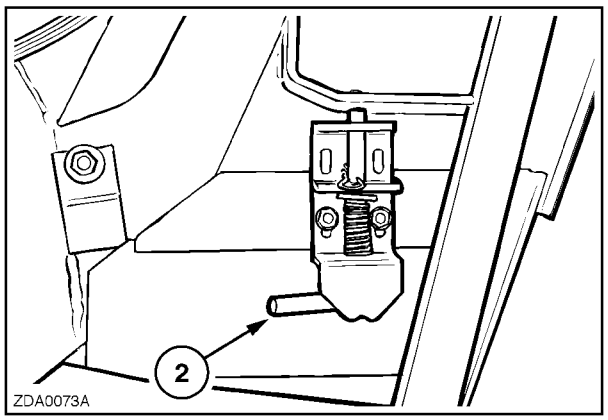
If the forage harvester is not fitted with a crop processor, the blower can easily be reached through the bottom door 1. The figure shows the door open.

- Lift the cutterhead to its highest position and engage the safety latches on both hydraulic cylinders.
- Open the door locking pins 2 on both sides of the machine and open the door.

NOTE: *The door is hinged in its rear end. It can only be opened with the cutterhead in its highest position.*



273



274

2. **Opening a gap between the cutterhead and the blower.**

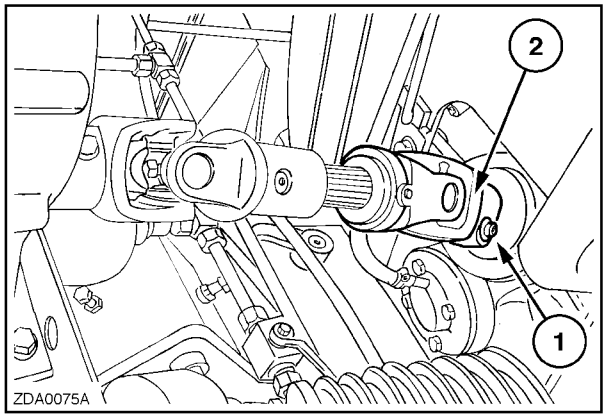
3. **Removing the entire chopper body from the forage harvester.**

NOTE: *To remove material from a blocked blower, refer to steps 1 and 2.*

BLOWER REMOVAL

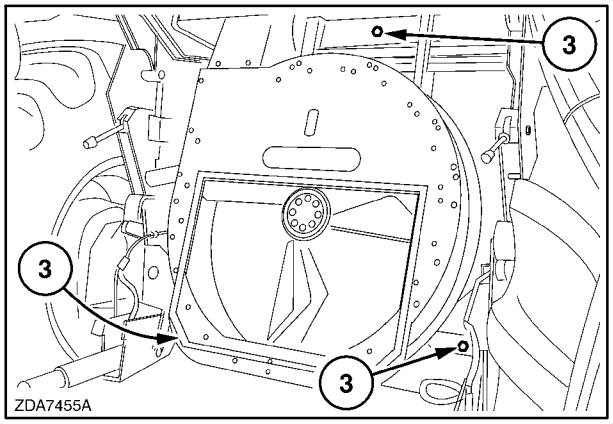
1. Remove the chopper body from the base unit.

2. Remove bolt 1 and pull shaft 2 away from the blower shaft.



275

3. Remove the three blower frame fastening bolts 3.

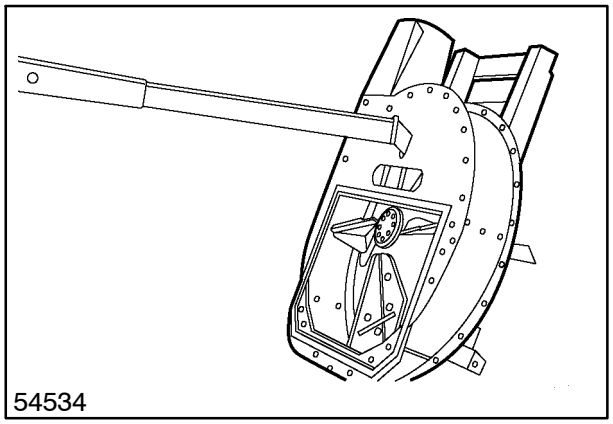


276

4. Support the blower well (e.g. lift it from hole 4). First pull out the lower end and lower the blower away from the spout.

5. Reinstall the blower in reverse order of the removal sequence.

6. Torque the blower fastening bolts 3 to 240 Nm (177 lbf. ft). Replace the bolts, if damaged.



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BLOWER PADDLES AND WEAR PLATES

General

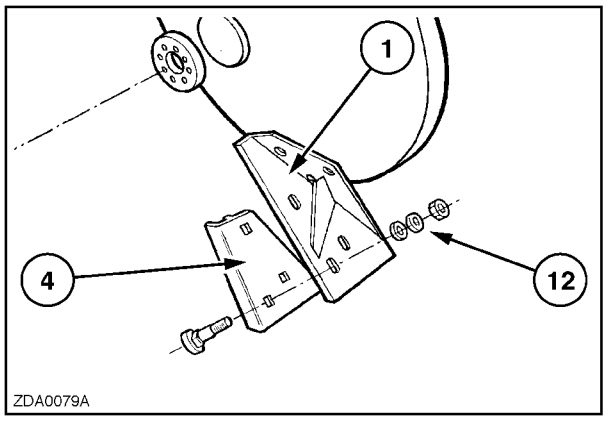
The blower paddles 1 are installed on the blower cone 2 with four bolts. The blower paddles are not adjustable.

On each blower paddle, a replaceable wear plate 4 is installed with bolts 12.

The blowing (i.e.throwing) force will be significantly reduced if proper paddle clearance to the blower liner is not maintained.

The blower paddle and wear plate assemblies are supplied as matched sets of two and must be installed opposite one another on the blower cone.

Wear plates are supplied as single parts.

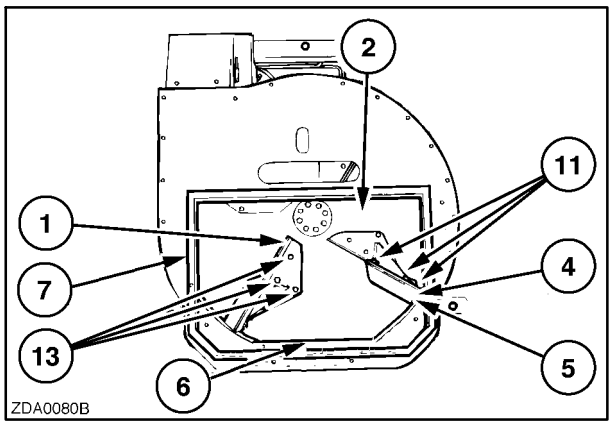


278

Replacement

When placing wear plates 4 or paddles 1 separately, proceed as follows:

1. Remove the worn or damaged wear plate 4 and its paddle 1. Weigh the paddle and the new wear plate assembly.
2. Remove the paddle and wear plate assembly on the opposite side of the blower cone and weight this paddle assembly as well.
3. Add washers 12 to the lighter paddle assembly until the difference in weight between both paddle assemblies is 45 g (0,1 lb) or less.
4. Install both paddle assemblies opposite to each other.
5. The blower paddles 1 are installed on the blower cone with four bolts. The blower paddles are not adjustable.
6. Loosen bolts 11 and move wear plate 4 in the oblong holes to have a minimum clearance of 0.8 to 1 mm (1/32" to 3/64") to the blower liner 3 at point 5, of 1.0 to 1.5 mm (3/64" to 1/16") at 6, and of 1.5 to 2.0 mm (1/16" to 5/64") at 7.
7. Turn the blower a full turn to make sure that the paddle is running free in the blower housing.
8. If the minimum clearance is not at point 5, then contact your local dealer for assistence.



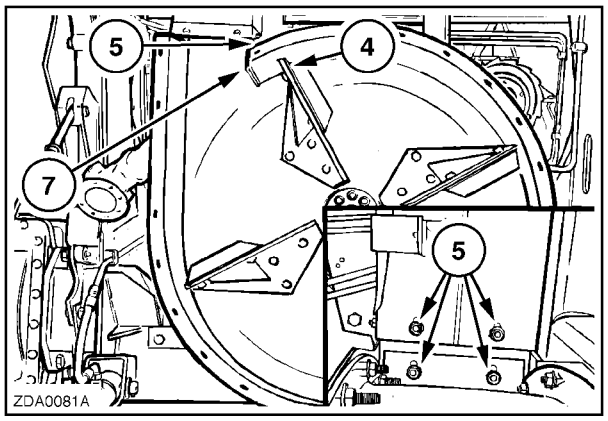
279

BLOWER CUT-OFF-PLATE

The adjustment of the blower cut-off plate 1 must be checked every time the blower paddles are adjusted.

The clearance between the tips of the blower paddle wear plate 4 and cut-off plate 1 should be adjusted to 2 mm (5/64").

To adjust, loosen the four bolts 5 and move the plate to its correct position. Retighten the bolts and turn the blower a complete cycle to check that all paddles run freely.



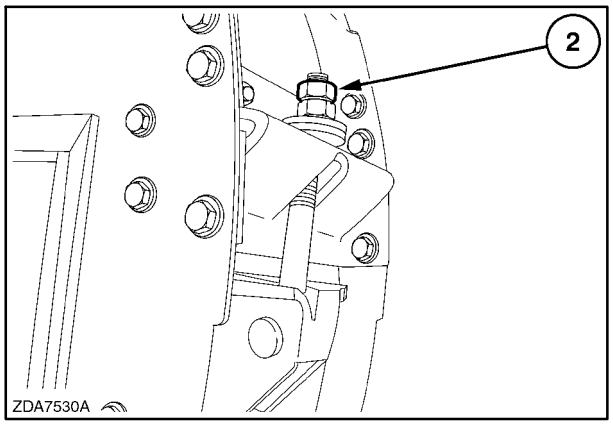
280

BLOWER LINER

Every 50 hours of operation the blower liner (wear plate) 3 should be checked for wear and replaced as necessary. The life of the liner will vary depending on the type of crop being harvested, as well as the amount of abrasive materials lodged in the crop.

To replace the blower liner, proceed as follows:

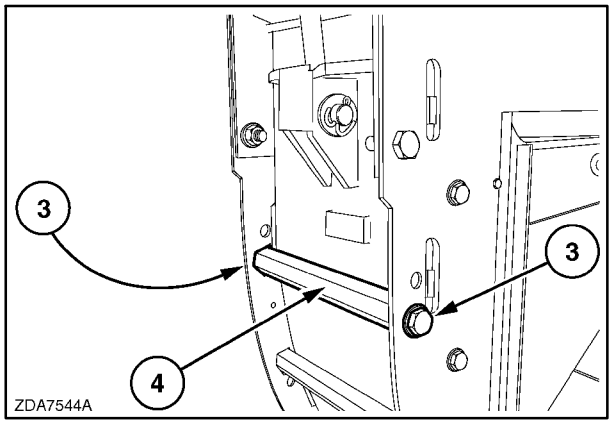
1. Remove the chopper body from the machine.
2. Remove the blower from the machine.
3. On both sides of the blower, remove bolts 2.



281

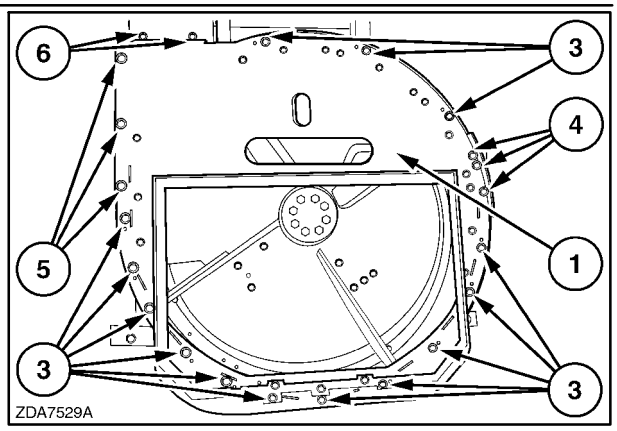
4. Loosen bolts 3 on both sides of the hex shafts 4 on the periphery of the blower. Rotate the hex shaft 4 so that the surface is parallel with the blower liner.

NOTE: *Do not remove bolts 3.*



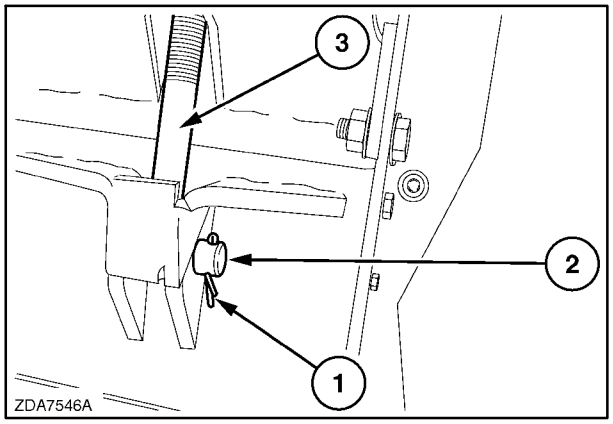
282

5. Remove bolts 3, 4, 5 and 6 on the front plate 1 and lift away front plate 1.



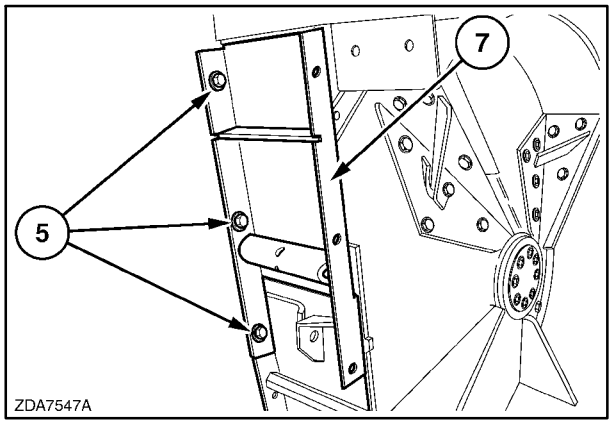
283

6. On both sides, remove split pin 1, pin 2 and eye bolt 3.



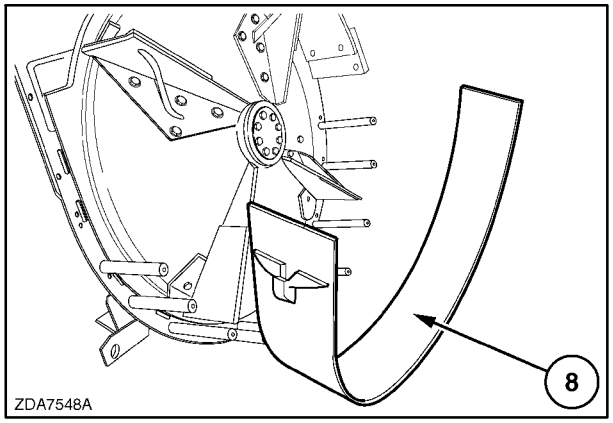
284

7. Remove bolts 5 and plate 7.



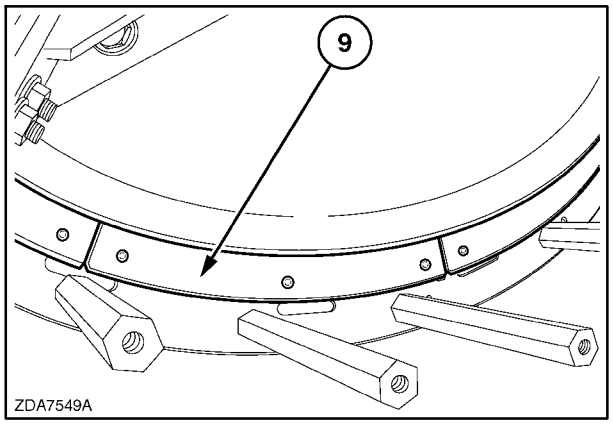
285

8. Pull the blower liner 8 out of the blower.



286

9. While the blower front plate 1 is out of the machine, check the condition of the wear plates 9 on the front and rear plate.
   Replace as required.



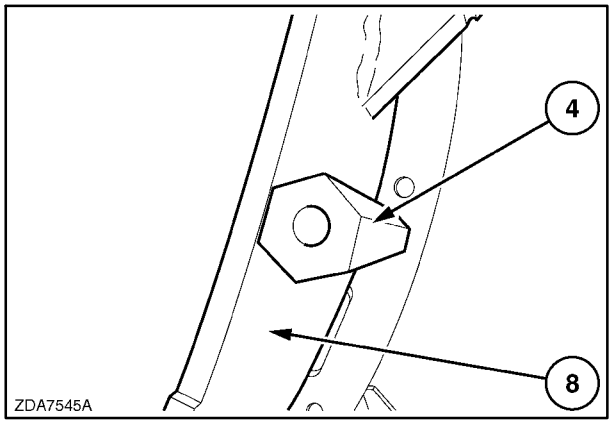
287

10. Clean the blower thoroughly before installing the new liner.

11. Install the new blower liner 8 in reverse order of the disassembly sequence.

NOTE: *Make sure that a surface of the hex shaft is parallel with the blower liner.*

NOTE: *Make sure the notches on the blower liner fit into the rear plate.*



288

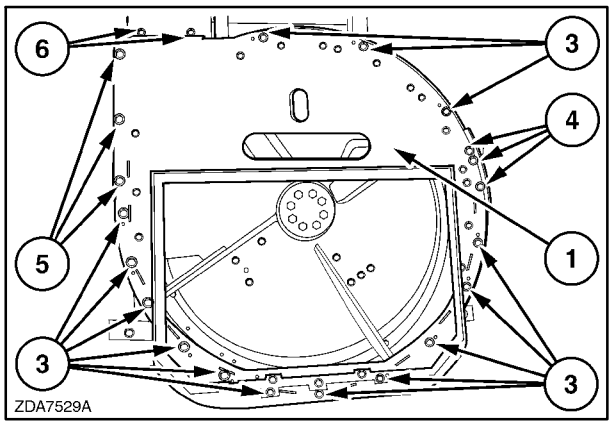
12. Install plate 7(fig. 285).

13. Install front plate 1 and tighten all bolts handtight.

NOTE: *Make sure the notches on the blower liner fits into the front plate 1.*

14. On both sides, install eye bolt 3, pin 2 and split pin 1 (fig. 284).

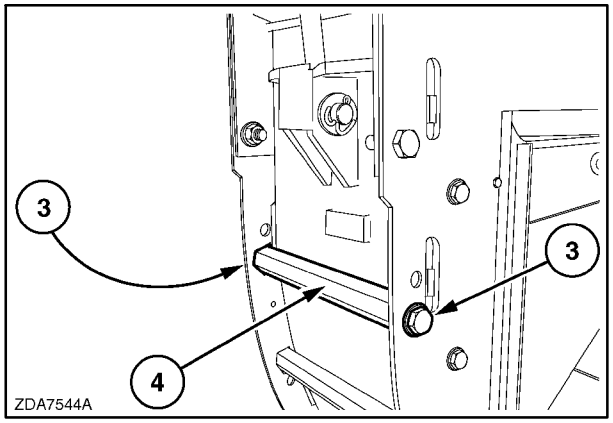
15. Tighten three bolts 3 on top of the blower.



289

NOTE: *To tighten bolts 3, rotate the hex shaft 4 until one side is pushing against the blower liner and then tighten bolts 3. Proceed the same for all bolts 3.*

16. Tighten bolts 4 and 5 (fig. 289).



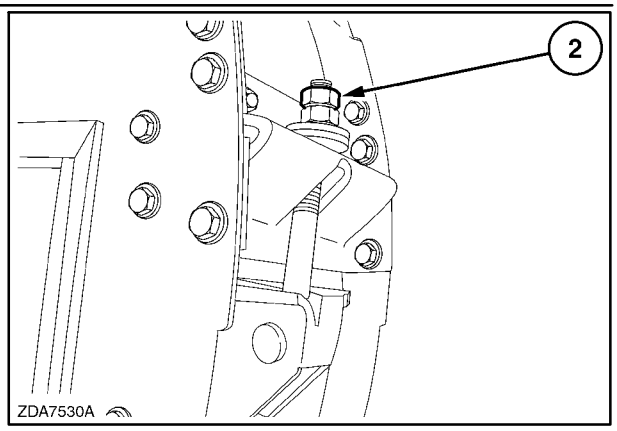
290

17. On both sides, tighten bolts 2.

18. Tighten bolts 3 (fig. 289).

19. On both sides, retighten bolts 2 to 70 Nm.

20. On both sides, lock bolts with a locknut and tighten to 150 Nm.



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SPOUT

WORM WHEEL

NOTE: *Covers and grease lines are removed for clarity.*

Adjust the worm wheel as close as possible to the crown gear and eliminate possible axial play of the worm.
To adjust, proceed as follows:

1. Check worm gear 1 for axial play.

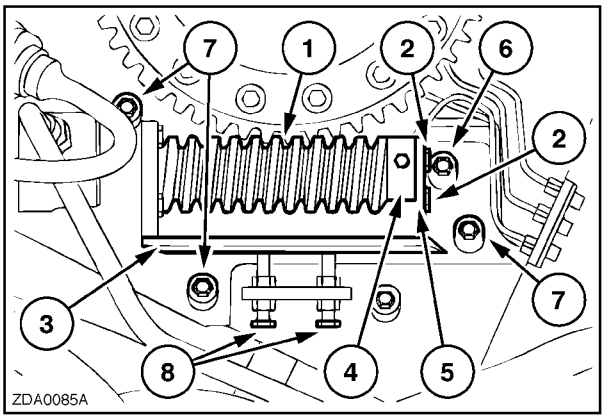
2. To remove possible play, loosen bolts 2 and install shims between worm bracket 3 and bearing block 4 at 5. Retighten bolts 2.
(Maximum allowed axial play is 0.25 mm (1/64”).

3. The worm gear assembly is pivoting round the bolt and bushing connection 6.

4. Loosen the three worm gear bracket bolts 7 and adjust bracket 3 with bolts 8 so that there is no rotational play on the spout.

5. Rotate the spout a full cycle both left and right to ensure it moves freely. Readjust, if necessary.

6. Retighten all hardware and install all grease lines and covers. Tighten bolts 7 to 95 Nm (70 ft.lbs) torque and retighten them after the first 50 operating hours.



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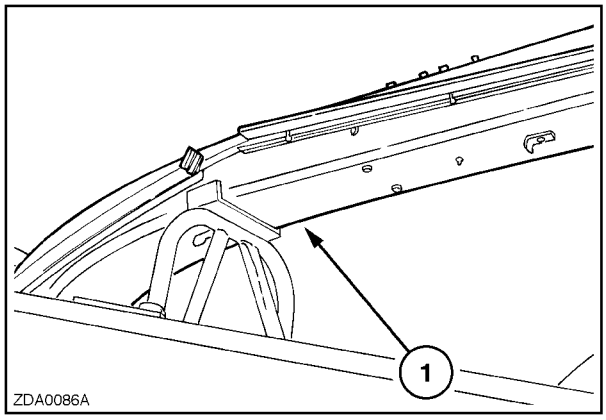
SPOUT LINER

The spout has a factory-installed replaceable liner. The life of the liner will vary depending upon the type of crop, crop conditions and the operating angle of the spout. The lower the spout position, the faster it will wear. Check the liner every 50 hours of operation and replace, as necessary.



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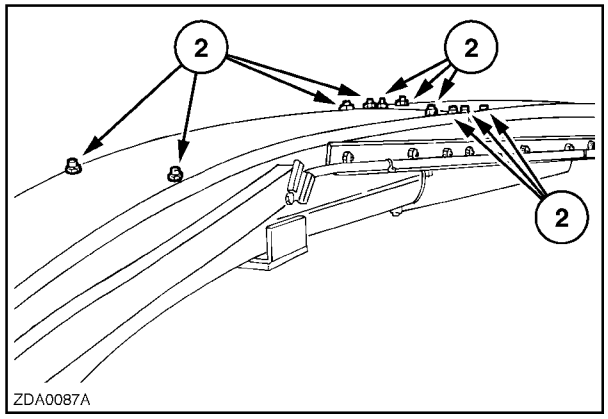
To replace, proceed as follows:

1. Lower spout 1 into its transport position.



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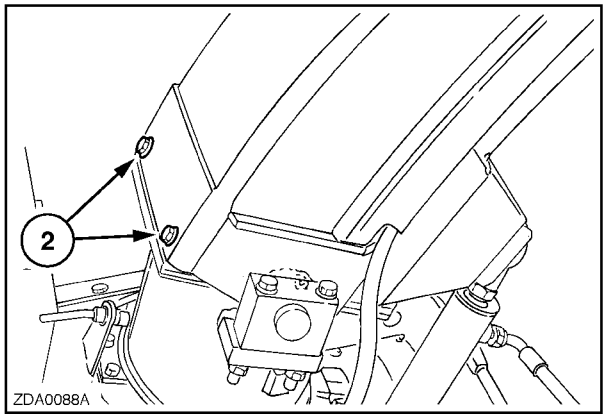
2. Remove nuts 2. Bolts are accessible through inspection holes underneath the spout.
3. Replace the liner in the spout.



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HYDRAULIC EQUIPMENT

Hydraulic hoses are an important safety element in modern machinery. However, hose characteristics alter under pressure, thermal and UV light load over the years. Therefore, most hoses now have a production date printed on the metal clamp bushing which allows to determine the age.

Legislation in certain countries and good practice require that hydraulic hoses are replaced when they become 6 years old.

⚠ DANGER ⚠

Escaping fluid under pressure can penetrate the skin causing serious injury.
Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines.

Tighten all connections before applying pressure. Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

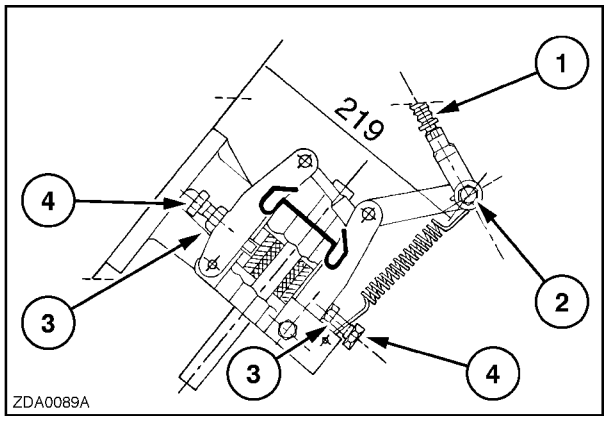
If an accident occurs, call for a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours. If not, gangrene may result. Doctors unfamiliar with this type of injury should refer to a knowledgeable medical source.

IMPORTANT: *The hydraulic valves on the right-hand side can always be operated manually in case of an electric failure.*
Push on the rubber caps of the solenoids to actuate the hydraulic valve.

BRAKES

PARKING BRAKE ADJUSTMENT

1. Disengage the handbrake in the cab.
2. Loosen locking nuts 3 and adjusting screws 4.
3. If necessary, adjust the 219 mm (8 – 5/8") dimension with nuts 5. Make sure cable 1 is straight. Tighten nuts 5.



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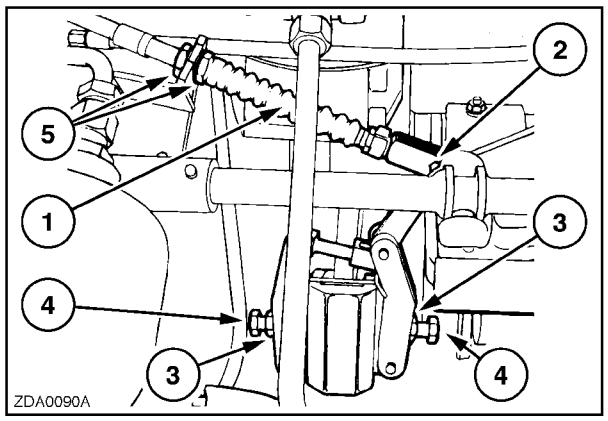
4. Simultaneously tighten bolts 4 by hand until the brake pads touch the brake disc.
5. Loosen bolts 4 1/6 of a turn and tighten locking nuts 3.



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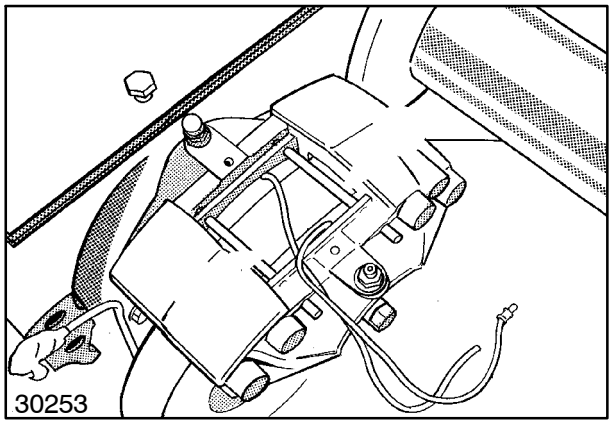
FOOT BRAKES

To bleed or to replace the brake linings, contact your local dealer.

Have the linings checked:

- when the brake warning light comes on
- every 400 hours in normal conditions
- every 200 hours in heavy brake conditions (e.g. spin turns, steep hills)

Clean the brakes every 200 hours with compressed air.



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BRAKE FLUID CHANGE

The brake fluid has to be changed every two years. Contact your local dealer to carry out this job.

⚠ CAUTION ⚠

In case of leakage or malfunction of the brake system, immediately contact your local dealer.

The seals of the brake slave cylinders contain fluorelastomers which, when used under normal conditions, are perfectly safe.
If, however, they are exposed to temperatures in excess of 315°C (600°F), the material will not burn, but decompose. An extremely corrosive acid is then formed which is almost impossible to remove once it has contaminated the skin.

WHEELS

WHEEL NUT TORQUE

Check the wheel nut torque daily during the first week of operation and thereafter on a weekly basis. Tighten as required.

The wheel nut torques are given in section 8 – Specification.

RECOMMENDED TYRE AND RIM COMBINATIONS

Refer to section 8 – Specification.

Ensure to comply with local traffic regulations regarding maximum width permitted on public roads.

NOTE: *The use of dual wheels or other wheels or tyres than those released by the manufacturer is not authorised.*

RECOMMENDED TYRE INFLATION PRESSURE

The life and performance of the tyres depend largely upon maintaining the correct pressure.

Check tyre pressure at the initial start-up and thereafter every week. Keep the tyres inflated to the pressure given in section 8 – Specification.

⚠ CAUTION ⚠

Before removing a wheel, ensure the forage harvester is adequately supported. A hoist or fork lift is recommended for handling the front tyre and wheel, as well as the final drive assembly. These items are heavy, and careless handling could result in bodily injury. Practise safety at all times.

COUNTERWEIGHTS

Counterweights improve the stability of the forage harvester when equipped with heavy attachments.

For some attachments, counterweights are a legal requirement to ensure a safe road transport.

⚠ CAUTION ⚠

Do not use liquid weight (ballast) in wheels as this is not recommended and forbidden practice in some countries.

A general rule is to have 23% of the total weight of the forage harvester, with attachment and counterweights, on the rear axle to ensure a safe road transport of the forage harvester.

When 30 km/h is allowed, the weight on the rear axle should be 28% of the total weight.

First weigh the forage harvester with attachment (total weight). Then weigh the forage harvester with only the steering wheels standing on the weigh–bridge (rear weight).

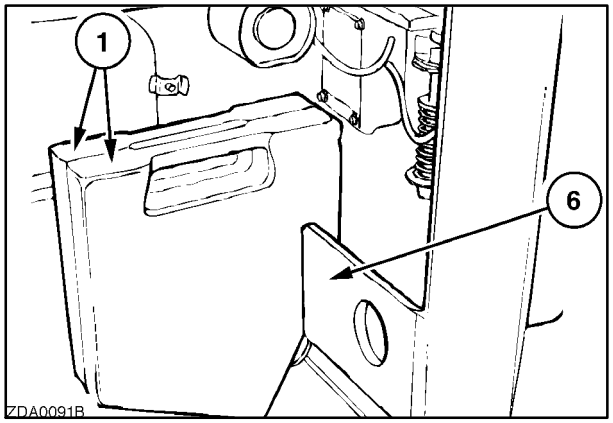
20 - 25 Km/h

$$\frac{\text{Rear weight}}{\text{Total weight}} \times 100 >= 23\%$$

30 Km/h

$$\frac{\text{Rear weight}}{\text{Total weight}} \times 100 >= 28\%$$

Three types of counterweights are available to install at the rear of the forage harvester.



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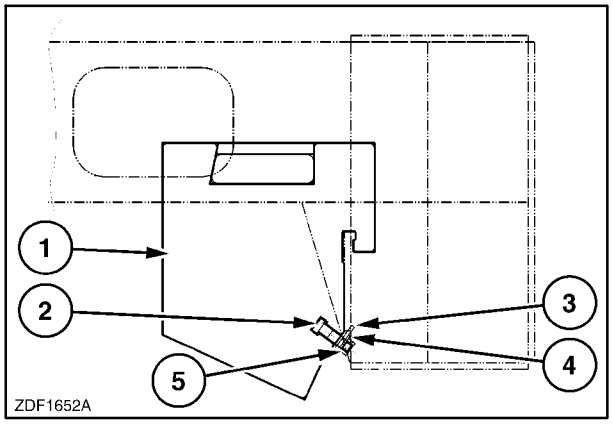
SUITCASE WEIGHTS

The suitcase weights 1 each have a weight of 34 kg (75 lbs) and they are hung on plate (6). Up to five suitcase weights (1) can be installed on each side of the machine. i.e. a total of ten.

IMPORTANT: *Make sure an equal number of suitcase weights are installed on both sides.*

To install the suitcase weights to the plate (6), proceed as follows:

1. Hang the suitcase weight (1) on the plate (6).
2. Install the bolt (2) into the slot in the suitcase weight.
3. Install the hardened flat washer (3), the lock washer (4) and the nut (5).
4. Tighten the nut (5).



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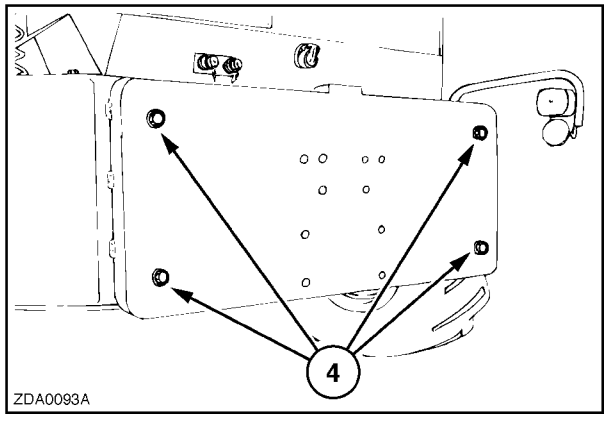
VERTICAL WEIGHTS

A heavy 330 kg (730 lbs) metal plate (4) can be bolted onto the rear bumper of the machine. Up to three plates can be installed.

The vertical weights are fixed with four bolts at (4) to the rear bumper of the forage harvester.

NOTE: *In some countries the use of counterweights is obligatory.*



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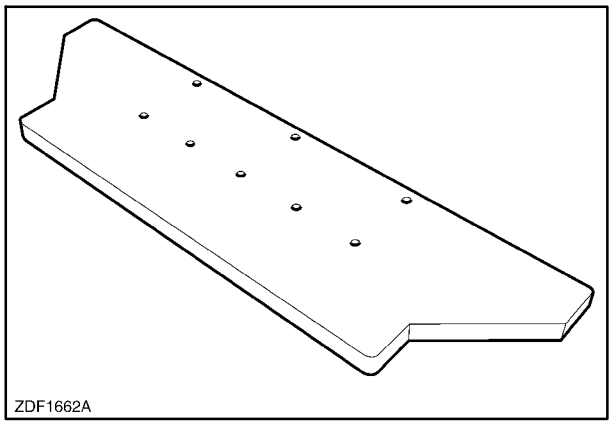
HORIZONTAL WEIGHTS

A 232 kg (510 lbs) metal plate can be installed under the rear bumper of the machine. Up to five plates can be installed.

The horizontal weights are fixed with eight bolts at (4) to the bottom of the rear bumper of the forage harvester.



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RECOMMENDED COUNTERWEIGHTS

The number of counterweights to be used depends on the attachment mounted to the forage harvester.

	Germany 30 Km/hr		All countries + Germany 20 Km/hr	
	2WD	**4WD**	**2WD**	**4WD**
346W	1 Vertical weight = 330 kg (730 lbs)			
356W	6 suitcase weights 1 Vertical weight = 540 kg (1190 lbs)	1 Vertical weight = 330 kg (730 lbs)		
300N6	3 Vertical weights = 990 kg (2180 lbs)	6 suitcase weights 2 Vertical weights = 870 kg (1920 lbs)	1 Vertical weight = 330 kg (730 lbs)	6 suitcase weights = 210 kg (460 lbs)
RI450	6 suitcase weights 3 Vertical weights 3 Horizontal weights = 1896 kg (4180 lbs)	6 suitcase weights 3 Vertical weights 2 Horizontal weights = 1664 kg (3670 lbs)	4 suitcase weights 3 Vertical weights = 1130 kg (2490 lbs)	3 Vertical weights = 990 kg (2180 lbs)
RI600	8 suitcase weights 3 Vertical weights 5 Horizontal weights = 2430 kg (5360 lbs)	10 suitcase weights 3 Vertical weights 4 Horizontal weights = 2268 kg (5000 lbs)	6 suitcase weights 3 Vertical weights 2 Horizontal weights = 1664 kg (3670 lbs)	8 suitcase weights 3 Vertical weights 1 Horizontal weight = 1502 kg (3310 lbs)

⚠ WARNING ⚠

When installing an interchangeable equipment on the machine, make sure to have at least 20% of the total weight on the rear axle to ensure machine stability on the road.

STEERING AXLE

FIXED STEERING AXLE

Toe-in-adjustment

The steering wheels should have the correct amount of toe-in, otherwise premature tyre wear may occur. The distance between the steering wheels must be smaller at the front than at the rear (facing the direction of travel).

To check and adjust the toe-in, proceed as follows:

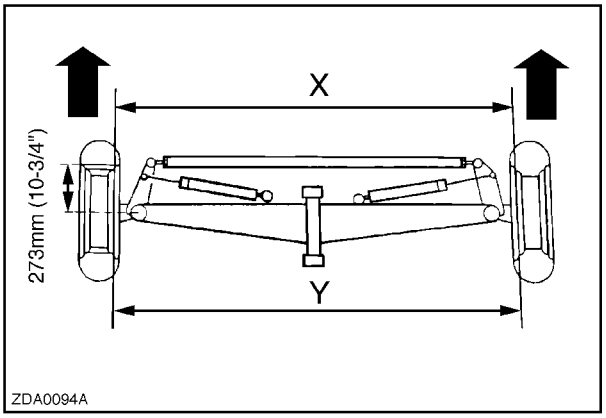
1. Apply the parking brake and support the steering axle so that the steering wheels are clear of the ground.

⚠ CAUTION ⚠

Use suitable jack stands, securely positioned underneath the rear of the machine, before adjusting the steering axle.

2. Set the steering wheels in the straight ahead position.

3. Mark spots at 273 mm (10 – 3/4") from the centre on the front inside of the wheel rims at the centre-of-wheel height and measure distance X.



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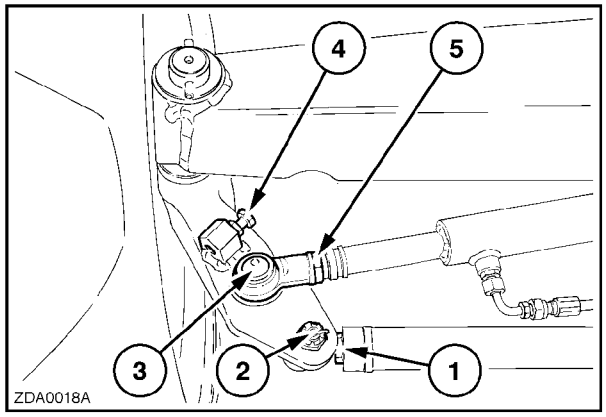
4. Turn the steering wheels 180° forward or rearward until the marks are at the centre-of-wheel height and measure distance Y. Distance Y must be 8 to 12 mm (5/16" to 15/32") greater than distance X.

5. To adjust the toe-in, proceed as follows:

   - Loosen tie rod jam nut 1 and ball joint 2 on one side of the machine.
   - Check ball joint 2 for wear or damage; replace if necessary.
   - Turn ball joint 2 in or out the rod until the correct measurement is obtained.
   - Clean and reinstall ball joint 2 and torque to 75 Nm (55 ft.lbs). Tighten jam nut 1 to 135 Nm (100 ft.lbs) torque.



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NOTE: *Tap ball joint 2 slightly on its side and tighten it again.*
It may be necessary to carry out the toe-in adjustment on both sides of the machine.

Steering ball joints

Check steering ball joints 2 and 3 (on both sides of the machine) for play and damage every 50 hours of operation.
If, for any reason, a steering ball joint was disassembled, the slotted nut torque should be minimum 75 Nm (55 ft.lbs).

Tighten nut 5 to 135 Nm (100 ft.lbs) torque.

Steering wheel stops

The steering wheel stops 4 are factory-set and should normally not require further adjustment.

If, for any reason, the stops require adjustment, proceed as follows:

1. Loosen bolt 4 completely in.
2. Rotate the steering wheel to the extreme left or right-hand position so that the steering cylinder is at the end of its stroke.
3. Retract the steering cylinder 2 mm (5/64”).
4. Turn bolt 4 against the rear axle and tighten the lock nut.
5. Proceed in the same way on the other side.

ADJUSTABLE STEERING AXLE

The adjustable steering axle has five positions.

Toe-in-adjustment

The steering wheels should have the correct amount of toe-in, otherwise premature tyre wear may occur. The distance between the steering wheels must be smaller at the front than at the rear (facing the direction of travel).

To check and adjust the toe-in, proceed as follows:

1. Apply the parking brake and support the steering axle so that the steering wheels are clear of the ground.

⚠ CAUTION ⚠

Use suitable jack stands, securely positioned underneath the rear of the machine, before adjusting the steering axle.

2. Set the steering wheels in the straight ahead position.

3. Mark spots at 273 mm (10 – 34") from the centre on the front inside of the wheel rims at the centre-of-wheel height and measure distance X.

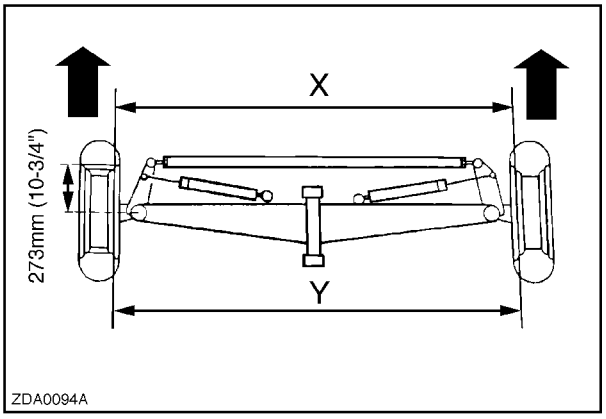
4. Turn the steering wheels 180° forward or rearward until the marks are at the centre-of-wheel height and measure distance Y. Distance Y must be 8 to 12 mm (5/16" to 15/32") greater than distance X.

5. To adjust the toe-in, proceed as follows:

   - Loosen tie rod jam nut 1 and ball joint 2 on one side of the machine.
   - Check ball joint 2 for damage; replace if necessary.
   - Turn ball joint 2 in or out the rod until the correct measurement is obtained.
   - Clean and reinstall ball joint 2 and torque to 115 Nm (85 ft.lbs). Tighten jam nut 1 to 135 Nm (100 ft.lbs) torque.

NOTE: *Tap ball joint 2 slightly on its side and tighten it again.*

It may be necessary to carry out the toe-in adjustment on both sides of the machine.



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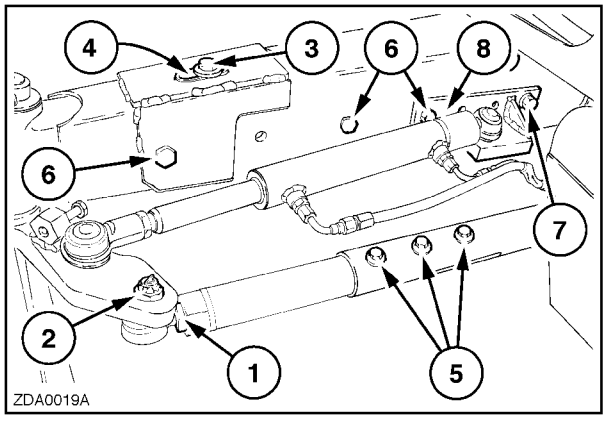

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Track adjustment

Proceed as follows:

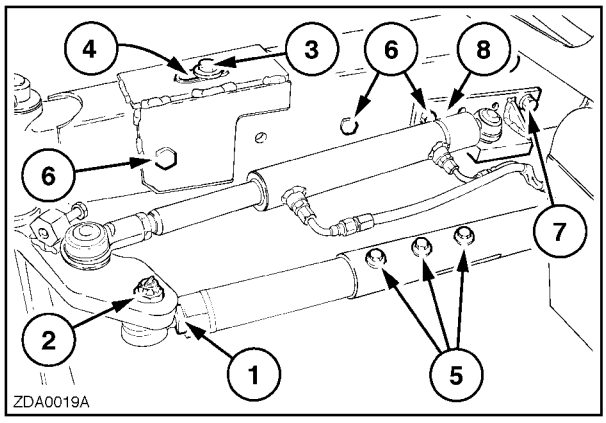
1. Apply the parking brake and support the steering axle so that the steering wheels are clear of the ground.

⚠ CAUTION ⚠

Use suitable jack stands, securely positioned underneath the rear of the machine, before adjusting the steering axle.

2. Loosen bolt 3 and hammer it towards the centre of the axle, so that key 4 is loose.
3. Remove the bolts 5 from tie rod and bolts 6 and 7 from the steering axle.
4. Adjust the steering axle on the right-hand side to the required width.
5. Reinstall bolts 6, bolt 7 and steering cylinder support 8 in the correct position.
6. hammer bolt 3 to the outside, so that key 4 is fixed and tighten bolt 3 to 140 Nm (103 ft.lbs).
7. Tighten bolts 6 and 7 to 344 Nm (254 ft.lbs).
8. Adjust the steering axle on the left-hand side as outlined above.
9. Reinstall the bolts 5 in the tie rod and tighten them to 15 Nm (11 ft.lbs).

Adjust the toe-in as described in the previous paragraph.



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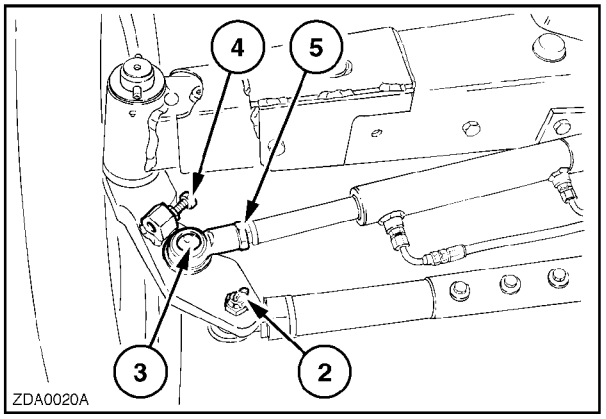
Steering wheel stops



308

The steering wheel stops 4 are factory-set and should normally not require further adjustment.

If, for any reason, the stops require adjustment, proceed as follows:

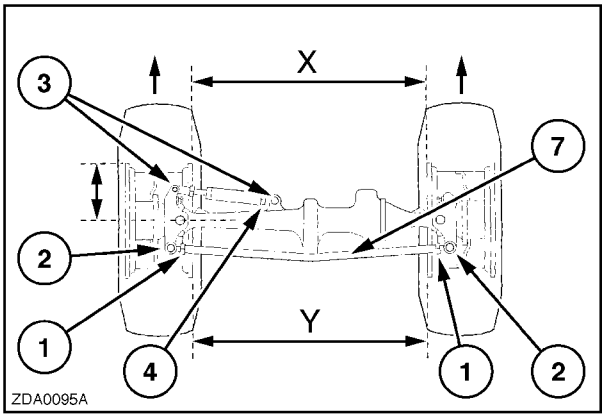
1. Loosen bolt 4 completely in.
2. Rotate the steering wheel to the extreme left or right-hand position so that the steering cylinder is at the end of its stroke.
3. Retract the steering cylinder 2 mm (5/64”).
4. Turn bolt 4 against the rear axle and tighten the lock nut.
5. Proceed in the same way on the other side.

Steering ball joints

Check steering ball joints 2 and 3 (on both sides of the machine) for play and damage every 50 hours of operation.
If, for any reason, a steering ball joint was disassembled, the slotted nut torque should be minimum 115 Nm (85 ft.lbs).

Tighten nut 5 to 135 Nm (100 ft.lbs) torque.

POWERED REAR AXLE



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Toe-in-adjustment

The steering wheels should have the correct amount of toe-in, otherwise premature tyre wear may occur. The distance between the steering wheels must be smaller at the front than at the rear (facing the direction of travel).

To check and adjust the toe-in, proceed as follows:

1. Apply the parking brake and support the steering axle so that the steering wheels are clear of the ground.

2. Set the steering wheels in the straight ahead position.

3. Mark spots at 330 mm (13") from the centre on the front inside of the wheel rims at the centre-of-wheel height and measure distance X.

4. Turn the steering wheels 180° forward or rearward until the marks are at the centre-of-wheel height and measure distance Y. Distance Y must be 12 to 15 mm (15/32" to 19/32") greater than distance X.

5. To adjust the toe-in:

    - Loosen tie rod jam nut 1 and ball joint 2 on one side of the machine.

    - Check ball joint 2 for damage; replace if necessary.

    - Turn ball joint 2 in or out the rod until the correct measurement is obtained.

    - Clean and reinstall ball joint 2 and torque to 160 Nm (118 ft.lbs). Tighten jam nut 1 to 135 Nm (100 ft.lbs) torque minimum.

NOTE: *It may be necessary to tap ball joint 2 slightly on its side and retighten it.It may be necessary to carry out the toe-in adjustment on both sides.*

⚠ CAUTION ⚠

Use suitable jack stands, securely positioned underneath the rear of the machine, before adjusting the steering axle.

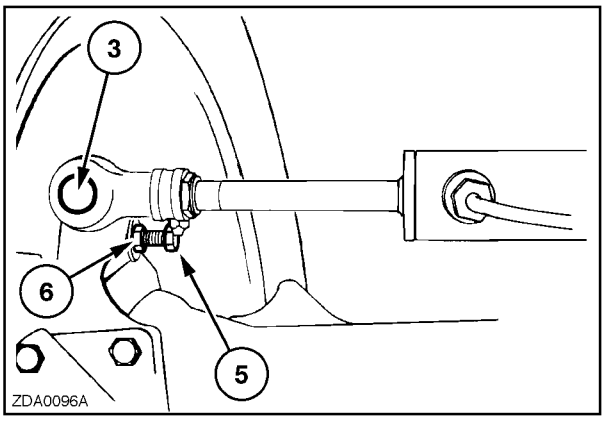
Steering ball joints

Check steering ball joints 3 for play and damage every 50 hours.

If, for any reason, the steering ball joints were disassembled, the castellated nut torque should be 280 Nm (207 ft.lbs) minimum.

With the cylinder fully retracted, the distance between the centres of the ball joints 3 should be 676 mm (26 – 5/8").

Torque of nut 4 (Fig. 309): 135 Nm (100 ft.lbs) minimum.



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Steering wheel stops

The steering wheel stops 5 are factory-set and should normally not require further adjustment.

If, for any reason, the stops require adjustment, proceed as follows:

1. Loosen nut 6 and turn bolt 5 completely in.
2. Rotate the steering wheel to the extreme left or right-hand position so that the steering cylinder is at the end of its stroke.
3. Retract the steering cylinder 2 mm (5/64").
4. Turn bolt 5 against the support on the rear axle and tighten lock nut 6.

IMPORTANT: *Adjust bolt 5 so that the steering cylinder and tie rod 7 do not interfere with the wheel rim. A clearance of 3 mm (1/8") is a minimum !*

5. Proceed in the same way on the other side.

ENGINE

FUEL SYSTEM

Fuel level

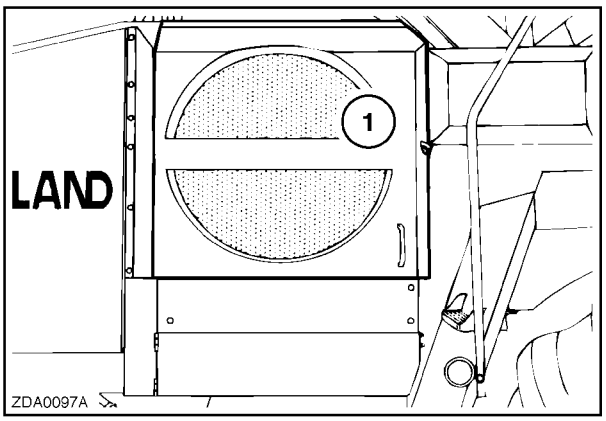
The fuel level can be checked on the gauge in the cab.

Filling the fuel tank

The fuel tank filler opening and cap 2 can be reached via the right-hand rotary screen door 1.

NOTE: *Before filling the fuel tank, stop the engine and wait until all rotating parts have come to a complete standstill.*

Before filling the fuel tank, clean away any dust and crop residue from the filler neck and fill the fuel into the tank through a fine gauze filter.



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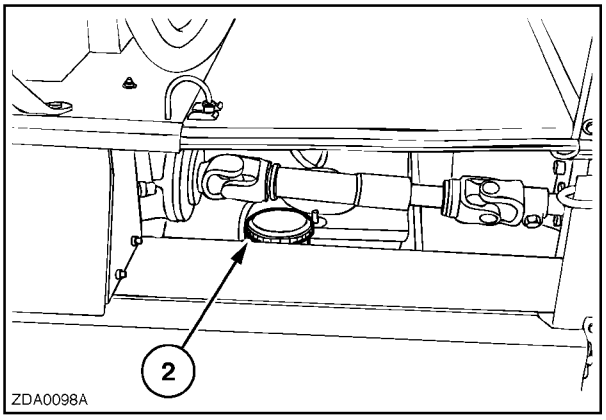
The best time to fill the tank is in the evening as this prevents overnight condensation from forming in the tank.

IMPORTANT: *The quality of fuel used is an important factor in obtaining dependable performance and satisfactory engine life. Many engine difficulties can be traced to dirty fuel, therefore the importance of using clean fuel, properly stored, cannot be stressed too strongly.*

Fuel with a sulphur content below 0.5 % is recommended.



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⚠ CAUTION ⚠

Handle fuel with care.

Never fill the tank when the engine is running.

Smoking is strictly prohibited during filling.

Always clean up spilled fuel.

Fuel prefilter/water separator

Drain the water from the filter housing daily by loosening screw 1 until fuel free of water runs out of the screw orifice. Collect the water/fuel mixture and dispose of it according to regulations. Retighten screw 1.

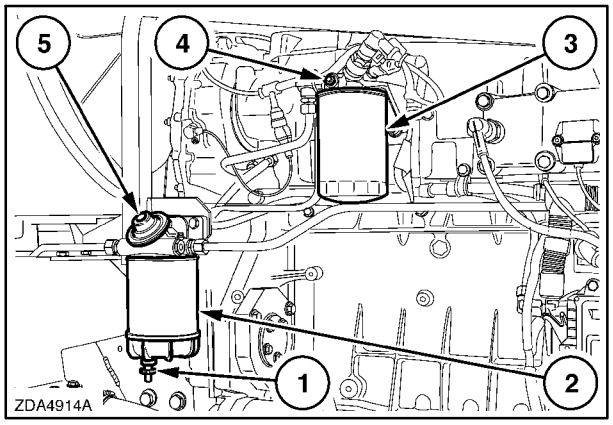
Draining can best be carried out when the engine has not been started for some time, which allows any water to become clearly separated from the fuel.

Change the fuel prefilter/water separator 2 every 600 hours of operation for FX30–40–50 and every 250 hours of operation for FX60. Or earlier if a drop in engine performance is experienced.

Change the fuel prefilter/water separator as follows:

Models FX30-40-50

1. Unscrew the “spin-on” prefilter/water separator.
2. Apply a film of oil to the gasket of the new prefilter/water separator.
3. Screw on the new prefilter/water separator by hand until it contacts the filter head. Tighten further maximum half a turn.
   DO NOT USE TOOLS !



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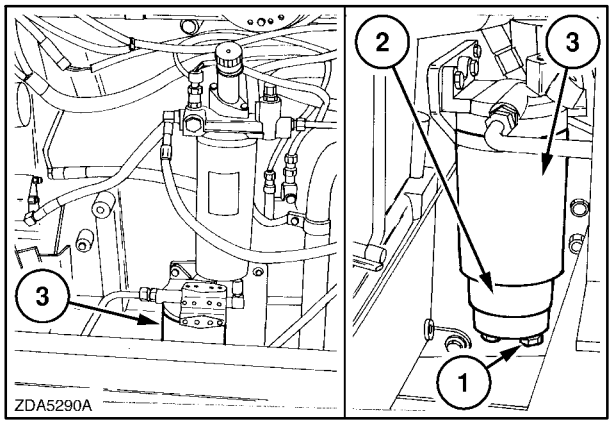
Models FX60

1. Drain the prefilter/water separator by loosing screw 1.
2. Remove the filter bowl 2 and wash it with clean fuel.
3. Unscrew the filter element 3.
4. Apply a film of oil to the gasket of the new prefil-ter/water separator.
5. Screw on the new filter element by hand until it contacts the filter head. Tighten the filter for an additional 3/4 turn by hand.
   DO NOT OVER TIGHTEN !
6. Reinstall the filter bowl 2.



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Fuel filters

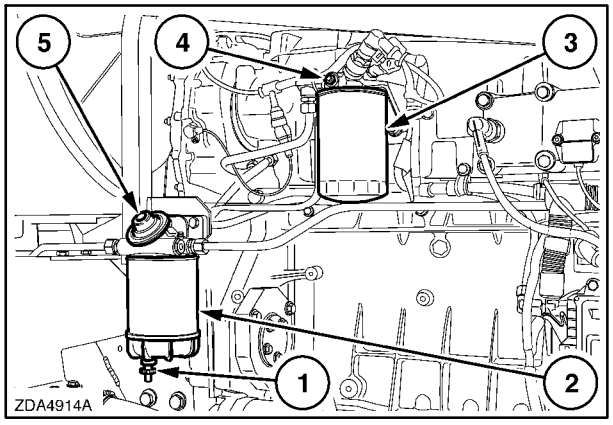
The replacement must be carried out after the first 100 operating hours and, thereafter every 600 operating hours for models FX30–40–50.
Every 250 operating hours for model FX60.
Only use genuine filters.

NOTE: *To protect the engine's unit injectors do not pre fill the new filters with fuel.*

Models FX30–40–50

To replace the filter, proceed as follows:

1. Wipe the top of the filter head clean.
2. Loosen the air bleed plug 4 to bleed off any residual pressure.
3. Unscrew the fuel filter 3 using a filter wrench.
4. Coat the seal of the new filter with clean fuel. Ensure the seal is properly seated.
5. Screw the new filter on by hand and tighten it securely **by hand** (firmly against the head and then an additional 1/4 to 1/2 turn).
6. Bleed the fuel system (refer to the next paragraph).

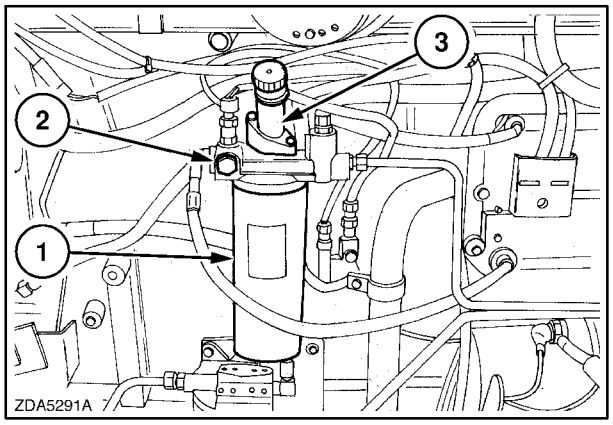


315

Model FX60

To replace the filter, proceed as follows:

1. Wipe the top of the filter head clean.
2. Loosen the air bleed plug 2 to bleed off any residual pressure.
3. Unscrew filter 1.
4. Coat the seal of the new filter with clean fuel. Ensure the seal is properly seated.
5. Screw the filter on by hand until the gasket contacts the base. Tighten the filter 3/4 turn more by hand.
6. Bleed the fuel system (refer to the next paragraph).



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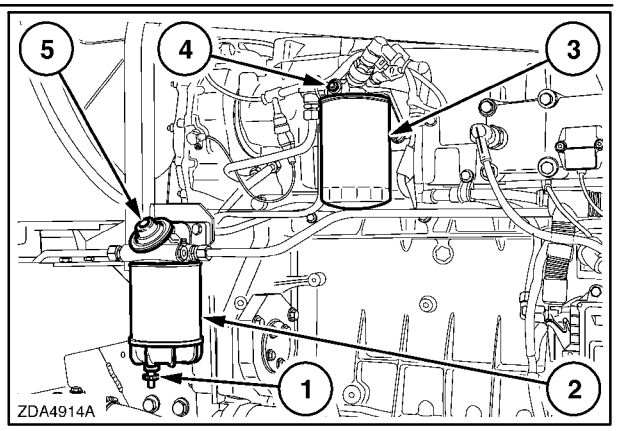
BLEEDING THE FUEL SYSTEM

Models FX30-40-50

1. Ensure there is fuel in the tank.
2. Loosen screw 4 on top of the fuel filter head.
3. Operate hand pump 5 until fuel free of air bubbles escapes at bleed screw 4 and tighten the bleed screw.



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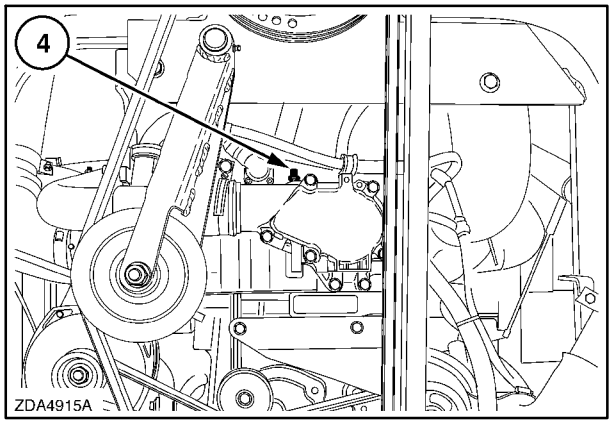
4. Loosen bleed screw 6 on the rear of the engine head.
5. Operate hand pump 5 until fuel free of air bubbles escapes at bleed screw 6 and tighten the bleed screw.
6. Start the engine and run it at low idle until it runs smoothly.

NOTE: *To avoid possible fuel contamination, install a transparent hose on the bleed screw, to catch the fuel in a suitable container and check if the fuel is free of air bubbles.*



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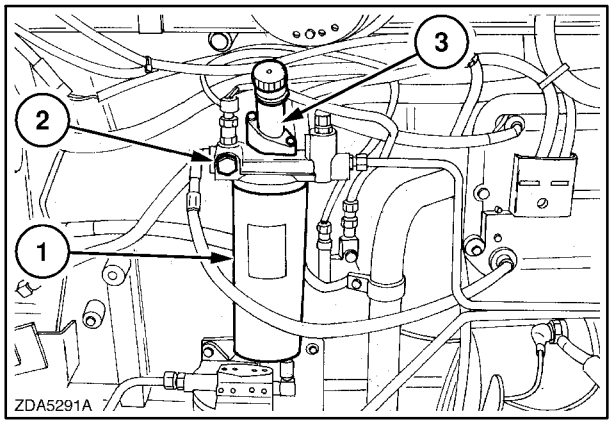
Model FX60

1. Ensure there is fuel in the tank.
2. Loosen air bleed plug 2 on the fuel filter base two full turns.
3. Unlock and operate the fuel lift pump 3 until fuel free of air bubbles escapes at bleed screw 2 and tighten the bleed plug 2.
4. Continue to operate the fuel lift pump until a resistance is felt.
5. Push the fuel lift pump plunger in and tighten it by hand.
6. Start the engine.
7. Run the engine at low idle until the engine runs smoothly.

NOTE: *If the engine does not start, further priming may be necessary to help purge fuel lines of air.*



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Crankcase breathing filter

Models FX30-40-50

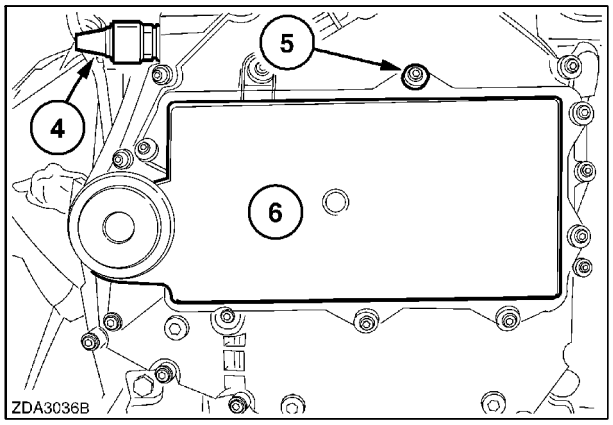
Replace the closed crankcase filter every 1500 operating hours.
Or when the indicator 4 is red.

To replace proceed as follows:

1. Loosen nine bolts 5 to remove cover 6 of the crankcase filter.

2. Replace crankcase filter 7.

3. Install cover 6 and tighten bolts 5.



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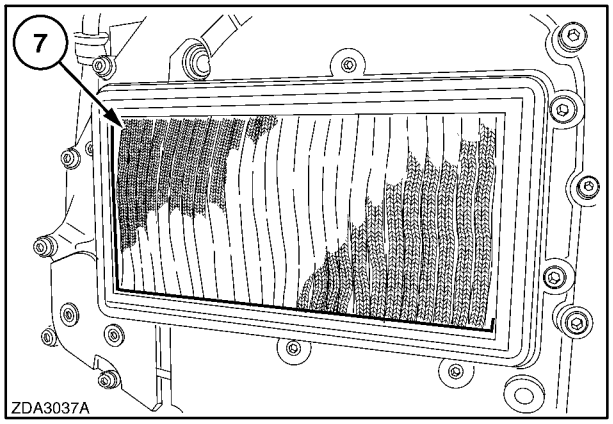

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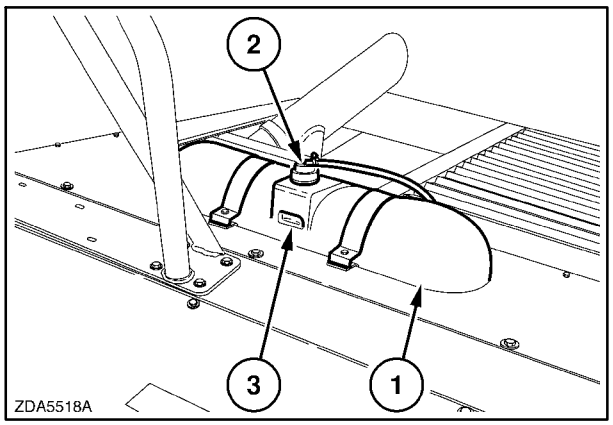
COOLING SYSTEM

COOLANT LEVEL

Check the coolant level on shunt tank 1 daily when the engine is cold. The shunt tank is located on top of the machine, above the engine.

The coolant level must reach the cavity 3.

IMPORTANT: *Under no circumstances should the engine be started without water in the cooling system.*



322

If the temperature rises too high during operation, or if the audible alarm sounds, stop the engine immediately and locate the cause (coolant level, oil level, fan belt tension, dirty radiator, etc.). Refer to Section 6 – TROUBLESHOOTING.

⚠ CAUTION ⚠

Take care when removing shunt tank cap 2 when the engine is hot. Cover the cap with a rag and turn slowly to the first stop to release the pressure before removing the cap completely.

Do not add cold water to a hot shunt tank.

When the coolant level is too low, proceed as follows:

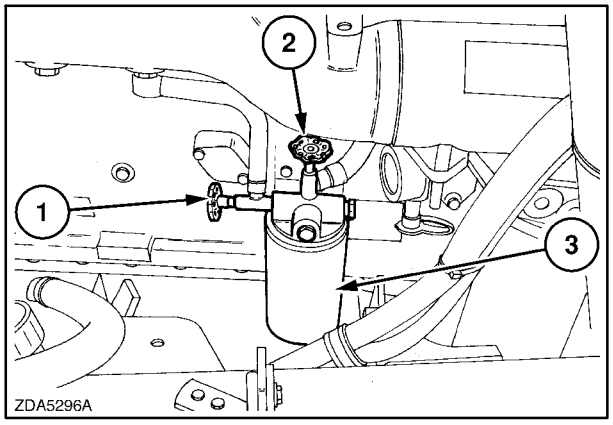
1. Run the engine at low idle.
2. Fill the cooling system via the shunt tank filler neck 2 until the coolant level reaches the lower part of the tube in the filler neck 2. Never fill when the engine is hot.

COOLANT CONDITIONER FILTER – FX60

The replacement must be carried out every 250 operating hours on a cold engine. Only use genuine conditioners for a 60 L Cooling system capacity.

To replace the filter, proceed as follows:

1. Wipe the top of the filter head clean.
2. Close the coolant valves 1 and 2.
3. Unscrew the conditioner filter 3 using a filter wrench.
4. Coat the seal of the new filter with clean coolant. Ensure the seal is properly seated.
5. Screw the conditioner on by hand until the gasket contacts the base. Tighten the conditioner 3/4 turn more by hand.
6. Open the coolant valves 1 and 2.



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COOLANT CHANGE

The coolant water/antifreeze mixture should be renewed:

- every 600 operating hours or every 2 years, whichever comes first for FX30–40–50
- every 3000 operating hours or every 2 years, whichever comes first for FX60.

When replacing the coolant, proceed as follows:

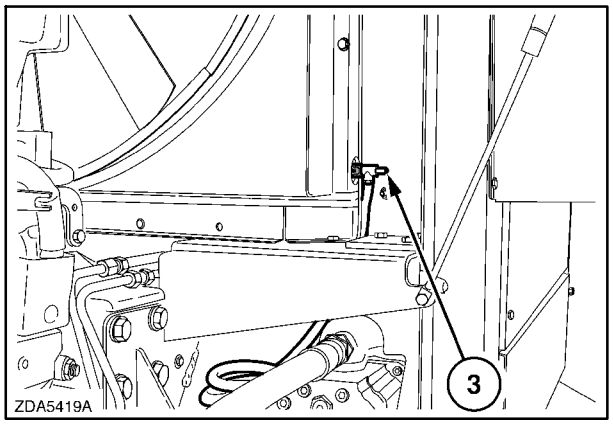
1. Drain the radiator by opening tap 3 behind the engine left-hand door.
2. Flush the cooling system as follows:
   a) Close tap 3.
   b) Fill the system with clean water via the shunt tank filler neck 2.
   c) Start the engine and bring it up to normal operating temperature.
   d) Stop the engine.
   e) Drain the water by opening tap 3.
3. Close tap 3 and fill the cooling system with coolant as specified.

NOTE: *There will always remain some coolant in the engine.*

Always fill the cooling system with an approved antifreeze/water mixture. Check the freezing point of the coolant after each refill.

⚠ CAUTION ⚠

The engine is hot and so may be the shunt tank. Therefore, extreme care should be taken when filling the shunt tank and reinstalling cap 2.



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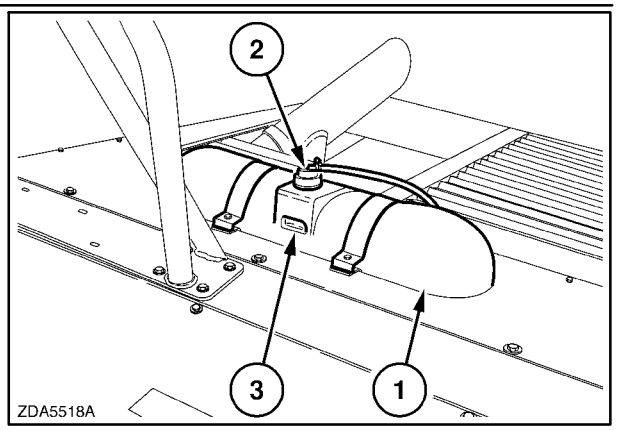
To remove the air from the system, proceed as follows:

1. Fill the shunt tank completely.
2. Start the engine and vary the rpm between low idle and 1500 rpm for 3 minutes.
3. Increase the rpm to maximum until the thermostat opens (upper radiator hose becomes hot) and then for a further 10 minutes to allow the air to escape.
4. Return to idle and stop the engine after 1 minute (turbocharger precaution).
5. Fill the shunt tank to the lower part of the tube in filler neck 2 and reinstall the cap.



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COOLANT SYSTEM CAPACITY

Approximately 60 litres (15.8 US gal).

COOLANT SPECIFICATION

- 47.5 % water
- 47.5 % antifreeze (glycol)
- 5 % conditioner

The quality of the water should not exceed the following limits:

- Total hardness: 0.3 %
- Chlorides: 0.1 %
- Sulphates: 0.1 %

Antifreeze: ESE-M97B 18C.

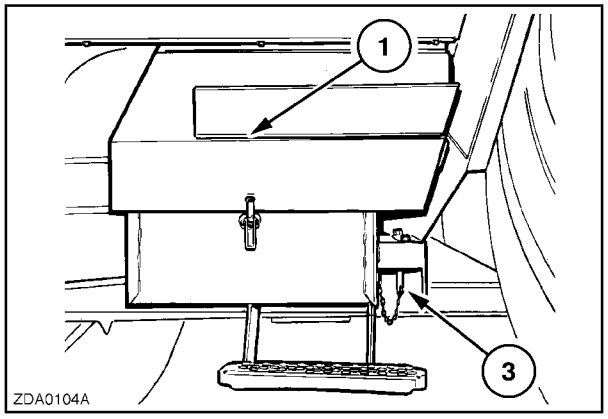
Conditioner: NALCOOL3000 ESE-M99B169-A.

BATTERIES AND ALTERNATOR

BATTERIES

The forage harvester is equipped with two 12 V batteries (92 Ah), connected in parallel, but switching to 24 V during starting.

They are located on the right-hand side of the machine. To open cover 1, first open the right-hand side screen door and then remove cover 1.



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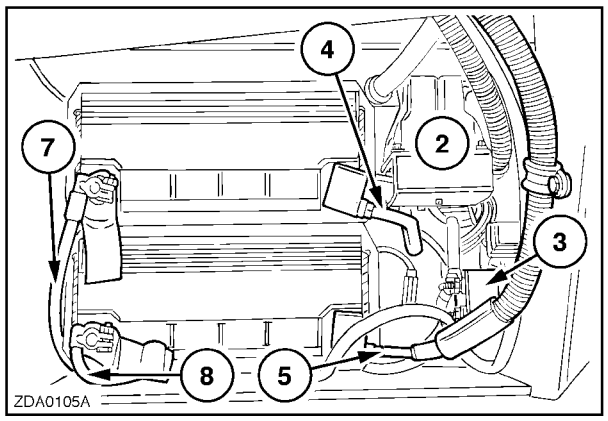
NOTE: *The batteries are connected in series by relay 2 for engine starting only.*

The batteries can be disconnected completely by means of the ***main battery switch 3****.*

IMPORTANT: *To avoid loss of harvest data from the InfoView ™ monitor, it is recommended not to stop the engine by the battery switch.*

It is advisable to disconnect the batteries using the battery switch 3 at the end of the day and also when welding work has to be carried out on the machine.



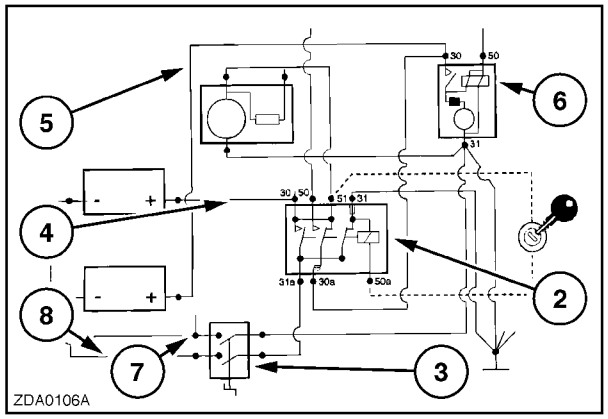
327

IMPORTANT: *Before connecting or disconnecting battery cables, ensure:*

The ignition key is turned off.

The engine is shut off.
The main battery switch is switched off.

Install the batteries as shown in Figure 327 .



328

When connecting the battery cables, proceed as follows:

1. Connect cables 4 and 5 to the positive (+) battery terminals. Cable 5 is connected to starter 6I.

CAUTION

Always connect the positive (+) battery terminal first to minimize arcing, otherwise personal injury or battery damage could result.

Personal safety is involved - wear protection for hands and eyes !

Refer to chapter 1.5 for specific battery safety precautions.

2. Connect cables 7 and 8 to the negative (-) battery terminals. Ensure all clamp bolts are tightened properly.

3. Apply a thin layer of vaseline or petroleum jelly over the cable clamps, terminals and hold-down fasteners to prevent corrosion.

BATTERY SERVICE

The electrolyte level in the batteries should be checked weekly (every 50 operating hours) and, if necessary, filled with distilled water until the separators are covered. Do not overfill.

The top of the batteries should be kept clean.

The battery hold-down bolts should be kept tight enough to prevent the batteries from moving in the battery box.

The battery terminals should be kept tight and free of corrosion. Tight terminals will reduce the risk of corrosion. A solution of two tablespoons of baking soda to a pint of water makes an excellent cleaning agent for corroded battery terminals and a dirty battery case. Apply the solution with a paint brush and thoroughly flush the outside of the battery with clean water when finished. Coat the battery terminals with a light grease or petroleum jelly to inhibit corrosion.

Rapid loss of battery electrolyte is an indication that the battery is being overcharged.

CAUTION

Hydrogen gas produced by batteries in combination with oxygen is highly explosive. Prevent personal injury or battery damage by avoiding sparks and lighted tobacco near the batteries, especially when charging.

During long storage periods, regularly check and recharge the battery (once a month), particularly if your machine is equipped with electronic equipment which constantly draws a small amount of current.

USE OF A BOOSTER BATTERY

If a booster battery and two jumper cables are used to start the engine in cold weather conditions or when the batteries are discharged, follow these safety precautions:

- Connect one end of the first cable to the positive (+) terminal of the weak battery.

- Connect the other end of the first cable to the positive (+) terminal of the stronger battery. Ensure the clamp does not touch the frame of the forage harvester or the vehicle with the booster battery.

- Connect one end of the second cable to the negative (-) terminal of the stronger battery.

CAUTION

Connect the other end of the second cable to the harvester frame below the level of the weak battery.

This will reduce the risk of sparks. It is important that this connection be made away from the weaker battery to avoid the fire and explosion hazard caused by sparks.

Do not charge a frozen battery as it may explode !

BATTERY CHARGE WARNING LIGHT

As soon as the ignition switch is turned on, the battery discharge warning light on the instrument panel will illuminate. When the engine has reached a certain speed, the light will extinguish.

If the light does not extinguish or if it flickers, the alternator or the voltage regulator may not be working properly.

Disconnect the batteries immediately using the battery switch and locate the cause of the problem or call your local dealer.

IMPORTANT TIPS

- In cold weather, add water to the batteries just before starting the engine. By doing this, the water and the electrolyte will be mixed by the charging current, thus avoiding freezing.

⚠ CAUTION ⚠

Keep sparks, lighted matches or an open flame away from the battery as battery gas can explode.
Never check the battery charge by placing a metal object across the terminals. Use a voltmeter or a hydrometer.

- If the engine is reluctant to start, do not turn the starter key for longer than 20 seconds, but try again after about half a minute.
- The battery clamps must be cleaned regularly and covered with a layer of vaseline or petroleum jelly to prevent corrosion.
- Make sure the vents in the filler plugs are kept clean.
- The batteries must never be disconnected while the engine is running, or damage to the alternator may result.
- Never switch off the ignition while the engine is running on full speed. This is to prevent the turbo-charger from running without lubricant.
- To safeguard battery life, switch off any lighting before starting the engine.
- Under normal conditions, do not add sulphuric acid to the batteries.
- The batteries should be stored in a fully charged condition.
- The batteries should be charged every 8 to 10 weeks with 5 to 6 amperes current for a period of 24 hours.

ALTERNATOR

IMPORTANT: *The engine is equipped with an alternator. Certain precautions must be observed to avoid serious damage to the alternator, batteries and wiring.*

When **carrying out any maintenance work**, the following instructions must be observed:

- Disconnect any wires going to the electronic box before testing the system with 12 volts from any external source.
- Disconnect the batteries using the battery switch if any electric welding work is to be carried out on the forage harvester.

  Secure the negative (-) terminal of the welding apparatus as close as possible to the part to be welded.
- The positive (+) lead of the batteries is live at all times. To prevent damage, always disconnect the battery earth lead (-) first.
- Ensure the batteries are connected properly, i.e. negative (-) lead to the negative (-) terminal and positive (+) lead to the positive (+) terminal.
- Always connect a booster battery in parallel, i.e. negative (-) to negative (-), and positive (+) to positive (+).
- Disconnect the batteries using the battery switch before connecting a battery charger.

  Ensure the battery charger is properly connected.
- Never run the engine if the wiring between the alternator and the battery has been disconnected.

FAN, ALTERNATOR AND COMPRESSOR BELTS

To ensure optimum operation, check belts daily for wear, fraying and cracking, and for proper tension.

⚠ CAUTION ⚠

Always stop the engine, unless otherwise instructed, before checking and/or adjusting any belt.

IMPORTANT: *Always replace the belts by a matched set of belts. Never replace a single belt of a set as the new belt will bear the complete load and quickly show signs of wear.*

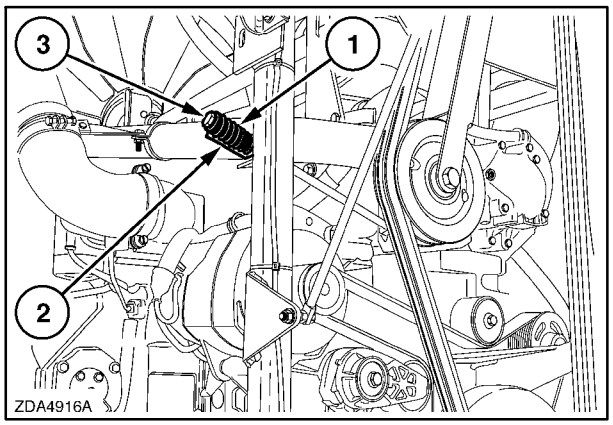
FAN DRIVE BELTS

SET OF 2 BELTS (2 X 1 V)

- **Models FX30-40-50**

The belt tension is correct:
spring length 1 = indicator plate length 2.

Adjust with nut 3.



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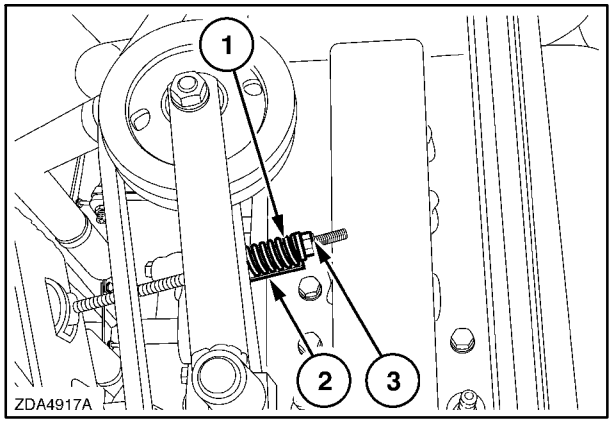
- **Model FX60**

Correct belt tension:
The belt tension is correct:
spring length 1 = indicator plate length 2.

Adjust with nut 3.



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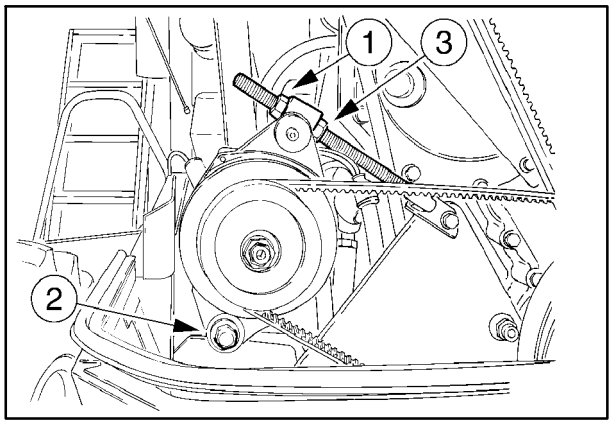
ALTERNATOR DRIVE BELT - FX60



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ONE BELT (1 X 1 V)

Correct belt tension:

- For a new belt:
  The belt tension is correct when the belt can be deflected 7 mm (1/4") when applying a force of 22 daN (22 kg) halfway between the two pulleys. Check twice a day.

  Run-in period: 50 hours

- For a belt after run-in:
  The belt tension is correct when the belt can be deflected 7 mm (1/4") when applying a force of 18 daN (1.8 k) halfway between the two pulleys.

To adjust the tension of the alternator drive belt, proceed as follows:

1. Loosen nut 1.
2. Loosen bolt 2.
3. Adjust the tension with nut 3.
4. Tighten bolt 2.
5. Tighten nut 1.

COMPRESSOR DRIVE BELT - FX60

NOTE: *Only when the air conditioning system [accessory] is installed, a compressor is installed on the harvester.*

SET OF TWO BELTS (2 X 1V)

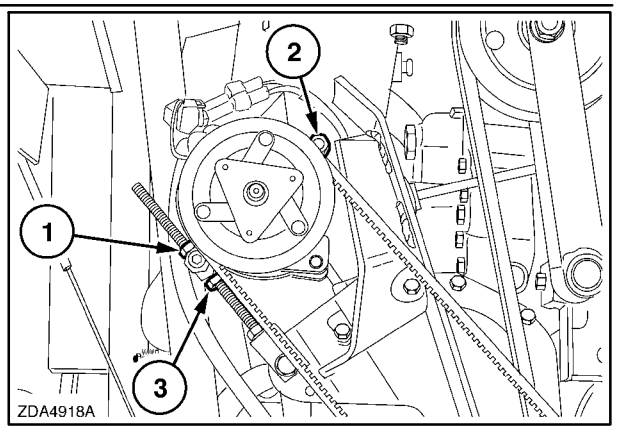
Correct belt tension:

- For a new belt:
  The belt tension is correct when the belt can be deflected approximately 9,6 mm (3/8") when applying a force of 12 daN (1,2 kg) halfway between the two pulleys.

- For a belt after run-in:
  The belt tension is correct when the belt can be deflected approximately 9,6 mm (3/8") when applying a force of 10 daN (1 kg) halfway between the two pulleys.

To adjust the tension of the compressor drive belt, proceed as follows:

1. Loosen bolt 1.
2. Loosen both bolts 2.
3. Adjust the tension with nut 3.
4. Tighten bolts 2.
5. Tighten bolt 1.



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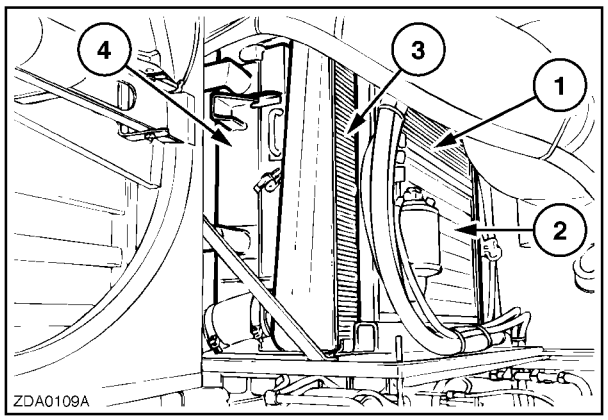
ROTARY DUST SCREENS, RADIATORS AND AIR INTAKE SYSTEM

The performance of the forage harvester, especially the engine, depends on the performance of the air intake system and of the various cooling systems. They should be kept clean to ensure a positive cooling of the machine.

The forage harvester is fitted with (from front to rear) an oil cooler 1, an air conditioning condenser 2 [accessory], an air-to-air turbo intercooler 3 and an engine radiator 4.



333

The fan pulls a stream of air from outside the machine through the rotary screens 5 to cool the radiators.

The air to the engine air intake is also pulled through the rotary screens.

⚠ WARNING ⚠

Before opening the screen doors for maintenance or adjustment purposes, take the following precautions:

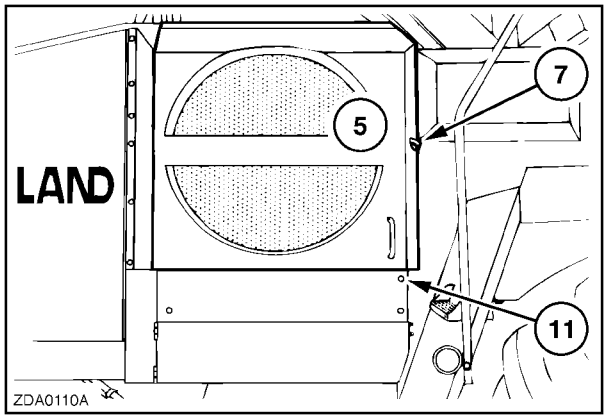
Shut off the engine with the ignition key and apply the handbrake.

The person who will do the job should take the ignition key with him.

Wait until all rotating parts have stopped.

Switch off the battery switch.

Not following these instructions means creating a dangerous area to work in.



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WARNING

The radiators may be hot, so be careful when cleaning them. It is advisable to wear safety gloves.

Wear a dust mask when cleaning dust accumulation areas such as screens and coolers.

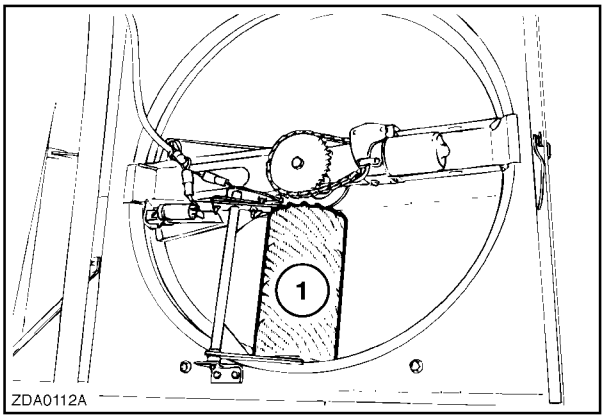
ROTARY DUST SCREEN

All machines are equipped with a rotary dust screen on both sides of the machine.

The rotary dust screens start rotating as soon as the HARVEST switch is switched on.

All machines are also equipped with rotating brushes 1 on each of the rotary screens.

To gain access to the interior of the machine and to service components, open the rotary dust screen doors and shields.



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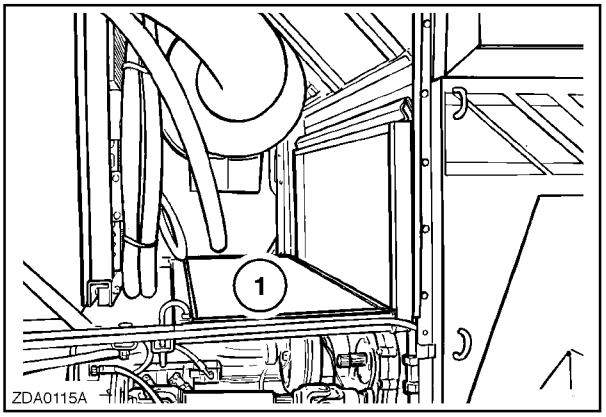
CLEANING THE RADIATORS

The best way to clean the complete cooling assembly is by using a strong dust aspirator. Apply the aspiration force to the cooler front sides.

If no dust aspirator is available, an air compressor can be used. In this case, proceed as follows:

1. Shut off the engine and follow the above -mentioned safety precautions.
2. Open the screen doors and clean them from the inside.
3. Remove the horizontal plate 1.
4. Remove any dust or crop residue laying on the floor (above the fuel tank), but do not use compressed air.



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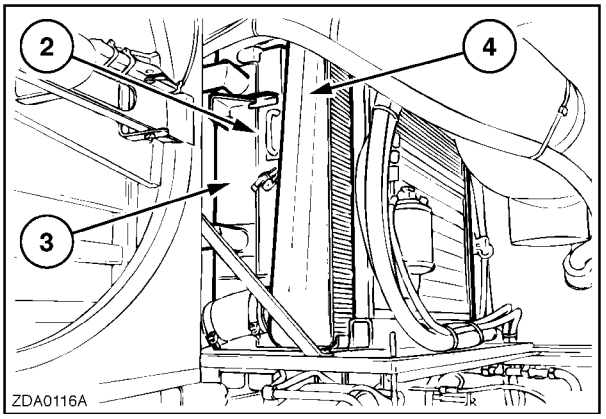
5. Remove guards 2 on the left and the right-hand side between radiator 3 and intercooler 4.

6. Flip up the engine compartment doors on both sides.

7. Remove any dust between the radiator and the intercooler by hand or, even better, with a tool.

⚠ CAUTION ⚠

The radiator and the intercooler may be hot. Wear safety gloves to clean them.

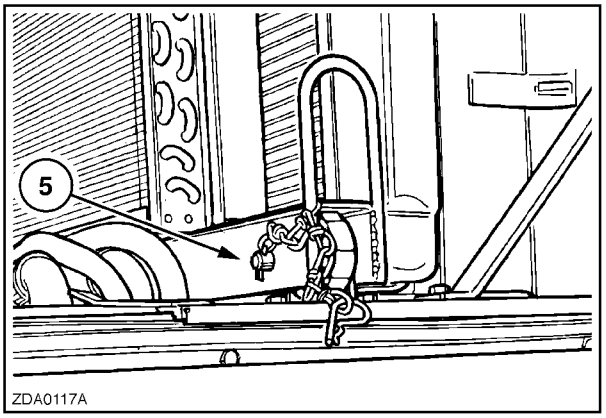


337

8. Apply compressed air to clean the radiator from the fan side.

9. Repeat steps 7 and 8 as many times as necessary.

10. Open lock 5 on the left-hand side.



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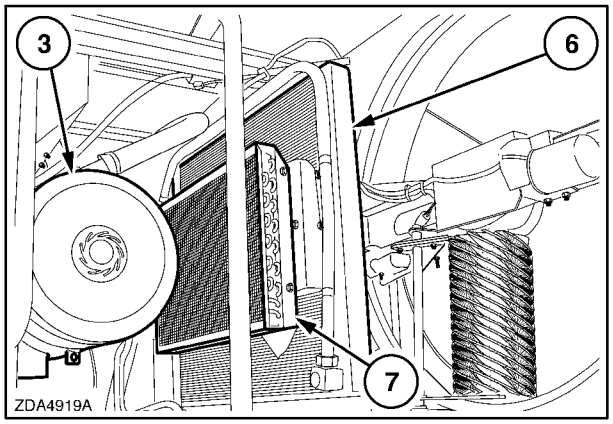
11. Pull out the oil cooler 6-condenser 7 assembly.

12. Apply compressed air to clean the intercooler from the radiator side.

13. Apply compressed air to clean the oil cooler 6-condenser 7 assembly from the intercooler side.

14. Remove any dust laying on the floor (above the fuel tank), but do not use compressed air.



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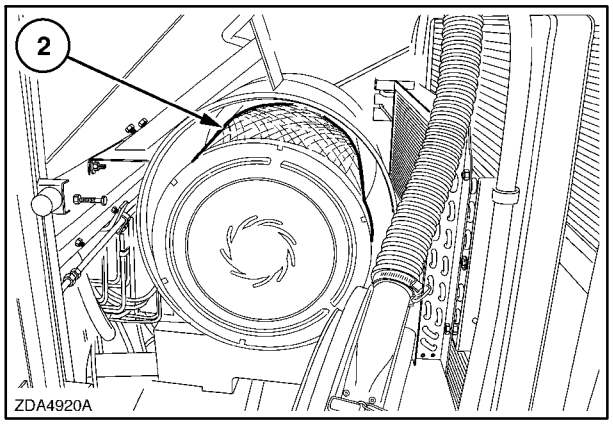
15. Reinstall guards 2 (Fig. 337).

16. Reinstall the oil cooler 6 - condenser 7 assembly using lock 5.

17. Reinstall the horizontal plate 1 (Fig. 336).

18. Close the engine compartment doors and the screen doors.

ENGINE AIR INTAKE SYSTEM



340

The air filter element 2 should be cleaned when the warning light in the forage harvester cab illuminates and the audible alarm sounds (500 mm vacuum), but at least once a week.

Open the left-hand side rotary screen door.

To remove the air cleaner element, remove cover 3 (Fig. 339). And pull out the element 2.

To clean the element, hold the top and tap it against the palm of the other hand to remove the dust. NEVER TAP IT ON A HARD SURFACE.

When tapping does not remove the dirt, direct compressed air through the element, from the inside towards the outside.

To prevent damage to the element when cleaning with compressed air, take the following precautions:

- Maximum air pressure must be 5 bar.
- Move the nozzle up and down while rotating the element.
- Keep the nozzle at least 25 mm (1”) from the pleated paper.

⚠ CAUTION ⚠

Wear a dust mask when cleaning the air filter element.

If the element is soiled with oil or soot, it is possible to soak it for 15 minutes in a solution of 75 grammes of non-sudsy detergent and 10 litres (2.65 US gal) of lukewarm water.

Rinse the element thoroughly in clean water until the water remains clear and leave the element to dry.

NEVER WASH THE AIR CLEANER ELEMENT IN PETROL OR DIESEL OIL.

Every time the element is cleaned, it should be examined for holes and cracks by holding an electric light bulb inside the element and looking through it. If any damage is noted, discard the element and fit a new one.

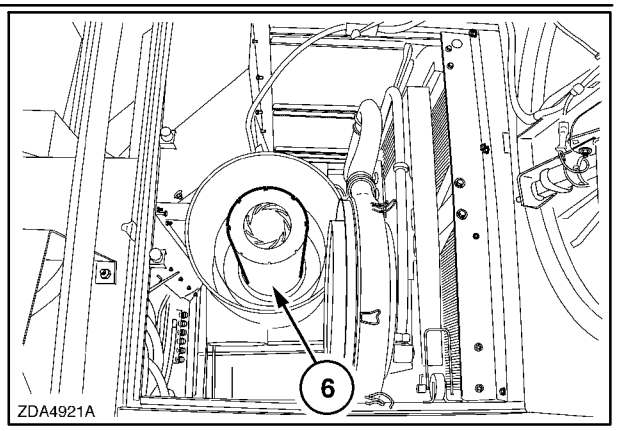
Replace the element after five cleanings or once a year, whichever comes first.

When fitting, make sure the element is seated properly and the sealing is in good condition.

SAFETY ELEMENT

A safety element 6 is fitted as an additional security to prevent dust from entering the engine when replacing the standard element. It will also protect the engine from dust should the standard air filter element fail.

Replace the safety element after five cleanings of the filter element or after two years, whichever comes first.



341

AIR CONDITIONING

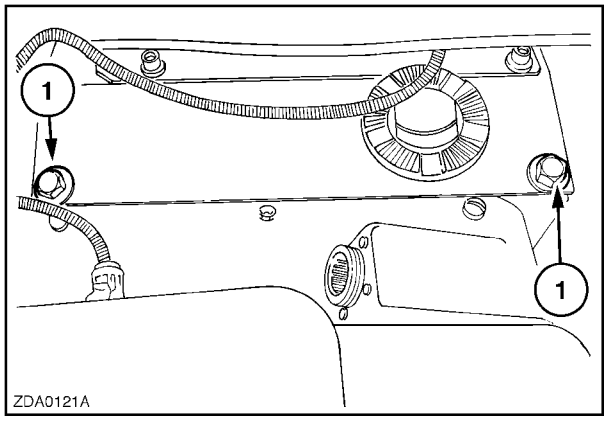
CONDENSER

Refer to paragraph headed “Rotary dust screens, Radiators and Air intake system“.

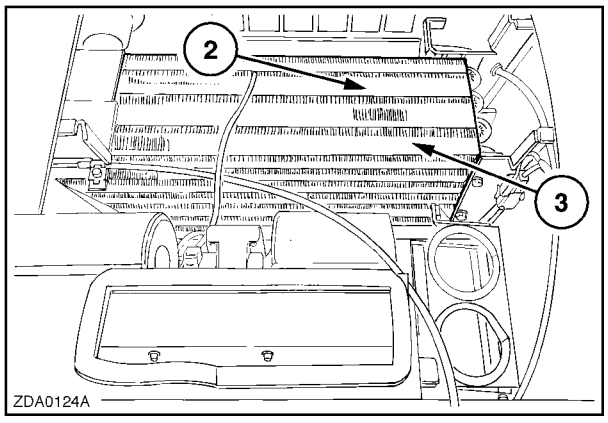
EVAPORATOR

The evaporator is located underneath the driver’s seat.

Inspect and clean the evaporator, if necessary. Remove two Allen screws 1 and tip up the seat to gain access to evaporator 2, heating radiator 3 [standard equipment] and the ventilation fans.



342



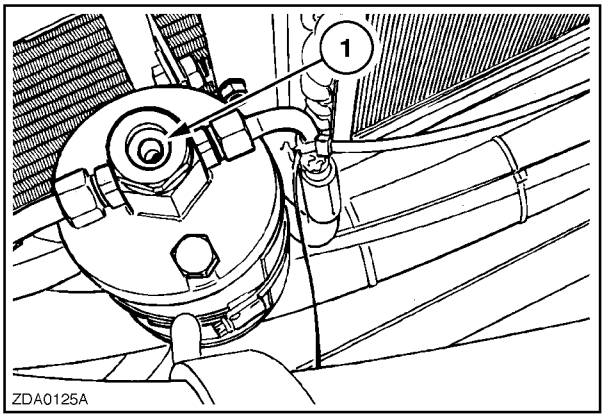
343

FILTER-DRIER

A sight glass and a ring-shaped moisture indicator 1 on the right-hand side of the condenser (inside the machine) serve for determining the condition of the R134A gas.

- If the refrigerant is without air bubbles, then the refrigerant condition is good.
- If the glass shows a milky refrigerant: satisfactory performance is ensured.
- If air bubbles are visible: lack of refrigerant.
- If the moisture indicator is blue: filter and refrigerant are in good condition.
- If the moisture indicator is red: this is an indication of too much moisture, the filter-drier has to be replaced.

If the filter-drier needs to be replaced or if the air conditioning system needs repair, contact your local dealer.



344

CAB AIR FILTERS

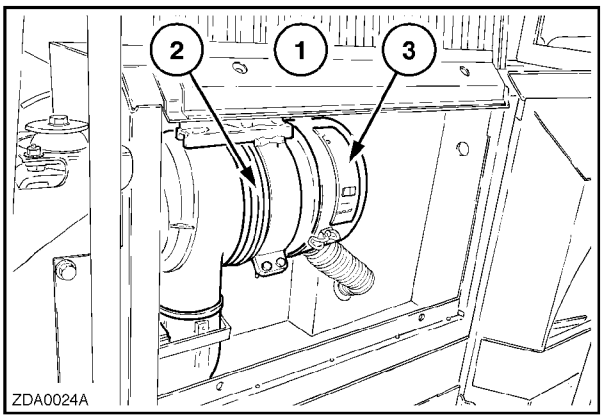
The cab air filter is located near the cab door on the left-hand side.

Clean the cab air filter regularly and, in extremely dusty conditions, daily.
Wear a suitable dust mask !

Proceed as follows:

1. Open cover 1.
2. Open filter housing 2.
3. Remove cover 3.
4. Remove the filter element 4.
5. Clean with compressed air blown from the inside towards the outside.

It is advisable to replace the paper filter elements every year.



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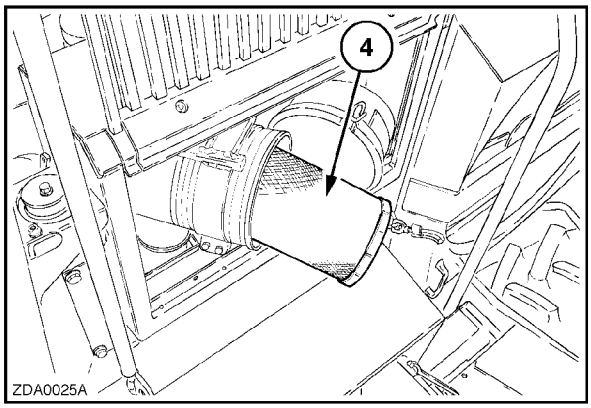
CAUTION

Dust protection

The air filter in the cab does not protect against all substances (e.g. chemical residues on crops). Absolute protection against specific products can only be obtained when the nature of these products is known and adequate measures are purposely designed to counter the hazard created by these substances.

It goes without saying that correct filter maintenance and keeping doors and windows closed is essential.



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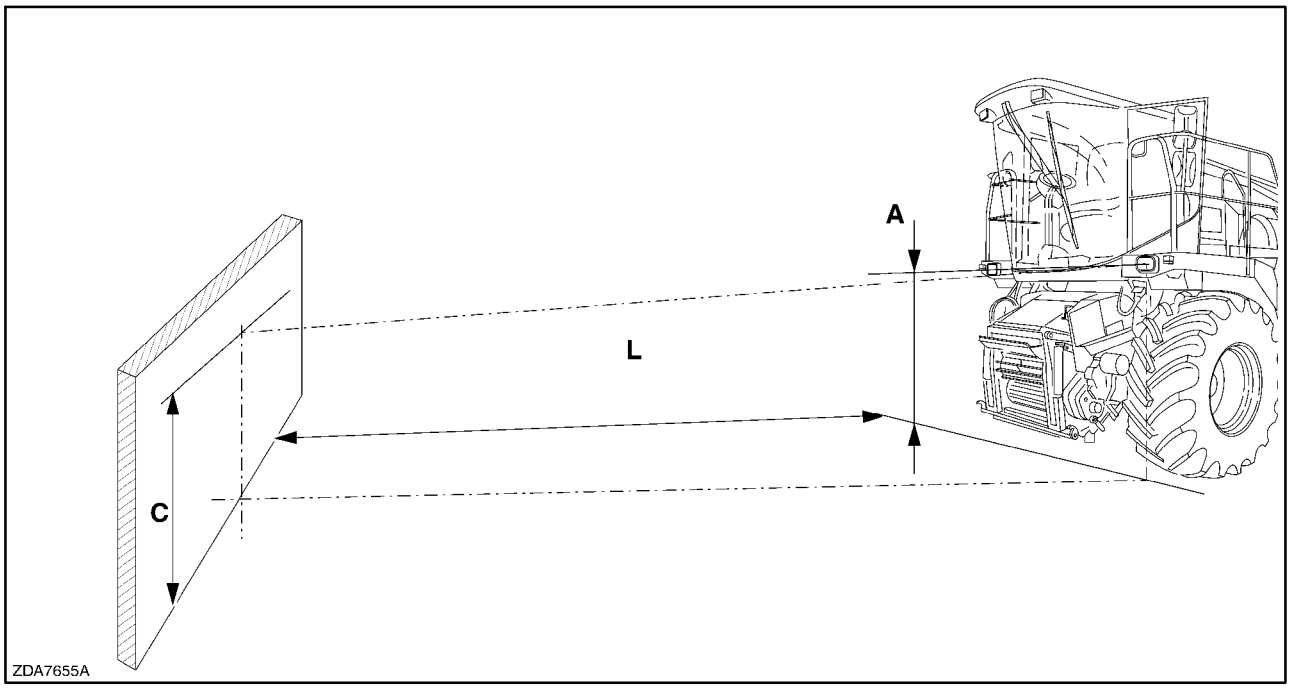
ADJUSTMENT OF THE DIMMED LIGHTS

The dimmed lights are “factory adjusted” with a level standing forage harvester.

However to adjust the dimmed lights, proceed as follows:

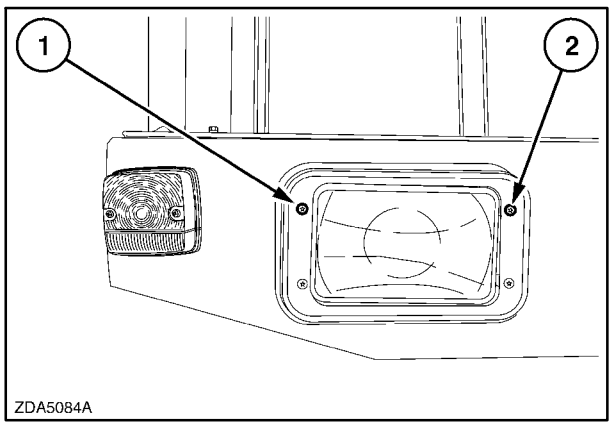
1. Park the forage harvester on a level surface and about 5 meter (16ft) from a perpendicular square dark wall.
2. Measure distance A. A = distance from the ground to centre of the lamp.
3. Measure distance L. L = distance from the light to the wall.
4. Distance C should be maximum = A – (L x 0.07).



347

5. Adjust distance C, using screws 1 and 2.

NOTE: *Turn screws 1 and 2 equally from both dimmed lights.*



348

SENSORS

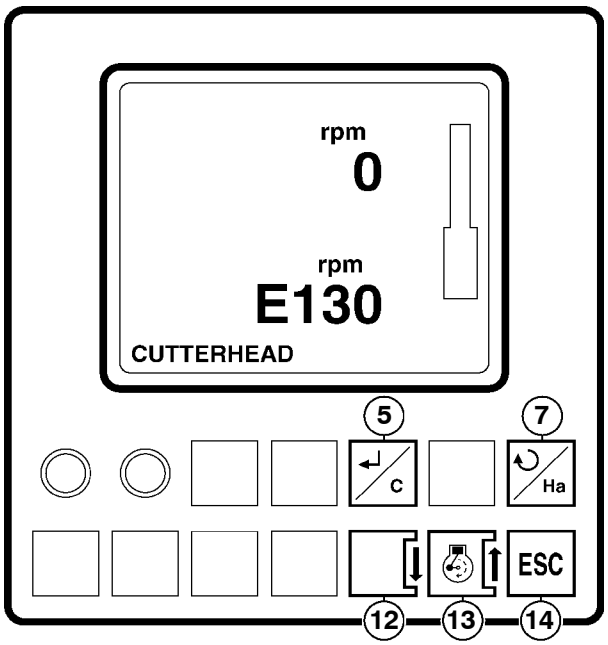
The condition of the sensors can be checked visually. There is a LED next to the ingoing electrical cable. If the sensor receives current, the LED will illuminate. The intensity of the light decreases when metal passes the sensor.

RPM SENSORS

The InfoView ™ monitor provides a means to check both the quality and the adjustment of the rpm sensors.

Proceed as follows:

1. Turn the ignition key ON, but do not start the engine.
2. Simulteanously press **5 enter** and **7 hectare** on the InfoView ™ monitor.



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3. One of the following Exxxx- values will appear on the display:
   - CUTTERHEAD SPEED SENSOR
   - GROUND SPEED SENSOR in mm/s
   - CROP PROCESSOR SPEED SENSOR [if installed]
   - FEED ROLL SPEED SENSOR
   - BLOWER SPEED SENSOR
4. Scroll from one screen to the other screen using **12 scroll down** and/or **13 scroll up.**

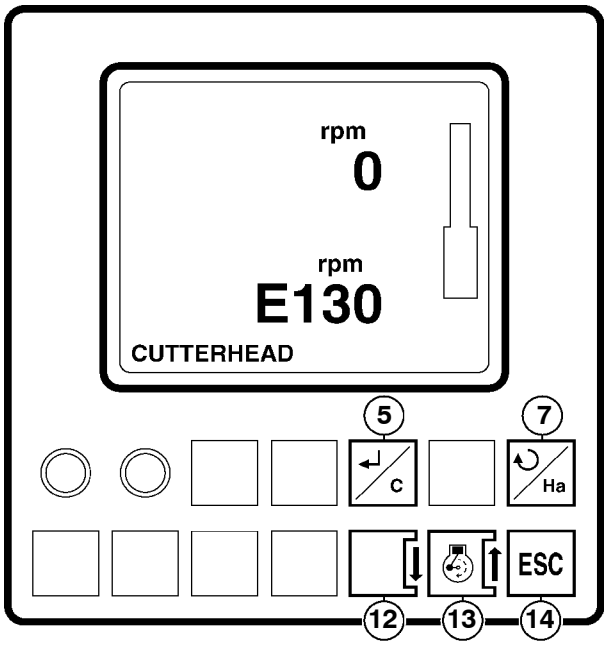
5. To check the sensor quality:

   - Remove the sensor from its position.
   - Hold the sensor away from metal and note the Exxx-value.
     This value should be maximum E132.
   - Push the sensor against metal and note the Exxx-value
     This value should be at least 70 points higher than the previous value.

6. To adjust the sensor:

   - Reinstall the sensor as explained below.
   - To fine tune, adjust the installed sensor as close as possible to both measured Exxx-
     values.

7. To leave the Exxx-display, press **14 escape.**



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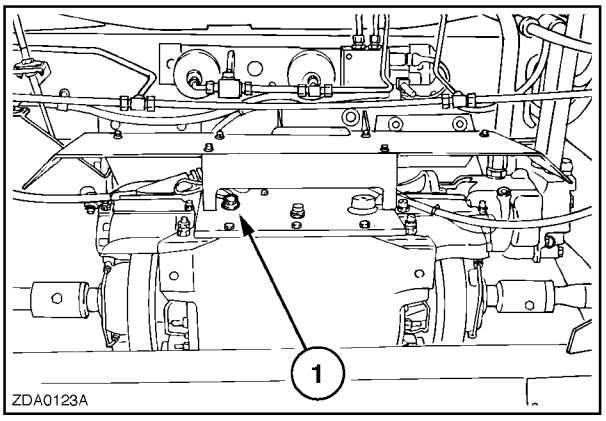
The forage harvester is equipped with five rotation speed sensors.

- **Ground speed sensor**

  The ground speed sensor 1 is located on top of the traction gearbox (covers removed).

  If this sensor requires adjustment, contact your local dealer.



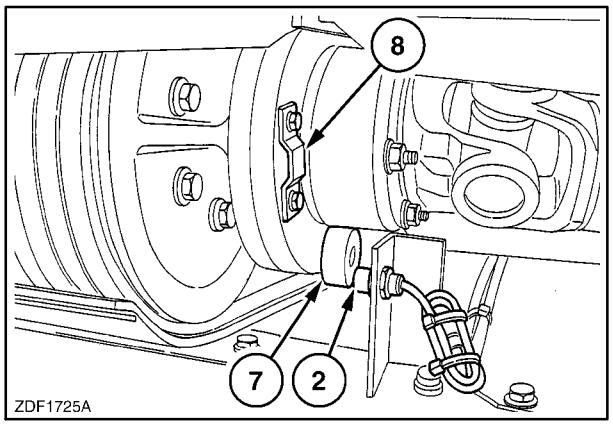
351

- **Cutterhead speed sensor**

  The sensor tip 2 should be adjusted to a distance of 4 to 5 mm (5/32 – 13/64”) from the drive pulley signal plates 7.

  Do not overtighten the sensor fastening nuts.

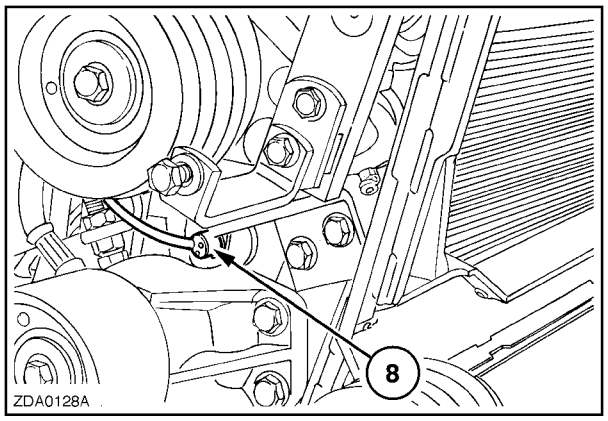
NOTE: *The sensor tip 1 is protected from contact with failed shearbolts by the plates 8. Ensure these plates are always installed.*



352

- **Crop processor lower roll speed sensor**

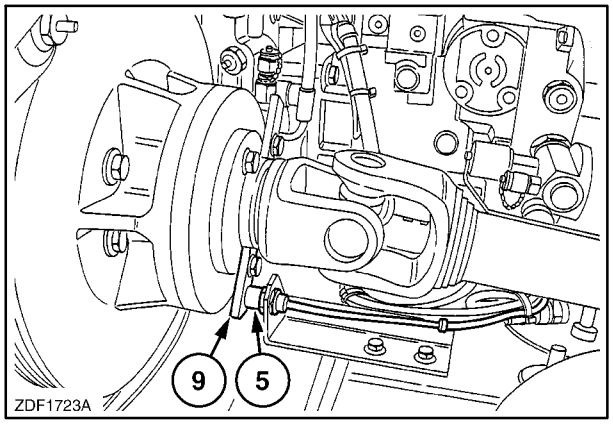
The crop processor speed sensor 8 should be adjusted to a distance of 4 to 5 mm(5/32" to 13/64") from the special nuts 8 in the right-hand end of the lower roll.



353

- **Blower speed sensor**

The blower speed sensor 5 should be adjusted to a distance of 4 to 5 mm(5/32" to 13/64") from the signal plates 9.

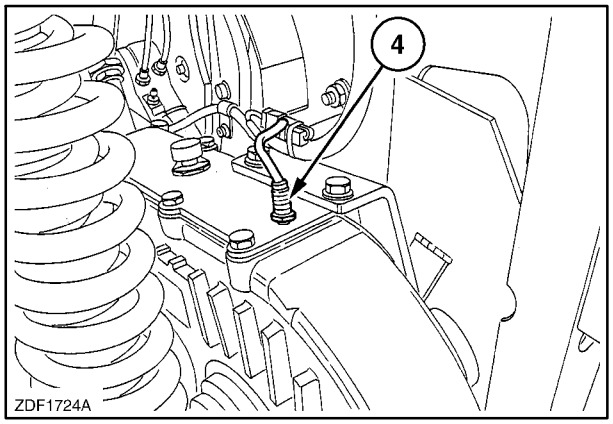


354

- **Feed roll speed sensor**

The feed roll speed sensor 4 is located on top of the upper feed roll drive gearbox (covers removed).

If this sensor requires adjustment, contact your local dealer.



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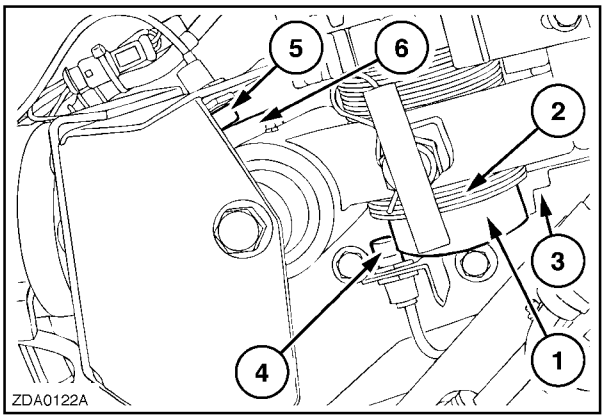
END-OF-TRAVEL SENSORS

The forage harvester is equipped with six end-of-travel sensors:

- **Sharpening stone holder**

1. Loosen stone 1 in holder 2 as described in paragraph headed "Adjustment of the sharpening stone depth"in this section.

2. Screw down holder 2 until it clears the cutterhead frame by approximately 2 mm (5/64") at point 3 on both sides of the cutterhead.



356

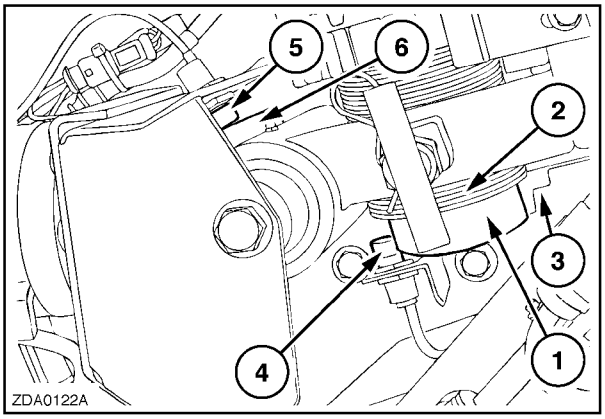
3. Switch on the ignition key and the HARVEST switch.

4. Adjust sensor 4 towards or away from the stone holder until the LED changes from bright to pale. Fit the sensor in this location.

5. Move the sharpening stone back and forth to check the adjustment. Readjust the sharpening stone.

- **Sharpening stone carrier**

The sensor tip 5 (Fig. 357) should be adjusted to a distance of 4 to 5 mm (5/32" to 13/64") from the stone carrier surface 6 (Fig. 357).

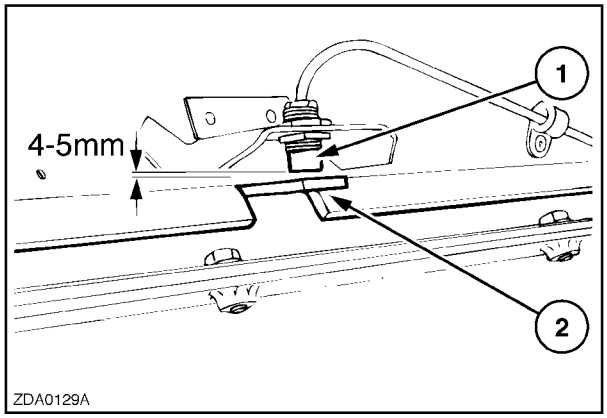


357

- **Sharpening stone cover**

The sensor tip 1 should be adjusted to a distance of 4 to 5 mm (5/32" to 13/64") from the cover lip 2 when the cover is in its rearmost position.

Ensure that the cover really moves to its rearmost position. If not, move the sensor rearwards in the slotted hole.

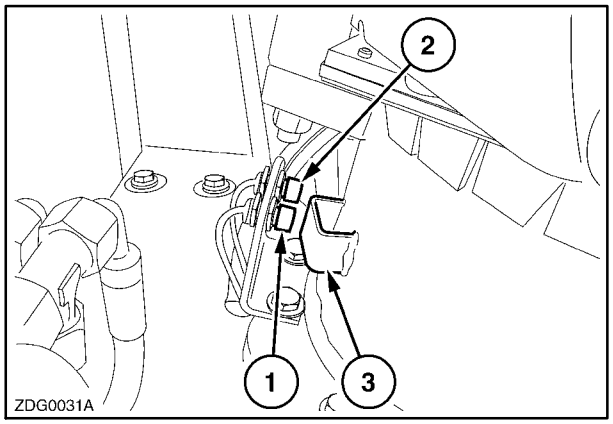


358

- **Spout rotation left end of turn**

1. Turn the spout left until signal plate 3 is just opposite the tip of sensor 1.

2. Adjust the tip of sensor 1 to a distance of 2 to 4 mm (5/64" to 5/32") from signal plate 3.

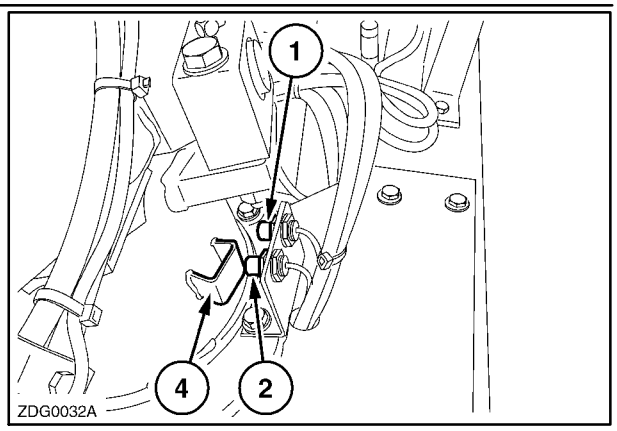


359

- **Spout rotation right end of turn**

1. Turn the spout right until signal plate 4 is just opposite the tip of sensor 2.

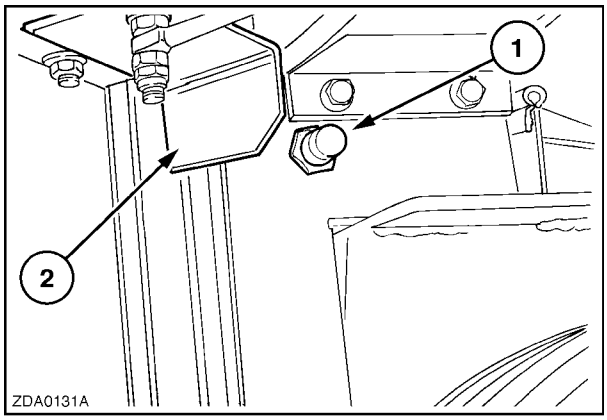
2. Adjust the tip of sensor 2 to a distance of 2 to 4 mm (5/64” to 5/32”) from signal plate 4.



360

- **Right-hand screen door open**

Adjust the tip of sensor 1 to a distance of 4 to 5 mm (5/32” to 13/64”) from door plate 2.



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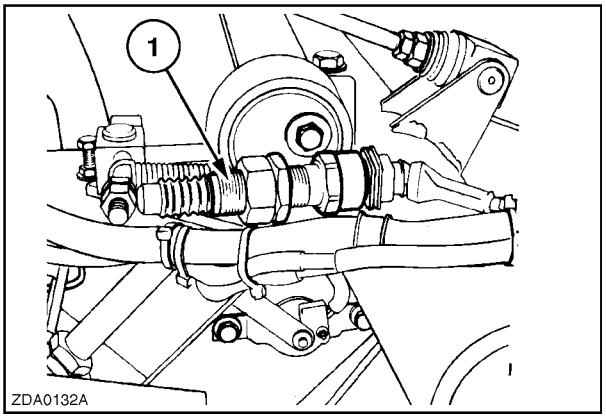
ELECTRICAL SYSTEM

ATTACHMENT HEIGHT SENSOR

The chopper body’s lowest and highest positions are determined by the lift cylinders being fully retracted or extended. This movement is also monitored by potentiometer 1. The voltage of this potentiometer, which is relative to the chopper body’s height, is constantly registered by the machine’s electronic system. It can be displayed on the InfoView ™ monitor. When changing from one attachment to another, or for other reasons, the potentiometer may need to be recalibrated.



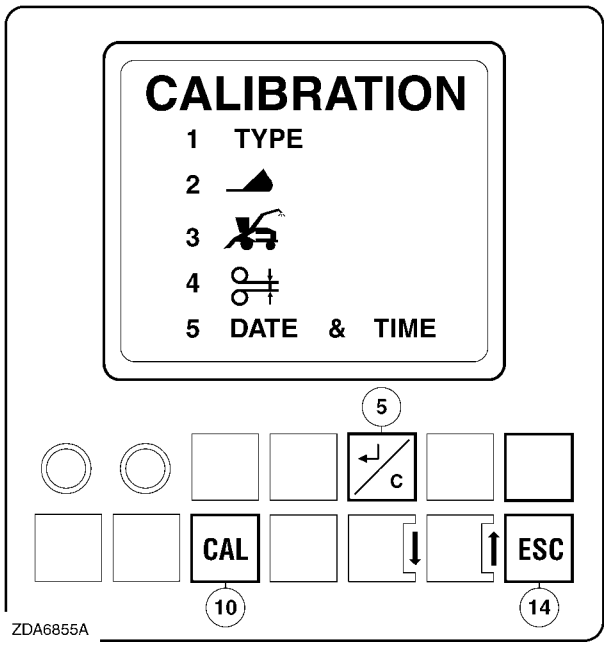
362

To check the calibration, proceed as follows:

1. Attach the attachment you are going to use.

2. Start the forage harvester engine, and lift and lower the attachment a number of times to warm up the hydraulic oil.

3. Press **10 calibration** to select the calibration mode.



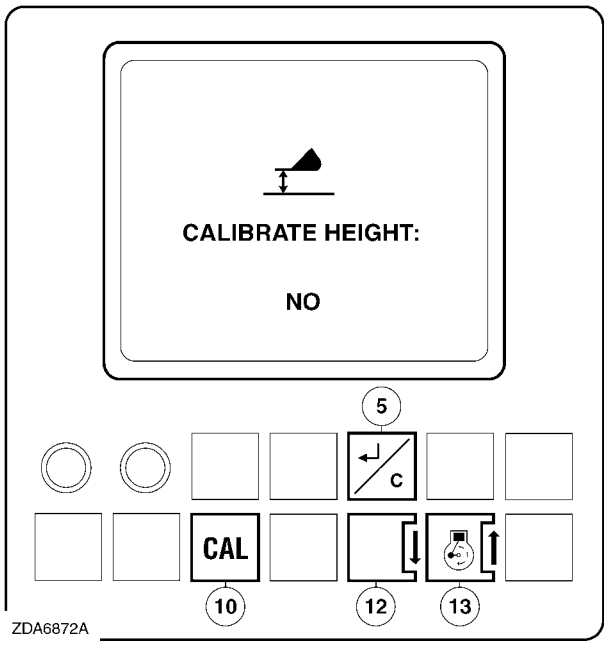
363

4. **Page 2** / **attachment** is automatically selected when you enter the calibration mode.

   Press **5 enter** until “Calibrate height” appears on the screen.

NOTE: *“No” is automatically selected when you enter the height calibration.*

5. Select “Yes” using **12 scroll down** or **13 scroll up** to proceed with the height calibration.



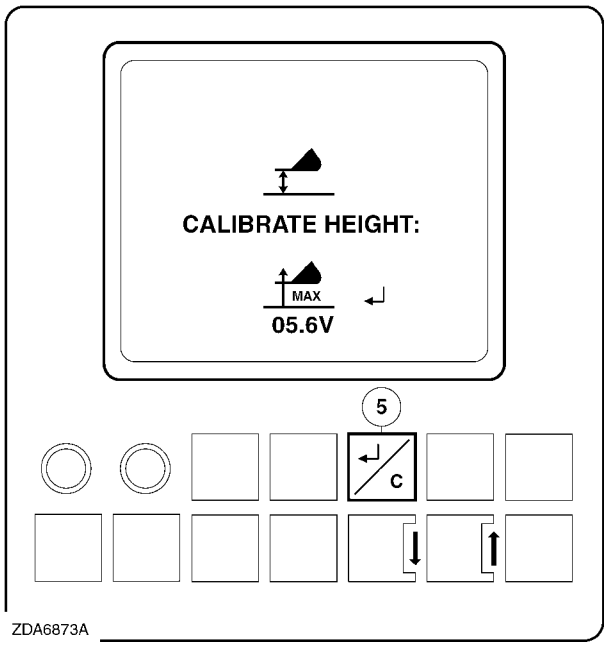
364

6. Press **5 enter** to validate your choice. The next step will appear on the screen.

NOTE: *The bottom text line of the screen will now show a voltage value, e.g. 05.6 V.*

7. With the calibration screen on, lift the attachment to its highest position. The voltage value on the screen should increase when the attachment is lifted.

   The voltage value should be 06.8 V when the attachment is fully raised.



365

8. With the attachment in its highest position, check if the cylinder safety latch can be engaged.

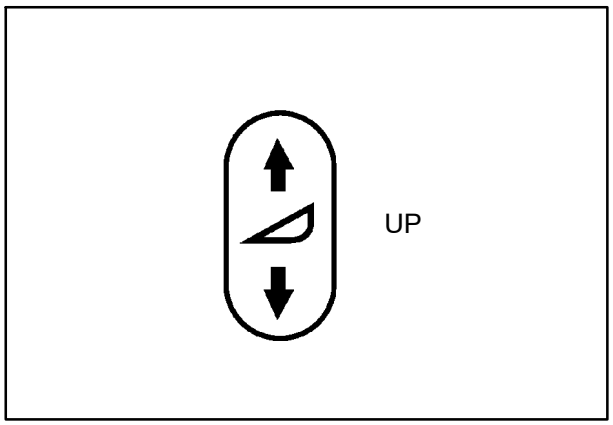
   The calibration of the attachment height sensor is correct when the voltage indication is 06.8 V and the attachment safety latch can be engaged.

9. Press **14 escape** to exit the calibration mode.

To calibrate the attachment height sensor, proceed as follows:

NOTE: *two persons are needed to calibrate the attachment height sensor: one in the cab and one making the adjustment.*

1. To adjust, let the engine run and continue to lift the attachment by pressing the attachment UP switch.



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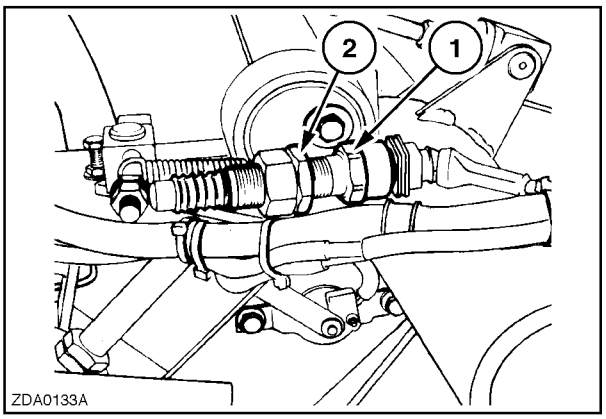
2. Loosen lock nut 2 and turn the potentiometer 1 in or out until the 06.8 V value is shown on the screen.

3. Now turn the sensor back until the power to the attachment lift valve (EMR valve) is cut. This is easy to hear as the hydraulic system will stop activating the pressure relief valve.

NOTE: *The adjustment is very sensitive.*



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4. Retighten lock nut 2. Ensure the voltage did not change.

5. Check if the safety latches can be put in place without difficulty.

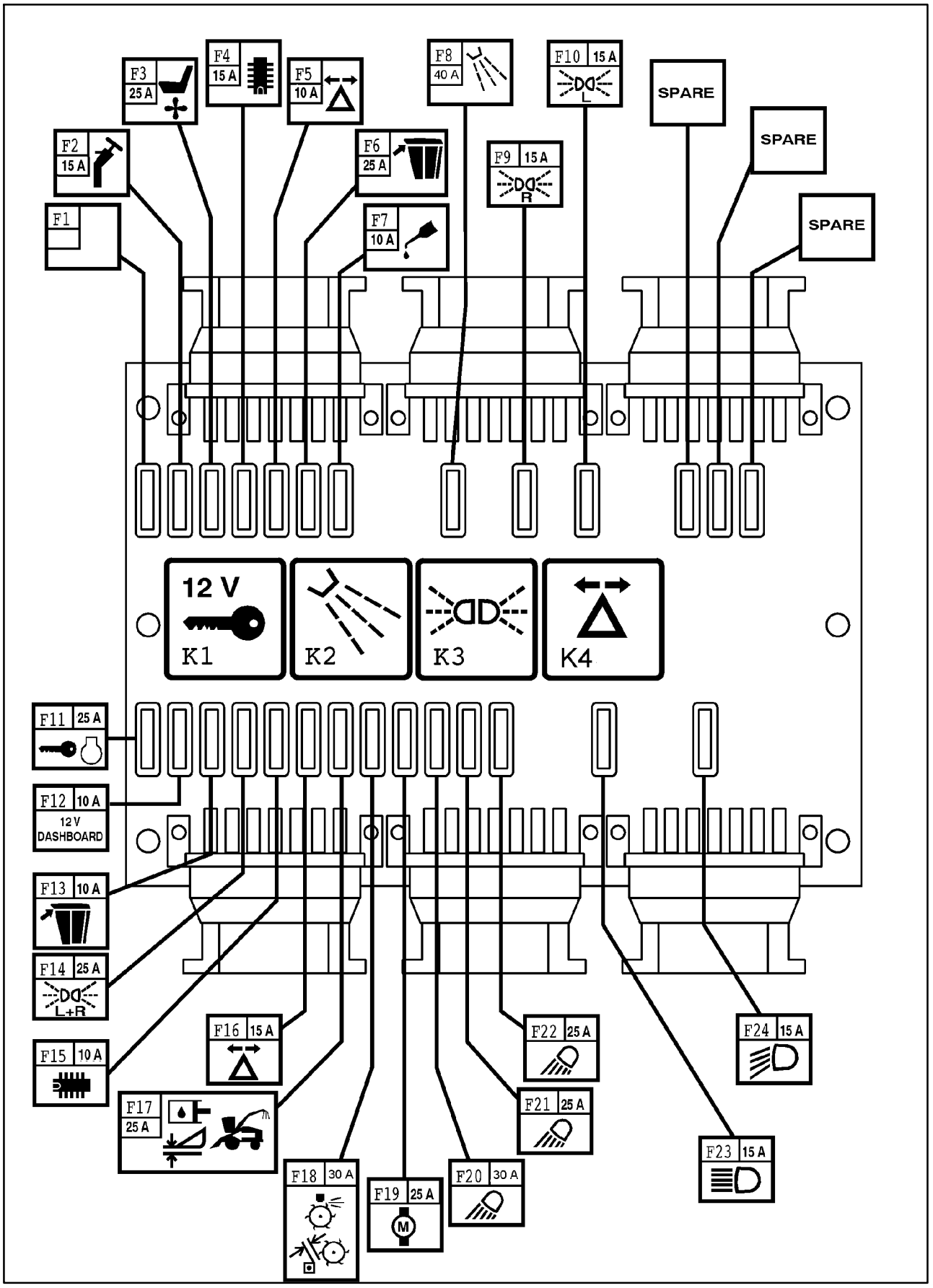
6. Now lower the attachment to the ground and lift it again. Make sure the attachment is stopped automatically and the safety latches can still be fitted.
   If this is not the case, repeat the procedure starting from step 1.

FUSES AND RELAYS

The fuses and relays of this forage harvester are situated in the central electronic box. This box is situated right behind the cab, on the left-hand side of the machine. Always reinstall the guard properly after any intervention.

Fuses

Fuse	Amperage	Function	Before or after contact
F1		Not used	
F2	15 A	Steering column power (horn, headlights)	After
F3	25 A	Operator's seat and fan + fuel and temperature gauges, airconditioning	After
F4	15 A	Electronic modules (including metal detector)	After
F5	10 A	Direction indicators	After
F6	25 A	Cab roof (windshield wiper, rear windshield heating , mirrors)	After
F7	10 A	Automatic greasing system [accessory]	After
F8	40 A	Silage additive applicator after relay	After
F9	15 A	Parking lights, right-hand side	Before
F10	15 A	Parking lights, left-hand side	Before
F11	25 A	Ignition switch 12 V	Before
F12	10 A	12 V plugs inside cab	Before
F13	10 A	Cab roof (cab lights, clock, radio, CB) + automatic greasing system	Before
F14	25A	Parking lights, brake lights	Before
F15	10 A	CPU-printed circuit (left printed circuit)	Before
F16	15 A	Hazard warning lights	Before
F17	25 A	Attachment height module + hydraulic/hydrostatic module	Before
F18	30 A	Adjust-O-Matic™ + ground speed module	Before
F19	25 A	Actuator printed circuit	Before
F20	30 A	Operating lights (lights printed circuit)	Before
F21	25 A	Operating lights (lights printed circuit)	Before
F22	25 A	Operating lights (lights printed circuit)	Before
F23	15 A	Main beam headlights	After
F24	15 A	Dipped headlights	After


F1
F2 15 A
F3 25 A
F4 15 A
F5 10 A
F6 25 A
F7 10 A
F8 40 A
F9 15 A
F10 15 A
SPARE
SPARE
SPARE
12 V
K1
K2
K3
K4
F11 25 A
F12 10 A
12 V DASHBOARD
F13 10 A
F14 25 A
L+R
F15 10 A
F16 15 A
F17 25 A
F18 30 A
F19 25 A
M
F20 30 A
F21 25 A
F22 25 A
F23 15 A
F24 15 A

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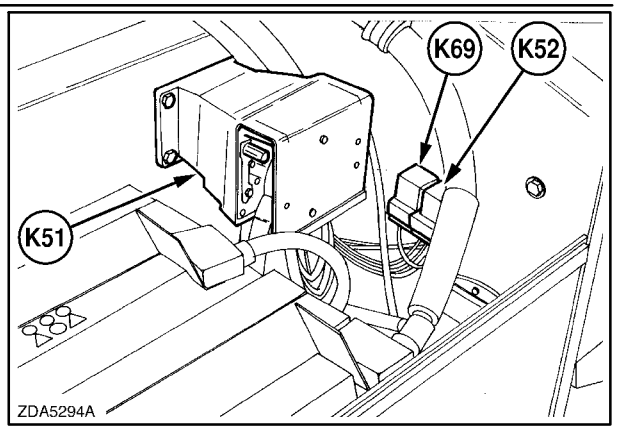
Relays

Relay	Function
K1	Power (12 V) on ignition
K2	Silage additive applicator
K3	Parking lights
K4	Direction indicators and hazard warning lights
K51	24V / 12V Start relay
K52	Start Relay
K53	Right hand side mirror control
K54	Left hand side mirror control
K55	Rear windshield heating
K56	Fan
K57	Fan ground
K58	Attachment grease pressure switch
K68	Cursor engine grid heater
K69	Cursor engine CPU power supply



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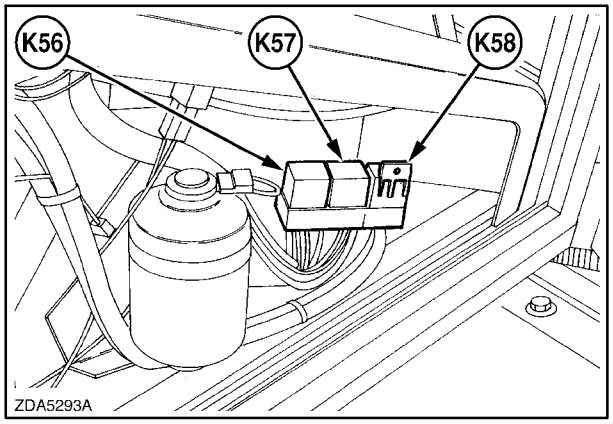
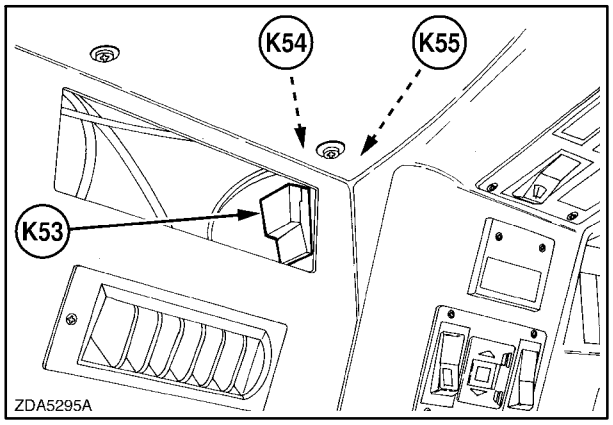
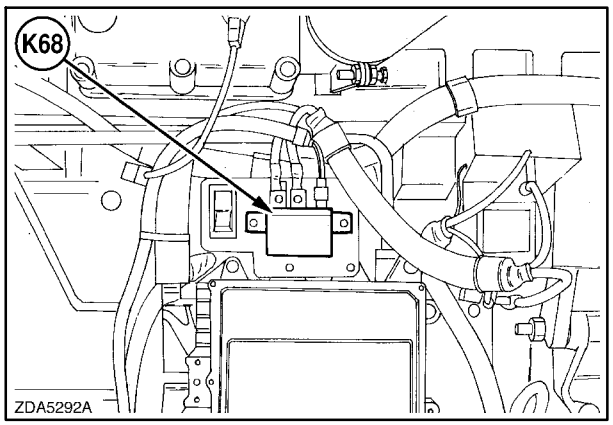


370



371



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MAINTENANCE SCHEDULE

Service to be performed before the first start-off	Section
1. Grease all grease fittings	4
2. Grease all chains, threaded rods and pivot points	4
3. Check oil levels:	4
- Cutterhead gearbox	
- Blower gearbox	
– High speed blower gearbox [if installed]	
- Attachment drive gearbox	
- Hydroloc ™ gearbox	
- Upper feed roll drive gearbox	
– Traction gearbox	
– Final drive gearboxes	
- 4WD gearbox [if installed]	
– 4WD Steering axle [if installed]	
– Engine	
– Main Hydraulic and Hydrostatic system	
– Main Clutch hydraulic system	
– High capacity rear hydraulic system [if installed]	
– Brake fluid	
4. Check all chain and belt tensions	4
5. Check fuel level	4
6. Check coolant level in radiator	4
7. Check all tyre pressures	8
8. Check wheel nut torques	8

Run-in period	Service to be performed	Section
First week: daily	Check wheel nut torques	8
After first 10 hours	Check main drive belt tension	4
	Perform the 10 hour grease fitting service	4
After first 50 hours	Check bolt torques of spout rotation and pivot support	4
	Perform the 50 hour grease fitting service	4
After first 100 hours	Change engine oil and filters	4
	Change hydraulic and hydrostatic oil and filter	4
	Change high capacity rear hydraulics oil and filters [if installed]	4
	Change main drive clutch oil and filter	4
	Change gearbox oils:	4
	- Traction gearbox	
	- Final drive gearboxes	
	- 4WD gearbox	
	- Rear-wheel planetary final drives	
	- Powered rear axle	
	- Blower gearbox	
	- Cutterhead gearbox	
	- Attachment drive gearbox	
	- Hydroloc™ gearbox	
	- Upper feed roll gearbox	

10 hour service to be performed	Section
1. Clean the whole machine	
2. Check engine air intake system	4
3. Clean the radiators	4
4. Clean cab filters	4
5. Perform the 10 hour grease fitting service	4
6. Check oil levels:	4
- Engine oil level	
- Main hydraulic and hydrostatic oil level	
- High capacity rear hydraulics oil level [if installed]	
7. Check engine coolant level	4
8. Check fuel level	4
9. Drain water from fuel system prefilter / water separator	4
10. Sharpen and adjust knives / shearbar	4
11. Check smooth roll scraper adjustment	4

50 hour service to be performed	Section
1. Perform the 10 hour service (see above)	
2. Perform the 50 hour grease fitting service	4
3. Check chain and belt tensions	4
4. Lubricate the sharpener drive chain	
5. Check wheel nut torques	8
6. Check steering ball joints	4
7. Check and clean air conditioning evaporator	4
8. Check air conditioning filter-drier	4
9. Check tyre pressure	8
10. Check electrolyte level in batteries	
11. Check forage harvester for loose hardware	

50 hour service to be performed (Cont'd)	Section
12. Check play in shearbar adjuster linkages	4
13. Check forage harvester for oil leaks	
14. Clean the traction gearbox and brakes area	
15. Check steering ball joints, wheel spindles, tie rods and steering hydraulic components	4

100 hour service to be performed	Section
1. Perform the 10 hour service (see above)	
2. Perform the 50 hour service (see above)	
3. Perform the100 hour grease fitting service	
3. Charge the batteries	4

250 hour service to be performed	Section
1. Change engine coolant conditioner element (FX60)	4
2. Change fuel filter and water separator (FX60)	4

300 hour service to be performed	Section
1. Perform the 10 hour service (see above)	
2. Perform the 50 hour service (see above)	
3. Perform the 100 hour service (see above)	
5. Lubricate threaded rods and pivot points	4
6. Clean brakes	4

500 hour service to be performed	Section
1. Perform the 250 hour service (see above)	
2. Change engine oil and filters (FX60)	4

600 hour service to be performed	Section
1. Perform the 10 hour service (see above)	

2. Perform the 50 hour service (see above)	
3. Perform the 100 hour service (see above)	
4. Perform the 300 hour service (see above)	
4. Change engine oil and filters (FX30–40–50)	4
5. Change fuel prefilter / water separator (FX30–40–50)	4
6. Change gearbox oils:	4
- Traction gearbox	
Final drive gearboxes	
- 4WD gearbox	
- Rear-wheel planetary final drives	
- Powered rear axle	
– Blower gearbox	
- Cutterhead gearbox	
- Attachment drive gearbox	
- Hydroloc™ gearbox	
- Upper feed roll gearbox	
7. Change hydraulic and hydrostatic oil and oil filter	4
8. Change high capacity rear hydraulics oil and oil filter [if installed]	4
9. Replace engine air cleaner element	4
10. Replace cab air filters	4
11. Clean the sharpener shaft	4

2 year service to be performed	Section
1. Perform the 10 hour service (see above)	
2. Perform the 50 hour service (see above)	
3. Perform the 100 hour service (see above)	
4. Perform the 200 hour service (see above)	
5. Perform the 250 hour service (see above)	
5. Perform the 500 hour service (see above)	
5. Perform the 600 hour service (see above)	
6. Change brake fluid	4
7. Change coolant	4
8. Replace safety element of engine air intake system	4
9. Check engine valve clearance	

4 - 6 year service to be performed	Section
Replace all hydraulic and hydrostatic hoses	

SECTION 5 - FAULT FINDING

GENERAL

CONCERN	POSSIBLE CAUSE	REMEDY
Poor chop "quality" or length of cut.	Forage harvester set for wrong length of cut.	Refer to length-of-cut chart.
	Dull knives.	Sharpen knives and adjust shearbar.
	Shearbar not properly adjusted to knives.	Sharpen and adjust shearbar to about 0.1 mm at closest point.
	Insufficient feeding of crop.	Make sure the engine runs at maximum speed.
		Increase size of windrows for pick-up attachment.
		Increase the ground speed for row crop attachments.
		Stop feed rolls at the end of the field before attachment is emptied. (Not recommended with row insensitive attachments).
	Incorrect engine rpm.	Check engine rpm.
	Upper feed rolls cannot close down completely.	Clean away material between the sides of the upper feed roll module and the lower feed rolls.

CONCERN	POSSIBLE CAUSE	REMEDY
	Not maintaining cutterhead rpm.	Check engine rpm.
		Check condition and tension of main drive belts.
		Check if main drive belts and/or pulleys are greasy or oily. Clean, if necessary. Replace belts, if necessary.
	Distance between crop processor (if installed) rolls incorrect.	Adjust roll distance.
	Attachment speed too high or too low in relation to machine forward speed.	Adjust attachment speed.
Loss of blowing action.	Blower paddle clearance incorrect.	Adjust paddle wear plate-to- band clearance.
	Low blower speed.	Increase blower speed (if accessory kit installed).
	Blower liner worn.	Replace blower liner.
	Blower cut-off plate out of adjustment.	Adjust blower cut-off plate.
	Material “gumming” onto blower or spout.	Clean dirty components with water. Choose less “gumming” conditions for harvesting.
	Knife baffles not installed.	Install knife baffles.
	Blower front plate opening clogged (in Maize).	Clean opening.

CONCERN	POSSIBLE CAUSE	REMEDY
Points of row crop attachment digging into the ground.	Attachment compensation badly adjusted.	Readjust compensation.
		Have pressure in hydraulic accumulators checked by your local dealer.
Pick-up attachment bulldozing.	Attachment compensation badly adjusted.	Readjust compensation.
		Have pressure in hydraulic accumulators checked by your local dealer.

AUTOMATIC SHARPENING

CONCERN	POSSIBLE CAUSE	REMEDY
Sharpener does not move.	Fuse blown.	Replace fuse.
	Sharpener cavity cover closed.	See Adjust-O-Matic™ panel for possible fault information and repair.
	Sharpener cavity cover partially closed.	Readjust cover and limit switches.
	Sharpener stone cover not completely open due to dirt and crop accumulation.	Remove dirt and crop accumulation between sharpener stone cover rear edge and the guard behind it.
	Sharpener not switched on.	Switch on in correct sequence.
	Stone holder sensor signals “adjust stone”.	Adjust stone in holder and/or readjust sensor.
	Material build-up on rails.	Clean away material and lubricate sparingly.

CONCERN	POSSIBLE CAUSE	REMEDY
Sharpener does not stop.	Stone home sensor maladjusted.	Adjust sensor.
Sharpener seizes on sharpener rails.	Gum on plated shaft.	Clean plated shaft. Grease sharpener rails.
	Sharpener stone cover not completely open.	Remove crop accumulation between sharpener stone cover rear edge and the guard behind it, and/or adjust sharpener door cover sensor.
Sharpener stone does not advance.	Sharpener stone holder clamped too tight.	Hand-tighten holder clamp, then back off 1 to 2 turns.
	Sharpener stone holder frozen.	Clean holder threads, then coat with antiseize lubricant.
	Sharpener pawl maladjusted.	Adjust pawl.
Sharpening rate too slow. Stone needs constant readjustment.	Stone not held tightly in holder.	Tighten stone cap to 120 Nm (88.5 ft.lbs). Replace worn O-rings.
	Sharpener stone holder not clamped tight enough.	Hand-tighten holder clamp, then back off 1 to 2 turns.
"Rpm fault" lights up.	Cutterhead rpm too low.	Increase engine speed until cutterhead speed has reached at least 750 rpm.
	Cutterhead rpm sensor has failed, or is out of adjustment.	Adjust or replace the sensor.
	Cutterhead drive has not been engaged.	Engage the cutterhead drive (preferably in reverse).

CONCERN	POSSIBLE CAUSE	REMEDY
"Motor fault" lights up.	Fuse blown.	Replace fuse and find out why the system is binding.
	Sharpening motor is not getting sufficient current.	Check wiring and connectors for proper electricity supply to motor.
	Sharpening motor draws too high amperage (stone carrier moves too heavily).	Clean out stone carrier rails to free the movement.
	Sharpening stone does not stop on left-hand side of machine when sharpening cycle has come to an end.	Check if the home position sensor is adjusted correctly.
	System shows a fault and sharpening stone remains on left-hand side of machine.	Check for faults as described above, otherwise contact your local dealer for assistance.
"Adjust stone" lights up.	Sharpening stone has worn too short in its holder.	Readjust or replace sharpening stone.

AUTOMATIC SHEARBAR ADJUSTMENT

CONCERN	POSSIBLE CAUSE	REMEDY
"Rpm fault" lights up after having pressed "Adjust bar" key.	Cutterhead rpm is too low.	Increase engine speed until a cutterhead speed of at least 250 rpm has been reached.
	Cutterhead drive is not engaged.	Engage cutterhead drive (preferably in reverse).
	Cutterhead rpm sensor has failed, or is out of adjustment	Adjust or replace the sensor.

CONCERN	POSSIBLE CAUSE	REMEDY
"Motor fault" lights up.	Electricity supply to one of the adjuster motors is cut, or voltage is too low.	Check electrical wiring and connectors to the motors and repair, if necessary.
	Amperage drawn by one of the motors is too high (due to material build-up or blockage).	Remove any material build-up from the motors and/or adjuster linkages. Clean or replace the adjuster rods.
		Move the shearbar a few mm away from cutterhead and remove dust/crop between shearbar and cutterhead frame.
	Motor gears are stripped, rod broken.	Replace broken parts.
"Adjust knives" lights up.	Shearbar has travelled to its rearmost position and needs readjusting.	Clean space between shearbar and scraper, and adjust shearbar forward with the automatic adjustment. Subsequently adjust the cutterhead knives.
	Space between shearbar and cutterhead frame is filled with dirt/crop.	Move the shearbar a few mm away from cutterhead and remove dirt/crop between shearbar and cutterhead frame.
"Sensor fault" lights up after having pressed "Adjust bar" key.	Knock sensor cannot hear the test signal due to other noise in the machine.	Reduce or increase engine speed. If this does not help, search machine for loose parts generating a hammering noise. If problem remains unsolved, contact your local dealer for assistance.
	Cutterhead bearings worn.	Contact your dealer. Observe the recommendations on greasing.
"Sensor fault" lights up.	There is a fault with either the knock sensor or the ticker solenoid.	Check electrical wiring and connections, and repair if necessary. If this does not help, contact your local dealer for assistance.

CONCERN	POSSIBLE CAUSE	REMEDY
		Increase engine speed until the cutterhead speed is at least 250 rpm.
	Machine background noise is too high.	Lower or increase engine speed.
	Cutterhead bearings worn.	Contact your dealer. Observe the recommendations on greasing.

MAIN DRIVE HYDRAULIC CLUTCH

CONCERN	POSSIBLE CAUSE	REMEDY
The oil pressure warning light lights up.	Low oil pressure in the clutch circuit.	Check oil level in the reservoir. Add oil, if necessary.
	The oil pressure sensor is faulty or a wire is loose.	Check and repair the wiring. If this does not help, contact your local dealer for assistance.
The oil pressure warning light lights up from time to time.	Low oil pressure in the clutch circuit.	Check oil level in the reservoir. Add oil, if necessary. Increase engine speed so the pressure can build up. If light stays on, contact your local dealer.

HYDROSTATIC DRIVE

CONCERN	POSSIBLE CAUSE	REMEDY
Forage harvester does not respond to multifunction lever movement.	Insufficient oil.	Check oil level in reservoir and add oil, if necessary. Only use approved oils.
	The sharpener stone cover is open.	Close the sharpening stone cover.
	The sharpener stone cover is closed but the sharpener stone cover LED keeps flashing.	Readjust the sharpening stone cover.
	Plugged oil filter.	Change filter element.
	Air leak in system.	Locate and repair leaks.
		Check oil level and add oil, if necessary.
Forage harvester does not respond to multifunction lever movement.	Transmission out of gear or inoperative.	Check transmission, shift into gear and repair defects.
	Blown fuse.	Replace fuse.
	Hydraulic lines leaking.	Check, tighten or replace as necessary.
	Control handle potentiometer out of adjustment, or failed, or bad contact in electric (optical) wires.	Contact your local dealer for assistance.
	Too high transmission gear selected for moving forage harvester from present position, causing high pressure limiter function to destroke hydrostatic pump down to zero.	Change to lower gear.
Hard to select a transmission gear or transmission will not go into gear.	Pump not in neutral though multifunction lever is in neutral.	Contact your local dealer.

CONCERN	POSSIBLE CAUSE	REMEDY
Neutral is difficult or impossible to find.	Multifunction lever potentiometer is out of adjustment.	Contact your local dealer.
System operating hot (reservoir temperature above 93˚C - 200˚ F).	Oil level too low.	Add oil.
	Oil cooler clogged.	Clogged filter or suction line. Clean cooler air passages. Clean or replace filter element or suction line.
	Oil cooler and other coolers regularly clogged.	Check whether radiator (rear- most cooler) is clogged and if the radiator wiper still runs free.
	Wear of internal parts of pump and/or motor.	Contact your local dealer for assistance.
	Oil cooler clogged internally.	Replace filter and change oil. Clean oil cooler and bleed system.
System noisy.	Air in the system.	Low oil level in reservoir. Add oil. The suction line between the reservoir and the charge pump, including the suction filter, is leaking at some point and allows air to be drawn into the system. A good indication of air in the system is a considerable amount of foam in the reservoir. The end of the return line within the reservoir is not submerged in oil.
	Hose or tubing not properly insulated.	Ensure hose or tubing is not touching any metal that can act as a sounding board for natural hydraulic hum. Insulate hose and tubing clamps with rubber to absorb the noise.

METAL DETECTOR

CONCERN	POSSIBLE CAUSE	REMEDY
Fuse F18 or F4 blown.	Incorrect connections at electronic circuit box.	Check wiring connections and replace fuse.
	Defective metal detector.	Contact your local dealer for assistance.
Unit continuously false detects without forage harvester running.	The metal detector is set too sensitive.	Contact your local dealer for assistance.
	Defective metal detector electronics inside the lower front roll.	Contact your local dealer for assistance.
Unit continuously false detects without forage harvester running.	Metal detector wiring interrupted or connector at metal detector roll loose.	Contact your local dealer for assistance.
Unit continuously false alarms with forage harvester running.	The metal detector is set too sensitive	Contact your local dealer for assistance.
	Tramp metal wrapped around or lodged in feed rolls.	Inspect and remove tramp metal from feed rolls.
	The lower front, upper front, or upper rear feed roll, or rolls have become too magnetic.	Contact your local dealer. Rolls have to be tested for magnetic noise and replaced, if necessary.
Unit continuously false alarms with forage harvester running, especially when lowering the attachment.	Mass from base unit to metal detector insufficient.	Contact your local dealer for assistance.
False alarm caused by lower front feed roll.	Worn loose or damaged lower front feed roll.	Stop the forage harvester and shut off the engine. Move the lower front roll drive sleeve to the side. Rotate lower front feed roll by hand with the metal detector switched on. If the detector false detects, the defect is to be situated on the feed roll. Have feed roll demagnetized or replace.

CONCERN	POSSIBLE CAUSE	REMEDY
The metal detector does not detect.	Metal detector software faulty.	Contact your local dealer. New software has to be loaded.
	If the problem is not due to one of the above-mentioned reasons, and thus cannot be solved, contact your local dealer for assistance.	

ENGINE

CONCERN	POSSIBLE CAUSE	REMEDY
Engine will not start.	Insufficient fuel in fuel tank.	Fill up the fuel tank.
	Battery connections dirty.	Clean battery connections.
	Battery partly run down.	Charge battery.
	Faulty battery leads.	Repair leads.
	Faulty starter motor.	Have starter motor checked.
	Air in fuel system.	Bleed the fuel system.
	Faulty lift pump.	Have the lift pump checked.
	Restricted fuel filter(s).	Replace the filter(s) and clean the filter head(s).
	Faulty engine CPU.	Have the engine CPU checked.
	Faulty fuel injection system.	Have the injection system checked.
	Poor compression.	Have the engine checked.
	Water in fuel system.	Drain the water separator.

CONCERN	POSSIBLE CAUSE	REMEDY
	Restriction in water separator.	Replace the water separator.
Engine does not give full power.	Dirty air cleaner.	Clean the air cleaner filter element.
	Restricted fuel filter(s).	Replace the filter(s) and clean the filter head(s).
	Faulty engine CPU.	Have the engine CPU checked.
	Restricted exhaust pipe.	Clean or replace exhaust pipe.
	Fuel injection timing incorrect.	Have the injection timing adjusted.
	Incorrect valve clearance.	Have the valve clearance adjusted.
	Faulty fuel injection system.	Have the injection system checked.
	Poor compression.	Have the engine checked.
	Restriction in water separator.	Replace the water separator.
	Intercooler radiator blocked.	Clean the intercooler radiator.
	Tubing between the turbo - intercooler - engine air intake not tight or broken.	Tighten or repair tubing.
Engine overheats.	Insufficient coolant.	Add coolant.
	Fan belt slack or broken.	Adjust belt tension or replace belt.
	Dirty radiator or air cooler.	Clean the radiator or air cooler.

CONCERN	POSSIBLE CAUSE	REMEDY
	Thermostat sticking.	Replace thermostat. Attention: Never run engine with thermostat removed.
	Radiator wipers not rotating.	Clean area between the radiators.
	Radiator wipers too far from the radiator.	Contact your local dealer for assistance.
	Faulty engine CPU.	Have the engine CPU checked.
	Fuel injection timing incorrect.	Have the injection timing adjusted.
	Insufficient oil in engine sump.	Add oil.
	Broken valve springs.	Have the valve springs replaced.
	Faulty fuel injection system.	Have the injection system checked.
	Piston slap.	Have the engine checked.
	Bearing worn.	Have the engine checked.
Exhaust emits excessive smoke.	Fuel injection timing incorrect.	Have the injection timing adjusted.
	Dirty air cleaner.	Clean or replace the air cleaner filter element.
	Faulty engine CPU.	Have the engine CPU checked.
	Faulty fuel injection system.	Have the injection system checked.
	Poor compression.	Have the engine checked.
	Fuel filter(s) restricted.	Clean or replace fuel filter(s).

CONCERN	POSSIBLE CAUSE	REMEDY
	Loose intercooler tubes.	Tighten or repair tubes.
Engine will not idle.	Air in fuel system.	Bleed the fuel system.
	Broken fuel injector pipe.	Replace injector pipe.
	Faulty engine CPU.	Have the engine CPU checked.
	Broken or sticking piston rings.	Have the engine checked.
	Faulty fuel injection system.	Have the injection system checked.
Engine starts and stops.	Air in fuel system.	Bleed the fuel system.
	Fuel filter(s) restricted.	Replace the filter element(s) and clean the filter head(s).
	Water separator is restricted.	Replace water separator
	Sticking valves.	Have the valves checked.
	Incorrect fuel injection system.	Have the injection system checked.
Insufficient oil pressure.	Insufficient oil.	Add oil.
	Sending unit defective.	Replace sending unit.
	Oil pressure gauge defective.	Replace sending unit.
	Pressure control valve leaking or defective.	Have pressure control valve checked.
	Main bearings worn.	Have the engine overhauled.

AUTO-PILOT

CONCERN	POSSIBLE CAUSE	REMEDY
The Auto-Pilot does not switch on.	Fuse F22 blown.	Replace fuse.
	Bad cable connections.	Check cable connections.
	Bad cable connections in the switch.	Check cable connections.
	Faulty switch.	Replace switch.
	Faulty electronic control unit.	Contact your dealer for assistance.
The Auto-Pilot is switched on, no regulating action when the attachment touch sensors are operated.	Bad cable connections.	Check all cable connections from the touch sensors to the base unit.
The Auto-Pilot is switched on, the rear wheels stay either in left, or right position.	Bad cable connections.	Check cable connections and connectors, as well as the earth connection.
	Maladjusted or faulty touch sensors on the attachment.	Contact your local dealer for assistance.
	Maladjusted rear-wheel position indicator.	Contact your local dealer for assistance.
	Faulty rear-wheel position indicator.	Contact your local dealer for assistance.

CONCERN	POSSIBLE CAUSE	REMEDY
The electromagnetic valve will not operate.	Faulty coupling connector at the solenoid valve.	Call your local dealer for assistance.
	Bad cable connections.	Check the cable connections.
	Faulty electromagnetic valves (solenoid valves).	Contact your local dealer for assistance.
	Faulty electronic control unit.	Contact your local dealer for assistance.
The electromagnetic valve operates but the rear wheels do not steer.	Fault in the electromagnetic valve block.	Contact your local dealer for assistance.
The Auto-Pilot does not switch off when the steering wheel is turned.	The clamp connector for the overrider switch inside the steering column is loose.	Contact your local dealer for assistance.
	The overrider switch inside the steering column is faulty.	Contact your local dealer for assistance.
	Faulty electronic control unit.	Contact your local dealer for assistance.
The Auto-Pilot is switched on but the harvester is not following the row.	The centralizing knob is not in its central position.	Turn the knob to its central position.
	The row sensors are maladjusted.	Adjust sensors.
	Bad connectors on the centralizing knob.	Check the connectors on the centralizing knob.
	Bad cable connections or connectors between attachment and base unit.	Check connections and connectors.
	The system does not react fast enough.	Adjust the sensitivity.

CONCERN	POSSIBLE CAUSE	REMEDY
The rear wheels do not reach the required steering angle with a touch sensor in its maximum steering position.	Adjustment fault in the electronic box.	Contact your local dealer for assistance.
	One or both attachment touch sensors out of adjustment or faulty.	Contact your local dealer for assistance.
	Faulty wheel position indicator.	Contact your local dealer for assistance.
	Faulty electronic control box.	Contact your local dealer for assistance.
The Auto-Pilot is switched on, the rear wheels wobble without the touch sensor arms being operated.	Adjustment fault in the electronic control box.	Contact your local dealer for assistance.
	Faulty electronic control box.	Contact your local dealer for assistance.
	Wheel position sensor is loose.	Fasten the wheel position sensor and ask your dealer to readjust the Auto-Pilot.
The steering wheels turn very slowly (powerless) when the Auto-Pilot is switched on.	The hydraulic steering pressure is too low.	Contact your local dealer to check the Auto-Pilot hydraulic installation.

SECTION 6 - VEHICLE STORAGE

Your forage harvester represents an important investment and its life depends upon how well you take care of it.

END-OF-SEASON SERVICE

Follow the steps outlined below at the end of each season's use or when the machine will not be used for an extended period of time. This will ensure the forage harvester is kept in good condition and ready for the next season.

1. Split the forage harvester in the following units:

   Base unit, chopper body and attachment

   Flip down the upper feed rolls module

   Remove the crop processor or the grass plates from the chopper body

2. Lubricate the machine thoroughly as described in Section 4 – LUBRICATION and MAINTENANCE.

NOTE:

a) Before cleaning the chopper body with water, grease the cutterhead bearings until the grease comes out of the bearing housings inside the cutterhead. Turn the cutterhead by hand while greasing.

b) Clean the chopper body.

c) Lubricate the cutterhead bearings as de-scribed under step a).

d) Run the machine and the cutterhead at least for 15 minutes so eventual water in the bearings has time to evaporate.

e) Lubricate the cutterhead bearings once more as described under step a).

3. Make sure the electronic box is properly closed.

4. Clean the interior and exterior of the three separate units thoroughly as any crop and dirt left in these units will draw moisture and cause rusting.

NOTE: *Refer to paragraph headed "Pressure washing" further in this section.*

5. Clean the feed rolls and the cutterhead.

6. Clean the blower fan and the spout.

7. Leave covers open to allow any moisture to drain.

8. Check the lower front feed roll for:

   - Damaged slats
   - Loose hardware
   - Loose bearings

9. Check the machine for any loose, worn or damaged parts or contact your local dealer to do this job (See below and paragraph headed "Ordering Service Parts" of this section).

10. Lubricate the machine thoroughly as described in Section 4 – Lubrication and Maintenance.

11. Examine chains and sprockets.

12. Change the oil in all gearboxes.

13. Repaint or grease or coat with rust preventive all the bare metal areas to prevent rusting.

14. Retract all hydraulic cylinders and grease the exposed parts of the cylinder rods.

15. Clean and check all belts. Adjust if necessary.

16. Clean or replace the cab air filters.

17. Wipe the harvester paintwork with an oil-coated rag.

18. Flip up the upper feed roll module and reinstall on the chopper body. Reinstall the chopper body on the machine. Install the grass plates or the crop processor, depending on which equipment is needed to start the next season.

19. Run the machine for a minimum of fifteen minutes.

20. Lubricate the machine thoroughly as described in Section 4 – Lubrication and Maintenance.

Periodic checks will help to keep your forage harvester maintenance and repairs to a minimum and avoid costly breakdowns during the season. Therefore, it is good practice to have the forage harvester inspected at the end of the season. Your dealer will gladly quote a price for this work.

PRESSURE WASHING

Avoid pressure washing at ambient temperatures below 10 °C or when the machine is wet. Place the machine in a heated workshop or dry barn for at least 24 hours, and clean it only when fully dried.

Avoid to direct water jets onto electric equipment, bearings, seals, gearbox, oil tank or fuel tank filler caps, into the engine exhaust, engine and cab air filters...

When using a high pressure washer:

- Keep a minimum distance of 30 cm between the spray gun and the surface to be cleaned.

- Spray under an angle of minimum 25 ° (do not spray in perpendicular direction).

- Maximum water temperature: 60 °C.

- Maximum water pressure: 60 bar.

- Do not use chemicals.

***NOTE:** Legislation in certain countries and good practice requires special treatment of waste water through sedimentation and oil separation and controlled removal of residues.*

STORAGE OF THE ENGINE

Prior to storing the forage harvester during the off-season period, the following steps should be taken to preserve and protect the engine during storage:-

1. Drain the water from the water separator and fuel tank. Ensure no water is left in the entire fuel system.

2. Fill the fuel tank completely.

3. Use compressed air or water under pressure to clean out the engine radiator. Use a low-pressure water jet, or compressed air, to clean the air conditioner condenser fins.

4. If necessary, top up the cooling system with a permanent antifreeze mixture.

5. Clean or replace the air filter.

6. Run the engine to bring it up to operating temperature. Drain the oil, then refill the sump at least to the lower mark on the dipstick with a preserving lubricant, e.g. engine oil.

7. Run the engine for approximately 15 minutes.

8. Store the forage harvester in a dry place, well protected from the weather.

9. Inflate the tyres to the recommended pressure and remove the load from the tyres by placing the forage harvester on blocks.

10. Support the attachment on wooden blocks to relieve the weight from the base unit.

11. Disconnect the battery cables. Clean and charge the batteries in situ.

IMPORTANT: *The batteries should be charged every 8 to 10 weeks with a 5 to 6 amperes current for a period of 24 hours to a minimum of 12.6 volt.*

NOTE: *Removing the batteries will not harm the storage of information in the InfoView ™ monitor.*

12. Close off all engine openings with plugs or greaseproof paper.

13. Every 4 weeks, remove the engine opening seals, start the engine and run at 3/4 throttle for 1 to 2 hours. Operate the entire machine and all controls.

14. Switch on the air conditioning while the engine is running, only if the ambient temperature is above + 15˚ C minimum. This will ensure lubrication of the compressor parts. Operate the air conditioning system for at least 15 minutes.

15. Reinstall the engine opening seals.

ORDERING SERVICE PARTS

When preparing the forage harvester for storage, check thoroughly for any parts that may have become worn and need replacing. USE THE CHECK LIST BELOW TO ASSIST YOU IN MAKING A LIST OF THE PARTS NEEDED AT THIS TIME.

The service parts should be ordered at once and installed before the next forage season.

When ordering service parts, always ensure to give your dealer the model number and serial number of your forage harvester.

INSIST ON GENUINE "QUALITY" PARTS AS THEY WILL GIVE THE BEST PERFORMANCE AND ARE COVERED BY OUR WARRANTY.

FOR BEST PERFORMANCE, HAVE YOUR FORAGE HARVESTER SERVICED BY AN AUTHORISED NEW HOLLAND DEALER.

CHECK LIST FOR ORDERING SERVICE PARTS

Check if the following parts need replacing:

1. Examine the sharpening stone, chain and sprockets (see note below).

2. Examine all belts for wear and/or damage.

3. Check all clutches for correct operation. Replace parts, if necessary.

4. Check all bearings and bushings for wear.

5. Check the shearbar for wear and/or damage. Reverse or replace as necessary.

6. Check the scraper for wear and/or damage.

7. Check the cutterhead knives for wear and/or damage (see note below).

8. Check all wear plates (spout liner, blower liner, blower front wear plates, crop processor wear plates, cutterhead wear plates). Replace if necessary.

NOTE: *An extra set of cutterhead knives and mounting hardware is a good investment.*

Replace worn sprockets when installing new chains.

PRESEASON SERVICE

Follow the steps outlined below at the beginning of each season to ensure the machine is in good condition and ready for use.

1. Remove the wooden blocks supporting the attachment.

2. Remove the blocks from under the forage harvester and check the tyre pressure and the wheel nuts torque.

3. Clean with solvent any exposed surfaces which have been coated with grease.

4. Lubricate the machine as described in Section 4 – Lubrication and Maintenance.

5. Check the sharpening stone chain and adjust the tension as described in this manual.

6. Check all belt tensions.

7. Check the oil level of all gearboxes and reservoirs.

8. Check for any loose hardware.

9. Check the machine adjustments as described in the adjustment section of this manual.

10. Install and/or close all safety guards.

11. Drain the water from the fuel tank. Bleed the fuel system.

12. Remove the engine opening seals and reinstall the batteries. Start the engine and run it at half speed for several minutes to bring it up to operating temperature, then drain the rust preventative oil. Replace the oil filter(s) and fill the sump with new recommended engine oil. Check the brake fluid level.

13. Engage the cutterhead and feed roll drive and run the engine at full speed. Check the cutterhead, the feed rolls and the attachment. Run the machine for a few minutes and listen for unusual noises. Then disengage the harvester drive, stop the engine and check all bearings for signs of overheating, etc.

14. Drive the forage harvester and check the hydraulic system, hydrostatic drive, metal detector and brakes for proper operation.

15. Lubricate the forage harvester once again, but do not overgrease!

16. It is recommended to have your dealer or a refrigerant specialist check the entire air conditioning system for leakage at the beginning of each season.

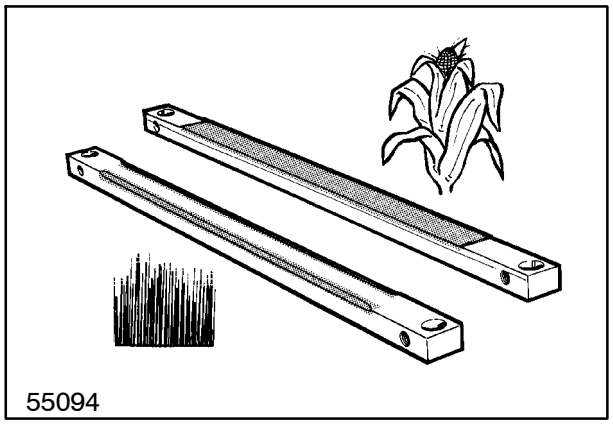
SECTION 7 - ACCESSORIES

NOTE: *Accessories or optional equipment listed hereafter may be part of the standard equipment for certain countries.*

Some of these accessories or options may not be available in certain markets.

SHEARBAR (30")

Your machine can be equipped with a shearbar either for grass or for maize. Ensure the right type of shearbar for the crop being handled is installed.



1

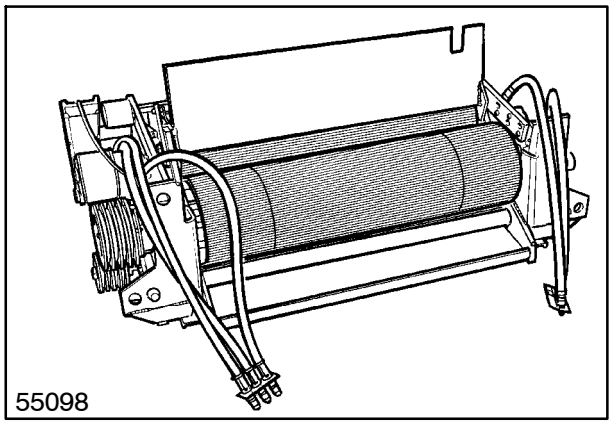
CROP PROCESSOR KIT

Effective crop processing overcomes the problems normally encountered when harvesting maize with high dry matter content**.**

Thanks to the large diameter serrated rollers, running at slightly different speeds, all the crop is crushed including stems and leaves and all kernels are damaged.

The ends of the rollers are replaceable so that maintenance costs of the crop processor are minimal.

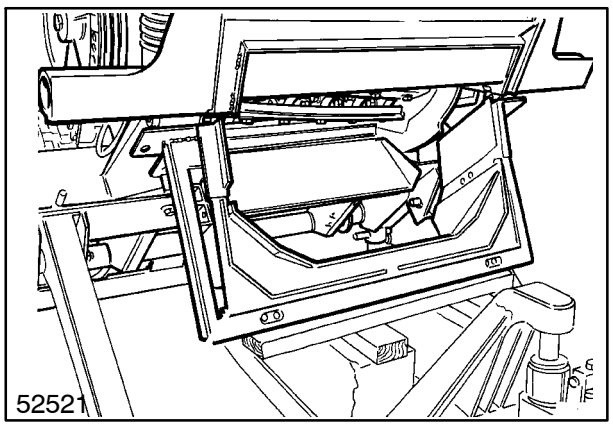
The clearance between the rollers can be adjusted between 2 and 20 mm.



2

GRASS KIT

It is possible to chop grass with the crop processor installed. However, for prolonged grass harvesting, it is recommended for reasons of wear (stones, sand,...) to replace the crop processor by the grass kit. For installation, contact your dealer.



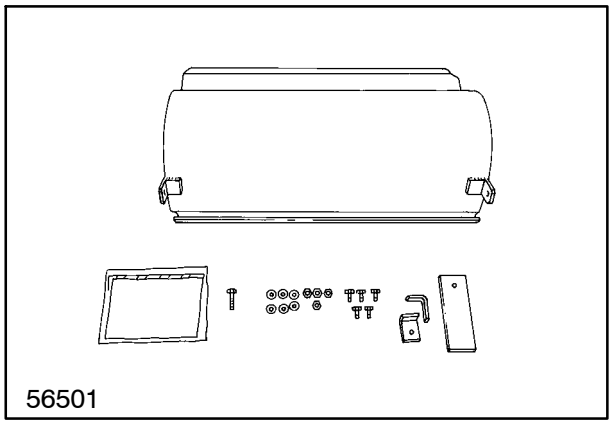
3

UPPER FEED ROLL WEAR KIT

In some conditions it is recommended to install additional wear slats on the front upper feed roll to prevent it from getting damaged and fast wearing.

GRAIN SAVER PAN

In some conditions the maize cobs and/or separate kernels may drop from between the lower feed rolls back onto the field.
These loss can be avoided by installing a grain saver pan.



4

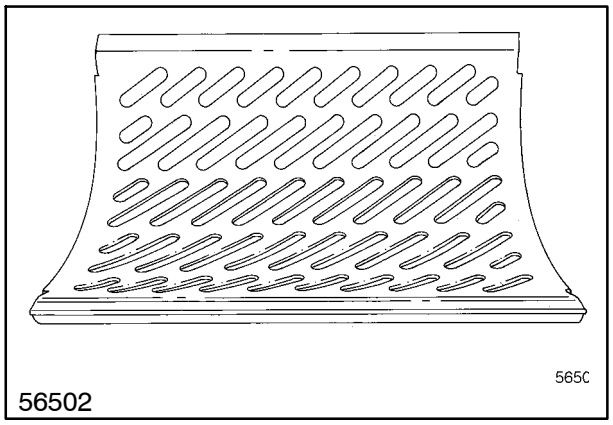
RECUTTER SCREEN

When harvesting maize a recutter screen can be installed to produce a more uniform quality of the silage.

The recutter screen can be used when harvesting very dry crop or CCM (corn cob mix).

It cannot be installed in combination with a crop processor or a shred bar.

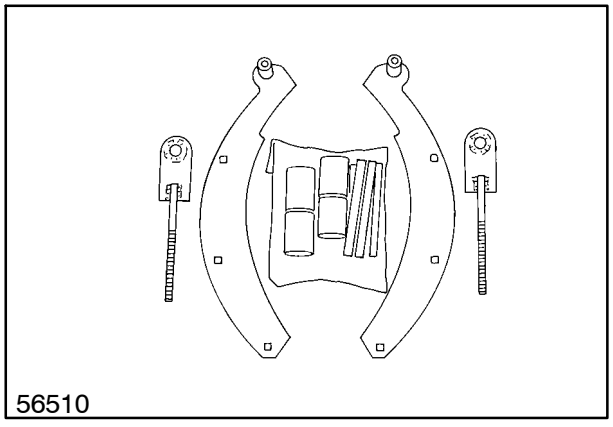
To choose the correct screen, contact your dealer



5

RECUTTER SCREEN MOUNTING KIT

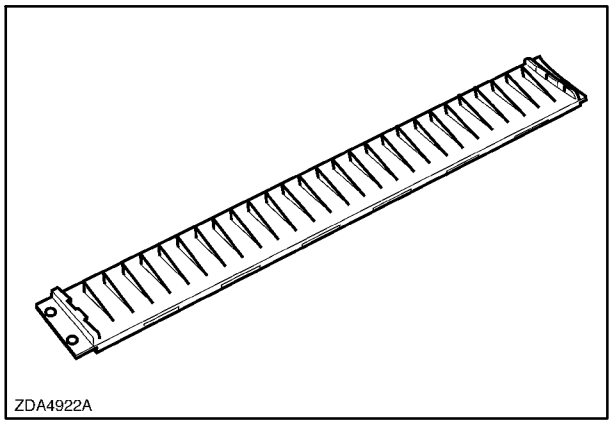
This kit is needed when installing a recutter screen.



6

KNIFE PLATE

The knife plate is used in conditions with dry leaves. It is installed in combination with a crop processor.



7

SET OF 6 STANDARD KNIVES

If your forage harvester is delivered with a 6-knife cutterhead (for harvesting grass), a kit of 6 additional standard knives (including 6 additional baffles) can be ordered to rebuild the machine for maize silage.

SET OF 12 PREBEVELLED KNIVES

Order this kit in case you want to rebuild a 6-knife cutterhead with standard knives into a 12-knife cutterhead with prebevelled knives.

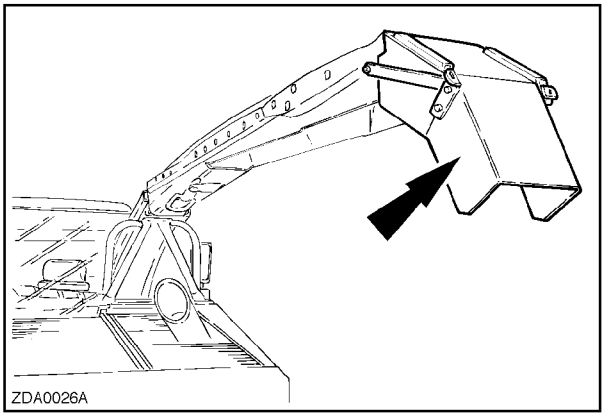
NOTE: *The kit includes 6 additional baffles.*

HEAVY DUTY SPOUT LINER

When operating in sandy conditions where the normal spout liner wears too fast, a heavy duty spout liner can be installed.

SPOUT DEFLECTORS

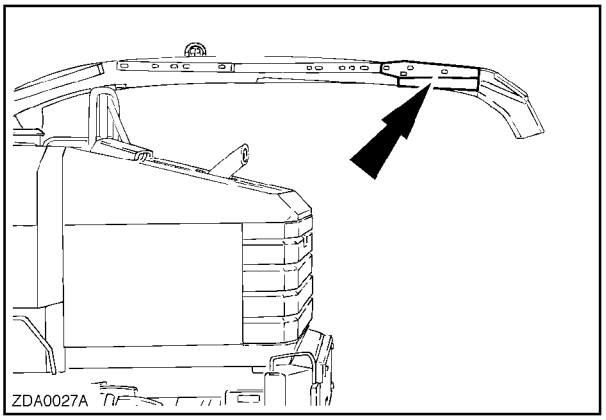
Two different spout deflectors are available, one for harvesting grass and one for harvesting maize. The maize deflector's end is narrower to allow for better direction of the crop jet.



8

SPOUT EXTENSION

A 60 cm long extension allows to fill the trailer sideways when working with an 8-row maize attachment.



9

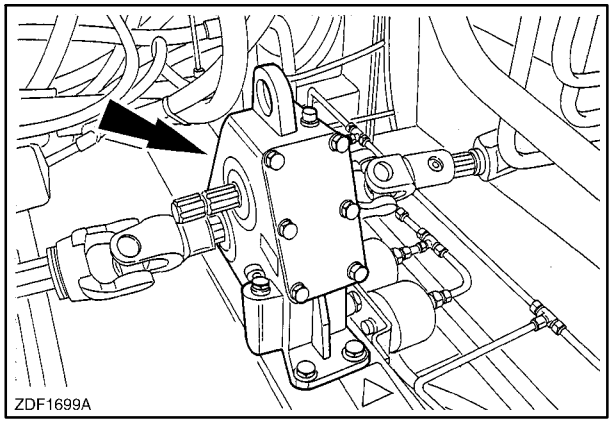
HEAVY DUTY BLOWER LINER

When operating in sandy conditions where the normal blower liner wears too fast, a heavy duty blower liner can be installed.

HIGH SPEED BLOWER KIT

The high speed blower kit increases the blower speed by 10 % (from 739 rpm to 818 rpm). High blower speed ensures a more powerful unloading and can be used when harvesting grass silage with relatively high dry matter content (> 35%).

It is therefore recommended in areas where strong winds are prevailing or where frequently preference is given to rear loading.



10

AUTO-PILOT KIT

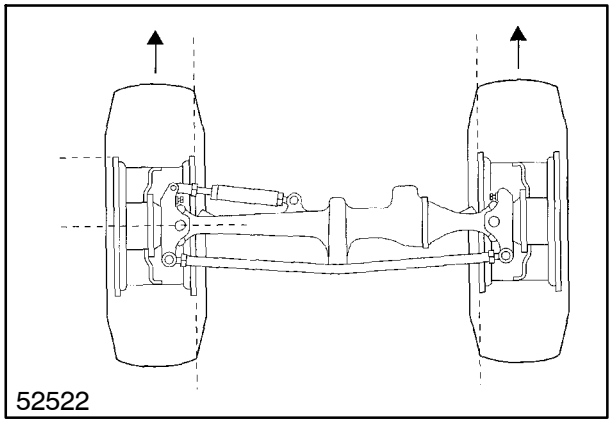
This kit automatically guides the machine along the rows, which makes it extremely useful when installed on row crop attachments.

NOTE: *The kit in fact comprises two kits, one for the row crop attachment and one for the base unit.*

FOUR-WHEEL DRIVE KIT

When ground conditions are difficult, mechanical rear-wheel drive can be engaged not only for additional traction, but also for positive steering. It can be engaged or disengaged on the move from within the cab.

Ensure the machine has the correct front and rear wheel combination when installing the four-wheel drive kit.



11

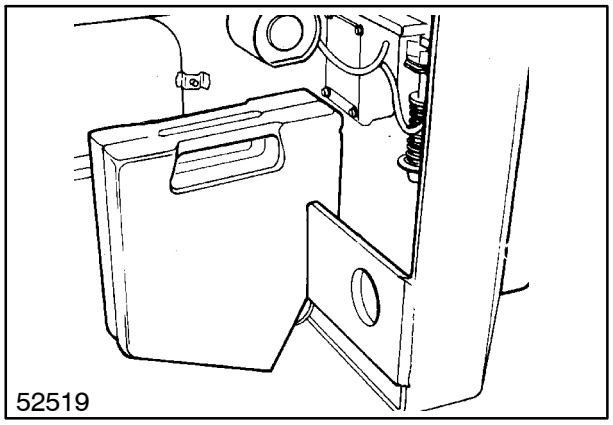
COUNTERWEIGHTS

Counterweights improve the stability of the forage harvester when equipped with heavy attachments, such as a 6-row crop attachment or a row insensitive crop attachment.

Refer to section 4 “Lubrication and Maintenance”, paragraph “Counterweights” to know the recommended amount and combination of counterweights which will depend upon the attachment type and the rear axle type used.

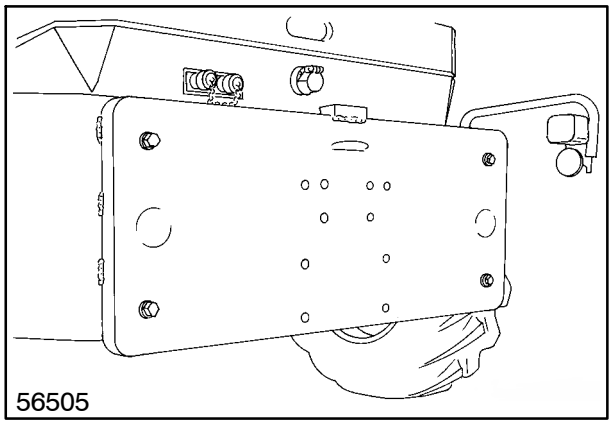
Three types of counterweights are available:

- Suitcase weights



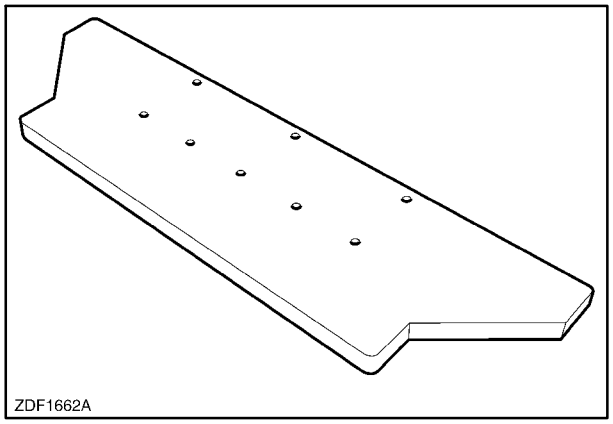
12

- Vertical weight



13

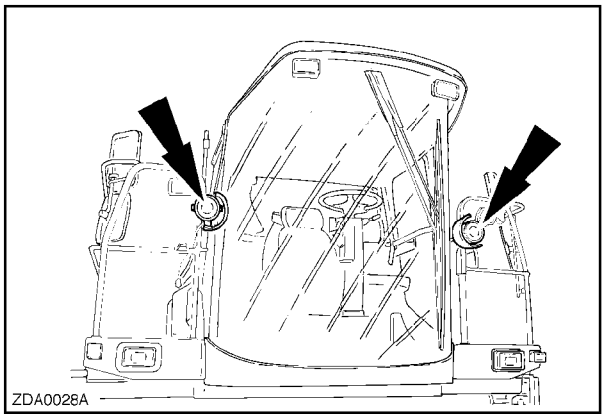
- Horizontal weights



14

ADDITIONAL LIGHTING

An additional lighting kit is available for those cases where the attachment obstructs the headlights when driving on the road. The lights can be installed either on the operator's platform railing or on the attachment itself.



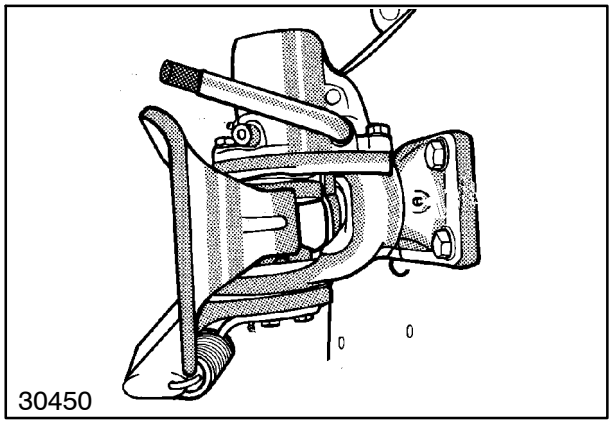
15

HITCH

The forage harvester can be equipped with a hitch to pull its own trailer (4-wheel wagon type) either in the field or just for road transport purposes.

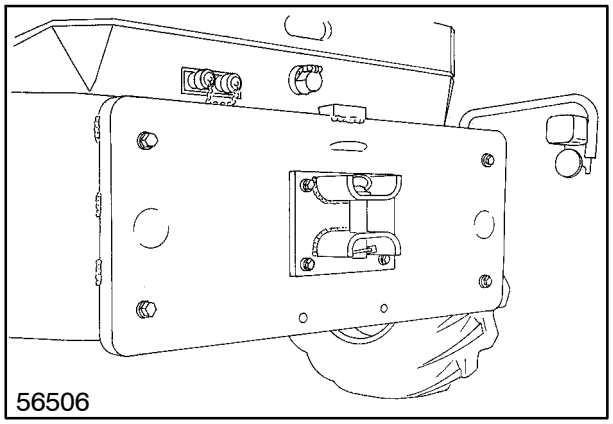
Two types of hitches are available:

- a pivoting hitch (Rockinger)



16

- A fixed hitch



17

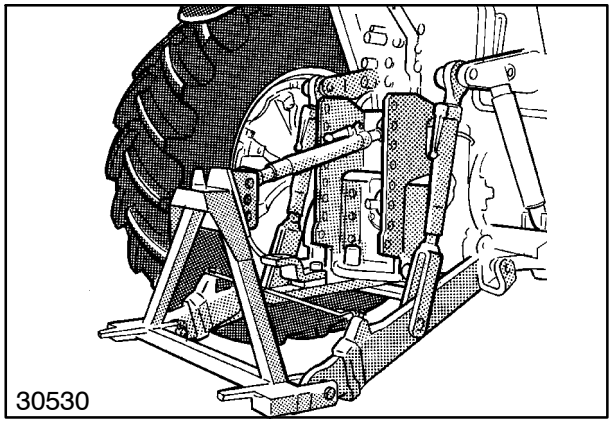
CHOPPER BODY A-FRAME

By means of this frame the whole chopper body can easily be removed from the forage harvester.

Refer to Section 4 "Lubrication and Maintenance", paragraph "Splitting of components" on how to use the frame.

WARNING

Do not use the A-frame for transporting the chopper body on the road.

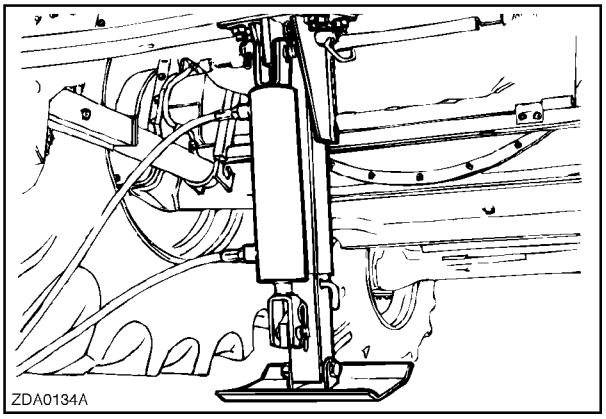


18

CHOPPER BODY HYDRAULIC JACK

By means of this jack the whole chopper body can be supported in such a way that the forage harvester can be driven backwards, away from the chopper body.

Refer to Section 4 “Lubrication and Maintenance”, paragraph “Splitting of components’’ on how to use the hydraulic jack.



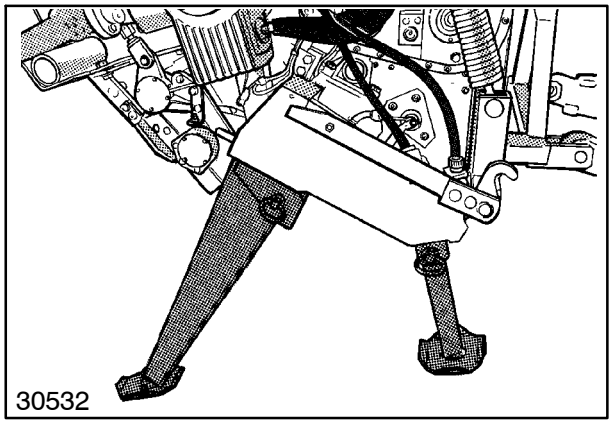
19

CHOPPER BODY STAND

The chopper body stand consists of four legs to position the chopper body separate from the base unit.

Refer to Section 4 “Lubrication and Maintenance”, paragraph “Splitting of components’’ on how to use the stand.

The stand can also be used in combination with the hydraulic jack.

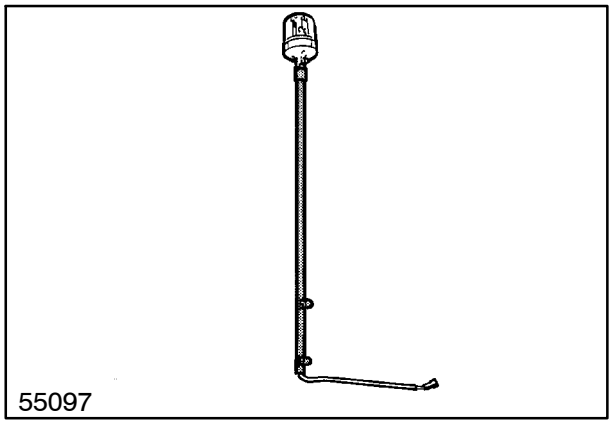


20

REVOLVING FLASHING LIGHTS

When travelling on public roads two revolving flashing lights can be installed to provide advance warning to other road users that the vehicle is wide and slow-moving.

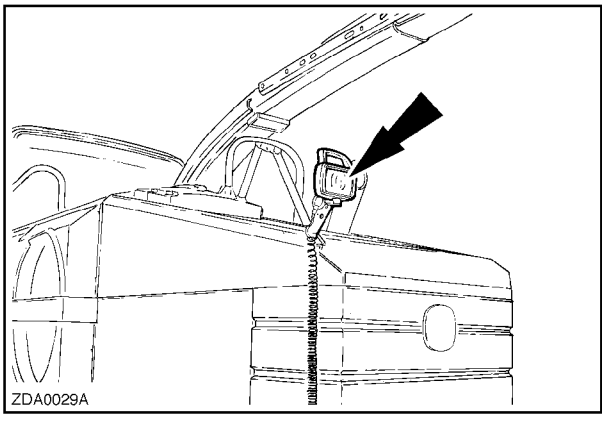
NOTE: *It depends on local traffic legislation whether this equipment is mandatory or forbidden for road transport.*



21

REVERSE DRIVE OPERATING LIGHT

This light can be installed on top of the engine hood. It can also be used as a portable light.

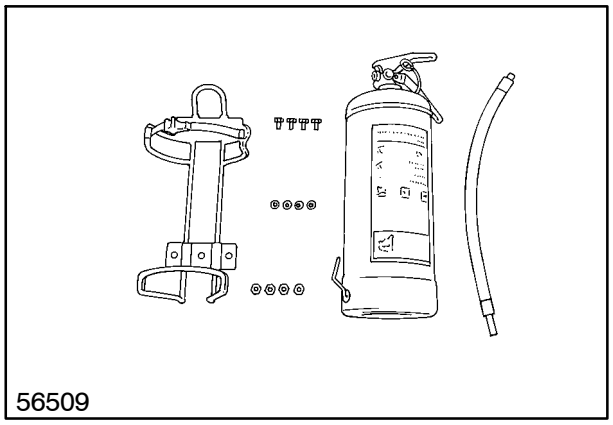


22

FIRE EXTINGUISHER

A 6 kg fire extinguisher can be installed within arm's reach of the operator.

NOTE: *In some countries the fire extinguisher is mandatory.*



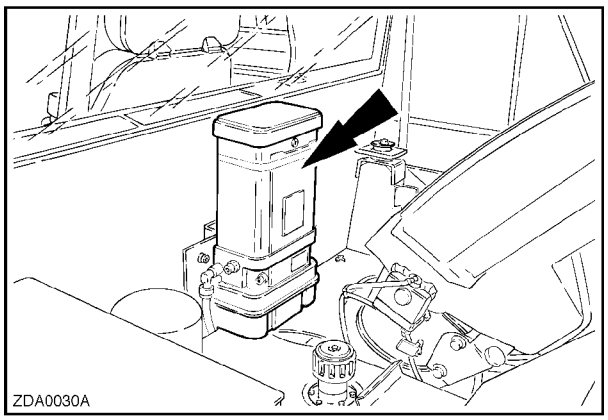
23

AUTOMATIC LUBRICATION KIT

Every forage harvester and most of the attachments can be equipped with an automatic lubrication kit, either as a factory-fitted option or as a field-installed accessory.

When installed, this kit lubricates almost every fixed greasing point on the machine and the attachment.

NOTE: *This kit does not lubricate rotating greasing points.*

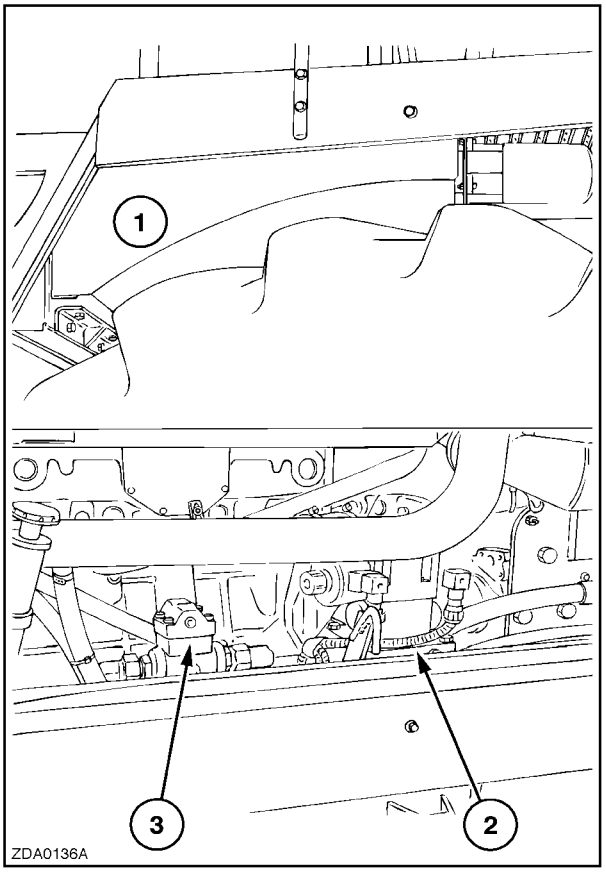


24

HIGH CAPACITY AUXILIARY HYDRAULIC KIT

The high capacity auxiliary hydraulic kit is intended to be used when big trailers need to be tipped fast.

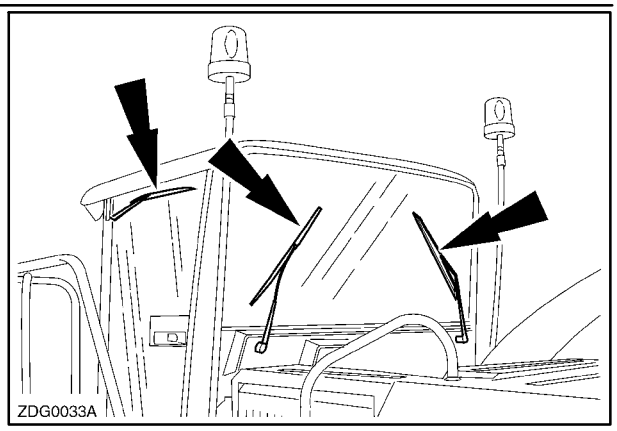
The kit consists of a separate hydraulic tank 1, pump 2, valves 3, connection points and operating electrics.



25

REAR AND SIDE WINDOW WIPER KIT

This kit contains single wipers for the left and right-hand cab door windows and two wipers for the cab rear window.



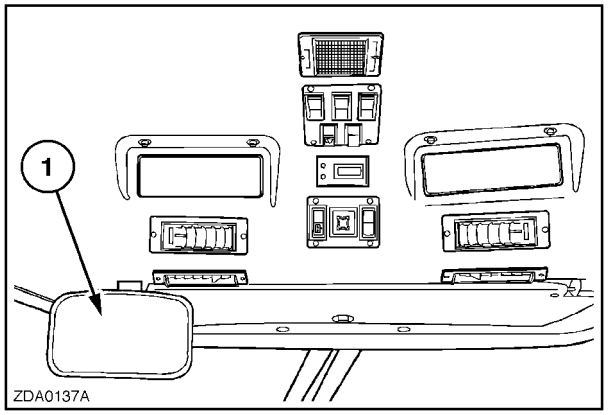
26

WINDSCREEN WASHER KIT

A windscreen washer kit can be installed to clean the windscreen.

REAR VIEW MIRROR (INSIDE CAB)

An extra rear view mirror 1 can be installed inside the cab.



27

FINAL DRIVE EXTENSIONS

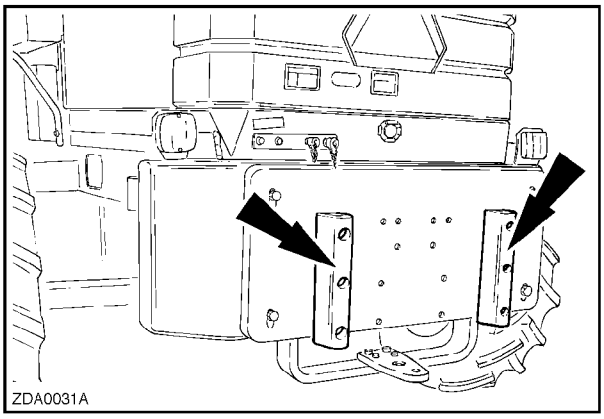
Final drive extensions are needed when extra large flotation tyres are installed.

See section 8 “Specification” to determine which tyres require final drive extensions.

NOTE: *The forage harvester becomes wider than 3 meters when wheels are installed on a machine fitted with final drive extensions.*
Check local road regulations.

RUBBER BUMPERS

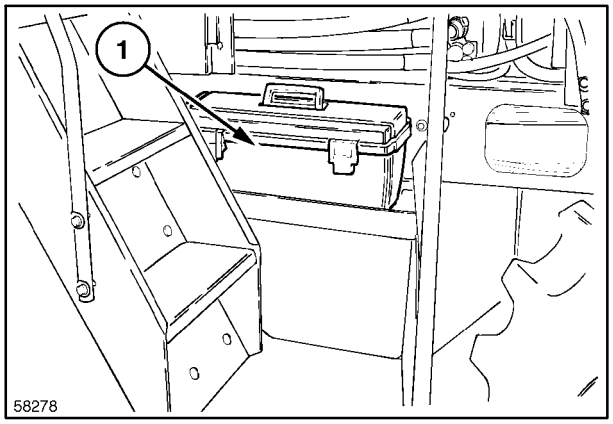
A set of rubber bumpers can be installed on the rear bumper of the forage harvester.



28

TOOLBOX

A toolbox can be installed on the left-hand side of the forage harvester at the side of the ladder to the cab.



29

SECTION 8 - SPECIFICATION

NOTE: *The specifications given below are only approximate and may vary slightly from machine and/or harvesting conditions.*

COUNTERWEIGHTS

For some attachments, counterweights are a legal requirement to ensure a safe road transport.

CAUTION

Do not use liquid weight (ballast) in wheels as this is not recommended and forbidden practice in some countries.

A general rule is to have 23% (20 km/h) of the total weight of the forage harvester, with attachment and counterweights, on the rear axle to ensure a safe road transport of the forage harvester.

When 30 km/h is allowed, the weight on the rear axle should be 28% of the total weight.

WHEELS

CAUTION

The tyres specified by the manufacturer are the only tyres approved. If non-generic or replacement tyres are used, these must be identical in size and strength [PR rating for diagonal tyres or Load Capacity for radial tyres (e.g. 167 A8)] to the specified tyres. The recommended tyre pressure has to be maintained at all times.

Only original NEW HOLLAND wheel rims should be used in combination with the tyre sizes indicated. Only these tyre/wheel rim combinations have been homologated in relation to the machine weight, width and road speed limits.

The rims should be fitted in such a way that the maximum overall machine width permitted locally on public roads is adhered to.

WHEEL NUTS TORQUE

Check the wheel nuts torque daily during the first week of operation and thereafter on a weekly basis.

TORQUE (Nm) (ft.lbs)	**min**	**max**
Traction wheel nuts torque	610 (448)	730 (537)
Steering wheel nuts torque	185 (136)	222 (163)
Steering wheel nuts torque with rear-wheel drive	410 (302)	492 (362)

RECOMMENDED TYRES AND TYRE INFLATION PRESSURES

The recommend pressures are at the same time the minimum pressures allowed by the manufacturer.

The tables below list the recommended tyre inflation pressures to obtain maximum field performance, with a special header attached.

One column gives the maximum permitted inflation pressure. This maximum pressure is recommended when the machine is to be driven frequently on public roads to avoid excessive tyre wear.

TYRE SELECTION CHART FX - NA

TRACTION TYRES	Width	Rim	Offset	Track	Overall width	Max. Pressure
650/75R32-172A8-DT822	644	DWW21A	24 -37	2349 2471	2993 3115	4.0
800/65R32-172A8-DT822	798	DWW25A	27 -40	2343 2477	3141 3275	3.0

(*) Only 2WD
(**) Only 4WD

STEERING TYRES		Width	Rim	Offset	Track	Overall width	Pressure
460/70R24-150A8-IT520	(*)	464	W15L	-105	2480	3031	3.0
480/70R24-138A8-DT812	(**)	499	W15L	-11	2397	2942	2.0

Allowed

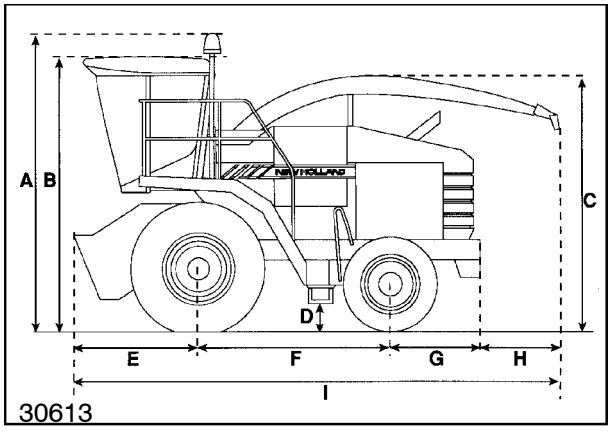
DIMENSIONS [CM]

NOTE: *The specifications given below are defined for a forage harvester without attachment or counterweights. They are only approximate and may slightly vary from machine and according to harvesting and machine conditions.*

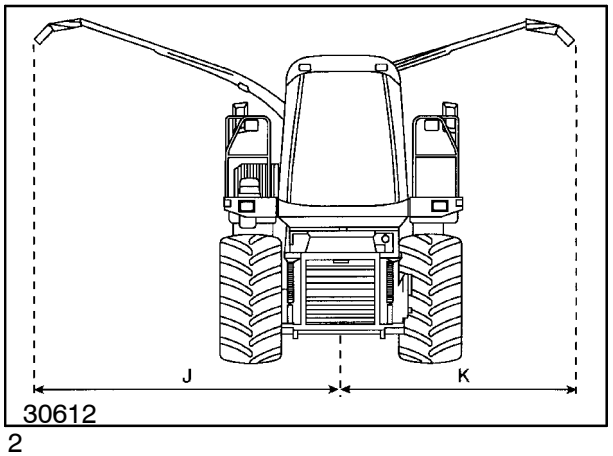
OVERALL DIMENSIONS [cm] – Figures 1 and 2

TYRE	A	B	C	D	E	F		G		H(1)	I(1)	J(1) (max)	K(1) (max)
						2WD	4WD	2WD	4WD				
800/65R32	399	372	344	45	166	256	251	129	131	99	647	450	335

(1) Add 60 cm to H, I, J and K in case 8-row spout extension is installed.



1



2

OVERALL LENGTH WITH ATTACHMENTS AND OVERALL ATTACHMENT WIDTH [cm] (transport position)

Attachment		Overall length(1)	Overall attachment width
Pick-up	346W 356W 366W	763	290 331
Maize attachment	300N6	872	299
	RI450	875	341
	RI600	875(2)	341

(1) Overall length = from the foremost part of the attachment to the rear of the spout deflector

(2) Add 60 cm in case 8-row spout extension is installed

NOTE: *The direct cut attachment is supposed to be pulled behind the forage harvester.*

TECHNICAL DATA

	FX30	FX40	FX50	FX60
WEIGHT (Base unit with crop processor)				
2WD	11200 Kg	11200 Kg	11200 Kg	11700 Kg
4WD	11400 Kg	11400 Kg	11400 Kg	12250 Kg
PICK-UP				
Type	346W / 356W	346W / 356W	346W / 356W / 366W	346W / 356W / 366W
MAIZE ATTACHMENT				
Type (Number of rows)	300N6 (6) RI450 (6)	300N6 (6) RI450 (6)	300N6 (6) RI450 (6) RI600 (8)	300N6 (6) RI450 (6) RI600 (8)
DIRECT CUT				
Type (Number of rows)	DC510	DC510	DC510	DC510
FEED ROLLS				
Number	4	4	4	4
Type	Independent upper and lower frame	Independent upper and lower frame	Independent upper and lower frame	Independent upper and lower frame
Max. feed opening	1840 cm^2	1840 cm^2	1840 cm^2	1840 cm^2
Number of speeds	Infinite variable	Infinite variable	Infinite variable	Infinite variable
Driveline	Hydrostatic/Mechanical	Hydrostatic/Mechanical	Hydrostatic/Mechanical	Hydrostatic/Mechanical

	FX30	FX40	FX50	FX60
Metal detector	Metalert™ III	Metalert™ III	Metalert™ III	Metalert™ III
CUTTERHEAD				
Width	76.0 cm	76.0 cm	76.0 cm	76.0 cm
Diameter	61.0 cm	61.0 cm	61.0 cm	61.0 cm
Speed	1229 rpm	1229 rpm	1229 rpm	1229 rpm
Weight	340 kg	340 kg	340 kg	340 kg
Number of knives	Up to 12, full width	Up to 12, full width	Up to 12, full width	Up to 12, full width
Type of knives	Helicoidal, double-edged	Helicoidal, double-edged	Helicoidal, double-edged	Helicoidal, double-edged
Grass	Standard	Standard	Standard	Standard
Maize	Prebevelled	Prebevelled	Prebevelled	Prebevelled
Cuts/min (12 knives)	14.748	14.748	14.748	14.748
Chop length	4 – 120 mm	4 – 120 mm	4 – 120 mm	4 – 120 mm
Knife sharpening and shearbar adjustment	Adjust-O-Matic™	Adjust-O-Matic™	Adjust-O-Matic™	Adjust-O-Matic™
Driveline	Set of 8 belts - hydraulic tensioner	Set of 8 belts - hydraulic tensioner	Set of 8 belts - hydraulic tensioner	Set of 8 belts - hydraulic tensioner
Reversing	Hydraulic motor	Hydraulic motor	Hydraulic motor	Hydraulic motor
Protection	Shearbolt (2)	Shearbolt (2)	Shearbolt (2)	Shearbolt (2)

	FX30	FX40	FX50	FX60
CROP PROCESSOR				
Concept	Two rolls rotating at different speeds	Two rolls rotating at different speeds	Two rolls rotating at different speeds	Two rolls rotating at different speeds
Distance between rolls	2 to 20 mm Full in-cab control Spring-loaded upper roll	2 to 20 mm Full in-cab control Spring-loaded upper roll	2 to 20 mm Full in-cab control Spring-loaded upper roll	2 to 20 mm Full in-cab control Spring-loaded upper roll
Roll diameter	200 mm	200 mm	200 mm	200 mm
Number of teeth	77T / 99T / 132T	77T / 99T / 132T	77T / 99T / 132T	77T / 99T / 132T
Upper roll speed	3620 rpm	3620 rpm	3620 rpm	3620 rpm
Lower roll speed	4070 rpm	4070 rpm	4070 rpm	4070 rpm
Driveline	4-HA power belt driven from cutterhead pulley via an overrun clutch	4-HA power belt driven from cutterhead pulley via an overrun clutch	4-HA power belt driven from cutterhead pulley via an overrun clutch	4-HA power belt driven from cutterhead pulley via an overrun clutch
BLOWER				
Type	4-paddle cone, perpendicular to feeding direction	4-paddle cone, perpendicular to feeding direction	4-paddle cone, perpendicular to feeding direction	4-paddle cone, perpendicular to feeding direction
Diameter	102.6 cm	102.6 cm	102.6 cm	102.6 cm
Speed	739 rpm 818 rpm [accessory]	739 rpm 818 rpm [accessory]	739 rpm 818 rpm [accessory]	739 rpm 818 rpm [accessory]
Driveline	Mechanical	Mechanical	Mechanical	Mechanical
Protection	Shearbolt (1)	Shearbolt (1)	Shearbolt (1)	Shearbolt (1)

	FX30	FX40	FX50	FX60
SPOUT				
Rotation reach	210°	210°	210°	210°
Rotation	Hydraulic	Hydraulic	Hydraulic	Hydraulic
Deflector	- Grass or maize - Hydraulic actuation	- Grass or maize - Hydraulic actuation	- Grass or maize - Hydraulic actuation	- Grass or maize - Hydraulic actuation
Double rotation speed	Yes	Yes	Yes	Yes
ELECTRICAL SYSTEM				
Battery	2 x 12 V 92 Ah	2 x 12 V 92 Ah	2 x 12 V 92 Ah	2 x 12 V 92 Ah
Alternator output	190 A	190 A	190 A	130 A
Electronic system	Controlled Area Network (CAN) with fibre optics	Controlled Area Network (CAN) with fibre optics	Controlled Area Network (CAN) with fibre optics	Controlled Area Network (CAN) with fibre optics
MAIN HYDRAULIC and HYDROSTATIC SYSTEM				
Reservoir capacity	46 litres	46 litres	46 litres	46 litres
Entire system capacity	130 litres	130 litres	130 litres	130 litres

	FX30	FX40	FX50	FX60
Hydrostatic system - Feed roll drive				
Pump capacity	100 cc/rev	100 cc/rev	100 cc/rev	100 cc/rev
Motor capacity	100 cc	100 cc	100 cc	100 cc
Maximum pressure Charge pump Hydrostatic pump	 24 bar 420 bar	 24 bar 420 bar	 24 bar 420 bar	 24 bar 420 bar
Hydrostatic system - Traction				
Pump capacity	100 cc/rev	100 cc/rev	100 cc/rev	100 cc/rev
Motor capacity	100 cc	100 cc	100 cc	100 cc
Maximum pressure Charge pump Hydrostatic pump	 28 bar 420 bar	 28 bar 420 bar	 28 bar 420 bar	 28 bar 420 bar
Work hydraulics				
Pump capacity	19.2 cc/rev	19.2 cc/rev	19.2 cc/rev	19.2 cc/rev
Max. working pressure	160 bar	160 bar	160 bar	160 bar
Hydr. reversing motor	26.5 cc/rev	26.5 cc/rev	26.5 cc/rev	26.5 cc/rev
Rear auxiliary hydraulics	Option	Option	Option	Option
Front auxiliary hydraulics	Standard	Standard	Standard	Standard

	FX30	FX40	FX50	FX60
Steering hydraulics				
Pump capacity	6 cc/rev	6 cc/rev	6 cc/rev	6 cc/rev
Max. working pressure	140 bar	140 bar	140 bar	140 bar
Shock valve setting	200 bar	200 bar	200 bar	200 bar
LOW PRESSURE HYDRAULICS				
Reservoir capacity	7 litres	7 litres	7 litres	7 litres
Pump capacity	1.57 cc/rev	1.57 cc/rev	1.57 cc/rev	1.57 cc/rev
Max. working pressure	30 bar	30 bar	30 bar	30 bar

	FX30	FX40	FX50	FX60
ENGINE				
Type	IVECO - AIFO F3A Turbocharged ATA-Intercooled	IVECO - AIFO F3B Turbocharged ATA-Intercooled	IVECO - AIFO F3B Turbocharged ATA-Intercooled	CATERPILAR C15 Electronic fuel system Turbocharged ATA-Intercooled
Weight	1,150 kg	1,150 kg	1,150 kg	1,150 kg
Nominal speed	2100 rpm	2100 rpm	2100 rpm	2100 rpm
Nominal power ISO TR14396	265 kW 360 hp (cv)	315 kW 428 hp (cv)	354 kW 481 hp (cv)	392 kW 533 hp (cv)
Maximum power at rated speed 1800 rpm	284 kW 386 hp (cv)	338 kW 460 hp (cv)	379 kW 515 hp (cv)	420 kW 571 hp (cv)
Cycle	4 stroke	4 stroke	4 stroke	4 stroke
Number of cylinders	6 in line	6 in line	6 in line	6 in line
Displacement	10500 cc	12900 cc	12900 cc	14600 cc
Injection	Direct	Direct	Direct	Direct
Cooling system liquid	50 % softened water + 50 % antifreeze Paraflu	50 % softened water + 50 % antifreeze Paraflu	50 % softened water + 50 % antifreeze Paraflu	50 % softened water + 50 % antifreeze Paraflu
Crankcase capacity without oil filters	24 litres	27 litres	27 litres	32 litres
Oil filter capacity	3.5 litres	3.5 litres	3.5 litres	2 litres
Fuel tank capacity	910 litres	910 litres	910 litres	910 litres

	FX30	FX40	FX50	FX60
TRACTION				
Type	Hydrostatic	Hydrostatic	Hydrostatic	Hydrostatic
Gears	4	4	4	4
Road speed with traction tyres 800/65R32				
- 1st gear forward/ reverse	8.3 / 8.3 km/h	8.3 / 8.3 km/h	8.3 / 8.3 km/h	8.3 / 8.3 km/h
- 2nd gear forward/ reverse	14.2 / 14.2 km/h	14.2 / 14.2 km/h	14.2 / 14.2 km/h	14.2 / 14.2 km/h
- 3rd gear forward/ reverse	22 / 15.0 km/h	22 / 15.0 km/h	22 / 15.0 km/h	22 / 15.0 km/h
- 4th gear forward/ reverse	** / 15.0 km/h ** Max speed calibration dependent on local legislation	** / 15.0 km/h ** Max speed calibration dependent on local legislation	** / 15.0 km/h ** Max speed calibration dependent on local legislation	** / 15.0 km/h ** Max speed calibration dependent on local legislation
Differential ratio	11/50	11/50	11/50	11/50
Final drive ratio	10/75	10/75	10/75	10/75
STEERING AXLE				
Type	Fixed Adjustable Powered (Mechanically driven)	Fixed Adjustable Powered (Mechanically driven)	Fixed Adustable Powered (Mechanically driven)	Fixed Adustable Powered (Mechanically driven)

	FX30	FX40	FX50	FX60
DISCOVERY CAB				
Multi-function lever	Standard	Standard	Standard	Standard
Electronic attachment height control	Standard	Standard	Standard	Standard
InfoView™ monitor	Standard	Standard	Standard	Standard
Air-suspended seat	Standard	Standard	Standard	Standard
Instructional seat	Standard	Standard	Standard	Standard
Instructional foot rest	Standard	Standard	Standard	Standard
Ventilation and heating	Standard	Standard	Standard	Standard
Airconditioning	Standard	Standard	Standard	Standard
Heated rear windscreen	Standard	Standard	Standard	Standard
Electrical setting of distance between crop processor rolls	Standard	Standard	Standard	Standard
Auto-Pilot	Accessory	Accessory	Accessory	Accessory
Noise reduction kit	Accessory	Standard	Standard	Standard

SECTION 9 - 1ST 50 HOUR SERVICE SHEETS

CHECK AND ADJUST, AS REQUIRED (Customer copy)

1. Clean the rotary air intake screens ☐
2. Clean the radiators ☐
3. Clean the cab air filter ☐
4. Clean the engine air intake filter ☐
5. Perform the 50 hour grease zerk service ☐
6. Check the cutterhead gearbox oil level ☐
7. Check the blower gearbox oil level ☐
8. Check the high speed blower gearbox oil level (if installed) ☐
9. Check the attachment drive gearbox oil level ☐
10. Check the hydroloc gearbox oil level ☐
11. Check the upper feed roll drive gearbox oil level ☐
12. Check the traction gearbox oil level ☐
13. Check the final drive gearbox oil level ☐
14. Check the 4WD gearbox oil level (if installed) ☐
15. Check the 4WD steering axle oil level (if installed) ☐
16. Check the engine oil level ☐
17. Check the hydraulic/hydrostatic oil level ☐
18. Check the main clutch hydraulic system oil level ☐
19. Check the high capacity rear hydraulic system (if installed) ☐
20. Check the coolant level ☐
21. Check the brake fluid level ☐
22. Check the grease level of the automatic greasing system (if installed). ☐
23. Check the function of the parking brake (if installed). ☐
24. Check/adjust the brake system ☐
25. Check the tyre pressure/ tyre condition. ☐
26. Tighten the wheel nuts to prescribed torque. ☐
27. Check the electrolyte level in the batteries ☐
28. Check all belt tensions ☐
29. Check/sharpen the knives ☐
30. Adjust the shearbar ☐
31. Check the smooth roll scraper adjustment ☐
32. Check the steering ball joints ☐
33. Drain the water from the fuel prefilter/water separator ☐
34. Check the road lights. ☐

THE INSPECTION HAS BEEN MADE

FORAGE HARVESTER MODEL NO: **FORAGE HARVESTER SERIAL NO:**

SIGNATURE OWNER, DATE: **SIGNATURE DEALER, DATE:**

CHECK AND ADJUST, AS REQUIRED (Dealer copy)

1. Clean the rotary air intake screens ☐
2. Clean the radiators ☐
3. Clean the cab air filter ☐
4. Clean the engine air intake filter ☐
5. Perform the 50 hour grease zerk service ☐
6. Check the cutterhead gearbox oil level ☐
7. Check the blower gearbox oil level ☐
8. Check the high speed blower gearbox oil level (if installed) ☐
9. Check the attachment drive gearbox oil level ☐
10. Check the Hydroloc™ gearbox oil level ☐
11. Check the upper feed roll drive gearbox oil level ☐
12. Check the traction gearbox oil level ☐
13. Check the final drive gearbox oil level ☐
14. Check the 4WD gearbox oil level (if installed) ☐
15. Check the 4WD steering axle oil level (if installed) ☐
16. Check the engine oil level ☐
17. Check the hydraulic/hydrostatic oil level ☐
18. Check the main clutch hydraulic system oil level ☐
19. Check the high capacity rear hydraulic system (if installed) ☐
20. Check the coolant level ☐
21. Check the brake fluid level ☐
22. Check the grease level of the automatic greasing system (if installed). ☐
23. Check the function of the parking brake (if installed). ☐
24. Check/adjust the brake system ☐
25. Check the tyre pressure/ tyre condition. ☐
26. Tighten the wheel nuts to prescribed torque. ☐
27. Check the electrolyte level in the batteries ☐
28. Check all belt tensions ☐
29. Check/sharpen the knives ☐
30. Adjust the shearbar ☐
31. Check the smooth roll scraper adjustment ☐
32. Check the steering ball joints ☐
33. Drain the water from the fuel prefilter/water separator ☐
34. Check the road lights. ☐

THE INSPECTION HAS BEEN MADE

FORAGE HARVESTER MODEL NO: **FORAGE HARVESTER SERIAL NO:**

SIGNATURE OWNER, DATE: **SIGNATURE DEALER, DATE:**

SECTION 10 - INDEX

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NEW HOLLAND

Operator's Manual Supplement

Automatic Central Greasing

FX30, FX40, FX50, FX60

FOREWORD

This Operator's Manual Supplement updates the model FX30-40-50-60 Forage Harvester's Operator's Manual, edition n° 87058965, if the forage harvester is equipped with an Automatic central greasing system.

Please read this Supplement in conjunction with the Operator's Manual supplied with the machine.

This supplement is to be read carefully before the forage harvester is used.

87058967 5/06

SECTION 1 - GENERAL INFORMATION AND SAFETY

TO THE OWNER

Your Forage Harvester can be equipped with automatic central greasing as an accessory, which is either fitted in the plant or installed by your local New Holland dealer.

Automatic central greasing reduces the maintenance time of your machine drastically since it automatically provides an optimal amount of grease to almost all fixed grease points of your forage harvester.

Since all grease points that are linked to the system are greased with smaller intervals than required for manual greasing, bearing life is prolonged.

The amount of grease that is provided to the grease point is chosen in such a way that no grease is spilled, which means that generally less grease is needed compared to manual greasing.

Grease points that are mounted on rotating parts are not lubricated by the automatic central greasing system. Therefore these grease points still have to be greased manually.

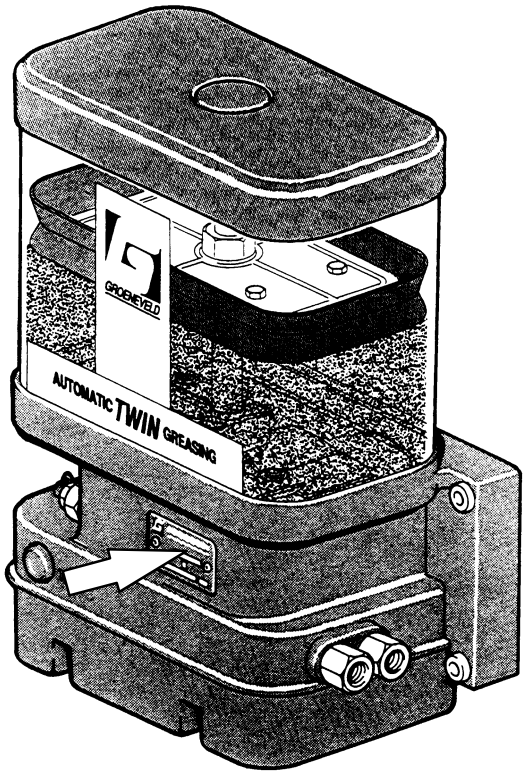
The oil levels in oil tanks, engine and gearboxes still have to be checked according to the instruction given in Section 4 “Lubrication and Maintenance” in the Operator’s Manual.

PRODUCT IDENTIFICATION

The serial number of the grease pump of the automatic central greasing system is stamped on a metal plate that is attached to the front of the pump (facing the rear of the machine).
The grease pump is situated behind the cab.

Record here the grease pump's serial number for quick reference:

Grease pump serial n°.....



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1

SAFETY

Before you operate the machine, read section 1 "General Information and Safety" of the forage harvester Operators Manual thoroughly.

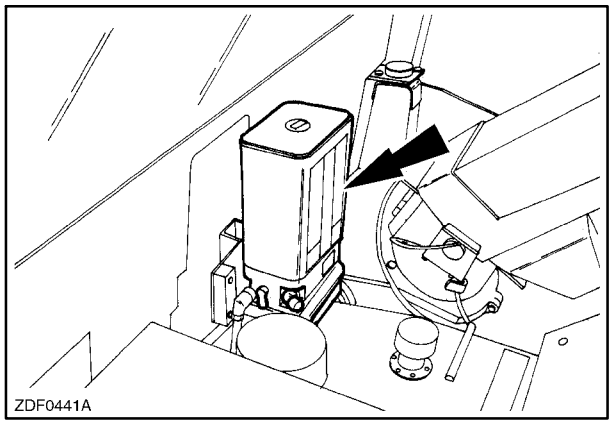
⚠ CAUTION ⚠

Some pictures in this manual may show the safety guarding open or removed to better illustrate a particular feature or adjustment.
Ensure to close or reinstall all guards before operating the machine.

SECTION 2 - CONTROLS, INSTRUMENTS AND OPERATION

GREASE PUMP

The automatic grease pump with integrated reservoir is located behind the cab.



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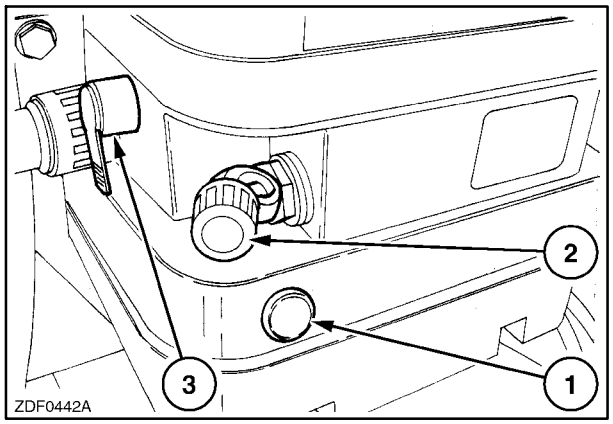
1. Test push button

   This button initiates one or more cycle-tests, to de-aerate the system or to re-initialise the control unit.

2. Reservoir fill connection.

3. De-aerating and grease overflow opening



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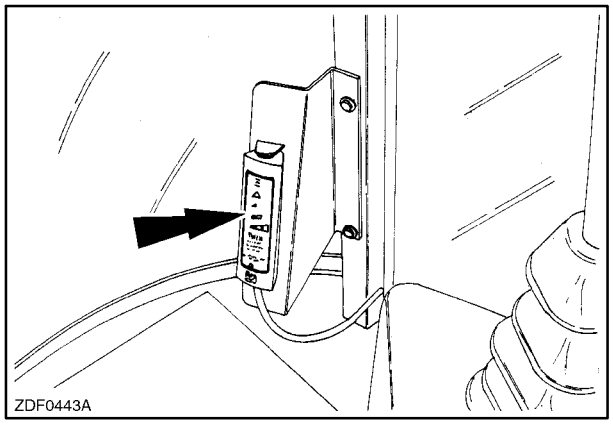
DISPLAY

The display is situated in the cab on RHS cab style close to the floor.



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It contains:

1. Low grease level alarm led indicating the reservoir needs to be refilled.

2. System failure alarm led indicating the system is out of operation caused by an empty reservoir or system failure.

NOTE: *The system can be reset with the test push button on the pump, after refill or repairs.*

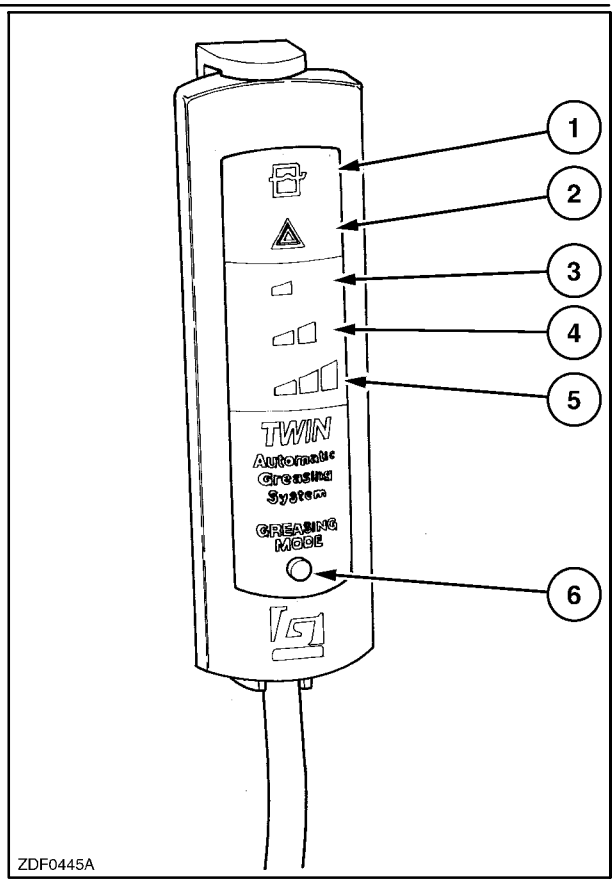
3. Light duty greasing mode indicator led

4. Normal duty greasing mode indicator led

5. Heavy duty greasing mode indicator led

6. Greasing mode button

To select the required duty mode, press the greasing mode button repeatedly until the corresponding led illuminates.



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SECTION 3 - FIELD AND SITE OPERATION

DESCRIPTION OF OPERATION

GENERAL

The automatic central greasing system consists of an electrically driven piston pump (1) with an integral grease reservoir (2.9 litres), a "two-in-one" main pipe (2), distribution blocks (3) with metering units (4) and secondary pipes (5) that are connected to the lubrication points.

A microprocessor based control unit is integrated into the pump.

The control unit software determines the run of a lubrication cycle.

At the beginning of a cycle grease is pumped into main pipe (A) until the maximum grease pressure is reached at the end of this pipe.

The pump is switched off and pipe (A) is kept under pressure for the same duration as it took the pump to pressurize the main pipe.

The third step is the venting period or pressure reduction phase; the shuttle valve opens the connection between main pipe (A) and the reservoir, allowing grease to flow from pipe (A) back into the pump reservoir. During the last part of the cycle time the shuttle valve is closed for the start of cycle B (interval).

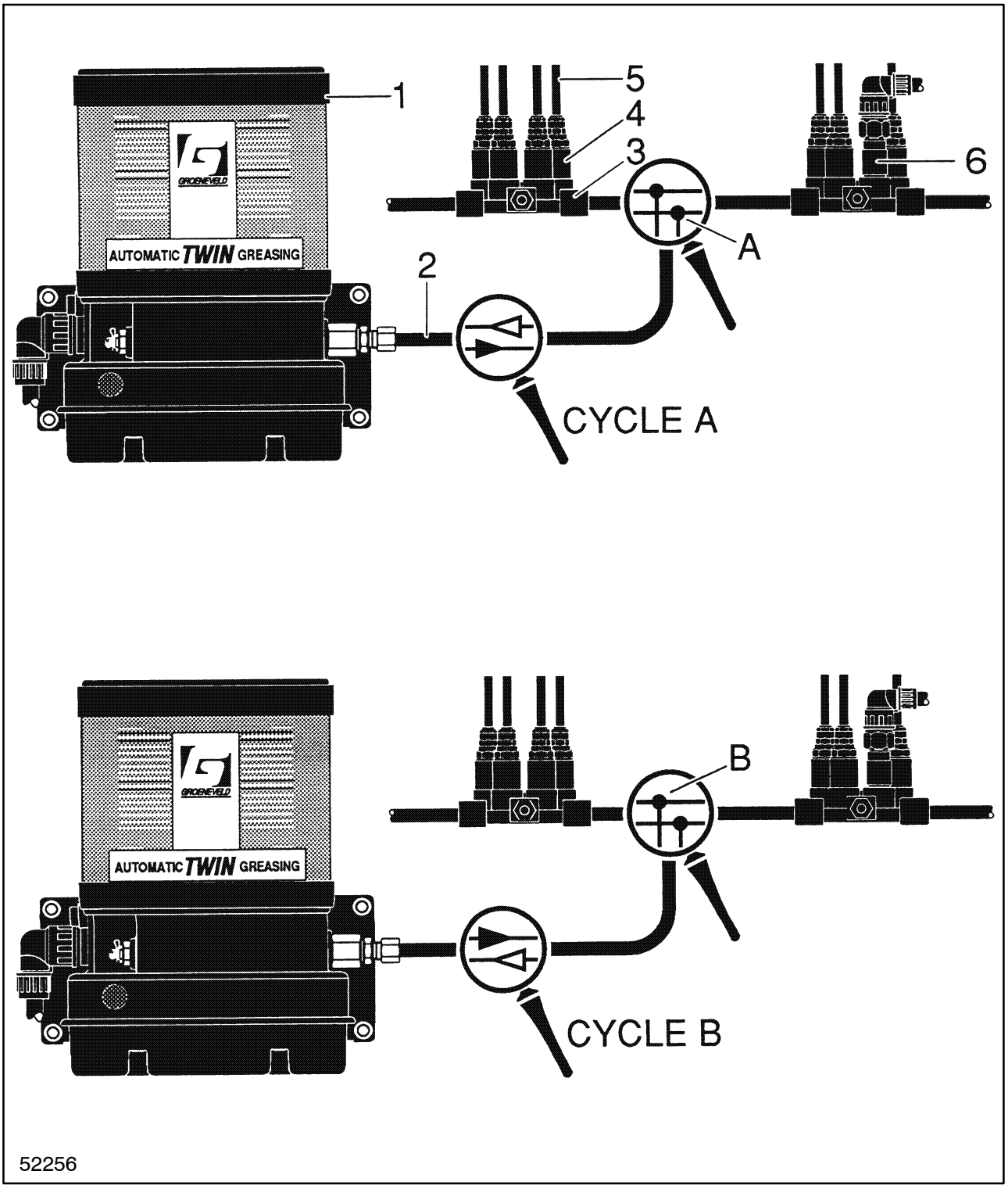
During the next lubrication cycle, grease is pumped into the main pipe (B). Other than that there is no difference in the cycle run.

When one main pipe is pressurized the other is depressurized. This is done by the integrated shuttle valve. The 5/2 way valve controls the flow of grease between pump, reservoir and both main pipes.

When pressurized, the metering units simultaneously pass a fixed, preselected metered quantity of grease to the points to be lubricated. This is alternately done via main pipe (A) or (B). The grease pressure is also used to reset the piston in the metering unit.

This forced recharging allows the use of NLGI grade 2 greases under all circumstances.

At the end of the main pipe a grease pressure switch (6) is fitted. When the preset grease pressure is reached, the pump is signalled to stop. The length of the pumping time is therefore influenced by circumstances such as the temperature and the length of the main pipe.


1
5
4
3
6
A
2
AUTOMATIC TWIN GREASING
CYCLE A
B
AUTOMATIC TWIN GREASING
CYCLE B
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METERING UNITS

Various types of metering units are installed for the automatic greasing system on your machine, each providing a different grease delivery. A careful selection of the type of metering unit ensures that each lubrication point will obtain the correct amount of grease during each cycle.

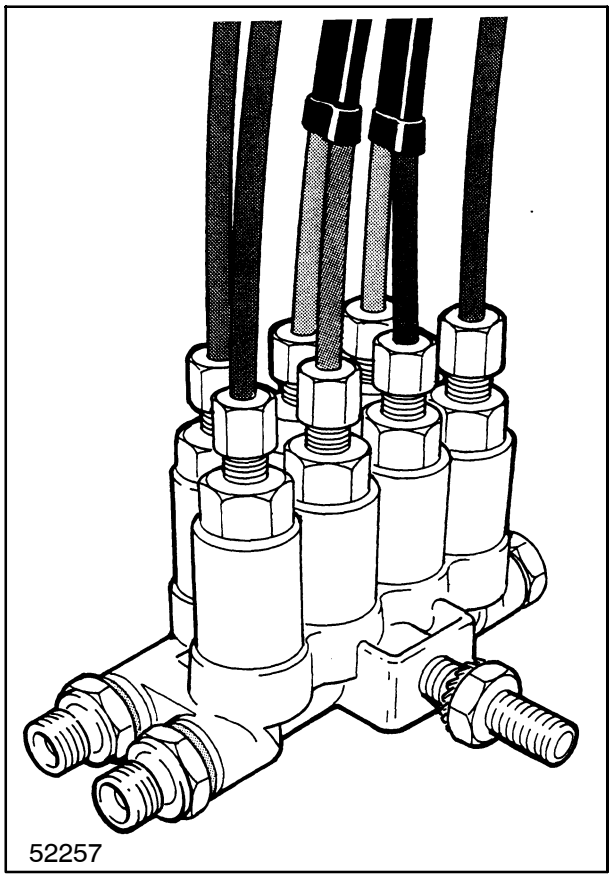
The metering units are mounted in groups onto a distribution block. This distyribution block is a brass manifold onto which the primary grease pipe (main pipe) is connected. Ports which are not used are filled with stops.

The metering units are also made of brass and their sealed construction makes them especially well-suited for use on a forage harvester.

The metering units should not be opened so as to prevent dirt from entering and thereby eliminating a possible source of failures.

Various types of metering units are installed on your machine, each with its own grease delivery.

The grease delivery of a metering unit can be derived from the number that is stamped into the metering unit.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Metering unit n°	Grease delivery (cc)
0	0.025
1	0.05
3	0.10
4	0.20
5	0.25
6	0.30
7	0.35
8	0.40
8.5	0.70
9	1.00

DISTRIBUTION BLOCKS

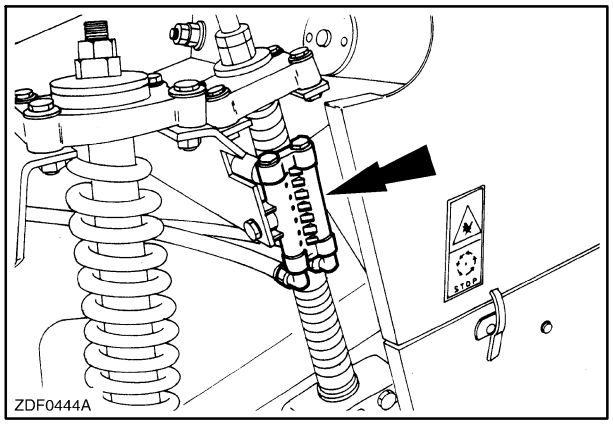
On the forage harvester 4 distribution blocks are installed:

- Upper feed rolls module distribution block
- Cutterhead distribution block
- Crop processor distribution block (if installed)
- Spout rotation distribution block

Upper feed rolls module distribution block

The upper feed rolls module distribution block is located on the left-hand side and on top of the cutterhead.

Grease is supplied to 6 grease points (refer to the operator's manual).



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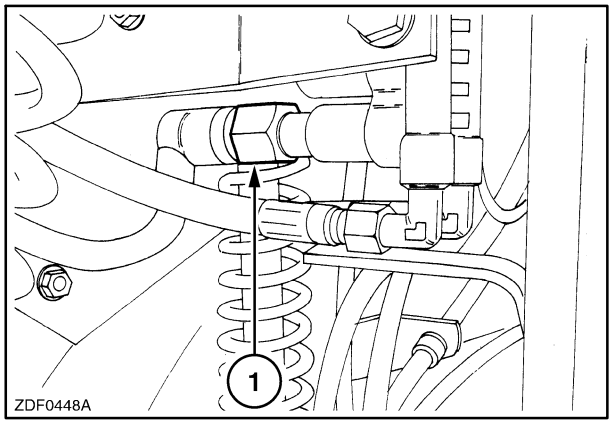
The pressure sensor (1) is located on the upper feed rolls module distribution block



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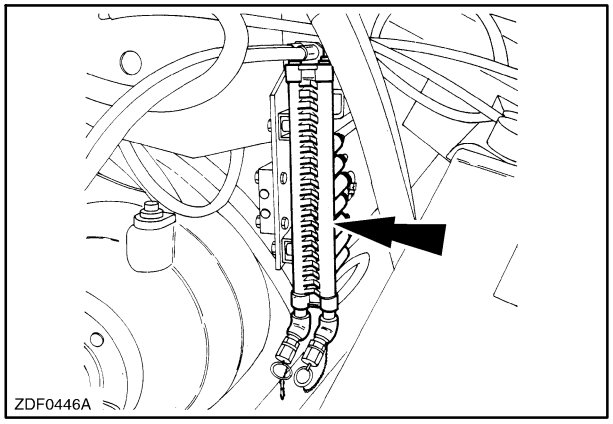
Cutterhead distribution block

The cutterhead distribution block is located on the right-hand side of the cutterhead.

Grease is supplied to:

- 13 grease points on standard units
- 15 grease points if crop processor electric controls kit is installed.



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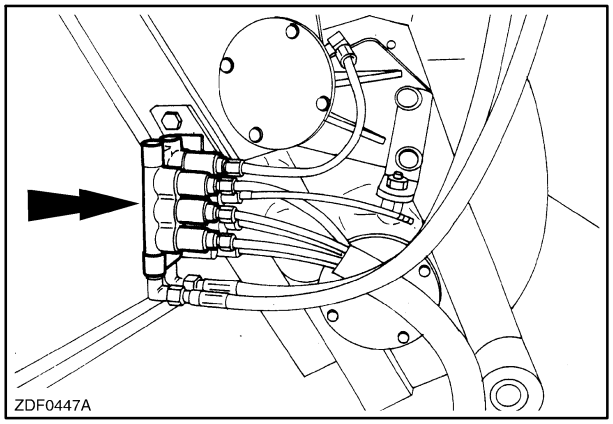
Crop processor distribution block

The crop processor distribution block is located on the right-hand side of the crop processor.

Grease is supplied to 7 grease points.



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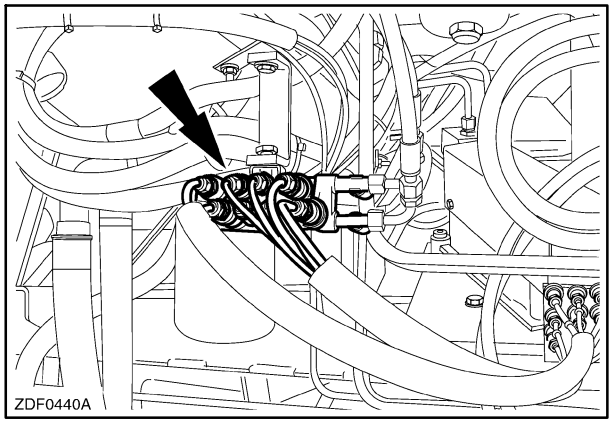
Spout rotation distribution block

The spout rotation distribution block is located underneath the spout. It is inside the machine and can be reached through the right-hand screen door.

Grease is supplied to 9 grease points.



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GREASING MODE

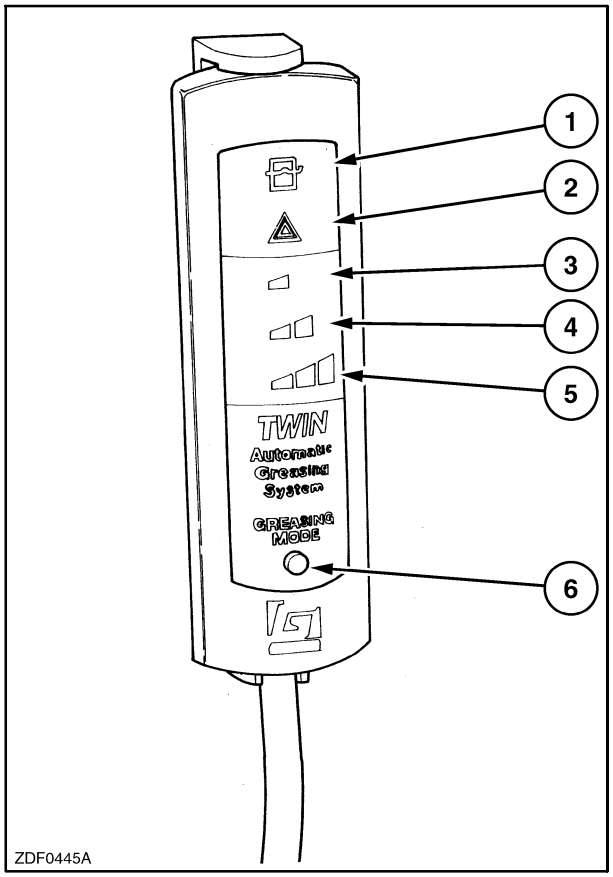
Forage harvesters can operate under varying circumstances. While in one case slight lubrication is sufficient (low lubrication frequency, therefore a long cycle time), in the other case, intensive lubrication is required (high lubrication frequency, therefore a short cycle time).

This is why on your machine a grease mode button is installed on the display allowing the choice between three different preprogrammed cycle times.

Depending on the operating conditions, the machine operator proceeds as follows to select one of the positions:

1. Switch on the ignition.
2. Within 60 seconds the active cycle-mode is shown on the display.
3. To change the greasing mode, press the greasing mode button (6) at the bottom of the display repeatedly until the corresponding led (3, 4, 5) illuminates.

NOTE: *The automatic central greasing system on your forage harvester is factory-set at normal duty greasing mode.*



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TEST PUSH BUTTON

The test push button in the grease pump is used to manually override the automatic system and run single or continuous cycle tests of the system.
The use of these system tests is explained in paragraph 4 ‘‘Adjustment and maintenance’’.

FIELD OPERATION

Before you operate your machine in the field, read the following instructions throroughly.

- Make sure the reservoir of the grease pump is filled.

- Remember the automatic central greasing system only lubricates the fixed grease points on your machine. Therefore make sure all rotating grease points are properly greased according to the instructions listed in section 4 “Lubrication & Maintenance’’ in the Operator’s Manual.

- The system is only powered when the cutterhead is engaged. Disengaging and reengaging the cutterhead does not reset the timer in the system. In other words, the grease cycle will be picked up wherever it was interrupted. Therefore it is advisable to run a single cycle test run or a continuous cycle test run after periods of standstill (see section 4 ‘‘Lubrication & Maintenance“).

- Make absolutely sure the right greasing mode is selected. In case of doubt, choose the heavy duty greasing mode.

NOTE: *Failure to choose the right greasing mode may result in severe damage to the machine.*

- Walk around the machine and make a visual check of the system. Look for loose grease lines, broken or damaged distribution blocks and metering units, and damage to the grease pump or reservoir.

- If the forage harvester’s attachment is equipped with central greasing, make sure the system is connected to the base unit.

SECTION 4 – LUBRICATION AND MAINTENANCE

LUBRICATION

The automatic central greasing system that is installed on your forage harvester lubricates the grease points covered by the centralized greasing system. The grease banks are replaced with distribution blocks with metering units.

With this sytem installed, the grease points on rotating or moving parts are not covered by this system and need to be greased manually as described in the Operator's Manual.

MAINTENANCE

Maintenance of the automatic central greasing system can be combined with the usual maintenance of the vehicle or of the installation.

Check the pump paying special attention to the following points:

- The grease level (refill in good time).
- Damages of the exterior.

Check that the system functions well paying special attention to the correct functioning of the various functions.

For this purpose, execute a system test (refer to paragraph headed “System test” further in this section). Remember that at least two cycles are required in order to check the complete system (both main pipes) is functioning well.

Check the complete system paying special attention to the following points:

- Pipe fracture in the main pipe as well as in the secondary pipes.
- Correct functioning of the metering units (there must be a fresh grease collar on the lubrication points).

IMPORTANT: *If a high-pressure (steam) sprayer is used to clean the vehicle, the pump of the greasing system must not be sprayed so as to prevent water from entering via the venting openings. Under normal operating circumstances, however, liquids cannot enter the pump.*

NOTE: *An automatic greasing system makes time-consuming manual lubrication largely superfluous. However, do not forget that all moving and rotating grease points must still be lubricated manually.*

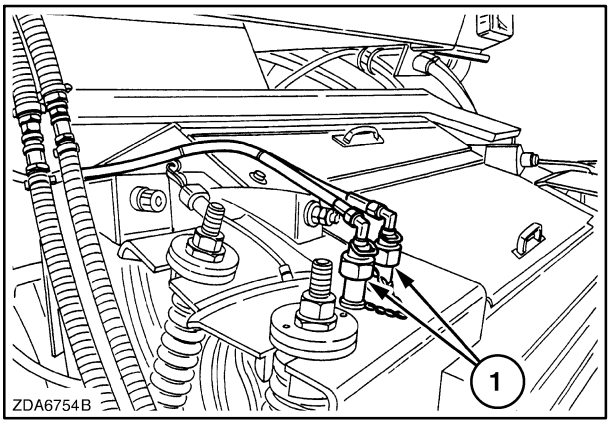
SPLITTING OF COMPONENTS

In order to quickly check the bottom feed rolls, scraper, shearbar and cutterhead of your forage harvester, the upper feed roll module can be flipped down, either with or without header.

This procedure is described in paragraph headed ‘‘Splitting of components’’ in the Operator’s Manual.

Make sure to disconnect the two screw-couplers (1) in the automatic central greasing system on the left-hand side before flipping down the upper feed rolls module.

If there is a grease line to the attachment, disconnect this one as well.



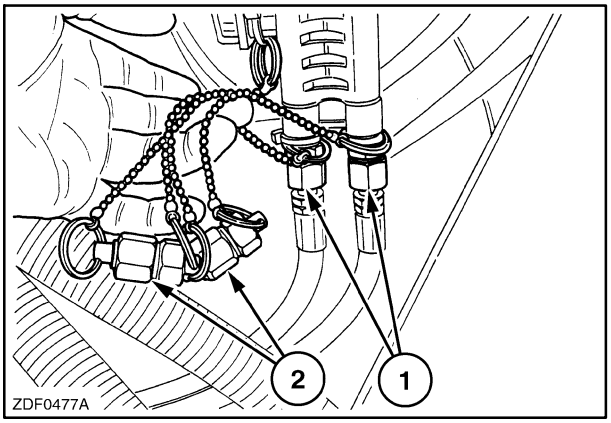
14

REMOVAL OF CROP PROCESSOR [IF INSTALLED]

In paragraph headed “Crop processor/Grass equipment’’ in the Operator’s Manual it is described how to remove the crop processor.

Make sure to disconnect the two screw-couplers (1) in the automatic central greasing system before you remove the crop processor.

Open the stops (2) and connect them respectively to the distribution block and to the grease lines.



15

METERING UINTS

In order to adjust the right amount of grease for each grease point, several metering units are available.

It is, however, not advisable to open up a metering unit. Therefore, if there is doubt about the functioning or choice of a metering unit, contact your local New Holland dealer.

SYSTEM TEST

In order to check that the greasing system functions well, a system test can be executed.

There are two possible types of system tests:

- Single cycle test.
- Continuous cycle test.

The pump is equipped with a test push button so as to enable starting a cycle test.

A cycle test may only be started provided that while the button is being depressed the system is not in the pumping phase of a running cycle. Should that be the case, there will simply be no reaction whatsoever to the fact that the test push button was depressed.

If any errors occur during the execution of the cycle test this will be indicated by the system failure alarm led on the display in the cab.

NOTE: *System data such as the total number of lubrication cycles executed, the number of error messages and the type of these errors, which will normally be stored in the memory of the control unit, will not be stored during a system test, in order to prevent a wrong impression from arising later-on when the system data is being read.*

Single cycle test run

In order to execute a single cycle test run proceed as follows:

1. Switch on the ignition.
2. Depress the test push button for 2 to 6 seconds.

Now the system will execute a single lubrication cycle. The single cycle test run executes the first three phases of a greasing cycle (pumping-phase, ON-pressure-phase and venting-phase).

The green led of the present cycle mode will start flashing (2 sec. on/2 sec. off) during the complete cycle test.

If during the cycle test any errors occur, the flashing of the led will change to the flashing code coresponding to the error in question.

A led which is continuously illuminated for two minutes indicates an error caused by a not-switching grease pressure switch at the end of the pumping phase (i.e. the switch remains either switched on or switched off).

If the lamp remains illuminated (after two minutes) as long as the ignition is on, furthermore a minimum grease level has been detected by the level switch in the reservoir.

The single cycle test ends either after the end of the first three phases of a complete cycle or after the ignition has been switched off. This means that the last phase of the cycle, the interval, is skipped.
If the ignition is once more switched on, the programme starts again at the point where the interval of the interrupted cycle (A or B) begins.

Remember that by having a single cycle test executed lubrication will only take place via one of the two main pipe channels. In order to lubricate also via the other channel a second cycle test must be executed.

Continuous cycle test run

The continuous cycle test run is executed in order to provide all lubrication points especially fast with additional grease or to vent the system.

In order to execute the continuous cycle test run, proceed as follows:

1. Switch on the ignition.
2. Depress the test push button for more than 6 seconds.

The system will now start a pumping phase. When pumping phase A is completed, pumping phase B will start immediately. The three intermediate phases (relubrication phase, pressure reduction phase and pauze) will be skipped each time. Pumping phase B will be followed by pumping phase A, etc.

During the complete cycle test the green led of the present cycle mode will flash (0.2 sec. on/0.2 sec. off) in order to indicate that a test is being executed.

If during the cycle test any errors occur, the flashing of the led will change to the flashing code corresponding to the error in question (see the explanation for a single cycle test run).

The continuous cycle test run ends after the ignition has been switched off.

VENTING THE SYSTEM

1. Ensure the grease reservoir is sufficiently filled.
2. Remove the end stops from the distribution blocks at the end of each branch of the main pipe net.
3. Switch on the ignition.
4. Depress the test push button for at least 6 seconds (‘‘continuous cycle test run’’).

The lubrication cycle will be started; grease is pumped from the reservoir into one of the channels of the main pipe.

NOTE: *Depressing the test button will only be effective if at that particular moment the system is not in the pumping phase of a running cycle.*

Each time after the maximum pumping time automatic switch-over will take place to the other main pipe channel while the pump remains switched on.

If grease without any inclusion of air leaves a distribution block, this means that venting of the main pipe branch in question has been completed.

Reinstall the end stops in all distribution blocks of the pipe pieces for which venting has been completed. In the meantime the cycle can be interrupted by switching the ignition off. The cycle can be started again by depressing the test push button.

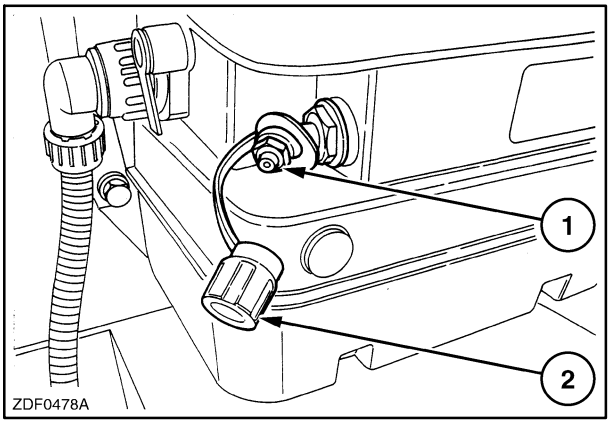
Having vented the system, execute a single cycle test run in order to check that the system functions correctly.

It is of the utmost importance to use the correct lubricant in the automatic central greasing system. Furthermore, the grease must not contain any graphite or PTFE.

FILLING THE RESERVOIR

If the grease in the reservoir of the pump, that is situated behind the cab has reached the minimum level, the reservoir must be topped up.

For this purpose the pump is equipped with a lubricating coupling (1) onto which a filling installation of a work- shop can be coupled.



16

The filling procedure is as follows:

1. In case of a new filler pump (or filler hose) start by forcing grease into the complete filler hose. This prevents air from being pumped into the reservoir with the grease.
2. Remove the dust cap (2) from the filler coupling.
3. Carefully clean the filler coupling and the coupling on the filler hose.
4. Fix the filler hose on the filler coupling.
5. Fill the reservoir up to the maximum level indicated on the reservoir.
6. Fit the dust cap (2) on the filler coupling.

If pumping is very difficult, the reason may be that the filter behind the coupling in the reservoir is dirty. Or the filler coupling and the coupling at the filler hose could be dirty. In that case, dismantle the dirty parts and clean them.

If the reservoir is topped up to above the maximum level, the surplus grease will leave the reservoir via the venting opening at the side of the pump. Air inclusions located below the follower plate can also leave the system in this way.

SECTION 5 - FAULT FINDING

In this paragraph a number of situations are described that will help you to quickly track down a problem in the automatic central greasing system, should it occur.

If a problem occurs that does not show up in this list, or in case of doubt, contact your local New Holland dealer.

Concern	Possible cause	Remedy
1. Greasing mode indicator led does not illuminate as soon as the ignition has been switched on.	a) No supply voltage (15) on pin 3.	Check fuse and replace if necessary.
	b) No earth connection to control unit or display.	Check earth connection and repair if necessary.
	c) Greasing mode indicator led defective.	Replace led.
	d) Wiring interrupted between power supply and control unit and display.	Check wiring and repair if necessary.
2. Low grease level alarm led illuminated.	Minimum grease level in reservoir reached.	Top up reservoir (this will automatically reset the error message).
3. System failure alarm led illuminated.	a) Grease reservoir empty (preventing pump from building up pressure).	Top up reservoir (this will automatically reset the error message) and vent system if necessary.
	b) Leakage in main pipe (preventing pump from building up pressure).	Repair line and vent system.
	c) Air inclusion in system. This causes insufficient pressure to be built up within the maximum pumping time.	Vent system (both main pipe channels) and execute a single cycle test run.
	d) Grease pressure switch defective.	Check switch and replace if necessary.
	e) O-ring damaged or left out during replacement of metering unit. This causes grease pressure to flow from one channel to the other.	Check metering unt and fit a new O-ring if necessary.
	f) 5/2-way shuttle valve defective. This prevents pressure from building up.	Check valve and replace if necessary.
	g) Other cause.	Contact your local New Holland dealer

Concern	Possible cause	Remedy
5. All points to be lubricated are dry and there are no error messages (system alarm led is not defective).	Preset cycle time too long for the application in question.	Set a shorter cycle time via the selector switch.
6. Too much grease on all points to be lubricated.	Preset cycle time too short for the application in question.	Set a longer time via the selector switch or contact your local New Holland dealer.
7. One or more lubrication points are dry whilst the others obtain sufficient grease.	a) Squeezed or fractured secondary pipe. b) Selected metering unit has too low a delivery. c) Metering unit not functioning.	Check secondary pipe and replace if necessary. Mount metering unit with higher delivery. Dismantle and clean the metering unit or mount a new metering unit.
8. One or more lubrication points obtain too much grease whilst the others obtain the correct amount of grease.	a) Selected metering unit has too high a delivery. b) Metering unit with internal leakage.	Mount a metering unti with a lower delivery. Remove the metering unit and mount a new one.
9. Greasing mode indicator led flashing (2 sec on/2 sec. off) during one complete cycle.	Single cycle test run being executed.	The lamp extinguishes after the end of the test cycle. This is at the end of the actual cycle or after the ignition has been switched off.
10. Greasing mode indicator led continuously flashing (0.2 sec on/0.2 sec. off) during each complete cycle.	Continuous cycle test run being executed.	The lamp extinguihes after the end of the test cycle. This is after the ignition has been switched off.

SECTION 8 - SPECIFICATION

The automatic central greasing system on your forage harvester has the following specifications:

Grease pump

Current consumption at 20°C	2A
Grease output	8 cc/minute
Temperature operating range	-25°C ... + 80°C
Reservoir contents	2.9 litres

Metering units

Grease delivery

Metering unit number	Grease delivery (cc)
0	0.025
1	0.05
3	0.10
4	0.20
5	0.25
6	0.30
7	0.35
8	0.40
8.5	0.70
9	1.00

NEW HOLLAND

Operator's Manual Supplement

Crop Pro Plus™ (Hydraulic Drive)

FX30, FX40, FX50, FX60

FOREWORD

This Operator's Manual Supplement updates the model FX30 – 40 – 50 – 60 Forage Harvester's Operator's Manual, edition n° 87058965 and describes the Crop Pro Plus™ crop processor with hydraulic driven lower roll.

Please read this Supplement in conjunction with the Operator's Manual supplied with the machine.

This supplement is to be read carefully before the forage harvester is used.

87058969 5/06

SECTION 1 – GENERAL INFORMATION AND SAFETY

INTENDED USE

The Crop Pro Plus™ crop processor is built to crack the kernels between two fast rotating serrated steel rolls when harvesting corn or full crop silage.

The Crop Pro Plus™ crop processor allows a quick changeover from corn to grass and vice versa without removing the crop processor from the forage harvester.

For the grass harvesting the crop processor rolls are moved away from the crop flow with two hydraulic cylinders.

SAFETY

Before you operate the machine, read the Safety precautions in your operator's manual.

⚠ CAUTION ⚠

Some pictures in this manual may show the safety guarding open or removed to better illustrate a particular feature or adjustment. Ensure to close or reinstall all guards before operating the machine.

ACCESS TO MACHINE COMPONENTS

Before reading this chapter, read the following safety warnings first.

DANGER

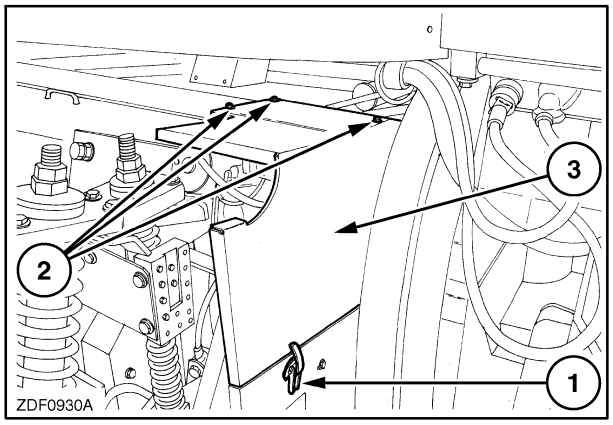
Never allow anyone to stand or hang on the forage harvester access ways while the forage harvester is in motion. These access ways are only provided for entering and servicing the (stopped) forage harvester in a safe way.

CAUTION

Always mount and leave the forage harvester in a safe way, i.e. use the steps and guard rails provided and maintain a 3-point contact at all times.

CHOPPER BODY UPPER SAFETY GUARD

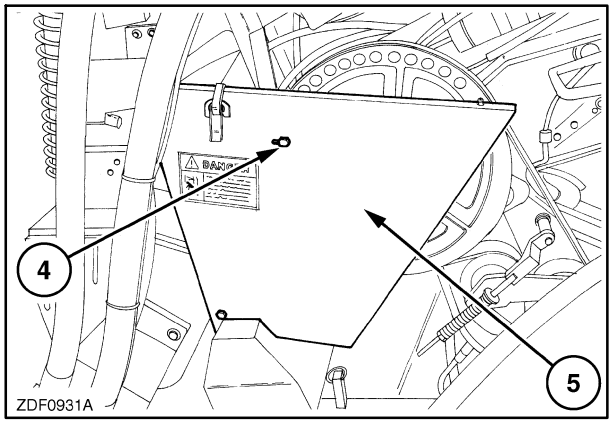
Open lock 1 and loosen the three bolts 2 and remove the upper safety guard 3, to have access to the Crop Pro Plus™ crop processor drive belt.



1

CHOPPER BODY LOWER SAFETY GUARD

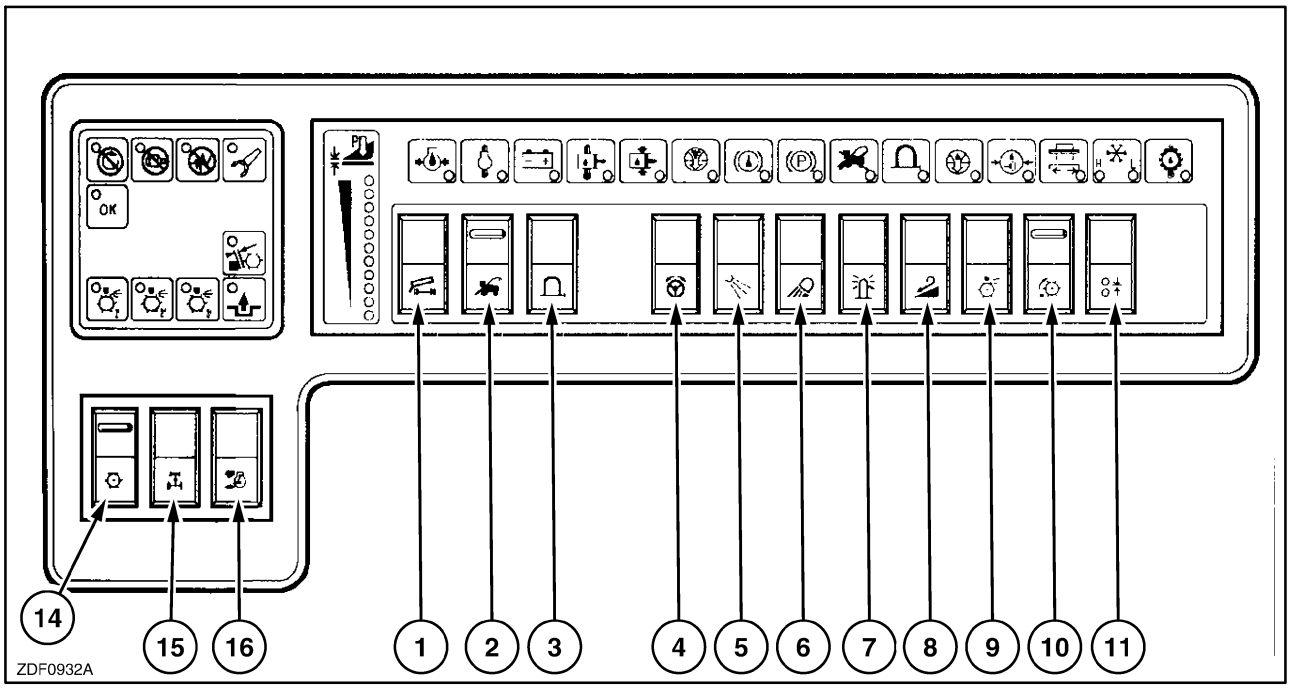
Remove the chopper body upper safety guard 3 (Fig. 1). Remove the two bolts 4 and remove the chopper body lower safety guard 5 to gain access to the Crop Pro Plus™ crop processor drive belt.



2

SECTION 2 – CONTROLS, INSTRUMENTS AND OPERATION

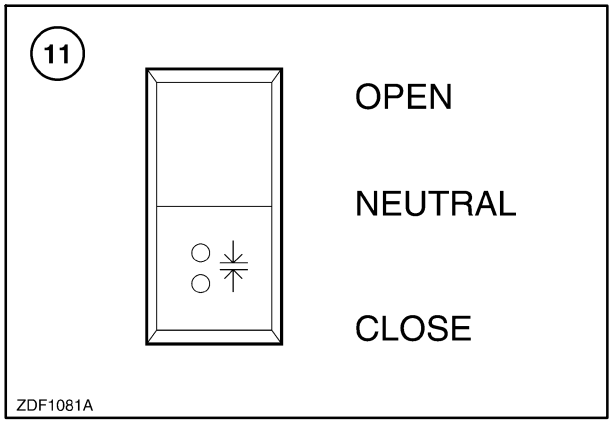
CONTROL SWITCHES



1

Crop Pro Plus™ crop processor rolls clearance rocker switch.

When pushed on OPEN, the crop processor rolls will open up until their maximum clearance (18 mm) is reached. When pushed on CLOSE, the rolls will go to their minimum clearance (2 mm). As soon as the switch is pushed OPEN or CLOSE, the crop processor roll distance will automatically be displayed on the InfoView monitor. When the switch is released, it will go to its NEUTRAL position and the motion will stop.



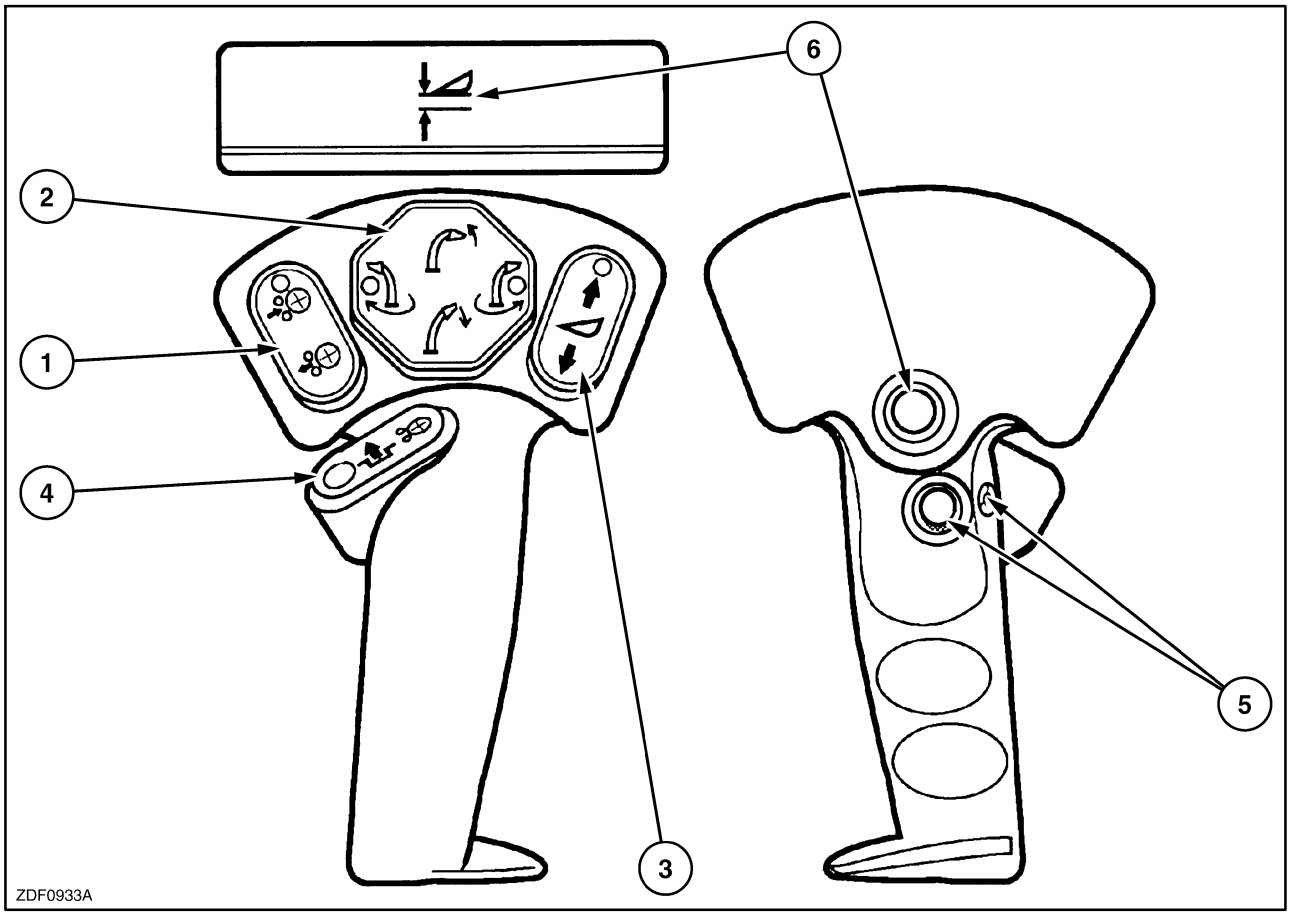
2

IMPORTANT: *The harvest switch must be in HARVEST position.*

IMPORTANT: *You may have to release the hydraulic pressure on the Crop Pro Plus ™ crop processor rolls in order to be able to increase the gap of the rolls. (Refer to Section 3 Field and site operation).*

MULTIFUNCTION LEVER AND ARMREST MODULE

MULTIFUNCTION LEVER

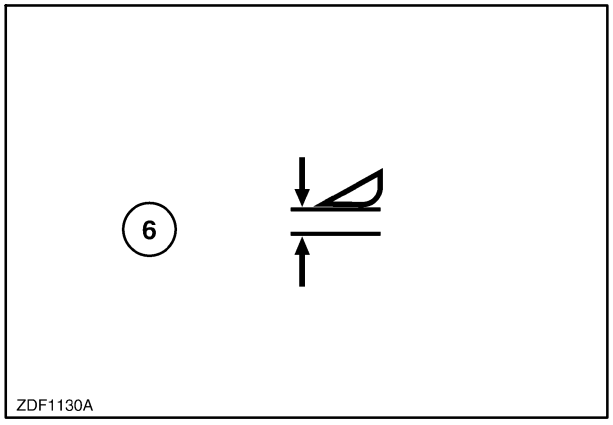


3

- Automatic attachment height control button + shift function

  When this button is pressed and released the attachment will automatically lower (or rise) to the height that is pre-set by one of the automatic attachment height potentiometers.

NOTE: *In order to do this the attachment height control selector switch has to be either in the stubble height or ground pressure position and the cutterhead has to be engaged.*



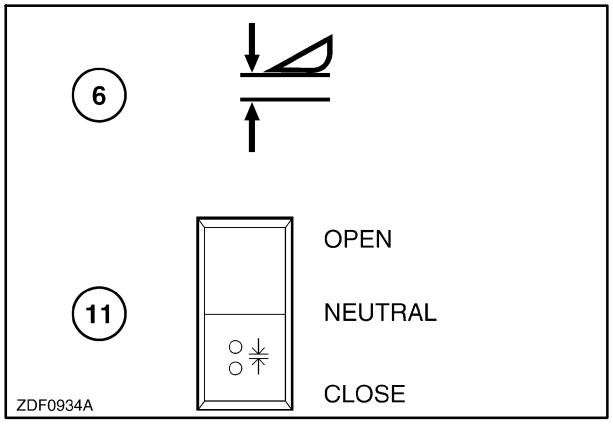
4

- Shift function – Front auxiliary hydraulics control.

  When this button is pushed, the front hydraulics can be operated by the spout height control switch in the cab floor.

- Shift function – Crop Pro Plus™ crop processor control.

  When the shift button 6 is depressed the Crop Pro Plus™ crop processor rolls can be moved to their working position (rolls gap 2 – 18 mm) by depressing the crop processor switch 11 CLOSE and to their rest position (rolls gap 180 mm) by depressing the crop processor switch OPEN.



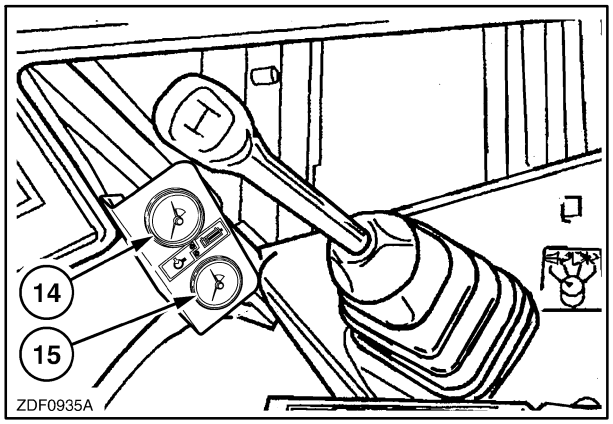
5

CONSOLE MODULE

A panel with two pressure gauges is installed on the right–hand, bottom side in the cab when a Crop Pro Plus™ crop processor is installed.

14. Lower crop processor roll drive pressure gauge. This gauge show the hydraulic pressure in the drive circuit of the lower crop processor roll when in operation.

15. Pressure gauge for the Crop Pro Plus™ crop processor rolls in their working position.



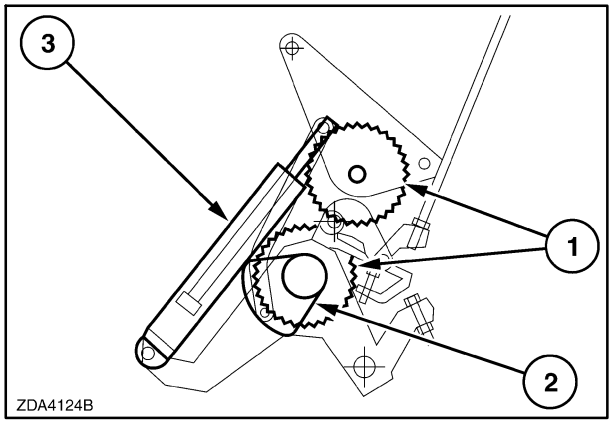
6

SECTION 3 – FIELD AND SITE OPERATION

CROP PRO PLUS™CROP PROCESSOR [IF INSTALLED]

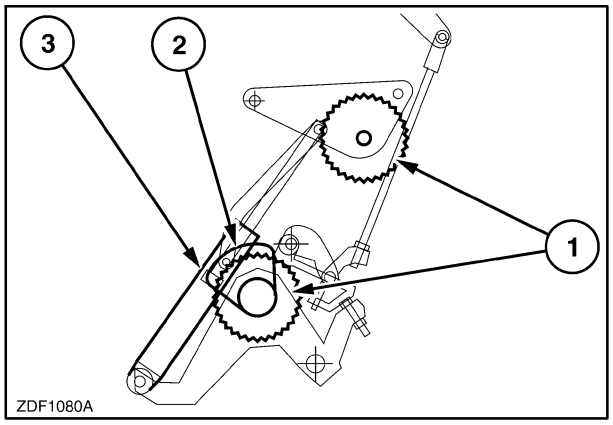
The crop processor can be used when harvesting maize or whole crop silage to ”crack” the kernels between two fast rotating serrated steel rolls.

The Crop Pro Plus™ crop processor allows quick changeover from corn to grass foraging and back again without removing the Crop Pro Plus™ crop processor. The gap between the upper and lower Crop Pro Plus™ crop processor rolls 1 can be quickly increased from 2mm (Fig. 1) to 180 mm (Fig.2) by utilising two hydraulic cylinders 3 linked to the upper roll.



1

When foraging grass crops, the Crop Pro Plus™ crop processor rolls 1 are opened fully. The lower and upper rolls are and must be continuously operated to prevent damage to the bearings. A guard plate 2 will rotate around the lower roll when the Crop Pro Plus™ crop processor rolls are opened to prevent damage and excessive wear from occurring.



2

When working for extended periods in grass it is advisable to remove the Crop Pro Plus™ crop processor to reduce the wear and the risk for stone damage on the rolls. It is not necessary to remove the electric rolls gap adjuster system.

For installation and removal of the Crop Pro Plus™ crop processor, refer to section 4 “Lubrication and maintenance”, paragraph headed “Crop Pro Plus crop processor”.

The upper Crop Pro Plus™ crop processor roll is belt driven directly from the cutterhead shaft and is therefore engaged whenever the cutterhead is engaged.

The lower Crop Pro Plus™ crop processor roll is hydraulically driven and is engaged whenever the cutterhead is engaged.

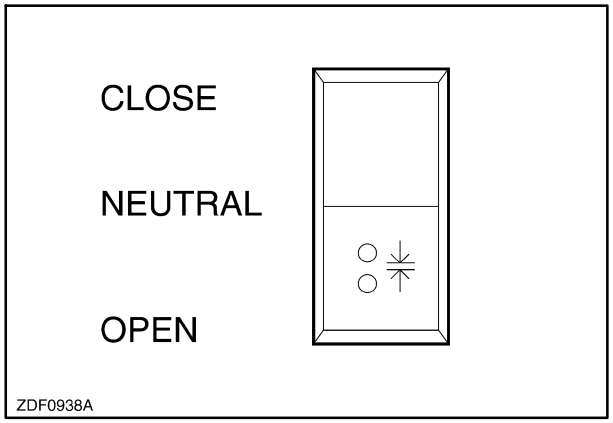
NOTE: *Since the Crop Pro Plus ™ crop processor upper roll drive pulley is equipped with an overrun clutch, the upper roll will not be driven when driving the cutterhead in reverse, e.g. when sharpening the knives.*

NOTE: *The oil flow to the Crop Pro Plus ™ crop processor lower roll drive will be cut off when driving the cutterhead in reverse, e.g. when sharpening the knives.*

MAIZE

When operating in maize or in full crop silage the Crop Pro Plus™ crop processor rolls clearance is adjusted electrically within a range of 2 to 18 mm.

The Crop Pro Plus™ crop processor roll clearance is adjusted with the rolls clearance switch (instrument panel). The crop processor roll clearance will be displayed on the InfoView™ monitor during adjustment.



3

NOTE: *If you experience difficulties in opening up the crop processor rolls, then you have to release the hydraulic pressure in the system. See below.*

NOTE: *After each adjustment of the crop processor rolls clearance, readjust the hydraulic pressure of the rolls. See below.*

GRASS

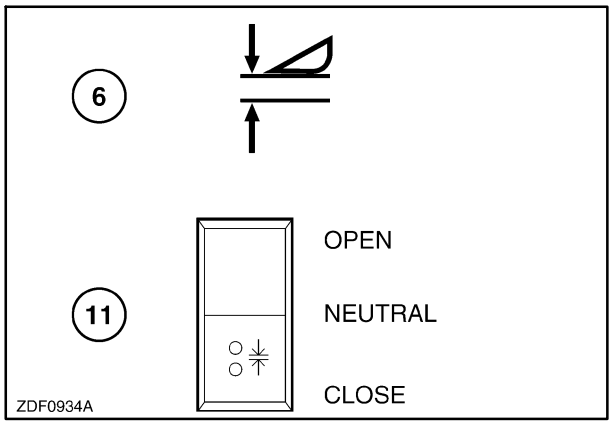
When operating in grass or when crop processing is not wanted the Crop Pro Plus™ crop processor rolls are moved to their rest position 180 mm apart from each other.

To move the Crop Pro Plus™ crop processor rolls to their rest position:

Depress the shift button and the crop processor switch OPEN now the Crop Pro Plus™ crop processor rolls are moved to their rest position (the hydraulic pressure is released).

To move the Crop Pro Plus™ crop processor rolls to their working, maize position:

Depress the shift button and the crop processor switch CLOSE now the Crop Pro Plus™ crop processor rolls are moved to their working position (hydraulic pressure is applied to the crop processor rolls). The hydraulic pressure must be at least 150 bar.



4

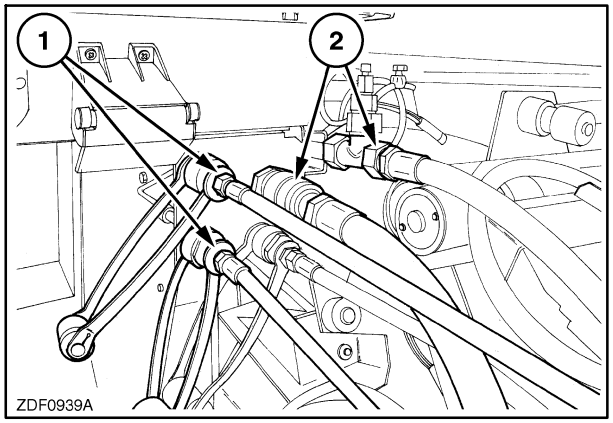
HYDRAULIC SYSTEM

CROP PRO PLUS™ HYDRAULICS

The Crop Pro Plus™ crop processor rolls clearance is controlled by its own hydraulic circuit hydraulic lines 1.

The Crop Pro Plus™ crop processor rolls pressure and position are controlled by two hydraulic cylinders and two hydraulic accumulators and the hydraulic pressure of the hydraulic system.

The lower crop processor roll is driven by the reverse sharpening motor that acts as a hydraulic pump when the cutterhead turns forward hydraulic lines 2.

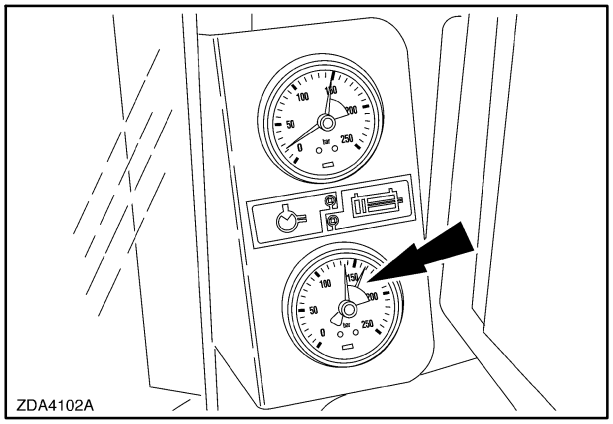


5

OPERATING THE CROP PRO PLUS™ HYDRAULICS

The Crop Pro Plus™ hydraulics is controlled with the “SHIFT” button and the “crop processor rolls rocker switch”.

NOTE: *The cutterhead must be turning*

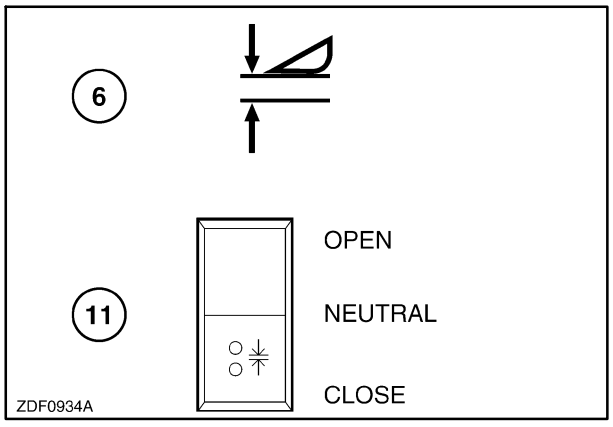


6

Switch to maize operation (bring the crop processor rolls close together to an adjustment range of 2 to 18 mm).

Depress the “shift” button and keep it depressed while pressing the “crop processor rolls rocker switch close”. Now the crop processor rolls are moved to their working position.

NOTE: *Press the button and switches until the manometer has reached its max pressure (more than 150 bar).*

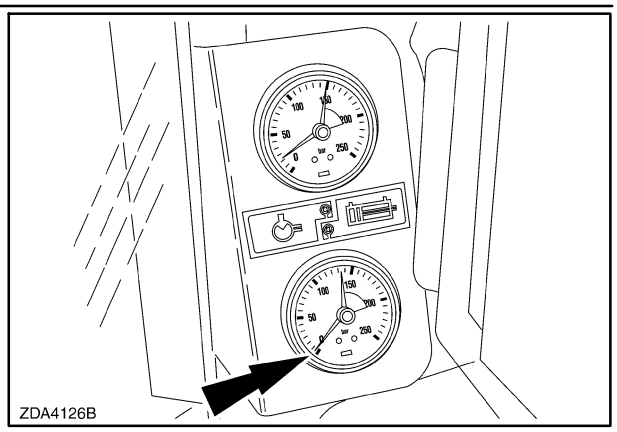


7

Switch to rest position (bring the crop processor rolls apart 180 mm).

Depress the “shift” button and keep it depressed while pressing the “crop processor rolls rocker switch OPEN”. Now the crop processor rolls are moved to their rest position.

NOTE: *Press the button and switch until the manometer has reached its minimum pressure (0 bar) and the pressure valve blows.*



8

INFOVIEW™ MONITOR

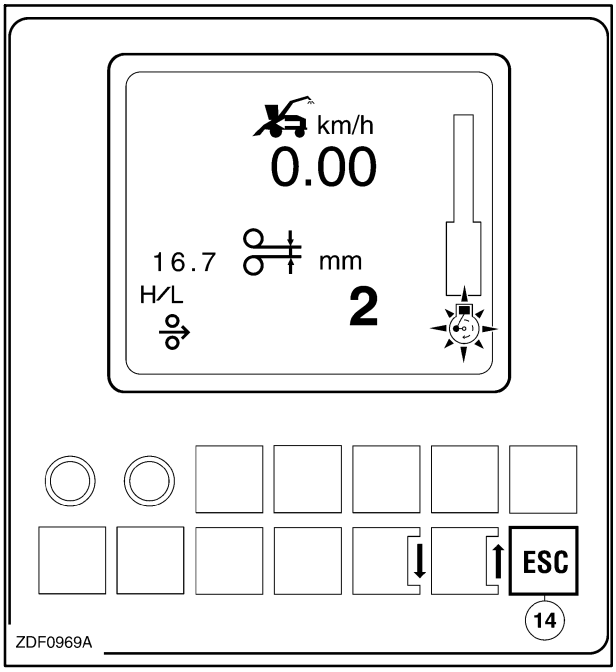
CROP PRO PLUS™ CROP PROCESSOR ROLL CLEARANCE

When the Crop Pro Plus™ crop processor roll clearance switch is pressed, either to increase or decrease the roll clearance, the actual roll clearance in mm is shown on the screen, provided the InfoView™ monitor is in the speed mode.

If this is not the case,

Press **14 escape**

When the Crop Pro Plus™ crop processor roll clearance switch is released, the cutterhead speed will replace the crop processor roll clearance after a few seconds



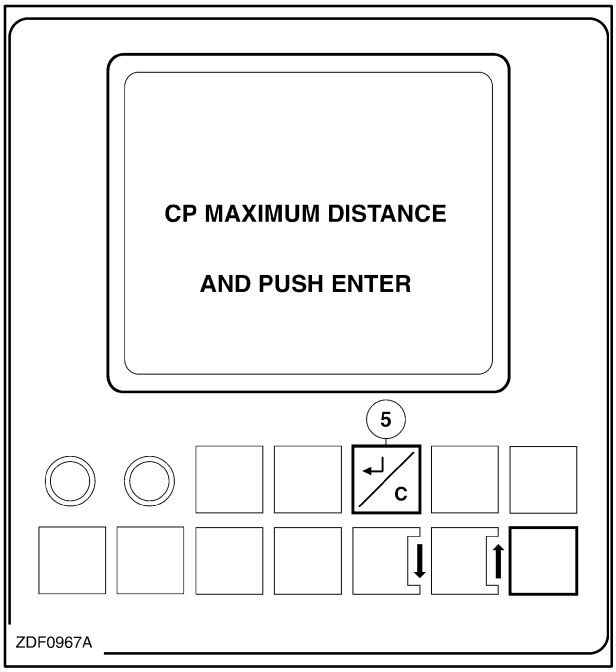
9

CALIBRATION

CROP PRO PLUS™ CROP PROCESSOR

Follow the steps outlined in the Operators manual for the crop processor.

NOTE: *The electric motor does not have the power to open up the Crop Pro Plus ™ crop processor rolls against the hydraulic pressure in the hydraulic cylinders.*
Release the hydraulic pressure in the system (refer to paragraf Hydraulic system earlier in this chapter).



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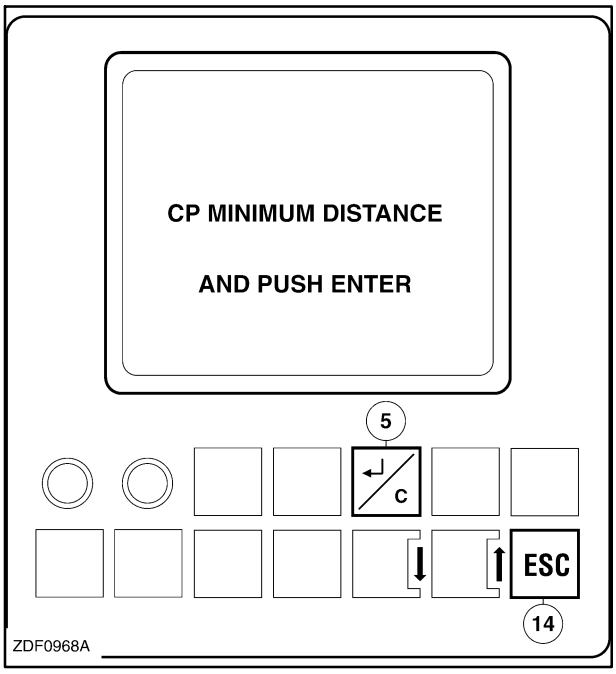
NOTE: *When the electric motor has set the Crop pro Plus ™ crop processor rolls to their minimum clearance, check and make sure the hydraulic pressure compressing the Crop Pro Plus ™ crop processor rolls is at least 150 bar.*
(refer to paragraf Hydraulic system earlier in this chapter).



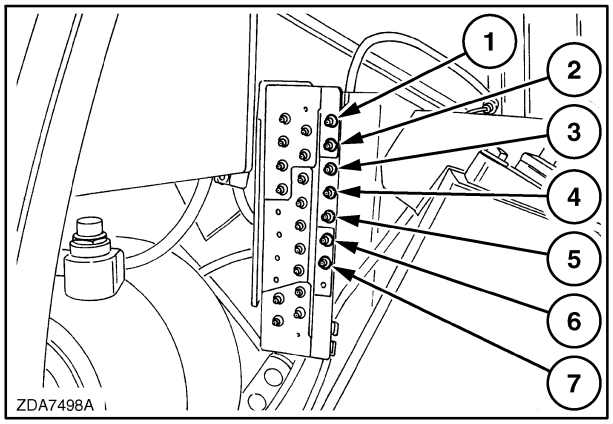
11

SECTION 4 – LUBRICATION AND MAINTENANCE

CROP PRO PLUS™ CROP PROCESSOR GREASE BANK (IF INSTALLED)

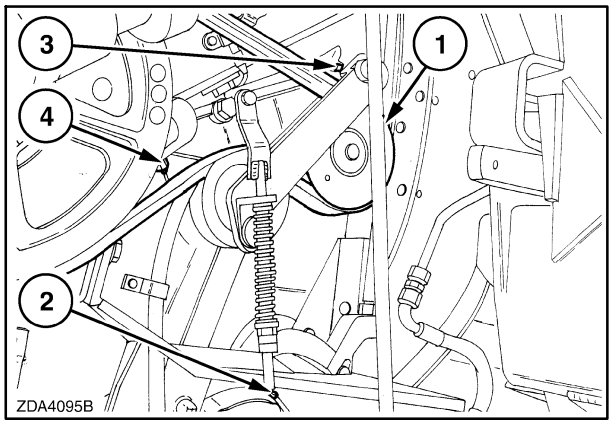
The Crop Pro Plus™ grease bank is located on the right-hand side of the cutterhead next to the cutterhead grease bank.

NOTE: *The grease bank is only installed if the Crop Pro Plus ™ crop processor is installed.*
Grease can be supplied to 7 grease points.



1

1. Crop processor upper roll bearing (LH)
2. Crop processor lower roll bearing (LH)
3. Crop processor idler pivot bearing (LH)
4. Crop processor upper roll pivot bearing (LH)



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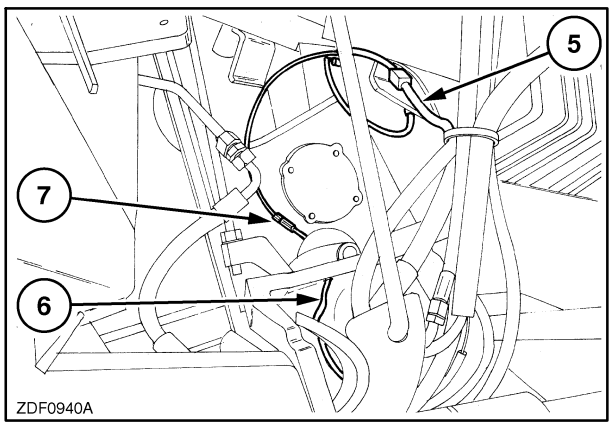
5. Crop processor upper roll pivot bearing (RH)
6. Crop processor lower roll bearing (RH)
7. Crop processor upper roll bearing (RH)



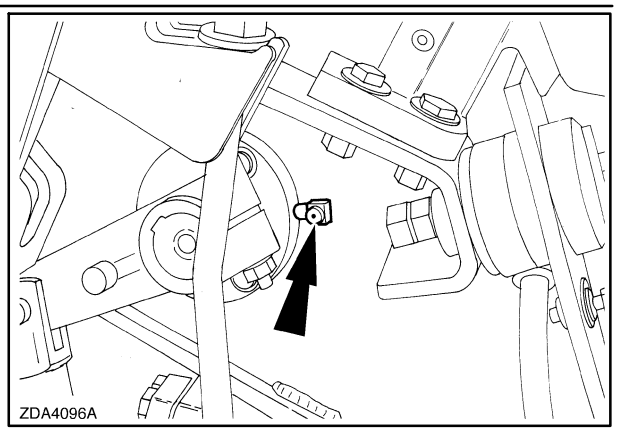
3

CONVENTIONAL GREASE FITTINGS

WEEKLY OR 50 HOUR GREASE FITTINGS

Right-hand side

1. Pivot bearing of the crop processor rolls adjuster shaft (grease sparingly).



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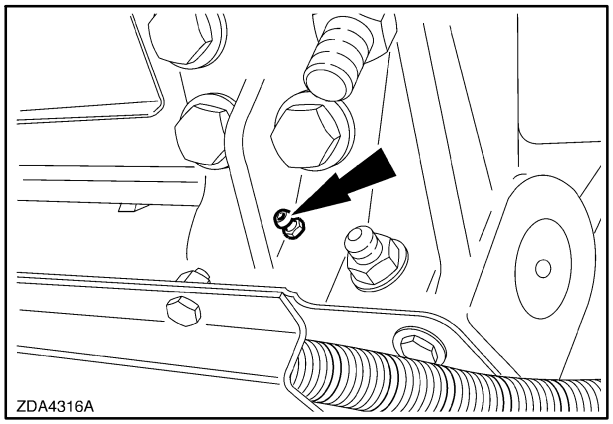
2. Pivot shaft for the lower crop processor roll (grease sparingly).

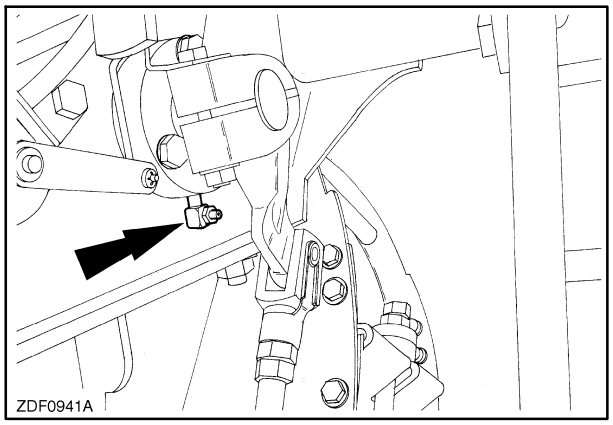


5

WEEKLY OR 50 HOUR GREASE FITTINGS

Left-hand side

1. Pivot bearing of the crop processor rolls adjuster shaft (grease sparingly).



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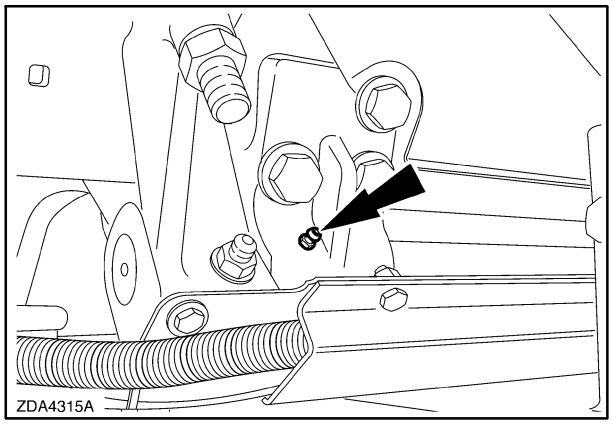
2. Pivot shaft for the lower crop processor roll (Grease sparingly).



7

MAINTENANCE

CAUTION

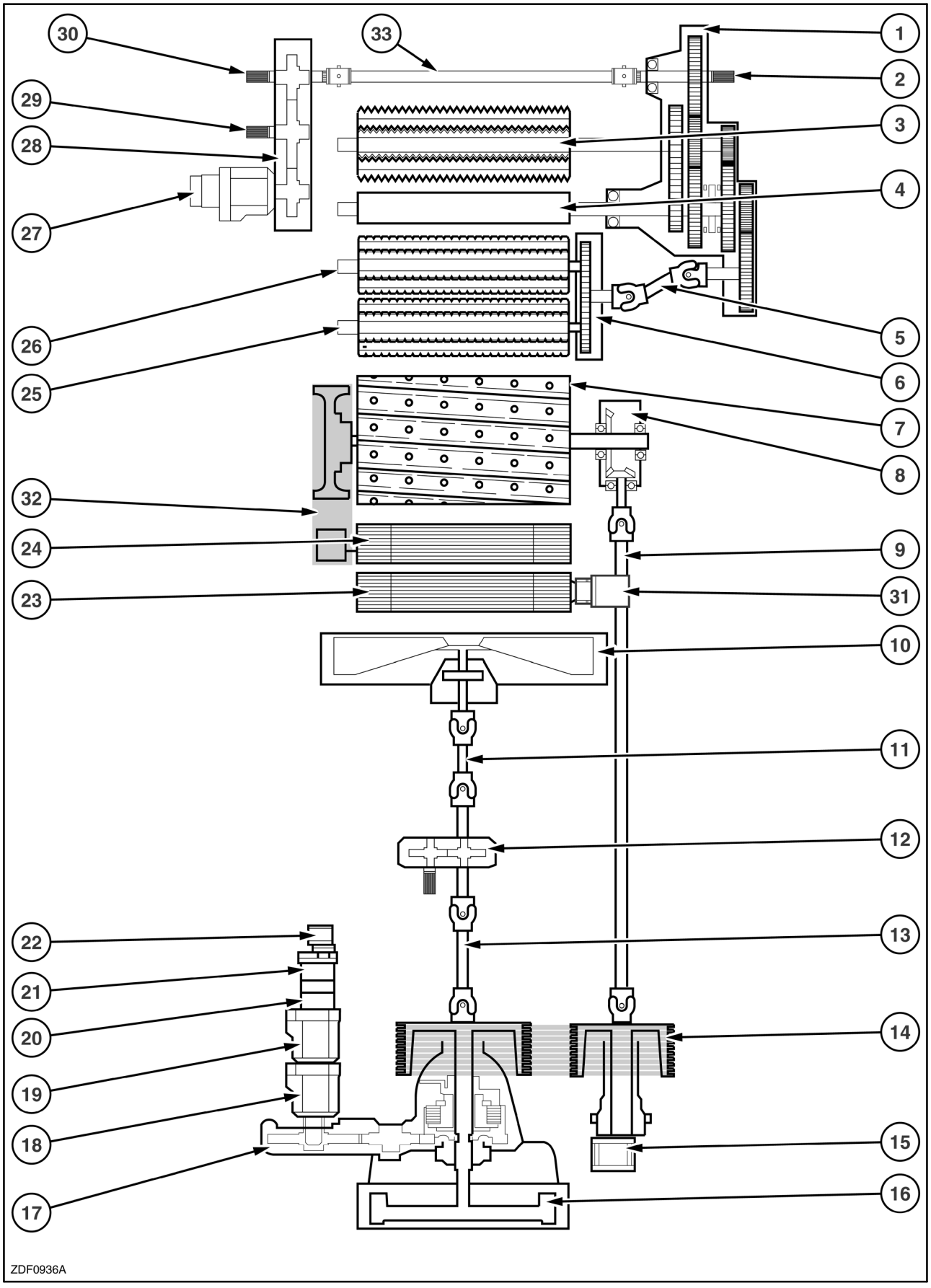
Never work or adjust any part of the forage harvester unless all moving parts have stopped.
Ensure the engine is stopped, the ignition key is removed and the battery switch is switched off to prevent accidental starting. Failure to observe these rules could result in serious injury.
ALWAYS disconnect the relevant connector to the electronic box before applying 12V current from an external source to a solenoid or other wire that is connected to the electronic box. Negligence to follow this instruction may destroy one or several components in the electronic circuit.

DRIVELINE AND COMPONENTS

Listed below and in Figure 8 are all the forage harvester functional components and their drives.

The speeds and torque values mentioned apply to the nominal engine speed of 2100 rpm. At this speed the engine will deliver its maximum power.

		Speed (rpm)
1	Hydroloc gearbox	
2	Transfer shaft	
3	Lower front feed roll (or metal detector roll)	68 – 171 / 138 – 345
4	Smooth roll	131 – 327 / 264 – 660
5	Upper feed rolls pto	
6	Upper feed rolls gearbox	
7	Cutterhead	1229
8	Cutterhead gearbox	
9	Cutterhead drive shaft	2765
10	Blower	739 (818)
11	Blower drive shaft	2100
12	High speed blower gearbox	
13	Blower drive shaft	2100
14	Main drive belt	
15	Cutterhead reverse drive hydraulic motor	800 – 860
16	Engine	2100
17	Main drive transfer gearbox	
18	Hydrostatic pump (Feed rolls)	3006
19	Hydrostatic pump (ground speed)	3006
20	Work hydraulics pump	3006
21	Steering hydraulics pump	3006
22	Low pressure hydraulics pump	3006
23	Lower Crop Pro Plus™ crop processor roll	3091
24	Upper Crop Pro Plus™ crop processor roll	3696
25	Upper rear feed roll	121 – 303 / 244 – 611
26	Upper front feed roll	68 – 171 / 138 – 344
27	Hydrostatic motor feed rolls drive	1200 – 3000
28	Attachment drive gearbox	
29	Attachment drive shaft	300 – 750
30	Transfer drive shaft	505 - 1263
31	Lower Crop Pro Plus™ crop processor rolls drive hydraulic motor	
32	Upper Crop Pro Plus™ crop processor rolls drive belt	
33	Transfer intermediate shaft	505 - 1263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8

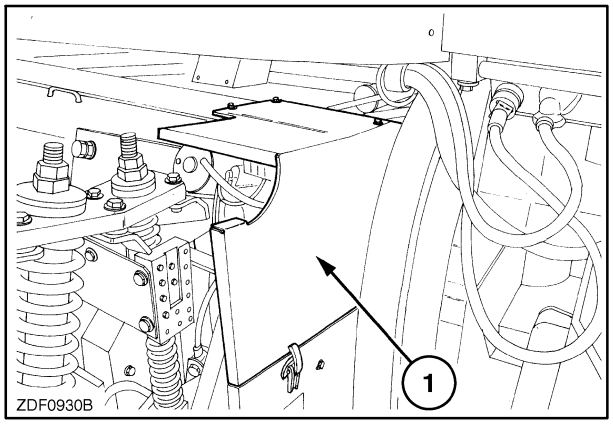
REMOVE CHOPPER BODY WITH A-FRAME

DISMOUNTING

ON FORAGE HARVESTERS EQUIPPED WITH A CROP PRO Plus™ CROP PROCESSOR

Follow the steps outlined in the operator's manual and do the following additional steps on a machine equipped with a Crop Pro Plus™ crop processor.

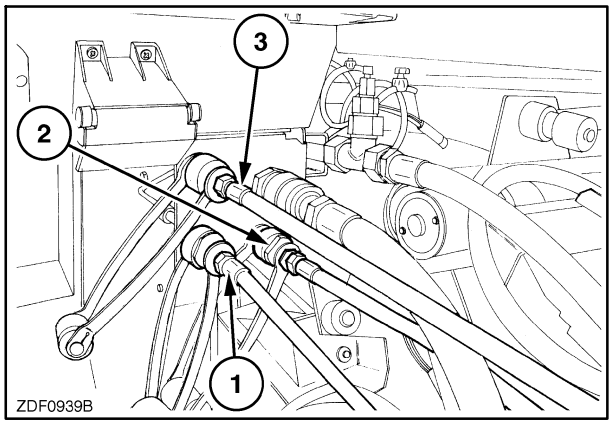
1. Remove the upper safety guard 1 from the chopper body.



9

2. Release the hydraulic pressure from the Crop Pro Plus™ crop processor hydraulic system.

3. Disconnect the hydraulic hoses 1, 2 and 3. The connectors are screw type connectors. Cover the connector ends with plastic plugs.



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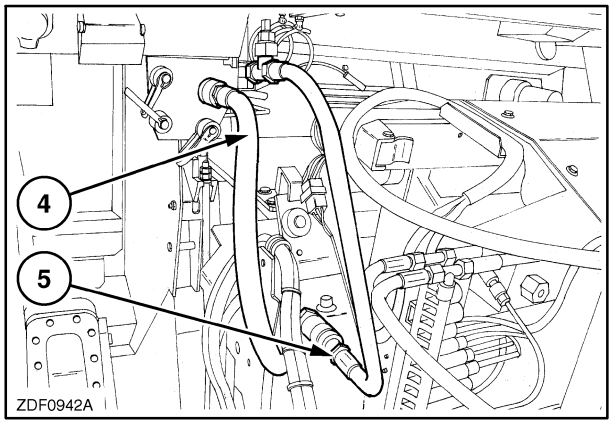
4. Disconnect the hydraulic hoses 4 and 5. The connectors are quick couplings.



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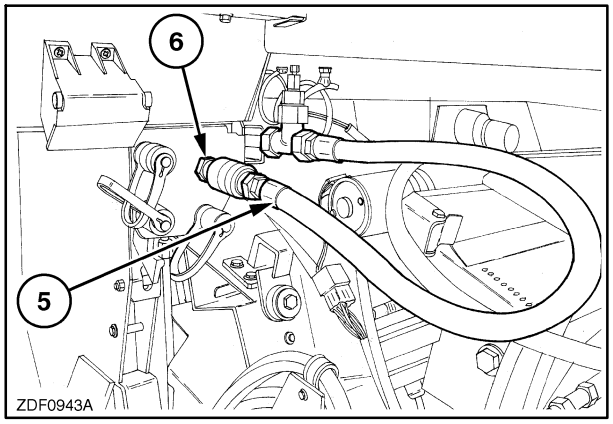
5. Reconnect the end of the hose 5 to the connector at 6.



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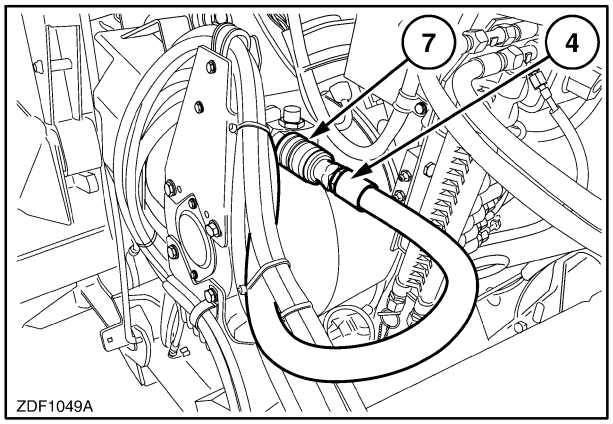
6. Reconnect the end of the hose 4 to the connector at 7.

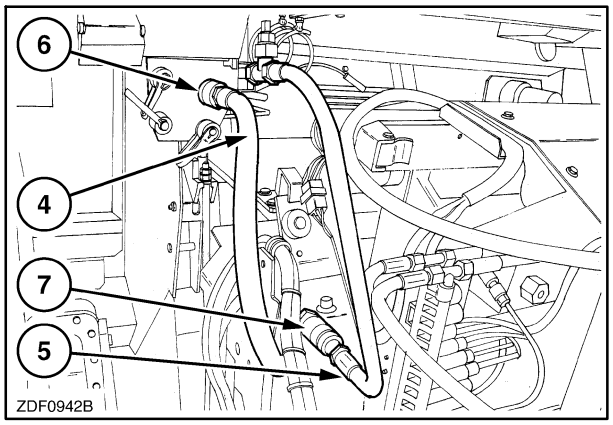


13

MOUNTING

Follow the steps outlined in the Operator's manual and do the following additional steps on a machine equipped with a Crop Pro Plus™ crop processor.

1. Disconnect the hoses 4 and 5 and reconnect hose 4 to the connector at 6 and the hose 5 to the connector at 7.

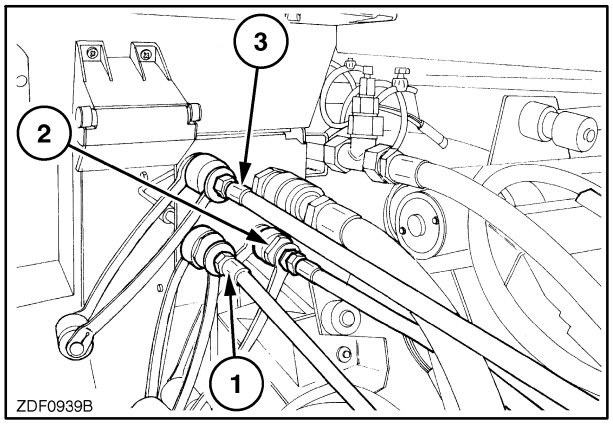


14

2. Connect the hydraulic hoses 1, 2 and 3.

NOTE: *For correct connection, follow the colour codes on the connector halves.*

3. Adjust the Corp Pro Plus™ crop processor into its working position or to its rest position.



15

REMOVE CHOPPER BODY WITH HYDRAULIC JACK

NOTE: *The hydraulic jack can not be used when the machine is equipped with a Crop Pro ™ Plus crop processor.*

CROP PROCESSOR / GRASS EQUIPMENT

When harvesting maize or full crop silage, there is a requirement to crack practically every kernel, the forage harvester can be equipped with a crop processor.

It is not necessary to remove the Crop Pro Plus™ crop processor when changing over from maize to grass and back again. The gap between the upper and lower Crop Pro Plus™ crop processor rolls can be quickly increased to 180 mm by utilising two hydraulic cylinders linked to the upper roll.

When harvesting grass crops, the processor rolls are opened fully. The lower and upper rolls are and must be continuously operated to prevent damage to the bearings. A guard plate will rotate around the lower roll when the processor is opened to prevent damage and excessive wear from occurring.

NOTE: *When working for extended periods in grass it is advisable to remove the Crop Pro Plus ™ crop processor to reduce the wear and the risk for stone damage on the rolls. It is not necessary to remove the electric rolls gap adjuster system.*

⚠ WARNING ⚠

For safety's sake, never carry out any adjustments while the machine is running. Always switch OFF the main drive, stop the engine and apply the brakes before any adjustment or service work is carried out. Always install all safety guards after adjusting or repairing the machine.
Replace or repair missing or damaged guards immediately.

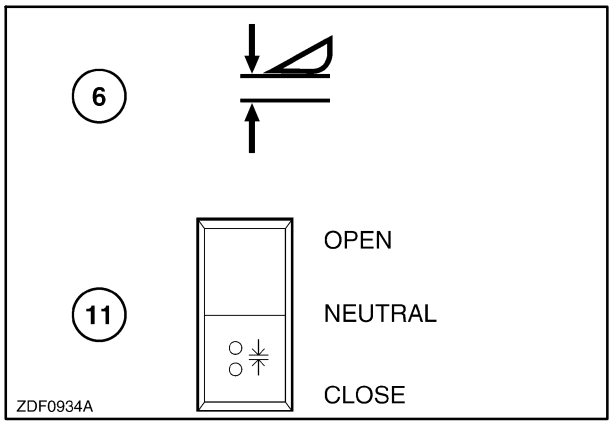
CROP PROCESSOR ROLLS CLEARANCE

ADJUSTING THE CROP PROCESSOR ROLLS TO THEIR WORKING POSITION

1. Start the engine of the forage harvester, switch on the “harvest mode”.

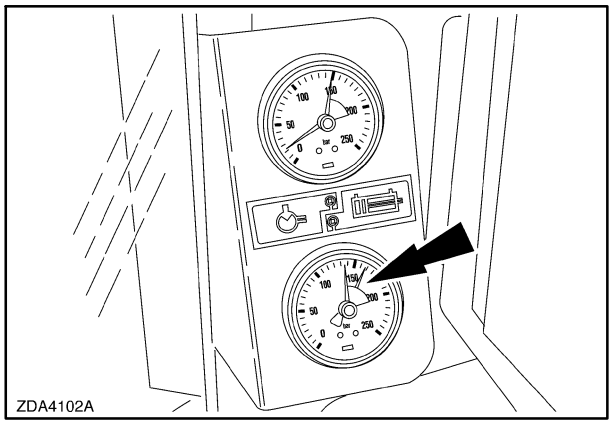
2. Press the shift button and the crop processor switch CLOSE, now the Crop Pro Plus™ crop processor rolls are moved to their working position.

3. Keep pressing the button and the switch until the over pressure valve opens up and the reading on the lower manometer is above 150 bar (Fig. 17).



16

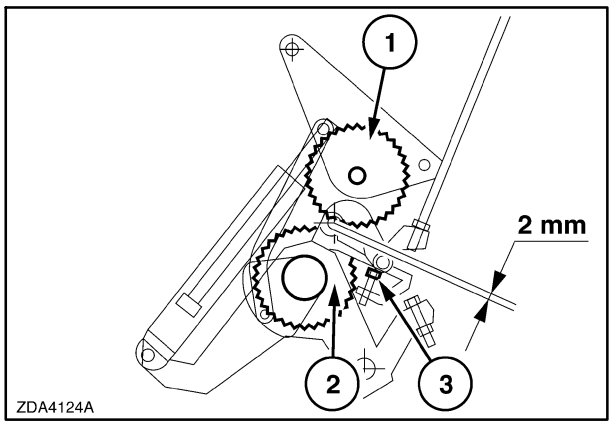
NOTE: *The hydraulic pressure must be 150 bar or higher for a good crop processing effect.*



17

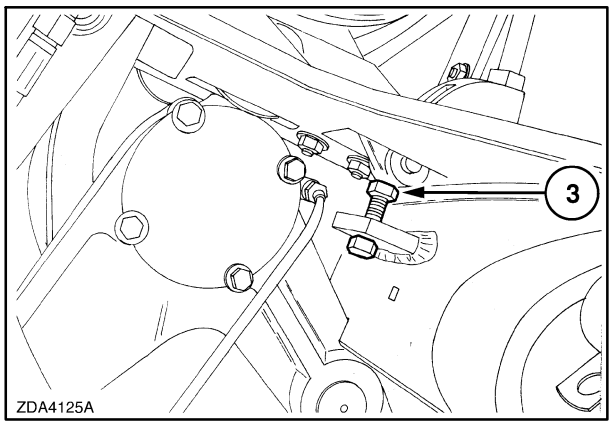
ADJUSTING THE CROP PROCESSOR ROLLS CLEARANCE WHILE IN THE WORK POSITION

1. In their working position the minimum clearance between the crop processor rolls is factory-set at 2 mm (5/64") on the closest point between the upper roll 1 and the lower roll 2.



18

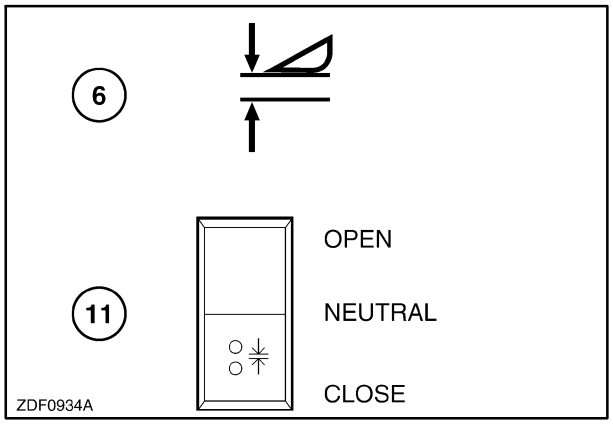
2. The minimum clearance of the safety bolts 3, one on each side of the crop processor, are factory-set at 1 mm (3/64") Figures 18 and 19.



19

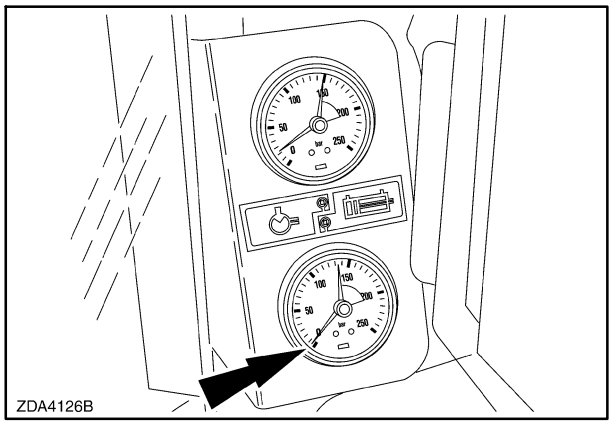
ADJUSTING THE CROP PROCESSOR ROLLS TO THEIR REST POSITION

1. Start the engine of the forage harvester, switch on the "harvest mode".
2. Press, the shift button and the crop processor switch OPEN, now the Crop Pro Plus™ crop processor rolls are moved to their rest position.
3. Keep pressing the button and the switch until the over pressure valve opens up and the reading on the lower manometer 1 is 0 bar (Fig. 21).



20

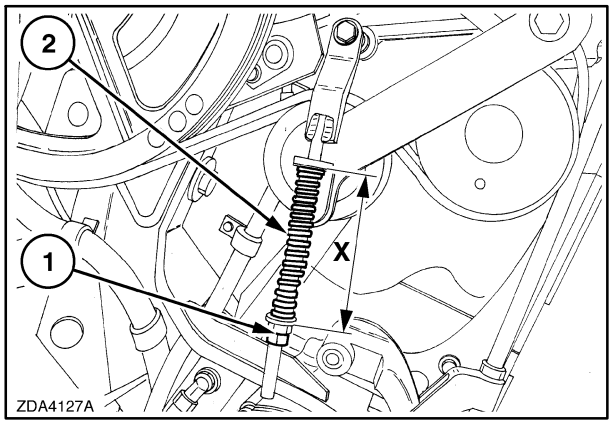
NOTE: *When the crop processor rolls are moving apart, a cover plate is turned on top of the lower crop processor roll.*
The hydraulic pressure must be 0 bar and the over pressure valve must open up to indicate that the crop processor rolls are fully apart and the cover plate is fully inserted.



21

CROP PROCESSOR BELT TENSION

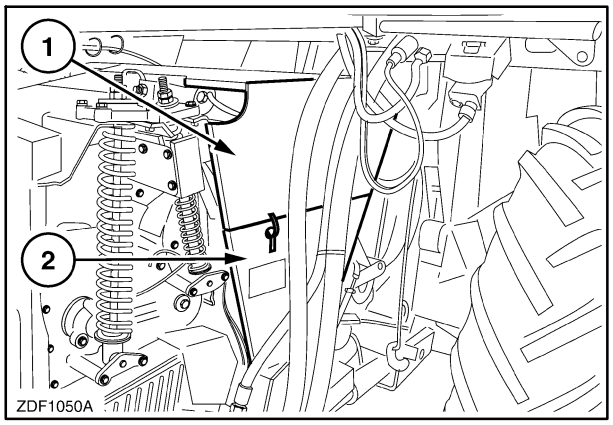
1. Remove the left-hand side guards.
2. The belt tension is correct when spring 2 is compressed to a length of X = 116 mm when the crop processor rolls are in their working position.
3. To adjust, unlock nuts 1 and tighten the spring and relock the nuts.



22

REPLACING THE CROP PROCESSOR BELT

1. Remove guards 1 and 2.
2. Remove the chopper body from the base unit.
3. Loosen spring 2 completely. It is not necessary to remove the nuts 1 from the rod (Fig. 22).
4. Remove the belt from the cutterhead pulley (Fig.24).

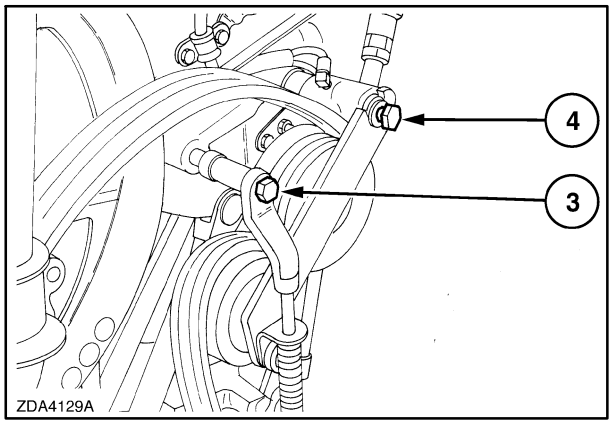


23

5. Screw out screw and bushing 3 completely.
6. Loosen and screw out bolt 4 almost completely.

NOTE: *Do not damage electric or grease lines.*

7. Now replace the belt. Note the belt routing.
8. Tighten screw 4.
9. Reinstall and secure the screw and bushing 3.
10. Install the belt on the cutterhead pulley.



24

11. Tighten the belt as described in the previous paragraph.

12. Install the chopper body to the forage harvester and install all guards.

REMOVAL OF CROP PROCESSOR ASSEMBLY

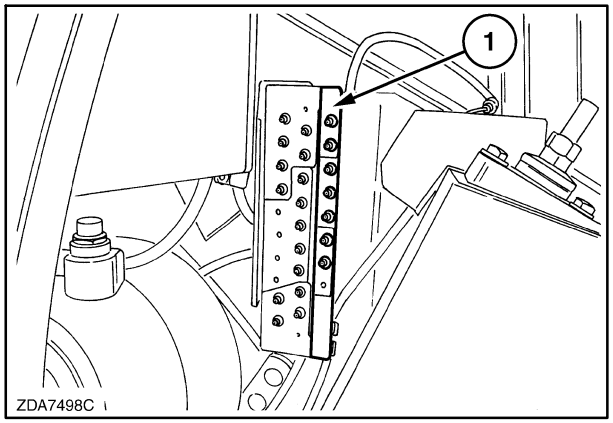
1. Remove the chopper body from the base unit. Remove the left- and right-hand side guards.

2. Remove the crop processor drive belt from the cutterhead pulley.

RIGHT-HAND SIDE

Machines with manual lubrication.

3. Remove the crop processor grease bank 1.



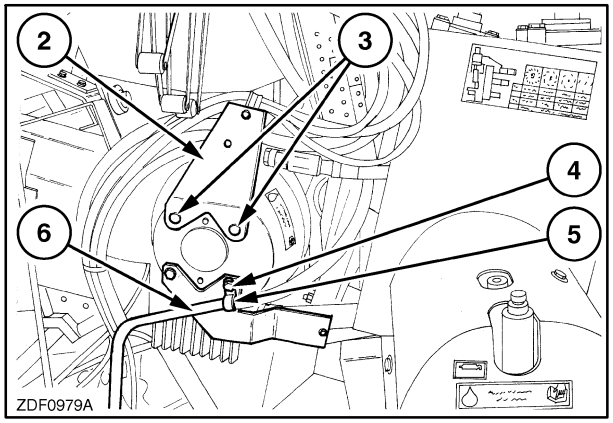
25

2. Remove the support 2 for the hydraulic hoses and reinstall the bolts 3.

   NOTE: *The bolts 3 are installed with a thread retainer.*

3. Remove the bolt 4 and the clamp 5 from the cutterhead gearbox. Reinstall the bolt 4. Keep the clamp 5 for later use.

4. Route the grease line bundle 6 to the side so it is free to move with the Crop Pro Plus™ crop processor.

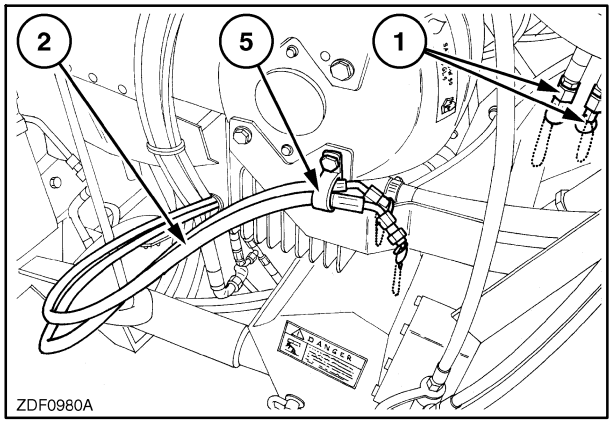


26

Machines with automatic lubrication.

5. Disconnect the grease lines 2 from the chopper body at 1.

6. Thread the grease lines 2 through the clamp 5 and route them to the side so they are free to move with the Crop Pro Plus™ crop processor.



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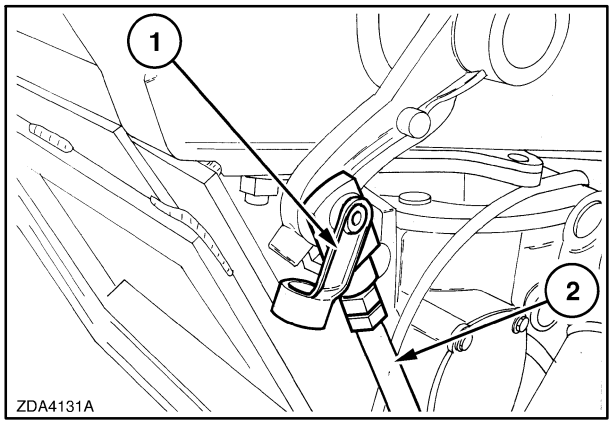
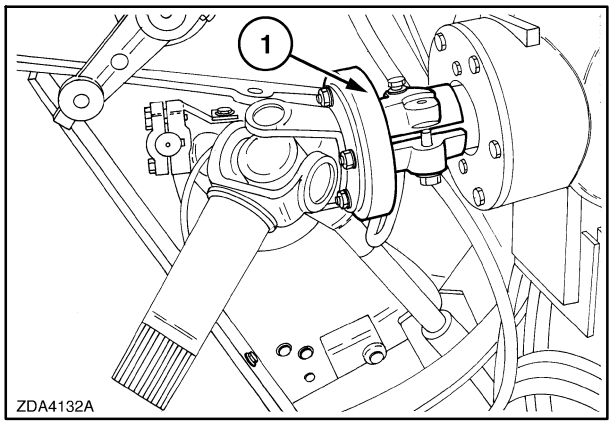
7. Disconnect the crop processor rolls adjuster rod 2 by unlocking and pulling out pin 1.
Make sure the rod 2 can move freely with the crop processor and reinstall the pin 1 to the rod 2.



28

8. Remove the short p.t.o. shaft end 1.

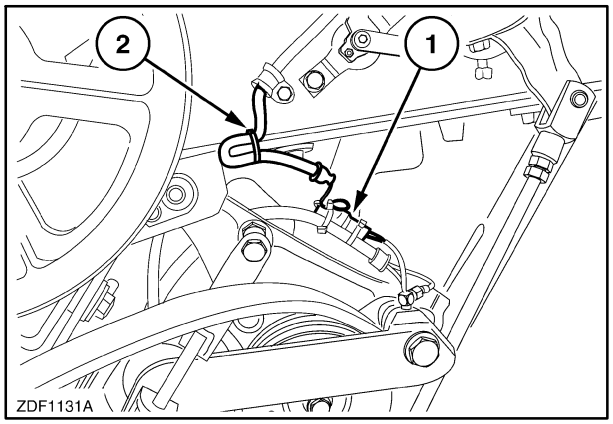


29

LEFT-HAND SIDE

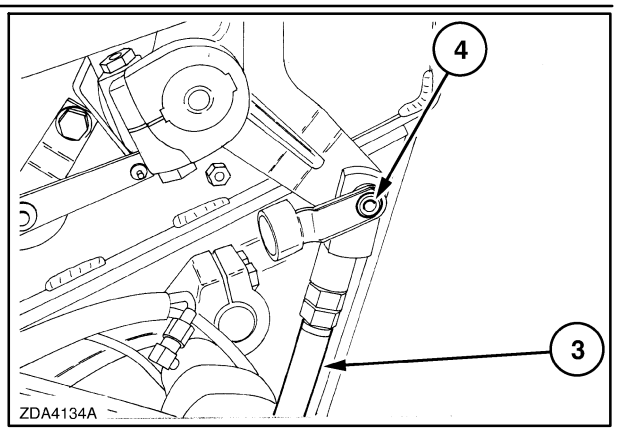
9. Disconnect the cable to the upper crop processor roll speed sensor at 1.

10. Cut the plastic strap at 2 and free the cable from the crop processor.



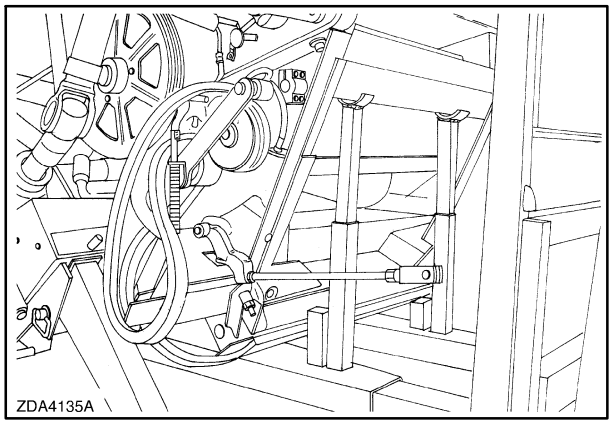
30

11. Disconnect the crop processor rolls adjuster rod 3 by unlocking and pulling out pin 4.
    Make sure the rod 3 can move freely with the crop processor and reinstall the pin 4 to the rod 3.



31

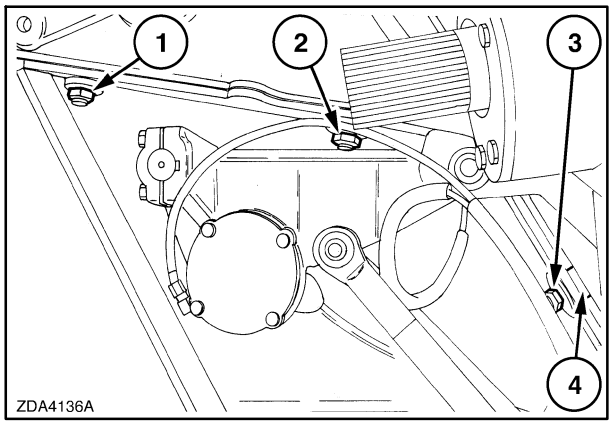
12. Using a forklift or other suitable lifting gear, support the crop processor well.



32

13. While supporting the crop processor, remove nuts, washers and screws 3 –2 and 1 on the right-hand side.

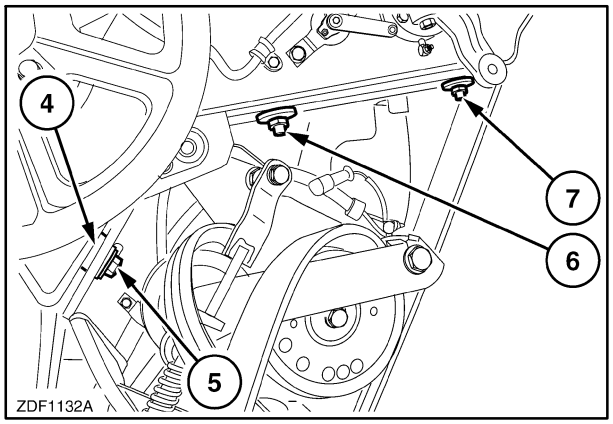
NOTE: *Note down the quantity of shims 4 installed at screw 3 between the crop processor and the chopper body. Keep this information available for the next time when you install the crop processor.*



33

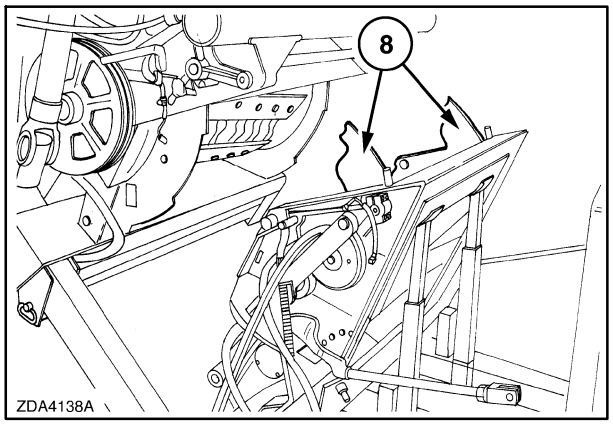
14. Remove the short p.t.o. shaft end 1.

NOTE: *Note down the quantity of shims 4 installed at screw 5 between the crop processor and the chopper body. Keep this information available for the next time when you install the crop processor.*



34

15. Carefully lower and move away the crop processor. Make sure all hydraulic and electric lines are free to move with the crop processor. Do not damage the plates 8.



35

CROP PROCESSOR - INSTALLATION

1. Make sure that the maize plate is correctly installed.

2. Move the crop processor to the chopper body and lift it in place. Be careful not to damage the side plates 8 (Fig. 35).

3. Make sure the guide pins go into the front holes as shown on both sides of the chopper body.

4. Insert bolts, washers and nuts 1 and 2 on the right- hand side (Fig. 33) and 6 and 7 (Fig. 34) on the left-hand side and tighten them.

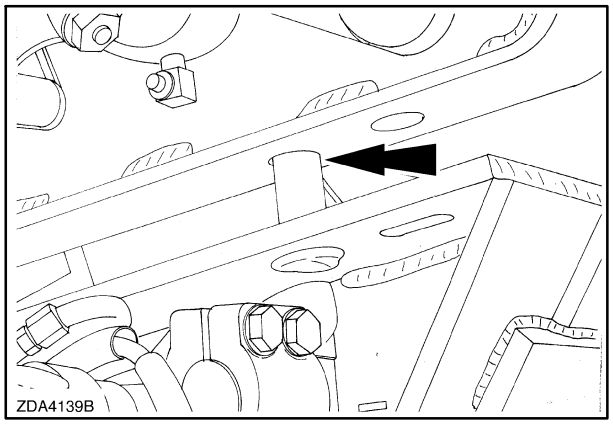
5. Insert bolt and washer 3 (Fig. 33) on the right-hand side and bolt and washer 5 (Fig. 34) on the left- hand side. Do not tighten.

6. Install a max number of shims 4 between the chopper body and the crop processor on both sides of the chopper body as shown and tighten the bolts.

7. Connect the cable 1 to the upper crop processor speed sensor (Fig. 30) and tie in place with plastic straps.

NOTE: *Note the routing of the wire at 2 (Fig. 30).*

8. Reconnect adjuster rod 2 with pin 1 and lock in place (Fig. 28) and rod 3 with pin 4 and lock in place (Fig. 31).



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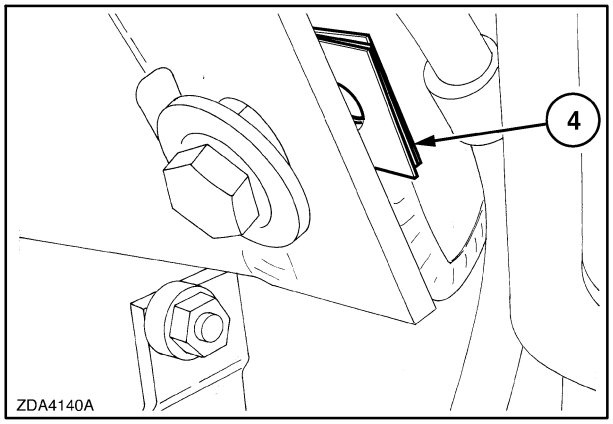


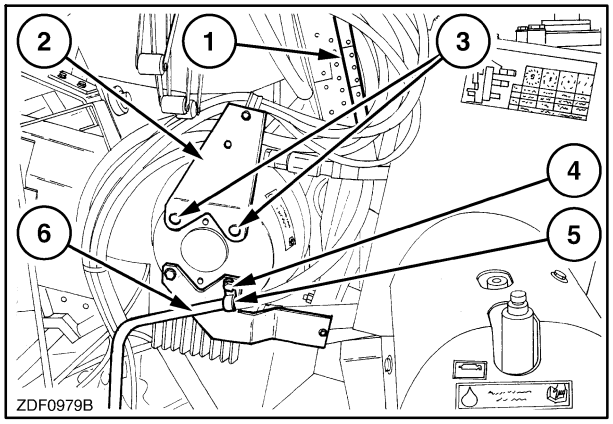
37

9. Machines with manual lubrication. Route the grease line bundle 6 in place as shown and install the grease bank 1 in place.

10. Fix the grease line bundle 6 onto the cutterhead gearbox with clamp 5 and secure in place with bolt 4.

11. Install the support 2 in place with bolts 3.

NOTE: *Use a suitable thread retainer when installing the bolts 3 and 4.*

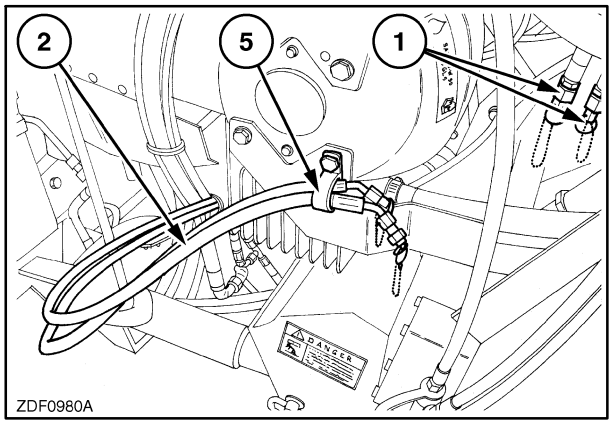


38

12. Machines with automatic lubrication. Thread the grease lines 2 through the clamp 5 and connect them to the lubrication system at 1.

13. Install the support 2 in place with bolts 3.

NOTE: *Use a suitable thread retainer when installing the bolts 3.*



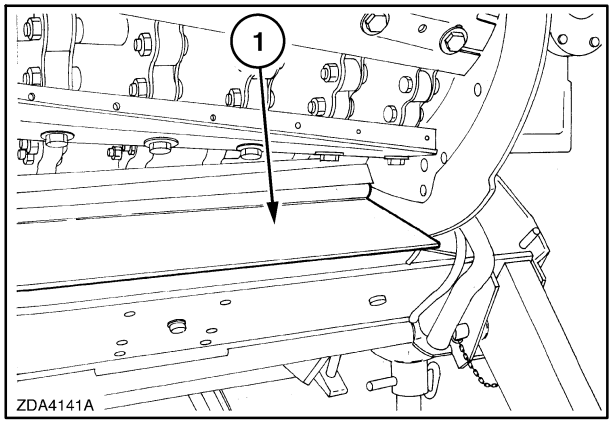
39

14. Install the crop processor drive belt as explained in paragraph “Replacing the crop processor belt”.

15. Install the chopper body.

GRASS PLATE AND DOOR

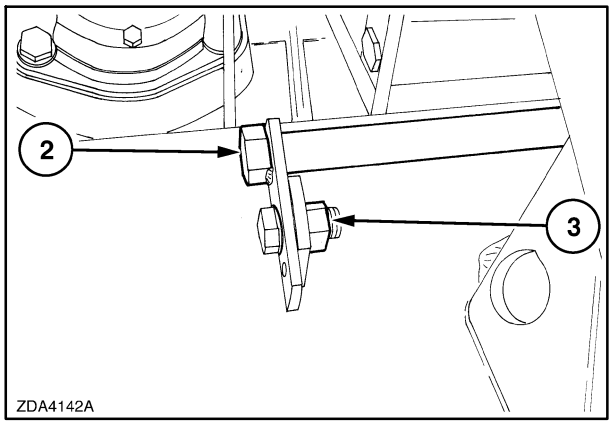
1. Support the maize plate 1. Note the way the maize plate is installed.



40

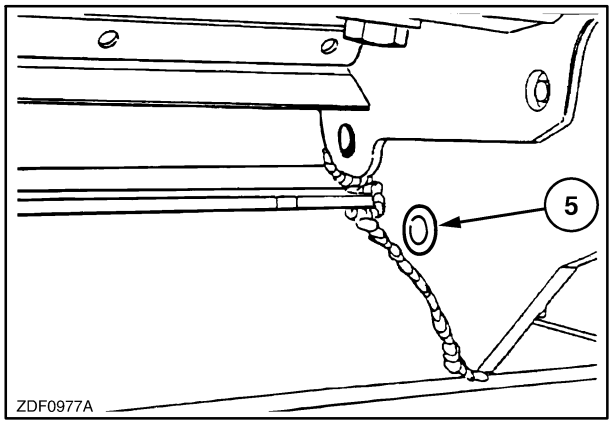
2. Remove the screws, nuts and washers 3 from both sides of the chopper body.

3. Pull out the maize plate pivot pins 2 from both sides of the chopper body. The maize plate can now be removed from the machine.



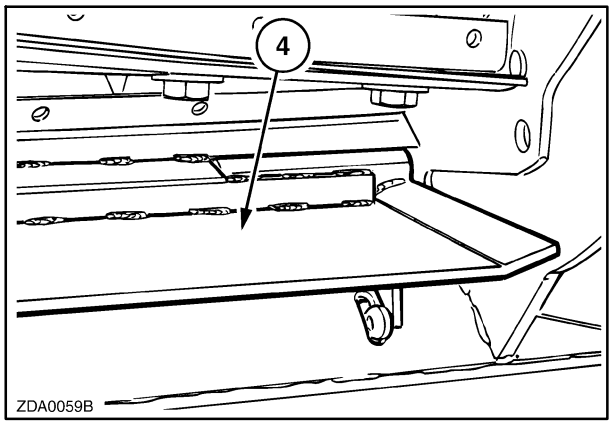
41

4. Install the grass plate with the smooth side up so that the pivot pins 2 (Fig. 41) engage in the holes 5.



42

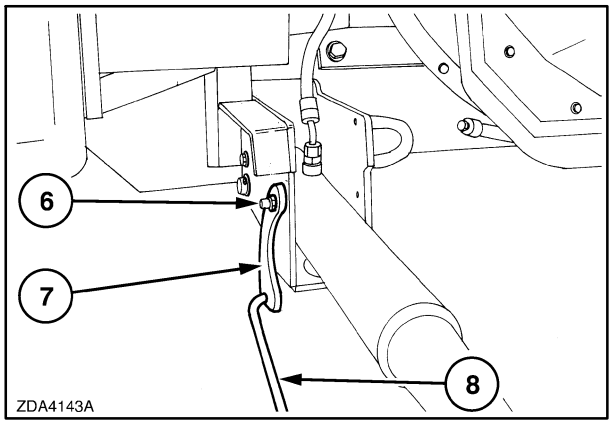
NOTE: *The grass plate 4 should be turned as shown.*



43

5. Remove screw and lock nut 6, fastening bracket 7 and disconnect rod 8 from the fastening bracket 7 on both sides of the machine.

6. Store the screws 6 and rods 8 with the crop processor.



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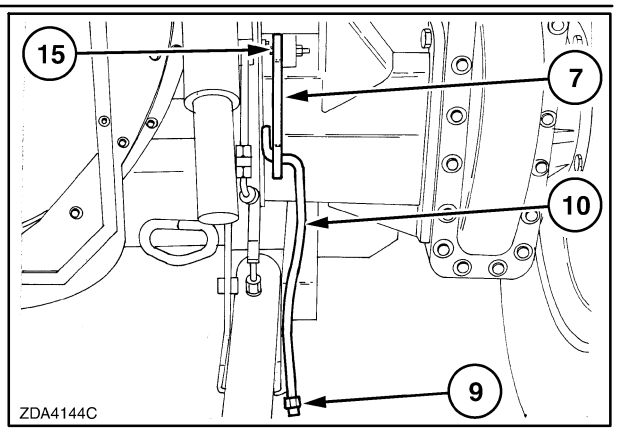
7. Remove the nuts and washers 9 from the long rods 8 and install them on the short rods 10 that go with the grass plate.

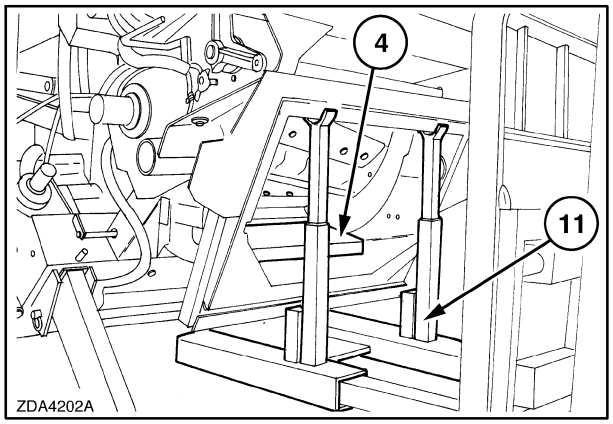
8. Install the short rods 10 to the fastening brackets 7 as shown and install the fastening brackets to their upper fastening points 15 with screws and lock nuts on both sides of the machine as shown.



45

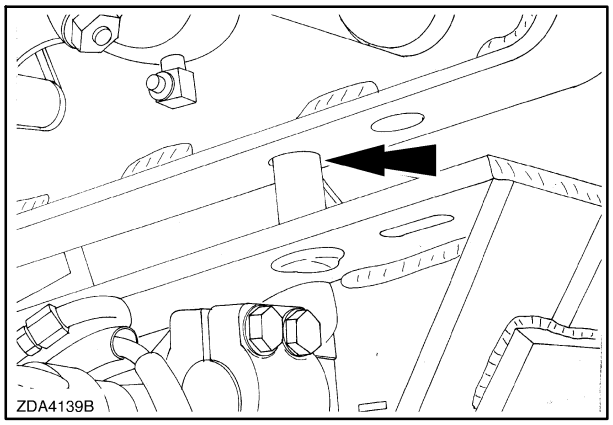
9. Install the grass door assembly onto the support 11 or any stable lifting gear.

10. Carefully lift the assembly in place. Make sure that the grass plate 4 slides on top of the grass door.



46

11. Make sure that the guide pins go to the front guide holes as shown.



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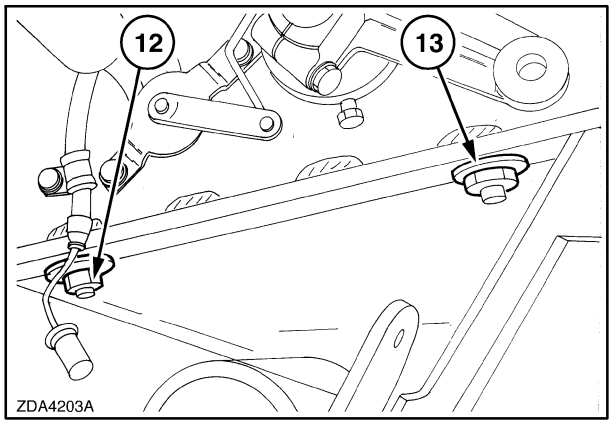
12. Install the bolts, washers and nuts 12 and 13 on both sides of the machine.

13. Tighten the upper bolts 12 and 13 on both sides of the chopper body.

14. Install the short bolts and washers 14 (Fig. 49).



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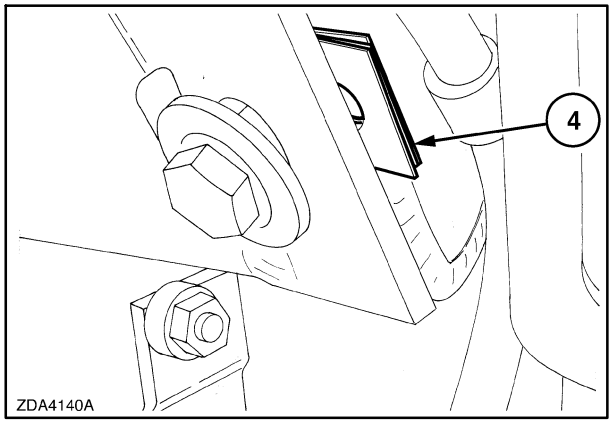
15. Fill the gap between the chopper body and the grass plate frame with shims 4 and tighten the bolts 14 on both sides of the chopper body.

16. Install the chopper body onto the forage harvester.

NOTE: *There are no crop processor lines to connect.*



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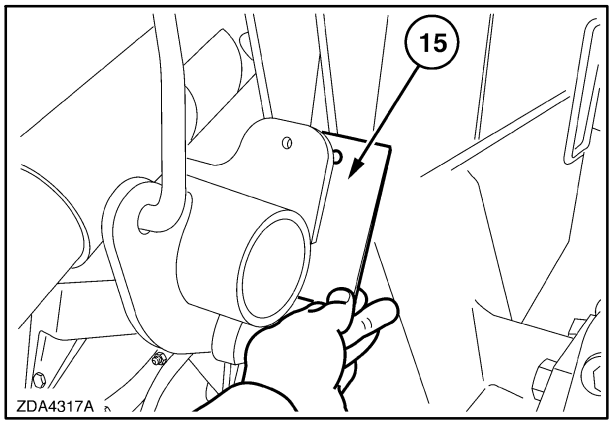
17. When installing the chopper body onto the base unit, check if there is a gap between the chopper body and the forage harvester frame.
    If there is a gap on one of the sides then install shim plate 15 to that side of the chopper body where the gap is.



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REMOVAL OF GRASS PLATE AND DOOR

1. Remove the chopper body from the base unit.

   NOTE: *There are no crop processor connectors to disconnect.*
2. Support the grass door assembly well (Fig. 46).

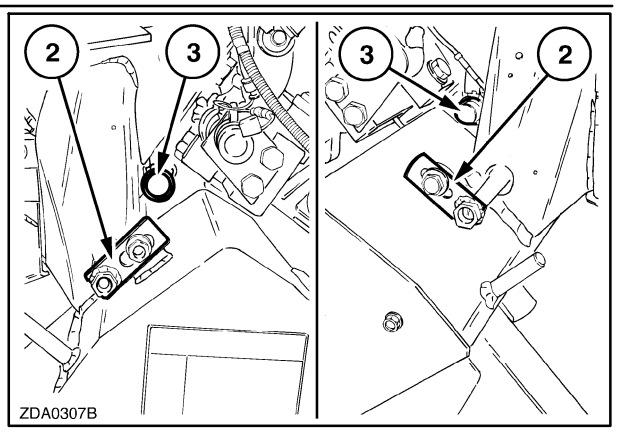
3. Loosen and remove screws, nuts and washers 14, 13 and 12 on both sides of the chopper body (Fig. 48 and 49).

4. Remove and keep the shims 4, on both sides of the chopper body, for later use (Fig. 49)

5. Carefully lower and remove the grass door assembly from the chopper body.

6. Support the grass plate and remove the pivot pins 2 from both sides of the chopper body and remove the grass plate. Also remove the plastic stops 3.

7. Install the maize plate 1 (Fig.40) and note the way it is turned. Secure the maize plate in place with rods 2 and nuts, screws and washers 3 (Fig. 41).



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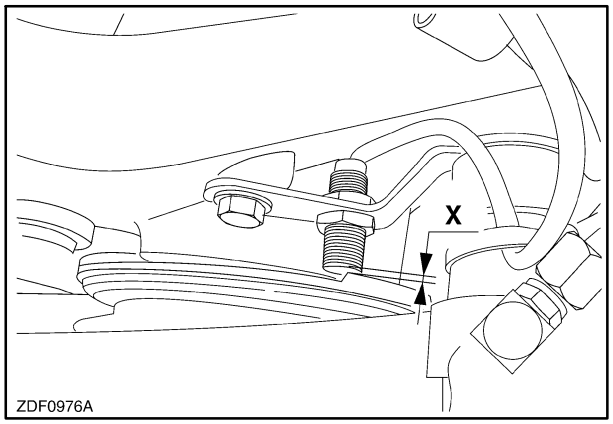
SENSORS

RPM SENSORS

CROP PRO PLUS™ CROP PROCESSOR UPPER ROLL SENSOR

- **Crop processor upper roll speed sensor**

  The sensor should be adjusted to a distance of X = 1 to 1,5 mm from the closest surface of the rotating feeler plate on the left-hand end of the upper roll.



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SECTION 5 – FAULT FINDING

GENERAL

CONCERN	POSSIBLE CAUSE	REMEDY
Poor chop "quality" or length of cut.	Distance between the Crop Pro Plus™ crop processor (if installed) rolls incorrect.	Make sure that the crop processor rolls are in their working position. Adjust the roll distance.–
	The pressure in the hydraulic system for the rolls is too low	Increase the pressure to maximum, above 150 bar.
	The drive belt for the upper crop processor roll slips.	Adjust the belt tension. Replace the belt if necessary.
	The lower crop processor roll is blocked.	Stop the machine and clean out around the lower crop processor roll.
	There is a problem in the hydraulic drive circuit of the lower crop processor roll.	Ask your dealer for assistance.

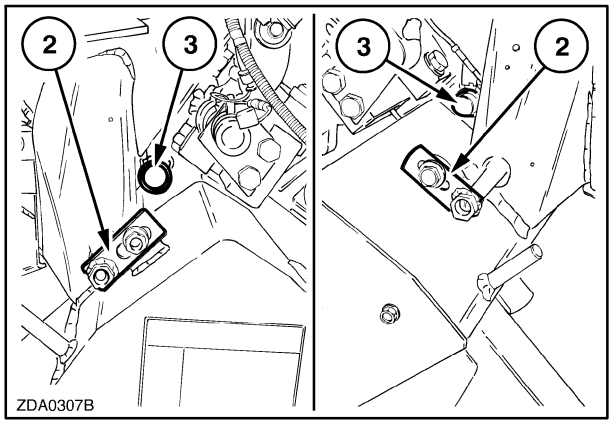
SECTION 7 - ACCESSORIES

CROP PRO PLUS™ CROP PROCESSOR KIT

Effective crop processing overcomes the problems normally encountered when harvesting maize with high dry matter content.

Thanks to the large diameter serrated rolls, running at different speeds, all the crop is crushed including stems and leaves and all kernels are damaged.

The clearance between the rollers can be adjusted in their working position between 2 and 18 mm for maize.



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For grass the rolls can be moved hydraulically 180 mm apart to their rest position.

In the working position the roll gap is controlled electrically.

SECTION 8 - SPECIFICATION

TECHNICAL DATA

	FX30	FX40	FX50	FX60
CROP PRO PLUS™ CROP PROCESSOR				
Concept	Two rolls rotating at different speeds	Two rolls rotating at different speeds	Two rolls rotating at different speeds	Two rolls rotating at different speeds
Distance between rolls in working position	2 to 18 mm Full in cab control: accessory Hydraulically loaded upper roll	2 to 18 mm Full in cab control: accessory Hydraulically loaded upper roll	2 to 18 mm Full in cab control: accessory Hydraulically loaded upper roll	2 to 18 mm Full in cab control: accessory Hydraulically loaded upper roll
Distance between rolls in rest position	180 mm Hydraulically controlled	180 mm Hydraulically controlled	180 mm Hydraulically controlled	180 mm Hydraulically controlled
Roll diameter	200 mm	200 mm	200 mm	200 mm
Upper roll speed	3696 rpm	3696 rpm	3696 rpm	3696 rpm
Lower roll speed	3091 rpm	3091 rpm	3091 rpm	3091 rpm
Drive line upper roll	6-HA power belt driven from cutter-head pulley via an overrun clutch	6-HA power belt driven from cutter-head pulley via an overrun clutch	6-HA power belt driven from cutter-head pulley via an overrun clutch	6-HA power belt driven from cutter-head pulley via an overrun clutch
Drive line lower roll	Hydraulic motor at the right-hand end of the crop processor roll, driven by the cutterhead reverse drive hydraulic pump	Hydraulic motor at the right-hand end of the crop processor roll, driven by the cutter-head reverse drive hydraulic pump	Hydraulic motor at the right-hand end of the crop processor roll, driven by the cutterhead reverse drive hydraulic pump	Hydraulic motor at the right-hand end of the crop processor roll, driven by the cutterhead reverse drive hydraulic pump