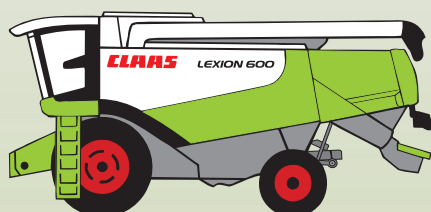


CLAAS



**LEXION 600
LEXION 580
LEXION 570**

Repair manual

SERVICE & PARTS

Please read and follow the safety instructions!

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1 General Information

1.1 General

14068

1.1.1 Introduction

The present CLAAS REPAIR MANUAL is to provide assistance in maintaining permanent availability. This is to guarantee the high value of CLAAS combine harvesters by thorough care and technical servicing.

Experience gathered by both our service engineers and factory staff has been compiled in this REPAIR MANUAL.

The sequence of pictures shows the repair process. The text provides the necessary explanations regarding settings, the use of CLAAS special tools and the like.

The illustrations included in support to the explanations show the sequence of major repairs so that minor repairs can easily be followed.

The CLAAS REPAIR MANUAL is filled in a folder which allows to insert supplementary pages as issued following technical developments and to always have an updated manual at hand for reference.

To be sure, always compare settings and filling capacities with specifications stated in the current Operator's Manual of the combine-harvester.

CLAAS KGaA mbH

Service Department

1.2 Safety rules

14066

1.2.1 Important notice

The instructions contained in the present CLAAS REPAIR MANUAL must be carefully read and observed by all persons involved with the operation, maintenance and inspection of this machine in order to prevent accidents.

In particular, read the present section "Safety rules".

Use only spare parts, accessories and ancillary equipment made by CLAAS and inspected and approved by CLAAS. This is the only way how designed properties of CLAAS machines and their proper service condition can be maintained. Moreover, genuine CLAAS parts preserve the active and/or passive operational safety of the machine and its occupational safety standards.

CLAAS is in no way liable for any damage or personal injury caused through the use of other than genuine or approved CLAAS parts, accessories and ancillary equipment.

Technical data, dimensions and weights are given as an indication only. CLAAS reserve the right to make changes subsequently as technical developments continue. Responsibility for errors or omissions not accepted.

Front, rear, right and left always refer to the direction of forward travel.

12776

1.2.2 Identification of warning and danger signs

All parts of this manual having to do with your safety or the safe operation of the front attachment or the machine are marked with the following signs. Please pass all safety instructions on to other users, too.



Danger!

Nature and source of danger

Consequences: death or severe injuries

– Countermeasures



Warning!

Nature and source of danger

Consequences: injuries

– Countermeasures



Caution!

Nature and source of danger

Consequences: material damage

– Countermeasures

**Note!**

Nature and source of information

Consequences: enhanced machine economy or easy assembly

- Measures

**Environment!**

Nature and source of danger

Consequences: damage to the environment

- Countermeasures

The warning and instruction signs placed on the machine provide important information for safe operation. These instructions involve your safety – observe them at all times!

14065

1.2.3 General safety and accident prevention regulations

- In addition to this manual, always comply with the Operator's Manual of the machine as well.
- Comply with all general safety and accident prevention regulations.
- Always comply with local traffic regulations when driving on public roads!
- Before starting the diesel engine ensure that the transmission is in neutral and all guards are installed and in their correct position.
- Always blow the horn before starting the diesel engine and engaging the main drive.
- Start the diesel engine only from the operator's seat. Never attempt to start the diesel engine by short-circuiting across the starting motor terminals as the machine may immediately start to move!
- Never run the diesel engine in a closed building!
- Clothing worn by the service technician must be close-fitting. Avoid wearing loose clothing!
- Handle fuel with care. - Fuel is highly flammable.
- Never refuel the machine in the vicinity of naked flames or sparks.
- Do not smoke during refuelling!
- Always stop the diesel engine and remove the ignition key before refuelling. Fill the fuel tank outdoors.
- Clean up any spilled fuel immediately!
- Prevent fires by keeping the machine clean!
- Be careful when handling brake fluid and electrolyte. Electrolyte is toxic and caustic!
- Perform work under the raised machine only when safe supports are provided.
- Refit guards after completing maintenance and repair work!

1.2.4 Leaving the machine

- When leaving the machine, ensure that it will not roll away (apply parking brake, wheel chocks). Shut off the engine. Remove the ignition key and lock the operator's cab.
- When the machine is shut down for an extended period, turn off the battery isolating switch.
- Never leave the machine unattended as long as the engine is still running!
- Lower the front attachments to the ground before leaving the machine!

13999

1.2.5 Grain tank

- The augers located inside the grain tank cannot be shielded completely against accidental contact due to their function.
- Before mounting or entering the grain tank, make sure that no other person can restart the engine.
- To enter the grain tank, use only the openings provided for this purpose.

14003

1.2.6 Combine harvester chopper unit

- The chopper has safety guards surrounding dangerous rotating knives which continue to rotate for a while after the drive has been disengaged. Therefore, always stay a safe distance away from the chopping unit until it has come to a complete halt.
- When adjusting or replacing the chopper knives, the chopper drum must be blocked and the knife edges must be covered up.
Danger of injury!
 - Always wear protective gloves.

14005

1.2.7 Adjustment and maintenance work

The drives on the machine will not be automatically secured from moving after the engine has been switched off.

Moreover, when it comes to adjustments, it may be necessary to turn the drives.

For this reason, comply with the following rules:

- Before setting, cleaning and maintenance operations and when remedying problems:
 - Switch off the chopper unit.
 - Shut off the engine.
 - Disconnect the battery isolating switch.
- Before setting, cleaning and maintenance operations and when remedying problems on the hydraulic system, lower front attachment and/or feeder unit completely.

10114

- Always turn off the battery isolating switch before carrying out any electrical repairs on the machine.
- The drives will continue to rotate after shutting down the main drive. Absolutely wait until the drives have come to a complete halt.
- It must be ensured that other persons cannot start the machine or rotate the drives.
- Liquids escaping under high pressure (fuel, hydraulic oil etc.) can penetrate the skin and cause serious injury, therefore consult a doctor immediately as otherwise serious infections can result!
- Only have qualified workshops carry out repair work on the hydraulic system.
- Be careful when opening the radiator cap. As long as the engine is hot, the radiator is under pressure!
- Do not attempt to mount a tyre unless you have the proper equipment and experience to perform the job safely.
- Dispose of oil, fuel and filters in a way that is harmless to the environment and in accordance with existing anti-pollution regulations!
- Retighten the wheel nuts regularly!

14007

1.2.8 Air conditioner

- The air conditioning system is filled with CFC refrigerant. CFC refrigerants must not be allowed to escape into the atmosphere.
 - Therefore, please take appropriate precautions when working on the air conditioner.
- Maintenance and repair work may only be carried out by specialised air conditioning system service workshops. Refrigerant must always be sucked out and disposed of for recycling.

14009

1.2.9 Pressure accumulator

Be especially careful when working on hydraulic systems equipped with accumulators. Hydraulic systems with accumulators are under high pressure!

Only have qualified workshops carry out repair work on the hydraulic system.

2427

1.2.10 First aid measures

Inhaling:

- Make the person inhale fresh air and consult a doctor, depending on the symptoms.
- Remove the person from the hazard area.

Eye contact:

- Thoroughly flush with water for several minutes. If necessary, consult a doctor.

Skin contact:

- Thoroughly clean with plenty of water and soap and remove polluted and soaked clothing immediately, consult a doctor if skin is irritated (redness etc.).

Swallowing:

- Do not cause vomiting, consult a doctor immediately.

3822

1.2.11 Battery isolating switch

The battery isolating switch (1) is used for switching the machine power supply on or off.

Turn off the battery isolating switch (1) every day after using the machine and in case of emergency.

Never turn off the battery isolating switch (1) while the engine is running!

Position	Designation
A	The battery isolating switch (1) is switched off
B	The battery isolating switch (1) is switched on

(Fig. 1)

14011

1.2.12 Applying the feeder housing safety lock

**Danger!**

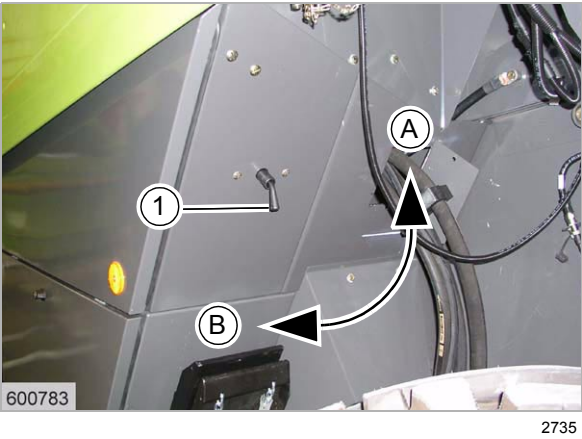
Front attachment, reel and feeder unit may drop in an uncontrolled way.

Death or serious injury.

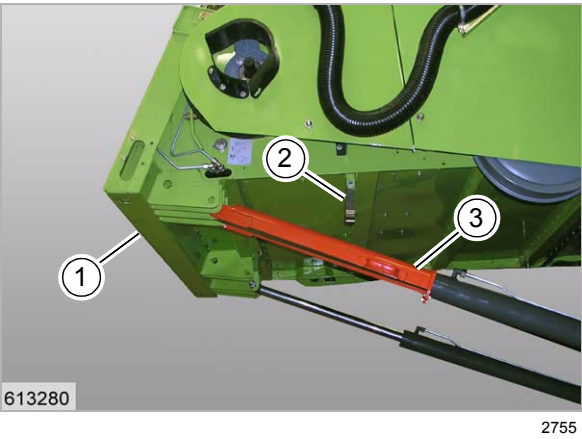
- Fit the safety locks.
- Keep a safe distance from the hazard area.

- Fully raise the feed rake conveyor (1).
- Loosen bracket (2) and fold the safety lock (3) down.
- Lower the feed rake conveyor down to the applied safety lock (3).

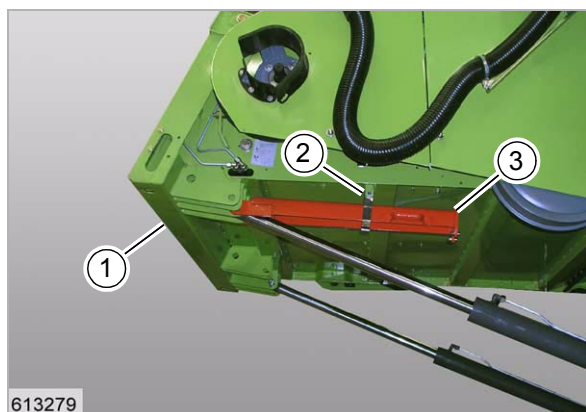
(Fig. 2)



1



2



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3

1.2.13 Removing the feed rake conveyor safety lock



Danger!

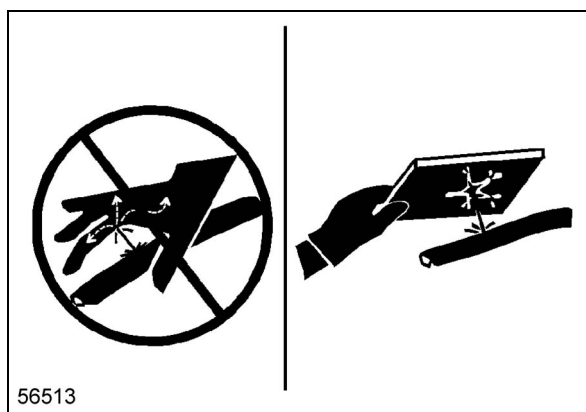
Front attachment, reel and feeder unit may drop in an uncontrolled way.

Death or serious injury.

- Fit the safety locks.
- Keep a safe distance from the hazard area.

- Fully raise the feed rake conveyor (1).
- Fold safety lock (2) upwards and fasten it using bracket (3).

(Fig. 3)



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1.2.14 Danger of injury due to escaping hydraulic liquid



Danger!

Liquids under high pressure.

Liquids penetrate the skin and cause serious injury.

- Only have authorised and qualified workshops carry out work on the hydraulic system.
- Check hose lines at regular intervals. Search for leaks using a piece of wood or cardboard. Ensure that the oil jet will not be directed towards your body.
- Replace any damaged hose lines.
- Replace hose lines 6 years after the date of manufacture at the latest.



Danger!

Dealing incorrectly with injuries due to hydraulic fluids.

Death or serious injury.

Even a pinhole can result in severe injuries.

- If hydraulic fluid gets in the skin or eyes, have the injury treated by a medical specialist immediately.

(Fig. 4)

10114

1.3 General repair instructions

14015

1.3.1 Reason of damage

Identify reason of damage, limit the case of damage and safeguard the machine.

14017

1.3.2 Spare parts

Use genuine CLAAS spare parts and corresponding CLAAS special tools.

Indicate the machine number of the combine-harvester and when the diesel engine, front attachments, maize header, cutterbar and maize picker are concerned, also the respective serial numbers when ordering spare parts and in case of technical questions. This is necessary to prevent incorrect spare parts deliveries.

14019

1.3.3 Diesel engine

Always disconnect the battery cable (–) prior to starting work on the diesel engine.

14021

1.3.4 Gearboxes

When removing the gearboxes, always drain the gearbox oil first and then remove the gearbox. Separate parts which are firmly connected with each other by means of a soft metal-tip or plastic-tip hammer.

14023

1.3.5 Alternator



Warning!

Mounting work on alternators.

Destruction of electric components.

- Never disconnect lines between the regulator, alternator and battery while the alternator is running.
- Ensure correct polarity when connecting the battery.
- Carry out mounting work on live parts only with the battery disconnected.
- Voltage testing by tapping against ground must absolutely be avoided with alternators.
- Before doing any electric welding on the combine-harvester, be sure to disconnect the alternator terminals!
- The battery provides the current for the field excitation required to start the alternator via the battery charge indicator bulb. Defective lamps must therefore be replaced immediately.

1.3.6 Tensioning the steel roller chains

Find the centre point in the slack span between sprockets. With the tight span slightly under load, push in the centre point of the slack span with the thumb. The chain tension is correct when its slack span deflects about **2%** of the centre distance between shafts. Check chain tension more frequently when using new chains.

Example: Distance between shafts **500 mm** = Deflection of slack span is roughly **10 mm**.

14027

1.3.7 Taper ring fasteners

Taper ring fasteners provide a safe mechanical connection, even when transmitting high forces from the driving element on the shaft and vice versa, provided they are properly prestressed.

Installation:

When installing taper ring fasteners, it is important that the shaft, hub, parallel key and the taper rings have been thoroughly cleaned, that semi-fluid lubricant of NLGI class 00, e.g. CLAAS semi-fluid lubricant EP 00, is applied and that the components are tightened to the specified torque in the correct order of assembly.



Warning!

Gluing on taper ring fasteners.

- **No** solid grease must be used when assembling the parts.

Disassembly:

After loosening the axial clamping, loosen the taper ring fastener with a sharp blow, using a block-ended tube.



Warning!

Damage to the taper ring fastener.

- The inside diameter of the block-ended tube must be large enough to extend over the tapered ring.

1.3.8 Self-locking bolts with micro-encapsulated adhesive

Replace self-locking bolts, e.g. Verbus-Plus / Imbus-Plus upon each assembly. In exceptional cases, they may be reused up to three times.

Always tighten self-locking bolts with microencapsulated adhesive rapidly to the specified tightening torque.

Always observe the specified tightening torque.

When removing self-locking bolts, quickly unscrew them completely. Self-locking bolts must never get in contact with sealing compound.

Self-locking bolts with microencapsulated adhesive may be used only where operating temperatures will not exceed **+ 90 °C** max.

These bolts can be subjected to full stress after 24 hours at **+ 20 °C**. The complete curing period can be shortened by heating, e.g. to 15 minutes at **+ 70 °C**.

In individual cases, bolts with liquid locking compound can be used instead of self-locking bolts only where these bolts can be heated up to approx. **200 °C** for removing them. Comply with the specified quality grade of bolts, e.g. 8.8 or 10.9 here as well.

14031

1.3.9 Liquid locking compound

Use liquid locking compound only where specified by the manufacturer.

Correct application:

Metal surfaces where liquid locking compound is to be applied must be absolutely free from grease. Use the "Activator" included in the workshop package for cleaning.

Before applying the liquid locking compound, the activator, i.e. the cleaning agent on the metal surfaces must have dried. Especially in blind holes, no Activator residues are allowed.

In threaded assemblies, apply the liquid locking compound only to the internal thread of the nut in drops if possible. In blind holes only wet approx. 1d (d = nominal Ø of bolt) at the thread bottom. The same applies to any extra-long female threads. When applying the liquid locking compound to the bolt or at the top end of a female thread, the liquid locking compound will spread over the entire thread length when screwing the bolt in. As a result, too much break-away torque is required to remove the bolt – Danger of breaking!

Threaded assemblies secured with liquid locking compound can be easily unscrewed by heating them up to approx. **200 °C**.

1.3.10 Lock collar bearings

Lock collar bearings are tightened on the shaft by rotating the eccentric ring over the inside bearing ring.

Prior to installation, apply semi-fluid lubricant of NLGI class 00, e.g. CLAAS semi-fluid lubricant EP 00, to the inside ring and the shaft to make bearing removal easier during any future repairs.

Always fasten the eccentric ring moderately in the direction of rotation of the shaft and lock by means of a set screw. To remove the bearing, loosen the eccentric ring in opposite direction of rotation of the shaft.

14035

1.3.11 Adapter sleeve bearing

Adapter sleeve bearings do not require a specially machined bearing seat. They may be mounted on any drawn or scalped shaft. This is an advantage because it allows the shaft to be axially moved as required to obtain correct alignment.

Always install adapter sleeve bearings according to the conical inside ring. Clean the taper lock adapter sleeve and the shaft and check that the sleeve nut runs easily so the taper lock adapter sleeve will not turn on the shaft when tightening.

Tightening the bearing:

First tighten the sleeve nut to the point where the taper lock adapter sleeve has no more play and is under slight preload. Now tighten the nut by approx. **90°** and continue turning until the next nearest slot fits the tab. Secure sleeve nut with the tab.

Loosening the bearing:

Loosen the unlocked sleeve nut only by a few turns for the time being. The thread must still carry the full load. Loosen the taper lock adapter sleeve with a sharp blow, using a block-ended tube.

14037

1.3.12 Ferrule fittings on hydraulic lines

When pre-assembling the unit and for pre-assembled factory-delivered ferrule fittings, the following applies: installation is in the associated, well-oiled threaded joint with half a turn of the union nut beyond the point where resistance is felt.

Pre-assembly:

- Cut off the tube at right angles.
Do not use a pipe cutter! This will slant the tube wall, causing heavy inside and outside burrs.
- Slightly deburr the inside and outside tube ends.
Do not chamfer!
- Clean the tube end.

In case of tube bends, the straight tube end up to where the bending radius starts must be at least twice the height of the union nut.

- Push the union nut and the ferrule on the tube.
- Push the tube against the stop in the union and tighten the union nut until the ferrule catches the tube.

The tube must not rotate. This point can be felt because increased power is needed from here.

- Tighten the union nut half a turn beyond the point where resistance is felt.
- Check the cut produced by the cutting edge.

A visible collar must fill up the space ahead of the ferrule face. The ferrule may rotate, but axial displacement must not be possible.

Final assembly

- Insert the pre-assembled tube into the well-oiled screw fitting
- Tighten the union nut until considerably more force is needed.
- Then add another half a turn.

Repeated assembly

- Every time the ferrule fitting has been loosened, retighten the union nut without using increased force.

Ferrule fitting leaks

- If a fitting leaks, first loosen the union nut until some oil escapes.
- Then tighten the union nut as specified.

14039

1.3.13 Progressive ring fittings on hydraulic lines

When pre-assembling the unit and for pre-assembled factory-delivered profiled ring fittings, the following applies: installation is in the associated, well-oiled threaded joint with half a turn of the union nut beyond the point where resistance is clearly felt.

Pre-assembly

- Cut off the tube at right angles.
Do not use a pipe cutter! This will slant the tube wall, causing heavy inside and outside burrs.
- Slightly deburr the inside and outside tube ends.
Do not chamfer!
- Clean the tube end.

In case of tube bends, the straight tube end up to where the bending radius starts must be at least twice the height of the union nut.

- Push the union nut and the profiled ring on the tube.

- Push the tube against the stop in the union and tighten the union nut until the profiled ring catches the tube.

The tube must not rotate.

This point can be felt because increased power is needed from here.

- Tighten the union nut half a turn beyond the point where resistance is felt.
- Check the cut produced by the cutting edge.
A visible collar must fill up the space ahead of the profiled ring face. The profiled ring may rotate, but axial displacement must not be possible.

Final assembly

- Insert the pre-assembled tube into the well-oiled screw fitting.
- Tighten the union nut until considerably more force is needed and then add another half a turn.
Important: Back up the threaded joint with a spanner!

Repeated assembly

- Every time the profiled ring fitting has been loosened, retighten the union nut until resistance is felt and then continue for half a turn beyond that point.
Important: Back up the threaded joint with a spanner!

Profiled ring fitting leaks

If a fitting leaks, first loosen the union nut until some oil escapes and then tighten it as specified.

Any deviating tightening torques reduce the rated pressure resistance and the service life of the screw fitting. This results in leaks and the tube slipping out.

1.3.14 Taper fittings on hydraulic lines

Installation:

- Oil the O-ring on the sealing cone. Tighten the union nut a third of a turn beyond the point where resistance is felt.
Important: Back up the threaded joint with a spanner!

Any deviating tightening torques reduce the rated pressure resistance and the service life of the screw fitting. This results in leaks and the tube slipping out.

1.3.15 Hydraulic hoses

Hydraulic fittings:

Observe the final assembly instructions:

- For ferrule fittings on hydraulic lines see above.
For progressive ring screw fittings on hydraulic lines see above. For sealing cone screw fittings on hydraulic lines see above.

Laying the hoses:

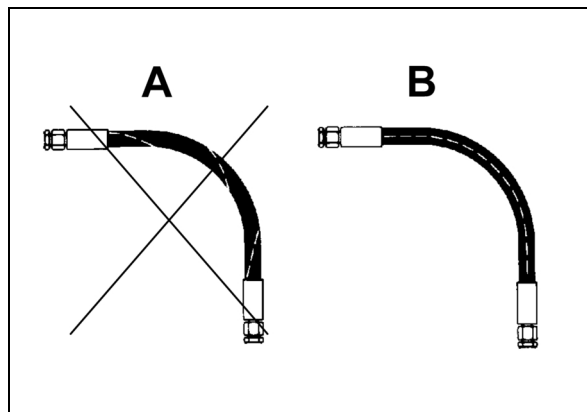
Observe the information provided with the five figures below.

- Avoid twisting the hoses during installation.

A = incorrect installation

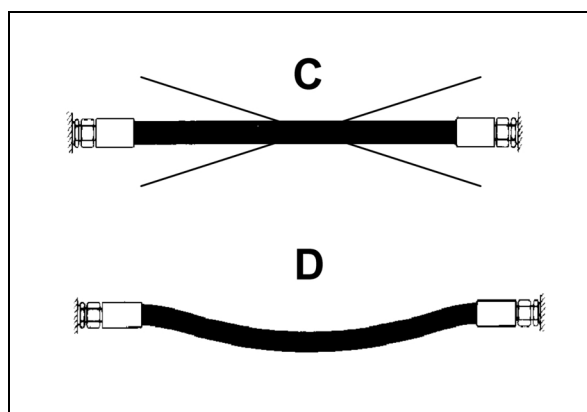
B = correct installation

(Fig. 5)



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Warning!

Hoses laid in a straight line become shorter due to the internal hydraulic pressure.

Fittings may be torn out.

- Always install hoses with a slight sag. Even in static positions.

- Hoses must be installed in such a way that neither tensile loads will occur in any operating condition nor compression loads on short hose lines.

C = incorrect installation

D = correct installation

- As a guideline, the total play of the hose should be 1 cm min. when moving the hose back and forth in the middle between two holders/connectors (e.g. clamps).

(Fig. 6)

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