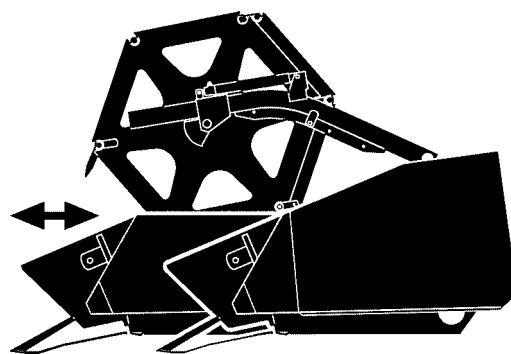


**REPAIR
MANUAL**

CLAAS



CLAAS

CUTTERBAR

VARIO 5.40 m - 7.50 m

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1

General information

GENERAL**Introduction**

This CLAAS REPAIR MANUAL is to assist in preserving the permanent working order and therefore the high value of your CLAAS round baler by careful maintenance and service.

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

The figures explain the procedure of repairs and the text describes the different adjustments to be made, the use of CLAAS special tools etc.

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 filed 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 which applies to the machine.

CLAAS KGaA mbH
Service Department

Introduction to the CLAAS REPAIR MANUAL

The CLAAS REPAIR MANUAL is divided into main groups and subgroups.

Pages and illustrations are numbered consecutively throughout each main group. The first figure at the bottom of each page refers to the main group whereas the second figure following the point indicates the subgroup; the figure behind the second point indicates the page number. In each subgroup, the figures and pages are numbered consecutively, starting at 1.

Where differences between the machine types must be observed, this is indicated in headings. Where a service procedure applies to all machines covered by this book, the machine names are not specifically given.

When supplements are to be added, the subgroups are supplemented or exchanged. All supplements are inserted into the respective main group / subgroup and the table of contents is updated.

The symbols communicate brief messages when recurring service procedures are described. Their meaning is explained at the beginning of this manual.

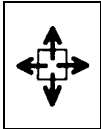

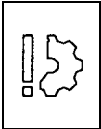
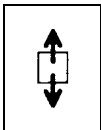


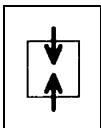
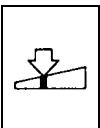
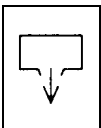
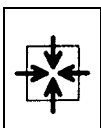
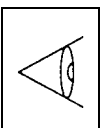
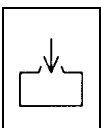
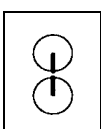
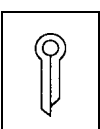
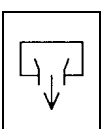
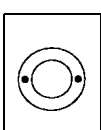
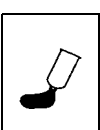
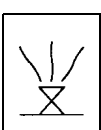
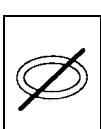
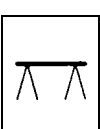
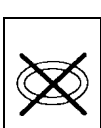
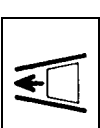
The section "GENERAL REPAIR INSTRUCTIONS" at the beginning of this manual contains useful practical hints. Read and follow these fundamental instructions. They are the basis for reliable service and durability of parts after repairs have been carried out.

The description of a particular service procedure can easily be found by checking the table of contents of the appropriate main group / subgroup.

Key to symbols

This CLAAS REPAIR MANUAL uses some symbols as defined in the "DIN 30600 Symbol summary" by the German Standardisation Institute (DIN).

The meaning of these symbols will be easily recognised and remembered by the user. These symbols are to help to quickly recognise recurring service procedures and they also help to communicate information shown on the illustrations.

	Dismantle, remove		Grease		Prevent damage to materials
	Disassemble		Oil		Special tools
	Assemble		Adjust/set		Drain, outlet
	Install, mount on		Check visually		Fill, filler opening
	Mark		Unlock, release, secure		Overflow
	Balance		Lock by means of liquids, glue, seal		Bleed
	Possibly reuseable		Underprop, support		
	Renew on each assembly		Observe direction of installation		

SAFETY RULES**Important information**

The instructions contained in this manual should be carefully read and observed by all persons who are concerned with the operation, maintenance and inspection of this machine in order to prevent accidents. In particular, read the section "Safety rules".

The use of spare parts, accessories and ancillary equipment other than genuine CLAAS products or those which have been tested and approved by CLAAS, may change the specified design characteristics of this CLAAS machine or detract from its functional performance, with a possible adverse effect on the active and/or passive operational safety of the machine and its occupational safety standards (accident prevention).

CLAAS is in no way liable for any damage or personal injury caused through the use of other than original 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 and omissions not accepted.

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

Identification of warning and danger signs

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



Danger!

Sign to indicate instructions which must be observed. Failure to do so would cause danger to life and limb to the operator and the people around him.

Preventive measures



Caution!

Sign to indicate instructions which must be observed. Failure to do so could result in damage to the machine.

Measures to prevent damage to the machine



Note!

Sign to indicate instructions for a more efficient and economic use of the machine.



Important!

Sign to indicate instructions to be followed during disassembly / assembly.



Environment!

Sign to indicate instructions which must be observed in order to avoid damage to the environment.

Danger to the environment is caused by irregular handling and incorrect disposal of toxic material (e.g. used oil).

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

Correct use of the round baler

Fitting and retrofitting of ancillary equipment which is not originally manufactured by CLAAS, and, in addition, also modifications and changes may only be carried out with the consent of CLAAS, as any such actions may have considerable adverse effects on the safety and operational function of the machine.

Any arbitrary modifications carried out on the round baler will relieve the manufacturer of all liability for any resulting damage or injury.

General safety and accident prevention regulations

1. In addition to the instructions contained in this manual, also observe the general safety and accident prevention regulations.
2. Always comply with local traffic regulations when driving on public roads.
3. Before starting the engine ensure that the transmission is in neutral and that all guards are installed and in their correct position.
4. Start the engine only from the operator's seat. Never attempt to start the engine by shortening across the starting motor terminals as the machine may immediately start to move!
5. Before moving away, always check the immediate vicinity of the machine. Ensure adequate visibility – for a warning, always blow the horn before starting up.
6. Never run the engine in a closed building!
7. Clothing worn by the fitter must be close-fitting. Avoid wearing loose jackets and shirts.
8. Handle fuel with care as it is highly flammable. Never refuel the machine in the vicinity of naked flames or sparks. Do not smoke during refuelling!
9. Always stop the engine and remove the main switch key (ignition key) before refuelling. Fill the fuel tank outdoors. Clean up any spilled fuel immediately!
10. Prevent fires by keeping the machine clean!
11. Take care when handling brake fluid and battery acid (toxic and corrosive)!
12. Always blow the horn before starting the engine and engaging the threshing mechanism.

Leaving the combine harvester

1. When leaving the combine harvester, ensure that it will not roll away (apply hand brake and chock blocks). Shut off the engine, remove the main switch key (ignition key) and lock the operator's cabin (if installed). – Turn off the battery isolating switch!
2. Never leave the combine unattended as long as the engine is still running!
3. Lower front attachments (cutterbars and others) fully to the ground before leaving the combine!

Service

1. Repair, service and cleaning work and the elimination of malfunctions should only be performed with the drive and the tractor engine switched off – remove the ignition key!
2. Escaping fluid (fuel or hydraulic oil) under high pressure can penetrate the skin and cause serious injury. In such a case, consult a doctor immediately as otherwise serious infections may result!
3. Dispose of oil, fuel and filters in a way that is harmless to the environment and in accordance with existing anti-pollution regulations!
4. Only have qualified workshops carry out repair work on the hydraulic system!

Basic rule

Always check the operating and road safety of the cutterbar before using it.

Hydraulic accumulators

Take particular care when working on hydraulic accumulators! Hydraulic accumulators are under high pressure!

In the case of valve-controlled accumulators such as e.g. for the Autopilot, the short-circuit screw has to be loosened before starting repair work on the accumulator so that the hydraulic pressure is relieved.

GENERAL REPAIR INFORMATION

Reason of damage

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

Spare parts

Use genuine CLAAS spare parts and corresponding CLAAS special tools.

Indicate the machine number of the round baler and also the respective serial numbers when ordering spare parts and in case of technical questions. This is necessary as otherwise, incorrect spare part deliveries may result.

Transmission

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

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: For a distance between centres of shafts of 500 mm, the slack span of the chain should deflect about 10 mm.

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, if 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. Shell Retinax G or similar brands) is applied and that the components are tightened to the specified torque in the correct order of assembly.



Caution!

No solid grease must be used when assembling the parts.

Removal:

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



Caution!

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

Self-locking bolts

(with microencapsulated adhesive)

Replace self-locking bolts, e.g. Verbus-Plus / Imbus-Plus and similar types every time such bolts are removed. In exceptional cases, they may be reused up to three times. Always observe the specified tightening torque.

Always tighten self-locking bolts with microencapsulated adhesive rapidly to the specified tightening torque. When removing these bolts, quickly unscrew them completely. These self-locking bolts must not come into contact with sealing compound (e.g. "Epple 33" or similar products).

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. Ensure that the specified quality grade of bolts (8.8/10.9 or similar grades) is observed here as well.

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. To speed up the curing time, heating may be applied (e.g. to 15 minutes at +70 °C).

Liquid locking compound

(e.g. Delo-ML 187 / Loctite 242 or similar types)

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 "Aktivator" included in the workshop package for cleaning.

Before applying the liquid locking compound, the metal surfaces where Aktivator has been applied must have dried. Especially in blind holes, no Aktivator (cleaning agent) residues are allowed.

When installing bolts, apply the liquid locking compound only to the internal thread (nut) if possible in small quantities (drops). In blind holes only wet approx. 1d (d = nominal diameter 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.

Correct installation of 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. Shell Retinax G or similar brands) to the inside ring and the shaft to make bearing removal easier during 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.

Correct installation of adapter sleeve bearings

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:

Bend up the tab which secures the sleeve nut and first back off the nut a few turns only (the thread must still fully grip). Loosen the taper lock adapter sleeve with a sharp blow, using a block-ended tube.

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:

1. Cut off the tube at right angles. Do not use a pipe cutter because this will slant the tube wall, causing heavy inside and outside burrs. Slightly deburr the tube end on the inside and outside (do not chamfer!) and clean it. 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.
2. Push the union nut and the ferrule on the tube.
3. Push the tube against the stop in the union and tighten union nut until the ferrule grips the tube (the tube must not rotate with the nut). This point can be felt because increase power is needed from here.
4. Tighten the union nut half a turn beyond the point where resistance is felt.
5. Check the cut made by the ferrule edge: A visible shoulder must fill the space before the ferrule front end. The ferrule may rotate, but axial displacement must not be possible.

Installation:

Insert the pre-assembled tube into the well-oiled threaded joint, tighten the union nut up to the point where resistance is felt and then half a turn beyond this point.

Re-installation:

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

Ferrule fitting leaks:

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

Progressive ring fittings on hydraulic lines

When pre-assembling the unit and for pre-assembled factory-delivered progressive 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:

1. Cut off the tube at right angles. Do not use a pipe cutter because this will slant the tube wall, causing heavy inside and outside burrs. Slightly deburr the tube end on the inside and outside (do not chamfer!) and clean it. 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.
2. Push the union nut and the progressive ring on the tube.
3. Push the tube against the stop in the union and tighten union nut until the progressive ring grips the tube (the tube must not rotate with the nut). This point can be felt because increase power is needed from here.
4. Tighten the union nut half a turn beyond the point where resistance is felt.
5. Check the cut made by the progressive ring edge: A visible shoulder must fill the space before the progressive ring front end. The progressive ring may rotate, but axial displacement must not be possible.

Installation:

Insert the pre-assembled tube into the well-oiled threaded joint, tighten the union nut up to the point where resistance is felt and then half a turn beyond this point.

Important: Back up the threaded joint with a wrench!

Re-installation:

Every time the progressive 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 wrench!

Progressive ring fitting leaks:

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



Caution!

Failure to observe the tightening torques reduces the nominal power and the service life of the fitting, resulting in leaks and in the tube slipping out.

Taper fittings on hydraulic lines

Montage:

Apply oil to the O-ring on the taper. Tighten the union nut a third of a turn beyond the point where resistance is felt.

Important: Back up the threaded joint with a wrench!



Caution!

Failure to observe the tightening torques reduces the nominal power and the service life of the fitting, resulting in leaks and in the tube slipping out.

Welding



Caution!

When carrying out electric welding work on the machine, proceed as follows:

1. Turn off the battery isolating switch!
2. Disconnect the connector to the display monitor. The connector is located in the central terminal compartment next to the plug-in module (11 – Automatic reel control).
3. Pull out the electrical plug-in modules in the central terminal compartment.
4. Disconnect the electrical connectors between the engine and the main wiring loom.
5. Always connect the earth clamp of the welder in the near vicinity of the area where the welding is being carried out.

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