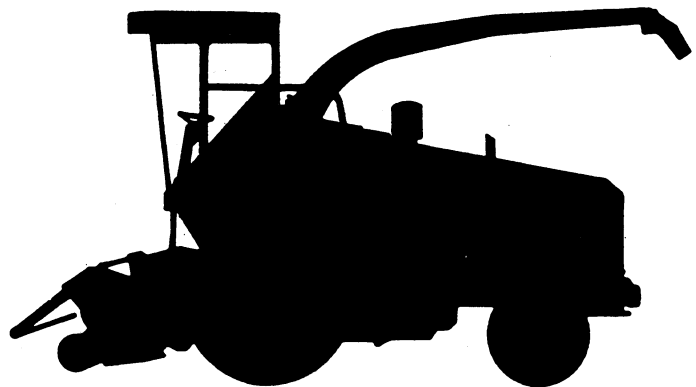


**REPAIR
MANUAL**

CLAAS



**CLAAS
JAGUAR 695 MEGA – 682 S**

186717.0 - J 695 MEGA - 682 S - E - 12.96 - 250 - V.+H.

CONVERSION FACTORS

Length

millimetres (mm)	x 0.03937	= inches (in)
millimetres (mm)	x 0.00328	= feet (ft)
centimetres (cm)	x 0.3937	= inches (in)
metres (m)	x 3.2808	= feet (ft)
kilometres (km)	x 0.6214	= miles

Area

square metres (m ²)	x 1550	= square inches (sq in)
square metres (m ²)	x 10.764	= square feet (sq ft)
hectare (ha)	x 2.4710	= acres

Weight

kilogrammes (kg)	x 2.2046	= pounds (lb)
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Torque

metre kilopond (mkp)	x 7.233	= foot pounds (ft lb)
newton metres (Nm)	x 0.7376	= foot pounds (ft lb)
metre kilopond (mkp)	x 9.81	= newton metre (Nm)

Pressure

bar	x 14.504	= pounds per square inch (psi)
kg/sq cm (at)	x 0.980665*	= bar
kg/sq cm (at)	x 14.223	= pounds per square inch (psi)

* Where feasible and for practical reasons, this factor is rounded to a whole unit to equal kg/sq cm (at) and bars.

Volume and capacities

cubic centimetres (cm ³)	x 0.06102	= cubic inches (cu in)
liters (l)	x 0.2201	= Imperial gallons (Imp. gal)
liters (l)	x 0.8798	= Imperial quarts (Imp. qt)
liters (l)	x 0.2642	= U.S. gallons (U.S. gal)
liters (l)	x 1.05668	= U.S. quarts (U.S. qt)
liters (l)	x 0.0275	= Imp. bushels
liters (l)	x 0.02838	= U.S. bushels

Velocity

kilometres/hour (km/h)	x 0.6215	= miles per hour (mph)
------------------------	----------	------------------------

Temperature

To convert Celsius (Centigrade) temperature into Fahrenheit: multiply by 9, divide the result by 5 and add 32.

$$+ 27^{\circ} \text{C} = \frac{9 \times 27}{5} = 48.6 + 32 = 80.6^{\circ} \text{F}$$

$$- 24^{\circ} \text{C} = - 11.2^{\circ} \text{F}$$

$$+ 2^{\circ} \text{C} = + 35.6^{\circ} \text{F}$$

$$+ 1^{\circ} \text{C} = + 33.8^{\circ} \text{F}$$

Whilst great care has been taken to ensure accuracy in the compilation of the conversion factors, CLAAS cannot be held responsible for any errors or omissions.

FOREWORD

This CLAAS REPAIR MANUAL has been prepared to assist all personnel concerned with the maintenance and service of CLAAS Forage Harvesters and to help preserve their permanent working order.

The experience of our Service engineers has been compiled in this CLAAS REPAIR MANUAL which explains the procedure of repairs, 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 drawn out.

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

To be sure, always compare settings and filling capacities with specifications stated in the Operator's Manual which applies to the Forage Harvester.

CLAAS OHG
Service Department

INTRODUCTION TO THE CLAAS REPAIR MANUAL

The present CLAAS REPAIR MANUAL is divided into main groups (see group index).

Pages and illustrations are numbered consecutively throughout each main group. Page numbering starts always with the number 1 in each group. The first figure at the bottom of each page refers to the main group whereas the second figure following the point indicates the numerical order of the pages.

Where service operations apply to a specific Forage Harvester model only, this is clearly indicated by reference to that model. When a service procedure applies to all machines covered by this book, the machine names are not especially mentioned.

Supplementary sections are numbered by an additional figure which is separated by a dash from the preceding figures. Any supplements should be inserted at the back of the relevant main group and the list of contents be changed accordingly.

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




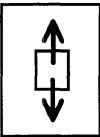


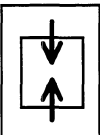
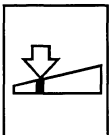
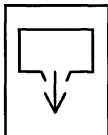

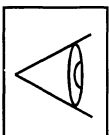
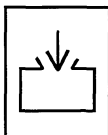
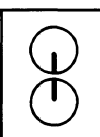
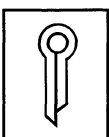
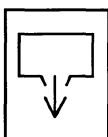


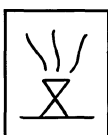

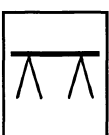

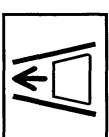
The section "GENERAL REPAIR INSTRUCTIONS" at the beginning of this book contains useful practical hints. Read and follow these fundamental instructions. They are the basis for reliable service and durability of parts after repairs have been carried out.

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

KEY TO SYMBOLS

In this CLAAS Repair Manual a limited number of symbols from the DIN publication 30600 have been used, which was prepared by the German Standard Institution (DIN).

The meaning of the symbols will soon be learned by the user. The symbols help to quickly recognize recurring service procedures and they also help to communicate information shown by the illustrations.

	Remove, dismantle		Grease		Prevent damage to material
	Dismantle		Oil		Special tool
	Assemble		Adjust, set		Drain, Drain outlet
	Install Mount		Visually check		Fill, Filler opening
	Mark		Unlock, release Secure		Overflow
	Balance		Lock Bound Seal using adhesives		Bleed
	Possibly reusable		Block up, Support Hold		
	Renew on each assembly		Note direction of installation		

GENERAL RECOMMENDATION FOR REPAIR

1. Locate the seat of the trouble, note all defective parts and take all precautions to prevent accidents.
2. Use genuine CLAAS spares and suitable CLAAS special service tools.
3. Always disconnect the negative battery cable (-) when working on the engine.
4. Drain off oil before removing the transmission cases. Use a plastic or soft metal hammer to separate parts tightly fitted into each other.
5. **Three-phase alternator**
 - a) Never disconnect the cables between the alternator, voltage regulator and battery with the alternator running.
 - b) Do not connect the battery terminals in reverse polarity; this will destroy the alternator diodes.
 - c) Do not carry out work on live parts unless the engine is stopped and the battery cables are disconnected.
 - d) Do not flash connections to check current flow. This will damage the semiconductors.
 - e) Do not use an electric welder on machines unless all the alternator wires are disconnected!
 - f) The battery provides the current for the field excitation required to start the alternator action via the charge indicator bulb. Burnt out bulbs must, therefore, be renewed to ensure positive field excitation.

6. Correct tension of steel roller chains

Find the center point in the slack span between sprockets. With the tight span slightly under load, push in the center point of the slack span with the thumb. The tension of the chain is correct when its slack span deflects about 2 % of the center distance between shafts. Tension of new chains should be checked at short intervals. Example: If the distance between the centers of the shafts is 500 mm, the slack span of the chain should deflect about 10 mm.

7. Taper ring fasteners (locking cones)

Parts can be securely fastened by taper rings, even when high power is transmitted from the drive element to the shaft and vice versa. However, the preload must be correct.

Installation:

When fitting the taper rings, it is **important** that the shaft, hub, parallel key and taper rings are thoroughly cleaned, that semi-fluid lubricant NLGI grade 00 (e.g. Shell Retinax G or its equivalent) is applied and that the components are tightened to the specified torque in the correct order of assembly.

IMPORTANT: No solid grease must be used when assembling the parts.

Removal:

After loosening the fixing components that clamp the taper rings axially in position, use a suitable hammer and block-ended tube and apply a short, sharp blow to loosen the taper ring fasteners.

IMPORTANT: The inside diameter of the tube must be large enough to fit over the taper ring.

8. Self-locking bolts (with adhesive-filled micro capsules)

Renew self-locking bolts, e.g. Verbus-Plus/Inbus-Plus or similar bolts whenever they have been disturbed. In exceptional cases, self-locking bolts may be reused up to three times. Always be sure to tighten the self-locking bolts to the specified torque.

Self-locking bolts with adhesive-filled micro capsules must always be quickly tightened to the specified torque. When removing these bolts, screw them quickly all the way out. These self-locking bolts with adhesive-filled micro capsules **must not** come in contact with sealant or jointing compound (e.g. Epple 33 or similar products). Instead of self-locking bolts, regular bolts with liquid locking compound may be used if need be. However, this must not become common practice.

However, care must be taken to use bolts and liquid locking compound only in places where it is possible to heat the fasteners to about 200 °C (392 °F) for removal. Ensure that the regular bolts conform to the specified grades (8.8/10.9 or similar property classes).

Self-locking bolts with adhesive-filled micro capsules can only be used where the operating temperature will not exceed + 90 ° C (194 ° F). After 24 hours of curing at + 20 ° C (68 ° F) these fasteners can be subjected to full stress. To speed-up curing time, the bonded parts can be heated, e.g. at + 70 ° C (158 ° F) total hardening time is reduced to 15 minutes.

9. **Liquid locking compound** (e.g. Casco 118/Loctite 75 or their equivalents)

Liquid locking compound must only be used at locations recommended by the manufacturer.

Correct application:

All metal surfaces where liquid locking compound is to be applied must be absolutely free from grease. Use "AKTIVATOR" that comes with the workshop package for cleaning.

Allow the AKTIVATOR to dry off the metal surfaces before applying the liquid locking compound. Especially in the case of holes that are not drilled all the way through care must be taken to ensure that no remains of AKTIVATOR (cleaning agent) are left.

When fitting screw fasteners with liquid locking compound, try to apply the compound to the inside thread only (nuts) in small amounts (drops). When using liquid locking compound in holes that are not drilled all the way through, only apply the compound to the bottom end of the thread by wetting a length of thread that equals about the diameter of the bolt (1 x the nominal diameter of the bolt). The same applies to any extra long female threads. Applying the locking compound to the thread of the bolt or at the top end of a female thread, spreads the compound over the full length of thread when the bolt is being screwed in. As a result, too much break-away torque is required to remove the bolt, should this be necessary, and the bolt could break.

Fasteners fitted with liquid locking compound can easily be loosened after heating them to 200 ° C (392 ° F).

10. **Correct installation of lock collar bearings**

Lock collar bearings are tightened by pushing the eccentric locking collar over the extended inner ring of the bearing and rotating the locking collar in direction of shaft rotation. This clamps the bearing to the shaft.

It is suggested to smear the inner ring and the shaft with semi-fluid lubricant NLGI-grade 00 (e.g. Shell Retinax G or its equivalent) before mounting the bearings. This will make removal of bearings at a later time easier, should this be necessary.

The locking collar is tightened by applying light hammer blows to a punch and tapping the collar in direction of shaft rotation until a moderate lock is obtained. Then tighten the set screw. Loosen the bearing by tapping the eccentric collar in the opposite direction of the rotation of the shaft.

11. **Correct installation of adapter sleeve bearings**

Adapter sleeve bearings can be mounted to any drawn or turned shafts, the seatings have not to be especially finished. This is of advantage because it allows the shaft to be axially moved as required so that the correct alignment is obtained.

When installing the adapter sleeve bearing, note the tapered inner ring. Clean the taper lock adapter sleeve and shaft before installing the bearing and check that the lock nut runs easily along the thread in order to prevent the adapter sleeve from turning when the nut is being tightened.

Tightening the bearing:

First tighten the lock nut to the point where play of the adapter sleeve is eliminated and slight preload exists. Then tighten the nut about 90 degrees and continue to turn the nut until the nearest slot fits the tab. Secure the nut by properly bending the tab into place.

Loosening the bearing:

Bend up the tab which secures the adapter sleeve lock nut. First back off the nut a few turns only (all of the nut's thread must still grip the thread of the adapter sleeve). Then use a suitable pipe and loosen the taper sleeve by applying a short, sharp blow.

12. **Olive (ferrule) fittings on hydraulic lines**

When assembling the unit on site or when installing a factory-assembled fitting: always make sure to liberally oil the inside of the union, and to tighten the union nut until resistance is felt and then 1/2-turn past that point.

Assembly on site:

- a) Cut the tube at right angles. Do not use a cut-off wheel because this somehow slants the wall of the tube and causes burrs, inside and out. Very carefully remove burrs both from the inside and outside of the tube end (but do not chamfer). Clean all foreign matter from the tube. In case of a bent tube, make sure that the length of the straight end of the tube up to the bend is at least two times the height of the union nut.
- b) Slide the union nut and olive on to the tube.
- c) Push the tube into the union until it bottoms and tighten the union nut until the olive cuts into the tube wall (the tube must not rotate with the nut). You will notice when this happens because resistance is felt at this point.
- d) Turn the union nut 1/2-turn past the point of resistance.
- e) Check cutting of olive into the tube wall: Some kind of a crest must be visible and provide snug fitting. The olive may rotate but must not move axially.

Installation of factory-assembled unit:

Oil the union liberally. Insert the assembled tube. Tighten the union nut until resistance is felt and then 1/2-turn past that point.

Reinstallation of a used fitting:

Every time the olive fitting has been loosened, retighten the union nut only until snug. Do not overtighten the unit.

The olive (ferrule) fitting leaks:

When the fitting leaks, first loosen the union nut until some oil comes out. Then retighten the union nut correctly.

13. **In order for the metal detector to function**, the front compression roller and the roller at the whole crop harvesting adapter have been made out of anti-magnetic steel.

IMPORTANT: Only use ANT.2.5, Innox ARCD-90011-type welding rods when doing any welding on these rollers.

14. **Welding**

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

- a) Disconnect the cable from the negative (earth) terminal of the battery (on machines with two batteries remove the negative (earth) cable from each battery).
- b) Disconnect the main cable loom plug from the socket on the engine.
- c) Remove the electronic plug-in modules from the central electrics compartment.
- d) Remove the diode plate from the central electrics compartment.
- e) Disconnect the cable connection to the fieldwork computer.
- f) Disconnect the plug at the reversing gearbox.
- g) Connect the earth clamp of the welder always in the near vicinity of the area where the welding is being carried out.

15. **Some advice for speedy and correct repair:**

- a) Certain parts have to be marked before disassembly to ensure their correct left-to-right position and balance when reassembled.
- b) Fit roll (expansion) pins always with their gap pointing to the side of load. If fitted with a quarter of a turn from this position, they will get loose, go astray or shear off.
- c) Always renew cotter pins, locking wires, locking plates, tab washers and lock washers when carrying out repairs.
- d) Fit lubricated ball and sleeve bearings with high quality grease.
- e) Care for chain sprockets and V-belt pulleys to be properly aligned.
- f) Care for strict cleanliness when working on hydraulic systems.
- g) Never mix different oil qualities.
- h) Run the machine or operate machine assemblies at low speed after any repair.

16. Inform the machine owner of the cause of damage, the extent of consequential damage and the machine parts involved.

GROUP INDEX

- 1 Specifications*
- 2 Sectional view of machine*
- 3 Drive schematic*
- 4 Feed units and reverse drive gearbox*
- 5 Chopping unit and discharge*
- 6 Engine and transmissions*
- 7 Transmission and chassis*
- 8 Hydraulic system, electrical system*
- 9 Steering and rear axle*
- 10 Auxiliary equipment*

1

Specifications

1 SPECIFICATIONS

JAGUAR 695 SL	
Adjustments and capacities	1. 1
JAGUAR 690 SL	
Adjustments and capacities	1. 4
JAGUAR 685 SL	
Adjustments and capacities	1. 7
JAGUAR 682 SL	
Adjustments and capacities	1.10
JAGUAR 682 S	
Adjustments and capacities	1.13

SPECIFICATIONS JAGUAR 695 SL**Pressure of hydraulic systems**

Pressure relief valve lift hydraulic system	180 bar
Pressure relief valve hydrostatic steering	120 bar
Pressure relief valve low pressure hydraulic circuit	20 ⁺² bar
Hydrostatic ground drive: Hydrostatic pump LINDE BPV 70 S	
Charge pressure	16 bar
Operating pressure	420 bar

Gearbox capacities

Basic machine:

Ground drive change-speed transmission	6.8 litres transmission oil SAE 90 (MIL-L-2105) API-GL-4-90
Final drive gearboxes, each	3 litres transmission oil SAE 90 (MIL-L-2105) API-GL-4-90
Main gearbox	7 litres Hypoid transmission oil SAE 90 (MIL-L-2105 B) API-GL-5-90
Discharge accelerator gearbox	0.45 litre transmission oil SAE 90 (MIL-L-2105) API-GL-4-90
Gearbox for top rollers	0.85 litre Hypoid transmission oil SAE 90 (MIL-L-2105 B) API-GL-5-90
Chain drive casing for bottom rollers	0.70 kg semi-fluid lubricant NLGI Class 00
Change-speed and reversing gearbox	5.5 litres Hypoid transmission oil SAE 90 (MIL-L-2105 B) API-GL-5-90
Free-wheeling clutch corn cracker	16 ml (0.56 Imp. fl.oz.) lubricating oil Type C-L or C-LP conforming to DIN 51 517, Part 2 or Part 3, ISO-VG 22

Maize header, 6 and 4-row:

Main gearbox	0.7 litre transmission oil SAE 90 (MIL-L-2105) API-GL-4-90
Spur gearbox	0.2 litre Hypoid transmission oil SAE 90 (MIL-L-2105 B) API-GL-5-90

Direct-cut attachment:

Angle drive gearbox	0.75 litre transmission oil SAE 90 (MIL-L-2105) API-GL-4-90
Knife drive casing	0.25 litre transmission oil SAE 140 (MIL-L-2105) API-GL-4-140

Pick-up attachment, 3.60 m and 2.00 m:

Angle drive gearbox	0.5 litre transmission oil SAE 90 (MIL-L-2105) API-GL-4-90
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Pick-up attachment, 4.30, 3.00 m and 2.20 m:

Angle drive gearbox	0.7 litre transmission oil SAE 90 (MIL-L-2105) API-GL-4-90
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SPECIFICATIONS JAGUAR 695 SL

Rear wheel drive:

ZF rear wheel drive system	2.3 litres Hypoid transmission oil SAE 90 (MIL-L-2105 B) API-GL-5-90
KRAMER differential gearbox	3.7 litres transmission oil SAE 90 (MIL-L-2105) API-GL-4-90
KRAMER final drive gearboxes each	1.1 litres transmission oil SAE 90 (MIL-L-2105) API-GL-4-90

Hydraulic system:

LINDE hydrostatic ground drive	8 litres multi-grade hydraulic oil HV (ISO-VG 46) conforming to DIN specifications 51 524 Part 3
Operational hydraulic system	7.5 litres multi-grade hydraulic oil HV (ISO-VG 46) conforming to DIN specifications 51 524 Part 3

For engines, see Engine Operator's Manual and Forage Harvester Operator's Manual.

Safety features

Basic machine:

Cut-out overload clutch for feed drive	at change-speed/reversing gearbox 1700 Nm
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Maize header, 6 and 4-row:

Overrun clutch in universal drive shafts.

a) Knife drive	700 Nm
b) Auger drive	700 Nm

Direct-cut attachment:

Slip clutch for feed roller	300 ± 10 Nm
Slip clutch for reel	300 ± 10 Nm

Pick-up attachment 2.00 m:

Slip clutch for header auger	620 – 670 Nm
Shear bolt for pick-up drive	M 6 x 35 DIN 931-10.9

Pick-up attachment 4.30 m, 3.60 m, 3.00 m and 2.20 m:

Slip clutch for header auger	780 – 820 Nm
Slip clutch for pick-up	380 – 420 Nm

**Torque Settings for
Cutting Cylinder Bolts**

Knife carriers/cutting cylinder	Hex. nuts M 16 = 290 Nm
Knives/knife carriers	Hex. bolts M 16 = 250 Nm
Mounting for Micro-profile rasp bars	Hex. nuts M 16 = 290 Nm

SPECIFICATIONS JAGUAR 695 SL

Brakes

Foot brake

Full braking effect after the first one third of the pedal travel

Handbrake

Should grip when engaged in the first 3-4 teeth of the segment

Steering

When the steering cylinder is fully extended, the adjustable steering stops should be in contact

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