



# King Pin Press (65t)



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English

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# **EN** Table of Contents

	Page
1. Essential Safety Notices	4
1.1 Safety Notices and Warnings	4
1.2 Personal Protective Equipment	7
1.3 Intended Use	7
1.4 Safe and Proper Use	7
1.5 Work Environment	7
1.6 Appropriate Users	7
2. Product Description	8
2.1 KL-1000-20 A King Pin Press	
2.2 Technical Data	
3. Preparatory Work	8
3.1 Lifting the King Pin Press off the Pallet	
3.2 Checking the Delivery	
3.3 Preparing the Vehicle	
3.4 Checking the Components of the King Pin Press	
3.5 Turning the Bridge 'A11' Upside Down if necessary	9
3.6 Manoeuvring the King Pin Press	9
3.7 Checking the Hydraulic Oil Level and Topping Up if necessary	9
3.8 Bleeding the Hydraulic Cylinder 'A13'	9
4. King Pin Removal/Installation	10
4.1 Removing the King Pin	
4.2 Installing the King Pin	14
5. Care and Storage	17
6. Maintenance and Repair by the GEDORE Automotive Service (	Centre17
7. Spare Parts List	17
8. Accessories	17
9. Environmentally Safe Disposal	17
10. EC Declaration of conformity / UKCA Declaration of conform	nity18

# 1. Essential Safety Notices

A Before using the king pin press, it is imperative that you read and understand the Instruction Manual. Misuse can lead to SERIOUS INJURIES and even DEATH.

This Instruction Manual is part of the king pin press. Keep the Instruction Manual in a safe place for future reference and pass it on to subsequent users of the king pin press. All vehicle-specific data stated herein are supplied under reserve and without commitment.

### 1.1 Safety Notices and Warnings

For better differentiation, the warning notices in this Instruction Manual are classified as follows:

Warning sign	Sign reads	Signification
A	DANGER	Indicates a hazardous situation which, if not avoided, may result in serious or fatal injuries.
A	CAUTION Indicates a hazardous situation which, if not avoided, may result in moderate or minor injuries	
<b>ATTENTION</b> Indicates a situation which, if not avoided, may result in possible damage to the king pin presits functioning, or to objects in its vicinity.		

# A DANGER

When removing king pins with the aid of the king pin press, there is a risk that the mandrel and/or support ring may break or slip out of position. This will lead to parts becoming projectiles which could cause severe injuries and even death.

- Before inserting the mandrel and support ring, the respective retaining bore in the hydraulic cylinder and in the bridge must be checked for foreign bodies and dirt, and cleaned if necessary.
- The mandrel and support ring must be fully inserted and accurately seated in their respective retaining bore in the hydraulic cylinder and bridge.

When removing king pins with the aid of the king pin press, there is a risk that the press frame and mandrel may break and fall to pieces. This will lead to parts becoming projectiles which could cause severe injuries and even death.

- When removing the king pin, the operator must ensure no other person is present in and around the working area of the king pin press.
- Never use the king pin press without the appropriate mandrel and support ring.
- Observe and do not exceed the maximum load capacity of the king pin press.
- Observe the recommended direction for the removal of the king pin.
- Never stack several mandrels, pressure pieces or support rings on top of each other during removal/installation.
- Start removing the king pin using the shortest mandrel possible. Then, withdraw and replace the mandrel with the next longer one. Continue in this way until king pin is extracted.
- Make sure that the mandrel and support ring are fully inserted and accurately seated in their respective retaining bore in the hydraulic cylinder and bridge.
- Before each use, visually check the components of the king pin press to make sure they are in good condition. In particular, check that all bolted connections are properly tightened and that the hydraulic hose, the mandrels, support rings, spacer ring and thrust piece are in good order and condition.
- Always keep all parts of your body away from the axial extension of the press frame.
- Only use the original spare parts and accessories from GEDORE Automotive.

When installing a king pin with the aid of the king pin press, there is a risk that the king pin may slip out of position and/or the press frame may break. This will lead to parts becoming projectiles which could cause severe injuries and even death.

- When installing the king pin, the operator must ensure no other person is present in and around the working area of the king pin press.
- Never use the king pin press without the appropriate support ring/thrust piece.
- Observe and do not exceed the maximum load capacity of the king pin press.
- Never stack several mandrels, pressure pieces or support rings on top of each other during removal/installation.
- Make sure that thrust piece and support ring are fully inserted and accurately seated in their respective retaining bore in the hydraulic cylinder and bridge.
- Before each use, visually check the components of the king pin press to make sure they are in good condition. In particular, check that all bolted connections are properly tightened and that the hydraulic hose, the mandrels, support rings, spacer ring and thrust piece are in good order and condition.
- Always keep all parts of your body away from the axial extension of the press frame.
- Only use the original spare parts and accessories from GEDORE Automotive.



When installing a king pin with the aid of the king pin press, there is a risk that the thrust piece and/or support ring may break or slip out of position. This will lead to parts becoming projectiles which could cause severe injuries and even death.

- Before inserting the thrust piece and support ring, the respective retaining bore in the hydraulic cylinder and in the bridge must be checked for foreign bodies and dirt, and cleaned if necessary.
- The thrust piece and support ring must be fully inserted and accurately seated in their respective retaining bore in the hydraulic cylinder and bridge.

Make sure that the bridge is properly aligned with the hydraulic cylinder, otherwise there is a risk that these could shift. As a result, there is a danger of the king pin slipping out of position and of the press frame breaking. This will lead to parts becoming projectiles which could cause severe injuries and even death.

- The bridge and hydraulic cylinder must be aligned so that they are parallel to each other. For this, measure the distance between the bridge and the hydraulic cylinder at the right and left threaded rod. The distance must be equal on either side.
- The press frame must be perfectly aligned (rectilinear) with the king pin retaining bore.
- Once the alignment completed, tighten all the hex nuts on the press frame to approx. 60 Nm.

# **A**CAUTION

There is a risk of the hydraulic hose bursting which could lead to an uncontrolled whipping of the hose as well as hydraulic fluid escaping at high pressure.

In accordance with DIN 20 066 recommendations, hydraulic hoses should be replaced after a period of use of 6 years. The date
of manufacture of the hydraulic hose can be found on the press sleeves of the hose for verification.

The bridge can cause injuries to feet if dropped.

Always wear safety shoes/boots.

The king pin press can cause injuries to feet if dropped.

- Always wear safety shoes/boots.
- Lift king pin press off the pallet by means of a suitable hoist.
- When lifting the king pin press off the pallet, always pay attention to the centre of gravity of the press.
- Place hydraulic cylinder into its lowest possible position.

When manoeuvring the king pin press, there is a risk of the press tipping over and causing injuries to feet.

- · Always wear safety shoes/boots.
- Place hydraulic cylinder into its lowest possible position.

Risk of hydraulic fluid escaping under pressure from the king pin press potentially causing eye injuries and skin irritations.

- Always wear safety gloves and safety goggles.
- Always make sure that system is depressurised before attempting to check the hydraulic fluid level.
- After checking/topping up, completely re-insert oil dipstick into pump unit.

When removing and installing king pins with the aid of the king pin press, there is a danger of hydraulic fluid escaping under high pressure potentially causing serious eye injuries and skin irritations.

• Never attempt to turn the pressure gauge on the king pin press if the gauge is still under pressure/displaying pressure.

When removing and installing king pins with the aid of the king pin press, there is a risk of injuries to hands and fingers.

• During removal/installation of the king pin, always keep your hands clear of the press frame.

When bleeding the king pin press, there is a risk of hydraulic fluid escaping under pressure potentially causing eye injuries and skin irritations.

- Always wear safety gloves and safety goggles.
- Extend hydraulic cylinder 1-2cm at the most.
- Once the bleeding of the king pin press completed, re-insert/fully tighten grub screw on hydraulic cylinder.

When inserting the support ring and mandrel/thrust piece, there is a risk that these may fall and cause injuries to your feet.

• Always wear safety shoes/boots.

When inserting the mandrel and support piece, there is a risk of injuries to hands and fingers.

Always make sure that the system is depressurised before attempting to insert the mandrel and support ring.

When turning the press frame upside down, there is a risk of injuries to hands and fingers.

• Always wear safety gloves.

- Align crank relative to pump unit.
- While turning the press frame upside down, always keep your hands clear of the press frame and moving parts.
- Turn press frame upside down with the help of a second person.
- Once the press frame in upside-down position, tighten tapered handle.



When removing the support ring and mandrel/thrust piece, there is a risk that these could get stuck or fall and cause injuries to your hands and feet.

Always wear safety gloves and safety shoes/boots.

When positioning the press frame, there is a risk of injuries to hands and fingers.

- Always wear safety gloves.
- Turn crank in a controlled way in order to avoid any slippage.
- When positioning the press on the steering knuckle, always keep your hands clear of the press frame.
- The crank must only be operated when the press frame is in vertical position.

When operating the pump lever, there is a risk that it could slip out of position and cause injuries to your hands and fingers. • The pump lever must be fully inserted in the pump sleeve.

When using the quick-stroke 'Extend/Retract ' valve, there is a risk of injuries to hands and fingers.

- When using the quick-stroke valve, always keep your hands clear of the press frame of the king pin press.
- The quick-stroke valve is only intended to quickly extend and retract the piston rod on the hydraulic cylinder when positioning the king pin press.
- When operating the pump lever, there is a risk that it could slip out of position and cause injuries to your hands and fingers.
- The pump lever must be fully inserted into the pump sleeve.

# ATTENTION

Risk of damage to steering knuckle.

• Observe the mounting direction for the king pin specified by the vehicle manufacturer.

Risk of damage to king pin press and vehicle.

- Connect the king pin press only to air systems that are dry and oiled.
- Observe and do not exceed the maximum approved air pressure of 13 bar.
- Never use the king pin press without the appropriate support ring and mandrel/thrust piece.
- Regularly clean crank spindle and lubricate with molybdenum disulphide paste such as KL-0014-0030 (accessory).
- Any work on vehicles should only be performed by qualified specialist personnel observing and complying with the directions, provisions, and safety regulations specified by the vehicle manufacturer!

Risk of damage to hydraulic cylinder piston rod.

• When using mandrels that are shorter than 120mm, make sure that the piston rod is not pressing against the steering knuckle while removing the king pin.

Risk of damage to support ring and king pin press.

• When choosing the appropriate support ring, bear in mind that its internal diameter <u>must not be too small</u>, otherwise there is a risk that the king pin, while being pressed out, could get stuck in the support sleeve.

Misalignment between the bridge and hydraulic cylinder can lead to damage to the hydraulic cylinder resulting in leakage.

- The press frame must be aligned so as to allow the mandrel/thrust piece to press precisely centrally against the king pin.
- The press frame must be aligned so as to allow the king pin to be pressed into the support ring (inner Ø) without any risk of collision.
- The bridge and hydraulic cylinder must be aligned so that they are parallel to each other. For this, measure the distance between the bridge and the hydraulic cylinder at the right and left threaded rod. The distance must be equal on either side.
- The contact surface of the support ring must rest level on the supporting surface of the steering knuckle. Risk of damage to mandrel and steering knuckle.
- When choosing the appropriate mandrel, bear in mind that its outer diameter <u>must not be too large</u>, otherwise there is a risk that the mandrel could be pressed into the bore on the steering knuckle.

Risk of damage to mandrel, thrust piece, support ring and steering knuckle.

- The press frame must be aligned so as to allow the thrust piece to press precisely centrally against the king pin.
- The press frame must be aligned so as to allow the king pin to be pressed into the support ring (inner Ø) without any risk of collision in case the pin, in its final position, protrudes from of the bearing bore.
- The bridge and hydraulic cylinder must be aligned so that they are parallel to each other and at right angles to the threaded rods.
  The contact surface of the support ring must rest level on the supporting surface of the steering knuckle.
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## **1.2 Personal Protective Equipment**

<u>ALWAYS</u> wear personal protective equipment when using the king pin press. The king pin press can cause mechanical hazards leading to injuries such as contusions, cuts or concussions.



EYE PROTECTION (see OSHA 29 CFR 1910.133 and ANSI Z87) designed to protect you from flying debris/parts must be worn when using the king pin press.

 Particles may be ejected at very high speed while working with the king pin press and could cause serious injuries to your eyes.



- SAFETY GLOVES must be worn when using the king pin press.
- Working with the king pin press can cause skin abrasions and contusions.

SAFETY SHOES/BOOTS with slip resistant soles and steel-toe caps (see OSHA 29 CFR 1910.136 and ANSI 241) must be worn when using the king pin press.

• Falling parts can cause serious injuries to feet and toes.

### 1.3 Intended Use

A The king pin press is only designed for the pressing in/pressing out of king pins in situ on the vehicle.

The king pin press may only be used for the purpose and in the manner as described in this Instruction Manual.

- Any other use can result in severe injuries or even death.
- In addition to the instructions in this manual, the general and specific statutory regulations on accident prevention and environmental protection must be observed and complied with.

# 1.4 Safe and Proper Use

Take the following safety precautions to prevent injuries and damage that could be caused by improper handling or unsafe use of the king pin press:

A Misuse can result in extremely severe injuries or even death.

- Prior to the first commissioning, the king pin press must be checked for technical defects by an expert; and thereafter, this inspection is to be carried out once a year.
- NEVER overload the king pin press.
- Before EACH use, visually check the components of the king pin press to make sure they are in good condition. In particular, check that all bolted connections are properly tightened and that the hydraulic hose, the mandrels, support rings, spacer ring and thrust piece are in good order and condition.
- ALWAYS replace all damaged and worn parts prior to using the king pin press.
- Only qualified specialist personnel should be allowed to perform repairs on the king pin press. Repair work must only be performed with the king pin press switched off and in depressurised condition. (compressed air switched off, pressure in hydraulic system relieved)
- Technical modifications on the king pin press are **not** allowed.
- ONLY use the original spare parts and accessories from GEDORE Automotive on the king pin press.

#### 1.5 Work Environment

Work with the king pin press should only be carried out in a safe and secure work environment.

- The workplace should be adequately illuminated.
- The workplace should be clean and tidy.
- The workplace should be sufficiently large and must be secured.
- The workplace should have a solid, level surface.

#### **1.6 Appropriate Users**

This Instruction Manual is designed for technicians/mechanics in workshops.

DO NOT allow children to use the king pin press.

Purchasers/employers purchasing the king pin press MUST ensure that any person using the king pin press has read and understood this Instruction Manual prior to using the king pin press. This Instruction Manual MUST be made available to the users of the king pin press for reference at all times.

2







# 2. Product Description

#### 2.1 KL-1000-20 A King Pin Press

#### Universal application

Designed to press out/press in king pins on lorries.

Α		King Pin Press (65t)
A1	-	Pump Rod
A2	-	Pump Sleeve
A3	-	Pressure Gauge
A4	-	Relief Valve
A5	-	Air System Connection
A6	-	Quick-Stroke Valve
A7	-	Crank
A8	-	Tapered Handle
A9	-	Threaded Rods
A10	-	Hex Nuts
A11	-	Bridge (long)
A12	-	Tapered Handle
A13	-	Hydraulic Cylinder
A14	-	Press Frame
В	KL-1000-2621-1	Mandrel, Ø 21.5mm, length 95mm
С	KL-1000-2630-1	Mandrel, Ø 30mm, length 95mm
D	KL-1000-2634-1	Mandrel, Ø 34mm, length 95mm
Е	KL-1000-2621-2	Mandrel, Ø 21.5mm, length 185mm
F	KL-1000-2630-2	Mandrel, Ø 30mm, length 185mm
G	KL-1000-2634-2	Mandrel, Ø 34mm, length 185mm
Н	KL-1000-2621-3	Mandrel, Ø 21.5mm, length 275mm
J	KL-1000-2630-3	Mandrel, Ø 30mm, length 275mm
Κ	KL-1000-2890	Support Ring, Ø 90mm
L	KL-1000-2863	Support Ring, Ø 63mm
М	KL-1000-2290	Spacer Ring for Bridge, Ø 70.5mm
Ν	KL-1000-2758	Thrust Piece, Ø 58mm
0	KL-1000-2690	Open-End Spanner, Size (waf) 50mm

# 3. Preparatory Work

Before the first commissioning of the king pin press, check and confirm you have all the parts listed in the scope of delivery. Then, read and follow the mounting instructions.

# 3.1 Lifting the King Pin Press off the Pallet

#### **A**CAUTION

- The king pin press can cause injuries to feet if dropped.
- Always wear safety shoes/boots.
- Lift king pin press off the pallet by means of a suitable hoist.
- When lifting the king pin press off the pallet, always pay attention to the centre of gravity of the press.
- Place hydraulic cylinder 'A13' into its lowest possible position.

Lift king pin press off the pallet. (Fig. 1)

#### 3.2 Checking the Delivery.

#### 3.3 Preparing the Vehicle.

Loosen and/or remove parts as necessary in accordance with the manufacturer's instructions.

# 3.4 Checking the Components of the King Pin Press.

There is a risk of the hydraulic hose bursting which could lead to an uncontrolled whipping of the hose as well as hydraulic fluid escaping at high pressure.

• In accordance with DIN 20 066 recommendations, hydraulic hoses should be replaced after a period of use of 6 years. The date of manufacture of the hydraulic hose can be found on the press sleeves of the hose for verification.

Before each use, visually check the components of the king pin press to make sure they are in good condition. In particular, check that all bolted connections are properly tightened and that the hydraulic hose, the mandrels, support rings, spacer ring and thrust piece are in good order and condition.







Fig. 4: Bleeding the hydraulic cylinder 'A13'.



# 3.5 Turning the Bridge 'A11' Upside Down if necessary.

#### 

The bridge 'A11' can cause injuries to feet if dropped.

• Always wear safety shoes/boots.

In certain cases, for example due to space constraints, it may be necessary to turn the bridge 'A11' on the threaded rods 'A9' upside down.

For this, loosen the two upper hex nuts 'A10' by means of openend spanner 'O', remove bridge 'A11' from threaded rods 'A9', turn it upside down and place it back on threaded rods. Next, screw on again hex nuts 'A10' and tighten to 60 Nm. (Fig. 2)

# 3.6 Manoeuvring the King Pin Press.

### **A** CAUTION

When manoeuvring the king pin press, there is a risk of the press tipping over and causing injuries to your feet.

- Always wear safety shoes/boots.
- Place hydraulic cylinder 'A13' into its lowest possible position.

Insert pump rod 'A1' into retaining bore on the chassis of the press, secure via tapered handle. You can now manoeuver/move the king pin press. (Fig. 2)

# 3.7 Checking the Hydraulic Oil Level and Topping Up if necessary.

 To check the level of the hydraulic oil, open relief valve 'A4' and completely retract piston rod of hydraulic cylinder 'A13' (Pressure on hydraulic cylinder 'A13' relieved).

#### 2. A CAUTION

Risk of hydraulic fluid escaping under pressure from the king pin press potentially causing eye injuries and skin irritations.

- Always wear safety gloves and safety goggles.
- Always make sure that system is depressurised before attempting to check the hydraulic fluid level.
- After checking/topping up, completely re-insert oil dipstick into pump unit.

Unscrew oil dipstick from pump unit and check oil level. After checking/topping up, completely re-insert oil dipstick into pump unit.

Note: The oil level should be between the upper and lower mark on the oil dipstick. (Fig. 3). Top up with *hydraulic oil HLP 22* if necessary.

#### 3.8 Bleeding the Hydraulic Cylinder 'A13'.

 Close relief valve 'A4'. Insert pump lever 'A1' into pump sleeve 'A2', next operate pump lever 'A1' and extend piston rod of hydraulic cylinder 'A13' approximately 1-2cm.

#### 2. A CAUTION

When bleeding the king pin press, there is a risk of hydraulic fluid escaping under pressure potentially causing eye injuries and skin irritations.

- Always wear safety gloves and safety goggles.
- Extend hydraulic cylinder 'A13' 1-2cm at the most.
- Once the bleeding of the king pin press completed, re-insert/fully tighten grub screw on hydraulic cylinder 'A13'.

To bleed hydraulic cylinder 'A13', <u>slightly</u> loosen grub screw in the centre of retaining bore (piston rod) by means of a 5mm (waf) hex socket key. (Fig. 4)

Once all air has been eliminated and bubble-free hydraulic fluid flows from the bore, re-tighten grub screw securely. Next, open relief valve 'A4' to relieve pressure on hydraulic cylinder 'A13'.



Fig. 5: Turning the press frame 'A14' upside down





# 4. King Pin Removal/Installation

The following instructions describe the procedure of removing and installing a king pin on a Mercedes *ACTROS*<sup>®</sup> with the specified direction of removal **from bottom to top**.

When the direction of removal **from top to bottom** is required, procedure follows the same principle with the press frame turned 180°.

### 4.1 Removing the King Pin.

#### 1. A CAUTION

When turning the press frame 'A14' upside down, there is a risk of injuries to hands and fingers.

- Always wear safety gloves.
- While turning the press frame 'A14' upside down, always keep your hands clear of the press frame and moving parts.
- Align crank 'A7' relative to pump unit. (Fig. 5 A)
- Turn press frame 'A14' upside down with the help of a second person.
- Once the press frame in upside-down position, tighten tapered handle 'A12'.

#### ATTENTION

Risk of damage to steering knuckle.

• Observe the direction of removal for the king pin specified by the vehicle manufacturer.

Turn press frame 'A14' into direction of removal as required by the vehicle manufacturer. For this, loosen tapered handle 'A12, turn press frame 'A14' upside down, re-tighten tapered handle 'A12'. (Fig. 5 A + B)

#### 2. A CAUTION

When positioning the press frame 'A14', there is a risk of injuries to hands and fingers.

- Always wear safety gloves.
- Turn crank 'A7' in a controlled way to prevent any slippage.
- When positioning the press on the steering knuckle, always keep your hands clear of the press frame 'A14'.
- Crank 'A7' must only be operated when press frame 'A14' is in vertical position.

#### ATTENTION

Risk of damage to king pin press.

 Regularly clean spindle of crank 'A7' and lubricate with molybdenum disulphide paste such as KL-0014-0030 (accessory).

Mount king pin press on steering knuckle as shown in **Fig. 6.** Adjust press frame '**A14**' to the required height by turning crank '**A7**'.

#### 3. ATTENTION

Risk of damage to mandrel 'B'-'J' and steering knuckle.

 When choosing the mandrel, bear in mind that its outer diameter must not be too large, otherwise there is a risk that mandrel 'B'-'J' could be pressed into the bore on steering knuckle.

To identify suitable mandrel, measure the retaining bore inner  $\emptyset$ . (Fig. 7 A).

**Note:** Always use the mandrel with the largest possible diameter. Remember that the  $\emptyset$  of the mandrel must be approximately 2-3mm less than the retaining bore inner  $\emptyset$ .

Start removing the king pin using the shortest mandrel possible. Then, withdraw and replace the mandrel with the next longer one. Continue in this way until king pin is extracted.

#### 4. ATTENTION

Risk of damage to support ring 'K' or 'L + M' and king pin press.

 When choosing the support ring, bear in mind that its internal diameter <u>must not be too small</u>, otherwise there is a risk that the king pin, while being pressed out, could get stuck in support ring 'K' or 'L + M'.

# To identify suitable support ring, measure the king pin outer $\ensuremath{\varnothing}.$ (Fig. 7 B)

Note: The support ring inner Ø should be approximately 2-3mm greater than the king pin outer Ø.



#### Fig. 8: Inserting the support ring and mandrel into press.



Fig. 9: Aligning the press frame 'A14'.



Fig. 10: Aligning the bridge with hydraulic cylinder.



#### 5. A DANGER

When removing king pins with the aid of the king pin press, there is a risk that the mandrel 'B'-'J' and support ring 'K' or 'L + M' may break or slip out of position. This will lead to parts becoming projectiles which could cause severe injuries and even death.

- Before inserting the mandrel 'B'-'J' and support ring 'K' or 'L + M', check the respective retaining bore on hydraulic cylinder 'A13' and bridge 'A11' to ensure there is no dirt, foreign object or other contamination. Clean if necessary.
- Make sure that mandrel 'B'-'J' and support ring 'K' or 'L + M' are fully inserted and accurately seated in their respective retaining bore in the hydraulic cylinder 'A13' and bridge 'A11'.

#### **A**CAUTION

When inserting the mandrel 'B'-'J' and support ring 'K' or 'L + M', there is a risk that these may fall and cause injuries to your feet. When inserting the mandrel 'B'-'J' and support ring 'K' or 'L + M', there is a risk of injuries to hands and fingers.

- · Always wear safety shoes/boots.
- Always make sure that the system is depressurised before attempting to insert mandrel 'B'-'J' and support ring 'K' or 'L + M'

Insert mandrel 'B'-'J' all the way into retaining bore on hydraulic cylinder 'A13'. (Fig. 8)

Insert support ring 'K' or 'L + M' all the way into retaining bore on bridge 'A11'. Secure with hex screw. (Fig. 8)

Note: When using support ring 'L', you will additionally need spacer ring 'M'. First, insert spacer ring 'M' into retaining bore on bridge 'A11', next insert support ring 'L' into spacer ring 'M'.

#### 6. **A DANGER**

Make sure that bridge 'A11' is properly aligned with hydraulic cylinder 'A13', otherwise there is a risk that these could shift. As a result, there is a danger of the press frame 'A14' and mandrel 'B' - 'J' breaking. This will lead to parts becoming projectiles which could cause severe injuries and even death.

- The bridge 'A11' and hydraulic cylinder 'A13' must be aligned so that they are parallel to each other. For this, measure the distance between the bridge and the hydraulic cylinder at the right and left threaded rod. The distance <u>must be</u> equal on either side. (See Fig. 10)
- The press frame 'A14' must be perfectly aligned (rectilinear) with the king pin. (See Fig. 10)
- Once the alignment completed, tighten all the hex nuts **'A10'** on press frame**'A14'** to 60 Nm.

#### ATTENTION

Risk of damage to mandrel 'B'-'J', support ring 'K' or 'L + M' and king pin.

Misalignment between bridge 'A11' and hydraulic cylinder 'A13', can lead to damage to the hydraulic cylinder 'A13' resulting in leakage.

- The press frame **'A14'** must be aligned so as to allow the mandrel **'B'-'J'** to press precisely centrally against the king pin.
- The press frame 'A14' must be aligned so as to allow the king pin to be pressed into the support ring (inner Ø) 'K' or 'L + M' without any risk of collision.
- The bridge 'A11' and hydraulic cylinder 'A13' must be aligned so that they are parallel to each other. For this, measure the distance between the bridge and the hydraulic cylinder at the right and left threaded rod. The distance <u>must be</u> equal on either side. (See Fig. 10)
- The contact surface of the support ring 'K' or 'L + M' must rest level on the supporting surface of the steering knuckle.

Turn hex nuts 'A10' by means of open-end spanner 'O' to adjust bridge 'A11' in such a way that support ring 'K' or 'L + M' bears with its entire surface against the steering knuckle. Tighten hex nuts 'A10' on bridge 'A11' to 60 Nm. (Fig. 9 + 10).

**Note:** Turn hex nuts **'A10'** to adjust bridge **'A11'** in such a way that the hydraulic work with the king pin press can be performed with the shortest possible piston stroke.

The movable axle bearing allows for the accurate lateral alignment. (Fig. 9)

2



# 7. ATTENTION

Risk of damage to king pin press.

- Connect king pin press only to air systems that are dry and oiled.
- Observe and do not exceed the maximum approved air pressure of 13 bar.

Connect king pin press to air system.

# 8. A CAUTION

When using the quick-stroke valve 'A6', there is a risk of injuries to hands and fingers.

- When using the quick-stroke valve 'A6', always keep your hands clear of the press frame 'A14' of the king pin press.
- The quick-stroke valve'A6' is only intended to quickly extend and retract the piston rod on the hydraulic cylinder 'A13' when positioning the king pin press.

Operating principle of the quick-stroke valve 'A6' (Fig.11):

AUF = means fast extension of the pis	ton rod
<b>AB</b> = means fast <b>retraction</b> of the pist	ton rod.

#### 9. A CAUTION

When operating pump lever 'A1', there is a risk that it could slip out of the pump sleeve and cause injuries to your hands and fingers.

• Pump lever 'A1' must be fully inserted in pump sleeve 'A2'.

Close relief valve 'A4' on pump unit, insert pump lever 'A1' into pump sleeve 'A2'. (Fig.12)





# 10. A DANGER

When removing king pins with the aid of the king pin press, there is a risk that press frame 'A14' and mandrel 'B'-'J' may break and fall to pieces. This will lead to parts becoming projectiles which could cause severe injuries and even death.

- When removing the king pin, the operator must ensure no other person is present in and around the working area of the king pin press.
- Never use the king pin press without the appropriate mandrel 'B'-'J' and support ring 'K' or 'L + M'.
- Observe and do not exceed the maximum load capacity of the king pin press.
- Observe the recommended direction for the removal of the king pin.
- Never stack several mandrels, pressure pieces or support rings on top of each other during removal/installation.
- Start removing the king pin using the shortest mandrel possible. Then, withdraw and replace the mandrel with the next longer one. Continue in this way until king pin is extracted.
- Make sure that mandrel 'B'-'J' and support ring 'K' or 'L + M' are fully inserted and accurately seated in their respective retaining bore in hydraulic cylinder 'A13' and bridge 'A11'.
- Before each use, visually check the components of the king pin press to make sure they are in good condition. In particular, check that all bolted connections are properly tightened and that the hydraulic hose, the mandrels, support rings, spacer ring and thrust piece are in good order and condition.
- Always keep all parts of your body away from the axial extension of press frame 'A14'.
- Only use the original spare parts and accessories from GEDORE Automotive.

#### **A**CAUTION

When removing king pins with the aid of the king pin press, there is a danger of hydraulic fluid escaping under high pressure potentially causing serious eye injuries and skin irritations.

When removing king pins with the aid of the king pin press, there is a risk of injuries to hands and fingers.

- Never attempt to turn pressure gauge 'A3'on the king pin press if it is still under pressure/displaying pressure.
- During removal of the king pin, always keep your hands clear of press frame 'A14'.

#### ATTENTION

Risk of damage to king pin press and vehicle.

- Risk of damage to piston rod of hydraulic cylinder 'A13'.
- Never use the king pin press without the appropriate mandrel 'B'-'J' and support ring 'K' or 'L + M'.
- Any work on vehicles should only be performed by qualified specialist personnel observing and complying with the directions, provisions, and safety regulations specified by the vehicle manufacturer!
- When using mandrels that are shorter than 120 mm, make sure that the piston rod is not pressing against the steering knuckle while removing the king pin. (See Fig. 13 C)

Operate pump rod 'A1' and remove king pin. During the removal process, read and observe the force indicated on pressure gauge 'A3' of the pump. (Fig. 13 A + B + C)

**Note:** Start removing the king pin using the shortest mandrel possible. Then, withdraw and replace the mandrel with the next longer one. Continue in this way until king pin is extracted.

If the maximum usable piston stroke/working travel of hydraulic cylinder 'A13' is insufficient to remove the king pin in one step, relieve pressure on hydraulic cylinder 'A13', retract piston rod by means of quick-stroke valve 'A6' and replace mandrel with the next longer one.

#### 11. A CAUTION

When removing the mandrel 'B'-'J' and support ring 'K' or 'L + M', there is a risk these could get stuck or fall and cause injuries to your hands and feet.

• Always wear safety gloves and safety shoes/boots.

Relieve pressure on hydraulic cylinder 'A13', retract piston rod by means of quick-stroke valve 'A6', move king pin press away from vehicle and remove mandrel 'B'-'J'.

**Note:** For the king pin installation that follows, the support ring may remain in bridge **'A11'**.

# Fig. 14: Turning the press frame 'A14' upside down if necessary. "A" "B"



# Fig. 15: Positioning the king pin press on vehicle axle.



# Fig. 16: Inserting support ring and thrust piece into press.



# 4.2 Installing the King Pin

# 1. A CAUTION

When turning the press frame 'A14' upside down, there is a risk of injuries to hands and fingers

- Always wear safety gloves.
- While turning the press frame 'A14' upside down, always keep your hands clear of the press frame and moving parts.
- Align crank 'A7' relative to pump unit. (Fig. 14 A)
- $\bullet$  Turn press frame 'A14' upside down with the help of a second person.
- Once the press frame in upside-down position, tighten tapered handle 'A12'.

## ATTENTION

Risk of damage to steering knuckle.

• Observe the installation direction for the king pin specified by the vehicle manufacturer.

Turn press frame 'A14' into direction of installation as required by the vehicle manufacturer. For this, loosen tapered handle 'A12, turn press frame 'A14' upside down, re-tighten tapered handle 'A12'. (Fig. 14)

# 2. A CAUTION

When positioning the press frame `A14', there is a risk of injuries to hands and fingers.

- Always wear safety gloves.
- Turn crank 'A7' in a controlled way to prevent any slippage.
- When positioning the press on the steering knuckle, always keep your hands clear of press frame **'A14'**.
- Crank 'A7' must only be operated when press frame 'A14' is in vertical position.

#### ATTENTION

Risk of damage to king pin press.

 Regularly clean spindle of crank 'A7' and lubricate with molybdenum disulphide paste such as KL-0014-0030 (accessory).

Mount king pin press on steering knuckle as shown in Fig. 15 . Adjust press frame 'A14' to the required height by turning crank 'A7'.

#### 3. **A DANGER**

When installing king pins with the aid of the king pin press, there is a risk that thrust piece 'N' and support ring 'K' or 'L + M' may break or slip out of position. This will lead to parts becoming projectiles which could cause severe injuries and even death.

- Before inserting thrust piece 'N' and support ring 'K' or 'L + M', check the respective retaining bore on hydraulic cylinder 'A13' and bridge 'A11' to make sure that there is no dirt, foreign object or other contamination. Clean if necessary.
- Make sure that thrust piece 'N' and support ring 'K' or 'L + M' are fully inserted and accurately seated in their respective retaining bore in hydraulic cylinder 'A13' and bridge 'A11'.

#### 

When inserting the thrust piece 'N' and support ring 'K' or 'L + M', there is a risk that these may fall and cause injuries to your feet. When inserting the mandrel 'B'-'J' and support ring 'K' or 'L + M', there is a risk of injuries to hands and fingers.

- · Always wear safety shoes/boots.
- Always make sure that the system is depressurised before attempting to insert the mandrel 'B' - 'J' and support ring 'K' or 'L + M'.

Insert thrust piece 'N' all the way into retaining bore on hydraulic cylinder 'A13'. (Fig. 16)

Insert appropriate support ring 'K' or 'L + M' all the way into retaining bore on bridge 'A11', secure with hex screw. (Fig. 16)

Note: When using support ring 'L', you will additionally need spacer ring 'M'. First, insert spacer ring 'M' into retaining bore on bridge 'A11', next insert support ring 'L' into spacer ring 'M'.



# 4. A DANGER

Make sure that bridge 'A11' is properly aligned with hydraulic cylinder 'A13', otherwise there is a risk that these could shift. As a result, there is a danger of the king pin slipping out of position and of the press frame 'A14' breaking. This will lead to parts becoming projectiles which could cause severe injuries and even death.

- The bridge **'A11'** and hydraulic cylinder **'A13'** must be aligned so that they are parallel to each other. For this, measure the distance between the bridge and the hydraulic cylinder at the right and left threaded rod. The distance <u>must be</u> equal on either side. **(See Fig. 18)**
- The press frame 'A14' must be perfectly aligned (rectilinear) with the king pin retaining bore. (See Fig. 18)
- Once the alignment completed, tighten all the hex nuts **'A10'** on press frame**'A14'** to 60 Nm.

#### ATTENTION

Risk of damage to thrust piece 'N' support ring 'K' or 'L + M' and king pin.

Misalignment between bridge 'A11' and hydraulic cylinder 'A13', can lead to damage to hydraulic cylinder 'A13' resulting in leakage.

- The press frame 'A14' must be aligned so as to allow the thrust piece 'N' to press precisely centrally against the king pin.
- Align press frame 'A14' so that the king pin can be pressed into the support ring (inner Ø) without any risk of collision in case the pin, in its final position, protrudes from of the bearing bore.
- The bridge 'A11' and hydraulic cylinder 'A13' must be aligned so that they are parallel to each other. For this, measure the distance between the bridge and the hydraulic cylinder at the right and left threaded rod. The distance <u>must be</u> equal on either side. (See Fig. 18)
- The contact surface of support ring 'K' or 'L + M' must rest level on the supporting surface of the steering knuckle.

Turn hex nuts 'A10' by means of open-end spanner 'O' and adjust bridge 'A11' in such a way that support ring 'K' or 'L + M' bears with its entire surface against the steering knuckle. Tighten hex nuts 'A10' on bridge 'A11' to 60 Nm. (Fig.17 + 18)

**Note:** Turn hex nuts **'A10'** to adjust bridge **'A11'** in such a way that the hydraulic work with the king pin press can be performed with the shortest possible piston stroke.

The movable axle bearing allows for the accurate lateral alignment.

# 5. A CAUTION

When operating pump lever 'A1', there is a risk that it could slip out of the pump sleeve and cause injuries to your hands and fingers.
Pump lever 'A1' must be fully inserted in pump sleeve 'A2'.

Close relief valve 'A4' on pump unit, insert pump lever 'A1' into pump sleeve 'A2'. (Fig. 19)



#### 6. A DANGER

When installing king pins with the aid of the king pin press, there is a risk that the king pin may slip out of position and/or of the press frame '**A14**' breaking. This will lead to parts becoming projectiles which could cause severe injuries and even death.

- When installing the king pin, the operator must ensure no other person is present in and around the working area of the king pin press.
- Never use the king pin press without the appropriate thrust piece 'N' and support ring 'K' or 'L + M'.
- Observe and do not exceed the maximum load capacity of the king pin press.
- Never stack several mandrels, pressure pieces or support rings on top of each other during removal/installation.
- Make sure that thrust piece 'N' and support ring 'K' or 'L + M' are fully inserted and accurately seated in their respective retaining bore in the hydraulic cylinder 'A13' and bridge 'A11'.
- Before each use, visually check the components of the king pin press to make sure they are in good condition. In particular, check that all bolted connections are properly tightened and that the hydraulic hose, the mandrels, support rings, spacer ring and thrust piece are in good order and condition.
- Always keep all parts of your body away from the axial extension of press frame **'A14'**.
- Only use the original spare parts and accessories from GEDORE Automotive.

### 

When installing king pins with the aid of the king pin press, there is a danger of hydraulic fluid escaping under high pressure potentially causing serious eye injuries and skin irritations.

When installing king pins with the aid of the king pin press, there is a risk of injuries to hands and fingers.

- Never attempt to turn pressure gauge 'A3'on the king pin press if it is still under pressure/displaying pressure.
- During installation of the king pin, always keep your hands clear of press frame 'A14'.

#### ATTENTION

Risk of damage to king pin press and vehicle.

- Never use the king pin press without the appropriate thrust piece 'N' and support ring 'K' or 'L + M'.
- Any work on vehicles should only be performed by qualified specialist personnel observing and complying with the directions, provisions, and safety regulations specified by the vehicle manufacturer!

Operate pump lever 'A1' and install king pin. Stop installation process as soon as the king pin is correctly positioned in accordance with the manufacturer's specifications and instructions. (Fig. 13 A + B + C) Check position of king pin.

Note: Some vehicles require a recessed installation of the king pin. Where appropriate, replace thrust piece 'N' with the shortest possible mandrel 'B'-'J'.

If the maximum usable piston stroke/working travel of hydraulic cylinder 'A13' is insufficient to install the king pin in one step, relieve pressure on hydraulic cylinder 'A13', retract piston rod by means of quick-stroke valve 'A6', adjust bridge 'A11" (see Point 4. / observe note), continue installation.

#### 7. A CAUTION

When removing the thrust piece 'N' and support ring 'K' or 'L + M', there is a risk that these could get stuck or fall and cause injuries to your hands and feet.

· Always wear safety gloves and safety shoes/boots.

Relieve pressure on hydraulic cylinder 'A13', retract piston rod by means of quick-stroke valve 'A6', move king pin press away from vehicle and remove thrust piece 'N' and support ring 'K' or 'L + M'.

8. Reassemble the vehicle according to the manufacturer's instructions.





# 5. Care and Storage

**ATTENTION:** Petroleum ether and chemical solvents can damage plastic parts. Always clean all parts after their use with a clean cloth only.

In order to protect against corrosion, lightly lubricate all metal parts after their use with oil and store them in a clean and dry place.

- Keep pressure hose and its connections free from oil and grease.
- Drain the condensate in the inspection glass on the service unit if necessary.
- Change oil once a year.

# 6. Maintenance and Repair by the GEDORE Automotive Service Centre

For safety reasons, as soon as damage is noticed on the king pin press, immediate steps must be taken to prevent it from being used. For professional inspection and repair of the king pin press, please contact the GEDORE Automotive Service Centre.

#### Address:

GEDORE Automotive GmbH

Breslauerstraße 41 // 78166 Donaueschingen Phone: 0771/83 22 371 // Email: service@gedore-automotive.com For additional information concerning the use of our king pin press, please contact the GEDORE Automotive Service Centre.

# 7. Spare Parts List

Pos.	Part No.	Description	Qty
-	KL-1000-20 A	King Pin Press (65t) with Sleeve Set	1
	composed of:		
Α	KL-1000-200 A	King Pin Press (65t) without Sleeve Set	1
-	KL-1000-230 A	Sleeve Set	
Pos.	Part No.	Description	Qty
-	KL-1000-200 A	King Pin Press (65t) without Sleeve Set	1
	composed of:		
А	KL-1000-2000 A	King Pin Press (65t)	1
0	KL-1000-2690	Open-End Spanner, Size (waf) 50mm	1
Pos.	Part No.	Description	Qty
-	KL-1000-230 A	Sleeve Set	1
	composed of:		
В	KL-1000-2621-1	Mandrel, Ø 21.5mm, length 95mm	1
С	KL-1000-2630-1	Mandrel, Ø 30mm, length 95mm	1
D	KL-1000-2634-1	Mandrel, Ø 34mm, length 95mm	1
Е	KL-1000-2621-2	Mandrel, Ø 21.5mm, length 185mm	1
F	KL-1000-2630-2	Mandrel, Ø 30mm, length 185mm	1
G	KL-1000-2634-2	Mandrel, Ø 34mm, length 185mm	1
Н	KL-1000-2621-3	Mandrel, Ø 21.5mm, length 275mm	1
J	KL-1000-2630-3	Mandrel, Ø 30mm, length 275mm	1
Κ	KL-1000-2890	Support Ring, Ø 90mm	1
L	KL-1000-2863	Support Ring, Ø 63mm	1
М	KL-1000-2290	Spacer Ring for Bridge, Ø 70.5mm	1
Ν	KL-1000-2758	Thrust Piece, Ø 58mm	1

# 8. Accessories

#### KL-1000-2055 - Sleeve, Ø 69mm, length 74mm Suitable for MAN HGVs.

Necessary for pressing out/pressing in the king pins found at the front axle of MAN HGVs/commercial vehicles. The sleeve is used in conjunction with the **KL-1000-20 A** king pin press.

#### KL-1000-2640 - Mandrel, Ø 40mm, length 95mm Suitable for Volvo HGVs.

Necessary for pressing out the king pins found at the front axle of Volvo HGVs/commercial vehicles. The mandrel is used in conjunction with the **KL-1000-20** king pin press.

# 9. Environmentally Safe Disposal

Recycle/dispose of the king pin press and its packaging material in an environmentally friendly way in compliance with the legal rules and regulations in force.



# **10. EC DECLARATION OF CONFORMITY / UK DECLARATION OF CONFORMITY**

# **EC DECLARATION OF CONFORMITY (Translation of the EC Declaration of Conformity)**

in accordance with EC Directive 2006/42/EC, Annex II A

Name and address of the manufacturer GEDORE Automotive GmbH Breslauer Straße 41 78166 Donaueschingen, GERMANY

DE

We hereby declare that the machine described below

Designation: King Pin Press (65t) Series / type: KL-1000-20 A complies with all relevant provisions of the *Machinery Directive 2006/42/EC*. The declaration loses its validity if the machine is converted or modified without our consent.

**Applied harmonised EN standards:** EN ISO 12100:2010 - Safety of machinery - General principles for design - Risk assessment and risk reduction

**Other technical standards and specifications applied:** EN IEC/IEEE 82079-1:2020 - Preparation of information for use (instructions for use) of products - Part 1: Principles and general requirements

**Authorised representative of GEDORE Automotive GmbH for the compilation of all technical documents:** Head of product development, Breslauer Straße 41, 78166 Donaueschingen, GERMANY

Donaueschingen, 26 October 2022

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ppa. Michael Wehler, Head of Global Business Development, GEDORE Automotive GmbH

# UK DECLARATION OF CONFORMITY (Original UK Declaration of conformity)

in terms of The Supply of Machinery (Safety) Regulations 2008, Annex II 1A

Name and address of manufacturer

GEDORE Automotive GmbH Breslauer Straße 41 78166 Donaueschingen, GERMANY

We hereby declare that the product described below Designation: King Pin Press (65t) Series / Type: KL-1000-20 A conforms to all relevant provisions of the Supply of Machinery (Safety) Regulations 2008. The declaration loses its validity if the product is converted or modified without our consent.

Designated (GB) or harmonised (NI) standards applied:

EN ISO 12100:2010 - Safety of machinery - General principles for design - Risk assessment and risk reduction **Authorised representative for compiling the technical documents:** 

GEDORE Torque Ltd. / Tannery Ln, Gosden Common / Guildford GU5 0AJ, United Kingdom

Donaueschingen, 26 October 2022

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ppa. Michael Wehler, Head of Global Business Development, GEDORE Automotive GmbH