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Manual and technical description

for

SCHERMER

Electrical stunning equipment

Type LC-1



Stand 11/2017

Instructions for Use for SCHERMER Electrical Stunning Equipment Type LC-1

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Instructions for Use for SCHERMER Electrical Stunning Equipment Type LC-1

0. Warning and Instructions for Use

The operator of electrical stunning equipment has to observe the national laws and regulations regarding safety and animal welfare. These are e.g. for Germany:

- IEC/EN 60335-2-87
- DGUV Regulation 1 "Basis of prevention"
- DGUV Regulation 3 "Electric Installation and Material"
- DGUV Rule 110-008 "Working in the Meat Industry"
- Directive 1099/2009/EC
- National regulations and directives in effect

The examinations stipulated in DGUV Regulation 3 and the instructions for carrying out are to be applied to this equipment with the corresponding periods.

Installation, putting into operation and using the stunning equipment by proficient and instructed persons only!

The stunning equipment is only to be used for stunning animals for slaughter!

Connect data registration unit **SchermerLogger** to „TEST-PORT“.if a registration if the stunning data is required, e.g.in the **area of validity of directive 1099/2009/EC.**

Before starting maintenance work, stunning transformer is to be separated from power supply.

Pull out plug ZK-18 of stunning tongs before starting maintenance work.

Never leave stunning tongs down at the ground or another place!

Contacts between electrodes and metal parts are to be avoided!

Do not combine part of the equipment with part of an equipment from another manufacturer, as we assume no liability for safe use in this case!

Recommendation: When sending the stunning equipment to manufacturer for repair or maintenance, please use the original packing material, which guarantees safe transport!
Therefore, please carefully store the packing material.

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1. Introduction

The complete standard device consists of:

- supply part: stunning transformer type LC-1
- application part: stunning tongs type ZK

or alternatively:

- stunning fork type GK made of plastic
- stunning tongs type Z3

Only use the above devices together!

The stunning equipment for animals for slaughter is fully automatic and corresponds to the regulations of directive IEC/EN 60335-2-87.

2. Technical Advice

2.1. Supply part: stunning transformer type LC-1

Stunning transformer is a device not necessarily firmly installed with plug junction type B.

It consists of operating part, mains adapter, stunning transformer, control board and connections clips built-in in a plastic housing protected against torrents of water as to safety class II (according to DIN 40014).

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see appendix I

signal lamps

1. white signal lamp „Ready“: Indicates readiness for operation
2. red signal lamp „Stun“: Indicates stunning amperage
3. green signal lamp „TB min“: Indicates end of minimum stunning time
4. orange signal lamp „Error“: Indicates when minimum stunning amperage and/or minimum stunning time have fallen below programmed limits (controlling is made during minimum stunning time).
5. 2-lines display:
 - 1st line: stunning amperage I or minimum stunning amperage Is
 - 2nd line: stunning or measuring voltage U2 or minimum stunning time ts
6. „ON“ key
7. „OFF“ key

2.2. Application part: stunning tongs ZK

Stunning tongs correspond to Safety Class IP 55 according to DIN 40014. Stunning tongs are made of plastic and glass fibre plastic material, the electrodes are embedded in nylon. The electric cable is secured against accidental removal by means of an effective pull relief.

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2.3. Installation

Installation is to be made according to the regulations in effect and the generally accepted codes of practice and by expert staff only!

Input voltage: - 230 V AC

Frequency: 50 - 60 Hz

Mains supply connection is to be safeguarded by a 16 A fuse. Stunning transformer is to be installed at least 1.60 m (= 5'3") above floor level so that the operator has sight on signal lamps.

Install a wall socket near the device, which is easy to access. Mount preferably an ON – OFF switch (IP 55) in front of the wall socket.

Mount the mounting for stunning tongs beside the stunning transformer also at least 1.60 m (= 5'3").

When not in use, stunning transformer is to be disconnected from mains supply and the stunning tongs are to be hung into the mounting.

Install a suspension spring for cable ZK-17 in order to avoid hauling the cable on the floor.

Connect data registration unit **SchermerLogger** to „**TEST-PORT**“ if a registration of the stunning data is required, e.g. in the **area of validity of directive 1099/2009/EC**.

Connect measuring instruments only, if the sum of their inside resistance is more than 20 kOhm. When measuring instrument is delivered ex our factory, this regulation is observed. Measuring instrument or control device is only to be connected to „**TEST-PORT**“.

IMPORTANT: If no measuring instrument is connected, blind plug must be screwed-in „**TEST PORT**“!

Should the stunning transformer be firmly installed, the regulations as to IEC/EN 50335-2-87 have to be complied with, i.e. there must be a device to separate mains supply easily reachable. An EMERGENCY -OFF – switch is to be installed at mains supply.

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2.4. Putting into Operation

by expert staff only!

Put the device into operation as follows:

1. Connect stunning tongs to stunning transformer by linking up plug ZK-18.
2. Connect measuring instrument or data registration unit SchermerLogger if required to connecting unit „TEST PORT“ (see 2.3.).
3. Insert plug of stunning transformer into the wall socket.
4. Depress key "ON".
5. For a short time, all signal lamps flash up, display shows manufacturer's name and version of software used.
6. Stunning transformer is cut-off by depressing key OFF.

2.5. Maintenance and Cleaning

by proficient persons only!

After stunning keep stunning equipment stored in a dry and warm room.

Maintain the device as follows:

Important: Do not use a high pressure cleaner.
Use neutral cleaner only.

- Remove dirt from stunning equipment
- Check the equipment whether there are visible damages.
- Clean the electrodes ZK-1 thoroughly by means of a steel brush.
- Tighten up screws ZK-1A.
- Check cable ZK-17 whether it shows breaks or other damages.

Change damaged or worn parts immediately. This guarantees perfect function of the stunning equipment. Use original spares only or comparable quality.

Please do maintenance work at the stunning transformer LC-1 only after consultation of the manufacturer.

Attention:

Basically, we wish to point out that only repair made by an expert guarantees perfect function and use of the equipment. We, therefore, recommend having the equipment repaired at manufacturer's factory, as repair is made there quickly and proficiently.

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2.6. Reasons for Failure and Advice for Repair

Inadequate stunning is mostly due to an insufficient voltage flow.

Possible causes may be:

1. Corroded contacts of the electrodes ZK-1 of the tongs.

Remedy: Unscrew electrodes, disconnect and thoroughly clean with steel brush.

2. Dirty surface of the electrodes.

Remedy: Thoroughly clean with steel brush.

3. Defective cable ZK-17.

Remedy: Unscrew the ZK-1A screws of the electrodes and pull them out of the electrode heads ZK-4 a couple of inches.

Unsolder contacts from electrodes ZK-1, remove joint cover ZK-19, undo joint, remove rubber handle ZK-8 at cable lead in, disconnect pull relief and cable fastener ZR-10, remove cable.

The rubber handle ZK-8 is removed as follows:

Squeeze screw-driver between tube ZK-5 and rubber handle ZK-8, pour in some mineral oil and then pull off the handles.

The application part is reassembled in reverse order.

4. Stunning transformer does not switch on stunning voltage perfectly.

Remedy: Sharpen and clean points of the electrodes ZK-1 of the tongs, so that contact between electrodes and hog's head will be improved.

5. If the white lamp **Ready** does not flash up or green **MAINS** does not blink although mains supply is done by means of plug, there will be a failure inside the device. The device must then be sent to manufacturer for examination.

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3. Advice for Use

3.1. Starting the equipment

According to the directives for slaughter of animals regarding animal's protection, the stunning equipment is to be used by expert staff only, being in possession of an adequate knowledge.

1. Connect stunning tongs with stunning transformer.
2. Check whether transformer is connected with mains supply.
3. Depress key "ON".
4. For a short time, all signal lamps flash up, display shows manufacturer's name and version of software used. The LC-1 is now ready for use.

3.2. Stunning

by trained and briefed persons only!

Note: If you are working in the area of validity of the directive 1099/2009/EC, check before stunning whether the adjusted limit values at the data registration unit SchermerLogger are in compliance with the guidelines of directive 1099/2009/EC and national regulations.

Do not chain the animals before electrical stunning procedure is ended. Hold application part with both hands during stunning procedure and place the electrodes at the animal's head or head/heart as shown on the attached schemas (see appendix II or III).

Ignoring these advises may result in danger for persons!

Do not use the application part to herd or drag the hogs.

When stunning animals for slaughter in stun pens, it is advisable to corner them so that there will be little space for movement. The spot where the animals are stunned should be close to the elevator so they can be lifted immediately after stunning process. Immediate and expert stabbing of the animals is effective regarding quality of meat. Do not drive together more than 2-3-animals into the stunning area.

The stunning transformer type LC-1 may be used for stunning the following animal species taking in account the key parameters of the directive 1099/2009/EC and national regulations in effect, e.g. for animal protection:

sheep and goats
piglets
pigs up to 250 kg

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The key parameters for minimum stunning current and minimum stunning time are according:

directive 2009/1099/EC:
national regulations in effect

appendix I, chapter II, point 4

The individual minimum stunning voltage must be reached within the first second. Longer stunning times than the minimum value may be necessary for an effective stun.

The electrodes are placed according to the attached schemas (see appendix II or III).

Avoid interruptions of stunning voltage due to not expertly placed electrodes. Interruptions of stunning voltage result in muscle bleeding and bone fractures.

Note:

Do not sling the animals before electrical stunning procedure is finished. Hold stunning tongs with both hands during stunning procedure and place the electrodes at the animal's head as shown in Appendix II or III.

Ignoring this advice may result in danger for persons!

Do not use the stunning tongs to herd or drag the hogs!

If stunning animals for slaughter in stun pens, it is advisable to corner them so that there will be little room for movement. The spot where the animals are stunned should be close to the elevator so they can be slung and lifted immediately after stunning process. Immediate and expert stabbing of the animals is effective regarding quality of meat.

In order to reduce strong convulsions which are induced by the electrical stunning process (an epileptic seizure will be induced) we recommend an alternative application of stunning tongs – the head-to-heart stun:

- | | | |
|-----------------|------------|-------------------------------|
| 1. application: | head | 4 seconds (appendix II) |
| 2. application: | head/heart | 4 to.8 seconds (appendix III) |

Stunning amperage is automatically switched on as the resistance on the electrodes falls below the limit. While stunning amperage is flowing red signal lamp "**Stun**" flashes.

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Minimum stunning amperage according directive 1099/2009/EC, e.g:

| | |
|-------|-------|
| pigs | 1.3 A |
| sheep | 1.0 A |

Stunning voltage and stunning amperage are shown at the display. If the limit value of stunning amperage I_s has fallen below during minimum stunning time t_s , the orange signal lamp „Error“ flashes after the stunning process. The individual minimum stunning amperage is to be reached within the 1st second.

In order to have an effective stunning result on the animal, i.e. to reach the phase of limpness, a longer period of stunning as the minimum stunning time can be necessary.

As soon as minimum stunning time has been reached green signal lamp „**TB min**“ flashes. Sufficient stunning has been done when the animal stretches and starts beating with its hind legs. At this moment stunning is to be stopped. An extensive stunning may lead to muscle bleeding and bone fractures etc. As soon as the resistance limit has been reached or exceeded by opening the stunning tongs, stunning voltage cuts off automatically.

When the animal is stunned it must immediately and expertly be stabbed and entirely bled dry as stunning lasts only approx. 30 sec.

Attach most importance to an expertly done stabbing.

Always hang the stunning tongs in the mounting beside the transformer!

3.3. Daily after end of work

1. Switch off the equipment when work is finished by depressing key **OFF** and store it in a warm and dry room.
2. If you use the SchermerLogger disconnect USB-Flash drive and do a data evaluation on a PC by assistance of the NewLogger software.
3. Store the generated data files on a separate hard disk according the guidelines of directive 1099/2009/EC and national regulations in effort.
4. Connect USB-flash drive to USB-port of SchermerLogger.
5. Have maintenance work done according to paragraph 2.5.

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4. Technical data

| | |
|----------------------|--------------------------------|
| Measurements: | 380 x 350 x 215 mm (B x H x D) |
| Weight: | 10 kg. |
| Voltage: | 230 V AC |
| Frequency: | 45 - 60 Hz |
| Stunning amperage: | 1.3 A (at approx. 175 Ohm) |
| Frequency: | 380 – 80 Hz (software V2.0007) |
| Period of switch-on: | 70 % ED |

5. Accessories

(not included in standard delivery)

- data registration unit SchermerLogger
has to be used in the area of validity of directive 1099/2009/EC
- external signal transmitters:
 1. flush
 2. buzzer
- additional electronic board

Instructions for Use for
SCHERMER Electrical Animal Stunning Equipment Type LC-1

Appendix I

1

2

3

4



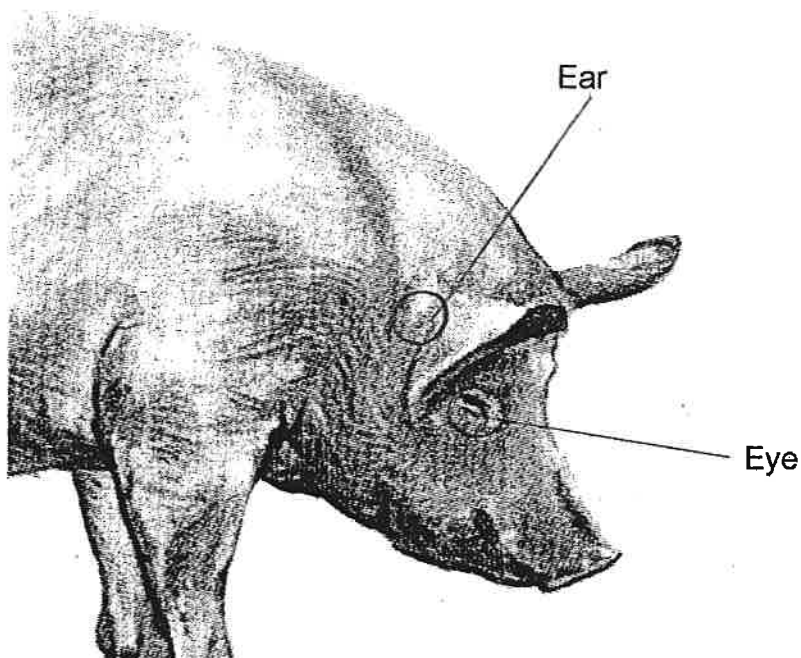
6

7

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Appendix II

Application Head-only stun



In order to guarantee an optimal flowing through of brain the following 3 options to place the electrodes are recommended:

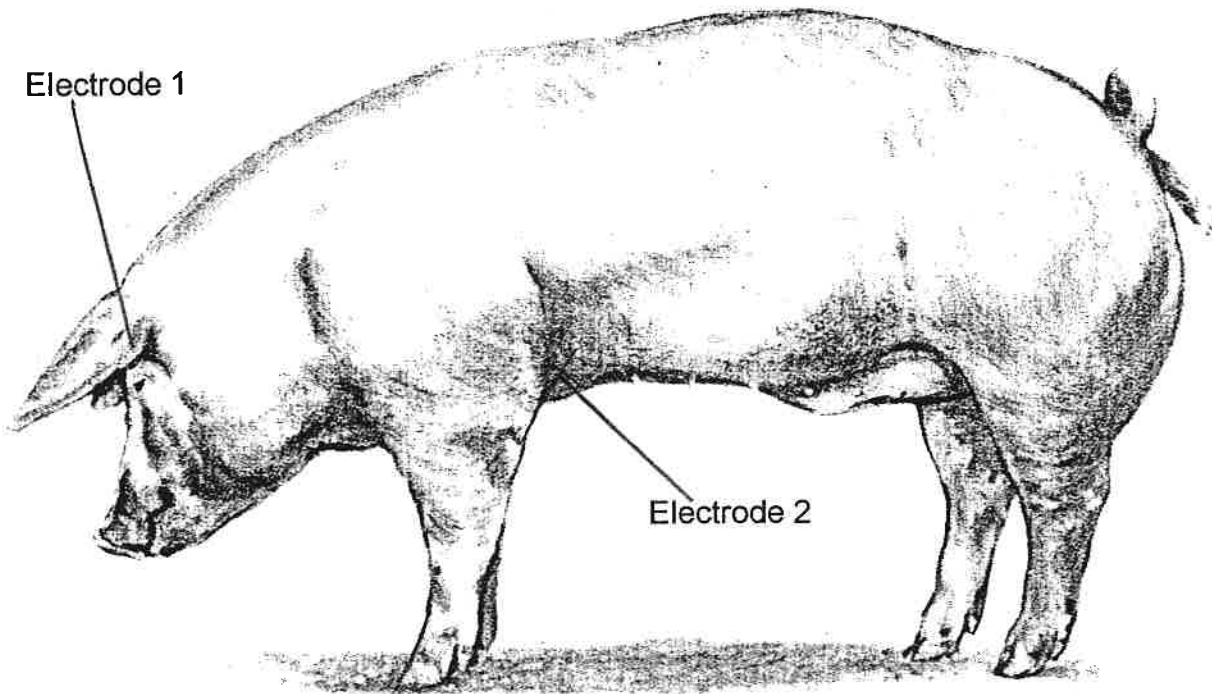
- 1) Eye – Eye
- 2) Eye – Ear
- 3) Ear – Ear

As soon as minimum stunning time has been reached green signal lamp „TB min“ flashes.

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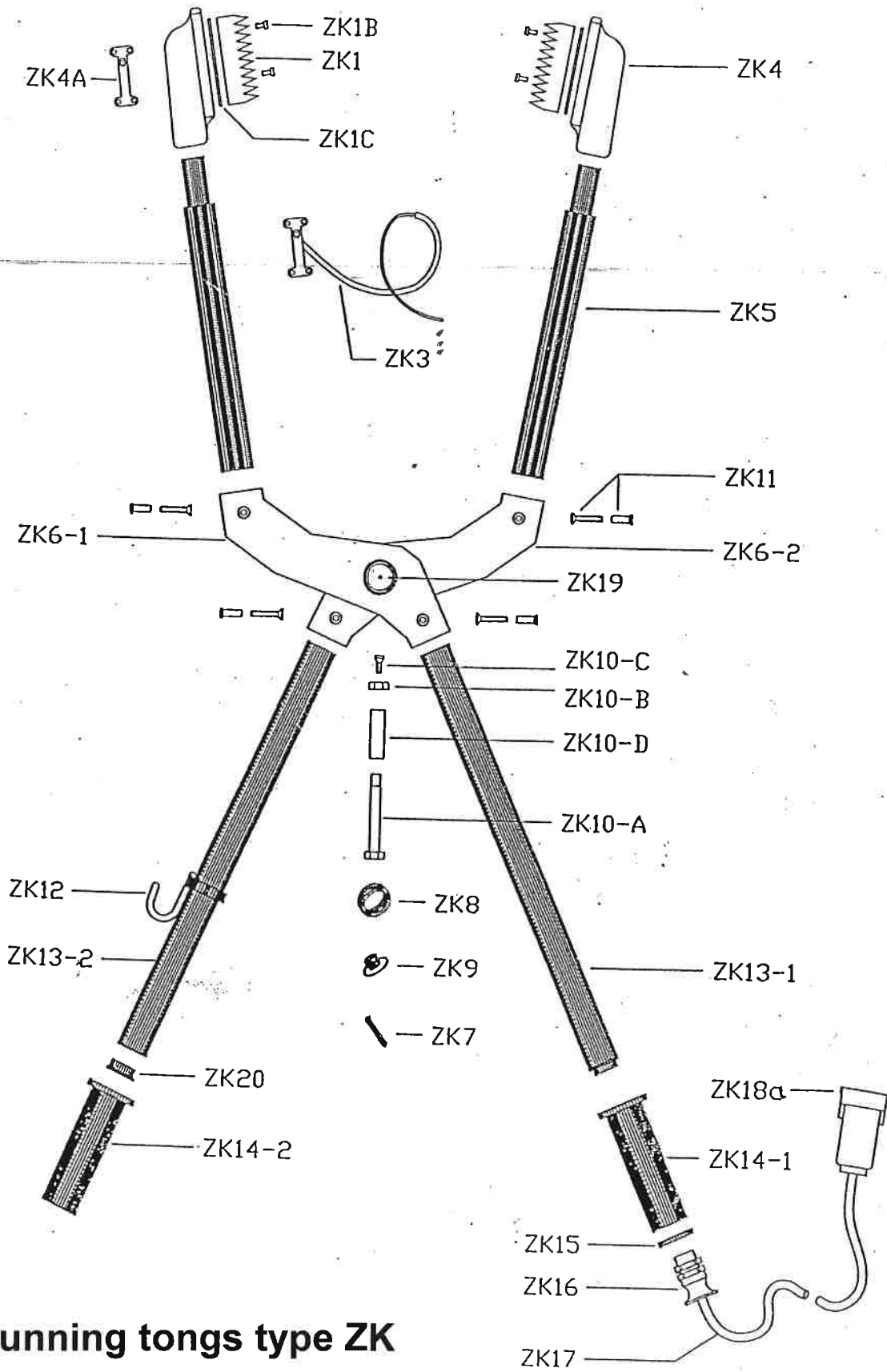
Appendix III

Application Head/Heart stun



Immediately after ending the head stun by opening the stunning tongs place the electrodes at the indicated spots in order to carry through a brain / cardiac stun. Stunning time should be in between 4 to 8 sec.

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Stunning tongs type ZK