



KONVEKTA

Technical leadership starts with ideas.

Operating Instruction

for KONVEKTA

Air Conditioning unit

KL40T / KL45T / KL46T



with control KS15.02

Versions:

- 12 / 24 Volt DC
- Recirculated Air
- Fresh Air

ID#: BBA-KL40T12AE

Version: A07

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- Maintenance Schedule Bus [WP07050618](#)

Introduction

These operating instructions have been written for drivers, operators and the maintenance staff of your air conditioning unit.

In this context, we refer implicitly to the compliance with our general installation guidelines. These can be obtained from the KONVEKTA technical after sales service: TKD@konvekta.com.

Please observe our valid safety instructions, available under www.konvekta.de/asv.html. In case of order placement or any other conclusion of contract the safety instructions get integral part of the contract.

These operating instructions have to be read carefully and made use of before the first start-up and after that regularly by each person who is involved in handling the machine:

- Operation including troubleshooting and waste disposal of fuels and auxiliary agents.
- Servicing, inspection, repair
- Transport

This facilitates the handling and avoids trouble caused by improper operation. Working in compliance with these operating instructions increases operation reliability and service life of the air conditioning unit and reduces life cycle costs.

Please complete these instructions by adding the national provisions for prevention of accidents and environmental protection.

These instructions are part of the air conditioning unit. Always have a copy at hand in the driver's cabin.

You will certainly understand that we will not recognize any warranty claims due to improper handling, inadequate maintenance, applications that do not correspond with the determined use, utilization of non-admitted fuels or the non-observance of safety provisions.

KONVEKTA will annul without notice all obligations concerning guarantee, service contracts etc. regardless if granted by **KONVEKTA** or its distributors in case other than original **KONVEKTA** spare parts or parts bought from **KONVEKTA AG** have been used for maintenance and repair.

These operating instructions contain all necessary information to operate your air conditioning unit. In case you need more explanations please contact the next **KONVEKTA** service station.

^① On our website www.konvekta.com in category >service< you will find a survey of contact details of all our service partners close to your location.

Information on the operating instructions

These operating instructions are valid for the a/c-units type:

- KL40T/12V • KL45T/12V • KL46T/12V
- KL40T/24V • KL45T/24V • KL46T/24V

☞ When taking the unit into operation we recommend adding the following data. This will also be important for your orders of spare parts, and in case of warranty.

Serial number of the unit:

Order No.:

Year of construction:/ (MM/JJ)

Date of first operation:// (TT/MM/JJ)

The machine is in accordance with the EC machinery directive 2006/42/EC.

The unit contains or needs fluorinated greenhouse gas for operation and is subject to identification requirements in accordance with F-Gas Regulation 517/2014

Due to the fact that scope of supply depends on the order, equipment of your product may differ in some parts of description.

In case your product is equipped with details not shown or described in the operating instruction, your KONVEKTA -Service-Station will always be at disposal for informing you about correct operation.

In the course of further developments we reserve the right to technical modifications without notice. Guarantee and liability conditions of KONVEKTA AG's general business conditions are not enlarged by the above notes.

Indications and photos should neither be copied and circulated nor used for competitor's purposes. All rights according to the copyright remain expressly reserved.

Manufacturer: KONVEKTA AG, Postfach 2280, D-34607 Schwalmstadt

1. Technical data air conditioning unit

Type:		KL40T	KL45T	KL46T
Refrigerant		R134a		
GWP		1.430		
• quantity with front box	[kgs] approx.	2,5 3,3	2,5 3,3	2,5 3,3
Operating voltage	[Volt DC]	12 24	12 24	12 24
Current consumption (3-stage) at 13V: (3-stage) at 26V: (stageless) at 26V:	[Ampere]	88 44 53	88 44 53	88 44 53
Cooling capacity with K VX40 K VX30 or TM31 TM21	[Watt]	18.000 15.000. 12.000	18.000 15.000. 12.000	21.000
Evaporator – Air volume*, free-blowing	[m ³ /h] 3-stage stageless	4.000 4.400	4.000 4.400	4.000 4.400
Measurements:				
- length	[mm]	1.966	1.985	1.985
- width	[mm]	1.368	1.336	1.336
- height, - depending on roof radius	[mm]	221 188	234 188	239 193
Weight of unit, Version:				
- Recirculated Air	[kgs] approx..	65,5	78,5	81
- Fresh air		66,5	79,5	82

* With standard fans and/or blowers

1.1. Compressors



Important to avoid leakages at the shaft seal of the compressor:

The compressor should be started every 4 weeks for approx. 15 minutes!

This also applies when the vehicle is not into operation for a longer period or when the air conditioning unit is not used!

⇒ Compressor type depending on scope of delivery, see identification plate at compressor.

Type:	K VX40/390	K VX30/325	HDC 33	TM21
Weight (kgs) approx.	33	24,5	15,5	9,7
Refrigerant oil	Esteröl SE55	Esteröl SE55	ZXL 100PG	ZXL 100PG
- Quantity (Liter)	2	2	0,5	0,18
Magnetic clutch ¹⁾	12 / 24V DC	12 / 24V DC	12 / 24V DC	12 / 24V DC
- Weight (kgs)	12	7,6		

¹⁾ ø depending on vehicle type

2. Intended Use

The **KONVEKTA** air conditioner represents an air conditioning system that works with the ozone friendly refrigerant R 134a and which creates a pleasant and individually adjustable room temperature by means of forced convection. The determined use includes also the observance of the Operating instruction and the proof of regular inspections as well.

3. Generally information for a/c unit



Attention in case of roof top a/c units: Never switch on the a/c unit during car-wash!

- The a/c unit is operational with running engine only.
- At cooling operation the humidity inside the vehicle is decreased, which avoids steamed up windows. The a/c unit works most effectively with windows and doors shut. If, however, the interior of the standing vehicle has been heated up severely by exposure to sunlight, short-time opening of windows and doors may accelerate the cooling down process.
- At high outside temperature and humidity condensate might drip off the evaporator and make a puddle under the vehicle. This is quite normal and no sign for a leakage.
- The filter in the return air grid (optional) retains pollution. If the external air is contaminated with gas switch over to return air operation. The filter should be cleaned or replaced respectively on a regular basis so that the capacity of the a/c unit is not affected.
- **If you think that the a/c unit is damaged, switch it off immediately.** To avoid further damage have it check at a KONVEKTA Service Station[®]. Only after that you can take unit into operation.

[®] On our website www.konvekta.com in category >service< you will find a survey of contact details of all our service partners close to your location

3.1. Operating Conditions

NOTE: KONVEKTA uses components made of copper and aluminium, which last a whole unit life-time under normal environmental conditions. Should the units be operated under aggressive environmental conditions, i.e. air containing salt-, phosphate- or ammoniac extremely, a corrosion of the copper- and aluminium components can not be ruled out. The copper- and aluminium components of the KONVEKTA systems are not suitable for such extreme application conditions. We indicate emphatically, that corrosion is not subject to warranties for defects. KONVEKTA does not take over any warranties for defect, neither for corrosion nor for consequential damage resulting there from, nor for damages caused by cleaning the systems with highly compressed or corrosion advancing substances.

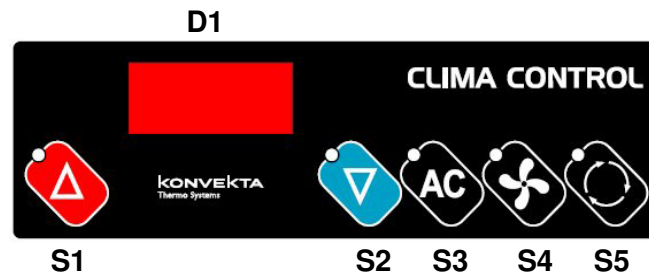
4. Operation



Danger of accidents!

- Focussing your attention on the road traffic is of top priority
- Only operate your air conditioning unit when the traffic situation allows it
- Make sure you can clearly recognize and read all operation- and display-elements at any time
- Protect all displays against irritating sun glare and any other optical disturbances
- Please note that the control panel keys have not been designed for heavy stressing
- Excessive or fast pressing of the keys for adjusting the set temperature does not accelerate the cooling down process. It possibly damages the control panel and so affects the general performance of the airconditioning unit

4.1. Description and functions of the operating pannel keys



Sign	function
D1	display
S1	room temperature (increased) range of adjustment: 12 up to 32 °C
S2	room temperature (decreased) range of adjustment 32 down to 12 °C
S3	activation of automatic operation for ventilation and cooling
S4	required air volume manually
S5	key to switch air flap to recirculation air (servo motor). double click: display of outside temperature for approx 5 seconds

4.2. Display indication

If the ignition is switched on, the actual room temperature is displayed.

4.3. Display of outside air temperature (-optional-)

Double click key S5: display of **outside temperature** for approx 5 seconds

4.4. AC - automatic

Switch ON ignition.

The automatic is activated by means of key S3 „AC“, LED lights up. Pressing key **S3** again, air conditioner switched off. The blowers are regulated automatically.

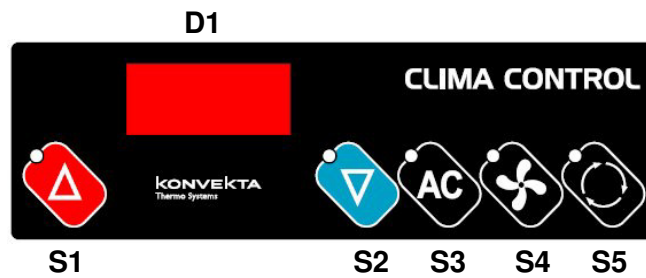
In automatic mode the system runs completely independent without any intervention of the operator. The temperature in the passenger compartment is controlled according to the selected room set temperature. If the automatic mode (key S3 AC) is activated, the comfort temperature of 22 °C is automatically pre-selected. The cooling mode is activated/de-activated if necessary and the evaporator performance adjust to the required air volume. Manual adjustment of the evaporator performance with key S4 – see point [4.4.1](#)

With key S1 resp. S2 the room set temperature can be changed. If key S1 or S2 is pressed shortly the selected room set temperature is displayed.

4.4.1. Manuel adjustment of the evaporator performance

By pressing key S4 the required air volume can be adjusted manual. (LED lights up)
Changing the setting/display with key S4:

Display shows:	0	= automatic blower regulation
Display shows:	1	= Manual SLOW
Display shows:	2	= Manual MIDDLE
Display shows:	3	= Manual FAST



4.5. Recirculated air operation

Start of the recirculated air operation: Press key S5, LED lights up.

In recirculated air operating mode, the flow of external air in the vehicle's passenger compartment is blocked and the system recirculates the air existing in the vehicle's interior. This keeps the vehicle's environment uncontaminated from polluted air that might be sucked from the outside (e.g. in tunnels).

This position should not be adjusted very long. If windows are misting up, return air operation should be switched off immediately by pressing key S5 (LED **goes out**).

4.6. Blinking code in display

If there is no feedback signal from the low- or high pressure switch at the compressor the decimal point in the display is blinking ⇒ immediately contact one of the **KONVEKTA** Service Station^①!

5. Maintenance / Service

Please arrange regular dates for maintenance works and services with a KONVEKTA service station, as indicated in maintenance schedule bus no.: [WP07050618](#).

- Only qualified staff is allowed to carry out these works! -

For general instructions on repair – and maintenance works please contact via email:

TKD@konvekta.com



Danger of accidents!

Qualified staff in charge of installation and maintenance have to be trained in accordance with EN 378-Part 4 and (EC) No.307/2008 and must strictly follow the legal provisions.

Any works or modifications at the air conditioner which are carried out improperly can lead to malfunction and so endanger operational reliability. We recommend having all works and modifications carried out at an authorized **KONVEKTA** Service Station.

Before carrying out any maintenance works at your air conditioning unit, carefully read the KONVEKTA safety provisions (TD00052A^①) in order to avoid any dangers and accidents!

^① On our website www.konvekta.com in category >service< you will find a survey of contact details of all our service partners close to your location.

^② Source of supply: **KONVEKTA AG**, P.O. Box 2280, D-34607 Schwalmstadt

5.1. Oil change Compressor type K VX

First oil change at the first maintenance of the vehicle. Then approx. every 3 years. At every oil change the oil suction strainer has to be cleaned. Observe the oil quantity according to the compressor type (see chapter: "Technical data compressor").

5.2. Return air grid

Clean the return air grid in the passenger area monthly. In case of enormous dirt weekly.

5.3. Condenser coil

Always keep condenser coil fins clean. Severe soiling cause's excess pressure within the a/c-unit system and it automatically stops working.

 **Attention:** The condenser coil fins have to be cleaned with compressed air at least once a year, in case of severe soiling more often.

5.4. Troubleshooting



- Only qualified staff is allowed to carry out these works! -

Trouble	Cause	Repair <i>by authorized Service Station only</i> ^①
a/c is not running	thermostat open	- check inside temperature^② - re-adjust thermostat^②
	electric connections disconnected	check electric connections at switch-board
	relay defective	check relay, replace if necessary
	defrost thermostat has switched off	check evaporator blower, replace if necessary
	outside temperature too low (possible icing of evaporator)	switch on "ventilation" only^②
	evaporator coil dirty	clean evaporator coil with compressed air
	magnetic clutch	check connections at magnetic clutch
Blinking code in display	excess pressure (pressure too high)	- check axial fans - check fuses at switchboard - clean condenser coil with compressed air
	excess pressure caused by high outside temperature	run unit until pressure has stabilized^②
	leakage in a/c unit, lack of refrigerant	check a/c unit for leakages, refill refrigerant
	low pressure, dryer clogged	replace dryer
	low pressure, screen of expansion valve clogged	clean screen; replace dryer
Loud noise at compressor	compressor does not compress	check high and low pressure, replace compressor if necessary
	defective bearing at compressor	replace either bearing or entire compressor
	slack V-belt	check V-belt at compressor drive

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^② By operator

6. Warranty Conditions

The current „General Warranty Conditions KONVEKTA AG“ will apply. A copy will be furnished by the warranty department. Please contact gwl@konvekta.com

7. Waste disposal in accordance with legal provisions

After the phase of use the last proprietor is responsible for the adequate waste management. The environmental regulations in the exporting country must be observed.

The following list contains the most important regulating literature, valid for the *Federal Rep. of Germany*:

- Resolution for dangerous substances
- Law for waste circulation (KRW/AfgG))
- Resolution for the proofs of utilization and removal
- Criminal Code (StGB) 28th section „criminal acts against the environment“ §326 - Environment jeopardizing waste management
- Law of chemicals § 27 - penal prescriptions
- Resolution for used oil
- Law of water balance
- Resolution for the waste management of old cars and the adaptation of road prescriptions
- Resolution (EC) No. 2037/2000 of the European Parliament and of the Council for materials that affect the ozone layer
- Resolution to prohibit certain ozone destroying halogen hydrocarbons.

The used refrigerant endangers the environment. When dealing with refrigerants the existing prescriptions and regulations are to be followed. **Only qualified staff is allowed to carry out these works!**

Water endangering substances - acc. to §§19g-19l - are solid, liquid, and gaseous substances. e.g.: mineral and tar oils (cooling oils), halogen containing organic combinations (refrigerants).

8. History of modification

Version	Date	Name	Remark	File
A00	30.05.2007	B. Keßler	source file	BAKL40T12AE
A01	10.07.2007	B. Keßler	Added KL45T and technical data	BAKL40T12AE
A02	20.11.2007	B. Keßler	Item 1.1 has now been replaced	BAKL40T12AE
A03	20.04.2009	B. Keßler	Point 1.2 updated; TM31 replaced by HDC 33.	BAKL40T12AE
A04	04.03.2013	B. Keßler	12V DC added and file completely updated	BAKL40T12AE
A05	06.08.2015	S. Pfluger	deleted Item “pressure switches”, added KL46	BAKL40T12AE
A06	29.06.2016	B. Keßler	Technical data updated	BAKL40T12AE
A07	01.03.2017	B. Keßler	Information on the operating instructions and technical data expanded with F-gas-regulation	BAKL40T12AE