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BMW FEATURES

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E39 IHKR

The 525i/it will be fitted with IHKR as standard equipment. IHKA will be available as an option on those vehicles by ordering the Convenience package: SA 466.

IHKR is a semi-automatically regulated heating and air-conditioning system. The components are similar to the IHKR system used in the X5 3.0i.



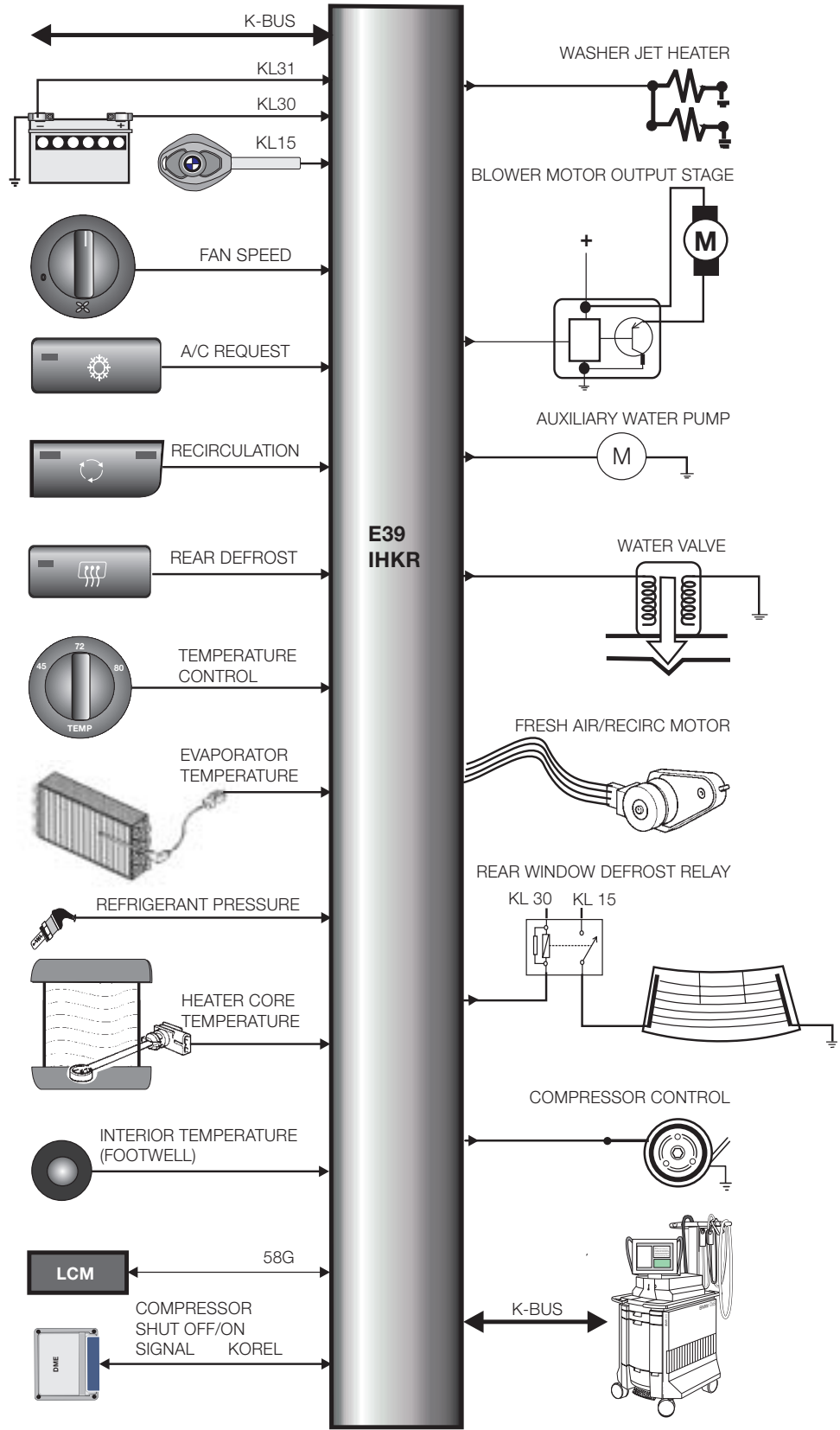
The E39 IHKR is a single zone system that regulates the temperature of the cabin based on the occupants desired temperature, selected by a temperature setting dial. Blower control, air distribution settings and stratification flap are manual.

System Components

The E39 IHKR consists of the following components:

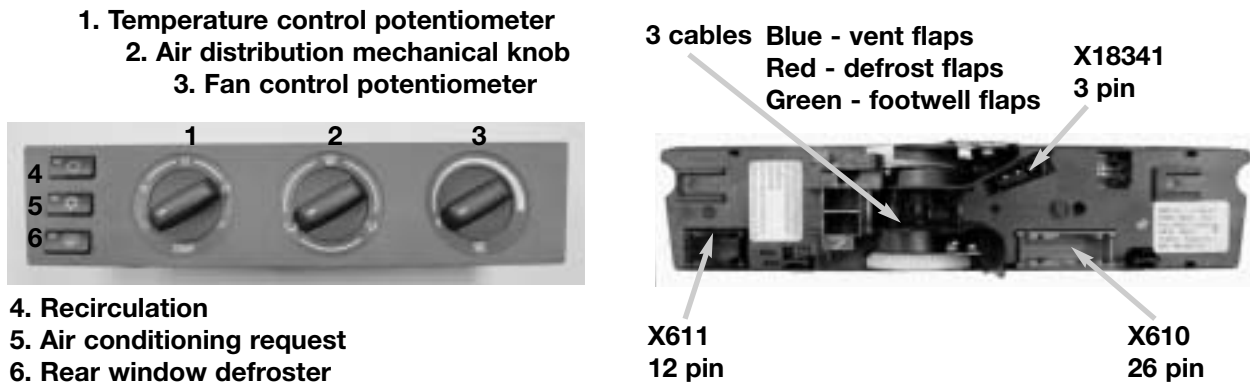
- IHKR control unit with operating controls
- IHKR integrated heater and air conditioning case
- 1 Heater core temperature sensor
- Evaporator temperature sensor
- Interior temperature sensor (located in drivers footwell)
- Double cage blower motor and final stage
- 1 Water valve (duty cycle controlled)
- Auxiliary water pump
- 1 Fresh air/re-circ stepper motor
- Auxiliary fan (DME controlled)
- Refrigerant Pressure Sensor
- Left and right fresh air micro-filters

E39 IHKR I.P.O.



IHKR control unit with operating controls

The IHKR control unit is incorporated into the control panel. The control panel consists of three buttons and three rotary dials.



Functional Description:

- **Air distribution:** is carried out using the mechanical rotary dial acting on three bowden cables.
- **Blower adjustment:** is carried out using the rotary dial potentiometer (22 steps). The control unit signals the final stage via a variable voltage signal.
- **Temperature control:** The desired interior temperature is set with the rotary dial potentiometer on the control panel. Temperature regulation is based on the Y-factor. The inputs used to determine the Y-factor are:
 - Position of the temperature control potentiometer dial
 - Heater core temperature
 - Coolant temperature
 - Exterior Temperature
 - Interior Temperature

Control of the interior temperature is carried out by the control unit cycling the water valve to regulate the temperature of the heater core. During heater operation the auxiliary water pump will be switched on to increase coolant circulation through the heater core. The service station feature is carried over to the E39 IHKR.

- **Fresh air/recirculation:** Recirculation is requested by an input to the control panel button or the MFL. The control unit actuates the fresh air/re-circ stepper motor for control of the flap position. Ram effect air is compensated for.
- **Air conditioning:** The request for air conditioning is made by means of a push button.

The IHKR control module communicates with the DME via the K-Bus/KOMBI/CAN Bus link to request permission for compressor activation. The control of the compressor clutch is directly by the IHKA module via a final stage.

- **Rear Window Defroster:** The rear window defroster is controlled via a request from the button on the panel. After switching on for the first time, the rear window is heated for 10 minutes. Output voltage to the window is provided by the K13 rear defogger relay. After automatic switch off, if the button is pressed once again the control unit will provide a clocked operation alternating at 40 seconds on and 80 seconds off. If the vehicle voltage drops below 11.4V during this second heating operation the function is stopped, however the LED on the button will not be extinguished. If voltage increases past 12.2V for at least one second, clocked operation will resume. Clocked operation continues until the button is pressed again or the ignition is cycled.
- **Washer Jet Heating:** The IHKR provides operating current to the washer jet heaters based on outside temperature. The washer jets are heated below an outside temperature of 37° F.
- **K-Bus Communication:** The IHKR control unit is on the vehicle K-bus and receives and sends information concerning:
 - Engine temperature, RPM, KL61, KL50, compressor request, auxiliary fan request, compressor load (DME)
 - Outside temperature KL15 and road speed (KOMBI)
 - Diagnosis and coding (DIS/MoDiC)

