

# FXB-I01001

- □
- [About](#)
- [Features](#)
- [Technical Parameter](#)
- [Basic Configuration](#)

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## About The Product

The device is designed based on the Volkswagen Passat B5 automatic air conditioner system to holistically demonstrate the structure and operation of the system. The device applies to theoretical teaching and maintenance training of the automatic air conditioner system in secondary and senior vocational skill schools, normal education and training institutions.

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## Features

- A real and operable automatic air conditioner system is used to illustrate the structure and operation of the system.
- The compressor is driven by a three-phase motor. A control panel can be operated to demonstrate operation and operating principle of the automatic air conditioner system.
- The training bench is made of advanced aluminum-plastic plate with characteristics of not less than 4mm thick, corrosion resistance, impact resistance, pollution resistance, fireproof, and moistureproof. Its surface are processed by special craft and spraying primer. Never fade color circuit diagram and working principal diagram are painted on the board whose surface coating with varnish. The trainees can

learn and analyze the working principle of the control system by referencing the diagram and the real object.

- The training bench is installed with detection terminals to detect electric signals, for example, resistance, voltage, current, and frequency, of circuit components of the air conditioner system.
- The training bench is installed with pressure gauges and thermometers, which display real-time pressure and temperature at the inlet and outlet of the air conditioner system.
- The training bench supports practice of filling refrigerant and detecting leakage.
- The training bench's base frame is made in steel and the surface is paint-coated. Self-retention wheels are installed to ensure that the bench is flexible, reliable and durable.
- Equipped with intelligent fault setting and appraisal system, include fault setting, troubleshooting and assessment functions etc.

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### **Basic Parameter**

1. Size: 1000mm × 1000mm × 1800mm (length x width x height)
2. Driving power supply: three-phase four-wire (three-phase five-wire 380 ± 10% V 50 Hz)
3. External power supply: A.C. 220V ± 10% 50Hz
4. Operating voltage: 12V DC
5. Refrigerant: R134a
6. Operating temperature: -40℃ to +50℃
7. High pressure gauge: 0 – 3.5 Mpa
8. Low pressure gauge: 0 – 1.5 Mpa
9. Three-phase asynchronous motor
  - Model: YT 100L1-4
  - Voltage: A.C. 220V/380V
  - Power: 2.2 KW
  - Rotation speed: 1420 r/min

## Basic configuration (unit)

No.	Name	Specification and model	Unit	Quantity
1	Detection control panel (protected by 4 mm-thick organic glass)	With various detection terminals, color circuit and principle diagrams	Set	1
2	A full set of meters		Set	1
3	Engine ECU		Set	1
4	Diagnosis socket		Unit	1
5	Ignition switch		Unit	1
6	Engine assembly	Volkswagen Passat B5	Set	1
7	High pressure gauge	R134a, 0–3.5 MPa	Unit	1
8	Low pressure gauge	R134a, 0–1.5 MPa	Unit	1
9	Digital thermometer at the inlet		Unit	1
10	Digital thermometer at the outlet		Unit	1
11	Controller assembly		Set	1
12	Evaporator assembly		Set	1
13	Compressor assembly		Set	1
14	Expansion valve assembly		Set	1
15	Dryer assembly		Set	1
16	Blower assembly		Set	1
17	Condenser		Unit	1
18	Fuel tank	10L	Unit	1

No.	Name	Specification and model	Unit	Quantity
19	Gasoline feed pump (including the plug)		Set	1
20	Throttle controller		Set	1
21	Inlet and exhaust pipes (including protection covers)		Set	1
22	Water tank (including the stainless-steel protection cover)		Set	1
23	Cooling fan	PDM-S81J0ES, 12V, 80W	Unit	2
24	Accumulator	65D26R, 12V 65Ah, 560CCA	Set	1
25	Master power switch	50 A	Unit	1
26	Intelligent fault setting and appraisal system	FXB-688	Set	1
27	Movable framework (with self-retention wheels)	1600mm x 1000mm x 1800mm (length x width x height)	Set	1

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## FXB-I02001

- [About](#)
- [Features](#)
- [Parameter](#)

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The device is designed based on the Volkswagen Passat B5 automatic air conditioner system to holistically demonstrate the structure and operation of the system. The device applies to theoretical teaching and maintenance training of the automatic air conditioner system in secondary and senior vocational skill schools, normal education and training institutions.

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- A real and operable automatic air conditioner system is used to illustrate the structure and operation of the system.
- The compressor is driven by a three-phase motor. A control panel can be operated to demonstrate operation and operating principle of the automatic air conditioner system. Heat generated by the water heater. A control panel can be operated to demonstrate operation and operating principle of the auto manual air conditioner system.
- The training bench is made of advanced aluminum-plastic plate with characteristics of not less than 4mm thick, corrosion resistance, impact resistance, pollution resistance, fireproof, and moistureproof. Its surface are processed by special craft and spraying primer. Never fade color circuit diagram and working principal diagram are painted on the board whose surface coating with varnish. The trainees can learn and analyze the working principle of the control system by referencing the diagram and the real object.
- The training bench is installed with detection terminals to detect electric signals, for example, resistance, voltage, current, and frequency, of circuit components of the air conditioner system.

- The training bench is installed with pressure gauges and thermometers, which display real-time pressure and temperature at the inlet and outlet of the air conditioner system.
- The training bench supports practice of filling refrigerant and detecting leakage.
- The training bench's base frame is made in steel and the surface is paint-coated. Self-retention wheels are installed to ensure that the bench is flexible, reliable and durable.
- Equipped with intelligent fault setting and appraisal system, include fault setting, troubleshooting and assessment functions etc.

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1. Size: 1000mm × 1000mm × 1800mm (length x width x height)
  2. Driving power supply: three-phase four-wire (three-phase five-wire 380 ± 10% V 50 Hz)
  3. External power supply: A.C. 220V ± 10% 50Hz
  4. Operating voltage: 12V DC
  5. Refrigerant: R134a
  6. Operating temperature: -40℃ to +50℃
  7. High pressure gauge: 0 – 3.5 Mpa
  8. Low pressure gauge: 0 – 1.5 Mpa
  9. Three-phase asynchronous motor
    - ◆ Model: YT 100L1-4
    - ◆ Voltage: A.C. 220V/380V
    - ◆ Power: 2.2 KW
    - ◆ Rotation speed: 1420 r/min
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# FXB-I05

- □
- [About](#)
- [Features](#)
- [Basic Configuration](#)
- [Basic Configuration](#)

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The device is designed based on the circuitry of the automatic air conditioner of Toyota Corolla 1.8L to holistically demonstrate the structure and operation of the system. The device applies to theoretical teaching and maintenance training of the circuitry of the automatic air conditioner in secondary and senior vocational skill schools, normal education and training institutions

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- A real and operable circuitry of the automatic air conditioner is used to illustrate the structure of the system.
- Various switches on the control panel of the air conditioner can be operated to demonstrate how each servo motor operates and the blower speed is adjusted. In this way, the device demonstrates operation of the circuitry of the automatic air conditioner.
- The training panel is made of advanced aluminum-plastic plate with characteristics of not less than 4mm thick, corrosion resistance, impact resistance, pollution resistance, fireproof, and moistureproof. Its surface are processed by special craft and spraying primer. Never fade color circuit diagram and working principal diagram are painted on the board whose surface coating with varnish. The trainees can learn and analyze the working principle of the control system by referencing

the diagram and the real object.

- The training panel is installed with detection terminals to detect electric signals, for example, resistance, voltage, current, and frequency, of circuit components of the circuitry of the air conditioner.
- The training panel's base frame is made of steel and the surface is paint-coated. Self-retention wheels are installed and a 40cm<sup>2</sup> tabletop is fixed on the base frame to place materials and light testing devices.
- Instead of using accumulators and requiring charging, the training panel connects to a 220V AC voltage which changes to a 12V DC voltage through the internal circuit. The 12V DC voltage protects the training panel against short circuit.
- Equipped with intelligent fault setting and appraisal system, include fault setting, troubleshooting and assessment functions etc.

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1. Size: 1600mm × 700mm × 1700mm (length x width x height)
  2. External power supply: A.C. 220V ± 10% 50Hz
  3. Operating voltage: 12V DC
  4. Operating temperature: -40° to +50°
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No.	Name	Specification and model	Unit	Quantity
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1	Detection control panel (protected by 3 mm-thick organic glass)	With various detection terminals, color circuit and operating principle diagrams	Set	1
2	Air conditioner ECU	Toyota LS400	Set	1
3	Ignition switch		Unit	1
4	Blower assembly	Including a power tube, a blower resistor, and an ultrahigh-speed relay	Set	1
5	Servo motor		Set	1
6	Sensor signal simulator		Set	1
7	Fuse box		Unit	1
8	Intelligent fault-setting and appraisal system	FXB-688	Set	1
9	Movable framework (with self-retention wheels)	1600mm × 700mm × 1700mm (length × width × height)	Set	1

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# FXB-R01001

- □
- [About](#)
- [Features](#)

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The vehicle professional teaching resource library platform system is established with the planning and technical expertise of the resource library under the guidance and review of the committee of experts for resource library construction and the professional guidance team formed by China Automotive Maintenance and Repair Trade Association and automotive professional teaching experts in vocational education. The resource library is developed based on teaching standards and industrial and enterprise standards and with the selected actual and typical tasks of enterprises as the project model, and combined with the laws of teaching and expert experience, standard, normalized and professional course contents and structures are provided. The development of the resource library contributes to the revolutionary reform of the automobile professional teaching. The resource library and its personalized secondary development are beneficial to students in their independent study and to teachers in their demonstration and coaching, which truly makes the teaching mode change to the one "being student-oriented and teacher-directed" and undoubtedly achieves the change of teachers' role. The development and application of the resource library achieves the organic combination of theory and practice, valid combination of tasks and teaching goals, organic integration of expert experience and objective laws of teaching, and effective coordination of active study and difference in coaching, truly and fully implementing the teaching idea of "learning by doing and practicing while learning"

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- The system mainly consists of such modules as courses center, examination center, management center, PPT making center and training center.
  - The system is designed to be an open style, to which users can freely add teaching data, such as 3D files, SWF files, video files, OFFICE files, PDF and pictures.
  - The courses center contains excellent courses, mainly including structure and maintenance of automotive engine, structure and maintenance of automobile chassis and structure and maintenance of automotive electrical equipment.
  - The examination center features modular assessment and comprehensive assessment and users can freely edit examination paper for assessment. Types of test question include true or false, single choice, multiple choices and practice, with definable difficulty level, score, capacity survey, examination duration and so on.
  - The management center targets all aspects of the system and mainly includes background account management, student achievement management, teacher and student resource allocation management, user role management, course management, examination and assessment management, course task management, student information management, etc.
  - The PPT making center allows for personalized PPT courseware making based on the resource library, and for creation and modification of PPT courseware.
  - The training center is designed mainly for theoretical study and self-test examination for occupational skill appraisal, and for automotive technical level training. It provides training guide videos and a game theory question bank for automobile-related professional skill contests of national vocational colleges (note: videos are those of skill contests of national vocational colleges and the question bank contains those in the national standard question bank).

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# FXB-R01002

- Six modules including electric engine (Toyota Corolla 1ZR-FE), automatic transmission (U341E), ABS, power steering system, electric system and electrically controlled suspension system.
- The system adopts C/S structure, with network only transmitting system data, ensuring the favorable operation performance of customer terminal software without the influence of the network flow.
- It adopts 3D virtual mode to represent parts and components of all assemblies and the position relations among them and all assemblies and parts and components are allowed to be zoomed in and out, rotated, removed, etc.
- It adopts two fault setting manners – manual and random. Faults will be displayed and relevant simulation detection instrument, decoder, oscilloscope, multimeter and the like function to detect faults and make troubleshooting.
- The failure maintenance assessment of the module can record such information as the duration for failure elimination, paper handing-in time, the number of correct troubleshooting operations, question numbers of wrongly answered items, wrongly chosen options and total scores. Such information can be inquired and printed out in the assessment system management terminal by name of student, examination number and paper handing-in time, and becomes the evaluation basis of failure diagnosis operation. It has assessment system that contains relevant questions bank. Questions bank can either be automatically and

randomly generated in assessment or generated through custom settings.

- The module features expansibility and thus teachers can edit teaching plans in the software.
  - Three-dimensional animation and graphic animation are adopted to introduce operating principles of various systems.
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## **FXB-R01010**

- The system consists of care and maintenance process of Toyota, Volkswagen, GM automobiles.
- It provides training teaching on regular care and maintenance of specific type of vehicles.
- The system equipped with repeat training function allows each student to operate independently.
- Operation instructions in the practical training are identical to actual operation, allowing full play to the training.
- The system is mainly developed with flash+actionscript3 to fit in the Windows2000/2003/XP/Vista/Windows7/Windows8.1, which puts few requirements on hardware and boasts fast speed and quick installation.
- The software is of three-screen-in-one structure which integrates the teacher explanation screen for course contents, the guidance screen for reality teaching training operation and the display screen for key points of teaching contents.
- The training guidance is designed with the double operation demonstration with famous brand cars by maintenance technicians from 4S stores, and the lecturer

is the company's trainers; the videos are shot in sections based on 16 jacking positions in the national contests and such videos are mainly about all maintenance detail provisions, such as electrical appliance, chassis, engine, etc.

- The software mainly consists of video overview, preparation, ground maintenance, underbody maintenance, running gear maintenance, follow-up, steps and tools for use, software help function, etc.
  - The software features video, character instruction, phonetic explanation, etc.; the software has a video display software and no additional video software is required.
  - Process guidance: entering station, lighting inspection, operation and electrical system inspection, lifter setting, chassis inspection and maintenance, and basic inspection and maintenance of engine.
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## **Vehicle Training Automated Class**

This is an automated vehicle training Class that runs on a virtual simulated software and physical equipment for vehicle maintenance and repair it comprises of :

- Transmission
- Clutch
- Power trains
- Braking
- Steering
- Chassis
- Whole Car

- Electric Control
- Diagnostic and Maintenance
- and also the Simulated software