

GTAFE Virtual Auto Mechanic Premium

V2.1

User and Customer Support Guide



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1. Introduction

1.1. Objective

This manual is the user and customer support guide, intended to provide installation and operating guidance for users of GTAFE Virtual Auto Mechanic Premium V2.1.

1.2. Background

1. The software is named GTAFE Virtual Auto Mechanic Premium. The current version is 2.1.
2. The software is packaged by Shenzhen GTA Education Tech Ltd. and developed by GTA 3D Production Development Center. The software is used on zSpace devices.
3. The software includes the assembly and disassembly simulation of six modules: engine, transmission, suspension, brake, AC compressor, and air distribution box, and includes motion display of the air distribution box, engine working principle, independent suspension, AC compressor, and steering system.
4. The software application provides online registration. Users can activate the application with the provided activation key to enter the software operation interface. When activating the application, a network connection is required to verify the key. The software must be operated on zSpace devices.
5. The software application can also use naked eye 3D or **zView** to enhance the teaching and learning process.

2. Purpose

2.1. Function and Features

Type	Name	Description	Notes
Disassembly Simulation	Engine	Simulation of the disassembling process of the engine, including whole disassembly and component disassembly	
	Transmission	Simulation of the disassembling process of the transmission, including whole disassembly and component disassembly	
	Disc Brake	Simulation of the disassembling process of the disc brake	

	Front Suspension	Simulation of the disassembling process of the front suspension	
	AC Compressor	Simulation of the disassembling process of the AC compressor	
	Air Distribution Box	Simulation of the disassembling process of the air distribution box	
Assembly Simulation	Engine	Simulation of the assembling process of the engine, including whole assembly and component assembly	
	Transmission	Simulation of the assembling process of the transmission, including whole assembly and component assembly	
	Disc Brake	Simulation of the assembling process of the disc brake	
	Front Suspension	Simulation of the assembling process of the front suspension	
	AC Compressor	Simulation of the assembling process of the AC compressor	
	Air Distribution Box	Simulation of the assembling process of the air distribution box	
Motion Principle	Engine, Air Distribution Box, AC compressor, Suspension, and Steering System	Simulation of the internal operations of the engine, air motion in the air distribution box, working mechanics of the AC compressor, motion display of the independent suspension during single-wheel travel and two-wheel travel, as well as the working mechanics of the steering system	

3. Operating Environment

3.1. Hardware Environment

Please know that GTAFE conducts formal testing only on zSpace 300 devices.

CPU	Intel Processor 500GB Hard Disk 8GB RAM
Graphics Card	AMD FirePro W5170M
Resolution	1080p

Display Size	20.5' H * 11.5' V, 23.6' D (52.07 cm * 29.21 cm * 59.94cm)
Rise Time / Fall Time	Tr: 1.3 ms Tf: 4.3 ms
Power Requirement	19 V, 200 W Power Adapter
Hardware Device	Power Adapter Stylus Pen Polarized Glasses (3D and 2D) Mouse Keyboard
Space Requirement	Height: 9-15' (24-39cm) Width: 25' (64cm) Depth: 10-20' (27-52cm)
Environment Requirement	Temperature: 10-35°C Humidity: 10-80%NC
Cables	USB 2.0-3 Ports USB 3.0-2 Ports Audio Input / Output Port HDMI Port Supporting Ethernet Connection Operation Pen Port DC Power (19V)

3.2. Software Environment

Operating System – Windows 10 (64-bit)

4. Operating Procedures

4.1. Installation and Initialization

Double click the software installation setup package to enter the installation interface as shown below. Select 'Next' to install or 'Cancel' to terminate the installation. Users can continue the installation process by following the instructions.



Double click the application shortcut icon on Windows Desktop to launch the application and enter the registration interface. Retrieve the product key from the product management center. Enter the product key and select 'Activate License' to start using the software. The license activation requires a network connection to verify the key. The registration interface is shown below.


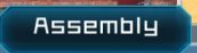
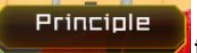



4.2. Application's Operating Instructions





Upon entering the main interface following registration, use the stylus to sense the corresponding items on the screen, and press the middle button of the stylus to select and enter the corresponding modules. This software application contains three modules: disassembly


training, assembly training, and principle display. Select the module to enter. The interface is shown below.

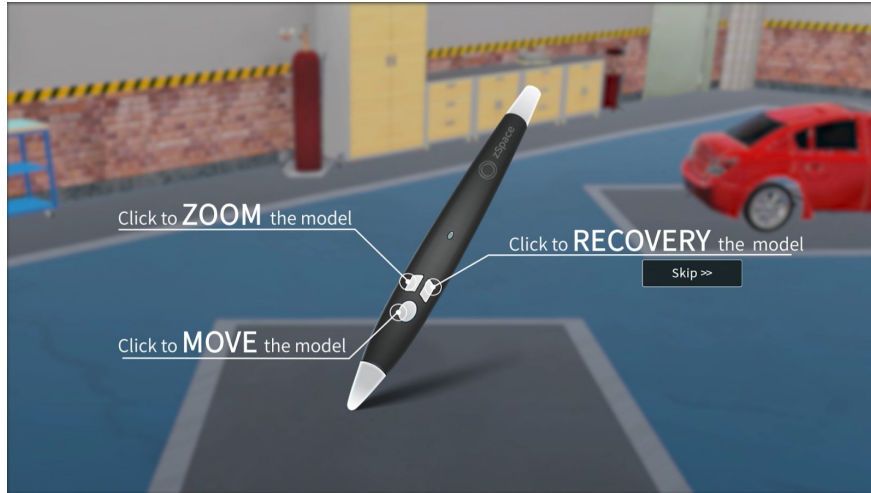


Click    to switch between the disassembly training module, assembly training module, and principle display module.

Click  to exit the application.

Click  to open . After connecting the naked eye 3D device, click  to start the naked eye 3D. After zView is connected and the software is installed, click  to start zView.

Click  to play the video of Operational Guideline for Newcomer.



Click  to enter the 'Settings' interface shown below.



Users can set their own operating preferences for stylus vibration, background, interpupillary distance, remaining time, ray length, and license management.

Users can find their license and version information at the bottom of Settings UI. In the license management section, users can also stop using the existing license. By selecting

Deactivate license


, the following confirmation message appears. Select 'Yes' to deactivate the license, or 'No' to continue using the license. Deactivating the license requires a network connection to recycle the license key.

4.2.1. Introduction to the Disassembly Simulation

Click **Disassembly** to switch to the main interface of the disassembly simulation. When the stylus is moved over a corresponding module, the module will be highlighted. Press on the middle button of the stylus to enter the module disassembly interface shown below.



The three modes guidance, training, and examination, are offered for the disassembly training.

Click  to switch among these three modes.

Guidance mode: includes disassembly steps, name of parts, hints for tools, total steps, and steps conducted. The ongoing operation always remains highlighted, and the model is shown

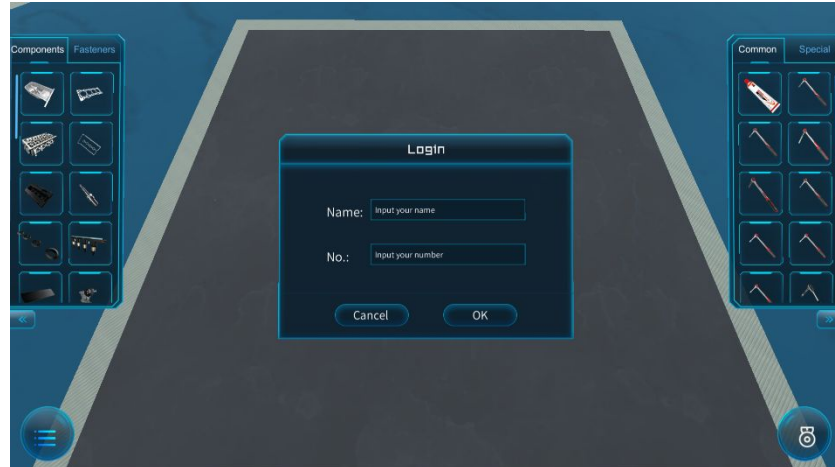
from the optimal angle of view. The operation can be undone and reset. During the operation, steps can be recorded, and three error hints are offered. The records can be exported to PDF, and saved in selected directory.



Training mode: includes disassembly steps, name of parts, hints for tools, total steps, and steps conducted. Through the Hints button, the hints (disassembly area, the location of the parts, and the required tool) will be highlighted, and the model can be shown from the optimal angle of view. The operation can be undone and reset. During the operation, steps can be recorded, and three error hints are offered. The records can be exported to PDF, and saved in selected directory.




Examination mode: before the start of the examination, the user needs to fill in the name and ID number. The hints for steps and tools will be hidden. The countdown is offered, varying with the disassembly model. The end of the countdown means the automatic end of the examination. The name, ID number, operation steps, and duration will be recorded. Three error hints are offered. The records can be exported to PDF, and saved in selected directory.




The disassembly interface layout is as shown in the screenshot above. On the right, the tool rack contains common tools and special tools. On the left, the part rack is composed of components and fasteners. When the disassembly is completed, all parts will be returned to the rack automatically. The middle panel is a hints box which shows the operating details of the current step. Press the middle button of the stylus to enter the corresponding interface. When the interface of the part rack, hints panel, or tool rack is pointed at by the beam of the stylus, press the middle button of the stylus to drag the selected part.


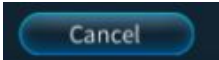
The other buttons are explained as below,

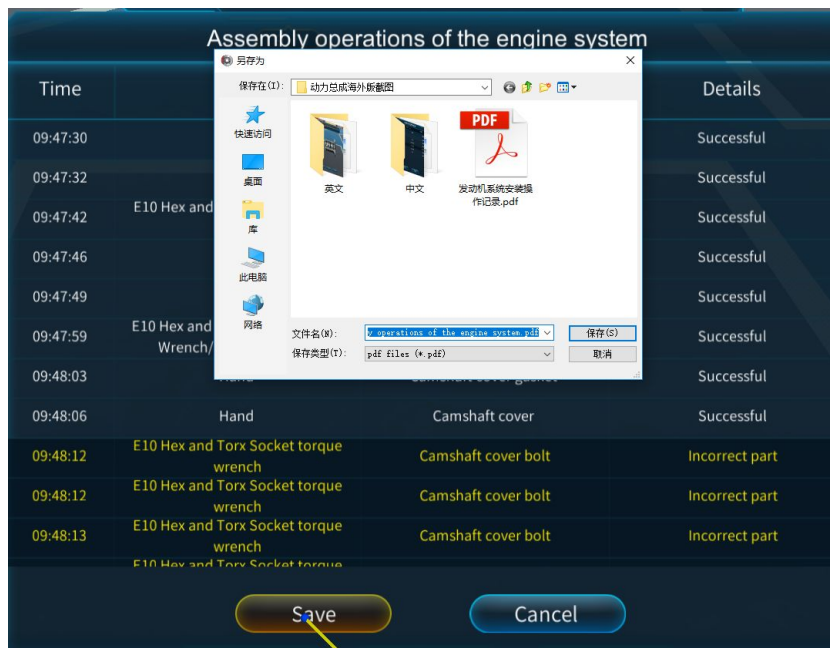
Click  to open 


Click  to return to the main page.

Click  to open the operation records.

Assembly operations of the engine system			
Time	Tools	Parts	Details
09:47:30	Sealant		Successful
09:47:32	Hand	Oil pan	Successful
09:47:42	E10 Hex and Torx Socket torque wrench	Oil pan bolt	Successful
09:47:46	Hand	Cylinder cover gasket	Successful
09:47:49	Hand	Cylinder cover	Successful
09:47:59	E10 Hex and Torx Socket Torque Wrench/Ratchet Wrench	Cylinder Cover Bolt	Successful
09:48:03	Hand	Camshaft cover gasket	Successful
09:48:06	Hand	Camshaft cover	Successful
09:48:12	E10 Hex and Torx Socket torque wrench	Camshaft cover bolt	Incorrect part
09:48:12	E10 Hex and Torx Socket torque wrench	Camshaft cover bolt	Incorrect part
09:48:13	E10 Hex and Torx Socket torque wrench	Camshaft cover bolt	Incorrect part
09:48:13	E10 Hex and Torx Socket torque wrench	Camshaft cover bolt	Incorrect part

Click  to save the records to the local file. Click  to close the records' window.




The simulation of the disassembling process of the engine and transmission includes the whole disassembly and components (submodules) disassembly. Click  to open the submodule selection menu.




Move the stylus to the submodules to select the corresponding module. The selected module will be highlighted and the hints panel will present the name of the current module. Press the middle button of the stylus to enter the disassembly interface. This disassembly interface is the same as the above-mentioned disassembly interface, so the description is omitted here.




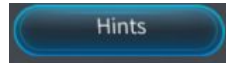
Click  to go back to the whole disassembly.

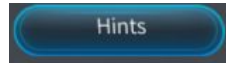


Click  to reset the current progress to the initial starting point.

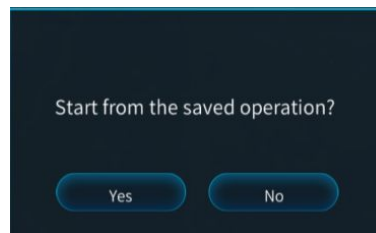


Click  to undo the previous step.



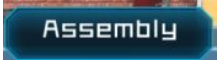
Click  to highlight the disassembly area, the location of the parts, and the required tool.

The operation will be automatically saved. When the user enters the module again, the interface is shown below.




Select 'Yes' to return to the step previously saved or 'No' to start from the beginning.

4.2.2. Introduction to the Assembly

Click  to enter the assembly interface. When the stylus is moved over the corresponding module, the module will be highlighted. Press the middle button of the stylus to enter the module. The interface is shown below.



The three modes guidance, training, and examination, are also offered for the assembly


process. Click  to switch among these three modes. The functions are the same as the disassembly.


The assembly interface layout is as shown in the screenshot above. On the right, the tool rack contains common tools and special tools. On the left, the part rack is composed of components and fasteners. During the assembly, select the correct tool from the tool rack and parts from the part rack, and drag the selected part to the correct position to start assembling the part.


The middle panel is a hints box which shows the operating details of the current step. Press the middle button of the stylus to enter the corresponding interface. When the interface of the part rack, hints panel, or tool rack is pointed at by the beam of the stylus, press the middle button of the stylus to drag the selected part.

The other buttons are explained as below,

Click  to open .


Click  to return to the main page.

Click  to open the operation records.

The simulation of the assembling process of the engine and transmission includes the whole disassembly and components (submodules) assembly. Click  to open the submodule selection menu.




Move the stylus to the submodules to select the corresponding module. The selected module will be highlighted and the hints panel will present the name of the current module. Press the middle button of the stylus to enter the assembly interface. This assembly interface is the same as the above-mentioned assembly interface, so the description is omitted here.

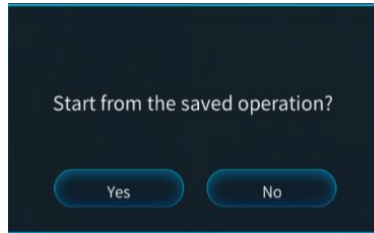
Click  to go back to whole assembly.

Click  to reset the current progress to the initial starting point.

Click  to undo the previous step.

Click  to highlight the assembly area, the location of the parts, and the required tool.

The operation will be automatically saved. When the user enters the module again, the interface is shown below.

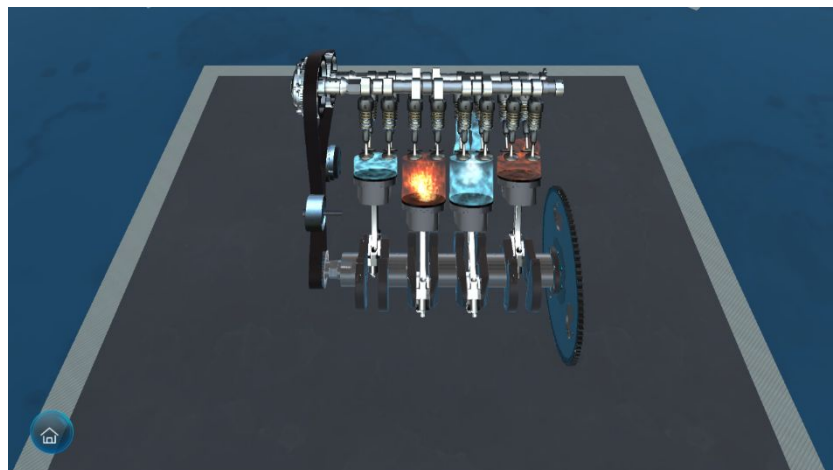


Select 'Yes' to return to the step previously saved or 'No' to start from the beginning.


4.2.3. Introduction to the Principle Display

Click **Principle** to enter the principle display interface.

Press the middle button of the stylus to enter the corresponding interface, as shown below.



In the principle display interface, press and hold the middle button of the stylus to drag and rotate the corresponding part, and to view in different angles. Press and hold the right button of the stylus and drag the model in and out to resize.

Click  to return to the main page.

5. Application notes

Run as administrator to launch installation package and software shortcut for initial installment.