

COSBER



USER MANUAL

CAR Suspension Tester

COSBER C-ESC Series

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1 General

1.1 Important notes

- First, thank you for choosing this product.
- This manual is a necessary addition to the product. To use the device more effectively, users should read the instructions carefully before installation and properly reference them for further use and maintenance.
- The product specifications and information mentioned in the manual are for reference only, the content may be updated periodically and without further notice.
- This product should only be used for its specific purposes and should never be used for any other purpose. The manufacturer is not liable for any damage caused by improper use of this product.
- Please strictly adhere to the "guidelines" and "instructions" during operation when using this product and remember that the device needs regular maintenance.
- This product should only be operated and used by specially trained and qualified personnel.
- People who are not part of our company are prohibited from disassembling, modifying the product, or using it for any other purpose beyond the detection function of the device itself without permission.
- In the event of product damage caused by human factors or force majeure (such as earthquakes, floods, ...), the User must take timely and effective remedial measures and inform the Company as soon as possible.

1.2 Safety Tips

Before starting, suppressing, connecting, and operating the system, read the instructions carefully and strictly adhere to them.



INFORM OTHER USERS AND BYSTANDERS OF DANGERS AND ALWAYS INFORM THEM ABOUT DANGEROUS CONSEQUENCES AND PREVENTIVE MEASURES.

WARNING!

Designation	Probability of occurrence	Severity of risk
Danger	Imminent danger	Injury and death
Warning	Danger	Injury
Hint	Danger	Minor injury

1.3 Safety

1.3.1 Beware of electric shocks.



1.3.2 Keep away from the rotating rollers! Risk of crushing can lead to injury and death.



1.3.3 Note on the installation of the product.

All necessary configuration settings and calibration of the sensors should be conducted exclusively by Cosber technical personnel or approved partners of Cosber.

2 Description of the product

2.1 Use according to the intended purpose.



WARNING!

- In the event of non-intended use, the safe operation of the system cannot be guaranteed.
- You must always use the system in compliance with the specifications for the brake test device.
- The system may not be altered or modified under any circumstances without consent.
- Pay attention to the specifications for brake testing of the respective vehicle manufacturers (manuals).
- The brake test bench should only be used to detect a two-axle vehicle breaking device. Please refer to the product specifications for the description of the proper track, maximum axle load, and all-wheel drive.
- The brake test bench should provide brake test results in the form required by all official testing bodies.

For other purposes:

- Read and observe the product specifications.
- Stick to the specifications of the brake test bench and all related components.
- Observe the safety instructions during all operating steps.

- Operate the brake test bench properly.
- Use the correct procedure for all brake tests.
- Conduct all maintenance work in a timely manner.
- Operations not included in this manual are considered improper use of the product and may result in personal injury or property damage. In this case, the manufacturer is not liable for any losses resulting from this.

2.2 Initial assembly and commissioning

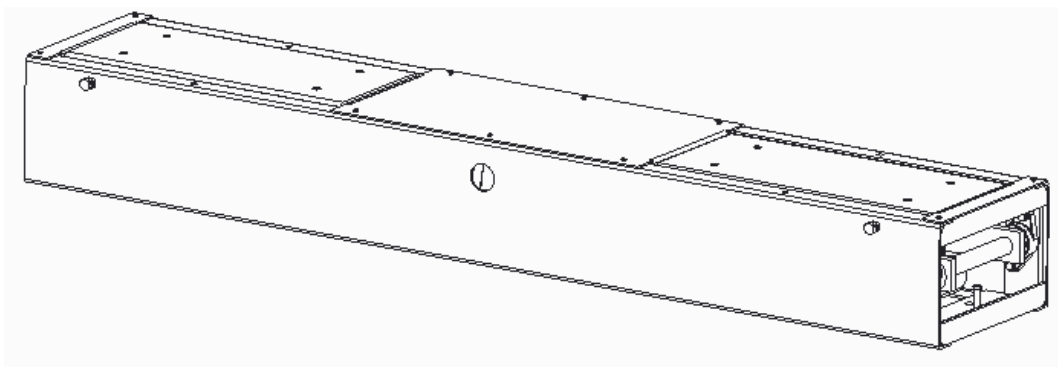
- All necessary configuration settings and calibration of the sensors should be conducted exclusively by Cosber technical personnel or authorized partners of Cosber.
- All the requirements for installation must be met before the Technical Service staff start the installation. The pit must comply with the specifications in the schematic drawing of the foundation of the product.

2.3 Ambient conditions

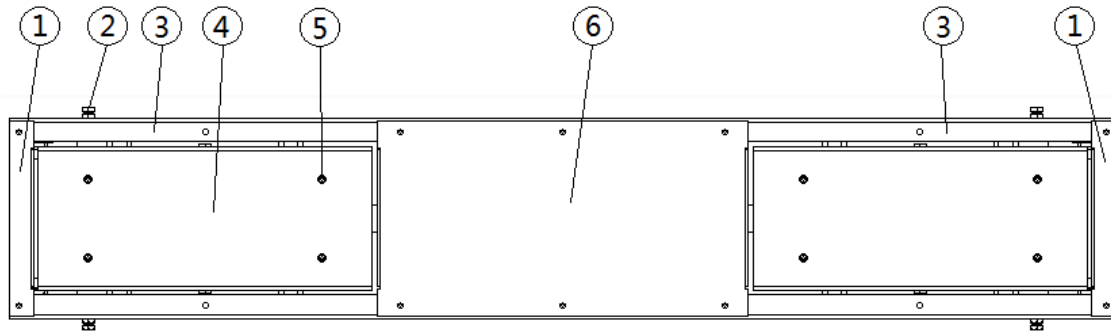
Ambient temperature operation	0~40 °C
Ambient Temperature Storage	-10~50 °C
Ambient Humidity Operation	≤ 90% (no condensation)

2.4 Main components of the test bench

2.4.1 Test Bench ESC-20

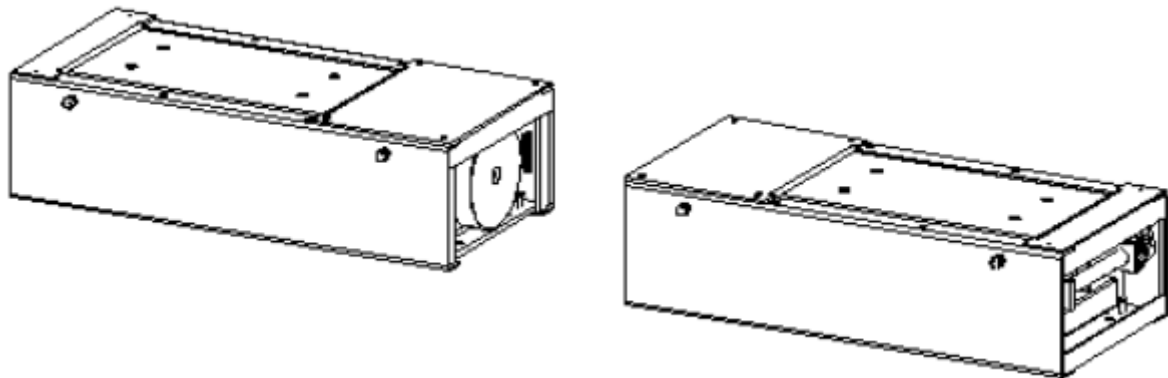


2.4.1.1 Description of the components

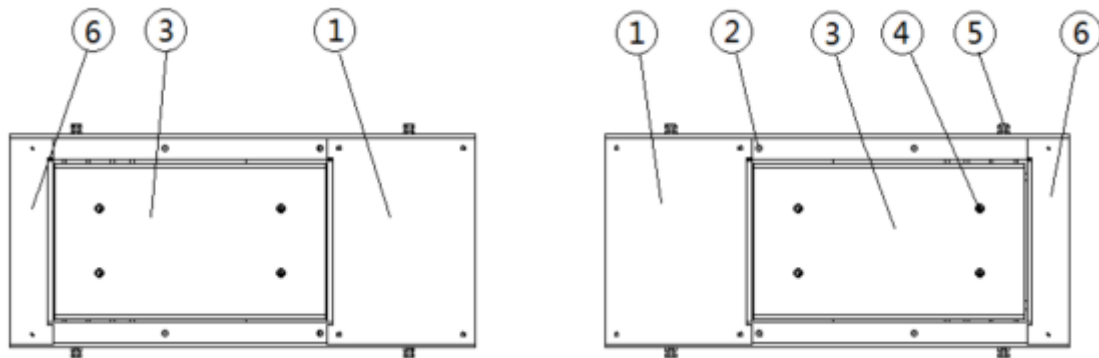


No.	Item no.	Name
1	20.61.02.0118	Side cover plate
2	70.05.16.1616	Hexagon Bolt M16x45
3	20.61.01.0026	Bank
4	20.61.02.0008	Vibratory plate weldments
5	70.05.19.0802	Countersunk screw with hexagon M8x20
6	20.61.02.0134	Middle cover plate

2.4.2 Test Bench ESC-70



2.4.1.2 Description of the components



No.	Item no.	Name
1	20.61.02.0017	Side cover plate
2	20.61.01.0030	Bank
3	20.61.01.0031	Vibratory plate weldments
4	70.05.19.0802	Countersunk Head Screw M10X20
5	70.05.16.1616	Hexagon Bolt M16X45
6	20.61.01.0032	Long side cover plate

2.4.1.3 Specifications

Product Model	C-ESC20	C-ESC70
Maximum axle load	3,000 kg	15,000 kg
Maximum measurement of axle load	approx. 1,500 kg	approx. 1,500 kg
Vibration range (LxW)	700 x 300 mm	700 x 400 mm
Vibration amplitude	6 mm	6 mm
Frequency	> 20 Hz	> 20 Hz
Range of wheel diameters	400~800mm	400~800mm
Wheel Distance Range	800 ~ 2,200 mm	800 ~ 2,200 mm
Power	2x 4.0 kW	2x 4.0 kW
Dimensions (L x W x H)	2,320 x 420 x 275 mm	1,200 x 550 x 325 mm

2.4.1.4 Options

Description	Standard	Optional
Weighing function	Yes	-
Surface	Hot dip galvanized	Wet Painted (Green)

2.4.3 Control box

See description brake test bench.

3 Installation of the system

See installation instructions for landing gear tester.

4 Start

4.1 Installation checklist

- Before starting up the system for the first time, check that all assembly work has been completed properly.
 - Before checking the wiring, check that the main switch is in the OFF position.
-
- 1) Check that the system and all accessories are fully assembled.
 - 2) Check if there are suitable disconnectors at the site.
 - 3) Check that all components are properly assembled.
 - 4) Check that the motor power cable of the brake test bench is properly connected to the terminal in the control cabinet.
 - 5) Check that the brake test bench signal cable is properly connected to the motherboard in the control cabinet.
 - 6) Check that the main power cable of the control cabinet is properly connected to the disconnect switch.
 - 7) Check whether the protective conductor is connected.
 - 8) Check that the signal cable on the main control panel of the control cabinet is properly connected to the USB port of the PC.
 - 9) Check that the power cable of the analog display is properly connected to the terminal in the control cabinet.
 - 10) Verify that the analog display serial signal cable is properly connected to the motherboard in the control cabinet.

4.2 Check at startup.



WARNING!

BEWARE OF ELECTRIC SHOCK WHEN SWITCHING ON THE MAIN SWITCH. IF AN ELECTRIC SHOCK OR ELECTRICAL LEAKAGE CURRENT OCCURS, YOU MUST DISCONNECT THE POWER SWITCH IMMEDIATELY.

- 1) Turn on the power switch on the control cabinet and check whether the operating light appears.
- 2) Turn on the 3-phase disconnect switch and the single-phase disconnect switch in the control cabinet and check whether the internal circuit in the control cabinet is operating normally.
- 3) When you turn on the power, make sure that all the lights on the analog display light up, the pointers are moving, and the display is showing something. After starting, the pointer returns to its original position, the operating light appears, and the other lights go out.
- 4) Start the software program and check if the engine rotation is correct.
- 5) Start the software program and check that the system signal is correct.



ATTENTION!

ENSURE THAT ALL COMPONENTS ARE CORRECTLY ASSEMBLED AND PROPERLY WIRED BEFORE USING THE EQUIPMENT.

5 Software system

5.1 Installing the Software

See separate installation instructions.

5.2 Use of the test system

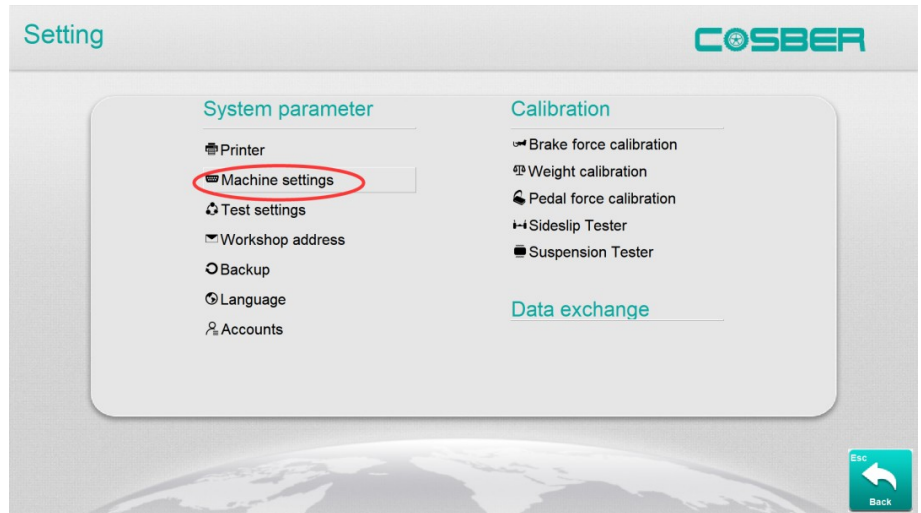
see separate instructions from the brake test bench.

Special setting for the use of the suspension test bench:

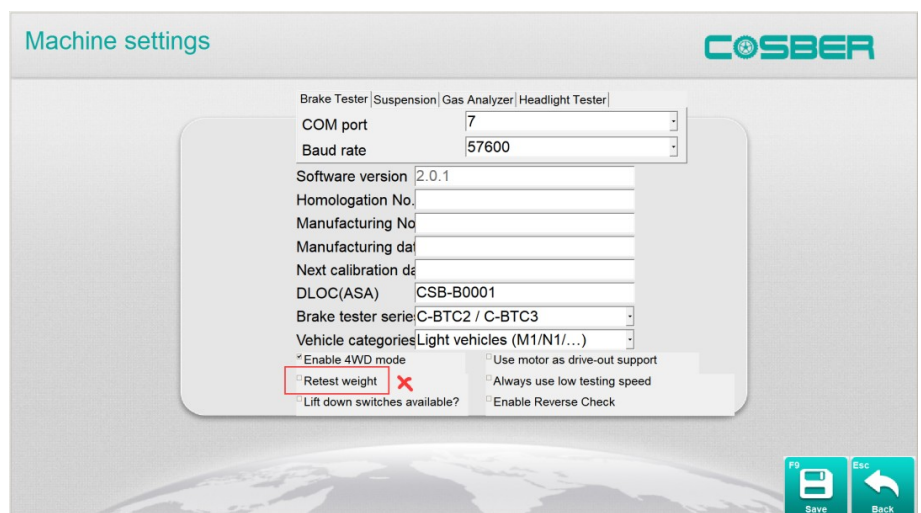
1. Click on Setting

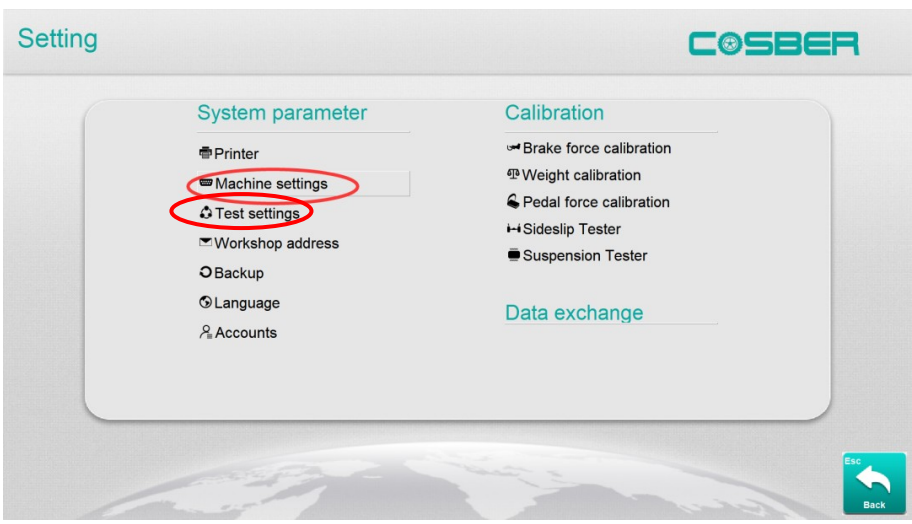
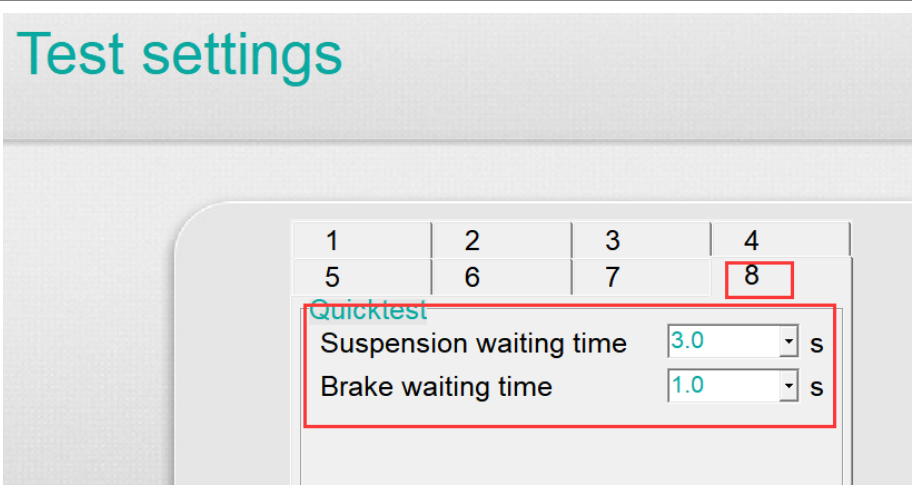


2. Select Machine Settings



3. Turn off the "Retest Weight" option



4. Select Test Settings	
5. Go to folder 8 and set the waiting time for the suspension or brake test to begin	

5.3 Calibrate the suspension tester.

See separate instructions for calibration.

5.4 Self-test

See the service manual.

5.5 Test operation



HINT!

FIRST, MAKE SURE THAT THE TIRES OF THE VEHICLE YOU WANT TO INSPECT ARE FREE OF FOREIGN OBJECTS (E.G., ROCKS, SCREWS, ETC.) AND CHECK THAT THE TIRE PRESSURE IS NORMAL.

PARK THE VEHICLE IN FRONT OF THE FACILITY BEFORE THE TEST. POSITION THE VEHICLE TO THE TEST BENCH AND ALWAYS FOLLOW THE PROMPTS SHOWN ON THE DISPLAY.



DANGER!

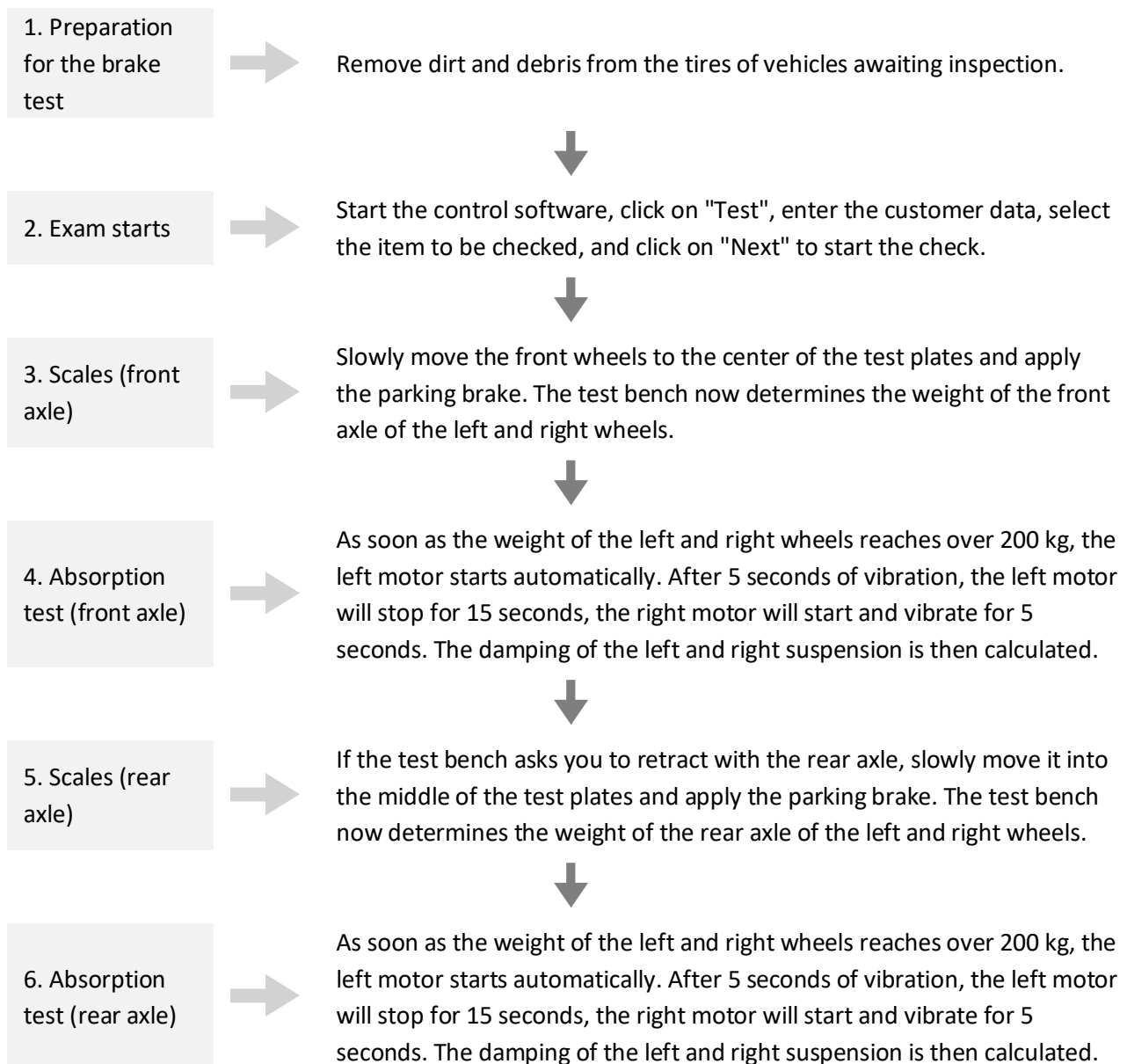
DURING THE TESTING PROCESS, ALWAYS KEEP A SAFE DISTANCE FROM THE BRAKE TEST BENCH AND THE VEHICLE TO AVOID INJURY.



WARNING!

EVEN IF ALL SAFETY MEASURES ARE OBSERVED, DANGERS CAN STILL OCCUR! IN THIS CASE, STOP ALL PROCESSES AND DISCONNECT THE POWER SUPPLY. ESTABLISH A SAFE CONDITION AND INFORM OUR COMPANY.

5.5.1 Flowchart of the operation





7. Conclusion



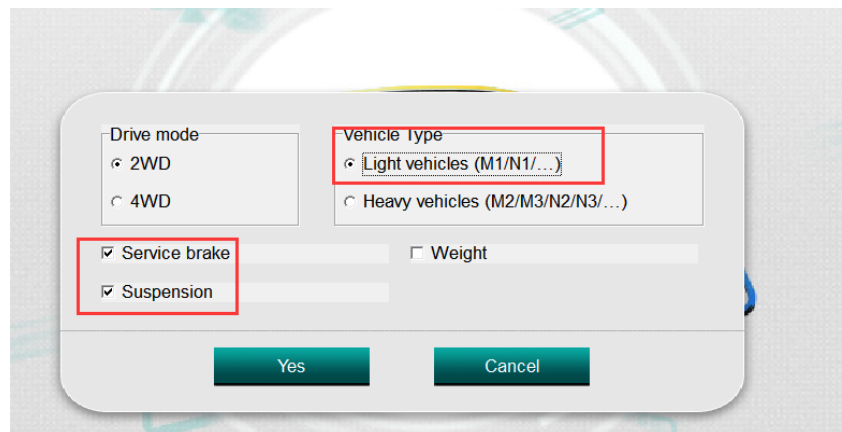
After the damping test is complete, wait for the request to leave the test bench. As soon as this appears, release the parking brake and leave the test bench.

5.5.2 Operations

1. Start the software and click on e.g., "Quicktest"

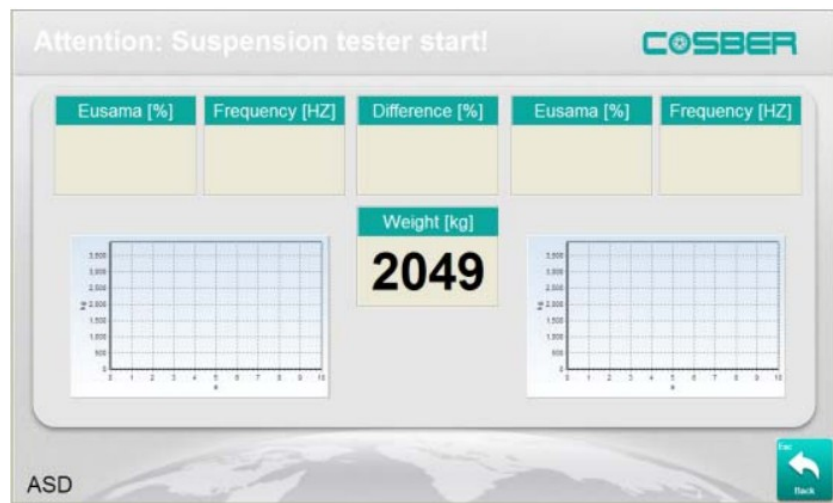


2. Select the vehicle type.
3. Choose the test procedure



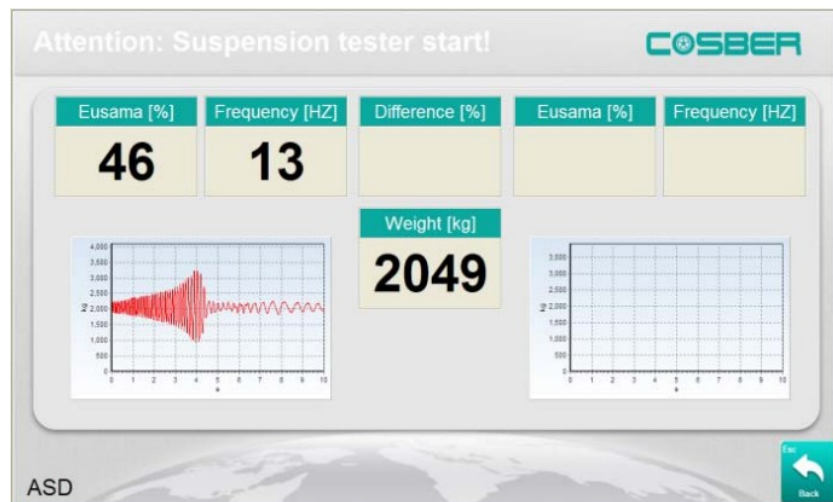
4. Weight test:

Slowly move the front axle to the middle of the test plate of the chassis test bench and activate the parking brake. The test bench first records the left and right wheel weight of the front axle.

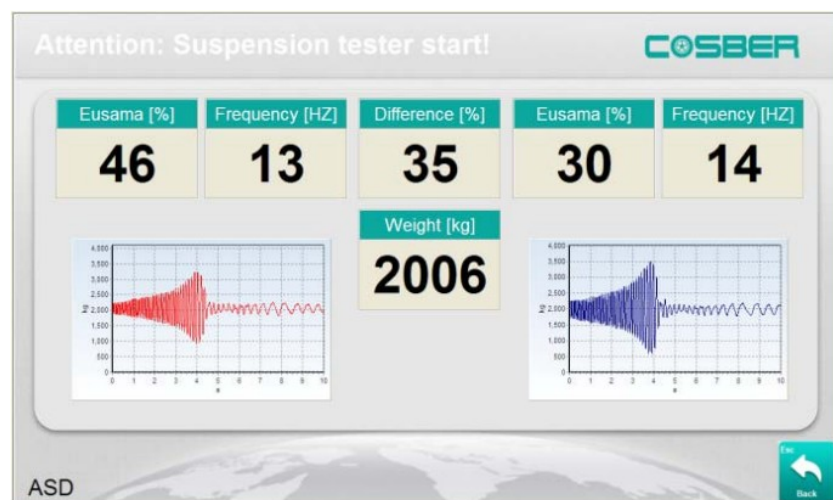


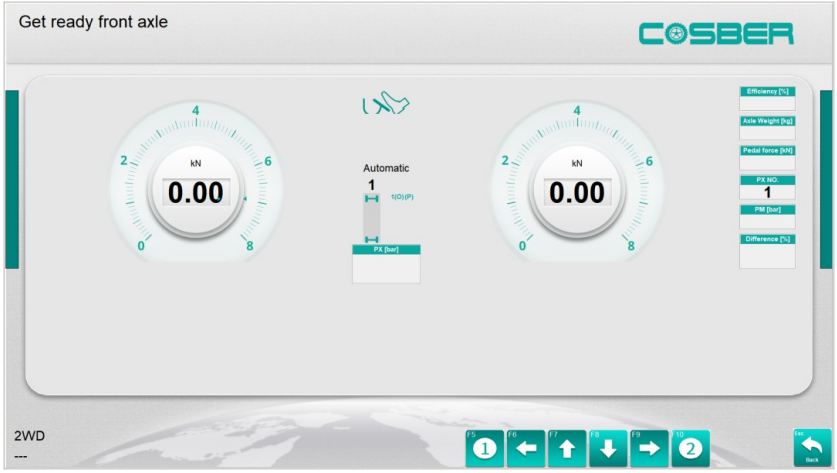
5. Testing of the suspension:

When the weight of the left and right wheels reaches 200 kg or more, the left motor starts automatically. After 5 seconds of vibration, the left motor will stop for 15 seconds and the right motor will start and vibrate for 5 seconds, then the absorption of the left and right suspension will be measured.



6. When the test is complete, the values are displayed.



7. If you choose to do the brake test, the software will proceed with the brake test. See the operating instructions for the brake test bench	
8. Finish	After the tests are complete, wait for the tester's prompt. If prompted, deactivate the parking brake and exit the suspension test bench.

6 Service

6.1 Restoration



ALL REPAIR WORK SHOULD BE CONDUCTED BY COSBER'S TECHNICAL SERVICE OR A COSBER-APPROVED PARTNER. NEVER DISASSEMBLE THE SYSTEM WITHOUT PRIOR CONSENT.

HINT!

- Keep all surfaces of the facility clean. The platform of the test bench should be oil-free.
- Remove oil, mud, sand, or other debris from the test bench platform before using it.
- The parts of the system must be maintained according to the points in the maintenance plan.
- If the equipment is not going to be used for an extended period, turn off the main supply, lubricate any parts that require lubrication, and cover the control cabinet and analog display to prevent dust from accumulating on them.
- The prolonged use of the system is accompanied by the elongation/elongation of the drive chain. This means that the position of the roller should be readjusted so that the tension of the drive chain continues to be correct.

6.2 Maintenance schedule

1	Remove dust from the control cabinet	Monthly
2	Check the connections of all electrical components in the control cabinet	Monthly
3	Check whether connecting screws on the test bench are loose,	Monthly
4	Remove dirt from the test bench and platforms.	Monthly
5	Check if the vibrations of the suspension platform are flexible,	Monthly
7	Check the gap between the sensor and the arm	Quarterly
8	Check all cables for damage	Annual

7 Security

7.1 Inspection plan

1	Visual inspection of equipment operation	Daily
2	Security check	Annual
3	Routine inspections (only for Germany)	Every two years

7.2 Visual control

- Conduct a visual inspection each time the system is switched on.
- Every time the system is switched on, the built-in electrical system automatically detects safety-relevant functions. The system displays allowed exceptions.

7.3 Security Testing

- German regulations on safety testing: The operator must inspect safety-relevant components on the system at least once a year (BGV A1, Chapter 39, Articles 1 and 3).
- International regulations for safety testing: The operator must inspect safety-related components on the plant at least once a year in accordance with the laws and regulations of the respective country or region.

7.4 Unit Testing (for Germany)

- A qualified expert must be commissioned to conduct the unit inspection.
- An authorized customer service technician must conduct the first start-up and initial commissioning.
- Once every two years (repeat examination).
- If parts relevant to the measurements are replaced, an inspection must be conducted immediately after the repair.

7.5 Procedure for decommissioning the plant.

- If the system is taken out of service for an extended period, switch off the main supply and cover the control cabinet so that dust does not accumulate there. Attach the label to the main switch.
- Prevent improper loading or influence on the brake test bench. Put up appropriate warning signs to prevent property damage and personal injury.

COSBER



Cosber GmbH
Lise-Meitner-Str. 3
82152 Krailling
GERMANY

Phone: +49 (0) 89 262 07 66-00
Fax: +49 (0) 89 262 07 66-60
E-mail: info@cosber.de
Homepage: www.cosber.de