

BDE/VIDEOline/COMBline

2204 -2304

FWT2010 – FWT3800

Windows Version

Operating Manual

Test track

Article No.T2000609531 – Version 4.0

CARTEC



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1. Introduction

1.1 About this Manual

Compliments on purchasing your CARTEC **VIDEO- or COMBIline 2204 / 2304 WINDOWS version.**

In the present operating manual you will find all data and any information important for your daily work with your brake test track. **CARTEC** products distinguish themselves by consistent further development, among others.

This Operating Manual provides you with all information important for the routine work with your Brake Tester. In spite of careful check mistakes cannot be excluded completely in this manual.

The installation and calibration of the test stand are described in separate manuals.

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1.2 Abbreviations

In the following, we provide explanations for abbreviations that are used in *CARTEC* operating manuals, as well as operating and installation instructions:

Products:

BDE	= Brake diagnosis unit (Roller brake test track)
FWT	= Chassis testing unit
SSP	= Fast track tester

General Terms:

VDA	= front axle
HIA	= rear axle
FBA	= parking brake
BBA	= service brake system
PKW	= passenger car

1.3 Brief Description of the test stand

With the help of the **BDE 2204/2304 – VIDEO-COMBIline 2204/2304** you can carry out brake tests and chassis tests in passenger cars easily and quickly. This test rig is particularly designed for fast diagnosis in service shop applications.

With the help of the PC programme you are able to make detailed evaluations about the condition of the braking system or the chassis of a tested vehicle.

Simplest operation combined with a fast testing procedure allows for a very short familiarisation phase and time-saving and efficient brake testing almost without interruption. The **BDE 2204/2304 – VIDEO-COMBIline 2204/2304** consists of a basic version comprising the following components

- Set of rollers
- Chassis tester - Eusama or Theta concept
- Fast track tester
- Cabinet, e-box or display cabinet
- PC, monitor and printer

1.4 Manufacturer



Snap-on Equipment srl a unico socio
Via Provinciale Carpi, 33
42015 Correggio (RE) Italy

Telefon +39-(0)522-733411
Telefax +39-(0)522-733410

1.5 Service



Snap-on Equipment GmbH
Testing Division
Konrad-Zuse-Straße 1
D-84579 Unterneukirchen

Hotline Telefon +49-86 34 / 622 8994
Hotline Telefax +49-86 34 / 622 585

Internet www.snapon-equipment.de

Our hotline is at your service within the usual business hours from Monday to Friday.

1.6 Operational Safety and Prevention of Accidents

Please carefully read and observe the rules and provision in this manual in order to prevent accidents and damage to the test system.



As long as the vehicle is positioned on the brake test track the driver must under no circumstances leave the vehicle.



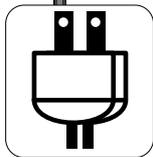
- During the brake testing procedure it must be ensured that **no persons are present in the immediate proximity** of the rotating test rollers.

If required, barriers, colour marking on the floor around the complete test track or a warning sign (Caution - brake test!) including warning light or beacon may be installed.

The **person testing** the vehicle must sit **in the vehicle** during the brake test and before beginning with the test he/she must ensure that **no other person is present in the proximity of the roller set!**



- If the brake test track is located along a traffic route of the workshop or in an area accessible to customers, the test track must be covered or barred off, **if not used.**



- The unused brake test track must be secured against unauthorised use or accidental switch on by locking the main switch.

- **Safety requirements for operation:**

- **Do not** carry out adjustments or settings **with the rollers running.**
- **Do not start the motor** of a vehicle by starting up the test track.
- **Do not park** the vehicle on the roller brake test track, particularly not with the drive axle positioned on the rollers, the gear engaged and the ignition started (**with Diesel vehicles also with the ignition off**), since the motor of the vehicle may start when the rollers start running and the vehicle may start driving without the driver controlling it.
- The “**Emergency Operation**” mode may only be used to have the vehicle moved off the set of rollers with the test track defective or damaged.
- With the “**Automatic Operation**” mode the rollers will start up as soon as there is a vehicle moved onto the rollers. Therefore, the IR transmitter should always be taken into the vehicle when testing, in order to be able to have the test track switched off from the vehicle in case of an emergency.
- However, the rollers may be accidentally started up in case of improper handling of the IR transmitter. Therefore, the IR transmitter must be kept in a safe place if not used, in order to prevent unauthorised tampering/use.
- The brake test track and the chassis testing unit must only be operated within the limits of performance as stated in the technical specifications (switching period for nominal performance 20%; i.e. after 2 minutes performance time, 8 minutes remaining time) and the indicated maximum speed.

- **Driving the vehicles onto** the test track should be carried out **slowly** so that unnecessary stress is prevented both in the test track and the vehicle.



- The fixing screws of the cover plates should be checked for tight seat from time to time, in order to prevent damage in the tyres when driving the vehicle onto and off the test track.

- Access to electrical equipment (e.g. for changing fuses, etc.) that are not externally operated is only permitted for **instructed** persons.



- Before opening the switch cabinet the system must be completely de-energised (isolate from the mains by means of the main switch).
- All parts of the electrical system must be protected from ingress of water and humidity.



- Safety equipment for the brake test track, particularly any initiators and sensor rollers should be **checked** for correct functioning on a **regular** basis. Slip-proof sections must be integrated between test rollers.

- The indication lamps in the display cabinet must be inspected for correct functioning on a regular basis (indication of automatic operation).

In case of failure of the automatic indication unit, the test track must not be operated until the defect/failure is remedied since otherwise it is not possible to unmistakably identify whether or not the test track is in automatic operation.



Defective electric wires have to be exchanged immediately!

- The car must be always driven **FORWARDS** out of the roller set otherwise the roller set can be damaged!

1.7 Norms, Laws, Directives

Betriebsanleitung gemäß DIN EN 62079

Richtlinie für die Anwendung, Beschaffenheit und Prüfung von Bremsprüfständen.
VkbI.2003 S.303

EG Maschinenrichtlinien
98/37/EG

EG Richtlinie für Elektromagnetische Verträglichkeit EMV
89/336/EWG in der Fassung 93/68/EWG

EG Niederspannungsrichtlinie
73/23/EWG in der Fassung 93/68/EWG

EG Richtlinie CE Kennzeichnung

DIN EN 60204-1 Elektrische Ausrüstung von Maschinen

GS-EM I 04 - 01 und BGR 157 Prüfgrundsätze der Fahrzeuginstandhaltungs- und
Fahrzeugprüfmaschinen
und -geräte.

2. Taking Into Operation

- Start the equipment and the PC incl. peripherals by turning the main switch. The equipment is in the start-up phase for approx. 20 seconds.



During the start-up phase no vehicle may be in the roller set!

The equipment is switched off with the main switch.

2.1 PC Software

Switch on the device and PC including any peripheral devices using the main switch.

The system will take approx. 20 seconds to run through the start-up phase.

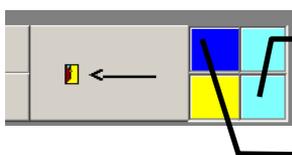
When communication is established in the PC programme the test track is ready for operation:

With FWT2010E:



Brake test track, chassis testing unit: the fields blink blue/yellow

With FWT3800:



Chassis testing unit: the fields blink blue/blue

Brake test track: the fields blink blue/yellow

- Switch-off of the entire system is performed by the main switch.



ATTENTION:

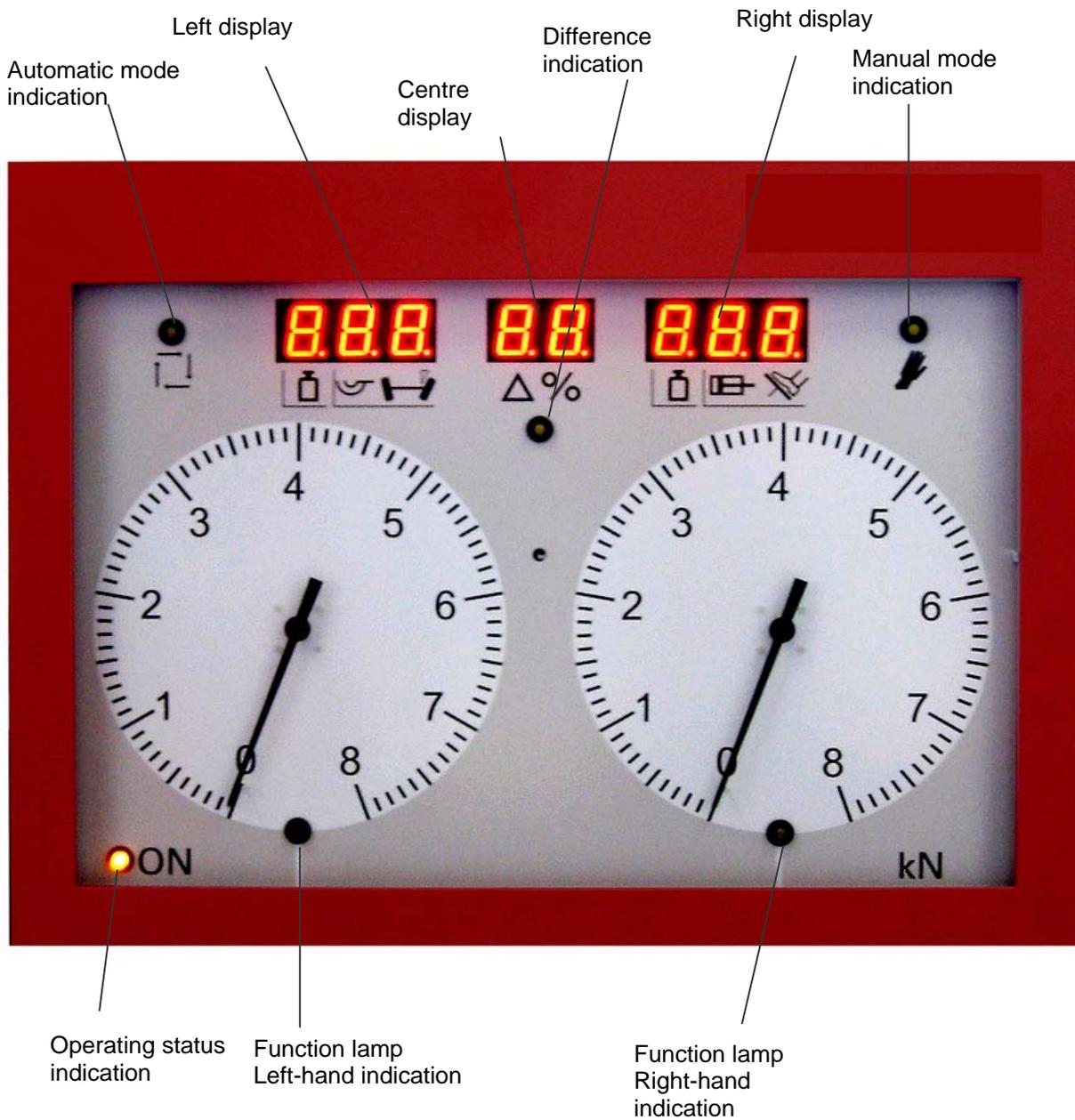
The operation system has to be shut down correctly before switching off.!

2.2 Test stand with Display Cabinet

- Pointers are set to zero position.
- After a few seconds all lamps are flashing for the function check.
- The display shows all numbers as an “8” and the decimal point.
- After this the display shows "1".
- Now the test stand is ready for use.

3. Indicators and Control Elements

3.1 Display cabinet



3.1.1 Displays and explanations

	Left display (3 positions)	Centre display (2 positions)	Right display (3 positions)
BDE	Balance: Wheel weight left (for wheel weight up to 1 ton, weight will be displayed in kg, for higher weight in tons)	<p>Axle number: Left-aligned (if no motor is running)</p> <p>When both motors are running or after complete brake test: difference in brake forces displayed in % (right-aligned)</p> <p><u>Notes:</u> „FF“: Four-wheel test running „dd“: After four-wheel test switch-off due to speed difference $l_e \leftrightarrow r_i$ too big „PP“: Print-out running „cc“ or „CC“: Clearance codes see point 3. „E1“, „E2“ or „E3“: Error messages.</p>	Balance: Wheel weight right (for wheel weight up to 1 ton, weight will be displayed in kg, for higher weight in tons) Pedal force
FWT	<p>Wheel weight left (for wheel weight up to 1 ton, weight will be displayed in kg, for higher weight in tons)</p> <p>After test measurement: Result left in % (FWT2010) or in Theta (FWT3800)</p>	After test measurement: Difference in %	<p>Wheel weight right (for wheel weight up to 1 ton, weight will be displayed in kg, for higher weight in tons)</p> <p>After test measurement: Result right in % (FWT2010) or in Theta (FWT3800)</p>
SSP	Track value (with decimal point and possibly with negative sign)		

3.1.2 Indication lamps

- Operating status indication: Lights up when the system is switched on.
- Automatic mode indication: Signals that the automatic operating mode is switched on.
- Manual mode indication: Manual operation; control is performed by the operator.
- Difference indication: Flashes when the current brake force difference > 2/3 of the set limit value.
Lights continuously when the current brake force difference > the set limit value.
- Function lamp left indication: Lights up to indicate that single-wheel or all-wheel test left was selected.
Flashes when the left-hand motor is in start-up phase.
Lights continuously when the left-hand motor is running.
Flashes after the brake test when switch-off was triggered through slip left.
- Function lamp right indication: Lights up to indicate that single-wheel or all-wheel test right was selected.
Flashes when the right-hand motor is in start-up phase.
Lights continuously when the right-hand motor is running.
Flashes after the brake test when switch-off was triggered through slip right.

The motor indication lamps left and right will flash when simultaneously with the brake test the ovality test is performed.

3.1.3 Buttons at the display cabinet

“Auto off” button If there is no vehicle present in the BDE, automatic operation is switched off.

If a BDE measurement is currently being performed it is stopped immediately.

“Auto on” button If there is no vehicle present in the BDE, automatic operation is switched on.

If there is a vehicle in the BDE, both rollers are immediately switched on.

„Cal Check“ button The sensors for brake force and FWT or balance indicate the calibration value.

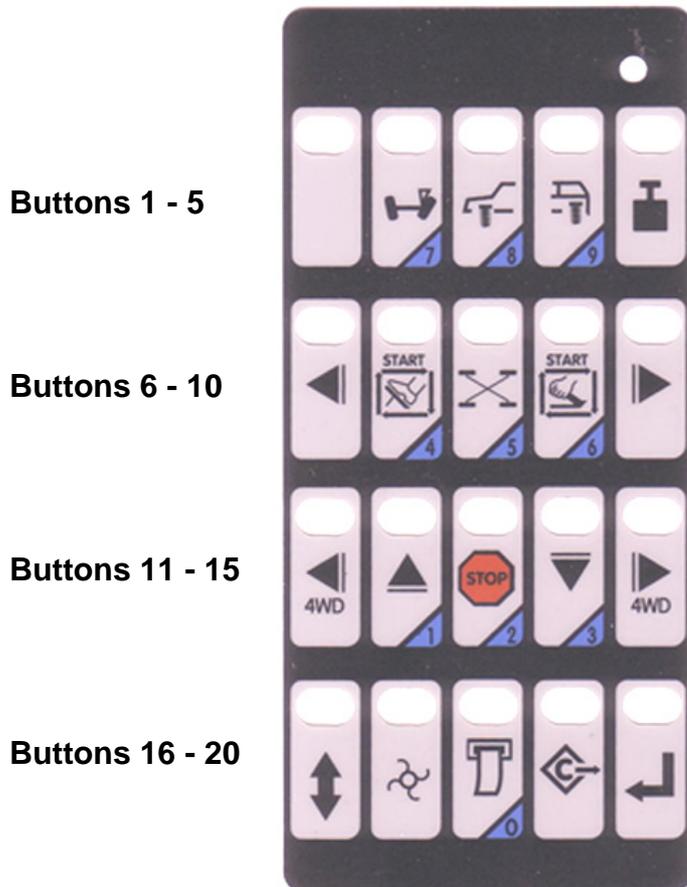
Option:

“Li on” button If there is a vehicle in the BDE, the left set of rollers is immediately switched on.

“Re on” button If there is a vehicle in the BDE, the right set of rollers is immediately switched on.

3.2 Infrared Remote Control (Option)

The **BDE 2204/2304 – VIDEO-COMBIline 2204/2304** can be completely controlled and operated via the infrared remote control (if provided).



3.2.1 Functions of the buttons

Button 1:



No function

Button 2:



Saving the current track value in the file of the current axle number.

Button 3:



Only for FWT2010E or axle load balance:

Saving the current weight as front axle.

If the same button is pressed again within 5 seconds, the FWT test is started for the front axle.

Button 4:



Only for FWT2010E or axle load balance:

Saving the current weight as rear axle.

If the same button is pressed again within 5 seconds, the FWT test is started for the rear axle.

Button 5:



No function

Button 6:



Single-wheel activation left.

One of the brake test buttons (buttons 7 and 9) must be actuated within 5 seconds; only then does the brake track start up.

Button 7:



Test of an axle as service brake with automatic saving under the current axle number after the end of testing. If within the previous 5 seconds a single-wheel button (buttons 6 and 10) or an all-wheel button (buttons 11 and 15) was actuated only the corresponding side will be started. Only when both sides have been tested will the measured values be saved automatically. If none of the single-wheel or all-wheel buttons were previously actuated, both sides will be started.

If this button is pressed again during an active brake test, the ovality measurement is also activated.

Button 8:



No function, yet.

Button 9:



Test of an axle as parking brake with automatic saving under the current axle number after the end of testing. If within the previous 5 seconds a single-wheel button (buttons 6 and 10) or an all-wheel button (buttons 11 and 15) was actuated only the corresponding side will be started. Only when both sides have been tested will the measured values be saved automatically. If none of the single-wheel or all-wheel buttons were previously actuated, both sides will be started. If this button is pressed again during an active brake test, the ovality measurement is also activated.

Button 10:



Single-wheel activation right.
One of the brake test buttons (buttons 7 and 9) must be actuated within 5 seconds; only then does the brake track start up.

Button 11:



All-wheel activation left.
One of the brake test buttons (buttons 7 and 9) must be actuated within 5 seconds; only then does the brake track start up.

Button 12:



Increasing axle number.
For the BDE axle number 1 represents the front axle.
For the BDE axle number 2 represents the rear axle.

Button 13:



STOP of a current BDE measurement.
Automatic switch-off in case both start-up switches are up.

Button 14:



Decreasing axle number.
For the BDE axle number 1 represents the front axle.
For the BDE axle number 2 represents the rear axle.

Button 15:



All-wheel activation right.
One of the brake test buttons (buttons 7 and 9) must be actuated within 5 seconds; only then does the brake track start up.

Button 16:



Lift or lower the lifting bar.

Button 17:



If there is no vehicle present in the test track, automatic mode is switched on.
If there is a vehicle in the test track, the test track is immediately switched on. The data collected in this process are not saved.

Button 18:



Printing.
The saved data are printed.

Button 19:



Delete data.
For this purpose, the button must be actuated twice within 5 seconds; only then all data will be deleted and the automatic mode is set to axle 1 or front axle.

Button 20:



No function

4. Delete Functions



Use the button shown opposite to activate the first step of the delete function.

Display cabinet option:

The centre display will show "cc".

The stepping motors are switched to 1/2 scale.



To prevent accidental deletion of data, the same button must be pressed again within 5 seconds. Only with the second command all data will be deleted and the automatic mode is reset.

On the monitor the following symbol will be displayed to acknowledge the

deleting process .

Display cabinet option:

The centre display will show "CC".

The stepping motors are switched to full scale.

If a print-out of the vehicle data is required after testing, we recommend deleting all (old) data before starting the vehicle test.

5. Entering the Weight

In a normal test process the vehicle weight is measured by the chassis tester or the axle load balance and applied for calculating the braking delay. If the brake test track is used as single device, the vehicle weight must be entered for defining the total braking ratio. This must be done before printing. Enter the weight data by your PC keypad.

6. Manual Operation

In manual operation of the individual devices (SSP, FWT, and BDE) can be combined with each other depending on what device and what layout is used.

We recommend deleting all old data before performing the vehicle test. In this context, the axle number is also reset to axle 1 (front axle).



Finally, the measured values can be printed out using the opposite button.

6.1 Manual Operation of BDE

Drive onto the test track with the front axle.



Start the test as front axle measurement.

After the end of the blinking phase of the two motor indication lamps in the display cabinet or after the red bar in the monitor has disappeared, start braking and slowly increase the brake force.



Ovality measurement:

By pressing the opposite button again while the brake test is running, the ovality measurement is started.

- The ovality level can only be tested above the set limit value (see “General Information).
- During this process the motor indication lamps in the display cabinets flash or the ovality symbol is displayed on the monitor.
- When the motor indication lamps in the display cabinet are lit permanently or the ovality symbol has disappeared, slowly brake more until blocking.



When the blocking limit cannot be reached:

Terminate the test using the STOP button OR - when “Abschaltung durch Kraftreduzierung” (switch-off due to reduced force) is active, release the brake pedal to switch the test track off.

If lifting bar is integrated:



Lift lifting bar.

Drive off the test track with the front axle.

If within the next two seconds the test track recognises that there is no vehicle on the test track, it automatically switches to axle 2 = rear axle!

Drive onto the test track with the rear axle.



Start the test as rear axle measurement.

After the end of the blinking phase of the two motor indication lamps in the display cabinet or after the red bar in the monitor has disappeared, start braking and slowly increase the brake force.



Ovality measurement:

By pressing the opposite button again while the brake test is running, the ovality measurement is started.

- The ovality level can only be tested above the set limit value (see “General Information”).
- During this process the motor indication lamps in the display cabinets flash or the ovality symbol is displayed on the monitor.
- When the motor indication lamps in the display cabinet are lit permanently or the ovality symbol has disappeared, slowly brake more until blocking.

When the blocking limit cannot be reached:



Terminate the test using the STOP button OR - when “Abschaltung durch Kraftreduzierung” (switch-off due to reduced force) is active, release the brake pedal to switch the test track off.



Start the test as parking brake measurement.

After the end of the blinking phase of the two motor indication lamps in the display cabinet or after the red bar in the monitor has disappeared, start braking and slowly increase the brake force.



Ovality measurement:

By pressing the opposite button again while the brake test is running, the ovality measurement is started.

- The ovality level can only be tested above the set limit value (see “General Information”).
- During this process the motor indication lamps in the display cabinets flash or the ovality symbol is displayed on the monitor.
- When the motor indication lamps in the display cabinet are lit permanently or the ovality symbol has disappeared, slowly brake more until blocking.



When the blocking limit cannot be reached:

Terminate the test using the STOP button OR - when “Abschaltung durch Kraftreduzierung” (switch-off due to reduced force) is active, release the brake pedal to switch the test track off.

If lifting bar is integrated:



Lift lifting bar.

6.2 Manual Operation of BDE - Single-Wheel Test

Drive onto the test track with the front axle.



Use the button shown opposite to activate single-wheel operation left. To confirm this, the left motor indication lamp light up and/or the corresponding symbol is displayed on the monitor.



Using the button displayed opposite, start the measurement within 5 seconds.

After the end of the blinking phase of the left motor indication lamp in the display cabinet or after the red bar in the monitor has disappeared, start braking and slowly increase the brake force.

Ovality measurement:



By pressing the opposite button again while the brake test is running, the ovality measurement is started.

- The ovality level can only be tested above the set limit value (see “General Information).
- During this process the motor indication lamps in the display cabinets flash or the ovality symbol is displayed on the monitor.
- When the motor indication lamps in the display cabinet are lit permanently or the ovality symbol has disappeared, slowly brake more until blocking.

When the blocking limit cannot be reached:



Terminate the test using the STOP button OR - when “Abschaltung durch Kraftreduzierung” (switch-off due to reduced force) is active, release the brake pedal to switch the test track off.



Activate single-wheel operation right using the button shown opposite. To confirm this, the right motor indication lamp light up and/or the corresponding symbol is displayed on the monitor.



Using the button displayed opposite, start the measurement within 5 seconds.

After the end of the blinking phase of the right motor indication lamp in the display cabinet or after the red bar in the monitor has disappeared, start braking and slowly increase the brake force.

Ovality measurement:



By pressing the opposite button again while the brake test is running, the ovality measurement is started.

- The ovality level can only be tested above the set limit value (see “General Information).
- During this process the motor indication lamps in the display cabinets flash or the ovality symbol is displayed on the monitor.
- When the motor indication lamps in the display cabinet are lit permanently or the ovality symbol has disappeared, slowly brake more until blocking.

When the blocking limit cannot be reached:



Terminate the test using the STOP button OR - when “Abschaltung durch Kraftreduzierung” (switch-off due to reduced force) is active, release the brake pedal to switch the test track off.

After testing both sides the measured values are automatically saved as front axle.

If lifting bar is integrated:



Lift lifting bar.

Drive off the test track with the front axle. If within the next two seconds the test track recognises that there is no vehicle on the test track, it automatically switches to axle 2 = rear axle!

The test process for the rear axle is identical with that of the front axle, except that the test track is set to axle 2.



The test process for the parking brake is identical with that of the front axle or rear axle, except that the button shown opposite must be used.

6.3 Manual Operation of BDE - All-Wheel Test



Without the option „4WD mode“ vehicles with a permanent not detachable 4 WD modus may not be tested on the test stand. Otherwise the vehicle can be damaged.



The vehicle manufacturer rules must be respected!

Drive onto the test track with the front axle.



Use the button shown opposite to activate all-wheel operation left.

To confirm this, the left motor indication lamp light up and/or the corresponding symbol is displayed on the monitor.



Using the button displayed opposite, start the measurement within 5 seconds.

After the end of the blinking phase of the left motor indication lamp in the display cabinet or after the red bar in the monitor has disappeared, start braking and slowly increase the brake force.

Ovality measurement:



By pressing the opposite button again while the brake test is running, the ovality measurement is started.

- The ovality level can only be tested above the set limit value (see “General Information).
- During this process the motor indication lamps in the display cabinets flash or the ovality symbol is displayed on the monitor.
- When the motor indication lamps in the display cabinet are lit permanently or the ovality symbol has disappeared, slowly brake more until blocking.

When the blocking limit cannot be reached:



Terminate the test using the STOP button OR - when “Abschaltung durch Kraftreduzierung” (switch-off due to reduced force) is active, release the brake pedal to switch the test track off.



All-wheel operation right.

To confirm this, the right motor indication lamp light up and/or the corresponding symbol is displayed on the monitor and within 5 seconds



start the measurement using the button displayed opposite.
After the end of the blinking phase of the right motor indication lamp in the display cabinet or after the red bar in the monitor has disappeared, start braking and slowly increase the brake force.

Ovality measurement:



Start ovality measurement. See all-wheel left.

- The ovality level can only be tested above the set limit value (see “General Information).
- During this process the motor indication lamps in the display cabinets flash or the ovality symbol is displayed on the monitor.
- When the motor indication lamps in the display cabinet are lit permanently or the ovality symbol has disappeared, slowly brake more until blocking.



When the blocking limit cannot be reached:

Terminate the test using the STOP button OR - when “Abschaltung durch Kraftreduzierung” (switch-off due to reduced force) is active, release the brake pedal to switch the test track off.

After testing both sides the measured values are automatically saved as front axle.

If lifting bar is integrated:



Lift lifting bar.

Drive off the test track with the front axle. If within the next two seconds the test track recognises that there is no vehicle on the test track, it automatically switches to axle 2 = rear axle!

The test process for the rear axle is identical with that of the front axle, except that the test track is set to axle 2.



The test process for the parking brake is identical with that of the front axle or rear axle, except that the button shown opposite must be used.

6.4 Manual Operation FWT2010E/ Weight Saving

With the front axle drive on the test track, in the display and/or on the monitor the wheel weights for left and right are displayed.



Save the current weight of the front axle using the button shown opposite. As a confirmation, both pointers will move to 1/2 scale or the weight is displayed in green on the monitor.

actuated the same button again within 5 seconds:

The system will automatically test the left side first and the right side afterwards.

Then the measurement results are displayed in % in the display of the display cabinet or in Theta on the monitor.

With the rear axle drive on the test track, in the display and/or on the monitor the wheel weights for left and right are displayed.



Save the current weight of the rear axle using the button shown opposite. As a confirmation, both pointers will move to 1/2 scale or the weight is displayed in green on the monitor.

actuated the same button again within 5 seconds:

The system will automatically test the left side first and the right side afterwards.

Then the measurement results are displayed in % in the display of the display cabinet or in Theta on the monitor.

6.5 Manual Operation FWT3800/ Weight Saving

When the test track is equipped with a FWT3800 manual operation is not applicable since the chassis tester only operates in automatic mode.

6.6 Manual Operation of SSP

Manual operation mode for SSP is only required when

- tests are only performed with the SSP, i.e. when neither FWT nor BDE are required for measurement, or
- when the SSP is installed somewhat remote from the BDE or the FWT, i.e. when it is not directly mounted in front of the FWT or BDE.

Under normal conditions, i.e. when the SSP is directly installed in front of the FWT and/or the BDE, the SSP measurement result is automatically saved simultaneously (< 10 seconds) with the results of the directly following FWT or BDE measurement! Consequently, manual saving is not required.

Drive over the SSP with the front axle, slowly and without making any steering movements. The measured result is shown in the left display or on the monitor.



Save the current measurement result as front axle using the button shown opposite.



Using the button shown opposite, increase the axle number to 2 = rear axle.

Drive over the SSP with the rear axle, slowly and without making any steering movements.

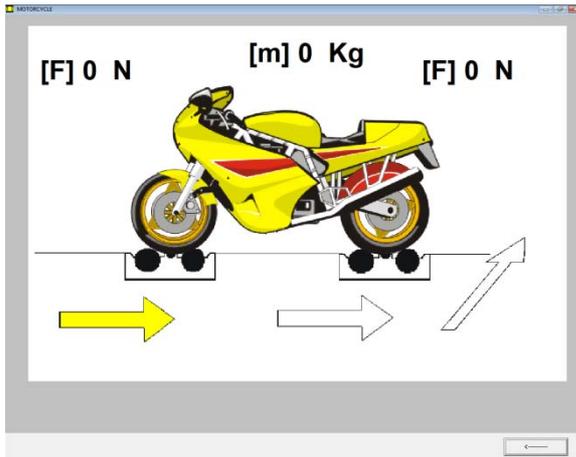


Save the current measurement result as rear axle using the button shown opposite.

6.7. Testing a motor cycle

- The brake test has to be performed on the left roller.
- The right rollers must be discovered because of security.
- Mount the test adapter on the left side.
- To start the automatic test sequence press key „F10“ or click on the button .

This button is only active when the vehicle type “motorcycle” is selected.



- Provided the arrow under the front wheel is marked in yellow, drive onto the test stand with the front wheel of the vehicle.
- As soon as the test stand identifies a vehicle in the test stand, automatic start-up follows after a short while.
- The red bar on the screen indicates that the wheel drag is measured.
- Even as soon as this bar disappears the brake sequence can be started.
- If the wheel cannot be locked press the “Stop” button or release the brake.
- The measured values are automatically stored.
- Drive now with the rear wheel in the test stand.
- The test procedure is the same as with the front wheel.
- After the end of brake test, the vertical arrow on the right is marked in yellow thus signalling that the test is finished and the vehicle can be driven off the test stand.

6.8 Drive out of the roller set

To go out of the roller set with the driven axle there are 2 possibilities:

- IR - remote control



By pushing the opposite shown button on the remote control the roller set can be started. Now the roller set can be left **FORWARDS** by slowly accelerating.

- Automatic drive out

By slowly starting by the car the roller set is switched on. Now the roller set can be left **FORWARDS** by slowly accelerating.

ATTENTION:

*With too quick starting by the car the roller set will be **NOT** switched on!
This can cause damages on the roller set.*

- The car must be always driven **FORWARDS** out of the roller set otherwise the roller set can be damaged!

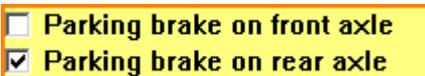
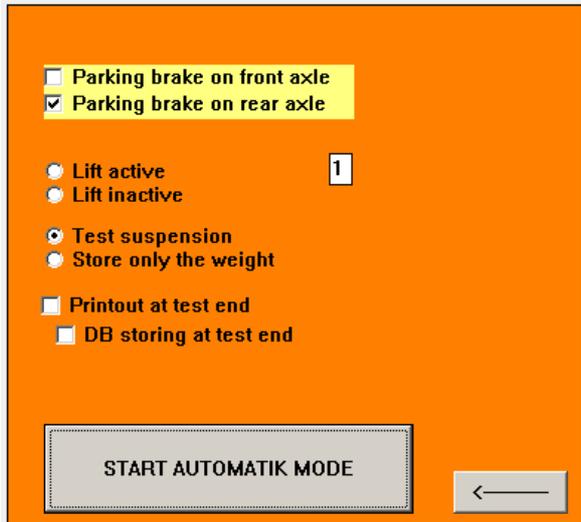
7. Automatic operation

7.1 Testlane

General remarks

The software is equipped with the option “automatic operation” that allows for carrying out a complete test process (track, chassis, brake) without using the remote control. However, the following process describes a complete test.

When fully automatic operation is called up (F11), the following set-up is displayed:



Select on which axle the hand brake is to be tested.



Selection whether the lift (if existing) should be used. The number “1” shows the numbers of switching on the roller set until the lift is active.

Function:

If the lift is activated the vehicle is lifted out of the roller set after switching on the roller set one time at the front axle (testing the service brake) and two times at the rear axle (testing the service brake and parking brake). With an input of “2” the switch on number is double, with a input of “3” the switch on number is treble on the corresponding axle until the vehicle is lifted out of the roller set.

- Test suspension**
- Store only the weight**

Select in what mode the chassis tester is to operate.

- Printout at test end**
- DB storing at test end**

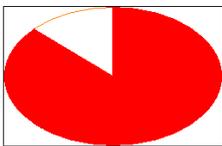
Select which action is to be carried out after the end of the test.



Start of the test process.



Close the setup without any further actions.



After clicking the button , a time-out symbol is displayed on the worksheet instead of the company logo. After the end of this time-out period all data will be deleted and the automatic operation mode will be switched off, if not action is carried out on the PC or on the test track. The set time-out is 180 seconds.

- Automatic on**

Is this checkbox activated the automatic mode and the above described timer is started again after the delete process. This checkbox is only visible when in the PRGSETUP the checkbox 32 (“automatic Checkbox EIN”) is activated.



This time-out is also displayed in button F11.

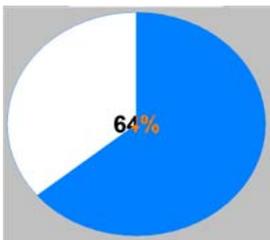


- Axle number 1 is displayed on the monitor and/or at the display cabinet.



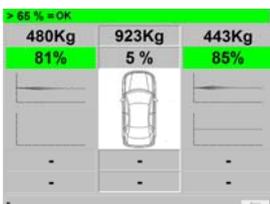
Track measurement for front axle:

- Quickly and without a steering movement drive over the fast track tester and stop with the front axle on the test plates of the chassis testing unit.
- The track value and the wheel weights are displayed on the monitor and/or in the display cabinet.



Chassis test for front axle:

- Now switch off the motor and remain seated still.
- If the option “weighing only” was selected, the monitor will light up light green (the weight has been saved) and the next step (brake test for front axle) can be carried out.
- If the option “test shock absorber” was selected, the monitor will light up green (the weight has been saved) and the chassis test is started.



FWT2010:

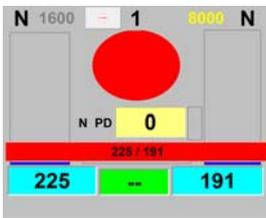
- The result of the track test is displayed on the monitor and/or in the display cabinet.



FWT3800:

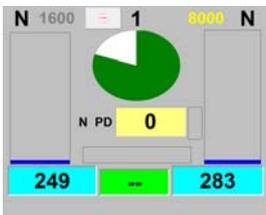
- The result of the track test is displayed on the monitor and/or in the display cabinet.

- Now you can drive onto the roller set with the front axle.

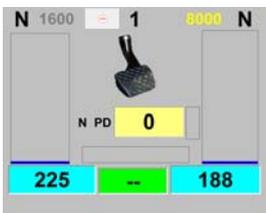


Brake test for front axle:

- After starting the rollers, the start-up phase must be waited out (the red bar in the monitor is faded out and/or the motor indicators are lit in the display cabinet).

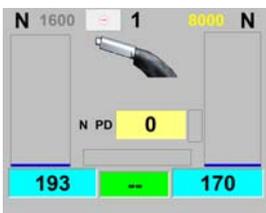


- The green time-out display is shown when the hand brake was assigned to this axle.
- If the brake is actuated before the end of the time-out, the test is saved as service brake.
- If the time-out ends without the brake being actuated, the test is saved as hand brake.



Service brake:

- If the hand brake was assigned to the rear axle or the brake is actuated within the time-out period, the symbol for service brake is displayed.
- Now, slowly and evenly actuated the brake pedal until the roller set is switched off again.
- As soon as the roller set is started again, the test can be repeated and/or the brake type can be changed.



Hand brake:

- If the hand brake was assigned to the front axle and the brake is not actuated within the time-out period, the symbol for hand brake is displayed.
- Now, slowly and evenly actuated the hand brake until the roller set is switched off again.
- As soon as the roller set is started again, the test can be repeated and/or the brake type can be changed.
- When the axle test is completed, the vehicle may be driven off the roller set.

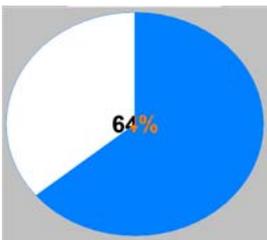


- The axle number 2 is displayed on the monitor or in the display cabinet



Track measurement for rear axle:

- Quickly and without a steering movement drive over the fast track tester and stop with the rear axle on the test plates of the chassis testing unit.
- The track value and the wheel weights are displayed on the monitor and/or in the display cabinet.



Chassis test for rear axle:

- Now switch off the motor and remain seated still.
- If the option “weighing only” was selected, the monitor will light up light green and the next step (brake test for rear axle) can be carried out.
- If the option “test shock absorber” was selected, the monitor will light up green (the weight has been saved) and the chassis test is started.



FWT2010:

- The result of the track test is displayed on the monitor and/or in the display cabinet.



FWT3800:

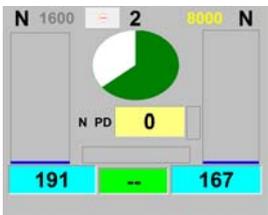
- The result of the track test is displayed on the monitor and/or in the display cabinet.

- Now you can drive onto the roller set with the rear axle.

Brake test for rear axle:

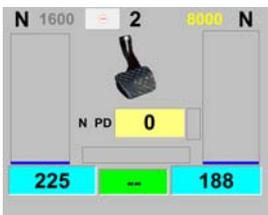


- After starting the rollers, the start-up phase must be waited out (the red bar in the monitor is faded out and/or the motor indicators are lit in the display cabinet).



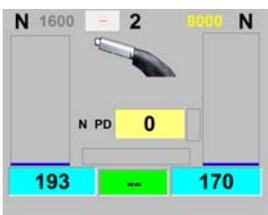
- The green time-out display is shown when the hand brake was assigned to this axle.
- If the brake is actuated before the end of the time-out, the test is saved as service brake.
- If the time-out ends without the brake being actuated, the test is saved as hand brake.

Service brake:



- If the hand brake was assigned to the front axle or the brake is actuated within the time-out period, the symbol for service brake is displayed.
- Now, slowly and evenly actuated the brake pedal until the roller set is switched off again.
- As soon as the roller set is started again, the test can be repeated and/or the brake type can be changed.

Hand brake:



- If the hand brake was assigned to the rear axle and the brake is not actuated within the time-out period, the symbol for hand brake is displayed.
 - Now, slowly and evenly actuated the hand brake until the roller set is switched off again.
 - As soon as the roller set is started again, the test can be repeated and/or the brake type can be changed.
- When the axle test is completed, the vehicle may be driven off the roller set.

7.2 BDE stand – alone device

To switch on this automatic function in the PRGSETUP/EXTENDED the checkbox **CB33 F9 Autom. EIN** must be activated. Then also on the work sheet the button “F9” is enabled.

In this mode the roller set is started as soon as a vehicle is entered. This mode is ideal for fast testing of the brake e.g after a repair.

- In this mode the roller set is started as soon as a vehicle is entered. This mode is ideal for fast testing of the brake e.g after a repair.



- Press nearby button to activate the automatic mode

Attention: No vehicle may be in the roller set

- The automatic lamp on the display cabinet is shining and on the screen the automatic symbol is shown
- Drive into the roller set
- After waiting the starting phase brake slowly and constantly until the roller set switches off again
- The measuring is stored as a service brake
- After 4 to 5 seconds the roller set starts again
- After waiting the starting phase brake slowly and constantly until the roller set switches off again
- The measuring is stored as a parking brake
- This cycle BBA => FBA => BBA => repeats as long as a vehicle is in the roller set
- By pressing the “Stop” button on the remote control the automatic function can be switched off again.



- If an error is occurred e.g. the roller positions are unequal the automatic function is switched off. The automatic button on the display cabinet resp. on the power cabinet has the same function as the corresponding button on the remote control.

7.3 FWT 3800 stand – alone device

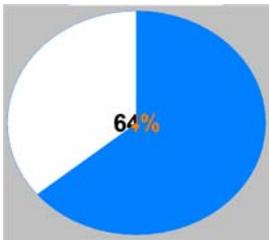
The test is started automatically as soon as a car remains for a few seconds on the plates.

- Drive with the front axle onto the plates of the suspension tester.



Checking the front axle:

- Now switch off the engine and quietly stay down.
- After a short time the screen becomes green (the weight was stored) and the test is started.



- The duration of the check is indicated with the accompanying graphics.



- After the check the results are shown on the screen.

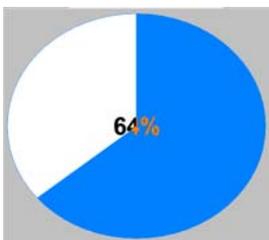
- Now drive with the rear axle onto the plates of the suspension tester.

Checking the rear axle:

- Now switch off the engine and quietly stay down.
- After a short time the screen becomes green (the weight was stored) and the test is started.



- The duration of the check is indicated with the accompanying graphics.



- After the check the results are shown on the screen.



8. Emergency Operation of the Brake Test Track

The "**Emergency operation**" may only be used to drive a vehicle out of the roller set when the test stand is out of working order.

To activate the emergency mode simultaneously press the "Auto ON" and "Auto OFF" buttons (roller set is only running while the buttons are pressed)

The emergency mode is not permitted as a constant mode of operation for safety reasons.



CAUTION:

In this case the engines start up even if there is no vehicle in the test stand.

Slipping control is not active. If the wheels block, this might cause damage to the tyres.

9. PC Program

9.1 Data Backup with "Exchange"

Exchange is a programme for saving and/or loading the entire directory, including sub-folders, or only the required language files.

It is useful to save the currently set language, in order to have the possibility of loading all settings and possible text changes as well as the data base in case of a PC change.

The files can be saved on any data carrier in any desired directory. All files are saved in the "Exchange" folder and the remaining directory structure is maintained.

"Exchange" is started in the "Start" menu under the "Program" item. The window as shown in the figure below is displayed.



As a first step, the type of backup must be selected.

LOADING/SAVING OF LANGUAGE FILES is selected when only the language files and settings are to be saved and/or loaded.

LOADING/SAVING OF ENTIRE DIRECTORY is selected when the entire directory, including any sub-directories is to be saved and/or loaded.

ATTENTION: for a backup of the entire directory, free saving capacity of approx. 25Mb is required. This also depends on the size of the data base.

➤ Saving files



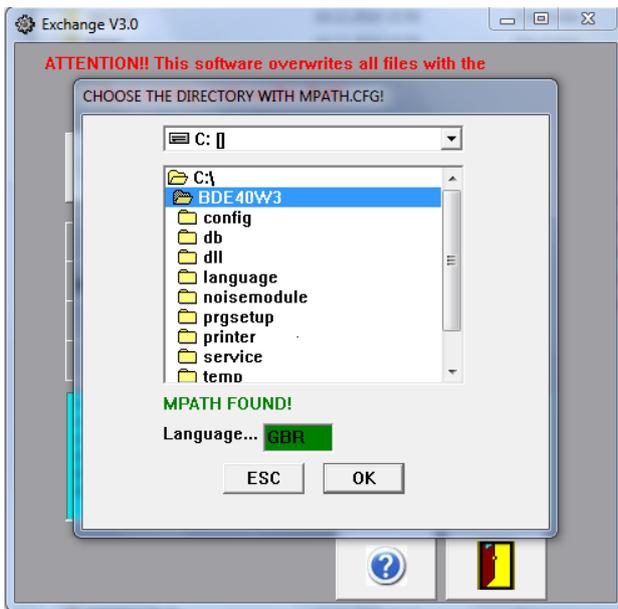
In order to save the files, the button  must be pressed.

Then the current drive and the directory list with the directory in which EXCHANGE is carried out is displayed.

The directory of the “MPATH.CFG” file is then required by the programme. Usually, this files is located in the same directory as EXCHANGE.

When the file has been found, the text “MPATH FOUND” is displayed in green colour.

When the files are to be saved by another programme, the drive and the directory can be changed by means of the Combobox or the directory list.



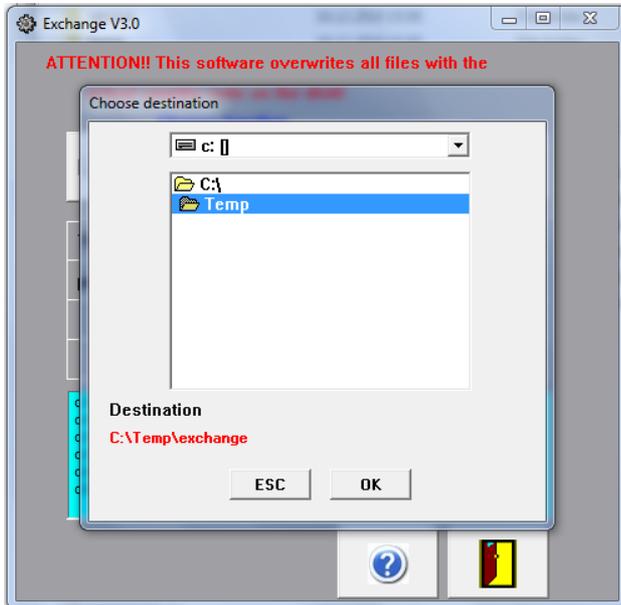
Continue with the “OK” button or cancel with the “ESC” button.

After actuating the “OK” button the entry field for the language is marked green and the currently set country code is displayed. In case other language files are to be saved, the country code can be changed in the entry field with the green background colour.

Continue with the “OK” button or cancel with the “ESC” button.

In the next window you need to specify the target directory for saving the data. For that purpose you can use the Combobox for the drive and the directory list for the directory. The selected target directory is displayed in red.

Attention: the files are always backed up in the superordinate “EXCHANGE” directory. This cannot be changed.



Continue with the “OK” button or cancel with the “ESC” button.

After actuating the “OK” button the files are copied to the selected directory. This and other items of information are displayed in the status bar.

When the text „**Finish, all files are copied**“ (Done, all files saved) is displayed in the

status bar, the programme can be exited using this button



➤ Loading files



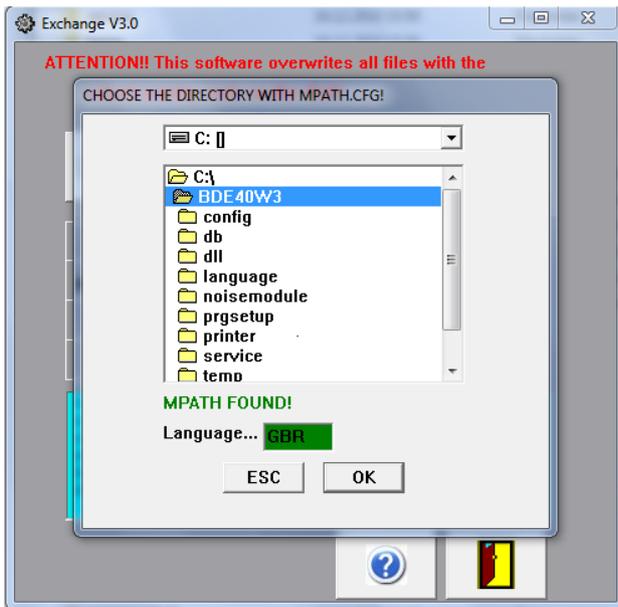
In order to load the files, the button must be pressed.

Then the current drive and the directory list with the directory in which EXCHANGE is carried out is displayed.

The directory of the “MPATH.CFG” file is then required by the programme. Usually, this files is located in the same directory as EXCHANGE.

When the file has been found, the text “MPATH FOUND” is displayed in green colour.

When the files are to be loaded by another programme, the drive and the directory can be changed by means of the Combobox or the directory list.

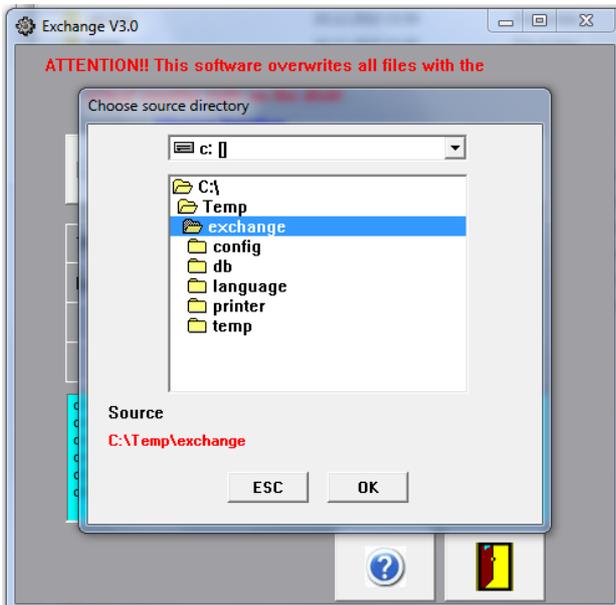


Continue with the “OK” button or cancel with the “ESC” button.

After actuating the “OK” button the entry field for the language is marked green and the currently set country code is displayed. In case other language files are to be saved, the country code can be changed.

Continue with the “OK” button or cancel with the “ESC” button.

In the next window you need to specify the source directory for loading the data. For that purpose you can use the Combobox for the drive and the directory list for the directory. The selected source directory is displayed in red.



Continue with the “OK” button or cancel with the “ESC” button.

After actuating the “OK” button the files are copied from the selected directory into the corresponding directory.

This and other items of information are displayed in the status bar.

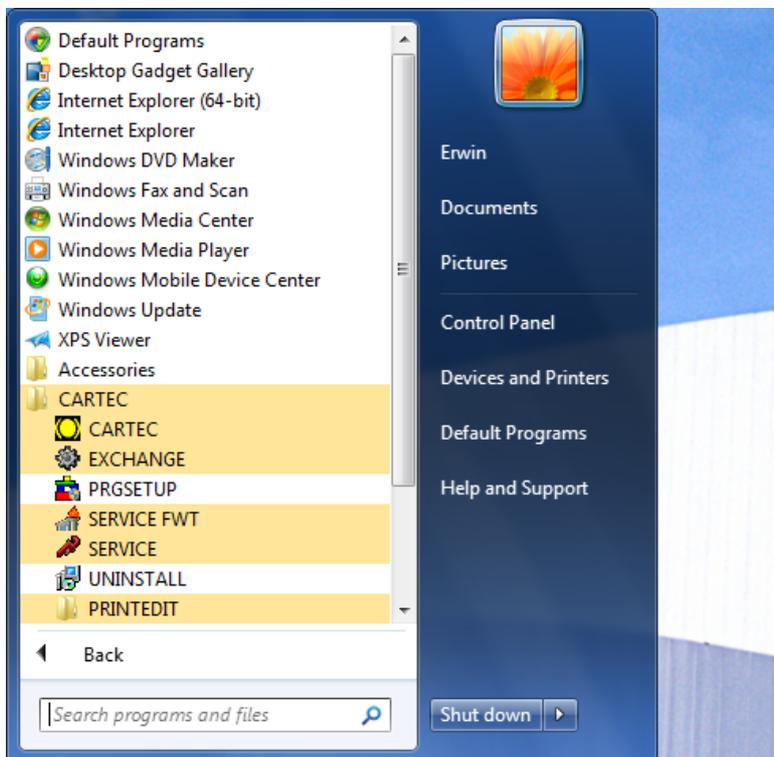
When the text „**Finish, all files are copied**“ (Done, all files saved) is displayed in the

status bar, the programme can be exited using this button .

9.2 Installation Software

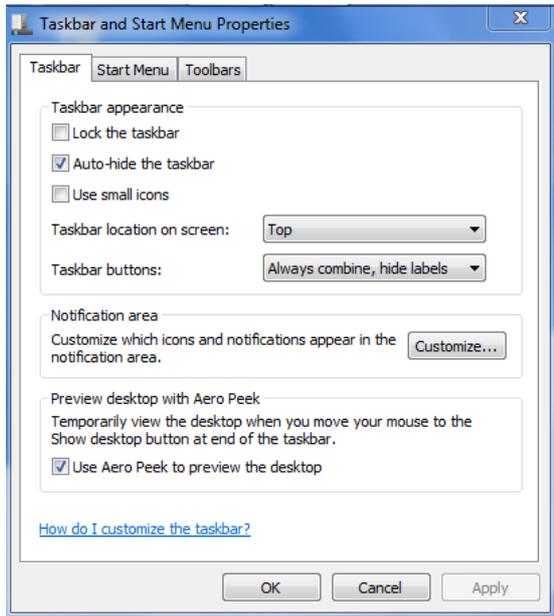
- Start WINDOWS.
- Insert the installation CD.
- The installation menu is displayed after a few seconds.
- Activate the checkbox “*Start up!*” group in case you want the programme to be automatically started when the PC is switched on. Then click “Continue”.
- Select the language to be installed and click “Continue”.
- Select the corresponding model and click “Continue”.
- The summary of your selected settings is displayed. Click “Install”.
- Now the software is installed.

The symbols for the individual programmes are saved under "*Programme/CARTEC*" and can be started from here.



Now, the taskbar settings must be carried out:

- Click on “*Start*” in the taskbar.
- Move the cursor of your mouse to the “*Settings*” field and click on the “*Taskbar*” tab.
- In this tab perform the following settings:



- Click on the “*Apply*” button and then on “*OK*”.

Now the taskbar is only displayed when the mouse is moved to the upper or lower edge of the monitor. We recommend locating the taskbar in the upper monitor end so that the taskbar is not always displayed when the mouse is moved to the function buttons of the programme.

9.3 Worksheet

After starting the programme, the main menu , i.e. the so-named worksheet, is displayed on the monitor.

In this worksheet all data for the vehicle to be tested are entered and the corresponding vehicle type with the appertaining print form is selected.

From this worksheet you can switch to the other monitor pages or carry out various functions using your mouse or the function buttons.



Functions of the buttons:

- F2 = Start printing process
- F3 = Call-up of axle evaluation
- F4 = Call-up of overall evaluation with graphics
- F5 = Call-up of the evaluation of the chassis testing unit
- F6 = Call-up of the data base
- F8 = Delete all saved axles and customer data
- Shift + F12 = Activate the deactivated vehicle types (online text change must be active)

Individual fields that are not required for operation can be deactivated by double-clicking the left mouse button, i.e. they cannot be selected any more. With the button combination "↑" (Shift) and "F12" the fields can be activated again when the online text change function (PRGSETTUP) is activated.

9.4 Vehicle-Specific Data

- **Entering the weight**

INPUT

TOTAL WEIGHT

Kg

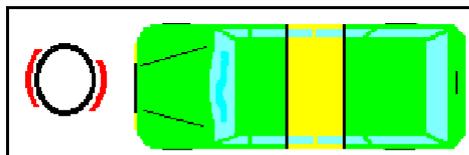
TEST WEIGHT

Kg

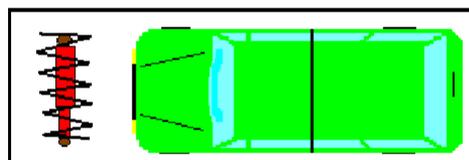
In a normal test process the vehicle weight is measured by the chassis tester or the axle load balance and applied for calculating the braking delay. If the brake test track is used as single device, the vehicle weight must be entered for defining the total braking ratio. This must be done before printing. Enter the weight data by your PC keypad.

Manually entered data are given priority over the measured weight, i.e. when empty weight of the vehicle is entered, this will be considered for calculation instead of the measured weight.

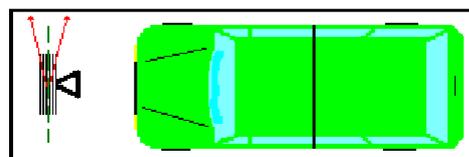
- **Display of the saved data**



Service and parking brake FA, RA



Chassis test FA, RA



Track measurement FA, RA

This graphic shows which tests have already been performed. The respective part of the vehicle will be displayed in green (yellow for the hand brake).

• **Customer data**

The four blue lines on the worksheet are used for entering the corresponding customer information. Using the “Tab” button you can skip to the next line. The entered data are shown on the printed form.

Delete input fields STORE

CUSTOMER	Mustermann
ADDRESS	99999 Musterstadt
VEHICLE	Limousine
No. OF CHASSIS	5255TZT6287872Z

With the checkbox “Delete input fields” activated all entries are deleted in one step. If this field is not activated, only the measured values will be deleted.

By clicking the button  in the function bar you can call up the screen for additional entries. Here you have four additional lines for entering customer information.

The screenshot shows a software window with several input fields. At the top, there are four fields for CUSTOMER, ADDRESS, VEHICLE, and No. OF CHASSIS. Below these are four more fields for KILOMETERS, YEAR OF PRODUCTION, KIND OF VEHICLE, and INSPECTOR. At the bottom, there are two advertising text lines: 'Advertising Text Line1' with the text 'Opened all days from 7.00AM to 7.00PM' and 'Advertising Text Line2'. A blue bar is visible at the bottom of the window, and there are three icons (envelope, speaker, left arrow) in the bottom right corner.

The next two lines ("Remarks") are provided for entering comments of the vehicle to be tested. These fields are also deleted when the (“Delete input fields”) function was activated on the worksheet.

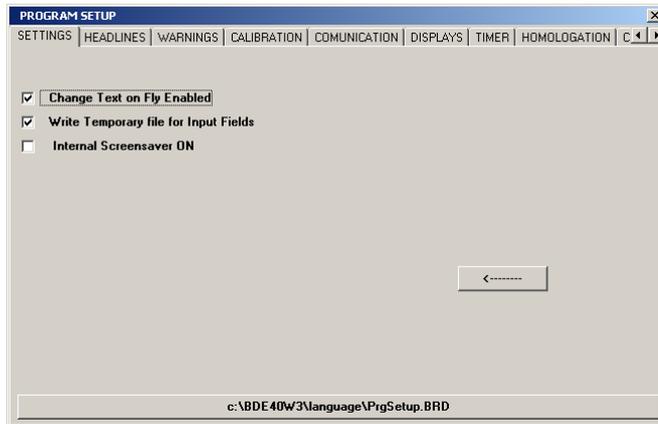
By clicking the button  2 lines will be displayed for entering an advertisement text which will also be shown on the print-out. These lines will not be deleted during a deletion process.

By clicking the button  four lines for entering the company address are included. These are printed in the head of the print-out. These lines will not be deleted during a deletion process.

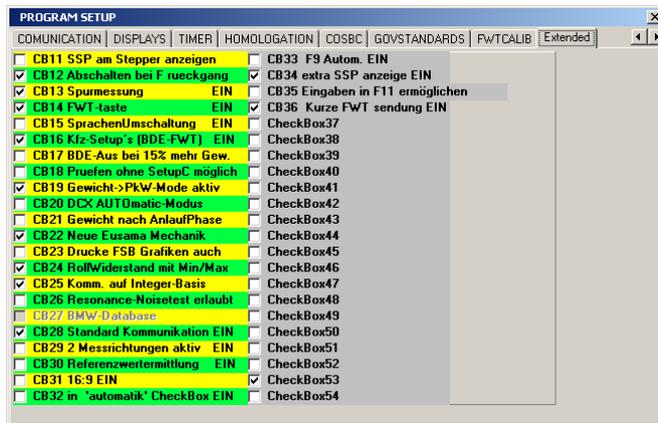
9.5 Editing the „Government Standards“ Setup

Statutory limit values and various settings are saved for every vehicle type. In order to change these settings, proceed as follows:

- Exit the main programme
- Start the “PRGSETUP” programme (password required)
- Activate the “Change Text on Fly enabled” checkbox.



- Activate the CB16 checkbox “KFZ Setups EIN” in the "EXTENDED" folder.

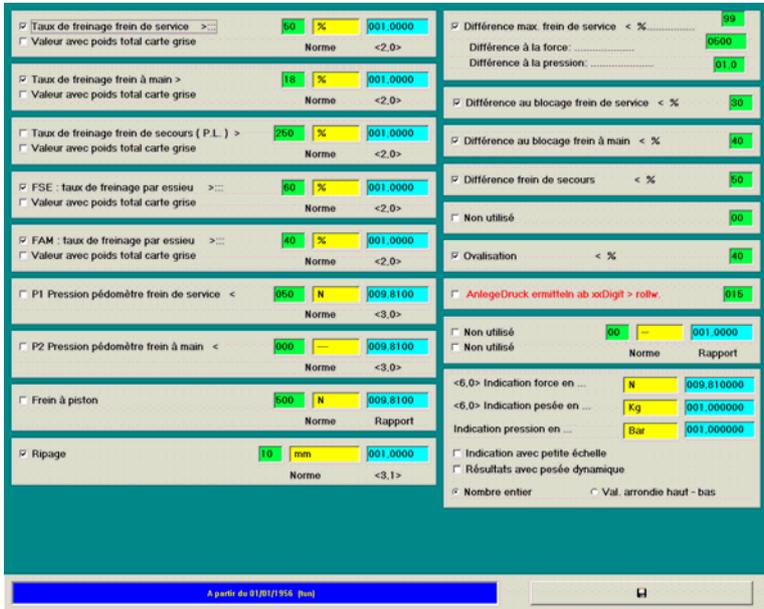


- Exit the PRGSETUP in the „SETTINGS“ folder pressing the  button and start the main programme.
- By clicking on the company symbol on the worksheet the "Legal values" Setup is called up (password-protected).

In this setup all statutory values including units and calculation factors are displayed for the currently selected vehicle.

In the bottom blue field the system indicates in which vehicle type setup you are currently in.

If a change is made in this section, this will only affect the currently selected vehicle. All other vehicle types will not be affected by this change.

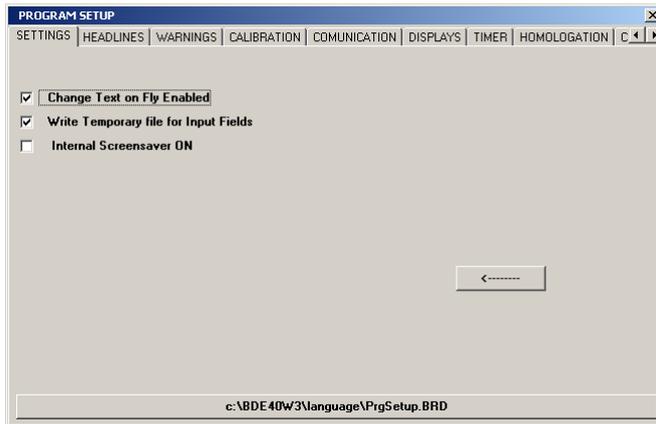


9.6 Online Text Changes

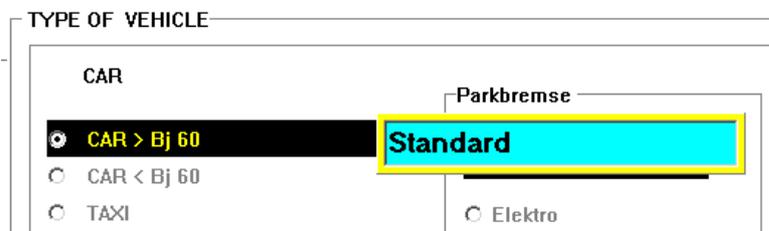
All texts in the software can be changed.

For that purpose proceed as follows:

- Exit the main programme
- Start the “PRGSETUP” programme (password required)
- Activate the “Change Text on Fly enabled” checkbox.



- Exit the PRGSETUP in the „SETTINGS“ folder pressing the arrow button and start the main programme.
- Now, the text line to be changed must be clicked with the right mouse button. Then the corresponding text is displayed in a small box.



- The text can then be changed in that small box and subsequently it must be positioned back to the required position using the right mouse button.

In this way all texts in the programme and in the service routines can be changed. It is only the texts in PRGSETUP that cannot be changed.

When the text editing process is completed, the online text change function must be deactivated again to prevent any accidental text editing.

The worksheet will blink to indicate that the online text change function is active.

9.7 Language Selection

The language switch-over function must be activated in Program setup /EXTENDED. After clicking the “arrow” button next to the country code all available languages are displayed.

When you want to set a language that is not yet available, delete the three letters in the field and enter the appropriate acronym. The text can only be translated into the respective language, as described before, and is saved automatically.

The selected language is only applied when a vehicle type is selected.

9.8 Axle Evaluation

By pressing the “F3” key you are directed to the “Axle evaluation” monitor page. In this page all measured value of every tested axle are displayed. The different axles are colour-coded:

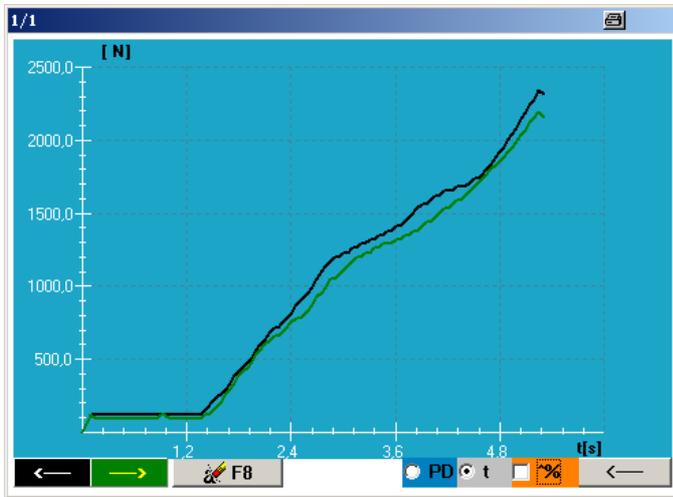
- * Green = = service brake
- * Blue = hand brake
- * Pink = Emergency brake (only required for specific countries)

		Main brake system	Park brake system	Emergency brake
AXLE/BRAKE-TYPE...		1,1	2,1	2,2
max. brakeforce Le	N	2670	1860	1680
max. brakeforce Ri	N	2460	1650	1500
wheel drag Le	N	180	300	120
wheel drag Ri	N	180	270	90
max. pedal force	N	-	-	-
block difference	%	8	11	11
max. difference	%	-	-	-
ovality left	%	9	5	-
ovality right	%	5	7	-
		N	N	N
wheel weight Le	Kg	375	315	315
Wheel weight Ri	Kg	330	285	285
wheel weight Le+Ri	Kg	705	600	600
input weight	Kg	0	0	0
axle deceleration	%	-	-	-
track	mm	-1,4	1,8	1,8

Any measured values that do not correspond to the provided default settings for the vehicle are marked with a red background.

You can exit this page pressing “ESC” or by clicking on the “Continue” symbol ← with your mouse.

For every axle a graphic can be called up. This is displayed when you click in the field with the axle number.

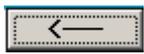


 Display left side

 Display right side

 Delete the tested axle

 Selection of the display base

 Exit the window

By doing a mouse-click on the graphic, a screenshot of the graphic can be printed.

9.9 Overall Evaluation

By pressing the “F4” key you are directed to the “Total evaluation” monitor page. This page displays all relevant measured values and calculations for the overall evaluation of the respective vehicle. The individual brake types are colour-coded:

- * Green = service brake
- * Blue = hand brake
- * Pink = emergency brake

Main brake system	Park brake system	Emergency brake		
PKW bis Bj. 1991/				
max.brakeforce Le	N	4530	1680	
max.brakeforce Ri	N	4110	1500	
max.brakeforce Le+Re	N	8640	3180	
test weight	Kg	1305	1305	1305
deceleration	%	67	25	
total weight	Kg	0	0	
deceleration	%			
	Kg			
emergency brake X	%			
emergency brake II	%			
emergency brake PB	%			
deceleration MBS	OK	>=48		
deceleration PBS	OK		>=15	
deceleration EBS				
diff. MBS max				
diff. PBS block	OK	<=30		
diff. EBS block	OK		<=50	
ovality	OK	<=20	<=20	<=20
pedal force				



Any measured values or evaluation texts that do not correspond to the provided default settings for the vehicle are marked with a red background.

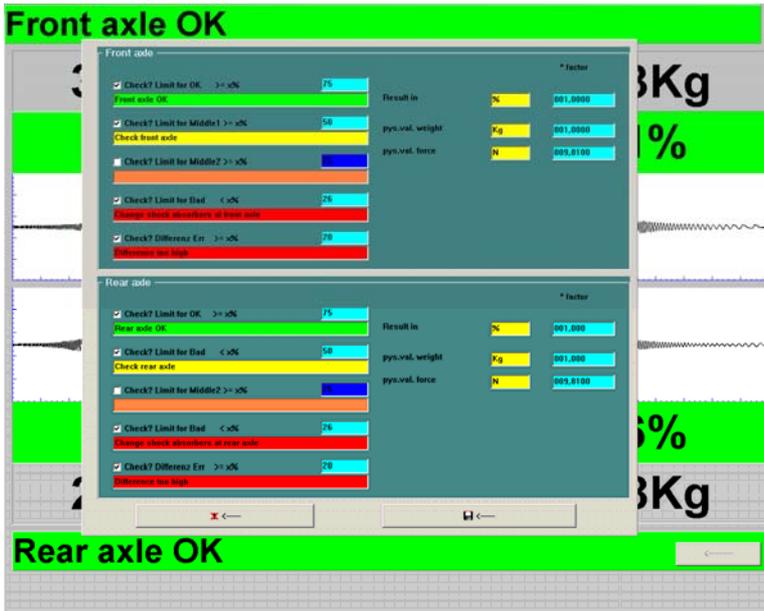
You can exit this page pressing “ESC” or by clicking on the “Continue” symbol ← with your mouse.

In PRGSETUP it is only the “OK” and “NOK” terms that can be changed under the “Warnings” item.

9.10 Chassis Evaluation FWT2010E

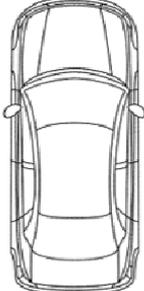
By pressing the “F5” key you are directed to the chassis testing page.

By clicking the bottom bar you are directed to the FWT Setup. Here you can enter the various limit values and select the error messages or the test items that are to be used for evaluation. The error messages are displayed in the coloured bottom bar as soon as the cursor of your mouse is moved onto the corresponding line. Then, the text can be changed. By clicking the "☐ ←" symbol, you can exit this setup. The data entered are saved automatically.



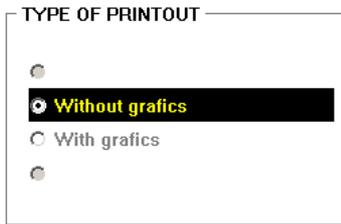
9.11 Chassis Evaluation FWT3800

By pressing the “F5” key you are directed to the chassis testing page.

>=0,10=OK	<=40%=OK	>=0,10=OK
480Kg	932Kg	452Kg
0,30	0 %	0,30
		
0,30	0 %	0,30
332Kg	555Kg	223Kg
>=0,10=OK	<=40%=OK	>=0,10=OK <input type="button" value="←"/>

9.12 Print-Out

Various types of print-outs can be selected. For that purpose you have four buttons available in the worksheet under the item “Type of printout”.



The first button is reserved for special or country-specific print-out types.

- Without graphics:

Print-out in the form of an overview without graphics.

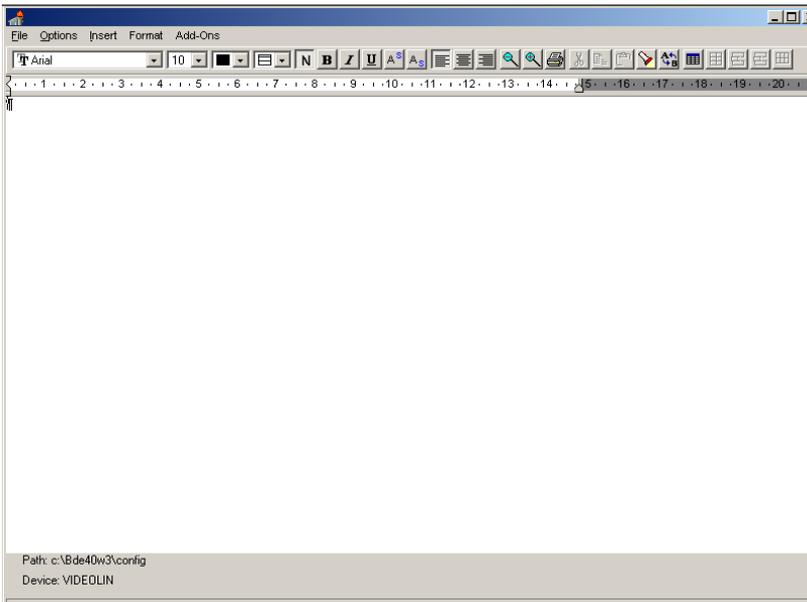
- With graphics:

Print-out in the form of an overview with graphics of all tested axles and the chassis tester.

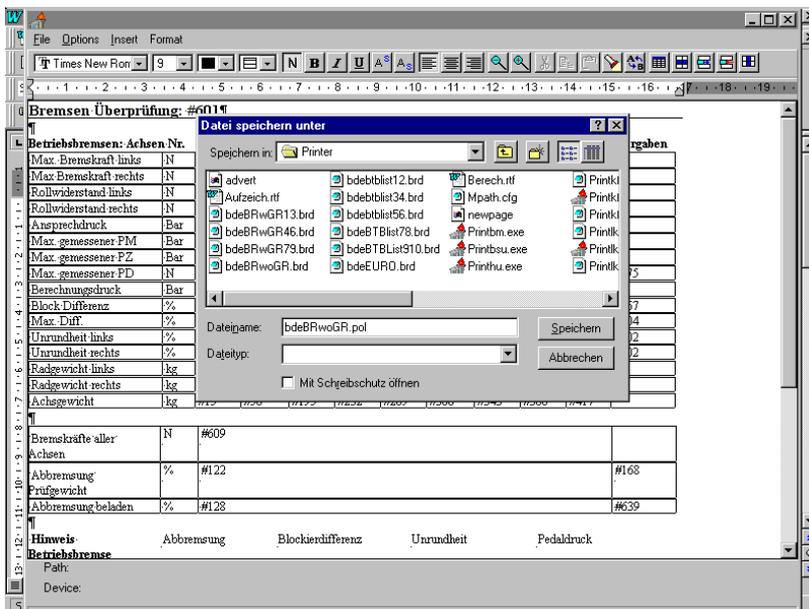
The printing process is started by pressing the “F2” key, by clicking the appropriate button or by means of the remote control. The type of print-out corresponds to that of the selected vehicle type (the selected print-out type is marked black).

9.12.1 Editing the print

In order to translate or make changes in the print, the “print edit” editor must be started in Windows Start -> Programmes -> "CARTEC". The following page is called up:

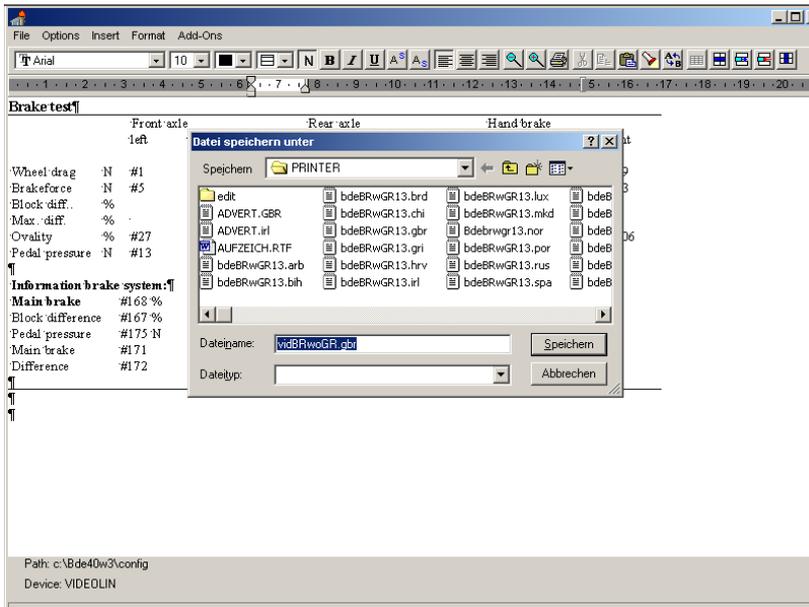


- First click “File”, then “open”.
- Open the “printer” directory in the main directory „C:\BDE40w3“.



Select the required default form.

- Then, the default form can be translated or edited.
- Then, click on “File” and “Save” to save the default form.
- The “Save file as” window is displayed showing the name of the file.



- If the form was only edited, merely click on “save”; if the form was translated and must be added to a new language, first enter the new country acronym as Extension and then click on “Save”.

The following default forms are required for printing (Extension is the current country code):

General:

Vidheader.<country code>: Print head

Passenger car prints:

Standcar.<country code>: Print without graphics for brake test (1. button in print-out menu)

Stand susp.<country code>: Print without graphics for chassis test (1. button in print-out menu)

Vidbrwogr.<country code>: Print without graphics for brake test (2. button in print-out menu)

Vidbrwogr.<country code>: Print without graphics for chassis test (2. button in print-out menu)

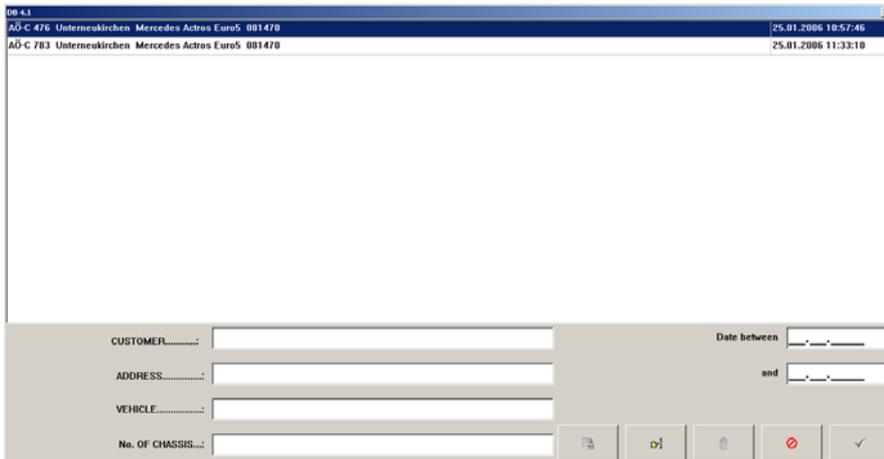
Vidbrwgr.<country code>: Print with graphics for brake test (3. button in print-out menu)

Vidstwgr.<country code>: Print with graphics for chassis test (3. button in print-out menu)

Vidsidesl.<country code>: Print of the track values

9.13 Data Base

The data base is called up by clicking the “F6” key in the function bar or by pressing the “F6” button in the worksheet. A window with five symbols and four lines as well as two fields for entering the search date is displayed. When starting, the data sets saved during the last 30 days are automatically displayed in the selection box. In addition, the current entry data from the worksheet are entered into the entry fields.



The screenshot shows a window titled "DB 4.1" with a list of data sets. The list contains two entries:

Customer	Date
AÖ-C 476 Usterneukirchen Mercedes Actros Euro5 001470	25.01.2006 10:57:46
AÖ-C 783 Usterneukirchen Mercedes Actros Euro5 001470	25.01.2006 11:33:10

Below the list are search fields for CUSTOMER, ADDRESS, VEHICLE, and No. OF CHASSIS. To the right, there are "Date between" and "and" fields. At the bottom right, there are five buttons: a floppy disk icon (Save), a magnifying glass icon (Search), a trash can icon (Delete), a red circle with a slash icon (Exit), and a checkmark icon (Load).



Save data set (1)



All saved data sets are displayed (2).



Delete the selected data set (3).



Exit the data base without performing an action (4)



Load the selected data set (5)

In this status the current measured values can be saved pressing button (1). When pressing the “Search” button (2) the data in the entry fields are deleted. Now you can enter data into the entry fields for your search; the search function is not case-sensitive.

The following special characters are supported:

- „*“: no or more characters
- „?“: any desired character
- Entry fields that are not filled out are treated as if you entered “*“.

After pressing the “Search” button (2) again or pressing the “Return” button of your PC keypad the search is carried out. In the same way, you can also search for the saving date by entering the date in the fields provided for that purpose. In the selection box, the results are displayed in ascending alphabetical order. The data set is loaded into the programme by means of the “Load” button (5) or by double-clicking on the selected line. By pressing the “Delete” button (3) the data set is deleted and the entries saved in the selection box are immediately updated. Pressing the “Stop” button (4) you can leave the data base without making a selection.

Achtung:

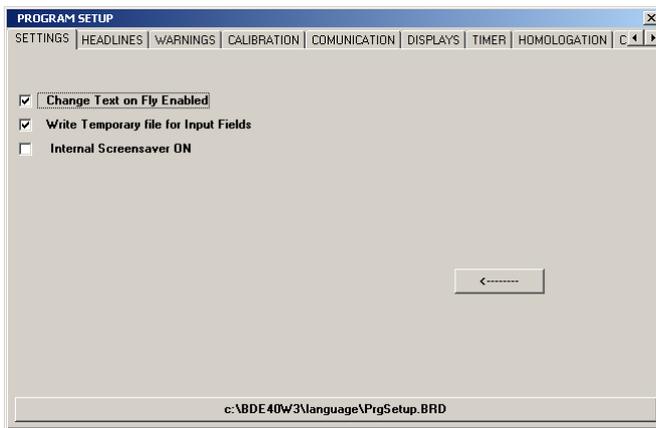
Wird ein Datensatz von der Datenbank geholt, werden alle Eingabefelder Im Arbeitsblatt gesperrt und erst nach einem Löschvorgang wieder freigegeben.

9.14 Editing the Setup „PROGRAMMSETUP“

By clicking on the "PRGSETUP" symbol (Start -> Programs -> CARTEC) you call up the Program setup. In this setup you can perform a number of settings for the respectively selected language or edit text messages (some may be password-protected). You can only exit the Setup menu via the "Settings" item by clicking the ← symbol.

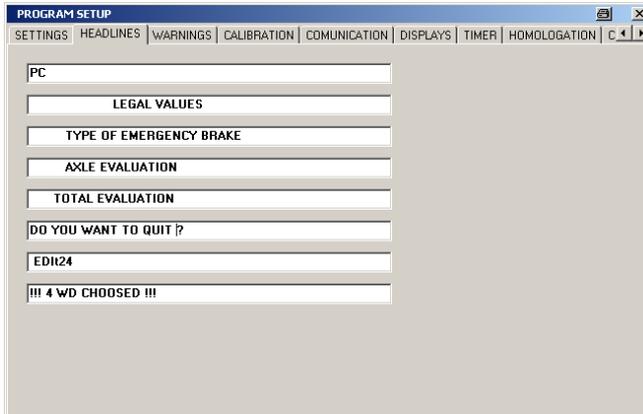
9.14.1 Settings

In this folder you can select or deselect different text changing options for the various pages ("Change Text on Fly Enabled") and the deactivated vehicle types can be activated pressing „Shift F12“.



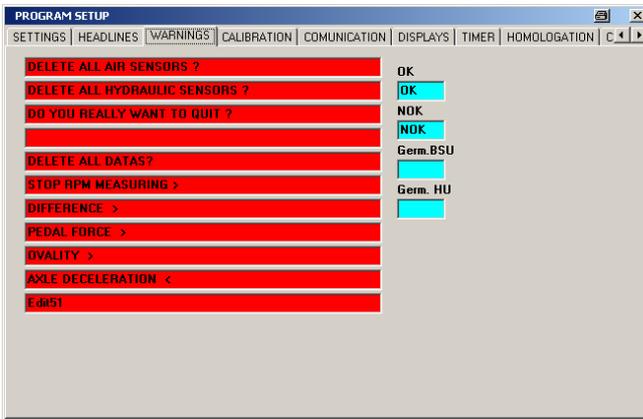
9.14.2 Headlines

The names for the various monitor pages can be changed.



9.14.3 Warnings

The texts for the warning boxes and various terms for the overall evaluation can be changed.



9.14.4 Calibration

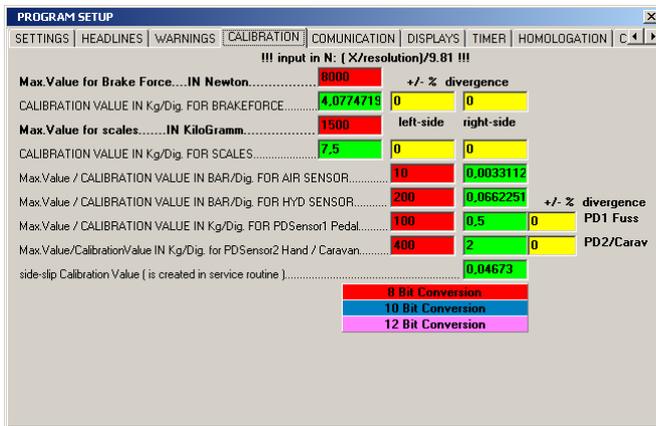
All calibrating values are entered and saved in the “**Calibration**” folder.

If a calibration value must be changed, the new value must be entered in the corresponding line and then the tabulator key on your keypad must be pressed. Then the appropriate calibration factor is automatically calculated and applied.

In the yellow lines behind the calibration factors the correction factors are displayed in percent; these were adjusted in the service routine during calibration.

The changes made for the calibration values will only become active when the main programme is started and communication with the electronic unit is established. Only then are the values transmitted to the Eprom.

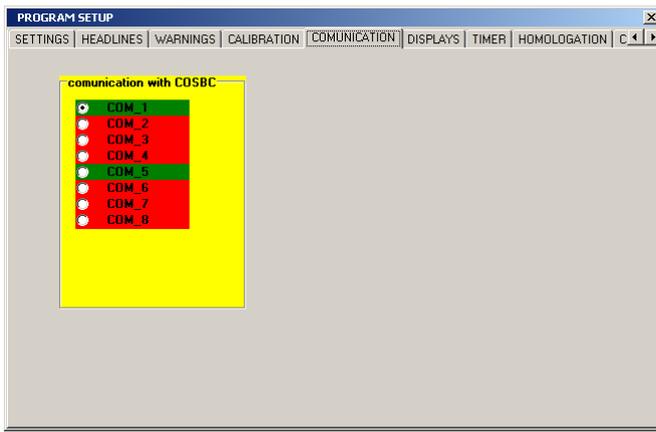
The colours of the fields for the scale end values indicate which AD converter (resolution) was selected in the “Displays” folder.



9.14.5 Communication

With FWT2010E:

The BDE and the FWT are controlled by a joint electronic system and are connected to the PC by means of the COM interface. This interface can be determined in the window shown below. After opening the page the available interfaces are marked green and the used or not available interfaces are marked red.



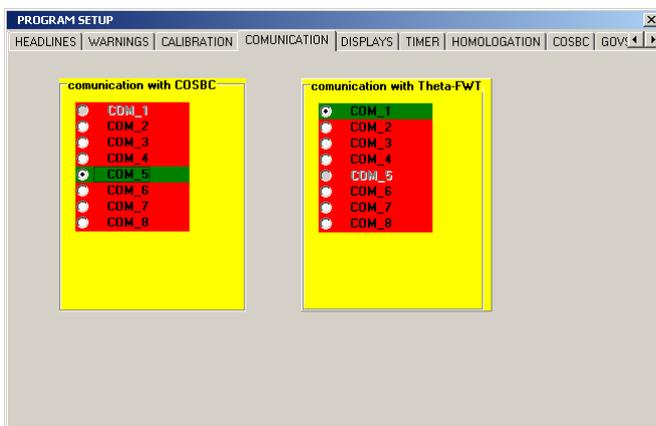
With FWT3800:

Since in this combination the chassis testing unit and the brake test track are each equipped with their own electronic systems, two interfaces are required at the PC. These PC interfaces must be selected in this page. After opening the page the available interfaces are marked green and the used or not available interfaces are marked red.

In this context bear in mind that:

Communication with COSBC → BDE, SSP

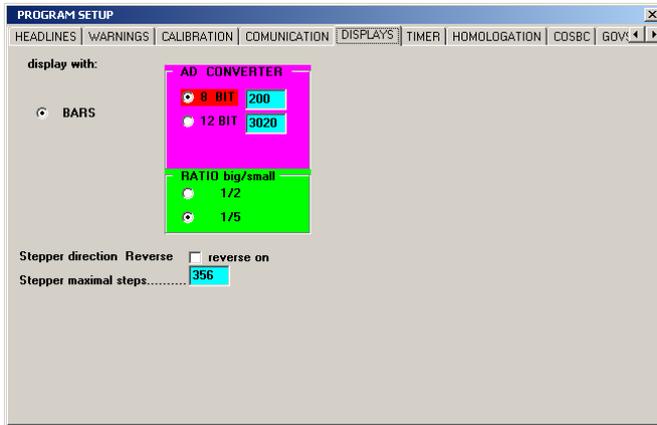
Communication with FWT3800 → FWT



9.14.6 Displays

In this box you can select which AD Converter is used in the electronic.

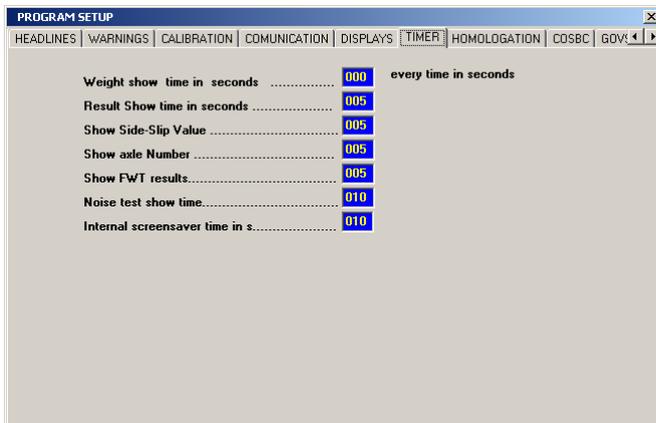
In case the test track is equipped with a display cabinet, this window is also used for setting the stepping motors for the pointers and the scales (RATIO big/small).



9.14.7 Timer

In this folder you can define for how long specific values are displayed on the monitor. All times can be optionally set.

- "Weight show time in seconds ... **005**"
The weight is displayed on the monitor 005 seconds after the start of a brake test.
- "Result Showtime in seconds ... **005**"
The brake values are displayed on the monitor 005 seconds after stopping the roller set.
- "Show Side Slip value ... **005**"
The side slip values are displayed for 005 seconds.
- "Show axle number ... **005**"
The axle number is displayed on the monitor for 005 seconds when the axle number is changed by means of the remote control.
- "Show FWT-Results ... **005**"
The results of the chassis test are displayed for 005 seconds.
- "Noise test show time **.010** "
Upon a "Stop" command, the menu for noise detection is closed automatically after the set time-out.
- "Internal screen saver time in test show time **.180** "
The internal screen saver is started after 180 seconds when it is activated in the "Settings" page.

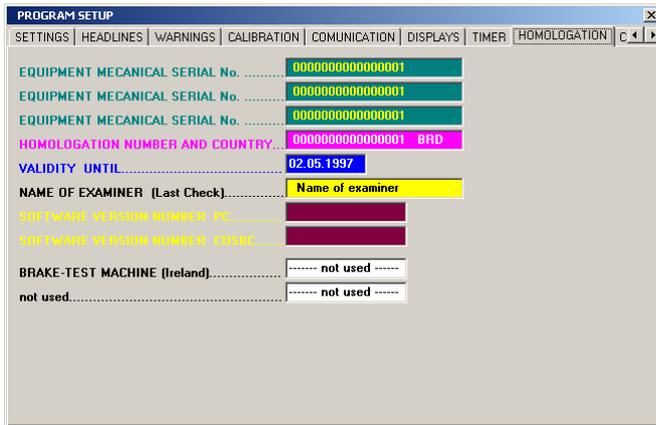


9.14.8 "Homologation" folder

In this folder all entries relevant for homologation can be performed:

- Serial number for mechanic unit, electrical unit and electronic unit
- Homologation number and country
- Validity period
- Name of the inspector

Pressing the “Tabulator” key you can call up the fields to be filled one after the other.

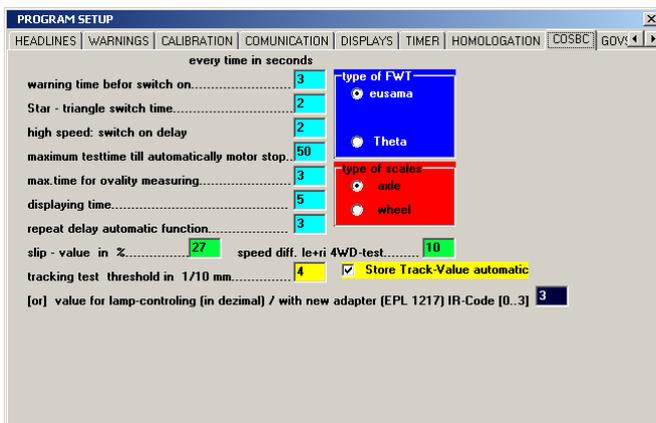


PROGRAM SETUP	
SETTINGS HEADLINES WARNINGS CALIBRATION COMMUNICATION DISPLAYS TIMER HOMOLOGATION C X	
EQUIPMENT MECHANICAL SERIAL No.	0000000000000001
EQUIPMENT MECHANICAL SERIAL No.	0000000000000001
EQUIPMENT MECHANICAL SERIAL No.	0000000000000001
HOMOLOGATION NUMBER AND COUNTRY...	0000000000000001 BRD
VALIDITY UNTIL.....	02.05.1997
NAME OF EXAMINER (Last Check).....	Name of examiner
SOFTWARE VERSION NUMBER PC.....	
SOFTWARE VERSION NUMBER COSBC.....	
BRAKE-TEST MACHINE (Ireland).....	----- not used -----
not used.....	----- not used -----

9.14.9 COSBC

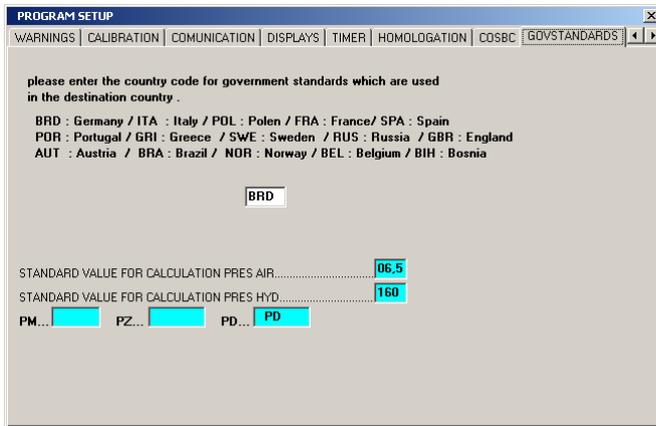
Here you could perform various settings and adjustments that will affect control of the test track.

- **"Warning time before switch on":**
Time before the test track is switched on
- **"Star-triangle switch time":**
No function
- **"High speed switch on delay":**
No function
- **"Maximum test time till automatically switch off":**
Maximum operation time of the roller brake test track during a measurement.
- **"Max. Time for ovality measuring":**
Duration of the ovality measuring
- **"Repeat delay automatic function":**
Delay time for automatic repeated start-up
- **"Slip-value in %":**
Slip value in %
- **"Speed diff. le + ri 4WD test":**
Input 10: All wheel drive test disabled
Input 11: All wheel drive test enabled. At a difference higher than 11% between left and right the roller set is switched off.
- **"Tracking test threshold in 1/10 mm":**
Tracking test from a specific set value
- **"Value for lamp-controlling (in decimal)"/with new adapter (EPL1217)IR-Code":**
Enter the IR code
- **"Store Track-Value automatic":**
The track is saved automatically, otherwise it must be saved manually (IR).



9.14.10 GovStandards

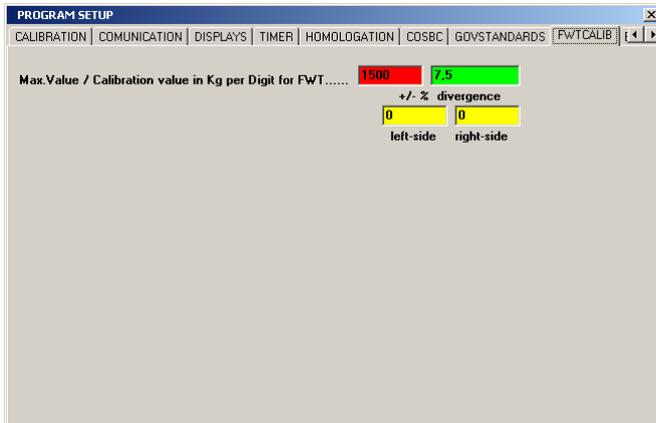
Since for some countries various basic settings for the government standards are applicable, the corresponding country code **must** be entered here since it is not sure whether the correct country code is used in the language selection page.



9.14.11 FWTCALIB

Only for FWT2010E!

Here, the calibration value of the FWT2010E is entered.



9.14.12 EXTENDED

This folder contains a number of items for additional configuration of the PC programme and of the electronic system.

CB11 Indicate SSP in the stepper:

If this item is activated, the tracking value is also displayed in the display cabinet (if used).

CB12 Switch-off when F is decreased:

If this checkbox is activated, the roller set is switched off as soon as the brake force is reduced by minimum 50%.

CB13 Track measuring ON:

If this item is activated, the tracking is measured and displayed in the display cabinet (if used) or on the monitor.

CB14 CHASSIS button ON:

If this item is activated the button "F5" for calling up the chassis test results is activated in the worksheet.

CB15 Language switch-over ON:

If this item is activated, the language can be changed in the main programme.

CB16 Vehicle setup ON:

If this item is activated, the vehicle setup "GovStandards" (company logo) can be called up.

CB17 BDE Off with overweight of 15 %:

This item is only relevant for HGV test tracks.

CB18 Testing possible without Setup C:

If this item is activated, testing is possible even with the PC not being switched on.

CB19 Weight → Passenger car mode active:

If this item is activated, the weight values of a vehicle are always allocated to the front and/or rear axle according to the buttons used, when saving manually.

CB20 DCX AUTOMATIC mode:

If this item is activated, automatic operation can **only** be deleted using the "Stop" button when no vehicle is present on the roller set.

CB21 Weight after start-up phase:

This checkbox is only relevant for HGV test tracks.

CB22 New Eusama mechanics:

An internal flag required for evaluation of the chassis test.

CB 23 Also prints of PB graphics

If this item is activated, the axle graphics for the hand brakes are also printed, provided that the corresponding placeholders are included.

CB 24 Roller resistance with min/max

If this item is activated, the minimum and maximum values are indicated as red bars during roller resistance measurement.

CB 25 Comm. on integer-basis

An internal flag required for communication.

CB 26 Resonance noise test permitted**Only FWT2010E:**

If this item is activated, the noise test can be carried out (provided the corresponding hardware is available).

CB 27 BMW data base

No function.

CB 28 Standard communication on

An internal flag required for communication.

CB 29 2 Measuring directions active ON

When the test track is equipped with 2 measurement direction, this checkbox must be activated.

CB 30 Reference definition ON

This item is only relevant for HGV test tracks.

CB31 16:9 ON

When a monitor with a 16:9 format is used, this checkbox must be activated. In this context it must be considered that the PC is set to the corresponding resolution. The maximum resolution for the 16:9 setting is 1280 x 1024.

CB32 „Automatic“ checkbox ON

If this checkbox is activated another checkbox is displayed upon starting automatic operation F11 which is used to activate the repeating of the automatic function.

CB33 F9 autom. ON

The automatic button F9 (automatic operation mode for the brake test track) is only shown in the worksheet when this checkbox is activated. If this checkbox is deactivated the automatic function cannot be activated with the remote control.

CB34 Extra SSP display ON

If this checkbox is activated, the measured tracking value is displayed in a separate window on the monitor. If not activated, the value is displayed together with the weight display when driving the vehicle onto the chassis testing unit.

CB35 Allow entries in F11

The checkbox is no longer applicable.

CB36 Short FWT transmission ON

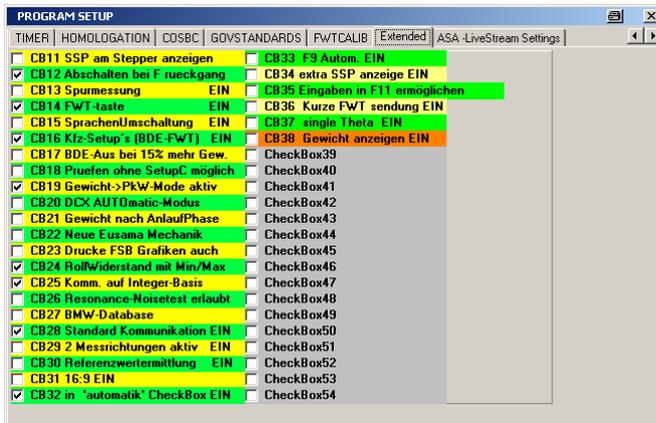
An internal flag required for communication.

CB37 Single Theta ON

This checkbox must be activated when the FWT3800 is operated as a single unit.

CB38 Show weight

If in a roller set a weighing unit is installed the weight is shown on the screen when this checkbox is activated, also without switching on the roller set.



10. Options

10.1 Pedal Force Sensor

The pedal force sensor is used for measuring the pedal force that is applied onto the pedal during a braking process. The hand-held device of the pedal force sensor is connected to the corresponding socket of the power cabinet using the connection cable. The sensor is automatically detected by the system.

When connecting the sensor to the system, it must not be loaded!

For measuring the pedal force, the sensor is fixed to the shoe of the testing person by means of velcro tape such that no force is applied to the sensor by the fixing. During the brake test the pedal force is measured and displayed on the monitor. The measured value is automatically saved together with the brake values.

10.2 Fast Track Tester

The fast track tester is used for fast detection of the tracking value of a vehicle. The measured value is indicated in mm in the display of the display cabinet and is saved together with the brake value and printed, if required. If the field "*Store track automatic*" was not activated in Program setup under „COSBC“ the tracking value must be saved via the IR transmitter using the button shown opposite.



10.3 All-Wheel Test

The test stand must be prepared with the option „4WD mode“

The option 4WD mode must be activated in the PRGSETUP/COSBC:

In the input field "Speed diff. le + ri 4WD test" must be inserted „11“



Without the option „4WD mode“ no vehicles with a permanent not detachable 4 WD modus may not be tested on the test stand. Otherwise the vehicle can be damaged.

The vehicle manufacturer rules must be respected!

10.3.1 Manual mode

On testing a vehicle with four-wheel drive it is possible to operate the two sides of the test stand in opposite direction.

Press the two keys „4WD left“ and „START BBA“ (service brake) one after the other in short intervals on the IR transmitter to measure the left-hand side. To test the right-hand side, actuate the two keys "4WD right" and "START BBA". For testing the parking brake actuate the keys "4WD left" or "4WD right" as well as the key "START FBA" (park brake).



10.3.2 Automatic 4 WD detection

The test stand can be equipped with an automatic 4WD recognition.

With each brake test the run of the signal of the actual not running wheel is observed. If a higher rolling resistance or a reverse rotation is detected following steps are following:

- The roller set is switched off
- 4WD mode left is started
- After this the 4WD right is started.

This 4WD detection is activated :

- Automatic mode
- Manual mode
- Manuellbetrieht



By testing in the 2nd measuring direction no automatic 4 WD detection is possible!

10.4 Noise Test FWT2010E

Noise test is only possible when both plates are loaded and no vehicle is present on the BDE roller set!

Start-up the noise test by means of your PC keypad. When the noise test is started the test track performs a frequency of oscillation in a range from 3Hz to approx. 25Hz (for the selected side(s)). Every 1.5 seconds the frequency is changed by 1Hz. This frequency range is automatically ran through upwards and downwards until the measurement is completed.

Operation:

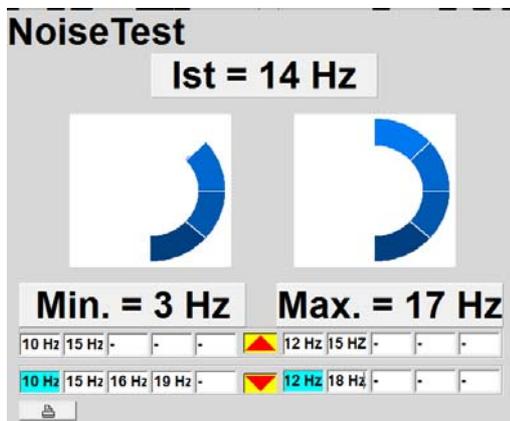
Button „single wheel left“:		Starts the test for the left side only. Motor left indication light flashes.
Button „single wheel right“:		Starts the test for the right side only (at < 10Hz). Motor right indication light flashes.
Button „4WD left“:		Saves the current frequency as lower limit value, e.g. 3Hz.
Button „4WD right“:		Saves the current frequency as upper limit value, e.g. 17 Hz.
Button „CLR“:		Deletes the saved limit values and resets them to 3Hz and 25Hz, respectively.
Button „STOP“:		Stops the test as soon as the frequency is < 10 Hz.
Button „Enter“:		Automatically stops the unit from running upwards and downwards through the frequency range and saves the current frequency for the print-out.
Button „up“:		Increases the speed (frequency).
Button „down“:		Decreases the speed (frequency).

 **ATTENTION:**
As soon as the measurement is started, do not remove the vehicle from the test track! This may result in damage to the chassis testing unit.

Display in the display cabinet:

min aFWTal max
3 14 17

Display on the monitor:



Front axle
 Rear axle

The tested frequencies can be saved and printed by means of the remote control.

If an upper and a lower limit value is to be saved, press the corresponding button for left and right, so that the test plate only travels upwards and downwards automatically within the saved frequency range.

10.5 Noise Test FWT3800

The chassis testing unit THETA can optionally be retrofitted with the “Noise test” module.

For that purpose, an optional software package including Dongle is required.

Noise test is only possible when both plates are loaded and no vehicle is present on the BDE roller set (for separate design)!

Start-up the noise text by means of your PC keypad. The test can be optionally carried out automatically or manually. In automatic operation mode the test track performs a frequency of oscillation in a range from 3Hz to approx. 16 Hz for the selected side(s). Every second the frequency is changed by 0.2 Hz. This frequency range is automatically ran through upwards and downwards until the measurement is completed.



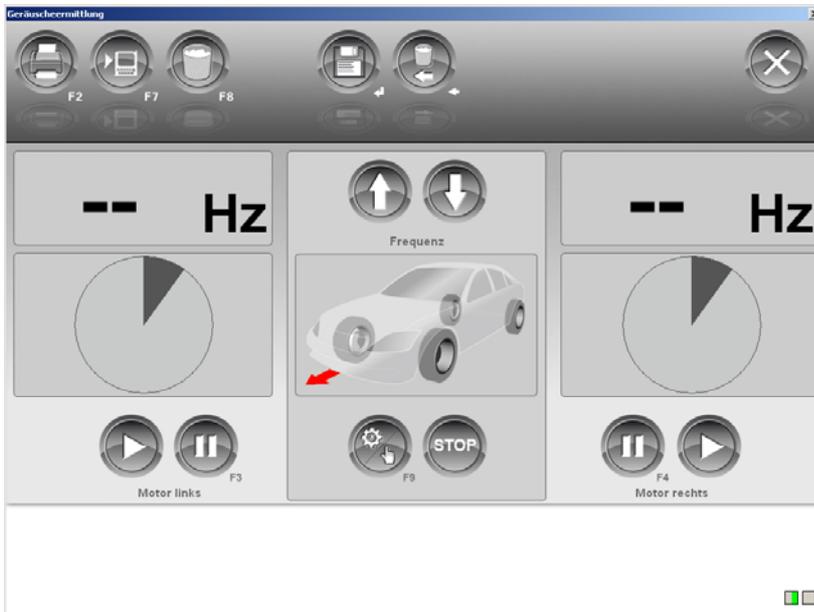
ATTENTION:

Do not remove the vehicle from the test track while the measurement is performed!

This may result in damage to the chassis testing unit.

10.5.1 The software module

The noise test module is started by a request when closing the software of the main programme.



or F2: Start print-out



or F7: Enter customer data



or F8: Delete



or ENTER: Save



or ARROW LEFT: Delete data saved last



or ESC: Cancel noise test

F1: Help

10.5.2 Operation

The noise test module can be controlled both from your PC and by means of the remote control.

Manual operation via monitor and/or keypad:



or ARROW UP: Increase frequency



or ARROW DOWN: Decrease frequency



or ARROW LEFT: Start test for left side



or ARROW RIGHT: Start test for right side



or F3: Pause test for left side



or F4: Pause test for right side



or F9: Switch over between manual and automatic mode



or SPACEBAR: Stop noise test

Manual operation via remote control:



Starts for the left side only. In display cabinet: Motor left indication light flashes.



Starts for the right side only. In display cabinet: Motor right indication light flashes.



Pause test for left side



Pause test for right side



Select front axle



Select rear axle



Increase frequency



Decrease frequency



Switch on automatic function



Stop noise test or cancel automatic operation mode



Start print-out



Save the measured values



Delete the values saved last

10.6 Brake Test Track with two Test Directions

Prerequisites:

1. The brake test track, particularly the force sensors must be designed for operation in two directions!
2. The all-wheel option must be included!
3. The checkbox “CB 29 2 Measuring directions active ON“ must be activated in PRGSETUP/EXTENDED.



ATTENTION:

When testing in the second measuring direction the measuring values are interchanged for the left and right side, both in the display and in the printed document.

10.7 Lifting device

With the lifting bar the vehicle can be lifted from the test stand after the test has been carried out. If the test stand is not used, the drive-over of the roller set is made easier through the elevated lifting bar and the roller set is protected from damages.

If a chassis tester is available the lifting bar is lowered in dependence of the weight load on the chassis tester. If the chassis tester was burdened for at least 1 second with at least 100 kg wheel-weight and then released again, the lifting bar is automatically lowered in order to make a following BDE measurement possible.



If after lowering, the lifting bar automatic operation does not recognise a vehicle in roller set it is lifted immediately.

If the test stand is left again later (e.g. drive-out assistance), the lifting bar is lifted immediately.

10.8. Activating the motor cycle test

Activation of the motorcycle test

To have the possibility to enable the motor cycle testing the update must be installed.

After inserting the install cd the installation is started automatically.

After restarting the program the button F10



in the button line of the software is activated continuously.

11. Service Routine

11.1 Service Routine BDE

By clicking on the “Service” symbol you are directed to the service routine page. Here, all connected sensors are displayed and for every encoder/recorder the type of display (i.e. physical units of measurements, mA or digits) can be selected optionally. However, the valid calibration factor must also be entered here, since otherwise the displayed values to not comply with each other.



Every display window can be enlarged by clicking into the coloured display field. The same holds true for minimising the display field.

The zero points are defined by clicking on the button “Take new zero point” that is located in the lower left corner. With the correct zero points measured, the monitor background will become green for a short time.

Also, the start-up switches and the speed sensors can be inspected. When the start-up switches are pressed down, the corresponding field will become red, if the sensor roller is rotated, the corresponding field will become green.

The tracking is always displayed in digits.

You can exit the service routine page by clicking on the ← symbol

The values will only be displayed in the service routine when communication is ok. This is indicated by means of the two bars in the upper right corner. Only when both bars are flashing green, communication is ok.



ONLY MODEL BDE2204:

The units "mA" and "digits" indicate double values with the brake force, because brake sensors are built in for 2 measuring directions.

11.2 Service Routine FWT2010E

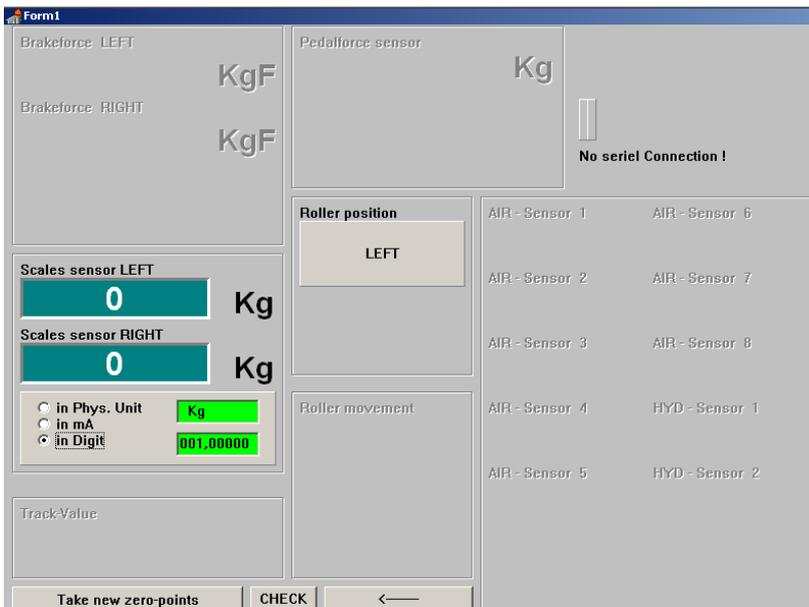
By clicking on the “Service-FWT” symbol in the Windows Start menu under “CARTEC” you are directed to the service routine page. Here, all connected sensors are displayed and for every encoder/recorder the type of display (i.e. physical units of measurements, mA or digits) can be selected optionally. However, the valid calibration value must also be entered here, since otherwise the displayed values to not comply with each other.

Every display window can be enlarged by clicking into the coloured display field.

The same holds true for minimising the display field. The zero points are defined by clicking on the button “Take new zero point” that is located in the lower left corner. With the correct zero points measured, the monitor background will become green for a short time.

You can exit the service routine page by clicking on the ← symbol

The values will only be displayed in the service routine when communication is ok. This is indicated by means of the two bars in the upper right corner. Only when both bars are flashing green, communication is ok.



11.3 Service Routine FWT3800

The chassis testing unit has its own service routine. This is described in the calibrating instructions of the FWT 3800 (Art.No. 2000619805).

12. Error Messages

12.1 Display Cabinet

If the numbers 1 to 4 instead of 8 are indicated on the display shortly after start-up, this means:

1 - 3: In case the error messages 1 to 3 appear often, contact the customers' service!
Inform the customers' service about the exact procedure, i.e. what was done and how.

The error messages must be confirmed by the user pressing the „Auto Off“-Button at the display cabinet or the „Stop“ button on the remote control to continue.

4: The stored calibration data and the settings are different to the default values. As soon as the communication is established the “8” should appear on the display

Note: This may occur after the equipment's first start-up, or after the replacement of the processing card (EPL-1122)!

Only with display cabinet SC-series:

„E1“, all lamps are flashing, the pointers are going to 1KN:

The left position sensor is down, the right sensor is up. This disparity situation was present for at least 4 seconds. At the same time, automatic operation is cancelled for safety reasons.

„E2“, all lamps are flashing, the pointers are going to 2KN:

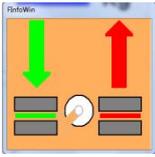
The right position sensor is down, the left sensor is up. This disparity situation was present for at least 4 seconds. At the same time, automatic operation is cancelled for safety reasons.

„E3“, all lamps are flashing, the pointers are going to 3KN:

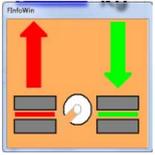
Both position sensors are down after start-up.

These errors are only removed when both position sensors are up!

12.2 PC Programme



The left position sensor is down, the right sensor is up. This disparity situation was present for at least 4 seconds. At the same time, automatic operation is cancelled for safety reasons.



The right position sensor is down, the left sensor is up. This disparity situation was present for at least 4 seconds. At the same time, automatic operation is cancelled for safety reasons.

These two errors are only removed when both position sensors are up!



The setting of the AD Converter in the PRGSETUP\DISPLAYS is different to the used one in the electronic.
If in the PRGSETUP\DISPLAYS the „12 Bit“ is selected the „8 Bit“ has to be selected or vice versa.



The selected com port in the PRGSETUP\COMUNICATION is not the same as the one which is really used.
Check the connection at the pc or change the setting.

13. Disposal

When the device is to be disposed, please get in contact with your dealer/supplier and ask for a quotation and for any legal provisions applicable for disposal of the unit.

13.1. Instructions for Disposal in EU Member States

For electrical and electronic devices

For disposal of a device at the end of its service life the following regulations apply:

1. The device must NOT be disposed in your household waste, but must be submitted for special waste.
2. Please contact your dealer/supplier for information on any waste collection centres that are authorised for correct disposal.
3. Please observe the directives for proper handling/treatment of waste in order to avoid any hazards for the environment and for your health.



This symbol indicates that it is mandatory to submit electrical and electronic devices to special waste after scrapping.

