



HIGH TECH SECURES YOUR FUTURE

SBA 1200 GB

SUN BRAKE ANALYSER

● **Operating Manual**





Operating Manual

SBA 1200 GB

SUN BRAKE ANALYSER

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TO THE READER

Whilst every effort has been made to ensure that the information contained in this manual is correct, complete and up-to date, the right to change any part of this document at any time without prior notice is reserved.

**Before installing, maintaining or operating this unit,
please read this manual carefully, paying extra
attention to the safety warnings and precautions.**



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1. Introduction

1.1 About this Manual

Congratulations for buying a Brake Tester **SUN SBA 1200 GB**.

In the present Operating Manual, you will find detailed information on the routine work with your brake tester. **SUN** products speak for themselves by a steady advancement implying, however, that the Operating Manual may not always be updated.

1.2 Short Description of the SBA 1200 GB

Brake Testers of the series **SUN SBA 1200 GB** allow easy and quick brake testing for motorcycles. The test stand is particularly designed for the quick diagnosis in workshops.

Easy operation connected with a quick test run allows time-saving and efficient brake tests one after the other after a short training period. The standard version of the brake tester **SUN SBA 1200 GB** is equipped with the following components:

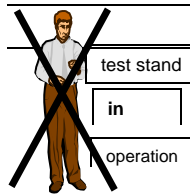
- ⇒ roller set
- ⇒ display cabinet with electronic control system

The following options are additionally available:

- ⇒ printer
- ⇒ 7-digit display
- ⇒ IR remote control
- ⇒ cable operated pedal force transducer, for hand and foot respectively
- ⇒ wireless pedal force transducer for hand and foot respectively

2. Operational Safety and Accident Prevention

Conscientiously follow the regulations in the Operating Manual in order to avoid injury to persons and damage to the equipment.

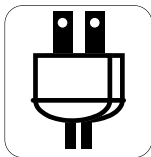


- Please mind that during the brake test **no one is staying at close range** to the turning rollers.
- If possible, secure the test stand area by means of railings and colour markings on the floor or by danger signs with warning lamps. **CAUTION! BRAKE TEST!**

The **tester** must remain **seated on the vehicle** during the test prior to the testing procedure after having checked that **no one is close** to the roller set!



If the Brake Tester is installed at the traffic zone of the workshop or at an area accessible to the public, it is important that the test stand is covered or equipped with railings **if not in use**.

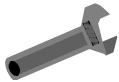


- Lock the main switch if the brake tester is not in use in order to exclude any unallowable usage.

• Safety regulations in operation:

- **No** adjustment work with **turning rollers!**
- **No motor start** via the test stand drive!
- **No parking** on roller brake testers, especially neither with the drive axle, nor with engaged gear or with turned-on ignition since the engine of the vehicle could start up on initiating the rollers thus risking that the driverless vehicle gets out of control.
- The „**emergency operation mode**“ (key-operated switch) should only be applied in order to be able to drive a vehicle off the roller set in case of any test stand operating failure.
- Withdraw the key for emergency operation from the display cabinet and put it in safekeeping to prevent any unauthorized use.
- On actuating the „**automatic operation mode**“, the rollers start up as soon as a vehicle is driven onto the test stand. For this reason, the driver should take the IR transmitter with him to be able to switch the test stand off in case of emergency.

- The Brake Tester may only be operated within the rated power and the maximum speed stated in the Technical Data Sheet. Shift period for the rated power is 20% meaning a two minutes' operating time is followed by a rest period of 8 minutes.
- **Slowly drive** the vehicle onto the test stand thus avoiding unnecessary strain to both the vehicle and the test stand.



- From time to time check the fastening screws of the cover plates on their tight fit in order to avoid any tyre damage when driving onto and off the test stand.
- The access to electrical control devices, such as the exchange of safety fuses not controllable from outside, is **only allowed to skilled workers**.
- Prior to opening the switch cabinet, disconnect the system from the mains supply.

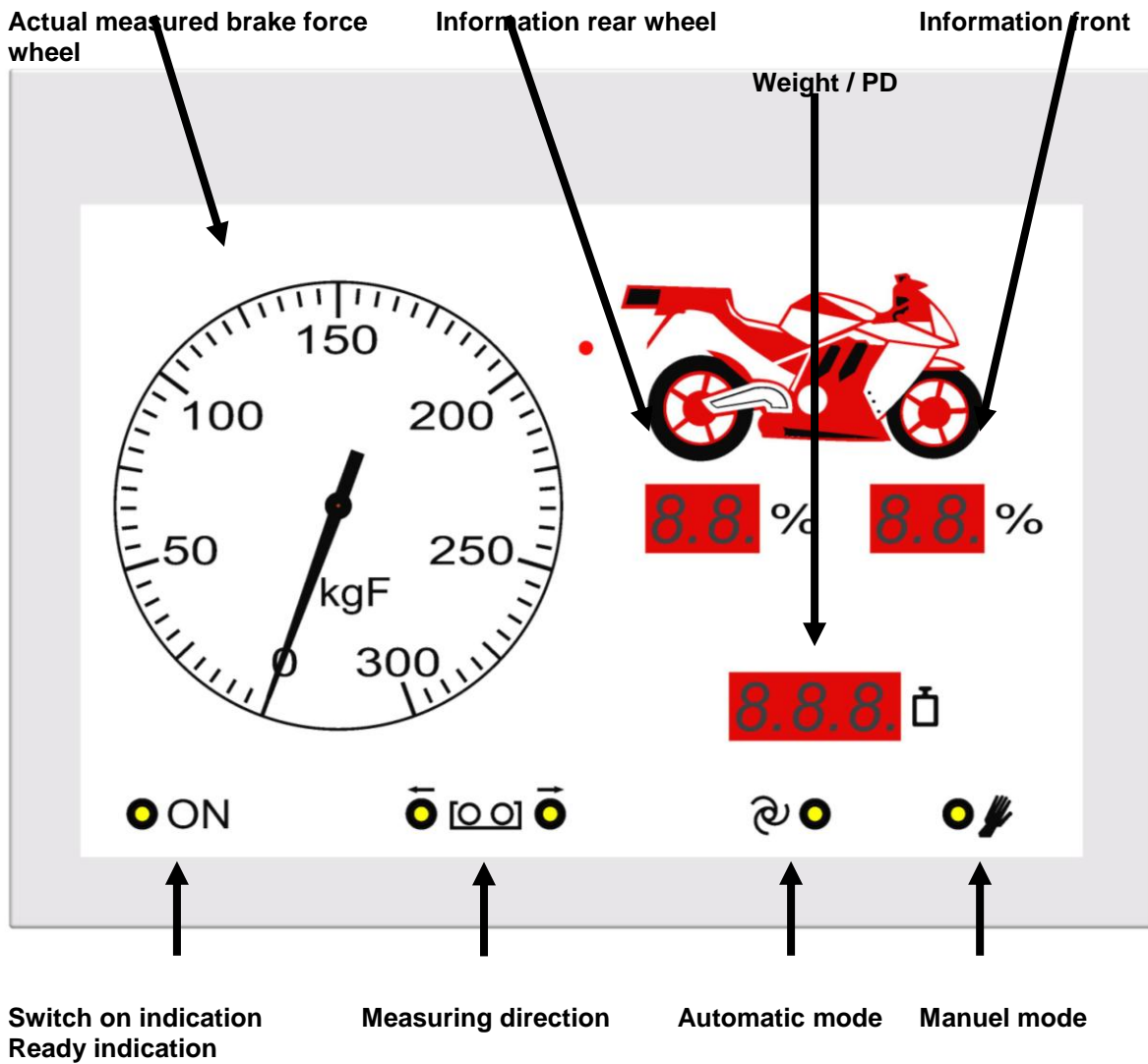


- Keep dry all parts of the electric system!



- **Check** the safety devices of the brake tester, in particular the initiators and safety rollers, **in regular intervals** on their perfect functioning. Step-in safety devices between the test rollers are obligatory.

3. Display Cabinet



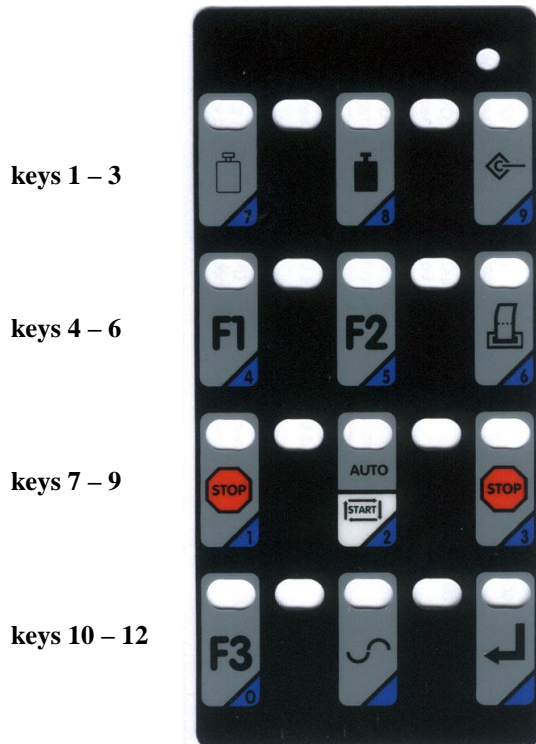
Meaning of the individual operating elements:

Lamps:	
ON	Indicates that the test stand is switched on and ready to use
Measuring direction	Indicates the measuring direction
Automatic	Indicates that the test stand is working in automatic mode
Manual	Indicates that the test stand is working in manual mode

Buttons:	
Auto off	Deletes automatic mode if no vehicle is in the roller set Switches off a test
Auto on	Activates the automatic mode. Starts a test one time
Cal.	Only required for service / fault finding

4. IR Remote Control (Option)

The use of the IR remote control allows you comfortable test stand control.



Key 1



Start the input of the test weight
In case of weight input or figure input, this key stands for „7“.
End the input by key 12.

Key 2



Start the input of the total weight.
In case of weight input or figure input, this key stands for „8“.
End the input by key 12.

Key 3



Delete data.
For this purpose, it is important to actuate this key twice within 5 seconds.
Only then all data are deleted and the automatic operation mode set on axle 1 and front axle respectively.
In case of weight input or figure input, this key stands for „9“.

Key 4


Switch between front and rear wheel.
In case of weight input or figure input, this key stands for „4“.

Key 5


Switching between front – rear wheel.
In case of weight input or figure input, this key stands for „5“.

Key 6


Print out.
The stored data are printed.
In case of weight input or figure input, this key stands for „6“.

Key 7


Stopping the roller set
STOP a running measurement.
Switch OFF automatic operation mode if the two starting switches are in UP position.
In case of weight input or figure input, this key stands for „1“.

Key 8


Switch on automatic mode, start and store a measurement.
Test of one wheel as a service brake with automatic storing of actual axle number after ending the test.
Switch ON automatic operation mode if the two starting switches are in UP position.
In case of weight input or figure input, this key stands for „2“.

Key 9


Stopping the roller set
STOP a running measurement.
Switch OFF automatic operation mode if the two starting switches are in UP position.
In case of weight input or figure input, this key stands for „1“.

Key 10


Start a measurement without store a measurement.
In case of weight input or figure input, this key stands for „0“.

Key 11

Start ovality measurement.
The ovality measurement is activated by pressing this key during a running brake test

Key 12

Confirm the input.
In case of weight input or figure input: finish and store input

5. Test procedure

In order to ensure a smooth test sequence, please proceed as follows:

Switch on the test stand using the main switch. Make sure that no vehicle is in the test stand.

The test stand is ready for operation after the lamps have ceased flashing.

There are two possibilities of starting the brake test.

Using the remote control (primary control).

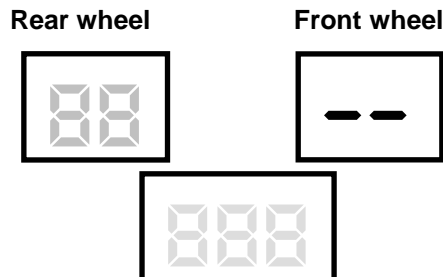
Using the buttons on the side of the unit (secondary controls).

- Automatic mode is not to be used in the UK.
- When performing a brake test as part of a MOT procedure, always refer to the MOT operator manual for specific requirements, a copy of the manual can be found at www.motinfo.gov.uk.
- When performing a brake test it is recommended that unless using the printer option, results are manually recored after each brake is completed.
- When testing a motorcycle with linked brakes or a sidecar with brakes, the overall brake efficiency should be calculated by the operator.
- The brake efficiency for each system is the total of the brake forces achieved by operating the brake control divided by the total weight of the motorcycle, rider and sidecar if fitted.

The following description of the test procedure is for manual mode via remote control.

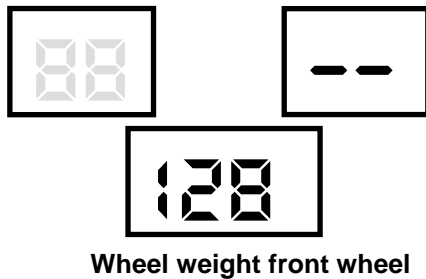
5.1 Testing the front wheel


Before entering the roller set the display for the front wheel is flashing and is ready for a test.



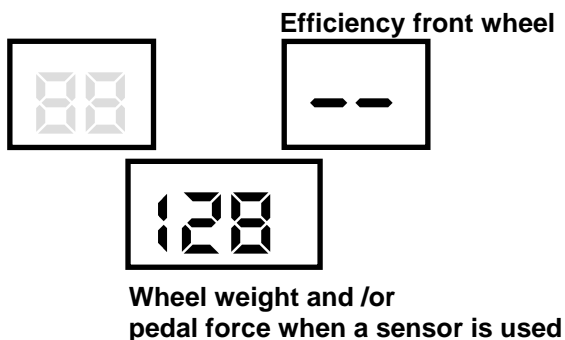
Drive onto the test stand with the front wheel.

Provided a weighing unit is installed, the wheel weight is now indicated.



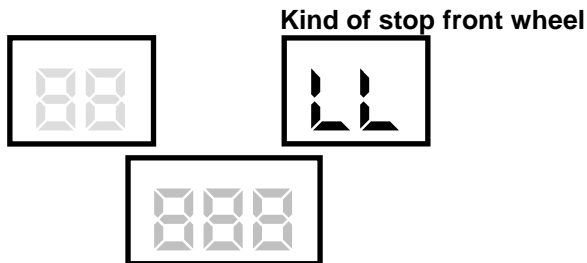
After pressing the key  the rollers start up after a short waiting period. Do not brake as long as the lamps are flashing at the display cabinet.

If the lamps have ceased flashing and no brake is applied, the rolling resistance is shown on the needle. Now it is possible to brake slowly and regularly up to wheel block. If a pedal sensor is used the measured value is shown on the display instead of the wheel weight.

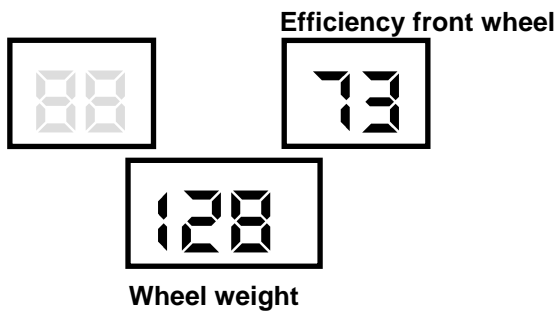


Directly after the roller set has stopped the kind of stop is shown on the display.
There are 3 different kinds of stop:

LL = wheel has locked, **FF** = brake force reduction, **PP** = wheel was lifted out

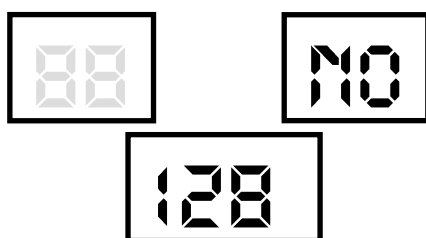


5 seconds after the roller set has stopped the efficiency of the wheel is shown on the display.
This efficiency is calculated after the wheel weight.



ATTENTION:

If the test time is too short the display shows

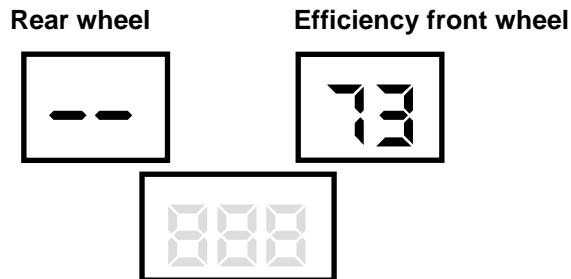


And the test should be repeated.

Now the test for the front wheel is finished and the rear wheel can be tested.

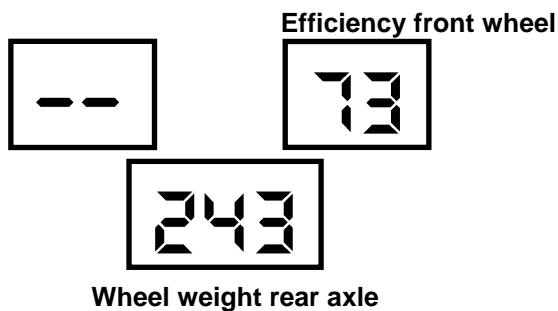
5.2 Testing the rear wheel


Before entering the roller set the display for the rear wheel is flashing and is ready for a test.



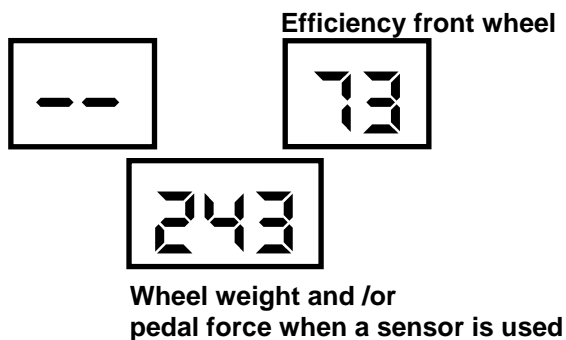
Drive onto the test stand with the rear wheel.

Provided a weighing unit is installed, the wheel weight is now indicated.



After pressing the key  the rollers start up after a short waiting period. Do not brake as long as the lamps are flashing at the display cabinet.

If the lamps have ceased flashing and no brake is applied, the rolling resistance is shown. Now it is possible to brake slowly and regularly up to wheel block. If a pedal sensor is used the measured value is shown on the display instead of the wheel weight.

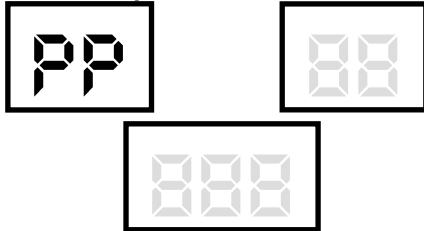


Directly after the roller set has stopped the kind of stop is shown on the display.

There are 3 different kinds of stop:

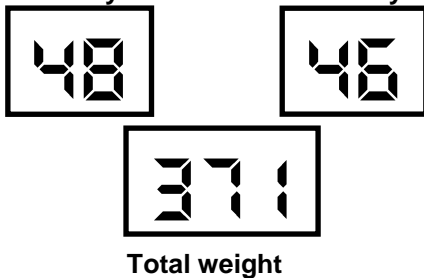
LL = wheel has locked, **FF** = brake force reduction, **PP** = wheel was lifted out

Kind of stop rear wheel



5 seconds after the roller set has stopped the efficiencies of the wheels are shown on the display. These efficiencies are calculated after the total weight.


Efficiency rear wheel Efficiency front wheel

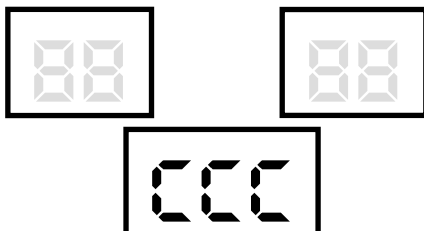



This result is shown on the display as long as the memory is deleted.

5.3 Delete function

The memory should be deleted before a new test is started.



After the delete key  is pressed the display is showing "ccc" and the needle for the brake force is going to half of scale.




Now the delete key  must be pressed again within 3 seconds. Only then the deletion is performed. As a confirmation the display shows "CCC" and the needle for the brake force is going to end of scale.

5.4 Enter a weight

If there is no weighing unit available the weight must be input manually. Otherwise no efficiency can be calculated.


To start the input the button  or . As a confirmation all lamps on the display cabinet are flashing. Now the buttons with the blue numbering are used to input the

weight. To confirm the weight the button  has to be pressed.

After a complete test the axle deceleration of the front and rear wheel is shown on the display.


5.5 Measuring ovality

The ovality can be tested at any time during a brake test.

To start the measuring hold the brake force constantly and press the button . As a confirmation the both lamps for the measuring direction are flashing. During this time the brake force must be constantly. When the lamps are off again the brake test can be continued.

It is recommended to perform the ovality test above 2/3 of the expected brake force.

5.6 Stopping a test

With the key  the roller set can be switched off at any time. With this key also the automatic function can be deleted.

6. Pedal Force Transducers (Optional)

In order to be able to measure the required operating force of the brake, pedal force transducers are used. Because of the different constructions of the brake handles of motorcycles, there are different versions.

The pedal force transducers are connected to the sleeves on the left-hand bottom side of the display cabinet.



PD 7 foot force transducer



PD 8 hand force transducer



PD 6 (wireless)
force transducer for foot and hand in a set

7. Printout (Optional)

```

          BRAKE DIAGNOSTIC SYSTEM

-----

TEST STATION:.....          CUSTOMER:.....
STREET      :.....          VEHICLE :.....
TOWN        :.....          MILEAGE :.....
PHONE       :.....          DATE   : 17.03.2009  TIME: 07:38

----- Version = 1.000 -----

BRAKE TEST:

MEASURED VALUES:          FRONTAXLE          I          REARAXLE
-----
WHEEL FRICTION             KgF          7.6          I          0.0
MAX. BRAKE FORCE           KgF          71.8 block  I          60.3 block

MIN. OVALITY               KgF          I
MAX. OVALITY               KgF          I
OVALITY IN                 %           I

AXLE WEIGHT                kg          79          I          74
DECELERATION IN           %           90          I          81
-----

BRAKE DIAGNOSIS:

TEST WEIGHT      :      kg      153
TOTAL DECELERAT. SBR:    %      86
    
```

8. Service-Routine



In case the SBA 1200 GB fails to function correctly, it is possible to obtain a simple and quick error diagnosis by means of the built-in service routine.

For calling in the service routine, keep depressed the "AUTO OFF" tip switch at the display cabinet and simultaneously switch on the main switch of the test stand. It is important to keep the "AUTO OFF" tip switch depressed until number 1 is indicated on the display signalling that the test stand is in the first step of the service routine.

The number of the actual test step including the respective measured value of the transducer and/or sensor in mA is indicated at the display each. The pointer of the indication shows always about half the value of the current.

The change from one test step to the next one is possible by pressing the „Stop“ key at the display cabinet or on the remote control

Sequence:

step	meaning	automatic lamp	manual lamp
1	Brake force	flashes	off
2	Weighing unit front left	off	flashes
3	Weighing unit front right	flashes	flashes
4	Weighing unit rear	on	off
5	Pedal force 500N	off	on
6	Pedal force 1000N	on	on
7	Slip sensor	flashes	on
8	Position sensor	on	flashes
9	Selection :  clock setting  or AUTO OFF :calibration routine	off	off

Zero points:

step	meaning	display	pointer
1	Brake force (1 direction tester) OR OR	~ 1.00 mA	~ 20 kgF ~ 200 N
1	Brake force (2 direction tester)	~ 5.00 mA	~ 95 kgF ~ 950 N
2	Weighting unit front left	~ 1.00 mA	~ 20 kgF ~ 200 N
3	Weighting unit front right	~ 1.00 mA	~ 20 kgF ~ 200 N
4	Weighting unit rear	~ 1.00 mA	~ 20 kgF ~ 200 N
5	Pedal force 500 N	~ 1.50 mA	~ 30 kgF ~ 300 N
6	Pedal force 1000 N	~ 1.50 mA	~ 30 kgF ~ 300 N
7	Slip sensor	0.00 or 8.00 mA	0 - 300 kgF 0 - 3000 N
8	Position sensor	0.00 or 8.00 mA	0 - 300 kgF 0 - 3000 N

Active calibration check:

step	meaning	Display	pointer
1	Brake force (1 direction tester) OR OR	~ zeropint + 8.00 mA	~ zeropoint + 150 kgF ~ zeropoint + 1500 N
1	Brake force (2 direction tester)	~ zeropint + 4.00 mA	~ zeropoint + 150 kgF ~ zeropoint + 1500 N
2	Weighting unit front left	~ zeropint + 8.00 mA	~ zeropoint + 150 kgF ~ zeropoint + 1500 N
3	Weighting unit front right	~ zeropint + 8.00 mA	~ zeropoint + 150 kgF ~ zeropoint + 1500 N
4	Weighting unit rear	~ zeropint + 8.00 mA	~ zeropoint + 150 kgF ~ zeropoint + 1500 N
5	Pedal force 500 N	~ zeropint + 8.00 mA	~ zeropoint + 150 kgF ~ zeropoint + 1500 N
6	Pedal force 1000 N	~ zeropint + 8.00 mA	~ zeropoint + 150 kgF ~ zeropoint + 1500 N
7	Slip sensor	no calibration check	
8	Position sensor	no calibration check	

8.1 Calibration routine

For calling in the calibration routine, press the button



or the "AUTO ON" button at step „9“ in the service routine".

Operation:



Next step



Last step



Close the calibration routine and go back to the service routine



Print the adjustments



Call up the number insert



Delete the last input digit

Sequence:

step	meaning	value	automatic lamp	manual lamp
1	Brake force	3000 N	flashes	off
2	Weighing unit	500 kg	off	flashes
3	Pedal force 500N	50 kg	flashes	flashes
4	Pedal force 1000N	100 kg	on	off
5	No function		off	off
6	No function		off	off
7	Legal value total efficiency		off	off
8	Legal value front efficiency		off	off
9	Legal value ovality front		off	off
10	Legal value pedal force front		off	off
11	No function		off	off
12	Legal value rear efficiency		off	off
13	Legal value ovality rear		off	off
14	Legal value pedal force rear		off	off
15	Inner scale	3.00	off	off
16	Outer scale	3.00	off	off
17	Calibration value brake force (3000: 2 directions, 7860: 1 direction)	7860	off	off
18	Calibration value weighing unit	500	off	off
19	Calibration value pedal force	50	off	off
20	Calibration value pedal force	100	off	off
21	Stepper	356	off	off
22	IR code	3	off	off
23	Printout kgf (kgf = 255, N = 0)	255	off	off
24	No function		off	off
25	Min. brake force for drive out function	0	off	off
26	Slip value	27	off	off
27	2 measuring directions (YES = 255, NO = 0)	0	off	off
28	Calculation factor	100	off	off
29	Min. brake time for storing in 1/10 s	10	off	off
30	Automatic function allowed (YES = 255, NO at switch on = 128, NO = 0)	128	off	off
31	Switch off at brake force reduction	0	off	off

	(YES = 255, NO = 0)			
32	Duration of ovality measurement in 1/10 s	30	off	off
33	Duration of turn on again in 1/10 s	40	off	off
34	Warning time before turn on in 1/10 s	10	off	off
35	Display time in 1/10 s	50	off	off
36	Show kind of slip on display (YES = 255, NO = 0)	255	off	off
37	Show last brake forces (NO = 255, YES = 0)	0	off	off
38	Print automatically after test end (YES = 255, NO = 0)	0	off	off
39	Time of RPM control after start in 1/10 s	15	off	off
40	RPM value after switch on	240	off	off
41	No function		off	off
42	No function		off	off
43	No function		off	off
44	No function		off	off
45	No function		off	off
46	No function		off	off
47	No function		off	off

NOTE:

ANY CHANGE OF THE SETTINGS ABOVE ARE ON OWN RISK!

8.2 Clock setting

For calling in the clock setting routine, press the button




at step „9“ in the service routine".

The clock setting routine need to be equipped with the IR remote control!

In the clock setting routine set the clock built in the unit. Enter all inputs in the following order:

- hour - decimal
- hour – units digit
- minute - decimal
- minute – units digit
- day - decimal
- day – units digit
- month - decimal
- month – units digit
- year - decimal
- year – units digit

In doing so, it is important always to enter leading zeroes.

Meaning	Example for the input
hour: ten -figure	1
hour: one -figure	12
minute: ten -figure	121
minute: one -figure	1217
day: ten -figure	12171
day: one -figure	121710
month: zero -figure	1217101
month: one -figure	12171001
year: ten -figure	1217100120
year: nine -figure	121710012009
time/date	12:17, 10.01.2009
 store the input and go back to the service routine	

If a printer is connected, each data entry is likewise output by the printer. After entering the last figure, complete the input of time and date by actuating the "Enter" key on the remote control. In order to quit the service routine, switch off the main switch.

Änderungsvorgänge:

März 2009/ET – Version 1.0:

Anleitung erstellt.

07.05.09/PL-mw – Version 2.0:

Punkt 8 – Serviceroutine ergänzt.

27.11.09/IS:

CE-Erklärung entfernt, Dateiname geändert

10.12.09/Julian Woods – Version 3.0:

Punkt 5 – Test procedure überarbeitet.