

en

Instructions for Use

Alcotest 6820 GB

Breath Alcohol Screening Device
with Datamanagement



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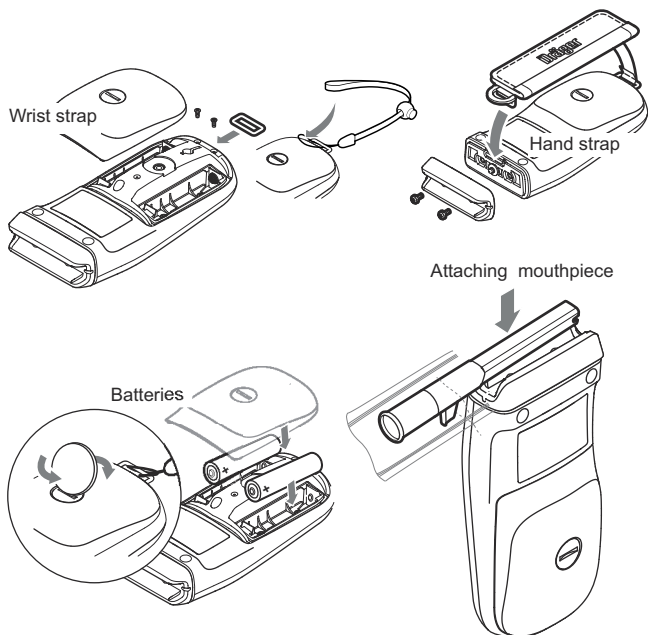
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1 Illustrations and Screens

1.1 Illustrations

The Illustrations help to visualise the tasks described in some sections.

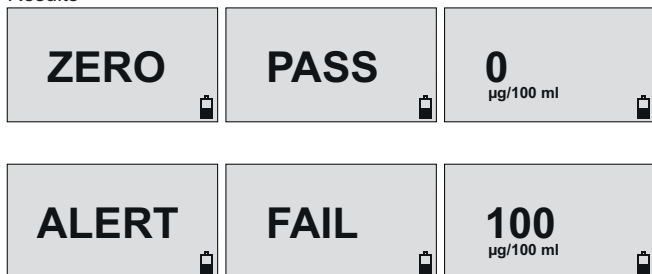


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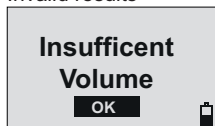
1.2 Screens

Following overview shows some of the possible displays referring to the describing section in this document.

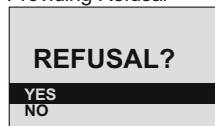
Results



Invalid results



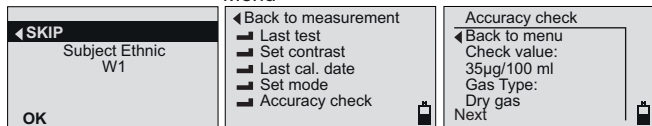
Providing Refusal



After sampling



Menu



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2 Safety-related information

- Strictly follow the instructions for use.
- Any use of the instrument and its accessories requires full understanding and strict observation of these instructions.
- The instrument is only to be used for the purposes specified herein.
- We recommend that a service contract be obtained with Dräger Safety and that all repairs be carried out by them.

Liability for proper function or damage

The liability for the proper function of the instrument is irrevocably transferred to the owner or operator to the extent that the instrument is improperly serviced or repaired by personnel not employed or authorized by Dräger Safety or if the instrument is used in a manner not conforming to its intended use.

Dräger cannot be held responsible for damage caused by non-compliance with the recommendations given above.

The warranty and liability provisions of the terms of sale and delivery of Dräger are likewise not modified by the recommendations given above.

Dräger Safety AG & Co. KGaA

3 Conventions used in this document

The following symbols are used in this document to provide and highlight areas of the associated text that require a greater awareness by the user. A definition of the meaning of each icon is as follows:



CAUTION

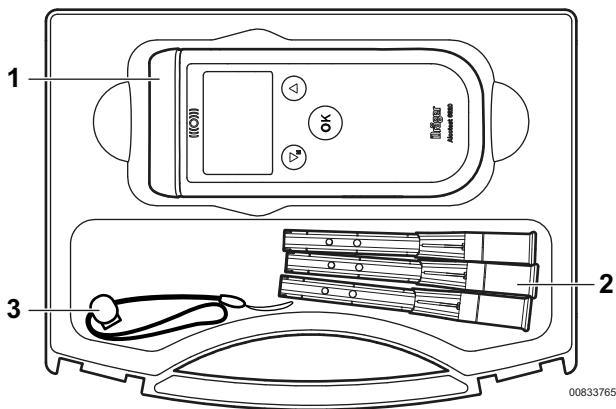
Indicates a potentially hazardous situation which, if not avoided, could result in physical injury. It may also be used to alert against unsafe practices.

NOTICE

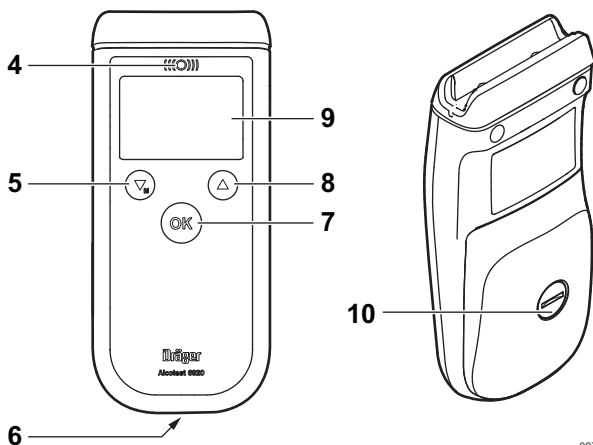
Indicates a potentially hazardous situation which, if not avoided, could result in damage to the product or environment.

4 Description

4.1 What's in the box?






- 1 Dräger Alcotest 6820 measuring device (incl. 2 batteries)
- 2 Mouthpieces (3 pieces)
- 3 Wrist strap



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- 4 LED (red, green, yellow)
- 5 **DOWN/MENU**-button
- 6 Charging/ communications socket
- 7 **OK** button
- 8 **UP**-button
- 9 Display
- 10 Screw plug

4.2 Buttons


| Button | Function |
|--|--|
|  | Switching on and off the device and confirming entries or selected functions. In further text written OK . |
|  | Entering the menu and navigating down in the menu and jump between digit positions. In further text written DOWN or MENU . |
|  | Navigating up in the menu, jump between digit positions. In further text written UP . |

4.3 Approvals

The Dräger Alcotest 6820 fulfills the requirements of type-approval procedures for breath alcohol screening devices used for law enforcement in Great Britain.

4.4 Explanation symbols

The following table shows the function symbols.

| Symbol | Meaning |
|--|----------------------------|
|  | Activated item |
| 1/6 | Actual screen (one of six) |

For menu related symbols on page 21 section "Menu symbols".

5 Use

5.1 Intended use

Only for the detection of a person's alcohol intoxication through measurement of the breath alcohol concentration.

5.2 First usage

Before starting the measurement the device has to be set up.

- Inserting batteries (on page 19 section "Inserting or replacing the batteries")
- Fitting strap (on page 18 section "Straps")
- Mounting mouthpiece (on page 20 section "Mouthpieces")

5.3 Prerequisites

The ambient air must be free from alcohol and solvent vapours, e.g. disinfectants.

5.3.1 Adequate breath sample

- The test person should breath regularly and calmly before the sample is taken.
- Avoid breathing in and out quickly through the mouth.
- The test person must be capable of exhaling the minimum breath volume.
- For a valid test the exhaling breath must constantly flow for at least 2 seconds (factory settings).
- Before sampling the test person must breathe normally. Quick inhaling and exhaling through the mouth must be avoided.

5.3.2 Waiting time after the last drink

- Maintain a waiting period of at least 20 minutes after drinking alcohol!
- Rinsing the mouth with water or non-alcoholic drinks does not reduce this waiting period!

- Residual alcohol in the mouth or aromatic drinks (e.g. fruit juice), mouth sprays containing alcohol as well as medicines can distort the measurement.

5.4 Preparation for use

1. Make sure the batteries are inserted and charged.
2. Make sure to hold the device tightly and safe by using the wrist or hand strap properly.
3. Switch on the device by pressing **OK**. (on page 18 section "Switching the device on and off")
 - The mode is shown in the display for approx. 3 sec. It can be changed in the menu. (on page 20 section "Menu")
 - Test Reason is shown in the display.
4. Press **OK** to continue.
5. Follow the displayed user defined screen dialogue and fill the required input.
 - If the device is ready for measurement, **READY** is shown in the display.
6. Insert a new mouth piece (on page 20 section "Mouthpieces").
 - An new mouth piece must be used for each test.

5.5 Performing the measurement

1. Make sure all prerequisites (on page 13 section "Prerequisites") are met and all preparations (on page 14 section "Preparation for use") are done.
2. Ask the test subject to blow evenly into the mouthpiece without interruption.
 - A sufficient flow is indicated by a continuous tone and the green lightning LED.
 - While the sample is taken the display shows: **Blow**.
 - When the sampling was successful the green light is going to cease and the tone is going to stop.
The display shows: **WAIT - Analyzing**
 - If the test was successful the result is shown in the display.
 - If the test must to be performed again: Continue at 5.7 Further measurement.

5.6 Results

After 5 to 25 seconds (depending on the instrument temperature and the measured concentration) the measured value is shown in the display and stored in the device (on page 7 section "Screens").

The presentation of the measured value depends on the pre-set mode.

It can be displayed by the following messages: **ZERO**, **PASS**, or the value in a **decimal presentation**.

The test person has got an unobtrusive alcohol level.

It can be displayed the following messages: **ALERT**, **FAIL**, or the value in a **decimal presentation**.

The test person has got an noticeable alcohol level.

- Continue aton page 17 section "After sampling".

A sampling with low volume can cause an error. In this case the horn sounds briefly, the red LED flashes and the display shows **Insufficient Volume** (on page 7 section "Screens"). The exhalation breath during the sampling is not to weak or not evenly enough.

- Repeat the test (on page 13 section "Adequate breath sample").

5.7 Further measurement

1. To repeat a test or perform a new measurement (A new mouth piece must be used for each test.) select **Next Test**.
2. Press **OK**.

During the sensors recovery time the display shows: **WAIT**.

3. Continue at 5.5 Performing the measurement.

5.8 Refusing a test

If the test person is unable or unwilling.

5.8.1 Providing REFUSAL

1. press **UP** to complete the test. The result is detected as **REFUSAL**.
2. To proceed the result confirm with **YES**.

To cancel the result press **NO**.

5.8.2 To repeat the REFUSAL

1. press **OK**.

The instrument is ready in 4 seconds.

5.9 After sampling

Follow the user defined dialogue in the display and fill the required input. Each input can be skipped. To Skip one press **UP** once or twice and confirm by pressing **OK**. The measurement value will be saved any way.

The following inputs are possible:

Subject (test person) Ethnic

1. Enter by pressing **OK**.
2. Choose ethnic by using the **UP** and **DOWN** buttons.
3. Confirm by pressing **OK** twice.

Officers Identity

1. Enter by pressing **OK**.
2. Set digits by using the **UP** and **DOWN** buttons.
 - To enter a 5 digit code use **Blank** for the first digit.
3. Confirm by pressing **OK**.
4. Confirm by pressing **OK** twice.

Location of Test

1. Enter by pressing **OK**.
2. Set digits by using the **UP** and **DOWN** buttons.
3. Confirm by pressing **OK**.
4. Confirm by pressing **OK** twice.

If the input is done successfully **Data saved** is shown in the display and the option **Next Test** (on page 16 section "Further measurement") or **Switch off** can be chosen.

1. Remove the mouthpiece by pushing it up. See on page 6 section "Illustrations".
2. Dispose it in accordance with local regulations.

6 Set up the device

6.1 Switching the device on and off

Switch on the device by pressing **OK** for approx. 2 sec.

The sensor is warming up and the following information is shown one after the other in the display.

1. **Dräger Alcotest 6820**
2. Info screen with **date, time, battery charging level, test number** and **temperature**
3. **WAIT**
4. **Mode** screen depending on the pre-set
5. Test Reason
 - The device can be use according the instruction (on page 14 section "Performing the measurement")

Switch off the device

Switch off during Test Reason status.

1. Enter by pressing **OK**.
2. Set **Subject Age** and **Gender**.
 - **READY** is displayed.
 - Now it's possible to switch off the device by pressing **OK** for approx. 4 sec.
 - The device will switch off automatically after 4 minutes without using.

6.2 Straps

To have the right grip on the device two different straps can be mounted. See on page 6 section "Illustrations".

6.2.1 Mounting the wrist strap


1. Undo the screw plug on the battery lid (e.g. using a coin) and remove the battery lid.
2. Insert the eyelet in the opening and fix with the screws (2x).
3. Guide the fastening lug of wrist strap through the eye.

4. Pull the lower part of the wrist strap through the strap.
5. Close the battery lid and tighten the screw plug.
6. Thread the wrist strap through the adjuster.

6.2.2 Mounting the hand strap

1. Undo the screws (2x) of the mouthpiece receptacle and remove the mouthpiece receptacle.
2. Undo the screw plug on the back of the device (e. g. using a coin) and remove the battery lid.
3. Insert the upper eyelet of the hand strap in the upper opening on the device.
4. Place the mouthpiece receptacle on the device and fix it with the screws (2x).
5. Insert the bottom lug of the hand strap in the bottom opening on the device and fix it with the screws (2x) of the hand strap.
6. Close the battery lid and tighten the screw plug.

6.3 Inserting or replacing the batteries

Inserting the batteries upon initial operation or changing/ charging if the **battery symbol**, shown in the displays right upper corner, indicates **empty**.  See also on page 6 section "Illustrations"



CAUTION

Damage to the device! Do not charge alkaline batteries, as the device may be damaged otherwise.

1. Undo the screw plug on the battery lid (e. g. using a coin) and remove the battery lid.
2. Insert the batteries and make sure that the polarity is correct.
3. Close the battery lid and tighten the screw plug.

Required batteries batteries:

- 2 x 1.5 V alkaline type (LR6, AA) or,

Dispose and caution for batteries on page 27 section "Disposal".

6.4 Mouthpieces

The device is supplied with 2 different mouthpiece receptacles. Three mouth pieces are included the delivery.

To ordering new mouth pieces on page 30 section "Order list".

Attaching a mouthpiece

1. Open the packaging of mouth piece.
 2. Remove the rear part of the packaging.
- For reasons of hygiene, leave the front part around the mouth contact area until the mouthpiece is firmly attached to the device.

With mouthpiece receptacle:

- With the fluted markings (press-on surface) facing upwards, attach the mouthpiece at an angle, push it upwards and press it into the mouthpiece receptacle. The mouthpiece audibly snaps into place. The mouthpiece can be used facing to the right or to the left.
3. Remove all packaging.

The mouth piece is now ready for measurement.

7 Menu

The menu shows following entries (See on page 7 section "Screens"):

Last test: Shows the value of the last sampling.

Last cal. date

- Only shows the date of the last calibration and accuracy check.

Set mode

- Lists the available modes. The mode can be changed.






Set contrast

- The contrast can be adjusted by using **UP** and **DOWN**.

Accuracy check

- To perform an accuracy check.

7.1 Menu symbols

| Symbol | Meaning |
|---|----------------------------------|
|  | Return to next higher menu level |
|  | Back to measurement |
|  | Menu item with sub-menu |
|  | Open menu item |
|  | Menu item |

7.2 Navigating in the menu

1. Switch on the device (on page 18 section "Switching the device on and off").
2. Press **MENU** to enter the menu.
3. Navigate through the menu list by using **UP** and **DOWN**.
4. Select a menu entry by pressing **OK**.

7.3 Leaving the sub menu or menu

1. Navigate to the upper entry by pressing **UP** several times.
 - The upper entry can be **Back to measurement** or **Back to menu**
2. Choose the entry by pressing **OK**.

8 Modes

The device is set up with 4 different modes, listed in the menu (on page 20 section "Menu").

The menu shows following entries: **AIR, ROAD, MARINE, RAIL**

8.1 Mode settings

The following limits (factory setting) are activated:

| | AIR | ROAD | MARINE | RAIL |
|-------|--------------|---------------|---------------|---------------|
| ZERO | <4 µg/100 mL | <4 µg/100 mL | <4 µg/100 mL | <4 µg/100 mL |
| PASS | <9 µg/100 mL | <31 µg/100 mL | <31 µg/100 mL | <31 µg/100 mL |
| ALERT | - | <35 µg/100 mL | <35 µg/100 mL | <35 µg/100 mL |
| FAIL | <9 µg/100 mL | <36 µg/100 mL | <36 µg/100 mL | <36 µg/100 mL |

8.2 Changing the mode

1. Enter the menu (see on page 20 section "Menu").
2. Select **Set mode**.
3. Choose desired mode and confirm by pressing **OK**.

9 Troubleshooting

| Fault of the device | Cause | Remedy |
|---|--|--|
| -switches off automatically | auto switch off after 4 minutes | switch on again (on page 18 section "Switching the device on and off") |
| | empty batteries | on page 19 section "Inserting or replacing the batteries" |
| -switches from menu to measure mode automatically | Device automatically switch to measurement mode after 120 sec without use. | Enter the menu again (on page 20 section "Menu"). |
| -can not be switched on. | empty batteries | on page 19 section "Inserting or replacing the batteries" |
| Displayed fault | Cause | Remedy |
| Insufficient volume | Invalid results (on page 15 section "Results") | on page 13 section "Adequate breath sample" |
| Calibration error | Calibration not successful | on page 26 section "Calibration" |
| Accuracy check error | Accuracy check not successful | on page 25 section "Accuracy check" |
| ↑ ↑ ↑ | Sampling exceeds measuring limits. | press OK button to continue with test |

| Displayed fault | Cause | Remedy |
|--|---|---|
| Internal System Error | Device error. No measuring function possible. | Change batteries, try switching on and off a view times. If the fault repeats call DrägerService. |
| Accuracy check overdue lockout in x days | Accuracy check interval expiration is imminent. | Perform accuracy check (on page 25 section "Accuracy check") |
| Service required accuracy check | Accuracy interval expired. | |
| Service date expired/ accuracy check | service date expired | |
| Calibration overdue lockout in x days | Calibration interval expired. | Perform calibration by trained service personal |
| Service required Calibration | Calibration period expired. | |
| Service date expired/calibration | Service date expired. | |
| Memory for XXTest | Device can be used for XX more tests. | Save data on PC and clear device memory (on page 25 section "Accuracy check") |

10 Maintenance

- If necessary: Change batteries.
- Every month: Check calibration.
- Maintenance must only be performed by experts.
- Only authentic spare parts may be used for maintenance.

10.1 Cleaning



CAUTION

Do not submerge in liquid.

Do not use cleaning agents containing alcohol or solvents.

- Clean the device with a disposable tissue.

10.2 Accuracy check

If the date is expired the **Service required accuracy check** (on page 6 section "Illustrations and Screens") is shown on the display. An accuracy check must be performed.

- The accuracy check can be performed at any time.
 - Before performing the accuracy check the data must be saved on a PC. Downloading the data of the device and clearing it's memory can be performed with Dräger Diagnostics software (on page 30 section "Order list") software. The accuracy check doesn't affect the calibration settings.
1. Enter the menu (on page 20 section "Menu") before the expiry date has been exceeded.
 2. Choose **Accuracy check** from the menu by pressing **OK**.
 - The display shows the calibration gas to be used (on page 6 section "Illustrations and Screens").
 3. Choose **Next** by using **DOWN** and **OK**.
 - **Supply gas** is shown in the display.

4. Supply respective gas.
 - If a minimum flow rate of 3 L/min is provided **Gas flow ok** is shown on display.
 - The instrument automatically performs the check.
 - The result is displayed together with the check value (on page 6 section "Illustrations and Screens").

An **Accuracy Check Error** will be displayed if:

- a download and memory clearing has not been completed.

10.3 Calibration

Alcotest[®] 6820 GB is supplied with standard calibration by the manufacturer.

The date of the last calibration can be found in the quick menu.

10.4 Storage

The Alcotest[®] 6820 GB consumes a small amount of current even when switched off.



CAUTION

Leakage of battery acid can cause damage to the device. Remove batteries if storing the device longer than 6 month.

See on page 28 section "Technical data".

10.5 Disposal

Only dispose of as special waste in accordance with local waste disposal regulations.

Disposing the device



This product must not be disposed of as household waste. This is indicated by the adjacent symbol. You can return this product to Dräger free of charge. For information please contact the national marketing organisations or Dräger.

Disposing the batteries



CAUTION

Danger of explosion. Do not expose to fire or force to open.



Batteries must not be disposed of as household waste. This is indicated by the adjacent symbol. Dispose of batteries at battery collection centres as specified by the applicable regulations.

11 Technical data

Measuring principle

Electrochemical sensor

Measuring range

Breath alcohol concentration 0.000 to 250µg/100 mL

Ethanol mass per blood volume or mass at 20°C/ 68°F and 1013 hPa.
For the above data, a conversion factor of 2100 is used for breath and blood alcohol concentration data.

Units of measure

%, ‰, g/L, mg/100 mL, mg%, mg/mL, mg/L, µg/100 mL, µg%, µg/L, g/210 L

Ambient conditions

| | |
|------------------|--|
| During operation | 0°C to +50°C / +32°F to +122°F 10 to 100% rel. hum. (non-condensing) 600 to 1300hPa |
|------------------|--|

| | |
|----------------|-------------------------------|
| During storage | -20°C to +70°C / -4 to +158°F |
|----------------|-------------------------------|

Taking Samples

| | |
|--------------------|------------------|
| Respiratory volume | >1.2 L (default) |
|--------------------|------------------|

| | |
|-------------------|--------------------|
| Minimum flow rate | >8 L/min (default) |
|-------------------|--------------------|

| | |
|-------------------|------------------|
| Minimum blow time | >1,6 s (default) |
|-------------------|------------------|

Measurement accuracy

Standard deviation of the repeatability with ethyl alcohol standard

| | |
|--------------------|--|
| Up to 0.5 µg/100mL | 0.8 µg/100mL |
| ≥0.50 mg/L | 1.7 % of the measured value |
| up to 1.0 ‰, BAC | 0.017 ‰, BAC or |
| ≥0.100 % BAC | 1.7 % of the measured value whichever value is higher |

Sensitivity drift

Typically 0.4 % of the measured value per month

Wait time for measurement readiness following a previous measurement with:

| | | | |
|---------------|-------|-------------|-------|
| 25 µg/100mL | 20 s | 0.5 ‰, BAC | 20 s |
| 50 µg/mL | 40 s | 1.0 ‰, BAC | 40 s |
| 100 µg/100mL | 80 s | 2.0 ‰, BAC | 80 s |
| >150 µg/100mL | 120 s | >3.0 ‰, BAC | 120 s |

Dimensions

65 mm x 147 mm x 39 mm (WxHxD)

Weight

approx. 260 g

Power supply

2x1.5 V Type Alkaline (Mignon, LR6, AA)

Batteries for approx. 1500 measurements

Interface

Jack plug for data transfer.

Protection class

IP 54

CE markings

Electromagnetic compatibility (Directive 2014/30/EU).

12 Order list

| Name and Description | Part no. |
|-------------------------------|-----------|
| Alcotest [®] 6820 GB | 83 27 288 |

Accessories**Mouthpieces hygienically tested**

| | |
|------------|-----------|
| 100 pieces | 68 10 690 |
|------------|-----------|

| | |
|------------|-----------|
| 250 pieces | 68 10 825 |
|------------|-----------|

| | |
|-------------|-----------|
| 1000 pieces | 68 10 830 |
|-------------|-----------|

| | |
|-----------------------------------|-----------|
| Alkaline battery (1 piece) | 13 35 804 |
|-----------------------------------|-----------|

| | |
|---|-----------|
| Case for Alcotest [®] 6820 GB | 83 17 920 |
|---|-----------|

| | |
|---|-----------|
| Leather pouch for Alcotest [®] 6820 GB (belt fixation) | 83 17 911 |
|---|-----------|

| | |
|---------------------|-----------|
| Power supply | 83 16 991 |
|---------------------|-----------|

| | |
|--------------------------------------|-----------|
| Cable for PC connection RS232 | 83 19 715 |
|--------------------------------------|-----------|

| | |
|-------------------------------------|-----------|
| Draeger Diagnostics software | 83 17 915 |
|-------------------------------------|-----------|



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