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## Operating instructions



The unit complies with  
the corresponding EC  
guidelines.

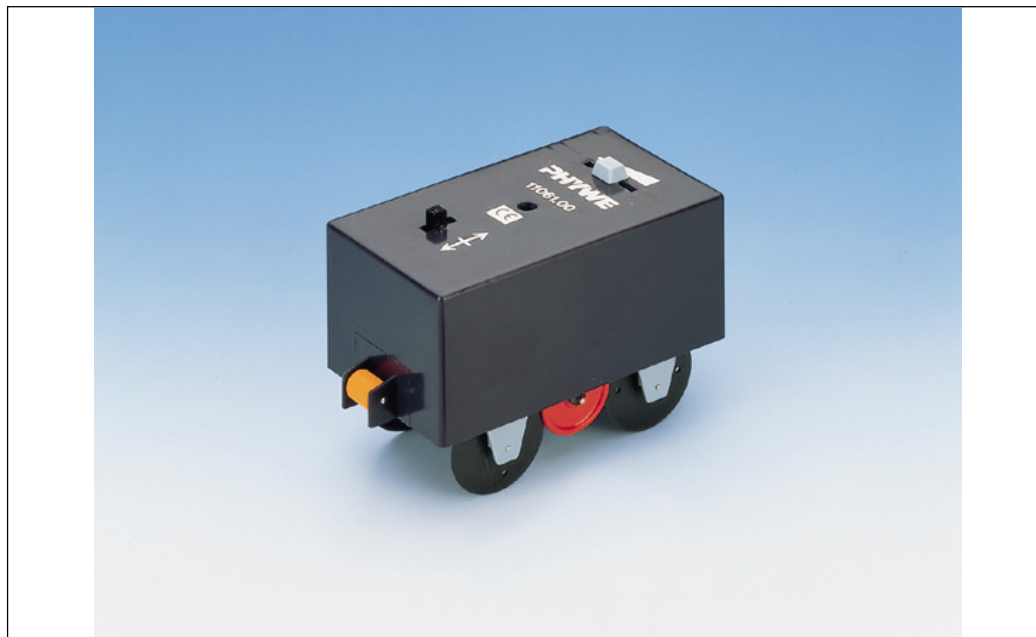


Fig. 1: 11061.00, Car, motor driven.

## INHALTSVERZEICHNIS

- 1 SAFETY PRECAUTIONS
- 2 PURPOSE AND DESCRIPTION
- 3 FUNCTIONAL ELEMENTS
- 4 MAINTENANCE
- 5 LIST OF EQUIPMENT
- 6 LITERATURE
- 7 NOTES ON THE GUARANTEE
- 8 WASTE DISPOSAL

## 1 SAFETY PRECAUTIONS



- Carefully read these operating instructions completely before operating this instrument. This is necessary to avoid damage to it, as well as for user-safety.
- Only use the instrument for the purpose for which it was designed.
- Only use the instrument in dry rooms in which there is no risk of explosion.
- Do not start up this instrument in case of visible signs of damage to it.

## 2 PURPOSE AND DESCRIPTION

The car is used for showing uniform motion experimentally. An acoustic source or an acoustic receiver can be moved uniformly with the car to show the Doppler effect in acoustic experiments. The car which is driven by a battery-powered motor can be moved with a continuously variable gearbox with selectable speeds (minimum ratio 3:1). The continuously variable speed range lies between approximately 10... 30 cm/s. The car can be switched to forwards or backwards motion. The car is placed on a track (e.g. Track  $l = 900$  mm, order no. 11606.00) for the measurement of the displacement/time quotient  $s/t$ . If required the track can have a slope of about 10%.

### 3 FUNCTIONAL ELEMENTS

#### 1 Chassis for drive unit 2

##### 1.1 Chassis plate

##### 1.2 Recess with spring

for accepting a Holding Pin (03949.00) for additional weights or an Adapter (11061.02) for a measuring microphone or sound head.

##### 1.3 Slot for drive wheel 2.11

##### 1.4 Intermediate axle (removable) for four-wheel drive.

#### 2 Drive unit with motor, gearbox and battery holder

##### 2.1 Switch for selection of „forwards“, „stop“ and „backwards.“

##### 2.2 Receptacle for additional components (see 1.2)

##### 2.3 Gear lever for selecting the speed

Caution! For constructional reasons, the gear lever cannot be pushed completely to the left!

##### 2.6 Contact plate for battery series circuit

##### 2.7 Battery compartment (2 x 1.5 V batteries, IEC R14)

##### 2.8 Motor (with radio interference suppression)

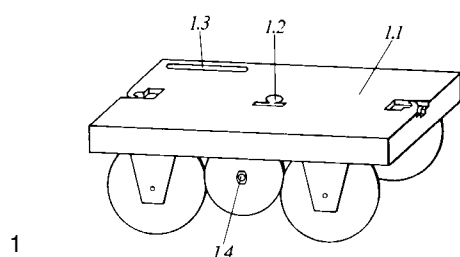
##### 2.9 Motor shaft with gear cone

##### 2.10 Gearbox shaft with friction wheels

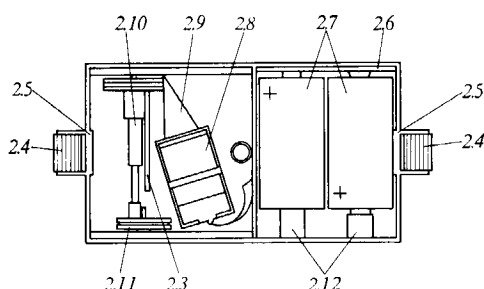
##### 2.11 Drive wheel

(this must be located in the slot 1.3 during assembly))

##### 2.12 Battery retaining spring



1



2

##### 2.4 Eccentric clamp for strip recording

##### 2.5 Case lugs

for joining chassis to case

### 4 MAINTENANCE

#### 4.1 Battery replacement

Used batteries should not be left in the car and their proper disposal should be ensured after removal. The chassis can be easily separated from the drive unit for battery replacement by pressing one of the sides of the case outwards and by simultaneously pulling the base plate by the wheel axle from the case.

The 1.5 V batteries must be connected in series. Correct polarity should be ensured (see polarity markings on case). When reassembling, the drive wheel 2.11 must pass through the slot 1.3. To do this, one end is first pushed under the appropriate case lug and the other end is allowed to clip in under pressure.

#### 4.2 Cleaning

If the car runs unevenly due to dirt in the drive system then the relevant parts (drive cone 2.9, friction wheels on the gearbox shaft 2.10, drive wheel 2.11 and the wheels on the intermediate axle 1.4) are cleaned with petrol suitable for cleaning purposes.

### 5 LIST OF EQUIPMENT

Babyzelle 1,5 V, R14

(2x) 07922.01

### 6 LITERATURE

TESS advanced Physics manual Mechanics 6

01159.02

Handbook Cobra3, Science, Part 2

01301.02

### 7 NOTES ON THE GUARANTEE

We guarantee the instrument supplied by us for a period of 24 months within the EU, or for 12 months outside of the EU. Excepted from the guarantee are damages that result from disregarding the Operating Instructions, from improper handling of the instrument or from natural wear.

The manufacturer can only be held responsible for the function and technical safety characteristics of the instrument, when maintenance, repairs and alterations to the instrument are only carried out by the manufacturer or by personnel who have been explicitly authorized by him to do so.

## 8 WASTE DISPOSAL

The packaging consists predominately of environmentally compatible materials that can be passed on for disposal by the local recycling service.

Altbatterien sind unter Beachtung aller Vorschriften als Sondermüll zu entsorgen.



Should you no longer require this product, do not dispose of it with the household refuse.

Please return it to the address below for proper waste disposal.

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