

ELENCO™

Cola-Clock

Model FUN-285
Assembly Manual



Cola not only quenches your thirst, but can power a clock too. Build it up and amaze your family and friends with the cola-powered clock.

PARTS IDENTIFICATION



Bottom Case



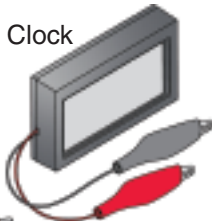
Top Case



Middle Case



Labels



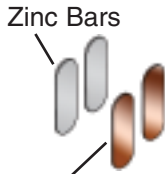
Clock



Alligator Clip



Emery Cloth



Zinc Bars

Copper Bars

HOW IT WORKS

If you place a little hydrochloric acid into a jar of water, the compound starts to break down chemically, producing negative and positive ions. An ion is an electrically charged particle. This process is called *ionization*, and the acid/water mixture is called *electrolyte*.

Placing a strip of zinc and a strip of copper into the acid/water solution, and connecting the two metal strips with a wire, an electrical current starts to flow between them.

The zinc strip starts to dissolve, emitting positive ions. For every positive ion that leaves, the zinc strip leaves behind two electrons. Now, with more electrons the strip has a negative charge.

As the positive ions flow through the electrolyte, some collide with the copper strip. This causes electrons to be released from the copper strip. Copper is an excellent conductor, so it releases the electrons easily. The electrons released from the strip become neutralized. The copper now contains fewer electrons and takes on a positive charge.

The difference between the negative charge on the zinc strip and positive charge on the copper strip creates an electrical voltage between the two strips. Connecting the two strips with a conductive material, such as a wire, an electric current will flow between them from negative to positive. This device is called an *electric cell*. Since the electric cell uses electrolyte in a liquid form, it's called a *wet cell*.

In place of acid/water solution, the kit will use cola or any type of acetic fluid.

ASSEMBLY

- Attach the five labels to the case as shown in Figure 1.
- Insert the copper and zinc metal bars into the bottom section as shown in Figure 2.
- Connect the alligator clip across the copper and zinc bars by squeezing the end to open the jaws (see Figure 3).
- Clip the red alligator to the single copper bar and the black alligator to the single zinc bar as shown in Figure 3.
- Fill the two chambers halfway with some cola or any acetic fluid (lemon juice, etc.). Numbers on the clock should appear now. If no numbers appear, check the alligator connections.
- Pass the clock through the middle case from the bottom, then slide the clock into the case as shown in Figure 4.

- Place the middle case onto the bottom and press together. Check that the wires are not caught between the cases.
- Now attach the top section to the assembly. Make sure all the parts line up.

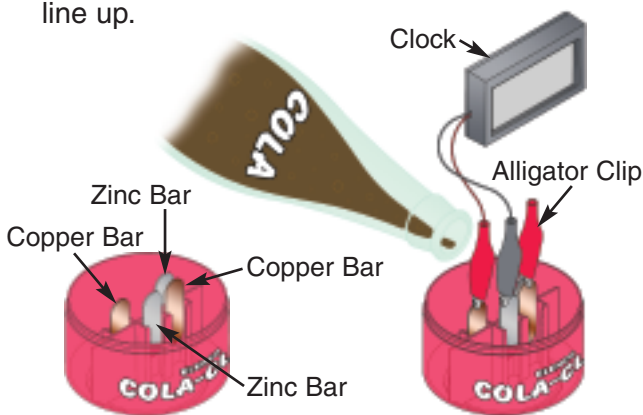


Figure 2

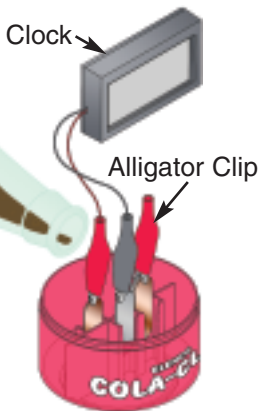


Figure 3

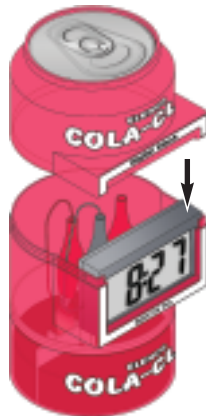


Figure 4

SETTING TIME

- Press bottom button until “12: A” is displayed.
- Press top button to adjust hour. Press the bottom button to set hour. Clock displays minutes now “ :00”.
- Press top button to adjust minutes. Press the bottom button to set minutes.
- Press top button to start clock.

SETTING DATE

- Press bottom button twice.
- Press top button to adjust month. Press bottom button to set month.
- Press top button again to adjust date. Press top button three times to set date, and clock displays time.

Display Seconds:

- Press top button twice to display seconds only
- Press top button again for hour and minutes.

Display Date:

- Press the top button once.

Toggle Time and Date:

- Press bottom button once, display toggles time and date.
- Press bottom button five times to display time only.

MAINTENANCE

- You will need to refill the fluid and clean the bottom case and metal bars weekly, so check the fluid level and conditions of the bars regularly. The copper and zinc bars also need to be cleaned. The bars will become dark from use. Use the sandpaper to restore them to the original condition. Typical operating time per fill - 100 hours.

Besides cola, you can also use salt water, fruit juice, or any other acetic fluid.

