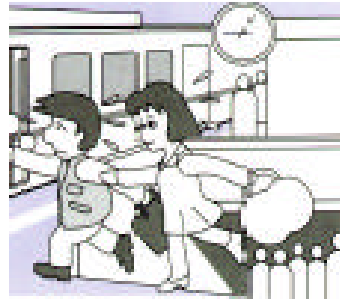


[about Magnetism]



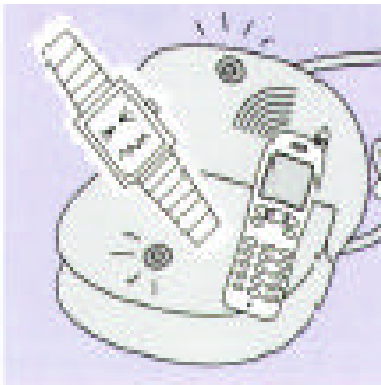
Have you ever had this experience?

I nearly missed my train as my watch was behind.



I came late for an important meeting since my watch did not show the right time.

My watch is normally accurate, but recently I wonder why sometimes wrong. Are there any particular reasons?

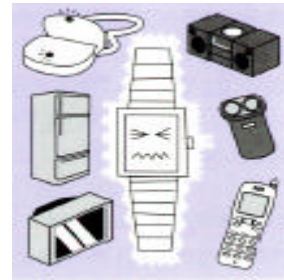


'The criminal' is magnets in your hand bag's or mobile phone. Magnetism caused the above problems.

Did you know?

We are surrounded by many magnetism sources such as mobile phones, speakers, refrigerators, televisions, magnets in your handbag, etc.

The motors in quartz watches go wrong due to magnetism from these sources and how severely the watches are influenced depends on the specification of the movements in the watches.



■ Analog quartz watches

- Soon after tiny motors in quartz watches are influenced by the magnetism, the watches go wrong and do not keep correct time.
- The analog quartz watches affected by the magnetism are not defective. If you take the watches away from the magnetism source, the watches will have the prescribed accuracy again. Kindly correct the current time after this action.
- Sometimes there still remains magnetism within the watches. In this case we have to demagnetize the watch.

■ Mechanical watches

- In general mechanical watches are not so severely influenced by magnetism. Stronger magnetism, however, may affect the watches, bringing some delay or, causing the watches to be fast and stop.
- Once mechanical watches are influenced, the magnetism remains in the watch even after putting the watch away from the source. This may last relatively long and therefore the watch must be demagnetized immediately.

■ Digital quartz watches

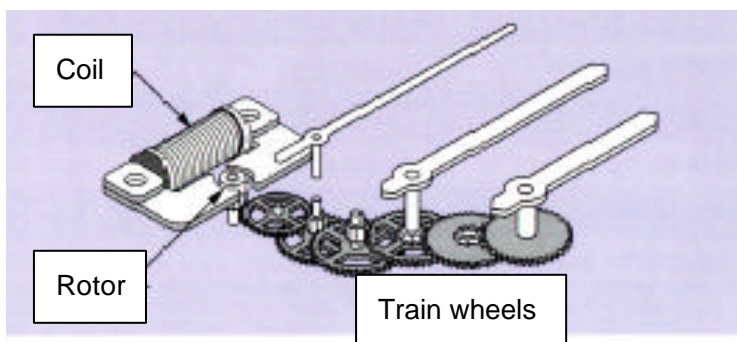
- There is no influence of magnetism since there are no motors in digital watches.
- Some digital watches which have alarm speakers may be affected, resulting in smaller alarm sound.

The reason why watches are affected

■ Why watches go wrong due to the influence of magnetism

In analog quartz watches we utilize the power of magnetic force in order to drive the step motors to move the rotors. These step motors are extremely small and may easily be affected by the magnetism, which badly influences the rotor. As a consequence of this, the watches go wrong, or stop.

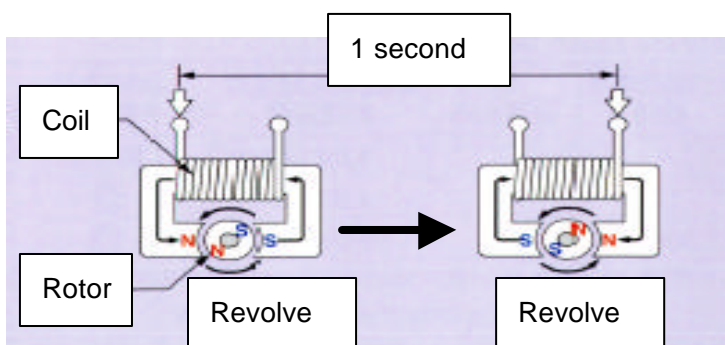
■ The structure of a step motor



■ How the rotors function

A current is sent to the coil to make an electric magnet that rotates the rotor, which is permanent magnet, by means of repeated 'backlash/aspiration'.

This rotation is transmitted to the wheels to drive the hands, keeping the correct time.



MEMO

Items to create magnetism	The magnetic strength (Unit: A/meter)	
	Close contact	5 cm away
mobile phone-speakers	up to 22,400	up to 1,600
portable radio-speakers	up to 16,000	up to 400
portable audios	up to 12,000	0
laptop PC-speakers	up to 16,000	0
magnetic bed sheets	up to 40,000	0
magnetic belly warmers	up to 44,000	0
magnetic pillows	up to 48,000	0
magnetic necklaces	up to 96,000	0
'EREKIBAN' for stiff shoulders	up to 144,000	0
magnetic parts of doors in furniture	up to 64,000	up to 1,200
magnetic parts in handbags	up to 72,000	0
TVs	up to 800	0
electric shavers	up to 10,400	up to 800

For long use

■ Be aware of electromagnetic appliances around you

There are many electromagnetic appliances (like audio speakers/magnet parts of furniture) around you. If your watch suddenly slows down, the watch may be under the influence of magnetism. Kindly check your surroundings again.

■ Be aware of mobile phones

If you put your watch in your handbag along with your mobile phone or you put your watch close to your mobile phone after taking your watch off your wrist, your watch will be easily affected by magnetism. Keep your watch away from mobile phones.

■ Demagnetization is required when you encounter a strong magnetic field

Your watch parts might be magnetized when you encounter a strong magnetic field. In this case the watch requires demagnetization to return to the original condition. Consult a watch shop near you for the demagnetization.

■ Keep your watch for more than 5cm away from the magnetism sources

Even if your watch is affected by magnetism, the watch returns to the original condition when you bring your watch more than 5 cm away from the magnetism sources.

The magnetic field strength is in reverse proportion to the square of the distance. Therefore, you can weaken the influence drastically just by bringing your watch a little bit away from the magnetism source. Try to keep at least 5cm distance from the source and your watch will be all right.

