

*Chapter 10***ELECTRICITY,
TELEVISION, DVDS
and PHONES**

Working out how to cope with the gadgets in your life can be a confusing part of an overseas move. The electricity, television standard, DVD region, and mobile phone service may all differ from the U.S. Different choices may affect the way you call home. Understanding a few basic principles may help you work out convenient solutions for your situation.

ELECTRICITY

Once you have been assigned to a specific post, contact the post directly to find out what you need to do to prepare for the electrical system. In some countries, plug adapters and multi-system appliances cost less than in the United States. Other posts provide a limited number of transformers along with housing. Some posts have unusual challenges, such as electric sockets with reversed polarity or multiple voltages. General information appears below to help you know which questions to ask. Try to double check facts, since the first person you contact may not know the whole story.

Voltage and Frequency

Electricity in the United States, Canada, and much of the Western Hemisphere operates as 110 volt, 60 cycles-per-second (hertz, abbreviated Hz) alternating current (AC). The designation "110 volts" actually includes voltages up to 125. Much of the rest of the world operates on 220-volt electricity flowing at 50 cycles per second or hertz. Again, so-called "220-volt" electricity includes voltages up to 250.

Some dual-voltage appliances are built to operate in either of these systems. You can check this by looking at the small label usually found on the back of the appliance. A dual-voltage appliance will have gibberish such as: 125/250 V AC 50/60Hz. Some appliances switch automatically, while others require you to turn a selector to change voltage systems. Always unplug the appliance before changing the selector.

If your appliance can operate using either system, you are still likely to need plug adapters. You can purchase these from a travel supply store, or they may be available at post. (It is a good idea to purchase adapters at post if possible, since that way you will be sure that they

CONTENTS**ELECTRICITY**

Voltage and Frequency
Electronic Equipment
Safety Precautions

TELEVISION**DVDS****TELEPHONE OPTIONS**

International Call-back
Calling Cards
Internet Calling

MOBILE PHONES**RESOURCES**

fit the sockets in your new home). Make sure the adapters fit polarized plugs, the plugs with prongs that are slightly different sizes.

Be sure to explain the different voltages to anyone working in your home, carefully show domestic staff what must be plugged in where, and emphasize that they should not plug anything in if in doubt.

If your appliances are not dual-voltage, you have several options:

- 1) Sell or store the appliances and purchase new ones at the new voltage. Ask people at post whether to buy appliances before arriving or at post. If the electricity supply is very quirky, local appliances may make your life easier. On the other hand, they may be very expensive.
- 2) Purchase dual-voltage appliances. Again, check with post before making any purchases. Even if your television and VCR are dual voltage, they may not function in a country with a different television broadcasting system.
- 3) Take your appliances and run them on transformers. Find out if the embassy supplies transformers or if you should buy some. Transformers convert 220 to 400-volt electricity to 110 volts; however, they do not change the cycle frequency from 50 to 60 hertz. This does not matter for some appliances. Others, such as electric clocks, devices that rely on internal clocks to operate, appliances with automatic shutoff features, and microwave ovens may not function properly on the wrong frequency. You may need to replace these appliances. People departing post may be happy to pass on their locally adapted appliances; contact the CLO Coordinator for more information.

The transformer must be large enough to handle the wattage of your appliances. To find out the wattage of appliances you plan to use, look for the small box printed on the back of the appliance. There will be a number followed by "W" or "A." "1500W" means that the appliance draws 1500 watts of electric current and will need a transformer of 1500 watts or more. "A"

indicates amperes. To find the wattage of appliances marked with amperes, multiply amperes by voltage. For example, a fax machine marked "120V~ 50/60Hz 1.8A" has a total of 120×1.8 or 216 watts.

Remember that you must add together the watts needed by all appliances that will be plugged in at the same time to find the size transformer needed. Transformers come in all sizes, from 50 watts on up. Smaller transformers are easily portable, but the larger ones are extremely heavy and difficult to move. Do not assume that you will be able to easily move your 1600-watt transformer from the kitchen to the living room whenever you want to play the electric piano!

Note: Very few locations in the world use direct current (DC), the type of electricity provided by batteries. Your AC appliances will not function on DC current.

Electronic Equipment

Fluctuations in power supply, common in many countries, can ruin electronic equipment. You may want to purchase a UPS (uninterrupted power supply) for your more expensive items. Be sure that the UPS can handle the total wattage of the appliances that will be plugged into it. Also be sure that the UPS is compatible with the local electricity or the transformer you will be using.

A voltage regulator may be recommended for computers, stereos, and televisions. The regulator should be larger than the rated capacity of your equipment and UPS because these may use more power to start up than the labels indicate. Not all regulators and UPS units are compatible; be sure to check. People at post who have learned from experience can best advise you as to what to purchase.

Surge suppressors may be helpful at some posts. However, remember that you may not be able to plug the surge suppressor into a transformer without wrecking both. Surge suppressors also may be sensitive to the difference in cycles. Again, consult your local post experts for the best advice.

Safety Precautions

Electricity operating at 220 volts is much more powerful than that in the United States. Just about everyone knows correct safety precautions: do not touch appliances with wet hands, do not use appliances in wet or damp places, unplug the appliance before handling or trying to repair, make sure appliances are properly grounded, keep appliances well away from the bathtub, and so on. Do not think that you can ignore these precautions as you might have done in the past (just ask the person who put a knife down a plugged-in toaster in Great Britain and blew out the power in the entire house). You should take special care to explain to your children the difference in voltages so that they do not plug equipment into the wrong voltage and cause appliance/electronic device damage or, worse, personal injury or fire.

Take specific precautions with transformers:

- Do not attach an appliance requiring more wattage than the rating of your transformer. When attaching more than one appliance, the total wattage must not exceed the rating of the transformer. For instance, with a 1600-watt transformer do not use a toaster drawing 1100 watts at the same time as a waffle iron drawing 1100 watts. The total of such a combination would burn out your transformer.
- Do not purchase any type of transformer with exposed wiring. Buy from a reliable dealer only those transformers that conform to established safety standards.
- Do not handle or move a transformer when it is plugged into a socket. Disconnect it first.
- A 1600-watt transformer should never be used in an ungrounded socket or with an ungrounded plug.
- Finally, do not place your transformers on carpets or near curtains or other combustible surfaces. They should always be kept dry and well ventilated. Transformers do produce heat, but if they are very hot to the touch something is wrong. An electrician should be able to determine if the problem is with the transformer or the appliance.

TELEVISION

You have mastered voltage, but still cannot peruse the latest episode of your favorite television program. Why? Color television developed simultaneously around the world, leaving a crazy quilt of different standards.

North American countries, Cambodia, Japan, Korea, the Philippines, and parts of South America use **NTSC**, named for the National Television Standards Committee. This format displays up to 525 lines of resolution.

SECAM, Séquentiel Couleur avec Mémoire or Sequential Color Memory, developed in France and continues to be used there and in some Eastern European, Middle Eastern, and African countries.

Most of the remaining countries use **PAL**, Phase Alternating Line, with 625 lines of resolution. Unusual systems dominate some countries, such as Brazil (half NTSC and half PAL-M). Argentina, Uruguay, and Paraguay use PAL-N. Most SECAM systems can display PAL programs, but PAL systems may not be able to show SECAM programs in full color.

Videotapes also come in different standards. To watch them, you may need a multisystem VCR and a multisystem television or a digital video standards converter and VCR, or a VCR with a built-in converter. Blank videotapes can be used to record in any system, although the recording time may change.

Check with post to find out which television systems are currently used. This information also appears online (search for "international television standards"). Recently certain countries have changed from SECAM to PAL. In a number of places, you can receive Armed Forced Network television, which broadcasts in NTSC format regardless of the local system.

If the system is different, find out whether a television place shifting or forwarding system (such as Slingbox) might work, allowing you to keep your current television. If that option does not seem desirable, ask contacts at post whether it makes more sense to purchase a local or multi-system television after arrival or to buy something before leaving for post. Costs and quality vary.

DVDS

DVDs store video recordings digitally, but come in two television formats, NTSC and PAL/SECAM. Most computers play both kinds of discs, but DVD players attached to your television might not. To complicate the matter, most Hollywood studios encode DVDs with specific regions (see chart). A typical DVD player will only play discs coded for that region.

Multi-region DVD players either automatically match regional codes or allow the user to select a specific region. Alternatively, individuals and manufacturers explain online how to disable region checking. Search the Internet to see if instructions exist for your player. Finally, if your DVD player was purchased in the U.S. and you only play DVDs recorded in the U.S., you may never encounter regional code issues.

DVD Regional Codes	
<i>Region Code</i>	<i>Area</i>
0	Unofficially used for a disc that will play in any region
1	U.S., Canada, U.S. territories
2	Western Europe, much of Central Europe, the Middle East, Egypt, Greenland, Japan, Lesotho, South Africa, Swaziland
3	Southeast Asia, Hong Kong, Taiwan, South Korea
4	Australia, New Zealand, Pacific Islands, Central America, Mexico, South America, and the Caribbean
5	Eastern Europe (Former Soviet Union), Indian subcontinent, Africa (except for the South), North Korea, and Mongolia
6	China
7	Unassigned
8	Cruise ships, airplanes, and other special venues

INTERNATIONAL TELEPHONE OPTIONS

These days it is cheaper and easier than ever to stay in touch by telephone while you are overseas. Direct dial to the U.S. exists in most countries, although it can be expensive (\$1.50 per minute or more). Post management establishes local policies on the use of IVG (International Voice Gateway) telephone channels; all calls placed within this network are free, although you may need a personal calling card to connect with locations outside of the Washington, DC, metropolitan area. The disadvantage of using this service for personal calls is having to make calls at certain times or places. Check with post to find out more about IVG.

To save money while calling from your overseas home, three types of commercial services may help: international call-back, calling cards, or Internet calling.

International Call-back

Many different companies offer this option. You dial an access number, let it ring once, then hang up. The company calls you back, at which point you dial the number you would like to reach. Because you are using the company's line, you don't pay the normal outgoing international rate. This procedure may also work well from a cell phone, particularly in a country where you do not pay to receive incoming calls.

Ask which companies provide high-quality service in your country and read the fine print to ensure that you understand the billing procedures. Make sure that using call-back does not break local laws. The U.S. Federal Communications Commission has determined that call-back services do not violate domestic or international laws, but some countries have declared them illegal. For an updated list of these countries, see <http://www.fcc.gov/ib/pd/pf/call-back.html>.

Calling Cards

Again, dozens of companies provide international phone cards, which exist in pre-paid or pay-as-you-go accounts (and may or may not require an actual card). Normally these involve dialing an access number, possibly a personal identification or card number, and then the number you would like to reach.

Investigate the billing structure carefully: some cards charge a high minimum fee per call or incur weekly service fees once the card is activated. Ask at post for a good service, search on the Internet, or visit your local dollar store before leaving the U.S.

Internet Calling

Known as “voice over Internet protocol” (VOIP), this service allows you receive phone calls through a broadband Internet connection rather than over a telephone line. It requires a computer with speakers, a microphone, and high-speed Internet. Many companies offer the option of choosing your phone number, giving you a local DC or Virginia area code, for instance, even while overseas. International calls may be very inexpensive or even free. On the down side, you will have no service during power outages, and the quality of the calls may vary at times.

MOBILE PHONES

You are used to being constantly connected. What happens to your mobile phone now that you’re headed overseas?

Most countries in the world operate on a standard called GSM (Global Services for Mobile). In 2006 the U.S. companies T-Mobile and Cingular/AT&T offer GSM service, while other U.S. companies do not (this is, of course, subject to rapid change). Japan and South Korea also do not offer GSM service.

GSM uses a variety of frequencies, similar to tuning in radio stations at different numbers. In the U.S. the frequency 1900 MHz dominates for cell phones, with some areas using 850 MHz. Overseas, 900 MHz is the most common, with 1800 a second common band. The GSM Association offers a country-by-country list of GSM wireless providers and the frequencies they use: www.gsmworld.com.

If you want one phone that will work almost anywhere, buy a quad-band GSM phone (able to operate on 850, 900, 1800 and 1900 MHz). A tri-band GSM phone (operating on 900, 1800, and 1900 MHz) will prove almost as useful.

Wireless companies in the U.S. “lock” most telephones so that the phones can only access the services of that company. GSM phones can be “unlocked” to use any company. Most companies will unlock phones upon customer request, sometimes requiring a 90-day waiting period or proof that you have an overseas assignment. If you encounter a salesperson who does not understand this concept, ask to speak to someone else. If the wireless provider will not cooperate, you can pay a separate company to unlock your phone (search the Internet for providers). Finally, you can purchase unlocked phones, although they tend to cost more.

Once you have an unlocked GSM phone able to operate on the frequency of the service where you will be living, you need phone service. GSM telephones have a removable computer chip, known as a SIM (Subscriber Information Module) card. This contains your account information, phone number, and information you add, such as your personal phone directory. In an unlocked phone, you can change the SIM card. (You can also use your SIM card in a different unlocked phone). This means that you can buy a new SIM card overseas—or purchase one in advance that will operate in that country—and continue to use the same phone. Ask at post whether you should wait to buy a SIM card until you arrive or pre-purchase one.

If you find yourself enjoying your overseas location by traveling to many different countries, you can also purchase a global roaming SIM card that offers service in a variety of countries (such as Mobal, Riiing, or HopAbroad). Many of these offer free incoming calls. Search the Internet for updated options.

Be sure to check local laws related to mobile phones. Some countries have banned cell phone use while driving, enforcing laws with fines or even prison time. Find out before you dial.

RESOURCES

“Electric Current Abroad”

www.ita.doc.gov, click on “Publications,” click on “Electric Current Abroad.”

The International Trade Administration offers this 30-page document for free online in PDF format or as a printed publication for a small fee. The publication lists types of electricity and plugs for over 150 countries, with helpful illustrations.

Regulations on use of State Department telephone services

5 FAM 520 and 5 FAH-2 H-640

<http://foia.state.gov/REGS/Search.asp>

U.S. Federal Communications Commission information on call-back services

<http://www.fcc.gov/ib/pd/pf/call-back.html>

GSM wireless providers

www.gsmworld.com

“International Cell Phone Service” (seven-part article with helpful links):

<http://www.thetravelinsider.info/2002/0308.htm>

List of countries banning cell phone use while driving

http://www.cellular-news.com/car_bans/

Foreign Service Institute Transition Center

(M/FSI/TC)

George P. Shultz National Foreign Affairs Training Center (SA-42)

Department of State

Washington, DC 20522-4202

Physical location: 4000 Arlington Blvd., Arlington, VA (do not send mail to this address)

Internet: <http://www.state.gov/m/fsi/tc/>

Intranet: <http://fsi.state.gov/fsi/tc/>

Directions, maps, parking and other information

<http://www.state.gov/m/fsi/tc/c16687.htm>

Overseas Briefing Center (M/FSI/TC/OBC)

Room E2126

Tel: (703) 302-7277

Fax: (703) 302-7452

E-mail: FSIOBCInfoCenter@state.gov

Intranet Post Info To Go:

<http://fsi.state.gov/fsi/tc/epb/epb.asp>

Transition Center Training Division (M/FSI/TC/T)

Foreign Service Life Skills Training

Tel: (703) 302-7268

E-mail: FSITCTraining@state.gov

Related Transition Center Training

A Safe Home Overseas (MQ 916)

<http://www.state.gov/m/fsi/tc/c6950.htm>