

Protection From EMP

*There's no need to go back to the Stone Age
if nuclear war occurs...*

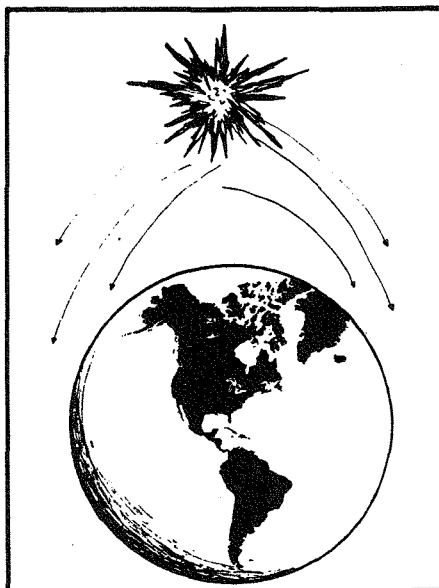
By Duncan Long

EMP. The letters spell burnt out electrical systems and a return to the Dark Ages to many survivalists. But it doesn't need to be that way. Once you understand EMP, you can take a few simple precautions to protect yourself and equipment from it. In fact, you can enjoy much of the "high tech" life style you've become accustomed to — even after a nuclear war.

EMP (Electromagnetic Pulse), also sometimes known as "NEMP" (Nuclear Electromagnetic Pulse), was kept secret from the public for a long time and was first discovered more or less by accident when U.S. military tests of nuclear weapons started knocking out phone banks and other equipment miles from ground zero.

While EMP is no longer "top secret," information about it is a little sketchy and often confusing. Adding to the problems is the fact that its effects are hard to predict; even electronics designers have to test their equipment in powerful EMP simulators before they can be sure it is really capable of withstanding the effect.

EMP occurs with all nuclear explosions. With smaller explosions the effects are less pronounced. Nuclear bursts close to the ground are dampened by the earth so that EMP effects are more or less confined to the region of the blast and heat wave. But EMP becomes more pronounced and wide spread as the size and altitude of a nuclear blast is increased. Of these two, altitude is the quickest way to produce greater EMP effects. As a nuclear device is exploded higher up, the



A nuclear explosion in space would release gamma radiation which would react with the upper layer of the earth's atmosphere to create EMP that would blanket the whole continental U.S. and much of Canada.

earth soaks up fewer of the free electrons produced before they can travel some distance.

The most "enhanced" EMP effects would occur if a nuclear weapon were exploded in space, outside the Earth's atmosphere. In such a case, the gamma radiation released during the flash cycle of the weapon would react with the upper layer of the earth's atmosphere and strip electrons free from the air molecules, producing electromagnetic radiation similar to broad-band radio waves (10 kHz-100 MHz) in the process. These electrons would follow the earth's magnetic field and quickly circle toward the ground where they would be finally dampened. (To add to the confusion, we now have two more

EMP terms: "Surface EMP" or "SEMP" which refers to ground bursts with limited-range effects and "High-altitude EMP" or "HEMP" which is the term used for a nuclear detonation creating large amounts of EMP).

Tactically, a space-based nuclear attack has a lot going for it; the magnetic field of the earth tends to spread out EMP so much that just one 20-megaton bomb exploded at an altitude of 200 miles could, in theory, blanket the continental U.S. with the effects of EMP.

It's believed that the electrical surge of the EMP from such an explosion would be strong enough to knock out much of the civilian electrical equipment over the whole country. Certainly this is a lot of "bang for the buck" and it would be foolish to think that a nuclear attack would be launched without taking advantage of the confusion of high-altitude explosion could create. Ditto with its use by terrorists should the technology to get such payloads into space become readily available to smaller countries and groups.

But there's no need for you to go back to the Stone Age if a nuclear war occurs. It is possible to avoid much of the EMP damage that could be done to electrical equipment with just a few, simple precautions.

First of all, it's necessary to get rid of a few erroneous facts, however.

One mistaken idea is that EMP is like a powerful bolt of lightning. While the two are alike in their end results — burning out electrical equipment with intense electronic surges — EMP

