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\[_____[_       \                                    /
\[       The Chrome Box         [_      A Portable Self-Contained Device
\[          14-JUN-88           [_     /   to Manipulate Traffic Signals \
\[    Outlaw Telecommandos      [_      /        by Remote Control           \
\[       Modem Free Earth       [_       /                         \
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    Emergency vehicles in many cities are now using devices called OptoComs.
OptoComs are a system of sensors on traffic lights that detect a pattern
of flashes from vehicle-mounted strobe lights.

    This flash pattern varies from city to city depending on the manufacturer
of the equipment used.   Often the sensors are installed only at major
intersections.   Nevertheless, the Chrome Box, which simulates these strobe
patterns can often be used to give your car the same priority as an
ambulance, paramedic van, firetruck or police car.

    Because of the varying patterns on different systems this phile will
outline a general procedure for making the Chrome Box.

Decoding Flash Patterns:

 First, you need to observe an emergency vehicle in action.   You can wait
until you encounter one by chance, running out to see when you hear a siren,
or when you pull over in your car to let one pass by. You might wait
near a fire station for the next emergency to occur.   Or, if you are very
impatient, you can summon one by calling in a false alarm (not recommended in
areas with limited services - that could divert attention from a real
emergency).   If the OptoComs in your area are the kind with a pattern of single
flashes at a steady rhythm, you have merely to buy a strobe light at Radio Shack
& adjust the flash rate until you can induce a traffic light to change.

 If the flash pattern is more complex, you can videotape the emergency vehicle &
then play back the tape in single-frame mode, counting the number of frames
between each flash. Each video frame is 1/30 of a second, using this you can
calculate the time between flashes in the pattern.   Another way is to count the
number of flashes (or flash-groups) in one minute and use that to compute the
rate. Counting video frames will give you a good idea of the spacing of the
flashes in a complex pattern.   For really accurate information, call the fire
station & ask them, or write to the manufacturer for a service manual, which
will include a schematic diagram that you can use to build one. A good cover
story for this is that you are a consultant & one of your clients asked you to
evaluate Optocom systems, or you could pose as a free-lance journalist writing
an article.

Modifying the Strobe Light:

 You may not have to modify the strobe at all. But if you need a faster
flash rate than your strobe allows, open it up & find the large capacitor
inside. Capacitors are marked in microfarads, abbreviated as mf,mfd or ufd.
By replacing the capacitor with one of the same voltage-rating (usually
250 volts or more) and a SMALLER value in microfarads, you can increase the
flash rate. Halving the microfarads doubles the rate.
 The other component that can be changed is the potentiometer (the speed
control device with the knob on it). Using a smaller value (measured in
ohms or Kilohms, abbrevaited with the greek letter 'omega' or the letter K)
will speed up the strobe. There may also be a resistor (small cylinder with
several colored stripes on it, and wires coming out of each end). Replacing
this resistor with one of smaller value will also speed up the strobe.

 To generate a complex pattern, you will either have to design and build a
triggering circuit using IC chips, or rig up a mechanical device with a
multiple-contact rotary switch and a motor.   It HAS been done.

 To modify the strobe for mobile operation the simplest thing is to get a
110-volt inverter that will run off of a car battery by plugging into the
cigarette lighter & run the strobe from that.   Or, you can figure out (or find
in a hobby electronics magazine) a strobe circuit that will run from batteries.
Battery-powered strobes may also be availble, either assembled or as kits.

Stealth Technology:

 Most light sensors and photocells are more sensitive in the infrared area of
the light spectrum. Infrared (IR) is invisible to the human eye. Putting an
infrared filter over the strobe light may allow the Chrome Box to operate in
traffic undetected by police or other observers. IR filters can be obtained from
military surplus sniperscope illuminators, or from optical supply houses like
Dow-Corning or Edmunds Scientific Co.

Using the Chrome Box:

 Mounted on your car, the Chrome Box can guarantee you green lights at major
intersections in cities that have OptoComs. Handheld Chrome Boxes may be used to
create gridlock by interfering with the normal flow of traffic.   If you have
access to a window overlooking a traffic light, you can play pranks by switching
the signals at inappropriate moments, or you can plug the strobe into an exposed
outlet at a laundromat or gas station.

Some Decoded Patterns:

Torrance, California
     Standard large Radio Shack strobe lights are used. Moderately fast rate.
     *   *   *   *   *   *   *   *

Manhattan Beach,CA
     Flash-pairs in a 4:1 ratio, at a rate of 2 flash-pairs per second.
     * *   * *   * *   * *

     <------ 1 sec ----->

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* Please add any new patterns or info you discover to this Phile *
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Thanks to those who posted observations on the South Bay WWIV's.