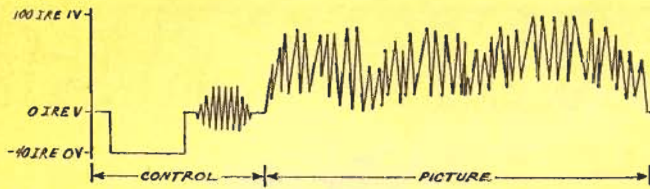
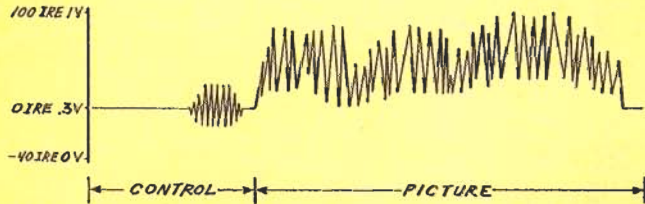


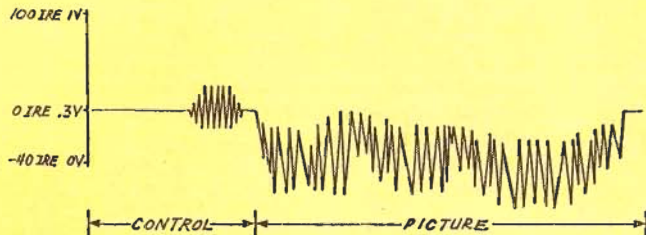
UNSCRAMBLING



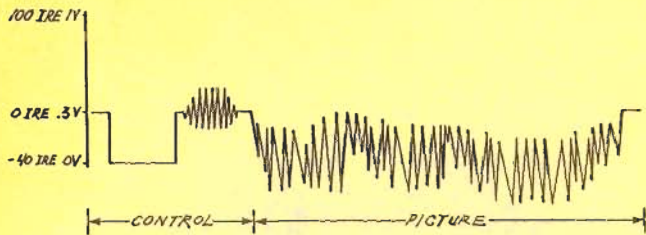
Typical line of video. Most of the line is devoted to the picture area, but it's the control area that we're interested in.



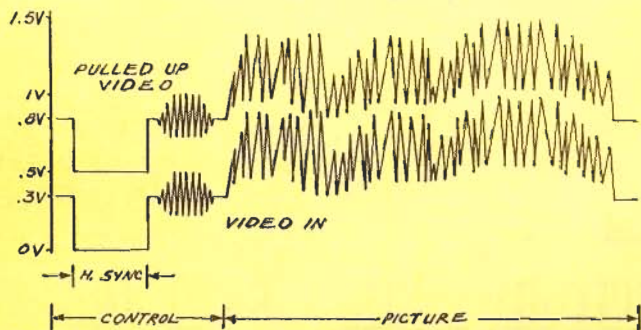
The SSAVI system can deliver video with suppressed horizontal sync and normal video.



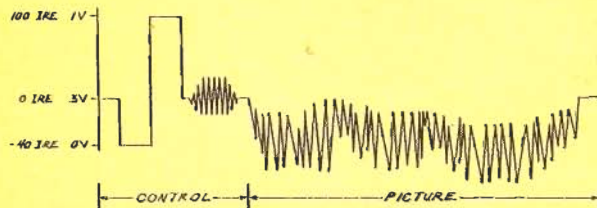
Suppressed horizontal sync and inverted video is also possible with the SSAVI system.



Here's what normal sync and suppressed video look like.



A video signal is normally 1-volt peak-to-peak, but after buffering, the relative voltage level of the signal is raised by 0.5 volts. Then, the only part of the pulled-up signal that falls below the TTL threshold of 0.8 volts is the horizontal sync signal.



This video waveform shows one variation on the SSAVI system. A change has been made to the 4.7-microsecond position normally occupied by the horizontal sync signal.

DESCRAMBLING

A
GERNSBACK
PUBLICATION

By Robert Grossblatt

UNSCRAMBLING DESCRAMBLING

By Robert Grossblatt

I've been getting lots and lots of mail about video in general and scrambled video in particular. For some reason a lot of you really get enraged because some cable companies insist on scrambling certain premium channels. Before we go any further on this, let me tell you that I don't see anything wrong with it. Now, wait a minute—before you write me off as a stooge of the cable industry, let me finish.

The cable companies have every right to scramble whatever they want, although the rumors that some companies are scrambling everything they transmit—including the standard VHF channels—is going much, much too far. Premium stations and the pay-per-view shows are okay to scramble. What's not okay are some of the regulations that a lot of the cable companies insist are their God-given right to impose on you.

To begin with, hitting you with an extra fee for putting in another outlet is ridiculous. Some years ago the phone company did the same thing—anyone who added an extension phone on his own was risking life imprisonment or, even worse, being regarded as a not-nice person in the eyes of Ma Bell. That all went out the window years ago, and I think it's only a matter of time before the same thing happens in the cable-TV business. And, as far as I am concerned, the sooner the better.

The most annoying part of the cable system is the whole business of sending me scrambled signals, and then telling me I can't do anything with them! As I said, if the cable companies don't want me to get a particular channel (because I'm not paying for it, or some other perfectly legitimate reason), then don't send it to me. Trap it out of the line before

the cable comes into my home. The additional cost of the traps has to be offset by the reduced cost of the cable box needed for the system, and the cost of installation should be the same because anyone with an opposable thumb and finger can put a trap on the line.

I agree that the signal coming into my home is the property of the cable company but, and this is important, at a certain time the real ownership of the signal becomes less clear. When the RF has been reduced to baseband video and has spent lots of milliseconds running around the inside of my TV set, I think things are a bit different and the cable companies' original claim of ownership is a lot weaker. And if I worked out a way to record scrambled signals and then descrambled them on playback, what then?

If I built a box that scrambled some of the channels currently sent to me in the clear, the cable company would look at me in a funny way, but I really doubt they'd care one way or the other.

Now that you know how I feel about this stuff, I'd like to show you how to descramble signals, but I



About Bob Grossblatt

Bob Grossblatt was raised in New York City and received a BS in Electrical Engineering from Rutgers University in the era of the sliderule. Although he planned on a career at IBM, he began working as an independent consultant shortly after graduating from college and has been doing that ever since. Most of his work in the electronics field has been in the conception and development of prototype devices for clients ranging from AT&T to NASA.

His career in electronics was interrupted at times by work in the movie business. He began writing about fifteen years ago and, in addition to the writing he has done for ELECTRONICS NOW, has also written several electronics books for Tab Books. Currently, his time is divided between circuit design, writing, and restoring old cars.

