SCA ERRORS

In the article, "Build This SCA Receiver," in the August 1987 issue of **Radio-Electronics**, the Parts List has R42 at 22K and R37 and R38 at 10K. The schematic has R42 at 4.7K and doesn't show R37 and R38 at all. They appear to be in series with pin 13 of IC1. The Parts List also says that C27 is not used, while the schematic shows that it is in the line between Q2 and Q6.

G. L. McDONALD
Auburn, WA

Resistors R37 and R38 are 10K units; as you surmised, those are the unmarked resistors at pin 13 of IC1. Resistor R42 is 4.7K, as shown in the schematic; the Parts List is incorrect. Also, capacitor C27 is a 0.01-µF ceramic disc as shown in the schematic.

In addition, a ground symbol is missing in the schematic; it should be added at the junction of R23, R25, and C21.

Finally, if you have trouble finding the National LM3189N used for IC1, an RCA CA3189E or CA3089E can be used in its place; the latter one should be the easiest to find.
—Rudolf Graf and William Sheets

MORE ON SCA

I enjoyed "Build this SCA Receiver"in the August 1987 issue very much. I want to use the unit to receive data for input into my computer, as mentioned on page 41. Some of those transmissions are at 19.2 kilobaud, so the SCA audio bandwidth must be high enough to not distort the transmission waveform.

The article states,"SCA is not a high fidelity service; its audio-response bandwidth is limited to about 5000 Hz." Is that an FCC limitation, or an arbitrary one to eliminate noise? I'm concerned that the 12-dB-per-octave low-pass filter on the output of the LM565 (R56/C45-R57/C46) will cause waveform distortion of any digital-data transmission.

If there is an FCC restriction, the bandwidth will be limited at the transmitter, and I don't have to worry. I do want to receive the signal exactly as transmitted, however.

What is the FCC bandwidth restriction on SCA transmissions? And what component value changes, if any, are necessary to receive digital-data exactly as transmitted, without waveform distortion caused by a restricted bandwidth?

I believe the authors were wrong in their statement: "The signals are FM with ± 7.5 kHz deviation *maximum*." According to the FCC's December 1984 amendment, section 73.319 (d)(2), for stereo FM plus an SCA and nothing else (the most common SCA situation) the following applies:

"During stereophonic program transmissions, modulation of the carrier by the arithmetic sum of all subcarriers may not exceed 20% referenced to 75 kHz modulation deviation..."

The maximum used to be 10 % (7.7 kHz) but now it's 20 percent (15 kHz)—and 30 percent for monaural and SCA-only transmissions. That error brings up a possible design error in the SCA receiver's circuit. If the designer's thought the maximum allowable deviation was noticeably less than what actually might be encountered, might the circuit distort more than it was designed for when it gets a true max-

imum signal? The output of LM565 and 2N3565 are the two possible overload points. What deviation was the circuit designed for, and what component changes are necessary for the true maximum possible SCA signal levels? Also, do you know where I could get a list of stations with SCA digital data transmissions?

I look forward to using the SCA receiver.
PETER SKYE
Glendale, CA

We were not aware of the change in the FCC rule when we wrote the article. Our object was to receive SCA music and speech transmission. The 565 PLL will lock and follow any signal up to ±60% of the design frequency depending on external components. We refer you to National Semiconductor's LM565 data sheets for more details.

The circuit was designed to handle the ±10% deviation (7.5 kHz). It does better than that on the bench, but we can not guarantee

that you, too, will receive better performance.

If you find that the lowpass filter distorts the waveform, you can try removing it. However, you may find that that results in unacceptable noise levels. In that event, try experimenting with smaller levels of filtering.—Rudolf Graf and William Sheets

COMPUTER FLEA MARKET

There will be 80 sellers of hardware, software, printers, disk drives, supplies, books, and more at the Computer & Hi-Tech Flea Market on Saturday, November 21, 1987. It will be held at the Veterans Memorial Building, 4117 Overland Avenue, Culver City, CA from 10 AM to 5 PM. There will be ample free parking, and the admission charge is $2.00.

For those wishing to set up and sell at the fair, information can be obtained by calling (213) 276-1577.
MICHAEL J. FLAHERTY
303 North La Peer Drive
Beverly Hills, CA 90211