by Don Stoner,
SIDEBAND EDITOR

One of the first letters no matter how "clean" the in-

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sideband is, of course, the sideband you are not using at the time. This means that the strength of the energy in the opposite sideband should be 12 watts PEP, divided by 10, divided by 10, divided by 10, divided by 10. That's not much power, but remember what we said earlier. If the station is close enough,

"... The unwanted sideband is usually suppressed by ... a crystal filter ....."

even a tiny amount of signal power can "cream" your reception.

The unwanted sideband is usually suppressed by a tin box inside your radio called a crystal filter. By the time the signal leaves this filter, the opposite sideband may be suppressed by as much as 90 db or more. That kind of power is measured in nanowatts (which is less than microwatts and milliwatts), but, unfortunately, it is not possible to maintain this high degree of suppression. If there is distortion anywhere in the transmitter following the crystal filter (and there always is), this distortion is called non-linearity and it tends to reinsert energy in the area where we took such pains to suppress the sideband. I've heard some signals that had less than 10 db of sideband suppression. In one case, a "technician" had been plowing around inside the transceiver, trying to "soup it up". All he did was slop it up!

How do you tell if your rig, or the station you are listening to, is clean? Let's start with a listening test. Tune in an SSB station that seems to have good audio quality. Note how high the S-meter bounces as the person talks. Then flip to the opposite sideband and see what the meter does. Keep in mind that S-meters are not at all accurate and simply provide a reference and an approximation of the signal strength in decibels.

If the station you are listening to kicks up to S9 on the sideband in use, the meter should barely "twitch" (S3 or so) when you switch to the opposite sideband. If the station is 40 over S9 (that's 40 decibels, one heckova good signal), the meter should drop to S9 when you switch over to the other sideband. An S9 signal can cause a lot of interference!

Try this test with a number of stations. You'll soon discover a vast difference in the suppression of various stations. After you get to learn the vagaries of your S-meter, it will be obvious who has good suppression and who does not. When someone asks you for an audio quality report, listen to more than his voice. Check his unwanted sideband suppression and give him your subjective opinion compared to other stations you have heard. The greater the ratio of meter readings (between the sideband is use and the opposite sideband), the better the suppression. You can correctly assume the stations with the high ratios of wanted to unwanted are clean and likely to exceed 40 db of suppression.

Arrange a test with one of these "clean" stations to check your suppression. Transmit to the station and have him note his meter reading. Then, while you are talking, switch sidebands on your rig and have the test station note the drop in reading. Repeat the experiment with you transmitting on one sideband while he switches back and forth between sidebands. The drop in meter reading should be similar either way. If not, his receiver may be out of kilter. From the meter readings he sends back to you, you should be able to get a good indication of how your rig compares with others in terms of sideband suppression.

Another reason for the apparent incompatability of simultaneous USB and LSB operation is the use of the clarifier. Figure 1 shows a chart of how the two sidebands are arranged with respect to center slot. However, note that many clarifiers are capable of adjusting both transmit and receive frequency. Thus, it is possible to move the upper sideband down into the region of the lower sideband and visa versa. Thomas Pescha, KGX7098, has published

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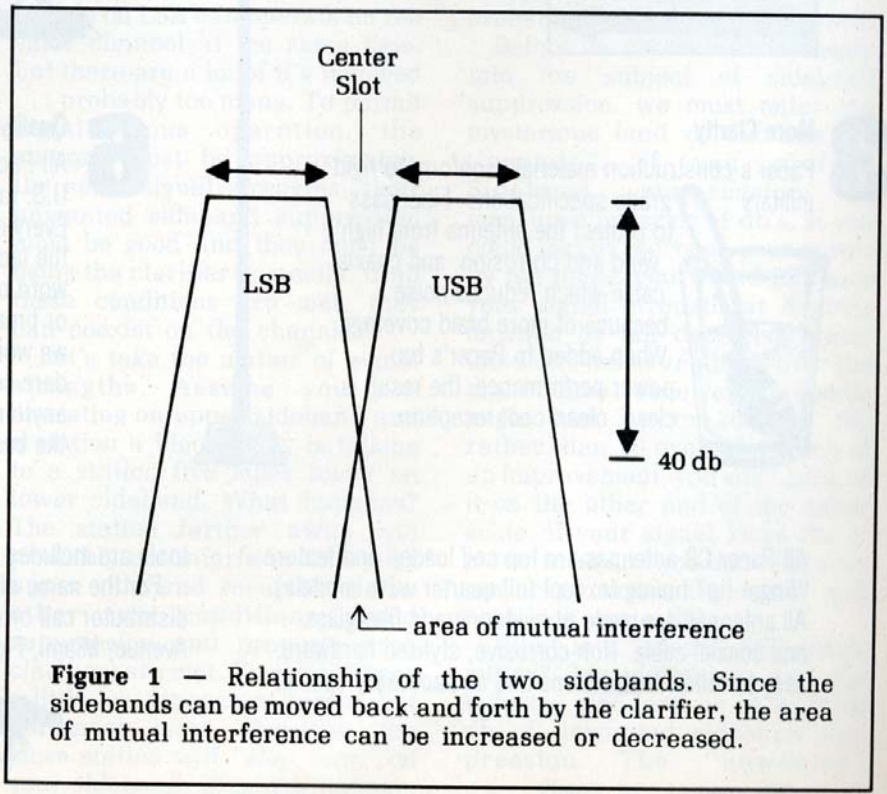

Figure 1 — Relationship of the two sidebands. Since the sidebands can be moved back and forth by the clarifier, the area of mutual interference can be increased or decreased.

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an excellent booklet called "SSB - Silly Sideband or Sensible Sideband - It's Up To You". It explains single sideband to newcomers in his area. You can probably "scrounge" a copy by dropping a green stamp and self addressed, stamped envelope to Tom at P.O. Box 13, E. Claridon, Ohio, 44033. Regarding the use of the clarifier, Tom says, "the clarifier changes your frequency. You turn the dial until the station you are talking to sounds clear. Now comes the hard part, where to set your clarifier. This depends on whether you are on upper sideband (USB) or lower sideband (LSB). To avoid splatter from one sideband to the other depends very much on where your clarifier is placed. Think of the marks of the clarifier as the face of a clock. When on USB, place your clarifier between 12 o'clock and 5 o'clock (see Figure 2). When on LSB, place your clarifier between 12 o'clock and 7 o'clock. This is assuming that 12 o'clock is exactly center slot for Channel 16 (26.155 mHz).

The reason for this is that the center of the USB channel is 1.4 kHz above 26.155 and the center of the LSB channel is 1.4 kHz below 27.155. By moving your clarifier clockwise, you increase your frequency (ed. note — may not be true on all radios — check yours) and counter clockwise will decrease your frequency. So when on USB, you would not want to decrease your frequency because you would be moving too close to the LSB. Then, people on LSB will hear you while you are on USB. And the opposite is true when on LSB. When on **L**ower sideband, keep **L**eft of 12 o'clock. Remember the two **L**'s." CB

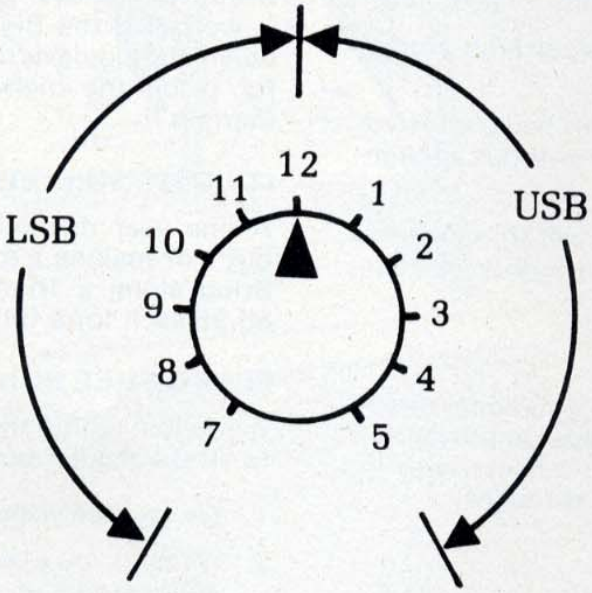

Figure 2 — Clarifier knob illustrating the two L's principal. The numbers shown refer to a clock and not panel markings on an SSB.