

NEW PRODUCT RELEASE

"LTD KIT BY CARD KIT"

We are aware of the problems you are having with the "B" Kit. We too find that often after splitting the 1st IF between 10.695 Mhz and 9.785 Mhz we could not satisfactorily boost the receiver on some types of units to maintain the desired receiver gain. So, we set out to correct this problem. We ended up with more than expected.

There has never before been a kit so versatile in usage for the 77 type chips as the LTD KIT. Although it is versatile in usage, at present it is limited to the UNIDEN boards which use a separate VCO circuit and FETs for mixing. Still this covers approximately 70% of all straight AM Units sold in the United States during the past 5 years.

This is how the kit works and the theory behind it. Starting with the VCO or Local Oscillator (L O) frequency as it exist. The signal will vary from 16.270Mhz thru 16.710Mhz as the selector is rotated from channel 1 thru 40. This signal beats with the incoming RF to give a 1st IF of 10.695Mhz for the desired channel frequency. For instance- Channel 26 (27.265Mhz) requires a Local Oscillator frequency of 16.570Mhz. The difference being 10.695Mhz. This 10.695Mhz 1st IF is then beat with 10.24Mhz to give a 2nd IF of 455Khz.

If we take this 16.570 (LO for ch 26) and beat it with 20.935 Mhz, and take the sum of the two, we will have 37.505 Mhz. If we use this frequency as our LO frequency, it will beat with 26.810 Mhz to give a 10.695Mhz difference. This makes the selectable frequencies 26.510 thru 26.950Mhz. These are called LOW HALF CHANNELS.

To transmit these same frequencies, all we have to do is prevent the PLL Chip from shifting up 455Khz during transmit.

NOTE

If we use the modification in this manner we have an extra bonus.

If we put the switching for the LO frequencies through one switch and the 455Khz switching through an other we can split the receiver and transmitter. That is, if we disable the PTT signal (455Khz shifting signal) but, yet keep the 16Mhz VCO frequency as our LO frequency we will transmit on LOW HALF channels while our receiver is still receiving regular channels. If we reverse this condition and keep the PTT signal operational and use the 37Mhz as our LO frequency, we would transmit on regular channels while receiving LOW HALF channels. If anything approaches PRIVATE CHANNELS within the usable range of a CB, this is it!

USING THE KIT FOR LOW FULL CHANNELS

If we use the same 5K OFFSET procedure as used with the "A" and "B" KITS, it will put us on full channel frequencies for

"LTD KIT" by CARD KIT continued:

transmit but we will be off on receive. So we must retune the Epoxy Pack. For instance on channel 26, we will need to change the New LO frequency from 37.505Mhz to 37.5117Mhz. Half of this will be accomplished by offsetting of the 10.24 Xtal and the rest by tuning the Epoxy Pack Xtal frequency from 20.935Mhz to 20.9383 Mhz. As you can see, on the Epoxy Pack we have used a direct frequency Xtal of 20.9366Mhz. The two frequencies desired are on either side of this frequency and within the stable range of the Xtal.

On FULL LOW Channels we now have (on ch 26) a LO frequency of 37.5117Mhz. This beats with 26.815Mhz giving a 1st IF of 10.6967 but, remember the 10.24Mhz has now been changed to 10.2417. Now 10.2417 beat with 10.6967 produces the desired 2nd IF of 455Khz.

After we found a low kit that satisfied our need, we started looking for a HIGH KIT that would be compatible. Just as the "B" KIT was designed to be compatible with the "A" KIT. To our surprise, it turned out that the NEW LTD KIT was its own compatible high kit. That is, if we lock the PLL Chip in its normal transmit position the LO frequency would be 16.725 thru 17.165Mhz. Which gives us a 10.695 1st IF from frequencies 27.420 thru 27.860Mhz (ch 41½ thru 85½).

This same change in the VCO when combined with the 20.935Mhz would generate frequencies 37.660 thru 38.100Mhz. If we replace the VCO input to the TA7310P Chip used to generate the transmitter frequency with this 37Mhz signal, we found that it would select the difference between the 37Mhz signal and the 10.24Mhz input just as well as it selected the sum of the 16Mhz and the 10.24Mhz inputs. This gives us transmitter frequencies of 27.420 thru 27.860 or HIGH HALF Channels.

USING THE KIT FOR HIGH FULL CHANNELS

Again if we use the already established method for 5K offset, the receiver would be shifted automatically. The VCO output would be 16.7283Mhz thru 17.1683Mhz. This would produce a 1st IF again of 10.6967Mhz. Like before, when beat with 10.2417Mhz (offset 10.24 Xtal frequency) would give the desired 455Khz 2nd IF.

Like before the oscillator on the Epoxy Pack would have to be retuned. Using Ch 26 again, the output of the 37Mhz Amp. would be set to read 37.9667Mhz.

Since the 5K offset and the adjustment of the VC on the Epoxy Pack both effect the frequency of the transmitter. Proper adjustment of the 5K requires that it be measured independantly. This can be accomplished by adjusting the 5K offset VC while observing the VCO output at TP-3 (the input to the 1st IF Mixer FET). While on Ch 26 and switched to HIGH FULL Channels adjust for a reading of 17.0283 Mhz. Then adjust the VC on the Epoxy Pack for a transmitter reading of 27.725Mhz.

By now you might have observed that on both LOW FULL Channels and on HIGH FULL Channels, the oscillator on the Epoxy Pack is set to the same frequency (20.9383). Also, on LOW HALF Channels

"LTD KIT" by CARD KIT continued:

and HIGH HALF Channels it is set to the same frequency (20.935). If you have observed this then you've probably guessed that this kit can be used as a LOW and HIGH FULL Channel kit, or a LOW and HIGH HALF Channel kit. Now you see the versatility of this kit as mentioned earlier. All that is needed is a four pole-three position switch for LOW & HIGH HALF Channels or a five pole-three position switch for LOW & HIGH FULL Channels.

Since this kit is so versatile and the switches to be used depend on the user's own desire, it was decided that switches will not be made a part of the kit. The switches you desire for your application will be made available by SELMAN ENTERPRISES or CARD KIT.

Since the detailed installation instructions are so long and varried, packaging a complete set with each kit sold would make the price too high. Any repeated user of the kit would only be paying for printing that he would be discarding anyway. To cut waste and save on your cost per unit, CARD-KIT through SELMAN ENTERPRISES devised a method of providing these instructions on a one time bases by printing them in this volume of SECRET CB.

Below you will find a Proof of Purchase coupon. Use it and the \$2 discount coupon from a kit to obtain a \$2 discount on your next order from SELMAN ENTERPRISES. If a person should purchase a kit and has not yet bought a Volume 25 of SECRET CB, then the kit will instruct him to mail the coupon for a \$2 discount on a Volume 25. In this case the Proof of Purchase coupon will be voided before the Volume 25 is mailed.

While we are on the subject of making the kit economically affordable, there is one other thing we did to cut waste and reduce its size. The TA7310P Chip which we used to combine the 20.935 or 20.9383Mhz signal with the VCO frequency requires a regulated voltage of 4 to 8 VDC. It was not feasible to supply the Epoxy Pack with 13.8VDC and regulate it, especially since we have a regulated already available in the CB used as vdd or timing circuit voltage. When it came to the final amplifier we needed 13.8VDC. Since most of you will want to use the NB switch for one of the switches and the circuit would therefore be completely disabled, we decided to convert the amplifier section of the NB circuit to accomplish this task. All that is needed is a 37Mhz tank, which is included as part of the kit. The instructions as outlined in this volume are written around using the NB amplifier as the final amplifier for the NEW LO Frequency. For those who do not wish to use this amplifier a 37Mhz amplifier can be purchased from SELMAN ENTERPRISES or CARD KIT. These amplifiers will be available after 1 September 1986. Approx. cost of \$5.95.

A CLOSING NOTE

The "A" & "B" KITS are still available for those wishing to use them. Of course they are still recommended for the units that are not as tight on their 1st IF.

'THE ABOVE & PREVIOUS TWO PAGES OF INFORMATION IS PROVIDED FOR TECHNICAL INFORMATION ONLY -- ALL RIGHTS RESERVED BY CARD-KIT ELECTRONICS.'