

# CB to 10

## —part XIII: the Lafayette Telsat SSB-75

This rig makes a very versatile all-mode mobile transceiver when converted to 10 meters. The price has come down remarkably from its original offering. Its basic specifications are: 23 channels, all modes (USB, LSB, AM), minimum 12 W PEP output, an i-f crystal filter, and  $\pm 600$ -Hz fine-tune capability. The rig has 10

crystals, which are divided into two groups for frequency synthesis: a group of six crystals in the 24-MHz range with 50-kHz spacing, and a group of 4 crystals from 14.910 MHz to 14.950 MHz. After checking the block diagrams for the different modes, I decided to replace the 24-MHz crystals. Also, the 14.950-MHz

crystal should be replaced by a 14.940-MHz crystal in order to get even 10-kHz spacing from channel to channel (originally 10-10-20-10 kHz). Every crystal of the first group yields four channels on 10 meters.

The formula  $f_x = f_{op} + 11.275 \text{ MHz} - 14.910 \text{ MHz}$ , where  $f_{op}$  = required operating frequency in MHz, gives the frequency for the crystals in the 24-MHz range. Remember: Each of these crystals gives four operating frequencies.

Example: The frequency 28.500 MHz shall be on channel one. Which crystal is necessary?  $f_x = 28.500 \text{ MHz} + 11.275 \text{ MHz} - 14.910 \text{ MHz} = 24.865 \text{ MHz}$ . This crystal replaces X205 as shown in the parts location diagram, Fig. 1. This crystal is in action from channel 1 to 4 on the selector switch. X206 responds to channels 5-8; X207 to channels 9-12; X208 to 13-16; X209 to 17-20; and X210 supplies 21, 22, no operation, and 23.

If you want all 23 channels in an uninterrupted order, all you do is add 40 kHz to the previous crystal's frequency.

Example: For 28.500 to 28.730-MHz coverage, you'll need:

X205: 24.865 MHz  
X206: 24.905 MHz  
X207: 24.945 MHz  
X208: 24.985 MHz  
X209: 25.025 MHz  
X210: 25.065 MHz

No operation is possible on 28.720 MHz (between channel 22 and 23) because of the switching arrangement.

If you want to listen occasionally to OSCAR 7, just use a 25.835-MHz crystal for X210. Thus, channel 23 receives the 29.502-MHz beacon, and channels 21 and 22 receive 29.480 MHz and 29.470 MHz, respectively, in the CW subband.

If you prefer the 73 Magazine band plan (channel 1 at 28.965 MHz), you need to replace only the following crystals:

X205: 25.330 MHz  
X206: 25.380 MHz  
X207: 25.430 MHz  
X208: 25.480 MHz  
X209: 25.530 MHz  
X210: 25.580 MHz

Crystal X204 remains unchanged, so delete step 1 in the following instructions. This set of crystals gives you the first 23 channels of the 73 band plan.

Some portions of the transceiver must be realigned, but the only components that must be changed are the crystals. A satisfactory alignment can

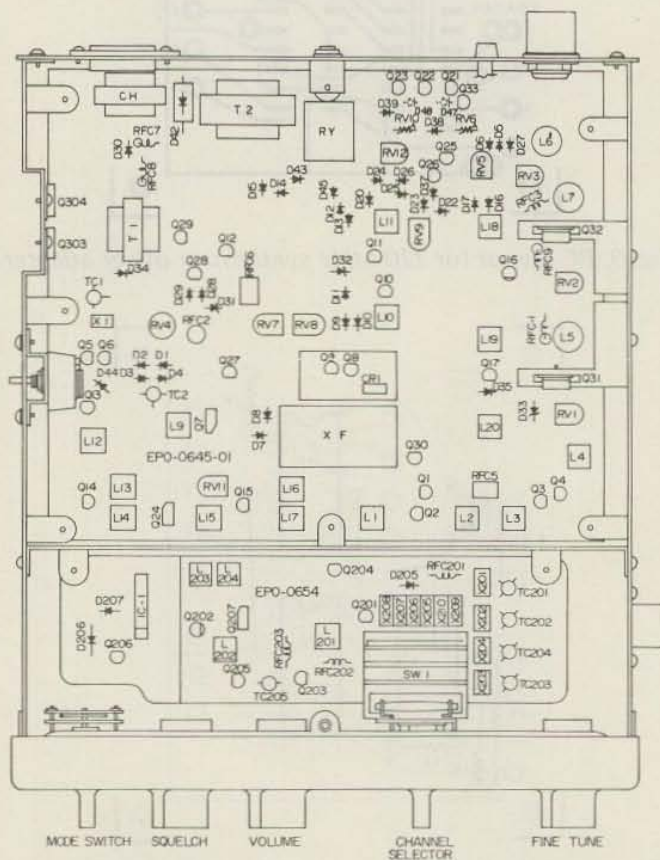


Fig. 1. Telsat SSB-75 parts location diagram.



be achieved using only a wattmeter and a 10 meter transceiver. You should have no problems if you follow these instructions.

1. Replace X204 with 14.940-MHz crystal.
2. Replace X205 through X210 as required.
3. Set mode switch to USB.
4. Plug in the microphone and turn the rig on. Turn the squelch fully counterclockwise.
5. Connect a 10 meter antenna through the wattmeter.
6. Provide a strong signal on one of the planned operating frequencies.
7. If you hear the signal already, rotate L201 clockwise until the signal disappears, and then counterclockwise until the signal returns. Continue one-half turn counterclockwise past the point of return of the signal. Go to step 9 if you were able to complete this step. If not, continue with step 8.

8. If you don't hear the signal, rotate L201 counterclockwise until you hear it, or check the frequency and strength of your reference signal. Go back to step 7.
9. Reduce the 10 meter reference signal amplitude until you barely hear it.
10. Adjust L202, L203, and L204 for best reception. Reduce reference signal level as required.
11. Adjust L18 and L19 for best reception.
12. Repeat steps 10 and 11.
13. Set mode switch to AM.
14. Press microphone push-to-talk button and adjust L2, L3, L4, L5, L7, and L6 for maximum indication on the wattmeter.
15. Repeat step 14 until power output is between 4 and 8 Watts.
16. Set mode switch to LSB.
17. Increase reference signal level until a weak signal is received. A slight frequency correction might be necessary.

18. Adjust L12 through L17 for best reference signal reception.
19. Remove reference signal and repeat steps 11 and 18 for maximum noise.

That's it! If you find it complicated—try it. It's really no problem.

The retuning was successful if there is practically no difference in noise received when you switch back and forth between USB and LSB and power output is nearly constant whether on upper or lower sideband. Better results might be obtained, however, if you have access to sophisticated test equipment.

The time required for the conversion/alignment is less than one hour.

Originally, the fine tuning control varied only the receive frequency. Soldering wire a to wire b (Fig. 2) provides fine tuning for transmit, as well.

I found this conversion very handy for strictly mobile use. For portable or fixed use, however, replacement of X201 through X204 with a 14.910-to-15.010 MHz vfo is feasible and certainly worthwhile. This will provide a 100-kHz-wide segment for each of crystals X205 through X210.

You will be surprised how often you get a DX contact with only 10 W PEP. Talking with W6s and W7s while driving around in upstate New York is "normal," and a contact with South America, the Caribbean, or even South Africa is not a rarity. Good DX! ■

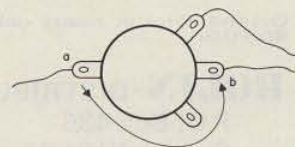


Fig. 2. Fine-tuning potentiometer.



**Germantown  
Amateur  
Supply,  
Inc.**

MEMPHIS, TENNESSEE

G12

## NO MONKEY BUSINESS!

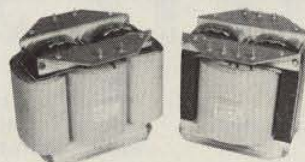
- (A) Complete Service Facilities
- (B) Good Deals on most Brands
- (C) Shipping within 24 Hours
- (D) All inquiries handled by Active Hams with over 20 years experience in ham radio

CALL TOLL FREE  
**1-800-238-6168**

IN TENNESSEE, CALL 901-452-4276  
MONDAY - SATURDAY 8:30-5:30  
FOR YOUR SPECIAL.

Write: 3202 Summer Ave., Memphis, Tennessee 38112

## CUSTOM TRANSFORMERS



### HEAVY DUTY

### REPLACEMENT TRANSFORMERS

ALPHA A77D Power .....	\$135	HEATH DX-100 Modl .....	\$ 95
BTI LK-2000 Plate .....	\$135	HEATH HX-10 Power .....	\$ 95
COLLINS 305-1 Power .....	\$215	HEATH SB-220 Plate .....	\$125
COLLINS KWS-1 Plate .....	\$135	HENRY 2K Plate .....	\$150
COLLINS 516F-2 Power .....	\$ 95	HENRY 2K-2 Power .....	\$155
DENTRON 160-10L Power .....	\$125	HENRY 2K-4 Power .....	\$165
DRAKE L4B Plate .....	\$165	HENRY 3K-A Plate .....	\$165
GONSET GSB-100 Power .....	\$ 95	HENRY 3K-A DC Choke .....	\$ 85
GONSET GSB-201 Power .....	\$135	EFJ T-BOLT Plate .....	\$125
H-CRAFTERS HT-32 Power .....	\$ 95	EFJ 500 Modulation .....	\$ 95
H-CRAFTERS HT-37 Power .....	\$ 95	EFJ 500 DC Choke .....	\$ 75
HEATH DX-100 LV Power .....	\$ 95	NATL NCL-2000 Plate .....	\$125

### OFF-THE-SHELF SPECIALS

PLATE XFMR:	2400 VAC @ 1.5A ICAS 220/240 PRI-41LB .....	\$150
PLATE XFMR:	3000 VAC @ 1.5A CCS 230 PRI-60LB .....	\$195
PLATE XFMR:	3000 VAC @ 0.7A ICAS 115/230 PRI-27LB .....	\$115
PLATE XFMR:	3500 VAC @ 1.0A ICAS 115/230 PRI-41LB .....	\$150
PLATE XFMR:	4000/4600 VAC @ 1.5A ICAS 230 PRI-60LB .....	\$195
PLATE XFMR:	6000 VCT @ 0.8A CCS 115/230 PRI-41LB .....	\$150
FILMT XFMR:	5.0 VCT @ 30A 117 PRI-9.5LB .....	\$ 30
FILMT XFMR:	7.5 VCT @ 21A 117 PRI-9.5LB .....	\$ 30
FILMT XFMR:	7.5 VCT @ 55A 115/230 PRI-14.6LB .....	\$ 65
FILMT XFMR:	7.5 VCT @ 75A 115/230 PRI-20.2LB .....	\$ 95
FIL CHOKE:	30 AMP Bifilar Wound on 1/2"x7" rod .....	\$ 9
DC CHOKE:	8.0 Henries @ 1.5 AMP DC 41LB .....	\$150
SWG CHOKE:	5-30 Henries @ 1.0 AMP DC 23LB .....	\$100

ALL TRANSFORMERS & CHOKES GUARANTEED FOR 24 MONTHS

Many others also available. Write for free list or quote on any custom transformer, choke, or saturable reactor.

**Peter W. Dahl Co.**

4007 Fort Blvd. • El Paso, Texas 79930

Telephone (915) 566-5365 or (915) 751-4856

