are simple to make. They are easy to connect and disconnect as no locking ring or threaded sleeve must be handled. They are not expensive like the BNC. They do not come loose like a PL259. The losses in the VHF range are not measureably different when any of the three types are compared. The only reason for using BNC connectors is where all other connections in the station are made with BNC's. In this case, either an adapter BNC to auto radio connector can be made easily or the jacks removed from the converter and the one-hole-mount BNC jack substituted. The hole is the correct size.

ANTENNA REQUIREMENTS

Any type of antenna, except long wire, may be used with this converter. A rotatable beam is preferred; however, a quarter wave whip, a ground plane, a beam or halo type may be used. While the input and output impedance is not critical, it is nominally 50 ohms and 50 ohm coaxial cable should be used between the antenna and the converter. 75 ohms will work well also. If the antenna terminates at 300 ohms and 300 ohm transmission line is used, then a matching balun should be used between the line and the converter.

SELECTING THE OUTPUT IF FREQUENCY

This converter may be adjusted so that it will provide any output frequency between 0.5 Mc. and 35 Mc. for the CN-50, and 0.5 Mc. and 55 Mc. on the CN-144 and CN-220. This feature of the converter will prevent it from becoming obsolete should the receiver be changed to a different type.

If there is a choice as to what output frequency to use, it is recommended that a low output frequency be used - preferably 7-11 Mc. This is because most receivers perform best in this range. Their oscillator stability (drift), image and spurious rejection become progressively poorer as the frequency goes up.

On receivers covering ham bands only, the 28-30 Mc. band gives the most coverage for use with a converter.

The following table shows the crystal frequencies to be used to obtain the various IF outputs from the converter and any other changes required. See drawing of L6 (A7598C) terminal arrangement on Page 5 for position of the jumper.

FREQUENCY TABLES

CN-50

To Receive Mc.	IF Output Mc.	Crystal Mc.	C23 mmfd. See Note B	L6 Jumper	L7 Link
50-54	7-11	43	Not used	Remove jumper	Next to winding
50-54	10-14	40	Not used	from B to A	Over winding
50-54	14-18	36	5	from B to F	Over winding
50-54	26-30	24	22	from B to E	Over winding
50-54	28-32	22	22	from B to E	Over winding
50-54	30.5-34.5 Note E	19.5	50	from B to E	Over winding
50-51)	Broadcast	49.4	Not used	See Note A	Next to winding
51-52)	(600-1600 Kc.)	50.4	Not used	See Note A	Next to winding

CN-144

To Receive Mc.	IF Output Mc.	Crystal Mc.	Multiplier Output Mc.	C31 mmfd. See Note B	L8 Turns	L7 Link	L6 Jumper
144-148	7-11	45.6667	137	Not used	7	Next to winding	Remove jumper
144-148	10-14	44.6667	134	Not used	7	Next to winding	From B to A
144-148	14-18	43.3333	130	Not used	7	Next to winding	From B to F
144-148	26-30	39.3333	118	5	7	Over winding	From B to E
144-148	28-32 Note C	38.6667	116	5	7	Over winding	From B to E
144-148	30.5-34.5 Note E	37.8333	113.5	5	8	Over winding	From B to E
144-148	50-54	31.3333	94	10	9	Over winding	See Note D
144-145)	Broadcast	47.8000	143.4	Not used	7	Next to winding	See Note A
145-146)	(600-1600 Kc.)	48.1333	144.4	Not used	7	Next to winding	See Note A
146-147)		48.4667	145.4	Not used	7	Next to winding	See Note A

CN-220

To Receive Mc.	IF Output Mc.	Crystal Mc.	Multiplier Output Mc.	C31 mmfd. See Note B	L7 Link	L6 Jumper
220-225	7 to 12	53.2500	213	Not used	Next to winding	Remove jumper
220-225	10 to 15	52.5000	210	Not used	Next to winding	From B to A
220-225	14 to 19	51.5000	206	Not used	Next to winding	From B to F
220-225	26 to 31	48.5000	194	Not used	Next to winding	From B to E
220-225	28 to 33	48.0000	192	Not used	Next to winding	From B to E(see Note C)
220-225	30 to 35 Note E	47.5000	190	Not used	Next to winding	From B to E
220-225	50 to 55	42.5000	170	5	Next to winding	See Note D
220-225	Broadcast	Not recommended				

NOTE A: L6 jumper can be in any position as it does not operate on broadcast. Remove the 330 ohm resistor and 100 mmfd. condenser from J2.