

CB42 Addendum

The following notes should be included with the CB42 Operations, Applications, and Service manual (Form 1312). These notes simplify many of the CB42 tests and result in more accurate testing results.

CB GROUNDING

Many CB transceivers are designed to operate with either a positive or negative grounded automotive electrical system. Many of these units have a red positive lead and black negative lead rather than a polarity reversal switch. In many cases, the negative lead is not connected to the chassis ground. For proper shielding, and transmitter operation, *BOTH* the negative supply lead and chassis should be connected to the negative supply terminal of the power supply, as well as to the common jack on the CB42.

RF POWER NOTE

The RF power output should be checked before making any modulation or frequency tests on a CB transmitter. If the last three digits of the digital readout show a flashing "888", the transmitter is providing more than 20 Watts output. If this overrange condition is present, immediately stop testing until the power output is reduced to prevent damage to the 50 Ohm load, and possible damage to the transmitter's output stages.

IF GENERATOR NOTE

The adjustable IF generator is designed for troubleshooting any single- or dual-conversion IF system. Due to the wide tuning range of the IF generator (375 KHz-12 MHz), the IF frequency may change over a period of several minutes. It is recommended that the generator frequency be monitored using the RF-IF GENERATOR position of the DIGITAL READOUT SELECTOR. A slight touch-up of the IF TUNING control is all that is necessary to provide the desired IF frequency.

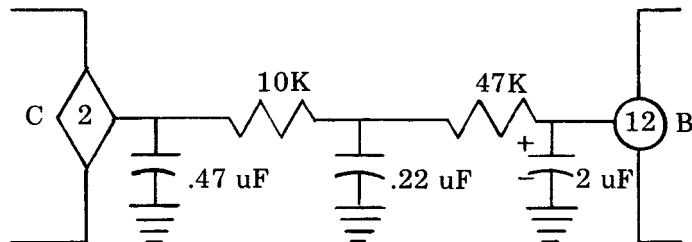
The CB42 IF generator is designed for troubleshooting defective IF stages and rough alignment of these stages. Most manufacturers recommend that the final IF alignment be made by injecting an RF signal at the antenna input on channel 11 through 13 and tuning the IF stages for best sensitivity. If an IF stage is completely out of alignment, use the IF generator to set the IF stage close to the desired IF frequency. Then use the high-accuracy CB RF TUNER signals for final IF touch-up to compensate for receiver local oscillator or ceramic filter designs.

SCHEMATIC CORRECTIONS

The sheet numbers shown in the index for Pages 2 and 3 were exchanged. All sheets listed as Sheet 2

should be changed to 3, and all sheets listed as Sheet 3 should be changed to 2.

The filter network between connection 12 on Board B (RF-IF Board) and connection 2 on Board C (VCO-PLL Board) has been changed as shown here to improve performance of PPLL.



The following component changes should be noted on your schematic:

1. Change R304 from 4.7K to 5.6K.
2. Change R225 from 100K to 15K.
3. Delete C210.
4. Note that points B13, H11, and J22 are all connected together.

TESTING CRYSTALS ABOVE 20 MHz

Crystals designed for use in CB radios, VHF and UHF scanners operate on an odd multiple (overtone) of the crystal's fundamental frequency. The CB42's crystal check function reads only the crystal's fundamental frequency. Thus, a properly operating overtone crystal will read a fundamental frequency of between 1 and 20 MHz. See Manual pages 14 and 15 for details.

CABLE SWITCH ACCESSORY

The separate RF-IF OUTPUT jack and 50 OHM INPUT jack offers the advantage of proper 50 Ohm termination for a receiver or transmitter while signals are being injected from the RF or IF generator.

The accessory RFS205 RF switch allows switching the CB's antenna connector between the signal output jack and the 50 Ohm load. In many cases, the RFS205 will simplify performance testing when CBs are being run through a test position (such as Quality Assurance tests).

The RFS205 provides a warning light which indicates that the transmitter is being broadcast into the protection circuits of the RF-IF OUTPUT jack.

The RFS205 may be purchased from the Sencore Factory Service Department, or any local Sencore FLPD Distributor.

CALIBRATION CHANGES

The following procedure will calibrate the RF power and Audio Watts functions more accurately than the instructions on Page 50 of the manual.

AUDIO WATTS

1. Set the DIGITAL READOUT SELECTOR to the AUDIO WATTS position.
2. Set SPEAKER LOAD switch to the SPEAKER position.
3. Feed 8 VRMS into the SPEAKER SUB jack. Adjust the Power Cal control (R902) for a reading of 3.00 Watts on the DIGITAL READOUT.
4. Feed 2.82 VRMS into the SPEAKER SUB jack. Adjust Power Lin control (R906) for a reading of 1.00 Watts on the DIGITAL READOUT.
5. Repeat Steps 3 and 4 until power function reads correctly at both calibration points.
6. Feed 2.82 VRMS into the SPEAKER SUB jack. Press S/N CHECK button. DIGITAL READOUT should read 10.00 Watts ($\pm .5$ Watts).

Feed 3.00 Watts RF into the 50 Ohm input. Select RF POWER on the DIGITAL READOUT SELECTOR. Adjust RF power Cal (R1002) through small hole in bottom of 50 Ohm Load shield for a power reading of 3.00 Watts.

FUSE REQUIREMENTS

The fuse requirements on Page 5 of the specifications should be changed to 1A 3AG Fast Blow.

CB RF TUNER NOTE:

All positions of the CB RF Tuner provide an output. This includes the three positions marked with a dot as well as Channels 41-45. If Channels 41-45 are not programmed, they will provide 27.005 MHz output. See special notes tag for details on programming instructions.

MANUAL CORRECTIONS/UPDATES

Please mark these changes in your Operations, Applications, and Service Manual, and your CB42 Speed Test Setup Booklet.

MANUAL SETUP
PAGE PAGE

CHANGES

FREQUENCY COUNTER

13 -- The isolated (yellow) lead of the 39G105 Frequency Counter Probe has been changed from the 100K resistor listed to a 33 pF capacitor to provide greater circuit isolation.
Step 1

ADJACENT CHANNEL REJECTION

31 5 1. Some receivers may not provide a 2 Watt output with a 1 uV RF input. If not, set the volume control to maximum and use the DIGITAL READOUT reading as the reference.
Steps Steps
9 & 11 3 & 5
2. When testing on the adjacent channel, set the MICROVOLTS OUTPUT controls for the *same* output reading as indicated.
3. Only use channels 2, 5, 6, 9, 10, 13, 14, 17, 18, 21, or 17-40 for adjacent channel rejection tests since other channels have more than the normal 10 KHz spacing between channels.

AGC

32 6 The AGC test is correct as indicated. Some receivers, however, greatly exceed the 30 dB range specified by the EIA. This is indicated by the RF level reaching 1 uV before resetting the receiver volume control three times. *If the receiver has less than a 30 dB change from 50,000 uV to 1 uV input, it meets the EIA specifications for AGC operation.*
Steps Steps
9-12 5-8

RECEIVER GAIN

32 7 The modulation for testing receiver gain should be changed from 30% to 100%.
Fig. 34 Drawing
33
Step 5

ALL SSB RECEIVER TESTS

35-40 9-14 The SSB receiver clarifier control may be set with better accuracy by using the 1 MEG COUNTER input of the CB42. Simply connect the counter across the SPEAKER SUB connection, and adjust the clarifier for a 1.00 KHz output when feeding either an USB or LSB signal into the receiver. The receiver's function switch should be set to the same sideband function.

NOTE: The black lead of the counter input is chassis ground. Damage to the CB audio output stage may result if the grounded counter lead is connected to the speaker's "hot" lead.

If the 1.00 KHz output is not obtained with the clarifier at mid-rotation, the receiver should be re-aligned using the manufacturer's instructions for clarifier setting.

NOTE: The clarifier needs only to be set once for all SSB receiver tests.

SSB IMPULSE NOISE TESTS

- 41 14 Since the AUDIO WATTS position of the DIGITAL READOUT SELECTOR indicates RMS power, it will not respond to the extremely narrow pulses provided by the NL204. For proper results, add the following steps to those indicated in the manuals.
- Step 13 Step 3
1. Connect an oscilloscope in parallel with the SPEAKER SUB connection.
 2. Note the peak-to-peak reading of 1 Watt (or reference) audio signal in Step 11 of the manual (Step 2 in the Setup Booklet).
 3. For Step 12 in manual (Step 3 in Setup Booklet), switch RF-IF CONTROL to AM (rather than disconnecting cable).
 4. For Step 13 in manual (Step 3b in Setup Booklet), increase NL204 control for *same reading on scope* as in Step 2 above.
 5. The rest of the test is correct as indicated.

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SPECIAL NOTES

RF/IF OUTPUT PROTECTION

Both the RF/IF output and 1 Meg counter input are protected against damage caused by accidentally transmitting into them with a CB transmitter. There may be a possibility of the protection circuits damaging the RF output of a CB transmitter if the transmitter is continuously keyed. To prevent this possible damage, be sure the transmitter output is connected to the 50 Ohm Load for transmitter tests. The optional RFS205 Radio Frequency Switch allows the antenna connection to be switched between the input/output tests with a switch and also contains isolation circuits which prevent possible transmitter damage caused by transmitting into the RF/IF output protection circuits.

ISOLATED SPEAKER SUB INPUT

The common connection of the Speaker Sub input is isolated from common ground to prevent damage to CB transceivers with isolated external speaker jacks.

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