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Commtron Commscan 200 Installation Manual

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INSTALLATION INSTRUCTIONS

COMMSCAN 200A - for Cobra 21XLR, 29XLR, 89XLR,
President AM products and similar
radios.

COMMSCAN 200C - for Cobra 77X.

COMMSCAN 200D - for Cobra 138XLR, 139XLR, Courier
Centurion, Gladiator PLL, Spartan,
President AM/SSB products, Robyn
510D, 520D and similar radios.

COMMTRON CORP.

Des Moines, Iowa

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CERTIFICATION

Commtron Corporation certifies that the enclosed "Commscan 200" was thoroughly tested at 15 vdc for a period of not less than 24 hours. It was then tested for compliance with published specifications before shipping to the customer.

LIMITED SIX MONTH WARRANTY

Commtron Corporation warrants the enclosed "Commscan 200" to be free of defects in both materials and workmanship. However, it is the responsibility of the installing technician to insure that the "Comm-scan 200" is installed properly. If the unit should fail to meet published specifications during the first six months after it is sold to the consumer, it may be returned to Commtron Corporation for repair or replacement. Commtron Corporation will not be liable for transportation costs or expenses incurred in the removal or reinstallation of the "Commscan 200" or damage incurred from the use of the product.

This warranty does not apply to any "Commscan 200" damaged in shipment or by accident, misuse or abuse, improper installation or acts of God. The warranty specifically excludes any units which have been opened and/or unsealed for any reason.

This warranty is in lieu of all other warranties either expressed or implied including any implied warranty usage, suitability or merchantability. No other person is authorized to assume, on behalf of Commtron Corporation, any other liability in connection with the sale of this product.

WARNING

WHEN POWER IS APPLIED TO THE "COMMSCAN 200" DO NOT ALLOW ANY OF THE 10 ENCODING WIRES TO TOUCH EACH OTHER OR DAMAGE MAY OCCUR, MAKING THE UNIT INOPERABLE.

PRODUCT DESCRIPTION

The "Commscan 200" is designed to modify existing PLL type CB radios into 200 channel scanning receivers. The 200A version is designed to be used in conjunction with the D858 PLL chip. However, other versions are available to work in conjunction with most other PLL CB radios. It is not suitable for use with crystal controlled CB radios. The unit automatically prevents transmission by obtaining its power from the 13.6 volt on receive connection of transmit-receive relay.

The "200" will scan all frequencies (in 10 KHz steps) between 26.005 and 27.995 MHz and readout these frequencies on a 5 digit LED display. On application of power, the "200" automatically selects 27.405 MHz (ch 40). It will scan up or down from this frequency, either fast or slow, depending on the setting of the scan or search switch. Rather than stopping at the frequency extremes, the "200" will reset to 27.405 and repeat the scan.

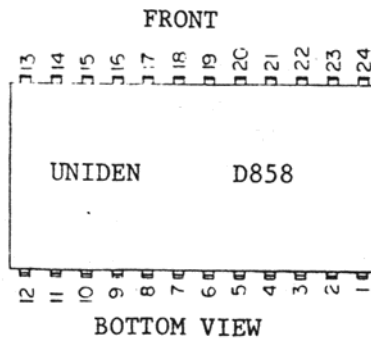
To insure proper operation and compliance with existing regulations, the "Commscan 200" should only be installed by a licensed technician.

GUARANTEED PERFORMANCE SPECIFICATIONS

Frequency coverage	26.005 to 27.995 MHz in 10 KHz steps
Power-on frequency	27.405 MHz (ch 40)
Readout	7 segment, 5 digit LED display
Power consumption	Less to 500 mW at 13.6 vdc
Size (excluding bracket)	4"W x 4.5"D x 2"H
Scan rate	2 channels per second
Search rate	10 channels per second
Operating temperature	0 to 50°C

A WORD OF CAUTION

The conversion must be made by a technician. This is not a "heathkit manual" and the conversion requires extensive knowledge of how the CB radio works. You can "screw up" your radio very easily and not many technicians will be anxious to correct your "handiwork".



FIGURE

INSTALLATION - Converting a CB radio

To install the "Commscan 200", you will require the following tools:

- a. small soldering iron suitable for p.c. boards
 - b. sharp Exacto knife
 - c. drill with 1/16" bit
1. Remove the covers of the radio and set aside.
 2. Locate the 858 chip near the channel selector and familiarize yourself with the pin locations (see Figure 1).
 3. Cut the circuit foil right at the pins so that pins 13 through 22 are totally isolated from the remainder of circuit board (see photos).
 4. Be certain that pin 19, for example, is isolated all the way around the pin. If any pins remain connected to the original circuitry, or shorted to each other, the "Commscan 200" will not work properly and may damage the unit.
 5. If isolating a pin requires opening a foil path, jumper around the pin to complete the circuit.
 6. Solder the cable to the isolated pins of the 858 as follows: start at the brown, red, orange, yellow, etc. end of the cable. Connect the brown to pin 13, red to 14, orange to 15, yellow to 16 and so on until the black is connected to pin 22.
 7. Connect the brown wire to the ground foil of the circuit board.
 8. The remaining red wire is not used for the moment.
 9. Drill two holes on the rear apron (1/16") suitable to mount the wire-wound 22 ohm resistor (see photo).
 10. Add a wire to the free end of the resistor and connect it to the plus 13.6 volt on receive connection of the relay.
 11. Notch the rear apron of the radio sufficiently to permit the cable to pass through.

OPERATION TEST

1. Before applying power to the radio, reinspect all your connections to the PLL. Make absolutely certain that none of the wires are connected to anything but the pins of the chip. Make certain none are touching each other. Otherwise, the unit will not scan properly and damage may occur.
2. Apply power. The "Commscan 200" should indicate a frequency of 27.405.
3. Connect antenna. You should hear signals on channel 40. If not, disconnect power and reinspect your work.
4. Move the scan switch down. You should hear signals on the channels as the switching occurs.
5. Somewhere below 26.965 (ch 1), the unit will probably go "dead". This is the limit of your receiving range without realignment. However, the "200" will continue down to 26.005, reset to 27.405, and then repeat the scan.
6. Move the scan switch up. You will now hear signals above 27.405. Again, the unit will go "dead" somewhere above this frequency. The radio can be realigned to favor either end of the band, as desired.

The "200" is now controlling the frequency of the radio. The channel switch is disconnected and should have no effect on operation.

The remaining red wire controls the scanning action. If the voltage applied to this wire is above 0.7 volts, the scanning action will stop. Thus, the technician can determine how to interface this into the squelch circuit to control the scanning action of the "Commscan 200".

Since the squelch circuit varies widely in CB radios, it is virtually impossible to provide specific instructions on how to inhibit the scan. However, the basic requirements are to select a voltage point in the squelch circuit which rises above 0.7 volts when the squelch activates the speaker. This voltage is applied to the red wire, which stops the scan on active channels.

NOTES

The display and actual frequency may occasionally get "out of step". If this happens, turn off the power, wait a second or two and reapply power. This will resynchronize the two counters. Static electricity can cause the unit to jump channels and get out of sync. This is a normal condition. Correct by turning off power, waiting a second or two and then reapplying power. Digit brightness may vary somewhat. This is also normal.

Photos shown are for a Cobra 138XLR but generally, apply to the products shown on the cover sheet.

On Courier radios, it will be necessary to remove the PLL assembly to gain access to the circuit foil.

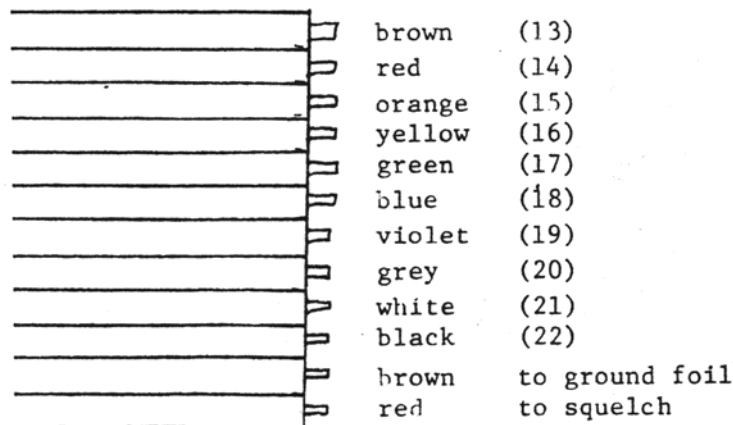


FIGURE 2 - Cut, strip and tin the end of the cable as shown in the drawing. The tinned end should be approximately 1/16" long to minimize the possibility of shorts.

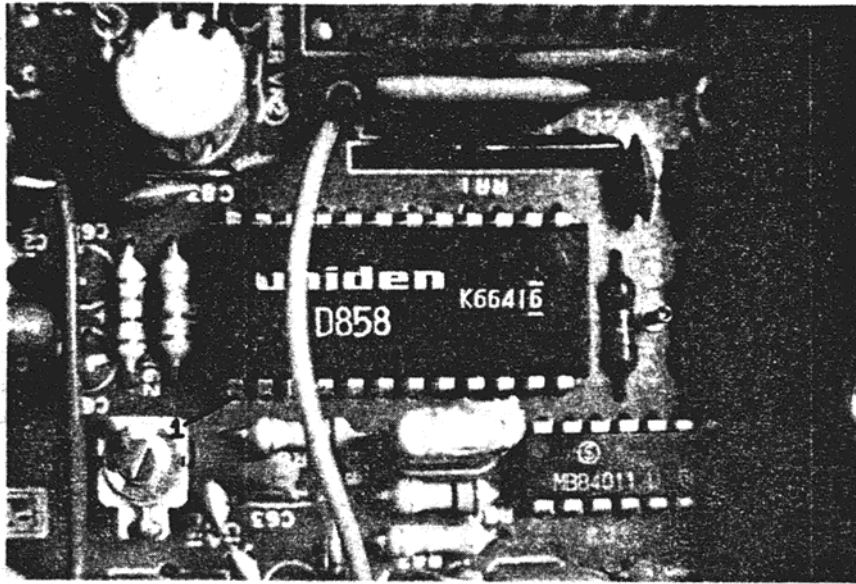


PHOTO 1 - Top view of UNIDEN D858. Pins are numbered counterclockwise from 1.

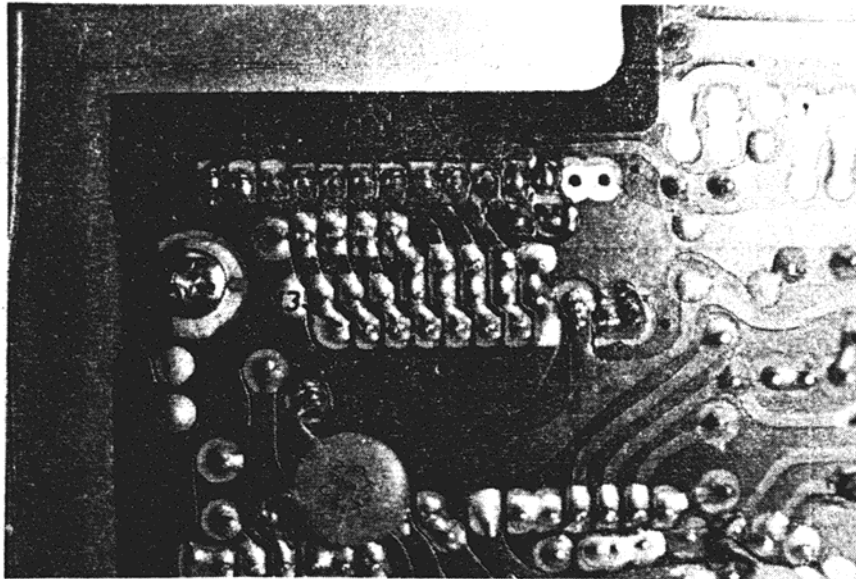


PHOTO 2 - Bottom view of the D858 connections.

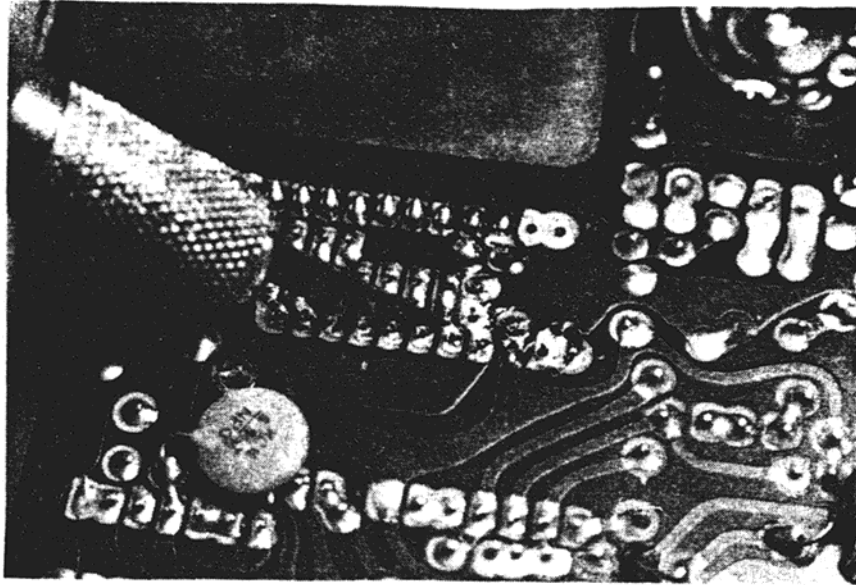


PHOTO 3 - Clean solder off foil between PLL and filter components before cutting the conductors.

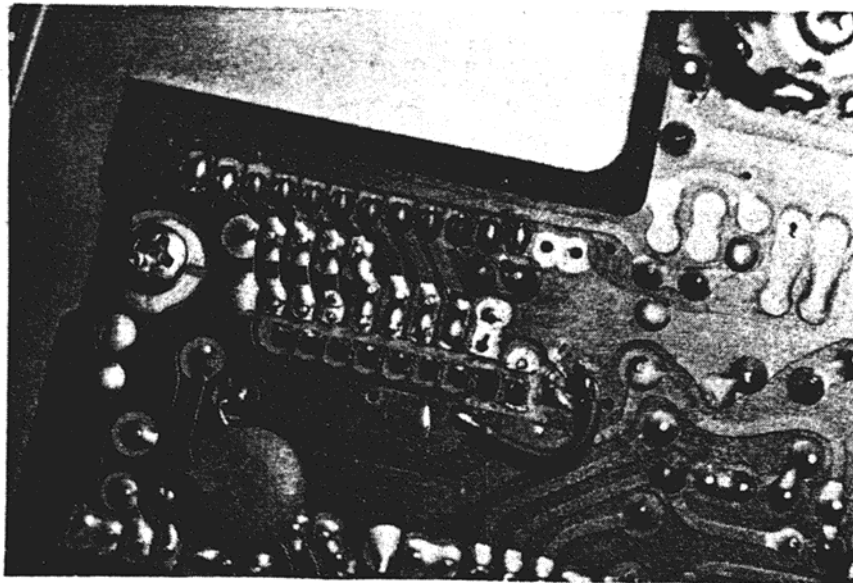


PHOTO 4 - The area should be clear of potential shorts before attaching cable. Note the jumper which continues ground around pin 20 of the D858.

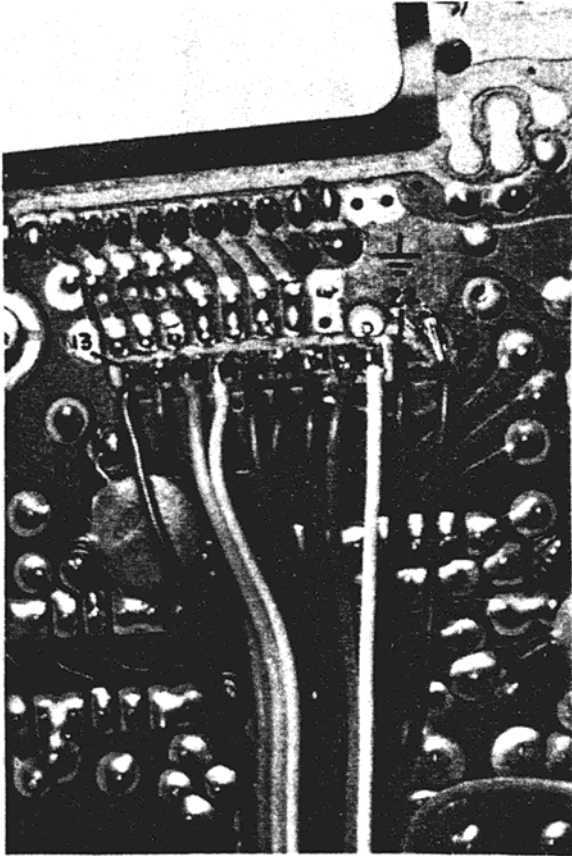


PHOTO 5 - The brown, red, orange sequence goes from left to right.

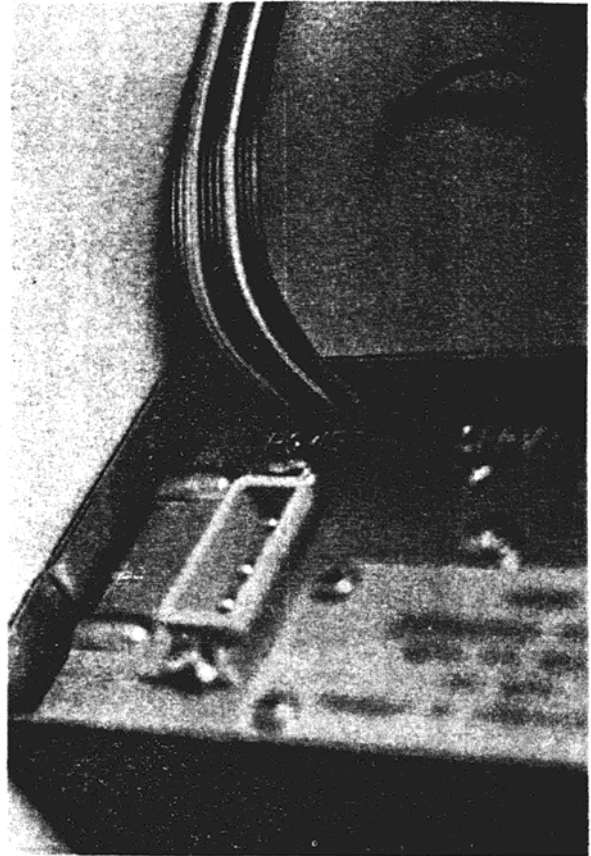


PHOTO 6 - Notch rear apron to clear cable.

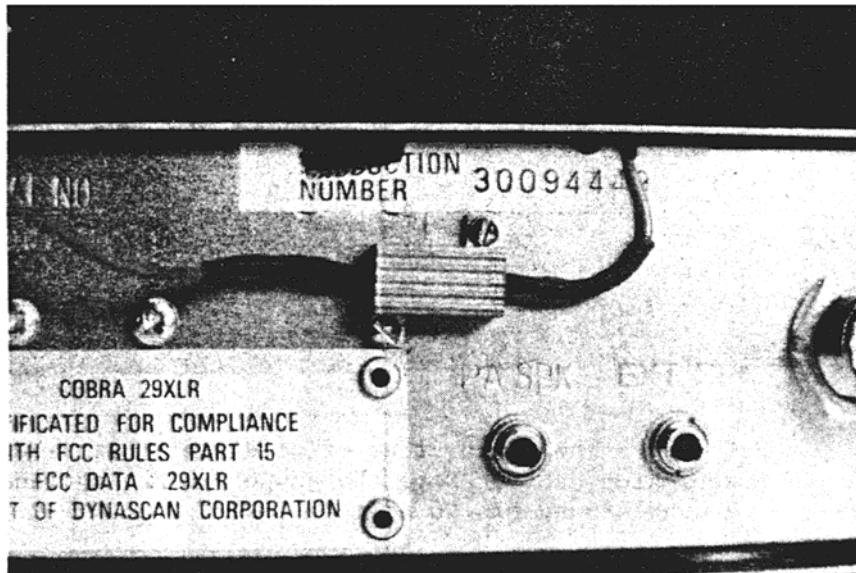


PHOTO 7 - Mount the 22 ohm resistor on chassis for heat sink.