

OPERATING HANDBOOK

FOR THE

Courier 1

by



electronics communications, inc.



MODEL A75

THE COURIER 1 TRANSCEIVER

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Specifications:

RECEIVER:
 Frequency Range: 26.965 MC to 27.255 MC
 Sensitivity: Better than .25 uv
 Selectivity: 4,000 cycles at 6 db down
 Adjacent Channel Rejection: Better than 70 db down
 Spurious and image Response: Better than 70 db down
 Squeech Sensitivity: Adjustable from .1 uv to 1000 uv.
 Voltage regulated reference level.
I.F. Frequencies for TRIPLE CONVERSION:
 1st. 10.04 MC \pm 145 KC 3rd. 262 KC
 2nd. 1505 KC \pm 145 KC

Noise Clipper: Vacuum Tube Series — Gate self limiting type.
 "S" Meter and Frequency Spotter: Reads signal strength
 R.F. Gain Control: Adjustable RF sensitivity for 20 db attenuation of signals at maximum setting
 A.V.C.: Voltage doubler A.V.C. system used to control both I.F. and R.F. stages
 Audio Output: 4.5 watts maximum to 3.2 ohm heavy duty speaker.
 Fixed Tuning: 3 or 4 Channels, independently set to any 1 of 23 channels.
 Manual Tuning: Essentially drift free tuning of all 23 C.B. channels achieved by vernier drive tuning condenser controlling a low frequency, continuously running oscillator.

*Specifications may be changed by manufacturer without notice.

GENERAL:

Dimensions: Length 14-3/16" Depth 7-3/16" Height 4-3/4"
 Power Consumption: 110VAC 80 watts 12 VDC
 6 amps max (transmitting)

TRANSMITTER:

Power input: 5 watts
 Power Output: More than 3 watts
 Modulation: High level plate modulation (100%)
 Frequency Stability: \pm .005% over 0° to 125° F.
 Output Indication: Relative Power Output Meter
 Output Impedance: 50 to 75 ohms unbalanced (coaxial cable)
 Microphone Input: High Impedance

important — You are now the owner of a COURIER 1 receiver, designed by E. C. I., to fill your most exacting demands in CB Communications Equipment.

The COURIER 1 employs triple conversion in conjunction with an extremely low noise front end with two stages of 262 K. C. I. F., to give you the best in CB reception. Fully modulated, 12 channel transmission within the Citizens Band

TUBE COMPLEMENT:

- EF 183/6EH7 — R. F. Amplifier: Low noise, high variable transconductance frame grid type tube for maximum sensitivity and band width.
- 6CW4 — 1st Converter: RCA Nuvistor used for low conversion noise at 27 MC.
- 6U8 — 2nd Converter/Harmonic Crystal Oscillator: 10.4 MC (Center Frequency) Mixer
- 6BE6 — 3rd Converter/Low Frequency Oscillator: 1505 KC C.F. Mixer
- 6BA6 — 1st I. F. Amplifier/Squelch Voltage Control Amplifier: 262 KC Amplifier
- 6BA6 — 2nd I. F. Amplifier/"S" Meter Voltage Control Amplifier: 262 KC Amplifier
- 6AL5 — Squelch Control/Noise Clipper
- 6AL5 — Detector/A.V.C.: Diode — Detector and A.V.C. voltage doubler for maximum detector output and A.V.C. control with minimum loading of last I.F. transformer
- *12AY7 — 1st and 2nd Audio Frequency Amplifier: Low hum preamp and voltage amplifier
- †6BQ5 — Audio Frequency Output: Audio beam power amplifier
- 6EM5 — R. F. Power Amplifier: High power plate dissipation tube (10 watts)
- 12BH7A — Oscillator/Multiplier: Rugged duotriode type
- †6BQ5 — Modulator: Heavy duty beam power amplifier
- *12AY7 — Microphone preamp and voltage amplifier: High gain type with low hum, low noise and low microphonic characteristics

* Common to both

allocation of 26.965 to 27.225 mc, with electronic switching, enables virtually trouble free, dependable transmission.

Added features built into the COURIER 1, supplied as standard equipment, are front panel R. F. GAIN, NOISE LIMITER and SQUELCH controls, thus providing you with the optimum in "easy to reach" reception control.

Versality of the COURIER 1 becomes self-evident, when the above features are combined with the detailed specifications listed here.

POWER SUPPLY:

Heavy duty separately filtered transmitter and receiver supply rectified by silicon rectifiers. Heavy duty vibrator used for 12 volt operation.

GENERAL:

Transmit/Receive Switching: Electronic switching — no relays
 Frequency Spotting: "S" meter indication with transmitter operation

Controls — Front Panel:

- | | |
|--------------------------------------|--|
| R. F. Gain | Manual Tuning |
| A. F. Gain/On-Off switch | Receiver Tuning Selector |
| Noise Limiter — In/Out switch | Transmitter Channel Selector - Squelch |
| "S" R. F. — Relative Signal Strength | |
| — Relative Power output switch | |

Controls — Rear Panel: "S" Meter zero; Transmitter Power Amplifier Tuning

Construction: 5 individually hand wired sections mounted on single chassis. Track mounted chassis for front removal

Finish: Cadmium plated chassis and subchassis. Chrome-plated Steel ventilated cabinet

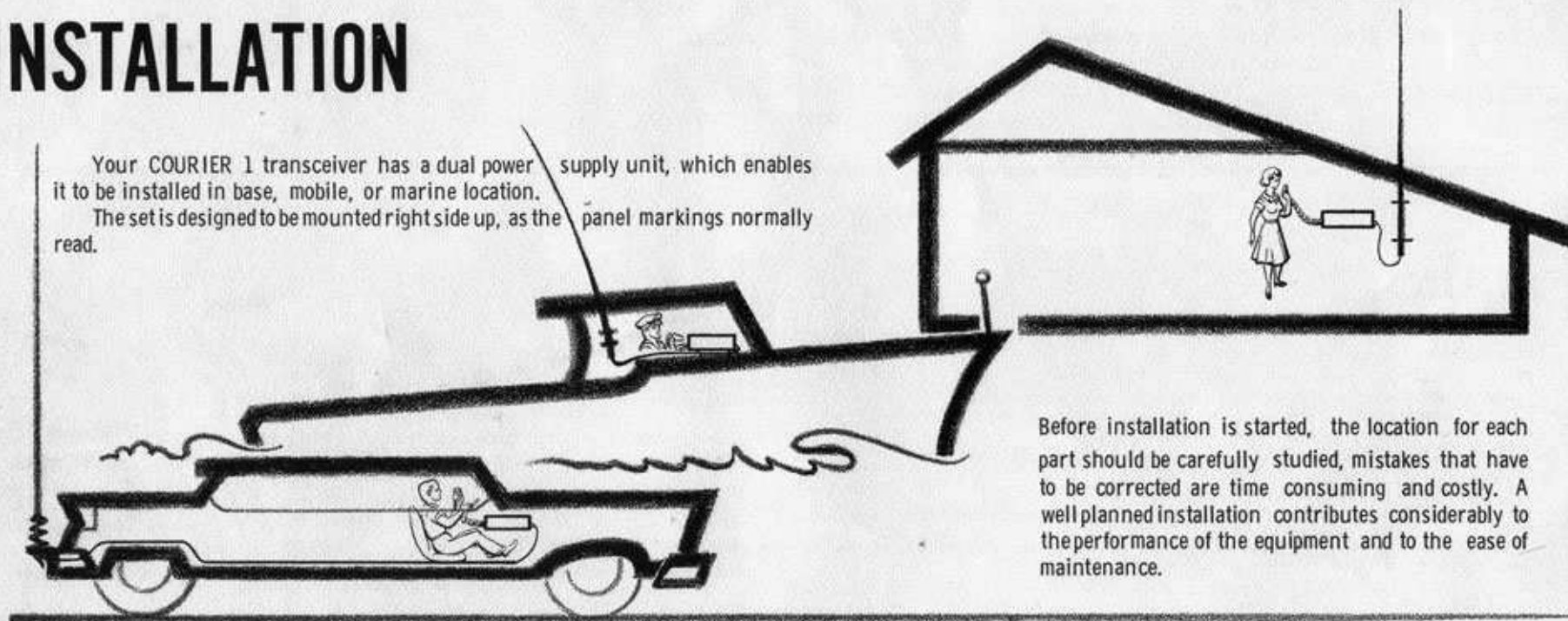
Cable : 1 110VAC power cable with terminating plug

Microphone: Ceramic High Impedance Type

No more words now, go ahead! Install your set according to the Instructions in INSTALLATION and OPERATIONAL PROCEDURE and let your COURIER 1 SPEAK FOR ITSELF.

INSTALLATION

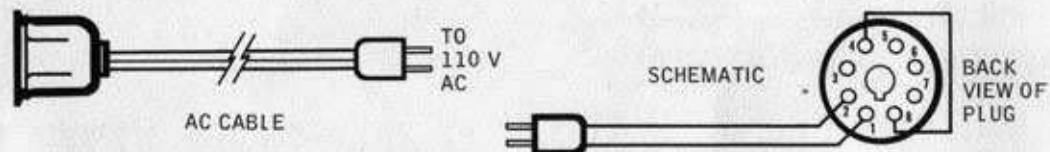
Your COURIER 1 transceiver has a dual power supply unit, which enables it to be installed in base, mobile, or marine location. The set is designed to be mounted right side up, as the panel markings normally read.



Before installation is started, the location for each part should be carefully studied, mistakes that have to be corrected are time consuming and costly. A well planned installation contributes considerably to the performance of the equipment and to the ease of maintenance.

ac operation....

An A. C. power supply cable is supplied for use in base station operation. Appropriate connections for base station and/or mobile installation are shown in the accompanying diagrams.

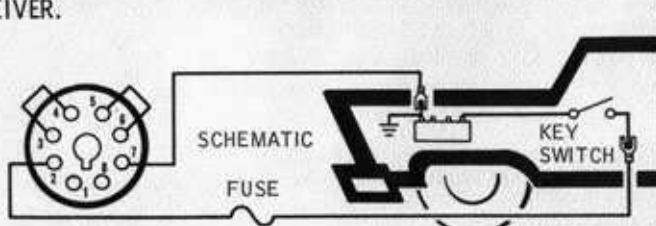
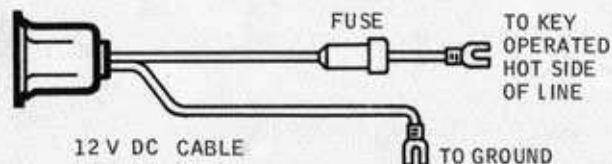


mobile.....

This transceiver may be hooked up to either positive or negative grounded automobiles. Noise elimination procedures in mobile installations are same as that used for car radio installation. For mobile operation, a supply cord is available from your dealer. If not, it may be purchased directly from e. c. i.

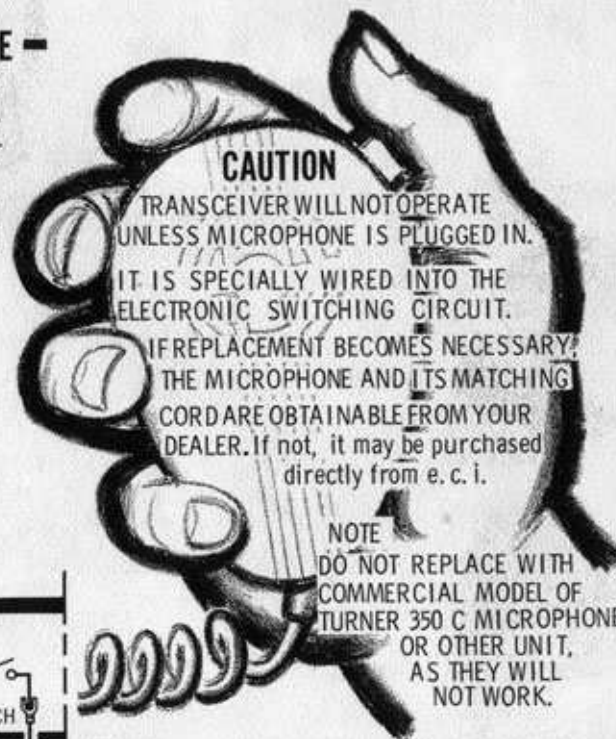
CAUTION

Voltage regulator in car should be checked to make sure it is working normally. Regulator should be set for maximum of 14.5 volts. More than this value can be detrimental to components in the TRANSCEIVER.



MICROPHONE

A microphone bracket is provided, with your microphone. Install in an easy to reach position.



CAUTION
 TRANSCEIVER WILL NOT OPERATE UNLESS MICROPHONE IS PLUGGED IN. IT IS SPECIALLY WIRED INTO THE ELECTRONIC SWITCHING CIRCUIT. IF REPLACEMENT BECOMES NECESSARY, THE MICROPHONE AND ITS MATCHING CORD ARE OBTAINABLE FROM YOUR DEALER. If not, it may be purchased directly from e. c. i.

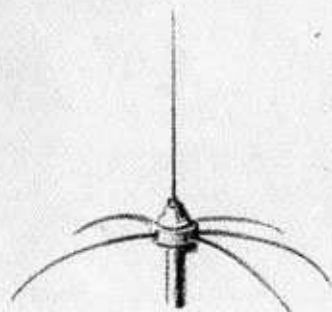
NOTE
 DO NOT REPLACE WITH COMMERCIAL MODEL OF TURNER 350 C MICROPHONE, OR OTHER UNIT, AS THEY WILL NOT WORK.

INSTALLATION (cont'd) antenna ...

Your COURIER 1 is designed to match any 50-75 ohm co-axial cable-fed antenna, either vertically or horizontally polarized.

Your choice of antenna (mobile or fixed) type will be determined by your location. Antennas to suit your particular needs are available from either your dealer or local parts supply houses.

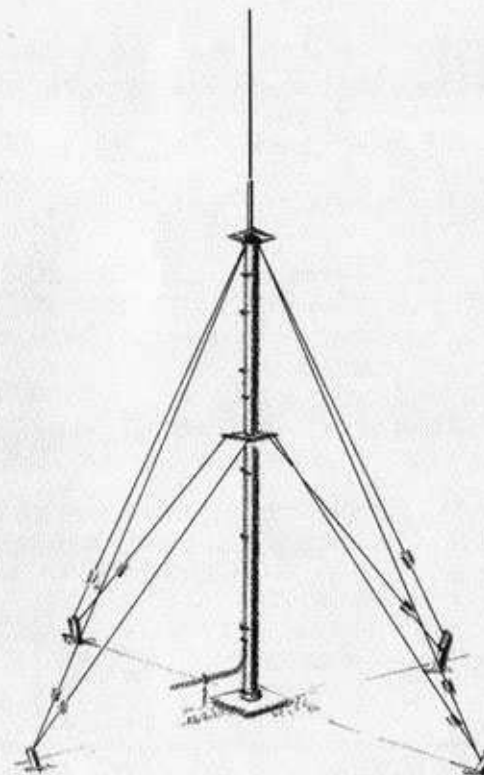
However, if you prefer to construct your own antenna, a wealth of information is available in many of the CB, Ham and Electronic magazines obtainable from your dealer or local magazine distributor.



When connecting the antenna with co-axial cable, it is most important, for efficiency of reception and transmission, that the cable be cut in 12 foot lengths or any multiple thereof. Any length in between, will result in inferior performance.

For example: If length from antenna to transceiver is 13 feet, you must use 24 feet of cable for effective reception or lowest SWR.

Note: In some locations, reception may be improved by connecting a ground wire (ordinary copper wire) from chassis to a cold water pipe or outside ground rod.



FUNCTION

TUNING DIAL - Tunes CB channels from 1 through 23 with CB receive switch in M position. With CB receive switch in positions 1, 2, 3 etc. for FIXED RECEIVE TUNE, the TUNING DIAL may be used as vernier tuning for receiving stations not exactly on channel.

CALIBRATED DIAL PLATE SHOULD NEVER BE TURNED BY HAND. ALWAYS USE SMALL VERNIER KNOB.

OF CONTROLS

RF GAIN - Varies the amplification of the receiver RF amplifier. Normally used in full clockwise position. Should be turned down in high signal conditions.

"S"-RF SWITCH - Allows meter to indicate received signal strength in "S" position, or relative XMTR power output in "RF" position.

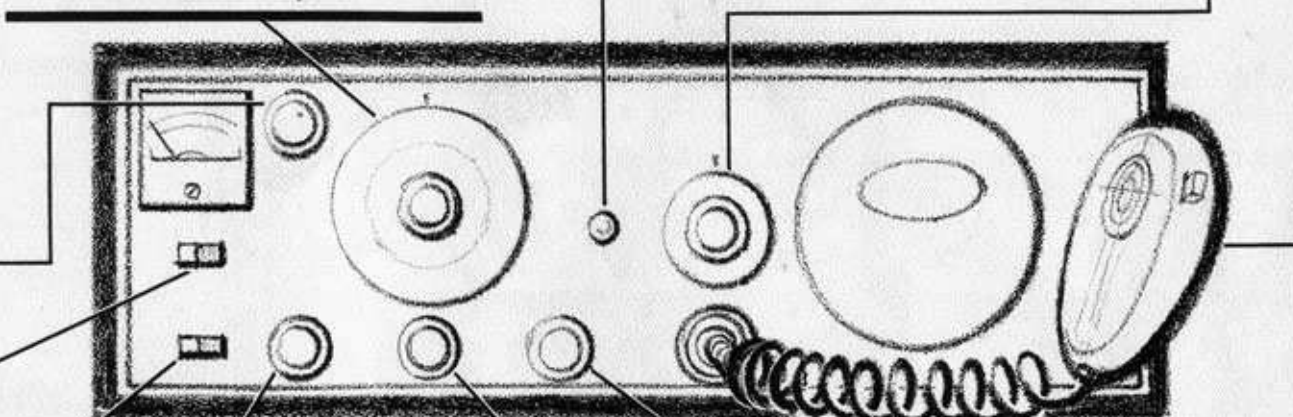
May also be used for spotting XMTR frequency on the receiving dial in the "S" position.

NOISE - LIMITER - Limits the noise peaks of the received signal, allowing clearer reception in noisy areas. Normally used in "OUT" position. Should be used in "IN" position in NOISY installations or areas. When in "IN" position does not affect incoming audio.

WARNING!
DUE TO SPECIAL TRACKING
You are advised not to tamper or remove the 1 to 23 Tuning Dial or Condenser - This has been factory adjusted by special equipment and can only be readjusted at the factory. Any Tampering With This Will Void The Warranty

PILOT INDICATOR - Serves to indicate set is turned on, and power supply is operating. **NOTE: INDICATOR LAMP IS WIRED TO HIGH VOLTAGE POWER SUPPLY, REPLACE ONLY WITH SAME TYPE NEON NE-2 LAMP.**

TRANSMIT SELECTOR - Provides selection of 12 crystal controlled transmit channels.



CB RECEIVE SELECTOR - Provides selection of manual receive tuning in "M" position or 3 to 4 fixed receive channels.

SQUELCH CONTROL - Enables you to cut-out background noise between transmissions. Transceiver remains SILENT until a signal is received. Normally used fully clockwise. Control can be set to trigger ON for any received signal of .1 microvolt or more.

VOLUME CONTROL - Controls volume of the amplified audio signal.

MICROPHONE - Specially wired, ceramic, high impedance type, contains the push-to-talk switch. Microphone plug must be connected AT ALL TIMES, for set to receive or transmit.

OPERATING FIRST

CHECK TO SEE MICROPHONE CONNECTOR IS PLUGGED IN, NOTE PROPER POSITION OF KEY.

HELPFUL
HINTS.....

4 Set "RF GAIN" fully clockwise.

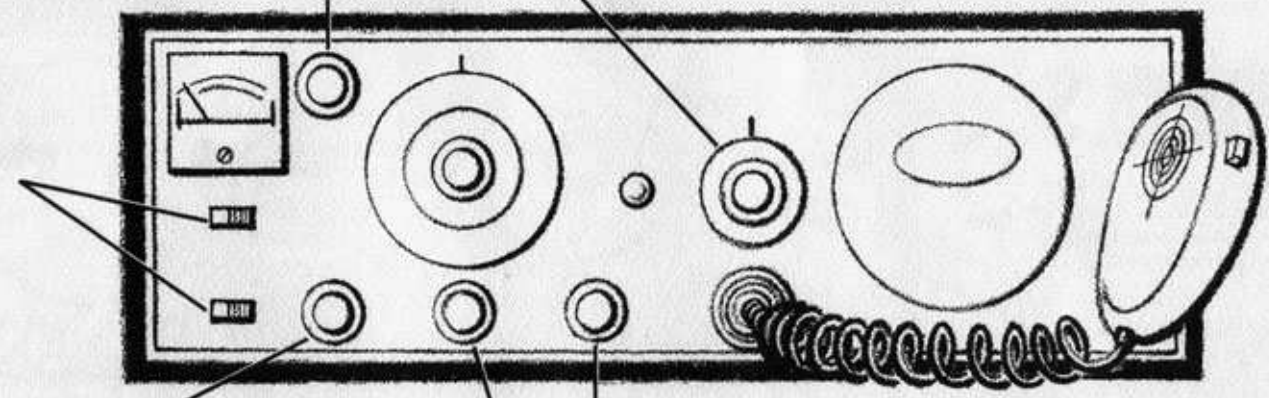
9 A. After having performed the preceding functions, the receiver section of your Courier 1 is in operating condition. Continue with the following transmitter functions.
B. Set "Transmit Selector" switch to position 1 or any other crystal equipped channel.

5 A. Set "S-RF" meter switch to "S" position for meter indication of received signals.
B. Unless noise is objectionable "NOISE LIMITER" switch is normally set in "OUT" position.

7 Turn squelch control fully clockwise, then turn volume up until signals are heard while tuning across the band with the manual tuning dial. If received signal distorts and overdrives meter, reduce "RF GAIN" control above. Squelch may be adjusted to reduce "background" noise between received transmissions.

3 Turn volume control switch ON. Pilot light should light. Wait for set to warm-up. Note: If pilot fails to light, power supply is not working. (Return for service.)
NOTE
The "S" meter normally goes full scale when set is turned on, but will return to zero as set warms up.

6 Set "CB RECEIVE" selector switch to "M" position for manual tuning. Note: After performing all 10 functions, see further operating techniques for setting of "CB" fixed tune positions 1, 2 and 3.



INSTRUCTIONS

THEN PERFORM FOLLOWING NUMBERED FUNCTIONS →

1 Attach proper cable, for either 110 VAC or 12 VDC mobile operation. Plug or attach to power source.

8 Set meter to zero by adjusting "Zero Meter Pot" with antenna DISCONNECTED and "RF GAIN" turned down (CCW) fully. After adjustment re-connect antenna and turn up "RF GAIN".

2 Using standard PL 259 coax connector, connect suitable antenna. As per instructions on antenna installation in preceding Installation section.

ESSENTIAL POINTS TO REMEMBER

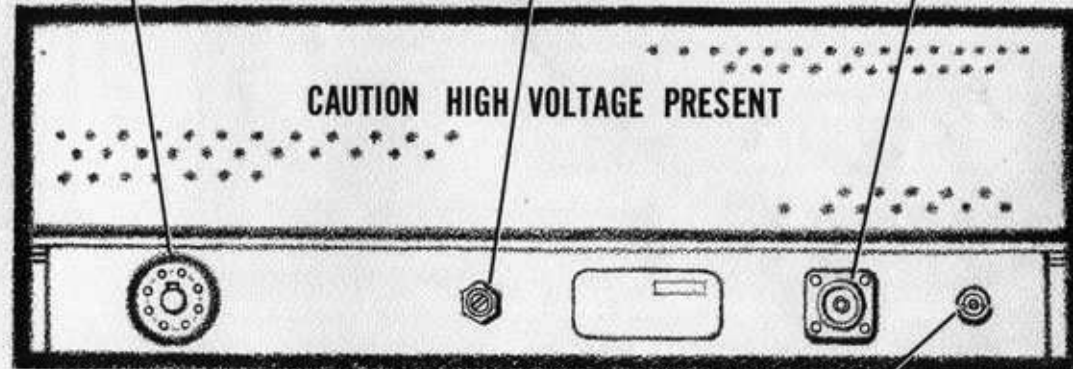
Your Courier 1 shares public radio communications channels with many other CB transceivers, which are all assigned and controlled by the Federal Communications Commission.

In its use you must comply with rules enforced by the FCC to enable all CB users fair exchange of transmission with the least amount of interference.

In short, you CAN NOT operate your transceiver without proper license from the FCC.

However, with proper license to operate a CB station, the following points apply:

- A. Your Courier 1 is to be used for USEFUL purposes only.
- B. Identify transmissions properly as noted in "Calling Procedure".
- C. Keep transmissions SHORT.
- D. Allow no one without proper knowledge, or your permission to operate your equipment.
- E. CB transceivers, unlike telephones or human beings, are unable to transmit and receive at the same time. Therefore you cannot interrupt anyone while they are transmitting nor can they interrupt you. Wait until they have finished and signed "OVER" to you, before you begin. Also do not let-up on the "MIKE" button until you have turned the conversation "OVER" to them.



10 Now you can tune the transmitter for peak operation. First switch the "S-RF" switch to "RF" position. Then switch "Transmit Selector" switch to position 1. Using vernier knob, turn main tuning dial to channel of crystal frequency plugged into position 1, or other channel being checked.

Listen and make sure channel is clear. The next step will operate your transmitter and you'll be "ON THE AIR". DO NOT

TALK OR MAKE ANY SOUND INTO THE MICROPHONE.

Now press "MIKE" button and turn "XMTR" adjustment screw on rear panel for maximum deflection of highest peak noted, on meter.

All other adjustments are factory tuned for optimum operation. The fixed tune receive adjustments are described in the following "Further Operational Techniques" section.

DO NOT MAKE ANY OTHER ADJUSTMENTS.

HELPFUL HINTS (cont'd)

PROPER USE OF MICROPHONE

Hold microphone at an angle of 45° approximately 2" to 4" away, press button and speak in a normal, clear voice. Repeat important points at times, to assure clear reception of your transmission. Shouting into the microphone will cause distortion in your transmitted signal. At end of each transmission say "OVER" before letting up the button, to let others know when they can transmit.

CALLING PROCEDURE

Announce your station call at the beginning and during any series of "SHORT TRANSMISSIONS" (those less than 3 minutes each) which last more than ten minutes. You must announce your call, at ten minute intervals.

You MAY NOT TRANSMIT MORE THAN 5 CONSECUTIVE MINUTES. If you do, you must then go "OFF THE AIR" for a "QUIET PERIOD" of 2 minutes, during which time you are required to monitor the channels involved, so as not to interrupt existing traffic when coming back on the air.

A copy of Part 19, Rules and Regulations which govern the Citizens Band Radio Service should be obtained for more pertinent information. It is available from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C.

Follow the above rules and you will enjoy the many hours of use and convenience your COURIER 1 offers you.

IMPORTANT NOTICE

THIS UNIT HAS BEEN TUNED, CHECKED AND TESTED AT THE FACTORY. THERE IS NO REASON TO REMOVE IT FROM THE CABINET.

THE SEAL IN THE REAR OF THE UNIT WILL ALLOW YOU TO EXTEND THE CHASSIS FOR THE INSTALLATION OF CRYSTALS OR FOR RETUNING OF THE FIXED CRYSTAL POSITION. IT WILL ALSO ALLOW FOR REMOVAL OF THE VIBRATOR. IF CHANGING VIBRATOR, ONLY A HEAVY DUTY SHOULD BE USED. (MALLORY G1501 OR EQUIVALENT)

REMOVAL OF SEAL WILL VOID WARRANTY

CHANNEL TO CRYSTAL FREQUENCY CROSS-REFERENCE					
CHANNEL	CHANNEL FREQUENCY	CRYSTAL FREQUENCY	CHANNEL	CHANNEL FREQUENCY	CRYSTAL FREQUENCY
1	26.965	6.741.25	13	27.115	6.778.75
2	26.975	6.743.75	14	27.125	6.781.25
3	26.985	6.746.25	15	27.135	6.783.75
4	27.005	6.751.25	16	27.155	6.788.75
5	27.015	6.753.75	17	27.165	6.791.25
6	27.025	6.756.25	18	27.175	6.793.75
7	27.035	6.758.75	19	27.185	6.796.25
8	27.055	6.763.75	20	27.205	6.801.25
9	27.065	6.766.25	21	27.215	6.803.75
10	27.075	6.768.75	22	27.225	6.806.25
11	27.085	6.771.25	23	27.255	6.813.75
12	27.105	6.776.25			

further
OPERATING
TECHNIQUES➔

MAINTENANCE _____ and _____ service

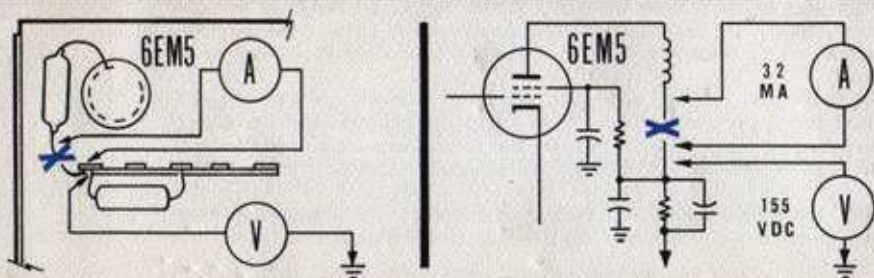
Your Courier 1 is completely aligned and adjusted, except for aforementioned adjustments, at the factory. Further adjustment is not necessary.

While your COURIER 1 has been designed to give you long and efficient service, the service you receive from your COURIER 1 in measure depends on the care and attention you give it.

Maintenance therefore is limited to replacement of TUBES, VIBRATOR and installation of CRYSTALS. Alignment is not normally necessary when tubes are replaced in the RF and IF circuits.

YOU ARE RESPONSIBLE by FCC regulation to limit maximum power input of the transmitter to 5 watts.

This can be periodically checked by inserting a milliammeter at point marked "X" and connecting a 20,000 ohm per volt, voltmeter to points shown in diagram below. The transmitter is factory adj. for a current of 32 milliamperes at a voltage of 155 VDC, providing a plate input power of 4.965 watts to the 6EM5 RF power output tube.




Any COURIER 1 Transceivers that have been modified in design by anyone except e.c.i. will not be serviced or warranted.

Your COURIER 1 is readily serviced, because of the unitized chassis construction.

In case of difficulty return transceiver to your dealer for service. A service manual and/or schematics are available from your dealer or direct from e.c.i. electronics communications, inc.

for your **COURIER 1**

FOR THE BEST IN TRANSCEIVER EQUIPMENT IT'S

 **e.c.i. electronics communications inc.**
mount vernon, new york