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**REBEL 23+**

**CITIZENS BAND TRANSCEIVER**

**SOLID STATE · DC OPERATION**



**FCC TYPE ACCEPTED**

**INSTRUCTION MANUAL**

## NOMINAL SPECIFICATIONS

### GENERAL

- \* Transistor - 20
- \* Diode - 13
- \* Self-contained speaker-3-1/4" round type-8 ohm voice coil
- \* Detachable Dynamic Microphone with Press talk - 600 ohm
- \* Illuminated Channel Indicator and "S"/RF power meter
- \* 50 ohm external antenna impedance
- \* Operated from 13.8V DC supply negative or positive ground
- \* 23 channel selector switch
- \* Volume control with power switch
- \* External Speaker and P.A. Jacks
- \* Co-axial type antenna connector
- \* Under dash mounting bracket
- \* Mechanical Filter - 1
- \* Squelch control

### RECEIVER SECTION

- |                            |   |
|----------------------------|---|
| . Frequency Range (MHz)    | 26.965 to 27.255  |
| . Sensitivity              | 0.5 $\mu$ V/m for 10db S+N/N ratio at 30% Modulation at 1KHz. |
| . Selectivity              | 6db down at $\pm$ 3KHz; 50db down at $\pm$ 10KHz.             |
| . Adj. Channel Rejection   | Better than 50 db   |
| . Audio Distortion 1000 Hz | Less than 7%  |
| . Spurious Response        | 50 db   |
| . Squelch Sensitivity      | .5 $\mu$ V  |
| . Squelch Stop Sensitivity | 630 $\mu$ V   |
| . Noise Limiter            | Series gate   |
| . Audio output at 8 ohms   | 2.5W (10%)  |
| . Intermediate Frequency   | 1st IF: 11.275 MHz,<br>2nd IF: 455 KHz                        |
| . Hum and Noise            | 50 db down, nominal   |

## TRANSMITTER SECTION

. Frequency Range (MHz)	26.965 to 27.255
. Power Input at 13.8V DC	5W
. Power Output at 13.8V DC	3W, Nominal
. Modulation (5mV at Mic)	100%
. Emission Class D operation	6A3
. Frequency Tolerance	±005%
. Antenna Matching	50 ohms (Nominal)
. Switching	Electronic
. Modulation Distortion	Less than 7% at 85% modulation at 1000 Hz.
. Harmonic Suppression	Better than 50 db down
. Modulation Limiter	Yields high average voice levels.

## GENERAL DESCRIPTION

Your REBEL 23+ is designed to receive AM signals in the 26.965 to 27.255 MHz Citizens Band. The circuit is a highly sensitive and selective dual conversion super-heterodyne type. Full 23 channels, crystal controlled operation is provided by a frequency-synthesized circuit consisting of 12 crystals.

The receiver section includes an "S" Meter for reading signal strength, and adjustable squelch control to eliminate background noise when no signal is being received, an automatic noise limiter to suppress atmospheric and man-made interference, which permits reception of stations that are transmitting slightly off frequency.

The frequency synthesizer used in the receiver section is also common to the transmitter section. The transmitter is capable of producing full 5 watts, at 100% modulation, to the final RF stage.

## FCC REGULATIONS AND REQUIREMENTS

Before placing any transmitter on the air, it is necessary that a valid Citizens Band Station license be obtained in accordance with FCC Rules Part 95. The following sections are reprinted solely as a guide and should not be construed as exact reproductions of pertinent sections of FCC Rules Part 95. The user is advised to review the rules and regulations frequently since changes and revisions occur periodically.

1. It is required that the licensee of each transmitting station attach to each mobile transmitter a properly filled out Identification card or FCC Form 452.
2. The licensee must attest to the fact that he has in his possession, and has read, a copy of FCC Rules and Regulations, Part 95, prior to filling out Form 505.

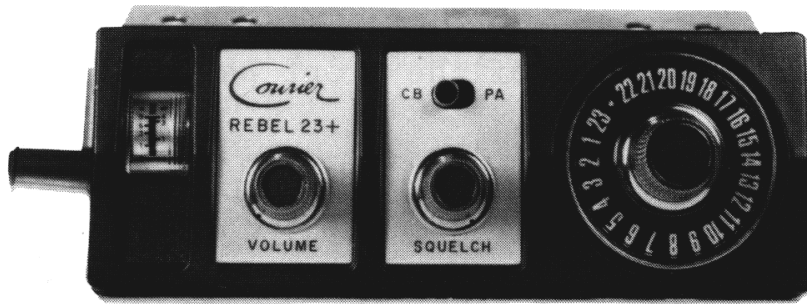
A copy of Part 95 of the FCC Rules and Regulations may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

License application, FCC Form 505, may be obtained from the Federal Communications Commission, Washington, D.C. 20554 or from the nearest FCC Field Office listed below.

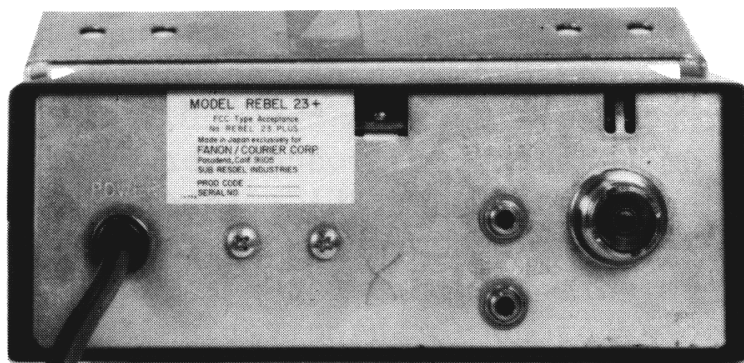
### FCC FIELD OFFICES

Mobile, Ala. 36602	Boston, Mass. 02109
Anchorage, Alaska 99501	Detroit, Mich. 48226
Los Angeles, Cal. 90014	St. Paul, Minn. 55102
San Diego, Cal. 92101	Kansas City, Mo. 64106
San Francisco, Cal. 94126	Buffalo, N.Y. 10014
San Pedro, Cal. 90731	Portland, Ore. 97205
Denver, Col. 80202	Philadelphia, Pa. 19106
Miami, Fla. 33101	San Juan, P.R. 00903
Tampa, Fla. 36606	Beaumont, Tex. 77704
Atlanta, Ga. 31403	Dallas, Tex. 75202
Savannah, Ga. 31502	Houston, Tex. 77002
Honolulu, Hawaii 96808	Norfolk, Va. 23510
Chicago, Ill. 60604	Seattle, Wash. 98104
New Orleans, La. 70130	
Baltimore, Md. 21202	

# FUNCTION OF CONTROLS



FRONT VIEW



REAR VIEW

# INSTALLATION

## MOBILE STATION INSTALLATION

Use the mounting bracket supplied as a template to locate the mounting holes for mounting the bracket. Secure the bracket under the dash at a position easily reached by the operator. The transceiver may be tilted in the mounting bracket for the best view of the front panel and for operation of the controls.

## CAUTION

This unit has a polarity protection diode in the DC power circuit. If the power source polarity is reversed, the fuse will blow. CHECK CAREFULLY THE POLARITY CONNECTIONS BEFORE YOU TURN ON THE POWER SWITCH.

UNDER NO CIRCUMSTANCES SHOULD A LARGER FUSE BE USED THAN THE ONE ORIGINALLY SUPPLIED (1.5 ampere) AND NEVER BYPASS THE FUSE WITH A JUMPER WIRE. IN EITHER OF THESE INSTANCES SEVERE DAMAGE TO YOUR TRANSCEIVER CAN OCCUR AND YOUR WARRANTY IS VOIDED.

## NEGATIVE GROUND CONNECTIONS

The unit is supplied ready for connections to a NEGATIVE grounded power source. Connect the RED lead to the POSITIVE terminal of the battery or accessory connection on an ignition switch. Connect the BLACK lead to the frame of the vehicle or at the COMMON ground terminal used by other accessories. Be sure to connect the antenna connector to the rear connector of the transceiver and remember that the unit will not operate until the microphone is connected.

## CONNECTIONS FOR POSITIVE GROUNDED VEHICLES

In positive grounded power supplies the POSITIVE terminal of the battery or other power source is connected to the ignition switch accessory connection or directly to the NEGATIVE terminal on the battery or other power source. The other connections are the same as for a negative grounded system.

## MICROPHONE

The package containing the five self-tapping screws also contains a microphone hanging bracket. It is recommended that a location for this hanger be chosen that will permit microphone cable to be free from obstructing other controls. For convenience, it is desirable to locate the hanger somewhere on the dashboard within easy reach of the operator so that the microphone may be grasped without the operator having to take his eyes off the road. When the approximate location has been chosen, use the hanger as a template and centerpunch the centers for two #30 (.120 DIA) holes. Try to avoid locations where the microphone cord is likely to catch on objects. The inner spring should be adjusted with long nose pliers for proper holding tension. The microphone should be placed into the microphone hanger when not in use to avoid being damaged.

## BASE STATION INSTALLATION

Your transceiver may also be used as a base station installation through the use of a FANON/COURIER Model PS-20A Base Station Power Supply (or equivalent). Locate the transceiver near the antenna lead-in and a 117VAC, 60 Hz power outlet. Mount the unit under the edge of a shelf or table or shelf with the mounting bracket placed on the speaker side of the cabinet. Observe carefully the polarity of the power leads when making connections to the power supply. The red lead is positive (+) and the black lead is negative (-). Your license must be posted at the station location and the station should not be operated by unauthorized persons. When not in use, be sure to turn the transceiver power switch OFF. If the unit will not be used for a long period of time, the PS-20A AC power cord should be removed from the power outlet.

## ANTENNA INSTALLATION

Your transceiver is designed to operate with any good quality Citizens Band, Base or Mobile, Antenna. The type of antenna you should use depends largely upon how and where the antenna is to be mounted and the radiation pattern desired or required. All FANON/COURIER dealers are qualified to assist you in the selection of the proper type to meet your needs.



If it is necessary to change the cable length, type RG58/U is recommended for lengths up to 50 feet. RG8/U should be used for lengths over 50 feet.

To check the "impedance match" between the antenna and the transceiver, use a COURIER Model PORT-A-LAB 500 Voltage Standing Wave Ratio Meter (or equivalent). Follow the instructions given with the instrument.

CAUTION: NEVER OPERATE YOUR TRANSCEIVER WITHOUT A PROPERLY MATCHED ANTENNA PLUGGED INTO THE ANTENNA CONNECTOR.

## FUNCTION OF CONTROLS

### VOLUME CONTROL - POWER ON/OFF SWITCH

When this control is turned fully counterclockwise, the power switch is in the OFF position. Turning the control clockwise turns the power ON and controls the volume level.

### CHANNEL SELECTOR

The channel selector has 23 operating positions and one blank position. The transmitter and receiver frequencies are set simultaneously upon selection of a desired channel.

### SQUELCH CONTROL

This control will silence background noise when a signal not being received. Correct adjustment of the control is as follows:

Adjust the squelch control fully counterclockwise and adjust the volume control approximately 1/2 of its rotation and select a channel on which no signal is being received. Turn the squelch control clockwise just to the point where the background noise stops. Upon receipt of a signal, the squelch will open and the station will be heard. (If adjusted too far past this point, weak signals may not be heard).

## "S"/RF METER

Meter indicates relative signal strength of incoming signals from 1 through 9. A reading of 1 indicates a weak or distant station and a reading 9 would indicate a local or a her power station. The RF power scale indicates the relative RF power in watts being transmitted by your transmitter.

## CB/PA SWITCH

Set this switch to the CB position for Citizens Band operation and to the PA position when using the transceiver as a public address amplifier. A speaker must be plugged into the PA SPK jack on the rear of the chassis. The transceiver volume control will not control the volume level of the PA speaker. Prepare an 8 ohm horn or speaker with an insulated cable, FANON/COURIER Model 2W, or equivalent, a miniature phone plug, (H. H. Smith #480) or equivalent and a 5K ohm volume control. Plug into the PA SPK jack. (See diagram).

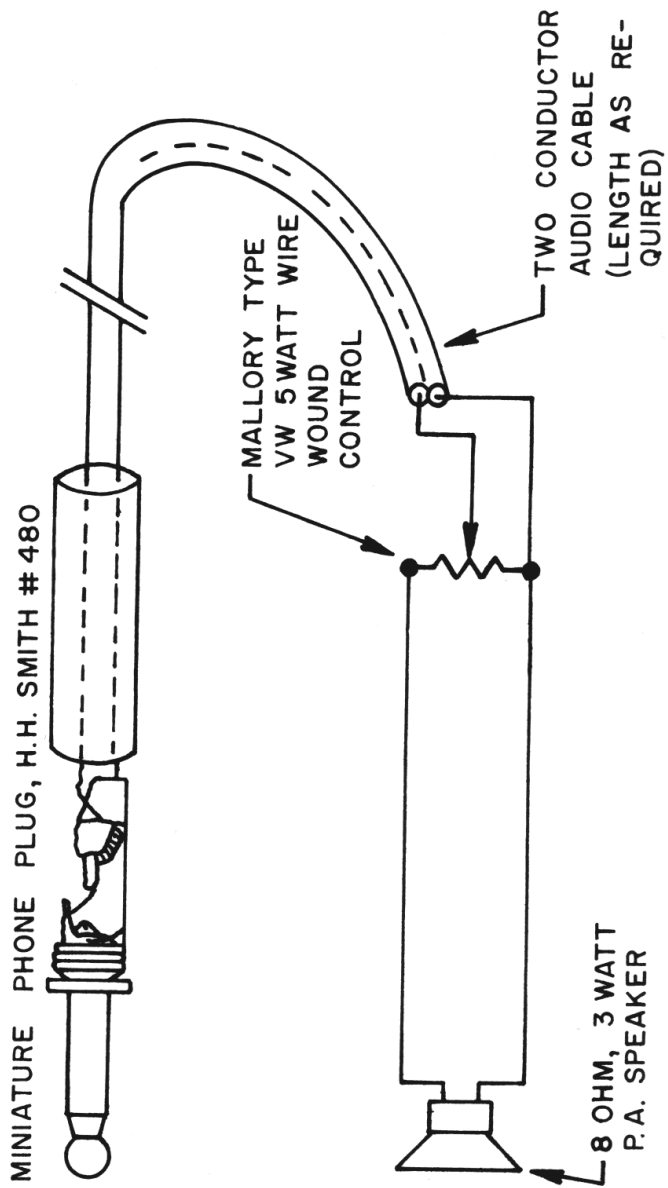
**CAUTION:** SPEAKER WIRE MUST NOT BE GROUNDED, OR CONNECTED IN ANY WAY TO THE TRANSCEIVER CHASSIS OR POWER SOURCE, SUCH AS THE VEHICLE FRAME.

Set the CB/PA switch to PA and press the microphone switch. Adjust the added volume control for the proper audio level at the PA speaker or horn. When the CB/PA switch is in the PA position, all other functions of the transceiver are turned off.

## EXTERNAL SPEAKER-JACK

Prepare an 8 or 16 ohm speaker as shown in the diagram (without the volume control) and plug into the EXT-SPK jack on the rear panel. The internal speaker will be cut out.

**CAUTION:** POWER SWITCH MUST BE IN THE OFF POSITION BEFORE PLUGGING IN JACK ON REAR PANEL - THE SPEAKER LEADS MUST NOT BE CONNECTED IN ANY WAY TO THE VEHICLE CHASSIS OR TO THE TRANSCEIVER CHASSIS AS SHORTING WILL BURN OUT THE FUSE AND MAY CAUSE DAMAGE TO THE SPEAKER



P.A. VOLUME CONTROL CIRCUIT

## OPERATING INSTRUCTIONS

RULES TO REMEMBER. When operating on the Citizens Band, keep in mind the following important rules:

) Station identification must be given by both parties at the beginning of and upon completion of each contract, regardless of whether the call lasts 30 seconds or a full 5 minutes.

(2) Use channels 9,10,11,12,13,14 and 23 for INTERSTATION communication. Channel 9 should be used for emergency aid only.

(3) Make your transmissions brief and to the point. Long transmissions tend to confuse, making it hard for the other party to remember all that you may have asked. It is to your advantage to ask one question at a time.

(4) Stay within the 5-minute limit set forth in Part 95 of the Rules and Regulations. If you have additional information that must be relayed to your station and have used up your time, clear the channel for 5 minutes to allow others to place their calls, then contact your station again once they have cleared and another 5 minutes have passed.

(5) Use the "break-break" procedure ONLY when it is absolutely necessary to use the channel.

(6) Speak clearly and distinctly, with the microphone approximately two inches from your lips. And speak in a normal tone - shouting only creates distortion.

(7) Be prepared to use any CB channel in case of emergency. Part 95.85 of the Rules permits a waiver of all restrictions where immediate safety of life or immediate protection of property can be demonstrated.

### RECEIVER OPERATION

1. Rotate the volume control approximately 1/2 turn clockwise and observe that the channel selector and "S"/RF meter are illuminated.

## RECEIVER OPERATION (Continued)

2. Adjust the squelch control fully counterclockwise and set the CB/PA switch to CB.
3. Rotate the channel selector and select a desired channel. Observe that the "S"/RF meter indicates a higher reading for some stations. A reading of 9 indicates a signal from a powerful local station. A reading of 2 or 3 indicates a signal from a distant or lower-power station.
4. When listening for a call, turn the squelch control clockwise from counterclockwise position (without a signal) until the atmospheric noise usually heard on CB channels just stops. Upon receipt of the call, the squelch will be overcome and the message may be heard without the annoying CB hash.

## TRANSMITTER OPERATION

1. Select the desired channel and be sure it is clear of incoming signals before you press the transmit switch.
2. Press the microphone transmit switch and speak into the microphone (2 or 3 inches away). Release the transmit switch to listen for the reply.
3. Observe that the "S"/RF meter indicates the relative RF power output when transmitting.

## CRYSTAL SYNTHESIS

Your REBEL 23+ comes equipped with crystals for all 23 transmit and receive frequencies of the Citizens Radio Service.

Crystal selection is determined by the "synthesis" technique; that is 12 crystal frequencies are selectively mixed to provide 23 crystal fixed transmit and receive frequencies.

## CRYSTAL SYNTHESIS (Continued)

To determine the channels that are affected by the various crystals, locate the transmit or receive channel in the chart. The A-Group crystal frequency and the crystal frequency in the B-Group are the two crystals which determine the frequency of that channel. For example, channel 6 transmit frequency (27.025 MHz) is determined by the 23.340 and the 14.960 crystals.

Channel	A Group	B Group	A + B	A + B -11.275 MHz
1	23.290 MHz	14.950 MHz	38.240 MHz	26.965 MHz
2	"	14.960	38.250	26.975
3	"	14.970	38.260	26.985
4	"	14.990	38.280	27.005
5	23.340 MHz	14.950	38.290	27.015
6	"	14.960	38.300	27.025
7	"	14.970	38.310	27.035
8	"	14.990	38.330	27.055
9	23.390 MHz	14.950	38.340	27.065
10	"	14.960	38.350	27.075
11	"	14.970	38.360	27.085
12	"	14.990	38.380	27.105
13	23.440 MHz	14.950	38.390	27.115
14	"	14.960	38.400	27.125
15	"	14.970	38.410	27.135
16	"	14.990	38.430	27.155
17	23.490 MHz	14.950	38.440	27.165
18	"	14.960	38.450	27.175
19	"	14.970	38.460	27.185
20	"	14.990	38.480	27.205
21	23.540 MHz	14.950	38.490	27.215
22	"	14.960	38.500	27.225
23	"	14.990	38.530	27.255

### 1) Frequency of Transmitter

(A) group + (B) group (-) 11.275 MHz

### 2) Frequency of Receiver

(A) group + (B) group (-) Receiver Frequency = 11.275 MHz  
 (1st IF) 11.730 MHz (2nd OSC) (-) 11.27 MHz = 455 KHz  
 (2nd IF).

## SERVICE AND MAINTENANCE

### WARNING

THE FCC RULES AND REGULATIONS, PART 95, REQUIRES THAT ONLY PERSONS POSSESSING A VALID FIRST OR SECOND CLASS RADIOTELEPHONE OPERATOR'S LICENSE ARE ALLOWED TO MAKE ADJUSTMENTS OR REPAIRS TO THE TRANSMITTING SECTION OF THIS TRANSCEIVER.

MODIFICATION TO THE TRANSMITTER SECTION IN ANY WAY NOT RECOMMENDED BY FANON/COURIER CORPORATION IS ILLEGAL. MODIFICATIONS INCLUDE, BUT ARE NOT LIMITED TO, SUBSTITUTION OF CRYSTALS, REPLACEMENT OF COMPONENT PARTS NOT OF THE SAME ELECTRICAL RATING, ADDITION OF ANY COMPONENT PART (S), CONNECTIONS, DEVICE OR ACCESSORY INTERNALLY OR EXTERNALLY TO THE TRANSMITTER.

Troubleshooting assistance may be obtained by writing to FANON/COURIER Corporation 990 South Fair Oaks Avenue, Pasadena, California 91105. Address your inquiry to the attention of the Customer Service Department. Always state the Model, Serial Number and Issue of Schematic Diagram to which the unit was built. The schematic issue letter may be found in the lower right hand corner of the schematic or from the legend on the printed circuit board.

When ordering parts, refer to the COURIER part number listed in the Replacement Parts List and give a description of the part.

A Service Manual is available for this transceiver. Order from FANON/COURIER Customer Service Department. Price \$2.25 Post Paid.

## SPECIAL REPLACEMENT PARTS LIST

SYMBOL	DESCRIPTION	PART NUMBER
<b>TRANSISTORS</b>		
TR1,2	Transistor 2SC394 (Y)	1080-01
TR13	" 2SC373	296-98-9
TR3,4,5,10,11, 12,15,16,17	" 2SC839 (F)	1080-20
TR6,14	" 2SC945 (R)	1080-21
TR7	" 2SC733 (Y)	1080-03
TR8,9	" 2SC1173 (O)	1080-130
TR18	" 2SC756-2-4	1080-05
TR19	" 2SC1226A (P)	1080-06
TR20	" 2SC735 (O)	1080-07

### DIODES

D6,7	Diode CD37 IN4448	1042-16
D3,4,5,10,11,12	" IN60	294-42-9
D9	" SRIK-1	1080-08
D1,13,2	" IN914	DI-20
D8	Zener Diode CZ-092	1080-10

### CRYSTALS

Crystal, 23.290 MHz, HC25/U		1016-126
" 23.340 MHz	"	1016-127
" 23.390 MHz	"	1016-128
" 23.440 MHz	"	1016-129
" 23.490 MHz	"	1016-130
" 23.540 MHz	"	1016-131
" 14.950 MHz	"	1016-132
" 14.960 MHz	"	1016-133
" 14.970 MHz	"	1016-134
" 14.990 MHz	"	1016-135
" 11.275 MHz	"	1016-136
" 11.730 MHz	"	1016-137
Crystal Socket S-D0105		1042-56



## SPECIAL REPLACEMENT PARTS LIST (Continued)

SYMBOL	DESCRIPTION	PART NUMBER
<b>RF COILS AND TRANSFORMERS</b>		
L7	T.V.I. Trap Coil TC-71024	1080-131
L8	Coil (Antenna Filter) NS-1344	1043-26
L9	" (TX. Matching) TC-71025	1045-24
L10	" (TX. Final) TC-71029	1080-22
L12	" (TX. Driver) TC-71023	1080-23
L13	" (TX. Amplifier) TC-71026	1080-24
L14	" (1mH RF Choke)	CH-4
L1	" (14 MHz Trap) TC-71096	1080-25
L5,6	" (RF Choke) TC-71095	1080-26
T1	" (RX. Antenna) TKXN-22160BU	1080-11
T2	" (RF Amplifier) TKXN-22534BU	1080-12
T3	" (First IF) TKAC-22536IE	1080-13
T4	" " TKAC-21165A	1080-14
T5	" (Second IF) YLN-20844BM	1080-15
T6,7	" " YMC-20845AC	1080-16
T8	" " YMC-20846AC	1080-17
T11	" (Oscillator) KXC03169F	1080-18
T12,13	" (TX. 38 MHz Filter) KXC-231702	1080-19
T14	" (TX. 38 MHz Filter) TKXC-22535BM	1080-139
T15,16	" (TX. 27 MHz Filter) KXN-13638HM	1043-22
T17	" (TX. 27 MHz Filter) KXN-13636BM	1043-23
<b>CERAMIC FILTERS</b>		
C.F.	Ceramic Filter LF-B6	1079-12
<b>AUDIO TRANSFORMERS AND CHOKES</b>		
L2,3,11	Choke (Micro Inductor) LF4 2R2K	1080-27
L4	Choke (Line Filter) 115C	1080-28
T9	Input Transformer 69M	1080-137
T10	Output Transformer N28-7518BM	1080-138

## SPECIAL REPLACEMENT PARTS LIST (Continued)

SYMBOL	DESCRIPTION	PART NUMBER
<b>CONTROLS AND INDICATORS</b>		
VR4	On/Off volume Control 10K ohm A	1080-29
VR2	Squelch Control 50K ohm B	1080-31
VR3	Semi-Fixed Potentiometer 50K ohm	1080-32
VR1	" " 30K ohm 2P	1079-19
VR6,7	" " 20K ohm 2P	1042-97
PL1	Pilot Lamp (Clear) White Leads	1079-54
PL2	Pilot Lamp (Clear) Red Leads	1079-119
M	Meters S/RF	1080-65

### CAPACITORS

C11	Ceramic 1P $\pm 0.25$ 50V	1080-40
C19,45,46, 76	" 2P " "	1080-41
C4,17,47, 74	" 3P " "	1080-42
C40,75	" 5P " "	1080-43
C49	" 10P $\pm 10\%$ "	1080-44
C68	" 25P " "	1080-45
C1,90	" 33P " "	1080-46
C43,67,98 102	" 47P " "	1080-47
C23,26,39 70,73,95	" 100P " "	1080-48
71,84,99	" 150P " "	1042-156
C48,62,65,87	" 220P " "	1080-49
C94	" 250P " "	1080-50
C50,61,64	" 470P " "	1080-51
C26	" 0.002uF $\pm 80-20\%$ 50V	1080-52
C31,57,104,	" 0.005uF " "	1079-44
C2,3,5,6,24, 41,42,44,51, 54,58,59,63, 69,72,78,83,89, 91,101,109	" 0.01uF " "	1042-157
C15,10,18,103, 100,86,93,88,97, 96,92	" 0.04uF " "	1079-45

## SPECIAL REPLACEMENT PARTS LIST (Continued)

SYMBOL	DESCRIPTION	PART NUMBER
<b>CAPACITORS (Continued)</b>		
C77	Ceramic, 0.01uF ±80-20% 50V	1080-53
C16,21	Mylar, 0.04uF ±80-20% 50V	1042-163
C31,57,104	Mylar, 0.04uF ±10% 50V	1080-55
C81,82	" 0.02uF " "	1080-56
C12,7,13,20 36,37	" 0.01uF " "	1042-166
C27,28,29, 52,79,107, 108	Electrolytic, 0.47uF 16V	1080-133
C25,32,56,53	" 10uF +100-10% 10V	1080-58
C22	" 47uF " "	1080-59
C30,34	" 100uF " "	1080-60
C80	" 470uF " "	1042-124
C35,55	" 100uF " "	1042-127
C14	" 500pF ±10% 50V	1080-61
<b>SWITCHES</b>		
S1	Switch, Power On/Off, Volume Control	1080-29
S2	Switch, Channel SNO-1179	1080-63
S3	Switch, PA/CB	1080-136
<b>MISCELLANEOUS</b>		
SP	Speaker	1080-62
MIC	Microphone Assembly	1080-146
	Microphone Hanger	1079-178
FI	Fuse Holder RF-104	1043-133
	Fuse 1.5A	1080-67
	Test Terminal T-41	1080-92
	" N-60	1080-93
	" SR-3P-4	1080-94
J2,3,	Jack, EXT SPK and PA	1079-110
J1	DC Power Cord Assy.	1001-48

## SPECIAL REPLACEMENT PARTS LIST (Continued)

SYMBOL	DESCRIPTION	PART NUMBER
	<b>HARDWARE</b>	
	Upper Case Black Leatherette	1080-72
	Rear Case                    "	1080-73
	Heat Sink	1080-83
	Heat Sink	1080-96
	Mounting Bracket	1080-84
	Mtg. Bracket Screw BSBM	1080-85
	Ni-3	
	Channel selector knob assembly	1080-77
	Knob Volume and Squelch	1080-78
	Nylon Heat Sink Screws	1080-140

## STANDARD WARRANTY

Adopted and Recommended by Electronic  
Industries Association

FANON/COURIER CORPORATION warrants each new electronic product manufactured by it to be free from defective material and workmanship and agrees to remedy any such defect or to furnish a new part (at the Company's option) in exchange for any part of any unit of its manufacture which under normal installation, use and service disclosed such defect; provided the unit is delivered by the owner to us or to our authorized distributor from whom purchased, or authorized service station, intact, for our examination, with all transportation charges prepaid to our factory, within 90 days from the date of sale to original purchaser and provided that such examination discloses, in our judgment, that it is thus defective.

Written authorization must be obtained before any merchandise is returned to the factory.

This warranty does not extend to any of our electronic products which have been subjected to misuse, neglect, accident, incorrect wiring not our own, improper installation, unauthorized modifications, or to use in violation of instructions furnished by us, nor units which have been repaired or altered outside of our factory, nor to cases where the serial number thereof has been removed, defaced or changed, nor to accessories used therewith not of our own manufacture.

This warranty is in lieu of all warranties expressed or implied and no representative or person is authorized to assume for us any other liability in connection with the sale of our electronic products.

**FANON/COURIER CORPORATION**

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