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**Courier Traveller II Owner's Manual Issue B**  
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# TRAVELLER II

CITIZENS BAND TRANSCEIVER



**INSTRUCTION MANUAL**

## **COURIER TRAVELLER WARRANTY**

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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.

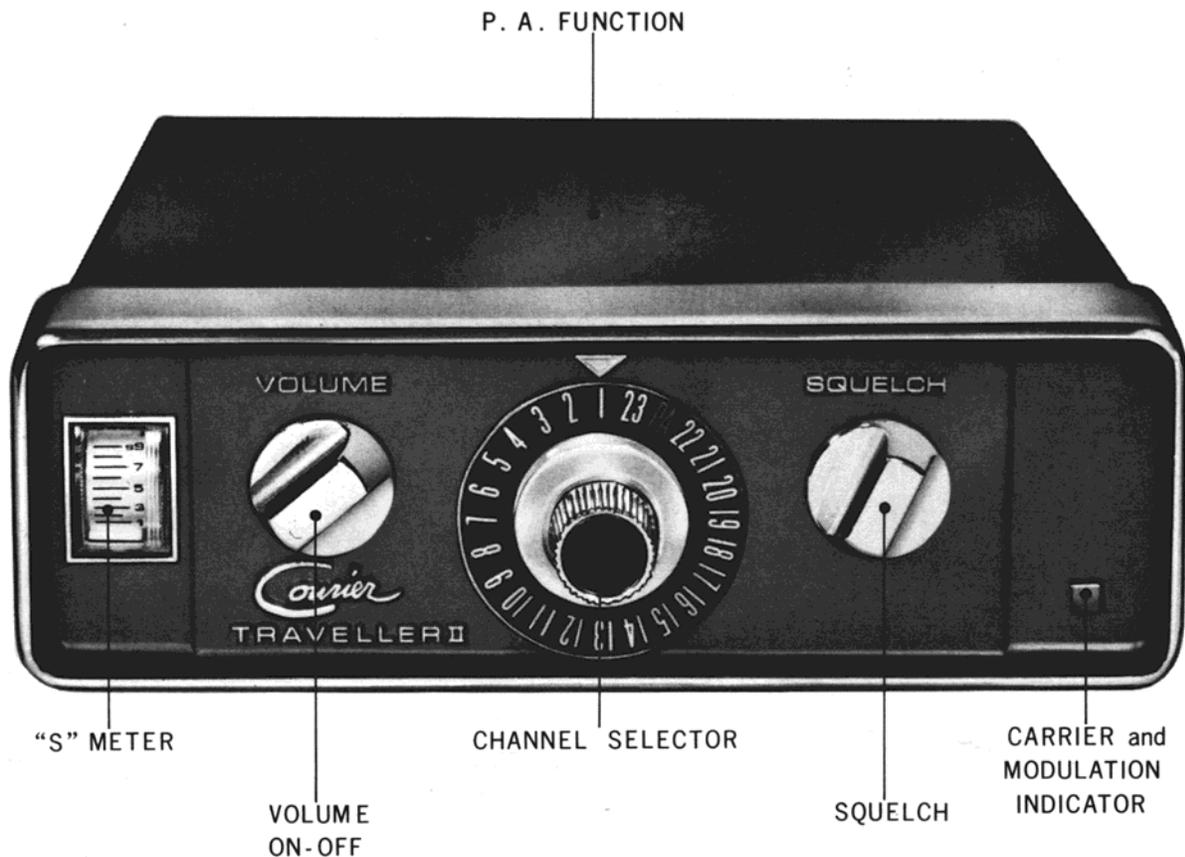
Written authorization must be obtained before any merchandise is returned to the factory.

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.

## Function of Controls

# COURIER TRAVELLER II



MANUFACTURED IN JAPAN EXCLUSIVELY TO THE SPECIFICATIONS OF  
FANON / COURIER CORPORATION  
PASADENA ● CALIF.  
A SUBSIDIARY OF: RESEDL INDUSTRIES

## **IMPORTANT**

THE COURIER TRAVELLER IS A TRANSCEIVER AND THEREFORE CONTAINS A TRANSMITTER WHICH MUST BE REGISTERED WITH THE FEDERAL COMMUNICATIONS COMMISSION PRIOR TO USE.

The registration of your Courier Traveller is not complicated and can be considered to be as routine as obtaining a registration for an automobile. Copies of form #505D can be obtained from the Federal Communications Commission, Washington, D. C. 20554 or from the nearest Field Office listed on page 4.

This Form must be filled out carefully and accurately in complete accordance with the instructions given in the Form. Using the Worksheet and having another person check your information will help prevent unnecessary delays incurred by having the application returned due to errors or omissions. A valid license must be in the licensee's possession before any transmitter can be operated.

If the applicant contemplates operating several transmitters such as a fleet of delivery trucks, or as a family communication system, only one application is required to be submitted. The applicant must then state the total number of transmitters in the system. It is legal and customary to state a higher number of transmitters and thus avoid license modification, changes, etc., at a later date if more transmitters are added to the system. It is legal to be licensed for 20 units and actually operate 10 or so, but it is definitely illegal to operate more units than are called for on the license.

### **ASSIGNMENT OF CALL LETTERS.**

The call letters assigned to each station or system are assigned in geographical and numerical order and special numbering requests will not be honored.

It should be understood that the license granted by the Government is a STATION license and the call sign is the registration number of the station, which is analogous to the license plate on a car. It is incorrect to state that an individual is licensed when in reality, it is the equipment. The licensee is the registered owner of the station and is legally responsible for its use and the conduct of persons using the equipment.

## FCC REGULATIONS AND REQUIREMENTS

Before placing any transmitter on the air, it is necessary that a valid Citizens Band Station license is 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 452C.
2. The maximum allowable collector power input to the final transmitting transistor is 5 watts. The circuitry of the Courier Trveller is so arranged that at a rated input voltage of 12.0 VDC, this value is not exceeded.
3. The maximum allowable height measured from the highest point of the antenna to the nearest existing structure shall not exceed 20 feet.
4. The licensee must attest to the fact he has in his possession, and has read, a copy of FCC Rules and Regulations, Part 95 prior to filling out Form 505D. Copies of this regulation can be obtained from the Federal Communications Commission, Washington, D.C., 20554; or from the nearest Field Office:

Mobile, Ala. 36602  
Anchorage, Alaska 99501  
Los Angeles, Cal. 90014  
San Diego, Cal. 92101  
San Francisco, Cal. 94126  
San Pedro, Cal. 90731  
Denver, Col. 80202  
Miami, Fla. 33101  
Tampa, Fla. 36606  
Atlanta, Ga. 31402  
Savannah, Ga. 31502  
Honolulu, Hawaii 96808  
Chicago, Ill. 60604  
New Orleans, La. 70130  
Baltimore, Md. 21202

Boston, Mass. 02109  
Detroit, Mich. 48226  
St. Paul, Minn. 55102  
Kansas City, Mo. 64106  
Buffalo, N.Y. 14203  
New York, N.Y. 10014  
Portland, Ore. 97205  
Philadelphia, Pa. 19106  
San Juan, P.R. 00903  
Beaumont, Tex. 77704  
Dallas, Tex. 75202  
Houston, Tex. 77002  
Norfolk, Va. 23510  
Seattle, Wash. 98104

# SPECIFICATIONS

## GENERAL

- \* Transistors - 28
- \* IC (Integrated Circuit) - 1
- \* Diodes - 9
- \* Self-contained speaker - 8 ohm voice coil
- \* Detachable Dynamic Microphone with remote switch
- \* Illuminated Channel Indicator
- \* Modulation Indicator
- \* 50 ohm antenna impedance
- \* Operated from a 13.8 V DC supply
- \* 23 Channel selector plus P.A. switch
- \* Squelch
- \* ON-OFF Volume control
- \* External Speaker jack
- \* P.A. jack
- \* Co-axial type antenna connector
- \* Under dash mounting bracket
- \* TVI-Television interference trap circuit.
- \* Automatic noise limiter

## RECEIVER SECTION

- |                               |   |
|-------------------------------|---|
| • Frequency Range (MHz)       | 26.965 to 27.255                                      |
| • Sensitivity                 | .5 $\mu$ V for 10 db S/N at 1000 Hz at 30% modulation |
| • Selectivity                 | BW 6KHz minimum at 6db down                           |
| • Adj. Channel Rejection      | 45 db average   |
| • Audio Distortion at 1000 Hz | Less than 10% at 3W                                   |
| • Spurious Response           | - 50 db   |
| • Crossmodulation Rejection   | Better than 40 db                                     |
| • Intermodulation Rejection   | Better than 50 db                                     |
| • Readability                 | .07 $\mu$ V at 85% modulation                         |
| • Squelch Sensitivity         | .1 $\mu$ V  |
| • Squelch Stop Sensitivity    | 30 $\mu$ V (adjustable)                               |
| • Noise Limiter               | Series gate   |
| • Audio output at 8 ohms      | 3 W minimum   |

## **TRANSMITTER SECTION**

• Frequency Range (MHz)	29.965 to 27.255
• Power Input at 13.8V DC	5 W
• Power Output at 13.8V DC	3 W
• Modulation (10 mV at mic)	100 %
• Emission (Class D Operation)	8A3
• Hum and Noise	40 db down
• Frequency Tolerance	± .005 %
• Antenna Impedance	50 ohms
• Switching	Electronic
• Modulation Distortion	Less than 15 % at 85 % modulation at 1000 Hz



## **GENERAL DESCRIPTION**

Your COURIER Traveller II Citizens Band Transceiver is a quality piece of electronic equipment skillfully constructed from the finest solid state electronic components.

In spite of its small size, it incorporates many unique features which make it a highly selective, sensitive and quiet receiver--as well as a powerful transmitter.

The COURIER Traveller II is equipped with a full set of synthesis crystals so that it will cover all 23 channels of the Class D Citizens Radio Service.

## **RECEIVER SECTION**

The Courier Traveller receiver is designed to receive amplitude modulated signals in the 26.965 to 27.255 MHz (11 meter) citizens band. The unique combination of a mechanical filter, a ceramic filter and LC filter provide at least 45 db attenuation to the adjacent channels and well over 75 db attenuation to the alternate channels.

The RF stage transistor is protected from transient spikes or electrostatic discharge by 2 diodes.

The entire receiver operates from a zener regulated bus to insure maximum stability of volume, spuelch, and frequency over wide variation in input voltage.

Your Courier TRAVELLER II contains, in addition to a floating series gate automatic noise limiter, an additional automatic noise blanker, which virtually turns off the last IF amplifier during the presence of ignition noise contained in a signal.

## **TRANSMITTER SECTION**

Your Courier TRAVELLER II transmitter has been designed for continuous heavy duty transmission of amplitude modulated signals in the 26.965 to 27.255 MHz (11 meter) citizens band.

The Courier TRAVELLER II transmitter consists of 2 crystal controlled oscillators incorporating 10 crystals, the outputs of which are synthesized in a class B mixer followed by 2 class C buffer amplifiers and a highly efficient emitter output final. The output of the final is matched to the antenna by the use of a double pinetwork which also serves to reduce TVI. The separate microphone preamplifier in conjunction with the Dynamic microphone greatly reduces objectionable background noise normally encountered in mobile and marine operations.

## **CONSTRUCTION**

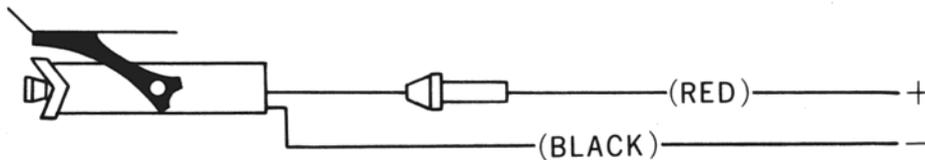
The Courier TRAVELLER II is constructed in the form of a drawer that slides into the steel chrome plated case. All parts have been wave soldered to a laminated printed circuit board. Each part is independently accessible.

The universal mounting bracket permits the mounting of the unit from the top or bottom.

# INSTALLATION

## POWER SOURCE

Your COURIER TRAVELLER II is designed to operate from any base or mobile location. The basic differences in these two installations is the antenna and power supply. The COURIER TRAVELLER II as supplied operates from a 12V DC power source (NEGATIVE OR POSITIVE GROUND SYSTEM). See Figure 1



— FIGURE 1 —

## ANTENNA INSTALLATION

Your TRAVELLER II is designed to operate with any Citizen Band base or mobile antenna, manufactured by any one of a number of good antenna manufacturers. Your choice of a type of antenna to use at your base or mobile depends in large measure upon how and where the antenna is to be mounted; what type of directional radiation is desired; and how much money is to be spent. COURIER dealers carry a large selection of both base and mobile antennas; and are qualified to assist in selecting the best of those which best suit any particular requirement.

Your COURIER TRAVELLER II features an antenna matching circuit which under most conditions requires no peaking if the antenna load is between 35 ohms and 100 ohms. Consequently, if a mobile Citizens Band antenna, is installed with the length of coaxial cable which is supplied with the antenna, no peaking is necessary.

When a Citizens Band base station antenna is installed, it is necessary to connect the COURIER TRAVELLER II the antenna with a 52 ohm coaxial cable. Type RG58/U is recommended for lengths under 50 feet; and RG8/U for lengths over 50 feet.

In the event you want to check the antenna match, use a S. W. R. Bridge meter (such as the Courier Port-A-Lab).

## **TRANSCEIVER INSTALLATION**

To install the COURIER TRAVELLER II use the mounting bracket as a template, drill the three holes for the self-tapping screws.

Secure the bracket with the self-tapping screws, and attach the COURIER TRAVELLER II with the knurled screws.

The COURIER TRAVELLER II is designed for use in NEGATIVE or POSITIVE ground 12 VOLT VEHICLES.

Be certain that your TRAVELLER II is turned off.

Red and black DC supply cords are to be connected as follows. (SEE FIG.1)

1. For negative ground systems:

Connect red cable to battery terminal plus side or ACC terminal of ignition switch, and black cable to battery terminal minus side or any proper place of the frame of your car.

2. For positive ground systems:

Connect black cable to battery terminal minus side or ACC terminal of ignition switch, and red cable to battery terminal plus side or any proper place of the frame of your car.

(Connecting the line cord directly to the battery terminal would make it possible to forget to turn off the unit before leaving the vehicle, and could result in a run down battery.) Using the ignition switch to turn the unit off and on is highly recommended since the unit is automatically placed in service whenever the vehicle is operated and prevents unauthorized operation when the keys are in the owners possession.

## **OPERATING PROCEDURE**

Operation of the COURIER TRAVELLER II is very simple. The unit has 3 external controls: ON-OFF Volume, Squelch, and Channel Selector with P.A.

### **TO RECEIVE CB**

1. Make certain that the COURIER TRAVELLER II has the antenna connected to the unit.
2. Put power switch to "ON" position. The channel indicator light will go on.
3. Rotate volume control to desired level.
4. Rotate Squelch control to maximum (MAX) (AWAKE) position.
5. Set the CHANNEL SELECTOR to the desired channel.

6. Advance the VOLUME control until you hear a rushing noise, and then adjust this control to a comfortable level.
7. The SQUELCH control is used to limit the amount of background noise which comes through the receiver. Adjust this control the COURIER TRAVELLER II is on the "threshold" which is that point where the background noise is cut out. A signal will override the squelch; however, if you have too much squelch action, it will require a strong signal to override it.

## **TO TRANSMIT**

1. Make certain your antenna, power, and microphone connectors are secure.
2. Wait until the desired channel is clear.
3. When the channel is clear, depress the microphone button and talk into the microphone. The microphone should be about three inches from your mouth and should be held at a 45 degree angle. Do not shout into the microphone. The COURIER TRAVELLER II uses a sensitive dynamic microphone. As you talk, loud background noises are absorbed and are not transmitted.
4. As you depress the microphone, you will note that the red modulation indicator lights up. (This indicator is located on the front panel.) As you talk, the brilliance of the light will increase as your talk power increases.

## **PUBLIC ADDRESS FACILITY AND EXTERNAL SPEAKER**

You will note that on the rear of the COURIER TRAVELLER II chassis there are two jacks (P. A. and EXT SPEAKER jack).

To use the external speaker facility plug an 8 ohm speaker line, which terminates in a Herman H. Smith, Inc. Miniature Phone Plug, Pt.No. 480 or equivalent, into the external speaker position. When the external speaker is plugged in, it will automatically cut out the internal speaker and all incoming signals will be heard on the external speaker. To use the Public Address Facility, prepare an 8 ohm horn or speaker which terminates in a Herman H. Smith, Inc. Miniature Phone Plug, Pt.No. 480 or equivalent. To operate the PA speaker, plug it into the "PA" jack on the rear of the unit. Turn the unit "ON". Turn the CB channel selector switch to the PA position. (Between channels 22 and 23.)<sup>®</sup> When you talk into the microphone, your voice will be reproduced over the Public Address speaker. You can adjust the volume of the external speaker with the volume control on the front of the unit.

NOTE: Be Sure P. A. speaker wires do not touch ground.

## **NOISE SUPPRESSION**

The clarity and useful range of any mobile radio equipment can be seriously affected by noise induced by the vehicle. After the mobile equipment has been placed in operation, it should be analyzed for excessive noise.

Mobile noise is normally due to one or more of the following three factors: ignition noise; generator or alternator noise; accessory noise.

In most vehicles (1956 and later), resistance high tension ignition cable is supplied as standard equipment for the complete ignition harness. The use of this cable eliminates the need for sparkplug suppression. In those instances where high tension cable is not supplied, a "High Tension Harness Kit" is available from automotive supply dealers.

To differentiate between noise created by the ignition system and noise created by the generator or alternator, start the vehicle and race the engine. Then turn off the engine. Noise which stops immediately is caused by the ignition system.

Noise which stops a few seconds after the ignition is turned off is caused by the alternator or generator.

If you do experience alternator or generator noise, suppression kits are available at most two-way radio dealers.

To further eliminate mobile noise, it is suggested that you check to see that bonding straps are installed from the vehicle hood to the firewall; and from the tailpipe to the vehicle chassis.

Accessory noise can be remedied by connecting a Sprague Type 48P18 (0.5  $\mu$ F, 50V) Bypass capacitor. Cut the lead as close to the actuating element as possible. Be sure the capacitor is well-bonded to the body or engine block. (See your dealer)

## **TVI SUPPRESSION**

The TRAVELLER II design includes an adjustable trap to attenuate interference to television receivers. This trap is factory adjusted and normally requires no further adjustment. In case of severe interference however, the trap can be adjusted while observing a television receiver, for minimum interference.

## CRYSTAL SYNTHESIS

Your COURIER TRAVELLER II 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 14 crystal frequencies are selectively mixed to provide 46 crystal fixed transmit and receive frequencies.

These crystals plug into the printed circuit board. Listed below, you will find which crystals affect each of the specific channel frequencies. You will also find a diagram locating each of these crystals as they are placed in the printed circuit board.

To determine which channels are affected by which crystals locate your transmit or receive channel. The crystal frequency at the top of that column, and the crystal frequency at the left of that column are the two crystals which determine that channel. For example, channel 6 transmit is determined by the 10.625 and the 37.65 crystals.

### TRANSMIT

	37.60	37.65	37.70	37.75	37.80	37.85
10.635	1	5	9	13	17	21
10.625	2	6	10	14	18	22
10.615	3	7	11	15	19	
10.595	4	8	12	16	20	23

### RECEIVE

	37.60	37.65	37.70	37.75	37.80	37.85
10.180	1	5	9	13	17	21
10.170	2	6	10	14	18	22
10.160	3	7	11	15	19	
10.140	4	8	12	16	20	23

## PARTS LIST AND SERVICE

### COURIER TRAVELLER- II

Trouble-shooting assistance may be obtained by writing to Fanon/Courier Corporation 100 Hoffman Place, Hillside, N.J. 07205. Address your inquiry to the attention of the Service Manager. Always state THE MODEL, SERIAL NUMBER AND ISSUE OF SCHEMATIC DIAGRAM TO WHICH THE UNIT WAS BUILT. The schematic issue letter may be obtained from the lower right hand corner of the schematic, from the pictorial, or from the legend on the printed circuit board.

When ordering replacement parts, order by Courier part number as well as description.

REPLACEMENT PARTS LIST				FORM # 9F01
SYMBOL & PART NUMBER SCREENED ON P. C. BOARD	COURIER PART No.	JEDEC PART NUMBER TRANSISTOR AND DIODES	DESCRIPTION	
TR1	9TR1	2SC535 (B)	Transistor	
TR2	9TR2	2SC710 (C)	"	
TR3, 5, 15	9TR3	2SC710 (D)	"	
TR4, 6, 7, 16	9TR4	2SC710 (B)	"	
TR8, 9, 13	9TR5	2SC711 (E)	"	
TR10	9TR6	2SC815 (L)	"	
TR11, 12	9TR7	2SD154 (H)	"	
TR14	9TR8	2SA463 (R)	"	
TR17	9TR9	2SC773	"	
TR18	9TR10	2SC775	"	
TR19	9TR11	2SC778	"	
D1, 9	9TR12	WG1012	"	
D2	9TR13	ZBI-9	Diode	
D3, 5, 6	9TR14	IN-60	Zenor Diode	
D4	9TR15	IS2075K	Diode	
D7	9TR16	MV-1	Varistor	
D8	9TR17	V03C	Diode	
D10	9TR18	1S34	Diode	

CRYSTALS			
140	9CR140	10.140 MHz	Crystal Fund Type
160	9CR160	10.160 MHz	" " "
170	9CR170	10.170 MHz	" " "
180	9CR180	10.180 MHz	" " "
595	9CR595	10.595 MHz	" " "
615	9CR615	10.615 MHz	" " "
625	9CR625	10.625 MHz	" " "
635	9CR635	10.635 MHz	" " "
600	9CR3760	37.600 MHz	3rd OVERTONE
650	9CR3765	37.650 MHz	" " "
700	9CR3770	37.700 MHz	" " "
750	9CR3775	37.750 MHz	" " "
800	9CR3780	37.800 MHz	" " "
850	9CR3785	37.850 MHz	" " "
COILS, IFT, MECHANICAL FILTERS, CERAMIC FILTERS, CHOKES AND TRANSFORMERS			
L1	9C01	TKXN-22193X	Coil, REC
L2, 3	9C02	TKXN-22071N	Coil, REC
L4	9C03	TKXN-20616BM	Coil, 37 MHz OSC
L5, 6	9C04	KAC-6184A	Coil, REC. IFT, 10.7MHz
L7	9FM1	MFH-51T	Filter, Mech. 455KHz
L8	9IF1	YXE-10857	XFMR, IFT, 455 KHz
L9	9IF2	YLC-15430	XFMR, IFT, 455 KHz
L10	9IF3	YLC-20400N	XFMR, IFT, 455 KHz OSC
L11	9C05	NB711-F80	Coil, XMT, 10.6MHz OSC
L12, 13	9C06	KXN-13638	Coil, XMT, Filter
L14	9C07	KXN-13636	Coil, XMT, Filter
L15	9C08	NY70-B38	Coil, XMT, BUFF
L16	9C09	NB711-F81	Coil, XMT, RFC
L17	9C010	NS-1409	Coil, XMT, RFC
L18	9C011	TC-71025	Coil, XMT, Input
L19	9C012	NS-1344	Coil, XMT, RFC
L20	9C013	NS-71025	Coil, XMT, RFC
L21	9CH1	N35-7433H	Choke, Line Filter
L22	9CH2	ZMT-1782A	Choke, TRAP
T1	9TA1	I13M	XFMR, Audio Driver
T2	9TA2	N35	XFMR, Audio Output

CAPACITORS			
C91 C53 C45, 49, 51 C30, 48, 58, 89, 90 C26 C24 C75	9CE1 9CE2 9CE3 9CE4 9CE5 9CE6 9CE7		CAP LYTIC 1000uF 16 WVDC 100uF 16 WVDC 47 uF 6.3 WVDC 1 uF 16 WVDC 4.7 uF 16 WVDC 220 uF 16 WVDC 0.5 uF 50 WVDC
GENERAL			
J1 J2 J3 J4  VR2 VR4  Case Bkt. Mtg. Bezel Channel SW Volume Cont. Squelch Cont. S-Meter	9CN 1 9CN 2 9CN 3 9CN 4 9MI 1 9LC 1 9SP 1 9CT 1 9CT 2 9SW1 9SO 1 9BU 1  9MS1 9MS2 9MS3 9KN 1 9KN 2 9KN 3 9ME1	CN-2 SJ-296 SJ-296 Fanon/Courier  EAS-12D40SA RS162C-353 RN160C-248 PS20H 4-6-24 SD-0105  Channel Volume Squelch HN18-15	Connector ANT Mic. Jack Jack EXT SPKR Jack P. A. SPKR Microphone Assembly Cord DC. PWR Assembly Spkr, 3X5 8 ohm POT. 10K VOL w/switch POT. 10K Squelch Switch 24Pos. w/switch Socket, XTAL Pilot Lamp 6V, 30mA For Channel, Meter and MOD Case Assembly Bkt. Mtg. Handle Bezel, Finished Knob Assembly Knob Knob
RESISTORS			
			1/4 W-carbon-all values 1/2 W-carbon-all values 1 W-carbon-all values

## **NOTES**

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**FANON / COURIER CORPORATION**

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PASADENA, CALIFORNIA 91105

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