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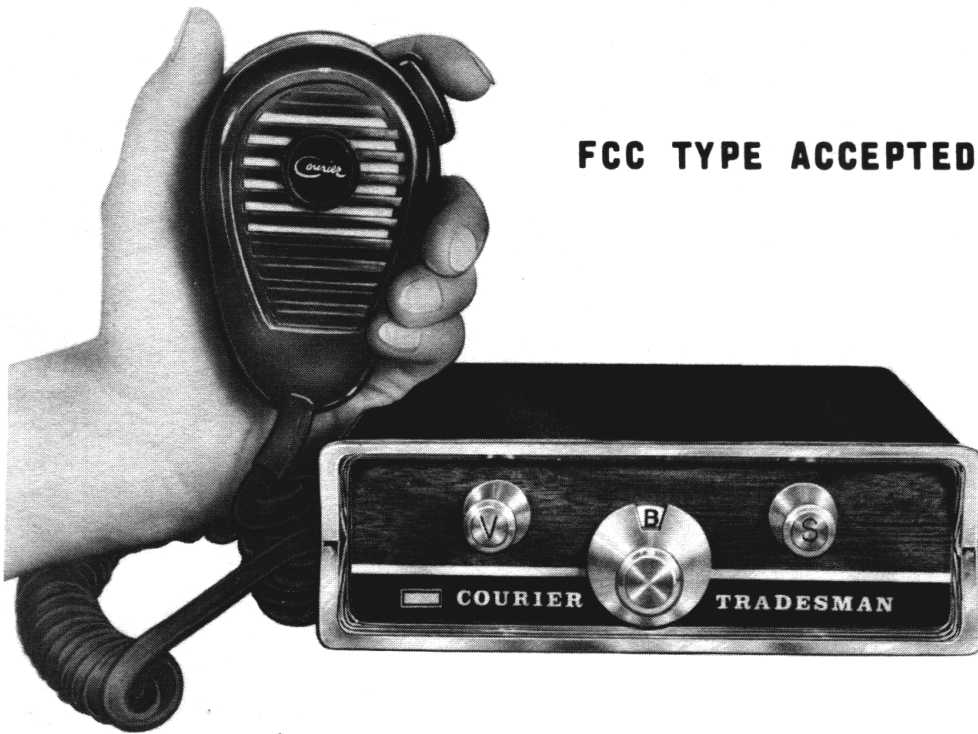
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Thank you for any support you can give.

Courier

Tradesman

BUSINESS BAND TRANSCEIVER



FCC TYPE ACCEPTED

INSTRUCTION MANUAL

STANDARD WARRANTY

Adopted and Recommended by Electronic Industries Association

COURIER COMMUNICATIONS, INC. 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, 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 radio dealer or wholesaler 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.

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 extends to 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.

Your Courier Tradesman is:

...a quality piece of electronic equipment skillfully constructed from the finest solid state electronic components.

...very compact yet it incorporates many unique features which make it a highly selective, sensitive and quiet receiver - as well as a powerful transmitter.

...equipped with four internal sets of crystal sockets, that can be used to cover four channels of the Business Band Radio Service.

PLEASE READ THIS INSTRUCTION BOOK CAREFULLY!

We are confident that you will derive all of the benefits which have been designed into the TRADESMAN if installation is properly made and operating practices described herewith are carefully followed.

SPECIFICATIONS

GENERAL

Dimensions - width	5 3/4"
depth	6 1/4"
height	1 7/8"
Weight	3.5 lbs.
DC Power Consumption:	
Receive (standby)	280 ma
Transmit (100% modulation)	1.5 Ampere
Channels	4
Controls	Squelch; Vol-ON/Off; Channel Selector
Microphone	Noise cancelling ceramic
Transistors	17
Diodes	11

RECEIVER

Frequency Range	* 27.235 to 27.275 MHz
Sensitivity	.5uv for 6 db $\frac{S+N}{N}$ @1000 Hz 30% modulation
Selectivity	6 db down at \pm 6 KHz
Adj. Channel Rejection	50 db minimum
Audio Distortion 1000 Hz	Less than 15% @2W
Spurious Response	50 db
Crossmodulation Distortion	Better than 40 db
Intermodulation Distortion	Better than 50 db
Readability	.1uv @85% mod.
Squelch Sensitivity	.2uv
Squelch Stop Sensitivity	30uv - 30000 uv
Noise Limiter	Series gate & IF noise blanker
Audio Output	3.0W minimum

TRANSMITTER

Frequency Range	* 27.235 to 27.275 MHz
Power Input @12.0 VDC	5.0W
Power Output	3.0W
Modulation (10mv at mic)	100%
Emission	8A3
Hum & Noise	40 db down
Frequency Tolerance	\pm .002%
Antenna Coupling	50 ohms

* May be extended from 26.620 to 35.98 MHz at factory if requested. Specify when ordering.

NOTICE

DO NOT TRANSMIT WITHOUT A LICENSE!

Your COURIER TRADESMAN contains a Transmitter which must be registered with the Federal Communications Commission BEFORE YOU USE IT!

HOW TO OBTAIN YOUR LICENSE

Carefully fill out Business Band application Form No. 400, in complete accordance with the instructions given in the form. Use the worksheet and have another person check your information for accuracy. This will avoid return of your application due to errors or omissions. You must have a valid license before any Transmitter can be operated.

Only one application is necessary, whether you have one Transmitter, a fleet of trucks or a family communications system. You must list the TOTAL number of transmitters in the system. It is legal to be licensed for 20 transmitters and actually operate 10 or so. But it is definitely illegal to operate more units than called for on the license. Therefore, list more transmitters than presently needed in order to avoid later license modifications or changes due to the addition of future units.

Double check your form for accuracy and when complete, send it with \$10.00 to:

Federal Communications Commission
Washington, D.C. 20554

IMPORTANT

You must also have in your possession, read and be familiar with, FCC Rules and Regulations, Vol. V, Part 91, which apply to the operation of Business Radio Equipment. Copies of this regulation may be obtained

from the Federal Communications Commission, Washington, D.C. 20554;
or from the FCC Field Office nearest your home:

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. 33606
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

INSTALLATION

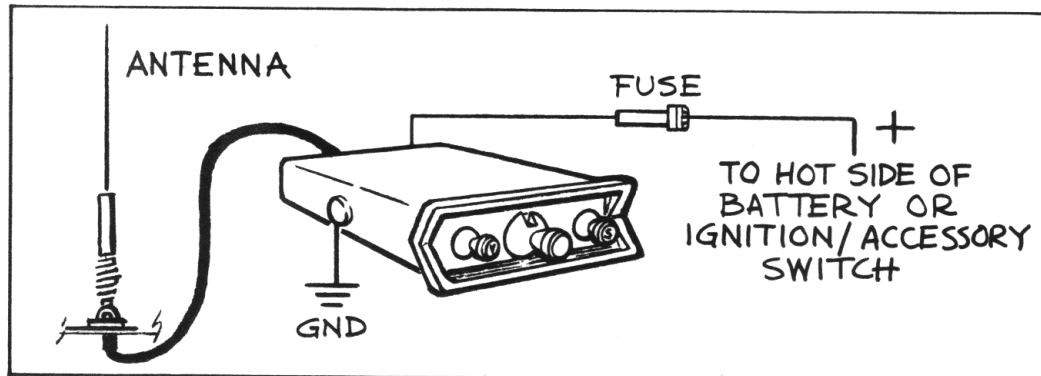


FIG. 1 MOBILE WIRING

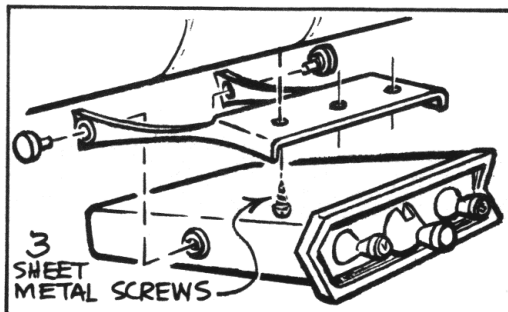


FIG. 2 UNDER DASHBOARD

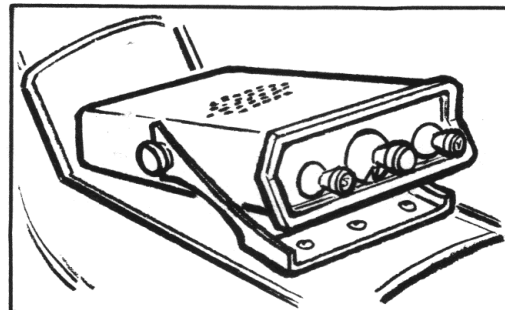


FIG. 3 HUMP OF CAR

INSTALLATION (cont'd)

POWER

The TRADESMAN is designed to operate from any base or mobile location. The basic differences in these two installations are the antenna and power supply. The TRADESMAN is furnished with a 12 volt DC power supply which is designed for NEGATIVE GROUND operation only.

A 117 volt AC Power Supply is available as an optional extra (Courier Model PS 1). These units are available from your COURIER dealer.

ANTENNA INSTALLATION

The TRADESMAN is designed to operate with any base or mobile antenna manufactured by any one of a number of good Business Band antenna manufacturers. The choice of antenna to be used at a base or mobile location 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 antennae; and are qualified to assist in selecting those which best suit any particular requirement.

ANTENNA MATCHING: Your COURIER TRADESMAN may be connected to any 50 or 70 ohm base, mobile, or marine antenna without the necessity of making any adjustments within the unit, provided the antenna load is between 35 and 100 ohms. Should a VSWR meter (used between the antenna and the Courier Tradesman) indicate the presence of a high standing wave ratio, the trouble will most likely lie in the antenna. It is impossible to make an adjustment within the TRADESMAN to compensate for a mismatch in the antenna.

When the Business Band base station antenna is installed, it is necessary

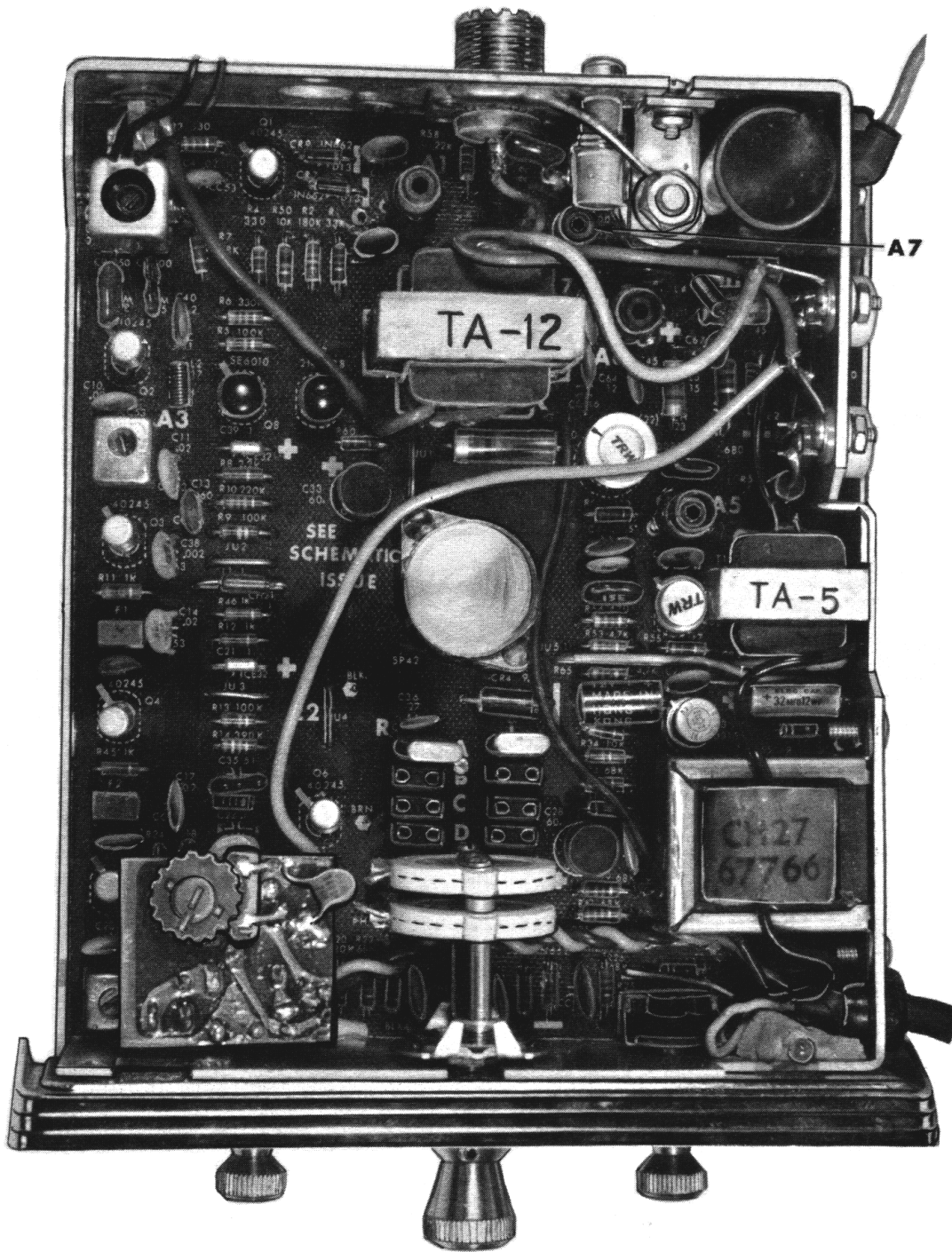


FIG. 4 VIEW OF PARTS LOCATION

to connect the TRADESMAN to the antenna with a 52 ohm coaxial cable. Type RG58/U is recommended for lengths under 50 feet; and RG8/U for all lengths over 50 feet.

TRANSCEIVER INSTALLATION

Your TRADESMAN is designed to be used with the speaker either in the up or down position. It should be noted that the set is equipped with a combination mounting bracket and handle. To install the set in an "under the dashboard" condition, remove the knurled screws securing the mounting bracket. Install the mounting bracket beneath the dashboard. Place the set with the speaker in the down position. Tighten the knurled screws. See Figure 2.

Your TRADESMAN is ideally suited for mounting on the transmission "hump" found in most newer vehicles. When used in this location, the handle is angled so that the set controls and speaker face up. See Figure 3.

Your TRADESMAN is designed for use in **NEGATIVE GROUNDED 12 VOLT VEHICLES ONLY!** Connect the red fused wire of the power cord to the "hot" side of the ignition switch or directly to the positive terminal of the battery. **DO NOT REVERSE POLARITY.** The set is protected against damage in the event of polarity reversal. However, the unit will not operate. Check that your connections are correct.

Fuse size AGX 2 amp fuse only is to be used in DC cord. Any other fuse will void our warranty.

Connect the antenna lead connector to the rear of the set.

Post your license at your fixed station location.

Affix a 452C Mobile ID card to your mobile units (available from FCC). Make certain they are filled out properly and signed.

YOU ARE NOW READY FOR OPERATION.

OPERATING PROCEDURE

Operation of the TRADESMAN is very simple. The unit has three external controls: VOLUME-ON/OFF; SQUELCH; and CHANNEL SELECTOR.

TO RECEIVE

1. Make certain that the set has the antenna lead connector plugged into the unit.
2. Turn the set on with the VOLUME-ON/OFF control. (This control is marked with a "V"). The channel indicator light will go on.
3. Rotate the SQUELCH control (marked with "S") fully clockwise.
4. Set the CHANNEL SELECTOR to the desired channel. (Be certain that there are crystals in this position.)
5. Advance the VOLUME control until you hear a rushing noise, and then adjust this control to a comfortable level.
6. The squelch circuit is an electronic switch. When in operation, it will turn the audio system of the set off until a signal is received. Adjust the SQUELCH control counter-clockwise until the unit becomes quiet when no signal is being received. This is the "threshold point". At this point, a signal will awaken the receiver. The further CCW the SQUELCH control is turned, the stronger the incoming signal must be to awaken the receiver.

TO TRANSMIT

1. Make certain the antenna lead connector is secure.
2. Wait until the desired channel on which you wish to transmit is clear.

3. When the channel is clear, depress the microphone button and talk into the mike. The microphone should be about three inches from the mouth, and should be held at a 45° angle. Do not shout into the microphone. The TRADESMAN uses a sensitive ceramic microphone with built-in noise cancelling. While talking, loud background noises are absorbed and are not transmitted.

4. After depressing the microphone, note that the red modulation indicator lights up. While talking, the brilliance of the light will increase slightly as talk power increases.

OPERATING YOUR COURIER TRADESMAN AS A PORTABLE UNIT

Your Courier Tradesman, used in conjunction with items supplied in the Port-A-Pak accessory kit, may be operated as a self-contained battery operated portable transceiver. Refer to instructions supplied with the Port-A-Pak for installation and operation. See your COURIER dealer for a demonstration.

OPERATION OF YOUR COURIER TRADESMAN AS A BASE STATION

Your COURIER TRADESMAN may be set up as a base station and operated from your 120 VAC house current by adding a Courier Model PS 1 110/12 VDC converter.

Connect the Tradesman DC fuse holder cap to the PS 1 fuse holder using 2 amp fuse. Connect jumper wire from PS 1 ground wire to Tradesman cabinet screw.

OPERATING REQUIREMENTS AND HINTS

Upon receipt of valid Business Band station license, the licensee must post the license at the main control (fixed) station location, then fill out and attach a 452C transmitter identification card to each mobile unit (as previously described).

If only mobile or craft operated units are to be used, a photocopy of the original license (plus the 452ID card) can be carried in the "master" station. The original must be retained at the location so stated on the ID cards.

It is best for technical as well as personal reasons, to abide by the FCC request for SHORT TRANSMISSION. Learn to say a lot with a little and everyone concerned will be grateful.

Once the station or system is licensed anyone may speak over it and use it for any purpose not contrary to FCC rules and regulations Part 91, provided the station or system is under control and supervision of the licensee.

When a licensed system contains several cars, boats or planes, etc., it is common to designate the control station by the assigned call letters and arbitrarily assign numbers or names to each unit. It is not necessary to give the call letters every single time, actually it is more feasible to give the calls upon establishing initial contact and then occasionally thereafter.

It is customary, however, to announce that the station is entering or leaving radio service. Most dispatchers will find it advantageous to arrange some signalling system as the "10-code".

CRYSTAL SELECTION

Two crystals are required for operation of each channel. The TRADESMAN is supplied with one transmit and one receive crystal. These crystals are installed in the first crystal position "A". The other channels will not operate until crystals are installed in the sockets.

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NOTE

Permission to operate on more than one channel must be secured from the FCC upon application for your license.

To install crystals in any of the other three channel positions, unscrew the three screws at the rear of the unit. Push the set's chassis forward. The channels are lettered from "A" through "D" on the printed circuit board.

The Crystals are inserted in a vertical position -- TRANSMIT ON THE RIGHT; RECEIVE ON THE LEFT, as viewed from the front.

To secure proper and legal on-frequency operation it is essential to use precision crystals which are ground to the necessary close tolerances. We recommend the use of only COURIER crystals, which are available from all COURIER dealers. Listed below are part numbers and frequencies for each of the transmit and receive channels:

TRADESMAN CRYSTALS

CHANNEL FREQ. (MHz)	TRANSMIT PART NO.	RECEIVE PART NO.
27.235	TC 27.235	CR 27.235
27.245	TC 27.245	CR 27.245
27.255	TC 27.255	CR 27.255
27.265	TC 27.265	CR 27.265
27.275	TC 27.275	CR 27.275

NOTE: Channel frequency is stamped on the crystal. Crystals for frequencies other than those listed are available upon request at additional cost.

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.

NOISE SUPPRESSION (cont'd)

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 (1958 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 spark plug 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 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 (0.5uf, 50V). By-pass capacitor across the accessory line. Cut the lead as close to the offending accessory as possible. Be sure the capacitor case is well-bonded to the chassis, frame or engine block.

TVI

The double tuned pi output circuit in the Tradesman transmitter serves to attenuate all spurious and harmonic signals to a value well below the FCC prescribed minimum. Should the Courier Tradesman be received on nearby television, radio or other electronic devices, chances are that the fault lies at the receiver and can be cured by the addition of a high-pass filter to the unit picking up the signal. In any event, a duly licensed Business Band station is not required to suspend, curtail, or in any way abstain from operating a normally functioning Courier Tradesman unless so ordered to do so by the FCC. In all cases of interference, courteous cooperation usually results in a happy compromise.

SERVICE

Your Courier TRADESMAN is supplied completely aligned, adjusted, and tested and is warranted for 90 days. Should service be required, the Courier TRADESMAN should be serviced by a competent Warranty Station. You must obtain Authorization from Courier prior to returning your unit to the factory for service.

MAINTENANCE

Your transceiver has been designed to give you dependable, efficient service. For optimum operation of your equipment, install and handle with care. The finest equipment will not perform efficiently if installed and operated improperly.

The Courier TRADESMAN is supplied aligned and should not require alignment in the field. Transistors and parts may be replaced with the exception of tuned circuits without having to realign the TRADESMAN Sensitivity measurements to locate a weak or defective transistor or component, as well as the level of the signal generator connected to the base of each transistor required to yield the required output voltage at the AGC test point is indicated next to the base symbol of each transistor and Notes 6 & 7 as shown on schematic LI-54.

The use of generators of differing manufacture may yield widely varying values. Such generators can be used if individual levels are first established by measuring a normal unit.

MAINTENANCE (cont'd)

Generator output is 50 ohm with a 6 db pad inserted. Levels listed are open-circuit values measured after the pad. Signals can be supplied by Measurements Model 80 terminated with Measurements Model 80ZH3 pad or can be supplied by a Hewlett-Packard Model 605 with the Measurements Model 80ZH3 pad.

WARNING

RULES PART 91 REQUIRES THAT THE TRANSMITTER SECTION BE ADJUSTED OR SERVICED BY, OR UNDER THE IMMEDIATE SUPERVISION OF, A SERVICE TECHNICIAN WHO POSSESSES A VALID 1ST OR 2ND CLASS RADIO TELEPHONE OPERATOR'S LICENSE.

RULES PART 91 REQUIRES THAT CRYSTALS OR COMPONENTS IN THE TRANSMITTER SECTION BE REPLACED BY, OR UNDER THE IMMEDIATE SUPERVISION, OF A SERVICE TECHNICIAN WHO POSSESSES A VALID 1ST OR 2ND CLASS RADIO TELEPHONE OPERATOR'S LICENSE.

PARTS LIST

A separate parts list with accompanying schematic diagram is supplied for your convenience. All components not commercially available are listed with prices and instructions on purchasing.

NOTICE

The manufacturer reserves the right to make changes and or modifications without prior notice. Modification in design, by anyone except Courier Communications, Inc. will void the warranty. If difficulty is experienced, and your TRADESMAN requires service, write, call or contact Courier Communications at below address for authorization prior to returning unit.

COURIER COMMUNICATIONS, INC.

439 Frelinghuysen Avenue Newark, N.J. 07114

a **WHITTAKER** company