MIDLAND®
ELECTRONICS COMPANY

MODEL 13-879B

5-WATT 23-CHANNEL BASE STATION TRANSCEIVER

OWNER'S GUIDE

FEDERAL COMMUNICATIONS COMMISSION'S REQUIREMENTS

Your new Midland 13-879B is a combination receiver-transmitter designed, built, and F. C. C. type accepted for licensed Class D operation on any of the 23 frequencies designated as citizens band channels by the Federal Communications Commission. You are required to read and understand Part 95 of the F. C. C. rules and regulations prior to operation of this unit. Part 95 regulations are available from the Superintendent of Documents, Government Printing Office, Washington D. C. 20402. You are also required to complete F. C. C. form 505 and submit it to the F. C. C. in order to receive your license to operate this unit. F. C. C. regulations will be violated if you transmit with this unit prior to receipt of your license.

NOTE

The technical information, diagrams, and charts provided in this manual are supplied for the use of a qualified holder of a first or second class radiotelephone license in servicing this transceiver. It is the user's responsibility to see that this unit is operating at all times in accordance with the F. C. C. Citizens Radio Service regulations.

If you install or service your own transceiver, do not attempt to make any transmitter tuning adjustment. Transmitter adjustments are prohibited by the F. C. C. unless you hold a first or second class radiotelephone license or are in the presence of a person holding such a license. A Citizens Band or Amateur license is not sufficient.

When service is performed by an authorized and licensed person, care must be taken in the replacement of parts to use only authorized parts, in order not to void the type acceptance of this model.

MIDLAND ELECTRONICS COMPANY HEREBY CERTIFIES THAT THIS UNIT HAS BEEN DESIGNED, MANUFACTURED AND F.C.C. TYPE ACCEPTED IN ACCORDANCE WITH VOL. 6, PART 95 OF THE CURRENT F.C.C. RULES AND REGULATIONS AS OF THE DATE OF MANUFACTURE.

WARNING

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

OWNER'S GUIDE

Your 13-879B is a versatile, professional quality transceiver and we strongly suggest that you read this owner's guide carefully before operation, so that you may receive full benefit from its many features.

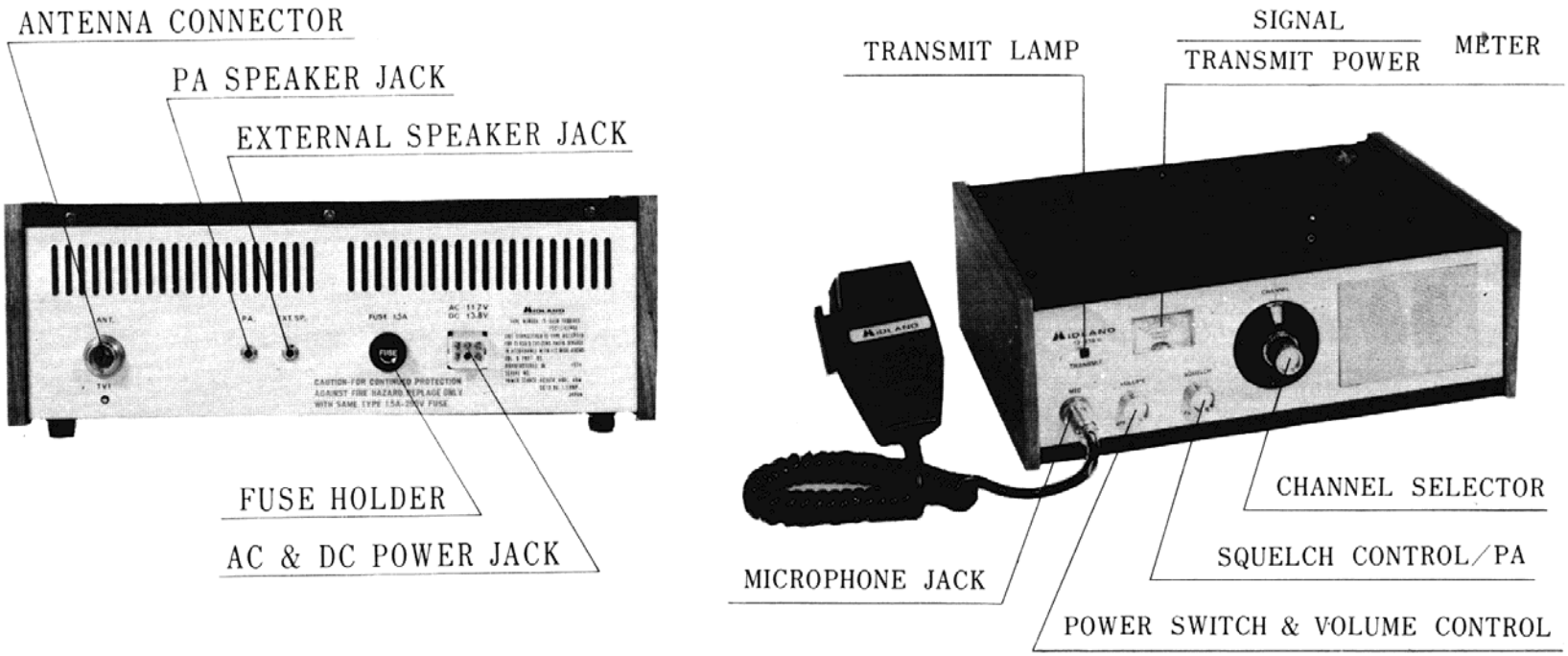
DESCRIPTION

The Midland 13-879B employs all silicon transistors in both the receiver and transmitter to provide reliable communication in the 27MHz citizens band.

Channel selection is easy, a single 23-position channel selector provides simultaneous selection of both transmit and receive frequencies. All receive and transmit crystals for 23 channel are supplied and it is not necessary to buy extra crystals.

Other outstanding features in your new 13-879B are a variable squelch for noise cancellation, automatic gain control, high sensitivity dual conversion receiver, push-to-talk microphone with coiled retractable cord and compact light-weight construction.

OPERATION OF CONTROLS



VOLUME CONTROL/ON-OFF SWITCH:

This is the speaker volume control. Rotate to the right to turn the power on and to increase the volume. This control does not affect the transmitting output.

CHANNEL SELECTOR:

Controls both transmitter and receiver frequencies simultaneously and may be set to any of the 23 positions indicated. All necessary crystals are supplied for full 23 channel operation.

SQUELCH:

Quiets the receiver when signals are not being received and allows a quiet standby operation. It functions only in the receive mode and does not affect the receiver volume when signals are being received. To adjust: When no signals are present, rotate the squelch control clockwise until the receiver is quieted Incoming signals will automatically release the squelch. Careful adjustment is necessary as settings too far to the right will not allow weaker signals to release the squelch.

TX LIGHT:

This is a transmit indicator light and will glow green when the push-to-button is pressed. This light also indicates modulation levels and will vary as you speak into the microphone.

EXTERNAL SPEAKER:

A speaker jack is provided for use with an external speaker. Use a standard 3.5mm two circuit plug for this jack. When the plug is inserted, the built-in speaker in the set is automatically disconnected and the speaker which you have connected to the plug operates.

MICROPHONE PTT (Push-To-Talk):

The microphone is the push-to-talk type and controls both the transmitter and receiver. To transmit, press and hold the push-to-talk switch on the microphone. Hold the microphone 2 to 3 inches from your mouth and speak in a normal tone of voice. To receive, release the push-to-talk switch.

SIGNAL (Output Meter):

In the receive position, it measures the relative strength of incoming signals. In the transmit position, it measures the relative output power of your transmitter.

PUBLIC ADDRESS SWITCH:

In the "PA" position, your transceiver is converted to a public address system. A convenient pin jack on the back panel is provided for connection to any standard 8 ohms PA speaker.

ANTENNA INSTALLATION:

Any citizens band beam, dipole, ground plane or vertical antenna may be used, a ground plane type antenna will provide greater coverage, and since it is essentially non-directional, it is ideal in base station to mobile operation.

From base station to base station or point-to-point operation a directional beam will give greater distance even under adverse conditions. The range of the transceiver depends greatly on the height of the antenna so, whenever possible, select the highest location within F.C.C. limits. Whatever the type of antenna selected, it is important that it be properly adjusted and matched and the connecting transmission line be in good condition so as to avoid a high VSWR (voltage standing wave ratio). A VSWR over 2 to 1 results in reduced radiated power and may cause instability and damage to the final output stage of the transceiver. A VSWR bridge should be used initially after antenna installation and periodically thereafter in order to insure that the antenna is in proper working order. VSWR should always be checked after a storm with high winds or icing conditions or whenever there is any reason to suspect the possibility of damage to the antenna or transmission line.

COMBINATION AC/DC POWER SUPPLY CONNECTOR

Separate DC and AC power cables are supplied. For DC operation, use DC power cable supplied. For AC operation, use AC power cable supplied. Caution should be used when attempting to use power cables other than those supplied. Pin connection and polarity must be observed.

TVI TRAP COIL

Minimizes TV interference. It is preset at the factory and usually does not require readjustment. However if necessary, it maybe adjusted only by licensed technician.

GENERAL OPERATING INSTRUCTIONS

The explanations of operating controls and functions should be read and understood before actual operation of this transceiver.

1. Plug in the microphone and check to be sure that the antenna and power cables are properly connected.
   CAUTION: Do not transmit until an antenna or suitable dummy load has been connected to the coax antenna output jack.
2. Set the channel selector to the desired channel.
3. Initially, set the squelch control fully counterclockwise.
4. Turn the set on and adjust the volume control to the desired level.
5. To transmit, press and hold the push-to-talk switch on the microphone. Hold the microphone 2 to 3 inches from your mouth and speak in a normal tone of voice. To receive, release the push-to-talk switch.

SPECIFICATIONS

Circuitry:	18 transistors, 15 diodes, 1 IC, 2 transistor for squelch circuit.
Frequency Control:	±0.005% crystal
Channels:	23-all supplied
Controls:	Volume, variable squelch, channel selector
Jacks and Connections:	Jack for microphone, external antenna, external speaker, PA speaker and AC/DC power socket.
Power Source:	117 Volts AC, 13.8 Volts DC.
Speaker:	3" dynamic
Microphone:	Dynamic
Size:	12-5/16" W x 4-5/32" H x 8-19/32" D
Accessories Included:	Microphone with coiled cord. DC power cord. AC power cord.
Weight:	9.7 lbs.

RECEIVER

Receiving System:	Dual conversion superheterodyne with tuned RF, AGC, automatic noise limiting circuit.
Sensitivity:	0.5 μv for 10 db (S + N)/N
Selectivity:	6.0 KHz at 6 db down
Spurious Rejection:	50 db
Audio Output Power:	3 watts
Squelch Range:	.5 ~ 300 microvolts
Intermediate Frequency:	1st conversion: 10.625 MHz 2nd conversion: 455 KHz

TRANSMITTER

Modulation:	High level Class B
RF Output Power:	4 watts

FREQUENCY SYNTHESIZER CRYSTAL COMBINATION LIST

(A) Group 6 pcs.

X^1 37.60 MHz
X^2 37.65 MHz
X^3 37.70 MHz
X^4 37.75 MHz
X^5 37.80 MHz
X^6 37.85 MHz

(B) Group 4 pcs. (Transmitting)

X^7 10.635 MHz
X^8 10.625 MHz
X^9 10.615 MHz
X^{10} 10.595 MHz

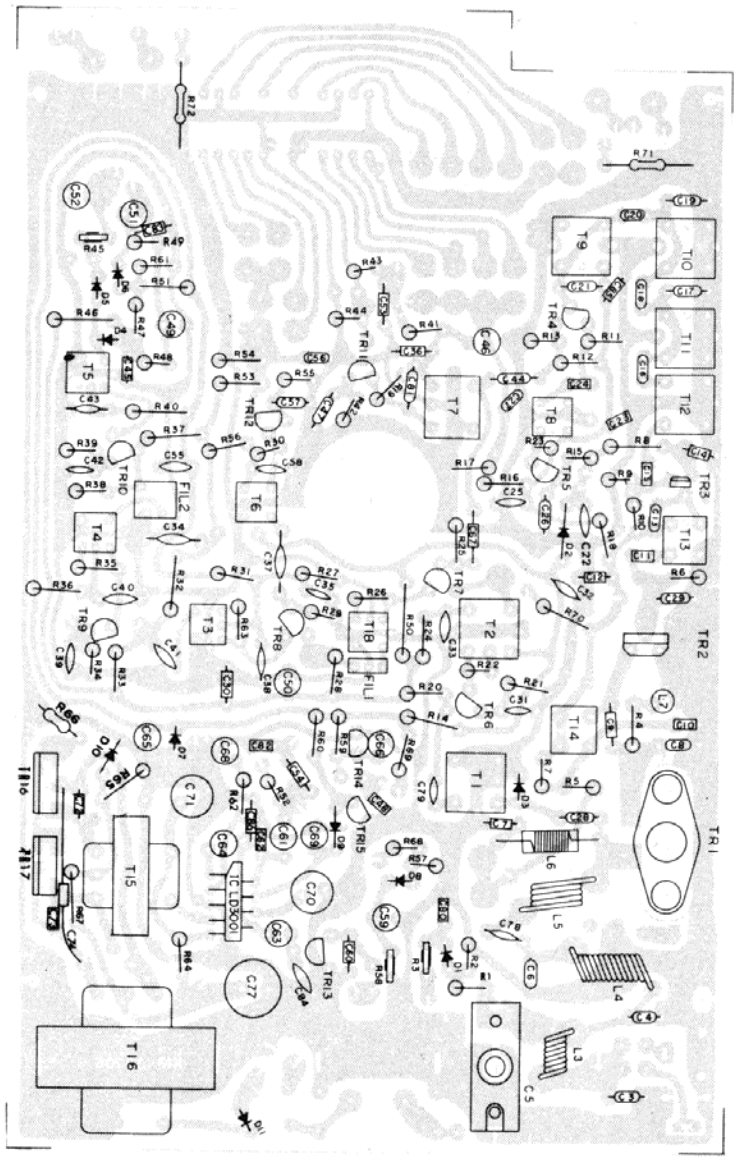
(C) Group 4 pcs. (Receiving)

X^{11} 10.18 MHz
X^{12} 10.17 MHz
X^{13} 10.16 MHz
X^{14} 10.14 MHz

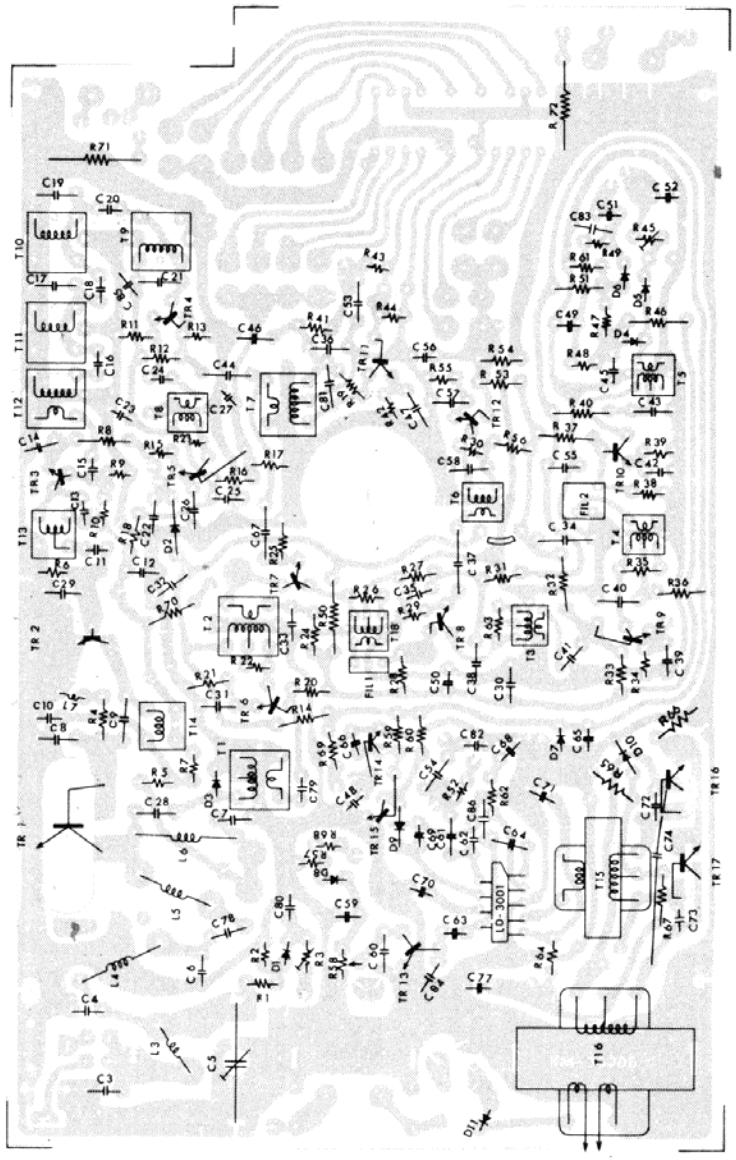
CHANNEL	FREQUENCY (MHz)	Combination (Transmit)	Combination (Receive)
1.	26.965	$X^1 - X^7$	$X^1 - X^{11}$
2.	26.975	$X^1 - X^8$	$X^1 - X^{12}$
3.	26.985	$X^1 - X^9$	$X^1 - X^{13}$
4.	27.005	$X^1 - X^{10}$	$X^1 - X^{14}$
5.	27.015	$X^2 - X^7$	$X^2 - X^{11}$
6.	27.025	$X^2 - X^6$	$X^2 - X^{12}$
7.	27.035	$X^2 - X^9$	$X^2 - X^{13}$
8.	27.055	$X^2 - X^{10}$	$X^2 - X^{14}$
9.	27.065	$X^3 - X^7$	$X^3 - X^{11}$
10.	27.075	$X^3 - X^8$	$X^3 - X^{12}$
11.	27.085	$X^3 - X^9$	$X^3 - X^{13}$
12.	27.105	$X^3 - X^{10}$	$X^3 - X^{14}$
13.	27.115	$X^4 - X^7$	$X^4 - X^{11}$
14.	27.125	$X^4 - X^8$	$X^4 - X^{12}$
15.	27.135	$X^4 - X^9$	$X^4 - X^{13}$
16.	27.155	$X^4 - X^{10}$	$X^4 - X^{14}$
17.	27.165	$X^5 - X^7$	$X^5 - X^{11}$
18.	27.175	$X^5 - X^8$	$X^5 - X^{12}$
19.	27.185	$X^5 - X^9$	$X^5 - X^{13}$
20.	27.205	$X^5 - X^{10}$	$X^5 - X^{14}$
21.	27.215	$X^6 - X^7$	$X^6 - X^{11}$
22.	27.225	$X^6 - X^8$	$X^6 - X^{12}$
23.	27.255	$X^6 - X^{10}$	$X^6 - X^{14}$

MODEL 13-879B PARTS LAYOUT

FRONT VIEW

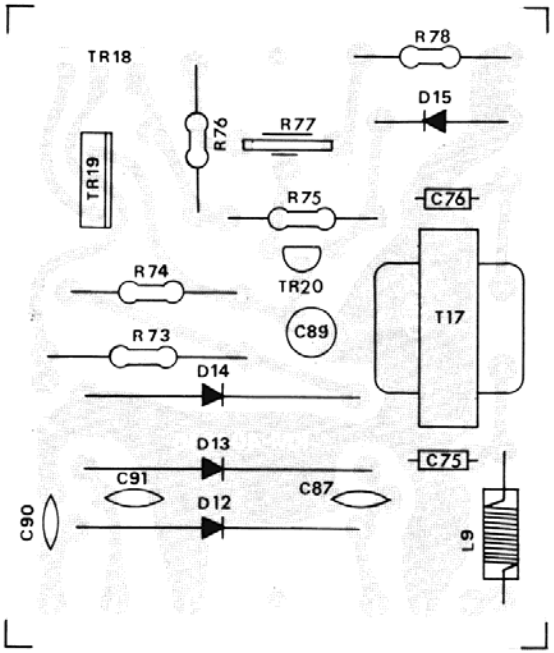


BACK VIEW

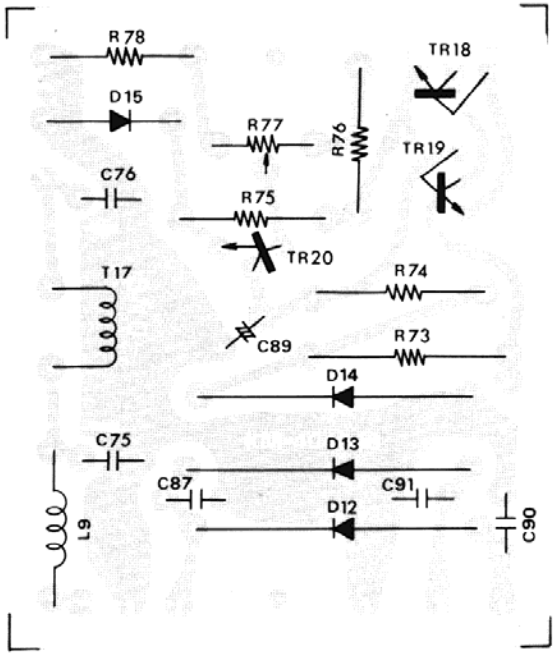


VOLTAGE REGULATOR

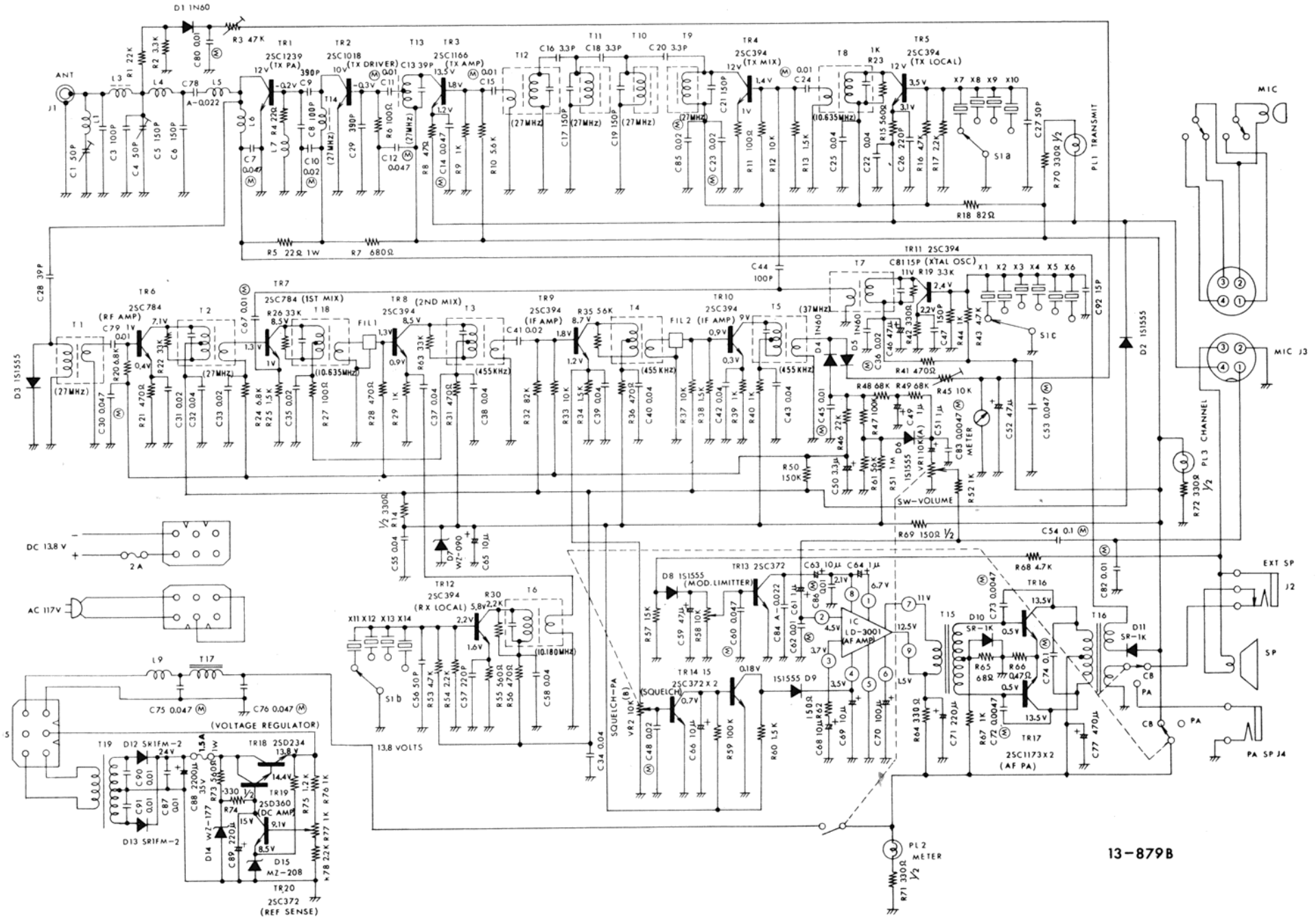
FRONT VIEW



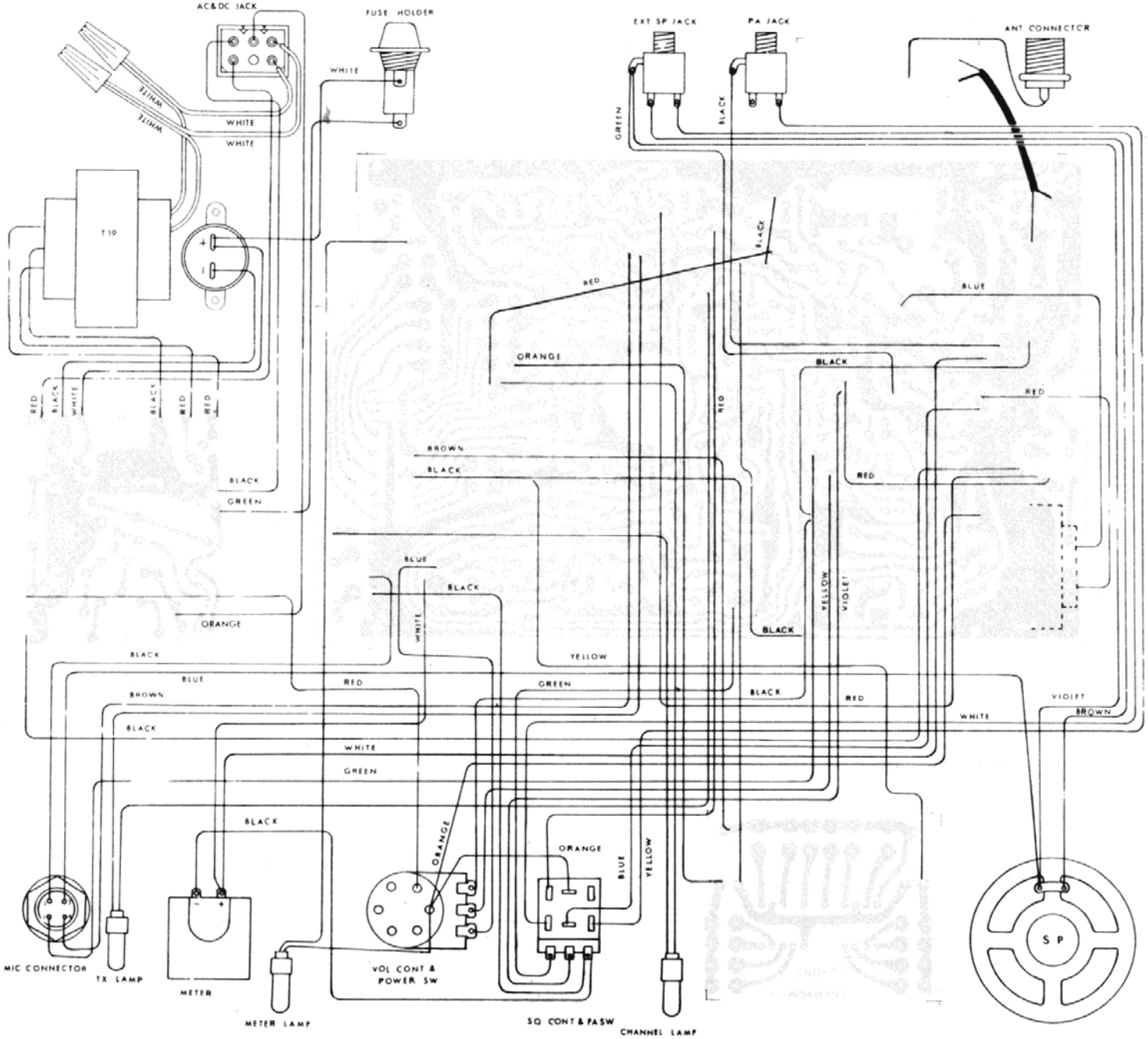
BACK VIEW



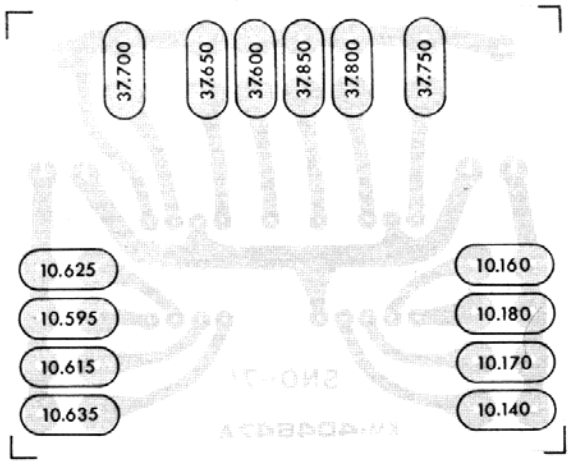
MODEL 13-879B SCHEMATIC DIAGRAM

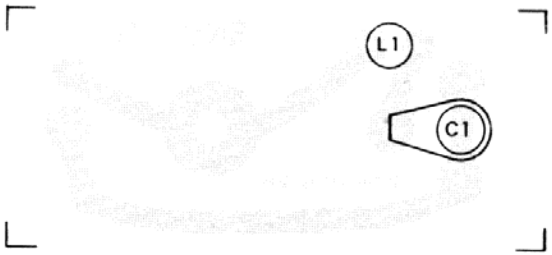


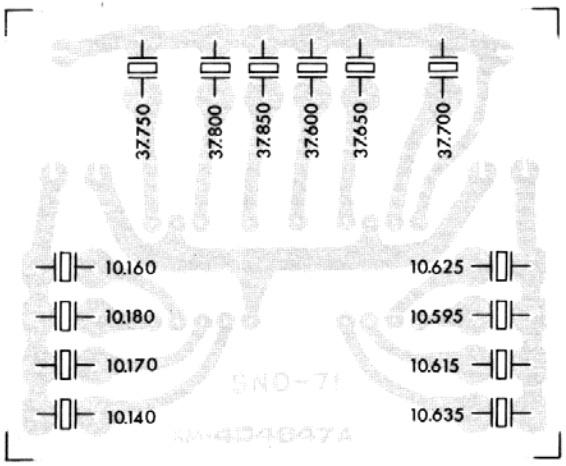
WIRING DIAGRAM

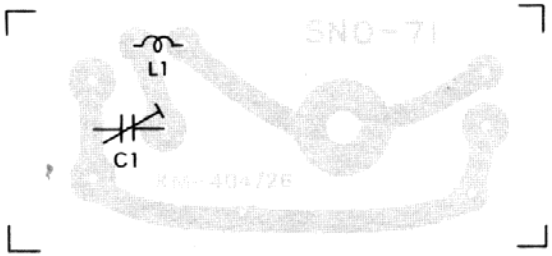


CHANNEL SELECTOR · TVI









WARRANTY POLICY

Midland Electronics Company warrants each new Midland product to be free from defects in material and workmanship under normal use and service for a period of 90 days after delivery to the ultimate user and will replace or repair the product at our option, at no charge should it become defective and which our examination shall disclose to be defective and under warranty.

This warranty shall not apply to any Midland product which has been subject to misuse, neglect, accident, incorrect wiring not of our own installation, or to use in violation or instructions furnished by us, nor extended to units which have been repaired or altered outside of our factory.

This warranty does not cover carrying cases, earphones, batteries, antenna, broken or cracked cabinets, or any other accessory used in connection with this product.

This warranty is in lieu of all other 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 products.

Sales receipt must accompany product to validate the date of purchase.

MIDLAND ELECTRONICS COMPANY

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