

**MIDLAND**  
INTERNATIONAL®



**MODEL 13-830**

**23-CHANNEL MOBILE TRANSCEIVER**

**OWNER'S GUIDE**



## **FEDERAL COMMUNICATIONS COMMISSION'S REQUIREMENTS**

Your new Midland transceiver 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 International Corporation, Communications Division, 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.

## OWNERS GUIDE

Your transceiver is a versatile, professional quality transceiver and we strongly suggest that you read this Owners Guide carefully before operation so that you may receive full benefit from its many features.

## OPERATING CONTROLS, CONNECTORS AND THEIR FUNCTIONS

### VOLUME CONTROL/POWER SWITCH

This turns the power on or off.

This controls the sound output from the speaker when receiving or from the public address (PA) speaker connected to the PA jack on the rear panel. The volume control does not affect transmitting output.

### PA-SQUELCH CONTROL

Your transceiver has been equipped with a PA (Public Address) amplifier system. Placing the squelch control in the PA (fully counter-clockwise) position actuates the PA system. Press the Push-to-Talk button on the microphone and speak at a normal tone of voice, then your voice will be heard from the PA speaker connected to the PA/EXT. CB jack on the rear panel.

For regular 2-way communications, this control must be placed in the normal position (other than PA position).

Turning the squelch control clockwise 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 a setting too far to the right will not allow weaker signals to release the squelch.

#### **EXT. CB/OFF SWITCH**

Your transceiver has been designed to enable you to monitor CB calls through a P.A. speaker connected to the "PA/EXT. CB" jack on the rear panel.

For example: if you leave your car and you are expecting a call on your radio, simply put the EXT. CB/OFF switch in the "EXT. CB" position. This channels incoming calls through the P.A. speaker and cuts off the built-in speaker (or speaker connected to the "EXT. SPEAKER" jack). It is possible for you to transmit while the unit is in the "EXT. CB" mode although the unit's built-in speaker (or external speaker) will not be operational until the EXT. CB/OFF switch is moved to the OFF position.

The P.A. function of your unit is located on the squelch control. To use your unit as a P.A. amplifier simply turn the squelch control counter-clockwise to the P.A. position. When the unit is in the P.A. mode, it will not act as an external CB monitor.

#### **CHANNEL SELECTOR SWITCH**

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

#### **S/RF POWER METER**

This gives the relative strength of incoming signals when receiving and RF power output when transmitting.

**TX LIGHT**

This lights up during transmit operation, indicating the transmitter is on.

**FILTER/OFF SWITCH**

Reduces high frequency noise and distortion sometimes encountered in high congestion areas.

**MIC JACK**

This accepts the plug from the microphone supplied with the unit.

**EXT. CB/PA JACK**

This will be used for connection of PA or monitor speaker (8 or 16 ohms), see "PA-SQUELCH CONTROL" and "EXT. CB-OFF SWITCH" in this manual. This jack accepts a standard (3.5 mm $\phi$ ) 2 circuit phone plug.

**DC POWER CONNECTOR**

Used for connection of DC power cord supplied with the unit.

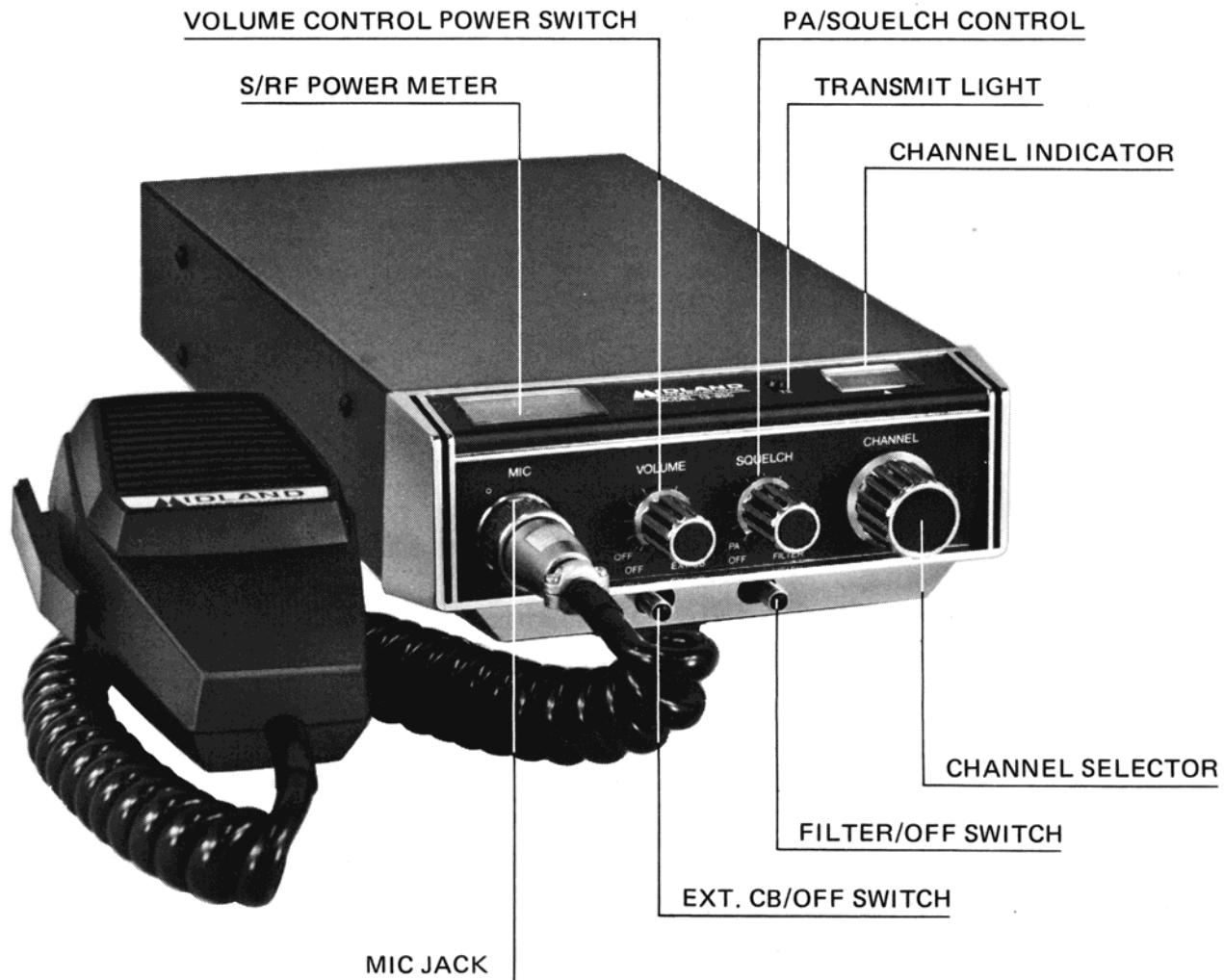
**ANTENNA CONNECTOR**

Used for antenna connection, matches PL-259 standard type.

**EXT. SPEAKER JACK**

Used for an external speaker (8 or 16 ohms) connection. This jack accepts a standard 3.5 mm $\phi$  2 circuit phone plug. When the plug is inserted into the jack, the built-in speaker is automatically disconnected.

## OPERATION OF CONTROLS



DC POWER CONNECTOR

ANTENNA CONNECTOR



PA/EXT. CB SPEAKER JACK  
(8 or 16 ohms)

EXT. SPEAKER JACK  
(8 or 16 ohms)

## MOBILE INSTALLATION

Safety and operating convenience are the primary factors to consider when mounting any piece of equipment in an automobile. Be sure that the transceiver controls may be easily reached by the operator. Also be sure that connecting cables do not interfere with the operation of the brake, accelerator, etc.

## POWER CONNECTION

Your transceiver may be installed and used in any 12 volt DC negative or positive ground system vehicle. Most newer U.S. and foreign-made cars and small trucks use a negative ground system while some older cars and some newer large trucks may use a positive ground system.

A negative ground system is generally identified by the (−) battery terminal being connected to the vehicle motor block, but if you cannot determine the polarity system of your vehicle, it is suggested that you contact your vehicle dealer for definite information.

### NEGATIVE GROUND SYSTEM

In the case of negative ground system connect the red DC power cord from the transceiver to the positive or (+) battery terminal or other convenient point and connect the black power lead to the chassis or vehicle frame or (−) battery terminal.

## **POSITIVE GROUND SYSTEM**

In the case of a positive ground system connect the black DC power cord from the transceiver to the negative or (−) battery terminal or other convenient point and connect the red power lead to the chassis or vehicle frame or (+) battery terminal.

With regard to the connection of the power cords, it may be possible or desirable to connect the ignition switch accessory terminal, so that the transceiver is automatically turned off when the ignition switch (key) is turned off.

Alternately, the power cord may be connected to an available terminal on the fuse block or even to a point in the wiring harness. Care must be taken, however, to guard against a short circuit condition so when in doubt, please contact your vehicle dealer for specific information for your vehicle.

## **MOBILE ANTENNA CONNECTION**

A vertical whip antenna is best suited for mobile operation. A nondirectional antenna should be used for best results in any case. The base-loaded whip antenna will normally provide effective communication or for greater range and more reliable operation a full quarter-wave whip may be used. Either of these antennas use the metal car body as a ground plane and the shield of the base lead as well as the metal case of the transceiver should be grounded. A standard antenna connector (type SO-239) is provided on the transceiver for easy connection to a standard PL-259 coax plug. Following the antenna manufacturer's instructions carefully will insure proper operation.

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 2.5 results in reduced radiated power and may cause instability and damage to the final output stage of the transceiver.

## OPERATING INSTRUCTIONS

1. Insert the MIC plug in the MIC connector.
2. Make sure your Antenna is securely connected to the antenna connector.
3. Turn the Power on and Adjust the VOLUME control for proper sound level.
4. Place the PA-SQUELCH control in the SQUELCH (about 3 o'clock) position.
5. Place the EXT. CB/OFF switch in the OFF position.
6. Place the channel selector switch to a desired channel.
7. Adjust the VOLUME control for proper sound level.
8. To transmit press the Push-to-Talk button on the microphone and to receive release the button.

**IMPORTANT:** Do not short circuit the antenna or do not try to transmit without an antenna connected to the Antenna connector on the rear panel. This may cause damage to the output power transistors. Transmit only after carefully checking the installation of connector and coaxial cable.

## TRANSCEIVER SERVICING

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 users 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 your own transceiver, do not attempt to make any transmitter tuning adjustments. All transmitter adjustments and servicing 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 a 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 unit.

NOTE: When ordering parts, it is essential to specify the correct model number and serial number of the unit.

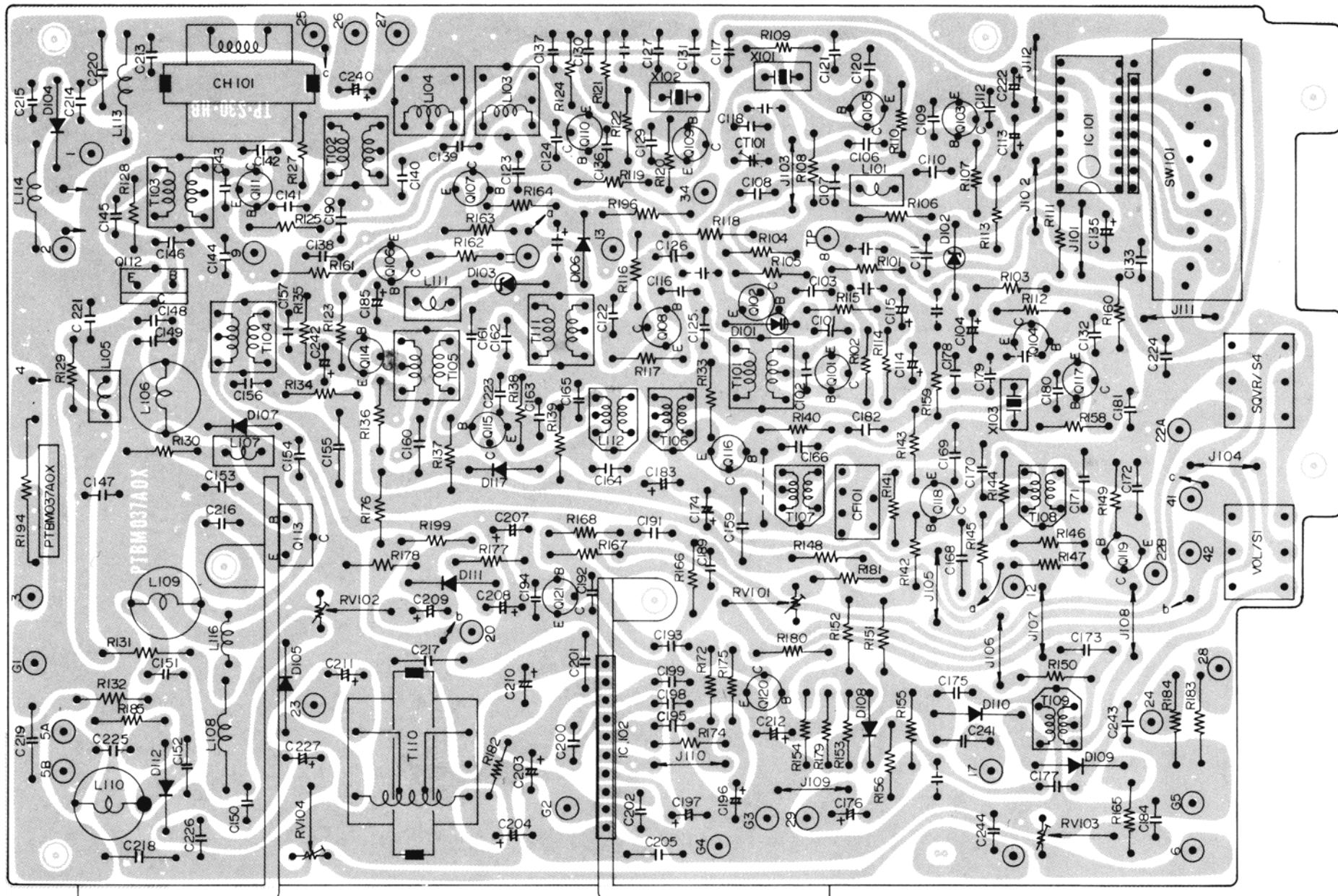
## SPECIFICATIONS

Circuitry:	2 ICs, 21 Transistors, 10 Diodes, 2 Zener Diodes
Frequency Control:	PLL (Phase Lock Loop) Synthesizing System
Channels:	23 channels all installed
Mode of Operation:	AM
Receiver System:	Dual Conversion Superheterodyne
Sensitivity:	Nominal $0.7 \mu\text{V}$ (S/N 10 dB)
Selectivity:	More than 45 dB down at $\pm 10 \text{ kHz}$
Intermediate Frequency:	1st: 10.695 MHz 2nd: 455 kHz
Frequency Tolerance:	$\pm 0.005\%$
Spurious Rejection:	More than 50 dB
RF Output Power:	Maximum 4.0 W (F.C.C. Maximum)
Squelch Range:	$0.5 \mu\text{V} - 500 \mu\text{V}$
Audio Output Power:	More than 3W (EXT. SP at 8 ohms)
Controls:	VOLUME CONTROL/POWER SWITCH, PA/SQUELCH CONTROL, CHANNEL SELECTOR, EXT. CB/OFF SWITCH, AUDIO FILTER SWITCH

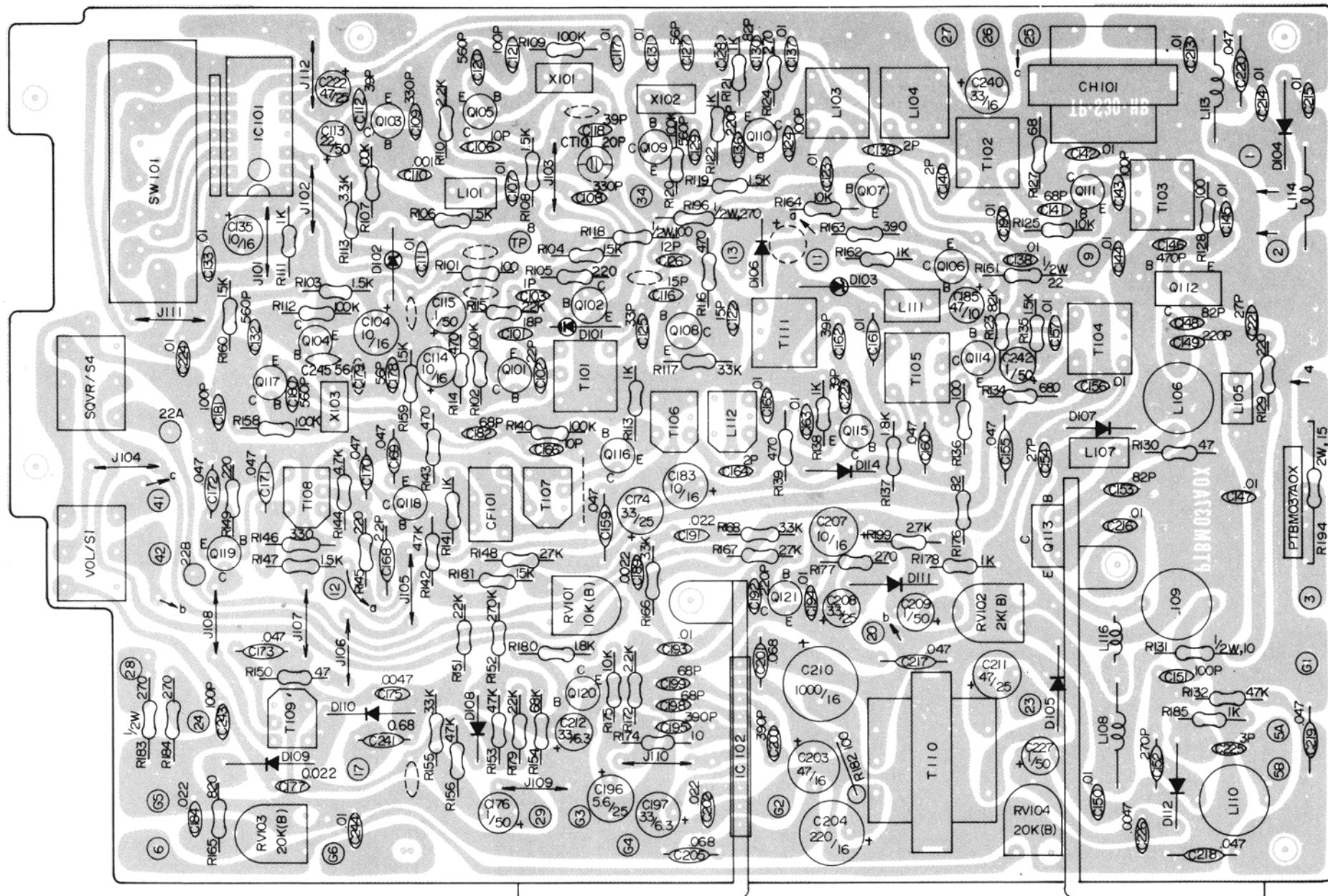
Jacks and Connectors: MIC, EXT. SP, ANT, EXT. CB/PA SP, DC POWER  
Speaker: 3½" dynamic, 8 ohms  
Microphone: Dynamic CB mike  
Power Source: DC 13.8V

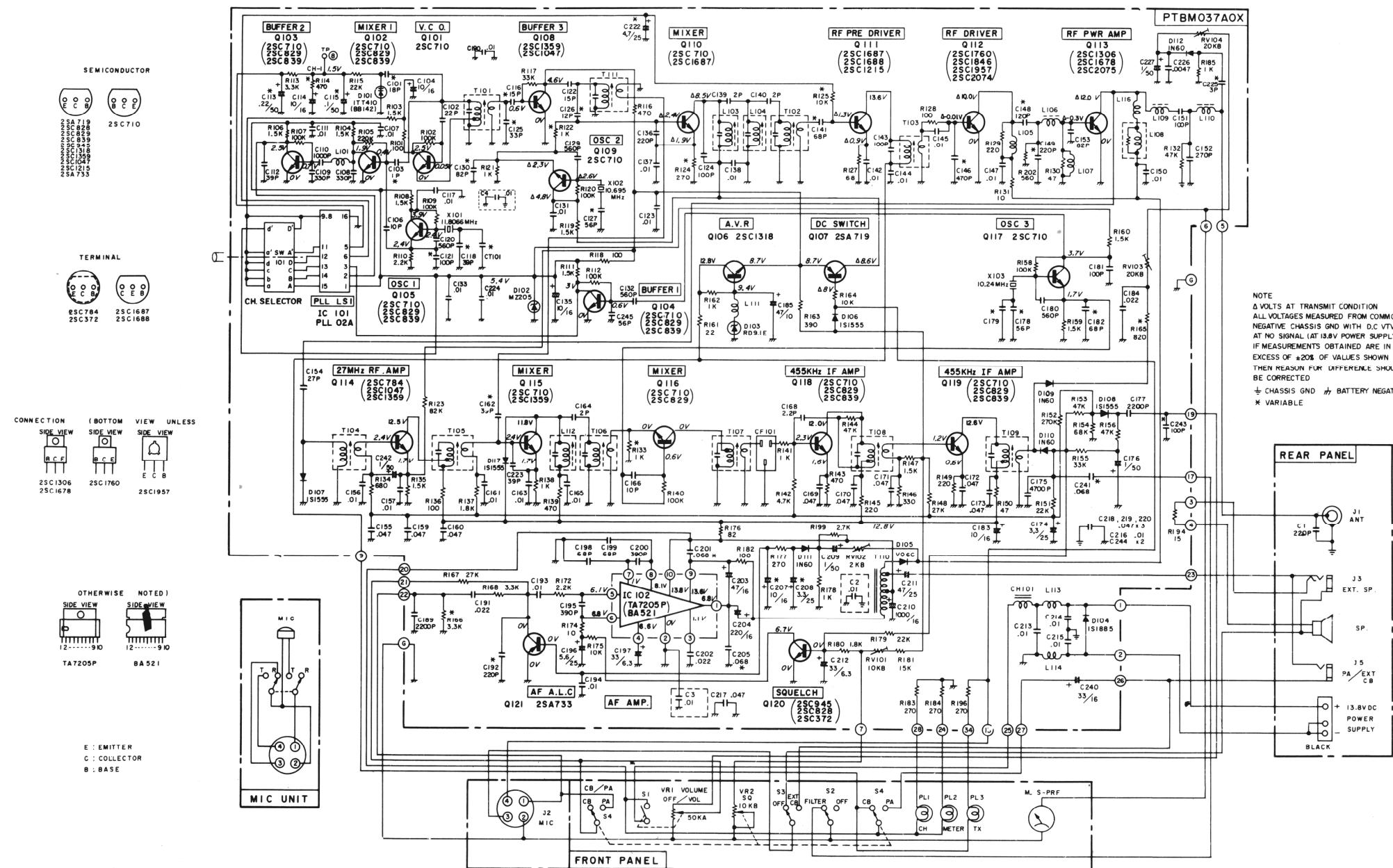
# PARTS LAYOUT

## FRONT VIEW



**BACK VIEW**





## LIMITED WARRANTY

Midland International Corporation, Communications Division, 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 of 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 products.

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.



### Communications Division

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