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INTRODUCTION

Your new model 13-873 is a combination receiver-transmitter designed and engineered for licensed class "D" operation on any of the 23 channels designated as Citizens Band frequencies by the Federal Communication Commission. You are required to read and understand Part 95 of the F.C.C. regulations prior to operations of this unit. Copies of part 95, covering regulations for Citizens Band Radio Service, are available by writing to the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. You are required to complete F. C. C. form 505 and submit it to the Federal Communications Commission in order to receive your license to operate this unit. Part 95 of the F. C. C. regulations will be violated if you operate this transceiver on the air prior to receipt of your license and call sign.

UNDERSTANDING YOUR NEW 13-873

MODE SELECTION

The 13-873 is equipped with two separate transmitters, a high level AM (Amplitude Modulated) transmitter and a separate True SSB (Single Side Band) transmitter. The receiver section is also capable of receiving AM and SSB. The mode of operation for both receiver and transmitter sections is automatically selected by the mode selector switch.

MODES OF OPERATION

AM (Amplitude Modulation) has been the standard method of Citizens Band reception and transmission for many years and most of the existing transceivers being used today are AM. Technically, Amplitude Modulation is Double Sideband (DSB). In this method of operation, a carrier is transmitted which is modulated or interrupted by voice on both positive and negative sides as represented by figure A.



Figure A.

The AM receiver receives the modulated carrier and detects or removes the voice modulation which in turn, is amplified and converted into audible sound which you hear from the speaker.

SSB (Single Sideband) is relatively new in Citizens Band communications but has been highly effective in commercial, amateur and military usage for many years. It is a superior means of wireless communications, whereby, the operations can communicate for far greater distances with a minimum amount of interference and noise. Extensive engineering and highly technical development is required to produce good single sideband equipment and the 13-873 is an example of the ultimate in technical development of single sideband for mobile citizens band usage.

There are two types of single sideband transmissions, USB (Upper Sideband) and LSB (Lower Sideband). These might be described as half signals and due to the narrow band width required, will travel over greater distances at lower power than ordinary AM signals. Drawing "B" below illustrates USB and LSB signals and the reference carrier line.

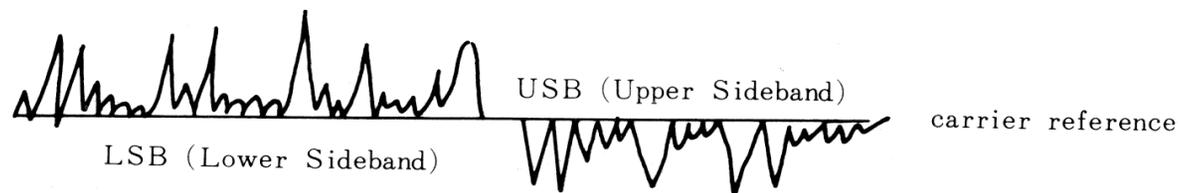


Figure B.

In actual transmission, of either USB or LSB, the carrier is removed. All of the modulation for a transmission is concentrated in either the Upper or Lower sideband. In the receiver, the carrier is reconstructed and the intelligence or modulated voice is then detected, amplified and converted into an audible sound heard at the speaker.

COMPATIBILITY

Your 13-873 is a versatile transceiver and can communicate with other AM transceivers or other SSB transceivers. All that is necessary is that you select the proper mode of operation with the mode selector switch.

CLARIFY

At the time of transmission and reception of SSB SIGNALS, the frequency of the CARRIER can be varied. As stated hereabove, CARRIER is not transmitted in SSB and both transmitting and receiving sides must produce CARRIER and their frequencies must be in accord with each other. As the frequencies must be in accord with each other at both sides, your 13-873 is equipped to adjust the frequency for best USB or LSB reception.

Use Procedure :

When receiving SSB, adjust the clarify control carefully and adjust it to a position where the incoming signal can be heard most clearly. Because of the characteristic of SSB, it is extremely important to adjust this control. With improper "CLARIFY" adjustment, the signal will not be intelligible. It will sound distorted. SSB tuning will become easy as you acquaint yourself with the operation of this control. After adjusting properly once, no further adjustment is needed if you stay on the same mode and channel.

SQUELCH

The squelch control is for elimination or reduction of noise and interference in the receiver section.

In AM operation, the squelch is operated by continuous CARRIER composition. Therefore, it is turned ON-OFF positively according to the presence of an incoming signal.

In SSB operation, the voice composition determines the intensity of the radio-wave. When a signal is received, the voltage is held for 1-2 seconds in the circuit, then the SQUELCH is operated.

When the signal stops, the SQUELCH will be open for 1-2 seconds. Do not misunderstand that the SQUELCH is not operating. It is merely more critical as compared with AM. Be sure to avoid applying too much SQUELCH as you may not hear signals which ordinarily could be copied.

NOISE BLANKER SWITCH

When interfering pulse or electrical noise is received, the noise blanker should be turned to the ON position. This system "BLANKS" out the noise while allowing the receive signal to pass through unaffected.

POWER SUPPLY

DC 13.8V Nominal. (12-16V can be used)

PA-CB

If you want to use your 13-873 as a public address system, place the PA/CB selector switch in the "PA" position. Connect a P.A. speaker to the PA speaker jack and depress the push to talk button.

EXT. SP. JACK

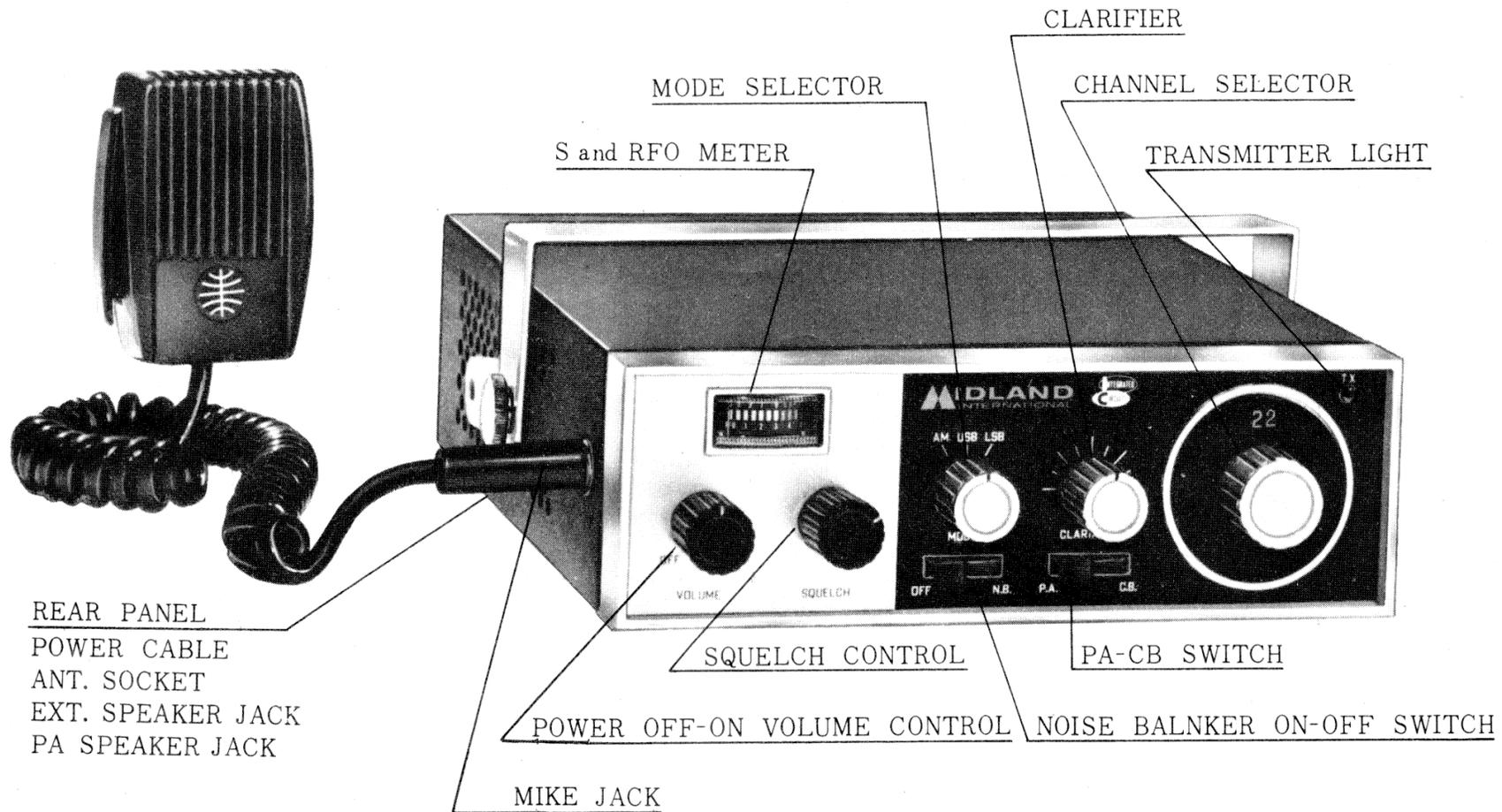
When a head-phone or external speaker is inserted, it automatically disconnects the internal speaker.

S AND RFO METER

Reflects the relative incoming signal level in "S" units. When transmitting the meter it shows the relative R.F. Power output.

CAUTION :

Do not shortcircuit the antenna; as it may damage the output transistors. Transmit only after checking the installation of the connector part and coaxial cable fully.



OPERATING INSTRUCTIONS

1. Insert the MIC plug in the MIC jack.
2. Check whether or not the ANT TERMINAL connection is perfect.
3. Turn the POWER SW onand the pilot lamp will be lighted.
4. Turn the SQUELCH knob counterclockwise fully (CCW). (See Squelch section of this manual for ADJUSTMENT METHOD).
5. Place the CLARIFY KNOB at central position. (Refer to other portions of this manual for ADJUSTMENT METHOD).
6. Place the PA-CB Switch at position "CB".
7. The BLANKER SWITCH may be placed at position of either ON or OFF. But, it is placed normally at position "ON".
8. Adjust the channel selector to the channel to be used.
9. Adjust the MODE SELECTOR to the desired mode.
10. Adjust the VOLUME CONTROL to the desired level (almost central position).
11. When the button for microphone is pressed, the broadcasting condition will be attained and red pilot lamp will light.
12. When the MIC button is released, the set will be in a receiving condition and the red pilot lamp will be out. A description is given hereunder according to each operating component unit.

SERVICING YOUR TRANSCEIVER

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 radio-telephone 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 adjustment. Adjustments are prohibited by the F. C. C. unless you hold or are in the presence and under the supervision of a first or second class radio-telephone licensed person. A Citizens Band or Amateur license is not sufficient.

SPECIFICATIONS

1) Frequency : 23-channel synthesized transmit and receive

AM SECTION

2) Power Input : 5 watts to final stage
Audio Modulation : High level class B with crystal lattice filter
RF Output Power : 3.5 watts
Sensitivity : 0.5 uV @ 10 db s/n

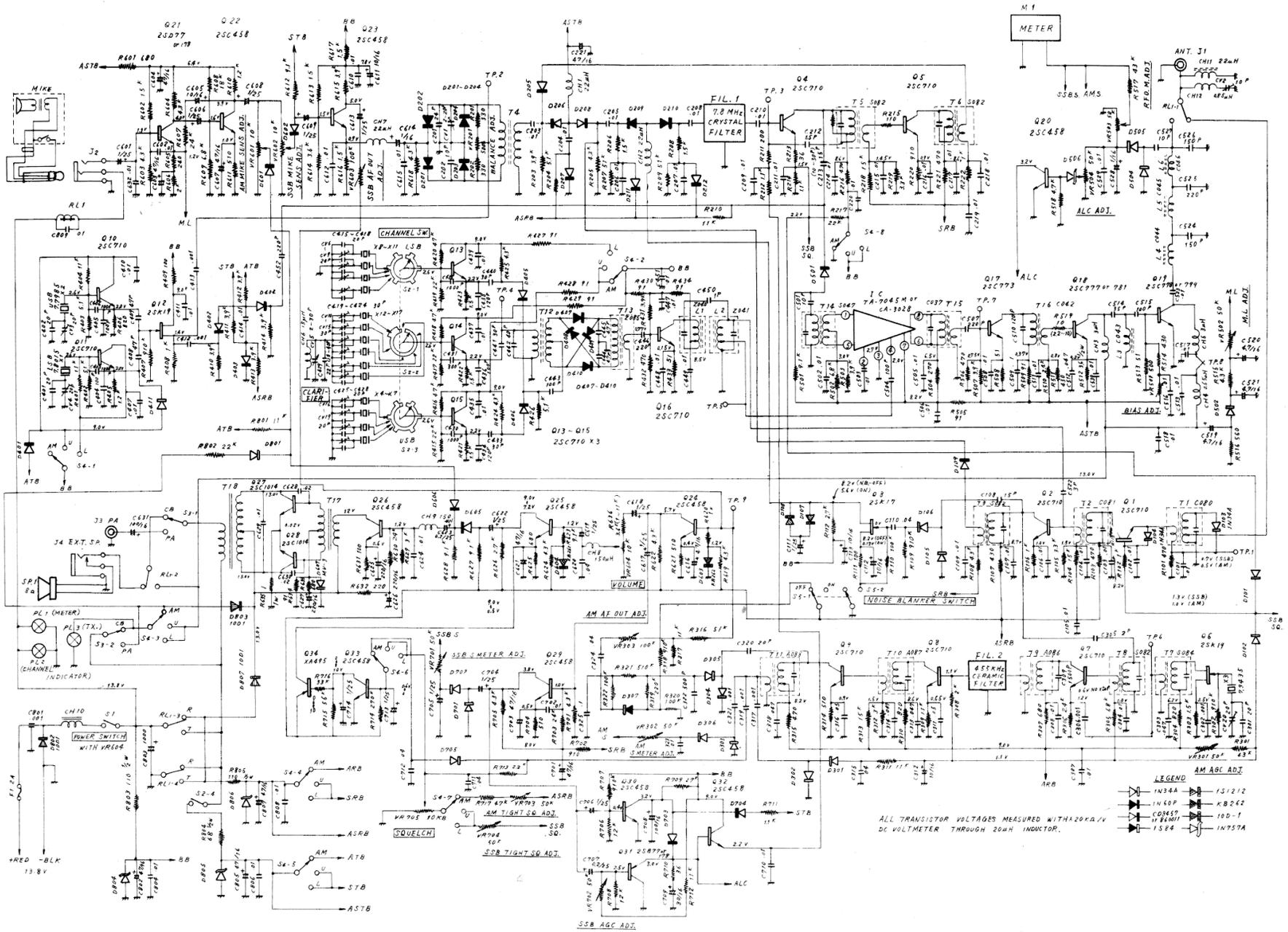
SSB SECTION

3) Power Input : 10 watts P. E. P.
RF Output Power : 8 watts
Audio Modulation : Upper single side band Lower single side band
Sensitivity : 0.25 uV @ 10 db s/n

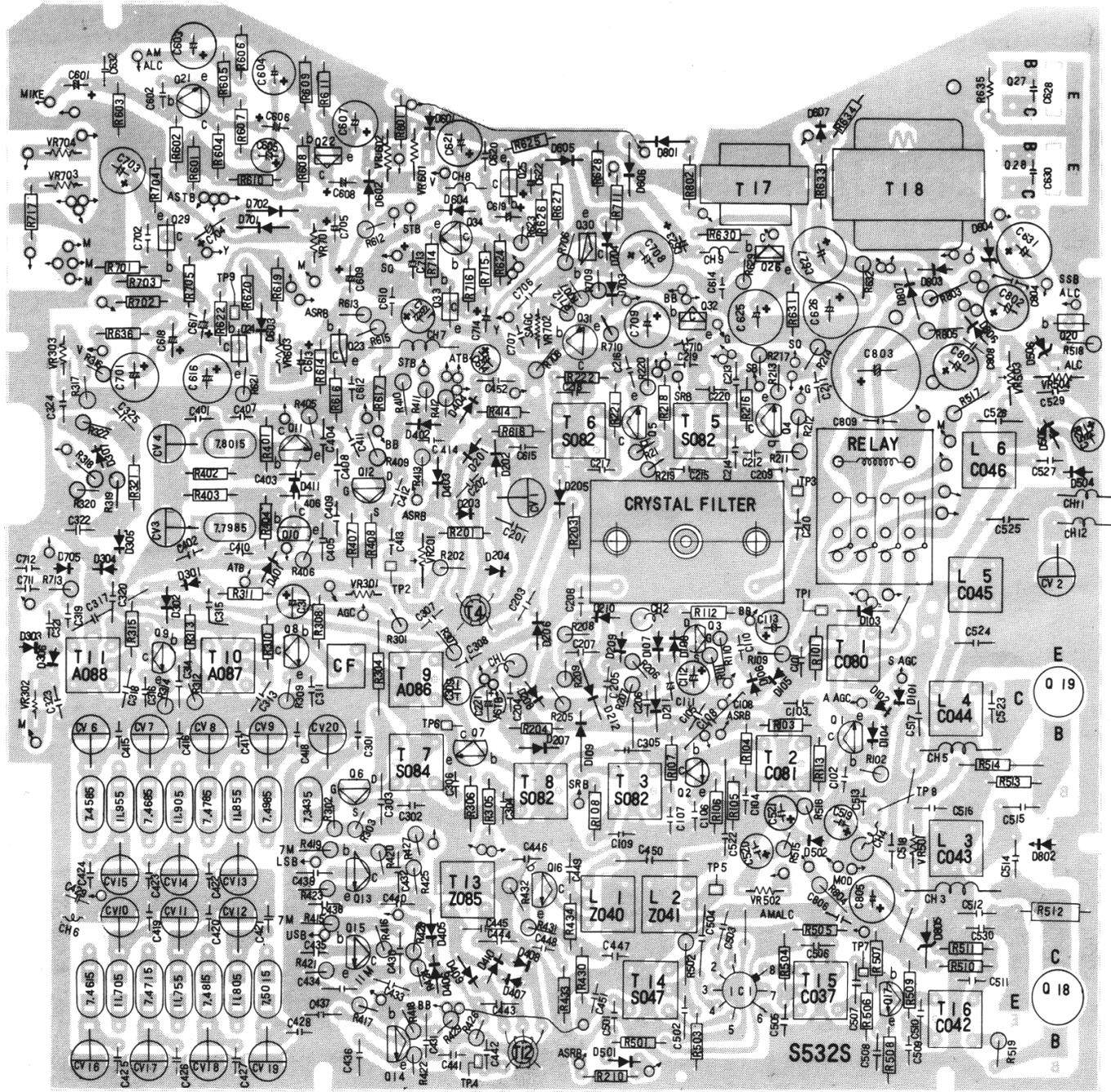
4) Transmitter : Separate transmitters for AM and SSB
Semi-Conductors : 34 transistors, 3 F. E. T., 1 integrated circuit, 54 diodes and 3 rectifiers
Receiver : Dual conversion with noise blanker, crystal lattice filter, squelch, tuned RF, 7 IFT's
Controls : On/off, volume, squelch, P. A., noise blanker, clarifier, mode, channel selector
Jacks and Connections for : External antenna, speaker
Power Source : 12-16 volt DC
Cabinet Dimensions : 8 1/2" x 10 3/8" x 2 5/8"

5) Accessories Included : Separate mike, coiled cord, holder, mounting bracket for car

SCHEMATIC DIAGRAM



PARTS LAYOUT



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WARRANTY POLICY

Midland International Corporation 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, antennas, broken or cracked cabinets, or any other accessory used in connection with the 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 date of purchase.

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