MIDLAND INTERNATIONAL®

MODEL 13-852

4-WATT 23-CHANNEL MOBILE TRANSCEIVER

OWNER'S GUIDE



A quality scan / PDF conversion brought to you by www.rigpix.com

FEDERAL COMMUNICATIONS COMMISSIONS REQUIREMENTS

Your new Midland 13-852 is a combination receiver-transmitter designed and built 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 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 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.

Midland International Corporation hereby certifies that this unit has been designed, manufactured and type accepted in accordance with Vol. 6, Part 95 of the current F.C.C. rules and regulations as of the date of manufacture.

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.

UNDERSTANDING YOUR NEW 13-852

RECEIVER:

Sensitive dual conversion circuit with all crystals supplied for 23-channel reception. 0.5 microvolt sensitivity, squelch control and ANL switch give noise-free operation. Active AGC circuit eliminates fading and over driving.

TRANSMITTER:

Precision crystal-controlled oscillator circuit with all 23 Citizens Band channels built in. A full 5-watt RF input power is effectively converted into radiated output power with a minimum of loss for a stronger signal.

CONTROLS:

A full set of controls is employed, including volume ON-OFF switch, 23-channel selector switch, ANL switch full variable squelch.

POWER SUPPLY:

The 13-852 is designed to operate on 12 volts DC. Any 12-volt (either negative or positive ground) automobile system is adequate. For base station application, use Midland 18-802 (optional extra) power supply which plugs into 110 volts AC and delivers 12 volts DC to your transceiver.

ANTENNA CONNECTOR:

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

FREQUENCY:

Each unit is completely equipped with crystals for operation on any of the 23 Citizens Band channels. It is not necessary to purchase any additional crystals for this unit. Refer to part 95 of the F.C.C. rules and regulations to determine which channels may be used for various kinds of communication.

MOBILE INSTALLATIONS

A location in the car or truck should be chosen carefully for convenience of operation and non-interference with normal driving functions. Mounting may be under the dash or instrument panel or any place a secure installation can be made. A mounting bracket and all hardware are supplied with this transceiver.

GROUND INFORMATION:

This 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 teminal being connected to the vehicle motor block, but if you cannot determine the polarity system of your vehicle, it is suggested that you consult your vehicle dealer for definite information.

NEGATIVE GROUND SYSTEM:

In the case of a 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 brown power lead to the chassis or vehicle frame or – battery terminal.

POSITIVE GROUND SYSTEM:

In the case of a positive ground system connect the brown 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 (red lead for negative ground system) or (brown lead for positive ground system) to the ignition switch accessory terminal so that the transceiver is automatically turned off when the ignition switch (key) is turned off.

Alternately, the power lead 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.

IGNITION INTERFERENCE:

Engine ignition interference should not be a problem and vehicles equipped with standard broadcast radios will have enough suppression to eliminate ignition interference. If interference is present, any skilled auto radio repairman should be able to eliminate it for you.

BASE STATION INSTALLATIONS

For base station use, the Midland model 18-802 power supply is recommended. When this power supply is used, simply connect the red (+) and black (–) terminals on the power supply to the (+) and (–) leads on your 13-852. Do not attempt to operate this transceiver by connecting it directly to 110 Volts AC.

ANTENNA INSTALLATION

BASE STATION:

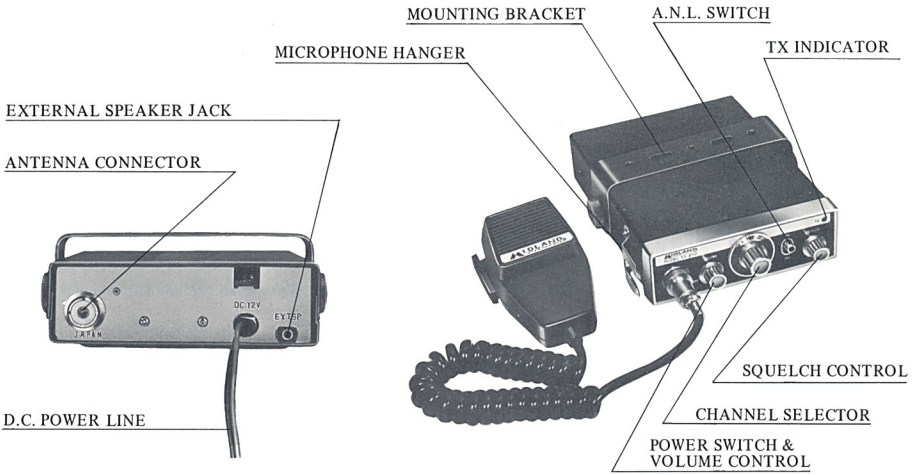
When the 13-852 is used as a base station, any Citizens Band beam, dipole, ground plane or vertical antenna may be used. A ground plane type will provide greater coverage and, since it is essentially non-directional, it is ideal in base station to mobile operation. From base station to base station, or point to point operation, a directional beam will give greater distance even under adverse condition. The range of the transceiver depends basically on the height of the antenna and, whenever possible, select the highest location within F.C.C. limits.

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.

OPERATION OF CONTROLS



VOLUME CONTROL AND OFF-ON SWITCH:

The volume control varies the sound output of the loudspeaker. It also functions as "off-on" switch. Clockwise rotation increases volume.

CHANNEL SELECTOR SWITCH:

Tuning the receiver and transmitter is simultaneous by rotating the 23 channel selector switch. Set switch to desired channel 1 to 23 as indicated directly on switch knob.

SQUELCH CONTROL:

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.

A.N.L. SWITCH:

The automatic noise limiter is designed to reduce excessive noise such as ignition, motor and electrical interference. At "ANL" position, it operates.

PRESS-TO-TALK MICROPHONE:

The receiver and transmitter are controlled by the press-to-talk switch on the microphone. Press in this switch and the transmitter is activated. Release this switch to receive. When transmitting, hold microphone 3 to 4 inches from mouth and speak clearly and in a normal voice.

TX INDICATOR:

The Green light located to the right of the channel selector is an output indicator device which is activated when the transmitter is keyed.

EXTERNAL SPEAKER (EXT. SP):

A 3.5mm jack is provided on the rear panel for the connection of a standard 8 ohm external speaker. Occasionally, the only available location for mounting the transceiver is such that the sound from the built-in speaker is muffled by carpeting or some obstruction in the vehicle. In this case, an external speaker may be mounted to direct the sound more exactly to you. When an external speaker is connected the built-in speaker is automatically disconnected.

GENERAL OPERATING INSTRUCTIONS

CAUTION:

Before operating this transceiver, you are required by law to read and thoroughly understand part 95 of the F.C.C. rules and regulations.
Check to see if the proper connections have been made on power cable, antenna system and microphone and that the correct cables have been used. Be sure that the transceiver is adequately grounded (if not mounted directly to a metal surface).

To transmit, press the push-to-talk switch and hold it down. Speak directly into microphone. Release this switch to receive. The TX INDICATOR is provided on the front panel. As you talk into the microphone, the brilliance of the green light will increase as your talk power increases.

Select the channel on which you wish to operate by rotating the Channel Selector Switch to the desired channel.

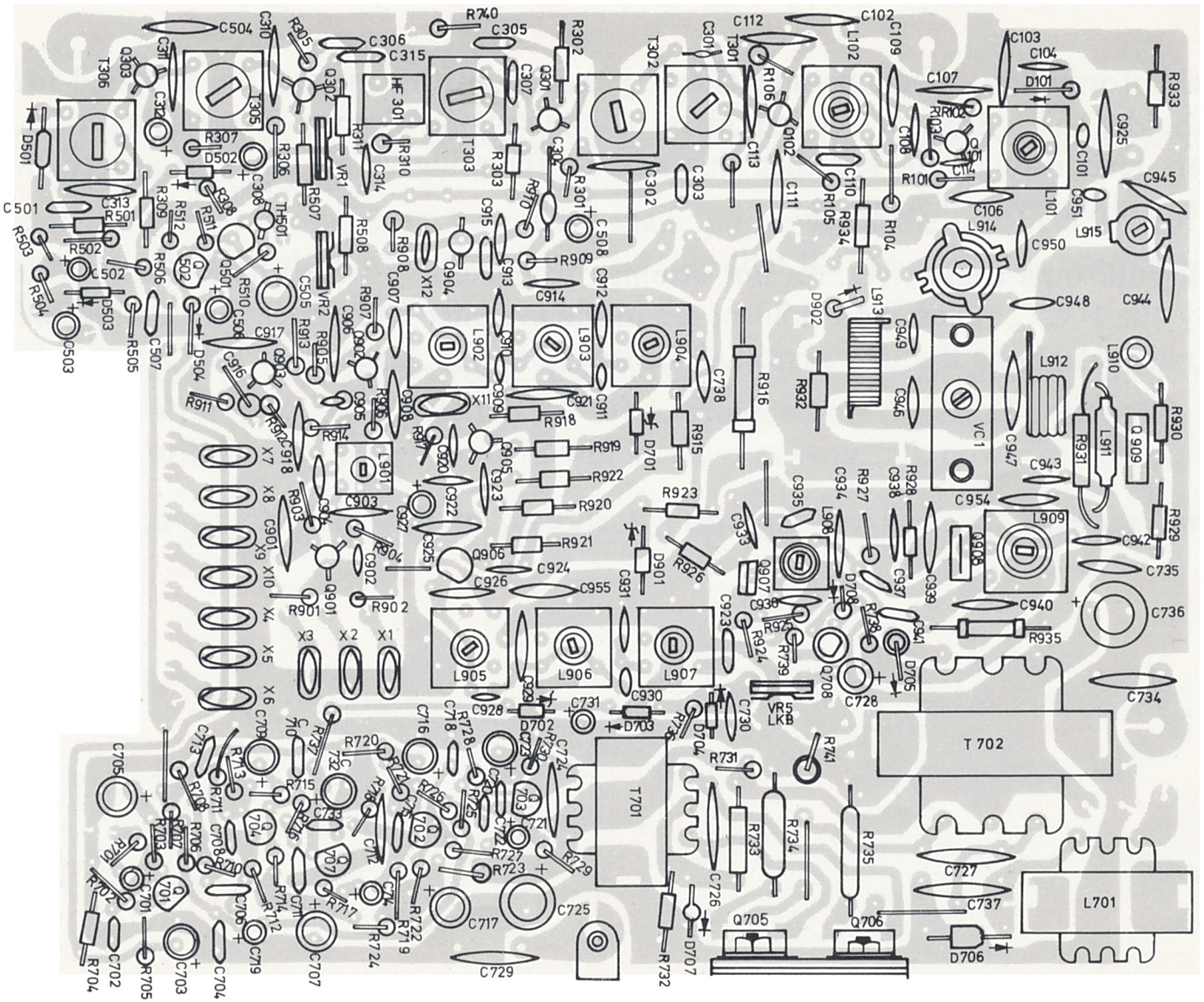
SERVICING YOUR TRANSCEIVER

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 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 regulation.

If you install your own transceiver, do not attempt to make any transmitter tuning 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 radiotelephone licensed person. A Citizens Band or Amateur license is not sufficient.

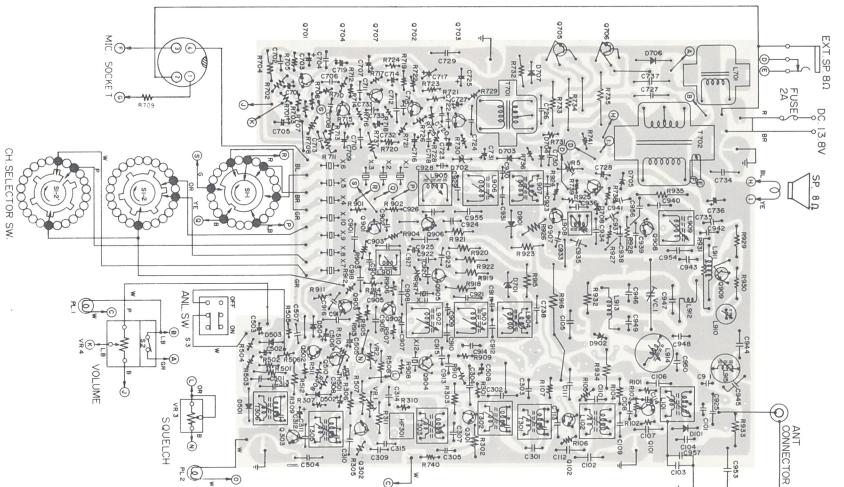
PARTS LAYOUT

TOP VIEW

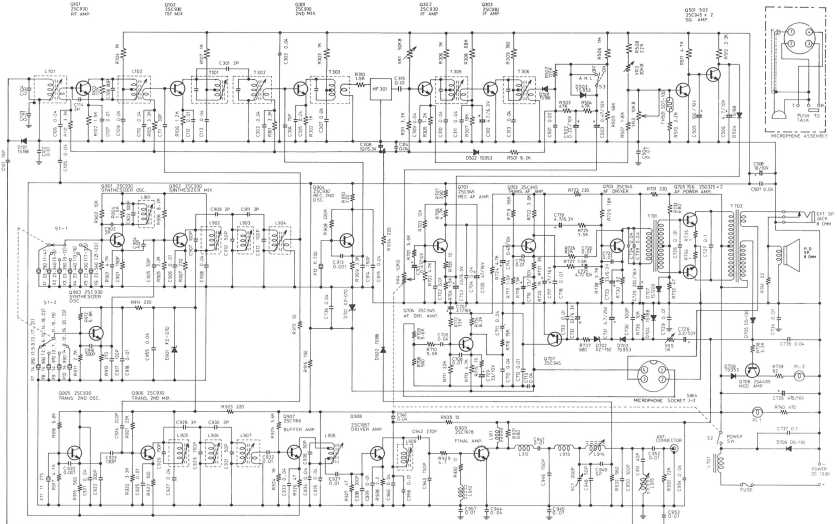


PARTS LAYOUT

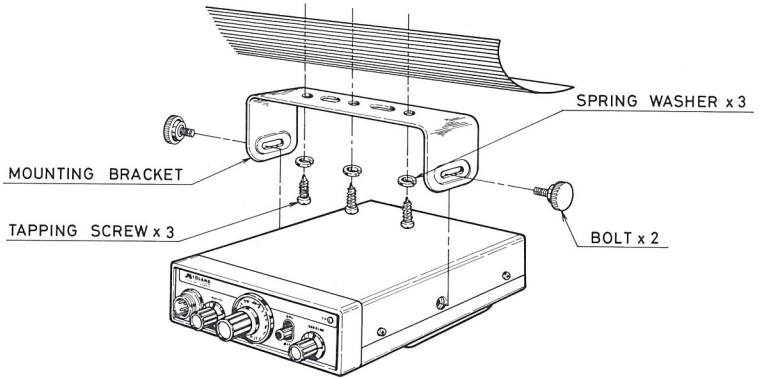
BOTTOM VIEW



SCHEMATIC DIAGRAM



MOUNTING INSTRUCTIONS



SPECIFICATIONS

RECEIVER SECTION

- Channel Frequency Tolerance ..... Less than ±0.005%
- Sensitivity ..... 0.5μV for 10 dB S + N/N
- Selectivity ..... 6.5 kHz bandwidth at −6 dB
- Adj. Channel Rejection ..... −50 dB
- Distortion at 500 mW output, 1000μV input 4.0%
- Conducted Spurious Suppression ..... Less than 20000 pW
- Squelch Sensitivity 0.25μV
- Squelch Stop Sensitivity ..... 200μV (adjustable)
- Noise Limiter ..... Series gate

TRANSMITTER SECTION

- Channel Frequency Tolerance ..... Less than ±0.005%
- Power output ..... 4.0 W maximum
- Conducted Spurious Suppression ..... Better than FCC and DOC requirements
- Emission 6A3
- Modulation (10mV at mic.) 90%
- Antenna Impedance ..... 50 ohms

CRYSTAL FREQUENCY CHART

This transceiver 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 12 crystal frequencies are selectively mixed to provide 46 crystal fixed transmit and receive frequencies.

Transmit/Receive

	23.290	23.340	23.390	23.440	23.490	23.540
14.950	1	5	9	13	17	21
14.960	2	6	10	14	18	22
14.970	3	7	11	15	19	—
14.990	4	8	12	16	20	23
	2nd Local		Transmit	11.275 MHz		
			Receive	11.730 MHz		
	1st IF			11.275 MHz		
	2nd IF			455 KHz		

LIMITED WARRANTY

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 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®
INTERNATIONAL CORPORATION

Communications Division

P.O. Box 19032, Kansas City, Missouri 64141
Phone: 816/474-5080 • Telex: 42-6344
Cable Address: MIDELEC-NKC

Copyright 1975, Communications Division,
Midland International Corporation,
North Kansas City, Missouri 64116
Made Exclusively for Midland International Corporation in Japan

Printed in Japan