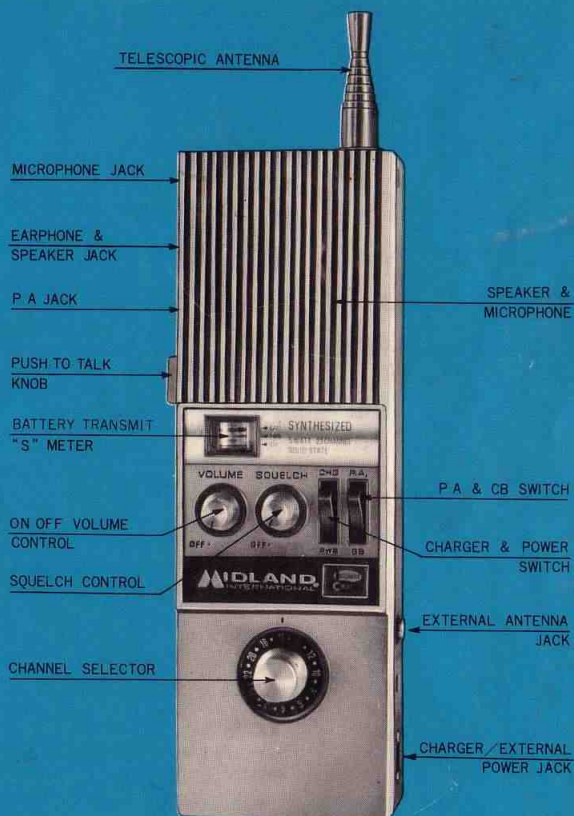




23-CHANNEL CITIZENS BAND SYNTHESIZED TRANSCEIVER



MODEL 13-790

OWNER'S GUIDE

INTRODUCTION

Your new Midland Model 13-790 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 Communications Commission. You are required to read and understand Part 19 of the F.C.C. regulations prior to operation of this unit. Copies of Parts 19-Manual IV covering regulations for Citizens Band Radio Service are available for \$1.25 by writing to the Superintendent of Documents, U.S. Government Printing Office, Washington 25, 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 19 of the F.C.C. regulations will be violated if you operate this transceiver on the air prior to receipt of your license.

Midland's new Integrated Circuit is a revolutionary concept in solid state efficiency and dependability.

A complete circuit in the I.F. system consisting of 5 transistors and 2 resistors: Yet, the entire circuit is no larger than a single ordinary transistor.

The most advanced electronics concept since solid state circuitry itself.

DESCRIPTION

The Midland 13-790 employs transistors in both the receiver and transmitter to provide reliable communication in the 27 megacycle Citizens Band.

Channel selections 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 13-790 are a variable squelch for noise cancellation, automatic gain control, high sensitivity dual conversion receive circuit, 100% modulation, compact lightweight construction and full accessory jack compliment.

OPERATING INSTRUCTIONS

1. Open back cover and insert 8 penlight batteries, carefully observing polarities. Check to see that batteries are firmly seated.
2. Extend the telescopic antenna to its full length for maximum distance.
3. Turn the "ON-OFF & VOLUME" switch to "ON" position. Your transceiver is now ready to operate. Adjust volume to desired level.
4. The variable squelch control reduces background noises and keeps interference at a minimum between calls. Caution should be taken in setting squelch control so as not to reduce receive signal.
5. This transceiver is equipped for 23-channel operation. All crystals are installed in the unit to give you full 23-channel operation.
6. Press the "PUSH-TO-TALK" switch for transmitting.
7. Release the "PUSH-TO-TALK" switch for receiving.
8. When transmitting, speak clearly in normal voice, holding the transceiver about 3 inches from your mouth.
9. When receiving, adjust the volume control and squelch control for best reception and desired listening level. For private listening, or when receiving in noisy locations, use the earphone.
10. For best transmission and reception, antenna should be held in vertical position.
11. Public Address System
To use your new 13-790 as a public address system, connect any standard 8 ohm PA speaker to the PA jack. Slide the rocker switch to the PA position. Turn set on and press the push-to-talk switch to broadcast over the PA speaker.

OPERATION RANGE

Your Midland 13-790 is a fine piece of high frequency equipment.

The operating range can be several miles, depending upon terrain, obstacles, climatic conditions and the type of equipment used with this unit.

By using the model 13-790 transceiver with a base station or mobile unit, this range can be greatly increased.

Your Midland 13-790 is completely transistorized and crystal-controlled portable transmitter and receiver. It is designed to operate in the 27 MHz citizens band. It is built to comply with F.C.C. Rules and Regulations.

GUIDE TO ADJUSTMENT

(Intended for use by qualified technician)

Transmitting section

1. Tune the channel selector to channel No.13.
2. Connect RF power meter to external antenna terminal without fully extending antenna.
3. Make sure that battery voltage is 12 volts.
4. Press the Push-to-talk switch to transmit, and adjust the transmitting coil except antenna loading coil for maximum indication on RF power meter. In this case, please be careful of adjusting two(2) pcs. of shielded double tuned coil in transmitting mixer circuit because these adjusting range is too sharp.
5. Disconnect RF power meter and extend the rod antenna to its full length and press the Push-to-talk switch. Then adjust the antenna loading coil, so that same currenty from power source as that in connecting RF power meter to external antenna jack can be obtained.

Receiving section

1. Tune the signal generator to 455 KHz with 30% modulation at 1KHz. And adjust four(4) pcs. of second IFT for maximum indication on the output meter.
2. Adjust channel selector to channel No.13 and adjust one(1) pc. of antenna coil, one(1) pc. of RF coil and two(2) pcs. of first IFT's for maximum indication on power meter, using another transceiver or transmitter as signal source.

Caution: Never transmit without fully extending antenna since one or more transistors will be ruined and will not be covered by warranty.

OPTIONAL ACCESSORIES

12 Volt Battery Cable (18-136)



18-136

For use with 12-volt automobile negative ground.

AC Power Supply (18-143C)

To operate 13-790 on 110-volts AC and to charge rechargeable batteries.

For base station operation.



18-143C

External Battery Pack (18-137)

Cowhide case (5½" high × 6" wide × 2" deep) with shoulder strap and 35" lead with plug.

Accommodates 8 flashlight "D" cells, (Eveready 950, NEDA 813 or Midland 20-813)



18-137

External Antenna (18-210)

Loaded coil base station antenna with all mounting hardware and 20 feet of coaxial cable. For mobile or base station use. Requires 25-411 adaptor to plug directly into antenna jack.



18-210

External Microphone (18-138)

Specially designed for use with 13-790 as base station. Gives sharp, clear voice response. Attractive gray case and cable equipped with plug to fit 13-790.



18-138

FREQUENCY SYNTHESIZER CRYSTAL COMBINATION LIST

(A) Group 6 pcs.

a.:37.600 MHz
b.:37.650 MHz
c.:37.700 MHz
d.:37.750 MHz
e.:37.800 MHz
f.:37.850 MHz

(B) Group 4 pcs.

(Transmitting)

a':10.635 MHz
b':10.625 MHz
c':10.615 MHz
d':10.595 MHz

(C) Group 4 pcs.

(Receiving)

a":10.180 MHz
b":10.170 MHz
c":10.160 MHz
d":10.140 MHz

<u>CHANNEL</u>	<u>FREQUENCY(MHz)</u>	<u>Combination</u> <u>(Transmit)</u>	<u>Combination</u> <u>(Receive)</u>
1.	26.965	a-a'	a-a"
2.	26.975	a-b'	a-b"
3.	26.985	a-c'	a-c"
4.	27.005	a-d'	a-d"
5.	27.015	b-a'	b-a"
6.	27.025	b-b'	b-b"
7.	27.035	b-c'	b-c"
8.	27.055	b-d'	b-d"
9.	27.065	c-a'	c-a"
10.	27.075	c-b'	c-b"
11.	27.085	c-c'	c-c"
12.	27.105	c-d'	c-d"
13.	27.115	d-a'	d-a"
14.	27.125	d-b'	d-b"
15.	27.135	d-c'	d-c"
16.	27.155	d-d'	d-d"
17.	27.165	e-a'	e-a"
18.	27.175	e-b'	e-b"
19.	27.185	e-c'	e-c"
20.	27.205	e-d'	e-d"
21.	27.215	f-a'	f-a"
22.	27.225	f-b'	f-b"
23.	27.255	f-d'	f-d"
22.87	27.235	F-c'	F-c"

SERVICING YOUR TRANSCEIVER

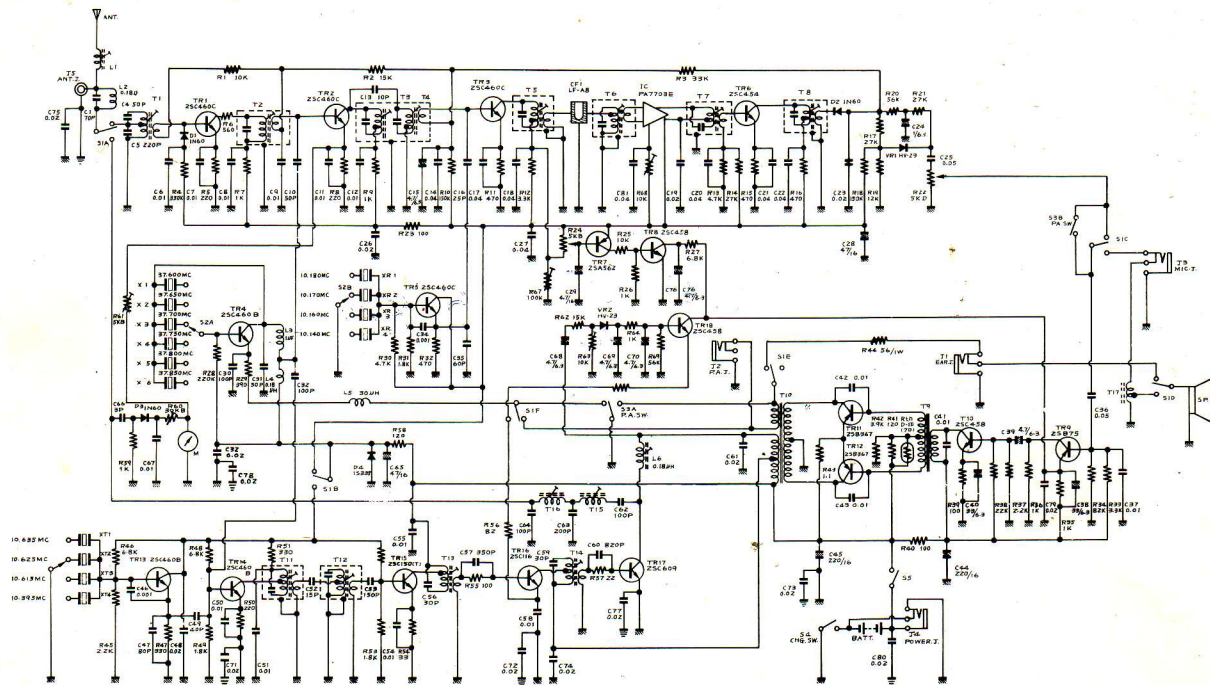
The technical information, diagrams and charts provided in this manual are supplied for the use of a qualified holder of a first or second-class radiotelephone license in servicing this transceiver. It is the user's responsibility to see that this unit is operating at all times in accordance with the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

If you install your own transceiver, do not attempt to make any transmitter tuning adjustments. Adjustments are prohibited by the F.C.C. unless you hold a first or second-class radiotelephone licence, 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 EQUIPMENT HAS BEEN DESIGNED, MANUFACTURED
AND FURNISHED IN ACCORDANCE WITH VOL. 6, PART 95 OF
THE FCC RULES AND REGULATIONS AS AMENDED EFFECTIVE
JUNE, 1968 FOR CLASS D CITIZENS BAND OPERATION.

SPECIFICATIONS

Circuit system	Receiving section Crystal controlled dual conversion superheterodyne with RF amplifier full variable squelch and noise limiter. Transmitting section Crystal controlled oscillation, collector modulation system.
Semi-conductor	14 Transistors plus 2 Transistors in squelch circuit and 1 Transistor in AMC circuit 1 Integrated circuit 4 Diodes 1 Thermistor 2 Varistors
Frequency	27 MHz citizen band synthesized system 23 Channels
Modulation	AM
Operation	Push-to-talk system
Antenna	Telescopic, 12 section, 60"
Speaker-Microphone	2 $\frac{3}{4}$ " Dynamic speaker, 8 ohm
Controls	Channel selector switch, full variable squelch OFF-ON volume control, external power-charge switch, PA switch.
External jack	External power-charger jack, earphone jack, external mic jack, PA jack, external antenna jack.
Power source	12 volts DC
Cabinet	All metal with diecast chrome grille
Dimensions	9 $\frac{3}{4}$ " High \times 3 $\frac{1}{4}$ " wide \times 2 $\frac{1}{4}$ " Deep.
Weight	3 $\frac{1}{4}$ " pounds.
Receiving section	Sensitivity 1 μ V at 6dB S/N Squelch sensitivity 1 μ V Nominal Intermediate frequency 1st 10.595 MHz/10.615/10.625/10.635 2nd 455 KHz Audio output 0.5 watt
Transmitting section	Power input 5 watt Frequency tolerance \pm 0.005%
Accessories included	Leather case, carrying strap, earphone, earphone pouch, special plug and instruction booklet.



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.

MIDLAND INTERNATIONAL CORPORATION
1909 Vernon Street
North Kansas City, Missouri 64116