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10 watt output, rotary channel selector

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2-Meter FM
30 watt output, pushbutton channel selection

GTX-200
2-Meter FM
30 watt output, independent Xmit & receive

MANUFACTURED IN THE UNITED STATES

GENERAL AVIATION ELECTRONICS, INC.

4141 Kingman Drive
Indianapolis, Indiana 46226
AREA (317) 546-1111

Specifications subject to change without notice.

Printed in U.S.A. May, 1974

Price $2.00

OWNERS MANUAL

CONGRATULATIONS!

You now own one of the finest pieces of electronics equipment available for amateur radio use. The GTX-100 is the end product of research, design and engineering by General Aviation Electronics, Inc. (Genave)—space age innovators in electronic equipment for general aviation, marine and the communications industries.

GTX-100 **1¼ Meter FM Transceiver**

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Warranty

General Aviation Electronics, Inc., warrants this product to be free from material defects for a period of 90 days from the date of purchase.

Our obligation under this warranty is to replace any parts (except service items such as bulbs, fuses, etc.) which upon our examination appear to us to be defective in materials or workmanship, with any labor charges involved at the cost of the owner, provided the unit is delivered to the Factory within the specified time period.

The owner may elect to have the unit repaired at an authorized Genave dealer, in which case Genave will replace only those defective parts returned shipping pre-paid to the Factory, and will not be responsible in any way for payment of any labor or other charges incurred therein.

This warranty does not apply to defects, malfunction, or breakage due to improper installation or to the servicing thereof by other than an authorized Genave dealer, or due to abuse, misuse, tampering, submersion in water or willful destruction of the unit.

The Company offers no other guarantees or warranties expressed or implied.

Your unit was under strict quality control during its fabrication and was thoroughly checked by skilled technicians prior to shipment. With reasonable care and handling it will provide years of satisfactory operation.

Specifications:

GENERAL:

Front Panel Size: 6½″ x 2½″ (16.51 cm x 6.35 cm)
Over-all Dimensions: 9″ deep × 6½″ wide × 2½″ high (22.86 cm × 16.51 cm × 6.35 cm)
Number of Transistors: 13 all silicon transistors, 5 diodes, 2 zeners, 7 FETs, 3 integrated circuits
Power Supply: 12 VDC system, negative ground
Current Drain: Receive: .09 amps
Transmit: Hi 5.0 amps
Lo 1.7 amps
Frequency Range: 220 to 225 MHz
Number of Channels: 10 Xmit x 10 Receive = 100 poss. channel combinations. (Includes 223.5 MHz. Remaining frequencies at nominal charge each for installation at factory or by owner).
Weight: 5 lbs. (approx.) (2.27 Kg.)

RECEIVE:

Sensitivity: .25 microvolts nom. for 12 db SINAD
.35 microvolts nom. 20 db quieting
Image: More than 45 db
Spurious: More than 50 db
Selectivity: ±8 kHz, 3 db or less
Adjacent Channel Rejection: ±30 kHz more than 65 db
Receiver Circuit: Double conversion, superheterodyne, crystal controlled
Audio Output: 1.5 watts at less that 15% distortion
Modulation Acceptance: More than 7.5 kHz
Squelch Threshold: .35 microvolts max.

TRANSMIT:

Frequency Range: 220 to 225 MHz
Power Output: 12 watts, nom.; 10 watts min. @ 14 VDC input
Outout Impedance: Matches standard 50 ohm amateur antennas
Deviation: Adjustable to 10 kHz max.

The GTX-100 was designed for fixed, mobile, and portable operation.

The GTX-100 features paired or independent frequency selection at the flip of a single selector switch. In the "unlocked" mode the operator can independently select the transmit and receive frequencies desired. The "locked" mode allows the operator to transmit and receive on a preselected frequency pair.

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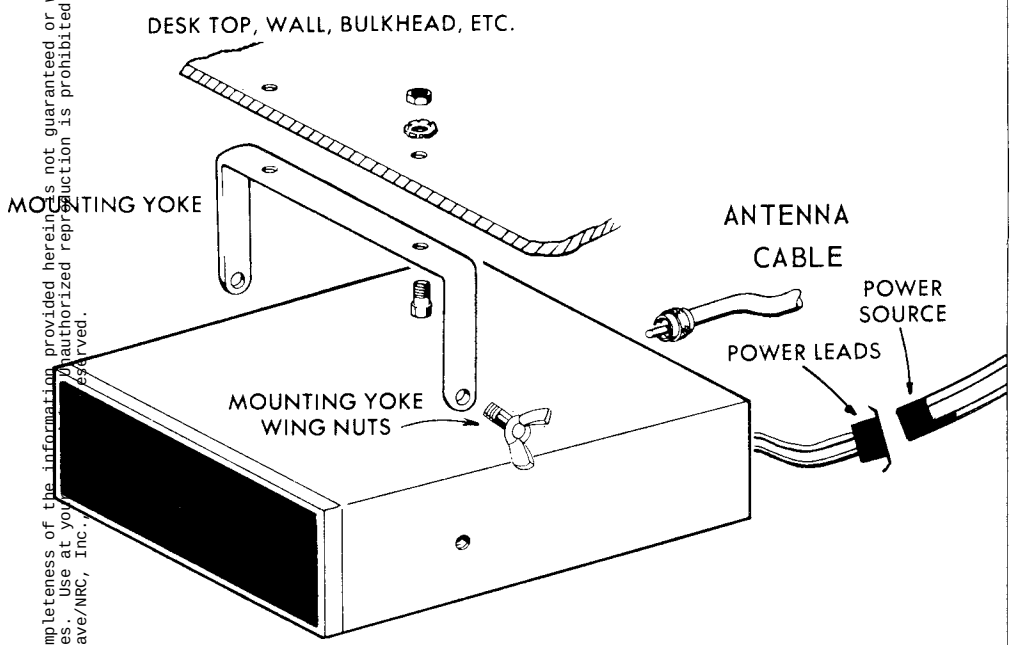
INSTALLATION



FIXED OPERATION

1. Remove the mounting yoke from the top of the unit and reposition the mounting yoke on the bottom side of the unit to function as a supporting stand.
2. Connect the color coded power leads to the power source. The power source can consist of a battery or well regulated power supply (1.5 V max. peak ripple) such as the power supply shown in figure 2. The unit will only operate on a supply with negative ground. If it is necessary to extend the power leads, use #14 gauge or heavier insulated copper wire. If polarity is reversed the unit will be inoperative. If this occurs check wiring polarity (RED to positive and BLACK to negative) and the protective fuse. A blown fuse should be replaced with a 7.5-amp, type 3AG fuse only.
3. If desired, attach the microphone mounting clip to the selected mounting surface using two small screws or bolts.
4. Plug the microphone into the microphone jack located on the front left side of the unit. The microphone supplied with the unit is recommended. however, most standard high impedance ceramic microphones will work.
5. Connect the antenna to the antenna connector located on the rear panel. The unit is designed to match standard 50 ohm 1¼-meter amateur antennas. In the interest of good engineering practice and maximum efficiency, the antenna system should exhibit a low VSWR.

MOBILE OPERATION

1. Remove the unit from the mounting yoke.
2. With screws or bolts securely fasten the yoke in the desired location (under the dash, on console, overhead, etc.). Unit performance is not affected by mounting position.
3. Replace the unit in the mounting yoke and tighten the thumbscrews.
4. Connect the color-coded power leads to the power source. Take care to use RED for positive and BLACK for negative. Unit will only operate on a supply with negative ground. If it is necessary to extend power leads, use #14 gauge or heavier insulated copper wire. If polarity is reversed the unit will be inoperative, if this occurs check wiring polarity (RED to positive and BLACK to negative) and the protective fuse. A blown fuse should be replaced with a 7.5-amp, type 3AG fuse only.
5. Attach the microphone mounting clip to the desired mounting surface using two small screws or bolts.
6. Plug the microphone into the microphone jack located on the front left side of the unit. The microphone supplied with the unit is recommended, however, most standard high impedance ceramic microphones will work.
7. Connect the antenna to the antenna connector located on the rear panel. The unit is designed to match standard 50 ohm 1¼-meter amateur antennas. In the interest of good engineering practice and maximum efficiency, the antenna system should exhibit a low VSWR.

PORTABLE OPERATION

The easiest method of portable operation is to utilize the Genave Ham-Pak-II Portable Power Case. For instructions on utilization of the Ham-Pak-II see the instruction sheet supplied with the HamPak-II.
Portable operation of the unit requires the same considerations as fixed and mobile operations (power supply, antenna, etc.). Battery operation of the unit is possible and the low power feature reduces power drain to a minimum.

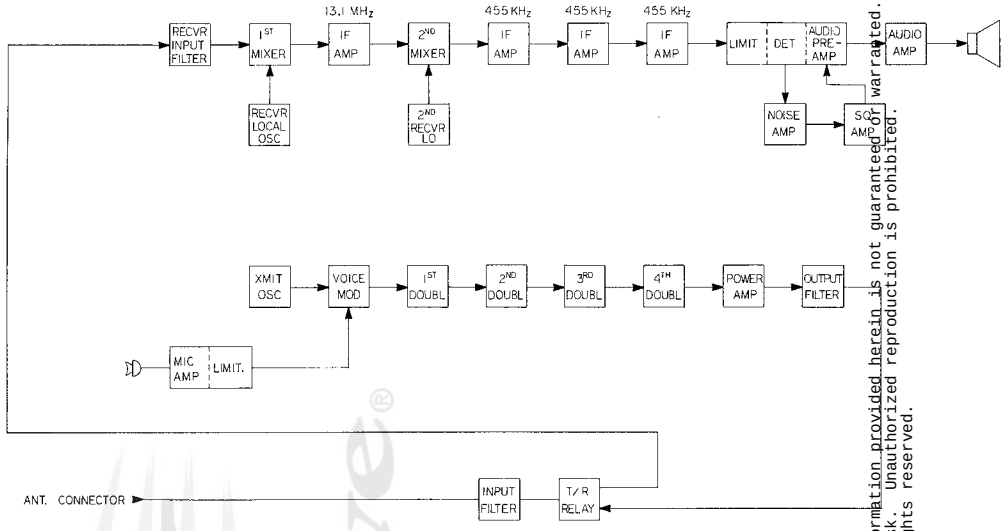
OPERATING INSTRUCTIONS

1. Turn volume (#1) and squelch control (#2) knobs completely counterclockwise.
2. Move the OFF/LO/HIGH switch (#3) to the LO position.
3. Turn the volume control clockwise to adjust the volume to the desired level.
4. Turn the squelch control clockwise until the background sounds just disappear.
5. Select the desired frequency mode on the mode selector switch (#4). The "unlocked" mode permits selection of the transmit frequency on the Transmit/Transceive frequency selector (#5) and selection of the receive frequency on the Receive frequency selector (#6). When operating in the "locked" mode prepaired receive and transmit frequencies are sslected on the Transceive frequency selector (#5).
6. To transmit: depress microphone button, hold microphone 4 to 6 inches from mouth, and talk in a normal voice.
7. Release the microphone button to listen.

*The GTX-100 comes with 223.5 MHz transmit and receive crystals installed. The remaining 9 transmit and 9 receive frequencies can be installed by the owner or the factory, at a nominal charge.

MAINTENANCE

Keep the unit dry and check electrical connections regularly to insure satisfactory operation under normal conditions.



Block Diagram

THEORY OF OPERATION

INTRODUCTION

The Genave GTX-100 is a VHF FM transceiver intended for use in the Amateur radio services. It transmits and receives 16F3 emission in the frequency range from 220 to 225 MHz on any one of ten possible selected transmit/receive frequency pairs. The unit provides a nominal 12 watts of output power into a 50 ohm load. The unit was designed for fixed, mobile, or portable operation.

RECEIVER

The receiver is basically a dual conversion superheterodyne type utilizing a single integrated circuit to perform the limiting and detection functions.

The received signal is applied from the antenna connector to the three pole low pass filter comprised of C270, L213, and C254. This filter also functions as a low pass filter for the transmit function. The signal from the low pass filter is applied to pin 9 of K201, the T/R relay. In the receive mode the signal is fed to the input filter of the receiver via pin 8 of the T/R relay.

The receiver input filter consists of L101, L102, and L103 and their associated tuning and coupling capacitors. The output of the input filter is capacitively coupled to the base of the Q102, the first mixer.

The first local oscillator consists of Q110 and associated circuitry. The desired crystal in the 58.275 to 59.525 MHz range is selected by means of the frequency selection switches, SW201B or SW101. The collector circuit of Q110 is tuned to the third harmonic of the crystal frequency and the 174.82 to 178.57 MHz output is capacitively coupled to the base of Q102.

The 13.1 MHz difference signal produced in the first mixer is coupled to the first IF amplifier consisting of Q112 and associated circuitry. The output of the first IF amplifier is fed to Q103, a dual gate FET which together with its associated circuitry functions as the second mixer.

The second local oscillator consists of Q104 and associated circuitry. The second local oscillator operates at the crystal controlled frequency of 12.645 MHz. This 12.645 MHz signal produced is mixed with the 13.1 MHz signal from the first IF in the second mixer. The 455KHz difference frequency produced by the second mixer is applied to the second IF amplifiers Q105, 106, 107, and their associated circuitry.

The 455KHz second IF signal is applied to pins 1 and 2 of IC101. IC101 performs the limiting and detection functions in the receiver. C280 sets the de-emphasis level in the detection circuitry. T111, R126, and C126 form the quadrature detector transformer circuit. Detected audio is fed from pin 8 of IC101 through C127 and R127 to the audio amplification circuits via pin 14. Detected audio from pin 8 is also fed to the noise amplifier consisting of Q108 and associated circuitry. The amplified noise from Q108 is fed to the voltage doubling detector CR101, CR102, and C132. The detected noise level is fed to the base of Q109. R132, the squelch control, controls the authority of the detected noise level on the base of Q109, As Q109 begins to turn on, the audio level at the output (pin 12) of IC101 is reduced.

R135, the volume control, sets the level of audio fed to IC102, the audio amplifier. R136 and C136, and R137 and C137 perform the frequency response shaping of the audio amplifier while C138, C139, and C142 provide feedback to various stages within IC102. Output audio from IC102 is applied from pin 12 through C141 to the speaker.

TRANSMITTER

The modulator audio amplifier in the unit is built around a single integrated circuit, IC201. This IC is a dual operational amplifier and is shown on the schematic diagram as IC201A and IC201B. The audio output of the ceramic microphone is amplified by IC201A. A 6 db/octave rising characteristic is given to the audio frequencies by loading the 1500 pfd microphone capacitance with the bias resistors R236 and R237. IC201 also provides the clipping function required for limiting the modulation by saturating symmetrically against the supply voltage and ground. The regulated supply voltage for the modulator is obtained by applying 13.75 VDC primary power through R239 and across a 6.8 volt zener diode, CR205.

The output from IC201A is applied to IC201B which acts as an active, 2-pole, Chebyshev low pass filter with a cut off frequency of 3KHz. R230 and C267 add a third pole to the filter giving the required −18 db/octave rolloff above 3KHz.

R229 controls the audio level applied to the modulator varactor diode, CR202. R228 and C225 convert the audio signal applied to the modulation diode to the form required to produce phase modulation.

DC bias for the modulation diode is provided by IC201B through R228, R230, and R238. The audio return from R230 is provided by C266.

The oscillator transistor Q201 generates the required RF signal. Power for the oscillator is derived from an independent voltage regulator (R202 and CR201). The oscillator is a basic Colpitts or Clapp crystal circuit. Variable capacitors are used with each crystal to allow exact setting of the generated frequency. Output from the oscillator is from 13.75 MHz to 14.0625 MHz. The oscillator output is multiplied by 16 in the multiplier stages resulting in a final output frequency from 220 to 225 MHz.

Frequency modulation of the carrier is accomplished by CR202. A signal from Q201, the oscillator transistor, is applied to CR202 by a tuned transformer, T201. As an audio signal is applied to the varacter diode, CR202, from the modulation audio amplifier; the capacitance of the diode changes thus varying the resonant frequency of the tuned transformer, T201. The audio signal is de-emphasized before application to CR202, resulting in the effect of frequency modulation of the carrier rather than phase modulation.

The output of the modulator is first applied to Q202, an RF doubler. In this stage the input frequency of 13.968 MHz is multiplied to 27.937 MHz. Other harmonics and subharmonics are filtered out by a double-tuned transformer, T202.

The output of T202 is fed to Q203 a class C doubler, which increases the signal frequency to 55.875 MHz. The undesired signals generated in this stage are removed by the tuned transformer, T203.

The output of T203 is applied to the base of Q204, the next doubler. Q204 doubles the signal frequency to 111.75 MHz and the undesired signals generated in this stage are removed by the tuned transformer, T204.

The output of T204 is applied to the base of Q205, the last multiplier stage. Q205 doubles the signal frequency to 223.5 MHz. The output of Q205 is matched to the input of Q206 by "LC" resonant circuits consisting of L202, C245 and L203, C246. These circuits also provide subharmonic suppression.

The power amplifier in the transmitter consists of Q206, Q207, Q208, and their associated circuitry. This complement of devices increases the output from Q205, nominally 50 milliwatts, to the rated output of the transmitter, 12 watts. Frequency selective matching networks are used between each of the stages to effectively couple power between devices and to reject the unwanted spurious responses.

SW202B switches R214 into a series connection between the collector supply and Q203 when the switch is in the "LO "position. This reduces the output power of the transmitter to approximately 1 watt for short distance, low power drain operation.

A relatively complex filter is used to remove subharmonic spurious outputs and harmonic radiations from the RF signal prior to transmission. C256, L209, and C258 comprise a resonant matching network which matches the output of Q208 to the 50 ohm antenna impedance. The remainder of the components up to the output connector form an eliptic function, low pass filter which reduces the level of all spurious outputs, above the output frequency, to less than −15 dbm.

CRYSTAL SWITCHING

Crystal switching for the transmit and receive oscillators is accomplished through the use of switches SW101 and SW201. SW201A selects the desired transmit frequency by placing the appropriate transmit crystal and trimmer in shunt with the base circuit of Q201, the transmit oscillator.

SW102 connects either SW201B or SW101 to the base circuit of the receive oscillator, Q107. In the "unlocked" mode SW101 is connected to the base circuit of the receive oscillator and connects the receive crystals in shunt with the oscillator base circuit.

In the "locked" mode SW201B is connected to the oscillator base circuitry, and since this switch is mechanically connected to the transmit selector, it allows the positioning of the Transmit/Transceive frequency selector to select the receive crystal.

PRIMARY POWER

Power to operate the unit is supplied from the 13.75 VDC external power source via the input connector, P201, and SW202A. The 13.75 VDC line supplies power to operate the relay, K201; the panel backlighting lamp, IL201; and the transmitter and receiver circuitry, via Pins 11, 12, and 13 of K201.

The transceiver is protected against a reversed polarity input voltage by means of CR103 and CR206. CR207 prevents the feedback of induced voltage spikes generated by K201, on the 13.75 VDC line. C264 acts as a filter on the 13.75 VDC line.

ALIGNMENT PROCEDURE

GENERAL

1. The unit comes prealigned from the factory and realignment should never be necessary during the normal life of the unit unless components within the unit have been replaced due to damage.
2. Never attempt to realign the circuitry of the unit unless the test equipment specified for each section is available.

RECEIVER ALIGNMENT

PREPARATION

To properly align the receiver of the unit the following test equipment or its equivalent is required:

a. Oscilloscope, DC—8MHz, DC coupled, Calibrated vertical attenuator, (Heathkit 10-14, or equivalent).
b. RF Signal Generator, 13.1 MHz, 220 MHz, and 225 MHz.
c. Sweep Signal Generator, Must be capable of sweeping the frequency range from 220 MHz to 225 MHz.
d. FM Signal Generator, Must cover the frequency range from 220 MHz to 225 MHz with a deviation of at least 5KHz at 1000 Hz.
e. Frequency Counter, DC—250 MHz.
f. AC VTVM, Any accurate instrument.
g. DC Power Supply, Low ripple.

To facilitate test-equipment connections to the receiver during alignment, short pieces of wire can be soldered to the bottom of the receiver board at the following points:

Secondary pins of T110 (455 KHz output transformer)
Pin 3 of T102 (13.1 MHz output coil)
Top of L103 (RF filter output coil)
Emitter of Q101 (1st mixer transistor)

Select 223.5 MHz and turn the volume and squelch controls fully counterclockwise.

Connect the transceiver to a 13.75 VDC, filtered power supply.

455 KHz IF ALIGNMENT

1. Connect the scope vertical input to the secondary of T110 with a length of co-ax cable. Set the scope vertical attenuation for maximum sensitivity.
2. Connect the RF output of the RF signal generator to the frequency counter, and set the frequency to exactly 13.1 MHz, unmodulated.
3. Disconnect the frequency counter, and connect the RF output of the Signal Generator between Pin 3 of T102 and receiver ground.
4. Turn the transceiver power switch on, and adjust the Signal Generator RF attenuator and scope controls to give a usable pattern of the 455 KHz IF signal.

   NOTE: Small changes in the amplitude of the IF signal are more easily seen if the attenuator on the signal generator is kept set so that the IF signal covers about ¾ of the scope screen vertically, and the scope internal sweep is set slow enough to display a large number of IF cycles.
5. Turn the cores of 455 KHz IF transformers T110, T109, T108, T107, T106, T105, T104, and T103 (in that order) for maximum amplitude on the scope. Reduce signal generator attenuator as necessary to keep a usable presentation on the scope.
6. Turn the transceiver power switch OFF, and disconnect the RF cable of the signal generator from Pin 3 of T102. Check that the signal generator is still set exactly to 13.100MHz.

13.1 MHz IF ALIGNMENT

1. Connect the RF cable of the signal generator between the Top of L103 and ground. Leave the oscilloscope connected as above.
2. Turn the transceiver power switch on, and reduce the setting of the signal generator RF attenuator to keep a usable presentation on the scope screen.
3. Adjust the bottom core of T102 for maximum amplitude, then adjust the top core of T102 for maximum amplitude. Adjust bottom and top cores of T101 for maximum amplitude.
4. Adjust all four cores in this manner, until no further increase in amplitude can be obtained.
5. Turn the transceiver power switch OFF, and disconnect the oscilloscope and the signal generator from the transceiver.

RF-INPUT FILTER ALIGNMENT

1. With the transceiver still off, connect the RF output of the sweep generator to the transceiver ANT connector. Connect the vertical input of the oscilloscope between the source of Q102 and the transceiver ground.
2. Set the sweep generator to sweep from 219 MHz to 226 MHz. Use the RF signal generator as a marker generator to produce 220 and 225 MHz markers.
3. Turn the transceiver power switch on.
4. Set the scope vertical attenuator to the most sensitive position, and set the RF output of the sweep generator low enough to prevent over driving the RF input filter.
5. Adjust C101, C103, and C106 to give a 5 MHz band pass similar to that shown in figure 1.
6. Turn the transceiver power switch off, and disconnect the test equipment from the transceiver.

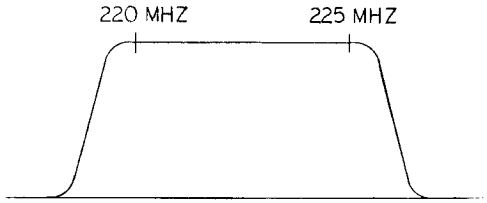
OSCILLATOR COIL ADJUSTMENT

CAUTION: *Never* depress the microphone push to talk button while a signal generator is connected to the ANTENNA connector, as the transmitter power would damage the RF attenuator.

1. Using the frequency counter, set the FM signal generator exactly to 223.5 MHz. Disconnect the frequency counter from the FM signal generator RF cable and connect the RF cable to the transceiver ANTENNA connector. The FM signal generator RF attenuator should be set to the minimum position, and the modulation should be off.
2. Set the AC VTVM, or other DB meter, to a convenient range, such as -10 db, and connect the meter leads across the speaker voice coil.
3. The transceiver frequency selector should be set to 223.5 MHz and the squelch and volume controls turned fully counterclockwise.
4. Turn the transceiver power switch on.
5. Adjust the volume control clockwise until the receiver background noise indicates −10 db on the AC VTVM. Increase the setting of the FM signal generator RF attenuator until the receiver background noise drops to approximately −27 db (17 db quieting).
6. Adjust the AF buffer capacitor, C151, for maximum quieting (Minimum indication on the AC VTVM).
7. Tune the core of the oscillator coil, L104, for maximum quieting. If necessary, reduce the output of the signal generator, to keep a readable indication on the DB meter.
8. Turn the transceiver off, but leave the FM signal generator and DB meter connected to the transceiver.

DETECTOR TRANSFORMER ADJUSTMENT

1. Connect the oscilloscope vertical input cable across the speaker voice coil, paralleling the AC VTVM leads.
2. Check to insure that the FM signal generator is still set to 223.5 MHz. Set the signal generator modulation for 5 KHz deviation at 1 KHz. The signal generator RF attenuator should be set in the vicinity of 2 microvolts.
3. Turn the transceiver power switch on, and adjust the scope controls to give a readable display of the 1 KHz modulation.
4. Adjust the core in the discriminator transformer, T111, for best linearity of the 1 KHz signal. The AC VTVM and the scope will show maximum amplitude of the 1 KHz modulation at this point.
5. The receiver is correctly aligned now, and the sensitivity for 20 db quieting may be checked. Leave the tset equipment connected to the transceiver.



Swept Input Filter
Figure 1

TRANSMITTER ALIGNMENT

PREPARATION

To properly align the transmitter the following equipment or its equivalent is required:

a. Power Meter, 20 watts @ 225 MHz, or relative output indicating device, (See figure 3.) with 50 ohm dummy load.
b. Frequency Counter, DC—250 MHz, or other accurate frequency measuring device.
c. Deviation Meter, to read ±7.5 KHz.
d. Power Supply, 13.75 VDC at 8 amp minimum, filtered.
e. VTVM, Any accurate instrument.
f. Audio Generator, 1700 Hz.

To prepare the unit for alignment perform the following steps:

1. Attach a 50 ohm dummy load to the RF output connector through a power meter or relative output indicating device (figure 3).
2. Set the OFF/LO/HIGH switch to the HIGH position.
3. Preset the deviation potentiometer to its lowest setting (potentiometer rotated toward the receiver 3-pole input filter capacitor trimmers).
4. Connect the unit to a 13.75 VDC power source.

FREQUENCY AND POWER ALIGNMENT

1. Select 223.5 MHz.

NOTE: The signal peak voltage measurements in the following steps of this section were made with a VTVM and DC probe. Key the transmitter *only* when adjustments are being made.

2. Connect the DC probe to the emitter of Q202, key the transmitter and adjust the single slug of T201 for a peak at 13.968 MHz. Adjust the VTVM attenuator for an on-scale reading.

NOTE: T201's slug will peak in two places . . . the peak with the slug farthest from the printed circuit board is correct. The peak should reach about 1.4 volts.

3. Move the DC probe to the emitter of Q203. Key the transmitter and adjust the 2 slugs of T202 for a peak, centered on 27.937MHz. The signal should peak at about 0.38 volts.
4. Adjust T203 by connecting the DC probe to the emitter of Q204, keying the transmitter, and adjusting the 2 slugs of T203 for a peak centered on 55.875 MHz. Each slug should adjust between its winding and the outside end of the coil form. The signal should peak at about 1.2 volts.
5. Adjust T204 by connecting the DC probe to the emitter of Q205, keying the transmitter, and adjusting the 2 slugs of T204 for a peak centered on 111.75 MHz. Each slug should adjust between its winding and the outside end of the coil form. The signal should peak at about 1.1 volts.
6. Adjust C245 and C246 by connecting the DC probe to the emitter of Q206, keying the transmitter, and adjusting the 2 trimmers, C245 and C246, for a peak centered at 223.5 MHz. The signal should peak at about .5 volts.
7. If the relative output indicating device of figure 3 is used, connect the VTVM DC probe to the relative output terminal. Otherwise, observe the wattmeter or other relative output indicator.
8. Key the transmitter and adjust C221, C249, C252, C256, and C258 for maximum relative output indication on 223.5 MHz. This step should be repeated until maximum output is obtained.
9. With the 223.5 MHz still selected and the OFF/LO/HIGH switch in the HIGH position, key the transmitter and adjust C203, the 223.5 MHz crystal netting trimmer, for a frequency reading of 223.5 MHz on the frequency measuring device.
10. Repeat the above procedure (step 9) for each transmit crystal installed in the unit, adjusting its respective netting trimmer for the frequency stamped on the top of the crystal case.

POWER MEASUREMENT PROCEDURE

1. Select 223.5 MHz.
2. Key the transmitter and note the transmitter power reading on 223.5 MHz. It should be no less than 12 watts.
3. Repeat the above step for each transmit frequency installed.
4. Set the OFF/LO/HIGH switch to the LO position.
5. Key the transmitter and note the transmitter power reading on 223.5 MHz. The power level on the LO position is factory adjusted to approximately 1 watt. This level can be changed by adjusting the value of R. located on the OFF/LO/HIGH switch.
6. Repeat the above step for each transmit frequency installed.

CARRIER DEVIATION ADJUSTMENT

1. Select 223.5 MHz.
2. Set the OFF/LO/HIGH switch to the HIGH position.
3. Connect the deviation meter to the frequency measuring output of the relative output indicating device.
4. Feed an audio signal of 1700 Hz into the transceiver microphone.
5. Key the transmitter, observe the frequency deviation meter, and increase the microphone audio input until no further increase in deviation is indicated. The modulator stage is now saturated.
6. With the frequency deviation meter set to either + or − deviation, key the transmitter and adjust the slug of T201 for a peak reading. The deviation potentiometer, R229, can be adjusted for an on-scale reading of the deviation meter.
7. Set the deviation potentiometer, R229, for a deviation reading of 5 KHz. Switch the deviation meter to the + and − positions and check the amount of deviation in each position.
8. If a difference exists between + and − deviation levels, adjust T201 by rocking the slug slightly until the two levels are brought into balance. The difference in deviation levels should not exceed 0.4 KHz.

FREQUENCY CHANGES

GENERAL

To add an additional receive frequency to the unit it is only necessary to install the additional receive crystal. When a transmit crystal is added it will be necessary to adjust the corresponding netting capacitor to center the transmitter on the desired frequency. A single receive or transmit crystal can be used in more than one frequency selection position. This is accomplished by a simple wiring addition which allows the same crystal to operate when any of the frequency positions are selected. The following information deesribes how to select the necessary crystals, when installing additional frequencies and how to wire the unit to utilize a single crystal for more than one receive/transmit frequency pair.

CRYSTAL SELECTION

The receive and transmit crystals used in the unit must meet the following specifications:

TRANSMIT

Parallel Mode: Cp = 20 pfd.
Fundamental Cut
Tolerance: ±.002%

$$\text{Crystal Frequency} = \frac{\text{Operating Frequency}}{16}$$

*(eg.) Operating Frequency = 223.5 MHz
Crystal Cut Frequency = 13.96875 MHz

RECEIVE

Parallel Mode: Cp = 20 pfd.
Third Overtone
Tolerance: ±.003%

$$\text{Crystal Frequency} = \frac{\text{Operating Frequency} + 13.1\ \text{MHz}}{4}$$

*(eg.) Operating Frequency = 223.5 MHz

$$\text{Crystal Frequency} = \frac{223.5 + 13.1\ \text{MHz}}{4} = 59.15\ \text{MHz}$$

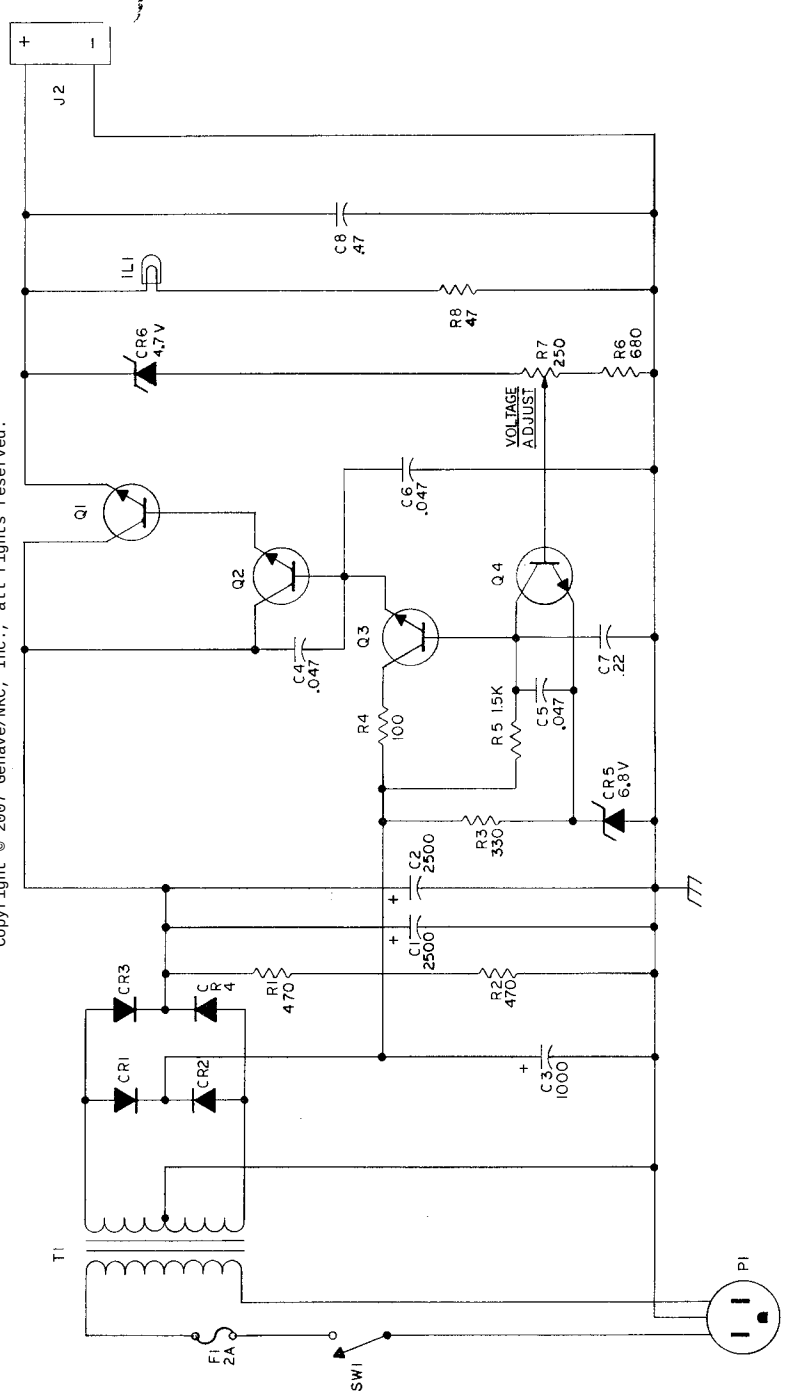


Figure 2
AC Power Supply

POWER SUPPLY PARTS LIST

Ref. No.	Genave Part No.	Description
		CAPACITORS
C1	1542530	Electrolytic, 2500 mfd, 30 V
C2	1542530	Electrolytic, 2500 mfd, 30 V
C3	1540038	Electrolytic, 1000 mfd, 30 V
C4	1500028	Polyester, .047 mfd, 10%, 100 V
C5	1500028	Polyester, .047 mfd, 10%, 100 V
C6	1500028	Polyester, .047 mfd, 10%, 100 V
C7	1500038	Polyester, .22 mfd, 10%, 75 V
C8	1500043	Polyester, .47 mfd, 10%, 75 V
		DIODES
CR1	4810013	Silicon, General Purpose, 100 V, SD-1
CR2	4810013	Silicon, General Purpose, 100 V, SD-1
CR3	4812111	Silicon, Rectifier, 10 Amp
CR4	4812111	Silicon, Rectifier, 10 Amp
CR5	4810007	Zener, 6.8 V, ZS6.8A
CR6	4810006	Zener, 5.6 V, ½ W, 5%
		RESISTORS
R1	4730011	470 ohm, ± 10%, 1 W
R2	4730011	470 ohm, ± 10%, 1 W
R3	4740014	Wire wound, 330 ohm, ± 10%, 2 W
R4	4700013	100 ohm, ± 10%, ½ W
R5	4700024	1.5 K, ± 10%, ½ W
R6	4700023	680 ohm, ± 10%, ½ W
R7	4760013	Potentiometer, 100 ohm, ± 30%
R8	4740008	Wire wound, 47 ohm, ± 10%, 2 W
		TRANSISTORS
Q1	4800001	Silicon, NPN, 2N3055
Q2	4800013	Silicon, NPN, MJE520
Q3	4800042	Silicon, NPN, 2N5220
Q4	4800051	Silicon, NPN, MPS A13
		MISCELLANEOUS
F1	5140018	Fuse, 3 AG, 2 Amp
IL1	3900005	Pilot Lamp, Red, 14 V
	6070776	Clip, Tinnerman, (For Above)
SW1	5100077	Switch, Slide, SPST, 2 Amp
T1	5600039	Transformer, Power 38 VAC C.T. @ 5 Amp
J2	2100246	Connector, Output, Receptacle, 2-Pin
	2100059	Pin, Female, For Above (2 reqd.)
P2	2100245	Connector, Output, Plug, 2-pin
	2100058	Pin, Male, For Above (2 reqd.)
	2508541	Cabinet
	2508621	Chassis
	2507611	Spacer, 4-40 x 7/8
	2100036	Terminal Strip
P1	6010007	Cord, AC Power, with AC Plug

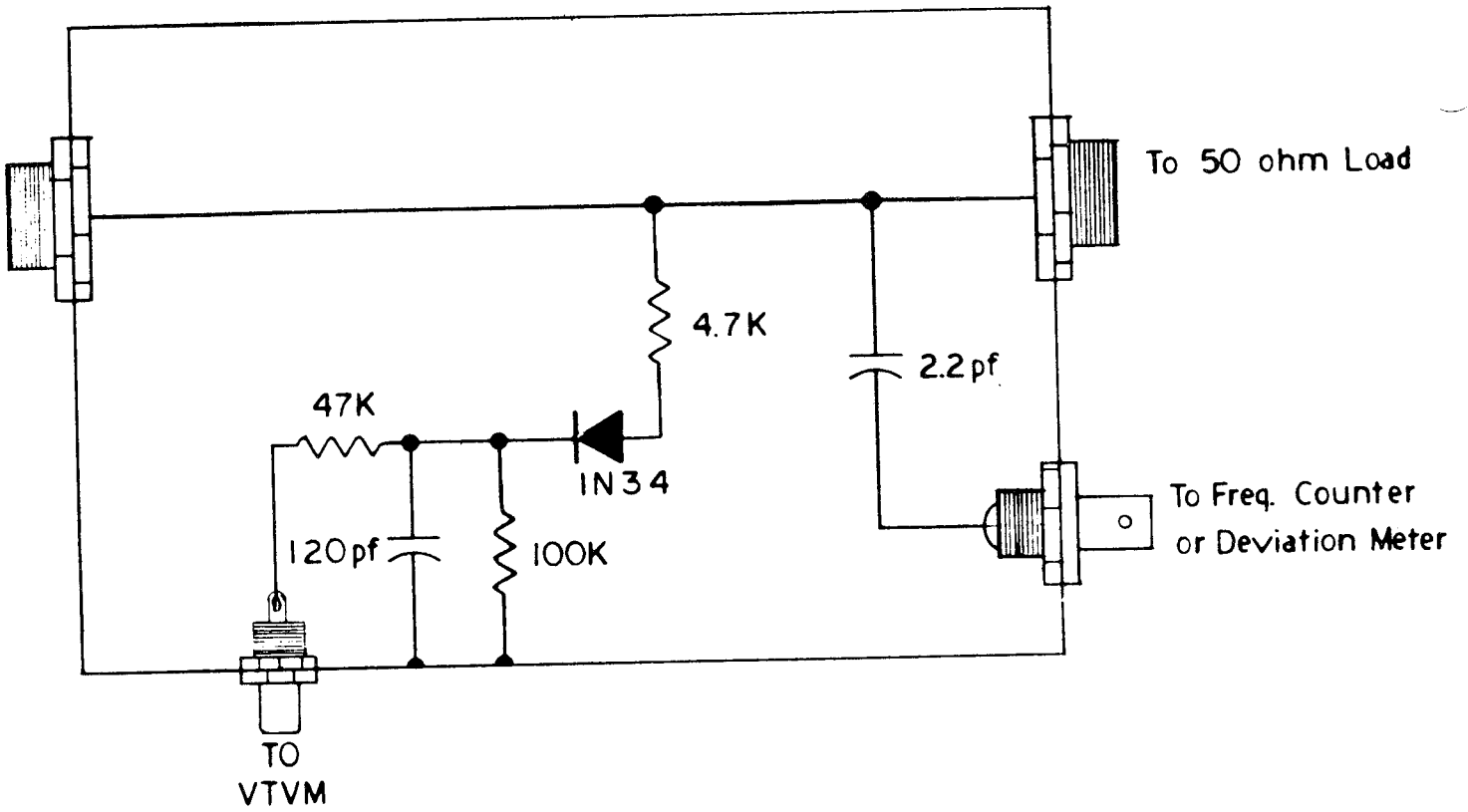
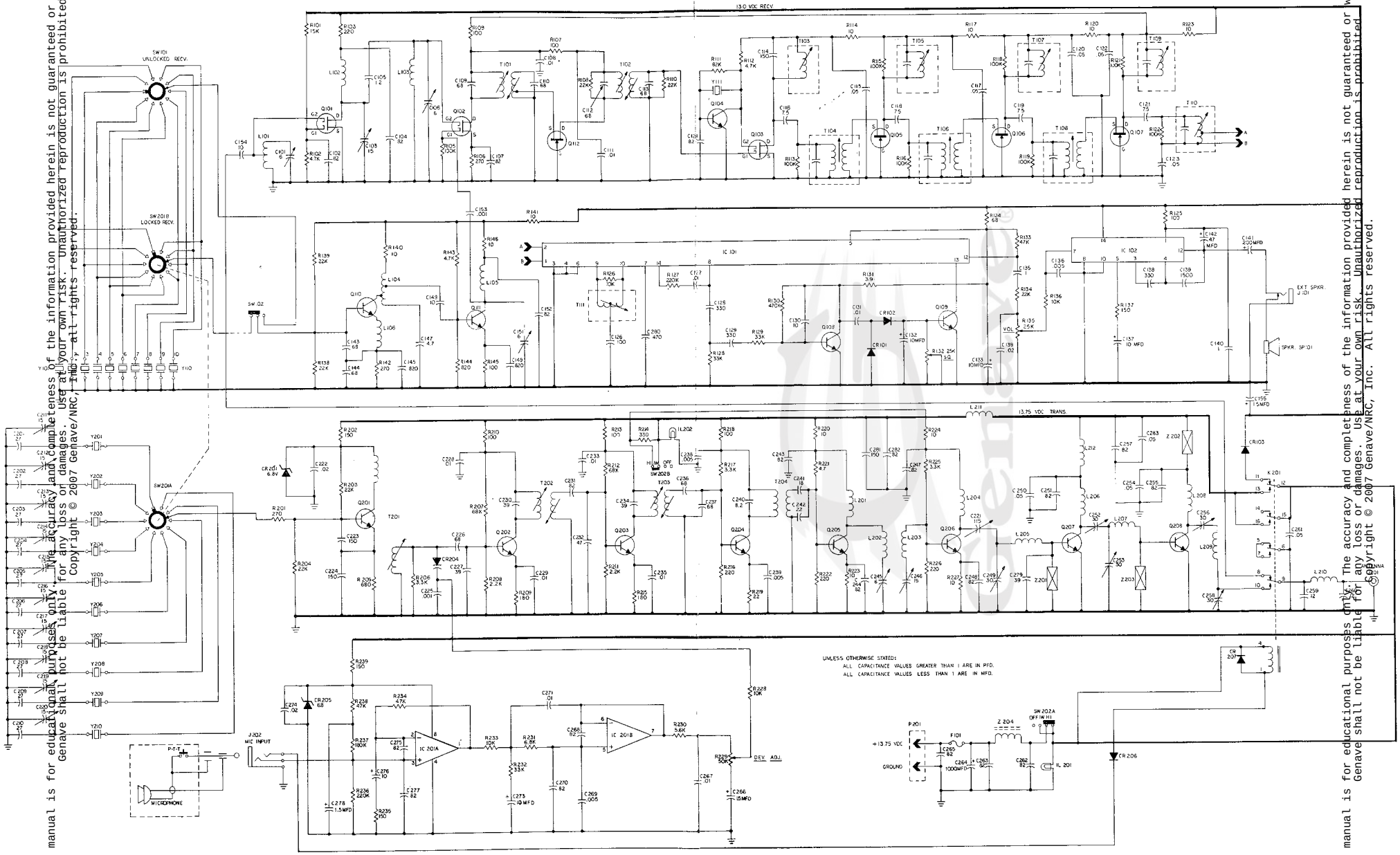


Figure 3
Relative Output Indicator



Mainboard Schematic
Figure 4

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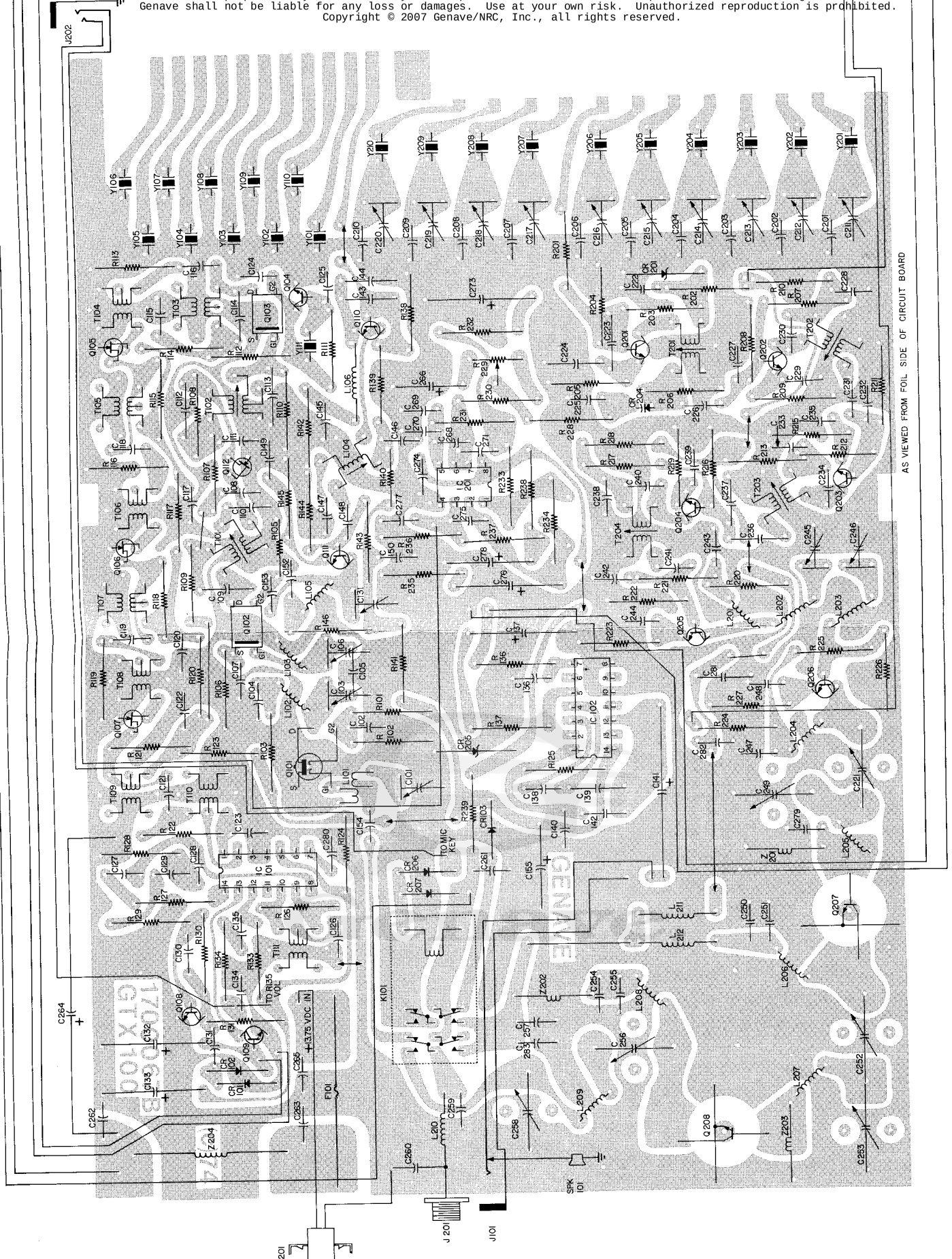

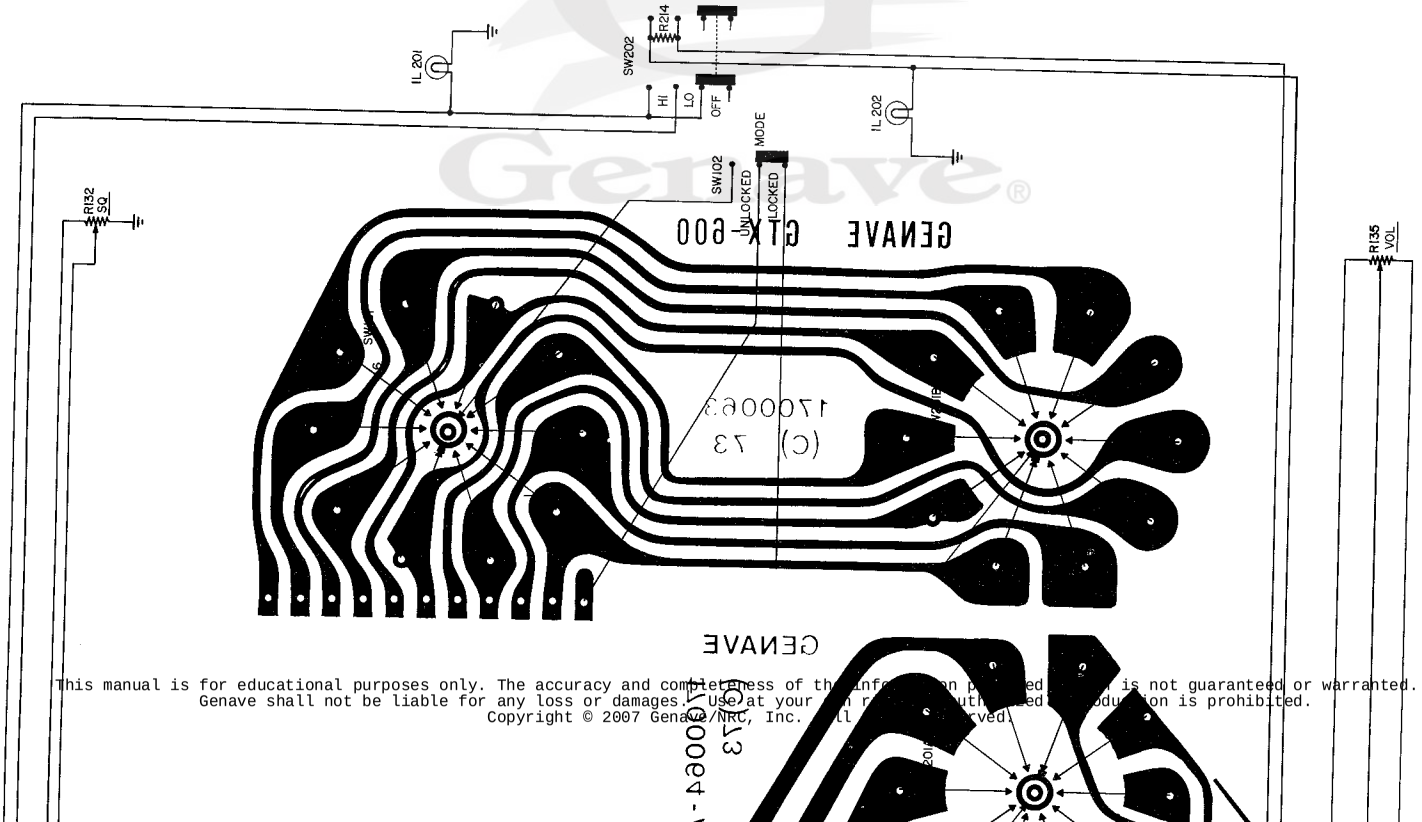

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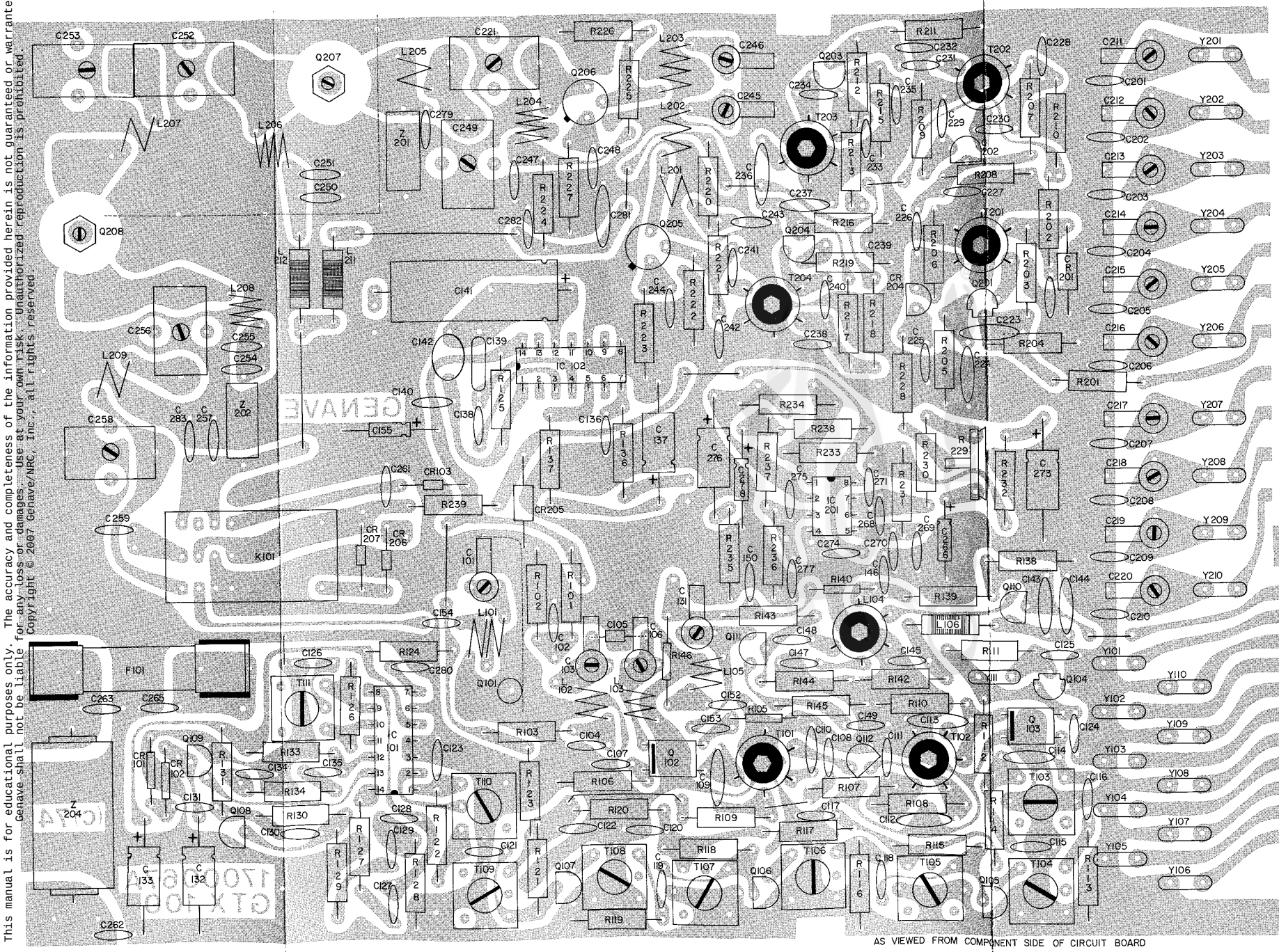
Parts/Track Map
Figure 5



Component Location Diagram
Figure 6

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GTX-100 PARTS LIST

Ref. No.	Genave Part No.	Description
C101	1570120	Trimmer, 1-6 pf
C102	1520176	NPO Disc, 82 pf, 10%
C103	1570122	Trimmer, 3-15 pf
C104	1520176	NPO Disc, 82 pf, 10%
C105	1510004	NPO Gimmick, .27 pf, 10%
C106	1570120	Trimmer, 1-6 pf
C107	1520176	NPO Disc, 82 pf, 10%
C108	1520051	Y5U Disc, .01, 20%
C109	1520019	NPO Disc, 68 pf, 10%
C110	1520019	NPO Disc, 68 pf, 10%
C111	1520051	Y5U Disc, .01, 20%
C112	1520019	NPO Disc, 68 pf, 10%
C113	1520019	NPO Disc, 68 pf, 10%
C114	1520027	N750 Disc, 150 pf, 10%
C115	1520054	Disc, .05, 25V
C116	1520175	NPO Disc, 7.5 pf, 5%
C117	1520054	Disc, .05, 25V
C118	1520175	NPO Disc, 7.5 pf, 5%
C119	1520175	NPO Disc, 7.5 pf, 5%
C120	1520054	Disc, .05, 25V
C121	1520175	NPO Disc, 7.5 pf, 5%
C122	1520054	Disc, .05, 25V
C123	1520054	Disc, .05, 25V
C124	1520176	NPO Disc, 82 pf, 10%
C125	1520047	Y5E Disc, 820 pf, 10%
C126	1520022	N220 Disc, 100 pf, 10%
C127	1520051	Y5U Disc, .01, 20%
C128	1520037	Y5E Disc, 330 pf, 10%
C129	1520037	Y5E Disc, 330 pf, 10%
C130	1520007	NPO Disc, 10 pf, 10%
C131	1520051	Y5U Disc, .01, 20%
C132	1540014	Aluminum Electrolytic, 10 mfd, 25V
C133	1540014	Aluminum Electrolytic, 10 mfd, 25V
C134	1520053	Disc, .02, 10%, 25V
C135	1520055	Disc, .1, +80−20%, 12V
C136	1500079	Z5U Disc, .005, 20%
C137	1540014	Aluminum Electrolytic, 10 mfd, 25V
C138	1520037	Y5E Disc, 330 pf, 10%
C139	1500076	Polyethyle, 1500 pf, 10%, 250V
C140	1520055	Disc, .1, +80−20%, 12V
C141	1540212	Aluminum Electrolytic, 200 mfd, 12V
C142	1550005	Tant. 47 mfd, 10%, 15V
C143	1520019	NPO Disc, 68 pf, 10%
C144	1520019	NPO Disc, 68 pf, 10%
C145	1520047	Y5E Disc, 820 pf, 10%
C146	1520051	Y5U Disc, .01, 20%
C147	1520004	NPO Disc, 4.7 pf, 10%
C148	1520007	NPO Disc, 10 pf, 10%
C149	1520047	Y5E Disc, 820 pf, 10%
C150	1520176	NPO Disc, 82 pf, 10%
C151	1570120	Trimmer, 1-6 pf
C152	1520176	NPO Disc, 82 pf, 10%
C153	1520071	JF Disc, .001, 10%
C154	1520007	NPO Disc, 10 pf, 10%
C155	1540002	Aluminum Electrolytic, .15 mfd, 35V
C201	1520012	NPO Disc, 27 pf, 10%
C202	1520012	NPO Disc, 27 pf, 10%
C203	1520012	NPO Disc, 27 pf, 10%
C204	1520012	NPO Disc, 27 pf, 10%
C205	1520012	NPO Disc, 27 pf, 10%
C206	1520012	NPO Disc, 27 pf, 10%
C207	1520012	NPO Disc, 27 pf, 10%
C208	1520012	NPO Disc, 27 pf, 10%
C209	1520012	NPO Disc, 27 pf, 10%
C210	1520012	NPO Disc, 27 pf, 10%
C211	1570122	Trimmer, 3-15 pf
C212	1570122	Trimmer, 3-15 pf
C213	1570122	Trimmer, 3-15 pf
C214	1570122	Trimmer, 3-15 pf
C215	1570122	Trimmer, 3-15 pf
C216	1570122	Trimmer, 3-15 pf
C217	1570122	Trimmer, 3-15 pf
C218	1570122	Trimmer, 3-15 pf
C219	1570122	Trimmer, 3-15 pf
C220	1570122	Trimmer, 3-15 pf
C221	1560406	Disc, .02, 10%, 25V
C222	1520053	N750 Disc, 150 pf, 10%
C223	1520027	N750 Disc, 150 pf, 10%
C224	1520027	JF Disc, .001, 10%
C225	1520071	NPO Disc, 68 pf, 10%
C226	1520019	NPO Disc, 39 pf, 10%

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Ref. No.	Genave Part No.	Description
C228	1520051	
C227	1520014	Y5U Disc, .01, 20%
C229	1520051	Y5U, Disc, .01, 20%
C230	1520013	NPO Disc, 33 pf, 10%
C231	1520176	NPO Disc, 82 pf, 10%
C232	1520015	N1500 Disc, 47 pf, 10%
C233	1520051	Y5U Disc, .01, 20%
C234	1520014	NPO Disc, 39 pf, 10%
C235	1520051	Y5U Disc, .01, 20%
C236	1520019	NPO Disc, 68 pf, 10%
C237	1520019	NPO Disc, 68 pf, 10%
C238	1500079	Z5U Disc, .005, 20%
C239	1500079	Z5U Disc, .005, 20%
C240	1520006	NPO Disc, 8.2 pf, 10%
C241	1520010	NPO Disc, 18 pf, 10%
C242	1520011	NPO Disc, 22 pf, 10%
C243	1520176	NPO Disc, 82 pf, 10%
C244	1520176	NPO Disc, 82 pf, 10%
C245	1570120	Trimmer, 1-6 pf
C246	1570122	Trimmer, 3-15 pf
C247	1520176	NPO Disc, 82 pf, 10%
C248	1520176	NPO Disc, 82 pf, 10%
C249	1560403	Trimmer, 30 pf
C250	1520054	Disc, .05, 25V
C251	1520176	NPO Disc, 82 pf, 10%
C252	1560403	Trimmer, 30 pf
C253	1560403	Trimmer, 30 pf
C254	1520054	Disc, .05, 25V
C255	1520176	NPO Disc, 82 pf, 10%
C256	1560403	Trimmer, 30 pf
C257	1520176	NPO Disc, 82 pf, 10%
C258	1560403	Trimmer, 30 pf
C259	1520008	NPO Disc, 12 pf, 10%
C260	1520008	NPO Disc, 12 pf, 10%
C261	1520054	Disc, .05, 25V
C262	1520176	NPO Disc, 82 pf, 10%
C263	1520176	NPO Disc, 82 pf, 10%
C264	1540038	Aluminum Electrolytic, 1000 mfd, 30V
C265	1520176	NPO Disc, 82 pf, 10%
C266	1540002	Aluminum Electrolytic, 1.5 mfd, 35V
C267	1520051	Y5U Disc, .01, 20%
C268	1520176	NPO Disc, 82 pf, 10%
C269	1500079	Z5U Disc, .005, 20%
C270	1520176	NPO Disc, 82 pf, 10%
C271	1520051	Y5U Disc, .01, 20%
C272		Unassigned
C273	1540014	Aluminum Electrolytic, 10 mfd, 25V
C274	1520053	Disc, .02, 10%, 25V
C275	1520176	NPO Disc, 82pf, 10%
C276	1540014	Aluminum Electrolytic, 10 mfd, 25V
C277	1520176	NPO Disc, 82pf, 10%
C278	1540002	Aluminum Electrolytic, 1.5 mfd, 25V
C279	1520014	NPO Disc, 39 pf, 10%
C280	1520042	Y5E Disc, 470 pf, 10%
C281	1520027	N750 Disc, 150 pf, 10%
C282	1520176	NPO Disc, 82 pf, 10%
		DIODE
CR101	4810021	IN34A, Germanium
CR102	4810021	IN34A, Germanium
CR103	4810013	Gen. Purpose, 100V @ lamp
CR201	4810007	Zener, 6.8V, 10%
CR202		Unassigned
CR203		Unassigned
CR204	4812106	Varicap, V2106
CR205	4810007	Zener, 6.8V, 10%
CR206	4810013	Gen. Purpose, 100V @ lamp
CR207	4810013	Gen. Purpose, 100V @ lamp
		LAMPS
IL201	3900025	Clear—14.4V #53
IL202	3900025	Clear—14.4V #53
		COILS
L101	1800218	Coil, Input
L102	1800201	Coil, Output
L103	1800201	Coil, Mixer
L104	5600052	Coil, Osc.
L105	1800222	Coil, Osc.
L106	1800035	Coil, Osc.
L201	1800219	Coil, Transmitter
L202	1800222	Coil, Transmitter

Ref. No.	Genave Part No.	Description
L203	1800202	Coil, Transmitter
L204	1800202	Coil, Transmitter
L205	1800217	Coil, Transmitter
L206	1800202	Coil, Transmitter
L207	1800217	Coil, Transmitter
L208	1800203	Coil, Transmitter
L209	1800217	Coil, Transmitter
L210	1800220	Coil, Transmitter
L211	1800035	Coil, Transmitter
L212	1800035	Coil, Transmitter
		TRANSISTORS
Q101	4800056	MOSFET, N. Channel, Dual Gate, FT0601
Q102	4800122	MOSFET, N. Channel, Dual Gate, MPF122
Q103	4800122	MOSFET, N. Channel, Dual Gate, MPF122
Q104	4800033	Silicon, NPN, 2N5172
Q105	4805458	JFET, N. Channel, 2N5458
Q106	4805458	JFET, N. Channel, 2N5458
Q107	4805458	JFET, N. Channel, 2N5458
Q108	4800028	Silicon, NPN, Red, MPS 6513S
Q109	4800028	Silicon, NPN, Red, MPS 6513S
Q110	4800024	Silicon, NPN, Blue, MPS 3563
Q111	4800024	Silicon, NPN, Blue, MPS 3563
Q112	4805458	JFET, N. Channel, 2N5458
Q201	4800033	Silicon, NPN, 2N5172
Q202	4800026	Silicon, NPN, White, MPS 3693
Q203	4800026	Silicon, NPN, White, MPS 3693
Q204	4800027	Silicon, NPN, Black, 2N6511
Q205	4804427	Silicon, NPN, 2N4427
Q206	4804427	Silicon, NPN, 2N4427
Q207	4806080	Silicon, NPN, 2N6080
Q208	4800046	Silicon, NPN, MRF 226
		INTEGRATED CIRCUIT
IC101	3136666	Silicon, TISN 76666N
IC102	3136001	Silicon, Audio Output, 5N600IN
IC201	3130012	Op. Amp., N5558V
		RESISTORS
R101	4700039	15K ohm, ±10% ½ W
R102	4700033	4.7K ohm, ±10%, ½ W
R103	4700017	220 ohm, #10%, ½ W
R104		Unassigned
R105	4710038	100K ohm, ±10%, ¼ W
R106	4700018	270 ohm, ± 10%, ½ W
R107	4700013	100K ohm, ±10%, ½ W
R108	4700041	22K ohm, #10%, ½ W
R109	4700013	100K ohm, ±10%, ½ W
R110	4700041	22K ohm, #10%, ½ W
R111	4700048	82K ohm, ±10%, ½ W
R112	4700033	4.7K ohm, #10%, ½ W
R113	4700049	100K ohm, ±10%, ½ W
R114	4700003	10 ohm, ±10%, ½ W
R115	4700049	100K ohm, ±10%, ½ W
R116	4700049	100K ohm, ±10%, ½ W
R117	4700003	10 ohm, ±10%, ½ W
R118	4700049	100K ohm, ±10%, ½ W
R119	4700049	100K ohm, ±10%, ½ W
R120	4700003	10 ohm, ±10%, ½ W
R121	4700049	100K ohm, ±10%, ½ W
R122	4700049	100K ohm, ±10%, ½ W
R123	4700003	10 ohm, ±10%, ½ W
R124	4700011	68 ohm, #10%, ½ W
R125	4700013	100 ohm, ±10%, ½ W
R126	4700037	10K ohm, #10%, ½ W
R127	4700053	220K ohm, ±10%, ½ W
R128	4700043	33K ohm, ±10%, ½ W
R129	4700043	33K ohm, ±10%, ½ W
R130	4700057	470K ohm, ±10%, ½ W
R131	4700032	3.9K ohm, ±10%, ½ W
R132	4760024	Variable Linear Taper, 25K, ±20%, (SQ)
R133	4700045	47K ohm, ±10%, ½ W
R134	4700041	22K ohm, ±10%, ½ W
R135	4760025	Variable, Audio Taper, 25K, ±20% (Vol)
R136	4700037	10K ohm, ±10%, ½ W
R137	4700015	150 ohm, ±10%, ½ W
R138	4700041	22K ohm, ±10%, ½ W
R139	4700041	22K ohm, ±10%, ½ W
R140	4710001	10 ohm, ±10%, ¼ W
R141	4700003	10 ohm, ±10%, ½ W
R142	4700018	270 ohm, ±10%, ½ W

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Ref. No.	Genave Part No.	Description
R143	4700033	4.7K ohm, ±10%, ½ W
R144	4700024	820 ohm, ±10%, ½ W
R145	4700013	100 ohm, ±10%, ½ W
R146	4710001	10 ohm, ±10%, ¼ W
R147		Unassigned
R148		Unassigned
R201	4700018	270 ohm, ±10%, ½ W
R202	4700015	150 ohm, ±10%, ½ W
R203	4700041	22K ohm, ±10%, ½ W
R204	4700041	22K ohm, ±10%, ½ W
R205	4700023	680 ohm, ±10%, ½ W
R206	4700031	3.3K ohm, ±10%, ½ W
R207	4700047	68K ohm, ±10%, ½ W
R208	4700029	2.2K ohm,±10%, ½ W
R209	4700016	180 ohm, ±10%, ½ W
R210	4700013	100 ohm, ±10%, ½ W
R211	4700029	2.2K ohm, ±10%, ½ W
R212	4700048	68K ohm, ±10%, ½ W
R213	4700013	100 ohm, ±10%, ½ W
R214	4700036	Select Value Nom. 8.2K ohm, ±10%, ½ W
R215	4700016	180 ohm, ±10%, ½ W
R216	4700017	220 ohm, ±10%, ½ W
R217	4700032	3.3K ohm, ±10%, ½ W
R218	4700013	100 ohm, ±10%, ½ W
R219	4700006	22 ohm, ±10%, ½ W
R220	4700003	10 ohm, ±10%, ½ W
R221	4700033	4.7K ohm, ±10%, ½ W
R222	4700018	270 ohm, ±10%, ½ W
R223	4700003	10 ohm, ±10%, ½ W
R224	4700003	10 ohm, ±10%, ½ W
R225	4700031	3.3K ohm, ±10%, ½ W
R226	4700017	220 ohm, ±10%, ½ W
R227	4700003	10 ohm, ±10%, ½ W
R228	4700037	10K ohm, ±10%, ½ W
R229	4760021	50K ohm, Variable Minipot, 20%
R230	4700034	5.6K ohm, ±10%, ½ W
R231	4700035	6.8K ohm, ±10%, ½ W
R232	4700043	33K ohm, ±10%, ½ W
R233	4700037	10K ohm, ±10%, ½ W
R234	4700045	47K ohm, ±10%, ½ W
R235	4700015	150 ohm, ±10%, ½ W
R236	4700053	220K hom, ±10%, ½ W
R237	4700052	180K ohm, ±10%, ½ W
R238	4700045	47K ohm, ±10%, ½ W
R239	4700015	150 ohm, ±10%, ½ W
		TRANSFORMERS
T101	5600080	Input, 1st IF
T102	5600080	Input, 1st IF
T103	5600076	455 KHz
T104	5600012	455 KHz IF, White Core
T105	5600012	455 KHz IF, White Core
T106	5600012	455 KHz IF, White Core
T107	5600012	455 KHz IF, White Core
T108	5600012	455 KHz IF, White Core
T109	5600012	455 KHz IF, White Core
T110	5600012	455 KHz IF, White Core
T111	5600012	455 KHz IF, White Core
T201	5600081	Osc
T202	5600051	Doubler
T203	5600083	Doubler
T204	5600053	Doubler
		CRYSTALS
Y101	2300332	59.150 MHz, RCV
Y111	2300251	12.645 MHz
Y201	2300331	13.96875 MHz, Xmit
		CHOKES
Z201	1800063	Ferrox Cube Core
Z202	1800063	Ferrox Cube Core
Z203	1800063	Ferrox Cube Core
Z204	1800213	Filter, CP2160
		MISCELLANEOUS
K201	4500008	Relay, 4PDT
SW201	5100039	Switch, Slide, DPDT
SW202	5100051	Switch, Slide
F101	5140007	Fuse, 6A, 3AG
	2508921	Panel Front
	2502311	Panel Trim
	2508401	Knob, Large

Ref. No.	Genave Part No.	Description
	2508211	Knob, Small
	2502621	Cover
	1325069	Microphone (ceramic)
	1320408	Speaker, 1.5 W, 8 ohm
	2502292	Bracket Mtg.

DC VOLTAGE MEASUREMENTS

All voltages shown in this table were measured with a VTVM from chassis ground. The DC input to the radio should be set to 13.75 VDC. The squelch control should be in the full off position and the volume control in the minimum position. No signal should be applied. The receiver A+ line should measure 13.0 VDC. A variation of ±20% of the measured voltages from those listed may be considered normal.

Ref. No.	E	B	C	or	D	S	G	G²
Q101					11.2	0	0	3.5
Q102					12.8	.3	0	0
Q103					12.8	0	0	2.0
Q104	0	.3	2.0		12.9	0	0	
Q105					13.0	0	0	
Q106					13.2	0	0	
Q107								
Q108	0	.6	3.3					
Q109	0	0	6.0					
Q110	3.5	4.0	13.4					
Q111	1.2	1.6	13.2					
Q112					12.6	0	0	
Q201 (Recv)	0	0	0					
Q201 (Xmit)	2.2	2.5	6.4					
Q202	.3	—	—					
Q203	.6	—	—					
Q204	.5	—	—					
Q205	.6	—	—					
Q206	1.1	—	—					

Pin	1	2	3	4	5	6	7	8
IC201	3.0	3.0	1.0	0	3.0	3.0	3.0	6.8

RECEIVER SENSITIVITY & GAIN REQUIREMENTS

Frequency	Input Point	Measurement Point	Measured Value
223.5 MHz	Ant. Conn.	Across Speaker	—115 dbm or better for 20 db quieting
223.5 MHz	Ant. Conn.	Sec. T110	50 uv or less 0.3 Vp-p (Scope)
223.5 MHz	Ant. Conn.	Source Q107	140 uv for 0.3 Vp-p (Scope)
223.5 MHz	Ant. Conn.	Sec. T107	110 uv for 0.3 Vp-p (Scope)
223.5 MHz	Ant. Conn.	Source Q106	300 uv for 0.3 Vp-p (Scope)
223.5 MHz	Ant. Conn.	Sec. T105	275 uv for 0.3 Vp-p (Scope)
223.5 MHz	Ant. Conn.	Source Q105	1 mv for 0.3 Vp-p (Scope)
223.5 MHz	Ant. Conn.	Sec. T103	1 mv for 0.3 Vp-p (Scope)
223.5 MHz	Ant. Conn.	Source Q112	14 mv for 0.3 Vp-p (Scope)

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TECHNICAL BULLETIN

GENERAL AVIATION ELECTRONICS INC.

4141 KINGMAN DRIVE
INDIANAPOLIS, IND. 46226
AREA 317 • 546-1111

TB 7403 — 28 August 1974

SUBJECT: GTX-2, GTX-10, GTX-100, GTX-200 and GTX-600 Owners Manual Update

The information contained here is intended to update the data published in the GTX-2, GTX-10, GTX-100, GTX-200 and GTX-600 Owners Manuals.

1) Change the GTX-2, GTX-10 and GTX-200 Parts Lists to read as follows:

R136 Selected Value (Nominal P/N 4700037, 10K, 10%, 1/2W)

2) Change the GTX-100 Parts List to read as follows:

R126 Selected Value (Nominal P/N 4700037, 10K, 10%, 1/2W)

3) Change the GTX-600 Parts List to read as follows:

R222 Selected Value (Nominal P/N 4700037, 10K , 10%, 1/2W)

GENERAL
AVIATION
ELECTRONICS
INC.

4141 KINGMAN DRIVE
INDIANAPOLIS, IND. 46226
AREA 317 • 546-1111

TB7407 October 29, 1974

SUBJECT: Transmitter Class C Doubler failures in GTX-2, GTX-10, GTX-200, Marine/Master-25WA, Marine Mate-10A, Marine Mate-100, and Mobiline I transceivers.

As a result of a few reported field failures of the Class C Doubler stage in the above transceivers, the MPS6511 transistor is being replaced in all new transceivers with a 2N4427 transistor, equipped with a ferrite bead on the collector lead.

If, as the result of a field failure, it is necessary to replace any of the following transistors, replace it with the 2N4427 and ferrite bead.

Q203 in GTX-2, GTX-10, GTX-200, Marine/Master-25WA, Marine Mate-10A, and Marine Mate-100.

Q204 in Mobiline I

The new replacement parts are available in new FM Parts Kits or by ordering from the factory. The corresponding part numbers are as follows:

P/N 4804427 Silicon, NPN, 2N4427
P/N 1870004 Ferrite Bead, Stackpole #57-1362

Install the new parts as shown: