

\$3.00 per copy

GX1210S Horizon Explorer

25 Watt VHF/FM
Marine Transceiver

Contains:

- Specifications
- General Information
- FCC Information
- Operation
- Maintenance and Care
- Schematic Diagram

Owner's Manual



 **Standard**
Communications

SPECIFICATIONS

Performance specifications are nominal, unless otherwise indicated, and are subject to change without notice.

GENERAL

Frequency Range	Receive 156.050 to 163.275 MHz Transmit 156.050 to 157.425 MHz
Number of Channels	48 Regular; 6 Weather; 10 Reserve or Private
Input Voltage	13.8 VDC
Current Drain (Standby)	500 mA
(Receive)	1.2 A
(Transmit)	6 A (high); 1.7 A (low)
Channel Spacing	25 kHz
Dimensions (HxWxL).....	2.3 x 7.1 x 10.2 in.
Weight	2.76 lb.
Compliance	FCC Parts 81 and 83
FCC Type Acceptance Number	APV9T20985
DOC Approval.....	Pending

RECEIVER (Measurements made in accordance with EIA Standard RS-316-B)

Sensitivity (12 dB SINAD)	0.32 uV max.
(20 dB Quieting)	0.35 uV max.
Squelch Sensitivity (Threshold)	0.25 uV max.
Modulation Acceptance Bandwidth	+7.5 kHz min.
Selectivity	65 dB min.
Spurious and Image Rejection	50 dB min.
Intermodulation Rejection	65 dB min.
Audio Power Output at 5% Distortion .	4.0 W min.
Frequency Stability (-30 to +60°C) ..	+0.0005%
Channel Spread.....	25 kHz

TRANSMITTER (Measurements made in accordance with EIA Standard RS-316-B)

RF Power Output	25 W (High); 1 W (Low)
Spurious and Harmonic Emissions	55 dB (High); 45 dB (Low)
FM Hum and Noise	-35 dB min.
Modulation	16K0G3E
Audio Distortion	5%
Frequency Stability (-30° to +60°C) .	+0.0005%
Channel Spread.....	25 kHz

GENERAL INFORMATION

DESCRIPTION

The Standard Communications Corp. (SCC) GX1210S VHF/FM marine transceiver is designed for simplex/semiduplex marine application. It is capable of operating in 48 marine channels, six weather channels, and ten private channels. The GX1210S is microprocessor-controlled. The transceiver frequencies are generated by a phase-lock-loop (PLL) frequency synthesizer. The 16/RVT button permits immediate selection of emergency channel 16.

The GX1210S generates PLL-controlled frequencies in the 156 to 163 MHz frequency ranges. A temperature-compensating circuit maintains stable frequencies over varying temperatures. The squelch control is designed to eliminate static when no signal is received.

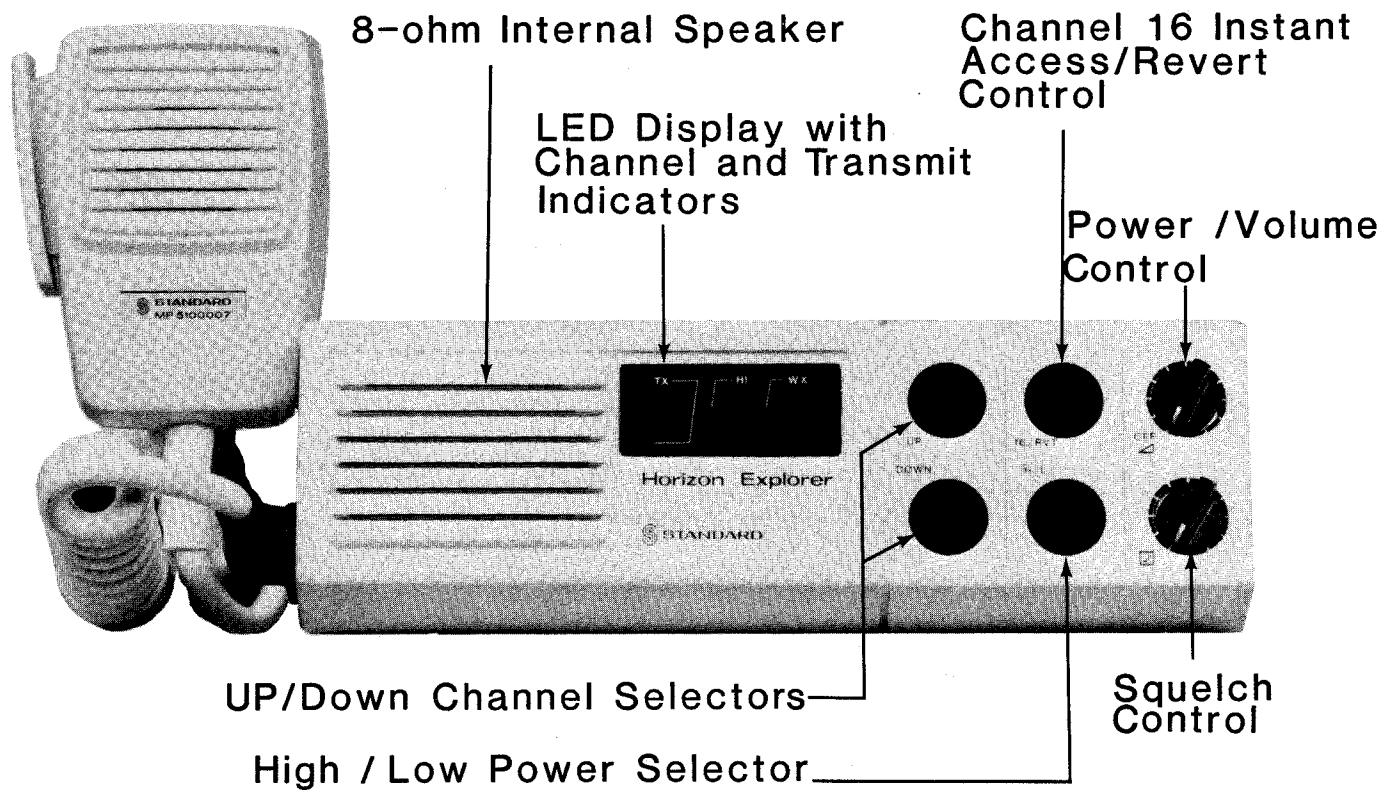
The GX1210S has an RF power output of 25 watts in the high range and one watt in the low range. During transmission, the TX indicator light illuminates.

The chassisless construction of the GX1210S reduces the transceiver's vulnerability to corrosive salt air. The modular construction simplifies repairs. An automatic power control (APC) protects the power circuit from overheating and the external heatsink in the rear of the transceiver dissipates heat buildup during transmissions.

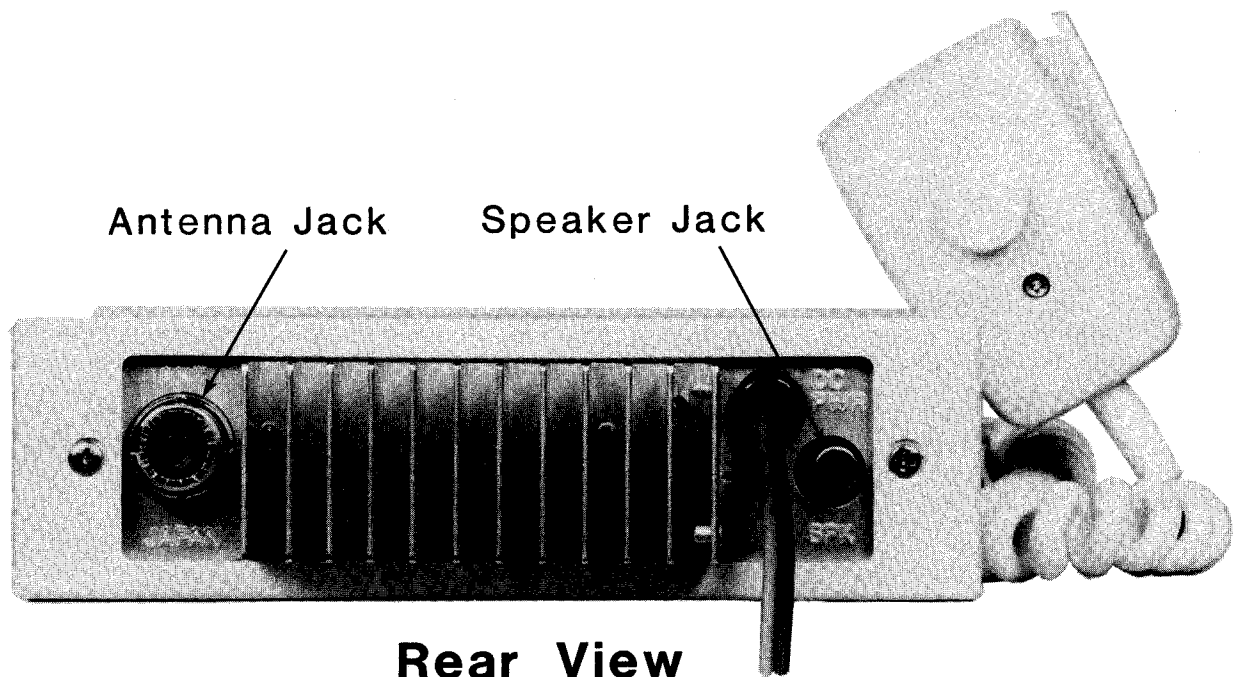
The purpose of this Owner's Operating Manual is to acquaint you with the controls and connections of your new transceiver, in addition to familiarizing you with any FCC requirements you should know and fulfill prior to the operation of your radio. We strongly recommend that you read this manual carefully before using your transceiver.

FCC INFORMATION

Your radio has been specifically designed to comply with the FCC requirements necessary to operate it in the Maritime Radio Service. You must be cognizant of, and comply with, Parts 81 and 83 of the FCC Rules and Regulations, the governing documents for this service. You are also required to have copies of Parts 81 and 83 on board your ship. This may be obtained by writing to:



Front View



Rear View

FIGURE 1. CONTROLS AND CONNECTIONS

SUPERINTENDENT OF DOCUMENTS
Government Printing Office
Washington, D.C. 20402

A valid station license is required before operation of your radio is permissible, obtained by submitting a properly and fully completed FCC Form 506 to the FCC.

The radiotelephone transmitter in a ship station may be operated only by a licensed radio operator. The licensed operator may permit others to speak into the microphone if he starts, supervises, and ends the operation, makes the necessary log entries, and gives the necessary identification. The license usually held by radio operators aboard small vessels not required to carry a radio installation for safety purposes, is the Restricted Radiotelephone Operator Permit. This lifetime permit is obtained by submitting to the FCC a properly and fully completed FCC Form 753. No oral or written examination is required.

You should always remember that, as the licensee of a ship radio station, you are responsible at all times for the lawful and proper operation of the station. Ship stations are licensed primarily for safety of life and property; therefore, distress and safety communications must have absolute priority. Secondarily, however, certain frequencies which are not reserved for calling, distress, or other safety purposes may be used for radiotelephone calls to coast stations or between ships.

The SCC Dealer from whom you purchased your unit will assist you in all licensing procedures. In addition, the following data for your Horizon Explorer may be useful when filling out your application.

Type Accepted - Yes (FCC Parts 81 and 83)
Output Power - 25 watts (Hi); 1 watt (Lo)
Emission - 16K0G3E
Frequency Range - 156 to 163 MHz
Type Number - APV9T20985

INSTALLATION

GENERAL

Prior to installing your radio unit, consideration should be given to the following to determine the most ideal location.

1. Keep in mind that cables from the antenna, power source and external speaker (if used) must be connected to the radio unit.
2. Do not locate the radio unit or external speaker close to the compass. Both the microphone and speaker contain permanent magnets which could result in erroneous compass readings.

3. The unit should be mounted so that the controls and microphone are both visible and readily accessible.

MECHANICAL

Your transceiver can be mounted in any position on any suitable surface. However, the transceiver has to be installed in a dry place where no water can get into the unit. Normal installation includes under the dashboard, on top of the dash or desk, or on the cabin overhead. To install, simply secure the "U"-shaped bracket to the mounting location, then secure the radio to the bracket at the desired angle. See your SCC Dealer for optional mounting brackets for your Horizon Explorer.

The microphone hanger should be mounted on a vertical surface in close proximity to the radio.

If the unit is to be mounted overhead, the control panel can be repositioned for proper viewing as follows:

1. Remove the two case screws at the rear of the radio and slide the P.C. board out from the case.
2. Carefully reposition the control panel to an approximately 45° angle downward.
3. The radio case must be inverted 180° before sliding it back onto the radio P.C. board. Make sure that the microphone cable is not pinched when the case is put back into place.
4. Fasten back the two screws at the rear of the radio.

ELECTRICAL

1. A power cord assembly for connection to any 13.8 VDC (+20%) power source is included with your transceiver. Connect the black lead to negative ground and the red lead to the positive voltage.
2. Connect a suitable VHF antenna to the antenna jack at the rear of the transceiver.
3. If desired, connect an SCC Model 201SW external speaker (4 ohm) to the external speaker jack at the rear of the radio.

OPERATION

The controls called out in the following operation instructions are illustrated in Figure 1. After you have become familiar with the controls of your transceiver and installed it in a suitable location, operation is as follows.

1. Rotate the squelch control counterclockwise.
 2. Turn on the ON/OFF volume control. Adjust the volume level.
- NOTE: The transceiver reverts to channel 16 when power is applied.
3. Rotate squelch control clockwise until background noise disappears.
 4. To select channel:
 - a. Press the UP button to increase the channel number.
 - b. Press the DOWN button to decrease the channel number.
 - c. Press the 16/RVT button to select emergency channel 16.

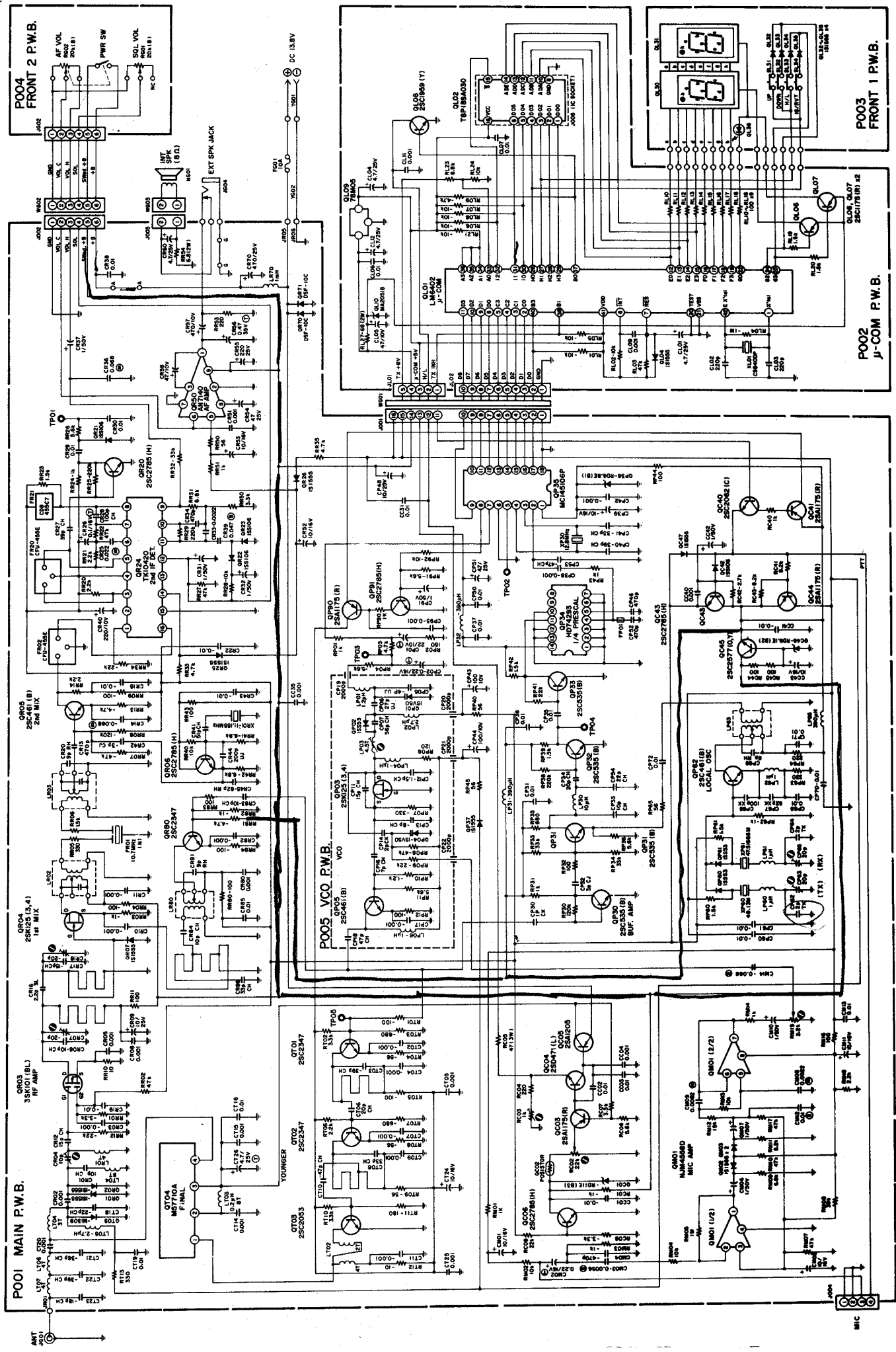
NOTE: To revert back to the channel used before pressing the 16/RVT button, press the 16/RVT button again.

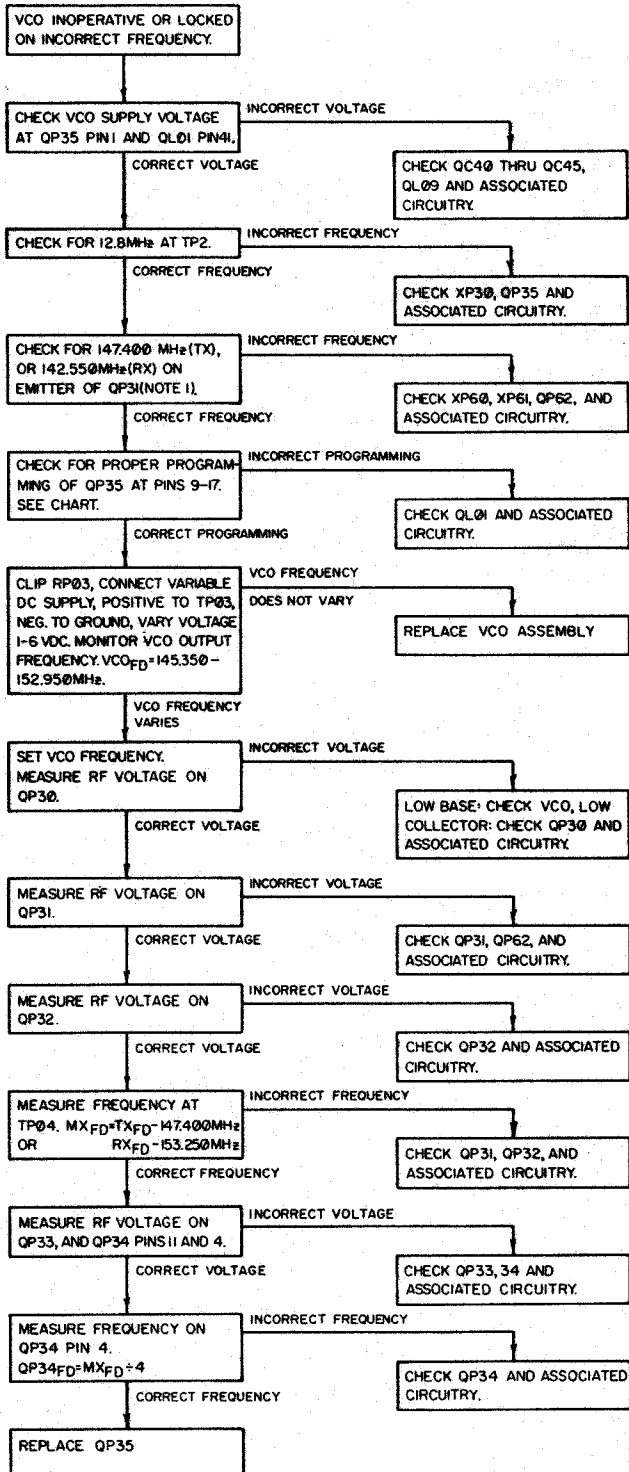
5. Transmission is accomplished as follows:
 - a. Set the H/L power switch to low power position when in harbor or whenever it provides sufficient output power.
 - b. Select and monitor the desired channel. It is illegal to transmit on a channel without first monitoring it.
 - c. Depress the push-to-talk (PTT) switch and deliver the voice message. The TX indicator will illuminate.
 - d. Release the PTT to receive incoming messages.

MAINTENANCE AND CARE

Your SCC transceiver requires practically no routine maintenance. Proper care and good judgment in using the transceiver will ensure that its life is long and useful. The following guidelines will assist you in maintaining your transceiver in peak performance.

1. Avoid operating your transceiver on supply voltages of less than 11 VDC or more than 15 VDC. High supply voltage is a common cause for transceiver failure.
2. Do not energize the transmitter when the antenna is disconnected or if any visible defects are noted in the antenna or its interconnecting cable.
3. Have an FCC licensed technician check the transceiver and its operating antenna in accordance with the FCC Rules and Regulations.
4. Should your transceiver require repair or additional maintenance, take it to the SCC Dealer from whom you purchased it.





NOTES:
1 FOR XMIT PORTION OF MEASUREMENT, XMIT ON WX CHANNEL.

REF DESIG.	RF LEVEL (VRMS)		
	E	B	C
QL01	PIN4	5VDC	---
QP30	---	.002	.120
QP31	.955	.000	.070
QP32	---	.001	.450
QP33	---	.460	1.55
QP34	PIN 4	1.25VDC	---
QP35	PIN1	6.4VDC	---

TEST POINT LEVELS

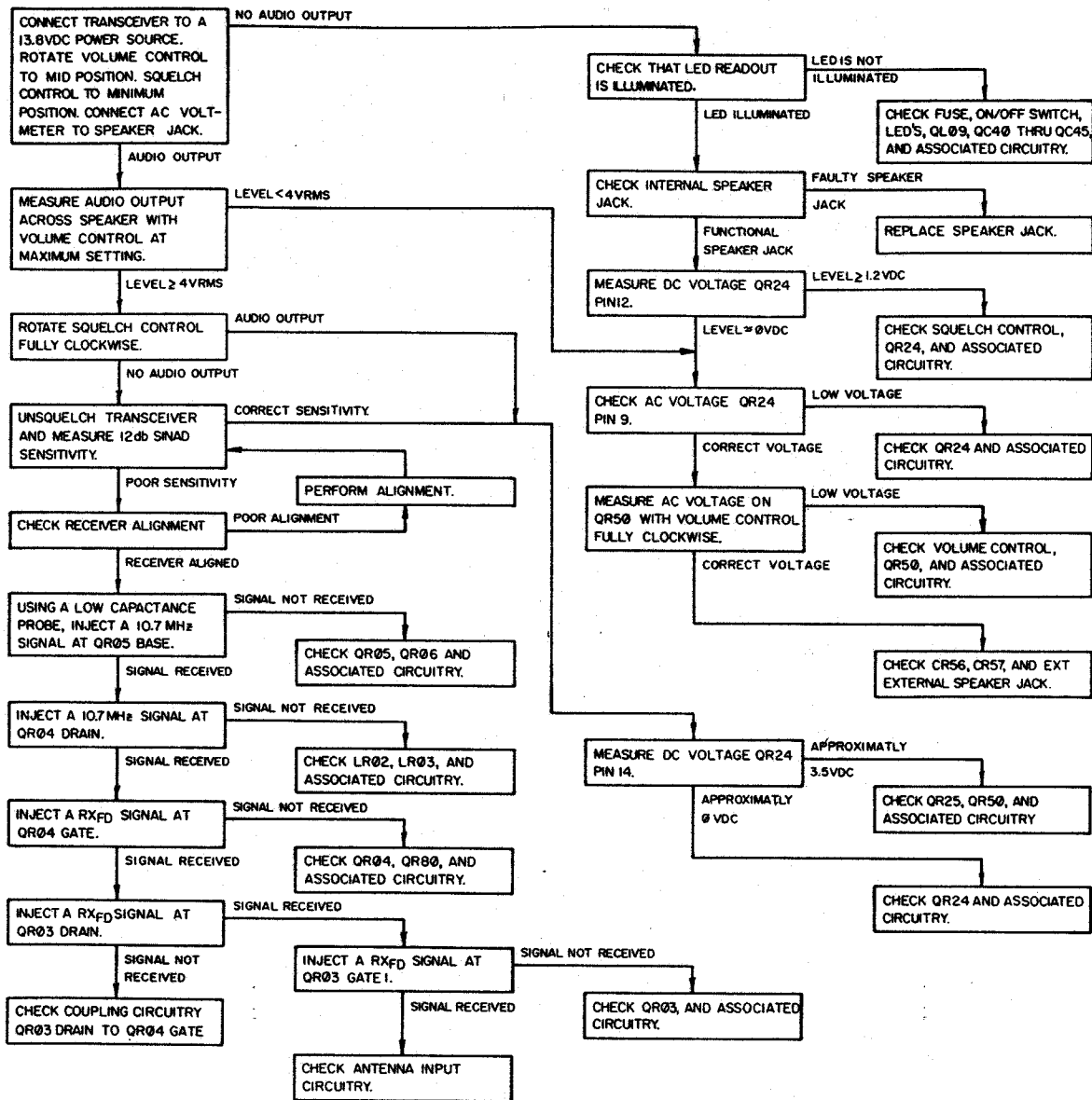
$$N = \frac{RX_{FD} - 153.25}{0.025}$$

EXAMPLE: CHANNEL 16
 $RX_{FD} = 156.800 \text{ MHz}$
 $N = 142$

QP35 PIN#	9	10	11	12	13	14	15	16	17
VALUE	256	128	64	32	16	8	4	2	1
PROGRAMMED	0	1	0	0	0	1	1	1	0
TOTAL	0	+128	+0	+0	+0	+8	+4	+2	+0 = 142

0 = 0.55VDC
 1 = 4.85VDC

PLL TROUBLESHOOTING CHART



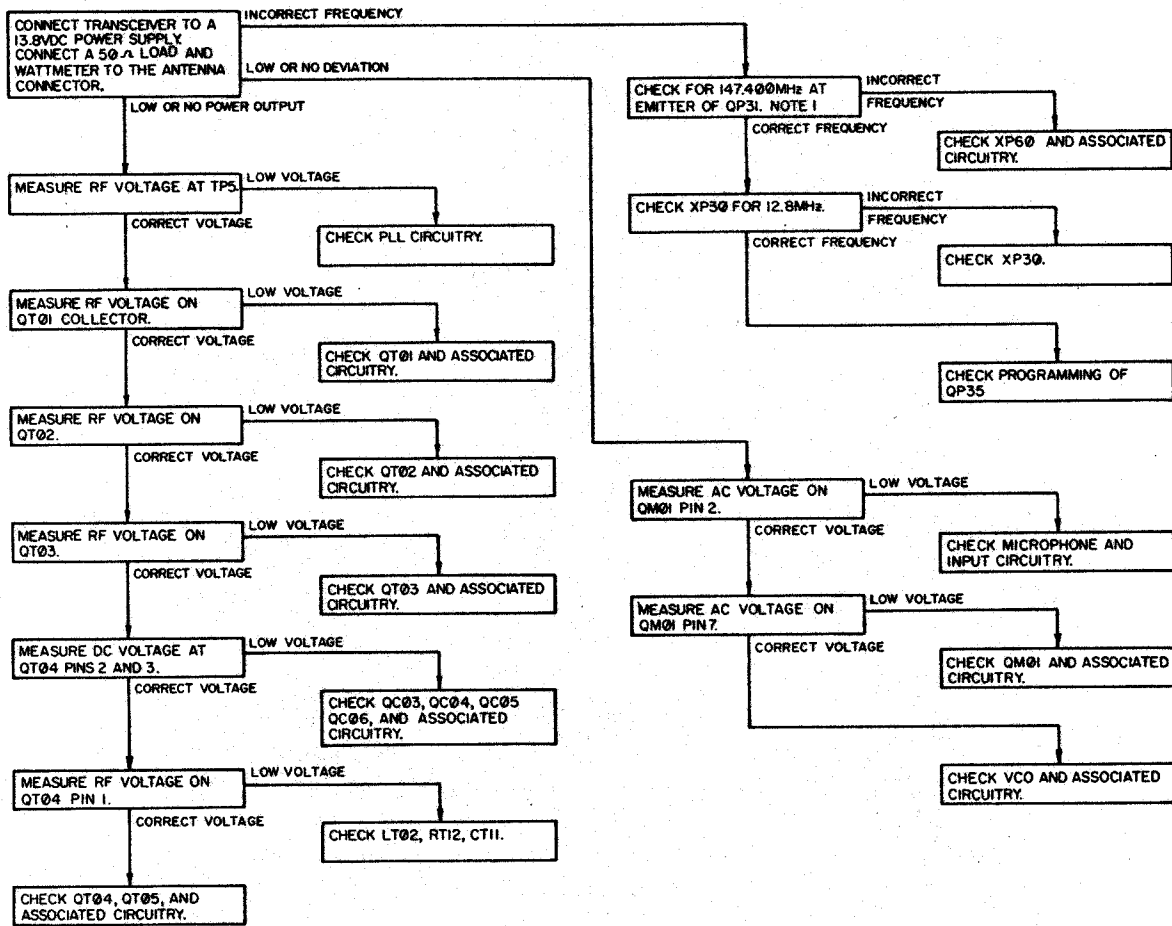
TROUBLESHOOTING MEASUREMENTS

POINT OF MEASURE	VALUE
INTERNAL SPEAKER JACK	5.5VRMS
EXTERNAL SPEAKER JACK	5.5VRMS
QR24 PIN14, SQUELCH CW/CCW	3.5VDC/0VDC
QR24 PIN12, SQUELCH CW/CCW	1.2VDC/0VDC
QR24 PIN 9,	≈3VRMS
QR50 PIN 1	≈6VRMS
QR50 PIN 6	≈05VRMS

SIGNAL INJECTION LEVELS

POINT OF INJECTION	LEVEL
QR03 GATE 1 - RX _{FD}	2 μV
QR03 DRAIN - RX _{FD}	6 μV
QR04 GATE - RX _{FD}	4 μV
QR04 DRAIN - 10.7MHz	20 μV
QR05 BASE - 10.7MHz	20 μV

RX TROUBLESHOOTING CHART



TEST POINT	TEST CONDITION	MINIMUM VALUE ±10%
QM01 PIN 2	MODULATED	10mVpp
QM01 PIN 7	MODULATED	70mVpp
QT01	COLLECTOR	1.8VRMS
QT02	COLLECTOR	2.1VRMS
QT03	COLLECTOR	4.0VRMS
QT04 PIN 1		3.0VRMS
QT04 PIN 2	LW PWR/HIPWR	2.3/10VDC
QT04 PIN 3	LW PWR/HIPWR	2.3/10VDC
TP5	RCV./XMT	140/300mVRMS

NOTES:
1 THIS MEASUREMENT SHOULD BE MADE DURING WX TRANSMIT.

TX TROUBLESHOOTING CHART