

ALAN



OWNER'S MANUAL

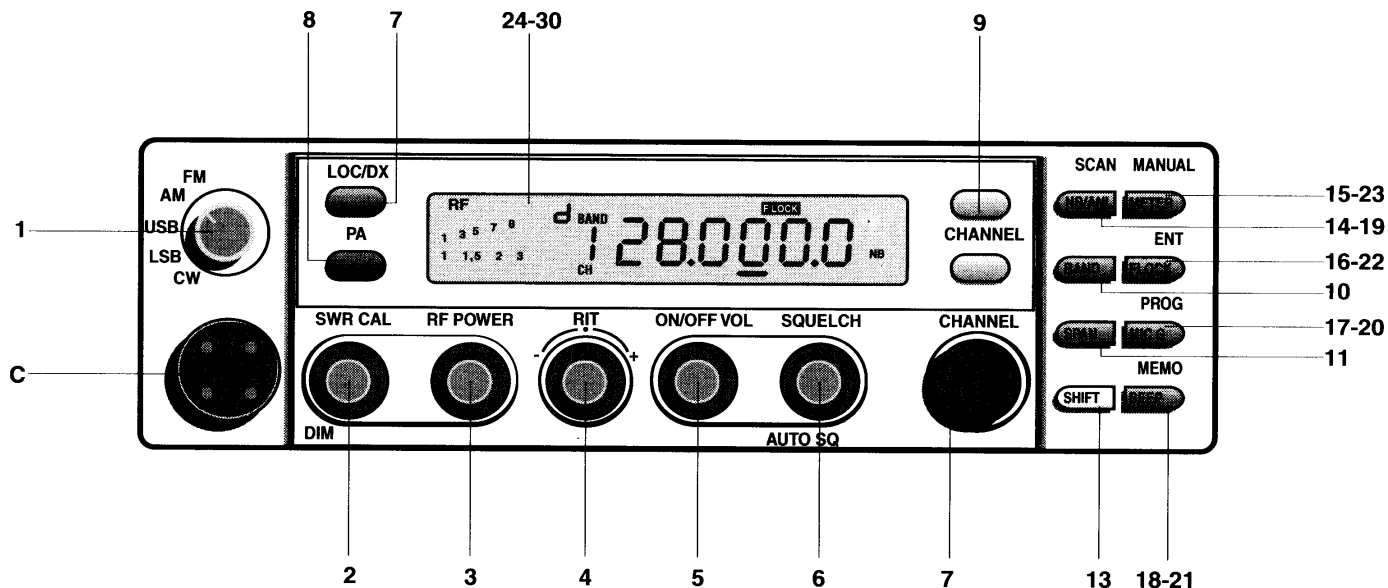
ALAN 9001

10 METER MOBILE TRANSCEIVER

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CONTROLS AND FUNCTIONS

Direct Control Controls



1. Mode switch. This control is used to select the desired transmit mode. The modes available are: CW, LSB, USB, AM and FM.

2. DIM/SWR CAL control. This control is used to adjust the calibration of the SWR meter while in SWR CAL mode. Turning this control fully CCW (Counter Clock Wise) until it clicks dims the display backlighting.

3. RF POWER control. This control enables you to adjust RF power continuously over the range of about 1 watt through 10 watt in AM or FM mode, about 10 watt through 25 watt in CW mode.

4. RIT control. The Receiver Incremental Tuning control is used to fine tune to the received signal. This is used in USB and LSB modes to obtain maximum clarity of reception, and in CW mode to control the pitch of the beat note. The RIT Control can tune the receive frequency about 2.3 KHz. This control will not affect the transmit frequency, or the frequency display, but will change the receive frequency.

5. ON/OFF VOLUME control. This control is used to turn the unit on and off and to adjust the volume.

6. SQUELCH control. The Squelch control is used to adjust the squelch function, which eliminates the "rushing" sound between transmission. Turning the squelch control CCW until it clicks enables the auto squelch, eliminating the need to manually adjust the squelch.

7. LOC/DX switch. This is used to vary the RF input to the receiver. This control is used to help eliminate strong, adjacent signals.

8. PA switch. Pressing this switch enables the PA Mode, if an external PA speaker is installed. When in PA mode, the normal transmit functions of the radio are disabled, but the receive audio is routed through the PA speaker.

9. CHANNEL buttons. Pressing these buttons will step up or down to the next 10 KHz channel in the currently selected band segment. The currently selected channel is displayed next to the frequency display.

10. BAND button. Pressing this button will select one of the four band segments. Band segments are: 50 channels in A: 28.000 to 28.4999; B: 28.5000 to 28.9999; C: 29.0000 to 29.4999; 20 channels in D: 29.5000 to 29.6999 Mhz. The currently selected band segment is displayed left - hand side the band display.

11. SPAN button. This button is used to select either 10KHz, 1 KHz, or 100Hz steps for the VFO. The currently selected step is indicated by a line under the relevant digit on the Frequency Display.

12. CHANNEL control (VFO). The Variable Frequency Oscillator control is used to select the desired transmit and receive frequency. Tuning continuous throughout the entire range of the Alan 9001 with no need to select band segments.

13. SHIFT button. This button is used to select the second function mode. When this mode is active, "SHIFT" is displayed, and double function button (the ones on the extreme right) work as indicated right up the button (not over as usual). Pressing this button again goes back to normal mode.

DOUBLE FUNCTION BUTTONS

FIRST FUNCTION MODE BUTTONS

Pressing this button makes function mode as indicated on the button.

14. NB/ANL button. Pressing this button enables the built in noise reducing functions. There are: noise blanker only, both noise blanker and automatic noise limiter, and automatic noise limiter only. Each time the NB/ANL button is pushed, the next function is selected.

15. METER button. This button is used to select the operating mode for the multifunction meter. The meter modes are: s/RF, MODulation, swr CALibration setting, and SWR reading. Each time the METER button is pushed, the next mode is selected. See the operation section for more information on meter usage. The currently selected mode is displayed around the meter.

16. FLOCK button. Pressing the Frequency Lock button will disable all frequency determining controls on the front panel, to prevent accidental changes of frequency.

17. MIC GAIN button. Pressing this button activates the built - in microphone attenuator. This feature is designed to be used when operating the Alan 9001 in high ambient noise environments.

18. BEEP button. Pressing this button will cause a short beep tone to be transmitted whenever you release the PTT switch on the microphone.

SECOND FUNCTION MODE SWITCHES

WARNING: second function is active when the display shows "SHIFT". In this case, push the SHIFT button to make it appear.

19. SCAN button. The SCAN button is used to scan up to 50 channels in each band segment. See the section on operation for more information on using this function

20. PROGram button. This button is used to program the 10 memories. See the section PROGRAMMING MODE for more information on using the program operation.

21. MEMORy button. This button is used to set up memory channel what you want to program, to pick up the memory channel you programmed and for memory channel scanning. See the section PROGRAMMING MODE for more information on using the program operation and the scan control.

22. ENTer button. This button is used to program frequencies in memory. See the section PROGRAMMING MODE for more information on using the program operation.

23. MANUAL button. This button is used to return the unit to first (normal) function mode from second function mode.

THE DISPLAY

24. Multifunction meter. This meter can display S/RF, Modulation, SWR Cal, or SWR. See the section on operation for more information on using the multifunction Meter.

25. Frequency display. The Frequency Display displays the currently selected transmit and receive frequency.

26. Meter mode display. Displays the currently selected meter operating mode.

27. Band segment display. Shows the currently selected band segment.

28. CHANNEL and MEMORY CHANNEL display. Gives the selected channel and memory channel number.

29. Vfo step indicator. Displays the currently selected VFO step. (The Fig. shows 100Hz step selected).

30. Function indicators. Illuminates when activated functions are indicated.



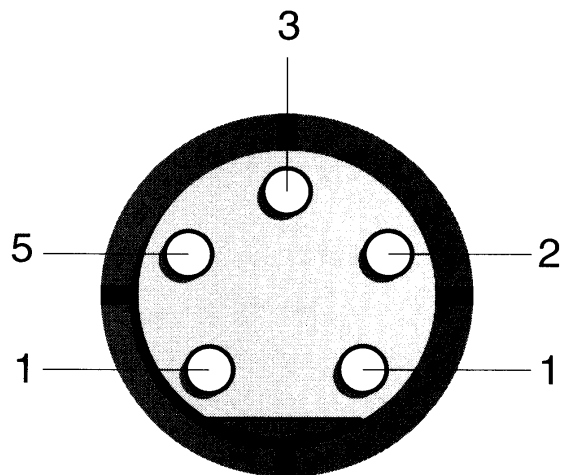
THE MICROPHONE

31. Remote Control Channel buttons. You can step up or down by one 10KHz channel within the current band segment using these controls. See the section on operation for more information.

32. PTT switch. The Push to Talk switch is used to control the transmit and receive of your Alan 9001. Press to transmit, release to receive.

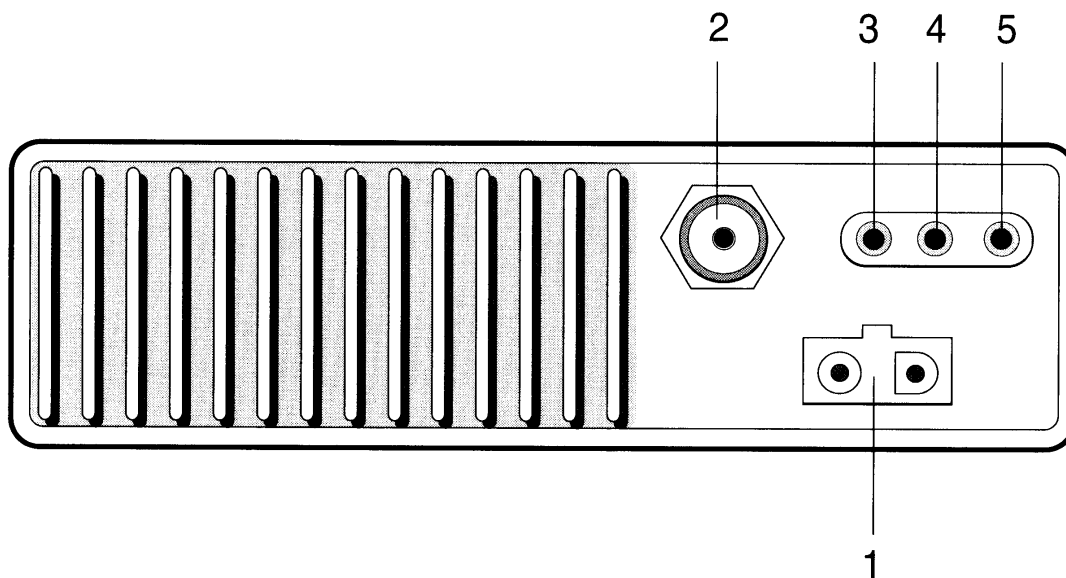
FRONT PANEL CONNECTOR

The microphone included with the Alan 9001 is a 500 Ohm dynamic microphone, with channel up and down buttons. The view of the connector is facing the Alan 9001 front panel. The pin connections are as follows:



Pin	Connection
1&2	Microphone
3 & 2	PTT Switch
4 & 2	Channel up Button
5 & 2	Channel down Button
2	Common Ground

REAR PANEL CONNECTORS



1. Power Connector. The power cord included with the Alan 9001 is color cord. The red wire goes to +13.8V DC nominal and the black wire goes to ground. The Alan 9001 is designed for operation with a negative ground system only. The view of the power connector is facing the rear panel of the Alan 9001.

2. Antenna Connector. The antenna connects to an ordinary SO - 239 Female RF connector on the rear panel. The RF output impedance is 500 Ohm

WARNING: Standing Wave Ratios in excess of 2:1 may cause transmitter damage.

3. Key Connector. This is used for Morse Code operation. To operate this mode, connect a CW key to this jack and place the Mode switch in the CW position.

4. PA SP Connector. An 8 Ohm 4W PA speaker may be connected to this connector for PA operation. Press the PA switch for this operation.

5. EXT SP Connector. When the external speaker is connected to this connector, the built-in speaker will be disabled.

INSTALLATION

Transceiver Mounting

Plan the location of the transceiver and microphone bracket before starting the installation. Select a location that is convenient for operation and does not interfere with the driver or passenger in the vehicle. The radio should be secured to a solid surface, using the mounting bracket and self - tapping screws supplied.

Mobile Antenna

The antenna is a very important factor affecting transmission and reception. It is for this reason that we strongly recommend that you install only a quality antenna in your new Alan 9001. You have purchased a superior quality transceiver, don't diminish its performance by installing an inferior antenna.

Only a properly matched antenna system will allow maximum power transfer from the 50 transmission line to the radiating element. Our business department is qualified to assist you in the selection of the proper antenna to meet your application requirements.

For mobile installations, a quarter wave whip antenna may be used with good effect. The most efficient and practical installation is to mount it on the rear deck or fender top midway between the rear window and bumper.

A short base loaded whip antenna is more convenient to install, but the efficiency is less than a quarter wave whip.

For marine installations, consult your dealer for information regarding an adequate grounding system and prevention of electrolysis.

WARNING: Standing Wave Ratios in excess of 2:1 may cause transmitter damage.

Ground information

Most newer cars and small trucks use a 13.8V DC nominal negative ground system, while some older cars and large trucks use a positive ground system. A negative ground system is

generally identified by the negative (-) battery terminal being connected to the vehicle frame or engine block, but if you cannot determine the polarity of your vehicle or are unsure, contact your vehicle dealer for definite information.

WARNING: Your Alan 9001 is designed for operation on a 13.8V DC nominal, negative ground system only. Operation on other voltages or polarities may cause fires, transceiver damage, and/or other hazards.

Power Cord Connection

The red lead (with the inline fuse) of the supplied power cord is to be connected to a “hot” (positive) wire, and the black lead to ground. As the Alan 9001 draws appreciable current during transmitting, you may wish to connect the positive lead directly to the battery, or to a main supply wire.

OPERATION

SELECTING A FREQUENCY

VFO Operation

Selecting an operating frequency using the Alan 9001 built-in VFO is easy. Make sure that the F.Lock key is NOT depressed and then simply rotate the dial to the desired operating frequency. The VFO will step in either 10KHz, 1KHz or 100 Hz increments. The step increment is indicated by a line under one of the 3 rightmost digits of the frequency display. To change the VFO step, press the SPAN button until the desired step is indicated by the black line. When using the VFO, you do not need to manually select the band segment, as this is done automatically, so that the tuning range is continuous throughout the entire operating frequency range.

Channel Select Operation

You may also select the operating frequency using the CHANNEL buttons on the front panel or the UP/DN buttons on the microphone. The channel select buttons will select any 10KHz channel in a band segment : 50 channels in A (28.000 to 28.4999 MHz), B (28.5000 to 28.9999 MHz), C (29.0000 to 29.4999 MHz); 20 channels in D (29.5000 to 29.6999 Mhz). The 10KHz channel frequencies are pre-programmed and cannot be changed. When stepping up or down the unit will tune to the nearest 10 KHz channel, NOT to the dial frequency + or - 10KHz. When you reach channel 50 (channel 20 in segment D), pressing the Channel button again will step to channel 1, conversely when you are on channel 1, pressing the Channel button will step to channel 50 .

To select a band segment, press the Band button until the desired band segment letter is displayed. It is displayed, on the display, above the channel number.

If you press and hold down the channel button, the Alan 9001 will continuously step up through the pre - programmed channels. In the same manner, pressing the Channel key will also do this.

RX SCANNING

The receive scanning functions of your Alan 9001 make it easy to find active frequencies, You can scan 50 channels in segment a, b, or c, and 20 channels in segment d. Scanning is always from the lower frequency to higher frequencies, and always in 10KHz steps.

Scanning Operation

To begin scanning, press the Scan button followed by SHIFT button. If there is a transmission on the current frequency (the squelch is broken open), pressing the Scan button will just step one channel up. If the squelch is NOT broken, scanning will begin. The unit will scan through the selected band segment until it encounters a signal strong enough to break (open) the squelch. It will then stop on that frequency for the duration of the transmission. When the transmission stops, the Alan 9001 will wait approximately 1,5 seconds before resuming the scan cycle, to allow you to hear a return transmission on that channel. If you take no further action, the scan will resume. If you want to communicate press the PTT switch directly on the microphone within these 1.5 seconds, then your Alan 9001 can transmit on the channel that has been stopped for transmission while scanning. To exit from scan mode while still scanning, press the Manual button. During Scanning Operation, you can use memory channel scanning with pressing MEMO button.

Refer programming mode of section on operation for details of memory channel.

CW OPERATION

Using CW mode with the Alan 9001 is easy. Just select your operating frequency, place the mode switch in CW, and you are ready to transmit CW if you have connected an external key to the key connector on the rear of the unit. (See the section on rear panel connectors for information on connecting a CW key).

To use CW mode with an external key, select an operating frequency, place the mode switch in CW, and you are now ready to operate as semibreak-in CW mode. (If you leave the key up for more than 1 second, the receiver is enabled). The Alan 9001 has a built in sidetone oscillator for your convenience. The Alan 9001 will NOT transmit in CW mode unless an external key is connected and in key down condition.

To adjust the pitch of the received CW note, you can use either the VFO or RIT to tune it as desired. (Note: Adjusting the RIT will NOT affect the frequency display).

USB/LSB/FM OPERATION

Using the Alan 9001 for voice communication as either USB, LSB, AM or FM modes is simple. Simply select your desired operating frequency, turn the mode switch to the desired type of operation, and the PTT switch controls the transmit and receive. To fine tune the receive signal in USB or LSB, you can use either the VFO or RIT controls. (Note: Using the RIT control to fine tune the receive frequency will NOT affect the frequency display).

The Mic Gain control can (and should) be used when you are transmitting from a high ambient noise environment. Pressing The Mic Gain control reduces the output from the micro-

phone. Press the Mic Gain control again to restore it to normal operating condition.

NOISE BLANKER AND AUTOMATIC NOISE LIMITER

The Noise Blanker and Automatic Noise Limiter has been designed specifically to reduce the pulsive noise. You can select NB only, ANL only, or both of them. Every time you press the NB/ANL button, the next function will be selected. When you reach the end of the functions, it will start over with the first. They effectively eliminate interference generated by vehicle ignition systems.

F.LOCK

The Frequency Lock function is used to lock the frequency determining controls against accidental changes. To lock the frequency controls, press the F.Lock button. To unlock the frequency controls, press F.Lock again.

BEEP CONTROL

The Beep control enables and disables a short “beep” tone that is transmitted whenever you release the PTT switch (except in CW mode). This is especially useful when transmitting in USB or LSB mode, as it lets the station that you are working know that you have stopped transmitting. Press the BEEP button to enable the beep tone, and press it again to disable it.

MULTIFUNCTION METER

The Multifunction Meter built into your Alan 9001 provides a number of useful functions. These are:

- S/RF Meter
- MOD Meter
- SWR CAL Meter
- SWR Meter

Every time you press the METER button, the next function will be selected. When you reach the end of the functions, it will start over with the first.

S/RF METER

The S/RF meter function provides a visual indication of relative received signal strength and relative transmit power. To use the S/RF function, press the METER button until “RF” is displayed over the meter display. The meter automatically switches function depending on whether you are transmitting or receiving (S mode). When receiving, the meter reverts to the “S” function.

MOD METER

This function gives you an indication of the strength of your modulation when transmitting. There is no function for this meter when receiving signals. To use the MOD function, press the METER button until "MOD" is displayed over the meter display.

SWR CAL METER

This mode of the multifunction meter is used to calibrate the meter for the SWR function. To use this mode, first place the unit in CW, AM, or FM modes. Then, press the METER button until the small triangle and "CAL" are visible under the meter. Press the PTT switch on the microphone or hold down the CW key (if connected), and adjust the meter using the SWR CAL control until it indicates up to the small triangle. When you have done this, you are ready to check the SWR using the procedure under "SWR METER".

NOTE: Don't forget that all transmission must be properly identified, and remember to listen on the frequency before transmitting.

SWR METER

After you have calibrated the SWR meter using the SWR CAL function (in the previous section) you are ready to check the SWR of your Alan 9001 and antenna system. Press the METER button until "SWR" is displayed under the meter. At this point, pressing the PTT switch on the microphone, or holding down the CW key (if connected) to transmit will cause the meter to display the Standing Wave Ratio.

NOTE: If you are in LSB or USB modes and using voice, you will not see a steady SWR indication, since there is no carrier transmitted in these modes. To see a steady SWR indication, you must be in CW, AM, or FM Modes when transmitting.

WARNING: Standing Wave Ratios in excess of 2:1 may cause transmitter damage.

PA MODE

To use the PA mode of your Alan 9001 you must first connect an external PA speaker to the PA.SP. connector on the unit (See the section on the rear panel connectors for more information). With a PA speaker connected, just pressing the PA button will enable the PA mode.

PROGRAMMING MODE

Alan 9001 has 10 memory channels, you can have them memorize frequencies which you selected.

How to program

1. Press SHIFT button first, and PROG button, then you can see PROG on the LCD display

2. Press MEMO button then you can see memory channel number on the LCD display. You can select numbers from 0 to 9, every pressing the MEMO button changes numbers on the LCD display.
3. Put frequency number which you selected on the LCD display.
4. Press the ENTER button.

How to pick up memory channel

Press SHIFT button first, and press MEMO button until you find out channel number which you want.

How to change frequency number

Refer "How to program", and do it again, but when you are in paragraph 3. mentioned above put different frequency number.

Memory Channel Scanning operation

Press the SHIFT button first, the MEMO button and SCAN button, then it starts MEMORY CHANNEL SCANNING. To exit from memory channel scanning mode while still scanning, press the MANUAL button.

SPECIFICATIONS

General

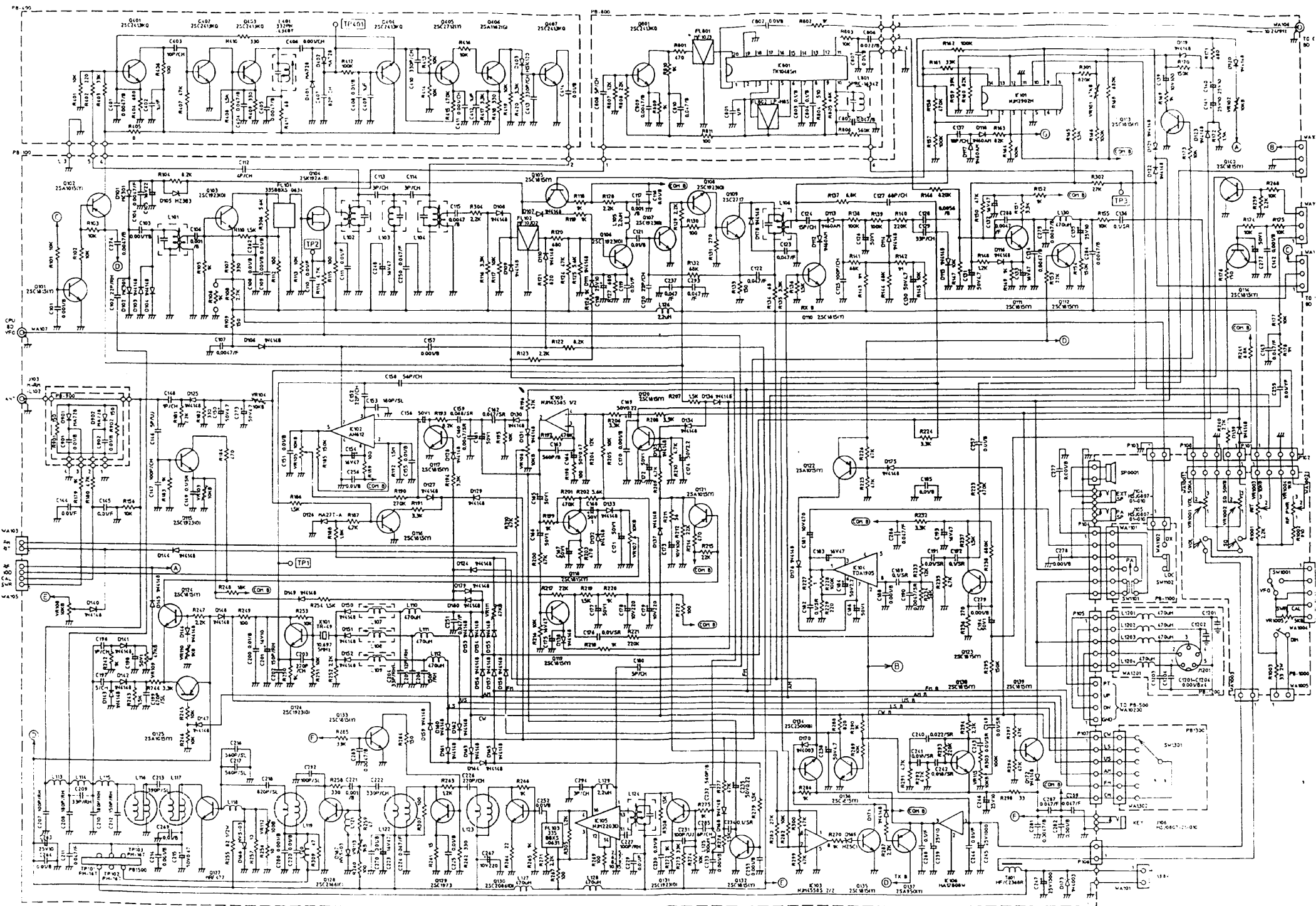
Frequency Range	Band A: 28.0000 - 28.4999 MHz Band B: 28.5000 - 28.9999 MHz Band C: 29.0000 - 29.4999 MHz Band D: 29.5000 - 29.6999 MHz
Microphone	500 (Dynamic, W/PTT and Channel Up & Down Speaker 8 Ohm, 5W Max Operating Modes CW, USB, LSB, AM, FM Size 200(W) x 265(D) x 60(H)mm

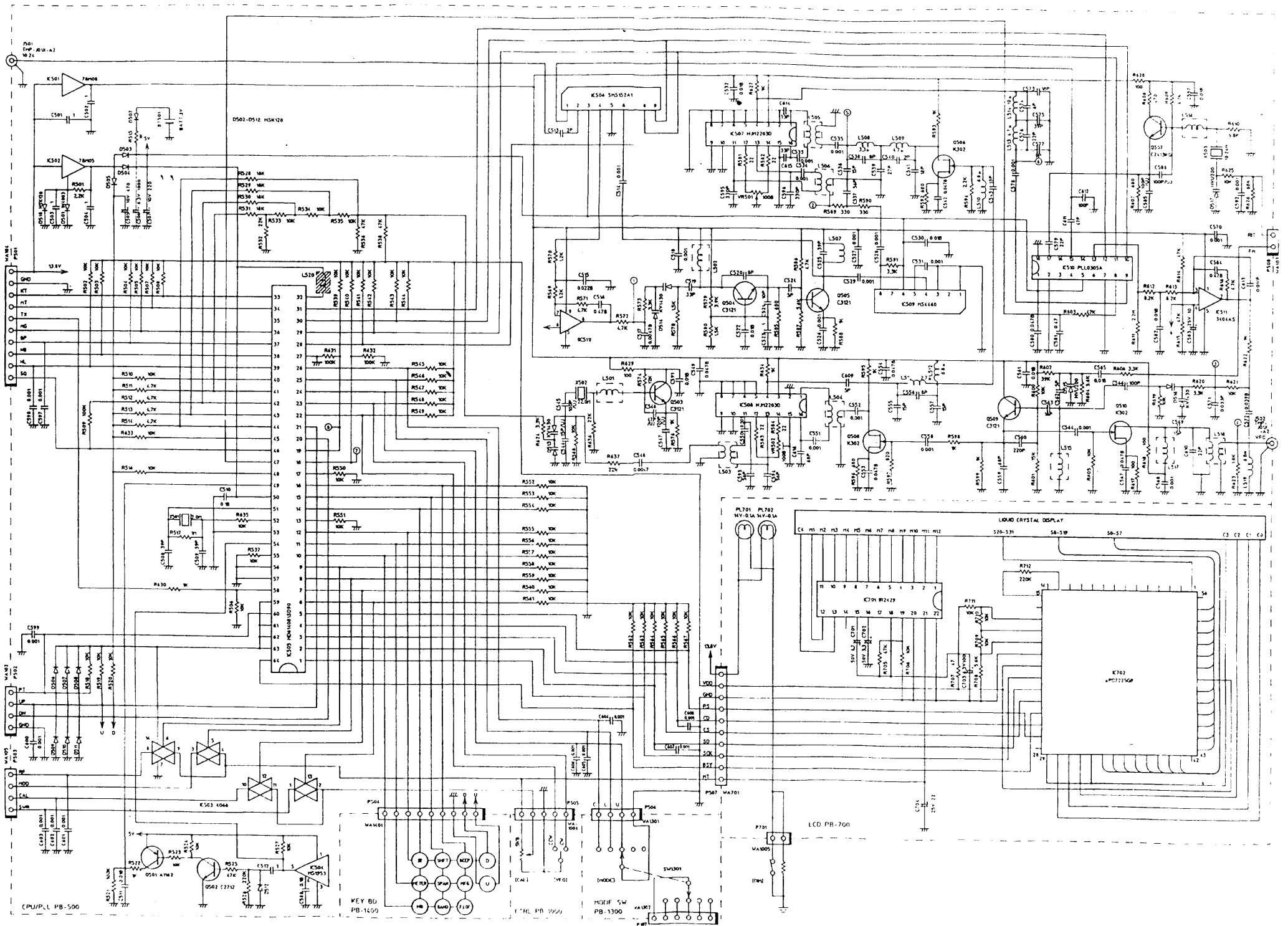
Transmitter

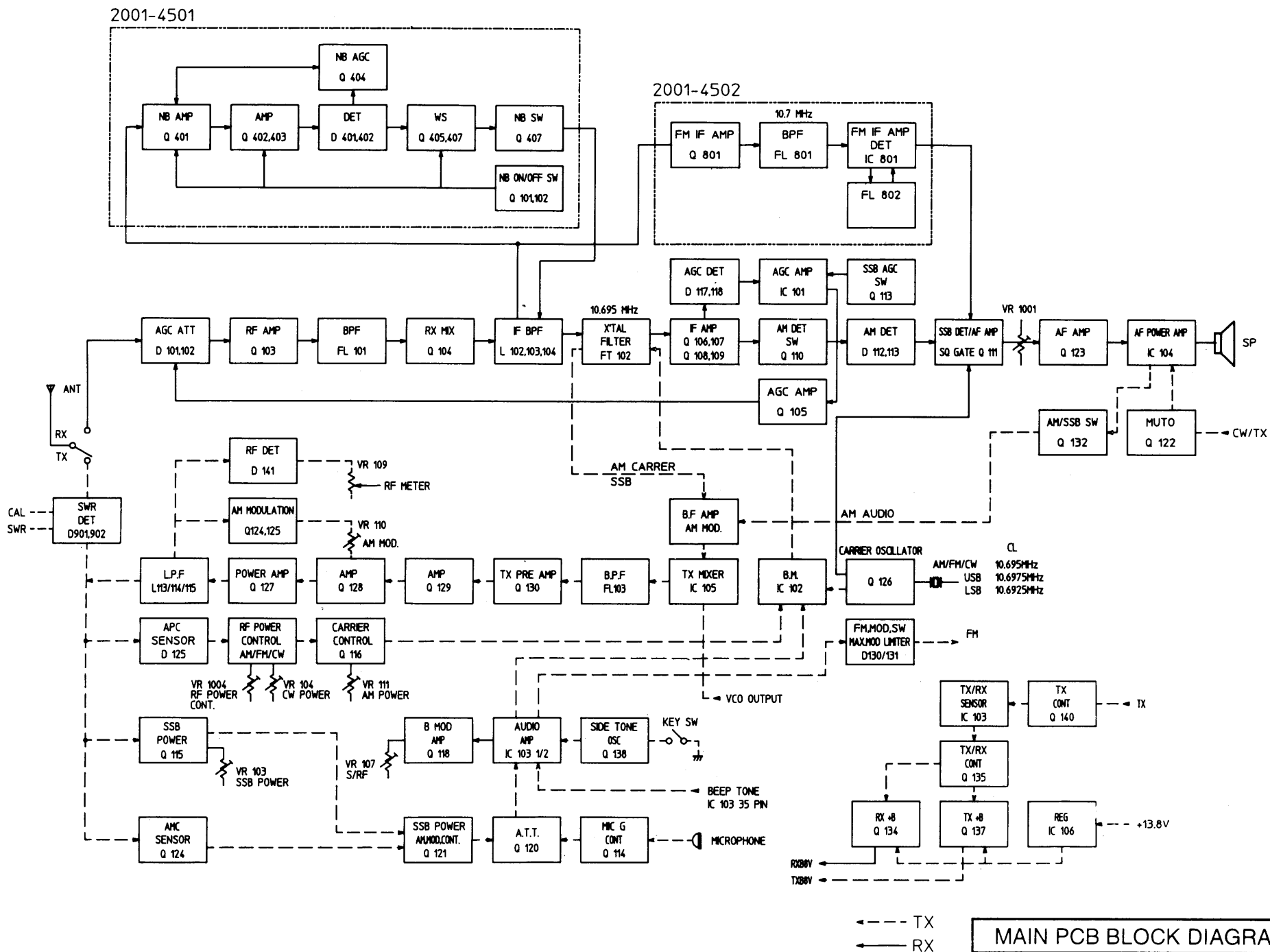
Frequency Stability	± 300Hz Nominal. (@ 25°C, 5 Min after power on)
Output Power	CW 25W Nominal USB/LSB 25W PEP Nominal AM/FM 10W Nominal
Spurious Harmonic Emissions	-50dB Nominal, all modes
Carrier Suppression	-55dB Nominal, USB/LSB Modes
Unwanted Sideband Suppression	-45dB Nominal, USB/LSB Modes
Power Consumption	AM/FM, 3.1A Nominal
No Modulation, PTT Depressed	USB/LSB 1A Nominal CW 4.6A Nominal (Key Down)
Max Modulation	AM/FM/USB/LSB 3.3A Nominal
Microphone Input	1.3mV Nominal for 50% AM Modulation
CW Key Voltage/Current	8V DC, 10mA

Receiver

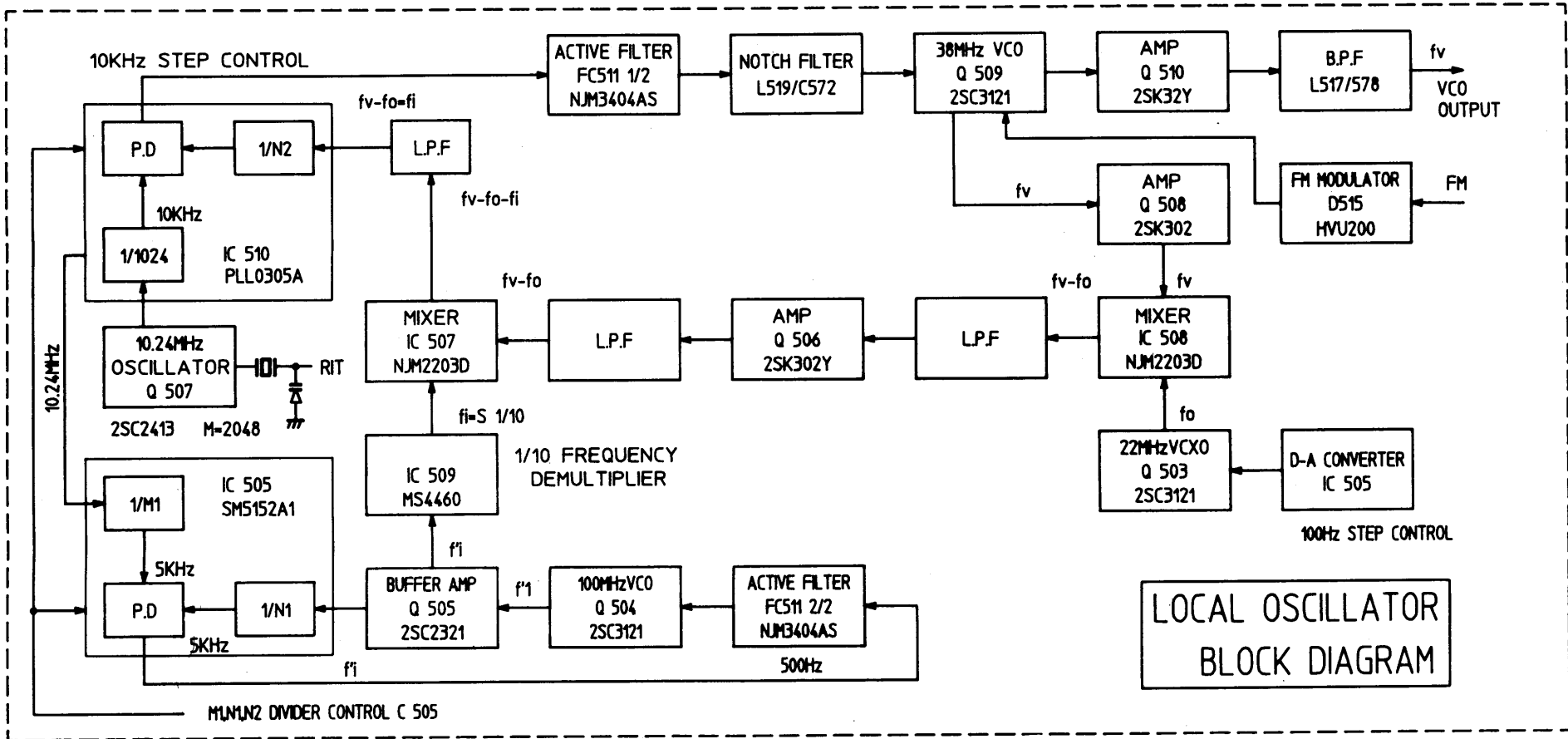
Sensitivity for 10dB S/N	AM 1μV Nominal CW/USB/LSB 0.3 μV Nominal
Sensitivity for 20dB S/N	FM 1μV Nominal
Adjacent Channel Selectivity	60dB Nominal (10KHz Spacing)
Max. Audio Output	4.5W Nominal
RF Gain Range	20dB Nominal
RIT Range	± 2.3KHz Nominal
“S” Meter Sensitivity @ S9	100μV Nominal
Image Rejection Ratio	65dB Nominal
Power Consumption, No Signal	430mA Nominal
Power Consumption, Max Audio	770mA Nominal







MAIN PCB BLOCK DIAGRAM



LOCAL OSCILLATOR
BLOCK DIAGRAM