

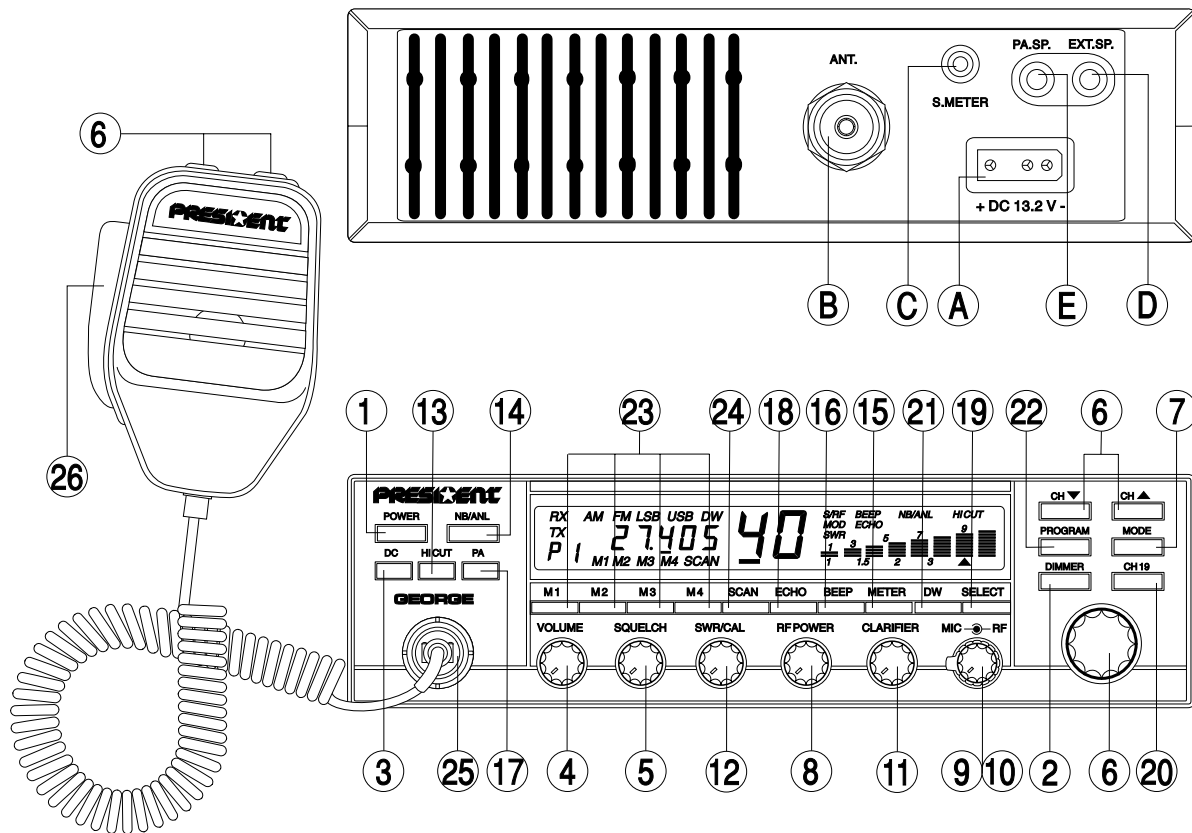
GEORGE



Owner's manual

President

Your PRESIDENT GEORGE at a glance



SUMMARY

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WARNING !

*Before using, be careful never to transmit without first having connected the antenna (connection **B** situated on the back panel of the equipment) or without having set the SWR (Standing Wave Ratio) ! Failure to do so may result in destruction of the power amplifier, which is not covered by the guarantee.*

The guarantee of this transceiver is valid only in the purchase country.

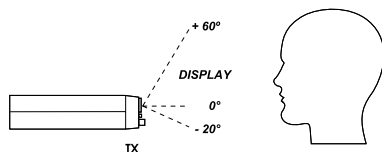
Welcome to the world of the 3rd generation of CB radios. The new **PRESIDENT INTERACTIVE** range gives you access to top performance CB equipment. With the use of up-to-date technology, which guarantees unprecedented quality, your **PRESIDENT GEORGE** is a new step in personal communications and is the surest choice for the most demanding of professional CB radio users. To ensure that you make the most of all its capacities, we advise you to read carefully this manual before installing and using your **PRESIDENT GEORGE**.

A) INSTALLATION:

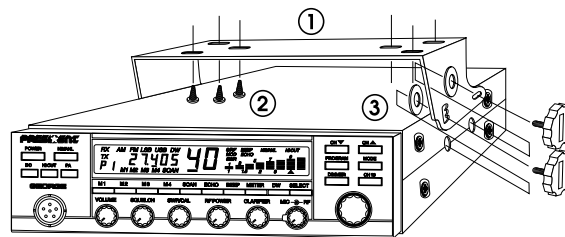
1) WHERE AND HOW TO MOUNT YOUR MOBILE CB RADIO:

- a) You should choose the most appropriate setting from a simple and practical point of view.
- b) Your CB radio should not interfere with the driver or the passengers.
- c) Remember that maximum visibility of the LCD display is at an angle of vision between -20° and $+60^{\circ}$.

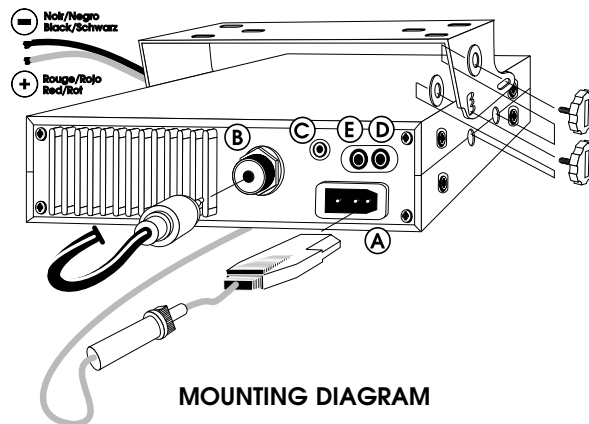
ANGLE OF VISION



- d) Remember to provide for the passing and protection of different wires (e.g. power, antenna, accessory cabling) so that they do not in any way interfere with the driving of the vehicle.
- e) To mount your CB radio you should use the cradle (1) supplied which must be firmly fixed using the self-tapping screws (2) provided (drilling diameter 3.2 mm). Take care not to damage the vehicle's electrical system while drilling the dash board.



- f) Do not forget to insert the rubber joints (3) between the CB and its support as these have a shock-absorbing effect which permits gentle orientation and tightening of the set.
- g) Choose where to place the microphone support and remember that the microphone cord must stretch to the driver without interfering with the controls of the vehicle.
- **N.B.** : As the transceiver has a frontal microphone socket, you can set it into the dash board. In this case, you will need to add an external loud speaker to improve the sound quality of communications (connector EXT.SP situated on the back panel : D). Ask your dealer for advice on mounting your CB radio.



MOUNTING DIAGRAM

2) ANTENNA INSTALLATION:

a) Choosing your antenna:

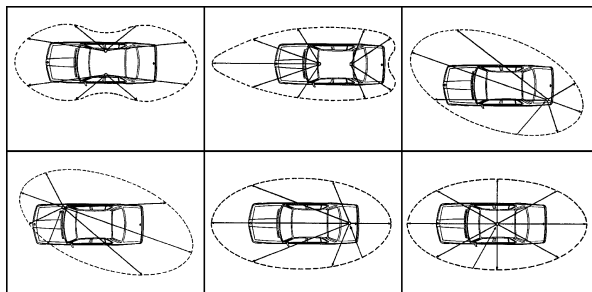
- For CB radios, the longer the antenna, the better its results. Your dealer will be able to help you with your choice of antenna.

b) Mobile antenna:

- Must be fixed to the vehicle where there is a maximum of metallic surface (ground plane), away from windscreen mountings.
- If you already have a radio-telephone antenna installed, the CB antenna should be higher than this.
- There are two types of antenna : *pre-regulated* which should be used on a good ground plane (e.g. car roof or lid of the boot), and *adjustable* which offer a much larger range and can be used on a smaller ground plane (see «How to Adjust SWR», page 41).
- For an antenna which must be fixed by drilling, you will need a good contact between the antenna and the ground plane. To obtain this, you should lightly scratch the surface where the screw and tightening star are to be placed.
- Be careful not to pinch or flatten the coaxial cable (as this runs the risk of break down and/or short circuiting).
- Connect the antenna (B).

c) Fixed antenna:

- A fixed antenna should be installed in a clear space as possible. If it is fixed to a mast, it will perhaps be necessary to stay it, according to the laws in force (you should seek professional advice). All PRESIDENT antennas and accessories are designed to give maximum efficiency to each CB radio within the range.



OUTPUT RADIUS PATTERNS

3) POWER CONNECTION:

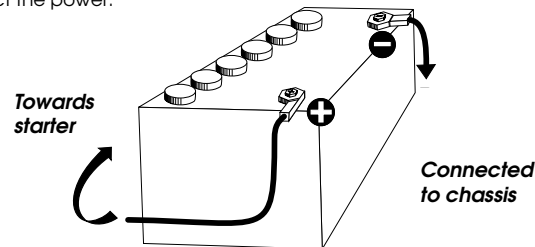
Your PRESIDENT GEORGE is protected against an inversion of polarities. However, before switching it on, you are advised to check all the connections. Your mobile set must be supplied with a continued current of 12 volts (A). Today, most cars and lorries are negative earth. You can check this by making sure that the negative terminal of the battery is connected either to the engine block or to the chassis. If this is not the case, you should consult your dealer.

WARNING: Lorries generally have two batteries and an electrical installation of 24 volts, in which case it will be necessary to insert a 24/12 volt converter (type CV 24/12 PRESIDENT) into the electrical circuit. The following connection steps should be carried out with the power cable disconnected from the set.

- Check that the battery is of 12 volts.
- Locate the positive and negative terminals of the battery (+ is red and - is black). Should it be necessary to lengthen the power cable, you should use the same or a superior type of cable.
- So that you do not have to re-enter the code (security code system) each time you start the vehicle's engine, you should connect your CB to a permanent (+) and (-). We advise you therefore to connect the power cable directly to the battery (as the connection of the CB cable to the wiring of the car-radio or other parts of the electrical circuit may, in somecases, increase the likelihood of interference).
- Connect the red wire (+) to the positive terminal of the battery and the black (-) wire to the negative terminal of the battery.
- Connect the power cable to your CB radio.

WARNING: Never replace the original fuse (5A) by one of a different value.

- If you disconnect the power supply, the equipment will automatically go into protection mode and will ask you to re-enter the access code when you re-connect the power.



4) BASIC OPERATIONS TO BE CARRIED OUT BEFORE USING YOUR SET FOR THE FIRST TIME (without trans-mitting and without using the «push-to-talk» switch on the microphone):

- Connect the microphone
- Check the antenna connections
- To turn the equipment on :

Press any key so that *codE* flashes. You have about 10 seconds in which to enter your access code.

Press «PROGRAM» key four times (access code pre-determined in the factory). Each time you press a key, the counter in the display increases by one. Press the «POWER» key once. Your CB radio will light up and automatically go to Channel 19, in AM. (MIC GAIN and RF GAIN set to maximum).

If you make a mistake while entering your access code, press any key (several times, if necessary) until *codE* flashes and then press four times PROGRAM and then POWER.

- Turn the squelch knob to minimum (anti-clockwise). Turn the «RF POWER» switch to maximum (clockwise). Adjust the volume to a comfortable level.
- Go to Channel 20 using either the «CH ▲» key on the microphone or on the front panel, or the rotary knob.

5) ADJUSTMENT OF SWR (Standing wave ratio):

WARNING: This must be carried out when you use your CB radio for the first time (and whenever you re-position your antenna). The adjustment must be carried out in an obstacle-free area.

* Using the integrated SWR meter:

For this, carry out the following steps :

- Press the «push-to-talk» switch on the microphone and keep it pressed down throughout the adjustment.
- Press the «METER» key until ▲ appears in the display.
- Adjust the SWR/CAL key so that the 7 rows (like a bar graph ▲) appear in the display, with the RF/POWER knob turned to maximum.
- Press again the «METER» key so that «SWR» appears in the display and the ▲ disappears. It is now possible to take the SWR reading. If in the display there are less than three rows of the bar graph, then the SWR reading is acceptable (1 being the ideal SWR value). If there are Minimum value more than three rows, we advise you to re-adjust your antenna and re-start the procedure from step a).

- Press the «METER» key, with the «push-to-talk» switch pressed down, so that the equipment is in S/Rf mode.

DISPLAY



Minimum value



Maximum value



* *Using an external SWR meter (e.g. SWR 1 or SWR 2 PRESIDENT):*

- a) To connect the SWR meter:
 - Connect the SWR meter between the CB radio and the antenna as close as possible to the CB (use a maximum of 40 cm cable, type CA 2C PRESIDENT).
- b) To adjust the SWR meter:
 - Set the CB to channel 20.
 - Put the switch on the SWR meter to position «CAL» (= calibrate).
 - Press the «push-to-talk» switch on the microphone.
 - Bring the index needle to ▼ by using the calibration key.
 - Change the switch to position SWR (reading of the SWR level). The reading on the V.U. meter should be as near as possible to 1. If this is not the case, re-adjust your antenna to obtain a reading as close as possible to 1. (An SWR reading between 1 and 1.8 is acceptable).
 - It will be necessary to re-calibrate after each adjustment of the antenna.

Your CB is now ready for use.

B) HOW TO USE YOUR CB:

1) POWER:

- a) One quick press on this key turns your CB on and off.
- b) A longer depression (about three seconds) activates the protection by code procedure. The code must be re-entered to put the set on.

NOTE : As soon as your set goes off, the last configuration is memorised ready for the next time.

2) DIMMER:

- a) Set turned off (but with power supply connected): by pressing the DIMMER key the message *cadE* flashes indicating clearly and permanently the code protection in your absence. You should not leave this function on for more than three days without starting your vehicle's engine (risk of flat battery).
- b) With the set turned on: This key allows you to adjust the luminosity of the display.

3) DC (Double Colour):

With this key you can change the colour of the digital display to either amber or green, so that your set is in harmony with the interior of your vehicle.

4) VOLUME:

To increase the volume, turn this knob clockwise.

5) SQUELCH:

Suppresses undesirable back-ground noise when there are no communications. Turn the squelch knob clockwise to the exact point where all background noise disappears. This adjustment should be done with precision as, if set to maximum, only the strongest of signals can be received. Squelch does not effect either sound or transmission power, but allows for considerable improvement in listening comfort.

6) CHANNEL SELECTOR KEYS «CH ▲», «CH ▼» AND/OR ROTARY KNOB:

The two keys, «CH ▲» and «CH ▼» on the microphone and on the front panel, allow you to go up and down the channels. This can also be done with the channel rotary knob.

«CH ▼» key : one quick press allows you to go down by **one** channel, continued pression allows you to descend five channels per second.

«CH ▲» key : one quick press allows you to go up by one channel, continued pression allows you to ascend five channels per second.

7) MODE:

Use this key to select AM, FM, LSB or USB.

The mode must correspond with that of the person with whom you communicate.

Amplitude Modulation (AM) is for communications in areas where there are obstacles and over medium distances.

Frequency Modulation (FM) is for nearby communications in flat, open areas. It gives better quality of communication (squelch adjustment needs more finesse).

Lower and Upper Side Band is used for prompt communications over long distances (depends very much on atmospheric conditions).

A long press on the «MODE» key allows you to change from AM/FM/ to LSB/USB and vice versa. A short press on the same key allows you to change from AM to FM or from LSB to USB and vice versa

Example:

Configuration
You are in Channel 22, FM.

^{FM}
27.225 22

- Short press on «MODE»:
set goes to Channel 22 AM.

^{AM}
27.225 22

- Longer press on «MODE»:
set goes to Channel 22 FM
then 22 LSB.

^{LSB}
27.225 22

- Short press on «MODE»:
set goes to Channel 22 USB.

^{USB}
27.225 22

- Longer press on «MODE»:
set goes to Channel 22 LSB
then 22 AM.

^{AM}
27.225 22

8) RF POWER:

When you turn this knob fully clockwise the RF power (norm peak 4 watts) is at maximum. You should reduce transmission power when the communication is close to someone who does not have RF GAIN.

The normal setting of this knob is on maximum (fully clockwise).

9) RF GAIN:

This knob is for adjusting sensitivity during reception. For long distance communications RF GAIN should be set to maximum. RF GAIN can be reduced to avoid distortion, when your correspondent is close by and when he does not have RF POWER.

The normal setting of this knob is on maximum (fully clockwise).

10) MIC GAIN:

- a) Is for regulating microphone sensitivity, when using a microphone other than the one supplied with your PRESIDENT GEORGE. (pre-amplified).
- b) Also adjusts the sound volume of Public Address mode (see point 17).

The normal setting of this knob is fully clockwise.

11) CLARIFIER:

This function allows a frequency deviation during LSB/USB reception to improve the clearness of your correspondent's voice. This allows a shift of up to 2 kHz around the reference frequency.

The normal setting of this function is fully clockwise.

12) SWR/CAL:

Used for the calibration of the SWR meter (see «Adjustment of SWR» page 7, § 5).

13) HI-CUT:

Cuts out high frequency inter-ference. Its use depends on reception conditions.

Depress the key to use this function, «HICUT» appears in the display. To cancel, press the same key, «HICUT» disappears from the display.

14)NB/ANL:

Noise Blanker/ Automatic Noise Limiter. These filters allow the reduction of back ground noise, and some reception interference.

Press once to activate the function. «NB/ANL» appears in the display. To cancel, press the same key. «NB/ANL» disappears from the display.

15)METER:

This key has several functions :

- a) Position «S/RF» : for taking a V.U. meter reading of transmission and reception power ;
- b) Position «MODE» only works during transmission. Allows modulation measurement (voice level).
- c) Position ▲ : calibration of the SWR meter.
See «Adjustment of SWR meter» page 7, § 5.
- d) Position «SWR» : reading of the SWR value.
See «Adjustment of SWR meter», page 7, § 5.

To use these functions, press the METER key successively in transmission mode. In reception mode this key locks itself onto position «S/RF».

16)BEEP:

When you finish speaking and you release the «push-to-talk» switch to allow your correspondent to speak, a «beep» sounds. Radio CB is what is known as a «simplex» method of communication, that is to say, that you cannot listen and speak at the same time (as you can, for example, with the telephone). It was custom to say «roger» to indicate to your correspondent that you'd finished speaking and that it was his turn to talk. The word «roger» has now been replaced with a beep, hence its name, «Roger Beep».

By depressing this key once, the roger beep is activated as well as the sounding of all the keys and the word BEEP appears in the display. To cancel out the beep, depress the same key. The sound level of the beep can be adjusted by using the VOLUME knob.

17)PA (Public Address):

An external loud speaker can be connected to your PRESIDENT GEORGE by the jack plug situated on the back panel PA.SP (E). By pressing the PA key, the message transmitted into the microphone will be directed towards the external speaker and be amplified. PA appears in the display and everything

else disappears. Hold the microphone far enough away from this loud speaker so as to avoid the Larsen effect.

The PA volume is regulated by the MIC GAIN knob. To cancel PA, press the «PA» key and the set returns to the previous configuration.

18)ECHO:

Use of the echo chamber. This function gives a reverberation (echo) effect to your voice. The level of echo can be adjusted. Ask your dealer to carry out this adjustment for you. You can check level of echo either by using the PA function and connecting a loud speaker, or by carrying out a trial transmission with a correspondent.

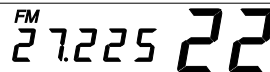
To activate this function press the PA key once. «ECHO» appears in the display. To cancel it simply press the same key. «ECHO» disappears from the display.

19)SELECT:

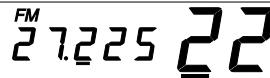
The "SELECT" key allows you to go up or down by 10 channels at a time. It is used in conjunction with the «CH ▲» and «CH ▼» or with the rotary channel knob.

Example:

Configuration You are in channel 22 FM.

A digital display showing the frequency 27.225 FM and the channel number 22. The '2' in 27.225 is slightly larger and more prominent than the others.

- Press «SELECT» :
Underlining appears in order to indicate Channel 22 FM.

A digital display showing the frequency 27.225 FM and the channel number 22. The channel number 22 is underlined to indicate the selected channel.

- Press «CH ▲» (+ 10 channels):
Set goes to the channel 32 FM.

FM 27.325 **32**

- Press «CH ▲» (+ 10 channels):
Set goes to the channel 2 FM.

FM 26.975 **_2**

- Press «CH ▼» (- 10 channels):
Set returns to channel 32 FM.

FM 27.325 **32**

- Press «SELECT» :
Set returns to normal mode.

FM 27.325 **32**

- Press «CH ▲» (+ 1 channel):
Set goes to channel 33 FM.

FM 27.335 **33**

20) CH 19 (Channel 19 AM):

Channel 19 AM is automatically selected when you depress this key.

Configuration

You are in Channel 22 FM.

FM 27.225 **22**

- Press «CH19»:
Frequency disappears to indicate that Channel 19 AM is selected.
Set goes directly to Channel 19 AM.

AM **19**

- Press «CH19»:
Set returns to previous configuration Channel 22 FM.

FM 27.225 **22**

- Press «CH19»:
Set goes directly to Channel 19 AM.

AM **19**

- Press «CH ▼»
Set goes down one to Channel 18.

AM 27.175 **18**

- Press «CH19»
Set goes directly to Channel «CH19».



21)DW (Dual Watch):

This function lets you watch over Channel 19 AM and the channel you are using. The equipment goes to and from the two channels (1 second per channel) and stops on the one where a signal is detected (reception level defined by squelch). Dual Watch returns at the end of the signal unless you go into transmission.

To activate this surveillance function, press «DW». «DW» appears in the display. To cancel, press the same key. «DW» disappears from the display.

Example:

Configuration

- You are in Channel 22 FM.



- Press «DW».



Alternates between



- If a signal is detected on Channel 22 your CB listens to the channel and stays there until the end of the signal.



- End of signal on Channel 22 FM.



Alternates between



- Reception of signal on Channel 19 AM.



- Reply to this call by pressing the «push-to-talk» switch on the microphone. «DW» is cancelled.



22)PROGRAM:

This key is used in conjunction with keys "M1-M2-M3-M4" and is for memorising chosen channels.

By rapidly pressing the «PROGRAM» key, P1, P2, P3, P4 will show in the display. Pressing longer on one of the four keys (P1-P4) will cause the display to flash.

By immediately pressing one of the memory keys (M1 - M4) the channel and the modulation mode currently in use will be stored in the memory. The operation is validated with a long beep. (See example after paragraph 23)

23) M1-M2-M3-M4:

Used in conjunction with the «PROGRAM» key, these keys allow you to memorise and to call up information. It is also possible to define the four memorised channels by using the keys P1 - P4, thus giving a total of 16 possible memories.

Example:

Configuration

a) How to memorise information

- Initial configuration
Channel 22 FM



- Short depression of c:
P 1 appears in the display



- Longer depression of «PROGRAM»
P 1 flashes in the display



- Depression of «M1»:
P 1 stops flashing, M1 appears, long beep sounds to indicate that Channel 22 FM is memorised in P 1 M1.



- Change of channel by depressing one of the keys «CH ▲»/«CH ▼» on the microphone or front panel. M1 disappears.



- Rapid depression of «PROGRAM» Set goes from P 1 to P 2.



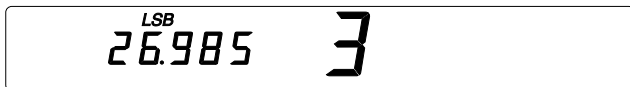
- Longer depression of «PROGRAM»
P 2 flashes.



- Press «M3»,
P 2 stops flashing,
M3 lights up, long beep sounds.
Channel 23 FM is memorised in P 2 M3.



b) Direct access to one of the memories, Initial configuration Channel 3 LSB.



- Rapid depression of «PROGRAM»

P 1 appears in the display.



- Depression of «M1» The information in *P 1 M1* is called up and the set automatically goes to the memorised channel (CH 22 FM in our example above).



- Rapid depression of «PROGRAM»

P 2 appears in the display.



- By pressing «M3» the information in *P 2 M3* is called up and the set automatically goes to the memorised setting (CH 23 FM in our example above).



24)SCAN:

This function allows you to "scan" all the memorised channels (16). Scanning stops when a signal is detected on one of the memorised channels. At the end of the signal, scanning continues. By going into transmission mode you may communicate with your correspondent and your CB leaves the scanning mode.

This function is activated by depressing the SCAN key and «SCAN» appears in the display. The level of the signal is defined by using the squelch button. To cancel, depress the same key, «SCAN» disappears from the display.

25) 6-PIN MICROPHONE PLUG:

This plug is situated on the front panel, thereby making it easier to set the equipment into the dashboard. See the cabling diagram on page 21.

26)PTT (push to talk):

Depress this knob to transmit a message and release to listen to an incoming communication.

A) DC-POWER TERMINAL (13,2 V)

B) ANTENNA CONNECTOR (SO-239)

C) EXTERNAL S-METER JACK (Ø 2,5 mm)

D) EXTERNAL SPEAKER JACK (8 Ω, Ø 3,5 mm)

E) PA SPEAKER JACK (8 Ω, Ø 3,5 mm)

C) PROTECTION BY SECURITY CODE SYSTEM:

REMINDER : Your radio CB is automatically protected by a personal 4-digit access code (security code system) which must be re-entered in the following circumstances:

- if the 12 volt power supply is disconnected and/or
- after a long depression (more than four seconds) of the POWER key (radio on or off). In these two cases, the CB is blocked and it is necessary to enter the correct access code. The access code, established by PRESIDENT in the factory or after being returned to the After Sales Service department is:

4 short depressions of the PROGRAM key.



WARNING: If you forget your access code, you are advised to contact your dealer. We strongly advise you to make a note of your code.

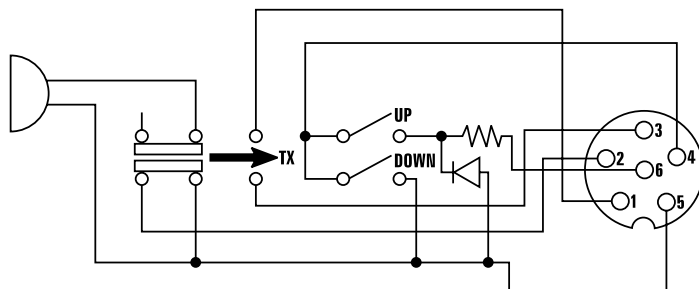
HOW TO PERSONALIZE YOUR ACCESS CODE:

Please carefully read this procedure before changing the access code.

- Turn your CB on by pressing «POWER».
- Turn your CB off by pressing «POWER».
- Depress «POWER» and keep depressed: your CB goes on and then goes off.
- Depress both «NB/ANL» and «PROGRAM» while keeping «POWER» depressed.
- Release «POWER», but keeping «NB/ANL» and «PROGRAM» depressed: **codE** flashes in the display for 5 seconds.
- When **codE** disappears: Release the keys «NB/ANL» and «PROGRAM».
- codE** flashes again. You have 20 seconds in which to enter the old code.
- Press the first key of the old code («PROGRAM» in the original configuration) **!** appears in the display.
- Press the second key of the old code («PROGRAM» in the original configuration) **2** appears in the display.
- Press the third key of the old code («PROGRAM» in the original configuration) **3** appears in the display.
- Press the fourth key of the old code («PROGRAM» in the original configuration). A beep sounds and the letter **P** appears in the display which indicates that your radio CB is ready to register the new code (4 key code).
- Depress the first key of the new code choosing between «M1», «M2», «M3», «M4», and «PROGRAM»: **!** appears in the display as well as the letter **P**.
- Depress the second key of the new code choosing between «M1», «M2»,

- «M3», «M4», and «PROGRAM»: **2** appears in the display as well as the letter **P**.
 - n) Press the third key of the new code choosing between «M1», «M2», «M3», «M4», and «PROGRAM»: **3** appears in the display as well as the letter **P**.
 - o) Press the fourth key of the new code choosing between «M1», «M2», «M3», «M4», and «PROGRAM»: The display goes out.
 - p) Depress «POWER»: your CB lights up and the new code is memorised.
- If you make a mistake while entering the old access code, press any key (several times if necessary) until **codE** flashes in the display and then continue from step **g**).
 - If, while entering the new access code, you press a key other than «M1», «M2», «M3», «M4», or «PROGRAM» (eg SCAN) your CB automatically goes to point **i**).

6-PIN MICROPHONE PLUG



1	Modulation
2	RX
3	TX
4	Up/Down
5	Masse
6	Alimentation

D) TECHNICAL CHARACTERISTICS:

1) GENERAL:

- Channels : 40
- Modulation modes : AM/FM/LSB/USB
- Frequency ranges : from 26.965 MHz à 27.405 MHz
- Antenna impedance : 50 ohms
- Power supply : 13.2 V
- Dimensions (en mm) : 200 (L) x 207.5 (H) x 58 (D)
- Weight : 1.8 kg
- Accessories supplied : microphone with support, mounting cradle, screws.

2) TRANSMISSION:

- Frequency allowance : +/- 300 Hz
- Carrier power : 1 W AM / 4 W FM / 4 W PEP SSB
- Transmission interference : inferior to 4 nW (- 54 dBm)
- Audio response : 300 Hz à 3 KHz in AM/FM/LSB/USB
- Emitted power in the adj. channel : inferior to 20 µW
- Microphone sensitivity : 1 µV
- Drain : 1.5 A (with modulation)
- Modulated signal distortion : 2.5%

3) RECEPTION:

- Maxi. sensitivity at 20 dB sinad : 0.6 µV - 112 dBm (AM/FM)
0.2 µV - 120 dBm (LSB/USB)
- Frequency response : 300 Hz à 3 kHz in AM/FM/LSB/USB
- Adjacent channel selectivity : 70 dB
- Maximum audio power : 3 W
- Squelch sensitivity : minimum 0.7 uV - 110 dBm
maximum 1 mV - 47 dBm
- Frequency image rejection rate : 70 dB
- Intermediate frequency rejection rate : 70 dB
- Drain : 500 mA nominal
800 mA maximum
800 mA nominal
1.3 A
] (without LF signal)
] (with LF signal)
- Maximum Clarifier excursion : +/- 2 kHz

E) TROUBLE SHOOTING:

1) YOUR CB RADIO WILL NOT TRANSMIT OR YOUR TRANSMISSION IS OF POOR QUALITY:

- Check that the PA function is turned off.
- Check that the RF POWER knob is turned fully clockwise.
- Check that the antenna is correctly connected and that the SWR is properly adjusted.
- Check that the MIC GAIN knob is turned fully clockwise.
- Check that the microphone is properly plugged in.
- With the «push-to-talk» switch activated, the display flashes. Release the «push-to-talk» switch, then re-press it to go into transmission.

2) YOUR CB RADIO WILL NOT RECEIVE OR RECEPTION IS POOR:

- Check that the PA function is not activated
- Check that the squelch level is properly adjusted.
- Check that the RF GAIN is turned fully clockwise.
- Check that the volume is set to a comfortable listening level.
- Check that the microphone is properly plugged in.
- Check that the antenna is correctly connected and that the SWR is properly adjusted.
- Check that you are using the same modulation mode as your correspondent.

3) *code* SHOWS IN THE DISPLAY WHEN YOU GO INTO TRANSMISSION:

- Check that your power supply is sufficient.

4) YOUR CB WILL NOT LIGHT UP:

- Check the power supply.
- Check the connection wiring.
- Check that you have entered the correct code.
- Check that the POWER button has been pressed.

F) HOW TO TRANSMIT OR RECEIVE A MESSAGE:

Now that you have read the manual, make sure that your CB Radio is ready for use (i.e. check that your antenna is connected).
Choose your channel (19, 27).
Choose your mode (AM/FM/LSB/USB) which must be the same as that of your correspondent.

Press the «push-to-talk» switch and announce your message «Attention stations, transmission testing» which will allow you to check the clearness and the power of your signal. Release the switch and wait for a reply. You should receive a reply like, «Strong and clear».

If you use a calling channel (19, 27) and you have established communication with someone, it is common practice to choose another available channel so as not to block the calling channel.

G) GLOSSARY:

Below you will find some of the most frequently used CB radio expressions. Remember this is meant for fun and that you are by no means obliged to use them. In an emergency, you should be as clear as possible.

TECHNICAL VOCABULARY:

AM	:	Amplitude Modulation
CB	:	Citizen's Band
CH	:	Channel
CW	:	Continuous Wave
DX	:	Long Distance Liaison
DW	:	Dual Watch
FM	:	Frequency Modulation
GMT	:	Greenwich Meantime
HF	:	High Frequency
LF	:	Low Frequency
LSB	:	Lower Side Band
RX	:	Receiver
SSB	:	Single Side Band
SWR	:	Standing Wave Ratio
SWL	:	Short Wave Listening
SW	:	Short Wave
TX	:	CB Transceiver
UHF	:	Ultra High Frequency
USB	:	Upper Side Band
VHF	:	Very High Frequency

CB LANGUAGE:

Advertising	:	Flashing lights of police car
Back off	:	Slow down
Basement	:	Channel 1
Base station	:	A CB set in fixed location
Bear	:	Policeman
Bear bite	:	Speeding fine
Bear cage	:	Police station

Big slab	:	Motorway
Big 10-4	:	Absolutely
Bleeding	:	Signal from an adjacent channel interfering with the transmission
Blocking the channel	:	Pressing the PTT switch without talking
Blue boys	:	Police
Break	:	Used to ask permission to join a conversation
Breaker	:	A CBer wishing to join a channel
Clean and green	:	Clear of police
Cleaner channel	:	Channel with less interference
Coming in loud and proud	:	Good reception
Doughnut	:	Tyre
Down and gone	:	Turning CB off
Down one	:	Go to a lower channel
Do you copy?	:	Understand?
DX	:	Long distance
Eighty eights	:	Love and kisses
Eye ball	:	CBers meeting together
Good buddy	:	Fellow CBer
Hammer	:	Accelerator
Handle	:	CBer's nickname
Harvey wall banger	:	Dangerous driver
How am I hitting you?	:	How are you receiving me?
Keying the mike	:	Pressing the PTT switch without talking
Kojac with a kodak	:	Police radar
Land line	:	Telephone
Lunch box	:	CB set
Man with a gun	:	Police radar
Mayday	:	SOS
Meat wagon	:	Ambulance
Midnight shopper	:	Thief
Modulation	:	Conversation
Negative copy	:	No reply
Over your shoulder	:	Right behind you
Part your hair	:	Behave yourself - police ahead
Pull your hammer back	:	Slow down
Rat race	:	Congested traffic
Rubberbander	:	New CBer
Sail boat fuel	:	Wind
Smokey dozing	:	Parked police car
Smokey with a camera	:	Police radar
Spaghetti bowl	:	Interchange
Stinger	:	Antenna
Turkey	:	Dumb CBer
Up one	:	Go up one channel
Wall to wall	:	All over/everywhere
What am I putting to you?	:	Please give me an S-meter reading.

FREQUENCY TABLES

Channel Kanal	Frequency Frequenzen	Channel Kanal	Frequency Frequenzen
1	26,965 MHz	21	27,215 MHz
2	26,975 MHz	22	27,225 MHz
3	26,985 MHz	23	27,255 MHz
4	27,005 MHz	24	27,235 MHz
5	27,015 MHz	25	27,245 MHz
6	27,025 MHz	26	27,265 MHz
7	27,035 MHz	27	27,275 MHz
8	27,055 MHz	28	27,285 MHz
9	27,065 MHz	29	27,295 MHz
10	27,075 MHz	30	27,305 MHz
11	27,085 MHz	31	27,315 MHz
12	27,105 MHz	32	27,325 MHz
13	27,115 MHz	33	27,335 MHz
14	27,125 MHz	34	27,345 MHz
15	27,135 MHz	35	27,355 MHz
16	27,155 MHz	36	27,365 MHz
17	27,165 MHz	37	27,375 MHz
18	27,175 MHz	38	27,385 MHz
19	27,185 MHz	39	27,395 MHz
20	27,205 MHz	40	27,405 MHz

CERTIFICATE OF CONFORMITY

We, GROUPE PRESIDENT ELECTRONICS, Route de Sète, BP 100
– 34540 Balaruc – FRANCE,

Declare, on our own responsibility that the CB radio-communication
transceiver

Brand : **PRESIDENT**

Model : **GEORGE**

Manufactured in the Philippines

is in conformity with the essential requirements of the Directive 1999/
5/CE (Article 3) adapted to the national law, as well as with the
following European Standards:

- **ETS 300 135 (1991)**
- **EN 300 135-2 (2000)**
- **ETS 300 433 (1995)**
- **EN 300 433-2 (2000)**

Balaruc, the 2001-03-21



Jean-Gilbert MULLER
General Manager

Pays dans lesquels il existe des limitations particulières (Licence¹ / Register² / seulement du canal 4 à 12³)

Countries in which there are particular restrictions

Países en los cuales existe algún tipo de limitación (Licencia¹ / Registro² / solo del canal 4 a 12³)

Länder mit besonderen Beschränkungen (Lizenz¹ / Register² / nur Kanal 4 bis 12³)

	AT	BE	DK	FI	FR	DE	GR	IE	IT	LU	NL	PT	ES	SE	GB	IS	NO	CH
Licence ¹	⚠	⚠				⚠	⚠		⚠				⚠		⚠			⚠
Register ²												⚠						
AM	⚠	⚠	⚠											⚠	⚠		⚠	
AM only channels 4 to 12 ³						⚠												
BLU/SSB	⚠	⚠	⚠			⚠								⚠	⚠		⚠	

Pays dans lequel la réglementation nationale autorise une puissance d'émission supérieure à la limite établie dans la norme harmonisée, précisée dans le quatrième paragraphe de la préface de la norme harmonisée EN 300 433.

Countries in which the national regulations authorize a transmission power superior to the limit fixed by the harmonised standard, notified in the 4th paragraph of the preface of the proper harmonised standard EN 300 433.

Países en los cuales la reglamentación nacional autoriza una potencia de emisión superior al límite establecido en la norma armonizada, advertido en el cuarto parrafo del preámbulo la propia norma armonizada EN 300 433.

Länder in denen die nationale Regelungen ein Sendeleistung zulassen die höher ist als die von der harmonierte Norm festgelegte Toleranz, angezeigt in 4. Paragraph der Vorrede der harmonierten Norm EN 300 433.

	AT	BE	DK	FI	FR	DE	GR	IE	IT	LU	NL	PT	ES	SE	GB	IS	NO	CH
4W AM									✓				✓					
12W pep BLU									✓				✓					

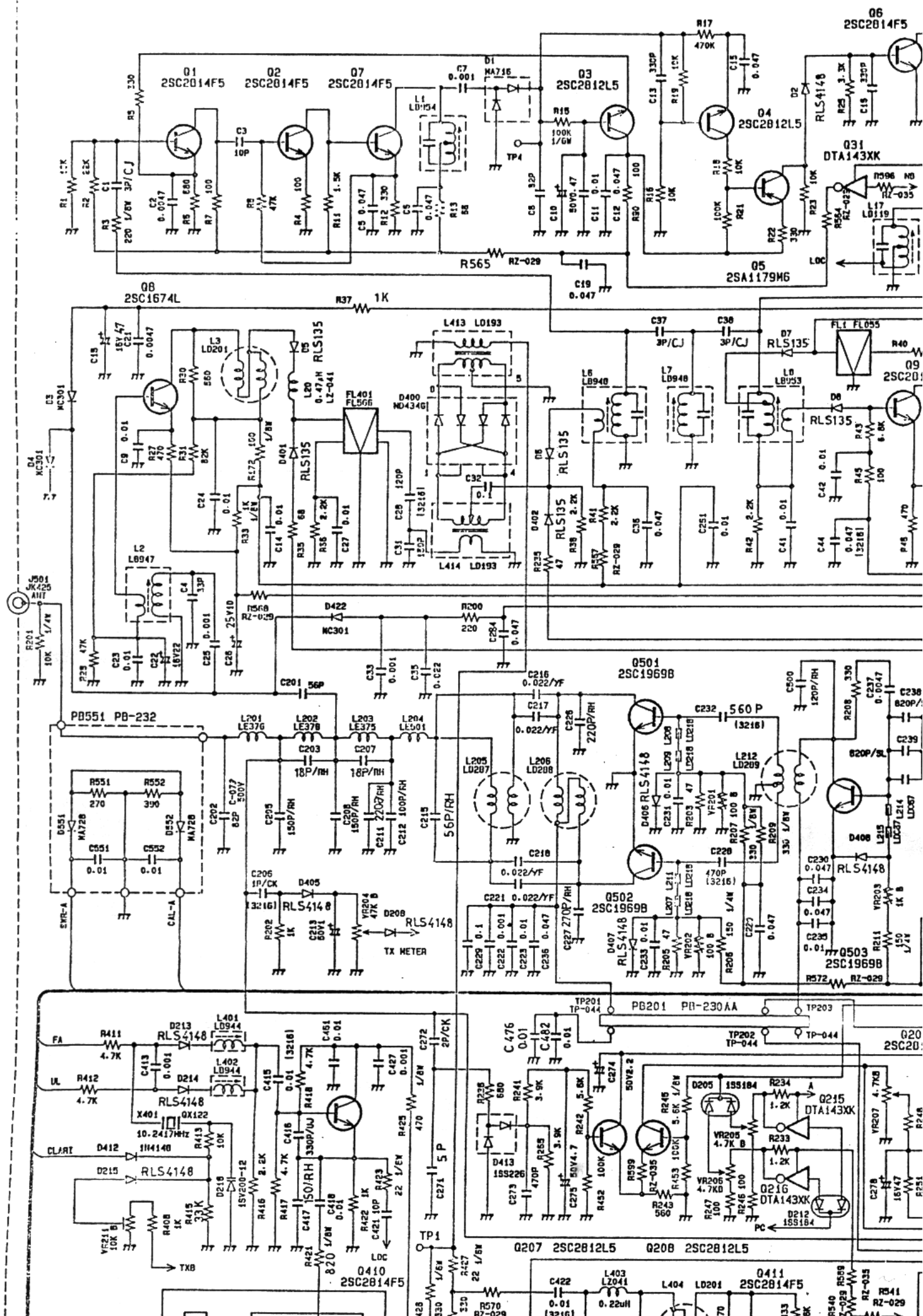


SIEGE SOCIAL/HEAD OFFICE - FRANCE
Route de Sète - BP 100 - 34540 BALARUC
Site Internet : <http://www.president-electronics.com>
E-mail : groupe@president-electronics.com



0233/03-01

president





CB TRANSCEIVER

MODEL : GEORGE

SIEGE SOCIAL / HEAD OFFICE-FRANCE

ROUTE de SETE - BP100
34540 BALARUC - Tel : 67.46.27.27
Telex : 490534F - Fax : 67.48.48.49

(UT557Z)

1. SPECIFICATIONS

MEASURING CONDITION :

- * DC Power Supply : 13.2V more than 10 A
- * Modulation Frequency : 1 KHz and 1.25 KHz (AM/FM) 400 Hz and 2500 Hz (SSB)
- * Measuring Frequency : 27.205 MHz
- * Ambient Temperature : 25°C ± 3°
- * Load Impedance : 50 Ω

TRANSMITTER PORTION

No.	ITEM		UNIT	AM	FM	SSB
1	Frequency Tolerance		Hz	±600	±600	±600
2	Carrier Power (Max. Position)	13.2 V	W	3.6~4.4	3.6~4.4	---
		10.8~15.8 V	W	3.5~4.4	3.5~4.4	---
3	Carrier Power (Min. Position)	10.8~15.8 V	W	0.5~1.5	0.5~1.5	---
4	PEP(2 Tone) 10 Wpep +10dB 2 signal 3rd IMD -25dB.	13.2 V	Wpep	---	---	10.2~13.2
		10.8~15.8 V	Wpep	---	---	10~13.2
5	Spurious and Harmonics	41~68 MHz 87.5~134 MHz 162~230 MHz 470~682 MH	dB	-86 Max	-86 Max	-86 Max
		Other Frequency	dB	-72 Max	-72 Max	-72 Max
6	Modulation Frequency Response 1 KHz 0 dB Reference.	450 Hz	dB	0~ -10	0~ -10	0~ -10
		2.5 KHz (AM/SSB) 2 KHz (FM)	dB	0~ -10	0~ -10	0~ -10
7	Unwanted Sideband 2.5 KHz 4 Wpep + 16 dB up single tone		dB	---	---	-40 Max
8	Carrier Supression		dB	---	---	-40 Max
9	Microphone Sensitivity AM 60% FM 1.2 KHz SSB 6 Wpep		mV	2 Max	2 Max	2 Max
10	AMC ALC Range (AM : Ratio of level for 60 % and 100 Mod.) (Ratio of input for 9 Wpep and 14 Wpep)		dB	60 Min	---	60 Min

TRANSMITTER PORTION

No.	ITEM		UNIT	AM	FM	SSB
11	Battery Drain	at No Modulation	mA	2600Max	2600Max	1500Max
		AM/FM Max Modulation SSB Max WPEP	mA	2600Max	2600Max	3000Max
12	AM : 60 % 1 KHz Hum & Noise FM : 1.2 KHz Dev OdB Ref		dB	30 Min	30 Min	---
13	SWR Indicator	1 : 1	--	1.5 Max	1.5 Max	---
		2 : 1	--	1.5-2.5	1.5-2.5	---
14	Modulation Distortion AM : 60 % 1 KHz FM : 1.2 KHz		%	7 Max	7 Max	---
15	Modulated Power 1 KHz 80 % Mod.		Less than 10 % down from Carrier Power			---
16	Adjacent Channel Power 4 W AM/FM 4 Wpep SSB		μ W	400 μ W	400 μ W	20 μ W
17	Maximum FM Deviation 1 KHz 30 mW Mod.		KHz	---	1.7-2.1	---
18	Maximum Modulation 1 KHz 30 mV Mod.		%	85-99	---	---

MEASURING CONDITION:

- * Antenna Impedance : 50 Ω
- * Standard Ref. Mod. : 1 KHz 60 % Mod. (AM), 1 KHz \pm 1.2 KHz (Dev.) FM
: 1 KHz Audio out (SSB)
- * Standard Audio Output : 1 W
- * Standard Audio Load : 8 W
- * DC Power Supply Voltage : 13.2 V
- * 0 dB = 0.5 μ V = 1 μ V EMF
- * Ambient Temperature 25 \pm 3°C

→ All Measuring with CCITT Filter

RECEIVER PORTION

No.	ITEM		UNIT	AM	FM	SSB
1	Sensitivity with CCITT Filter	Maximum	dB	10	---	10
		20 dB SINAD	dB	6	6	0
2	AGC Figure Merit 50 mV for 10 dB change in Audio Output		dB	70 Min	---	70 Min
3	Frequency Response 1 mV input 1 KHz Ref. 6 dB down	Lower	Hz	200-400	200-400	200-400
		Upper	Hz	2000-4000	2000-4000	2000-4000
4	Maximum Audio Output Power		W	2.5 Min	2.5 Min	2.5 Min

RECEIVER PORTION

No.	ITEM		UNIT	AM	FM	SSB
5	Audio Output Power at 10 % THD		W	2.0 Min	2.0 Min	2.0 Min
6	Audio Distortion at 1 W		%	7.0 Max	---	70 Max
7	S/N Ratio at 1 mV input	AM 60 % FM 1.2 KHz 0 dB Ref.	dB	30 Min	30 Min	---
8	RF Gain Control Range		dB	40 Min	40 Min	40 Min
9	Oscillator Dropout Voltage		V	9.5 Min	9.5 Min	9.5 Min
10	Squelch Sensitivity at Threshold		dB	9 Max	9 Max	9 Max
11	Squelch Sensitivity at Tight		dB	60-72	60-72	62-72
12	S - Meter Sensitivity for "9" (No Modulation)		dB	34-46	34-46	34-46
13	Adjacent Channel Selectivity ± 10 KHz 2 Signal Method		dB	60 Min	60 Min	60 Min
14	Intermodulation Distortion 2 Signal Method		dB	60 Min	60 Min	60 Min
15	Image Rejection Ratio Fo ± 2x 10.695 MHz and 455 KHz Fo ± 2x 10.6975	AM/FM SSB	dB	60 Min	60 Min	60 Min
16	IF Rejection 10.695 MHz and 455 KHz 10.6975 MHz or 10.6925 MHz	AM/FM SSB	dB	60 Min	60 Min	60 Min
17	1/2 IF Rejection Fo - 455 KHz x 1/2 Fo + 10.695 MHz	AM/FM AM/FM/SSB	dB	60 Min	60 Min	60 Min
18	Noise Blanker Performance		dB	6 Max	6 Max	6 Max
19	ANL Loss (OdB uV ANT input)		dB	4 Max	---	---
20	Clarifier Range		KHz	±1 ~ ±2	±1 ~ ±2	±1 ~ ±2

RECEIVER PORTION

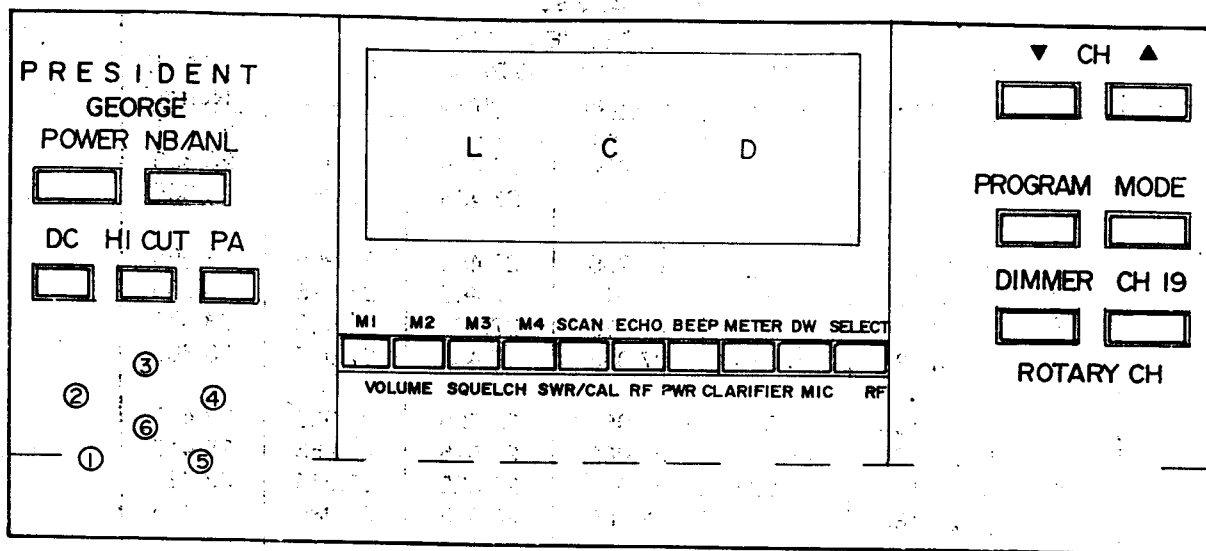
No.	ITEM		UNIT	AM	FM	SSB
21	Battery Drain at No Signal		mA	800 Max	800 Max	800 Max
22	Battery Drain at Maximum AF Power		mA	1300 Max	1300 Max	1300 Max
23	Battery Drain at Power OFF		mA	30 Max	30 Max	30 Max
24	Hi Cut Effect Ref. 1 KHz Hi Cut OFF = OdB	1 KHz Hi Cut On	dB	-1~ -7	-1~ -7	-1~ -7
		3 KHz Hi Cut On		-16~ -25	-16~ -25	-16~ -25
25	Battery Drain at Power OFF		mA	33 Max	33 Max	33 Max
26	Ext. S - Meter Sensitivity (40 dB input 2.2K Resistive, No Mod)		Vdc	0.2~0.8	0.2~0.8	0.2~0.8

PA PORTION

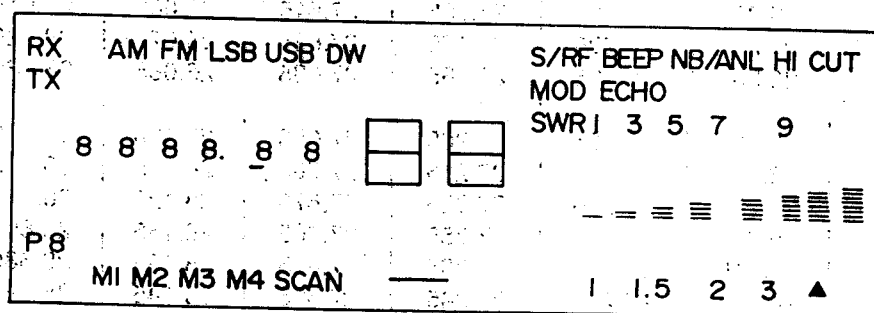
No.	ITEM	UNIT	AM	FM	SSB
1	Output Power at 10 % Distortion (Mic Vol. Max)	W	2.0 Min.		
2	Audio Distortion (Mic Vol. Max)	%	7 Max		

INTERNAL OPTIONAL BAND A TO F
AM/FM/LSB/USB

Channel	ANT. FREQUENCY (MHz)					
	A BAND Normal	B BAND Normal	C BAND Normal	D BAND Normal	E BAND Normal	F BAND Normal
1	26.065	26.515	26.965	27.415	27.865	28.315
2	26.075	26.525	26.975	27.425	27.875	28.325
3	26.085	26.535	26.985	27.435	27.885	28.335
4	26.105	26.555	27.005	27.455	27.905	28.355
5	26.115	26.565	27.015	27.465	27.915	28.365
6	26.125	26.575	27.025	27.475	27.925	28.375
7	26.135	26.585	27.035	27.485	27.935	28.385
8	26.155	26.605	27.055	27.505	27.955	28.405
9	26.165	26.615	27.065	27.515	27.965	28.415
10	26.175	26.625	27.075	27.525	27.975	28.425
11	26.185	26.635	27.085	27.535	27.985	28.435
12	26.205	26.655	27.105	27.555	28.005	28.455
13	26.215	26.665	27.115	27.565	28.015	28.465
14	26.225	26.675	27.125	27.575	28.025	28.475
15	26.235	26.685	27.135	27.585	28.035	28.485
16	26.255	26.705	27.155	27.605	28.055	28.505
17	26.265	26.715	27.765	27.615	28.065	28.515
18	26.275	26.725	27.175	27.625	28.075	28.525
19	26.285	26.735	27.185	27.635	28.085	28.535
20	26.305	26.755	27.205	27.655	28.105	28.555
21	26.315	26.765	27.215	27.665	28.115	28.565
22	26.325	26.775	27.225	27.675	28.125	28.575
23	26.355	26.805	27.255	27.705	28.155	28.605
24	26.335	26.785	27.235	27.685	28.135	28.585
25	26.345	26.795	27.245	27.695	28.145	28.595
26	26.365	26.815	27.265	27.715	28.165	28.615
27	26.375	26.825	27.275	27.725	28.175	28.625
28	26.385	26.835	27.285	27.735	28.185	28.635
29	26.395	26.845	27.295	27.745	28.195	28.645
30	26.405	26.855	27.305	27.755	28.205	28.655
31	26.415	26.865	27.315	27.765	28.215	28.665
32	26.425	26.875	27.325	27.775	28.225	28.675
33	26.435	26.885	27.335	27.785	28.235	28.685
34	26.445	26.895	27.345	27.795	28.245	28.695
35	26.455	26.905	27.355	27.805	28.255	28.705
36	26.465	26.915	27.365	27.815	28.265	28.715
37	26.475	26.925	27.375	27.825	28.275	28.725
38	26.485	26.935	27.385	27.835	28.285	28.735
39	26.495	26.945	27.395	27.845	28.295	28.745
40	26.505	26.955	27.405	27.855	28.305	28.755



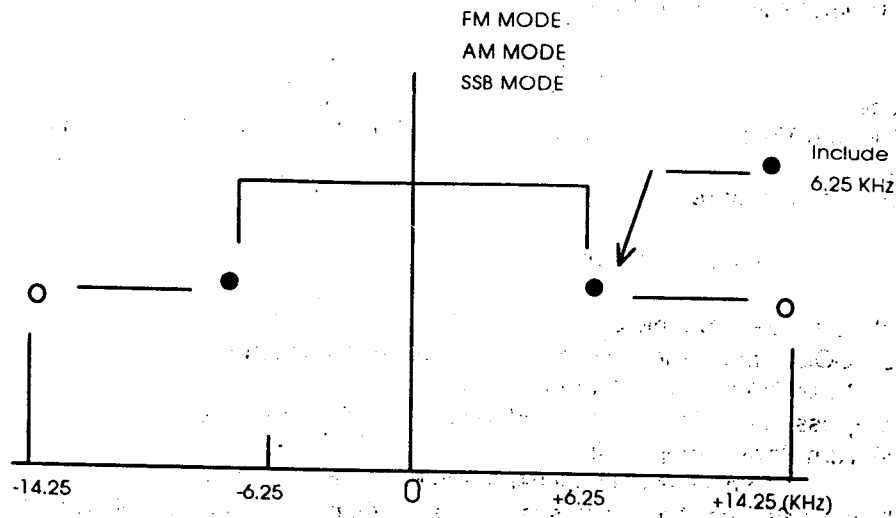
1) LCD



- | | |
|-----------------------|-------------------------------|
| * " 8 8 . 8 8 " | Frequency Indication |
| * " 8 8 " | Channel indication |
| * " P 8 " | Program Indication (P1-P4) |
| * " 8 " | Optional Band Indicator (A-F) |
| * " M1 M2 M3 M4 " | Memory |
| * " RX TX " | RX TX |
| * " AM FM LSB USB " | Mode Selection |
| * " DW " | Dual Watch |
| * " SCAN " | Scan Function |
| * " S/R F MOD SWR ▲ " | Meter Selection |
| * " BEEP " | Beep Switch On |
| * " ECHO " | Echo Switch On |
| * " NB/ANL " | NB/ANL-Switch On |
| * " HI CUT " | Hi Cut Switch On |
| * " | S - Meter Indication 8 Levels |

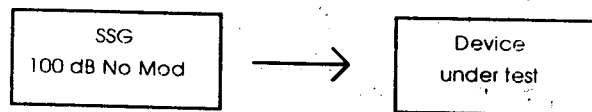
OCCUPIED BANDWIDTH

Total power is less 20 μ W at one side. (6.25 ~ 14.25 KHz)



HOWLING TEST

CONNECTION :



The device should be lied on the table made out of hard wood the speaker directed upward.

TEST METHOD:

1. Set D.U.T. for AM receive mode with volume control at full CW position and clarifier center.
2. Tune signal frequency to exact center frequency of the device under test.
3. Rotate clarifier plus or minus and check if howling is observed.

2. ALIGNMENT PROCEDURE

PLL CARRIER OSCILLATOR PORTION

1. TEST EQUIPMENT REQUIRED

* Power Supply : 13.2 V
* Oscilloscope

* DC Volt Meter
* Frequency counter

2. PREPARATION ALIGNMENT

* Clarifier : Center
* Mode : AM
* RF Power Volume : Clockwise

* PTT : OFF(RX Mod)
* Remove : PB201
* VR205 and VR206 : Center

3. Alignment Procedure

* To Log in the Unit

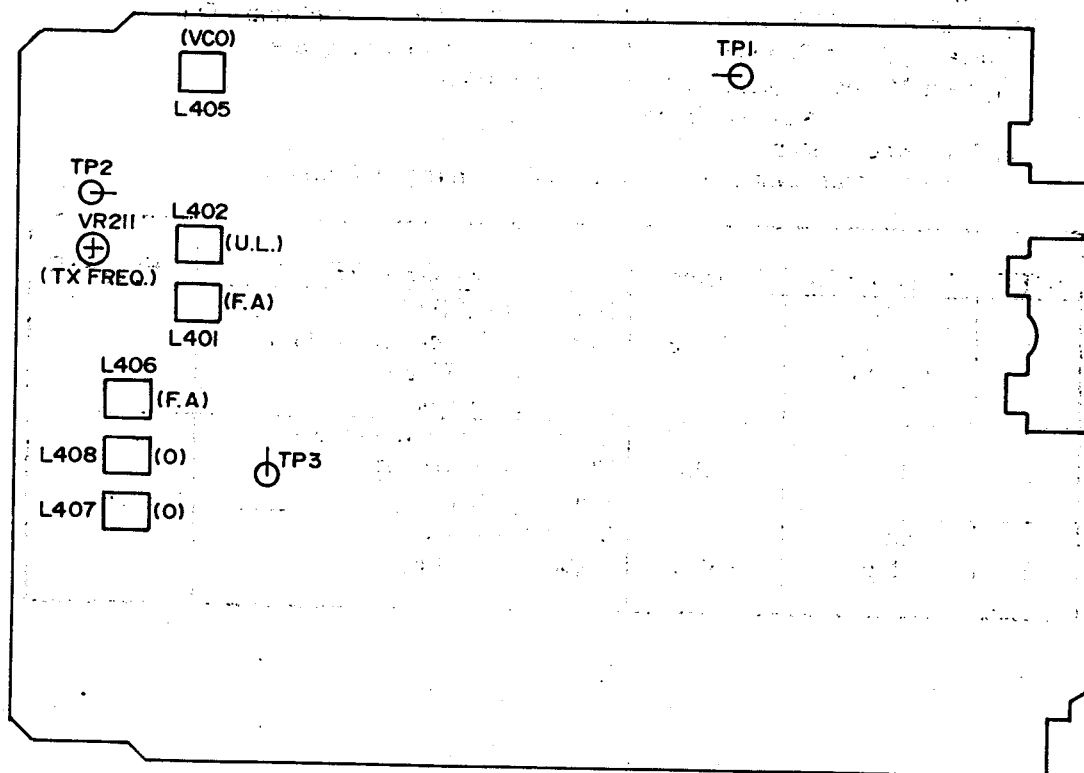
- Turn Power Supply On
- "CODE" message will blink on the LCD for 10 Seconds.
- Press Program key, four (4) times
- Press Power Switch, channel/Frequency will be displayed.
- Turn Power Supply Off
 - * To access optional band A to F (example 12, 13)
- Press PA and Dim switch simultaneously then turn Power Supply On.
(Press PA and DIM switch until "CODE" message disappears.)
- Press M1 switch (light will turn Off) then repeat C to D.

STEP	CONDITION	Adjustment	PROCEDURE	REMARKS
1	RX AM 40 c27.405 MHz	L405	Connect the DC Voltmeter to TP2 Adjust for 2.5 ± 0.1 V	
2	RX AM 1 c26.965 MHz	---	Same as Step 1 More than 2.0 V	
3	RX AM 20 c27.205 MHz	L401	Connect oscilloscope to TP1 Adjust for $37.900 \text{ MHz} \pm 20 \text{ Hz}$	/
4	RX FM 20 c27.205 MHz	CHECK	Same as Step 3 $37.900 \text{ MHz} \pm 20 \text{ Hz}$ Reading	
5	RX FM 20 c27.205 MHz	L402	Same as Step 3 Adjust for $37.8975 \text{ MHz} \pm 20 \text{ Hz}$	
6	RX USB 20 c27.205 MHz	CHECK	Same as Step 3 $37.9025 \text{ MHz} \pm 20 \text{ Hz}$ Reading	

PLL CARRIER OSCILLATOR PORTION

STEP	CONDITION	Adjustment	PROCEDURE	REMARKS
7	TX USB 20 c27.405 MHz	VR211	Same as Step 3 Adjust for 37.9025 MHz \pm 20 Hz	
8	RX USB 20 c27.205 MHz	L408	Connect oscilloscope to TP3 Adjust for 10.6975 MHz \pm 20 Hz	
9	RX LSB 20 c27.205 MHz	L407	Same as Step 8 Adjust for 10.6924 MHz \pm 20 Hz	
10	TX AM 20 c27.205 MHz	L406	Same as Step 8 Adjust for 10.695 MHz \pm 20 MHz	
11	TX FM 20 c27.205 MHz	CHECK	Same as Step 8 10.695 MHz \pm 20 Hz Reading	
12	RX FM 20 c28.755 MHz	CHECK	Same as Step 1 Less than 4.2 V	
13	RX USB 20 c26.065 MHz	CHECK	Same as Step 1 More than 1.2 V	

N. B 1) After completing the above, apply Parrafin wax on L405 and L404.
LOCATION OF ADJUSTMENT (LOCAL)
PB-229 (TOP VIEW)



TRANSMITTER PORTION

1. TEST EQUIPMENT REQUIRED

- * DC Power Supply (13.2 V) more than 10 A
- * AF Oscillator 1 KHz, 400 Hz and 2500 Hz
- * RF VTVM
- * DC Current Meter
- * AF VTVM
- * Test Frequency : 27.205 MHz
- * RF Power Meter
- * FM Linear Detector
- * Dummy Load (50 ohm)
- * Oscilloscope

2. PREPARATION ALIGNMENT

- * VR 208 : Clockwise
- * VR 205 : Middle Position
- * VR 206 : Middle Position
- * VR 207 : Counterclockwise
- * VR 212 : Counterclockwise
- * VR 201, 202, 203 : Counterclockwise
- * Mic Gain Volume : Clockwise
- * Meter SW : RF
- * SWR/CAL Volume : Middle Position
- * RF Power Volume : Clockwise

3. Alignment Procedure

* To Log in the Unit

- a) Turn Power Supply On
- b) "CODE" message will blink on the LCD for 10 Seconds.
- c) Press Program key, four (4) times
- d) Press Power Switch, channel/Frequency will be displayed.
* To access optional band A to F
- e) Turn Power Supply Off
- f) Press PA and Dim switch simultaneously then turn Power Supply On.
(Press PA and DIM switch until "CODE" message disappears.)
- g) Press M1 switch (light will turn Off) then repeat C to D.
* To access standard band
- h) The same as step E and F
- i) Press Program switch (light will turn Off) then repeat C and D.

STEP	CONDITION	Adjustment	PROCEDURE	REMARKS
1	LSB 19 No Mod.	VR203	Remove the PB201 Connect a DC current meter (+) to TP 202 (-) to TP 203 Adjust for 330 mA	
2	Ditto	VR201	Connect a DC current meter (+) to TP 202 (-) to TP 201 Adjust for 85 mA	
3	Same as Step 1	VR202	Same as Step 2 Adjust for 170 mA	

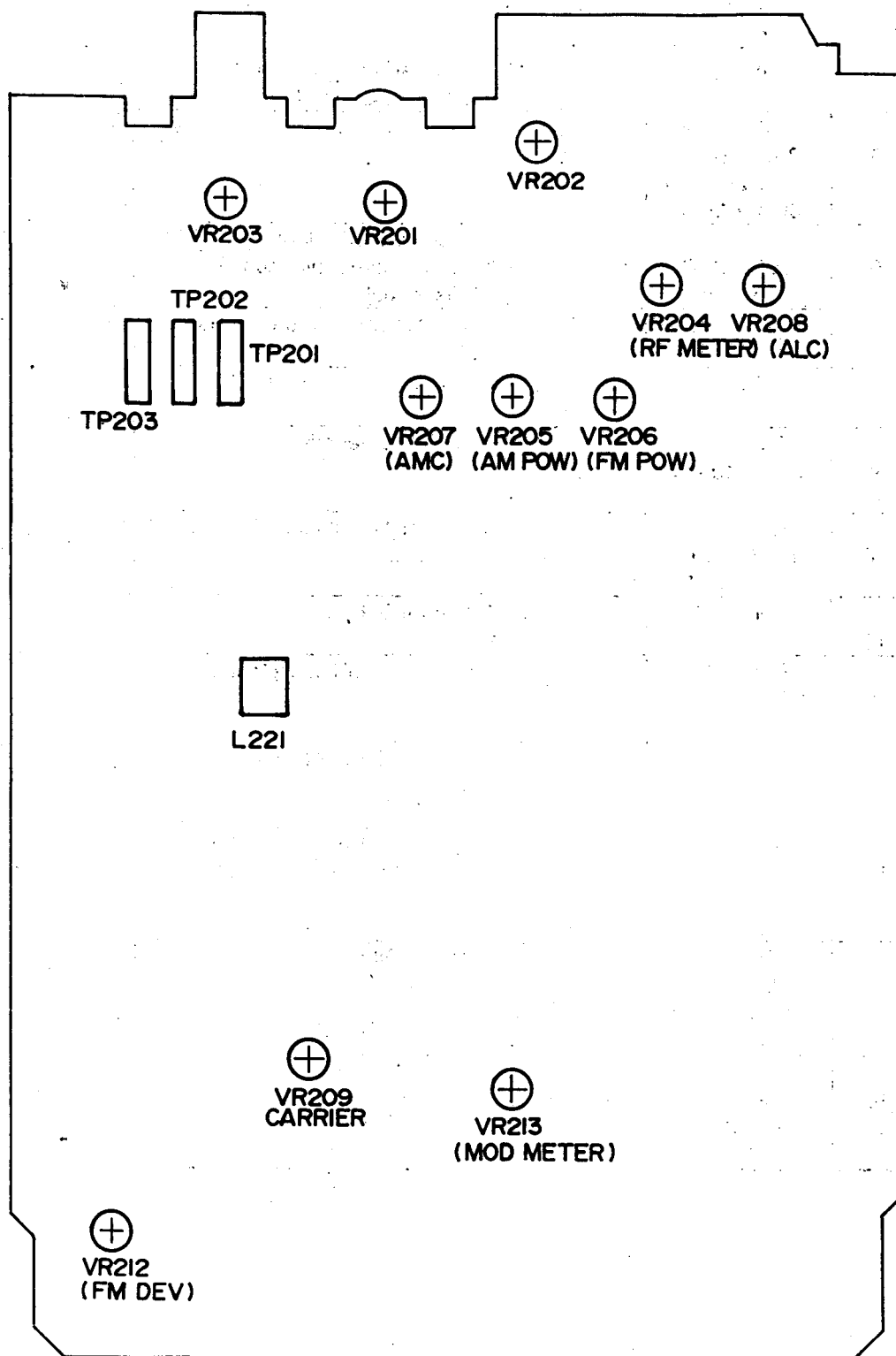
cont. TRANSMITTER PORTION

3. Alignment Procedure

STEP	CONDITION	Adjustment	PROCEDURE	REMARKS
4	LSB 19 Two - Tone 400 & 2500 Hz 1 mV Mod.	L221	Re-install the PB201 Adjust for maximum on the RF VTVM Set the AF oscillator, so that the output is less than 32v.	
5	LSB 19 Two - Tone 400 & 2500 Hz 30 mV Mod.	VR208	Adjust for 25V on the RF VTVM	
6	19 LSB / USB No Mod.	VR209	Adjust the carrier leakage at LSB & USB become minimum & almost equal.	
7	AM 19 No Mod.	VR205	Adjust for 3.9W on the Watts Meter.	
8	Ditto (RF Meter)	VR204	Adjust for RF Meter at "9" just light on.	
9	AM 19 1 KHz 30 mV Mod.	VR207	Adjust 90% negative.	
10	AM 19 1 KHz 3 mV Mod.	VR213	Adjust for Modulation Meter at "9" just light on.	
11	FM 19 No Mod.	---	Adjust for 3.9W on the Watts Meter.	
12	FM 19 1 KHz 30 mV Mod.		Adjust for ± 1.9 KHz Deviation	
13	AM 19 c27.185 MHz No Mod.	CHECK	More than 10 Watts for Watts Meter.	
14	AM 19 c27.185 MHz 1 KHz 30mV Mod.	CHECK	More than 10 Watts for Watts Meter and over 60% modulation.	
15	AM 19 f28.353 1 KHz 30 mV Mod.	CHECK	Same as Ditto	
16	AM 19 a26.285 1 KHz 30 mV Mod.	CHECK	Same as Ditto	

LOCATION OF ADJUSTMENT(TX)

PB-229 (TOP VIEW)



RECEIVER PORTION

1. TEST EQUIPMENT REQUIRED

- * SSG 27.205 MHz (1 KHz 60%, 1 KHz 1.2 KHz deviation, 50 ohm)
- * Oscilloscope
- * DC Power Supply (13.2 V)
- * Dummy Load (8 ohm)
- * SINAD Meter
- * CCITT

2. PREPARATION ALIGNMENT

- * NB/ANL : OFF
- * HI CUT : OFF
- * SQUELCH : CCW
- * Volume : Clockwise
- * RF Gain Volume : Clockwise
- * Clarifier : Center

3. Alignment Procedure

* To Log in the Unit

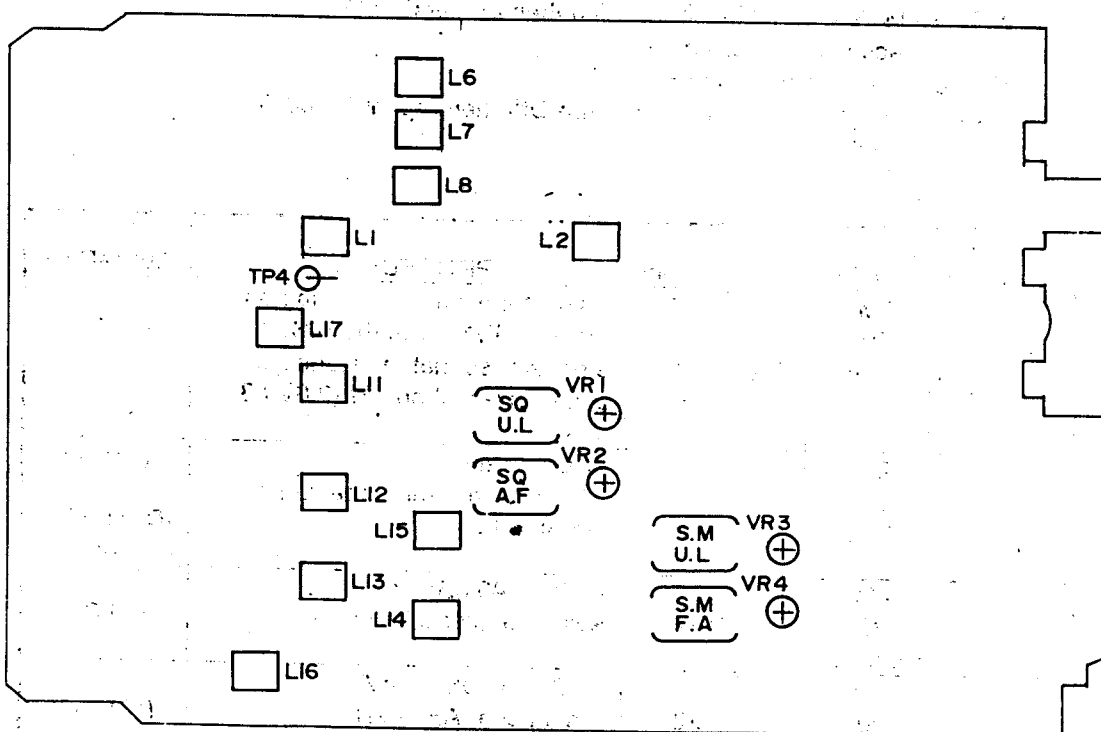
- a) Turn Power Supply On
- b) "CODE" message will blink on the LCD for 10 Seconds.
- c) Press Program key, four (4) times
- d) Press Power Switch, channel/Frequency will be displayed.
* To access optional band A to F
- e) Turn Power Supply Off
- f) Press PA and Dim switch simultaneously then turn Power Supply On.
(Press PA and DIM switch until "CODE" message disappears.)
- g) Press M1 switch (light will turn Off) then repeat C to D.
* To access standard band
- h) The same as step E and F
- i) Press Program switch (light will turn Off) then repeat C and D.

STEP	CONDITION	Adjustment	PROCEDURE	REMARKS
1	AM 20 (60% Mod.)	L17, L2, L6, L7, L11, L12, L13	Adjust for maximum reading on the AF VTVM. (Set the S.S.G. attenuator so that the standard output is less than 1W (2.8V / 8 ohm)	(AM S-9)
2	AM 20 (1.2 KH Dev.)	L16	SSG : 0dB Adjust for maximum reading on the AF VTVM	(FM AF out) (Discriminator)
3	AM 20 (No Mod.)	VR4	SSG : 40 dB (50μV) Adjust "9" just light on	(AM S-9)
4	AM 20 (No Mod.)	VR2	SSG : 66dB (1mV) Just appear AF Level	(AM SQ)

cont. RECEIVER PORTION
3. Alignment Procedure

STEP	CONDITION	Adjustment	PROCEDURE	REMARKS
5	USB (No Mod.)	L15, L14	Same as 1.	(SSB Sens)
6	Ditto	VR3	SSG : 40 dB (50 μ V) Adjust "9" Just light on.	(SSB S-9)
7	Ditto	VR1	SSG : 66 dB (1 mV) Just appear AF level	(SSB SQ)
8	Ditto	L1	Set oscilloscope to DC range and adjust to reach max. reading. Set the SSG 21CH & SSG level below 30 dB.	(NB ADJ)
9	AM 1 a26.065 MHz 60% Mod.	CHECK	SSG : 10 dB More than 20 dB SINAD.	Sens.
10	AM 40 f28.755 MHz 60% Mod.	CHECK	SSG : 10 dB More than 20 dB SINAD.	Sens.

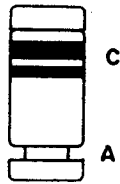
LOCATION OF ADJUSTMENT (RX)
PB-229 (TOP VIEW)



3. SEMICONDUCTOR LEAD IDENTIFICATION

DIODES

RLS4148
RLS135



HSK120



HZK5C
HZK11B



MA 728



1SV200-12



MC-301



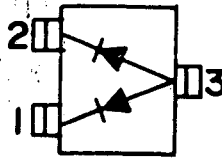
IN5401



IN4148

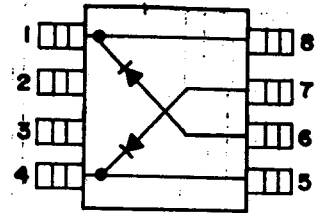


HSM88WA
1SS181



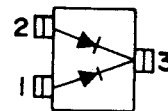
1. ANODE
2. ANODE
3. CATHODE

ND434G-E2



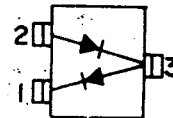
1. ANODE & CATHODE
2. NC
3. NC
4. ANODE & CATHODE
5. CATHODE
6. ANODE
7. ANODE
8. CATHODE

1SS184
KV1430
DAN235K



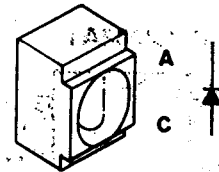
1. CATHODE
2. CATHODE
3. ANODE

HSM88AS
1SS226
MA716



1. CATHODE 1
2. ANODE 2
3. ANODE 2 /
CATHODE 2

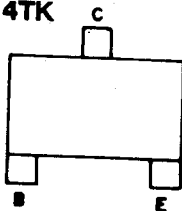
CL140D-CD-T
CL140YG-X-T



A : ANODE
C : CATHODE

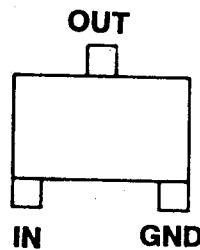
TRANSISTORS

2SC2812L
2SC2814
2SD1048
DTA114TK

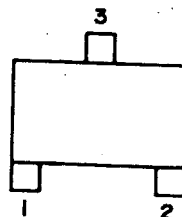


B : BASE
E : EMITTER
C : COLLECTOR

DTA144EK
DTA143XK
DTC114EK



2SK323



2SC3242A-E



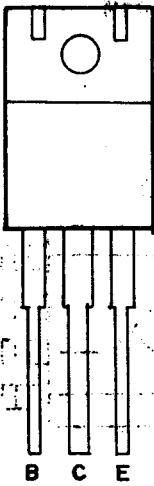
A : VOUT
B : GND
C : VIN

1. SOURCE
2. DRAIN
3. GATE

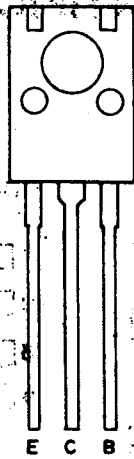
2SC1674-L



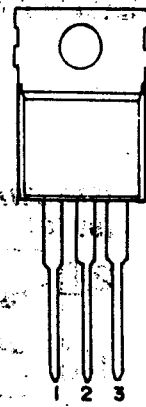
2SB1133



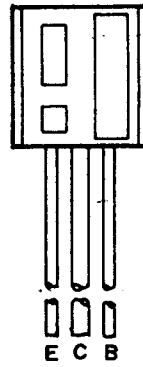
2SB1143



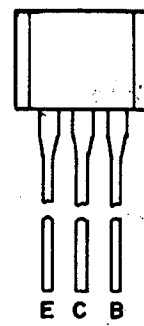
2SC1969B



2SC1973



2SC1675-L



B: BASE

E: EMITTER

C: COLLECTOR

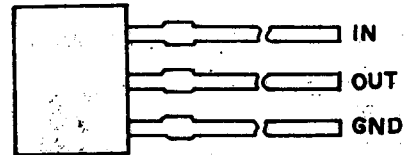
1. BASE

2. EMITTER

3. COLLECTOR

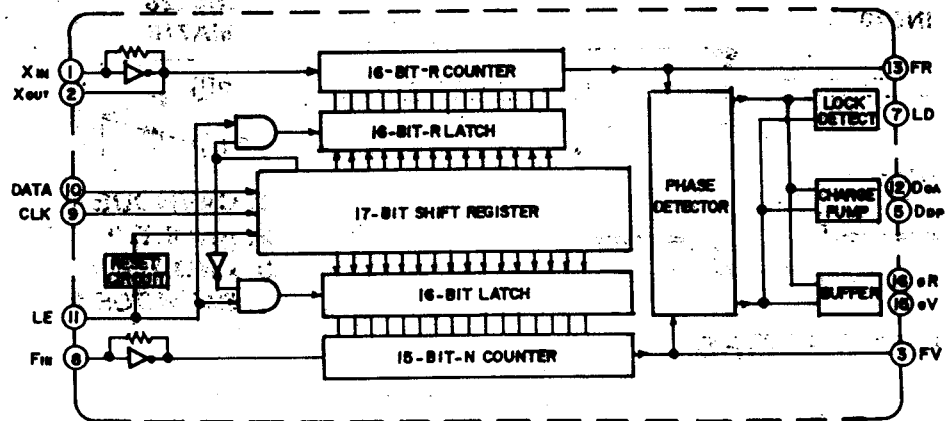
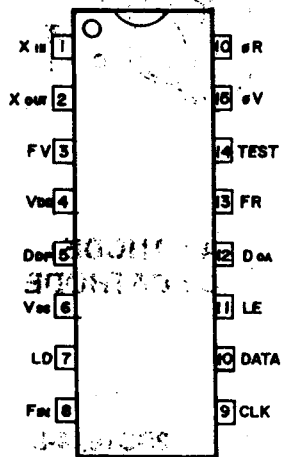
4. FIN(COLLECTOR)

2SD1667

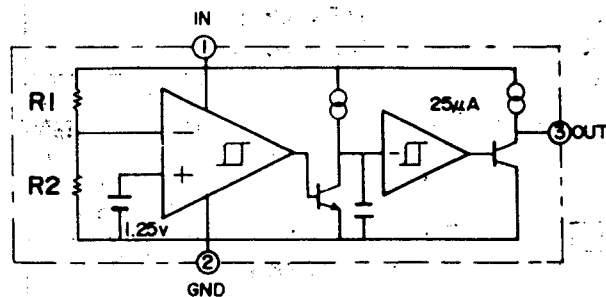
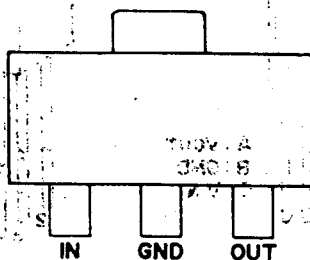


4. IC INTERNAL DIAGRAM

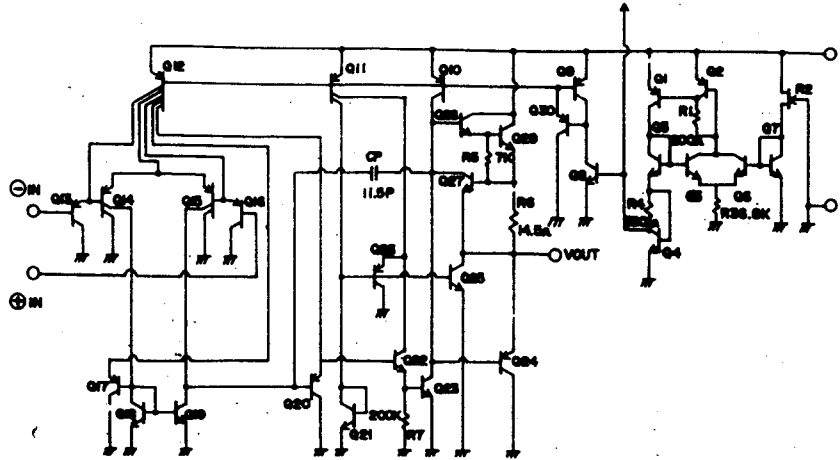
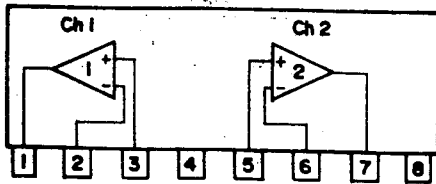
PLL2002A1



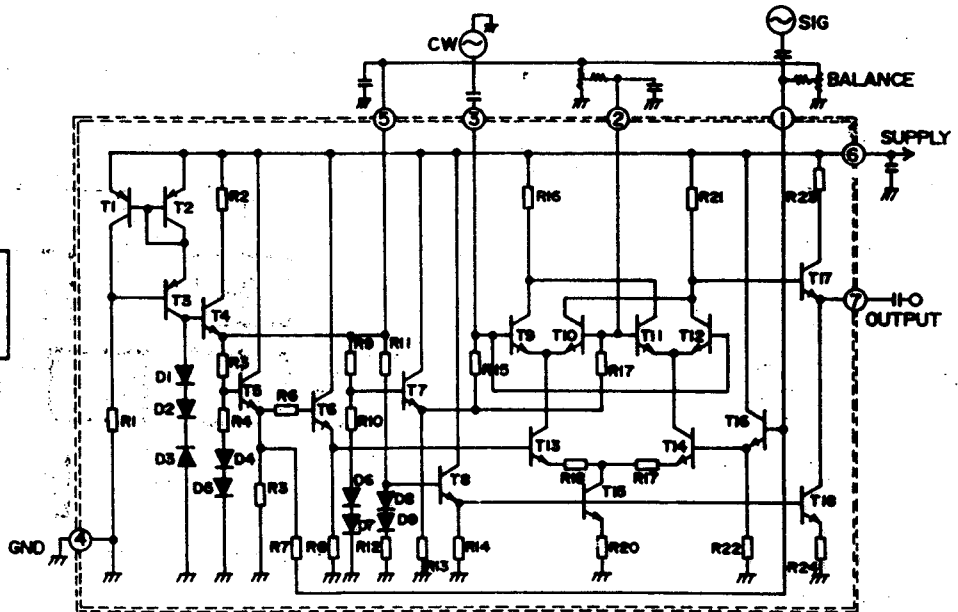
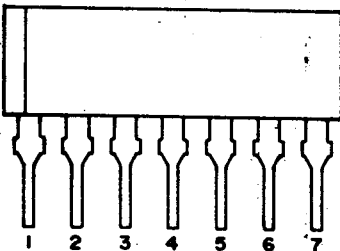
M51951AML



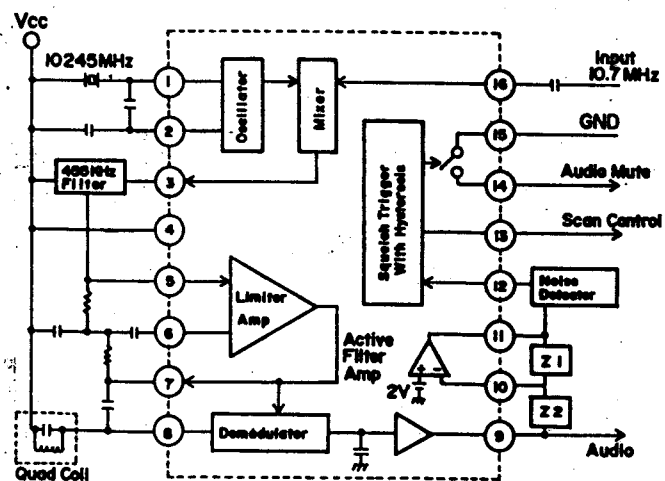
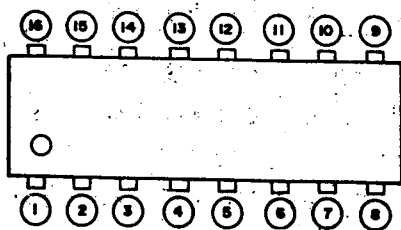
M5223L



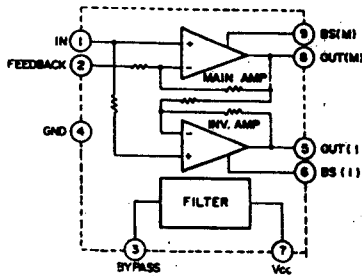
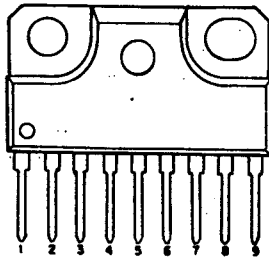
AN612



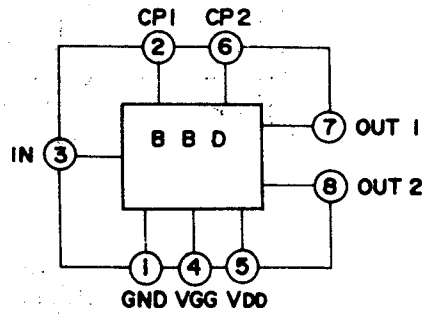
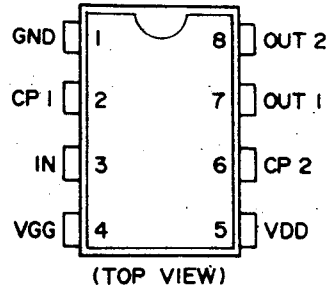
IR3NO6



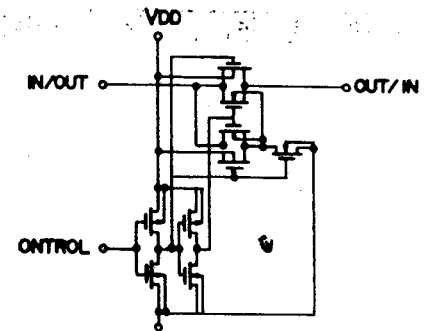
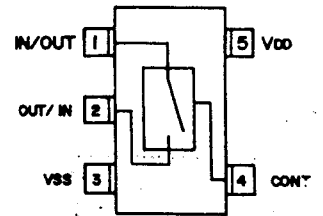
MB3735PS



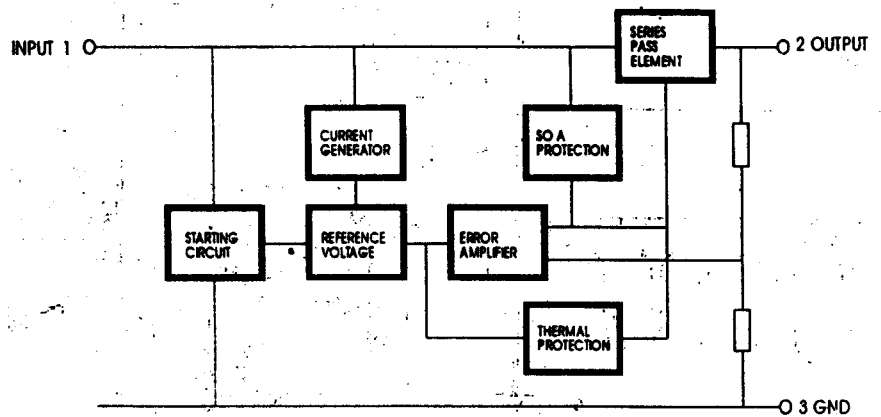
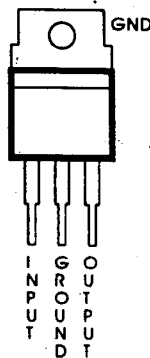
MN3207



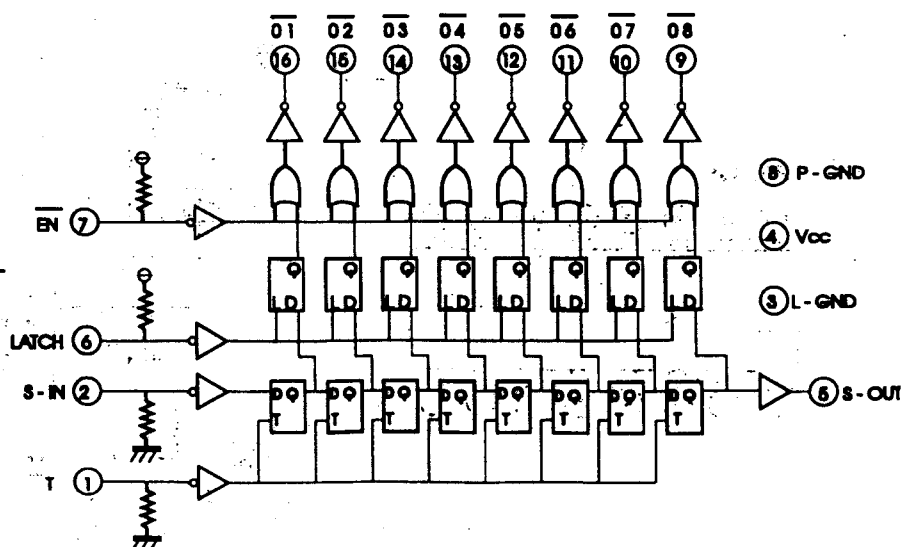
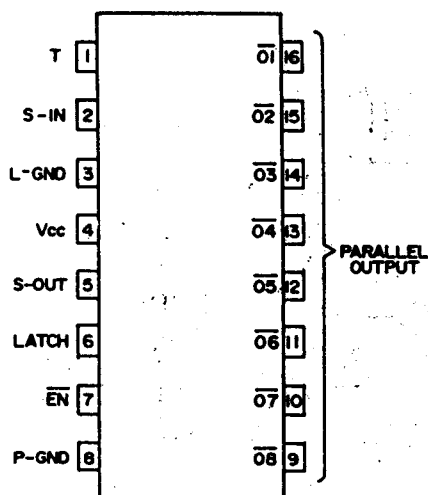
TC4S66F



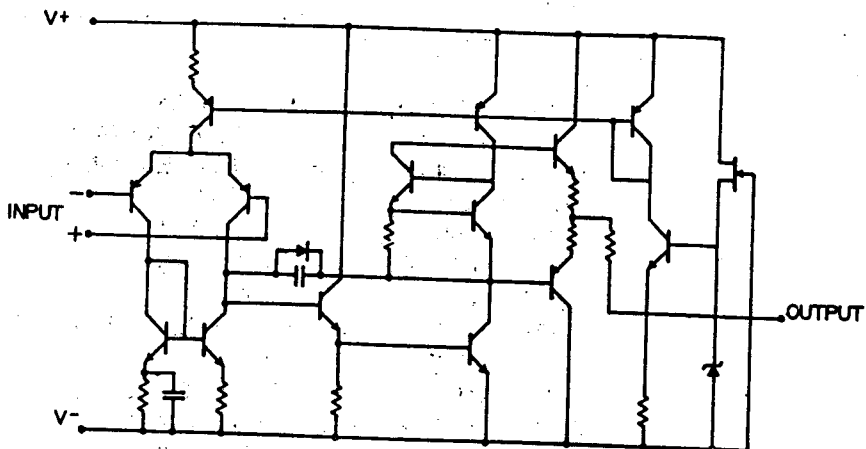
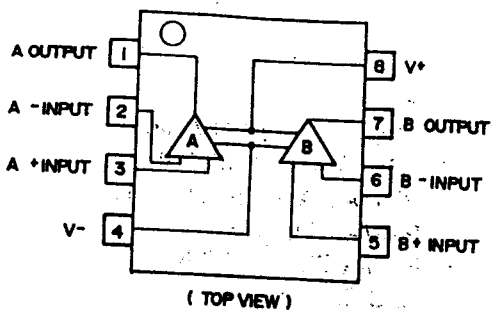
L7808CV



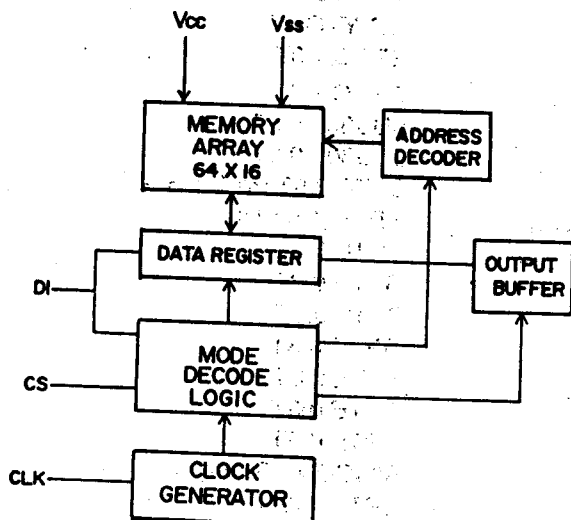
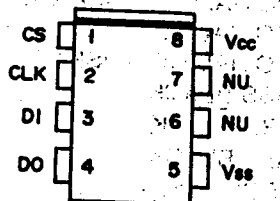
M54495FP



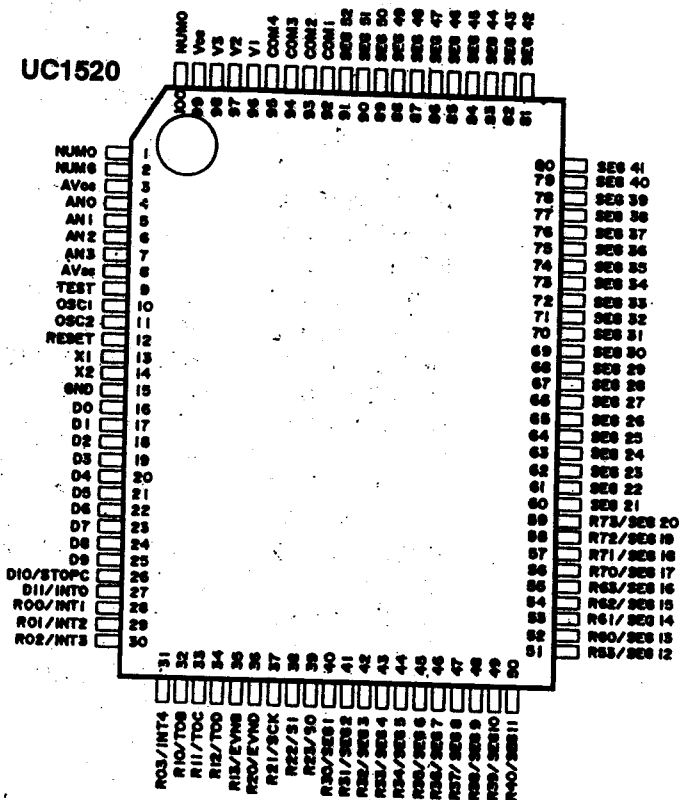
NJM4558D



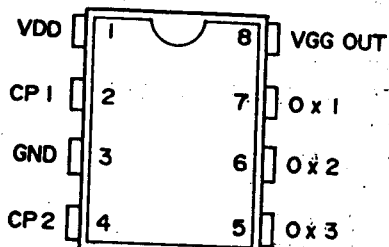
93C46T/SN



UC1520

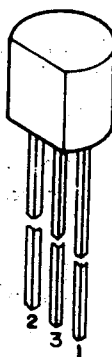


MN3102

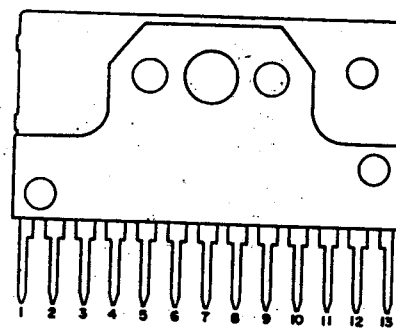


μPC78L05J

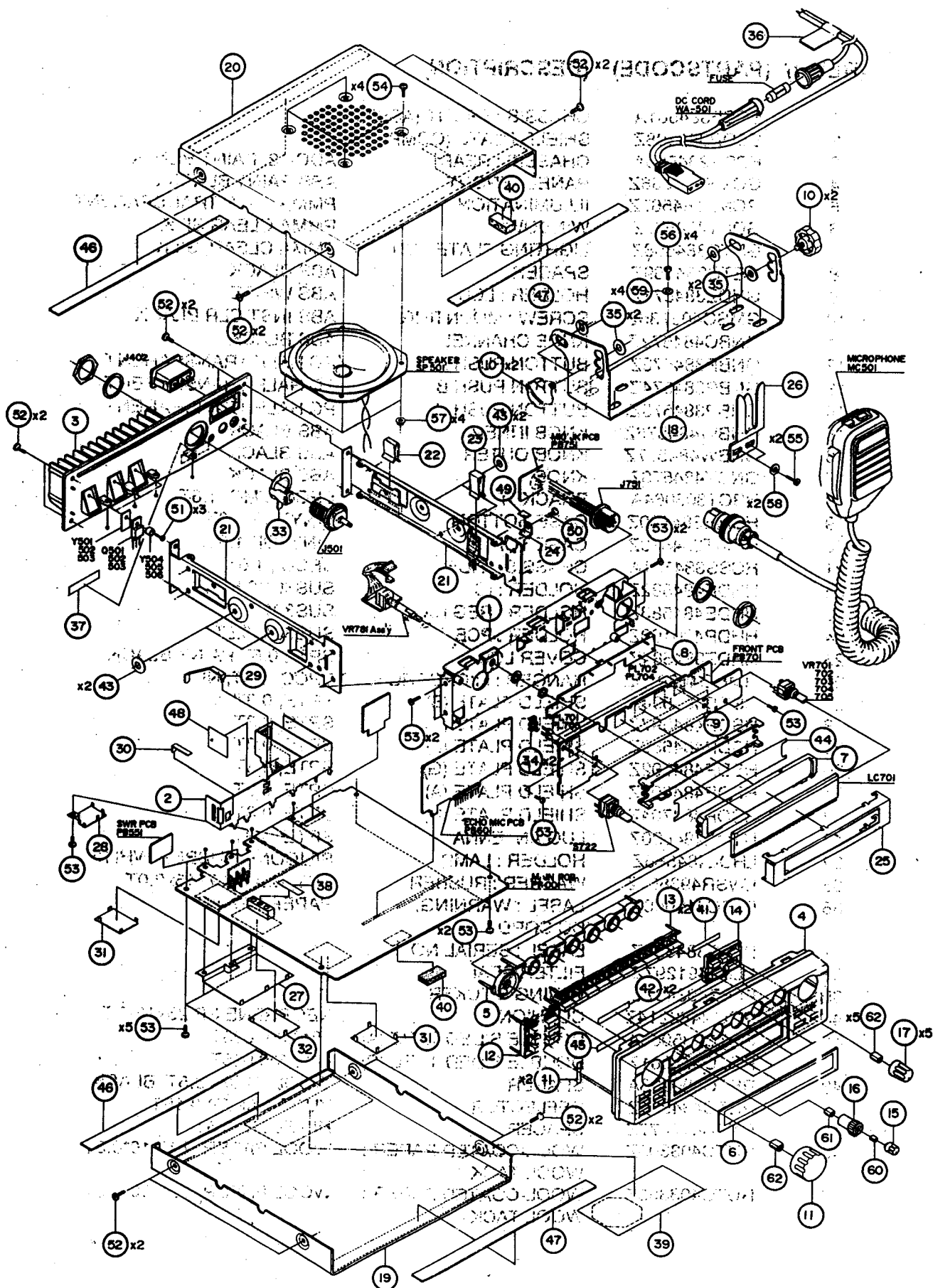
1. GND
2. IN
3. OUT



LA4485-T



6. EXPLODED VIEW & MECHANICAL PARTS LIST



MECHANICAL PARTS LIST

(REF #) (PARTCODE) (DESCRIPTION)

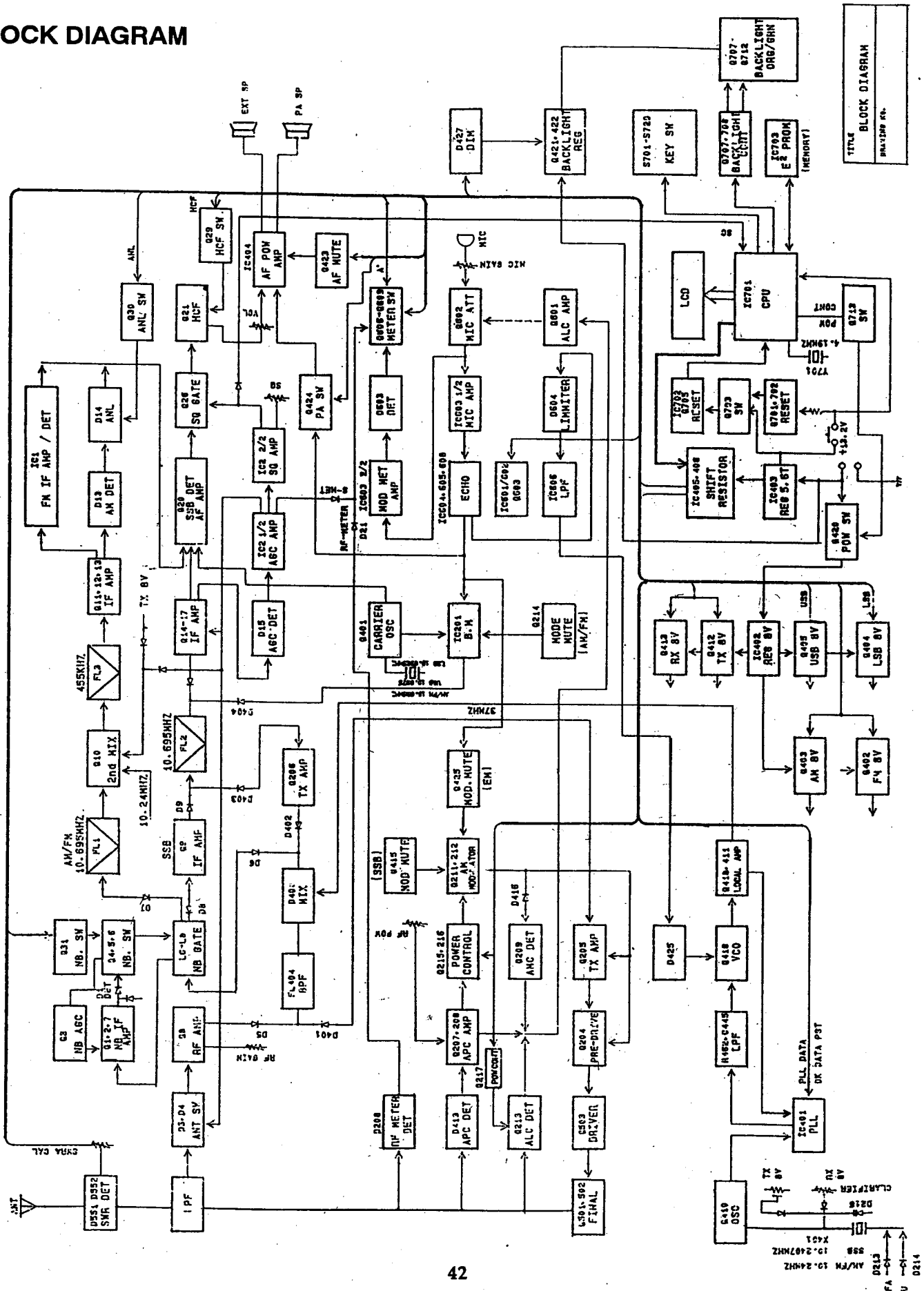
1	ECSF384561A	CHASSIS : FRONT (ASS'Y)	
2	ESDP384598Z	SHIELD PLATE (COMP.)	
3	FCSR284565A	CHASSIS : REAR	ADC-12, PAINT BLACK
4	GCMF184566Z	PANEL : FRONT	ABS PAINT BLACK SILK
5	GCMZ384567Z	ILLUMINATION	PMMA HALF TRANSPARENT
6	GDPT484570Z	WINDOW	PMMA CLEAR SILK
7	GETC384568Z	LIGHTING PLATE LCD	PMMA CLEAR, SILK
8	GETC384569Z	SPACER	ABS BLACK
9	GHDZ384571Z	HOLDER : LCD	ABS WHITE
10	GMSC405736Z	SCREW : MOUNTING	ABS INST CLR BLACK
11	GNBC484572Z	KNOB CHANNEL	ABS BLACK
12	GNBP384573Z	BUTTON PUSH A	PC HALF TRANSPARENT
13	GNBP384574Z	BUTTON PUSH B	PC HALF TRANSPARENT
14	GNBP384575Z	BUTTON PUSH C	PC HALF TRANSPARENT
15	GNBW484576Z	KNOB INNER	ABS BLACK
16	GNBW484577Z	KNOB OUTER	ABS BLACK
17	GNBY484578Z	KNOB	ABS BLACK
18	HBCT306064A	BRACKET	SPCC, ZMC, 1.6T
19	HOMB384580Z	CASE BOTTOM	VINYTOP 1.0T
20	HCMT384579Z	CASE TOP	VINYTOP 1.0T
21	HCSS384581A	CHASSIS : SIDE	SECC, 1.0T
22	HHDE484582Z	HOLDER : IC	SUS301 0.5T
23	HHDE484583Z	HOLDER : REG IC	SUS301 0.5T
24	HHDP430169Z	HOLDER : PCB	SUS304, 0.5T
25	HHDZ384584Z	COVER LCD	SPTE 0.5T PAINT BLACK
26	HMHG402919Z	HANGER : MICROPHONE	SPCC, 1.0T, NI
27	HSDP484596Z	SHIELD PLATE (B)	SPTE, 0.3T
28	HSDP484597Z	SHIELD PLATE (C)	SPTE, 0.3T
29	HSDP484689Z	SHIELD PLATE (F)	SPTE, 0.3T
30	HSDP484702Z	SHIELD PLATE (G)	SPTE, 0.3T
31	HSDP484703Z	SHIELD PLATE (A)	SPTE, 0.3T
32	HSDP484704Z	SHIELD PLATE (H)	SPTE, 0.3T
33	HTML484690Z	LUG ANTENNA	SPTE, 0.3T
34	LHDL484585Z	HOLDER : LAMP	SILICONE RUBBER WHITE
35	LWSR493891Z	WASHER : RUBBER	EPT, BLACK 7x15x2.0T
36	PLBC419000Z	LABEL : WARNING, DC CORD	PAPER, PRINT
37	PLBS384593Z	LABEL : SERIAL NO.	
38	PLBZ491297Z	FILTER SEAL	
39	PLBZ493437Z	WIRING STICKER	
40	RCUN482214Z	CUSHION	NEOPRENE SP 25x15x7T
41	RETC435080A	DOUBLE SIDED TAPE (A)	18*2.0*0.025T
42	RETC435081Z	DOUBLE SIDED TAPE (B)	44*2.5*0.025T
43	RETC490493A	SPACER	WOOL TACK, 0.5T, BLACK
44	RETC484586Z	REFLECTOR	YUPO PAPER 0.15T
45	RNTH417077Z	SPACER	HIMELON, 0.5T
46	RUTC403305Z	WOOL-COATED PAPER :	WOOL PAPER, 100*10*0.3T
		WOOL TACK	
47	RUTC403865Z	WOOL-COATED PAPER :	WOOL PAPER, 10*150*0.3T
		WOOL TACK	

(REF #) (PARTSCODE) (DESCRIPTION)

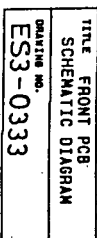
48	RZEB415633Z	INSULATION PLATE	PVC, 0.3T
49	RZEB416158Z	INSULATION PLATE	MYLAR 0.1T
50	SSCW133006N	SCREW : FLAT HD +	M3x6 NI
51	SSCW192010N	SCREW : BIND HD +	M2x10 NI
52	SSCW193006B	SCREW : BIND HD +	M3x6 NI
53	SSCW193006N	SCREW : BIND HD +	M3x6 NI
54	SSCW193008B	SCREW : BIND HD +	M3x8 BNI
55	SSCW293508N	SCREW : TAPPING ROUND	D3.5x8 NI
		HD +	
56	SSCW295010N	SCREW : TAPPING ROUND	D5x10 NI
		HD +	
57	SSCW480030Z	NUT : FLANGE	M3 ZMC
58	SSCW530035N	WASHER : LOCK	D3.5 NI
59	SSCW540050N	WASHER : STAR	D5 NI
60	TSTD0200001	SPRING PLATE : KNOB	D3.5
61	TSTD0200002	SPRING PLATE : KNOB	D6
62	TSTD0200006	SPRING PLATE : KNOB	D6

(Ref. No. in this Mechanical Parts List corresponds with the no. in Exploded View)

BLOCK DIAGRAM



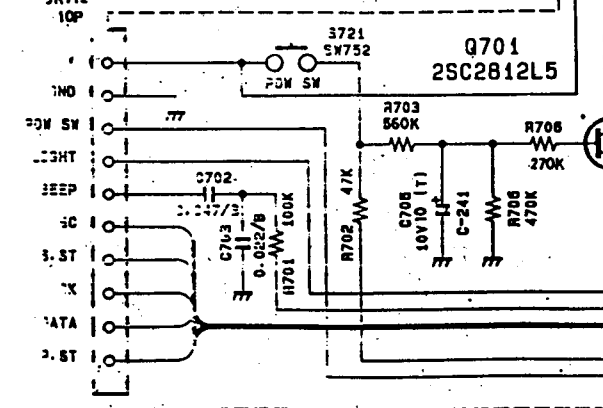
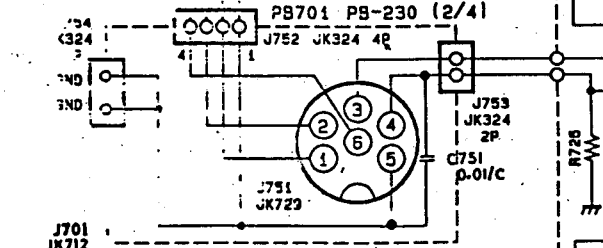
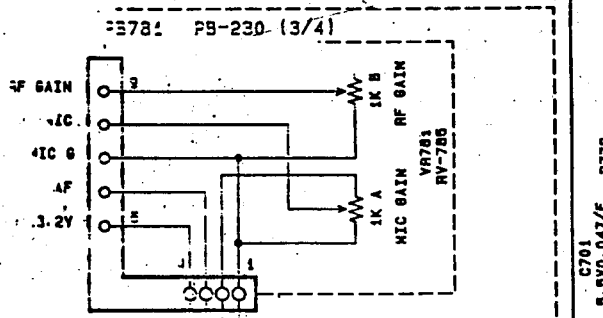
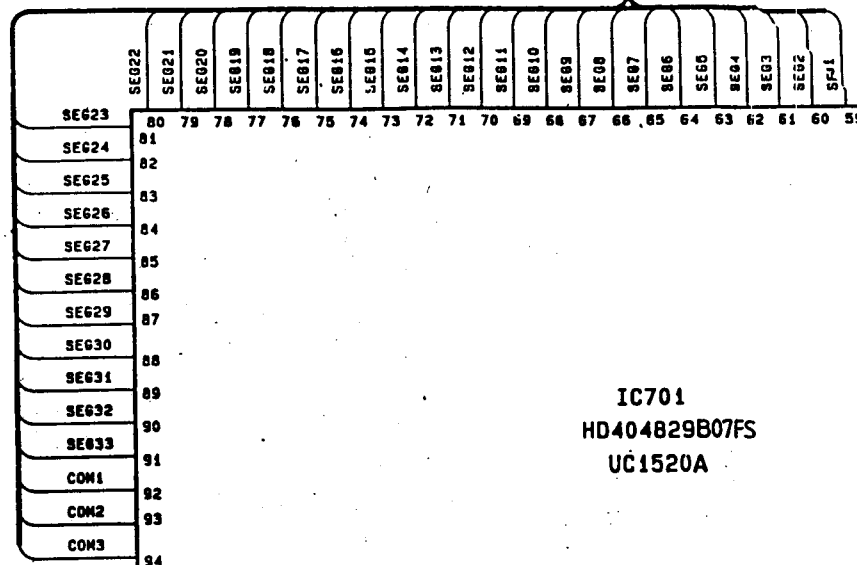
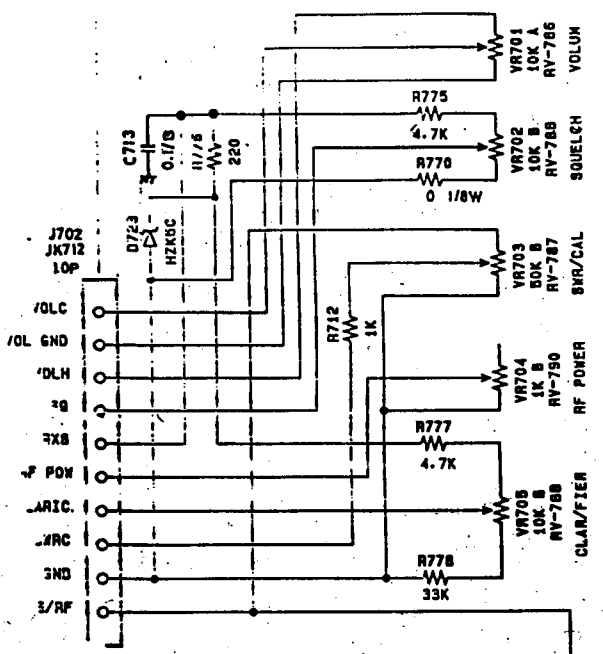
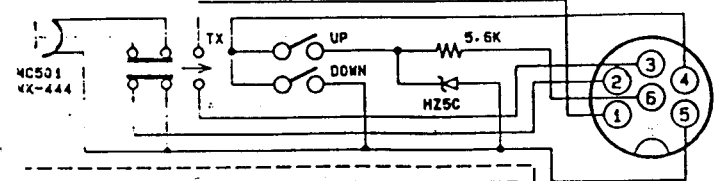
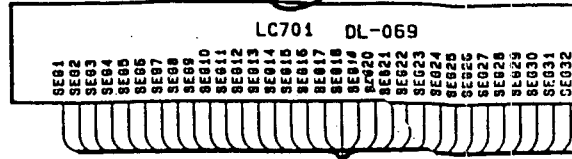
PB701 PB-230 11/4

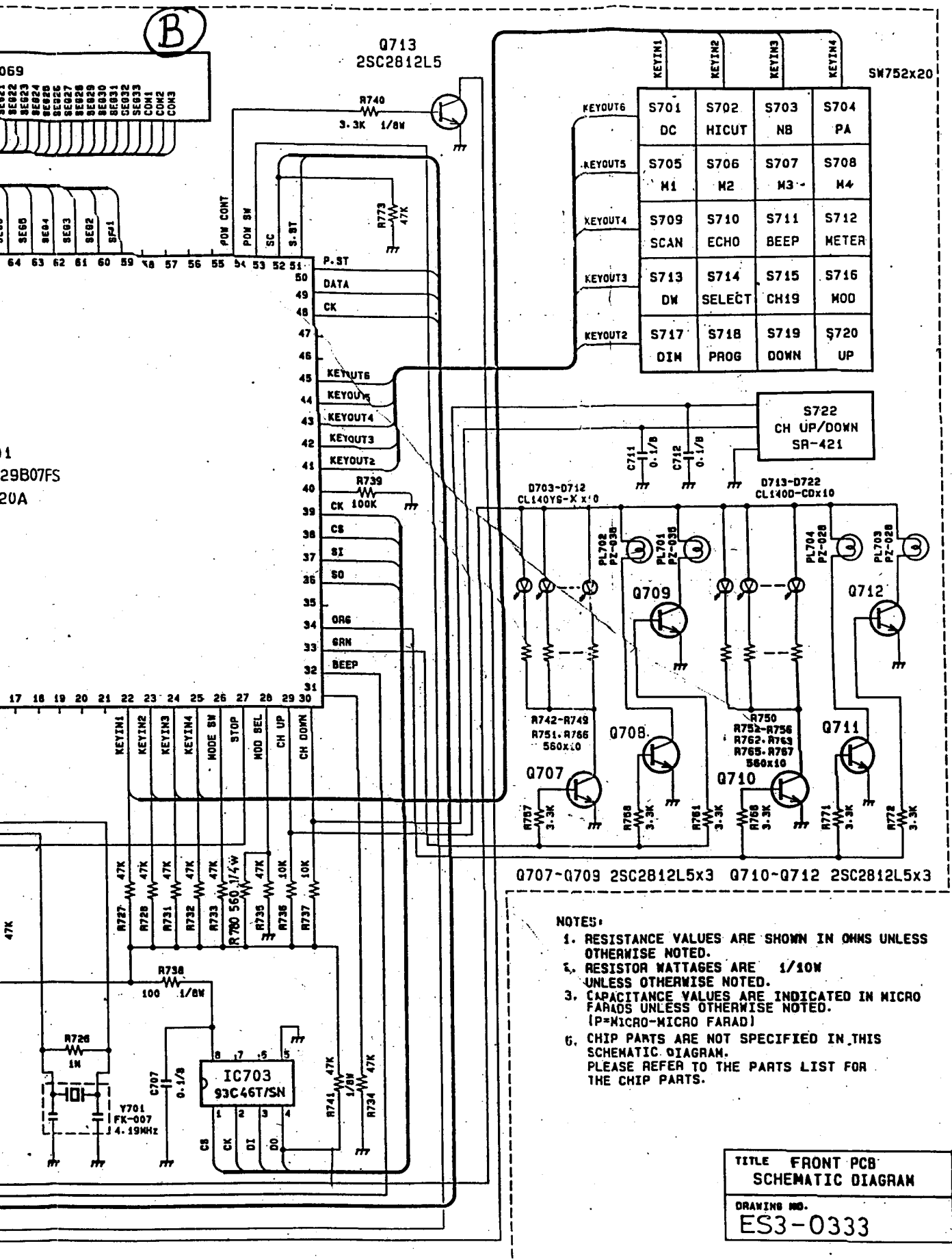


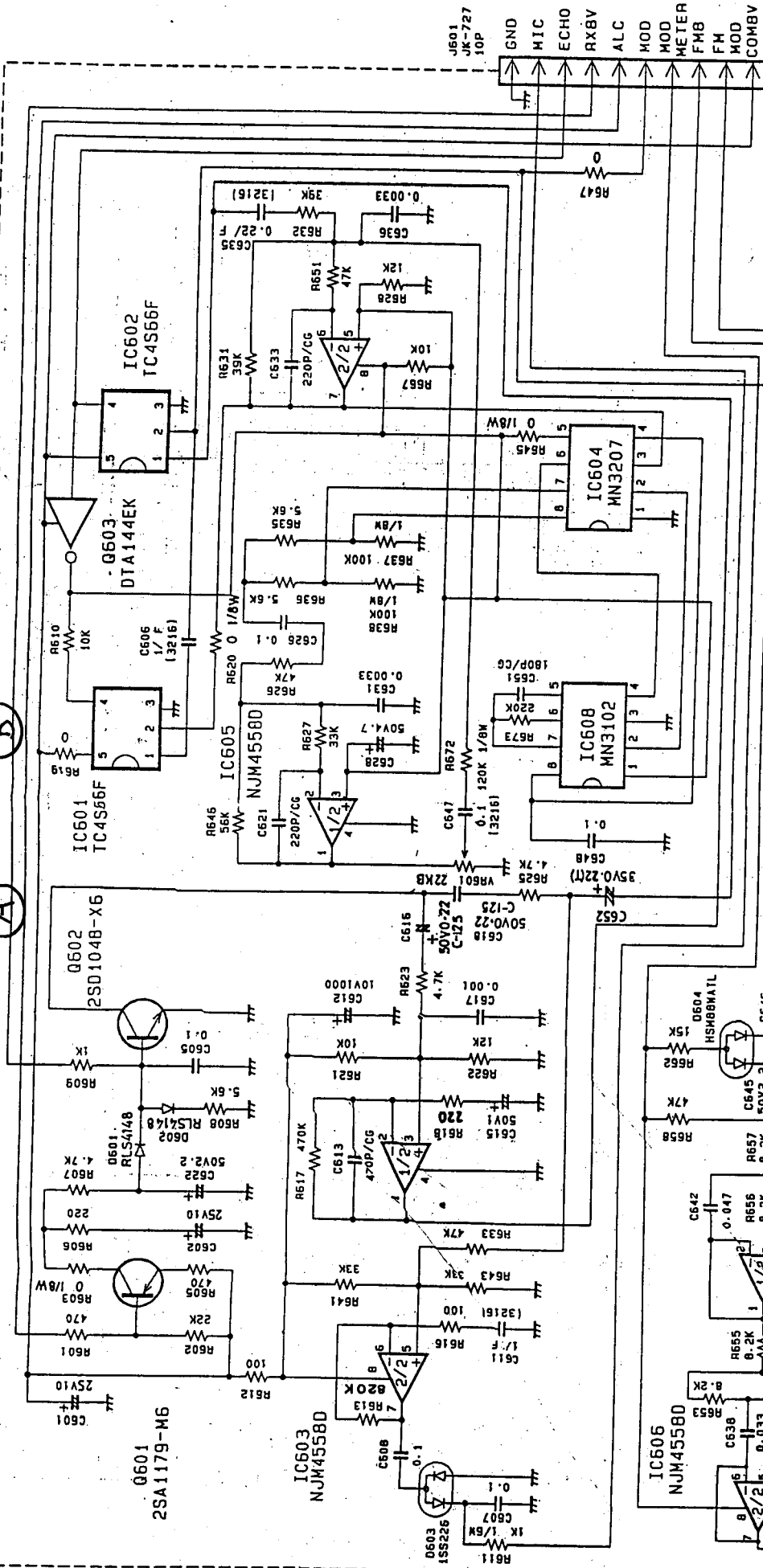
SCHEMATIC DIAGRAM

PB701 PB-230 (1/4)

(A)







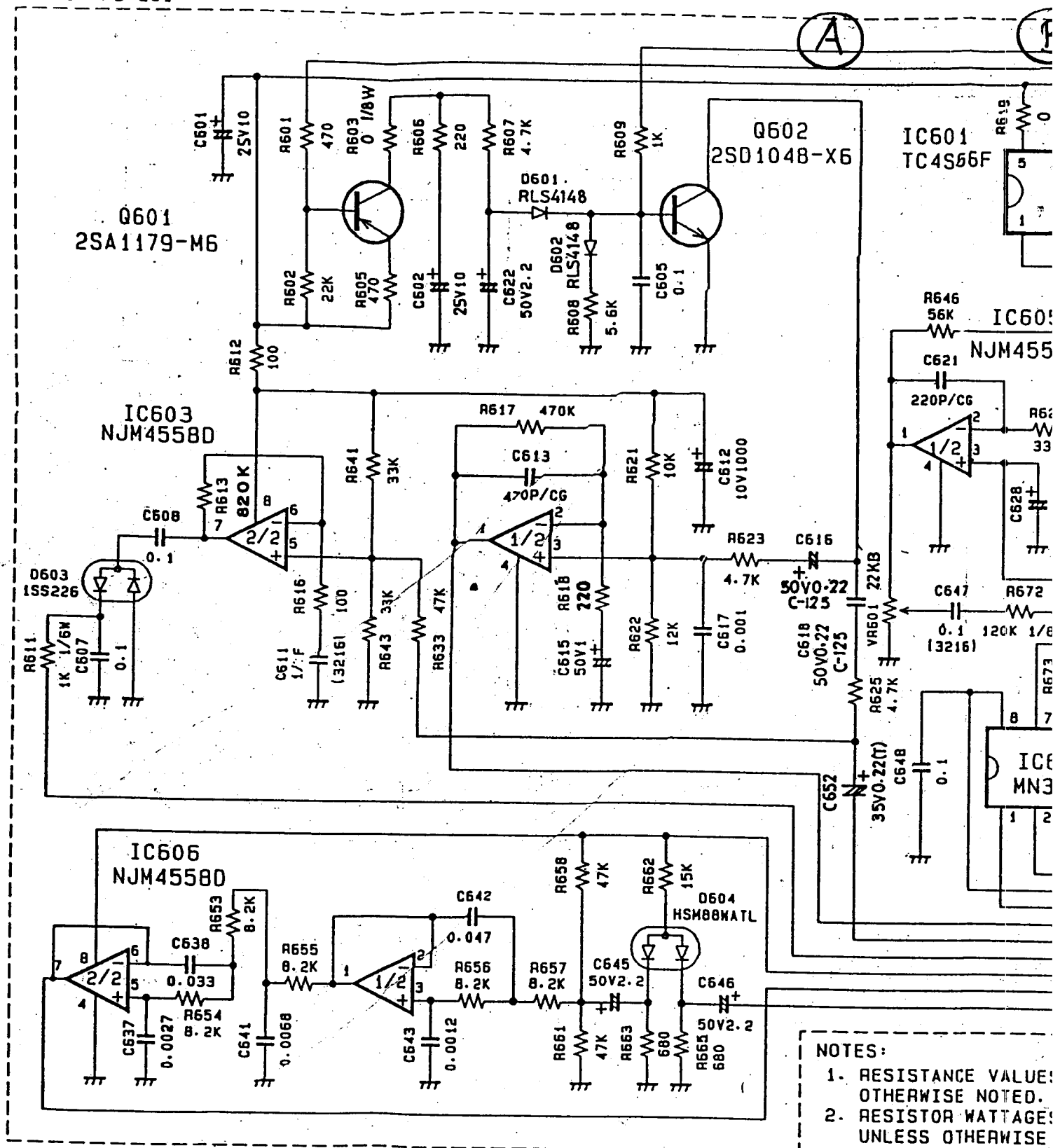
NOTES:

1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED.
2. RESISTOR WATTAGES ARE 1/10W
3. UNLESS OTHERWISE NOTED, CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED. (P=PICO-MICRO FARAD)
4. ALL CAPACITORS TEMPERATURE CHARACTERISTICS ARE B UNLESS OTHERWISE NOTED.
5. CHIP PARTS ARE NOT SPECIFIED IN THIS SCHEMATIC DIAGRAM. PLEASE REFER TO THE PARTS LIST FOR THE CHIP PARTS.

TITLE ECHO MIC PCB
SCHEMATIC DIAGRAM

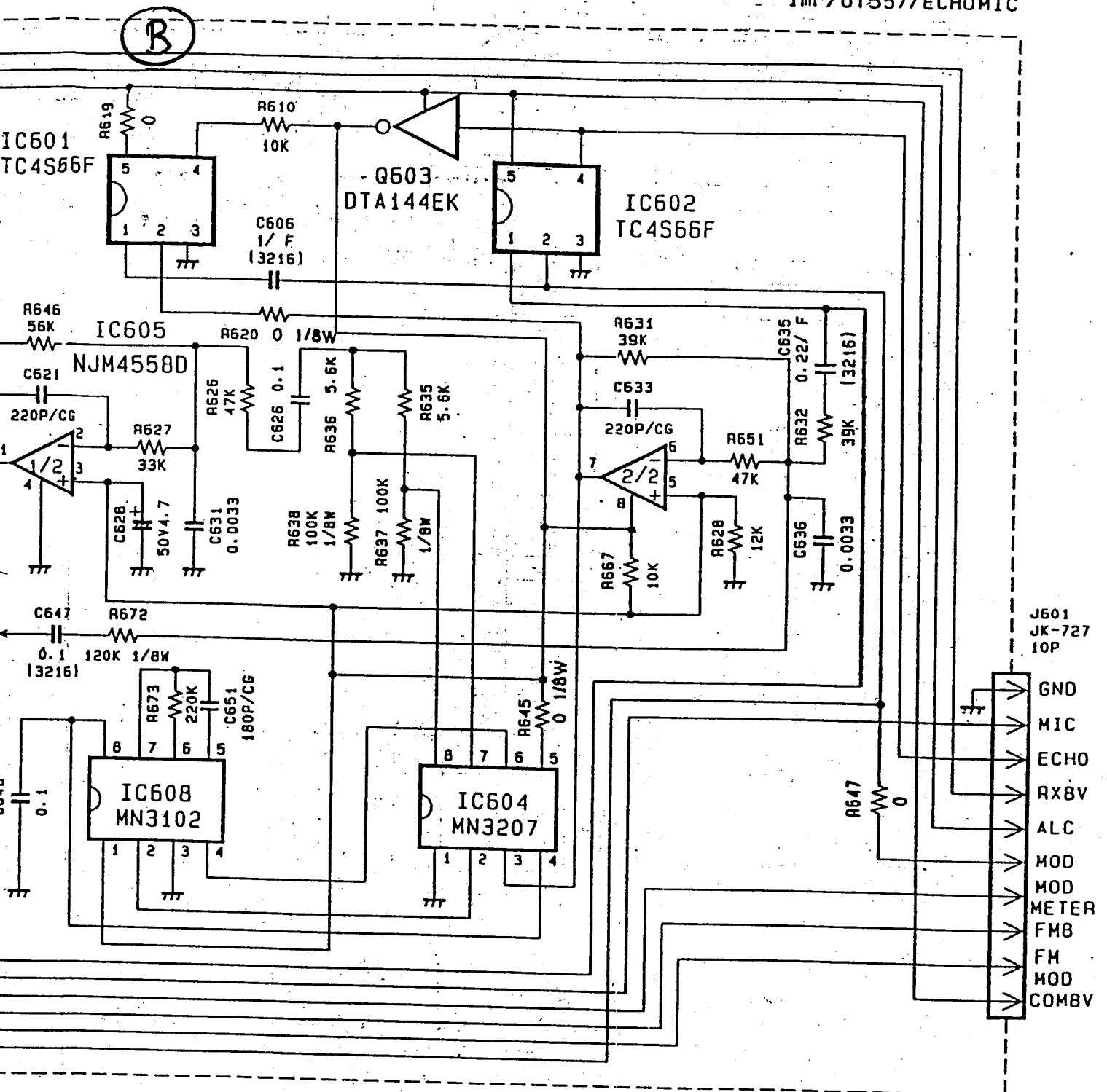
DRAWING NO.

ES4-0334



NOTES:

1. RESISTANCE VALUES UNLESS OTHERWISE NOTED.
2. RESISTOR WATTAGES UNLESS OTHERWISE NOTED.
3. CAPACITANCE VALUES UNLESS OTHERWISE NOTED (P=MICRO-MICRO FARADS UNLESS OTHERWISE NOTED).
4. ALL CAPACITORS ARE 50V UNLESS OTHERWISE NOTED.
5. CHIP PARTS ARE NOTED IN THE SCHEMATIC DIAGRAM. PLEASE REFER TO THE CHIP PARTS.



RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED.

RESISTOR WATTAGES ARE 1/10W UNLESS OTHERWISE NOTED.

RESISTANCE VALUES ARE INDICATED IN MICRO OHMS UNLESS OTHERWISE NOTED.

(MICRO-MICRO FARAD)

CAPACITORS TEMPERATURE CHARACTERISTICS ARE B UNLESS OTHERWISE NOTED.

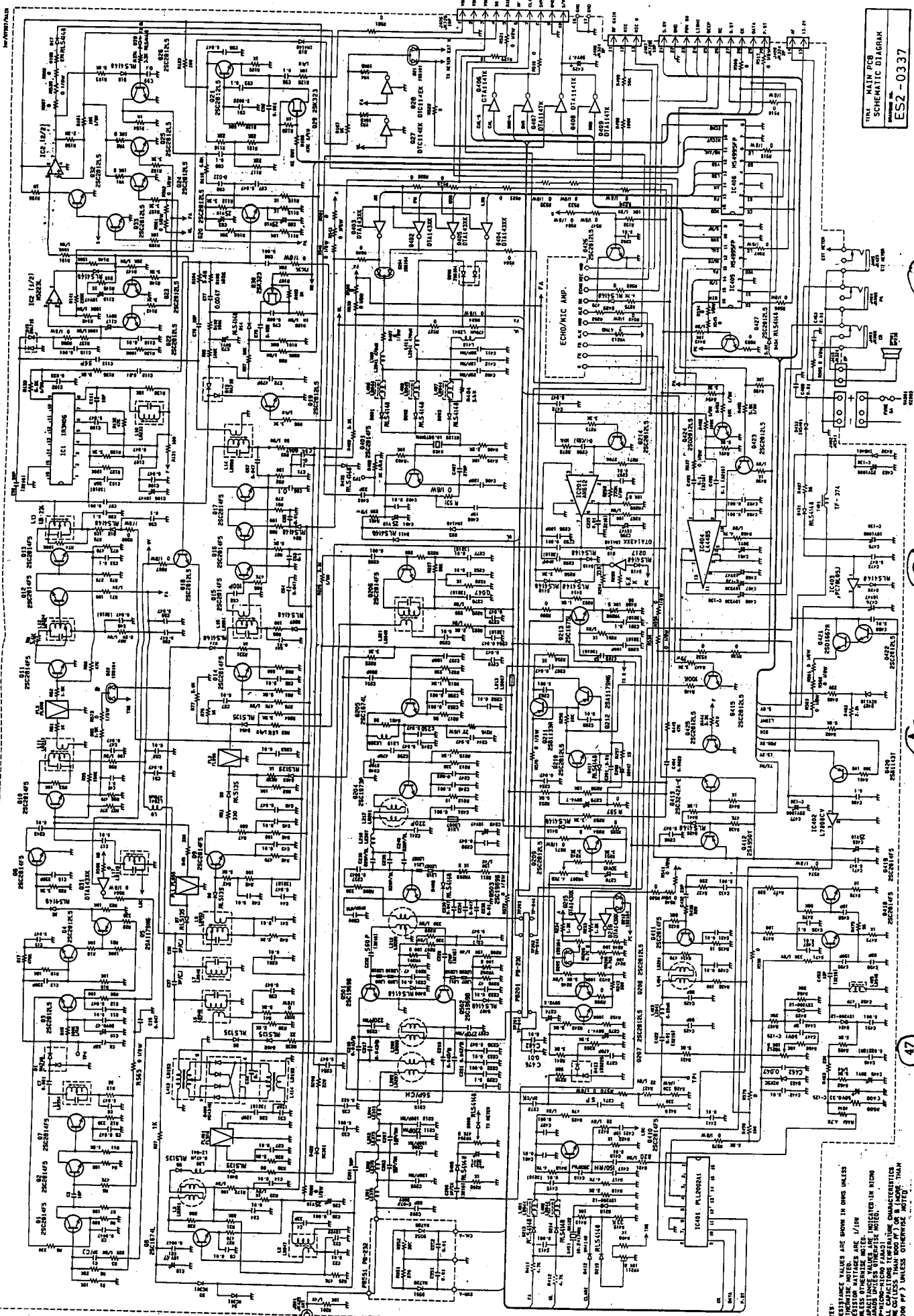
PARTS ARE NOT SPECIFIED IN THIS SCHEMATIC DIAGRAM.

PLEASE REFER TO THE PARTS LIST FOR CHIP PARTS.

TITLE ECHO MIC PCB
SCHEMATIC DIAGRAM

DRAWING NO.

ES4-0334



THIS MAIN PCB
SCHEMATIC DIAGRAM
IS ES2-0337

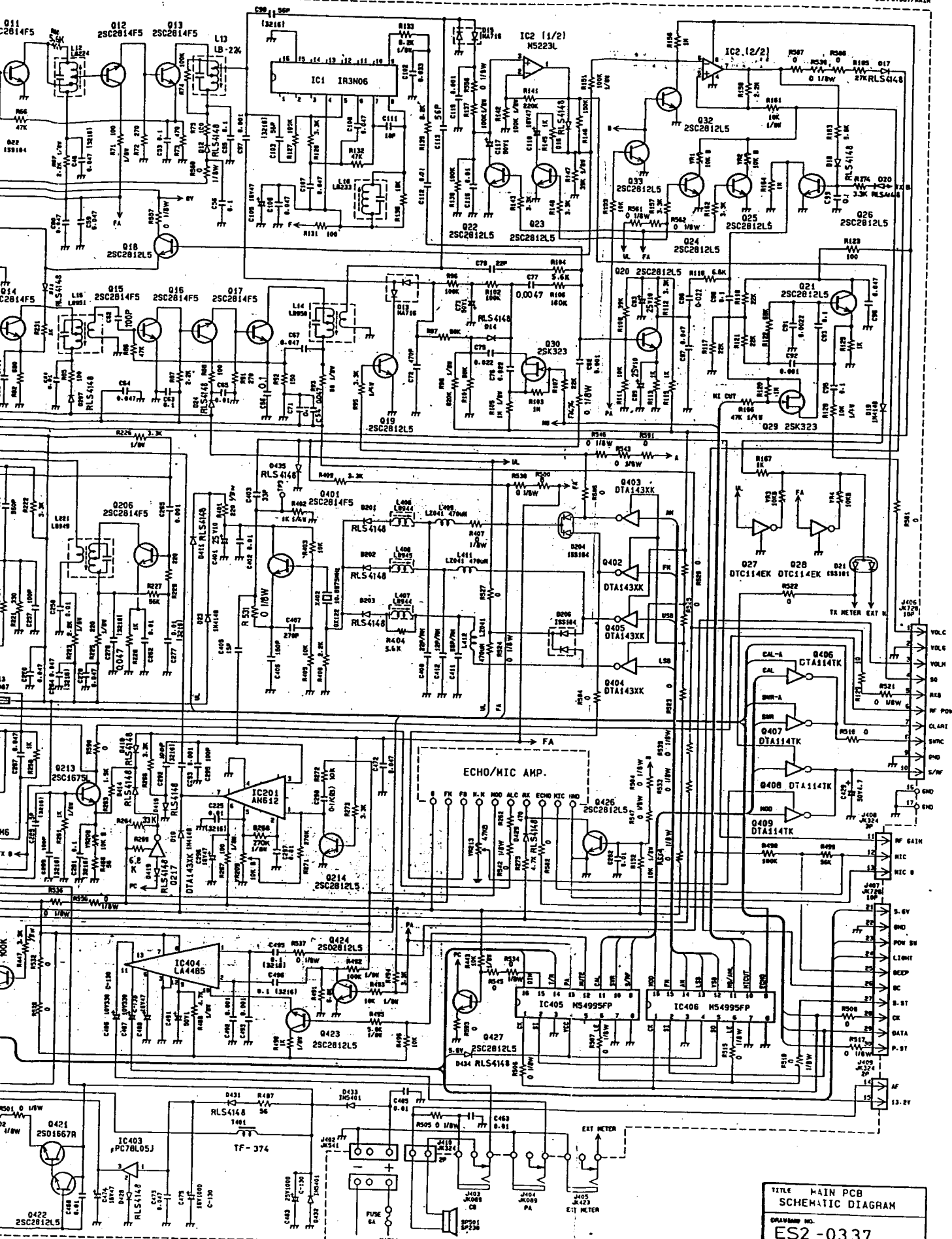
48

B

A

47

NOTES:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED.
2. CAPACITANCE VALUES ARE /100 UNLESS OTHERWISE NOTED.
3. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.
4. DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
5. DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
6. DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
7. DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
8. DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
9. DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
10. DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.



TITLE MAIN PCB
SCHEMATIC DIAGRAM

DRAWING NO.
ES2 - 0337

PB8701 PB-230AA (TOP VIEW)



J751	JK-729

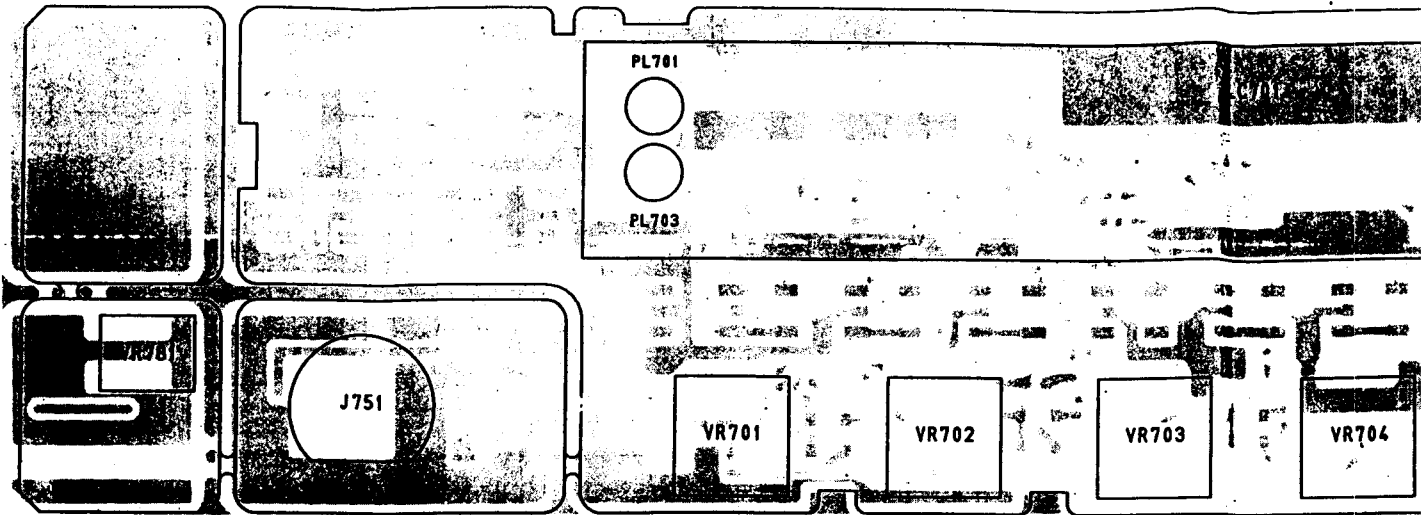
VR701	RV-705 1KA/1KB

(A)

③

COMPONENT LAYOUT

PB701 PB-230AA (TOP VIEW)



VR701	RV-786 10K A
VR702	RV-788 10K B
VR703	RV-787 50K B
VR704	RV-790 1K B
VR705	RV-788 10K B

S722	SR-421

J751	JK-729

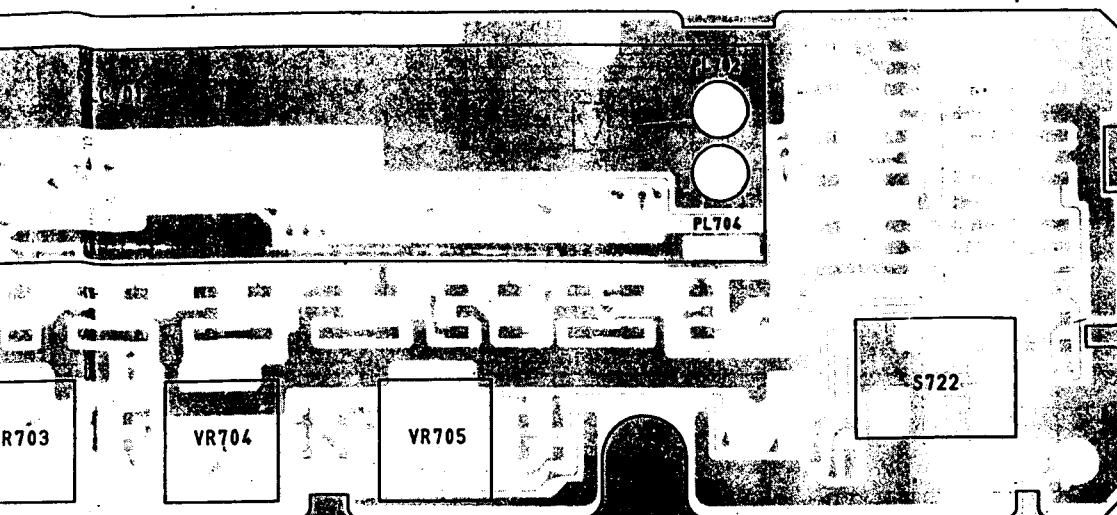
PL701	PZ-035
PL702	PZ-035
PL703	PZ-028
PL704	PZ-028

LC701	DL-069

VR701	RV-785 1KA/1KB

A

B



51	JK-729

781	RV-785 IKA/IKB

4

B

50

TITLE	FRONT PCB
	PARTS ASS'Y TOP VIEW
DRAWING NO.	EM2-0987

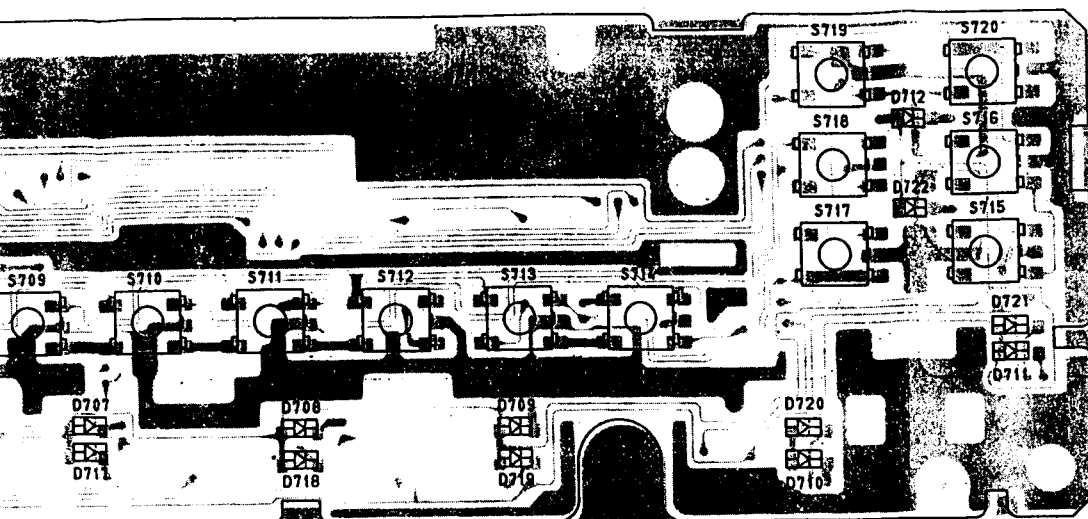
D703	CL14076-X	7701	SW-752
D704	CL14076-X	7702	SW-752
D705	CL14076-X	7703	SW-752
D706	CL14076-X	7704	SW-752
D707	CL14076-X	7705	SW-752
D708	CL14076-X	7706	SW-752
D709	CL14076-X	7707	SW-752
D710	CL14076-X	7708	SW-752
D711	CL14076-X	7709	SW-752
D712	CL14076-X	7710	SW-752
D713	CL1400-CO	7711	SW-752
D714	CL1400-CO	7712	SW-752
D715	CL1400-CO	7713	SW-752
D716	CL1400-CO	7714	SW-752
D717	CL1400-CO	7715	SW-752
D718	CL1400-CO	7716	SW-752
D719	CL1400-CO	7717	SW-752
D720	CL1400-CO	7718	SW-752
D721	CL1400-CO	7719	SW-752
D722	CL1400-CO	7720	SW-752
		7721	SW-752

TITLE	FRONT PCB
	PARTS ASS'Y TOP VIEW
DRAWING NO.	EM2-0988

52

51

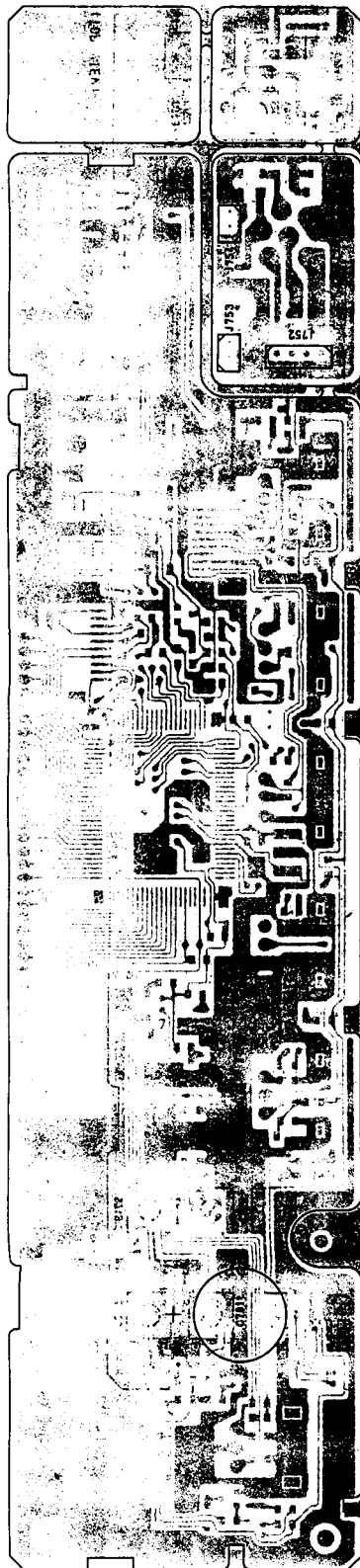
(B)



NOTES:
 1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K-KILO OHM, M-MEG OHM)
 2. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED. (P-MICRO-MICRO FARAD)

TITLE	FRONT PCB PARTS ASS'Y TOP VIEW
DRAWING NO.	EM2-0988

PB701 PB-230AA (BOTTOM VIEW)



C701	0.047F C-266				
J752	JIC-324 4P				
J753	JIC-324 2P				
J754	JIC-324 2P				

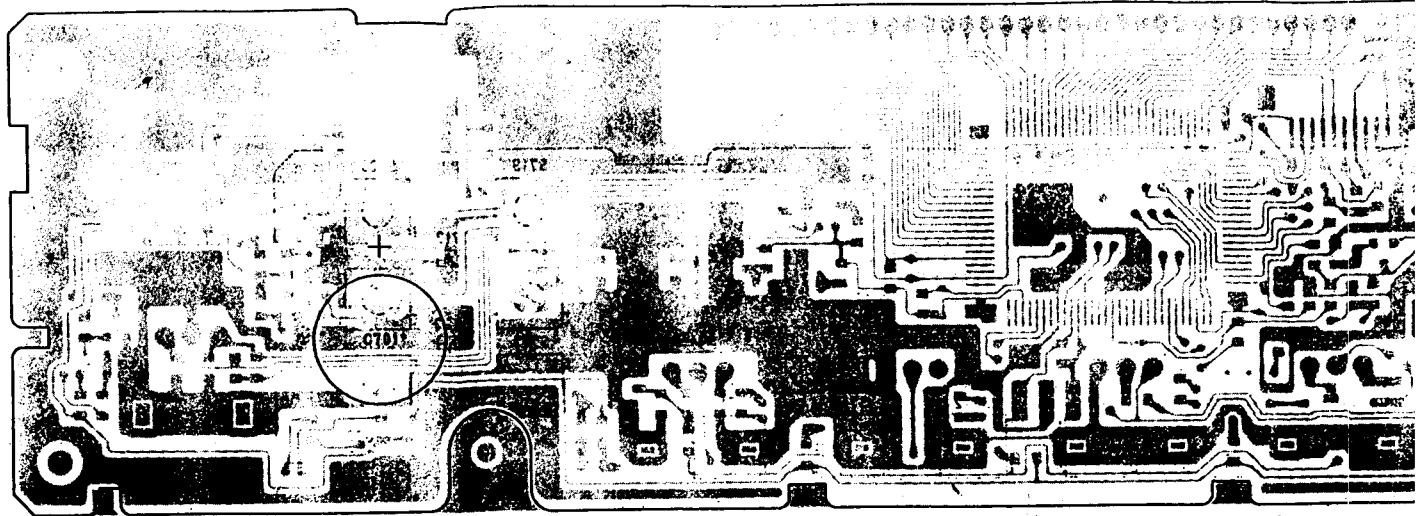
(B)

(A)

TITLE	FRONT PCB
PARTS ASSY	BOTTOM VIEW
DRAWING NO.	EM2-0989

54

53

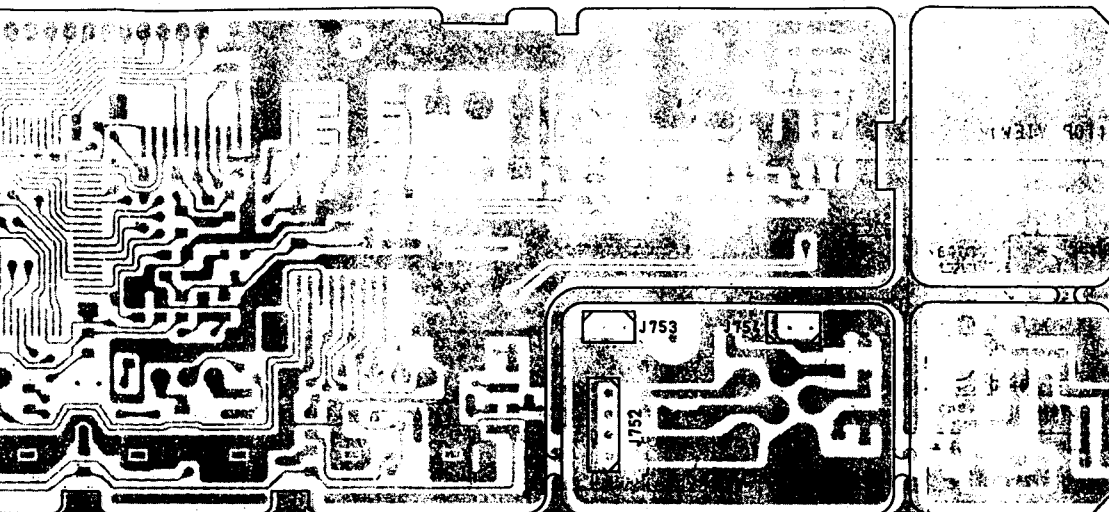


C701	0.047F	C-266

J752	JK-324	4P
J753	JK-324	2P
J754	JK-324	2P

(A)

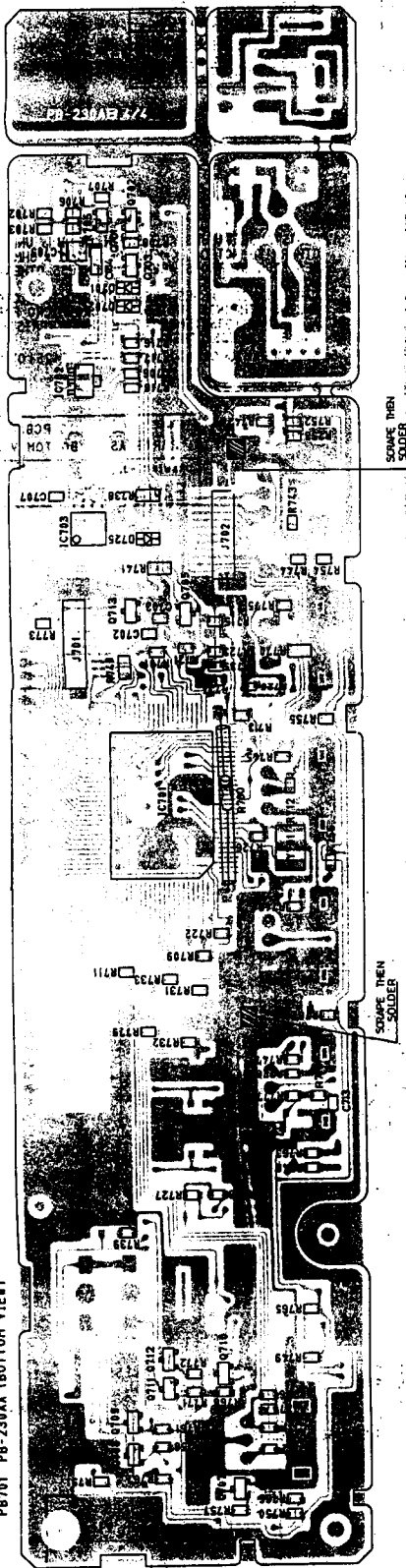
(1)



-324	4P
-324	2P
-324	2P

(B)

TITLE	FRONT PCB
PARTS ASSEMBLY	BOTTOM VIEW
DRAWING NO.	EM2-0989



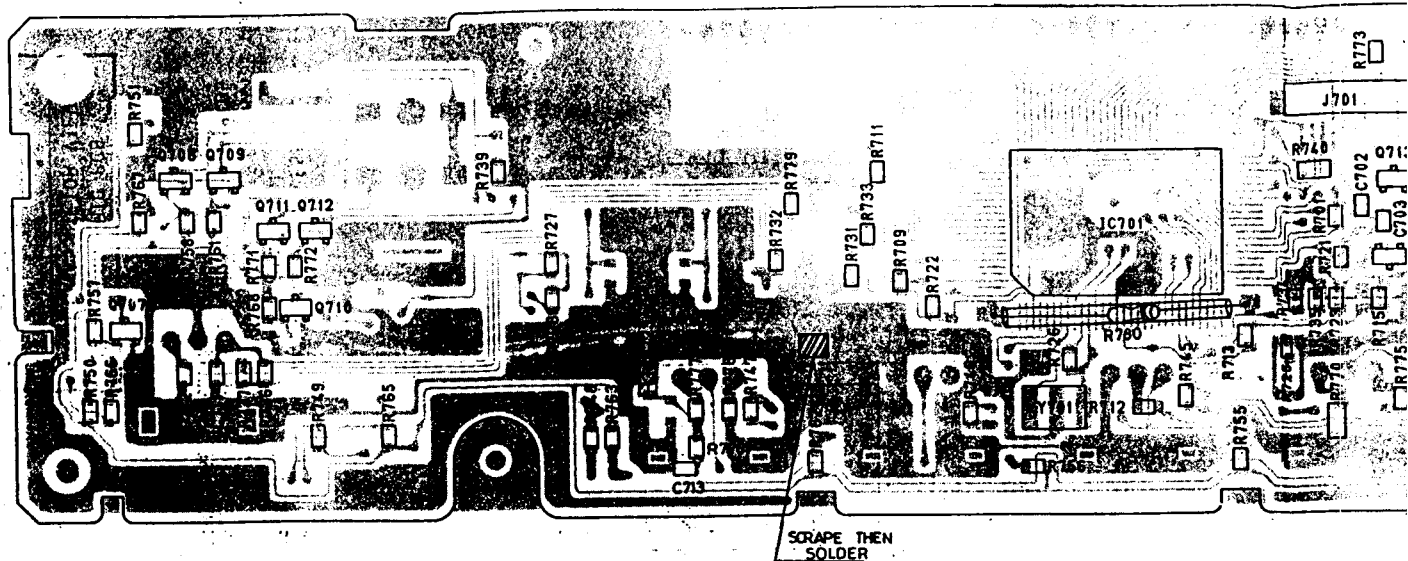
R780 VINYL TUBE
2.6 x 22mm

R701	100K	R745	500	C102	0.01	D701	MS54148
R702	47K	R747	500	C103	0.022	D702	MS54148
R703	500K	R748	500	C105	10V 0.1	D703	MS54148
R705	47K	R749	500	C106	0.1	D705	MS54148
R706	200K	R750	500	C107	0.1	D707	MS54148
R707	10K	R751	500	C111	0.1	D709	MS54148
R708	10K	R752	500	C112	0.1	D711	MS54148
R709	10K	R753	500	C113	0.1	D712	MS54148
R710	47K	R754	500	C114	0.1	D713	MS54148
R711	47K	R755	500	C115	0.1	D714	MS54148
R712	10K	R756	500	C116	0.1	D715	MS54148
R713	10K	R757	500	C117	0.1	D716	MS54148
R714	10K	R758	500	C118	0.1	D717	MS54148
R715	10K	R759	500	C119	0.1	D718	MS54148
R716	10K	R760	500	C120	0.1	D719	MS54148
R717	10K	R761	500	C121	0.1	D720	MS54148
R718	10K	R762	500	C122	0.1	D721	MS54148
R719	10K	R763	500	C123	0.1	D722	MS54148
R720	10K	R764	500	C124	0.1	D723	MS54148
R721	10K	R765	500	C125	0.1	D724	MS54148
R722	10K	R766	500	C126	0.1	D725	MS54148
R723	10K	R767	500	C127	0.1	D726	MS54148
R724	10K	R768	500	C128	0.1	D727	MS54148
R725	10K	R769	500	C129	0.1	D728	MS54148
R726	10K	R770	500	C130	0.1	D729	MS54148
R727	10K	R771	500	C131	0.1	D730	MS54148
R728	10K	R772	500	C132	0.1	D731	MS54148
R729	10K	R773	500	C133	0.1	D732	MS54148
R730	10K	R774	500	C134	0.1	D733	MS54148
R731	10K	R775	500	C135	0.1	D734	MS54148
R732	10K	R776	500	C136	0.1	D735	MS54148
R733	10K	R777	500	C137	0.1	D736	MS54148
R734	10K	R778	500	C138	0.1	D737	MS54148
R735	10K	R779	500	C139	0.1	D738	MS54148
R736	10K	R780	500	C140	0.1	D739	MS54148
R737	10K	R781	500	C141	0.1	D740	MS54148
R738	10K	R782	500	C142	0.1	D741	MS54148
R739	10K	R783	500	C143	0.1	D742	MS54148
R740	10K	R784	500	C144	0.1	D743	MS54148
R741	10K	R785	500	C145	0.1	D744	MS54148
R742	10K	R786	500	C146	0.1	D745	MS54148
R743	10K	R787	500	C147	0.1	D746	MS54148
R744	10K	R788	500	C148	0.1	D747	MS54148
R745	10K	R789	500	C149	0.1	D748	MS54148

- NOTES:
1. DISTANCE VALUES ARE SHOWN IN INCHES UNLESS OTHERWISE NOTED. 1/16" UNLESS OTHERWISE NOTED.
 2. RESISTOR WATTAGES ARE 1/10W UNLESS OTHERWISE NOTED.
 3. CAPACITANCE VALUES ARE INDICATED IN MICROFARADS UNLESS OTHERWISE NOTED (IP-MICRO-MICRO FARAD).
 4. ALL DIMENSIONS ARE UNLESS OTHERWISE NOTED.
 5. ALL CERAMIC CAPACITANCES ARE 121251 OTHERWISE NOTED.

TITLE	FRONT VIEW
PARTS LIST	FRONT VIEW
DRAWING NO.	EM2-0990

PB701 PB-230AA (BOTTOM VIEW)



R780 VINYL TUBE
Ø 2.6 X 22mm

R701	100K
R702	47K
R703	560K
R705	470K
R706	270K
R707	10K
R708	1K
R709	10K
R711	47K
R712	1K
R713	1K
R715	47K
R716	10K
R717	47K
R718	820K
R721	10K
R722	47K
R723	47K
R725	47K
R726	1M
R727	47K
R728	47K
R731	47K
R732	47K
R733	47K
R734	47K
R735	47K
R736	10K
R737	10K
R738	100 1/8W
R739	100K
R740	3.3K 1/8W
R741	47K 1/8W
R742	560
R743	560
R744	560
R745	560

R746	560
R747	560
R748	560
R749	560
R750	560
R751	560
R752	560
R753	560
R754	560
R755	560
R756	560
R757	3.3K
R758	3.3K
R761	3.3K
R762	560
R763	560
R765	560
R766	560
R767	560
R768	3.3K
R770	0 1/8W
R771	3.3K
R772	3.3K
R773	47K
R775	4.7K
R776	220
R777	4.7K
R778	33K
R779	47
R780	560 1/4W

C702	0.047
C703	0.022
C705	10V 10 / T C-241
C706	0.1
C707	0.1
C711	0.1
C712	0.1
C713	0.1 / B
C714	10V 4.7 C-227

Q701	25C2812-L5
Q702	25C2812-L5
Q703	25A1179-M6
Q705	25C2812-L5
Q707	25C2812-L5
Q708	25C2812-L5
Q709	25C2812-L5
Q710	25C2812-L5
Q711	25C2812-L5
Q712	25C2812-L5
Q713	25C2812-L5

D701	RLS4
D702	RLS4
D723	HZK5
D725	HSK1

IC701	HD40 UC1
IC702	M519
IC703	93C4

J701	JK-71
J702	JK-71

Y701	FK
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(A)

(B)

85

B

A

57

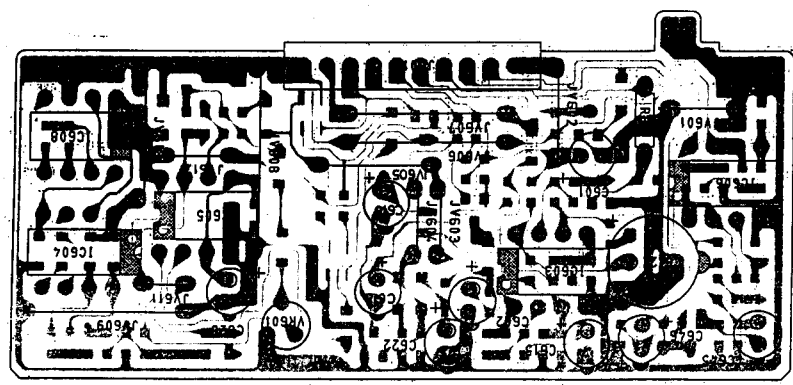
EM4-0992
DRAWING NO.
PARTS ASSY TOP VIEW
TITLE

NOTES:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K=KILLO OHM, M=MEG OHM)
2. ELECTROLYTIC CAPACITORS ARE C-125 UNLESS OTHERWISE NOTED.
3. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED. (P=PICTO-MICRO-FARAD)

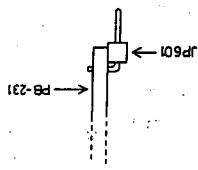
VR601	22K8 RT-528
R611	1K 1/8W
J601	JK-727 10P
IC608	MN3102
IC606	NJM45580
IC605	NJM45580
IC604	MN3207
IC603	NJM45580

JV601	7.5
JV602	10.0
JV603	7.5
JV604	7.5
JV605	12.5
JV606	17.5
JV607	17.5
JV608	20.0
JV609	17.5
JV611	5.0
JV612	7.5
JV613	12.5

CE01	25V10
CE02	10V100
CE12	10V1000 C-130
CE15	50V1
CE22	50V2.2
CE28	50V4.7
CE45	50V2.2
CE46	50V2.2
CE66	50V2.2 C-125
CE68	50V0.22 C-125



PB601 PB-231AB (TOP VIEW)



EM4-0991
DRAWING NO.
PARTS ASSY BOTTOM VIEW
TITLE

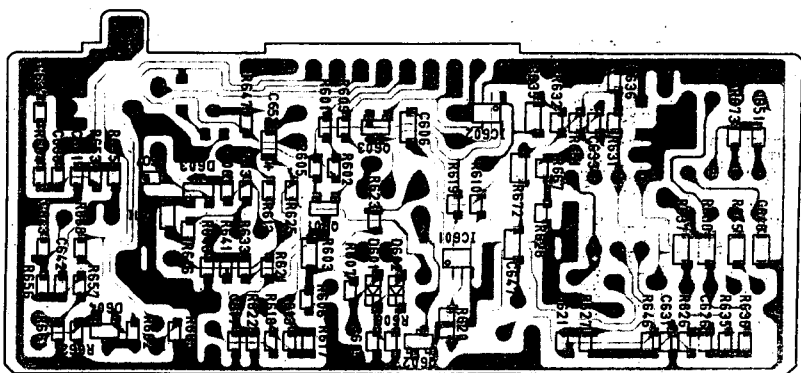
NOTES:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K=KILLO OHM, M=MEG OHM)
2. RESISTOR VARIATIONS ARE 1/10W UNLESS OTHERWISE NOTED.
3. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED. (P=PICTO-MICRO-FARAD)
4. ALL CAPACITORS TEMPERATURE CHARACTERISTICS ARE B UNLESS OTHERWISE NOTED.
5. ALL CERAMIC CAPACITANCES ARE (12125) UNLESS OTHERWISE NOTED.

IC601	TC4566F
IC602	TC4566F
IC603	DT1414EX
Q601	2SA1179-M6
Q602	2SD1048-X6
Q603	DT1414EX
D601	RLS4148
D602	RLS4148
D603	IS5226
D604	HSM88VA TL

R661	47K
R662	15K
R663	680
R667	10K
R672	120K 1/8W
R673	220K

R627	33K
R628	12K
R631	39K
R632	39K
R633	47K
R635	5.6K
R636	5.6K
R637	100K 1/8W
R638	100K 1/8W
R641	33K
R643	33K
R645	0 1/8W
R646	56K
R647	0
R651	47K
R653	0.2K
R654	0.2K
R655	0.2K
R656	0.2K
R657	0.2K
R658	47K

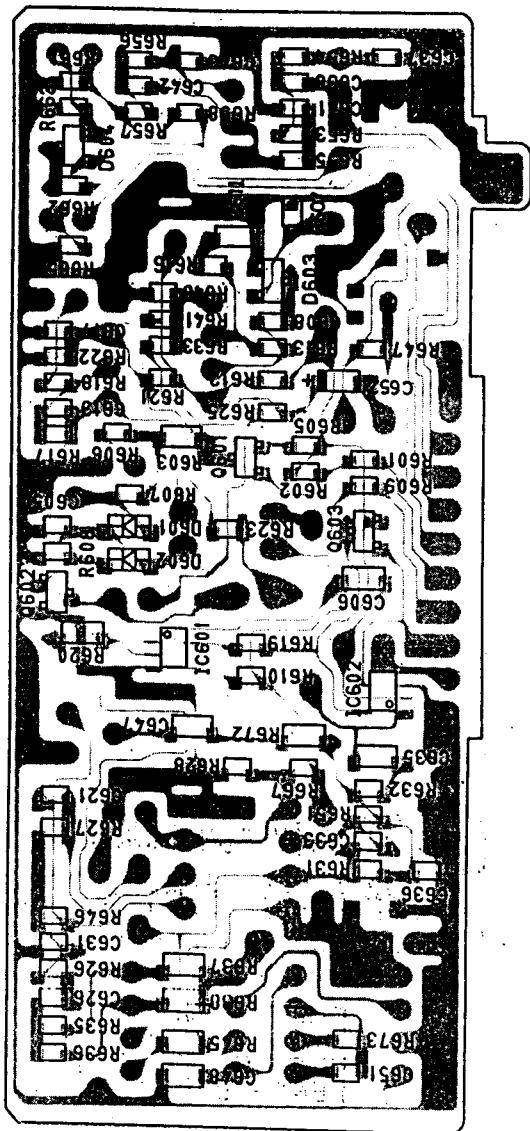
CE1	470
CE2	22K
CE3	0 1/8W
CE4	470
CE5	220
CE6	4.7K
CE7	5.6K
CE8	1K
CE9	10K
CE10	100
CE11	100
CE12	100
CE13	820K
CE14	100
CE15	100
CE16	470K
CE17	220
CE18	0
CE19	0 1/8W
CE20	10K
CE21	10K
CE22	12K
CE23	4.7K
CE24	4.7K
CE25	47K



PB601 PB-231AB (BOTTOM VIEW)

CE37	0.0027
CE38	0.033
CE41	0.0068
CE42	0.047
CE43	0.0012
CE47	0.1 (3216)
CE48	0.1 (3216)
CE51	100P/C6

CE05	0.1
CE06	1/4 (Q216)
CE07	0.1
CE08	1/4 (3216)
CE11	1/4 (3216)
CE13	470P/C6
CE17	0.001
CE21	220P/C6
CE26	0.1
CE31	0.0033
CE33	220P/C6
CE35	0.22/4 (3216)
CE36	0.0033
CE52	35V0.22(1) C-102



C637	0.0027
C638	0.033
C641	0.0068
C642	0.047
C643	0.0012
C644	0.1 (3216)
C648	0.1 (3216)
C651	180P/CG

C605	0.1
C606	1/F (8216)
C607	0.1
C608	0.1
C611	1/F (3216)
C613	470P/CG
C617	0.001
C621	220P/CG
C626	0.1
C631	0.0033
C633	220P/CG
C635	0.22/F (3216)
C636	0.0033
C652	35V0.22(T) C-182

NOTES:

1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K-KILO OHM, M-MEG OHM)
2. RESISTOR RATINGS ARE 1/10W UNLESS OTHERWISE NOTED.
3. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED. (P-MICRO-MICRO FARAD)
4. ALL CAPACITORS-TEMPERATURE CHARACTERISTICS ARE B UNLESS OTHERWISE NOTED.
5. ALL CERAMIC CAPACITANCES ARE (2125) OTHERWISE NOTE!

IC601	TC4S66F
IC602	TC4S66F

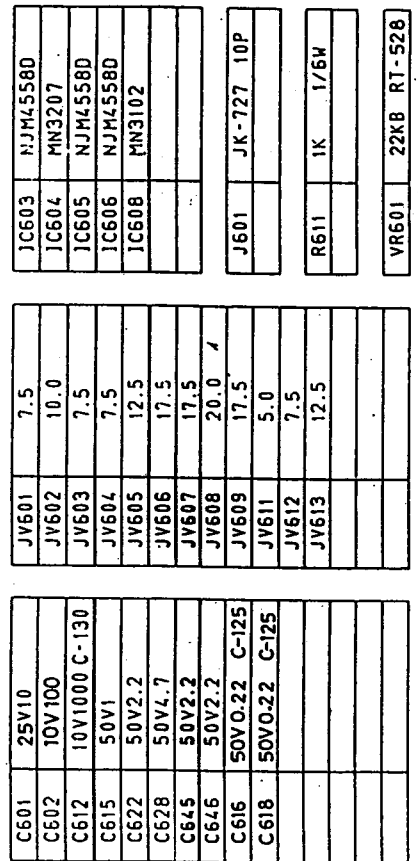
R661	47K
R662	15K
R663	680
R665	680
R667	10K
R672	120K 1/8W
R673	220K

R627	33K
R628	12K
R631	39K
R632	39K
R633	47K
R635	5.6K
R636	5.6K
R637	100K 1/8W
R638	100K 1/8W
R641	33K
R643	33K
R645	0 1/8W
R646	56K
R647	0
R651	47K
R653	8.2K
R654	8.2K
R655	8.2K
R656	8.2K
R657	8.2K
R658	47K

R501	470
R502	22K
R503	0 1/8W
R505	470
R506	220
R507	4.7K
R508	5.6K
R509	1K
R510	10K
R512	100
R513	820K
R515	100
R517	470K
R518	220
R519	0
R520	0 1/8W
R521	10K
R522	12K
R523	4.7K
R525	4.7K
R526	47K

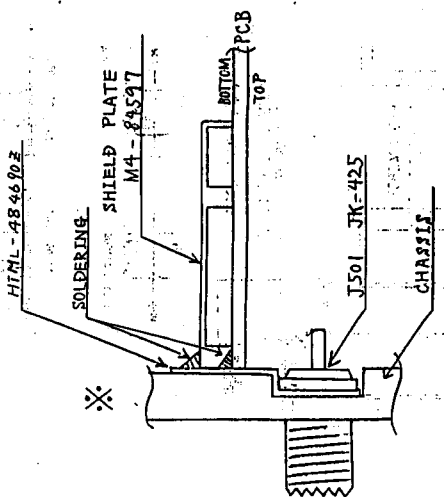
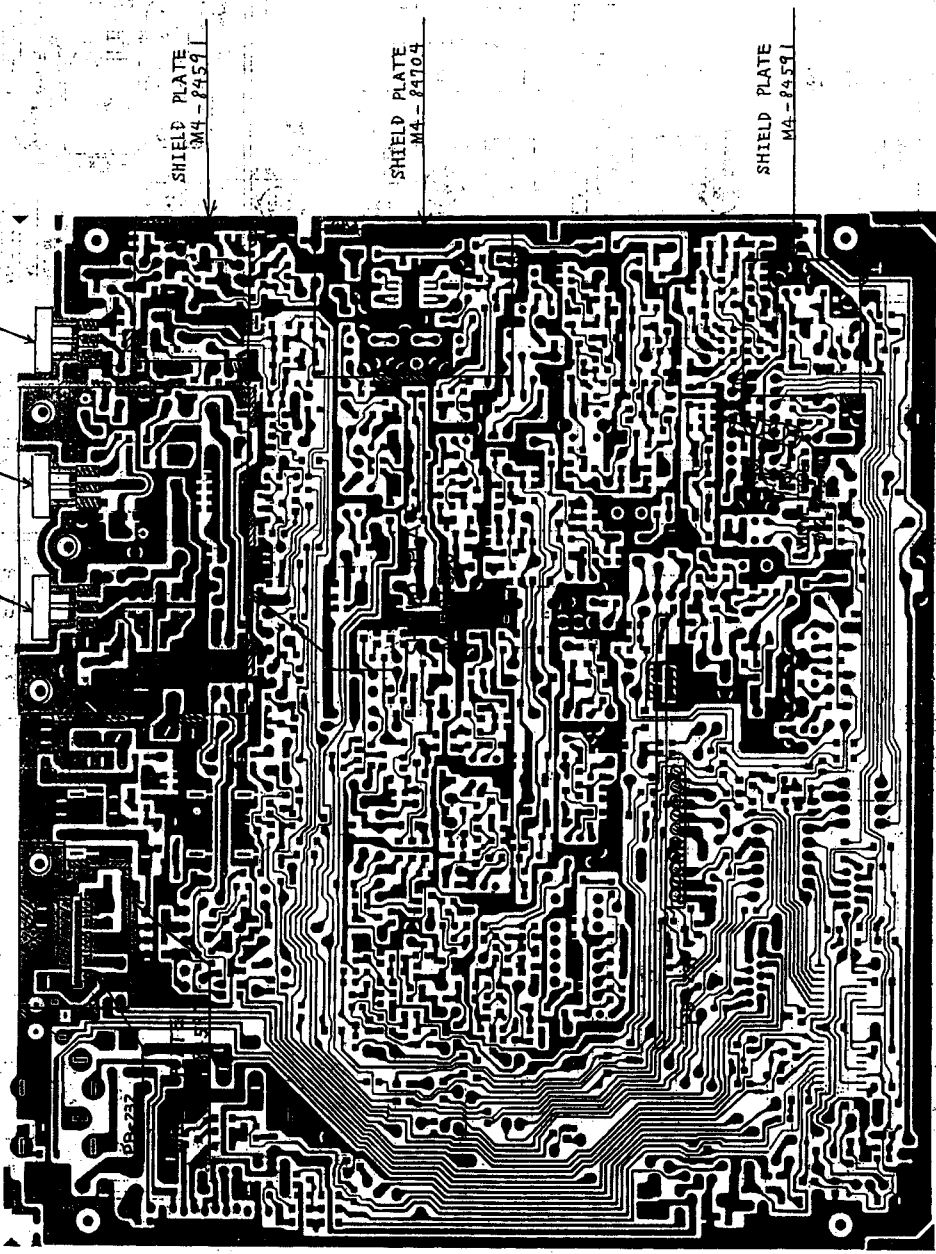
TITLE	ECHO MIC PCB
PARTS ASS'Y BOTTOM VIEW	
DRAWING NO.	EM4-0991

③



TITLE	ECHO MIC PCB PARTS ASS'Y TOP VIEW
DRAWING NO.	EM4-0992

PB001, PB-229 (BOTTOM VIEW)

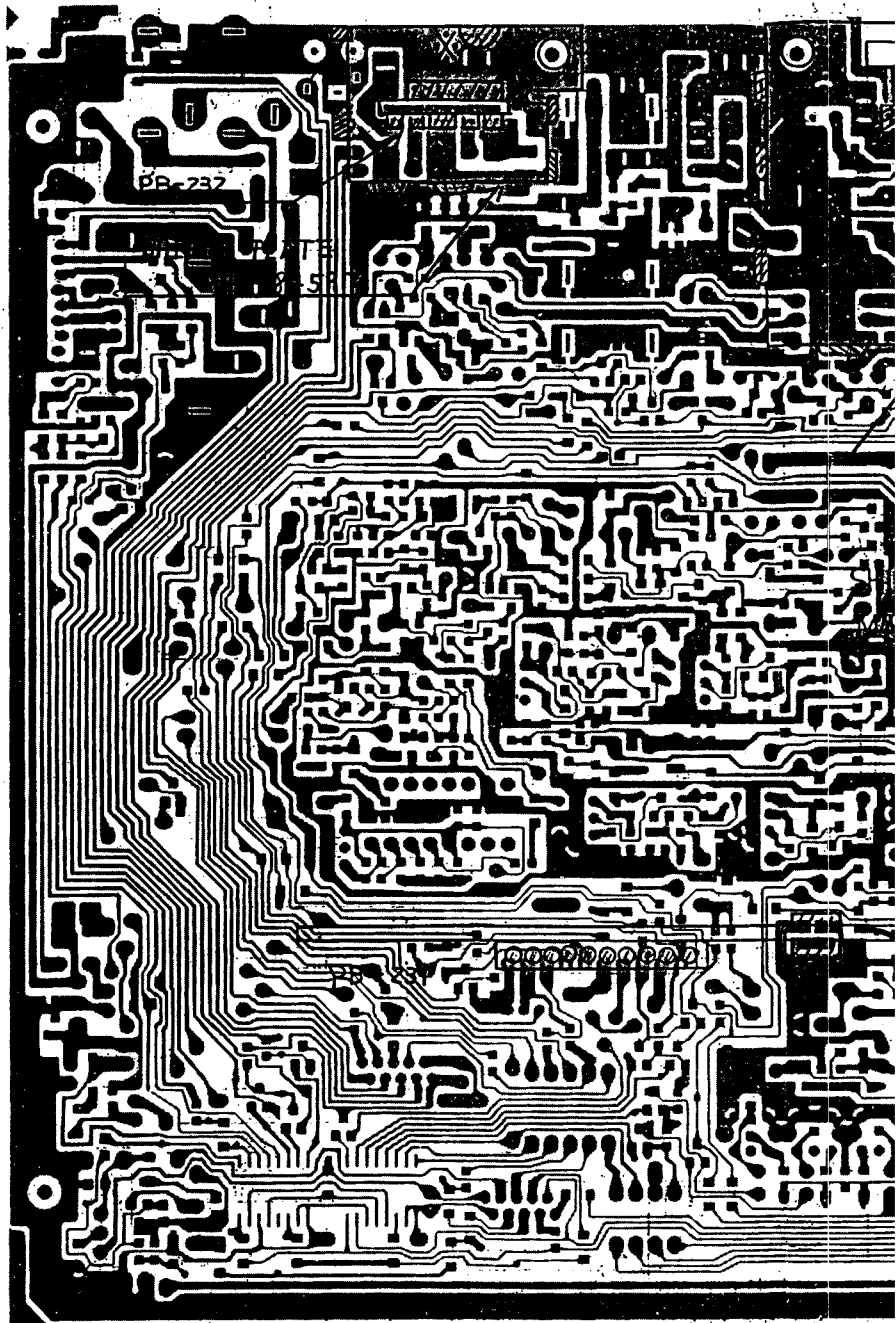
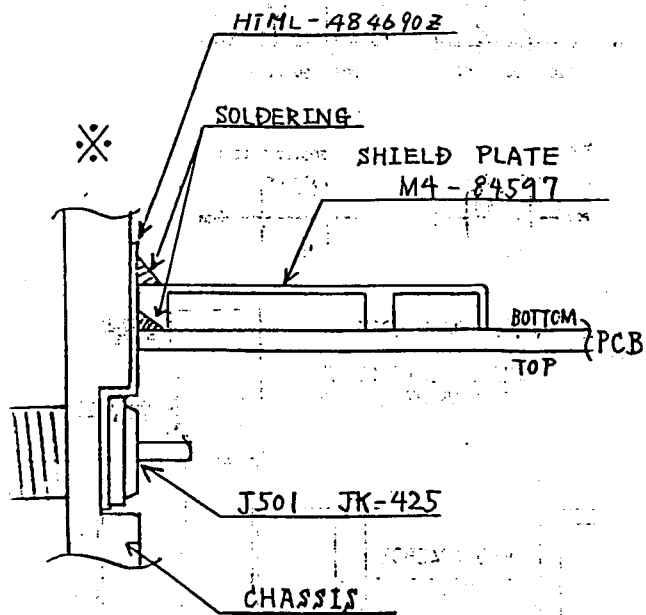


▨: SOLDERING

TITLE	PARTS LAYOUT
	BOTTOM VIEW
EM3-0993	

(A) (B)

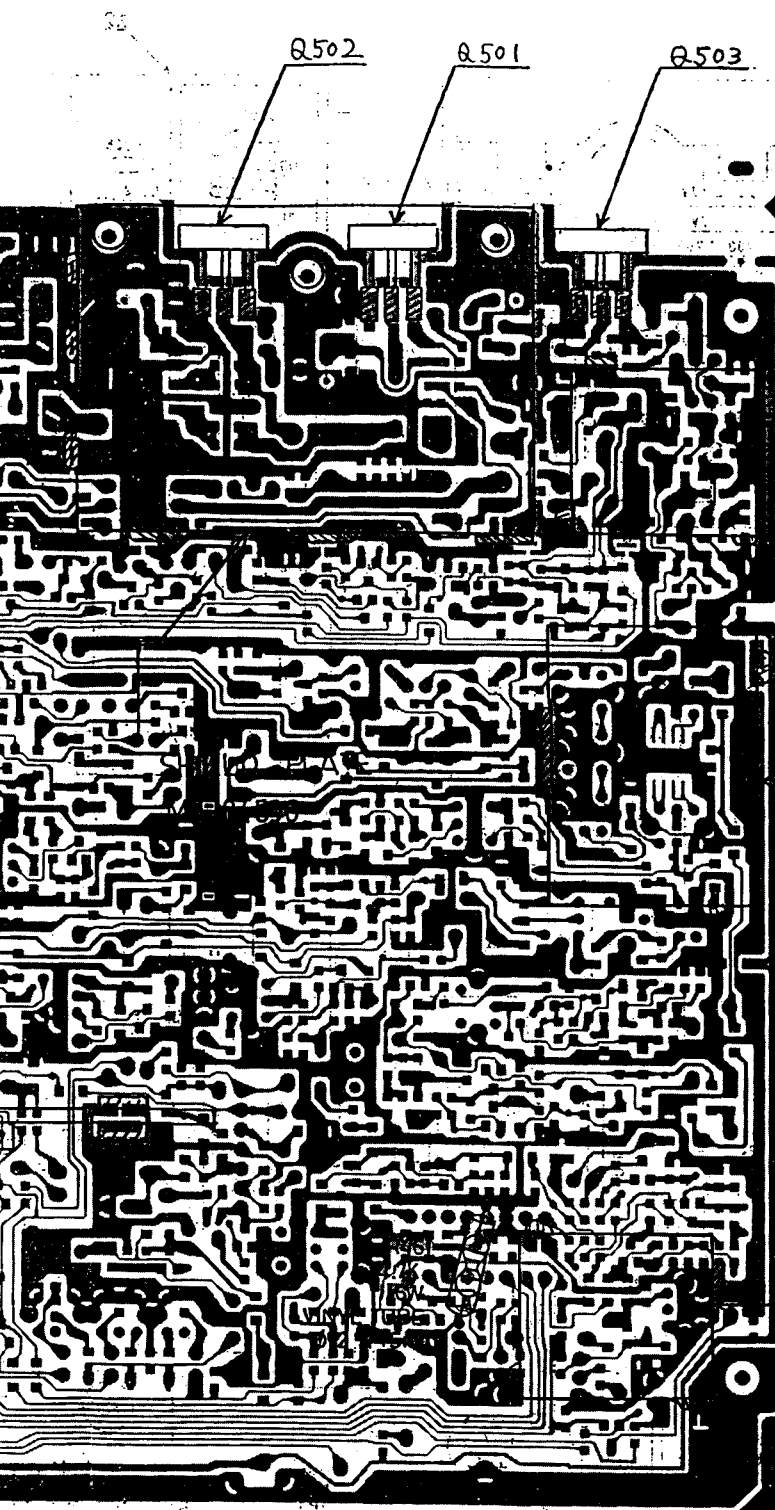
PB001, PB-229 (BOTTOM VIEW)



▨ : SOLDERING

(A)

(B)



SHIELD PLATE
M4-84591

SHIELD PLATE
M4-84704

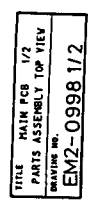
SHIELD PLATE
M4-84591

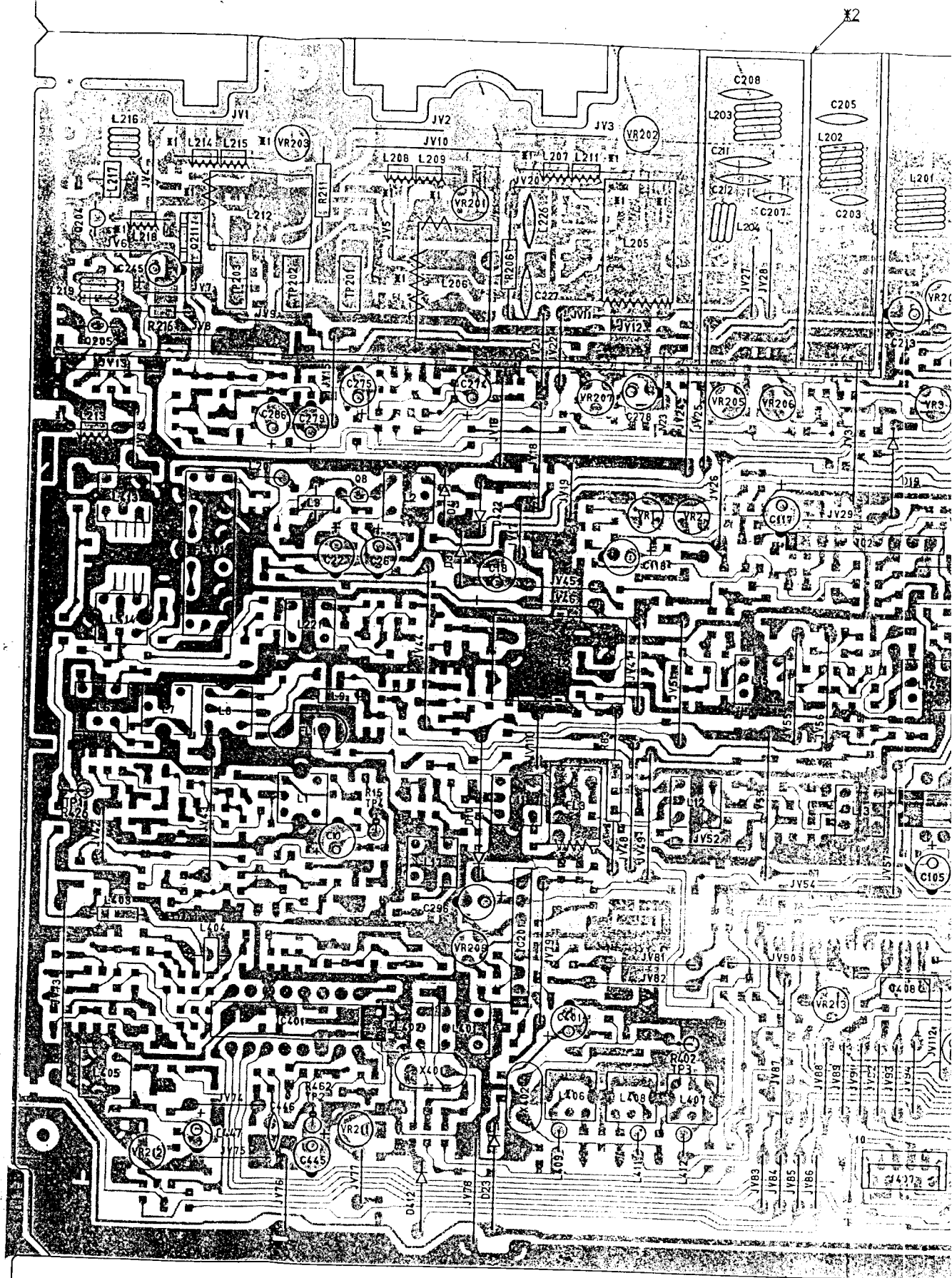
0 5 10 15 20 25 30 M 6 12 S

TITLE PARTS LAYOUT
BOTTOM VIEW

EM3-0993

B





0 2 10 12 50 52 50 W 15 10

JV1	12.5
JV2	12.5
JV3	12.5
JV4	10.0
JV5	7.5
JV6	10.0
JV7	10.0
JV8	7.5
JV9	7.5
JV10	22.5
JV11	10.0
JV12	10.0
JV13	12.5
JV14	7.5
JV15	12.5
JV16	12.5
JV17	7.5
JV18	15.0
JV19	7.5
JV20	12.5
JV21	10.0
JV22	10.0
JV23	7.5
JV24	15.0
JV25	20.0
JV26	12.5
JV27	10.0
JV28	12.5
JV29	10.0
JV31	20.0
JV32	15.0
JV33	12.5
JV34	15.0
JV35	7.5
JV36	7.5
JV37	12.5
JV38	30.0
JV39	10.0
JV41	7.5
JV42	7.5
JV43	17.5
JV44	22.5
JV45	10.0
JV46	10.0
JV47	12.5
JV48	17.5
JV49	17.5
JV51	17.5
JV52	10.0
JV53	20.0
JV54	17.5
JV55	15.0
JV56	15.0
JV57	17.5
JV58	15.0
JV59	25.0
JV61	22.5
JV62	30.0
JV63	12.5
JV64	17.5
JV65	30.0
JV66	7.5
JV67	12.5
JV68	12.5
JV71	22.5
JV72	7.5
JV73	25.0
JV74	10.0
JV75	10.0
JV76	10.0
JV77	7.5
JV78	15.0
JV79	20.0

JV81	12.5
JV82	15.0
JV83	7.5
JV84	7.5
JV85	7.5
JV86	7.5
JV87	22.5
JV88	10.0
JV89	10.0
JV90	15.0
JV91	10.0
JV92	10.0
JV93	10.0
JV94	10.0
JV95	7.5
JV96	30.0
JV97	30.0
JV98	12.5
JV99	12.5
JV101	25.0
JV102	20.0
JV103	17.5
JV104	20.0
JV105	17.5
JV106	5.0
JV107	17.5
JV108	12.5
JV109	22.5
JV112	12.5

L1	LB-954
L2	LB-947
L3	LD-201
L6	LB-948
L7	LB-948
L8	LB-953
L9	470uH LZ-041
L11	LB-313
L12	LB-224
L13	LB-224
L14	LB-950
L15	LB-951
L16	LB-233
L17	LB-119
L20	0.47uH LZ-041
L201	LE-376 8VZT
L202	LE-376 8VZT
L203	LE-375 7VZT
L204	LE-501
L205	LD-287
L206	LD-288
L207	LD-218
L208	LD-218
L209	LD-218
L211	LD-218
L212	LD-289
L213	LD-087
L214	LD-087
L215	LD-087
L216	LE-507
L217	LD-201
L218	LD-087
L219	LE-328 5VZT
L221	LB-949
L222	LD-087
L401	LB-944
L402	LB-944
L403	0.22uH LZ-041
L404	LD-201
L405	LB-946
L406	LB-944
L407	LB-944
L408	LB-945
L409	470uH LZ-041
L411	470uH LZ-041
L412	470uH LZ-041
L413	LD-193
L414	LD-193

C10	50V0.47
C18	16V47
C22	16V22
C26	25V10
C73	50V1
C83	25V10
C85	25V10
C105	16V47
C117	50V1
C118	16V47
C203	18P/RH
C205	150P/RH
C207	18P/RH
C208	150P/RH
C211	220P/RH
C212	180P/RH
C243	50VF
C216	0.022/YF
C217	0.022/YF
C218	0.022/YF
C221	0.022/YF
C226	220P/RH
C227	270P/RH
C245	16V47
C274	50V2.2
C275	50V4.7
C278	50V10
C279	50V4.7
C286	16V47
C296	16V47
C401	25V10
C429	50V4.7
C445	50V1
C446	0.022/SR
C465	25V10
C474	16V47
C475	16V1000 C-130
C477	25V1000 C-130
C483	25V1000 C-130
C486	10V330 C-130
C487	10V330 C-130
C488	16V47
C491	50V1

VR1	10KB
VR2	10KB
VR3	10KB
VR4	10KB
VR201	100B
VR202	100B
VR203	1KB
VR204	47KB
VR205	4.7KB
VR206	4.7KB
VR207	4.7KB
VR208	10KB
VR209	10KB
VR211	10KB
VR212	10KB
VR213	47KB
R15	100K
R83	15K
R85	3.3K
R126	10K
R166	47K
R201	10K
R206	150
R211	150
R402	1K
R426	390
R444	3.3K
R462	5.6K
R481	390 1W
Q8	25C1674L
Q204	25C1973P
Q205	25C1674L
Q211	25B1133R
Q213	25C1675L
Q412	25AP50Y
Q413	25G3242AE
Q420	25B1143T
Q421	25Q1667K

D3	HC301
D4	MC301
D10	1N4148
D19	1N4148
D23	1N4148
D412	1N4148
D422	MC301
D432	1N5401
D433	1N5401
J403	JK-089
J404	JK-089
J405	JK-423
J406	JK-728 10PIN
J407	JK-728 10PIN
J408	JK-324 3PIN
J409	JK-324 2PIN
J410	JK-324 2PIN
IC1	IR3N06
IC2	HS223L
IC201	AN612
IC401	PLL2082AI
IC402	L7808CV
IC403	JPC78L05J
IC404	LA4485

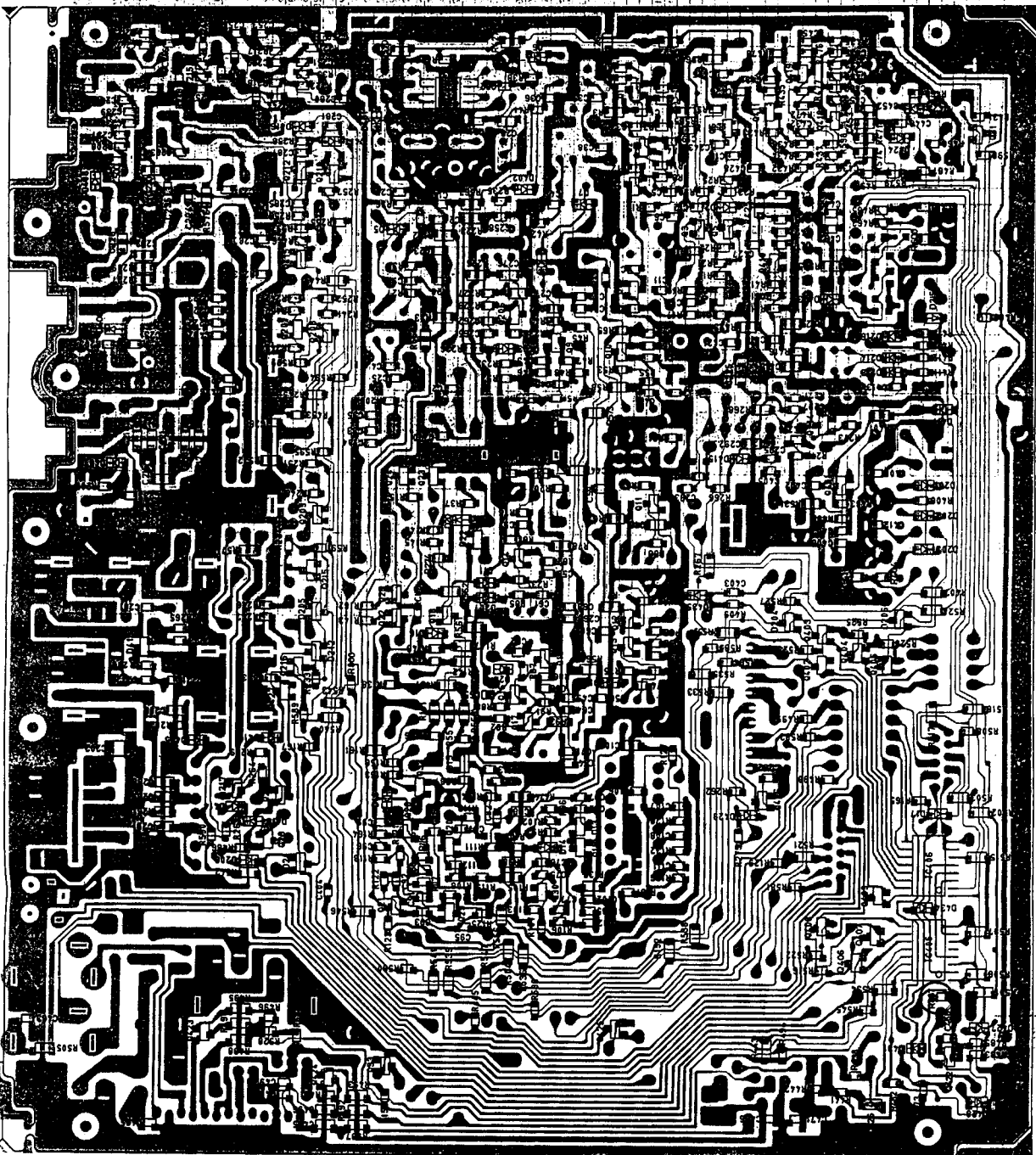
FORM 3-01-01-01

A

IC1	IR3N06
IC2	M5223L
IC201	AN612
IC401	PLL2042A1
IC402	L7808CV
IC403	WPC78L05J
IC404	LA4485

[illegible]

TITLE	MAIN	CB	2/2
PARTS	LI	TOP	VIEW
DRAWING NO.:			
EM2-0398 2/2			



TITLE MAIN PCB 1/2
PARTS ASSEMBLY BOTTOM VIEW
DRAWING NO.
EM2-0999 1/2

(A) (B)

R1	10K
R2	22K
R3	220 1/8W
R4	100
R5	330
R6	680
R7	100
R8	47K
R11	1.5K
R12	330
R13	68
R16	10K
R17	470K
R18	10K
R19	10K
R21	100K
R22	330
R23	10K
R25	3.3K
R27	470
R28	47K
R30	560
R31	82K
R33	1K 1/8W
R35	68
R36	2.2K
R37	1K
R38	2.2K
R40	330
R41	2.2K
R42	2.2K
R43	6.8K
R45	100
R46	470
R47	680
R48	100
R51	330
R52	10K
R53	10K
R55	150K
R56	470
R57	27K
R58	100 1/8W
R61	1K
R62	1.8K
R65	1.5K
R66	47K
R67	2.2K 1/8W
R68	5.6K
R71	100 1/8W
R72	270
R73	470
R74	100K
R75	100
R76	1K
R77	5.6K
R78	47K 1/8W
R81	5.6K
R82	680
R85	100
R86	47K
R87	2.2K
R88	100
R90	100
R91	270
R92	150
R93	68 1/8W
R96	100K
R97	68K
R98	820K 1/8W
R101	68K
R102	100K
R103	1M
R104	5.6K

R10	1M 1/8W
R11	100K
R12	22K
R13	39K
R14	10K
R15	3.3K
R16	1K
R17	1K
R18	6.8K
R19	22K
R20	22K
R21	68K
R22	100
R23	1K
R24	1K
R25	22K
R26	22K
R27	100K
R28	3.3K
R29	10
R30	100
R31	47K
R32	8.2K 1/8W
R33	8.2K
R34	18K
R35	100K 1/8W
R36	100K
R37	220K
R38	100K 1/8W
R39	3.3K
R40	1K
R41	150K
R42	39K 1/8W
R43	3.3K
R44	100K 1/8W
R45	10K
R46	1M
R47	3.3K
R48	2.2M
R49	10K 1/8W
R50	3.3K
R51	5.6K
R52	1M
R53	27K
R54	1K
R55	100 1/8W
R56	220
R57	1K
R58	47
R59	3.3K
R60	47
R61	330 1/8W
R62	330 1/8W
R63	10
R64	330
R65	1.5K
R66	56
R67	1.5K
R68	330
R69	3.3K
R70	2.2K 1/8W
R71	220 1/8W
R72	3.3K 1/8W
R73	68
R74	100K
R75	100K
R76	100K
R77	100
R78	100
R79	100
R80	100
R81	100
R82	100
R83	100
R84	100
R85	100
R86	100
R87	100
R88	100
R89	100
R90	100
R91	100
R92	100
R93	100
R94	100
R95	100
R96	100
R97	100
R98	100
R99	100
R100	100

R242	5.6K
R243	560
R245	5.6K 1/8W
R246	100
R247	100
R248	3.3K
R251	3.3K
R252	3.3K
R253	5.6K
R255	18K
R256	10K
R257	15
R258	1K
R261	1K 1/8W
R262	470
R263	1.5K
R264	33K
R265	3.9K
R266	3.3K
R267	100 1/8W
R268	200K 1/8W
R269	6.8K
R271	270K
R272	10K
R273	3.3K
R275	4.7K
R401	220 1/8W
R403	10K
R405	10K
R406	2.2K
R407	0 1/8W
R408	1K
R409	3.3K
R411	4.7K
R412	4.7K
R413	10K
R415	33K
R416	2.2K
R417	4.7K
R418	4.7K
R421	820 1/8W
R422	1K
R423	22 1/8W
R425	470 1/8W
R427	22 1/8W
R428	330
R431	5.6K
R432	100
R433	56K
R434	470
R435	10
R436	220
R437	220
R438	47K
R441	1.5K
R442	1K
R443	10K 1/8W
R445	47K
R446	100K
R447	3.3K 1/8W
R451	68
R452	100K
R453	100K
R458	100
R463	22K
R465	2.2K
R466	10K
R467	39K
R468	39K
R471	33K 1/8W
R472	100

R473	1K
R475	56
R476	56K
R477	820
R478	10
R482	6.8K
R483	2.2K
R485	220
R486	56
R487	56
R488	4.7K 1/8W
R490	1K 1/8W
R491	6.8K
R492	100K 1/8W
R493	10K 1/8W
R494	0 1/8W
R495	5.6K 1/8W
R496	10K
R498	100K
R499	56K
R501	0 1/8W
R502	0
R503	0
R504	0
R505	0
R506	0
R507	0 1/8W
R508	0
R515	0 1/8W
R516	0
R517	0 1/8W
R518	0
R521	0
R522	0
R523	0
R524	0 1/8W
R525	0
R526	0
R527	0
R528	0
R531	0 1/8W
R532	0
R533	0 1/8W
R534	0
R535	0
R536	0
R537	0
R538	0
R539	0
R540	0
R541	0
R542	0
R543	0 1/8W
R545	0
R546	0 1/8W
R547	0 1/8W
R556	0
R557	0
R558	0
R559	0
R560	0
R561	0
R562	0
R564	0
R565	0
R567	0
R568	0
R570	0 1/8W
R571	0
R572	0
R573	0

R574	0 1/8W
R575	0
R576	0 1/8W
R579	0
R581	0
R582	0
R584	0
R585	0
R586	0
R587	0
R589	0
R590	0
R591	0
R593	0
R594	0
R595	0
R596	0
R598	0
R599	0
R600	10M 1/8W
R601	0
R602	0
R603	0
R604	0
R605	0
R606	0
R607	0
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R691	0
R692	0
R693	0
R694	0
R695	0
R696	0
R697	0
R698	0
R699	0
R700	0

C1	3P/CJ
C2	0.0047
C3	10P
C4	33P
C5	0.047
C6	0.047
C7	0.001
C8	82P
C9	0.01
C11	0.01
C12	0.047
C13	330P
C14	0.01
C15	0.047
C16	330P
C17	0.01
C19	0.047
C21	0.0047
C23	0.01
C24	0.01
C25	0.001
C27	0.01
C28	120P 132161
C31	150P
C32	0.1
C33	0.001
C35	0.022
C36	0.047
C37	3P/CJ
C38	3P/CJ
C41	0.01
C42	0.01
C43	0.01
C44	0.047 (32161)
C45	0.01
C46	0.1
C47	0.047
C48	0.047 (32161)
C49	0.047
C51	0.047
C52	0.01
C53	0.1
C54	0.047
C55	0.1
C56	0.1
C57	0.01
C58	0.047
C59	0.047
C60	0.047
C61	0.01
C62	100P
C63	0.1
C64	0.047
C65	0.01
C66	0.1
C67	0.047
C71	0.1
C72	470P
C75	0.022
C76	0.022
C77	0.0047
C78	22P
C82	0.001
C86	0.022
C87	0.047
C88	0.1
C91	0.0022
C92	0.001
C93	0.1
C95	0.1
C96	0.047
C97	0.001
C98	56P (32161)
C99	0.1
C102	0.033

C103	5
C106	0
C107	0
C108	0
C111	1
C112	0
C113	5
C115	0
C116	0
C231	5
C232	8
C236	11
C237	0
C238	0
C239	0
C240	0
C241	2
C243	0
C244	0
C246	0
C247	0
C248	2
C249	0
C250	0
C251	5
C252	0
C253	8
C255	0
C256	4
C257	11
C258	0
C259	0
C260	0
C261	0
C262	0
C263	0
C264	0
C265	0
C266	0
C270	0
C271	1
C272	2
C273	4
C276	0
C277	0
C280	0
C281	0
C282	0
C283	0
C285	0
C287	0
C288	5
C289	11
C291	0
C292	0
C293	0
C295	11
C297	0
C298	0
C402	0
C403	3
C404	0

A

C103	56P	(3216)
C106	0.047	
C107	0.047	
C108	0.047	
C111	10P	
C112	0.01	
C113	56P	
C115	0.001	
C116	0.01	
C201	56P	
C202	82P	C-073
C206	1P/CK	(3216)
C222	0.001	
C223	0.01	
C274	0.047	
C225	0.01	(3216)
C226	470P	(3216)
C229	0.1	
C230	0.047	(3216)
C231	0.01	
C232	560P	(3216)
C233	0.01	
C234	0.047	
C235	0.01	
C236	0.047	
C237	0.0047	
C236	820P/SL	
C239	820P/SL	
C240	820P/SL	
C241	220P	
C243	0.01	
C244	0.047	
C246	0.001	
C247	0.0022	
C248	270P	
C249	0.047	
C250	0.047	
C251	500P	
C252	0.01	
C253	0.001	
C255	0.001	
C256	470P	
C257	100P	
C258	0.01	
C259	0.047	
C260	0.047	
C261	0.01	
C262	0.01	
C263	0.01	
C264	0.047	(3216)
C265	0.001	
C266	0.047	
C270	0.047	
C271	5P	
C272	2P/CK	
C273	470P	
C276	0.047	(3216)
C277	0.01	(3216)
C280	0.047	
C281	0.01	
C282	0.01	
C283	0.001	
C285	0.01	
C287	0.047	
C288	5P	(3216)
C289	100P	(3216)
C291	0.1	(3216)
C292	100P	(3216)
C293	0.001	
C295	100P	
C297	0.01	
C298	0.1	
C402	0.01	
C403	33P	
C404	0.0022	

C405	15P	
C406	150P	
C407	270P	
C408	22P/RH	
C411	56P/RH	
C412	12P/RH	
C413	0.001	
C415	0.01	(3216)
C416	390P/UJ	
C417	150P/UJ	
C418	0.01	
C421	10P	
C422	0.01	(3216)
C425	56P	
C426	56P	
C427	0.001	
C428	0.01	
C431	0.01	
C432	22P	
C433	0.001	
C435	0.1	
C441	0.01	
C442	0.01	
C448	5P	
C451	0.001	
C452	47P	
C453	12P	(3216)
C455	150P	
C456	82P	
C457	0.01	
C458	10P	
C461	0.01	
C462	0.047	
C463	0.01	
C466	0.1	
C468	0.01	
C471	0.047	
C472	0.047	
C473	0.047	
C476	0.01	
C481	0.001	
C482	0.01	
C485	0.01	
C492	0.001	
C493	0.001	
C495	0.1	(3216)
C496	0.1	(3216)
C284	0.047	
C215	56P/CG	
C216	0.047/C(B)	
C217	0.047/C(B)	
C218	0.047/C(B)	
C221	0.047/C(B)	
C500	100P/CG	

Q1	25C2814F5	
Q2	25C2814F5	
Q3	25C2812L5	
Q4	25C2812L5	
Q5	25A1179M6	
Q6	25C2814F5	
Q7	25C2814F5	
Q9	25C2814F5	
Q10	25C2814F5	
Q11	25C2814F5	
Q12	25C2814F5	
Q13	25C2814F5	
Q14	25C2814F5	
Q15	25C2814F5	
Q16	25C2814F5	
Q17	25C2814F5	
Q18	25C2812L5	
Q19	25C2812L5	
Q20	25C2812L5	
Q21	25C2812L5	
Q22	25C2812L5	
Q23	25C2812L5	
Q24	25C2812L5	
Q25	25C2812L5	
Q26	25C2812L5	
Q27	DTC114EK	
Q28	DTC114EK	
Q29	25K323	
Q30	25K323	
Q31	DTA143XK	
Q32	25C2812L5	
Q33	25C2812L5	
Q206	25C2814F5	
Q207	25C2812L5	
Q208	25C2812L5	
Q209	25C2812L5	
Q210	25C2812L5	
Q212	25A1179M6	
Q214	25C2812L5	
Q215	DTA143XK	
Q216	DTA143XK	
Q217	DTA143XK	
Q401	25C2814F5	
Q402	DTA143XK	
Q403	DTA143XK	
Q404	DTA143XK	
Q405	DTA143XK	
Q406	DTA114TK	
Q407	DTA114TK	
Q408	DTA114TK	
Q409	DTA114TK	
Q410	25C2814F5	
Q411	25C2814F5	
Q415	25C2812L5	
Q418	25C2814F5	
Q419	25C2814F5	
Q422	25C2812L5	
Q423	25C2812L5	
Q424	25C2812L5	
Q425	25C2812L5	
Q426	25C2812L5	
Q427	25C2812L5	

D1	MA716-TX	
D2	RLS4148	
D5	RLS135	
D6	RLS135	
D7	RLS135	
D8	RLS135	
D9	RLS135	
D11	RLS4148	
D12	RLS4148	
D13	MA716-TX	
D14	RLS4148	
D15	MA716-TX	
D16	RLS4148	
D17	RLS4148	
D18	RLS4148	
D21	ISS181	
D22	ISS184	
D24	RLS4148	
D201	RLS4148	
D202	RLS4148	
D203	RLS4148	
D204	ISS184	
D205	ISS184	
D206	ISS184	
D207	RLS4148	
D208	RLS4148	
D212	ISS184	
D213	RLS4148	
D214	RLS4148	
D215	RLS4148	
D216	ISV200-12	
D400	ND434G	
D401	RLS135	
D402	RLS135	
D403	RLS135	
D404	RLS135	
D405	RLS4148	
D406	RLS4148	
D407	RLS4148	
D408	RLS4148	
D411	RLS4148	
D413	ISS226	
D414	RLS4148	
D415	RLS4148	
D416	RLS4148	
D417	RLS4148	
D418	RLS4148	
D419	RLS4148	
D423	HZK5C	
D424	ISV200-12	
D425	ISV200-12	
D426	RLS4148	
D427	HZK11B	
D428	RLS4148	
D429	RLS4148	
D431	RLS4148	
D434	RLS4148	
D435	RLS4148	
D20	RLS4148	

IC405	M54995FP
IC406	M54995FP

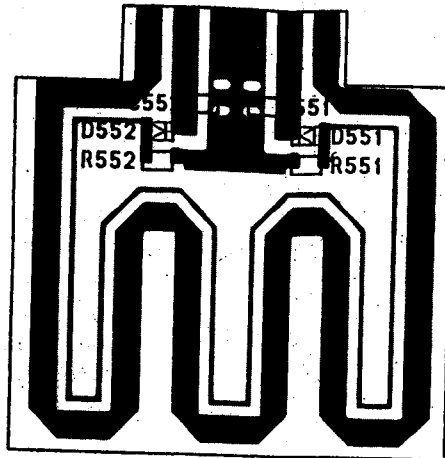
- NOTES:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K-KILO OHM, M-MEG OHM)
 2. RESISTOR WATTAGES ARE 1/10W UNLESS OTHERWISE NOTED.
 3. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED. (P-MICRO-MICRO FARAD)
 4. ALL CAPACITORS TEMPERATURE CHARACTERISTICS ARE B UNLESS OTHERWISE NOTED.
 5. ALL CAPACITORS TEMPERATURE CHARACTERISTICS ARE C0 (LESS THAN 1000PF) OF B (MORE THAN 1000PF) UNLESS OTHERWISE NOTED.

TITLE MAIN PCB 2/2
PARTS LIST BOTTOM VIEW
DRAWING NO.
EM2-0999 2/2

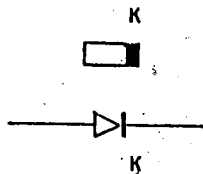
(B)

68

PB551 PB-232AA
(BOTTOM VIEW)



NOTE :



NOTES:

1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K-KILO OHM, M-MEG OHM)
2. RESISTOR WATTAGES ARE 1/10W UNLESS OTHERWISE NOTED.
3. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED. (P=MICRO-MICRO FARAD)
4. ALL CAPACITORS TEMPERATURE CHARACTERISTICS ARE B UNLESS OTHERWISE NOTED.
5. ALL CERAMIC CAPACITANCES ARE (2125) UNLESS OTHERWISE NOTED.

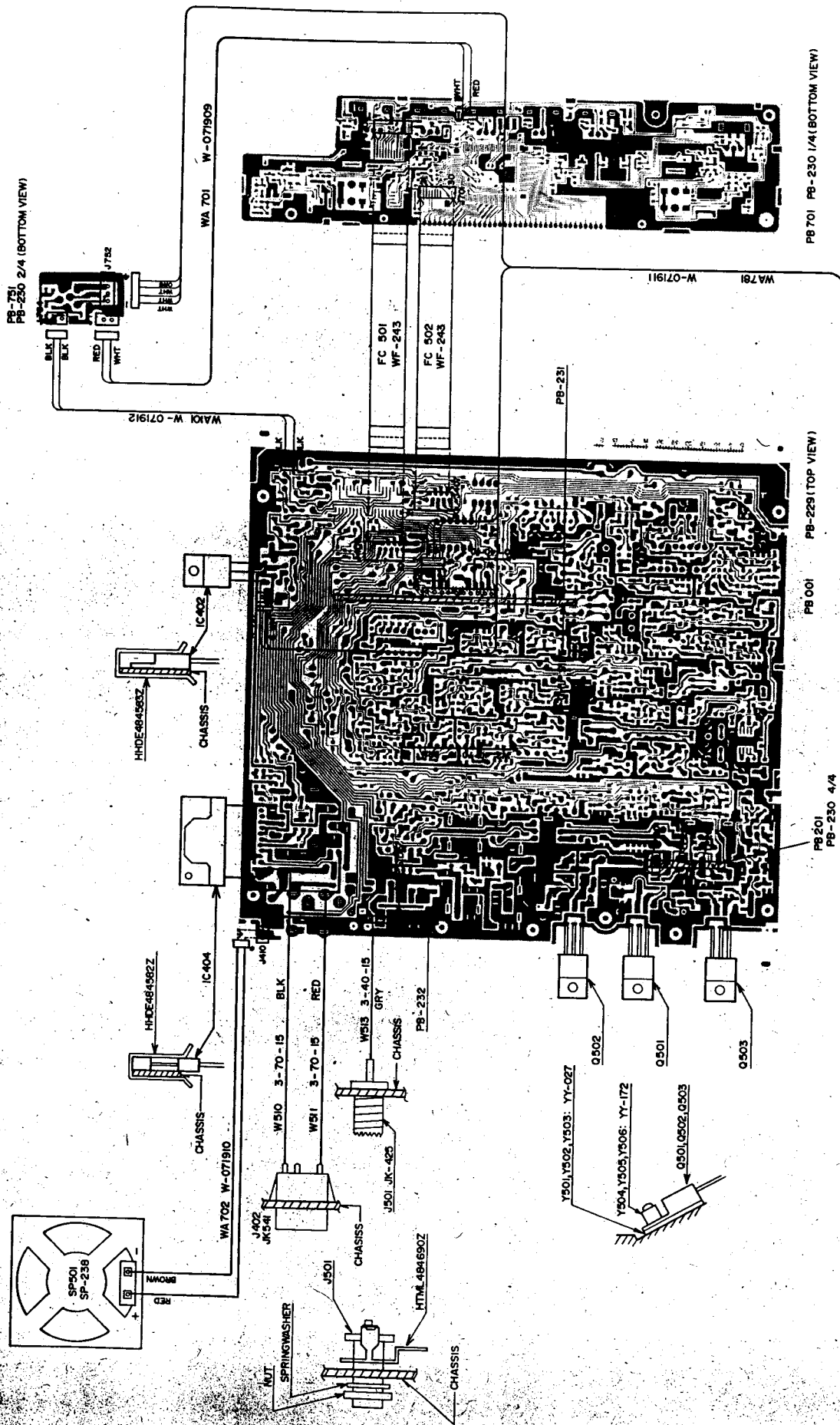
D551	MA728 - TX
D552	MA728 - TX
R551	270
R552	270
C551	0.01
C552	0.01

TITLE SWR PCB
PARTS ASS'Y BOTTOM VIEW

DRAWING NO.

EM4 -0997

WIRING DIAGRAM



TITLE
WIRING DIAGRAM
EW2-0174

PB-230
PB-230 3/4 (TOP VIEW)