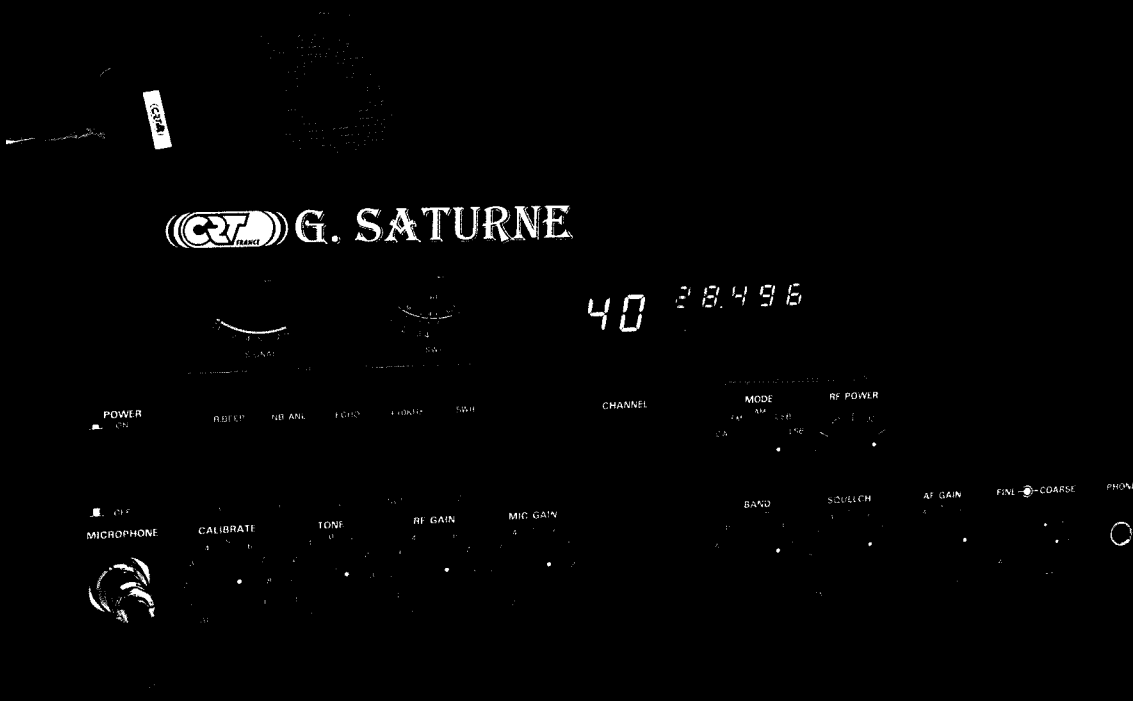




# SUPERSTAR<sup>®</sup>



# G. SATURNE

BASE STATION - AM - FM - SSB - CW

# CRT G. SATURNE

## GÉNÉRALITÉS :

Modes Modulation	:	AM / FM / SSB (USB-LSB) / CW / PA	<b>Export</b>
Fréquences couvertes	:	28 055 Mhz à 28 495 Mhz	25 615 MHz à 28 315 MHz
Synthèse de fréquence	:	PLL synthétisé	
Fréquence de tolérance	:	+/- 0.005 %	
Fréquence stabilité	:	+/- 0.003 %	
Température de fonctionnement	:	- 30°C à + 50°C	
Micro Impédance	:	600 Ohms, pastille dynamique	
Alimentation	:	220 V, 50 Hz	
Consommation	:	90 W (AC 220 V)	
Antenne impédance/connection	:	50 Ohms (type SO 239)	
Semi-conducteurs	:	9 iC, 1 FET, 61 transistors	

## ÉMETTEUR :

Puissance sortie antenne	:	CW/AM/FM 15W USB/LSB 25W
Fréquences parasites	:	60 Db
Taux modulation AM	:	Jusqu'à 100 %
Modes de modulation	:	BLU par mélangeur équilibré AM par modulation des collecteurs FM par diode varicap excursion FM +/- Khz
Action du clarifier	:	+/- 5 Khz
Bande passante audio	:	400 Hz/5 Khz (AM, FM) 400 Hz/3 Khz (SSB)

## RÉCEPTEUR :

Sensibilité	:	AM 1 $\mu$ V pour 10 Db S/B FM 1 $\mu$ V pour 20 Db S/B BLU 0.2 $\mu$ V pour 10 Db S/B USB/LSB 21 W
Sélectivité	:	AM/FM 5 Db à 4 Khz, 50 Db à 10 Khz
Rejecteur fréquence image	:	Supérieur à 50 Db
Rejecteur iF	:	Supérieur à 80 Db à 455 Khz
Action du Cag	:	de 10 $\mu$ V à 0.4 V pour une variation de niveau inférieur à 12 Db
Action du squelch	:	Ajustable à partir de 0.7 $\mu$ V
Principe réception	:	Double changement de fréquence (10.685 Mhz et 455 Khz)
Puissance audio	:	3 Watts sur 8 Ohms

## Usage Radioamateur

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S.A. au capital de 5 000 000 FF

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# **SERVICE MANUAL**

## **CRT G.SATURNE**

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## Section 1: Specification

Thank you for your confidence in selecting base station two-way radio equipment. We know you'll find your transceiver as exciting as it is practical. Many years of valuable experience designing electronic products are behind our two-way communications systems. Only the highest quality components are incorporated into base station radios to assure reliability and maximum performance.

Installing and operating the base station radio is not complicated, but the flexibility provided by its numerous operating features may not be fully appreciated until a little time is spent becoming familiar with its controls and connections. It will be to your advantage to save all the packing materials—cartons, fillers, cushioning, etc., they will prove valuable in preventing damage should you ever have occasion to transport or ship the your base station radio Dealer.

### Specifications

#### General

Channels	271 channels
Modulation Modes	CW, FM, AM, USB, LSB
Frequency Range	(H) 26.065 to 28.765 MHz (L) 25.615 to 28.315 MHz
Frequency Control	Phase-locked synthesizer
Frequency Tolerance	± 0.005%
Frequency Stability	± 0.003%
Operating Temperature Range	— 30°C to + 50°C
Microphone	Plug-in [4-pin], 600 Ohm dynamic type
AC Input Voltage	110V 60Hz (220V 50Hz)
AC Power Consumption	90W
Antenna Connectors	Standard SO-239 type
Semiconductors	9 IC, 1 FETs, 61 Transistors
Meter #1	Indicates relative RF power output/antenna SWR
Meter #2	Indicates received signal strength

<b>Transmitter</b>	
Power Output	CW/AM/FM 10W LSB/USB 21W
SSB Generation	Dual-balanced modulation
AM Modulation	Class B amplitude, collectors modulation
AM Modulation Capability	Up to 100%
FM Deviation	$\pm 1.5$ KHz @ 1,250 Hz 20mV audio
Clarifier Range	$\pm 5$ KHz
Harmonic and Spurious Emission	Better than 60 dB
AM/FM Frequency Response	400 to 5,000 Hz
SSB Frequency Response	400 to 3,000 Hz
Output Impedance	50 Ohms unbalanced
Output Indicators	RF Meter shows relative RF output power.
<b>Receiver</b>	
AM Sensitivity	1 $\mu$ V for 10 dB S/N
FM Sensitivity	1 $\mu$ V for 20 dB S/N
SSB Sensitivity	0.2 $\mu$ V for 10 dB S/N
AM/FM Selectivity	5 dB at 4 kHz, 50 dB at 10 kHz
SSB Selectivity	5 dB at 2 kHz
Image Rejection	More than 50 dB
IF Rejection	More than 80 dB at 455 kHz
AGC	Change in audio output less than 12 dB: from 10 $\mu$ V to 0.4V
Squelch	Adjustable-threshold less than 0.7 $\mu$ V
Audio Frequency Response	400 to 2,500 Hz
Distortion	Less than 10% at 2 watts output into 8 Ohms
Adjacent Channel Rejection	> 75 dB
Cross Modulation	> 50 dB
Intermediate Frequency	10.695 MHz [AM-1st, SSB], 455 KHz [AM-2nd]
Clarifier Range	$\pm 5$ KHz
Noise blanker	IF single gate type
Audio Output Power	More than 3 watts into 8 Ohms
Built-in Speaker	8 Ohms, dynamic
External Speaker (optional)	Disables internal speaker when connected

## Section 2: Installation

### Location/Connection

The transceiver should be placed in a convenient operating location close to an AC power outlet and the antenna leadin cable(s).

The transceiver is attached with the AC power cord set. Proceed as follows to complete all necessary connections to the transceiver.

- 1) Your transceiver has standard antenna connectors of type SO-239 both located on rear panel; for easy connection to standard PL-259 coax plugs. If the coax antenna cable must be made longer, use coax cable with impedance of 50 ohms, frequency ratings for 27 MHz, and use only enough cable to suit your needs. This will insure a proper impedance match and maximum power transfer from the transmitter to the antenna.
- 2) **AC Power Operation:** Use 110 (220) volts AC power for the base station.

### Noise Interference

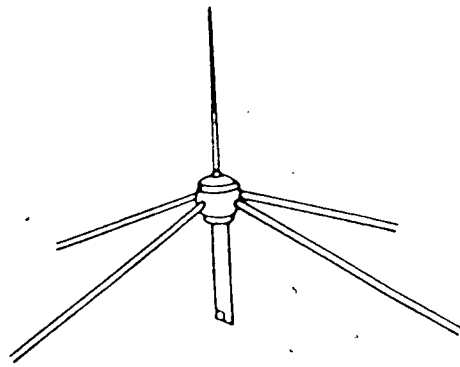
There are several kinds of noise interfering you may encounter in base station operation. Some of these noise sources are; fluorescent buzz, nearby commercial broadcast, electrical appliance, lawnmower, and electrical storms, etc. Commercial products are available to reduce interference from these sources. Consult your dealer or professional amateur radio supply shops.

### Antennas

For best transmission and reception, your transceiver should use an antenna especially designed for a frequency of 27 MHz. Antennas are purchased separately and include installation instructions. Numerous types of antennas are available that range from emphasis on ease of installation to emphasis on performance. Often the difference in performance between many of the antenna is modest.

#### 1) Vertical Ground Plane Antennas

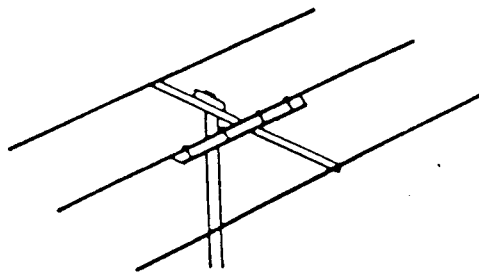
These are omnidirectional antennas that provide optimum performance for contacting other fixed stations using vertical type antennas in addition to all mobile stations. For mediumlong range communications work.



Ground Plane

## 2) Directional Beam Antennas

Highly efficient and directional antennas generally intended for fixed-to-fixed very long range communications.



Directional Beam  
Antenna

## Remote Speaker

The external speaker jack (EXT. SP) on the rear panel is used for remote receiver monitoring. The external speaker should have 8 ohms impedance and be able to handle at least 3 watts. When the external speaker is plugged in, the internal speaker is disconnected.

**Note:** The PHONE jack on the front panel overrides both external and internal speakers. When the plug from a headphone is plugged to the PHONE jack, both internal and external speakers are silenced simultaneously.

## Public Address

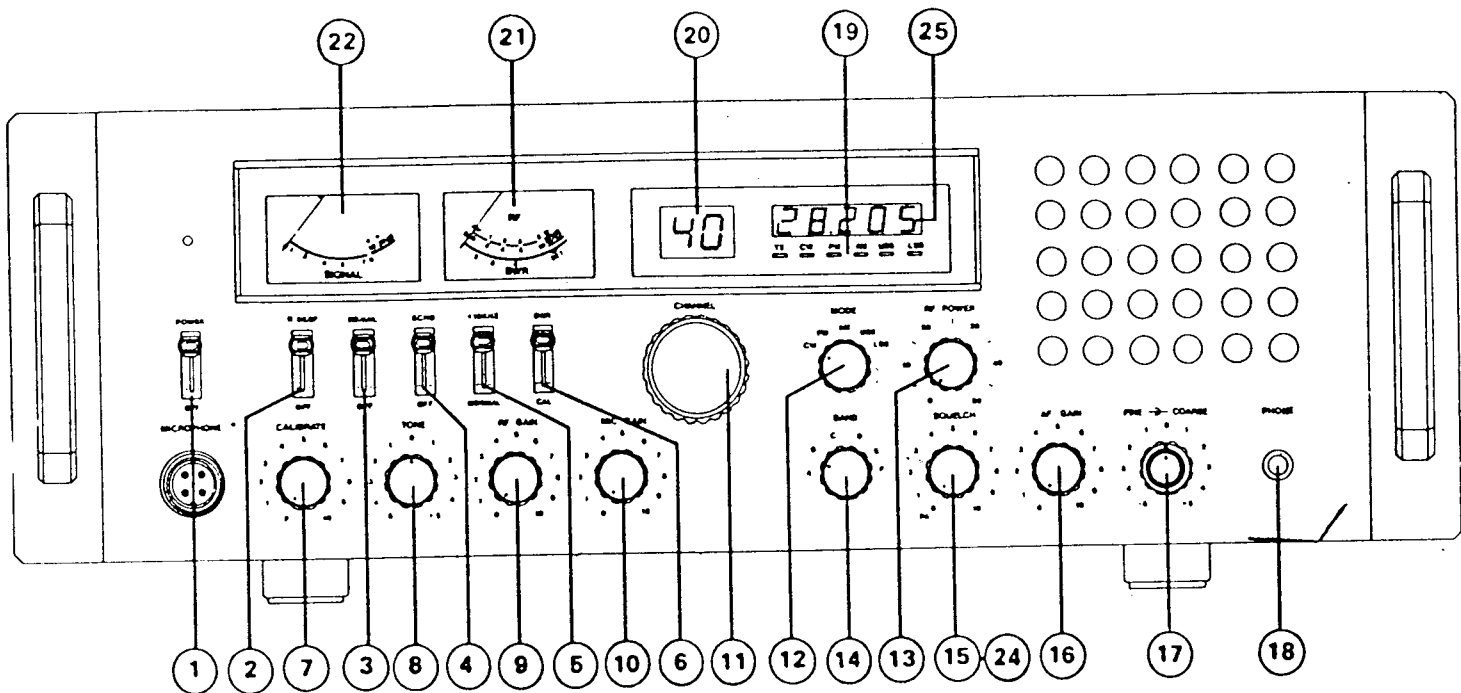
An external 8 ohm, 3 watt speaker must be connected to the PA jack located on the rear panel when the transceiver is used as a public address system. The speaker should be directed away from the microphone to prevent acoustic feedback. Physical separation or isolation of the microphone and speaker is important when operating the PA at high output levels.



## Section 3: Operation

### Controls/Indicators

There are 17 controls and 10 indicators on the front panel.



#### 1. Power/On-off

Place in Power (lever up) position to apply power to the unit.

#### 2. RB Switch

The switch activates the ROGER BEEP circuit when placed in RB (lever up) position.

#### 3. NB Switch

This switch activates the noise blanker circuit in the audio when placed in NB (lever up) position.

#### 4. ECHO Switch

Set this switch to ECHO when you desire to add an echo effect to your transmitting voice. This switch has no effect on receiving.

#### 5. +10KHz Switch

This switch activates the frequency is shifted 10 KHz up. On following channels. A channel can be used by setting this switch to + 10KHz position.

Normal	+ 10 KHz
3	3A
7	7A
11	11A
15	15A
19	19A

#### 6. SWR-Calibrate Switch

This switch changes the SWR meter function in two ways:

- **CALIB** (lever down): Used to calibrate the SWR Meter before measuring your antenna SWR ratio.
- **SWR** (lever up): Used to directly read the SWR of antenna connected to the unit. See Accessory Circuit Operation.

#### 7. Calibrate Control

This control is used for calibrating the SWR meter for accurate SWR readout in conjunction with the SWRCALIB Switch.

**Note:** So that the meter functions as RF power meter, be sure to set this control to fully counterclockwise position marked **RF**.

#### 3. Tone Control

This changes tonal sound quality when receiving. Clockwise rotation will emphasize the high tone.

#### 9. RF Gain

This control is used primarily to optimize the reception in strong signal areas. Under normal operating conditions the control should be turned fully clockwise. When strong overloading or distorted signals are received rotate this control counterclockwise to reduce gain.

**Note:** The Squelch Control 15 may require readjustment with reduced RF Gain control.

#### 10. Microphone Gain

A preamplifier circuit is built into this unit to increase microphone gain. Experiment with this control for the setting that will best suit your individual use.

#### 11. Channel Selector

Has 40 detents in a turn and selects one of the channels desired. Use the Channel selector in conjunction with the Band Select switch. The selected Channel is digitally displayed in the window above the selector.

**12. Mode Selector**

Selects the mode of operation in either CW, standard FM, AM or USB and LSB. Transmissions in any mode can only be communicated to stations operating in the same mode.

**13. RF Power**

This control that to adjust the RF power output level you want in AM or FM transmission.

**14. Band Select Switch**

Used with the channel selector. Selects one of 6 bands of 40 frequencies. See back cover to page 11 for information of channel provision and frequencies.

**15. Squelch**

This control is used to cut off or eliminate receiver background noise in the absence of an incoming signal. For maximum receiver sensitivity it is desired that the control be adjusted only to the point where the receiver background noise or ambient background noise is eliminated. Turn fully counterclockwise then slowly clockwise until the receiver noise just disappears. Any signal to be received must now be slightly stronger than the average received noise. Further clockwise rotation will increase the threshold level which a signal must overcome in order to be heard. Only strong signals will be heard at a maximum clockwise setting.

**16. AF Gain**

Permits you to adjust the listening level when receiving.

**17. Coarse/Fine Control**

Allows variation of the receiver operating frequencies above and below the assigned frequency. ~~Although this control is intended primarily to tune in SSB signals, it may be used to optimize AM/FM signals as described in the Operating Procedure Paragraphs. Coarse and Fine operates both TX/RX (or Fine only in RX).~~

### 18. Phone Jack

Accepts a plug from a headset of 4 to 32 Ohm impedance. Insertion of the plug will silence the built in speaker (and external speaker connected to External Speaker jack).

### 19. Function Indicators

LED indicators located in the LED area permit you to know instantly the mode to which the unit is engaged. **On Air:** Lights up during transmit mode indicating you are on-the-air.

**CW-FM-AM-USB-LSB:** Indicates a corresponding mode selected by the Mode selector 12.

### 20. Channel Readout

This is the LED [light emitting diode] digital readout to indicate the channel selected by the Channel selector.

### 21. Power/SWR Meter

Used for two purpose — to indicate relative transmitter power when transmitting and to indicate antenna SWR [standing wave ratio]. Note that the power meter has separate scales for AM (FM) and SSB (CW) transmission, respectively.

### 22. S [Signal] Meter

The left hand meter provides a relative indication of the signal strength of a received signal in S units during reception. Note that SSB signals will respond this meter only during voice modulation. This being due to the fact that SSB transmissions do not contain a continuous RF carrier as is found on AM or FM and CW.

### 23. Push-to-Talk Microphone

The receiver and transmitter are controlled by the ~~Push-to-Talk~~ switch on the microphone. Press the switch and the transmitter is activated, release the switch to receive. When transmitting, hold the microphone two inches from the mouth and speak clearly in a normal voice. The radio comes complete with the low impedance dynamic microphone (supplied).

**Note:** Depressing the Push-to-Talk switch on the microphone is also required to activate the PA system.

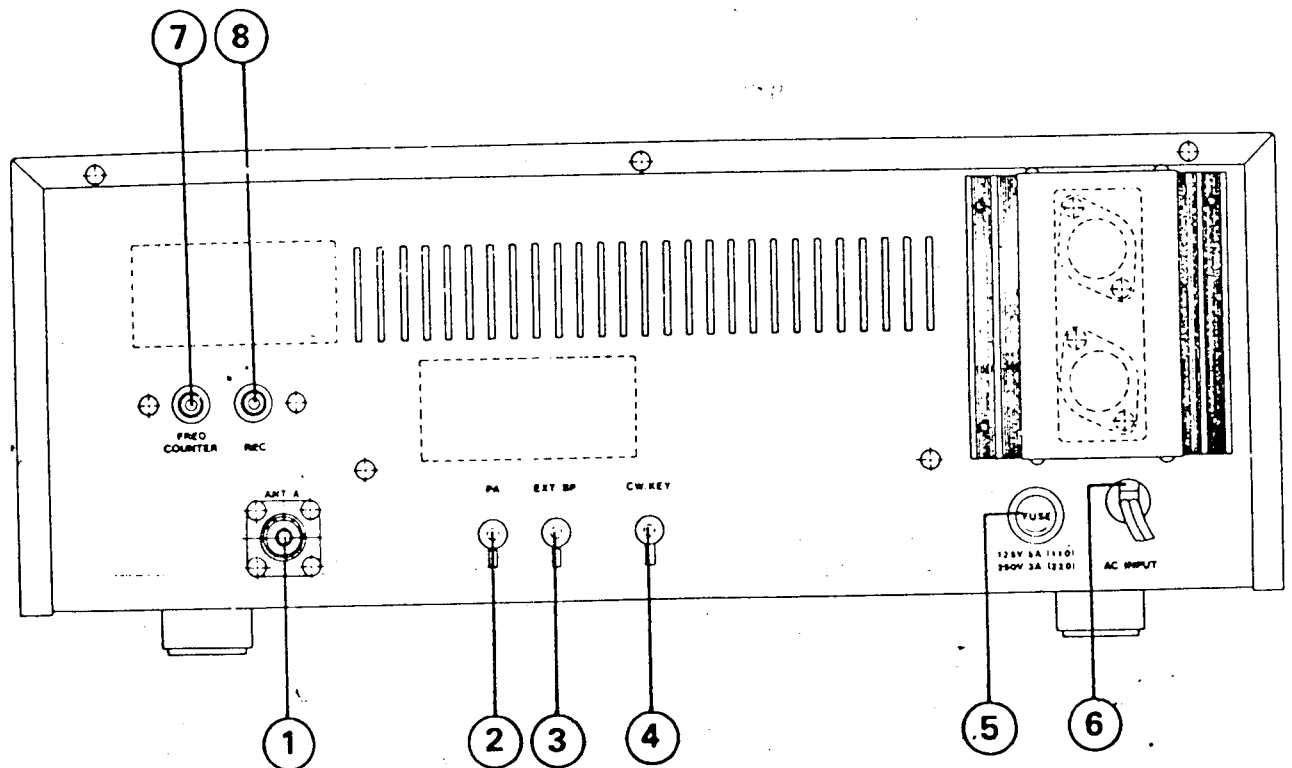
## 24. PA Switch (PULL)

This switch selects the public address mode of the transceiver. The PA function should not be used unless an external speaker is connected to the PA SP jack on the rear panel. See the Public Address Operation on page 6.

## 25. Frequency Counter

The frequency counter indicates of the selected channel you wish to operate on.

## Rear Panel



## Rear Panel Connectors

### 1. Antenna

Accepts 50 ohm coaxial cable with a type PL-259 plug to be connected.

2. **PA Speaker Jack**

Used for public address operation. The PA speaker should be connected to this jack using 1/8" (3.6mm) diameter plug. Insertion of an external speaker into the External Speaker jack will not interrupt the PA operation.

3. **External Speaker Jack**

Used to connect an external speaker for extra sound source. Use 1/8" (3.6mm) diameter plug for connection. Insertion of the plug into this jack will silence the internal speaker.

4. **CW Key**

Use for morse code operation. Connect a CW key to this jack and place the CW/FM/AM/USB/LSB switch in the CW position.

5. **Fuse**

Accommodates a fuse for AC input circuit protection. Use 125V 5A or 250V 3A fuse for replacement.

**Note:** Before replacing the fuse, see your dealer to check to find out the reason why the fuse was blown. Replacing without check may only blow the fuse again.

6. **AC Power Cord**

Connects to AC power outlet for AC mains supply.

7. **Frequency Counter Output Jack**

The RCA-type (pin) jack is used to connect an optional frequency counter so that you can watch channel frequency digitally. The frequency counter readout will be possible on transmitting only.

8. **Recording Output Jack**

The RCA-type (pin) jack provides output for connection to a tape recorder to permit recording of received signals or your modulating voice.

## Operating Procedure To Receive

**IMPORTANT:** Make sure that the antenna, power source, and microphone are connected before you operate.

- 1) Set the ECHO switch to OFF position.
- 2) Turn the unit on by setting the Power Switch to On position. Now the meters, Channel Indicator, and Function Indicators will be illuminated.
- 3) Temporarily, set the Mode Switch in AM position.
- 4) Set the Squelch Control in fully counterclockwise position and adjust the AF Gain control for a comfortable listening level.
- 5) Listen to the background noise from the speaker. Turn the Squelch Control slowly clockwise until the noise just disappears (no signal should be present). Leave the Squelch Control at this setting. The Squelch Control is now properly adjusted. The receiver will remain quiet until a signal is actually received. Do not advance the Squelch Control too far clockwise or some of the weaker signals will not be heard.
- 6) Depress the Coarse and set it to the center (12 o'clock) position.
- 7) Select a desired mode of operation, CW, FM, AM, USB or LSB and adjust the Clarifier.
- 8) Select a channel you desire by the Band Select switch, then by the Channel Selector.

### **Operating Procedure To Transmit**

- 1) Select the desired channel and mode of transmission.
- 2) If the channel is clear, depress the Push-to-Talk switch on the microphone. Speak in a normal tone of voice.

### **Standby-Beep**

A special provision has been built in your radio to give other stations a sign which tells that you are turning to receive. Without needing switching operation to activate this feature, a beep tone is automatically transmitted at each time you release the push-to-talk switch on the microphone to turn to receive mode.

---

### **Microphone gain control**

A preamplifier circuit is built into the radio to increase the microphone gain. Experiment with the control for setting that will best suit your individual use.

Note: When the microphone gain control is set to maximum, ambient noise

may also be picked up by the microphone. In high noise situations, low microphone gain setting may produce the best results.

The microphone gain control is also used to adjust PA loudness.

## Public Address Operation

To use this feature of the transceiver, a speaker having a voice coil impedance of 8 to 16 ohms and a power handling capability of at least 3 watts should be connected to the PA SP jack on the rear panel. Be sure that there is physical separation between the microphone and the PA speaker itself. If the PA speaker is located very close to the microphone, acoustic feedback will result when the PA amplifier is operated at high volume (or when PA is used indoors). Adjustment of PA volume is made with the MIC GAIN control.

## SWR Measurement

Most antennas are factory tuned, but the antenna efficiency may be peaked by slightly adjusting the length of antenna using the SWR meter built into the unit. This adjustment may improve the antenna standing wave ratio (SWR). The SWR permits you to determine how well matched the antenna and its cables are to your transceiver.

- 1) Set the unit in the receive mode as instructed under the Operating Procedure to Receive section.
- 2) Set the Mode switch to AM position; the SWR-Cal 6 switch to the Cal position.
- 3) Press the Push-to-Talk switch on the microphone and turn the Calibrate Control clockwise (past click) so that the SWR meter pointer exactly coincides with the Set mark on the scale. Release the Push-to-Talk switch.
- 4) Set the SWR-Cal switch to the SWR position and depress the Push-to-Talk switch again. The SWR of your antenna is read directly on the scale.

Note: An SWR below 2 or less is desired as this indicates that over 95% of the transmitted power is broadcast into the air.



## ALTERNATE MICROPHONES AND INSTALLATION

For best results, the user should select a low-impedance dynamic type microphone or a transistorized microphone. Transistorized type microphones have a low output impedance characteristic. The microphones must be provided with a four-lead cable. The audio conductor and its shielded lead comprise two of the leads. The fourth lead is for receive control, and third is for transmit control. The microphone should provide the functions shown in schematic below.

### 4 WIRE MIC CABLE

Pin Number	Mic Cable Lead
1	Audio Shield
2	Audio Lead
3	Transmit Control
4	Receive Control

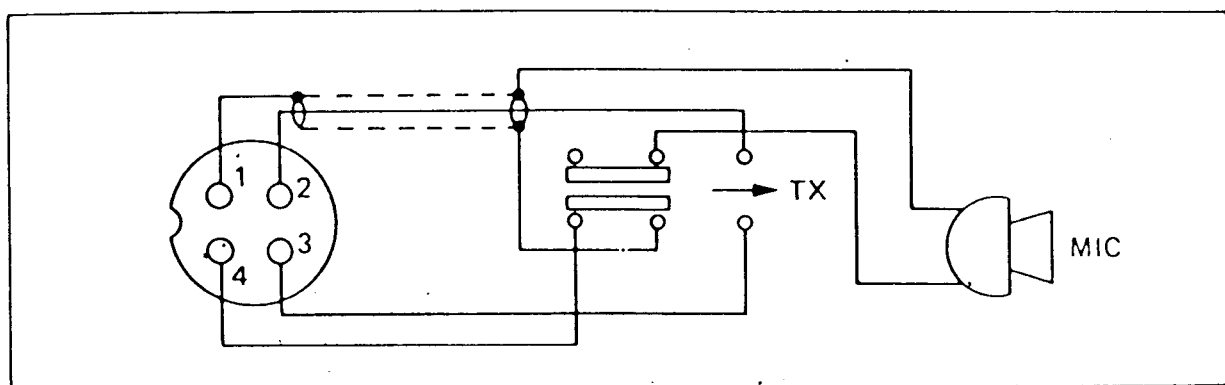


Fig. 3. Your transceiver microphone schematic.

If the microphone to be used is provided with pre-cut leads, they must be revised as follows.

1. Cut leads so that they extend  $7/16$ " beyond the plastic insulating jacket of the microphone cable.
2. All leads should be cut to the same length. Strip the ends of each wire  $1/8$ " and tin the exposed wire.

Before beginning the actual wiring read carefully, the circuit and wiring information provided with the microphone you select. Use the minimum head required in soldering the connections. Keep the exposed wire lengths to a minimum to avoid shorting when the microphone plug is reassembled.

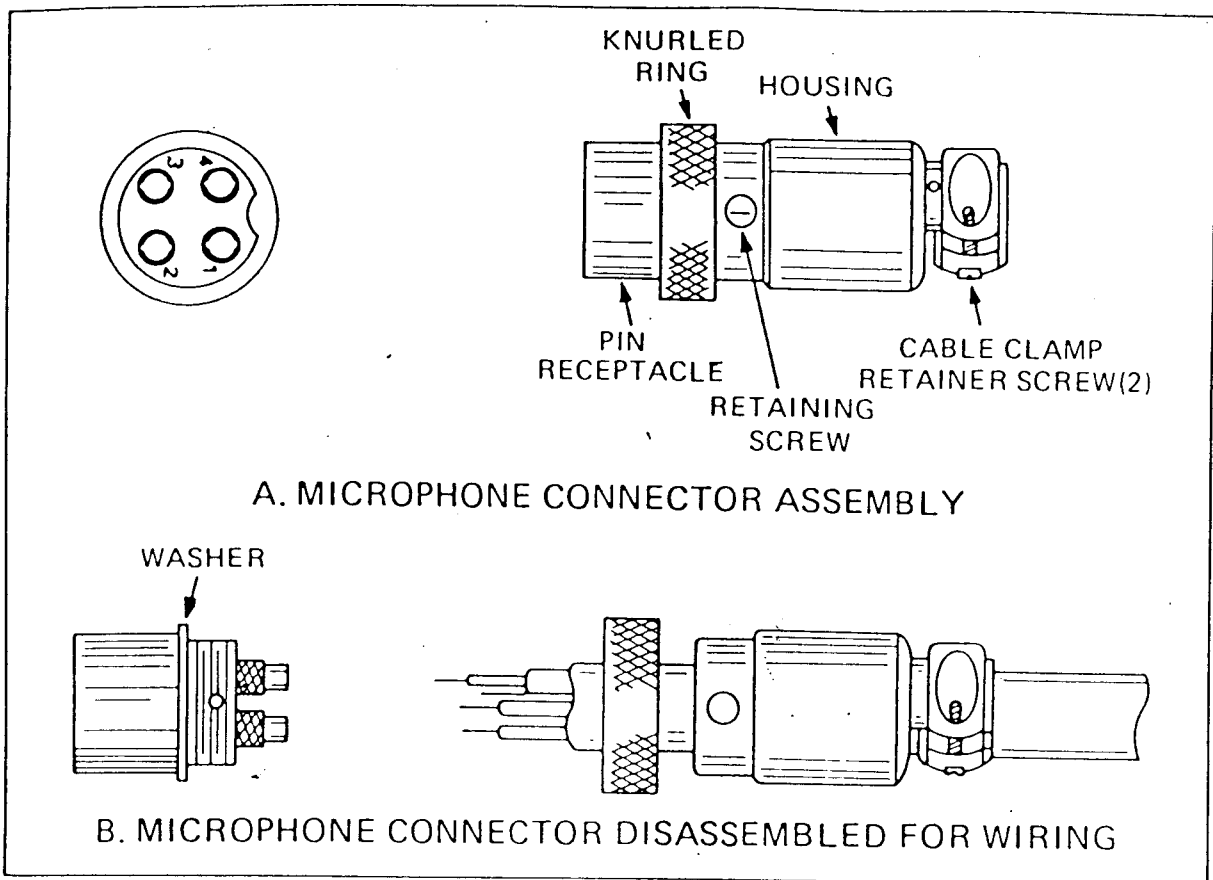


Fig. 4. Microphone plug wiring.

1. Remove the retaining screw.
2. Unscrew the housing from the pin receptacle body.
3. Loosen the two cable clamp retainer screws.
4. Feed the microphone cable through the housing, knurled ring and washer as shown Fig. 4.
5. The wires must now be soldered to the pins as indicated in the above wiring tables. If a vise or clamping tool is available it should be used to hold the pin receptacle body during the soldering operation, so that both hands are free to perform the soldering. If a vise or clamping tool is not available, the pin receptacle body can be held in a stationary position by inserting it into the microphone jack of the front panel. The numbers of the pins of the microphone plug are shown in Fig. 5, as viewed from the back of the plug. Before soldering the wire to the pins, pre-tin the wire receptacle of each pin of the plug.

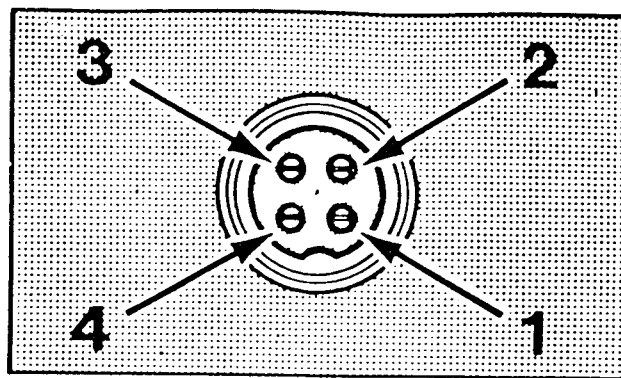


Fig. 5. Microphone plug pin numbers viewed from rear of pin receptacle.

Be sure that the housing and the knurled ring of Fig. 3 are pushed back onto the microphone cable before starting to solder. If the washer is not captive to the pin receptacle body, make sure that it is placed on the threaded portion of the pin receptacle body before soldering.

If the microphone jack is used to hold the pin receptacle during the soldering operation, best results are obtained when the connections to pins 1 and 3 are made first and then the connections to pins 2 and 4. Use a minimum amount of solder and be careful to prevent excessive solder accumulation on pins, which could cause a short between the pin and the microphone plug housing.

6. When all soldering connections to the pins of the microphone plug are complete, push the knurled ring and the housing forward and screw the housing onto the threaded portion of the pin receptacle body. Note the location of the screw clearance hole in the plug housing with respect to the threaded hole in the pin receptacle body. When the housing is completely threaded into the pin receptacle body, a final fraction of a turn either clockwise or counterclockwise may be required to align the screw hole with the threaded hole in the pin receptacle body. When these are aligned, the retaining screw is then screwed into the place to secure the housing to the pin receptacle body.
7. The two cable clamp retainer screws should now be tightened to secure the housing to the microphone cord. If the cutting directions have been carefully followed, the cable clamp should secure to the insulating jacket of the microphone cable.
8. Upon completion of the microphone plug wiring, connect and secure the microphone plug in the transceiver.

## A FEW RULES THAT SHOULD BE OBEYED

1. You must identify your official licensed call sign at the beginning and end of every conversation.
2. You are not allowed to carry on a conversation with another station for more than five minutes at a time without taking a one-minute break, to give others a chance to use the channel.
3. You are not allowed to blast others off the air by over-powering them with illegally amplified transmitter power, or illegally high antennas.
4. You can't use CB to promote illegal activities.
5. You are not allowed to use profanity.
6. You may not play music in your CB.
7. You may not use your CB to sell merchandise or professional services.

(H)

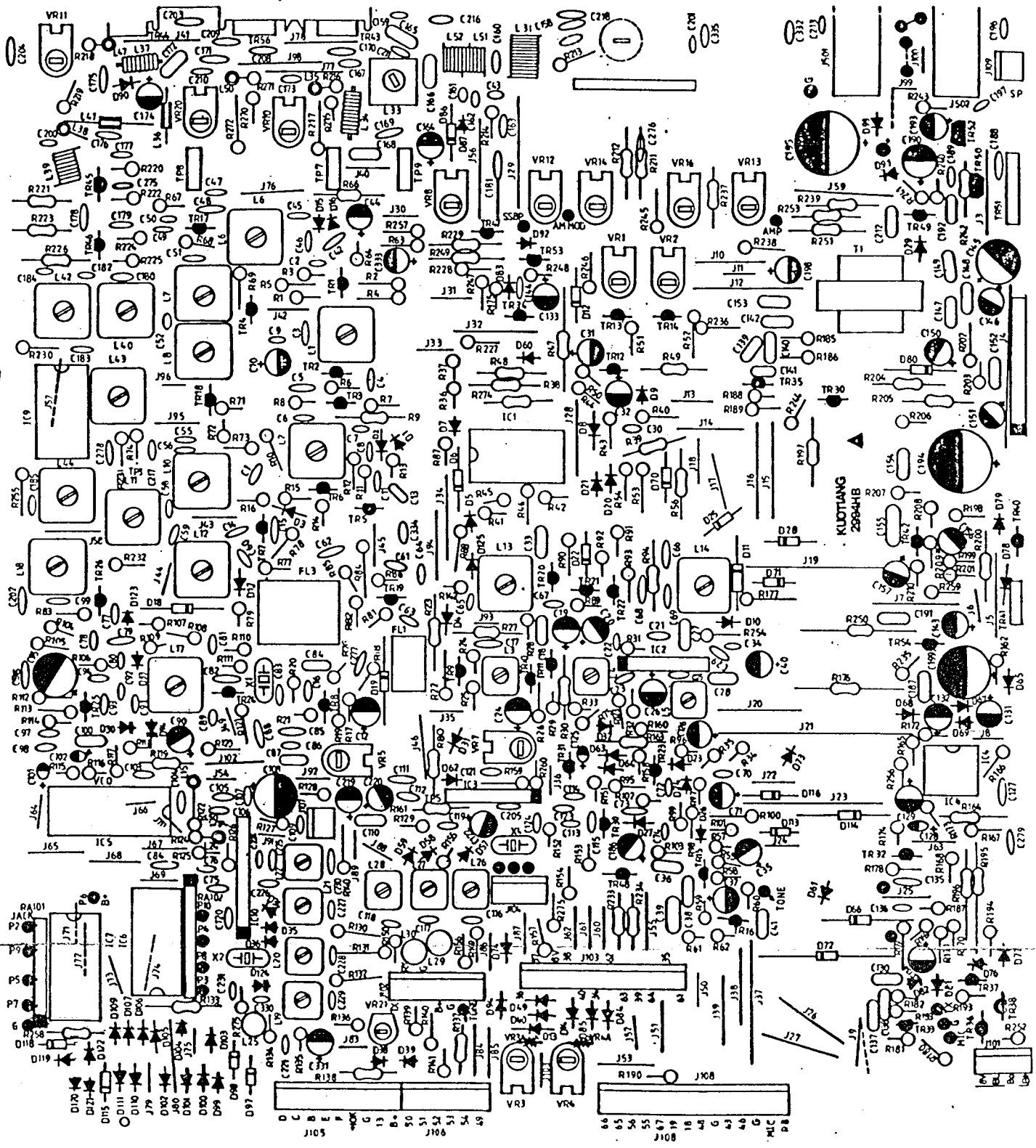
## CHANNEL INFORMATION

Chan nel	ANT FREQUENCY (MHz)											
	A BAND		B BAND		C BAND		D BAND		E BAND		F BAND	
	Nor mal	+10 KHz	Nor mal	+10 KHz	Nor mal	+10 KHz	Nor mal	+10 KHz	Nor mal	+10 KHz	Nor mal	+10 KHz
1	26.065	26.075	26.515	26.525	26.965	26.975	27.415	27.425	27.865	27.875	28.315	28.325
2	26.075	26.085	26.525	26.535	26.975	26.985	27.425	27.435	27.875	27.885	28.325	28.335
3	26.085	26.095	26.535	26.545	26.985	26.995	27.435	27.445	27.885	27.895	28.335	28.355
		(3A)		(3A)		(3A)		(3A)		(3A)	(3A)	(3A)
4	26.105	26.115	26.555	26.565	27.005	27.015	27.455	27.465	27.905	27.915	28.355	28.365
5	26.115	26.125	26.565	26.575	27.015	27.025	27.465	27.475	27.915	27.925	28.365	28.375
6	26.125	26.135	26.575	26.585	27.025	27.035	27.475	27.485	27.925	27.935	28.375	28.385
7	26.135	26.145	26.585	26.595	27.035	27.045	27.485	27.495	27.935	27.945	28.385	28.405
		(7A)		(7A)		(7A)		(7A)		(7A)	(7A)	(7A)
8	26.155	26.165	26.605	26.615	27.055	27.065	27.505	27.515	27.955	27.965	28.405	28.415
9	26.165	26.175	26.615	26.625	27.065	27.075	27.515	27.525	27.965	27.975	28.415	28.425
10	26.175	26.185	26.625	26.635	27.075	27.085	27.525	27.535	27.975	27.985	28.425	28.435
11	26.185	26.195	26.635	26.645	27.085	27.095	27.535	27.545	27.985	27.995	28.435	28.455
		(11A)		(11A)		(11A)		(11A)		(11A)	(11A)	(11A)
12	26.205	26.215	26.655	26.665	27.105	27.115	27.555	27.565	28.005	28.015	28.455	28.465
13	26.215	26.225	26.665	26.675	27.115	27.125	27.565	27.575	28.015	28.025	28.465	28.475
14	26.225	26.235	26.675	26.685	27.125	27.135	27.575	27.585	28.025	28.035	28.475	28.485
15	26.235	26.245	26.685	26.695	27.135	27.145	27.585	27.595	28.035	28.045	28.485	28.505
		(15A)		(15A)		(15A)		(15A)		(15A)	(15A)	(15A)
16	26.255	26.265	26.705	26.715	27.155	27.165	27.605	27.615	28.055	28.065	28.505	28.515
17	26.265	26.275	26.715	26.725	27.165	27.175	27.615	27.625	28.065	28.075	28.515	28.525
18	26.275	26.285	26.725	26.735	27.175	27.185	27.625	27.635	28.075	28.085	28.525	28.535
19	26.285	26.295	26.735	26.745	27.185	27.195	27.635	27.645	28.085	28.095	28.535	28.555
		(19A)		(19A)		(19A)		(19A)		(19A)	(19A)	(19A)
20	26.305	26.315	26.755	26.765	27.205	27.215	27.655	27.665	28.105	28.115	28.555	28.565
21	26.315	26.325	26.765	26.775	27.215	27.225	27.665	27.675	28.115	28.125	28.565	28.575
22	26.325	26.335	26.775	26.785	27.225	27.235	27.675	27.685	28.125	28.135	28.575	28.605
23	26.355	26.365	26.805	26.815	27.255	27.265	27.705	27.715	28.155	28.165	28.605	28.585
24	26.335	26.345	26.785	26.795	27.235	27.245	27.685	27.695	28.135	28.145	28.585	28.595
25	26.345	26.355	26.795	26.805	27.245	27.255	27.695	27.705	28.145	28.155	28.595	28.615
26	26.365	26.375	26.815	26.825	27.265	27.275	27.715	27.725	28.165	28.175	28.615	28.625
27	26.375	26.385	26.825	26.835	27.275	27.285	27.725	27.735	28.175	28.185	28.625	28.635
28	26.385	26.395	26.835	26.845	27.285	27.295	27.735	27.745	28.185	28.195	28.635	28.645
29	26.395	26.405	26.845	26.855	27.295	27.305	27.745	27.755	28.195	28.205	28.645	28.655
30	26.405	26.415	26.855	26.865	27.305	27.315	27.755	27.765	28.205	28.215	28.655	28.665
31	26.415	26.425	26.865	26.875	27.315	27.325	27.765	27.775	28.215	28.225	28.665	28.675
32	26.425	26.435	26.875	26.885	27.325	27.335	27.775	27.785	28.225	28.235	28.675	28.685
33	26.435	26.445	26.885	26.895	27.335	27.345	27.785	27.795	28.235	28.245	28.685	28.695
34	26.445	26.455	26.895	26.905	27.345	27.355	27.795	27.805	28.245	28.255	28.695	28.705
35	26.455	26.465	26.905	26.915	27.355	27.365	27.805	27.815	28.255	28.265	28.705	28.715
36	26.465	26.475	26.915	26.925	27.365	27.375	27.815	27.825	28.265	28.275	28.715	28.725
37	26.475	26.485	26.925	26.935	27.375	27.385	27.825	27.835	28.275	28.285	28.725	28.735
38	26.485	26.495	26.935	26.945	27.385	27.395	27.835	27.845	28.285	28.295	28.735	28.745
39	26.495	26.505	26.945	26.955	27.395	27.405	27.845	27.855	28.295	28.305	28.745	28.755
40	26.505	26.515	26.955	26.965	27.405	27.415	27.855	27.865	28.305	28.315	28.755	28.765

(L)

## CHANNEL INFORMATION

Chan nel	ANT FREQUENCY (MHz)											
	A BAND		B BAND		C BAND		D BAND		E BAND		F BAND	
	Nor mal	+10 KHz	Nor mal	+10 KHz	Nor mal	+10 KHz	Nor mal	+10 KHz	Nor mal	+10 KHz	Nor mal	+10 KHz
1	25.615	25.625	26.065	26.075	26.515	26.525	26.965	26.975	27.415	27.425	27.865	27.875
2	25.625	25.635	26.075	26.085	26.525	26.535	26.975	26.985	27.425	27.435	27.875	27.885
3	25.635	25.645	26.085	26.095	26.535	26.545	26.985	26.995	27.435	27.445	27.885	27.895
4	25.655	25.665	26.105	26.115	26.555	26.565	27.005	27.015	27.455	27.465	27.905	27.915
5	25.665	25.675	26.115	26.125	26.565	26.575	27.015	27.025	27.465	27.475	27.915	27.925
6	25.675	25.685	26.125	26.135	26.575	26.585	27.025	27.035	27.475	27.485	27.925	27.935
7	25.685	25.695	26.135	26.145	26.585	26.595	27.035	27.045	27.485	27.495	27.935	27.945
8	25.705	25.715	26.155	26.165	26.605	26.615	27.055	27.065	27.505	27.515	27.955	27.965
9	25.715	25.725	26.165	26.175	26.615	26.625	27.065	27.075	27.515	27.525	27.965	27.975
10	25.725	25.735	26.175	26.185	26.625	26.635	27.075	27.085	27.525	27.535	27.975	27.985
11	25.735	25.745	26.185	26.195	26.635	26.645	27.085	27.095	27.535	27.545	27.985	27.995
12	25.755	25.765	26.205	26.215	26.655	26.665	27.105	27.115	27.555	27.565	28.005	28.015
13	25.765	25.775	26.215	26.225	26.665	26.675	27.115	27.125	27.565	27.575	28.015	28.025
14	25.775	25.785	26.225	26.235	26.675	26.685	27.125	27.135	27.575	27.585	28.025	28.035
15	25.785	25.795	26.235	26.245	26.685	26.695	27.135	27.145	27.585	27.595	28.035	28.045
16	25.805	25.815	26.255	26.265	26.705	26.715	27.155	27.165	27.605	27.615	28.055	28.065
17	25.815	25.825	26.265	26.275	26.715	26.725	27.165	27.175	27.615	27.625	28.065	28.075
18	25.825	25.835	26.275	26.285	26.725	26.735	27.175	27.185	27.625	27.635	28.075	28.085
19	25.835	25.845	26.285	26.295	26.735	26.745	27.185	27.195	27.635	27.645	28.085	28.095
20	25.855	25.865	26.305	26.315	26.755	26.765	27.205	27.215	27.655	27.665	28.105	28.115
21	25.865	25.875	26.315	26.325	26.765	26.775	27.215	27.225	27.665	27.675	28.115	28.125
22	25.875	25.885	26.325	26.335	26.775	26.785	27.225	27.235	27.675	27.685	28.125	28.135
23	25.905	25.915	26.355	26.365	26.805	26.815	27.255	27.265	27.705	27.715	28.155	28.165
24	25.885	25.895	26.335	26.345	26.785	26.795	27.235	27.245	27.685	27.695	28.135	28.145
25	25.895	25.905	26.345	26.355	26.795	26.805	27.245	27.255	27.695	27.705	28.145	28.155
26	25.915	25.925	26.365	26.375	26.815	26.825	27.265	27.275	27.715	27.725	28.165	28.175
27	25.925	25.935	26.375	26.385	26.825	26.835	27.275	27.285	27.725	27.735	28.175	28.185
28	25.935	25.945	26.385	26.395	26.835	26.845	27.285	27.295	27.735	27.745	28.185	28.195
29	25.945	25.955	26.395	26.405	26.845	26.855	27.295	27.305	27.745	27.755	28.195	28.205
30	25.955	25.965	26.405	26.415	26.855	26.865	27.305	27.315	27.755	27.765	28.205	28.215
31	25.965	25.975	26.415	26.425	26.865	26.875	27.315	27.325	27.765	27.775	28.215	28.225
32	25.975	25.985	26.425	26.435	26.875	26.885	27.325	27.335	27.775	27.785	28.225	28.235
33	25.985	25.995	26.435	26.445	26.885	26.895	27.335	27.345	27.785	27.795	28.235	28.245
34	25.995	26.005	26.445	26.455	26.895	26.905	27.345	27.355	27.795	27.805	28.245	28.255
35	26.005	26.015	26.455	26.465	26.905	26.915	27.355	27.365	27.805	27.815	28.255	28.265
36	36.015	26.025	26.465	26.475	26.915	26.925	27.365	27.375	27.815	27.825	28.265	28.275
37	26.025	26.035	26.475	26.485	26.925	26.935	27.375	27.385	27.825	27.835	28.275	28.285
38	26.035	26.045	26.485	26.495	26.935	26.945	27.385	27.395	27.835	27.845	28.285	28.295
39	26.045	26.055	26.495	26.505	26.945	26.955	27.395	27.405	27.845	27.855	28.295	28.305
40	26.055	26.065	26.505	26.515	26.955	26.965	27.405	27.415	27.855	27.865	28.305	28.315



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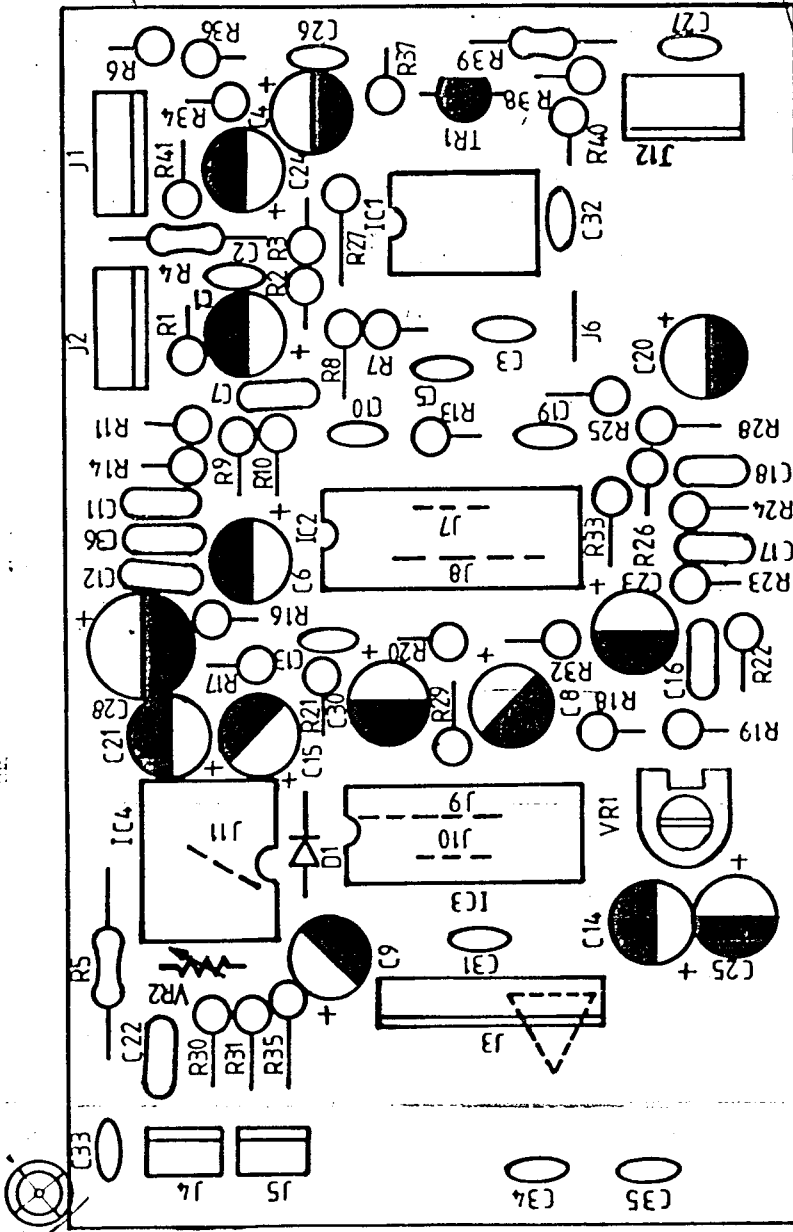
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IC100

4. DWG. NO: EPTOSSB50B E=1.2°  
 DATE: 78.8.18  
 5. HOLE SIZE: A=15X4°-3  
 剖面: 各派板



NOTES  
 1 S=2:1  
 2 MODEL: GALAXY PLUS  
 3 TITLE: ECHO PCB  
 4 DWG NO: EPTOSSB50B  
 DATE: 78.9.7

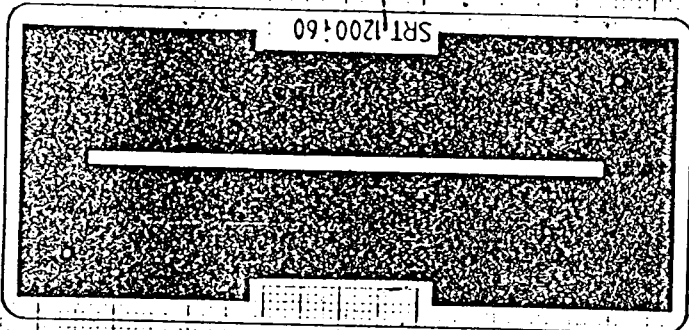
DRAWER: 张永良



SRT-1206

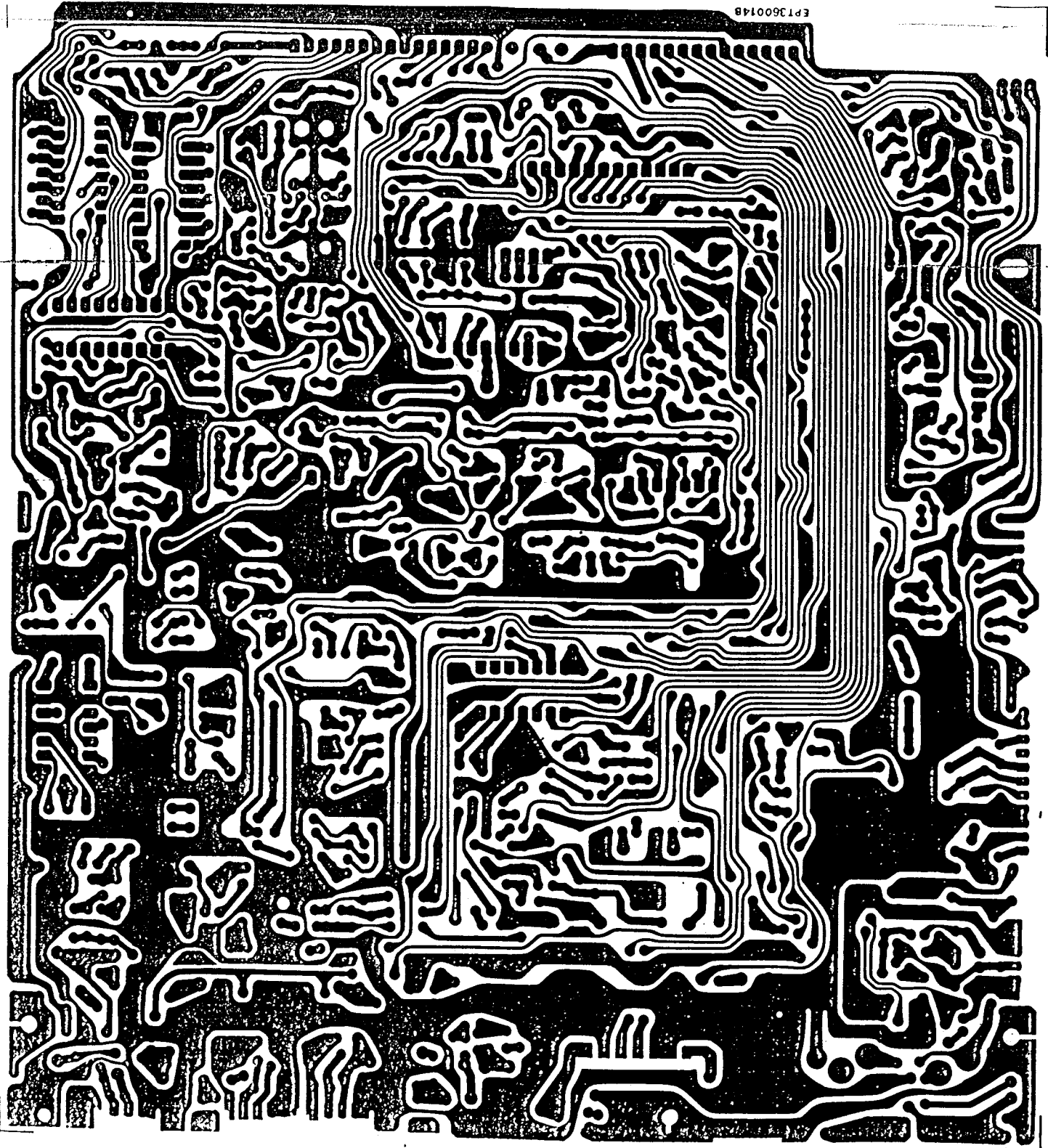
2:1

SRT 1200:60



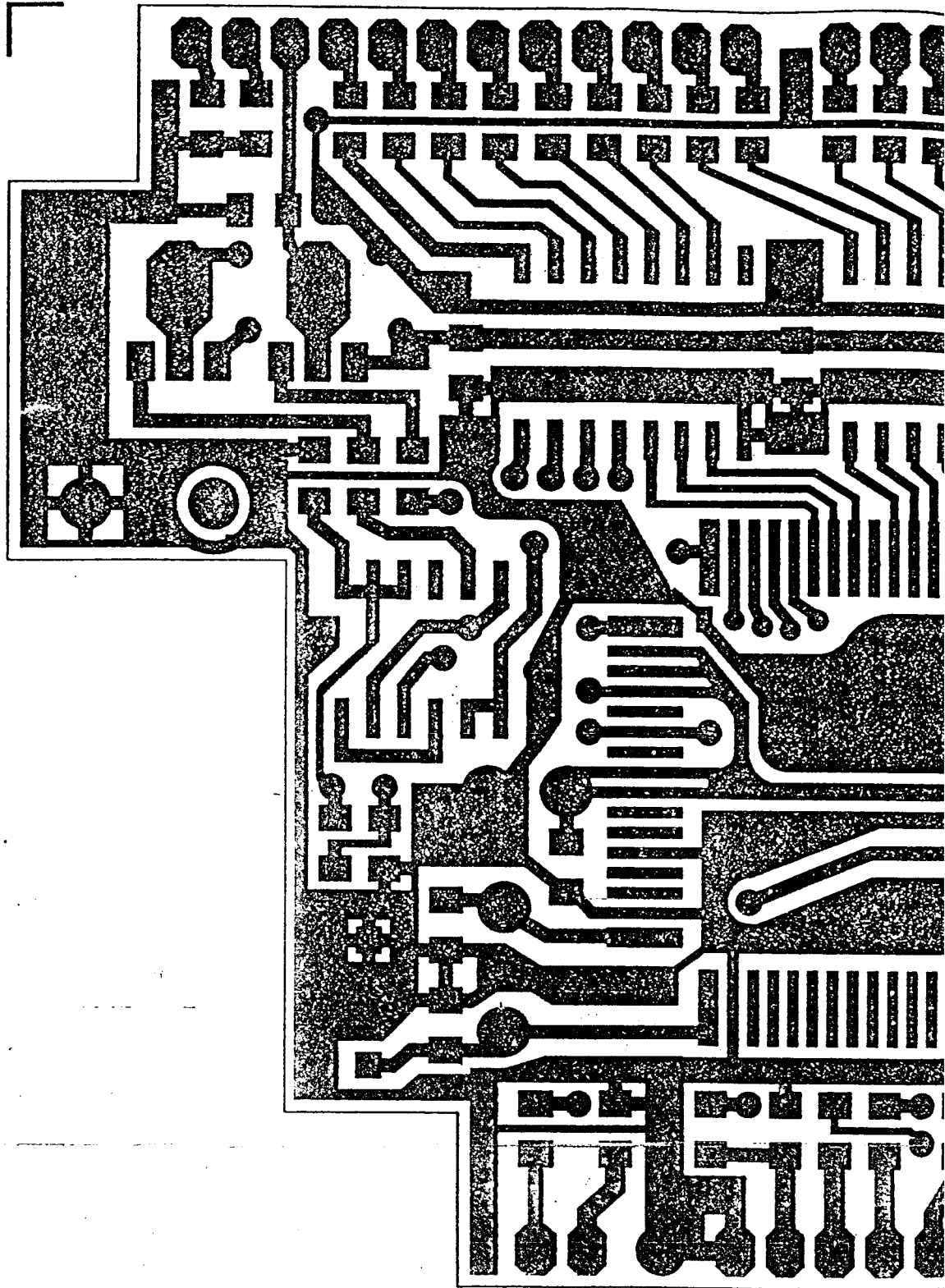
Handwritten marks or symbols.

EP1360014B



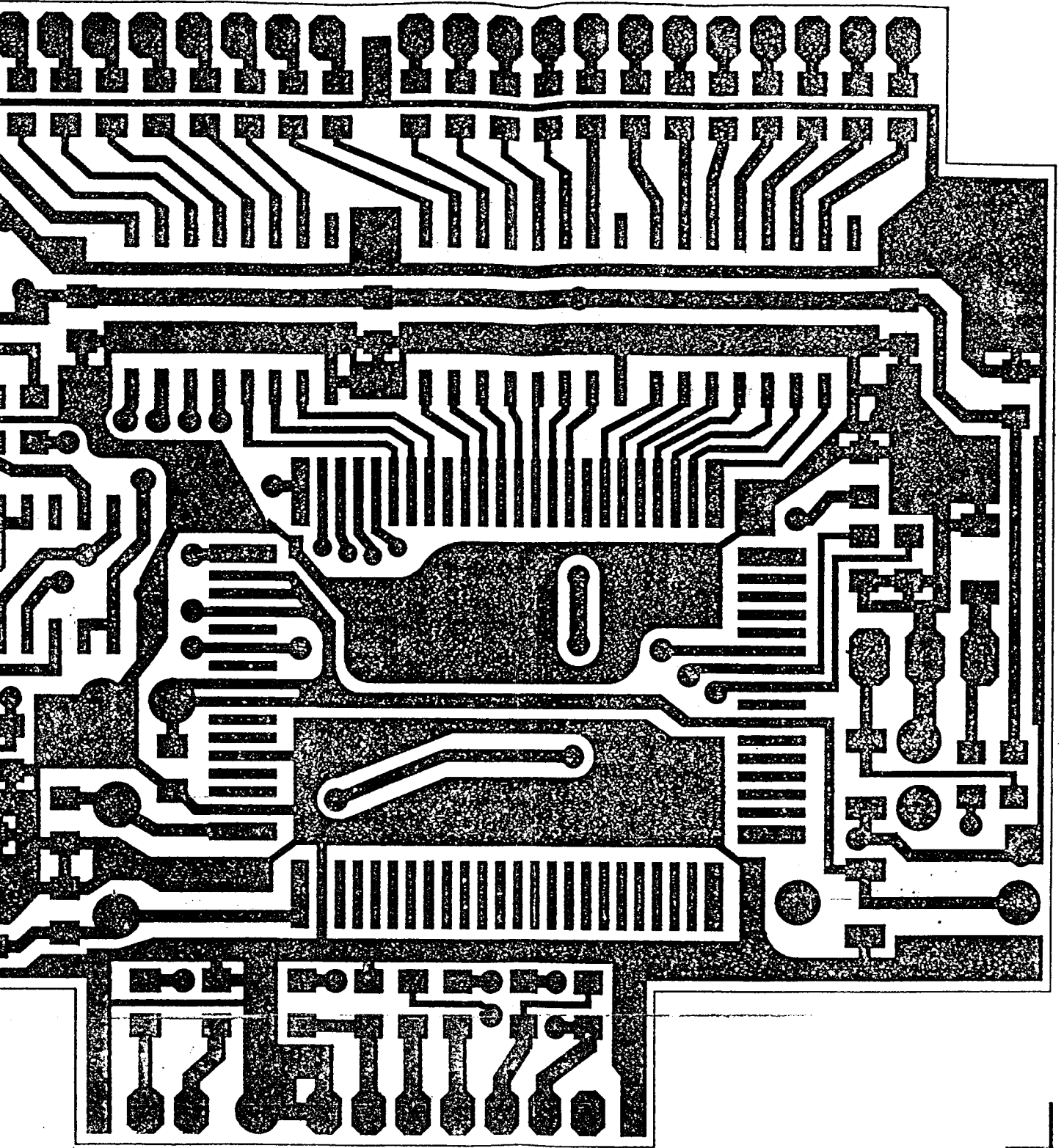
1A

1B



1B

1C



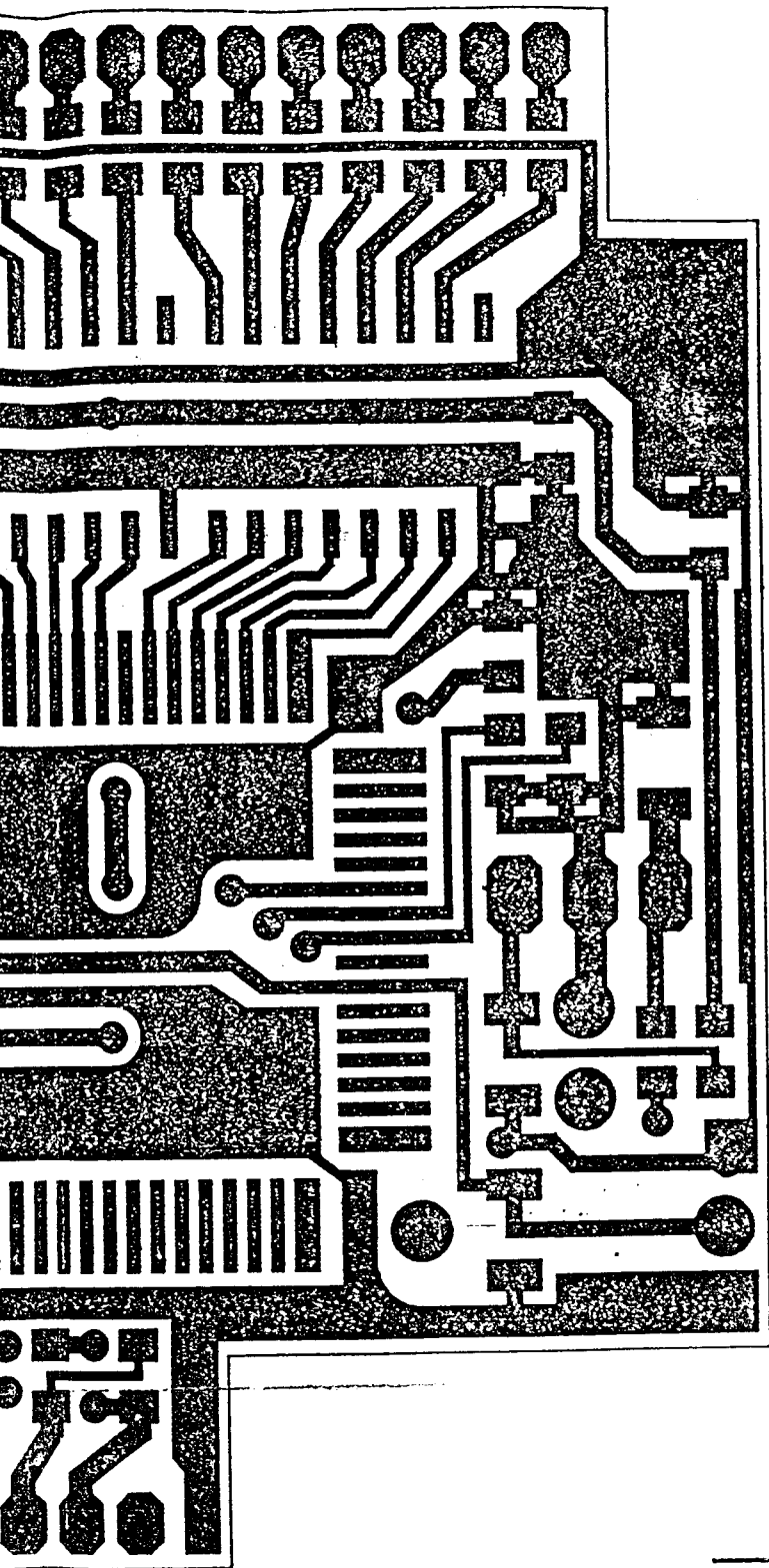
- NO
- 1: SC
- 2: MD
- 3: TI
- 4: DV
- 5: MA
- 6: HC

7: DR

此面为如

1C

1D



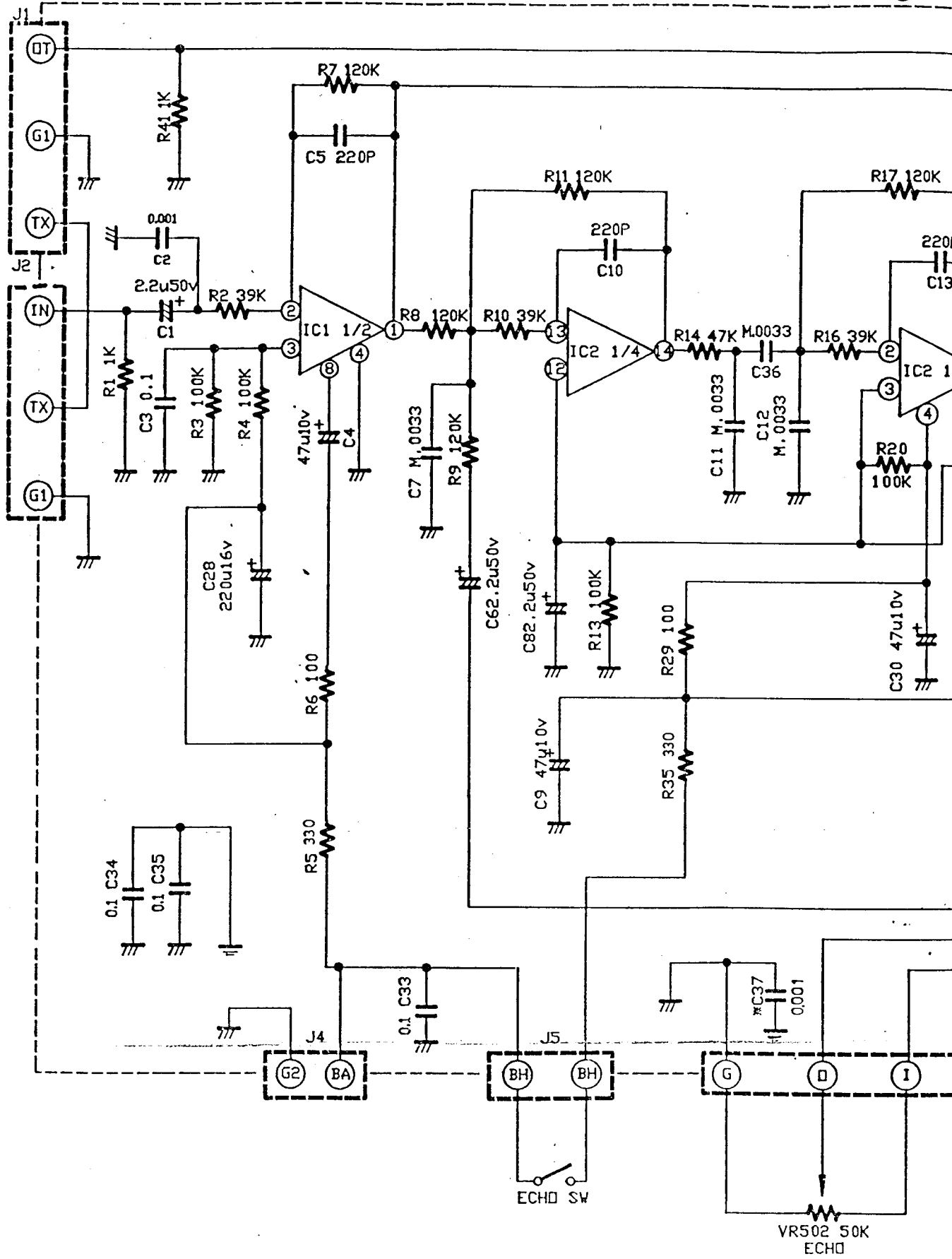
NOTES

- 1: SCALE: 4:1
- 2: MODEL: NEW COUNTER
- 3: TITLE: COUNTER PCB
- 4: DWG NO: EPT210011C
- 5: MATERIAL: F.G 1.6 mm
- 6: HOLE: A=1.5 $\phi$  B=1.0 $\phi$   
C=0.8 $\phi$  OTHER 0.5 $\phi$
- 7: DRAWING: RAY.10.1994



此面为铜箔面铜箔图  
(正版)

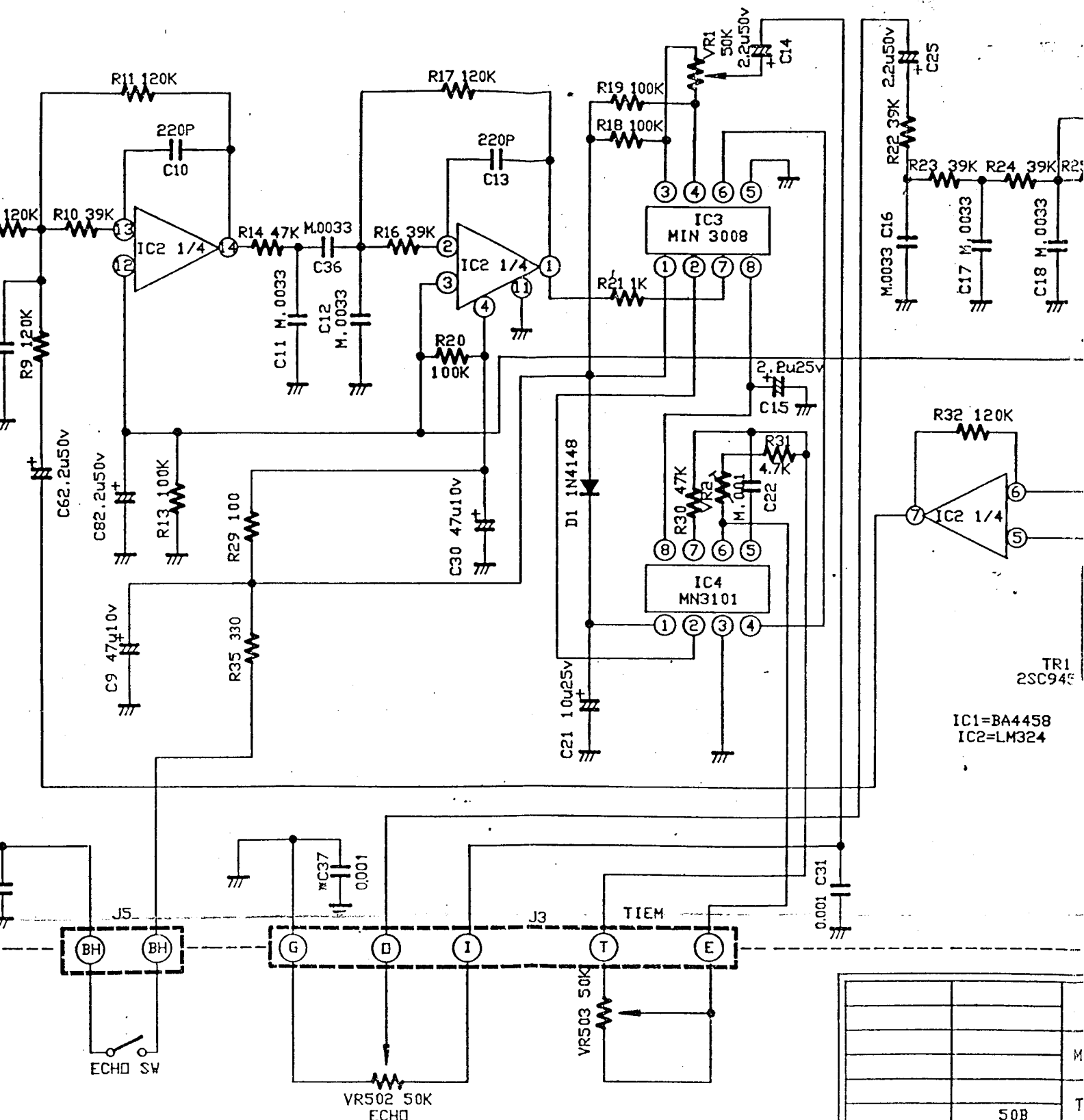
J.F.WEI



3	R5	100
2	R35	100
1	R34	1K
		CHANG

20

2C

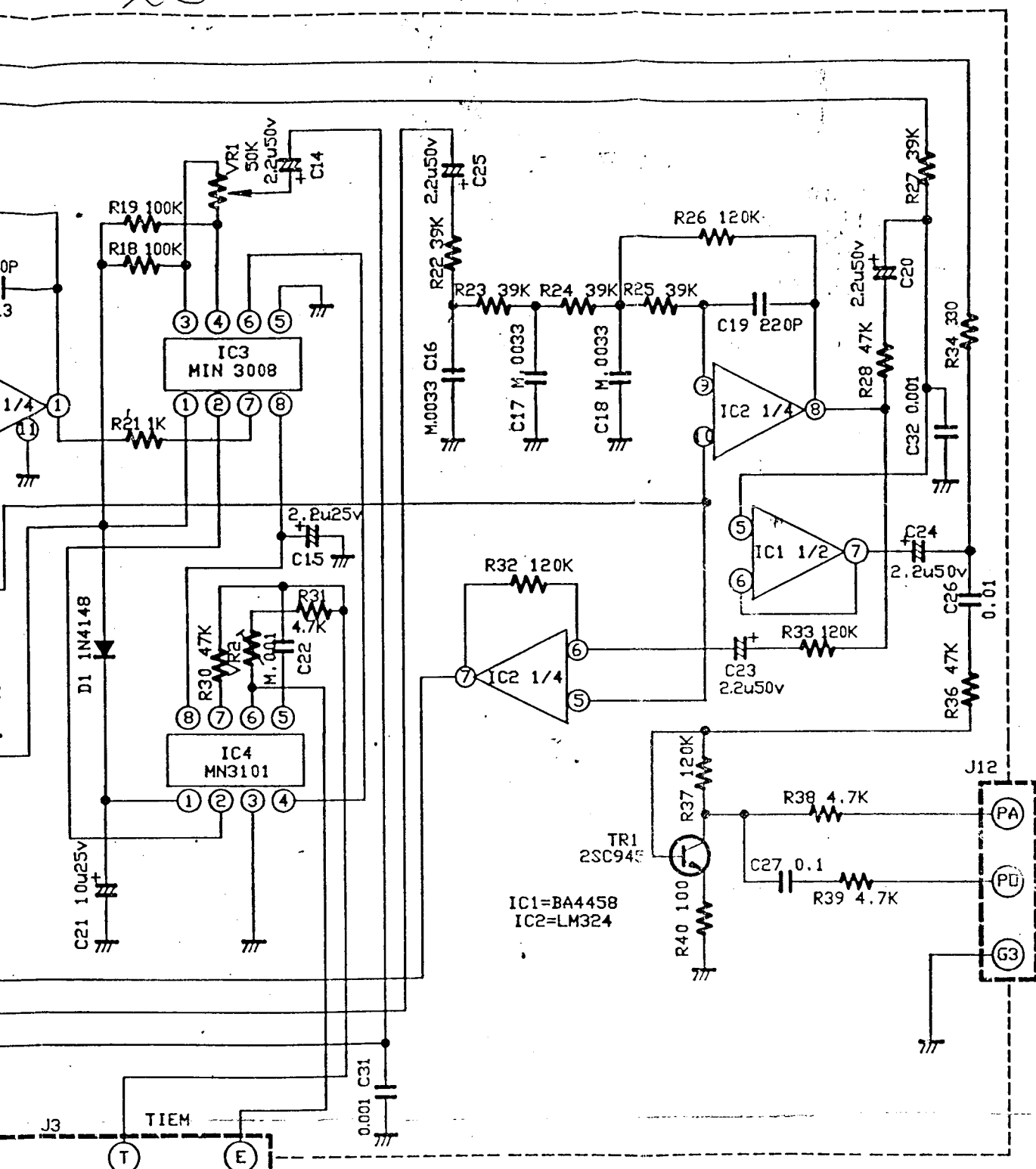


3	R5	100	330	"	"
2	R35	100	330	"	"
1	R34	1K	330	79,10.5	2657
CHANGE ITEM				DATE	REMARK

APPROVED	CHECKED
	50B
	DR

2C

2D



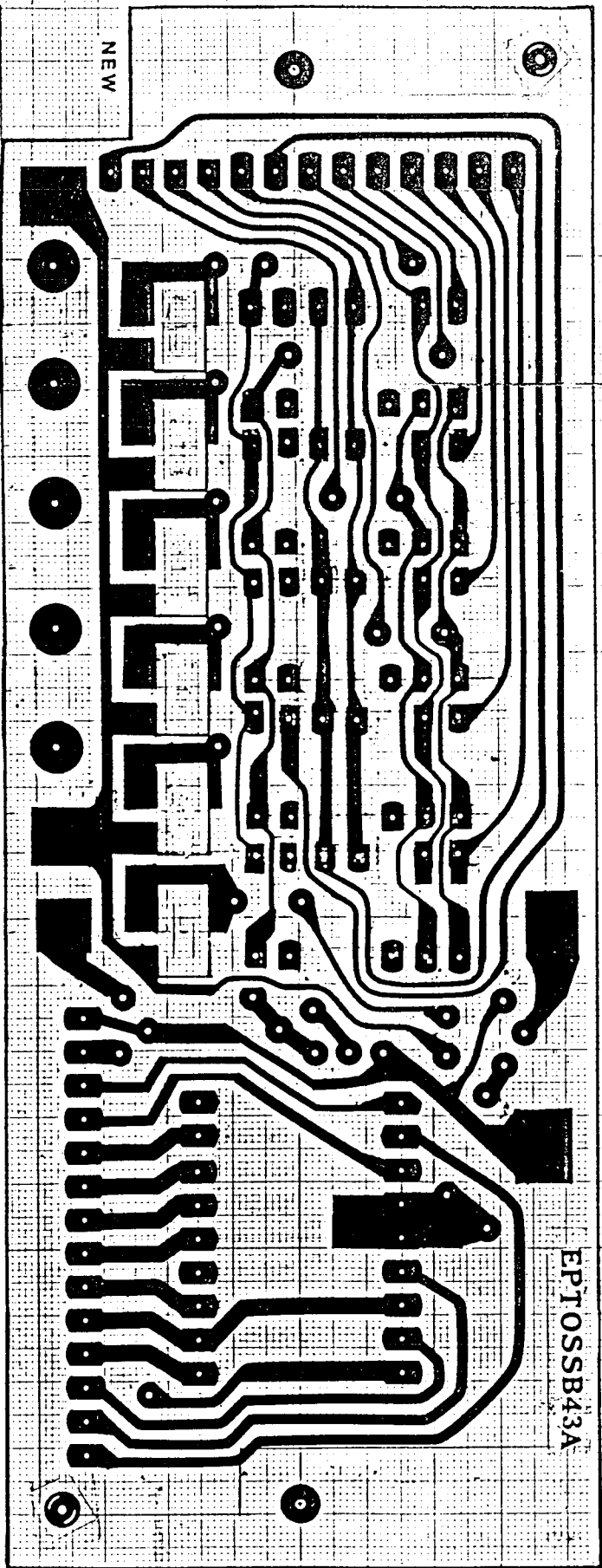
IC1=BA4458  
IC2=LM324

		MODEL	ECHO		
		TITLE	SCHEMATIC DIAGRAM		
50B		DRAWER	L.S.J	79 6 22	ITEM NO 8139 89SH
APPROVED	CHECKED				

00	330		
00	330		
K	330	79.10.5	2657
CHANGE ITEM	DATE	REMARK	

E5





NOTE:

1. 板种 = GALAXY SATURN
2. 图号 = COUNTER P.C.B
3. 图号 = EPTOSSB43A

4. S = 2:1

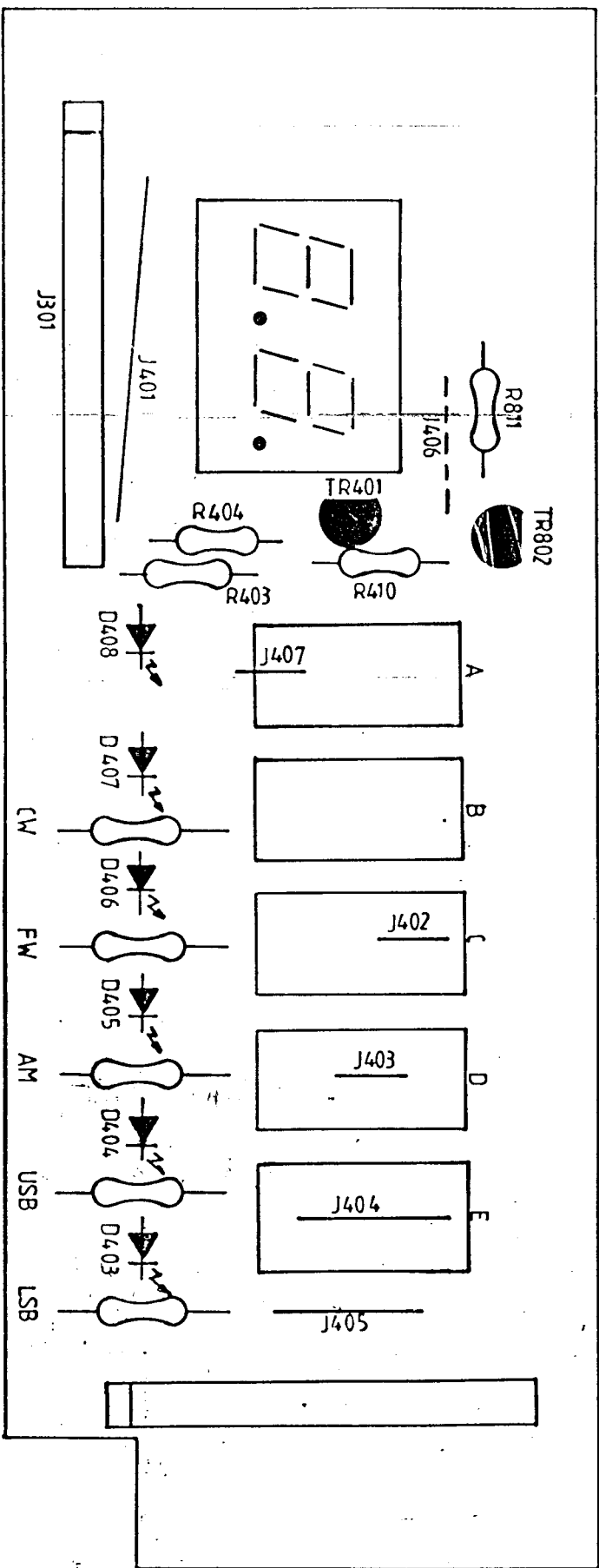
5. 孔径:

- A = 2.5 - 2
- B = 1.2 - 1.2
- C = 1

孔径 1.08

图号:

图号 78.3.26



NOTES:

L.S.: 2:1

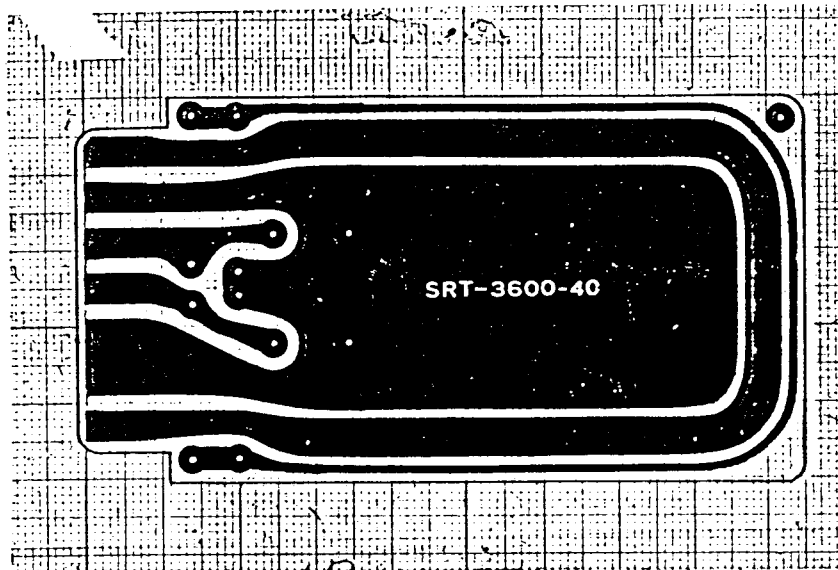
2 机种: GALAXY SATURN

1. 图名: COUNTER P.C.B

4 图号: ZPT055B42A

2. 制图: 洪景莉

99. 5. 24



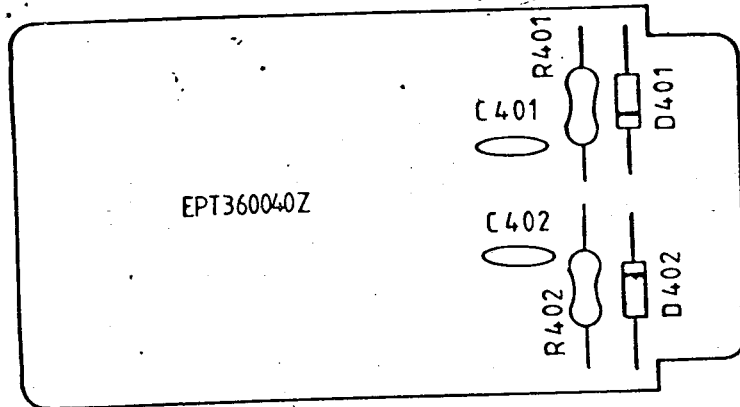
圖名: SWR

NOTE:

1. S-2:1
2. 機種: SRC-3600
3. 圖號: SRC-3600-40
4. 孔径: 0.8φ

製圖: 呂佩玲  
公司: 程遠

SWR



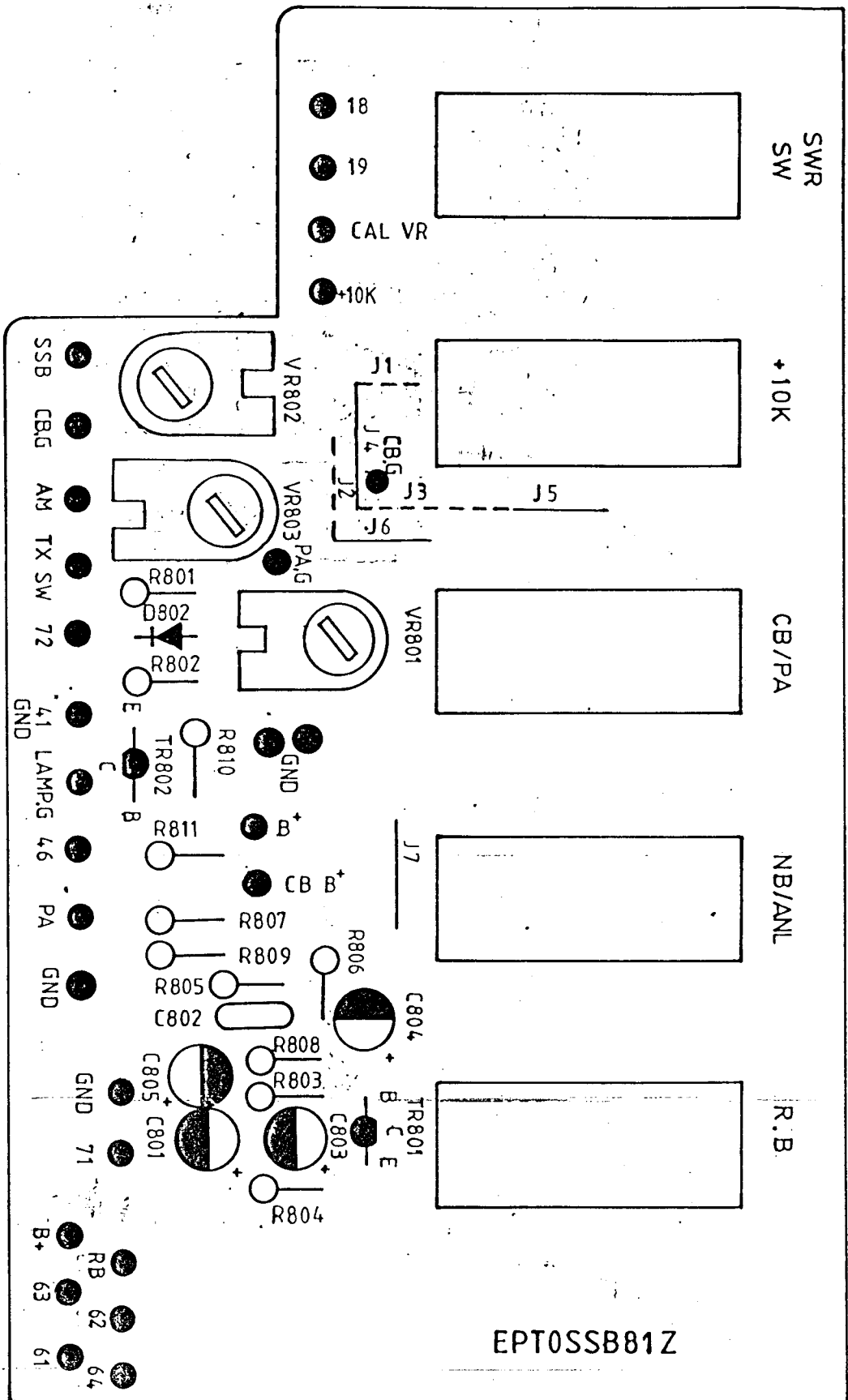
NOTE:

1. S-2:1
2. 機種: SRC-3600
3. 圖號: SRC-3600-40

製圖: 林芳如

公司: 程遠





(4)

Function Selector

50%

EPT0SSB81Z

程遠

NOTE:

- 1. AS = 2:1
- 2. 板種 = USB<sub>SN</sub>
- 3. 圖名 = LEVER PCB
- 4. 圖號 = EPT0SSB1Z
- 5. 孔径

- A. 1X1.5-00
- B. 1.24-9
- C. 1.4-61

共餘 0.8

製圖

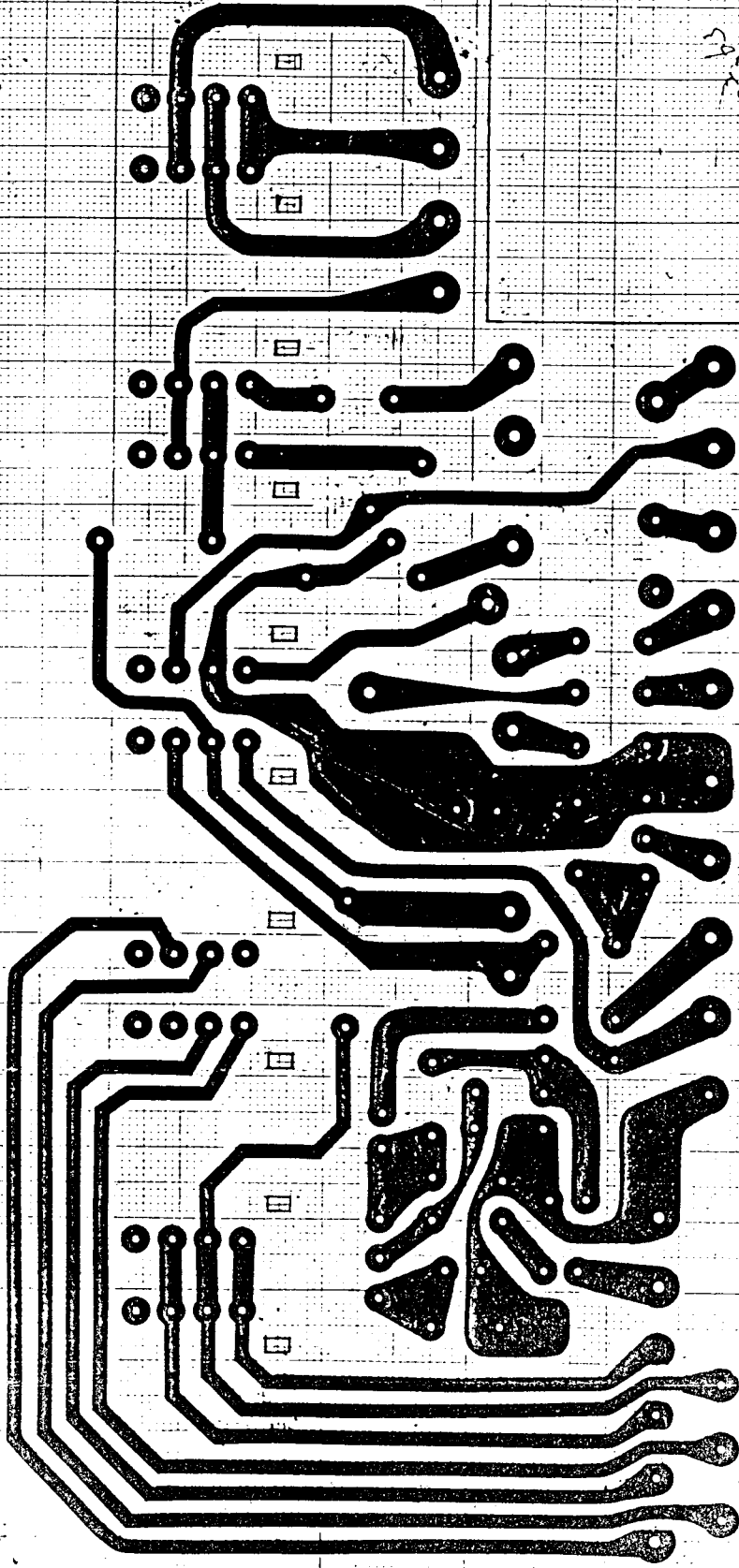
曾春

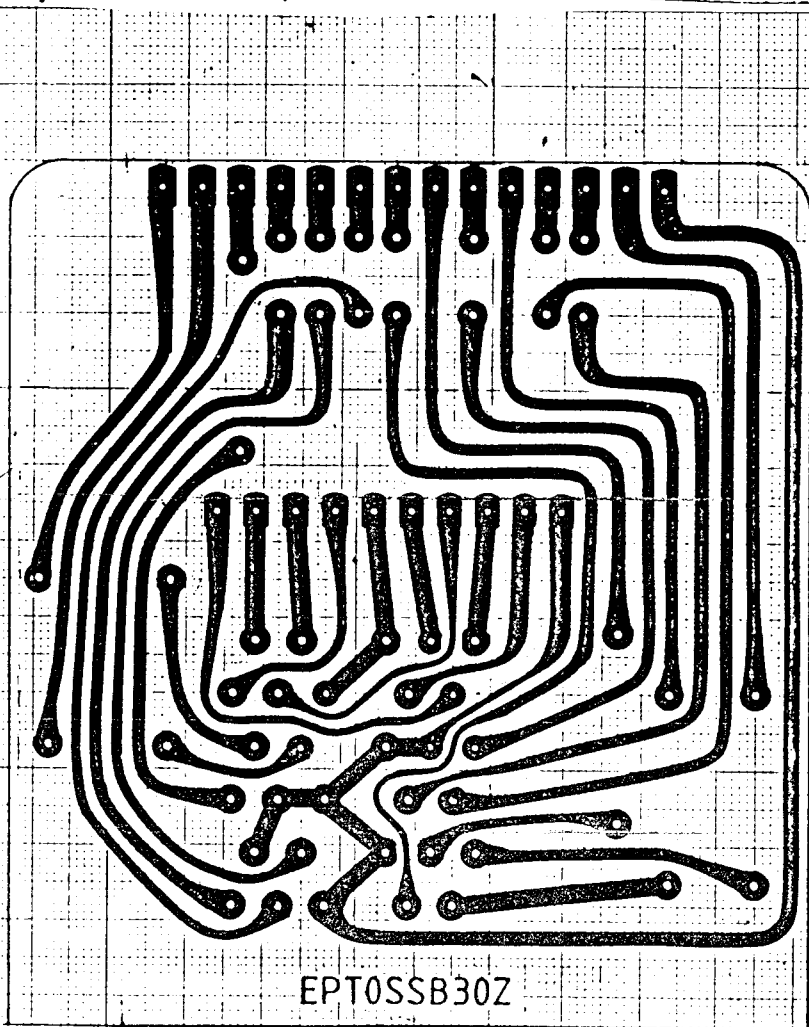
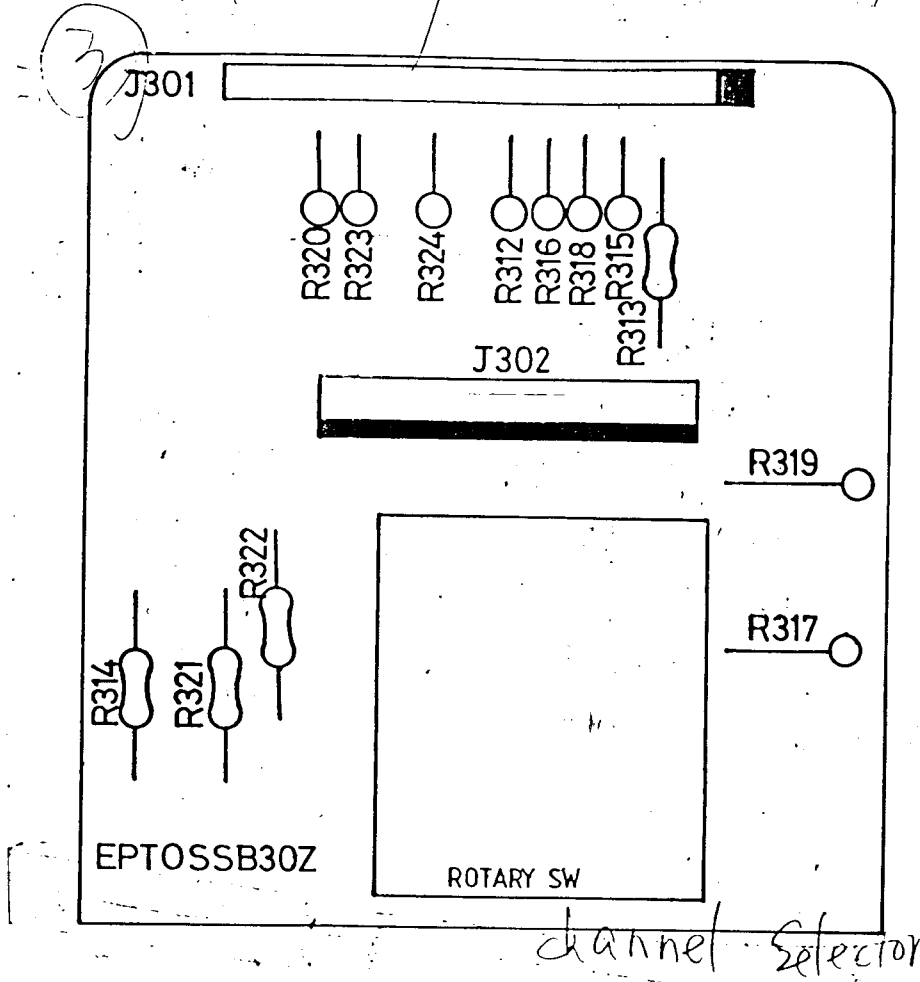
73.9.19

50/

加球

EPT0SSB1Z





程遠

NOTE

1. S = 0:1
2. 板种 = SSB
3. 圖名 = R.S p.c.B
4. 圖号 = EPTOSSB30Z
5. 孔徑

A =

其餘 0.8<sup>+</sup>

製圖:

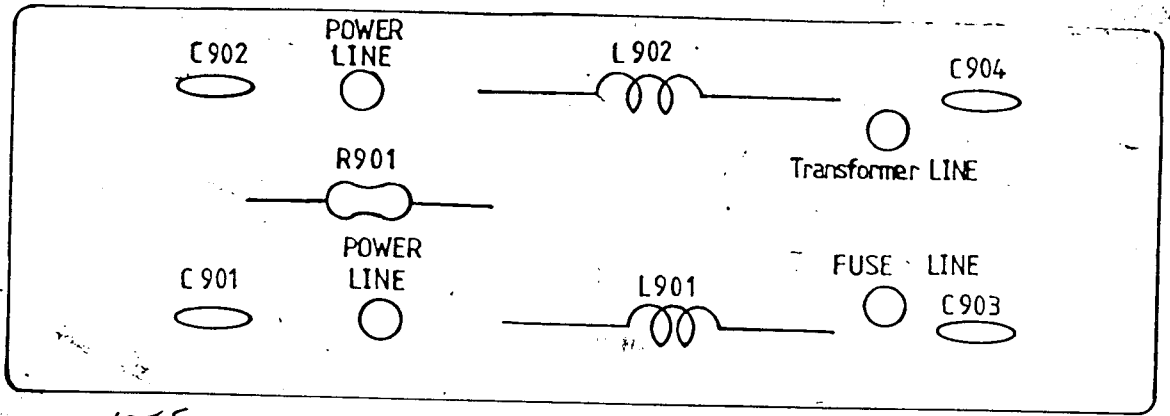
廖春

73.9.19

7-1

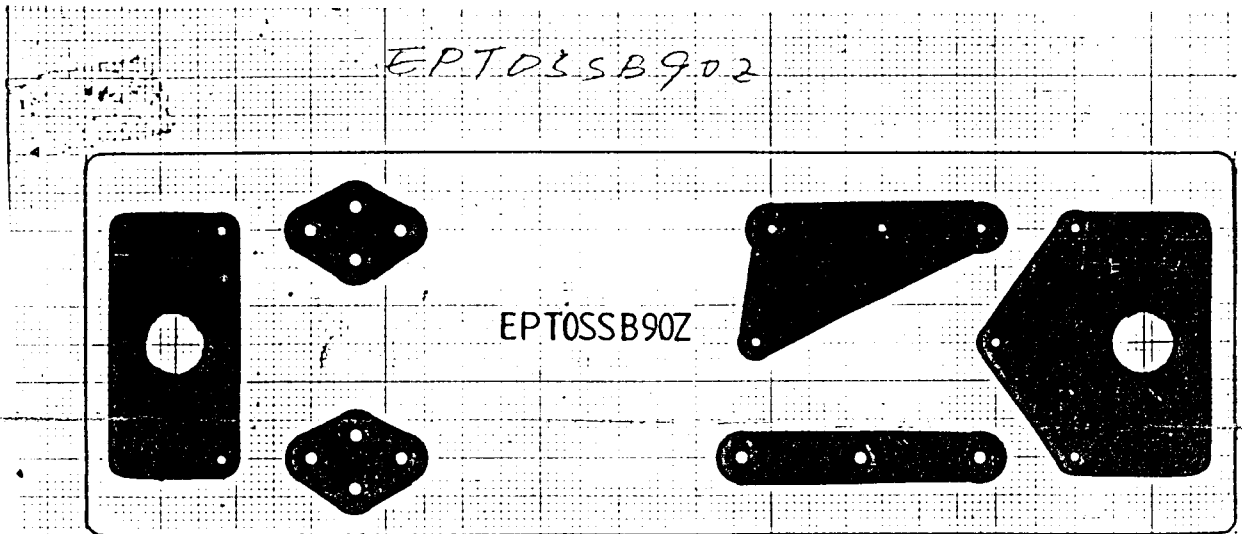
711

95



NOTE:  
 1. S=2=1  
 2. 机种: GALAXY 33B  
 3. 图名: POWER INPUT P.C.B  
 4. 图号: EPT055B90Z

制图: 田芳秀  
 25.6.30

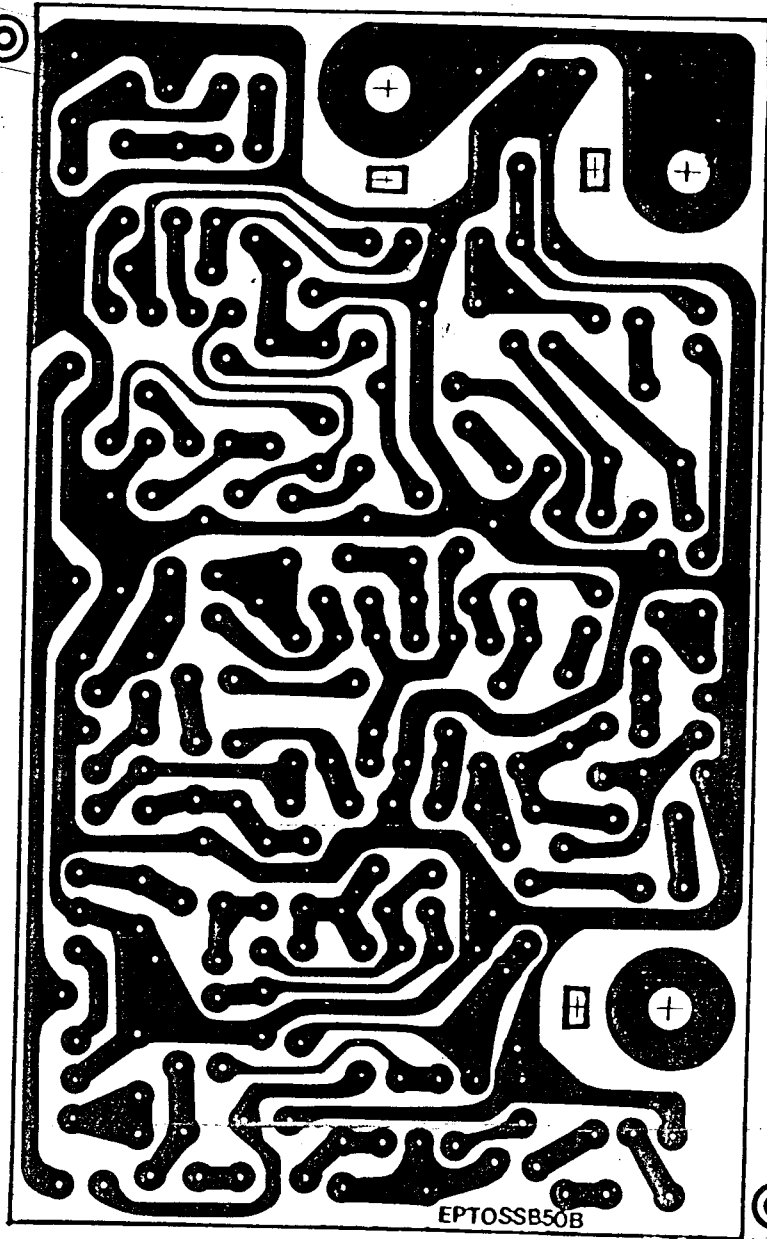


NOTE:  
 1. S=2=1  
 2. 机种: GALAXY 33B  
 3. 图名: POWER INPUT P.C.B

4. 图号: EPT055B90Z  
 5. 孔径 =  $\phi 1.0$   
 其他  $\phi 0.8$

制图: 田芳秀  
 25.5.21





NOTES:

- 1. S=2:1
- 2. MODEL: GALAXY PLUS C=3'-2

B=5'-1

C=3'-2

EPTOSSB50B

