RP1510

•EXAMPLE FREQUENCY SETTING 2

Transmit frequency : 164.60MHz
Channel spacing : 5kHz (0.005MHz)

1) N-data = $\frac{\text{Transmit frequency}}{\text{Channel Spacing}}$

$= \frac{164.60}{0.005}$

= 32920

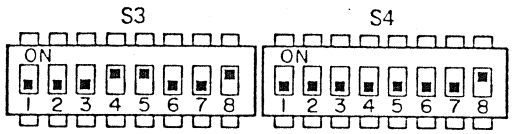
The following dip switches should be ON:

Dip switches		N-data value
S4-8	→	32768
S3-8	→	128
S3-5	→	16
S3-4	→	8 (+
Total		32920

2) Set dip switches in the ON position according to their calculated N-data values.

• DIP SWITCH SETTINGS

NOTE: Black areas indicate switch positions.



5-4 CTCSS FREQUENCY PROGRAMMING

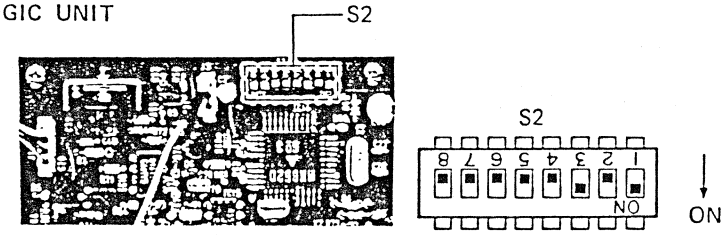
One of 37 kinds of CTCSS decoder frequencies can be set by S2 dip switches on the LOGIC UNIT. See the diagram below for S2 locations.

Use the S2-7 and S2-8 dip switches for fine tuning of CTCSS decoder frequency. See diagram below.

• Example: If the S2-7 and S2-8 dip switches are set in the ON position, and the other switches are set as shown in the figure below, the CTCSS decoder frequency is approximately:

88.5 x (1 + 0.015) = 89.8 [Hz]

• LOGIC UNIT



TONE FREQ. [Hz]	SWITCHES 1	2	3	4	5	6	TONE FREQ. [Hz]	SWITCHES 1	2	3	4	5	6	TONE FREQ. [Hz]	SWITCHES 1	2	3	4	5	6
67.0	1	0	0	0	0	0	110.9	0	1	0	1	0	0	173.8	1	1	1	0	1	0
71.9	0	1	0	0	0	0	114.8	1	1	0	1	0	0	179.9	0	0	0	1	1	0
74.4	0	0	1	0	0	1	118.8	0	0	1	1	0	0	186.2	1	0	0	1	1	0
77.0	1	1	0	0	0	0	123.0	1	0	1	1	0	0	192.8	0	1	0	1	1	0
79.7	0	1	1	0	0	1	127.3	0	1	1	1	0	0	203.5	1	1	0	1	1	0
82.5	0	0	1	0	0	0	131.8	1	1	1	1	0	0	210.7	0	0	1	1	1	0
85.4	0	0	0	1	0	1	136.5	0	0	0	0	1	0	218.1	1	0	1	1	1	0
88.5	1	0	1	0	0	0	141.3	1	0	0	0	1	0	225.7	0	1	1	1	1	0
91.5	0	1	0	1	0	1	146.2	0	1	0	0	1	0	233.6	1	1	1	1	1	0
94.8	0	1	1	0	0	0	151.4	1	1	0	0	1	0	241.8	0	0	0	0	0	1
100.0	1	1	1	0	0	0	156.7	0	0	1	0	1	0	250.3	1	0	0	0	0	1
103.5	0	0	0	1	0	0	162.2	1	0	1	0	1	0	–	–					
107.2	1	0	0	1	0	0	167.9	0	1	1	0	1	0	–	–					

0 : OFF
1 : ON

FINE TUNING [%]	SWITCHES 7	8
+1.5	1	1
+1.0	1	0
+0.5	0	1
0	0	0

0 : OFF
1 : ON

6. FUNCTIONS DESCRIPTION

6-1 ID FUNCTION

The ID FUNCTION allows you to transmit an ID call sign for the repeater manually or automatically. The type of signal is CW (F2), and is sent out as described below.

(1) MANUAL ID FUNCTION

The ID call signal is sent out each time you push the [MANUAL ID] SWITCH on the front panel.

(2) AUTOMATIC ID FUNCTION

- The ID call sign is sent out when an incoming signal switches the repeater from standby condition to transmit mode.

- An ID call sign is sent out approx. every 3 minutes.

6-2 TIME-OUT TIMER FUNCTION

This function prevents the repeater from being occupied by a station for a long time.

If the access exceeds the preset time limit (approx. 3 minutes) the repeater shuts down automatically for 5 seconds.

If the access is still "ON" after 5 seconds, the repeater sends an ID call sign.

6-3 HANG-UP TIMER FUNCTION

The repeater is designed to retain the "transmit" condition for 5 seconds after an incoming signal is stopped.

If there is an access during this period of 5 seconds, the transmit operation starts immediately. The repeater is thus prevented from turning OFF during short pauses when stations are using the repeater.

This hang-up time can be changed by switches S1-1 and S1-2 on the LOGIC UNIT as shown below.

SET TIME	SWITCH POSITION	
	S1-1	S1-2
0sec.	ON	ON
1sec.	ON	OFF
3sec.	OFF	ON
5sec.	OFF	~~ON~~ OFF

6-4 MANUAL TRANSMIT FUNCTION

(1) INTERRUPT TRANSMIT FUNCTION

Push the PTT SWITCH on the microphone and speak into the microphone. Voice signals from the microphone are transmitted even if an incoming signal has accessed the repeater.

(2) FUNCTIONING AS AN ORDINARY TRANSCEIVER

Push the [LOCAL INHIBIT] SWITCH to turn ON the LOCAL INHIBIT FUNCTION. The [LOCAL INHIBIT] INDICATOR lights up green and the repeater functions as an ordinary transceiver.

Push the PTT SWITCH on the microphone to activate transmit mode; release the PTT SWITCH to activate receive mode.

6-5 REMOTE CONTROL FUNCTION

The IC-RP1510 repeater can be remote-controlled by the built-in DTMF decoder. This decoder employs 4-digit sequential signals as a control signal to prevent accidental control. The following functions can be remote-controlled.

- LOCAL INHIBIT MODE ON and OFF.
- CTCSS MODE ON and OFF.

(1) REMOTE-CONTROLLING THE REPEATER

1) Send a specified code consisting of 4 DTMF tones from a remote controller such as your transceiver keyboard to turn ON or OFF a function as shown in the table below.

   (EXAMPLE)
   Push keys [A], [1], [2] and [6] on the DTMF keyboard and the CTCSS FUNCTION of the repeater turns ON.

2) The DTMF decoder is set at the factory as shown below. However, the decoder can be reset to your own code. (See p. 6-2).

FUNCTIONS	KEY ENTRY (Specified code)
LOCAL INHIBIT ON	[A] [1] [2] [3]
LOCAL INHIBIT OFF	[A] [1] [2] [4]
TONE SQUELCH OFF	[A] [1] [2] [5]
TONE SQUELCH ON	[A] [1] [2] [6]

Factory default

(2) PROGRAMMING THE CONTROL NUMBER

A specified code consisting of 4 DTMF tones for the remote controller can be changed as follows:

1) Select the desired function you want to change from the table shown on p. 6 - 1.

2) Set a control code consisting of 4 digits. The first 3 digits of the code must be used for the other remote control functions. The last digit is used for each corresponding function. (See the table at right)

> NOTE: Two functions can be remote-controlled using 4 different control codes. However, REMEMBER that the first 3 digits of 4 different codes must be the same. Only the last digit can be different.

3) Unscrew the 6 screws on the LOGIC UNIT and lift up the unit.

4) Unsolder and disconnect jumper wires W1 (brown) through W6 (blue) and W9 (white) from the programming area on the unit.

5) Insert the W9 (white) jumper wire into the hole of the first digit selected and solder it from the foil side of the unit.

6) Insert the W1 (brown) and W2 (red) jumper wires into the hole of the second and third digits selected and solder them from the bottom of the unit.

7) Insert a jumper wire among the remaining wires W3 (orange) through W6 (blue) into the hold of the last digit and solder it. W3 through W6 have the following corresponding functions:

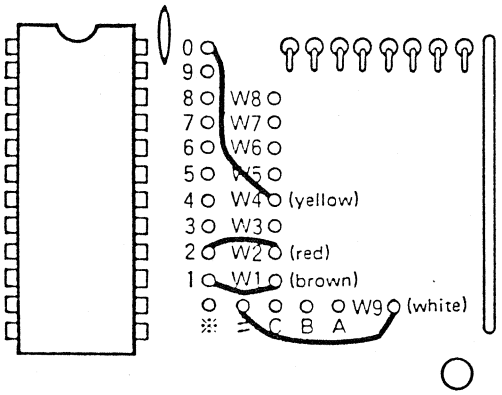
JUMPER WIRE	FUNCTION
W3 (orange)	LOCAL INHIBIT OFF
W4 (yellow)	LOCAL INHIBIT ON
W5 (green)	CTCSS OFF
W6 (blue)	CTCSS ON

8) There are 3 more jumper wires left without wiring. These wires correspond to the functions shown in the above table. Connect wires in the same manner as described in the wiring method above.

■ REMOTE CONTROL SETTING EXAMPLE

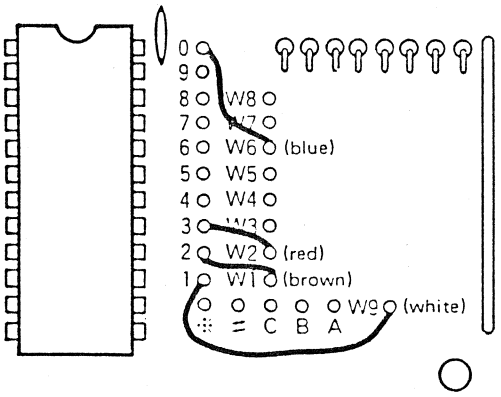
The following are examples for programming remote control codes. Programming should be made on the LOGIC UNIT which is located on the bottom side of the repeater. (See p. 8 - 2 for the exact location.)

(1) Programming code [#] [1] [2] [0] for the LOCAL INHIBIT ON function.



*The first three codes must be the same for the LOCAL INHIBIT OFF, CTCSS OFF, and CTCSS ON functions.

(2) Programming code [1] [2] [3] [0] for the CTCSS ON function.



*The first three codes must be the same for the LOCAL INHIBIT ON, LOCAL INHIBIT OFF, and CTCSS OFF functions.

*The first three codes must be the same for the LOCAL INHIBIT ON, LOCAL INHIBIT OFF, and TONE SQUELCH OFF functions.

N-CTRL UNIT

RX UNIT

RX-VCO UNIT

TX UNIT

TX-VCO UNIT

PA UNIT

FILTER UNIT

REGULATOR UNIT

RX ANT

TX ANT

CONTROL INPUT

BATTERY

FUSE DC

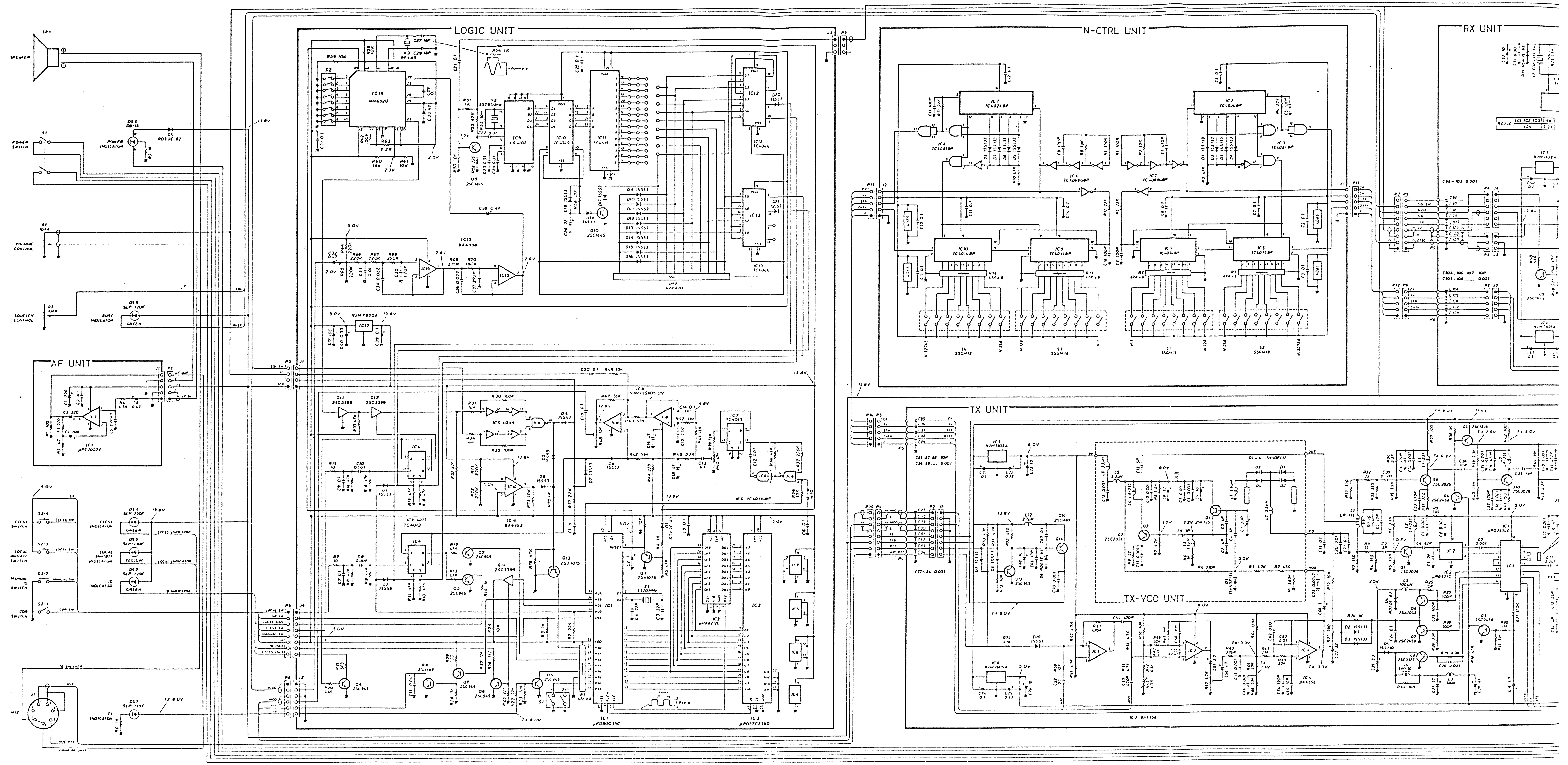
FUSE AC

DC OUTLET

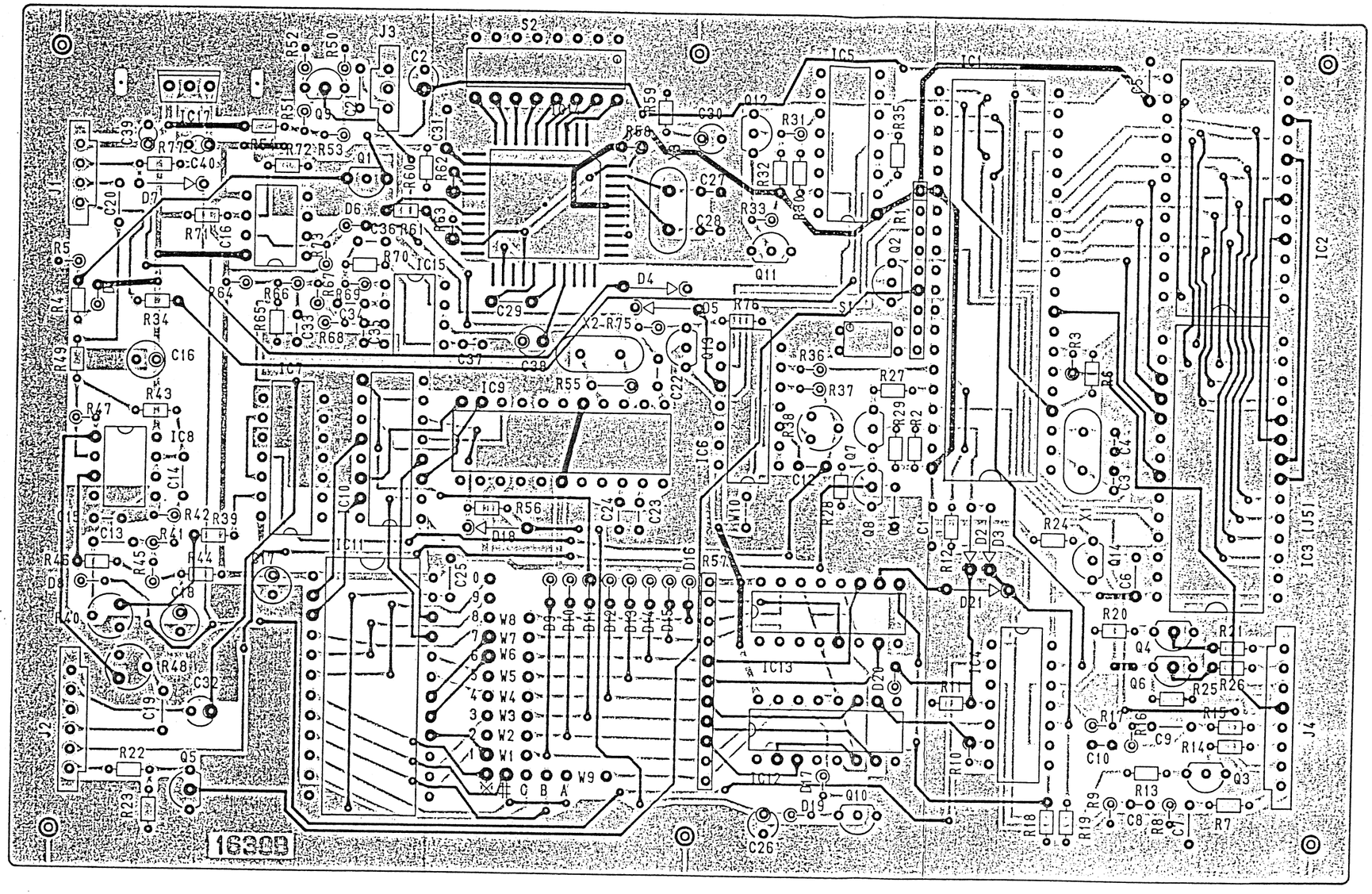
AC 117V

AC 220V

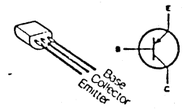
AC 240V


LOGIC UNIT
N-CTRL UNIT
RX UNIT
AF UNIT
TX UNIT
TX-VCO UNIT

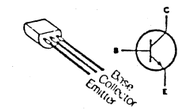
9-10 LOGIC UNIT



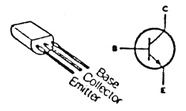
2SA1015
Q1, Q13



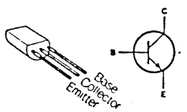
2SC945
Q2, Q3, Q4,
Q5, Q6, Q7



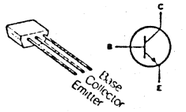
2SC1645
Q10



2SC1815
Q9



2SC3399
Q11, Q12, Q14



2SD468
Q8