

R-535B Signal Levels

Test Point	Frequency	Voltage
Antenna Connector	118.100MHz	-5dBu emf
Q1 Gate 1	118.100MHz	7.5dBu emf
Q2 Base	21.400MHz	8.0dBu emf
Q16 Base	21.400MHz	9.0dBu emf
Q20 Base	455KHz	34dBu emf
Q21 Base	455KHz	53dBu emf
Q22 Base	455KHz	82dBu emf
J-4, Pin 5 (Green Wire)	1000Hz	1.1mV

- 1) All of RF and IF signal levels are open terminal input voltage at 2.0V AGC voltage. (AGC circuit voltage is 2.45V at no signal input.)
- 2) RF Singal source output impedance is 50-ohms in case of without notice.
- 3) AF(1000Hz) signal level is input level to get 100mW/8-ohm audio output.
- 4) AF singal source output impedance is 600-ohm in case of without notice.
- 5) Rotate audio volume control to fully clockwise for measuring by AF signal.

R-535B Injection Levels

Test Point	Signal Level and Frequency
Q2 Base VHF	60mV, 139.400MHz (Set Freq. 118.1MHz)
Q2 Base UHF-Low	45mV, 241.400MHz (Set Freq. 220.0MHz)
Q2 Base UHF-High	40mV, 278.600MHz (Set Freq. 300.0MHz)
Q20 Base 2nd Lo	68mV, 20.945MHz
IC2 Pin 11 VHF	100mV, 139.400MHz (Set Freq. 118.1MHz)
IC2 Pin 10 UHF-Low	65mV, 241.400MHz (Set Freq. 220.0MHz)
IC2 PIn 10 UHF-High	59mV, 278.600MHz (Set Freq. 300.0MHz)

- 1) Set the receiving frequency at 118.100MHz on VHF band, 220.000MHz at UHF-Low band and 300.000MHz at UHF-High band for measurement.
- 2) Grounding Point when measure injection voltage by RF mV meter of Q2 and Q20 are each emitter.
- 3) Grounding point when measure input voltage to Pin 10 and Pin 11 of IC2 by RF mV meter is Pin 14 of IC2.

R-535B Receiving Frequency vs PLL DC voltage

Band	Frequency	PLL DC Voltage
VHF	108.000MHz	2.4 - 2.6V
VHF	142.995MHz	10.0 - 11.5V
UHF/L	220.000MHz	2.1 - 2.3V
UHF/L	299.975MHz	11.0 - 11.9V
UHF/H	300.000MHz	1.95 - 2.2V
UHF/H	399.975MHz	11.0 - 12.0V

Pin Number	IC-1	IC-2	IC-2	IC-2		
1	2.01	-2.54	-2.54	-2.54		
2	0.63	5.07	5.07	5.07		
3	0	0	0	0		
4	0	0	0	0		
5	0.67	2.05	2.05	2.05		
6	5.56	2.05	2.05	2.05		
7	8.63	1.88	1.88	1.88		
8	****	0	0	0		
9	****	0	0	0		
10	****	0.22	2.31	2.31		
11	****	2.18	2.18	2.18		
12	****	5.11	5.11	5.11		
13	****	4.51	4.51	4.51		
14	****	0	0	0		
		VHF	UHF-Low	UHF-High		

NOTES 1. The voltage readings are measured between the semiconductor device to the chassis ground.

2. Unless otherwise noted, set the SQL control at counterclockwise.

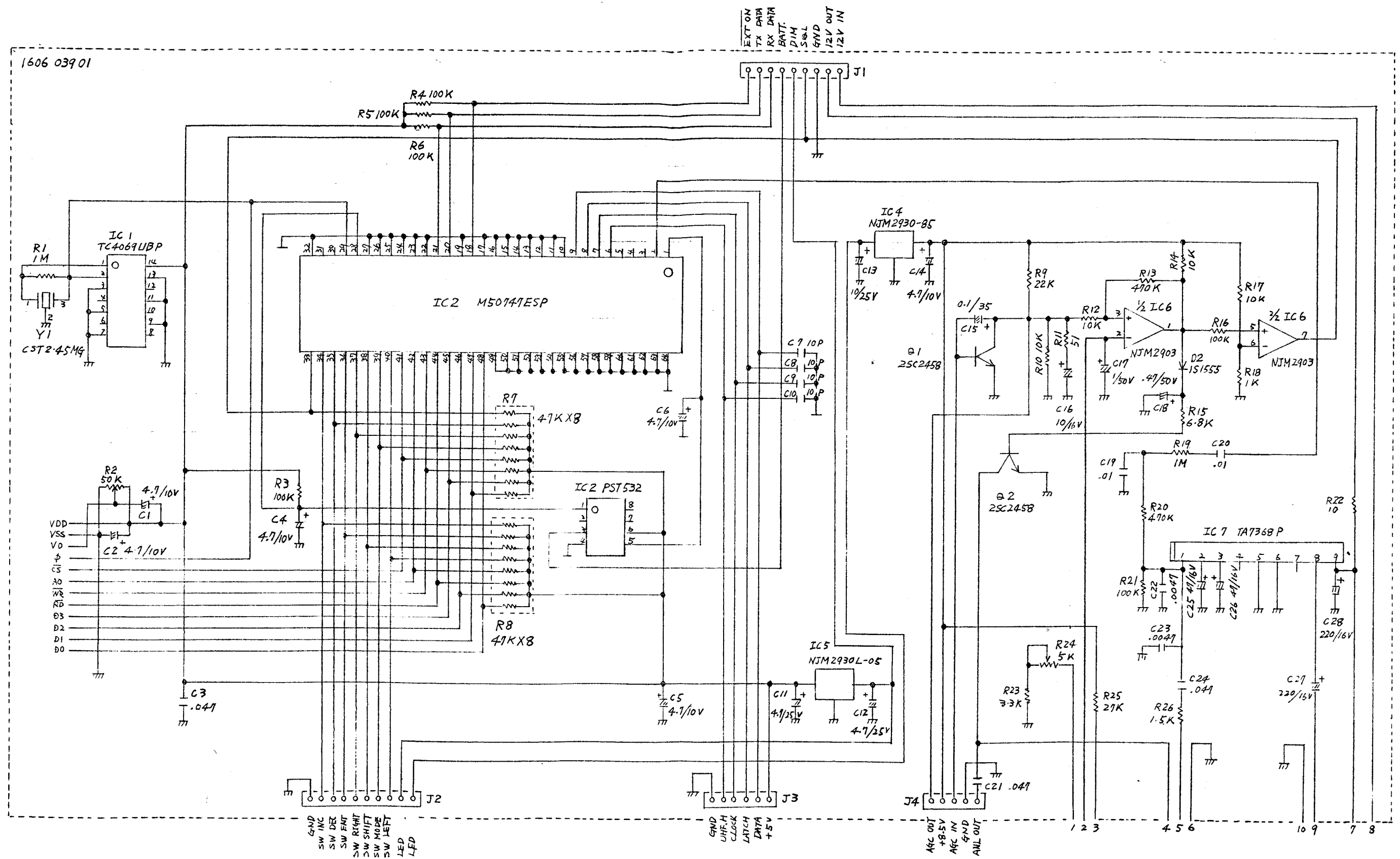
Signal Communication Corp.

Transistor	Base	Emitter	Collector		SET FREQ	
Q 2	0.66	0	8.57		VHF	
Q 3	2.48	1.83	8.08		VHF	
Q 5	0.67	0	0.03			
Q 6	0.69	0	7.88		UHF Low	
Q 7	0.65	0	8.56		UHF Low	
Q 8	0.73	0	3.41		UHF Low	
Q 9	2.33	1.73	7.91		UHF Low	
Q 11	0.74	0	7.97		UHF High	
Q 12	0.68	0	7.94		UHF High	
Q 13	0.73	0	3.33		UHF High	
Q 14	2.35	1.64	7.92		UHF High	
Q 16	2.32	1.63	7.54			
Q 17	0.78	0.40	8.63			
Q 18	0.40	0	0			
Q 19	5.65	5.20	7.85			
Q 20	2.29	1.66	6.42			
Q 21	2.35	1.67	6.27			
Q 22	1.34	0.67	8.16			
Q 23	7.93	8.63	8.63			
Q 24	7.88	8.56	8.63		UHF Low	
Q 25	0.67	0	0.02		UHF Low	
Q 26	7.88	8.63	8.57		VHF	
Q 27	0.67	0	0.02		VHF	
Q 29	0.64	0	4.38			
Q 30	7.88	8.56	8.63			
Q 31	0.64	0	0.02			

	Gate-1	Gate-2	Source	Drain		
MOS FET Q 1	0	2.71	0	6.41	VHF	
MOS FET Q 4	0	1.59	0	7.72	VHF	
MOS FET Q 10	0	1.25	0	7.54	UHF Low	
MOS FET Q 15	0	1.74	0	7.46	UHF High	

	Gate	Source	Drain			
J/FET Q 28	0	2.09	5.11		VHF	

1. The voltage readings are measured between the semiconductor device to the chassis ground.
2. Unless otherwise noted, set the SQL control at counterclockwise.

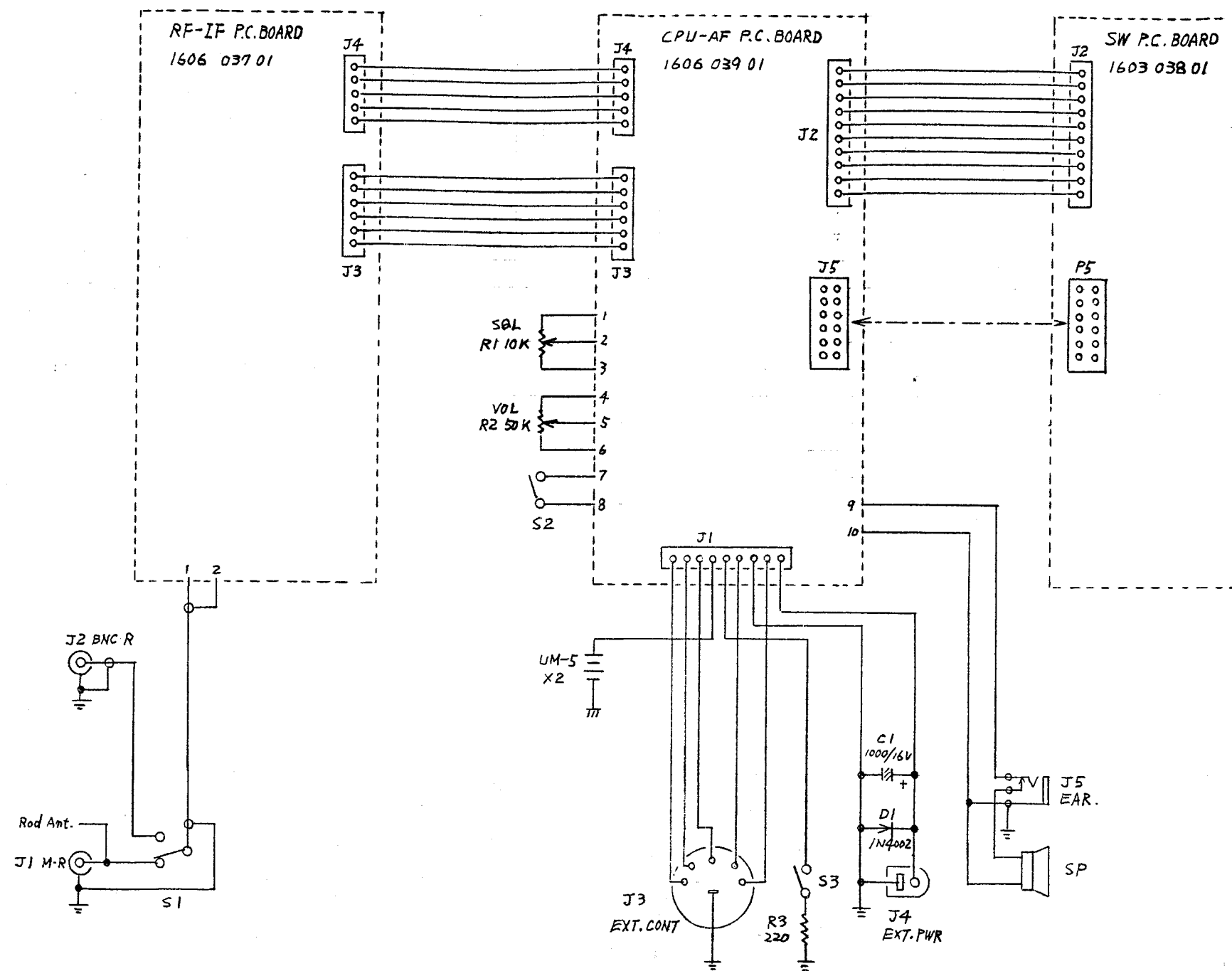


R-535 RECEIVER CPU-AF P.C. BOARD

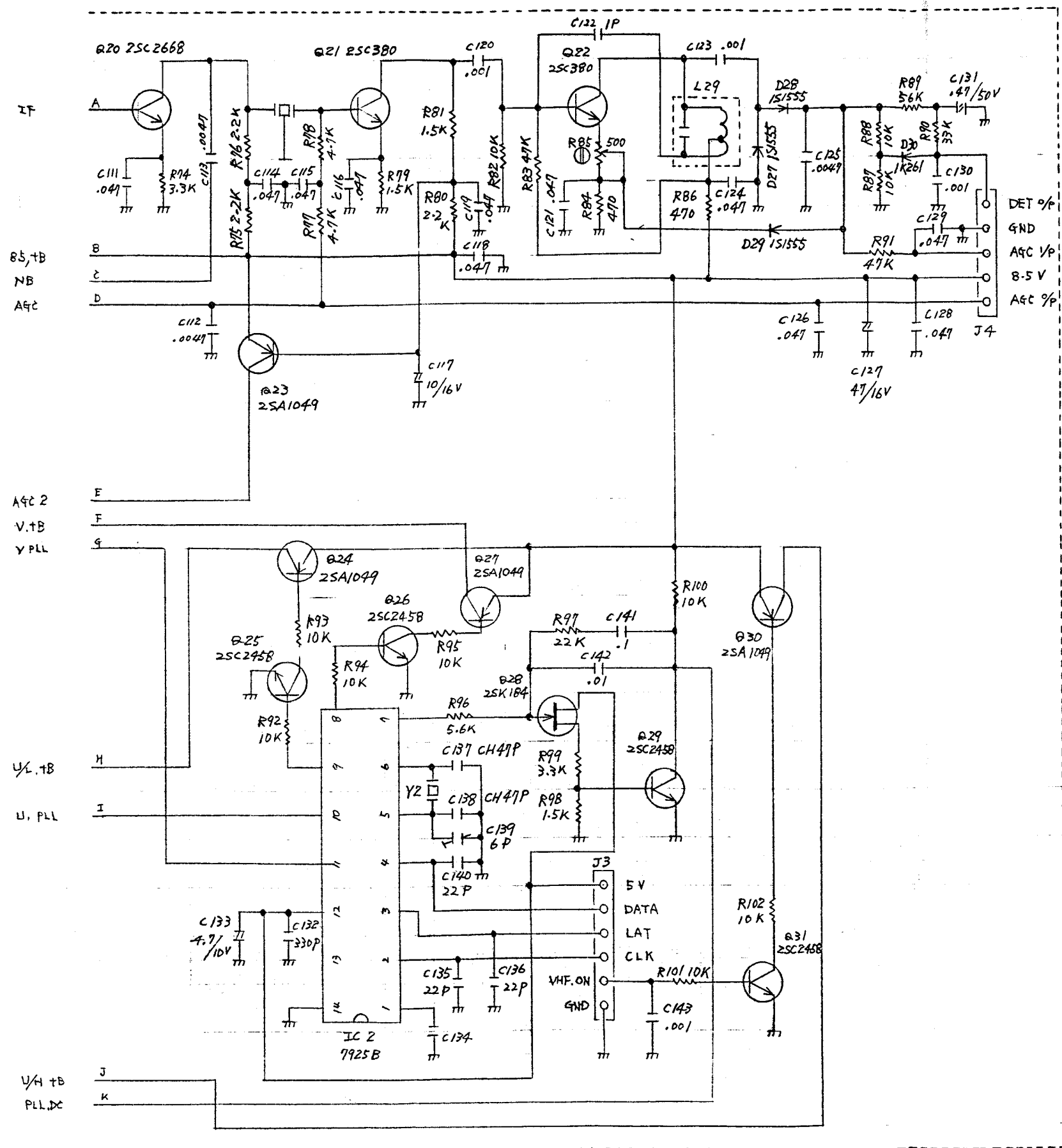
```

10 ' XR-532 test program
20 OPEN "I",#1,"COM0:(A8N17NN)"
30 OPEN "O",#2,"COM0:"
40 'A$=INPUT$(1,#1):IF A$<>CHR$(6) THEN 15
50 CLS
60 PRINT "**** R-535 External controler ****"
70 PRINT " 1... frequency set "
80 PRINT " 2... channel set "
90 PRINT " 3... channel clear "
100 PRINT " 4... freq. select "
101 PRINT " 5... test ch. set "
105 PRINT:PRINT " Select(1-4) ?";
110 K$=INKEY$ : IF K$<"1" OR K$>"5" THEN 110 ELSE K=VAL(K$):PRINT K$
120 IF K=1 THEN 200
125 IF K=2 THEN 300
130 IF K=3 THEN 500
135 IF K=4 THEN 600
136 IF K=5 THEN 700
139 GOTO 50
199 GOTO 50
200 CLS:PRINT "**** frequency set ****"
210 INPUT "freq. => (MHz) ",F
220 IF F=0 THEN 50
230 IF F>=108 AND F<143 THEN F=(F-108)*1000/5:PRINT #2,CHR$(2); "FD";RIGHT$("0000"+HEX$(F),4)
230 IF F>=108 AND F<143 THEN F=(F-108)*1000/5:PRINT #2,CHR$(2); "FD";RIGHT$("0000"+HEX$(F),4)
240 IF F>=220 AND F<380 THEN F=(F-220)*1000/25+&H2000:PRINT #2,CHR$(2); "FD";RIGHT$("0000"+HEX$(F),4):GOTO 290
250 PRINT "frequency error!!":BEEP 50
290 GOTO 210
300 CLS:PRINT "**** channel set ****:CH=1
301 PRINT USING"ch. ==> (##) ";CH;
302 INPUT "",CHX
303 IF CHX>60 THEN 301
308 IF CHX<>0 THEN CH=CHX
310 INPUT "freq. ==> (MHz) ",F
320 IF F=0 THEN 50
330 IF F>=108 AND F<143 THEN F=(F-108)*1000/5:PRINT #2,CHR$(2); "CS";RIGHT$("00"+HEX$(CH-1),2);RIGHT$("0000"+HEX$(F),4):GOTO 390
340 IF F>=220 AND F<380 THEN F=(F-220)*1000/25+&H2000:PRINT #2,CHR$(2); "CS";RIGHT$("00"+HEX$(CH-1),2);RIGHT$("0000"+HEX$(F),4):GOTO 390
350 PRINT "frequency error!!":BEEP 50:GOTO 301
390 PRINT:CH=CH+1:GOTO 301
500 CLS:PRINT "**** channel clear ****"
510 PRINT "clear freq. ==> 108.000MHz "
520 F=108
530 IF F>=108 AND F<143 THEN F=(F-108)*1000/5:GOTO 570
540 IF F>=220 AND F<380 THEN F=(F-220)*1000/25+&H2000:GOTO 570
550 PRINT "frequency error!!":BEEP 50:GOTO 510
570 PRINT "now cleaning..."
571 FOR I=1 TO 60
572 PRINT #2,CHR$(2); "CS";RIGHT$("00"+HEX$(I-1),2);RIGHT$("0000"+HEX$(F),4)
575 A$=INPUT$(1,#1)
576 NEXT I
590 GOTO 50
600 CLS:PRINT "**** frequency set ****"
601 K=0
602 RESTORE 1000:FOR I=0 TO 9:READ F(I):NEXT:GOTO 620
603 FOR J=0 TO 1:FOR I=1 TO 5-
604 IF (J*5)+I-1=K THEN PRINT CHR$(27); "0"; ELSE PRINT CHR$(27); "1";
605 LOCATE J*20+1,I+2:PRINT USING"##.###MHz";(J*5)+I,F((J*5)+I-1);
606 NEXT I: NEXT
610 A$=INKEY$
611 IF A$=CHR$(&H1B) THEN 50
612 IF A$=CHR$(&H1E) THEN K=K-1:IF K<0 THEN K=9:GOTO 620 ELSE 620
613 IF A$=CHR$(&H1F) THEN K=K+1:IF K>9 THEN K=0:GOTO 620 ELSE 620
618 IF A$<"0" OR A$>"9" THEN 610 ELSE A=VAL(A$)-1:IF A<0 THEN A=9
619 IF K=A THEN 610 ELSE K=A
620 F=F(K)
630 IF F>=108 AND F<143 THEN F=(F-108)*1000/5:PRINT #2,CHR$(2); "FD";RIGHT$("0000"+HEX$(F),4)
640 IF F>=220 AND F<380 THEN F=(F-220)*1000/25+&H2000:PRINT #2,CHR$(2); "FD";RIGHT$("0000"+HEX$(F),4):GOTO 603
650 PRINT "frequency error!!":BEEP 50
690 GOTO 610
700 CLS:PRINT "**** test ch. set ****"
705 RESTORE 1100:FOR I=0 TO 8:READ F(I):NEXT
710 FOR I=0 TO 8
715 F=F(I):CH=I+1
720 PRINT USING"##ch -> ##.###MHz";CH,F
750 IF F>=108 AND F<143 THEN F=(F-108)*1000/5:PRINT #2,CHR$(2); "CS";RIGHT$("00"+HEX$(CH-1),2);RIGHT$("0000"+HEX$(F),4):GOTO 775
760 IF F>=220 AND F<380 THEN F=(F-220)*1000/25+&H2000:PRINT #2,CHR$(2); "CS";RIGHT$("00"+HEX$(CH-1),2);RIGHT$("0000"+HEX$(F),4):GOTO 775
770 PRINT "frequency error!!":BEEP 50:GOTO 790
775 A$=INPUT$(1,#1)
780 NEXT
790 GOTO 50
1000 DATA 108,118.1,142.995,220,250,289.975,290,340,379.975,320
1100 DATA 108,118.1,119.1,126.2,127.8,129.7,118.3,128.4,128.8

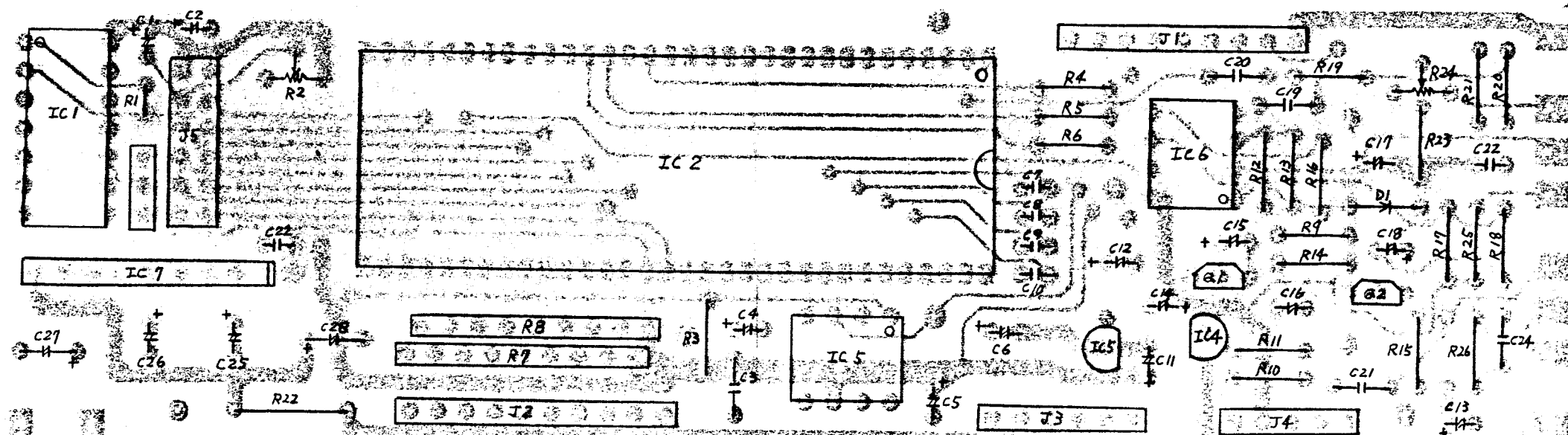
```



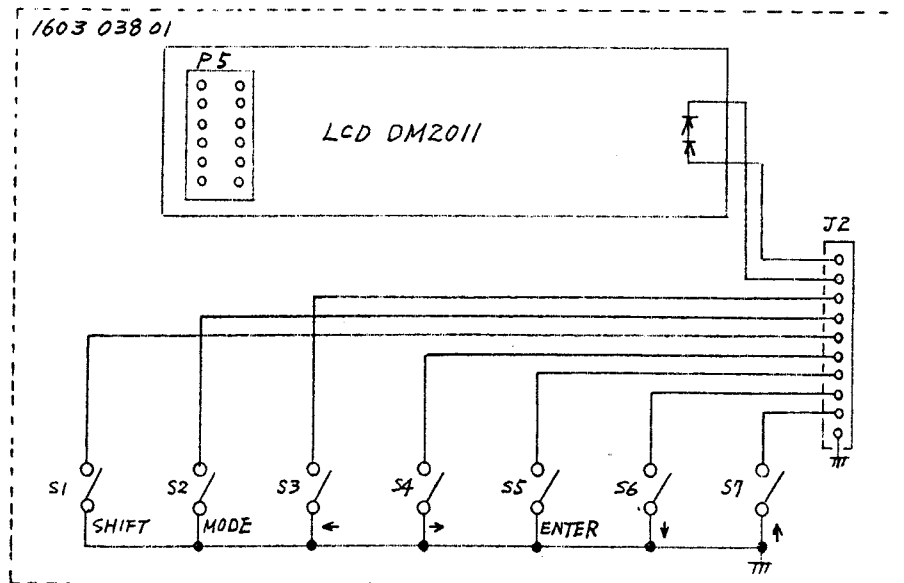
R-535 RECEIVER, WIRING DIAGRAM.



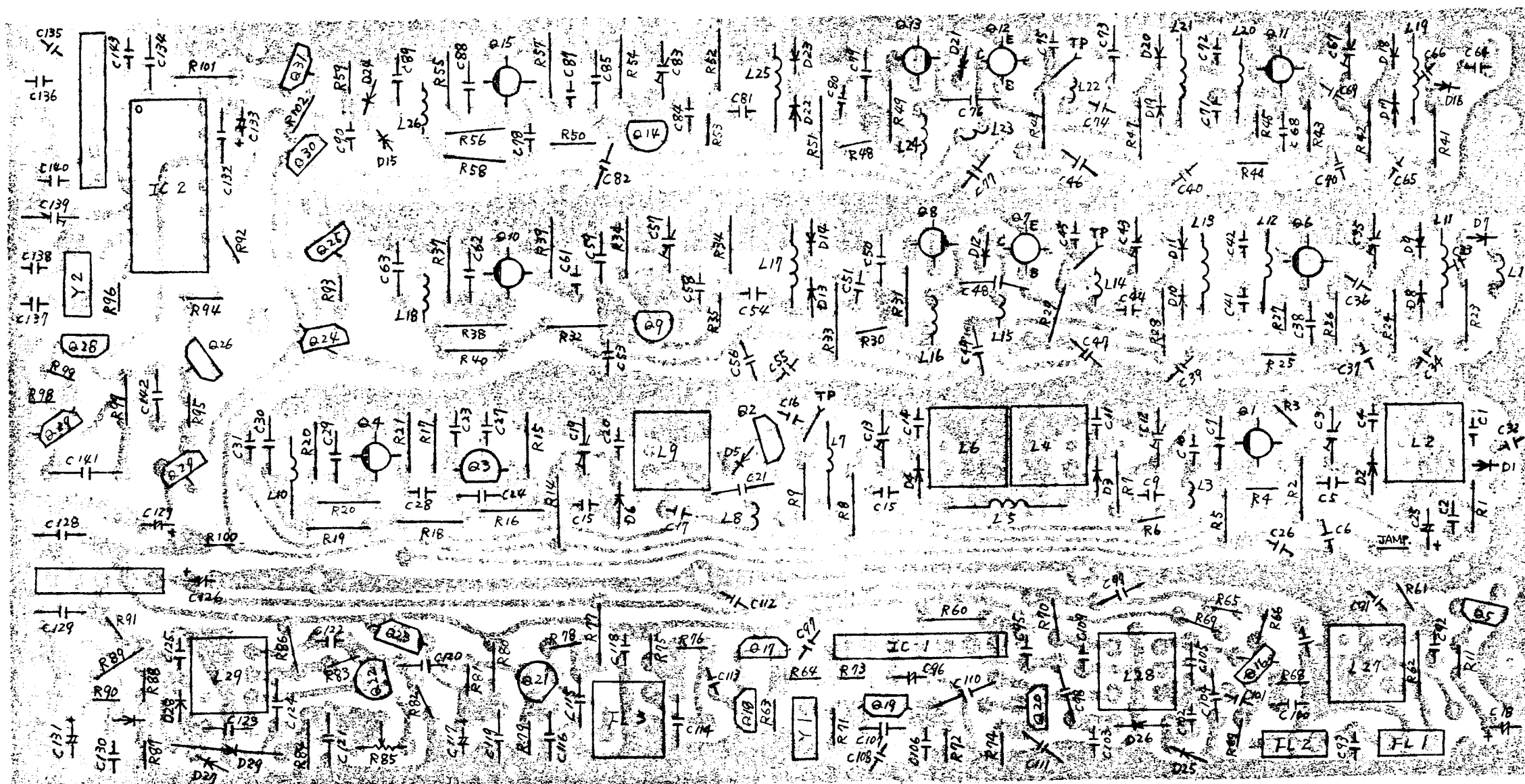
R-535 RECEIVER RF-IF P.C. BOARD



00000



R-535 RECEIVER, SW P.C. BOARD



RF P.C. BOARD

