

1000 CHANNEL WIDE BAND RECEIVER

AR 1500

TECHNICAL EXCELLENCE IN WIRELESS COMMUNICATIONS



AR1500 microprocessor reset.

Please Note:

The RESET information may be incorrect in your version of the operating manual, please refer to the following key sequence should you wish to reset the microprocessor.

AR1500/AR1500E

BANK - 1 - PROG - 0.5 - LIMIT - 1.995 - SEARCH - 556.325 - ENTER
2 - PROG - 2 - LIMIT - 299.995 - SEARCH - 556.325 - ENTER
3 - PROG - 300 - LIMIT - 419.995 - SEARCH - 249.125 - ENTER
4 - PROG - 420 - LIMIT - 606.995 - SEARCH - 249.125 - ENTER
5 - PROG - 607 - LIMIT - 797.995 - SEARCH - 58.075 - ENTER
6 - PROG - 798 - LIMIT - 1105995 - DOWN - 249.125 - ENTER
7 - PROG - 1106 - LIMIT - 1300 - DOWN - 556.325 - ENTER

If the following points are not observed, there may be an increased chance of a microprocessor crash...

1. Never delete 'all' memory channels from a scan band, it is a good idea to leave at least one active channel in each bank. You may still limit the number of channels scanned using

[SCAN] [BANK] [PROG] [lower memory bank] [LIMIT]
[upper memory bank] [ENTER]
2. If you delete the contents of the following specific memory channels 000, 100, 200, 300, 400, 500, 600, 700, 800 & 900 do not use the lockout key to lock-out the channels. The memory channels will already be 'skipped' as they do not contain information.
3. Do not limit the scan range to a memory bank which is totally empty.

AR1500 NEW MICROPROCESSOR RESET

V004 AR1500EX

BANK - 1 - PROG - 0.5 - LIMIT - 95.995 - SEARCH -556.325 - ENTER
2 - PROG - 96 - LIMIT - 299.995 - SEARCH -556.325 - ENTER
3 - PROG - 300 - LIMIT - 512.995 - SEARCH -249.125 - ENTER
4 - PROG - 513 - LIMIT - 797.995 - SEARCH - 58.075 - ENTER
5 - PROG - 798 - LIMIT -1105,995 - DOWN - 249.125 - ENTER
6 - PROG -1106 - LIMIT -1300 - DOWN - 556.325 - ENTER

ALIGNMENT PROCEDURE OF AR1500

I.F. Adjustment

Feed 58.075MHz signal from SSG to Q12.

1. Select FM(narrow) mode and adjust T6, and T7 for less than 0dBu at SINAD 12dB. 3.0KHz, 1KHz modulation.
2. Select AM mode and adjust T16 and T8 for less than +3dBu at S/N 10dB (modulation 60%, 1KHz signal).
3. Select WFM mode and adjust T9 for peak point at +6dBu output from SSG. Distortion should be minimized when 30dBu output from SSG is provided.
4. Select AM mode and turn on BFO switch. Feed 15dBu non modulated signal from SSG. Adjust T10 for zero beat at center position of BFO control knob.

RF Adjustment

1. Select 118.1MHz(AM). Feed 118.1MHz signal from SSG to antenna connector and adjust T11, T12, T13, T14, T15, and T3 for peak output level.
2. Select 950.1MHz (AM). Adjust T1, T2 for peak output level.
3. Select 750.1MHz (AM). Adjust T4 for peak output level.
4. Select 1290MHz (FM). Adjust CV1 and CV2 for minimum distortion.

Sensitivity

See if the unit is within the following sensitivity spec. limit.

15.1MHz	0dBu	SINAD 20dBu or better
25.1MHz FM	"	"
118.1MHz FM	"	SINAD 10dBu or better
151.4MHz FM	"	SINAD 20dBu or better
251.1MHz FM	3dBu	SINAD 10dBu or better
355.1MHz AM	"	SINAD 18dBu or better
440.1MHz AM	"	"
512.1MHz FM	"	"
850.1MHz FM	"	"
950.1MHz FM	"	"

BAND NO	f RANG	1' s t I F	2' n d I F
1	0.5MHz~1.995MHz	+556.325MHz	58.075MHz
2	2MHz~299.995MHz	"	"
3	300~419.995MHz	+249.125MHz	"
4	420~606.995MHz	"	"
5	607~797.995MHz	+58.075MHz	0.455MHz
6	798~1105.995MHz	-249.125MHz	58.075MHz
7	1106~1300.000MHz	-556.325MHz	"



AOR, LTD.
TOKYO, JAPAN

PHONE: 813 3865 1681 FAX: 813 3862 9927

Resetting the AR1500

Switch OFF the receiver and remove Ni-Cd pack.
 Switch ON the slide reset switch under the Ni-Cd pack.
 Insert the Ni-Cd pack and switch ON the receiver.
 For reset the receiver press keys in following sequence.

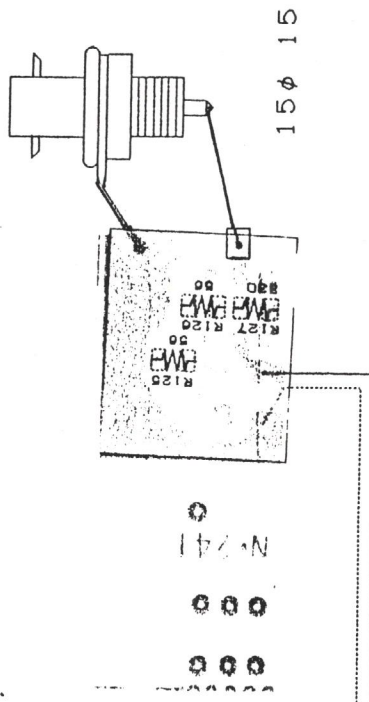
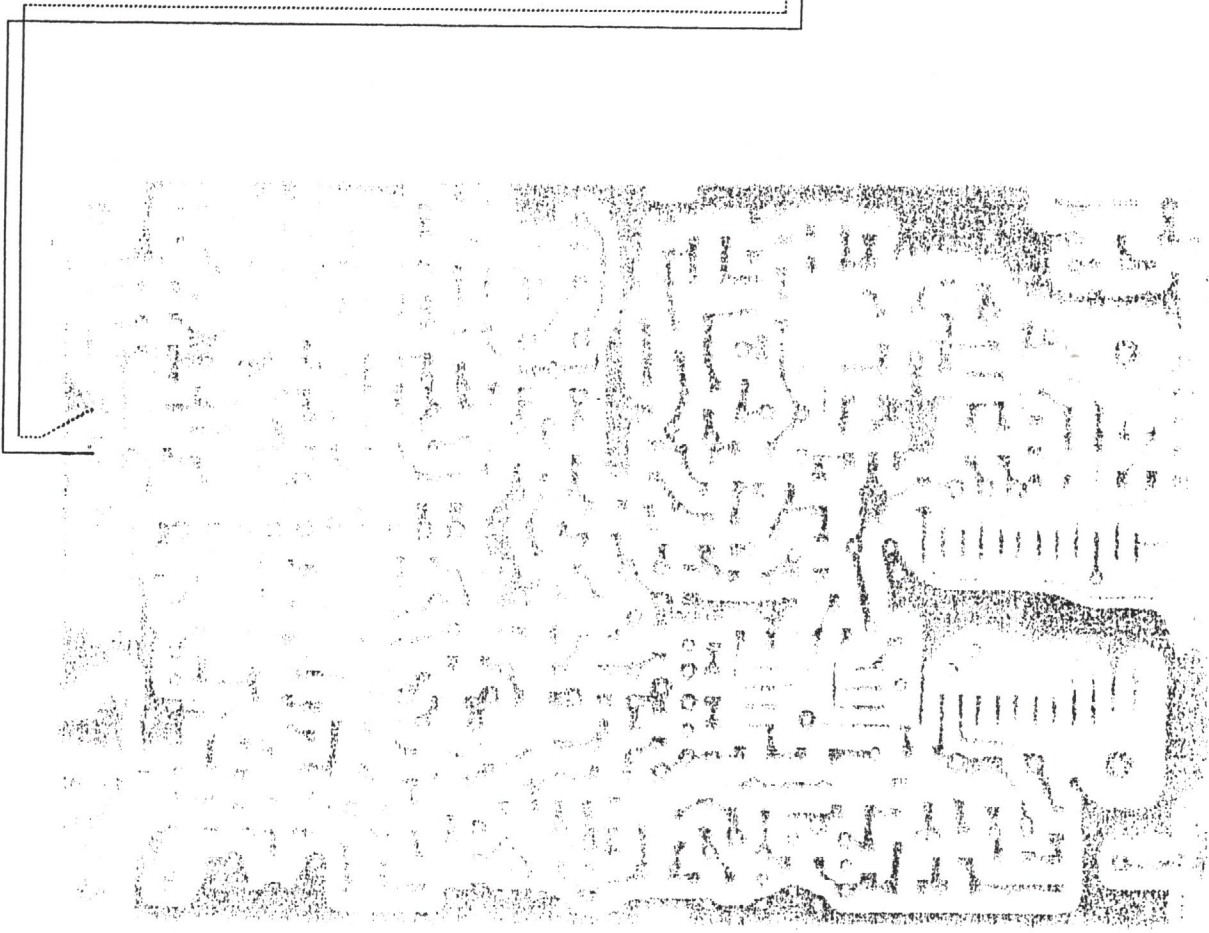
BANK - 1 PROG - 0.5 - LIMIT - 1.995 - SEARCH - 556.325 - ENTER
 2 - PROG - 2 - LIMIT - 299.995 - SEARCH - 556.325 - ENTER
 3 - PROG - 300 - LIMIT - 419.995 - SEARCH - 249.125 - ENTER
 4 - PROG - 420 - LIMIT - 606.995 - SEARCH - 249.125 - ENTER
 5 - PROG - 607 - LIMIT - 797.995 - SEARCH - 58.075 - ENTER
 6 - PROG - 798 - LIMIT - 1105.995 - DOWN - 249.125 - ENTER
 7 - PROG - 1106 - LIMIT - 1300.000 - DOWN - 556.325 - ENTER

Switch OFF the receiver and remove Ni-Cd pack.
 Switch OFF the slide reset switch under the Ni-Cd pack.
 Insert the Ni-Cd pack once again and switch ON the receiver.
 Test the receiver.

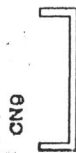
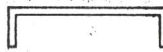
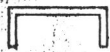
PARTS LIST

MODEL AR-1500

ITEM	SPEC.	Q'TY	CIRCUIT SYMBOL
Chip Res.	RC210	2	R125, 126
	56Ω	1	R127
	330Ω		

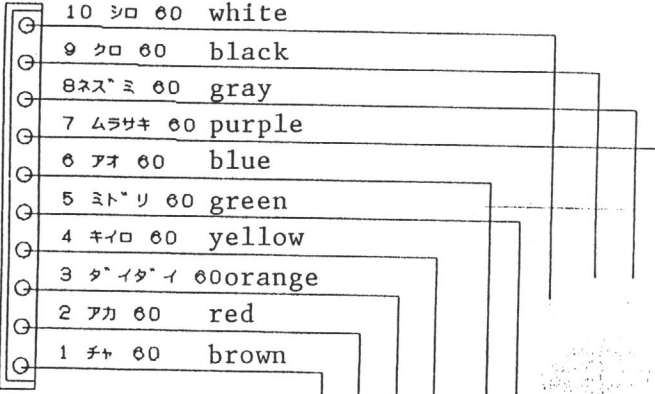


green
shielded

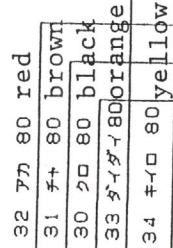


LP

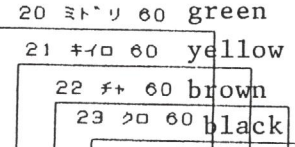
CN11



51 シロ 35 white

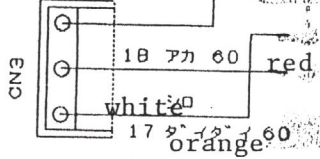


CN8



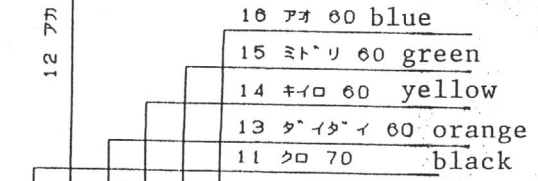
CN5

19 クロ 60 black



CN3

12 77 130 red



CN2

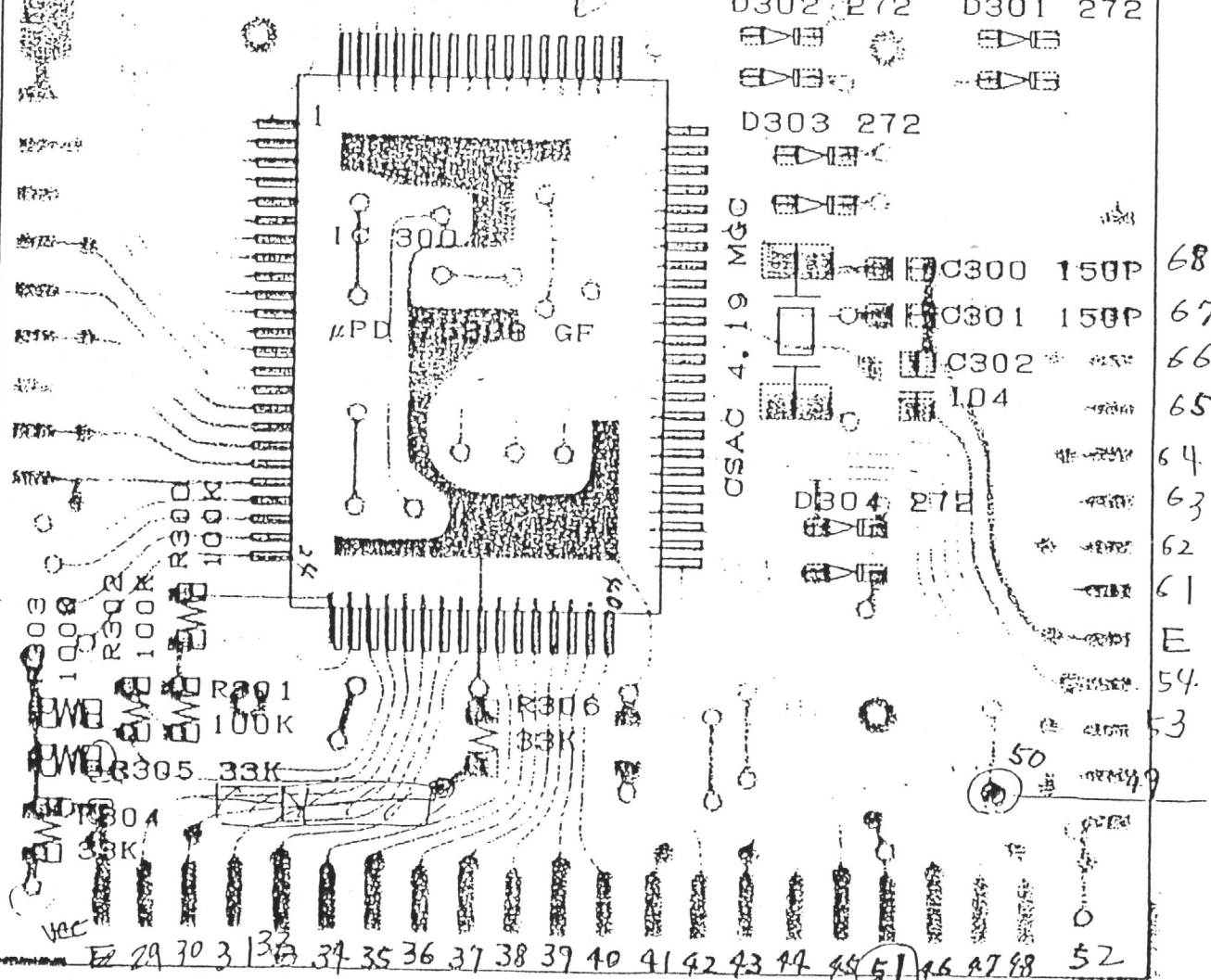
AR-1500 - 272 1500

AR1500

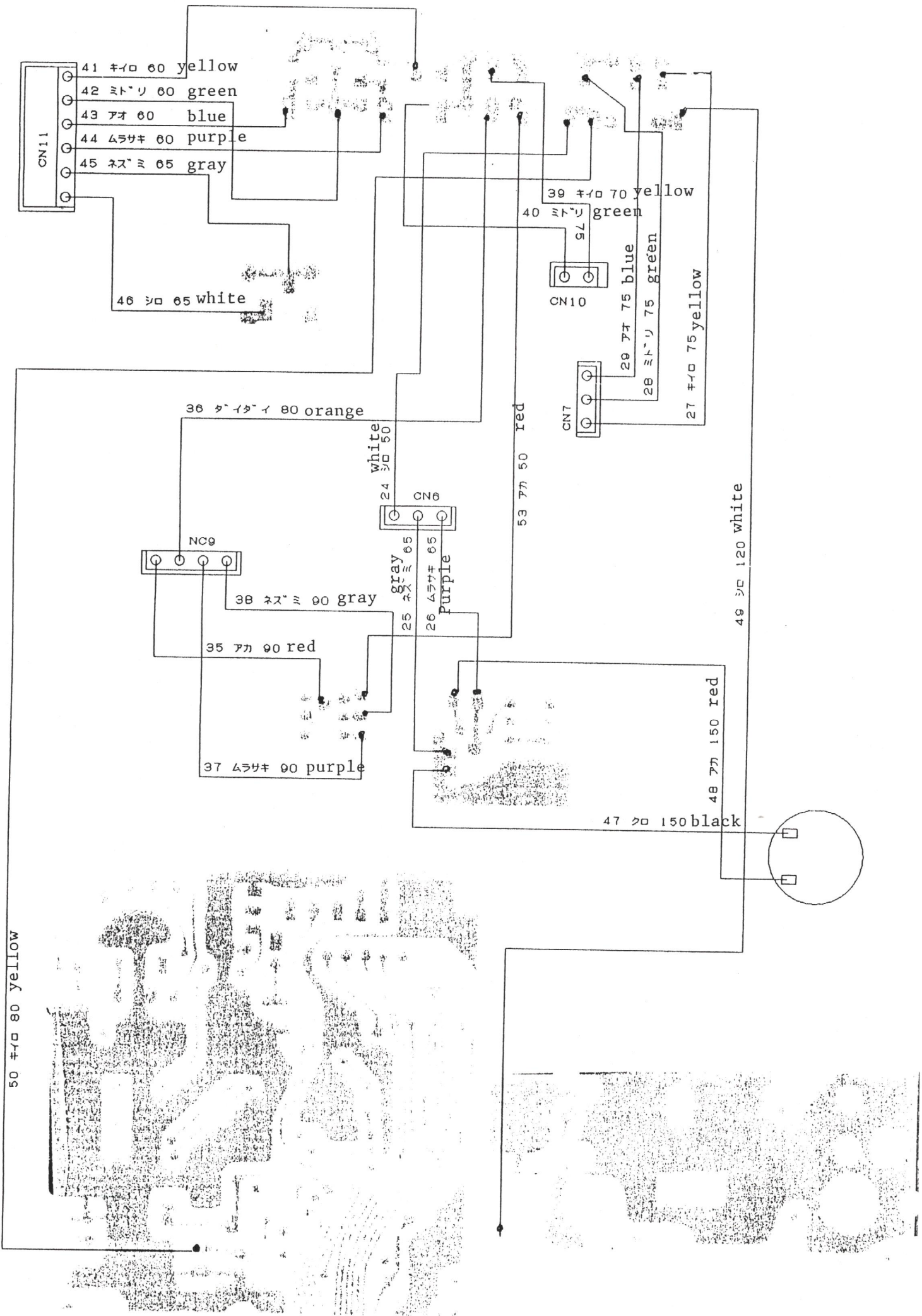
AOR, LTD.

CPU 2

E
13
14
15
16
17
18
19
20



DIODE FOR RESET



07090

D300 272



D302 272



D301 272



D303 272



CSAC 4.19 MGC



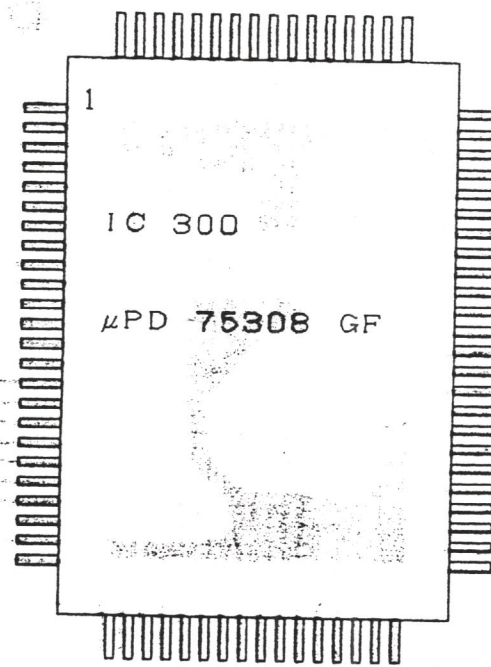
C300 150P

C301 150P

C302 *

104

D304 272



R303 100K
 R302 100K
 R300 100K
 R301 100K
 R305 33K
 R304 33K

R306 33K

PARTS LIST
MODEL

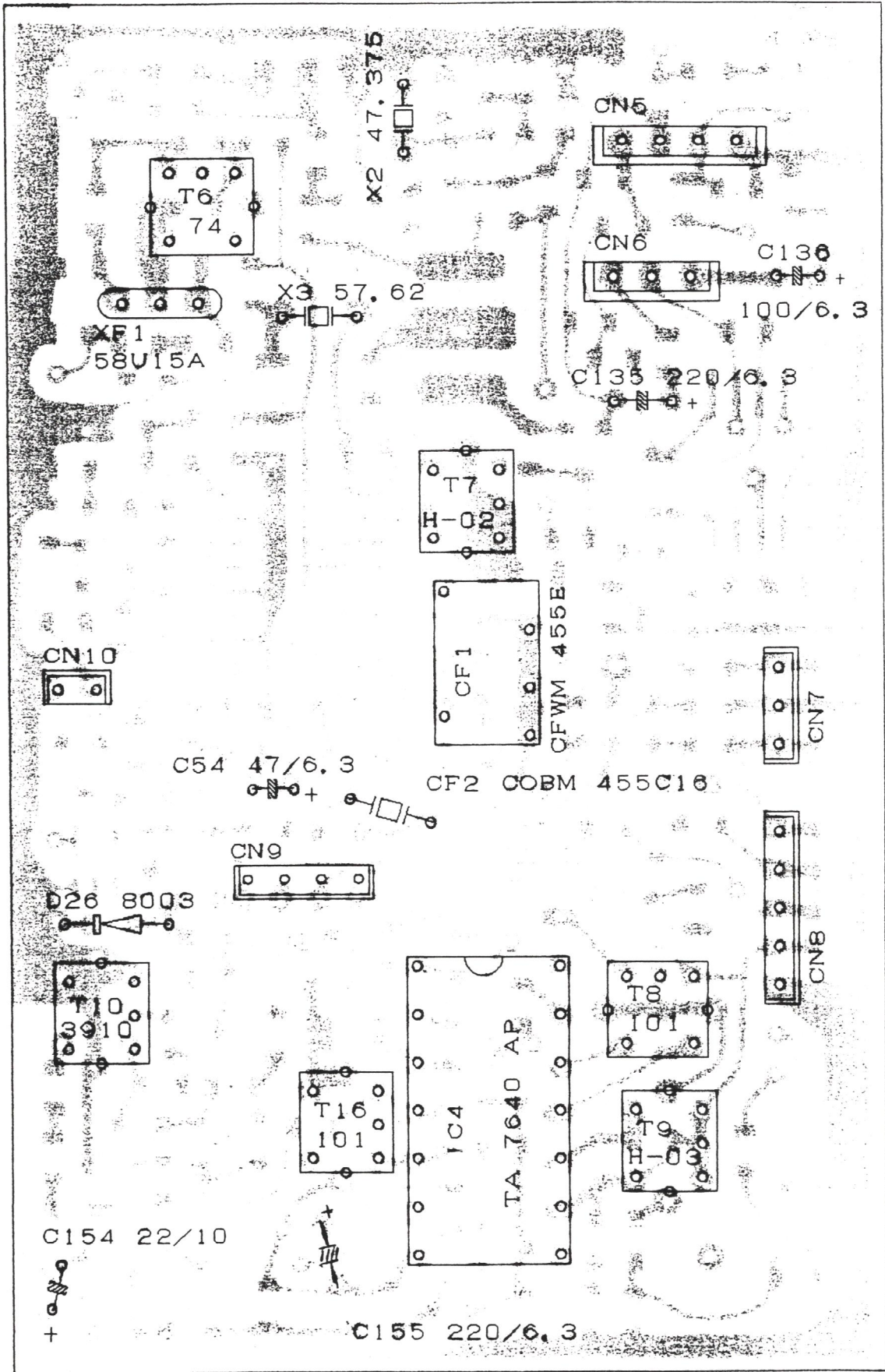
AR-1500

CONTROLL PCB, SOLDER SIDE

ITEM	SPEC.	QTY	SCHEMATIC SYMBOL
IC	μ PD 75308GF	1	IC300
CERAMIC - LOCK	CSAC 4.19MGC	1	
CHIP Res.	RC210 33K Ω	3	R304,305,306
	100K Ω	4	300,301,302,303
CHIP. CAP.	GRM40CH 150P	2	C300,301
	GRM40F 104	4	C302
DIODE	1SS272	5	D300,301,302,303
		2	,304

	SPEC.	Q'TY	SCHEMATIC SYMBOL
	MC 3372	1	IC2
	TC 4S584F	1	IC5
	NJM 386M	1	IC6
RESISTOR	ZSC2714Y	5	Q12,13,14,15,20
	ZSC2712GR	6	Q16,17,18,21,22, 24
	RN1405	2	Q19,23
DIODE	1SS184	3	D21,22,24
	1SS314	1	D25
	1SS217	1	D27
RES.	RC210 10Ω	2	R78,79
	100Ω	1	R102
	330Ω	2	R46,49
	470Ω	3	R60,85,87,124
	1KΩ	4	R58,61,88,91,85
	1.8KΩ	1	R73
	2.2KΩ	8	R43,64,82,83,84, 94,98,104
	3.3KΩ	2	R67,101
	4.7KΩ	6	R44,69,71,74,96, 106
	6.8KΩ	1	R65
	10KΩ	4	R48,70,81,86
	15KΩ	1	R47
	22KΩ	3	R57,63,95
	33KΩ	2	R68,75,76
	47KΩ	7	R62,72,90,99,105 120 68
	68KΩ	3	R66,89,93
	100KΩ	1	R103
	220KΩ	2	R45,92
	470KΩ	4	R42,59,97,100
CAP.	GRM40CH 7P	1	C93
	18P	5	C91,95,156,160,107
	27P	2	C116,117
	33P	2	C88,89
	47P	4	C94,120,164,167
	68P	1	C148
	330P	1	C145
	GRM40B 102	10	C108,109,112,123 127,129,131,141, 142,171,122
	" 103	18	C90,92,96,107, 115,125,128,133, 134,143,144,149, 158,161,162,168, 173,174
	GRM40F 104	5	C118,119,124,137 140
	GRM40B 472	2	C151,152
	" 222	2	C122,126
	" 223	9	C113,114,121,146 147,153,159,163,111
	" 473	1	C111,150

ITEM	SPEC.	Q'TY	
CHIP.ELE.	ECS-TOJY335R 3.3uF	4	C110,132,157,169
FILTER	SFEC10.7MS2	1	CF3



PARTS LIST

MODEL

AR-1500

IF PCB PARTS MOUNTED SIDE

(N-227)

ITEM	SPEC.	Q'TY	SCHEMATIC SYMBOL	
IC	TA7640AP	1	IC4	
DIODE	LT8003	1	D26	
TRANS.	55-74	1	T6	
	H-02	1	T7	
	H-03	1	T9	
	S-132-101	2	T8,16	
	5PLC-3910N	1	T10	
ELECT.	6.3V 47 μ F	1	C54	5*6
	" 100 μ F	1	C136	6*5
	" 220 μ F	2	C135,155	6*7.5
	10V 22 μ F	1	C154	5*6
FILTER	58U15A	1	XF1	
	CFWM455E	1	CF1	
	CDBM455C16	1	CF2	
CRYSTAL	47.375MHz	1	X2(UM-1)	
	57.62MHz	1	X3 "	
CONNECTOR	P122A2M	1	CN10	
	P122A3M	2	CN6,7	
	P122A4M	2	CN5,9	
	P122A5M	1	CN8	
PCB	N-00-227			

ARTS LIST

MODEL

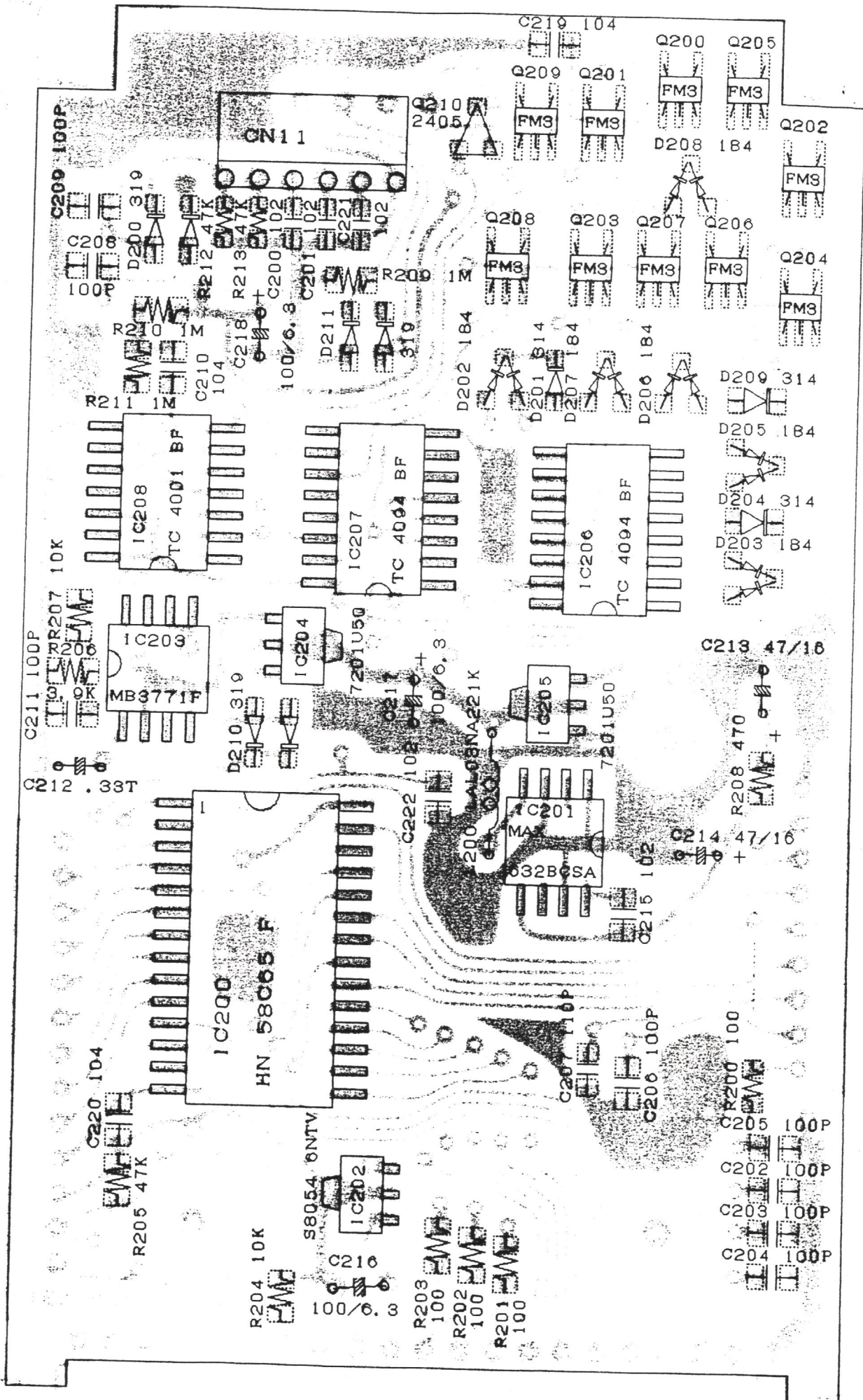
AR-1500

MAIN PCB SOLDER SIDE (N-228)

ITEM	SPEC.	Q'TY	SCHEMATIC SYMBOL
IC	μ PC 1676G	1	IC2
	TC 9181F	1	IC9
	MB5011	1	IC10
	NJU7201U30	1	IC8
TRANSISTOR	2SC3011	10	Q1,3,4,5,7,8,9 10,27,28
	2SC2714Y	1	Q11
	2SC2712GR	2	Q25,26
	RN2404	1	Q6
DIODE	1SS184	1	D4
	1SS226	1	D1
	1SS268	54	D6,9,16,28,4
	1SS272	1	D15
	1SS314	9	D2,3,7,8,14,17, 18,19,20
	1SS344	1	D23
	1SV217	4	D10,11,12,13
	CHIP RES.	22 Ω	2
100 Ω		6	R4,16,24,25,29, 30
220 Ω		5	R12,14,34,37,18
330 Ω		5	R5,41,51,54,115, 122
470 Ω		6	R36,50,53,110, 111,114
1K Ω		6	R1,9,40,52,56, 108
2.2K Ω		6	R2,20,21,22,32, 116
3.3K Ω		3	R10,11,123
4.7K Ω		3	R7,17,23
6.8K Ω		4	R6,19,39,112
10K Ω		2	R26,117
33K Ω		1	R27
47K Ω		1	R3
88KΩ		1	R28 \rightarrow R28 \rightarrow 22K
100K Ω		4	R13,35,113,121
150K Ω		2	R15,118
220K Ω		4	R33,107,109,119
470K Ω		2	R38,55
CHIP CAP.	GRM40CH 0.5P	3	C65,70,79
	1P	1	C32
	2P	6	C7,31,34,40,45, 69
	3P	7	C37,38,49,74,82, 98, C44
	5P	5	C28,29,72,78,80
	7P	2	C10,23
	10P	2	C11,44,81
	15P	3	C51,63,66
	18P	1	C99
	22P	3	C12,14,18,39
	27P	4	C67,68,87,103

ITEM	SPEC.	Q'TY	
CHIP CAP.	GRM40CH 33P	45	C17,27,85,101,106
		1	C62
		3	C52,86,104
	GRM40B 102	7	C30,33,35,56,59,75 97,
		24	C3,6,8,9,13,15,18, 22,24,46,48,53,55, 61,64,71,76,77,83, 84,100,102,105,170
	GRM40F 104	14	C1,2,4,5,19,20,21, 47,57,73,130,138, 139,172
GRM40 UJ 27P	1	C50	
CHIP ELE.	ECS-TOJY335R 3.3uF	1	C36
TRIMMER	TSW-3P	1	CV2

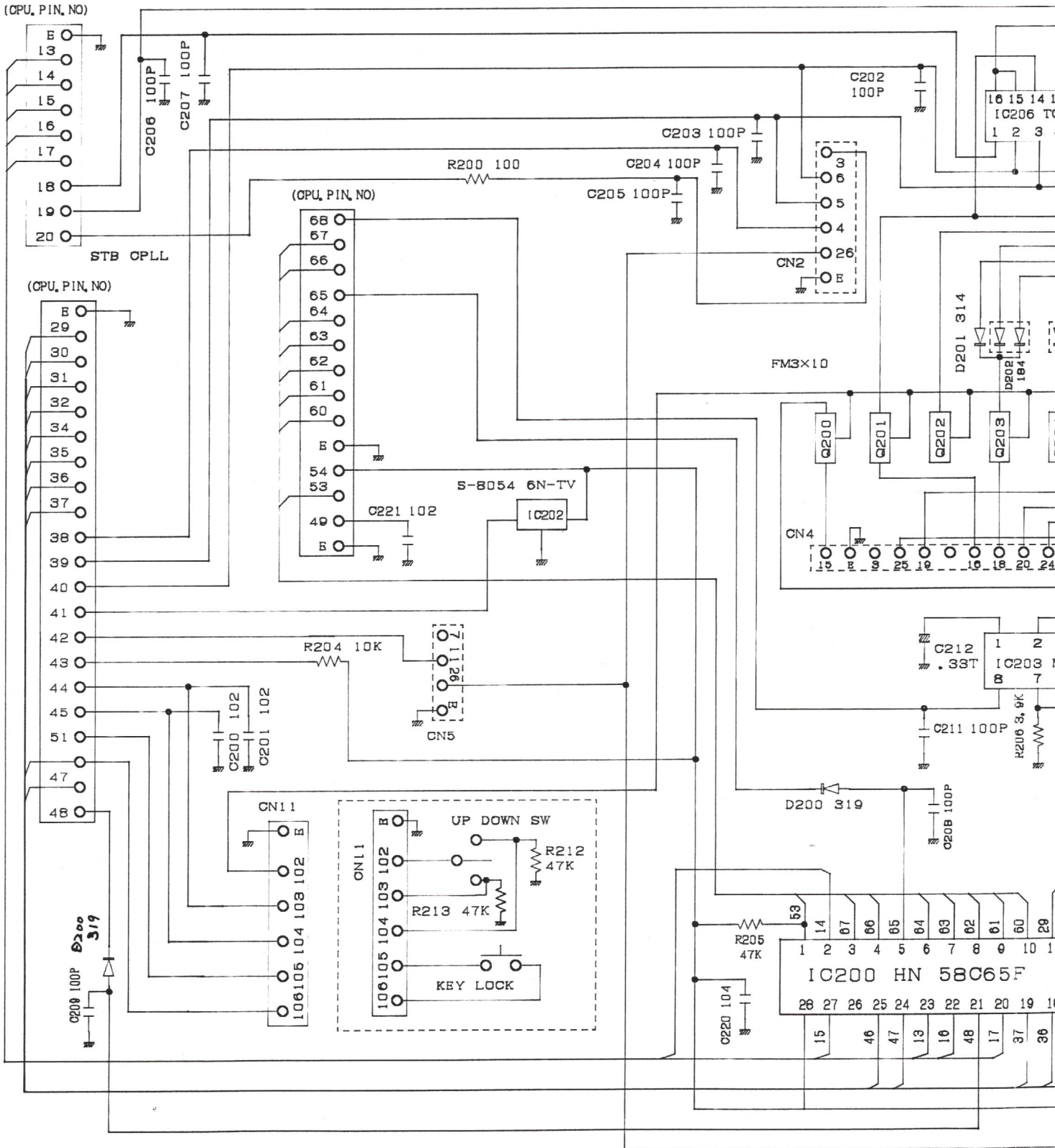
220P. - 1
2P - 1

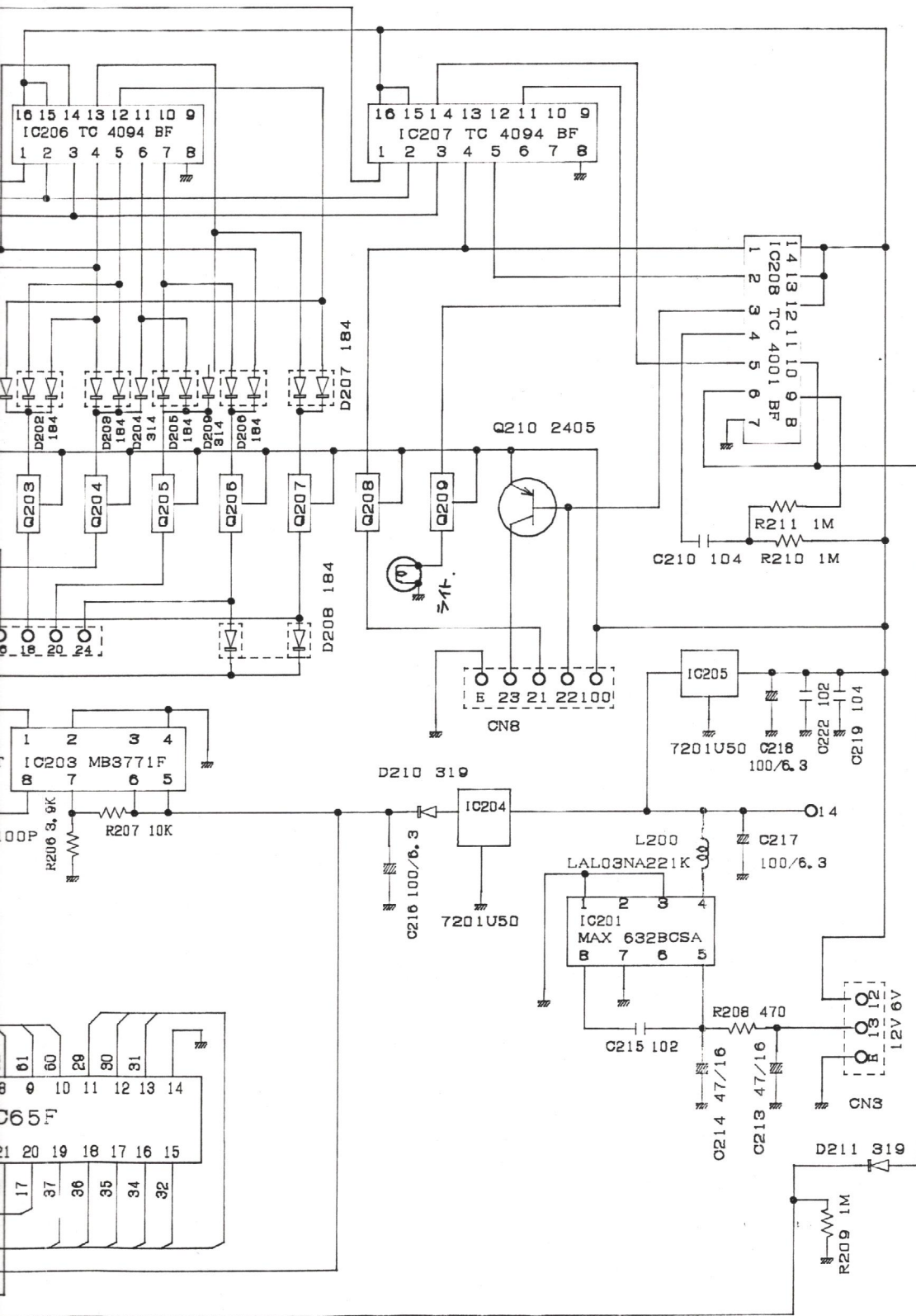


PARTS LIST

MODEL AR-1500 バンドPCB SOLDER SIDE

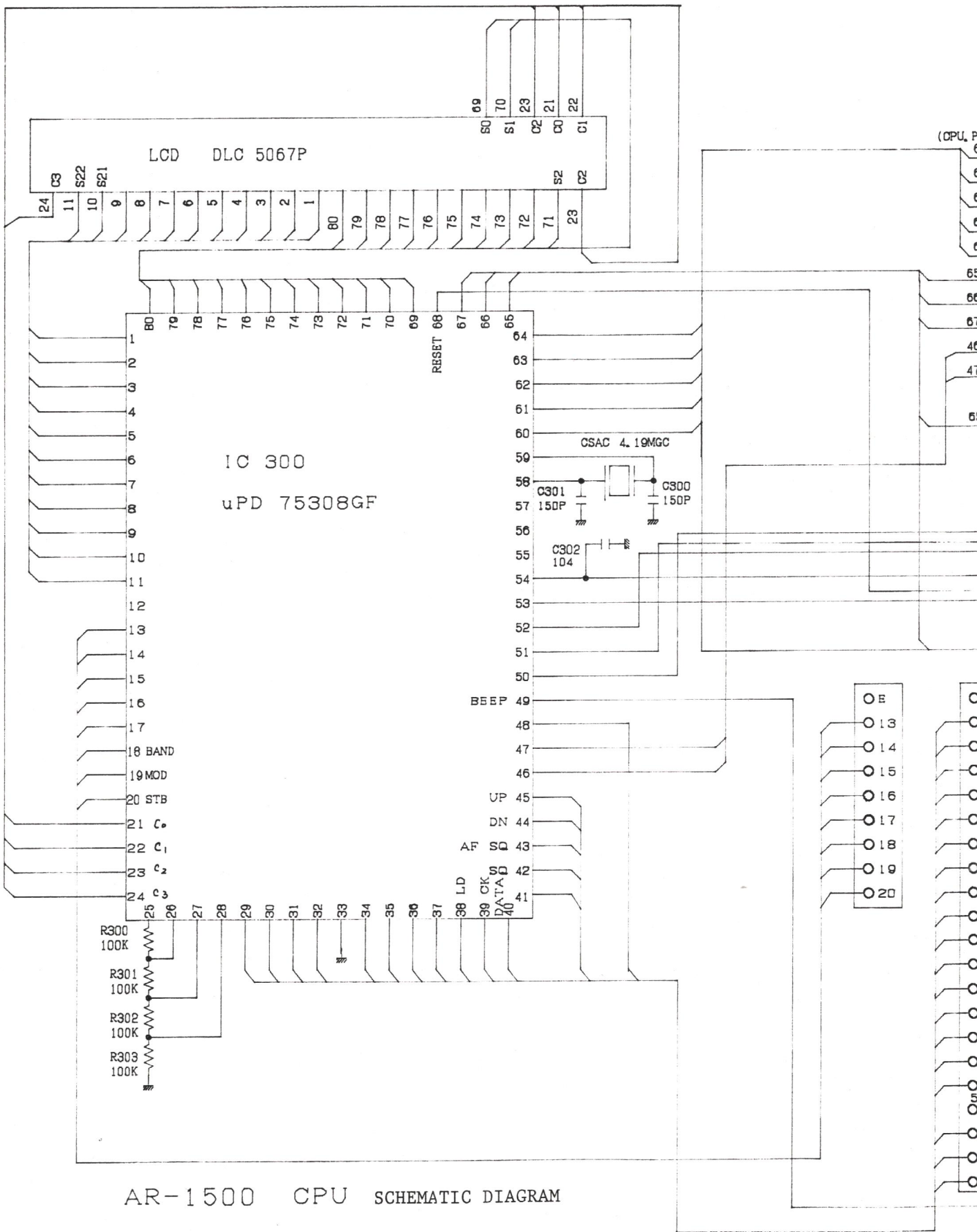
ITEM	SPEC.	Q'TY	SCHEMATIC SYMBOL	
I C	HN58C65FP-25	1	IC200	
	MAX632BCSA	1	IC201	
	S8054 6N-TV	1	IC202	
	MB3771F	1	IC203	
	7201U50	2	IC204, 205	
	TC4094BF	2	IC206, 207	
	TC4001BF	1	IC208	
TRANSISTOR	RN2405	1	Q210	
	FMC3	10	Q200~209	
DIODE	1SS184	6	D202, 203, 205, 206 , 207, 208	
	1SS319	3	D200, 210, 211	
	1SS314	3	D201, 204, 209	
CHIP RES.	RC210	100Ω	4	R200, 201, 202, 203
		470Ω	1	R208
		3.9KΩ	1	R206
		10KΩ	2	R204, 207
		47KΩ	3	R205, 212, 213
		1MΩ	3	R209, 210, 211
		CHIP CAP.	GRM40CH	100P
102	5			C200, 201, 215, 221 222
104	3			C210, 219, 220
COIL	LAL03NA221K	1	L200	
TANTALIUM	16V 0.033μF	1	C212	
ELECTROLITIC	16V	47μF	2	C213, 214 6*6
		6.3V 100μF	3	C216, 217, 218
CONNECTOR	P122B6M	1	CN11	





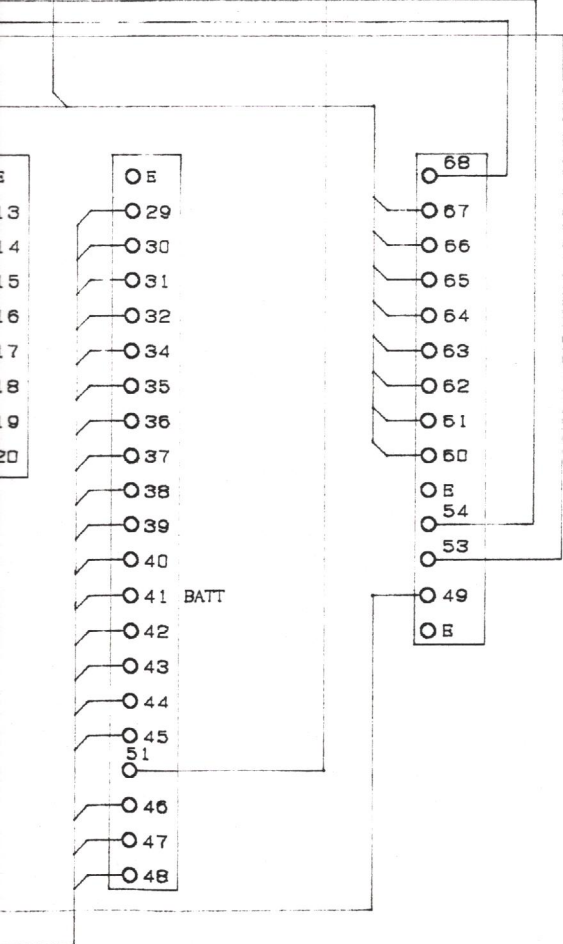
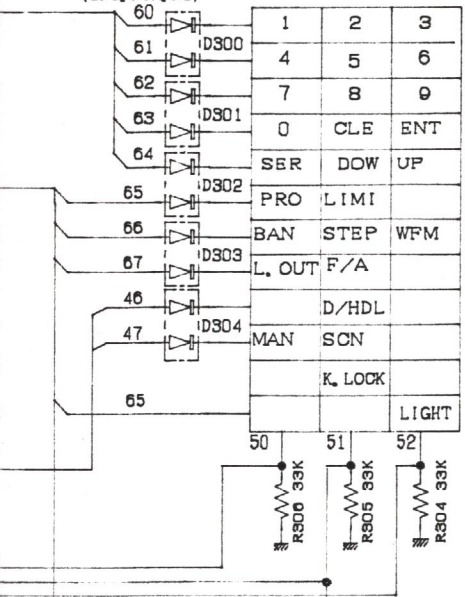
AR-1500 BAND SCHEMATIC DIAGRAM

(CPU, PIN, NO)

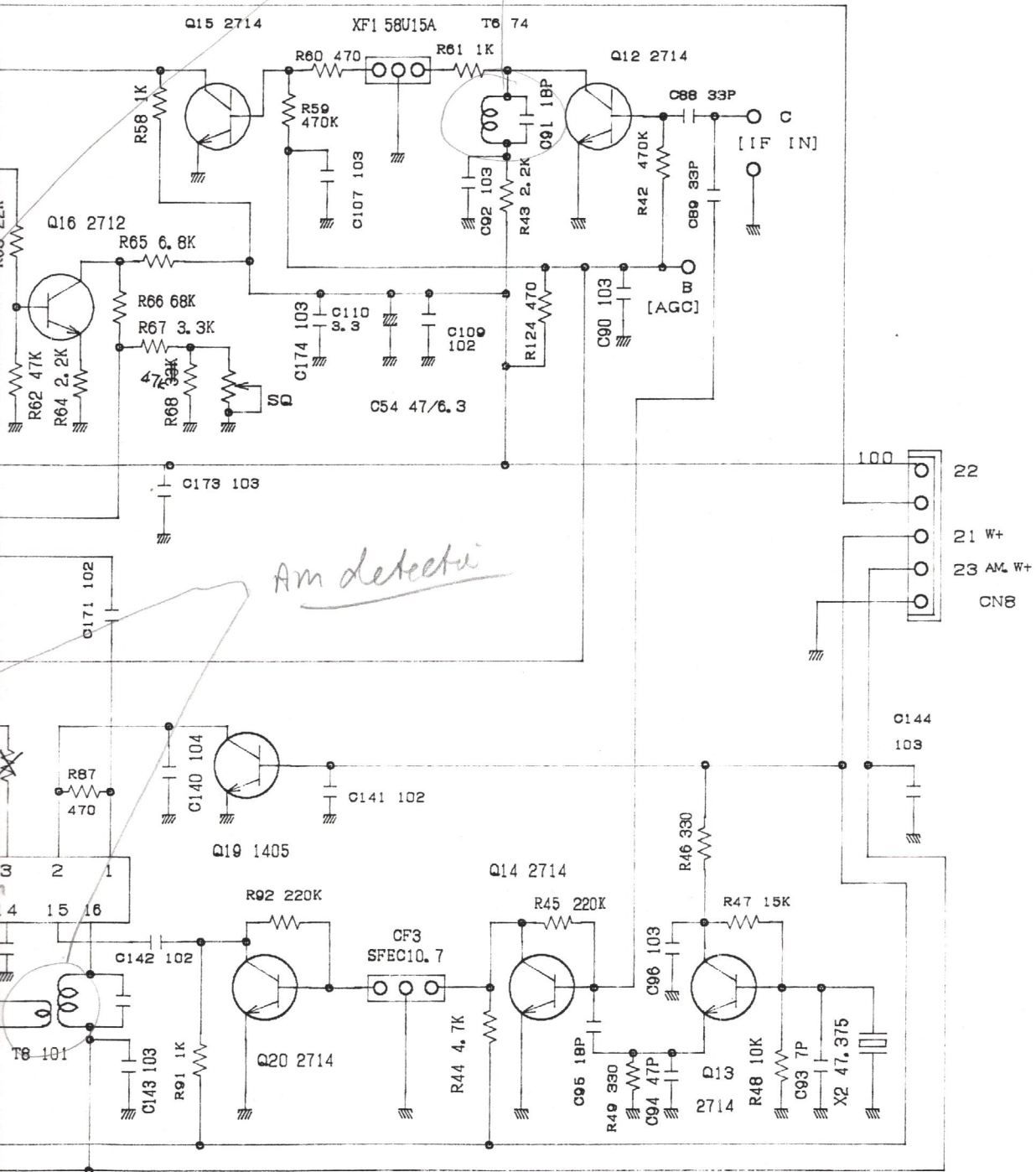


AR-1500 CPU SCHEMATIC DIAGRAM

(CPU, PIN, NO)



NBFM

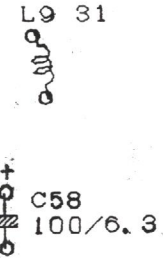
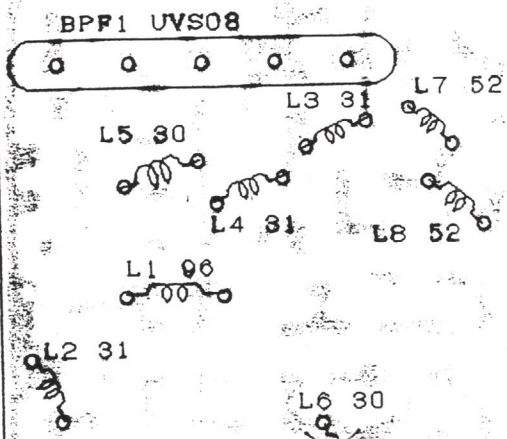


Am detect

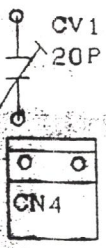
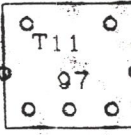
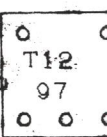
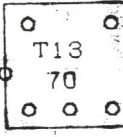
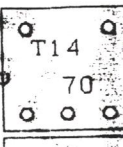
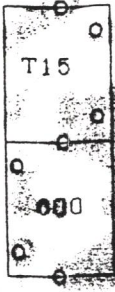
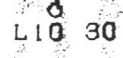
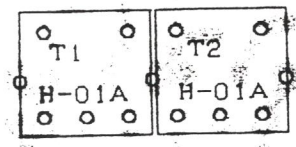
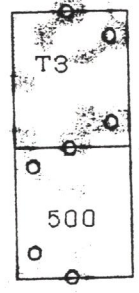
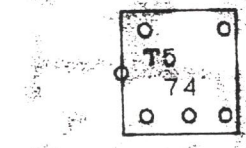
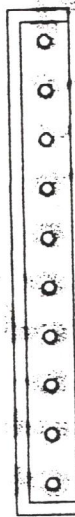
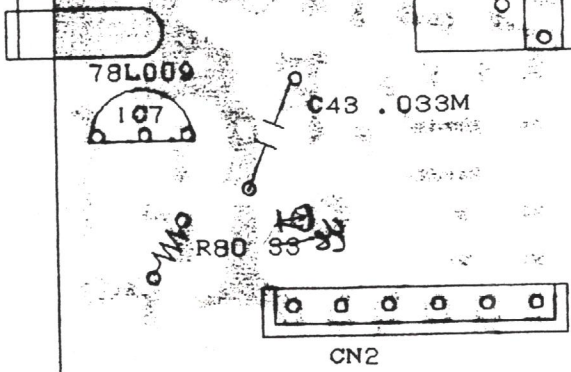
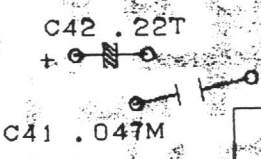
d fm
minator

AR-1500 N-227 SCHEMATIC DIAGRAM

注 極性はコイル側を向く事



注 C42, C41



PARTS LIST
MODEL

AR-1500 MAIN PCB, PARTS MOUNTED. (N-228)

ITEM	SPEC.	Q'TY	SCHEMATIC SYMBOL
IC	TA78L009	1	IC7
DIODE	LT8003	1	D5
	ND487C1-3R	1	D29
TRANS- FORMER	55-70	2	T13,14
	55-74	2	T4,5
	55-97	2	T11,12
	H-01A	2	T1,2
	5WH500	1	T3
	5WH600	1	T15
Fixed Res.	SS1/2W $\frac{33}{25}\Omega$	1	R80
ELECT.	6.3V 47 μ F	1	C60 5*6
	" 100 μ F	1	C58 6*5
TANTALIUM	16V 0.22 μ F	1	C42
MYLAR	0.047 μ F	1	C41 (小形)
	0.033 μ F	1	C43 (小形)
COIL	55-30	3	L5,6,10
	55-31	4	L2,3,4,9
	55-52	2	L7,8
	55-95	2	L11,12
	55-96	1	L1
FILTER	UVS08	1	BPF1
CRYSTAL	12.8MHz	1	X1(N-61-09)
TRIMMER	CV-38D 20P	1	CV13
CONNECTOR	P122A6M	1	CN2
	P122A10M	1	CN1
	P122B2M	1	CN4
	P122B3M	1	CN3
PCB	N-00-228		
JACK		1	

