

ONKYO® SERVICE MANUAL

Personal Theater System FM STEREO/AM TUNER AV AMPLIFIER PTS-303/307/505/507/707 (RY-303/307/505/507/707)

PTS-303/505/707 (RY-303/505/707)	UDN	120V,60Hz U.S.A model
PTS-303/505/707 (RY-307/507/707)	UM	220V/230V-240V,50Hz Asian model

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK Δ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

TABLE OF CONTENTS

SERVICE PROCEDURES	2
SPECIFICATIONS	2
ADJUSTMENT PROCEDURE	3
EXPLODED VIEW	14
EXPLODED VIEW PARTS LIST	15
MICROPROCESSOR CONNECTION DIAGRAM	16
TERMINAL DESCRIPTION	17
IC BLOCK DIAGRAMS	18
PRINTED CIRCUIT BOARD PARTS LIST	22
SCHEMATIC DIAGRAMS	31



SERVICE PROCEDURES

1. Safety-check out

After correcting the original service problem, perform the following safety check before releasing the set to the customer:

Connect the insulating-resistance tester between the plug of power supply cord and chassis.

Specifications : More than 10 Mohm at 500V.

2. Replacing the fuses

For continued protection against fire hazard, replace only with same type and same rating fuse.

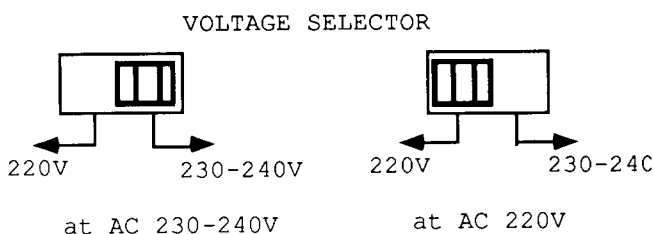
Circuit No.	Part No.	Description
F551	4-0035-1	T2.5A/250V <D> model RY-707
	4-0039-1	T5A/250V <M> model RY-707
	4-0040-1	T4A/250V <D> model RY-303/505
F552	4-0041-1	T4A/250V <D> model RY-307/507
	4-0042-1	T2.5A/250V <D> model RY-303/505/707
	4-0043-1	T2.5A/250V <M> model RY-307/707

NOTE: <D> 120V model only
<M> Asian model only

3. Voltage Selector (Rear Panel)

Asian model are equipped with a voltage selector to conform to local power supplied.

Be sure to set this switch to match the voltage of the power supply in your area before plugging in the unit. Models without a voltage selector can only be used in area where the power supply is the same as that of the unit.



Setting the voltage selector

1. Determine the proper for voltage for your area : 230-240V or 220V.
2. If the preset voltage is not proper for your area, insert a screwdriver into the groove in the switch. Slide the switch all the way to the right (230-240V) or to the left (220V), which-ever is proper.

SPECIFICATIONS

Amplifier Section

Power Output:

Front: 70W x 2 at 8 ohm from 40 Hz to 15 kHz
with no more than 0.9% THD
(model: RY-707)
50W x 2 at 8 ohm from 40 Hz to 15 kHz
with no more than 0.9% THD
(models: RY-303, 307, 505, 507)

Center: 30W (3.0% THD, 1 kHz, 8 ohm)
(model: RY-707)
20W (3.0% THD, 1 kHz, 8 ohm)
(models: RY-505, 507)

Surround: 15W x 2 (3.0% THD, 1 kHz, 16 ohm)
(model: RY-707)
10W x 2 (3.0% THD, 1 kHz, 16 ohm)
(models: RY-505, 507)

S/N: 89 dB (IHF-A)

FM Section

Tuning Range:

87.9 - 107.9 MHz
(U.S.A. and Canadian models)
87.5 - 108.0 MHz
(Asian models)
(Asian models: 50 kHz step U.S.A. and
Canadian models: 200 kHz step)

AM Section

Tuning Range:

520 - 1710 kHz, 10 kHz step
(U.S.A. and Canadian models)
522 - 1620 kHz, 9 kHz step
(Asian models)

General

Power Requirement: 120V AC, 60 Hz (U.S.A. and Canadian models)
220/230 - 240V AC, 50/60 Hz (Asian models)

Dimensions:
(W x H x D) Tuner/Amplifier unit
270 x 185 x 322 mm
(10-5/8 x 7-5/16 x 12-11/16 in.)

ADJUSTMENT PROCEDURES

Equipment required:

1. AM signal generator
2. FM signal generator
3. VTVM
4. DC voltmeter
5. FM/AM IF sweep generator
6. Oscilloscope

Notes:

1. Signal input must be as low as possible to avoid overload and clipping. (Use highest sensitivity of output indicator.)
2. Volume control at maximum.
3. Standard modulation is 400Hz at 30% amplitude for AM, 1000Hz at 22.5kHz deviation for FM (Mono).
4. Connect 8 ohm load across speaker terminal.

AM IF Adjustment

Signal Source	Signal Generator Frequency	Output	Frequency Setting	Adjustment	Remarks
AM IF sweep generator connected to AM antenna.	Sweep centered 450kHz	Oscilloscope connected to pin 18 of IC1.	1000 kHz	IFT 2	Adjust for maximum & symmetrical curve.
	520kHz (522kHz)	DC voltmeter to TP VCO	520kHz (522kHz)	L32	DC voltmeter 0.8V ± 0.05V
AM signal generator connected to AM antenna.	610kHz (612 kHz)	VTVM connected to speaker terminal	610kHz (612kHz)	L31	Adjust for maximum output
	1400kHz (1404kHz)		1400kHz (1404kHz)	TC1	
Repeat adjustments as necessary to minimise tracking error.					

FM IF Adjustment

Signal Source	Signal Generator Frequency	Output	Frequency Setting	Adjustment	Remarks
FM IF sweep generator connected to FM antenna.	Sweep centered 10.7MHz	Oscilloscope connected to pin 18 of IC1.	98MHz	IFT 1 on the front end	Adjust for maximum & symmetrical curve.

FM RF Adjustment

Signal Source	Signal Generator Frequency	Output	Frequency Setting	Adjustment	Remarks
FM signal generator connected to FM antenna.	87.5MHz 60dB	DC voltmeter to TP VCO	87.9MHz (87.5MHz)	L10	DC meter to indicate 2.2V ± 0.05V
	98MHz	VTVM connected to speaker terminal.	98MHz	L3, L17, L19 on the front end	Adjust for maximum output

1. Preparations

- 1) Place the unit on the workbench. (There should be about 15 mm of space between the base plate of the unit and the work surface.)
- 2) Set up the unit as follows.
 - (1) No load
 - (2) No signal
 - (3) Volume turned all the way down
 - (4) Speaker switch OFF
 - (5) Power switch OFF

Note) Check the following points before making adjustments

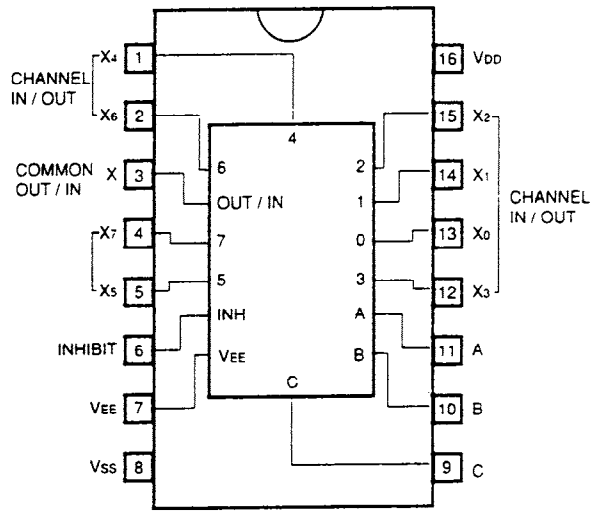
 - (1) The power switch should be OFF.
 - (2) The interior of the unit should not be warm.

2. Idling current adjustment

- 1) Turn the power switch ON and allow the unit to warm up for about 10 minutes.
 - (1) Adjust VR370(VR470) so that the voltage at test point R383 (R483) on the power amp transistor pc circuit board is $13\text{mV} \pm 2\text{mV}$.

NOTE) Semi-fixed resistors enclosed in parentheses () are for the right channel.

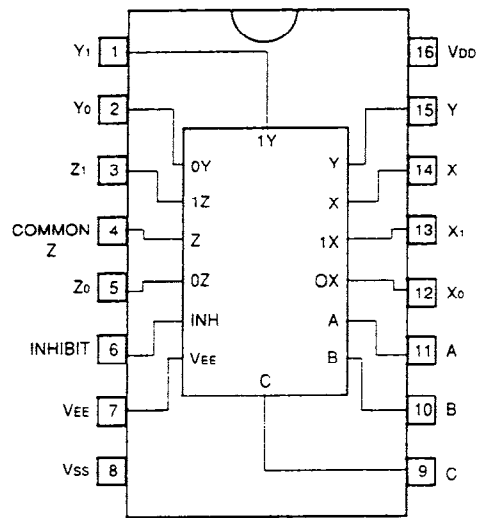
IC101,IC201: BU4051 (INPUT SELECTOR)



INHIBIT	A	B	C	ON SWITCH
L	L	L	L	X0
L	H	L	L	X1
L	L	H	L	X2
L	H	H	L	X3
L	L	L	H	X4
L	H	L	H	X5
L	L	H	H	X6
L	H	H	H	X7
H	X	X	X	NONE

X : Don't Care

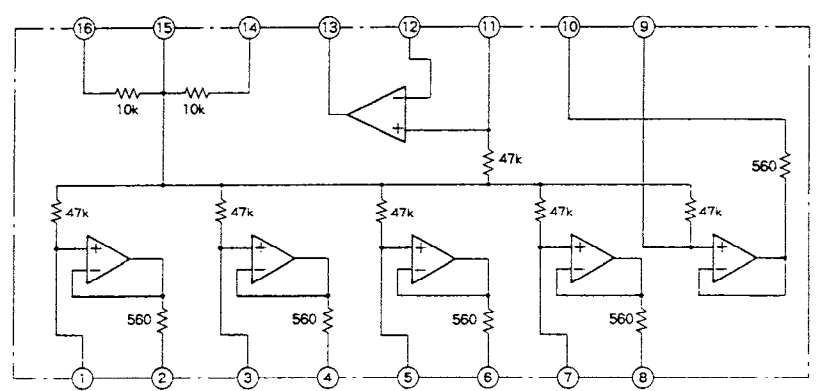
IC102,IC202: BU4053 (INPUT SELECTOR)



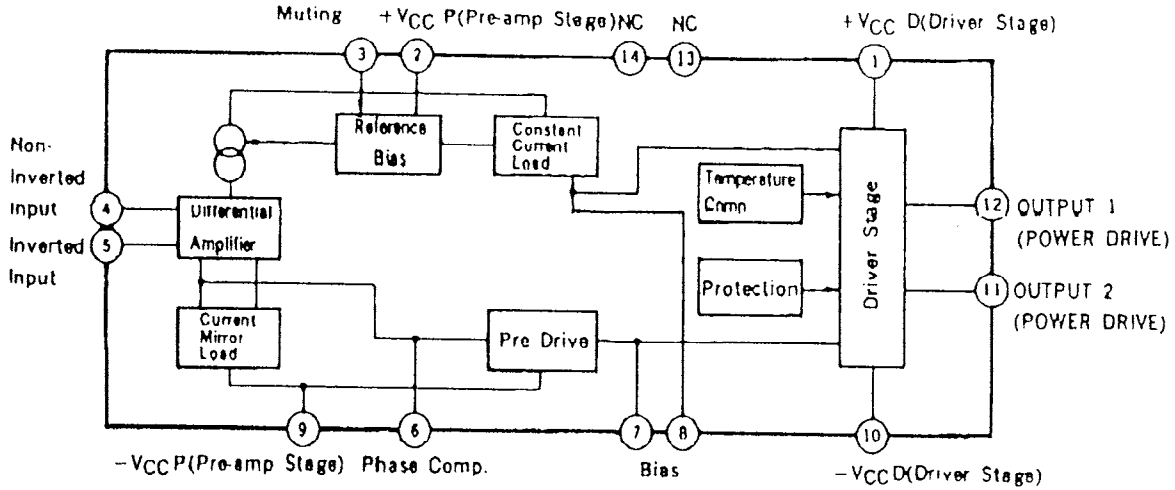
INHIBIT	A	B	C	ON SWITCH
L	L	L	L	X ₀ Y ₀ Z ₀
L	H	L	L	X ₁ Y ₀ Z ₀
L	L	H	L	X ₀ Y ₁ Z ₀
L	H	H	L	X ₁ Y ₁ Z ₀
L	L	L	H	X ₀ Y ₀ Z ₁
L	H	L	H	X ₁ Y ₀ Z ₁
L	L	H	H	X ₀ Y ₁ Z ₁
L	H	H	H	X ₁ Y ₁ Z ₁
H	X	X	X	NONE

X : Don't Care

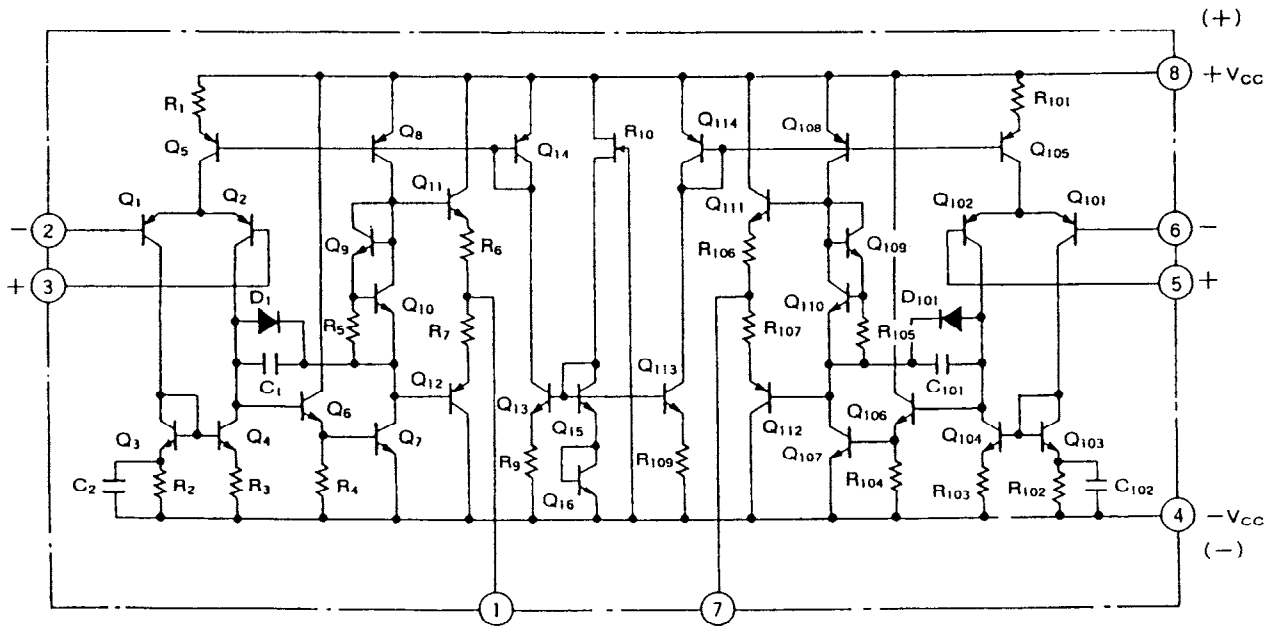
IC103,IC203: M5227P (GRAPHIC EQUALIZER)



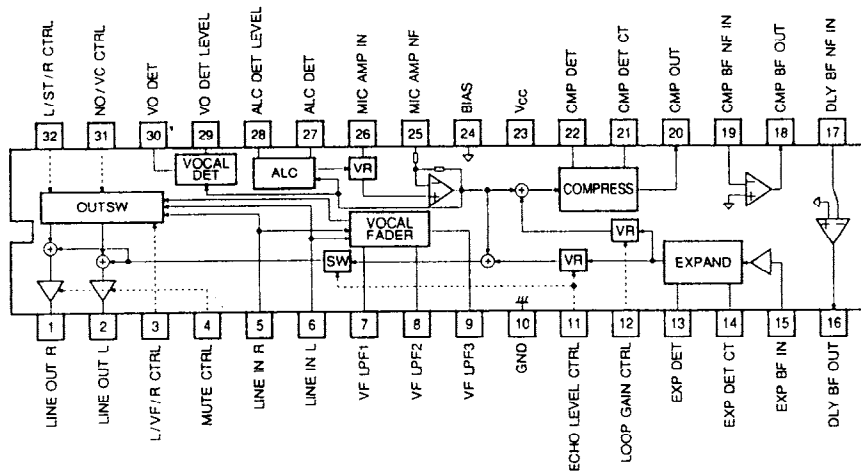
IC370, IC470: μ PC 12987V (PRE-AMP)



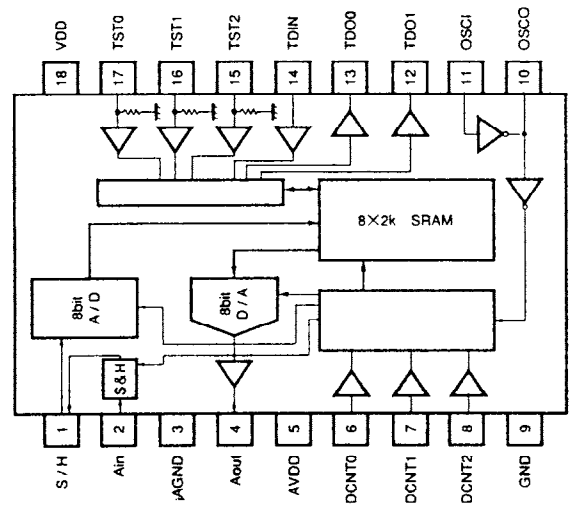
IC390, IC507, IC508, IC510, IC511:M5218L (OPE-AMP)



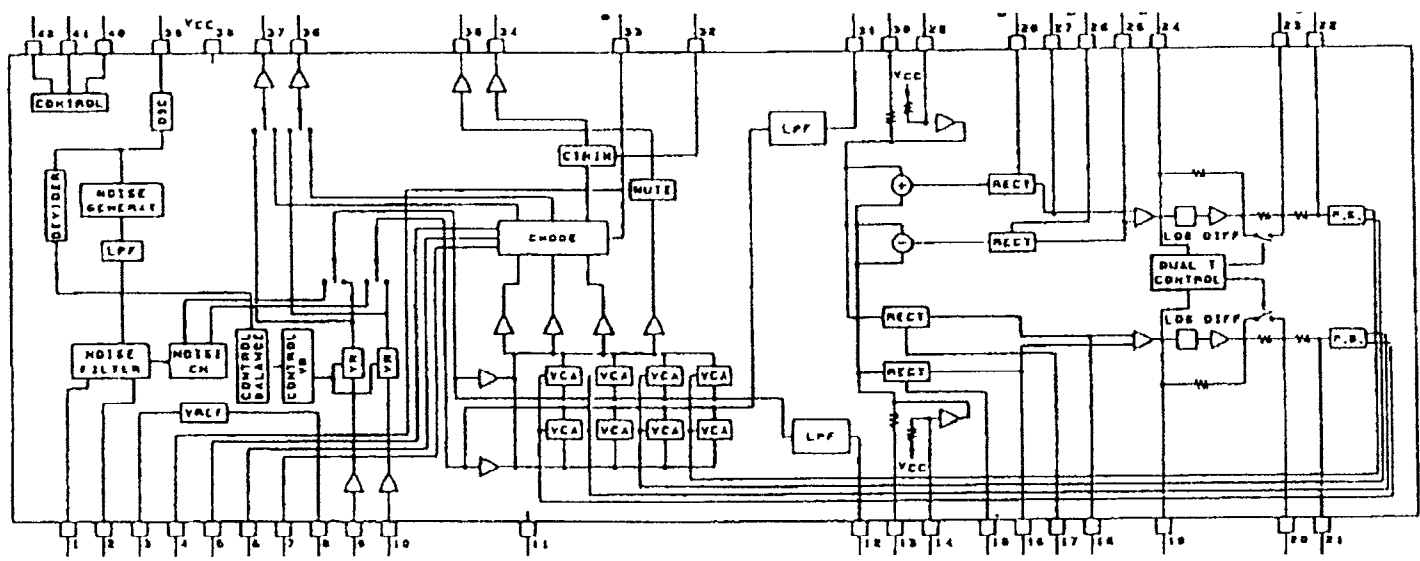
IC501: BA7726AS (KARAOKE ANALOG COMPAND W/VOCAL FADER)



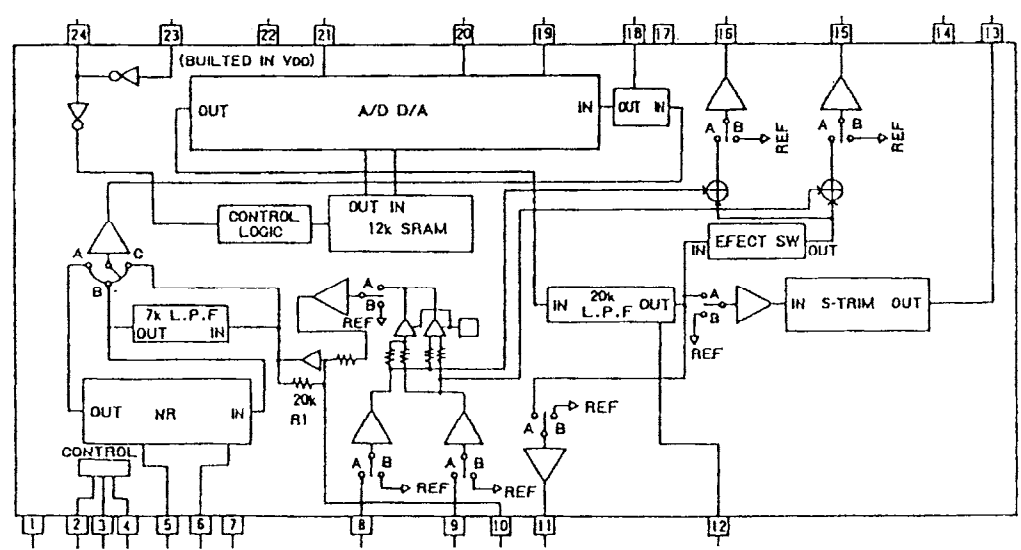
IC502: BU9252S (KARAOKE ECHO)



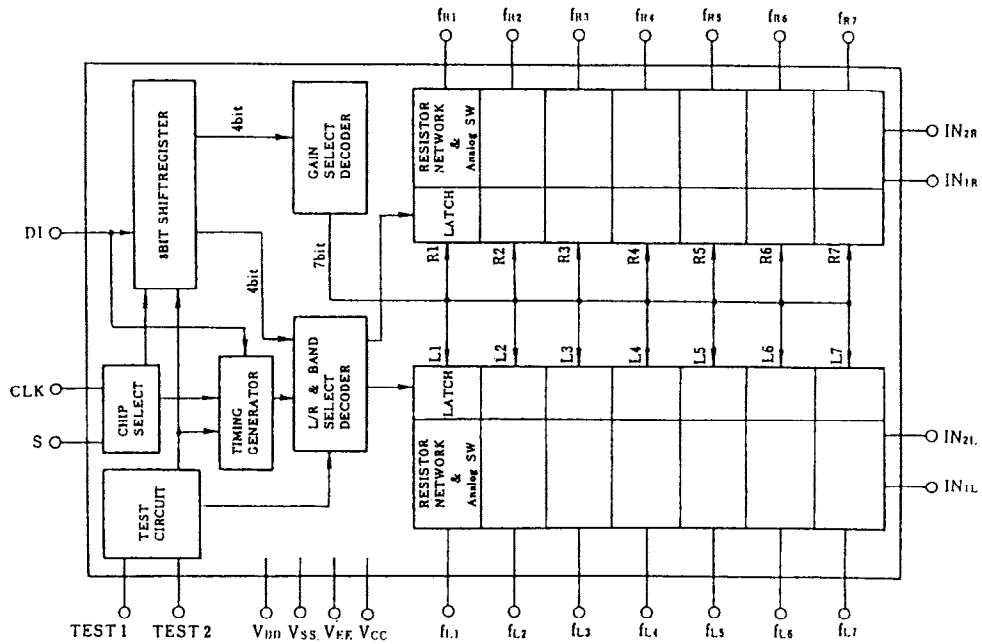
IC503: LA2785 (DOLBY PROLOGIC SURROUND MATRIX DECODER)



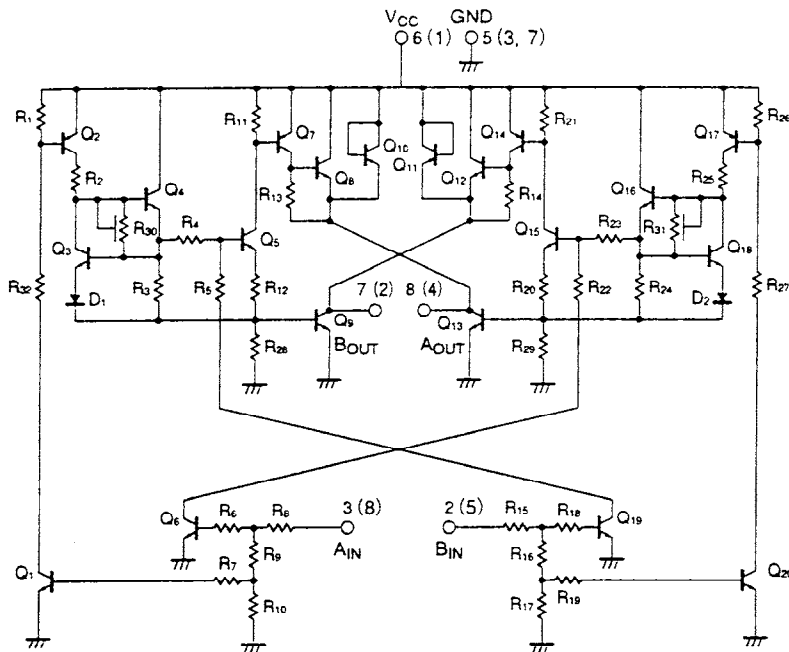
IC504: LV1011 (DOLBY SURROUND PASSIVE DECODER)



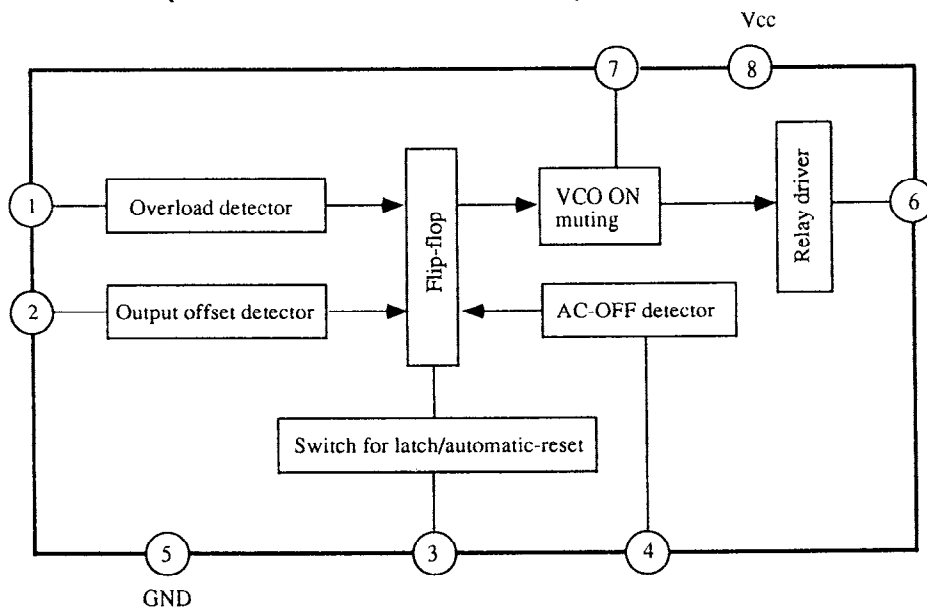
IC506: NJU7305L (GRAPHIC EQUALIZER ELECTRO VOLUME)



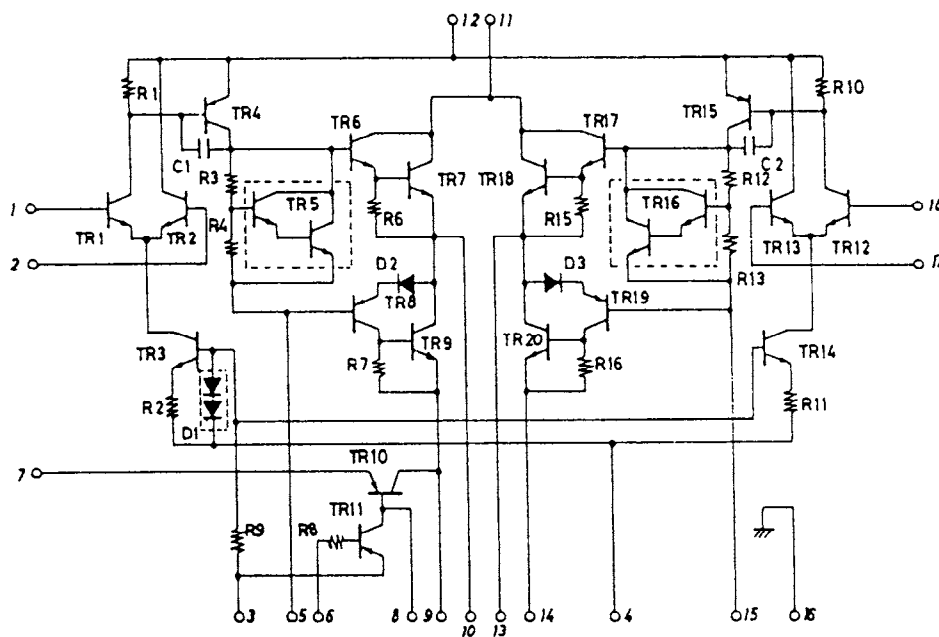
IC540: BA6208 (VOLUME MOTOR DRIVER)



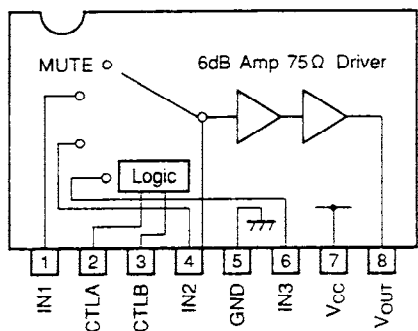
IC551: μ PC1237HA (SPEAKER RELAY DRIVER)



IC552: STK4132II (POWER AMP)

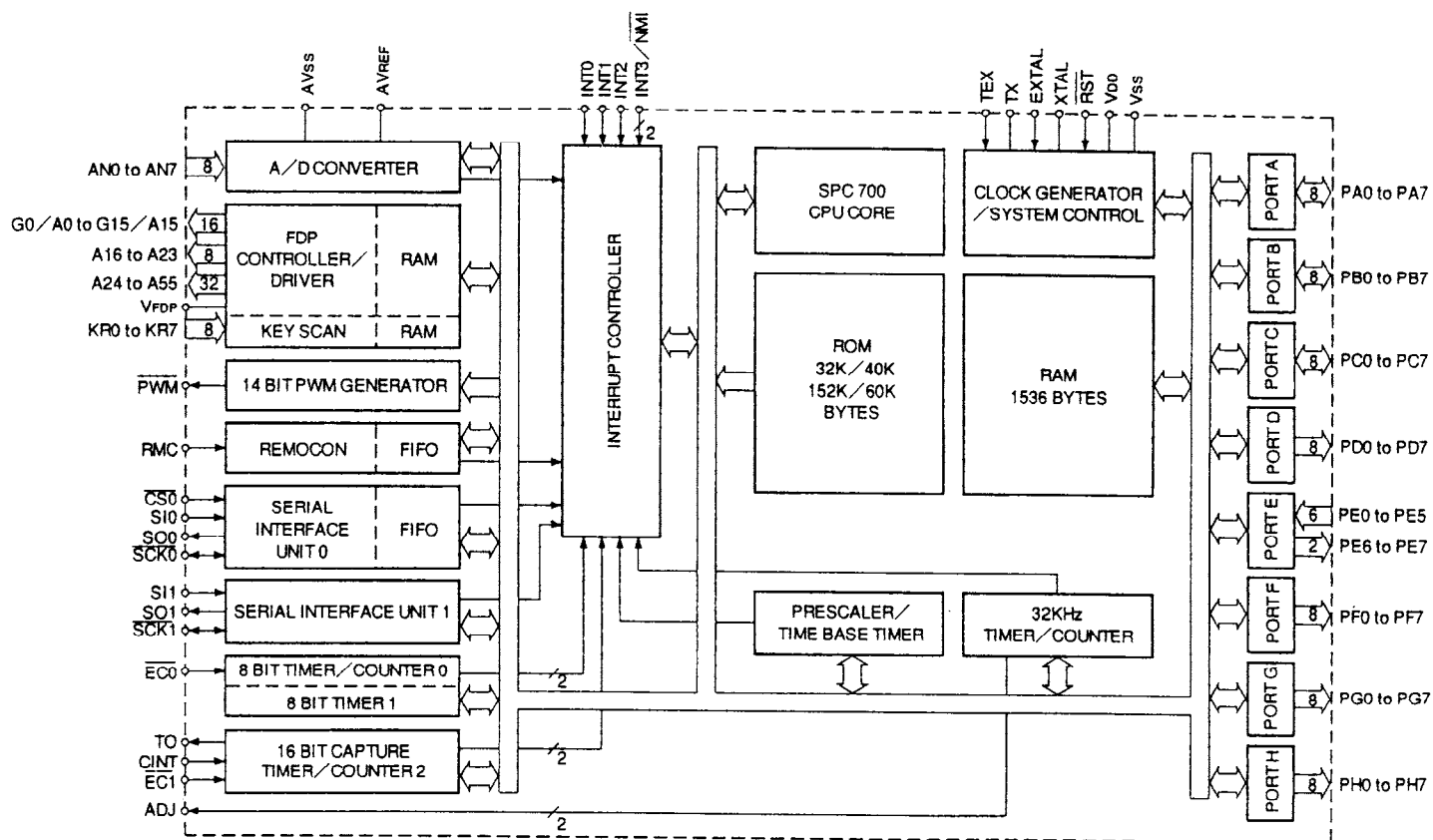


IC580: BA7612N (VIDEO INPUT SELECTOR)



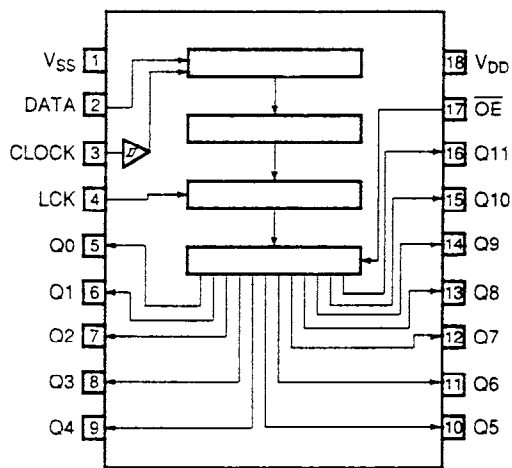
CTL - A	CTL - B	OUT
L (OPEN)	L (OPEN)	IN1
L (OPEN)	H	IN2
H	L (OPEN)	IN3
H	H	MUTE

IC901: CXP82840 (MAIN MICROPROCESSOR)

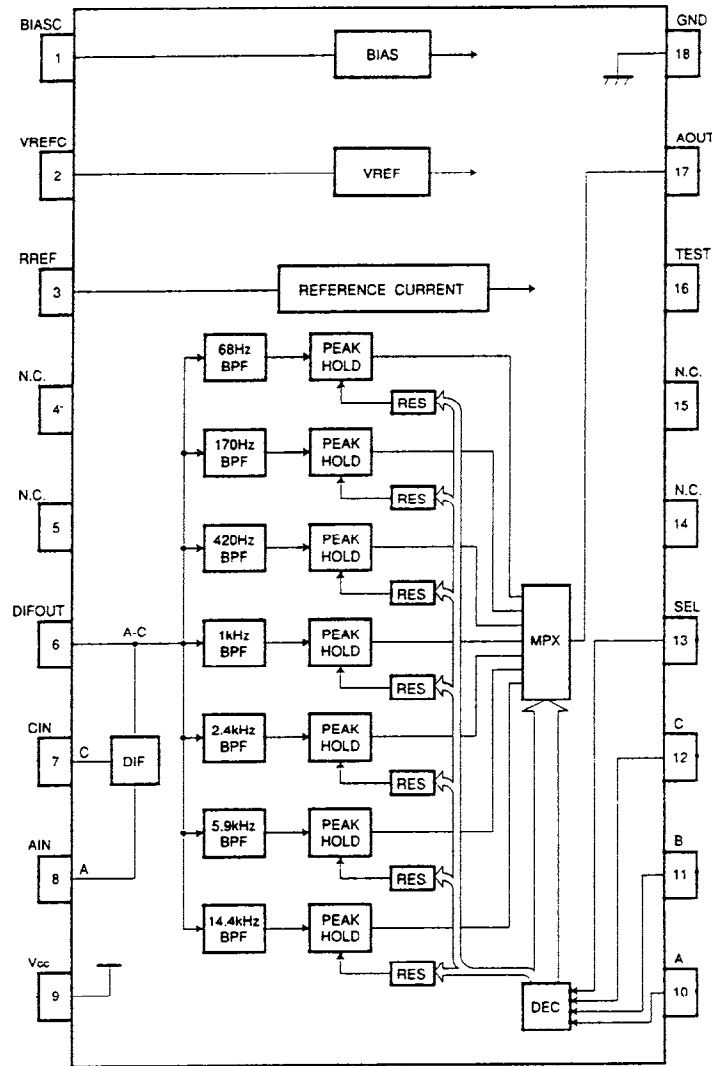


IC902: BU2092 (GRAPHIC EQUALIZER LED DRIVER)

IC903: BU2092 (SELECTOR DRIVER)

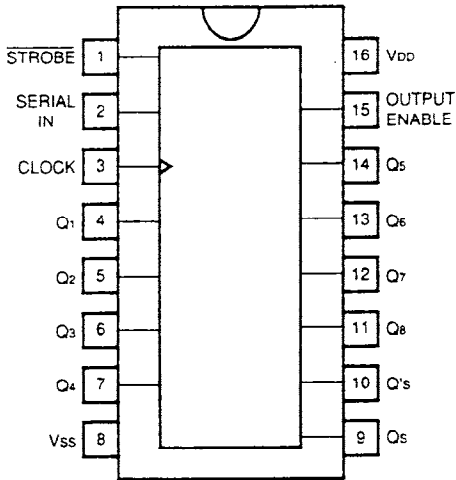


IC905: BA3834F (SPECTRAL ANALYZE BAND PASS FILTER)



SEL	A	B	C	AOUT
0	X	X	X	GND
1	0	0	0	GND
1	0	0	1	68Hz
1	0	1	0	170Hz
1	0	1	1	420Hz
1	1	0	0	1kHz
1	1	0	1	2.4kHz
1	1	1	0	5.9kHz
1	1	1	1	14.4kHz

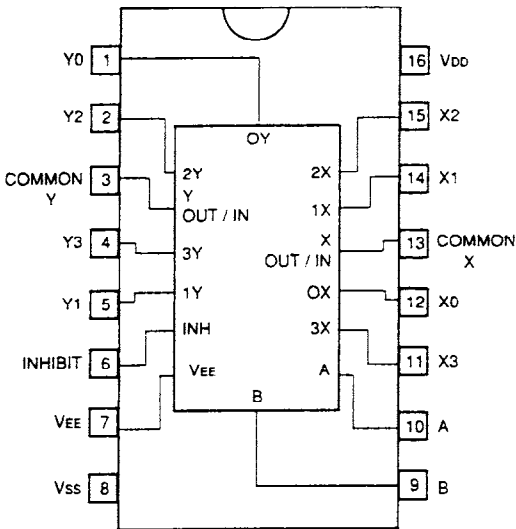
IC904: BU4094BC (SELECTOR DRIVER)



CLOCK	OUTPUT ENABLE	STROBE	SERIAL IN	Parallel Output		Serial Output	
				Q ₁	Q _n	Q _s	Q's
	H	H	L	L	Q _{n-1}	Q ₇	NC
	H	H	H	H	Q _{n-1}	Q ₇	NC
	H	L	X	NC	NC	Q ₇	NC
	L	X	X	Z	Z	Q ₇	NC
	H	X	X	NC	NC	NC	Q _s
	L	X	X	Z	Z	NC	Q _s

NC : No Change Z : High Impedance X : Don't Care

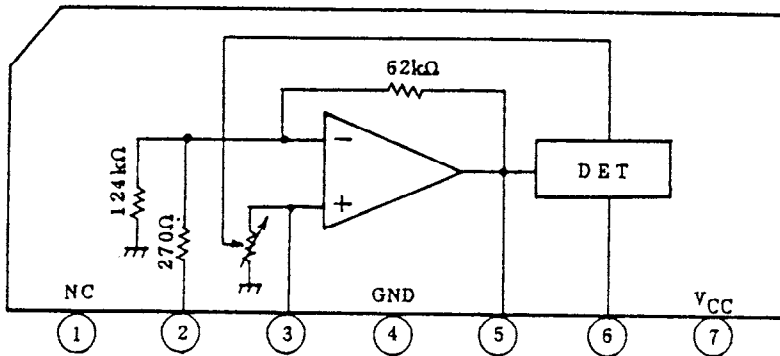
IC906: BU4052BC (INPUT SELECTOR)



INHIBIT	A	B	ON SWITCH
L	L	L	X ₀ Y ₀
L	H	L	X ₁ Y ₁
L	L	H	X ₂ Y ₂
L	H	H	X ₃ Y ₃
H	X	X	NONE

X : Don't Care

IC907: TA2011S (MIC AMP)



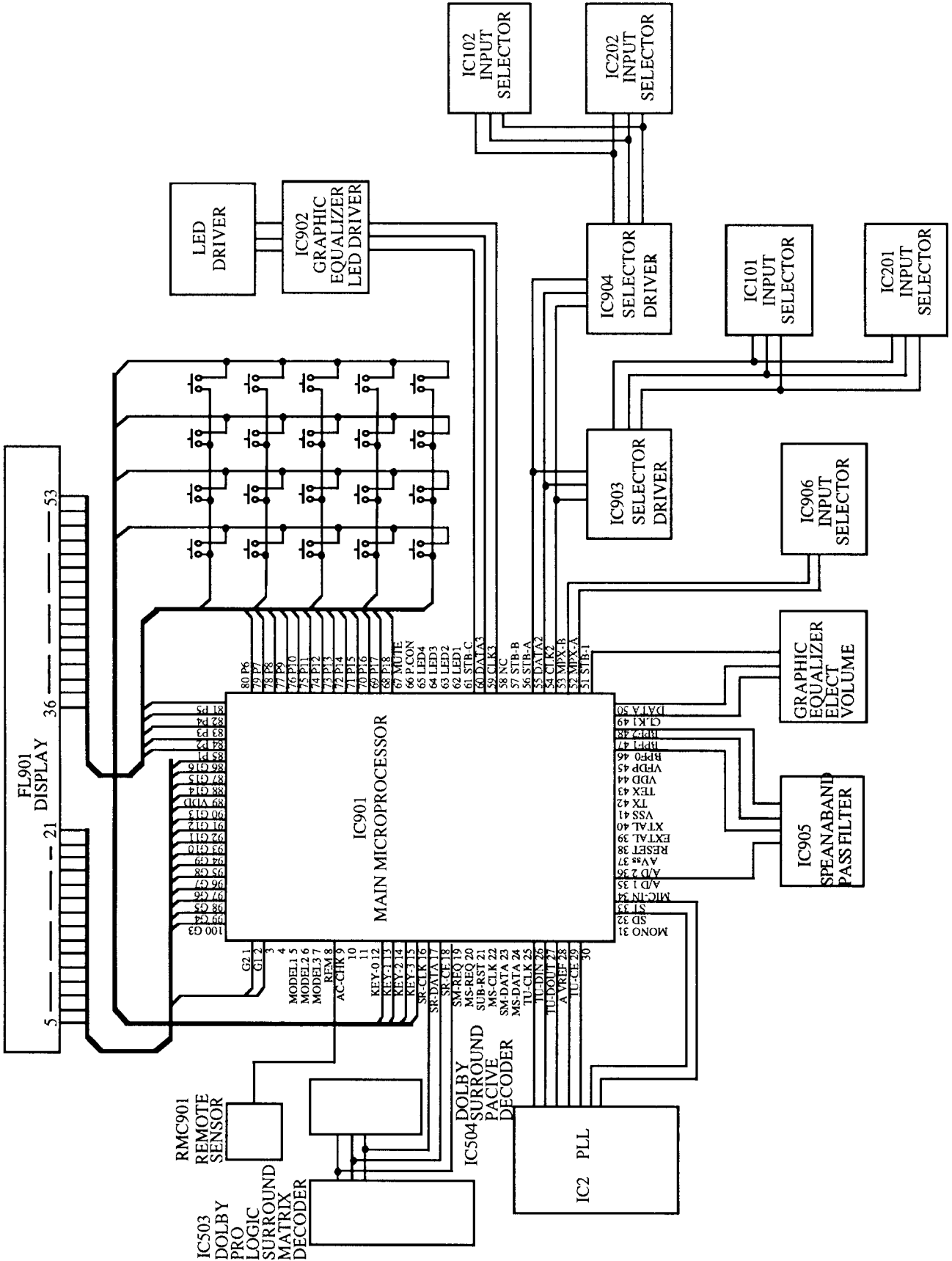
EXPLODED VIEW PARTS LIST

EXPLODED VIEW PARTS LIST (AMP/TUNER BLOCK)

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
RE001	10-3437010101	FRONT PANEL (B) (RY-707 <D><M>)	RE067	20-1119010101	HEAT SINK BRACKET(A) (RY-505/707 <D>)(RY-507/707<M>)
RE001	10-3437020201	FRONT PANEL (C) (RY-505 <D>)	RE068	20-1120010101	HEAT SINK BRACKET(B)
RE001	10-3437030201	FRONT PANEL (C) (RY-507 <M>)	RE069	20-1123010101	HEAT SINK BRACKET(C) (RY-707 <D><M>)
RE001	10-3437040301	FRONT PANEL (D) (RY-303 <M>)	RE070	20-1122010101	IC HOLDER (RY-505/707 <D>)(RY-507/707 <M>)
RE001	10-3437050301	FRONT PANEL (D) (RY-307 <M>)	RE071	20-1131010101	HEAT SINK (A) (RY-707 <D><M>)
RE006	10-3444010101	LIGHT GUIDE (C)	RE072	20-1131010101	HEAT SINK (B) (RY-505/707 <D>)(RY-507/707 <M>)
RE007	10-3447010101	DTX BUTTON	RE073	20-1169010101	HEAT SINK (E) (RY-303/505 <D>)(RY-307/507 <M>)
RE006	10-3446030101	FUNCTION BUTTON	RE075	20-1179010101	HEAT SINK BRACKET(D) (RY-303/505 <D>)(RY-307/507 <M>)
RE006	10-3446040101	FUNCTION BUTTON	RE078	30-0756010101	FOOT RUBBER
RE006	10-3446050101	FUNCTION BUTTON	RE079	10-3496010101	LED FILTER (C)
RE006	10-3446060101	FUNCTION BUTTON	RE080	10-3457010101	LED FILTER (D)
RE012	10-3441010101	ROTARY KNOB	RE081	10-3458010101	LED FILTER (E)
RE013	10-3465010101	VOCAL FADER BUTTON (RY-307/507/707 <M>)(RY-707 <D>)	RE082	10-3459010101	LED FILTER (F) (RY-505/707 <D>)(RY-507/707 <M>)
RE014	10-3440010101	VOLUME KNOB	RE083	10-3459020101	LED FILTER (F) (RY-303 <D>)(RY-307 <M>)
RE015	10-3445010101	TUNER BUTTON	RE084	10-3460010101	LED FILTER (G)
RE016	10-3442010101	POWER BUTTON	RE085	10-3462010101	LED FILTER (I) (RY-307/507/707 <M>)(RY-707 <D>)
RE017	10-3443010101	SOUND BUTTON	RE088	10-3464010101	STRAIN RELIEF BUSHING
RE018	10-3443020101	SOUND BUTTON (RY-505,707 <D>)(RY-507/707 <M>)	RE501	9-0307-1	POWER TRANS EI 120V UL/CSA (RY-303 <D>)
RE019	10-3443030101	SOUND BUTTON (RY-505,707 <D>)(RY-507/707 <M>)	RE501	9-0309-1	POWER TRANS EI 220V/230-240V ASIA (RY-307 <M>)
RE020	10-3443040101	SOUND BUTTON	RE501	9-0308-1	POWER TRANS EI 120V UL/CSA (RY-707 <D>)
RE021	10-3443050101	SOUND BUTTON (RY-707 <D><M>)	RE501	9-0310-1	POWER TRANS EI 220V/230-240V ASIA (RY-707 <M>)
RE022	10-3443060101	SOUND BUTTON (RY-303 <D>)(RY-307 <M>)	RE501	9-0314-1	POWER TRANS EI 120V UL/CSA (RY-505 <D>)
RE023	10-3438010101	DISPLAY WINDOW (A) (RY-707 <D><M>)	RE501	9-0315-1	POWER TRANS EI 220V/230-240V ASIA (RY-507 <M>)
RE024	10-3438020101	DISPLAY WINDOW (A) (RY-507 <M>)			
RE025	10-3438030101	DISPLAY WINDOW (A) (RY-505 <D>)			
RE026	10-3438040101	DISPLAY WINDOW (A) (RY-307 <M>)			
RE027	10-3438050101	DISPLAY WINDOW (A) (RY-303 <D>)			
RE029	10-3439010101	DISPLAY WINDOW (B) (RY-307/507/707 <M>)(RY-707 <D>)			
RE030	10-3439020101	DISPLAY WINDOW (B) (RY303/505 <D>)			
RE031	10-3492010101	LED BOX (C)			
RE032	10-3450010101	LED BOX (D)			
RE033	10-3451010101	LED BOX (E)			
RE034	10-3452010101	LED BOX (F)			
RE035	10-3453010101	LED BOX (G)			
RE036	10-3454010101	LED BOX (H)			
RE037	10-3455010101	LED BOX (I) (RY-307/507/707 <M>)(RY-707 <D>)			
RE038	10-3581010101	MASK PLATE (RY-303/505 <D>)			
RE056	20-1113010101	BOTTOM COVER (B)			
RE057	20-1112010101	TOP COVER (B)			
RE058	20-1144010101	REAR COVER (B) (RY-707 <D>)			
RE058	20-1144020101	REAR COVER (B) (RY-505 <D>)			
RE058	20-1114010101	REAR COVER (C) (RY-707 <M>)			
RE058	20-1114020101	REAR COVER (C) (RY-507 <M>)			
RE058	20-1145010101	REAR COVER (D) (RY-303 <D>)			
RE058	20-1146010101	REAR COVER (E) (RY-307 <M>)			
RE064	20-1115010101	PCB BRACKET(A)			
RE065	20-1117010101	PCB BRACKET(C)			
RE066	20-1118010101	PCB BRACKET(D)			

NOTE: <D> 120V model only
<M> Asian model only

MICROPROCESSOR CONNECTION DIAGRAM

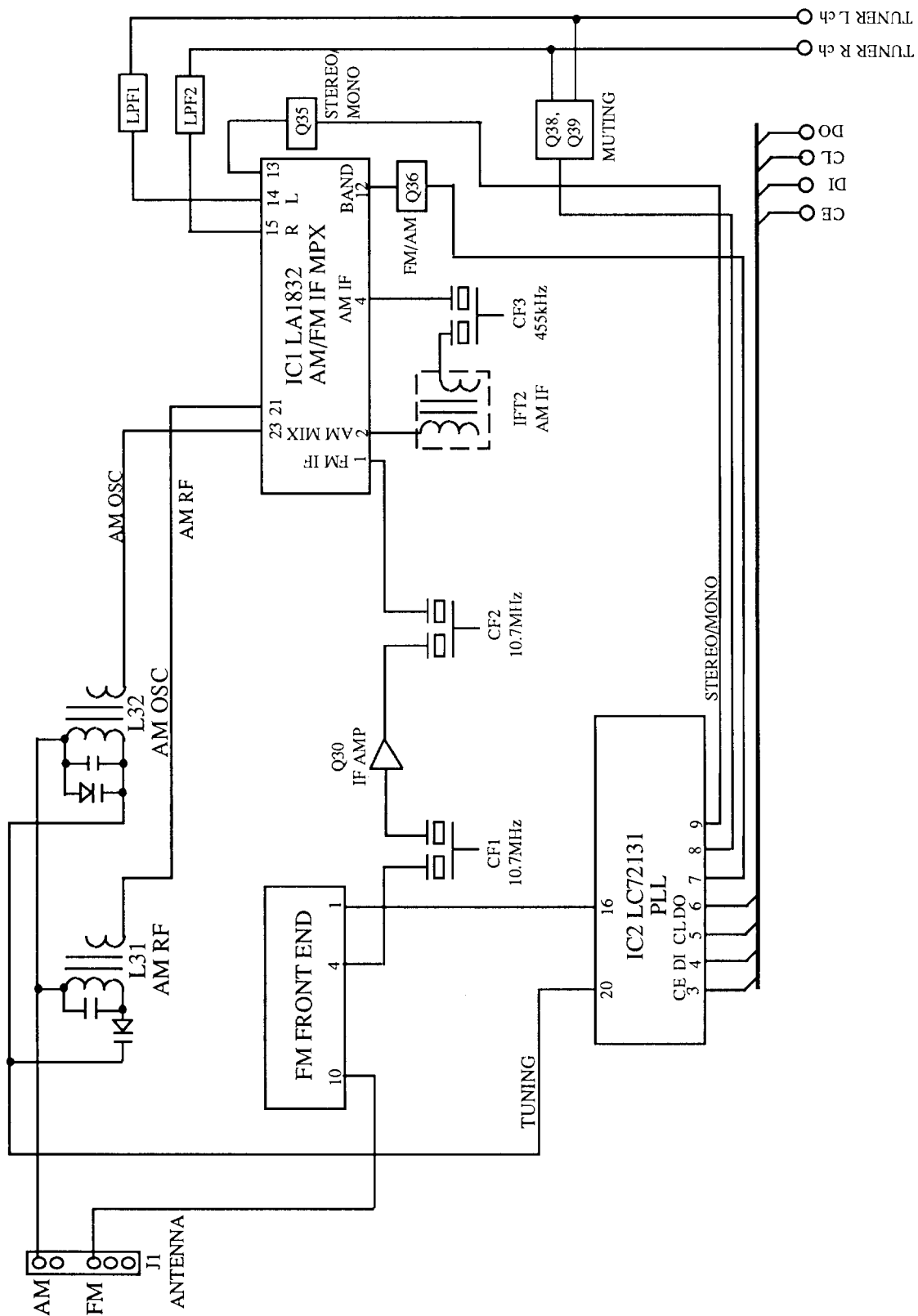


TERMINAL DESCRIPTION

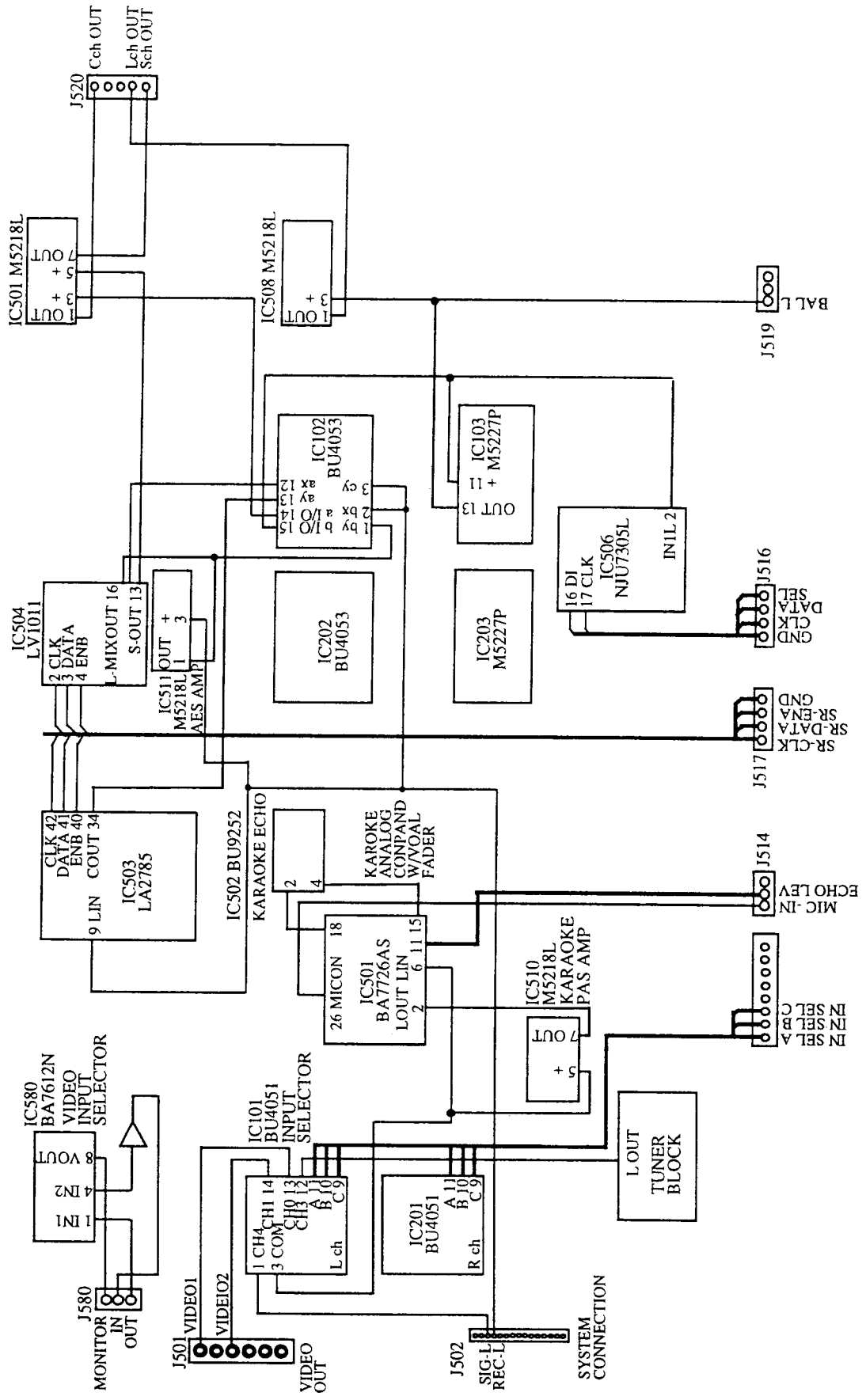
IC901 : CXP82840

Pin No.	Function	Port Name	I/O	Description	Pin No.	Function	Port Name	I/O	Description
1	G15	G1	O	FL tube grid output	51	STB1	PD5	O	
2	G16	G0	O	FL tube grid output	52	MPX-A	PD6	O	Level A sensor signal input selection
3	NC	NC	-	Not used	53	MPX-B	PD7	O	Level B sensor signal input selection
4	-	PE0	I	Not used	54	CLK2	PF0	O	Command clock output
5	MODEL1	PE1	I	Model judgement input	55	DATA2	PF1	O	Command data
6	MODEL2	PE2	I	Model judgement input	56	STB-A	PF2	O	Input IC selection
7	MODEL3	PE3	I	Model judgement input	57	STB-B	PF3	O	Output IC selection
8	RMC	MRC	I	Remote control input	58	-	PF4	O	Not used
9	AC-CHK	PE5	I	AC power supply	59	CLK3	PF5	O	Command clock output
10	-	PE6	O	Not used	60	DTA3	PF6	O	Command data
11	-	PE7	O	Not used	61	STB-C	PF7	O	IC selection
12	KEY0	KR0	I	Key matrix input terminal	62	LED1	PG0	O	LED Display matrix drive output
13	KEY1	KR1	I	Key matrix input terminal	63	LED2	PG1	O	LED Display matrix drive output
14	KEY2	KR2	I	Key matrix input terminal	64	LED3	PG2	O	LED Display matrix drive output
15	KEY3	KR3	I	Key matrix input terminal	65	LED4	PG3	O	LED Display matrix drive output
16	SR-CLK	PC4	O	Surround IC command clock	66	P-0N	PG4	O	Power control output (Power on='H')
17	SR-DATA	PC5	O	Surround IC command data	67	MUTE	PG5	O	Amp mute control output (Mute on='L')
18	RS-CE	PC6	O	Surround IC command selection	68	P1	A33	O	FL tube anode output
19	MS-REQ	PC7	O	Sub microprocessor from command request	69	P2	A32	O	FL tube anode output
20	SM-REQ	CINT	I	From microprocessor	70	P3	A31	O	FL tube anode output
21	SUB-RST	PB1	O	From microprocessor reset	71	P4	A30	O	FL tube anode output
22	MS-CLK	SCK0	O	Sub microprocessor command clock	72	P5	A29	O	FL tube anode output
23	SM-DATA	SI0	I	Sub microprocessor from data input	73	P6	A28	O	FL tube anode output
24	MS-DATA	SO0	O	Sub microprocessor data output	74	P7	A27	O	FL tube anode output
25	TU-CLK	PB5	O	Tuner command clock	75	P8	A26	O	FL tube anode output
26	TU-DOUT	PB6	O	Tuner from data input	76	P9	A25	O	FL tube anode output
27	TU-IN	PB7	I	Tuner data output	77	P10	A24	O	FL tube anode output
28	AVREF	AVREF	-	A/D standard voltage input	78	P11	A23	O	FL tube anode output
29	TU-CE	PA0	O	Tuner from command selection output	79	P12	A22	O	FL tube anode output
30		PA1	O	Tuner from command selection output	80	P13	A21	O	FL tube anode output
31		PA2	O	Tuner from command selection output	81	P14	A20	O	FL tube anode output
32	SD	PA3	I	Tuner receiving condition signal	82	P15	A19	O	FL tube anode output
33	ST-IND	PA4	I	Stereo indicator input	83	P16	A18	O	FL tube anode output
34	MIC-IN	PA5	I	Microphone connecting detecte input	84	P17	A17	O	FL tube anode output
35	A/D1	AN6	I		85	P18	A16	O	FL tube anode output
36	A/D2	AN7	I		86	G1	G15	O	FL tube grid output
37	AVss	AVss	-		87	G2	G14	O	FL tube grid output
38	RESET	RST	I		88	G3	G13	O	FL tube grid output
39	EXTAL	EXTAL	I		89	VDD	VDD	-	+5V Power supply
40	XTAL	XTAL	-		90	G4	G12	O	FL tube grid output
41	Vss	Vss	-	GND pin	91	G5	G11	O	FL tube grid output
42		TX	-		92	G6	G10	O	FL tube grid output
43		TEX	-		93	G7	G9	O	FL tube grid output
44	VDD	VDD	-	+5V power supply	94	G8	G8	O	FL tube grid output
45	VEDP	VEDP	-	FL drive voltage	95	G9	G7	O	FL tube grid output
46	BPFO	PD0	O	BPF select 0	96	G10	G6	O	FL tube grid output
47	BPF1	PD1	O	BPF select 1	97	G11	G5	O	FL tube grid output
48	BPF2	PD2	O	BPF select 2	98	G12	G4	O	FL tube grid output
49	CLK1	PD3	O	Command clock output	99	G13	G3	O	FL tube grid output
50	DATA1	PD4	O	Command data output	100	G14	G2	O	FL tube grid output

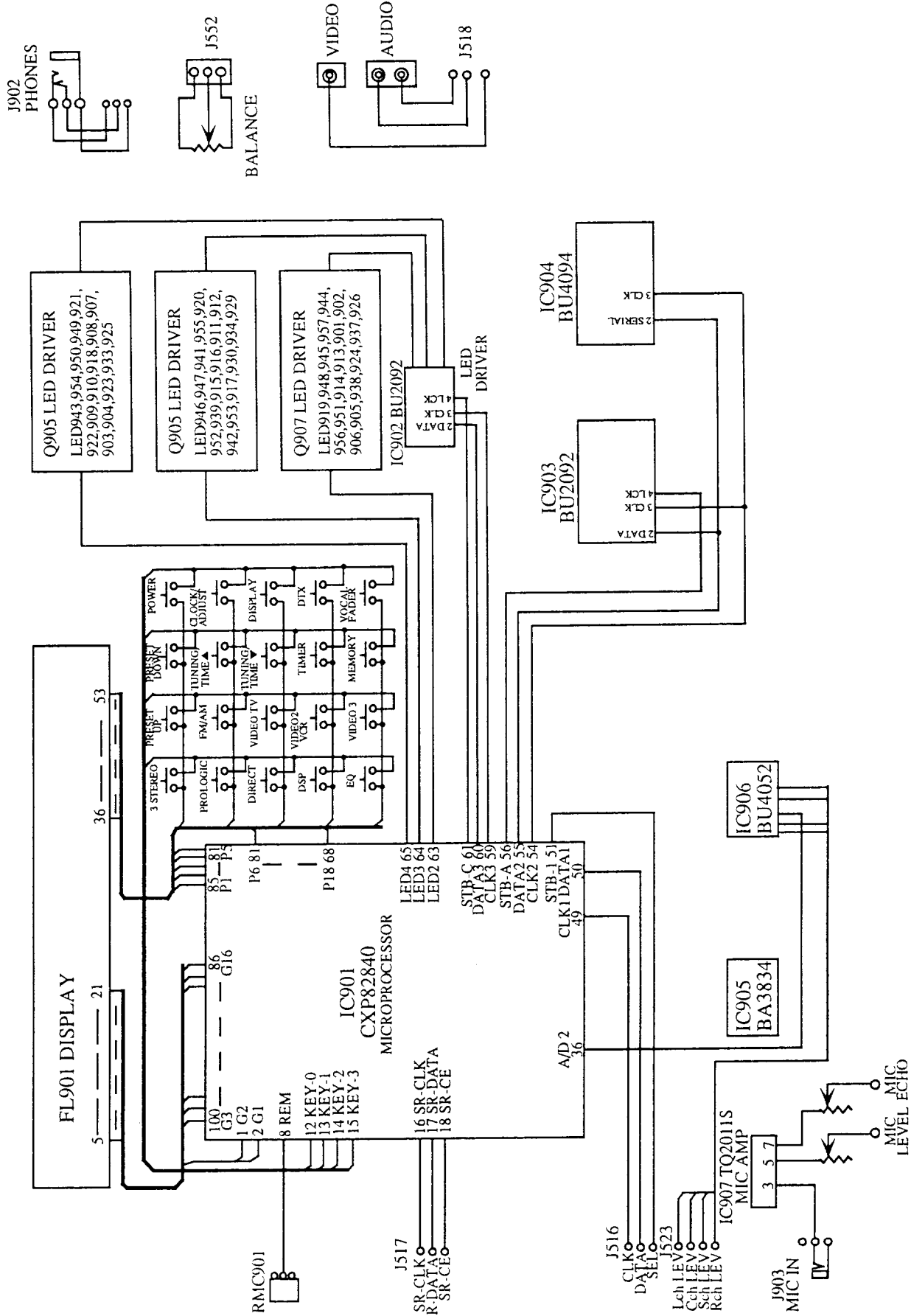
BLOCK DIAGRAMS (TUNER SECTION)



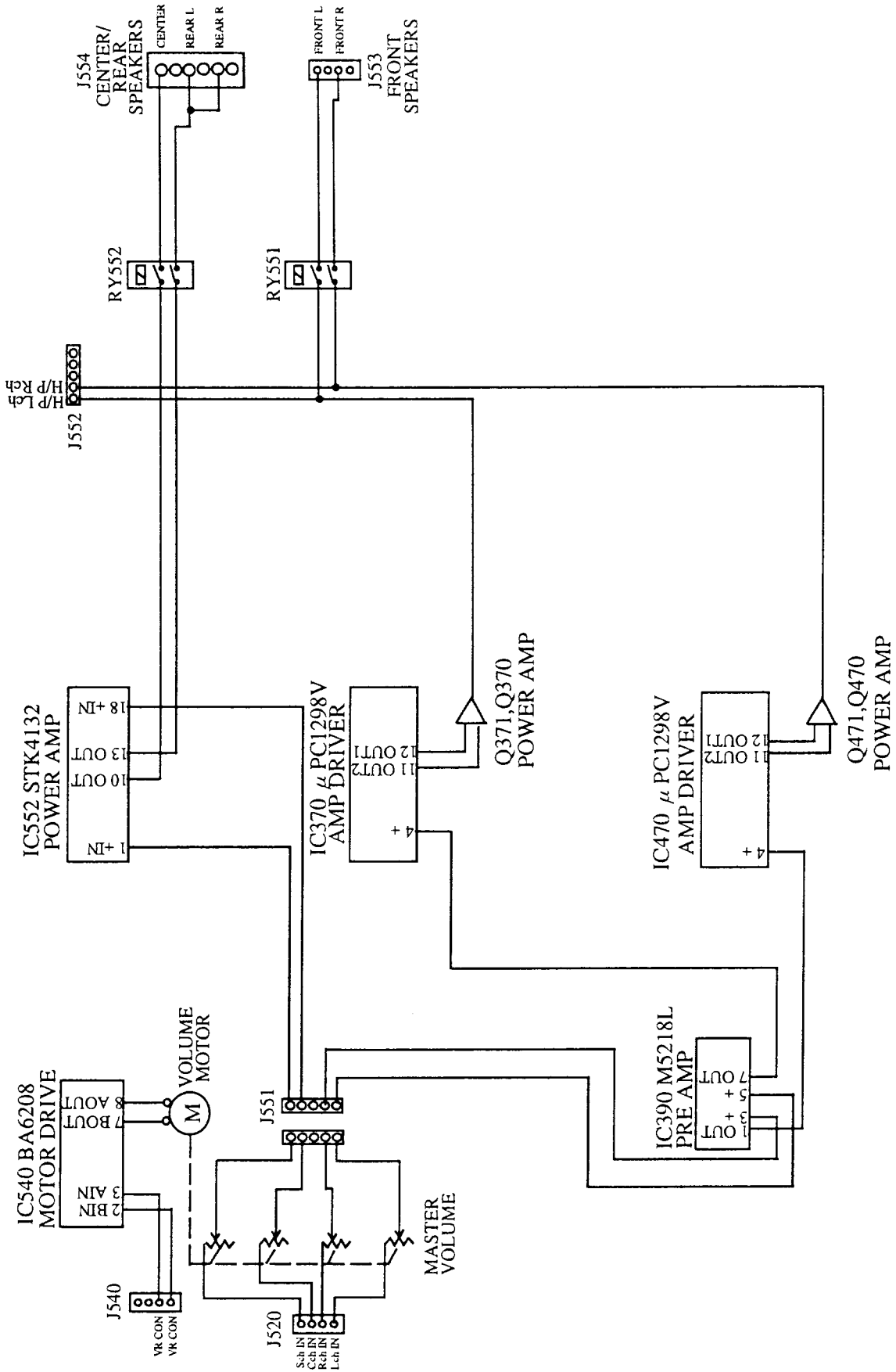
BLOCK DIAGRAMS (MAIN SECTION)



BLOCK DIAGRAMS (DISPLAY SECTION)



BLOCK DIAGRAMS (POWER SECTION)



PRINTED CIRCUIT BOARD PARTS LIST

POWER AMP PCB ASS'Y (RE502)	Ref. No.	Part No.	Description
IC551		IC5	UPC1237HA
IC552		22240360 or 1-0278-1	STK4132mk II (RY-505/507)
IC552		1-0279-1	STK4152mk II (RY-707)
IC553		222780122NEC or 1-0113-1	NJM78M12
IC554		222790122 or 1-0321-1	NJM79M12
TRANSISTORS			
Q351,451		2213284 or 2-2SC1740S-S7	2SC1740SR
Q352,452		2213284 or 2-2SC1740S-S7	2SC1740SR (RY-505/507/707)
Q561,562		2213355 or 2-2SA933S-S7	2SA933S
Q560		2-2SC2389-S-7	2SC2389S (RY-505/507/707)
DIODES			
D351,451,590		223163 or 3-1SS133-1	1SS133 (RY-505/507/707)
D560,591		223163 or 3-1SS133-1	1SS133
D575,576,577,578		223839 or 3-IN4002-1	1N4002 (RY-303/307)
D575,576,577,578		22380003F or 3-IN5402-1	1N5402 (RY-505/507/707)
D579,580,581,582		22380003F or 3-IN5402-1	1N5402
D589		223839 or 3-IN4002-1	1N4002
CAPACITORS			
C557,558		354761029	1000 μ F 35V ELECT. (RY-303/307) 3300 μ F 35V ELECT. (RY-505/507) 3300 μ F 50V ELECT. (RY-707)
C583,584			6800 μ F 50V ELECT. (RY-303/307/505/507) 6800 μ F 63V ELECT. (RY-707)
INDUCTORS			
L362,462		7A-0075	1 μ H (RY-505/507/707)
L385,485		7A-0075	1 μ H
TERMINALS			
J553		23-F003-1	SPEAKER HSP134V-03
J554		23-F004-1	SPEAKER (SURROUND) HSP116V-04 (RY-505/507/707)
JACK			
J555		23-B033-1	SUB WOOFER HTJ032-09BB (RY-507/507/707)
CONNECTORS			
J551		12S3-J0001	B3B-EH (RY-303/307)
J551		12S5-J0001	B5B-EH (RY-505/507/707)
J556		12S3-C0002	52147-0310
J552		12S5-C0002	52147-0510
RELAYS			
RY551		8-RL-0001-1	(SPEAKER L/R) OMI-SS-224LM
RY552		8-RL-0001-1	(SPEAKER C/S) OMI-SS-224LM (RY-505/507/707)
		25-0572-01	POWER AMP PCB
POWER AMP TRANSISTOR PCB ASS'Y (RE503)			
Ref. No.	Part No.	Description	
IC370		ICs 22240311 or 1-0277-1	μ PC1298V
IC390		222652 or 1-0281-1	M5218L
IC470		22240311 or 1-0277-1	μ PC1298V
TRANSISTORS			
Q370,470		2-2SA1633-7	2SA1633E
Q371,471		2-2SC4278-7	2SC4278E
Q372,472		2213284 or 2-2SC1740S-S7	2SC1740SR
Q571,572		2-2SC3271N-7	2SC3271N
AC PCB ASS'Y (RE504)			
Ref. No.	Part No.	Description	
		DIODES 223163 or 3-1SS133-1	1SS133
		TRIMMER POTENTIOMETERS RH0615CS4J	4.7K Ω
		RH0615CS4J	4.7K Ω
		20-1170010101 30-0756010101 25-0571-01	HEAT SINK (D) SLLICONE SHEET POWER TR. PCB
AC CORDS			
		14-0041-2	SPT-2 #18 POLARIZED UL L=2m <D>
		14-0015-1	VDE Type 2.5A/250V L=6ft <M>
SWITCH			
		8-0268-1	DUAL VOLTAGE SDKGA4-A-3-R <M>
FUSES			
		4-0035-1	GMC T5A/250V (RY-707 <D>)
		4-0039-1	S506 T5A/250V (RY-707 <M>)
		4-0040-1	GMC T4A/250V (RY-303/505)
		4-0041-1	S506 T4A/250V (RY-307/507)
		4-0042-1	GMC T2.5A/250V <D>
		4-0043-1	S506 T2.5A/250V <M>
		20-00463-1 25-0570-01	FUSE HOLDER AC PCB
VIDEO SWITCH PCB ASS'Y (RE507)			
Ref. No.	Part No.	Description	
		IC 1-0291-1	BA7612N
TRANSISTORS			
		2213355 or 2-2SA933S-S7	2SA933S
		2213284 or 2-2SC1740S-S7	2SC1740SR
INDUCTOR			
		26-0053-1	10 μ H LAL02
JACK			
		25-B032-1	(MONITOR/VIDEO) HSP213V-08
CONNECTORS			
		12S2-J0001	B2B-EH
		12S4-C0002	52147-0410
		25-0583-01V	VIDEO PCB
VR PCB ASS'Y (RE508)			
Ref. No.	Part No.	Description	
		ICs 22240372 or 1-0283-1	BA6208
		1-0275-1	NJM78L06
		12S4-C0002	52147-0410
MOTOR VOLUMES			
		15-0139-1	RK16812MG A100K Ω \times 2 (RY-303/307)
		15-0138-1	RK16814MG A100K Ω \times 4 (RY-505/507/707)
		25-0573-01	VR(VOLUME) PCB

MAIN PCB ASS'Y (RE509)			Ref. No.	Part No.	Description
Ref. No.	Part No.	Description			
				COILS	
	ICs		L 9	26-0020-3	2.2 μ H LAL02
IC1	1-0299-1	LA1832	L33	26-0034-7	4.7 μ H LAL02
IC2	1-0300-1	LC72131	L34	26-0045-1	0.22 μ H LAL02
IC101	222840511 or 1-0293-1	BU4051BC	L530,531	26-0053-1	10 μ H LAL02 (RY-505/507/707)
IC102	222840531ROH or 1-0287-1	BU4053BC		IFTs	
IC103	1-0285-1	M5227P	IFT1	6-0228-1	FM A119AC-K6155X-KR
IC201	222840511 or 1-0293-1	BU4051BC	IFT2	6-0229-1	AM A7LCS-12179AQ
IC202	222840531ROH or 1-0287-1	BU4053BC	J1	TERMINAL	
IC203	1-0285-1	M5227P		23-F006-1	FM/AM ANT. Black HSP-105V-02
IC301	222780124JRC or 1-0113-1	NJM7812	J501	JACK	
IC302	222780053 or 1-0185-1	NJM78L05		23-B031-1	(AUDIO)HSP246V-01
IC501	1-0322-1	BA7726AS (RY-307/507/707)	J502	CONNECTORS	
IC502	1-0323-1	BU9252S(RY-307/507/707)	J510	12S15-0004	SYSTEM CFG1115-0101-0101
IC503	1-0289-1	LA2785 (RY-505/507/707)	J511	12S4-C0002	52147-0410
IC504	1-0290-1	LV1011 (RY-505/507/707)	J512	12S9-C0002	52147-0910
IC506	1-286-1	NJU7305L	J513	12S5-C0002	52147-0510
IC507	222652 or 1-0281-1	M5218L (RY-505/507/707)	J514	12S4-C0002	52147-0410
IC508	222652 or 1-0281-1	M5218L	J515	12S3-C0002	52147-0310 (RY-307/507/707)
IC510	222652 or 1-0281-1	M5218L (RY-303/505)	J517	12S4-C0002	(03) 52147-0410 (RY-505/507/707)
IC511	222652 or 1-0281-1	M5218L (RY-303/307)	J518	12S3-J0001	B3B-EH
			J519	12S3-C0002	52147-0310
			J520	12S5-J0001	B5B-EH (RY-505/507/707)
			J521	12S7-C0002	(06) 52147-0710
			J522	12S3-J0001	B3B-EH (RY-303/307)
			J523	12S5-C0002	52147-0510
	TRANSISTORS			CERAMIC FILTERS	
Q2, 5	2-2SC2668-6	2SC2668 O	CF1,2	29-0086-1	SK10.7M4-A0-20G
Q4	2-2SC2995-6	2SC2995 O	CF3	29-0087-1	AHCFM2-450BL
Q30	2211722 or 2-2SC1923R-6	2SC1923 R			CERAMIC RESONATORS
Q33,35,36,37,38,39, 183,283,501,502 Q184,284	2213284 or 2-2SC1740S-S7	2SC1740SR	X1	29-0089-1	CSB456F15
	2213284 or 2-2SC1740S-S7	2SC1740SR (RY-505/507/707)	X2	29-0088-1	CDΛ10.7MG46-A
Q319	2213355 or 2-2SA933S-S7	2SA933S	X501	29-0011-1	CSB455E 455KHz (RY-307/507/707)
			X502	29-0069-1	CST8MTW 8MHz (RY-505/507/707)
	FETs		TC1	TRIMMER CAPACITOR	
Q 1	2-3SK136-3	3SK85(136)		TZ03R200FR169	
Q 3	2212195 or 2-2SK241GR-6	2SK241GR	X3	CRYSTAL	
				21-0096-1	HC-49/U 7.2MHz
	DIODES		LPF1,2	FILTER	
D33,307	223163 or 3-1SS133-1	1SS133		29-0083-1	MPX 253AGGS-1340
D301,302,303,304	223839 or 3-IN4002-1	1N4002		20-1140010101 25-0578-01	SHIELD PLATE (A) t=0.32 MAIN PCB
	VARICAP DIODES				DISPLAY PCB ASS'Y (RE510)
D 6, 7, 8, 9 D10(11)	3-ISV153-1 3-KV1236Z-4 or 223839	1SV-153 KV1236Z	Ref. No.	Part No.	Description
	ZENNER DIODES		IC901	1-0297-1	CXP82832-102Q
D318	3-Z5.1V-8	MTZJ5.1B	IC902	1-0319-1	BU2092F
D319	3-Z-MTZJ30B-8	MTZJ30B	IC903	1-0319-1	BU2092F
	CAPACITOR		IC904	22240329 or 1-02233-1	BU4094BC
C311		4700 μ F/25V ELECT.	IC905	1-0284-1	BA3834F
	COILS		IC906	22240328 or 1-0207-1	BU4052BC
L1	7A-0070	LS-010 5.5mmx3.5T 0.6mm-C	IC907	1-0294-1	TA2011S (RY-307/507/707)
L2	7A-0069	LS-011 5.5mmx2.5T 0.6mm-C			TRANSISTORS
L3	7A-0066	LS-0012 3mmx7.5T 0.4mm-C	Q901,902	2213160 or 2-DTC124ES-7	DTC124ES (RY-307/507/707)
L4	7A-0072	LS-0015 4.5mmx3.5T 0.6mm-C	Q905,906,907	2-2SB1333-7	2SB1333
L10	7A-0067	LS-0017 3mmx8.5T 0.4mm-A			DIODES
L16	7A-0068	LS-0014 4.5mmx5.5T 0.6mm-C	D901,902,903,904, 905	223163 or 3-1SS133-1	1SS133
L17	7A-0073	LS-0013 4mmx2.5T 0.4mm-C	D906	3-RB100A	RB100A
L18	7A-0071	LS-0016 4.5mmx4.5T 0.6mm-C			ZENNER DIODES
L19	7A-0073	LS-0013 4mmx2.5T 0.4mm-C			3-Z-MTZJ8.2B8 MTZJ8.2B
L30	7A-0074	BALUN TRANS BL-H002			3-Z-MTZJ6.8B8 MTZJ6.8B
L31	7B-0083	AM ANT MRHNF-45635			
L32	7B-0084	AM OSC A7BRS-11966			
			D908,909,910 D911,		

Ref. No.	Part No.	Description
LEDs		
LED901,902,905,906, 909,910,913,914, 917,918,919,920, 921,922,923	28-0057-1	SLV-312VC RED
LED903,904,907,908, 911,912,915,916, 924,941,942,953, 955	28-0058-1	SLV-312MC GREEN
LED925,929,933,937	26-0056-1	SLV-312VC RED (RY-707)
LED926,930,934,938, 943,944,945,956, 957	28-0058-1	SLV-312MC GREEN (RY-707)
LED927,935	28-0057-1	SLV-312VC RED (RY-303/307)
LED927,931,935	28-0057-1	SLV-312VC RED (RY-505/507)
LED928,936	28-0058-1	SLV-312MC GREEN (RY-303/307)
LED928,932,936,943, 944,945,956,957	28-0058-1	SLV-312MC GREEN (RY-505/507)
LED939,940,946,947, 952	26-0061-1	SLV-312DC ORANGE
LED948,949,950	26-0061-1	SLV-312DC ORANGE (RY-505/507/707)
LED951	26-0056-1	SLR-332VR RED (RY-307/507/707)
CAPACITOR		
C902		0.22F 5.5V SUPPER ELECT.
FL		
FL901	27-0089-1	DISPLAY BJ455GK
TACT SWITCHES		
SW901,902,903,904, 905,906,907,908, 909,910,911,912, 913,914,915	8-0263-2	SKHHAM H=5mm
SW916,918,920,922	8-0263-2	SKHHAM H=5mm (RY-707)
SW917,921	8-0263-2	SKHHAM H=5mm (RY-303/307/505/507)
SW919	8-0263-2	SKHHAM H=5mm (RY-505/507)
SW923	8-0263-2	SKHHAM H=5mm (RY-307/507/707)
JACKS		
J901	23-B038-1	LPV8529-0100(3P)
J902	23-B029-1	(HEADPHONE) HTJ035-18A
J903	23-B029-1	(MIC) HTJ035-18A (RY-307/507/707)
VOLUMES		
VR901	15-0136-1	(BAL) RK14K124 B10K Ω \times 2
VR902	15-0137-1	(MIXING) RK14K12D B100K Ω \times 2 (RY-307/507/707)
VR903	15-0137-1	(ECHO) RK14K12D B100K Ω \times 2 (RY-307/507/707)
CERAMIC RESONATOR		
X901	29-0069-1	CST8MTW 8MHz
CRYSTAL		
X902	21-0101-3	CRYSTAL 32.768KHz
OPTIC RECEIVER		
RM901	28T-0018-1	MODULE IS1U621L
MICRO INDUCTOR		
L901	26-0056-1	100 μ H LAL03
	10-3448010101	VFD HOLDER
	10-3449010101	SENSOR HOLDER
33559	25-0574-01	DISPLAY PCB

NOTE: <D> 120V model only
 <M> Asian model only

SCHEMATIC DIAGRAMS VOLTAGE CHARTS (ALL IN VOLT)

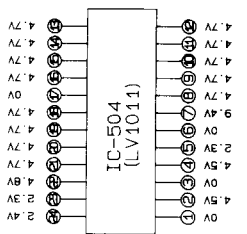
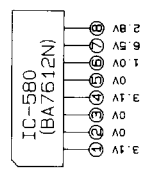
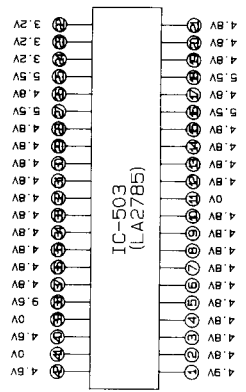
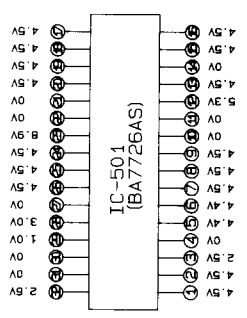
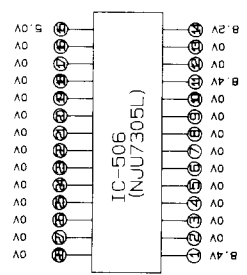
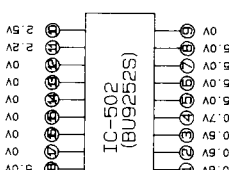
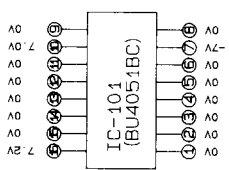
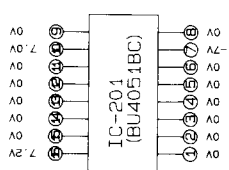
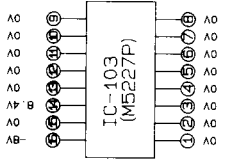
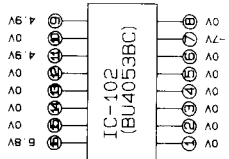
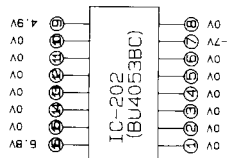
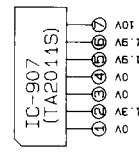
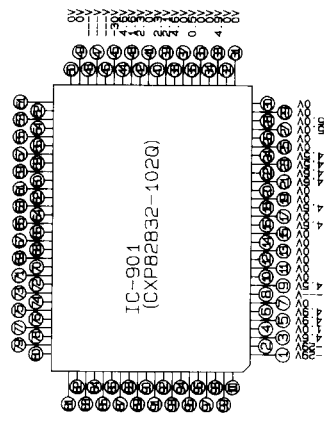
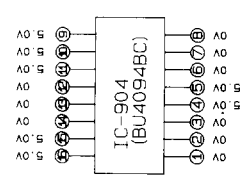
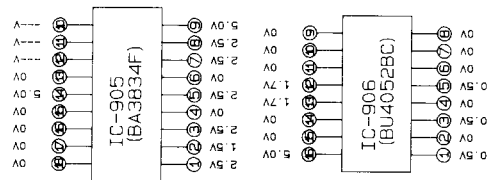
Q' NO.	Q303	Q35	Q36	Q37	Q319	Q320	Q370	Q370	Q371	Q371
MODE	FM/AM	FM/AM	FM/AM	FM/AM	FM	FM	FM	FM	FM	FM
E	10.0/0	0/0	0/0	0/0	-29.0	17.0	0.0	0.0	0.0	0.0
C	12.0/0	4.6/4.6	11.6/0	0/0	-40.0	18.0	-50.0	-40.0	50.0	40.0
B	10.6/0	0/0	0.0/0.7	0.7/0.7	-29.6	17.6	-0.6	-0.6	0.6	0.6

(RY-303/505/707) (RY-303/505)

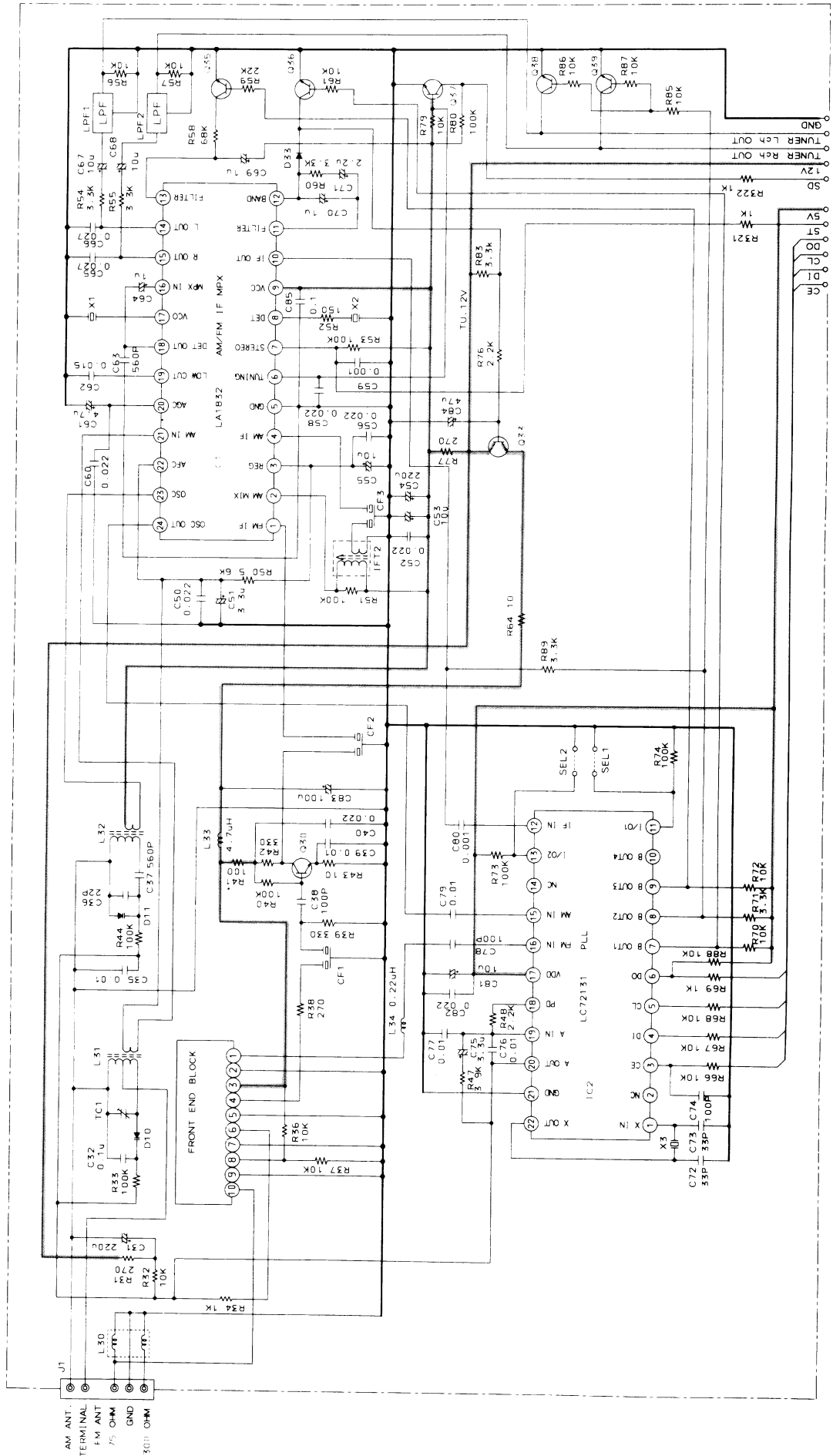
Q' NO.	Q470	Q471	Q471	Q560	Q560	Q561	Q561	Q562
MODE	FM	FM	FM	FM	FM	FM	FM	FM
E	0.0	0.0	0.0	-31.0	-27.0	49.0	40	1.8
C	-50.0	-40.0	50.0	49.0	40.0	49.0	0	0.0
B	-0.6	-0.6	0.6	-30.4	-27.0	-30.4	49.7	1.3

(RY-303/505/707) (RY-303/505)

Q' NO.	Q571	Q572
MODE	FM	FM
E	-1.2	-1.2
C	0.6	0.6
B	-0.6	-0.6

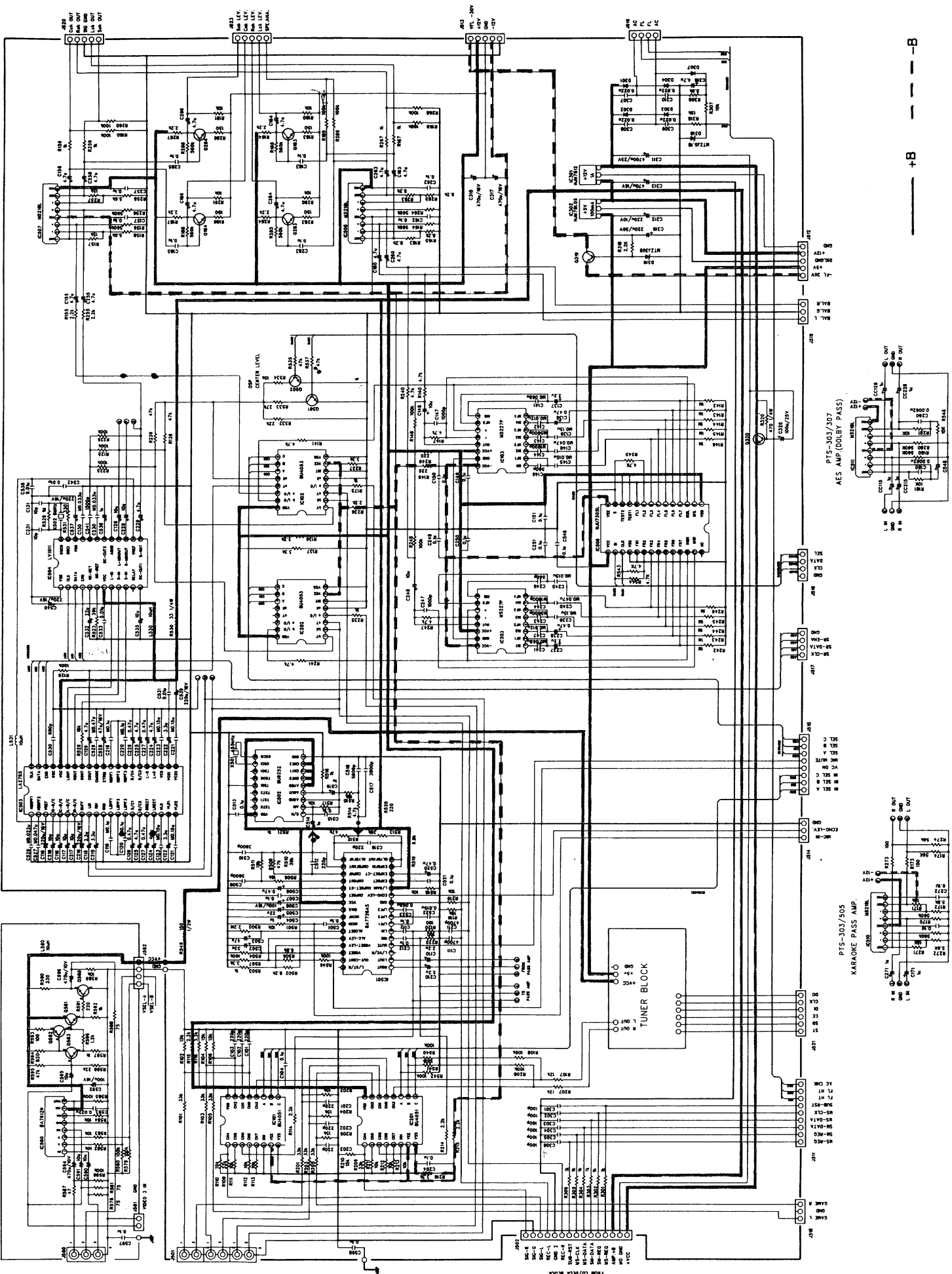


SCHEMATIC DIAGRAMS (TUNER SECTION)



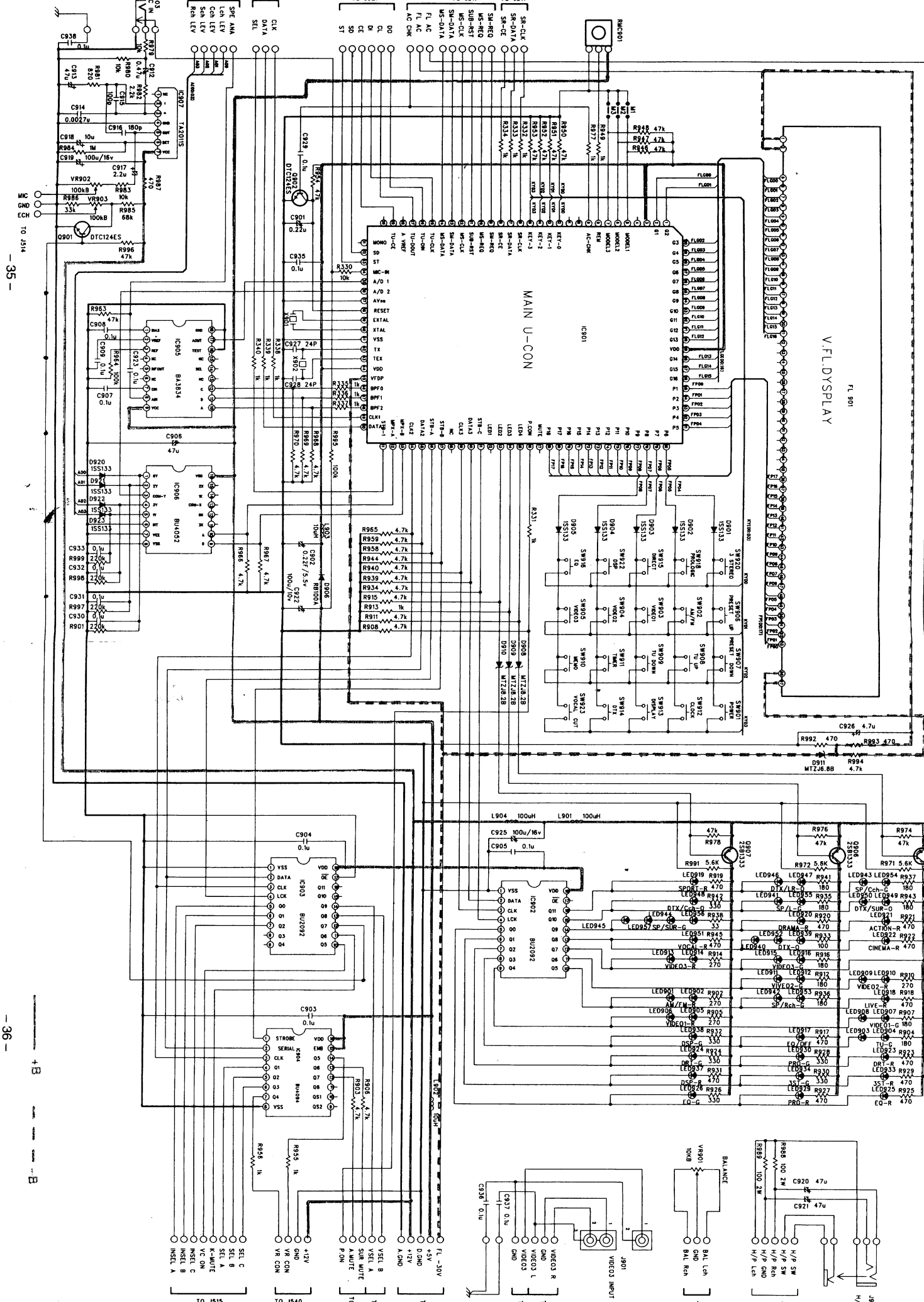
CHEMATIC DIAGRAMS (MAIN SECTION)

A B C D E F G



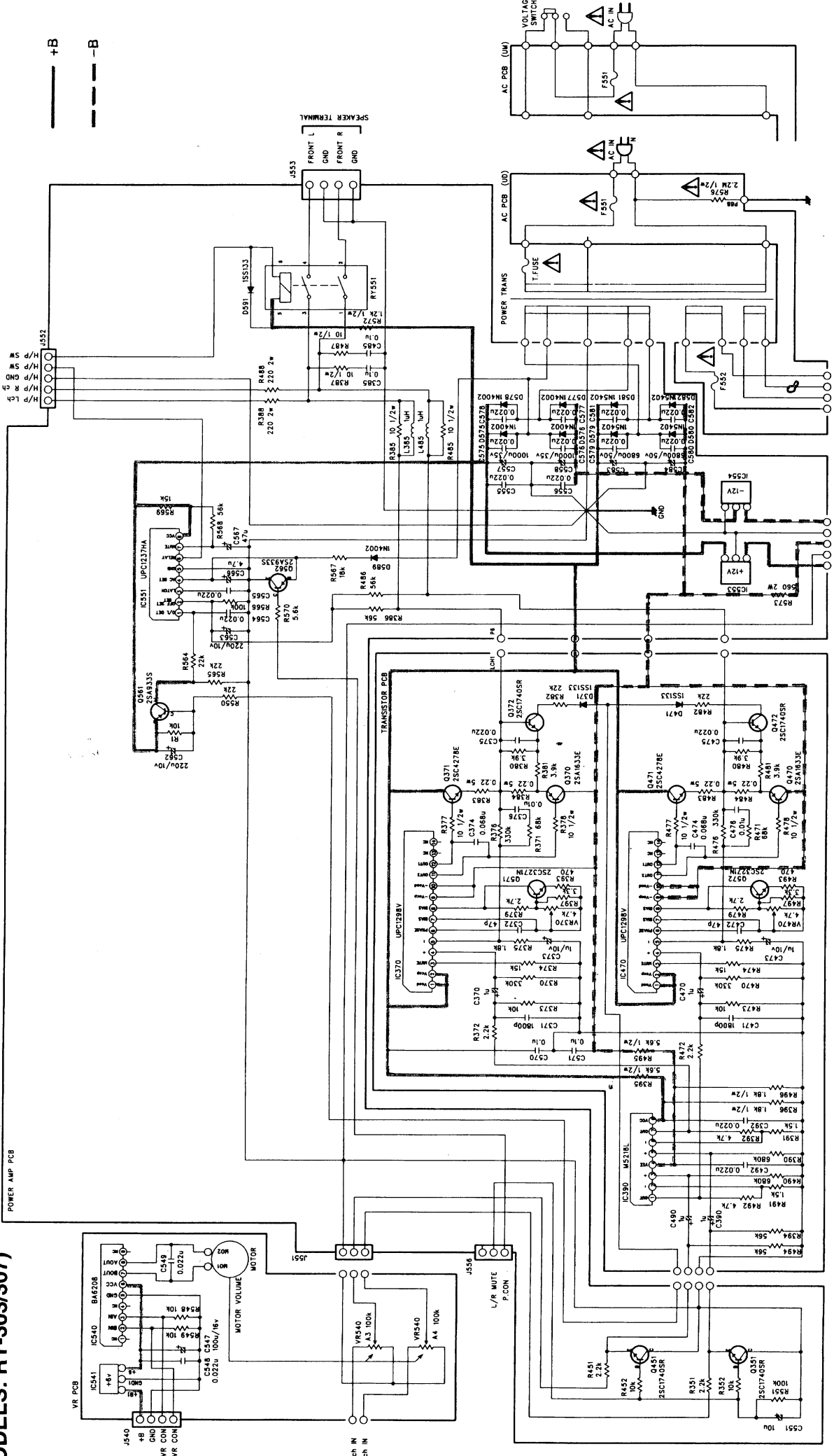
SCHEMATIC DIAGRAMS (DISPLAY SECTION)

A B C D E F G



PTS-309/309/07
PTS-307/507/07

**SCHEMATIC DIAGRAMS (POWER AMP SECTION)
MODELS: RY-303/307**



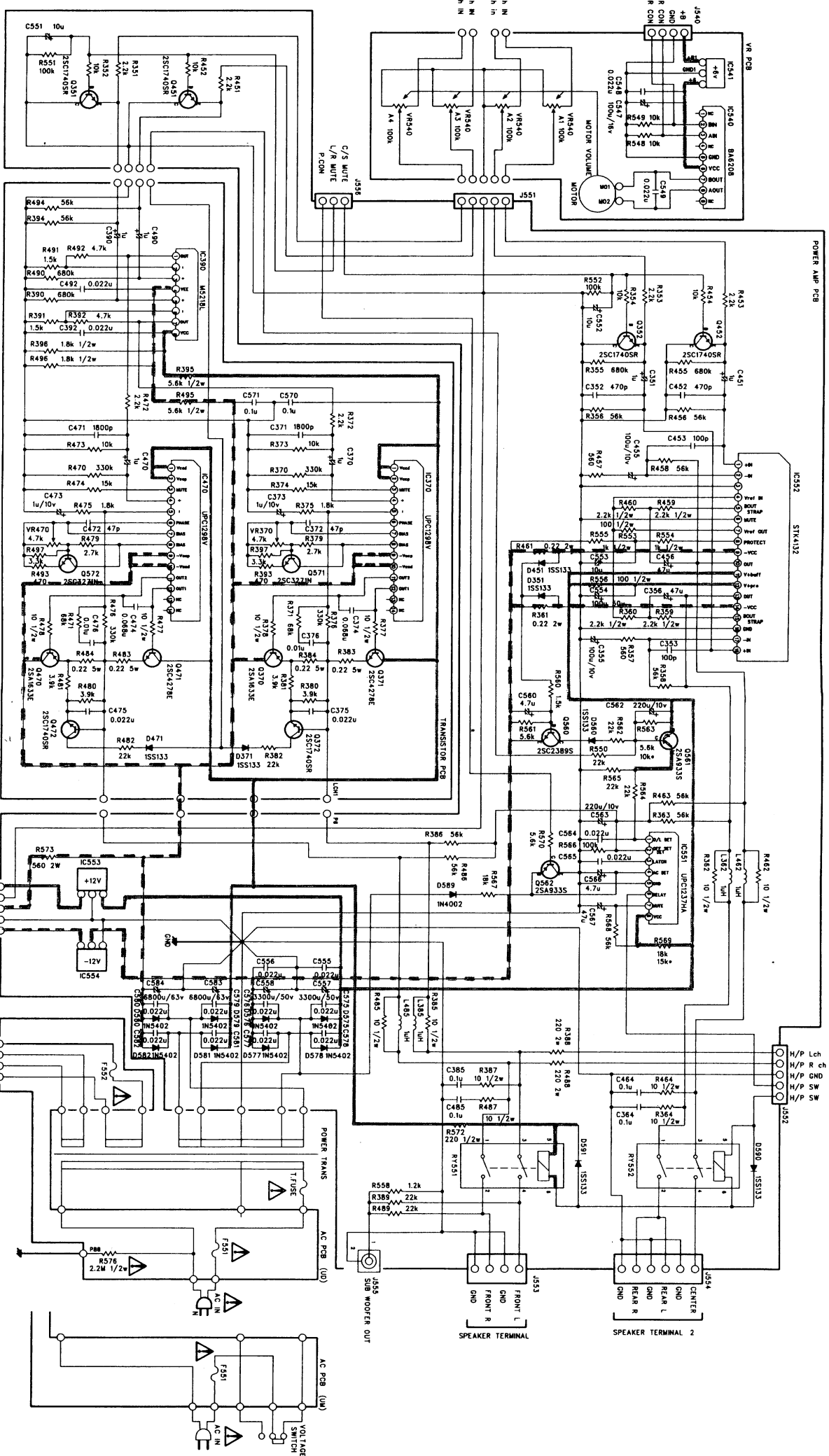
— +B
- - - - B

Points marked with this sign safety critical components.
They must always be replaced with identical components—refer to the appropriate parts list and ensure exact replacement.

FUSE LIST	
RY-303	RY-307
T 4A L 125V	T 4A L 250V
F551	F552
T 2.5A L 250V	

CHEMATIC DIAGRAMS (POWER AMP SECTION) (MODELS: RY-505/507/707)

A B C D E F G



Ports marked with this sign safety critical components. They must always be replaced with identical components—refer to the appropriate parts list and ensure exact replacement.

FUSE LIST	
F501	RY-505
F502	RY-507
F503	RY-707UB
F504	RY-707UM
F505	T. 4A L. 125V
F506	T. 4A L. 250V
F507	T. 5A L. 125V
F508	T. 5A L. 250V
F509	T. 2.5A L. 250V