Ref. No.3584

ONKYO® SERVICE MANUAL

AUDIO VIDEO CONTROL
RECEIVER
MODEL TX-SV646

Black and Golden models

BMP,BMPT,BMPA,GMPT	230V AC, 50Hz
BMWT, GMWT	220-230V/120V AC, 50/60Hz
BMD	120V AC, 60Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ 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.

ONKYO®
AUDIO COMPONENTS

TABLE OF CONTENTS

SPECIFICATIONS

AMPLIFIER SECTION

Power Output (U.S. and Canadian model):

Stereo mode

Front L/R channels

90 watts per channel min. RMS. at 8 ohms, both channels driven, from 20 Hz to 20,000 Hz, with no more than 0.08% total harmonic distortion.

Continuous power output:

2 × 100 watts at 8 ohms (DIN)

Surround mode and Multi source mode

Front L/R and Center channels

80 W + 80 W + 80 W (1 kHz 0.08 % 8 ohms)

Rear channels (Rear only driven)

30 W + 30 W (1 kHz 0.8 % 8 ohms)

Remote channels

30 W + 30 W (1 kHz 0.08 % 8 ohms)

Power Output (Other models):

Stereo mode

Continuous power output:

2 × 100 watts at 6 ohms (DIN)

Surround mode and Multi source mode

Continuous power output:

Front L/R and Center channels

3 × 95 watts at 6 ohms (DIN)

Rear channel

2 × 40 watts at 6 ohms (DIN)

Remote channels

2 × 40 watts at 6 ohms (DIN)

IM Distortion: 0.08% at rated power (FRONT)

Damping Factor: 60 at 8 ohms (FRONT)

Input Sensitivity/Impedance

PHONO: 2.5 mV/50 kohms

CD/TAPE-1, 2/VIDEO-1, 2, 3: 200 mV/50 kohms

Multi Channel Input (Front L/R, Surround L/R, Center): 200 mV/50 kohms

Multi Channel Input (Subwoofer): 36 mV/50 kohms

Output Level/Impedance

REC OUT: 200 mV/2.2 kohms

PRE OUT: 1 V/470 ohms

Phono Overload: 120 mV RMS. at 1,000 Hz, 0.5% THD.

Frequency Response: 20 to 30,000 Hz, +/–1 dB

RIAA Deviation: 20 to 20,000 Hz, +/–0.8 dB

Tone Control: BASS: +/–10 dB at 100 Hz

TREBLE: +/–10 dB at 10,000 Hz

Signal to Noise Ratio: PHONO: 80 dB (IHF A, 5 mV input)

CD/TAPE: 100 dB (IHF A)

Muting: – ∞ dB

VIDEO SECTION

Television Format: NTSC (U.S. and Canadian models)
NTSC/PAL (Other models)

Input Sensitivity/Impedance

VIDEO (Composite):
1 Vp-p/75 ohms

S-VIDEO (Y signal):
1 Vp-p/75 ohms (except U.S. and Canadian models)

S-VIDEO (C signal):
0.28 Vp-p/75 ohms (except U.S. and Canadian models)

Output Level/Impedance

VIDEO (Composite):
1 Vp-p/75 ohms

S-VIDEO (Y signal):
1 Vp-p/75 ohms (except U.S. and Canadian models)

S-VIDEO (C signal):
0.28 Vp-p/75 ohms (except U.S. and Canadian models)

TUNER SECTION

FM:

Tuning Range: 87.5 — 108.0 MHz (50 kHz steps)

Usable Sensitivity: Mono: 11.2 dBf, 1.0 µV (75 ohms)
0.9 µV (26 dB S/N, 40 kHz Div.) 75 ohm DIN
Stereo: 17.2 dBf, 2.0 µV (75 ohms)
23 µV (46 dB S/N, 40 kHz Div.) 75 ohm DIN

50dB Quieting Sensitivity: Mono: 17.2 dBf, 2.0 µV (75 ohms)
Stereo: 37.2 dBf, 20 µV (75 ohms)

Capture Ratio: 1.5 dB

Image Rejection Ratio: U.S. & Canadian models: 40 dB
Other area models: 85 dB

IF Rejection Ratio: 90 dB

Signal-to-Noise Ratio: Mono: 73 dB
Stereo: 70 dB

Alternate Channel Attenuation: 55 dB, 50 dB (DIN)

AM Suppression Ratio: 50 dB

Total Harmonic Distortion: Mono: 0.1%
Stereo: 0.2%

Frequency Response: 30 — 15,000 Hz +/–1.5 dB

Stereo Separation: 45 dB at 1 kHz/30 dB at 100 — 10,000 Hz

Muting Level: 17.2 dBf, 2.0 µV (75 ohms)

AM:

Tuning Range: European models
522 — 1611 kHz (9 kHz steps)
U.S. & Canadian models
530 — 1710 kHz (10 kHz steps)
Worldwide model
531 — 1602 kHz (9 kHz steps)
530 — 1710 kHz (10 kHz steps)

Usable Sensitivity: 30 µV

Image Rejection Ratio: 40 dB

IF Rejection Ratio: 40 dB

Signal-to-Noise Ratio: 40 dB

Total Harmonic Distortion: 0.7%

GENERAL

Power Supply: AC120 V, 60 Hz
AC230 V, 50 Hz
120 and 220-230 V switchable, 50/60 Hz

Dimensions (W × H × D): 435 × 175 × 390 mm
17-1/8" × 6-7/8" × 15-3/8"

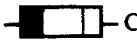
Mass: 12.2 kg (26.9 lbs) (AC 120 V, 60 Hz model)
13.0 kg (28.7 lbs) (Other models)

Specifications and features are subject to change without notice.

SERVICE PROCEDURES

1. Replacing the fuses


This symbol located near the fuse indicates that the fuse used is fast operating type. For continued protection against fire hazard, replace with same type fuse. For fuse rating refer to the marking adjacent to the symbol.


Ce symbole indique que le fusible utlise est a rapide. Pour une protection permanente, n'utiliser que des fusibles de meme type. Ce darnier est indique la qu le present symbol est appose.

CIRCUIT NO.	PART NO.	DESCRIPTION
F901	252198	⚠ 8A-UL, Primary fuse <D/W>
F902	252077	⚠ 4A-SE-EAK,Primary fuse <P/T/W/A>
F903	252075	⚠ 2.5A-SE-EAK, Fuse <P>
	252074	⚠ 2A-SE-EAK,Fuse <T/A>
F915,F916	252166	⚠ 6.3A-UL/T-237,Secondary fuse <D>
	252079	⚠ 6.3A-SE-EAK,Secondary fuse <P/T/W/A>

NOTE:
<D>:120V model only
<P>: 230V model only
<T>: Asian model only
<W>: Worldwide model only
<A>: Australian model only

2. To Initialize the unit

This device employs a microprocessor to perform various functions and operations. If interference generated by an external power supply, radio wave, or other electrical source results in accident which causes the specified operations and functions to operate abnormally.

To perform a result, please follow the procedure below.

1. **Press and hold down the CD button, then press the POWER button.**
2. **After "clear" is displayed, the prest memory and each mode stored in the memory, such as surround, are initialized and will return to the factory settings.**

3. Safety-check out

(Only U.S.A. model)

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 the screw on the back panel.

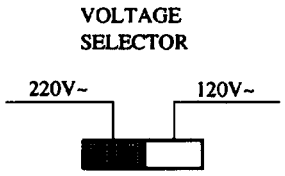
Specifications: 3.3 Mohm±10% at 500V.

4. Change of voltage

Worldwide models are equipment with a voltage selector to conform with local power supplies. This switch is located on the back panel.

Be sure to set this switch to match the voltage of the power supply in your area before turning the power switch on.

This switch is set to 220V at the factory. Voltage is changed by sliding the groove in the switch with the screwdriver to the right or left. Confirm that the switch has been moved all the way to the right or left before turning the power switch on.



5. Memory preservation

This unit does not require memory preservation batteries.

A built-in memory power back-up system preserves contents of the memory during power failures and even when the unit is unplugged.

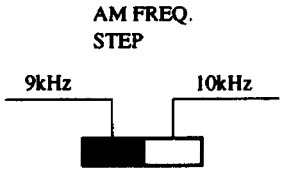
The unit must be plugged in and the power switch turned on and off once in order to charge the back-up system. Note that since this is not a permanent memory, the power switch must be turned on and off a few times each month the keep the back-up system operative.

The period of the time during which memory contents are preserved after power has last been turned off varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of 3 to 4 weeks (a minimum of 2 weeks) after the last time power has been turned off. This period is shorted when the unit is exposed to very high humidity or used in an area with an extremely humid climate.

6. Setting the tuning step frequency

Worldwide models are equipped with a step band selector switch. This switch is located on the back panel. This switch is set to 9 kHz at the factory, but may have to be reset to 10 kHz depending on the area where the unit is used.

	AM band step
Europe:	9 kHz
U.S.A.:	10 kHz



7. Changing the band step

With the exception of the worldwide models, a tuning step selector switch is not provided. When you change the band step, change the parts as shown below.

	To 10 kHz	To 9 kHz
R745	No connection	2.7 kohm
R746	10 kohm	1.5 kohm

ADJUSTMENT PROCEDURES

FM

Item	Step	Connection of instrument	FM SG output	Stereo modulator output	Tuning frequency	Output indicator	Adjustment point	Adjust for	Remarks
FM IF/RF	1	Fig.1	99.0MHz 1kHz 75kHz devi. 65dBf(60dB)	——	99.0MHz	DC voltmeter	L101	0±20mV	FM MUTE/MODE switch:ON/STEREO Repeat the steps 1 and 3 until no further adjustment is necessary.
	2					AC voltmeter	IFT on the front end	Maximum	
	3					Distortion analyzer	L102	Minimum	
Stereo Distortion		Fig.2	99.0MHz Ext. mod.65dBf(60dB)	Channel L or R 1kHz	99.0MHz	Distortion analyzer	IFT on the front end	Minimum	Don't turn more than ±180°
Stereo Separation	1	Fig.2	99.0MHz Ext. mod. 65dBf(60dB)	Channel L 1kHz	99.0MHz	Channel R AC voltmeter	R150	Minimum	Maximum and same separation
	2			Channel R 1kHz		Channel L AC voltmeter		Minimum	
Muting Level		Fig.3	99.0MHz 19.2dBf(14dB)	——	99.0MHz	TUNED indicator	R158	Light on	

AM

120V model

Step	AM SG output	Tuning Frequency	Output Indicator	Adjustment point	Adjust for
1		530kHz	Digital DC voltmeter	OSC coil on RF block L105	1.4±0.2V
2	600kHz 400Hz 30% mod. 60dB/m	600kHz	AC voltmeter	RF coil on RF block L105	Maximum
3	990kHz 400Hz 30% mod. 60dB/m	990kHz	AC voltmeter	L106	Maximum

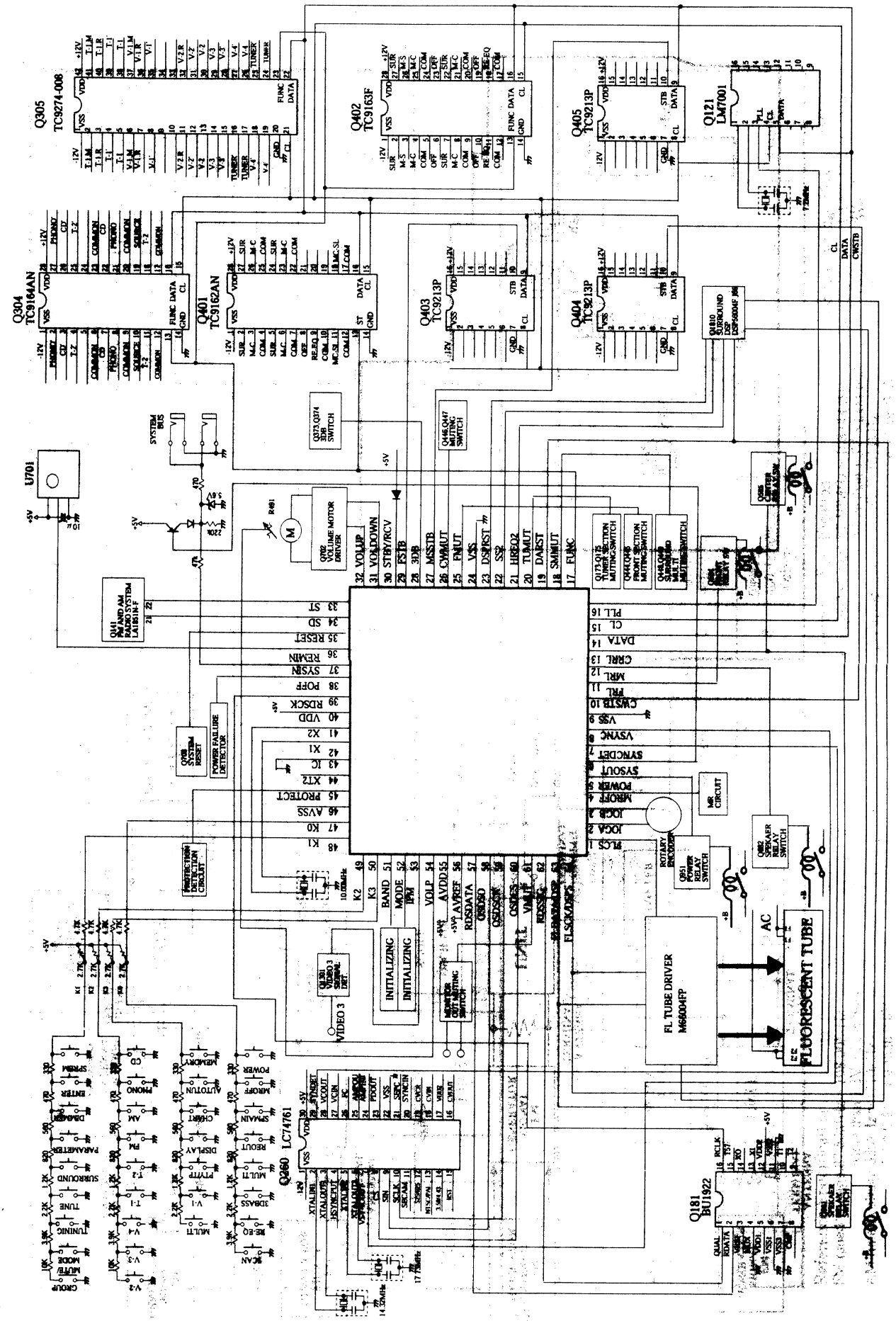
Reference Specification
FM tuned voltage:87.50MHz~108.00MHz
More than 1.3V~Less than 9V
AM tuned voltage:530kHz~1710kHz
1.4±0.4~Less than 9.0V

230V and Wolrdwide models

Step	AM SG output	Tuning Frequency	Output Indicator	Adjustment point	Adjust for
1		522kHz or 531kHz	Digital DC voltmeter	OSC coil on RF block L105	1.4±0.2V
2	603kHz 400Hz 30% mod. 60dB/m	603kHz	AC voltmeter	RF coil on RF block L105	Maximum
3	999kHz 400Hz 30% mod. 60dB/m	999kHz	AC voltmeter	L106	Maximum

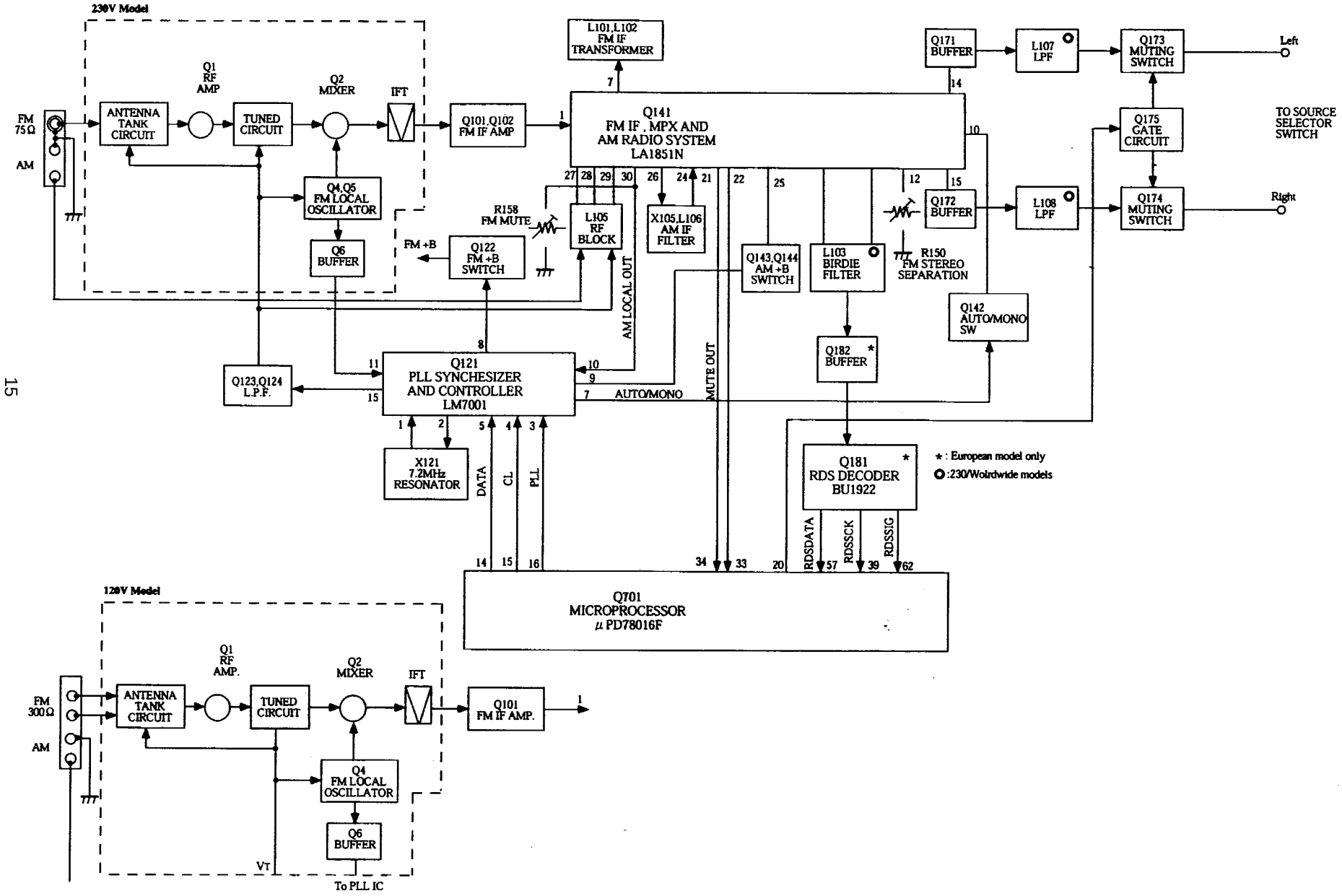
Reference Specification
FM tuned voltage:87.50MHz~108.00MHz
More than 1.3V~Less than 9V
AM tuned voltage:522kHz~1611kHz
1.4±0.4~Less than 9.0V
(230V model)
AM tuned voltage:531kHz~1602kHz
1.4±0.4~Less than 9.0V
(Worldwide model)

MICROPROCESSOR CONNECTION DIAGRAM



BLOCK DIAGRAM

TUNER SECTION



PRINTED CIRCUIT BOARD-PARTS LIST

MAIN CIRCUIT PC BOARD(NAAR-6095-3A/3B/3C/3D)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q1301,Q1371	22240293 or	NJM4558L-D or
Q303	22240247	BA15218N
Q301	22240191	NJM4565D-D
Q304	22240800	TC9164AN
Q305	22240829	TC9274N-008
Q371,Q372	22240293 or	NJM4558L-D or
	22240247	BA15218N
Q701	22241204	MPD78018FGC-531
Q702	22240239	TA7291S
Q921	222780055	78M05HF
Q922	222780565JRC	78M56(NJM78M56FA)
Q923	222780125	78M12HF
Q924	222790125	79M12HF
Q925	222780075	78M07HF
Q926	222790075	79M07HF
	Transistors	
Q1372	2211945	2SK246-GR
Q1391	2213510 or	DTA114ES or
	2214350	RN2202
Q1392	2212600	DTA124ES
Q1393	2213816 or	2SD1450-T or
	2212356	2SD1302-T
Q373,Q374	2211945	2SK246-GR
Q703	221282 or	DTC144ES or
	2213560	RN1204
Q704	2213510 or	DTA114ES or
	2214350	RN2202
Q927	2211255	2SC1815-GR
Q929	2211455	2SA1015-GR
Q928	2213640 or	DTC123JS or
	2214660	RN1205
	Diodes	
D1301,D1302	223163 or	1SS133 or
D1371	223205	1SS270A
D371,D372	223163 or	1SS133 or
D701-D704	223205	1SS270A
D705	224470562	MTZJ5.6B
D706	224470623	MTZJ6.2C
D707,D708	223163 or	1SS133 or
D926-D929	223205	1SS270A
D921	22380022F,	RBV402,
	22380271F or	D3SBA20 or
	22380285F	RS403M
D922-D925	22380260,	RL1N4003,
D930,D932	22380032 or	1SR139-100 or
D933,D935	22380035	GP104003E
D934	224473604	MTZJ36D
	Coil	
L701	233454K220	NCH-1452 220K
	Oscillator	
X701	3010239	CST10.0MTW
	Capacitors	
C1301-C1304	354741009	10μF,16V,Elect.
C1306	374721034	0.01μF±5%,50V,Plastic
C1307,C1372	354741009	10μF,16V,Elect.
C1375,C1376	374721044	0.1μF±5%,50V,Plastic
C303,C304	354741009	10μF,16V,Elect.
C305,C306	354721019	100μF,6.3V,Elect.
C307,C308	374726824	6800pF±5%,50V,Plastic

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C309,C310	374721824	1800pF±5%,50V,Plastic
C311,C312	354741009	10μF,16V,Elect.
C341,C342	354741009	10μF,16V,Elect.
C363,C364	354742209	22μF,16V,Elect.
C373,C374	354741009	10μF,16V,Elect.
C379-C382	374721044	0.1μF±5%,50V,Plastic
C383,C384	374721534	0.015μF±5%,50V,Plastic
C385,C386	354741009	10μF,16V,Elect.
C702	375524744	0.47μF±5%,50V,Plastic
C703	3000076 or	EECS5R5T104 or
	3000078	DX-5R5L104
C704,C705	354721019	100μF,6.3V,Elect.
C706	354741009	10μF,16V,Elect.
C707	354780109	1μF,50V,Elect.
C708	354721019	100μF,6.3V,Elect.
C921,C922	3504312 or	4700μF,40V,Elect. or
	3504316	4700μF,40V,Elect.
C923	354742229	2200μF,16V,Elect.
C925,C928	354741009	10μF,16V,Elect.
C926	354754719	470μF,25V,Elect.
C931	354782219	220μF,50V,Elect.
C932	354762219	220μF,35V,Elect.
C933	354754729	4700μF,25V,Elect.
C934,C949	354751029	1000μF,25V,Elect.
C937,C938	354741009	10μF,16V,Elect.
C941,C942	354741009	10μF,16V,Elect.
	Resistors	
R921	453630474	4.7Ω±5%,1W, Metal
R923,R929	443522204	22Ω±5%,1/2W, Metal oxide
R924	443523314	330Ω±5%,1/2W, Metal oxide
R925,R931	443621204	12Ω±5%,1W, Metal oxide
R932	443524704	47Ω±5%,1/2W, Metal oxide
R933,R936	453630684	6.8Ω±5%,1W, Metal
R934	443526804	68Ω±5%,1/2W, Metal oxide
R935	453530104	1Ω±5%,1/2W, Metal
	Sockets	
JL602a	25051090	NSCT-6P877
JL691a	25051107	NSCT-3P894
JL701a	25051847	NSCT-40P1634
JL701aor	25050980	NSCT-40P767
JL701aor	25051306	NSCT-40P1095
JL922a	25051113	NSCT-9P900
JL971a,JL972a	25051090	NSCT-6P877
	Terminals	
P301-P303	25045458 or	NPJ-6PDBL279 or
	25045300	NPJ-6PDBL159
P304	25045460 or	NPJ-4PDBL281 or
	25045303	NPJ-4PDBL162
	Plugs	
P102a	25055652	NPLG-14P608 <D/T/W/A>
	25055653	NPLG-16P609 <P>
P245a	25055133	NPLG-3P117
JL391b	25055628	NPLG-7P590
P401a	25055704	NPLG-8P660
P402a,P403a	25055808	NPLG-19P764
	Heatsinks	
Q921a,Q925a	27160227	RAD-076
Q922a	27160209	RAD-67
	Screws	
Q921b,Q922b	838430107	3TTP+10S(BC)
Q925b	838430107	3TTP+10S(BC)

DISPLAY CIRCUIT PC BOARD (NADIS-6100-3A/3B/3C)

CIRCUIT NO.	PART NO.	DESCRIPTION
	FL tube	
Q1704	212163	14-ST-19GK
	Remote sensor	
U1701	241305	GP1U281X
	IC	
Q1701	22240685R9	M66004FP
	Diodes	
D1701,D1702	223163 or	1SS133 or
D1704	223205	1SS270A
D1705,D1706	225291D	SEL4910D-D
D1703	224471803	MTZJ18C
	Capacitors	
C1705,C1711	375524744	0.47μF±5%,50V,Plastic
C1709	353721019	100μF,6.3V,Elect.
C1712	353781009	10μF,50V,Elect.
C1717	353741009	10μF,16V,Elect.
	Resistors	
R1741	49163103414	RM1/10IJ-10K*14,Array
	Sockets	
JL701b	25051884,	NSCT-40P1671,
	25050946 or	NSCT-40P733 or
	25051344	NSCT-40P1133
JL801a,JL802a	25051093	NSCT-9P880
	Switches	
S1701-S1716	25035652	NPS-111-S604
S1717	25035652	NPS-111-S604 <P>
S1718-S1728	25035652	NPS-111-S604
S1730-S1732	25035652	NPS-111-S604
S1734,S1735	25035652	NPS-111-S604
S1737	25065528	EC16B24104
	Holders	
U1701a	27191042	Remote sensor
Q1704a	27191001	FL tube

DSP CIRCUIT PC BOARD(NADG-6125-3A/3B)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q1801-Q1803	22240293 or	NJM4558L-D or
Q1805	22240247	BA15218N
Q1804	22241128R9	CS4222-KS
Q1807	22241127R9	CS4327-KS
Q1808	222740046R9	74HCU04
Q1809	22241126R9O	TC74HC4040AF
Q1810	22240831R3 or	DSP56004FJ50 or
	22240940R3	DSP56004FJ66
Q1811	22241108R9	M5M5256DFP-70L
Q1812,Q1813	222780053	78L05
	Diodes	
D1801,D1802	223205 or	1SS270A or
	223163	1SS133
	Oscillators	
X1801	3010278	CST12.2MTW040
	Coils	
L1801-L1808	233454K220	NCH-1452 220K
L1809,L1810	233454M022	NCH-1452 022M
L251,L253	233454K220	NCH-1452 220K
L252	233454K056	NCH-1452 056K

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C1801-C1806	354741009	10μF,16V,Elect.
C1811,C1812	374722224	2200pF±5%,50V,Plastic
C1813-C1816	374721015	100pF±10%,50V,Plastic
C1817-C1820	374721824	1800pF±5%,50V,Plastic
C1821-C1824	374722224	2200pF±5%,50V,Plastic
C1825-C1828	374722715	270pF±10%,50V,Plastic
C1829,C1830	354741009	10μF,16V,Elect.
C1831,C1833	354721019	100μF,6.3V,Elect.
C1832,C1858	375524744	0.47μF±5%,50V,Plastic
C1835,C1836	354741009	10μF,16V,Elect.
C1837,C1838	374721824	1800pF±5%,50V,Plastic
C1839,C1840	374721224	1200pF±5%,50V,Plastic
C1841,C1842	374721524	1500pF±5%,50V,Plastic
C1843,C1844	374721815	180pF±10%,50V,Plastic
C1849,C1850	353741009	10μF,16V,Elect.
C1851,C1852	353721019	100μF,6.3V,Elect.
C1855,C1864	354721019	100μF,6.3V,Elect.
C1859	374722234	0.022μF±5%,50V,Plastic
C1861	375524744	0.47μF±5%,50V,Plastic
C1867	354721019	100μF,6.3V,Elect.
C1868,C1869	354741009	10μF,16V,Elect.
	Plugs	
JL801b,JL802b	25055630	NPLG-9P592
	Shield case	
Q1801a	27150428	(PC)

HEADPHONE TERMINAL PC BOARD(NAETC-6104-3A/3B/3C)

CIRCUIT NO.	PART NO.	DESCRIPTION
JL571a	25051107	NSCT-3P894,Socket
P571	25045255	YKB26-5009,Headphone terminal

FRONT/CENTER POWER AMP. PC BOARD (NAAF-6108-3A/3B/3C/3D/3F)

CIRCUIT NO.	PART NO.		DESCRIPTION
	Transistors		
Q1501-Q1503	2211733 or		2SC1845-E or
Q1515	2211732		2SC1845-F
Q1504	2213284 or		2SC1740S-R or
	2212115		2SC2458-GR
Q1505,Q1506	2211354 or		2SA949-Y
Q1508	2211353		2SA949-O
Q1507,Q1509	2211634 or		2SC2229-Y
	2211633		2SC2229-O
Q1511	2203010		2SC5171
Q1512	2203000		2SA1930
Q1513	2202822 or	*	2SC5200-R or
	2202823	*	2SC5200-O <D>
Q1513	2201653,	*	2SC3856-O,
	2201655,	*	2SC3856-P,
	2201654,	*	2SC3856-Y,
	2202842 or	*	2SC5242-R or
	2202843	*	2SC5242-O <P/T/W/A>
Q1514	2202812 or	*	2SA1943-R or
	2202813	*	2SA1943-O,Transistor <D>
Q1514	2201663,	*	2SA1492-O,
	2201665,	*	2SA1492-P,
	2201664,	*	2SA1492-Y,
	2202832 or	*	2SA1962-R or
	2202833	*	2SA1962-O <P/T/W/A>
Q1516	2212654 or		2SC3421-Y or
	2212653		2SC3421-O

CAUTION: Replacement of the transistor of mark *, if necessary, must be made from the same beta group (HFE) as the original type.

CIRCUIT NO.	PART NO.		DESCRIPTION
	Transistors		
Q501-Q506	2211733 or		2SC1845-E or
Q529,Q530	2211732		2SC1845-F
Q507,Q508	2213284 or		2SC1740S-R or
Q582,Q583	2212115		2SC2458-GR
Q509-Q512	2211354 or		2SA949-Y
Q515,Q516	2211353		2SA949-O
Q513,Q514	2211634 or		2SC2229-Y
Q517,Q518	2211633		2SC2229-O
Q521,Q522	2203010		2SC5171
Q523,Q524	2203000		2SA1930
Q525,Q526	2202822 or	*	2SC5200-R or
	2202823	*	2SC5200-O <D>
Q525,Q526	2201653,	*	2SC3856-O,
	2201655,	*	2SC3856-P,
	2201654,	*	2SC3856-Y,
	2202842 or	*	2SC5242-R or
	2202843	*	2SC5242-O <P/T/W/A>
Q527,Q528	2202812 or	*	2SA1943-R or
	2202813	*	2SA1943-O <D>
Q527,Q528	2201663,	*	2SA1492-O,
	2201665,	*	2SA1492-P,
	2201664,	*	2SA1492-Y,
	2202832 or	*	2SA1962-R or
	2202833	*	2SA1962-O <P/T/W/A>
Q531,Q532	2212654 or		2SC3421-Y or
	2212653		2SC3421-O
Q581	2211793 or		2SA992-E or
	2211792		2SA992-F
Q584,Q585	2213650,		DTD113ZS
	Diodes		
D581	224470512		MTZJ5.1B
D582,D583	223163 or		1SS133 or
	223205		1SS270A
D961	22380038 or		RBV602 or
	22380274		RS603M
D962,D963	22380260,		RL1N4003,
	22380032 or		1SR139-100 or
	22380035		GP104003E
	Coils		
L1501	231176S		S-1.3C <P/W/T/A>
L501,L502	231176S		S-1.3C <P/W/T/A>
	Capacitors		
C1501	354742209		22 μ F,16V,Elect.
C1504	354742219		220 μ F,16V,Elect.
C1505	354744709		47 μ F,16V,Elect.
C1509,C1511	354781009		10 μ F,50V,Elect.
C1512	374721044		0.1 μ F ± 5%,50V,Plastic
C1515,C1516	354772209S		22 μ F,63V,Elect.
C501,C502	354742209		22 μ F,16V,Elect.
C507,C508	354742219		220 μ F,16V,Elect.
C509,C510	354744709		47 μ F,16V,Elect.
C517,C518	354781009		10 μ F,50V,Elect.
C521,C522	354781009		10 μ F,50V,Elect.
C523,C524	374721044		0.1 μ F ± 5%,50V,Plastic
C529,C530	354772209S		22 μ F,63V,Elect.
C582	354742219		220 μ F,16V,Elect.
C962,C963	374731044		0.1 μ F ± 5%,50V,Plastic
C964,C965	3504309		12000 μ F,63V,Elect.
C964,C965	3504313		12000 μ F,63V,Elect.
C966,C967	354774719S		470 μ F,63V,Elect.

CIRCUIT NO.	PART NO.		DESCRIPTION
	Resistors		
R1512	443526804	⚠	68Ω ± 5%,1/2W, Metal oxide
R1513,R1514	443525604	⚠	56Ω ± 5%,1/2W, Metal oxide
R1515,R1516	443526804	⚠	68Ω ± 5%,1/2W, Metal oxide
R1519	5210288		N06HR2.2KBE,Trimming
R1522	443521514		150Ω ± 5%,1/2W, Metal oxide
R1523,R1524	453530224		2.2Ω ± 5%,1/2W, Metal
R1525	4000132		RGC55 0.22,Thermistor
R1528	453630824		8.2Ω ± 5%,1W, Metal
R523,R524	443526804	⚠	68Ω ± 5%,1/2W, Metal oxide
R525-R528	443525604	⚠	56Ω ± 5%,1/2W, Metal oxide
R529-R532	443526804	⚠	68Ω ± 5%,1/2W, Metal oxide
R537,R538	5210288		N06HR2.2KBE,Trimming
R543,R544	443521514		150Ω ± 5%,1/2W, Metal oxide
R545-R548	453530224		2.2Ω ± 5%,1/2W, Metal
R549,R550	4000132		RGC55 0.22,Thermistor
R555,R556	453630824		8.2Ω ± 5%,1W, Metal
R571,R572	443623914		390Ω ± 5%,1W, Metal oxide
R962,R963	453530224	⚠	2.2Ω ± 5%,1/2W, Metal
	Sockets		
JL501a,JL501b	25051109		NSCT-5P896
JL502a,JL502b	25051088		NSCT-4P875
JL503a,JL921b	25051110		NSCT-6P897
JL551a	25051109		NSCT-5P896
JL571b	25050267		NSCT-3P95
	Plugs		
JL602b	25055627		NPLG-6P589
JL971b	25055627		NPLG-6P589
P1501	25055038		NPLG-2P29
P501,P502	25055038		NPLG-2P29
P551a	25055135		NPLG-5P119
	Relaies		
RL581,RL582	25065517 or		NRL-2P5A-DC24-098 or
	25065510		NRL-2P5A-DC24-095

SECONDARY CIRCUIT PC BOARD (NAETC-6110-3A/3B/3C/3D/3F)

CIRCUIT NO.	PART NO.		DESCRIPTION
F915,F916	252166	⚠	6.3A-UL/T-237,Fuse <D>
	252079	⚠	6.3A-SE-EAK,Fuse <P/T/W/A>
F915a,F916a	25050065	⚠	YSH403T,Fuseholder
JL921a	25051110		NSCT-6P897,Socket
JL922b	25050286		NSCT-9P114,Socket
R941-943	453532294		0.22Ω ± 5%,1/2W, Metal resistor

VIDEO 4 TERMINAL PC BOARD(NAETC-6112-3A/3B/3C/3D/3F)

CIRCUIT NO.	PART NO.	DESCRIPTION
P241	2009990433UL	NSAS-10P0577, Socket<P/W/T/A>
P242	25051961	NSCT-4P1748,Socket
P243	2009990281	NSAS-4P0409,Socket <D>
P296	25045405	NPJ-3PDBL230,Terminal

PRIMARY CIRCUIT PC BOARD(NAPS-6113-3A/3B/3C/3D/3F)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistor	
Q951	2213284 or	2SC1740S-R or
	Diodes	
D951-D954	22380035	GP104003E
	22380032 or	1SR139-100 or
	22380260,	RL1N4003,
D955	223163 or	1SS133 or
	223205	1SS270A

NOTE: THE COMPONENTS IDENTIFIDE BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

CIRCUIT NO.	PART NO.		DESCRIPTION
	Transfomer		
T902	2300670A	⚠	NPT-1111D <D>
	2300671A	⚠	NPT-1111P <P/T/A>
	2300672	⚠	NPT-1111DG <W>
	Capacitors		
C901	3500191	⚠	DE7150F-103M
C952	354742219		220 μ F,16V,Elect.
	Resistors		
R901	431533355	⚠	3.3MΩ,1/2W,Solid <D>
R951	453530824		8.2Ω ±5%,1/2W, Metal
	Fuseholders		
F901a	25050065	⚠	YSH403T <D/W>
F902a	25050065	⚠	YSH403T <PT/W/A>
F903a	25050065	⚠	YSH403T <P>
	Fuses		
F901	252198	⚠	8A-UL <D/W>
F902	252077	⚠	4A-SE-EAK <P/T/W/A>
F903	252075	⚠	2.5A-SE-EAK <P>
	252074	⚠	2A-SE-EAK <T/A>
	Sockets		
JL942a	25051087		NSCT-3P874
	Plug		
P901a	25055675		NPLG-2P631
	Relay		
RL901	25065516 or	⚠	NRL-1P5A-DC12-096 or
	25065248	⚠	NRL-1P15A-DC12-29 <D>
	25065515 or	⚠	NRL-1P10A-DC12-097 or
	25065508	⚠	NRL-1P10A-DC12-093 <P/T/W/A>
	Switch		
S901	25065437		NSS-22157P <W/T>

FRONT/CENTER SPEAKER TERMINAL PC BOARD (NAETC-6115-3A/3B/3C/3D/3F)

CIRCUIT NO.	PART NO.	DESCRIPTION
C1541	374721034	0.01 μ F±5%,50V,Plastic capacitor <P/T/W/A>
C541,C542	374721034	0.01 μ F±5%,50V,Plastic capacitor <P/T/W/A>
JL503b	25051110	NSCT-6P897,Socket
P541	25060246	NTM-4PDMN166,Terminal
P542	25060247	NTM-2PDMN167,Terminal

AC OUTLET TERMINAL PC BOARD(NAETC-6116-3B/3C/3D)

CIRCUIT NO.	PART NO.		DESCRIPTION
P904	25051125	⚠	NSCT-4P912,Terminal <P/T/W>

POWER SWITCH PC BOARD(NASW-6117-3B/3C/3D/3F)

CIRCUIT NO.	PART NO.		DESCRIPTION
C931a	27301216	⚠	Cover,capacitor <P/T/W/A>
C931	3500191	⚠	DE7150F-103M, Capacitor IS <P/T/W/A>
S931	25035550	⚠	NPS-111-L512P,Push switch <P/T/W/A>

AC OUTLET TERMINAL PC BOARD(NAETC-6118-3A)

CIRCUIT NO.	PART NO.		DESCRIPTION
P902	25051639	⚠	NSCT-4P1426,Terminal <D>

TONE VOLUME PC BOARD(NAAF-6103-3A/3B/3C)

CIRCUIT NO.	PART NO.	DESCRIPTION
C395,C396	374721534	0.015 μ F±5%,50V,Plastic capacitor
JL391a	25051091	NSCT-7P878,Socket
R395,R396	5104356	N14RLC100KWT20Z,Variable resistor

PREOUT/MAIN IN TERMINAL PC BOARD (NAETC-6102-3A/3B/3C)

CIRCUIT NO.	PART NO.	DESCRIPTION
C1414	374723344	0.33 μ F±5%,50V,Plastic capacitor
JL401b	25051087	NSCT-3P874,Socket
JL402a	25051093	NSCT-9P880,Socket
JL551b	25050269	NSCT-5P97,Socket
JL603b	25055628	NPLG-7P590,Plug
P1401	25045458 or	NPJ-6PDBL279 or
	25045300	NPJ-6PDBL159,Terminal
P1402,P1404	25045298 or	NPJ-2PDBL157 or
	25045456	NPJ-2PDBL277,terminal
P1403	25045460 or	NPJ-4PDBL281 or
	25045303	NPJ-4PDBL162,Terminal

MR/RI TERMINAL PC BOARD(NAETC-6096-3A/3B/3C/3D)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistors	
Q981,Q982	221282 or	DTC144ES or
	2213560	RN1204
Q983	24120043	ON3131 <D>
Q984	2213510 or	DTA114ES or
	2214350	RN2202 <D>
Q985	2213284 or	2SC1740S-R or
	2212115	2SC2458-GR <D>
	Diodes	
D981,D982	223163 or	1SS133 or
	223205	1SS270A <P/T/W/K/A>
D983	223163 or	1SS133 or
	223205	1SS270A
D984	223163 or	1SS133 or
	223205	1SS270A <D>
	Capacitors	
C981	374724724	4700pF±5%,50V,Plastic
C982	353741009	10 μ F,16V,Elect.
C983	353741009	10 μ F,16V,Elect. <D>
	Socket	
JL242a	25051093	NSCT-9P880
	Plugs	
JL942b	25055624	NPLG-3P586
JL972b	25055627	NPLG-6P589
	Terminals	
P981	25045293	HSJ1003-01-012 <P/T/W/A/K>
	25045433	HSJ1003-01-013 <D>
P982	25045330 or	NPJ-2PDBL184 or
	25045481	NPJ-2PDBL299
JL391b	25055628	NPLG-7P590

SURROUND POWER AMPLIFIER PC BOARD (NAAF-6097-3A/3B/3C/3D)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistors	
Q601-Q606	2211733 or	2SC1845-E
	2211732	2SC1845-F
Q607,Q608	2213284 or	2SC1740S-R or
	2212115	2SC2458-GR
Q609-Q612	2211354 or	2SA949-Y
	2211353	2SA949-O
Q613,Q614	2211634 or	2SC2229-Y
	2211633	2SC2229-O
Q615,Q616	2211354 or	2SA949-Y
	2211353	2SA949-O
Q617,Q618	2211634 or	2SC2229-Y
	2211633	2SC2229-O

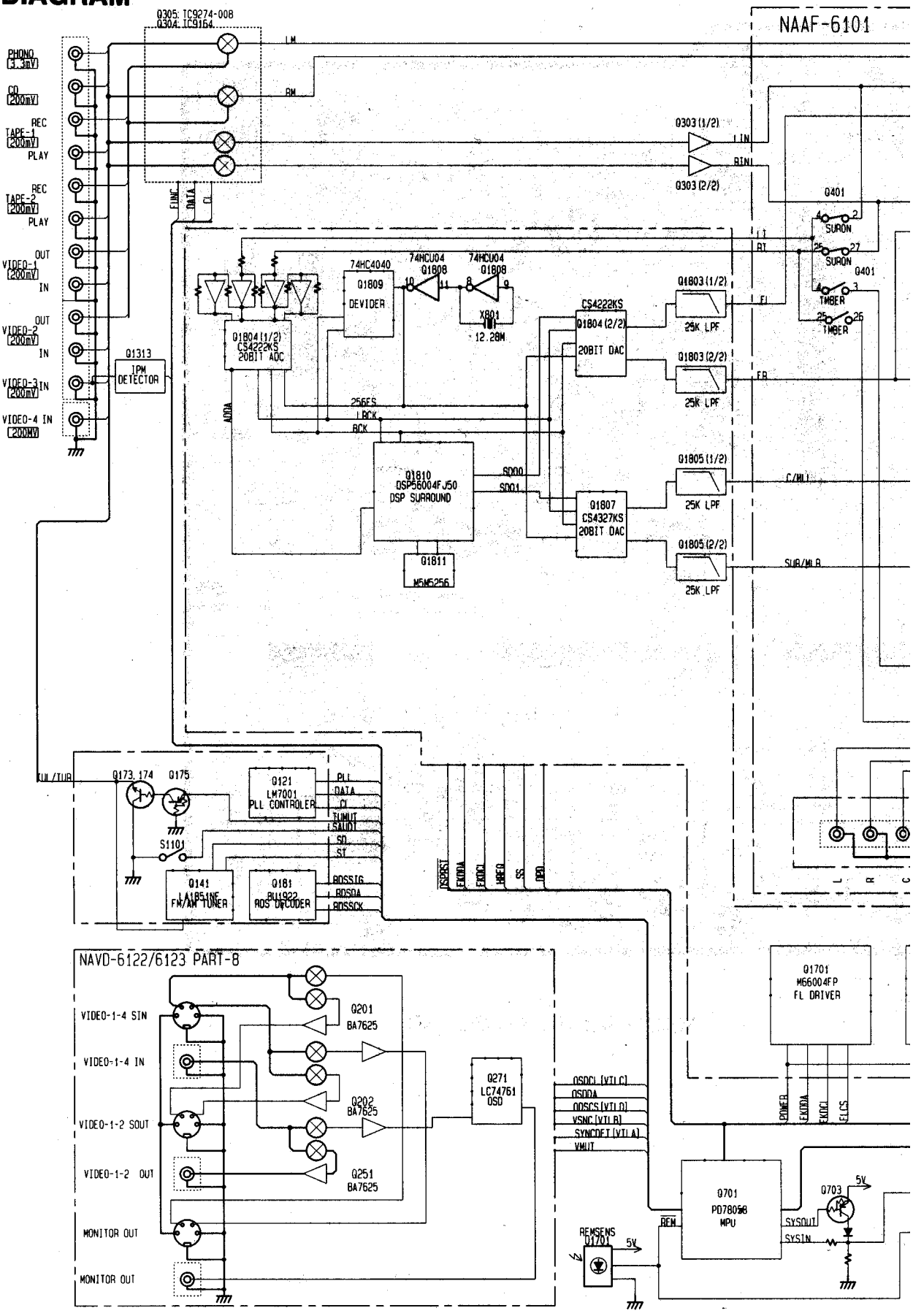
CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistors	
Q619,Q620	2213284 or	2SC1740S-R or
	2212115	2SC2458-GR
Q621,Q622	2203010	2SC5171
Q623,Q624	2203000	2SA1930
Q625,Q626	2202922,	* 2SC5196-R,
	2202923,	* 2SC5196-O,
	2202373,	* 2SC4466-O,
	2202375 or	* 2SC4466-P or
	2202374	* 2SC4466-Y, Transistor
Q627,Q628	2202912,	* 2SA1939-R,
	2202913,	* 2SA1939-O,
	2202363,	* 2SA1693-O,
	2202365 or	* 2SA1693-P or
	2202364	* 2SA1693-Y, Transistor
Q629,Q630	2211733 or	2SC1845-E or
	2211732	2SC1845-F
Q681,Q682	2213650	DTD113ZS
	Diodes	
D601,D602	22380260,	RL1N4003,
	22380032 or	1SR139-100 or
	22380035	GP104003E
D681,D682	223163 or	1SS133 or
D681,D682	223205	1SS270A
	Coil	
L601,L602	231176S	S-1.3C <P/T/W/A>
	Capacitors	
C601,C602	354742209	22 μ F,16V,Elect.
C607,C608	354742219	220 μ F,16V,Elect.
C609,C610	354744709	47 μ F,16V,Elect.
C617,C618	354781009	10 μ F,50V,Elect.
C623,C624	374721044	0.1 μ F ± 5%,50V,Plastic
C629,C630	354784719S	470 μ F,50V,Elect.
C631	354781009	10 μ F,50V,Elect.
C632-C634	354781019	100 μ F,50V,Elect.
	Resistors	
R623,R624	443526804	68Ω ± 5%,1/2W, Metal oxide
R625-R628	443525604	56Ω ± 5%,1/2W, Metal oxide
R629-R932	443526804	68Ω ± 5%,1/2W, Metal oxide
R637,R638	5210288	N06HR2.2KBE,Trimming
R643,C644	443521514	150Ω ± 5%,1/2W, Metal oxide
R645-R648	453530224	2.2Ω ± 5%,1/2W, Metal
R649,R650	4000131	RGC22-0.22 OHMK,Metal plate
R655,R656	453630824	8.2Ω ± 5%,1W, Metal
R669,R670	453530224	2.2Ω ± 5%,1/2W, Metal
R675,R676	453532294	0.22Ω ± 5%,1/2W, Metal
	Relaies	
RL681,RL682	25065517 or	NRL-2P5A-DC24-098 or
	25065510	NRL-2P5A-DC24-095
	Sockets	
JL601a	25051110	NSCT-6P897
JL603a	25051091	NSCT-7P878
JL691b	25050267	NSCT-3P95
	Plugs	
P601,P602	25055038	NPLG-2P29
P611a	25055133	NPLG-3P117

SPEAKER TERMINAL PC BOARD(NAETC-6099-3A/3B/3C/3D)

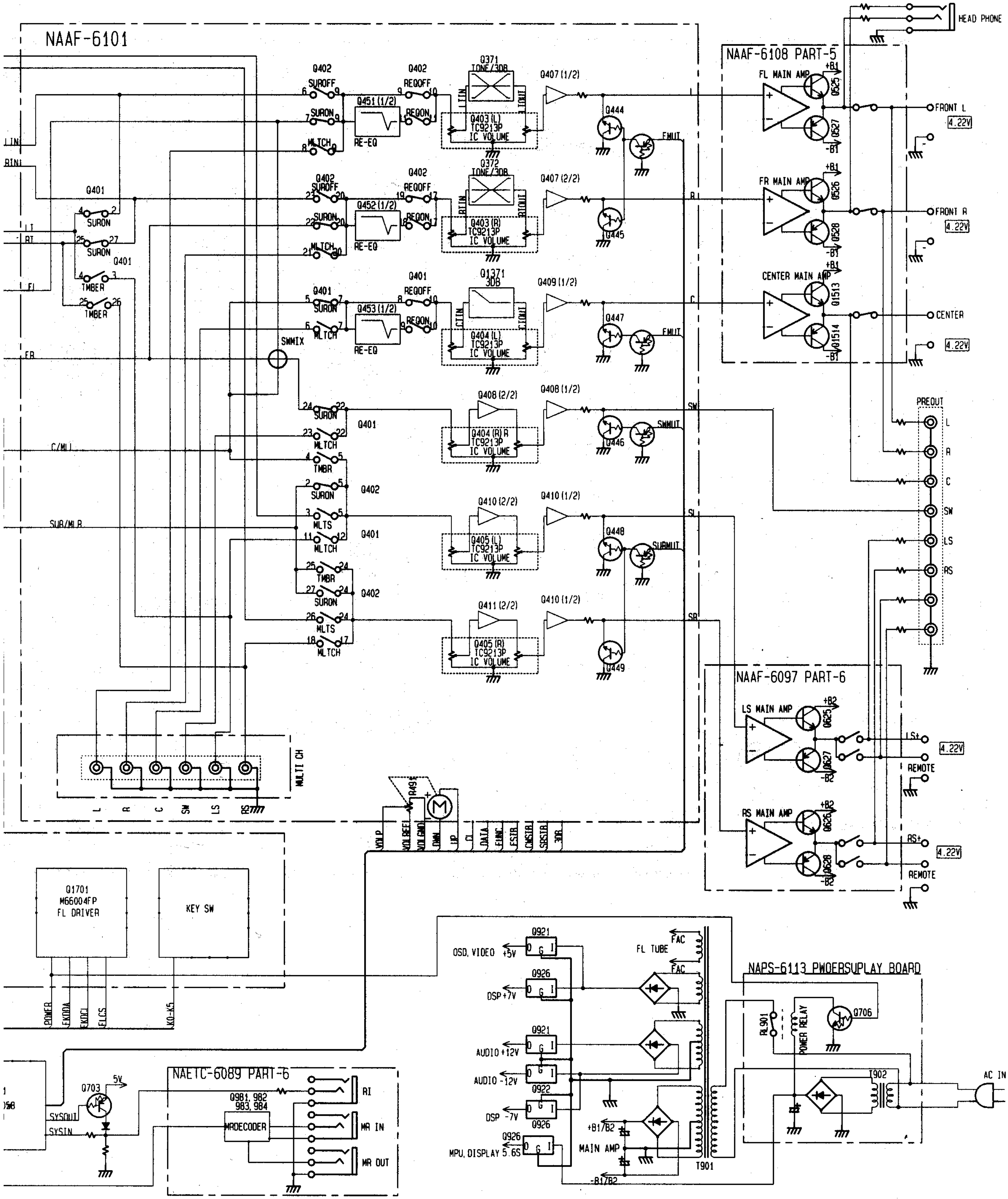
CIRCUIT NO.	PART NO.	DESCRIPTION
C651-C654	374721034	0.01 μ F ± 5%,50V,Plastic capacitor <P/T/W/A>
JL601c	25051110	NSCT-6P897,Socket
P651	25060248	NTM-8PDMN168,Terminal

NOTE: D : 120V model only
P : European model only
T : Asian model only
W: Wolrdwide model only
A : Australian model only

BLOCK DIAGRAM

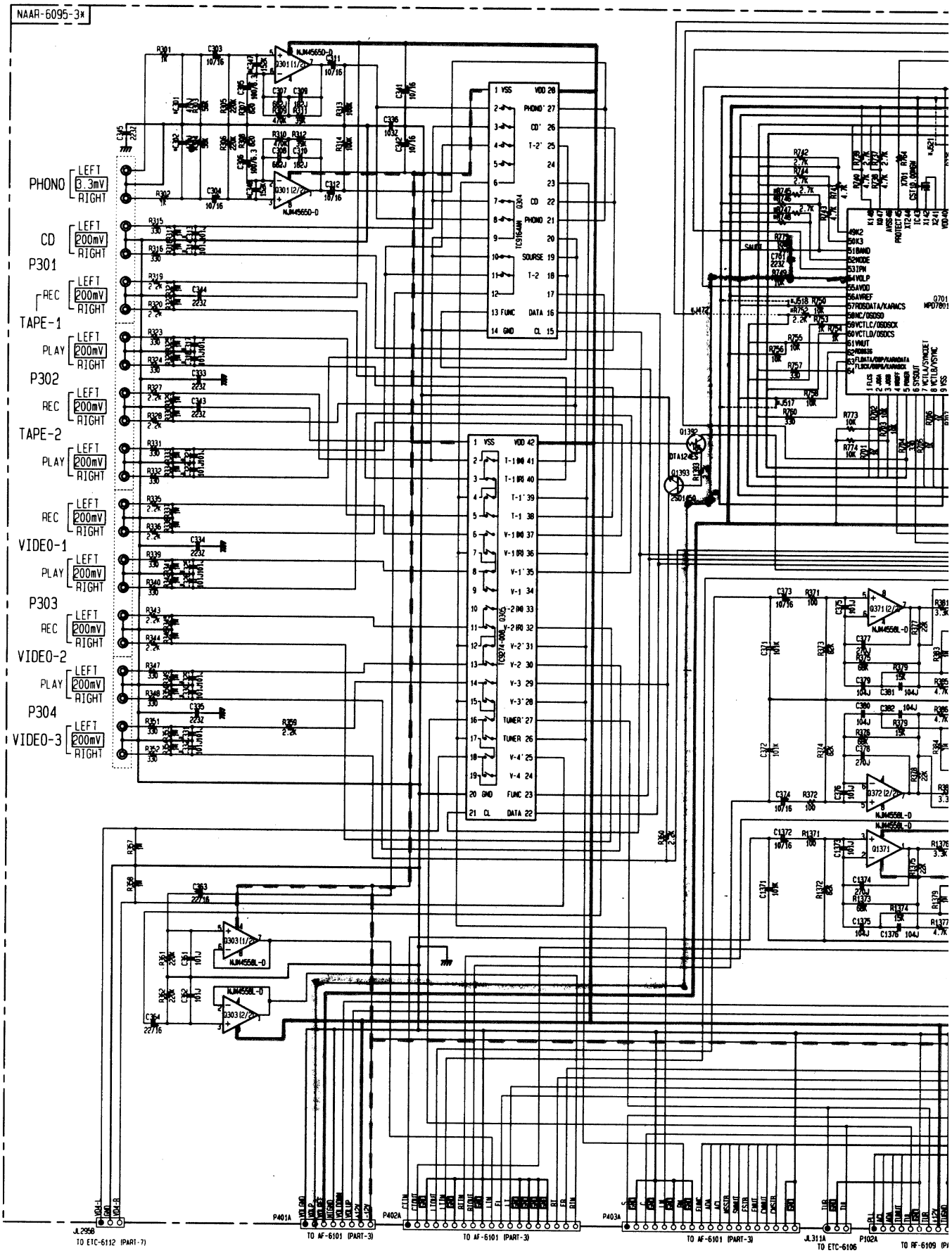


D	E	F	G

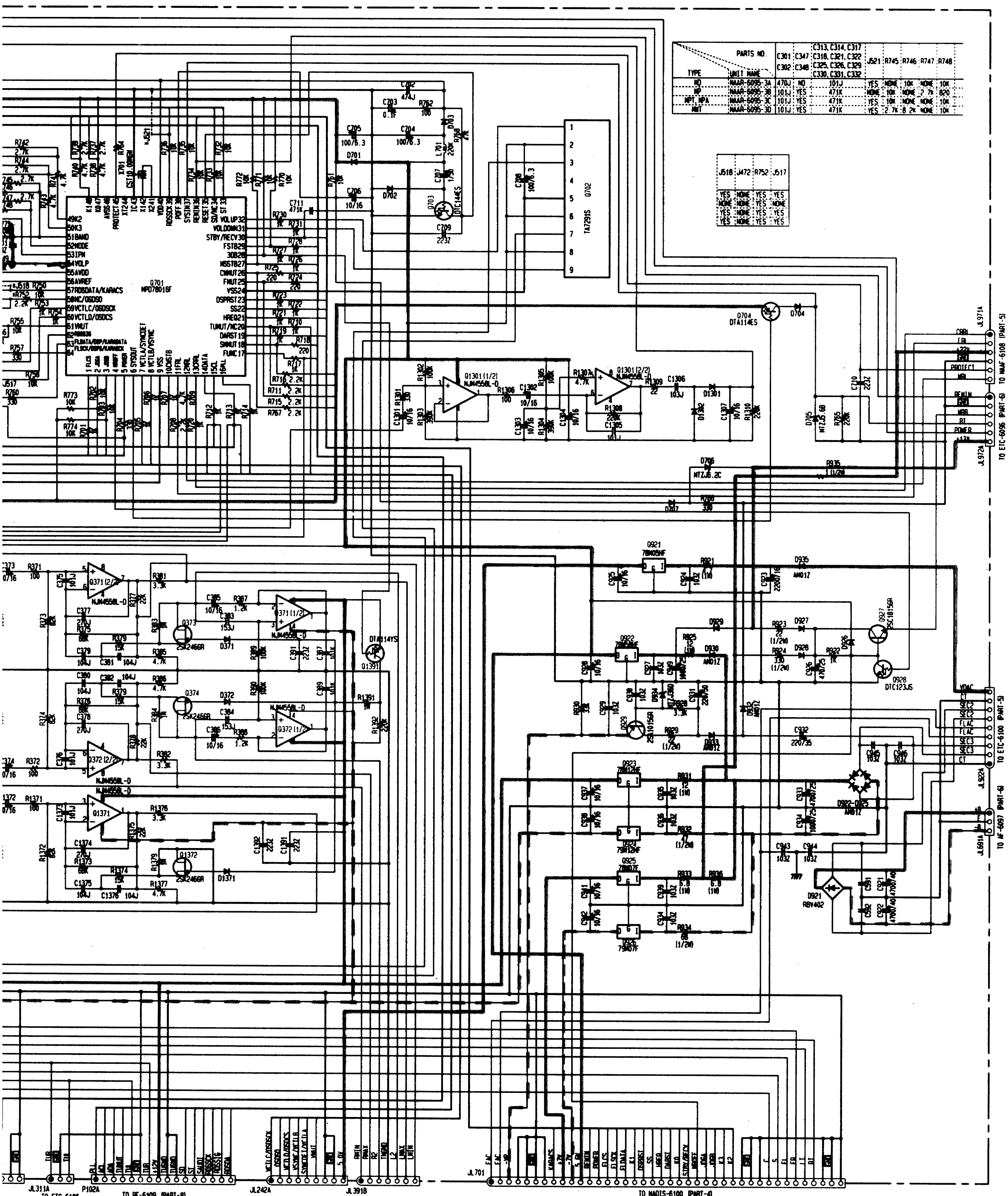


NAAF-6101
NAAF-6108 PART-5
HEAD PHONE
FL MAIN AMP
FR MAIN AMP
CENTER MAIN AMP
FRONT L
FRONT R
CENTER
4.22V
Q402
SUROFF
SURON
MLTCH
REQOFF
REQON
Q451 (1/2)
Q452 (1/2)
Q453 (1/2)
RE-EQ
Q371
TONE/3DB
Q372
Q1371
3DB
Q403 (L)
Q403 (R)
Q404 (L)
TC9213P
IC VOLUME
Q407 (1/2)
Q407 (2/2)
Q409 (1/2)
Q408 (2/2)
Q408 (1/2)
Q410 (2/2)
Q410 (1/2)
Q411 (2/2)
Q404 (R) R
Q405 (L)
Q405 (R)
Q444
Q445
Q446
Q447
Q448
Q449
FMUT
SWMUT
SUBMUT
Q401
TMBER
MLTS
TMBR
SWMIX
C/MLI
SUB/MLR
MULTI CH
L
R
C
SW
LS
RS
PREOUT
NAAF-6097 PART-6
LS MAIN AMP
RS MAIN AMP
LS+
RS+
REMOTE
Q625
Q627
Q626
Q628
Q527
Q528
Q1513
Q1514
+B1
-B1
+B2
-B2
R493
VOLP
VOLREF
VOLGND
DWN
UP
CL
DATA
FUNC
FSTB
CWSTB
SBSTB
3DB
Q1701
M66004FP
FL DRIVER
KEY SW
POWER
FKDRA
FKDCL
FLCS
K0-K5
Q703
5V
SYSOUT
SYSIN
NAETC-6089 PART-6
Q981, 982
983, 984
MRDECODER
RI
MR IN
MR OUT
Q921
Q926
Q922
OSD, VIDEO +5V
DSP +7V
AUDIO +12V
AUDIO -12V
DSP -7V
MPU, DISPLAY 5.6S
FL TUBE
FAC
+B1/B2
MAIN AMP
-B1/B2
T901
NAPS-6113 PWOERSUPLAY BOARD
RL901
POWER RELAY
Q706
T902
AC IN

SCHEMATIC DIAGRAM



D	E	F	G



TYPE \ PARTS NO. / UNIT NAME		C301 C302	C347 C348	C313, C314, C317, C318, C321, C322, C325, C326, C329, C330, C331, C332	J521	R745	R746	R747	R748
NO	NAAR-6095-3A	470J	NO	101J	YES	NONE	10K	NONE	10K
NP	NAAR-6095-3B	101J	YES	471K	NONE	10K	NONE	2.7K	820
NPT, NPA	NAAR-6095-3C	101J	YES	471K	YES	10K	NONE	NONE	10K
NNT	NAAR-6095-3D	101J	YES	471K	YES	2.7K	8.2K	NONE	10K

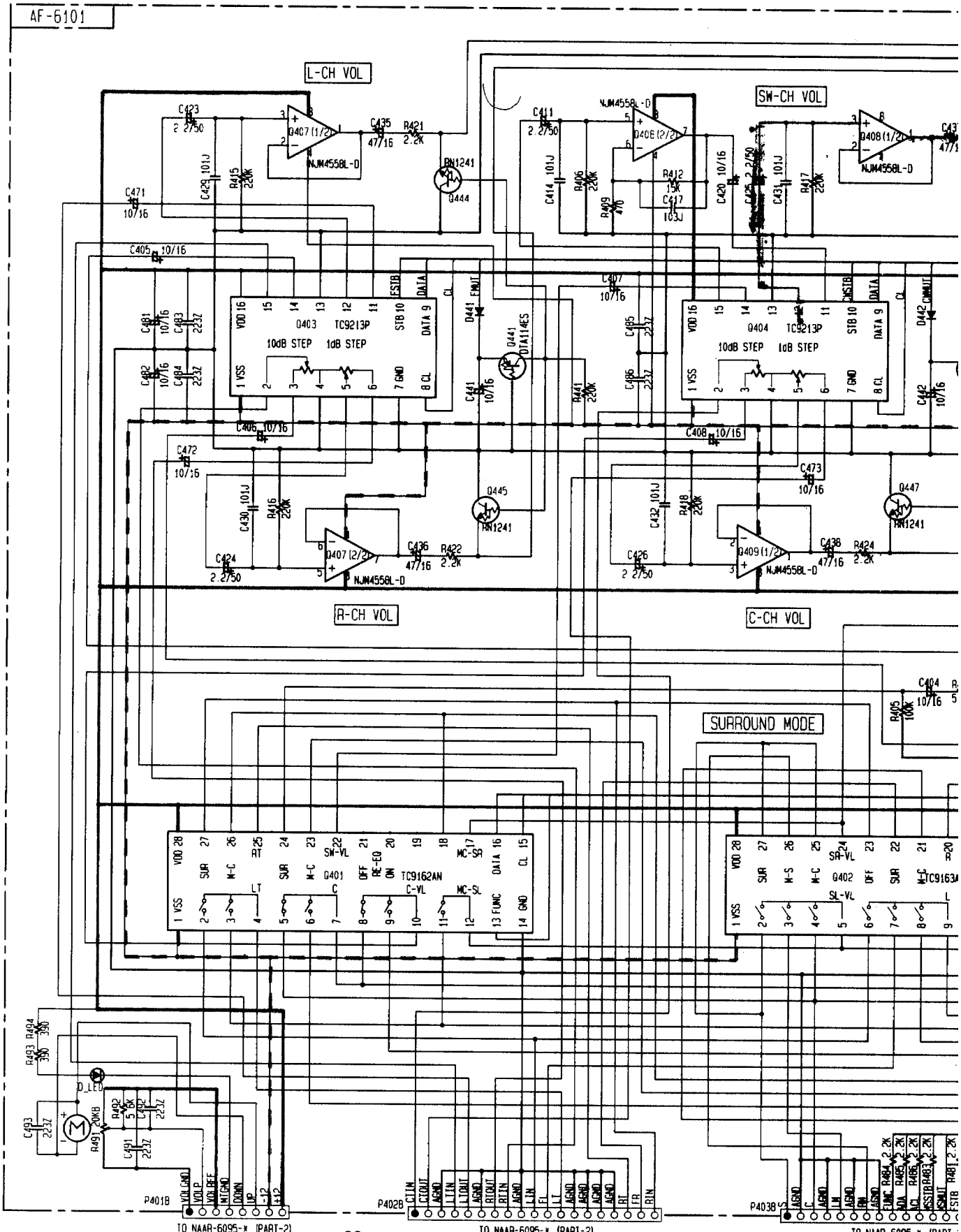
J518	J472	R752	J517
YES	NONE	YES	YES
NONE	NONE	YES	NONE
YES	NONE	YES	YES
YES	NONE	YES	YES

PRINTED CIRCUIT BOARD-PARTS LIST

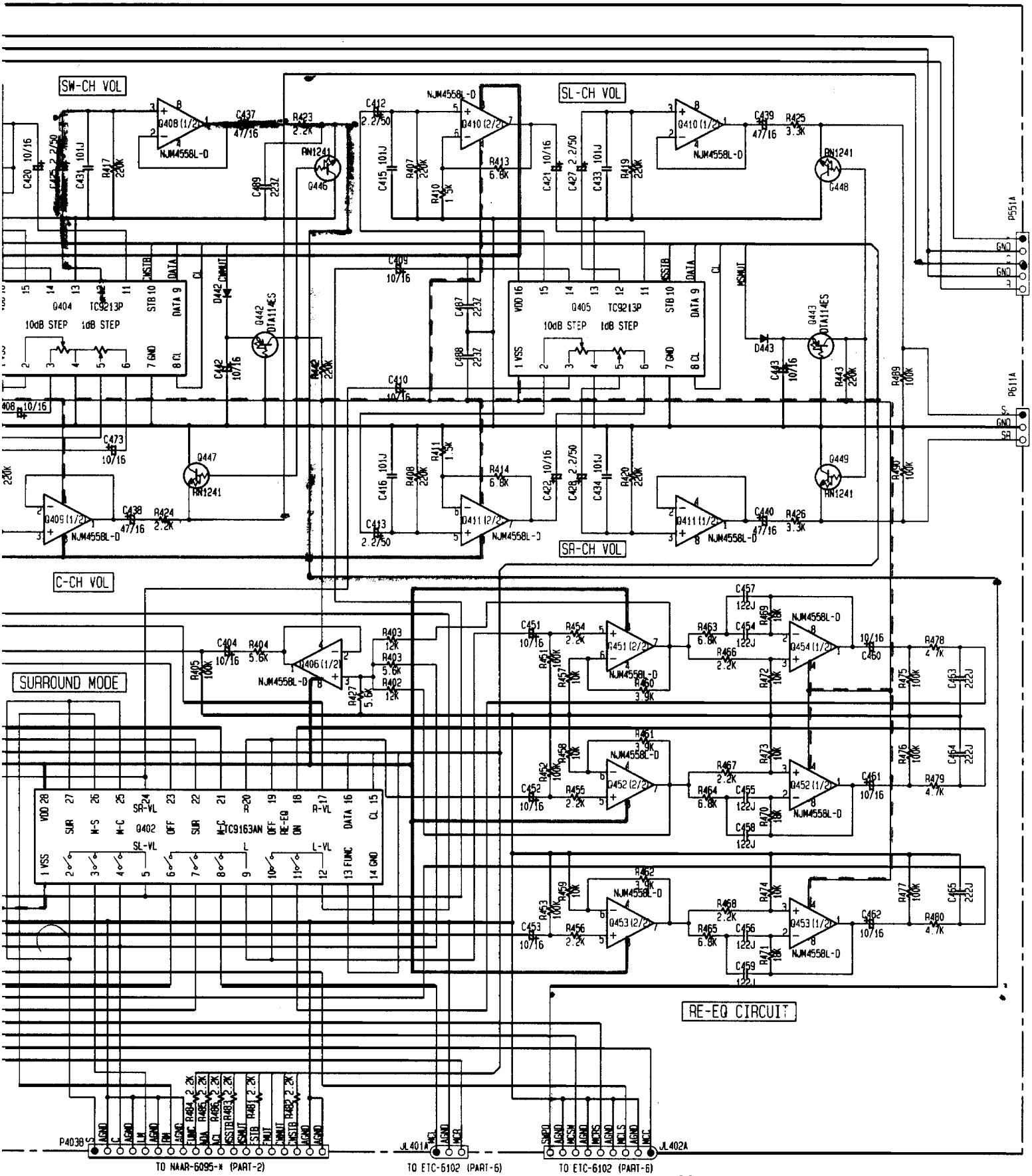
ELECTRO VOLUME CIRCUIT PC BOARD(NAAF-6101-3A/3B/3C)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q401	22240798	TC9162AN
Q402	22240799	TC9163AN
Q403-Q405	22240266	TC9213P
Q406-Q411	22240293 or	NJM4558L-D or
Q451-Q453	22240247	BA15218N
	Transistors	
Q441-Q443	2213510 or	DTA114ES or
	2214350	RN2202
Q444-Q449	2213631 or	RN1241-A or
	2213632	RN1241-B
	Diodes	
D441-D443	223163 or	1SS133 or
	223205	1SS270A
	Capacitors	
C404-C410	354741009	10μF,16V,Elect.
C411-C413	354780229	2.2μF,50V,Elect.
C417	374721034	0.01μF±5%,50V,Plastic <D>
C420-C422	354741009	10μF,16V,Elect.
C423-C428	354780229	2.2μF,50V,Elect.
C435-C440	354744709	47μF,16V,Elect.
C441-C443	354741009	10μF,16V,Elect.
C451-C453	354741009	10μF,16V,Elect.
C454-C459	374721224	1200pF±5%,50V,Plastic
C460-C462	354741009	10μF,16V,Elect.
C463-C465	374722224	2200pF±5%,50V,Plastic
C471-C473	354741009	10μF,16V,Elect.
C481,C482	354741009	10μF,16V,Elect.
	Resistors	
R491	5142017	N16RGL20KB25F,Variable
	Sockets	
JL245	2009990449UL	NSAS-6P0600
JL401a	25051087	NSCT-3P874
JL402b	25051093	NSCT-9P880
P401b	25051233	NSCT-8P1023
P402b	25051530	NSCT-19P1317
P403b	25051530	NSCT-19P1317
P551	2009990466UL	NSAS-10P0620
P611	2009990449UL	NSAS-6P0600

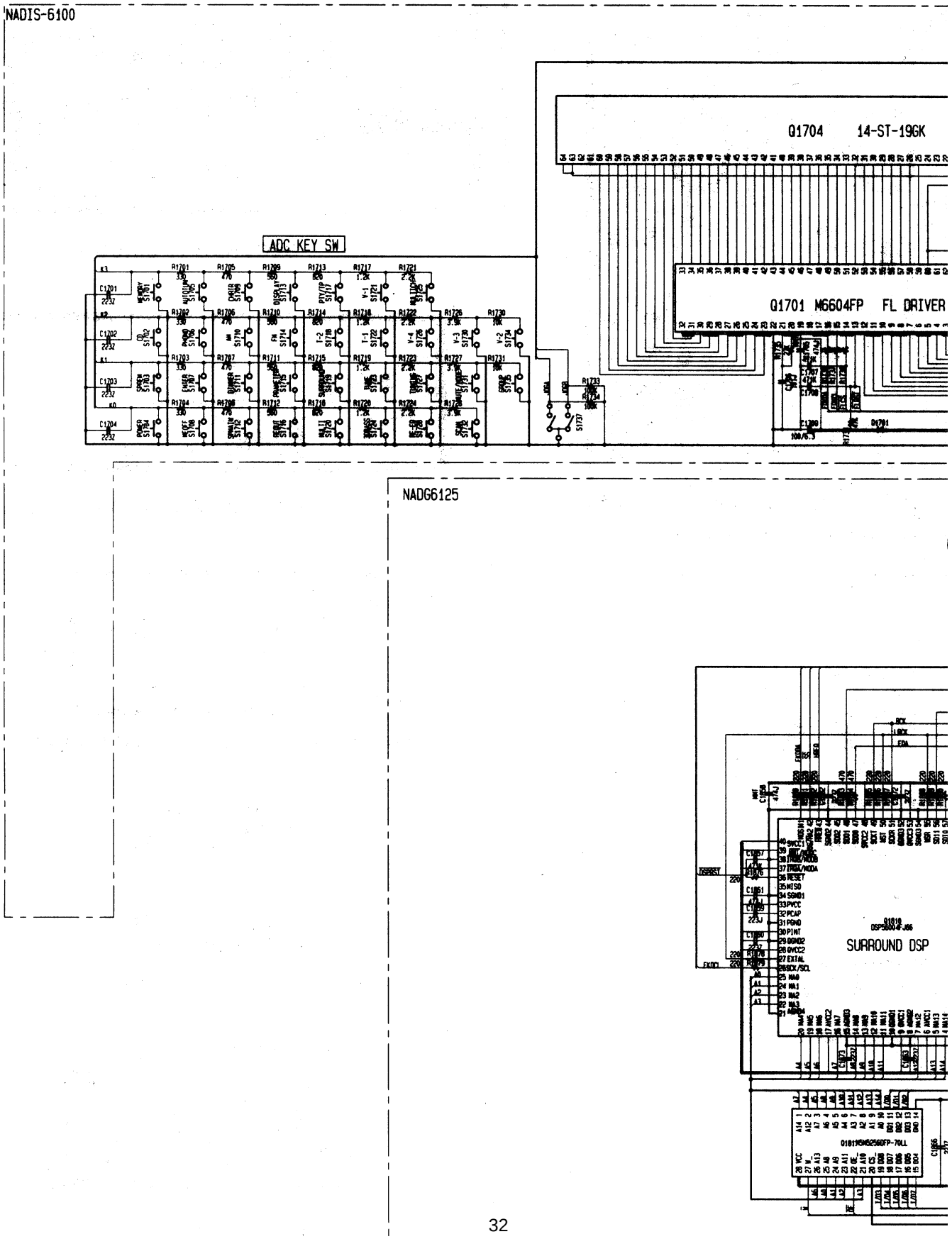
SCHEMATIC DIAGRAM

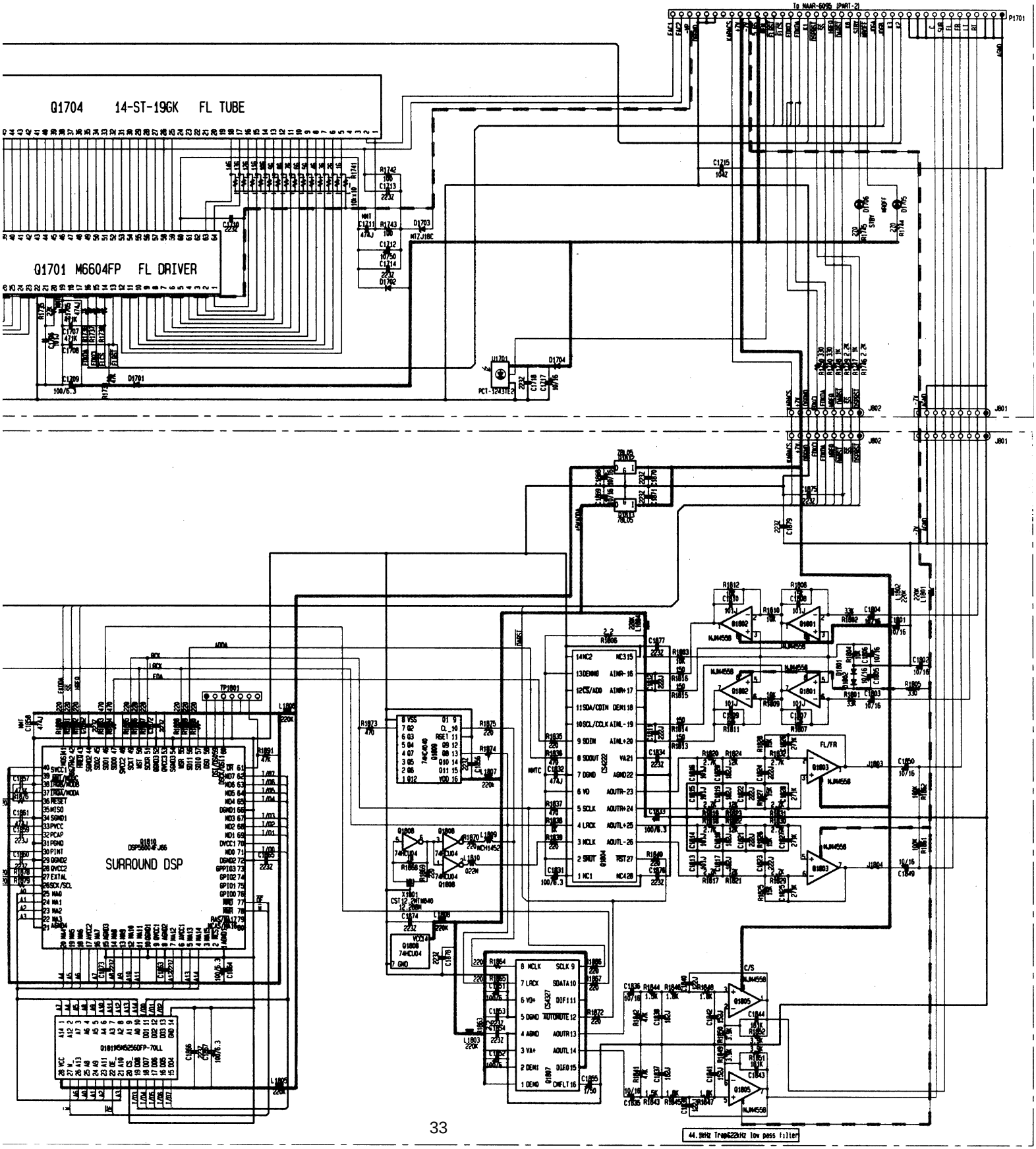


D E F G

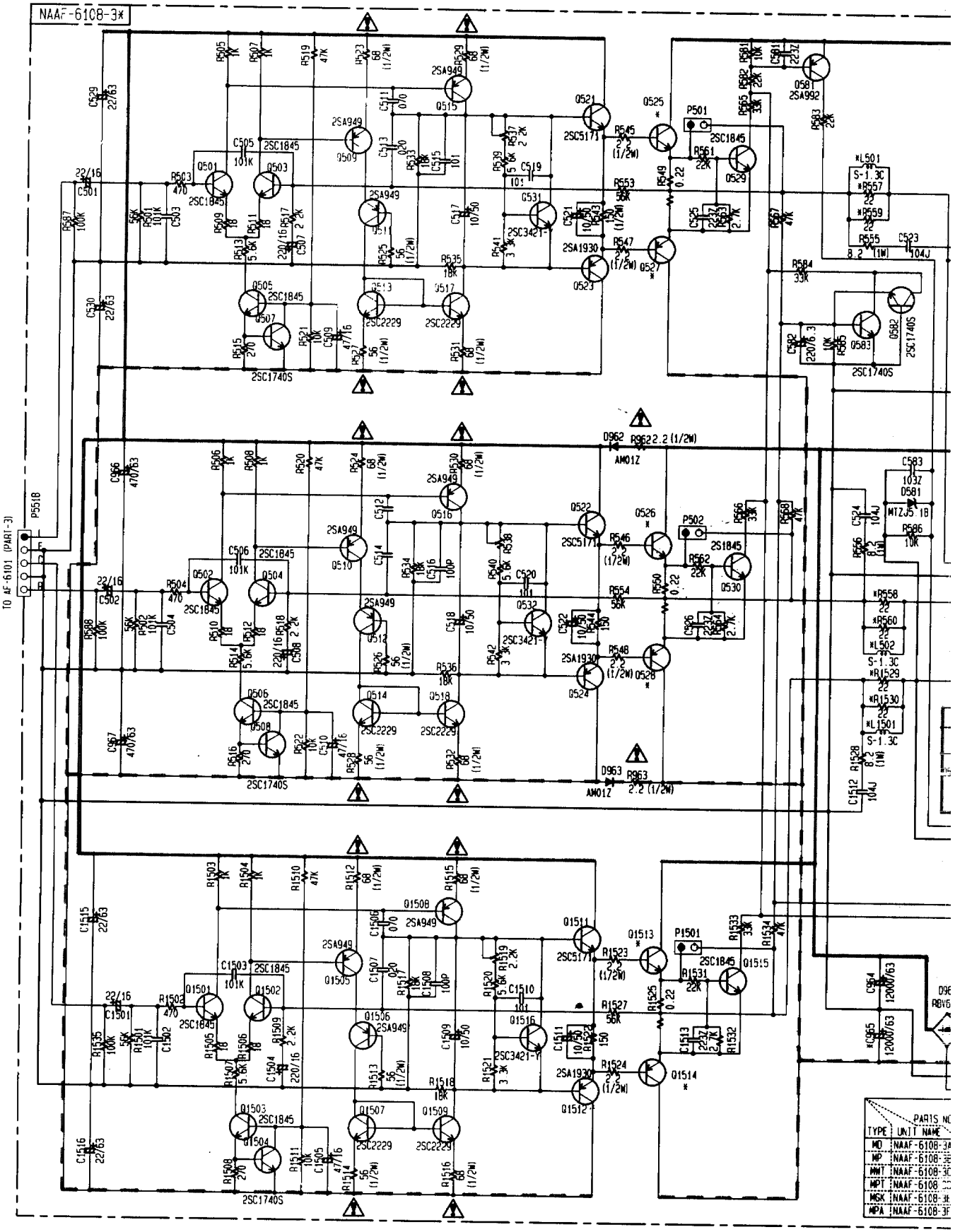

SW-CH VOL
SL-CH VOL
SR-CH VOL
C-CH VOL
SURROUND MODE
RE-EQ CIRCUIT
Q404 TC9213P
Q405 TC9213P
Q402 TC9163AN
Q406 (1/2)
Q407 (2/2)
Q408 (1/2)
Q409 (1/2)
Q410 (1/2)
Q411 (1/2)
Q451 (2/2)
Q452 (2/2)
Q453 (2/2)
Q454 (1/2)
NJM4558L-D
10dB STEP 1dB STEP
P511A
P611A
P403B
JL401A
JL402A
TO NAAR-6095-* (PART-2)
TO ETC-6102 (PART-6)
TO ETC-6102 (PART-6)
TO NAAF-6108-* (PART-5)
TO AF-6097 (PART-6)

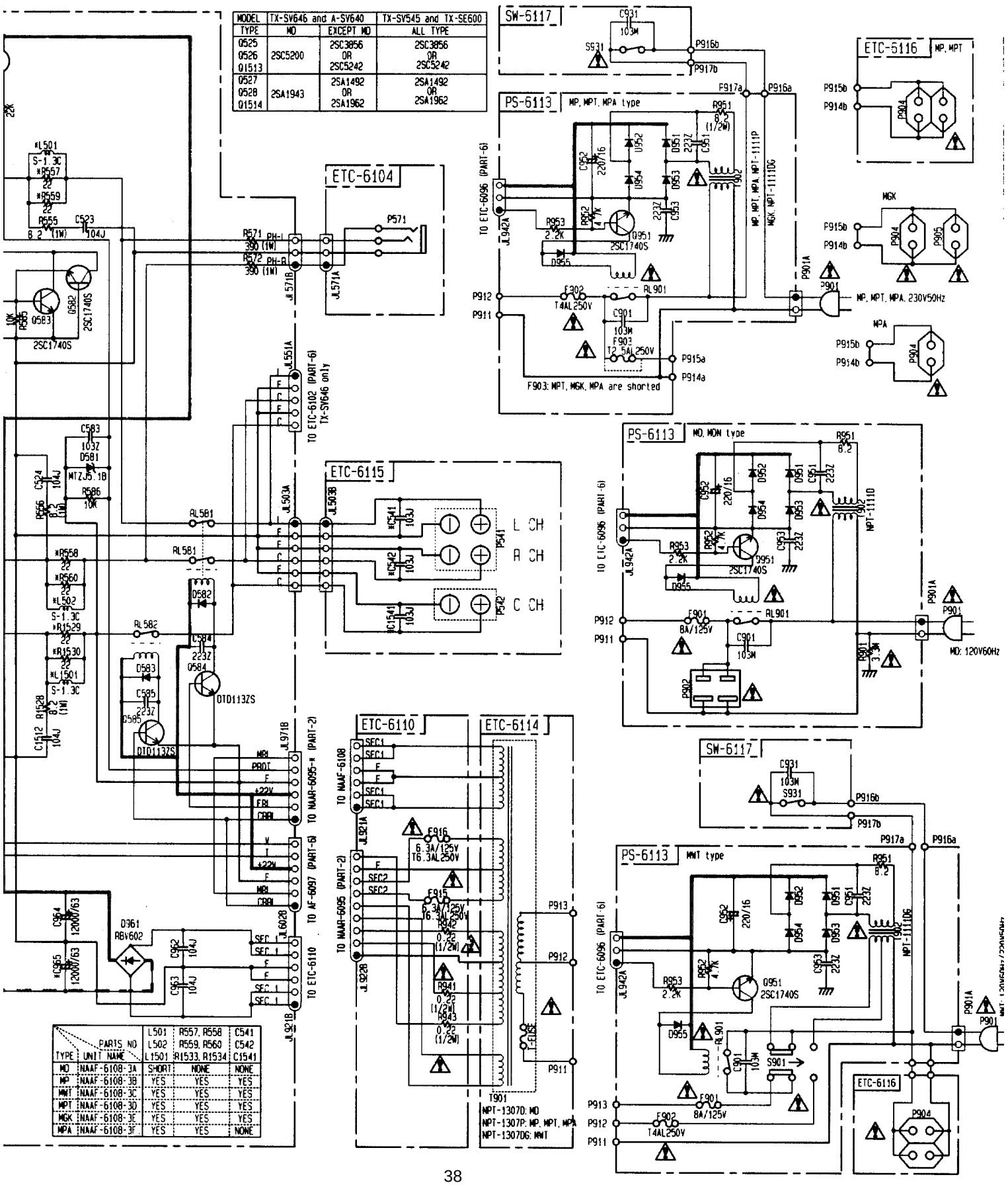
SCHEMATIC DIAGRAM



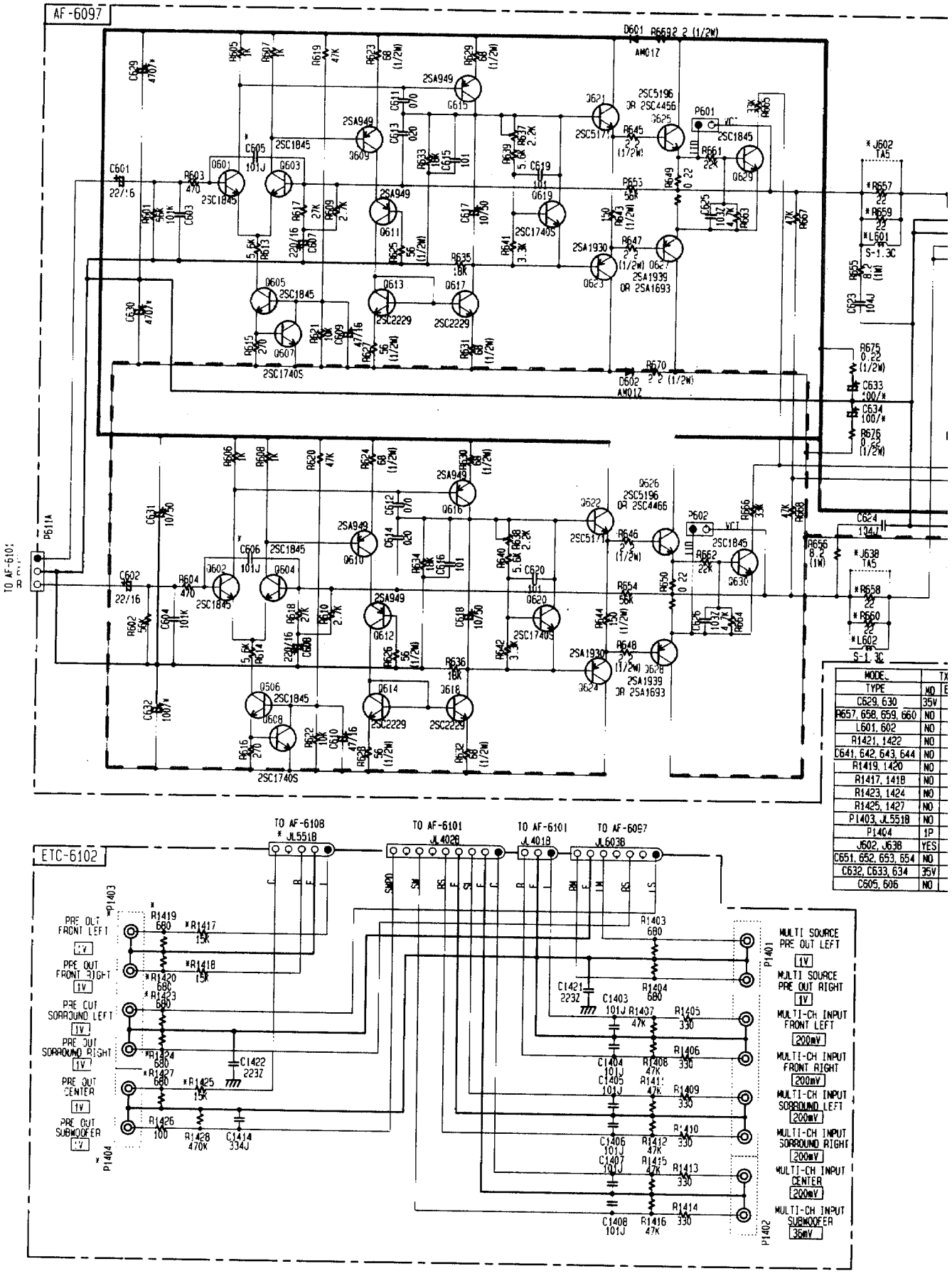

D
E
F
G
Q1704 14-ST-19GK FL TUBE
Q1701 M6604FP FL DRIVER
SURROUND DSP
44.1kHz Trap@22kHz low pass filter

SCHEMATIC DIAGRAM

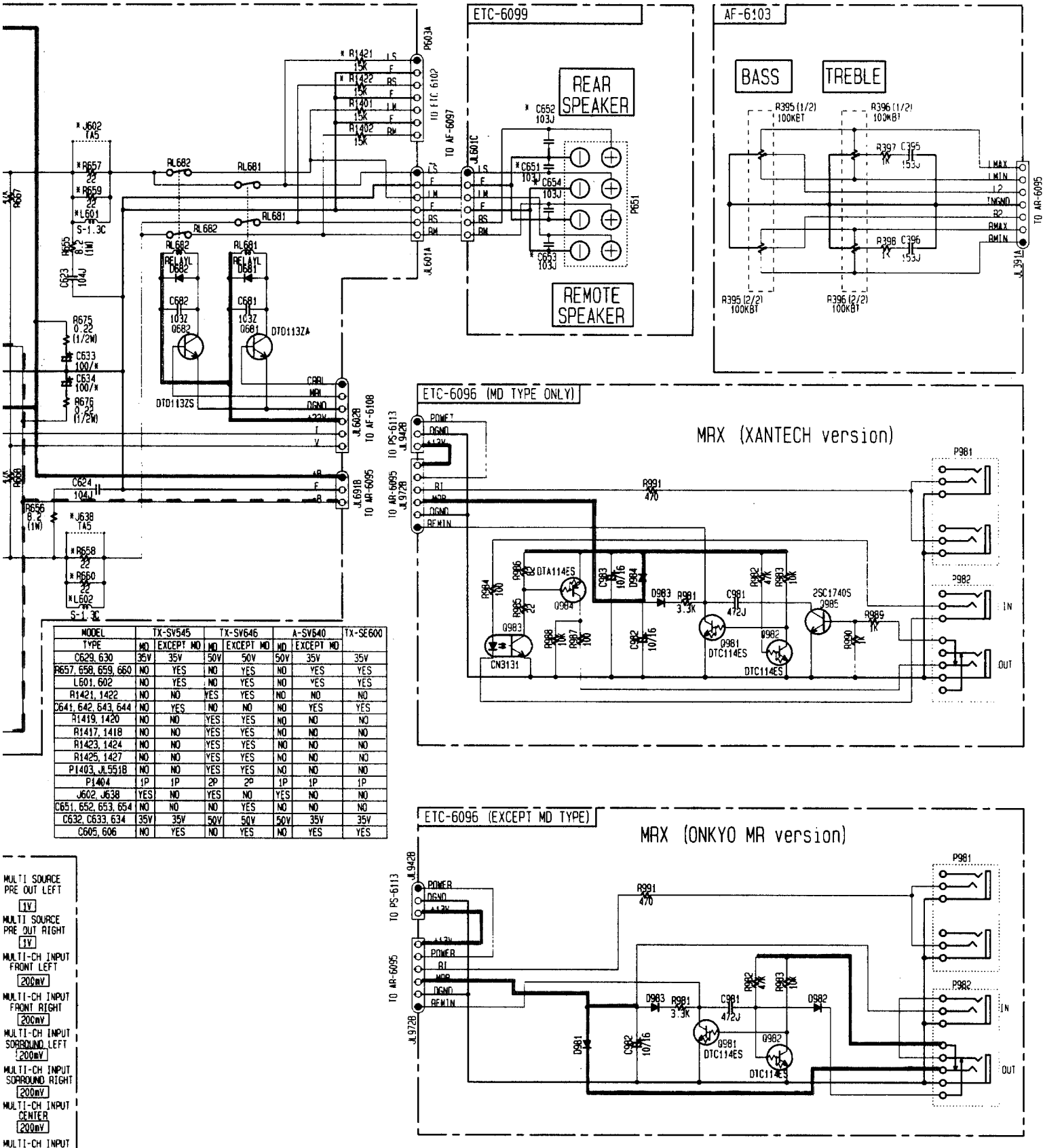



D
E
F
G
MODEL
TYPE
MD
EXCEPT MD
ALL TYPE
0525
0526
Q1513
2SC5200
2SC3856
OR
2SC5242
0527
0528
Q1514
2SA1943
2SA1492
OR
2SA1962
ETC-6104
ETC-6115
ETC-6110
ETC-6114
ETC-6116
SW-5117
PS-6113
MP, MPT, MPA type
MD, MDN type
MWT type
MGK
MPA
L CH
R CH
C CH
TO ETC-6102 (PART-6)
TX-SV646 only
TO ETC-6096 (PART-6)
TO NAAF-6108
TO NAAR-6095-* (PART-2)
TO AF-6097 (PART-6)
TO ETC-6110
MP, MPT, MPA, 230V50Hz
MD: 120V60Hz
F903: MPT, MGK, MPA are shorted
T901
NPT-1307D: MD
NPT-1307P: MP, MPT, MPA
NPT-1307DG: MWT
PARTS NO
TYPE
UNIT NAME
L501
L502
L1501
R557, R558
R559, R560
R1533, R1534
C541
C542
C1541
MD
NAAF-6108-3A
SHORT
NONE
NONE
MP
NAAF-6108-3B
YES
YES
YES
MWT
NAAF-6108-3C
YES
YES
YES
MPT
NAAF-6108-3D
YES
YES
YES
MGK
NAAF-6108-3E
YES
YES
YES
MPA
NAAF-6108-3F
YES
YES
NONE

SCHEMATIC DIAGRAM



MODE, TYPE	TX
C629, 630	35V
R657, 658, 659, 660	NO
L601, 602	NO
R1421, 1422	NO
C641, 642, 643, 644	NO
R1419, 1420	NO
R1417, 1418	NO
R1423, 1424	NO
R1425, 1427	NO
P1403, JL5518	NO
P1404	1P
J602, J638	YES
C651, 652, 653, 654	NO
C632, C633, 634	35V
C605, 606	NO



MODEL	TX-SV545		TX-SV646		A-SV640		TX-SE600
TYPE	MD	EXCEPT MD	MD	EXCEPT MD	MD	EXCEPT MD	
C629, 630	35V	35V	50V	50V	50V	35V	35V
R657, 658, 659, 660	NO	YES	NO	YES	NO	YES	YES
L601, 602	NO	YES	NO	YES	NO	YES	YES
R1421, 1422	NO	NO	YES	YES	NO	NO	NO
C641, 642, 643, 644	NO	YES	NO	NO	NO	YES	YES
R1419, 1420	NO	NO	YES	YES	NO	NO	NO
R1417, 1418	NO	NO	YES	YES	NO	NO	NO
R1423, 1424	NO	NO	YES	YES	NO	NO	NO
R1425, 1427	NO	NO	YES	YES	NO	NO	NO
P1403, JL5518	NO	NO	YES	YES	NO	NO	NO
P1404	1P	1P	2P	2P	1P	1P	1P
J602, J638	YES	NO	YES	NO	YES	NO	NO
C651, 652, 653, 654	NO	NO	NO	YES	NO	NO	NO
C632, C633, 634	35V	35V	50V	50V	50V	35V	35V
C605, 606	NO	YES	NO	YES	NO	YES	YES

MULTI SOURCE PRE OUT LEFT 1V
MULTI SOURCE PRE OUT RIGHT 1V
MULTI-CH INPUT FRONT LEFT 200mV
MULTI-CH INPUT FRONT RIGHT 200mV
MULTI-CH INPUT SORROUND LEFT 200mV
MULTI-CH INPUT SORROUND RIGHT 200mV
MULTI-CH INPUT CENTER 200mV
MULTI-CH INPUT SUBWOOFER 36mV

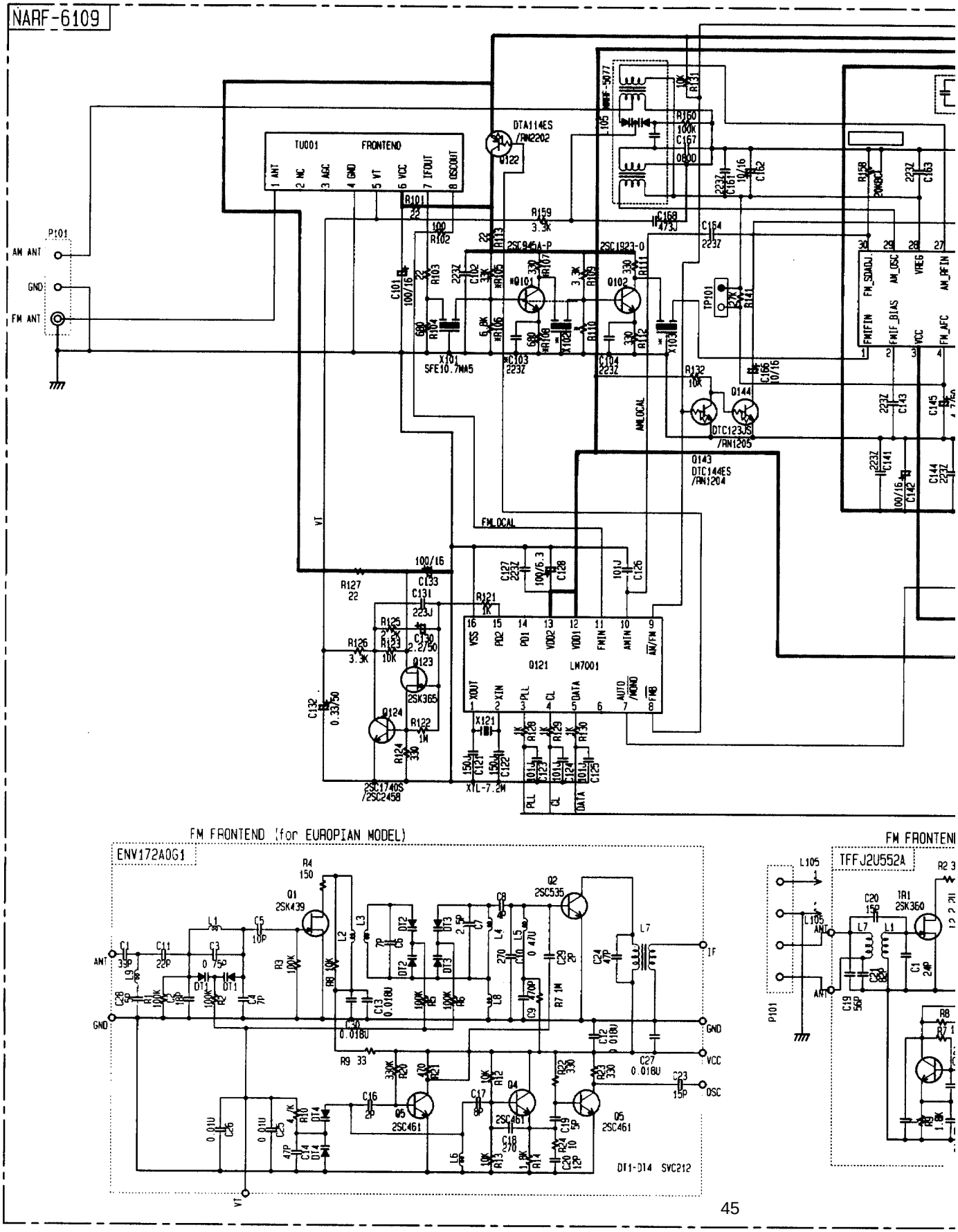
PRINTED CIRCUIT BOARD-PARTS LIST

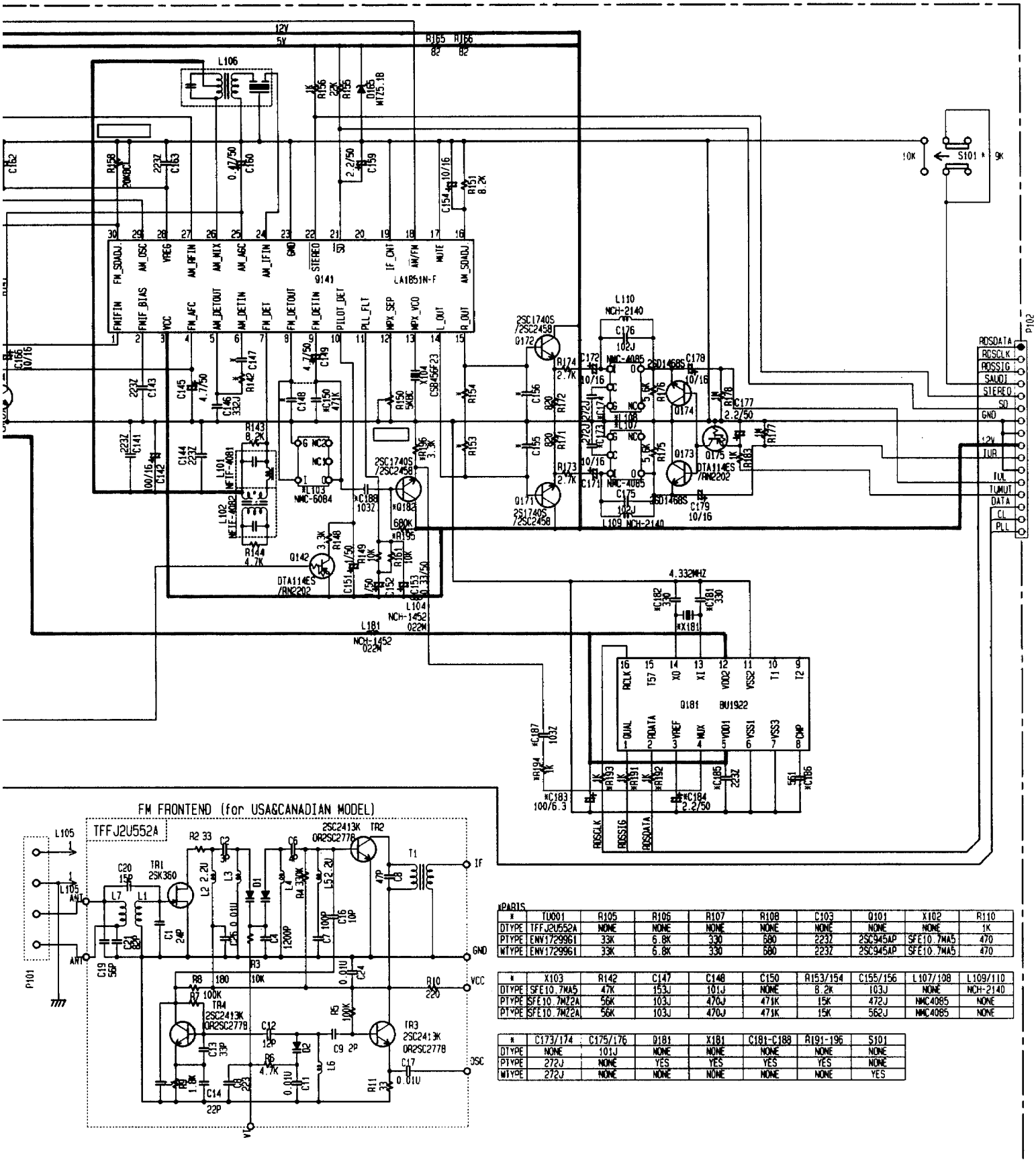
TUNER CIRCUIT PC BOARD(NARF-6109-3A/3B/3C/3D/3F)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Front end	
TU001	240099	ENV172A0G1 <P/T/W/A>
	240107	TFFJ2U552A <D>
	ICs	
Q121	22241076 or	LM7001J or
	22240090	LM7001
Q141	22240983	LA1851N-F
Q181	22241124	BU1922 <P>
	Transistors	
Q101	2210746	2SC945A-P <P/W/T/A>
Q102	2211723	2SC1923-O
Q122,Q142	2213510 or	DTA114ES or
Q122,Q142	2214350	RN2202
Q123	2212445	2SK365-GR
Q124	2213284 or	2SC1740S-R or
Q171,Q172	2212115	2SC2458-GR
Q143	221282 or	DTC144ES or
	2213560	RN1204
Q144	2213640 or	DTC123JS or
	2214660	RN1205
Q173,Q174	2215024	2SD1468S-R
Q175	2213510 or	DTA114ES or
	2214350	RN2202
Q182	2213284 or	2SC1740S-R or
	2212115	2SC2458-GR <P>
	Diodes	
D165	224470512	MTZJ5.1B
	Transformers and coils	
L101	233457	NFIF-4081
L102	233458	NFIF-4082
L103	233501	NMC-3088 <P/T/W/A>
L104	233454M022	NCH-1452 022M
L105	232174	NMRF-5077
L106	232176	NMIF-6094
L107,L108	233484	NMC-4085 <P/T/W/A>
L109,L110	231092	NCH-2140 <D>
L181	233454K220	NCH-1452 220K <P>
	Cermaic filters	
X101	3010071	SFE-10.7MA5 RED
X102	3010071	SFE-10.7MA5 RED <P/T/W/A>
X103	3010071	SFE-10.7MA5 RED <D>
X103	3010130	SFE10.7MZ2K <P/T/W/A>
X104	3010268	CSB456F23
	Oscillators	
X121	3010141	XTL-7.2M
X181	3010203	AF6146CG <P>

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C101,C128	354741019	100 μ F,16V,Elect.
C130,C159	354780229	2.2 μ F,50V,Elect.
C131	374722234	0.022 μ F ± 5%,50V,Plastic
C132,C153	354783399	0.33 μ F,50V,Elect.
C133,C142	354741019	100 μ F,16V,Elect.
C145,C149	354780479	4.7 μ F,50V,Elect.
C146	374723324	3300pF ± 5%,50V,Plastic
C147	374721034	0.01 μ F ± 5%,50V,Plastic <P/T/W/A
C147	374721534	0.015 μ F ± 5%,50V,Plastic <D>
C151,C152	354780109	1 μ F,50V,Elect.
C154,C162	354741009	10 μ F,16V,Elect.
C155,C156	374721034	0.01 μ F ± 5%,50V,Plastic <D>
C155,C156	374724724	4700pF ± 5%,50V,Plastic <P/T/A>
C155,C156	374725624	5600pF ± 5%,50V,Plastic <W>
C160	354784799	0.47 μ F,50V,Elect.
C166	354741009	10 μ F,16V,Elect.
C168	374724734	0.047 μ F ± 5%,50V,Plastic
C171,C172	354741009	10 μ F,16V,Elect.
C173,C174	374722724	2700pF ± 5%,50V,Plastic <P/T/W/A>
C175,C176	374721024	1000pF ± 5%,50V,Plastic <D>
C177	354780229	2.2 μ F,50V,Elect.
C183	354721019	100 μ F,6.3V,Elect. <P>
C184	354780229	2.2 μ F,50V,Elect. <P>
C186	374725614	560pF ± 5%,50V,Plastic <P>
	Resistors	
R001	431533355	3.3MΩ,1/2W,Solid <D>
R150	5210261	N06HR5KBC,Trimming
R158	5210263	N06HR20KBC,Trimming
	Terminals	
P101	25060222	NTM-2PDML144 or
P101	25060239	NTM-4PDML161 or
P101 or	25060117	NTM-2PDML051 <P/T/W/A>
P101 or	25060195	NTM-4PDML117 <D>
	Sockets	
P102b	25050986	NSCT-14P773 <D/T/W/A>
P102b	25050987	NSCT-16P774 <P>
	Switch	
S101	25065286	NSS-22112 <W>
	Plug	
TP101	25055038	NPLG-2P29
	Shield plate	
TU001a	27150397	Front end <P/T/W/A>

SCHEMATIC DIAGRAM





*	TU001	R105	R106	R107	R108	C103	Q101	X102	R110
DTYPE	TFFJ2U552A	NONE	NONE	NONE	NONE	NONE	NONE	NONE	1K
PTYPE	ENV1729961	33K	6.8K	330	680	223Z	2SC945AP	SFE10.7MA5	470
MTYPE	ENV1729961	33K	6.8K	330	680	223Z	2SC945AP	SFE10.7MA5	470

*	X103	R142	C147	C148	C150	R153/154	C155/156	L107/108	L109/110
DTYPE	SFE10.7MA5	47K	153J	101J	NONE	8.2K	103J	NONE	NCH-2140
PTYPE	SFE10.7MZ2A	56K	103J	470J	471K	15K	472J	NMC4085	NONE
PTYPE	SFE10.7MZ2A	56K	103J	470J	471K	15K	562J	NMC4085	NONE

*	C173/174	C175/176	Q181	X181	C181-C188	R191-196	S101
DTYPE	NONE	101J	NONE	NONE	NONE	NONE	NONE
PTYPE	272J	NONE	YES	YES	YES	YES	NONE
MTYPE	272J	NONE	NONE	NONE	NONE	NONE	YES

PRINTED CIRCUIT BOARD - PARTS LIST

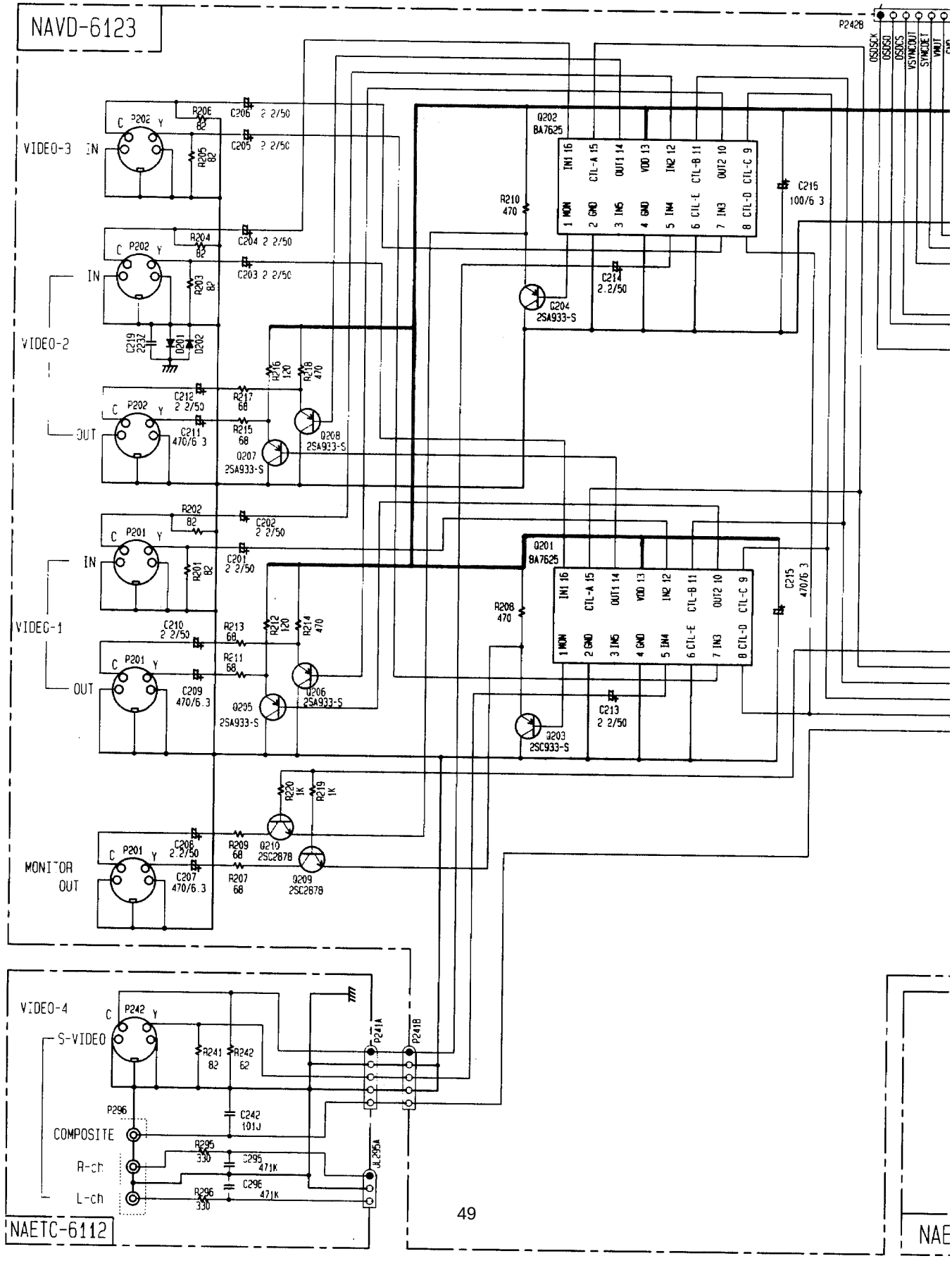
VIDEO CIRCUIT PC BOARD(NAVD-6122-3A/3B)

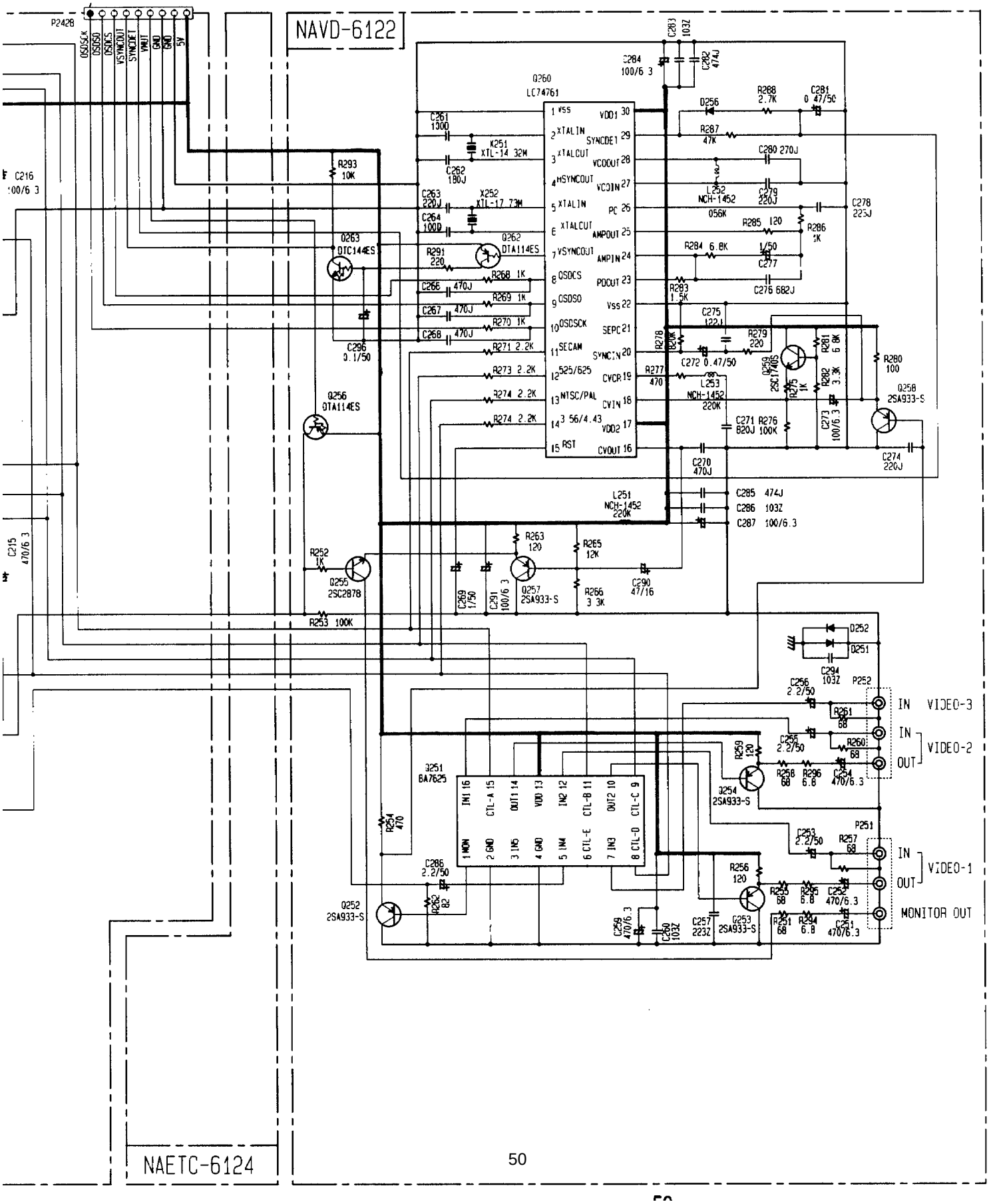
CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q251	22240373	BA7625
Q260	22241037	LC74761-****
	Transistors	
Q252-Q254	2213354 or	2SA933S-R or
Q257,Q258	2212125	2SA1048-GR
Q255	2212286 or	2SC2878-B or
	2212285	2SC2878-A
Q256	2213510 or	DTA114ES or
	2214350	RN2202
Q259	2213284	2SC1740S-R
Q262	2213510	DTA114ES
Q263	221282	DTC144ES
	Diodes	
D251,D252	223205 or	1SS270A or
D256	223163	1SS133
	Oscillators	
X251	3010167	XTL-14.32M
X252	3010238	XTL-17.73M <P/T/W/A>
	Capacitors	
C251,C252	354724719	470 μ F,6.3V,Elect.
C253,C255	354780229	2.2 μ F,50V,Elect.
C254,C259	354724719	470 μ F,6.3V,Elect.
C256,C288	354780229	2.2 μ F,50V,Elect.
C269,C277	354780109	1 μ F,50V,Elect.
C272,C281	354784799	0.47 μ F,50V,Elect.
C273,C284	354721019	100 μ F,6.3V,Elect.
C275	374721224	1200pF ± 5%,50V,Plastic
C278	374722234	0.022 μ F ± 5%,50V,Plastic
C282,C285	375524744	0.47 μ F ± 5%,50V,Plastic
C287,C291	354721019	100 μ F,6.3V,Elect.
C290	354744709	47 μ F,16V,Elect.
C296	354781099	0.1 μ F,50V,Elect.
	Terminals	
P251,P252	25045457 or	NPJ-3PDYE278 or
	25045299	NPJ-3PDYE158
	Plugs	
JL242c	25055630	NPLG-9P592 <D>
P243a	25055233	NPLG-2P217 <D>

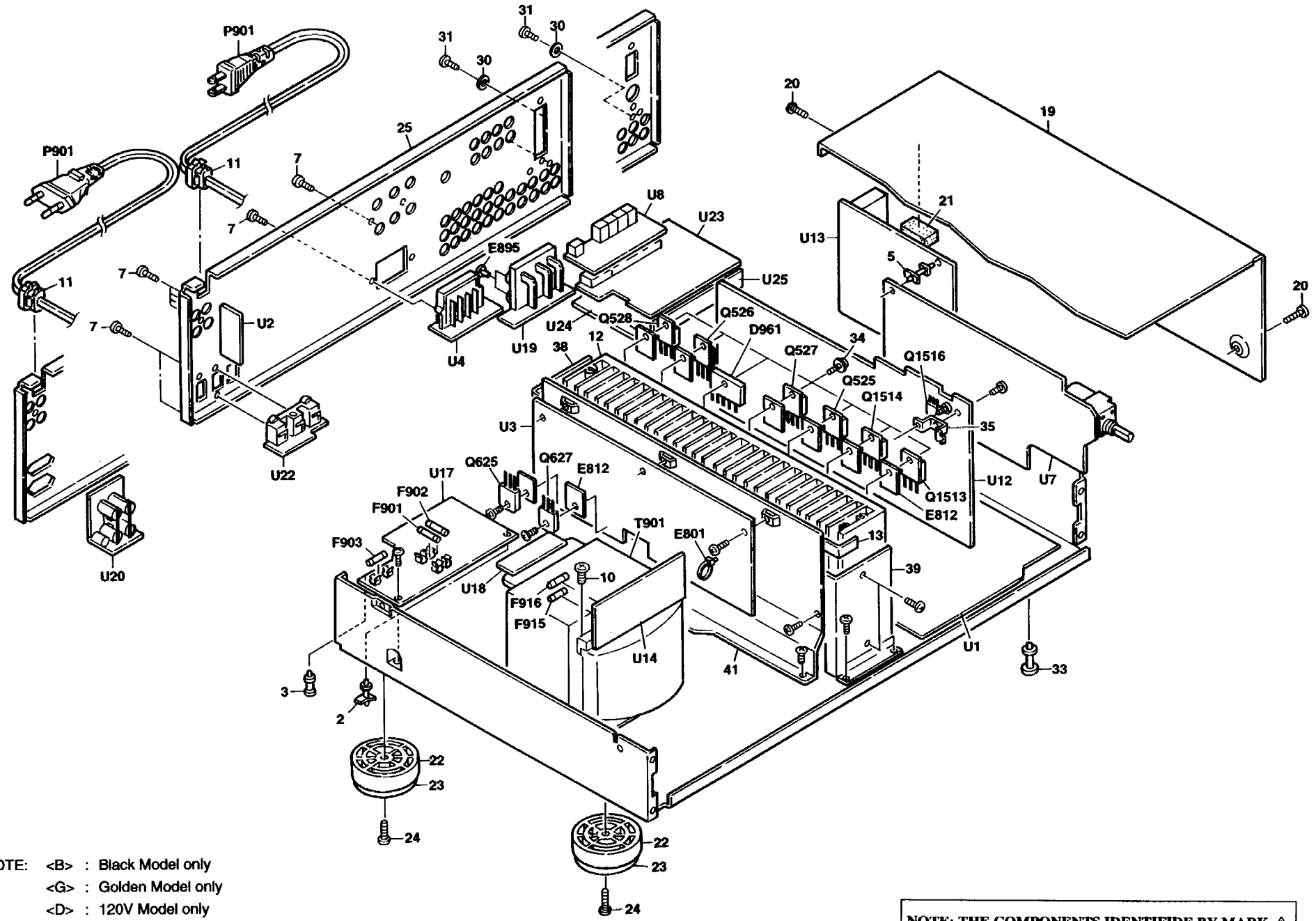
S VIDEO CIRCUIT PC BOARD(NAVD-6123-3B)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q201,Q202	22240373	BA7625
	Transistors	
Q203-Q208	2213354 or	2SA933S-R or
	2212125	2SA1048-GR
Q209,Q210	2212286 or	2SC2878-B or
	2212285	2SC2878-A
	Diodes	
D201,D202	223205 or	1SS270A or
	223163	1SS133
	Capacitors	
C201-C206	354780229	2.2 μ F,50V,Elect.
C207,C209	354724719	470 μ F,6.3V,Elect.
C208,C210	354780229	2.2 μ F,50V,Elect.
C211,C215	354724719	470 μ F,6.3V,Elect.
C212-C214	354780229	2.2 μ F,50V,Elect.
C216	354721019	100 μ F,6.3V,Elect.
	Sockets	
P201,P202	25051568	NSCT-12P1355
	Plugs	
JL242b	25055630	NPLG-9P592
P241a	25055135	NPLG-5P119

SCHEMATIC DIAGRAM (Except 120V model)




NAVD-6122
NAETC-6124
P2428
OSDSCK
OSDSO
OSDCS
VSYNCOUT
SYNCDET
VMUT
GND
GND
5V
Q260
LC74761
VSS
XTALIN
XTALCUT
HSYNCOUT
XTALIN
XTALCUT
VSYNCOUT
OSDCS
OSDSO
OSDSCK
SECAM
525/625
NTSC/PAL
3.56/4.43
RST
VDD1
SYNCDET
VCOOUT
VCOIN
PC
AMPOUT
AMPIN
PDOUT
VSS
SEPC
SYNCIN
CVCR
CVIN
VDD2
CVOUT
X251 XTL-14.32M
X252 XTL-17.73M
Q263 DTC144ES
Q262 DTA114ES
Q256 DTA114ES
Q255 2SC2878
Q257 2SA933-S
Q258 2SA933-S
Q259 2SC1740S
Q254 2SA933-S
Q253 2SA933-S
Q252 2SA933-S
Q251
L251 NCH-1452 220K
L252 NCH-1452 056K
L253 NCH-1452 220K
U251 BA7625
IN1
CTL-A
OUT1
VDD
IN2
CTL-B
OUT2
CTL-C
MON
GND
IN5
GND
IN4
CTL-E
IN3
CTL-D
P252
P251
IN VIDEO-3
IN
OUT
VIDEO-2
IN
OUT
VIDEO-1
MONITOR OUT



NOTE: <B> : Black Model only
<G> : Golden Model only
<D> : 120V Model only
<P> : 230V Model only
<T> : Asian Model only
<W> : Worldwide Model only
<A> : Australian model only

NOTE: THE COMPONENTS IDENTIFIDE BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIDE.

PARTS LIST

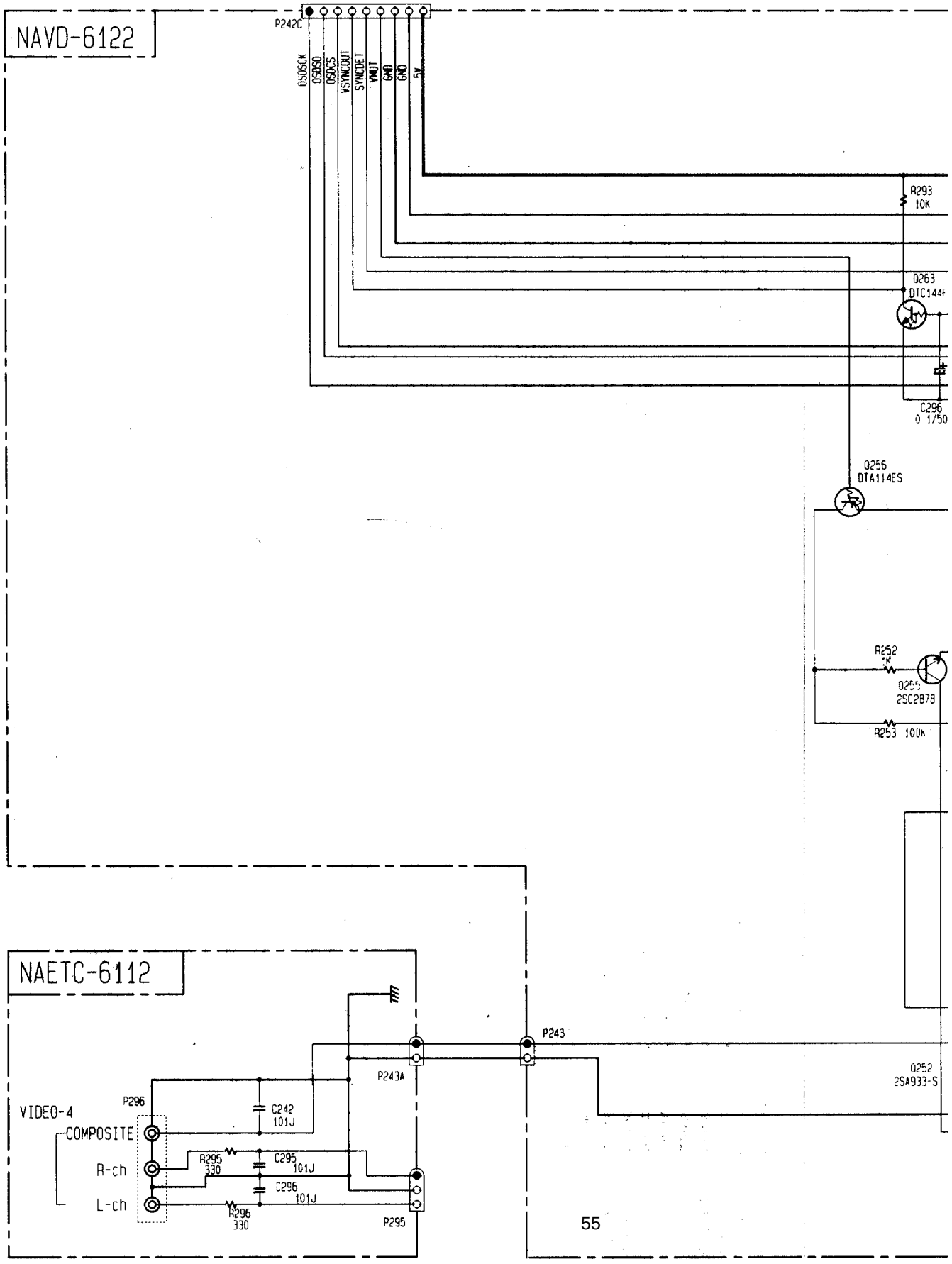
REF. NO.	PART NO.	DESCRIPTION
1	27100328A	Chassis
2	27190503A	KGLS-8RF,Holder
3	27190428A	KGLS-10RF,Holder
5	27190062	KGLS-12S,Holder
7	838130088	3TTB+8B,Self-tapping screw
10	830440089	4TTC+8C(BC),Self-tapping screw
11	27300750	⚠ #2271, Bushing cord
12	27160388	Heatsink
13	29110083	Tape
16	28325509	Knob, Volume <B>
	28325511	Knob, Volume <G>
17	28325405	Knob, Tone <B>
	28325407	Knob, Tone <G>
18	28325500	Knob, Jog <B>
	28325502	Knob, Jog <G>
19	28184698	Top cover <B>
	28184701	Top cover <G>
20	838430088	3TTB+8B(BC),Self-tapping screw <B>
	838230080	3TTB+8B(Ni),Self-tapping screw <G>
21	28141235	Cushion
22	27175319A	Leg
23	28141332	Cushion
24	831430088	3TTW+8B(BC),Self-tapping screw
25	27122374	Rear panel <D>
	27122375	Rear panel <P>
	27122376	Rear panel <T>
	27122377A	Rear panel <W>
	27122378	Rear panel <A>
26	27190470	KGLS-18S, Holder
29	27300243	WS-2W, Clamp
30	87643010	W3*10F(BC), Washer
31	838230088	3TTB+8B(NI), Nickel screw
33	27190813	KGPS-10RF, Holder
34	801433	3SMS8W.SW+14B(BC), Special screw
35	27141681	Retainer
36	28140680	Cushion
38	27141693	Retainer, Rear
39	27141694	Retainer, Front
41	27160386	Heatsink
52	27211947	Front panel <D>
	27211948	Front panel <P>
	27211949	Front panel <T/W/A>
	27211950	Front panel <G>
53	28135244	Badge <B>
	28135245	Badge <G>
54	28198778	Facet

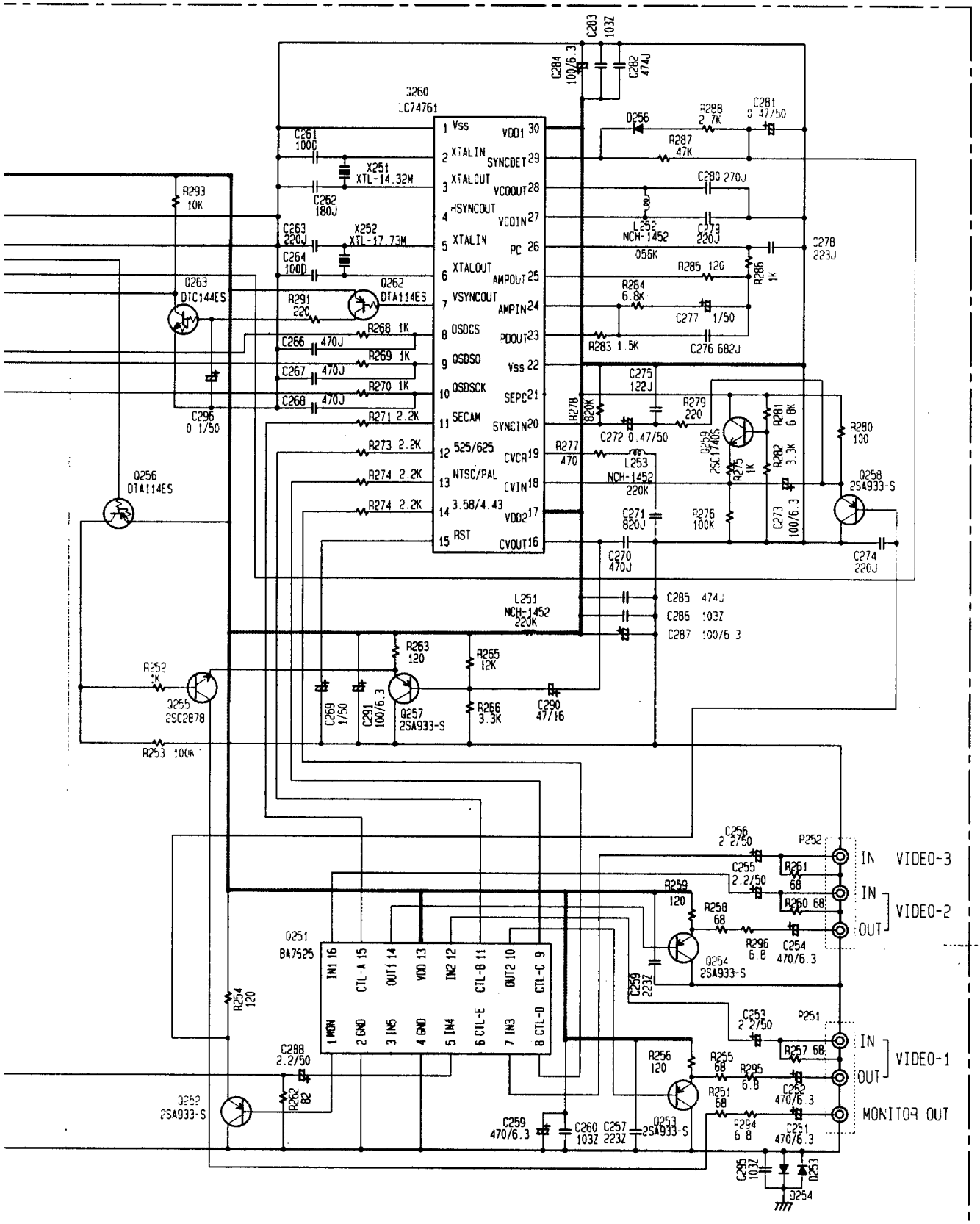
REF. NO.	PART NO.	DESCRIPTION
59	27111022	Front bracket <D/T/W/A>
	27111023	Front bracket <P>
	27111024	Front bracket <G>
60	27215278	Decorative frame <B>
	27215280	Decorative frame <G>
63	27191014	Holder
68	28325542	Knob, Mode <B>
	28325544	Knob, Mode <G>
69	28191792A	Clear plate <B>
	28191793A	Clear plate <G>
70	28325497A	Knob, Power <P/T/W/A>
	28325499A	Knob, Power <G>
71	27273164	Joint <P/T/W/A>
72	27141686A	Retainer <P/T/W/A>
74	838430107	3TTP+10S(BC), Self-tapping screw
D961	22380038 or	⚠ RBV602 or
	22380274	⚠ RS603M, Diode
E801	260208	Wire tie
E812	223024	⚠ AC238, Isolation sheet
E895	880009	NRP-345,Plastic rivet <P/T/A>
F901	252198	⚠ 8A-UL, Primary fuse <D/W>
F902	252077	⚠ 4A-SE-EAK,Primary fuse <P/T/W/A>
F903	252075	⚠ 2.5A-SE-EAK, Fuse <P>
	252074	⚠ 2A-SE-EAK,Fuse <T/A>
F915,F916	252166	⚠ 6.3A-UL/T-237,Secondary fuse <D>
	252079	⚠ 6.3A-SE-EAK,Secondary fuse <P/T/W/A>
JL701	2047402512	NCFC7-402512,Flat cable
P901	253192HIT	⚠ AS-UC-6#18(SPT-2),Power supply cord <D>
	253233KAW	⚠ AS-CEE-2,Power supply cord <P/T/W>
	253197HIT	⚠ AS-SAA,Power supply cord <A>
P904	25051570	⚠ NSCT-2P1357,AC outlet <A>
Q1516	2212654 or	2SC3421-Y or
Q531,Q532	2212653	2SC3421-O,Transistor
Q625,Q626	2202922,	* 2SC5196-R,
	2202923,	* 2SC5196-O,
	2202373,	* 2SC4466-O,
	2202375 or	* 2SC4466-P or
	2202374	* 2SC4466-Y, Transistor
Q627,Q628	2202912,	* 2SA1939-R,
	2202913,	* 2SA1939-O,
	2202363,	* 2SA1693-O,
	2202365 or	* 2SA1693-P or
	2202364	* 2SA1693-Y, Transistor
Q1513	2202822 or	* 2SC5200-R or
Q525,Q526	2202823	* 2SC5200-O,Transistor <D>
Q1514	2202812 or	* 2SA1943-R or

REF. NO.	PART NO.		DESCRIPTION
Q527,Q528	2202813	*	2SA1943-O,Transistor <D>
Q1513	2201653,	*	2SC3856-O,
Q525,Q526	2201655,	*	2SC3856-P,
	2201654,	*	2SC3856-Y,
	2202842 or	*	2SC5242-R or
	2202843	*	2SC5242-O, Transistor <P/T/W/A>
Q1514	2201663,	*	2SA1492-O,
Q527,Q528	2201665,	*	2SA1492-P,
	2201664,	*	2SA1492-Y,
	2202832 or	*	2SA1962-R or
	2202833	*	2SA1962-O,Transistor <P/T/W/A>
T901	2301283	⚠	NPT-1307D,Power transformer <D>
	2301284	⚠	NPT-1307P,Power transformer <P/T/A>
	2301285	⚠	NPT-1307DG,Power transformer <W>
U1	1A743595-3A		NAAR-6095-3A,Main circuit pc board ass'y <D>
	1A743595-3B		NAAR-6095-3B,Main circuit pc board ass'y <P>
	1A743595-3C		NAAR-6095-3C,Main circuit pc board ass'y <T/A>
	1A743595-3D		NAAR-6095-3D,Main circuit pc board ass'y <W>
U2	1A743596 3A		NAETC-6096-3A,RI/MR terminal pc board ass'y <D>
	1A743596-3B		NAETC-6096-3B,RI/MR terminal pc board ass'y <P>
	1A743596-3C		NAETC-6096-3C,RI/MR terminal pc board ass'y <T/A>
	1A743596-3D		NAETC-6096-3D,RI/MR terminal pc board ass'y <W>
U3	1A743597-3A		NAAF-6097-3A,Surround power amp. pc board ass'y <D>
	1A743597-3B		NAAF-6097-3B,Surround power amp. pc board ass'y <P>
	1A743597-3C		NAAF-6097-3C,Surround power amp. pc board ass'y <T/A>
	1A743597-3D		NAAF-6097-3D,Surround power amp. pc board ass'y <W>
U5	1A743599-3A		NAETC-6099-3A,Spekaer terminal pc board <D>
	1A743599-3B		NAETC-6099-3B,Spekaer terminal pc board <P>
	1A743599-3C		NAETC-6099-3C,Spekaer terminal pc board <T/A>
	1A743599-3D		NAETC-6099-3D,Spekaer terminal pc board <W>
U6	1A743500-3A		NADIS-6100-3A,Display circuit pc board <D>
	1A743500 3C		NADIS-6100-3C,Display circuit pc board <P>
	1A743500-3B		NADIS-6100-3B,Display circuit pc board <T/W/A>
U7	1A743501-3A		NAAF-6101-3A,Electro volume circuit pc board <D>
	1A743501-3C		NAAF-6101-3C,Electro volume circuit pc board <P>
	1A743501-3B		NAAF-6101-3B,Electro volume circuit pc board <T/W/A>
U8	1A743502-3A		NAETC-6102-3A,Pre. out/Main in terminal pc board ass'y <D>
	1A743502-3C		NAETC-6102-3C,Pre. out/Main in terminal pc board ass'y <P>
	1A743502-3B		NAETC-6102-3B,Pre. out/Main in terminal pc board ass'y <T/W/A>
U9	1A743503-3A		NAAF-6103-3A,Tone volume pc board ass'y <D>
	1A743503-3C		NAAF-6103-3C,Tone volume pc board ass'y <P>
	1A743503-3B		NAAF-6103-3B,Tone volume pc board ass'y <T/W/A>
U10	1A743504-3A		NAETC-6104-3A,Headphone terminal pc board ass'y <D>
	1A743504-3C		NAETC-6104-3C,Headphone terminal pc board ass'y <P>
	1A743504-3B		NAETC-6104-3B,Headphone terminal pc board ass'y <T/W/A>

REF. NO.	PART NO.	DESCRIPTION
U12	1A743508-3A	NAAF-6108-3A,Front/Center power amp. pc board ass'y <D>
	1A743508-3B	NAAF-6108-3B,Front/Center power amp. pc board ass'y <P>
	1A743508-3D	NAAF-6108-3D,Front/Center power amp. pc board ass'y <T>
	1A743508-3C	NAAF-6108-3C,Front/Center power amp. pc board ass'y <W>
	1A743508-3F	NAAF-6108-3F,Front/Center power amp. pc board ass'y <A>
U13	1A743509-3A	NARF-6109-3A,Tuner circuit pc board ass'y <D>
	1A743509-3B	NARF-6109-3B,Tuner circuit pc board ass'y <P>
	1A743509-3D	NARF-6109-3D,Tuner circuit pc board ass'y <T>
	1A743509-3C	NARF-6109-3C,Tuner circuit pc board ass'y <W>
	1A743509-3F	NARF-6109-3F,Tuner circuit pc board ass'y <A>
U14	1A743510-3A	NAETC-6110-3A,Secondary circuit pc board ass'y <D>
	1A743510-3B	NAETC-6110-3B,Secondary circuit pc board ass'y <P>
	1A743510-3D	NAETC-6110-3D,Secondary circuit pc board ass'y <T>
	1A743510-3C	NAETC-6110-3C,Secondary circuit pc board ass'y <W>
	1A743510-3F	NAETC-6110-3F,Secondary circuit pc board ass'y <A>
U16	1A743512-3A	NAETC-6112-3A,Video 4 terminal pc board ass'y <D>
	1A743512-3B	NAETC-6112-3B,Video 4 terminal pc board ass'y <P>
	1A743512-3D	NAETC-6112-3D,Video 4 terminal pc board ass'y <T>
	1A743512-3C	NAETC-6112-3C,Video 4 terminal pc board ass'y <W>
	1A743512-3F	NAETC-6112-3F,Video 4 terminal pc board ass'y <A>
U17	1A743513-3A	NAPS-6113-3A,Primary circuit pc board ass'y <D>
	1A743513-3B	NAPS-6113-3B,Primary circuit pc board ass'y <P>
	1A743513-3D	NAPS-6113-3D,Primary circuit pc board ass'y <T>
	1A743513-3C	NAPS-6113-3C,Primary circuit pc board ass'y <W>
	1A743513-3F	NAPS-6113-3F,Primary circuit pc board ass'y <A>
U18	1A743514-3A	NAETC-6114-3A,Transformer terminal pc board ass'y <D>
	1A743514-3B	NAETC-6114-3B,Transformer terminal pc board ass'y <P>
	1A743514-3D	NAETC-6114-3D,Transformer terminal pc board ass'y <T>
	1A743514-3C	NAETC-6114-3C,Transformer terminal pc board ass'y <W>
	1A743514-3F	NAETC-6114-3F,Transformer terminal pc board ass'y <A>
U19	1A743515-3A	NAETC-6115-3A,Front/Center speaker terminal pc board ass'y <D>
	1A743515-3B	NAETC-6115-3B,Front/Center speaker terminal pc board ass'y <P>
	1A743515 3D	NAETC-6115-3D,Front/Center speaker terminal pc board ass'y <T>
	1A743515-3C	NAETC-6115-3C,Front/Center speaker terminal pc board ass'y <W>
	1A743515-3F	NAETC-6115-3F,Front/Center speaker terminal pc board ass'y <A>
U20	1A743516-3B	NAETC-6116-3B,AC outlet terminal pc board ass'y <P>
	1A743516-3D	NAETC-6116-3D,AC outlet terminal pc board ass'y <T>
	1A743516-3C	NAETC-6116-3C,AC outlet terminal pc board ass'y <W>
U21	1A743517-3B	NAPS-6117-3B,Power switch pc board <P>
	1A743517-3D	NAPS-6117-3D,Power switch pc board <T>
	1A743517-3C	NAPS-6117-3C,Power switch pc board <W>
	1A743517-3F	NAPS-6117-3F,Power switch pc board <A>
U22	1A743518-3A	NAETC-6118-3A,AC outlet terminal pc board ass'y <D>
U23	1A743522-3A	NAVD-6122-3A,Video circuit pc board ass'y <D>
	1A743522-3B	NAVD-6122-3B,Video circuit pc board ass'y <P/T/W/A>
U24	1A743523-3B	NAVD-6123-3B, S video circuit pc board ass'y <P/T/W/A>
U25	1A743524-3B	NAVD-6124-3B, Terminal pc board ass'y <P/T/W/A>
U26	1A743525-3A	NADG-6125-3A, DSP circuit pc board ass'y <D>
	1A743525-3B	NADG-6125-3B, DSP circuit pc board ass'y <P/T/W/A>

SCHEMATIC DIAGRAM (120V model)

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LC74761
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9 OSDSO
10 OSDSCK
11 SECAM
12 525/625
13 NTSC/PAL
14 3.58/4.43
15 RST
VDD1 30
SYNCDET 29
VCOOUT 28
VCOIN 27
PC 26
AMPOUT 25
AMPIN 24
PDOUT 23
Vss 22
SEPC 21
SYNCIN 20
CVCR 19
CVIN 18
VDD2 17
CVOUT 16
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CTL-A 15
OUT1 14
VDD 13
IN2 12
CTL-B 11
OUT2 10
CTL-C 9
1 MON
2 GND
3 IN5
4 GND
5 IN4
6 CTL-E
7 IN3
8 CTL-D
IN VIDEO-3
IN
OUT
VIDEO-2
IN
OUT
VIDEO-1
MONITOR OUT