

# ONKYO® SERVICE MANUAL

## QUARTZ SYNTHESIZED TUNER AMPLIFIER MODEL TX-SV424 MODEL TX-8410 MODEL TX-8410R

### Black model

BMD, BMDN	120V AC, 60Hz
BMP	230V AC, 50Hz
BMW	120V or 220V AC, 50/60Hz

**SAFETY-RELATED COMPONENT WARNING!!**  
COMPONENTS IDENTIFIED BY MARK  $\Delta$  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.

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# SPECIFICATIONS

## TX-SV424

### AMPLIFIER SECTION

**Power Output**  
**Stereo mode**  
 Front L/R channels: 60 watts per channel, min. RMS at 8 ohms, both channels driven from 20 Hz to 20 kHz with no more than 0.08% total harmonic distortion.  
 Continuous Power output: 2 × 65 watts at 8 ohms, 1 kHz (DIN)  
**Surround mode**  
 Front L/R and Center channels: 50 watts per channel, min. RMS at 8 ohms, with no more than 0.08% total harmonic distortion at 1 kHz  
 Rear channels (Rear only driven): 15 watts per channel, min. RMS at 8 ohms, with no more than 0.3% total harmonic distortion at 1 kHz

**Total Harmonic Distortion:** 0.08% at rated power (Front)  
**IM Distortion:** 0.08% at rated power (Front)  
**Damping Factor:** 60 at 8 ohms (Front)

**Sensitivity and Impedance**  
 Phono: 2.5 mV/50 kohms  
 CD/Tape Play: 150 mV/50 kohms  
 Tape Rec: 150 mV/2.2 kohms  
 Mono out (Subwoofer): 1 V/2.2 kohms

**Phono Overload:** 120 mV RMS at 1 kHz, 0.5% T.H.D.  
**Frequency Response:** 20 Hz to 30 kHz, ±1 dB  
**RIAA Deviation:** 20 Hz to 20 kHz, ±0.8 dB

**Tone Control**  
 Bass: ±10 dB at 100 Hz  
 Treble: ±10 dB at 10 kHz

**Signal-to-Noise Ratio**  
 Phono: 80 dB (IHF A, 5 mV input)  
 CD/Tape: 100 dB (IHF A)

### VIDEO SECTION

**Signal sensitivity and impedance:** 1 Vp-p, 75 ohms (VDP/VCR input, output)

### TUNER SECTION

#### FM

**Tuning Range:** 87.5 — 108.0 MHz  
**Usable Sensitivity**  
 Mono: 11.2 dBf, 1.0 μV (75 ohms)  
 Stereo: 17.2 dBf, 2.0 μV (75 ohms)  
**50dB Quieting Sensitivity**  
 Mono: 18.2 dBf, 2.2 μV (75 ohms)  
 Stereo: 38.2 dBf, 22 μV (75 ohms)  
**Capture Ratio:** 1.5 dB  
**Image Rejection Ratio**  
 U.S.A. & Canadian models: 40 dB  
 Other area models: 85 dB

**IF Rejection Ratio:** 90 dB  
**Signal-to-Noise Ratio**  
 Mono: 73 dB  
 Stereo: 67 dB  
**Alternate Channel Attenuation:** 55 dB  
**Selectivity:** 50 dB (DIN)  
**AM Suppression Ratio:** 50 dB  
**Total Harmonic Distortion**  
 Mono: 0.15%  
 Stereo: 0.25%  
**Frequency Response:** 30 Hz — 15 kHz, ±1.5 dB  
**Stereo Separation:** 45 dB at 1 kHz  
 30 dB at 100 Hz — 10 kHz

### AM

**Tuning Range**  
 U.S.A. & Canadian models: 530—1,710 kHz (10 kHz steps)  
 European & Australian models: 522—1,611 kHz (9 kHz steps)  
 Worldwide models: 531—1,602 kHz (9 kHz steps), 530—1,710 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**  
 U.S.A. & Canadian models: AC 120 V, 60 Hz  
 European & Australian models: AC 230 V, 50 Hz  
 Worldwide models: AC 220 V and 120 V switchable, 50/60 Hz

**Power Consumption**  
 U.S.A. & Canadian models: 2.8 A (325 W)  
 Other area models: 240 W

**Dimensions (W × H × D):** 455 × 150 × 322 mm  
 17-15/16" × 5-7/8" × 12-11/16"

**Weight:** 9.6 kg, 21.2 lbs.


### REMOTE CONTROL RC-295S


**Transmitter:** Infrared  
**Signal range:** Approx. 5 meters, 16 ft.  
**Power supply:** Two "AA" batteries (1.5 V × 2)  
**Dimensions (W × H × D):** 65 × 18 × 194 mm  
 2-9/16" × 11/16" × 7-5/8"  
**Weight:** 110 grams, 3.9 oz. (including batteries)

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

CIRCUIT NO.	PART NO.	DESCRIPTION
F901	252164Y	5A-UL/T-237,Primary <D/W>
F902	252076	3.15A-TSC,Primary <P/W>
F903	252075	2.5A-SE-EAK,Primary <P>
F921,F922	252156Y	1A-UL/T-237,Secondar <D>
	252070	1A-SE-EAK,Secondar <P/W>
		NOTE : <D> : 120V model only
		<P> : 230V 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. Take the power supply cord from the socket while "TEST-" is displayed.
3. After "clear" is displayed, the preset 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.

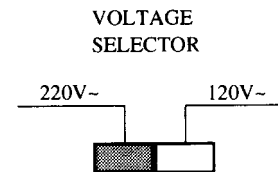
## 4. Change of voltage

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   3  

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.

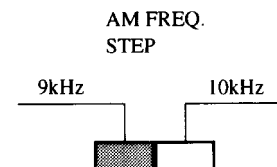
The unit must be plugged in and the power switch turned on and off once in order to charge the back-up system. Note that since this is not a permanent memory, the power switch must be turned on and off a few times each month the keep the back-up system operative.

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

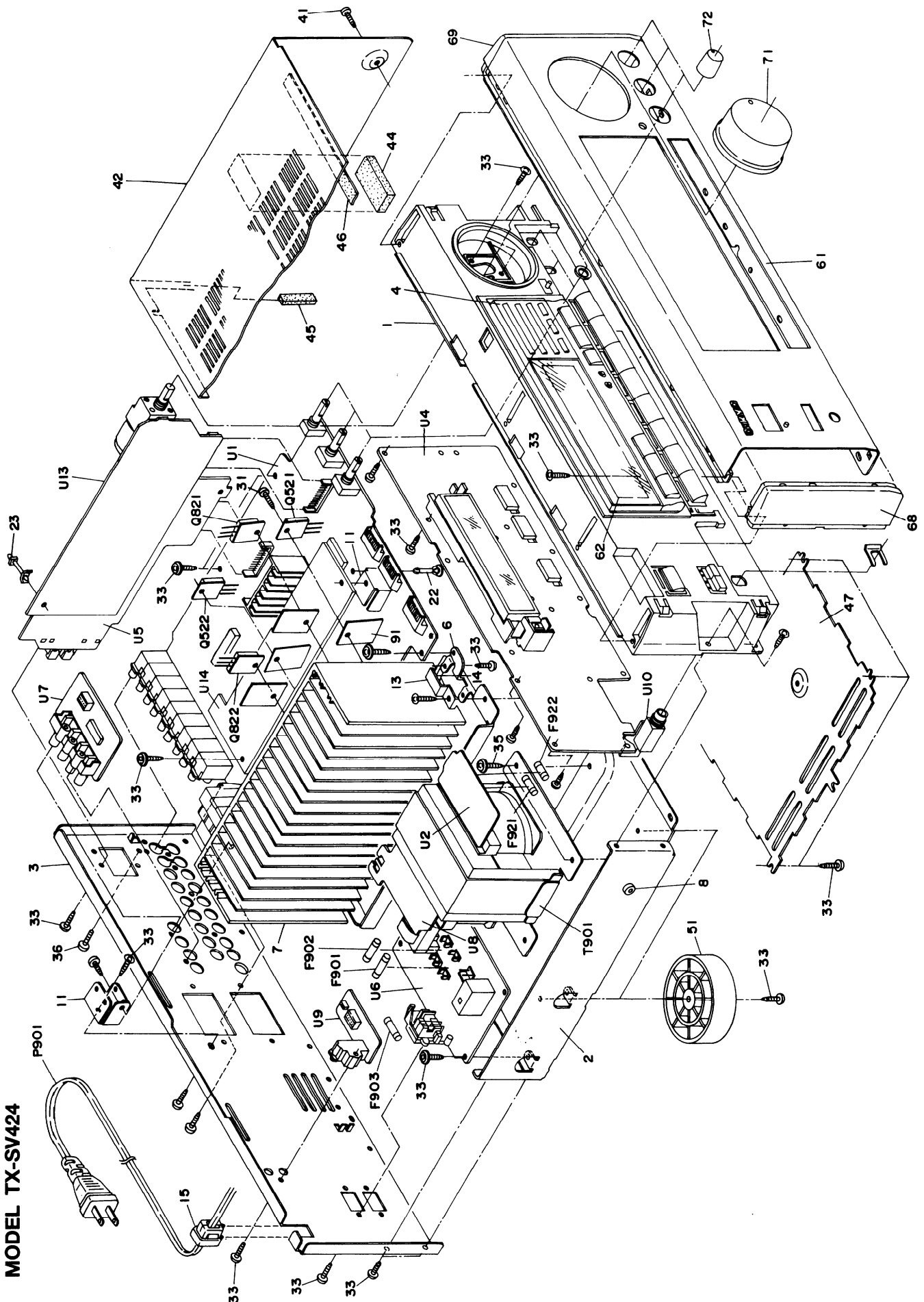


## 7. Changing the band step

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 10kHz	To 9kHz
R727	Remove	22kohm
R724	3kohm	Remove

**EXPLODED VIEW**  
**MODEL TX-SV424**

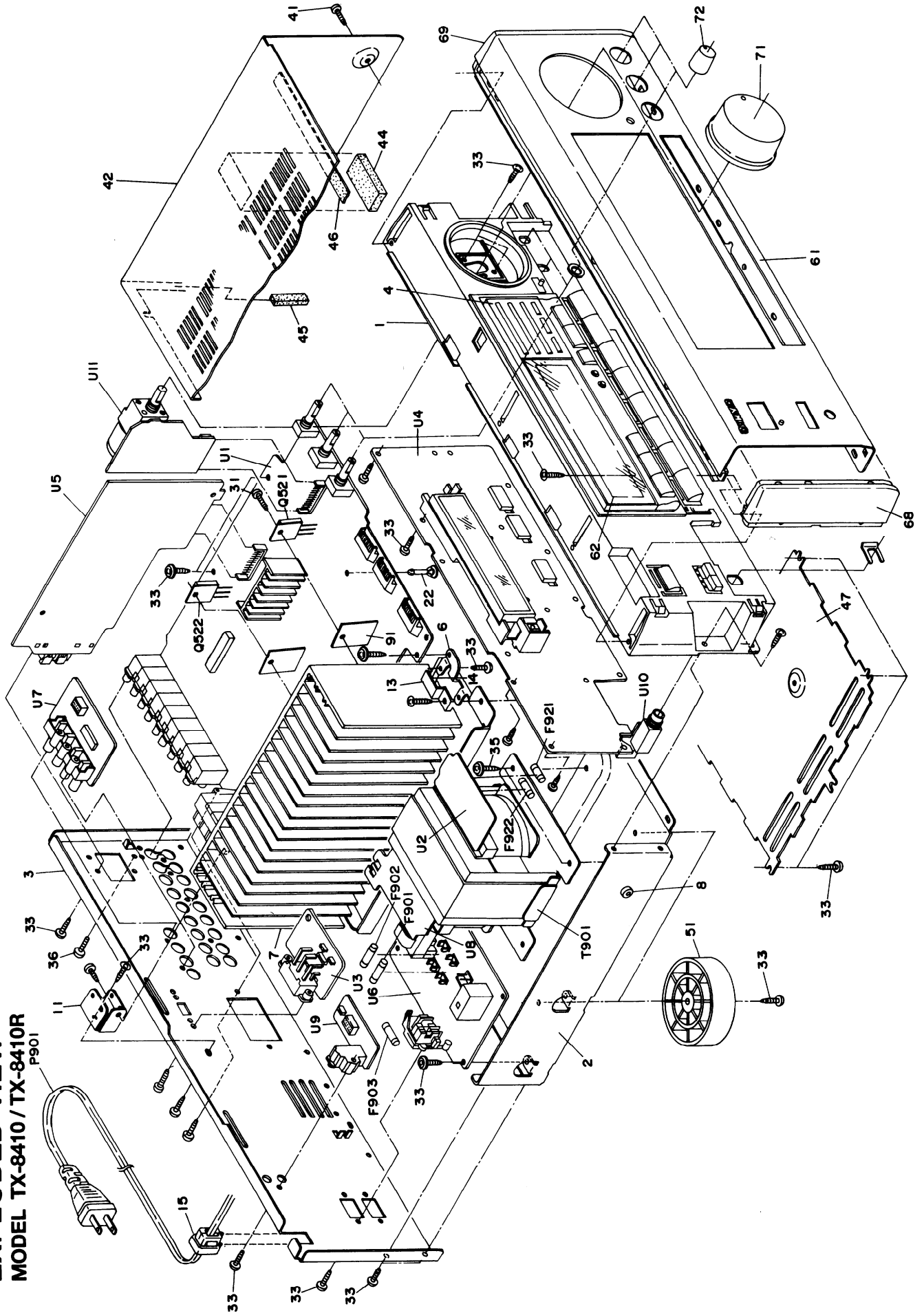


## PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	27110860AY	Front bracket	F901	252164Y	△ 5A-UL/T-237, Primary fuse <D/W>	U5	1A597500-1Y	NARF-5400-1, Tuner circuit
2	27100278CY	Chassis	F902	252076	△ 3.15A-SE-EAK, Primary fuse <P/W>			pc board ass'y <D>
3	27122085Y	Rear panel <D>	F903	252075	△ 2.5A-SE-EAK, Primary fuse <P>		1A597500-1AY	NARF-5400-1A, Tuner circuit
	27122106AY	Rear panel <C>	F921,F922	252156Y	△ 1A-UL/T-237, Secondary fuse <D>		1A597500-1BY	pc board ass'y <P>
	27122086AY	Rear panel <P>	P901	252070	△ 1A-SE-EAK, Secondary fuse <P/W>			NARF-5400-1B, Tuner circuit
	27122087Y	Rear panel <W>		253192HIT	△ AS-UC-6#18, Power supply cord <D>	U6	1A597501-1Y	pc board ass'y <W>
	27122123Y	Rear panel <A>		253193HIT	△ AS-CEE, Power supply cord <P>			NAPS-5401-1, Power supply circuit
	27122122Y	Rear panel <T>		253092-1A	△ AS-CEE-2, Power supply cord <W>	U6	1A597501-1AY	pc board ass'y <D>
4	27215258Y	Decorative frame		253197HIT	△ AS-SAA, Power supply cord <A>			NAPS-5401-1A, Power supply circuit
6	27130727Y	Bracket H		253198HIT	△ AS-BS, Power supply cord <B>	U6	1A597501-1BY	pc board ass'y <P>
7	27160330AY	Radiator	P904,P905	25050904	△ NSCT-2P697,AC outlet <A>			NAPS-5401-1B, Power supply circuit
8	27270212	Spacer <P/W>	Q521,Q522	2203063,	* 2SC5198-O,	U7	1A597502-1Y	pc board ass'y <W>
11	27141623Y	Retainer H		2202523 or	* 2SC4468-O or			NAETC-5402-1, Video circuit pc
12	27141530A	Retainer	Q523,Q524	2202293	* 2SC3182N-O, Power amplifier transistor	U8	1A597503-1Y	board ass'y
13	27141654Y	Retainer		2203053,	* 2SA1941-O,			NAETC-5403-1, Primary circuit
14	28141311Y	Cushion		2202513 or	* 2SA1695-O or			pc board ass'y <P>
15	27300750	△ Cord bushing	Q821,Q822	2202283	* 2SA1265N-O, Power amplifier transistor	U9	1A597504-1Y	NAETC-5404-1,RI terminal pc
22	27190524	KGLS-14RF, Holder		2203043,	* 2SC5197-O,			board ass'y <D/P>
23	27190062	KGLS-12S, Holder		2202253 or	* 2SC4467-O or		1A597504-1AY	NAETC-5404-1A,RI terminal pc
31	801433	3SMS8W.SW+14B(BC),	Q823,Q824	2202503	* 2SC3181N-O, Power amplifier transistor	U10	1A597505-1Y	board ass'y <W>
		Sens screw		2203033,	* 2SA1940-O,			NAETC-5405-1, Headphone terminal
33	838130088	3TTTB+8B, Self-tapping screw		2202243 or	* 2SA1694-O or		1A597505-1AY	pc board ass'y <D/W>
35	830440089	4TTC+8C(BC), Self-tapping screw	T901	2202493	* 2SA1264N-O, Power amplifier transistor			NAETC-5405-1A, Headphone terminal
36	838230088	3TTTB+8B(Ni), Self-tapping screw		2301097Y	△ NPT-1237D, Power transformer <D>	U13	1A597509-1Y	pc board ass'y <P>
41	838430088	3TTTB+8B(BC), Self-tapping screw		2301130Y	△ NPT-1249D, Power transformer <C>			NAAF-5409-1, Surround circuit
42	28184476BY	Top cover		2301098Y	△ NPT-1237P, Power transformer <P>	U14	1A597510-1Y	pc board ass'y
44	28140265	8×40×20,Cushion		2301099Y	△ NPT-1237DG, Power transformer <W>			NAAF-5410-1, Center and rear amplifier
45	28141306Y	6×5×30,Cushion	U1	1A597596-1Y	NAAR-5396-1, Main circuit			circuit pc board ass'y <D>
46	28140680	0.5×10×180,Cushion			pc board ass'y <D>		1A597510-1AY	NAAF-5410-1A, Center and rear amplifier
47	27170302AY	Bottom board		1A597596-1AY	NAAR-5396-1A, Main circuit			circuit pc board ass'y <P/W>
51	27175300Y	Leg	U2	1A597597-1Y	pc board ass'y <P/W>			NOTE: <D>:120V model only
61	1A597121Y	Front panel ass'y		1A597597-1AY	NAETC-5397-1, Power supply circuit			<P>:230V model only
61a	8910301	CS-3, CS ring		1A597597-1AY	pc board ass'y <D>			<W>:Worldwide model only
61b	28198778	Facet	U4	1A597599-1Y	pc board ass'y <P/W>			<A>:Australian model only
61c	28135199	Badge			pc board ass'y <D>			<C>:Canadian model only
62	28191714Y	Clear plate		1A597599-1AY	NADIS-5399-1,Display circuit			<T>:Taiwanese model only
68	28125255-6Y	End cap L			pc board ass'y <D>			<B>:UK model only
69	28125256-6Y	End cap R		1A597599-1AY	NADIS-5399-1A,Display circuit			
71	28325057	Volume knob ass'y		1A597599-1BY	NADIS-5399-1B,Display circuit			
72	28325055Y	Tone knob			pc board ass'y <P>			
91	223021	Isolation sheet		1A597599-1CY	NADIS-5399-1C,Display circuit			
92	260208	Wire tie			pc board ass'y <W>			

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

**EXPLODED VIEW**  
**MODEL TX-8410 / TX-8410R**  
P901



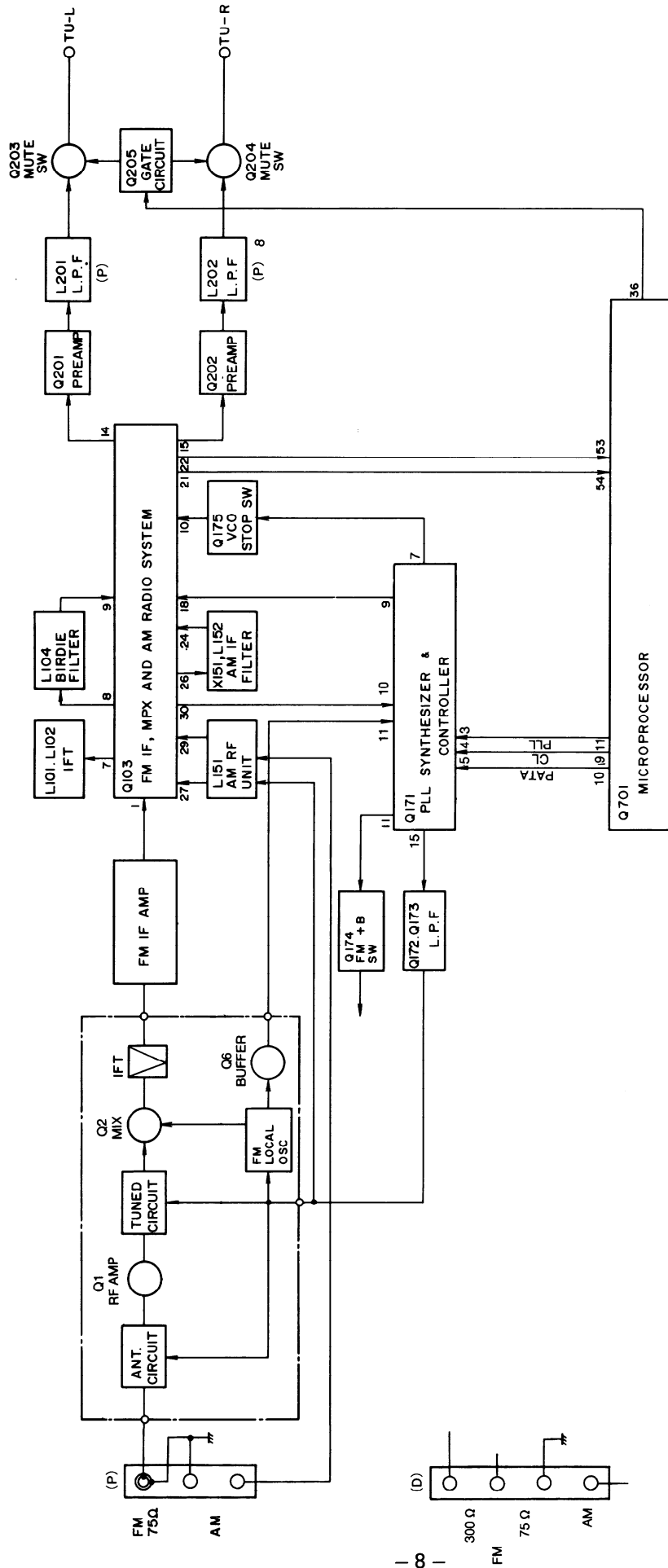
# PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	27110861AY	Front bracket <D/W/T>	F901	252164Y	▲ 5A-UL/T-237, Primary fuse <D/W>	U5	1A598500-3Y	NARF-5400-3, Tuner circuit
	27110862AY	Front bracket <P>	F902	252076	▲ 3.15A-SE-EAK, Primary fuse <P/W>			pc board ass'y <D>
2	27100278CY	Chassis	F903	252075	▲ 2.5A-SE-EAK, Primary fuse <P>		1A598500-3AY	NARF-5400-3A, Tuner circuit
3	27122088AY	Rear panel <D>	F921,F922	252156Y	▲ 1A-UL/T-237, Secondary fuse <D>		1A598500-3BY	pc board ass'y <P>
	27122090AY	Rear panel <P>		252070	▲ 1A-SE-EAK, Secondary fuse <P/W>			NARF-5400-3B, Tuner circuit
	27122089Y	Rear panel <W>	P901	253192HIT	▲ AS-UC-6#18, Power supply cord <D>		1A598501-3Y	pc board ass'y <W>
	27122132Y	Rear panel <T>		253193HIT	▲ AS-CEE, Power supply cord <P>	U6		NAPS-5401-3, Power supply circuit
4	27215262Y	Decorative frame <D/W/T>		253092-1A	▲ AS-CEE-2, Power supply cord <W>		1A598501-3AY	pc board ass'y <D>
	27215259Y	Decorative frame <P>	Q521,Q522	2202823 or	* 2SC5200-O or			NAPS-5401-3A, Power supply circuit
6	27130727Y	Bracket H		2201483	* 2SC3281-O, Power amplifier transistor		1A598501-3BY	pc board ass'y <P>
7	27160330CY	Radiator	Q523,Q524	2202813 or	* 2SA1943-O or			NAPS-5401-3B, Power supply circuit
8	27270212	Spacer <P/W>		2201473	* 2SA1302-O, Power amplifier transistor		1A598502-3Y	pc board ass'y <W>
11	27141623Y	Retainer H	T901	2301112Y	▲ NPT-1243D, Power transformer <D>	U7		NAETC-5402-3, Video circuit pc
13	27141654Y	Retainer		2301113Y	▲ NPT-1243P, Power transformer <P>		1A598503-3Y	board ass'y
14	28141311Y	Cushion		2301114Y	▲ NPT-1243DG, Power transformer <W>	U8		NAETC-5403-3, Primary circuit
15	27300750	▲ Cord bushing	U1	1A598596-3Y	NAAR-5396-3, Main circuit		1A598504-3Y	pc board ass'y
22	27190524	KGLS-14RF, Holder		1A598596-3AY	NAAR-5396-3A, Main circuit	U9		NAETC-5404-3,RI terminal pc
31	801433	3SMS8W.SW+14B(BC), Sems screw	U2	1A598597-3Y	NAETC-5397-3, Power supply circuit		1A598504-3AY	board ass'y <D/P>
33	838130088	3TTB+8B, Self-tapping screw		1A598597-3AY	NAETC-5397-3A, Power supply circuit	U10		board ass'y <W>
35	830440089	4TTC+8C(BC), Self-tapping screw	U3	1A598598-3Y	NASW-5398-3,Switch pc board ass'y <D>		1A598505-3Y	NAETC-5405-3, Headphone terminal
36	838230088	3TTB+8B(Ni), Self-tapping screw	U4	1A598599-3Y	NADIS-5399-3,Display circuit		1A598505-3AY	pc board ass'y <D/W>
41	838430088	3TTB+8B(BC), Self-tapping screw		1A598599-3AY	NADIS-5399-3A,Display circuit	U11		NAETC-5405-3A, Headphone terminal
42	28184476BY	Top cover			pc board ass'y <D>		1A598507-3Y	pc board ass'y <P>
44	28140265	8 X 40 X 20,Cushion			pc board ass'y <P/W>			NAETC-5407-3, Volume circuit
46	28140680	0.5 X 10 X 180,Cushion			pc board ass'y <D>			pc board ass'y
47	27170302AY	Bottom board		1A598599-3AY	NADIS-5399-3A,Display circuit			NOTE: <D>-120V model only
51	27175300Y	Leg			pc board ass'y <C>			<P>-230V model only
61	1A598121Y	Front panel ass'y <D/W/T>		1A598599-3BY	NADIS-5399-3B,Display circuit			<W>-:Worldwide model only
	1A599121Y	Front panel ass'y <P>			pc board ass'y <P>			<C>-:Canadian model only
61a	8910301	CS-3, CS ring		1A598599-3CY	NADIS-5399-3C,Display circuit			<T>-:Taiwanese model only
61b	28198778Y	Facet			pc board ass'y <W>			
61c	28135199Y	Badge						
62	28191714Y	Clear plate						
68	28125255-6Y	End cap L						
69	28125256-6Y	End cap R						
71	28325154	Volume knob ass'y						
72	28325055Y	Tone knob						
91	223023	Isolation sheet						
92	260208	Wire tie						

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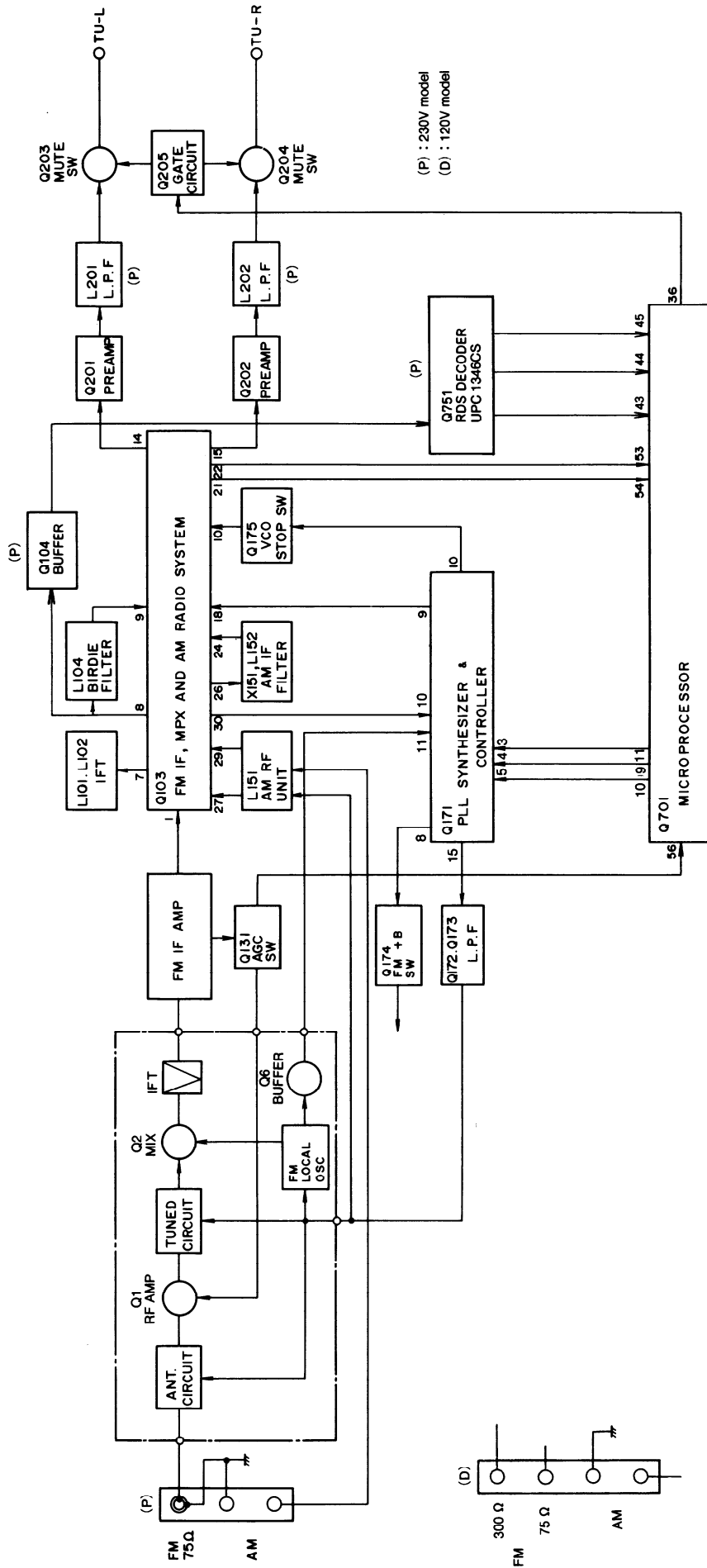
# BLOCK DIAGRAM

## TX-SV424

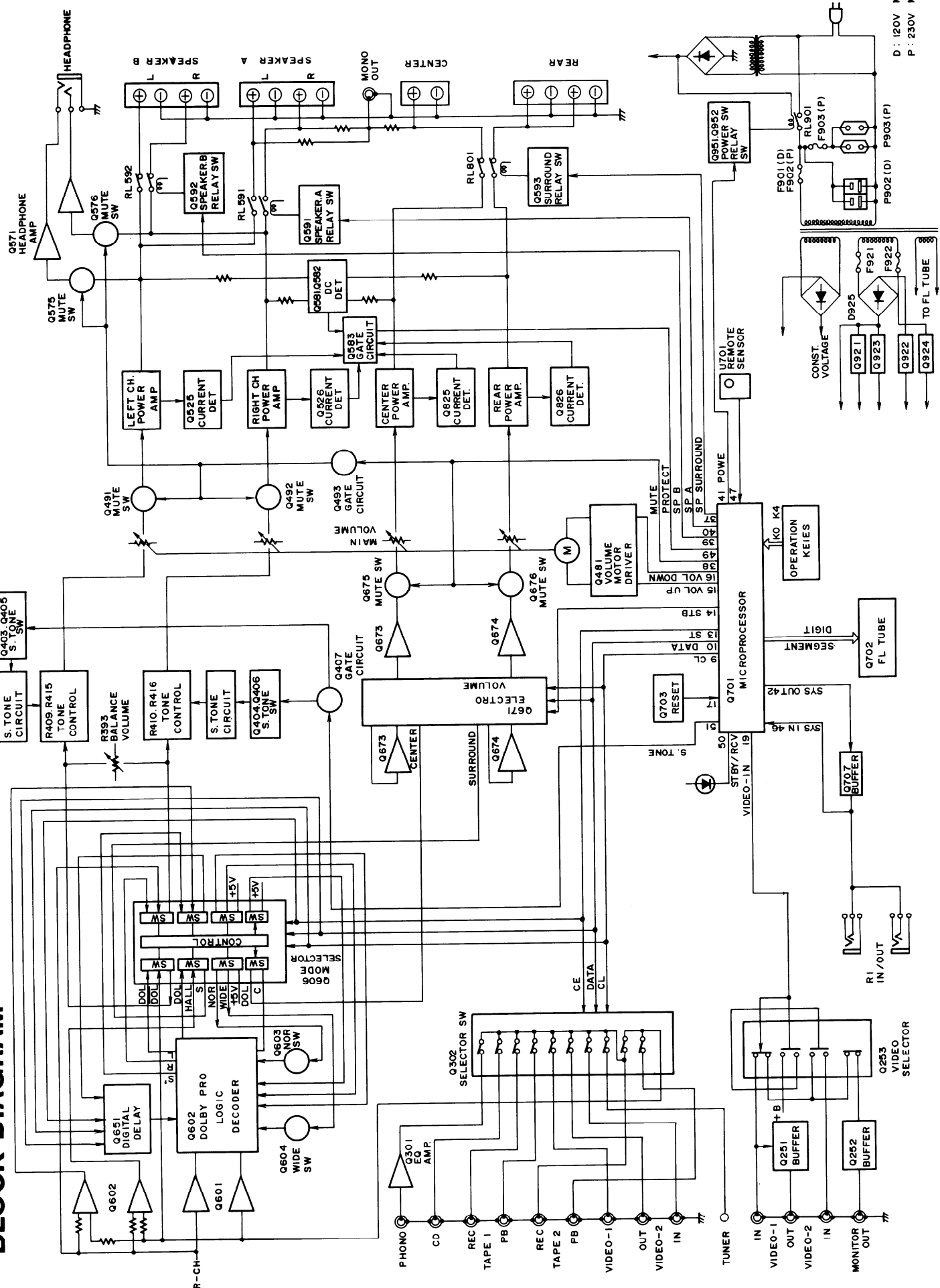




TX-8410 / TX-8410R

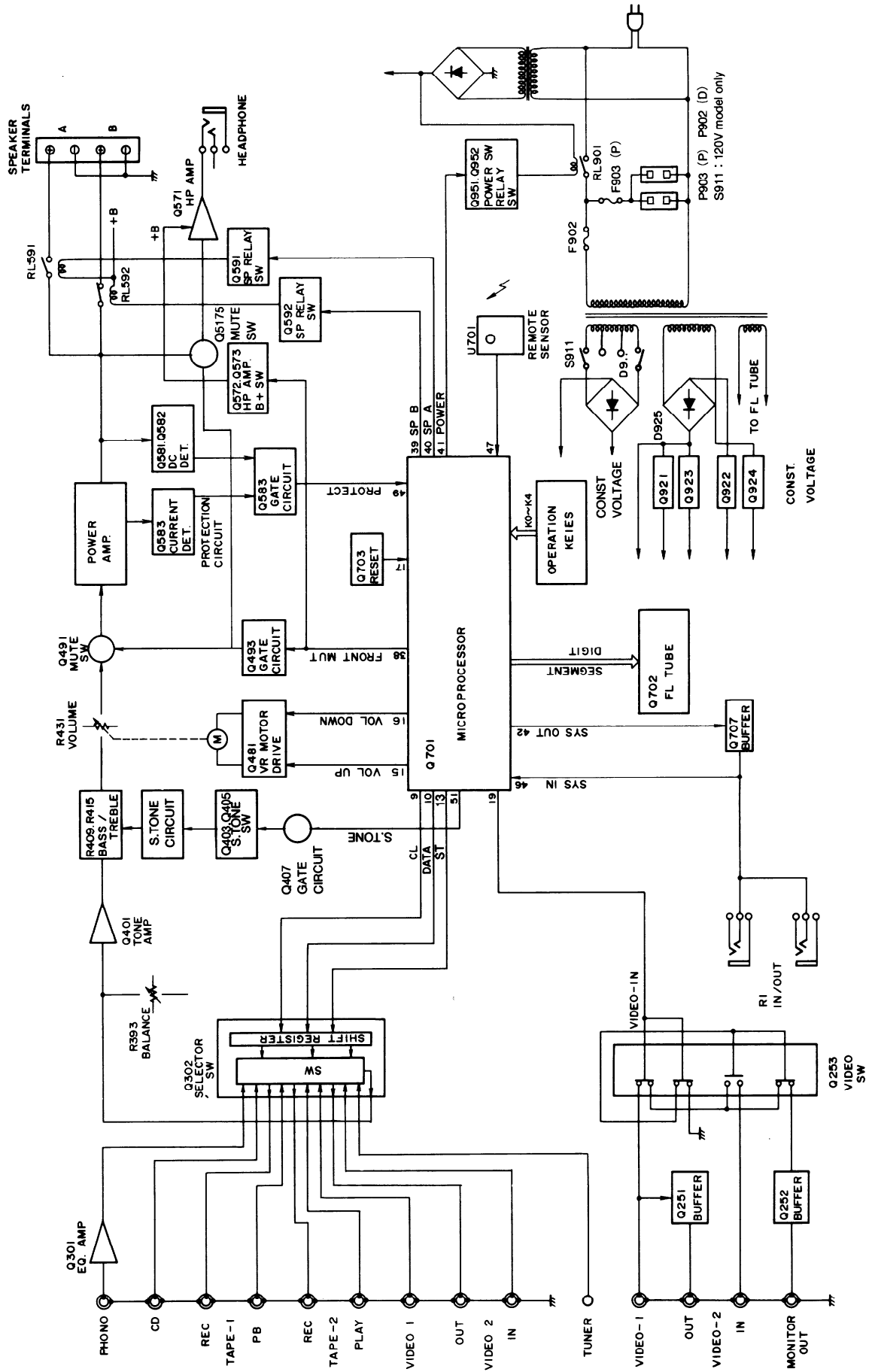


**BLOCK DIAGRAM AMPLIFIER SECTION MODEL TX-SV424**

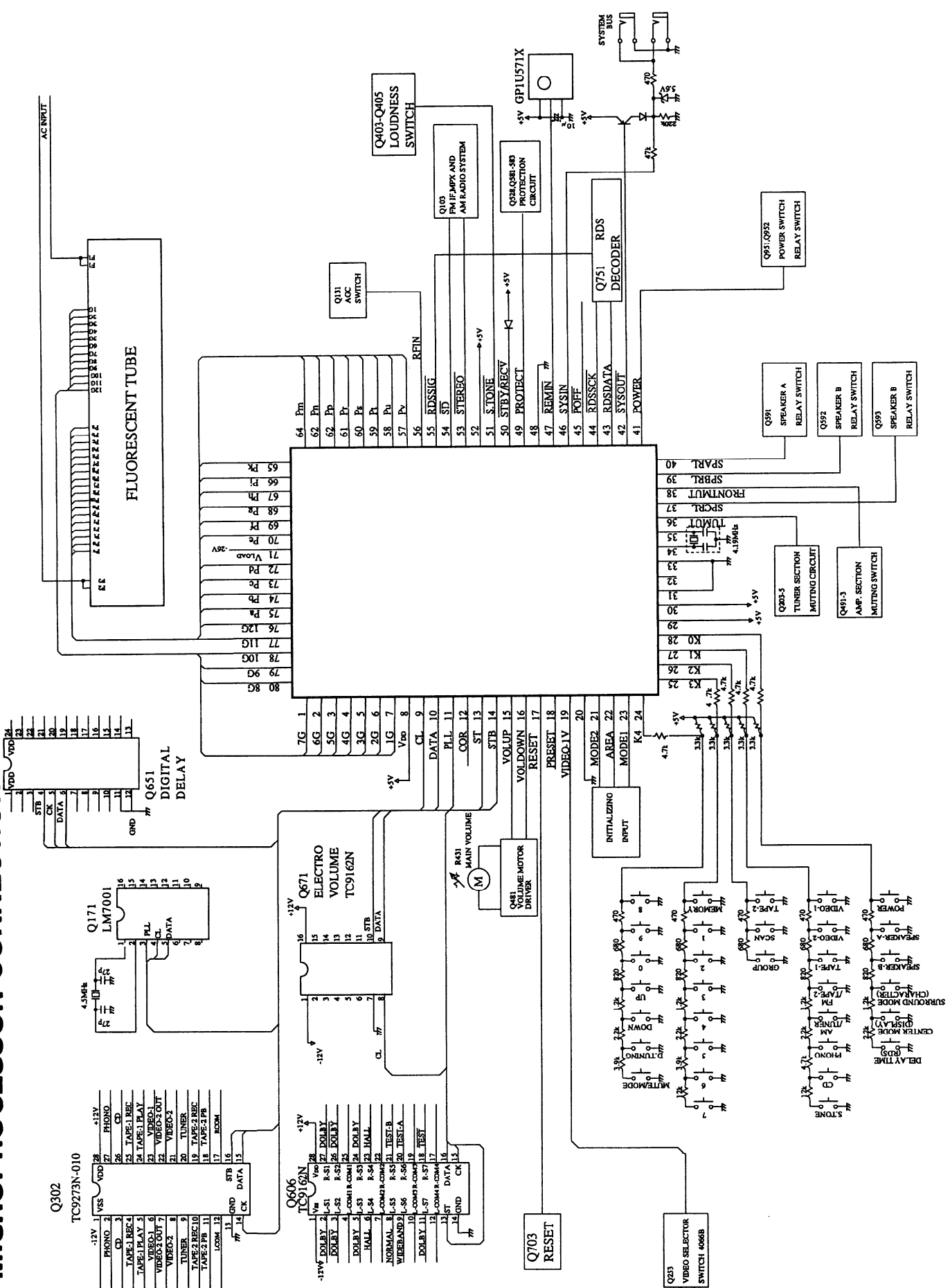


D : 120V Model I  
P : 230V Model II

TX-8410 / TX-8410R



# MICROPROCESSOR CONNECTION DIAGRAM



# TERMINAL DESCRIPTION

Pin No.	Function	I/O	Description
1-7	7G-1G	O	Grid control output pin. On at the high level.
8	VDD		Power supply pin (+5V)
9	CL	O	Clock output pin. Connect to the terminals CK of function switch Q302, surround mode switch Q606, electro volume Q671, digital delay Q651 and PLL IC Q171.
10	DATA	O	Data output pin. Connect to the terminals DATA of function switch Q302, surround mode switch Q606, electro volume Q671 and digital delay.
11	PLL	O	Chip enable output pin for PLL IC
13	SEL	O	Chip enable output pin. Connect to the terminals ST of function switch Q302, surround mode switch Q606, electro volume Q671 and digital delay.
15	VOLUP	O	Volume control output pin
16	VOLDOWN	O	Refer table 1.
17	RESET	I	System reset input pin
20	AVSS		Ground pin of A/D converter
21	MODE	I	Initializing input of operation mode
22	BAND	I	Initializing input of band region
23	MODE1	I	Initializing input of operation mode
24	K4	I	Operation key connection pin
25	K3	I	Operation key connection pin
26	K2	I	Operation key connection pin
27	K1	I	Operation key connection pin
28	K0	I	Operation key connection pin
29	AVDO		Analogue power supply of A/D converter
30	AVREF		Reference voltage input pin of A/D converter
31	XT1		Crystal connection pin for sub system clock resonator
32	XT2		Not used.
33	VSS		Ground pin
34	X1		Resonator connection terminal for main system clock
35	X2		Connect the ceramic resonator 4.19MHz.
36	TMUT	O	Muting output pin for tuner section
38	SMUT	O	Muting output pin for amplifier section
40	RELAY	O	Relay control pin for speaker
41	POWER	O	Power source control output pin
42	SYSOUT	O	System code output pin
43	RDSDATA	I	Data input pin from RDS decoder $\mu$ PD1346CS
43	SYSIN	I	System code input pin
44	RDSSCK	I	Clock input pin from RDS decoder IC $\mu$ PD1346CS
45	POFF	I	Power stoppage detector input pin
47	REMIN	I	Remote control signal input pin
48	IC		Internal connection pin. Connect to the ground terminal.
49	PROTECT	I	Detector input pin of protection circuit. H:On
50	STBY/RECV	O	Stand-by and received indicator output pin
52	VDD		Power supply pin (+5V)
53	STEREO	I	Detector input pin of FM stereo broadcast
54	SD	I	Detector input pin of broadcast more than muting level
55	RDSSIG	I	Detector input pin of RDS broadcast. L:RDS broadcast
56	RFIN	I	RF mode input pin. Local at the low level.
57-70	Pv-Pe	O	Segment output pins. On at the high level.
71	VLOAD	I	Pull-down resistor connection pin of controller and driver of FL.
72-75	Pd-Pa	O	Segment output pins. On at the high level.
76-80	12G-8G	O	Grid control output pin. On at the high level.

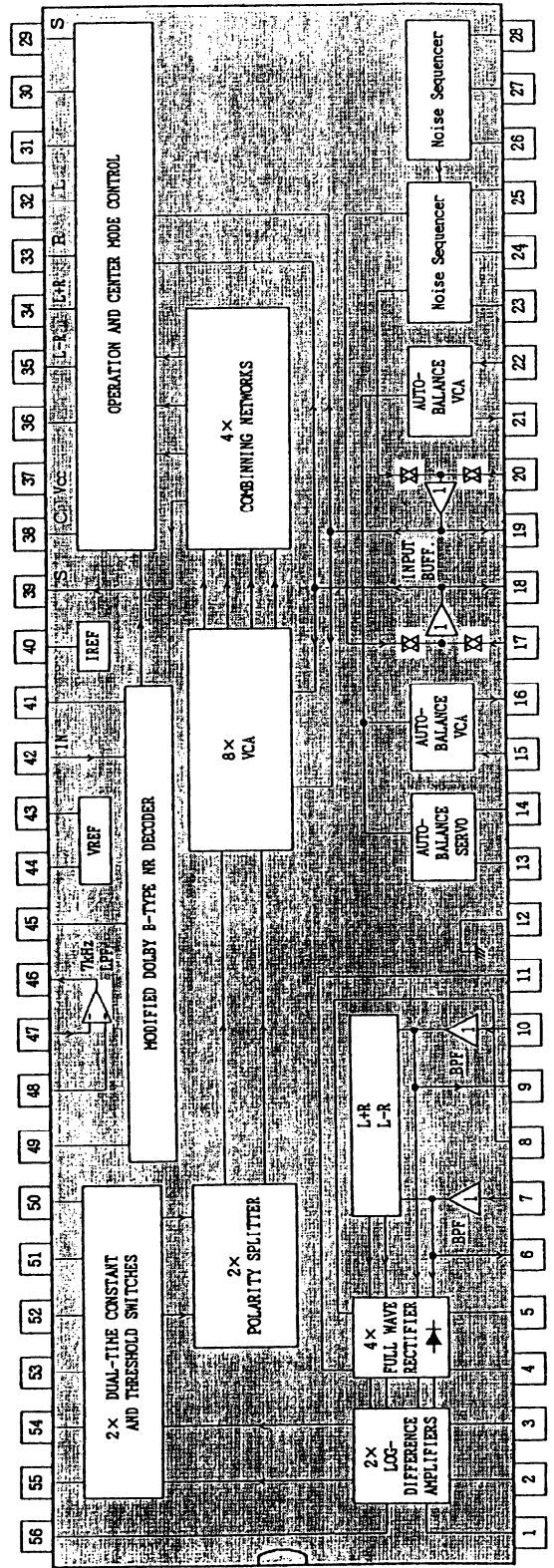
Operation	#39	#40
VOLUME UP	H	L
VOLUME DOWN	L	H
STOP	H	H

Table 1

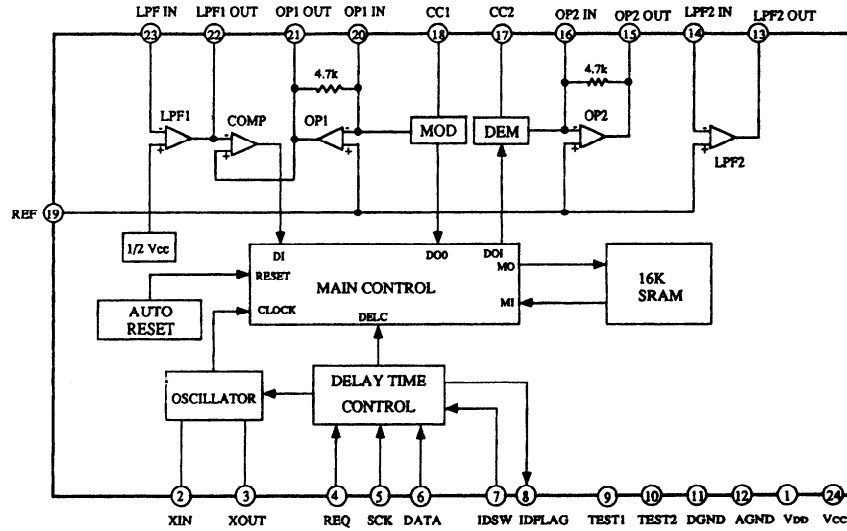
# IC BLOCK DIAGRAM AND DESCRIPTIONS

## NJM2177L / M69032P (Dolby Pro Logic)

C-RECT-OUT	1	56	S-RECT-OUT
R-RECT-OUT	2	55	VLR-TC2
L-RECT-OUT	3	54	VLR-TC1
S-RECT-TC	4	53	VCS-TC1
C-RECT-TC	5	52	VCS-TC2
L-BPF-OUT	6	51	VCS-TC3
L-BPF-IN	7	50	VLR-TC3
L-RECT-TC	8	49	NR-TC
R-BPF-OUT	9	48	LPF-NINV-IN LPF non-inversion output
R-BPF-IN	10	47	LPF-INV-IN LPF inversion input
R-RECT-TC	11	46	LPF-OUT LPF output
GND	12	45	NR-WT
AB-GATE	13	44	VREF
AB-HOLD-TC	14	43	VREF
L-AB-IN Auto balance L ch input	15	42	NR-IN NR input
L-AB-OUT Auto balance L ch output	16	41	NR-VCF
L-IN Left channel input	17	40	IREF
L-INBUF-OUT L ch input/Buffer output	18	39	S'-OUT Surround output before delay processing
R-INBUF-OUT R ch input/Buffer output	19	38	C-OUT Center channel output
R-IN Right channel input	20	37	Vcc
R-AB-OUT Auto balance R ch output	21	36	CENTER-MODE
R-AB-IN Auto balance R ch input	22	35	L-R-OUT Subtractor output (L-R)
NOISE-CNT-E Signal/Noise selector	23	34	L+R-OUT Adder output (L+R)
NOISE-CNT-A Noise output selector	24	33	R-OUT Right channel output
NOISE-CNT-B Noise output selector	25	32	L-OUT Left channel output
NOISE-REF	26	31	MODE-CNT 2/3/4 channels switch
NOISE-HPF	27	30	CENTER-CNT Center channel ON/OFF switch
NOISE-LPF	28	29	S-OUT Surround output

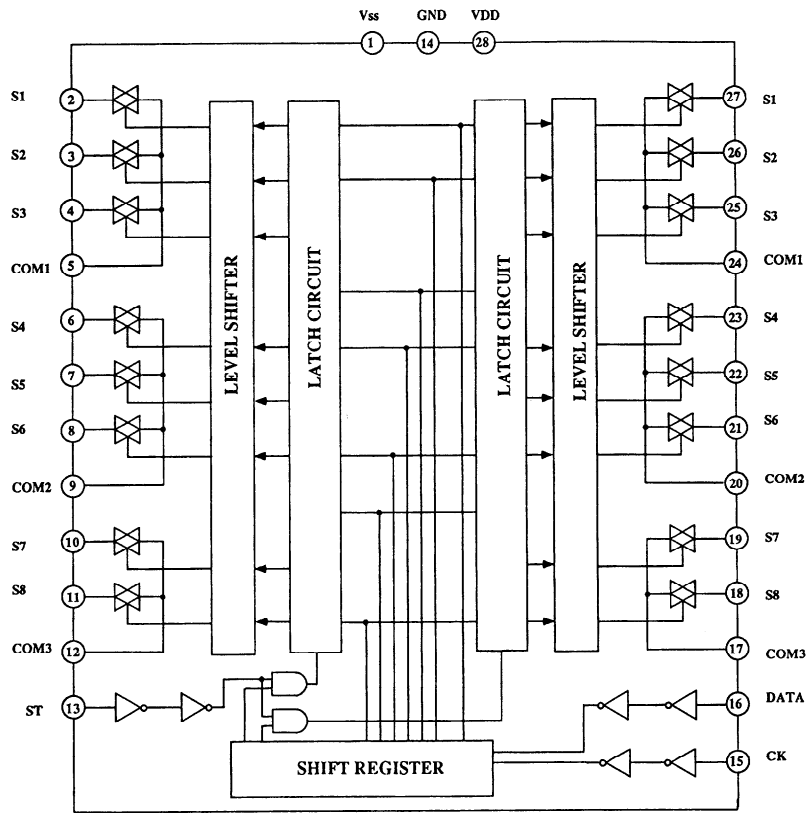


M65830P (Digital Delay)

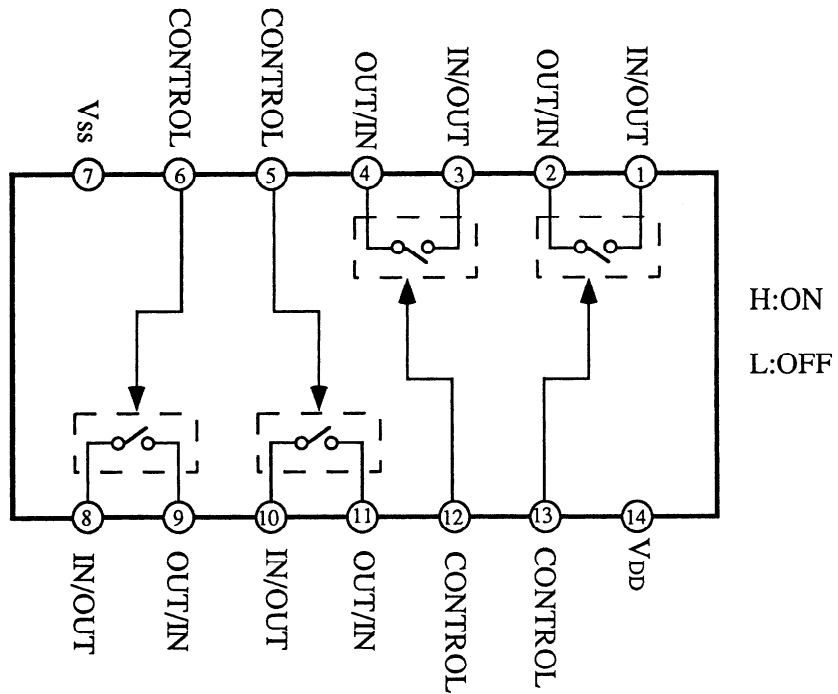


Pin No.	Mark	Function	I/O	Description
1	VDD	Digital power supply	-	
2	XIN	Resonator input	I	Connect the 2MHz ceramic resonator
3	XOUT	Resonator output	O	
4	REQ	Request	I	Data request input
5	SCK	Shift lock	I	Serial data shift clock input
6	DATA	Data	I	Serial data input
7	IDSW	ID switch	I	External input of 4th bit of ID code
8	IDFLAG	ID flag	O	Data input confirmation pulse and serial data output
9	TEST1	Test 1	-	Normal mode when low level
10	TEST2	Test 2	-	Normal mode when low level
11	D GND	Digital ground	-	
12	A GND	Analog ground	-	
13	LPF2 OUT	LPF filter 2 output	O	
14	LPF2 IN	LPF filter 2 input	I	
15	OP2 OUT	Operation amp. 2 output	O	
16	OP2 IN	Operation amp. 2 input	I	
17	CC2	Current control 2	-	Demodulation ADM control
18	CC1	Current control 1	-	Modulation ADM control
19	REF	Reference	-	Analog reference voltage=1/2VCC
20	OP1 IN	Operation amp. 1 input	I	
21	OP1 OUT	Operation amp. 1 output	O	
22	LPF1 OUT	LPF filter 1 output	O	
23	LPF1 IN	LPF filter 1 input	I	
24	VCC	Analog power supply	-	

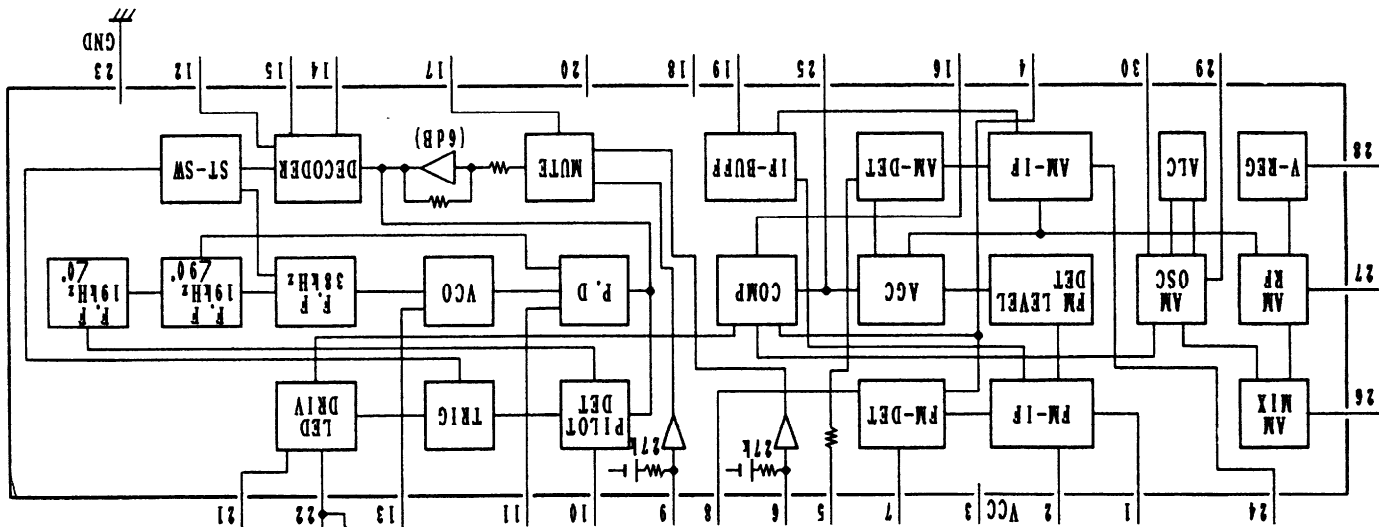
**TC9162N (Function switch)**



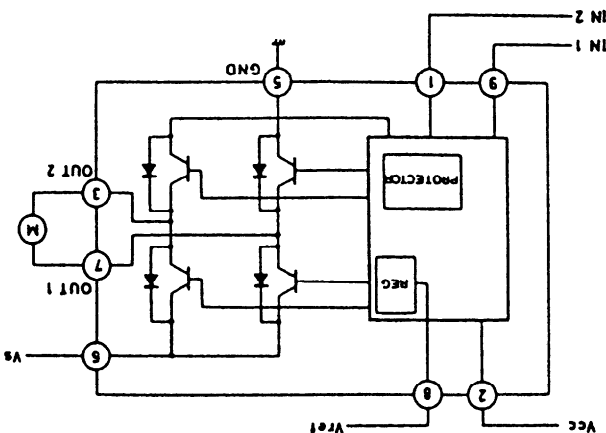
**4066 (Analog Switch)**







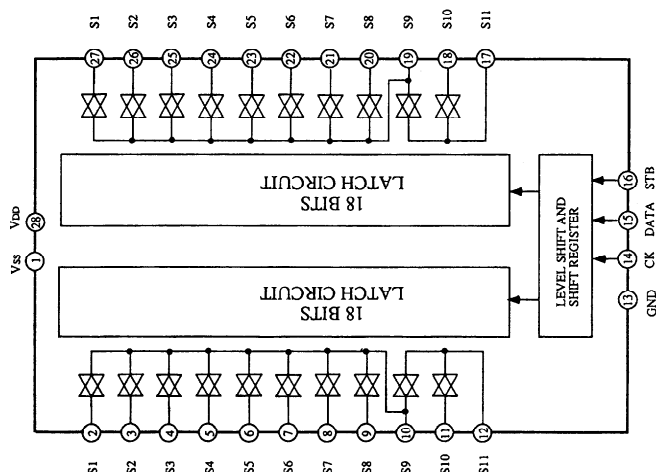
LA1851N (AM, FM IF and MPX)



TA7291S (Volume driver)

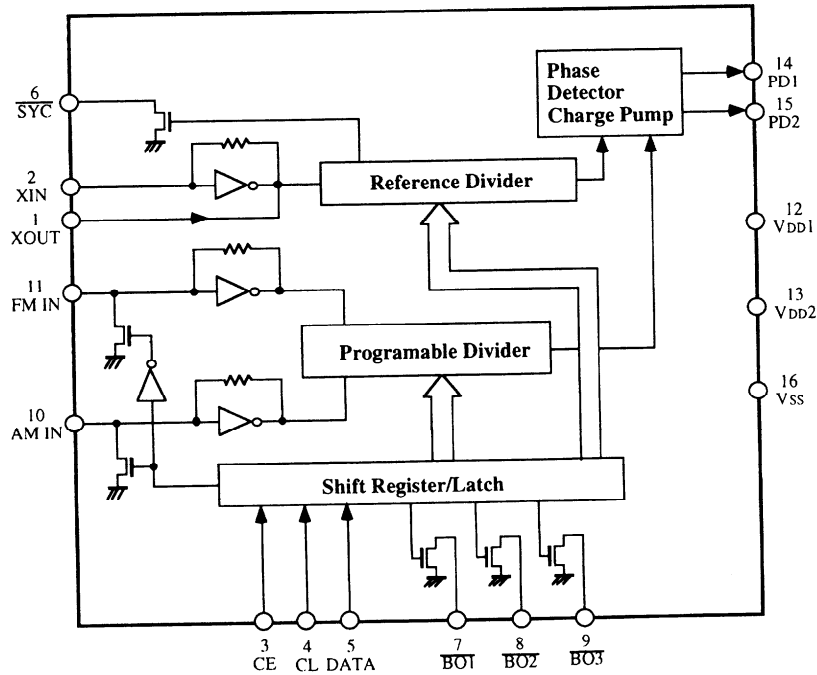
CW: Counter clockwise direction  
 CW: Clockwise direction

MODE	INPUT		OUTPUT	
	IN 1	IN 2	OUT 1	OUT 2
STOP	0	∞	∞	∞
CW/CCW	1	0	H	L
CCW/CW	0	1	L	H
BRAKE	1	1	L	L



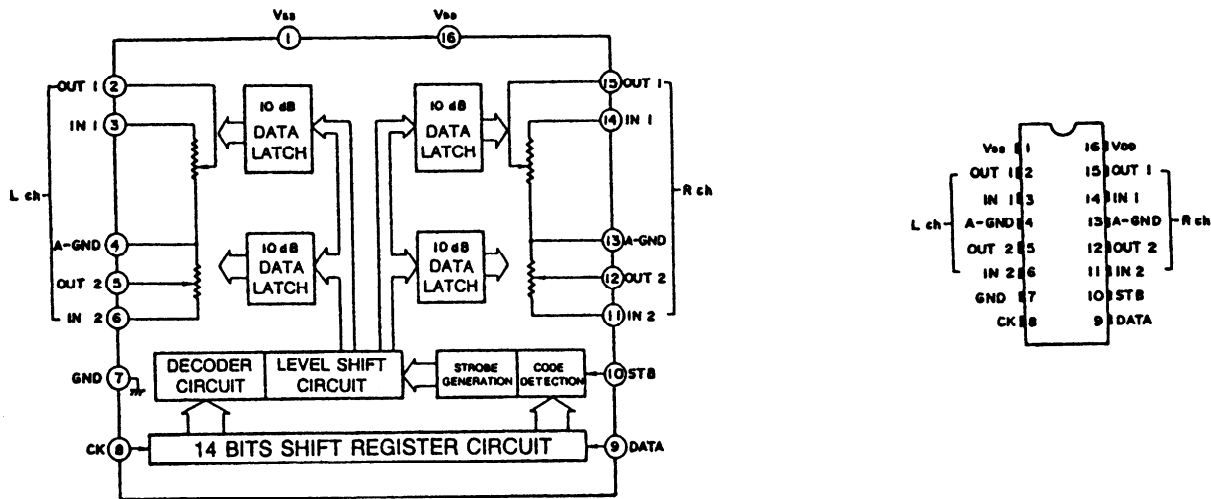
TC9273N-010 (Analog Switch)

LM7001 (PLL Frequency Synthesized LSI)

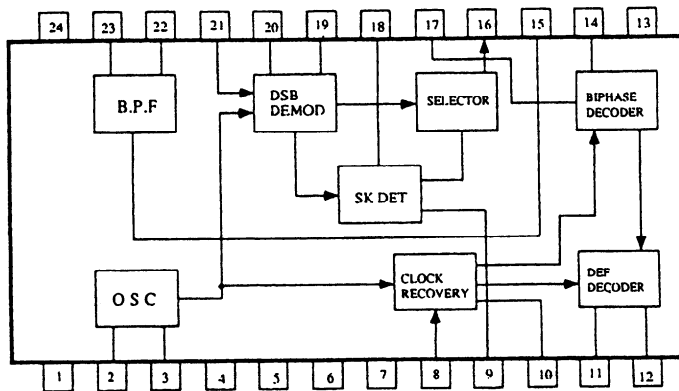


Pin No.	Terminal	Description
1	XOUT	Connect the 7.2MHz crystal resonator.
2	XIN	
3	CE	Chip enable terminal. Connect to the terminal PLLCE1 of microprocessor.
4	CL	Serial clock input terminal. Connect to the terminal PLLCL of microprocessor.
5	DATA	Serial data input terminal. Connect to the terminal PLLDATA of microprocessor.
6	$\overline{\text{SYN}}$	Not used.
7	$\overline{\text{SAT/CANLE}}$	Power source control terminal for DSR. Cable at the high level and Satellite at low.
8	LPF	LPF selector output.
9	ANT	Antenna selector output. A at high level and B at low level.
10	AMIN	AM local oscillator input terminal.
11	FMIN	FM local oscillator input terminal.
12	VDD1	Power source terminal for back-up.
13	VDD2	Power source terminal.
14	PD1	Phase comparator output
15	PD2	Phase comparator output
16	VSS	Ground terminal

TC9213P (Electro Volume)



μPD1346CS (RDS Decoder)



No.	Terminal	Description	No.	Terminal	Description
1	Vcc	Supply voltage for the digital circuit	13	GND	Ground for the analog circuit
2	OSC IN	Resonator input	14	INTEG	Integrating filter terminal
3	OSC OUT	Resonator output	15	BPF ADJ	Adjustment fc of band pass filter
4	GND	Ground for the digital circuit	16	PSK OUT	Biphase signal output
5	TEST1	Test input	17	PSK IN	Biphase decoder input
6	TEST2	Test input	18	LPF SK	Low pass filter for the detection SK
7	OP.CTL	Control input of the operation stop	19	LPF Q	Low pass filter for the crossed detector
8	S/L CTL	Mode control input of the synchronizing detection	20	LPF I	Low pass filter for the synchronizing detector
9	SK OUT	SK detection output	21	DSB IN	DSB demodulator circuit input
10	RDS OUT	RDS synchronizing detection output	22	BPF OUT	Band pass filter output
11	CLOCK OUT	Bit rate clock output	23	BPF IN	Band pass filter input
12	DATA OUT	RDS data output	24	Vcc	Supply voltage for analog circuit

# ADJUSTMENT PROCEDURES

## Preparation

### 1. Input

FM mono: 1kHz, 75kHz devi., 60dB/μV

FM stereo: 1kHz, 75kHz devi., 60dB/μV

Pilot signal 19kHz 7.5kHz devi.

AM: 400Hz 30% mod.

### 2. Outputs

Connect the non-inductive type resistors of 8 ohms to the speaker terminals A unless otherwise noted.

## TX-SV424

### 3. Standard Knob Positions

Master Volume Control .....	Maximum
Bass Control .....	Center
Treble Control .....	Center
Balance Control .....	Center
Input selector .....	CD
Tape 2 Monitor.....	OFF
Muting .....	OFF
Selective tone.....	OFF
Speaker A .....	ON
Speaker B.....	OFF
Dolby Surround.....	OFF
Center Mode .....	Wide Band
Delay Time.....	20 ms
Center Level .....	0 dB
Rear Level .....	0 dB

### Idling Current Adjustment

Connect the DC voltmeter to the terminals P521, P522, and P821 (VCT and IID) on the main circuit pc board.

Adjust the trim resistors R537, R538 and R837 so that the indicator of voltmeter becomes  $3.25 \pm 0.25$  mV.

NOTE: Adjust after switching on for 5 minutes.

Set Volume knob to the minimum position.

## TX-8410/8410R

### 3. Standard Knob Positions

Master Volume Control .....	Maximum
Bass Control .....	Center
Treble Control .....	Center
Balance Control .....	Center
Input selector .....	CD
Tape 2 Monitor.....	OFF
Muting .....	OFF
Loudness .....	OFF
Speakers .....	A

### Idling Current Adjustment

Connect the DC voltmeter to the terminals P521, and P522 (VCT and IID) on the main circuit pc board.

Adjust the trim resistors R537, and R538 so that the indicator of voltmeter becomes  $3.25 \pm 0.25$  mV.

NOTE: Adjust after switching on for 5 minutes.

Set Volume knob to the minimum position.

Set the unit to the test mode.

1. Press and hold down the CD button, then press the Power button.
2. "TEST-" is displayed on the display.
3. While "TEST-" is displayed, press the FM key.

## FM ADJUSTMENT

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.
	AC voltmeter					IFT on the front end	Maximum		
	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	R202	Minimum	Maximum and same separation
	2			Channel R 1kHz		Channel L AC voltmeter		Minimum	
Muting Level		Fig.2	99.0MHz 21.2dBf(16dB) <P/W models> 23.2dBf(18dB) <D model>	—	99.0MHz	Oscilloscope or TUNED indicator	R101	Signal output or light on	
RDS		Fig.3	99.0MHz Ext. mod.40dB	RDS data or 57kHz 3% devi.	99.0MHz	Oscilloscope	R786	Maximum	TX-8410RDS only

## AM ADJUSTMENT

120V model

Step	AM SG output	Tuning Frequency	Output Indicator	Adjustment point	Adjust for
1		530kHz	Digital DC voltmeter	OSC coil on RF block L151	1.3±0.1V
2	600kHz 400Hz 30% mod. 60dB/m	600kHz	AC voltmeter	RF coil on RF block L151	Maximum
3	990kHz 400Hz 30% mod. 60dB/m	990kHz	AC voltmeter	L152	Maximum

### Reference Specification

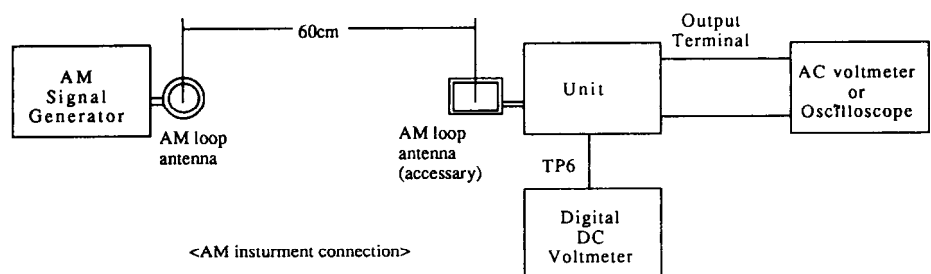
FM tuned voltage:87.9MHz~107.9MHz  
More than 1.3V~Less than 10V  
AM tuned voltage:530kHz~1710kHz  
1.3±0.2V~Less than 9.0V

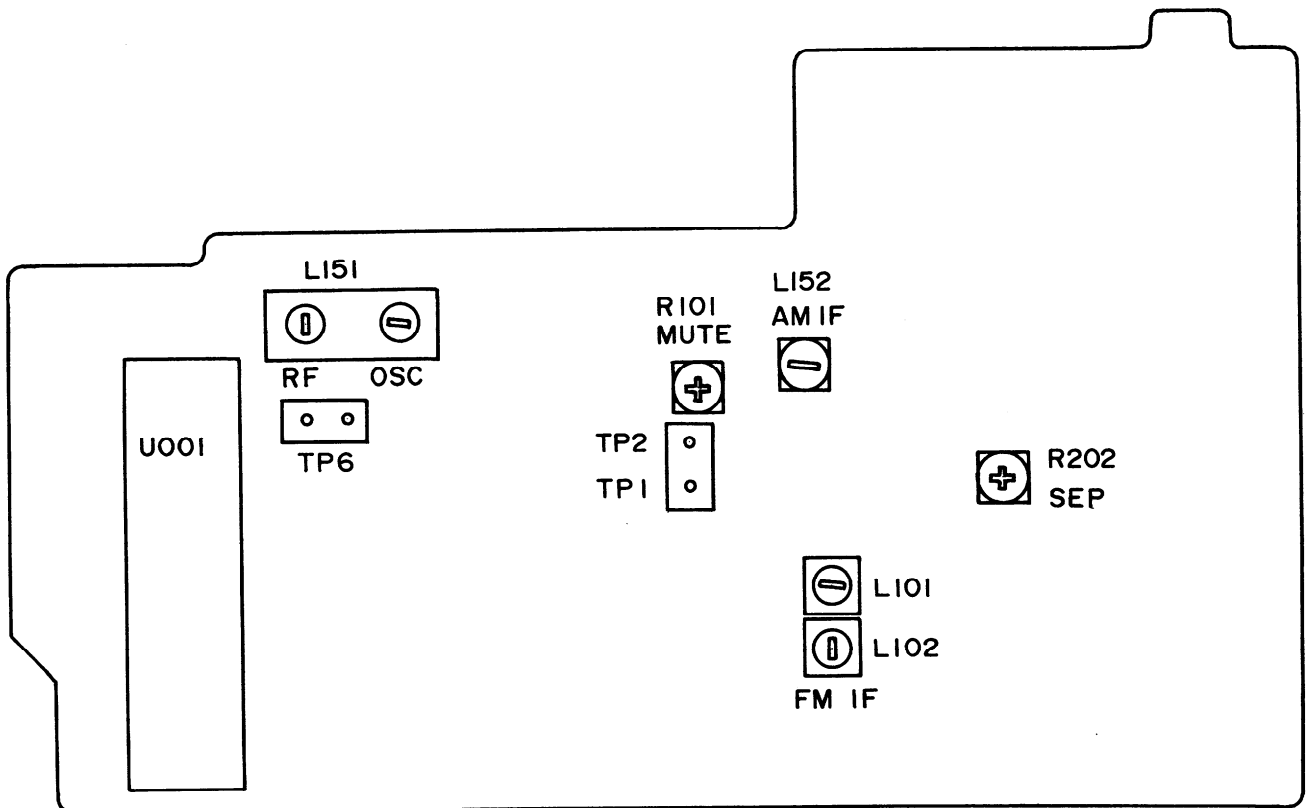
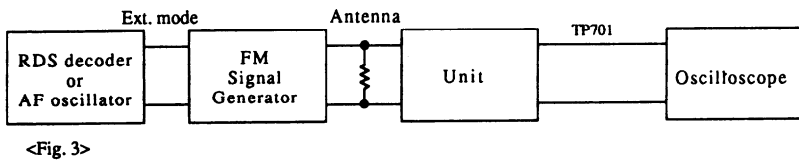
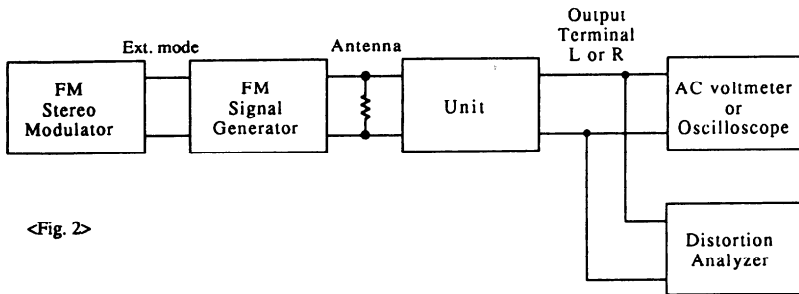
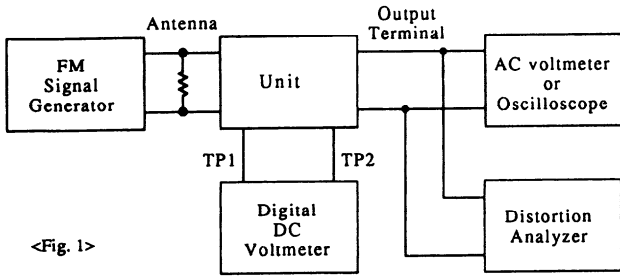
230V and worldwide models

Step	AM SG output	Tuning Frequency	Output Indicator	Adjustment point	Adjust for
1		522kHz or 531kHz	Digital DC voltmeter	OSC coil on RF block L151	1.3±0.1V
2	603kHz 400Hz 30% mod. 60dB/m	603kHz	AC voltmeter	RF coil on RF block L151	Maximum
3	999kHz 400Hz 30% mod. 60dB/m	999kHz	AC voltmeter	L152	Maximum

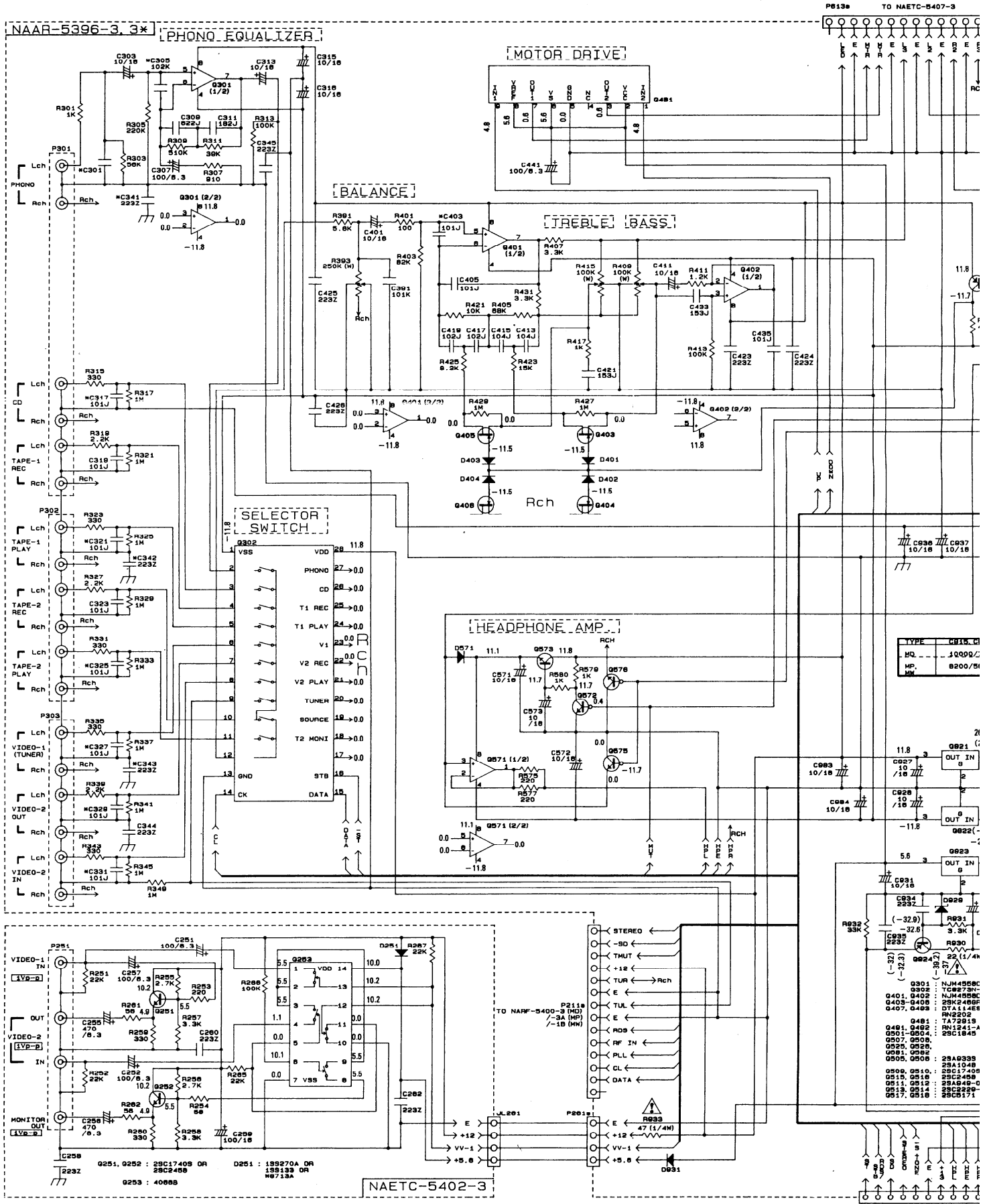
### Reference Specification

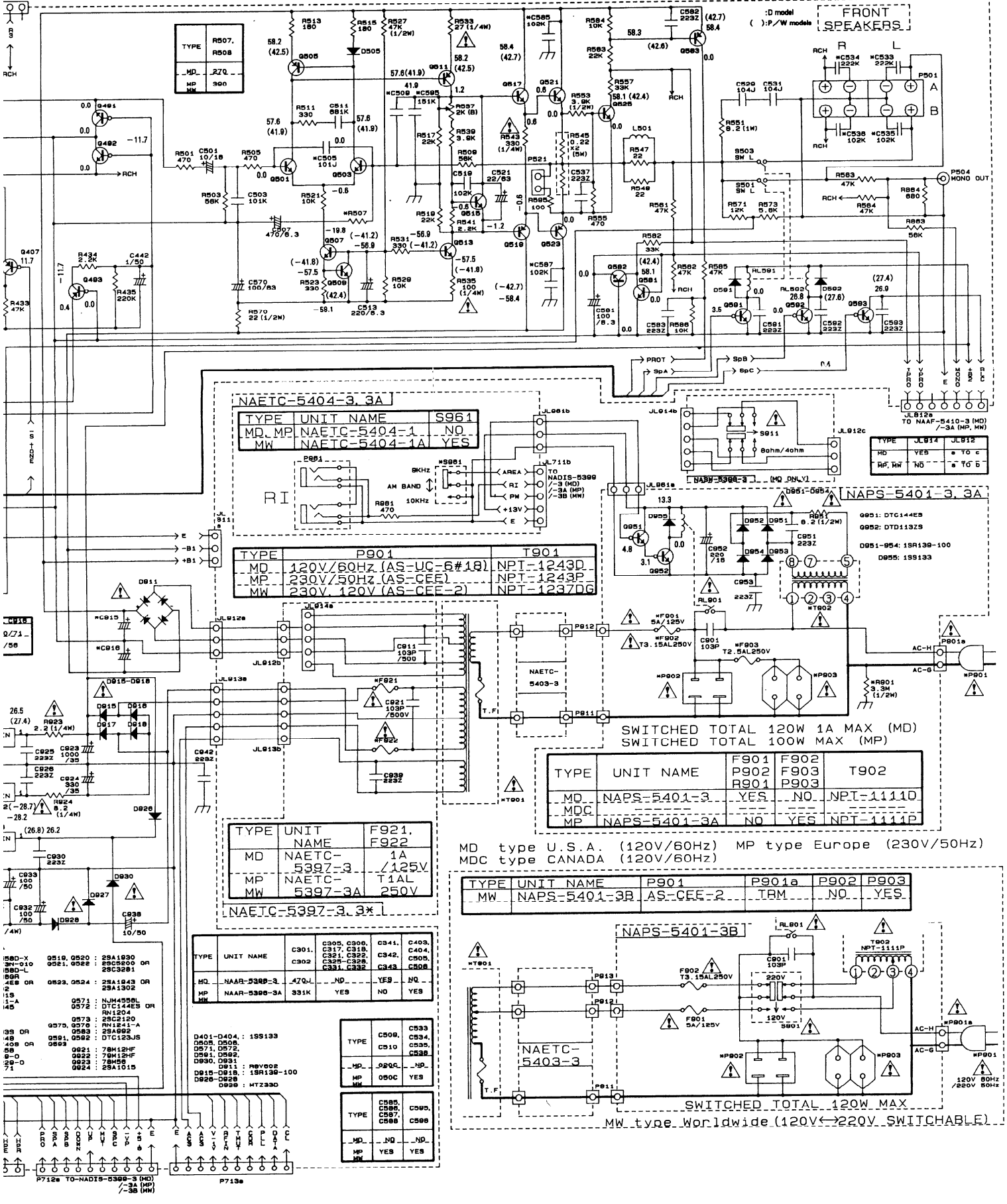
FM tuned voltage:87.5MHz~108.0MHz  
More than 1.3V~Less than 10V  
AM tuned voltage:522kHz~1611kHz  
1.3±0.2V~Less than 9.0V (230V model)  
AM tuned voltage:531kHz~1602kHz  
1.3±0.2V~Less than 9.0V (Worldwide model)





# SCHEMATIC DIAGRAM





TYPE	R507.
MD	27Q
MP	300

TYPE	UNIT NAME	S961
MD, MP	NAETC-5404-1	NO
MW	NAETC-5404-1A	YES

TYPE	P901	T901
MD	120V/60Hz (AS-UC-6#18)	NPT-1243D
MP	230V/50Hz (AS-CEE)	NPT-1243P
MW	230V, 120V (AS-CEE-2)	NPT-12370G

TYPE	UNIT NAME	F901	F902	F903	T902
MD	NAPS-5401-3	YES	NO	NO	NPT-1111D
MDC	NAPS-5401-3A	NO	YES	NO	NPT-1111P
MP	NAPS-5401-3A	NO	YES	NO	NPT-1111P

TYPE	UNIT NAME	F921.	F922
MD	NAETC-1A	5397-3	125V
MP	NAETC-1A	5397-3	125V
MW	NAETC-3A	5397-3A	250V

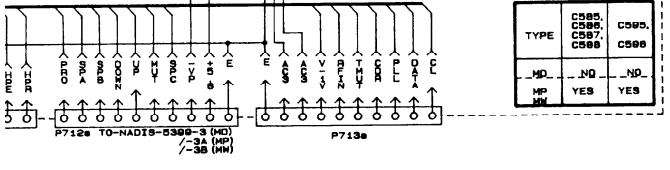
MD type U.S.A. (120V/60Hz) MP type Europe (230V/50Hz)  
 MDC type CANADA (120V/60Hz)

TYPE	UNIT NAME	P901	P901a	P902	P903
MW	NAPS-5401-3B	AS-CEE-2	IRM	NO	YES

TYPE	UNIT NAME	C301.	C305.	C306.	C317.	C318.	C321.	C322.	C323.	C324.	C325.	C326.	C327.	C328.	C329.	C330.	C331.	C332.	C333.	C334.	C335.	C336.	C337.	C338.	C339.	C340.	C341.	C342.	C343.	C344.	C345.	C346.	C347.	C348.	C349.	C350.	C351.	C352.	C353.	C354.	C355.	C356.	C357.	C358.	C359.	C360.	C361.	C362.	C363.	C364.	C365.	C366.	C367.	C368.	C369.	C370.	C371.	C372.	C373.	C374.	C375.	C376.	C377.	C378.	C379.	C380.	C381.	C382.	C383.	C384.	C385.	C386.	C387.	C388.	C389.	C390.	C391.	C392.	C393.	C394.	C395.	C396.	C397.	C398.	C399.	C400.	C401.	C402.	C403.	C404.	C405.	C406.	C407.	C408.	C409.	C410.	C411.	C412.	C413.	C414.	C415.	C416.	C417.	C418.	C419.	C420.	C421.	C422.	C423.	C424.	C425.	C426.	C427.	C428.	C429.	C430.	C431.	C432.	C433.	C434.	C435.	C436.	C437.	C438.	C439.	C440.	C441.	C442.	C443.	C444.	C445.	C446.	C447.	C448.	C449.	C450.	C451.	C452.	C453.	C454.	C455.	C456.	C457.	C458.	C459.	C460.	C461.	C462.	C463.	C464.	C465.	C466.	C467.	C468.	C469.	C470.	C471.	C472.	C473.	C474.	C475.	C476.	C477.	C478.	C479.	C480.	C481.	C482.	C483.	C484.	C485.	C486.	C487.	C488.	C489.	C490.	C491.	C492.	C493.	C494.	C495.	C496.	C497.	C498.	C499.	C500.	C501.	C502.	C503.	C504.	C505.	C506.	C507.	C508.	C509.	C510.	C511.	C512.	C513.	C514.	C515.	C516.	C517.	C518.	C519.	C520.	C521.	C522.	C523.	C524.	C525.	C526.	C527.	C528.	C529.	C530.	C531.	C532.	C533.	C534.	C535.	C536.	C537.	C538.	C539.	C540.	C541.	C542.	C543.	C544.	C545.	C546.	C547.	C548.	C549.	C550.	C551.	C552.	C553.	C554.	C555.	C556.	C557.	C558.	C559.	C560.	C561.	C562.	C563.	C564.	C565.	C566.	C567.	C568.	C569.	C570.	C571.	C572.	C573.	C574.	C575.	C576.	C577.	C578.	C579.	C580.	C581.	C582.	C583.	C584.	C585.	C586.	C587.	C588.	C589.	C590.	C591.	C592.	C593.	C594.	C595.
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TYPE	UNIT NAME	C509.	C533
MD	NAETC-1A	C509.	C533
MP	NAETC-1A	C509.	C533
MW	NAETC-3A	C509C	YES

TYPE	C509.	C533
MD	NO	NO
MP	YES	YES
MW	YES	YES

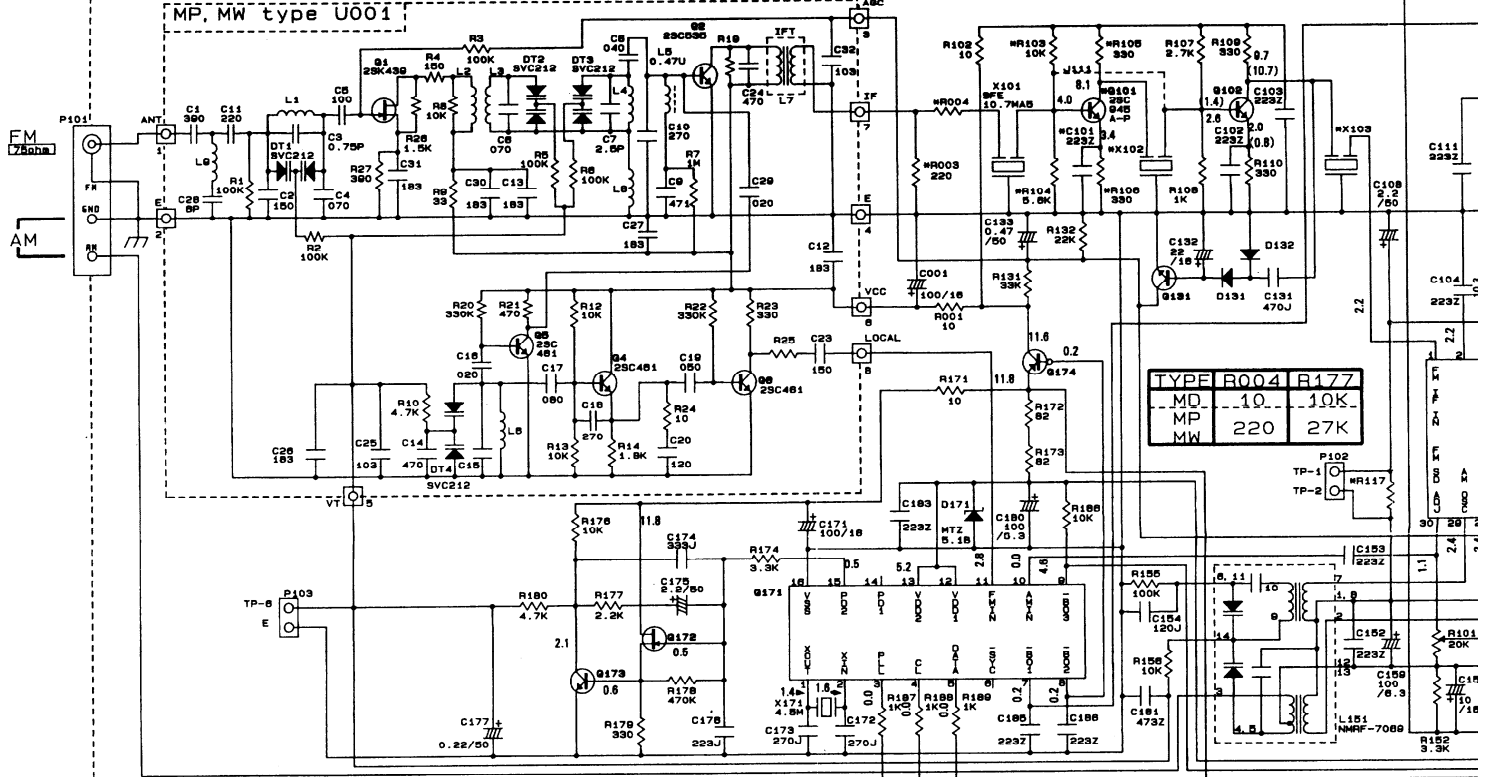




**SCHEMATIC DIAGRAM**

NARF-5400-3, 3A, 3B, 3C

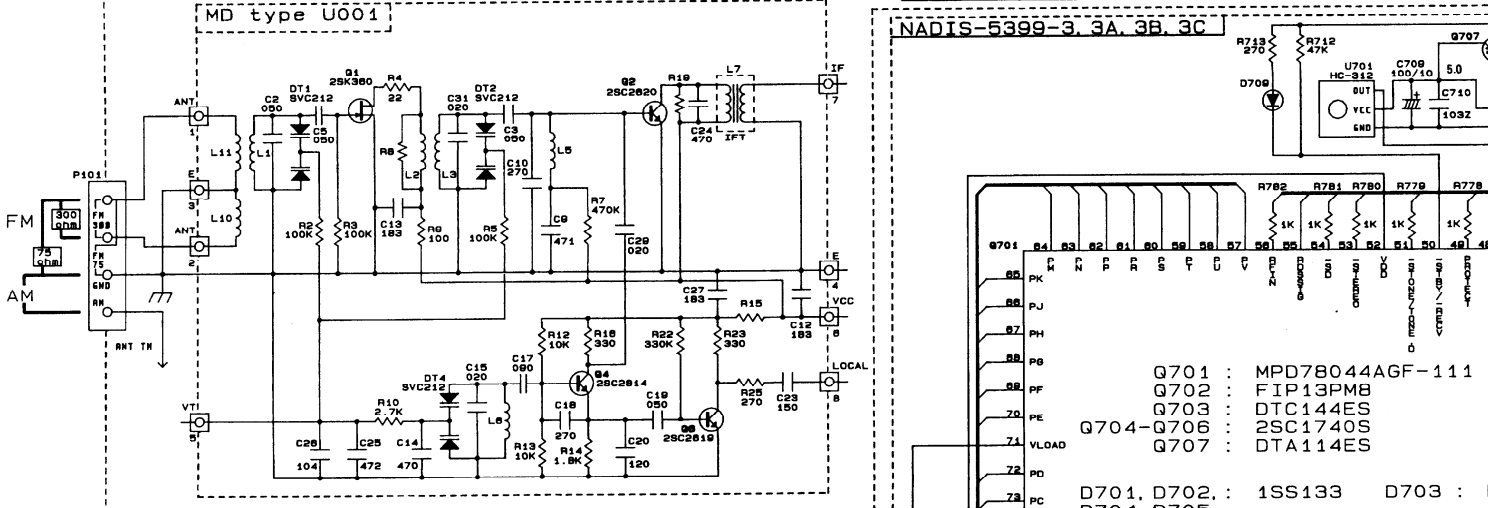
MP, MW type U001



TYPE	R004	R177
MD	10	10K
MP	220	27K
MW	220	27K

MD type U001

NADIS-5399-3, 3A, 3B, 3C



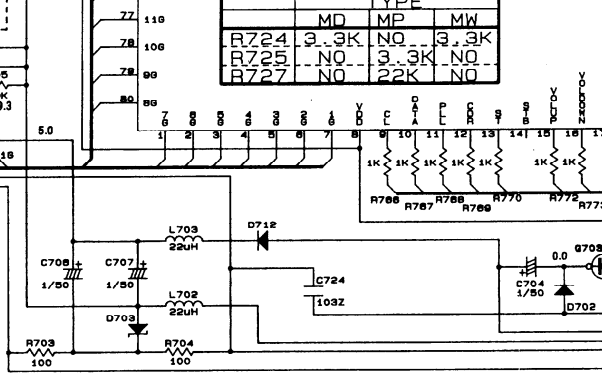
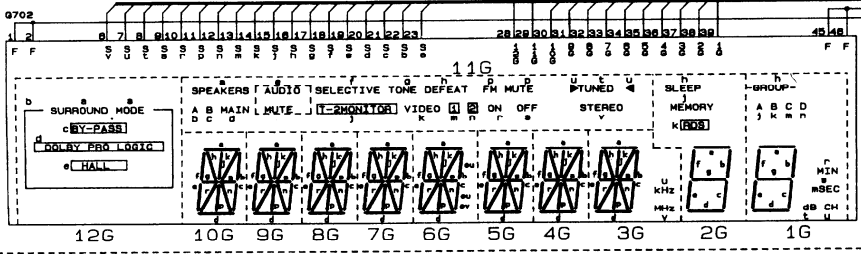
- Q701 : MPD78044AGF-111
- Q702 : FIP13PMB
- Q703 : DTC144ES
- Q704-Q706 : 2SC1740S
- Q707 : DTA114ES

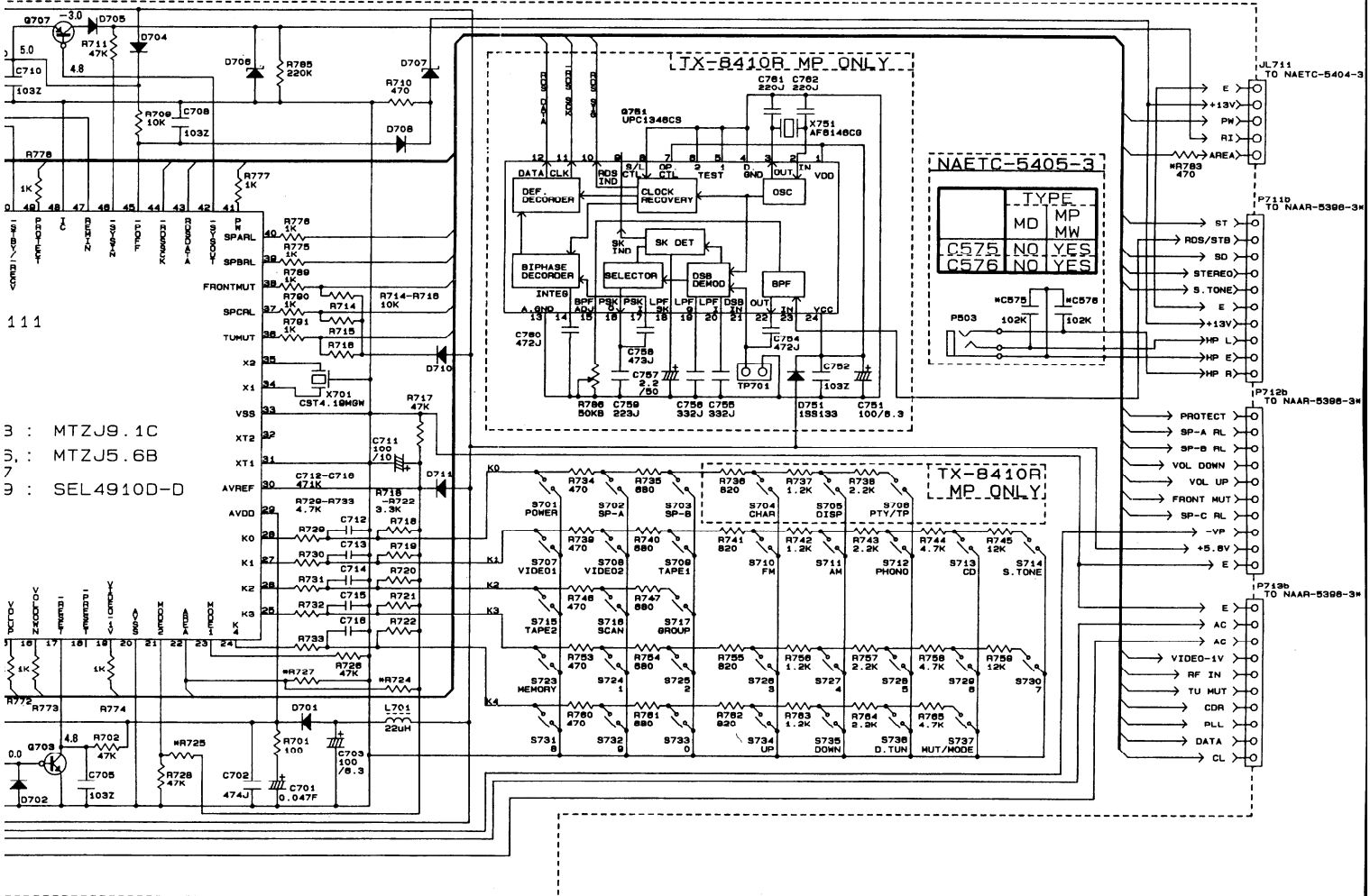
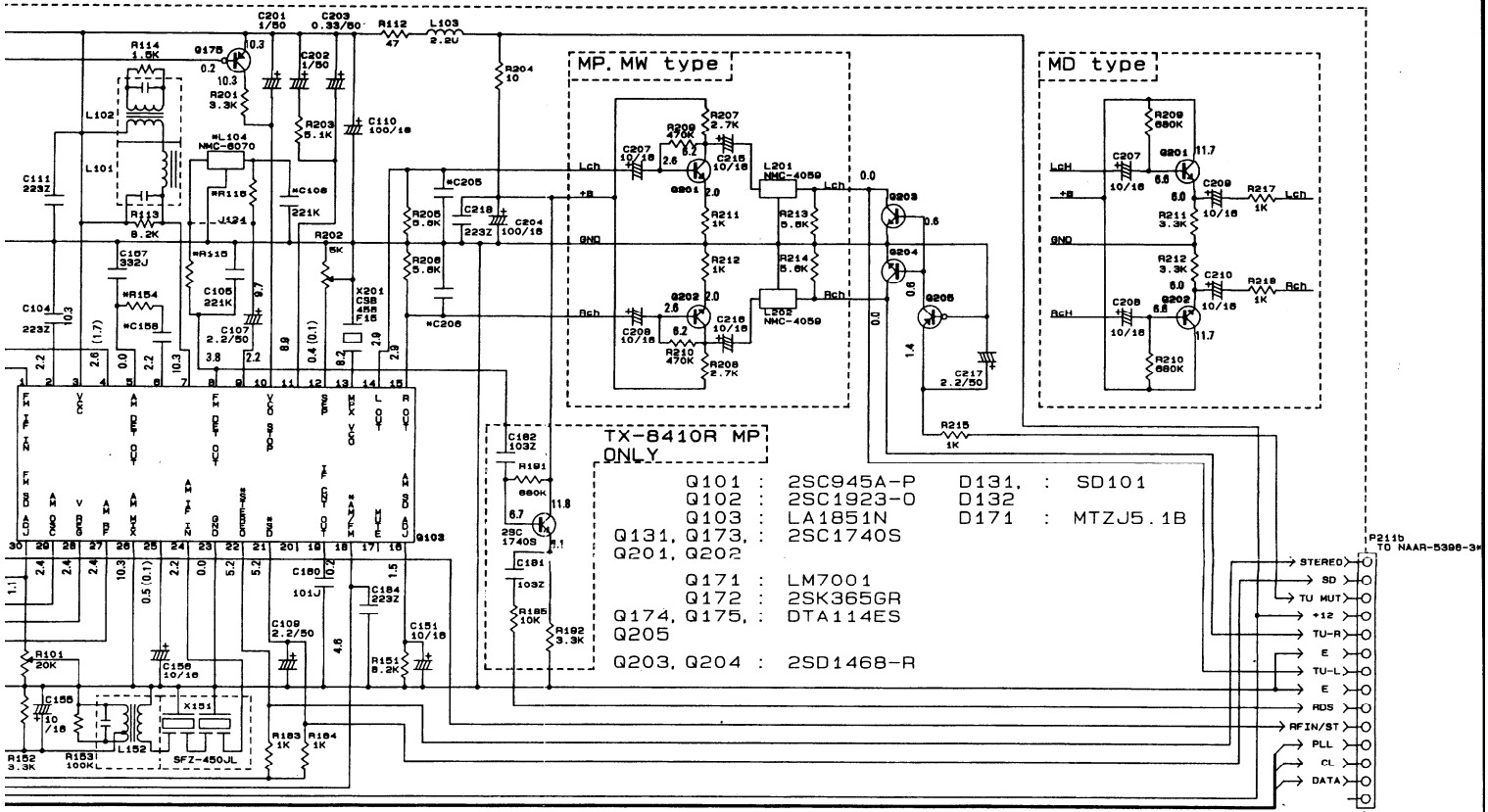
- D701, D702 : 1SS133
- D703 : 1SS133
- D704, D705 : 1SS133
- D706 : 1SS133
- D707 : 1SS133
- D708, D710, D711, D712 : 1SS133

TYPE	R003	R103-R106	C101	Q101	R115	X102	X103	R116
MD	NO	NO	NO	NO	4.7K	NO	SFF10.7MA5	NO
MP	YES	YES	YES	YES	5.6K	SFF10.7MA5	SFF10.7M22A	6.2K
MW	YES	YES	YES	YES	5.6K	SFF10.7MA5	SFF10.7M22A	6.2K

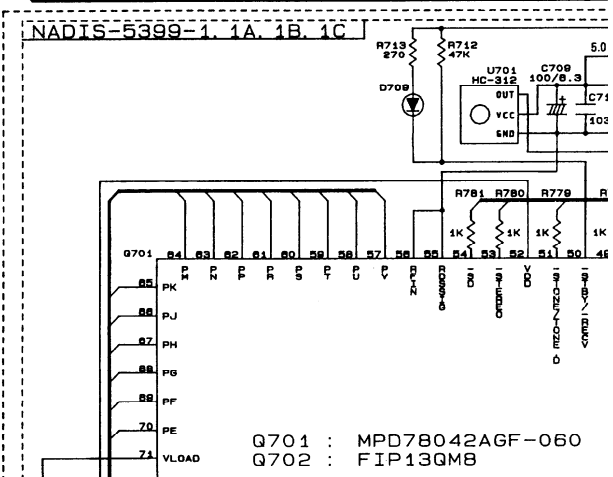
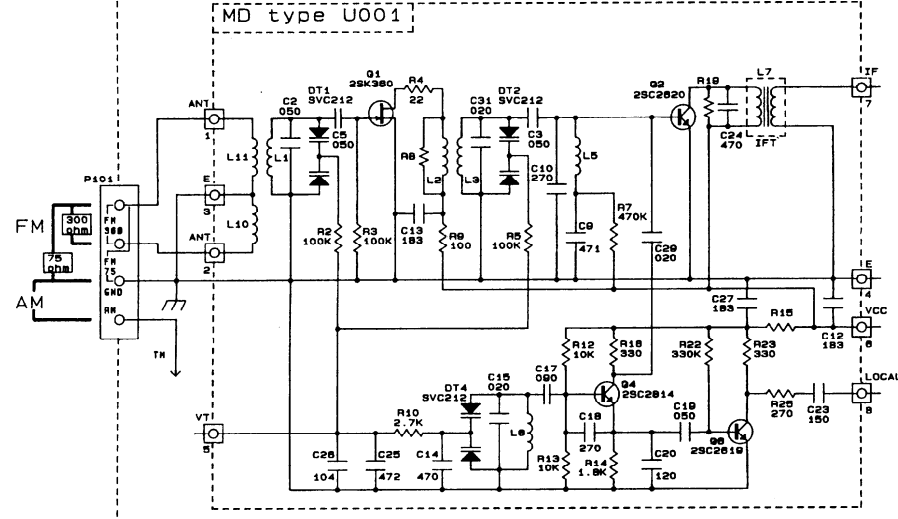
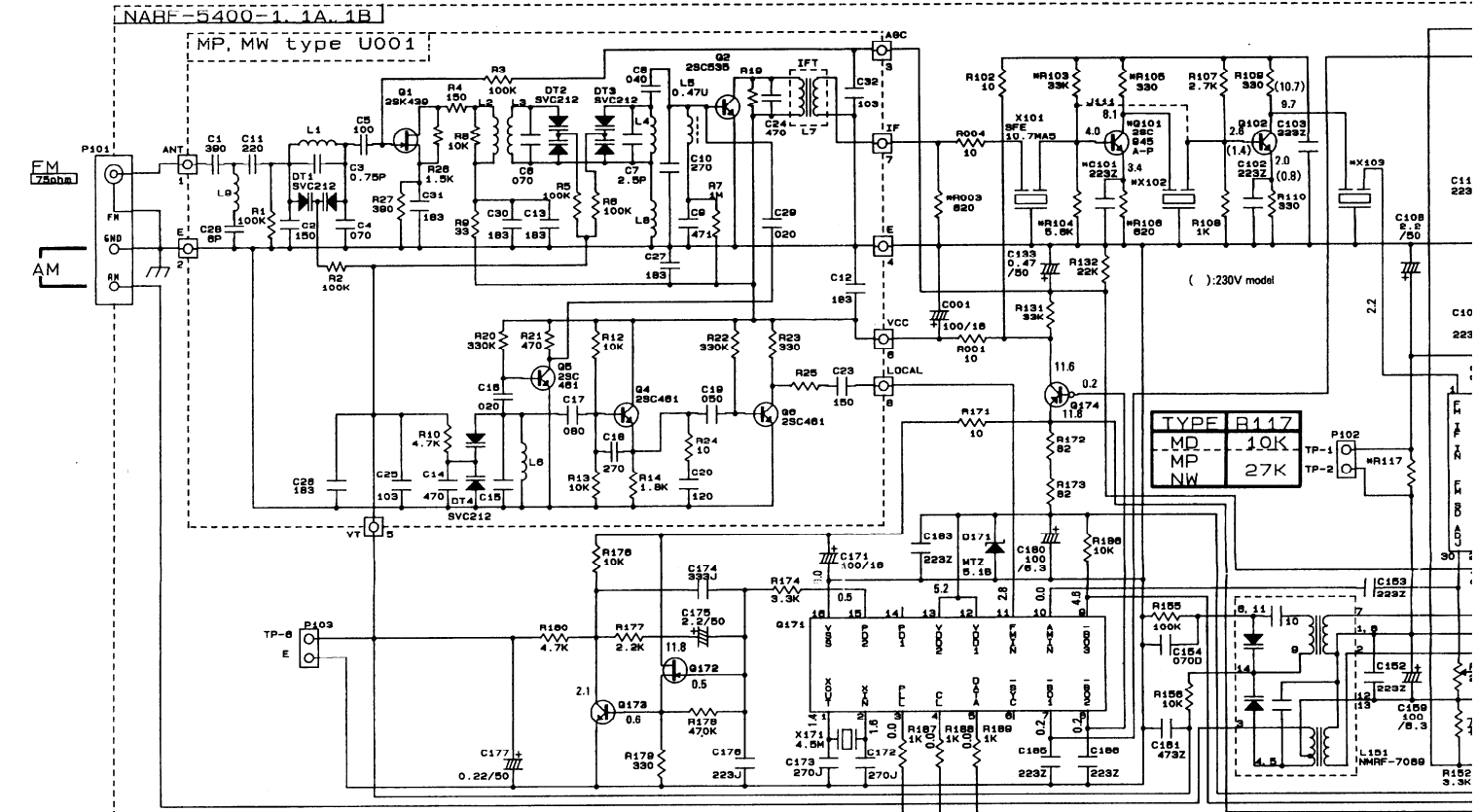
TYPE	C106	L104	R154	C158	C205, C206	R783	R708
MD	NO	NO	.47K	153J	153J	NO	QTP ONLY
MP	YES	YES	100K	103J	103J	NO	QTP ONLY
MW	YES	YES	100K	103J	122J	YES	QTP ONLY

R	TYPE	MW
R724	3.3K	3.3K
R725	NO	3.3K
R727	NO	22K





# SCHEMATIC DIAGRAM

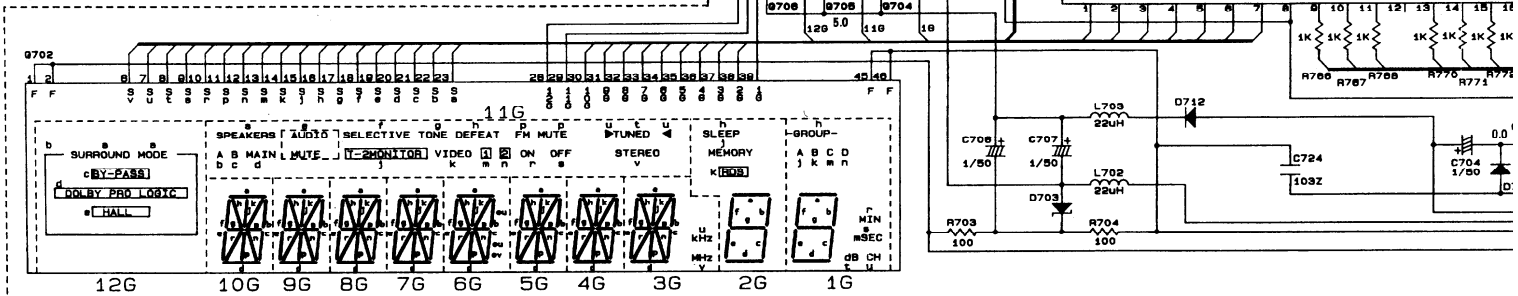


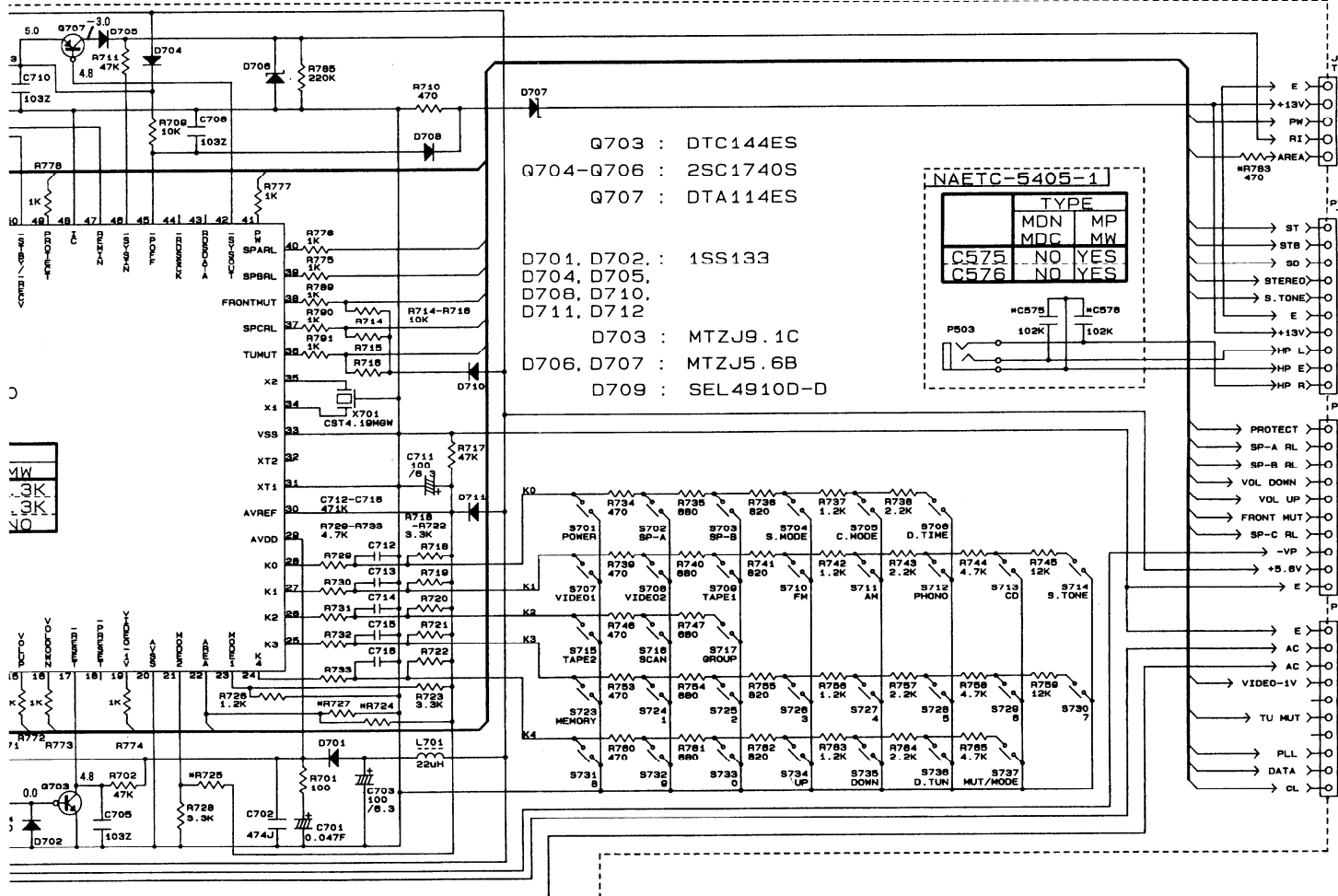
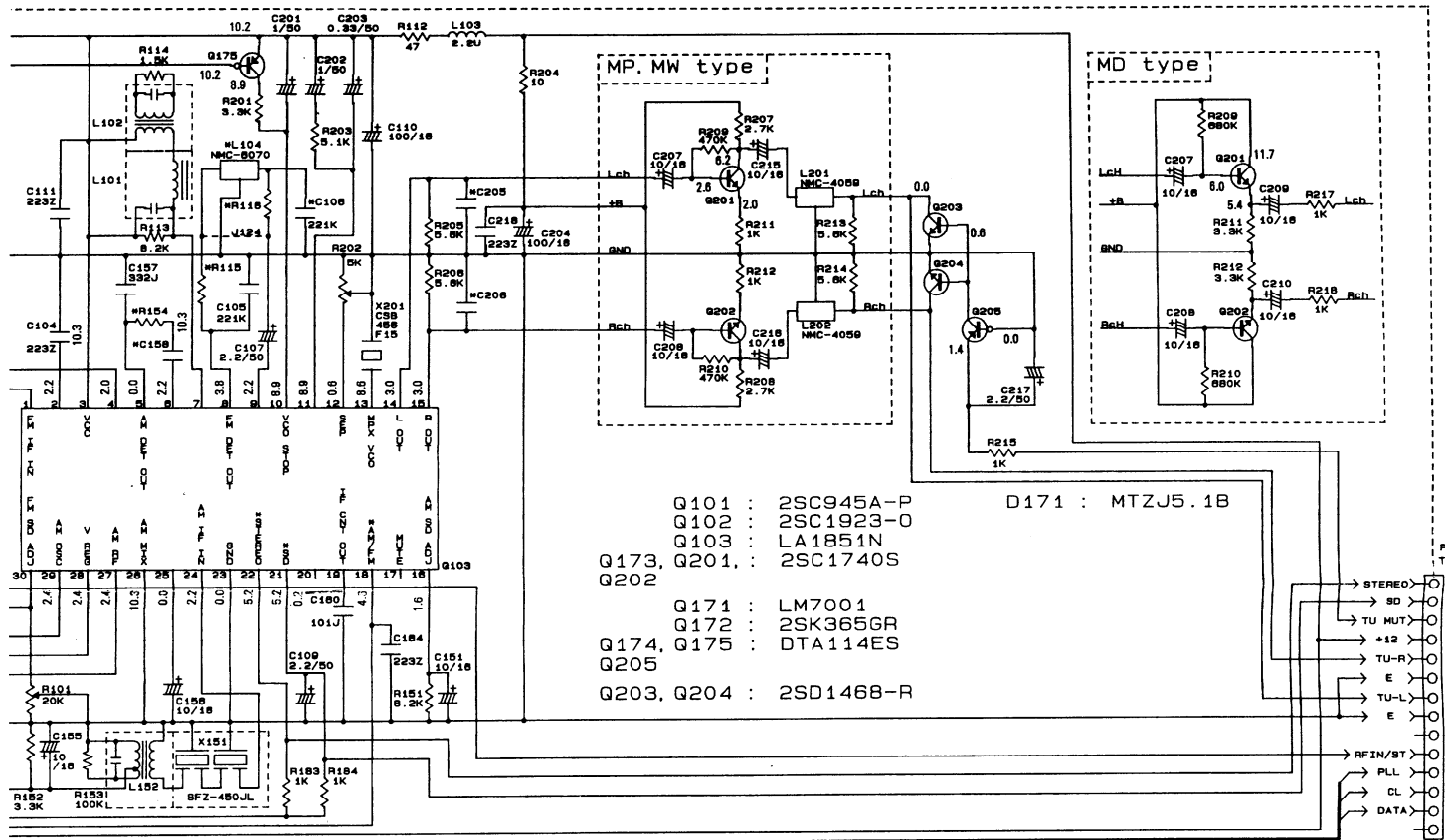
TYPE	R003	R103-R106	C101	Q101	R115	X102	X103	R116
MD	NO	NO	NO	NO	4.7K	NO	SEE 10.7MA5	NO
MP	YES	YES	YES	YES	5.6K	SEE 10.7MA5	SEE 10.7MZA16.2K	
MW	YES	YES	YES	YES	5.6K	SEE 10.7MA5	SEE 10.7MZA16.2K	

TYPE	C106	L104	R154	C158	C205, C206	R783	R708
MD	NO	NO	47K	153J	153J	NO	OTP ONLY
MP	YES	YES	100K	103J	103J	NO	OTP ONLY
MW	YES	YES	100K	103J	122J	YES	OTP ONLY

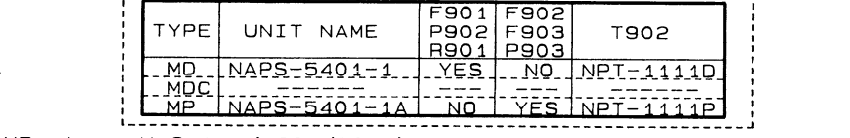
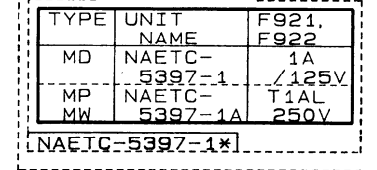
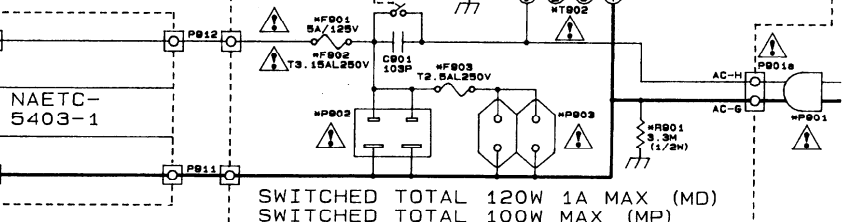
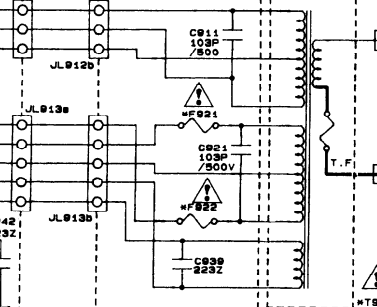
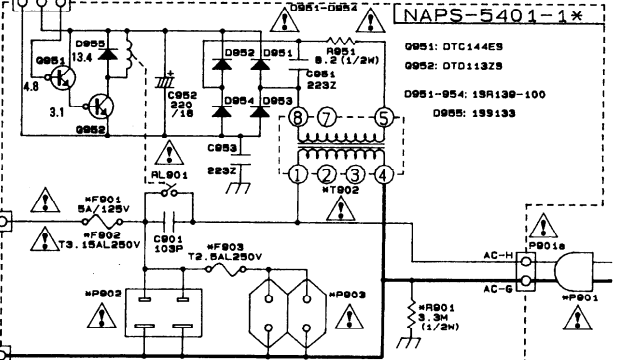
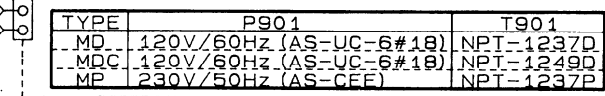
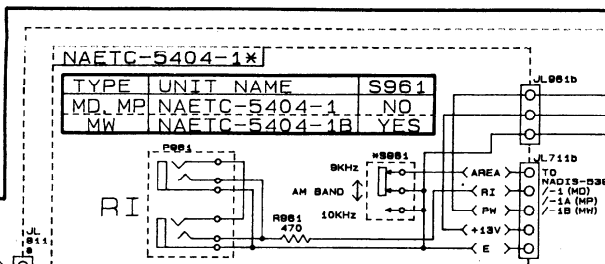
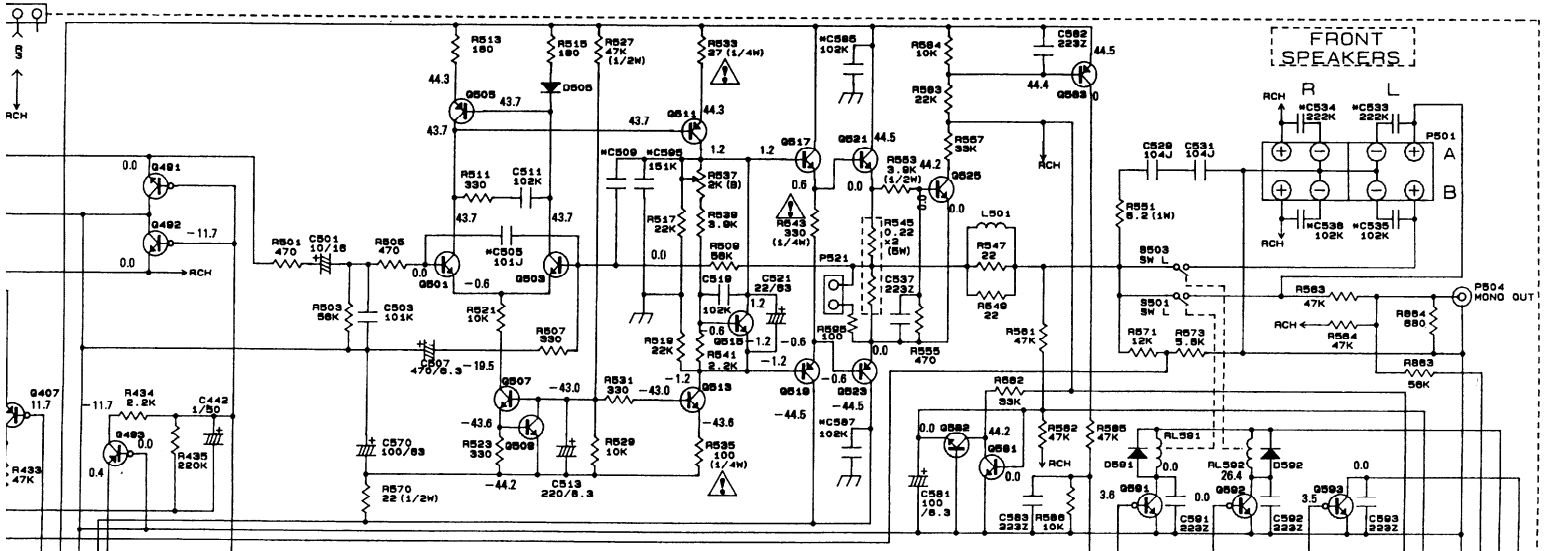
Q701 : MPD7B042AGF-060  
 Q702 : FIP13QMB

	TYPE			
	MDN	MDC	MP	MW
R724	3.3K	3.3K	NO	3.3K
R725	NO	3.3K	3.3K	3.3K
R727	NO	NO	22K	NO

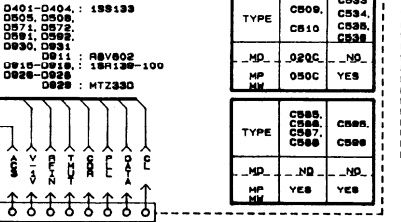
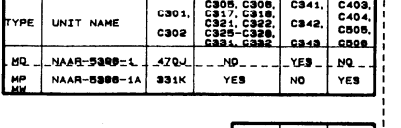




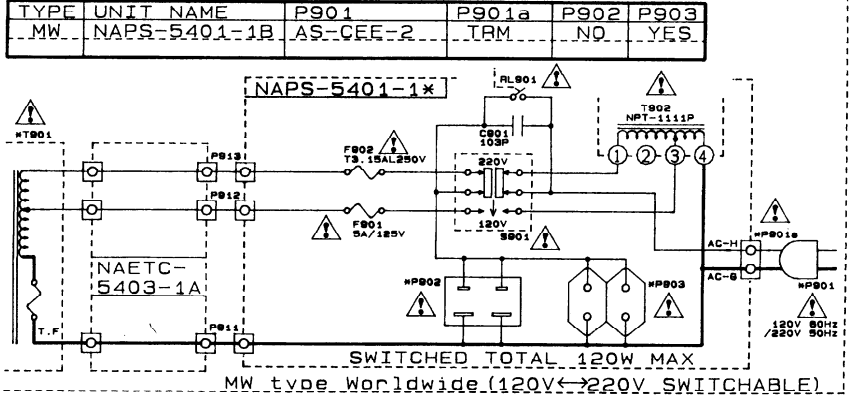




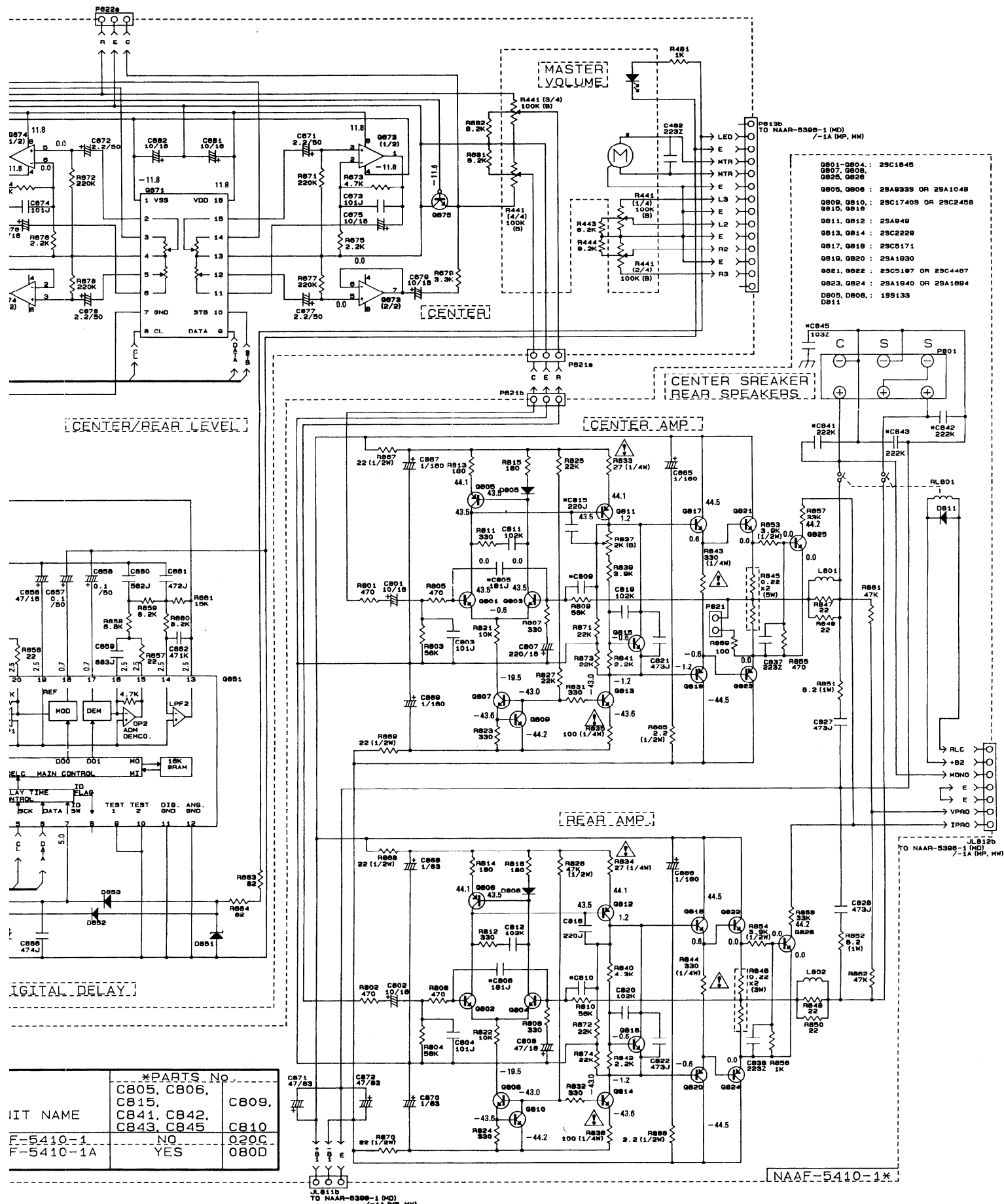
- Q518, Q520: 2SA1930
- Q521, Q522: 2BC198B OR 2BC198C OR 2BC198N
- Q523, Q524: 2SA1941 OR 2SA1945 OR 2SA1949N
- Q525: NJM4558
- Q526: DTC144ES OR NJM4558
- Q527: 2NC2120
- Q528: 2SA1241-A
- Q529: 2SA1942
- Q530: 2SA1942
- Q531: 2SA1942
- Q532: 2SA1015
- Q533: 78M12HF
- Q534: 78M12HF
- Q535: 78M12HF
- Q536: 2SA1015



MD type U.S.A. (120V/60Hz) MP type Europe (230V/50Hz)  
MDC type CANADA (120V/60Hz)









# PRINTED CIRCUIT BOARD-PARTS LIST

## MODEL TX-SV424

### MAIN CIRCUIT PC BOARD(NAAR-5396-1/1A)

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>ICs</b>			<b>Diodes</b>	
Q301	222502	NJM4558D-X	D915~D918	22380032	1SR139-100
Q302	22240881	TC9273N-010	D926~D928	22380032	1SR139-100
Q401,Q402	22240247 or 22240293	BA15218N or NJM4558L-D	D929	224473304	MTZJ33D
Q481	22240239	TA7291S	D930,D931	223163	1SS133
Q571	22240752	NJM4556L		<b>Relaies</b>	
Q921	222780125NEC	$\mu$ PC78M12AHF	RL591,RL592	25065485	NRL-2P2A-DC24-086
Q922	222790125	79M12HF		<b>Coils</b>	
Q923	222780565JRC	NJM78M56FA	L501,L502	231176S	S-1.3C
	<b>Transistors</b>			<b>Capacitors</b>	
Q403~Q406	2211945	2SK246-GR	C303,C304	354741009	10 $\mu$ F,16V,Elect.
Q407	2213510	DTA114ES	C307,C308	354721019	100 $\mu$ F,6.3V,Elect.
Q491,Q492	2213631 or 2213632	RN1241-A or RN1241-B	C309,C310	374726224	6200pF $\pm$ 5%,50V,Plastic
Q493	2213510	DTA114ES	C311,C312	374721824	1800pF $\pm$ 5%,50V,Plastic
Q501~Q504	2211732 or 2211733	* 2SC1845-F or * 2SC1845-E	C313~C316	354741009	10 $\mu$ F,16V,Elect.
Q505,Q506	2213354	2SA933S-R	C391,C392	374721015	100pF $\pm$ 10%,50V,Plastic
Q507,Q508	2211732 or 2211733	2SC1845-F or 2SC1845-E	C401,C402	354741009	10 $\mu$ F,16V,Elect.
Q509,Q510	2213284	2SC1740S-R	C411,C412	354741009	10 $\mu$ F,16V,Elect.
Q511,Q512	2211353 or 2211354	2SA940-O or 2SA949-Y	C413~C416	374721044	0.1 $\mu$ F $\pm$ 5%,50V,Plastic
Q513,Q514	2211633 or 2211634	2SC2229-O or 2SC2229-Y	C417~C420	374721024	1000pF $\pm$ 5%,50V,Plastic
Q515,Q516	2213284	2SC1740S-R	C421,C422	374721534	0.015 $\mu$ F $\pm$ 5%,50V,Plastic
Q517,Q518	2203010 or 2201945	* 2SC5171 or * 2SD1763-E	C433,C434	374721534	0.015 $\mu$ F $\pm$ 5%,50V,Plastic
Q519,Q520	2203000 or 2201935	* 2SA1930 or * 2SB1186-E	C435,C436	374721015	100pF $\pm$ 10%,50V,Plastic
Q521,Q522	2203063, 2202524, 2202526,	* 2SC5198-O, * 2SC4468-Y, * 2SC4468-P,	C441	354721019	100 $\mu$ F,6.3V,Elect.
Q523,Q524	2202523 or 2202293 2203053, — 2202514, 2202516, 2202513 or 2202283	* 2SC4468-O or * 2SC3182N-O * 2SA1941-O, * 2SA1695-Y, * 2SA1695-P, * 2SA1695-O or * 2SA1265N-O	C442	354780109	1 $\mu$ F,50V,Elect.
Q525,Q526	2211732 or 2211733	2SC1845-F or 2SC1845-E	C501,C502	354741009	10 $\mu$ F,16V,Elect.
Q572	221282	DTC144ES	C503,C504	374721015	100pF $\pm$ 10%,50V,Plastic
Q573	2211164	2SC2120-Y	C507,C508	354724719	470 $\mu$ F,6.3V,Elect.
Q575,Q576	2213631 or 2213632	RN1241-A or RN1241-B	C513,C514	354722219	220 $\mu$ F,6.3V,Elect.
Q581,Q582	2211732 or 2211733	2SC1845-F or 2SC1845-E	C521,C522	354772209	22 $\mu$ F,63V,Elect.
Q583	2211792 or 2211793	2SA992-F or 2SA992-E	C529~C532	374721044	0.1 $\mu$ F $\pm$ 5%,50V,Plastic
Q591~Q593	2213640	DTC123JS	C570	354771019	100 $\mu$ F,63V,Elect.
Q924	2211455	2SA1015-GR	C571,C573	354741009	10 $\mu$ F,16V,Elect.
	<b>Diodes</b>		C572	353741009	10 $\mu$ F,16V,Elect.
D401~D404	223163	1SS133	C5781	354721019	100 $\mu$ F,6.3V,Elect.
D505,D506	223163	1SS133	C915,C916	3504287	8200 $\mu$ F,56V,Elect.
D571,D572	223163	1SS133	C923	354761029	1000 $\mu$ F,35V,Elect.
D591,D592	223163	1SS133	C924	354763319	330 $\mu$ F,35V,Elect.
D911	22380038	RBV602	C927,C928	354741009	10 $\mu$ F,16V,Elect.
			C931	354741009	10 $\mu$ F,16V,Elect.
			C932,C933	354781019	100 $\mu$ F,50V,Elect.
			C936,C937	354741009	10 $\mu$ F,16V,Elect.
			C938	354781009	10 $\mu$ F,50V,Elect.
			C983,C984	354741009	10 $\mu$ F,16V,Elect.
				<b>Resistors</b>	
			R393	<u>5104288</u>	N11RLC250KWT20Z,Balance
			R409,R415	5104356	N14RLC100KWT20Z,Tone
			R527,R528	443524734	47 kOhm $\pm$ 5%,1/2W,Metal oxide
			R533,R534	4500081	27 Ohm $\pm$ 5%,1/4W,Metal
			R535,R536	4500095	100 Ohm $\pm$ 5%,1/4W,Metal
			R537,R538	5210259	N06HR 2KBC, Trim
			R543,R544	4500107	330 Ohm $\pm$ 5%,1/4W,Metal
			R545,R546	4000132	RGC55 0.22 OHMK, Metal plate
			R551,R552	453630824	8.2 Ohm $\pm$ 5%,1W,Metal
			R553,R554	443523924	3.9 kOhm $\pm$ 5%,1/2W,Metal oxide
			R570	443522204	22 Ohm $\pm$ 5%,1/2W,Metal oxide
			R923	4500055	2.2 Ohm $\pm$ 5%,1/4W,Metal
			R924	4500069	8.2 Ohm $\pm$ 5%,1/4W,Metal
			R927,R930	4500079	22 Ohm $\pm$ 5%,1/4W,Metal
			R933	4500087	47 Ohm $\pm$ 5%,1/4W,Metal

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Wire holder</b>	
JL711a	25051089	NSCT-5P876
	<b>Plugs</b>	
P711b~P713b	25055695	NPLG-10P615
	<b>Switches</b>	
S701~S717	25035652	NPS-111-S604
S723~S737	25035652	NPS-111-S604
	<b>Holder</b>	
Q702a	27190937AY	FL
<b>TUNER CIRCUIT PC BOARD(NARF-5400-1/1A/1B)</b>		
CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Front end</b>	
U001	240098Y	ENV172C6G1 <D>
	240103Y	ENV172A2G1 <P/W>
	<b>ICs</b>	
Q103	22240749Y	LA1851N
Q171	22240090	LM7001
	<b>Transistors</b>	
Q101	2210746	2SC945A-P <P/W>
Q102	2211723	2SC1923-O
Q172	2212445	2SK365-GR
Q173	2213284	2SC1740S-R
Q174,Q175	2213510	DTA114ES
Q201,Q202	2213284	2SC1740S-R
Q203,Q204	2212794	2SD1468-R
Q205	2213510	DTA114ES
	<b>Diode</b>	
D171	224470512	MTZJ5.1B
	<b>Coils and transformers</b>	
L101	233480AY	NFIF-4090
L102	233481Y	NFIF-4091
L103	233454M022	NCH-1452
L104	233383	NMC-6070 <P/W>
L151	231226Y	NMRF-7069
L152	232166Y	NMIF-4089
L201,L202	233355A	NMC-4059 <P/W>
	<b>Ceramic filters</b>	
X101	3010071	SFE10.7MA5
X102	3010071	SFE10.7MA5 <P/W>
X103	3010071	SFE10.7MA5 <D>
	3010130	SFE10.7MZ2A <P/W>
X151	3010123	SFZ-450JL
	<b>Resonators</b>	
X171	3010158 or 3010141	XTL7.2M or XTL7.2M,Crystal
X201	3010227Y	CSB456F15,Ceramic
	<b>Capacitors</b>	
C001	354741019	100 $\mu$ F,16V,Elect.
C107-C109	354780229	2.2 $\mu$ F,50V,Elect.
C110	354741019	100 $\mu$ F,16V,Elect.
C133	354784799	0.47 $\mu$ F,50V,Elect.
C151	354741009	10 $\mu$ F,16V,Elect.
C155,C156	354741009	10 $\mu$ F,16V,Elect.
C157	374723324	3300pF $\pm$ 5%,50V,Plastic
C158	374721534	0.015 $\mu$ F $\pm$ 5%,50V,Plastic <D>
	374721034	0.01 $\mu$ F $\pm$ 5%,50V,Plastic <P/W>
C159	354721019	100 $\mu$ F,6.3V,Elect.
C171	354741019	100 $\mu$ F,16V,Elect.
C174	374723334	0.033 $\mu$ F $\pm$ 5%,50V,Plastic

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Terminals</b>	
P301~P303	25045300	NPJ-6PDBL159
P501	25060224	NTM-8PDML146
P504	25045302	NPJ-1PDBL161
	<b>Sockets</b>	
P711a~P713a	25051046	NSCT-10P833
	<b>Plugs</b>	
P211a,P613a	25055652	NPLG-14P608
P611a	25055678	NPLG-8P634
P612a	25055649	NPLG-8P605
	<b>Wire holders</b>	
JL261a	25051088	NSCT-4P875
JL811a	25051107	NSCT-3P894
JL812a	25051111	NSCT-7P898
JL912a	25051110	NSCT-4P895
JL913a	25051109	NSCT-5P896
	<b>Radiators</b>	
Q921a	27160209	RAD-67
D911a	27160227	RAD-076

**POWER SUPPLY CIRCUIT PC BOARD(NAETC-5397-1/1A)**

CIRCUIT NO.	PART NO.	DESCRIPTION
F921,F922	252156Y	$\Delta$ 1A-UL/T-237, Secondary fuse <D>
	252070	$\Delta$ 1A-SE-EAK, Secondary fuse <P/W>
F921a,F922a	25050065	$\Delta$ YSH403T,Fuseholder
JL912b	25051108	NSCT-4P895,Wire holder
JL913b	25051109	NSCT-5P896,Wire holder
A961	29360398	$\Delta$ Fuse label <P/W>

**DISPLAY CIRCUIT PC BOARD(NADIS-5399-1/1A/1B/1C)**

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Remote sensor</b>	
U701	24130010	HC-312
	<b>IC</b>	
Q701	22240901	$\mu$ PD78042AGF-060
	<b>FL tube</b>	
Q702	212143	FIP13QM8
	<b>Transistors</b>	
Q703	221282	DTC144ES
Q704~Q706	2213284	2SC1740S-R
Q707	2213510	DTA114ES
	<b>Diodes</b>	
D701,D702	223163	1SS133
D703	224470913	MTZJ9.1C
D704,D705	223163	1SS133
D706,D707	224470562	MTZJ5.6B
D708	223163	1SS133
D709	225291D	SEL4910D-D,LED
D710~D712	223163	1SS133
	<b>Coils</b>	
L701~L703	233454K220	NCH-1452,220K
	<b>Resonator</b>	
X701	3010163	CST4.19MGW,Ceramic
	<b>Capacitors</b>	
C701	3000075	0.047F, 5.5V, Super
C702	375524744	0.47 $\mu$ F $\pm$ 5%,50V,Plastic
C703	354721019	100 $\mu$ F,6.3V,Elect.
C704,C706,C707	354780109	1 $\mu$ F,50V,Elect.
C709,C711	354721019	100 $\mu$ F,6.3V,Elect.

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Capacitors</b>		
C175	354780229	2.2 $\mu$ F,50V,Elect.
C176	374722234	0.022 $\mu$ F $\pm$ 5%,50V,Plastic
C177	354782299	0.22 $\mu$ F,50V,Elect.
C180	354721019	100 $\mu$ F,6.3V,Elect.
C201,C202	354780109	1 $\mu$ F,50V,Elect.
C203	354783399	0.33 $\mu$ F,50V,Elect.
C204	354741019	100 $\mu$ F,16V,Elect.
C205,C206	374721534	0.015 $\mu$ F $\pm$ 5%,50V,Plastic <D>
	374721034	0.01 $\mu$ F $\pm$ 5%,50V,Plastic <P>
	374721234	0.012 $\mu$ F $\pm$ 5%,50V,Plastic <W>
C207~C210	354741009	10 $\mu$ F,16V,Elect.
C213~C216	354741009	10 $\mu$ F,16V,Elect. <P/W>
C217	354780229	2.2 $\mu$ F,50V,Elect.
<b>Resistors</b>		
R101	5210263	N06HR 20KBC, Trim
R202	5210261	N06HR 5KBC, Trim
<b>Terminals</b>		
P101	25060160	NTM-4PDML086 <D>
	25060117	NTM-2PDML051 <P/W>
<b>Socket</b>		
P211b	25050986	NSCT-14P773
<b>Shield plate</b>		
	27150346	<P/W>

#### POWER SUPPLY CIRCUIT PC BOARD(NAPS-5401-1/1A/1B/1C)

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Transistors</b>		
Q951	221282	DTC144ES
Q952	2213650	DTD113ZS
<b>Diodes</b>		
D951~D954	22380032	1SR139-100
D955	223163	1SS133
<b>Capacitors</b>		
C901	3500191Y	$\Delta$ DE7150FZ103PAC400V/125V
C952	354742219	220 $\mu$ F,16V,Elect.
<b>Resistors</b>		
R901	431523355	$\Delta$ 3.3 MOhm $\pm$ 20%,1/2W,Solid <D>
R951	453530824	8.2 Ohm $\pm$ 5%,1/2W,Metal
<b>Fuses</b>		
F901	252164Y	$\Delta$ 5A-UL/T-237, Primary <D/W>
F902	252076	$\Delta$ 3.15A-SE-EAK, Primary <P/W>
F903	252075	$\Delta$ 2.5A-SE-EAK, Primary <P>
<b>Fuseholders</b>		
F901a	25050065	$\Delta$ YSH403T <D/W>
F902a	25050065	$\Delta$ YSH403T <P/W>
F903a	25050065	$\Delta$ YSH403T <P>
<b>Socket</b>		
JL961a	25051087	NSCT-3P874
<b>AC outlet</b>		
P902	25051126	$\Delta$ NSCT-4P913 <D>
P903	25051125	$\Delta$ NSCT-4P912 <P/W>
<b>Plug</b>		
P901a	25055675	NPLG-2P631 <D/P>
<b>Relay</b>		
RL901	25065483	$\Delta$ NRL-1P5A-DC12-084
<b>Power transformer</b>		
T902	2300670A	$\Delta$ NPT-1111D <D>
	2300671AY	$\Delta$ NPT-1111P <P>
	2300672AY	$\Delta$ NPT-1111DG <W>

CIRCUIT NO.	PART NO.	DESCRIPTION
S901	25065437	NSS-22157P, Voltage selector <W>

#### VIDEO CIRCUIT PC BOARD(NAETC-5402-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Transistors</b>		
Q251,Q252	2212115 or 2213284	2SC2458-GR or 2SC1740S-R
<b>IC</b>		
Q253	222840661	4066B
<b>Diode</b>		
D251	223163	1SS133
<b>Capacitors</b>		
C251,C252	354721019	100 $\mu$ F,6.3V,Elect.
C255,C256	354724719	470 $\mu$ F,6.3V,Elect.
C257	354721019	100 $\mu$ F,6.3V,Elect.
C259	354741019	100 $\mu$ F,16V,Elect.
<b>Wire trap</b>		
JL261b	25055625	NPLG-4P587
<b>Terminal</b>		
P251	25045339	NPJ-4PDYE190

#### RI TERMINAL PC BOARD(NAETC-5404-1/1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
P961	25045330	NPJ-2PDBL184,Terminal RI
JL711b	25055626	NPLG-5P588,Wire trap
JL961b	25051087	NSCT-3P874,Wire holder
S961	25065286	NSS-22112,Band switch <W>

#### HEADPHONE TERMINAL PC BOARD(NAETC-5405-1/1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
P503	25045255	YKB21-5009,Headphone terminal

#### SURROUND CIRCUIT PC BOARD(NAAF-5409-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>ICs</b>		
Q601,Q605	22240247 or 22240293	BA 15218N or NJM4558L-D
Q673,Q674	22240683 or 22240692	NJM2177L or M69032P
Q602	22240683 or 22240692	NJM2177L or M69032P
Q606	22240398 or 22240751	TC9162N or NJU7311L
Q651	22240686 or 22240687	M65830P or NJU9701D
Q671	22240266	TC9213P
<b>Transistors</b>		
Q603,Q604	2213631	RN1241-A
Q675,Q676	2213631	RN1241-A
<b>Diodes</b>		
D651	224470562	MTZJ5.6B
D652,D653	223163	1SS133
<b>Capacitors</b>		
C601,C602	354780229	2.2 $\mu$ F,50V,Elect.
C605,C606	354741009	10 $\mu$ F,16V,Elect.
C607~C610	354781099	0.1 $\mu$ F,50V,Elect.
C613,C614	374724734	0.047 $\mu$ F $\pm$ 5%,50V,Plastic
C615,C616	374722234	0.022 $\mu$ F $\pm$ 5%,50V,Plastic
C617~C620	354781099	0.1 $\mu$ F,50V,Elect.
C621,C622	354780479	4.7 $\mu$ F,50V,Elect.

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Capacitors</b>	
C623~C627	354782299	0.22 $\mu$ F,50V,Elect.
C628	354741009	10 $\mu$ F,16V,Elect.
C629	354786899	0.68 $\mu$ F,50V,Elect.
C630	374724734	0.047 $\mu$ F $\pm$ 5%,50V,Plastic
C631	374725624	5600pF $\pm$ 5%,50V,Plastic
C632	354780229	2.2 $\mu$ F,50V,Elect.
C634	354722219	220 $\mu$ F,6.3V,Elect.
C635	354741019	100 $\mu$ F,16V,Elect.
C636~C641	354741009	10 $\mu$ F,16V,Elect.
C642	374724724	4700pF $\pm$ 5%,50V,Plastic
C643	354741009	10 $\mu$ F,16V,Elect.
C644	391141007	10 $\mu$ F,16V,Elect.
C647~C649	354741009	10 $\mu$ F,16V,Elect.
C651	354780229	2.2 $\mu$ F,50V,Elect.
C653	374723924	3900pF $\pm$ 5%,50V,Plastic
C655	374726834	0.068 $\mu$ F $\pm$ 5%,50V,Plastic
C656	354744709	47 $\mu$ F,16V,Elect.
C657,C658	354781099	0.1 $\mu$ F,50V,Elect.
C659	374726834	0.068 $\mu$ F $\pm$ 5%,50V,Plastic
C660	374725624	5600pF $\pm$ 5%,50V,Plastic
C661	374724724	4700pF $\pm$ 5%,50V,Plastic
C663,C665	354721019	100 $\mu$ F,6.3V,Elect.
C666	375524744	0.47 $\mu$ F $\pm$ 5%,50V,Plastic
C671,C672	354780229	2.2 $\mu$ F,50V,Elect.
C675,C676	354741009	10 $\mu$ F,16V,Elect.
C677,C678	354780229	2.2 $\mu$ F,50V,Elect.
C679~C682	354741009	10 $\mu$ F,16V,Elect.
C684,C685	354741009	10 $\mu$ F,16V,Elect.
	<b>Resonator</b>	
X651	3010217	CST2.04MG040,Ceramic
	<b>Resistor</b>	
R441	5104332Y	N16RQL100KBT25F
	<b>Sockets</b>	
P611b	25051127	NSCT-8P914
P612b	25050983Y	NSCT-8P770
P613b	25050986Y	NSCT-14P773
P621a	2000802UL	NSAS-6P758
	<b>Plug</b>	
P622a	25055405	NPLG-3P387

**CENTER AND REAR AMPLIFIER CIRCUIT PC BOARD  
(NAAF-5410-1/1A)**

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Transistors</b>	
Q801~Q804	2211732 or 2211733	* 2SC1845-F or * 2SC1845-E
Q805,Q806	2213354	2SA933S-R
Q807,Q808	2211732 or 2211733	2SC1845-F or 2SC1845-E
Q825,Q826	2211733	2SC1845-E
Q809,Q810	2213284	2SC1740S-R
Q811,Q812	2211353	2SA940-O
Q813,Q814	2211633	2SC2229-O
Q815,Q816	2213284	2SC1740S-R
Q817,Q818	2203010	2SC5171
Q819,Q820	2203000	2SA1930
Q821,Q822	2203043, 2202254, 2202256, 2202253 or 2202503	* 2SC5197-O, * 2SC4467-Y, * 2SC4467-P, * 2SC4467-O or * 2SC3181N-O

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Transistors</b>	
Q823,Q824	2203033, 2202244, 2202246, 2202243 or 2202493	* 2SA1940-O, * 2SA1694-Y * 2SA1694-P * 2SA1694-O or * 2SA1264N-O
	<b>Diodes</b>	
D805,D806	223163	1SS133
D811	223163	1SS133
	<b>Coils</b>	
L801,L802	231176S	S-1.3C
	<b>Capacitors</b>	
C801,C802	354741009	10 $\mu$ F,16V,Elect.
C807	354742219	220 $\mu$ F,16V,Elect.
C808	354744709	47 $\mu$ F,16V,Elect.
C821,C822	374724734	0.047 $\mu$ F $\pm$ 5%,50V,Plastic
C827,C828	374724734	0.047 $\mu$ F $\pm$ 5%,50V,Plastic
C865~C867	354700109	1 $\mu$ F,160V,Elect.
C868,C870	354770109	1 $\mu$ F,63V,Elect.
C869	354700109	1 $\mu$ F,160V,Elect.
	<b>Resistors</b>	
R826	443524734	47 kOhm $\pm$ 5%,1/2W,Metal oxide
R833,R834	4500081	27 Ohm $\pm$ 5%,1/4W,Metal
R835,R836	4500095	100 Ohm $\pm$ 5%,1/4W,Metal
R837	5215043	N08HR 2KBC, Trim
R843,R844	4500107	330 Ohm $\pm$ 5%,1/4W,Metal
R845	4000132	RGC55 0.22 OHMK, Metal plate
R846	4000131	RGC22 0.22 OHMK, Metal plate
R851,R852	453630824	8.2 Ohm $\pm$ 5%,1W,Metal
R853,R854	443523924	3.9 kOhm $\pm$ 5%,1/2W,Metal oxide
R865,R866	453502204	22 Ohm $\pm$ 5%,1/2W,Metal
R867~R870	443522204	22 Ohm $\pm$ 5%,1/2W,Metal oxide
	<b>Relay</b>	
RL801	25065485	NRL-2P2A-DC24-086
	<b>Terminal</b>	
P801	25060191	NTM-6PDML113
	<b>Plug</b>	
P621b	25055234	NPLG-3P218
	<b>Wire traps</b>	
JL811b	25050280	NSCT-3P108
JL812b	25050284	NSCT-7P112

NOTE: <D>:120V model only  
<P>:230V model only  
<W>:Worldwide model only

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

NOTE: THE COMPONENTS IDENTIFIED BY MARK  $\Delta$   
ARE CRITICAL FOR RISK OF FIRE AND  
ELECTRIC SHOCK. REPLACE ONLY WITH  
PART NUMBER SPECIFIED.

## PRINTED CIRCUIT BOARD – PARTS LIST

## MODEL TX-8410/TX-8410R

## MAIN CIRCUIT PC BOARD(NAAR-5396-3/3A)

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
		<b>ICs</b>			
Q301	222502	NJM4558D-X	L501,L502	231176S	S-1.3C
Q302	22240881	TC9273N-010			<b>Capacitors</b>
Q401,Q402	22240247 or 22240293	BA15218N or NJM4558L-D	C303,C304	354741009	10 $\mu$ F,16V,Elect.
Q481	22240239	TA7291S	C307,C308	354721019	100 $\mu$ F,6.3V,Elect.
Q571	22240752	NJM4556L	C309,C310	374726224	6200pF $\pm$ 5%,50V,Plastic
Q921	222780125NEC	$\mu$ PC78M12AHF	C311,C312	374721824	1800pF $\pm$ 5%,50V,Plastic
Q922	222790125	79M12HF	C313~C316	354741009	10 $\mu$ F,16V,Elect.
Q923	222780565JRC	NJM78M56FA	C391,C392	374721015	100pF $\pm$ 10%,50V,Plastic
		<b>Transistors</b>	C401,C402	354741009	10 $\mu$ F,16V,Elect.
Q403~Q406	2211945	2SK246-GR	C411,C412	354741009	10 $\mu$ F,16V,Elect.
Q407	2213510	DTA114ES	C413~C416	374721044	0.1 $\mu$ F $\pm$ 5%,50V,Plastic
Q491,Q492	2213631 or 2213632	RN1241-A or RN1241-B	C417~C420	374721024	1000pF $\pm$ 5%,50V,Plastic
Q493	2213510	DTA114ES	C421,C422	374721534	0.015 $\mu$ F $\pm$ 5%,50V,Plastic
Q501~Q504	2211732 or 2211733	* 2SC1845-F or * 2SC1845-E	C433,C434	374721534	0.015 $\mu$ F $\pm$ 5%,50V,Plastic
Q505,Q506	2213354	2SA933S-R	C435,C436	374721015	100pF $\pm$ 10%,50V,Plastic
Q507,Q508	2211732 or 2211733	2SC1845-F or 2SC1845-E	C441	354721019	100 $\mu$ F,6.3V,Elect.
Q509,Q510	2213284	2SC1740S-R	C442	354780109	1 $\mu$ F,50V,Elect.
Q511,Q512	2211353 or 2211354	2SA940-O or 2SA949-Y	C501,C502	354741009	10 $\mu$ F,16V,Elect.
Q513,Q514	2211633 or 2211634	2SC2229-O or 2SC2229-Y	C503,C504	374721015	100pF $\pm$ 10%,50V,Plastic
Q515,Q516	2213284	2SC1740S-R	C507,C508	354724719	470 $\mu$ F,6.3V,Elect.
Q517,Q518	2203010 or 2202034	* 2SC5171 or * 2SD1763A-D	C513,C514	354722219	220 $\mu$ F,6.3V,Elect.
Q519,Q520	2203000 or 2202024	* 2SA1930 or * 2SB1186A-D	C521,C522	354772209	22 $\mu$ F,63V,Elect.
Q521,Q522	2202823 or 2201483 <sup>h</sup>	* 2SC5200-O or * 2SC3281-O	C529~C532	374721044	0.1 $\mu$ F $\pm$ 5%,50V,Plastic
Q523,Q524	2202813 or 2201473	* 2SA1943-O or * 2SA1302-O	C570	354791019	100 $\mu$ F,100V,Elect.
Q525,Q526	2211633 or 2211634	2SC2229-O or 2SC2229-Y	C571,C573	354741009	10 $\mu$ F,16V,Elect.
Q572	221282	DTC144ES	C572	353741009	10 $\mu$ F,16V,Elect.
Q573	2211164	2SC2120-Y	C581	354721019	100 $\mu$ F,6.3V,Elect.
Q575,Q576	2213631 or 2213632	RN1241-A or RN1241-B	C915,C916	3504281	10000 $\mu$ F,71V,Elect. <D>
Q581,Q582	2211732 or 2211733	2SC1845-F or 2SC1845-E		3504280	8200 $\mu$ F,56V,Elect. <P/W>
Q583	2211792 or 2211793	2SA992-F or 2SA992-E	C923	354761029	1000 $\mu$ F,35V,Elect.
Q591,Q592	2213640	DTC123JS	C924	354763319	330 $\mu$ F,35V,Elect.
Q924	2211455	2SA1015-GR	C927,C928	354741009	10 $\mu$ F,16V,Elect.
		<b>Diodes</b>	C931	354741009	10 $\mu$ F,16V,Elect.
D401~D404	223163	1SS133	C932,C933	354781019	100 $\mu$ F,50V,Elect.
D505,D506	223163	1SS133	C936,C937	354741009	10 $\mu$ F,16V,Elect.
D571,D572	223163	1SS133	C938	354781009	10 $\mu$ F,50V,Elect.
D591,D592	223163	1SS133	C983,C984	354741009	10 $\mu$ F,16V,Elect.
D911	22380038	RBV602			<b>Resistors</b>
D915~D918	22380032	1SR139-100	R393	5104288	N11RLC250KWT20Z,Balance
D926~D928	22380032	1SR139-100	R409,R415	5104356	N14RLC100KWT20Z,Tone
D929	224473304	MTZJ33D	R527,R528	443524734	47 kOhm $\pm$ 5%,1/2W,Metal oxide
D930,D931	223163	1SS133	R533,R534	4500081	27 Ohm $\pm$ 5%,1/4W,Metal
		<b>Relaies</b>	R535,R536	4500095	100 Ohm $\pm$ 5%,1/4W,Metal
RL591,RL592	25065339	NRL-2P5A-DC24-046	R537,R538	5210259	N06HR 2KBC, Trim
			R543,R544	4500107	330 Ohm $\pm$ 5%,1/4W,Metal
			R545,R546	4000132	RGC55 0.22 OHMK, Metal plate
			R551,R552	453630824	8.2 Ohm $\pm$ 5%,1W,Metal
			R553,R554	443523924	3.9 kOhm $\pm$ 5%,1/2W,Metal oxide
			R570	443522204	22 Ohm $\pm$ 5%,1/2W,Metal oxide
			R923	4500055	2.2 Ohm $\pm$ 5%,1/4W,Metal
			R924	4500069	8.2 Ohm $\pm$ 5%,1/4W,Metal
			R930	4500079	22 Ohm $\pm$ 5%,1/4W,Metal
			R933	4500087	47 Ohm $\pm$ 5%,1/4W,Metal
					<b>Terminals</b>
			P301~P303	25045300	NPJ-6PDBL159
			P501	25060224	NTM-8PDML146
					<b>Sockets</b>
			P711a~P713a	25051046	NSCT-10P833

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Plugs</b>	
P211a,P613a	25055652	NPLG-14P608
	<b>Wire holders</b>	
JL261a	25051088	NSCT-4P875
JL912a	25051110	NSCT-4P895
JL913a	25051109	NSCT-5P896
	<b>Radiators</b>	
Q921a	27160209	RAD-67
D911a	27160227	RAD-076

**POWER SUPPLY CIRCUIT PC BOARD(NAETC-5397-3/3A)**

CIRCUIT NO.	PART NO.	DESCRIPTION
F921,F922	252156Y	▲ 1A-UL/T-237, Secondary fuse <D>
	252070	▲ 1A-SE-EAK, Secondary fuse <P/W>
F921a,F922a	25050065	▲ YSH403T,Fuseholder
JL911b	25051100	NSCT-6P897,Wire holder
JL912b	25051110	NSCT-4P895,Wire holder <P/W>
JL913b	25051109	NSCT-5P896,Wire holder
A961	29360398	▲ Fuse label <P/W>

**SWITCH PC BOARD(NASW-5398-3)**

**120V model only**

CIRCUIT NO.	PART NO.	DESCRIPTION
S911	25065437	▲ NSS-22157P,Slide switch
JL911a	25051110	NSCT-6P897,Wire holder
JL912c	25051108	NSCT-4P895,Wire holder

**DISPLAY CIRCUIT PC BOARD(NADIS-5399-3/3A/3B/3C)**

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Remote sensor</b>	
U701	24130010	HC-312
	<b>IC</b>	
Q701	22240892	μ PD78044AGF-111
Q751	22240679	μ PC1346CS <P>
	<b>FL tube</b>	
Q702	212142	FIP13PM8
	<b>Transistors</b>	
Q703	221282	DTC144ES
Q704~Q706	2213284	2SC1740S-R
Q707	2213510	DTA114ES
	<b>Diodes</b>	
D701,D702	223163	1SS133
D703	224470913	MTZJ9.1C
D704,D705	223163	1SS133
D706,D707	224470562	MTZJ5.6B
D708	223163	1SS133
D709	225291D	SEL4910D-D,LED
D710~D712	223163	1SS133
D751	223163	1SS133 <P>
	<b>Coils</b>	
L701~L703	233454K220	NCH-1452,220K
	<b>Resonator</b>	
X701	3010163	CST4.19MGW,Ceramic
X751	3010203Y	AF6146CG <P>
	<b>Capacitors</b>	
C701	3000075	0.047F, 5.5V, Super
C702	375524744	0.47 μ F ± 5%,50V,Plastic
C703	354721019	100 μ F,6.3V,Elect.

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Capacitors</b>	
C704	354780109	1 μ F,50V,Elect.
C706,C707	354780109	1 μ F,50V,Elect.
C709,C711	355721019	100 μ F,6.3V,Elect.
C751	354721019	100 μ F,6.3V,Elect. <P>
C754,C760	374724724	4700pF ± 5%,50V,Plastic <P>
C755,C756	374723324	3300pF ± 5%,50V,Plastic <P>
C757	354780229	2.2 μ F,50V,Elect. <P>
C758	374724734	0.047 μ F ± 5%,50V,Plastic <P>
C759	374722234	0.022 μ F ± 5%,50V,Plastic <P>
	<b>Resistor</b>	
R786	5210265	N06HR50KBC,Trim <P>
	<b>Wire holder</b>	
JL711a	25051089	NSCT-5P876
	<b>Plugs</b>	
P711b~P713b	25055695	NPLG-10P615
	<b>Switches</b>	
S701~S703	25035652	NPS-111-S604
S704~S706	25035652	NPS-111-S604 <P>
S707~S717	25035652	NPS-111-S604
S723~S737	25035652	NPS-111-S604
	<b>Holder</b>	
Q702a	27190937AY	FL

**TUNER CIRCUIT PC BOARD(NARF-5400-3/3A/3B)**

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Front end</b>	
U001	240104Y	ENV172D2G1 <D>
	240103Y	ENV172A2G1 <P/W>
	<b>ICs</b>	
Q103	22240749Y	LA1851N
Q171	22240090	LM7001
	<b>Transistors</b>	
Q101	2210746	2SC945A-P <P/W>
Q102	2211723	2SC1923-O
Q104	2213284	2SC1740S-R <P/W>
Q131,Q173	2213284	2SC1740S-R
Q172	2212445	2SK365-GR
Q174,Q175	2213510	DTA114ES
Q201,Q202	2213284	2SC1740S-R
Q203,Q204	2212794	2SD1468-R
Q205	2213510	DTA114ES
	<b>Diode</b>	
D131,D132	223191	SD101
D171	224470512	MTZJ5.1B
	<b>Coils and transformers</b>	
L101	233480AY	NFIF-4090
L102	233481Y	NFIF-4091
L103	233454M022	NCH-1452
L104	233383	NMC-6070 <P/W>
L151	231226Y	NMRF-7069
L152	232166Y	NMIF-4089
L201,L202	233355A	NMC-4059 <P/W>
	<b>Ceramic filters</b>	
X101	3010071	SFE10.7MA5
X102	3010071	SFE10.7MA5 <P/W>
X103	3010071	SFE10.7MA5 <D>
	3010130	SFE10.7MZ2A <P/W>
X151	3010123	SFZ-450JL

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Resonators</b>	
X171	3010158 or 3010141	XTL7.2M or XTL7.2M,Crystal
X201	3010227Y	CSB456F15,Ceramic
	<b>Capacitors</b>	
C001	354741019	100 $\mu$ F,16V,Elect.
C107-C109	354780229	2.2 $\mu$ F,50V,Elect.
C110	354741019	100 $\mu$ F,16V,Elect.
C132	354742209	22 $\mu$ F,16V,Elect.
C133	354784799	0.47 $\mu$ F,50V,Elect.
C151	354741009	10 $\mu$ F,16V,Elect.
C155,C156	354741009	10 $\mu$ F,16V,Elect.
C157	374723324	3300pF $\pm$ 5%,50V,Plastic
C158	374721534	0.015 $\mu$ F $\pm$ 5%,50V,Plastic <D>
	374721034	0.01 $\mu$ F $\pm$ 5%,50V,Plastic <P/W>
C159	354721019	100 $\mu$ F,6.3V,Elect.
C171	354741019	100 $\mu$ F,16V,Elect.
C174	374723334	0.033 $\mu$ F $\pm$ 5%,50V,Plastic
C175	354780229	2.2 $\mu$ F,50V,Elect.
C176	374722234	0.022 $\mu$ F $\pm$ 5%,50V,Plastic
C177	354782299	0.22 $\mu$ F,50V,Elect.
C180	354721019	100 $\mu$ F,6.3V,Elect.
C201,C202	354780109	1 $\mu$ F,50V,Elect.
C203	354783399	0.33 $\mu$ F,50V,Elect.
C204	354741019	100 $\mu$ F,16V,Elect.
C205,C206	374721534	0.015 $\mu$ F $\pm$ 5%,50V,Plastic <D>
	374721034	0.01 $\mu$ F $\pm$ 5%,50V,Plastic <P>
	374721234	0.012 $\mu$ F $\pm$ 5%,50V,Plastic <W>
C207~C210	354741009	10 $\mu$ F,16V,Elect.
C213~C216	354741009	10 $\mu$ F,16V,Elect. <P/W>
C217	354780229	2.2 $\mu$ F,50V,Elect.
	<b>Resistors</b>	
R101	5210263	N06HR 20KBC, Trim
R202	5210261	N06HR 5KBC, Trim
	<b>Terminals</b>	
P101	25060160	NTM-4PDML086 <D>
	25060117	NTM-2PDML051 <P/W>
	<b>Socket</b>	
P211b	25050986	NSCT-14P773
	<b>Shield plate</b>	
	27150346	<P/W>

**POWER SUPPLY CIRCUIT PC BOARD(NAPS-5401-3/3A/3B/3C)**

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Transistors</b>	
Q951	221282	DTC144ES
Q952	2213650	DTD113ZS
	<b>Diodes</b>	
D951~D954	22380032	1SR139-100
D955	223163	1SS133
	<b>Resistors</b>	
R901	431523355	$\Delta$ 3.3 MOhm $\pm$ 20%,1/2W,Solid <D>
R951	453530824	8.2 Ohm $\pm$ 5%,1/2W,Metal
	<b>Fuses</b>	
F901	252164Y	$\Delta$ 5A-UL/T-237, Primary <D/W>
F902	252076	$\Delta$ 3.15A-SE-EAK, Primary <P/W>
F903	252075	$\Delta$ 2.5A-SE-EAK, Primary <P>

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Capacitors</b>	
C901	3500191Y	$\Delta$ DE7150FZ103PAC400V/125V
C952	354742219	220 $\mu$ F,16V,Elect.
	<b>Fuseholders</b>	
F901a	25050065	$\Delta$ YSH403T <D/W>
F902a	25050065	$\Delta$ YSH403T <P/W>
F903a	25050065	$\Delta$ YSH403T <P>
	<b>Socket</b>	
JL961a	25051087	NSCT-3P874
	<b>AC outlet</b>	
P902	25051126	$\Delta$ NSCT-4P913 <D>
P903	25050410	$\Delta$ NSCT-2P235 <P/W>
	<b>Plug</b>	
P901a	25055675	NPLG-2P631 <D/P>
	<b>Relay</b>	
RL901	25065483	$\Delta$ NRL-1P5A-DC12-084
	<b>Power transformer</b>	
T902	2300670A	$\Delta$ NPT-1111D <D>
	2300671AY	$\Delta$ NPT-1111P <P>
	2300672AY	$\Delta$ NPT-1111DG <W>
	<b>Switch</b>	
S901	25065437	$\Delta$ NSS-22157P, Voltage selector <W>

**VIDEO CIRCUIT PC BOARD(NAETC-5402-3)**

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Transistors</b>	
Q251,Q252	2212115 or 2213284	2SC2458-GR or 2SC1740S-R
	<b>IC</b>	
Q253	222840661	4066B
	<b>Diode</b>	
D251	223163	1SS133
	<b>Capacitors</b>	
C251,C252	354721019	100 $\mu$ F,6.3V,Elect.
C255,C256	354724719	470 $\mu$ F,6.3V,Elect.
C257	354721019	100 $\mu$ F,6.3V,Elect.
C259	354741019	100 $\mu$ F,16V,Elect.
	<b>Wire trap</b>	
JL261b	25055625	NPLG-4P587
	<b>Terminal</b>	
P251	25045339	NPJ-4PDYE190

**RI TERMINAL PC BOARD(NAETC-5404-3/3A)**

CIRCUIT NO.	PART NO.	DESCRIPTION
P961	25045330	NPJ-2PDBL184,Terminal RI
JL711b	25055626	NPLG-5P588,Wire trap
JL961b	25051087	NSCT-3P874,Wire holder
S961	25065286	NSS-22112,Band switch <W>

**HEADPHONE TERMINAL PC BOARD(NAETC-5405-3/3A)**


CIRCUIT NO.	PART NO.	DESCRIPTION
P503	25045255	YKB21-5009,Headphone terminal

**VOLUME PC BOARD(NAETC-5407-3)**

<b>CIRCUIT NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>
	<b>Resistor</b>	
R441	5104334Y	N16RGL100KBT25F
	<b>Socket</b>	
P611b	25051127	NSCT-8P914

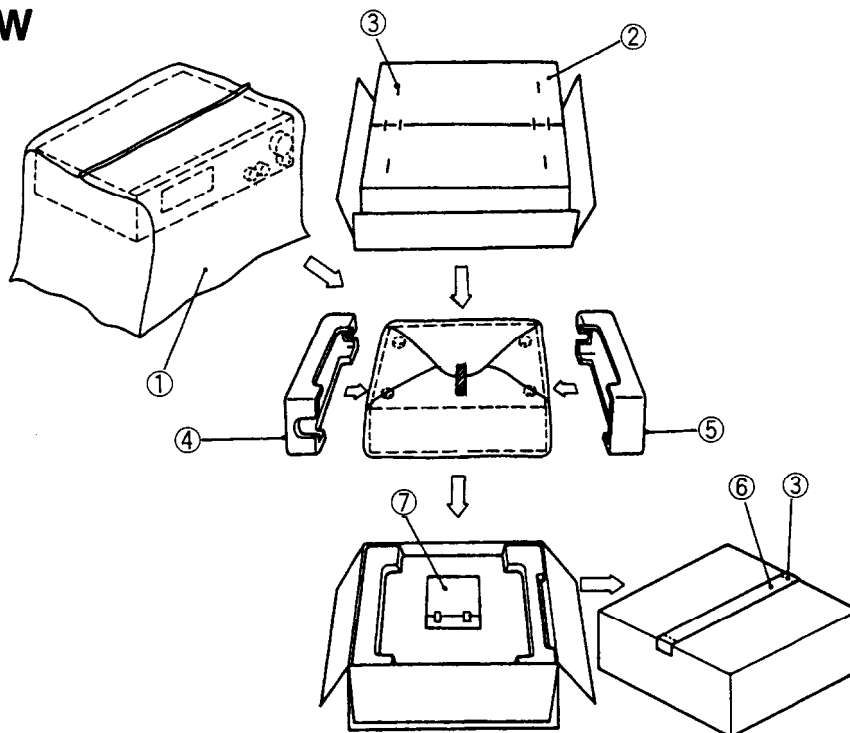
NOTE: <D>:120V model only  
<P>:230V model only  
<W>:Worldwide model only

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

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



## PACKING VIEW



## PARTS LIST TX-SV424

REF. NO.	PART NO.	DESCRIPTION
1	29100034-1Y	850×650, Styren bag
2	29052872AY	Carton box
3	282301	Staple
4	29091651BY	Pad L
5	29091652CY	Pad R
6	29110071	PP tape
7	Accessory bag ass'y	
	29100097-1Y	350×250, Styren bag
	25055018	CV-K-1, Conversion plug <W>
	292111	FM antenna <D>
	292112	FM antenna <P/W>
	29342151Y	Instruction manual U3 <W/C>
	29342149Y	Instruction manual U6 <P>
	29342148Y	Instruction manual, English
	29361877Y	Label UPC <N>
	29360778Y	Label, flash <D>
	232140	NMA-3057, AM loop antenna
	24140295Y	RC-295S, Remote control transmitter
	2010200	Remote control cable
	29358002K	Service station list <N>
	29095745	Sheet U7 <P>
	3010054	UM-3, Two batteries
	29365019B	Warranty card <N>
	25065462	YAE21-0237, FM antenna adaptor <W/A>

NOTE: <D>:120V model only  
<P>:230V model only  
<W>:Worldwide model only  
<N>:USA model only  
<A>:Australian model only  
<C>:Canadian model only

## TX-8410/TX-8410R

REF. NO.	PART NO.	DESCRIPTION
1	29100034-1Y	850×650, Styren bag
2	29052873AY	Carton box <TX-8410>
	29052874AY	Carton box <TX-8410R>
3	282301	Staple
4	29091651BY	Pad L
5	29091652CY	Pad R
6	29110071	PP tape
7	Accessory bag ass'y	
	29100097-1Y	350×250, Styren bag
	25055018	CV-K-1, Conversion plug <W>
	292111	FM antenna <D>
	292112	FM antenna <P/W>
	29342161Y	Instruction manual, English
	29342162Y	Instruction manual U6 <P>
	29342163Y	Instruction manual U3 <W/C>
	29361878Y	Label UPC <N>
	29360778Y	Label, flash <D>
	232140	NMA-3057, AM loop antenna
	24140294Y	RC-294S, Remote control transmitter
	2010200	Remote control cable
	29358002K	Service station list <N>
	29095745	Sheet U7 <P>
	3010054	UM-3, Two batteries
	29365019B	Warranty card <N>
	25065462	YAE21-0237, FM antenna adaptor <W/A>

NOTE: <D>:120V model only  
<P>:230V model only  
<W>:Worldwide model only  
<N>:USA model only  
<A>:Australian model only  
<C>:Canadian model only

# SPECIFICATIONS

## TX-8410/TX-8410R

### AMPLIFIER SECTION

#### Power Output

U.S.A. & Canadian models: 100 watts per channel, min. RMS at 8 ohms, both channels driven from 20 Hz to 20 kHz with no more than 0.2% T.H.D.

Other area models: Continuous output  
2 × 100 watts at 4 ohms, 1 kHz (DIN)  
2 × 65 watts at 8 ohms, 1 kHz (DIN)

Total Harmonic Distortion: 0.08% at power 30 watts, 8 ohms

IM Distortion: 0.08% at power 30 watts, 8 ohms

Damping Factor: 60 at 8 ohms

#### Sensitivity and Impedance

Phono: 2.5 mV/50 kohms

CD/Tape Play: 150 mV/50 kohms

Tape Rec: 150 mV/2.2 kohms

Phono Overload: 120 mV RMS at 1 kHz, 0.5% T.H.D.

Frequency Response: 20 Hz to 30 kHz, ±1 dB

RIAA Deviation: 20 Hz to 20 kHz, ±0.8 dB

#### Tone Control

Bass: ±10 dB at 100 Hz

Treble: ±10 dB at 10 kHz

#### Signal-to-Noise Ratio

Phono: 80 dB (IHF A, 5 mV input)

CD/Tape: 100 dB (IHF A)

### VIDEO SECTION

Signal sensitivity and impedance: 1 Vp-p, 75 ohms (VDP/VCR input, output)

### TUNER SECTION

#### FM

Tuning Range: 87.5 — 108.0 MHz

#### Usable Sensitivity

Mono: 11.2 dBf, 1.0 μV (75 ohms)

Stereo: 17.2 dBf, 2.0 μV (75 ohms)

#### 50dB Quieting Sensitivity

Mono: 18.2 dBf, 2.2 μV (75 ohms)

Stereo: 38.2 dBf, 22 μV (75 ohms)

Capture Ratio: 1.5 dB

#### Image Rejection Ratio

U.S.A. & Canadian models: 40 dB

Other area models: 85 dB

IF Rejection Ratio: 90 dB

#### Signal-to-Noise Ratio

Mono: 73 dB

Stereo: 67 dB

Alternate Channel Attenuation: 55 dB

Selectivity: 50 dB (DIN)

AM Suppression Ratio: 50 dB

#### Total Harmonic Distortion

Mono: 0.15%

Stereo: 0.25%

Frequency Response: 30 Hz — 15 kHz, ±1.5 dB

Stereo Separation: 45 dB at 1 kHz

30 dB at 100 Hz — 10 kHz

### AM

#### Tuning Range

U.S.A. & Canadian models: 530—1,710 kHz (10 kHz steps)

European & Australian models: 522—1,611 kHz (9 kHz steps)

Worldwide models: 531—1,602 kHz (9 kHz steps)  
530—1,710 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

U.S.A. & Canadian models: AC 120 V, 60 Hz

European & Australian models: AC 230 V, 50 Hz

Worldwide models: AC 220 V and 120 V switchable, 50/60 Hz

#### Power Consumption

U.S.A. & Canadian models: 2.8 A (300 W)

Other area models: 220 W

Dimensions (W × H × D): 455 × 150 × 322 mm

17-15/16" × 5-7/8" × 12-11/16"

Weight: 9.3 kg, 20.5 lbs.

### REMOTE CONTROL RC-294S

Transmitter: Infrared

Signal range: Approx. 5 meters, 16 ft.

Power supply: Two "AA" batteries (1.5 V × 2)

Dimensions (W × H × D): 55 × 18 × 194 mm

2-3/16" × 11/16" × 7-5/8"

Weight: 100 grams, 3.5 oz. (including batteries)

Specifications and features are subject to change without notice.

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