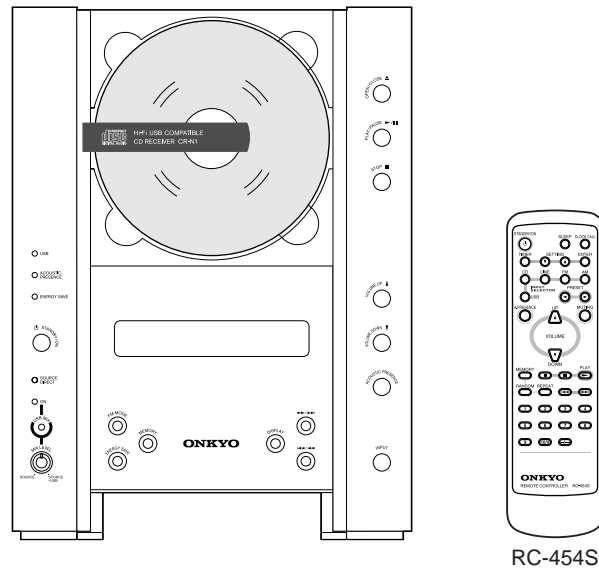



ONKYO® SERVICE MANUAL**CD RECEIVER
MODEL CR-N1****Silver and Titanium model**

(S)MDD,(S)MDT	120V AC, 60Hz
(T)MPP,(S)MPA	230-240V AC, 50Hz
(S)MGT,(S)MGR,(S)MGQ	220-230V AC, 50/60Hz

**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.

SPECIFICATIONS-1

Amplifier

Power output (U.S. & Canadian models)	2 x 6.5 watts min., RMS at 8 ohms, 50 Hz–20 kHz, with no more than 0.6% total harmonic distortion (FTC)
	2 x 9.5 watts min., RMS at 4 ohms, 50 Hz–20 kHz, with no more than 0.8% total harmonic distortion (FTC)
	2 x 15 watts at 4 ohms (EIAJ)
Power output (Other models)	2 x 10 watts at 4 ohms, 1 kHz (DIN)
	2 x 8.5 watts at 6 ohms, 1 kHz (DIN)
	2 x 7 watts at 8 ohms, 1 kHz (DIN)
	2 x 6.5 watts min., RMS at 8 ohms, 1 kHz, no more than 0.6% THD (FTC rating)
	2 x 15 watts at 4 ohms (EIAJ)
Dynamic power	2 x 15 watts at 4 ohms
	2 x 9 watts at 8 ohms
Total harmonic distortion	0.4% at 5 watts output into 4 ohms, 1 kHz
IM distortion	0.4% at 5 watts output into 4 ohms, 1 kHz
Damping factor	25 at 4 ohms
	50 at 8 ohms
LINE IN sensitivity and impedance	500 mV, 47k ohms
Frequency response	10 Hz–20 kHz, +3/–3 dB
Acoustic presence	1: +6.0 dB at 80 Hz 2: +10.0 dB at 80 Hz
Signal to noise ratio	95 dB (IHF-A)
Muting	–50 dB

CD Player

Signal readout system	Optical non-contact
Reading rotation	Approx. 500–200 rpm (constant linear velocity)
Linear velocity	1.2–1.4 m/s
Error correction system	Cross interleave Reed Solomon code
D/A converter	1 bit
Digital filter	352.8 kHz, 8-times oversampling
Number of channels	2 (stereo)
Frequency response	5 Hz–20 kHz
Wow & utter	Below threshold of measurability

USB

Connection method	USB (Universal Serial Bus) Ver 1.1
Sampling rate (input)	32/44.1/48 kHz compatible
Frequency response	5 Hz–20 kHz

SPECIFICATIONS-2

Tuner

Tuning range	FM		87.9–107.9 MHz (200 kHz steps) (U.S. & Canadian model)
			87.5–108.00 MHz (50 kHz steps) (Other area models)
	AM		530–1710 kHz (10 kHz steps) (U.S. & Canadian model)
			522–1611 kHz (9 kHz steps) (European & Australian models)
Usable sensitivity	FM	Mono	11.2 dBf, 1.0 μ V (75 ohms IHF)
			11.2 dBf, 0.9 μ V (75 ohms DIN)
	Stereo	17.2 dBf, 2.0 μ V (75 ohms IHF)	
		17.2 dBf, 23.0 μ V (75 ohms DIN)	
AM		30 μ V	
50 dB quieting sensitivity	FM	Mono	17.2 dBf, 2.0 μ V (75 ohms)
		Stereo	37.2 dBf, 20.0 μ V (75 ohms)
Capture ratio	FM		2.0 dB
Image rejection ratio	FM		40 dB (U.S. & Canadian model)
			85 dB (Other area models)
	AM		40 dB
IF rejection ratio	FM		90 dB
	AM		40 dB
Signal to noise ratio	FM	Mono	73 dB, IHF
		Stereo	67 dB, IHF
	AM		40 dB
Selectivity	FM		50 dB DIN (\pm 300 kHz at 40 kHz deviation)
AM suppression ratio			50 dB
Harmonic distortion	FM	Mono	0.2%
		Stereo	0.3%
	AM		0.7%
Frequency response	FM		30 Hz–15.0 kHz (\pm 1.5 dB)
Stereo separation	FM		35 dB at 1 kHz 25 dB at 100 Hz–10.0 kHz
Stereo threshold	FM		17.2 dBf, 2.0 μ V (75 ohms)

General

Power supply	AC 120 V, 60 Hz, 39 W (U.S. & Canadian model, some Asian models)
	AC 230 V, 50 Hz, 32 W (European model)
	AC 220 V, 50/60 Hz, 32 W (Other area models)
Dimensions (W x H x D)	203 x 270 x 234 mm
	8" x 10-5/8" x 9-3/16"
Weight	4.2 kg (9.3 lbs)

Specifications and features are subject to change without notice.

Power supply and voltage specifications depend on where the unit is purchased.

SERVICE PROCEDURES

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING!!

SERVICE WARNING : DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY.

IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

Laser Diode Properties

Material: GaAs/GaALAs

Wavelength: 790nm

Laser output: max. 0.5mW*

Emission Duration: continuous

*This output is the value measured at a distance about 1.8mm from the objective lens surface on the Optical Pick-up Block.

LASER WARNING LABEL

The label shown below are affixed.

1. Warning label



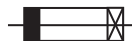
2. Class 1 label

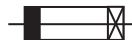







LUOKAN 1
LASERLAITE
KLASS 1
LASER APPARAT

SERVICE PROCEDURE

1. Replacing the fuses

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

 Ce symbole indique que le fusible utilise est e lent. Pour une protection permanente, n'utiliser que des fusibles de meme type. Ce dernier est indique la qu le present symbol est apposse.

REF.NO.	PART NO.	DESCRIPTION
F901	252083 or 	0.4A-SE-EAWK
	252233 or 	400MA-SE-TL250V or
	252267 	400MA-SE-TL250V <PP,GT,PA,GQ,GR>
	252157 or 	1.25A-UL/T-237 or
	252251 	1.25A-T/UL-ST2, Fuse <DD,DT>

NOTE:

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<PP> : European model only

<PA> : Australian model only

<DT> : Taiwanese model only

<GT> : Asian model only

<GR> : Chinese model only

<GQ> : Hong kong model only

2. 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 terminal GND on the back panel.
Specifications: More than 10Mohm at 500V

3. To initialize the unit

1. Press and the hold down the **VOLUME DOWN** button , then press the **DISPLAY** button.
2. After " All lighting " is displayed, the preset memory and each mode stored in the memory, are initialized and will return to the factory settings.
3. Press the **STANDBY/ON** button.
4. Unplug the AC plug from the wall outlet.

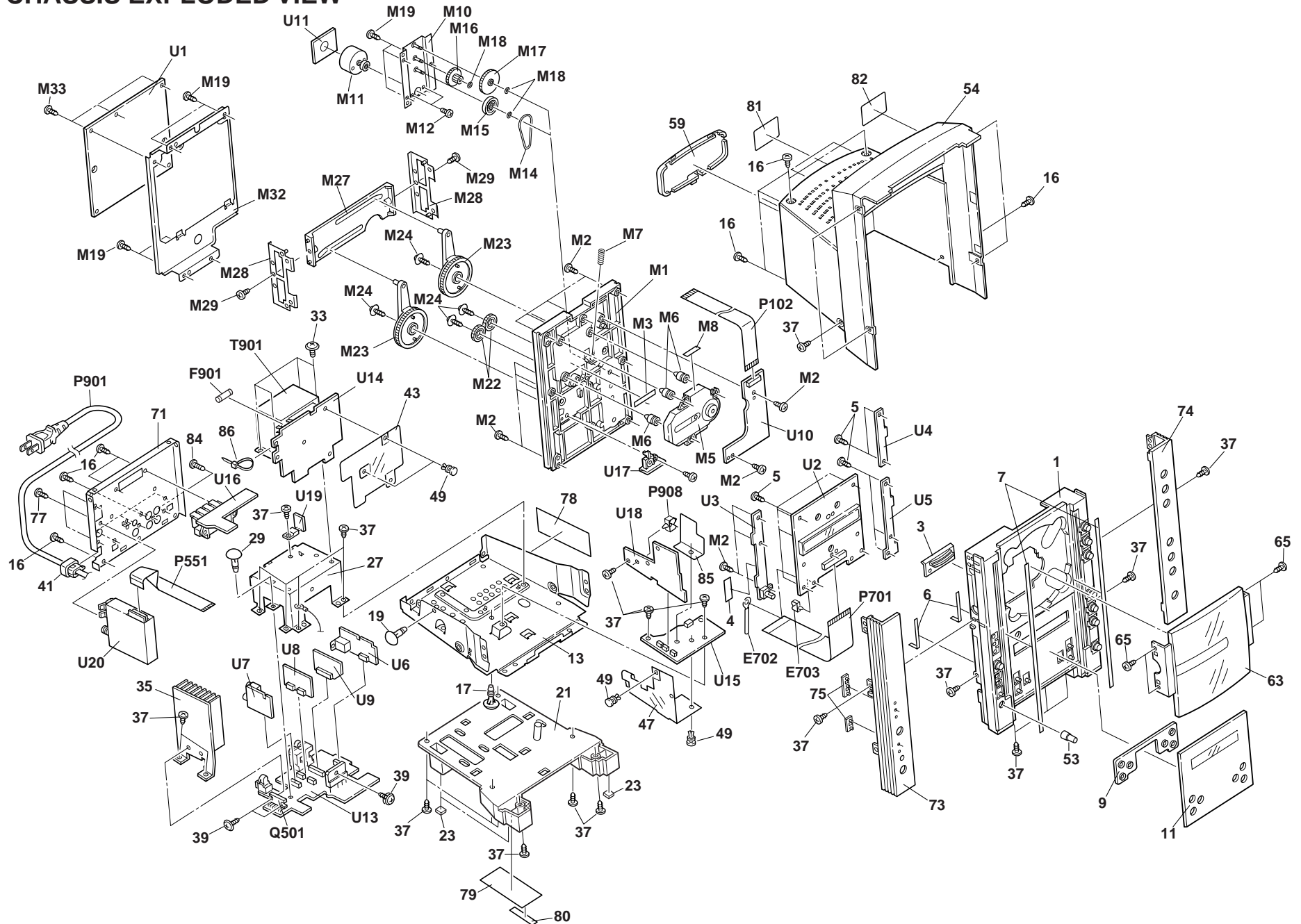
4. Notes at the connecting the measuring instrument to the unit.

The power amplifier circuit of this unit is BTL system. Therefore, in case check the output of speaker terminal, take care not to connect the ground of the unit with the minus terminal of speaker.

5. Changing the AM band step

Refer to "**SCHEMATIC DIAGRAM-1**"

CHASSIS EXPLODED VIEW



EXPLODED VIEW PARTS LIST-1

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	27111223A	Front bracket	75	28198927	Facet, USB
3	28198926	Facet, CD	77	838430068	3TTB+6B(BC), Self tapping screw
4	28141446	Cushion, BU	78	29362285	Label
5	838426088	2.6TTB+8B(BC), Self tapping screw	79	29362929	Spec label <PP,PA>
6	29110157	Tape, CU		29362930	Spec label <DT>
7	27262664	Plate, F <S>		29362931	Spec label <GT,GQ>
	27262665	Plate, F <T>		29363020	Spec label <GR>
9	27268044	Guide, DIS		29362928	Spec label <DD>
11	28191931	Clear plate	80	29362926A	Label, EAN <GT,PA,GQ,GR,DT>
13	27100404	Chassis		29362927A	Label, EAN <PP>
16	838430088	3TTB+8B(BC), Self tapping screw	81	29362939	Label, Warning
17	27190266	KGLS-12RF, holder	82	29360687	Label <PP,GT,PA,GQ,GR>
19	27191156	KGLS-5RT, holder	84	838430107	3TTB+10S(BC), Self tapping screw
21	27175390	Leg, base	85	28175278	Isolated plate, A <PP,GT,PA,GQ,GR>
23	28141468	Cushion	86	260208	Binder, UL
27	27130867	Bracket, PT	88	29362938	Label, UD <DD>
29	27190503A	KGLS-8RF, holder	89	29361786	Label <GT,GQ>
33	830440069	4TTC+6C(BC), Self tapping screw			
35	27160487	Heat sink	E703	27190540-1	Hoder, CLAMP
37	838130088	3TTB+8B, Self tapping screw	F901	252083 or	0.4A-SE-EAWK
39	801433	3SMS8W.SW+14B(BC), Self tapping screw		252233 or	400MA-SE-TL250V or
41	27300750	Bushing, #2271		252267	400MA-SE-TL250V, Fuse <PP,GT,PA,GQ,GR>
43	28175273A	Isolated plate, AC		252157 or	1.25A-UL/T-237 or
47	28175275	Isolated plate, PT		252251	1.25A-T/UL-ST2, Fuse <DD,DT>
49	880009	Plastic rivet, NRP-345	P102	204423022	NCFC4-23022, Flaxible flat cable
51	29110082	Tape, CROSS-8U	P551	2047151522	NCFC7-151522, Flaxible flat cable
53	28325938	Knob, USB	P701	2045401512	NCFC5-401512, Flaxible flat cable
54	28184828	Cover AS	P901	253193HIT or	AS-CEE or
59	28184812	Cover, R		253195MAR	AS CEE, Power supply cord <PP,GT>
63	28148495A	Door AS, WINDOW		253197HIT	AS-SAA, Power supply cord <,PA>
65	833126047	2.6TTP+4S, Pan head screw		253198HIT	AS-BS, Power supply cord <GQ>
71	27122870	Rear panel		253267KAW or	AS-CCEE or
73	27212328	Front panel, L <S>		253285HIT or	AS-CCEE or
	27212330	Front panel, L <T>		253286VOL	AS-CCEE, Power supply cord <GR>
74	27212329	Front panel, R <S>		253279HIT	AS-UC-2#18 or
	27212331	Front panel, R <T>		253280VOL	AS-UC-2#18, Power supply cord <DD,DT>

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NOTE:

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 <PP> : European model only <GR> : Chinese model only <T> : Titanium model only
 <PA> : Australian model only <GQ> : Hong kong model only
 <DT> : Taiwanese model only

EXPLODED VIEW PARTS LIST-2

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
P908	27190432	UA-0, holder	U7	1A909586-1A	NAAF-7286-1A, Headphone jack PC board ass'y <DD>
Q501	22241679	TDA8563AQ, IC		1A909586-1B	NAAF-7286-1B, Headphone jack PC board ass'y <PP>
T901	2301541	⚠ NPT-1423D, Power transformer <DD,DT>		1A909586-1C	NAAF-7286-1C, Headphone jack PC board ass'y <DT>
	2301542	⚠ NPT-1423P, Power transformer <PP,PA>		1A909586-1E	NAAF-7286-1E, Headphone jack PC board ass'y <PA,GQ,GR>
	2301543	⚠ NPT-1423G, Power transformer <GT,GQ,GR>		1A909586-1F	NAAF-7286-1F, Headphone jack PC board ass'y <GT>
U1	1A909580-1A	NADG-7280-1A, Microprocessor & CD PC board ass'y <DD>	U8	1A909587-1A	NAAF-7287-1A, Acoustic presence PC board ass'y <DD>
	1A909580-1B	NADG-7280-1B, Microprocessor & CD PC board ass'y <PP>		1A909587-1B	NAAF-7287-1B, Acoustic presence PC board ass'y <PP>
	1A909580-1C	NADG-7280-1C, Microprocessor & CD PC board ass'y <DT>		1A909587-1C	NAAF-7287-1C, Acoustic presence PC board ass'y <DT>
	1A909580-1E	NADG-7280-1E, Microprocessor & CD PC board ass'y <PA,GQ,GR>		1A909587-1E	NAAF-7287-1E, Acoustic presence PC board ass'y <PA,GQ,GR>
	1A909580-1F	NADG-7280-1F, Microprocessor & CD PC board ass'y <GT>		1A909587-1F	NAAF-7287-1F, Acoustic presence PC board ass'y <GT>
U2	1A909581-1A	NADIS-7281-1A, Display PC board ass'y <DD>	U9	1A909588-1A	NAAF-7288-1A, USB mixing PC board ass'y <DD>
	1A909581-1B	NADIS-7281-1B, Display PC board ass'y <PP>		1A909588-1B	NAAF-7288-1B, USB mixing PC board ass'y <PP>
	1A909581-1C	NADIS-7281-1C, Display PC board ass'y <DT>		1A909588-1C	NAAF-7288-1C, USB mixing PC board ass'y <DT>
	1A909581-1E	NADIS-7281-1E, Display PC board ass'y <PA,GQ,GR>		1A909588-1E	NAAF-7288-1E, USB mixing PC board ass'y <PA,GQ,GR>
	1A909581-1F	NADIS-7281-1F, Display PC board ass'y <GT>		1A909588-1F	NAAF-7288-1F, USB mixing PC board ass'y <GT>
U3	1A909582-1A	NADIS-7282-1A, USB mix volume PC board ass'y <DD>	U10	1A909589-1A	NAETC-7289-1A, CD mechanism connector PC board ass'y <DD>
	1A909582-1B	NADIS-7282-1B, USB mix volume PC board ass'y <PP>		1A909589-1B	NAETC-7289-1B, CD mechanism connector PC board ass'y <PP>
	1A909582-1C	NADIS-7282-1C, USB mix volume PC board ass'y <DT>		1A909589-1C	NAETC-7289-1C, CD mechanism connector PC board ass'y <DT>
	1A909582-1E	NADIS-7282-1E, USB mix volume PC board ass'y <PA,GQ,GR>		1A909589-1E	NAETC-7289-1E, CD mechanism connector PC board ass'y <PA,GQ,GR>
	1A909582-1F	NADIS-7282-1F, USB mix volume PC board ass'y <GT>		1A909589-1F	NAETC-7289-1F, CD mechanism connector PC board ass'y <GT>
U4	1A909583-1A	NASW-7283-1A, CD control switch PC board ass'y <DD>	U11	1A909590-1A	NAETC-7290-1A, Open/close motor PC board ass'y <DD>
	1A909583-1B	NASW-7283-1B, CD control switch PC board ass'y <PP>		1A909590-1B	NAETC-7290-1B, Open/close motor PC board ass'y <PP>
	1A909583-1C	NASW-7283-1C, CD control switch PC board ass'y <DT>		1A909590-1C	NAETC-7290-1C, Open/close motor PC board ass'y <DT>
	1A909583-1E	NASW-7283-1E, CD control switch PC board ass'y <PA,GQ,GR>		1A909590-1E	NAETC-7290-1E, Open/close motor PC board ass'y <PA,GQ,GR>
	1A909583-1F	NASW-7283-1F, CD control switch PC board ass'y <GT>		1A909590-1F	NAETC-7290-1F, Open/close motor PC board ass'y <GT>
U5	1A909584-1A	NASW-7284-1A, Audio control switch PC board ass'y <DD>	U13	1A909592-1A	NAAF-7292-1A, Amplifier PC board ass'y <DD>
	1A909584-1B	NASW-7284-1B, Audio control switch PC board ass'y <PP>		1A909592-1B	NAAF-7292-1B, Amplifier PC board ass'y <PP>
	1A909584-1C	NASW-7284-1C, Audio control switch PC board ass'y <DT>		1A909592-1C	NAAF-7292-1C, Amplifier PC board ass'y <DT>
	1A909584-1E	NASW-7284-1E, Audio control switch PC board ass'y <PA,GQ,GR>		1A909592-1E	NAAF-7292-1E, Amplifier PC board ass'y <PA>
	1A909584-1F	NASW-7284-1F, Audio control switch PC board ass'y <GT>		1A909592-1F	NAAF-7292-1F, Amplifier PC board ass'y <GT,GQ,GR>
U6	1A909585-1A	NAAF-7285-1A, D/A Converter PC board ass'y <DD>			
	1A909585-1B	NAAF-7285-1B, D/A Converter PC board ass'y <PP>			
	1A909585-1C	NAAF-7285-1C, D/A Converter PC board ass'y <DT>			
	1A909585-1E	NAAF-7285-1E, D/A Converter PC board ass'y <PA,GQ,GR>			
	1A909585-1F	NAAF-7285-1F, D/A Converter PC board ass'y <GT>			

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EXPLODED VIEW PARTS LIST-3

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
U14	1A909593-1A	NAPS-7293-1A, Power supply PC board ass'y <DD>	M1	24802050A	Chassis, MECHA
	1A909593-1B	NAPS-7293-1B, Power supply PC board ass'y <PP>	M3	29110023	DF tape, W6
	1A909593-1C	NAPS-7293-1C, Power supply PC board ass'y <DT>	M5	24800048	DA23R, Mechanism unit
	1A909593-1E	NAPS-7293-1E, Power supply PC board ass'y <PA>	M7	24820057A	Spring, MECHA
	1A909593-1F	NAPS-7293-1F, Power supply PC board ass'y <GT,GQ,GR>	M8	29110082	Tape, CROSS-8U
U15	1A909594-1A	NAPS-7294-1A, Standby transformer PC board ass'y <DD>	M10	24840156	Bracket AS, M
	1A909594-1B	NAPS-7294-1B, Standby transformer PC board ass'y <PP>	M11	1A909602	Motor Ass'y
	1A909594-1C	NAPS-7294-1C, Standby transformer PC board ass'y <DT>	M13	24810084	Pulley
	1A909594-1E	NAPS-7294-1E, Standby transformer PC board ass'y <PA>	M14	24816037	RBR belt, I
	1A909594-1F	NAPS-7294-1F, Standby transformer PC board ass'y <GT,GQ,GR>	M15	24810083	Gear, PULLEY
U16	1A909595-1A	NAETC-7295-1A, Speaker terminal PC board ass'y <DD>	M16	24810080	Gear, A
	1A909595-1B	NAETC-7295-1B, Speaker terminal PC board ass'y <PP>	M17	24810081	Gear, B
	1A909595-1C	NAETC-7295-1C, Speaker terminal PC board ass'y <DT>	M27	24840152	Slider, A
	1A909595-1E	NAETC-7295-1E, Speaker terminal PC board ass'y <PA>	M32	24840151	Bracket , PC
	1A909595-1F	NAETC-7295-1F, Speaker terminal PC board ass'y <GT,GQ,GR>	M12	833126047	2.6TTP+4S, Pan head screw
U17	1A909596-1A	NAETC-7296-1A, Open/close detection switch PC board ass'y <DD>	M22	24810082	Gear, C
	1A909596-1B	NAETC-7296-1B, Open/close detection switch PC board ass'y <PP>	M23	24810079	Gear, ARM
	1A909596-1C	NAETC-7296-1C, Open/close detection switch PC board ass'y <DT>	M28	24840154	Slider AS, B
	1A909596-1E	NAETC-7296-1E, Open/close detection switch PC board ass'y <PA>	M29	838130088	3TTB+8B, Self tapping screw
	1A909596-1F	NAETC-7296-1F, Open/close detection switch PC board ass'y <GT,GQ,GR>	M2	838426088	2.6TTB+8B(BC), Self tapping screw
U18	1A909533-1A	NAPS-7333-1A, Primary PC board ass'y <DD>	M6	24818048A	Insulator
	1A909533-1B	NAPS-7333-1B, Primary PC board ass'y <PP>	M18	24834040	Washer, B
	1A909533-1C	NAPS-7333-1C, Primary PC board ass'y <DT>	M19	838130088	3TTB+8B, Self tapping screw
	1A909533-1E	NAPS-7333-1E, Primary PC board ass'y <PA>	M33	838130068	3TTB+6B, Self tapping screw
	1A909533-1F	NAPS-7333-1F, Primary PC board ass'y <GT,GQ,GR>	M24	24840111	Special screw
U19	1A909534-1A	NAPS-7334-1A, Regulator PC board ass'y <DD>			
	1A909534-1B	NAPS-7334-1B, Regulator PC board ass'y <PP>			
	1A909534-1C	NAPS-7334-1C, Regulator PC board ass'y <DT>			
	1A909534-1E	NAPS-7334-1E, Regulator PC board ass'y <PA>			
	1A909534-1F	NAPS-7334-1F, Regulator PC board ass'y <GT,GQ,GR>			
U20	240134	TFCE1U114A, Tuner unit <DD>			
	240135	TFCE1E512A, Tuer unit <PP,GT,PA,GT,GR,DT>			

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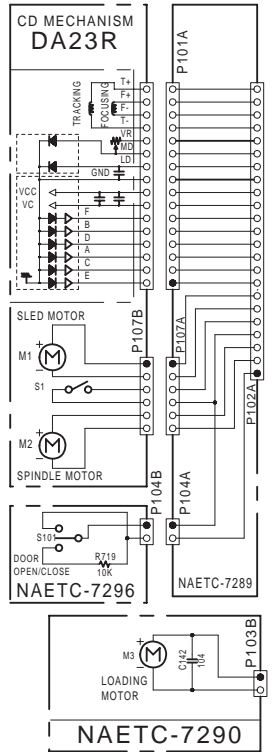
<GQ> : Hong kong model only

<S> : Silver model only

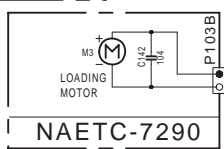
<T> : Titanium model only

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4
5

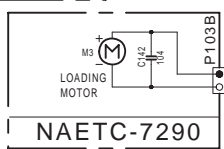
U10
CD MECHANISM
CONNECTOR
PC BOARD



U17
OPEN/CLOSE
DETECTION
SWITCH PC
BOARD

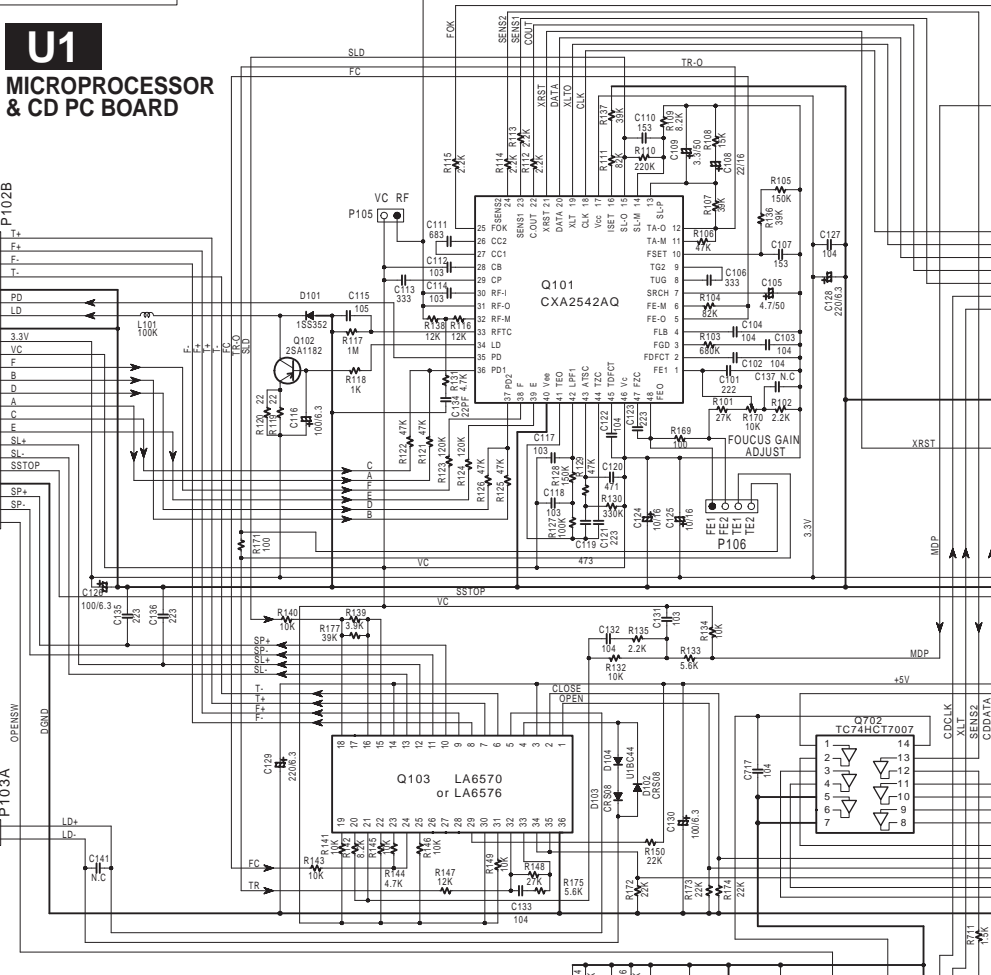


U11
OPEN/CLOSE MOTOR
PC BOARD



NADG-7280

U1
MICROPROCESSOR
& CD PC BOARD



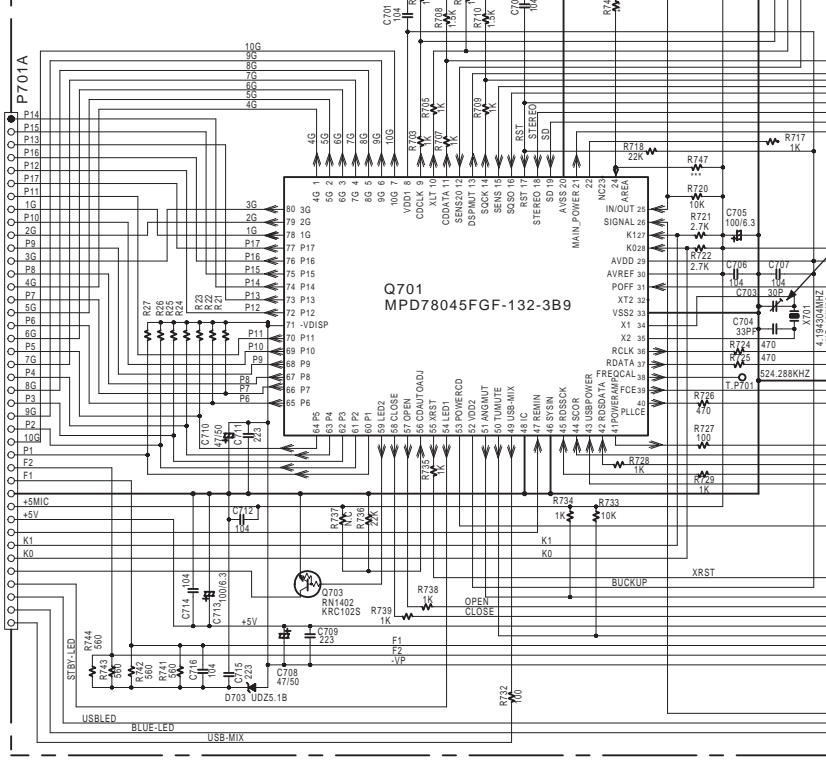
TO NADIS-7281
P701B

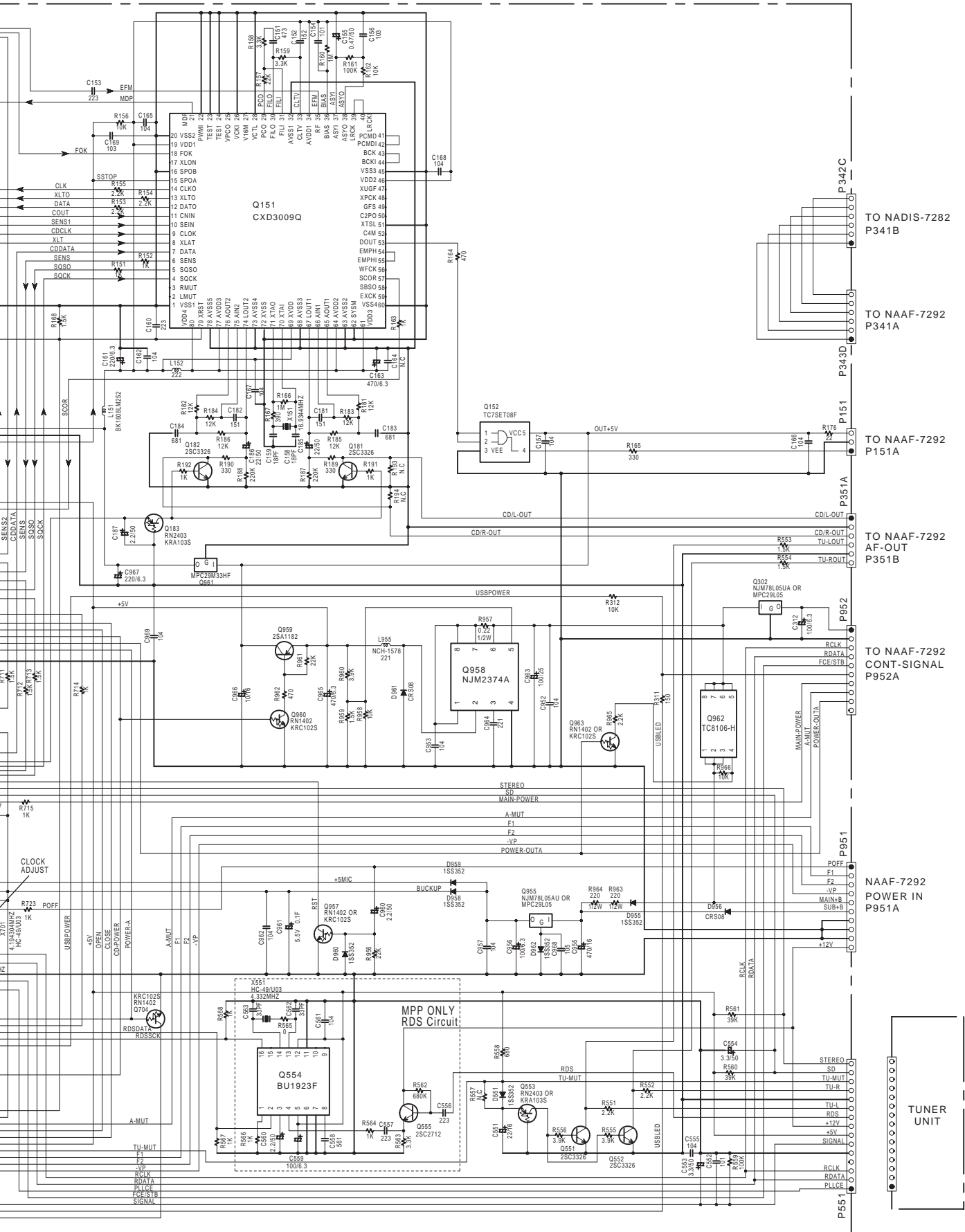
NOTE

- THE COMPONENTS IDENTIFIED BY MARK ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE MEASURED WITH VOLTMETER IS DC VOLTAGE (NO INPUT SIGNAL)
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-GR UNLESS OTHERWISE NOTED.
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR UNLESS OTHERWISE NOTED.
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS () ARE IN uF/5V.
- ALL CAPACITORS ARE IN pF/50V UNLESS OTHERWISE NOTED.
- EX) 0304F 33033P 331x200F 333K 0303F
- ALL RESISTORS ARE IN OHMS 1/4WATT UNLESS OTHERWISE NOTED.
- THE THICK LINES ON PC BOARD ARE THE PRINTING SIDE OF THE PARTS.
- EX) PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

	R747	R746	FM	AM	RDS
J	OPEN	10K	76.0-108.0MHZ/50KHZ	522-1628KHZ/9KHZ	X
D	3.3K	5.6K	87.9-107.9MHZ/200KHZ	530-1710KHZ/10KHZ	X
P	3.3K	OPEN	87.5-108.0MHZ/50KHZ	522-1611KHZ/9KHZ	○
PA/PO/GR	5.6K	3.3K	87.5-108.0MHZ/50KHZ	522-1611KHZ/9KHZ	X
GT	10K	3.3K	87.5-108.0MHZ/50KHZ	531-1602KHZ/9KHZ	X

Q701
MPD78045FGF-132-3B9





TO NADIS-7282 P341B

TO NAAF-7292 P341A

TO NAAF-7292 P151A

TO NAAF-7292 AF-OUT P351B

TO NAAF-7292 CONT-SIGNAL P952A

NAAF-7292 POWER IN P951A

TUNER UNIT

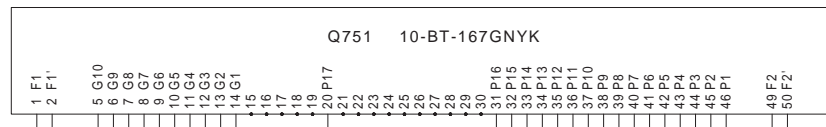
A B C D

SCHEMATIC DIAGRAM-2

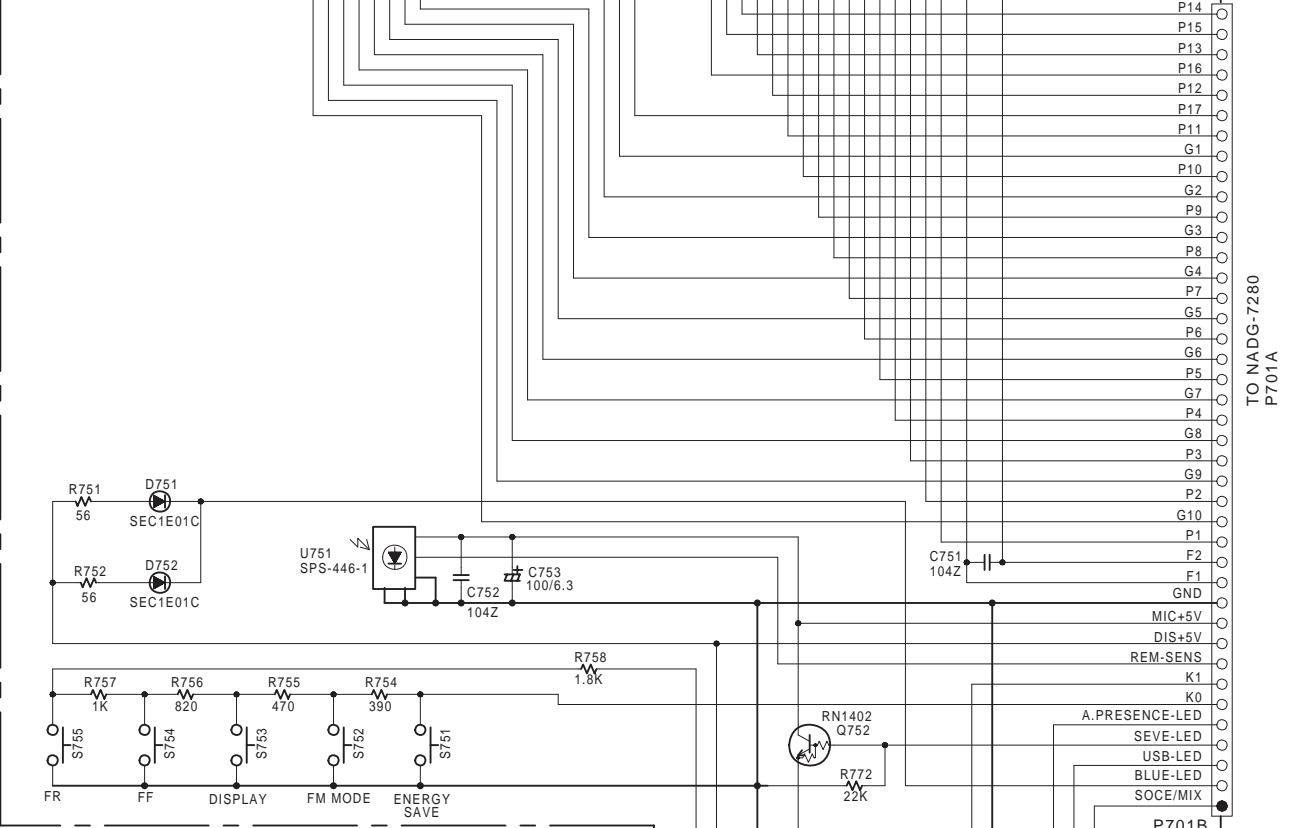
1

NADIS-7281

U2
DISPLAY
PC BOARD

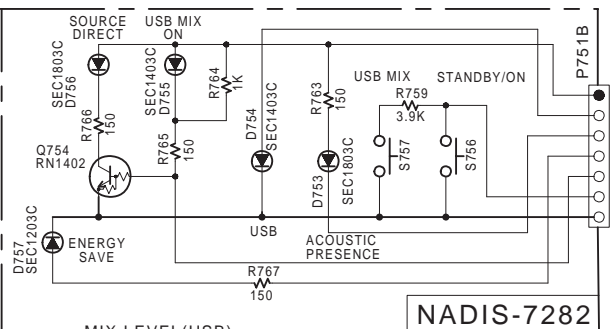


2

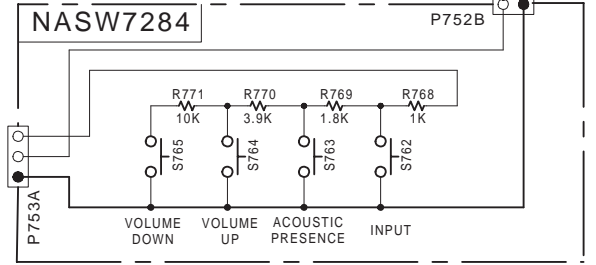
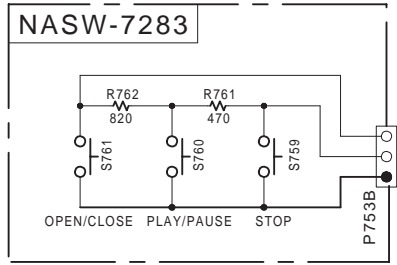
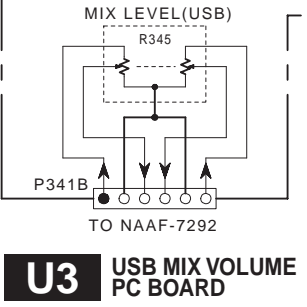


3

4



5

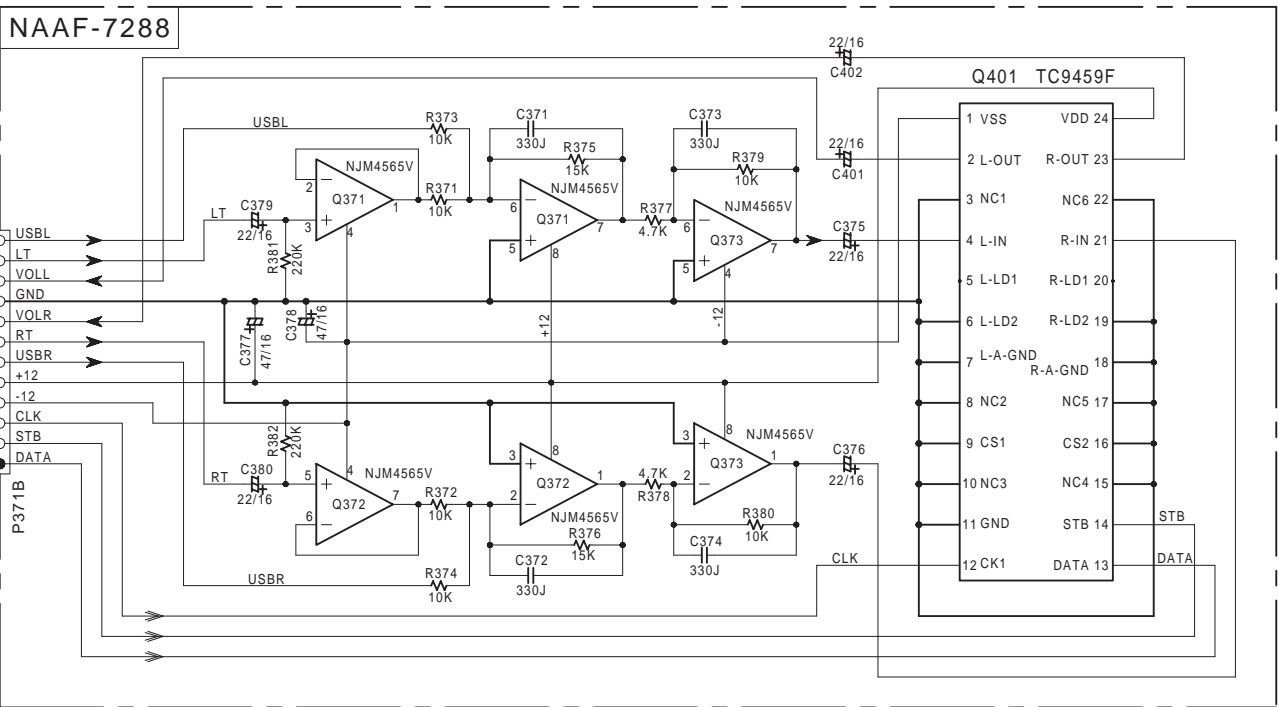


U3 USB MIX VOLUME
PC BOARD

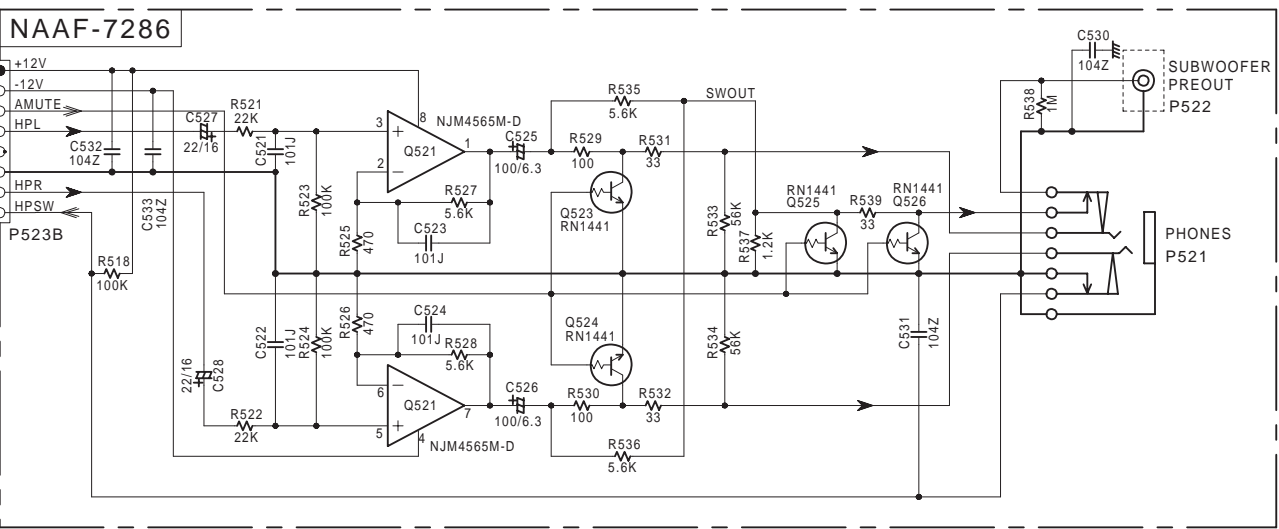
U4 CD CONTROL SWITCH
PC BOARD

U5 AUDIO CONTROL SWITCH
PC BOARD

U9 USB MIXING PC BOARD

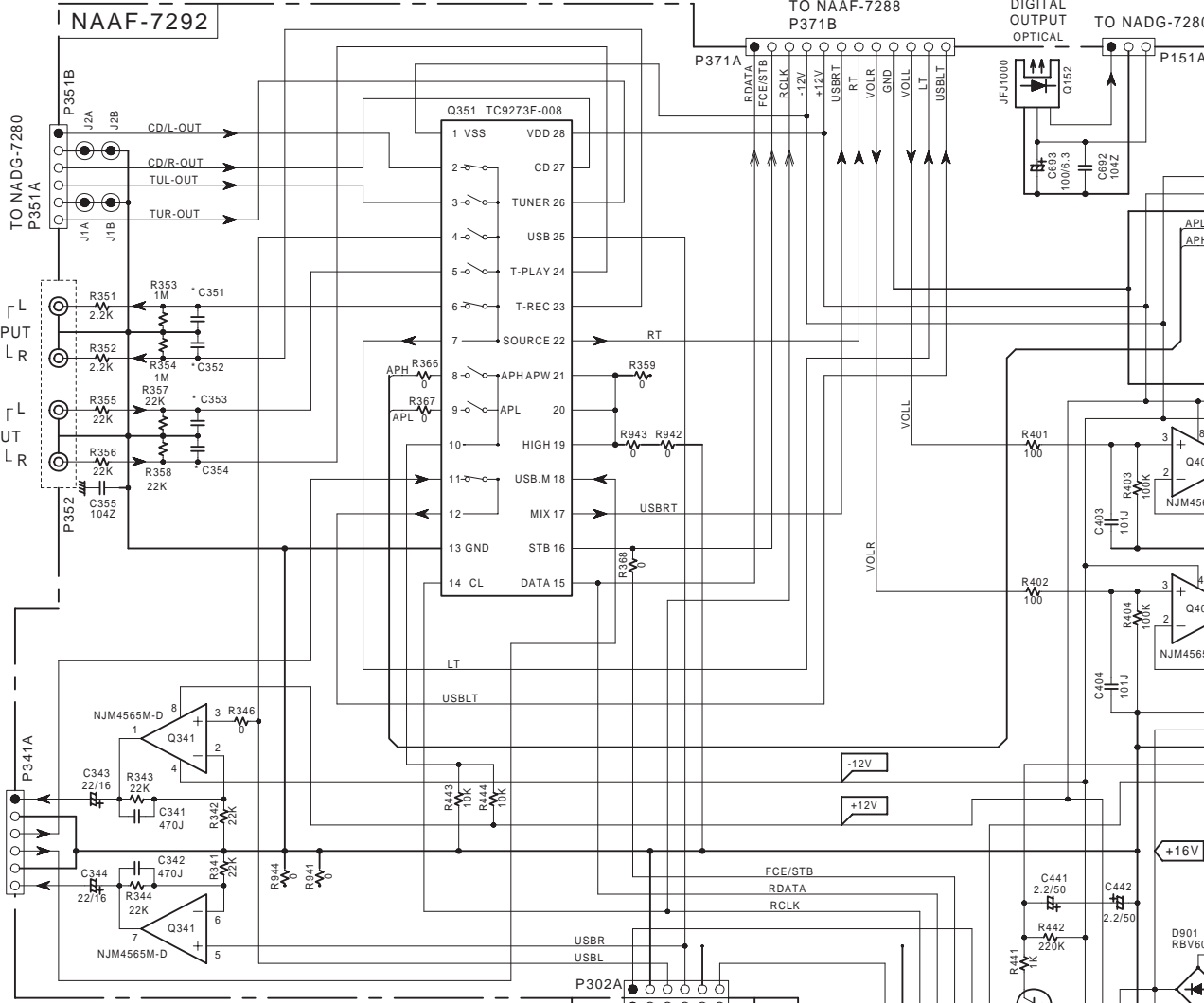


U7 HEADPHONE JACK PC BOARD

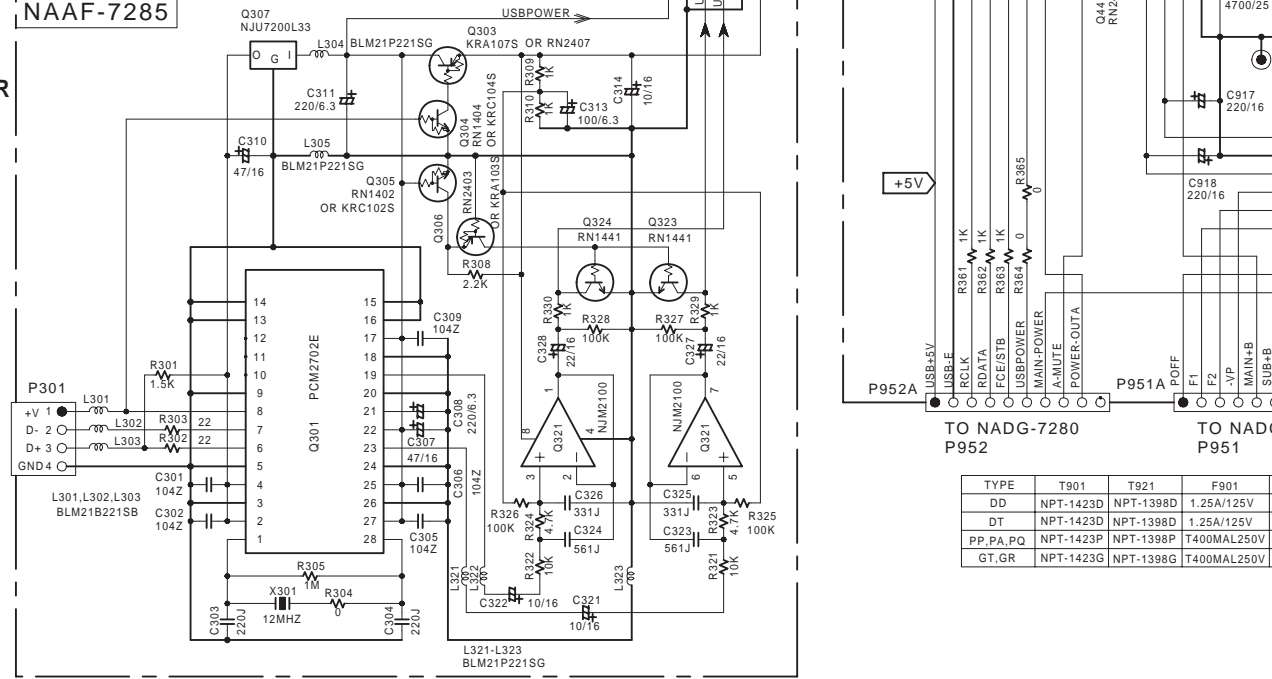


SCHEMATIC DIAGRAM-3

U13
AMPLIFIER
PC BOARD

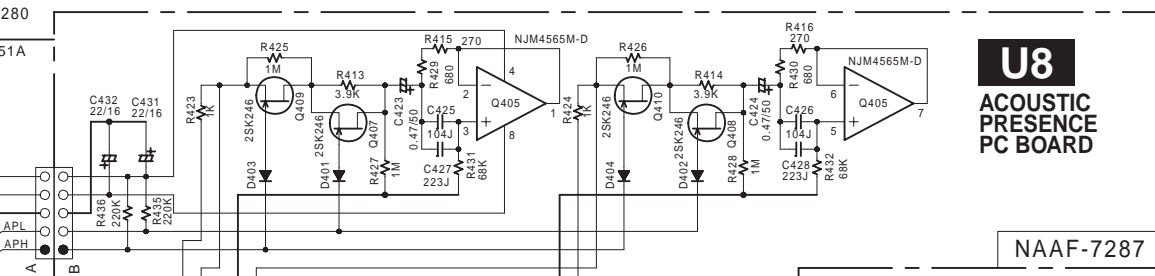


U6
D/A
CONVERTER
PC BOARD



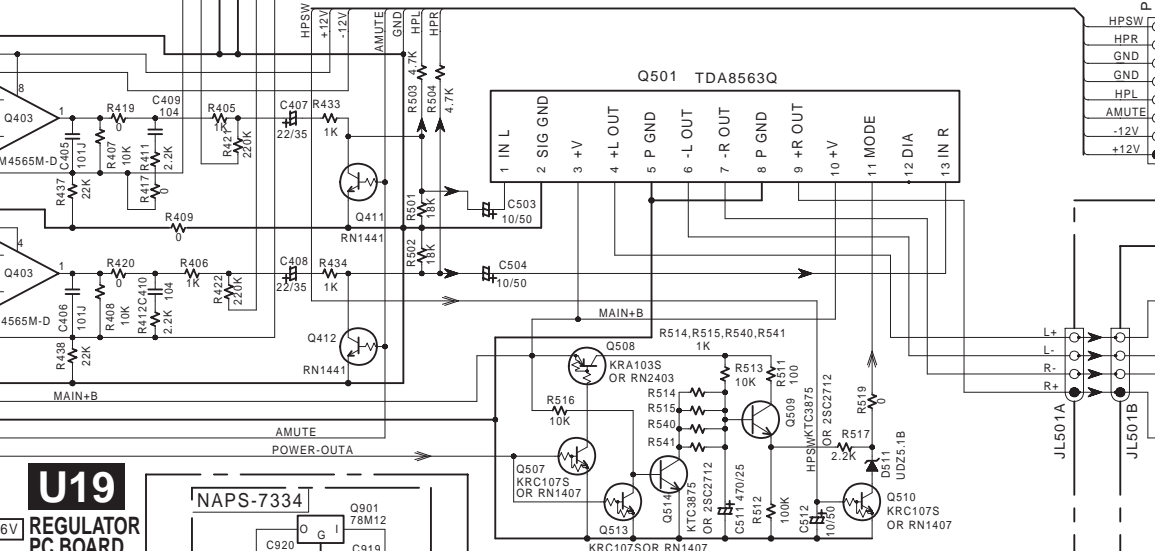
TYPE	T901	T921	F901
DD	NPT-1423D	NPT-1398D	1.25A/125V
DT	NPT-1423D	NPT-1398D	1.25A/125V
PP,PA,PQ	NPT-1423P	NPT-1398P	T400MAL250V
GT,GR	NPT-1423G	NPT-1398G	T400MAL250V

280
51A



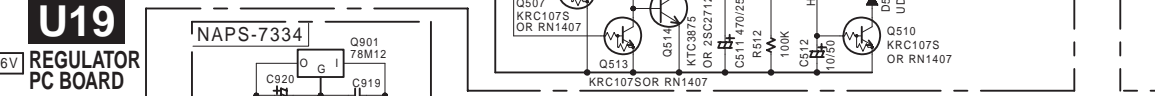
U8
ACOUSTIC
PRESENCE
PC BOARD

NAAF-7287

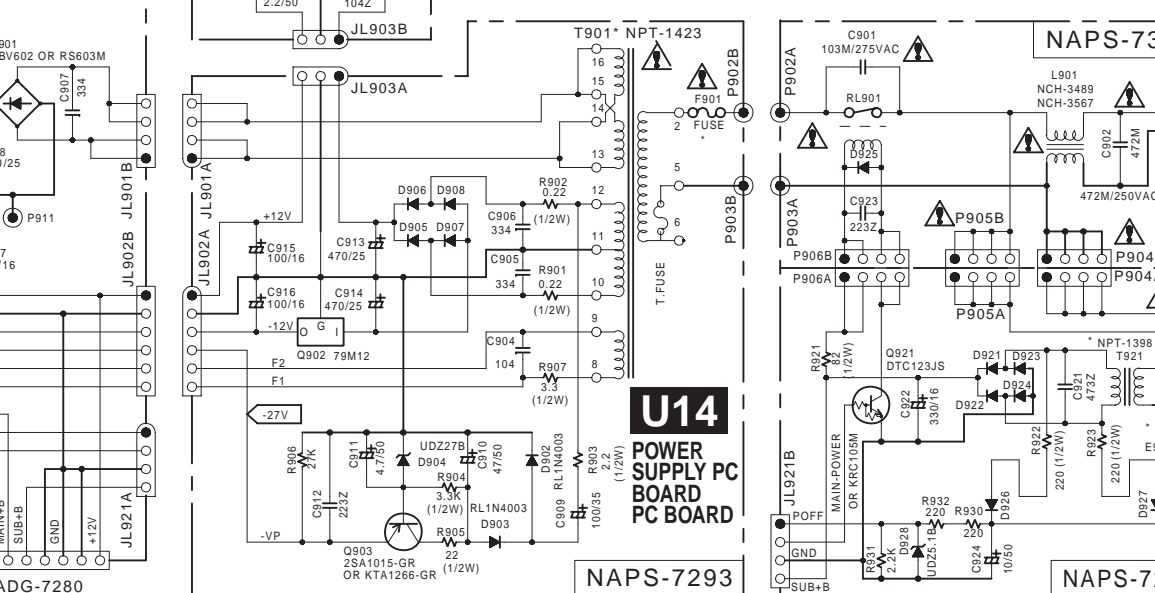


U16
SPEAKER TERMINAL
PC BOARD

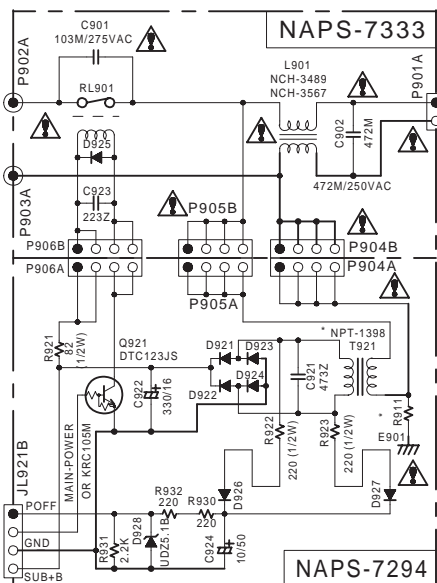
TO NAAF-7286
P523B



U19
REGULATOR
PC BOARD



U14
POWER SUPPLY PC BOARD



U18 PRIMARY
PC BOARD

TYPE	AC
D	120V 60Hz
P	230V 50Hz
G	220V 50/60Hz

C505-C508	C351-C354	R911
/	NO	NO
102J	101J	3.3M
102J	101J	NO
102J	101J	NO

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH FUSE OF SAME TYPE AND RATING INDICATED.



ATTENTION
AFIN D'ASSURER UNE PROTECTION PERMANENTE CONTRE LES RISQUES D'INCENDIE, REMPLACER UNIQUEMENT PAR UN FUSIBLE DE MEME TYPE ET CALIBRATION COMME INDIQUE.



THIS SYMBOL LOCATED NEAR THE FUSE INDICATES THAT THE FUSE USED IS SLOW OPERATING TYPE FOR CONTINUED PROTECTION AGAINST FIRE HAZARD. REPLACE WITH SAME TYPE FUSE. FOR FUSE RATING REFER TO THE MARKING ADJACENT TO THE SYMBOL.

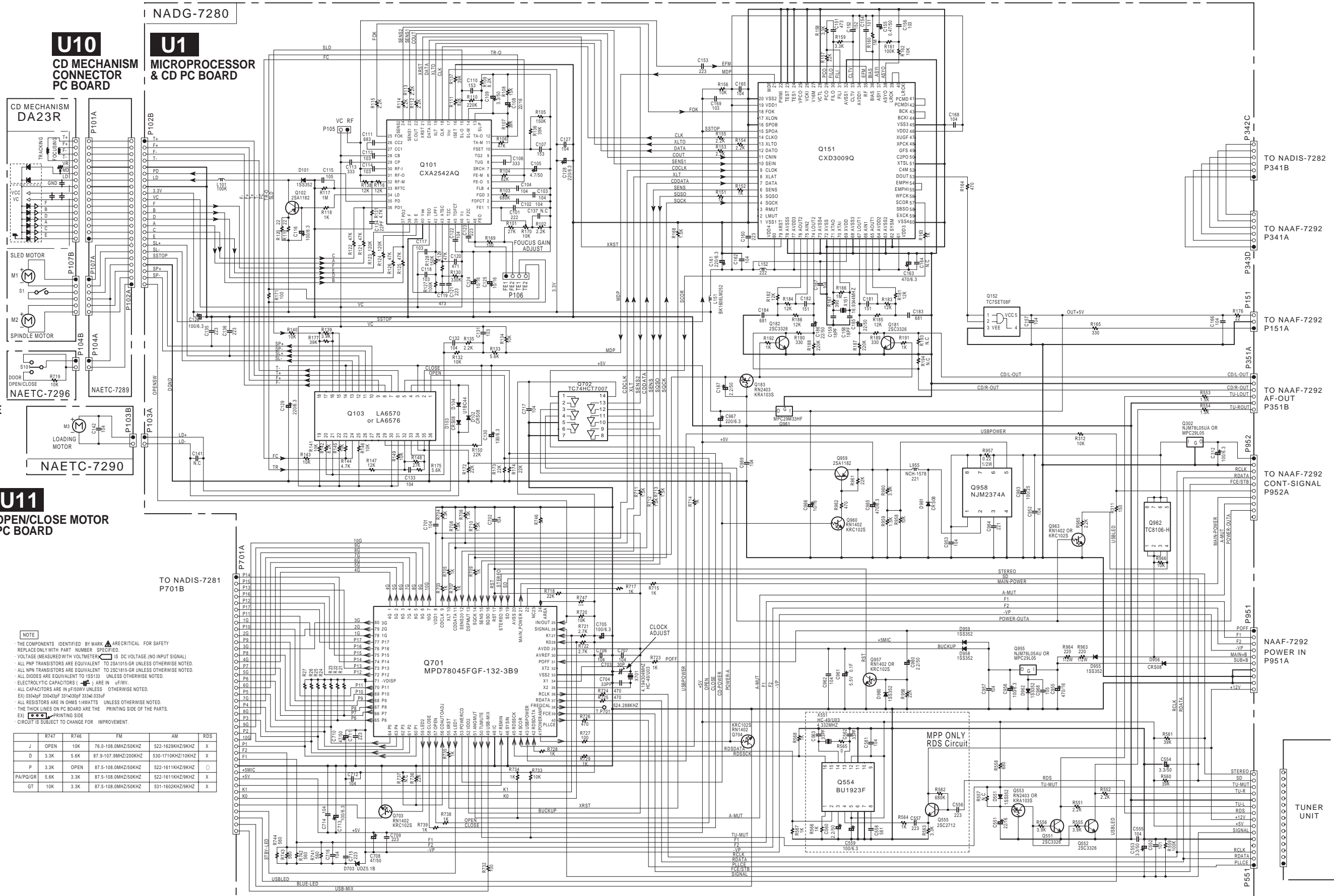
CE SYMBOLE INDIQUE QUE LE FUSIBLE UTILISE EST LENT. POUR UNE PROTECTION PERMANENTE, UTILISER QUE DES FUSIBLES DE MEME TYPE. CE DERNIER EST INDIQUE LA OU LE PRESENT SYMBOLE EST APPOSE.

U15 STANDBY
TRANSFORMER
PC BOARD

ADG-7280

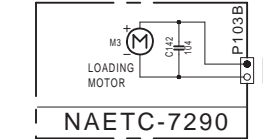
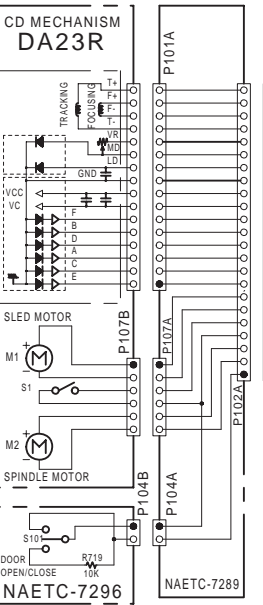
SCHEMATIC DIAGRAM-1

1
2
3
4
5



U10
CD MECHANISM
CONNECTOR
PC BOARD

U1
MICROPROCESSOR
& CD PC BOARD



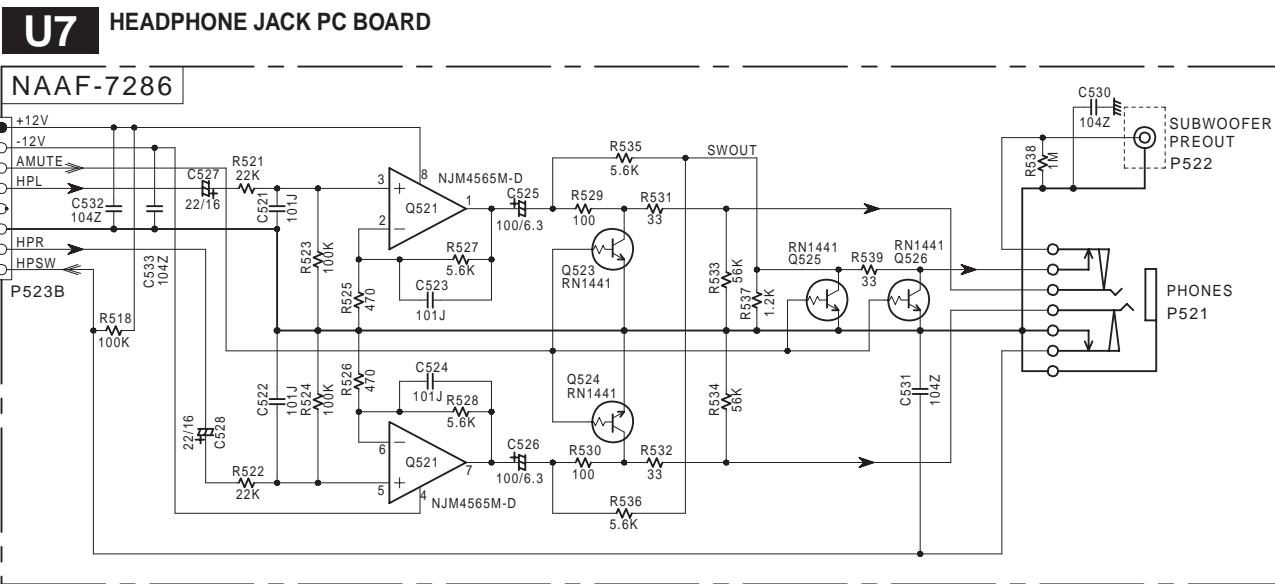
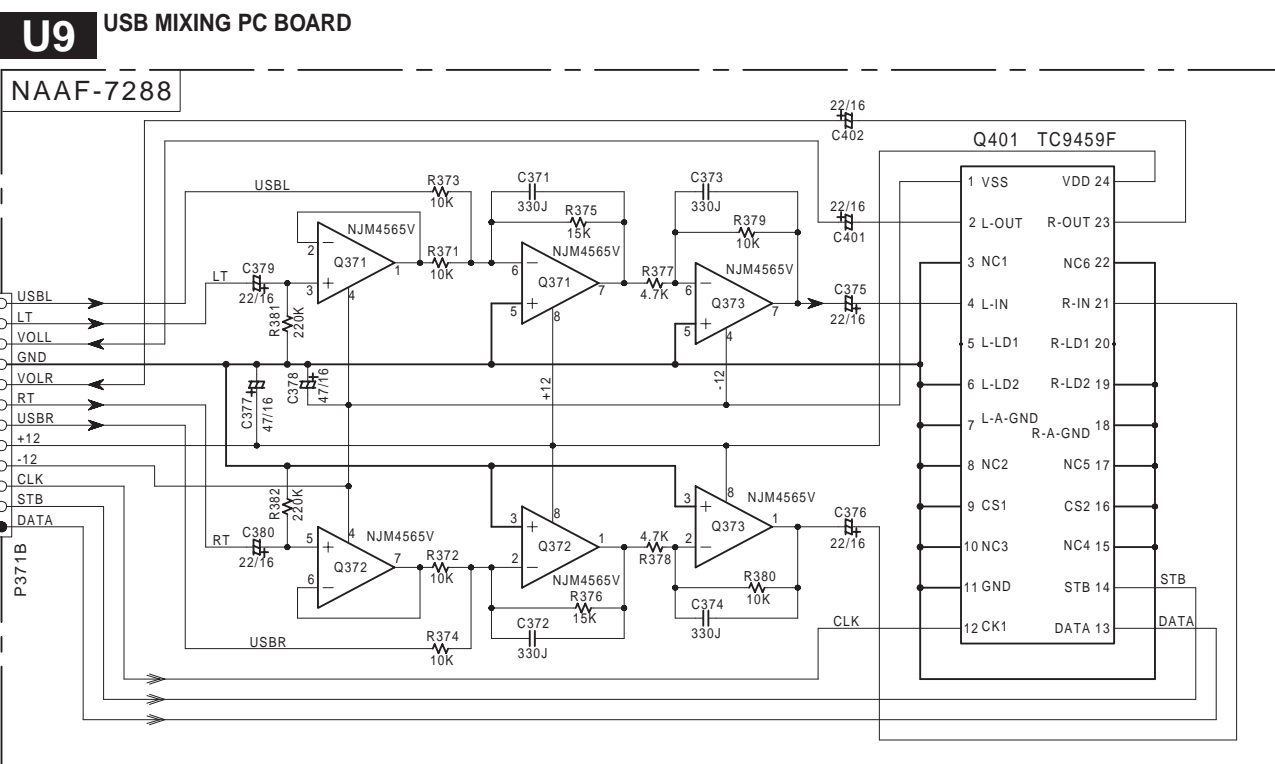
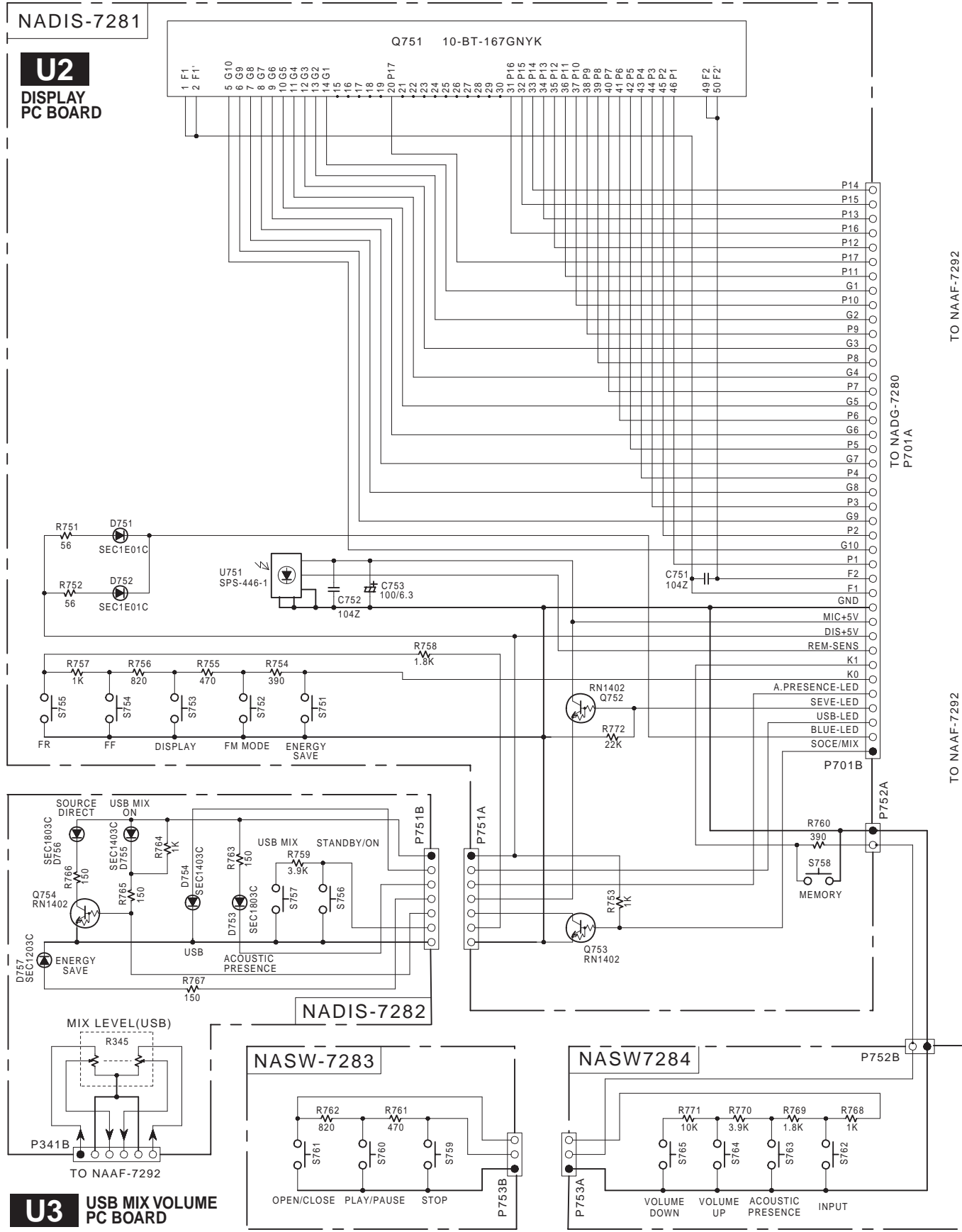
NOTE
THE COMPONENTS IDENTIFIED BY MARK ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
VOLTAGE (MEASURED WITH VOLTMETER) IS DC VOLTAGE (NO INPUT SIGNAL).
ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-GR UNLESS OTHERWISE NOTED.
ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR UNLESS OTHERWISE NOTED.
ALL DIODES ARE EQUIVALENT TO 1S5133 UNLESS OTHERWISE NOTED.
ELECTROLYTIC CAPACITORS (E) ARE IN MICROFARADS (UF).
ALL CAPACITORS ARE IN PICOFARADS (PF) UNLESS OTHERWISE NOTED.
EX) 0.033uf = 330033PF 331 = 330PF 333 = 0.033UF
ALL RESISTORS ARE IN OHMS (OHMS) UNLESS OTHERWISE NOTED.
THE THICK LINES ON PC BOARD ARE THE PRINTING SIDE OF THE PARTS.
EX) PRINTING SIDE.
CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

	R747	R746	FM	AM	RDS
J	OPEN	10K	76.0-108.0MHZ/50KHZ	522-162KHZ/9KHZ	X
D	3.3K	5.6K	87.8-107.9MHZ/200KHZ	530-1710KHZ/10KHZ	X
P	3.3K	OPEN	87.5-108.0MHZ/50KHZ	522-1611KHZ/9KHZ	O
PAI/PQ/GR	5.6K	3.3K	87.5-108.0MHZ/50KHZ	522-1611KHZ/9KHZ	X
GT	10K	3.3K	87.5-108.0MHZ/50KHZ	531-1602KHZ/9KHZ	X

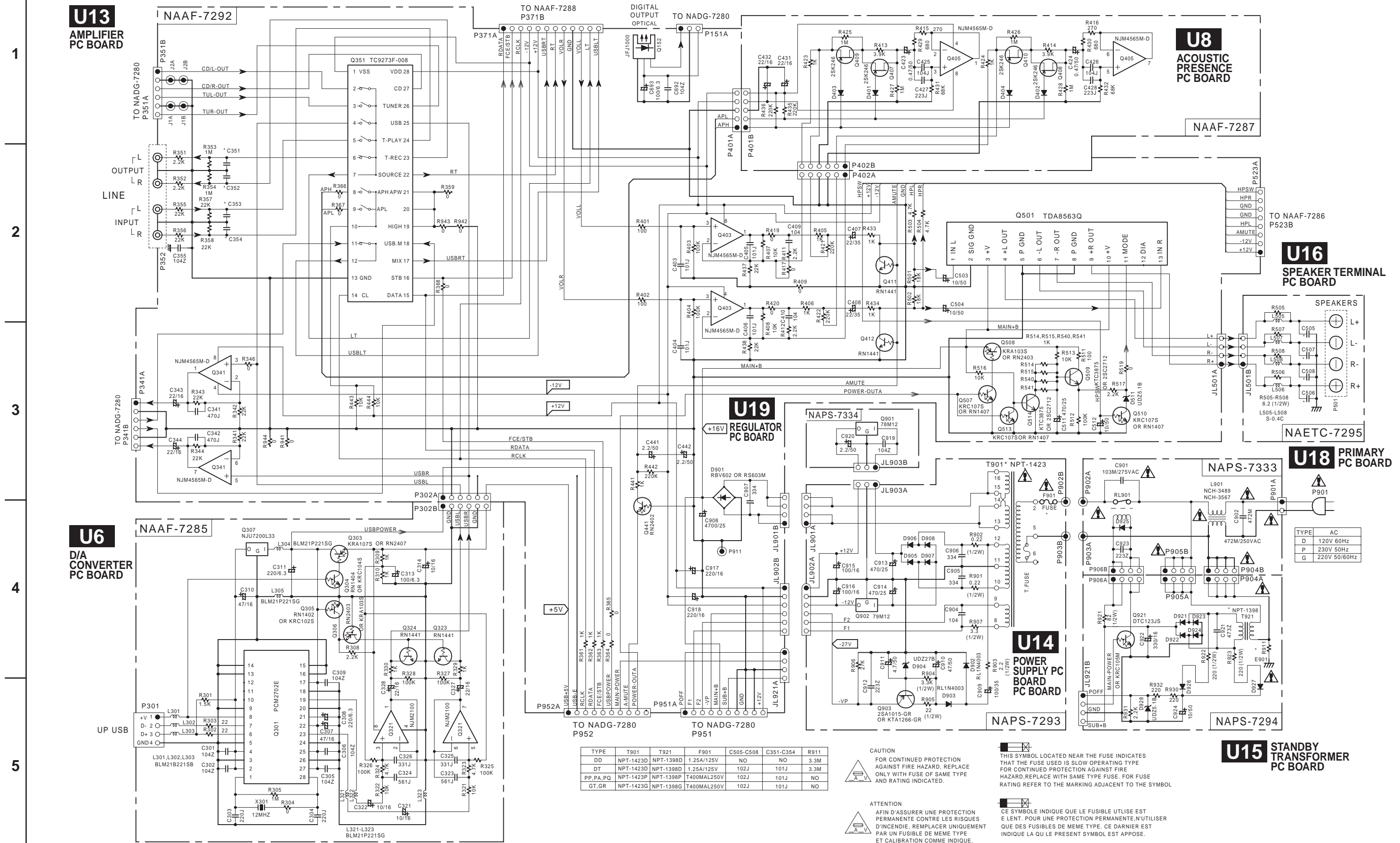
TO NADIS-7282 P341B
TO NAAF-7292 P341A
TO NAAF-7292 P151A
TO NAAF-7292 AF-OUT P351B
TO NAAF-7292 CONT-SIGNAL P952A
NAAF-7292 POWER IN P951A
TUNER UNIT

SCHEMATIC DIAGRAM-2

1
2
3
4
5



SCHEMATIC DIAGRAM-3



1

2

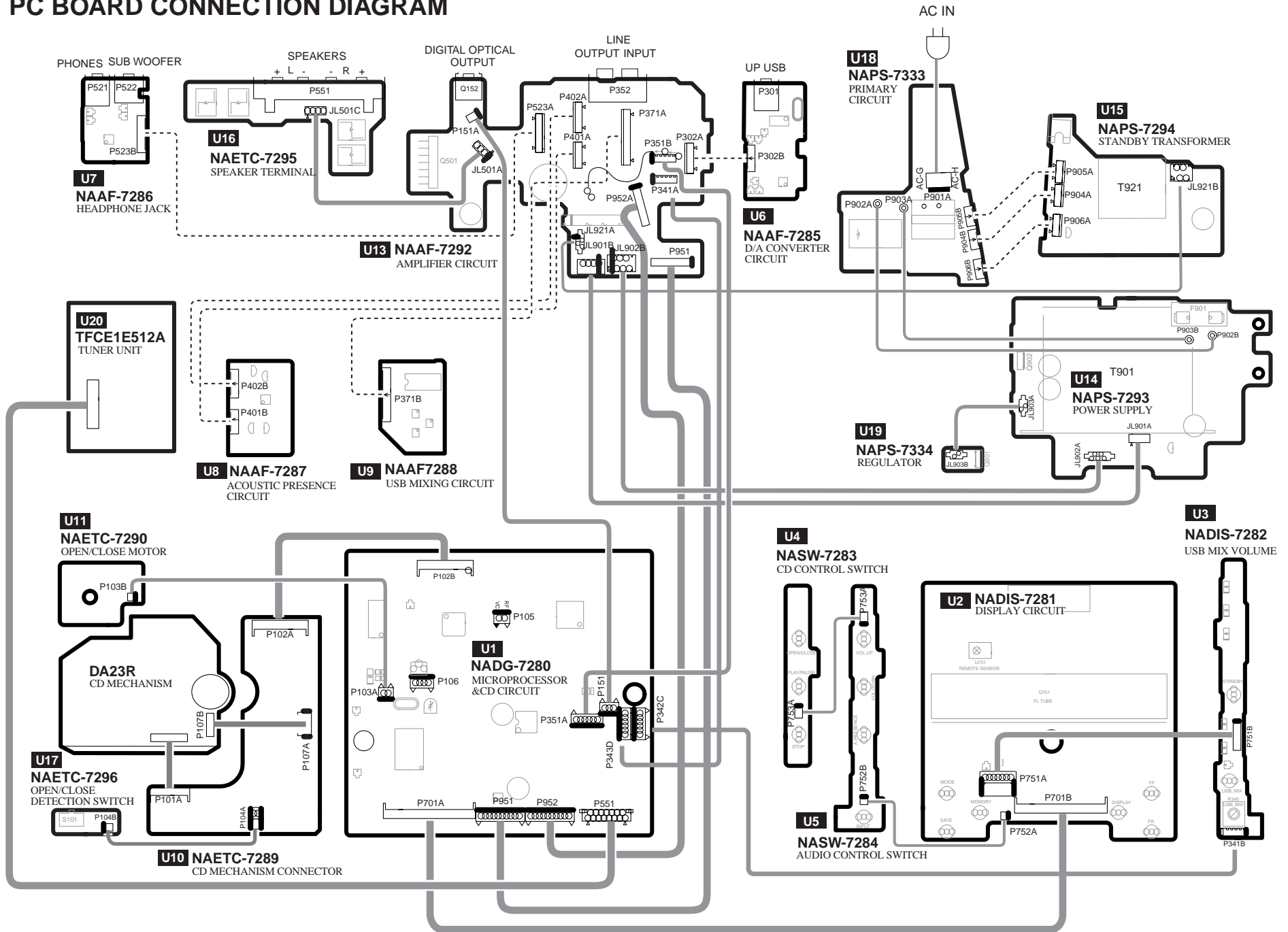
3

4

5

TYPE	AC
D	120V 60Hz
P	230V 50Hz
G	220V 50/60Hz

PC BOARD CONNECTION DIAGRAM



A

B

C

D

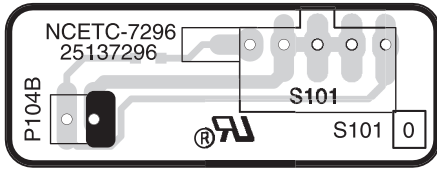
PRINTED CIRCUIT BOARD VIEWS-1

U17 OPEN/CLOSE DETECTION SWITCH PC BOARD (NAETC-7296)

U10 CD MECHANISM CONNECTOR PC BOARD (NAETC-7289)

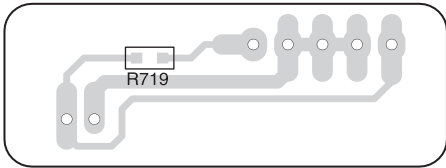
1

Component side

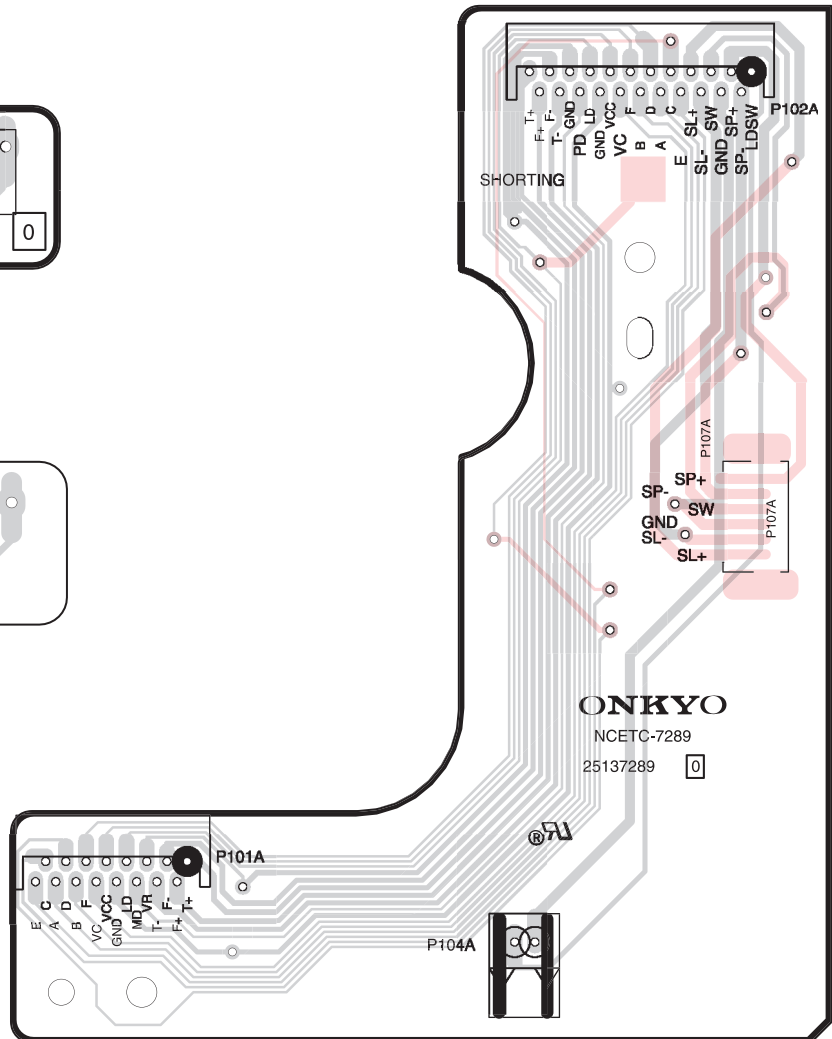


2

Soldering side



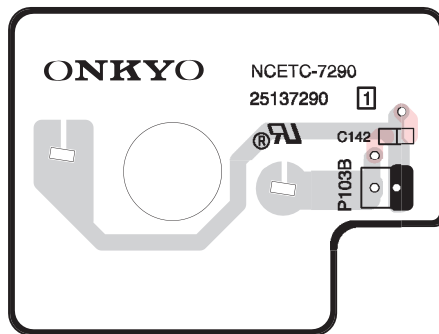
3



4

U11 OPEN/CLOSE MOTOR PC BOARD (NAETC-7290)

5



A

B

C

D

PRINTED CIRCUIT BOARD VIEWS-1

U1

MICROPROCESSOR & CD
PC BOARD (NADG-7280)

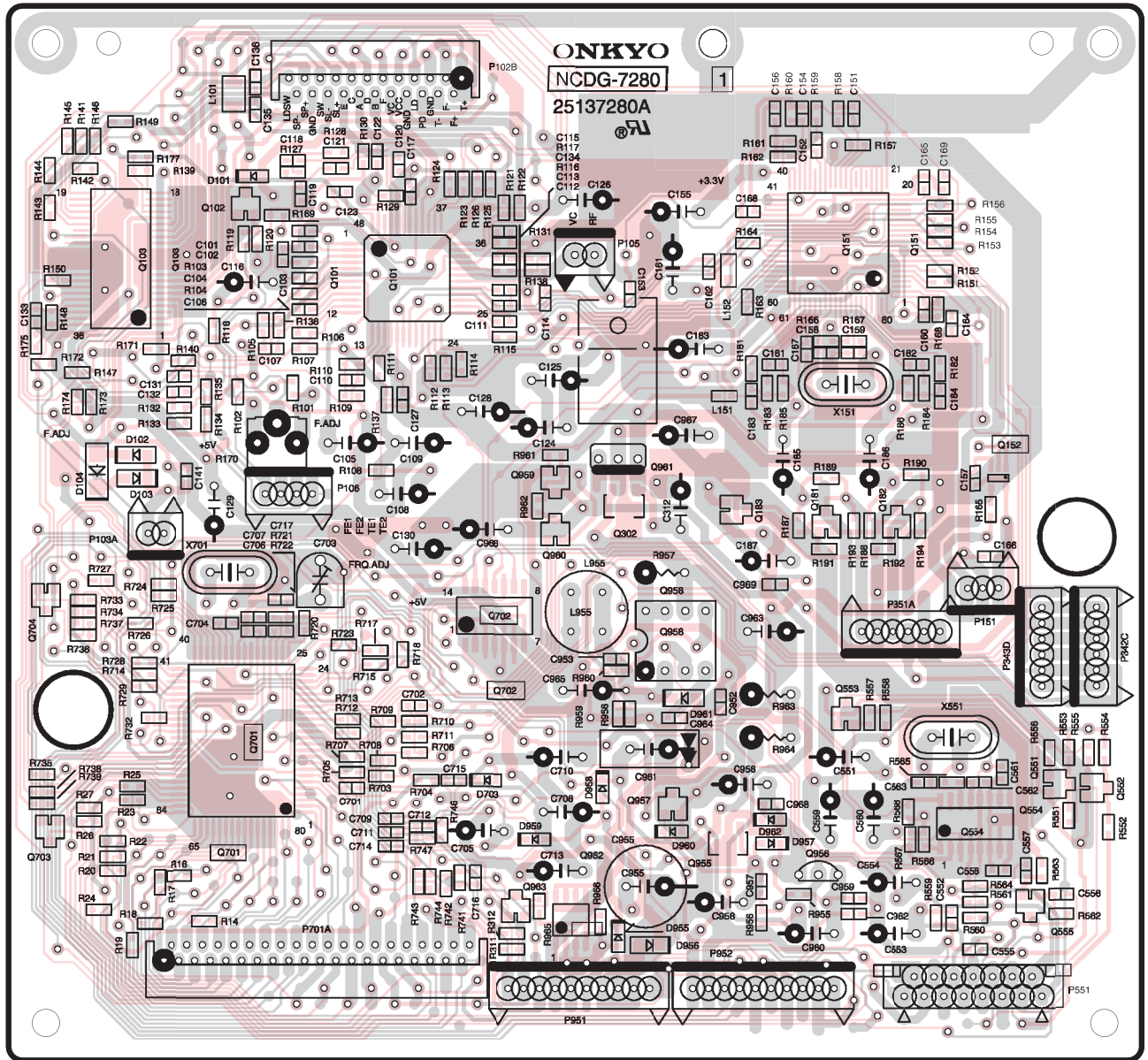
1

2

3

4

5



A

B

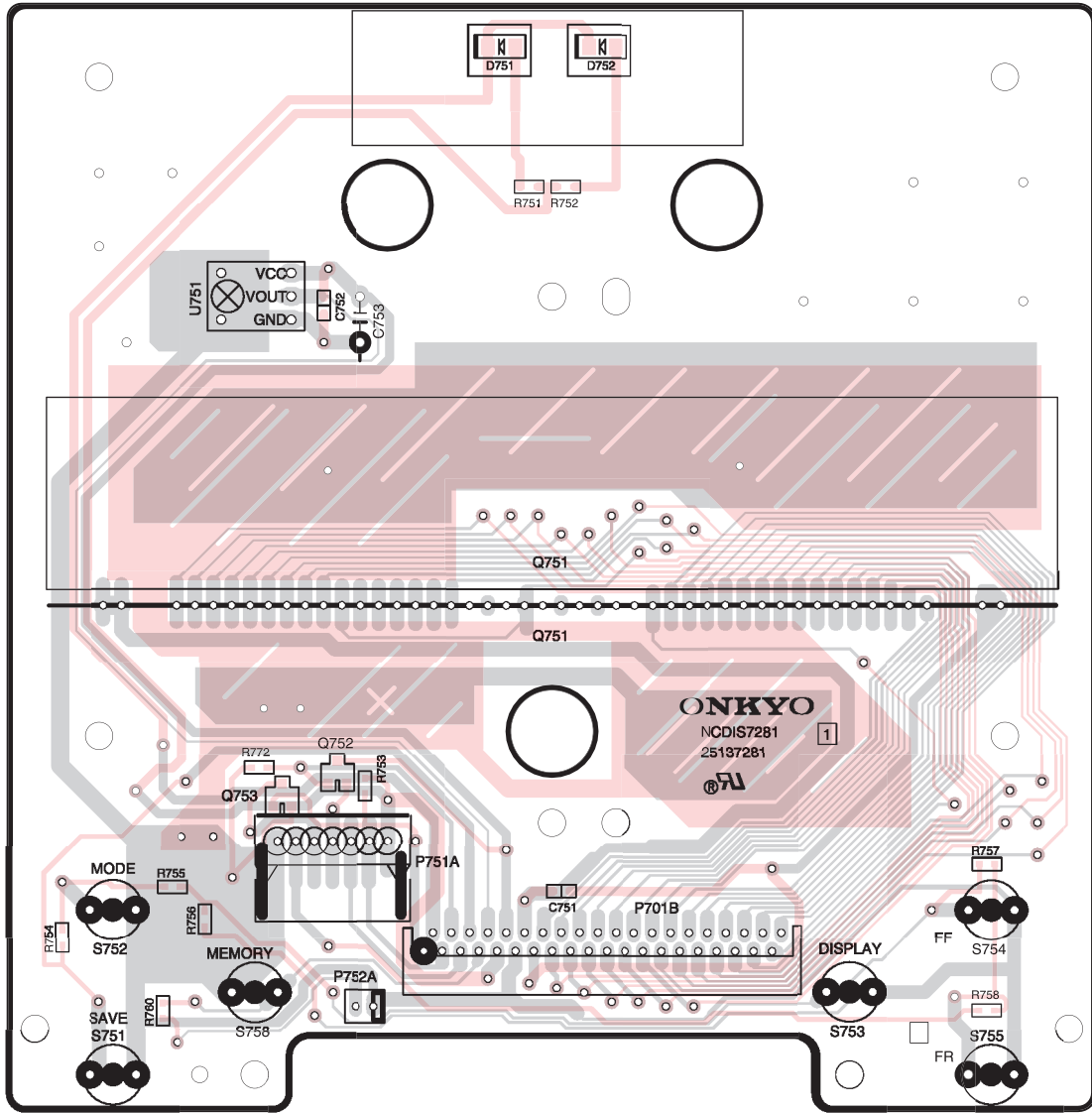
C

D

PRINTED CIRCUIT BOARD VIEWS-2

1

U2 DISPLAY PC BOARD
(NADIS-7281)



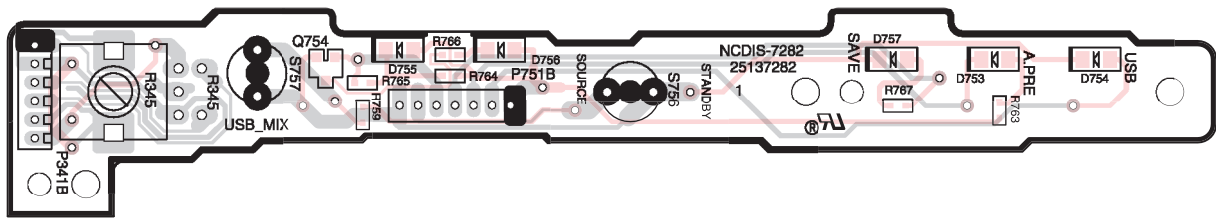
2

3

4

5

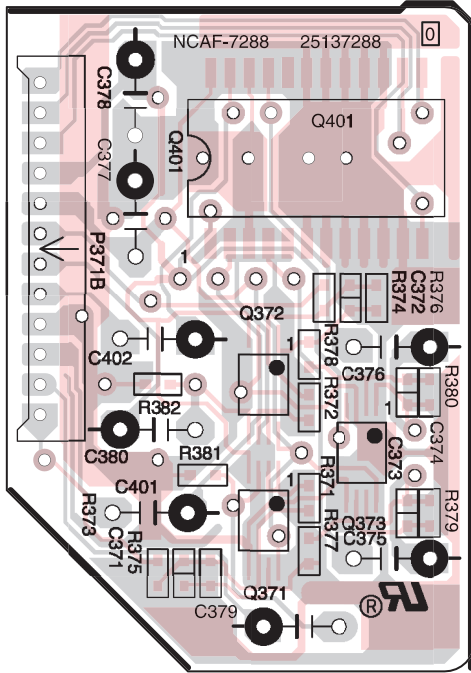
U3 USB MIX VOLUME
PC BOARD (NADIS-7282)



A B C D
 PRINTED CIRCUIT BOARD VIEWS-2

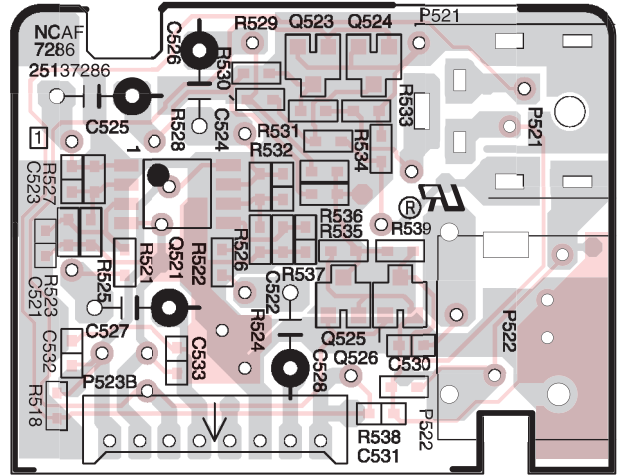
1

U9 USB MIXING PC BOARD (NAAF-7288)



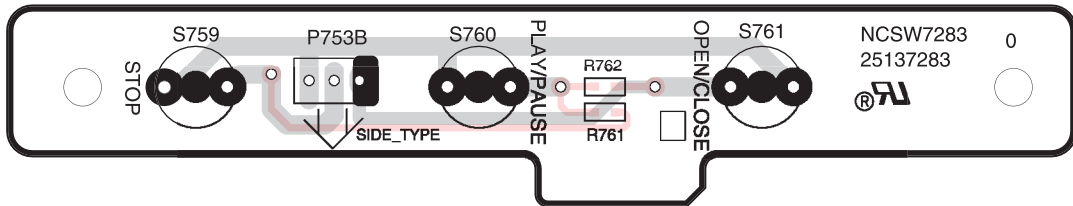
2

U7 HEADPHONE JACK PC BOARD (NAAF-7286)



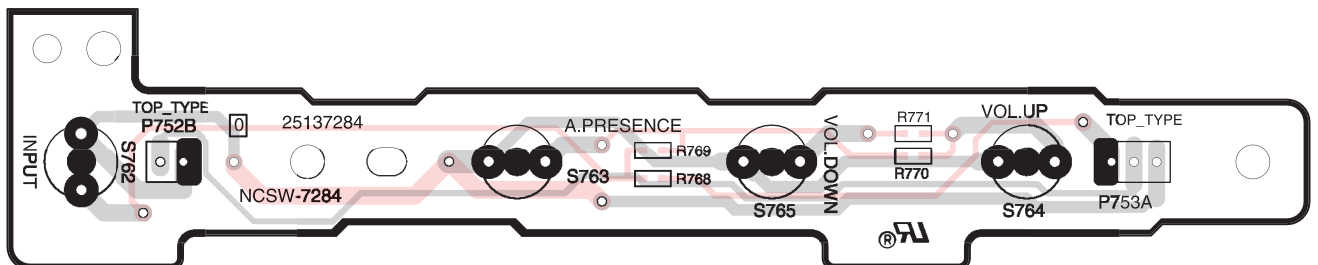
3

U4 CD CONTROL SWITCH PC BOARD (NASW-7283)



4

U5 AUDIO CONTROL SWITCH PC BOARD (NASW-7284)



5

A

B

C

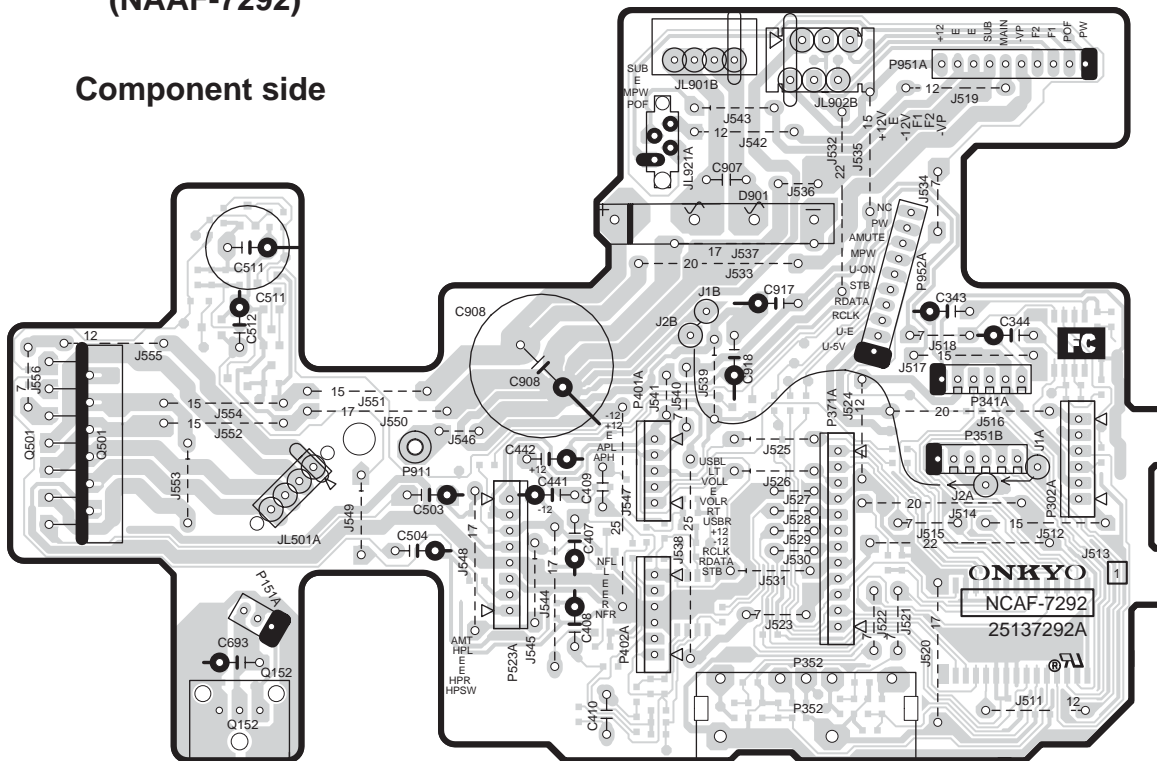
D

PRINTED CIRCUIT BOARD VIEWS-3

U13 AMPLIFIER PC BOARD (NAAF-7292)

1

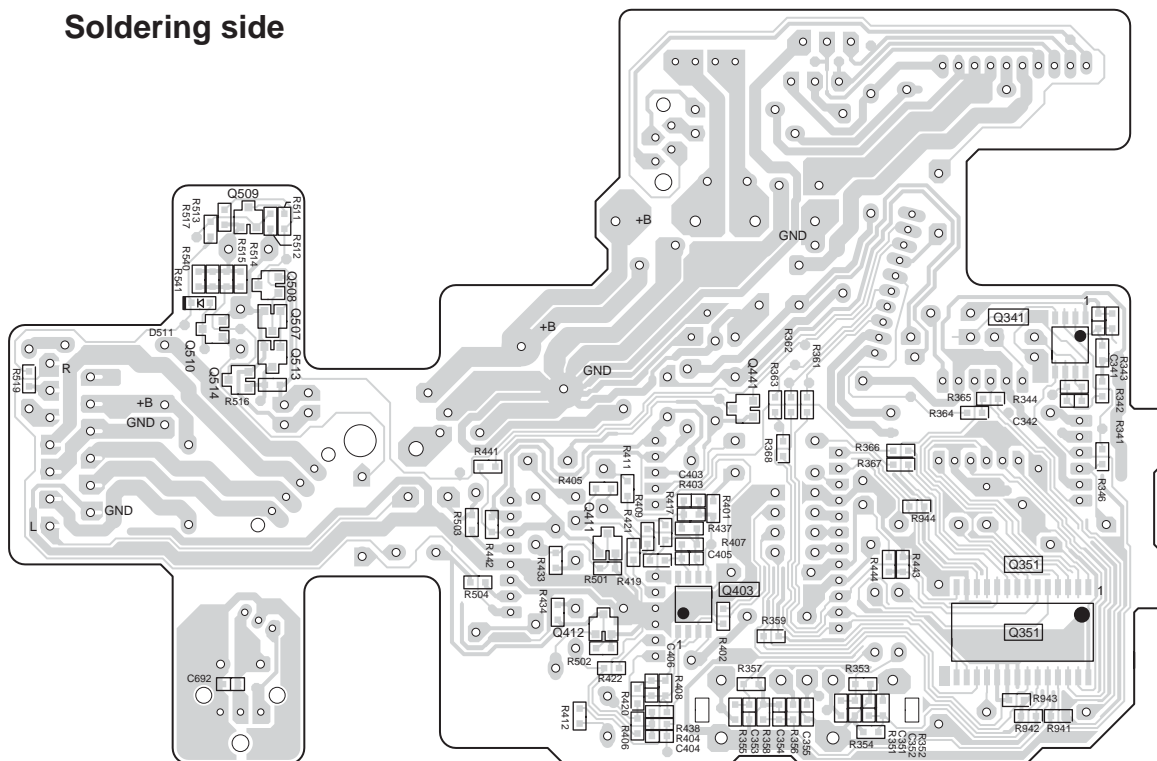
Component side



2

3

Soldering side



4

5

A

B

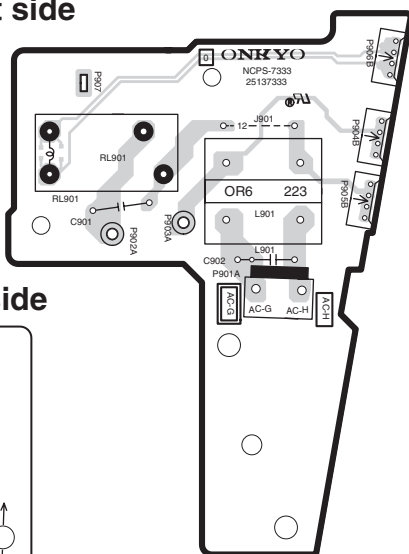
C

D

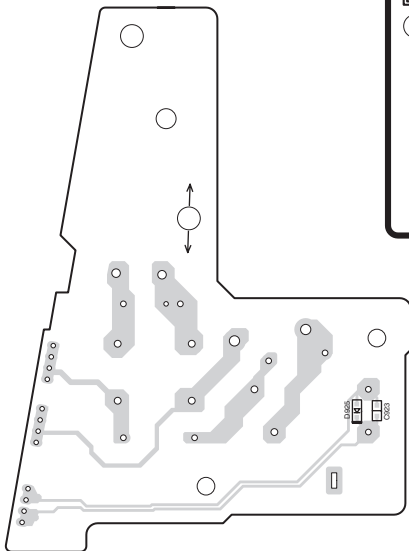
PRINTED CIRCUIT BOARD VIEWS-4

U18 PRIMARY PC BOARD (NAPS-7333)

Component side

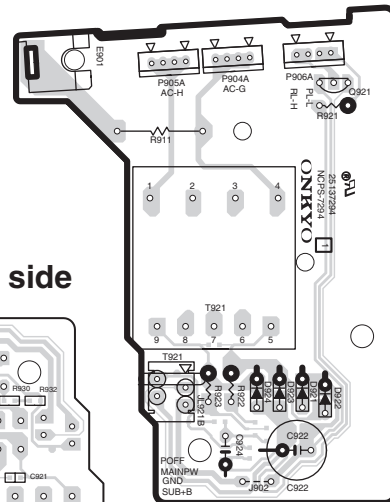


Soldering side

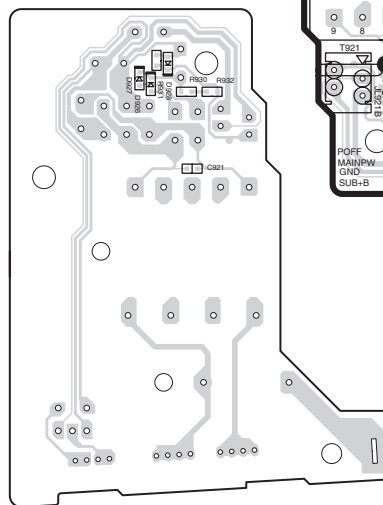


U15 STANDBY TRANSFORMER PC BOARD (NAPS-7294)

Component side

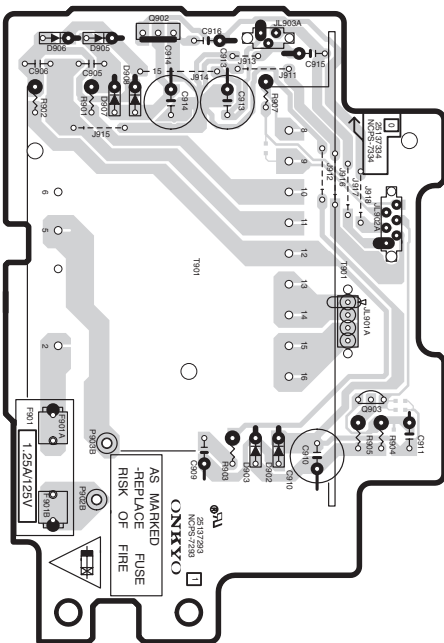


Soldering side

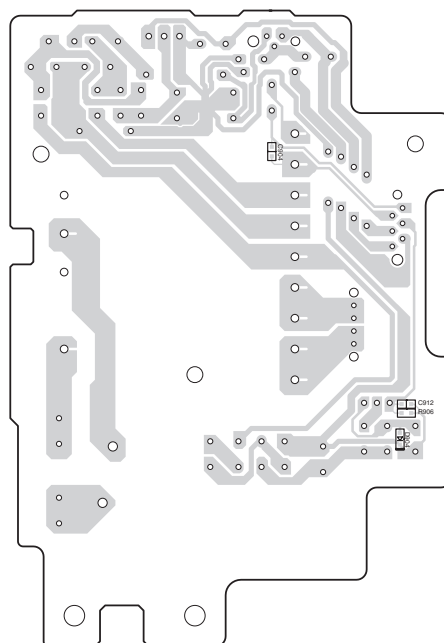


U14 POWER SUPPLY PC BOARD (NAPS-7293)

Component side



Soldering side



1

2

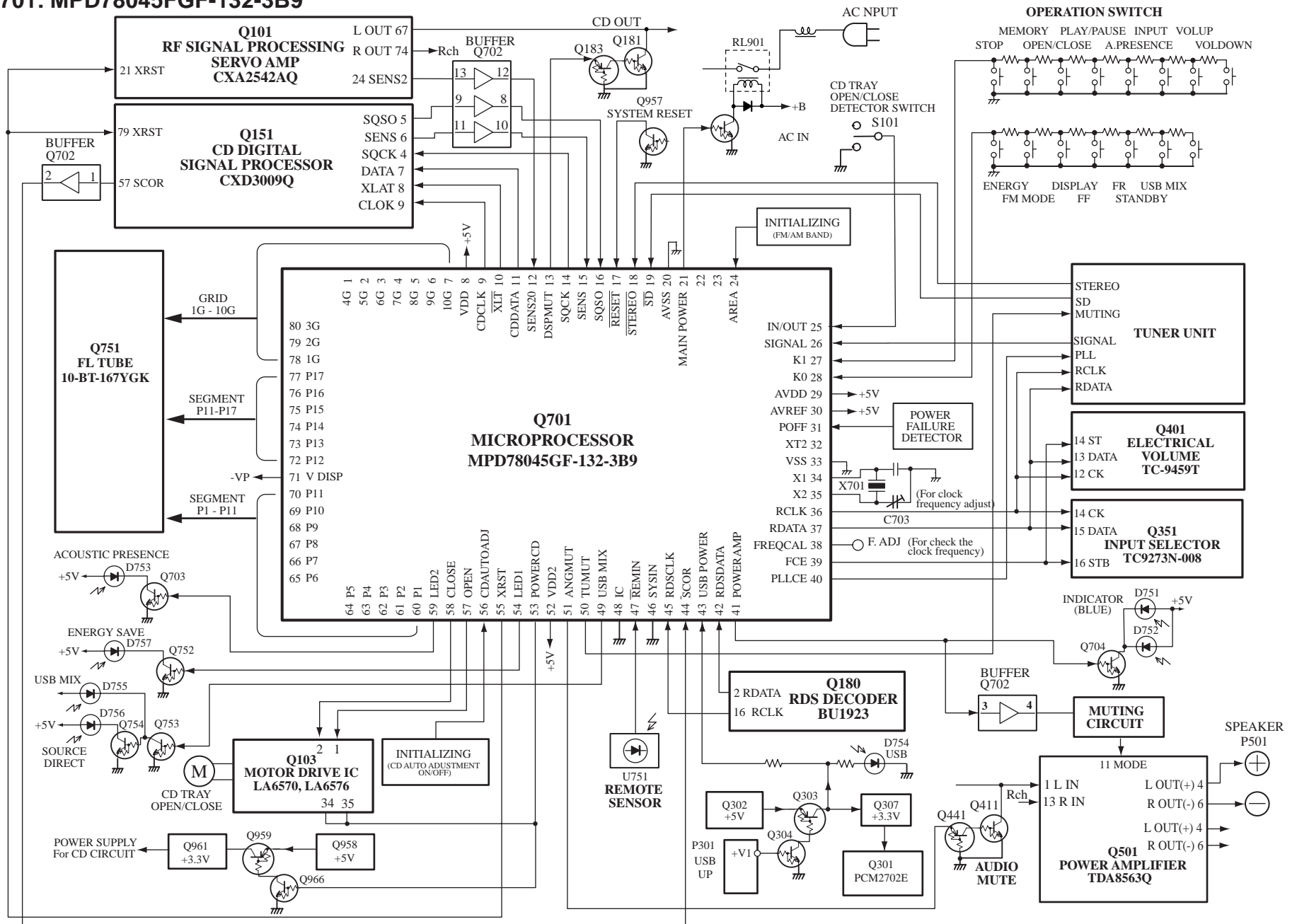
3

4

5

MICROPROCESSOR CONNECTION DIAGRAM

Q701: MPD78045FGF-132-3B9



MICROPROCESSOR TERMINAL DESCRIPTION

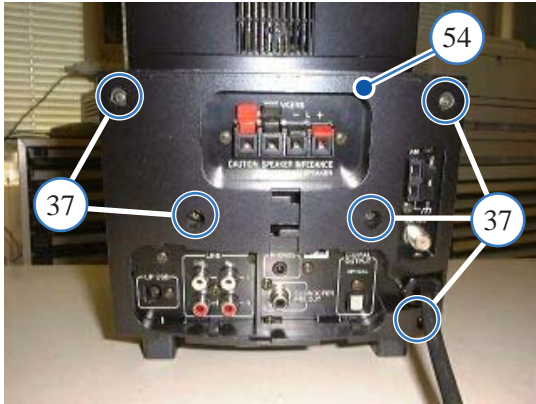
Q701: MPD78045GF-132-3B9

PIN NO.	FUNCTION	I/O	DESCRIPTION	PIN NO.	FUNCTION	I/O	DESCRIPTION
1	4G	O	Output pin for controlling grid of FL tube. 4G - 10G	41	POWERAMP	O	Output pin for controlling power amplifier. H = ON, L = OFF
2	5G	O		42	RDSDATA	I	Input pin of data from RDS demodulator IC.
3	6G	O		43	USB POWER	I	Input pin of power supply from USB.
4	7G	O		44	SCOR	I	Input pin of sub code frame detected signal from the signal processing IC.
5	8G	O		45	RDSCLK	I	Input pin of clock form RDS demodulator IC.
6	9G	O		46	SYSIN		No use.
7	10G	O		47	REMIN	I	Input pin of control signal from remote sensor.
8	VDD		Power supply pin. (+5V)	48	IC		No use.
9	CDCLK	O	Output pin of clock for transmission of command to signal processing IC.	49	USB MIX	O	Output pin for controlling USB indicator. H=MIX, L=SOURCE
10	XLT	O	Output pin of latch for transmission of command to signal processing IC.	50	TUMUT	O	Output pin for controlling muting circuit of tuner output.
11	CDDATA	O	Output pin of data for transmission of command to signal processing IC.	51	ANGMUT	O	Output pin for controlling muting circuit of amplifier input signal.
12	SENS20	I	Input pin of the SENS signal from CD servo IC.	52	VDD2		Power supply pin. (+5V)
13	DSPMUT	O	Output pin of muting signal for CD output.	53	POWERCD	O	Output pin for controlling power supply of CD circuit.
14	SQCK	O	Output pin of clock for CD sub code reading to signal processing IC.	54	LED1	O	Output pin for controlling ENERGY SAVE indicator
15	SENS	I	Input pin of SENS signal from signal processing IC.	55	XRST	O	Output pin of reset signal for signal processing IC.
16	SQSO	I	Input pin of CD sub code from signal processing IC.	56	CD AUTOADJ	I	Input pin for initial setting of CD adjustment state.
17	RESET	I	Input pin for system reset.	57	OPEN	O	Output pin for controlling of CD door.
18	STEREO	I	Input pin of the detection signal of FM stereo.	58	CLOSE	O	
19	SD	I	Input pin of the detection signal of signal strength.	59	LED2	O	Output pin for controlling ACOUSTIC PRESENCE indicator.
20	AVSS		Ground pin of A/D converter.	60	P1	O	Output pin for controlling segment of FL tube. P1 - P11
21	MAIN POWER	O	Output pin for controlling main power supply. H = ON, L = OFF	61	P2	O	
22	NU	O	No use.	62	P3	O	
23	NU	O	No use.	63	P4	O	
24	AREA	I	Input pin for initial setting of the destination	64	P5	O	
25	IN/OUT	I	Input pin for detecting opening-and-closing state of CD door.	65	P6	O	
26	SIGNAL	I	Input pin of signal level for automatic memory.	66	P7	O	
27	K1	I	Input pin of key operation state.	67	P8	O	
28	K0	I	Input pin of key operation state.	68	P9	O	
29	AVDD		Power supply pin. (+5V)	69	P10	O	
30	AVREF		Reference voltage input pin for A/D converter (+5V).	70	P11	O	
31	POFF	I	Input pin for detection of power failure state.	71	V DISP	O	Power supply pin for FL tube.
32	XT2	O	No use.	72	P12	O	Output pin for controlling segment of FL tube. P12 - P17
33	VSS		Ground pin.	73	P13	O	
34	X1		Input pin for oscillation circuits of system clock.	74	P14	O	
35	X2		Output pin for oscillation circuits of system clock.	75	P15	O	
36	RCLK	O	Output pin of clock for controlling function switch IC.	76	P16	O	
37	RDATA	O	Output pin of data for controlling function switch IC.	77	P17	O	
38	FREQCAL	O	Output pin of frequency for clock adjustment.	78	1G	O	
39	FCE	O	Output pin of latch for controlling function switch IC.	79	2G	O	
40	PLLCE	O	Output pin of latch for controlling PLL IC.	80	3G	O	

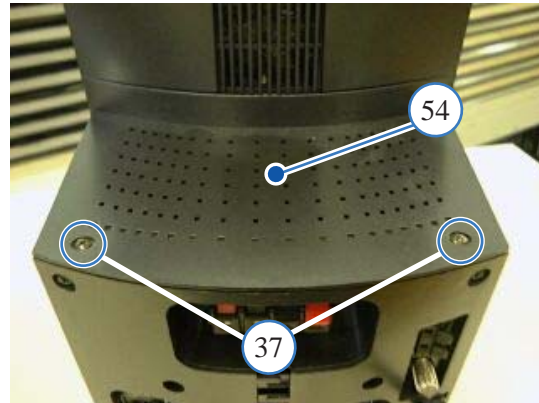
DISASSEMBLING PROCEDURES-1 SPARATE OF UNIT

The number of () in the explanatory note and ○ in the figure shows Ref. No. of the exploded view.

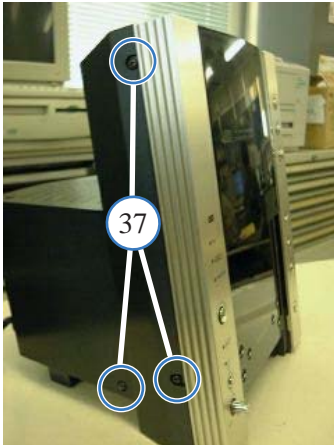
- 1** Remove the 13 screws (37) and remove the cover AS (54).



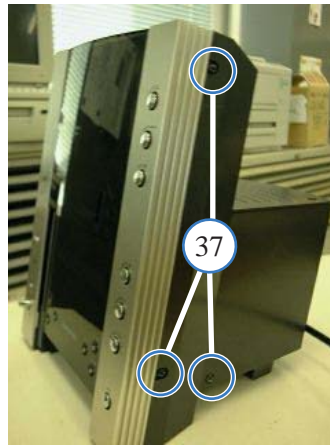
back side view



back side view

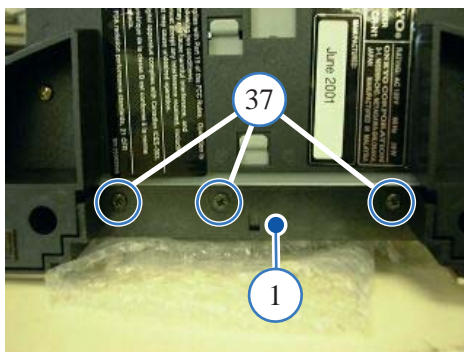


left side view

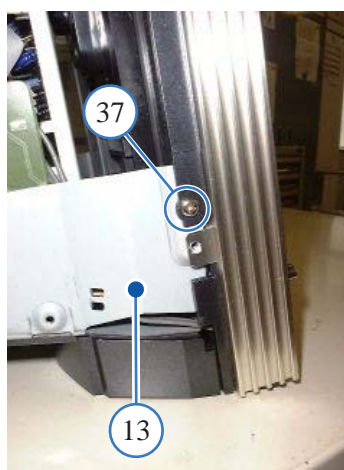


right side view

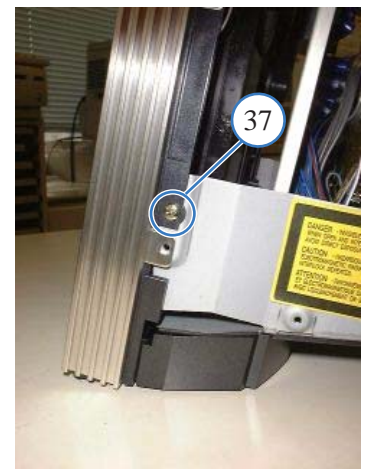
- 2** Remove the 5 screws of the place which is fixing the front bracket (1) and chassis (13).



bottom view



left side view



right side view

DISASSEMBLING PROCEDURES-3

CAUTION OF REPLACEMENT OF PICKUP UNIT

The laser diode in the optical pickup block is so sensitive to static electricity, surge current and etc., that the components are liable to be broken down or its reliability remarkably deteriorated.

During repair, carefully take the following precautions. (The following precautions are included in the service parts.)

PRECAUTIONS

1. Ground for the work-desk.

Place a conductive sheet such as a sheet of copper (with impedance lower than 10Mohm) on the work-desk and place the set on the conductive sheet so that the chassis can be grounded.

2. Grounding for the test equipments and tools.

Test equipments and toolings should be grounded in order that their ground level is the same the ground of the power source.

3. Grounding for the human body.

Be sure to put on a wrist-strap for grounding whose other end is grounded.

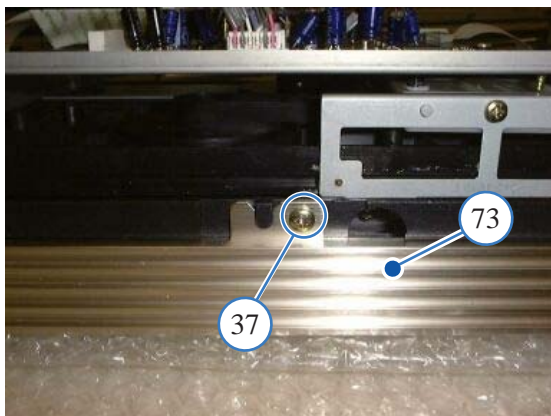
Be particularly careful when the workers wear synthetic fiber clothes, or air is dry.

4. Select a soldering iron that permits no leakage and have the tip of the iron well-grounded.

5. Do not check the laser diode terminals with the probe of a circuit tester or oscilloscope.

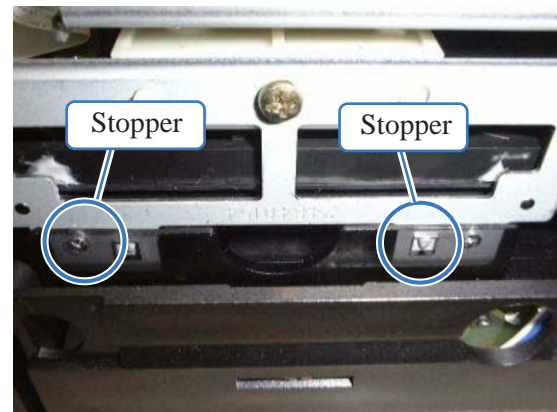
REPLACEMENT OF PICKUP UNIT

- 1** Remove the 2 screws (37) and remove the front panel L (73) and front panel R(74) from front bracket.

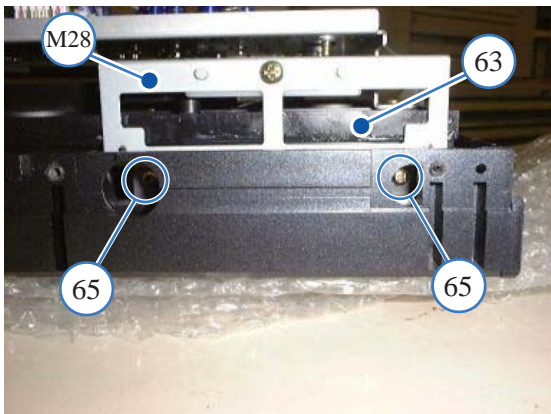


left side view
Right side is the same as left side.

- 3** Remove the door assy (63) from the front part. Door assy is being fixed to slider assy by the stopper.

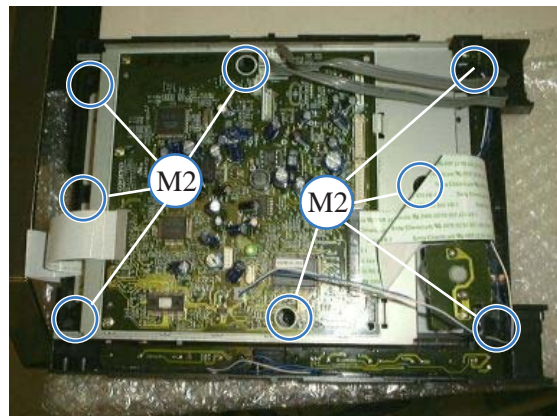


- 2** Remove the 4 screws (65) of the place which is fixing the door assy (63) and the slider assy(M28).



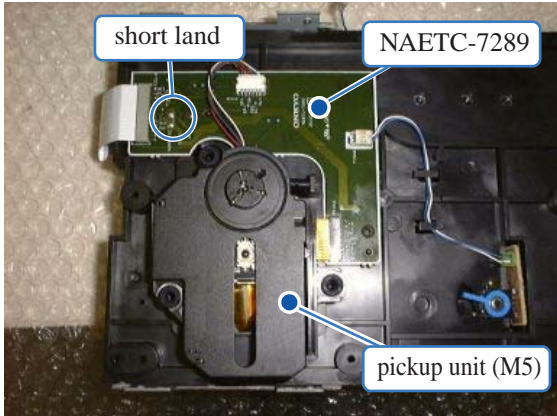
left side view
Right side is the same as left side.

- 4** Remove the 8 screws (M2) and remove the CD mechanism part from the front part.



DISASSEMBLING PROCEDURES-4 REPLACEMENT OF PICKUP UNIT

CD mechanism part

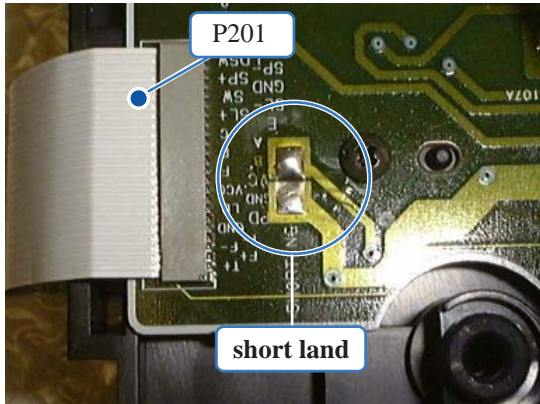


front side view

- 5** Short circuit with solder the short land on the NAETC-7289

[NOTE]

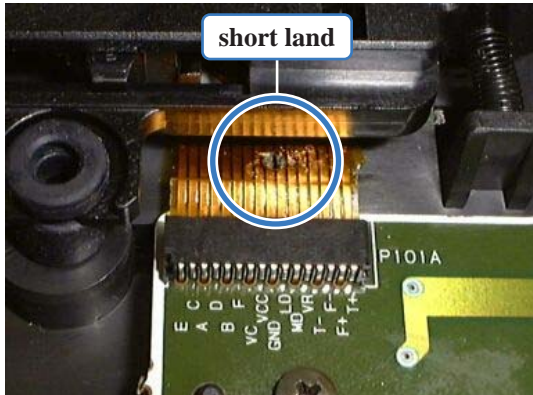
When disconnect the flat cable (P201) from the NAETC-7289, surely short circuit. before disconnect the flat cable.



- 6** Short circuit with solder the short land on the pickup unit.

[NOTE]

When disconnect the flat cable of pickup unit from NAETC-7289, surely short circuit before disconnect the flat cable.



- 7** Replacement the pickup unit.



- 8** Connect the flat cable of pickup unit to NAETC-7289.

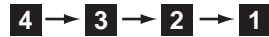
- 9** Connect the flat cable (P201) to the NAETC-7289.

- 10** Delete the solder of short land on the pickup unit.

- 11** Delete the solder of short land on the NAETC-7289.

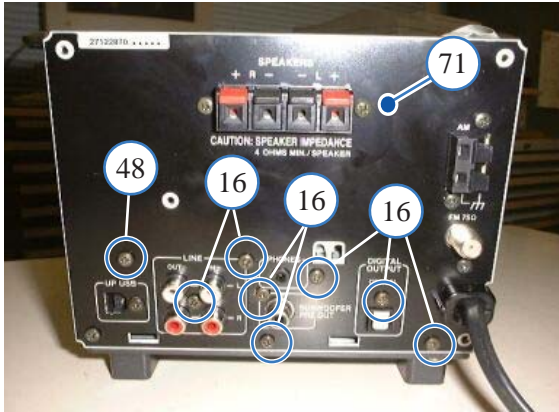
- 12** Next work

Refer to **REPLACEMENT OF PICKUP UNIT**

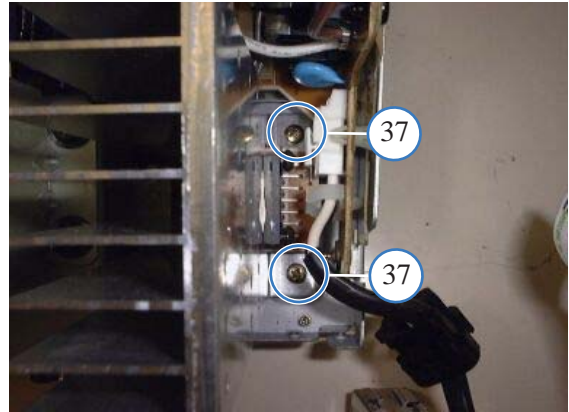


DISASSEMBLING PROCEDURES-5 DISASSEMBLING OF MAIN PART

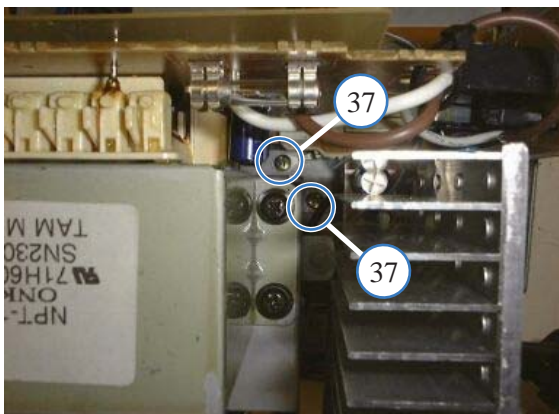
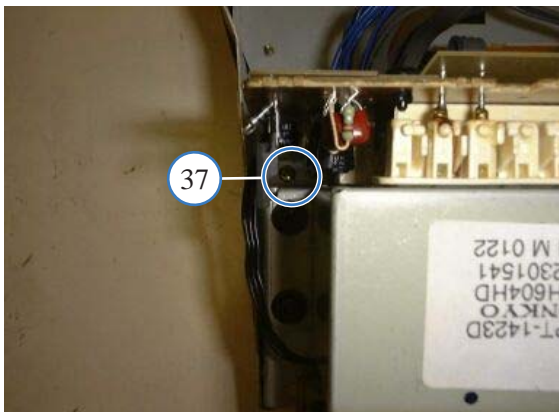
- 1 Remove the 9 screws (16, 84) and remove the rear panel (71) from the chassis (13).



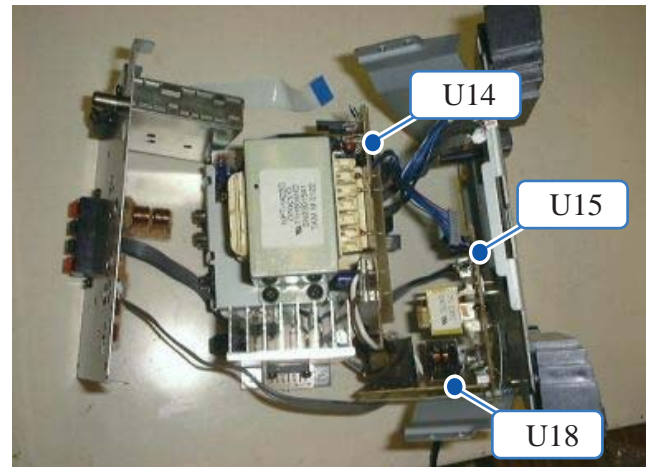
- 3 Remove the 2 screws (37).



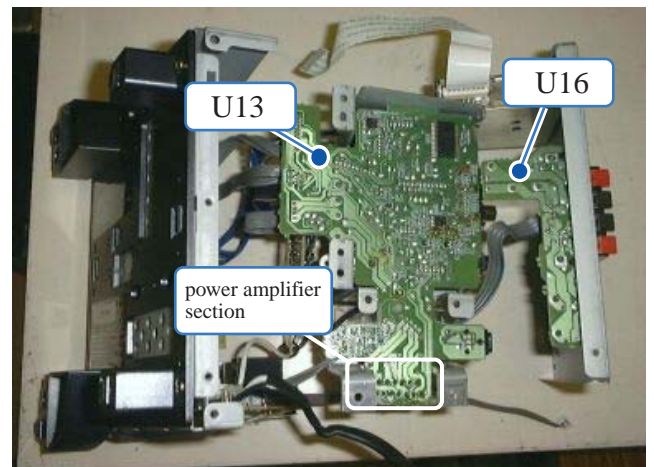
- 2 Remove the 3 screws (37).



Disassembled view



Top view



Bottom side view

DISASSEMBLING PROCEDURES-2 SPARATE OF UNIT

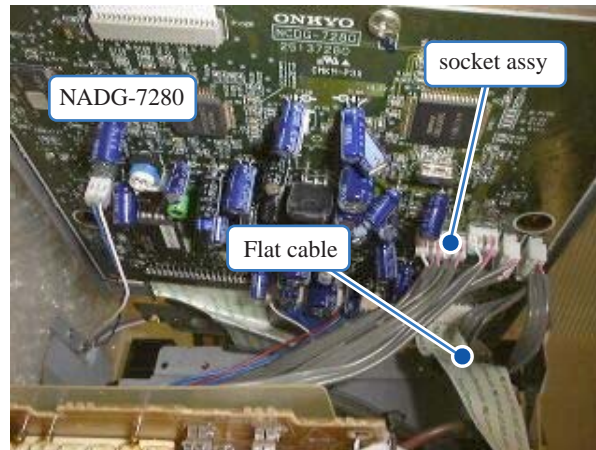
- 3** Disconnect the six sockets assy and the flat cable which are connected to NADG-7280.

flat cable

Circuit No. P551

socket assy

Circuit No.
P151,P351A, P343,
P951, P952



- 4** Divide the unit into the front part and the main part.

front part



front side view



back side view

main part



front side view



back side view

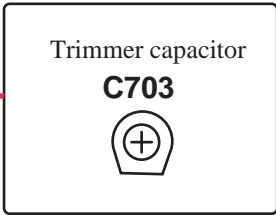
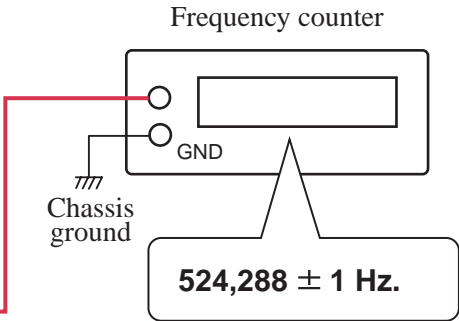
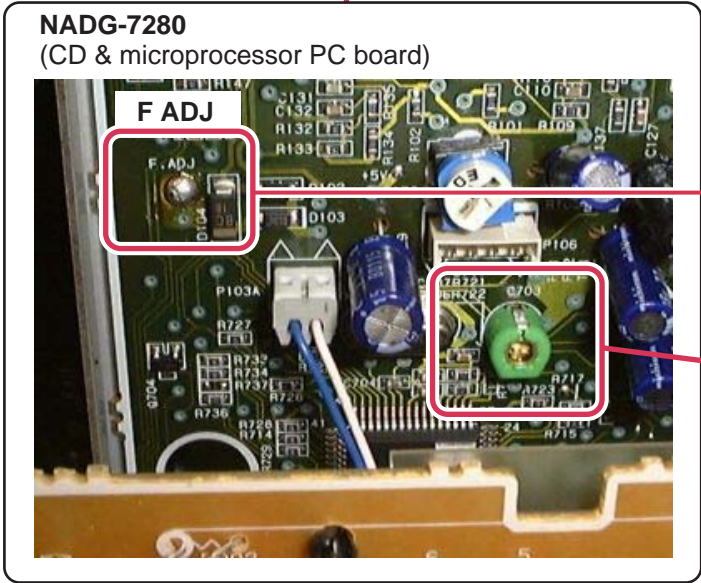
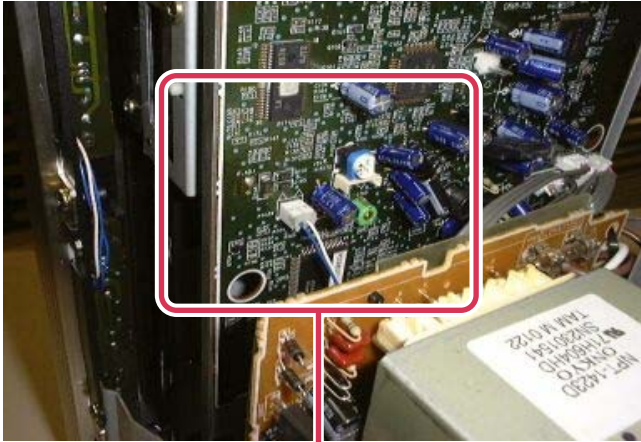
- 5** Next work.
Replacement the pickup unit.
Refer to "REPLACEMENT OF PICKUP"
Replacement the CD mechanical parts.
Replacement other parts.

- 6** Next work.
Replacement the power amplifier IC.
Replacement the relay.
Replacement other parts.
Refer to "DISASSEMBLING OF MAIN PART"

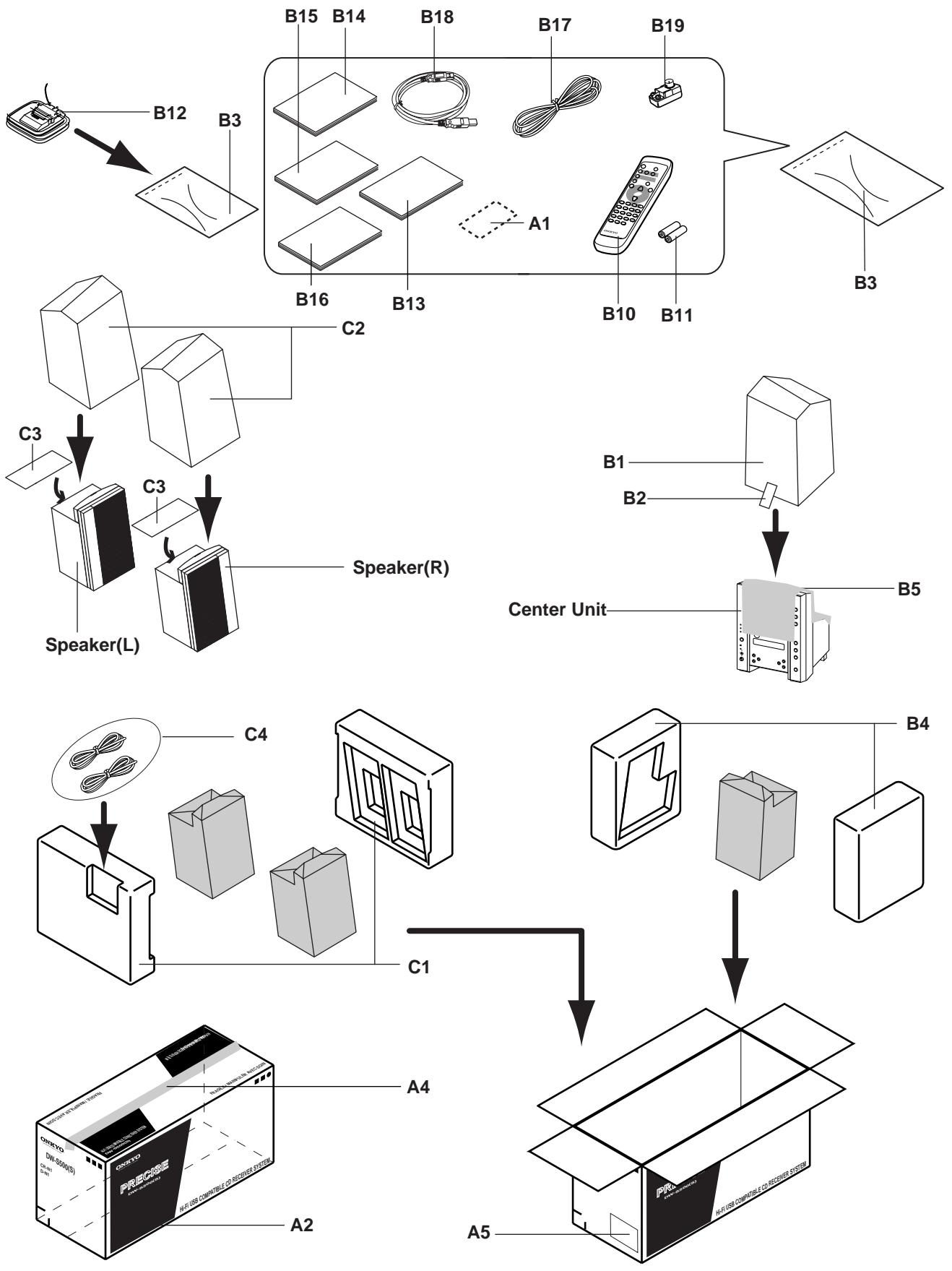
ADJUSTMENT PROCEDURES-1

CLOCK FREQUENCY ADJUSTMENT

1. Remove the top cover.
2. Connect the frequency counter to the **F ADJ** (test point) on the **NADG-7280**
3. While hold down **VOLUME DOWN** key, press **DISPLAY** key to set the test mode.
(All segments on FL tube light on)
4. Adjust the trimmer capacitor **C703** on **NADG-7280** so that the reading of frequency counter becomes $524,288 \pm 1 \text{ Hz}$.



PACKING PROCEDURES



ADJUSTMENT PROCEDURES-2

CD ADJUSTMENT

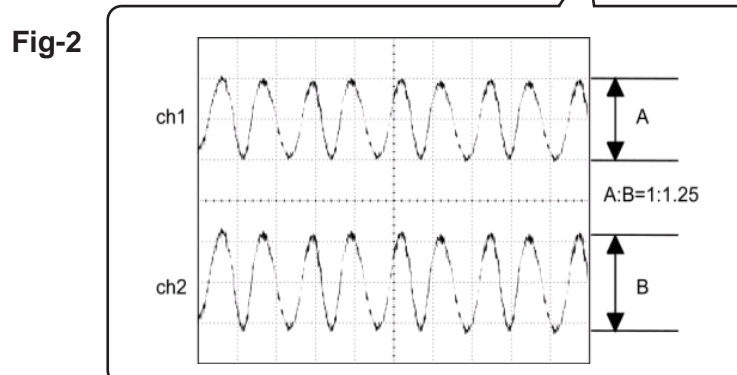
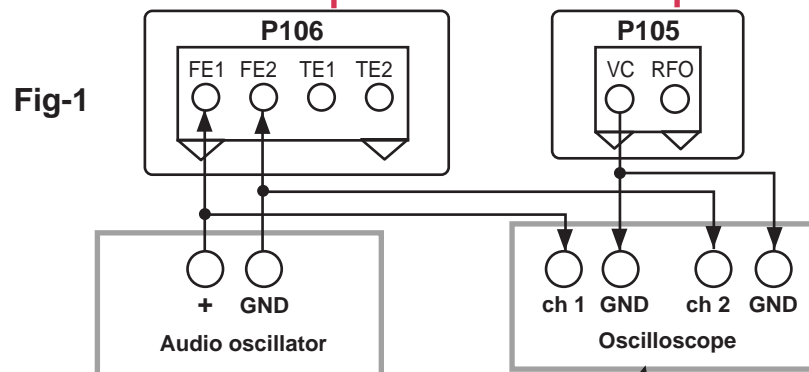
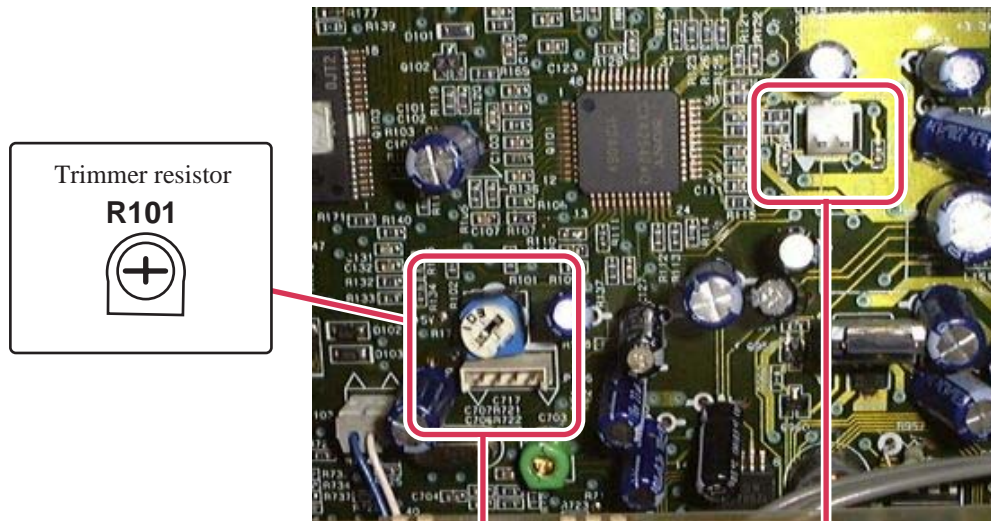
Focus gain adjustment

Preparation

Set the trimming resistors **R101** to center.

Focus gain adjustment

1. Set the output of the audio oscillator to 1kHz and 1~1.5VP-P
2. Connect the oscilloscope and audio oscillator as shown below.
(Refer to **Fig-1**)
3. Load the test disc **YEDS-18** on the tray and play the **track 2**.
4. Adjust the trimming resistor **R101** so that the signal of channel 2 on the oscilloscope becomes 1.25 times of channel 1.
(Refer to **Fig-2**)
5. Remove to the oscilloscope and audio oscillator.



ADJUSTMENT PROCEDURES-3

CAUTION IN THE CASE OF SPEAKER OUTPUT CHECK

The power amplifier circuit of CR-N1 is BTL system.

Therefore, in case you check speaker output, should be careful of the following point.

1. Don't connect the minus side of speaker terminal, and ground of the unit (**Fig-1**).
2. Don't connect the ground side of oscilloscope to the ground of the unit (**Fig-2**).
3. Don't connect the minus side of left channel speaker output , and he minus side of right channel speaker output (**Fig-3**).

Protection of power amplifier operates and the waveform is not outputted normally.

Fig-1

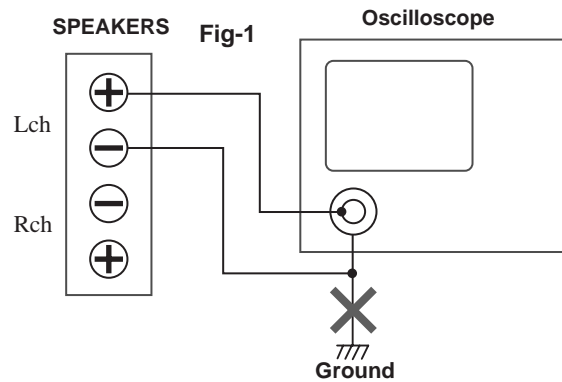


Fig-2

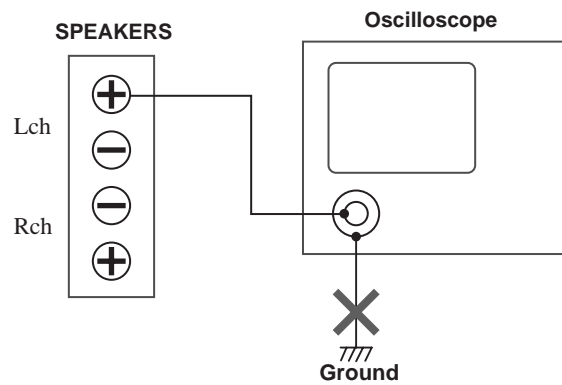
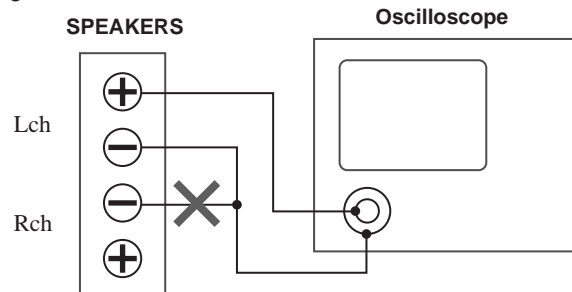


Fig-3



ONKYO CORPORATION

Sales & Product Planning Div. : 2-1, Nisshin-cho, Neyagawa-shi, OSAKA 572-8540, JAPAN
Tel: 072-831-8111 Fax: 072-833-5222

ONKYO U.S.A. CORPORATION

18 Park Way, Upper Saddle River, N.J. 07458, U.S.A.
Tel: 201-785-2600 Fax: 201-785-2650 E-mail: onkyo@onkyousa.com

ONKYO EUROPE ELECTRONICS GmbH

Industriestrasse 20, 82110 Germering, GERMANY
Tel: 089-849-320 Fax: 089-849-3265 E-mail: info@onkyo.de

ONKYO CHINA LIMITED

Units 2102-2107, Metroplaza Tower I, 223 Hing Fong Road, Kwai Chung,
N.T., HONG KONG Tel: 852-2429-3118 Fax: 852-2428-9039