

ONKYO SERVICE MANUAL

CASSETTE TAPE DECK MODEL K-R609



Black and Silver model

MP, MP ⑤	230V AC, 50Hz
MW	120/220V AC, 50/60Hz

SAFETY-RELATED COMPONENT WARNING!!

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

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

ONKYO
AUDIO COMPONENTS

SPECIFICATIONS

Track Format:	4-tracks, 2-channels
Erasing System:	AC erase
Tape Speed:	4.8 cm/sec. (1-7/8 i.p.s.)
Wow and Flutter:	0.045% (WRMS) 0.09 (DIN)
Frequency Response:	20—15,000Hz (normal) (30—14,000Hz ± 3 dB) 20—16,000Hz (high) (30—15,000Hz ± 3 dB) 20—17,000Hz (metal) (30—16,000Hz ± 3 dB)
S/N Ratio:	58dB (metal tape, Dolby NR off) A noise reduction of 10dB above 5kHz and 5dB at 1kHz is possible with Dolby B NR. A noise reduction of 20dB at 5kHz is possible with Dolby C NR.
Input Jacks:	LINE IN: 2 Input sensitivity: 80 mV Input impedance: 50 kohms
Output Jacks:	LINE OUT: 2 Standard output level: 500 mV (0dB) Optimum load impedance: over 50 kohms
Motors:	DC servo motor: 1 DC motor: 2
Heads:	REC/PB: Special Hard Permalloy Erase head: Ferrite
Power Supply Rating:	U.K. and Australian models AC 240 V 50 Hz European models (Except U.K.) AC 230 V, 50Hz Worldwide models AC 120 and 220 V, Switchable 50/60 Hz
Power Consumption:	21 watts
Dimensions:	275(W) x 118(H) x 313(D)mm 10 ⁷ / ₈ " x 4 ⁵ / ₈ " x 12 ⁵ / ₁₆ "
Weight:	4.5 kg. (9.9 lbs.)



CIRCUIT DESCRIPTION

CASSETTE LOADING FUNCTION

For the operation of this function, switch circuits are available as follows;

1. OPEN SW (Mecha. Drwg. 100: Upper 130)
 2. CLOSE SW (Mecha. Drwg. 100: Lower 131)
 3. DOOR PRESS SW (Mecha. Drwg. 103: Appx. 103)
 4. HALF PRESS SW (Mecha. Drwg. 102: Appx. 103)
 5. OPEN/CLOSE SW (Front panel)
1. OPEN SW
The Loading Motor is to rotate, while operating OPEN, until turned ON this SW by the projection of Cam Gear. Then, because of this SW turned ON, the microcomputer will make a decision that OPEN operation is finished, and stop the Loading Motor.
If not turned ON this SW within 5 sec. after started OPEN operation, the microcomputer will judge the state to be wrong and then rotate the Loading Motor backwards to make CLOSE operation.
2. CLOSE SW
The Loading Motor is to rotate, while operating CLOSE, until turned ON this SW by the projection of Cam Gear. Then, because of this SW turned ON, the microcomputer will make a decision that CLOSE operation is finished, and stop the Loading Motor.
If not turned ON this SW within 5 sec. after started CLOSE operation, the microcomputer will judge the state to be wrong and then rotate the Loading Motor backwards to make OPEN operation.

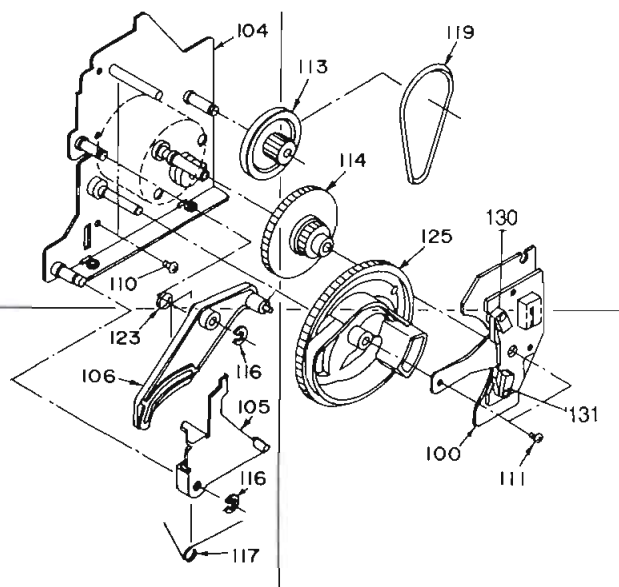
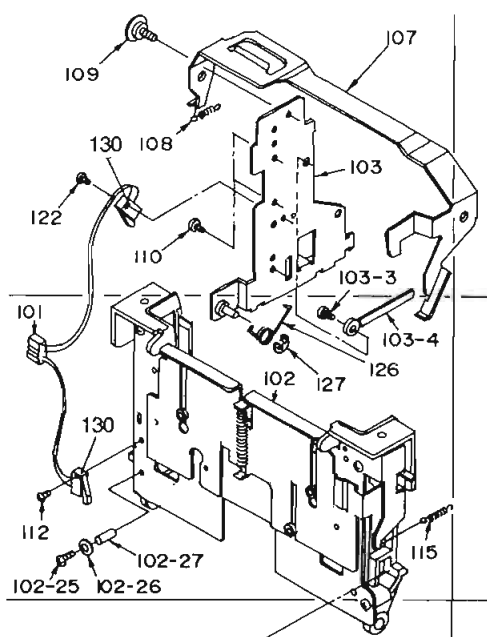
3. DOOR PRESS SW

Under OPEN state, by pressing DOOR manually this SW is to be ON and by letting DOOR go to the original position, this SW will be OFF. The microcomputer will detect this ON to OFF trailing and then rotate Loading Motor so as to carry out CLOSE operation.

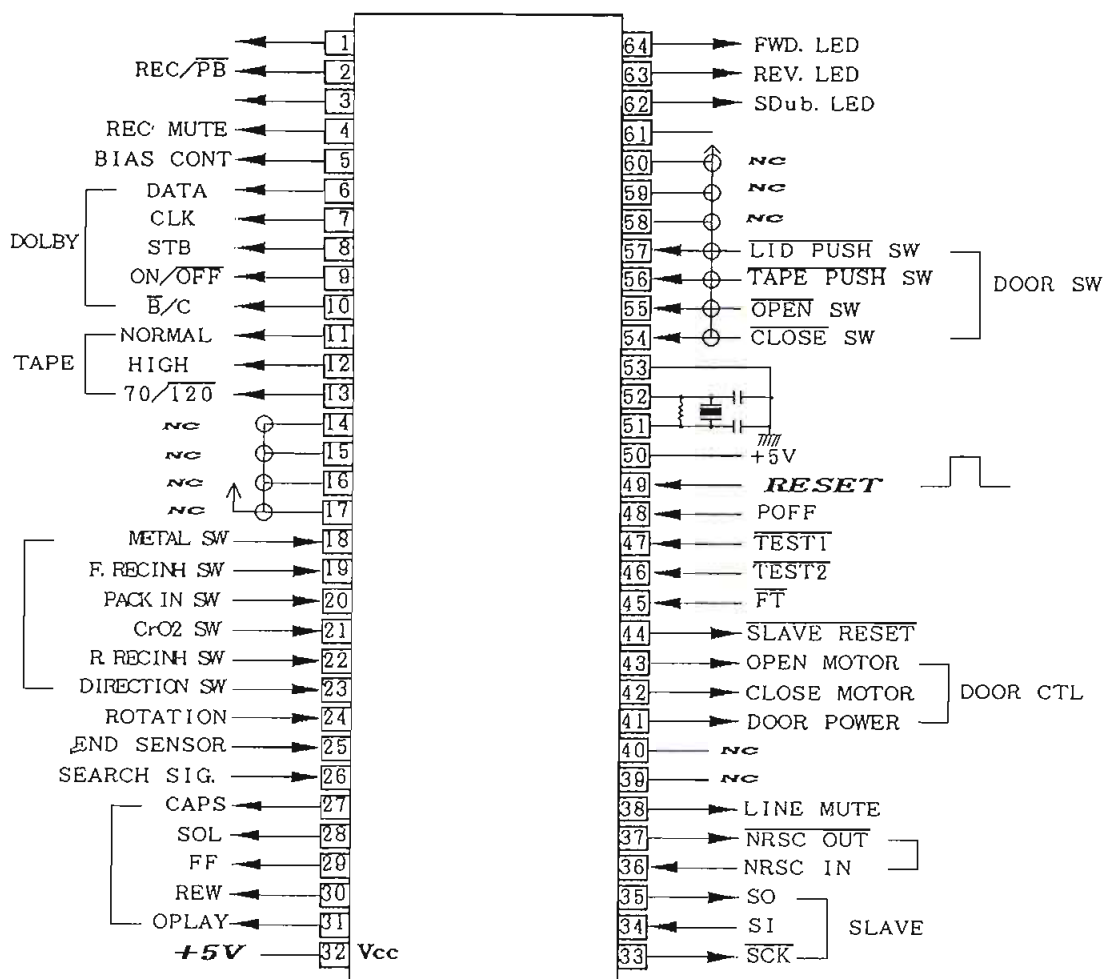
Such an operation, however, shall be carried out only in case where cassette is not put.

4. HALF PRESS SW

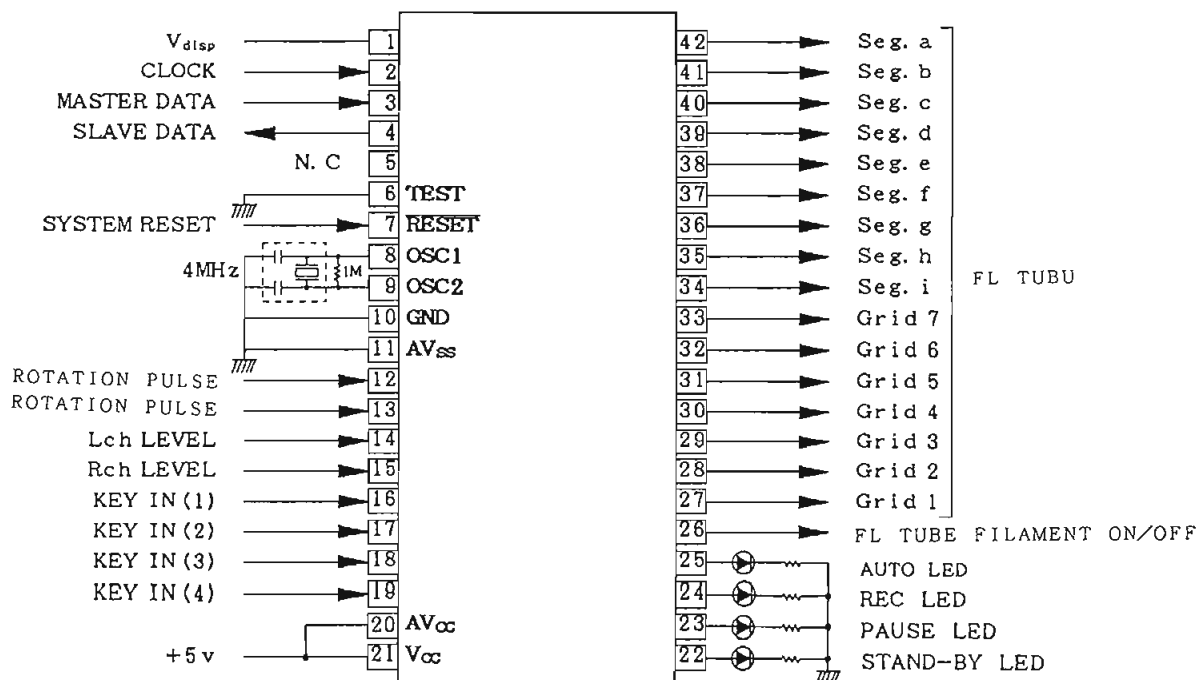
When set the Cassette Half under OPEN condition, this SW is to be ON by pressing upper part of the Cassette Half downward. The microcomputer will detect this OFF to ON rise and then rotate Loading Motor so as to carry out CLOSE operation.



HD614089SD67 (MAIN MICOM)



HD404316A06S (COUNTER MICOM)



MICROCOMPUTER TERMINAL DESCRIPTION

HD614089SD67 (MAIN MICOM)

Port no.	Name	I/O	Description	Port no.	Name	I/O	Description															
1	NC			32	Vcc		+5V															
2	REC/PB	OUT	Recording/playback selection	33	SSCK	OUT	Master-slave communication clock															
3	NC			34	SDATA	IN	Slave serial data input															
4	REC MUTE	OUT	Recording muting active:H	35	MDATA	OUT	Master serial data output															
5	BIAS CONT	OUT	Bias control active:H	36	NRSC IN	IN	RI cord input															
6	DATA	OUT	Data output to Dolby IC	37	NRSC OUT	OUT	RI cord output															
7	CLK	OUT		38	LINE MUTE	OUT	Line muting active:H															
8	STB	OUT		39, 40	NC																	
9	ON/OFF	OUT	Dolby ON/OFF control	41	DOOR POWER	OUT	Door motor torque control open:H, close:L															
10	B/C	OUT	Dolby B/C control	42	CLOSE MOTOR	OUT	Door motor control active:H															
11	NORMAL	OUT	<table><tr><th>PIN</th><th>NORMAL</th><th>HIGH</th><th>METAL</th></tr><tr><td>11P</td><td>"H"</td><td>"L"</td><td>"L"</td></tr><tr><td>12P</td><td>"L"</td><td>"H"</td><td>"L"</td></tr><tr><td>13P</td><td>"L"</td><td>"H"</td><td>"H"</td></tr></table>	PIN	NORMAL	HIGH		METAL	11P	"H"	"L"	"L"	12P	"L"	"H"	"L"	13P	"L"	"H"	"H"	43	OPEN MOTOR
PIN	NORMAL	HIGH		METAL																		
11P	"H"	"L"		"L"																		
12P	"L"	"H"	"L"																			
13P	"L"	"H"	"H"																			
12	HIGH	OUT	44	SLAVE RESET	OUT	Slave micon reset																
13	70/120	OUT		45	FT	IN																
14~17	NC			46	TEST2	IN																
18	METAL SW	IN	Metal tape position detection	47	TEST1	IN																
19	F.REC INH	IN	Forward recording prevention	48	POFF	IN	Power off detection															
20	PACK IN	IN	Tape in detection	49	RESET	IN	System micon reset															
21	Cr02 SW	IN	High tape position detection	50	TEST	IN																
22	R.REC INH	IN	Revers recording prevention	51, 52	OSC1, OSC2		System clock 4MHz															
23	DIR SW	IN	Direction switch	53	GND																	
24	ROTATION SENSOR	IN	Reel rotation sensor	54	CLOSE SW	IN	Door open/close detection															
25	OPT END SENSOR	IN	Opt.end sensor	55	OPEN SW	IN																
26	SEARCH SIGNAL	IN	Search signal input	56	TAPE PUSH SW	IN	Tape push detection															
27	CAPS	OUT	Capstan motor drive	57	LID PUSH SW	IN	Dorr push detection															
28	SOL	OUT	Solenoid drive	58~61	NC																	
29	FF	OUT	Reel motor drive	62	SD LED	OUT	CD dubbing indicator															
30	REW	OUT		63	REV. LED	OUT	Direction indicator															
31	O.PLAY	OUT	Reel motor torque control	64	FWD. LED	OUT																

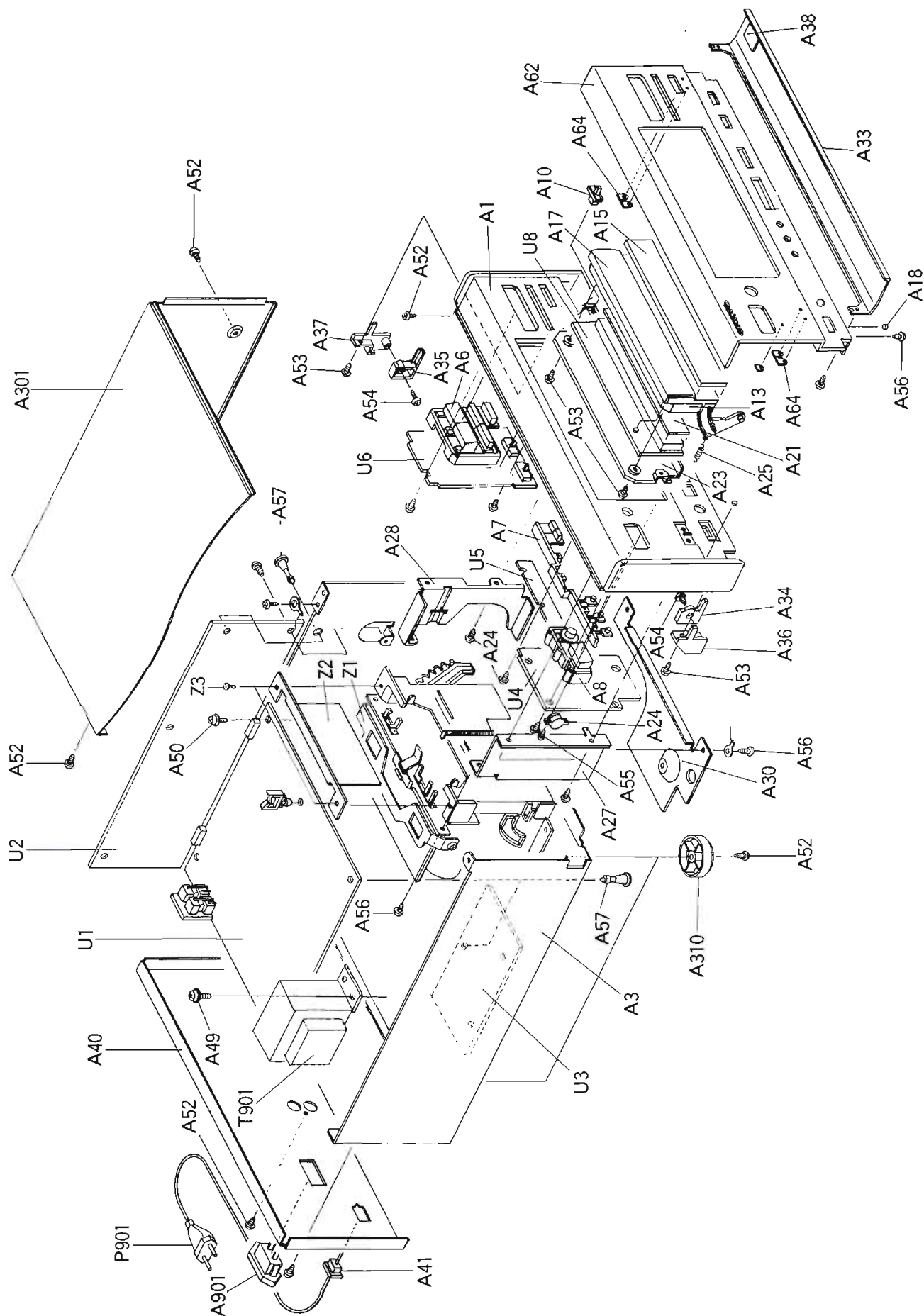
CHASSIS-EXPLODED VIEW PARTS LIST

REF.NO.	PARTS NO.	DESCRIPTION	REF.NO.	PARTS NO.	DESCRIPTION
A1	27110779A	FRONT BRACKET (B)	A53	834426088	TAP-TIGHT SCREW 2.6TTS+8B
A3	27110780A	FRONT BRACKET (S)	A54	834426068	TAP-TIGHT SCREW 2.6TTS+6B
A6	27100271	CHASSIS	A55	833420108	TAP-TIGHT SCREW 2TTP + 10BB
A7	28324858	KNOB (PLAY) (B)	A56	838430068	TAP-TIGHT SCREW 3TTB + 6BBC
A7	28324859	KNOB (PLAY) (S)	A57	27190266	HOLDER
A7	28324862	KNOB (REC) (B)	A58	27190657	HOLDER
A8	28324863	KNOB (REC) (S)	A62	1N162121	FRONT PANEL AS (B)
A8	28324880	KNOB (POW)AS (B)		1N163121	FRONT PANEL AS (S)
-a	28324881	KNOB (POW)AS (S)	A63	28135199Y	BADGE
-a	28324848	KNOB (POW) (B)	A64	28198797	FACU (7)
-b	28324849	KNOB (POW) (S)	A301	28184549	TOP COVER (B)
-b	28324913	KNOB (OP)N (B)		28184550	TOP COVER (S)
A10	28324847	KNOB (OPLN) (S)	A303	28141283	CUSHION
A10	28324118	KNOB (T) (B)	A304	28141284	CUSHION
A11	28324889	KNOB (T) (S)	A310	27175294Y	LEG AS
A11	28324864	KNOB (SD) (B)	A901	25050337	NSCT-2P164,AC OUYLET
A13	28324888	KNOB (SD) (S)	W901	2046213073	NCF06-21073,FFC
A14	27301761A	CASSETTE FRAME AS	P101A	2009990297	NSAS-14P0431,HEAD WIRE
A14	27301760	CLEAR PLATE	△ F901	252075	2.5A-SE-EAK,FUSE
A15	28191663A	CASSETTE LID (B)	△ 1901	2300955	NPT-1182P,P.TRANS (P)
A17	27301762	CASSETTE LID (S)	△ S901	25065123	NPT-1182DG,P.TRANS (W)
A18	27301763	RUBBER CUSHION	△ P901	253193HIT	NSS-1258P,SLIDESW (W)
A21	28140860	BACK PLATE (B)	U1	1N162577-2	AS-CEE,AC CORD
A21	28133300A	BACK PLATE (S)	U2	1N162578-2	NAAR-4777-2
A23	28184546	COVER (F)	U3	1N162580-2	NAAF-4778-2
A24	27301782	DAMPER	U4	1N162581-2	NADG-4780-2
A25	27180451	SPRING (LID)	U5	1N162582-2	NASW-4781-2
A27	27130634B	BRACKET (L)	U6	1N162583-2	NASW-4782-2
A28	27130722	BRACKET (R)	U8	1N162585-2	NASW-4783-2
A30	27150365	SHIELD PLATE	Z1	244181-1	NADIS-4785-2
A33	28148279A	DOOR (B)	Z2	24611487A	NDM-172,CASSETTE
A33	28148280A	DOOR (S)	Z3	801437	COVER
A34	28180112	HINGE (L)			SCREW M2.6
A35	28180113	HINGE (R)			
A36	28180107A	HINGE (HL)			
A37	28180108A	HINGE (HR)			
A38	28324914-1	KNOB (DOOR) (B)			
A38	28323779-1	KNOB (DOOR) (S)			
A40	27121797	REAR PANEL (P)			
A40	27121798	REAR PANEL (W)			
A41	27300750	BUSHING (CORD)			
A49	830440089	TAP-TIGHT SCREW 4TTC + 8CBC			
A50	831130088	TAP-TIGHT SCREW 3TTW + 8B			
A51	833430080	TAP-TIGHT SCREW 3TTP + 8PBC			
A52	834430088	TAP-TIGHT SCREW 3TTS + 8BBC (B)			
A52	834230108	TAP-TIGHT SCREW 3TTS + 10B (Ni) (S)			

NOTE: <P>:Only 230V model
<W>:Only Worldwide model
<S>:Silver model only
:Black model only

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

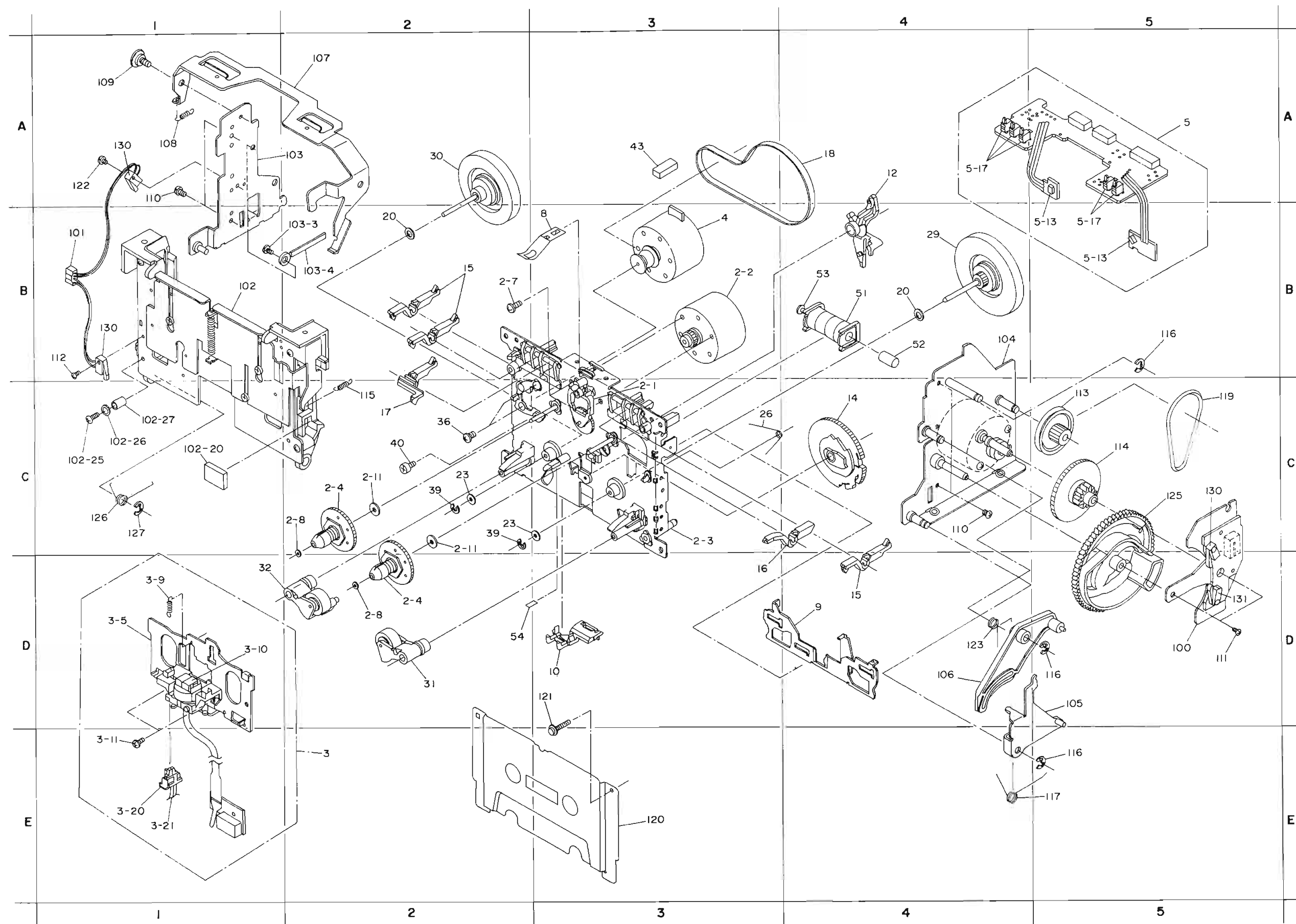
CHASSIS-EXPLODED VIEW



TAPE MECHANISM-PARTS LIST

REF.NO.	PARTS NO.	DESCRIPTION	REF.NO.	PARTS NO.	DESCRIPTION
2-1	24602482	IDLER AS	115	24605769	SPRING (LEVER)
2-2	24601245	REEL MOTOR	116	893030	E WASHER 3
2-3	24611565	BASE (CHASSIS)	117	24605760	SPRING (DOOR)
2-4	24602587	REEL BASE BLOCK	119	24602538	BELT
2-7	24609032	PAN HEAD SCREW 2.6×6.4ZN	120	24611527	BACK PLATE (CASSETTE)
2-8	24611177	PLASTIC WASHER 1.7×3.2×.25	121	24609049	TAP-TIGHT SCREW
2-11	24611175	PLASTIC WASHER 2.1×7×.25	122	24609058	PANHEAD SCREW TT2.0×8ZN
3	24600091	HEAD PLATE AS	123	24605761	SPRING (SLIDER)
3-5	24611584	HEAD BASE	125	24602585	CAM GEAR
3-9	24605711	SPRING	126	24605796	EJECT SPRING
3-10	24600121	REC/PLAY HEAD	127	893025	E WASHER 2.5
3-11	833120059	TAPPING SCREW 2×5ZN	130	24606454	SWITCH SPPB22
3-20	24606465	SPI-320-B	131	24606453	SWITCH SPPB21
3-21	24611500	LEAD WIRE (QS)			
4	24601278	MTETER M BLOCK			
5	24606523	PC BOARD C BLK			
5-13	24606494	SG-107F3			
5-17	24606271	PUSH SWITCH			
8	24605739	SPRING			
9	24611566	PLATE (SLIDE)			
10	24611385	LEAD HOLDER			
12	24607137	PLAY ARM			
14	24602550	CAM GEAR			
15	24603365A	LEVER (REC)			
16	24603366	LEVER (PACK) L			
17	24603367	LEVER (METAL) L			
18	24602551	MAIN BELT			
20	24611041	PLASTIC WASHER 2.6×0.25			
23	24610841	PLASTIC WASHER 2.6×4.7×.5			
26	24605797	SLIDE SP			
29	24602588	AS FLYWHEEL			
30	24602545	FLYWHEEL AS			
31	24602541	PINCH ROLLER AS			
32	24602589	PINTCH ROLLER AS			
36	24609001	PAN HEAD SCREW SW2.6 × 5ZN			
39	8930151	E WASHER 1.5S			
43	24611488	CUSHION (HOLDER)			
51	24606333	SOLENOID COIL AS			
52	24606332A	CORE			
53	24606331	PLANGER			
54	24611499	REFLECTER			
100	24606449	BASE AS (SW)			
101	24606497	BASE AS (SW)			
102	24611577	P HOLDER BLOCK			
102-20	24611529	HOLDER CUSHION			
102-25	24611561	PAN HEAD SCREW TT3.0×8			
102-26	24611562	WASHER W3.0			
102-27	24611563	COLLAR 4×3			
103	24611578	P HOLDER BLOCK			
103-4	24611323	LUG			
104	24611491	PLATE AS (HOLDER)			
105	24611579	P HOLDER BLOCK			
106	24603389	LEVER AS (PLAY)			
107	24603400	EJECT LEVER			
108	24605758	SPEING (EJECT)			
109	24609048	SCREW			
110	833126049	TAP-TIGHT SCREW 2.6TTP+4C			
111	833120039	PAN HEAD SCREW TT2.0×3ZN			
112	838120130	WAVE SCREW 2×13			
113	24602535	GEAR (A)			
114	24602536	GEAR (B)			

TAPE MECHANISM-EXPLODED VIEW



ADJUSTMENT PROCEDURES

PRECAUTIONS

- Before adjustment, clean the following parts with an alcohol moistened swab.
 - * record/playback head
 - * erase head
 - * pinch roller
 - * capstan
- Do not use magnetized screwdriver for adjustments.
- Demagnetize record/playback head with a head demagnetizer.

TEST EQUIPMENT/TOOLS REQUIRED:

Audio oscillator
 Digital frequency counter
 Oscilloscope
 Attenuator
 AC voltmeter
 Non-magnetic screw driver
 Test tapes
 TCC-153 : 10 KHz, - 5dB
 MTT-111 : 3 kHz, - 0dB
 MTT-150 : Dolby level calibration
 400Hz, tone 200nWb/in

Item	Connection of instrument	Line input	Test tape	Mode	Output indicator	Adjustment point	Adjust	Remarks
1	Tape speed	Frequency counter to LINE output terminal	MTT-111	PB	Frequency counter	Semi-fixed on the motor	3,000 to 3,010Hz	
2	Head azimuth	AC voltmeter and oscilloscope to LINE output terminal	TCC-153	PB	AC voltmeter	Head azimuth screw	Maximum and same phase at channels L and R	fig-1
3	Playback level	AC voltmeter to terminals TP-1 (L) TP-1 (R)	MTT-150	PB	AC voltmeter	R-115 (Ch.L) R-116 (Ch.R)	300mV	
4	OSC Block	Frequency counter to E-head read (P401) loose coupling	METAL TAPE	REC	AC voltmeter	L-401	107KHz	
5	Bias current	AC voltmeter to LINE output terminal	1KHz, -20dB and 12KHz, -20dB	NEW XL-II 90	REC/PB	AC voltmeter	R-413 (Ch.L) R-414 (Ch.R)	Same level at REC/PB
6	Record level	fig-2	1KHz	REC	AC voltmeter	Attenuator or AF OSC output	350mV	
				REC/PB	AC voltmeter	R-225 (Ch.L) R-226 (Ch.R)	Same level at REC/PB	

Blank tape

NORMAL...NEW UD-1 C-90

HIGH...XL-II C-90

METAL...XS C-60

PLAY torque30~70g/cm

FF.REW torque...80~180g/cm

Back tension 2~6g/cm

ADJUSTMENT POINT

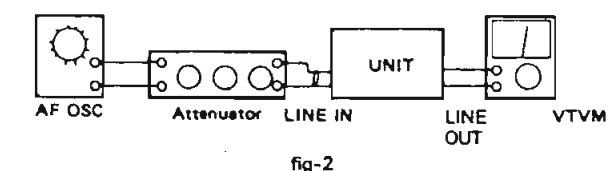
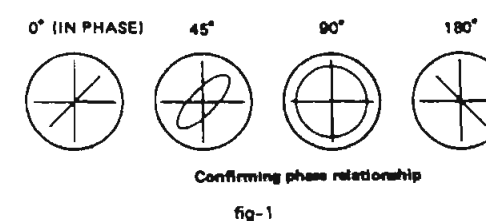
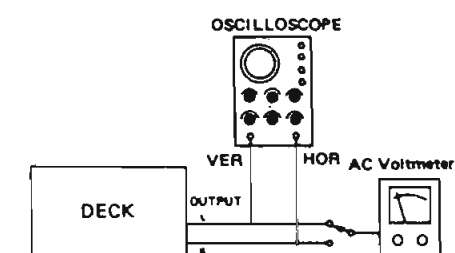
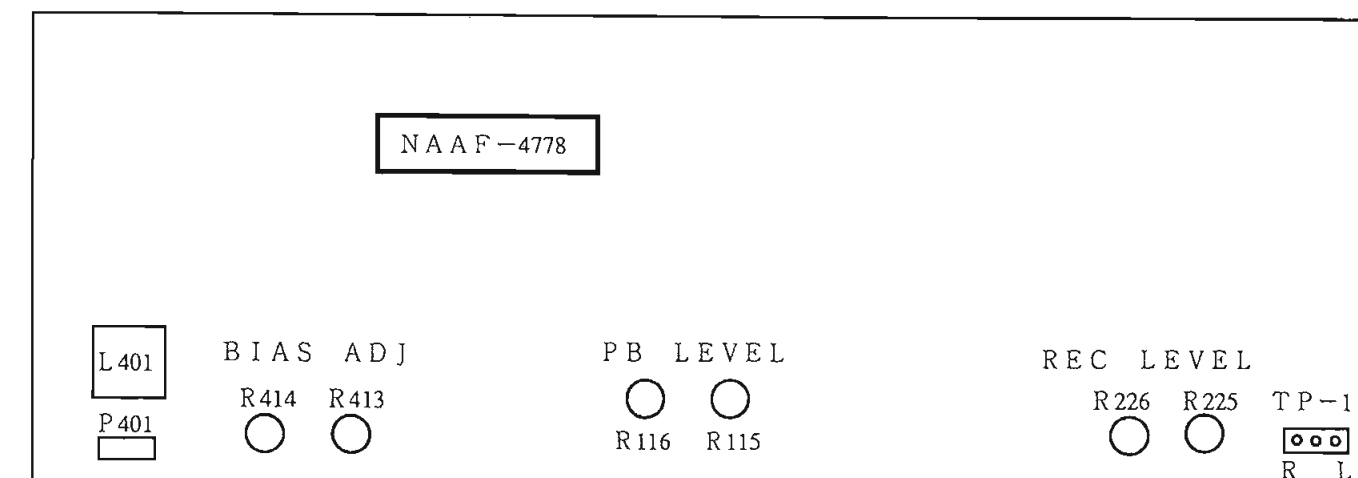
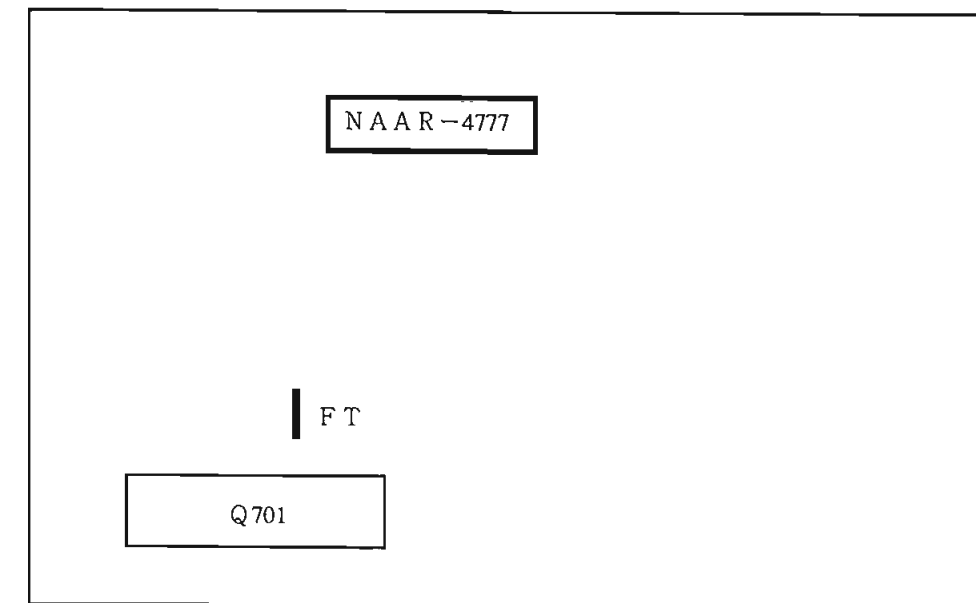


fig-2

fig-1

PRINTED CIRCUIT BOARD-PARTS LIST

NAAR-4777-2

CIRCUIT NO.	PARTS NO.	DESCRIPTION	CIRCUIT NO.	PARTS NO.	DESCRIPTION
	lcs			Ceralock	
Q301	222940	BA335H	X701	3010150	CST4.00MGW
Q701	22240722	HD614089SD67			
Q705	22240239	TA-7291S		Capacitors	
Q711	22240239	TA-7291S	C233,C234	391941007	10 μ F16V,ELECT.
Q901	222780075MIT	78M07L	C302	391980477	4.7 μ F50V,ELECT.
Q902	222790095MIT	79M09	C303,C304	391984797	0.47 μ F50V,ELECT.
Q903	222780124	7812	C305	391941007	10 μ F16V,ELECT.
Q904	222780055MIT	78M05	C601	391980477	4.7 μ F50V,ELECT.
			C603	391980227	2.2 μ F50V,ELECT.
			C605	393380227	2.2 μ F50V,VXC
Q205,Q206	2211705 or	2SD655-E or	C701	391941007	10 μ F16V,ELECT.
	2211706	2SD655-F	C705	391980107	1 μ F50V,ELECT.
Q601	2213284,	2SC1740S-R,	C710,C711	391941017	100 μ F16V,ELECT
	2213285,	2SC1740S-S,	C712	352950476	4.7 μ F25V,NP.
	2214915 or	2PC1815GR or	C715	391941017	100 μ F16V,ELECT
	2214916	2PC1815BL	C716	391980477	4.7 μ F50V,ELECT.
Q602	2213354,	2SA933S-R,	C906	391942217	220 μ F16V,ELECT.
	2213355,	2SA933S-S,	C907	391942217	220 μ F16V,ELECT.
	2214905 or	2PA1015GR or	C910	391954727S	4700 μ F25V,ELECT.
	2214906	2PA1015BL	C911	391980107	1 μ F50V,ELECT.
Q702-Q704	2213090 or	DTA114YS or	C912	391942217	220 μ F16V,ELECT.
	2213590	RN2207	C914	391942217	220 μ F16V,ELECT.
Q706	221281 or	DTC114YS or	C916,C917	391981017	100 μ F50V,ELECT.
	2213570	RN1207	C918	391980477	4.7 μ F50V,ELECT.
Q709,Q710	2211705 or	2SD655-E or	C919	391981017	100 μ F50V,ELECT.
	2211706	2SD655-F	C920	391980477	4.7 μ F50V,ELECT.
Q712	221281 or	DTC114YS or			
	2213570	RN1207		Resistors	
Q715,Q716	2213284,	2SC1740S-R,	R710	443624704	RS1WBJ47 Ω
	2213285,	2SC1740S-S,	R720	49163392404	3.9K Ω X4,1/10W
	2214915 or	2PC1815GR or	R901	453530334	RNU1/2WCJ3.3 Ω
	2214916	2PC1815BL	R902	453530104	RNU1/2WCJ1 Ω
Q717,Q718	221281 or	DTC114YS or			
	2213570	RN1207		Plugs	
Q719,Q720	2213284,	2SC1740S-R,	P202	25055509	NPLG-13P484
	2213285,	2SC1740S-S,	P203	25055508	NPLG-10P483
	2214915 or	2PC1815GR or	P204	25055509	NPLG-13P484
	2214916	2PC1815BL	P205	25045354	NPJ-4PDBL200
Q905	2213354,	2SA933S-R,	P701	25045330	NPJ-2PDBL184
	2213355,	2SA933S-S,	P705A	2000649	NSAS-10P605
	2214905 or	2PA1015GR or	P706	25055148	NPLG-4P132
	2214906	2PA1015BL			
				NAAF-4778-2	
	Diodes		CIRCUIT NO.	PARTS NO.	DESCRIPTION
				lcs	
D701	223205 or	1SS270A or	Q101	222956	NJM-2068D-D
	223222	WG713A	Q201	22240544	HA12155NT
D702	224450562	MTZ5.6B	Q407	222959	μ PC1297CA
D703	223205 or	1SS270A or	Q603	22240147	μ PC1330HA
	223222	WG713A			
D704	224450752	MTZ7.5B			
D705	224450433	MTZ4.3C			
D706,D707	223205 or	1SS270A or			
	223222	WG713A			
D709	223205 or	1SS270A or			
	223222	WG713A			
D901	22380022F	RBV402			
D902-D905	22380035	GP104003E			
D906	224452204	MTZ22D			
D907,D908	223205 or	1SS270A or			
	223222	WG713A			
D909	224450562	MTZ5.6B			
D910-D912	223205 or	1SS270A or			
	223222	WG713A			

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	Transistors	
Q103,Q104	221299 or	DTC114TS or
	2213610	RN1211
Q203,Q204	221299 or	DTC114TS or
	2213610	RN1211
Q207	2213354,	2SA933S-R,
	2213355,	2SA933S-S,
	2214905 or	2PA1015GR or
	2214906	2PA1015BL
Q401	2212853 or	2SB1068-K or
	2212855	2SB1068-U
Q402	221281 or	DTC114YS or
	2213570	RN1207
Q403,Q404	2201883	2SC1213-C
Q405,Q406	221281 or	DTC114YS or
	2213570	RN1207
	Diode	
D201	224450752	MTZ7.5B
	Coils	
L201,L202	233436	NMC-6081
L401	231217	NLO-2060
L403,L404	231218	NCH-4453
L405,L406	231085	NCH-2133
	Capacitors	
C105,C106	391942217	220 μ F16V,ELECT.
C115,C116	393341027S	1000 μ F16V,VXC
C201,C202	391980227	2.2 μ F50V,ELECT.
C203,C204	391980107	1 μ F50V,ELECT.
C205,C206	391980477	4.7 μ F50V,ELECT.
C219	391980477	4.7 μ F50V,ELECT.
C220	391944707	47 μ F16V,ELECT.
C221,C222	391980477	4.7 μ F50V,ELECT.
C223,C224	391980107	1 μ F50V,ELECT.
C227,C228	391980477	4.7 μ F50V,ELECT.
C229,C230	391980227	2.2 μ F50V,ELECT.
C231,C232	391980477	4.7 μ F50V,ELECT.
C401	391922217	220 μ F6.3V,ELECT.
C402	391980477	4.7 μ F50V,ELECT.
C403	391944707	47 μ F16V,ELECT.
C408,C409	391941007	10 μ F16V,ELECT.
C419,C420	370131014	100PF 100V,APS
C421,C422	370131514	150PF 100V,APS
C428	391941007	10 μ F16V,ELECT.
C604	391941007	10 μ F16V,ELECT.
R115,R116	5210296	N06HR47KBE
R225,R226	5210294	N06HR22KBE
R403	443522704	RS1/2WBJ27 Ω
R404	443524704	RS1/2WBJ47 Ω
R413,R414	5210292	N06HR10KBE
	Plugs	
P101	25055136	NPLG-6P120
P201	25055234	NPLG-3P218
P401	25055132	NPLG-2P116

NADG-4780-2

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	lc	
Q752	22240723	HD404316A06S
	Transistors	
Q754,Q756	2211705	2SD655-E
	2211706	2SD655-F
	Cera lock	
X752	3010150	CST4.00MGW
	Capacitor	
C752	391941007	10F16V,ELECT.
	Resistor	
R754	49163392404	3.9K 4,1/10W
	Plug	
P752	25050853 or	NSCT-21P638 or
	25050961	NSCT-21P748
P912	25055673	NPLG2P631
F901A	25050065	YSH403T,FUSE HOLDER

NASW-4781-2

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	Led	
D751	225290	SEL4110R
D752,D753	225291D	SEL4910D-D
	Switchs	
S701-S703	25035652	NPS-111-S604
S704	25065386	NSS-13147

NASW-4782-2

CIRCUIT NO.	PARTS NO.	DESCRIPTION
S705-S711	25035652	NPS-111-S604

NASW-4783-2

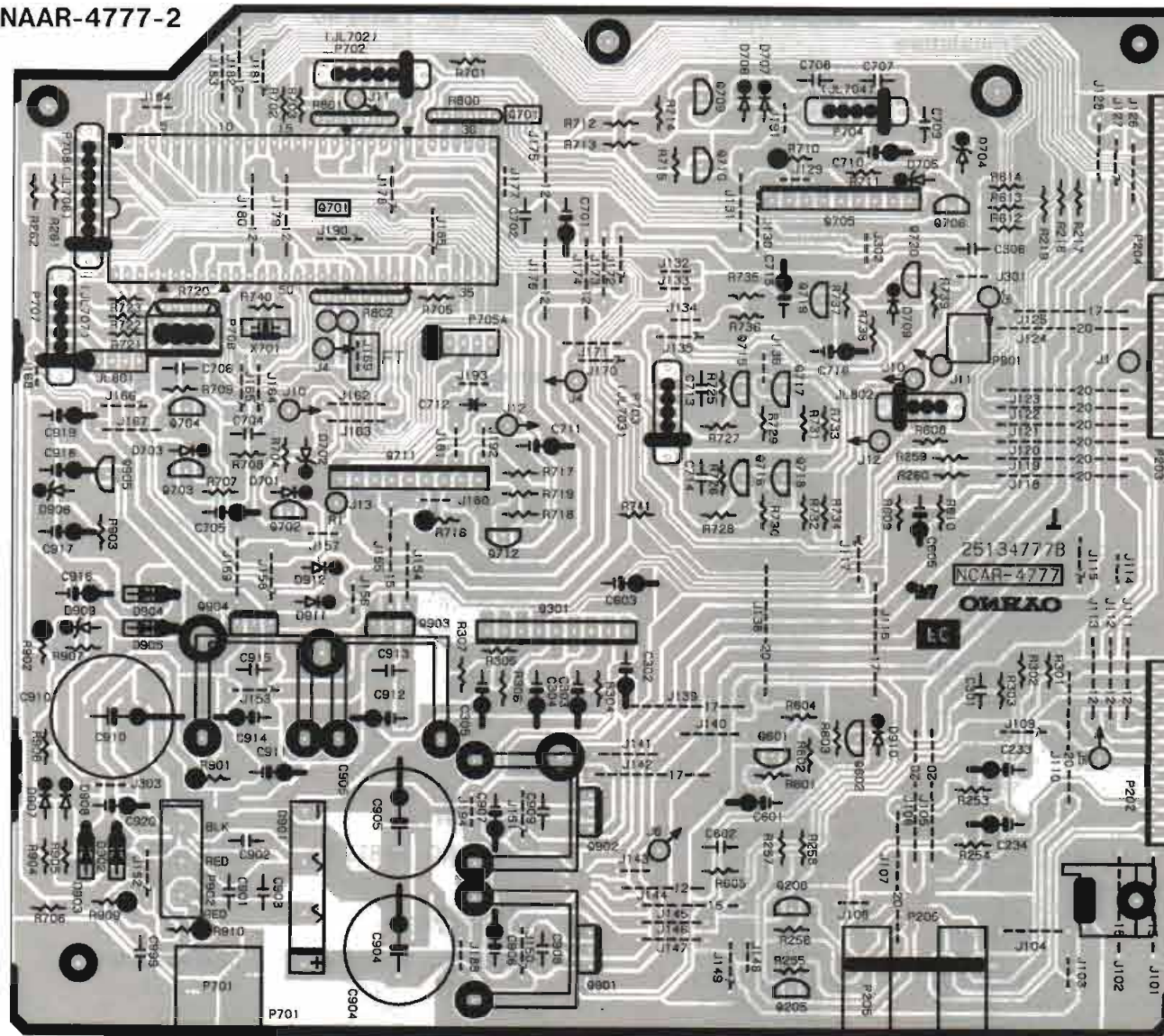
CIRCUIT NO.	PARTS NO.	DESCRIPTION
D754-D756	225291D	SEL4910D-D
D757	225290	SEL4110R
	Switch	
S201	25065386	NSS-13147
S712-S716	25035652	NPS-111-S604
S717	25065386	NSS-13147

NADIS-4785-2

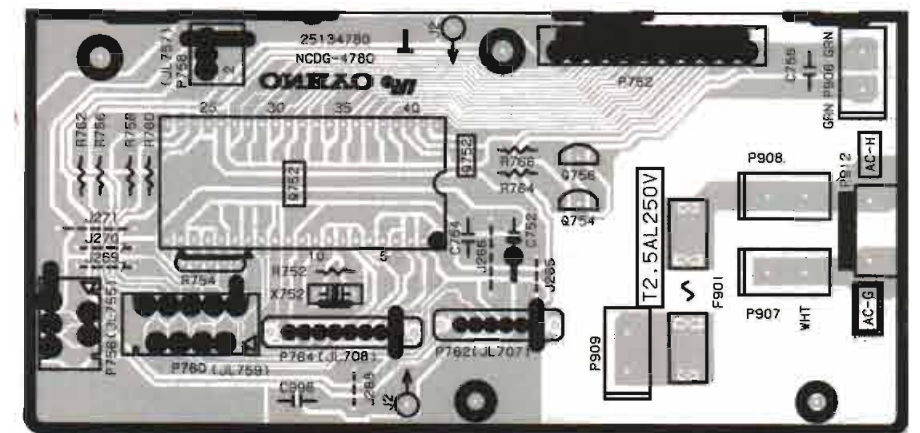
CIRCUIT NO.	PARTS NO.	DESCRIPTION
Q757	212123	BJ190GK
D760	224450433	MTZ4.3C
	Socket	
P753	25050885 or	NSCT-21P680 or
	25050927	NSCT-21P714

PRINTED CIRCUIT BOARD VIEW FROM BOTTOMr SIDE

NAAR-4777-2

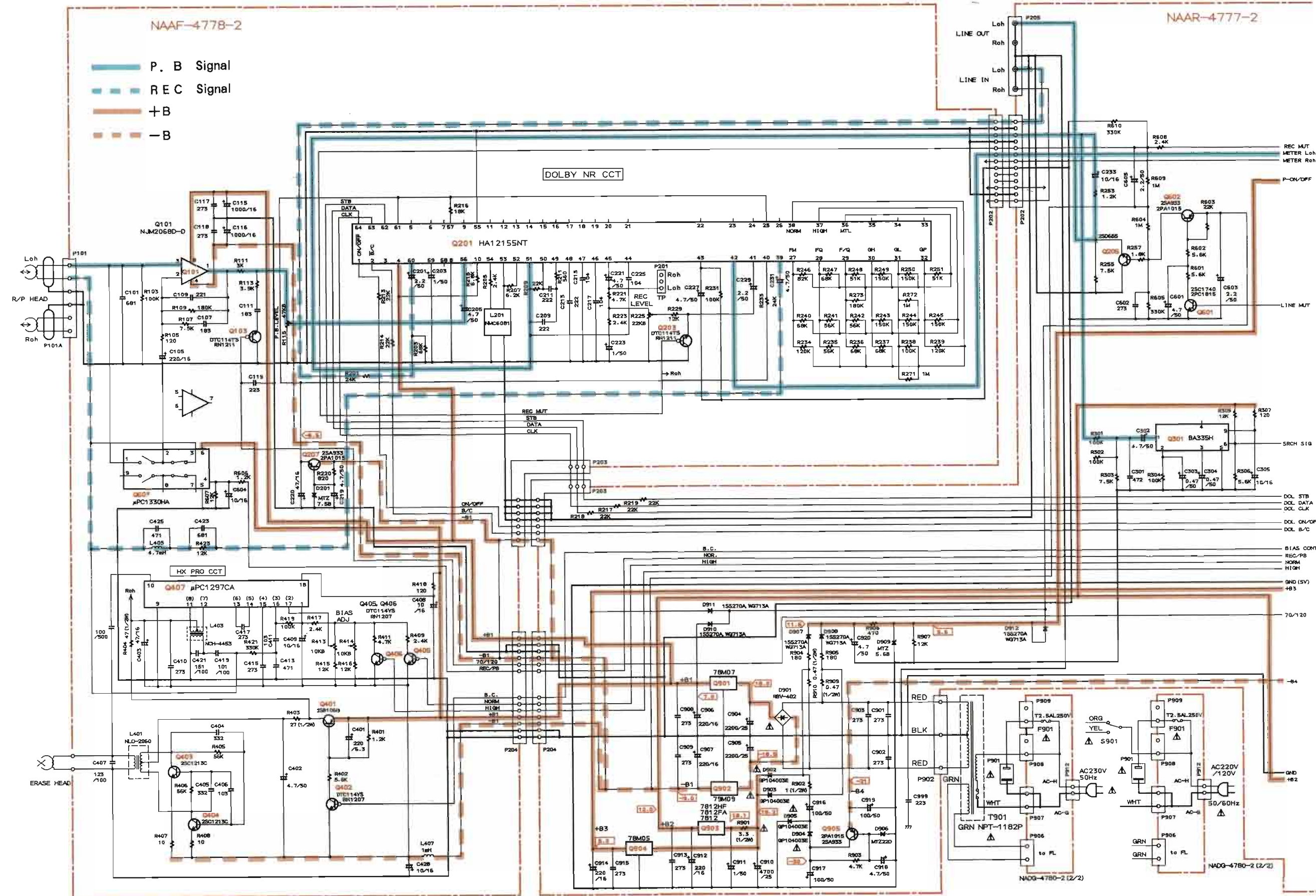


NADG-4780-2

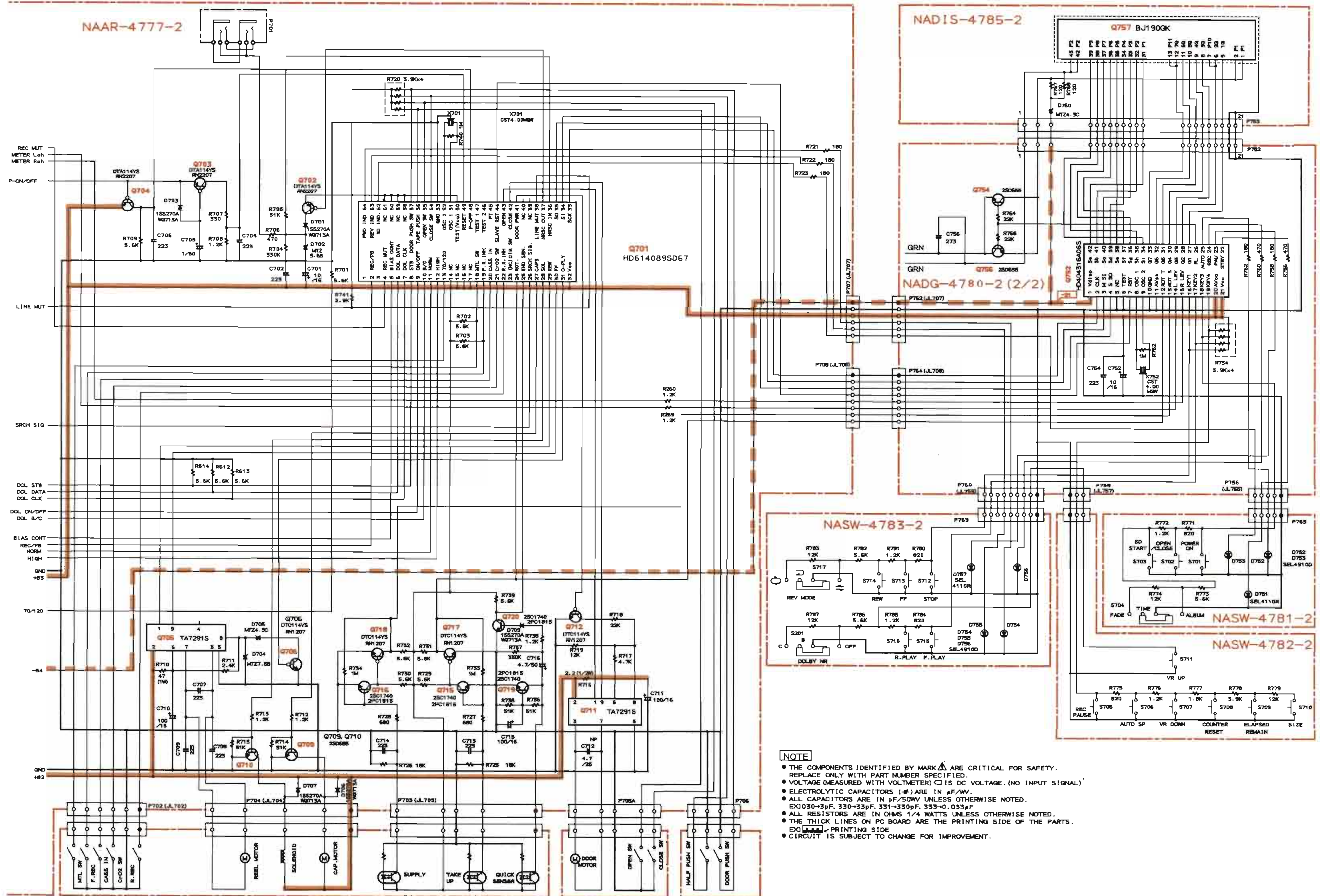


A B C D E F G

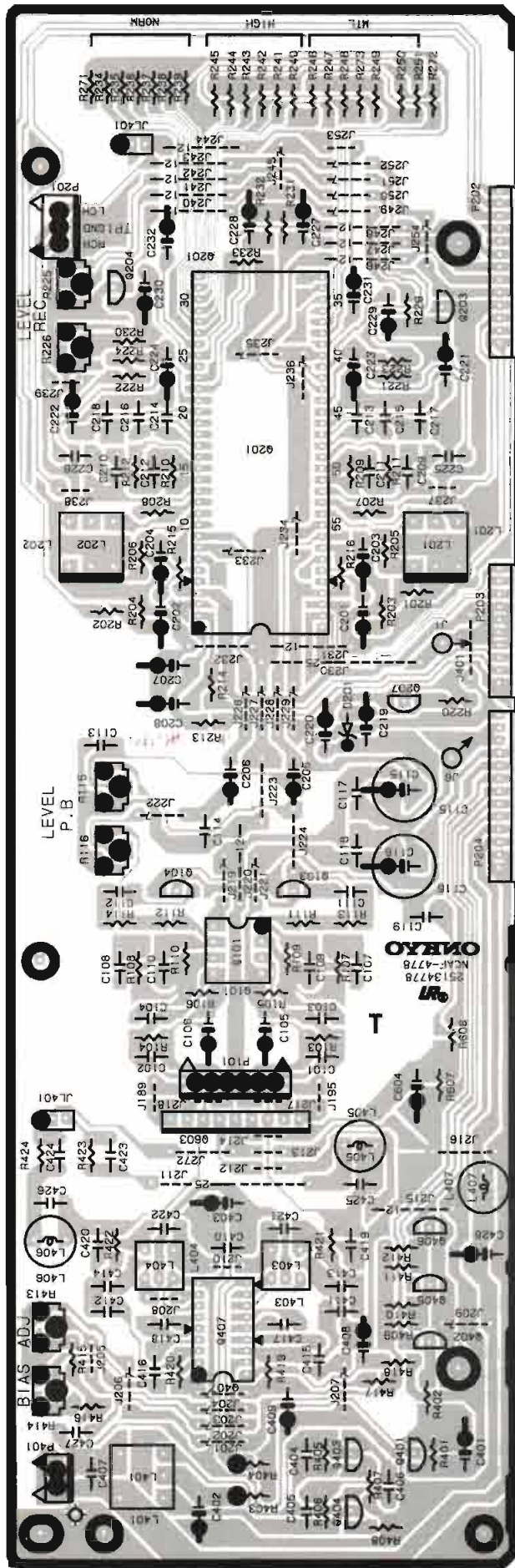
SCHEMATIC DIAGRAM 1/2



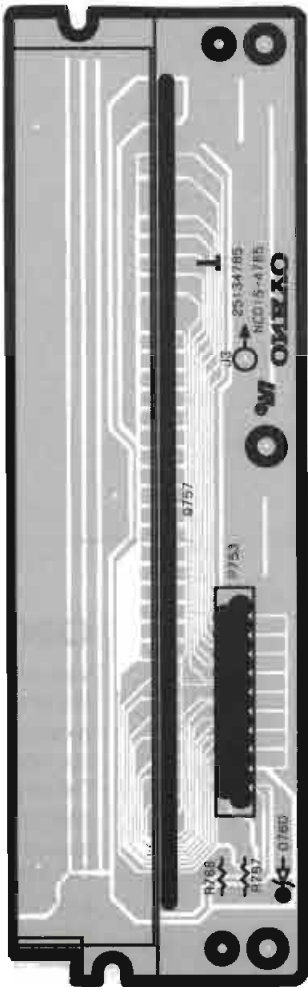
SCHEMATIC DIAGRAM 2/2



PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE

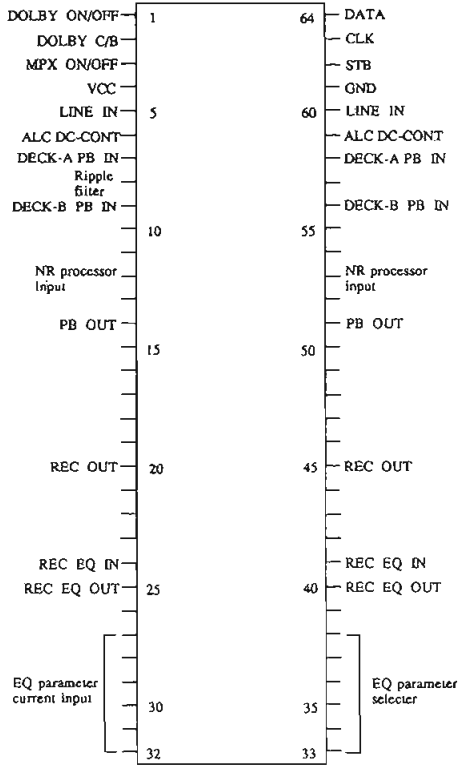


NADIS-4785-2

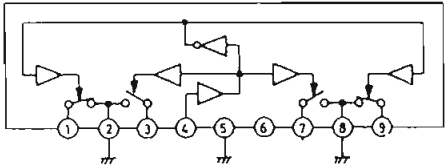


IC BLOCK DIAGRAM

HA12155NT (DOLBY NR)



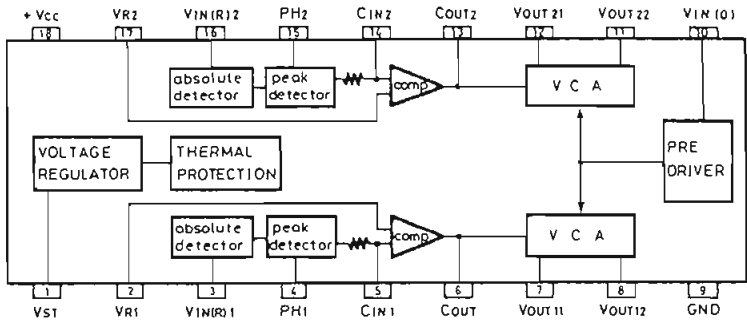
μPC1330HA (REC/PB SW)



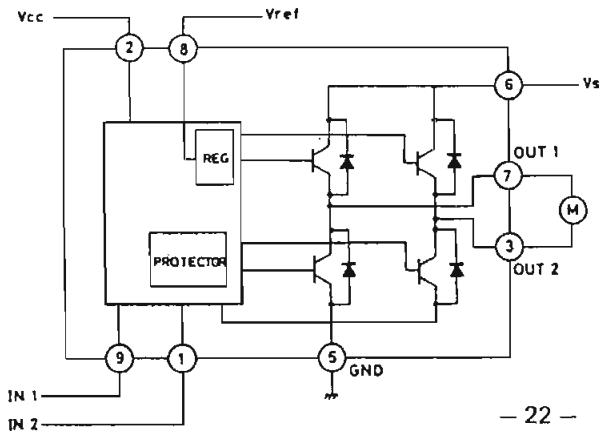
μPC1330HA

Pin No.	Function
1, 9	PB. signal
2	GND
3, 7	REC signal
4	REC/PB SW control
5	GND
6	+B
8	GND

μPC1297CA (HX PRO)

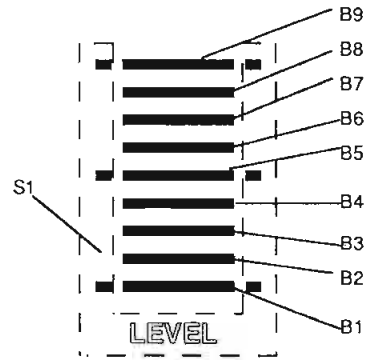


TA7291S (MOTOR DRIVE)



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

BJ190GK

[illegible]

ANODE CONNECTION

	7G	6G	5G	4G	3G	2G	1G
P1	B1	a	a	a	a	B1	B1
P2	B2	b	b	b	b	B2	B2
P3	B3	c	c	c	c	B3	B3
P4	B4	d	d	d	d	B4	B4
P5	B5	e	e	e	e	B5	B5
P6	B6	f	f	f	f	B6	B6
P7	B7	g	g	g	g	B7	B7
P8	B8	ELAPSED	col	h	-	B8	B8
P9	B9	REMAIN	-	-	-	B9	B9
P10	-	-	-	-	-	L R dB -20 ~ +10	-
P11	S1	-	-	-	-	-	-