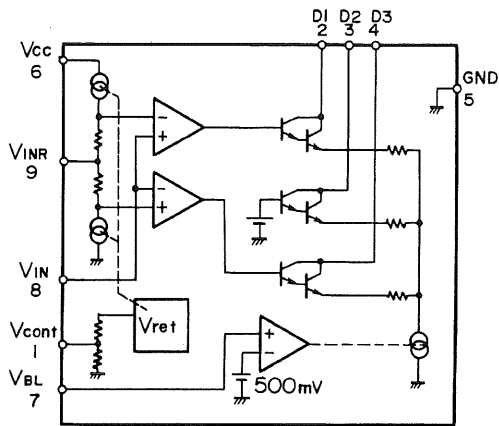
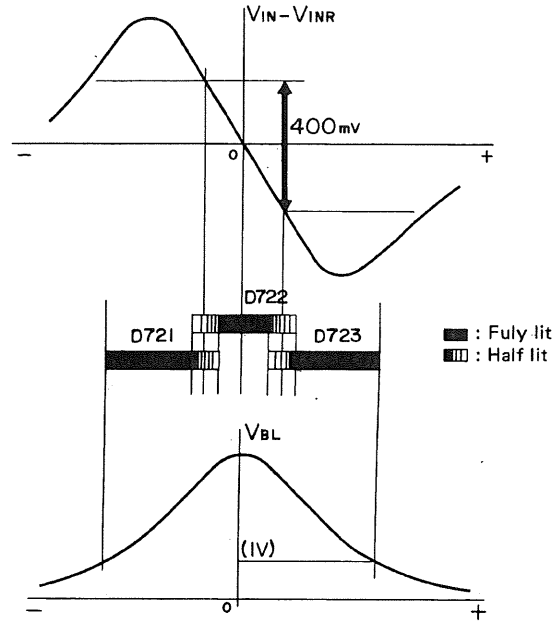


**LB1450 (Tuning indicator drive)**

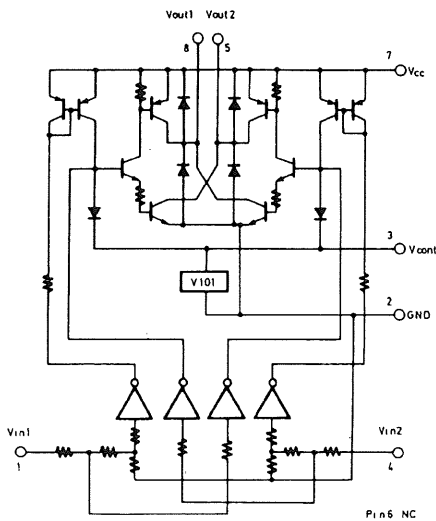


As shown in the figure 14, the difference between the AFC output terminal pin 7 of the Q157 FM IF system IC and standard voltage terminal pin 10 becomes an S-curve characteristic. Using this characteristic, the TUNING indicator is caused to light.



(Fig. 14)

**LB1630 (Motor drive)**



**Truth Table**

Vin 1	Vin 2	Vout 1	Vout 2	Motor
H	L	H	L	Clockwise
L	H	L	H	Counter-clockwise
H	H	OFF	OFF	Stop
L	L	OFF	OFF	Stop

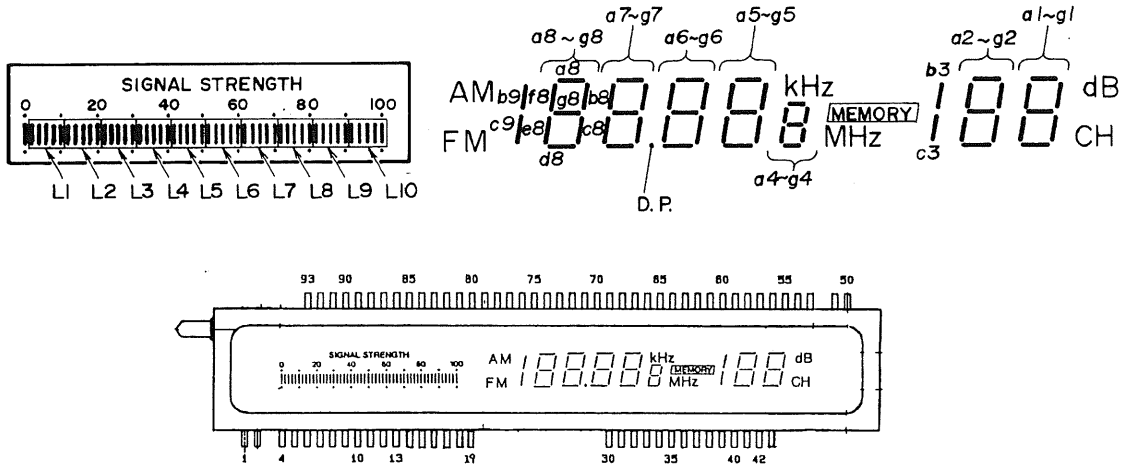
LA7910 (Band switch)

Truth Table

Input		Output			
Pin 3	Pin 4	Pin 1	Pin 2	Pin 7	Pin 8
L	L	H	Z	Z	Z
H	L	Z	H	Z	Z
L	H	Z	Z	H	Z
H	H	Z	Z	Z	H

1. Output terminal
2. Output terminal
3. Input terminal
4. Input terminal
5. Ground terminal
6. Vcc2
7. Output terminal
8. Output terminal
9. Vcc1

FIP12AMW7S (Fluorescent indicator tube)



Terminal connection  
(Lower)

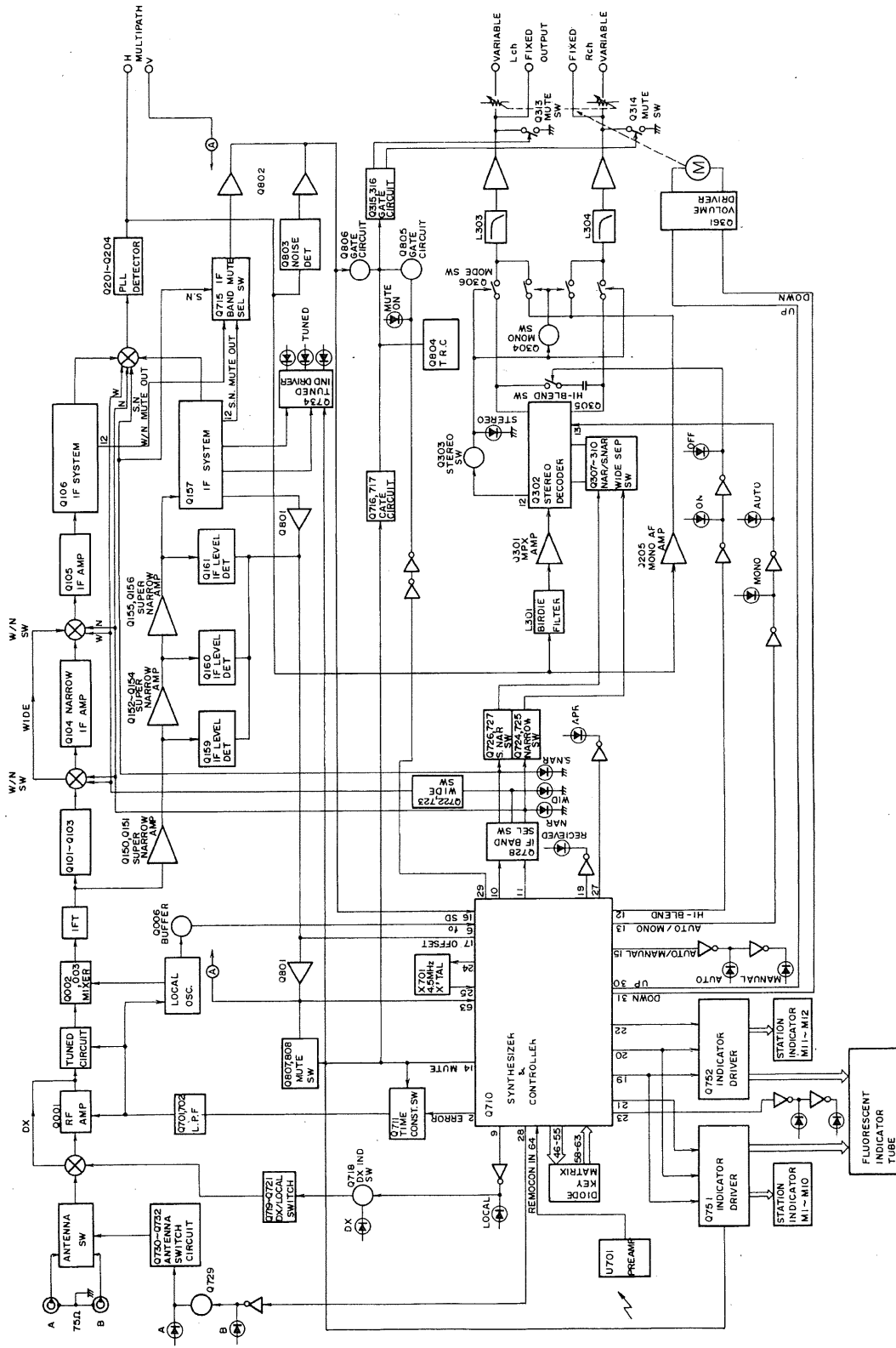
Terminal No.	1	2	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Electrode	F	F	G	dB	CH	*Z	*FM	b9 c9	e8	d8	c8	G	e7	d7	c7	c6
Terminal No.	18	19	30	31	32	33	34	35	36	37	38	39	40	41	42	43
Electrode	d6	e6	e5	d5	c5	g4	a4 c4 d4 f4	b4 e4	b3 c3	G	e2	d2	c2	e1	d1	c1

(Upper)

Terminal No.	50	51	53	54	55	56	57	58	59	60	61	62	63	64	65	66
Electrode	F	F	G	b1	a1	f1	g1	b2	a2	f2	g2	G	b5	a5	f5	g5
Terminal No.	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82
Electrode	b6	a6	f6	G	g6	b7	a7	f7	g7	b8	a8	G	f8	g8	*AM	a11
Terminal No.	83	84	85	86	87	88	89	90	91	92	93					
Electrode	L10	L9	L8	G	L7	L6	L5	L4	L3	L2	L1					

F: Filament G: Grid Z: MEMORY FM: FM, D. P., MHz AM: AM, kHz

BLOCK DIAGRAM



# ADJUSTMENT PROCEDURES

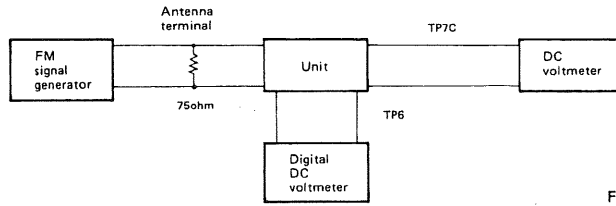


Fig. 1

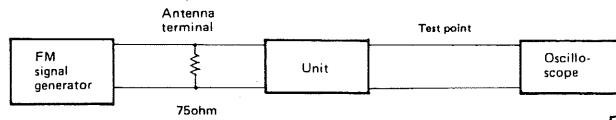


Fig. 2

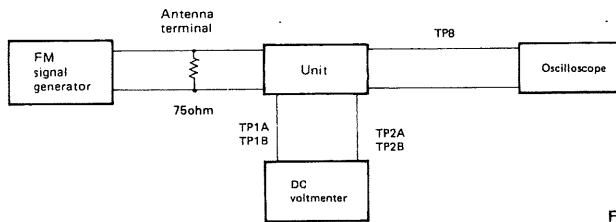


Fig. 3

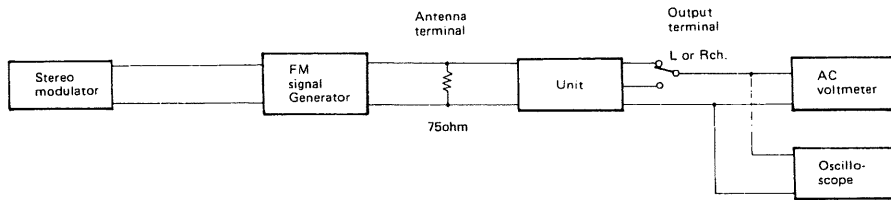
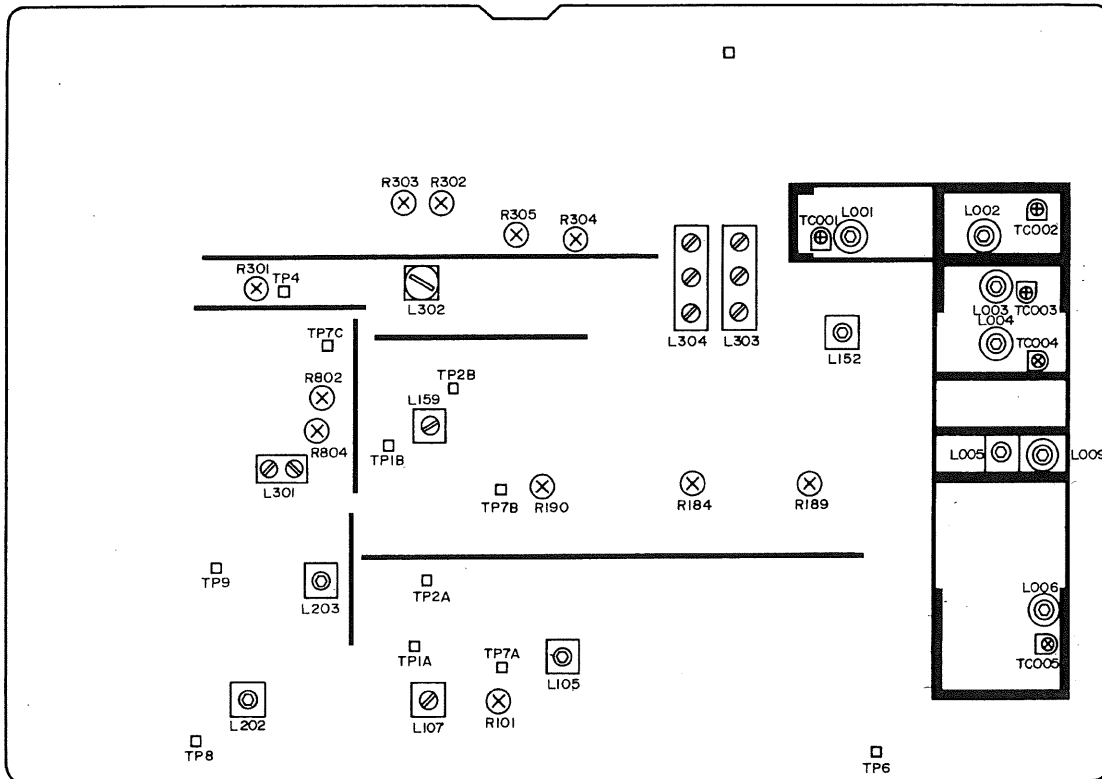
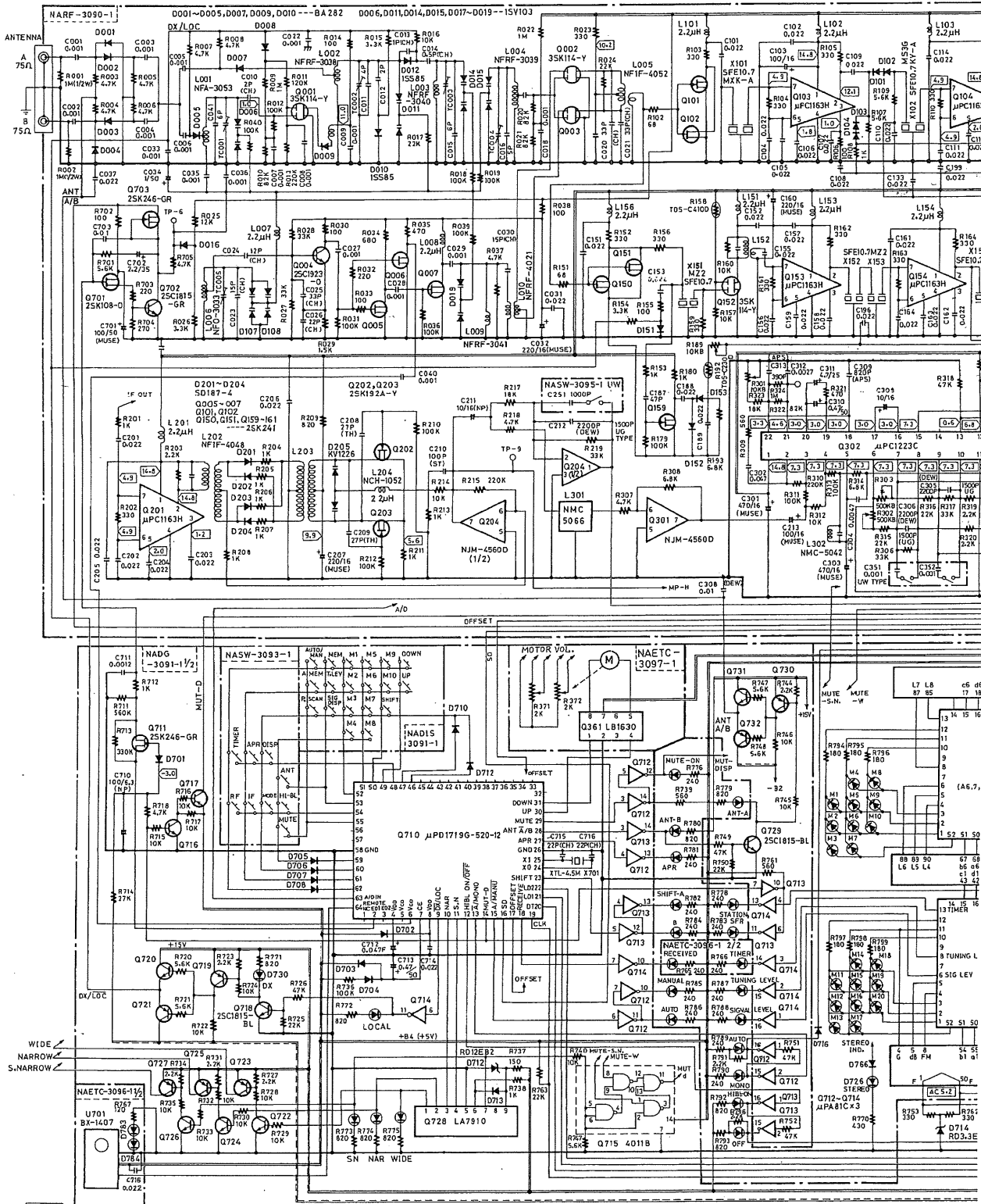


Fig. 4



# SCHEMATIC DIAGRAM

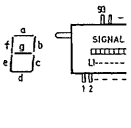


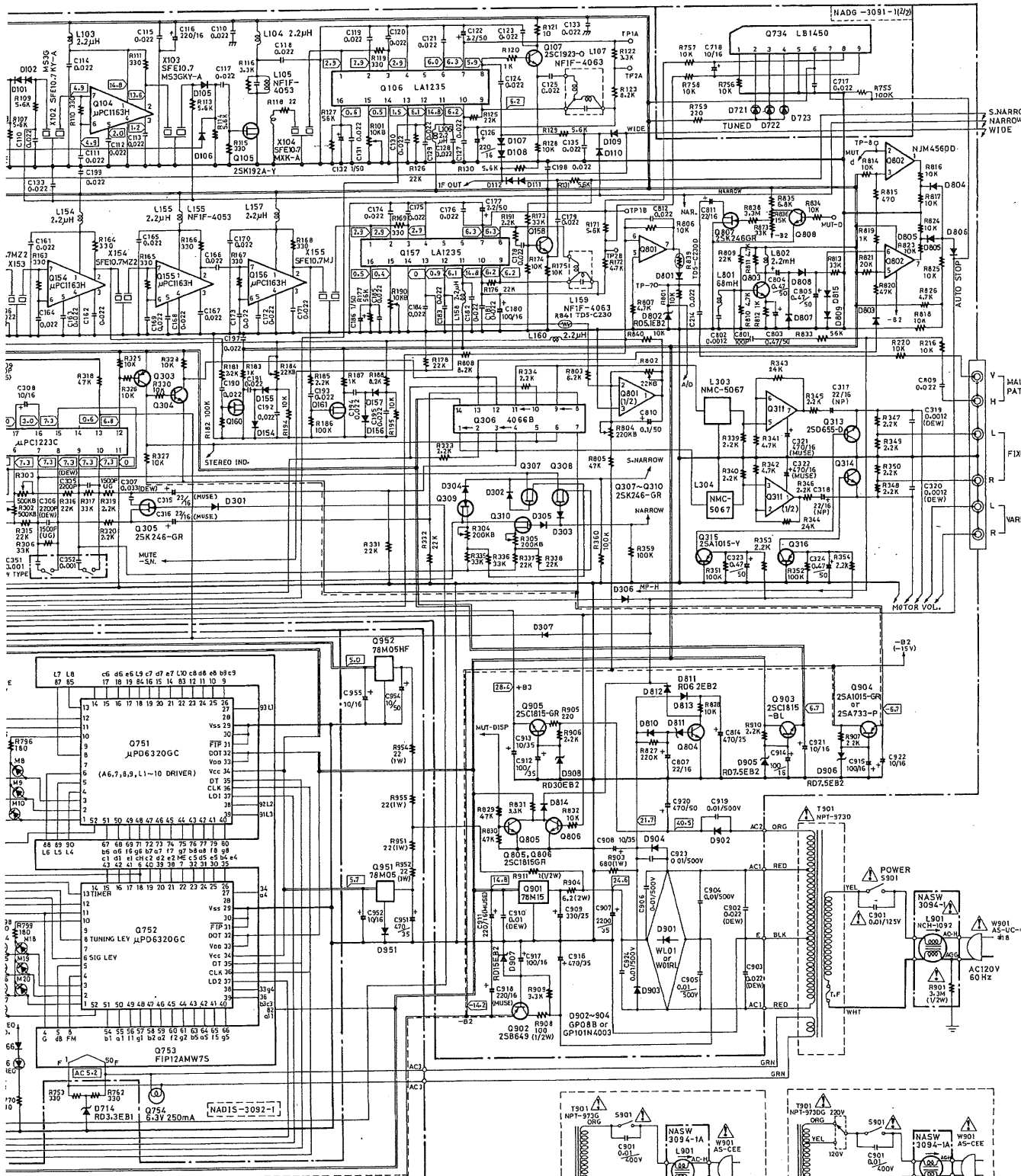
## NOTES

- THE COMPONENTS IDENTIFIED BY MARK  $\Delta$  ARE CRITICAL FOR SAFETY.
- REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE MEASURED WITH W.T.V.M. ( ) V IS DC VOLTAGE. (NO INPUT SIGNAL)
- ELECTROLYTIC CAPACITORS ( ) ARE IN  $\mu$ F/WV.
- ALL CAPACITORS ARE IN P/F/50WV UNLESS OTHERWISE NOTED.
- ALL RESISTORS ARE IN OHMS (A) WATTS UNLESS OTHERWISE NOTED.
- ALL DIODES ARE IS104, IS106, US100, OR IS113 UNLESS OTHERWISE NOTED.
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

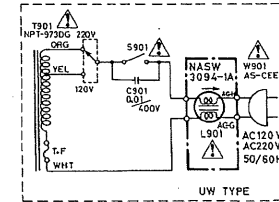
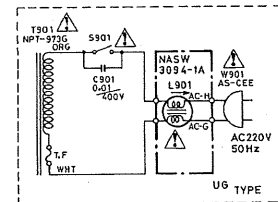
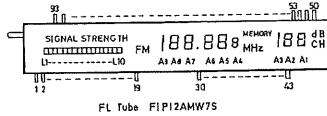
LED : D721-724, 727, 728, 730, 731, 733, 735, 737, 739, 740-765  
 SEL 2413E (GREEN)  
 D725, 726, 729, 732, 734, 736, 738, 781, 782-784  
 SEL 2913K (ORANGE)  
 D781  
 SEL 2213C (GREEN)

TIMER	STATION	TUN.	SIG. L	AUTO STEREO	APR	WIDE	BUR-OF	AUTO	AMPA	LOCAL	
D782	D763	D764	D765	D726	D728	D733	D735	D737	D739	D729	
RECEIVED	P	Q	4	MANUAL	MUTE	S. VAR	MANR	MANR-ON	MONO	ANT-A	OX
SHIFT-A	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	SFR
D741	D743	D744	D745	D746	D747	D748	D749	D750	D751	D752	D731
B	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	
D742	D753	D754	D755	D756	D757	D758	D759	D760	D761	D762	





• ALL NPN TRANSISTORS ARE 2SC1815-GR or 2SC945A-P UNLESS OTHERWISE NOTED.  
 • ALL PNP TRANSISTORS ARE 2SA1015-GR or 2SA733-P UNLESS OTHERWISE NOTED.



# PRINTED CIRCUIT BOARD-PARTS LIST

## MAIN CIRCUIT PC BOARD (NARF-3090-1/1A/1B)

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PARTS NO.	DESCRIPTION
	ICS		D301-D307	223163	1SS133
Q103, Q104	222474	μPC1163H, RF amp	D801	223163	1SS133
Q106, Q157	222680	LA1235, IF system	D802	2239452 or 224650512	RD5. 1EB2 or HZ5. 1EB2
Q153-Q156	222474	μPC1163H, RF amp	D803-D810	223163	1SS133
Q201	222474	μPC1163H, RF amp	D811	2239492 or 224650622	RD6. 2EB2 or HZ6.2EB2
Q204, Q301	222579	NJM4560D, Op amp	D812-D815	223163	1SS133
Q302	222732	μPC1223C, Stereo decoder	D901	223862 or 223890	WL01 or W01RL
Q306	222840661	4066B, Analog switch	D902-D904	223880 or 223848	GP101N4003 or GP08B
Q311	222579	NJM4560D, Op amp	D905, D906	2239532 or 224650752	RD7. 5EB2 or HZ7. 5EB2
Q801, Q802	222579	NJM4560D, Op amp	D907	2239672 or 224651502	RD15EB2 or HZ15EB2
Q901	222780151NEC	78M15, Regulator	D908	2239812 or 224653002	RD30EB2 or HZ30EB2
	TRANSISTORS			COILS	
Q001-Q003	2212514	3SK114-Y	L001	233321	NFA-3053
Q004	2211723	2SC1923-0	L002	233322	NFRF-3038
Q005-Q007	2212195	2SK241-GR	L003	233324	NFRF-3040
Q101, Q102	2212195	2SK241-GR	L004	233323	NFRF-3039
Q105	2212274	2SK192A-Y	L006	233325	NFO-3033
Q107	2211723	2SC1923-0	L007, L008	233359	NCH-2163
Q150, Q151	2212195	2SK241-GR	L009	233326	NFRF-3041
Q152	2212514	3SK114-Y	L010	233212	NFRF-4021
Q158, Q304	2211255 or 2210746	2SC1815-GR or 2SC945A-P	L101-L104	233359	NCH-2163
Q159-Q161	2212195 or 2212194	2SK241-GR or 2SK241-Y	L105	233318	NFIF-4053
Q202, Q203	2212274	2SK192A-Y	L106	233359	NCH-2163
Q303	2211455 or 2210803	2SA1015-GR 2SA733-P	L107	233378	NFIF-4063
Q305	2211945	2SK246-GR	L151	233359	NCH-2163
Q307-Q310	2211945	2SK246-GR	L152	233318	NFIF-4053
Q313, Q314	2211704 or 2211705	2SD655-D or 2SD655-E	L153-L158	233359	NCH-2163
Q315, Q316	2211454	2SA1015-Y	L159	233378	NFIF-4063
Q701	2212294	2SK108-D	L160	233365	NCH-2169
Q702	2211255	2SC1815-GR	L201	233359	NCH-2163
Q703	2211945	2SK246-GR	L202	233296	NFIF-4048
Q803	2211255	2SC1815-GR	L203	233297	NFIF-4049
Q804	2211256	2SC1815-BL	L204	233365	NCH-2169
Q805, Q806	2211255	2SC1815-GR	L301	233379	NMC-5066
Q807	2211945	2SK246-GR	L302	233303	NMC-5042
Q808	2211255 or 2210746	2SC1815-GR or 2SC945A-P	L303, L304	233380	NMC-5067
Q902	2200792 or 2200793	2SB649-B or 2SB649-C	L801	233122	NCH-3013
Q903	2211256	2SC1815-BL	L802	231081	NCH-2129
Q904	2211455 or 2210803	2SA1015-GR or 2SA733-P		TRANSFORMER	
Q905	2211255	2SC1815-GR	L005	233317	NFIF-4052
	DIODES			CERAMIC FILTERS	
D001-D005	223165	BA282	X101, X104	3010085	SFE-10.7MXK-A
D006	223154	1SV103	X102	3010131	SFE-10.7MX2K-A
D007	223165	BA282	X103	3010086	SFE-10.7MS3G-A
D008	223163	1SS133	X151-X154	3010130	SFE-10.7M22K-A
D009, D010	223165	BA282	X155	3010132	SFE-10.7MJK-A
D011	223154	1SV103			
D012, D013	223149	1SS85			
D014, D015	223154	1SV103			
D016	223163	1SS133			
D017-D019	223154	1SV103			
D101-D112	223163	1SS133			
D151	223165 or 223149	BA282 or 1SS85			
D152-D157	223163	1SS133			
D201-D204	223170	SD187-4			
D205	223136	KV1226			

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
	CAPACITORS			RESISTORS	
C032	391242217	220 $\mu$ F, 16V, Elect.	R001, R002	431521055	1Mohm, 1/2W, Solid (D)
C034	354780109	1 $\mu$ F, 50V, Elect.	R101	5210064	N06HR10KBD, Semi-fixed
C038	379121034	0.01 $\mu$ F $\pm$ 5%, 50V, Plastic	R184	5210066	N06HR22KBD, Semi-fixed
TC001-TC004	3060020	NTC-2P17, Trimmer	R189, R190	5210064	N06HR10KBD, Semi-fixed
TC005	3060017	NTC-10P15, Trimmer	R301	5210064	N06HR10KBD, Semi-fixed
C103	354741019	100 $\mu$ F, 16V, Elect.	R302, R303	5210074	N06HR470KBD, Semi-fixed
C116	391242217	220 $\mu$ F, 16V, Elect.	R304, R305	5210072	N06HR220KBD, Semi-fixed
C122	354780229	2.2 $\mu$ F, 50V, Elect.	R802	5210066	N06HR22KBD, Semi-fixed
C126	354742219	220 $\mu$ F, 16V, Elect.	R804	5210072	N06HR220KBD, Semi-fixed
C132	354780109	1 $\mu$ F, 50V, Elect.	R903	441626814	680ohm, 1W, Metal oxide film
C134	354741019	100 $\mu$ F, 16V, Elect.	R904	441720624	6.2ohm, 2W, Metal oxide film
C136, C137	379122225	2, 200 $\pm$ 10%, 50V, Plastic	R908	442521014	100ohm, 1/2W, Metal oxide film
C160	391242217	220 $\mu$ F, 16V, Elect.	R911	442520104	1ohm, 1/2W, Metal oxide film
C177	354780229	2.2 $\mu$ F, 50V, Elect.			
C180	354741019	100 $\mu$ F, 16V, Elect.			
C186	354780109	1 $\mu$ F, 50V, Elect.			
C207	391242217	220 $\mu$ F, 16V, Elect.	R158	4000102	TD5-C410D
C210	372121014	100pF $\pm$ 5%, 50V, Styrene	R192, R841	4000099	TD5-C230D
C211	352941006	10 $\mu$ F, 16V, Non-polar Elect.			
C212	379122224	2,200pF $\pm$ 5%, 50V, Plastic(D)			
	379121524	1,500pF $\pm$ 5%, 50V, Plastic(G/W)	P902	25045202	NPJ-4PDBL83, Output
C213	391241017	100 $\mu$ F, 16V, Elect.	P903	25045182	NPJ-2PDBL72, Multipath
C251	379121024	1,000pF $\pm$ 5%, 50V, Plastic(W)			
C301	391244717	470 $\mu$ F, 16V, Elect.			
C302	379124734	0.047 $\mu$ F $\pm$ 5%, 50V, Plastic	P001, P004	25050272	NSCT-8P100
C303	391244717	470 $\mu$ F, 16V, Elect.	P002	25050268	NSCT-4P96
C304	379124724	4,700pF $\pm$ 5%, 50V, Plastic	P003	25050267	NSCT-3P95
C305, C306	379122224	2,200pF $\pm$ 5%, 50V, Plastic	JL015	25050270	NSCT-6P98
	379121524	1,500pF $\pm$ 5%, 50V, Plastic(G/W)	P021	25050267	NSCT-4P96 (W)
	379123334	0.033 $\mu$ F $\pm$ 5%, 50V, Plastic		25050267	NSCT-3P95 (W)
C308	354741009	10 $\mu$ F, 16V, Elect.			
C309	370138214	820pF $\pm$ 5%, 100V, APS			
C310	354784799	0.47 $\mu$ F, 50V, Elect.			
C311	354750479	4.7 $\mu$ F, 25V, Elect.			
C312	379122724	2,700pF $\pm$ 5%, 50V, Plastic			
C313	370133914	390pF $\pm$ 5%, 100V, APS			
C315, C316	391242207	22 $\mu$ F, 16V, Elect.			
C317, C318	352942206	22 $\mu$ F, 16V, Non-polar elect.			
C319, C320	379121224	1,200pF $\pm$ 5%, 50V, Plastic			
C321, C322	391244717	470 $\mu$ F, 16V, Elect.			
C323, C324	354784799	0.47 $\mu$ F, 50V, Elect.			
C351, C352	379121024	1,000pF $\pm$ 5%, 50V, Plastic(W)			
C701	391281017	100 $\mu$ F, 50V, Elect.			
C702	395160227	2.2 $\mu$ F, 35V, Tantal			
C703	379121034	0.01 $\mu$ F $\pm$ 5%, 50V, Plastic			
C803-C805	354784799	0.47 $\mu$ F, 50V, Elect.			
C807	354742209	22 $\mu$ F, 16V, Elect.			
C808	354754719	470 $\mu$ F, 25V, Elect.			
C810	354781099	0.1 $\mu$ F, 50V, Elect.			
C811	354742209	22 $\mu$ F, 16V, Elect.			
C814	354754719	470 $\mu$ F, 25V, Elect.			
C902, C903	379122234	0.022 $\mu$ F $\pm$ 5%, 50V, Plastic			
C904-C906	335251039	0.01 $\mu$ F, 500V, Ceramic			
C907	354762229	2,200 $\mu$ F, 35V, Elect.			
C908	354761009	10 $\mu$ F, 35V, Elect.			
C909	354753319	330 $\mu$ F, 25V, Elect.			
C910	379121034	0.01 $\mu$ F $\pm$ 5%, 50V, Plastic			
C911	391242217	220 $\mu$ F, 16V, Elect.			
C912	354761019	100 $\mu$ F, 35V, Elect.			
C913	354761009	10 $\mu$ F, 35V, Elect.			
C914, C915	35474101	100 $\mu$ F, 16V, Elect.			
C916	354764719	470 $\mu$ F, 35V, Elect.			
C917	354741019	100 $\mu$ F, 16V, Elect.			
C918	391242217	220 $\mu$ F, 16V, Elect.			
C920	354784719	470 $\mu$ F, 50V, Elect.			
C921, C922	354741009	10 $\mu$ F, 16V, Elect.			
C923, C924	335251039	0.01 $\mu$ F, 500V, Ceramic			



## PRINTED CIRCUIT BOARD-PARTS LIST

### DIGITAL CIRCUIT PC BOARD (NADG-3091-1)

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
	ICS			DIODES	
Q710	22240106	$\mu$ PD1719G-520-12, Micon	D701-D709	223163	1SS133
Q712-Q714	222807	$\mu$ PA81C, Buffer	D711, D714	223163	1SS133
Q715	222840111	4011B, NAND gate	D713	2239632 or	RD12EB2 or
Q728	222992	LA7910, Band switch		224651202	HZ12EB2
Q733	22240107	LB1450, Tuning indicator drive	D715	2241291	RD3.3EB1
Q951	222780052	78M05, Regulator	D716, D717	223163	1SS133
Q952	222780055	78M05HF, Regulator	D951	223163	1SS133
	TRANSISTORS			X'TAL	
Q711	2211945	2SK246-GR	X701	3010091	XTL-4.5M
Q716, Q718	2211255 or	2SC1815-GR or		CAPACITORS	
Q720, Q722	2210746	2SC945A-P	C710	352921016	100 $\mu$ F, 6.3V, Non-polar elect.
Q724, Q726	2211255 or	2SC1815-GR or	C711	371121225	1,200pF $\pm$ 10%, 50V, Mylar
Q729, Q731	2210746	2SC945A-P	C712	3020027,	0.047F, 5V
Q717, Q719	2211455 or	2SA1015-GR or		3000051 or	0.047F, 5.5V or
Q721, Q723	2210803	2SA733-P		3000050	0.047F, 5.5V, Super
Q725, Q727	2211455 or	2SA1015-GR or	C713	354784799	0.47 $\mu$ F, 50V, Elect.
Q730, Q732	2210803	2SA733-P	C718	354741009	10 $\mu$ F, 16V, Elect.

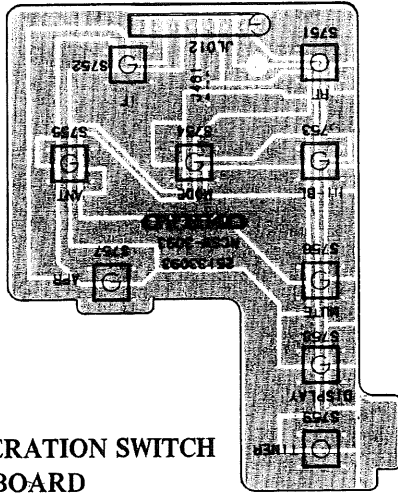
# T-9090II

CIRCUIT NO.	PART NO.	DESCRIPTION
C951	354764719	470 $\mu$ F, 35V, Elect.
C952, C955	354741009	10 $\mu$ F, 16V, Elect.
C954	354781009	10 $\mu$ F, 50V, Elect.
	<b>RESISTORS</b>	
R951, R952	441622204	22ohm, 1W, Metal oxide film
R954, R955		
	<b>RADIATOR</b>	
	27160209	RAD-67

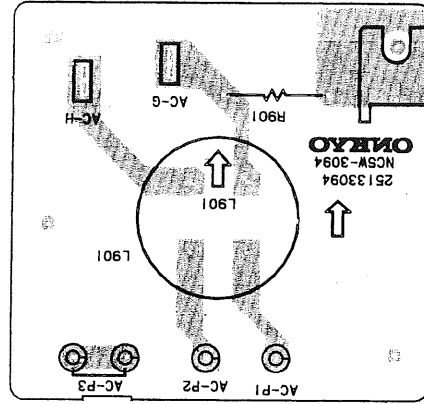
## DISPLAY CIRCUIT PC BOARD (NADG-3092-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
Q751, Q752	2227701	$\mu$ PD6320GC
	<b>FLUORESCENT TUBE</b>	
Q753	212048	FIP12AMW7S
	<b>LAMP</b>	
Q754	210064A	PL6.3V, 250mA

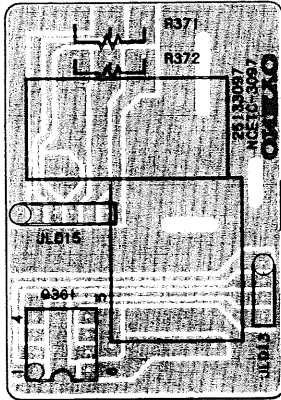
CIRCUIT NO.	PART NO.	DESCRIPTION
	L.E.DS	
D721-D724	225137CG,	SEL2413ECG,
D727, D728	225137DG or	SEL2413EDG or
D730, D731	225137DY	SEL2413EDY
D733, D735	225137CG,	SEL2413ECG,
D737	225137DG or	SEL2413EDG or
D739-D765	225137DY	SEL2413EDY
D725, D726	225142	SEL2913K
D729, D732	225142	SEL2913K
D734, D736	225142	SEL2913K
D738	225142	SEL2913K
	<b>DIODE</b>	
D766	223163	1SS133
	<b>SWITCHES</b>	
S701-S719	25035548	NPS-111-S510
	<b>HOLDERS</b>	
	27190561A	L.E.D
	27190500	Lamp



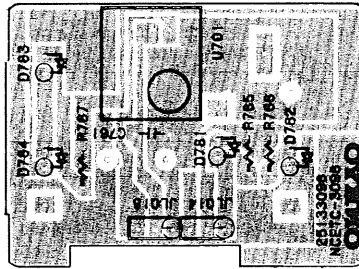
**OPERATION SWITCH  
PC BOARD**



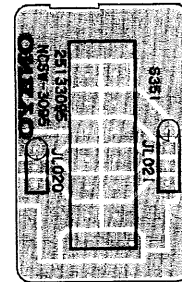
**POWER SUPPLY CIRCUIT  
PC BOARD**



**OUTPUT VOLUME  
PC BOARD**



**REMOTE CONTROL  
CIRCUIT PC BOARD**



**DE-EMPHASIS SWITCH  
PC BOARD**

**OPERATION SWITCH PC BOARD (NASW-3093-1)**

CIRCUIT NO.	PART NO.	DESCRIPTION
S751-S759	25035548	NPS-111-S510, Push switches

**POWER SUPPLY CIRCUIT PC BOARD (NASW-3094-1/1A)**

CIRCUIT NO.	PART NO.	DESCRIPTION
R901	431523355	3.3Mohm, 1/2W, Solid resistor(D)
L901	231051	NCH-1092, Choke coil

**DE-EMPHASIS SWITCH PC BOARD (NASW-3095-1)**

(Only Worldwide models)

CIRCUIT NO.	PART NO.	DESCRIPTION
S351	25065240	NSS-42102

**REMOTE CONTROL CIRCUIT PC BOARD (NAETC-3096-1)**

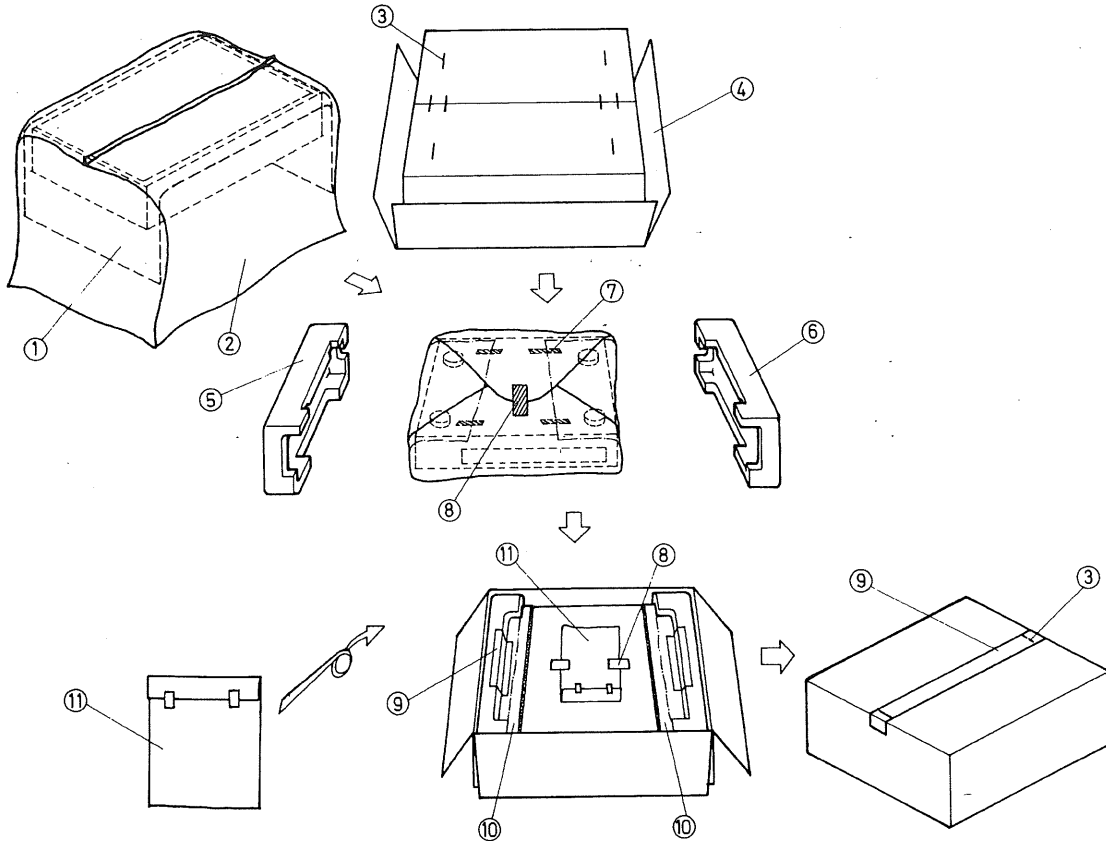
CIRCUIT NO.	PART NO.	DESCRIPTION
U701	241068	BX-1407, IC, Remote control receiver section
D781	225141	SEL2213C, L.E.D
D782-D784	225142	SEL2913K, L.E.Ds
	27190562A	Holder, L.E.D

**OUTPUT VOLUME PC BOARD (NAETC-3097-1)**

REF. NO.	PART NO.	DESCRIPTION
Q361	222963	LB1630, IC, motor driver
R371	5104211	N16RGL2KA30, Variable resistor, Volume

NOTE: (D): Only 120V models  
 (G): Only 220V and 240V models  
 (W): Only Worldwide models

## PACKING VIEW



REF. NO.	PART NO.	DESCRIPTION
1	29095318	500 × 800mm, Protection sheet
2	29100038A	720 × 950mm, Poly-vinyl bag
3	282301	Sealing hook
4	29051604	Master carton box
5	29091197	Pad R
6	29091196	Pad L
7	262037	200mm, Drafting tape
8	261504	30mm, Tape
9	260012	100cm, Damplon tape
10	29095491	Sheet P
11		Accessory bag ass'y
	<b>120V models</b>	
	2010097	Connection cord
	24140013	RC-113T, Remote control unit
	25060088	Two adaptors for FM antenna
	290264A	FM antenna
	29341191	Instruction manual
	3010054	UM3, Two batteries
	29365006-7	Warranty card (Only U.S.A model)
	29358002E	Service station list (Only U.S.A model)
	29100097	250 × 350mm, Poly-vinyl bag

REF. NO.	PART NO.	DESCRIPTION
	<b>220V/240V models</b>	
	2010097	Connection cord
	24140013	RC-113T, Remote control unit
	25060088	Two adaptors for FM antenna
	292064A	FM antenna
	29341192	Instruction manual
	29341208	Instruction manual I
	3010054	UM3, Two batteries
	29100097	250 × 350mm, Poly-vinyl bag
	<b>Worldwide models</b>	
	2010097	Connection cord
	24140013	RC-113T, Remote control unit
	25060088	Two adaptors for FM antenna
	292064A	FM antenna
	29341191	Instruction manual (Only PX model)
	29341192	Instruction manual
	25055040	CV-K-2, Conversion plug
	3010054	UM3, Two batteries
	29365021	Warranty card (Only PX model)
	29358002E	Service station list (Only PX model)
	29100097	250 × 350mm, Poly-vinyl bag

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