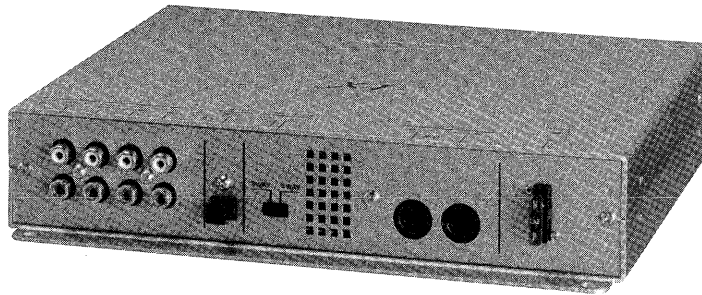


XES-X1

SERVICE MANUAL

US Model
Canadian Model



SPECIFICATIONS

Power requirements	12 V DC car battery (negative ground)	Weight	Approx. 1.75 kg (3 lb. 14 oz.)
Current drain	1.5 A	Accessories supplied	Optical digital cable (1) UNILINK cable (1) Fuse (1) Mounting screw (1 set)
Gain	0 dB		
Maximum output level	+ 14 dB		
Harmonic distortion	0.005%	Frequency response	5-20,000 Hz (± 0 dB)
Signal-to-noise ratio	100 dB	Sampling frequency	32 kHz, 44.1 kHz, 48 kHz
Crosstalk	90 dB	Dimensions	250 x 50 x 215 mm (w x h x d) (9 7/8 x 2 x 8 1/2 inches)
Crossover slope	70 dB/oct		
Crossover frequency (1/6 oct step.)			
3way system			
LOW: HI-LIM	78, 88, 99, 111, 125, 140, 157, 176, 198 Hz		
MID: HI-LIM	(2.00, 2.24, 2.51, 2.82, 3.17, 3.56, 4.00		
HIGH:LO-LIM	4.48, 5.03, 5.65, 6.34, 7.12, 8.00 kHz)		
4way system			
LOW: HI-LIM	78, 88, 99, 111, 125, 140, 157, 176, 198 Hz		
LOW-MID: HI-LIM	629, 707, 793, 890 Hz 1.00, 1.12, 1.25, 1.41, 1.58, 1.78 kHz		
HIGH-MID: HI-LIM	(3.17, 3.56, 4.00, 4.48, 5.03, 5.65, 6.34		
HIGH:LO-LIM	7.12, 8.00 kHz)		

Design and specifications subject to change without notice.

DIGITAL CROSSOVER NETWORK
SONY®

Features

The XES-X1 is a Digital Crossover Network used in multi-amplifier systems. This unit divides digital sound signals by each frequency and outputs analog signals. Dividing digital sound signals maintains high quality sound.

- You can control the sound effects by remote commander supplied with XES-P1.
- FIR filter* makes straight phase, and decreases phase shift of each frequency band.
- You can adjust time-alignment** for each speaker unit.
- You can select 3 way or 4 way speaker system.

* FIR (Finite Impulse Response)
Usual filter begins to roll phase, but FIR filter makes phase straight in principle.

** Time-alignment
Time-alignment decreases band signal in each range 0-10 m sec STEP 0.1 m sec. Calculating into distance, it is 0-3.4 m STEP 3.4 cm. And it keeps away speaker from a listener.
Thus this function enables the listener to hear the sound from all speakers as if at the same distance.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

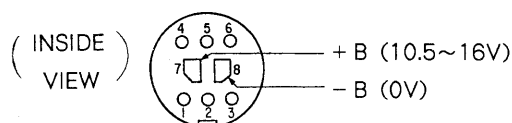
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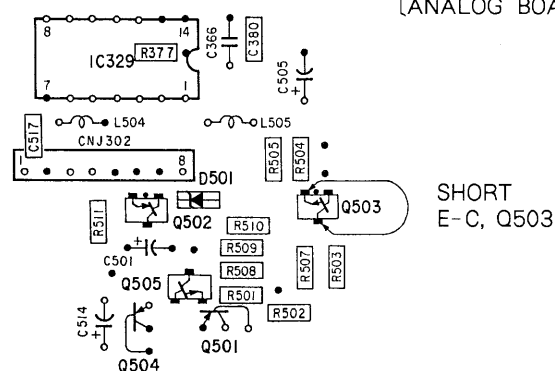
Operating the unit separately

1. Connect the power supply to the UNILINK terminal (XES-P1 or DISPLAY).
2. Short E-C of Q503 on the [ANALOG BOARD].

PLUG. CONNECTOR, (UNILINK)



[ANALOG BOARD]

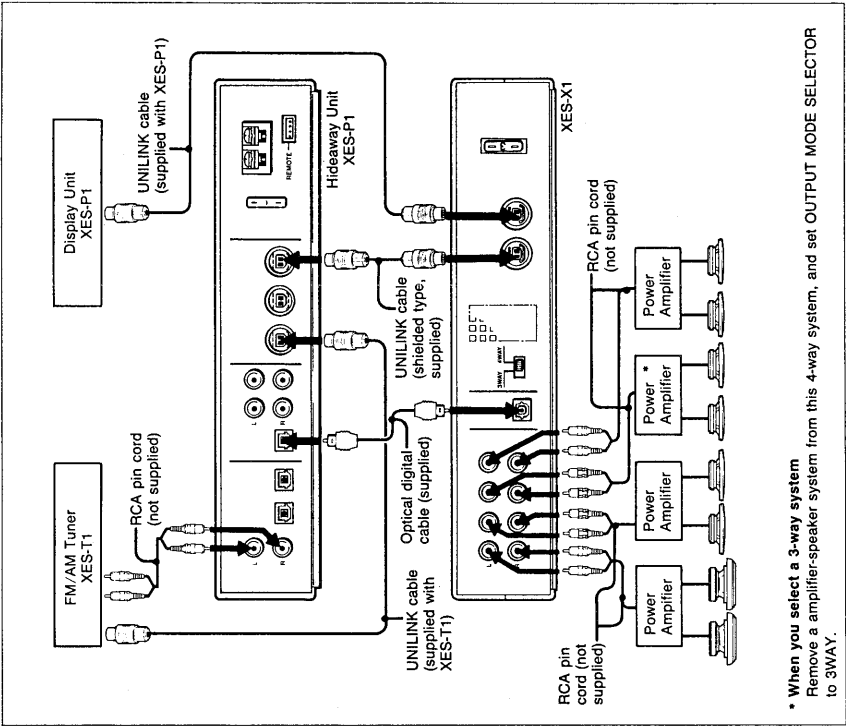


SECTION 1
GENERAL

This section is extracted from instruction manual.

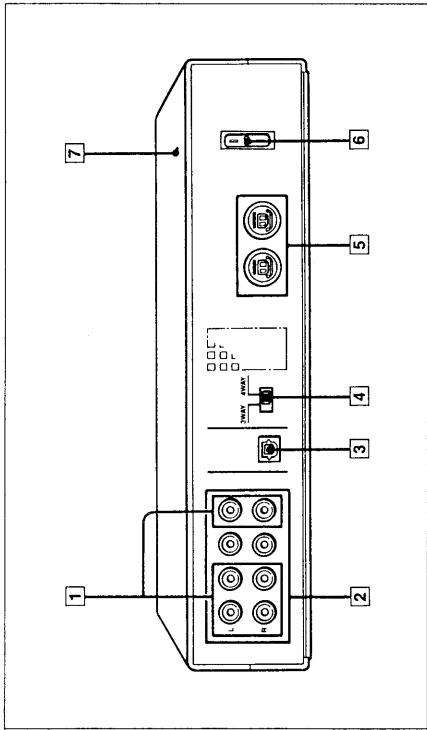
Connections

- Before making connections, disconnect the ground terminal of the car battery to avoid short circuit.
- Connect the UNILINK cable only after all other leads have been connected.
- Connect the power input lead of this system (XES-P1 with XES-X1) to the battery in parallel with the power input lead of the power amplifiers.
- The sound doesn't come out from the REAR OUTPUT of the XES-P1 when connected to XES-X1 and the SUR function is turned off.



• When you select a 3-way system
Remove a amplifier-speaker system from this 4-way system, and set OUTPUT MODE SELECTOR to 3WAY.

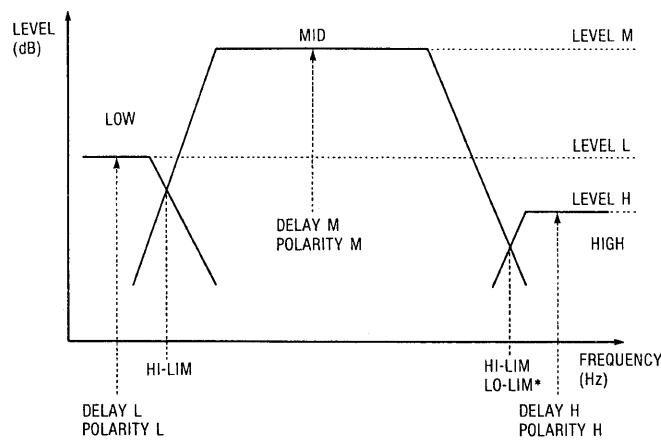
Parts Identification



- 5 UNILINK (XES-P1/DISPLAY) jacks
- 6 Fuse (3A)
- 7 Power indicator
Lights up while operating.

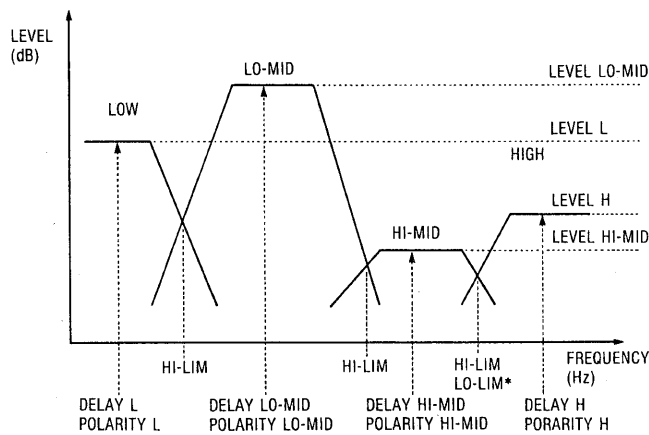
- 1 3-way (LOW/MID/HIGH) ANALOG OUTPUT jacks
- 2 4-way (LOW/LO-MID/HI-MID/HIGH) ANALOG OUTPUT jacks
- 3 DIGITAL INPUT jack (optical)
- 4 OUTPUT MODE SELECTOR
Select 3WAY or 4WAY according to the connected power amplifier and speaker system.

3WAY



8

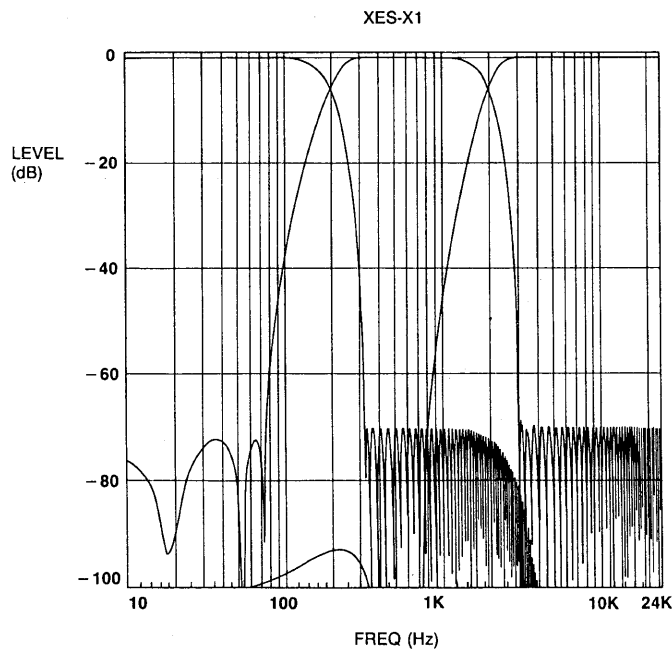
4WAY



* When you adjust HIGH, "Cross Lo-Lim" appears on the display of XES-P1

Specifications 9

Crossover Point Characteristics



This diagram shows the frequency response of 3way system (Cutoff frequency: 198 Hz, 2.00 kHz).

The characteristics is typical of FIR filter, and FIR filter decreases output level of cutoff frequency sharply.

Specifications 7

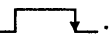
SECTION 2

UNILINK

Eight types of signals are transmitted with the UNILINK cable. Communication involves two lines: DATA and CLOCK. DATA communication is bidirectional while CLOCK communication adopts the sync output from the MASTER microcomputer. These signals are connected to the MASTER microcomputer and SLAVE microcomputer ports.

① **Reserved.**

② **RESET**

Under normal conditions, LOW. When the system is RESET, .
MASTER outputs this signal.

When resetting SLAVE only, the RESET line will not change.

③ **SIRCS**

Modified electrical signal without the carrier of the infrared remote commander SIRCS signal. Although multiple remote sensors may exist, MASTER decodes the signal, determines the input contents of SIRCS and transmits the contents to each SLAVE.

④ **CLOCK**

Serial data CLOCK line.

MASTER outputs this signal.

⑤ **DATA**

Serial data I/O line. When BUS ON is HIGH, MASTER outputs a 16 msec cycle pulse to inform the data I/O timing to SLAVE. When BUS ON is LOW and SLAVE needs to communicate, SLAVE informs MASTER by setting DATA to LOW. In turn, MASTER sets BUS ON to HIGH and starts communication.

⑥ **BUS ON**

HIGH (5 V) when communication is enabled on BUS.

HIGH when the system is in the WAKE UP mode. Also, HIGH during SLEEP mode when communication is required. MASTER outputs BUS ON. SLAVE exits from the HALT or STOP mode with the onset of BUS ON.

During INITIAL LINK, SLAVE cuts off (LINK OFF) the BUS ON line and disables the communication of the connected SLAVE.

⑦ **POWER (BACK UP)**

Power (12 V) supplied from the battery.

Continuous 2 A.

⑧ **GND**

Power supply and GND for the communication system.

SLAVE Microcomputer

Port	Description
BUS ON	SLAVE must be set to the communication enable condition when the BUS ON port drop to LOW is detected. Communication is enabled when LOW.
DATA IN	Serial DATA input and input for communication timing detection.
DATA OUT	Serial DATA output port.
REQ	Outputs HIGH when requesting communication to MASTER.
CLOCK IN	Serial communication clock input.
LINK OFF	Port to set the BUS ON line of the following connected SLAVE OFF. Turns ON when LOW is output. Turns OFF at HIGH output or HIGH impedance.
BU CHECK	Power supply voltage detection port. SLAVE is determined as cut off from BUS when power supply voltage drop is detected. The MEMBER ADDRESS will be erased.

SECTION 3

DIAGRAMS

3-1. IC DESCRIPTION

IC401 MAIN MICRO-COMPUTER (M37450M8-373FP)

Pin No.	Pin Name	I/O	Description
1			Not used
2	SCL	O	Clock for E ² PROM
3	$\overline{RS}$	O	Reset for DSP IC
4~11	STRB1~8	O	Strobe for DSP IC
12	ON/OFF	O	Power ON/ $\overline{OFF}$
13	$\overline{MUTE(A)}$	O	Analog mute
14	$\overline{MUTE(D)}$	O	Digital mute
15	ROM OE	O	ROM output enable
16	CLOAD	O	Cload for DSP IC
17	B. U CHECK	O	BACK UP CHECK
18	BUS ON	I	BUS ON (For unilink)
19	A16	O	Address 16
20~24			Not used
25	CNVSS		GND
26	$\overline{RESET}$	O	$\overline{RESET}$
27			Not used
28	XOUT	O	External clock output
29	XIN	I	External clock input
30, 31			Not used
32	VSS		GND
33~49	A15~A0		Address 15~0
50~57	PLOAD1~8		Pload for DSP IC
58, 59			Not used
60	S1	I	fs information input
61	S2	I	fs information input
62			Not used
63	$\overline{3/4}$ WAY	I	3 way: Low, 4 way: High
64			Not used
65	FS MUTE	I	Error information
66	VOL (L)	O	Volume L-CH output
67	VOL (R)	O	Volume R-CH output
68	DAV-REF		Vcc
69	ADV-REF		Vcc
70	AVSS		GND
71	AVCC		Vcc
72	VCC		
73	GND		GND
74	LINK OFF	O	Link OFF (For unilink)
75	CLOCK IN	I	Clock IN (For unilink)

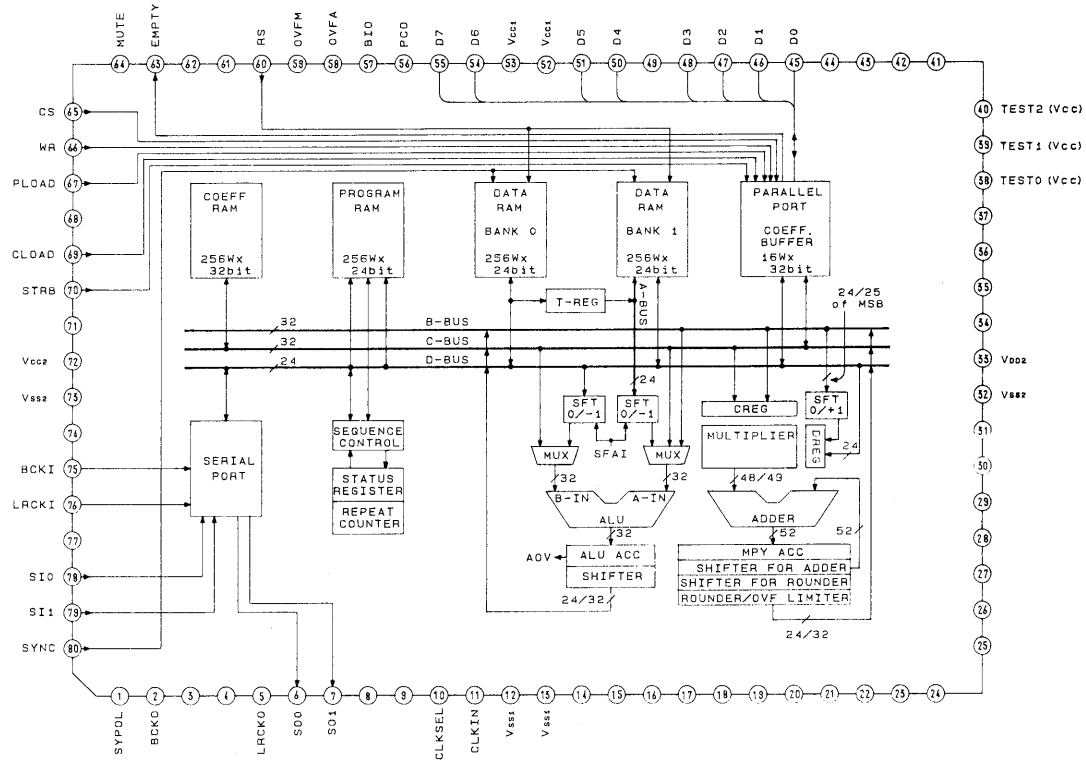
P i n N o .	P i n N a m e	I / O	D e s c r i p t i o n
7 6	D A T A O U T	O	Data OUT (For unilink)
7 7	D A T A I N	I	Data IN (For unilink)
7 8	R E Q U E S T	O	REQ (For unilink)
7 9	S D A	I / O	Data I/O for E ² PROM
8 0			Not used

IC101, 103, 105, 107, IC201, 203, 205, 207 D/A CONVERTER (PCM63P-K)

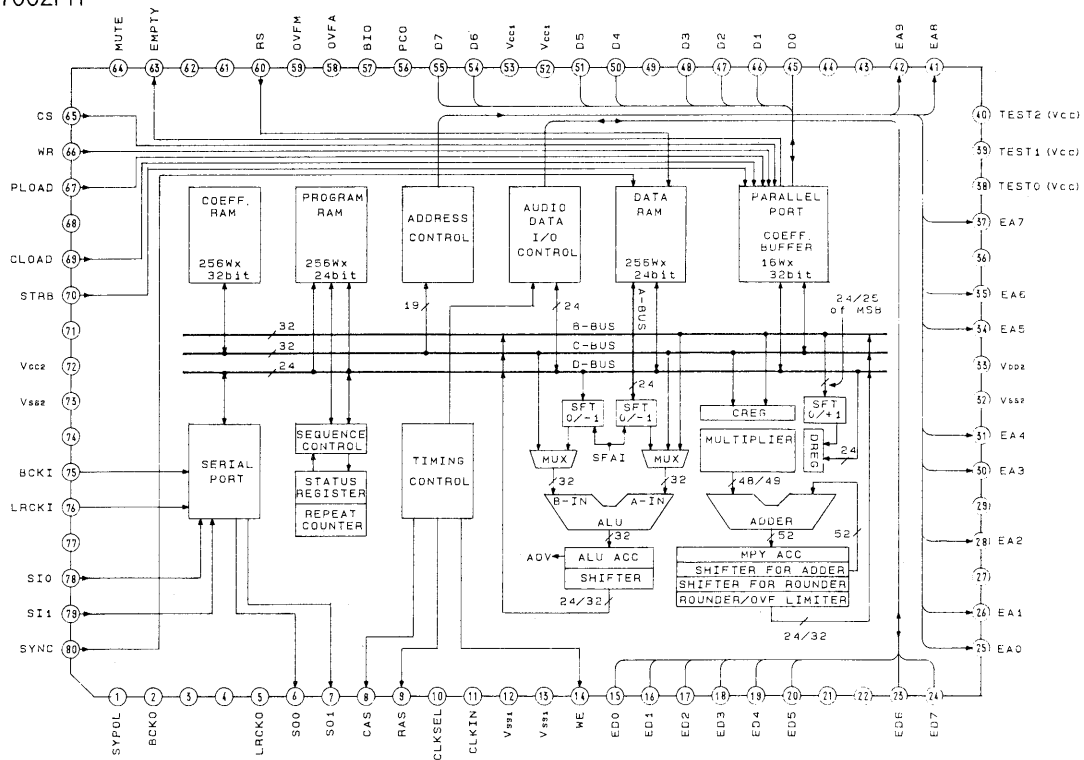
P i n N o .	P i n N a m e	I / O	D e s c r i p t i o n
1	S E R V O D C		Servo filter
2	+ V c c		Analog positive power supply
3	R E F D C		Reference filter
4	B P O D C		Bipolar filter
5	B P O		Bipolar offset
6	I - O U T		Current output
7	A. G N D		Analog common
8	N. C		
9	R F		Feedback resistor
1 0	R F		Feedback resistor
1 1	- V d d		Logic negative power supply
1 2	D. G N D		Digital common
1 3	+ V d d		Logic positive power supply
1 4	N. C		
1 5	N. C		
1 6	N. C		
1 7	N. C		
1 8	C L O C K		CLOCK input
1 9	N. C		
2 0	L. E. C		LEC input
2 1	D A T A		DATA input
2 2	N. C		
2 3	b i t 2 B A D J		Bit 2B adjustment terminal
2 4	b i t 2 A A D J		Bit 2A adjustment terminal
2 5	V p o t		Potentiometer terminal
2 6	N. C		
2 7	N. C		
2 8	- V c c		Analog negative power supply

3-2. IC BLOCK DIAGRAMS

- C301~305
TMS57001PH

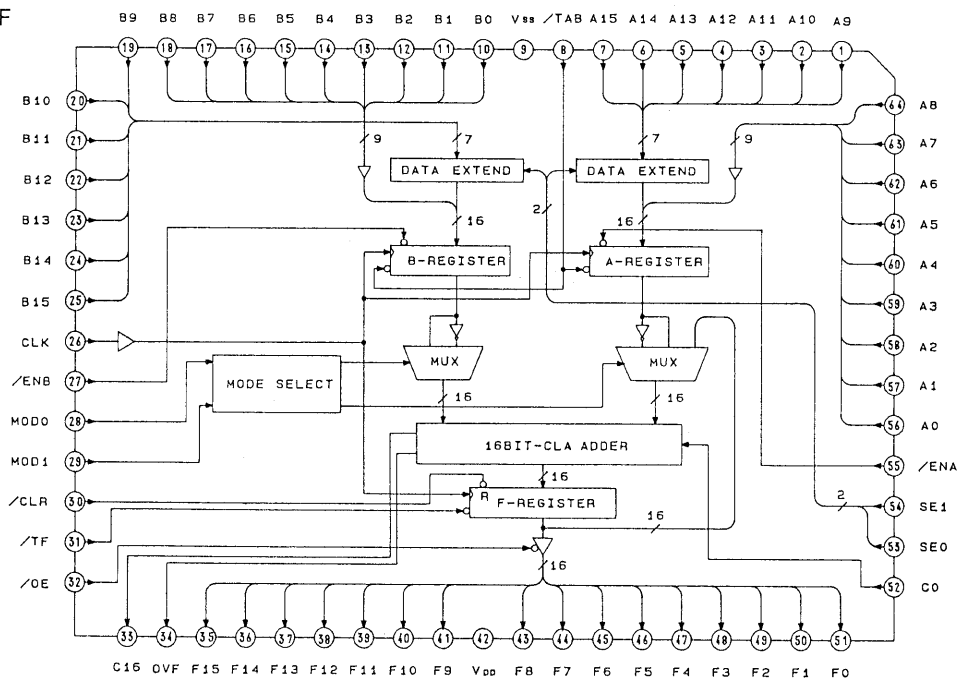


- IC306~308
TMS57002PH



• IC321~322

SM5833AF

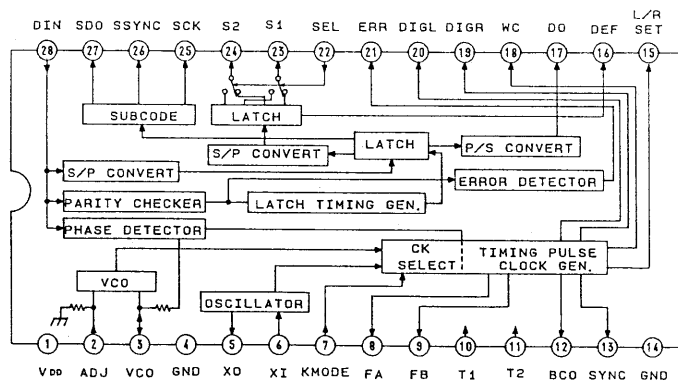
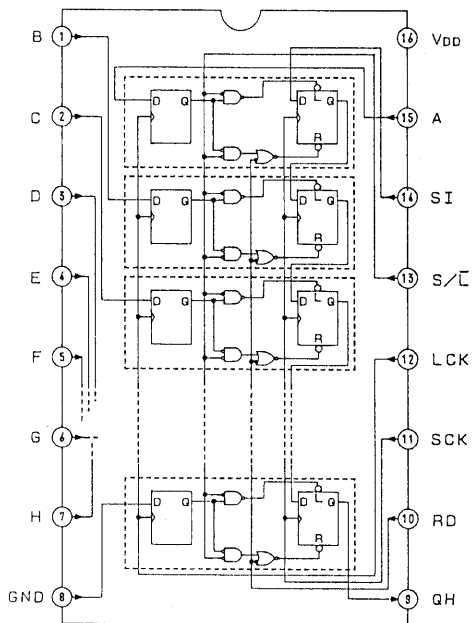


• IC312

YM3623B

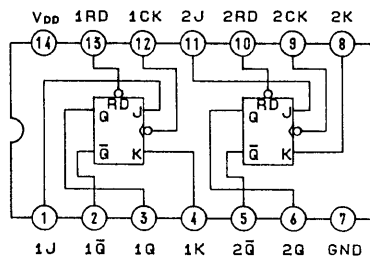
• IC317,318

TC74HC597AF



IC311

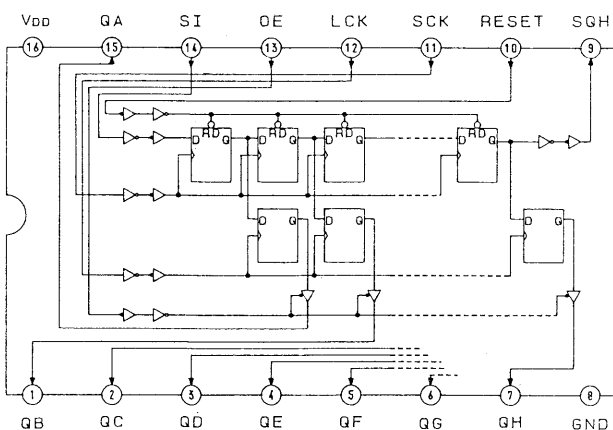
SN74HC107NS



• IC319,320

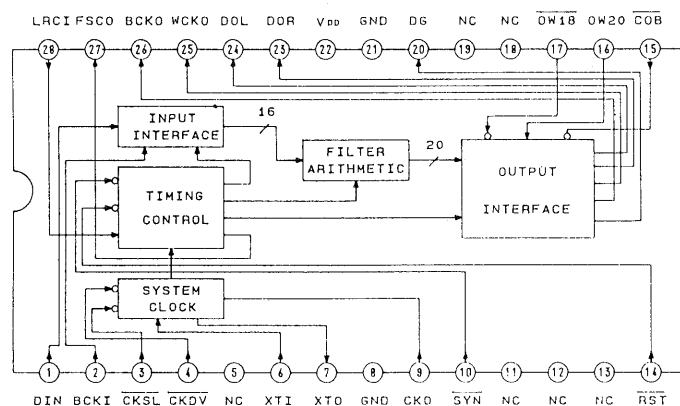
IC323~326

TC74HC595AF



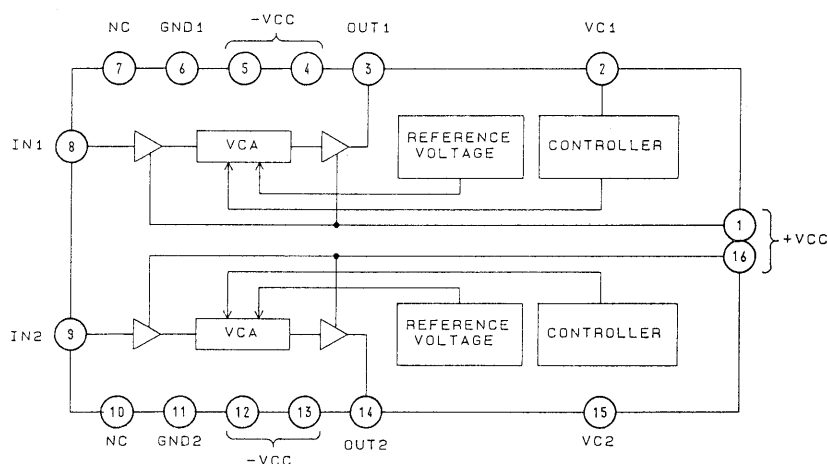
• IC330~333

SM5813APT



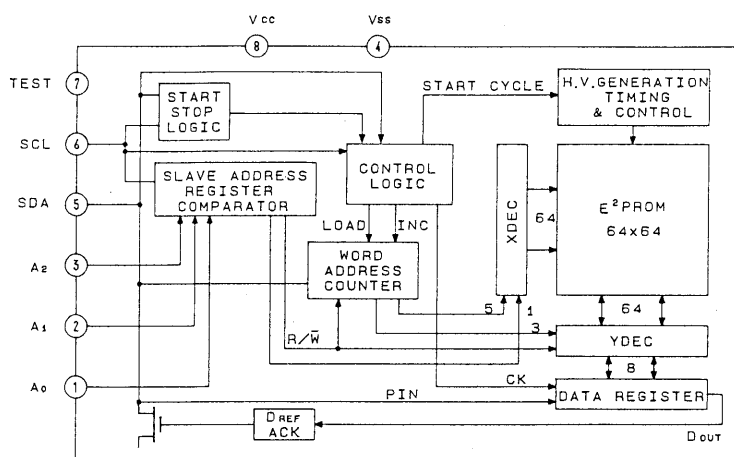
• IC334~337

M5283P



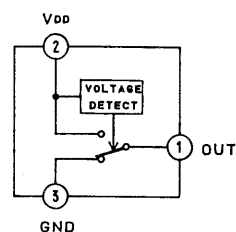
• IC403

X24C04PI



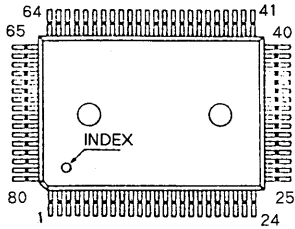
• IC404

S-8054HN

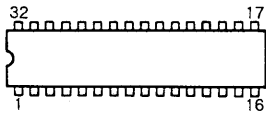


3-3. SEMICONDUCTOR LEAD LAYOUTS

TMC57001PH
TMS57002PH
M37450M8-393FP

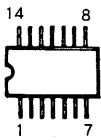


MSM531001A-BORS



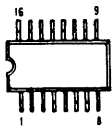
(TOP VIEW)

TC74HCU04AF
MC74HC00AF
SN74HC04NS
SN74HC04AN
SN74HC32N
SN74HC107NS



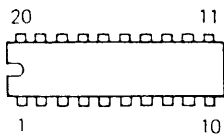
(TOP VIEW)

TC74HC595AF
TC74HC597AF



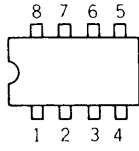
(TOP VIEW)

MSM514256AP-80RS-B



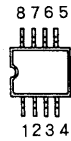
(TOP VIEW)

X24C04PI
AD712JN



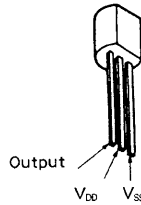
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LM2903M

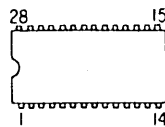


(TOP VIEW)

S-8054HN

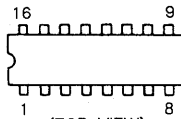


YM3623B
PCM63P-K
SM5813APT



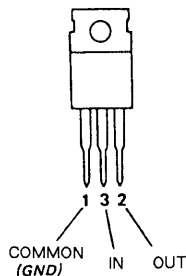
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M5283P

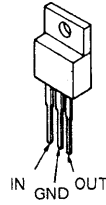


(TOP VIEW)

RC79M05FA
RC79M15FA



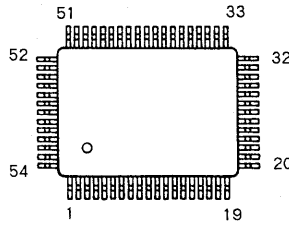
RC7805FA
RC78M05FA
RC78M15FA



LM2931Z-510

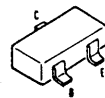


SM5833AF

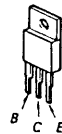


(TOP VIEW)

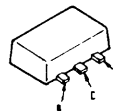
2SA1162-YG
2SC1162-YG
DTA124EK



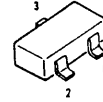
2SB1133-S



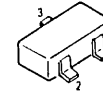
2SD1622-S



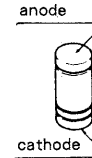
MA152WK



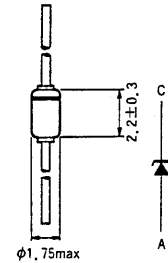
IS2836



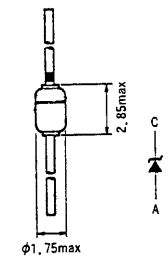
RLS-4148



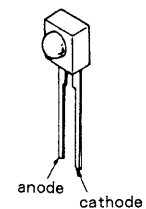
RLZ-J6.2B

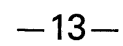


RLZ-J15A



LN35GCP



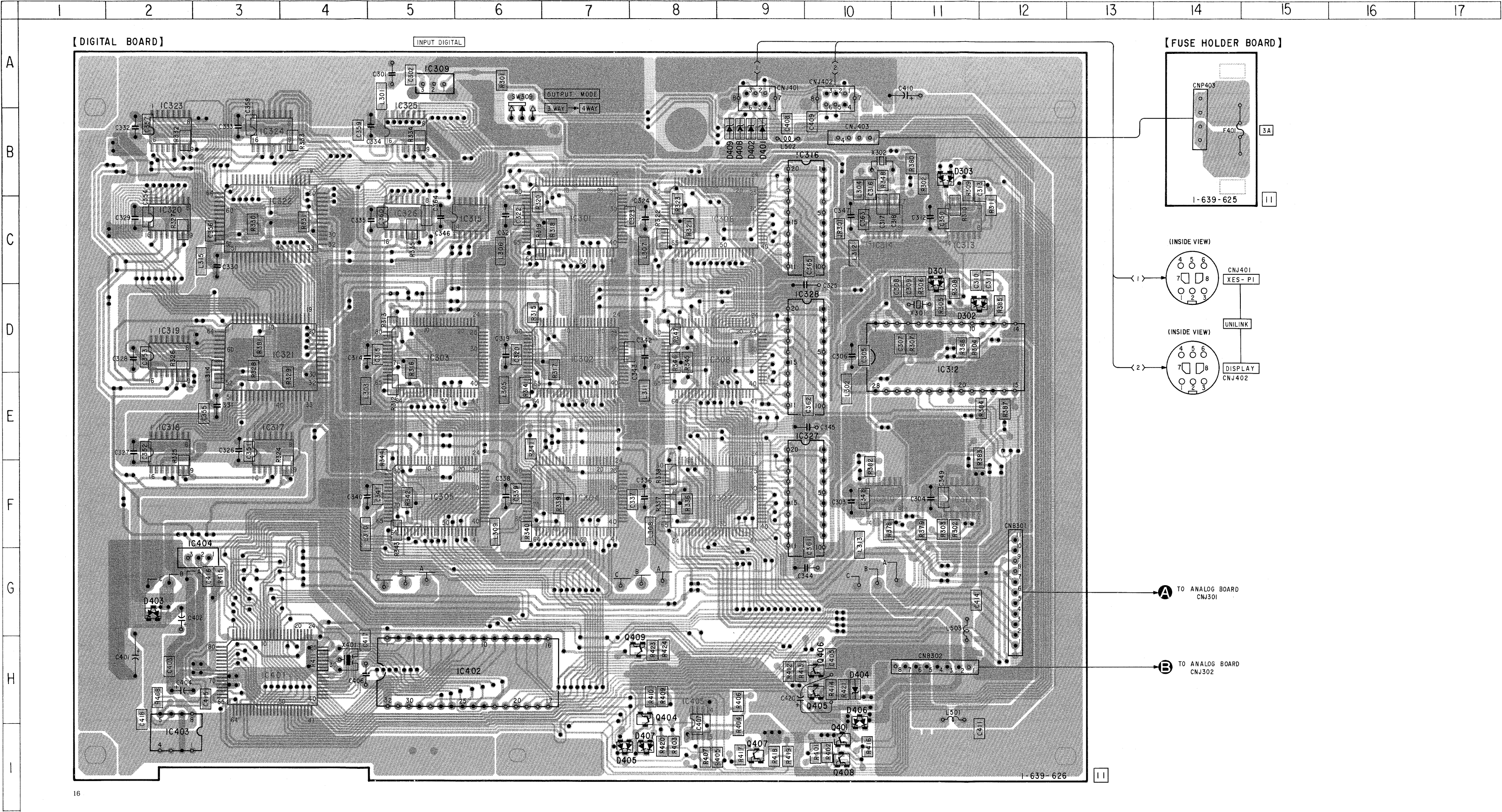


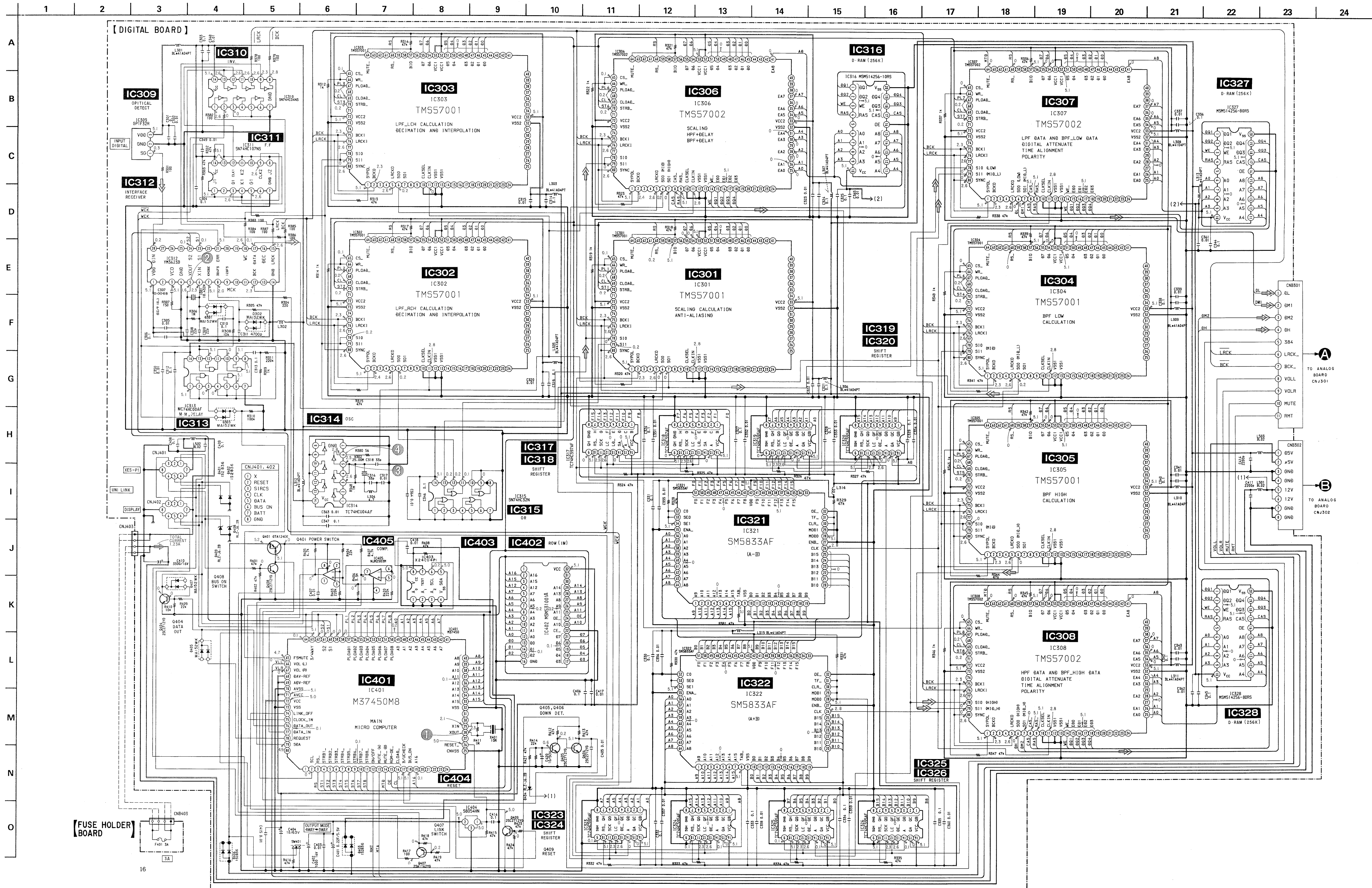
• Semiconductor Location

Ref. No.	Location
D301	D-11
D302	D-12
D303	B-11
D401	B-9
D402	B-9
D403	G-2
D404	H-10
D405	I-7
D406	H-10
D407	I-8
D408	B-9
D409	B-9
IC301	C-7
IC302	D-7
IC303	D-5
IC304	F-7
IC305	F-5
IC306	C-9
IC307	F-9
IC308	D-9
IC309	A-5
IC310	F-10
IC311	F-11
IC312	D-11
IC313	C-11
IC314	C-10
IC315	C-6
IC316	C-10
IC317	E-3
IC318	F-2
IC319	D-2
IC320	C-2
IC321	D-3
IC322	C-3
IC323	B-2
IC324	B-3
IC325	B-5
IC326	C-5
IC327	F-10
IC328	D-10
IC401	H-3
IC402	H-6
IC403	I-2
IC404	G-3
IC405	I-8
Q401	I-10
Q404	H-8
Q405	H-10
Q406	H-10
Q407	I-9
Q408	I-10
Q409	H-8

Note on Mounting Diagram :

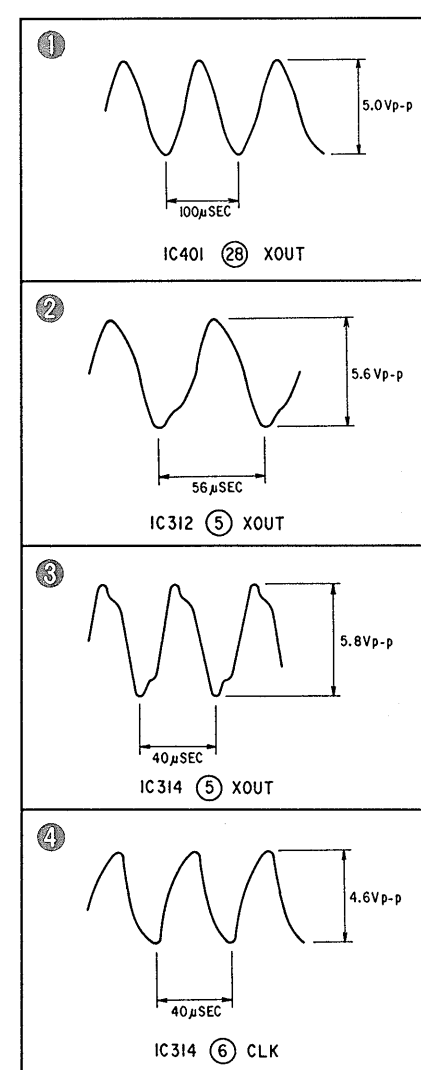
- : Parts extracted from the component side.
- : Through hole.
- ▨ : Pattern on the side which is seen.
- ▩ : Pattern of the rear side.
- : Chip components extracted from the rear side.

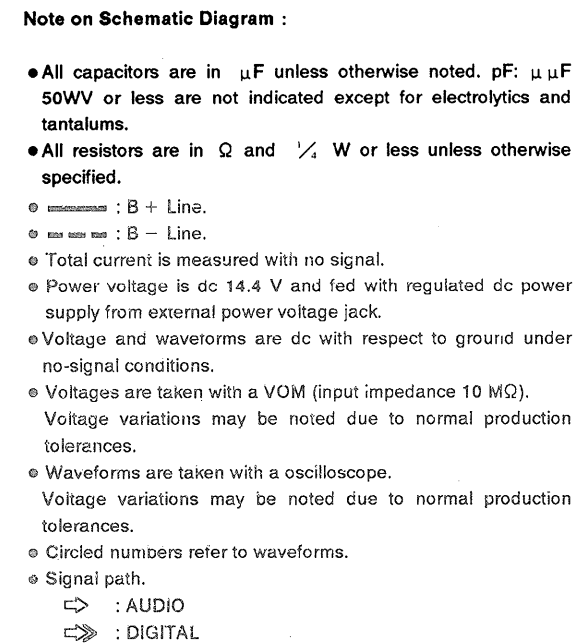




Note on Schematic Diagram :

- All capacitors are in μF unless otherwise noted. pF: μF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and W or less unless otherwise specified.
- $\text{B} +$ Line.
- $\text{B} -$ Line.
- Total current is measured with no signal.
- Power voltage is dc 14.4 V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (input impedance 10 M Ω). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
- AUDIO
- DIGITAL





SECTION 4

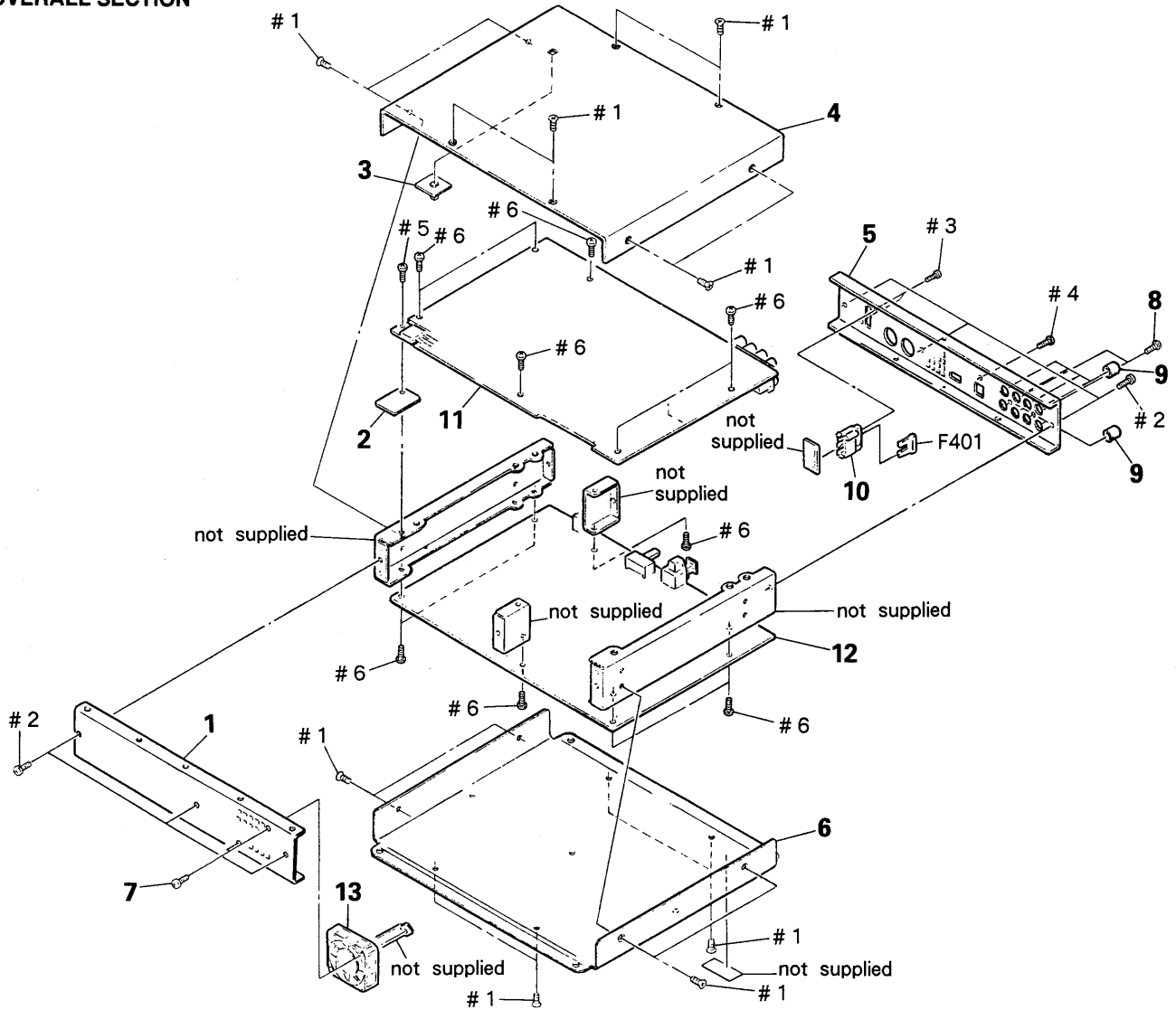
- - XX, - X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
Example:
KNOB, BALANCE (WHITE)...(RED)

↑
Parts color

↑
Cabinet's color

- | |
|---|
| <p>The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.</p> |
| <p>Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spéci-fie.</p> |

OVERALL SECTION



<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>
1	* 3-366-464-11	PANEL (F)		8	7-621-849-00	SCREW, TAPPING, (3X8)	
2	* 3-372-796-01	HEAT SINK (IC)		9	3-355-210-01	COVER, PIN JACK	
3	* 3-366-469-01	INDICATOR (POWER)		10	1-533-226-11	HOLDER, FUSE (BRAID)	
4	* 3-366-462-11	CASE (UPPER)		11	* A-3273-467-A	MOUNTED PCB (B), ANALOG	
5	* 3-366-471-01	PANEL (B)		12	* A-3273-465-A	MOUNTED PCB (B), DIGITAL	
6	* 3-366-463-01	CASE (LOWER)		13	1-541-869-11	MOTOR (FAN)	
7	3-372-144-01	SCREW +PS 2.6X16		F401	1-532-731-11	FUSE (BRADE TYPE) (AUTO FUSE) (3A)	

SECTION 5

ELECTRICAL PARTS LIST

FUSE HOLDER

ANALOG

NOTE :

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- - XX, - X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms.
METAL: metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
In each case, u: μ , for example:
uA...: μ A..., uPA..., μ PA...,
uPB..., μ PB..., uPC..., μ PC...,
uPD..., μ PD...
- CAPACITORS:
uF: μ F
- COILS
uH: μ H

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
		FUSE HOLDER BOARD					

		1-533-226-11 HOLDER, FUSE (BRAID)					
F401	1-532-731-11	FUSE(BRADE TYPE) (AUTO FUSE) (3A)		C126	1-130-495-00 MYLAR	0.1uF 5% 50V	
		*****		C127	1-124-910-11 ELECT	47uF 20% 50V	
		* A-3273-467-A MOUNTED PCB (B), ANALOG		C128	1-130-495-00 MYLAR	0.1uF 5% 50V	
		*****		C129	1-124-910-11 ELECT	47uF 20% 50V	
		< CAPACITOR >		C130	1-130-495-00 MYLAR	0.1uF 5% 50V	
C101	1-124-915-11	ELECT 10uF 20% 63V		C131	1-124-915-11 ELECT	10uF 20% 63V	
C102	1-126-101-11	ELECT 100uF 20% 16V		C132	1-126-101-11 ELECT	100uF 20% 16V	
C103	1-124-915-11	ELECT 10uF 20% 63V		C133	1-124-915-11 ELECT	10uF 20% 63V	
C104	1-126-101-11	ELECT 100uF 20% 16V		C134	1-126-101-11 ELECT	100uF 20% 16V	
C105	1-126-101-11	ELECT 100uF 20% 16V		C135	1-126-101-11 ELECT	100uF 20% 16V	
C106	1-124-915-11	ELECT 10uF 20% 63V		C136	1-124-915-11 ELECT	10uF 20% 63V	
C107	1-124-915-11	ELECT 10uF 20% 63V		C137	1-124-915-11 ELECT	10uF 20% 63V	
C108	1-130-495-00	MYLAR 0.1uF 5% 50V		C138	1-130-495-00 MYLAR	0.1uF 5% 50V	
C109	1-130-495-00	MYLAR 0.1uF 5% 50V		C139	1-130-495-00 MYLAR	0.1uF 5% 50V	
C110	1-106-351-00	MYLAR 2200PF 5% 200V		C140	1-106-351-00 MYLAR	2200PF 5% 200V	
C111	1-106-343-00	MYLAR 1000PF 5% 200V		C141	1-106-343-00 MYLAR	1000PF 5% 200V	
C112	1-124-910-11	ELECT 47uF 20% 50V		C142	1-124-910-11 ELECT	47uF 20% 50V	
C113	1-130-495-00	MYLAR 0.1uF 5% 50V		C143	1-130-495-00 MYLAR	0.1uF 5% 50V	
C114	1-124-910-11	ELECT 47uF 20% 50V		C144	1-124-910-11 ELECT	47uF 20% 50V	
C115	1-130-495-00	MYLAR 0.1uF 5% 50V		C145	1-130-495-00 MYLAR	0.1uF 5% 50V	
C116	1-124-915-11	ELECT 10uF 20% 63V		C146	1-124-915-11 ELECT	10uF 20% 63V	
C117	1-126-101-11	ELECT 100uF 20% 16V		C147	1-126-101-11 ELECT	100uF 20% 16V	
C118	1-124-915-11	ELECT 10uF 20% 63V		C148	1-124-915-11 ELECT	10uF 20% 63V	
C119	1-126-101-11	ELECT 100uF 20% 16V		C149	1-126-101-11 ELECT	100uF 20% 16V	
C120	1-126-101-11	ELECT 100uF 20% 16V		C150	1-126-101-11 ELECT	100uF 20% 16V	
C121	1-124-915-11	ELECT 10uF 20% 63V		C151	1-124-915-11 ELECT	10uF 20% 63V	
C122	1-124-915-11	ELECT 10uF 20% 63V		C152	1-124-915-11 ELECT	10uF 20% 63V	
C123	1-130-495-00	MYLAR 0.1uF 5% 50V		C153	1-130-495-00 MYLAR	0.1uF 5% 50V	
C124	1-106-351-00	MYLAR 2200PF 5% 200V		C154	1-130-493-00 MYLAR	0.068uF 5% 50V	
C125	1-106-343-00	MYLAR 1000PF 5% 200V		C155	1-130-489-00 MYLAR	0.033uF 5% 50V	
				C156	1-130-495-00 MYLAR	0.1uF 5% 50V	
				C157	1-124-910-11 ELECT	47uF 20% 50V	
				C158	1-130-495-00 MYLAR	0.1uF 5% 50V	
				C159	1-124-910-11 ELECT	47uF 20% 50V	
				C160	1-130-495-00 MYLAR	0.1uF 5% 50V	

ANALOG

Ref. No.	Part No.	Description		Remarks
C161	1-130-467-00 MYLAR	470PF	5%	50V
C162	1-130-467-00 MYLAR	470PF	5%	50V
C163	1-130-467-00 MYLAR	470PF	5%	50V
C164	1-130-489-00 MYLAR	0.033uF	5%	50V
C165	1-163-199-00 CERAMIC CHIP	560PF	5%	50V
C166	1-163-199-00 CERAMIC CHIP	560PF	5%	50V
C167	1-163-199-00 CERAMIC CHIP	560PF	5%	50V
C168	1-163-199-00 CERAMIC CHIP	560PF	5%	50V
C201	1-124-915-11 ELECT	10uF	20%	63V
C202	1-126-101-11 ELECT	100uF	20%	16V
C203	1-124-915-11 ELECT	10uF	20%	63V
C204	1-126-101-11 ELECT	100uF	20%	16V
C205	1-126-101-11 ELECT	100uF	20%	16V
C206	1-124-915-11 ELECT	10uF	20%	63V
C207	1-124-915-11 ELECT	10uF	20%	63V
C208	1-130-495-00 MYLAR	0.1uF	5%	50V
C209	1-130-495-00 MYLAR	0.1uF	5%	50V
C210	1-106-351-00 MYLAR	2200PF	5%	200V
C211	1-106-343-00 MYLAR	1000PF	5%	200V
C212	1-124-910-11 ELECT	47uF	20%	50V
C213	1-130-495-00 MYLAR	0.1uF	5%	50V
C214	1-124-910-11 ELECT	47uF	20%	50V
C215	1-130-495-00 MYLAR	0.1uF	5%	50V
C216	1-124-915-11 ELECT	10uF	20%	63V
C217	1-126-101-11 ELECT	100uF	20%	16V
C218	1-124-915-11 ELECT	10uF	20%	63V
C219	1-126-101-11 ELECT	100uF	20%	16V
C220	1-126-101-11 ELECT	100uF	20%	16V
C221	1-124-915-11 ELECT	10uF	20%	63V
C222	1-124-915-11 ELECT	10uF	20%	63V
C223	1-130-495-00 MYLAR	0.1uF	5%	50V
C224	1-106-351-00 MYLAR	2200PF	5%	200V
C225	1-106-343-00 MYLAR	1000PF	5%	200V
C226	1-130-495-00 MYLAR	0.1uF	5%	50V
C227	1-124-910-11 ELECT	47uF	20%	50V
C228	1-130-495-00 MYLAR	0.1uF	5%	50V
C229	1-124-910-11 ELECT	47uF	20%	50V
C230	1-130-495-00 MYLAR	0.1uF	5%	50V
C231	1-124-915-11 ELECT	10uF	20%	63V
C232	1-126-101-11 ELECT	100uF	20%	16V
C233	1-124-915-11 ELECT	10uF	20%	63V
C234	1-126-101-11 ELECT	100uF	20%	16V
C235	1-126-101-11 ELECT	100uF	20%	16V
C236	1-124-915-11 ELECT	10uF	20%	63V
C237	1-124-915-11 ELECT	10uF	20%	63V
C238	1-130-495-00 MYLAR	0.1uF	5%	50V

Ref. No.	Part No.	Description		Remarks
C239	1-130-495-00 MYLAR	0.1uF	5%	50V
C240	1-106-351-00 MYLAR	2200PF	5%	200V
C241	1-106-343-00 MYLAR	1000PF	5%	200V
C242	1-124-910-11 ELECT	47uF	20%	50V
C243	1-130-495-00 MYLAR	0.1uF	5%	50V
C244	1-124-910-11 ELECT	47uF	20%	50V
C245	1-130-495-00 MYLAR	0.1uF	5%	50V
C246	1-124-915-11 ELECT	10uF	20%	63V
C247	1-126-101-11 ELECT	100uF	20%	16V
C248	1-124-915-11 ELECT	10uF	20%	63V
C249	1-126-101-11 ELECT	100uF	20%	16V
C250	1-126-101-11 ELECT	100uF	20%	16V
C251	1-124-915-11 ELECT	10uF	20%	63V
C252	1-124-915-11 ELECT	10uF	20%	63V
C253	1-130-495-00 MYLAR	0.1uF	5%	50V
C254	1-130-493-00 MYLAR	0.068uF	5%	50V
C255	1-130-489-00 MYLAR	0.033uF	5%	50V
C256	1-130-495-00 MYLAR	0.1uF	5%	50V
C257	1-124-910-11 ELECT	47uF	20%	50V
C258	1-130-495-00 MYLAR	0.1uF	5%	50V
C259	1-124-910-11 ELECT	47uF	20%	50V
C260	1-130-495-00 MYLAR	0.1uF	5%	50V
C261	1-130-467-00 MYLAR	470PF	5%	50V
C262	1-130-467-00 MYLAR	470PF	5%	50V
C263	1-130-467-00 MYLAR	470PF	5%	50V
C264	1-130-489-00 MYLAR	0.033uF	5%	50V
C265	1-163-199-00 CERAMIC CHIP	560PF	5%	50V
C266	1-163-199-00 CERAMIC CHIP	560PF	5%	50V
C267	1-163-199-00 CERAMIC CHIP	560PF	5%	50V
C268	1-163-199-00 CERAMIC CHIP	560PF	5%	50V
C366	1-136-165-00 FILM	0.1uF	5%	50V
C367	1-136-165-00 FILM	0.1uF	5%	50V
C368	1-136-165-00 FILM	0.1uF	5%	50V
C369	1-136-165-00 FILM	0.1uF	5%	50V
C370	1-136-165-00 FILM	0.1uF	5%	50V
C371	1-163-059-00 CERAMIC CHIP	0.01uF	10%	50V
C372	1-163-059-00 CERAMIC CHIP	0.01uF	10%	50V
C373	1-163-059-00 CERAMIC CHIP	0.01uF	10%	50V
C374	1-163-059-00 CERAMIC CHIP	0.01uF	10%	50V
C375	1-163-063-00 CERAMIC CHIP	0.022uF	10%	50V
C376	1-163-063-00 CERAMIC CHIP	0.022uF	10%	50V
C377	1-163-063-00 CERAMIC CHIP	0.022uF	10%	50V
C378	1-163-063-00 CERAMIC CHIP	0.022uF	10%	50V
C379	1-163-063-00 CERAMIC CHIP	0.022uF	10%	50V
C380	1-163-059-00 CERAMIC CHIP	0.01uF	10%	50V

ANALOG

Ref. No.	Part No.	Description	Remarks
C381	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C382	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C383	1-126-157-11	ELECT 10uF 20% 16V	
C384	1-126-157-11	ELECT 10uF 20% 16V	
C385	1-164-085-11	CERAMIC 0.001uF 10% 50V	
C501	1-124-915-11	ELECT 10uF 20% 63V	
C502	1-124-915-11	ELECT 10uF 20% 63V	
C503	1-124-915-11	ELECT 10uF 20% 63V	
C504	1-124-915-11	ELECT 10uF 20% 63V	
C505	1-126-013-11	ELECT 1000uF 20% 16V	
C506	1-124-913-11	ELECT 470uF 20% 50V	
C507	1-124-915-11	ELECT 10uF 20% 63V	
C508	1-124-913-11	ELECT 470uF 20% 50V	
C509	1-124-915-11	ELECT 10uF 20% 63V	
C510	1-124-913-11	ELECT 470uF 20% 50V	
C511	1-124-915-11	ELECT 10uF 20% 63V	
C512	1-124-913-11	ELECT 470uF 20% 50V	
C513	1-124-915-11	ELECT 10uF 20% 63V	
C514	1-124-915-11	ELECT 10uF 20% 63V	
C515	1-126-013-11	ELECT 1000uF 20% 16V	
C516	1-124-910-11	ELECT 47uF 20% 50V	
C517	1-163-213-00	CERAMIC CHIP 0.0022uF 5% 50V	

< CONNECTOR >

CNJ301 *	1-564-514-11	PLUG, CONNECTOR 11P
CNJ302 *	1-564-511-11	PLUG, CONNECTOR 8P
CNJ303	1-573-286-11	JACK, PIN 4P (OUTPUT:HIGH/HIGH MID)
CNJ304	1-573-286-11	JACK, PIN 4P (OUTPUT:LOW/LOW MID)
CNJ305 *	1-506-984-11	PIN, CONNECTOR (PC BOARD) 2P

< DIODE >

D304	8-719-976-19	DIODE RLS-4148
D305	8-719-976-19	DIODE RLS-4148
D306	8-719-976-19	DIODE RLS-4148
D307	8-719-976-19	DIODE RLS-4148
D501	8-719-973-68	DIODE RLZ-J15A
D502	8-719-976-19	DIODE RLS-4148
D503	8-719-421-07	DIODE LN35GCP (POWER)

< CONVERTER DC-DC >

DD301	1-466-527-11	CONVERTER UINT, DC-DC
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Ref. No.	Part No.	Description	Remarks
< IC >			
IC101	8-759-510-35	IC PCM63P-K	
IC102	8-759-971-80	IC AD712JN	
IC103	8-759-510-35	IC PCM63P-K	
IC104	8-759-971-80	IC AD712JN	
IC105	8-759-510-35	IC PCM63P-K	
IC106	8-759-971-80	IC AD712JN	
IC107	8-759-510-35	IC PCM63P-K	
IC108	8-759-971-80	IC AD712JN	
IC201	8-759-510-35	IC PCM63P-K	
IC202	8-759-971-80	IC AD712JN	
IC203	8-759-510-35	IC PCM63P-K	
IC204	8-759-971-80	IC AD712JN	
IC205	8-759-510-35	IC PCM63P-K	
IC206	8-759-971-80	IC AD712JN	
IC207	8-759-510-35	IC PCM63P-K	
IC208	8-759-971-80	IC AD712JN	
IC329	8-759-916-14	IC SN74HC04AN	
IC330	8-759-999-32	IC SM5813APT	
IC331	8-759-999-32	IC SM5813APT	
IC332	8-759-999-32	IC SM5813APT	
IC333	8-759-999-32	IC SM5813APT	
IC334	8-759-635-26	IC M5283P	
IC335	8-759-635-26	IC M5283P	
IC336	8-759-635-26	IC M5283P	
IC337	8-759-635-26	IC M5283P	
IC501	8-759-979-68	IC LM2931Z-5.0	
IC502	8-759-982-58	IC RC79M15FA	
IC503	8-759-982-52	IC RC79M05FA	
IC504	8-759-982-31	IC RC78M05FA	
IC505	8-759-982-36	IC RC78M15FA	
IC506	8-759-982-05	IC RC7805FA	
< JUMPER RESISTOR >			
JR303	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR304	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR305	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR306	1-216-296-00	METAL CHIP 0 5% 1/8W	
< COIL >			
L504	1-410-397-21	FERRITE BEAD INDUCTOR	
L505	1-410-397-21	FERRITE BEAD INDUCTOR	

ANALOG

Ref. No.	Part No.	Description	Remarks
< TRANSISTOR >			
Q301	8-729-808-01	TRANSISTOR 2SD1622-S	
Q501	8-729-804-68	TRANSISTOR 2SB1133-S	
Q502	8-729-901-05	TRANSISTOR DTA124EK	
Q503	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q504	8-729-804-68	TRANSISTOR 2SB1133-S	
Q505	8-729-901-00	TRANSISTOR DTC124EK	
< RESISTOR >			
R101	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R102	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R103	1-260-002-11	CARBON MELF 3.3K 1% 1/8W	
R104	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R105	1-260-008-11	CARBON MELF 10K 1% 1/8W	
R106	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R107	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R108	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R109	1-260-002-11	CARBON MELF 3.3K 1% 1/8W	
R110	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R111	1-260-008-11	CARBON MELF 10K 1% 1/8W	
R112	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R113	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R114	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R115	1-260-002-11	CARBON MELF 3.3K 1% 1/8W	
R116	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R117	1-260-008-11	CARBON MELF 10K 1% 1/8W	
R118	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R119	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R120	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R121	1-260-002-11	CARBON MELF 3.3K 1% 1/8W	
R122	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R123	1-260-008-11	CARBON MELF 10K 1% 1/8W	
R124	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R201	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R202	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R203	1-260-002-11	CARBON MELF 3.3K 1% 1/8W	
R204	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R205	1-260-008-11	CARBON MELF 10K 1% 1/8W	
R206	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R207	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R208	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R209	1-260-002-11	CARBON MELF 3.3K 1% 1/8W	
R210	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R211	1-260-008-11	CARBON MELF 10K 1% 1/8W	
R212	1-259-995-11	CARBON MELF 1K 1% 1/8W	

Ref. No.	Part No.	Description	Remarks
R213	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R214	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R215	1-260-002-11	CARBON MELF 3.3K 1% 1/8W	
R216	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R217	1-260-008-11	CARBON MELF 10K 1% 1/8W	
R218	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R219	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R220	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R221	1-260-002-11	CARBON MELF 3.3K 1% 1/8W	
R222	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R223	1-260-008-11	CARBON MELF 10K 1% 1/8W	
R224	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R349	1-259-983-11	CARBON MELF 100 1% 1/8W	
R350	1-259-983-11	CARBON MELF 100 1% 1/8W	
R351	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R352	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R353	1-259-992-11	CARBON MELF 560 1% 1/8W	
R354	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R355	1-216-182-00	CARBON MELF 220 1% 1/8W	
R356	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R357	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R358	1-259-992-11	CARBON MELF 560 1% 1/8W	
R359	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R360	1-216-182-00	CARBON MELF 220 1% 1/8W	
R361	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R362	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R363	1-259-992-11	CARBON MELF 560 1% 1/8W	
R364	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R365	1-216-182-00	CARBON MELF 220 1% 1/8W	
R366	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R367	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R368	1-259-992-11	CARBON MELF 560 1% 1/8W	
R369	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R370	1-216-182-00	CARBON MELF 220 1% 1/8W	
R371	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R372	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R373	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R374	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R375	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R376	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R377	1-216-182-00	CARBON MELF 220 1% 1/8W	
R389	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R501	1-260-004-11	CARBON MELF 4.7K 1% 1/8W	
R502	1-259-985-11	CARBON MELF 150 1% 1/8W	
R503	1-259-985-11	CARBON MELF 150 1% 1/8W	

ANALOG

DIGITAL

Ref. No.	Part No.	Description	Remarks
R504	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R505	1-260-012-11	CARBON MELF 22K 1% 1/8W	
R506	1-259-997-11	CARBON MELF 1.5K 1% 1/8W	
R507	1-259-985-11	CARBON MELF 150 1% 1/8W	
R508	1-259-985-11	CARBON MELF 150 1% 1/8W	
R509	1-259-985-11	CARBON MELF 150 1% 1/8W	
R510	1-259-985-11	CARBON MELF 150 1% 1/8W	
R511	1-260-004-11	CARBON MELF 4.7K 1% 1/8W	
R512	1-259-997-11	CARBON MELF 1.5K 1% 1/8W	

< RELAY >

RY301	1-515-683-11	RELAY	
RY302	1-515-683-11	RELAY	
RY303	1-515-683-11	RELAY	
RY304	1-515-683-11	RELAY	

* A-3273-465-A MOUNTED PCB (B), DIGITAL

< CAPACITOR >

C301	1-136-165-00	FILM 0.1uF 5% 50V	
C302	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C303	1-136-165-00	FILM 0.1uF 5% 50V	
C304	1-136-165-00	FILM 0.1uF 5% 50V	
C305	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C306	1-136-165-00	FILM 0.1uF 5% 50V	
C307	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C308	1-163-165-00	CERAMIC CHIP 22PF 5% 50V	
C309	1-163-165-00	CERAMIC CHIP 22PF 5% 50V	
C310	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C311	1-162-625-11	CERAMIC CHIP 0.0047uF 5% 50V	
C312	1-136-165-00	FILM 0.1uF 5% 50V	
C313	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C314	1-136-165-00	FILM 0.1uF 5% 50V	
C315	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C316	1-163-169-00	CERAMIC CHIP 33PF 5% 50V	
C317	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C318	1-163-169-00	CERAMIC CHIP 33PF 5% 50V	
C319	1-136-165-00	FILM 0.1uF 5% 50V	
C320	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	

Ref. No.	Part No.	Description	Remarks
C321	1-136-165-00	FILM 0.1uF 5% 50V	
C322	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C323	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C324	1-136-165-00	FILM 0.1uF 5% 50V	
C325	1-136-165-00	FILM 0.1uF 5% 50V	
C326	1-136-165-00	FILM 0.1uF 5% 50V	
C327	1-136-165-00	FILM 0.1uF 5% 50V	
C328	1-136-165-00	FILM 0.1uF 5% 50V	
C329	1-136-165-00	FILM 0.1uF 5% 50V	
C330	1-136-165-00	FILM 0.1uF 5% 50V	
C331	1-136-165-00	FILM 0.1uF 5% 50V	
C332	1-136-165-00	FILM 0.1uF 5% 50V	
C333	1-136-165-00	FILM 0.1uF 5% 50V	
C334	1-136-165-00	FILM 0.1uF 5% 50V	
C335	1-136-165-00	FILM 0.1uF 5% 50V	
C336	1-136-165-00	FILM 0.1uF 5% 50V	
C337	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C338	1-136-165-00	FILM 0.1uF 5% 50V	
C339	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C340	1-136-165-00	FILM 0.1uF 5% 50V	
C341	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C342	1-136-165-00	FILM 0.1uF 5% 50V	
C343	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C344	1-136-165-00	FILM 0.1uF 5% 50V	
C345	1-136-165-00	FILM 0.1uF 5% 50V	
C346	1-136-165-00	FILM 0.1uF 5% 50V	
C347	1-136-165-00	FILM 0.1uF 5% 50V	
C348	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C349	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C350	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C351	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C352	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C353	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C354	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C355	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C356	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C357	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C358	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C359	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C360	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C361	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C362	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C363	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C364	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C365	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	

DIGITAL

Ref. No.	Part No.	Description	Remarks
C401	1-125-486-11	DUBLE LAYERS 0.22F	5.5V
C402	1-126-013-11	ELECT 1000uF	20% 16V
C403	1-163-059-00	CERAMIC CHIP 0.01uF	10% 50V
C404	1-124-915-11	ELECT 10uF	20% 63V
C405	1-163-059-00	CERAMIC CHIP 0.01uF	10% 50V
C406	1-136-165-00	FILM 0.1uF	5% 50V
C407	1-163-059-00	CERAMIC CHIP 0.01uF	10% 50V
C408	1-163-077-00	CERAMIC CHIP 0.1uF	10% 25V
C409	1-163-077-00	CERAMIC CHIP 0.1uF	10% 25V
C410	1-126-015-11	ELECT 3300uF	20% 16V
C411	1-163-213-00	CERAMIC CHIP 0.0022uF	5% 50V
C414	1-163-213-00	CERAMIC CHIP 0.0022uF	5% 50V
C415	1-163-059-00	CERAMIC CHIP 0.01uF	10% 50V
C416	1-163-077-00	CERAMIC CHIP 0.1uF	10% 25V
C417	1-163-059-00	CERAMIC CHIP 0.01uF	10% 50V
C418	1-163-059-00	CERAMIC CHIP 0.01uF	10% 50V
C420	1-126-157-11	ELECT 10uF	20% 16V
< CONNECTOR >			
CNJ401	1-580-907-11	PLUG, CONNECTOR (UNI LINK XES-P1)	
CNJ402	1-580-907-11	PLUG, CONNECTOR (UNI LINK DISPLAY)	
CNJ403 *	1-564-507-11	PLUG, CONNECTOR 4P	
< DIODE >			
D301	8-719-400-18	DIODE MA152WK	
D302	8-719-400-18	DIODE MA152WK	
D303	8-719-400-18	DIODE MA152WK	
D401	8-719-104-34	DIODE 1S2836	
D402	8-719-104-34	DIODE 1S2836	
D403	8-719-104-34	DIODE 1S2836	
D404	8-719-972-03	DIODE RLZ-J6.2B	
D405	8-719-400-18	DIODE 1S2837-T1	
D406	8-719-104-34	DIODE 1S2836	
D407	8-719-400-18	DIODE MA152WK	
D408	8-719-972-04	DIODE RLZ-J6.2B-TE11	
D409	8-719-972-04	DIODE RLZ-J6.2B-TE11	
< IC >			
IC301	8-759-513-20	IC TMC57001PH	
IC302	8-759-513-20	IC TMC57001PH	
IC303	8-759-513-20	IC TMC57001PH	
IC304	8-759-513-20	IC TMC57001PH	
IC305	8-759-513-20	IC TMC57001PH	

Ref. No.	Part No.	Description	Remarks
IC306	8-759-513-21	IC TMS57002PH	
IC307	8-759-513-21	IC TMS57002PH	
IC308	8-759-513-21	IC TMS57002PH	
IC309	8-749-921-11	IC GP1F32R (INPUT DIGITAL)	
IC310	8-759-925-74	IC SN74HC04NS	
IC311	8-759-925-98	IC SN74HC107NS	
IC312	8-759-973-98	IC YM3623B	
IC313	8-759-032-01	IC MC74HC00AF	
IC314	8-759-233-64	IC MC74HC004AF	
IC315	8-759-916-25	IC SN74HC32N	
IC316	8-759-506-48	IC MSM514256AP-80RS-B	
IC317	8-759-233-46	IC TC74HC597AF	
IC318	8-759-233-46	IC TC74HC597AF	
IC319	8-759-233-44	IC TC74HC595AF	
IC320	8-759-233-44	IC TC74HC595AF	
IC321	8-759-512-76	IC SM5833AF	
IC322	8-759-512-76	IC SM5833AF	
IC323	8-759-233-44	IC TC74HC595AF	
IC324	8-759-233-44	IC TC74HC595AF	
IC325	8-759-233-44	IC TC74HC595AF	
IC326	8-759-233-44	IC TC74HC595AF	
IC327	8-759-506-48	IC MSM514256AP-80RS-B	
IC328	8-759-506-48	IC MSM514256AP-80RS-B	
IC401	8-759-637-06	IC M37450M8-393FP	
IC402	8-759-518-17	IC MSM531001A-B0RS	
IC403	8-759-553-08	IC X24C04PI	
IC404	8-759-920-28	IC S-8054HN	
IC405	8-759-981-65	IC LM2903M	
< JUMPER RESISTOR >			
JR301	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR302	1-216-296-00	METAL CHIP 0 5% 1/8W	
< COIL >			
L301	1-543-610-11	BEAD, FERRITE	
L302	1-543-610-11	BEAD, FERRITE	
L303	1-543-610-11	BEAD, FERRITE	
L304	1-410-200-31	INDUCTOR CHIP 4.7uH	
L305	1-543-610-11	BEAD, FERRITE	
L306	1-543-610-11	BEAD, FERRITE	
L307	1-543-610-11	BEAD, FERRITE	
L308	1-543-610-11	BEAD, FERRITE	
L309	1-543-610-11	BEAD, FERRITE	
L310	1-543-610-11	BEAD, FERRITE	

DIGITAL

Ref. No.	Part No.	Description	Remarks
L311	1-543-610-11	BEAD, FERRITE	
L312	1-543-610-11	BEAD, FERRITE	
L313	1-543-610-11	BEAD, FERRITE	
L314	1-543-610-11	BEAD, FERRITE	
L315	1-543-610-11	BEAD, FERRITE	

L501	1-410-397-21	FERRITE BEAD INDUCTOR	
L502	1-410-397-21	FERRITE BEAD INDUCTOR	
L503	1-410-397-21	FERRITE BEAD INDUCTOR	

< TRANSISTOR >

Q401	8-729-901-05	TRANSISTOR	DTA124EK
Q404	8-729-230-49	TRANSISTOR	2SC2712-YG
Q405	8-729-230-49	TRANSISTOR	2SC2712-YG
Q406	8-729-230-49	TRANSISTOR	2SC2712-YG
Q407	8-729-216-22	TRANSISTOR	2SA1162-YG

Q408	8-729-230-49	TRANSISTOR	2SC2712-YG
Q409	8-729-230-49	TRANSISTOR	2SC2712-YG

< RESISTOR >

R301	1-259-983-11	CARBON MELF	100	1%	1/8W
R302	1-260-016-11	CARBON MELF	47K	1%	1/8W
R303	1-260-016-11	CARBON MELF	47K	1%	1/8W
R304	1-216-182-00	CARBON MELF	220	1%	1/8W
R305	1-260-016-11	CARBON MELF	47K	1%	1/8W
R306	1-260-032-11	CARBON MELF	1M	1%	1/8W
R307	1-259-985-11	CARBON MELF	150	1%	1/8W
R308	1-260-008-11	CARBON MELF	10K	1%	1/8W
R309	1-259-995-11	CARBON MELF	1K	1%	1/8W
R310	1-260-020-11	CARBON MELF	100K	1%	1/8W
R311	1-216-254-00	CARBON MELF	220K	1%	1/8W
R312	1-259-995-11	CARBON MELF	1K	1%	1/8W
R313	1-260-016-11	CARBON MELF	47K	1%	1/8W
R314	1-259-995-11	CARBON MELF	1K	1%	1/8W
R315	1-260-016-11	CARBON MELF	47K	1%	1/8W
R316	1-260-016-11	CARBON MELF	47K	1%	1/8W
R317	1-260-016-11	CARBON MELF	47K	1%	1/8W
R318	1-260-016-11	CARBON MELF	47K	1%	1/8W
R319	1-259-995-11	CARBON MELF	1K	1%	1/8W
R320	1-260-016-11	CARBON MELF	47K	1%	1/8W
R321	1-260-016-11	CARBON MELF	47K	1%	1/8W
R322	1-259-995-11	CARBON MELF	1K	1%	1/8W
R323	1-260-016-11	CARBON MELF	47K	1%	1/8W
R324	1-260-016-11	CARBON MELF	47K	1%	1/8W
R325	1-260-016-11	CARBON MELF	47K	1%	1/8W

Ref. No.	Part No.	Description	Remarks
R326	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R327	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R328	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R329	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R330	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R331	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R332	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R333	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R334	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R335	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R336	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R337	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R338	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R339	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R340	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R341	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R342	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R343	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R344	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R345	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R346	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R347	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R348	1-260-032-11	CARBON MELF 1M 1% 1/8W	
R378	1-259-983-11	CARBON MELF 100 1% 1/8W	
R379	1-259-983-11	CARBON MELF 100 1% 1/8W	
R380	1-259-980-11	CARBON MELF 56 1% 1/8W	
R381	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R382	1-259-983-11	CARBON MELF 100 1% 1/8W	
R383	1-259-983-11	CARBON MELF 100 1% 1/8W	
R384	1-259-983-11	CARBON MELF 100 1% 1/8W	
R385	1-259-983-11	CARBON MELF 100 1% 1/8W	
R386	1-259-983-11	CARBON MELF 100 1% 1/8W	
R387	1-259-983-11	CARBON MELF 100 1% 1/8W	
R401	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R402	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R403	1-216-254-00	CARBON MELF 220K 1% 1/8W	
R404	1-260-012-11	CARBON MELF 22K 1% 1/8W	
R405	1-260-004-11	CARBON MELF 4.7K 1% 1/8W	
R406	1-260-003-11	CARBON MELF 3.9K 1% 1/8W	
R407	1-260-004-11	CARBON MELF 4.7K 1% 1/8W	
R408	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R409	1-260-012-11	CARBON MELF 22K 1% 1/8W	
R410	1-260-008-11	CARBON MELF 10K 1% 1/8W	
R411	1-260-032-11	CARBON MELF 1M 1% 1/8W	
R412	1-260-016-11	CARBON MELF 47K 1% 1/8W	

DIGITAL

Ref. No.	Part No.	Description	Remarks
R413	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R414	1-260-012-11	CARBON MELF 22K 1% 1/8W	
R415	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R416	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R417	1-259-983-11	CARBON MELF 100 1% 1/8W	
R418	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R419	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R420	1-216-254-00	CARBON MELF 220K 1% 1/8W	
R421	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R423	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R424	1-260-016-11	CARBON MELF 47K 1% 1/8W	

< SWITCH >

SW401 1-570-358-11 SWITCH, SLIDE (OUTPUT MODE 3WAY/4WAY)

< CRYSTAL >

X301 1-577-269-11 VIBRATOR, CRYSTAL (18.432MHz)
 X302 1-577-305-11 VIBRATOR, CRYSTAL (25MHz)
 X401 1-577-377-11 VIBRATOR, CERAMIC (10MHz)

MISCELLANEOUS

13 1-541-869-11 MOTOR (FAN)
 1-543-738-41 CORE, RING

Ref. No.	Part No.	Description	Remarks
	1-533-226-11	HOLDER, FUSE (BRADE TYPE)	
F401	1-532-731-11	FUSE (BRADE TYPE) (AUTO FUSE) (3A)	

ACCESSORIES & PACKING MATERIALS			

	3-367-410-01	SCREW (DIA. 5X15), TAPPING	
F401	1-532-731-11	FUSE (BRADE TYPE) (AUTO FUSE) (3A)	
	1-590-519-31	CORD (WITH CONNECTOR)	
	1-543-827-11	CLAMP, SLEEVE FERRITE	
	1-690-204-21	CORD, CONNECTION	

* 3-371-076-01 CUSHION

* 3-371-074-01 INDIVIDUAL CARTON

3-753-167-21 MANUAL, INSTRUCTION (ENGLISH/FRENCH)

HARDWARE LIST

#1 7-682-246-09 SCREW (+K3XT) (FE-N1)
 #2 7-682-547-04 SCREW +B 3X6
 #3 7-685-104-19 SCREW +P 2X6 TYPE2 NON-SLIT
 #4 7-685-646-79 SCREW +BVTP 3X8 TYPE2 N-S
 #5 7-682-548-04 SCREW +BVTT 3X8 (S)
 #6 3-344-501-11 SCREW (+PTT 3X8), GROUND POINT