

Service Manual

74 CD43/01B/02B/05B
74 CD53/01B/02B/05B/01G/02G
74 CD63/01B/02B/05B
Compact disc player



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marantz®

model CD-43/CD-53/CD-63

First issue : 1993/8

4822 725 51037

PCS 71 452

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ company has created the ultimate in stereo sound. Only **original MARANTZ parts** can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ equipment are generally available at our National Marantz Subsidiary or Agent.

MARANTZ EUROPE B.V.
P.O. Box 80002
Building SFF 2
5600 JB Eindhoven
The Netherlands
Phone : +31-40-732241
Fax : +31-40-735578

ORDERING PARTS

Parts can be ordered either by mail or by telex. In both cases, the correct part number has to be specified. The following information must be supplied to eliminate delays in processing your order:

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which the part is required
5. Way of shipment
6. Signature: any order form or telex must be signed, otherwise such part order will be considered as null and void.

ADDRESSES

AUSTRALIA
MARANTZ AUSTRALIA
Figtree Drive
Australia Centre
Homebush, NSW 2140
AUSTRALIA

FINLAND
MARANTZ
Kuortanegatan 1
00520
Helsingfors 52
Finland

ITALY
MARANTZ ITALIANA SPA
Piazza IV Novembre 3
20124 Milano
Italy

NORWAY
MARANTZ
Postboks 7034
Assiden
3007 Drammen
Norway

SPAIN
MARANTZ SPAIN
Martinez Villergas 2
Apartado 2065
Madrid 28027
Spain

AUSTRIA
MARANTZ
Hietzinger Kai 137a
1130 Wien
Austria

FRANCE
MARANTZ FRANCE
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92600 Asnières
France

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35-1, 7-chome, Sagamiono
Sagamihara-shi, Kanagawa
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211-2 Esq.
1200 Lisboa
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SWEDEN
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Box 1324
17125 Solna
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GERMANY
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Kleine Heide 12
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Germany

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AL ALAMIAH ELECTRONICS
P.O.Box 8196
Salmiah
22052 Kuwait

SAUDI ARABIA
AL ALAMIAH ELECTRONICS
P.O.Box 5954
University Street
Riyadh 11432
Saudi Arabia

SWITZERLAND
MARANTZ SWITZERLAND
Postfach
8010 Zürich-Müllingen
Switzerland

CHILE
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PHILIPS S.A.
Av.Santa Maria 0760
Casilla 2687
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Chile

GREAT BRITAIN
MARANTZ HiFi UK Ltd.
Kingsbridge House
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MARANTZ S.A.
10 Bond Street
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Johannesburg 2000
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TRADING
MARANTZ TRADING
P.O.Box 20008
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5600 JB Eindhoven
The Netherlands

DENMARK
MARANTZ
Horsvinget 5
2630 Tastrup
Denmark

GREECE
ADAMCO ELECTR. SA
P.O.Box 21025
Hippocrates Str. 188
Athens 11471
Greece

All of the above locations are fully equipped to take care of your total service needs or can advise you. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please contact the nearest facility for the necessary assistance.

In case of difficulties, do not hesitate to contact the
Technical Department at above mentioned address.

1. TECHNICAL SPECIFICATIONS

	CD43	CD53	CD63
Audio Characteristics			
Channels			2 channels
Sampling frequency			44.1 kHz
Quantization			16-bit linear/channel
Error correction			Cross-interleave read solomon code (CIRC)
D/A conversion			1-bit linear/channel
Wow & flutter			Precision of quartz
Optical Readout System			
Laser			GaAlAs semiconductor
Wavelength			780 nm
Frequency Characteristics			
Frequency range	5 Hz – 20 kHz	5 Hz – 20 kHz	5 Hz – 20 kHz
Dynamic range	> 96 dB	> 96 dB	> 96 dB
S/N ratio	> 102 dB	> 104 dB	> 104 dB
Channel separation (1 kHz)	> 100 dB	> 100 dB	> 102 dB
THD (1 kHz)	0.003 %	0.0025 %	0.0025 %
Analog output jack			
Output level	2V RMS	2V RMS	2V RMS
Output impedance	200 ohms	200 ohms	200 ohms
Digital output			
Pin jack	0.5 Vp-p/75 ohms	0.5 Vp-p/7 5ohms	0.5 Vp-p/75 ohms
Optical output	—	—	-19 dBm
Power Supply			
/01 version			110-120/220-240V AC 50/60 Hz
/02 version			230V AC 50 Hz
/05 version			240V AC 50 Hz
Power consumption	11 W	11 W	13 W
Cabinet, etc.			
Dimensions			
Width			420 mm
Height			86 mm
Depth			300 mm
Net weight			4.1 kg
Operating temperatures			+5 °C ~ +35 °C
Operating humidity			5 % ~ 90 % (without dew)
Accessories			
Remote control unit (RC-63CD)	—	1	1
AA (R6) batteries	—	2	2
Stereo audio cable	1	1	1

Specifications subject to change without prior notice.

2. CAUTION

LASER NOTE:

- DANGER — Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.
- CAUTION — Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
- CAUTION — The use of optical instruments with this product will increase eye hazard.

THE COMPACT DISC PLAYER SHOULD NOT BE ADJUSTED OR REPAIRED BY ANYONE EXCEPT PROPELY QUALIFIED SERVICE PERSONNEL.

LASER BEAM RADIATION SPOT

Laser Diode Properties

Material: Al GaAs

Wavelength: 780nm ± 20nm

Laser Output: Continuous Wave max. 0.5mW

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

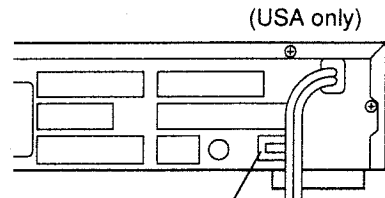
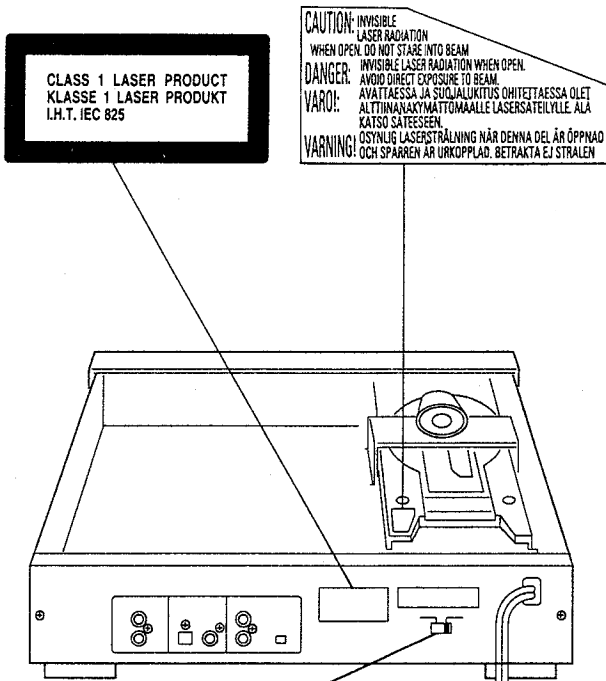
ESD



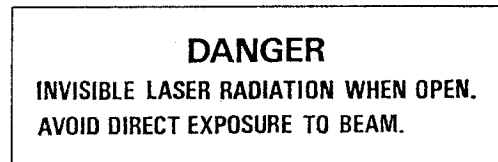
All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).

Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.

Keep components and tools also at this potential.



Manufactured year and month



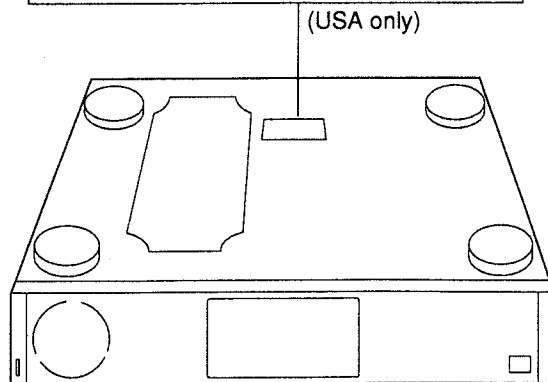
VOLTAGE CONVERSION (/01B version only)

To convert the unit to a different power source voltage, change the position as illustrated in the drawing below.

VOLTAGE SELECTOR

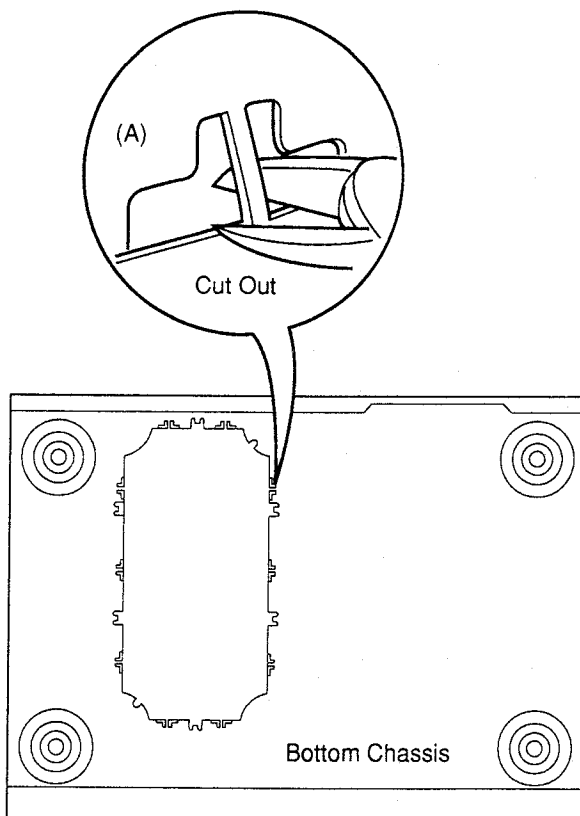


CAUTION
DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE.



3. USE OF SERVICE HOLE

- (1) If the use of the service hole is required, remove the cover by cutting 10 bridges (A) using a tool such as a pair of cutter.
- (2) During this work, be careful of the sharp edges at the cut positions.
- (3) After using the service hole, rotate the cover and fix it using screws [3 x 6 (M)].



4. SERVICE MODE

1. How to enter into the Service Mode
 - Turn the power on while pressing at least 2 of [STOP], [PLAY], [NEXT], [PREV] keys.
2. Mode 0 (Display P00)

Condition: [FOCUS OFF] [SPINDLE OFF] [RADIAL OFF] [MUTE ON]

 - The sled moves outside when pressing [CUE]/[REVIEW] keys.
 - The function moves to Mode 1 when pressing [NEXT] key.
3. Mode 1 (Display P01)

Condition: [FOCUS ON] [SPINDLE OFF] [RADIAL OFF] [MUTE ON]

 - The function moves to Mode 2 when pressing [NEXT] key.
 - The function moves to Mode 0 when pressing [PREV] key.
4. Mode 2 (Display P02)

Condition: [FOCUS ON] [SPINDLE ON] [RADIAL OFF] [MUTE ON]

 - The function moves to Mode 3 when pressing [NEXT] key.
 - The function moves to Mode 0 when pressing [PREV] key.
5. Mode 3 (Display P03)

Condition: [FOCUS ON] [SPINDLE ON] [RADIAL ON] [MUTE OFF]

 - The Sled moves outside when pressing [CUE] key.
 - The Sled moves inside when pressing [REVIEW] key.
 - The function moves to Mode 2 when pressing [PREV] key.

* The following key operation can be available at all of the conditions of the service mode.

 - 1) All of FL display light by pressing [STOP] key.
 - 2) Model Number and Version Nbr of the μ -processor are displayed by pressing [PAUSE] key.

Cd - □ - □

| |

Model Name μ -Processor Version Nbr.

1=CD1010 3=CD-63/53/43

2=CD1020

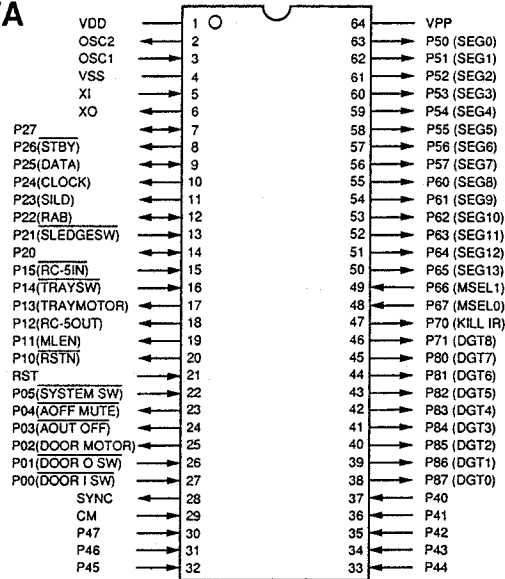
- 3) The same as Normal operation (except Service mode) is performed by pressing [PLAY] key. However if some default is detected, an error code is displayed. (For example: Err 10) The content for each error code is shown below.

Error Code	Error
Err 02	FOCUS Error
Err 07	SUB CODE Error
Err 08	T. O. C Error
Err 09	DECODER Error
Err 10	RADIAL Error
Err 11, 12	SLED Error
Err 13	SPINDLE Error
Err 16 ~ 20	SEARCH Error
Err 30	DOOR Error
Err 31	TRAY Error
Err 32 ~ 47	KEY INPUT Error

6. Cancelling the Service Mode
 - The Service Mode is cancelled by turning the power off.

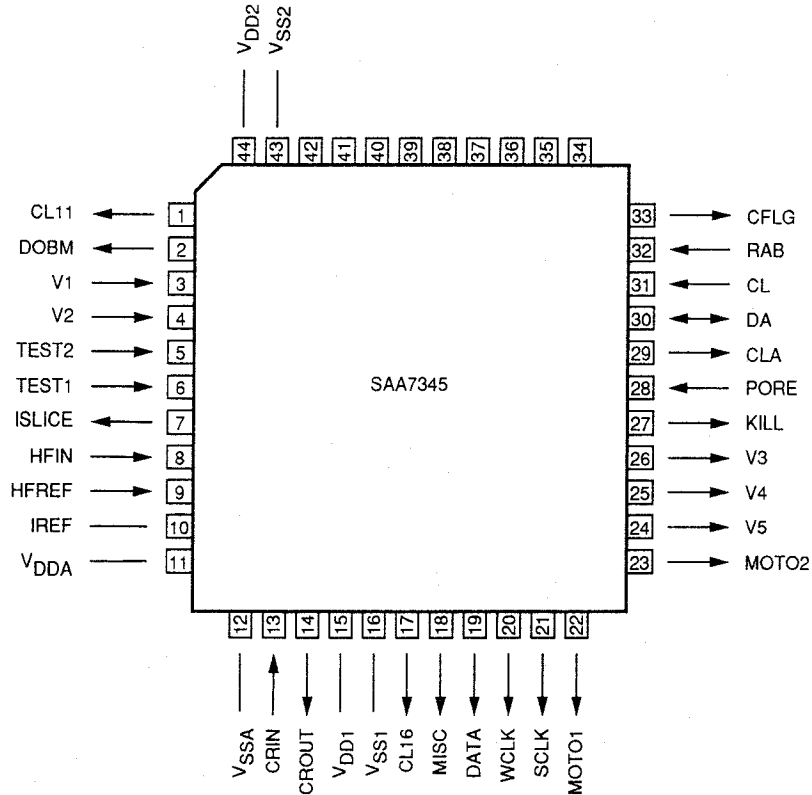
5. MICROPROCESSOR AND IC DATA

MN187164 (MICROPROCESSOR)



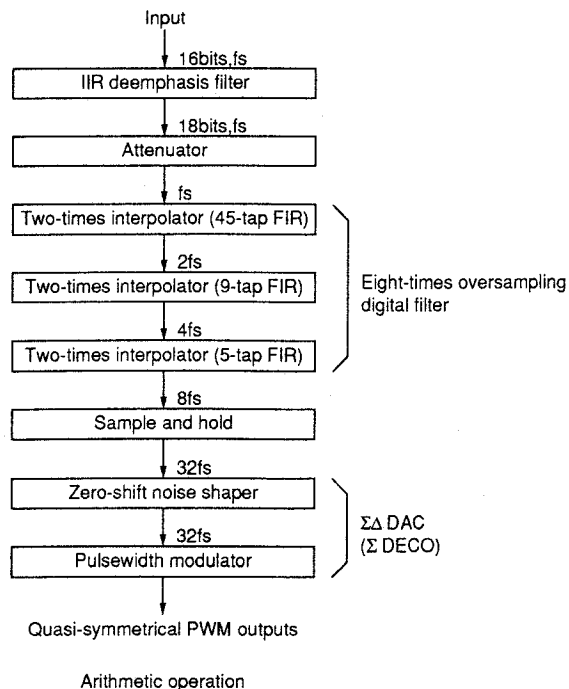
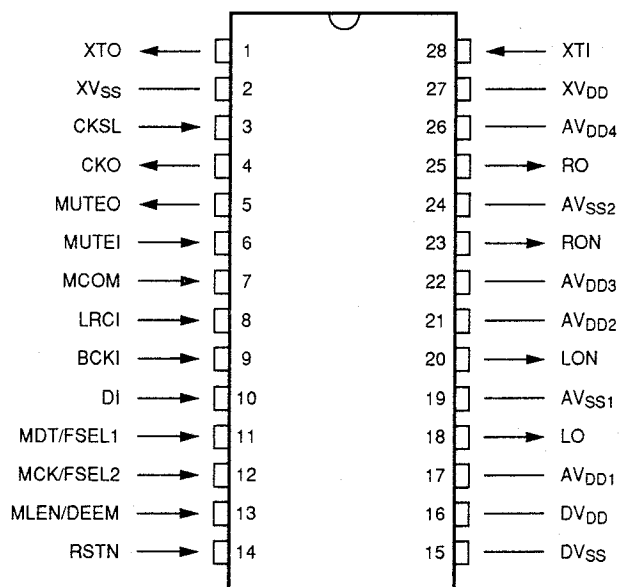
Pin Nbr	Pin Name	I/O	Function	Pin Nbr	Pin Name	I/O	Function
1	Vdd	-	Power Supply +5V	33	P44	I	Key Input, KEY 5
2	OSC2	O	Clock out (8.0MHz)	34	P43	I	Key Input, KEY 4
3	OSC1	I	Clock in (8.0MHz)	35	P42	I	Key Input, KEY 3
4	Vss	-	GND 0V	36	P41	I	Key Input, KEY 2
5	XI	I	0V	37	P40	I	Key Input, KEY 1
6	XO	O	Not Used	38	P87 (DGT0)	O	FL Digit Data, G9
7	P27	I/O	Not Used	39	P86 (DGT1)	O	FL Digit Data, G8
8	P26 STBY	O	TDA1301 RESET, NRST	40	P85 (DGT2)	O	FL Digit Data, G7
9	P25 DATA	I/O	Data Bus Data, SIDA	41	P84 (DGT3)	O	FL Digit Data, G6
10	P24 CLOCK	O	Data Bus Clock, SICK	42	P83 (DGT4)	O	FL Digit Data, G5
11	P23 SILD	O	TDA1301 SILD (latch)	43	P82 (DGT5)	O	FL Digit Data, G4
12	P22 RAB	I/O	SAA7345 RAB	44	P81 (DGT6)	O	FL Digit Data, G3
13	P21 SLEDGESW	I	Sledge SW, SLSW	45	P80 (DGT7)	O	FL Digit Data, G2
14	P20 MUTE	I/O	Not Used	46	P71 (DGT8)	O	FL Digit Data, G1
15	P15 RC5IN	I	RC-5 code Input	47	P70 KILL IR	O	Kill IR, N.C.
16	P14 TRAYSW	I	Tray In/Out SW, TRSW	48	P67 MSEL0	I	Model Select SW 0
17	P13 TRAYMOTOR	O	Tray Motor	49	P66 MSEL1	I	Model Select SW 1
18	P12 RC5OUT	O	RC-5 code Output	50	P65 (SEG13)	O	FL Segment Data, P1
19	P11 MLEN	O	SM5872 MLEN (latch)	51	P64 (SEG12)	O	FL Segment Data, P2
20	P10 RSTN	O	SM5872 RSTN (reset)	52	P63 (SEG11)	O	FL Segment Data, P3
21	RST	I	RESET	53	P62 (SEG10)	O	FL Segment Data, P4
22	P05 SYSTEM SW	I	System SW	54	P61 (SEG9)	O	FL Segment Data, P5
23	P04 AOFF MUTE	O	Audio OFF Mute, N.C.	55	P60 (SEG8)	O	FL Segment Data, P6
24	P03 AOUT OFF	O	Audio Out OFF	56	P57 (SEG7)	O	FL Segment Data, P7
25	P02 DOORMOTOR	O	Door Motor	57	P56 (SEG6)	O	FL Segment Data, P8
26	P01 DOOR O SW	I	Door Out SW	58	P55 (SEG5)	O	FL Segment Data, P9
27	P00 DOOR I SW	I	Door In SW	59	P54 (SEG4)	O	FL Segment Data, P10
28	SYNC	O	Not Used	60	P53 (SEG3)	O	FL Segment Data, P11
29	CM	I	0V	61	P52 (SEG2)	O	FL Segment Data, P12
30	P47	I	Key Input, KEY 8	62	P51 (SEG1)	O	FL Segment Data, P13
31	P46	I	Key Input, KEY 7	63	P50 (SEG0)	O	FL Segment Data, P14
32	P45	I	Key Input, KEY 6	64	Vpp	-	Power Supply -25V, VFTD

SAA7345GP (DIGITAL DECODING IC WITH RAM)



Pin Nbr	Pin Name	I/O	Function	Pin Nbr	Pin Name	I/O	Function
1	CL11	O	11.2896MHz clock output (3-state)	23	MOTO2	O	Motor output 2; versatile (3-state)
2	DOBM	O	Bi-phase mark output (externally buffered; 3-state)	24	V5	O	Versatile output pin
3	V1	I	Versatile input pin	25	V4	O	Versatile output pin
4	V2	I	Versatile input pin	26	V3	O	Versatile output pin (open-drain)
5	TEST2	I	Test input: this pin should be tied LOW	27	KILL	O	Kill output; programmable (open-drain)
6	TEST1	I	Test input; this pin should be tied LOW	28	PORE	I	Power-on reset enable input (active LOW)
7	ISLICE	O	Current feedback from data slicer	29	CLA	O	4.2336MHz microprocessor clock output
8	HFIN	I	Comparator signal input	30	DA	I/O	Interface data I/O line
9	HFREF	I	Comparator common-mode input	31	CL	I	Interface clock input line
10	IREF	-	Reference current pin (nominally $V_{DD}/2$)	32	RAB	I	Interface R/W and acknowledge input
11	VDDA	-	Power supply (Analogue)	33	CFLG	O	Correction flag output (open-drain)
12	VSSA	-	GND (Analogue)	34	—	-	No internal connection
13	CRIN	I	Crystal/resonator input, 16.9344 MHz	35	—	-	
14	CROUT	O	Crystal/resonator output	36	—	-	
15	VDD1	-	Power supply 1 (Digital)	37	—	-	
16	VSS1	-	GND 1 (Digital)	38	—	-	
17	CL16	O	16.9344MHz system clock output	39	—	-	
18	MISC	O	General purpose DAC output (3-state)	40	—	-	
19	DATA	O	Serial data output (3-state)	41	—	-	
20	WCLK	O	Word clock output (3-state)	42	—	-	
21	SCLK	O	Serial bit clock output (3-state)	43	VSS2	-	GND 2 (Digital)
22	MOTO1	O	Motor output 1; versatile (3-state)	44	VDD2	-	Power supply 2 (Digital)

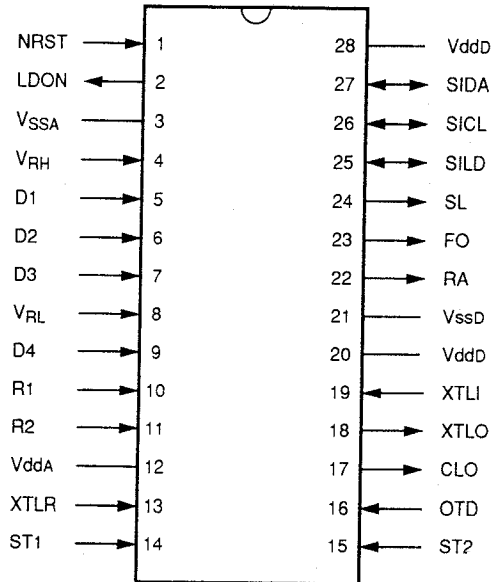
SM5872BS (DIGITAL FILTER AND D/A CONVERTER)



Arithmetic operation

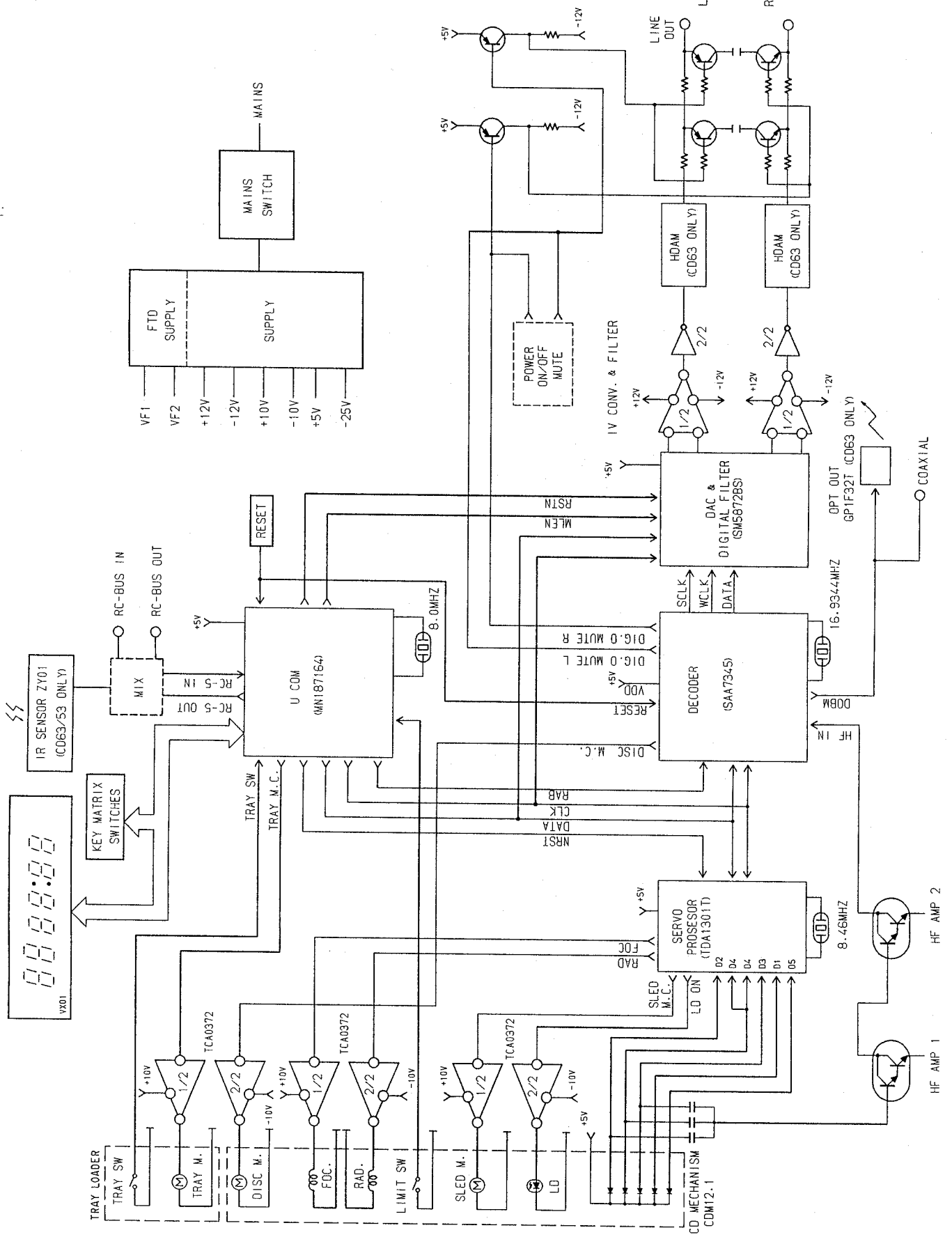
Pin Nbr	Pin Name	I/O	Function
1	XTO	O	Crystal oscillator output
2	XVss	-	GND (X'TAL)
3	CKSL	I	This pin should be tied HIGH for normal operation. Internal pull-up resistor
4	CKO	O	Clock output (384fs)
5	MUTE0	O	Mute detect output
6	MUTEI	I	Mute input. Internal pull-resistor
7	MCOM	I	Interface mode select input. Internal pull-up resistor : H = Interface mode L = Local
8	LRCI	I	Data sample rate clock input. Internal pull-up resistor : H = L ch L = R ch
9	BCKI	I	Bit clock input. Internal pull-up resistor
10	DI	I	Serial data input. Internal pull-up resistor
11	MDT/FSEL1	I	Microprocessor interface data input (and local mode frequency select input). Internal pull-up resistor
12	MCK/FSEL2	I	Microprocessor interface clock input (and local mode frequency select input). Internal pull-up resistor
13	MLEN/DEEM	I	Microprocessor interface latch enable input (and local mode deemphasis control input). Internal pull-up resistor
14	RSTN	I	Reset input. Internal pull-up resistor
15	DVss	-	GND (Digital)
16	DVDD	-	Power supply (Digital)
17	AVDD1	-	Power supply 1 (Analogue)
18	LO	O	Left-channel positive PWM output
19	AVSS1	-	GND 1 (Analogue)
20	LON	O	Left-channel negative PWM output
21	AVDD2	-	Power supply 2 (Analogue)
22	AVDD3	-	Power supply 3 (Analogue)
23	RON	O	Right-channel negative PWM output
24	AVSS2	-	GND 2 (Analogue)
25	RO	O	Right-channel positive PWM output
26	AVDD4	-	Power supply 4 (Analogue)
27	XVDD	-	Power supply (X'TAL)
28	XTI	I	Crystal oscillator or external clock input, 384fs (16.9344 MHz)

TDA1301T (DIGITAL SERVO CONTROL)



Pin Nbr	Pin Name	I/O	Function
1	NRST	I	Reset input
2	LDON	O	Laser drive on
3	VSSA	-	GND (Analog)
4	VRH	I	A/D converter reference input
5	D1	I	Unipolar current input (Center diode signal input)
6	D2	I	
7	D3	I	
8	VRL	I	A/D converter reference input
9	D4	I	Unipolar current input (Center diode signal input)
10	R1	I	Unipolar current input (Tracking diode signal input)
11	R2	I	
12	VddA	-	Power supply (Analog)
13	XTLR	I	Oscillator reference
14	ST1	I	Test input 1
15	ST2	I	Test input 2
16	OTD	I	Off-track detection
17	CLO	O	Clock output
18	XTLO	O	Oscillator output
19	XTLI	I	Oscillator input
20	VddD	-	Power supply (Digital)
21	VSSD	-	GND (Digital)
22	RA	O	Radial actuator output
23	FO	O	Focus actuator output
24	SL	O	Sledge output
25	SILD	I/O	Serial interface load
26	SICL	I/O	Serial interface clock
27	SIDA	I/O	Serial interface data
28	VddD	-	Power supply (Digital)

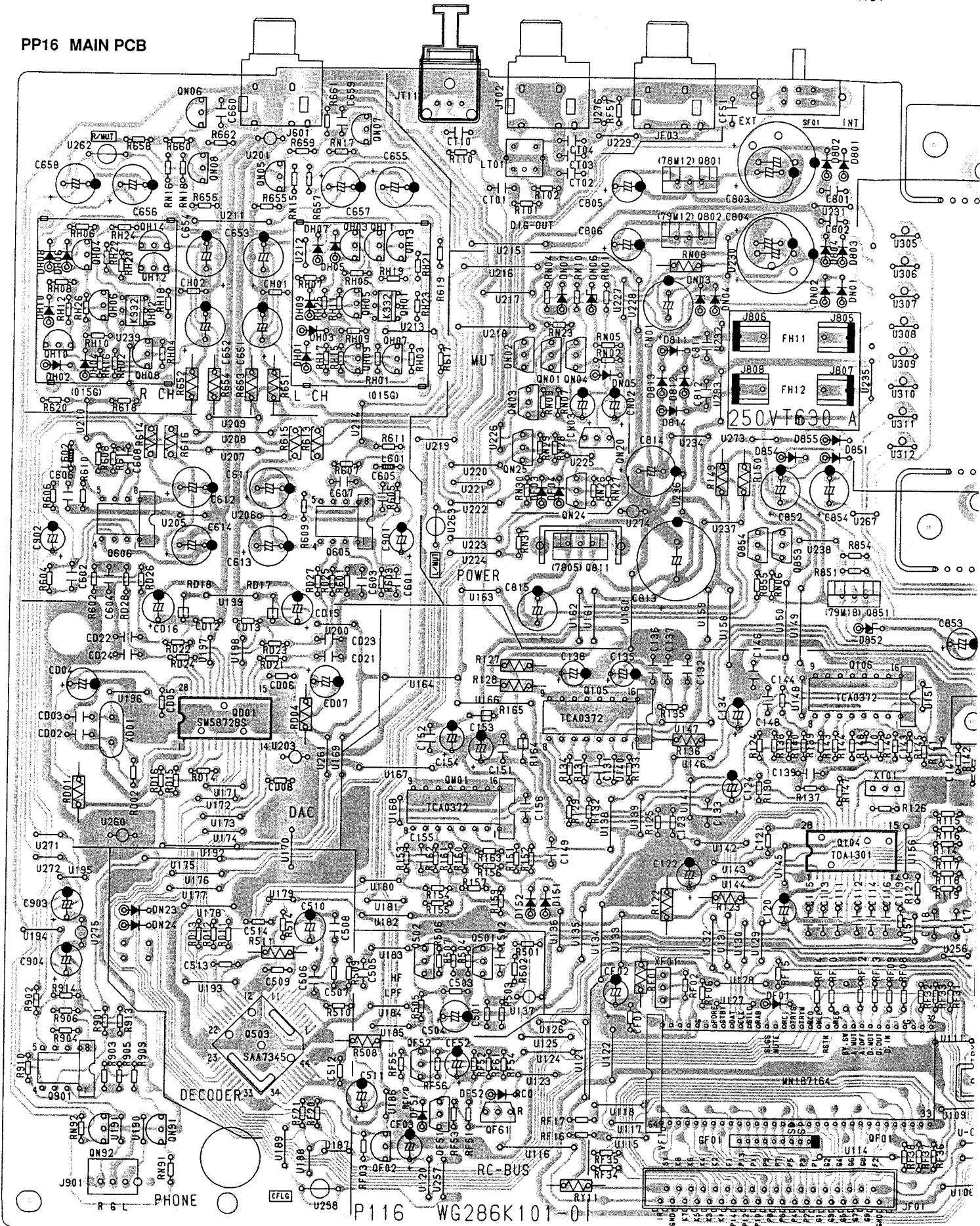
6. BLOCK DIAGRAM



7. SCHEMATIC DIAGRAMS AND PARTS LOCATIONS (PATTERN SIDE)

QH04 QH12 QH14 QH06 QH08 QH05 QH03 QN07 QH11 QH13 QM01 QN01~QN04 Q801 Q802
 QH10 QH06 QH02 QH08 QH05 QH09 QH01 QH07 Q501 Q502 QN25 QN24 QN20 Q584 Q583 Q851 Q106
 Q901 Q606 QN92 QN91 QD01 Q503 Q605 QF02 QF51 QF52 QF61 Q811 Q105 QF01 Q104

PP16 MAIN PCB

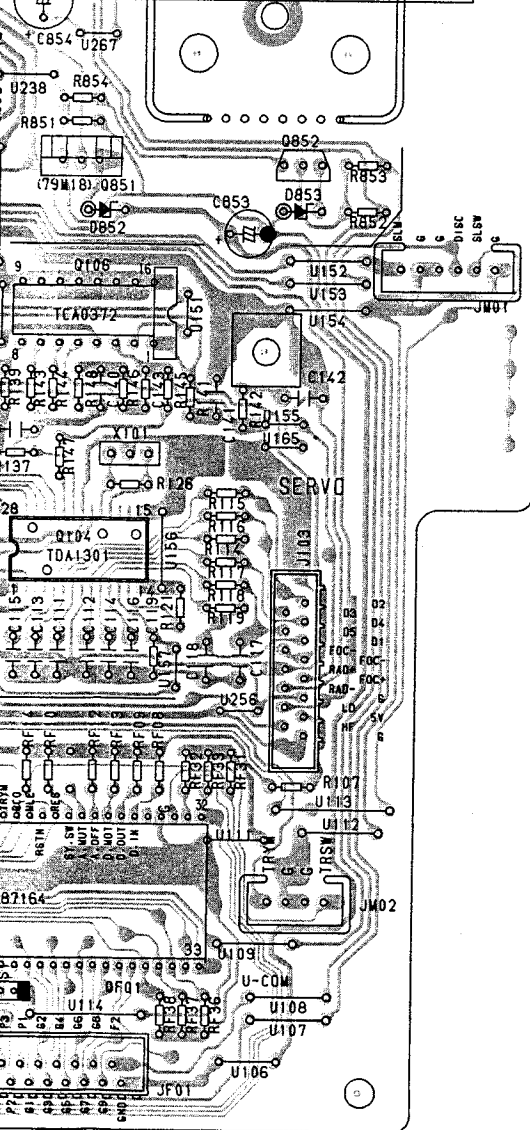
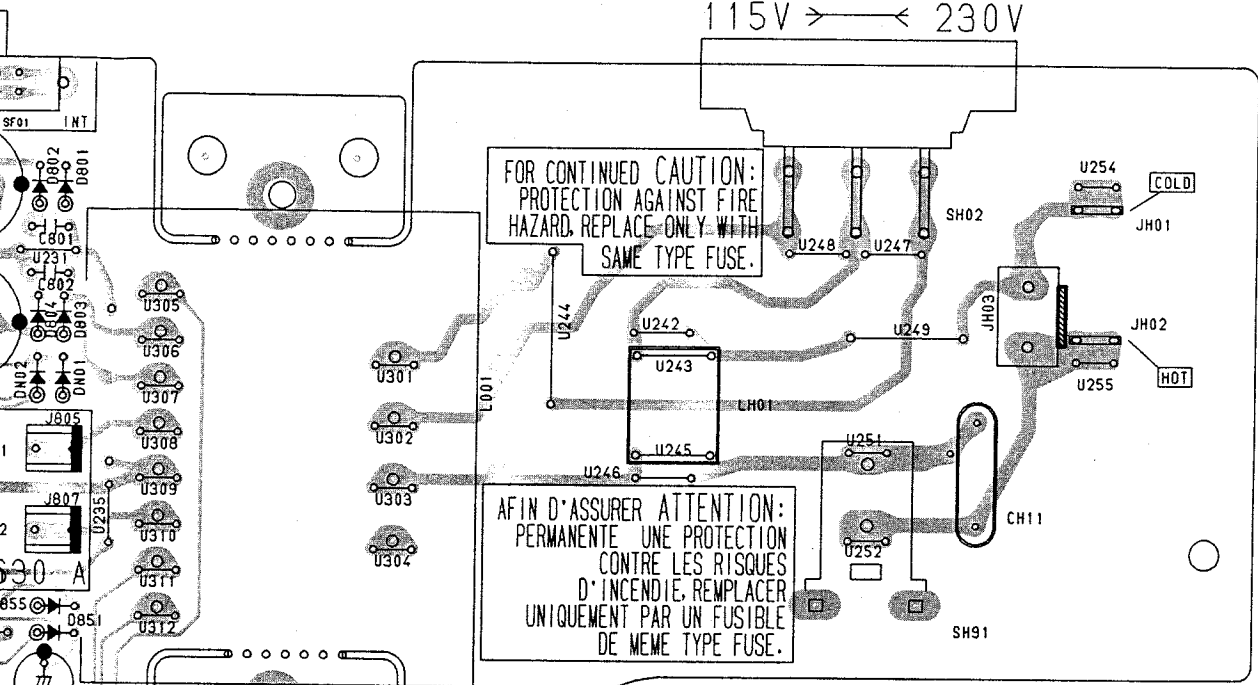


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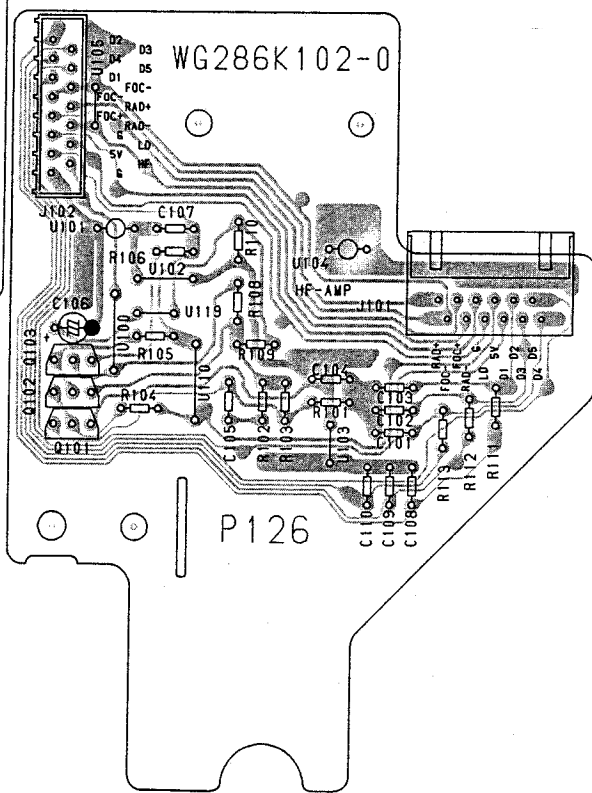
3 Q851 Q106
 F01 Q104

Q852

115V ↔ 230V

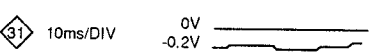
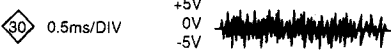
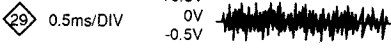
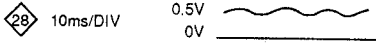
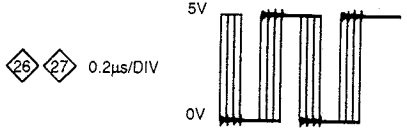
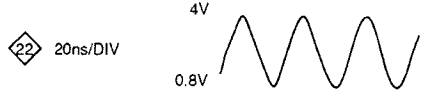
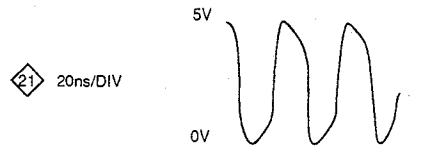
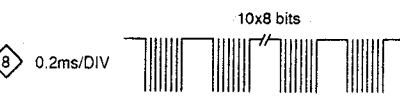
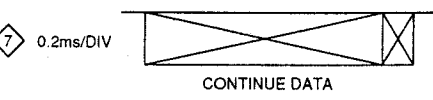
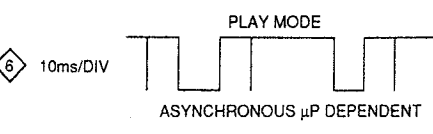
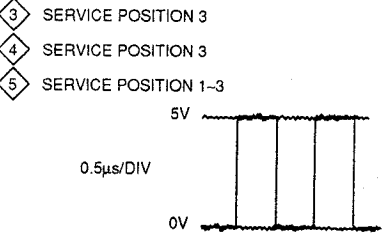
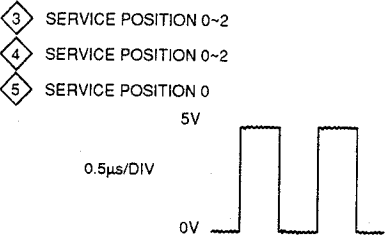
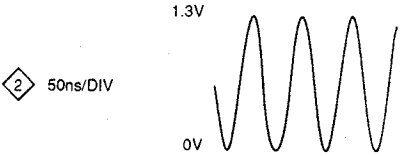
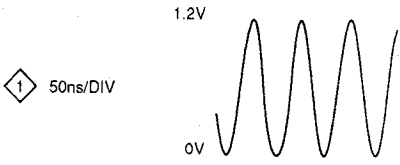


P126 RF AMP PCB

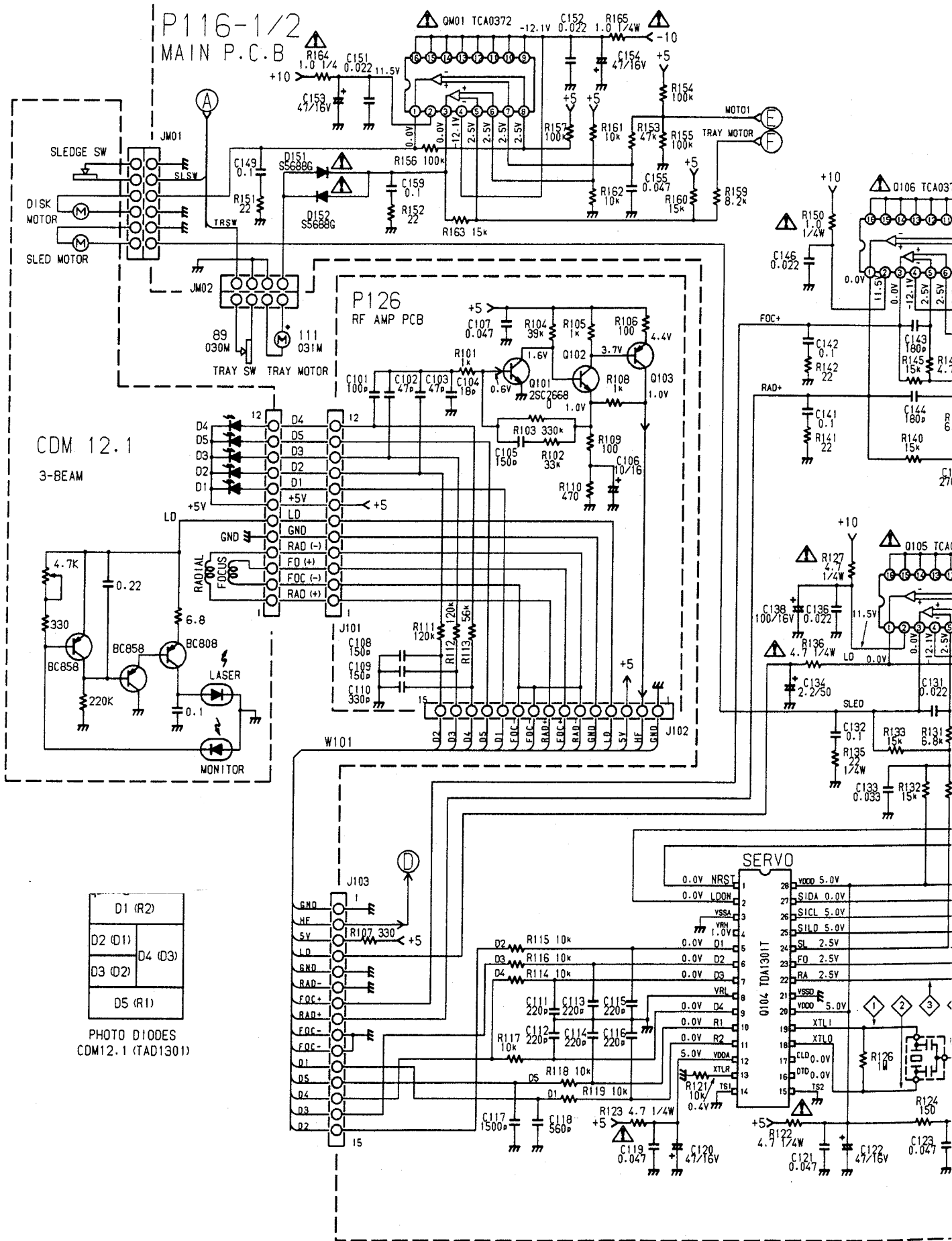


WAVE FORM

All of the wave forms are monitored with PLAY mode.



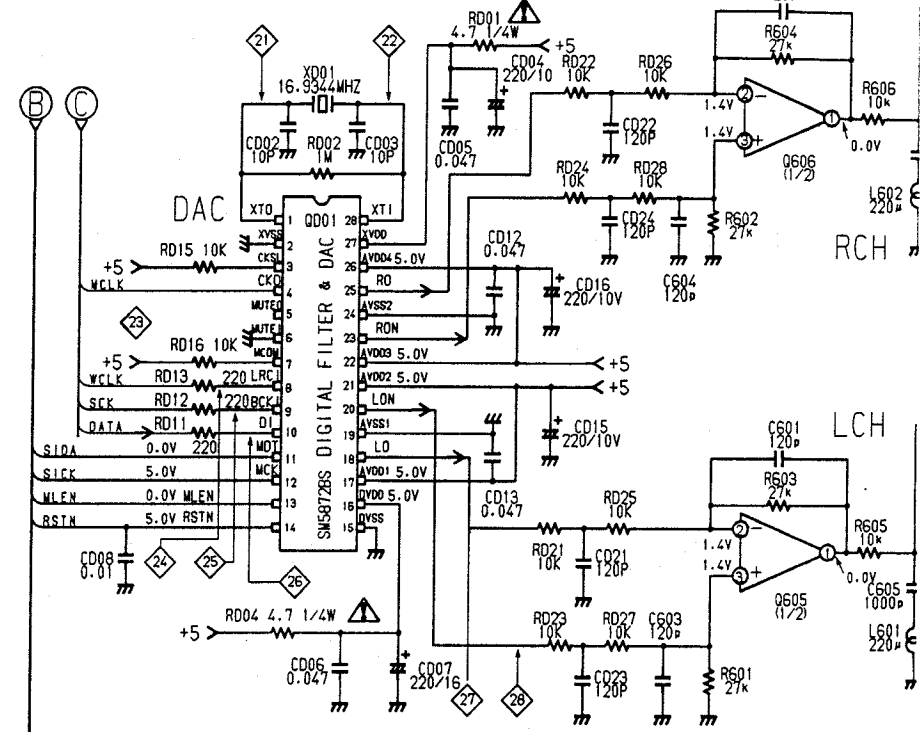
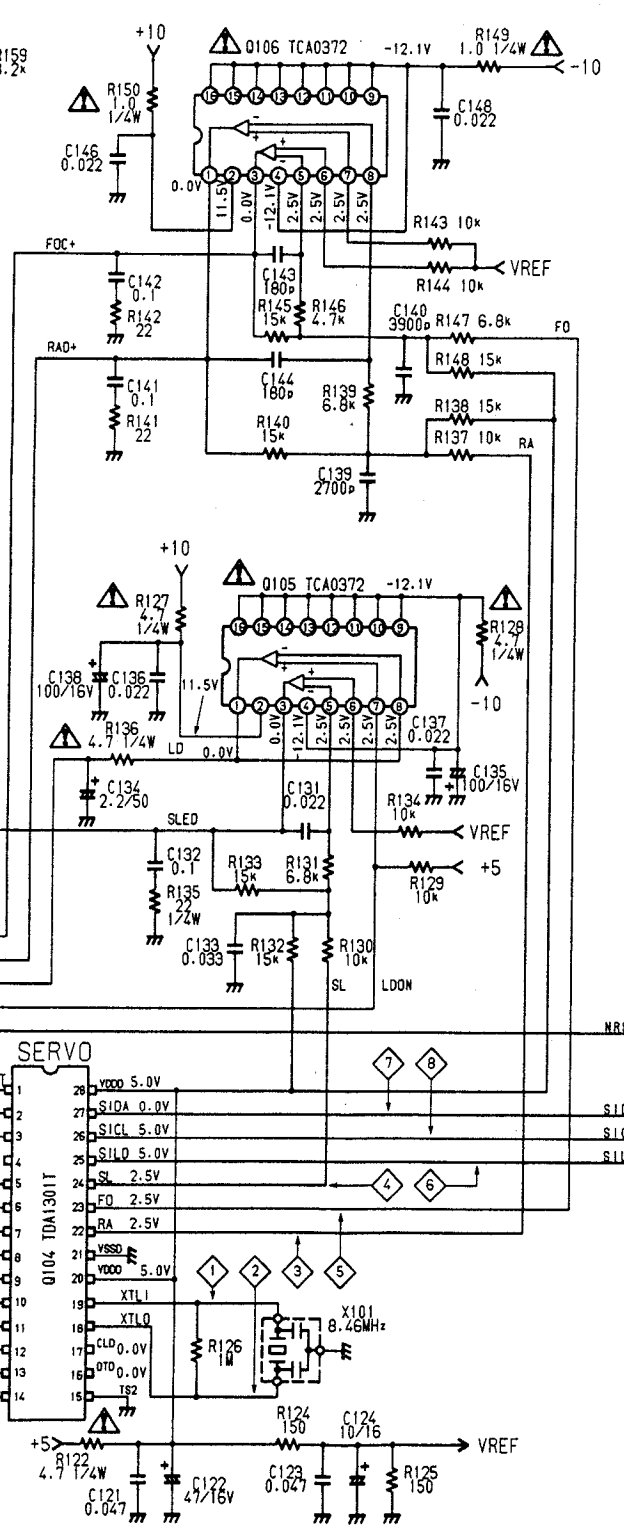
PP16 (1/2) - POWER/AUDIO/DIGITAL PCB



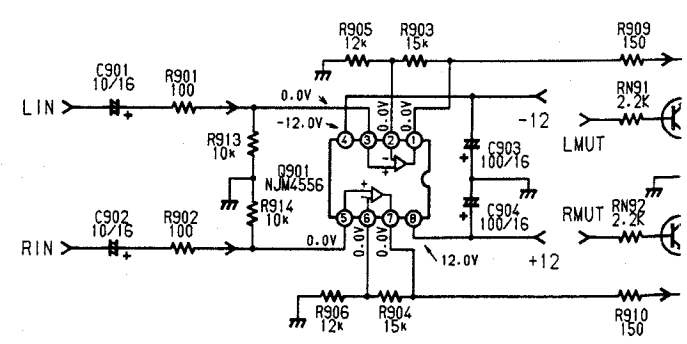
D1 (R2)	
D2 (O1)	D4 (O3)
D3 (O2)	
D5 (R1)	

PHOTO DIODES CDM12.1 (TAD1301)

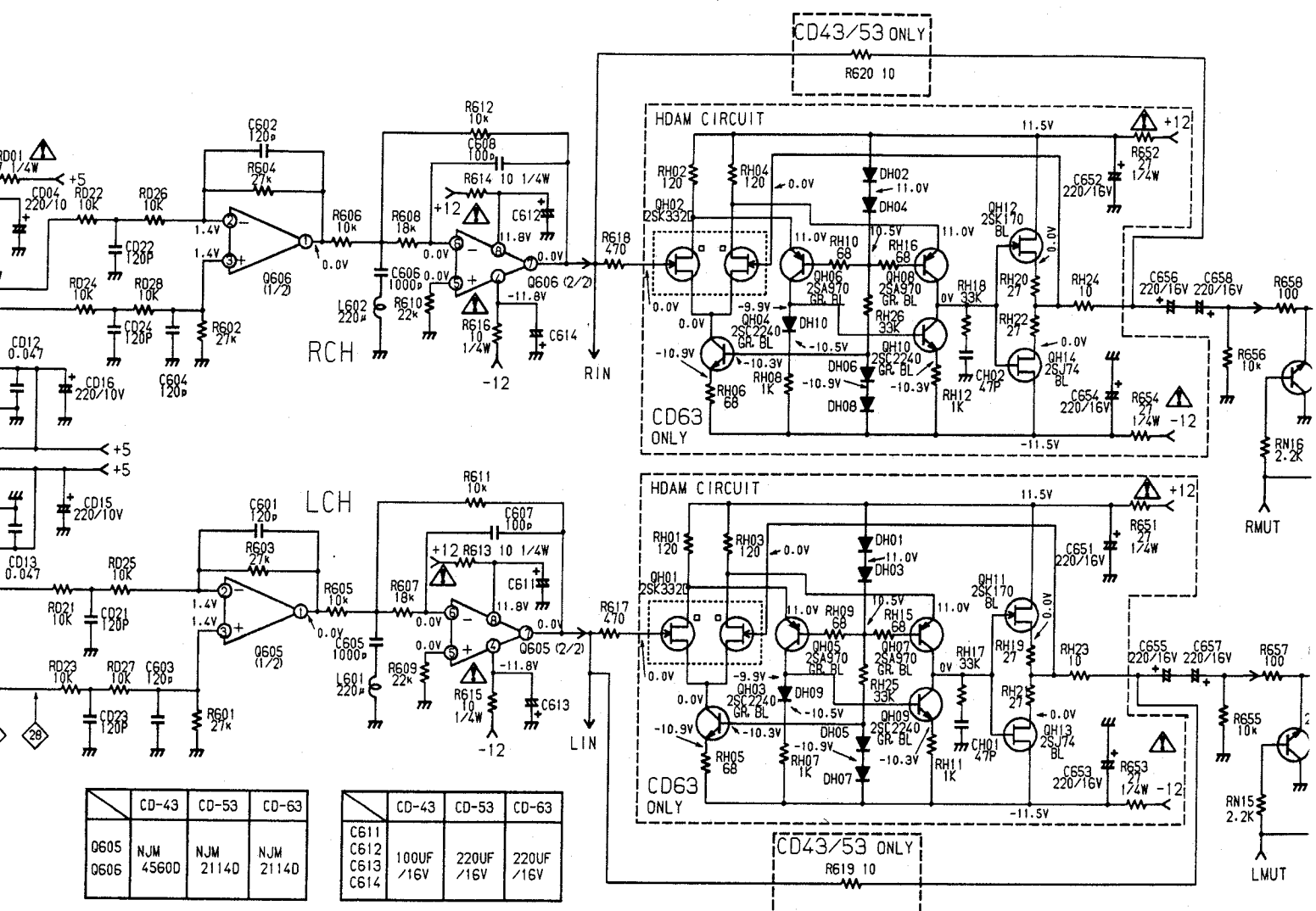
MOTOR
MOTOR



	CD-43	CD-53	CD-63	
Q605	NJM 4560D	NJM 2114D	NJM 2114D	C61
Q606				C61
				C61
				C61

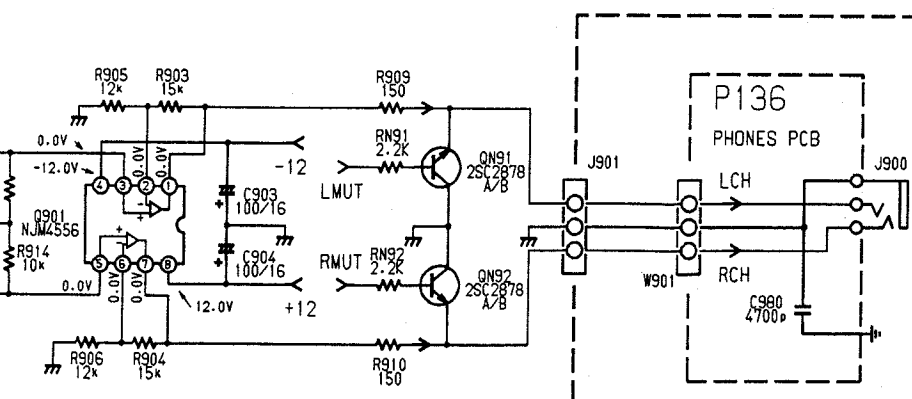


VOLTAGE VALUE IS UNDER CONDITION OF STOP



	CD-43	CD-53	CD-63
Q605	NJM	NJM	NJM
Q606	4560D	2114D	2114D

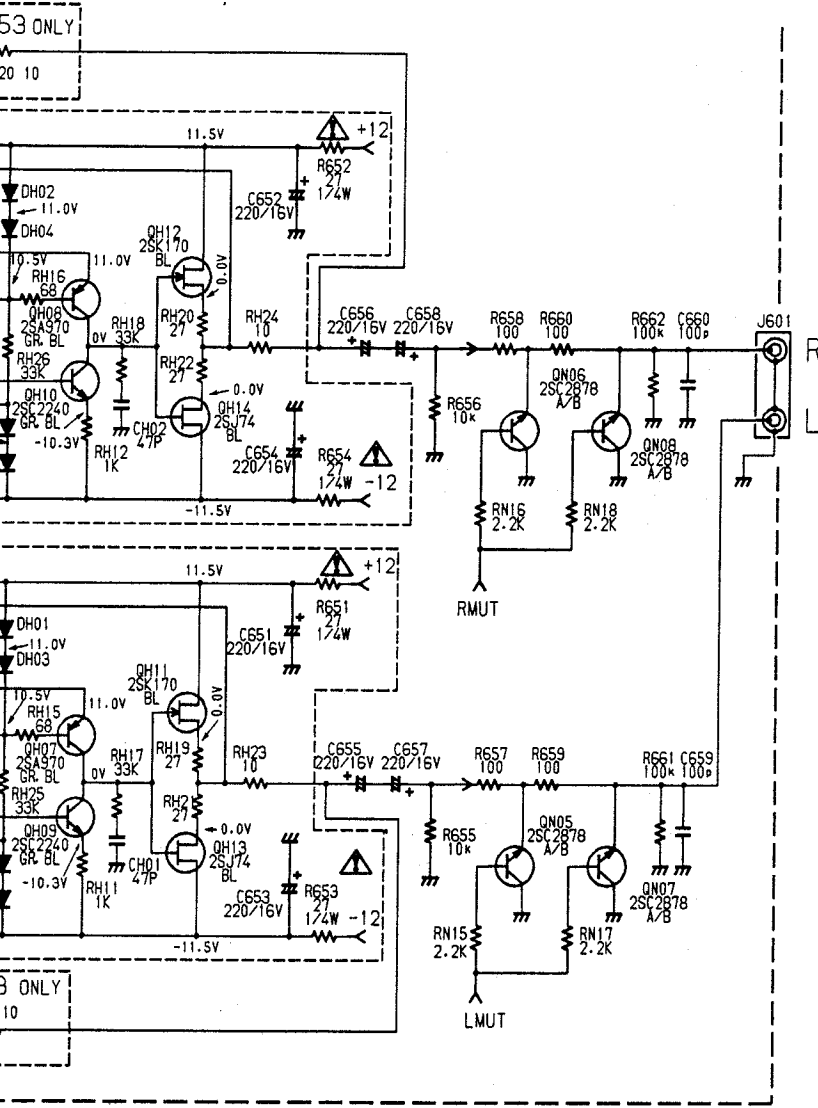
	CD-43	CD-53	CD-63
C611			
C612	100UF	220UF	220UF
C613		/16V	/16V
C614		/16V	/16V



Q102	Q501	Q502	Q852	QF52	2SC536SP	OR	2SC
QF61	QN01	QN02	QN03	QN04	2SC3311	OR	2SC
QN20							
Q103	Q853	Q854	QF51	QN24	2SA608SP	OR	2SA
QN25					2SA1309	OR	2SA
DF01	DF03	DF04	DF51	DF52			
DH01	DH02	DH03	DH04	DH05	1SS176	OR	MA
DH06	DH07	DH08	DH09	DH10			
DN07	DN23	DN24	DN05				

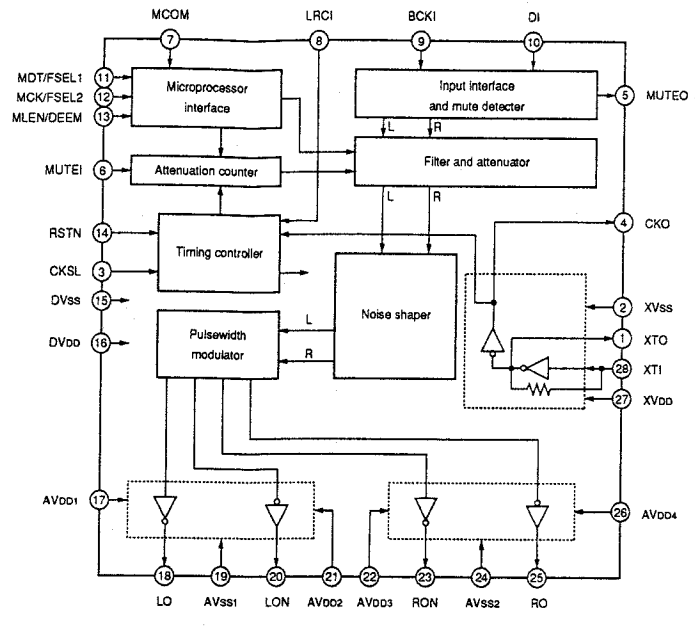
OF STOP

NOTE ON SAFETY:
 Symbol \triangle Fire or electrical shock hazard. Only original parts should be used marked with symbol \triangle . Any other component substitution (other than original) risk of fire or electrical shock hazard.

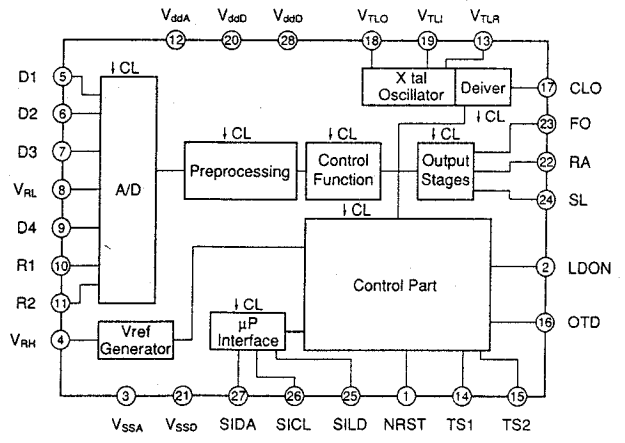


Q02	Q501	Q502	Q852	QF52	2SC536SP	OR	2SC2458	OR	
Q51	QN01	QN02	QN03	QN04	2SC3311	OR	2SC1740S		
Q03	Q853	Q854	QF51	QN24	2SA608SP	OR	2SA1048		
Q05					2SA1309	OR	2SA933S		
Q01	DF03	DF04	DF51	DF52					
Q01	DH02	DH03	DH04	DH05	1SS176	OR	MA165	OR	1SS254
Q06	DH07	DH08	DH09	DH10					
Q07	DN23	DN24	DN05						

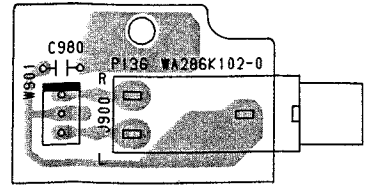
QD01 SM5872BS



Q104 TDA1301T

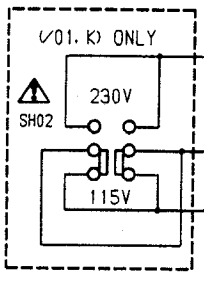
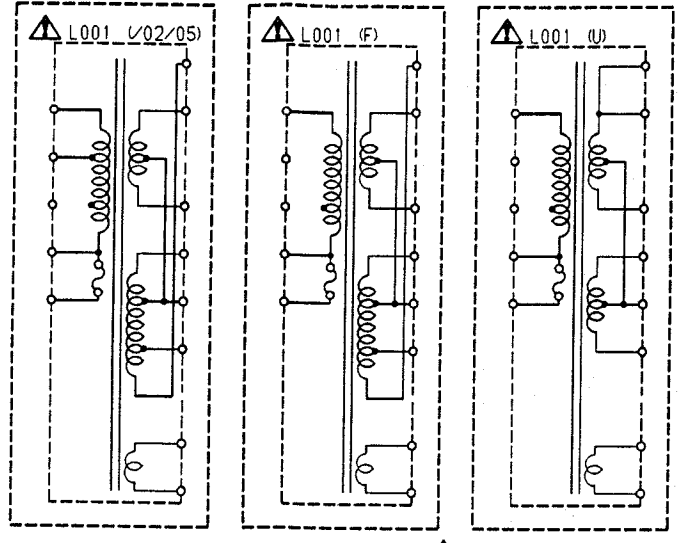


P136 PHONES PCB

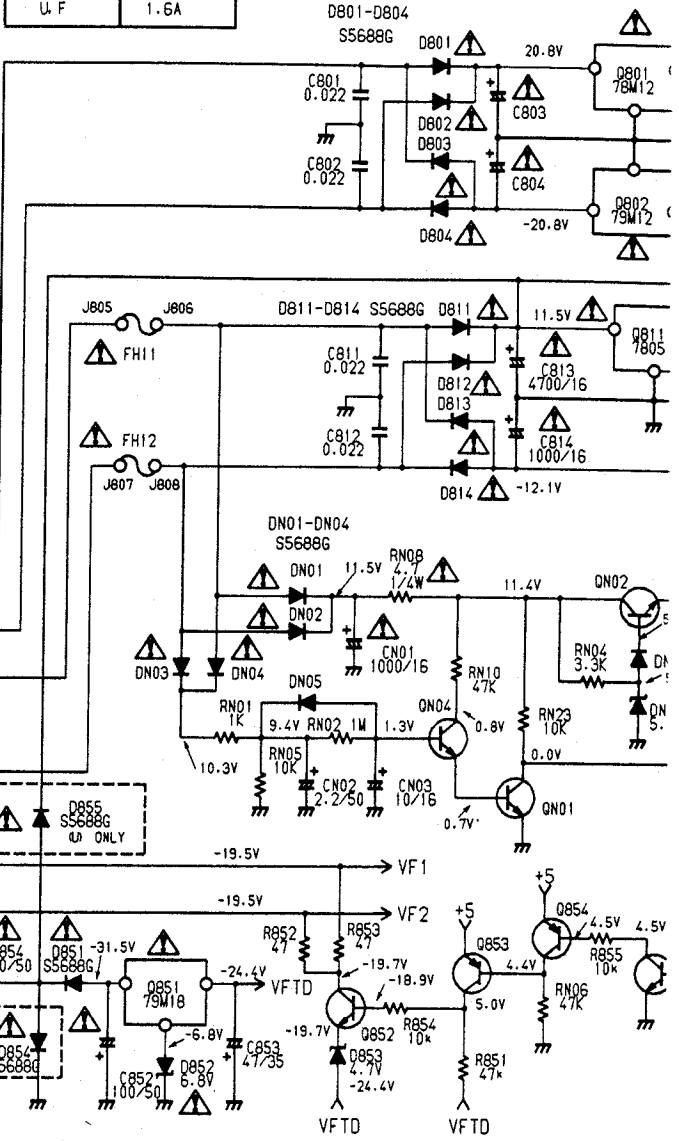


Warning: Only original parts should be used to replace any part. Component substitution (other than original type), may increase risk of hazard.

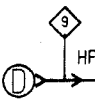
	FH11, FH12
/01/02/05. K	T630MA
U. F	1.6A



	/01	/02	/05	U	F	K
U244	X	-	X	X	X	X
U247	-	-	X	X	X	-
U248	-	X	-	-	-	-



VOLTAGE VALUE IS UNDER CONDITION OF STOP



9 0.5μs/DIV



10 0.1μs/DIV



11 0.5μs/DIV



12 20ns/DIV



13 0.2μs/DIV



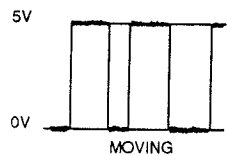
14 5μs/DIV



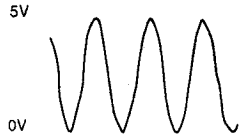
15 5μs/DIV



16 1μs/DIV



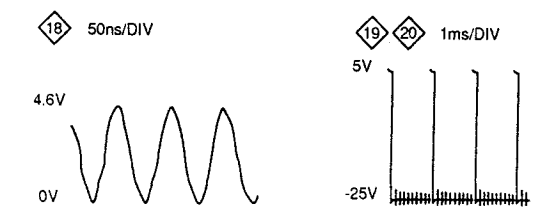
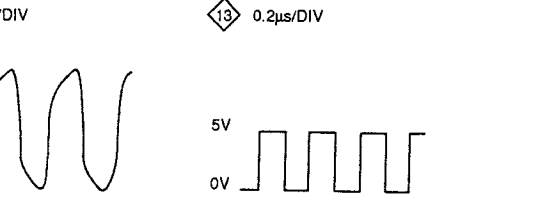
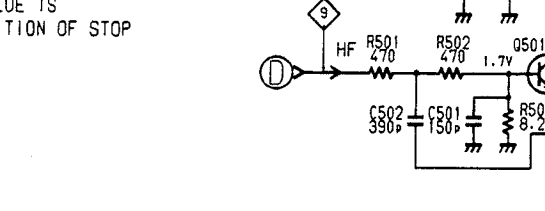
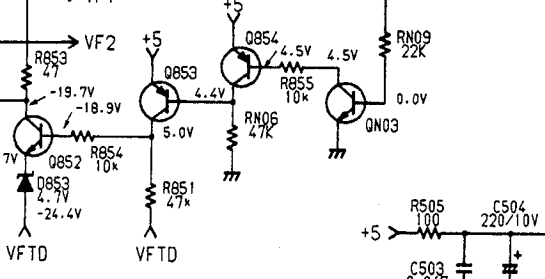
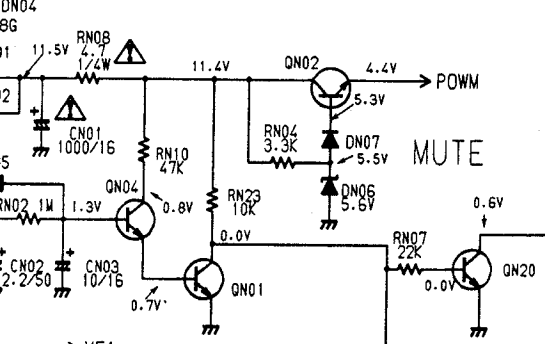
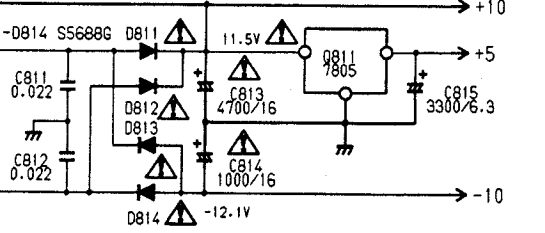
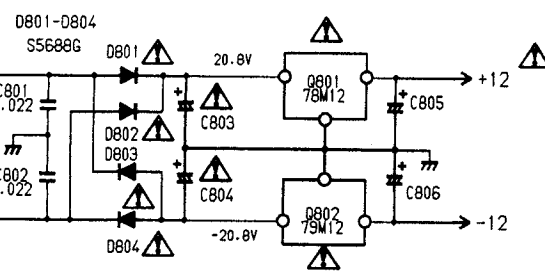
17 50ns/DIV



18 50ns/DIV



116-2/2 MAIN P.C.B

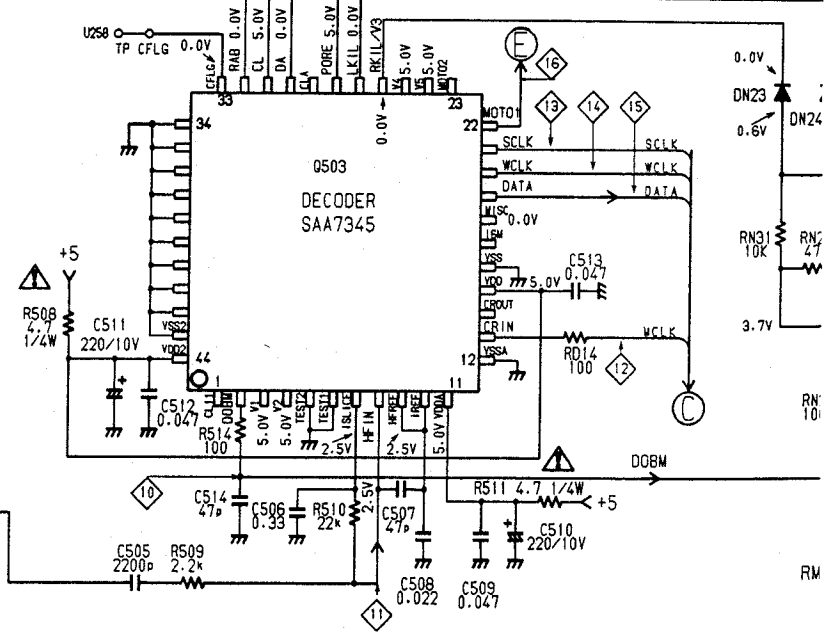
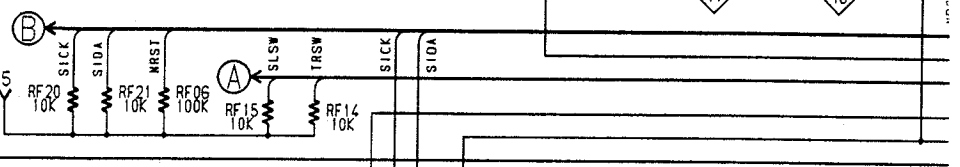
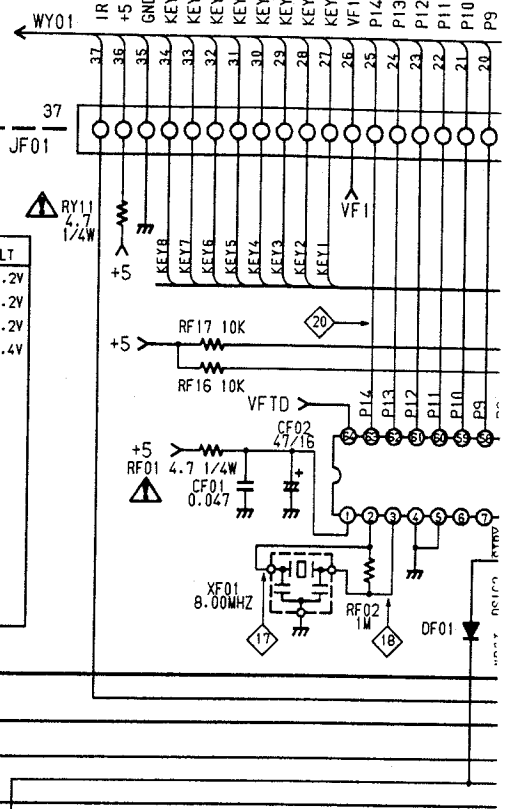


	CD-43	CD-53	CD-63
C803	220UF	220UF	470UF
C804	/35V	/35V	/35V
C805	47UF	100UF	470UF
C806	/16V	/16V	/16V

QF01 MN18716 PIN DC VOLTAGE

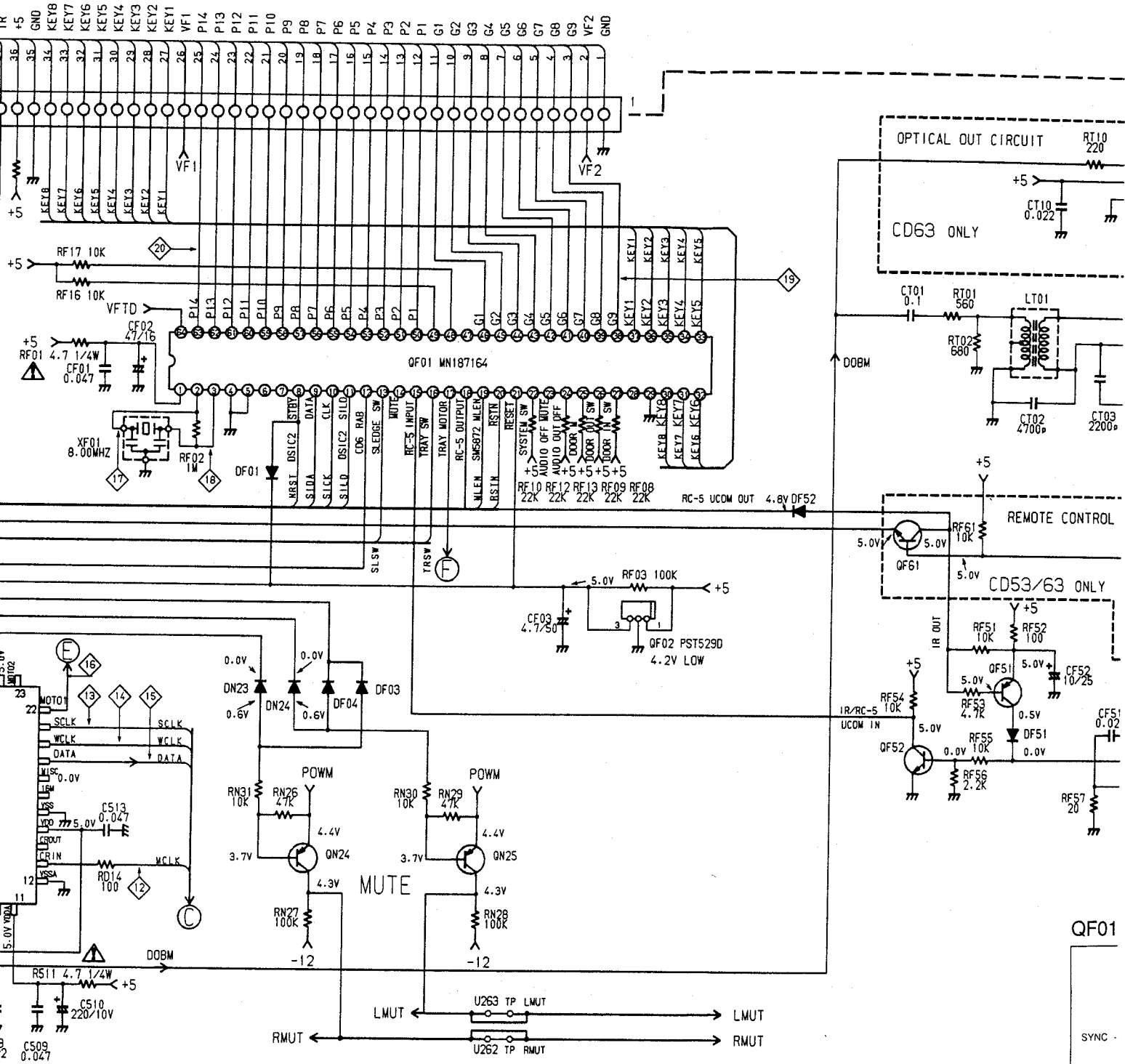
PIN	VOLT	PIN	VOLT	PIN	VOLT	PIN	VOLT	PIN	VOLT
1	5.0V	16	5.0V	31	0.0V	46	-21.4V	61	-24.2V
2	—	17	5.0V	32	0.0V	47	—	62	-24.2V
3	—	18	5.0V	33	0.0V	48	5.0V	63	-24.2V
4	0.0V	19	5.0V	34	0.0V	49	5.0V	64	-24.4V
5	0.0V	20	5.0V	35	0.0V	50	-18.2V		
6	5.0V	21	5.0V	36	0.0V	51	-18.2V		
7	5.0V	22	5.0V	37	0.0V	52	-15.2V		
8	0.0V	23	—	38	-21.4V	53	-15.2V		
9	0.0V	24	5.0V	39	-21.4V	54	-18.1V		
10	5.0V	25	5.0V	40	-21.4V	55	-18.3V		
11	5.0V	26	5.0V	41	-21.4V	56	-18.0V		
12	0.0V	27	5.0V	42	-21.4V	57	-24.2V		
13	5.0V	28	—	43	-21.4V	58	-24.2V		
14	—	29	0.0V	44	-21.4V	59	-24.2V		
15	5.0V	30	0.0V	45	-21.4V	60	-24.2V		

TO FRONT PCB



NOTE ON SAFETY:

Symbol Δ Fire or electrical shock hazard. Only original components marked with symbol Δ . Any other component substitution is at the user's own risk of fire or electrical shock hazard.

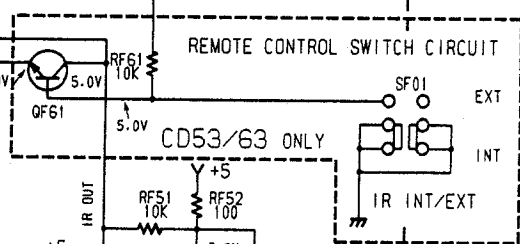
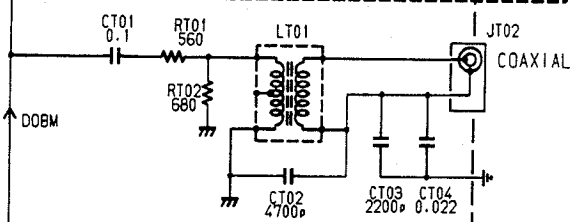
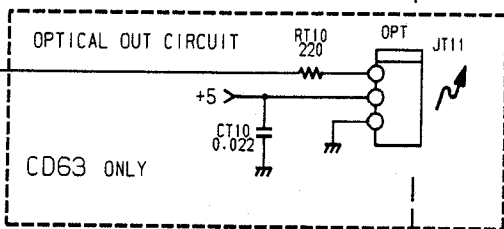
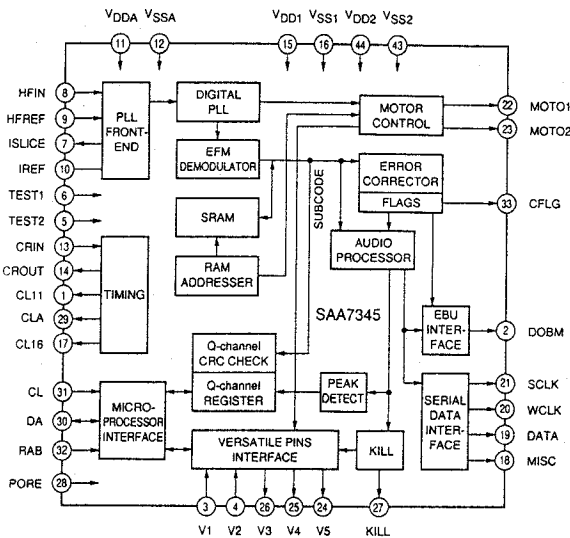


QF01

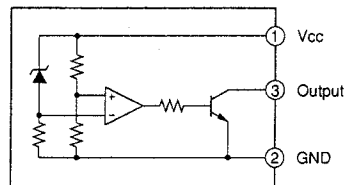
SYNC	-
CM	-
XI	-
XO	-
OSC1	-
OSC2	-
VPP	-
VDD	-
VSS	-
RST	-

Electrical shock hazard. Only original parts should be used to replace any part Δ . Any other component substitution (other than original type), may increase electrical shock hazard.

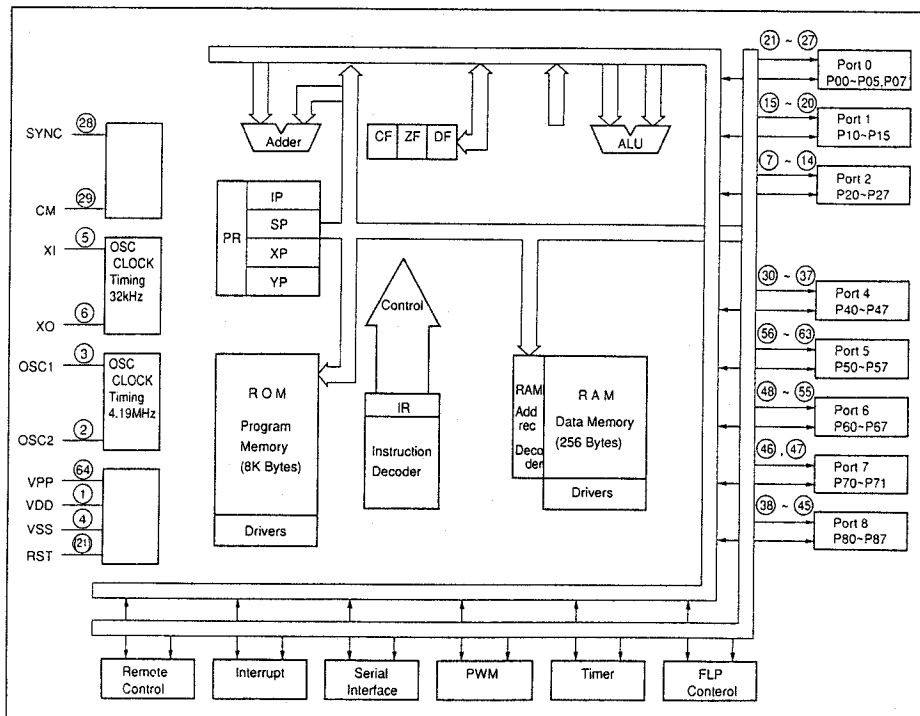
Q503 SAA7345



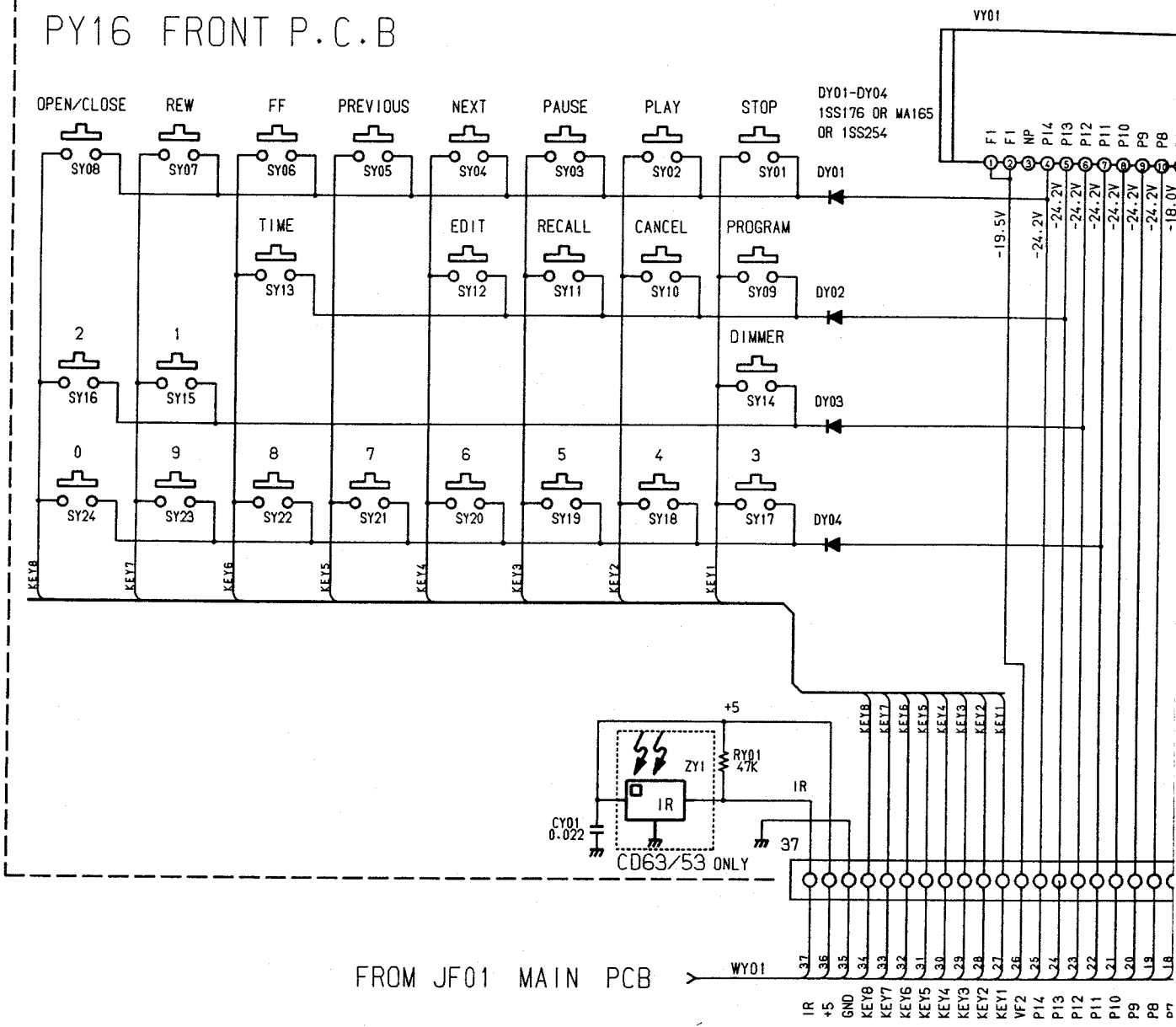
QF02 PST532D



QF01 MN187164

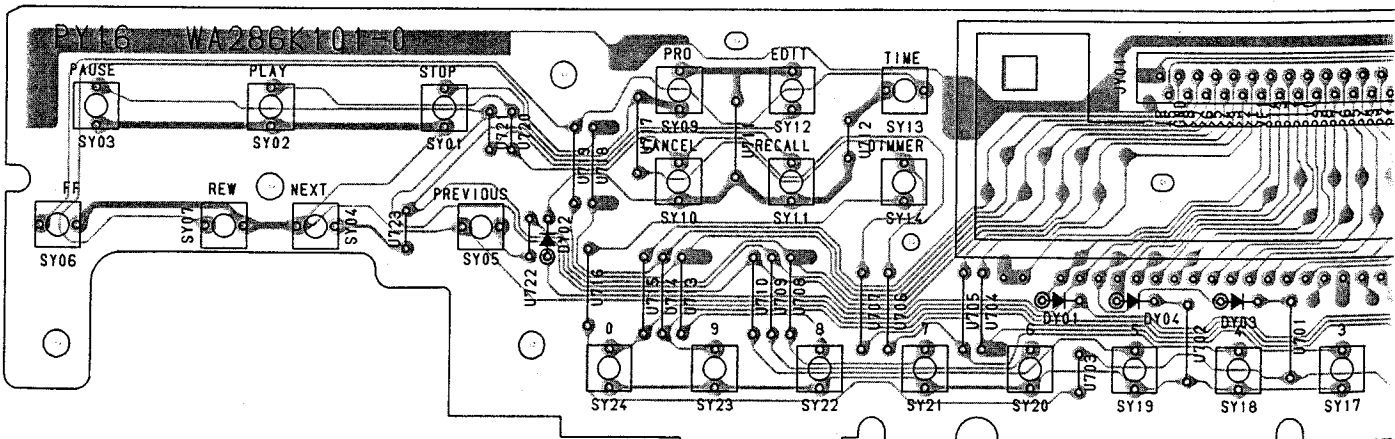


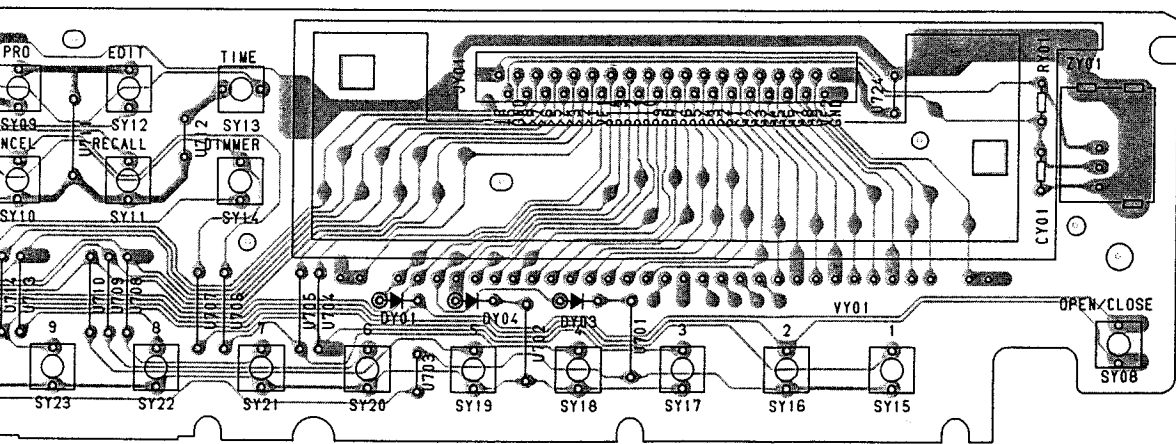
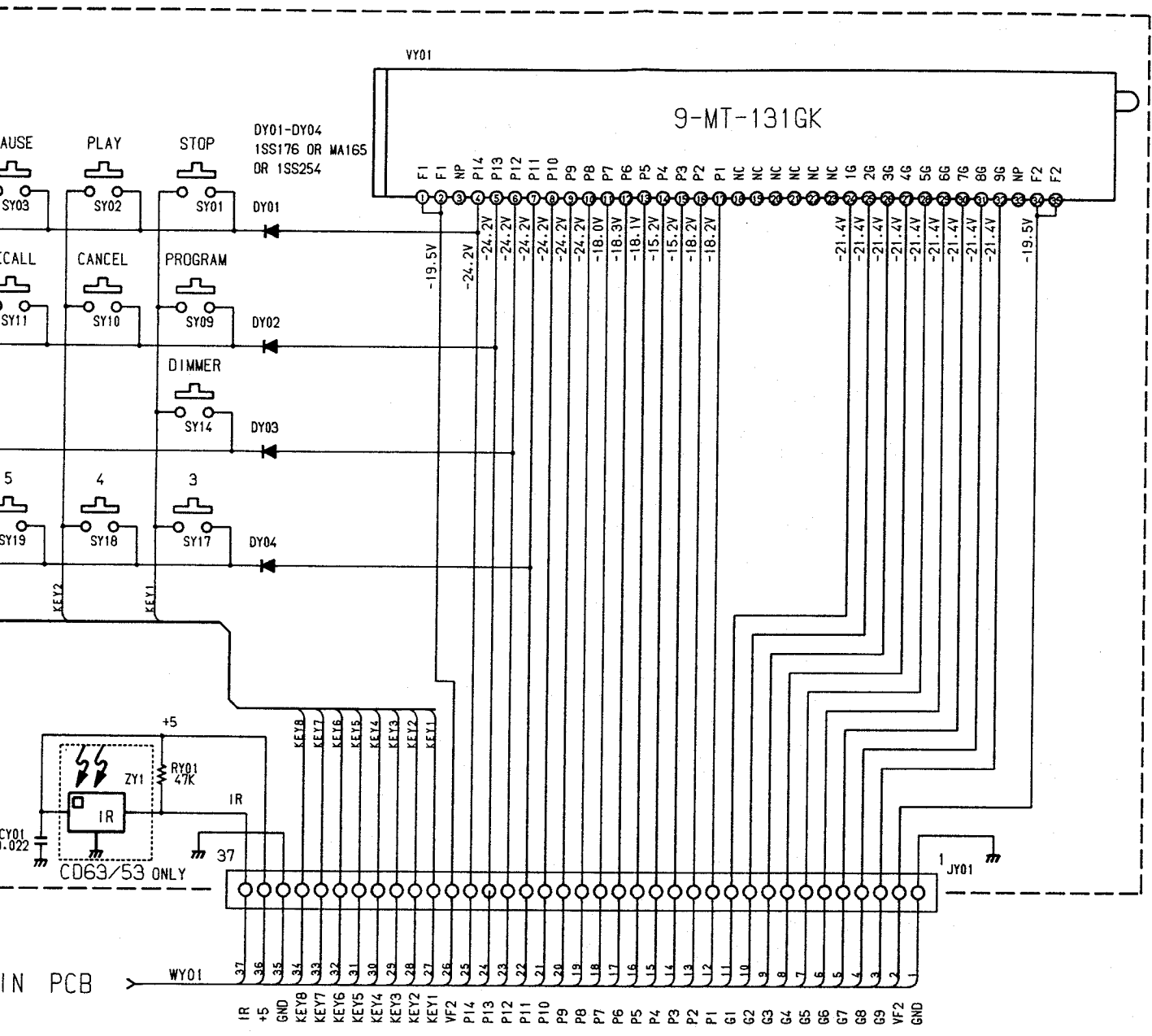
PY16 FRONT P.C.B

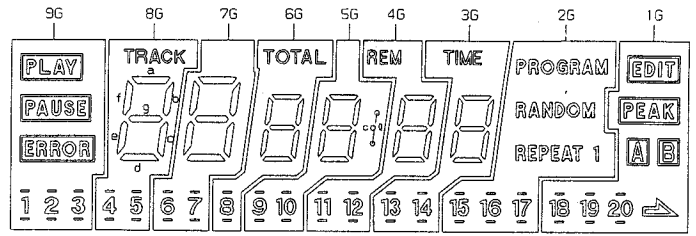
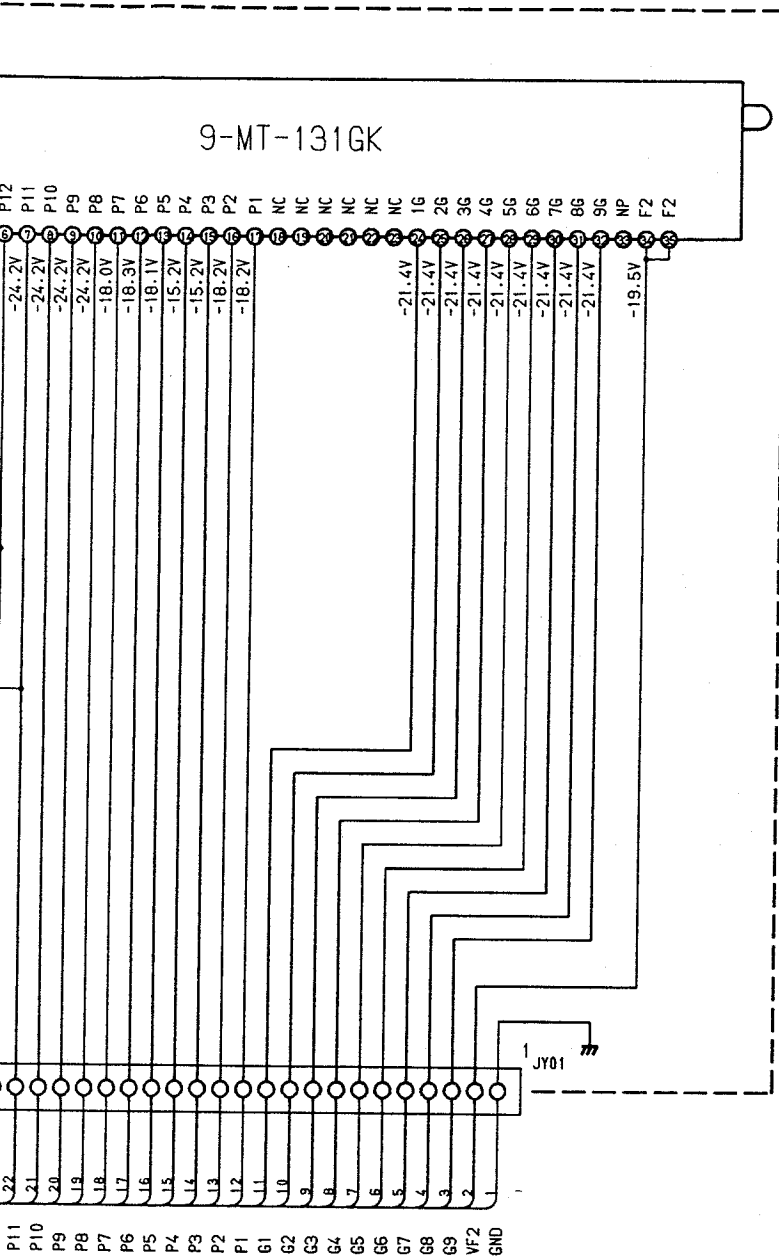


FROM JF01 MAIN PCB

PY16 FRONT PCB



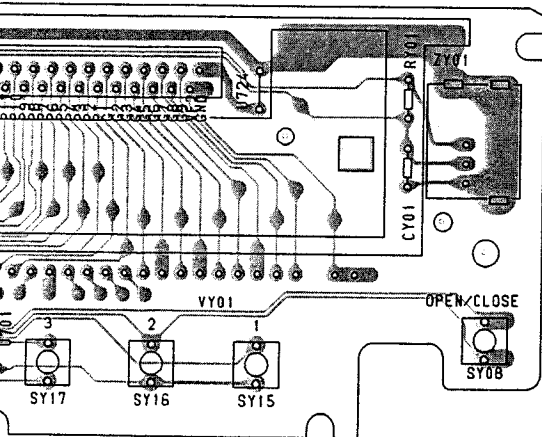




ANODE CONNECTION

	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	-	a	a	a	a	a	a	PROGRAM	PEAK
P2	(1)	b	b	b	b	b	b	15	18
P3	1	c	c	c	c	c	c	(15)	(18)
P4	(1)	d	d	d	d	d	d	1	
P5	-	e	e	e	e	e	e	REPEAT	B
P6	ERROR	f	f	f	f	f	f	-	A
P7	(2)	g	g	g	g	g	g	(15)	(18)
P8	2	(4)	-	TOTAL	000	REM	(13)	(15)	(18)
P9	(2)	4	(6)	-	(9)	(11)	13	16	19
P10	(3)	(4)	5	(8)	9	11	(13)	(16)	(19)
P11	3	(5)	(6)	8	(9)	(11)	(14)	(17)	(20)
P12	(3)	5	(7)	(8)	(10)	(12)	14	17	20
P13	PLAY	(5)	7	-	10	12	(14)	(17)	(20)
P14	PAUSE	TRACK	(7)	-	(10)	(12)	TIME	RANDOM	EDIT

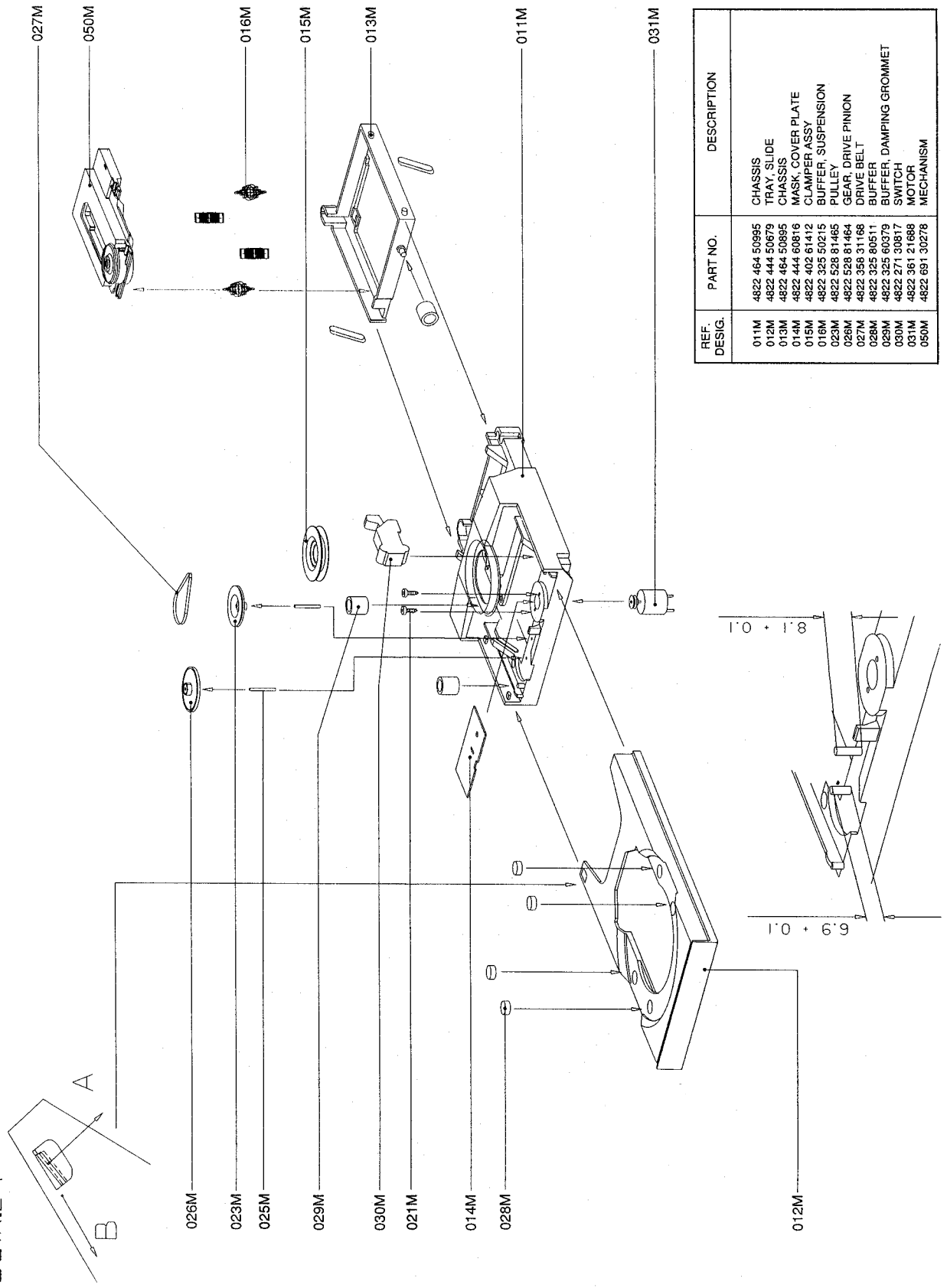
9-MT-131GK
ANODE CONNECTION

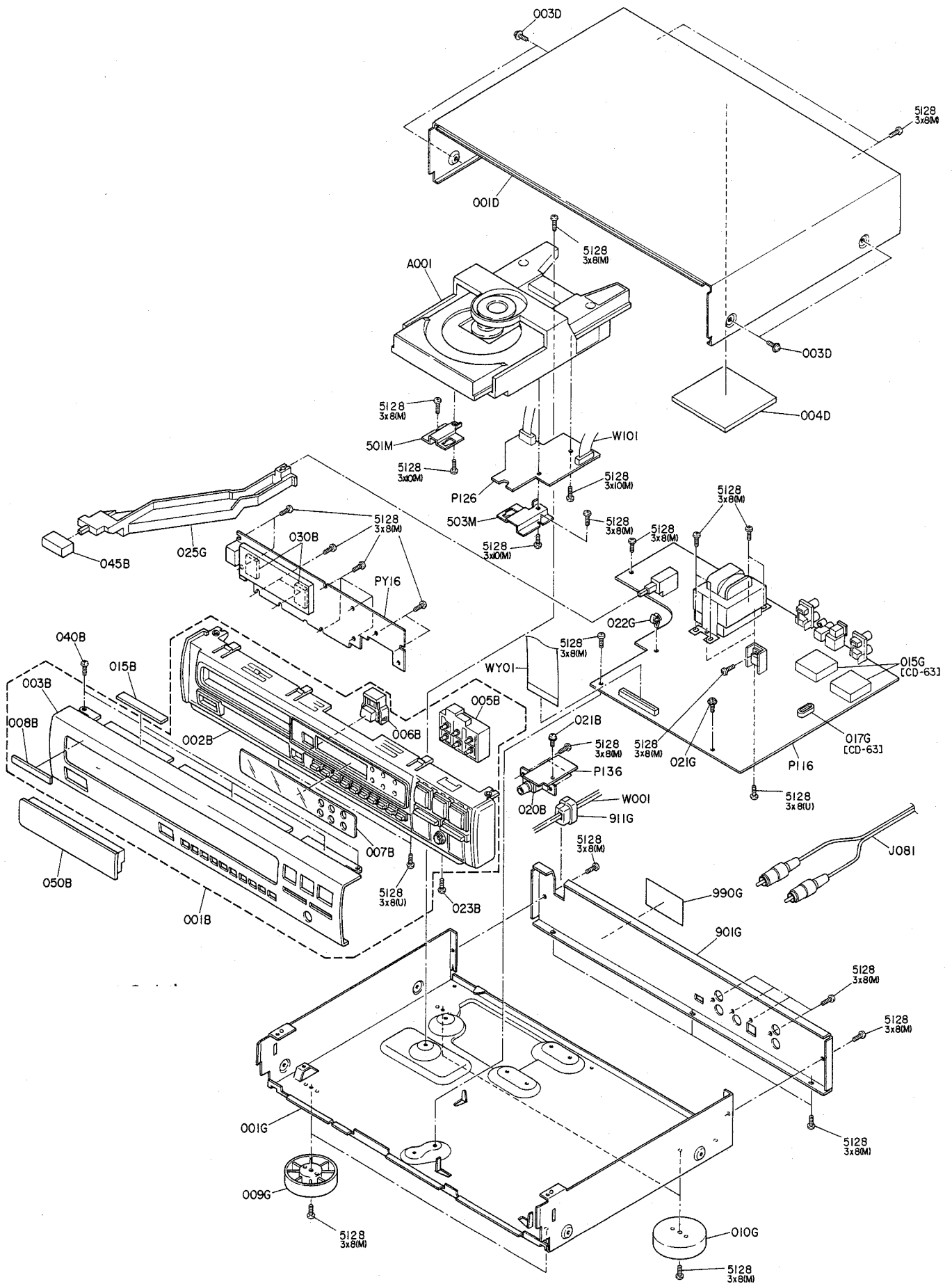


8. EXPLODED VIEW AND PARTS LIST

LOADER

DETAIL I





REF. DESIG.	PART NO.	DESCRIPTION
CD43		
002B	4822 464 50994	CHASSIS, FRONT
003B	4822 444 40702	FRONT PANEL, AL CD-43 (BLK)
005B	4822 410 62898	BUTTON, D3
006B	4822 410 62899	BUTTON, OPEN/CLOSE (BLK)
007B	4822 450 62155	WINDOW
008B	4822 459 11167	BADGE
021B	4822 502 13315	B.T.SCREW (W/TL)
023B		PH.TAP.SCREW
045B	4822 410 62744	BUTTON, POWER (BLACK)
050B	4822 454 30491	ESCUTCHEON
003D	4822 502 12511	B.T.SCREW (W/W)
009G	4822 462 42045	LEG, FRONT
010G	4822 462 42048	LEG, REAR
021G	4822 502 12511	B.T. SCREW (W/W)
025G	4822 403 70989	LINK, POWER SW.
911G	4822 532 61184	BUSHING, AC CORD [/01B]
911G	4822 532 60948	BUSHING, AC CORD BUSH [/02B/05B]
△W001	4822 321 10945	A.C.POWER CORD [/01B]
△W001	4822 321 10428	A.C.POWER CORD [/02B]
△W001	4822 321 11019	A.C.POWER CORD [/05B]
W101	4822 321 62203	JUMPER LEAD, SUMI-CARD 15P
WY01	4822 321 62204	JUMPER LEAD, SUMI-CARD 37P/120MM
PACKING		
001T	4822 736 21863	USER MANUAL, CD-43/53/63 COMB.
J081	4822 321 21438	CONNECTIVE CORD, RCA 2P
J082	4822 265 10092	JACK, AC ADAPTER [/01B]
CD53		
002B	4822 464 50994	CHASSIS, FRONT
003B	4822 444 40695	FRONT PANEL, AL CD-63 (BLK)
005B	4822 410 62898	BUTTON, D3
006B	4822 410 62899	BUTTON, OPEN/CLOSE (BLK)
007B	4822 450 62145	WINDOW, CD-53/63 WITH REMOTE
008B	4822 459 11167	BADGE
021B	4822 502 13315	B.T.SCREW (W/TL)
023B		PH.TAP.SCREW
045B	4822 410 62744	BUTTON, POWER (BLACK)
050B	4822 454 30491	ESCUTCHEON [/01B/02B]
003D	4822 502 12511	B.T.SCREW (W/W)
009G	4822 462 42045	LEG, FRONT
010G	4822 462 42048	LEG, REAR
021G	4822 502 12511	B.T. SCREW (W/W)
025G	4822 403 70989	LINK, POWER SW.
911G	4822 532 61184	BUSHING, AC CORD [/01B]
911G	4822 532 60948	BUSHING, AC CORD BUSH [/02B/05B]
△W001	4822 321 10945	A.C.POWER CORD [/01B]
△W001	4822 321 10428	A.C.POWER CORD [/02B]
△W001	4822 321 11019	A.C.POWER CORD [/05B]
W101	4822 321 62203	JUMPER LEAD, SUMI-CARD 15P
WY01	4822 321 62204	JUMPER LEAD, SUMI-CARD 37P/120MM
PACKING		
001T	4822 736 21863	USER MANUAL, CD-43/53/63 COMB.
J081	4822 321 21438	CONNECTIVE CORD, RCA 2P
J082	4822 265 10092	JACK, AC ADAPTER [/01]
T100	4822 218 10527	IR COMANDER (RC-63CD)

REF. DESIG.	PART NO.	DESCRIPTION
CD53		
002B	4822 464 50994	CHASSIS, FRONT [/01B/02B/05B]
002B	4822 464 51005	CHASSIS, FRONT [/01G/02G]
003B	4822 444 40701	FRONT PANEL (BLK) [/01B/02B/05B]
003B	4822 444 40696	FRONT PANEL (GLD) [/01G/02G]
005B	4822 410 62898	BUTTON, D3
006B	4822 410 62899	BUTTON, OPEN/CLOSE (BLK) [/01B/02B/05B]
006B	4822 410 62931	BUTTON, OPEN/CLOSE (GLD) [/01G/02G]
007B	4822 450 62145	WINDOW
008B	4822 459 11167	BADGE [/01B/02B/05B]
008B	4822 459 11168	BADGE [/01G/02G]
021B	4822 502 13315	B.T.SCREW (W/TL)
023B		PH.TAP.SCREW
045B	4822 410 62744	BUTTON, POWER (BLACK) [/01B/02B/05B]
045B	4822 410 62745	BUTTON, POWER (GOLD) [/01G/02G]
050B	4822 454 30491	ESCUTCHEON [/01B/02B]
050B	4822 454 30494	ESCUTCHEON [/01G/02G]
003D	4822 502 12511	B.T.SCREW (W/W)
009G	4822 462 42045	LEG, FRONT
010G	4822 462 42048	LEG, REAR
021G	4822 502 12511	B.T. SCREW (W/W)
025G	4822 403 70989	LINK, POWER SW.
911G	4822 532 61184	BUSHING, AC CORD [/01B/01G]
911G	4822 532 60948	BUSHING, AC CORD BUSH [/02B/02G/05B]
△W001	4822 321 10945	A.C.POWER CORD [/01]
△W001	4822 321 10428	A.C.POWER CORD [/02]
△W001	4822 321 11019	A.C.POWER CORD [/05]
W101	4822 321 62203	JUMPER LEAD, SUMI-CARD 15P
WY01	4822 321 62204	JUMPER LEAD, SUMI-CARD 37P/120MM
PACKING		
001T	4822 736 21863	USER MANUAL, CD-43/53/63 COMB.
J081	4822 321 21438	CONNECTIVE CORD, RCA 2P
J082	4822 265 10092	JACK, AC ADAPTER [/01]
T100	4822 218 10527	IR COMANDER (RC-63CD)

9. ELECTRICAL PARTS LIST

ASSIGNMENT OF COMMON PARTS CODES.

RESISTOR

R * * * : (1) GD05 xxx 140, Carbon film fixed resistor, ±5% 1/4W

R * * * : (2) GD05 xxx 160, Carbon film fixed resistor, ±5% 1/6W

① — Resistance value

Examples ;

① Resistance value

0.1 Ω001	10 Ω100	1 kΩ102	100 kΩ104
0.5 Ω005	18 Ω180	2.7 kΩ272	680 kΩ684
1 Ω010	100 Ω101	10 kΩ103	1 MΩ105
6.8 Ω068	390 Ω391	22 kΩ223	4.7 MΩ475

(Note) Please distinguish 1/4W from 1/6W by the shape of parts used actually.

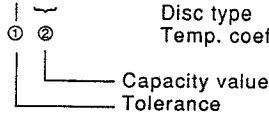
C * * * : CERAMIC CAP.

(1) DD1x xxx 370,

Ceramic capacitor

Disc type

Temp. coeff. P350 ~ N1000, 50V



Examples ;

① Tolerance (Capacity deviation)

± 0.25pF0

± 0.5pF1

± 5%5

* Tolerance of COMMON PARTS handled here are as follows :

0.5pF ~ 5pF± 0.25pF

6pF ~ 10pF± 0.5pF

12pF ~ 560pF± 5%

② Capacity value

0.5 pF005 3 pF030 100 pF101

1 pF010 10 pF100 220 pF221

1.5 pF015 47 pF470 560 pF561

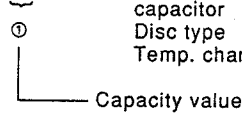
C * * * : CERAMIC CAP.

(1) DK16 xxx 300,

High dielectric constant ceramic capacitor

Disc type

Temp. chara. 2B4, 50V



Examples ;

② Capacity value

100 pF101 1000 pF102 10000 pF103

470 pF471 2200 pF222

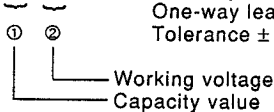
C * * * : ELECTROLY CAP. (Z), FILM CAP. (F)

(1) EA xxx xxx 10,

Electrolytic capacitor

One-way lead type,

Tolerance ± 20%



Examples ;

① Capacity value

0.1 μF104 4.7 μF475 100 μF107

0.33 μF334 10 μF106 330 μF337

1 μF105 22 μF226 1100 μF118

2200 μF228

② Working voltage

6.3 V006 25 V025

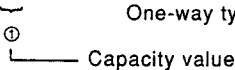
10 V010 35 V035

16 V016 50 V050

(2) DF15 xxx 350,

Plastic film capacitor

One-way type, Mylar ± 5% 50V



Examples ;

① Capacity value

0.001 μF (1000pF)102 0.1 μF104

0.0018 μF182 0.56 μF564

0.01 μF103 1 μF105

0.015 μF153

NOTE : The above CODES (R * * * , R * * * , C * * * , C * * * and C * * *) are omitted on the schematic diagram in some case.

On the occasion, be confirmed common parts on the parts list.

REF. DESIG.	PART NO.	DESCRIPTION
		P116-MAIN CIRCUIT BOARD
		P116-CAPACITORS
CD02	4822 122 32185	CERAMIC 10PF ±0.5PF 50V
CD03	4822 122 32185	CERAMIC 10PF ±0.5PF 50V
CD04	4822 124 90363	ELECT 220 μF 10V
CD05	4822 122 40589	CERAMIC 0.047μF ± 20% 50V
CD06	4822 122 40589	CERAMIC 0.047μF ± 20% 50V
CD07	4822 124 90363	ELECT 220 μF 10V
CD08	4822 122 40589	CERAMIC 0.047μF ± 20% 50V
CD12	4822 122 40589	CERAMIC 0.047μF ± 20% 50V
CD13	4822 122 40589	CERAMIC 0.047μF ± 20% 50V
CD15	4822 124 90363	ELECT 220 μF 10V
CD16	4822 124 90363	ELECT 220 μF 10V
CD21		FILM 120PF ± 5% 100V [CD63]
CD21	4822 126 11559	CERAMIC 120PF ± 5% 50V [CD43/CD53]
CD22		FILM 120PF ± 5% 100V [CD63]
CD22	4822 126 11559	CERAMIC 120PF ± 5% 50V [CD43/CD53]
CD23		FILM 120PF ± 5% 100V [CD63]
CD23	4822 126 11559	CERAMIC 120PF ± 5% 50V [CD43/CD53]
CD24		FILM 120PF ± 5% 100V [CD63]
CD24	4822 126 11559	CERAMIC 120PF ± 5% 50V [CD43/CD53]
CF01	4822 122 40589	CERAMIC 0.047μF ±20% 50V
CF02	4822 124 41539	ELECT 47 μF 16V
CF03	4822 124 22274	ELECT 4.7 μF 50V
CF51	4822 122 30103	CERAMIC 0.022μF +80%-20% 50V
CF52	4822 124 41534	ELECT 10 μF 25V
CH01	4822 126 10513	CERAMIC 47PF ± 5% [CD63]
CH02	4822 126 10513	CERAMIC 47PF ± 5% [CD63]
△CH11	4822 121 43732	FILM0.01μF+80%-20% 250V AC
△CN01	4822 124 22277	ELECT 470μF 16V
CN02	4822 124 90357	ELECT 2.2μF 50V
CN03	4822 124 41534	ELECT 10μF 25V
CT02	4822 122 31125	CERAMIC4700PF +80%-20% 50V
CT04	4822 122 30103	CERAMIC0.022μF +80%-20% 50V
CT10	4822 122 30103	CERAMIC0.022μF +80%-20% 50V [CD63]
C111		S
C116	4822 126 12918	CERAMIC 220PF ± 5% 50V
C119	4822 122 40589	CERAMIC 0.047μF ±20% 50V
C120	4822 124 41539	ELECT 47 μF 16V
C121	4822 122 40589	CERAMIC 0.047μF ±20% 50V
C122	4822 124 41539	ELECT 47 μF 16V
C123	4822 122 40589	CERAMIC 0.047μF ±20% 50V
C124	4822 124 41534	ELECT 10 μF 25V
C134	4822 124 90357	ELECT 2.2 μF 50V
C135	4822 124 41539	ELECT 47 μF 16V
C136	4822 122 30103	CERAMIC 0.022μF +80%-20% 50V
C137	4822 122 30103	CERAMIC 0.022μF +80%-20% 50V
C138	4822 124 41539	ELECT 47 μF 16V
C143	4822 126 11069	CERAMIC 150PF ± 10%
C144	4822 126 11069	CERAMIC 150PF ± 10%
C146	4822 122 30103	CERAMIC 0.022μF +80%-20% 50V
C148	4822 122 30103	CERAMIC 0.022μF +80%-20% 50V
C151	4822 122 30103	CERAMIC 0.022μF +80%-20% 50V
C152	4822 122 30103	CERAMIC 0.022μF +80%-20% 50V
C153	4822 124 41539	ELECT 47 μF 16V
C154	4822 124 41539	ELECT 47 μF 16V
C501	4822 126 11069	CERAMIC 150PF ± 10%
C503	4822 122 40589	CERAMIC 0.047μF ±20% 50V
C504	4822 124 90363	ELECT 220 μF 10V
C507	4822 126 10513	CERAMIC 47PF ± 5%

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 Email: enquiries@mauritron.co.uk

REF. DESIG.	PART NO.	DESCRIPTION
C508	4822 122 30103	CERAMIC 0.022 μ F +80%-20% 50V
C509	4822 122 40589	CERAMIC 0.047 μ F +80%-20% 50V
C510	4822 124 90363	ELECT 220 μ F 10V
C511	4822 124 90363	ELECT 220 μ F 10V
C512	4822 122 40589	CERAMIC 0.047 μ F \pm 20% 50V
C513	4822 122 40589	CERAMIC 0.047 μ F \pm 20% 50V
C514	4822 126 10364	CERAMIC 100PF \pm 10%
C601		
§		
C604		FILM 120PF \pm 5% 100V [CD63]
C601		
§	4822 126 11559	FILM 120PF \pm 5% 100V [CD43/CD53]
C604		FILM 100PF \pm 5% 100V [CD63]
C607		
C607	5322 122 32265	CERAMIC 100PF \pm 5% 50V [CD43/CD53]
C608		FILM 100PF \pm 5% 100V [CD63]
C608	5322 122 32265	CERAMIC 100PF \pm 5% 50V [CD43/CD53]
C611		
§	4822 124 90364	ELECT 220 μ F 16V [CD53/CD63]
C614		
C611		
§	4822 124 90354	ELECT 100 μ F 16V [CD43]
C614		
C651		
§	4822 124 90364	ELECT 220 μ F 16V [CD63]
C654		
C655		
§	4822 124 90364	ELECT 220 μ F 16V
C658		
C659	4822 126 10364	CERAMIC 100PF \pm 10% [CD63]
C659	5322 122 32265	CERAMIC 100PF +80%-20% 50V [CD43/CD53]
C660	4822 126 10364	CERAMIC 100PF \pm 10% [CD63]
C660	4822 122 32265	CERAMIC 100PF +80%-20% 50V [CD43/CD53]
C801	4822 122 30103	CERAMIC 0.022 μ F +80%-20% 50V
C802	4822 122 30103	CERAMIC 0.022 μ F +80%-20% 50V
△C803	4822 124 41541	ELECT 470 μ F 35V [CD63]
△C803	4822 124 41538	ELECT 220 μ F 35V [CD43/CD53]
△C804	4822 124 41541	ELECT 470 μ F 35V [CD63]
△C804	4822 124 41538	ELECT 220 μ F 35V [CD43/CD53]
△C805	4822 124 22277	ELECT 470 μ F 16V [CD63]
△C805	4822 124 90354	ELECT 100 μ F 16V [CD53]
△C805	4822 124 41539	ELECT 47 μ F 16V [CD43]
△C806	4822 124 22277	ELECT 470 μ F 16V [CD63]
△C806	4822 124 90354	ELECT 100 μ F 16V [CD53]
△C806	4822 124 41539	ELECT 47 μ F 16V [CD43]
C811	4822 122 40589	CERAMIC 0.047 μ F +80%-20% 50V
C812	4822 122 40589	CERAMIC 0.047 μ F +80%-20% 50V
△C813	4822 124 80582	ELECT 4700 μ F 16V
△C814	4822 124 22722	ELECT 1000 μ F 16V
C815	4822 124 80773	ELECT 3300 μ F 6.3V
△C852	4822 124 90355	ELECT 100 μ F 50V
C853	4822 124 80772	ELECT 47 μ F 35V
△C854	4822 124 90355	ELECT 100 μ F 50V
C901	4822 124 41534	ELECT 10 μ F 25V
C902	4822 124 41534	ELECT 10 μ F 25V
C903	4822 124 90354	ELECT 100 μ F 16V
C904	4822 124 90354	ELECT 100 μ F 16V
C***		P116-CAPACITORS (COMMON) PLASTIC FILM CAPACITOR ONE-WAY TYPE, MYLER \pm 5% 50V: CT01, C131, C132, C133, C139~C142, C149, C155, C156, C506, C605, C606
C***		HIGH DIELECTRIC CONSTANT CERAMIC CAPACITOR, 50V: CT03, C117, C118, C505

REF. DESIG.	PART NO.	DESCRIPTION
C***		CERAMIC CAPACITOR, 50V: C502
		P116-RESISTORS
△RD01	4822 111 90967	4.7 Ω \pm 5% 1/4W FUSE
△RD04	4822 111 90967	4.7 Ω \pm 5% 1/4W FUSE
△RF01	4822 111 90967	4.7 Ω \pm 5% 1/4W FUSE
△RN08	4822 111 90967	4.7 Ω \pm 5% 1/4W FUSE
△RY11	4822 111 90967	4.7 Ω \pm 5% 1/4W FUSE [CD53/CD63]
△R122	4822 111 90967	4.7 Ω \pm 5% 1/4W FUSE
△R123	4822 111 90967	4.7 Ω \pm 5% 1/4W FUSE
△R127	4822 111 90967	4.7 Ω \pm 5% 1/4W FUSE
△R128	4822 111 90967	4.7 Ω \pm 5% 1/4W FUSE
△R136	4822 111 90967	4.7 Ω \pm 5% 1/4W FUSE
△R149	4822 116 60307	21 Ω \pm 5% 1/4W FUSE
△R150	4822 116 60307	1 Ω \pm 5% 1/4W FUSE
△R164	4822 116 60307	1 Ω \pm 5% 1/4W FUSE
△R165	4822 116 60307	1 Ω \pm 5% 1/4W FUSE
△R508	4822 111 90967	4.7 Ω \pm 5% 1/4W FUSE
△R511	4822 111 90967	4.7 Ω \pm 5% 1/4W FUSE
△R613		
§	4822 052 10109	10 Ω \pm 5% 1/4W
△R616		
△R651		
§	4822 115 90197	27 Ω \pm 2% 1/4W FUSE [CD63]
△R654		
R***		P116-RESISTORS (COMMON) CARBON FILM FIXED RESISTOR \pm 5% 1/6W: RD02, RD11~RD16, RD21~RD28, RF02, RF03, RF06, RF08~RF10, RF12~RF17, RF20, RF21, RF51~RF57, RF61[CD53/CD63], RH01~RH12[CD63] RH15~RH26[CD63], RN01, RN02, RN04~RN07, RN09, RN10, RN15~RN18, RN23, RN26,~RN31, RN91, RN92, RT01, RT02, RT10[CD63], R107, R114~R119, R121, R124~R126, R129~R135, R137~R148, R151~R157, R159~R163, R501~R507, RR509, R510, R514, R601~R612, R617[CD63], R618[CD63], R619[CD43/CD53], R620[CD43/CD53], R655~R662, R851~R855, R901~R906, R909, R910, R913, R914
		P116-SEMICONDUCTORS
DF01	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DF03	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DF04	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DF51	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DF52	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DH01		
§	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A [CD63]
DH10		
△DN01		
§	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
△DN04	IO=1A	

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REF. DESIG.	PART NO.	DESCRIPTION
DN05	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DN06	4822 130 33948	ZENER DIODE, 04AZ5.6-Y 5.6V
DN07	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DN23	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DN24	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
△D151	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
△D152	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
△D801	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
△D804		
△D811		
△D814		
△D851		
△D852	4822 130 80318	ZENER DIODE 04AZ6.8-Z 6.8V
D853	4822 130 33759	ZENER DIODE 04AZ4.7-Y 4.7V
△D854	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
QD01	4822 209 32762	IC, DIG.FIL & DAC SM5872BS
QF01	4822 209 32887	IC, MAIN CPU MN187164
QF02	4822 209 73951	IC, RESET IC PST523D (4.2V) LOW
QF51	4822 130 42715	TRANSISTOR 2SA608SP, 2SA1048, 2SA1309, 2SA933S
QF52	4822 130 42298	TRANSISTOR 2SC536SP, 2SC2458, 2SC3311, 2SC1740S
QF61	4822 130 42298	TRANSISTOR 2SC536SP, 2SC2458, 2SC3311, 2SC1740S [CD53/CD63]
QH01	4822 130 63382	F.E.T. 2SK332D-6A [CD63]
QH02	4822 130 63382	F.E.T. 2SK332D-6A [CD63]
QH03	4822 130 43233	TRANSISTOR 2SC2240 (GR, BL) [CD63]
QH04	4822 130 43233	TRANSISTOR 2SC2240 (GR, BL) [CD63]
QH05	4822 130 42951	TRANSISTOR 2SA970 (GR, BL) [CD63]
QH08		
QH09	4822 130 43233	TRANSISTOR 2SC2240 (GR, BL) [CD63]
QH10	4822 130 43233	TRANSISTOR 2SC2240 (GR, BL) [CD63]
QH11	5322 130 41844	F.E.T. 2SK170 BL VGDS=-40V PD=0.4V [CD63]
QH12	5322 130 41844	F.E.T. 2SK170 BL VGDS=-40V PD=0.4V [CD63]
QH13	4822 130 62649	F.E.T. 2SJ74 BL VGDS=25V PD=24W [CD63]
QH14	4822 130 62649	F.E.T. 2SJ74 BL VGDS=25V PD=24W [CD63]
△QM01	4822 209 62755	IC, DUAL POWER OP AMP TCA0372
QN01	4822 130 42298	TRANSISTOR 2SC536SP, 2SC2458, 2SC3311, 2SC1740S
QN04		
QN05	4822 130 43818	TRANSISTOR 2SC2878 (A, BRANK)
QN08		
QN20	4822 130 42298	TRANSISTOR 2SC536SP, 2SC2458, 2SC3311, 2SC1740S
QN24	4822 130 42715	TRANSISTOR 2SA608SP, 2SA1048, 2SA1309, 2SA933S
QN25	4822 130 42715	TRANSISTOR 2SA608SP, 2SA1048, 2SA1309, 2SA933S

REF. DESIG.	PART NO.	DESCRIPTION
QN91	4822 130 43818	TRANSISTOR 2SC2878 (A, BRANK)
QN92	4822 130 43818	TRANSISTOR 2SC2878 (A, BRANK)
Q104	4822 209 32763	IC, DIGITAL SERVO CONT.TDA1301T
△Q105	4822 209 62755	IC, DUAL POWER OP AMP TCA0372
△Q106	4822 209 62755	IC, DUAL POWER OP AMP TCA0372
Q501	4822 130 42298	TRANSISTOR 2SC536SP, 2SC2458, 2SC3311, 2SC1740S
Q502	4822 130 42298	TRANSISTOR 2SC536SP, 2SC2458, 2SC3311, 2SC1740S
Q503	4822 209 32764	IC, CD DECODER SAA7345 (CD6)
Q605	4822 209 31153	IC, DUAL LOW NOISE OP-AMP NJM2114D [CD53/CD63]
Q605	4822 209 83627	IC, NJM4560D [CD43]
Q606	4822 209 31153	IC, DUAL LOW NOISE OP-AMP NJM2114D [CD53/CD63]
Q606	4822 209 83627	IC, NJM4560D [CD43]
△Q801	4822 209 31712	IC, NJM78M12FA
△Q802	4822 209 63641	IC, -12V 0.5A NJM79M12FA
△Q811	4822 209 31631	IC, +5V NJM7805FA
△Q851	4822 209 31788	IC, -18V 500MA REG.NJM79M18FA JRC
Q852	4822 130 42298	TRANSISTOR 2SC536SP, 2SC2458, 2SC3311, 2SC1740S
Q853	4822 130 42715	TRANSISTOR 2SA608SP, 2SA1048, 2SA1309, 2SA933S
Q854	4822 130 42715	TRANSISTOR 2SA608SP, 2SA1048, 2SA1309, 2SA933S
Q901	4822 209 83654	IC, NJM4556D
△FH11	4822 253 30414	FUSE 630 MA 250V
△FH12	4822 253 30414	FUSE 630 MA 250V
JF01	4822 265 61251	JACK 37 PIN FFC
JF03	4822 267 41009	TERMINAL 2P RCA PIN JACK (RC-5 IN/OUT)
JT11	4822 267 31369	JACK, OPTICAL OUTPUT GP1F32T [CD63]
J103	4822 265 41351	JACK, 15P
J601	4822 265 31045	TERMINAL RCA 2P OUTPUT [CD63]
J601	4822 267 31727	TERMINAL RCA 2P OUTPUT [CD43/CD53]
J805	4822 256 30329	JACK, FUSE CLIP
J806	4822 267 30978	JACK, FUSE CLIP
J807	4822 256 30329	JACK, FUSE CLIP
J808	4822 267 30978	JACK, FUSE CLIP
LT01	4822 142 60388	PULSE TRANSFORMER
△L001	4822 146 21751	POWER TRANSFORMER [/01]
△L001	4822 146 21749	POWER TRANSFORMER [/02/05]
L601	4822 157 62899	CHOKE COIL 220μH
L602	4822 157 62899	CHOKE COIL 220μH
SF01	4822 277 21559	SLIDE SWITCH, IR INT/EXT [CD53/CD63]
△SH02	4822 277 21465	SLIDE SWITCH, VOLTAGE SELECTOR [/01B]
△SH91	4822 276 13364	PUSH SWITCH, POWER
XD01	4822 242 72334	CRYSTAL 16.9344MHZ
XF01	4822 242 72066	CERAMIC VIBRATOR CST8.0MHZ
X101	4822 242 81536	CERAMIC VIBRATOR CST8.46MTW
P126-HF CIRCUIT BOARD		
P126-CAPACITORS		
C101	4822 126 10364	CERAMIC 100PF ± 10%

REF. DESIG.	PART NO.	DESCRIPTION
C102	4822 126 10513	CERAMIC 47PF ± 5%
C103	4822 126 10513	CERAMIC 47PF ± 5%
C104	4822 126 11554	CERAMIC 18PF ± 5%
C105	4822 126 11069	CERAMIC 150PF ± 10%
C106	4822 124 41534	ELECT 10 μF 25V
C107	4822 122 40589	CERAMIC 0.047μF ± 20% 50V
C108	4822 126 11069	CERAMIC 150PF ± 10%
C109	4822 126 11069	CERAMIC 150PF ± 10%
C110	4822 126 11071	CERAMIC 330PF ± 10%
R***		P126-RESISTORS (COMMON) CARBON FILM FIXED RESISTOR ±5% 1/6W: R101~R106, R108~R113
Q101	4822 130 61748	P126-SEMICONDUCTORS TRANSISTOR 2SC2668 (O) TRANSISTOR 2SC536SP, 2SC2458, 2SC3311, 2SC1740S TRANSISTOR 2SA608SP, 2SA1048, 2SA1309, 2SA933S
Q102	4822 130 42298	
Q103	4822 130 42715	
J101	4822 265 41349	P126-MISCELLANEOUS JACK, 12P JACK, 15P
J102	4822 265 41351	
		P136-HEADPHONE CIRCUIT BOARD
C980	4822 122 30103	P136-CAPACITORS CERAMIC 0.022μF +80%-20% 50V
J900	4822 267 31691	P136-MISCELLANEOUS JACK, HEAD PHONE [01B/02B/05B] JACK, HEAD PHONE [CD53/01G/02G]
J900	4822 267 31692	
		PY16-FRONT CIRCUIT BOARD
CY01	4822 122 40589	PY16-CAPACITORS CERAMIC 0.047μF ±20% 50V
R***		PY16-RESISTORS (COMMON) CARBON FILM FIXED RESISTOR ±5% 1/6W: RY01
DY01	4822 130 33305	PY16-SEMICONDUCTORS DIODE, 1SS176, MA165, 1SS254 30V 0.1A
DY04		
JY01	4822 265 61252	PY16-MISCELLANEOUS JACK, 37 PIN CARD TYPE
SY01	4822 276 20508	PUSH SWITCH
SY14		
SY15	4822 276 13296	PUSH SWITCH
SY24		
VY01	4822 130 91287	DISPLAY UNIT
ZY01	4822 214 52009	PHOTO UNIT GP1U58XP [CD53/CD63]

NOTE ON SAFETY

Symbol Δ Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol Δ . Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.