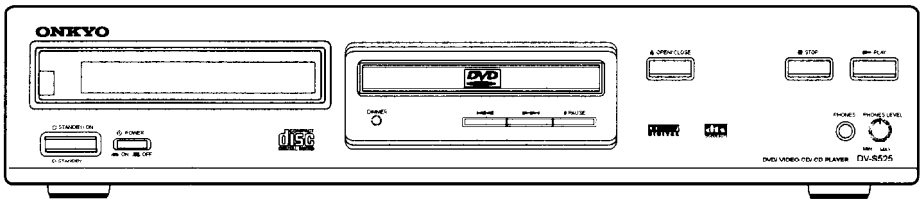
Ref. No.3633
091999

ONKYO® SERVICE MANUAL

DVD PLAYER
MODEL DV-S525



Black, Silver and Golden models

BUD	120V AC, 60Hz
BUP / BUPA	230V AC, 50Hz
BUWT	120-230V AC, 50/60Hz
GUPA	230V AC, 50Hz
GUWT	120-230V AC, 50/60Hz
SUP	230V AC, 50Hz

SAFETY-RELATED COMPONENT WARNING!!

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

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

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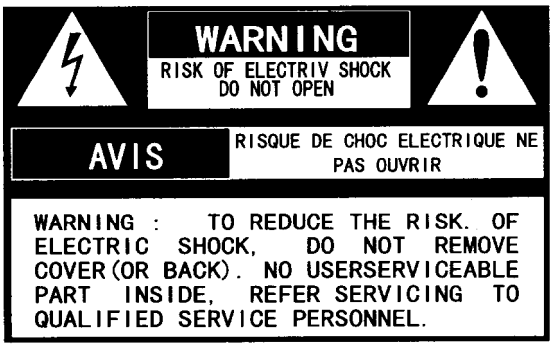
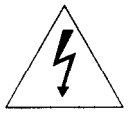
ONKYO®
AUDIO COMPONENTS

OPERATING INSTRUCTIONS
SAFETY PRECAUTIONS





The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instruction in the literature accompanying the appliance.

WARNING : TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DANGEROUS HIGH VOLTAGES ARE PRESENT INSIDE THE ENCLOSURE. DO NOT OPEN THE CABINET. REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

CAUTION : TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

ATTENTION : POUR EVITER LES CHOCS ELECTRIQUE, INTRODUIRE LA LAME LA PLUS LARGE DA LA FICHE DANS LA BORNE CORRESPONDANTE DA LA PRISE ET POUSSER JUSQU' AU FOND.

PRECAUTIONS

Replacing the fuses

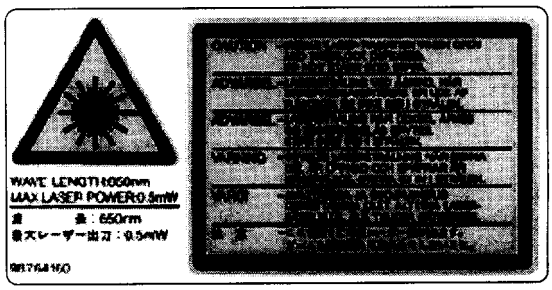
For continued protection against risk fire, replace only with same type and same rating fuse.

CIRCUIT No.	PART No.	DESCRIPTION
F901 <UD>	252146	1.25A-TSC
F901 <UP/UWT,UPA>	252071	1.25A-SE-EAWK

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

Ce symbole indique que le fusible utlise est a rapide. Pour une protection permanente, n'utiliser que des fusibles de meme type. Ce darnier est indique la qu le present symbol est appose.

LASER BEAM CAUTION LABEL



When the power supply is being turned on, you may not remove this laser cautions label, radiation of a laser may be received.
Pickup Head consists of a laser diode that is very susceptible to external static electricity. Although it operates properly after replacement, if it was subject to electrostatic discharge during replacement, its life might be shortened. When replacing, use a conductive mat, soldering iron with ground wire, etc. to protect the laser diode from damage by static electricity. And also, the LSI and IC are same as above.

SPECIFICATIONS

DVD Player

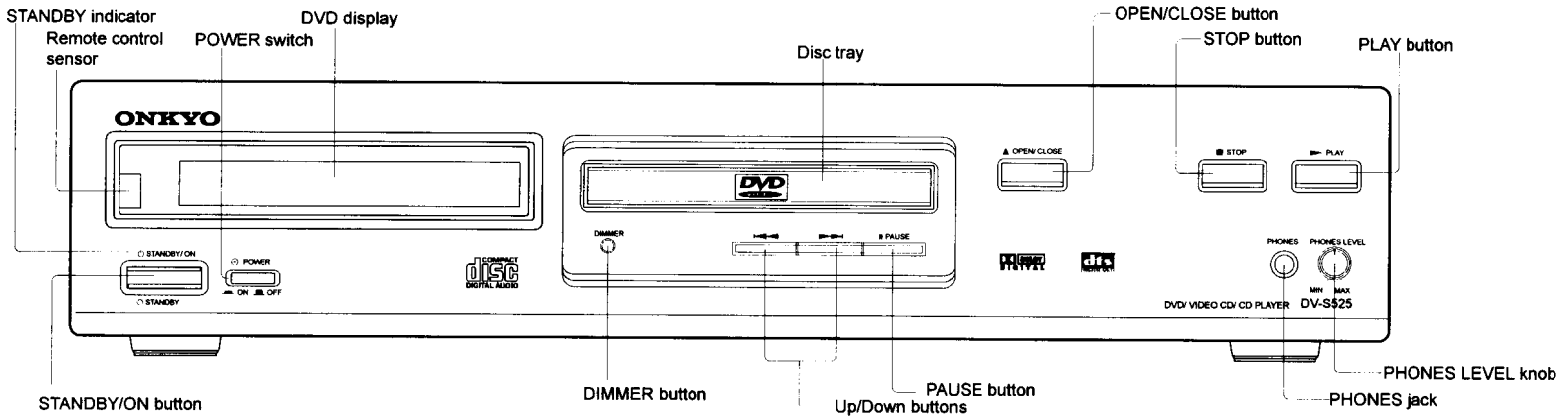
Power supply	UD : AC 120 V, 60Hz UP, UPA : AC230 V, 50Hz UWT: AC220V-230V, 50/60Hz
Power consumption	25 W
Weight	2.8 kg, 8.4lbs.
External dimensions	45 x 91 x 306 mm(W/H/D), 17-1/8" x 3-9/16" x 12-1/16" (W/H/D)
Signal system	Standard NTSC
Laser	Semiconductor laser, wavelength 650nm
Frequency range(digital audio)	DVD linear soun 48 kHz sampling 4 Hz to 22 kHz 96 kHz sampling 4 Hz to 44 kHz Audio CD : 4 Hz to 20 kHz
Signal to noise ratio(digital audio)	More than 90 dB (EIAJ)
Audio dynamic range(digital audio)	More than 87 dB (EIAJ)
Harmonic distortion(digital audio)	Less than 0.1 %
Wow and flutter	Below measurable level (less than ±0.001 % (W.PEAK)) (EIAJ)
Operating conditions	Temperature : 5 ℃ to 35 ℃(41 to 95 Degree), Operation status: Horizontal

Outputs

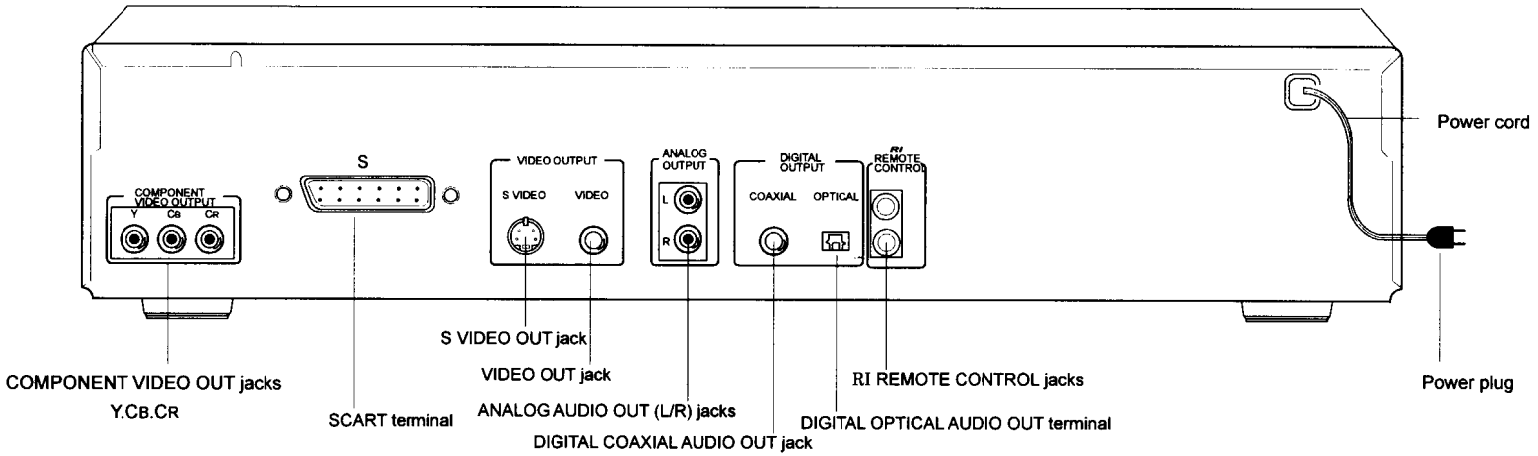
Video output	1.0 V (p-p), 75 Ω, negative sync., pin jack x 1
S video output	(Y) 1.0 V (p-p), 75 Ω (C) 0.286 V (p-p), 75 Ω
Color different output	(Y) 1.0 V (p-p), 75 Ω, negative sync., pin jack x 1 (Cb)/(Cr) 0.7 V (p-p), 75 Ω
Audio output (Optical audio)	Optical connector x 1
Audio output (Digital audio)	0.5 V (p-p), 75 Ω, pin jack x 1
Audio output (Analog audio)	2.0 V (rms), 470 Ω, pin jack(L, R) x 1
Headphone terminal	32 Ω (10mW), Impedance; more than 8 Ω

* Designs and specifications are subject to change without notice.

Front panel view



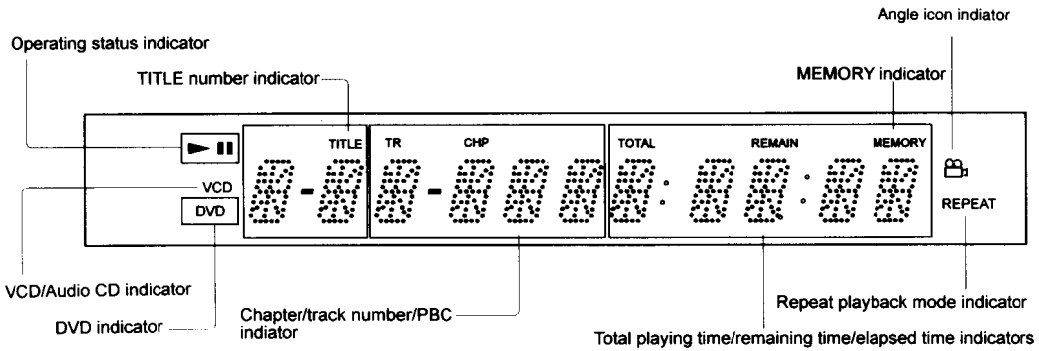
Rear panel view



Display

• Pressing of the DIMMER button changes the brightness of the Display.

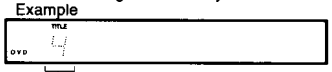
Normal → Dimmer



■ The indicators vary depending on the kinds of discs you play.

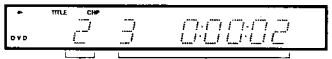
■ DVD video

• When closing the disc tray:
Example



Total number of titles

• During playback:



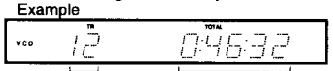
Playing chapter 3 in title 2

Elapsed time of the current title

Some DVD video may not display the chapter numbers or elapsed time.

■ VIDEO CD

• When closing the disc tray:
Example



Total number of tracks

Total playing time of the disc

• During playback:
Example

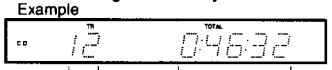
Playing track 6

Elapsed time of the current title

Some VIDEO CDs may not display the track numbers or elapsed time.

■ Audio CD

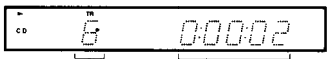
• When closing the disc tray:
Example



Total number of tracks

Total playing time of the disc

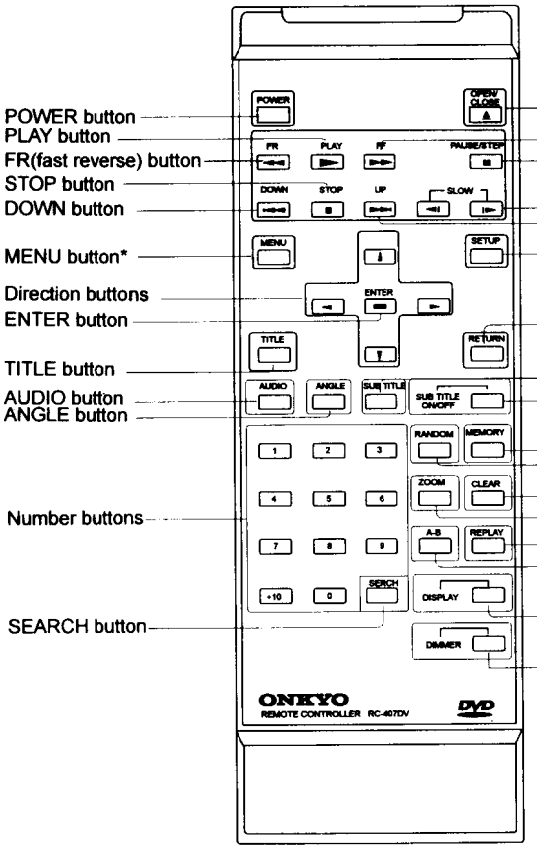
• During playback:
Example



Playing track 6

Elapsed time of the current title

Remote controller

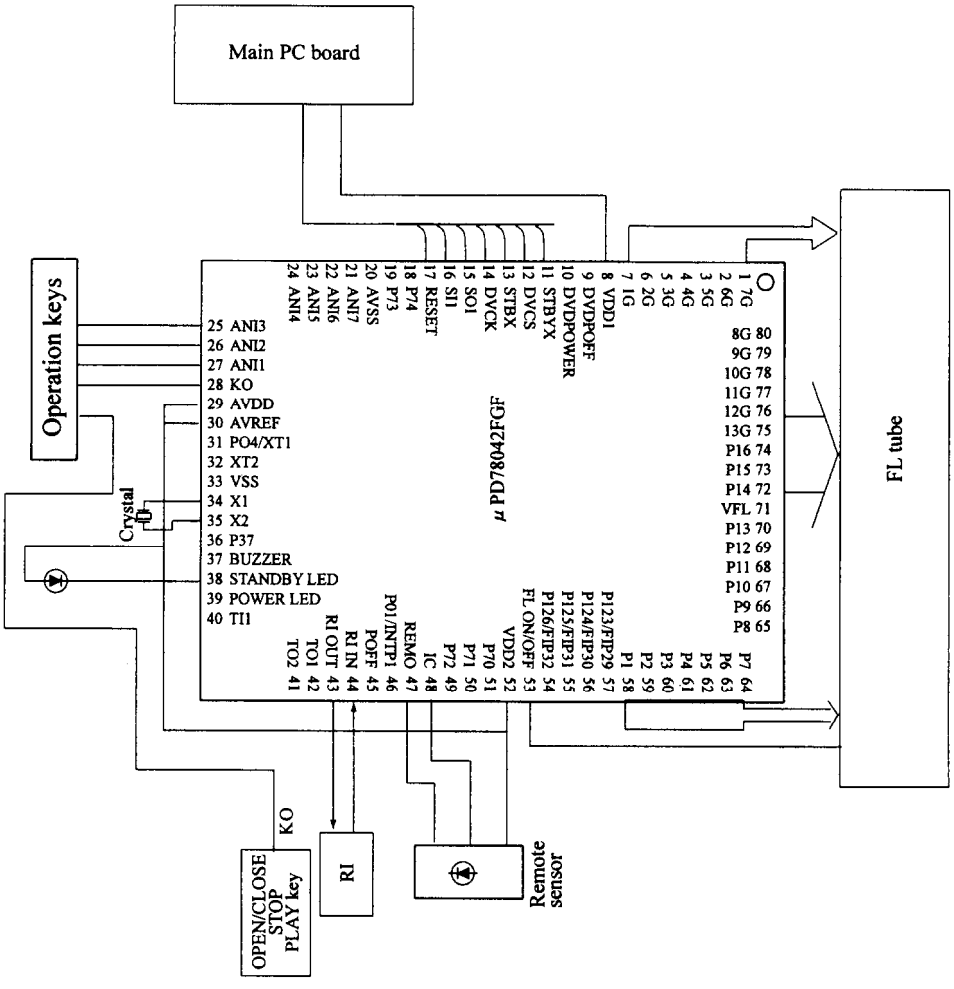


* MENU button
Use the MENU button to display the menu screen included on DVD video. To operate a menu screen, follow the instructions in "Locating a title using the title menu"

MICROPROCESSOR TERMINAL DESCRIPTION

PIN No.	TERMINAL	I/O	DESCRIPTION
1	7G	O	Grid output pins
2	6G	O	Grid output pins
3	5G	O	Grid output pins
4	4G	O	Grid output pins
5	3G	O	Grid output pins
6	2G	O	Grid output pins
7	1G	O	Grid output pins
8		-	Power supply pin (+VDD)
9	DVDPOFF	O	Not used
10	DVDPOWER	O	Not used
11	STBYX	O	Strobe signal output terminal
12	DVCS	O	Not used
13	DSTBX	I	Main strobe output signal
14	DSPCKX	I	Main clock output signal
15	DSPSI	O	To change the main input signal from the sub output signal
16	DSPSO	I	To change the sub output signal from the main input signal
17	DSPRST	I	Reset terminal
18		O	Not used
19		O	Not used
20	AVSS	I	Ground terminal for A/D converter
21	ANI7	O	Not used
22	ANI6	O	Not used
23	ANI5	O	Not used
24	ANI4	O	Not used
25	ANI3	I	Analog input pin for A/ D converter
26	ANI2	I	Analog input pin for A/ D converter
27	K1	I	Operation switch connection terminal
28	K0	I	Operation switch connection terminal
29	AVDD	I	Analog power supply terminal for A/D converter

PIN No.	TERMINAL	I/O	DESCRIPTION
30	AVREF	I	Reference voltage terminal for A/D converter
31	XT1	I	To connect the VSS terminal
32	XT2	O	Not used
33	VSS	I	Vss
34	X1	I	Crystal connection terminal for main system
35	X2	O	Crystal connection terminal for main system
36		O	Not used
37	BUZZER	O	Buzzer signal output terminal
38	STANDBY_LED	O	Control the standby indicator
39	POWER_LED	O	Control the Power indicator (Not used)
40	TI1	O	Not used
41	TO2	O	Not used
42	TO1	O	Not used
43	~SYSOUT	O	RI system code output terminal
44	SYSIN	I	RI system code input terminal
45	~POFF	O	Not used
46	INTP1	O	Not used
47	~REMIN	I	Input terminal of the remote control sensor
48	IC	I	Internal connection pin
49	P72	O	Not used
50	P71	O	Not used
51	P70	O	Not used
52	VDD	I	Power supply pin (+VDD)
53	FL_ON/OFF	O	Connect to the FL tube
54		O	Not used
55		O	Not used
56		O	Not used
57		O	Not used
58-70	P1	O	Segment output pins
71	VKK-24V	I	Power supply pin for FL controller
72-74	P14	O	Segment output pins
75-80	13G	O	Grid output pins



EXPLODED PARTS LIST

REF. No.	PART No.		DESCRIPTION
A001	27111130B		Front bracket <B>
	27111131B		Front bracket <G>
A003	27150441		(F), Shield plate
A005	28159040A		Decorative frame <B>
	28159041A		Decorative frame <G>
A006	27100378A		Chassis
A007	29362541		(Bottom) Label
A008	27190266		KGLS-12RF, Holder
A011	27150440A		(FFC), Shield plate
A012	29110083		Tape, CROSS-16U
A014	27225143		Shield case
A002	838130088		3TTB+8B, Self tapping screw
A019	831430088		3TTW+8B(BC), Self tapping screw
A020	27300750	⚠	S-RELIEF #2271, Bushing
A201	28191860		Clear plate <B>
	28191861		Clear plate <G>
A203	28148418		Door <B>
	28148419		Door <G>
A204	27262643		Plate <B>
	27262644		Plate <G>
A206	28198864		Facet
A209	28325687		Power knob <B>
	28325688		Power knob <G>
A210	27273121B		Joint
A212	28325452		(MIC), Knob <B>
	28325495		(MIC), Knob <G>
A214	28184764		Top cover <B>
	28184765		Top cover <G>
A215	838430088		3TTB+8B(BC), <B> Self tapping screw
	838930088		3TTB+8B(UN), Self tapping screw <G>
A217	27175311A		Leg ass'y
A301	27122642		Rear panel <UD>
	27122645		Rear panel <UP>
	27122657		Rear panel <UWT>
	27122667		Rear panel <UPA>
A305	27212126		Front panel, <B.UD>
	27212140		Front panel, <B.UP, B.UPA>
	27212142		Front panel, <B.UWT>
	27212143		Front panel <G.UWT>
	27212154		Front panel <G.UPA>
	27212141		Front panel, <S.UP>
A306	28135244		Badge <B>
	28135245		Badge, <G.UWT/G.UPA/S.UP>

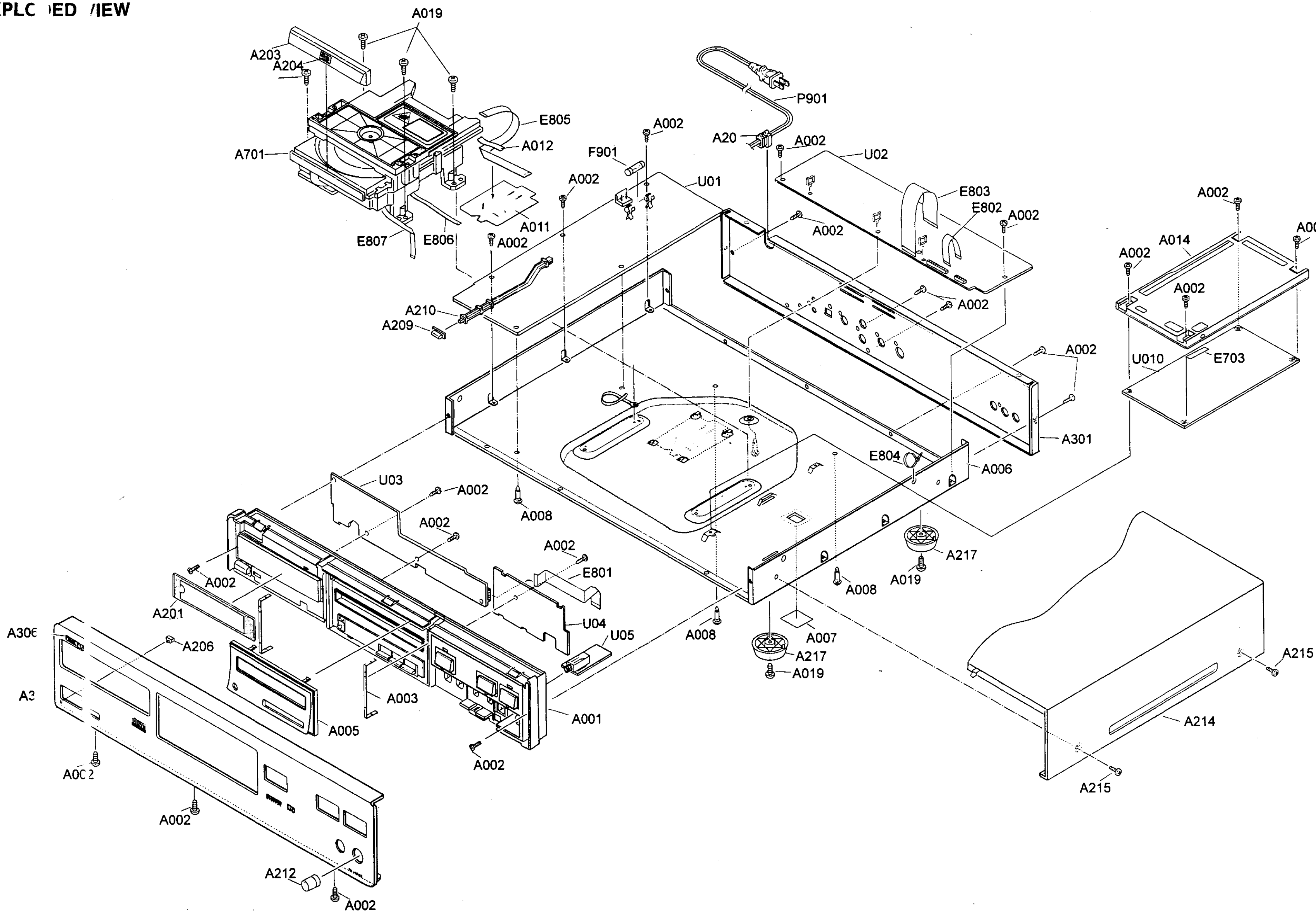
REF. No.	PART No.		DESCRIPTION
A701	24801002		SD-2109K2-ZX, DVD mechanism
E703	29362526		Firmware label
E801	2045131512		NCFC5-131512, Flexible flat cable
E802	2045131012		NCFC5-131012, Flexible flat cable
E803	2044190102		NCFC5-190102, Flexible flat cable
E804	260208		Binder (Wire tie)
E805	2042183012		NCFC2-183012, Flexible flat cable
E806	2042081012		NCFC2-081012, Flexible flat cable
E807	2047061212		NCFC7-061212, Flexible flat cable
F901	252071	⚠	1.25A-SE-EAWK Fuse <UP,UWT,UPA>
	252146	⚠	1.25A-TSC <UD>
P901	253193HIT	⚠	AS-CEE, AC cord <UP,UWT,UPA>
	253279HDK	⚠	AS-UC-2#18, AC cord <UD>
U01	1H413599-1A		Power supply circuit PC board ass'y, NAPS-6699-1A <B.UD/B.UWT/G.UWT>
U01	1H413599-1B		Power supply circuit PC board ass'y, NAPS-6699-1B <B.UP,/B.UPA/S.UP/G.UPA>
U01	1H413599-1C		Power supply circuit PC board ass'y, NAPS-6699-1C <G.UWT>
U02	1H413500-1A		Output terminal PC board ass'y, NAAF-6700-1A <B.UD/B.UWT/G.UWT>
U02	1H413500-1B		Output terminal PC board ass'y, NAAF-6700-1B <B.UP,/B.UPA/S.UP/G.UPA>
U02	1H413500-1C		Output terminal PC board ass'y, NAAF-6700-1C <G.UWT>
U03	1H413501-1A		Display circuit PC board ass'y, NADIS-6701-1A <B.UD/B.UWT/G.UWT>
U03	1H413501-1B		Display circuit PC board ass'y, NADIS-6701-1B <B.UP,/B.UPA/S.UP/G.UPA>
U03	1H413501-1C		Display circuit PC board ass'y, NADIS-6701-1C <G.UWT>
U04	1H413502-1A		Open/close switch PC board ass'y, NASW-6702-1A <B.UD/B.UWT/G.UWT>>
U04	1H413502-1B		Open/close switch PC board ass'y, NASW-6702-1B <B.UP,/B.UPA/S.UP/G.UPA>
U04	1H413502-1C		Open/close switch PC board ass'y, NASW-6702-1C <G.UWT>
U05	1H413503-1A		Headphone terminal PC board, NAETC-6703-1A <B.UD/B.UWT/G.UWT>>
U05	1H413503-1B		Headphone terminal PC board, NAETC-6703-1B <B.UP,/B.UPA/S.UP/G.UPA>
U05	1H413503-1C		Headphone terminal PC board, NAETC-6703-1C <G.UWT>
U010	24150006		SD-20B1, Main PC board ass'y <B.UD>
U010	24150010		SD-20C2, Main PC board ass'y <B.UP/S.UP/B.UWT/G.UWT/B.UPA/G.UPA>

NOTE:

<UD> : 120V model only
<UP> : 230V model only
<UWT> : Worldwide model only
<UPA> : Australian model only
<B> : Black model only
<G> : Golden model only
<S> : Silver model only

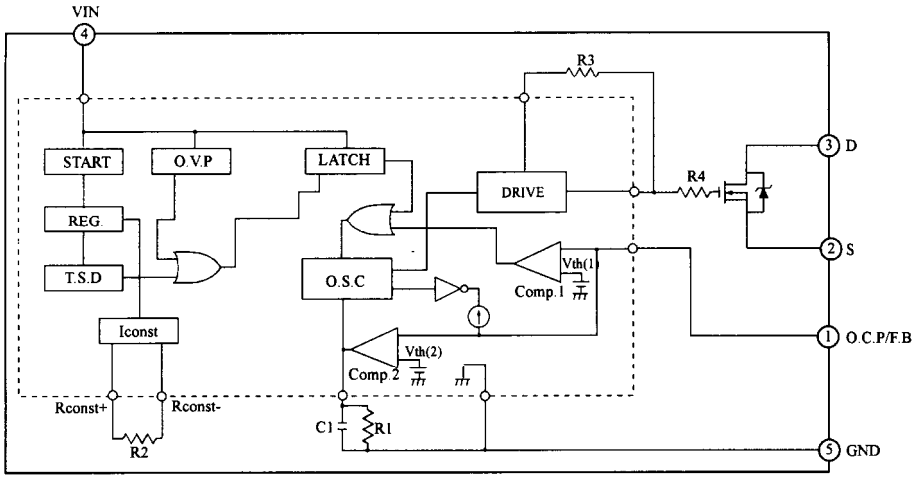
NOTE:
THE COMPONENT IDENTIFIDE BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIDE.

EXPLC ED /IEW


A019
A203
A204
A701
E805
A012
A011
E807
E806
A002
A210
A209
F901
A002
U01
P901
A20
A002
U02
E803
E802
A002
A002
A002
A002
A014
A002
A002
A002
A002
U010
E703
A301
E804
A006
U03
A002
A008
A002
A002
E801
A002
A201
U04
U05
A008
A217
A019
A008
A007
A217
A019
A306
A206
A3
A003
A005
A001
A002
A002
A002
A212
A002
A214
A215
A215

IC BLOCK DIAGRAM

STR-F6653 (SWITCHING REGULATOR)

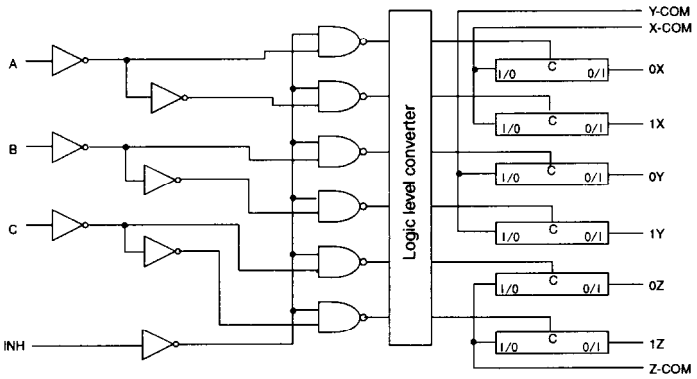


O.V.P: Built in overvoltage protection circuit
T.S.D : Built in thermal shutdown circuit

Function of terminal

Terminal No.	Symbols	Description	Function
1	O.C.P/F.B	Overcurrent/Feedback terminal	Input of over current detection signal and constant voltage control signal
2	S	Source terminal	MOS FET source
3	D	Drain terminal	MOS FET drain
4	VIN	Power supply terminal	Input of power supply for control circuit
5	GND	Ground terminal	Ground

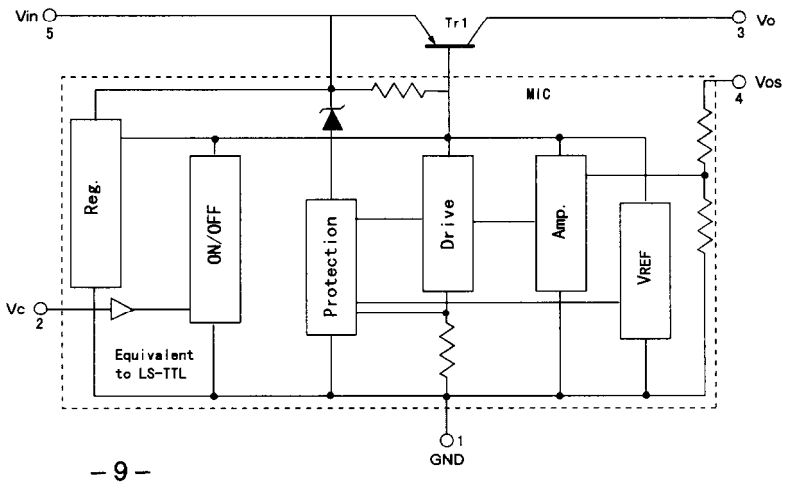
TC7HC4053FP
(Triple 2-channel analog multiplexe/demultiplexer)



Control inputs			
INHIBIT	C	B	A
L	L	L	L
L	L	L	H
L	L	H	L
L	L	H	H
L	H	L	L
L	H	L	H
L	H	H	L
L	H	H	H
H	X	X	X

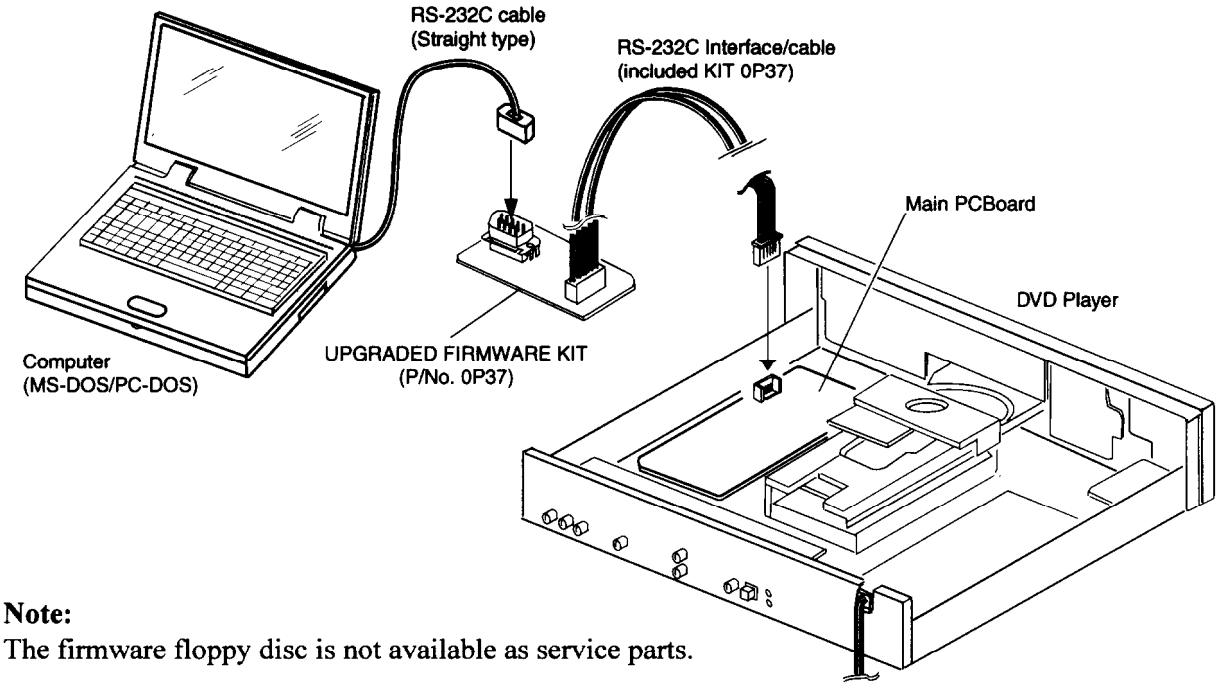
X: Don't care

SI-3000C



When Upgraded Firmware

1. When the firmware is upgraded, rewriting the new firmware into IC615 may be requested for servicing.
2. Connect a computer to the main PC board of the DVD video player with using UPGRADED FIRMWARE KIT (P/No. 0P37)



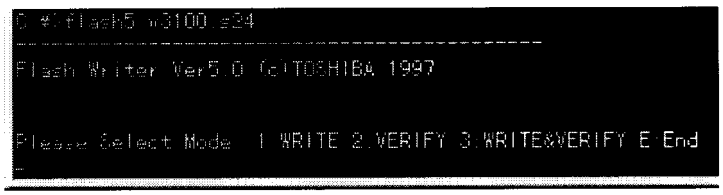
Note:
The firmware floppy disc is not available as service parts.

3.Writing of firmware (all destinations) in main board

3-1 The power supply is turned on and press the STANDBY/ON button to turn on the DVD player.
3-2.Connect a computer to the main PC board of the DVD video player with using UPGRADED FIRMWARE KIT (P/No. 0P37)
3-3.The program for the data writing is executed with the personal computer.
3-4.Type the following command in DOS prompt mode.

Flash5 "firmware filename"

3-5.Select [1.WRITE] when the MENU appeared on your screen.



After about 10 min.
<screen>
00000000000000000000000000
ALL CHECK SUM (Send: 0xF8AC340E vs Receive: 0xF8AC340E)----0000
Continue? [Y/N]

It is confirmed that the end of ALL CHECK SUM is "0000". (Write it again, except for this)

4.Confirmation of content of writing (all destinations)

4-1.The "STOP" key and the "SKIP-DOWN" key are pushed at the same time in the state of No Disc.
4-2.It is confirmed that the display of monitor is as follows.

UD area

ROM Version V*.*** -R1

OSD	ENG/FRE/SPA		
VCD	ON	BUZZER	OFF
A.3D	OFF	RANDOM	ON
KARA	OFF	DTS	ON
VOCAL	SETUP	DIMMER	3TYP
C.S.	ON	V-FMT	NTSC
JOG	OFF	MPEG-A	ON
V.3D	ON		

UP area

ROM Version V*.*** -R2

OSD	ENG/FRE/GER/SPA/ITA		
VCD	OFF	BUZZER	OFF
A.3D	OFF	RANDOM	ON
KARA	OFF	DTS	ON
VOCAL	SETUP	DIMMER	3TYP
C.S.	ON	V-FMT	P/N
JOG	OFF	MPEG-A	ON
V.3D	ON		

UWT area

ROM Version V*.*** -R3

OSD	ENG-CHI-MAL		
VCD	ON	BUZZER	OFF
A.3D	OFF	RANDOM	ON
KARA	OFF	DTS	ON
VOCAL	SETUP	DIMMER	3TYP
C.S.	ON	V-FMT	P-N
JOG	OFF	MPEG-A	ON
V.3D	ON		

UPA area

ROM Version V*.*** -R4

OSD	ENG/FRE/GER/SPA/ITA		
VCD	OFF	BUZZER	OFF
A.3D	OFF	RANDOM	ON
KARA	OFF	DTS	ON
VOCAL	SETUP	DIMMER	3TYP
C.S.	ON	V-FMT	P/N
JOG	OFF	MPEG-A	ON
V.3D	ON		

5.Display confirmation of FL tube

All lighting of the FL tube only while "STOP" is being pushed when "STOP" key is pushed while pushing "SKIP-UP" key to the main body key.

6. Setting of the first setup screen mode

6-1. The "STOP" key and the "DIMMER" key on the main body key are pushed at the same time in the state of No Disc.
6-2. It is confirmed that the Setup screen goes out, and the character of "First Setup ON" has come out in lower right.
6-3. The power supply again by On after turning off the power supply, and it is confirmed that the first setup screen goes out by Standby/ON mode.(Never push the Setup key here)
6-4. The power supply is turned off, and the AC code is pulled out.

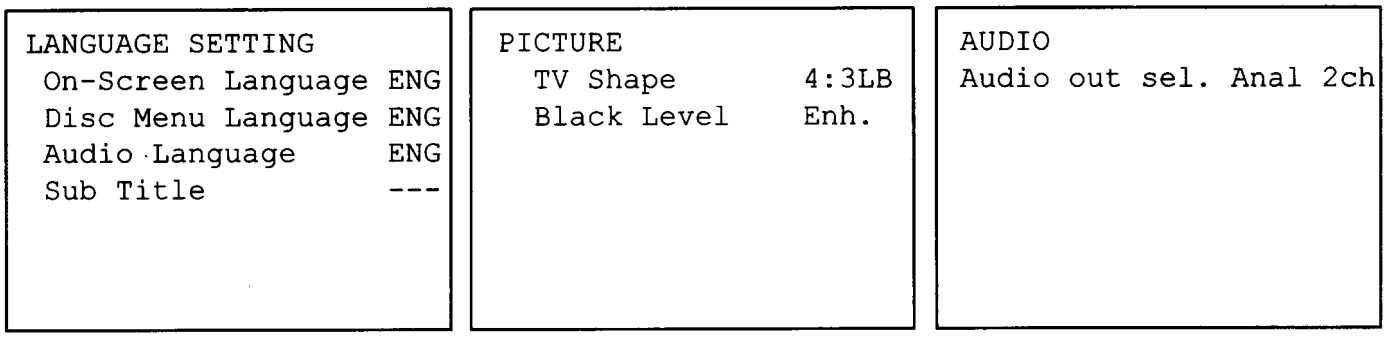
7. Others

7-1. The factory setting of DIMMER must be normal.
7-2. The hollow becomes the horizontal position at the position of JOG by factory setting.

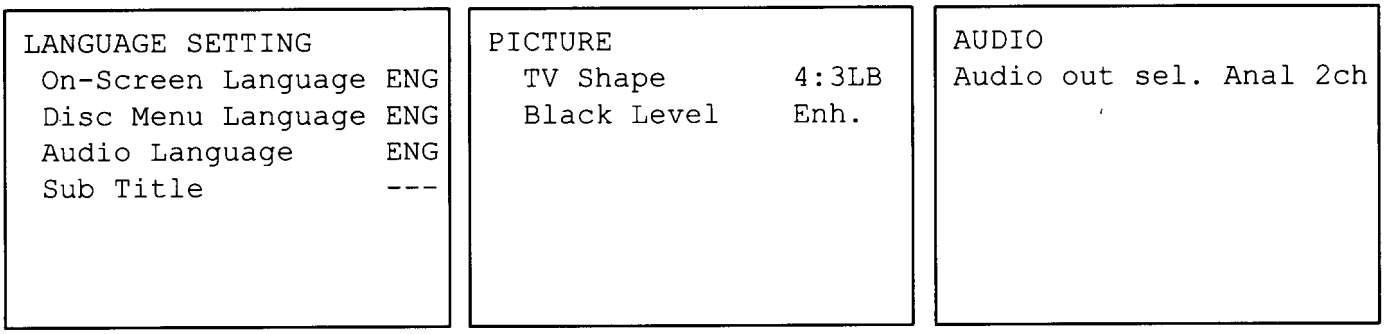
Factory setting confirmation

"SETUP" as follows each setting of the screen is confirmed.

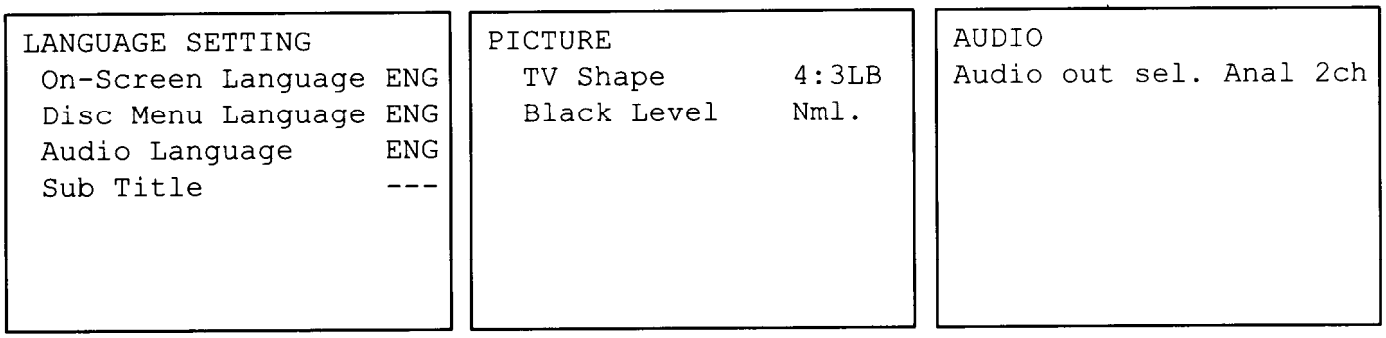
UD,UWX-G area



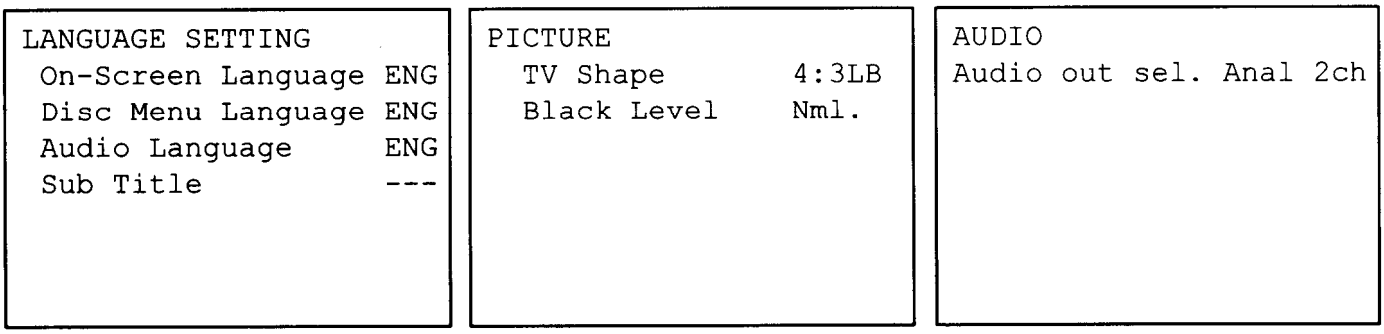
UWT area



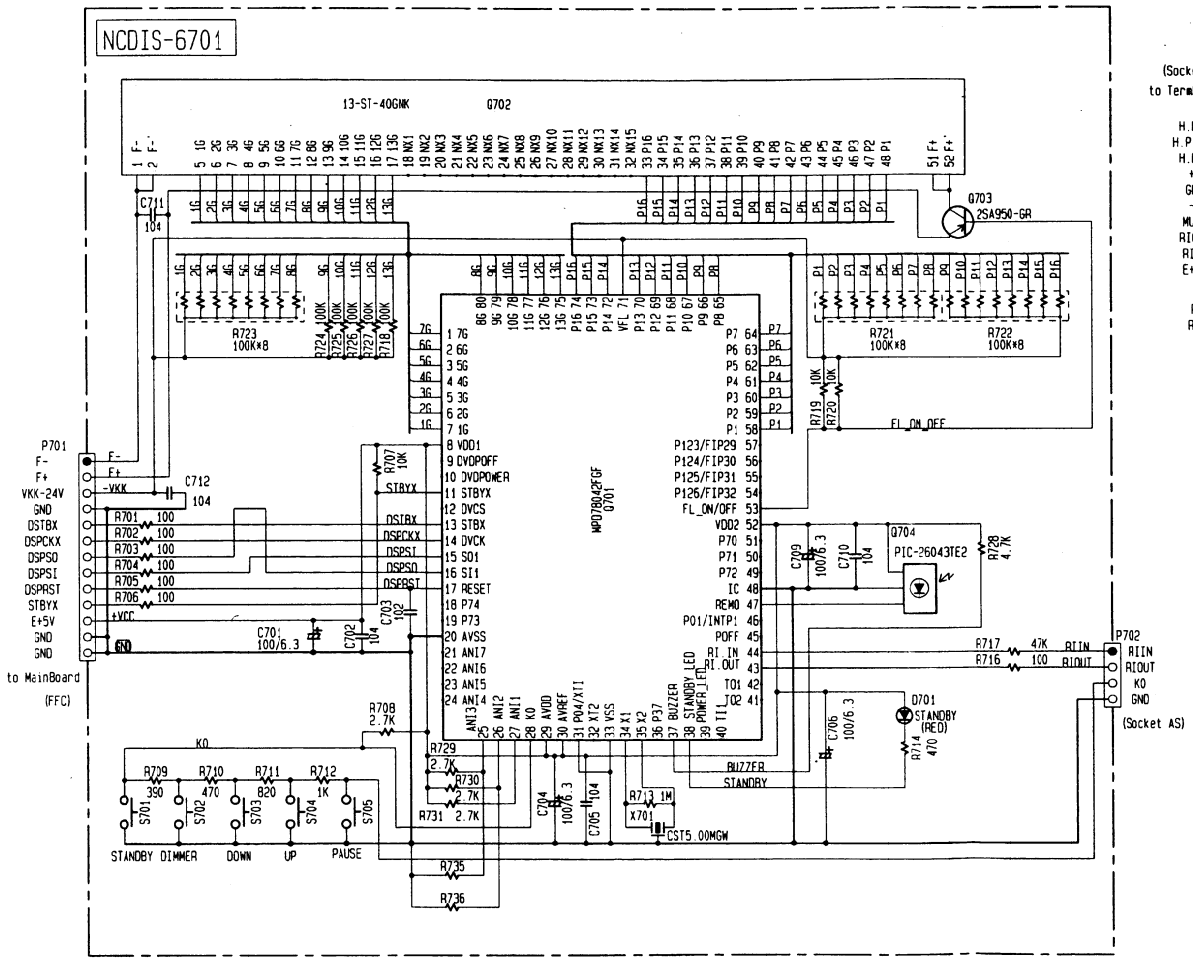
UP area

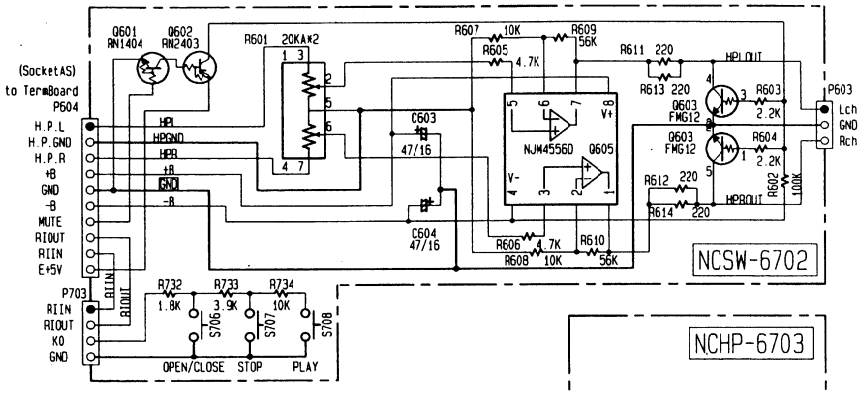


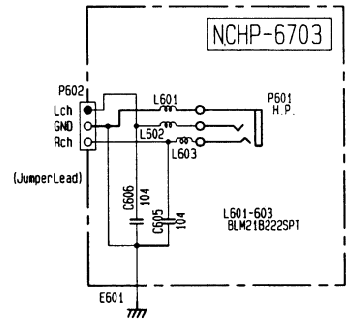
UPA area



SCHEMATIC DIAGRAM





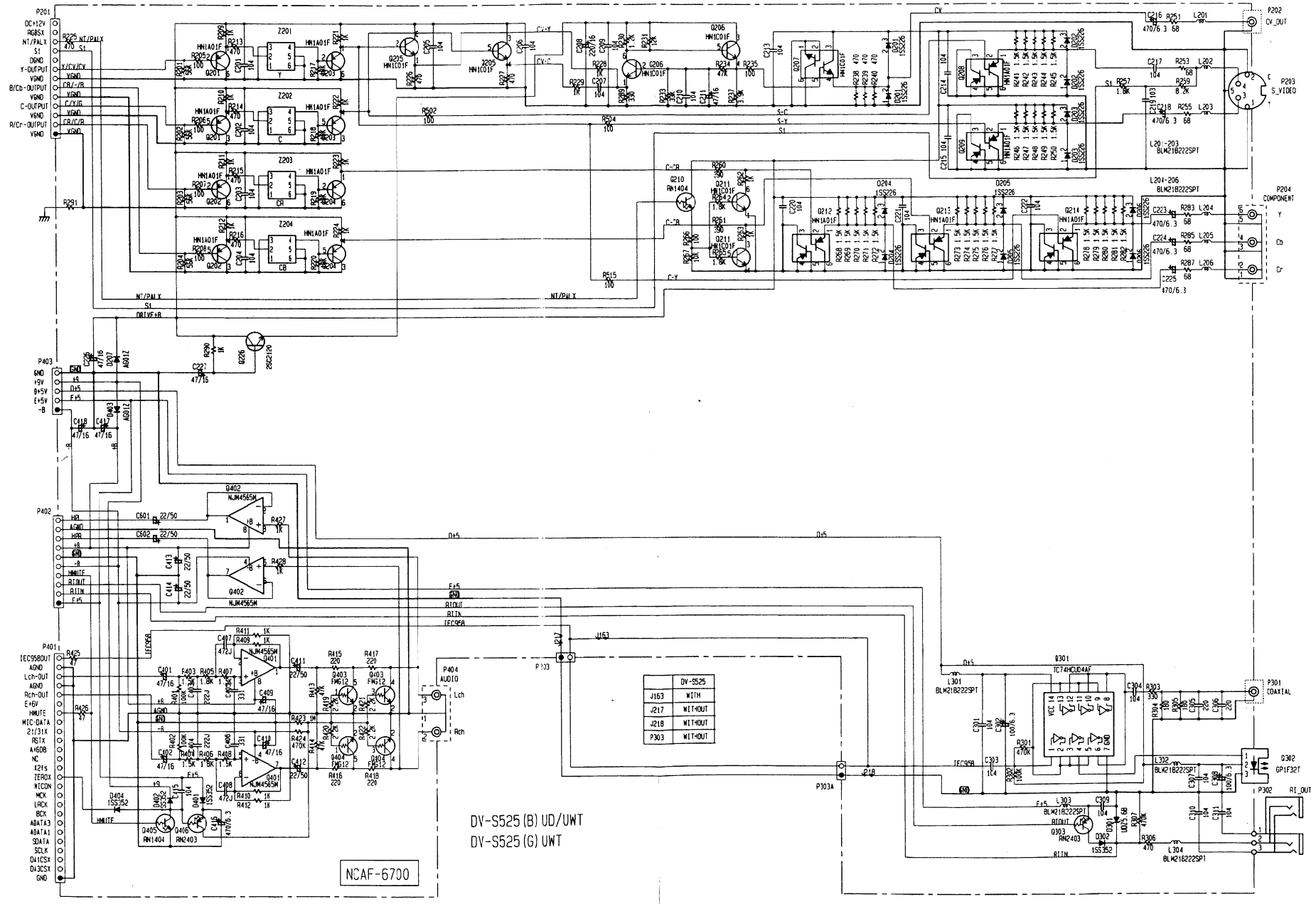


DV-S525 (B) UD/UP/UWT
DV-S525 (S) UP
DV-S525 (G) UWT

NOTE

- THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE (MEASURED WITH VOLTMETER) ⟨ ⟩ IS DC VOLTAGE. (NO INPUT SIGNAL)
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-GR UNLESS OTHERWISE NOTED.
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR UNLESS OTHERWISE NOTED.
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS (⊣⊢) ARE IN uF/WV.
- ALL CAPACITORS ARE IN pF/50WV UNLESS OTHERWISE NOTED.
  EX) 030→3pF 330→33pF 331→330pF 333→0.033uF
- ALL RESISTORS ARE IN OHMS 1/4WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES ON PC BOARD ARE THE PRINTING SIDE OF THE PARTS.
  EX) ▭ PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

SCHEMATIC DIAGRAM



PRINTED CIRCUIT BOARD PARTS LIST

POWER SUPPLY PC BOARD (NAPS-6699-1A/1B/1C)

CIRCUIT No.	PART No.	DESCRIPTION
	ICs	
Q901	⚠ 22241229	STR-F6653
Q904	22241230	SI3090C
Q905	22241231	SI3050C
Q906	22241232	SI3033C
Q903	22241233	SE005N
Q911	22241289R0	NJM2370U05
	Transistors	
Q913	2211164 or	2SC2120-Y or
	2211163	2SC2120-O
Q907,Q909	2211504 or	2SA950-Y or
	2211503	2SA950-O
Q908,Q912	2211945	2SK246-GR
Q910	2215915R0	HN1A01F-GR
Q914	2215925R0	HN1C01F-GR
	Diodes	
D901-D904	⚠ 22380287F	EM2A
D906	⚠ 22380291	EG01C
D907-D909	22380294	AG01Z
D910	22380295F	RN2Z
D911,D912	22380296F	RK46
D913	22380297	EU01
D914,D922	⚠ 22380294	AG01Z
D918	22380300F	RU2YX
D920	224493300R0	UDZ33B, Zener
D921	224490330R0	UDZ3.3B, Zener
D923	224490750R0	UDZ7.5B, Zener
D925	⚠ 22380294	AG01Z <UP,UPA>
D926	224491300R0	UDZ13B, Zener <UP,UPA>
	Labels	
E910	29361580	Fuse
E910	29361580	Fuse label,T1.25AL250V <UWT>
E910	29362309	Fuse label,1.25A/125V <UD>
	Fuse holder	
F901	25050065	YSH403T
	Coils	
L901	⚠ 231280	Choke coil,NCH-3561
L902	⚠ 230906	FR core,BL02RN2-R62
L903-L906	231253K100	Choke coilNCH-1490
L907	231253K100	Choke coilNCH-1490 <UP,UPA>
	Capacitor	
C907	3000115	220 μ F,2kV, Plastic
	Photo coupler	
Q902	24120044	ON3131-R
	Resistors	
R901	⚠ 4000076	0.22 ohm, 5W, Metal plate
R902	⚠ 411516844	680 ohm±5%, 1/2W, Carbon
R903	⚠ 441726834NF	68k ohm±5%, 2W, Metal oxide
R904	⚠ 441721044NF	100k ohm±5%, 2W, Metal oxide
R905	443522704	27 ohm,1/2W±5%, Metal oxide
R906	443522724	2.7k ohm,1/2W±5%, Metal oxide
R907	443522234	22k ohm,1/2W±5%, Metal oxide
R908	443526814	680 ohm,1/2W±5%, Metal oxide
R909	443523324	3.3k ohm,1/2W±5%, Metal oxide
R910	4500163	0.47 ohm±5%, 1/4W, Metal
R911	⚠ 451735194F	0.51 ohm±5%, 2W, Metal
R912	443521024	1k ohm±5%,1/2W, Metal oxide
R913	443522204	22 ohm,1/2W±5%, Metal oxide
R924	443522214	220 ohm,1/2W±5%, Metal oxide
	Switch	
S901	⚠ 25035702	NPS-121-L665P
	Transformer	
T901	⚠ 2301432	NPT-1380
	Plug	
P902	25055675	NPLG-2P631
	Socket AS	
P903	2002341020	NSAS-10P0034
P904	2002A392840	NSAS-28P0772
	Others	
Q901A	27160412	Heat sink,RAD-111
Q904A,Q905A, Q906A	27160145-1	Heat sink,RAD-51
Q901B,Q904B, Q905B,Q906B	838430107	Tapping screw,3TTB+10S(BC)
	838430107	

OUTPUT TERMINAL PC BOARD (NAAF-6700-1A/1B/1C)

CIRCUIT No.	PART No.	DESCRIPTION
	ICs	
Q301	222740046R0O	74HCU04(TC74HCU04F)
Q401, Q402	22241383R0	NJM4565M-D
Q501,Q503	22241228R0 or	TC74HC4053FP or
	22241228R9	TC74HC4053FP <UP, UPA>
	Transistors	
Q201-Q204, Q208,Q209	2215915R0	HN1A01F-GR
Q205-Q207	2215925R0	HN1C01F-GR <UD, UWT>
Q210	2214490R0	RN1404 <UD, UWT>
Q211	2215925R0	HN1C01F-GR <UD, UWT>
Q212-Q214	2215915R0	HN1A01F-GR <UD, UWT>
Q226	2211164 or	2SC2120-Y or
	2211163	2SC2120-O <UD, UWT>
Q303	2214540R0	RN2403
Q403, Q404	2215940R0	FMG12
Q405	2214490R0	RN1404
Q406	2214540R0	RN2403
Q502, Q504	2214490R0	RN1404 <UP, UPA>
Q505-Q511	2215915R0	HN1A01F-GR <UP, UPA>
	Photo coupler	
Q302	24120076	JFJ1000
	Diodes	
D201-D203	223266R0	1SS226
D204-D206	223266R0	1SS226 <UD,UWT>
D207	22380294	AG01Z
D301	224490560R0	Zener,UDZ5.6B
D302,D401, D402,D404	223234R0	1SS352
D403	22380294	AG01Z
D405,D406	22380294	AG01Z <UP,UPA>
D501-D506	223266R0	1SS226 <UP,UPA>
	Choke coils	
L201-L203	230921R0	BLM21B222SPT
L204-L206	230921R0	BLM21B222SPT <UD, UWT>
L301-L304	230921R0	BLM21B222SPT
L501-L504	230921R0	BLM21B222SPT <UP, UPA>
	LC Blocks	
Z201-Z204	3030041	Y-5(8.00MHz)
	Jacks	
P202	25045547	NPJ-1PDYE368
P204	25045590	NPJ-3PDB401 <UD, UWT>
P301	25045548	NPJ-1PDOR369
P302	25045330	NPJ-2PDBL184
P404	25045371	NPJ-2PDWR214
	Sockets	
P201	25051937	NSCT-13P1724
P203	25051750	NSCT-4P1537
P401	25051949	NSCT-25P1736
P501	25052279	NSCT-21P2176, Scart socket
	Plugs	
P402	25055154	NPLG-10P138
P403	25055149	NPLG-5P133

DISPLAY CIRCUIT PC BOARD (NADIS-6701-1A/1B/1C)

CIRCUIT No.	PART No.	DESCRIPTION
	IC	
Q701	22241388R3	MPD78042GF-112-3B9
	Transistors	
Q703	2211504 or	2SA950-Y or
	2211503	2SA950-O
	Remote sensor	
Q704	241330	PIC-26043TE2
	LED	
D701	225370	SLR-342VRTB7
	FL tube	
Q702	212201	13-ST-40GNK
	Switches	
S701-S705	25035699	NPS-111-S662
	Socket	
P701	25051895	NSCT-13P1682
	Plug	
P702	25055368	NPLG-4P351
	Others	
X701	3010242	Ceramic filterCST5.00MGW
E701	27191085	FL holder

OPEN/CLOSE SWITCH PC BOARD (NASW-6702-1A/1B/1C)

CIRCUIT No.	PART No.	DESCRIPTION
	IC	
Q605	222654	NJM4556D
	Transistors	
Q601	2214490R0	RN1404
Q602	2214540R0	RN2403
Q603	2215940R0	FMG12
	Resistor	
R601	5132436	Phone level, N14RGL20KA17Z
	Switches	
S706-S708	25035699	NPS-111-S662
	Socket AS	
P604	2002A392055	NSAS-20P0749
P703	2002320810	NSAS-8P0025
	Wire holder	
P603	25051107	NSCT-3P894

HEADPHONE TERMINAL PC BOARD (NAETC-6703-1A/1B/1C)

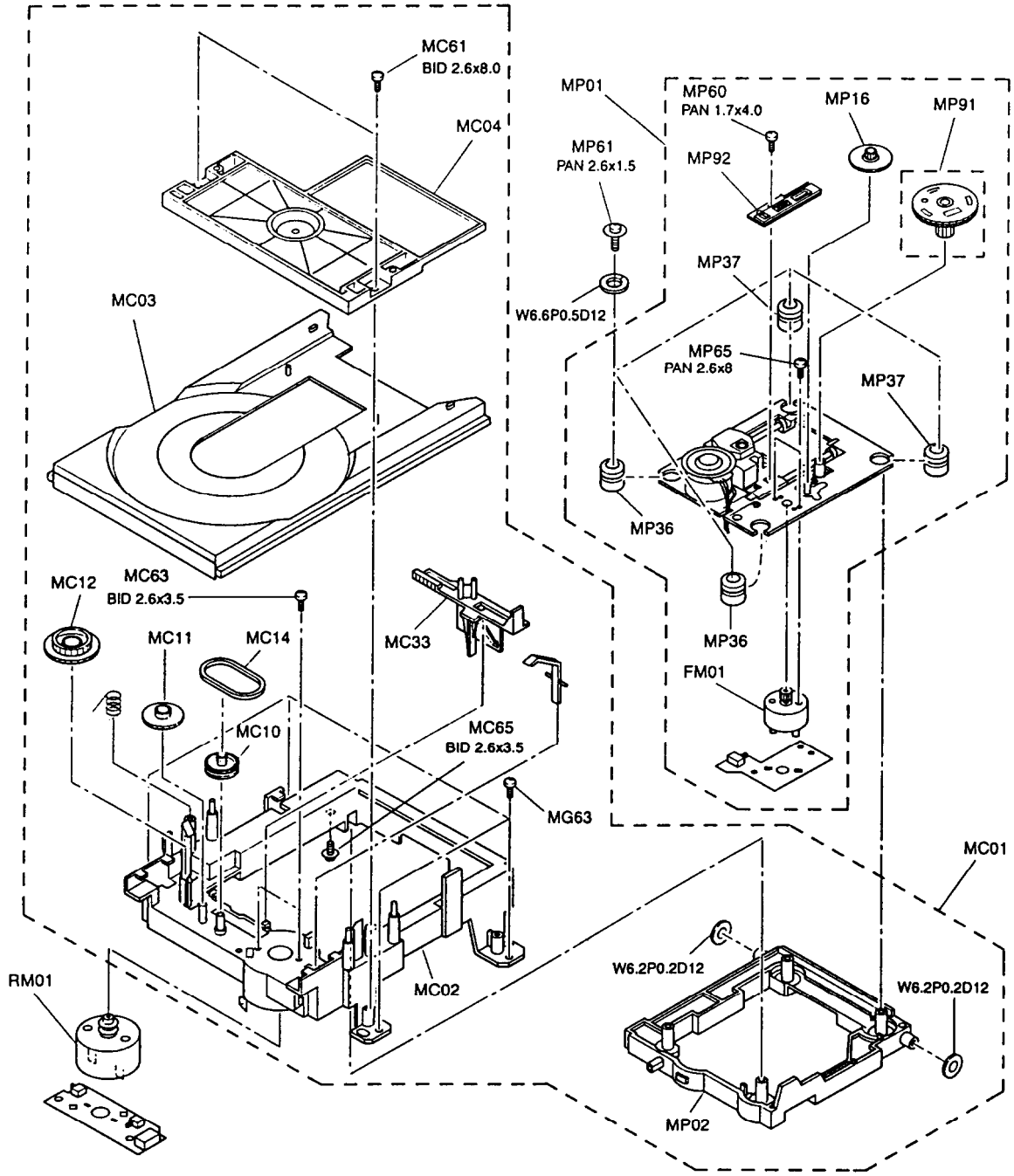
CIRCUIT No.	PART No.	DESCRIPTION
	Choke coils	
L601-L603	230921R0	BLM21B222SPT
	Jack	
P601	25045441	Headphone jack,YKB26-5801
	Other	
P602	25051107	Wire holder,NSCT-3P894

NOTE:

<UD> : 120V model only
<UP> : 230V model only
<UWT> : Worldwide model only
<UPA> : Australian model only
<B> : Black color model
<G> : Gold color model

NOTE: THE COMPONENT IDENTIFIDE BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIDE.

MECHANISM ASSEMBLY



MECHANICAL PARTS LIST

REF. No.	CORD	DESCRIPTION
MP01	79070415	Mecha assy-pu
MP36	79070417	Rubber, Dumper, Front
MP37	79070418	Rubber, Dumper, Rear
MP91	79070419	Gear assy, Kit, B
MP92	79070420	Gear assy, Rack
FM01	79070421	Motor assy, Feed, DC
MP16	79070422	Gear A
RM01	79070427	Motor assy, Loading, DC
MC14	79070428	Belt, Load
MC01	79070416	Chassis assy, Mechanism

MAIN PC Board

EU01	79083019	PC Board assy Main PCB

1. REPLACEMENT OF MECHANICAL PARTS

Cabinet Replacement

1-1. Top Cover

1. Remove the top cover.

1-2. Clamper Stay

<Removal>

1. Remove two screws(1).
2. Release two claws and remove the clamper stay(2).

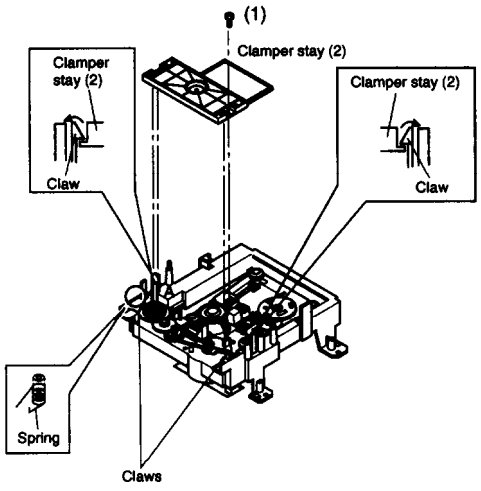


Fig.1-1

<Mounting>

3. The spring for tray side pressure is inserted into the portion"A".
4. By refererring to Fig 1-2, insert the spring normally and mount the clamper stay.

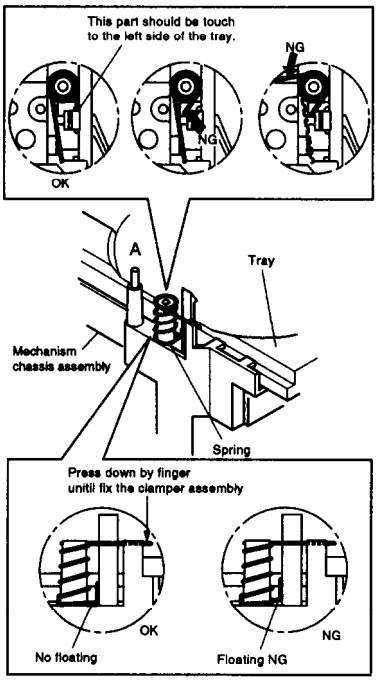


Fig. 1-2

1-3. Tray Eject

1. Slide the slider(2) of the mechanism chassis assembly (1) with a screwdriver, etc. in the arrow direction, so that the tray(3) is ejected.

Note:

Take care not to damage the pickup and other parts.

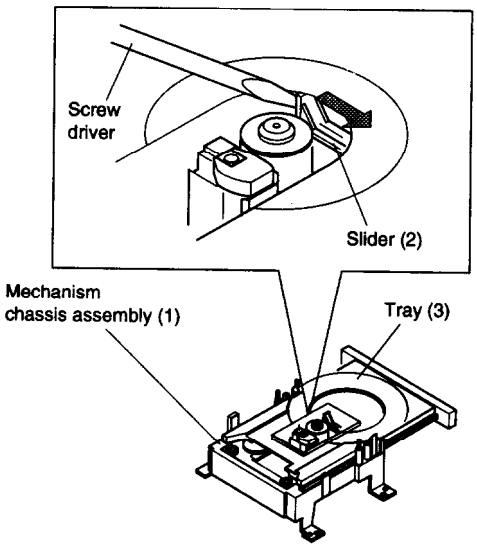


Fig. 1-3

1-4. Tray Panel Removal

1. Eject the tray(3).
2. Twist the tray panel(4) a little in the arrow A direction with the tray(3) hole by hand to release two claws and lift up tray panel (4) in the arrow B direction, then the tray panel(4) is removed.

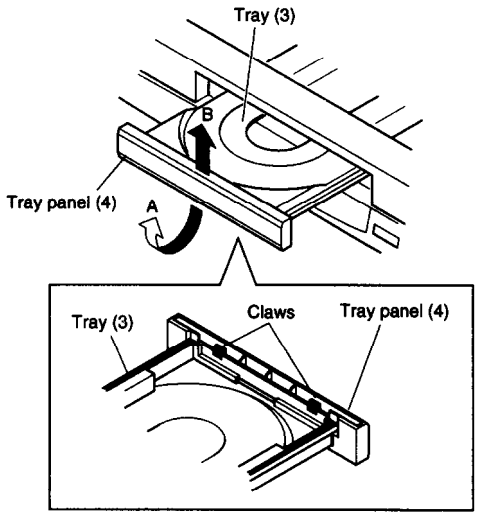


Fig. 1-4

Note

Insert the tray(3) with the front side of the pickup mechanism assembly descended. (The slider position to the left side.)

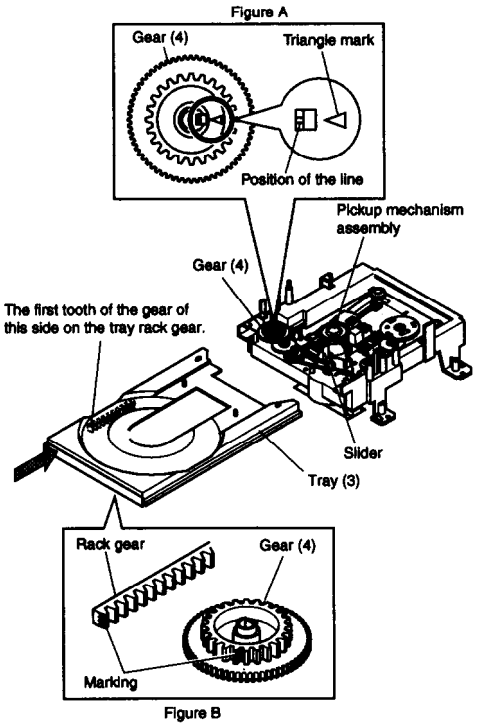


Fig. 1-5

1-5. PC Board Replacement

1. Before removing the main PC board, be sure to short-circuit the laser diode output land.
   After replacing, open the land as it was after inserting the flexible cables.
2. Remove six flexible cables and remove one connector.
3. Remove four screws.
4. Release two claws and remove the main PC board.

Mechanism Parts

2-1. Loading Belt

1. Remove the gear(1) by releasing the claw.
2. Remove the gear(2).
3. Remove the gear(3) and the loading belt(4).
4. Replace the loading belt(4) with a new one.
5. when mounting, perform the reverse order of the removal.
   Note:
   When mounting the loading belt(4), twisting and attaching of a grease, etc. not allowed.

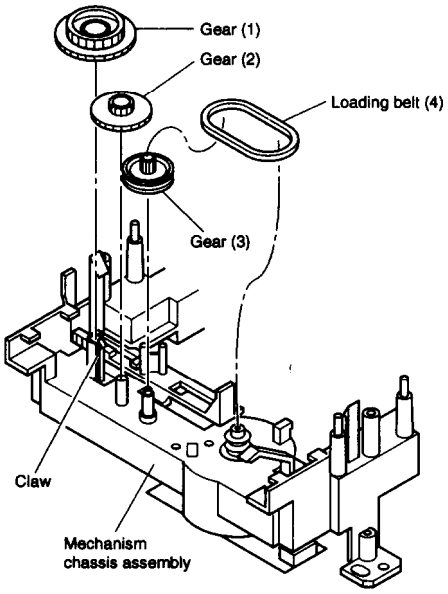


Fig. 2-1

2-2. Loading Motor

1. Remove the loading belt.
2. Remove two screw(1) and two claws. Then remove the loading motor(2)(with the loading motor PC board(3) attached).
3. Desolder the terminal section of the loading motor(2)
4. Replace the loading motor(2) with a new one.
5. When mounting, perform the reverse order of the removal.
   Note:
   When replacing the loading motor, meet the polarity phase of the terminals.

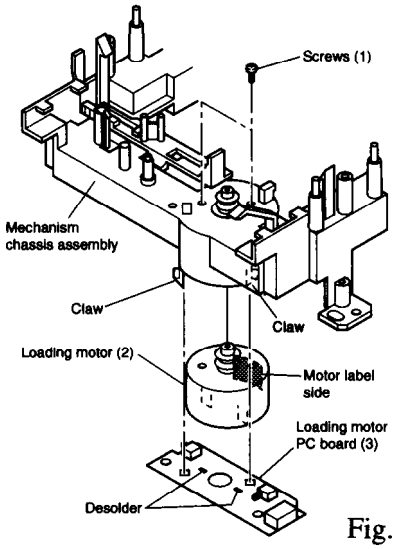


Fig. 2-2

2-5. Gear B Assembly, Gear A and Rack Gear Assembly

<Removal>

1. Release one claw and remove the gear B assembly (1).
2. Remove the gear A (2).
3. Remove one screw (3) and remove the rack gear assembly (4).

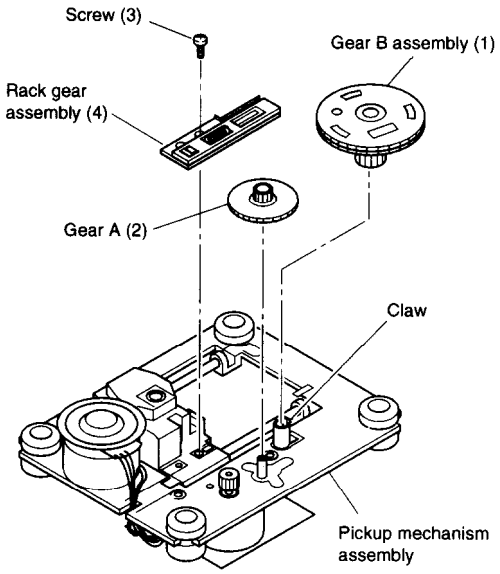


Fig. 2-5-1

<Mounting>

1. When mounting, perform the reverse order of the removal.
2. Mount the gear B assembly (1) by pushing the pickup head (5) to the disc motor side (arrow A direction) and shifting the upper gear of the rack gear assembly (4) in the arrow B direction.

3. Fit the positioning holes on the upper gear and lower gear of the gear B assembly (1) and mount on the pickup mechanism assembly with the phase matched. At this time, note that the phase of the gear B assembly (1) and the gear A (2) show's the status in the Fig. 2-5-3.

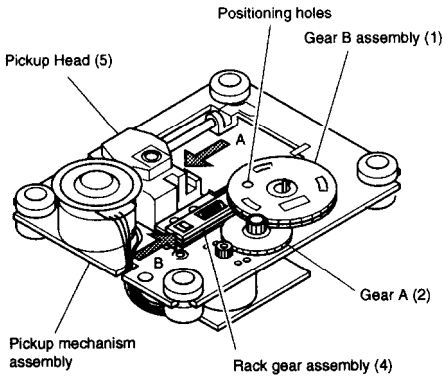


Fig. 2-5-2

Note:

- Mount the gear B assembly (1) and the gear a (2) with their gear teeth placed more than on tooth at least inside the shaded portion.

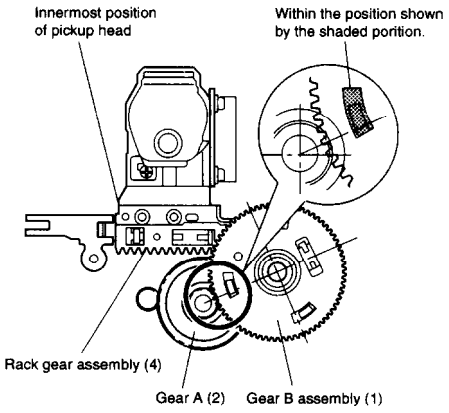


Fig. 2-5-3

2-6. Feed Motor

<Removal>

1. Remove the gear B assembly (1) and the gear A (2).
2. Remove two screws (1) and remove the feed motor (2) (with the feed motor PC board (3) attached.)
3. Desolder the terminals of the feed motor (2) and remove the feed motor PC board (3).

<Mounting>

1. Tighten the feed motor (2) on the pickup mechanism assembly with two screws (1).
2. Insert the feed motor PC board (3) with the positioning pin on the chassis matched and solder the terminals.
3. Perform the reverse order of the removal.

Note:

- After mounting, put the lead wires through the notch of the pickup mechanism assembly.
- When replacing the loading motor, meet the polarity phase of the terminals.

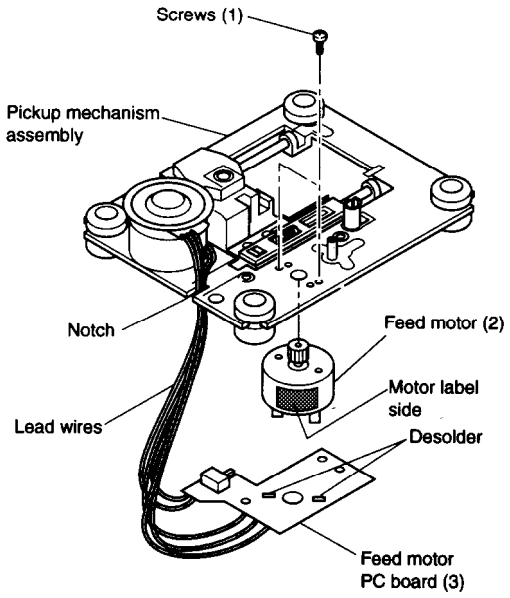


Fig. 2-6

3. TROUBLESHOOTING

3-1. Servo System

(1) Initial Operation after Power ON

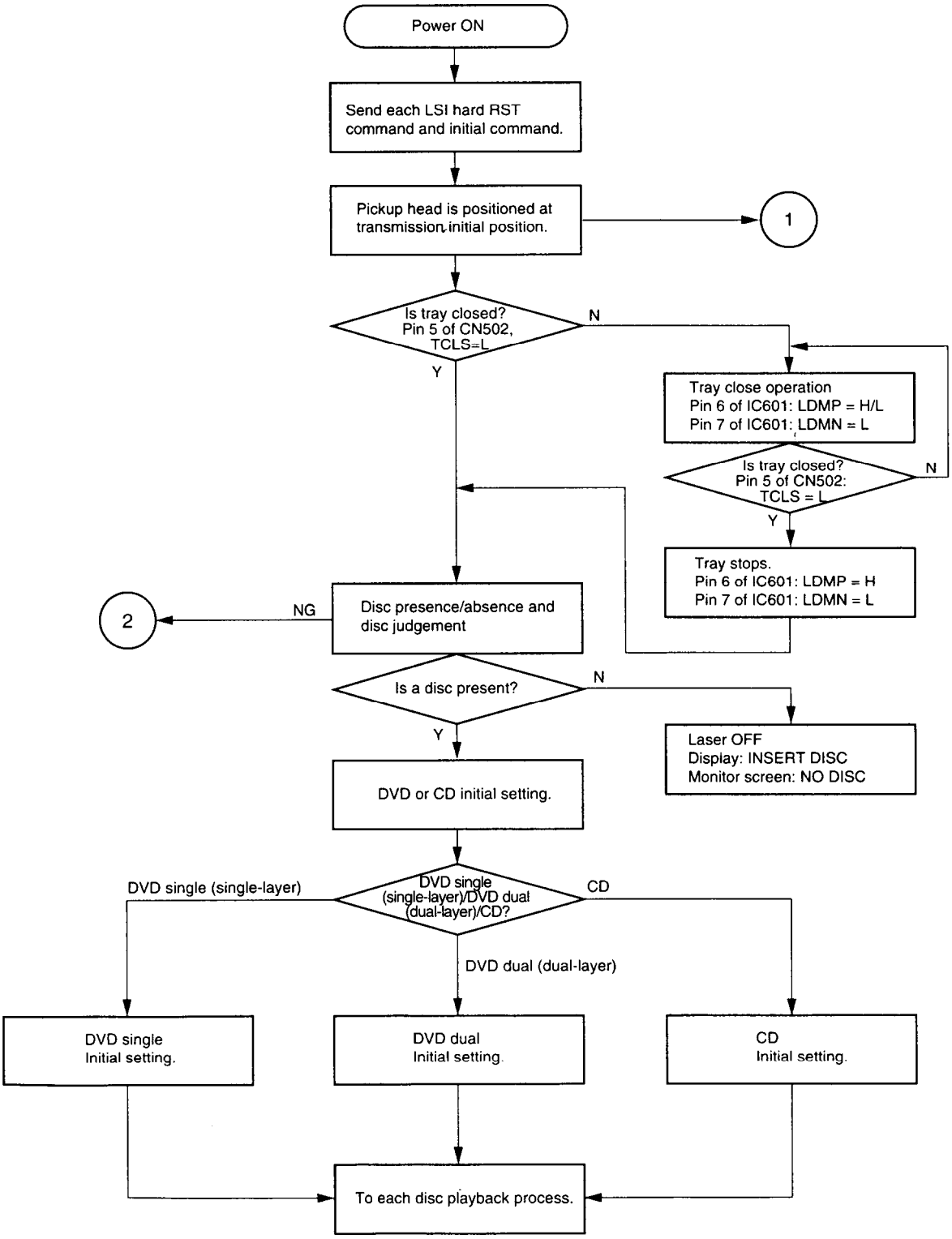


Fig.3-1

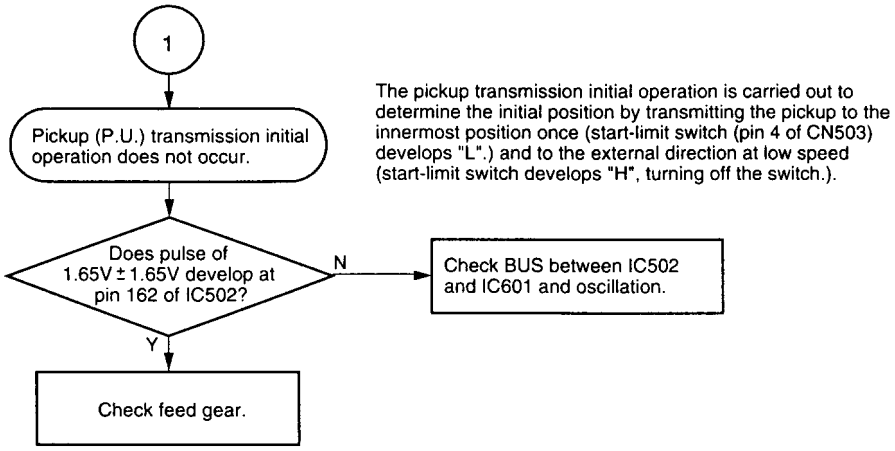

1
Pickup (P.U.) transmission initial operation does not occur.
The pickup transmission initial operation is carried out to determine the initial position by transmitting the pickup to the innermost position once (start-limit switch (pin 4 of CN503) develops "L".) and to the external direction at low speed (start-limit switch develops "H", turning off the switch.).
Does pulse of 1.65V ± 1.65V develop at pin 162 of IC502?
N
Check BUS between IC502 and IC601 and oscillation.
Y
Check feed gear.

Fig. 3-2

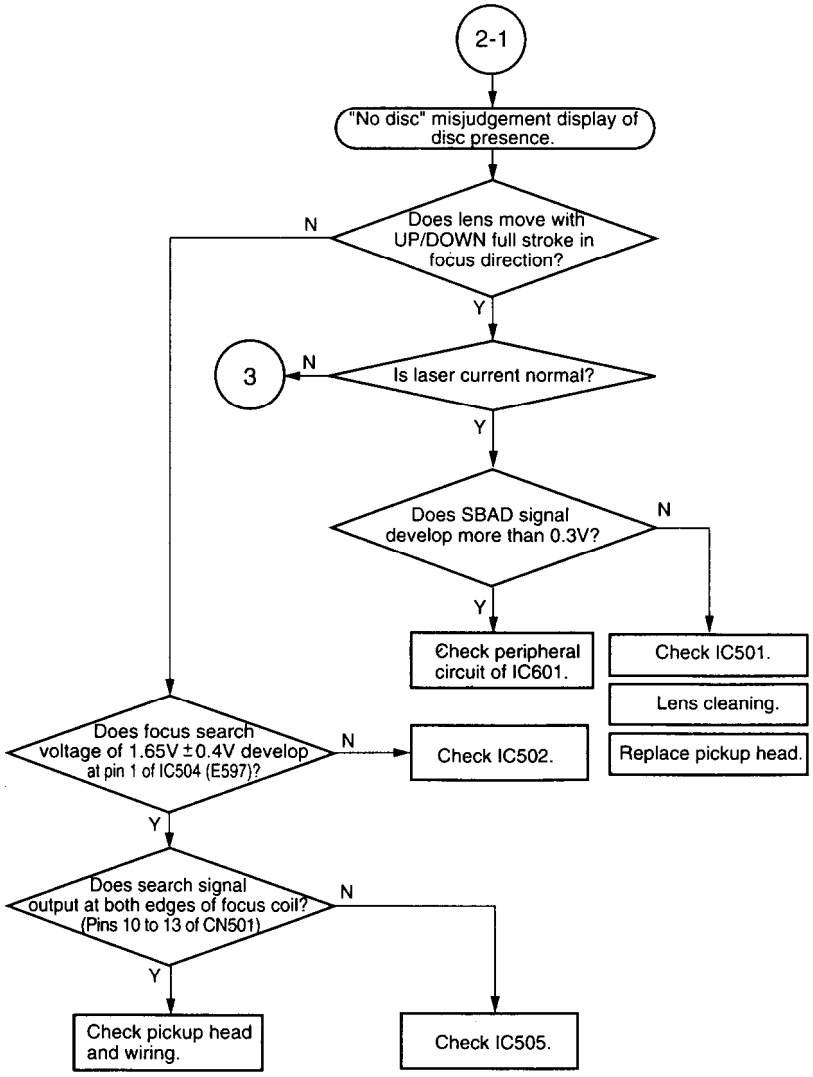

2-1
"No disc" misjudgement display of disc presence.
Does lens move with UP/DOWN full stroke in focus direction?
N
Y
3
N
Is laser current normal?
Y
Does SBAD signal develop more than 0.3V?
N
Y
Check peripheral circuit of IC601.
Check IC501.
Lens cleaning.
Replace pickup head.
Does focus search voltage of 1.65V ± 0.4V develop at pin 1 of IC504 (E597)?
N
Check IC502.
Y
Does search signal output at both edges of focus coil? (Pins 10 to 13 of CN501)
N
Y
Check pickup head and wiring.
Check IC505.

Fig. 3-3

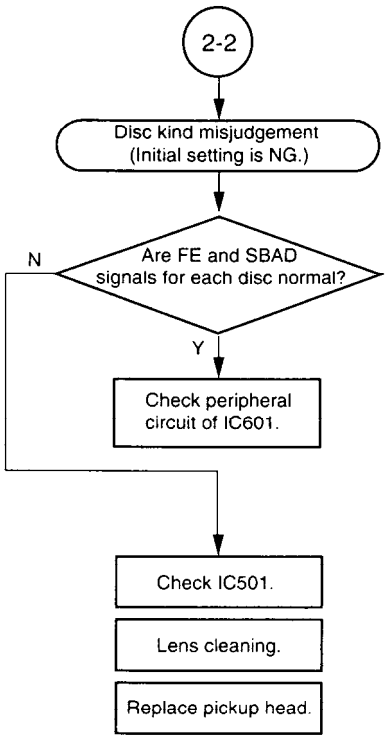


Fig. 3-4

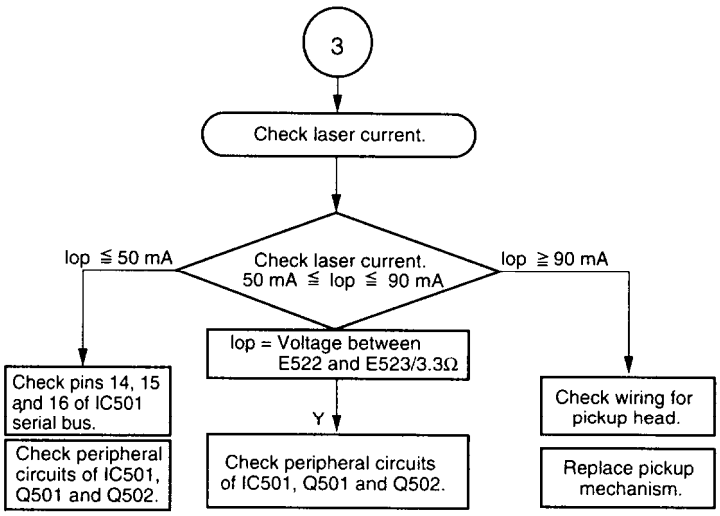


Fig. 3-5

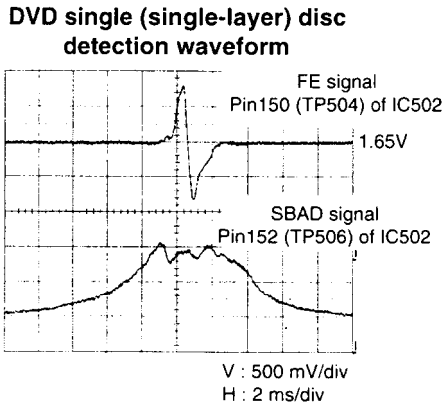


Fig. 3-6

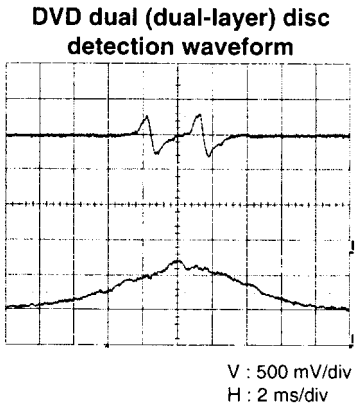


Fig. 3-7

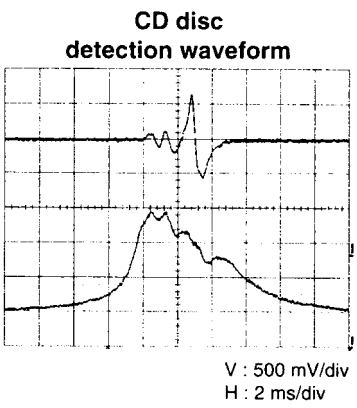


Fig. 3-8

(2) Picture appears (PLAY)

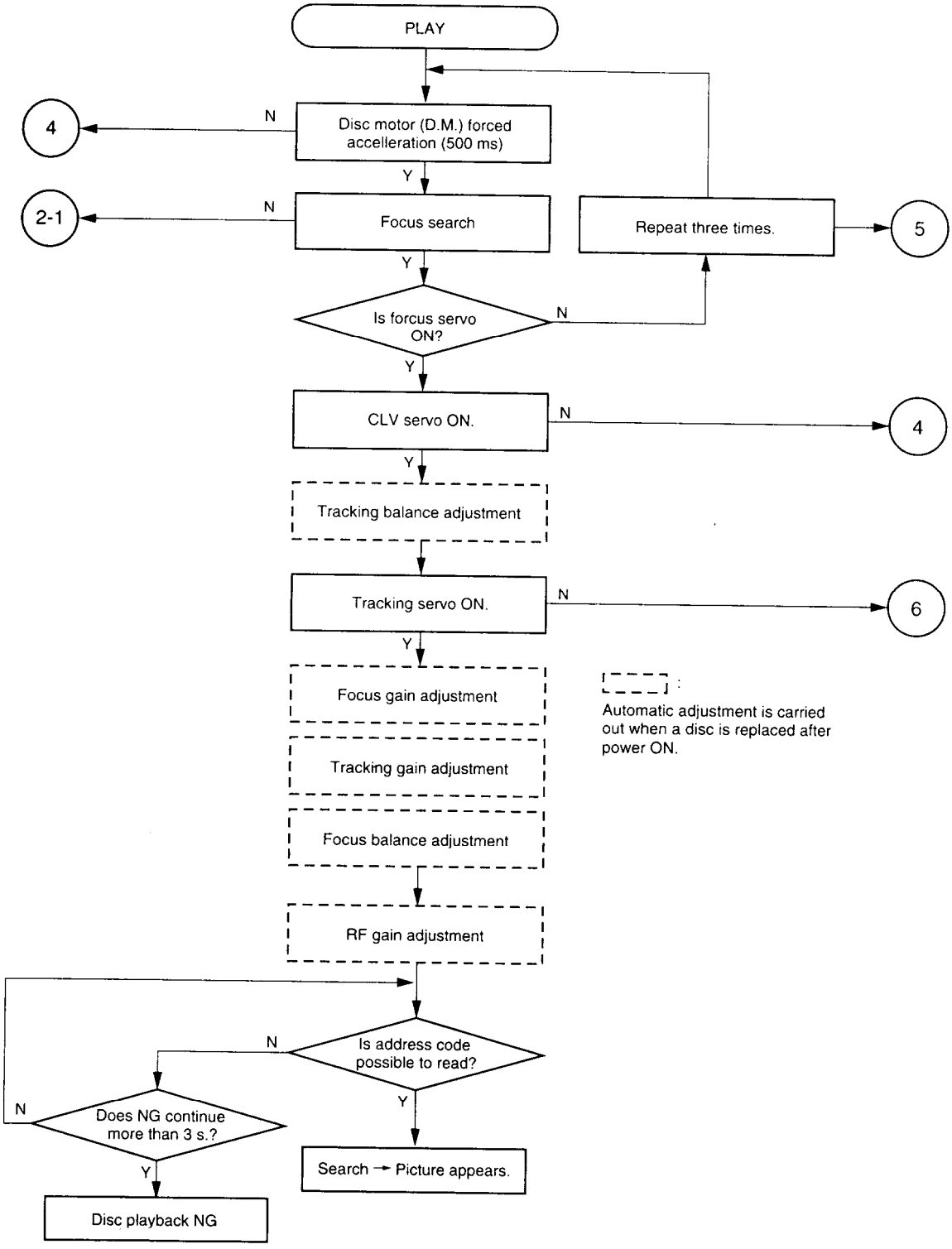


Fig. 3-9

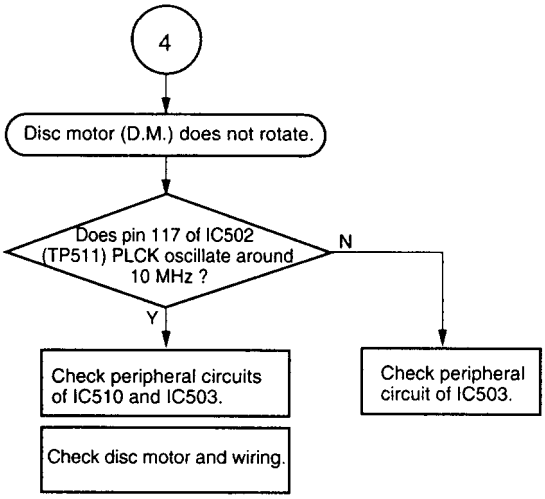


Fig. 3-10

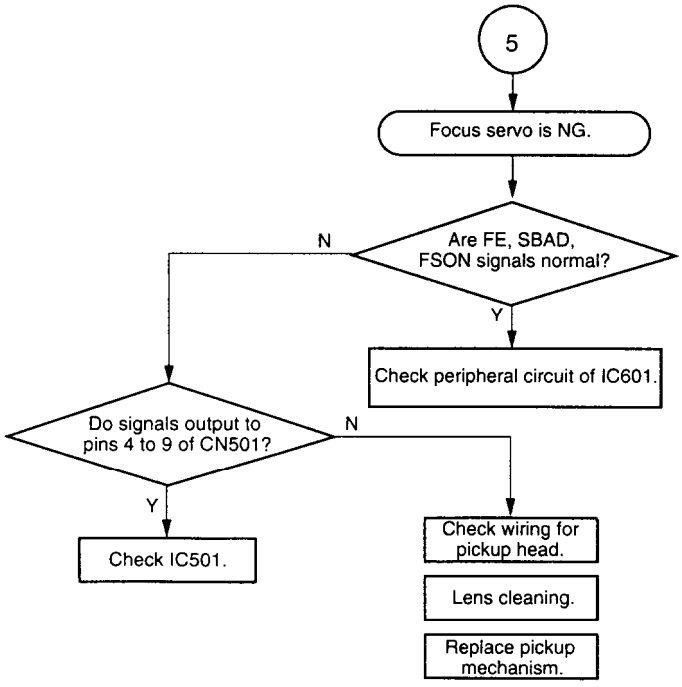


Fig. 3-11

Focus servo ON signal waveform

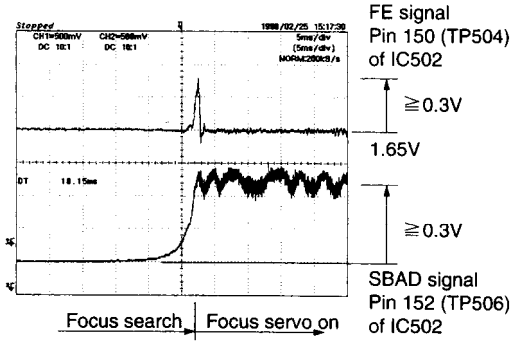


Fig.3-12

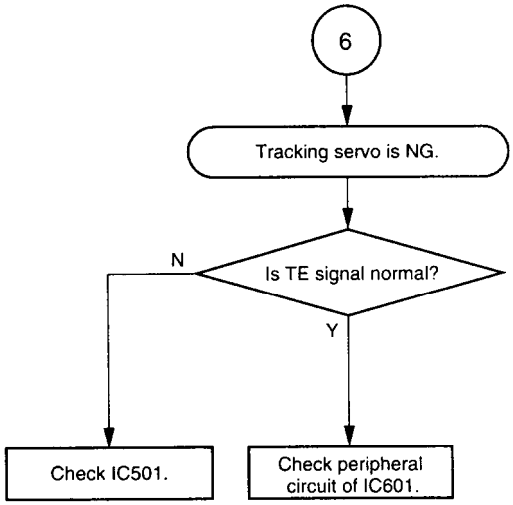
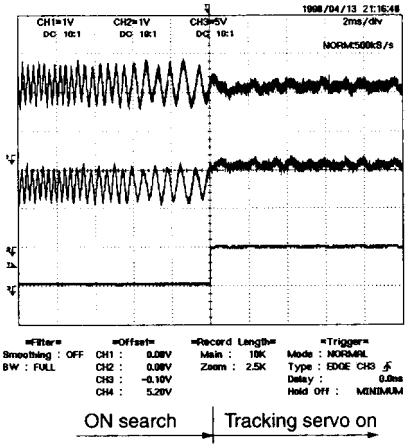


Fig. 3-13

Signal waveform at tracking servo ON (CD)



TE signal
Pin 151 (TP503) of IC502
1.65V

RFRP signal
Pin 153 (TP501) of IC502

Search ON (SRCH)
Pin 38 (TP508) of IC502

Fig. 3-14

Signal waveform at tracking servo ON (DVD)

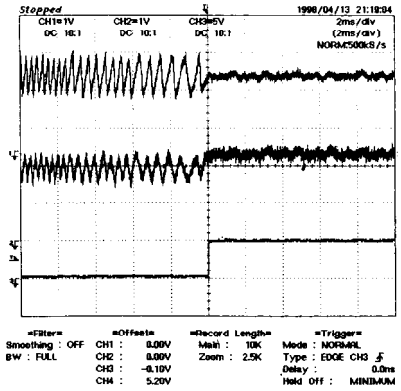


Fig.3-15

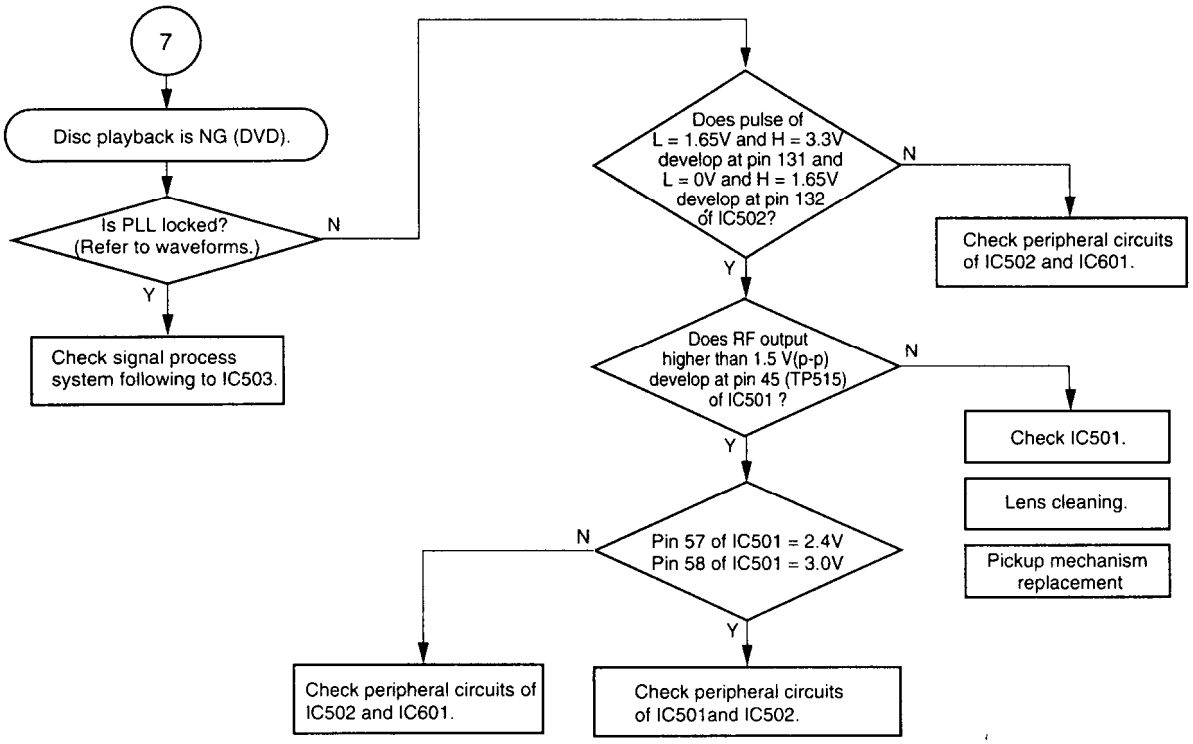
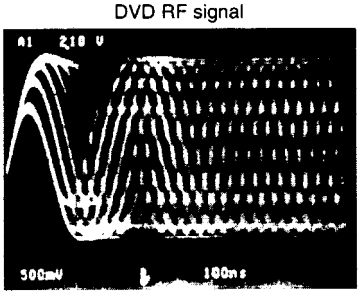


Fig. 3-16

PLL works as a servo loop to generate a clock signal for reading RF signal binary data. With the PLL locked, the eye pattern is identified clearly when triggered with the read clock PLCK.

DVD RF signal

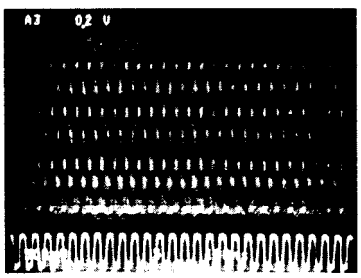


DVD RF signal
Pin 45 (TP515) of IC501

V : 500 mV/div
H : 50 ns/div

Fig. 3-17

DVD playback waveform



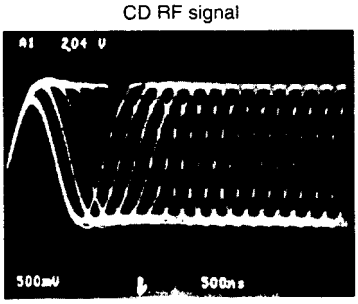
DVD RF signal
Pin 45 (TP515) of IC501

DVD PLCK
Pin 117 (TP511) of IC502

CH1 : TP515 DVDRF 500 mV/div
CH2 : TP511 DVDPLCK 5 V/div
50 ns/div

Fig. 3-19

CD RF signal

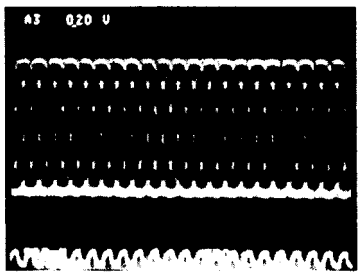


CD RF signal
Pin 45 (TP515) of IC501

V : 500 mV/div
H : 100 ns/div

Fig.3-18

CD playback waveform



CD RF signal
Pin 45 (TP515) of IC501

CD PLCK
Pin 117 (TP511) of IC502

CH1 : TP515 CDRF 500 mV/div
CH2 : TP511 CDPLCK 5 V/div
100 ns/div

Fig. 3-20

(3) Location Diagram of Servo Test Point

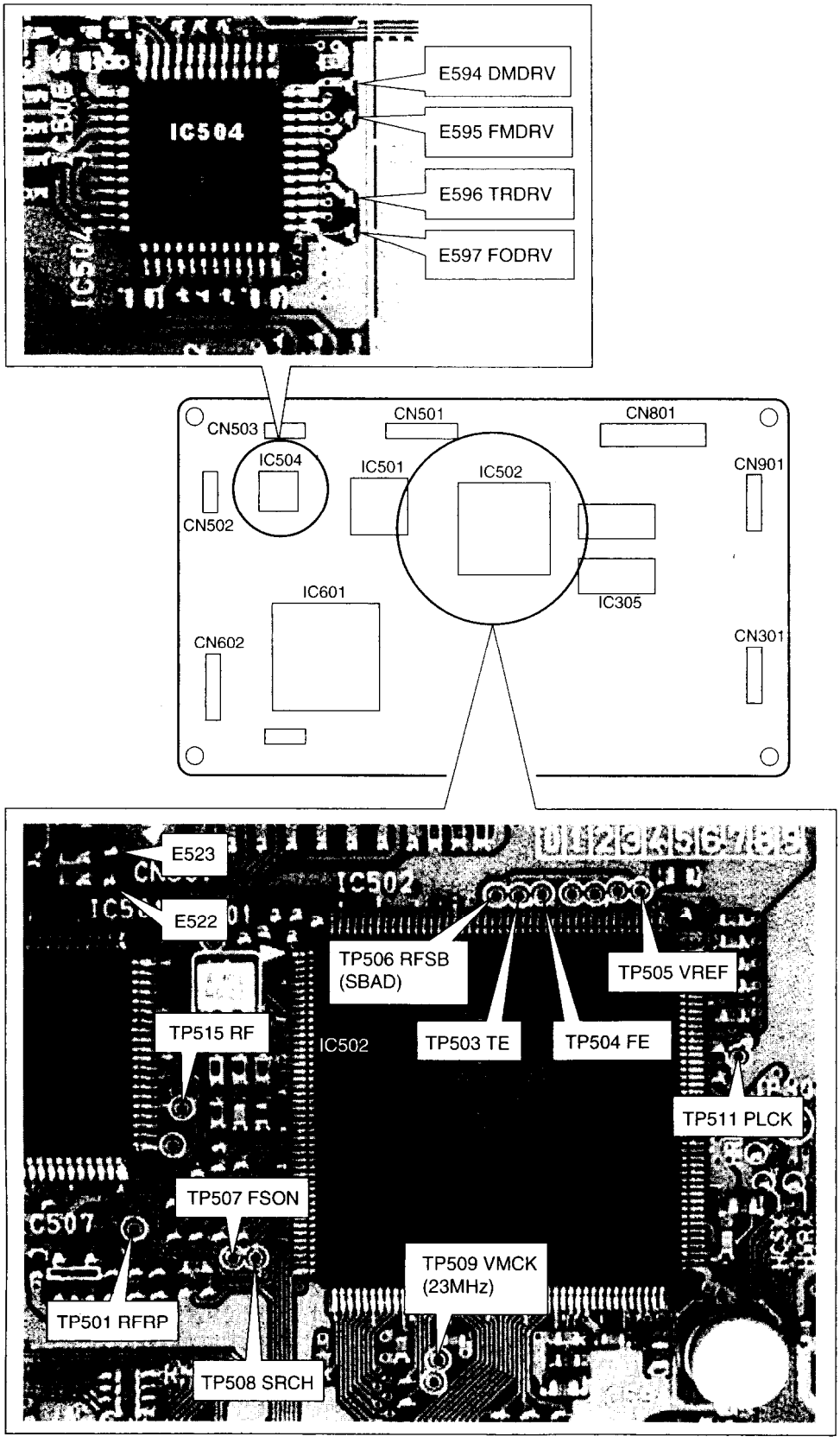


Fig. 3-21

WIRING DIAGRAM