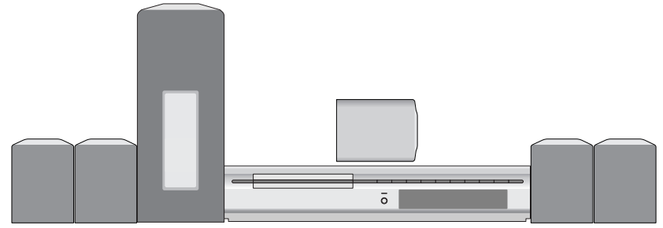
SERVICE MANUAL MODEL: LH-T6347 (LH-T6347X LHS-T6347T, LHS-T6347W)

DVD/CD RECEIVER

SERVICE MANUAL



MODEL:LH-T6347
LH-T6347X
LHS-T6347T, LHS-T6347W

[CONTENTS]

SECTION 1. GENERAL

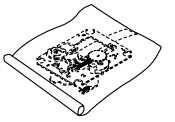
❑ SERVICING PRECAUTIONS

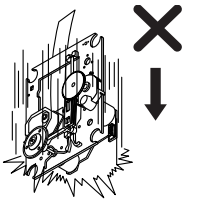
NOTES REGARDING HANDLING OF THE PICK-UP

1. Notes for transport and storage

1) The pick-up should always be left in its conductive bag until immediately prior to use.
2) The pick-up should never be subjected to external pressure or impact.

Storage in conductive bag

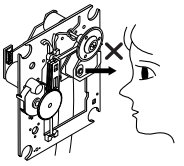




Drop impact

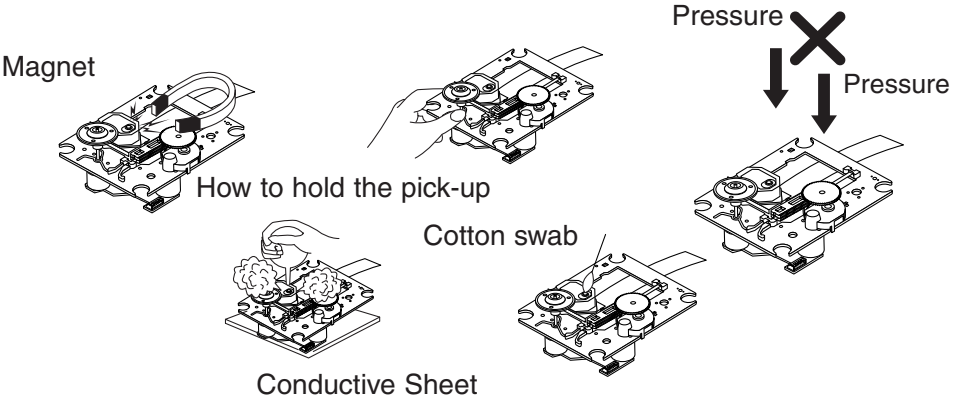
2. Repair notes

1) The pick-up incorporates a strong magnet, and so should never be brought close to magnetic materials.
2) The pick-up should always be handled correctly and carefully, taking care to avoid external pressure and impact. If it is subjected to strong pressure or impact, the result may be an operational malfunction and/or damage to the printed-circuit board.
3) Each and every pick-up is already individually adjusted to a high degree of precision, and for that reason the adjustment point and installation screws should absolutely never be touched.
4) Laser beams may damage the eyes!
   Absolutely never permit laser beams to enter the eyes!
   Also NEVER switch ON the power to the laser output part (lens, etc.) of the pick-up if it is damaged.



NEVER look directly at the laser beam, and don't let contact fingers or other exposed skin.

5) Cleaning the lens surface
   If there is dust on the lens surface, the dust should be cleaned away by using an air bush (such as used for camera lens). The lens is held by a delicate spring. When cleaning the lens surface, therefore, a cotton swab should be used, taking care not to distort this.



6) Never attempt to disassemble the pick-up.
   Spring by excess pressure. If the lens is extremely dirty, apply isopropyl alcohol to the cotton swab. (Do not use any other liquid cleaners, because they will damage the lens.) Take care not to use too much of this alcohol on the swab, and do not allow the alcohol to get inside the pick-up.

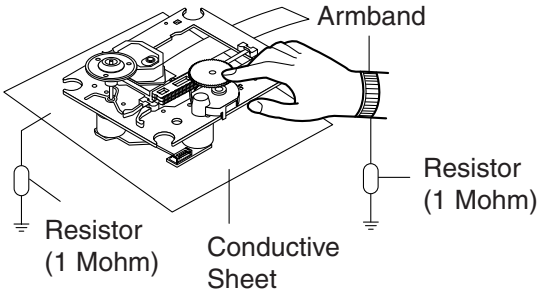
NOTES REGARDING COMPACT DISC PLAYER REPAIRS

1. Preparations

1) Compact disc players incorporate a great many ICs as well as the pick-up (laser diode). These components are sensitive to, and easily affected by, static electricity. If such static electricity is high voltage, components can be damaged, and for that reason components should be handled with care.
2) The pick-up is composed of many optical components and other high-precision components. Care must be taken, therefore, to avoid repair or storage where the temperature of humidity is high, where strong magnetism is present, or where there is excessive dust.

2. Notes for repair

1) Before replacing a component part, first disconnect the power supply lead wire from the unit
2) All equipment, measuring instruments and tools must be grounded.
3) The workbench should be covered with a conductive sheet and grounded.
   When removing the laser pick-up from its conductive bag, do not place the pick-up on the bag. (This is because there is the possibility of damage by static electricity.)
4) To prevent AC leakage, the metal part of the soldering iron should be grounded.
5) Workers should be grounded by an armband (1M Ω)
6) Care should be taken not to permit the laser pick-up to come in contact with clothing, in order to prevent static electricity changes in the clothing to escape from the armband.
7) The laser beam from the pick-up should NEVER be directly facing the eyes or bare skin.



❑ ESD PRECAUTIONS

Electrostatically Sensitive Devices (ESD)

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive Devices (ESD). Examples of typical ESD devices are integrated circuits and some field-effect transistors and semiconductor chip components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ESD devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ESD devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESD devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESD devices.
6. Do not remove a replacement ESD device from its protective package until immediately before you are ready to install it. (Most replacement ESD devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive materials).
7. Immediately before removing the protective material from the leads of a replacement ESD device, touch the protective material to the chassis or circuit assembly into which the device will by installed.

CAUTION : BE SURE NO POWER IS APPLIED TO THE CHASSIS OR CIRCUIT, AND OBSERVE ALL OTHER SAFETY PRECAUTIONS.

8. Minimize bodily motions when handing unpackaged replacement ESD devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ESD device).

CAUTION. GRAPHIC SYMBOLS

THE LIGHTNING FLASH WITH APROWHEAD SYMBOL. WITHIN AN EQUILATERAL TRIANGLE, IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF UNINSULATED “DANGEROUS VOLTAGE” THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK.

THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF IMPORTANT SAFETY INFORMATION IN SERVICE LITERATURE.

❑ SPECIFICATIONS

[General]	Power supply	Refer to main label	
	Power consumption	Refer to main label	
	Mass	3.8kg	
	External dimensions (W x H x D)	360 x 75 x 314 mm	
	Operating conditions	Temperature: 5°C to 35°C, Operation status: Horizontal	
	Operating humidity	5% to 85%	
[CD/DVD]	Laser	Semiconductor laser, wavelength 650 nm	
	Signal system	PAL 625/50, NTSC 525/60	
	Frequency response (audio)	200 Hz to 18 kHz	
	Signal-to-noise ratio (audio)	More than 70 dB (1 kHz, NOP, 20 kHz LPF/A-Filter)	
	Dynamic range (audio)	More than 70 dB	
	Harmonic distortion (audio)	1.0 % (1 kHz, at 12W position) (20 kHz LPF/A-Filter)	
[Video]	Video output	1.0 V (p-p), 75Ω , negative sync., RCA jack	
	S-video output	(Y) 1.0 V (p-p), 75Ω , negative sync., Mini DIN 4-pin x 1 (C) 0.3 V (p-p), 75Ω	
[Tuer] [FM]	Tuning Range	87.5 - 108.0 MHz or 65.0 - 74.0 MHz, 87.5 - 108.0 MHz	
	Intermediate Frequency	10.7 MHz	
	Signal-to Noise Ratio	55 dB (Mono)	
	Frequency Response	180-10,000 Hz	
[Tuer] AM [MW]	Tuning Range	522~1,611kHz, 530 ~1,610kHz	
	Intermediate Frequency	450 kHz	
[Amplifier]	Stereo mode	25W + 25W (6Ω at 1 kHz, THD 10 %)	
	Surround mode (* **Depending on the sound mode settings and the source, there may be no sound output.**)	Front: 25W + 25W (THD 10 %) Centre*: 25W Surround*: 25W + 25W (6Ω at 1 kHz, THD 10 %) Subwoofer*: 60W (8Ω at 70 Hz, THD 10 %)	
	Outputs	S-VIDEO MONITOR	
[Speakers]		Satellite Speaker	Passive Subwoofer
	Type	1Way 1Speaker	1Way 1Speaker
	Impedance	6Ω	8Ω
	Frequency Response	130-20,000 Hz	50 -1,500 Hz
	Sound Pressure Level	83 dB/W (1m)	82 dB/W (1m)
	Rated Input Power	25 W	60 W
	Max. Input Power	50 W	120 W
	Net Dimensions (W x H x D)	88 x 100 x 95 mm	160 x 350 x 325 mm
	Net Weight	0.54 kg	4.12 kg
[Supplied Accessories]	• Speakers .....6 • AM loop antenna .....1 • Remote control 1	• Speaker cables .....5 • FM antenna .....2 • Batteries (AAA) 1	

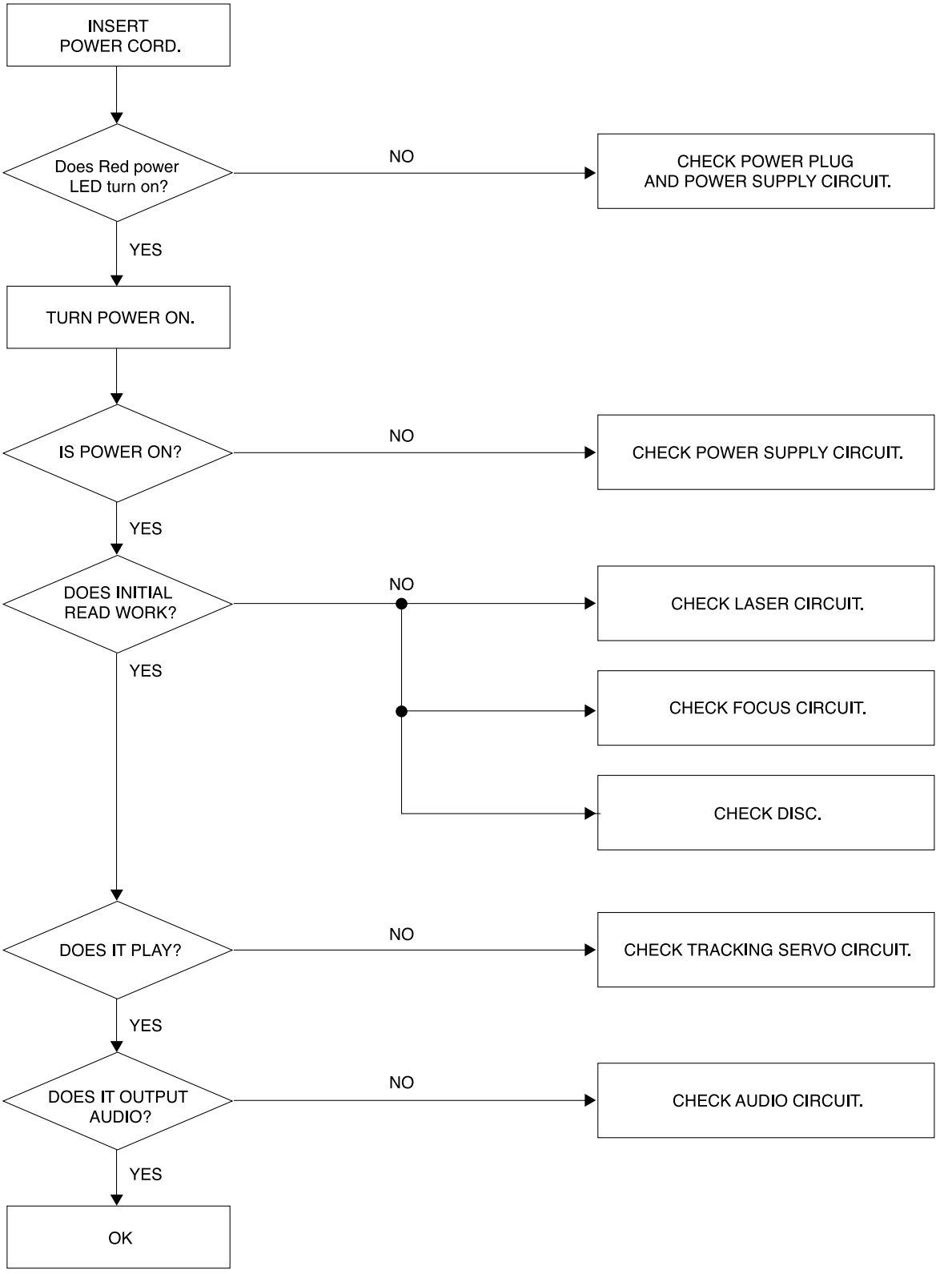
Designs and specifications are subject to change without notice.

MEMO

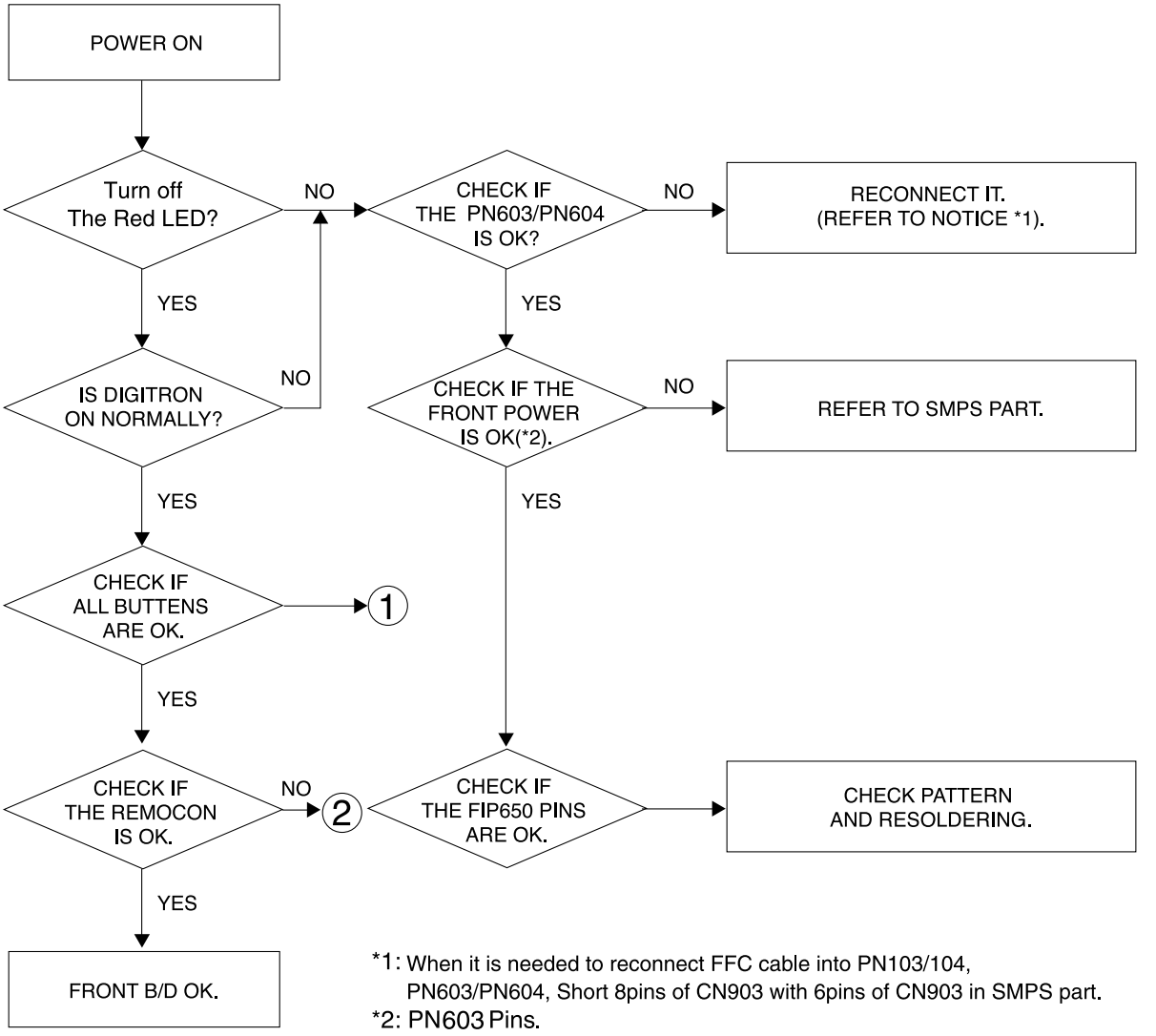
SECTION 2. AUDIO PART

❑ AUDIO TROUBLESHOOTING GUIDE

1. POWER SUPPLY CIRCUIT



2. FRONT CIRCUIT (1/2)

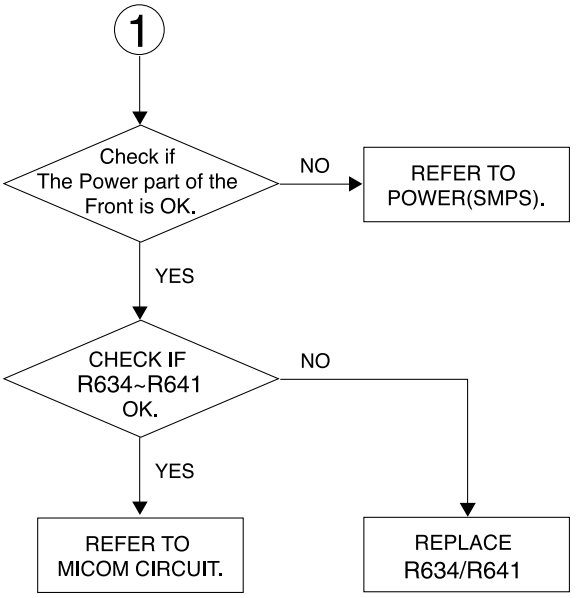


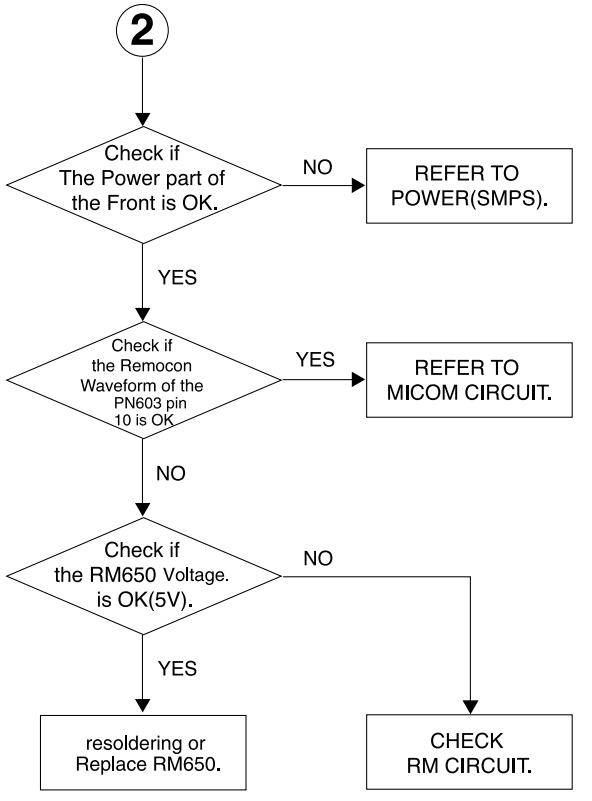
*1: When it is needed to reconnect FFC cable into PN103/104, PN603/PN604, Short 8pins of CN903 with 6pins of CN903 in SMPS part.

*2: PN603 Pins.

PIN1 : -32.4
PIN2 : -27.5
PIN3 : -23.7
PIN4 : -23.7
PIN11 : -5.0

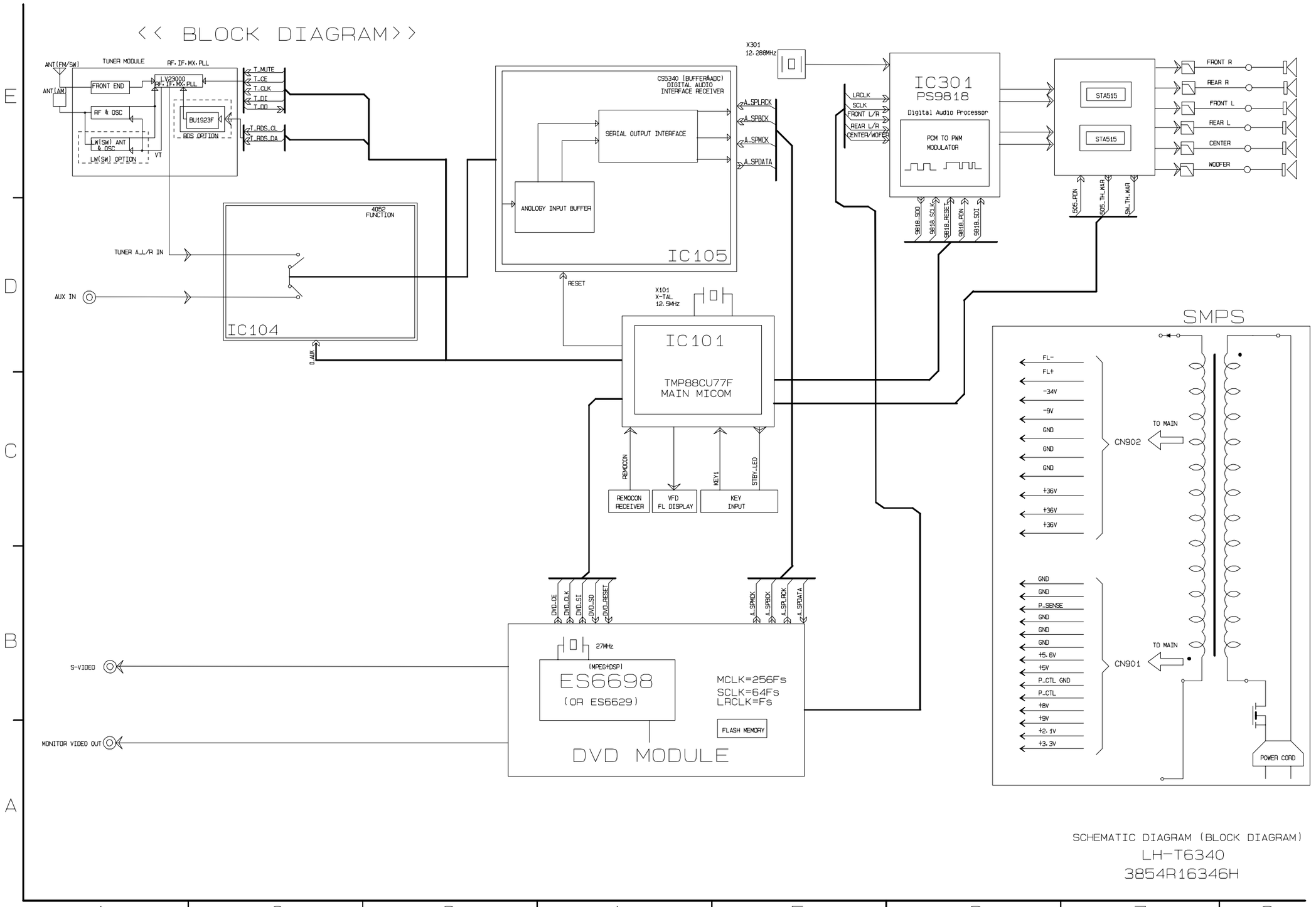
3. FRONT CIRCUIT (2/2)





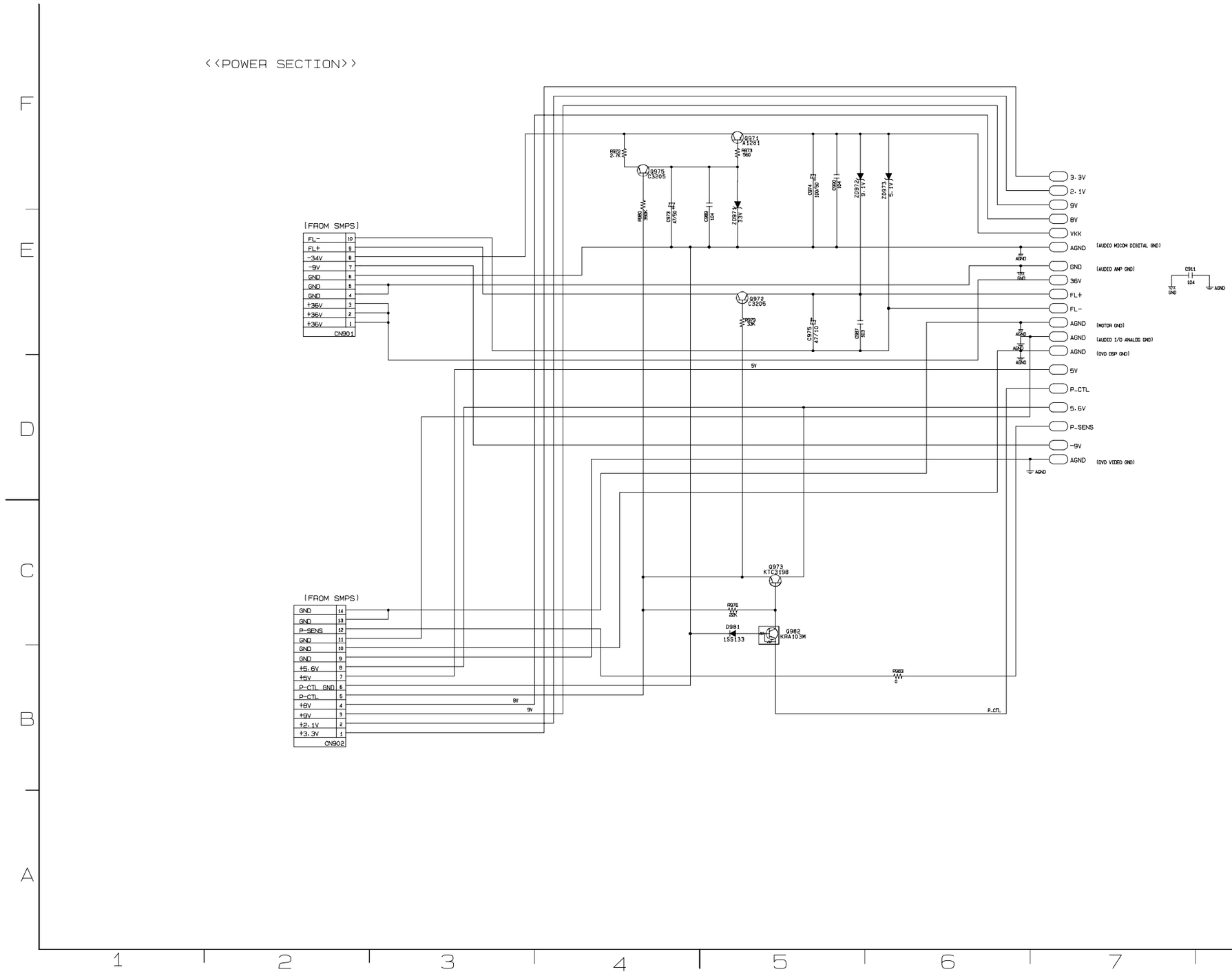
MEMO

❑ BLOCK DIAGRAM

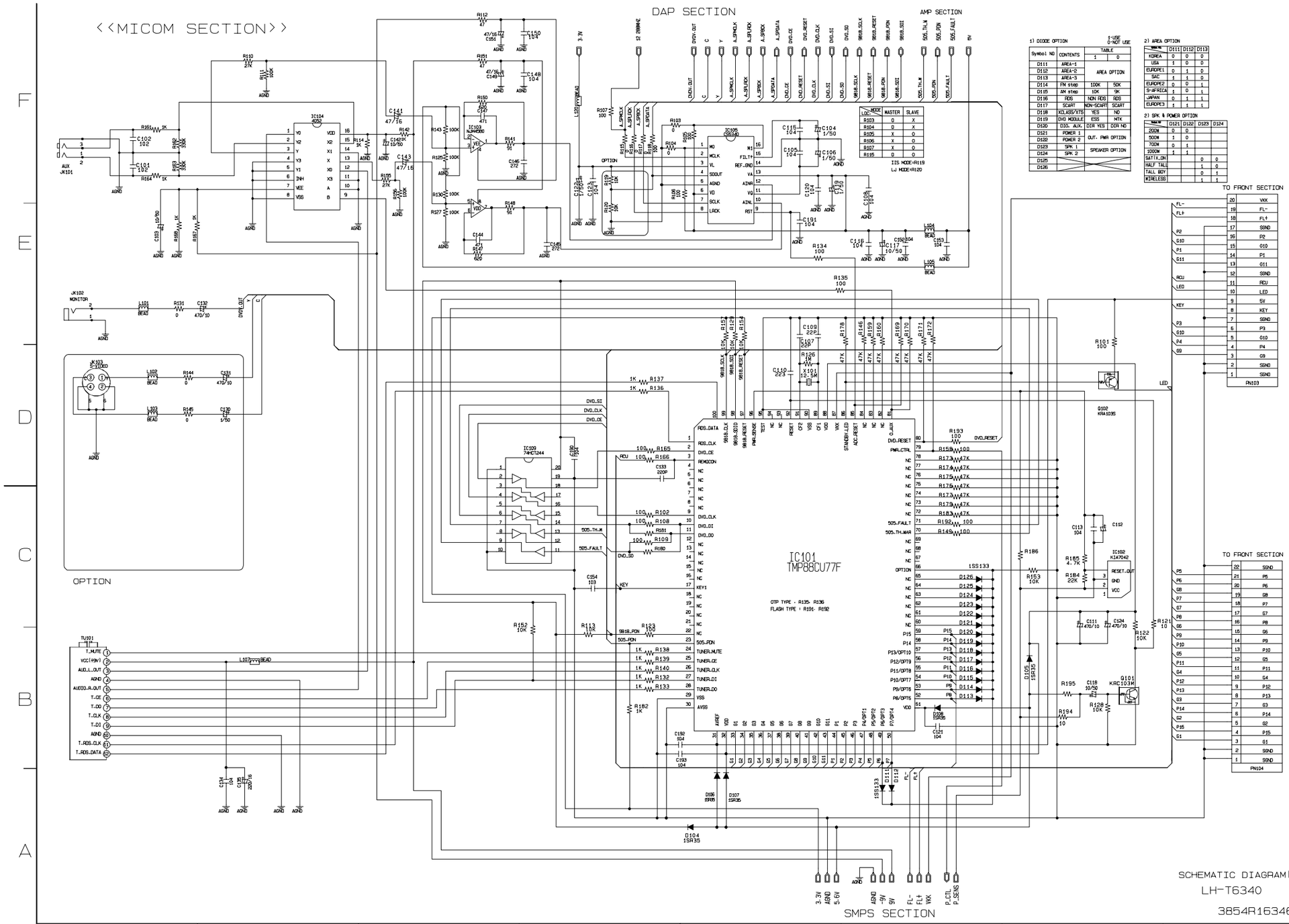


❑ SCHEMATIC DIAGRAMS

• POWER SCHEMATIC DIAGRAM

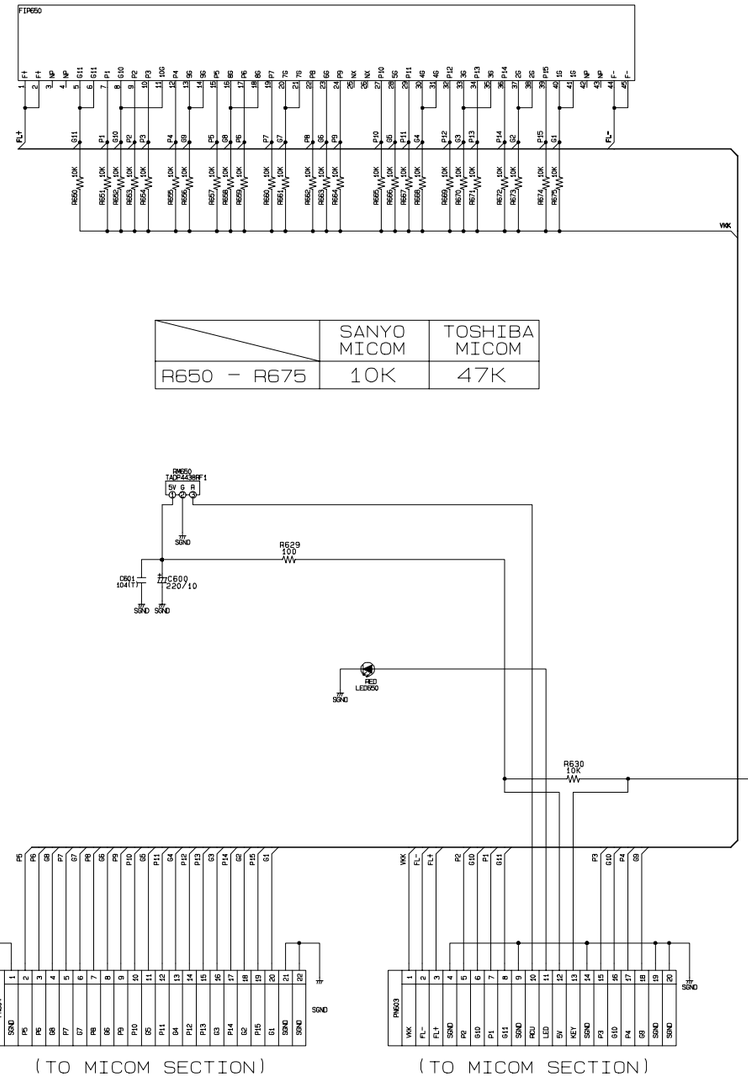


• MICOM SCHEMATIC DIAGRAM



• FRONT SCHEMATIC DIAGRAM

<<FRONT SECTION>>

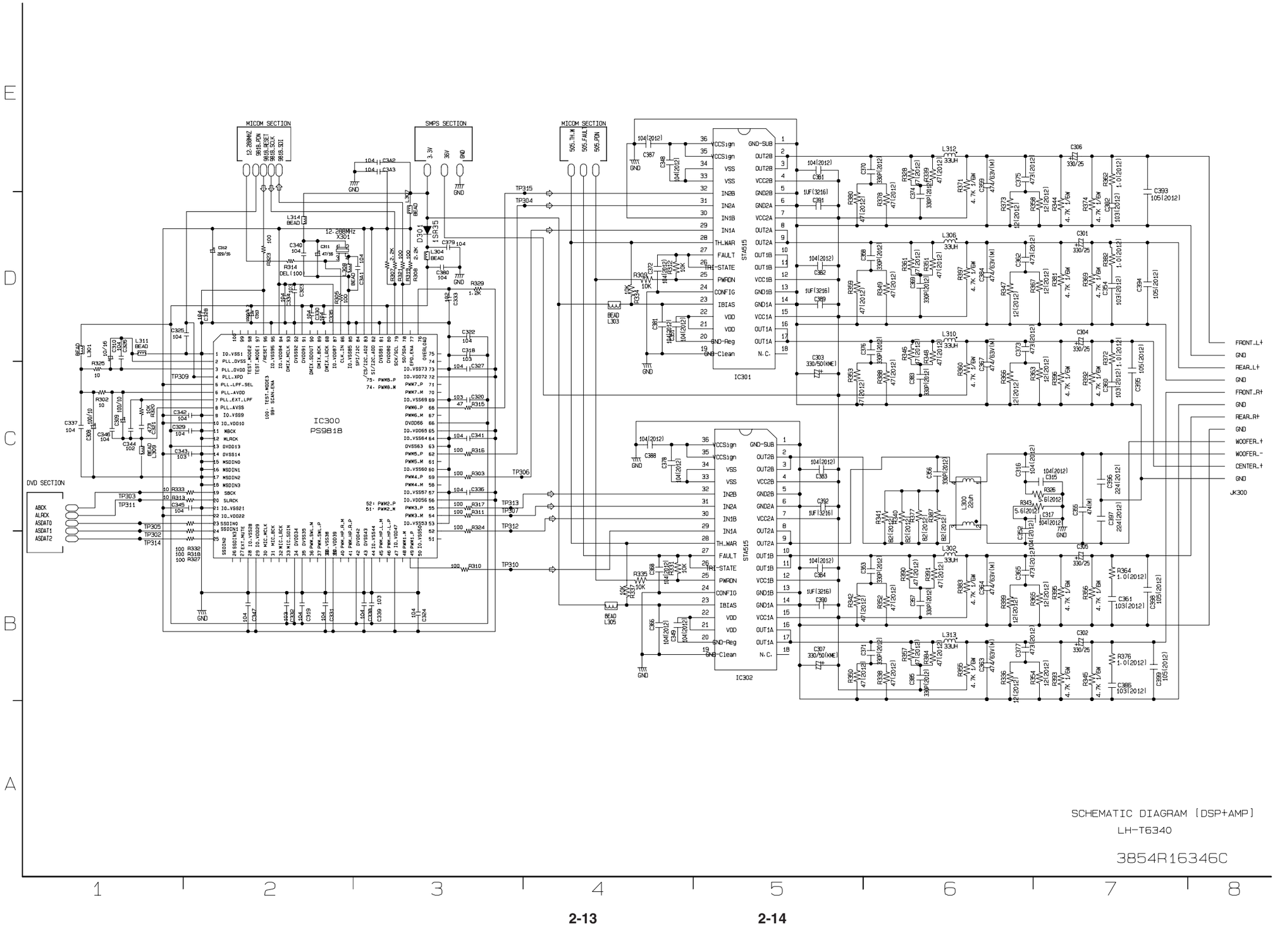


	SANYO MICOM	TOSHIBA MICOM
R650 - R675	10K	47K

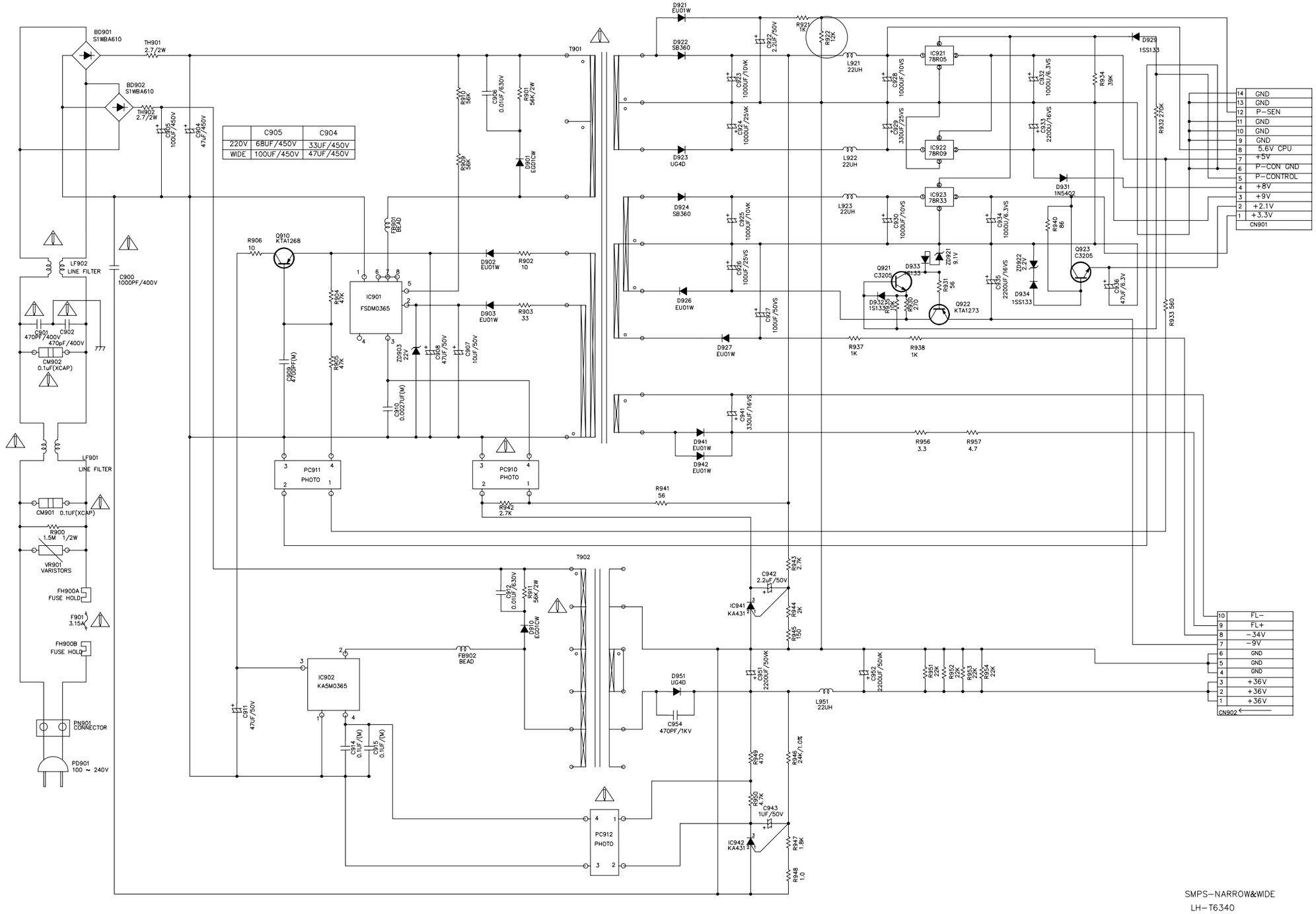
FRONT(SCHEMATIC)
LH-T6340

3854R16345J

• DSP&AMP SCHEMATIC DIAGRAM

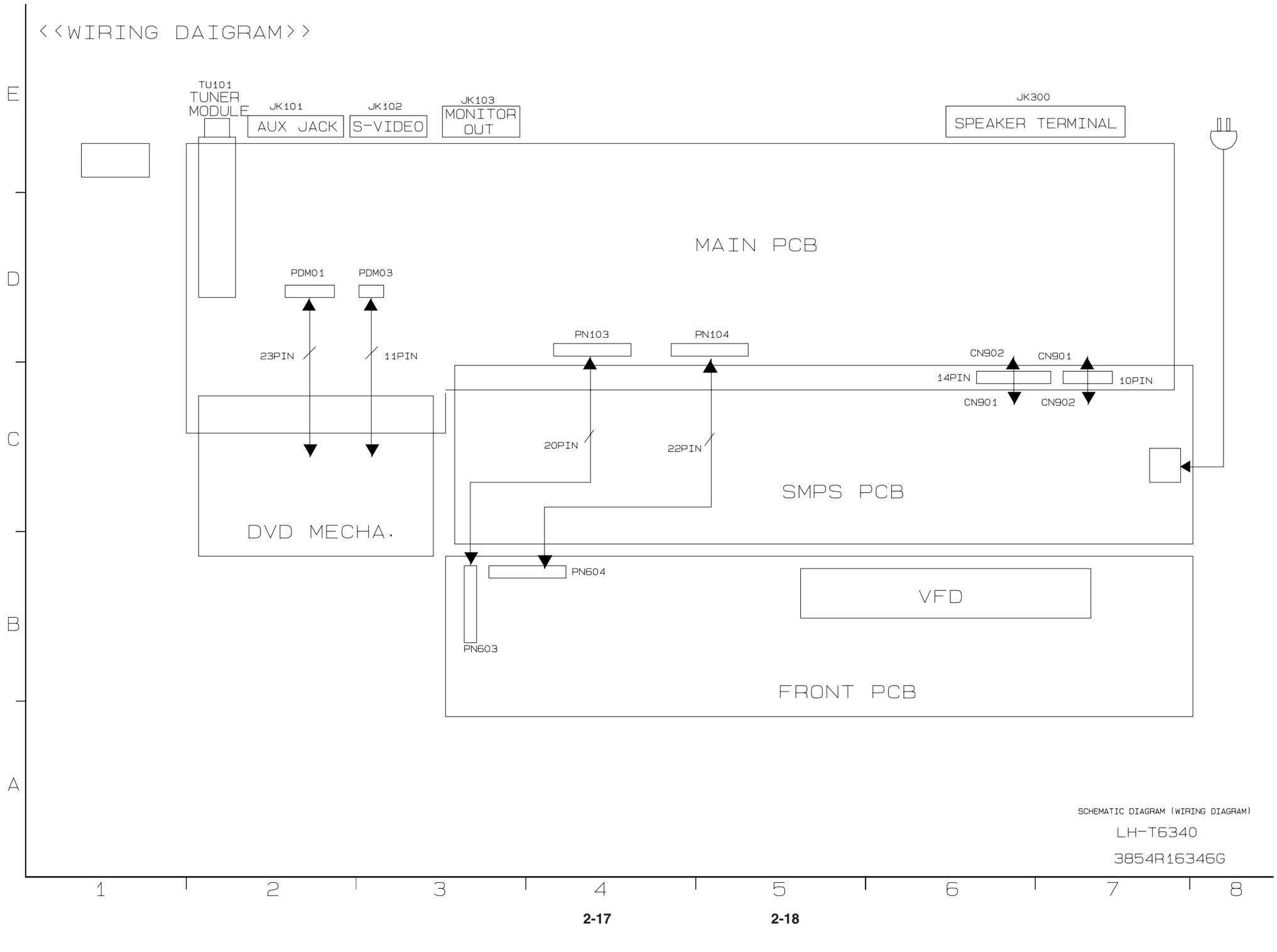


• SMPS-NARROW&WIDE SCHEMATIC DIAGRAM



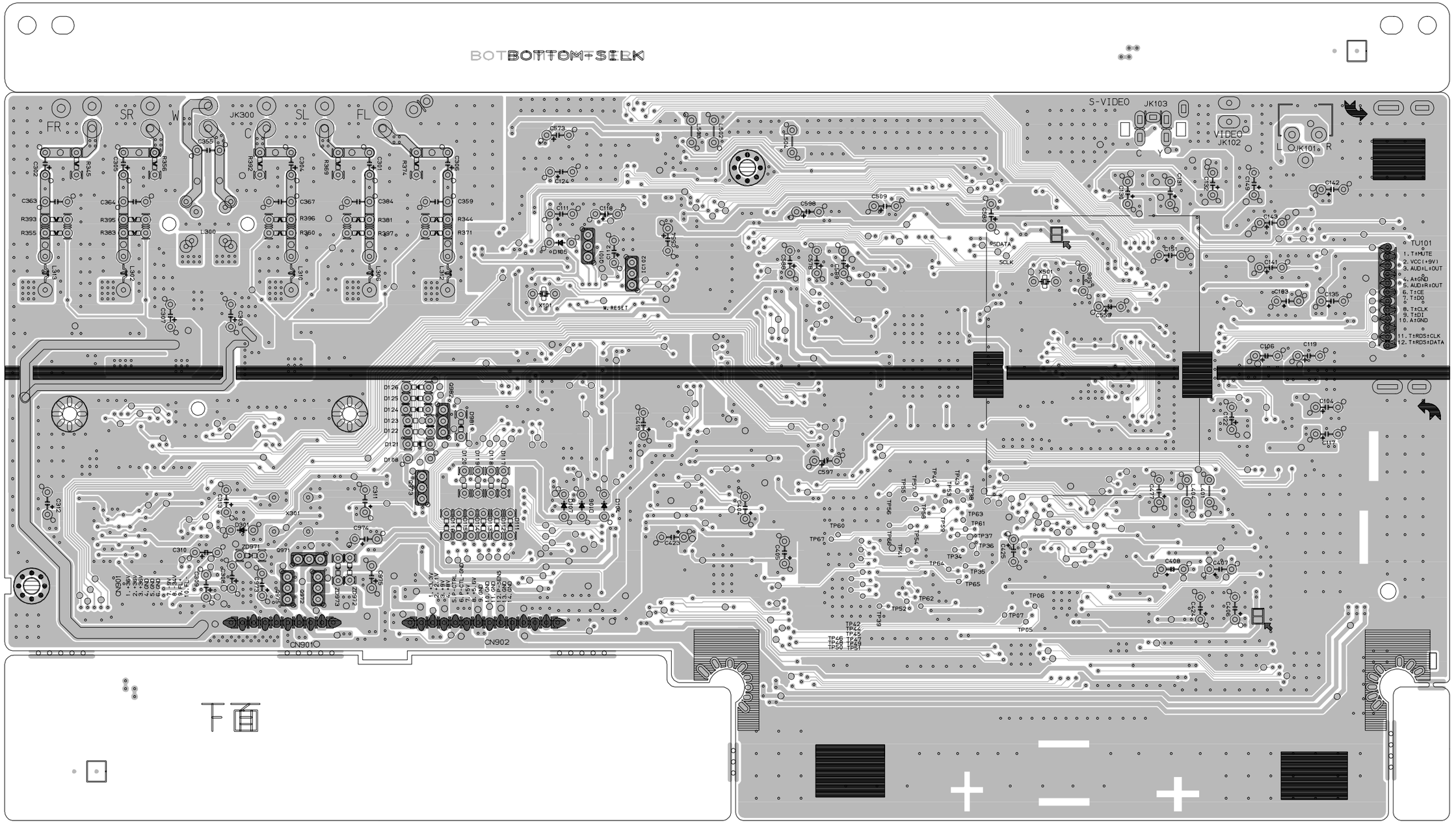
SMPS-NARROW&WIDE
LH-T6340
VD 3854R16340B

❑ WIRING DIAGRAM

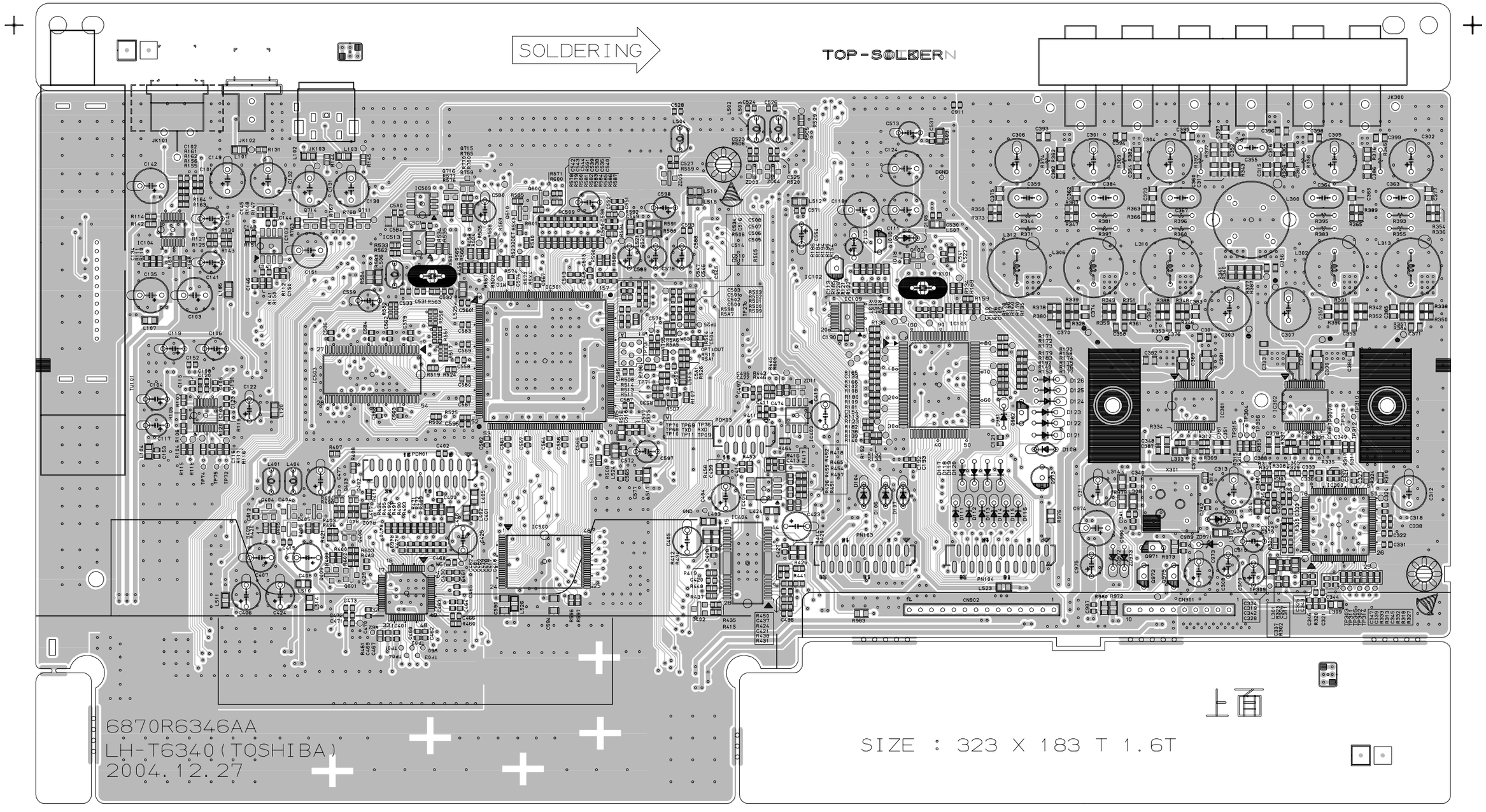


❑ PRINTED CIRCUIT BOARD DIAGRAMS

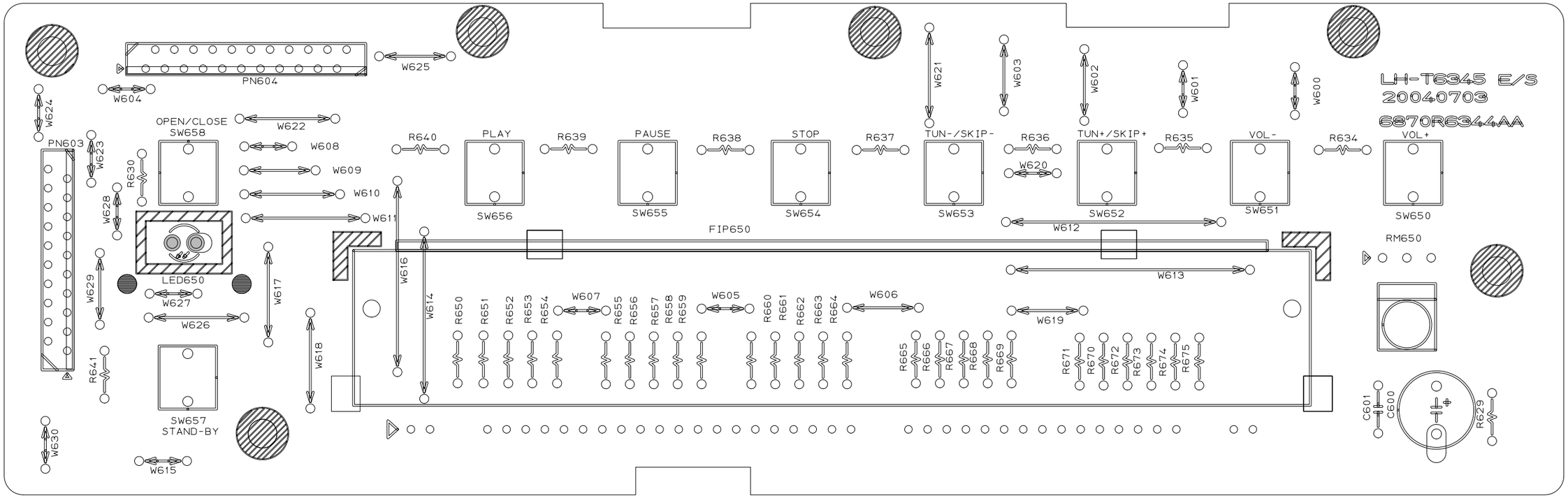
• MAIN/DVD P.C. BOARD DIAGRAM (BOTTOM)



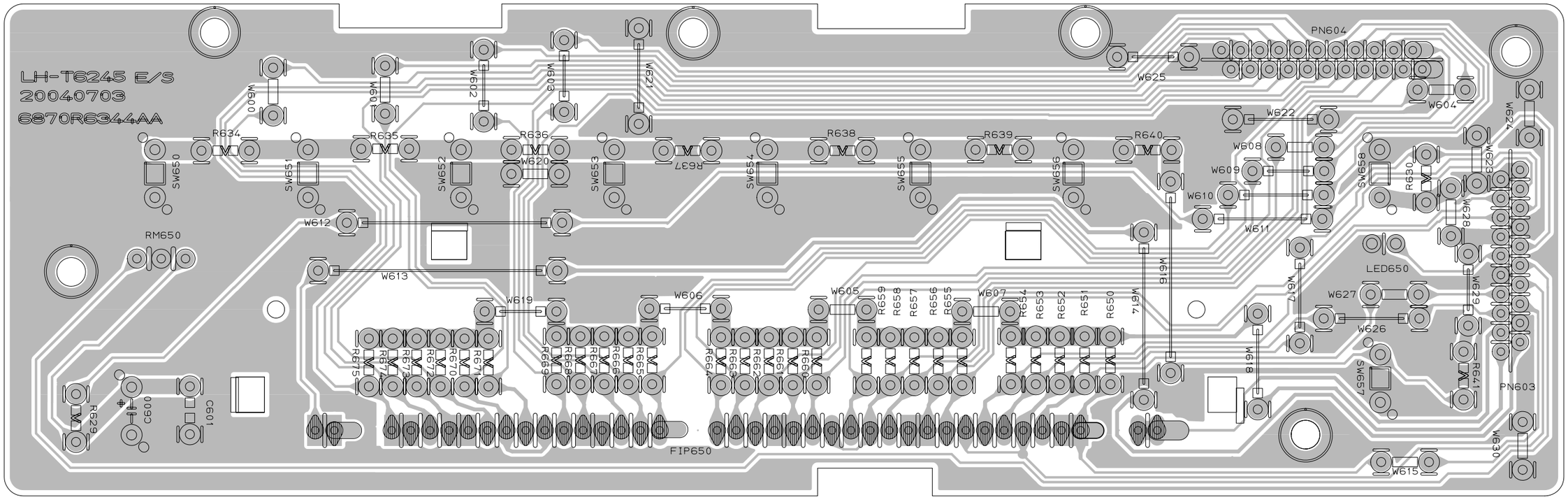
• MAIN/DVD P.C. BOARD DIAGRAM (TOP)



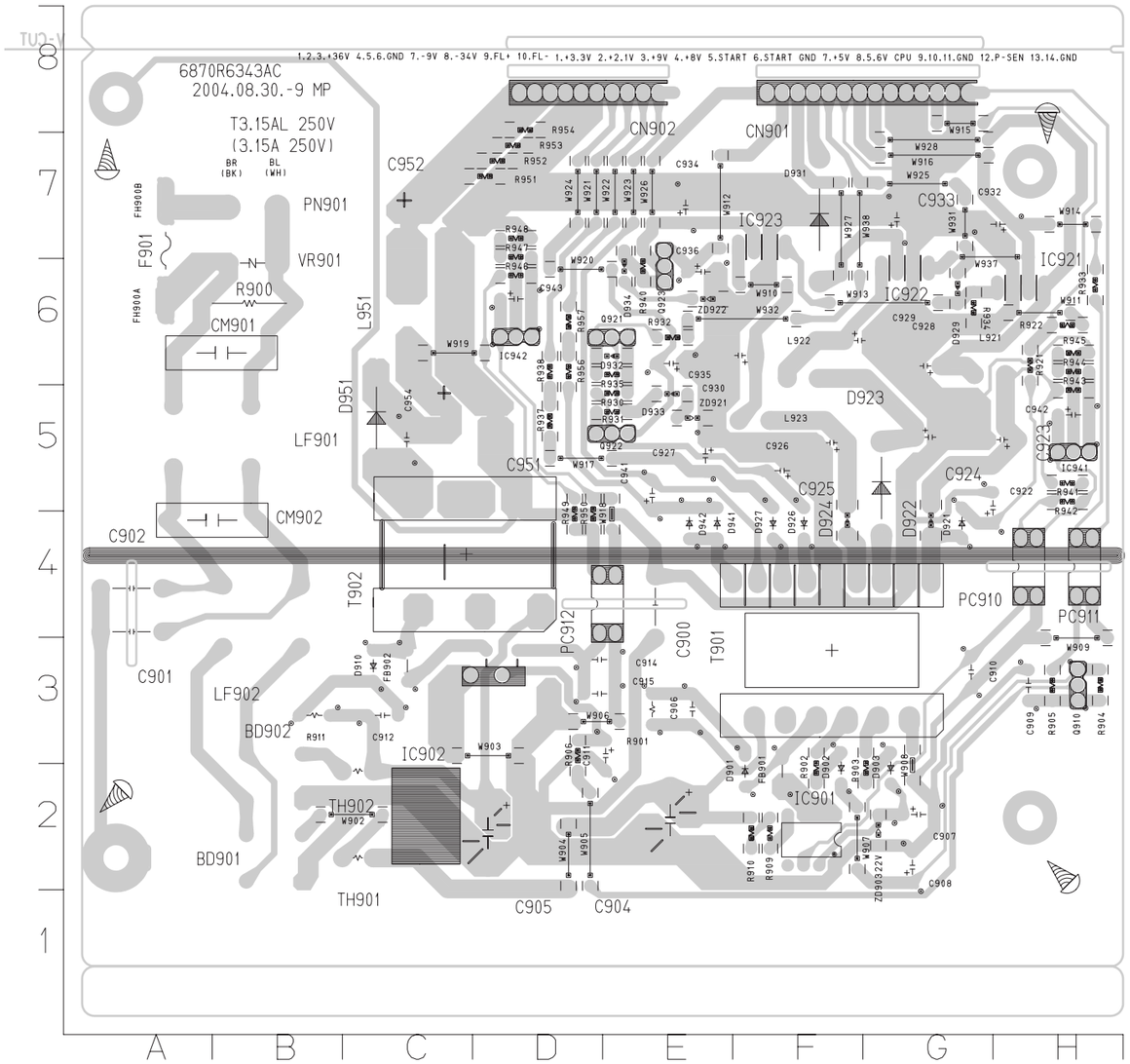
• FRONT P.C. BOARD (TOP)



• FRONT P.C. BOARD (BOTTOM)

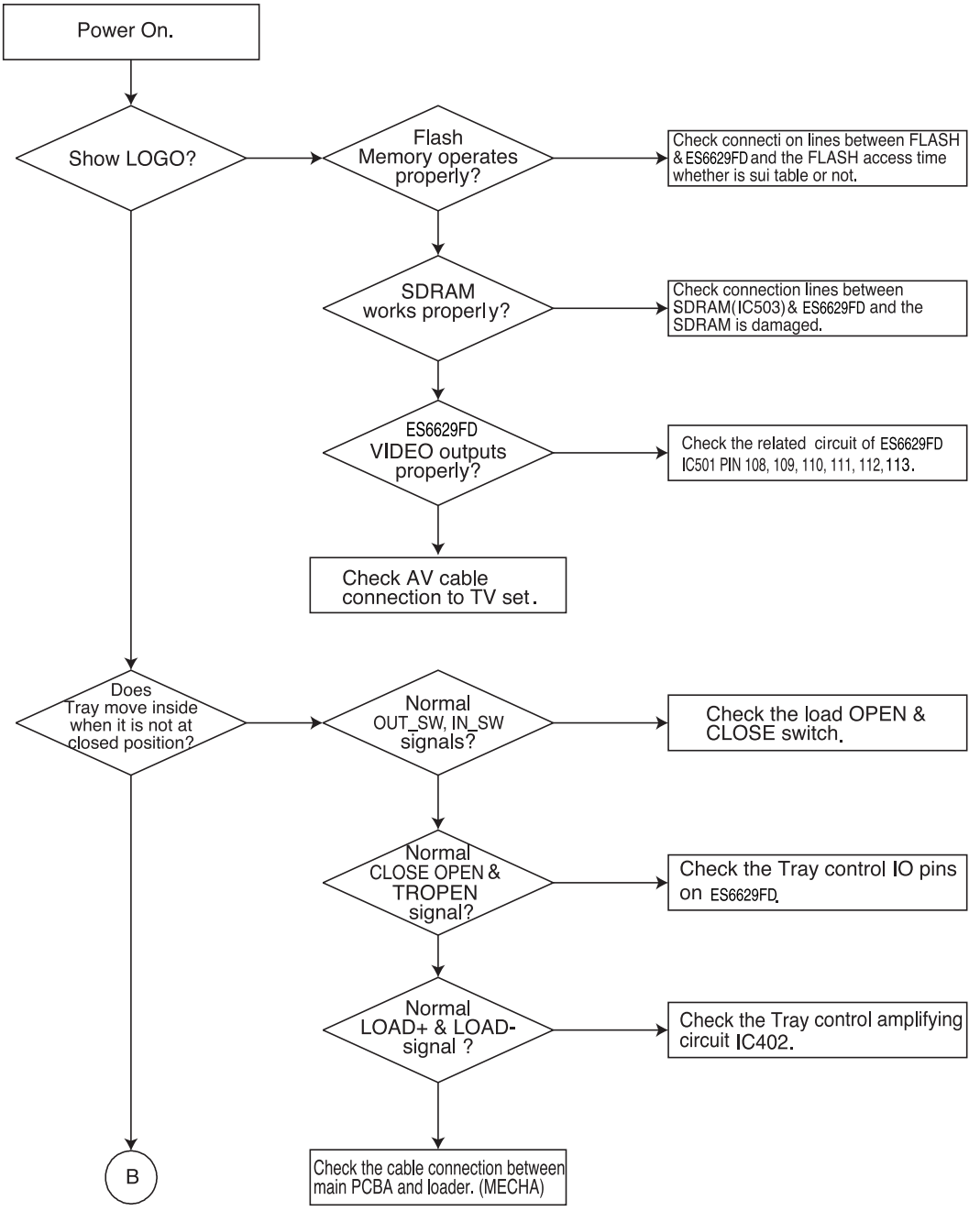


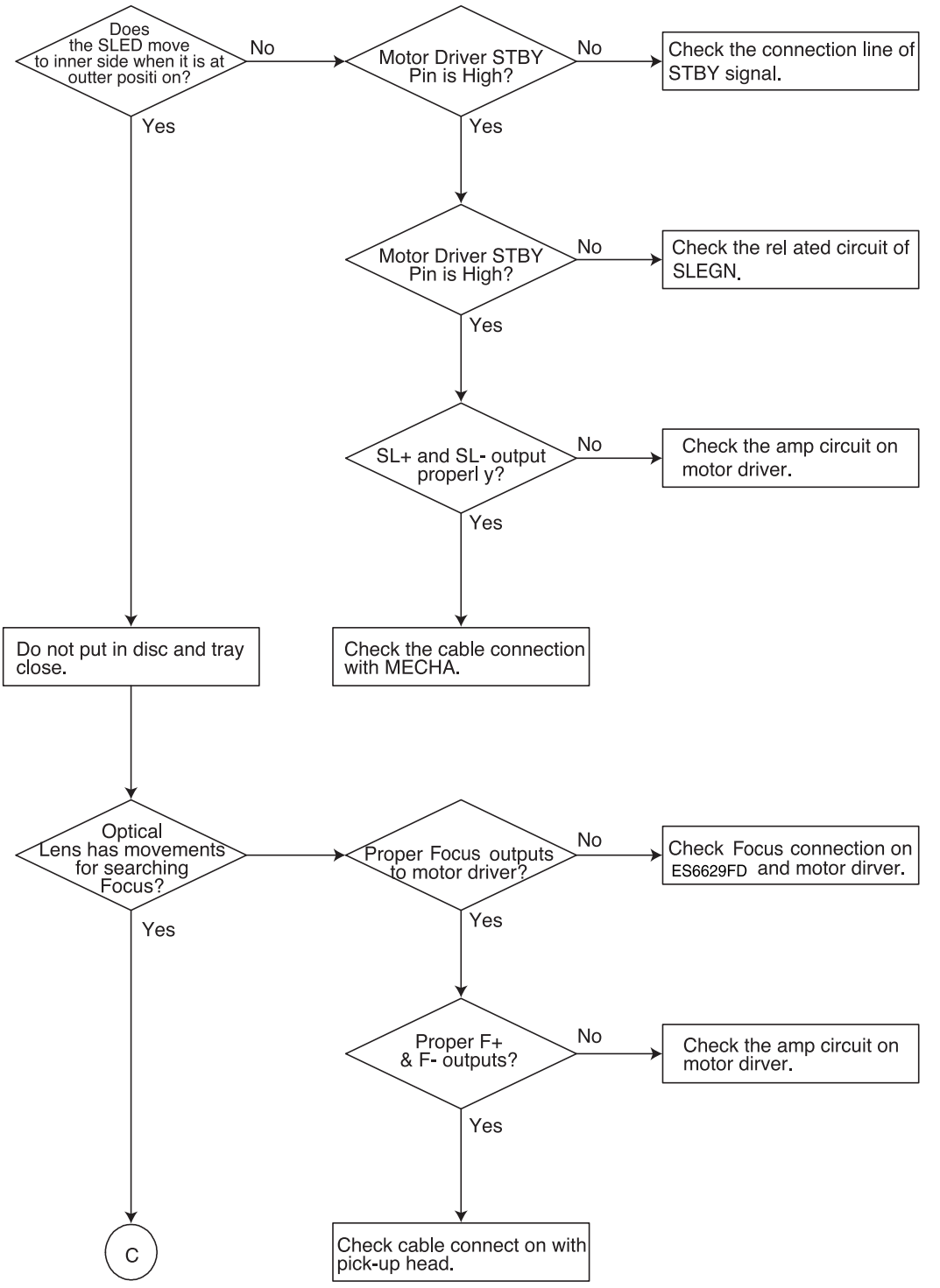
• SMPS P.C. BOARD

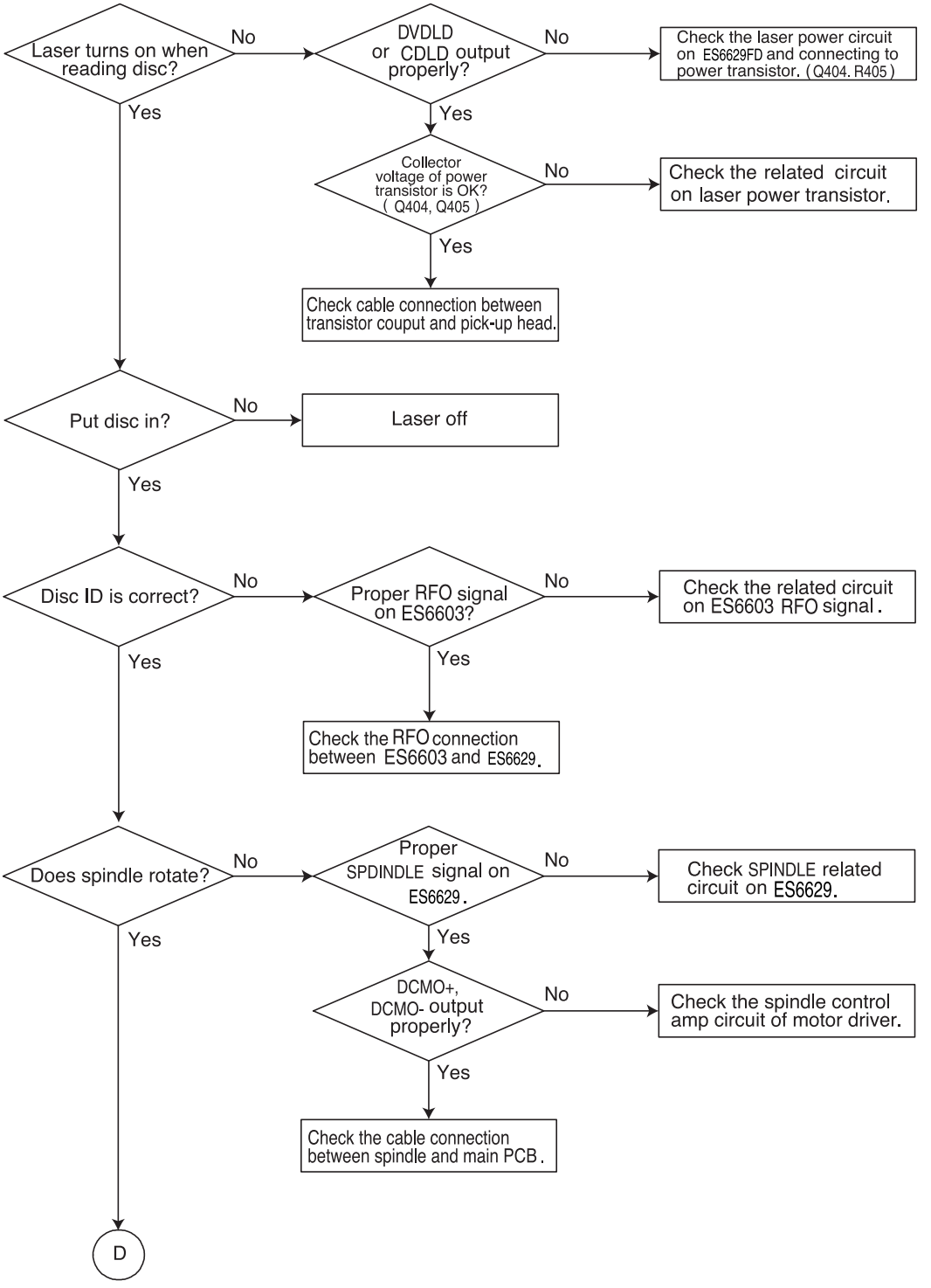


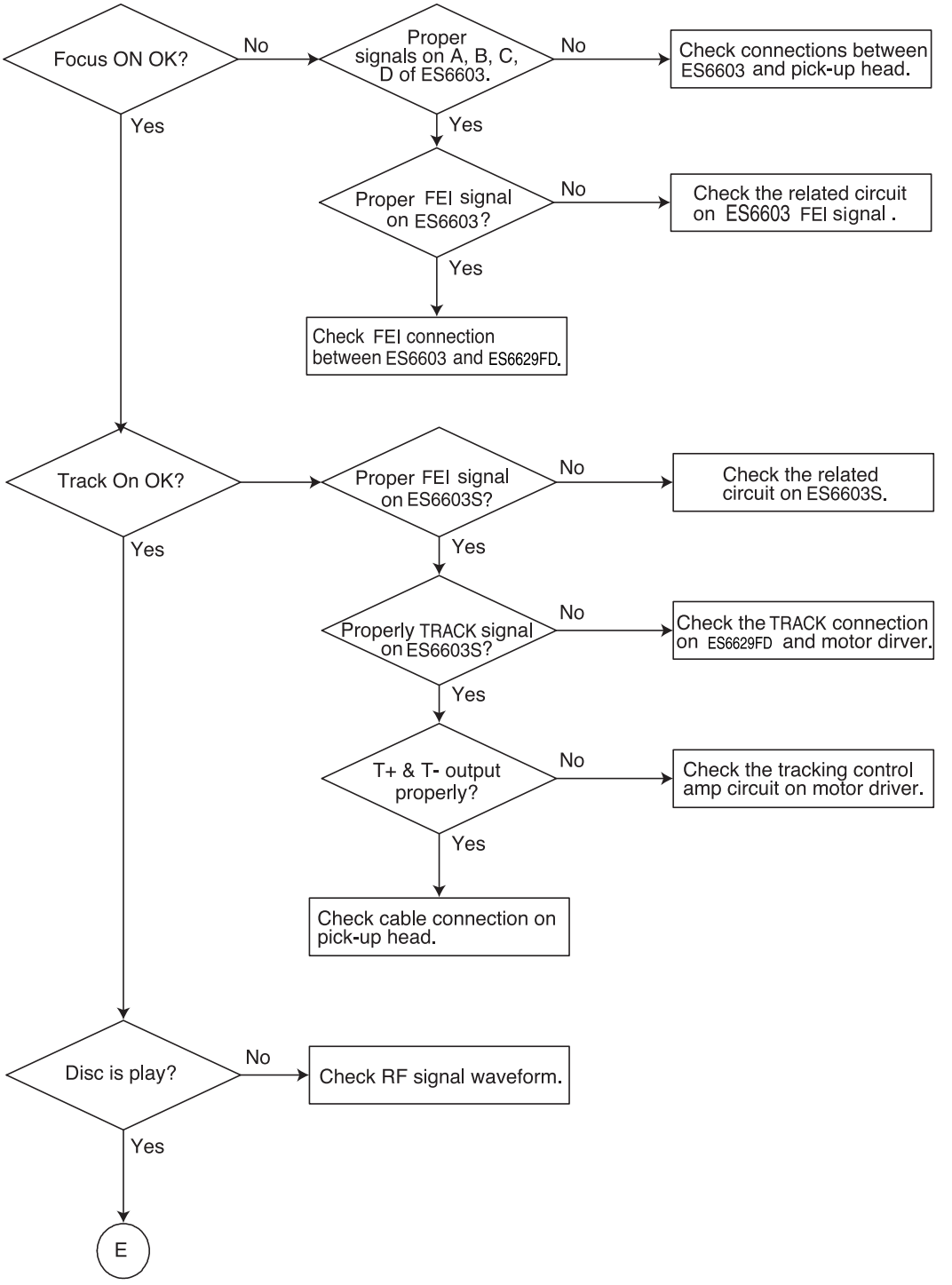
SECTION 3. DVD PART TROUBLESHOOTING GUIDE

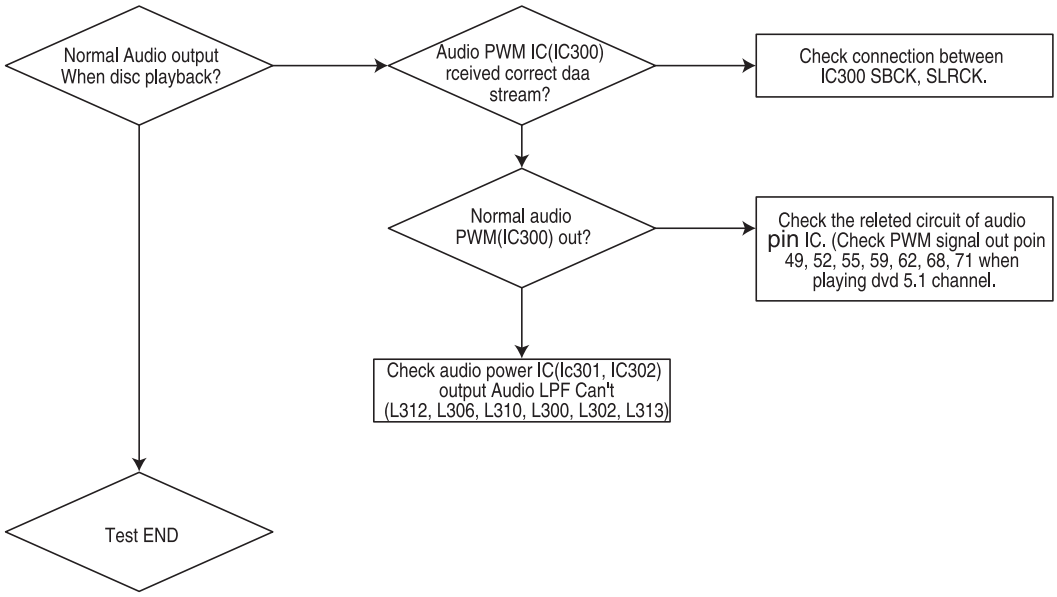
1. Test & debug flow




Does the SLED move to inner side when it is at outter positi on?
No
Motor Driver STBY Pin is High?
No
Check the connection line of STBY signal.
Yes
Yes
Motor Driver STBY Pin is High?
No
Check the rel ated circuit of SLEGN.
Yes
SL+ and SL- output properl y?
No
Check the amp circuit on motor driver.
Yes
Do not put in disc and tray close.
Check the cable connection with MECHA.
Optical Lens has movements for searching Focus?
Proper Focus outputs to motor driver?
No
Check Focus connection on ES6629FD and motor dirver.
Yes
Yes
Proper F+ & F- outputs?
No
Check the amp circuit on motor dirver.
Yes
C
Check cable connect on with pick-up head.


Laser turns on when reading disc?
No
DVDLD or CDLD output properly?
No
Check the laser power circuit on ES6629FD and connecting to power transistor. (Q404. R405)
Yes
Yes
Collector voltage of power transistor is OK? (Q404, Q405)
No
Check the related circuit on laser power transistor.
Yes
Check cable connection between transistor couput and pick-up head.
Put disc in?
No
Laser off
Yes
Disc ID is correct?
No
Proper RFO signal on ES6603?
No
Check the related circuit on ES6603 RFO signal.
Yes
Yes
Check the RFO connection between ES6603 and ES6629.
Does spindle rotate?
No
Proper SPDINDLE signal on ES6629.
No
Check SPINDLE related circuit on ES6629.
Yes
Yes
DCMO+, DCMO- output properly?
No
Check the spindle control amp circuit of motor driver.
Yes
Check the cable connection between spindle and main PCB.
D

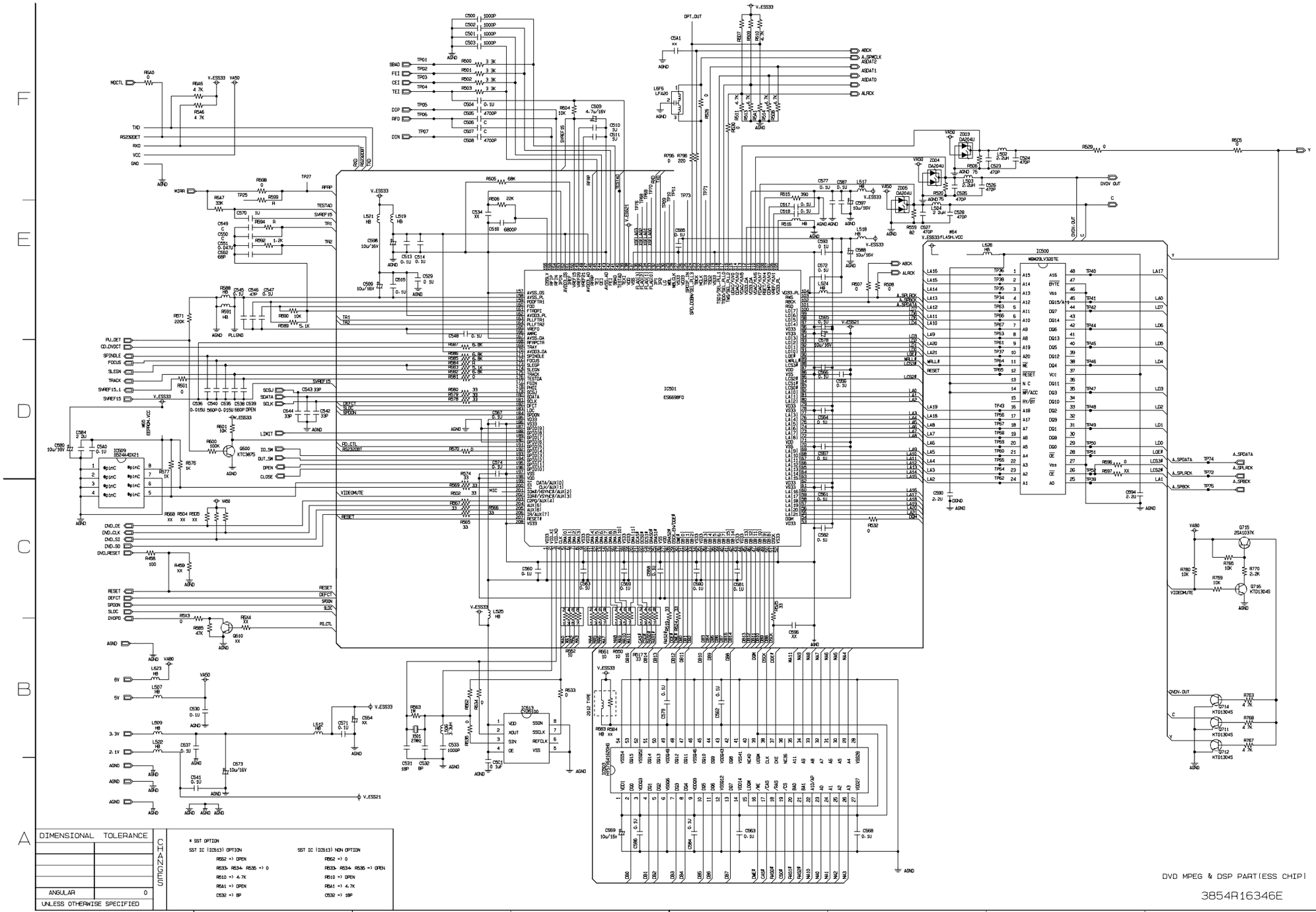

Focus ON OK?
No
Proper signals on A, B, C, D of ES6603.
No
Check connections between ES6603 and pick-up head.
Yes
Yes
Proper FEI signal on ES6603?
No
Check the related circuit on ES6603 FEI signal .
Yes
Check FEI connection between ES6603 and ES6629FD.
Track On OK?
Proper FEI signal on ES6603S?
No
Check the related circuit on ES6603S.
Yes
Yes
Properly TRACK signal on ES6603S?
No
Check the TRACK connection on ES6629FD and motor dirver.
Yes
T+ & T- output properly?
No
Check the tracking control amp circuit on motor driver.
Yes
Check cable connection on pick-up head.
Disc is play?
No
Check RF signal waveform.
Yes
E


Normal Audio output When disc playback?
Audio PWM IC(IC300) rceived correct daa stream?
Check connection between IC300 SBCK, SLRCK.
Normal audio PWM(IC300) out?
Check the releted circuit of audio pin IC. (Check PWM signal out poin 49, 52, 55, 59, 62, 68, 71 when playing dvd 5.1 channel.
Check audio power IC(Ic301, IC302) output Audio LPF Can't (L312, L306, L310, L300, L302, L313)
Test END

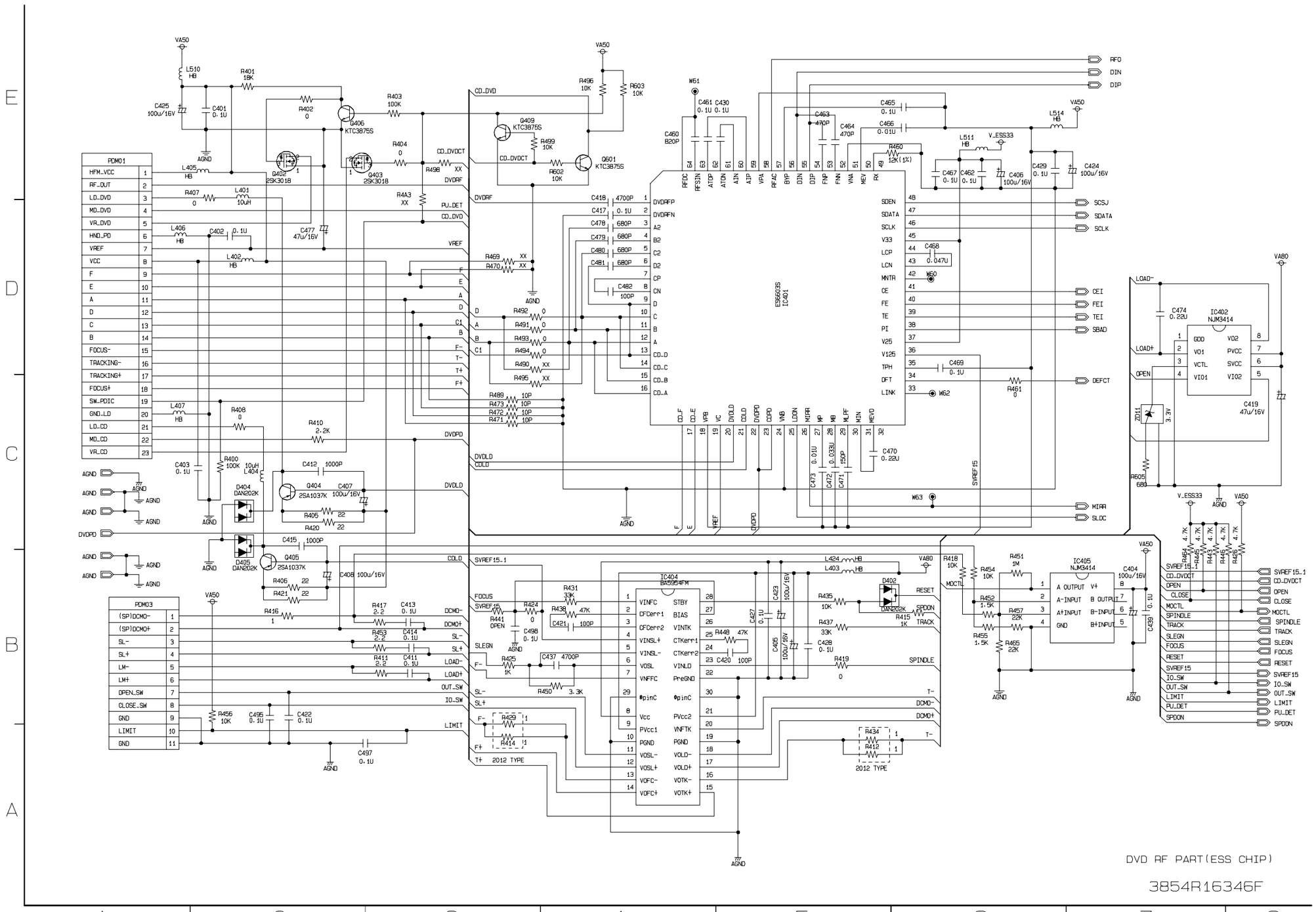
MEMO

❑ DVD SCHEMATIC DIAGRAMS

• DVD MPEG & DSP SCHEMATIC DIAGRAM

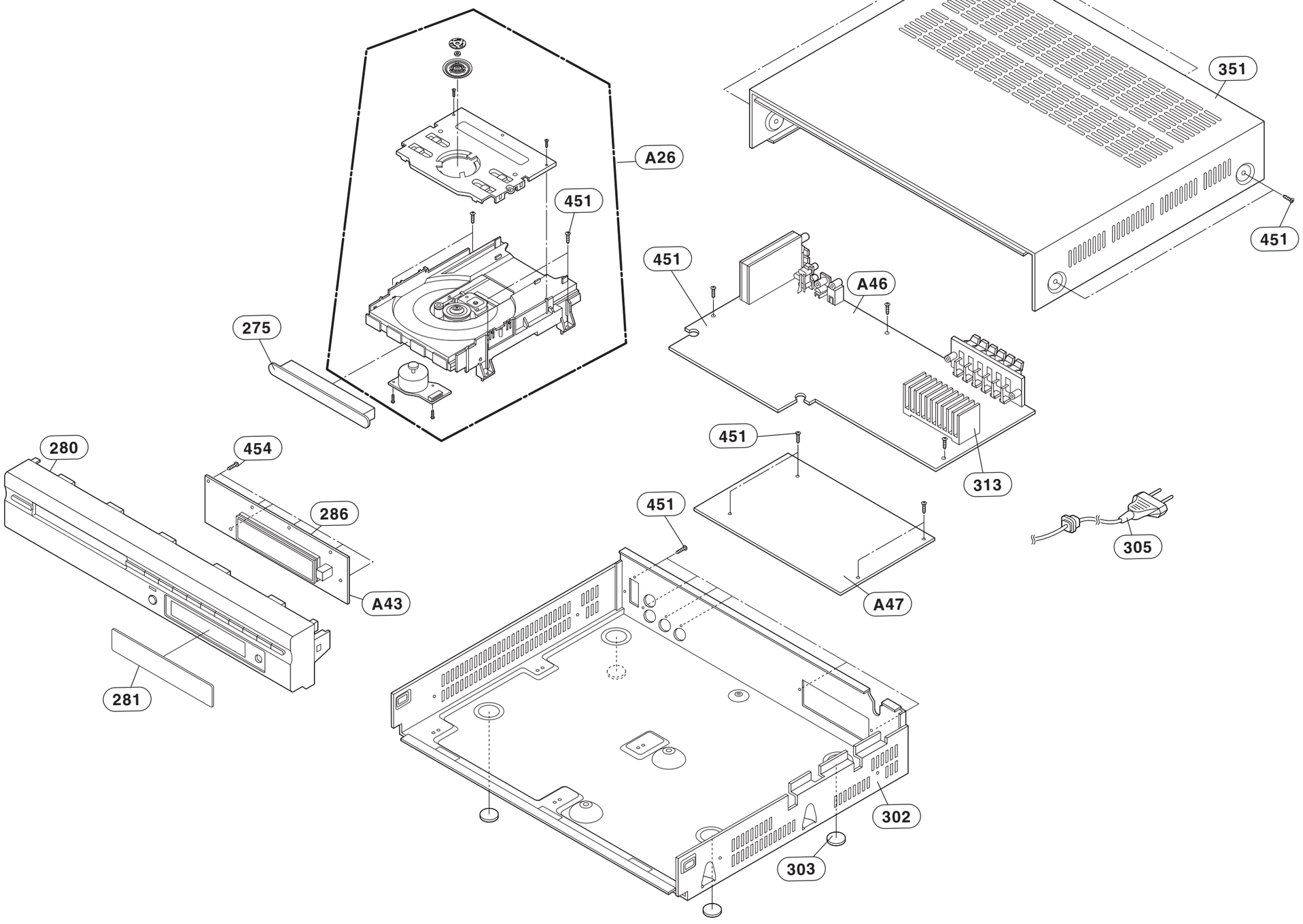


• DVD RF SERVO SCHEMATIC DIAGRAM



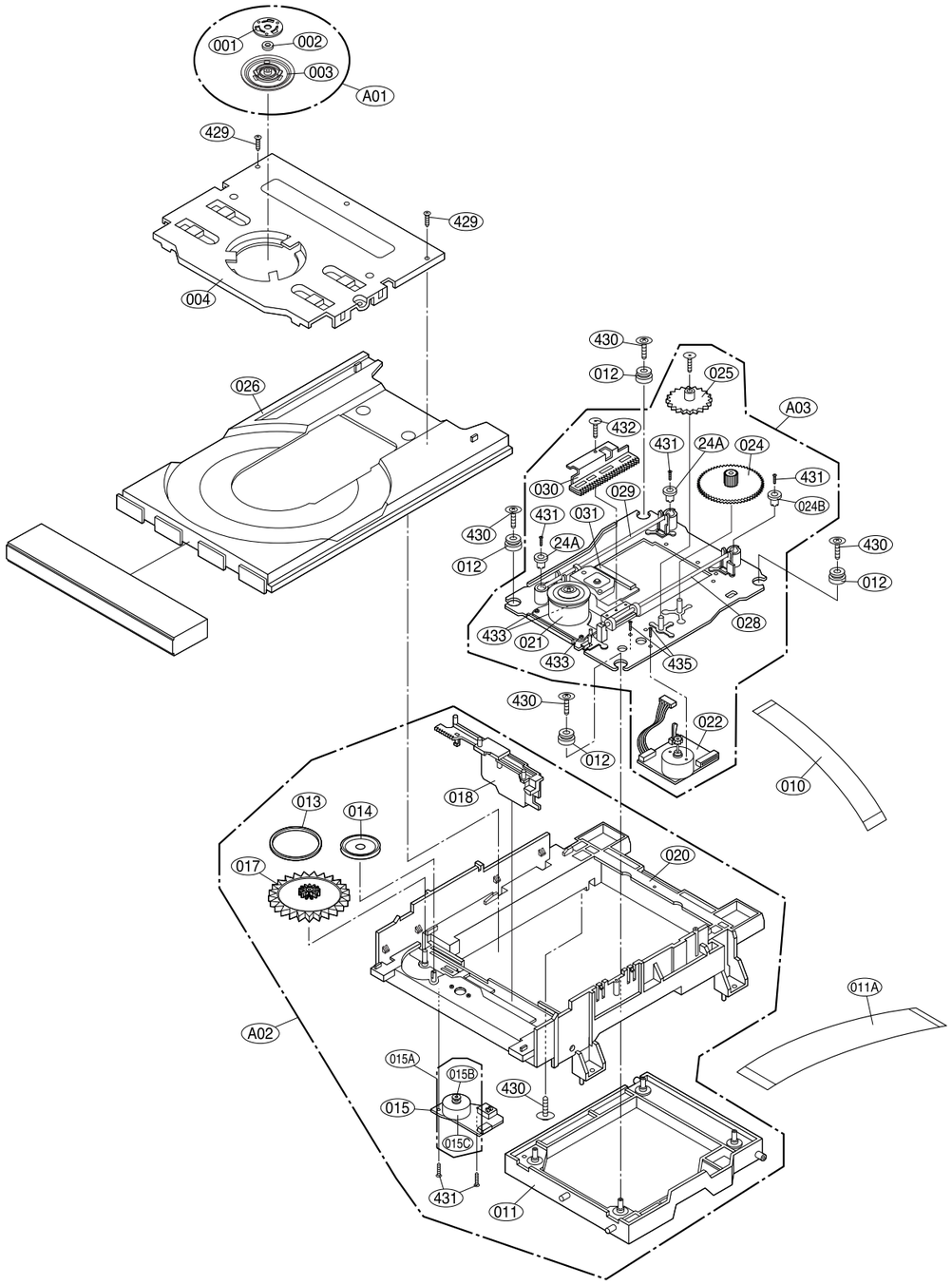
SECTION 4. EXPLODED VIEWS

❑ CABINET AND MAIN FRAME SECTION



4-1 4-2

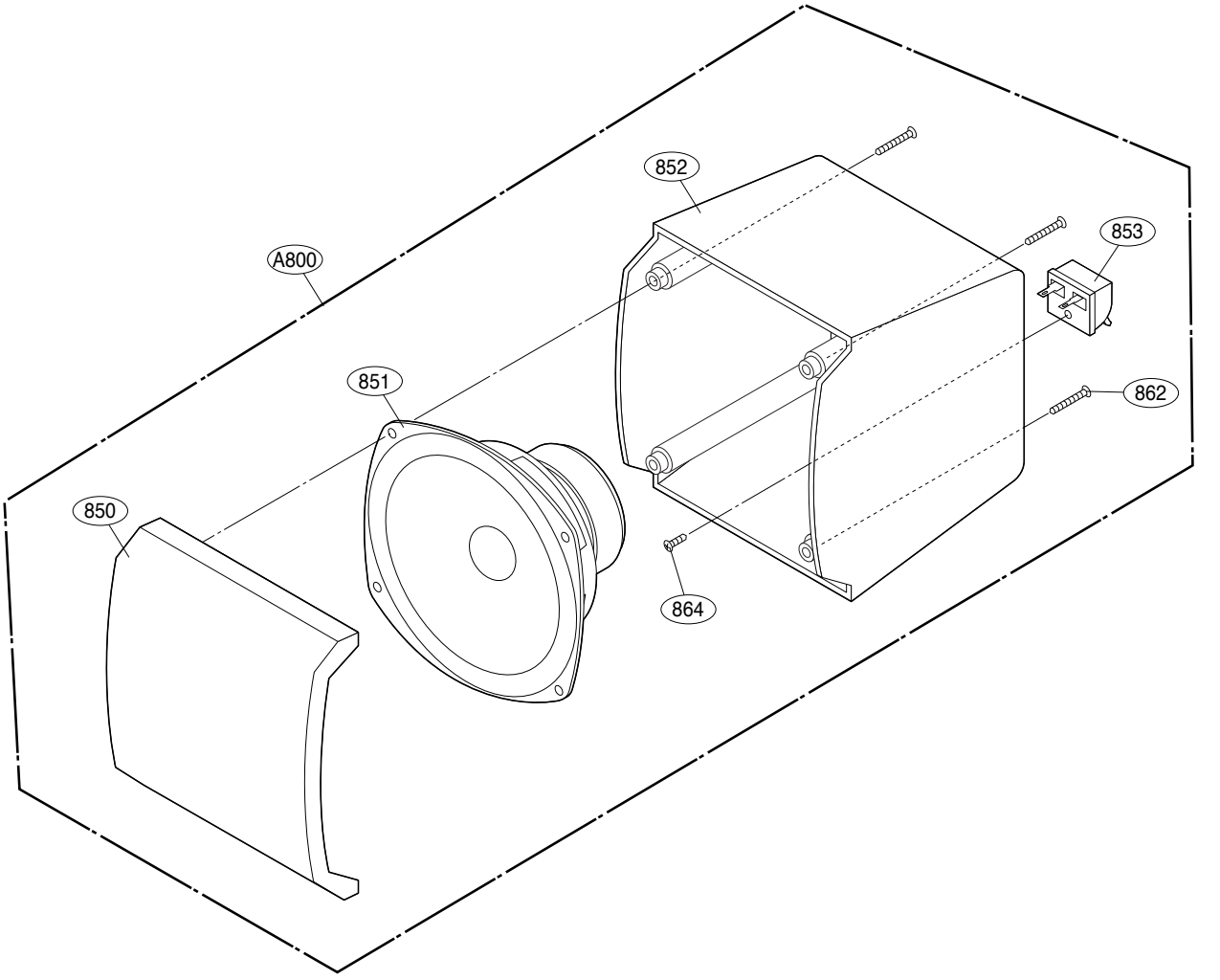
• DECK MECHANISM EXPLODED VIEW



LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION
A26	6721RJ0856E	DECK ASSEMBLY,AUDIO	DECK/MECHA DP-7T(HZ)-ESS -(M:M
A01	4861R-0016D	CLAMP ASSEMBLY	DECK/MECHA DISC DP-7C(7A) -HZ
A02	3041R-M040A	BASE ASSEMBLY	MAIN DP-7T-HZ
A03	3041R-M061D	BASE ASSEMBLY	SLED DP-7A-HZ ESS (M: MITSUMI
001	3300R-0547A	PLATE	CLAMP
002	5016H-1016B	MAGNET	CLAMP(LDM-R608,10*5,1*1.5T)
003	4860R-0021A	CLAMP	UPPER DP7
004	4930R-0402A	HOLDER	CLAMP DP-7A
010	6850R-GK22Z	CABLE,FLAT	P=1.0 FFC UL2896(0.05X0.65) 11
011	3210R-M002A	FRAME	UP/DOWN MOLD DP7C
011A	6850R-JW16B	CABLE,FLAT	P=1.0 FFC UL2896(0.035X0.7) 23
012	5040R-0075D	RUBBER	DAMPER DP7 (YAMAUCHI 30)
013	4400R-0006B	BELT	DECK/MECHA DP2-5, DP7C,DP7A OT
014	4470R-0055A	GEAR	PULLEY
015	6871RJ4415A	PWB(PCB) ASSEMBLY,JACK	PWB(PCB) TOTAL LOADING-HZ
015A	4681R-1023G	MOTOR ASSEMBLY	DECK/MECHA LOADING-HZ
015B	4560R-0008A	PULLEY	MOTOR
015C	4680R-E010A	MOTOR(MECH)	FEEDING BCZ3B51 SANKYO FOR DP7
017	4470R-0056A	GEAR	LOADING
018	4974R-0023A	GUIDE	UP/DOWN
020	3040R-D005A	BASE	MAIN DP-7T MOLD (SLIM)
021	4680R-C011A	MOTOR(MECH)	SPINDLE JCL9B68 SANKYO FOR COM
022	4681R-0034D	MOTOR ASSEMBLY	DECK/MECHA FEEDING DP-7C(7A) -
024	4470R-0131A	GEAR	PINION DP7C
024A	5006R-0044A	CAP	SKEW-T DP7C
024B	5006R-0043A	CAP	SKEW DP7C
025	4470R-0130A	GEAR	MIDDLE DP7C
026	3390R-0026A	TRAY	DVD DP-7T MOLD DISC
028	4370R-0082B	SHAFT	DECK/MECHA PU R DP-7C OTHER
029	4370R-0082A	SHAFT	PU DP-7C
030	4471R-0013D	GEAR ASSEMBLY	DECK/MECHA RACK DP-7C(7A) -HZ
031	6716DPH005B	PICK UP,DVD	PVR-502W R52 0219 MITSUMI PLAY
429	1SZZR-0012A	SCREW,DRAWING	B-TITE
430	1SZZH-1003A	SCREW,DRAWING	+ D2.0 6MM SWRCH16A/NIY 4.5MM
431	1SZZH-1007B	SCREW,DRAWING	+ D2.0 6MM SWRCH16A/ZNBK 4MM 1
432	1SZZR-0023B	SCREW,DRAWING	+ 1 D1.7 L6.0 SWRCH16A/FZY RAC
433	1SZZR-0050A	SCREW,DRAWING	+ 1 D2.0 L4.5 SWRCH16A/ZNY S-T
435	1SZZR-0011A	SCREW,DRAWING	MACHINE

SECTION 5. SPEAKER SECTION

❑ MODEL : LHS-T6347T



❑ MODEL : LHS-T6347W