SERVICE MANUAL

MODEL: FB166 (FB166, FBS166V)

P/NO : AFN75496340

JUNE , 2011

DVD Micro Hi-Fi System

SERVICE MANUAL

MODEL: FB166 (FB166, FBS166V)

CAUTION

BEFORE SERVICING THE UNIT, READ THE “SAFETY PRECAUTIONS” IN THIS MANUAL.

CONTENTS

SECTION 1

SUMMARY

CONTENTS

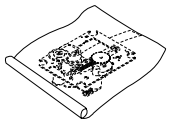
SERVICING PRECAUTIONS

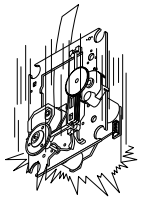
NOTES REGARDING HANDLING OF THE PICK-UP

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

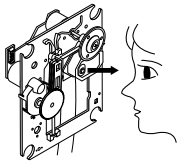




Drop impact

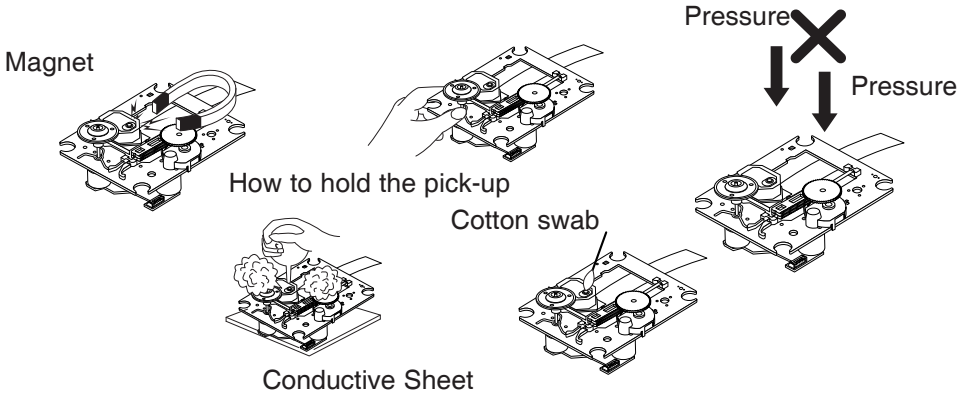
2. Repair notes

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 allow contact with 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 lens.



6) Never attempt to disassemble the pick-up.
   Spring has 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.

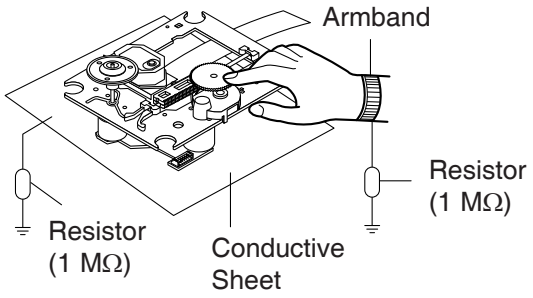
NOTES REGARDING COMPACT DISC PLAYER REPAIRS

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 or 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 (1 MΩ)
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.

FIRMWARE UPGRADE

1. MPEG

1) Copy firmware to USB (Do not change file name).
   Ex) **LG_FB166LD1_1011290.rom**
2) Change function to DVD/CD by pressing input key, and wait until home menu is shown.
3) Inset USB device which includes firmware.
4) Firmware is detected automatically and then, shows blue screen in TV.
   ⇨ If home menu is maintained after inserting USB, press music Icon.
5) Take off the USB and press PLAY key.
6) and then, upgrading is started.
   - Do not turn off the set until upgrade is finished.
7) After finishing firmware upgrading, set will restart automatically.
8) Power off and on again by pressing POWER key.

2. AUDIO MICOM

1) Copy firmware to USB (Do not change file name).
   Ex) **FB166_1011180.HEX**
2) Change function to DVD/CD by pressing input key, and wait until home menu is shown.
3) Inset USB device which includes firmware.
4) Firmware is detected automatically and then, shows blue screen in TV.
   ⇨ If home menu is maintained after inserting USB, press music Icon.
5) Upgrading is started.
   - Do not turn off the set until upgrade is finished.
   - Do not pull out the USB device using firmware upgrading.
6) After finishing firmware upgrading, set will be turned off.

3. BLUETOOTH

1) Copy firmware to USB (Do not change file name).
   Ex) **BT166_1011180.DFU**
2) Change function to DVD/CD by pressing input key, and wait until home menu is shown.
3) Inset USB device which includes firmware.
4) Firmware is detected automatically and then, shows blue screen in TV.
   ⇨ If home menu is maintained after inserting USB, press music Icon.
5) Upgrading is started.
   - Do not turn off the set until upgrade is finished.
   - Do not pull out the USB device using firmware upgrading.
6) After finishing firmware upgrading, set will be turned off.

4. TOUCH

1) Copy firmware to USB (Do not change file name).
   Ex) **FB166_1011180.DLD**
2) Change function to DVD/CD by pressing input key, and wait until home menu is shown.
3) Inset USB device which includes firmware.
4) Firmware is detected automatically and then, shows blue screen in TV.
   => If Home menu is maintained after inserting USB, press music Icon.
5) Upgrading is started.
   - Do not turn off the set until upgrade is finished.
   - Do not pull out the USB device using firmware upgrading.
6) After finishing firmware upgrading, set will be turned off.

EEPROM OPTION SETTING

1) Change function to DVD/CD by pressing input key, and wait until home menu is shown.
   - Do not insert disc or USB at the set.
2) Press "PAUSE 1 4 7 2" in order.
3) and then, option setting menu is displayed.
   You can see 10 bytes option value.
   Ex) A9 06 C5 B0 00 01 90 01 E0 08
4) Move a cursor by pressing Arrow < > key.
5) Press Num key what you want to change.
6) Press "PAUSE" key to exit option setting menu.

After change option value, you need to make system reset.

SYSTEM RESET

1) Change function to DVD/CD by pressing input key, and wait until home menu is shown.
   - Do not insert disc or USB at the set.
2) Go to SETUP menu by pressing SETUP button in HOME menu.
3) Move highlight at "DISPLAY -> TV Aspect -> 16:9".
4) Press "1 3 9 7 1 3 9 Enter" in order.
5) and then, system reset menu is displayed.
6) Power off and on by pressing POWER key.

SPECIFICATIONS

• GENERAL

Power requirements	110 - 240 V ~ 50/ 60 Hz
Power consumption	55 W
Dimensions (W x H x D)	135 x 285 x 280.5 mm without foot
Net Weight (Approx.)	2.8 kg
Operating temperature	41 °F to 95 °F (5 °C to 35 °C)
Operating humidity	5 % to 90 %

• INPUTS/ OUTPUTS

VIDEO OUT	1.0 V (p-p), 75 Ω, sync negative, RCA jack x 1
COMPONENT VIDEO OUT	(Y) 1.0 V (p-p), 75 Ω, sync negative, RCA jack x 1 (Pb)/(Pr) 0.7 V (p-p), 75 Ω, RCA jack x 2
HDMI OUT (video/audio):	19 pin Type A, HDMI™ Connector
DIGITAL IN (OPTICAL):	3 V (p-p), Optical jack x 1
PORT. IN	0.5Vrms (3.5 mm stereo jack)

• SYSTEM

Laser	Semiconductor laser, wavelength: 650 nm
Signal system	Standard NTSC/ PAL color TV system
Frequency response	20 Hz to 20 kHz (48 kHz, 96 kHz, 192 kHz sampling)
Signal-to-noise ratio	More than 80 dB
Harmonic distortion	0.05 % at 1 W
Dynamic range	More than 85 dB
Bus Power Supply	USB DC 5 V ⎓ 500 mA iPod DC 5 V ⎓ 1 A

• AMPLIFIER

Stereo mode	80 W + 80 W (4Ω at 1kHz)

• TUNER

FM Tuning Range	87.5 to 108.0 MHz or 87.50 to 108.00 MHz

• FRONT SPEAKER

Type	3 Way 4 speaker
Impedance Rated	4 Ω
Input Power	80 W
Max. Input Power	160 W
Net Dimensions (W x H x D)	132 x 320 x 300 mm
Net Weight	4.5 kg

• Design and specifications are subject to change without notice.

SECTION 2

CABINET & MAIN CHASSIS

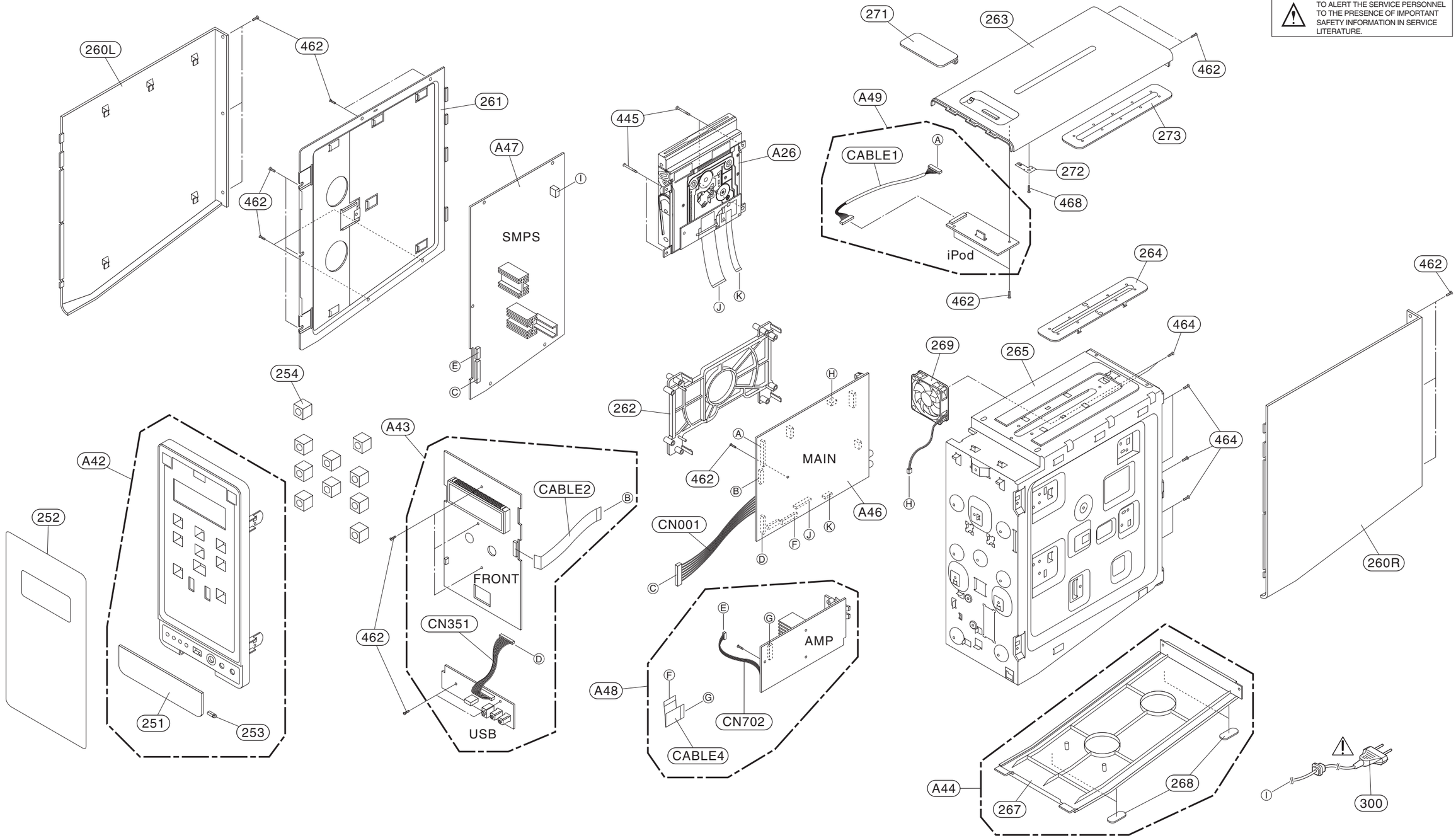
CONTENTS

MEMO

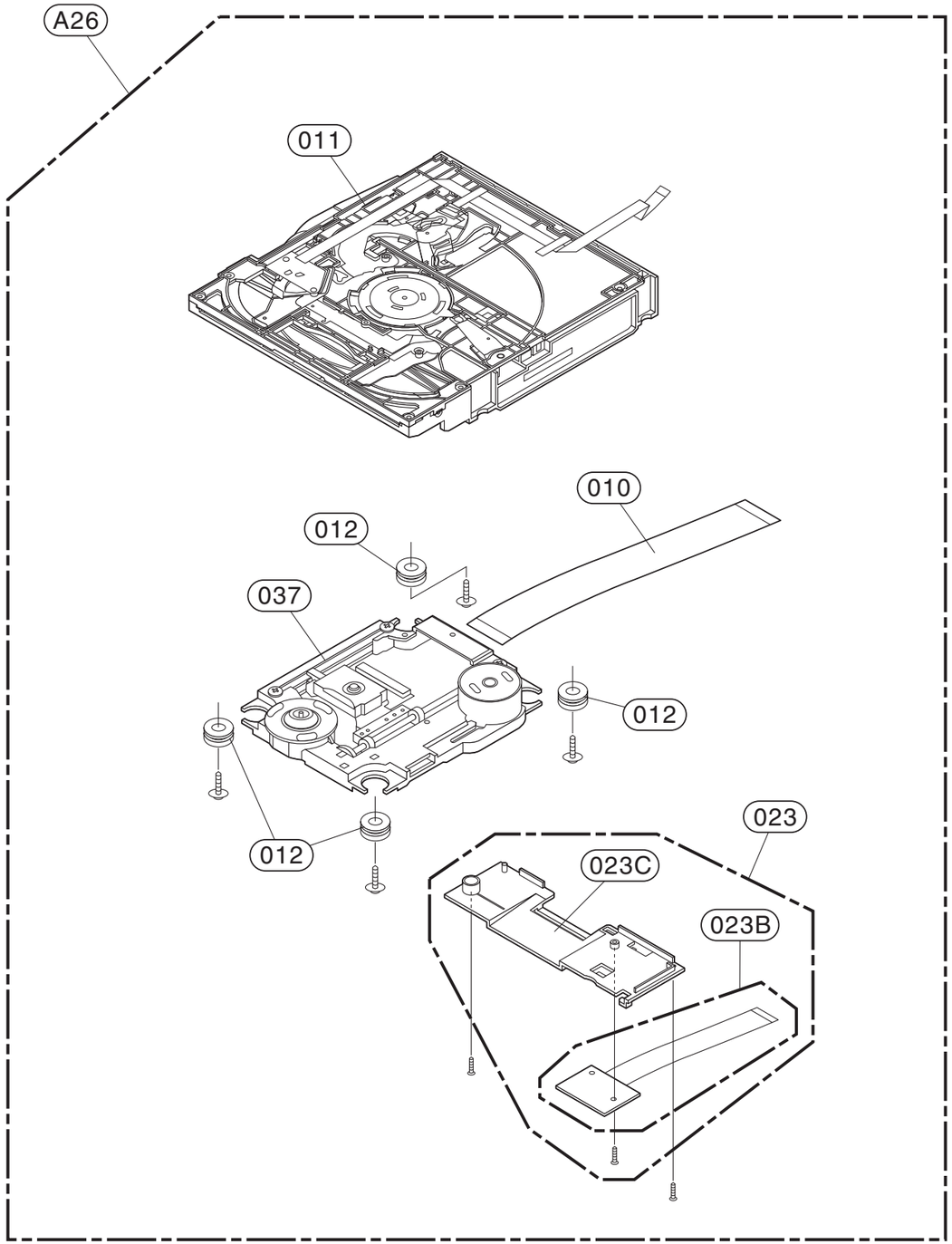
EXPLODED VIEWS

1. CABINET AND MAIN FRAME SECTION (FB166)

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



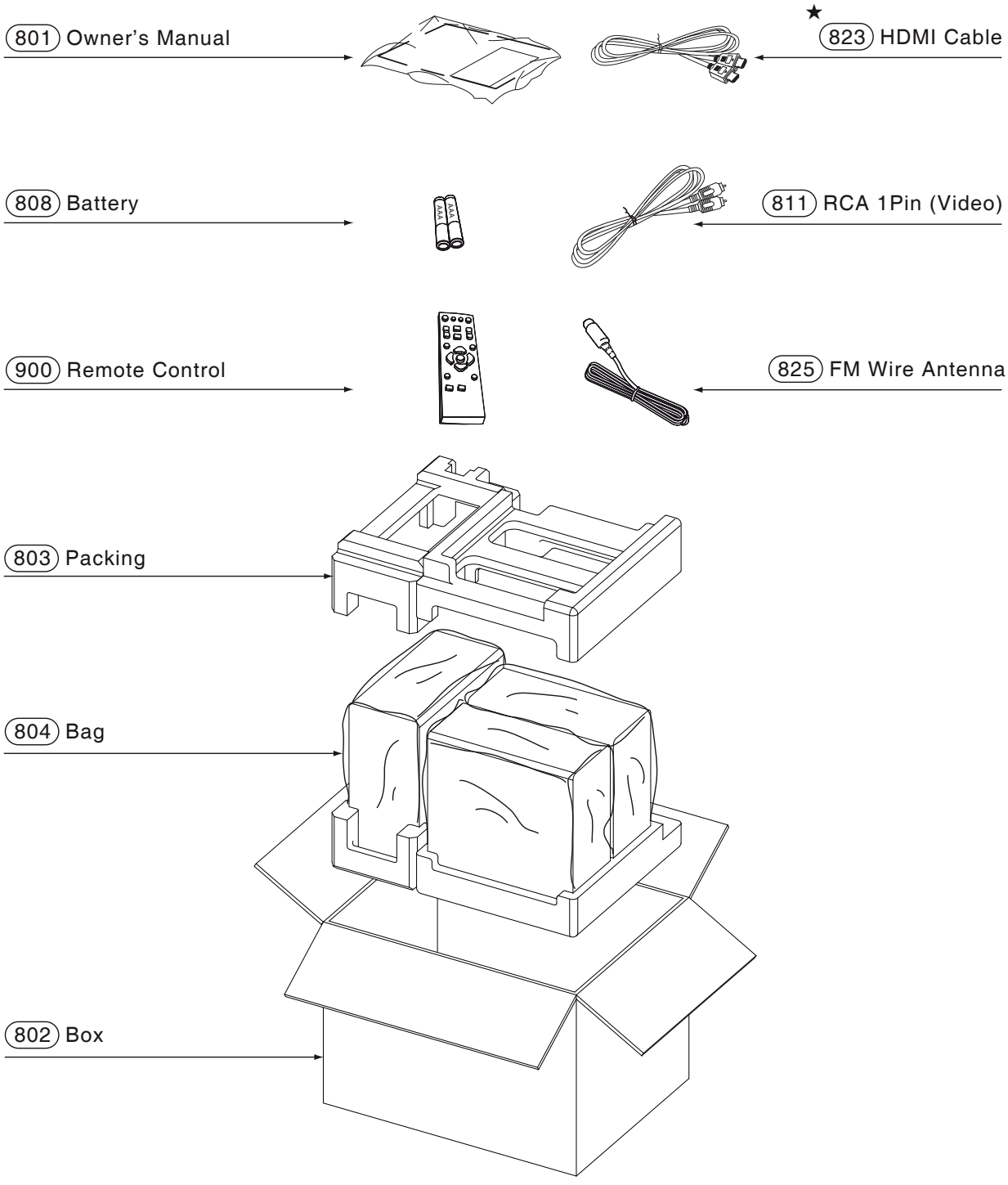
2. DECK MECHANISM SECTION (SDP-08)



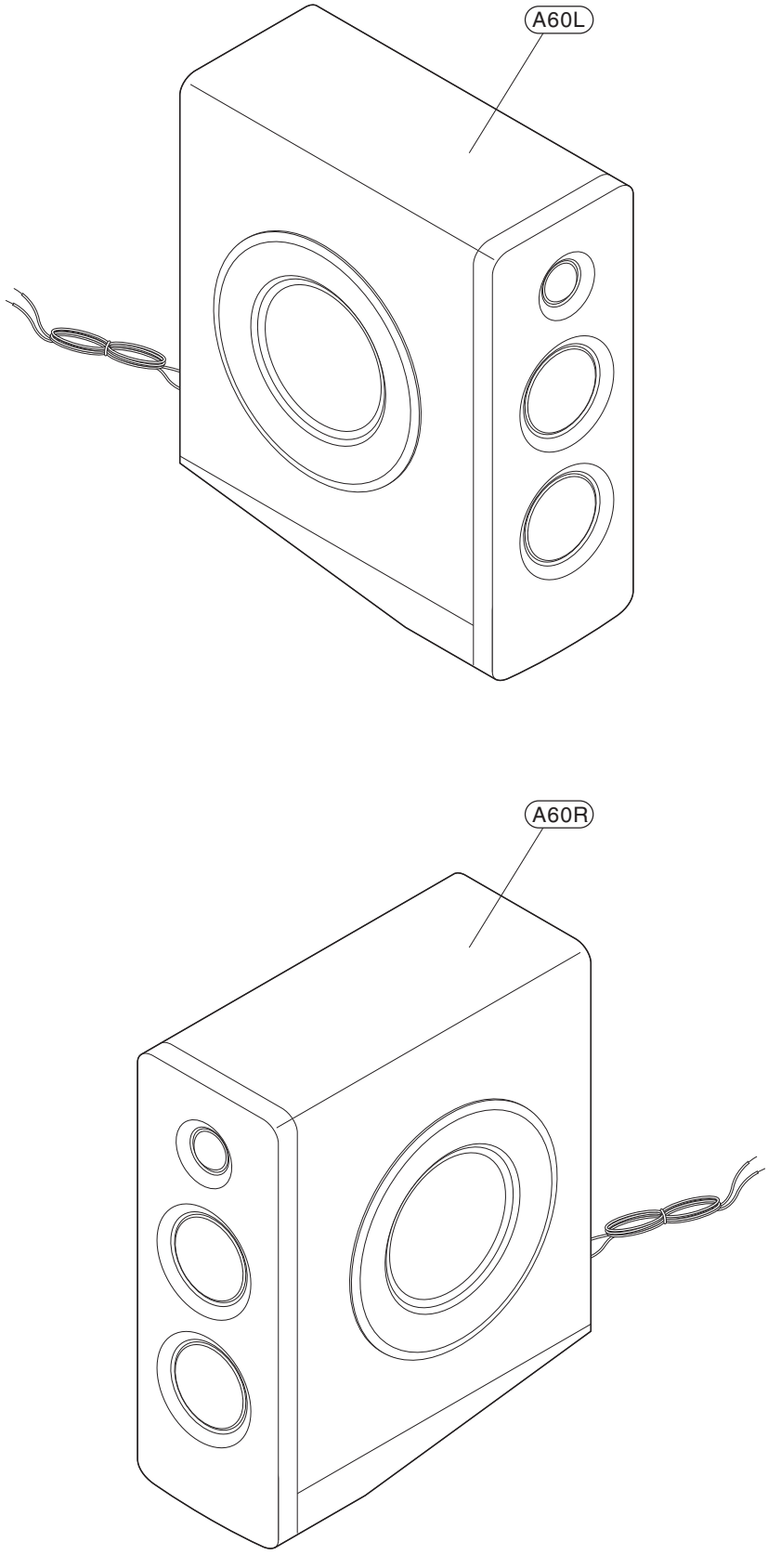
MEMO

3. PACKING ACCESSORY SECTION

★ Optional part



4. SPEAKER SECTION (FBS166V)



SECTION 3 ELECTRICAL

CONTENTS

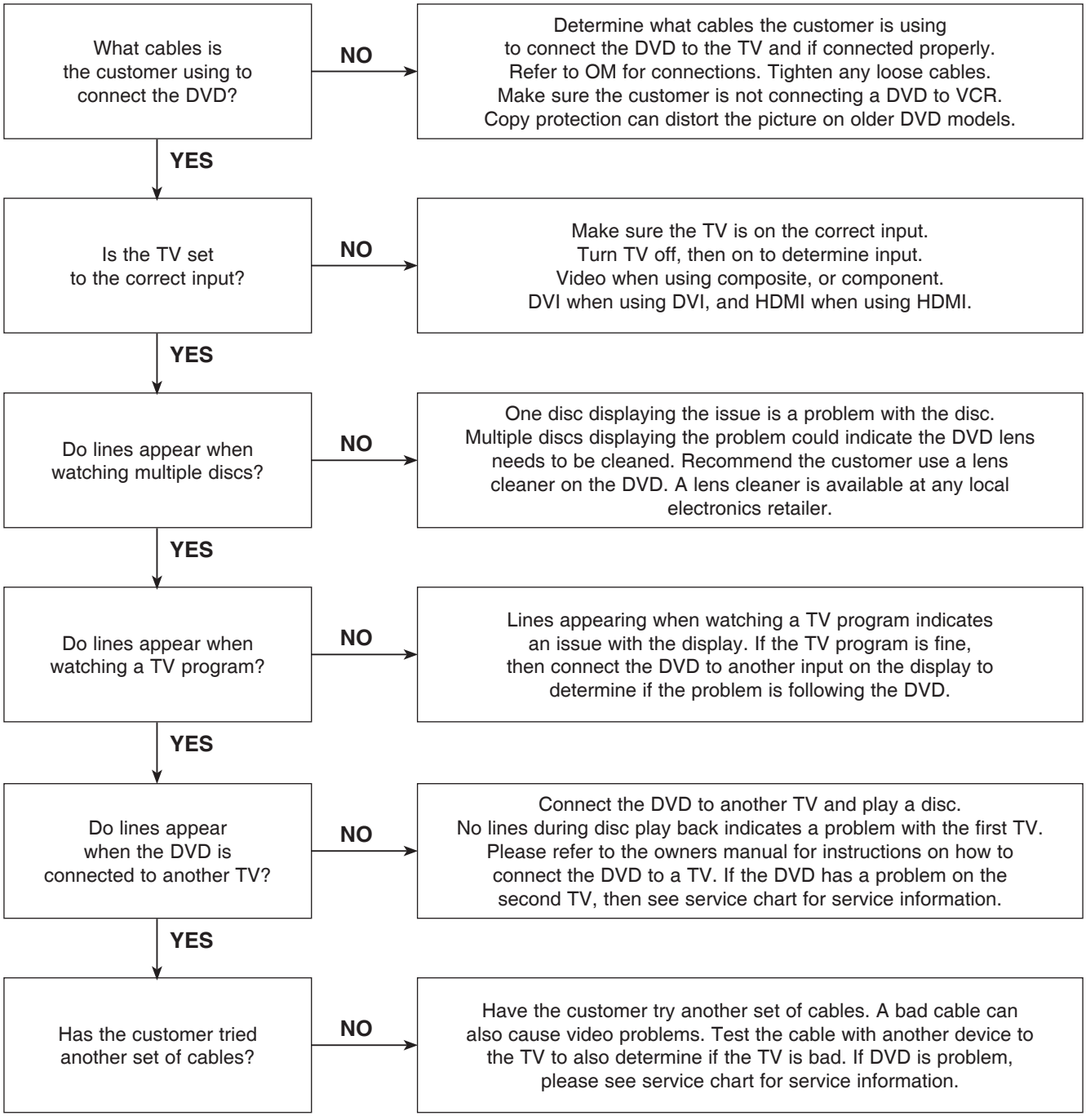
DIGITAL DISPLAY & MEDIA TRAINING MASTER

Objective: To provide clear and concise guidelines for customer service agents to handle calls on box goods calls.

1. DISTORTED PICTURE

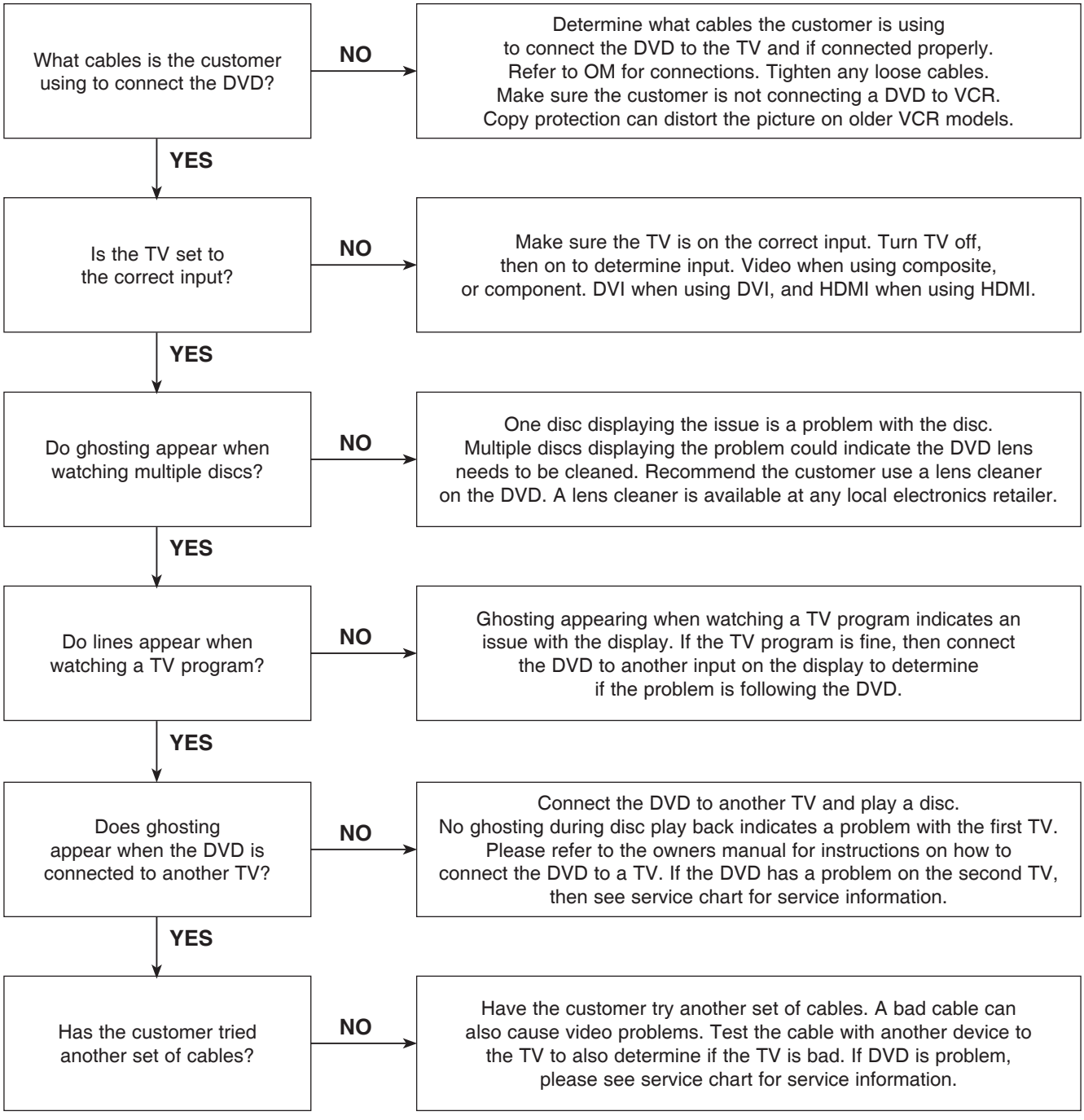
1-1. Lines on Picture

Distorted picture refers to the customer getting video, but there is a problem with the video.



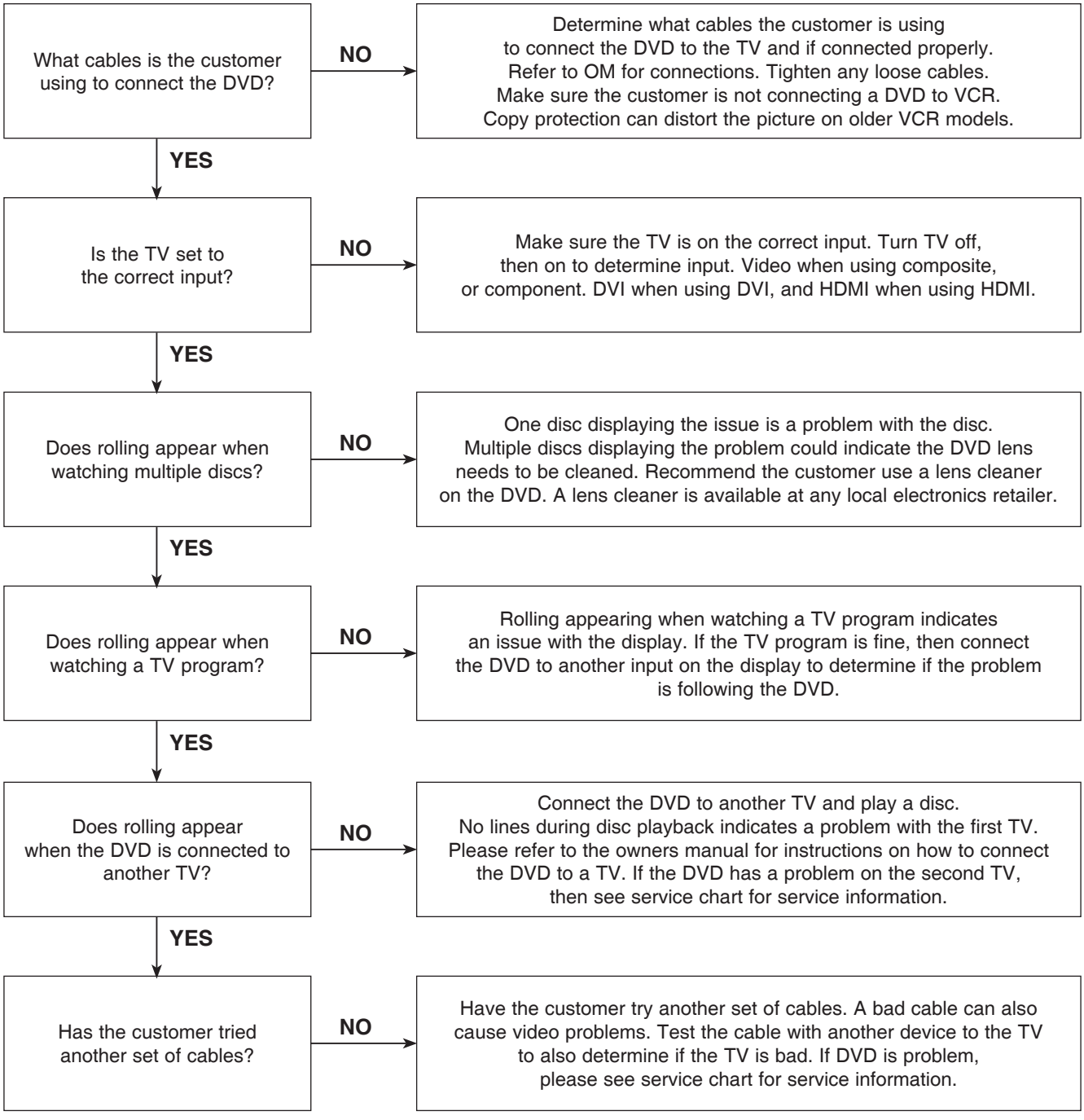
1-2. Ghost Picture

Distorted picture refers to the customer getting video, but there is a problem with the video.



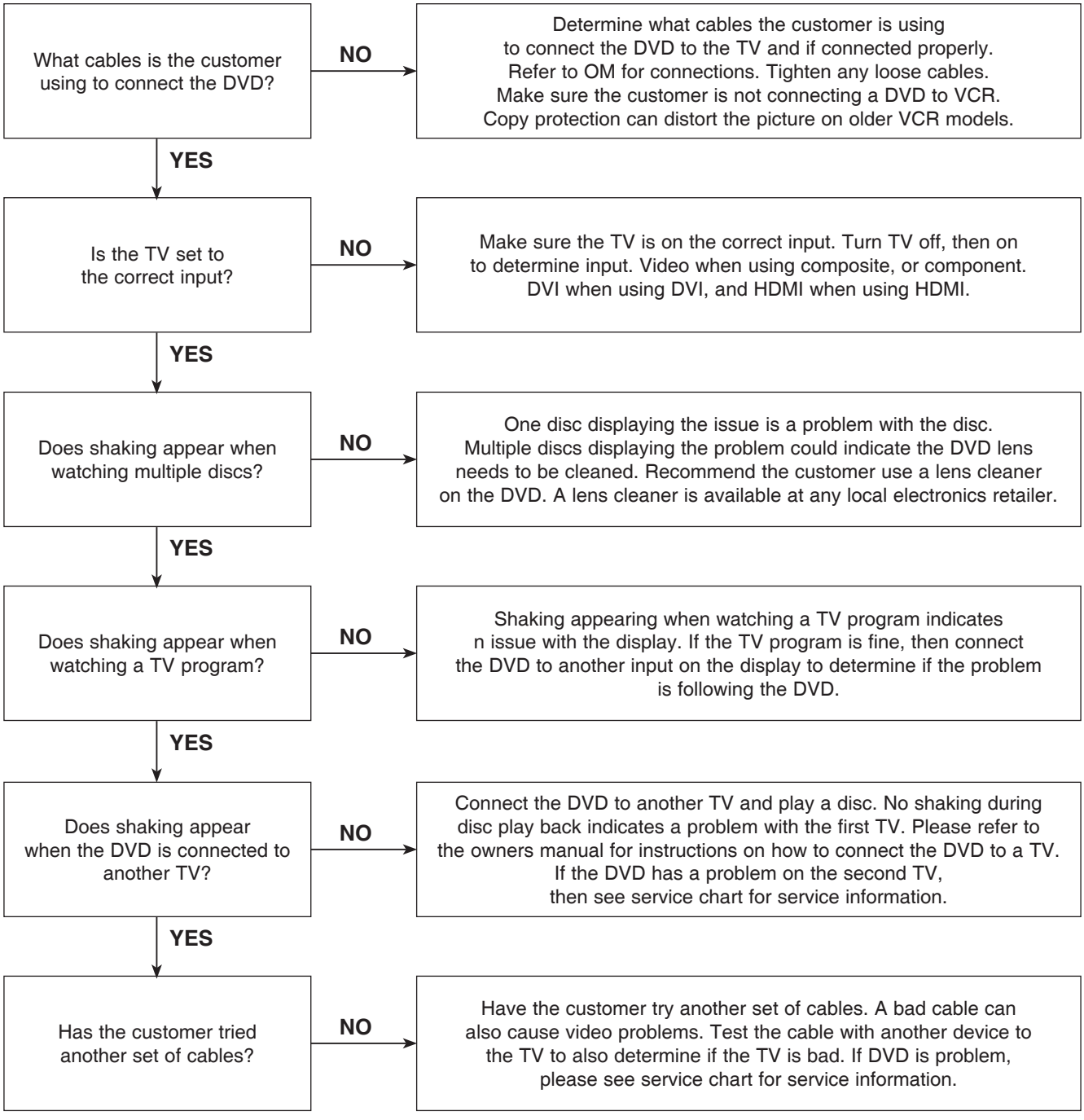
1-3. Rolling Picture

Distorted picture refers to the customer getting video, but there is a problem with the video.



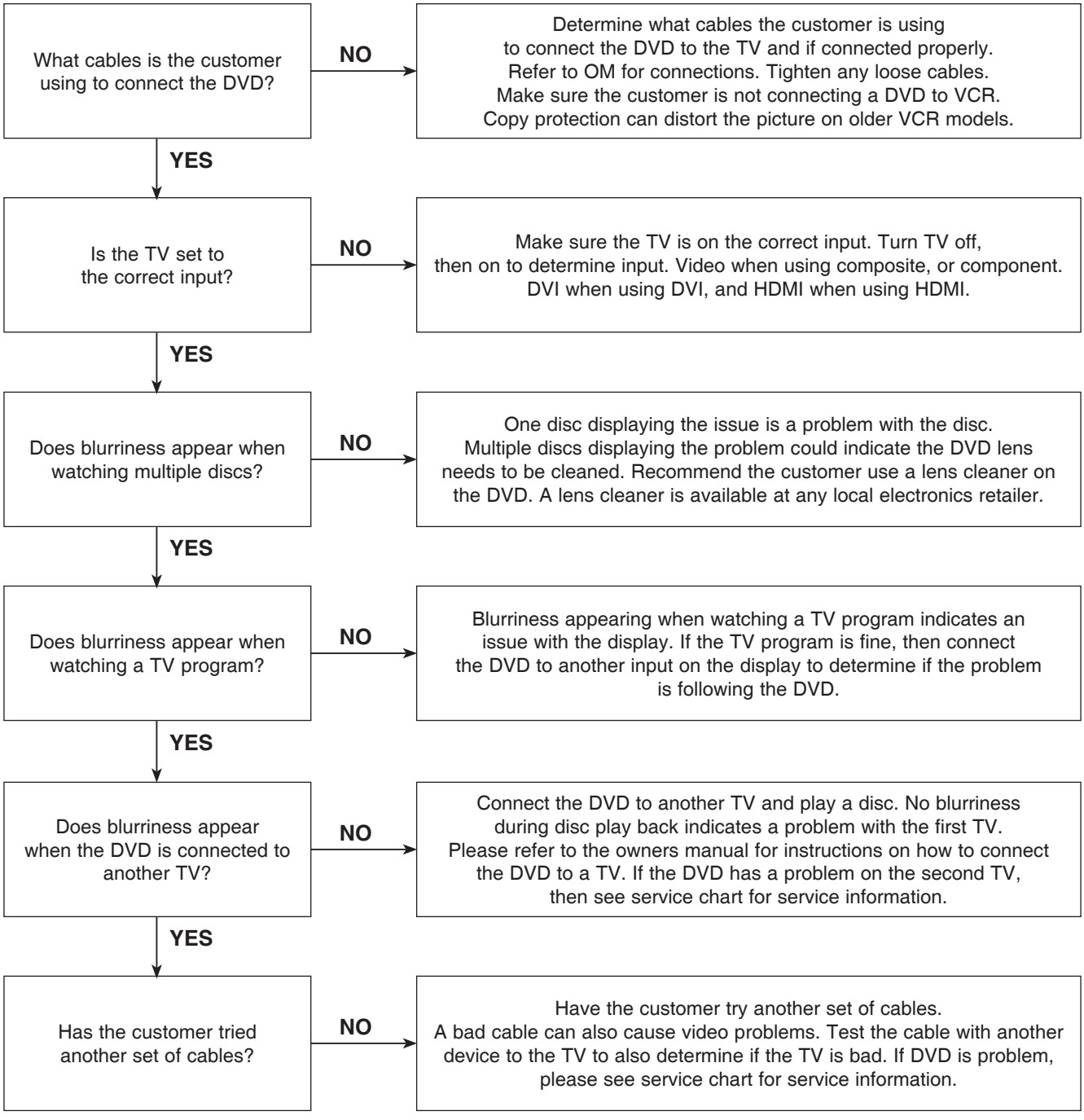
1-4. Shaky Picture

Distorted picture refers to the customer getting video, but there is a problem with the video.



1-5. Blurry Picture

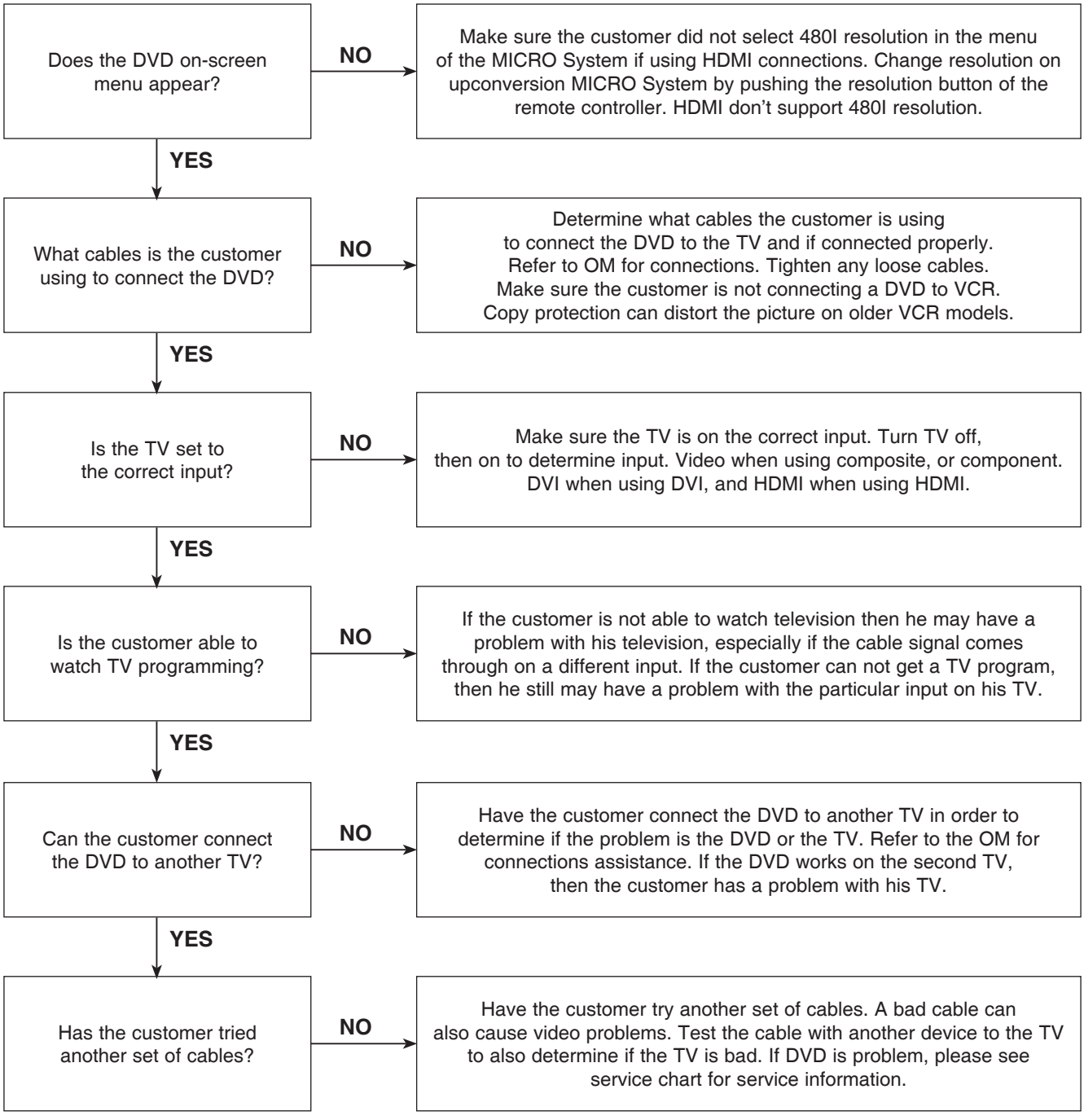
Distorted picture refers to the customer getting video, but there is a problem with the video.



2. NO PICTURE

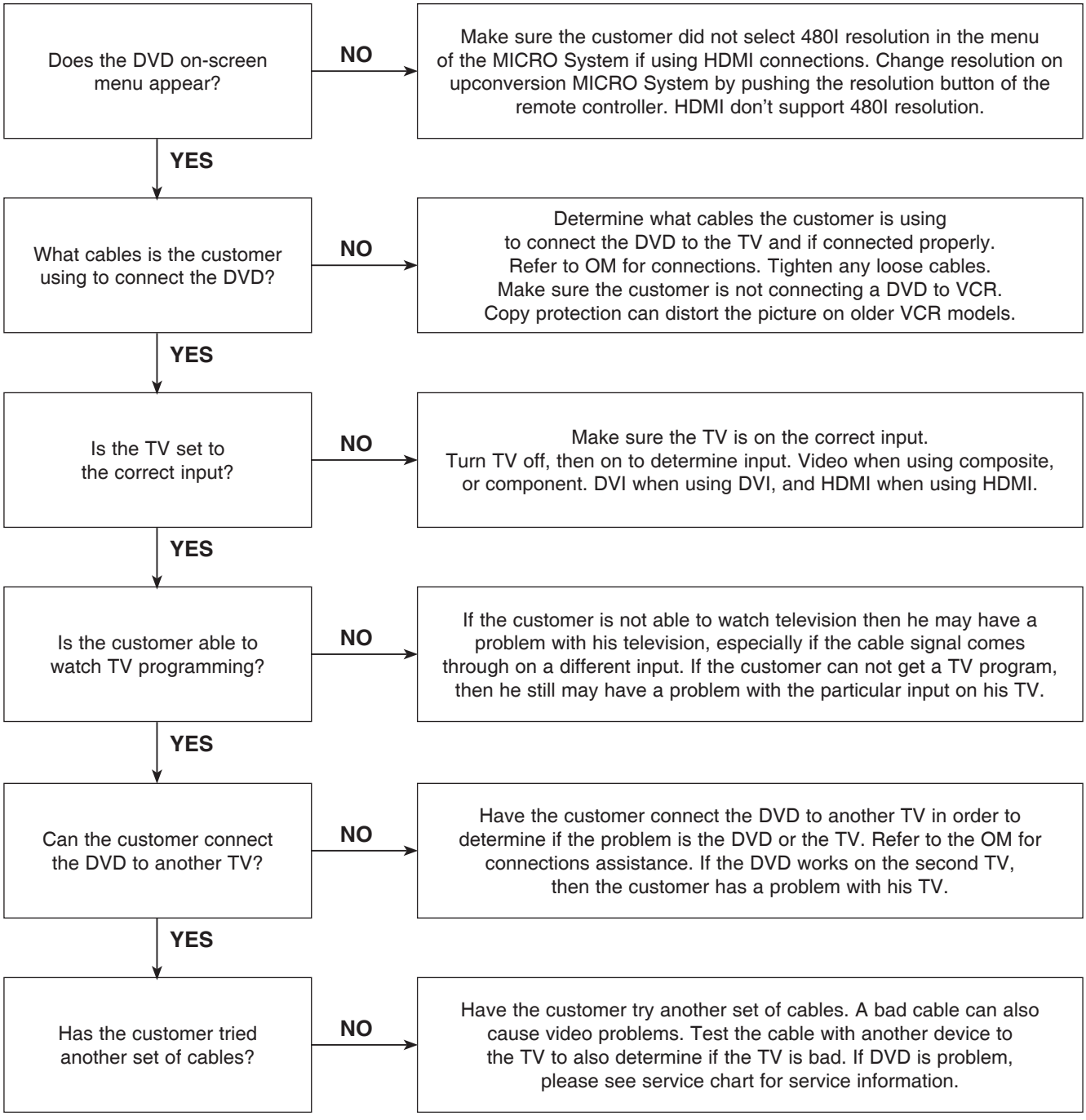
2-1. Black Screen

The entire screen is black.



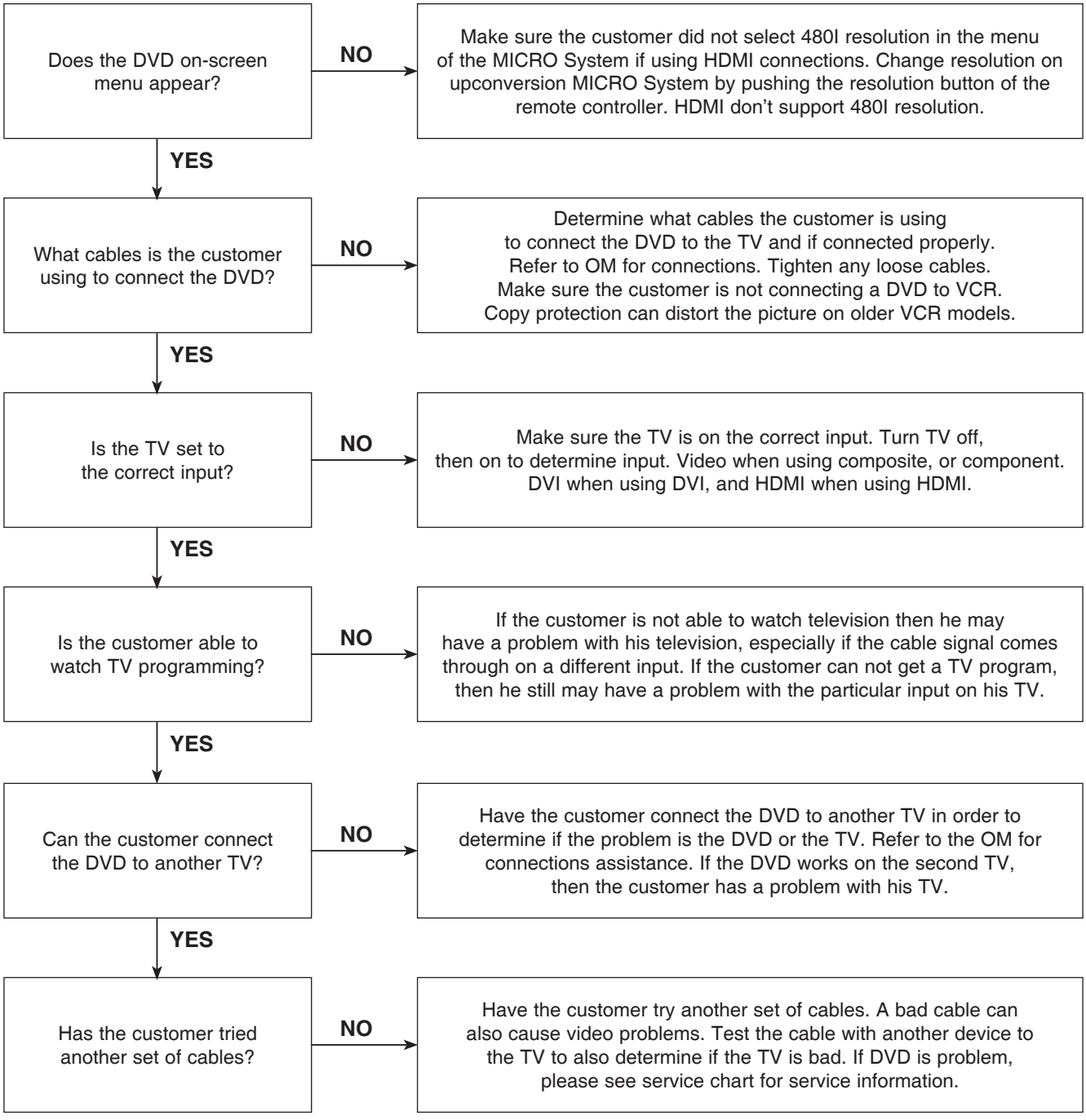
2-2. Blue Screen

The entire screen is a solid blue color.



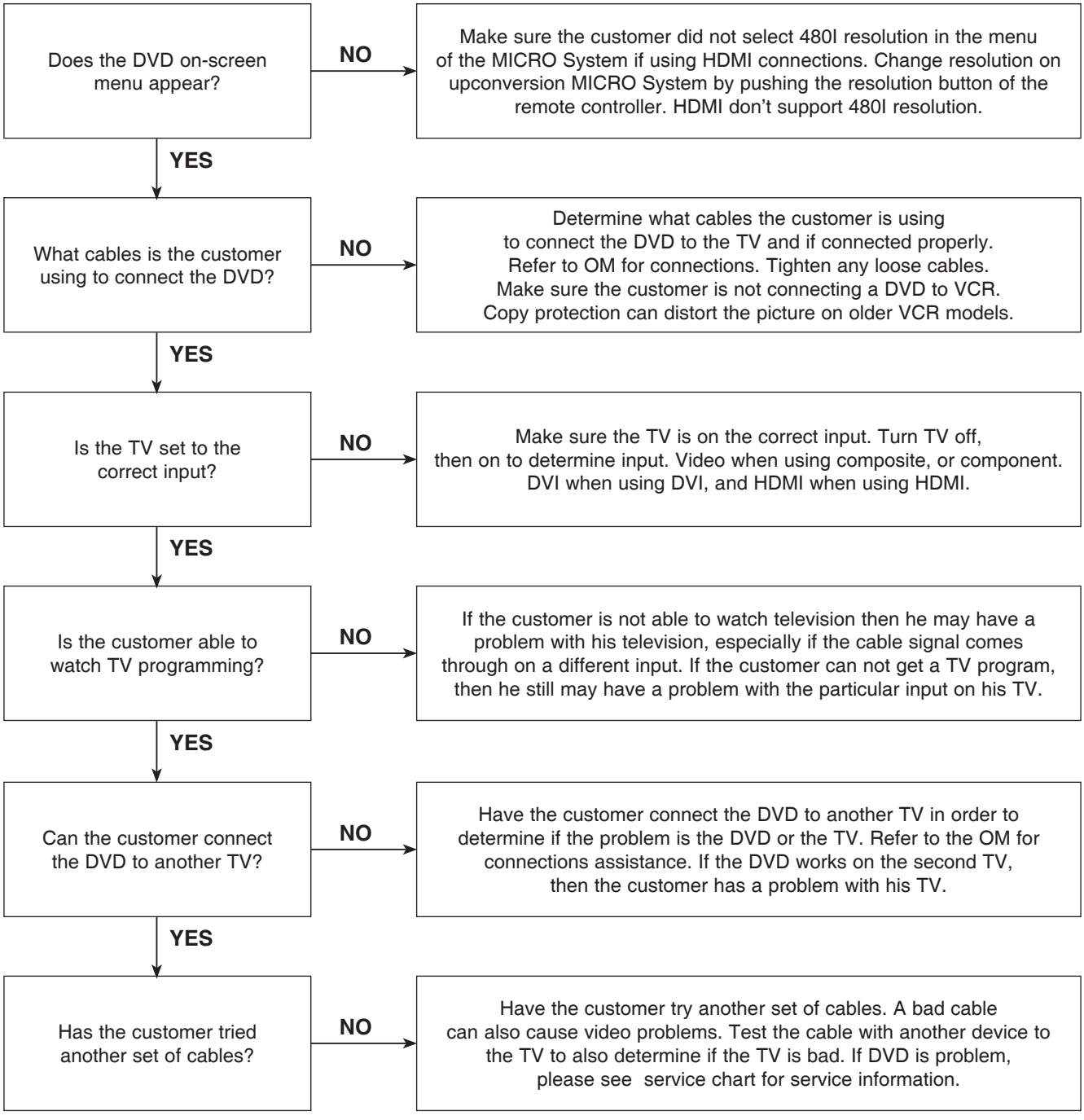
2-3. Snowy Screen

A snowy picture is when black and white dots are all over the screen.

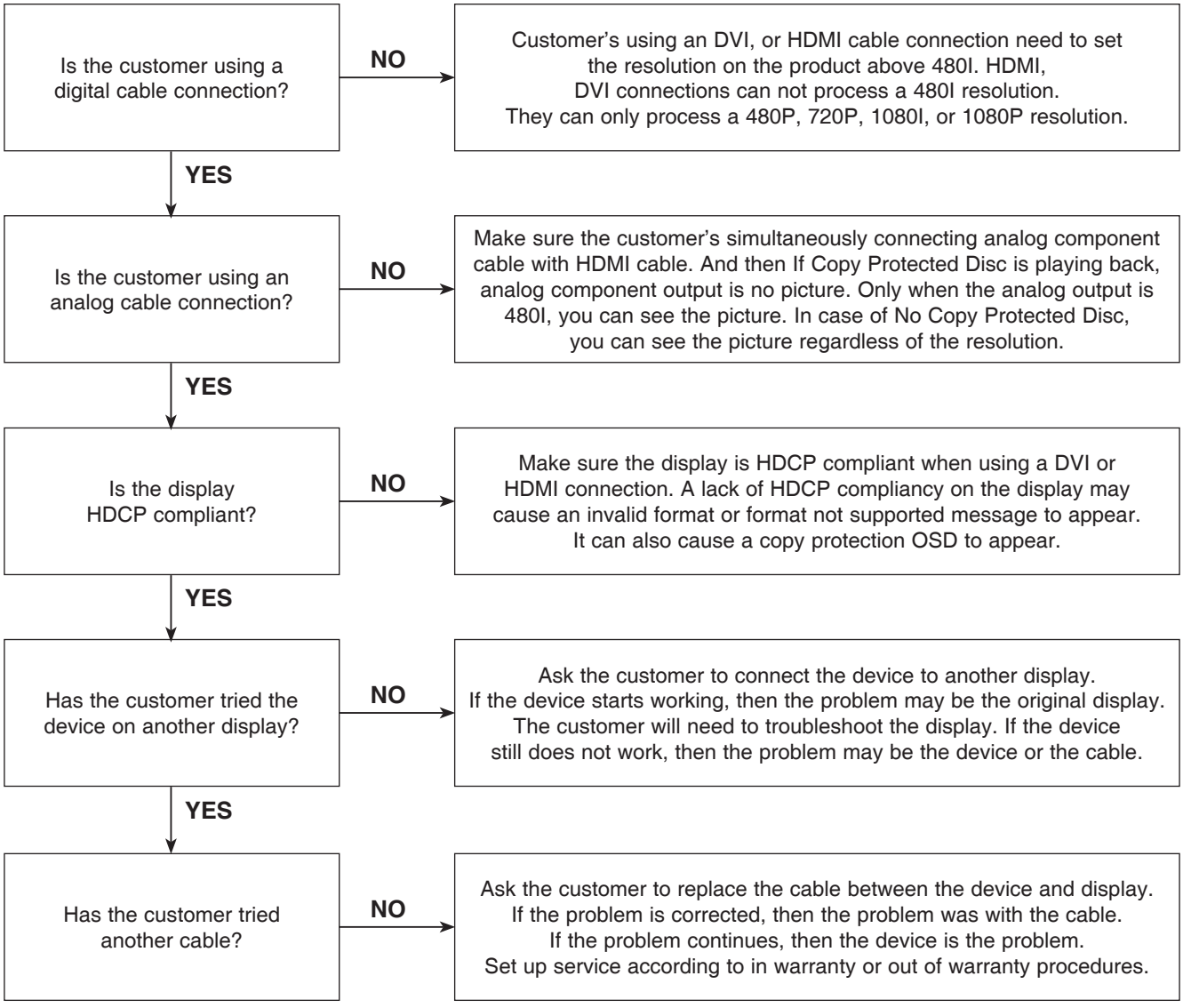


2-4. No Signal

A “no signal” message appears on the screen of the display.



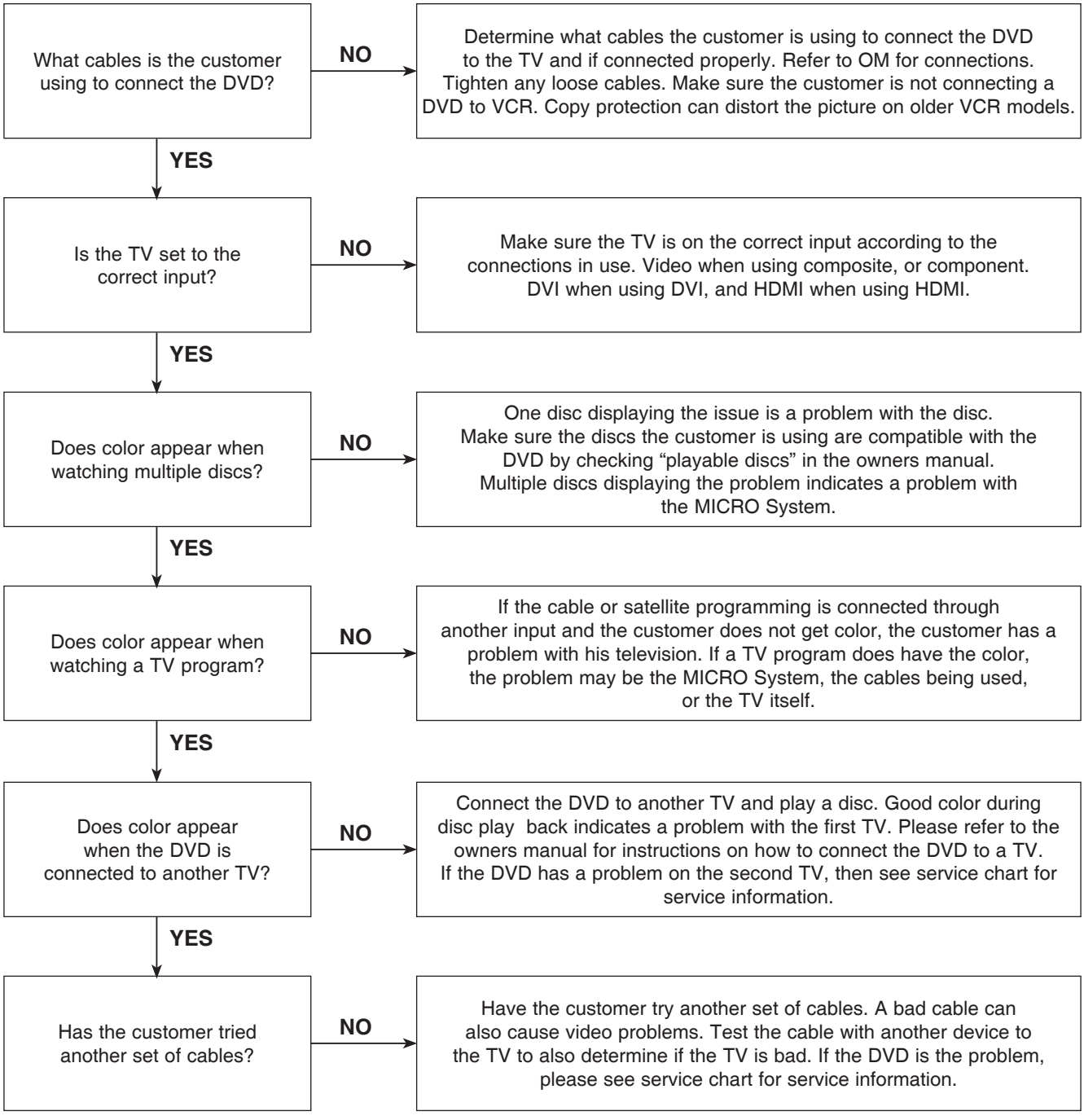
2-5. Invalid Format or Format Not Supported



3. PICTURE COLOR

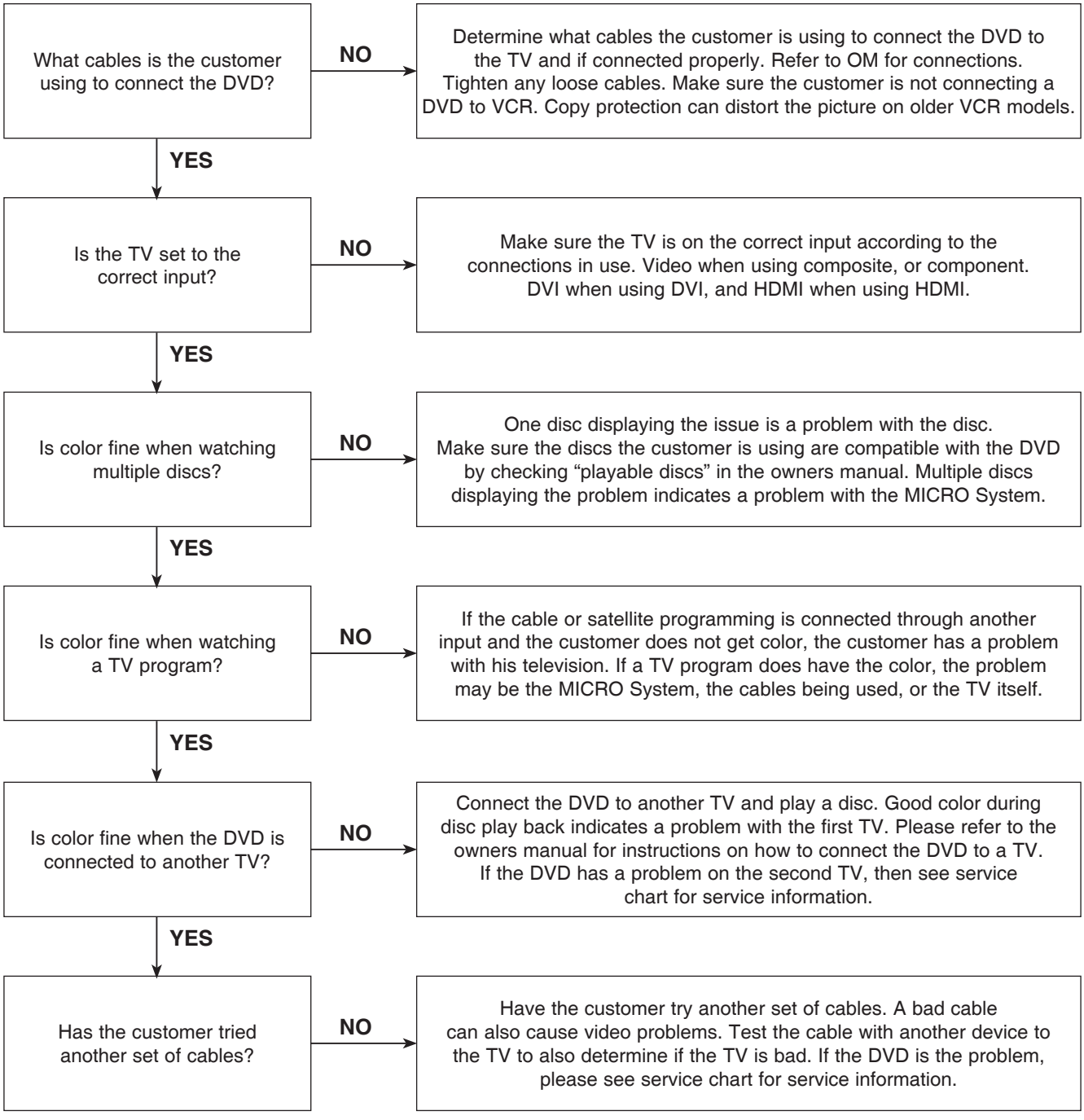
3-1. No Color

The video displays no color and only shows in black and white.



3-2. Poor Color

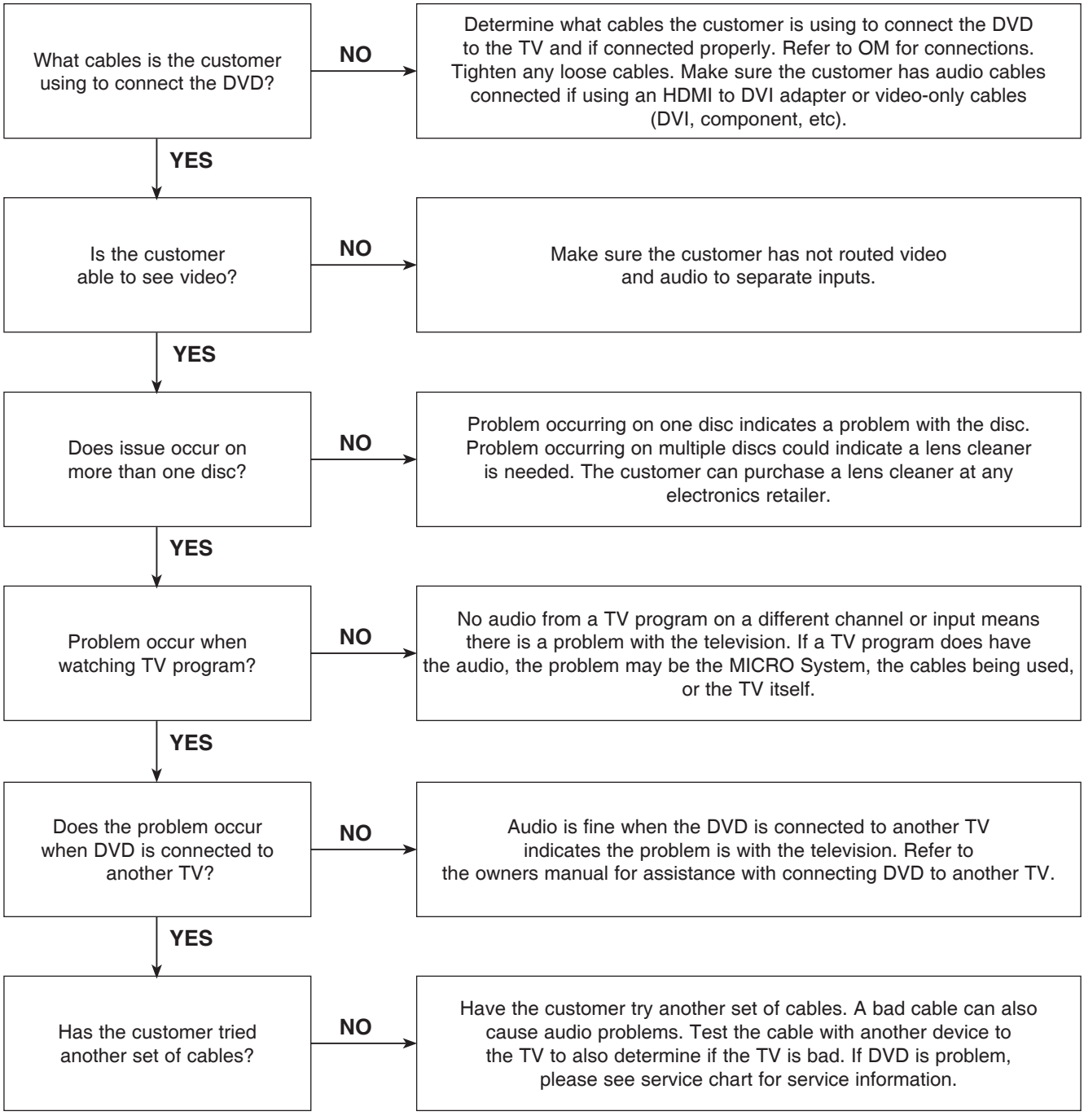
The color is poor. Examples would be washed out colors, colors bleeding into one another, or a solid tint to a screen.



4. NOISE/AUDIO PROBLEMS

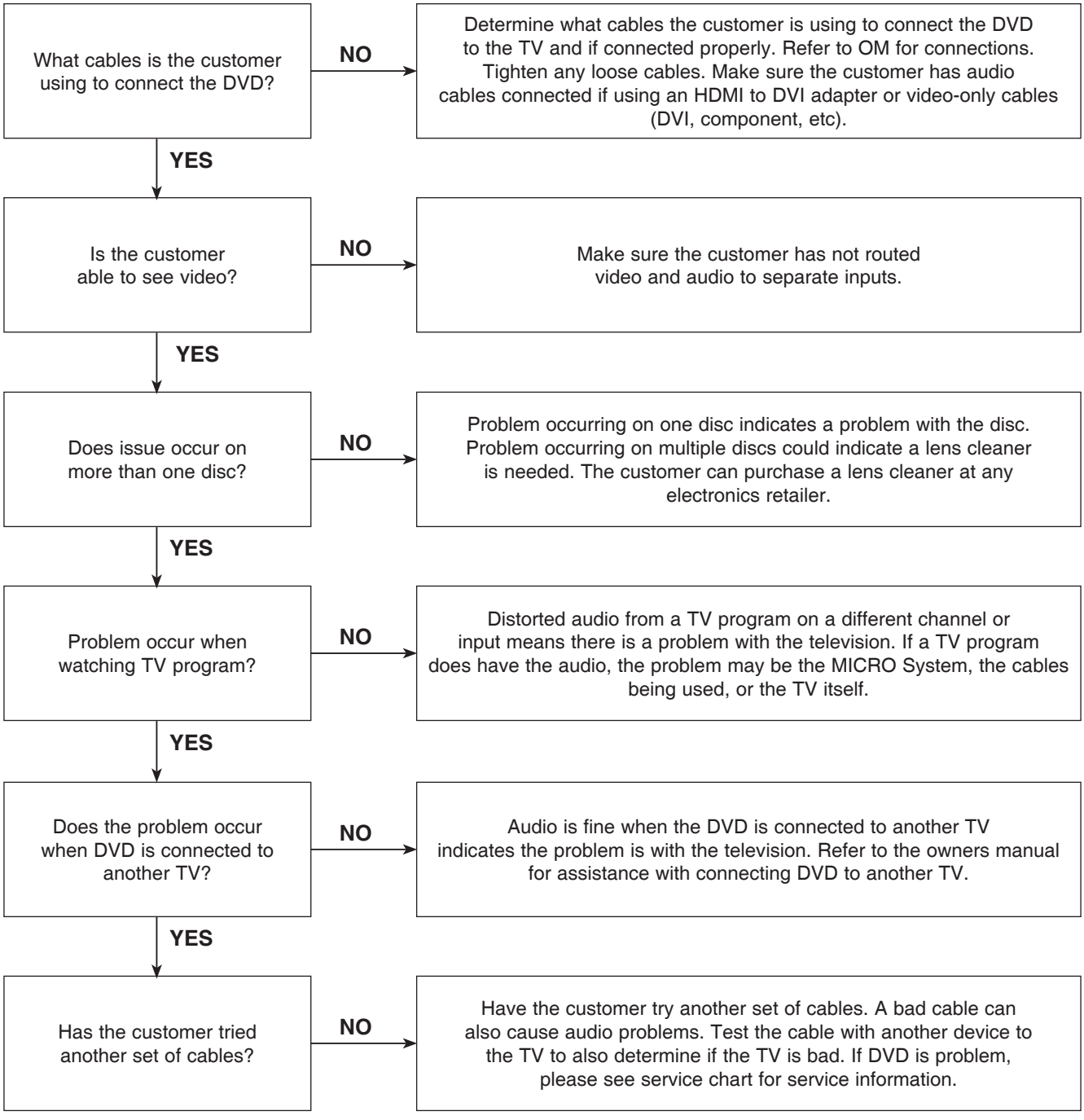
4-1. No Audio

The customer is not able to get audio.



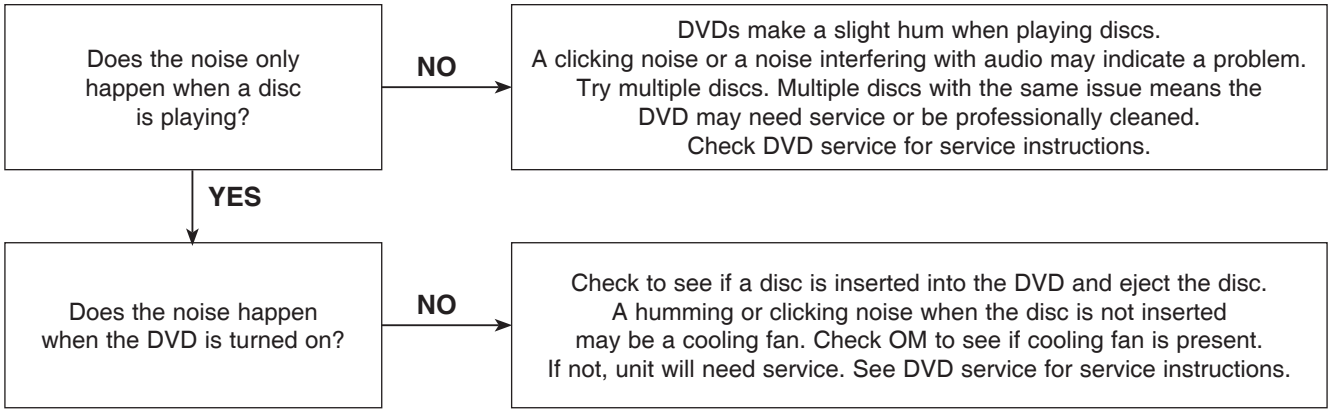
4-2. Distorted Audio

The audio sounds muffled, scratchy, or the audio skips.



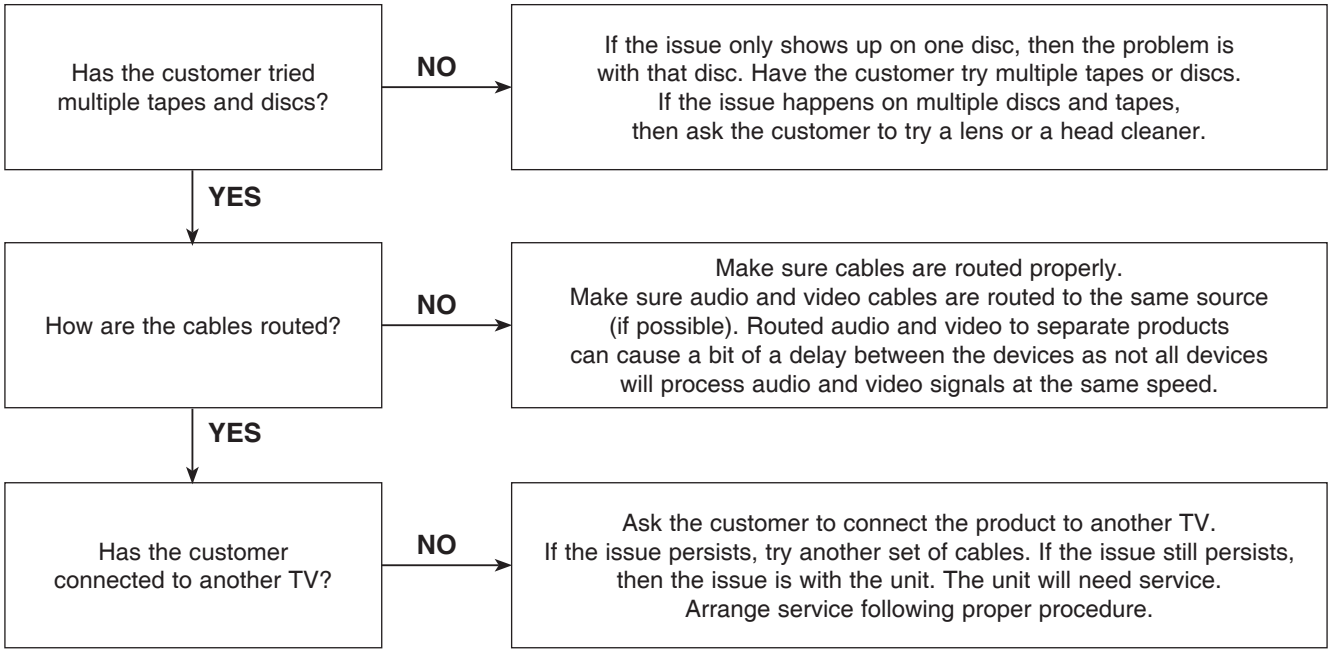
4-3. Humming/Clicking Noise

The unit is making a humming noise or a clicking noise.



4-4. Audio/Video Out of Synch

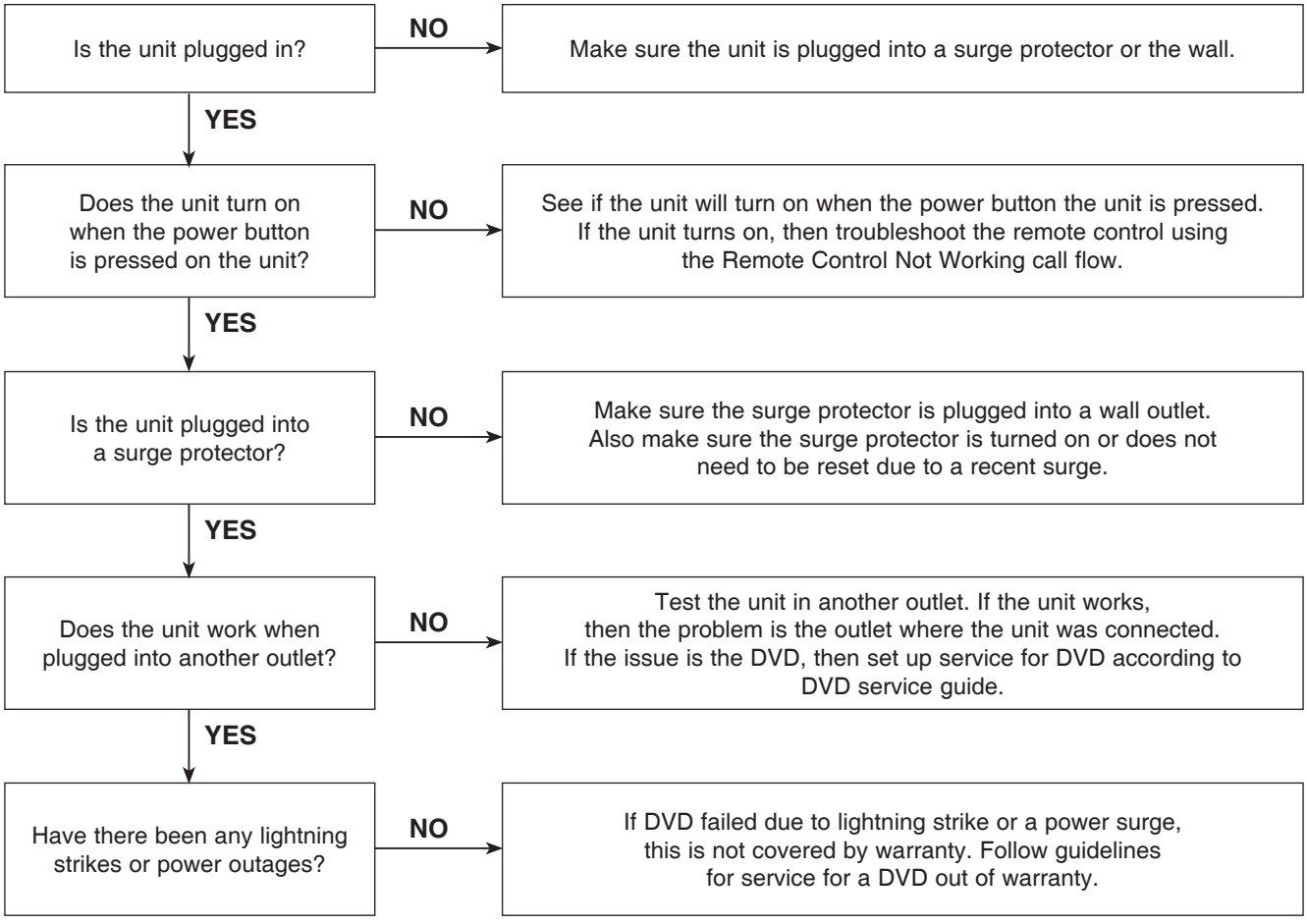
The audio and video do not match up. People look to be talking, but their voices are delayed by a few seconds.



5. MISCELLANEOUS

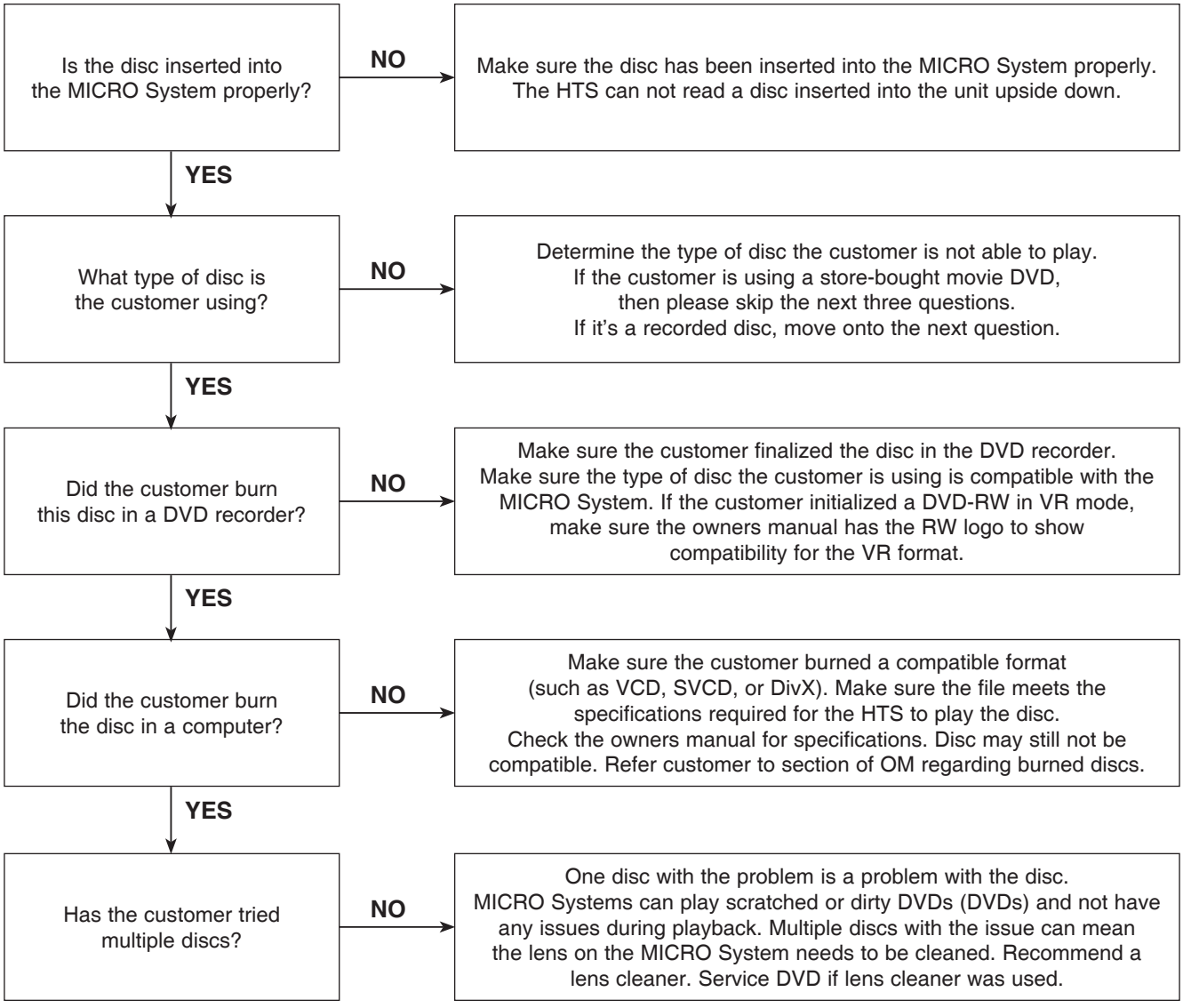
5-1. No Power

The unit will not turn on.

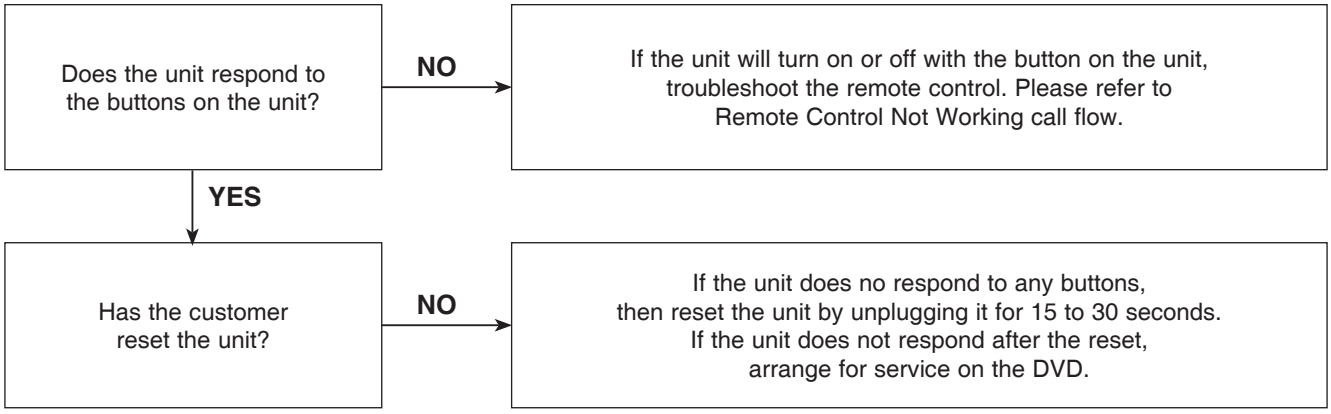


5-2. Disc Error

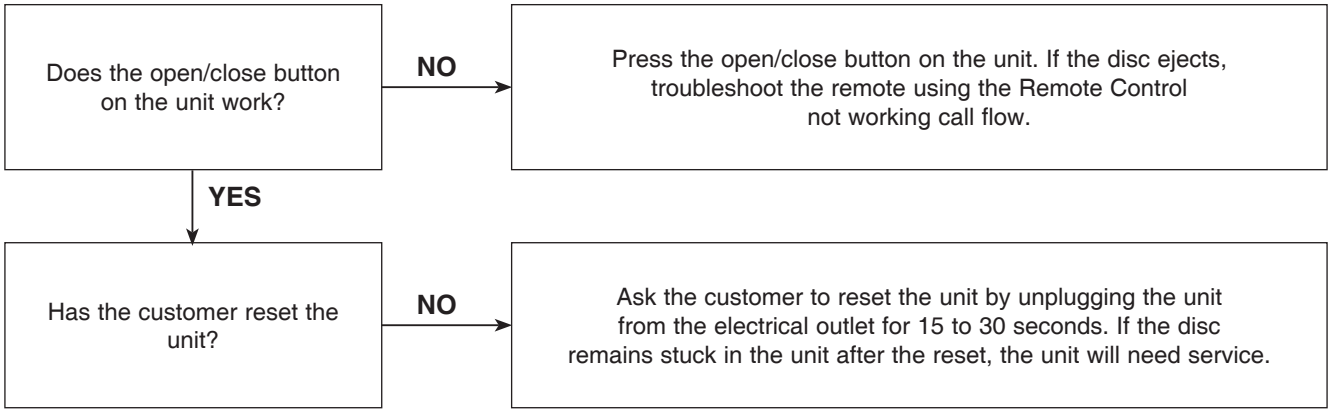
The unit displays “disc error” when a disc is inserted into the MICRO System.



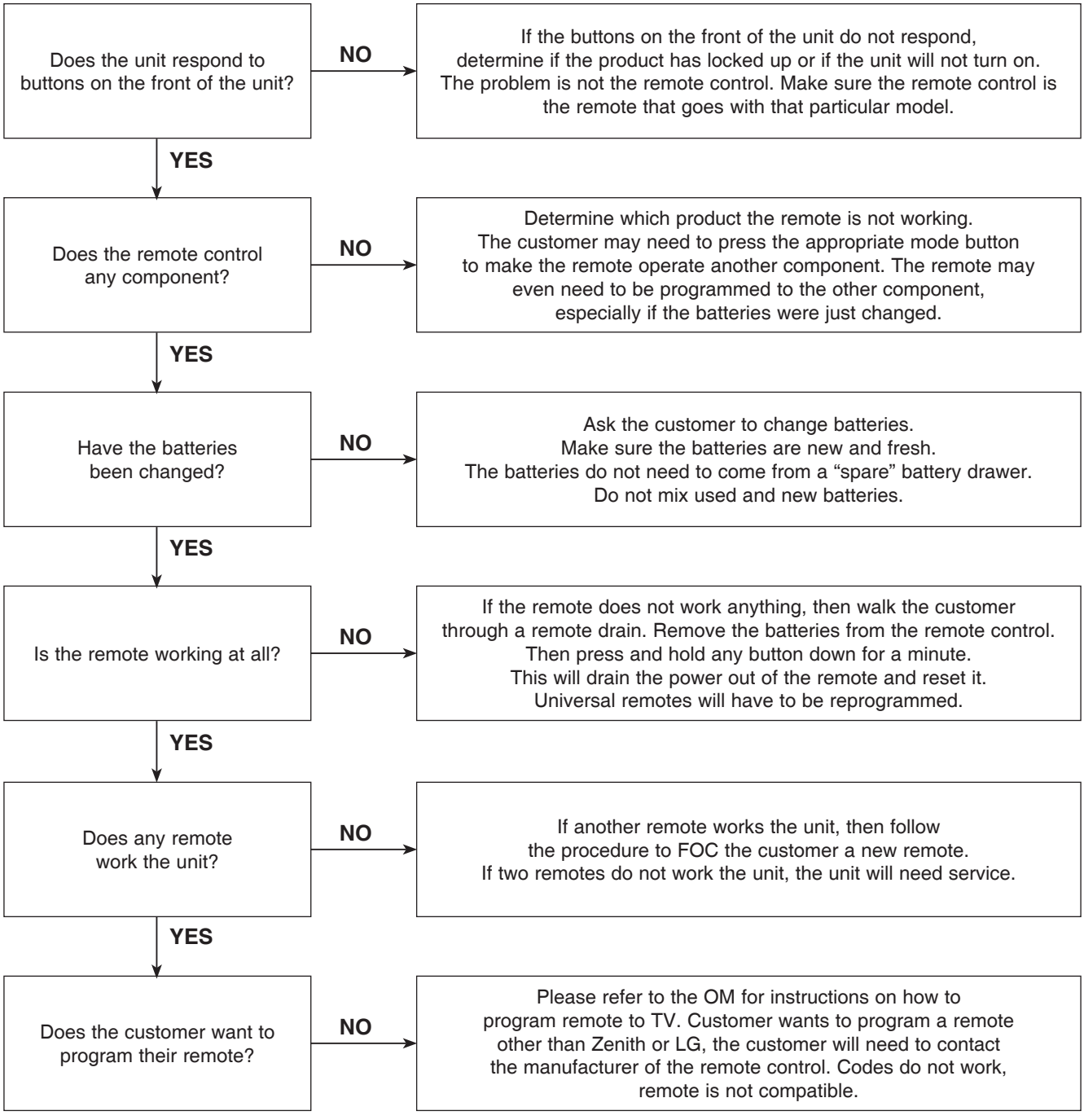
5-3. Unit Locks Up
Unit does not respond to any commands.



5-4. Disc Stuck
A DVD disc is stuck in the unit.

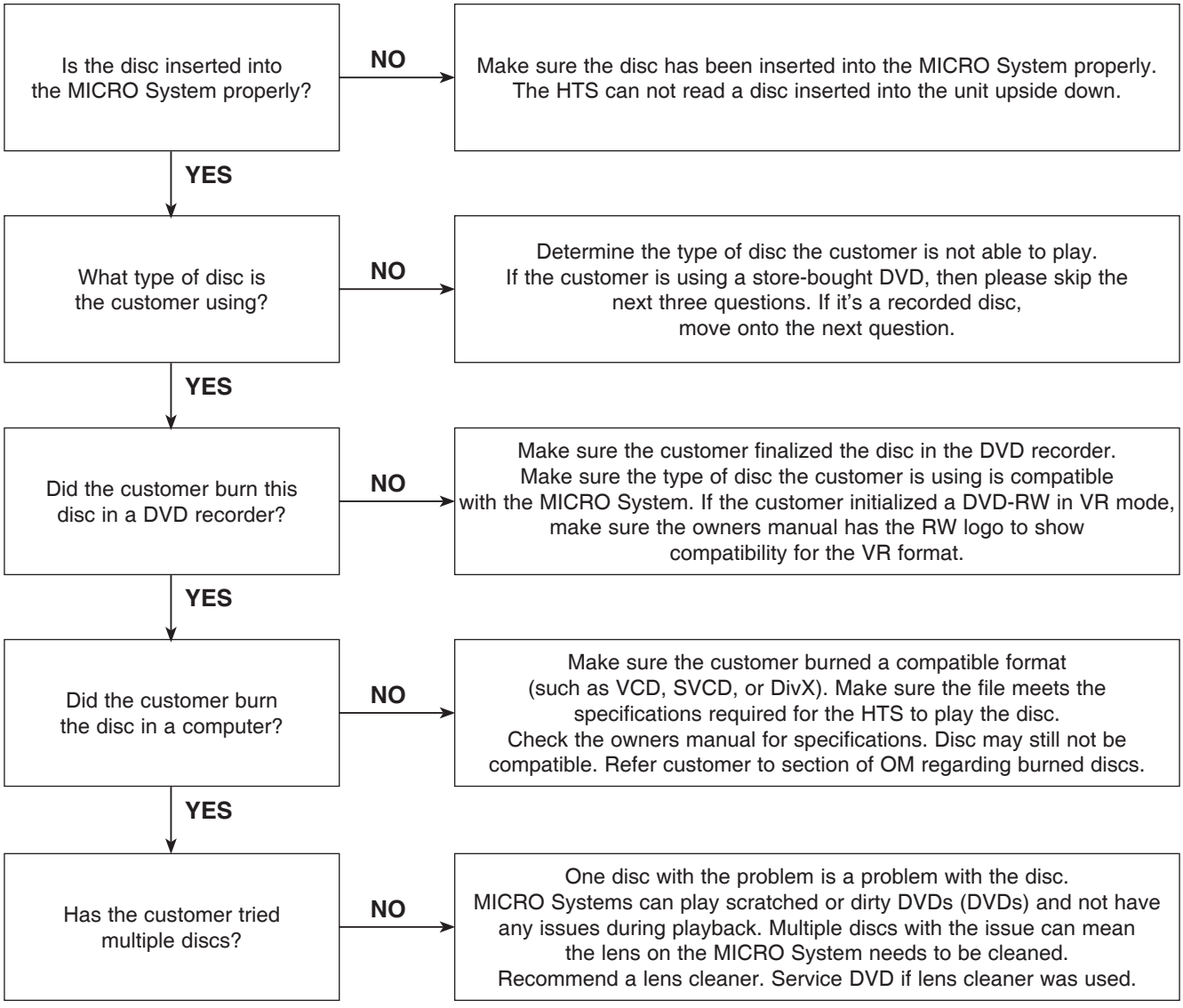


5-5. Remote Control Not Working



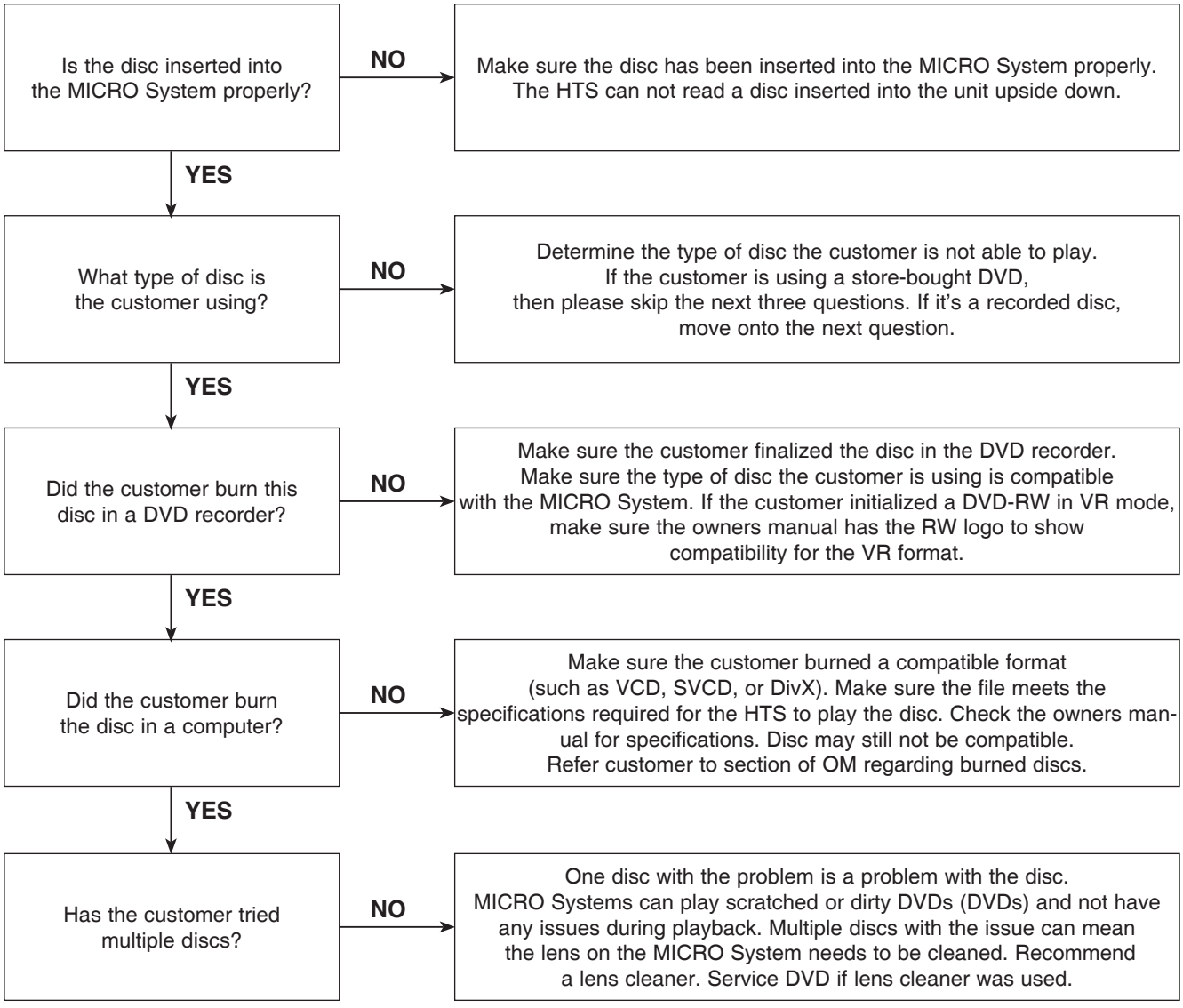
5-6. Will Not Play Disc

The unit will not play a disc when a disc is inserted into the HTS.

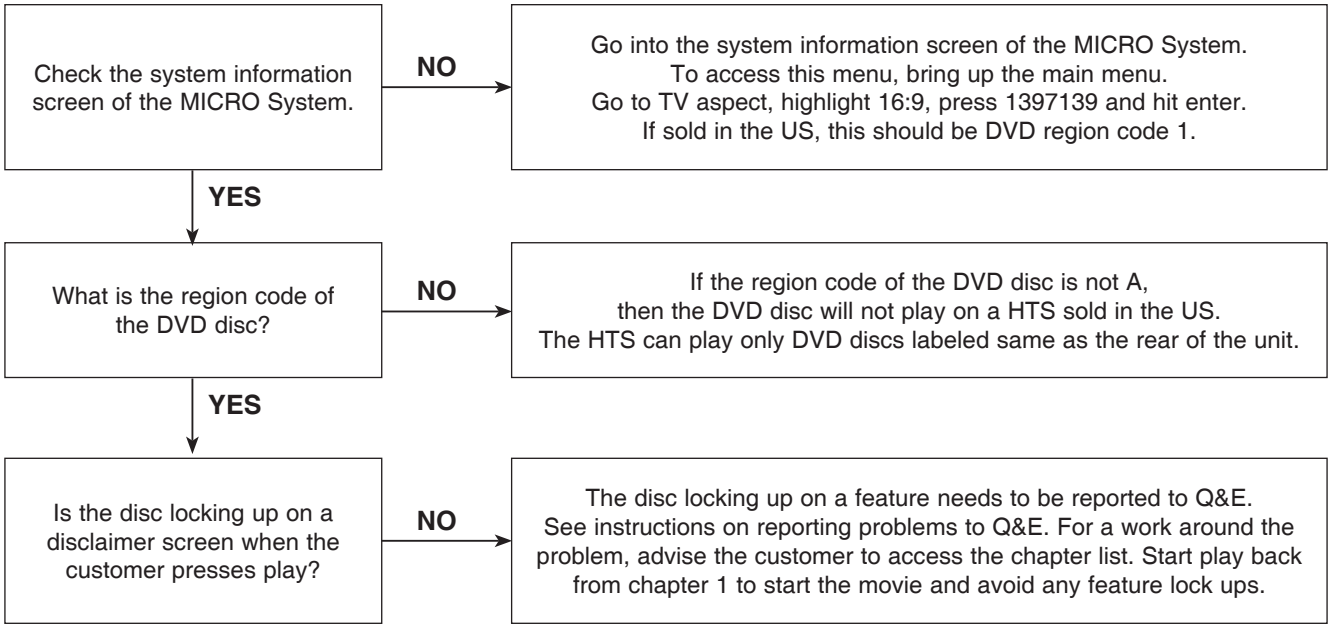


5-7. Disc Freezes or Skips

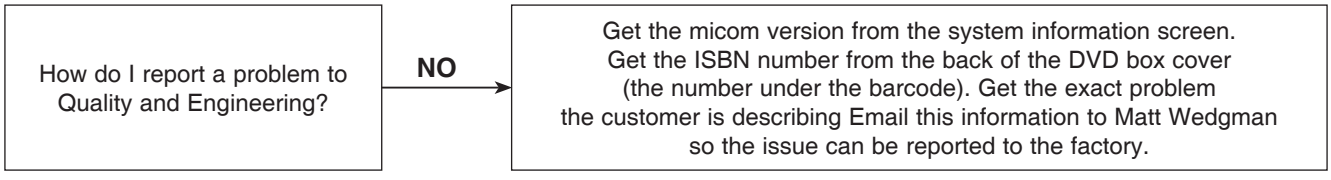
The audio and video freeze and skip during play back of a DVD disc.



5-8. Can Access Menu, but Not Play a Movie
The disc menu is displayed but the disc will not play.

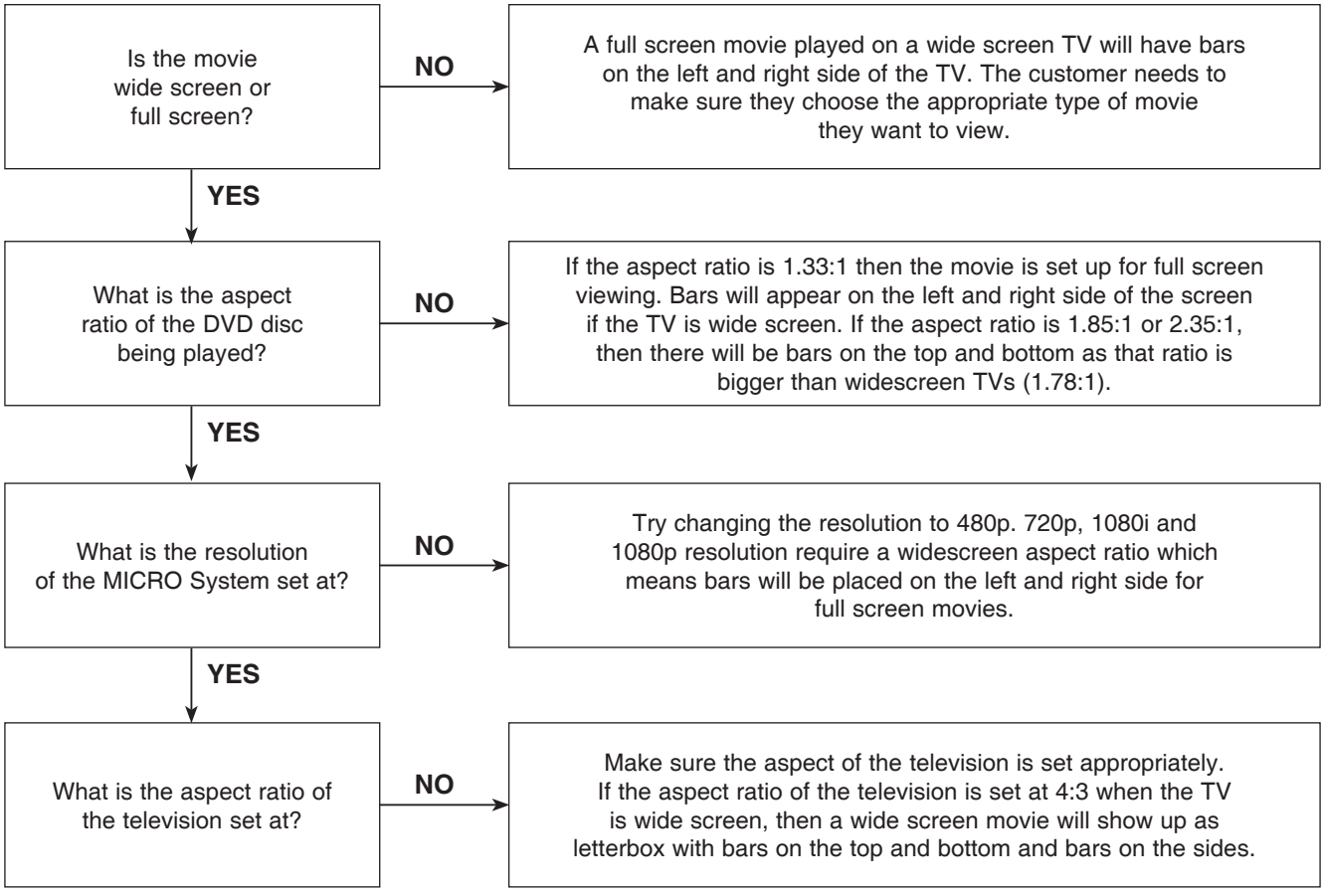


5-9. Reporting a problem to Quality & Engineering
Reporting a problem that may require a firmware update to fix.



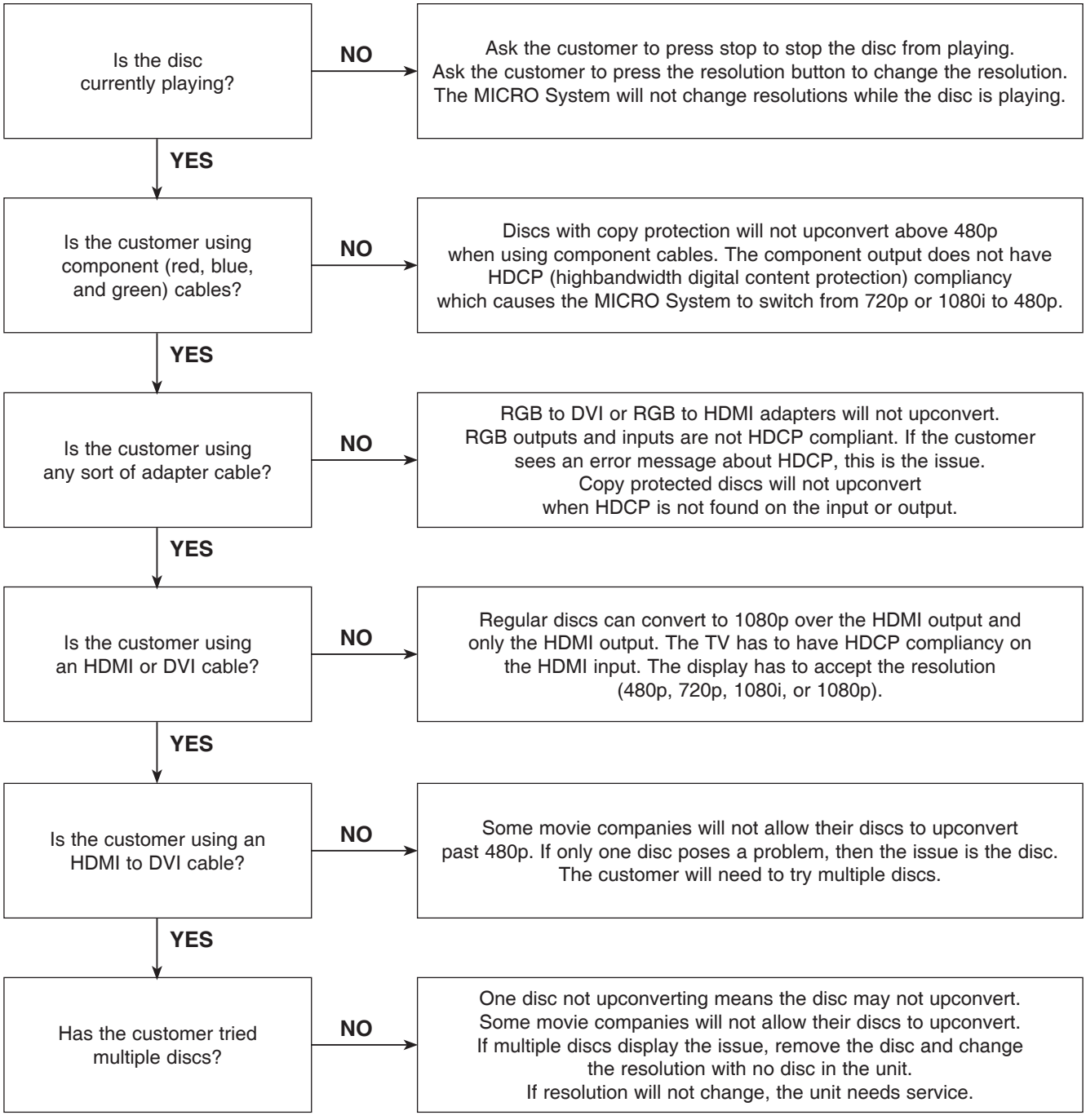
5-10. Aspect Ratio

The customer has bars on the top and bottom of the screen, the left and right of the screen, or both.



5-11. My Unit Won't Upconvert

The customer has a problem with getting the unit to change resolutions to 480p, 720p, 1080i, or 1080p.



ONE POINT REPAIR GUIDE

1. NO POWER PROBLEM

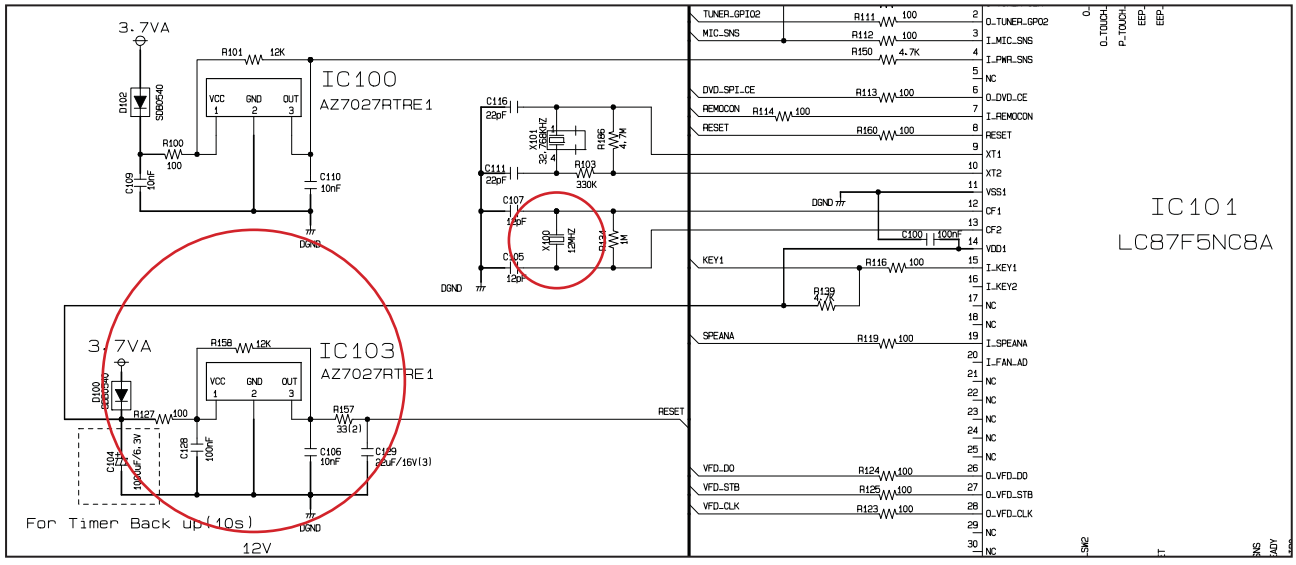
No power problem occurs when you power on the unit.

1-1. Solution

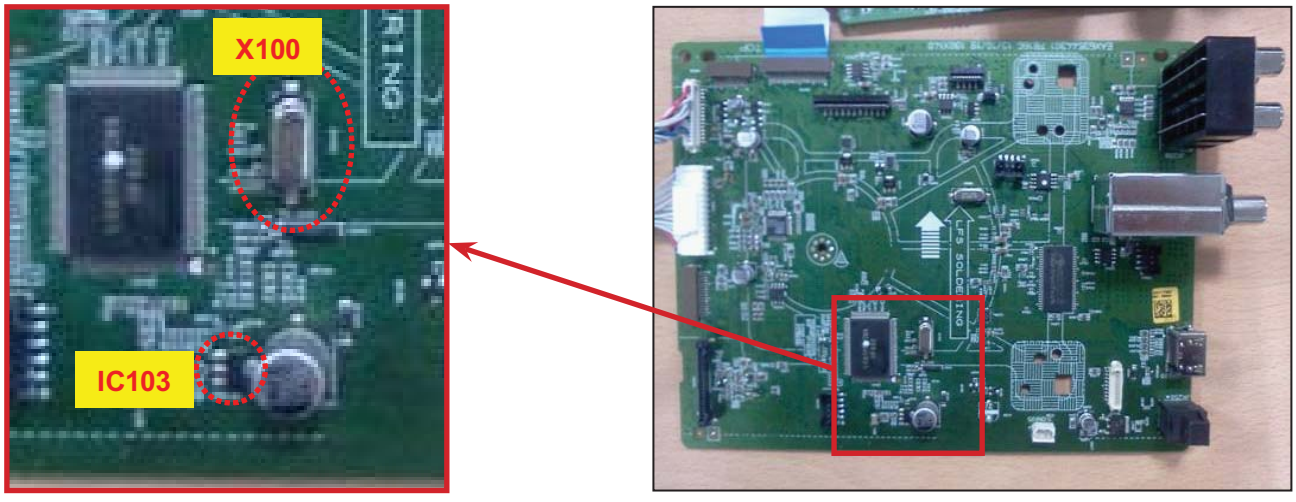
Replace X100, IC101, IC103.

1-2. How to troubleshoot (Countermeasure)

1) Check X100(Crystal).
   ⇨ If it does not oscillate, change X100.
2) Check IC103(Reset IC).
   ⇨ IF its output voltage is not more than +2.7 V, change IC103.
3) Check IC101(Micom).
   ⇨ After Power is ON if the 63pin of IC101 is not 'High', change IC101.
   But, the new µ-com IC need to write program.



1-3. Service hint (Any picture / Remark)



< MAIN board top view >

ONE POINT REPAIR GUIDE

2. SPEAKER NO AUDIO OUTPUT

No audio output problem occurs when you power on the unit.

2-1. Solution

Reassemble AMP IC heat-sink, replace IC101.

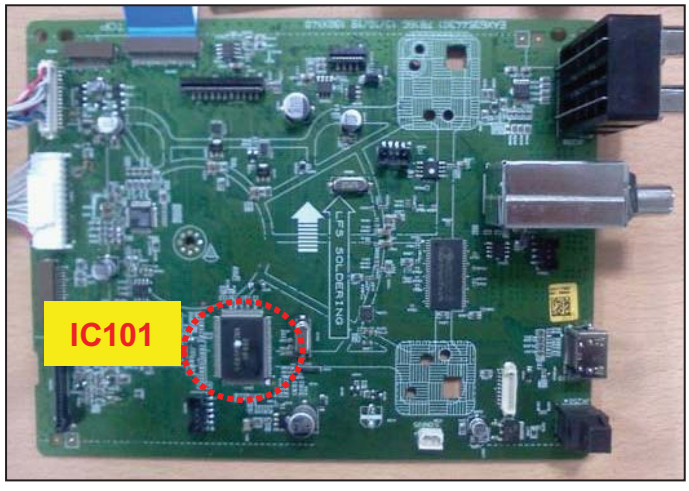
2-2. How to troubleshoot (Countermeasure)

1) Reassemble AMP IC heat-sink (heat-sink screw must be assembled tightly).
2) Still NG, please check CN902 Pin1(12 V), Pin 2, 3 (25 V)
3) If it is not appear Vcc, change SMPS board assembly.
4) After changing it, if Vcc is still NG, check CN901 Pin8 (P-CTRL).
5) CN901 Pin8 Vcc is not appear, change µ-com IC (IC101).

2-3. Service hint (Any picture / Remark)

< SMPS board top view >

< AMP board top view >



< MAIN board top view >

ONE POINT REPAIR GUIDE

3. USB NO DETECT

When USB insert, USB no detect on the unit.

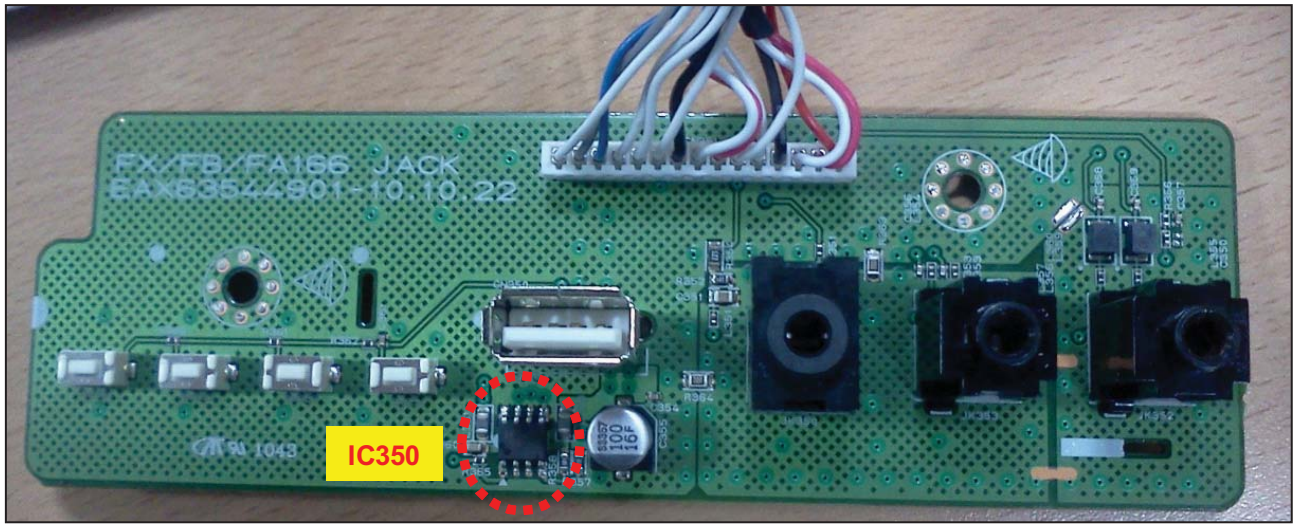
3-1. Solution

Replace IC350.

3-2. How to troubleshoot (Countermeasure)

1) Please check IC350.
   ⇨ Pin3 : 5 V
2) If it is not OK, replace IC350.

3-3. Service hint (Any picture / Remark)



< JACK board top view >

ONE POINT REPAIR GUIDE

4. NO BOOTING

When you turn on unit, it will display “Hello” or “Please wait” message continuously on front panel, and it will not boot-up normally.

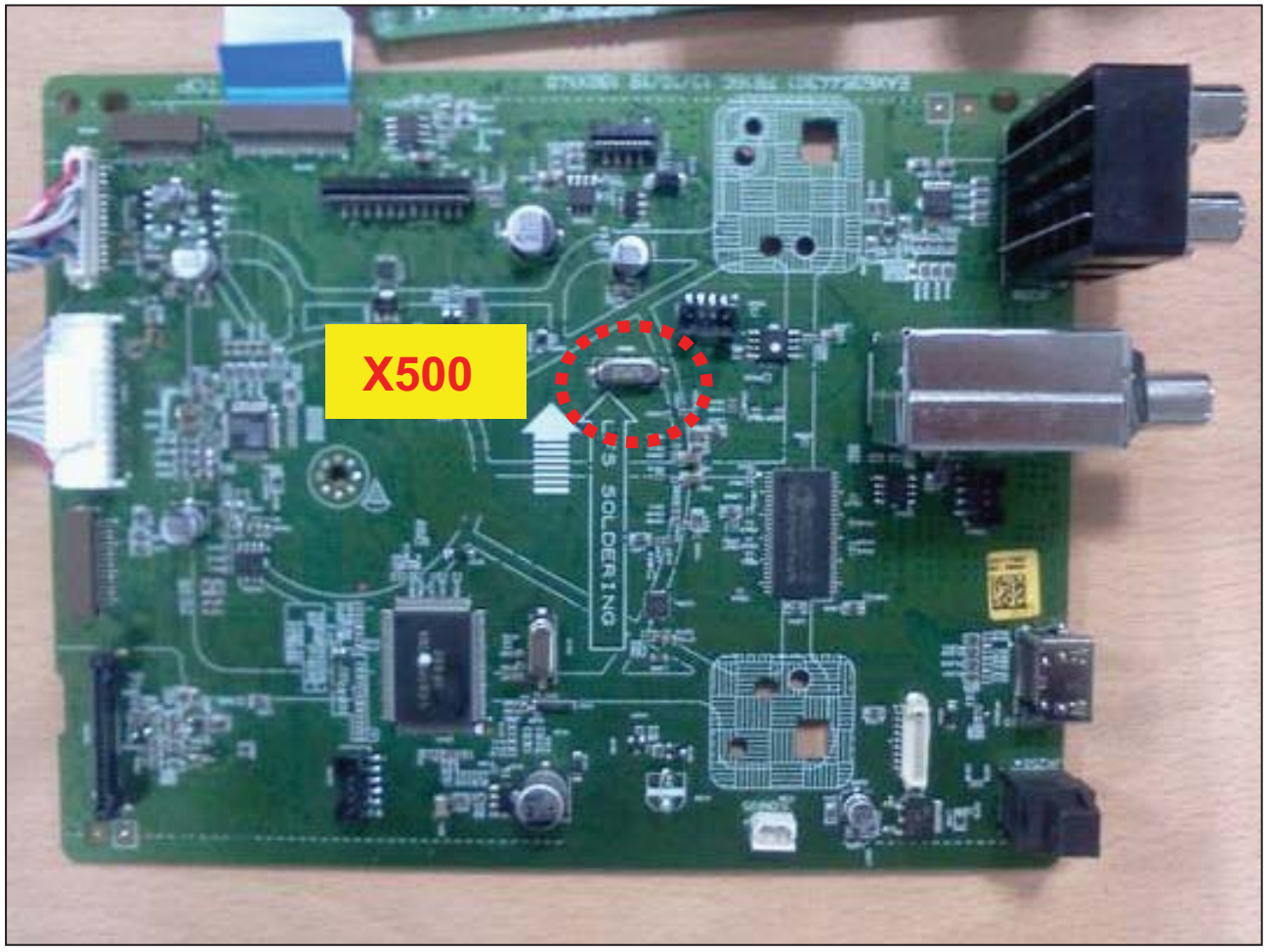
4-1. Solution

Replace X500.

4-2. How to troubleshoot (Countermeasure)

1) Please check the soldering status of 27 MHz crystal (X500).
2) Please check the frequency of 27 MHz crystal (X500).
3) If the crystal doesn’t oscillate, replace X500.
4) After changing it, if the set is still not booting, replace MAIN board assembly.

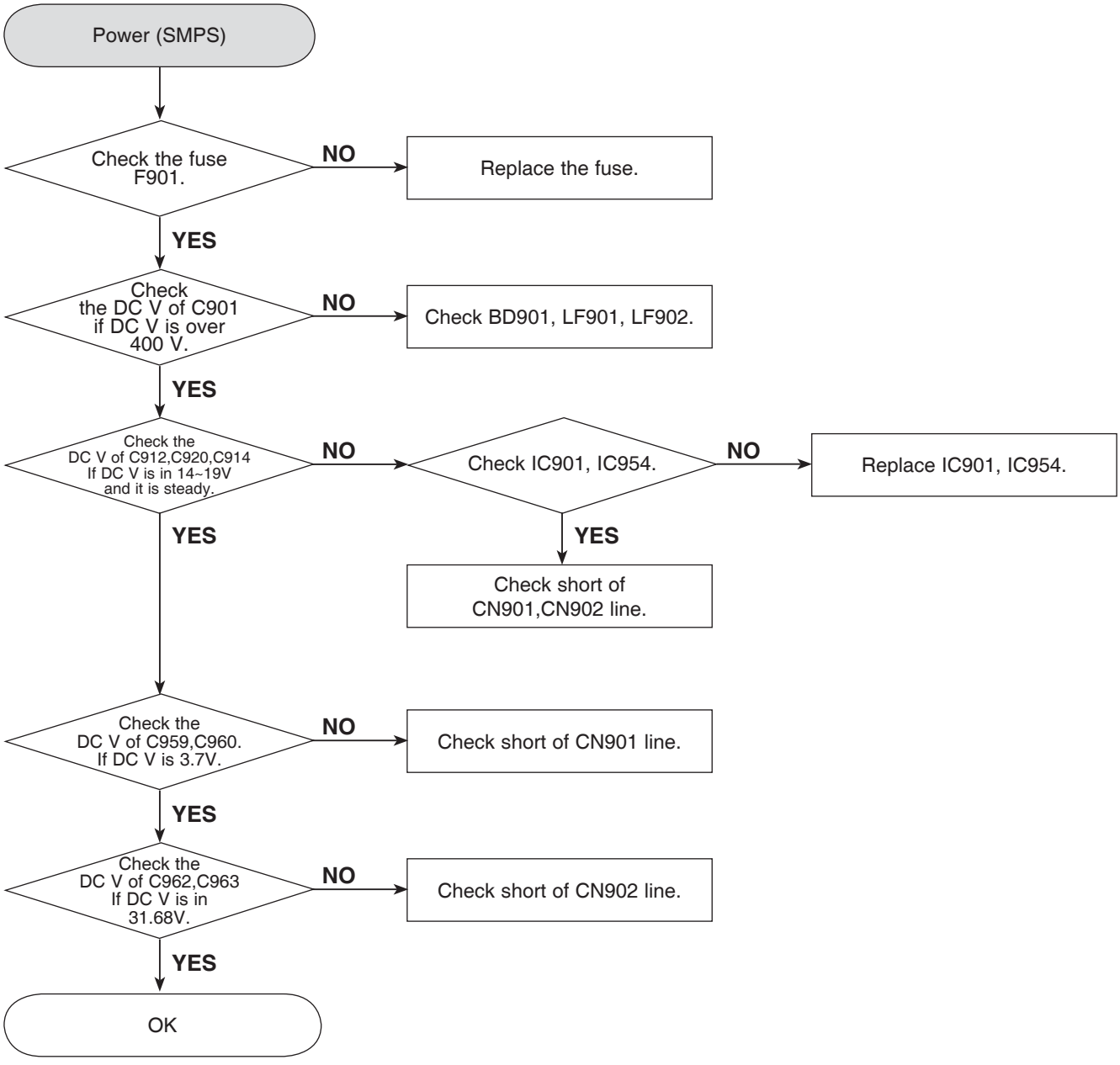
4-3. Service hint (Any picture / Remark)



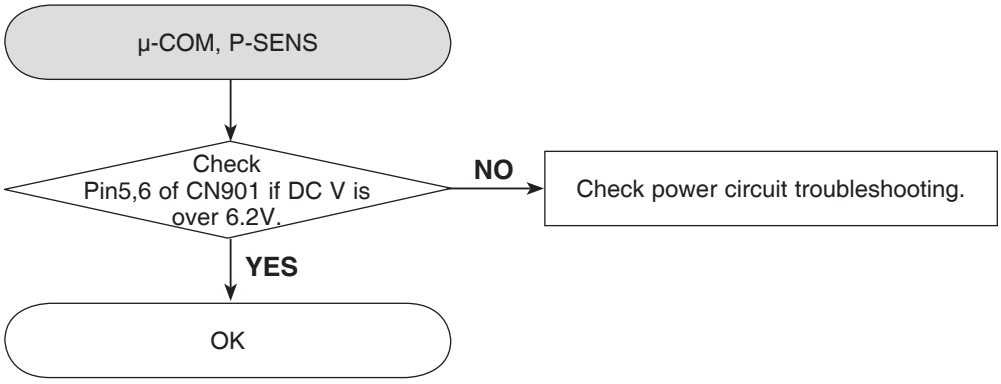
< MAIN board top view >

ELECTRICAL TROUBLESHOOTING GUIDE

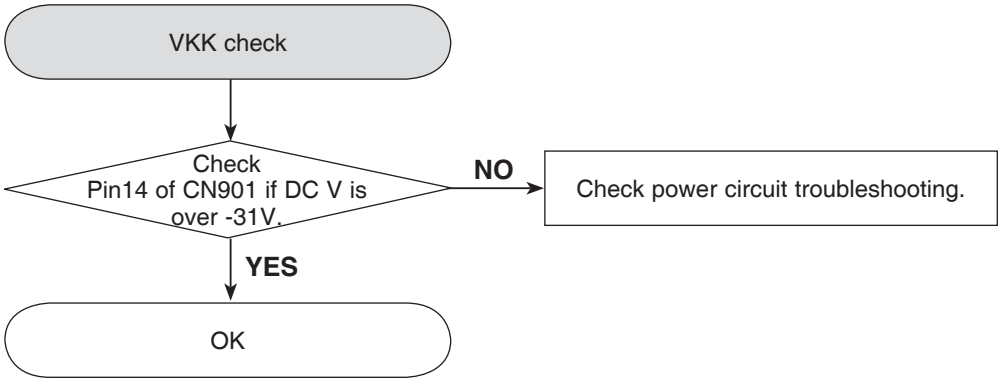
1. POWER (SMPS)



2. P-SENS

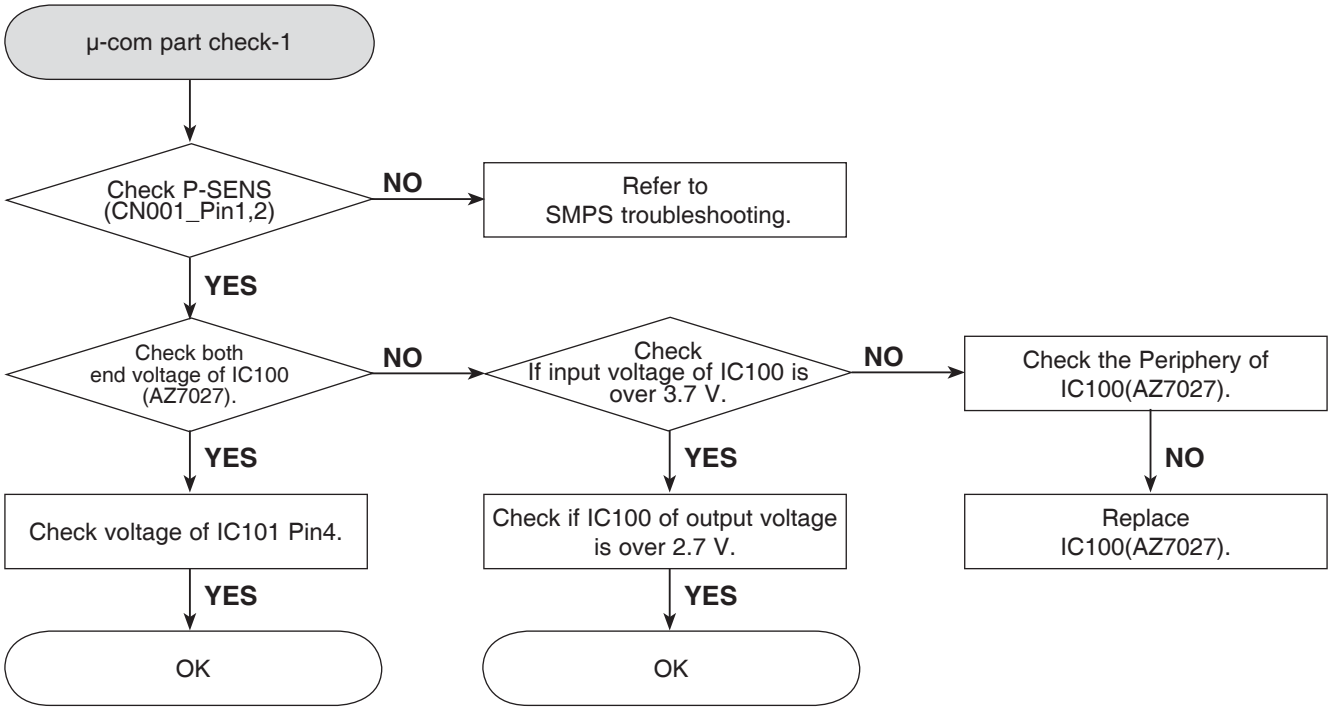


3. VKK CHECK

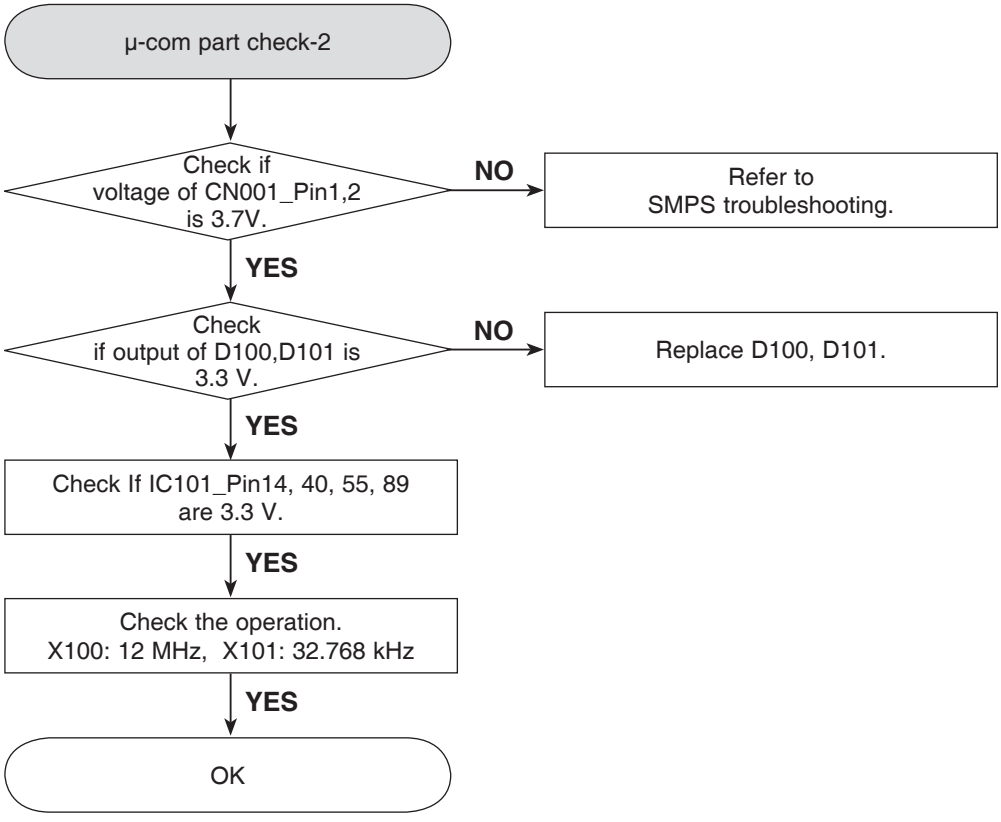


ELECTRICAL TROUBLESHOOTING GUIDE

4. µ-COM PART CHECK-1

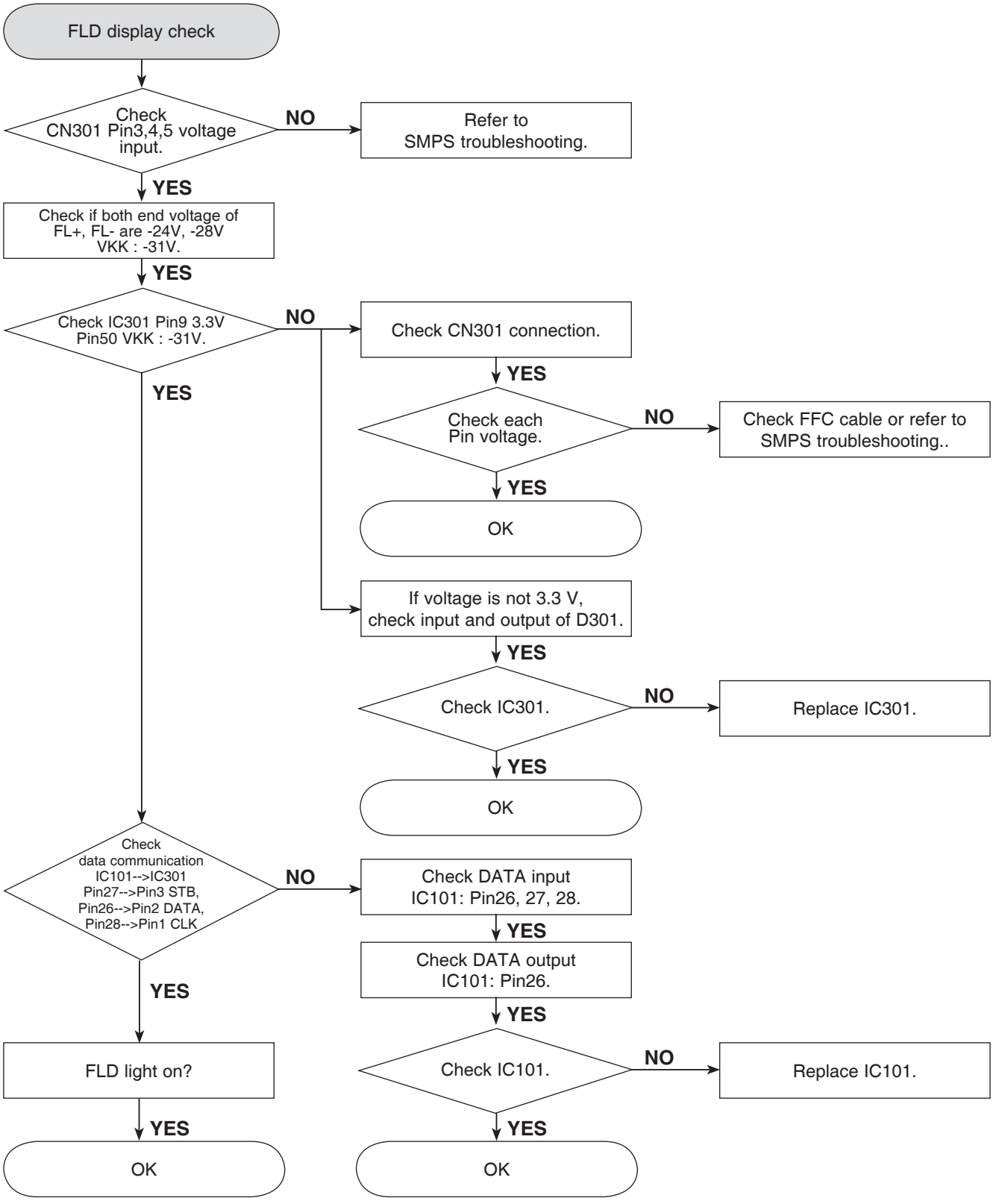


5. µ-COM PART CHECK-2



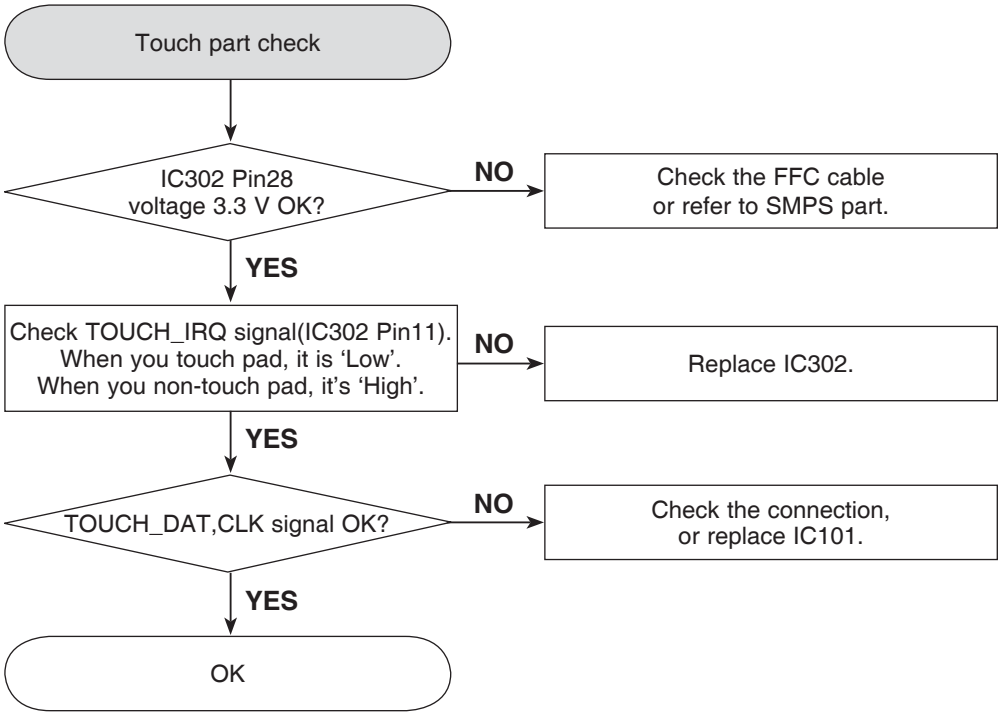
ELECTRICAL TROUBLESHOOTING GUIDE

6. FLD DISPLAY CHECK



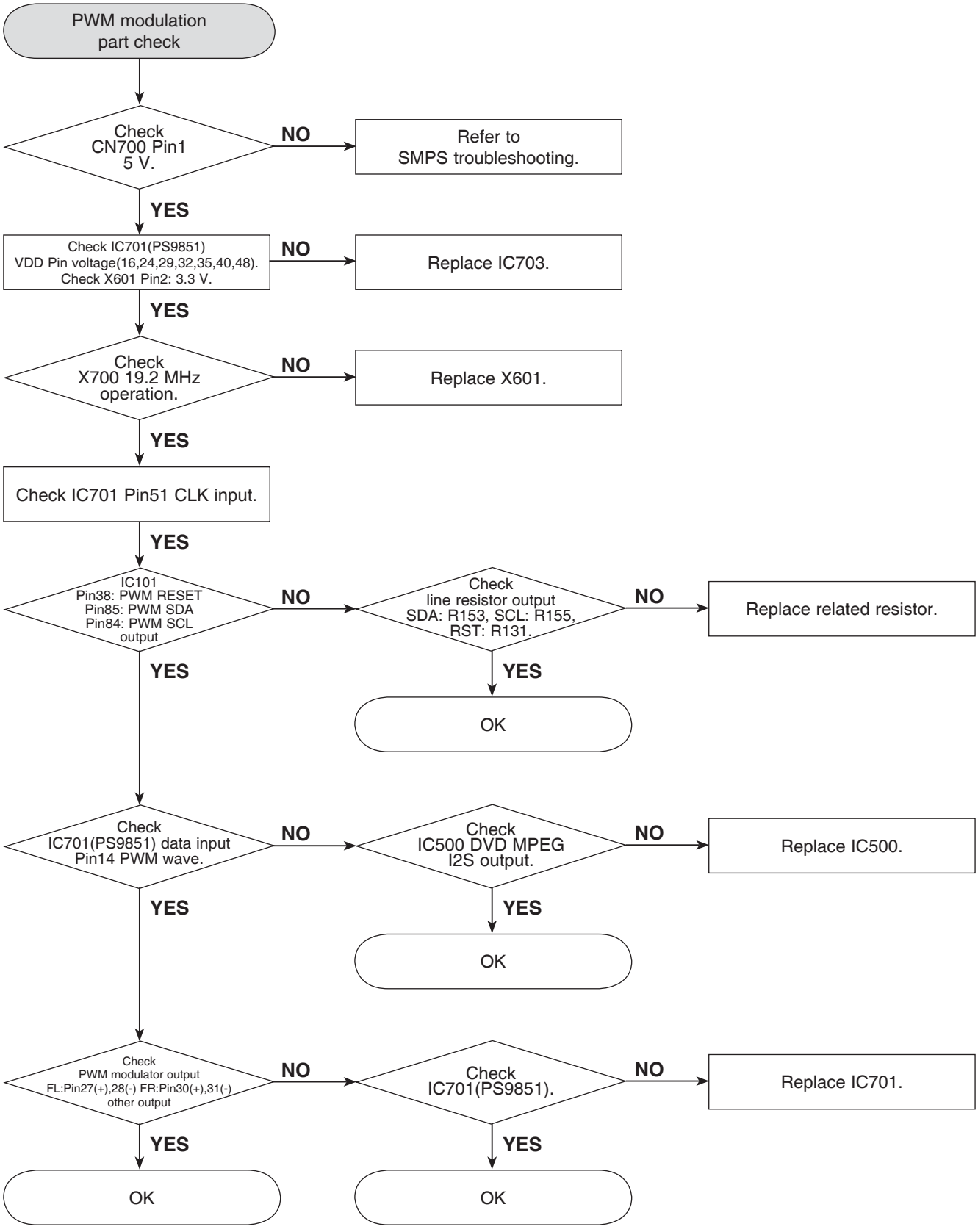
ELECTRICAL TROUBLESHOOTING GUIDE

7. TOUCH PART CHECK



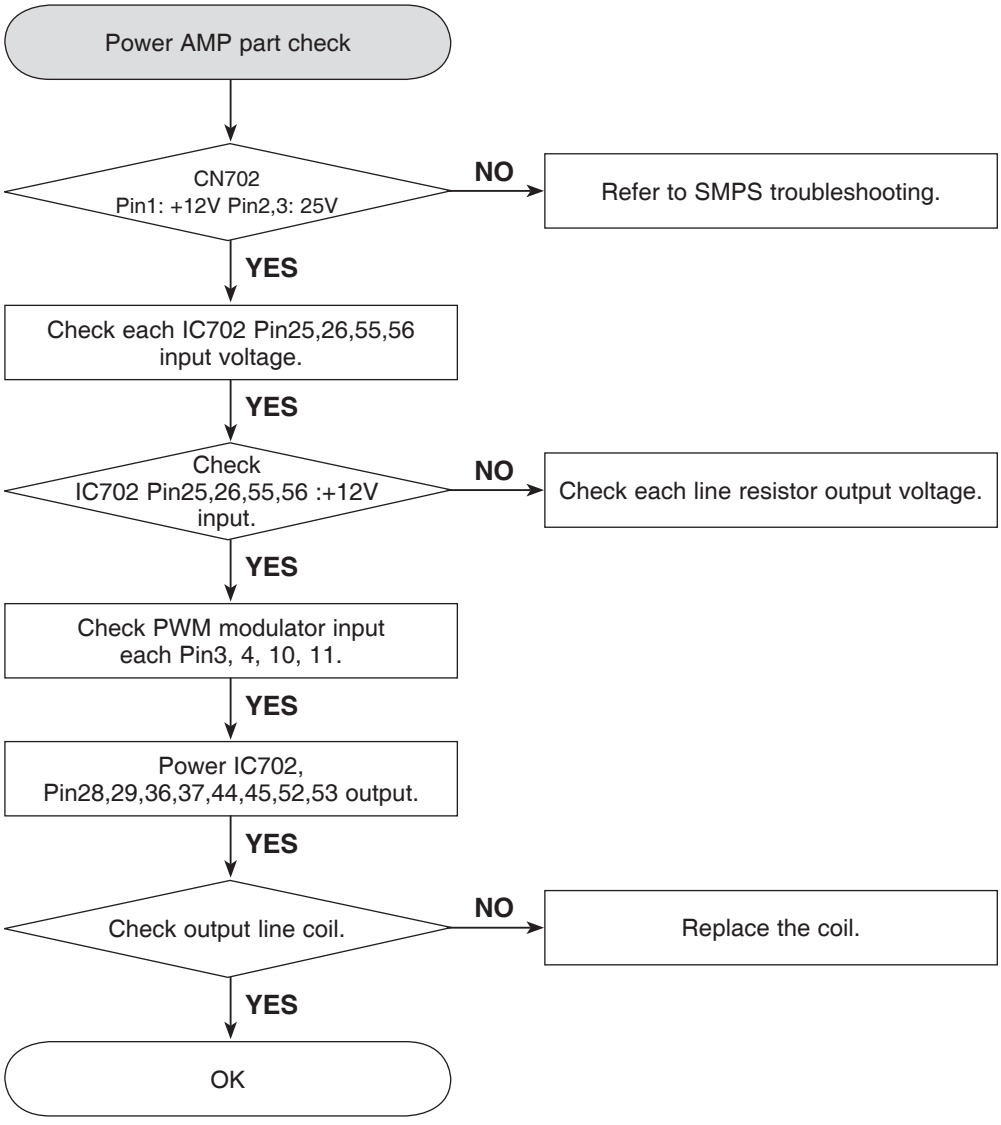
ELECTRICAL TROUBLESHOOTING GUIDE

8. PWM MODULATION CHECK



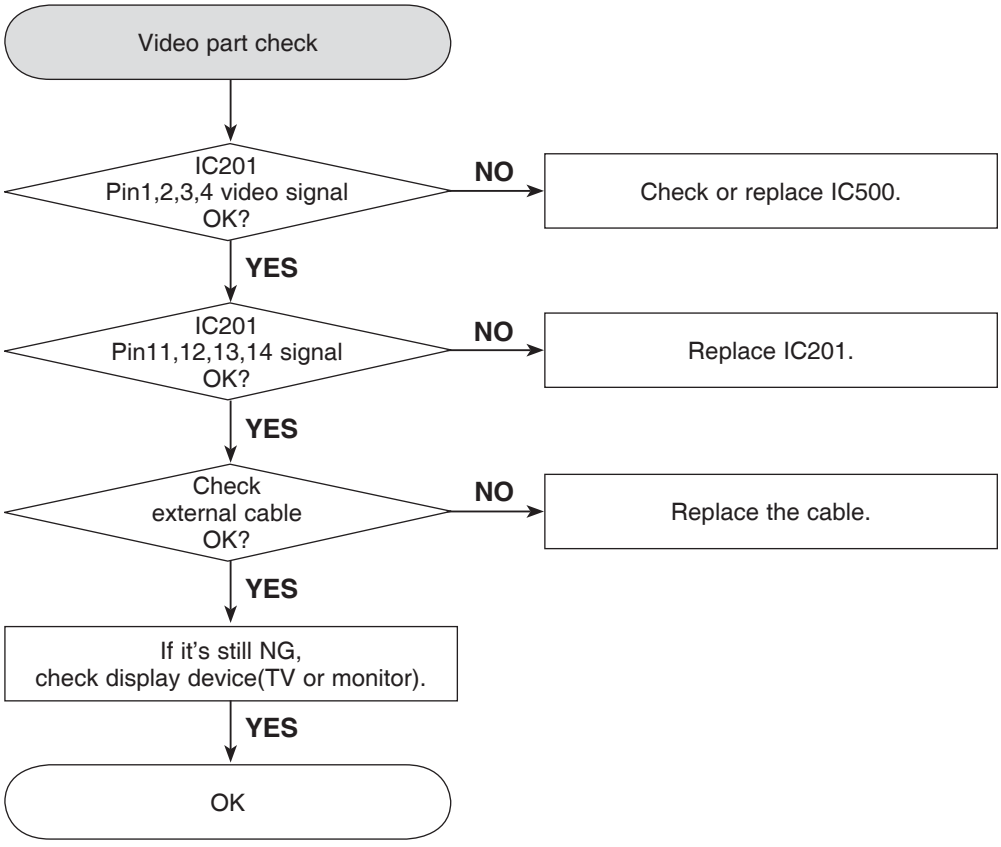
ELECTRICAL TROUBLESHOOTING GUIDE

9. POWER AMP PART CHECK



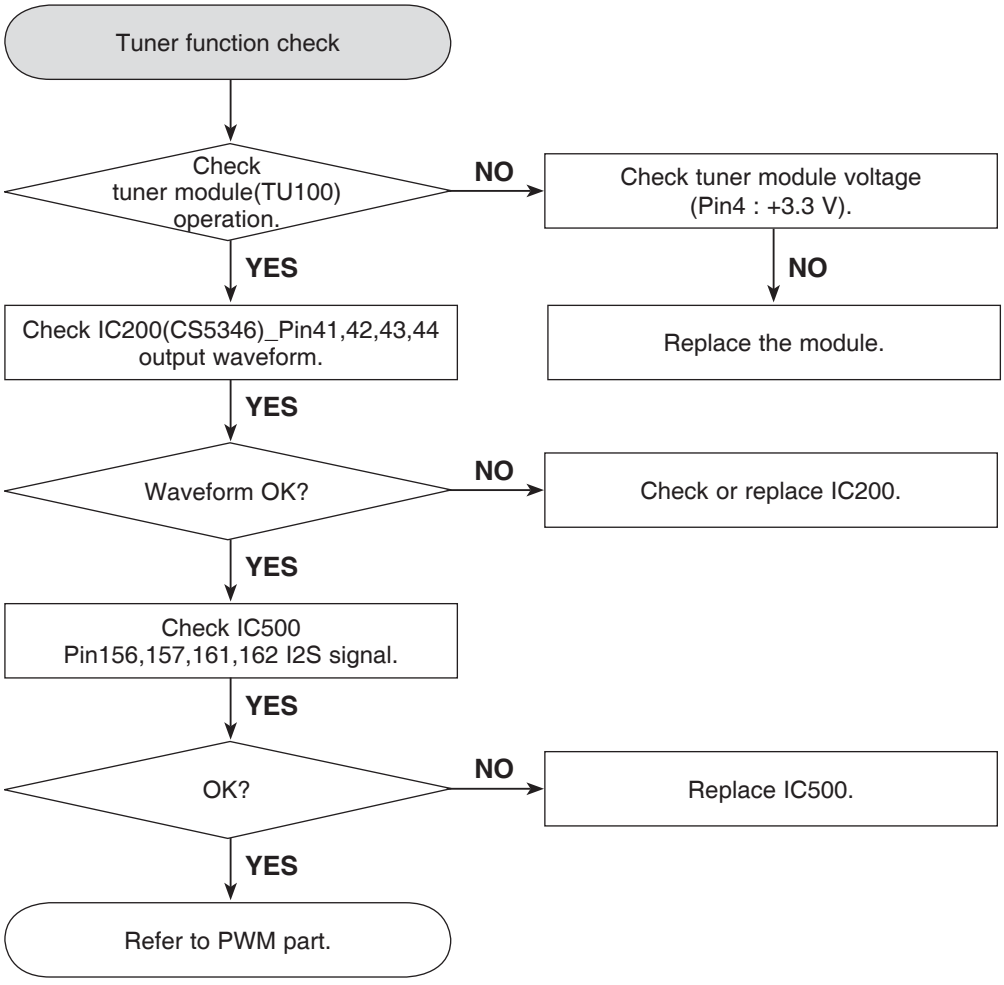
ELECTRICAL TROUBLESHOOTING GUIDE

10. VIDEO PART CHECK



ELECTRICAL TROUBLESHOOTING GUIDE

11. TUNER FUNCTION CHECK



DETAILS AND WAVEFORMS ON SYSTEM TEST AND DEBUGGING

1. SYSTEM 27 MHz CLOCK,RESET,FLASH R/W SIGNAL

1) MT1389FE/GH main clock is at 27 MHz(X500)

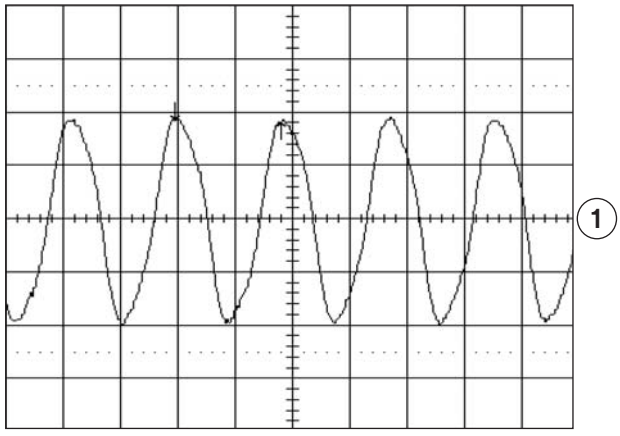
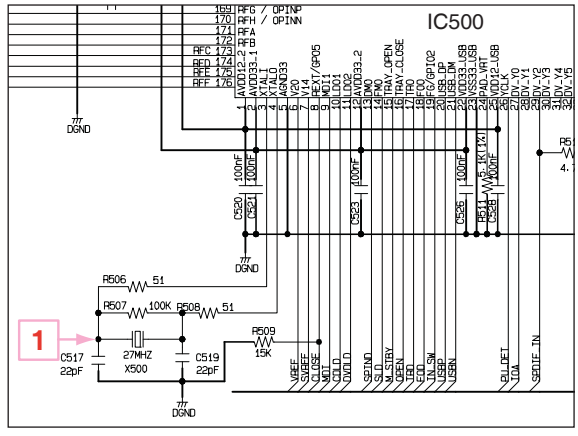
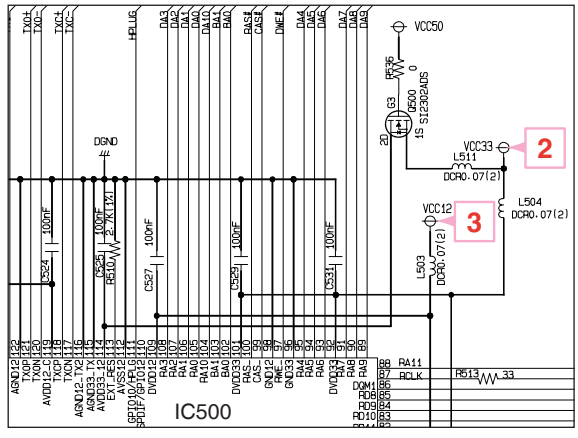


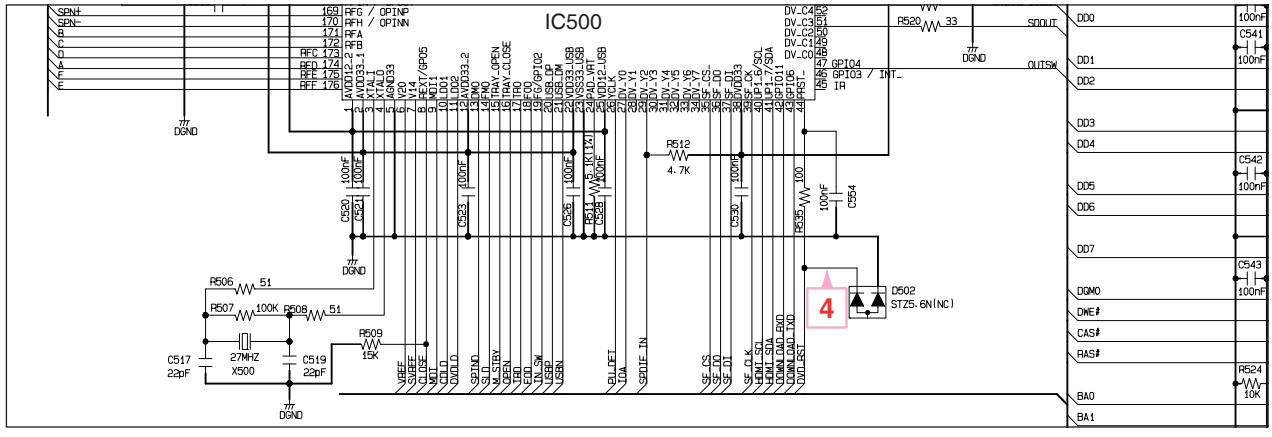
FIG 1-1



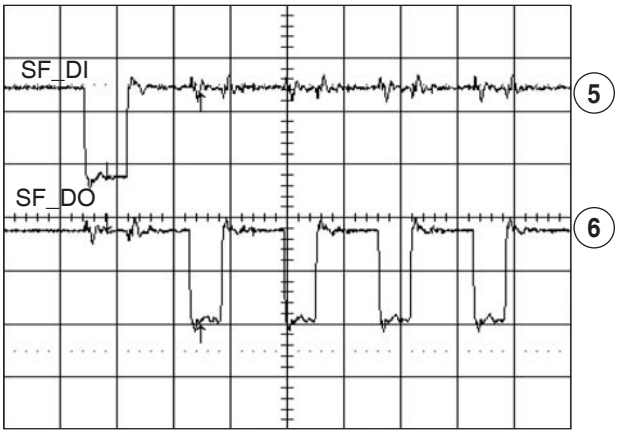
2) MT1389FE/GH reset is high active.

FIG 1-2





3) Flash R/W enable signal during download(Downloading)



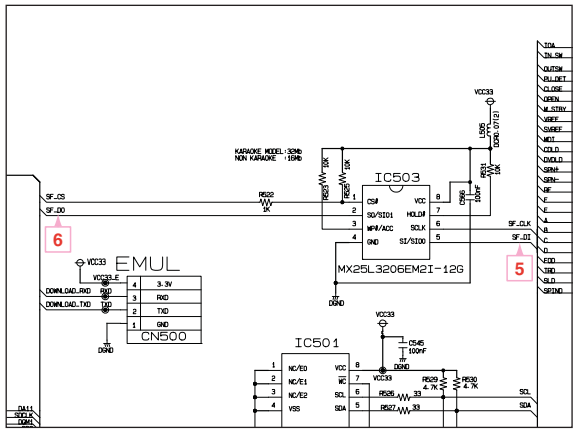
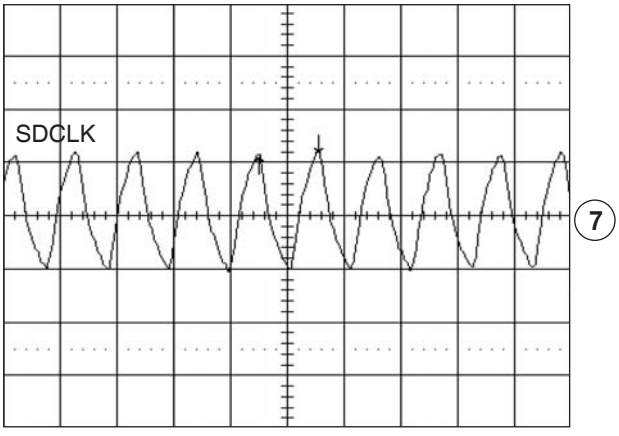


FIG 1-3

2. SDRAM CLOCK

1) MT1389FE/GH main clock is at 27 MHz(X500)

DCLK = 93MHz, Vp-p=2.2, Vmax=2.7V



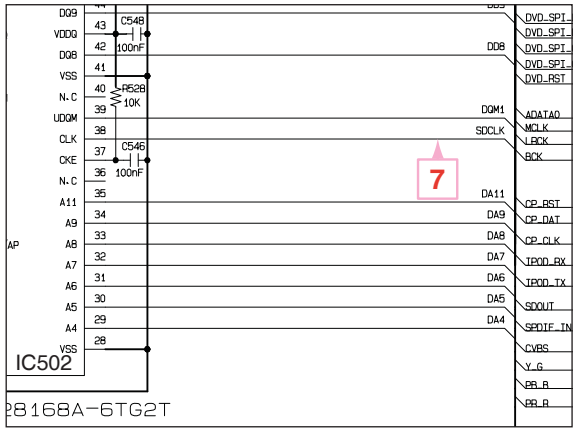
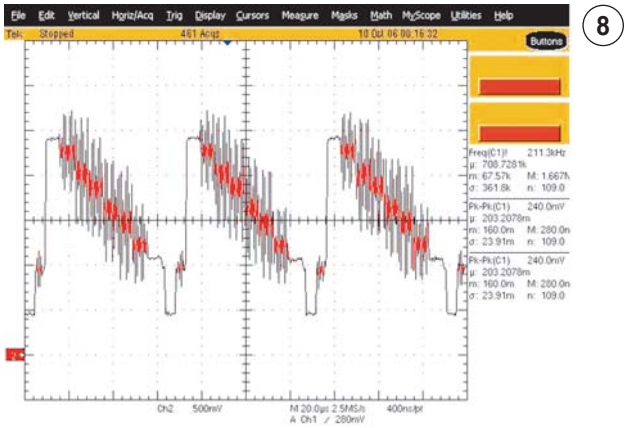
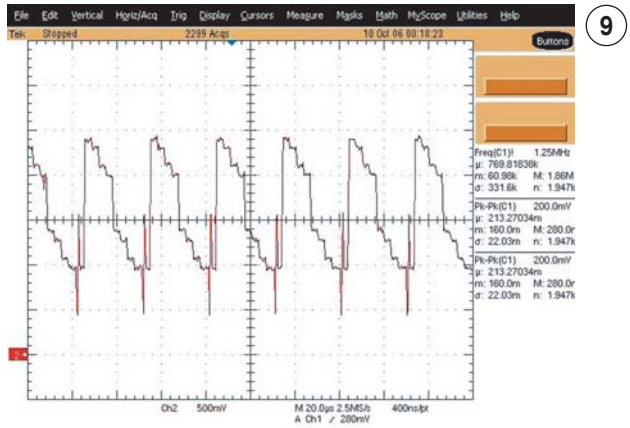


FIG 2-1

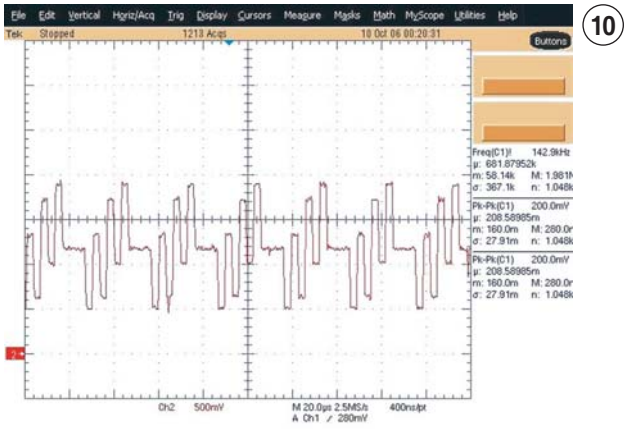
3. VIDEO PART-1 (100% FULL COLOR-BAR)



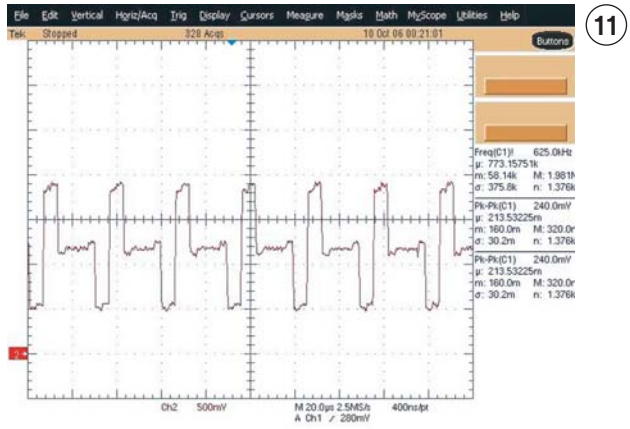
CVBS_I



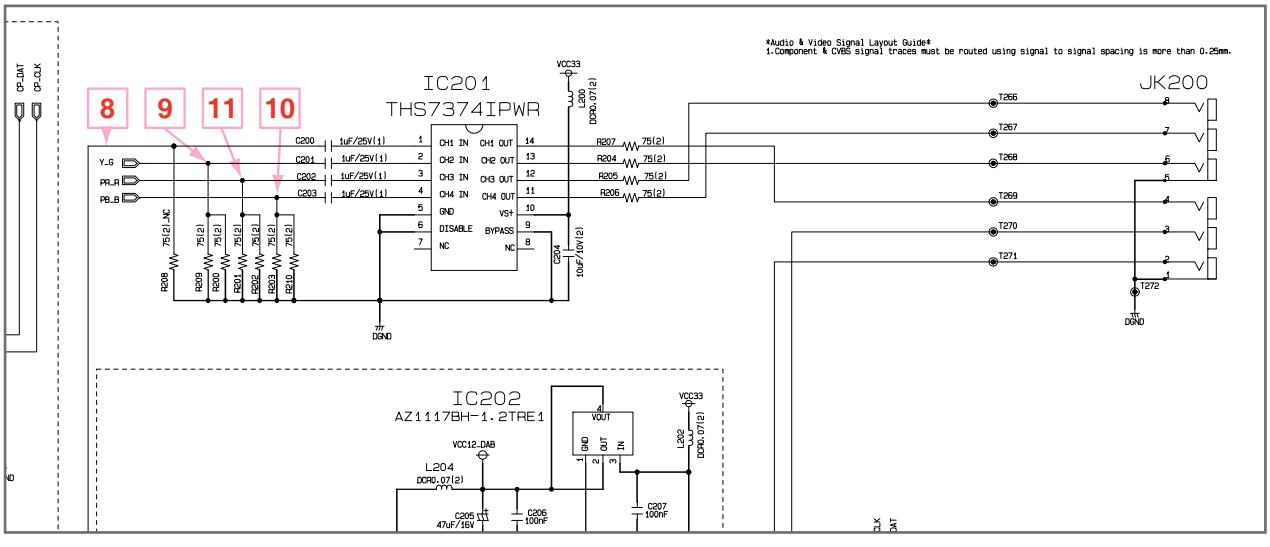
Y



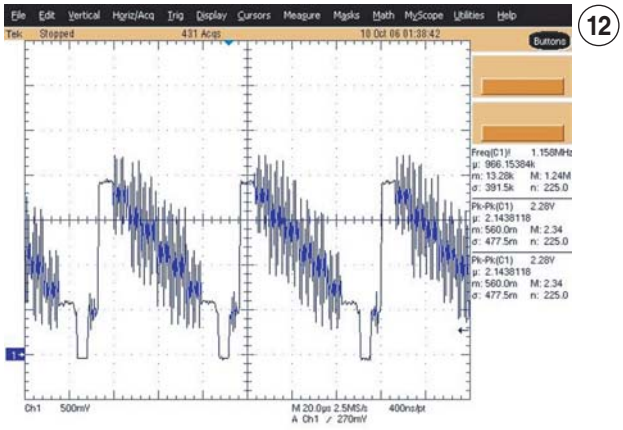
Pb



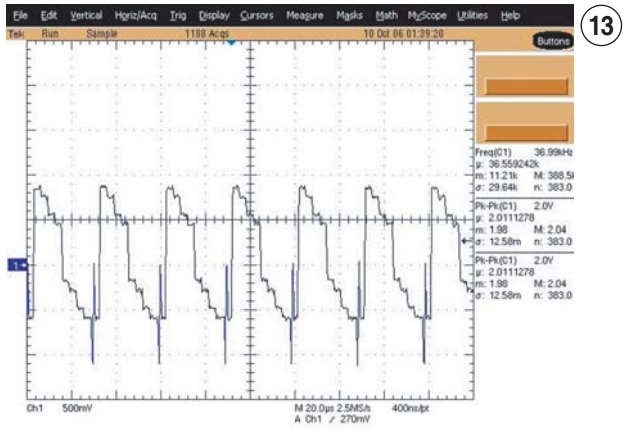
Pr



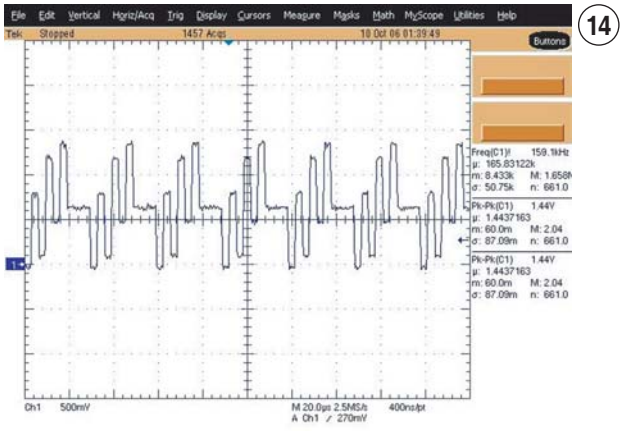
4. VIDEO PART-2 (100% FULL COLOR-BAR)



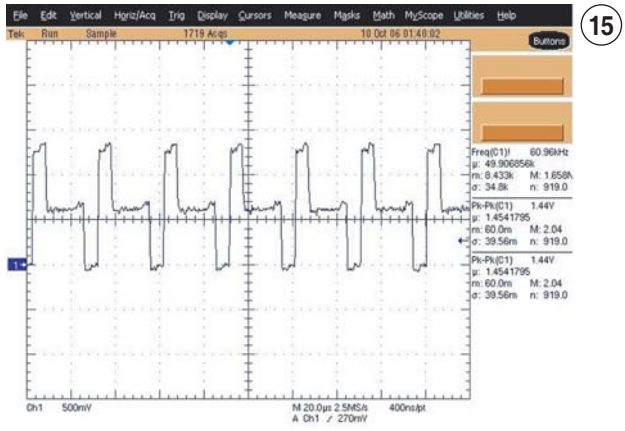
CVBS



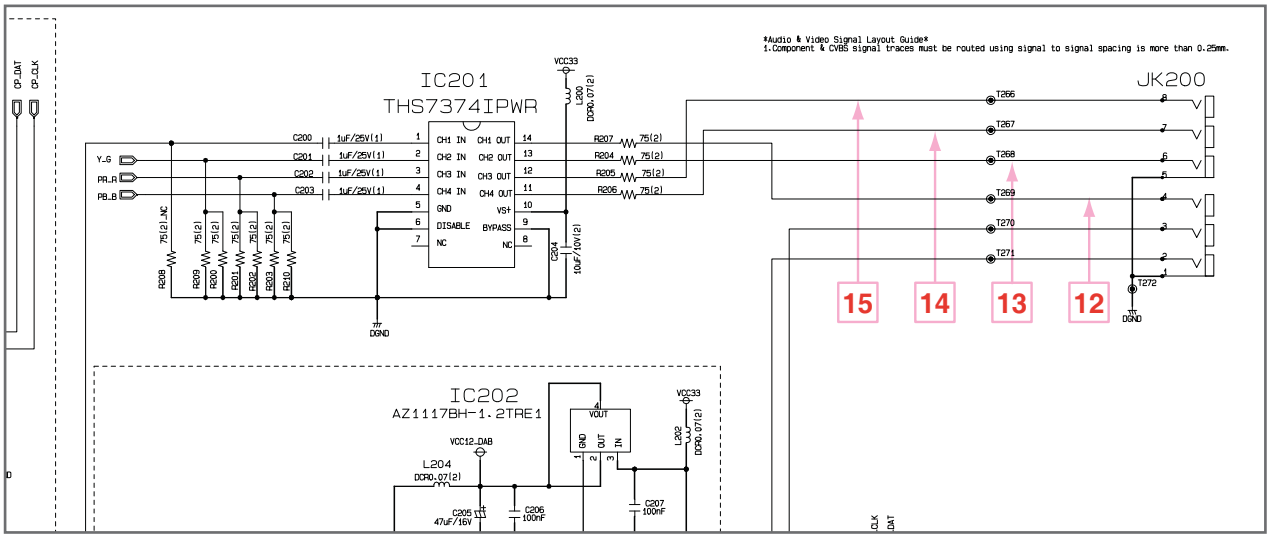
COMP_Y



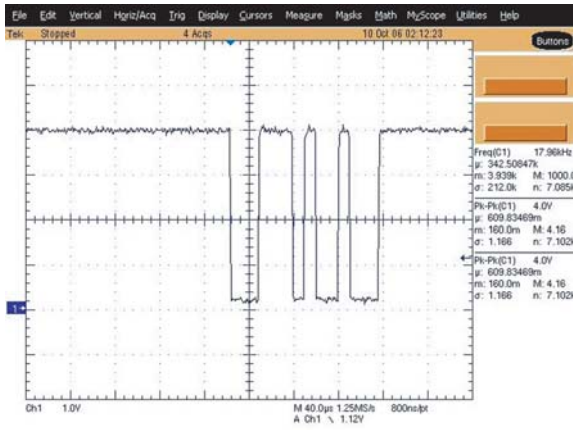
COMP_Pb



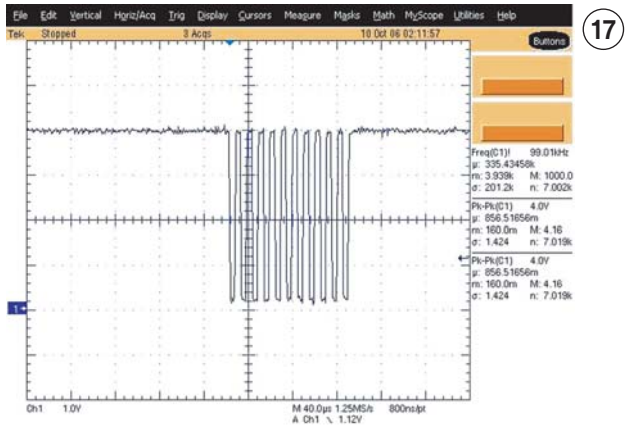
COMP_Pr



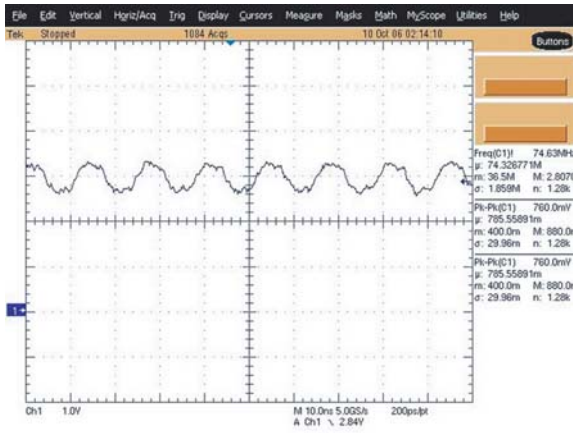
5. HDMI PART



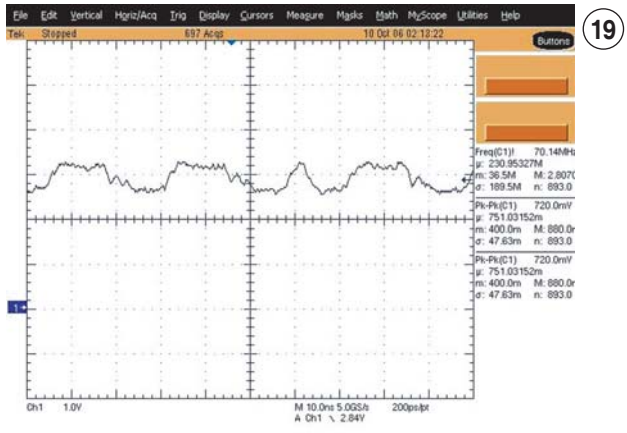
HDMI_SDA



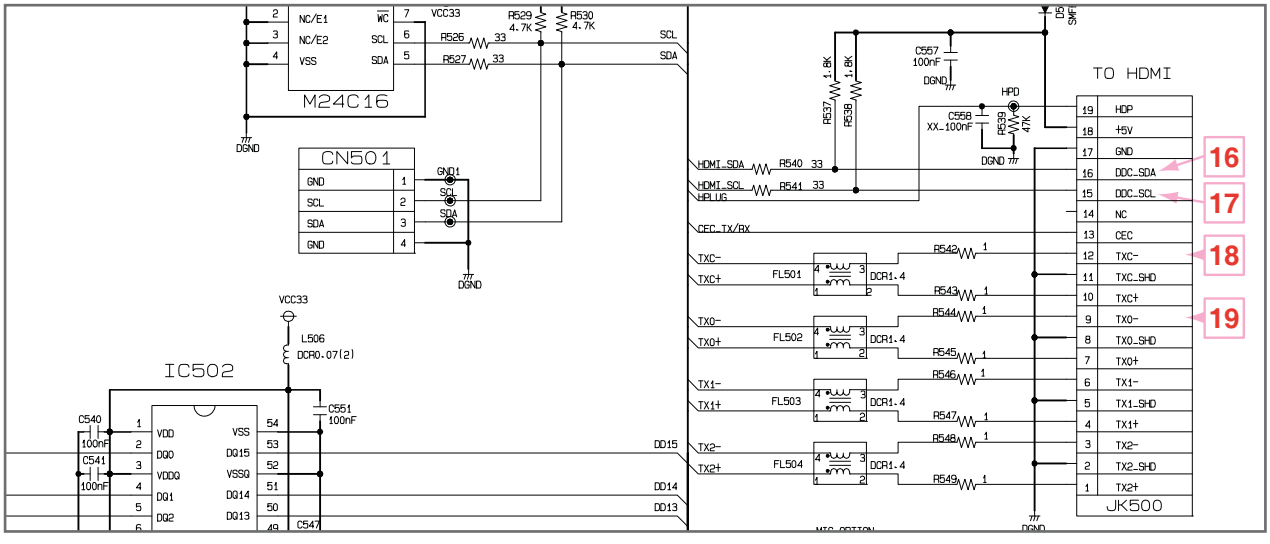
HDMI_SCL



HDMI_CLK



HDMI_DATA



6. SERVO OPEN/CLOSE SIGNAL

1) Tray open/close waveform

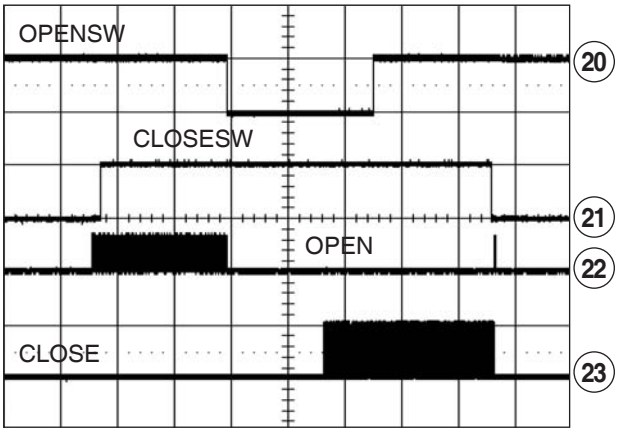


FIG 3-1

2) Tray close waveform

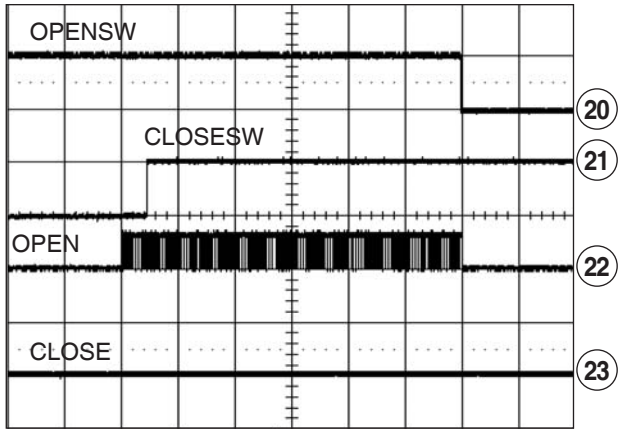


FIG 3-2

3) Tray open waveform

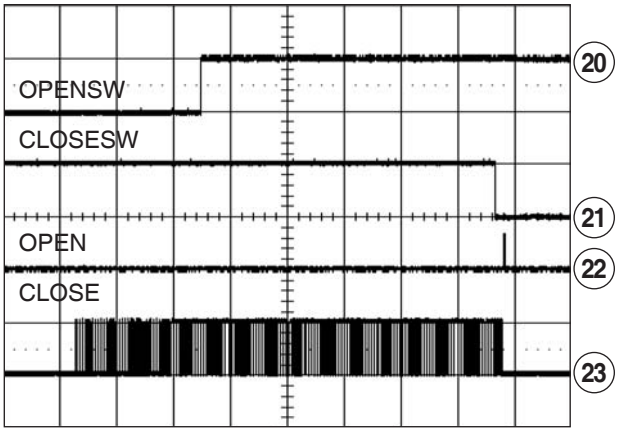
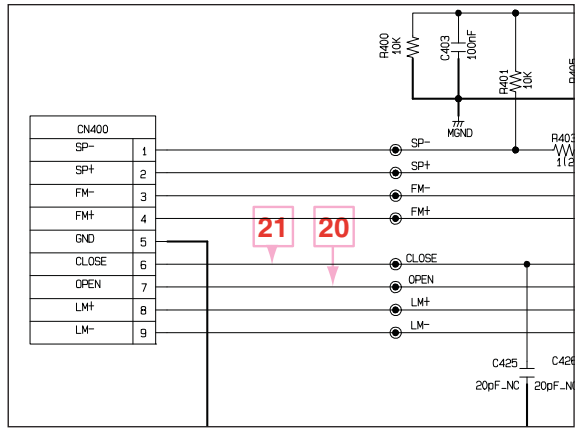
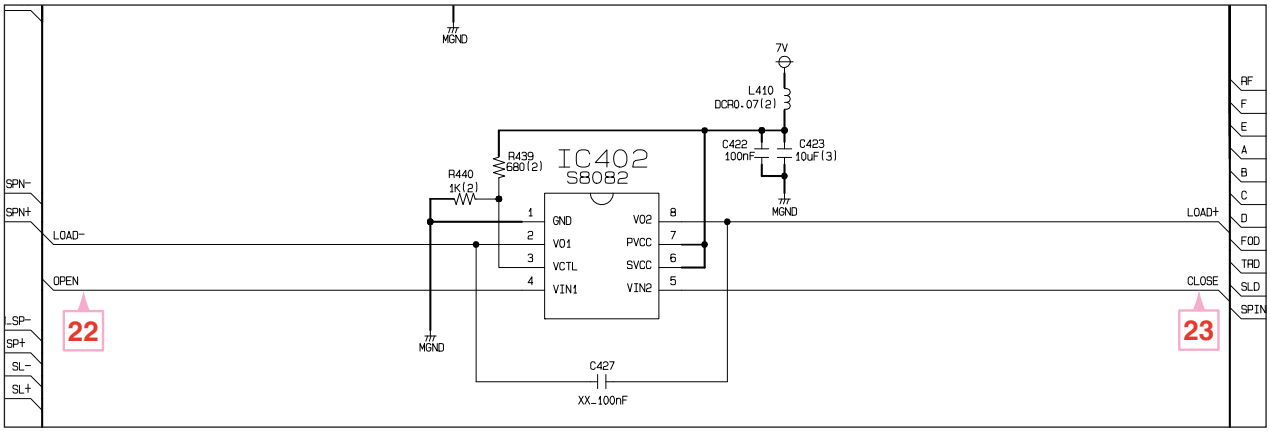


FIG 3-3





4) SLED CONTROL RELATED SIGNAL (NO DISC CONDITION)

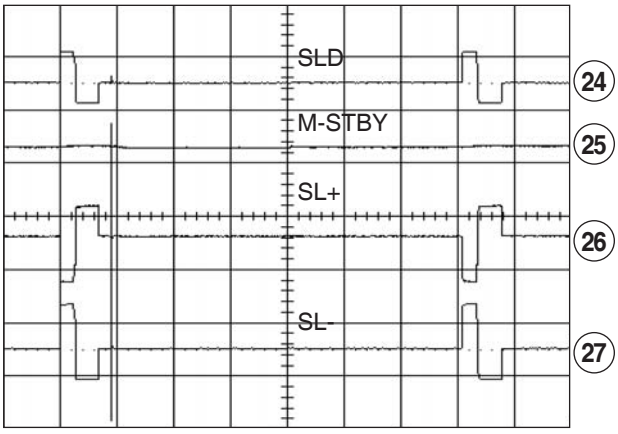
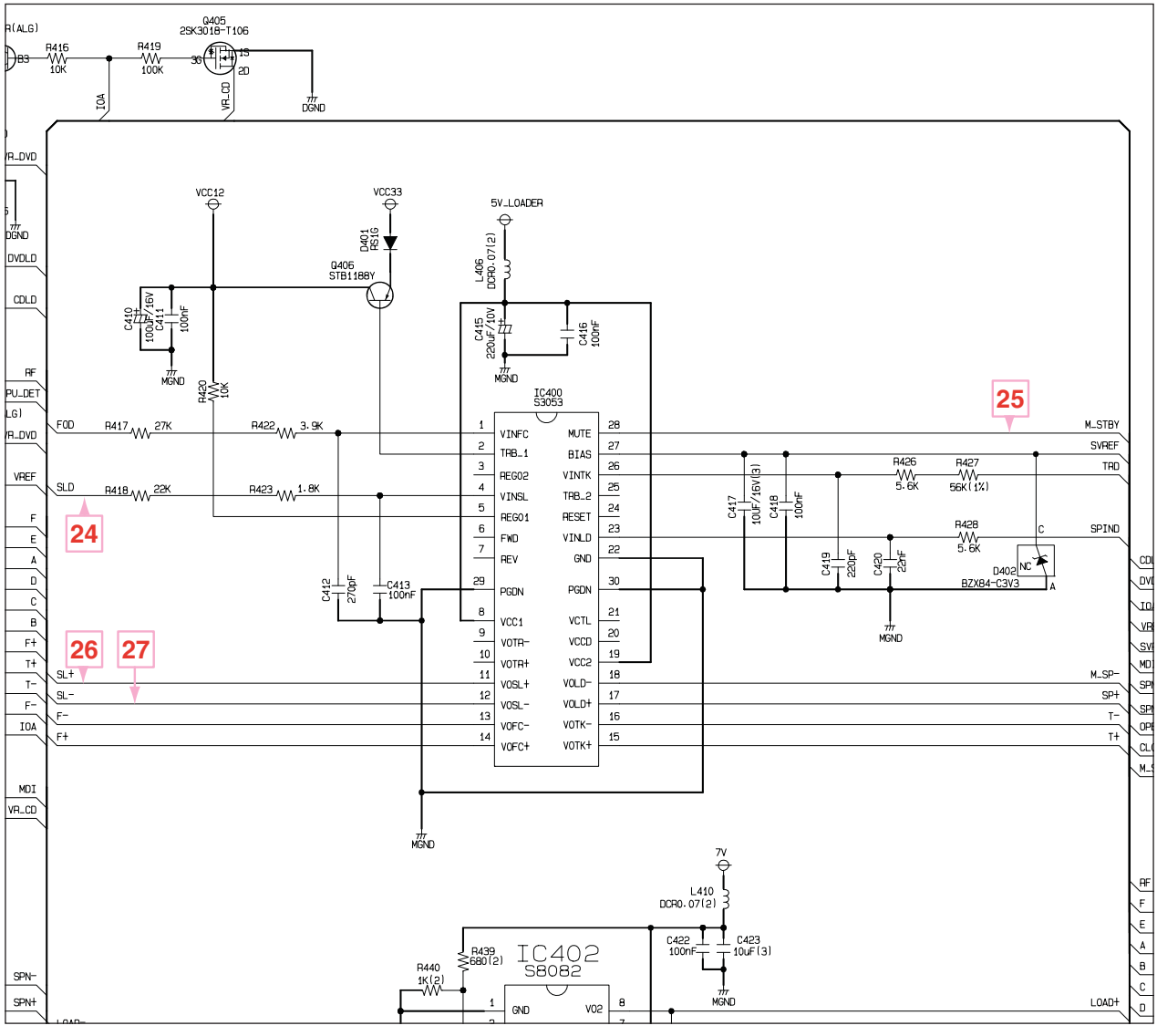


FIG 4-1



5) LENS CONTROL RELATED SIGNAL(NO DISC CONDITION)

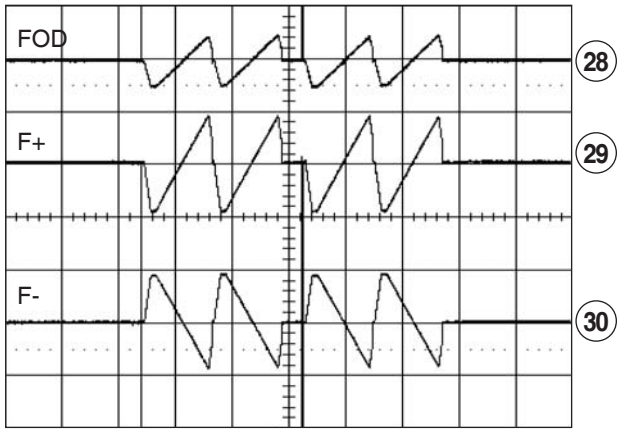
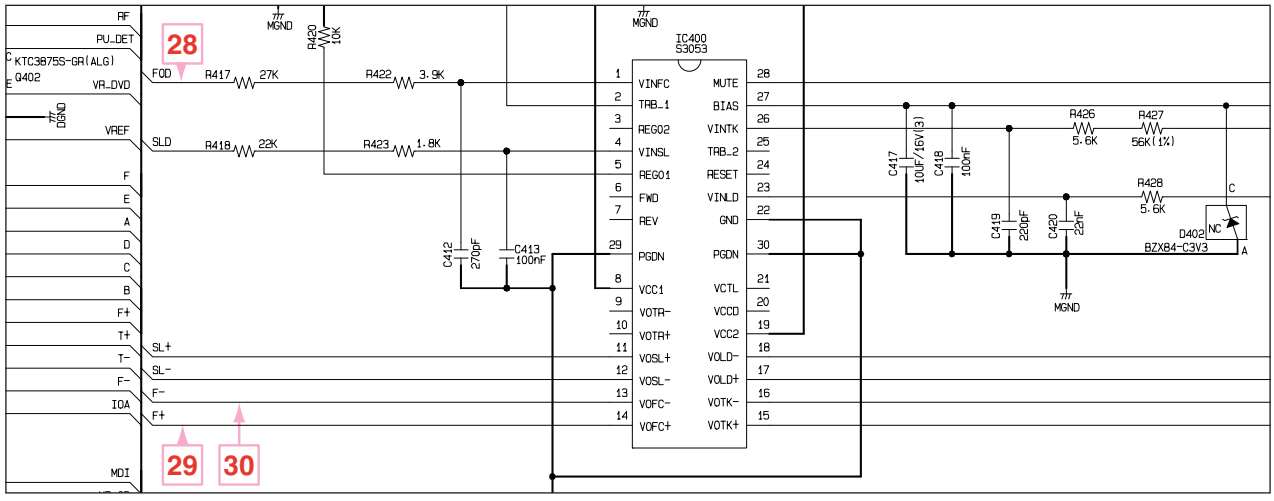


FIG 5-1



6) LASER POWER CONTROL RELATED SIGNAL(NO DISC CONDITION)

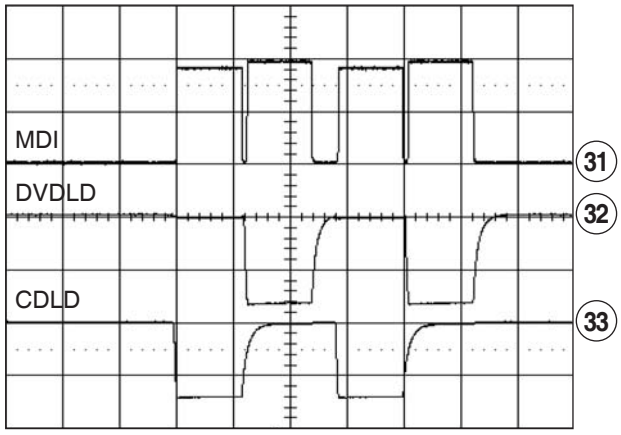
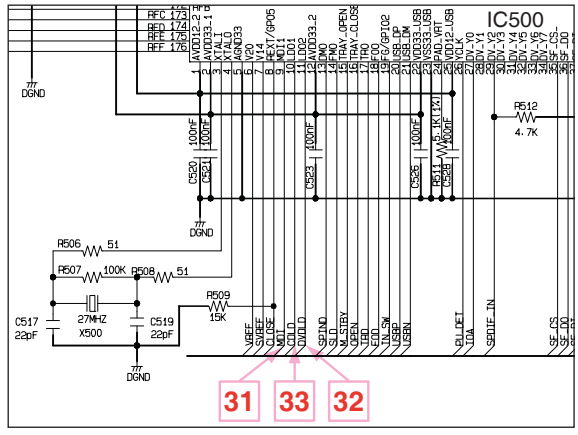


FIG 6-1



7) DISC TYPE JUDGEMENT WAVEFORMS

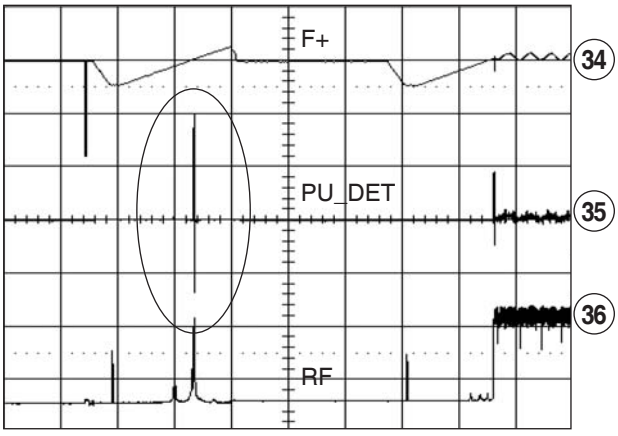
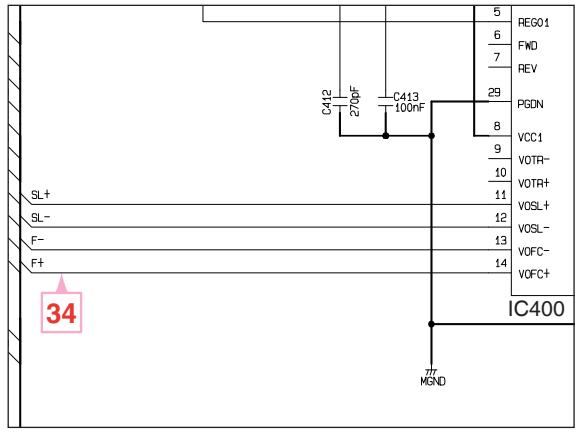


FIG 7-1 (DVD)



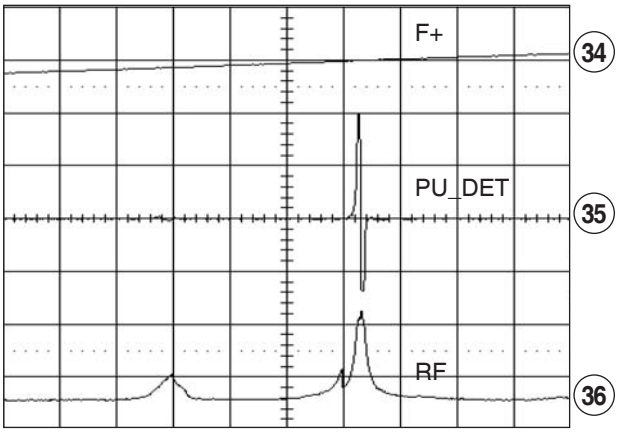
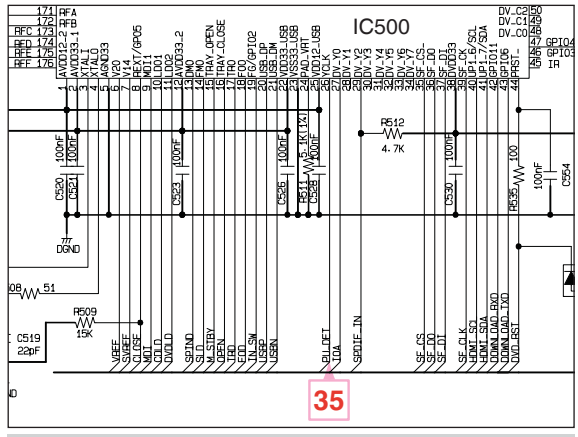
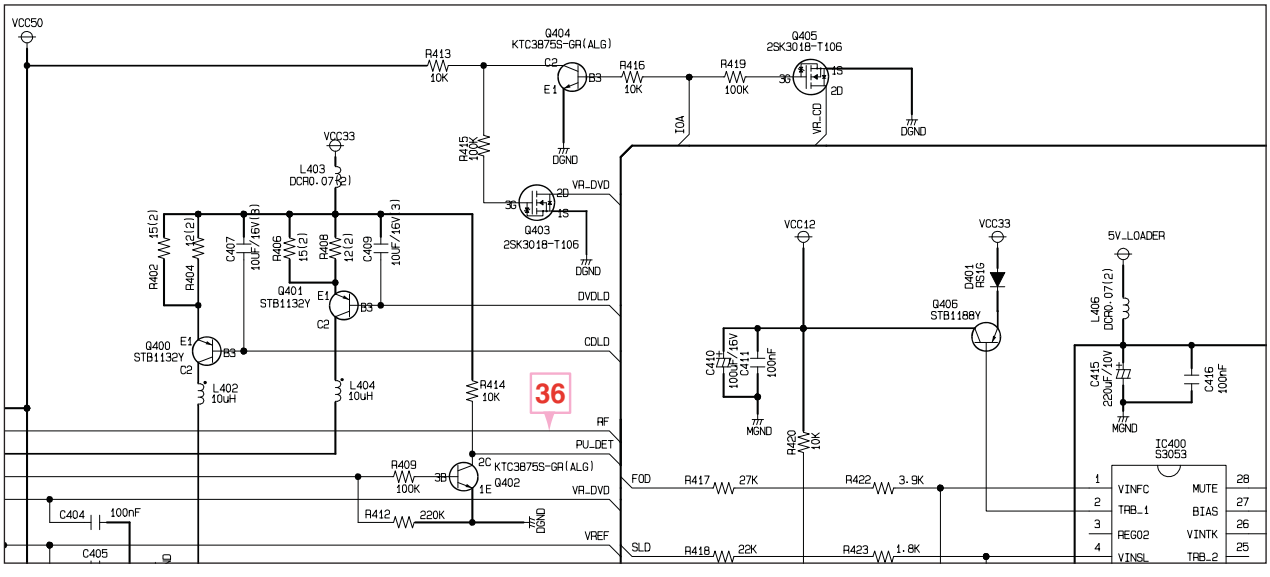


FIG 7-2 (DVD)



35 : This signal can see using special debug program



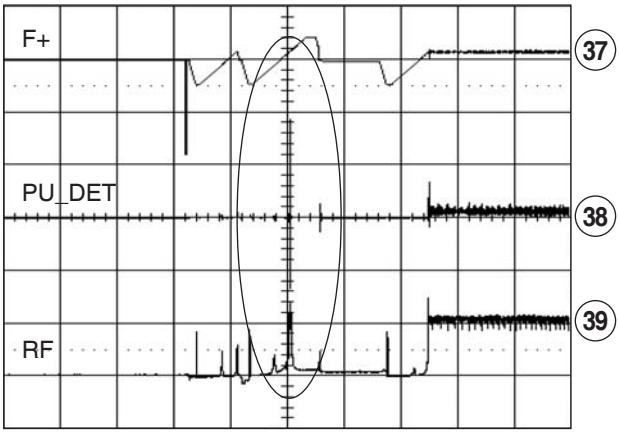
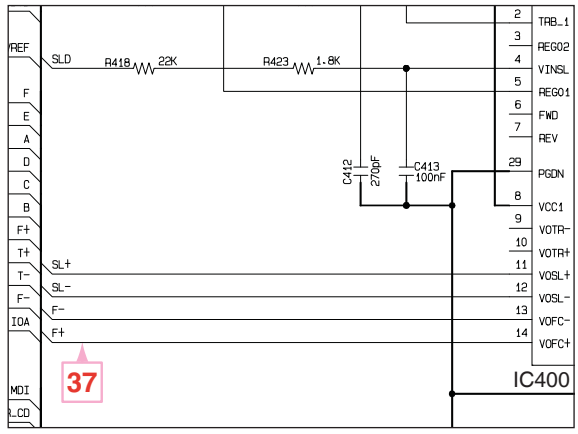


FIG 7-3 (CD)



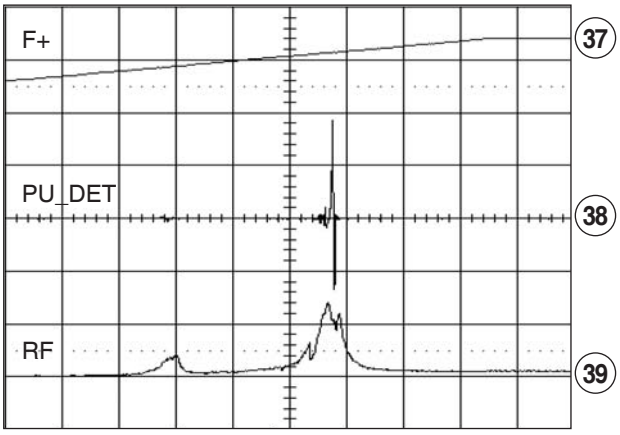
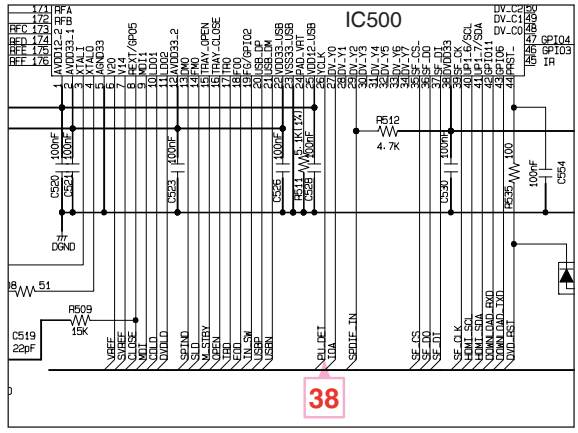
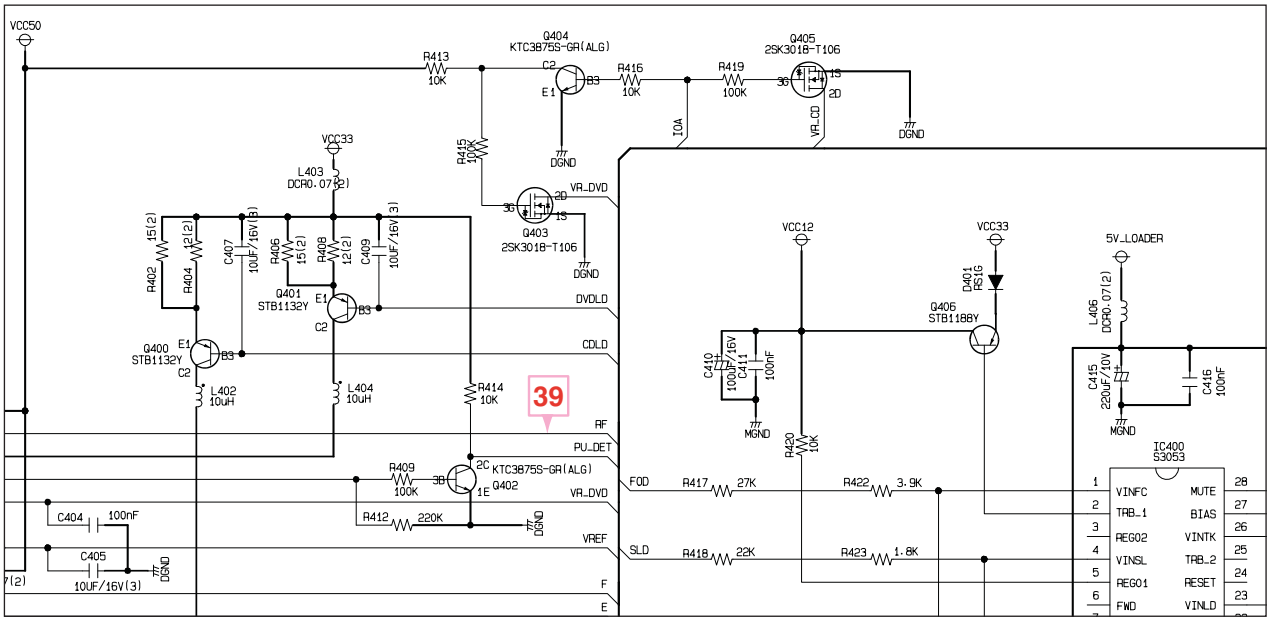


FIG 7-4 (CD)



38 : This signal can see using special debug program



8) FOCUS ON WAVEFORMS

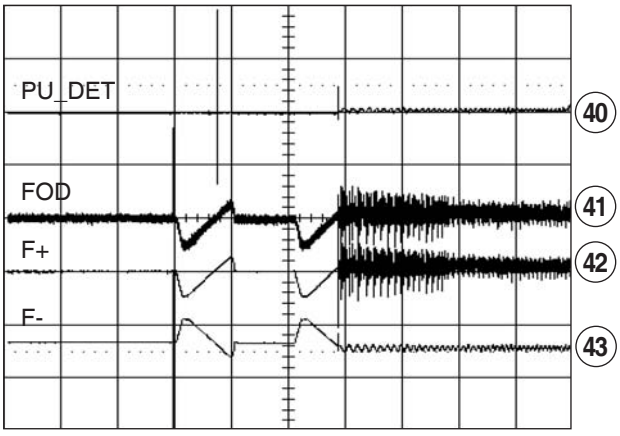
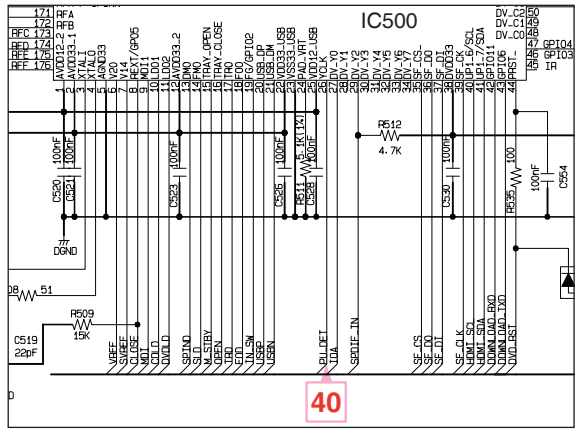


FIG 8-1 (DVD)



40 : This signal can see using special debug program

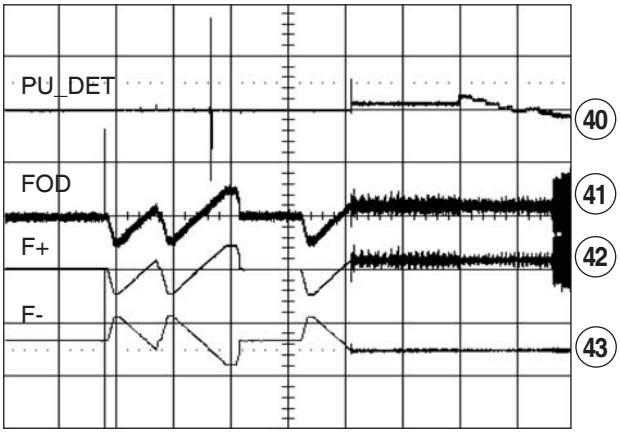
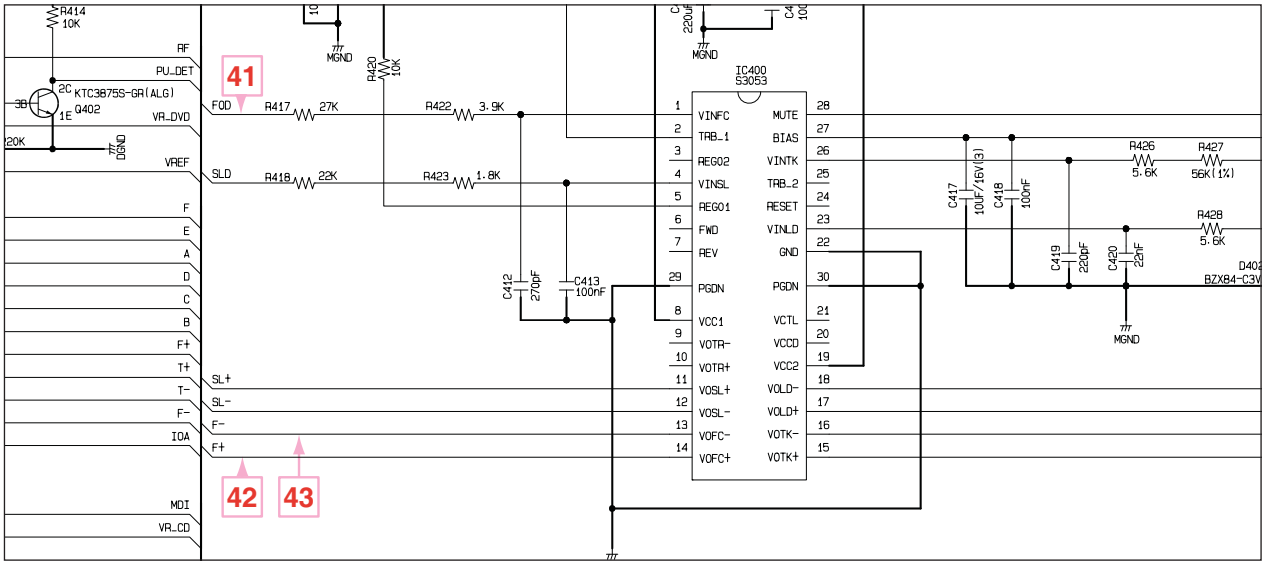


FIG 8-2 (CD)



9) SPINDLE CONTROL WAVEFORMS (NO DISC CONDITION)

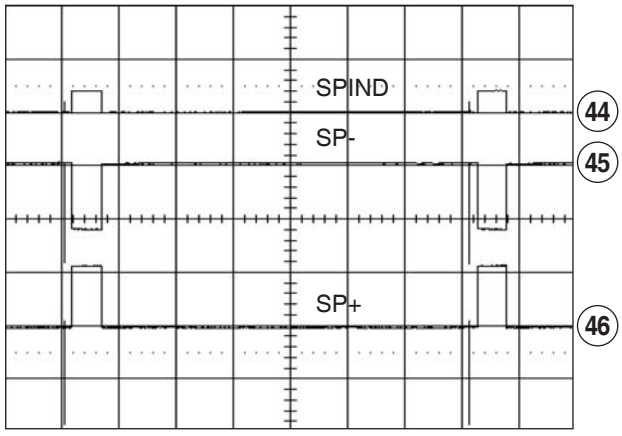
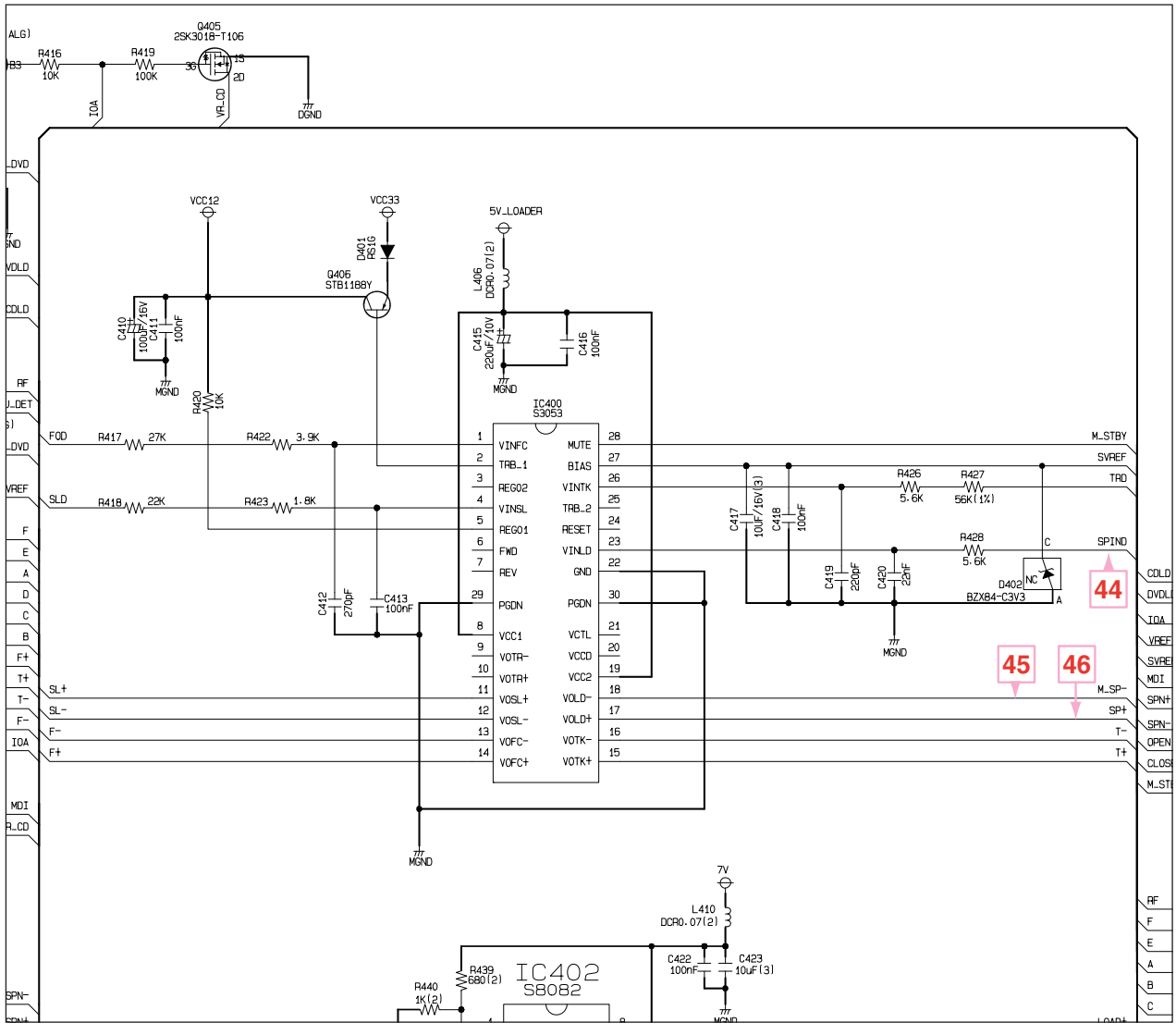


FIG 9-1



10) TRACKING CONTROL RELATED SIGNAL(System checking)

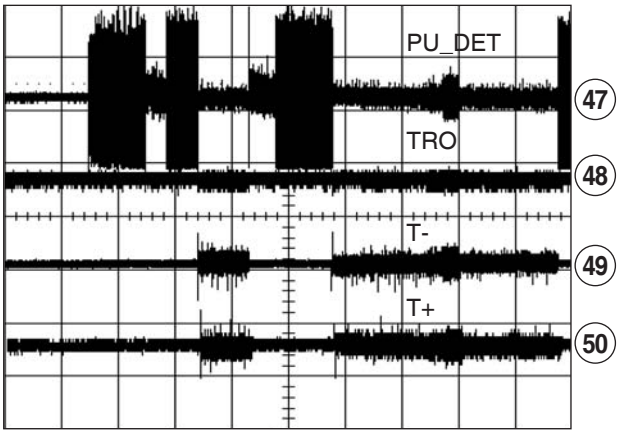
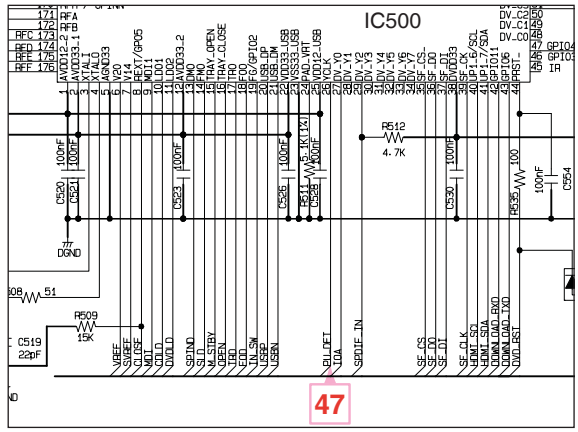


FIG 10-1(DVD)



47 : This signal can see using special debug program

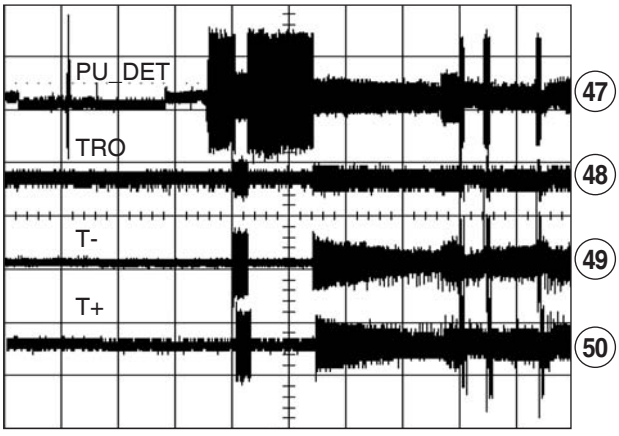
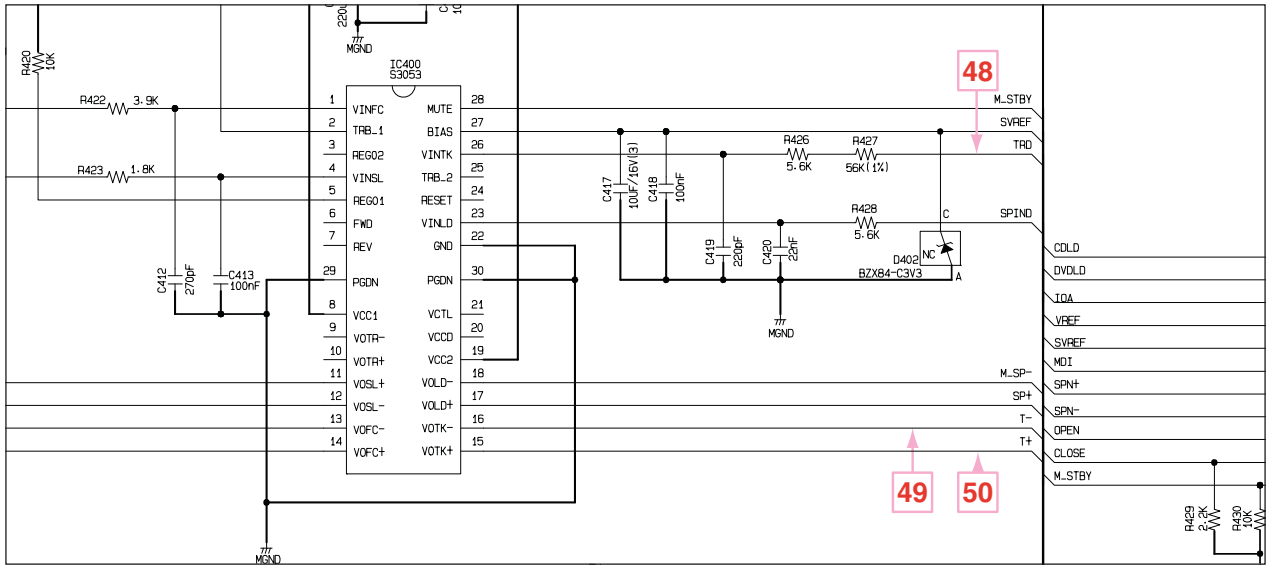
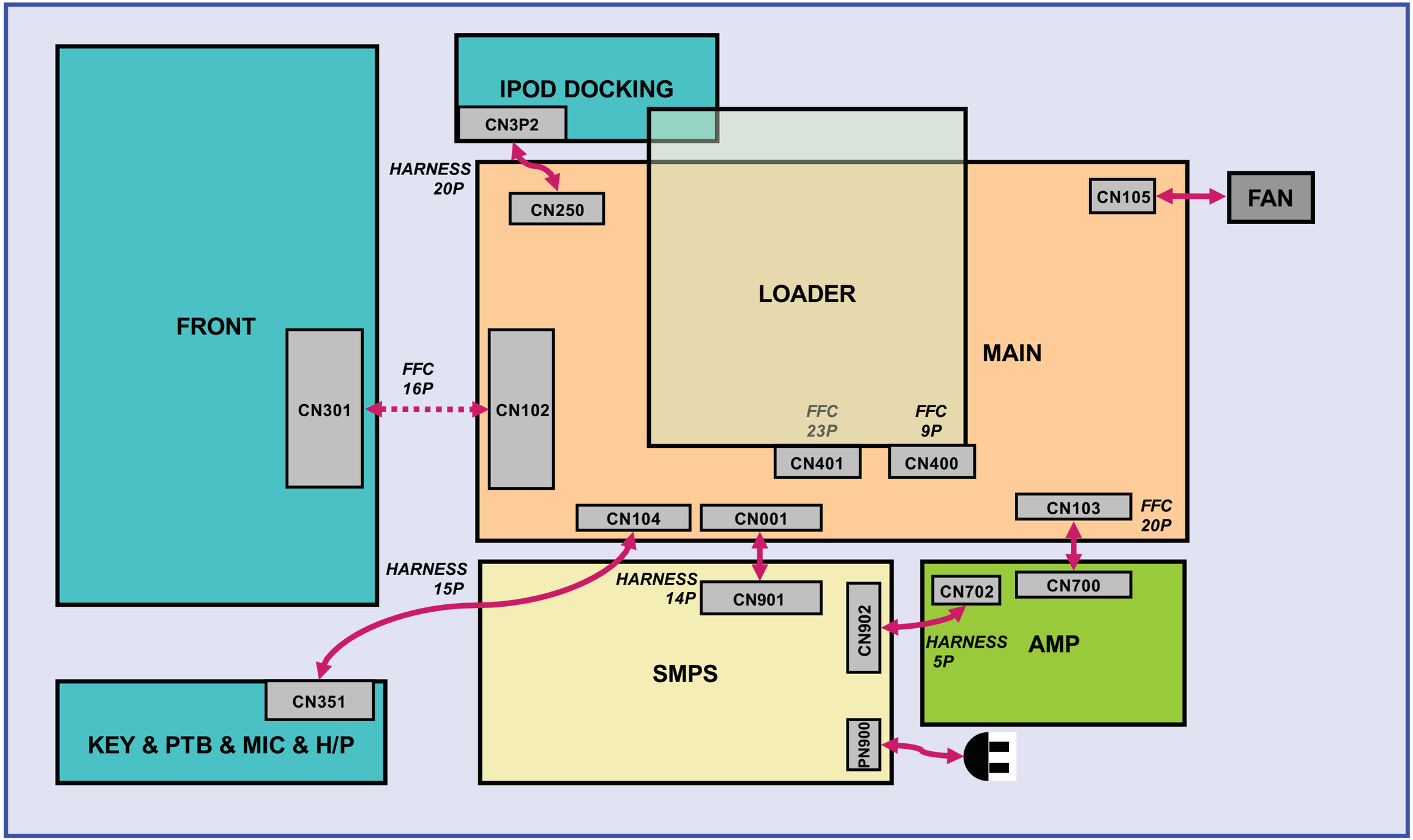


FIG 10-2(CD)



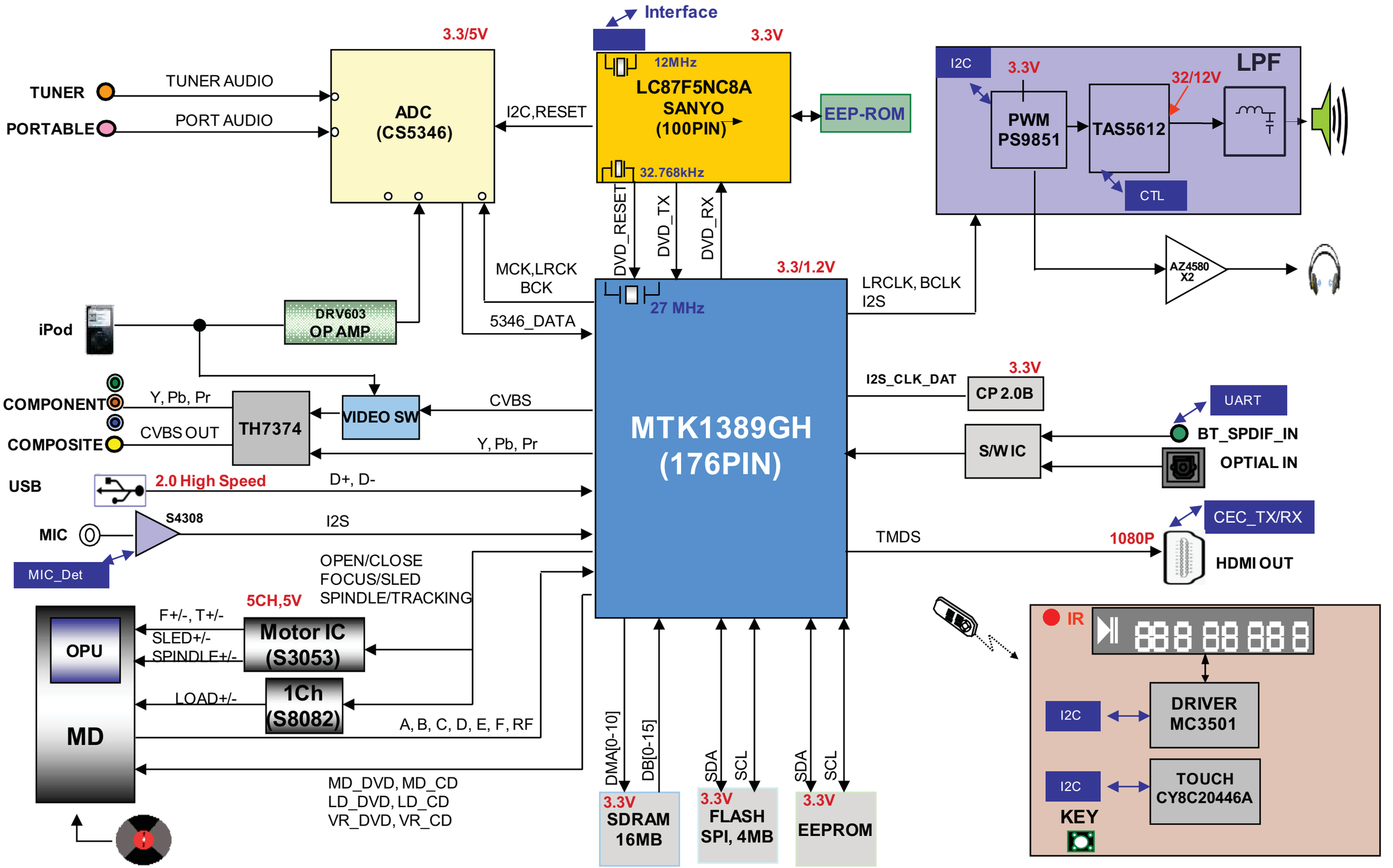
MEMO

WIRING DIAGRAM

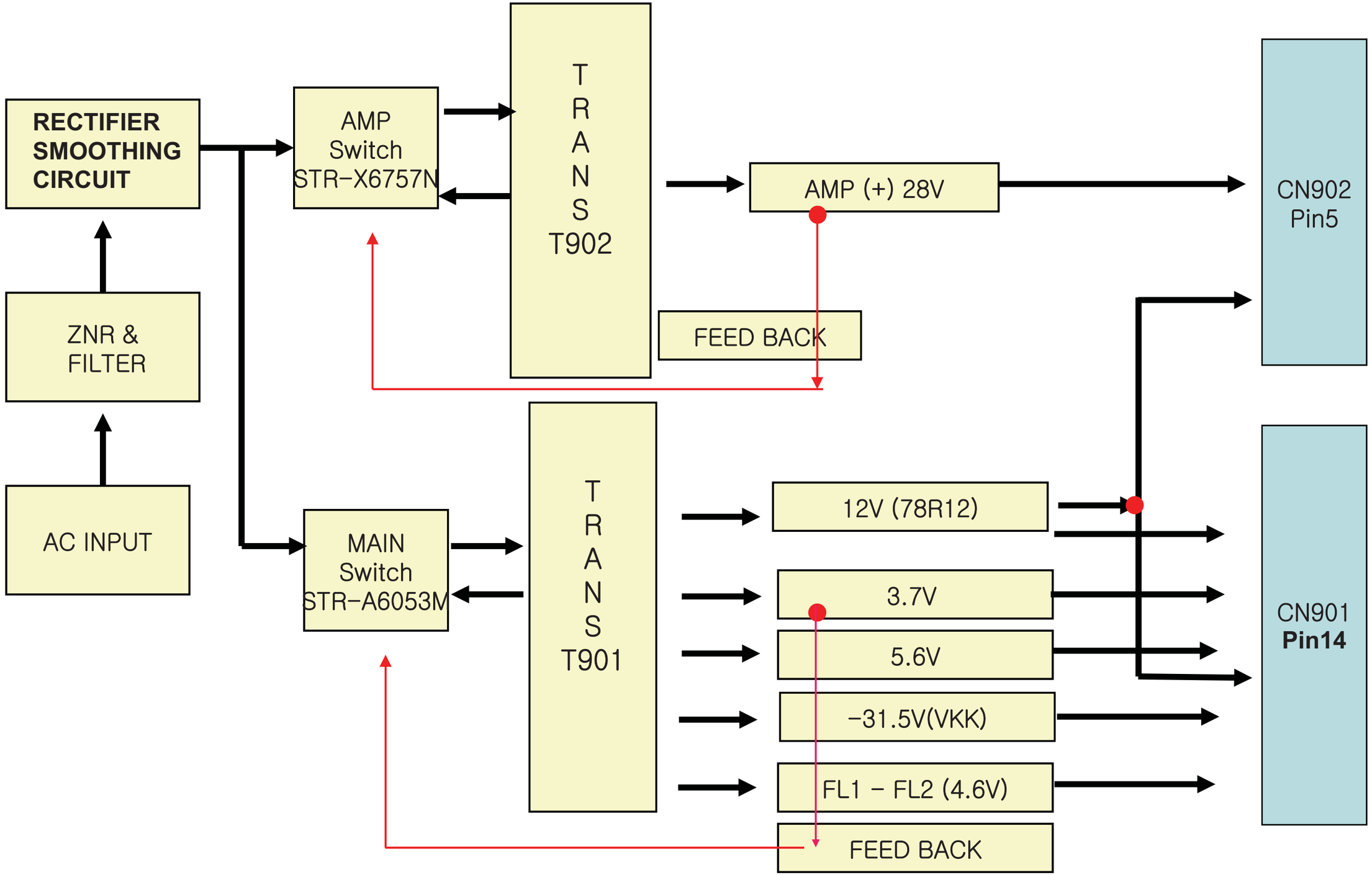


BLOCK DIAGRAMS

1. MAIN BLOCK DIAGRAM



2. SMPS BLOCK DIAGRAM



CIRCUIT DIAGRAMS

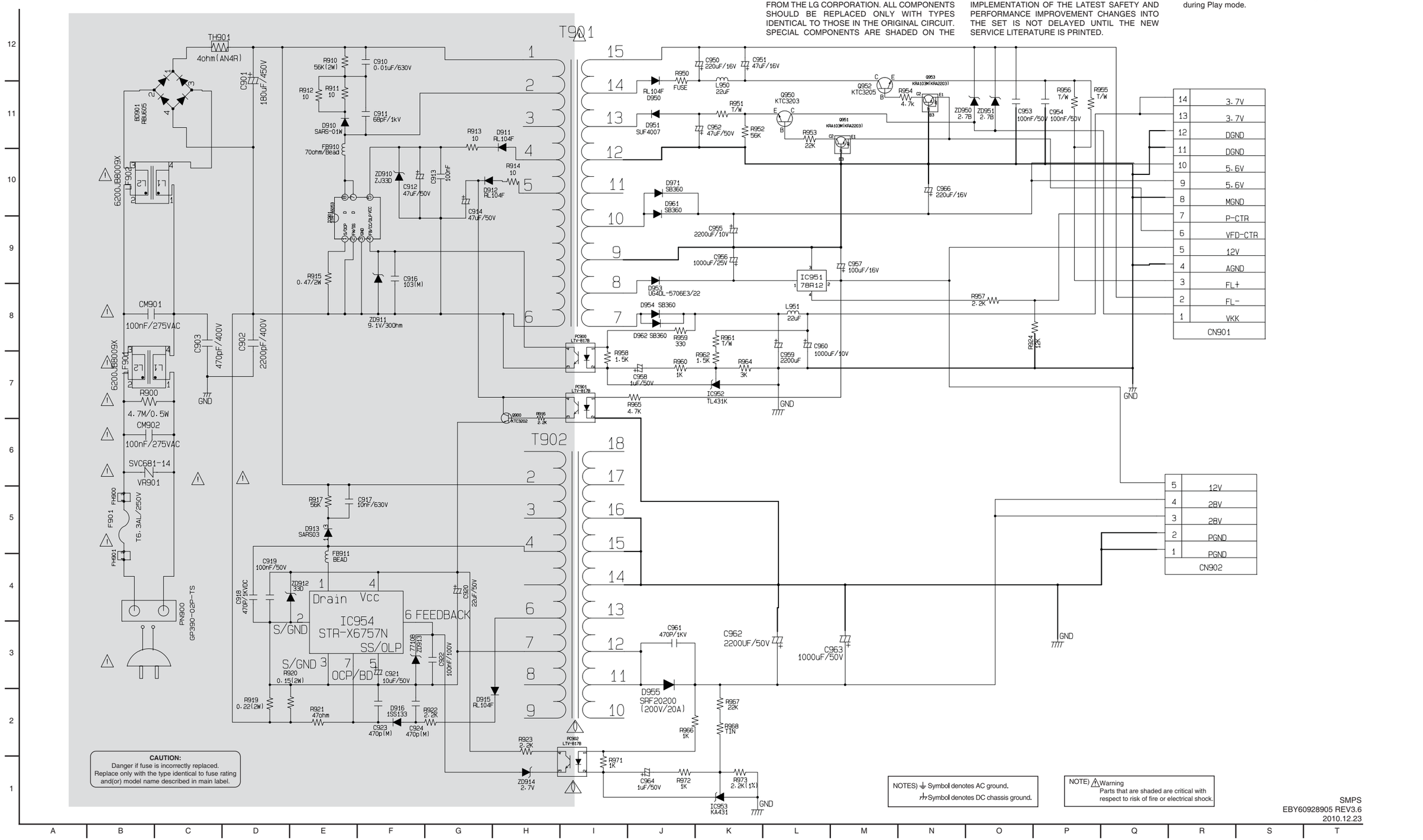
1. SMPS CIRCUIT DIAGRAM

IMPORTANT SAFETY

WHEN SERVICING THIS CHASSIS, UNDER NO CIRCUMSTANCES SHOULD THE ORIGINAL DESIGN BE MODIFIED OR ALTERED WITHOUT PERMISSION FROM THE LG CORPORATION. ALL COMPONENTS SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT. SPECIAL COMPONENTS ARE SHADED ON THE SCHEMATIC FOR EASY IDENTIFICATION. THIS CIRCUIT DIAGRAM MAY OCCASIONALLY DIFFER FROM THE ACTUAL CIRCUIT USED. THIS WAY, IMPLEMENTATION OF THE LATEST SAFETY AND PERFORMANCE IMPROVEMENT CHANGES INTO THE SET IS NOT DELAYED UNTIL THE NEW SERVICE LITERATURE IS PRINTED.

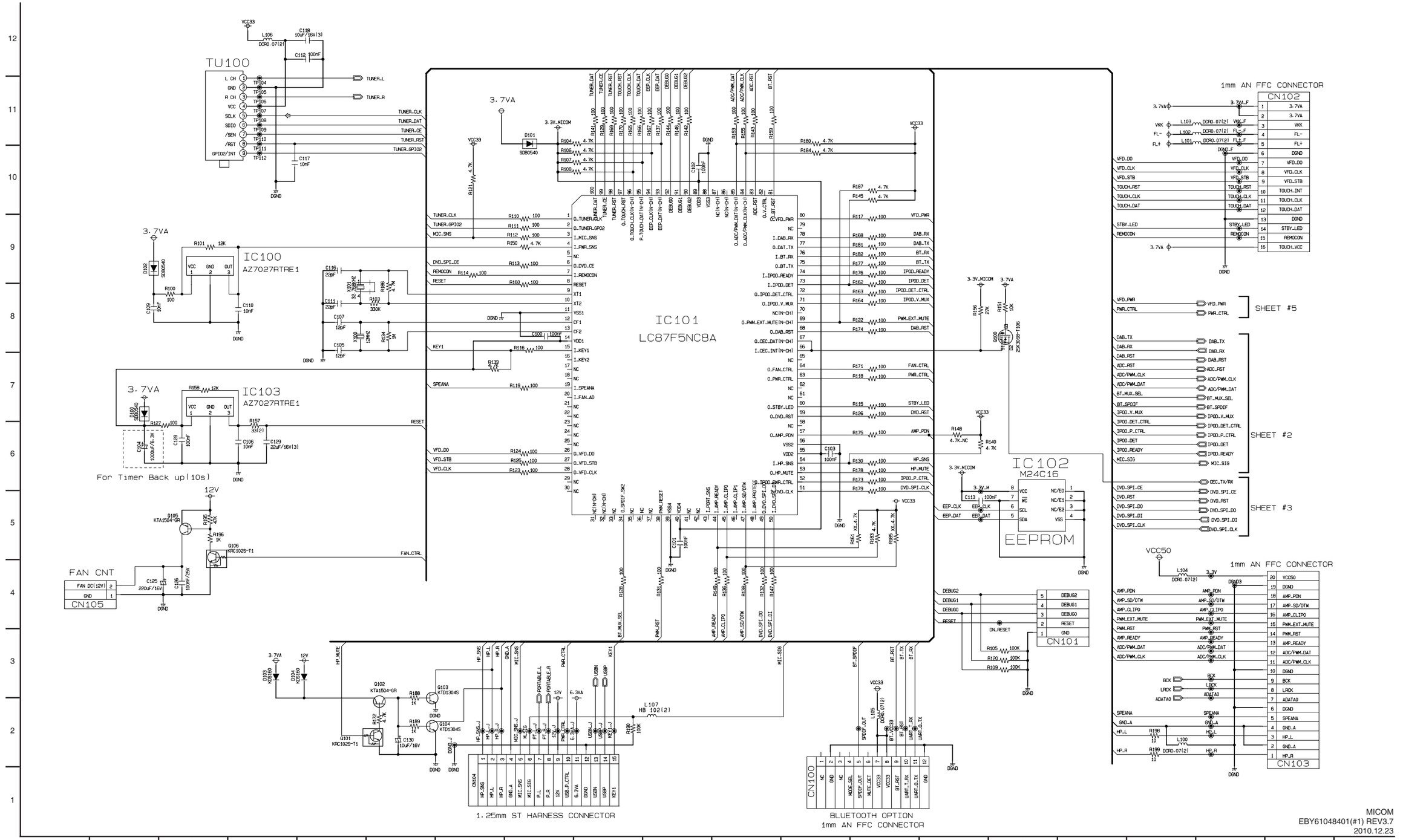
NOTE :

1. Shaded(▨) parts are critical for safety. Replace only with specified part number.
2. Voltages are DC-measured with a digital voltmeter during Play mode.

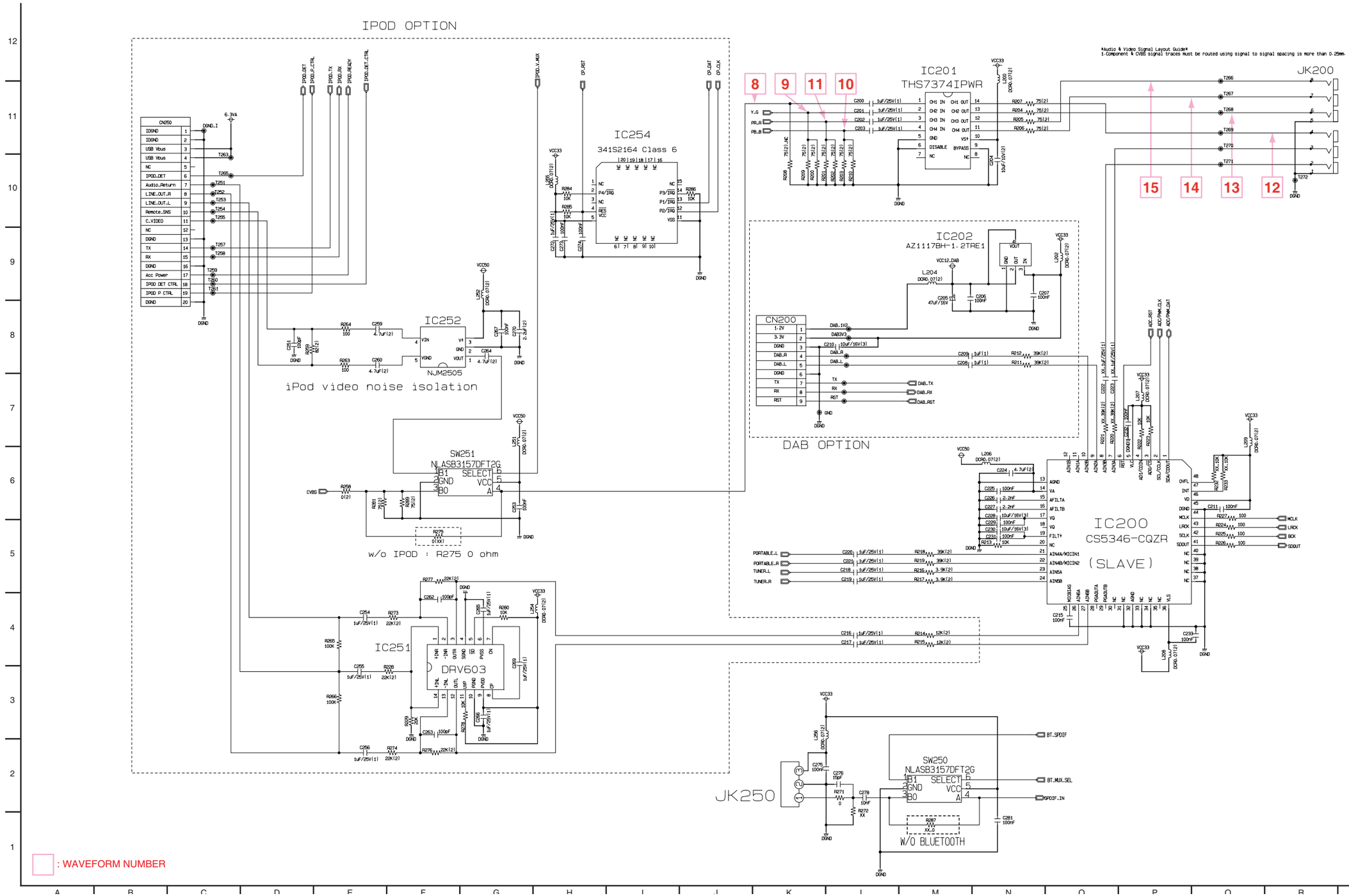


SMPS
EBY60928905 REV3.6
2010.12.23

2. MAIN-MICOM CIRCUIT DIAGRAM



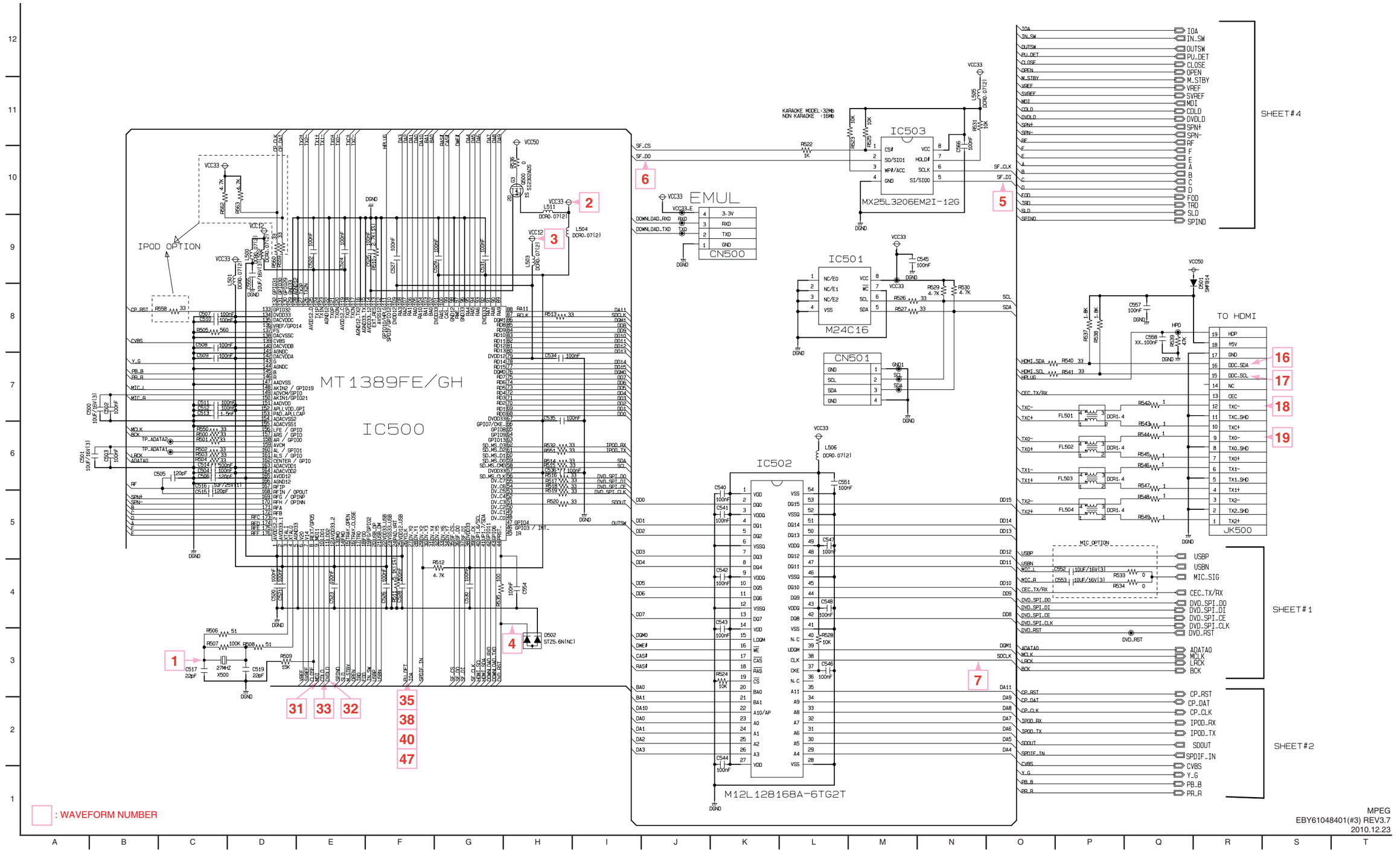
3. MAIN-I/O CIRCUIT DIAGRAM



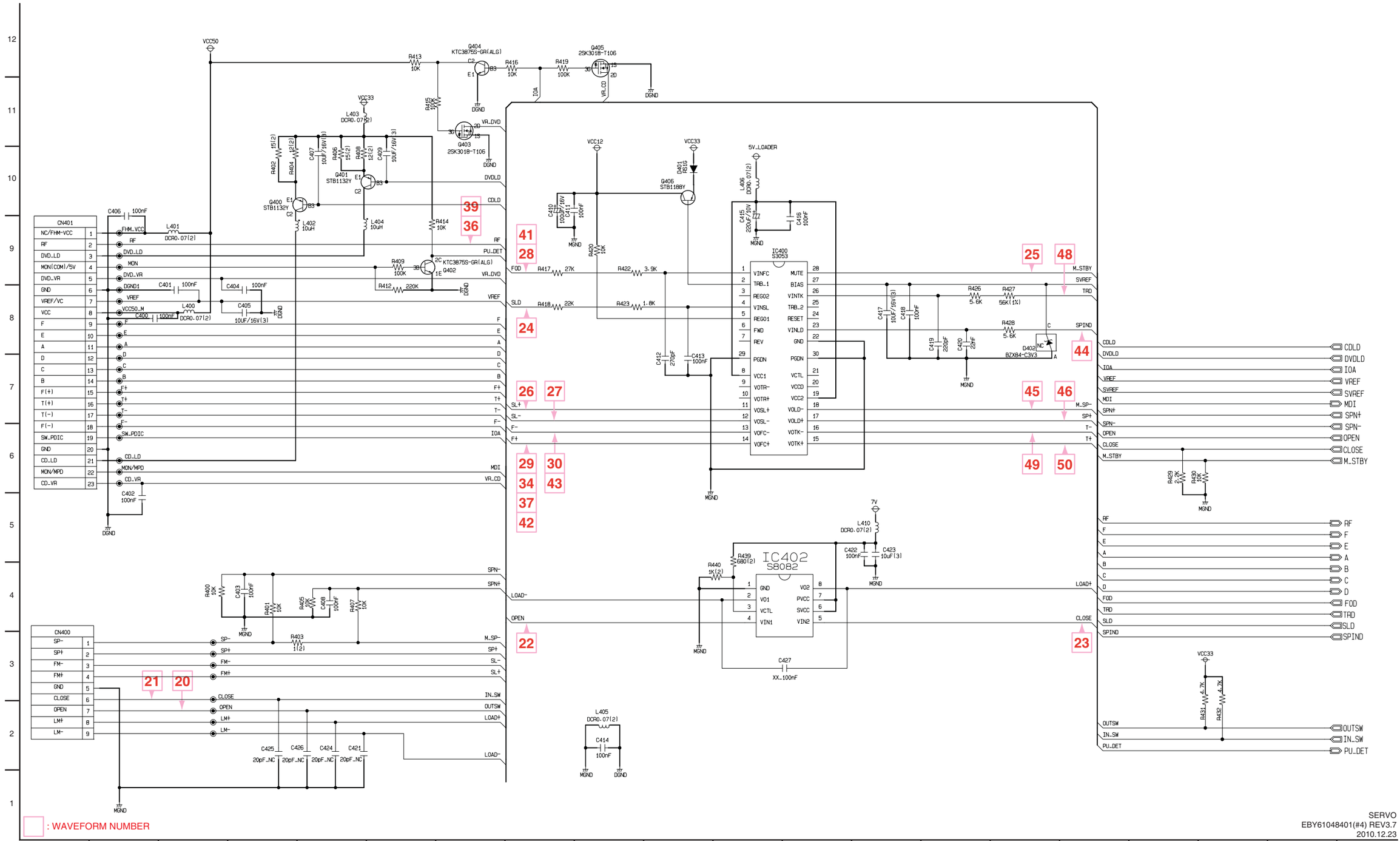
: WAVEFORM NUMBER

I/O
EBY61048401(#2) REV3.7
2010.12.23

4. MAIN-MPEG CIRCUIT DIAGRAM

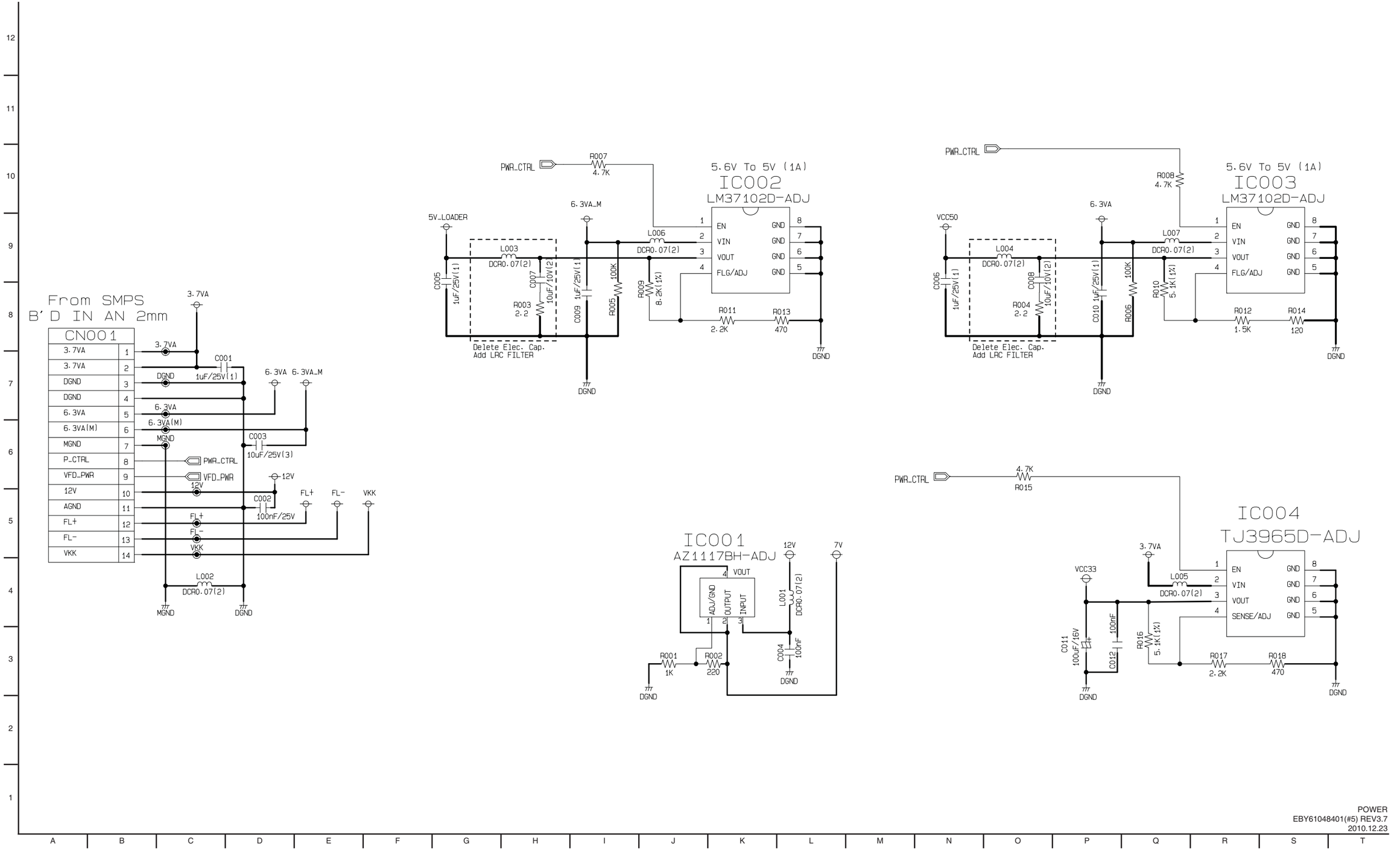


5. MAIN-SERVO CIRCUIT DIAGRAM



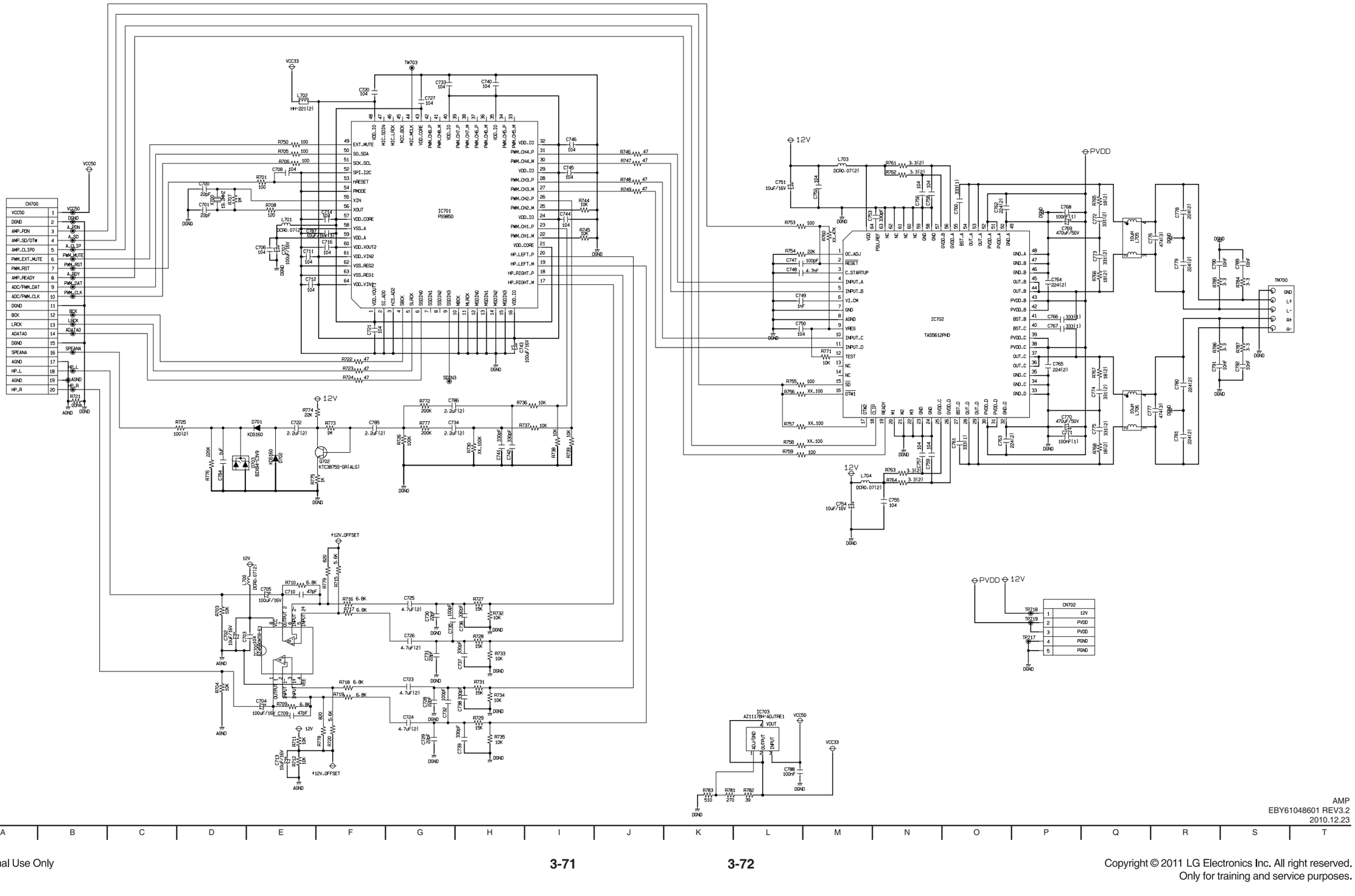
SERVO
EBY61048401(#4) REV3.7
2010.12.23

6. MAIN-POWER CIRCUIT DIAGRAM

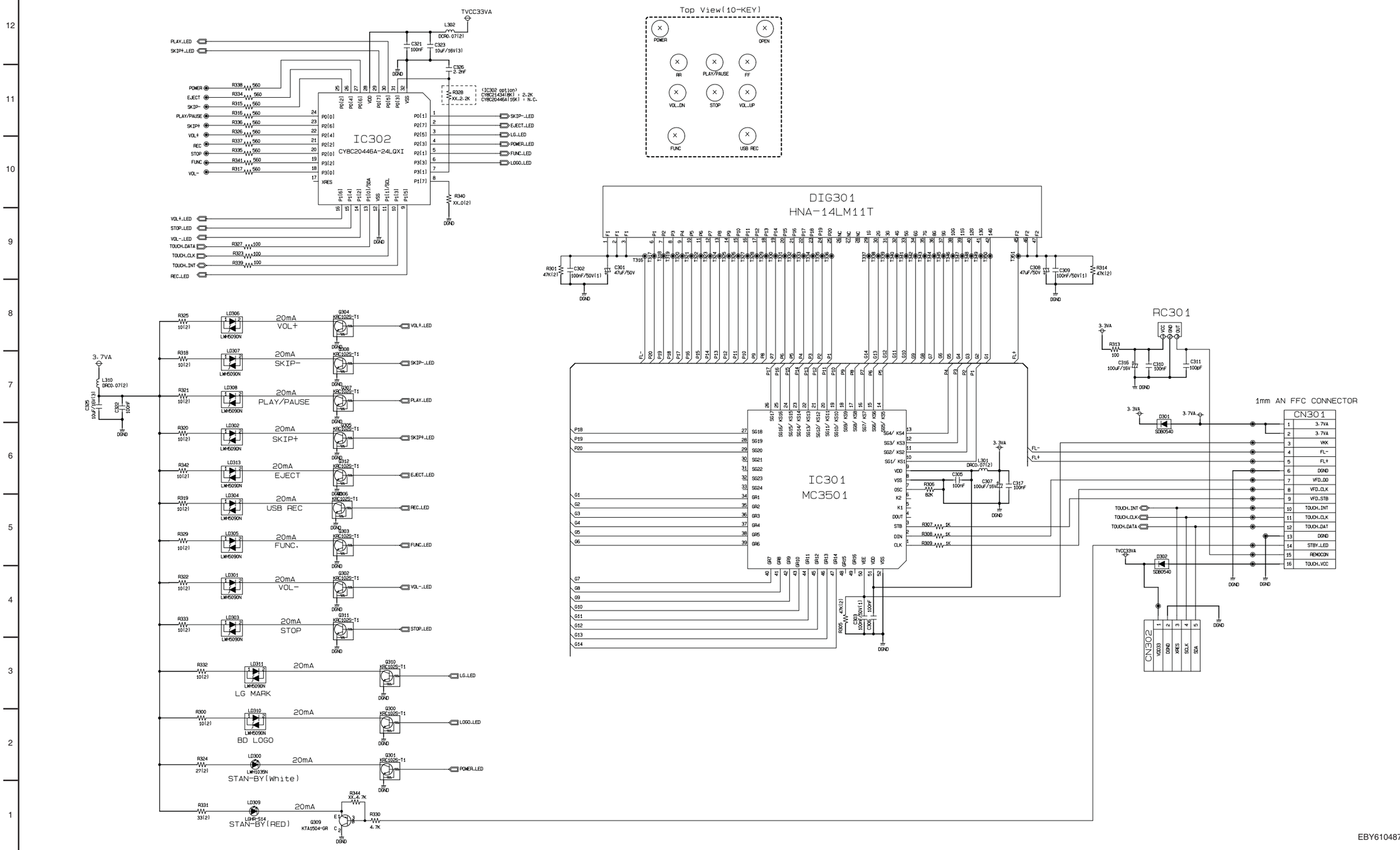


POWER
EBY61048401(#5) REV3.7
2010.12.23

7. AMP CIRCUIT DIAGRAM

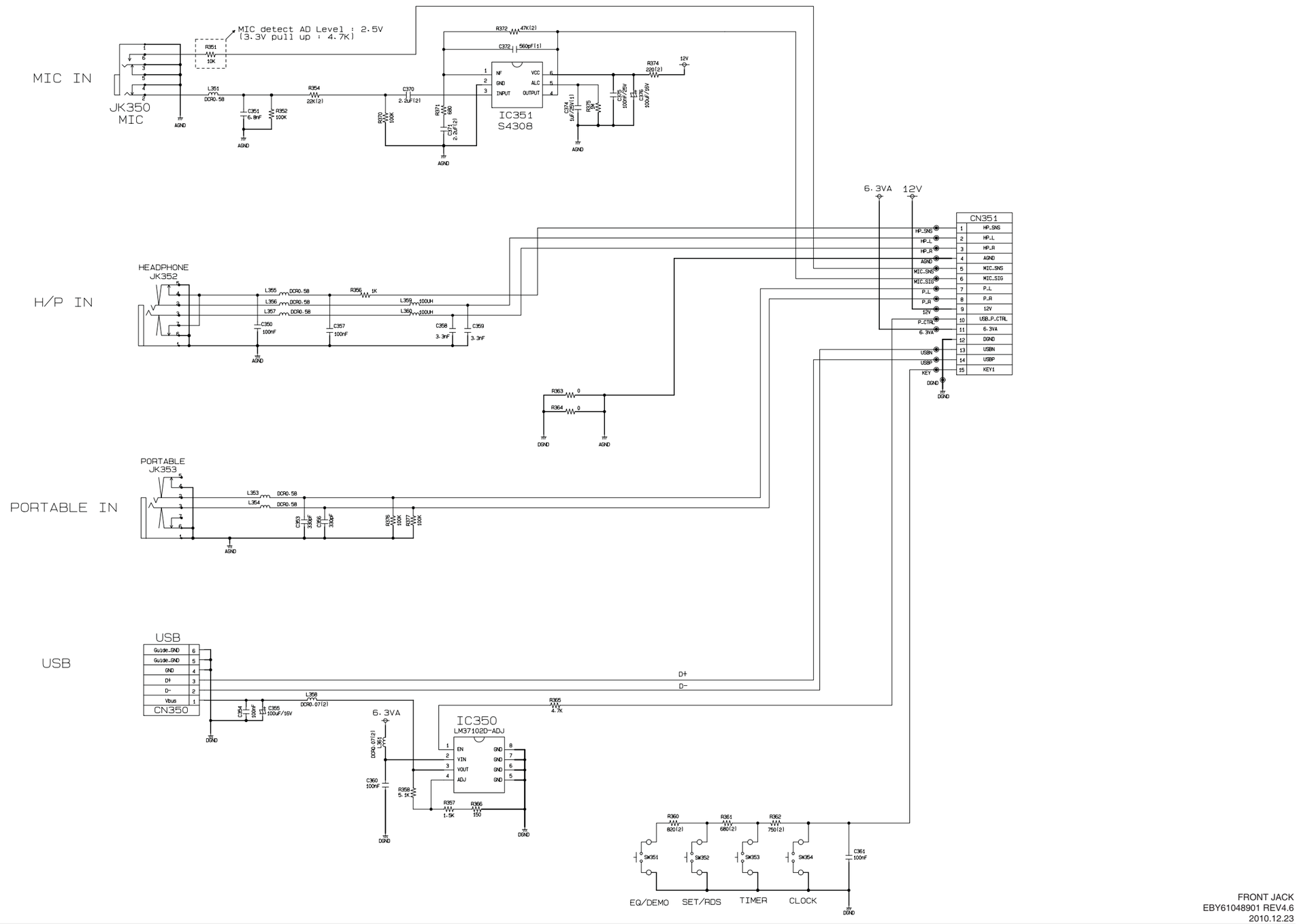


8. FRONT CIRCUIT DIAGRAM



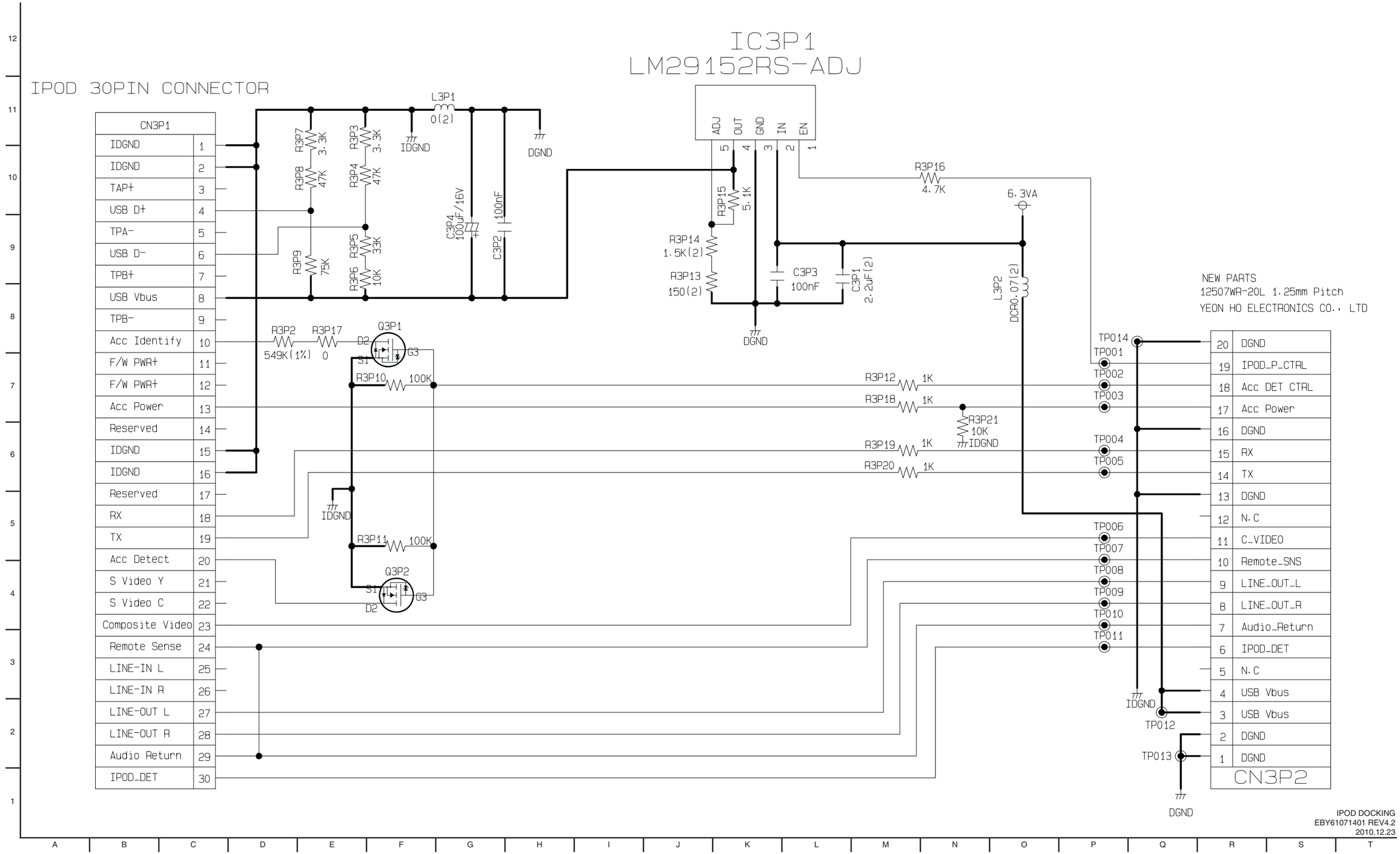
FRONT
EBY61048701 REV4.6
2010.12.23

9. FRONT JACK CIRCUIT DIAGRAM



FRONT JACK
EBY61048901 REV4.6
2010.12.23

10. IPOD DOCKING CIRCUIT DIAGRAM



CIRCUIT VOLTAGE CHART

1. ICs

Part	Location	IC	Division	Spec. (V)	Real Voltage (V)
MAIN	IC101	LC87F5NC8A	Vdd	2.8~5.5	3.4
	IC102	M24C16	VCC	1.8~5.5	3.4
	IC501		VCC	1.8~5.5	3.25
	IC100, IC103	KIA7027AF	VCC	0.3~15	3.4
			Vout	2.55~2.85	3.4
	IC104	S4308	VCC	5~14	12
	IC252	NJM2505	V+	4.5~9	5
	SW250	NLASB3157DFT2G	VCC	1.65~5.5	3.3
	SW251		VCC	1.65~5.5	5
	IC254	CP2.0B	Vcc	2.8~3.6	3.256
	IC251	DRV603	Pvdd	3~5.5	3.3
	IC201	THS7374	VS+	3~5	3.256
	IC200	CS5346_ADC	VA	4.75~5.25	5
			VD	3.13~3.47	3.3
			VLS	3.13~5.25	3.3
			VLC	3.13~5.25	3.3
	IC500	MT1389FE	DVDD33, DACVDD, APLLVDD	3.1~3.6	3.256
			AVDD12, VDD12, DVDD12	1.1~1.3	1.25
	IC502	M12L128168A	VDD	3.0~3.6	3.25
	IC503	MX25L3205D	VCC	2.7~3.6	3.25
	IC400	S3053	VCC1,2	4.3~13.2	5
	IC002	LM37102D-ADJ	Vin	2.25~16	6.4
			Vout	1.8~15	5
	IC003		Vin	2.25~16	6.4
			Vout	1.8~15	5
	IC001	AZ1117BH	Vin	12	12.1
			Vout	1.2~3.36	6.98
	IC402	S8082	PVCC	4.3~13.2	6.98
			SVCC	4.3~13.2	6.98
	IC004	TJ3965D	Vin	3.5~15	3.676
			Vout	3.22~3.38	3.3
AMP	IC701	PS9850	VDD_IO	2.97~3.63	3.27
			VDD_IN1,2	2.2~3.3	3.27
			VDD_OUT, VDD_core	1.08~1.32	1.25
	IC702	TAS5612PHD	VDD	10.8~13.2	12.11
			GVDD	10.8~13.2	12.11
			PVDD	16~34.1	27.77
	IC700	MC4580	VCC+	-18~+18	12.12
			VCC-	-18~+18	12.12
FRONT	IC301	MC3501	VDD	2.7~5.5	3.43
	IC302	CY8C21434	VDD	1.71~5.5	3.43
I/O	IC350	LM37102D-ADJ	Vin	2.25~16	6.4
			Vout	1.8~15	5.1
IPOD	IC3P1	LM29152D-ADJ	Vin	2.25~16	6.4
			Vout	1.8~15	5.04

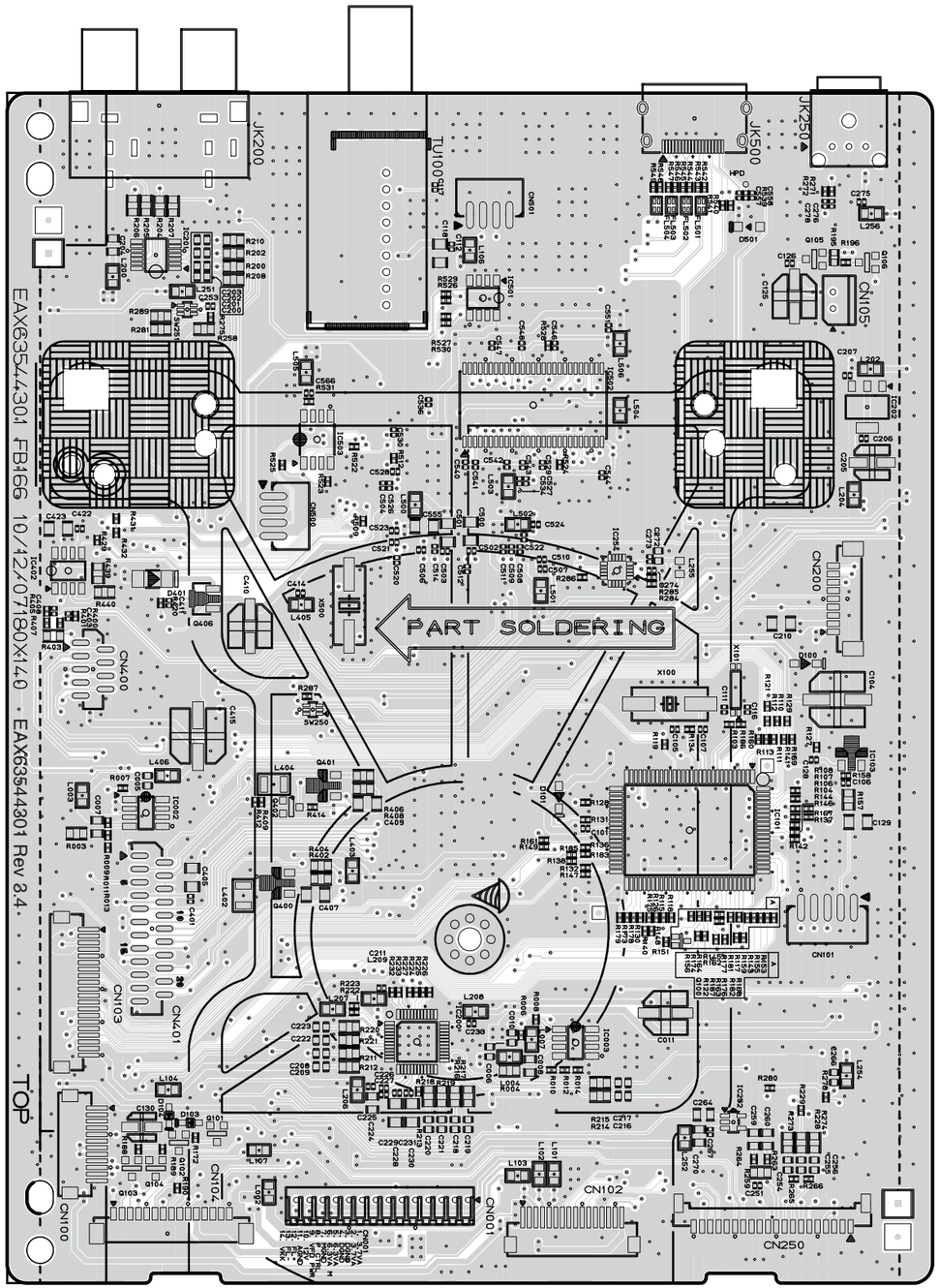
2. CAPACITORS

Part	Location	Value	+	-
MAIN	C011	100uF/16V	3.3	0
	C104	1000uF/6V	3.44	0
	C124	100uF/16V	11.47	0
	C125	220uF/16V	12.1	0
	C130	10uF/16V	0.36	0
	C205	47uF/16V	1.2	0
	C410	100uF/16V	1.26	0
	C415	220uF/10V	5.03	0
FRONT	C301	47uF/50V	0	-28
	C307	100uF/16V	3.4	0
	C308	47uF/50V	0	-24.17
	C316	100uF/16V	3.455	0
JACK	C355	100uF/16V	5.08	0
IPOD	C3P4	100uF/16V	5.02	0
AMP	C702	10uF/16V	12.11	0
	C707	100uF/16V	1.24	0
	C743	100uF/16V	3.27	0
	C751	10uF/16V	12.11	0
	C754	10uF/16V	12.11	0
	C769	470/50V	27.77	0
	C770	470/50V	27.77	0

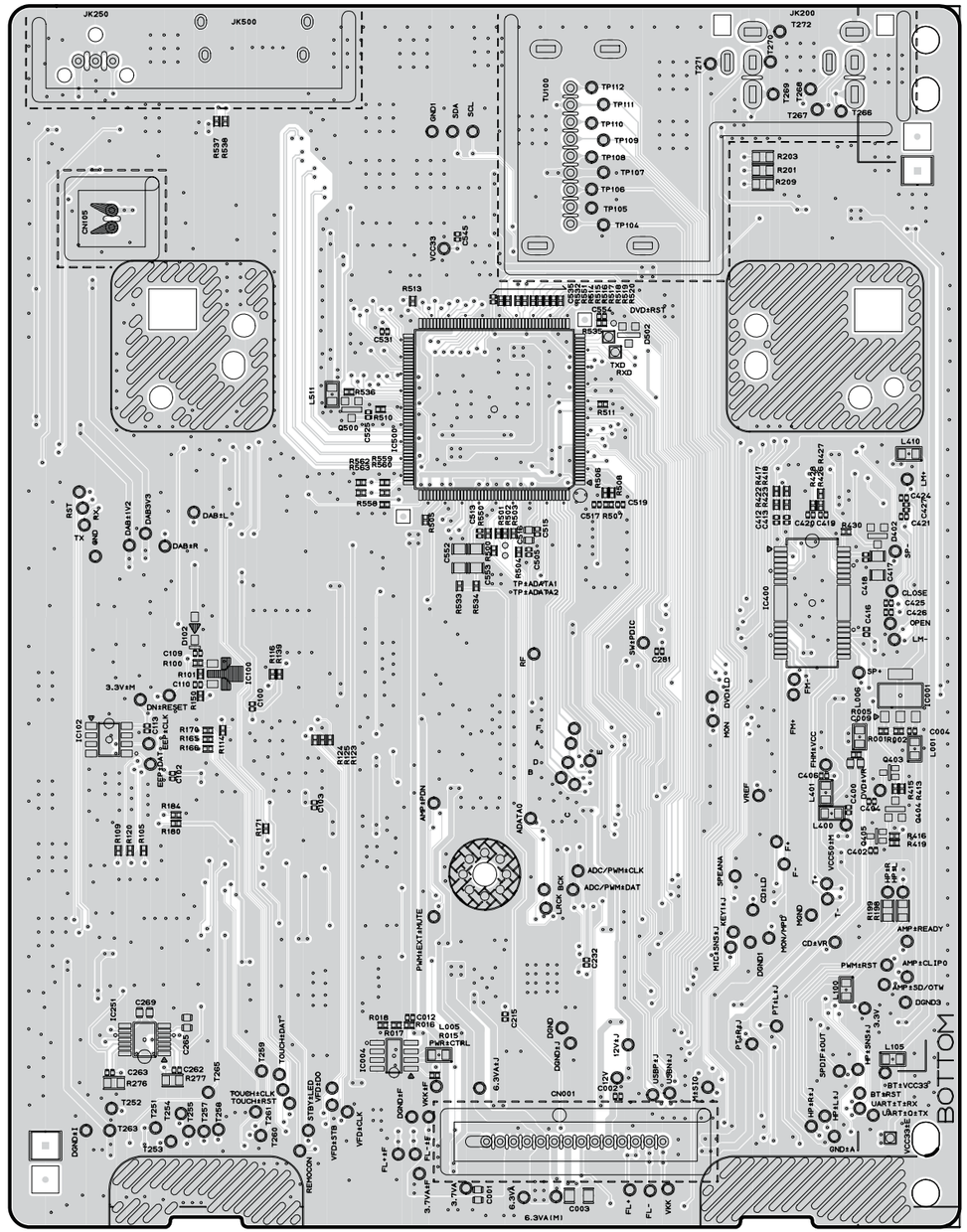
PRINTED CIRCUIT BOARD DIAGRAMS

1. MAIN P.C.BOARD

(TOP VIEW)

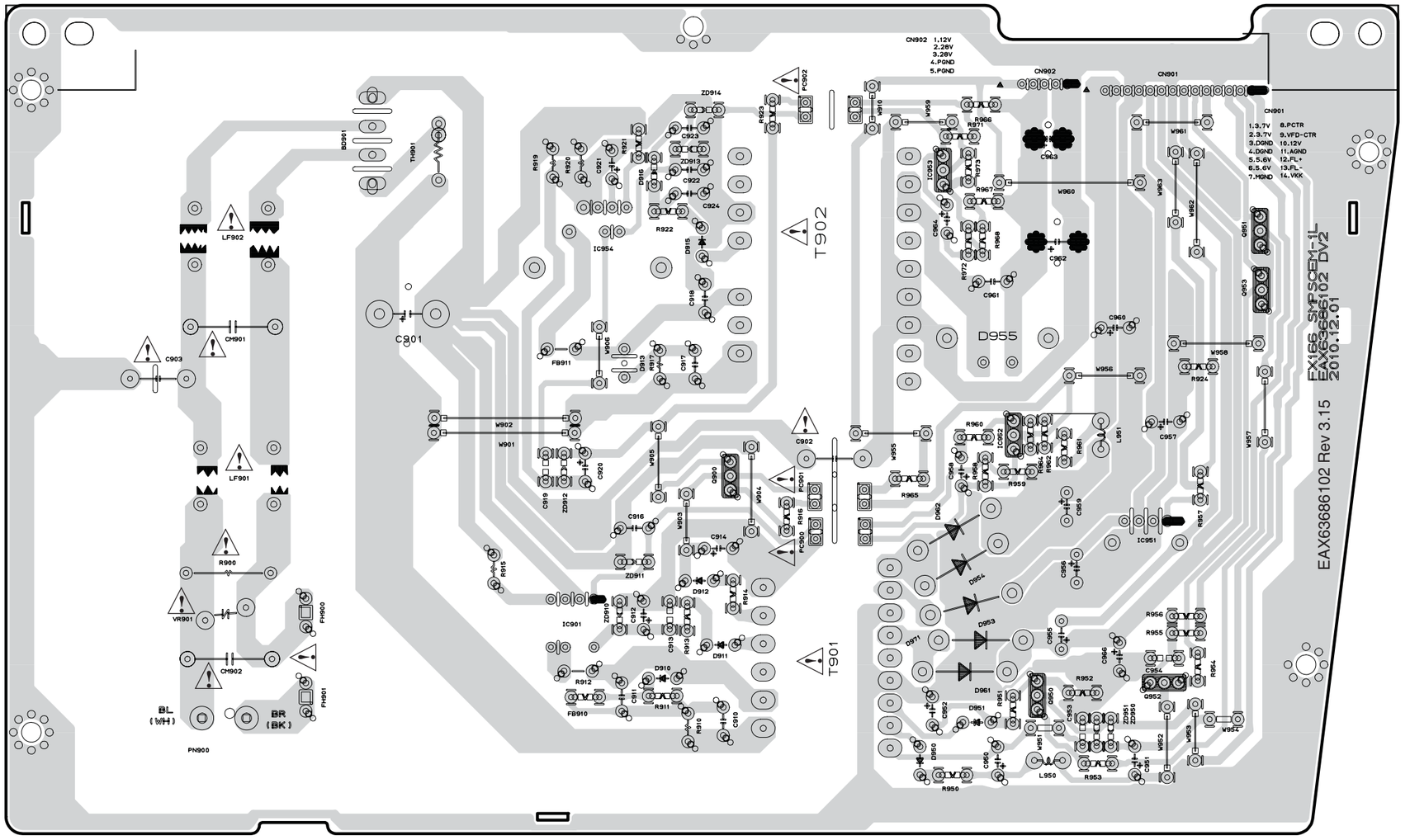


(BOTTOM VIEW)



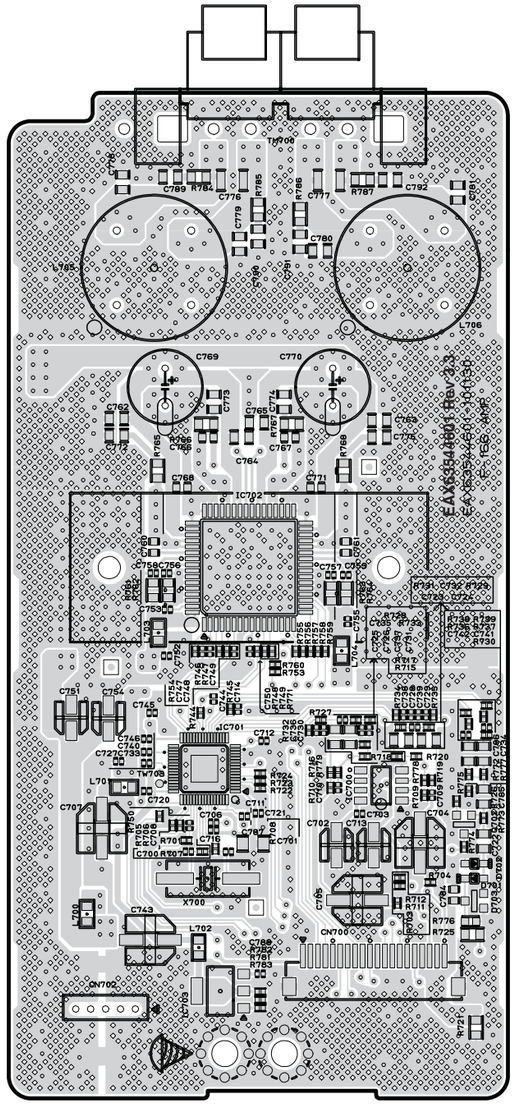
2. SMPS P.C.BOARD

NOTE) Warning
⚠ Parts that are critical with respect to risk of fire or electrical shock.

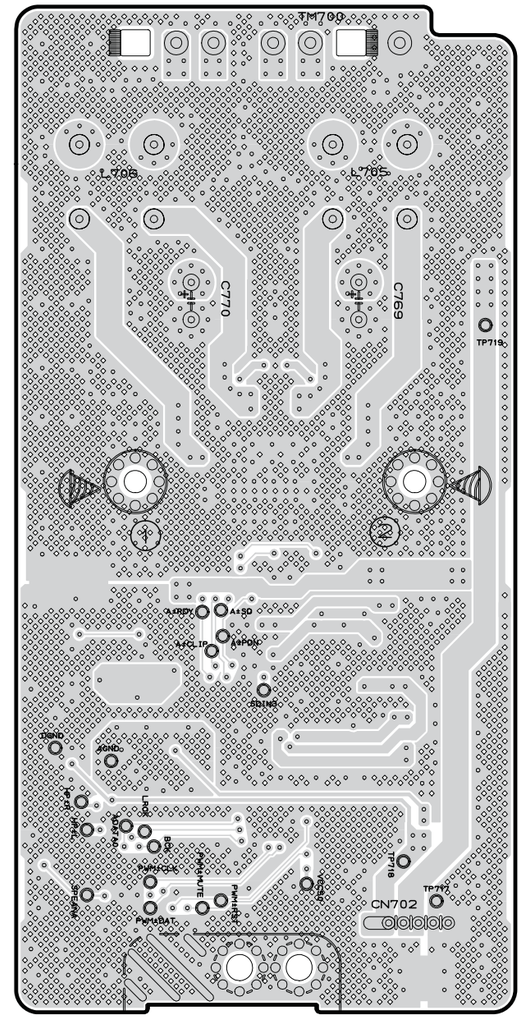


3. AMP P.C.BOARD

(TOP VIEW)

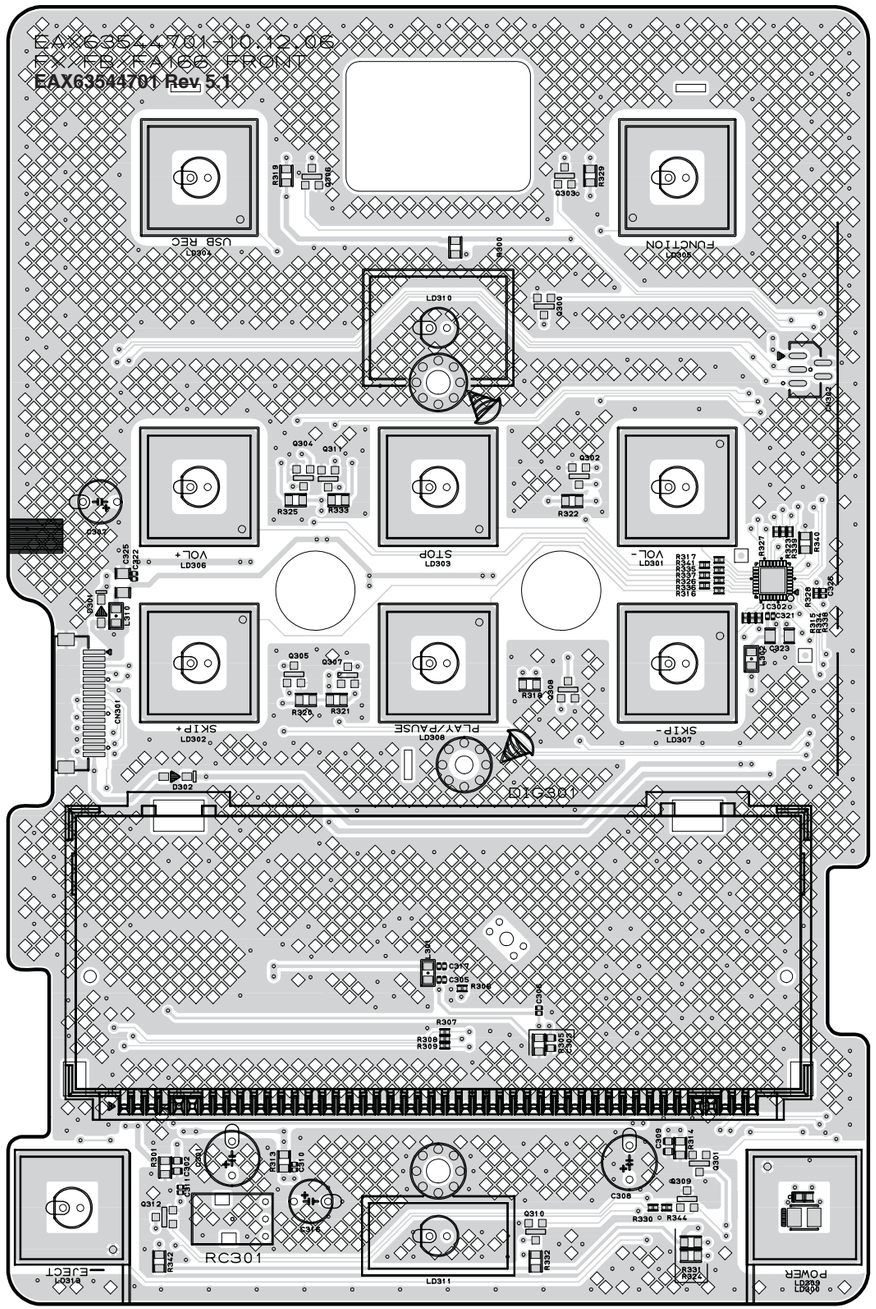


(BOTTOM VIEW)

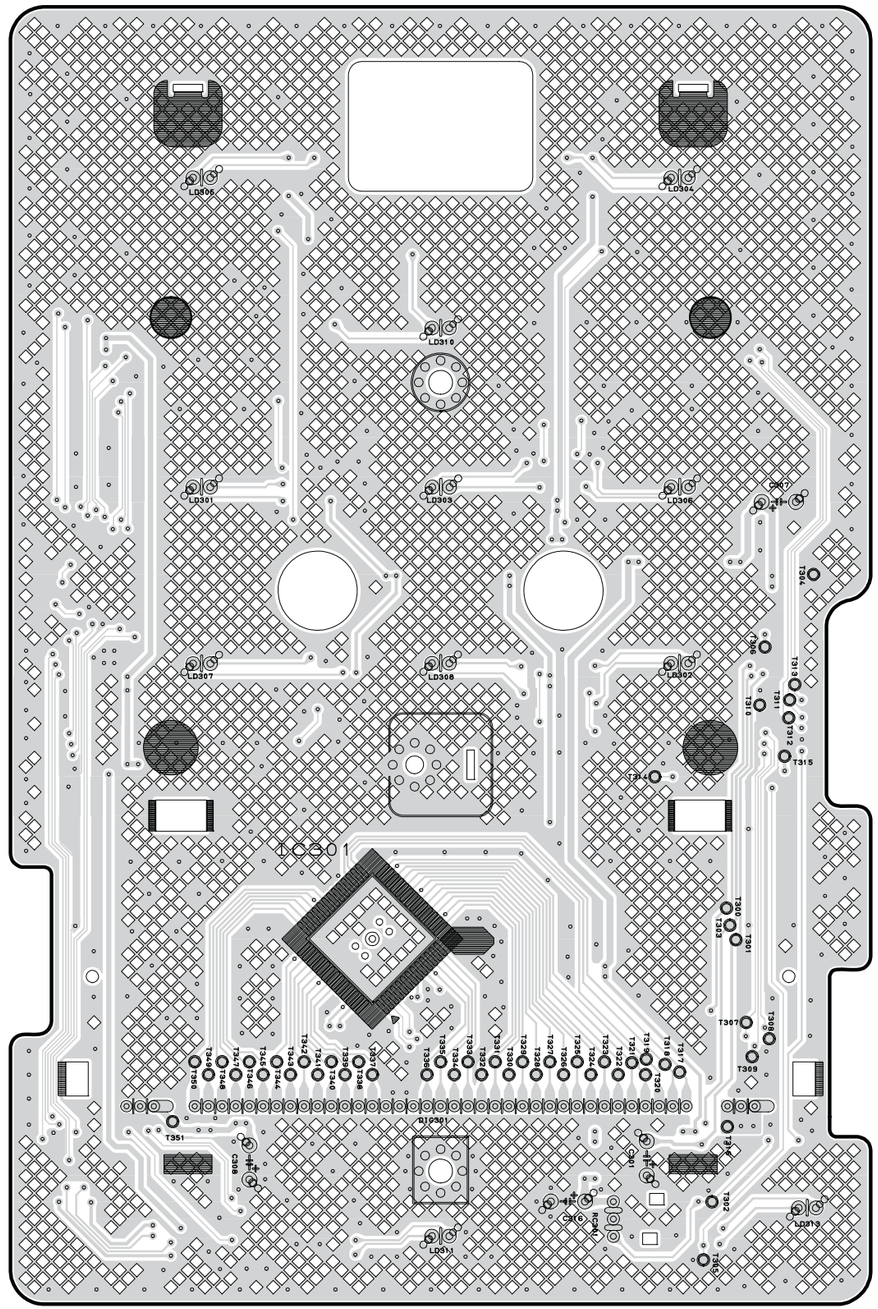


4. FRONT P.C.BOARD

(TOP VIEW)

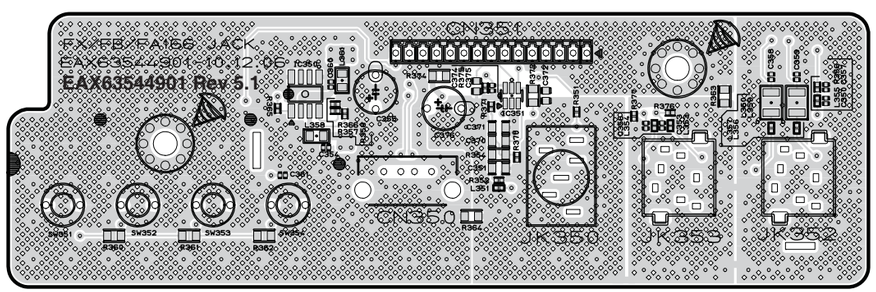


(BOTTOM VIEW)

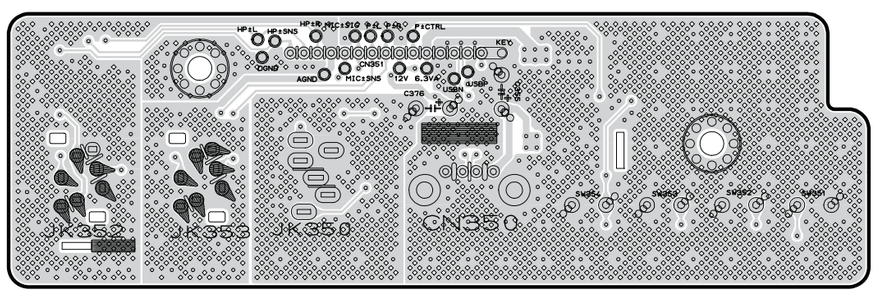


5. FRONT JACK P.C.BOARD

(TOP VIEW)

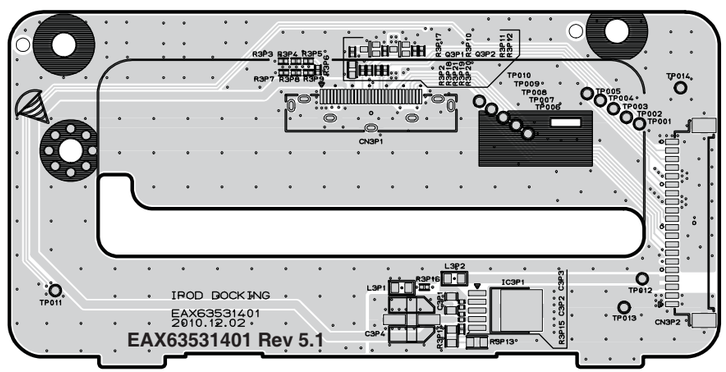


(BOTTOM VIEW)

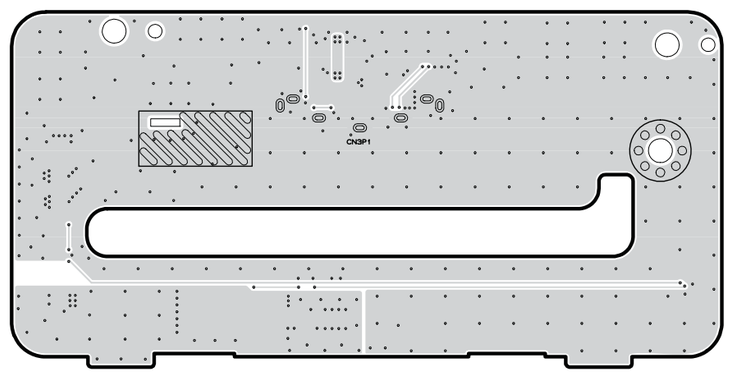


6. IPOD DOCKING P.C.BOARD

(TOP VIEW)



(BOTTOM VIEW)



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