

# Service Service Service



# Service Manual

## SECTION 1 SUMMARY

PRODUCT SAFETY SERVICING GUIDELINES FOR VCR+DVD PRODUCTS 1-3  
SERVICING PRECAUTIONS 1-4  
INFORMATION ABOUT LEAD-FREE SOLDERING 1-5  
SERVICE INFORMATION FOR EEPROM IC SETTING(VCR) 1-6  
SERVICE INFORMATION FOR EEPROM (DVD) 1-7  
SPECIFICATIONS 1-8

## SECTION 2 CABINET & MAIN CHASSIS

1. CABINET AND MAIN FRAME SECTION 2-2  
2. DECK MECHANISM SECTION [ DVD MD (DP-10C) ] 2-3  
3. DECK MECHANISM SECTION [ VCR DECK D37(N) ] 2-4  
    1) FRONT LOADING MECHANISM SECTION 2-4  
    2) MOVING MECHANISM SECTION (1) 2-5  
    3) MOVING MECHANISM SECTION (2) 2-6  
4. PACKING ACCESSORY SECTION 2-7

## SECTION 3 ELECTRICAL

### VCR PART

VCR ELECTRICAL ADJUSTMENT PROCEDURES 3-2  
1. SERVO ADJUSTMENT 3-2

### VCR ELECTRICAL TROUBLESHOOTING GUIDE

1. POWER(SMPS) CIRCUIT 3-3  
2. SYSTEM/KEY CIRCUIT 3-6  
3. SERVO CIRCUIT 3-7  
4. Y/C CIRCUIT 3-10  
5. HI-FI CIRCUIT 3-14  
6. TUNER/IF CIRCUIT 3-17

### BLOCK DIAGRAMS

1. POWER(SMPS) BLOCK DIAGRAM 3-19  
2. SYSTEM BLOCK DIAGRAM 3-21  
3. AVCP BLOCK DIAGRAM 3-23  
4. HI-FI BLOCK DIAGRAM 3-25  
5. TUNER BLOCK DIAGRAM 3-27

### CIRCUIT DIAGRAMS

1. POWER(SMPS) CIRCUIT DIAGRAM 3-29  
2. SYSTEM CIRCUIT DIAGRAM 3-31  
3. AVCP CIRCUIT DIAGRAM 3-33  
4. HI-FI CIRCUIT DIAGRAM 3-35

## 1-1

5. TUNER CIRCUIT DIAGRAM 3-37  
WAVEFORMS 3-39  
CIRCUIT VOLTAGE CHART 3-41  
IC BLOCK DIAGRAMS 3-47

### PRINTED CIRCUIT BOARD DIAGRAMS

1. MAIN P.C.BOARD (TOP SIDE) 3-51  
2. MAIN P.C.BOARD (BOTTOM SIDE) 3-53  
3. POWER P.C.BOARD 3-55  
4. KEY P.C.BOARD 3-57

## 2-1

### DVD PART

DVD ELECTRICAL TROUBLESHOOTING GUIDE 3-59  
1. POWER CHECK FLOW 3-59  
2. SYSTEM OPERATION FLOW 3-60  
3. TEST & DEBUG FLOW 3-61

### DETAILS AND WAVEFORMS ON SYSTEM TEST AND DEBUGGING

1. SYSTEM 27MHZ CLOCK, RESET SIGNAL 3-67  
2. SDRAM CLOCK 3-68  
3. TRAY OPEN/CLOSE SIGNAL 3-68  
4. SLED CONTROL RELATED SIGNAL (NO DISC CONDITION) 3-70  
5. LENS CONTROL RELATED SIGNAL (NO DISC CONDITION) 3-70  
6. LASER POWER CONTROL RELATED SIGNAL (NO DISC CONDITION) 3-71  
7. FOCUS ON WAVEFORM 3-71  
8. SPINDLE CONTROL WAVEFORM (NO DISC CONDITION) 3-72  
9. TRACKING CONTROL RELATED SIGNAL (SYSTEM CHECKING) 3-73  
10. RF WAVEFORM 3-74  
11. ZR36966 AUDIO OPTICAL AND COAXIAL OUTPUT (SPDIF) 3-74  
12. ZR36966 VIDEO OUTPUT WAVEFORM 3-75  
13. AUDIO OUTPUT FROM AUDIO PREAMP 3-76

### BLOCK DIAGRAMS

1. SYSTEM BLOCK DIAGRAM 3-77  
2. SERVO BLOCK DIAGRAM 3-78  
3. AUDIO & VIDEO IN/OUT BLOCK DIAGRAM 3-79

### CIRCUIT DIAGRAMS

1. MPEG CIRCUIT DIAGRAM 3-81  
2. SERVO CIRCUIT DIAGRAM 3-83  
3. JACK CIRCUIT DIAGRAM 3-85  
IC BLOCK DIAGRAMS 3-87

## SECTION 4 MECHANISM (D-37) OF VCR PART

4-1

## SECTION 5 MECHANISM (DP-10C) OF DVD PART

5-1

This Service Manual is for DVP3350v Second Generation models,  
For Second Generation Service models, The serial number begins with DE2Axxxxxxxxx



# PHILIPS

## **CONTENTS**

<b>SECTION 1.....SUMMARY</b>
<b>SECTION 2.....CABINET &amp; MAIN CHASSIS</b>
<b>SECTION 3.....ELECTRICAL</b>
<b>SECTION 4.....MECHANISM OF VCR PART</b>
<b>SECTION 5.....MECHANISM OF DVD PART</b>
<b>SECTION 6.....REPLACEMENT PARTS LIST</b>

# SECTION 1

## SUMMARY

## CONTENTS

<b>PRODUCT SAFETY SERVICING GUIDELINES FOR DVD+VCR PRODUCTS</b> .....	1-3
<b>SERVICING PRECAUTIONS</b> .....	1-4
• General Servicing Precautions	
• Insulation Checking Prodedure	
• Electrostatically Sensitive Devices	
<b>INFORMATION ABOUT LEAD-FREE SOLDERING</b> .....	1-5
<b>SERVICE INFORMATION FOR EEPROM IC SETTING (VCR)</b> .....	1-6
<b>SERVICE INFORMATION FOR EEPROM (DVD)</b> .....	1-7
<b>SPECIFICATIONS</b> .....	1-8

# PRODUCT SAFETY SERVICING GUIDELINES FOR DVD+VCR PRODUCTS

CAUTION : DO NOT ATTEMPT TO MODIFY THIS PRODUCT IN ANY WAY, NEVER PERFORM CUSTOMIZED INSTALLATIONS WITHOUT MANUFACTURER'S APPROVAL. UNAUTHORIZED MODIFICATIONS WILL NOT ONLY VOID THE WARRANTY, BUT MAY LEAD TO YOUR BEING LIABLE FOR ANY RESULTING PROPERTY DAMAGE OR USER INJURY.

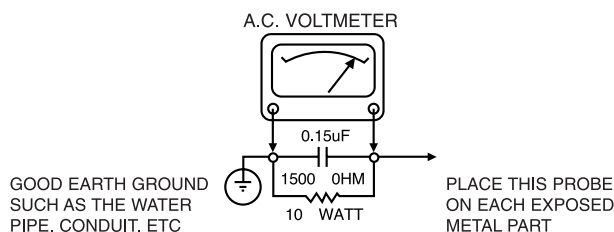
SERVICE WORK SHOULD BE PERFORMED ONLY AFTER YOU ARE THOROUGHLY FAMILIAR WITH ALL OF THE FOLLOWING SAFETY CHECKS AND SERVICING GUIDELINES. TO DO OTHERWISE, INCREASES THE RISK OF POTENTIAL HAZARDS AND INJURY TO THE USER. WHILE SERVICING, USE AN ISOLATION TRANSFORMER FOR PROTECTION FROM A.C. LINE SHOCK.

## SAFETY CHECKS

AFTER THE ORIGINAL SERVICE PROBLEM HAS BEEN CORRECTED, A CHECK SHOULD BE MADE OF THE FOLLOWING.

### SUBJECT: FIRE & SHOCK HAZARD

1. BE SURE THAT ALL COMPONENTS ARE POSITIONED IN SUCH A WAY AS TO AVOID POSSIBILITY OF ADJACENT COMPONENT SHORTS. THIS IS ESPECIALLY IMPORTANT ON THOSE MODULES WHICH ARE TRANSPORTED TO AND FROM THE REPAIR SHOP.
2. NEVER RELEASE A REPAIR UNLESS ALL PROTECTIVE DEVICES SUCH AS INSULATORS, BARRIERS, COVERS, SHIELDS, STRAIN RELIEFS, POWER SUPPLY CORDS, AND OTHER HARDWARE HAVE BEEN REINSTALLED PER ORIGINAL DESIGN. BE SURE THAT THE SAFETY PURPOSE OF THE POLARIZED LINE PLUG HAS NOT BEEN DEFEATED.
3. SOLDERING MUST BE INSPECTED TO DISCOVER POSSIBLE COLD SOLDER JOINTS, SOLDER SPLASHES OR SHARP SOLDER POINTS. BE CERTAIN TO REMOVE ALL LOOSE FOREIGN PARTICLES.
4. CHECK FOR PHYSICAL EVIDENCE OF DAMAGE OR DETERIORATION TO PARTS AND COMPONENTS. FOR FRAYED LEADS, DAMAGED INSULATION (INCLUDING A.C. CORD), AND REPLACE IF NECESSARY FOLLOW ORIGINAL LAYOUT, LEAD LENGTH AND DRESS.
5. NO LEAD OR COMPONENT SHOULD TOUCH A RECEIVING TUBE OR A RESISTOR RATED AT 1 WATT OR MORE. LEAD TENSION AROUND PROTRUDING METAL SURFACES MUST BE AVOIDED.
6. ALL CRITICAL COMPONENTS SUCH AS FUSES, FLAMEPROOF RESISTORS, CAPACITORS, ETC. MUST BE REPLACED WITH EXACT FACTORY TYPES, DO NOT USE REPLACEMENT COMPONENTS OTHER THAN THOSE SPECIFIED OR MAKE UNRECOMMENDED CIRCUIT MODIFICATIONS.
7. AFTER RE-ASSEMBLY OF THE SET ALWAYS PERFORM AN A.C. LEAKAGE TEST ON ALL EXPOSED METALLIC PARTS OF THE CABINET, (THE CHANNEL SELECTOR KNOB, ANTENNA TERMINALS. HANDLE AND SCREWS) TO BE SURE THE SET IS SAFE TO OPERATE WITHOUT DANGER OF ELECTRICAL SHOCK. DO NOT USE A LINE ISOLATION TRANSFORMER DURING THIS TEST USE AN A.C. VOLTMETER, HAVING 5000 OHMS PER VOLT OR MORE SENSITIVITY, IN THE FOLLOWING MANNER; CONNECT A 1500 OHM 10 WATT RESISTOR, PARALLELED BY A .15 MFD. 150.V A.C TYPE CAPACITOR BETWEEN A KNOWN GOOD EARTH GROUND (WATER PIPE, CONDUIT, ETC.) AND THE EXPOSED METALLIC PARTS, ONE AT A TIME. MEASURE THE A.C. VOLTAGE ACROSS THE COMBINATION OF 1500 OHM RESISTOR AND .15 MFD CAPACITOR. REVERSE THE A.C. PLUG AND REPEAT A.C. VOLTAGE MEASUREMENTS FOR EACH EXPOSED METALLIC PART. VOLTAGE MEASURED MUST NOT EXCEED 75 VOLTS R.M.S. THIS CORRESPONDS TO 0.5 MILLIAMPER A.C ANY VALUE EXCEEDING THIS LIMIT CONSTITUTES A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED IMMEDIATELY.



### SUBJECT: 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.

### SUBJECT: X-RADIATION

1. BE SURE PROCEDURES AND INSTRUCTIONS TO ALL SERVICE PERSONNEL COVER THE SUBJECT OF X-RADIATION. THE ONLY POTENTIAL SOURCE OF X-RAYS IN CURRENT T.V. RECEIVERS IS THE PICTURE TUBE. HOWEVER, THIS TUBE DOES NOT EMIT X-RAYS WHEN THE HIGH VOLTAGE IS AT THE FACTORY SPECIFIED LEVEL. THE PROPER VALUE IS GIVEN IN THE APPLICABLE SCHEMATIC. OPERATION AT HIGHER VOLTAGES MAY CAUSE A FAILURE OF THE PICTURE TUBE OR HIGH VOLTAGE SUPPLY AND, UNDER CERTAIN CIRCUMSTANCES, MAY PRODUCE RADIATION IN EXCESS OF DESIRABLE LEVELS.
2. ONLY FACTORY SPECIFIED C.R.T. ANODE CONNECTORS MUST BE USED. DEGAUSSING SHIELDS ALSO SERVE AS X-RAY SHIELD IN COLOR SETS, ALWAYS RE-INSTALL THEM.
3. IT IS ESSENTIAL THAT SERVICE PERSONNEL HAVE AVAILABLE AN ACCURATE AND RELIABLE HIGH VOLTAGE METER. THE CALIBRATION OF THE METER SHOULD BE CHECKED PERIODICALLY AGAINST A REFERENCE STANDARD, SUCH AS THE ONE AVAILABLE AT YOUR DISTRIBUTOR.
4. WHEN THE HIGH VOLTAGE CIRCUITRY IS OPERATING PROPERLY THERE IS NO POSSIBILITY OF AN X-RADIATION PROBLEM. EVERY TIME A COLOR CHASSIS IS SERVICED. THE BRIGHTNESS SHOULD BE RUN UP AND DOWN WHILE MONITORING THE HIGH VOLTAGE WITH A METER TO BE CERTAIN THAT THE HIGH VOLTAGE DOES NOT EXCEED THE SPECIFIED VALUE AND THAT IT IS REGULATING CORRECTLY, WE SUGGEST THAT YOU AND YOUR SERVICE ORGANIZATION REVIEW TEST PROCEDURES SO THAT VOLTAGE REGULATION IS ALWAYS CHECKED AS A STANDARD SERVICING PROCEDURE. AND THAT THE HIGH VOLTAGE READING BE RECORDED ON EACH CUSTOMER'S INVOICE.
5. WHEN TROUBLESHOOTING AND MAKING TEST MEASUREMENTS IN A PRODUCT WITH A PROBLEM OF EXCESSIVE HIGH VOLTAGE, AVOID BEING UNNECESSARILY CLOSE TO THE PICTURE TUBE AND THE HIGH VOLTAGE SUPPLY. DO NOT OPERATE THE PRODUCT LONGER THAN IS NECESSARY TO LOCATE THE CAUSE OF EXCESSIVE VOLTAGE.
6. REFER TO HV. B+ AND SHUTDOWN ADJUSTMENT PROCEDURES DESCRIBED IN THE APPROPRIATE SCHEMATIC AND DIAGRAMS (WHERE USED).

### SUBJECT: IMPLOSION

1. ALL DIRECT VIEWED PICTURE TUBES ARE EQUIPPED WITH AN INTEGRAL IMPLOSION PROTECTION SYSTEM, BUT CARE SHOULD BE TAKEN TO AVOID DAMAGE DURING INSTALLATION, AVOID SCRATCHING THE TUBE. IF SCRATCHED REPLACE IT.
2. USE ONLY RECOMMENDED FACTORY REPLACEMENT TUBES.

### SUBJECT: TIPS ON PROPER INSTALLATION

1. NEVER INSTALL ANY PRODUCT IN A CLOSED-IN RECESS, CUBBYHOLE OR CLOSELY FITTING SHELF SPACE. OVER OR CLOSE TO HEAT DUCT, OR IN THE PATH OF HEATED AIR FLOW.
2. AVOID CONDITIONS OF HIGH HUMIDITY SUCH AS: OUTDOOR PATIO INSTALLATIONS WHERE DEW IS A FACTOR, NEAR STEAM RADIATORS WHERE STEAM LEAKAGE IS A FACTOR, ETC.
3. AVOID PLACEMENT WHERE DRAPERIES MAY OBSTRUCT REAR VENTING. THE CUSTOMER SHOULD ALSO AVOID THE USE OF DECORATIVE SCARVES OR OTHER COVERINGS WHICH MIGHT OBSTRUCT VENTILATION.
4. WALL AND SHELF MOUNTED INSTALLATIONS USING A COMMERCIAL MOUNTING KIT. MUST FOLLOW THE FACTORY APPROVED MOUNTING INSTRUCTIONS A PRODUCT MOUNTED TO A SHELF OR PLATFORM MUST RETAIN ITS ORIGINAL FEET (OR THE EQUIVALENT THICKNESS IN SPACERS) TO PROVIDE ADEQUATE AIR FLOW ACROSS THE BOTTOM, BOLTS OR SCREWS USED FOR FASTENERS MUST NOT TOUCH ANY PARTS OR WIRING. PERFORM LEAKAGE TEST ON CUSTOMIZED INSTALLATIONS.
5. CAUTION CUSTOMERS AGAINST THE MOUNTING OF A PRODUCT ON SLOPING SHELF OR A TILTED POSITION, UNLESS THE PRODUCT IS PROPERLY SECURED.
6. A PRODUCT ON A ROLL-ABOUT CART SHOULD BE STABLE ON ITS MOUNTING TO THE CART. CAUTION THE CUSTOMER ON THE HAZARDS OF TRYING TO ROLL A CART WITH SMALL CASTERS ACROSS THRESHOLDS OR DEEP PILE CARPETS.
7. CAUTION CUSTOMERS AGAINST THE USE OF A CART OR STAND WHICH HAS NOT BEEN LISTED BY UNDERWRITERS LABORATORIES, INC. FOR USE WITH THEIR SPECIFIC MODEL OF TELEVISION RECEIVER OR GENERALLY APPROVED FOR USE WITH T.V.'S OF THE SAME OR LARGER SCREEN SIZE.
8. CAUTION CUSTOMERS AGAINST THE USE OF EXTENSION CORDS, EXPLAIN THAT A FOREST OF EXTENSIONS SPROUTING FROM A SINGLE OUTLET CAN LEAD TO DISASTROUS CONSEQUENCES TO HOME AND FAMILY.



# SERVICING PRECAUTIONS

**CAUTION:** Before servicing the VCR+DVD covered by this service data and its supplements and addends, read and follow the *SAFETY PRECAUTIONS*. **NOTE:** if unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions in this publications, always follow the safety precautions. Remember Safety First :

## General Servicing Precautions

1. Always unplug the VCR+DVD AC power cord from the AC power source before:
  - (1) Removing or reinstalling any component, circuit board, module, or any other assembly.
  - (2) Disconnecting or reconnecting any internal electrical plug or other electrical connection.
  - (3) Connecting a test substitute in parallel with an electrolytic capacitor.

**Caution :** A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.
2. Do not spray chemicals on or near this VCR+DVD or any of its assemblies.
3. Unless specified otherwise in this service data, clean electrical contacts by applying an appropriate contact cleaning solution to the contacts with a pipe cleaner, cotton-tipped swab, or comparable soft applicator. Unless specified otherwise in this service data, lubrication of contacts is not required.
4. Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service manual might be equipped.
5. Do not apply AC power to this VCR+DVD and/or any of its electrical assemblies unless all solid state device heat sinks are correctly installed.
6. Always connect the test instrument ground lead to an appropriate ground before connecting the test instrument positive lead. Always remove the test instrument ground lead last.

## Insulation Checking Procedure

Disconnect the attachment plug from the AC outlet and turn the power on. Connect an insulation resistance meter (500V) to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (Note 1) should be more than 1Mohm.

**Note 1:** Accessible Conductive Parts include Metal panels, Input terminals, Earphone jacks, etc.

## Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES 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 ES 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 ES 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 ES devices.
5. Do not use freon-propelled chemicals. These can generate an electrical charge sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil, or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

**Caution:** Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Normally 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 ES device.)

# INFORMATION ABOUT LEAD-FREE SOLDERING

Philips CE is producing lead-free sets from 1.1.2005 onwards.

## IDENTIFICATION:

Regardless of special logo (not always indicated)



one must treat all sets from 1 Jan 2005 onwards, according next rules:

Example S/N:



Bottom line of typeplate gives a 14-digit S/N. Digit 5&6 is the year, digit 7&8 is the week number, so in this case 1991 wk 18

So from 0501 onwards = from 1 Jan 2005 onwards

Important note: In fact also products of year 2004 must be treated in this way as long as you avoid mixing solder-alloys (lead-free/ lead-free). So best to always use SAC305 and the higher temperatures belong to this.

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free solder alloy Philips SAC305 with order code 0622 149 00106. If lead-free solder-paste is required, please contact the manufacturer of your solder-equipment. In general use of solder-paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free solder alloy. The solder tool must be able
  - \* To reach at least a solder-temperature of 400°C,
  - \* To stabilize the adjusted temperature at the solder-tip
  - \* To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature around 360°C - 380°C is reached and stabilized at the solder joint. Heating-time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed. To avoid wear-out of tips switch off un-used equipment, or reduce heat.
- Mix of lead-free solder alloy / parts with leaded solder alloy / parts is possible but PHILIPS recommends strongly to avoid mixed solder alloy types (leaded and lead-free).  
If one cannot avoid or does not know whether product is lead-free, clean carefully the solder-joint from old solder alloy and re-solder with new solder alloy (SAC305).
- Use only original spare-parts listed in the Service-Manuals. Not listed standard-material (commodities) has to be purchased at external companies.
- Special information for BGA-ICs:
  - always use the 12nc-recognizable soldering temperature profile of the specific BGA (for de-soldering always use the lead-free temperature profile, in case of doubt)
  - lead free BGA-ICs will be delivered in so-called 'dry-packaging' (sealed pack including a silica gel pack) to protect the IC against moisture. After opening, dependent of MSL-level seen on indicator-label in the bag, the BGA-IC possibly still has to be baked dry. (MSL=Moisture Sensitivity Level). This will be communicated via AYS-website.  
Do not re-use BGAs at all.
- For sets produced before 1.1.2005 (except products of 2004), containing leaded solder-alloy and components, all needed spare-parts will be available till the end of the service-period. For repair of such sets nothing changes.
- On our website [www.atyourservice.ce.Philips.com](http://www.atyourservice.ce.Philips.com) you find more information to:
  - \* BGA-de-/soldering (+ baking instructions)
  - \* Heating-profiles of BGAs and other ICs used in Philips-sets

You will find this and more technical information within the "magazine", chapter "workshop news".

For additional questions please contact your local repair-helpdesk.comparable conductive material).

# SERVICE INFORMATION FOR EEPROM IC SETTING(VCR)

## EEPROM option code No. setting

NAME	HEX	BINARY
OPT0	00	00000000
OPT1	00	00000000
OPT2	00	00000000
OPT3	00	00000000
OPT4	00	00000000
OPT5	00	00000000

12/26 - 00 V00 <--- μ-COM Ver.  
ID : LG  
VERSION : 05 ROM  
DATE : 02.17.05 Correction Ver.

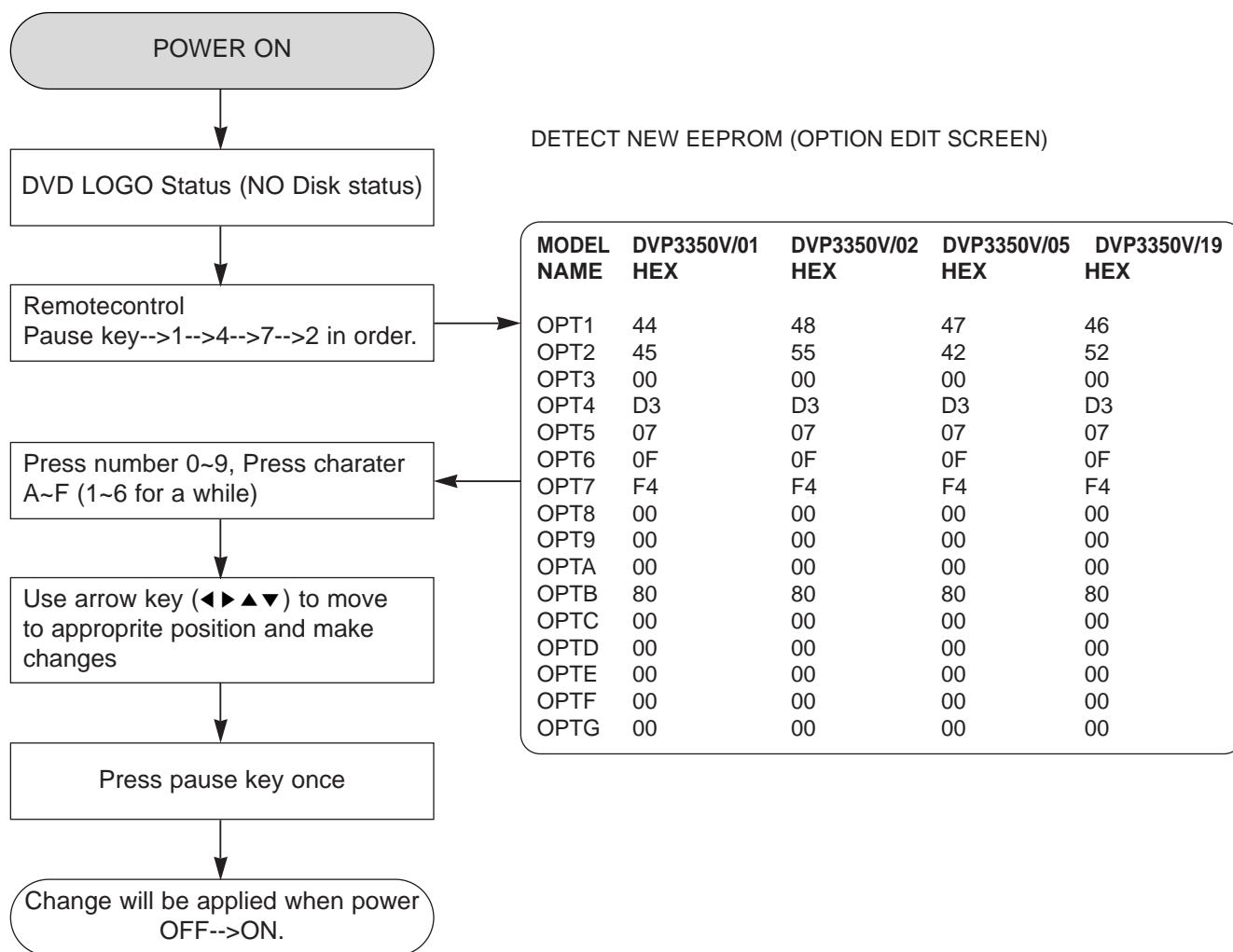
MODEL	NAME	HEX	BINARY
DVP3350V/01	OPT0	90	00000000
	OPT1	F4	00000000
	OPT2	60	00000000
	OPT3	40	00000000
	OPT4	03	00000000
	OPT5	4B	00000000
DVP3350V/02	OPT0	90	00000000
	OPT1	D4	00000000
	OPT2	6B	00000000
	OPT3	40	00000000
	OPT4	0D	00000000
	OPT5	4B	00000000
DVP3350V/05	OPT0	90	00000000
	OPT1	F4	00000000
	OPT2	21	00000000
	OPT3	80	00000000
	OPT4	0D	00000000
	OPT5	4B	00000000
DVP3350V/19	OPT0	90	00000000
	OPT1	FC	00000000
	OPT2	E8	00000000
	OPT3	40	00000000
	OPT4	06	00000000
	OPT5	4B	00000000

WR : OK I : EXIT MOVE : ◀ ▶  
EDIT : ▲ ▼

## EEPROM option code No. setting procedure

1. DETECT NEW EEPROM (OPTION EDIT SCREEN)
  - Eeprom EDIT screen automatically appears if replacing Eeprom.
  - Setup option data using the cursor Up/Down key of a remote control. (Setup upon BOM depending on OPT0~OPT5 model)
  - Since an initial remote control is set to LG for LG model, appropriately set optiona data using the cursor Up/Down key.
2. EEPROM WRITED AND EEPROM INITIAL
  - Writes data on EEPROM by using REMOCON "OK" + FRONT PLAY KEY FOR MORE THAN 5 SECONDS.
3. PG ADJUST
  - 1) Payback the SP standard tape
  - 2) Press the "OK" key on the Remote controller and the "PLAY" key on the Front Panel the same time, then it goes in to Tracking initial mode.
  - 3) Repeat the above step(No.2), then it finishes the PG adjusting automatically.
  - 4) Stop the playback, then it goes out to PG adjusting mode after mony the PG data.

# SERVICE INFORMATION FOR EEPROM (DVD)



## \* OPTION

- NTSC model doesn't have VCR option and use DVD option B~F as VCR option. (only DVD exist)
- PAL model has another separate VCR option. (Both VCR and DVD exist)

# SPECIFICATIONS

## • GENERAL

Power requirements	AC 220 ~ 230V, 50Hz
Power consumption	17W
Dimensions (approx.)	430 x 78.5 x 265mm (W x H x D)
Mass (approx.)	4.06kg
Operating temperature	5°C to 35°C (41°F to 95°F)
Operating humidity	5% to 90%
Timer	24 hours display type
RF Modulator	UHF 22 ~ 68 (Adjustable)

## • SYSTEM

Laser	Semiconductor laser, wavelength 650nm
Video Head system	Double azimuth 6 heads, helical scanning.
Signal system	PAL
Frequency response	DVD (PCM 96kHz): 8Hz to 44kHz DVD (PCM 48kHz): 8Hz to 22kHz CD: 8Hz to 20kHz
Signal-to-noise ratio	More than 100dB (ANALOG OUT connectors only)
Harmonic distortion	Less than 0.008%
Dynamic range	More than 100dB (DVD) More than 95dB (CD)

## • INPUTS (VCR)

Audio	-6.0dBm, more than 10kohms (SCART) -6.0dBm, more than 47kohms (RCA)
Video	1.0Vp-p, 75ohms, unbalanced (SCART/RCA)

## • OUTPUTS (DVD)

VIDEO OUT	1Vp-p 75ohms, sync negative
COMPONENT VIDEO OUT (Progressive Scan)	(Y) 1.0V (p-p), 75Ω, negative sync, RCA jack x 1 (Pb)/(Pr) 0.7V (p-p), 75Ω, RCA jack x 2
RGB output	0.7Vp-p, 75ohms
Audio output (coaxial audio)	0.5V (p-p), 75Ω, RCA jack x 1
Audio output (analog audio)	2.0Vrms (1kHz, 0dB), 600Ω, RCA jack (L, R)x2/SCART (TO TV)

## • OUTPUTS (VCR)

Audio	-6.0dBm, less than 1kohms (SCART)
Video	1.0Vp-p, 75ohms, unbalanced (SCART)
RGB	output 0.7Vp-p, 75ohms

\*Design and specifications are subject to change without notice.

# SECTION 2

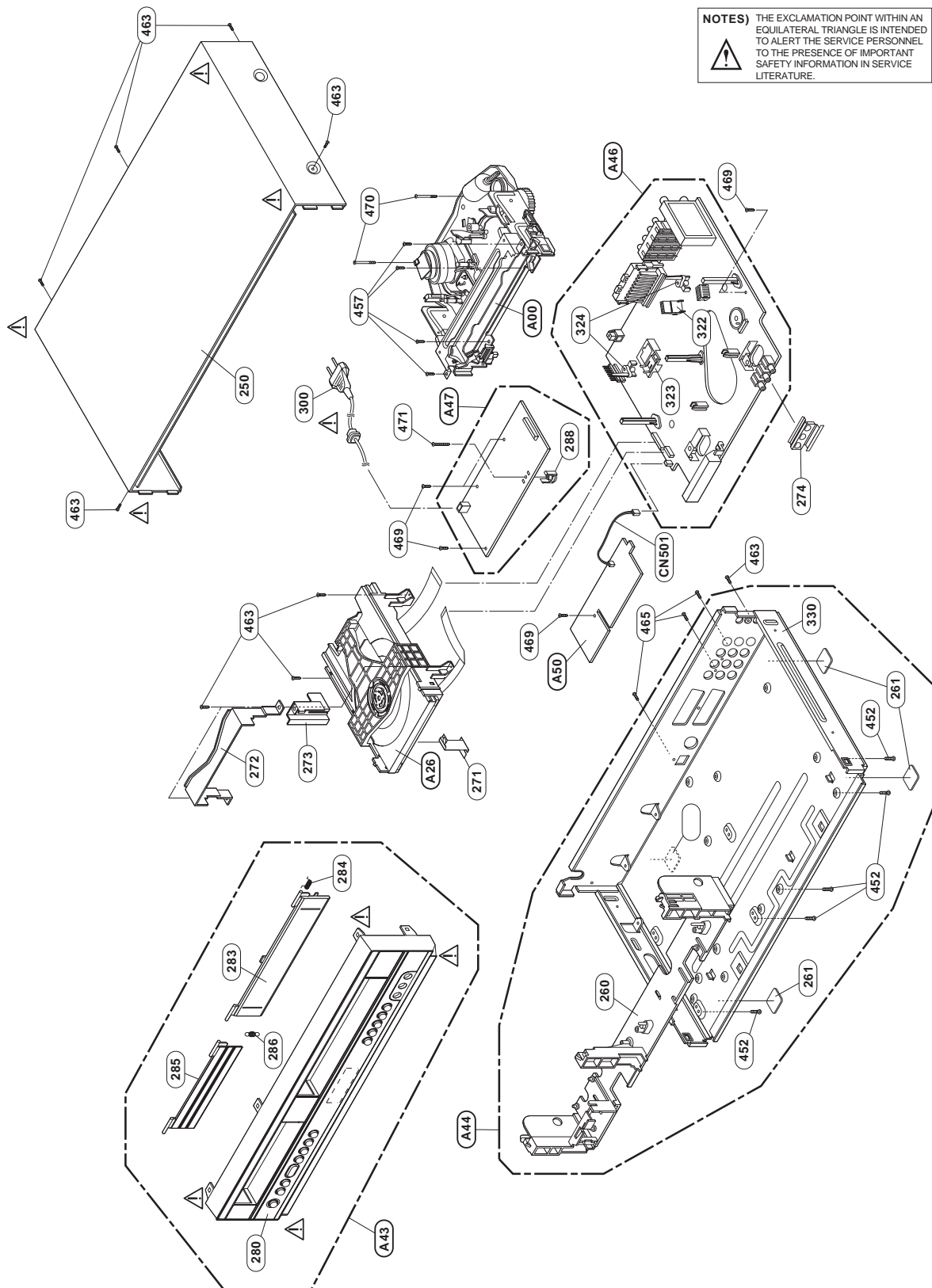
## CABINET & MAIN CHASSIS

### CONTENTS

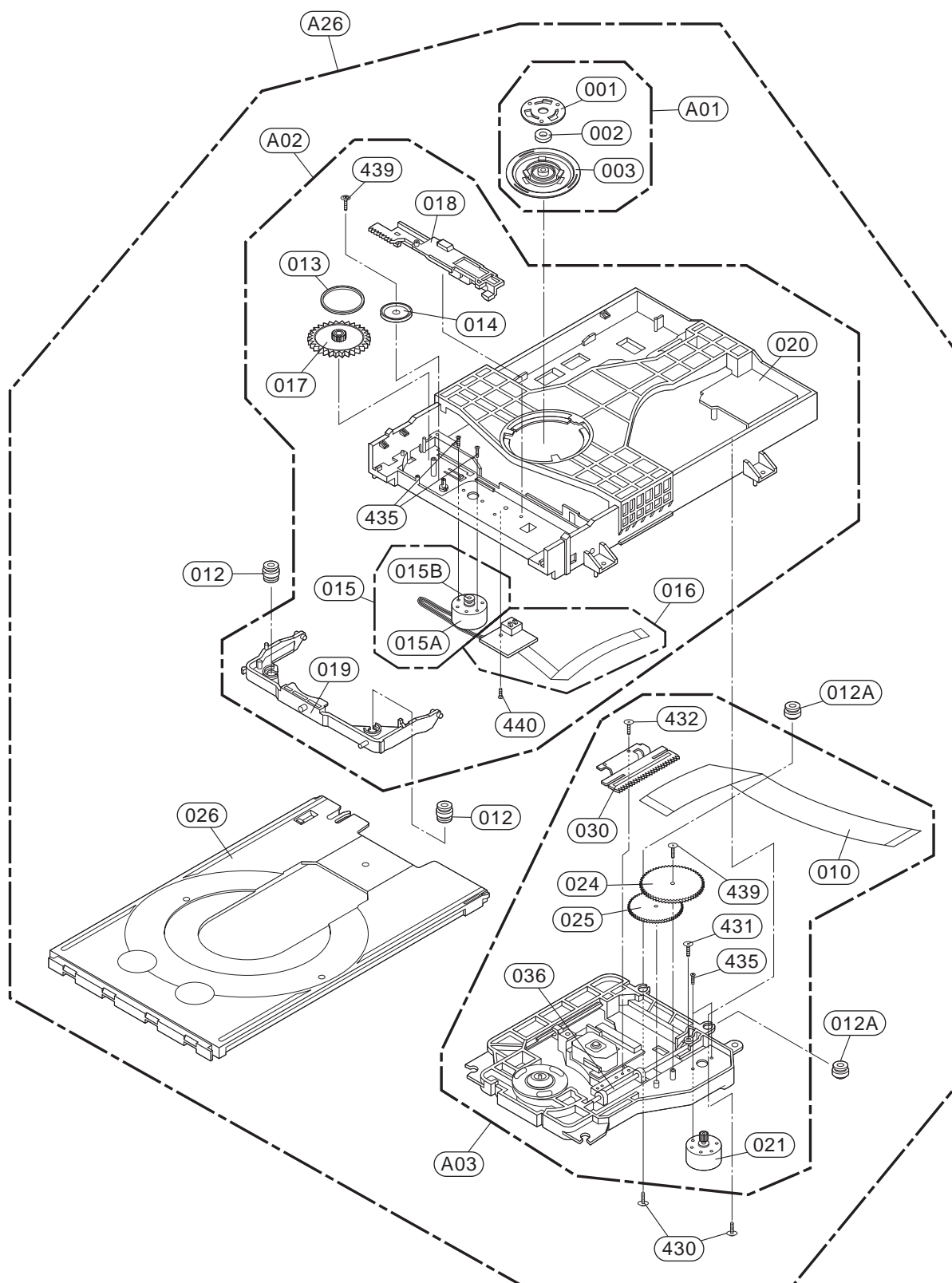
<b>EXPLODED VIEWS .....</b>	<b>2-2</b>
1. CABINET AND MAIN FRAME SECTION .....	2-2
2. DECK MECHANISM SECTION [ DVD MD (DP-10C) ] .....	2-3
3. DECK MECHANISM SECTION [ VCR DECK D37(N) ] .....	2-4
1) FRONT LOADING MECHANISM SECTION .....	2-4
2) MOVING MECHANISM SECTION (1).....	2-5
3) MOVING MECHANISM SECTION (2).....	2-6
4. PACKING ACCESSORY SECTION.....	2-7

## EXPLODED VIEWS

## 1. CABINET AND MAIN FRAME SECTION

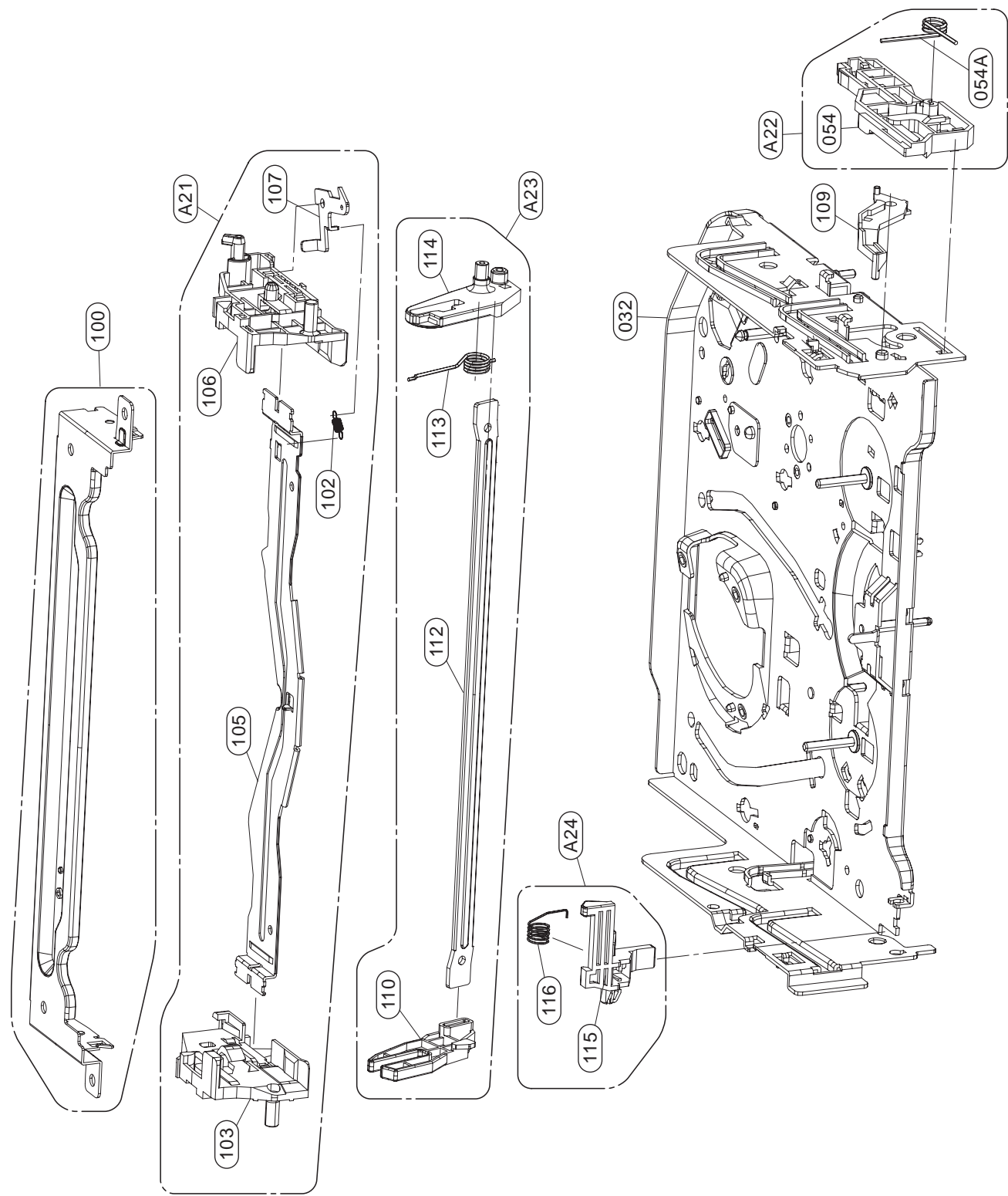


## 2. DECK MECHANISM SECTION [ DVD MD (DP-10C) ]

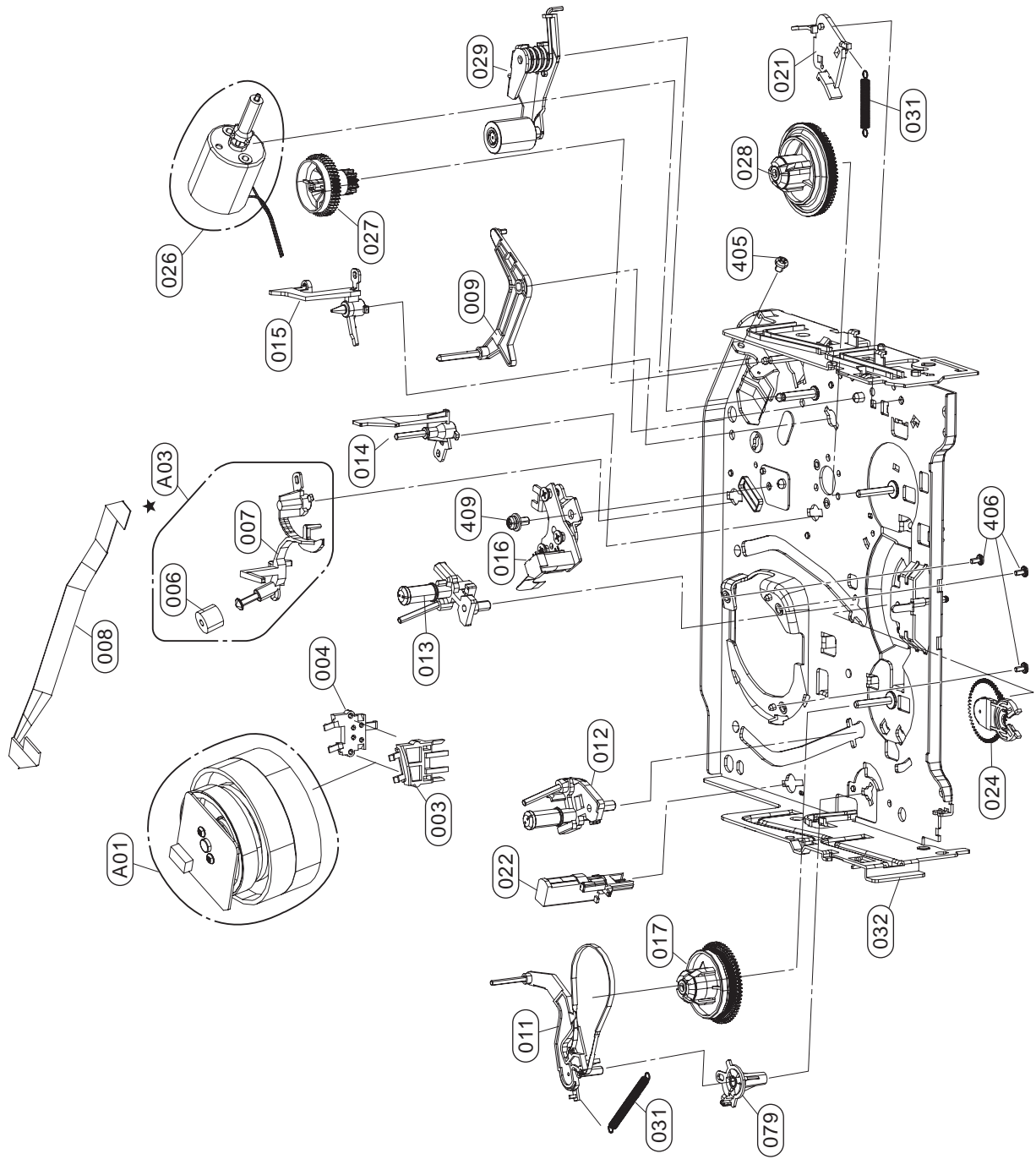




**3. DECK MECHANISM SECTION [ VCR DECK D37(N) ]**  
**1) FRONT LOADING MECHANISM SECTION**

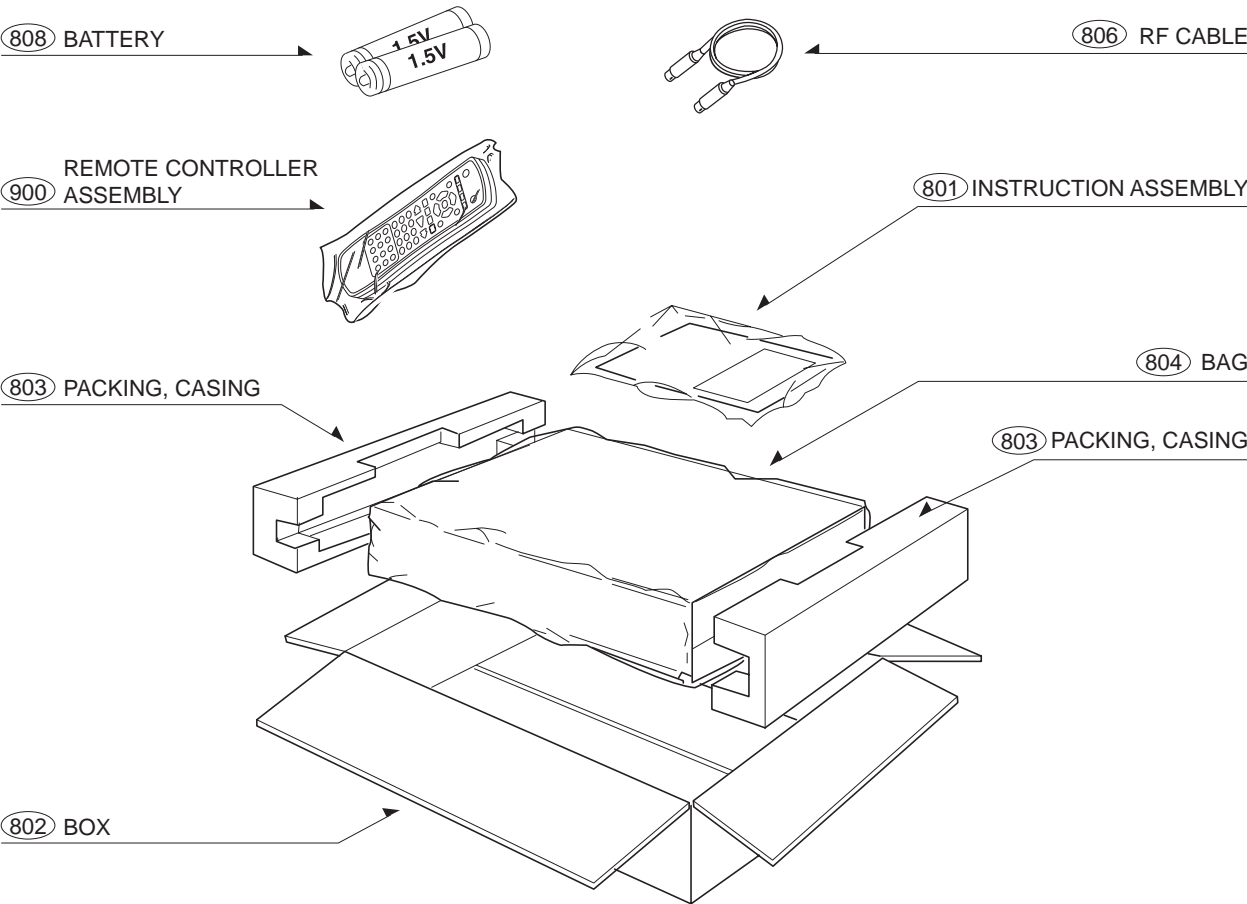


## 2) MOVING MECHANISM SECTION (1)





# 4. PACKING ACCESSORY SECTION



# MEMO

# SECTION 3

## ELECTRICAL

### CONTENTS

#### VCR PART

##### VCR ELECTRICAL ADJUSTMENT

<b>PROCEDURES</b> .....	3-2
1. SERVO ADJUSTMENT .....	3-2

##### VCR ELECTRICAL

<b>TROUBLESHOOTING GUIDE</b> .....	3-3
1. POWER(SMPS) CIRCUIT .....	3-3
2. SYSTEM/KEY CIRCUIT .....	3-6
3. SERVO CIRCUIT .....	3-7
4. Y/C CIRCUIT .....	3-10
5. HI-FI CIRCUIT .....	3-14
6. TUNER/IF CIRCUIT .....	3-17

<b>BLOCK DIAGRAMS</b> .....	3-19
1. POWER(SMPS) BLOCK DIAGRAM .....	3-19
2. SYSTEM BLOCK DIAGRAM .....	3-21
3. AVCP BLOCK DIAGRAM .....	3-23
4. HI-FI BLOCK DIAGRAM .....	3-25
5. TUNER BLOCK DIAGRAM .....	3-27

<b>CIRCUIT DIAGRAMS</b> .....	3-29
1. POWER(SMPS) CIRCUIT DIAGRAM .....	3-29
2. SYSTEM CIRCUIT DIAGRAM .....	3-31
3. AVCP CIRCUIT DIAGRAM .....	3-33
4. HI-FI CIRCUIT DIAGRAM .....	3-35
5. TUNER CIRCUIT DIAGRAM .....	3-37
<b>WAVEFORMS</b> .....	3-39
<b>CIRCUIT VOLTAGE CHART</b> .....	3-41
<b>IC BLOCK DIAGRAMS</b> .....	3-47

##### PRINTED CIRCUIT BOARD

<b>DIAGRAMS</b> .....	3-51
1. MAIN P.C.BOARD (TOP SIDE) .....	3-51
2. MAIN P.C.BOARD (BOTTOM SIDE) .....	3-53
3. POWER P.C.BOARD .....	3-55
4. KEY P.C.BOARD .....	3-57

#### DVD PART

##### DVD ELECTRICAL

<b>TROUBLESHOOTING GUIDE</b> .....	3-59
1. POWER CHECK FLOW .....	3-59
2. SYSTEM OPERATION FLOW .....	3-60
3. TEST & DEBUG FLOW .....	3-61

##### DETAILS AND WAVEFORMS ON SYSTEM TEST AND DEBUGGING .....

1. SYSTEM 27MHZ CLOCK, RESET SIGNAL .....	3-67
2. SDRAM CLOCK .....	3-68
3. TRAY OPEN/CLOSE SIGNAL .....	3-68
4. SLED CONTROL RELATED SIGNAL (NO DISC CONDITION) .....	3-70
5. LENS CONTROL RELATED SIGNAL (NO DISC CONDITION) .....	3-70
6. LASER POWER CONTROL RELATED SIGNAL (NO DISC CONDITION) .....	3-71
7. FOCUS ON WAVEFORM .....	3-71
8. SPINDLE CONTROL WAVEFORM (NO DISC CONDITION) .....	3-72
9. TRACKING CONTROL RELATED SIGNAL (SYSTEM CHECKING) .....	3-73
10. RF WAVEFORM .....	3-74
11. ZR36966 AUDIO OPTICAL AND COAXIAL OUTPUT (SPDIF) .....	3-74
12. ZR36966 VIDEO OUTPUT WAVEFORM .....	3-75
13. AUDIO OUTPUT FROM AUDIO PREAMP .....	3-76

<b>BLOCK DIAGRAMS</b> .....	3-77
1. SYSTEM BLOCK DIAGRAM .....	3-77
2. SERVO BLOCK DIAGRAM .....	3-78
3. AUDIO & VIDEO IN/OUT BLOCK DIAGRAM .....	3-79

<b>CIRCUIT DIAGRAMS</b> .....	3-81
1. MPEG CIRCUIT DIAGRAM .....	3-81
2. SERVO CIRCUIT DIAGRAM .....	3-83
3. JACK CIRCUIT DIAGRAM .....	3-85
<b>IC BLOCK DIAGRAMS</b> .....	3-87

# VCR PART

## VCR ELECTRICAL ADJUSTMENT PROCEDURES

### 1. SERVO ADJUSTMENT

#### 1) PG Adjustment

- Test Equipment

a) OSCILLOSCOPE

C) PAL MODEL : PAL SP TEST TAPE

b) NTSC MODEL : NTSC SP TEST TAPE

- Adjustment And Specification

MODE	MEASUREMENT POINT	ADJUSTMENT POINT	SPECIFICATION
PLAY	V.Out H/SW(TP)	R/C TRK JIG KEY	$6.5 \pm 0.5H$

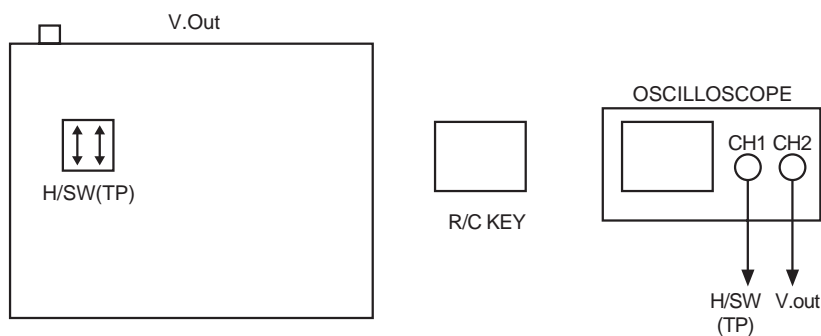
#### • Adjustment Procedure

- Insert the SP Test Tape and play.  
Note - Adjust the distance of X, pressing the Tracking(+) or Tracking(-) when the "ATR" is blink after the SP Test Tape is inserted.
- Connect the CH1 of the oscilloscope to the H/SW(TP) and CH2 to the Video Out for the VCR.
- Trigger the mixed Combo Video Signal of CH2 to the CH1 H/SW(TP) and then check the distance (time difference), which is from the selected A(B) Head point of the H/SW(TP) signal to the starting point of the vertical synchronized signal, to  $6.5H \pm 0.5H$  ( $412\mu s$ ,  $1H=63\mu s$ ).

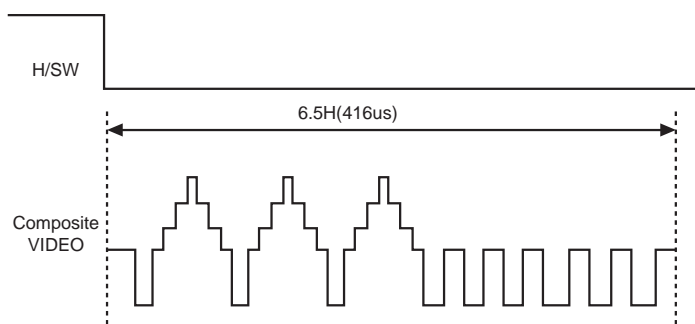
#### • PG Adjustment Method

- Playback the SP standard tape
- Press the "OK" key on the Remote control and the "REC" key on the Front Panel at the same time for more than 5seconds, then it goes in to Tracking initial mode.
- Repeat the above step(No.b-2), then it finishes the PG adjusting automatically.
- Stop the playback, then it goes out to PG adjusting mode after many the PG data.

#### • CONNECTION



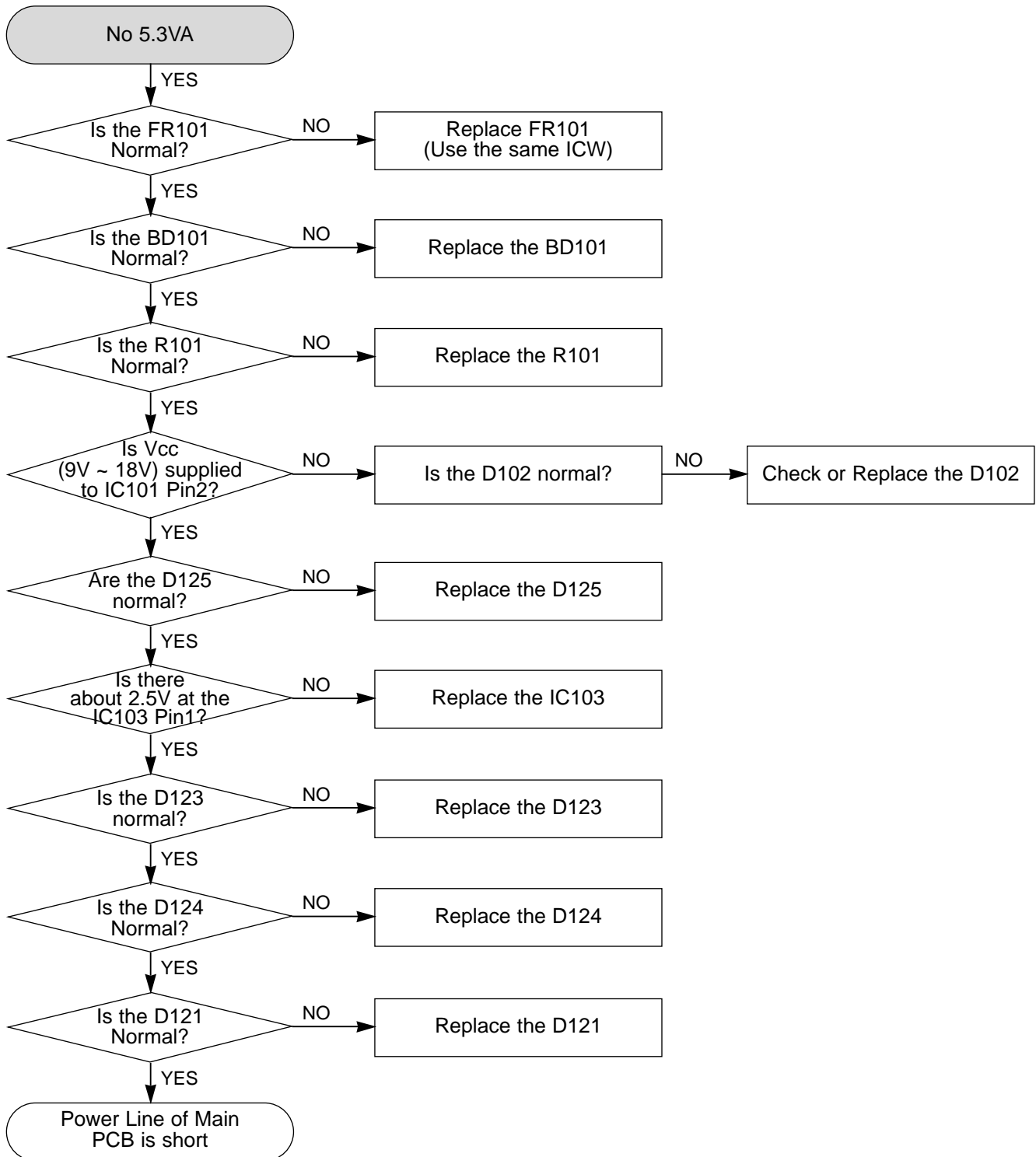
#### • WAVEFORM



# VCR ELECTRICAL TROUBLESHOOTING GUIDE

## 1. POWER(SMPS) CIRCUIT

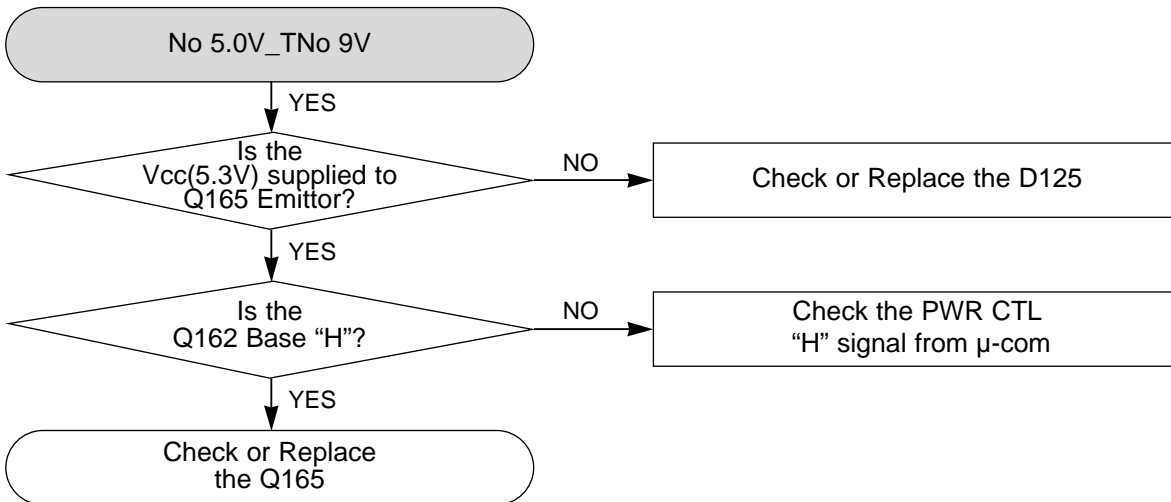
### 1-1. No 5.3VA



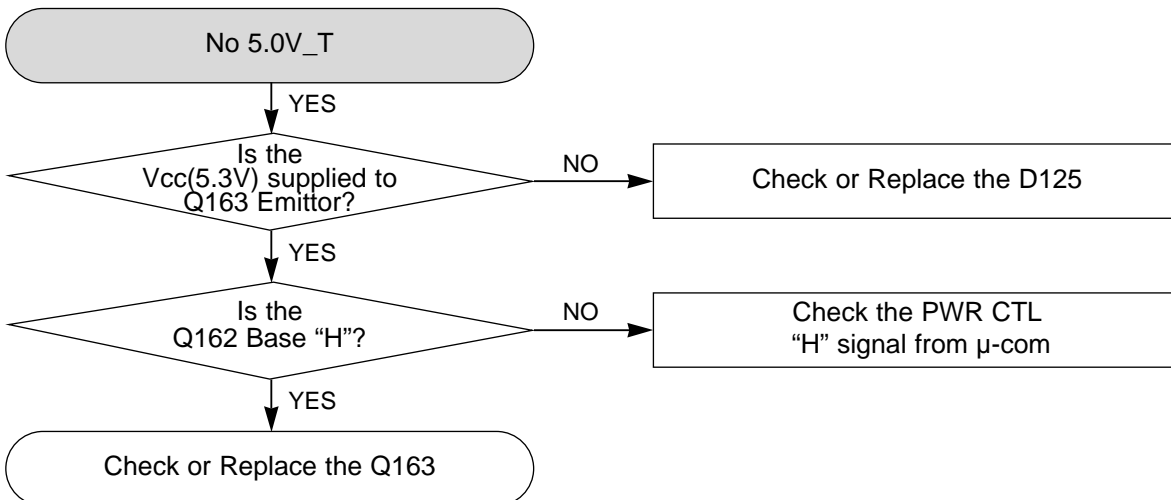


# VCR ELECTRICAL TROUBLESHOOTING GUIDE

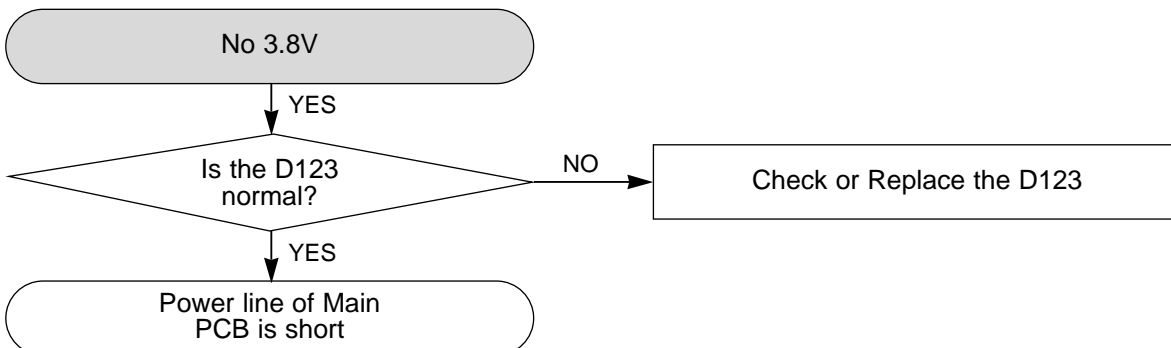
## 1-2. No 5.0V\_D



## 1-3. No 5.0V\_T

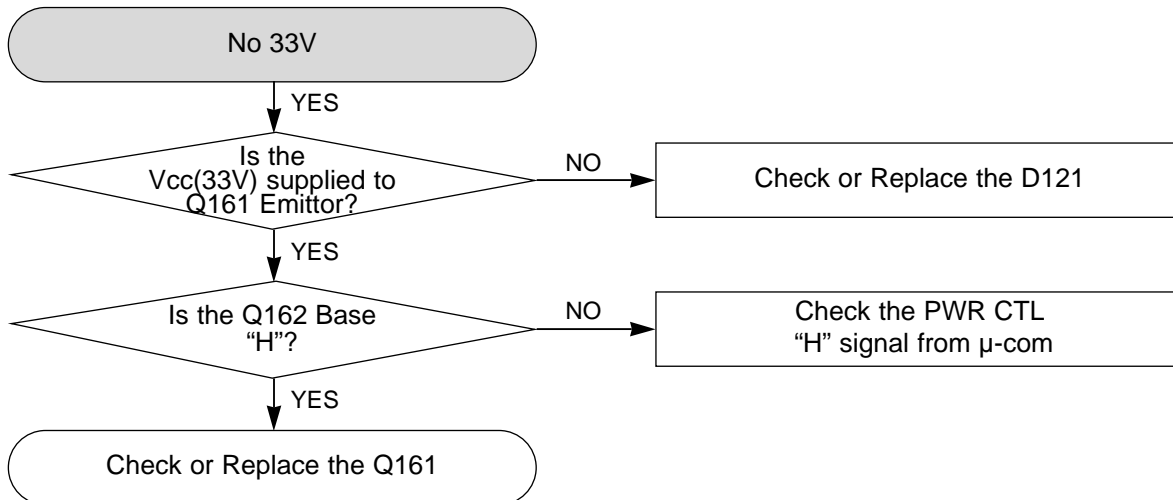


## 1-4. No 3.8V

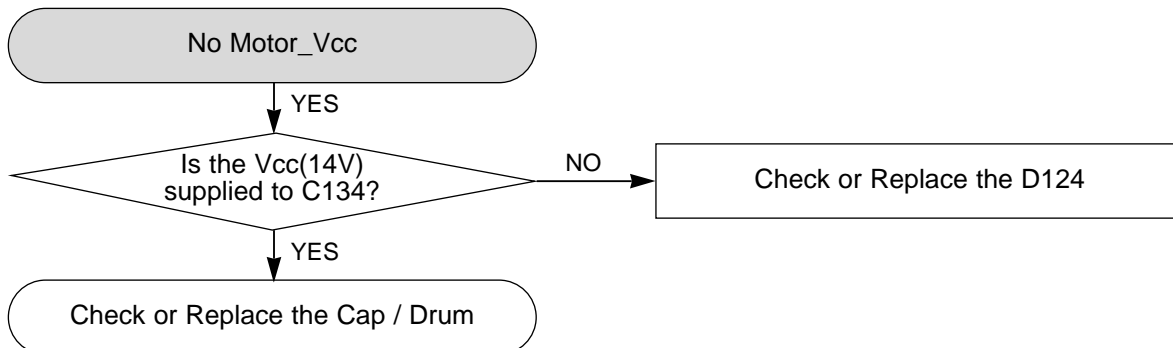


# VCR ELECTRICAL TROUBLESHOOTING GUIDE

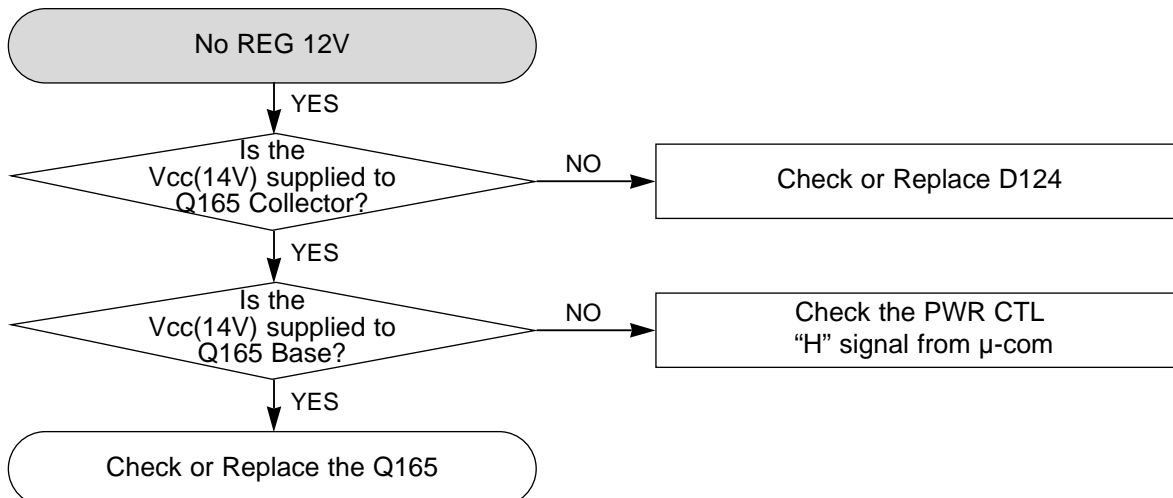
## 1-5. No 33V



## 1-6. No Motor\_Vcc (To Cap, Drum Motor)



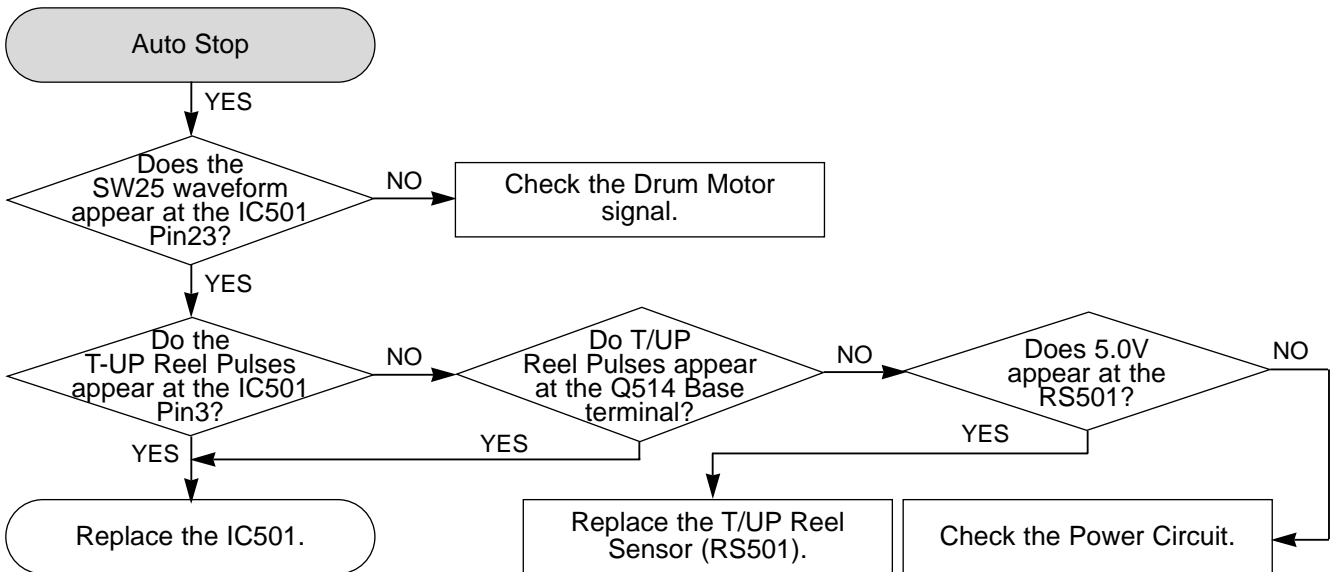
## 1-7. No REG 12V



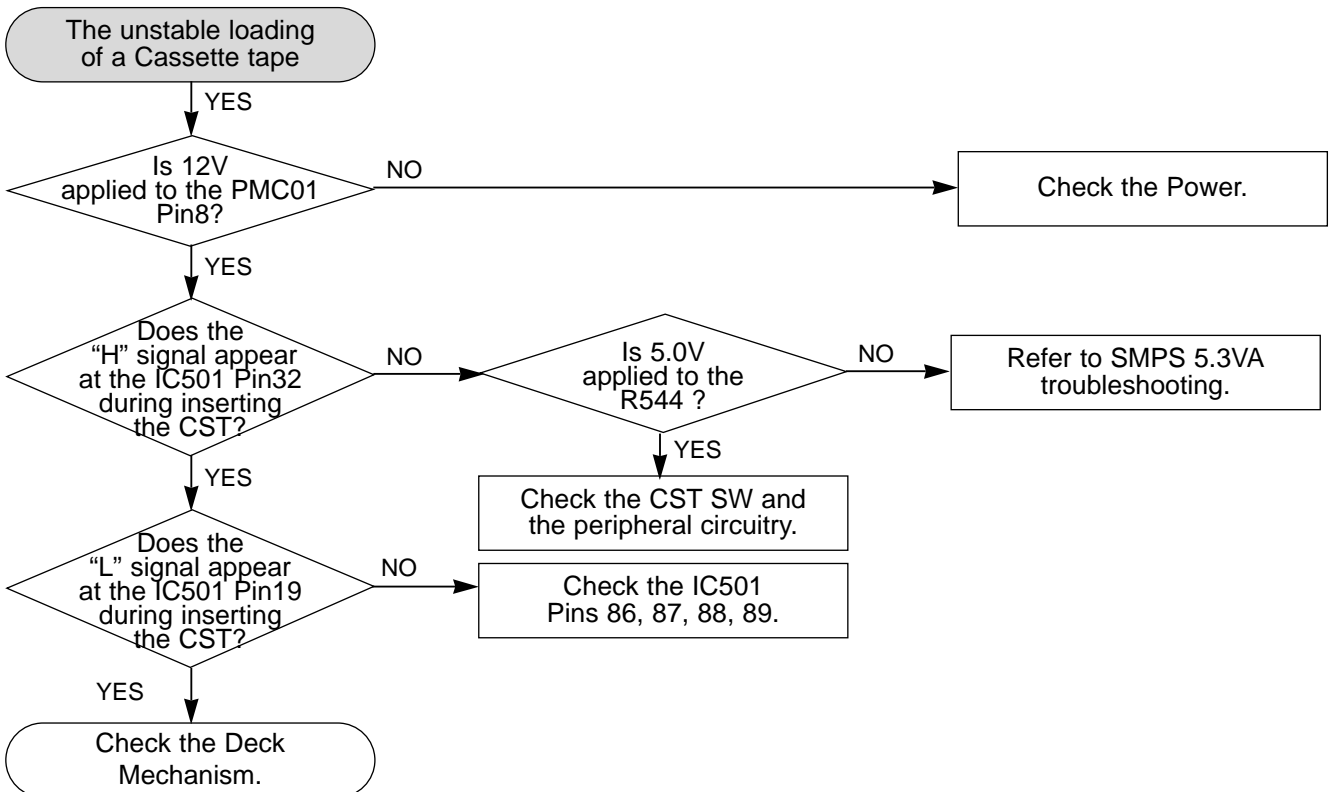
# VCR ELECTRICAL TROUBLESHOOTING GUIDE

## 2. SYSTEM/KEY CIRCUIT

### 2-1. AUTO STOP



### 2-2. The unstable loading of a Cassette tape

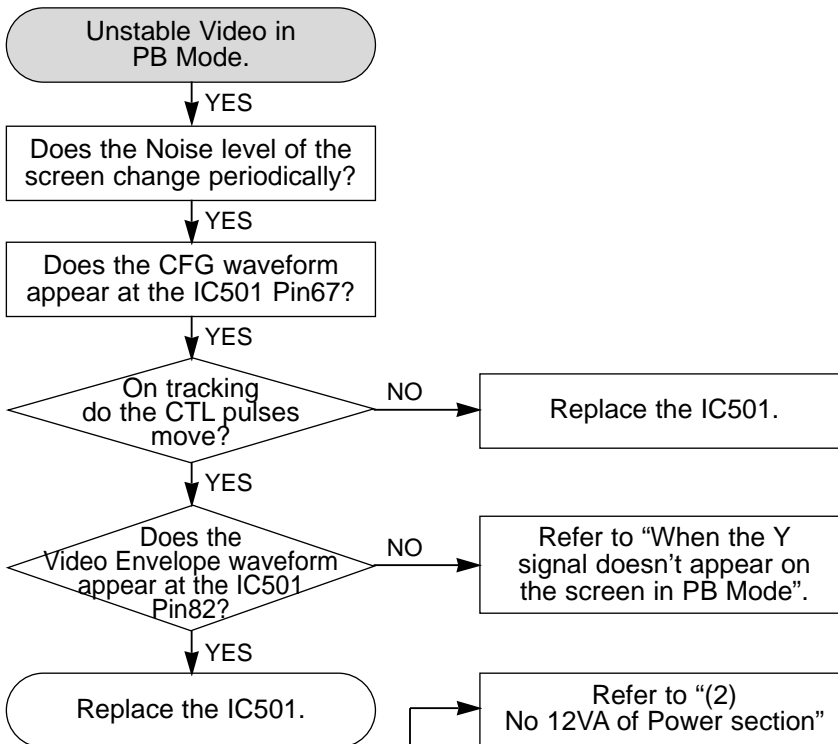


**Caution :** Auto stop can occur because Grease or Oil is dried up

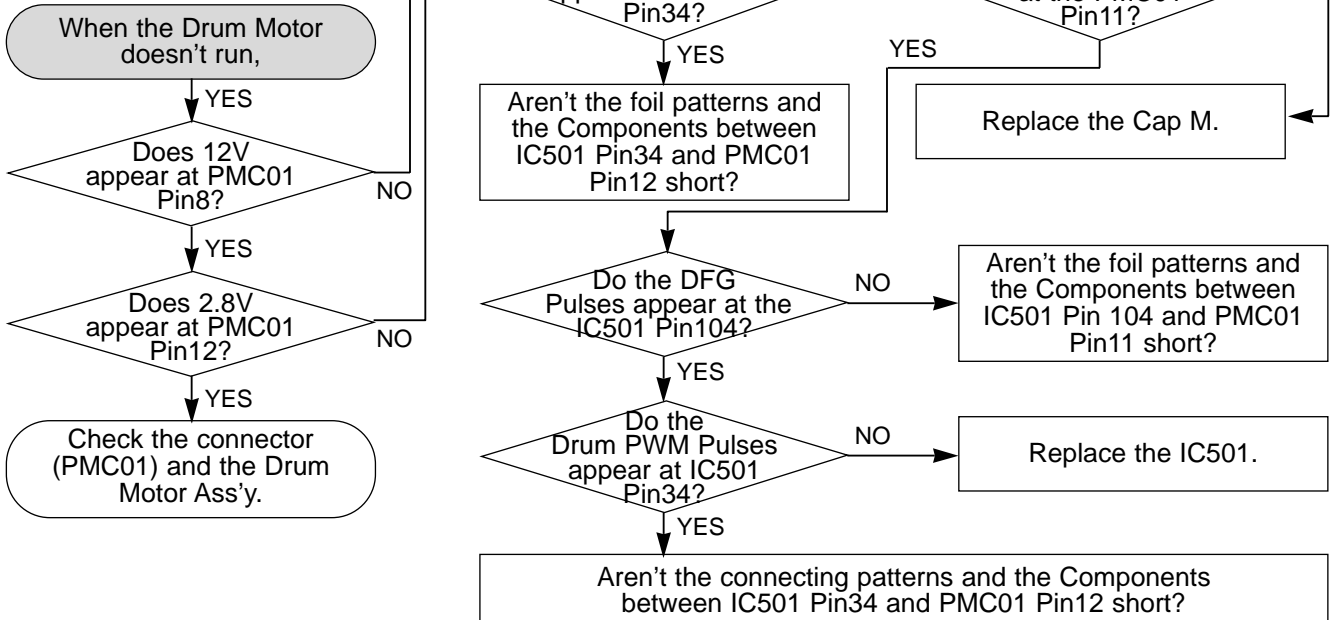
# VCR ELECTRICAL TROUBLESHOOTING GUIDE

## 3. SERVO CIRCUIT

### 3-1. Unstable Video in PB MODE

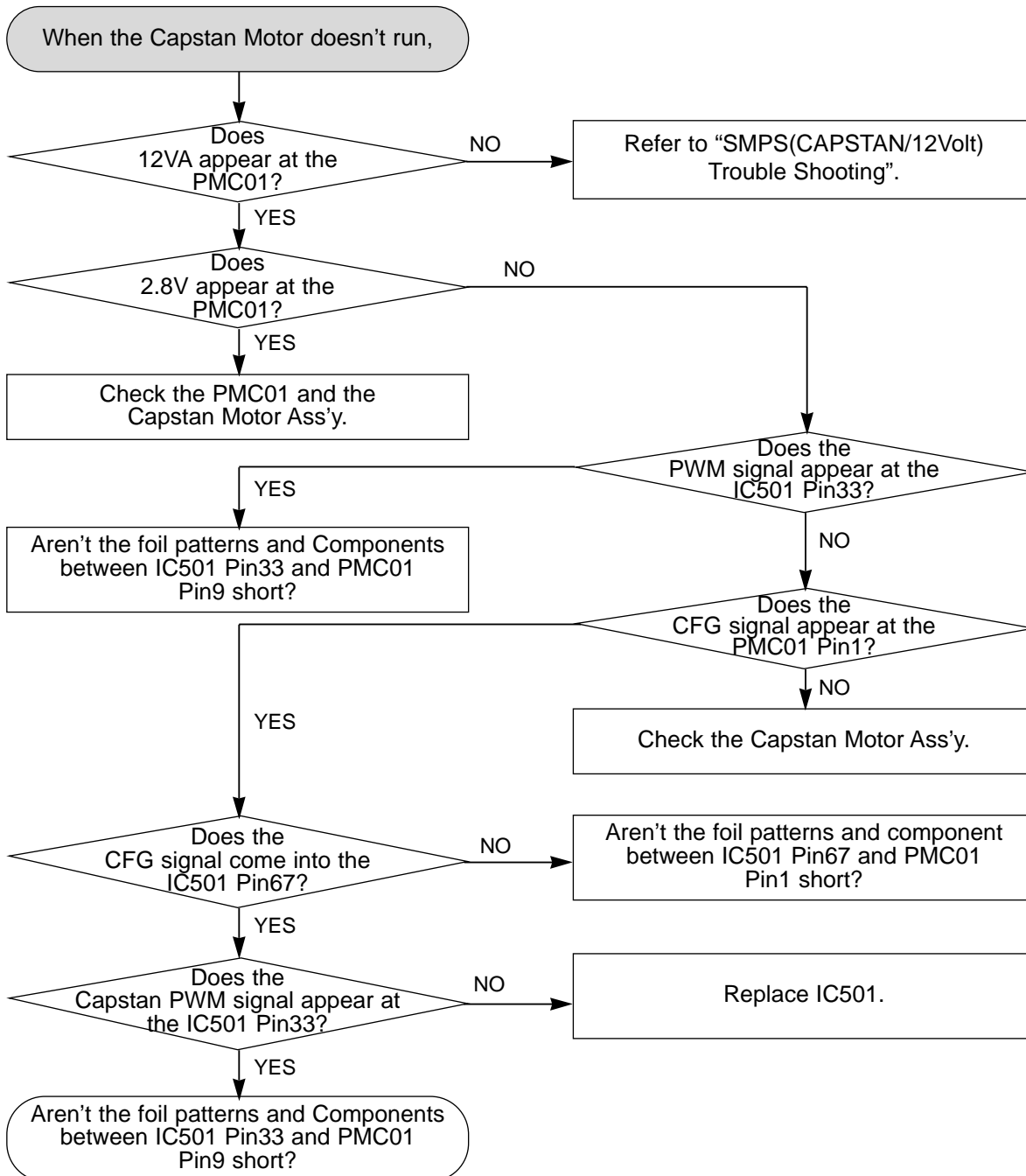


### 3-2. When the Drum Motor doesn't run.



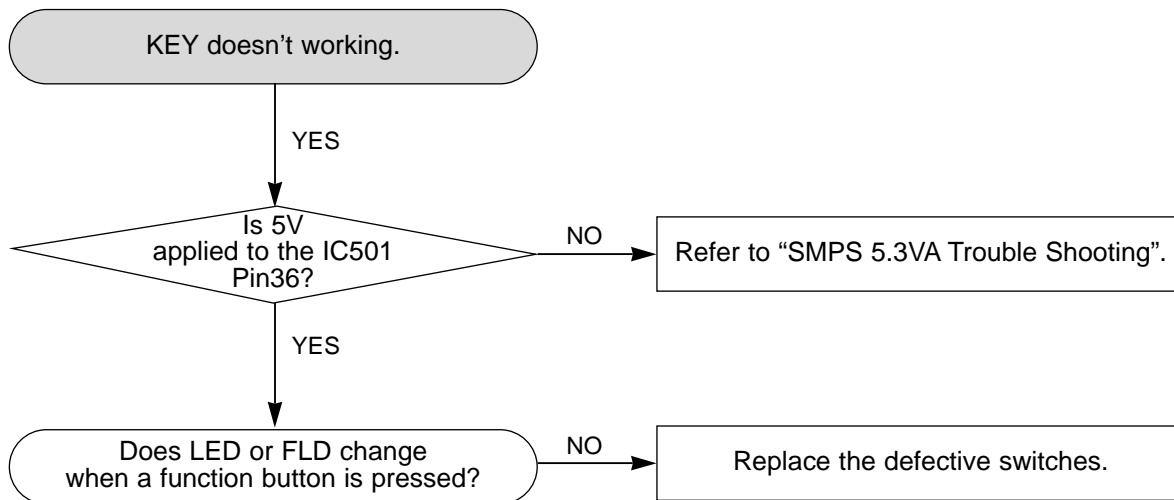
# VCR ELECTRICAL TROUBLESHOOTING GUIDE

## 3-3. When the Capstan Motor doesn't run,



# VCR ELECTRICAL TROUBLESHOOTING GUIDE

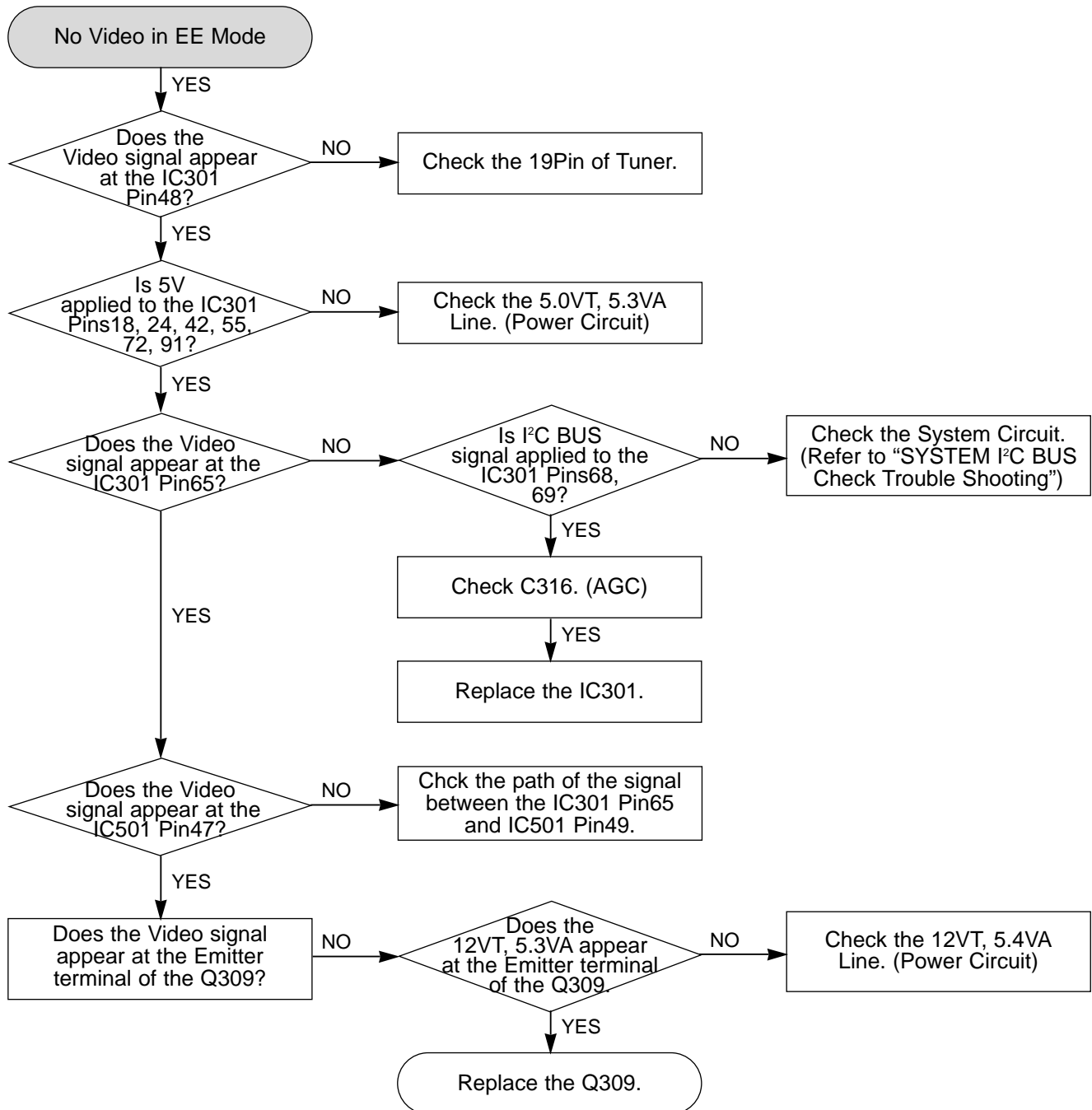
## 3-4. KEY doesn't working



# VCR ELECTRICAL TROUBLESHOOTING GUIDE

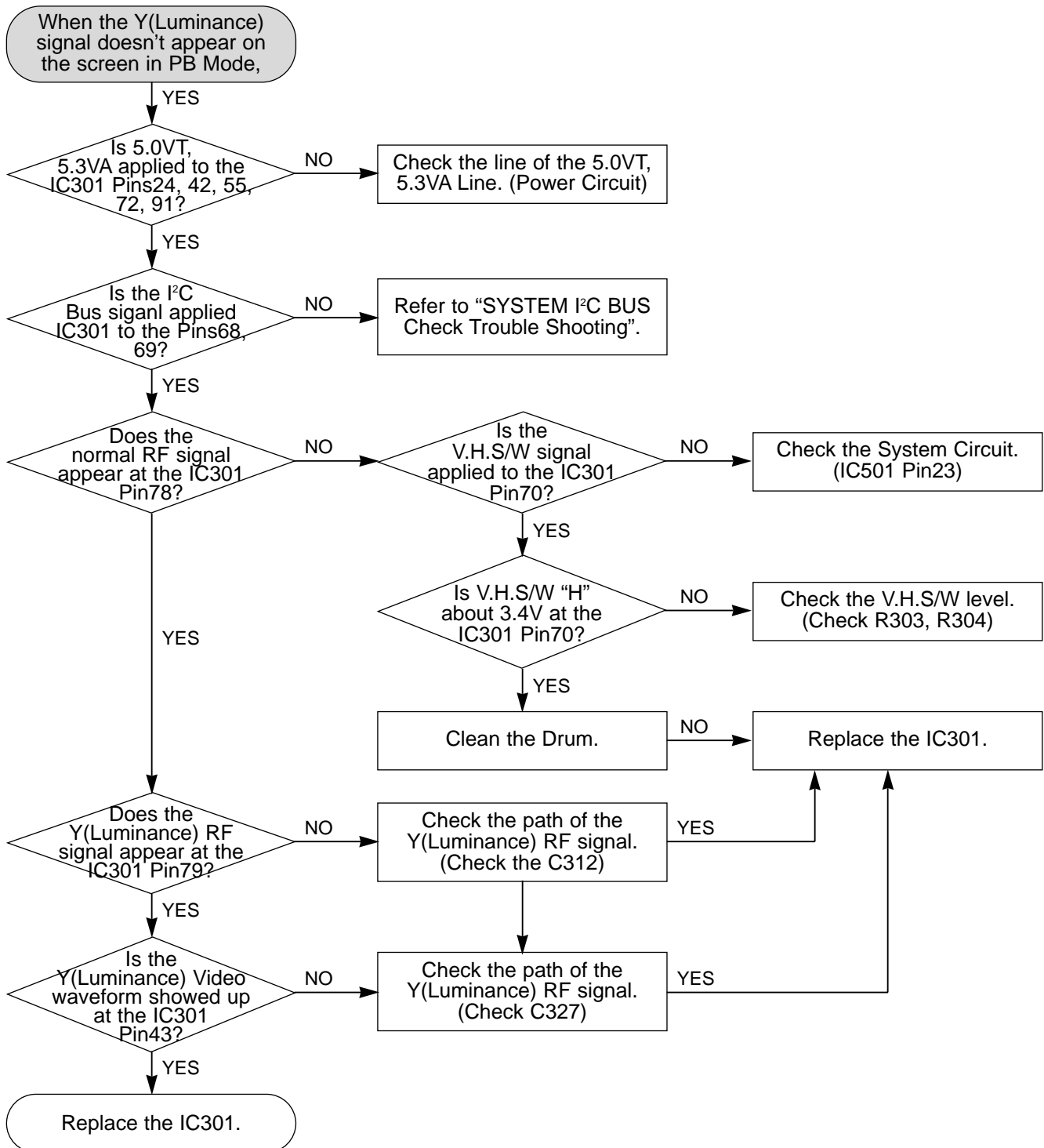
## 4. Y/C CIRCUIT

### 4-1. No Video in EE Mode,



# VCR ELECTRICAL TROUBLESHOOTING GUIDE

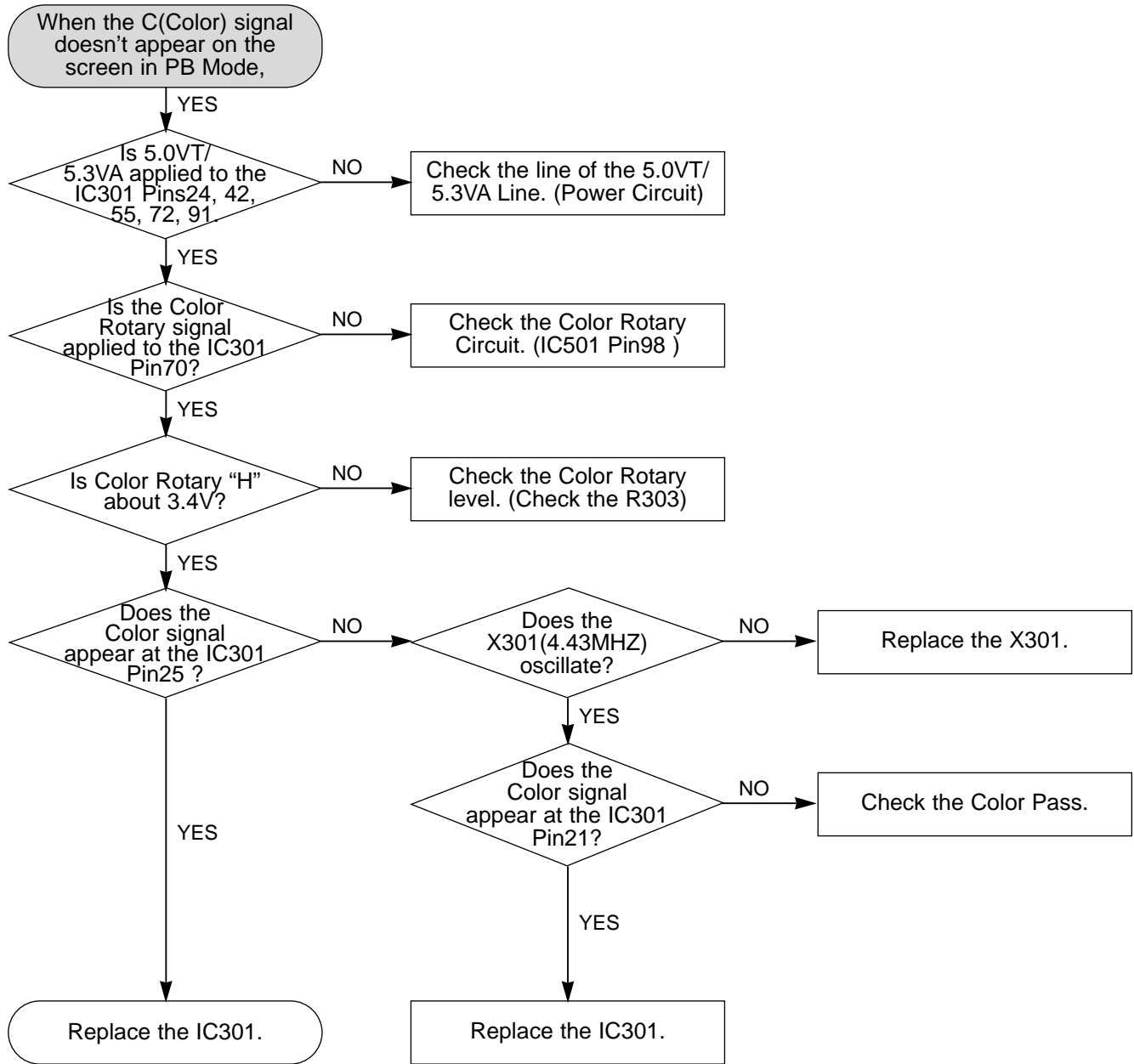
## 4-2. When the Y(Luminance) signal doesn't appear on the screen in PB Mode,





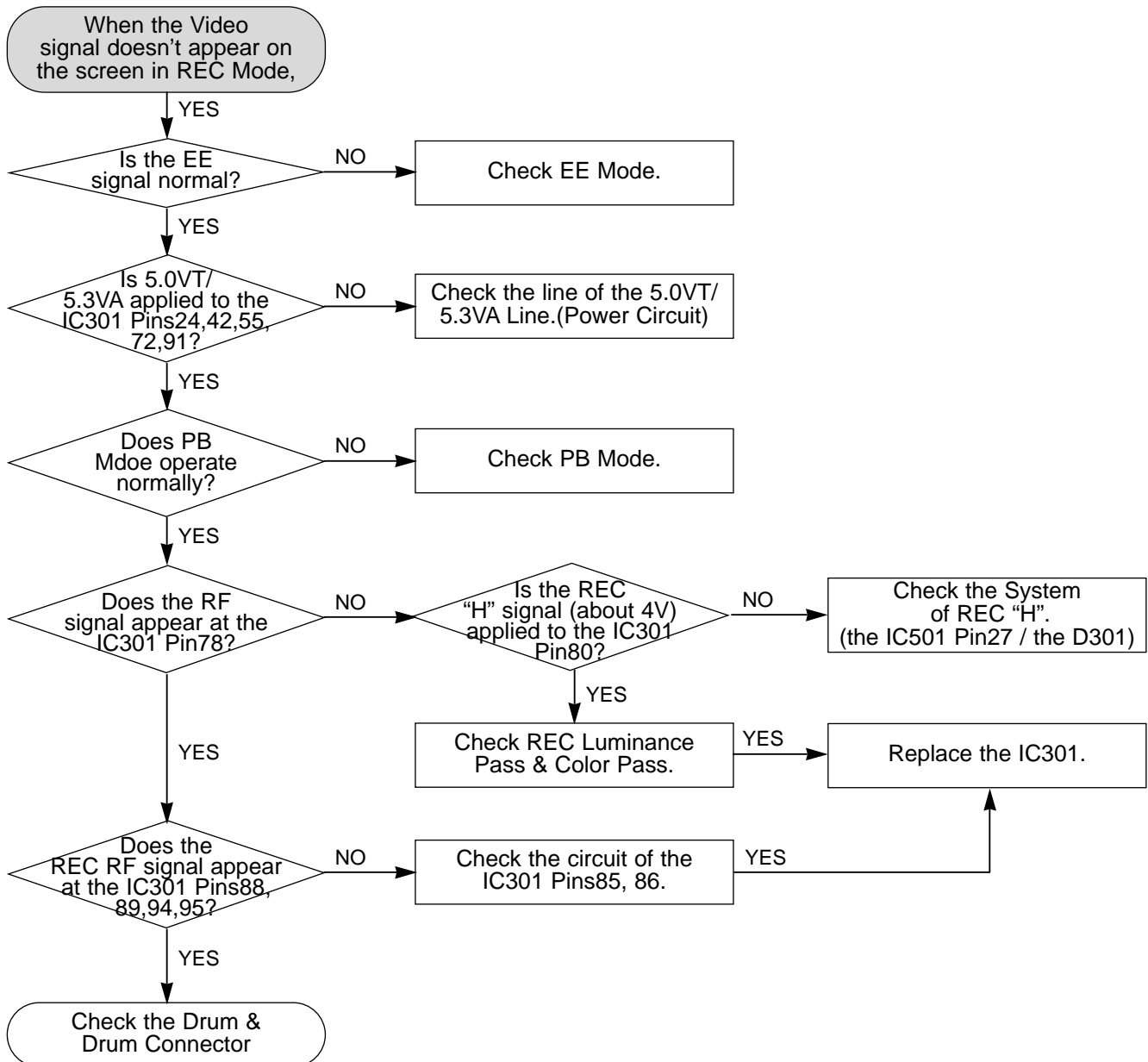
# VCR ELECTRICAL TROUBLESHOOTING GUIDE

## 4-3. When the C(Color) signal doesn't appear on the screen in PB Mode,



# VCR ELECTRICAL TROUBLESHOOTING GUIDE

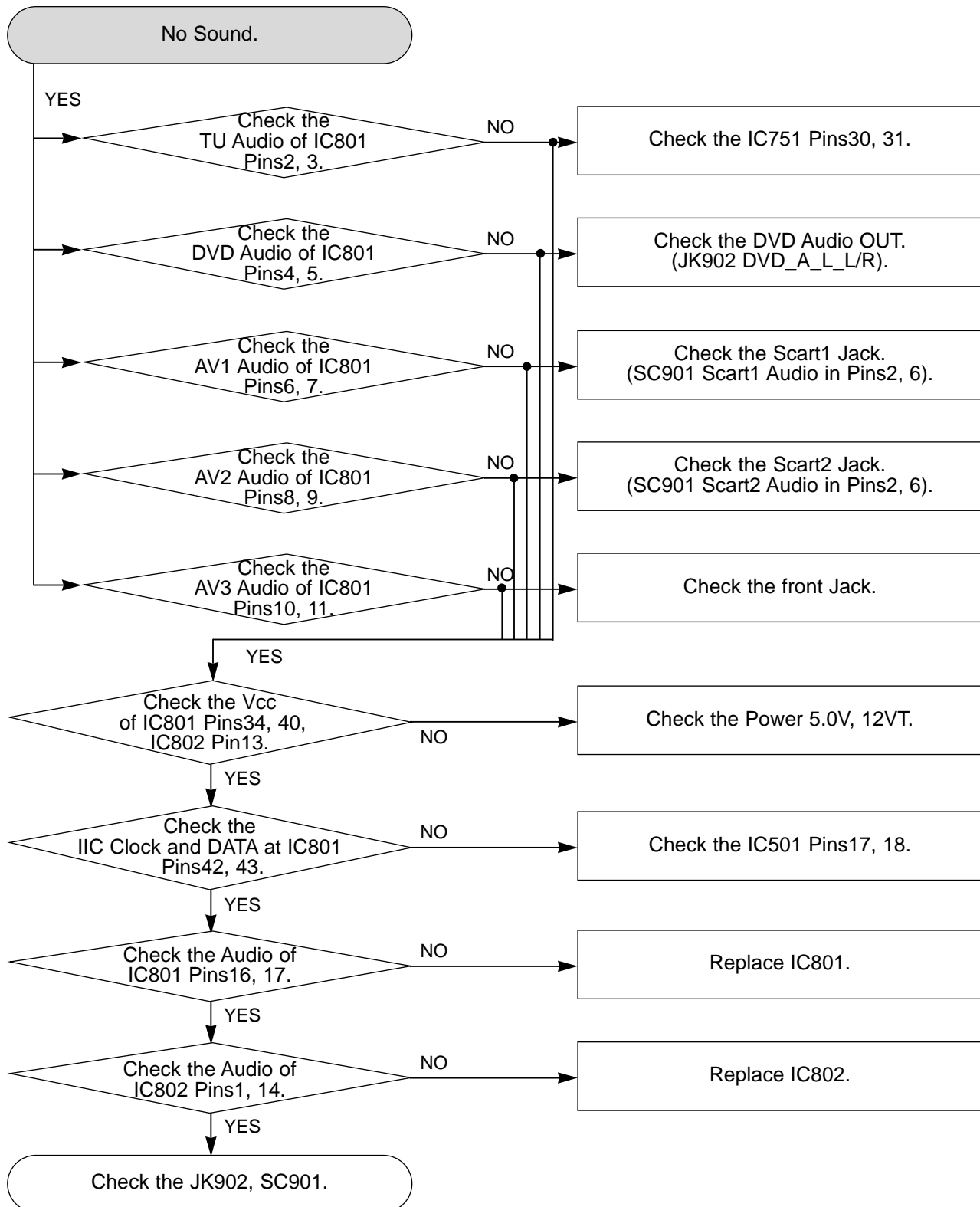
## 4-4. When the Video signal doesn't appear on the screen in REC Mode,



# VCR ELECTRICAL TROUBLESHOOTING GUIDE

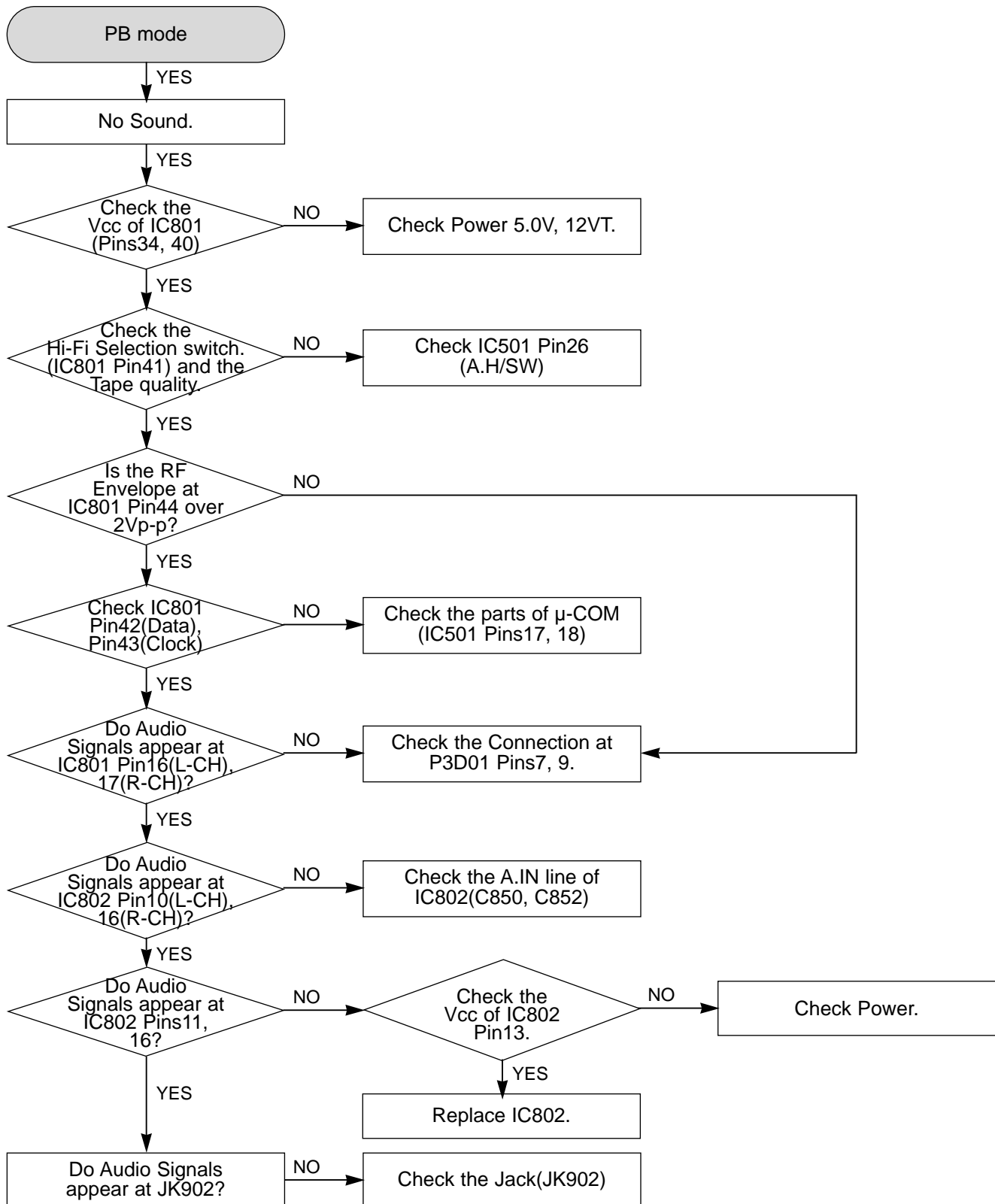
## 5. Hi-Fi CIRCUIT

### 5-1. No Sound(EE Mode)



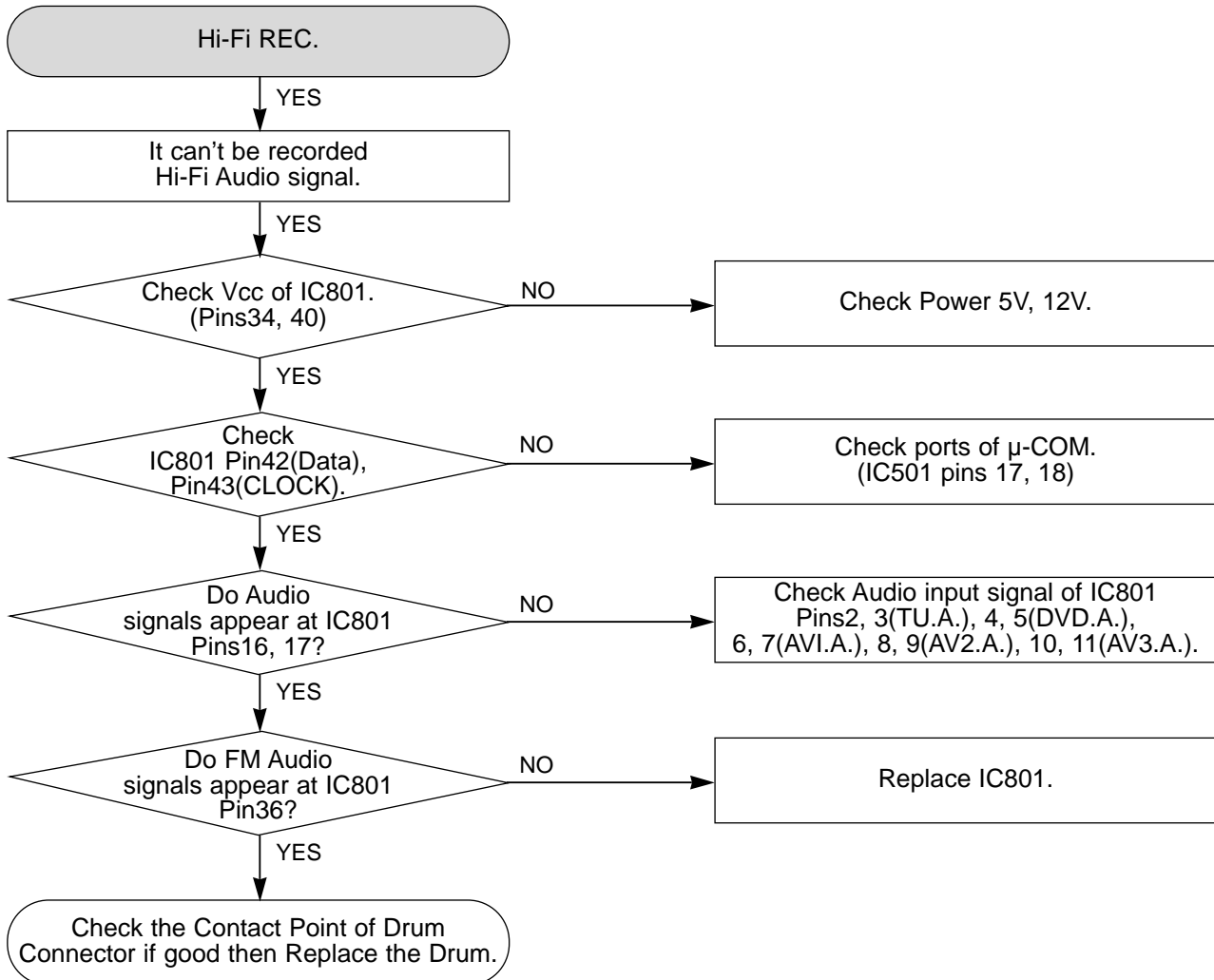
# VCR ELECTRICAL TROUBLESHOOTING GUIDE

## 5-2. Hi-Fi Playback



# VCR ELECTRICAL TROUBLESHOOTING GUIDE

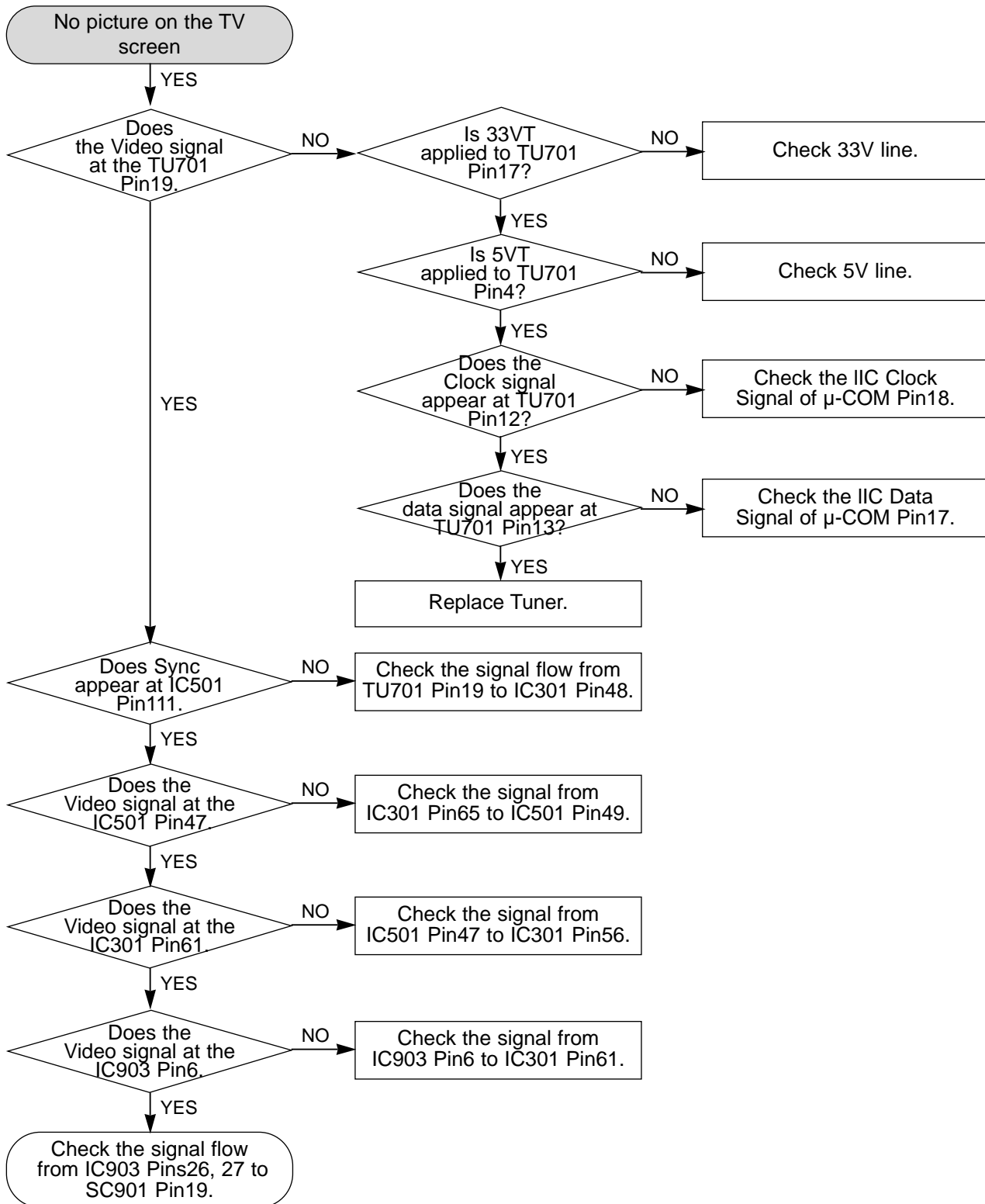
## 5-3. Hi-Fi REC



# VCR ELECTRICAL TROUBLESHOOTING GUIDE

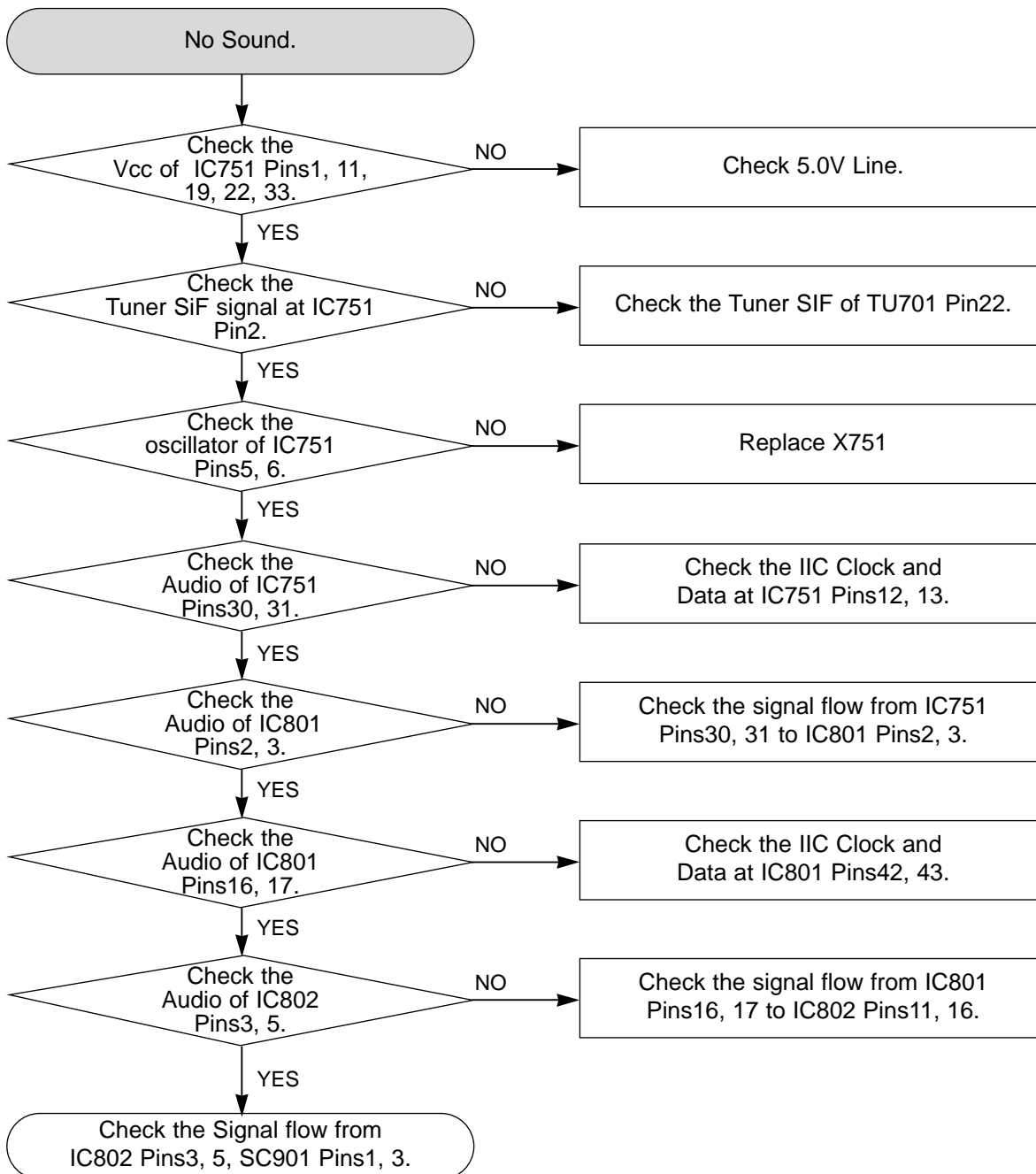
## 6. TUNER/IF CIRCUIT

### 6-1. No Picture on the TV screen



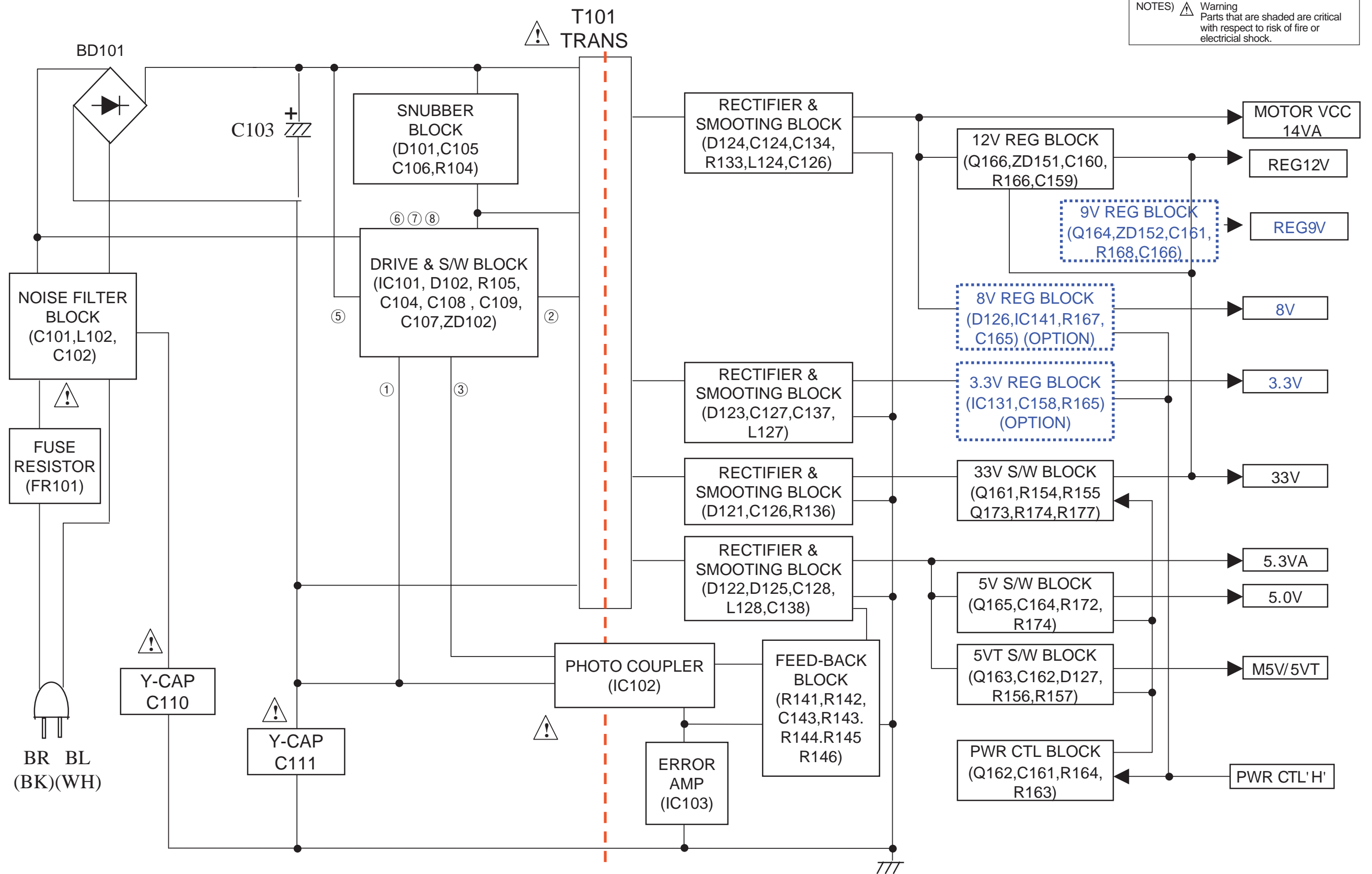
# VCR ELECTRICAL TROUBLESHOOTING GUIDE

## 6-2. No Sound



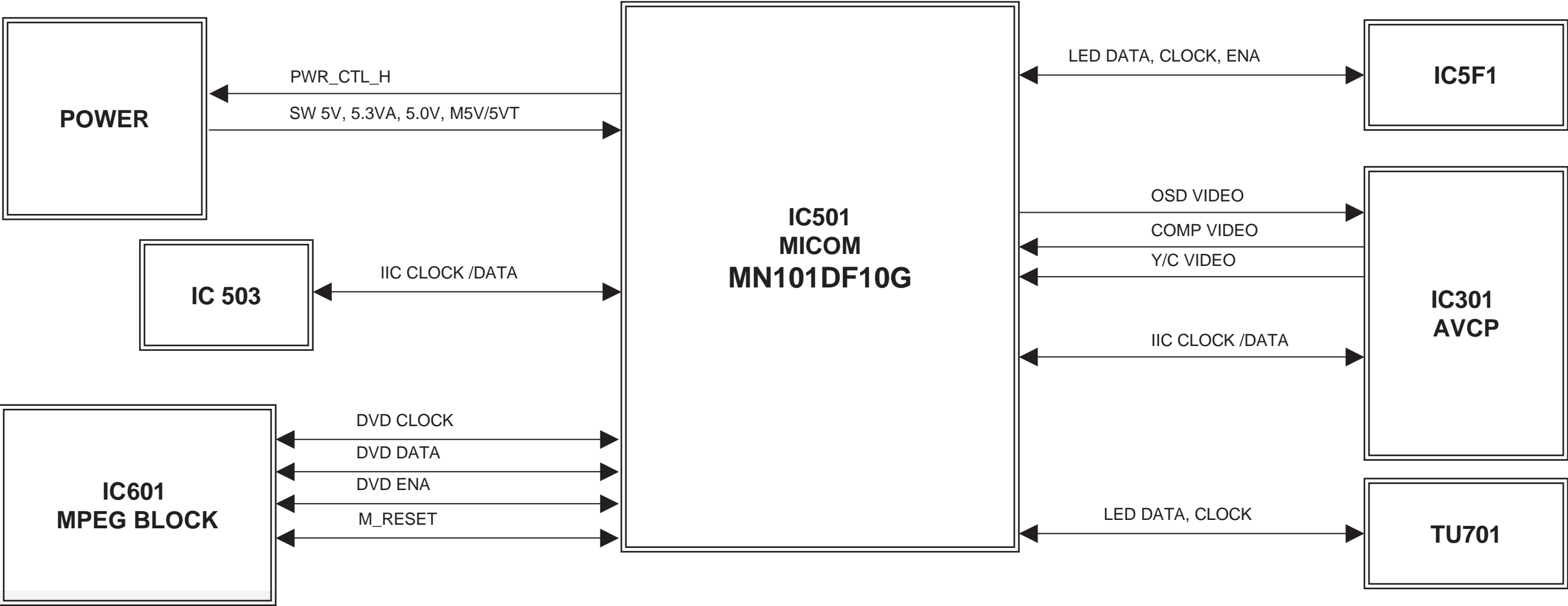
# BLOCK DIAGRAMS

## 1. POWER(SMPS) BLOCK DIAGRAM

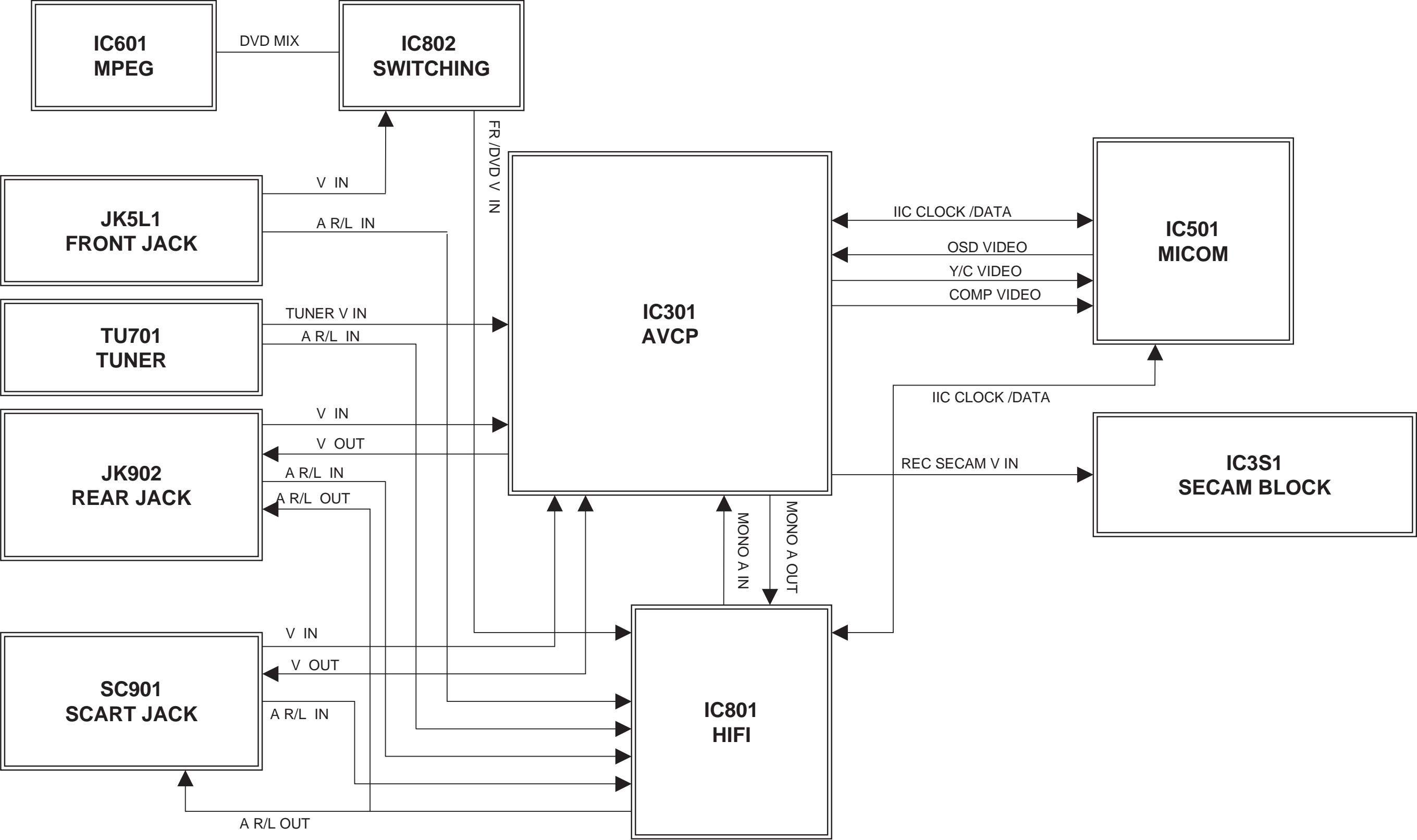




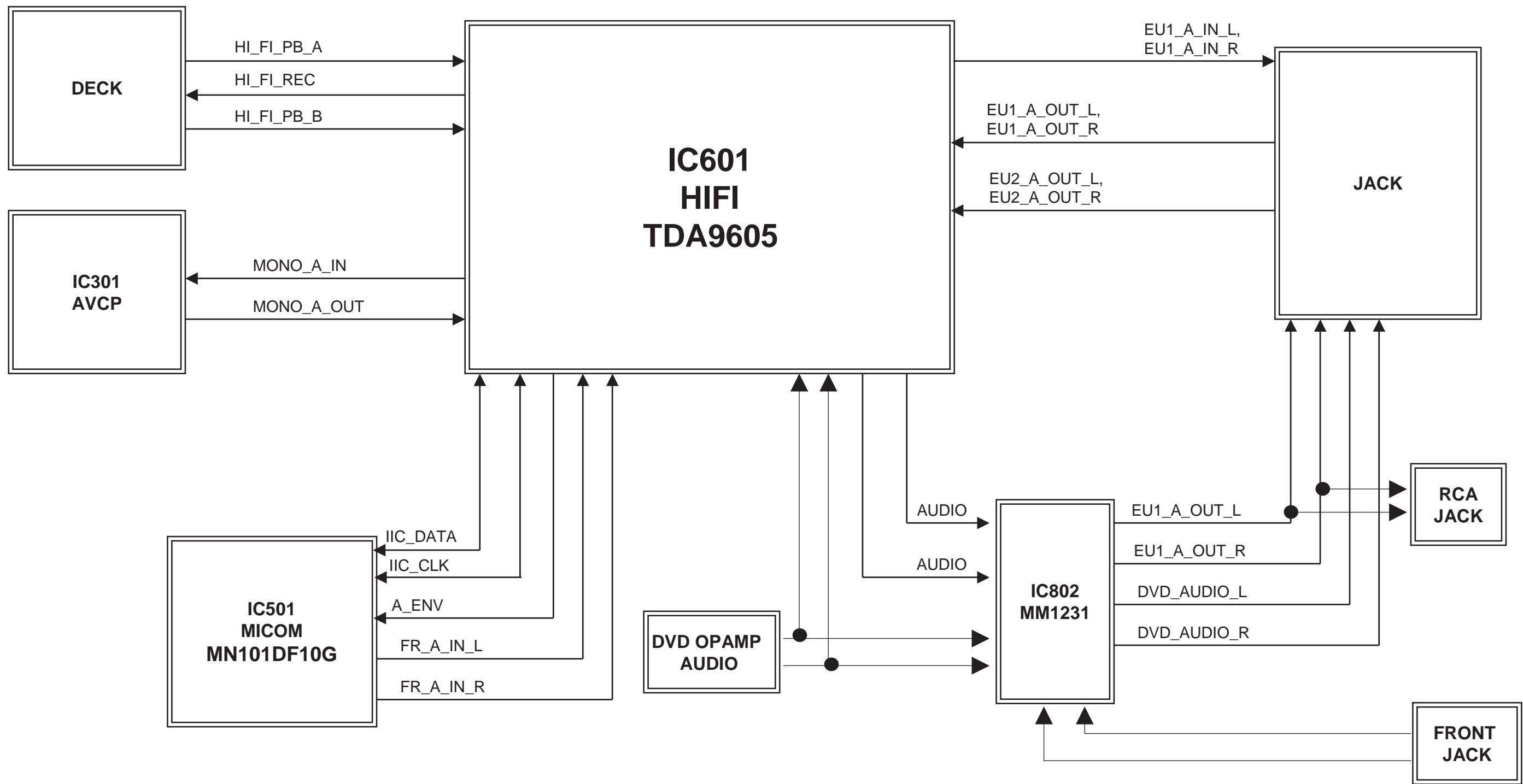
2. SYSTEM BLOCK DIAGRAM



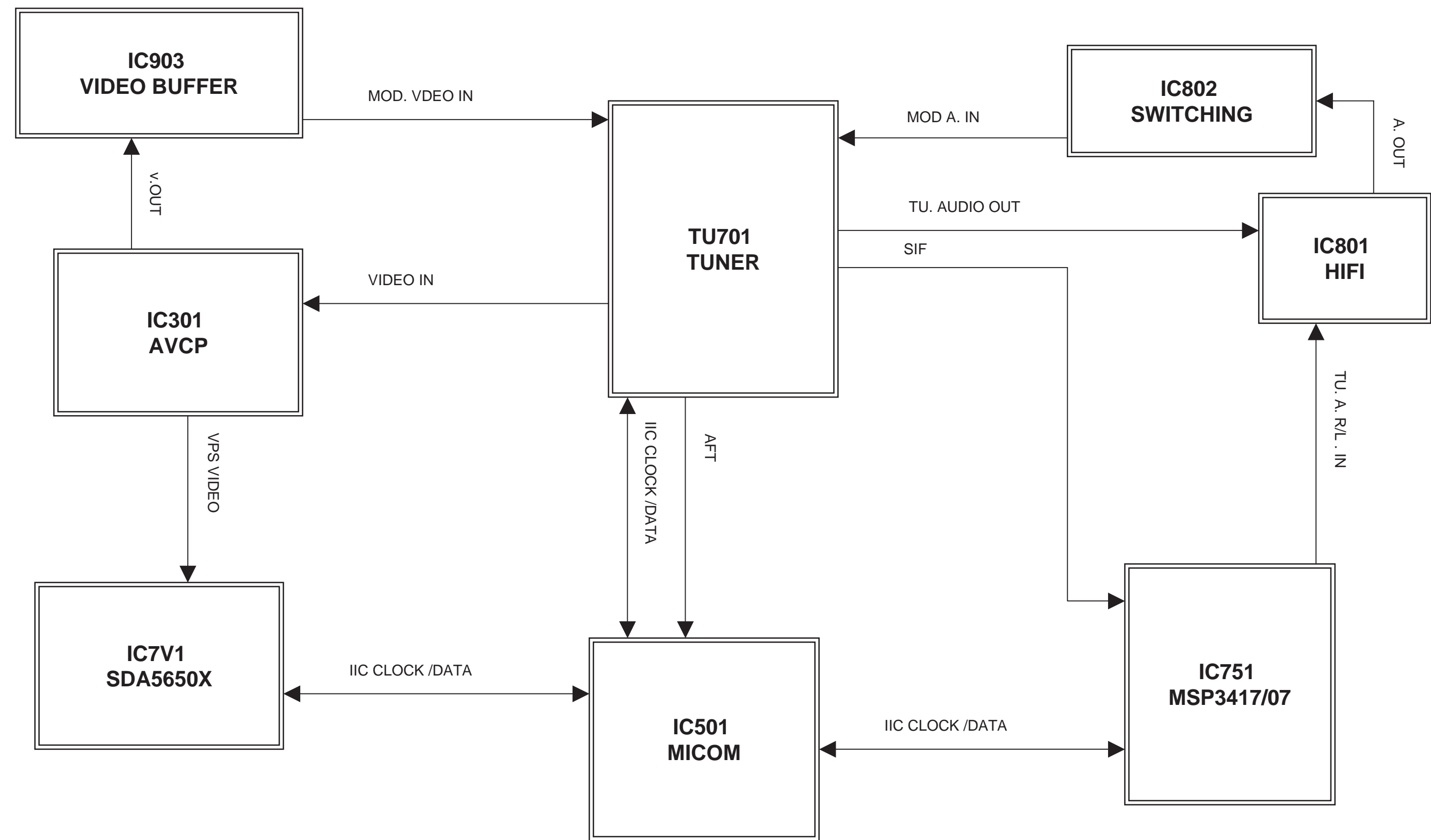
3. AVCP BLOCK DIAGRAM



4. HI-FI BLOCK DIAGRAM



5. TUNER BLOCK DIAGRAM



## 1. POWER(SMPS) CIRCUIT DIAGRAM

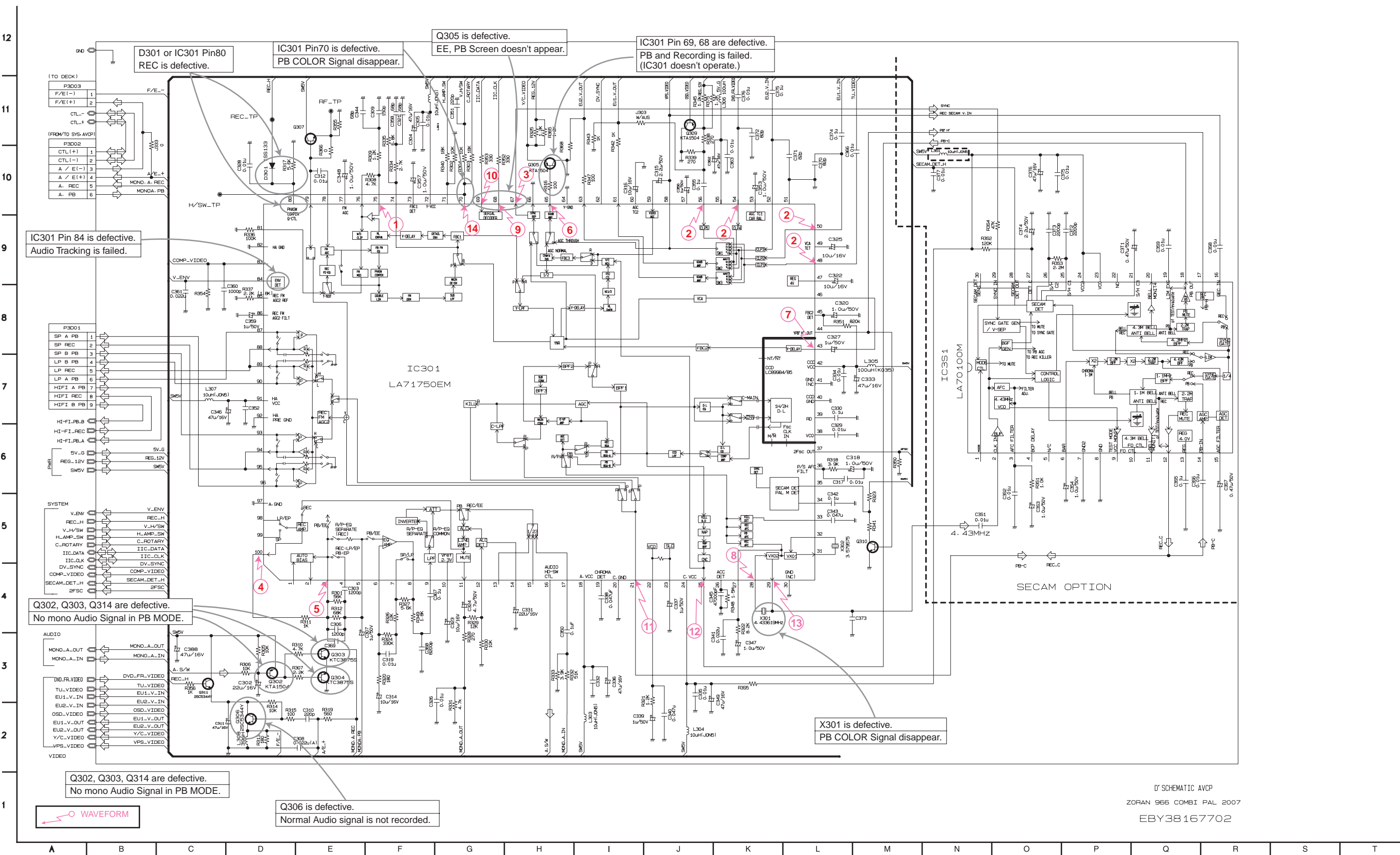
WHEN SERVICING THIS CHASSIS, UNDER NO CIRCUMSTANCES SHOULD THE ORIGINAL DESIGN BE MODIFIED OR ALTERED WITHOUT PERMISSION FROM THE PHILIPS. ALL COMPONENTS SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT. SPECIAL COMPONENTS ARE SHADED ON THE SCHEMATIC FOR

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.

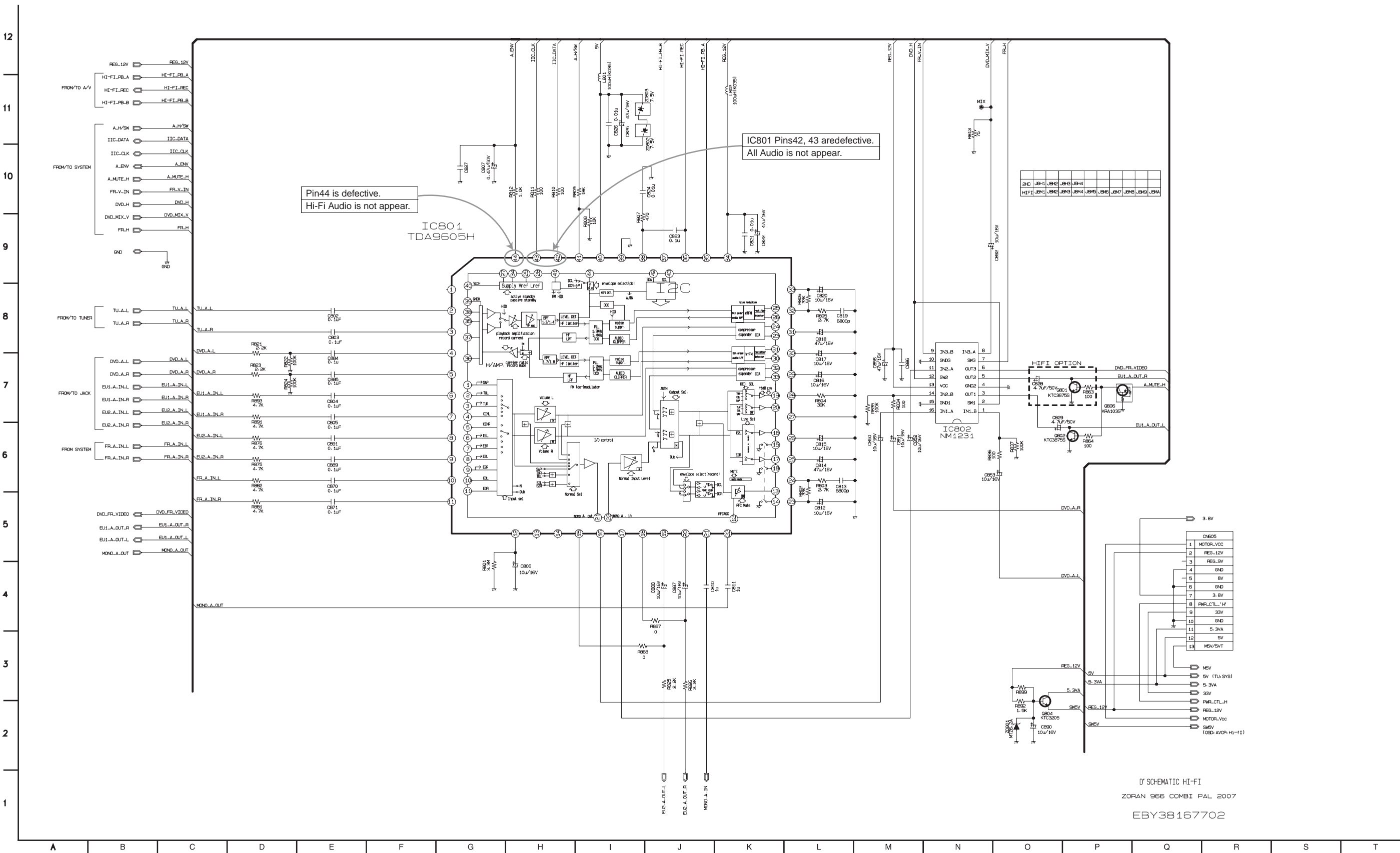




3. AVCP CIRCUIT DIAGRAM

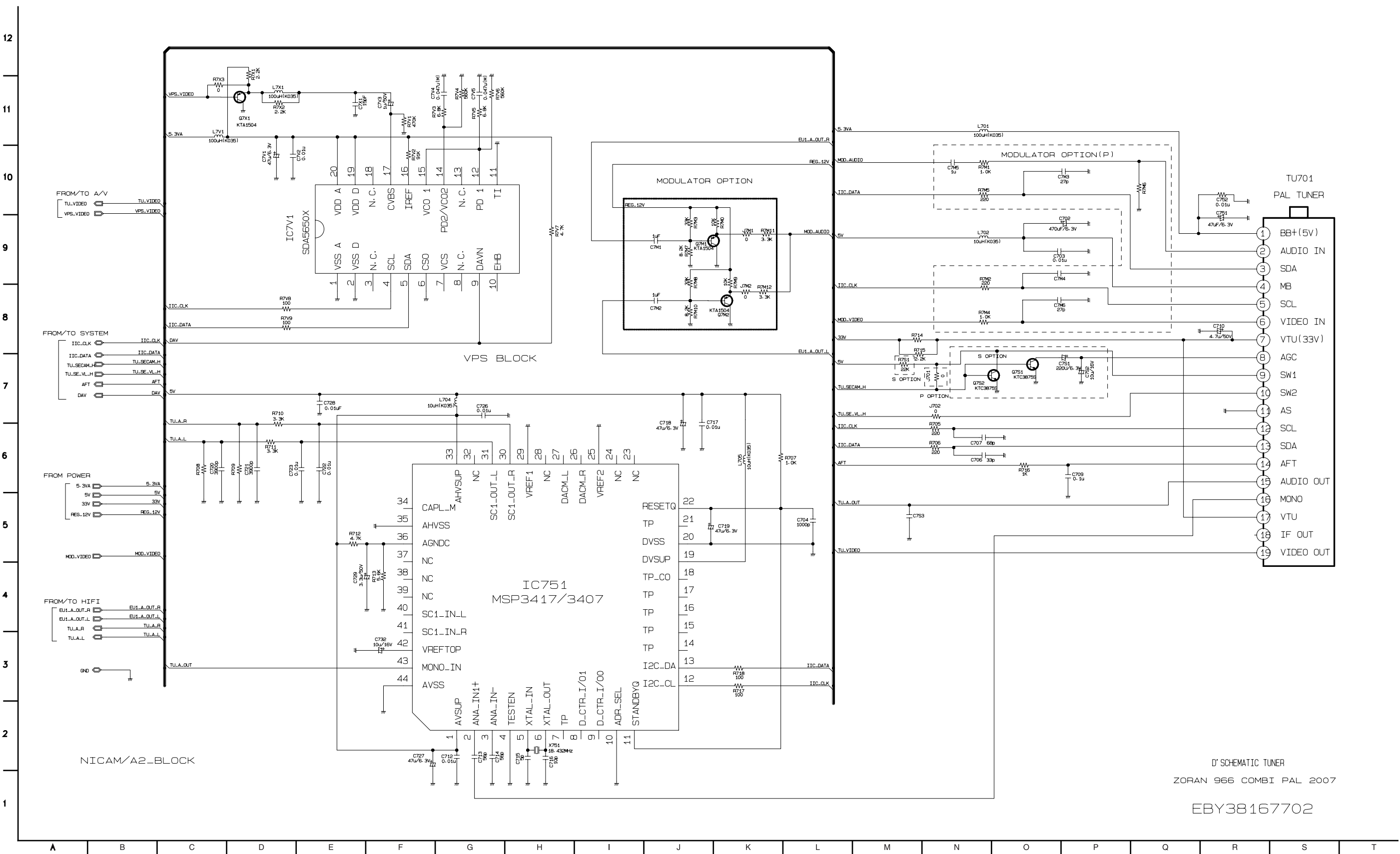


4. HI-FI CIRCUIT DIAGRAM



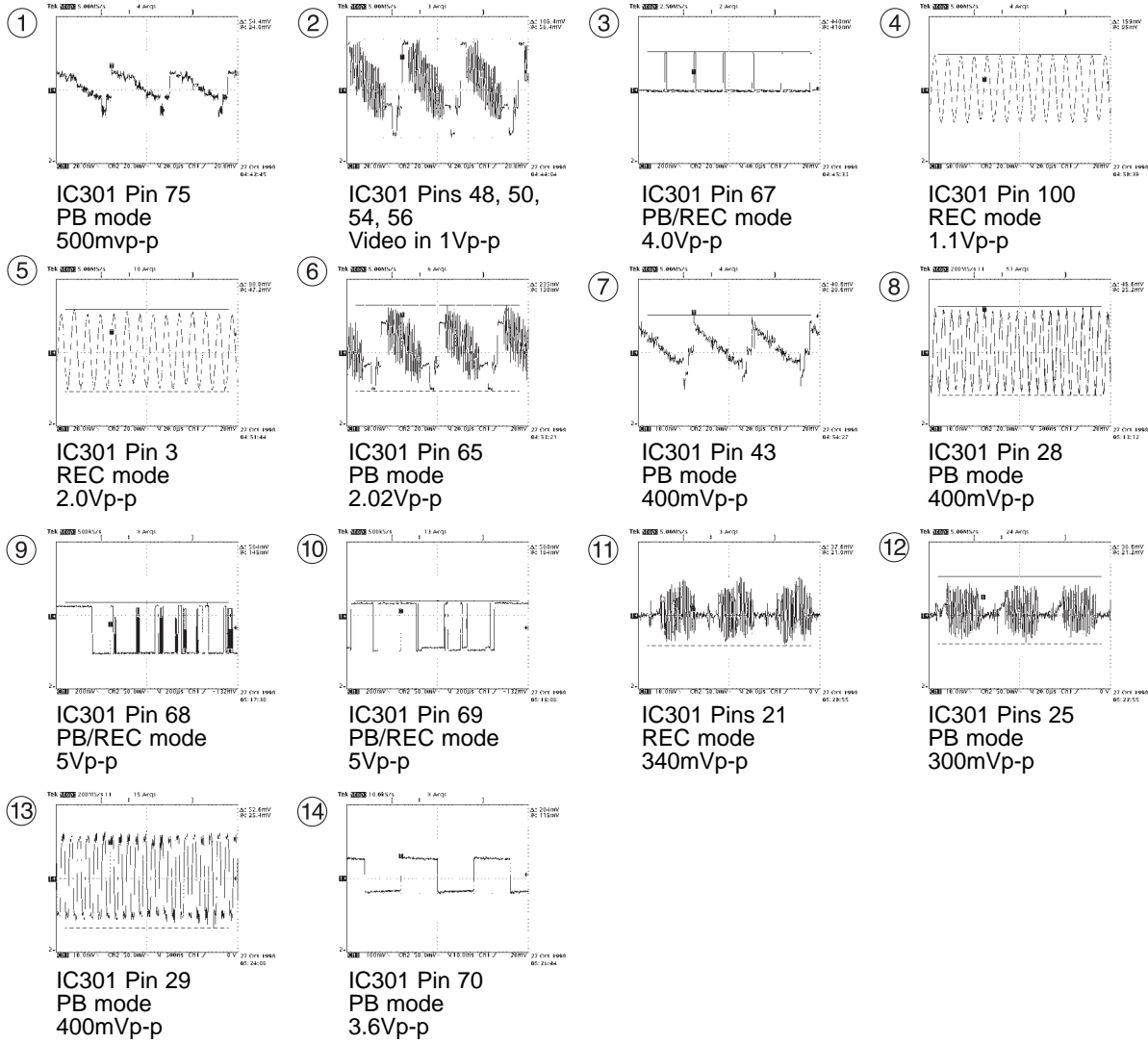


5. TUNER CIRCUIT DIAGRAM

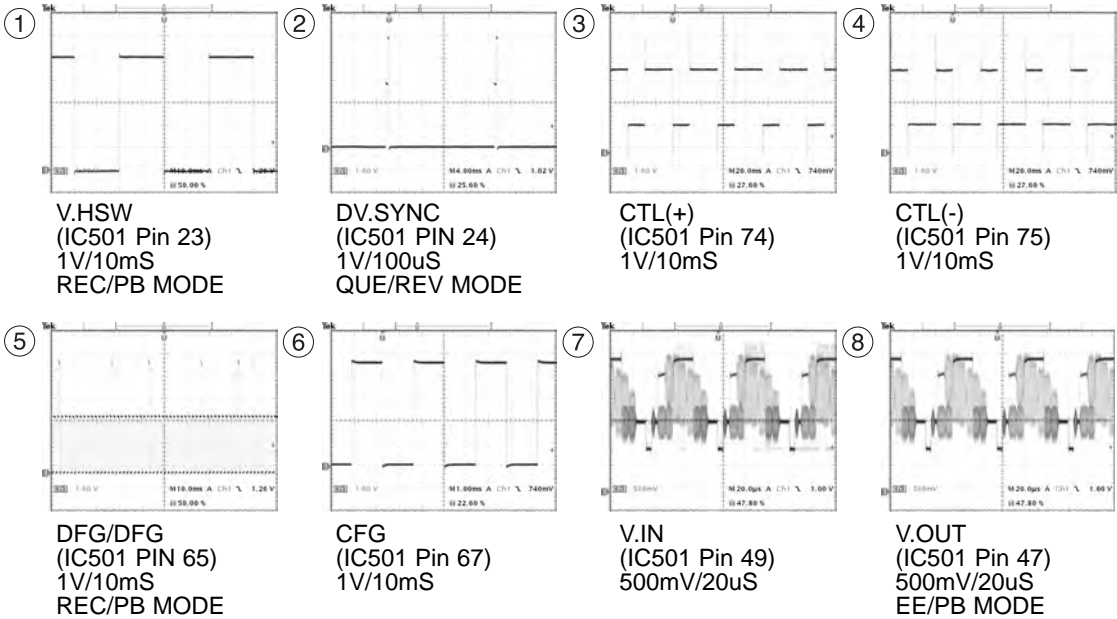


WAVEFORMS

• IC301 Oscilloscope Waveform



• IC501 Waveform Photographs



CIRCUIT VOLTAGE CHART

MODE PIN NO.	EE	PB
IC201		
1	1.67	1.67
2	1.88	1.89
3	1.28	1.28
4	1.71	1.72
5	1.28	1.29
6	0.01	0.01
7	0.01	0.01
8	5.24	5.25
9	0.01	0.01
10	0.02	0.02
11	2.62	2.67
12	2.53	2.61
13	2.72	2.72
14	2.39	2.38
15	2.6	2.6
16	2.59	2.56
17	3.44	3.44
18	1.58	1.57
19	5.24	5.24
20	1.1	1.1
21	5.24	5.24
22	0.01	0.01
23	1.7	2.05
24	0.43	0.4
25	2.9	2.86
26	1.7	1.7
27	1.7	1.7
28	3.26	3.26
IC301		
1	5.04	5.01
2	0.21	0.09
3	2.38	2.37
4	0.11	0.83
5	2.37	2.36
6	2.37	2.37
7	2.36	2.36
8	2.36	2.36
9	2.35	2.35
10	2.38	2.37
11	2.44	2.49
12	0.01	0.01
13	2.35	2.34
14	0.36	0.03
15	2.35	2.34
16	5.07	0.23
17	2.34	2.35
18	5.07	5.06
19	4.07	4.08
20	0.01	0.01
21	3.23	2.02
22	2.62	4.44
23	2.62	4.66
24	5.06	5.04
25	0.12	3.33

MODE PIN NO.	EE	PB
26	0.92	1.08
27	0.03	2.15
28	3.98	3.96
29	2.61	2.61
30	0.01	0.01
31	0.46	1.55
32	4.74	4.96
33	2.05	2.09
34	0.05	0.07
35	2.54	2.54
36	2.72	2.77
37	1.91	1.91
38	1.99	2.02
39	9.32	9.3
40	0.01	0.01
41	0.01	0.01
42	5.01	5
43	2.06	2.71
44	0.04	4.17
45	2.55	1.16
46	2.42	3.28
47	4.1	4.1
48	3.09	3.12
49	2.91	2.84
50	1.93	1.93
51	0.01	0.01
52	1.86	1.94
53	1.33	2.31
54	1.93	1.98
55	5.18	5.17
56	2.14	2.86
57	1.44	1.01
58	1.96	1.85
59	2.9	2.92
60	1.45	1.57
61	1.57	2.63
62	0.16	0.16
63	1.57	2.77
64	0.01	0.01
65	0.83	2.51
66	0.01	0.01
67	4.4	0.01
68	5.01	4.99
69	5.01	5.04
70	1.88	2.57
71	0.01	0.01
72	5.05	5.03
73	2.18	1.01
74	2.25	3.95
75	2.19	0.73
76	2.19	0.84
77	1.66	0.56
78	2.62	3.32
79	2.12	1.99
80	0.99	0.99

MODE PIN NO.	EE	PB
81	1.13	1.14
82	0.01	0.01
83	5.04	0.54
84	0.13	0.11
85	0.01	0.01
86	0.45	0.44
87	1.92	0.79
88	1.94	0.79
89	1.94	0.79
90	1.89	0.79
91	5.06	5.05
92	0.01	0.01
93	1.91	1.92
94	1.91	1.92
95	1.86	1.91
96	1.91	1.91
97	0.01	0.01
98	2.38	2.37
99	2.38	2.37
100	2.38	2.37
IC3S1		
1	2.52	2.52
2	2.42	2.42
3	3.57	3.57
4	2.58	2.58
5	0.08	0.08
6	0.56	0.56
7	0.01	0.01
8	0.01	0.01
9	3.05	3.05
10	2.52	2.52
11	2.67	2.67
12	3.23	3.23
13	4.04	4.04
14	2.51	2.51
15	1.98	1.98
16	3.22	3.22
17	0.04	0.04
18	0.13	0.13
19	2.28	2.28
20	2.59	2.59
21	1.96	1.96
22	0.08	0.08
23	5.03	5.03
24	5.03	5.03
25	1.56	1.56
26	1.56	1.56
27	2.04	2.04
28	0.19	0.19
29	4.38	4.38
30	2.09	2.09
IC402		
1	5.89	5.89
2	3.08	3.2

MODE PIN NO.	EE	PB
3	3.08	3.19
4	0.01	0.01
5	3.08	3.22
6	3.08	3.22
7	5.9	5.9
8	11.79	11.79
IC501		
1	1.44	1.89
2	0.02	4.47
3	4.22	2.05
4	4.75	4.74
5	4.77	4.75
6	0.11	0.11
7	0.02	0.02
8	5.12	5.11
9	4.92	4.91
10	1.43	1.45
11	3.38	3.37
12	3.39	3.39
13	2.57	2.6
14	5.13	5.11
15	2.31	1.67
16	0.03	0.03
17	5.02	5.05
18	5.02	4.97
19	2.6	0.31
20	0.06	3.51
21	5.11	0.02
22	2.41	1.7
23	2.59	2.58
24	0.16	0.16
25	5.16	5.14
26	2.55	2.56
27	4.92	0.02
28	0.02	4.88
29	0.02	0.02
30	0.02	0.35
31	0.08	0.02
32	0.02	0.01
33	2.64	2.69
34	0.02	2.65
35	5.17	0.01
36	2.59	5.15
37	2.38	2.58
38	0.01	2.4
39	2.09	0.02
40	2.55	2.18
41	0.01	2.57
42	0.02	0.01
43	5.16	0.01
44	5.16	5.15
45	0.01	5.15
46	1.63	0.02
47	0.01	2.06
48	1.02	0.01

MODE PIN NO.	EE	PB
49	1.91	2.07
50	4.96	2.62
51	3.07	4.97
52	2.47	3.05
53	2.45	2.48
54	2.03	2.46
55	0.01	2.03
56	0.01	0.02
57	0.09	0.01
58	5.08	0.02
59	0.09	0.02
60	5.09	5.07
61	0.11	0.02
62	0.77	0.02
63	0.15	0.03
64	2.59	5.09
65	1.38	1.38
66	1.65	1.74
67	0.16	2.43
68	2.39	1.69
69	2.59	2.58
70	2.59	2.58
71	0.01	0.01
72	2.28	2.57
73	5.16	5.14
74	2.28	2.57
75	0.02	2.58
76	2.58	2.56
77	0.01	0.02
78	0.01	0.02
79	5.16	5.14
80	5.15	5.14
81	4.51	4.52
82	0.15	0.12
83	0.22	0.87
84	0.2	0.2
85	0.15	0.14
86	5.18	5.17
87	5.17	5.18
88	5.18	5.17
89	0.01	0.02
90	5.15	5.13
91	5.01	5.01
92	0.02	0.02
93	5.17	5.16
94	2.36	1.44
95	0.02	0.02
96	5.12	5.11
97	5.12	0.02
98	2.58	2.56
99	0.02	0.02
100	0.69	0.49
IC503		
1	0.01	0.01
2	0.01	0.01

MODE PIN NO.	EE	PB
3	0.01	0.01
4	0.01	0.01
5	5.04	5.05
6	5.01	4.99
7	0.01	0.01
8	5.16	5.16
IC5F1		
1	2.22	2.15
2	0.03	0.03
3	5.12	5.11
4	4.89	4.9
5	4.51	4.41
6	2.68	2.87
7	2.86	2.85
8	2.32	2.62
9	2.37	2.31
10	1.35	2.31
11	2.6	2.28
12	2.37	2.13
13	0.85	0.31
14	1.95	0.3
15	2.38	2.36
16	2.36	2.33
17	2.37	2.35
18	4.52	4.43
19	0.01	0.01
20	2.4	2.37
21	0.27	2.33
22	2.39	2.38
23	2.52	2.49
24	0.01	0.01
IC601		
1	0.01	1.7
2	3.29	3.26
3	3.29	3.27
4	0.08	0.4
5	0.05	0.4
6	0.05	0.3
7	1.72	1.9
8	1.72	0.8
9	2.78	0.5
10	1.72	0.7
11	0.01	1.6
12	0.01	0.01
13	3.44	3.28
14	0.01	2.1
15	3.43	3.1
16	1.71	2.7
17	3.31	3.1
18	1.7	2.2
19	0.7	1
20	0.01	0.01
21	3.39	3.24
22	2.6	2.9

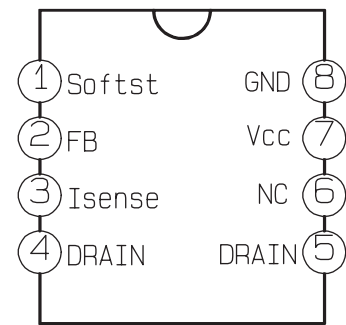
MODE PIN NO.	EE	PB
23	3.39	3.25
24	2.4	2.5
25	1.86	1.9
26	1.1	1.63
27	2.5	1.08
28	0.01	0.01
29	0.01	0.01
30	2.7	1.22
31	0.01	0.05
32	0.01	0.01
33	2.7	3.2
34	3.28	3.24
35	0.4	1.13
36	1.7	1.5
37	2	2.5
38	1.7	3.9
39	0.01	1.2
40	1.7	1.5
41	3.4	3.28
42	0.01	1.5
43	1.71	2.7
44	1.82	3.19
45	1.69	1.6
46	1.7	1.5
47	3.41	3.28
48	1.68	3.04
49	1.68	3.03
50	0.01	0.01
51	3.39	3.27
52	3.39	3.29
53	1.63	1
54	0.13	0.5
55	0.13	1.26
56	0.12	0.5
57	1.64	1
58	3.39	3.28
59	0.12	0.4
60	1.64	1.5
61	0.12	0.5
62	0.01	0.01
63	0.01	0.4
64	1.85	1.8
65	1.38	0.03
66	0.01	0.01
67	0.03	0.34
68	3.39	3.28
69	0.01	0.01
70	3.36	3.22
71	0.09	0.37
72	0.01	0.01
73	0.01	3.23
74	3.37	3.25
75	3.38	3.28
76	3.39	3.28
77	3.38	3.17

MODE PIN NO.	EE	PB
78	0.01	0.02
79	0.01	0.01
80	1.6	1.49
81	3.39	3.27
82	1.59	1.91
83	0.01	0.01
84	1.4	1.25
85	1.8	1.5
86	1.6	1
87	3.39	3.28
88	1.6	1.3
89	1.8	2
90	1.7	1.5
91	0.01	0.01
92	1.61	1.89
93	0.01	1.8
94	1.29	1.99
95	0.01	0.01
96	1.69	2.2
97	3.39	3.28
98	1.69	1.85
99	1.78	1.3
100	1.58	1.52
101	0.01	0.01
102	1.61	1.81
103	1.61	1.9
104	1.61	1.7
105	3.39	3.28
106	0.01	0.01
107	0.01	0.01
108	0.01	0.01
109	0.01	0.01
110	1.68	1.61
111	0.02	0.01
112	0.02	0.01
113	0.01	1.07
114	0.01	0.01
115	1.69	1.64
116	1.69	1.61
117	0.01	0.01
118	1.69	1.5
119	3.39	3.25
120	0.01	0.01
121	0.01	0.01
122	0.01	0.01
123	0.01	0.01
124	1.7	1.64
125	3.39	3.28
126	0.01	0.01
127	0.07	3.25
128	0.01	0.01
129	0.01	0.01
130	0.01	0.01
131	1.85	2.35
132	3.37	0.04

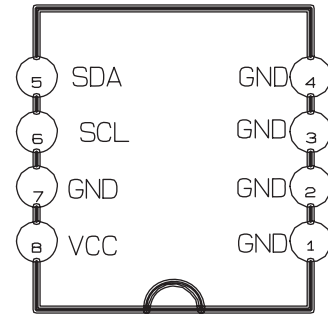


Tran- sistor	STOP			PLAY		
	Base	Emitter	Collector	Base	Emitter	Collector
Q201	2.29	2.45	3.18	2.29	2.45	3.17
Q202	1.83	1.91	2.59	1.83	1.91	2.59
Q204	3.4	2.89	3.67	3.39	2.86	3.65
Q205	3.21	3.27	3.34	3.21	3.27	3.34
Q206	2.9	5.26	3.67	2.9	5.26	3.65
Q207	2.54	4.88	3.37	2.54	4.6	3.36
Q208	5.02	0.19	0.01	5.02	0.19	0.01
Q209	2.34	2.89	3.34	2.34	2.89	3.34
Q302	-2.07	5.08	5.09	-1.27	5.09	5.09
Q303	0.14	-0.99	0.22	0.23	-0.96	0.22
Q304	0.01	-0.77	0.21	0.01	-1.08	0.12
Q305	0.01	1.88	2.55	0.01	1.88	2.55
Q309	0.01	1.65	2.29	0.01	1.65	2.29
Q401	0.01	-0.68	5.91	0.01	-0.68	5.91
Q402	0.01	-0.65	5.9	0.01	-0.66	5.9
Q403	5.09	0.01	0.01	5.09	0.01	0.01
Q404	-0.75	5.09	5.09	-0.75	5.09	5.08
Q405	-0.91	11.79	11.85	-0.91	11.79	11.85
Q501	0.03	0.7	0.01	0.03	0.7	0.01
Q504	0.01	2.52	3.13	0.01	2.54	3.13
Q505	0.01	2.54	3.19	0.01	2.52	3.19
Q506	3.81	0.6	0.04	2.84	0.6 0	.04
Q601	0.01	0.04	0.19	0.01	0.05	0.19
Q7S1	4.09	0.02	0.01	4.14	0.18	0.01
Q7S2	0.02	5.1	0.01	0.02	5.11	0.01
Q801	0.13	-0.84	0.01	0.13	-0.84	0.01
Q802	0.12	-0.76	0.01	0.05	-0.84	0.01
Q807	0.01	0.09	2.97	0.01	0.09	2.97
Q808	0.01	2.36	2.97	0.01	2.36	2.97
Q905	0.19	0.37	1.01	0.19	0.37	1.01
Q906	0.01	0.14	0.15	0.01	0.14	0.15
Q907	11.79	0.02	11.85	11.79	0.02	11.85
Q908	0.02	5.11	0.01	0.02	5.11	0.01
Q909	0.08	5.11	0.01	0.08	5.11	0.01
Q910	0.01	3.55	4.22	0.01	3.55	4.22
Q911	0.01	0.74	0.01	0.01	0.74	0.01
Q912	0.01	0.74	0.01	0.01	0.74	0.01
Q913	0.01	0.74	0.01	0.01	0.74	0.01
Q914	5.06	3.41	2.72	5.06	3.41	2.72

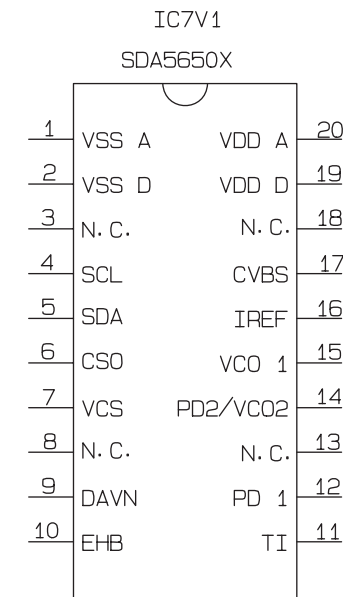
IC BLOCK DIAGRAMS



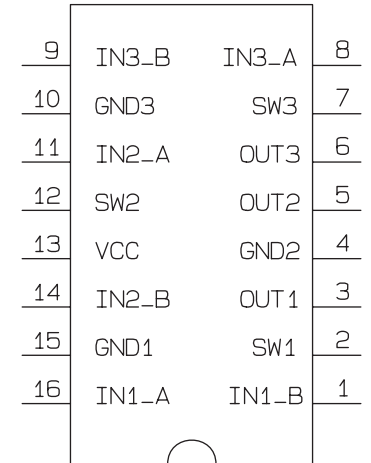
IC101  
ICE3B0565  
IC101\_ICE3B0565



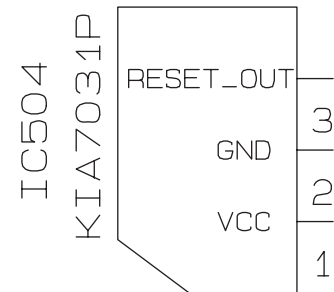
IC503  
24WC16P  
IC503\_24WC16P



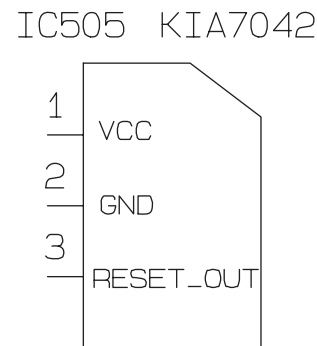
IC7V1\_SDA5650X



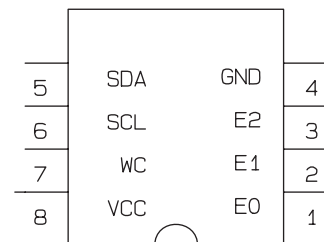
IC802  
NM1231  
IC802\_NM1231



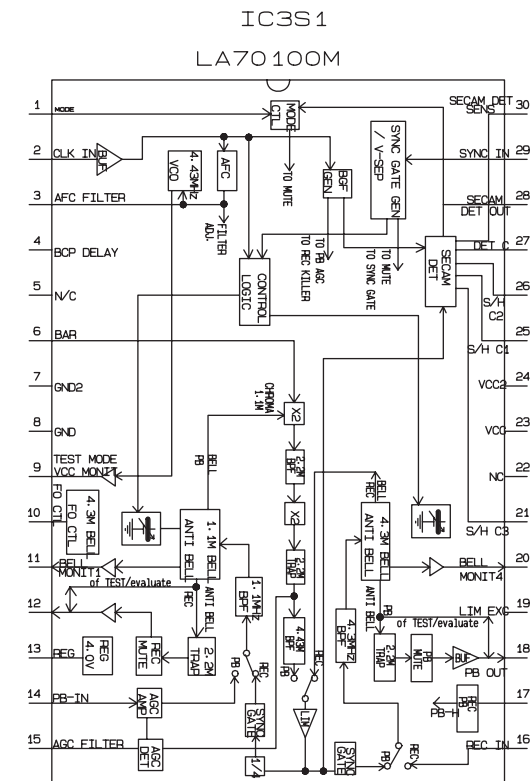
IC504\_KIA7031P



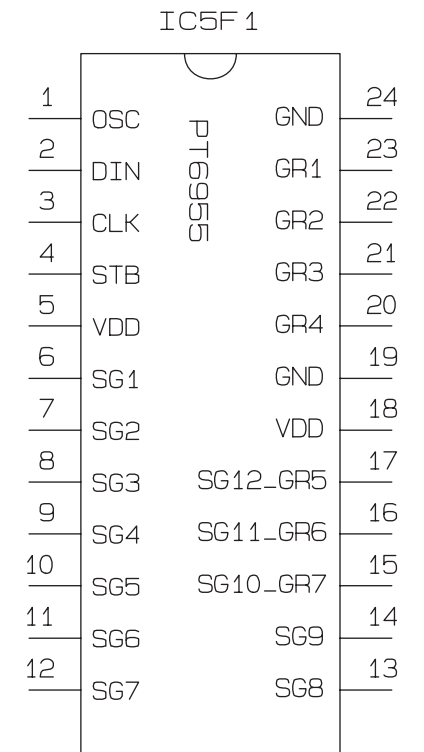
IC505\_KIA7042



IC5E6  
KS24C021CS  
IC5E6\_KS24C021CS



IC3S1\_LA70100M

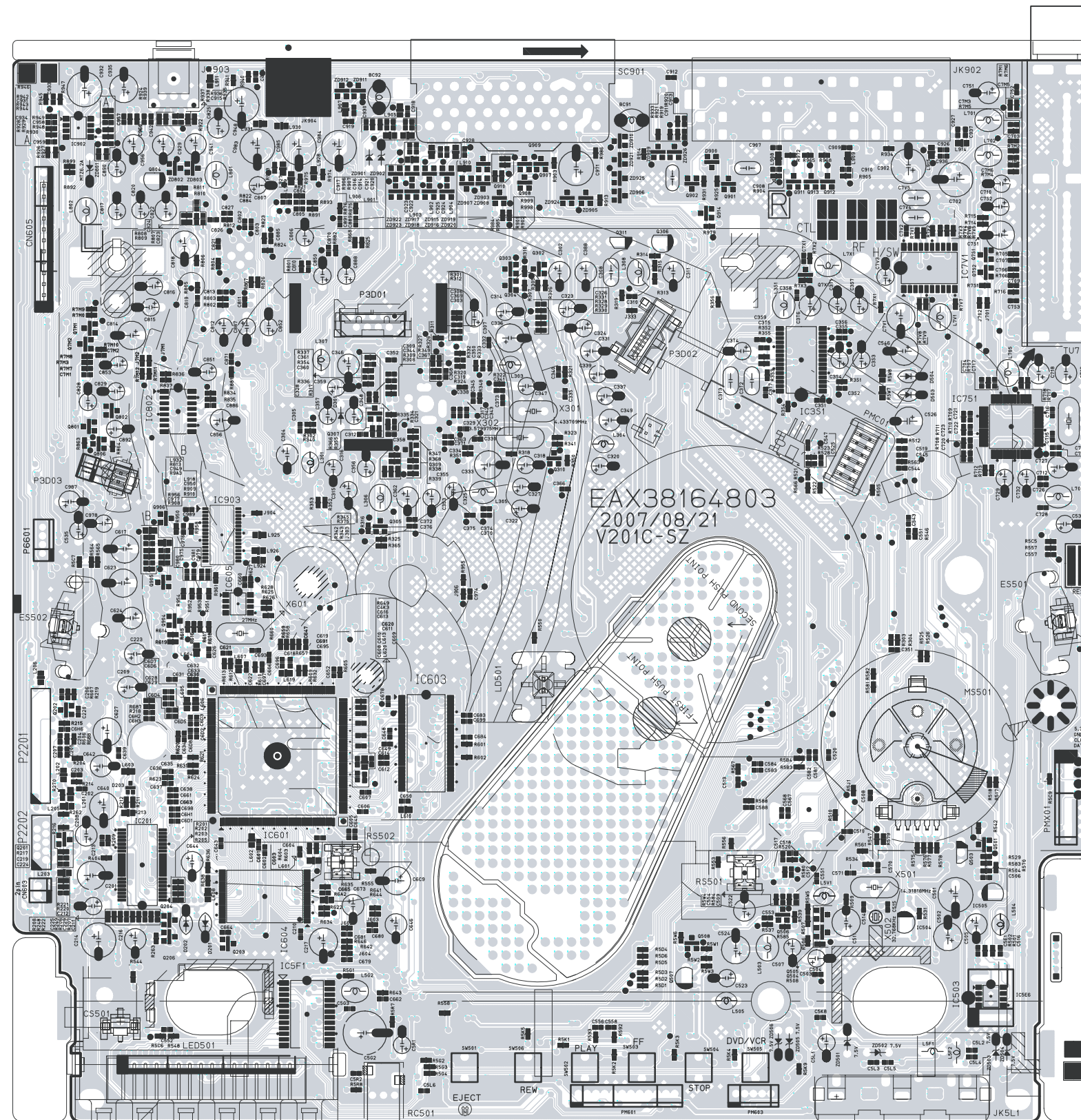


IC5F1\_PT6955



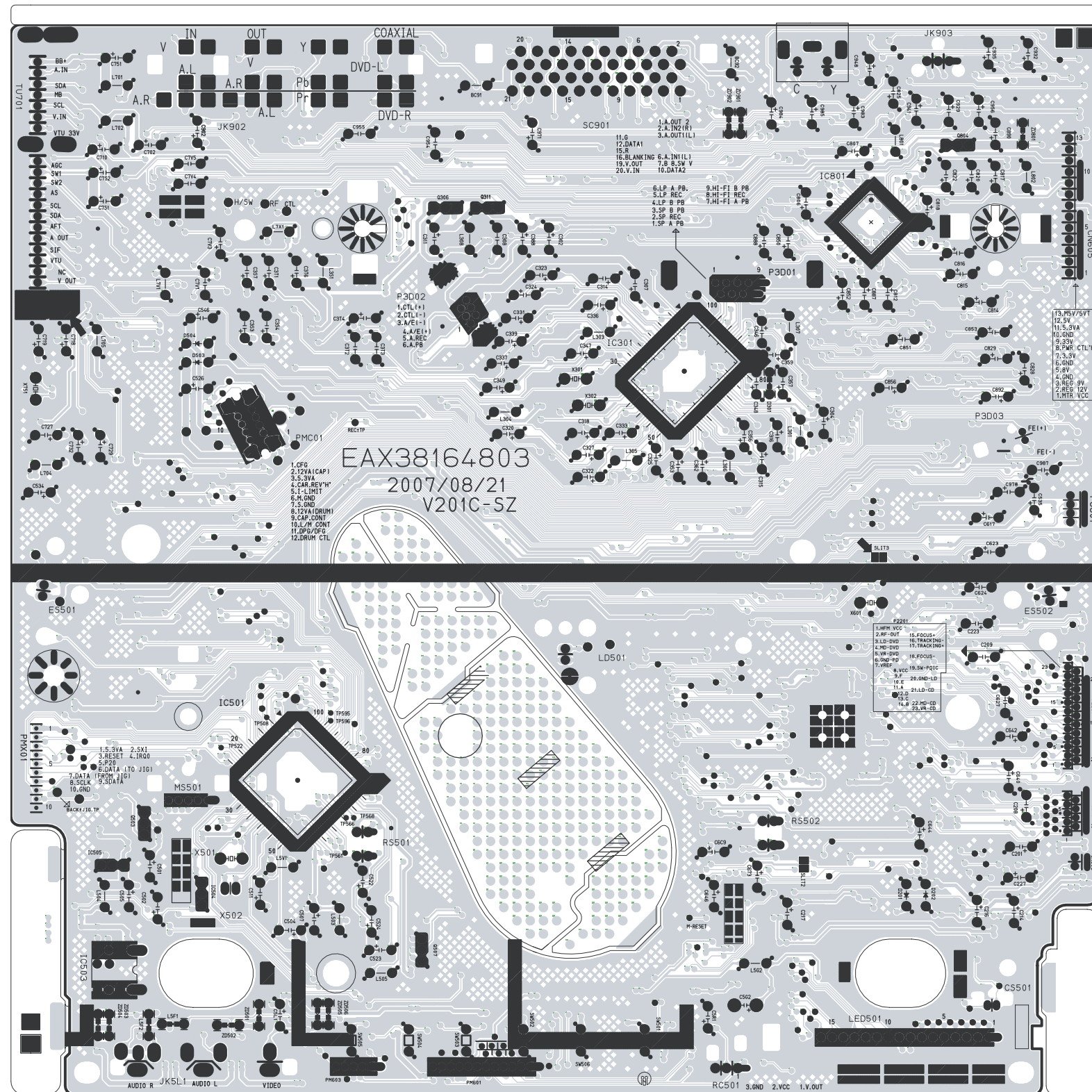


## 1. MAIN P.C.BOARD (TOP SIDE)

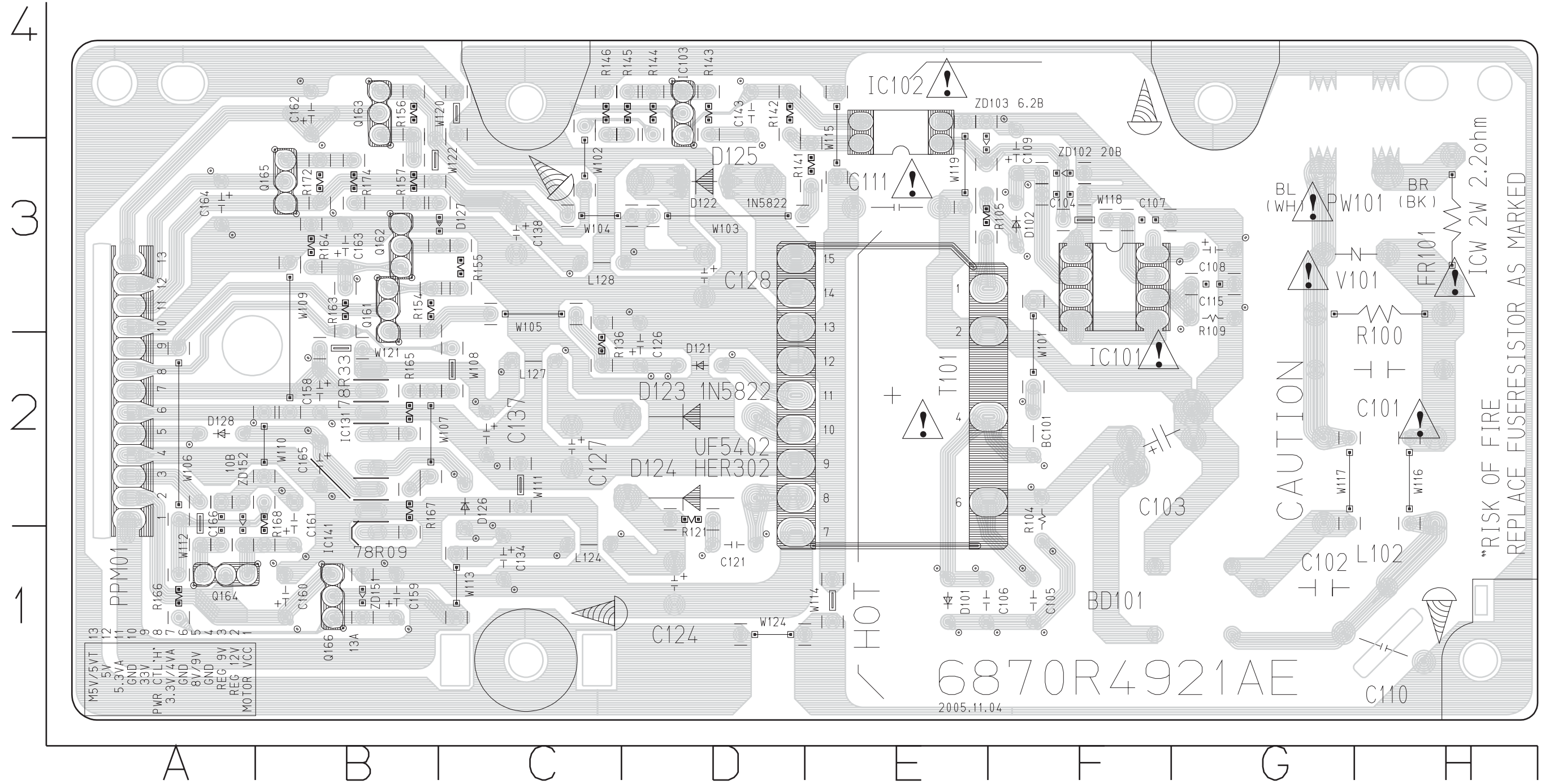




## 2. MAIN P.C.BOARD (BOTTOM SIDE)

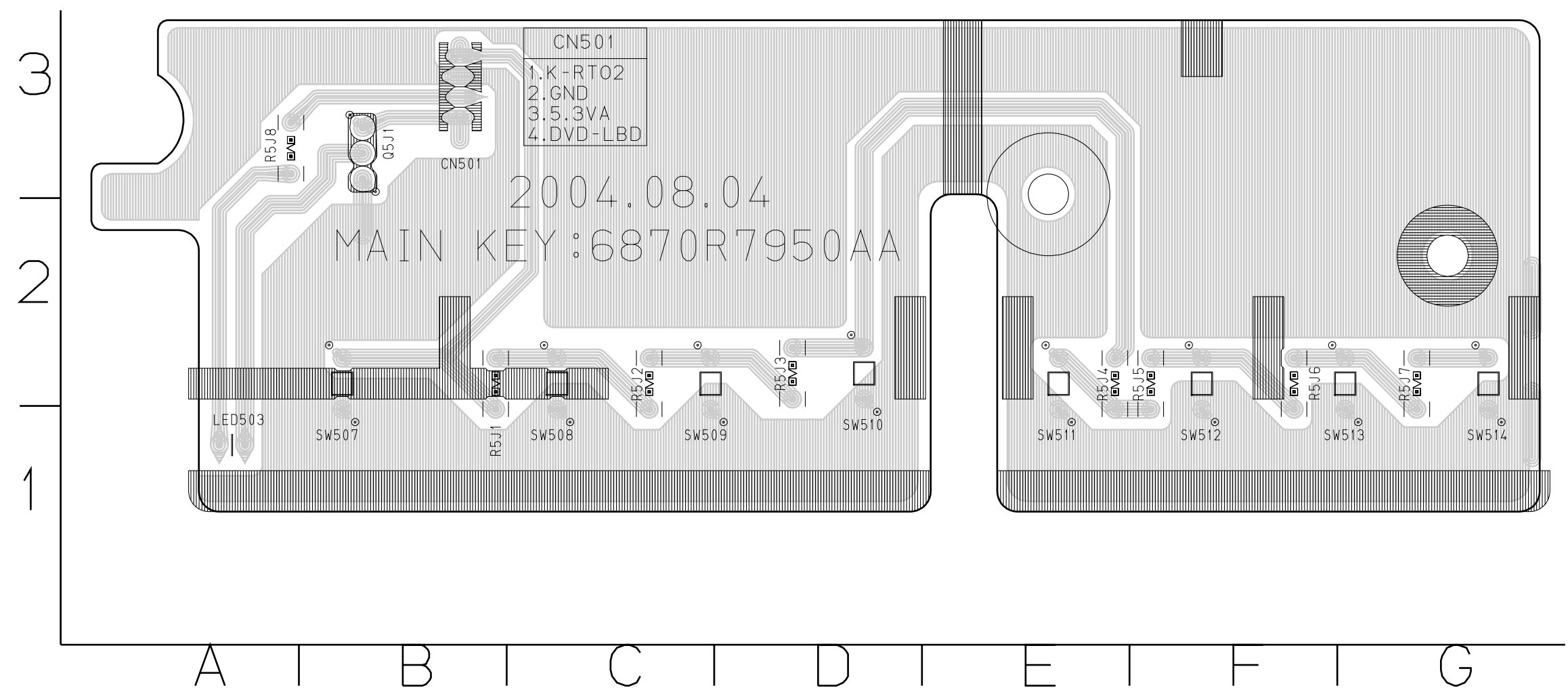


3. POWER P.C.BOARD



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

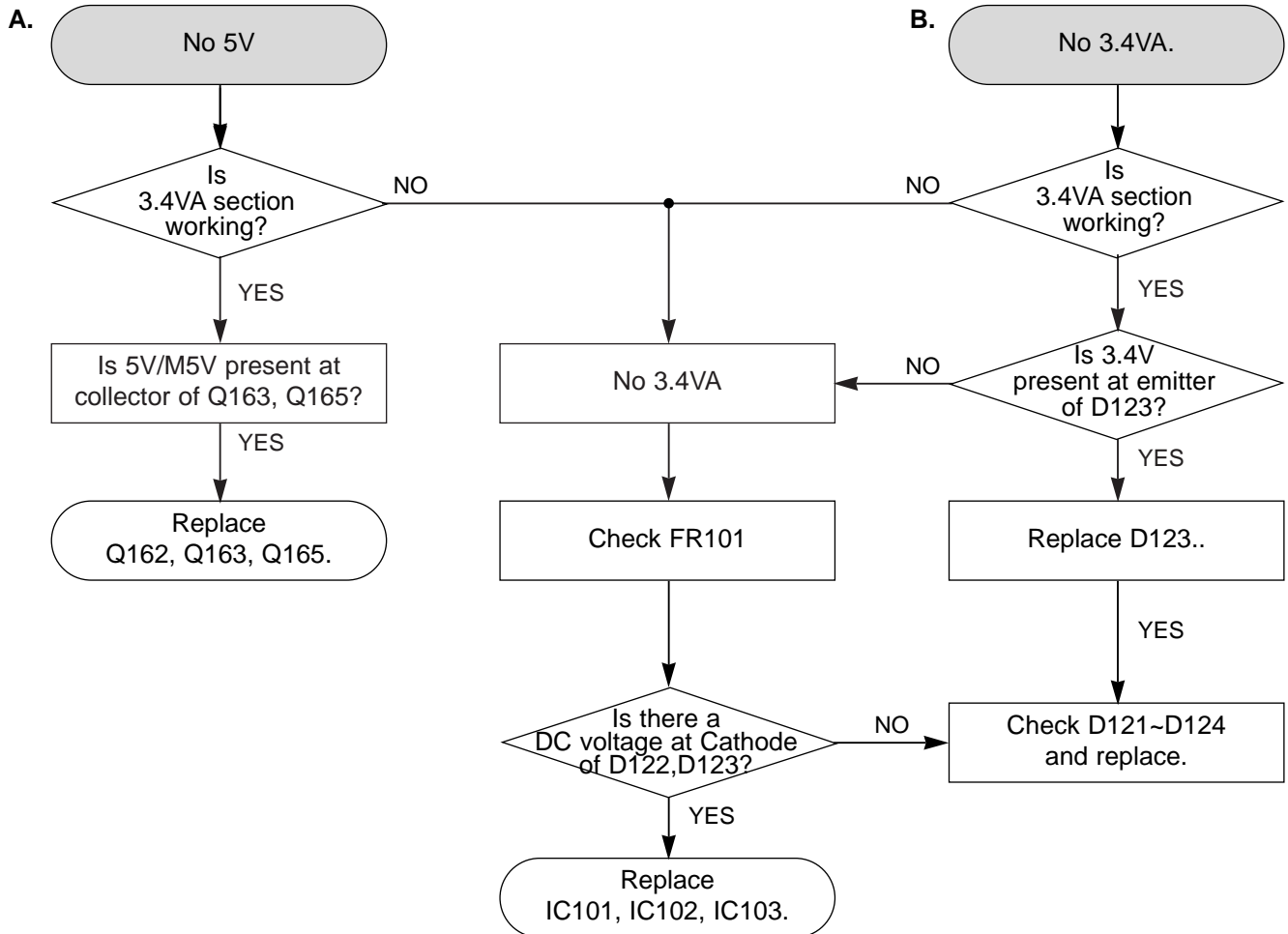
4. KEY P.C.BOARD



# DVD PART

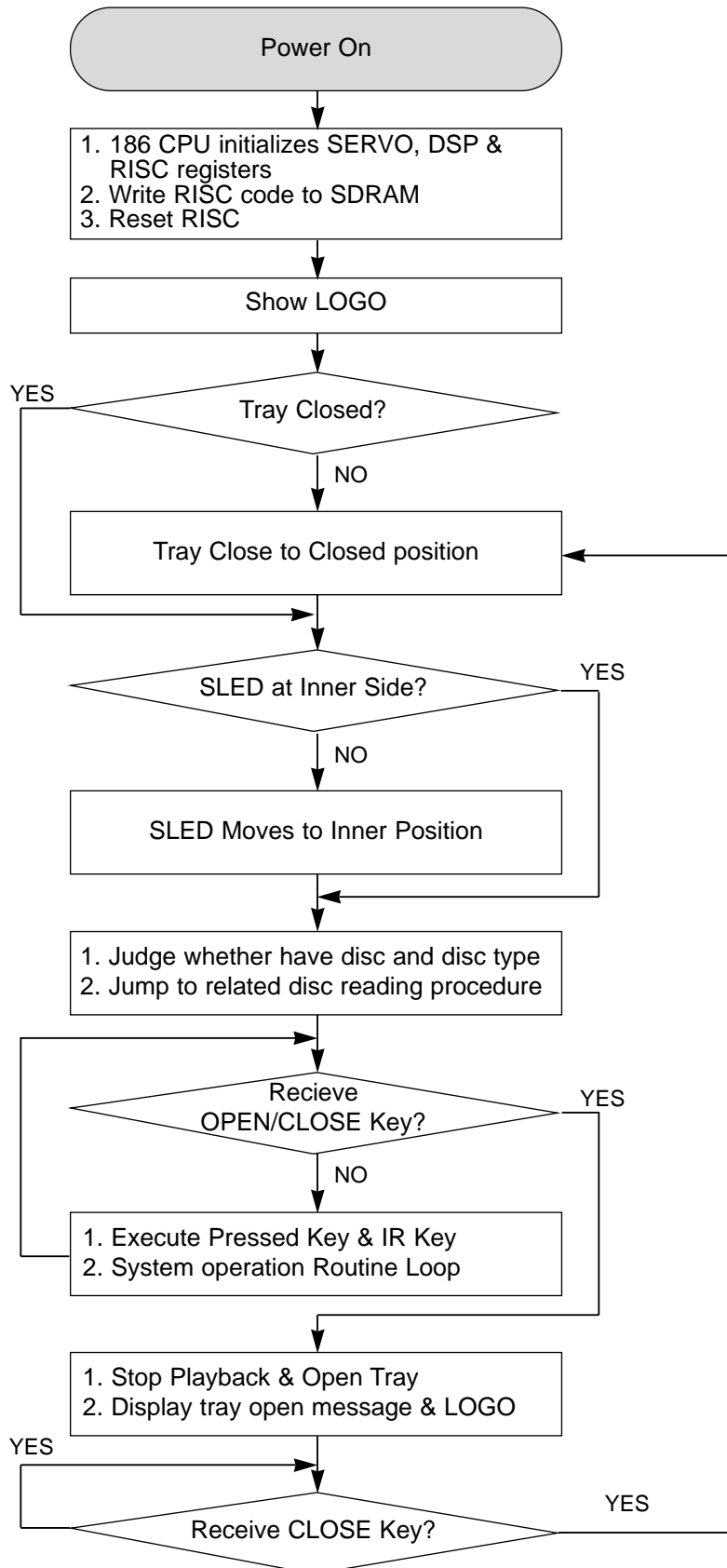
## DVD ELECTRICAL TROUBLESHOOTING GUIDE

### 1. POWER CHECK FLOW



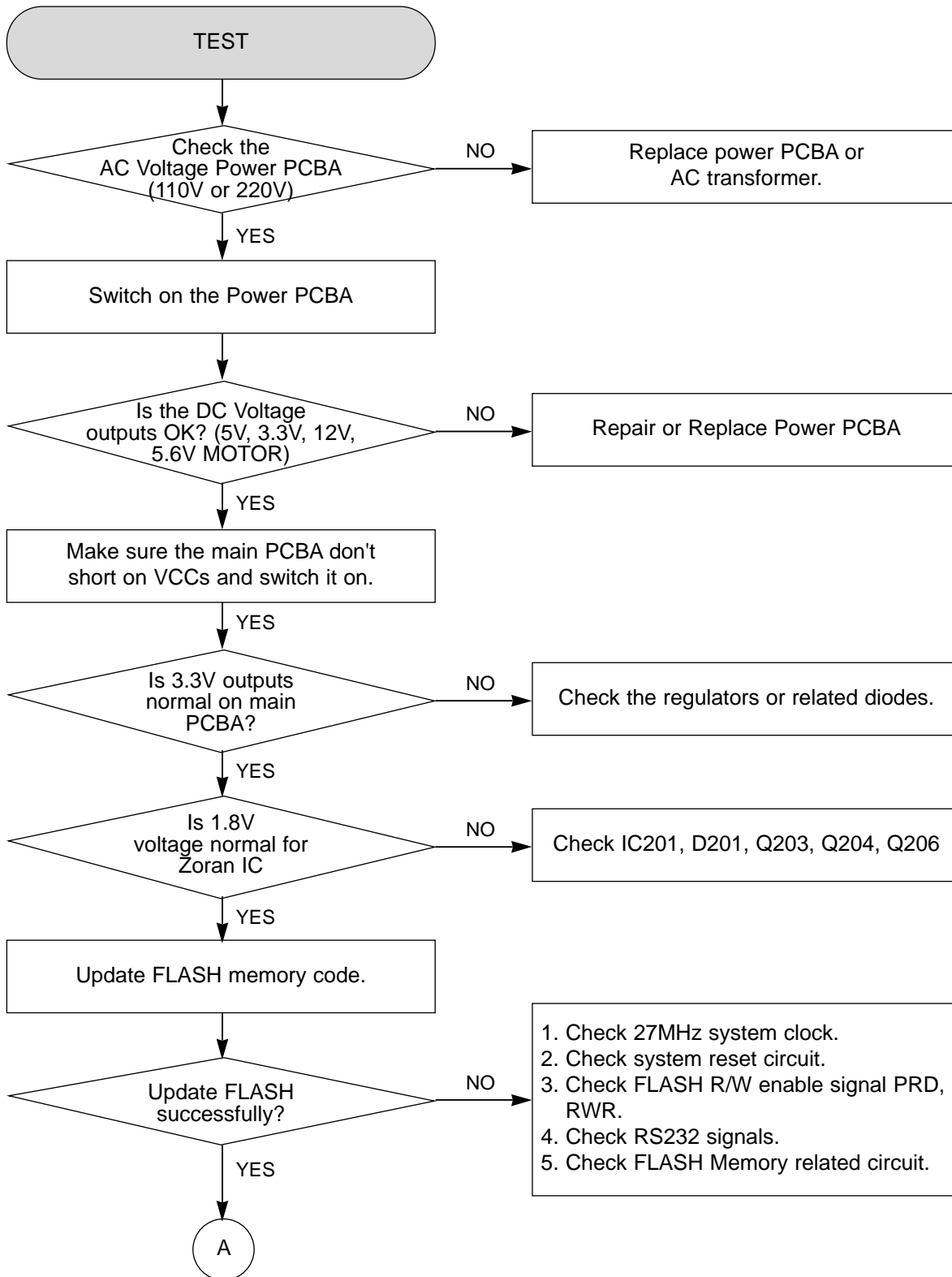
# DVD ELECTRICAL TROUBLESHOOTING GUIDE

## 2. SYSTEM OPERATION FLOW

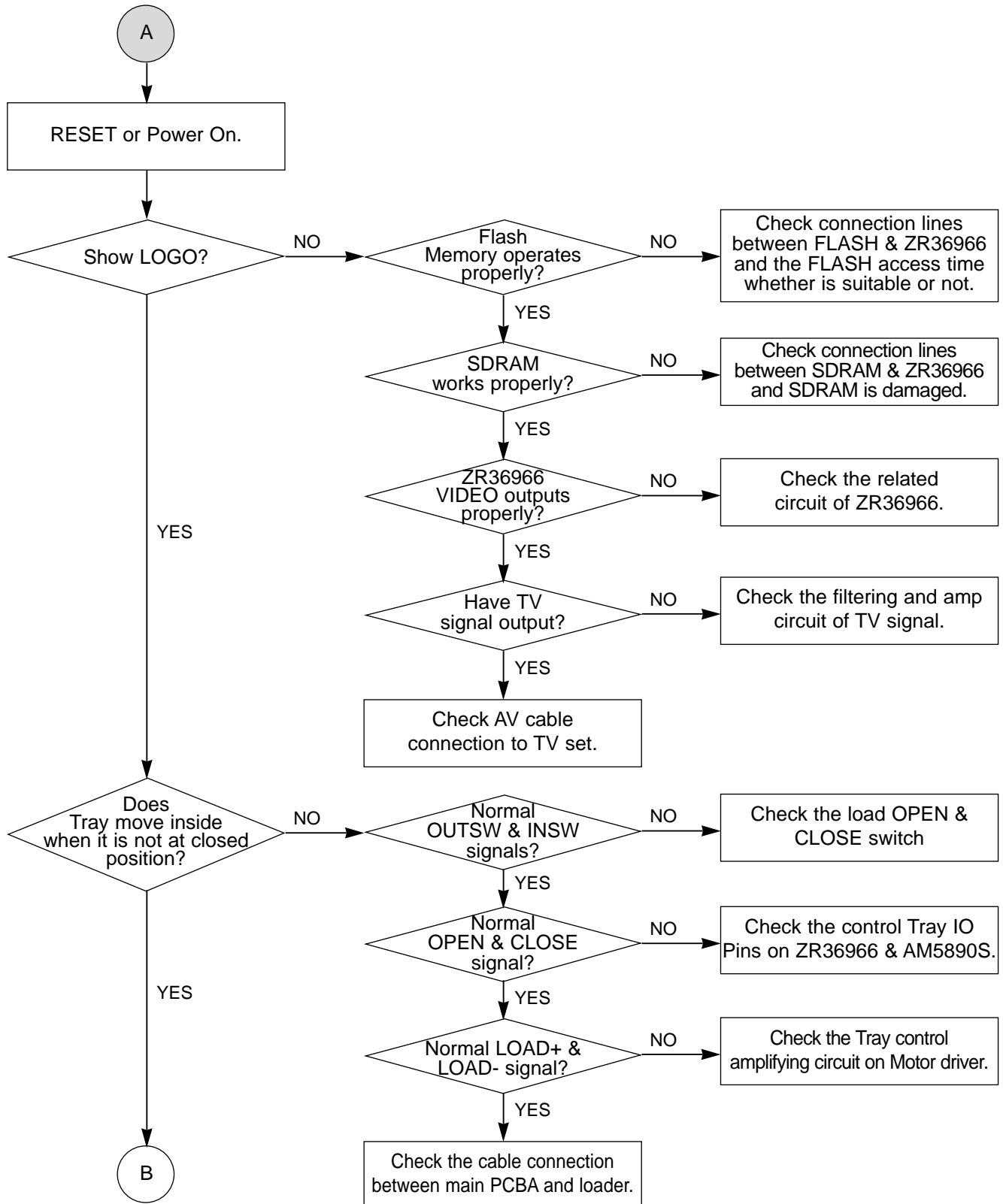


# DVD ELECTRICAL TROUBLESHOOTING GUIDE

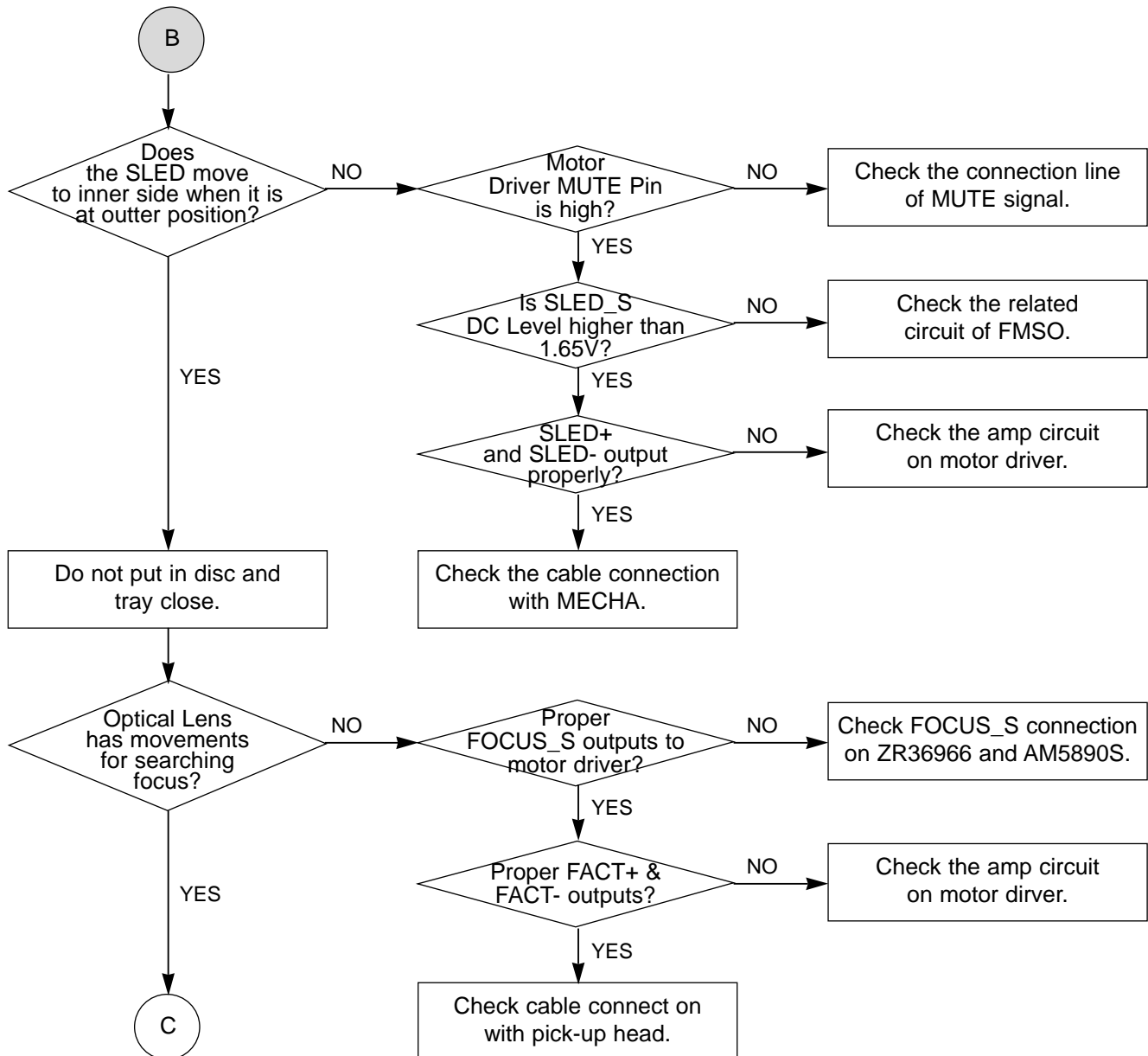
## 3. TEST & DEBUG FLOW



# DVD ELECTRICAL TROUBLESHOOTING GUIDE

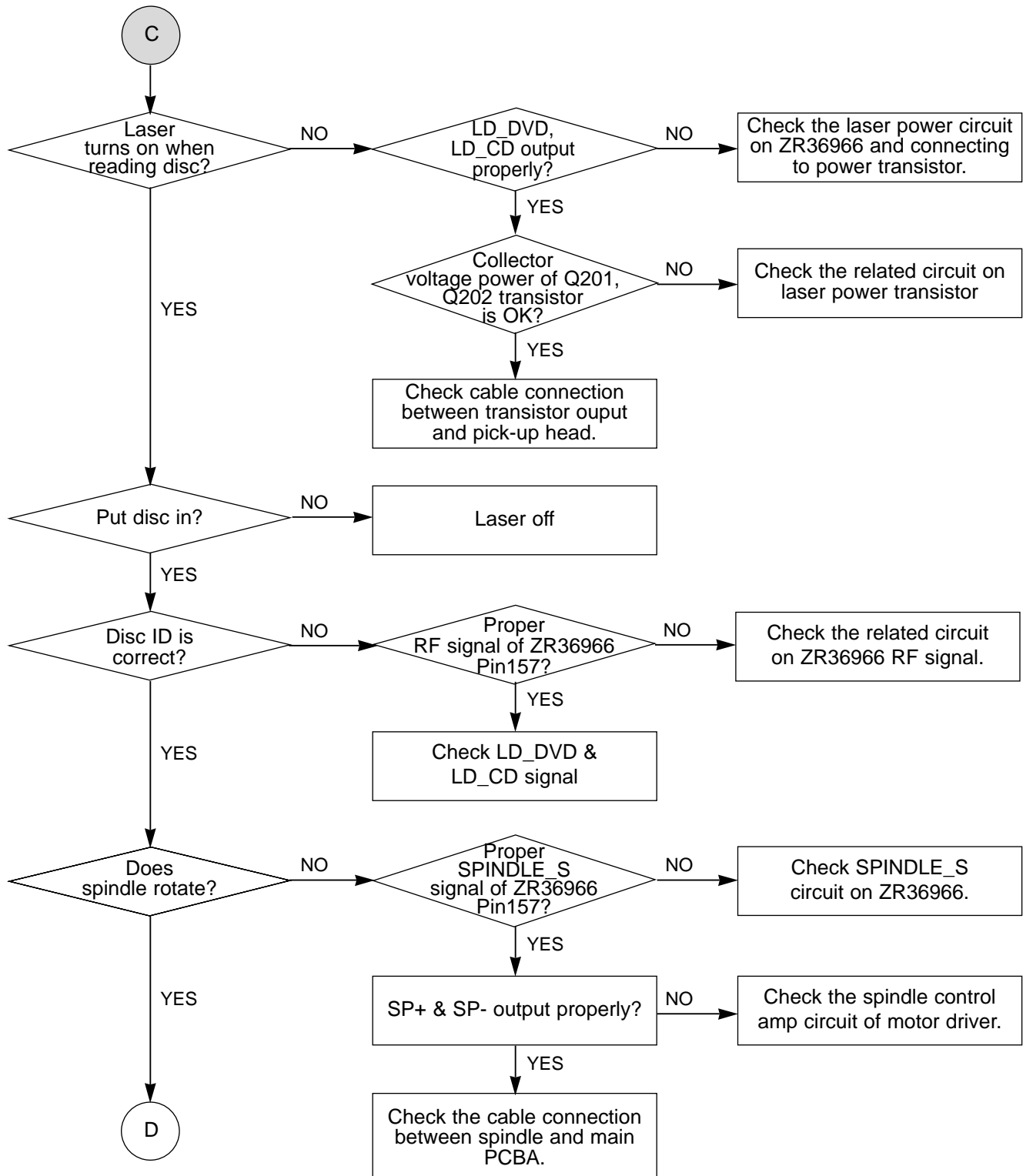


# DVD ELECTRICAL TROUBLESHOOTING GUIDE

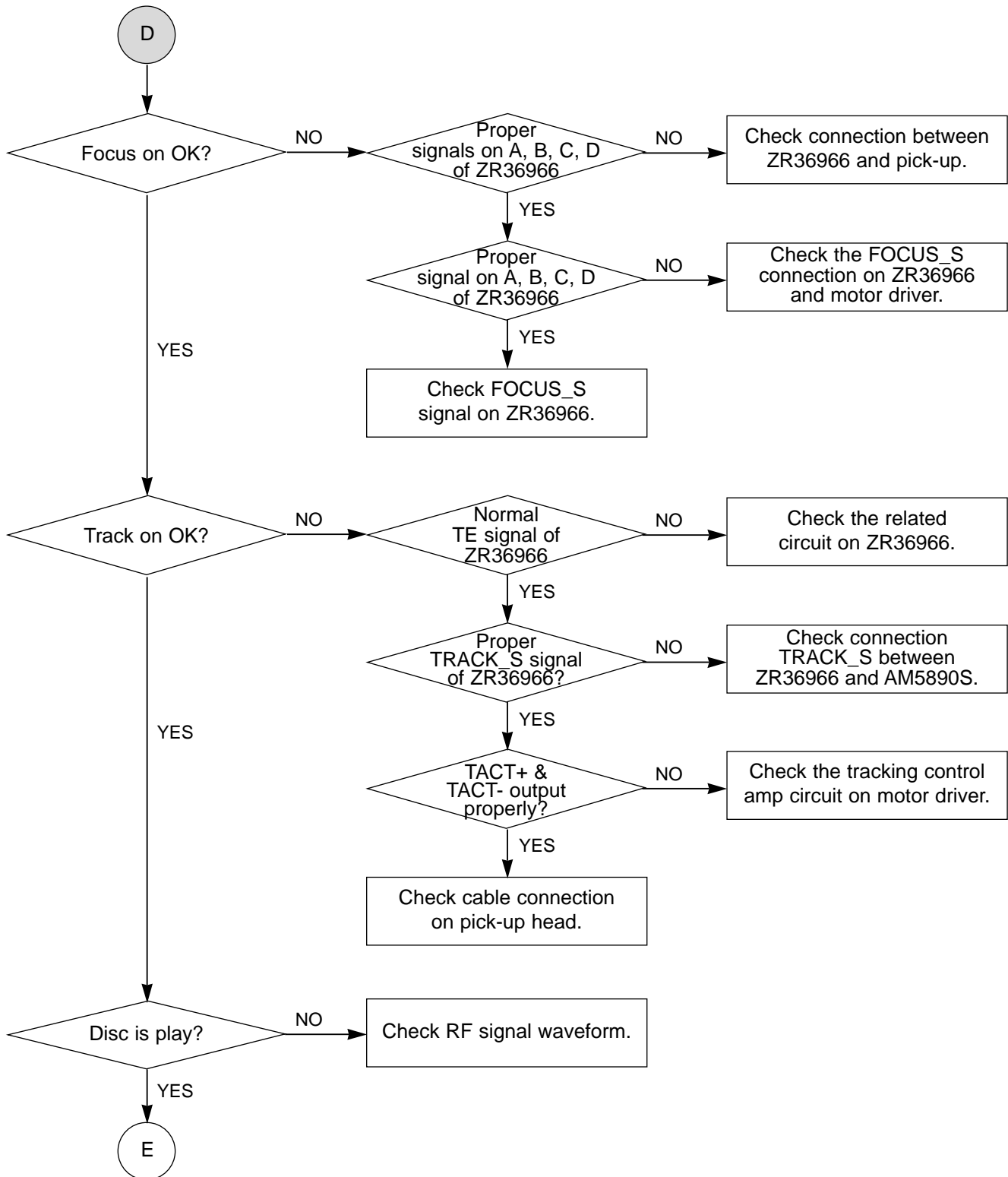




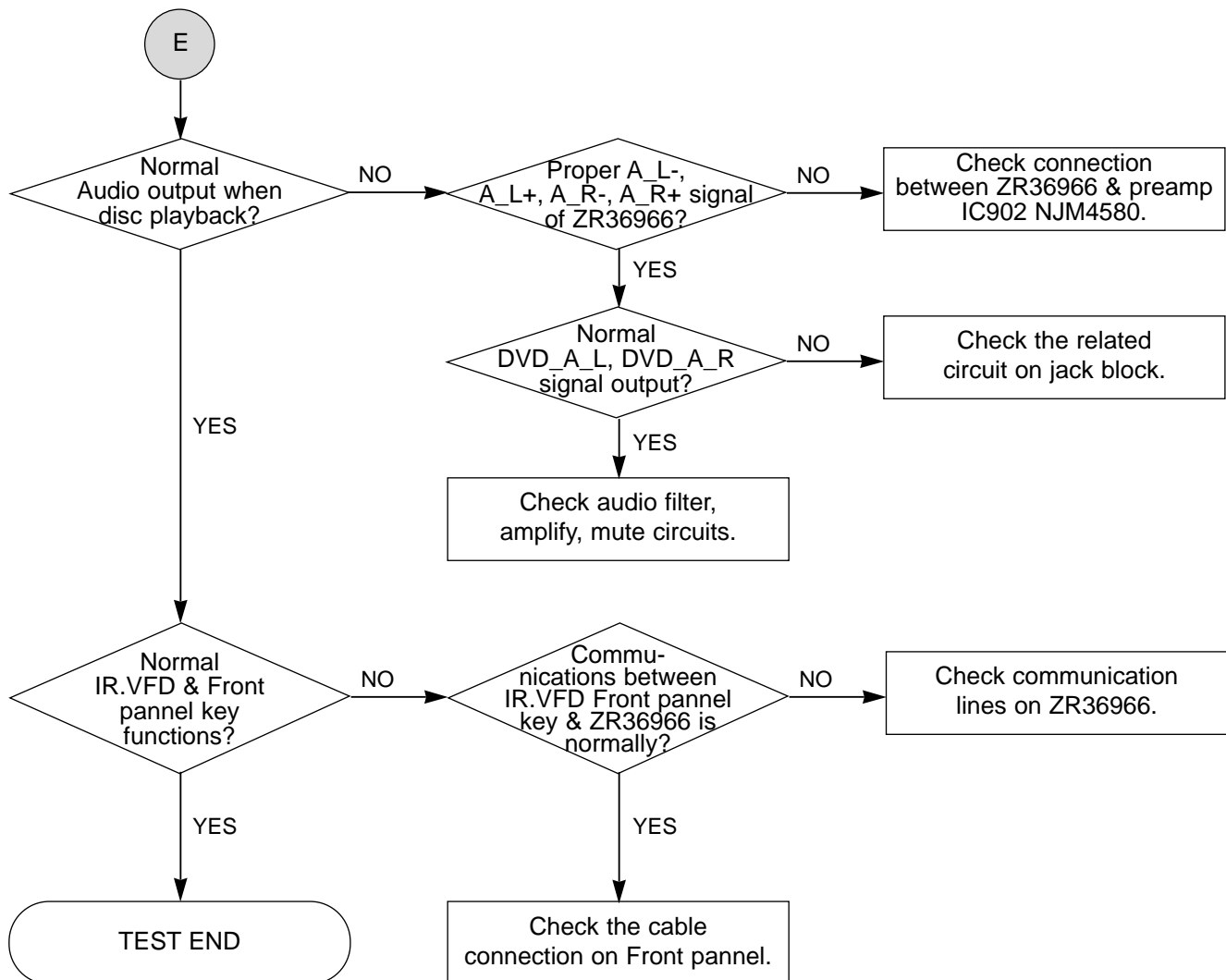
# DVD ELECTRICAL TROUBLESHOOTING GUIDE



# DVD ELECTRICAL TROUBLESHOOTING GUIDE



# DVD ELECTRICAL TROUBLESHOOTING GUIDE



# DETAILS AND WAVEFORMS ON SYSTEM TEST AND DEBUGGING

## 1. SYSTEM 27MHz CLOCK, RESET SIGNAL

1-1. ZR36966 main clock is at 27MHz (X601)

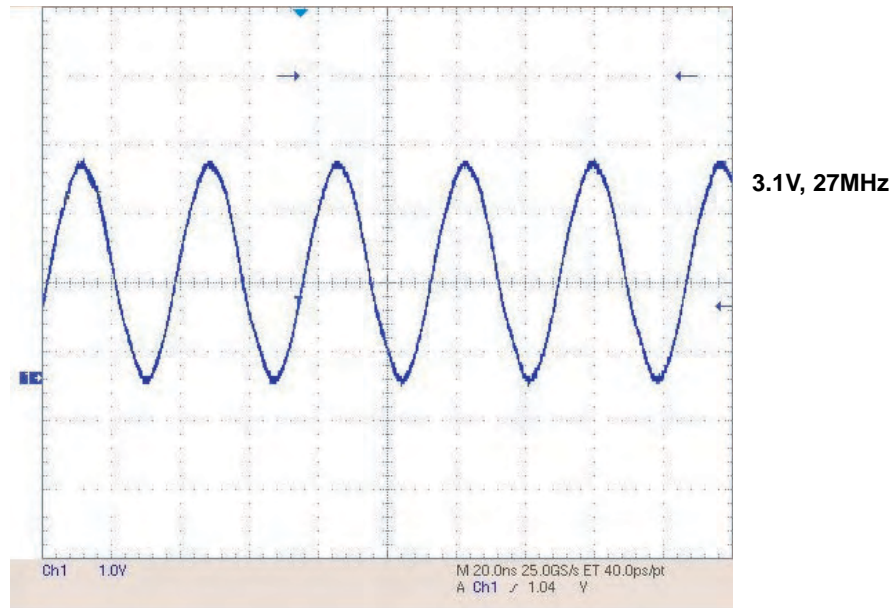


FIG 1-1

1-2. ZR36966 reset is low active.

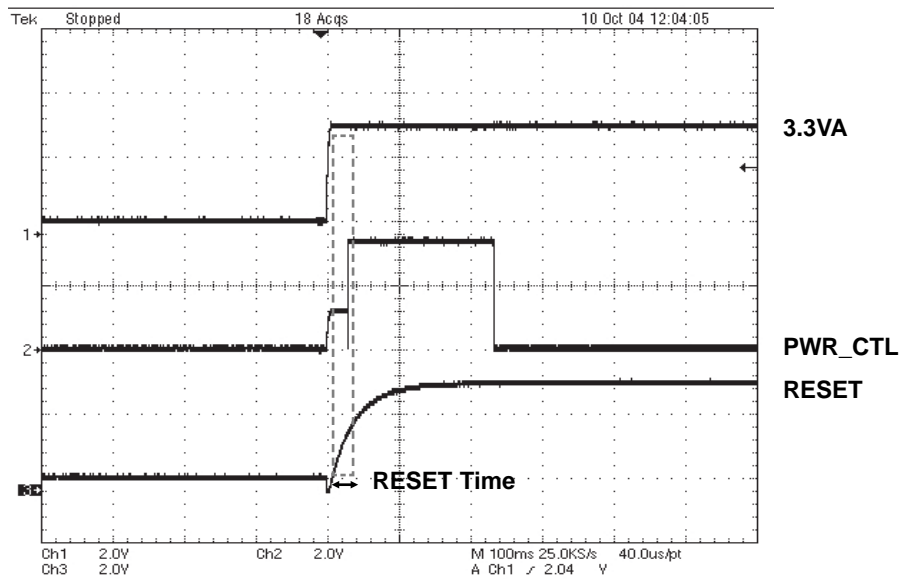


FIG 1-2

2. SDRAM CLOCK

2-1. SDRAM clock is at 143MHz

CLK=143MHz, Vp-p=3.3V

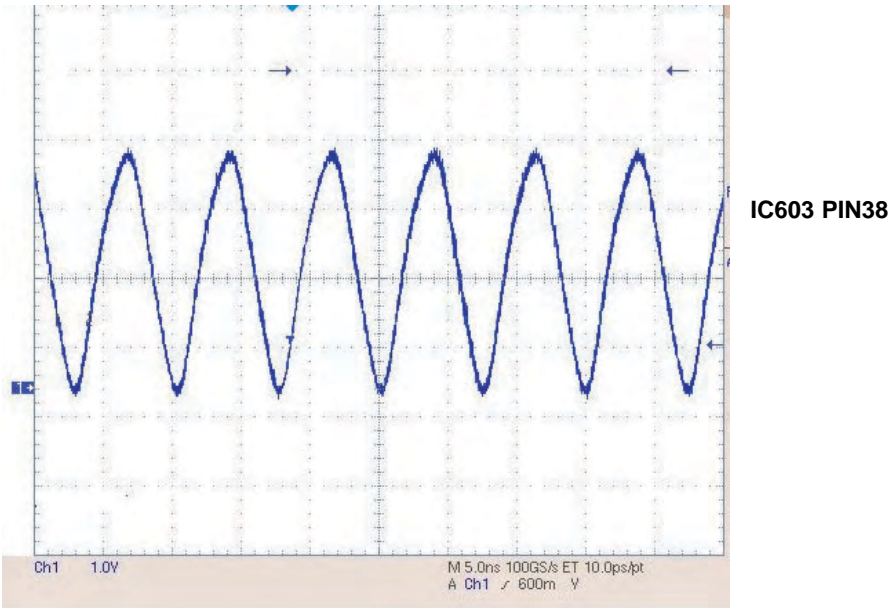


FIG 2-1

3. TRAY OPEN/CLOSE SIGNAL

3-1. Tray open/close waveform

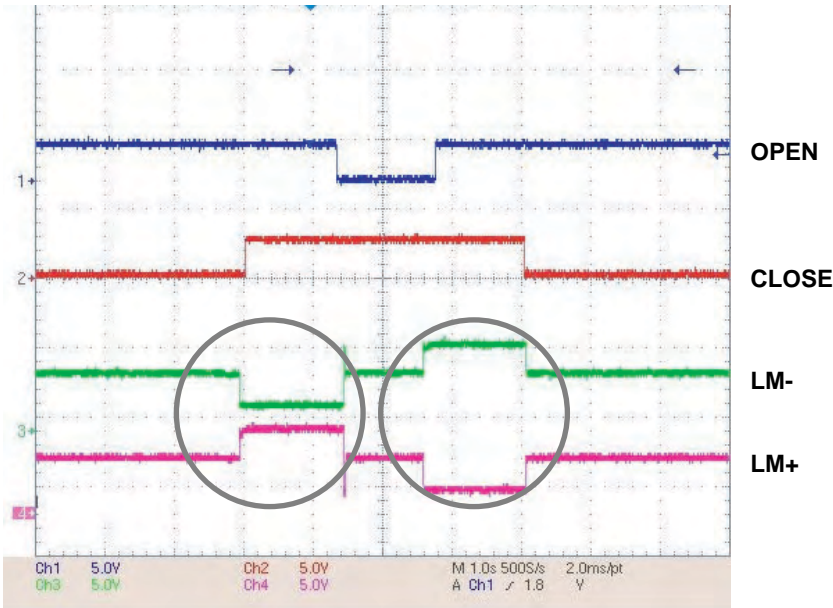


FIG 3-1

3-2. Tray open waveform

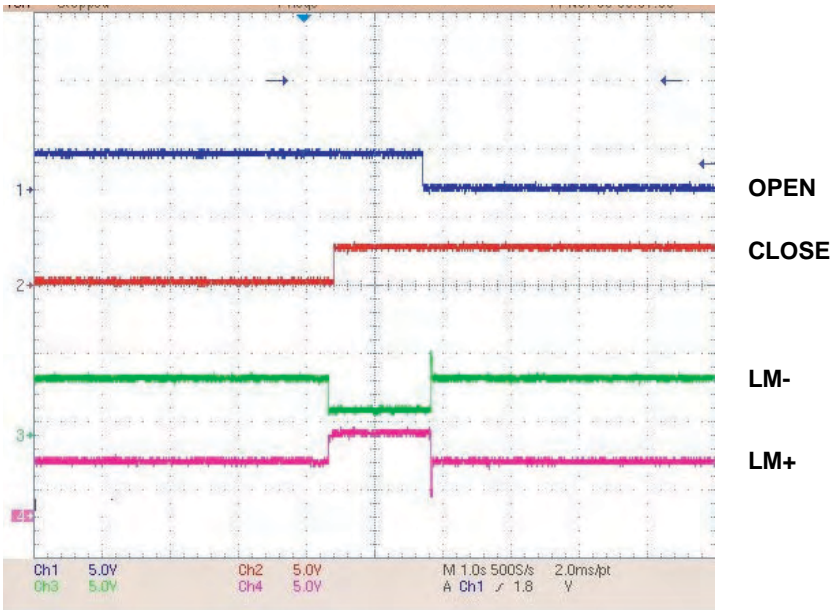


FIG 3-2

3-3. Tray close waveform

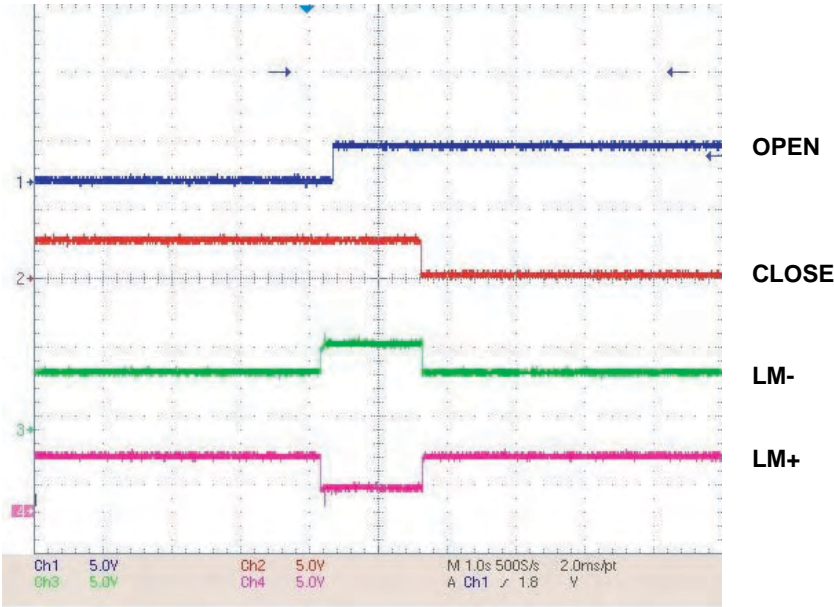


FIG 3-3

4. SLED CONTROL RELATED SIGNAL (NO DISC CONDITION)

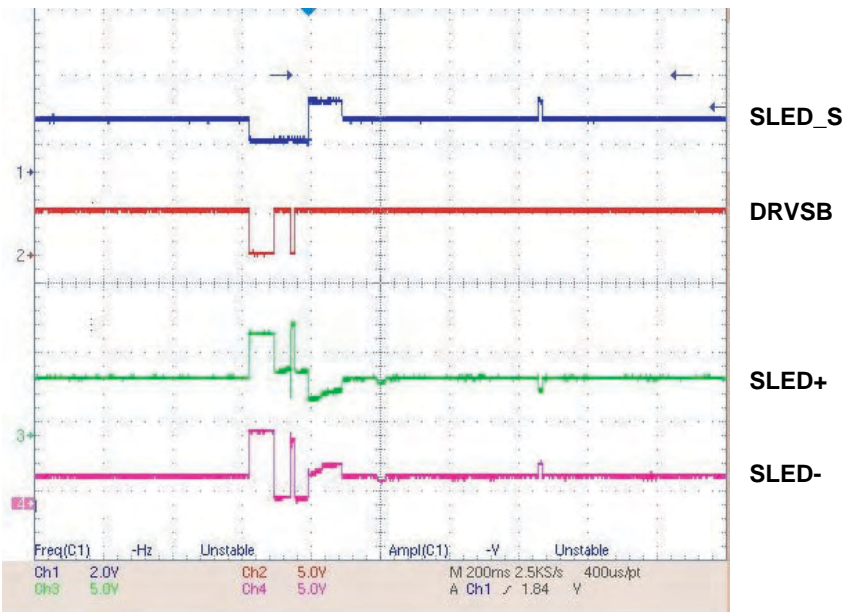


FIG 4-1

5. LENS CONTROL RELATED SIGNAL (NO DISC CONDITION)

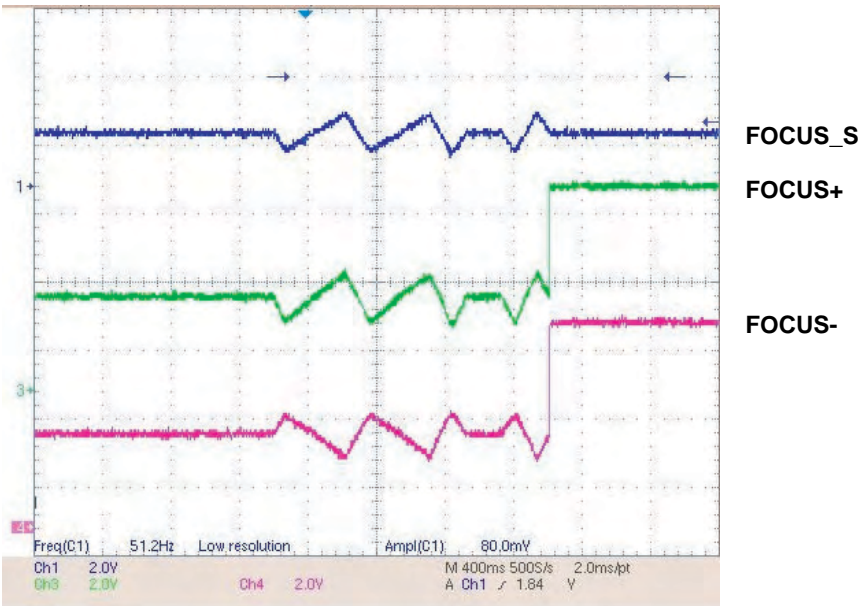


FIG 5-1



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

DCLK=128MHz, Vp-p, Vmax=2.7V

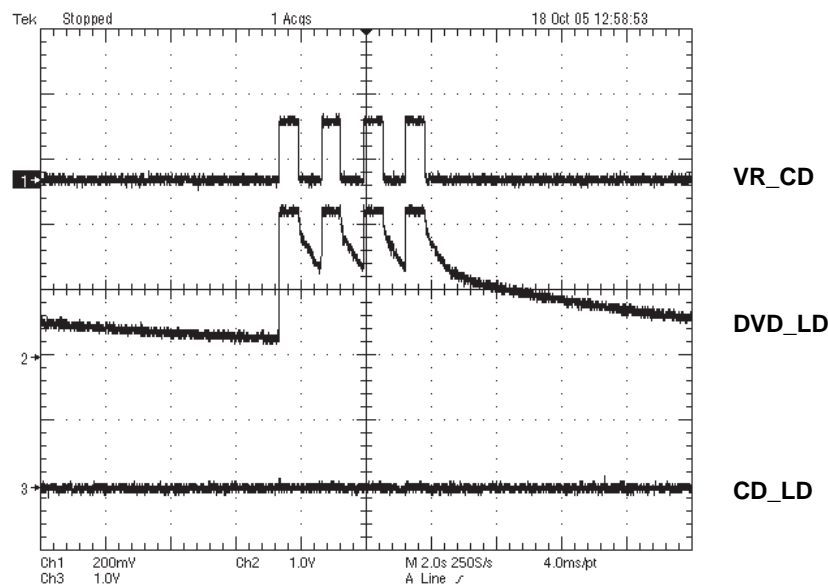


FIG 6-1

7. FOCUS ON WAVEFORM

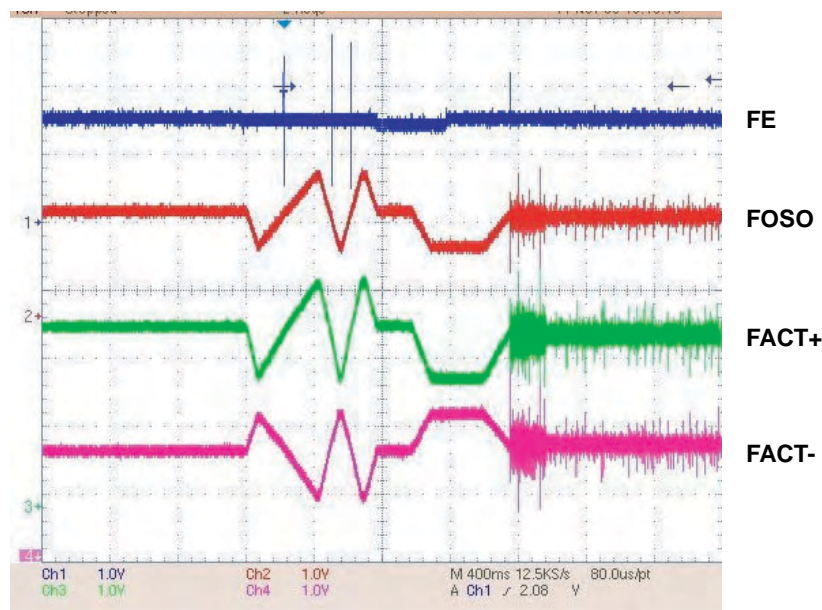


FIG 7-1 (DVD)



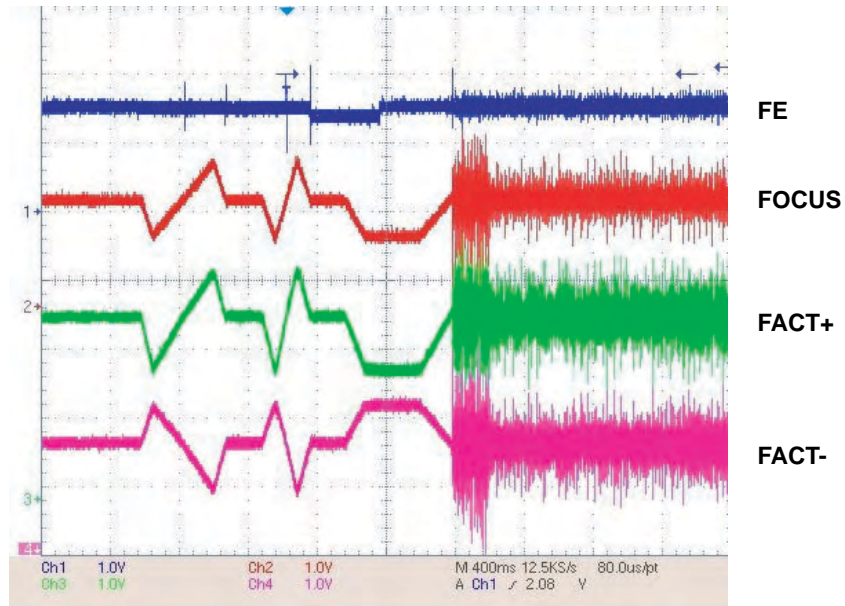


FIG 7-2 (CD)

## 8. SPINDLE CONTROL WAVEFORM (NO DISC CONDITION)

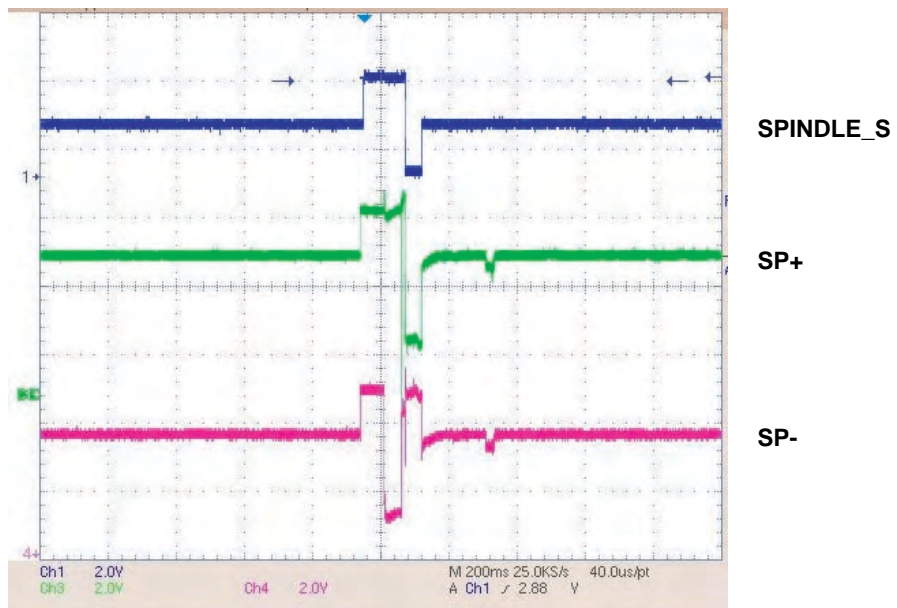


FIG 8-1 (DVD)

9. TRACKING CONTROL RELATED SIGNAL (SYSTEM CHECKING)

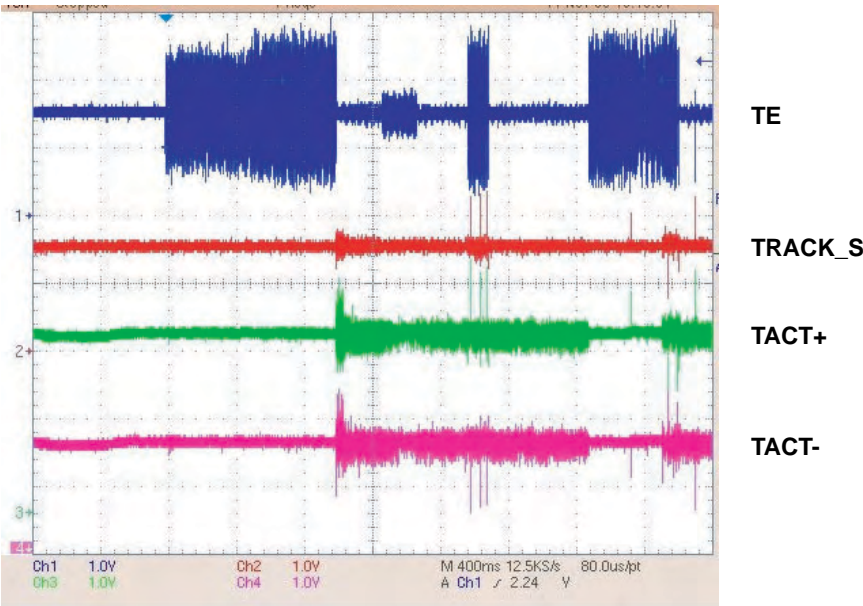


FIG 9-1 (DVD)

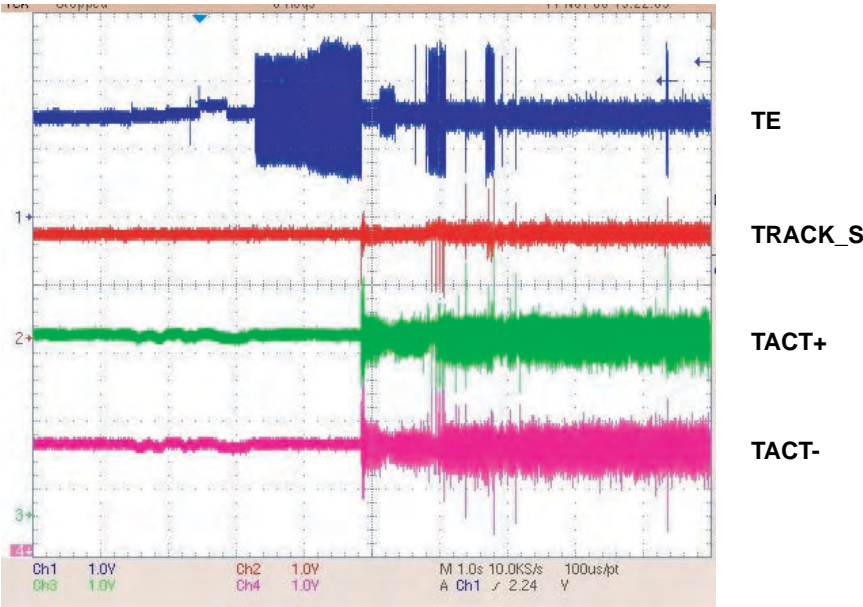


FIG 9-2 (CD)

10. RF WAVEFORM

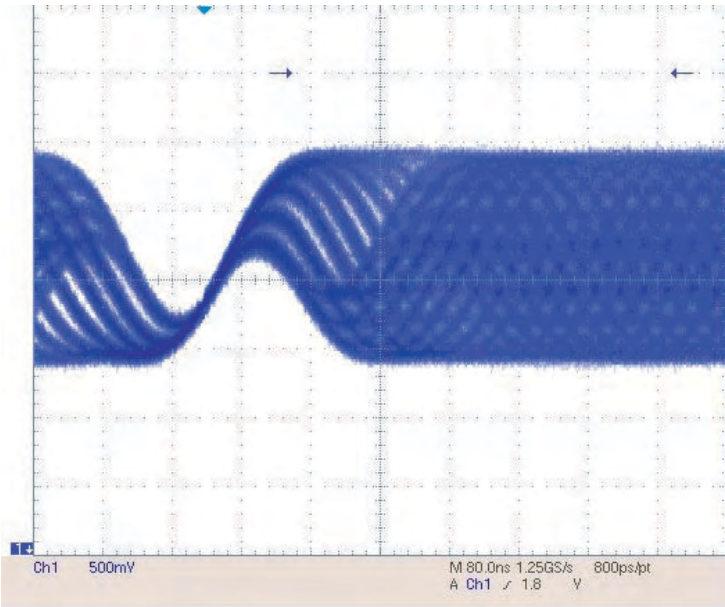


FIG 10-1

11. ZR36966 AUDIO OPTICAL AND COAXIAL OUTPUT (SPDIF)

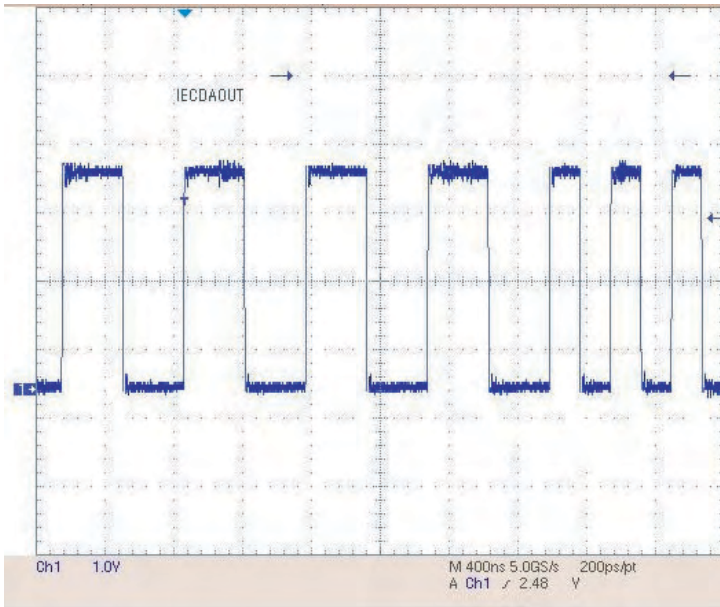


FIG 11-1

12. ZR36966 VIDEO OUTPUT WAVEFORM

12-1. Full colorbar signal (CVBS)

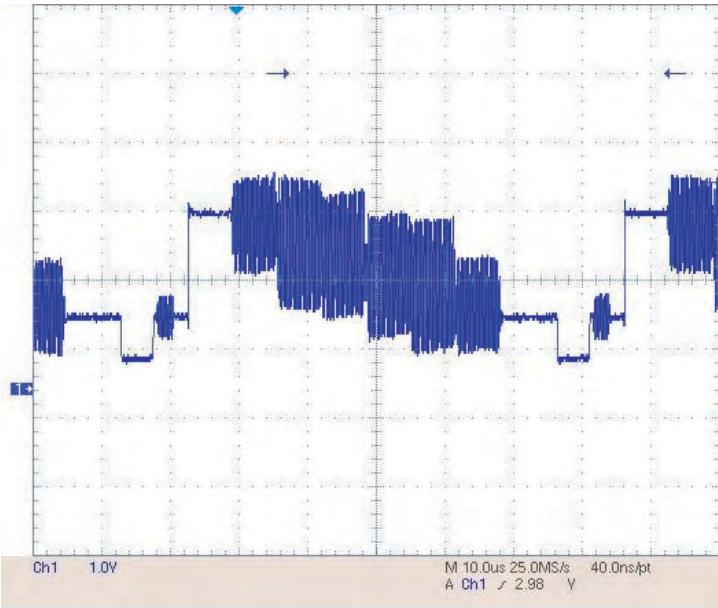


FIG 12-1

12-2. Y

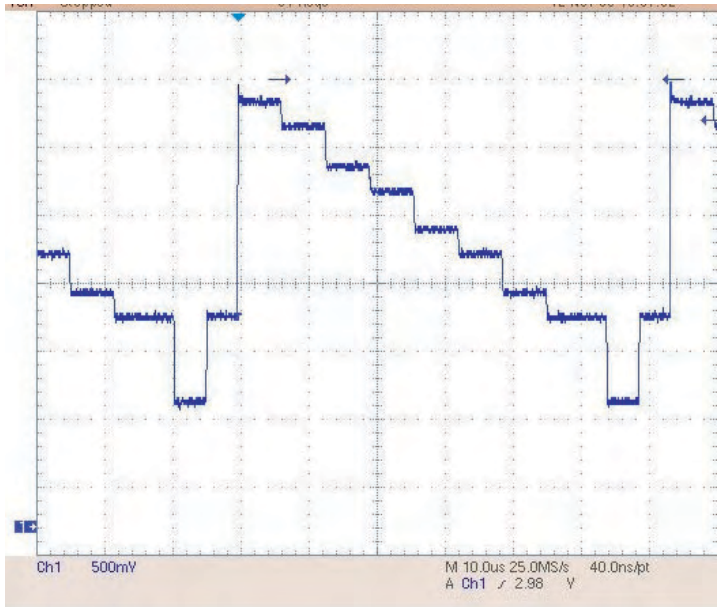


FIG 12-2



12-3. C

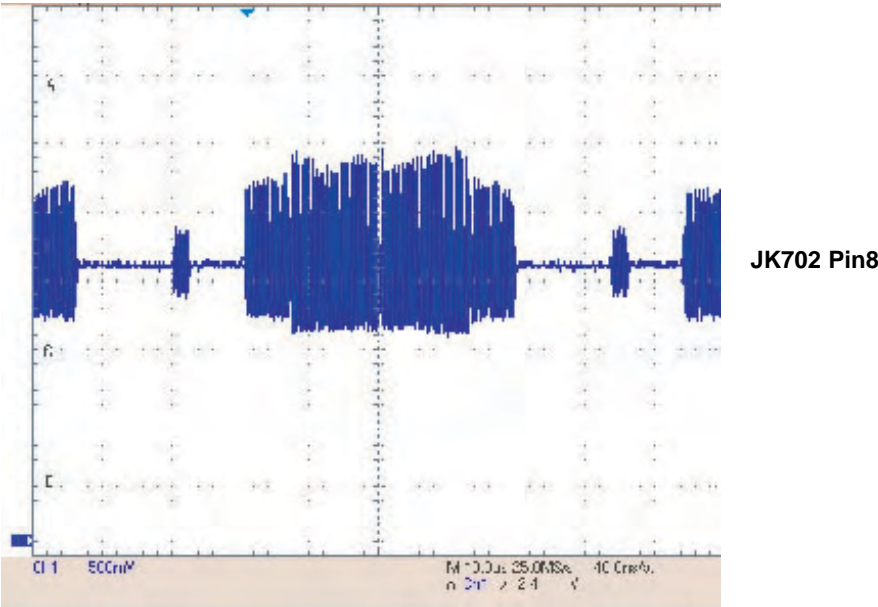


FIG 12-3

13. AUDIO OUTPUT FROM AUDIO PREAMP

13-1. AUDIO L/R

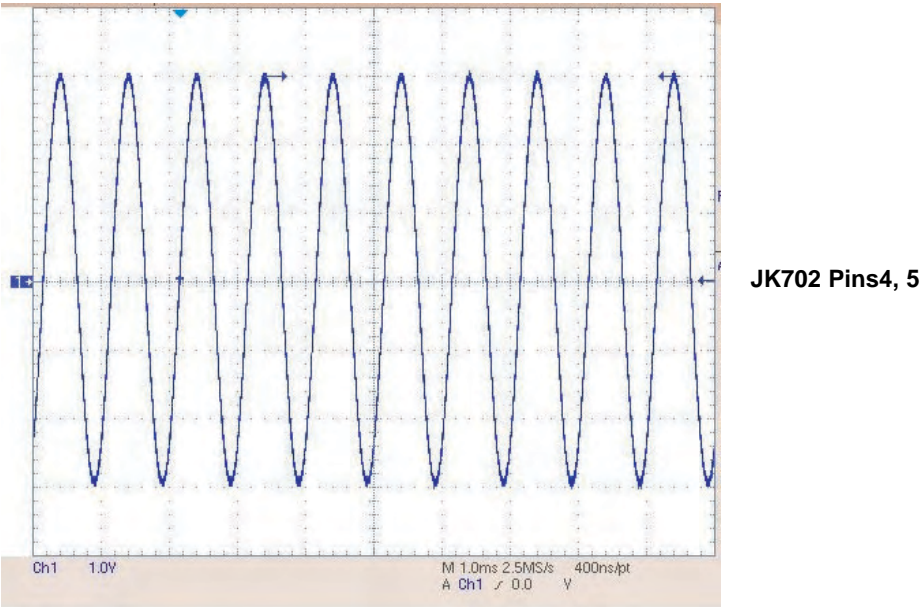
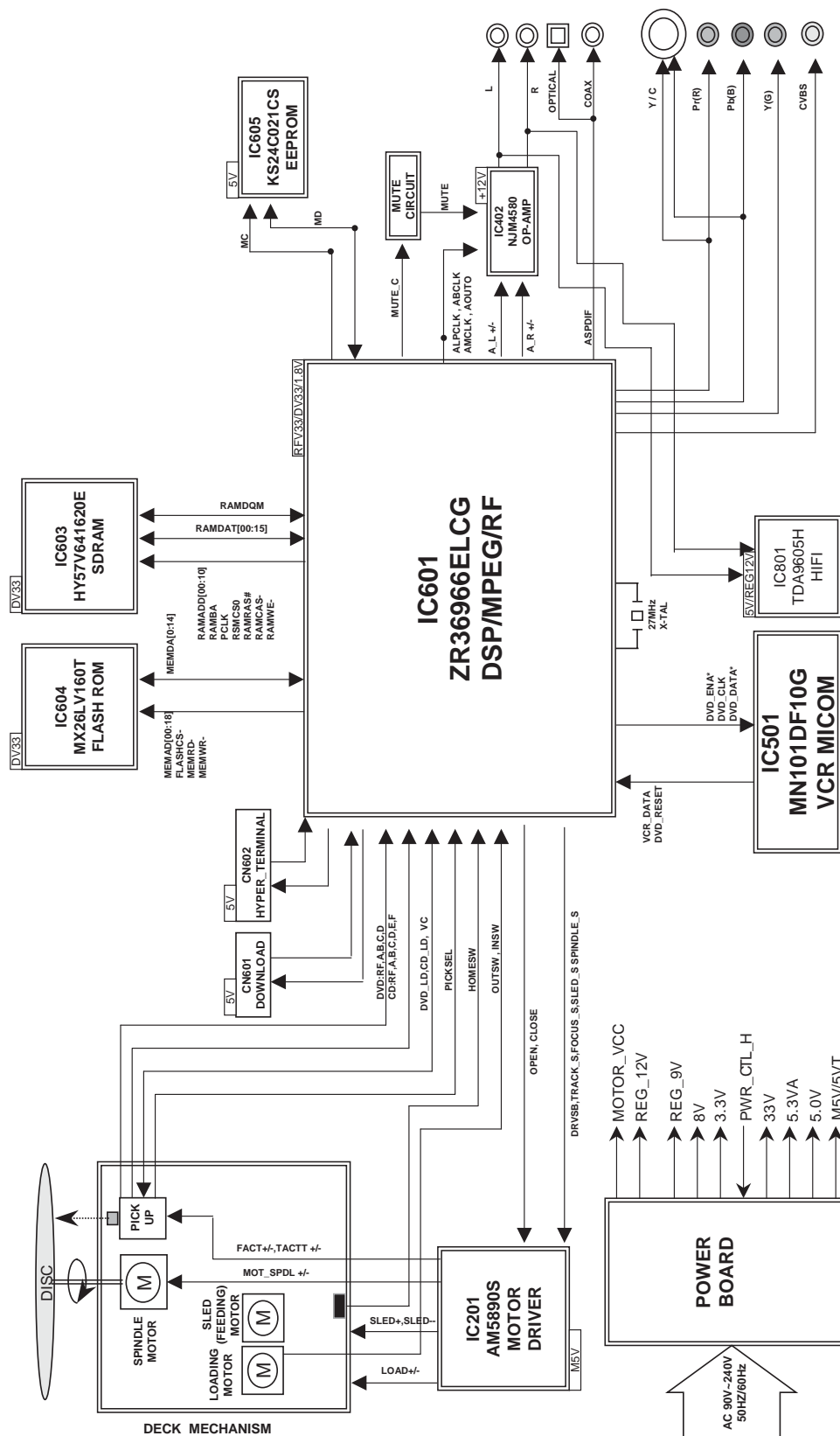
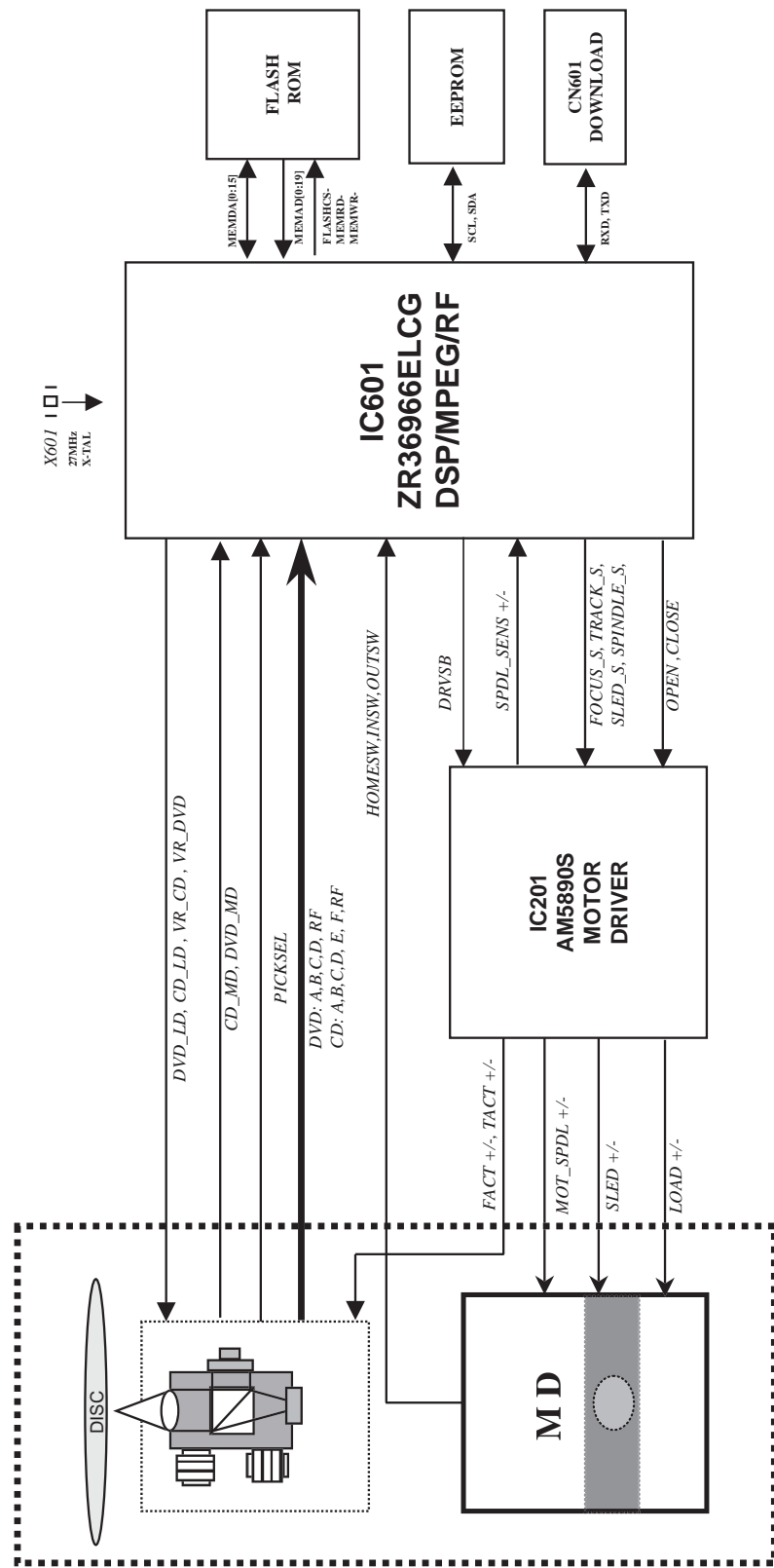


FIG 13-1

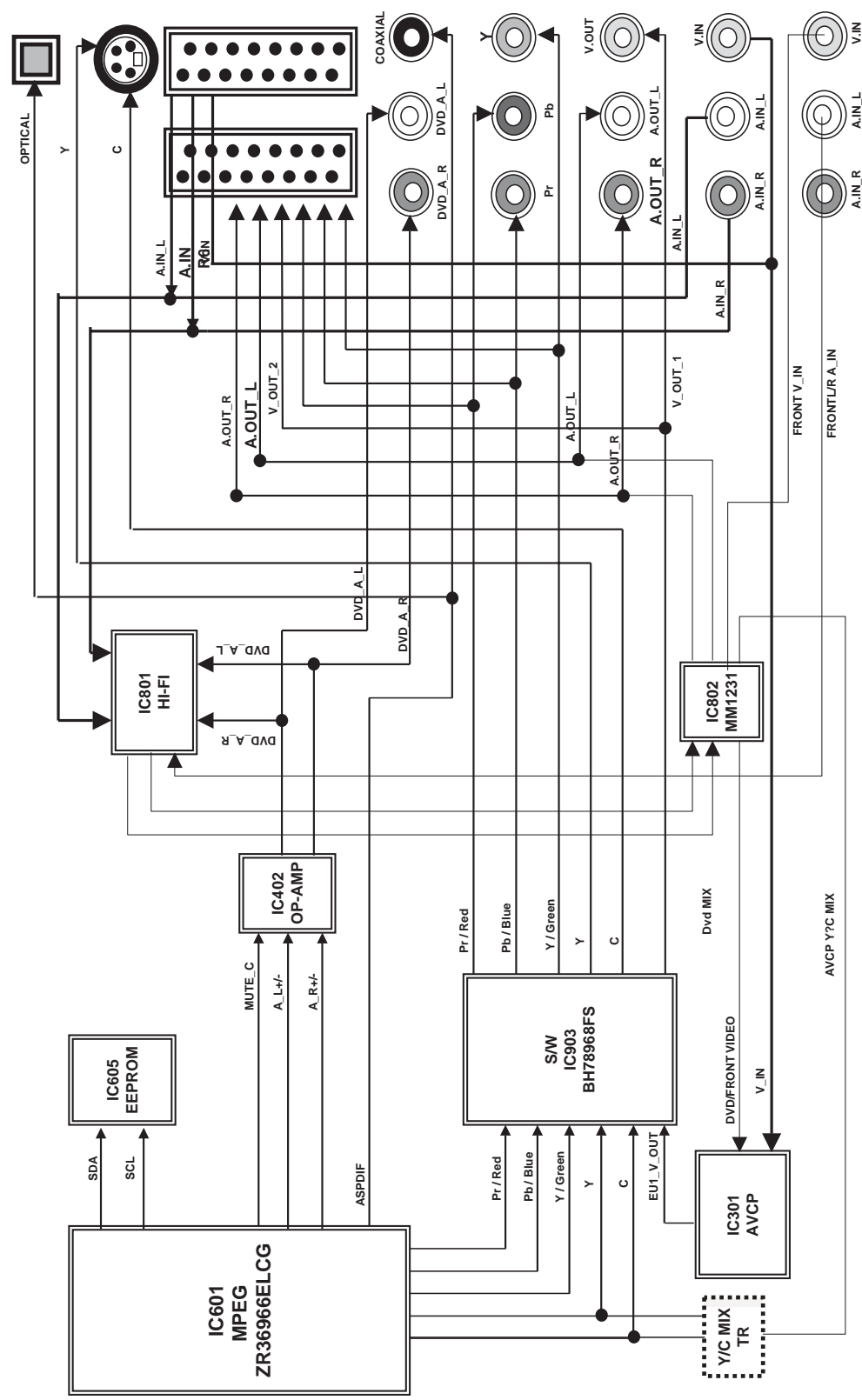
## 1. SYSTEM BLOCK DIAGRAM



2. SERVO BLOCK DIAGRAM



3. AUDIO & VIDEO IN/OUT BLOCK DIAGRAM

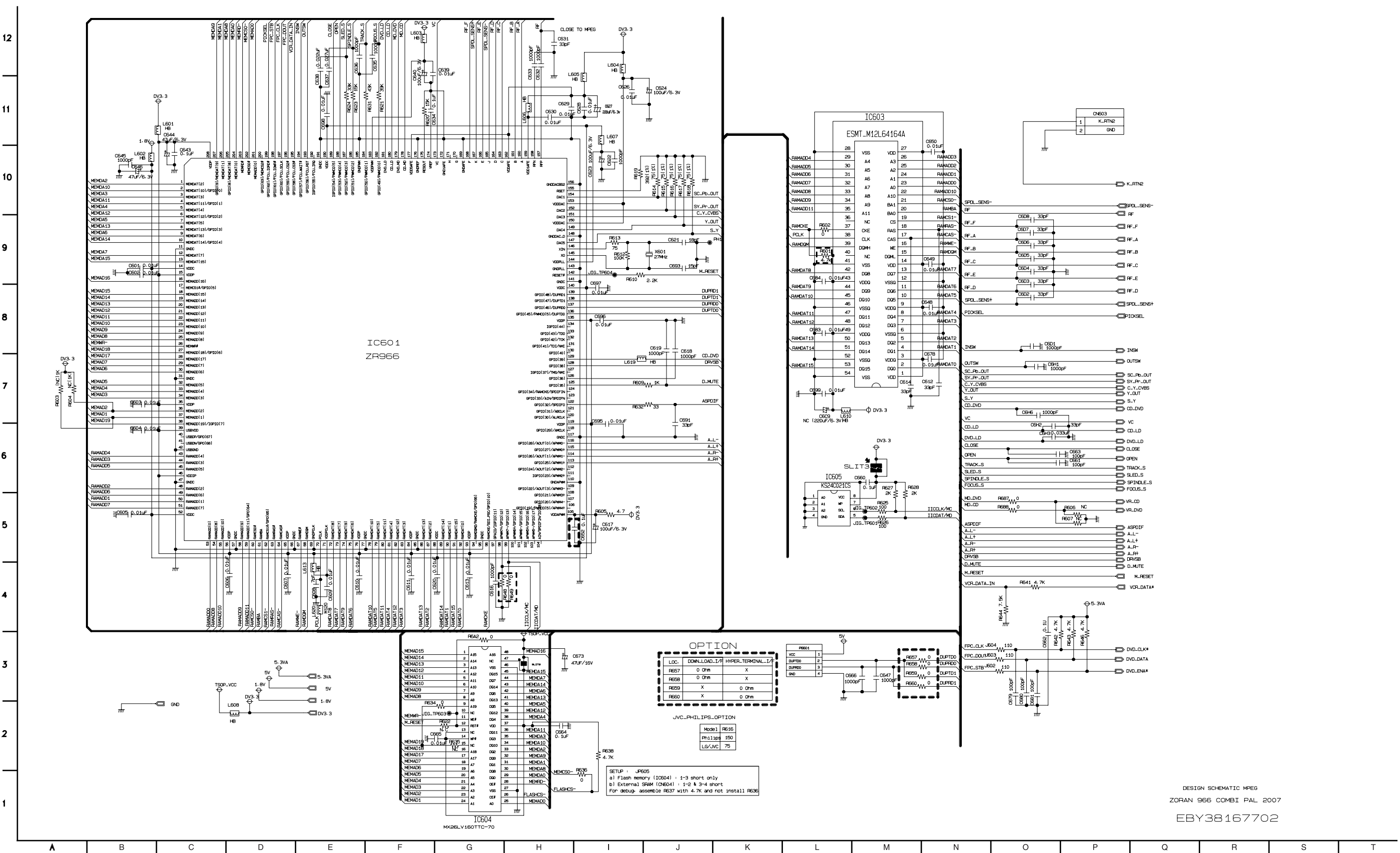




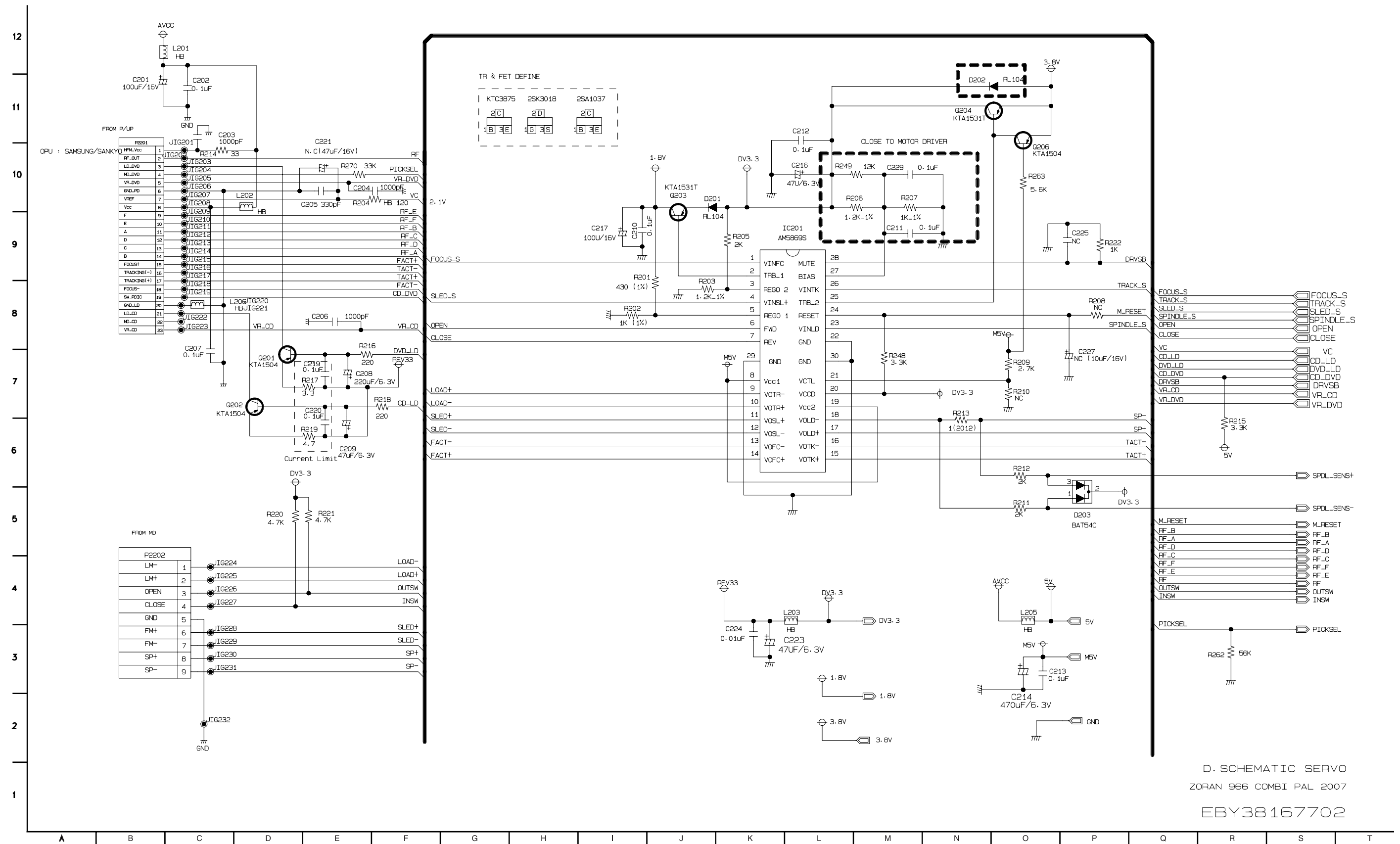
# MEMO

CIRCUIT DIAGRAMS

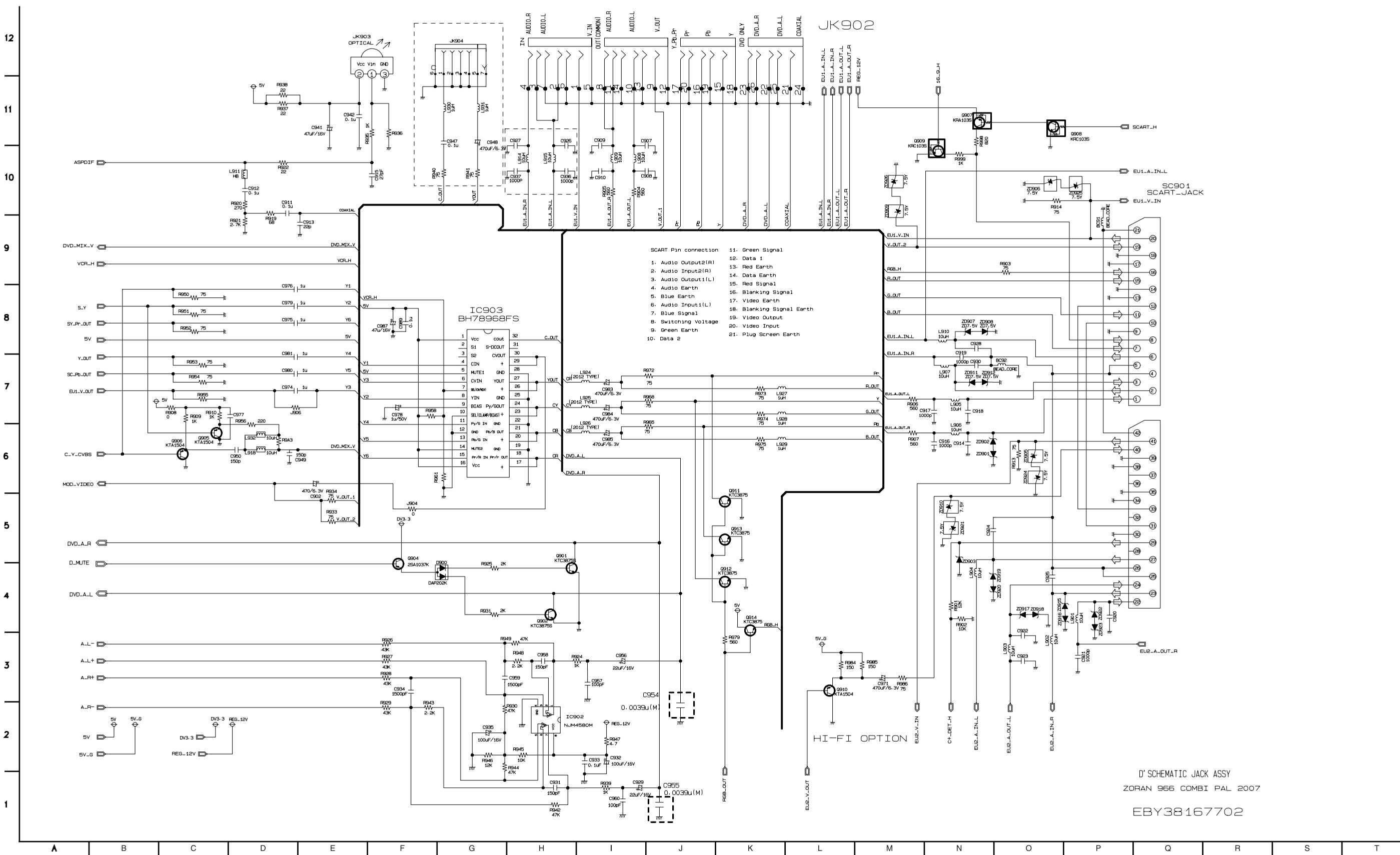
1. MPEG CIRCUIT DIAGRAM



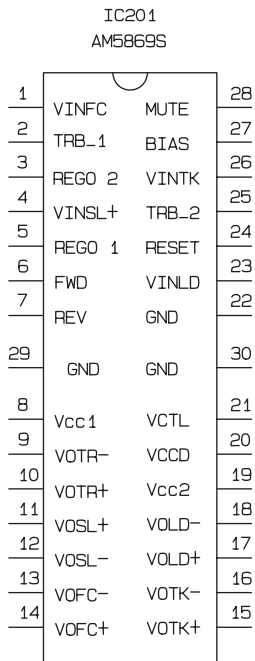
## 2. SERVO CIRCUIT DIAGRAM



### 3. JACK CIRCUIT DIAGRAM

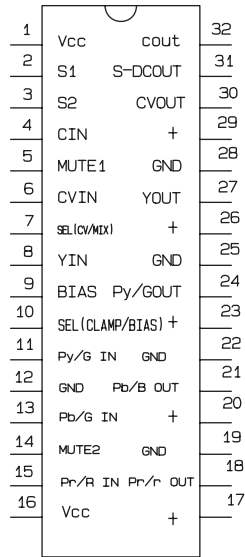


IC BLOCK DIAGRAMS

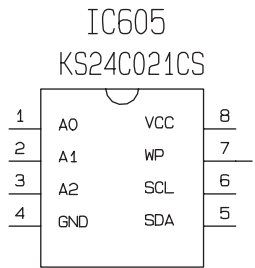


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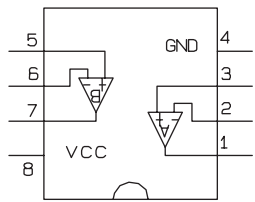
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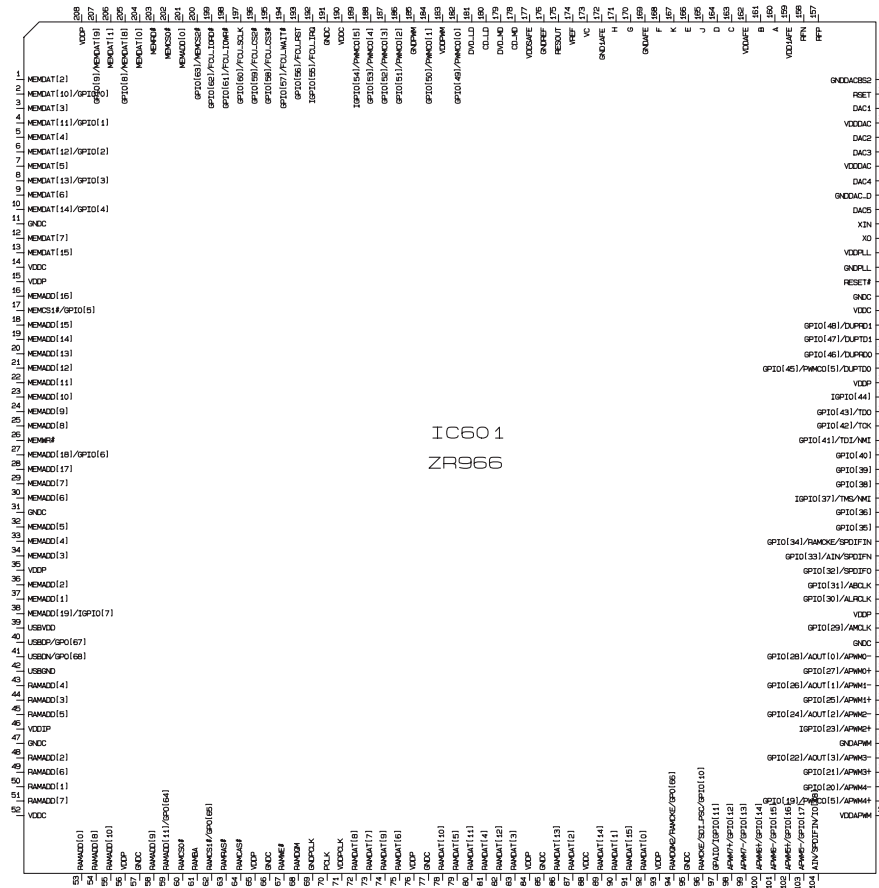
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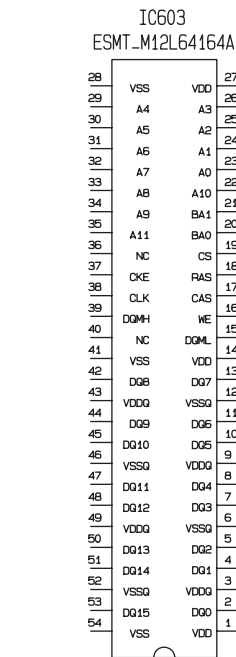
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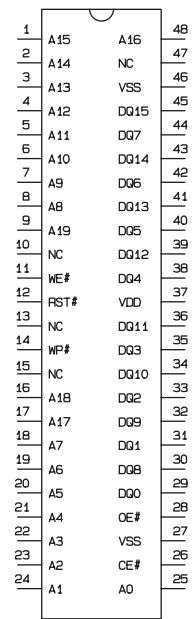
IC902\_NJM4580M



IC601\_ZR966



IC603\_ESMT\_M12L64164A



IC604  
MX26LV160TTC-70

# SECTION 4 MECHANISM OF VCR PART(D-37)

## CONTENTS

### DECK

#### MECHANISM PARTS LOCATIONS

- Top View.....4-2
- Bottom View .....4-2

### DISASSEMBLY AND

#### ASSEMBLY OF DECK MECHANISM

1. Disassembly of Drum assembly .....4-3
2. Disassembly of Plate top disassembly ....4-5
3. Holder Assembly CST.....4-5
4. Disassembly of Gear Assembly  
Rack F/L.....4-5
5. Opener Door .....4-5
6. Arm Assembly F/L.....4-5
7. Lever Assembly S/W.....4-5
8. Motor Assembly L/D.....4-6
9. Gear Wheel.....4-6
10. Arm Assembly Cleaner .....4-6
11. Head F/E.....4-6
12. Base Assembly A/C Head.....4-6
13. Brake Assembly T.....4-7
14. Arm Assembly Tension.....4-7
15. Reel S / Reel T .....4-7
16. Base Assembly P4.....4-8
17. Opener Lid .....4-8
18. Arm Assembly Pinch.....4-8
19. Arm T/up .....4-8
20. Supporter, Capstan.....4-9
21. Belt Capstan/Motor Capstan.....4-9
22. Lever F/R .....4-9
23. Clutch Assembly D37.....4-9
24. Gear Drive/Gear Cam.....4-10
25. Gear Sector.....4-10
26. Brake Assembly Capstan.....4-10
27. Plate Slider.....4-10
28. Lever Tension.....4-10
29. Lever Spring.....4-10
30. Lever Brake.....4-10
31. Gear Assembly P2/Gear Assembly P3 ...4-11
32. Base Assembly P2/Base Assembly P3...4-11
33. Base Loading .....4-11
34. Base Tension .....4-12
35. Arm Assembly Idler Jog .....4-12

### DECK MECHANISM ADJUSTMENT

- Fixtures and tools for service.....4-13
- 1. Mechanism Assembly Mode Check.....4-14
- 2. Previous Preparation for  
Deck Adjustment .....4-15
- 3. Torque Measuring .....4-15
- 4. Guide Roller Height Adjustment.....4-16
  - 4-1. Prior Adjustment .....4-16
  - 4-2. Fine Adjustment.....4-16
- 5. Audio/Control (A/C) Head Adjustment ....4-17
  - 5-1. Prior Adjustment .....4-17
  - 5-2. Tape Path Check between Pinch  
Roller and Take-up Guide.....4-18
  - 5-3. Fine Adjustment  
(Azimuth Adjustment).....4-18
- 6. X-distance Adjustment .....4-18
- 7. Adjustment after Drum Assembly  
(Video Heads) .....4-19
- 8. Check of Traveling Device after Deck  
Assembly.....4-19
  - 8-1. Audio, RF Normalization Time  
(Locking Time) Check in Play  
after CUE or REV .....4-19
  - 8-2. Check of Tape Curl and  
Jam Status.....4-19

### PROTECTION, MAINTENANCE AND CHECK OF VIDEO FUNCTION

1. Checking Points before Repair .....4-20
2. Essential Check and Repair .....4-21
3. Regular Check and Repair .....4-21
4. Tools for Check and Repair .....4-21
5. Maintenance Process .....4-21
  - 5-1. Removal of Foreign Materials.....4-21
  - 5-2. Grease Application.....4-22

### TROUBLESHOOTING GUIDE

1. Deck Mechanism .....4-24
2. Front Loading Mechanism .....4-27

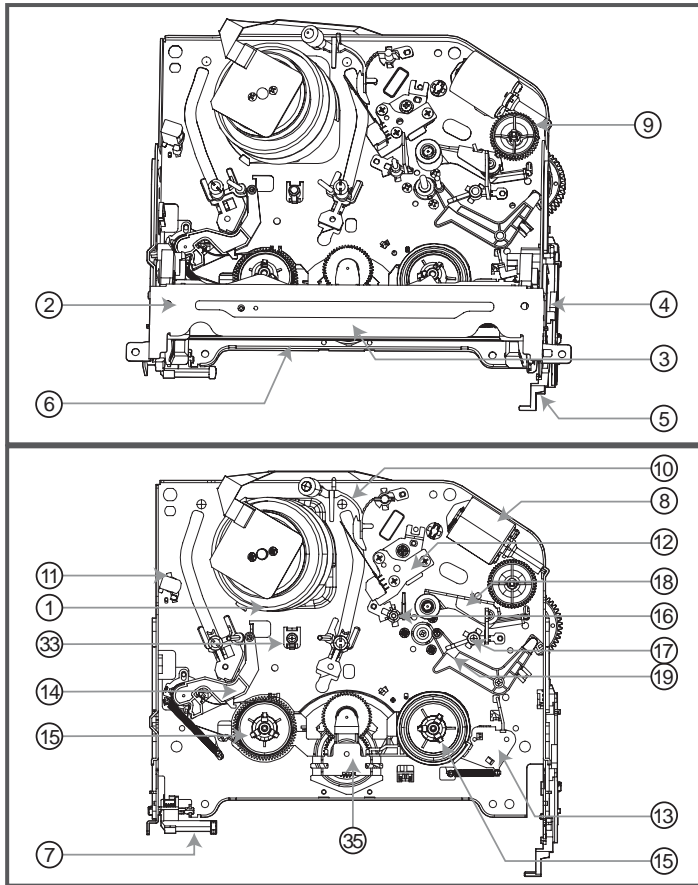
### EXPLODED VIEWS

1. Front Loading Mechanism Section .....4-29
2. Moving Mechanism Section(1).....4-30
3. Moving Mechanism Section(2).....4-31

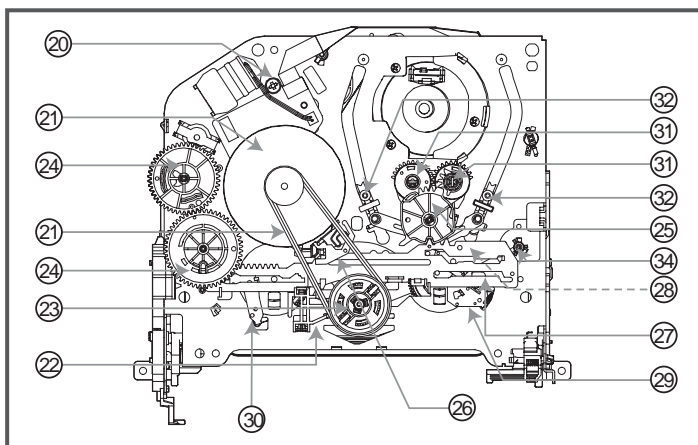


# DECK MECHANISM PARTS LOCATIONS

## • Top View



## • Bottom View



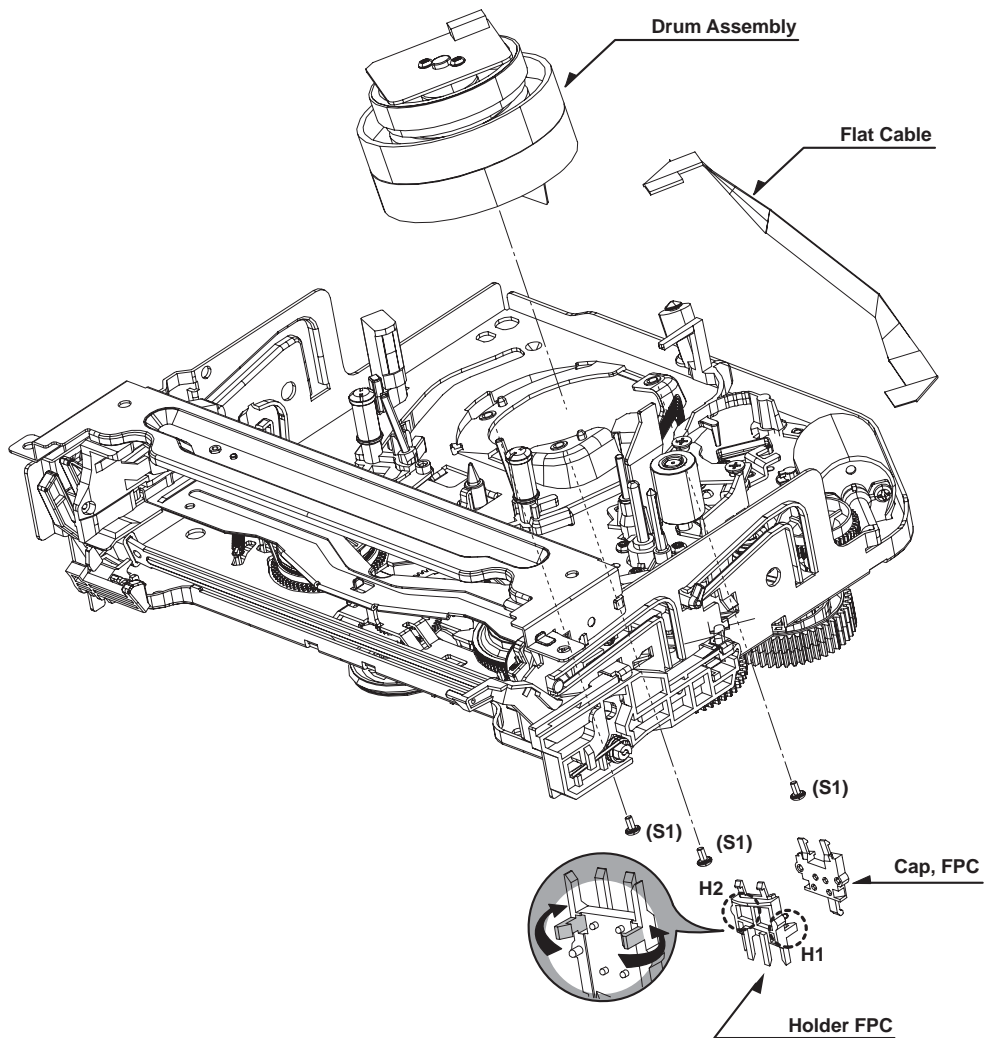
**NOTE : When reassembling, perform the procedure in the reverse order.**

- (1) When reassembling, confirm Mechanism and Mode Switch Alignment Position
- (2) When disassembling, the Parts in the "Starting No." column should be removed first."

Starting No.	Procedure	Part	Fixing Type	Ref. Draw-ings	Posi-tion
	1	Drum Assembly	3 screws	A-1	T
	2	Plate Top	2 hooks	A-2	T
2	3	Holder Assembly CST	6 chasses	A-2	T
2,3	4	Gear Assembly Rack F/L	1 hook	A-2	T
2,3,4	5	Opener Door	Chassis Hole	A-2	T
2,3,4,5	6	Arm Assembly F/L	Chassis Hole	A-2	T
	7	Lever Assembly S/W	Chassis Hole, 1 hook	A-2	T
	8	Motor Assembly L/D	1 screw	A-3	T
	9	Gear Wheel	2 hooks	A-3	T
	10	Arm Assembly Cleaner	Chassis Embossing	A-3	T
	11	Head F/E	Chassis Embossing	A-3	T
	12	Base Assembly A/C Head	1 screw	A-3	T
2,3	13	Brake Assembly T	1 hook	A-4	T
2,3	14	Arm Assembly Tension	1 hook	A-4	T
2,3,13,14	15	Reel S / Reel T	Shaft	A-4	T
	16	Base Assembly P4	Chassis Embossing	A-5	T
	17	Opener Lid	Chassis Embossing	A-5	T
17	18	Arm Assembly Pinch	Shaft	A-5	T
17	19	Arm T/up	1 hook	A-5	T
	20	Supporter, capstan	Chassis Hole	A-6	B
17,18	21	Belt Capstan/Motor Capstan	3 screws	A-6	B
	22	Lever F/R	Locking Tab	A-6	B
21, 22	23	Clutch Assembly D37	Washer	A-6	B
	24	Gear Drive/Gear Cam	Washer/Hook	A-7	B
	25	Gear Sector	Hook	A-7	B
21	26	Brake Assembly Capstan	Chassis Hole	A-7	B
21,22,23, 24,25,26	27	Plate Slider	Chassis Guide	A-7	B
21,22,23, 24,25,26,27	28	Lever Tension	1 Hook	A7	B
21,22,23, 24,25,26,27	29	Lever Spring	1 Hook	A-7	B
21,22,23, 24,25,26,27	30	Lever Brake	1 Hook	A-7	B
25	31	Gear Assembly P2/ Gear Assembly P3	Bass	A-8	B
2, 3, 14, 25, 31	32	Base Assembly P2 /Base Assembly P3	6 Chasses	A-8	B
25, 31	33	Base Loading	3 Hooks	A-8	B
2,3,14	34	Base Tension	Chassis Embossing	A-9	T
	35	Arm Assembly Idler Jog	Locking Tab	A-9	T

T:Top, B:Bottom

# DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

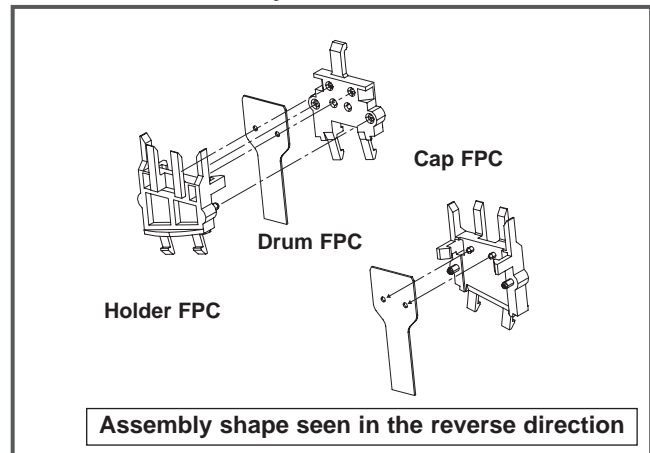


**Fig. A-1**

## 1. Disassembly of Drum Assembly (Figure A-1)

- 1) Separate the flat cable from the Drum FPC and the Capstan Motor.
- 2) Release 3 screws (S1) on the bottom side of the chassis, and separate the drum assembly.
- 3) Release the hooks (H1, H2) and separate both the holder FPC and the Cap FPC (disassemble if necessary).

### Cautions in assembly of FPC





# DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

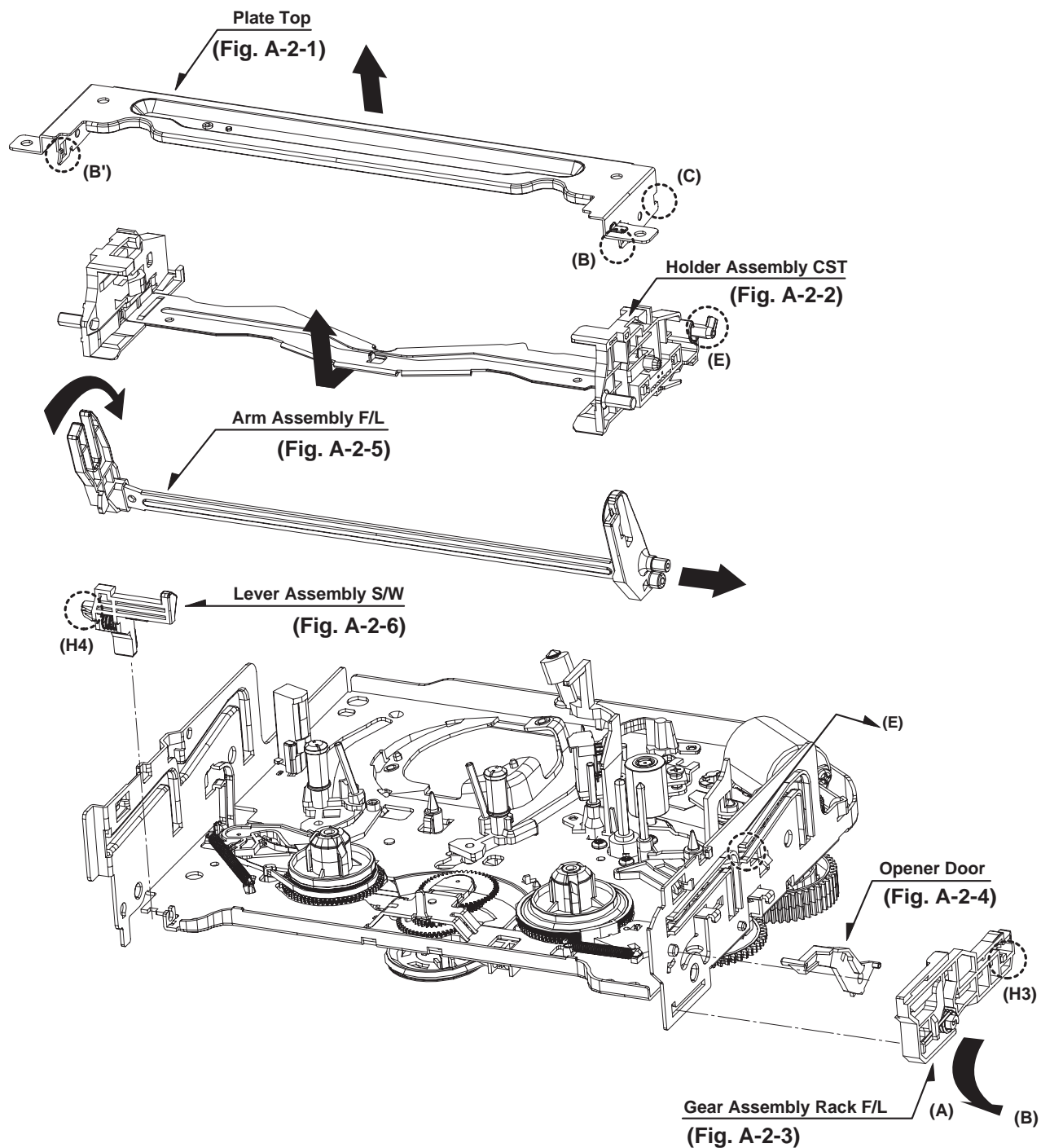


Fig. A-2

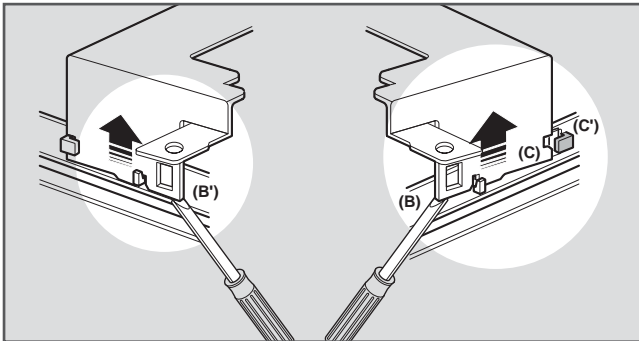
# DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

## 2. Disassembly of Plate Top (Fig. A-2-1)

- 1) Separate the right part while leaning back the (B) part of the plate top toward the arrow direction.
- 2) Separate the left part while leaning back the (B') part of the plate top toward the arrow direction.  
(Tool used: Tool such as (-) driver, auger, etc with pointed or flat end)

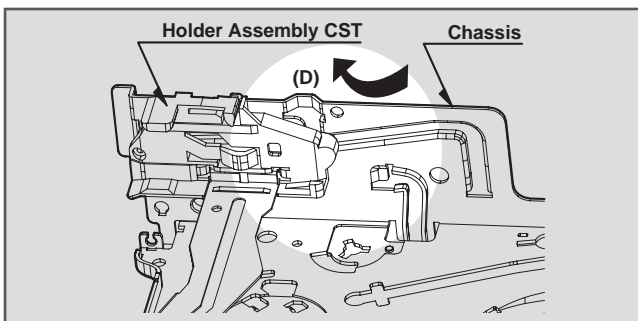
### CAUTIONS

Assemble while pressing the (C), (C') part after positioning them as in drawing.



## 3. Holder Assembly CST (Fig. A-2-2)

- 1) First, separate the left part from the groove on the (D) part of chassis while moving the holder assembly CST toward the arrow direction.



- 2) Separate the right part from each groove of chassis.

### CAUTIONS

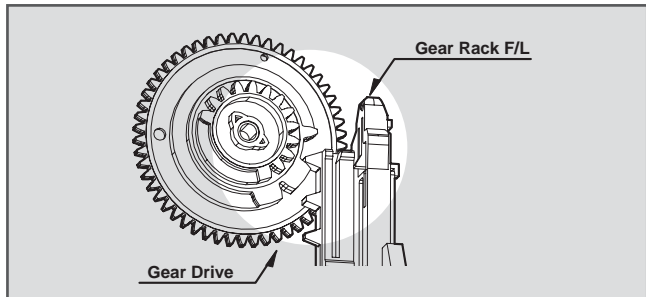
Assemble by inserting the left part after inserting the (E) part of the holder assembly CST into the groove on the (E') part of chassis.

## 4. Disassembly of Gear Assembly Rack F/L (Fig. A-2-3)

- 1) Separate the hook (H3) while bending hook (3) after moving the gear assembly rack F/L toward the arrow (A) direction.
- 2) Separate the gear assembly rack F/L toward the arrow (B) direction.

### CAUTIONS

For re-assembly, mate the gear part of gear assembly rack F/L to the gear drive.



## 5. Opener Door (Fig. A-2-4)

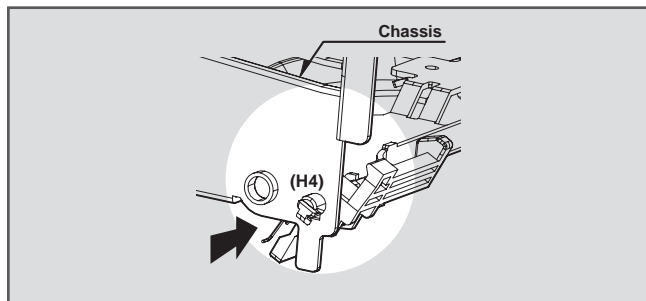
- 1) Separate the opener door from the guide hole of chassis while turning it clockwise.

## 6. Arm Assembly F/L (Fig. A-2-5)

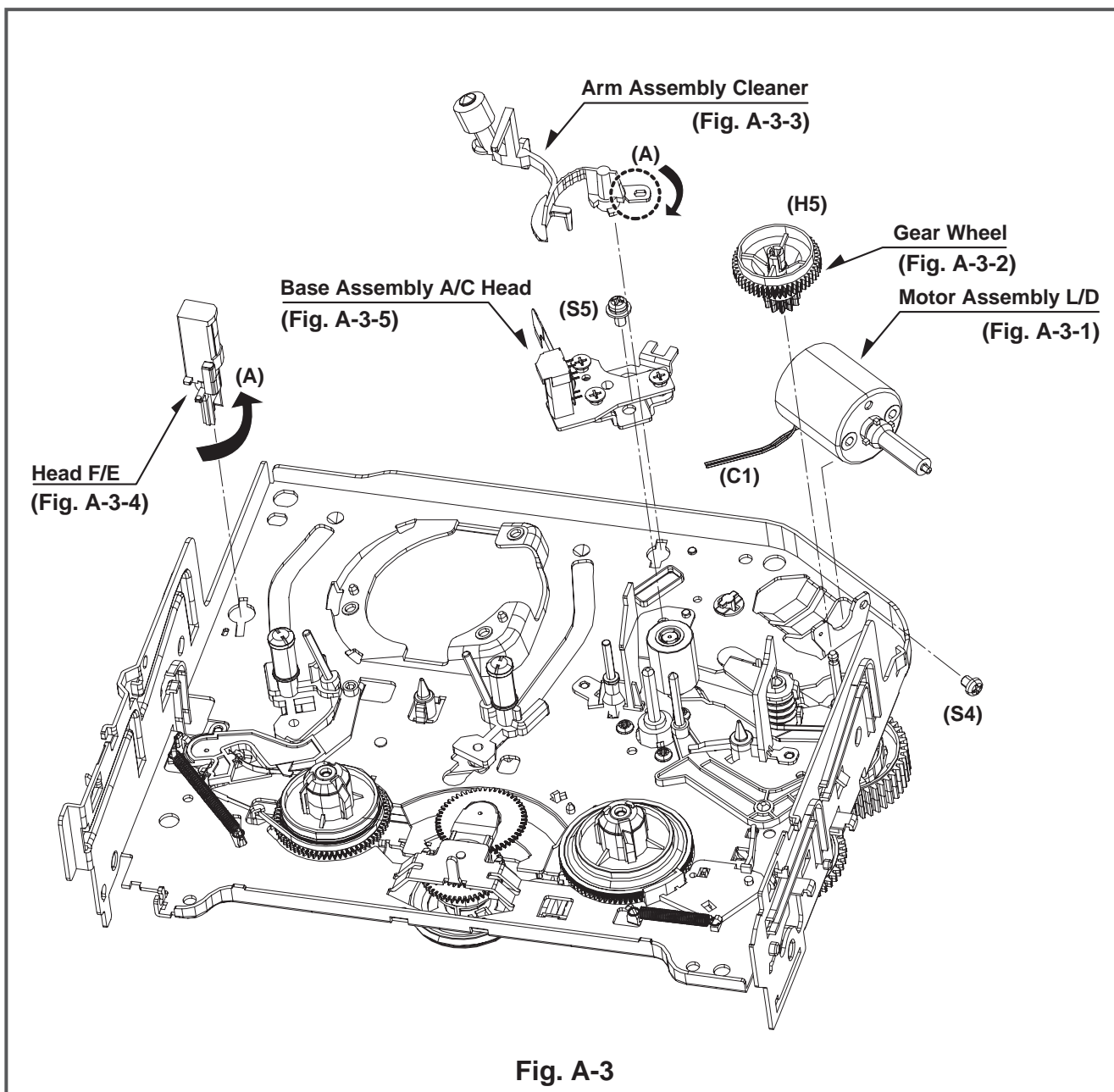
- 1) First, separate the left part of the arm assembly F/L from the groove of chassis while pushing the arm assembly F/L toward the arrow direction.
- 2) Separate the right part from the groove of chassis.

## 7. Lever Assembly S/W (Fig. A-2-6)

- 1) Separate the lever assembly S/W while pushing it toward the arrow direction after removing the hook (4) on the left side of chassis.



# DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM



## 8. Motor Assembly L/D (Fig. A-3-1)

- 1) Take the connector (C1) connected to the Capstan motor PCB out.
- 2) Remove the screw (S4) from the chassis and lift motor up.

## 9. Gear Wheel (Fig. A-3-2)

- 1) Release the hook (H5) of the gear wheel and lift it upward.

## 10. Arm Assembly Cleaner (Fig. A-3-3)

- 1) Separate the (A) part of Fig. A-3-1 from the embossing of chassis, and hold it up while turning it counter-clockwise.

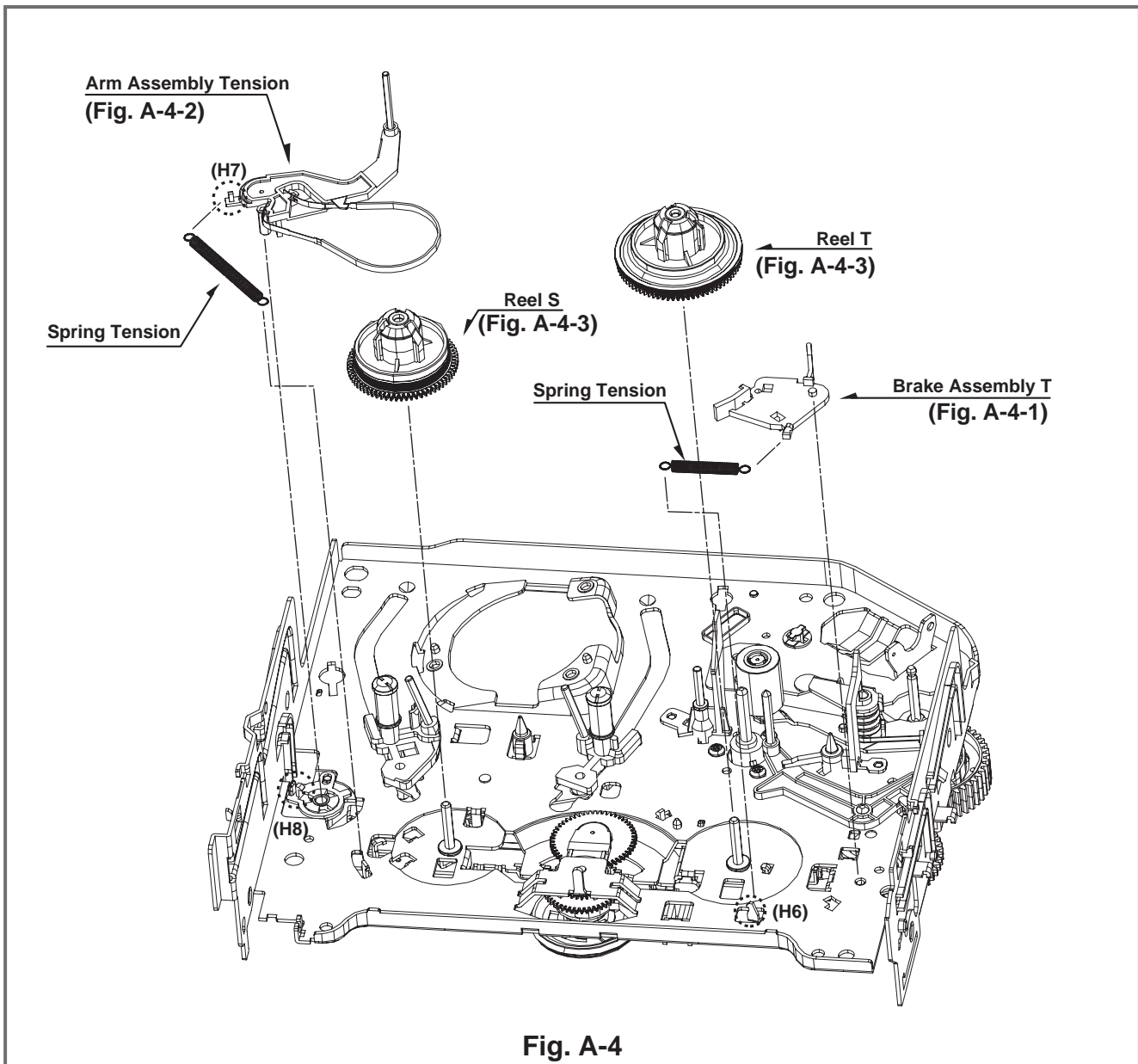
## 11. Head F/E (Fig. A-3-4)

- 1) Separate the (A) part of the head F/E from the embossing of chassis, and hold it up while turning it counter-clockwise.

## 12. Base Assembly A/C Head (Fig. A-3-5)

- 1) Release a screw (S5) and disassemble while holding it up.

# DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM



## 13. Brake Assembly T (Fig. A-4-1)

- 1) Release the spring tension from the lever spring hook (H6).
- 2) Disassemble the brake assembly T while lifting it upward.

## 14. Arm Assembly Tension (Fig. A-4-2)

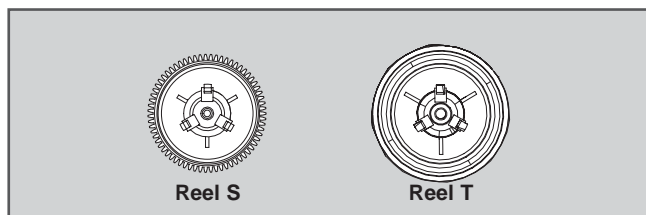
- 1) Release the spring tension (H7) from the arm assembly tension.
- 2) After releasing the hook (H8) of the base tension, separate it while lifting it up.

### CAUTIONS

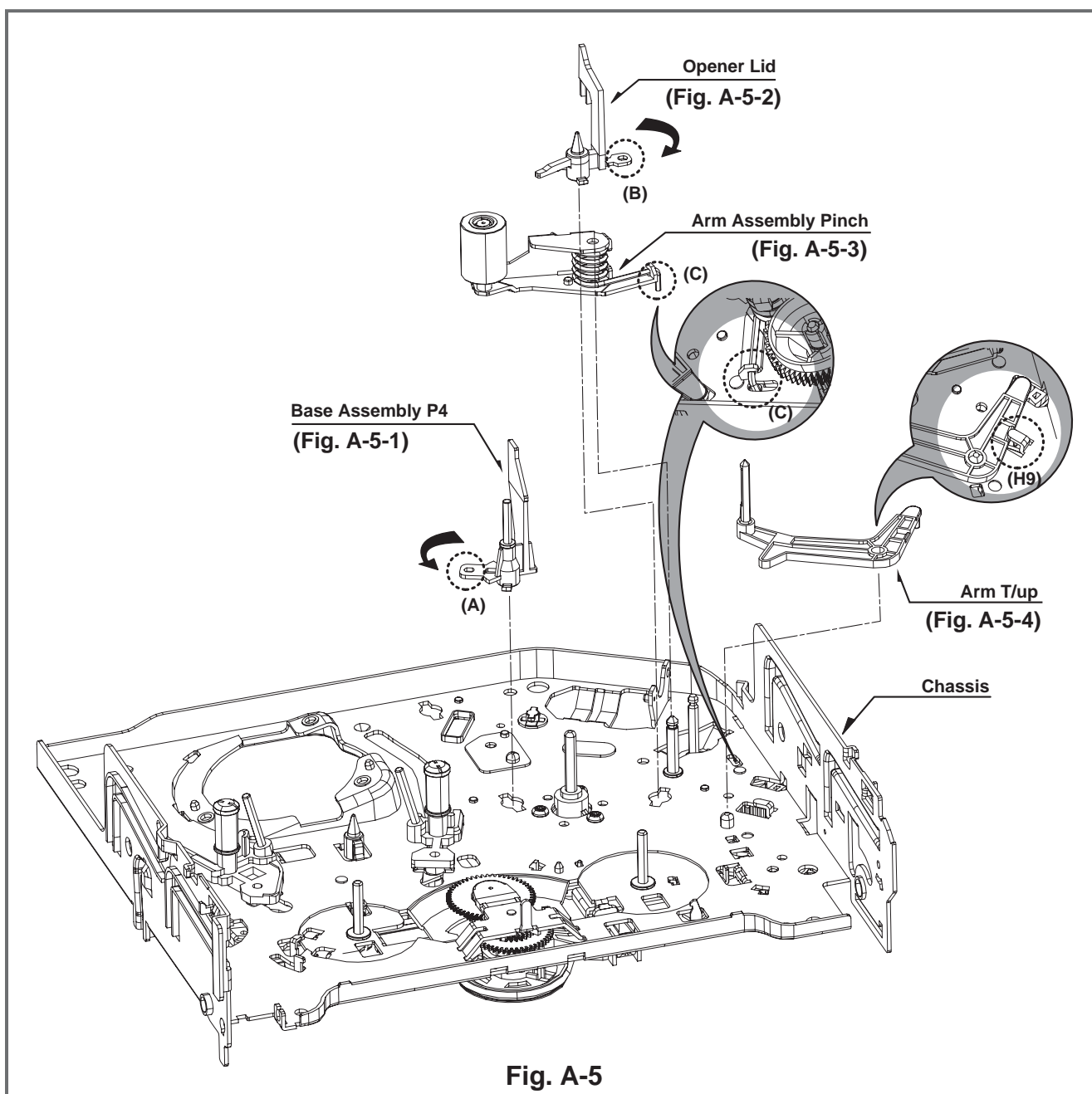
Spring used for both brake assembly T and arm assembly tension is used (2EA used).

## 15. Reel S/Reel T (Fig. A-4-3)

- 1) Disassemble the reel S/ reel T while lifting it up (comparison between Reel S and Reel T)



# DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM



## 16. Base Assembly P4 (Fig. A-5-1)

- 1) Release the (A) part of the base assembly P4 from the embossing of chassis.
- 2) Hold the base assembly P4 up while turning it counter-clockwise.

## 17. Opener Lid (Fig. A-5-2)

- 1) Release the (B) part of the opener lid from the embossing of chassis.
- 2) Disassemble the opener lid upward while turning it counter-clockwise.

## 18. Arm Assembly Pinch (Fig. A-5-3)

- 1) Lift the arm assembly pinch up.

## 19. Arm T/up (Fig. A-5-4)

- 1) Turn the arm T/up to release the anchor jaw (H9) part of chassis and then lift it upward.

### CAUTIONS

For the assembly, check the (C) part of the arm assembly pinch is assembled as in drawing.

- REVERSE THE MECHANISM.

# DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

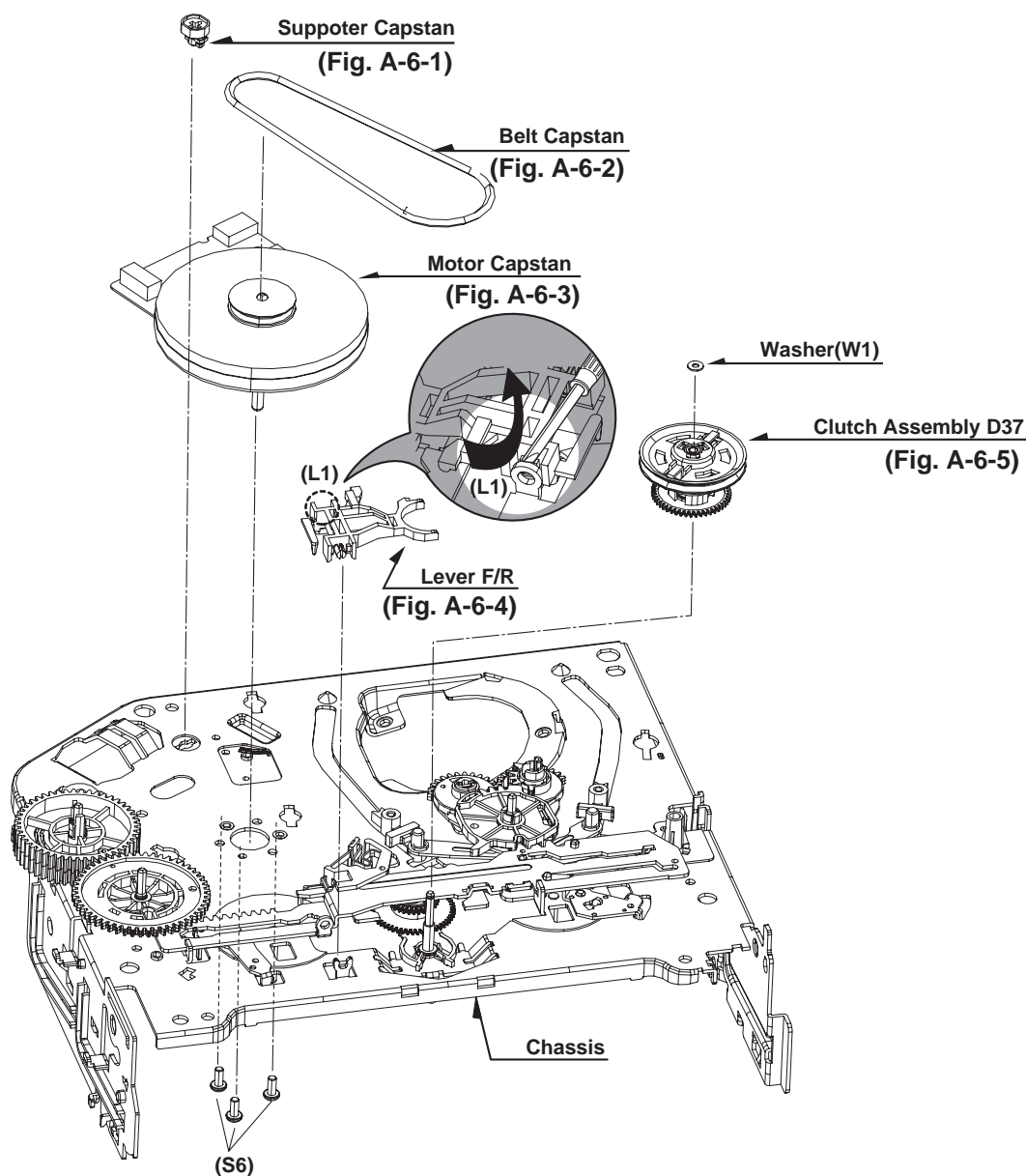


Fig. A-6

## 20. Supporter, Capstan (Fig. A-6-1)

- 1) Turn the supporter and Capstan by 90 deg. clockwise with a driver, for disassembly.

## 21. Belt Capstan (Fig. A-6-2) / Motor Capstan (Fig. A-6-3)

- 1) Separate the belt Capstan.
- 2) Undo 3 screws (S6) on the bottom side of chassis and disassemble it upward.

## 22. Lever F/R (Fig. A-6-4)

- 1) Release the locking tab (L1) and then disassemble it upward.

## 23. Clutch Assembly D37 (Fig. A-6-5)

- 1) Remove the washer (W1) and then disassemble it upward.



# DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

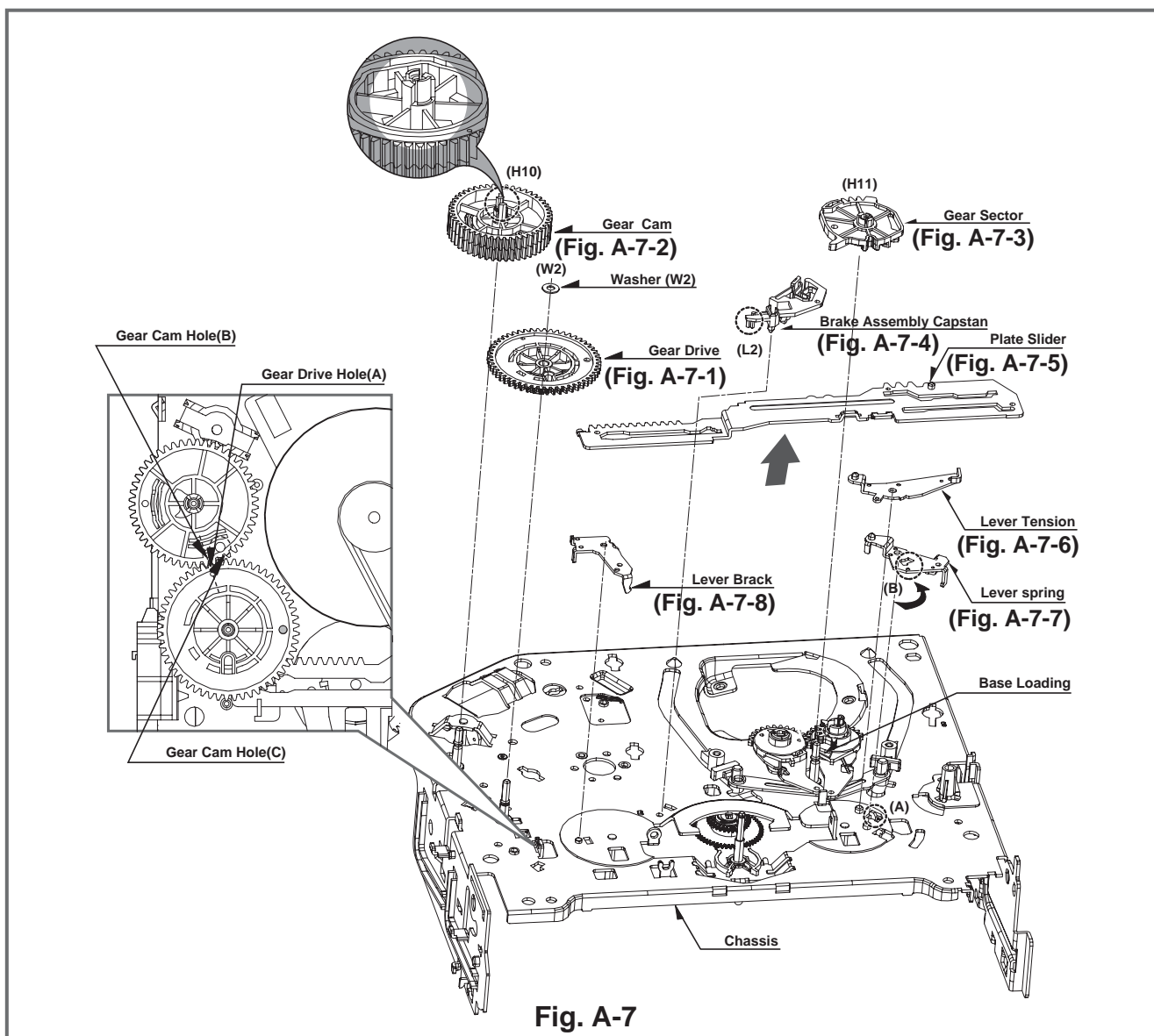


Fig. A-7

## 24. Gear Drive (Fig. A-7-1)/ Gear Cam (Fig. A-7-2)

- 1) Remove the washer (W2) and then disassemble the gear drive.
- 2) Release the hook (H10) of the gear cam and then disassemble it upward.

### CAUTIONS

For the assembly, adjust both the gear drive hole (A) and the gear cam hole (B) straightly and then line up the gear cam hole (C) to the chassis hole.

## 25. Gear Sector (Fig. A-7-3)

- 1) Release the hook (H11) of the gear sector and then lift the gear sector upward.

## 26. Brake Assembly Capstan (Fig. A-7-4)

- 1) Release the locking tab (L2) on the bottom side of the plate slider and then disassemble it upward.

## 27. Plate Slider (Fig. A-7-5)

- 1) Disassemble the plate slider while lifting it up.

## 28. Lever Tension (Fig. A-7-6)

- 1) Release the lever tension from the guide (A) of chassis while turning it counter-clockwise.
- 2) Disassemble the lever tension while lifting it up.

## 29. Lever Spring (Fig. A-7-7)

- 1) Release the (B) part of the lever spring from the guide (A) of chassis while turning it counter-clockwise.
- 2) Disassemble the lever tension while lifting it up.

## 30. Lever Brake (Fig. A-7-8)

- 1) Disassemble the lever brake while lifting it up.

# DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

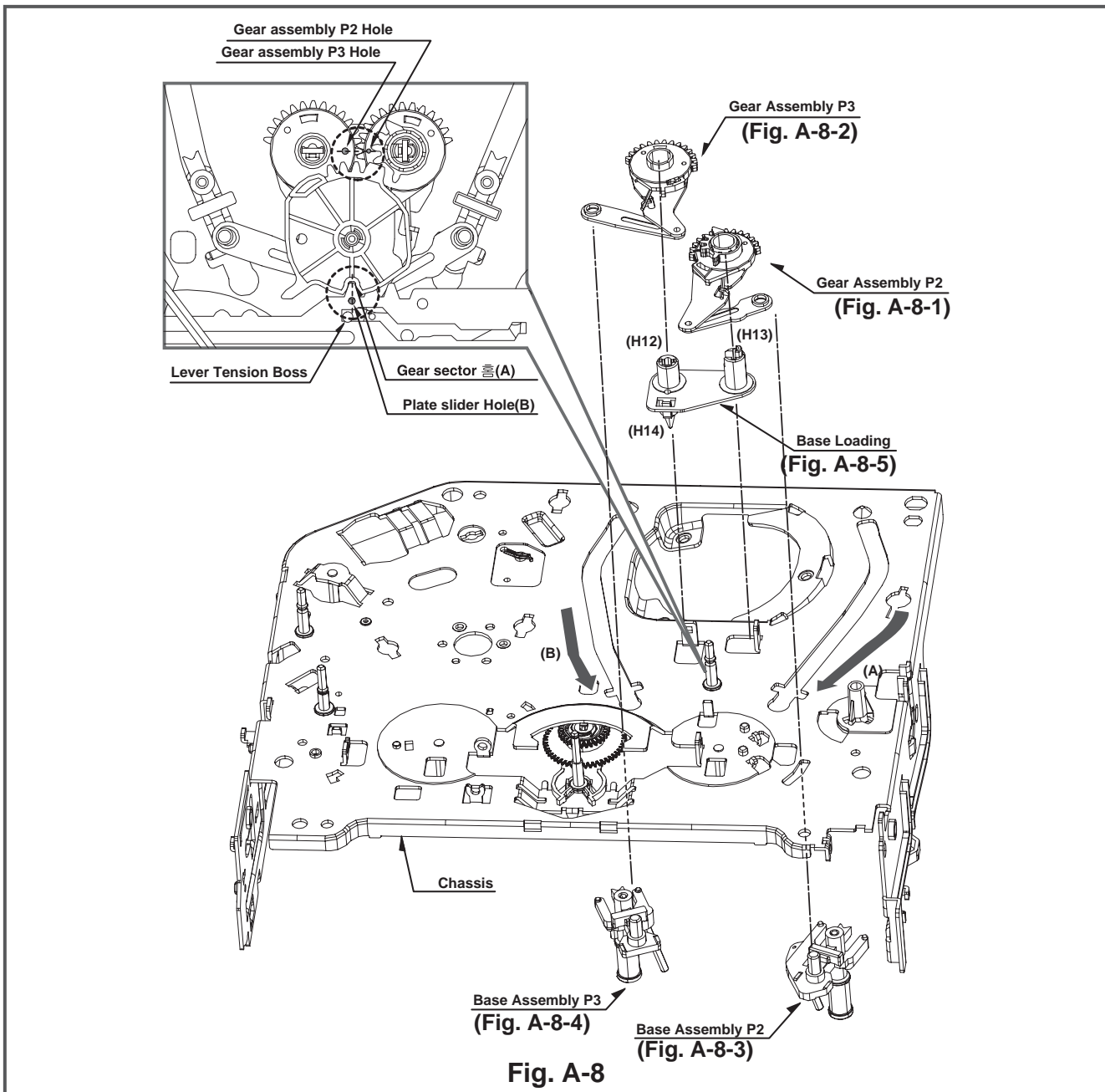


Fig. A-8

## 31. Gear Assembly P2 (Fig. A-8-1)/ Gear Assembly P3 (Fig. A-8-2)

- 1) Lift the gear assembly P2 upward.
- 2) Lift the gear assembly P3 upward.

### CAUTIONS

For the assembly, check that the holes of both the gear assembly P2 and P3 are adjusted straightly, and then line up the gear section groove (A) to the plate slider hole (B).

## 32. Base Assembly P2 (Fig. A-8-3)/ Base Assembly P3 (Fig. A-8-4)

- 1) Disassemble the base assembly P2 downward while moving it toward the arrow (A) direction along with the guide hole of chassis.
- 2) Disassemble the base assembly P2 downward while moving it toward the arrow (B) direction along with the guide hole of chassis.

## 33. Base Loading (Fig. A-8-5)

- 1) Release 3 hooks (H12, 13, 14) of the base loading, and then disassemble them upward.
- Reverse the mechanism.



# DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

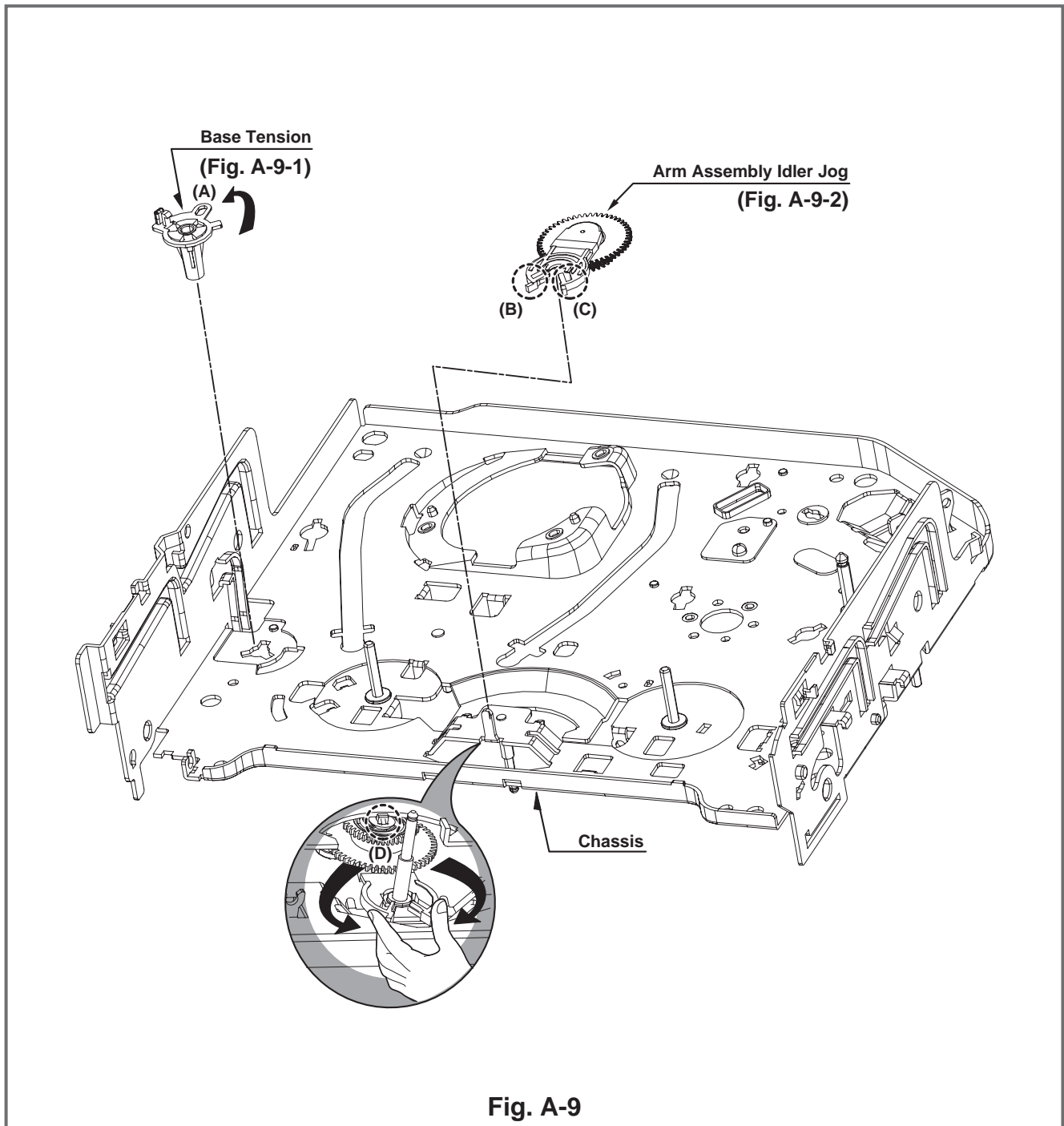


Fig. A-9

## 34. Base Tension (Fig. A-9-1)

- 1) Release the (A) part of the base tension from the embossing of chassis.
- 2) Lift the base tension upward while turning it anti-clockwise.

## 35. Arm assembly Idler Jog (Fig. A-9-2)

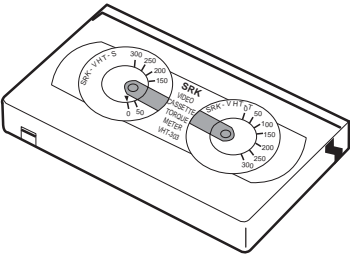
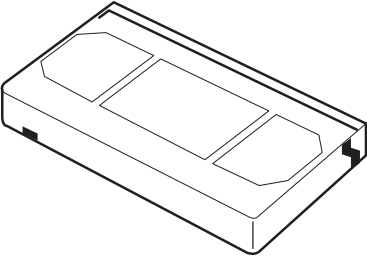
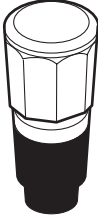

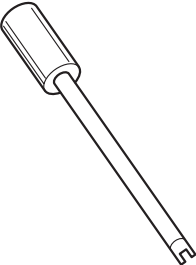
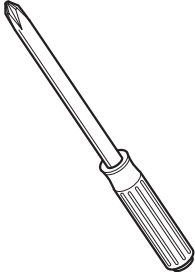
- 1) Push both (B), (C) parts in Fig. A-9-2 toward the arrow direction.
- 2) Disassemble the arm assembly idler upward.

### CAUTIONS

Take care to ensure that the (D) part in the drawing is not hung on chassis in disassembly.

# DECK MECHANISM ADJUSTMENT

• Fixtures and Tools for Service

<p>1. Cassette Torque Meter SRK-VHT-303(Not SVC part) Part No:D00-D006</p> 	<p>2. Alignment tape Part No NTSC:DTN-0001 PAL:DTN-0002</p> 	<p>3. Torque gauge 600g.Cm ATG Part No:D00-D002</p> 
<p>4. Torque gauge adaptor Part No:D09-R001</p> 	<p>5. Post height adjusting driver Part No:DTL-0005</p> 	<p>6. + Type driver (ø5)</p> 

# DECK MECHANISM ADJUSTMENT

## 1. Mechanism Assembly Mode Check

**Purpose of adjustment : To make tools normally operate by positioning tools accurately.**

Fixtures and tools used	VCR (VCP) status	Checking Position
• Blank Tape (empty tape)	• Eject Mode (with cassette withdrawn)	• Mechanism and Mode Switch
<ol style="list-style-type: none"> <li>1) Turn the VCR on and take the tape out by pressing the eject button.</li> <li>2) Separate both top cover and plate top, and check both the hole (A) of gear cam and the hole (A') of chassis correspond (Fig. C-2).</li> <li>3) If it is done as in the paragraph 2): Turn the gear cam as in No.2) after dismantling the motor assembly L/D.</li> <li>4) Undo the screw fixing the deck and the main frame, and separate the deck assembly. Check both the hole (A) of gear cam and the hole (A') of chassis correspond (Fig. C-1).</li> <li>5) Check the mode S/W on the main P.C. board locates at a proper position as in (B) of the Fig. (C-1).</li> <li>6) Connect the deck to the main P.C. board and perform all types of test.</li> </ol>		

### CHECK DIAGRAM

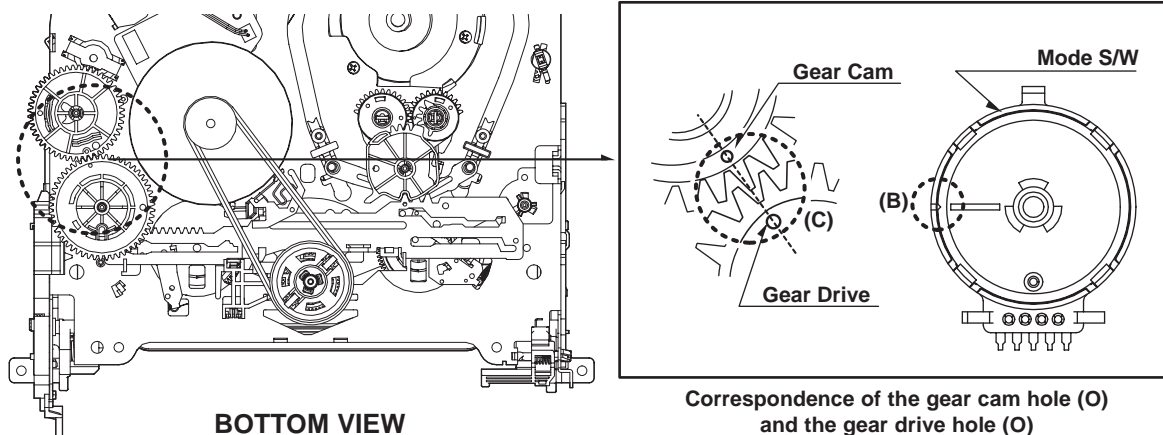


Fig. C-1

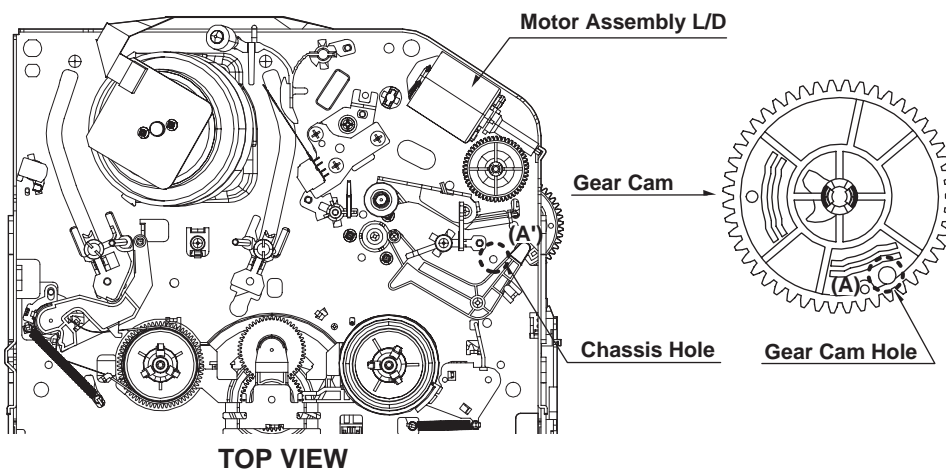


Fig. C-2

# DECK MECHANISM ADJUSTMENT

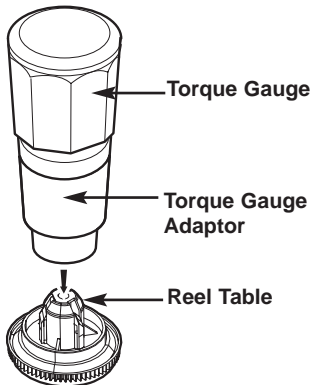
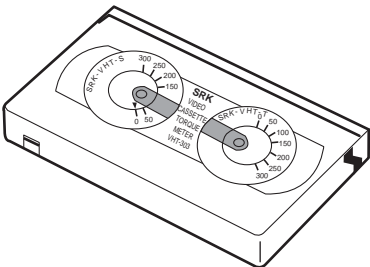
## 2. Previous Preparation for Deck Adjustment

(Preparation to load the VCR (VCP) with cassette tape not inserted)

- 1) Unplug the power cord.
- 2) Separate the top cover and the plate assembly top.
- 3) Plug in power cord.
- 4) Turn the VCR (VCP) on and load the cassette while pushing the lever stopper of the holder assembly CST backward. In this case, clog both holes on the housing rail part of chassis to prevent detection of the end sensor.

If doing so, proceeding to the stop mode is done. In this status, input signals of all modes can be received. However, operation of the Rewind and the Review is impossible since the take-up reel remains at stop status and so cannot detect the reel pulse (however, possible for several seconds).

## 3. Torque Measuring

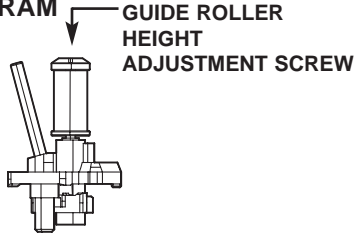
Purpose of Measuring: To measure and check the reel torque on the take-up part and the supply part that performs basic operation of the VCR (VCP) for smoothly forwarding the tape. Measure and check followings when the tape is not smoothly wound or the tape velocity is abnormally proceeded:				
Fixtures and tools used		VCR (VCP) status	Measuring method	
<ul style="list-style-type: none"><li>• Torque Gauge (600 g.cm ATG)</li><li>• Torque Gauge Adaptor</li><li>• Cassette Torque Meter SRK-VHT-303</li></ul>		<ul style="list-style-type: none"><li>• Play (FF) or Review (REW) Mode</li></ul>	<ul style="list-style-type: none"><li>• Try to operate the VCR (VCP) per mode with the tape not inserted (See '2. Prior Preparation for Deck Adjustment).</li><li>• Measure after adhering and fixing the torque gauge adaptor to the torque gauge (Fig. C-3-1)</li><li>• Read scale of the supply or take-up part of the cassette torque meter (Fig. C-3-2).</li></ul>	
Item	Mode	Instruments	Reel Measured	Measuring Value
Fast forward Torque	Fast Forward	Torque Gauge	Take-Up Reel	More than 400g°cm
Rewind Torque	Rewind	Torque Gauge	Supply Reel	More than 400g°cm
Play Take-Up Torque	Play	VHT-303	Take-Up Reel	40~100g°cm
Review Torque	Review	VHT-303	Supply Reel	120~210g°cm
<b>NOTE</b> Adhere the torque gauge adaptor to the torque gauge for measuring the value.				
<ul style="list-style-type: none"><li>• Cassette Torque Meter (SRK-VHT-303)</li></ul>		<ul style="list-style-type: none"><li>• Torque Gauge (600g.cm ATG)</li></ul>		
				
Fig. C-3-1		Fig. C-3-2		

# DECK MECHANISM ADJUSTMENT

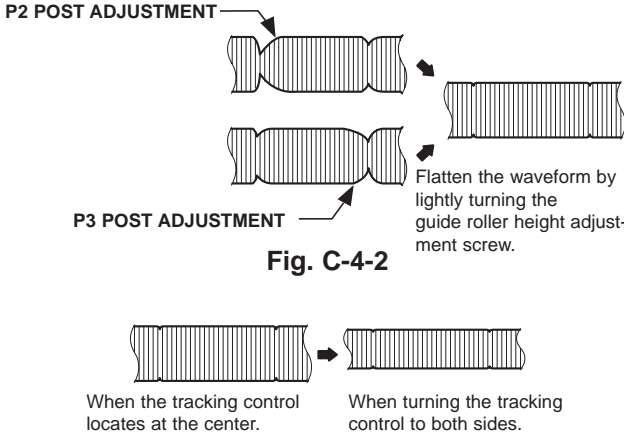
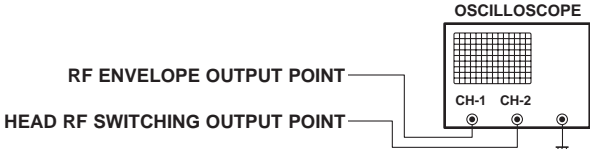
## 4. Guide Roller Height Adjustment

**Purpose of adjustment:** To ensure that the bottom surface of the tape can travel along with the tape lead line of the lower drum by constantly adjusting and maintaining the height of the tape.

### 4-1. Prior Adjustment

Fixtures and tools used	VCR (VCP) status	Adjustment position
<ul style="list-style-type: none"> <li>Post Height Adjusting Driver</li> </ul>	<ul style="list-style-type: none"> <li>Play or Review Mode</li> </ul>	<ul style="list-style-type: none"> <li>The guide roller height adjusting screw on the supply guide roller and the take-up guide roller</li> </ul>
<b>Adjustment Procedure</b> <ol style="list-style-type: none"> <li>1) Move the tape and check the bottom surface of the tape travels along with the guide line of the lower drum.</li> <li>2) If the tape travels toward the lower part of guide line on the lower drum, turn the guide roller height adjusting screw to the left</li> <li>3) If it travels to the upper part, turn it to the right.</li> <li>4) Adjust the height of the guide roller to ensure that the tape is guided on the guide line of the lower drum at the inlet/outlet of the drum. (Fig. C-4-1)</li> </ol>		<b>ADJUSTMENT DIAGRAM</b>  <p><b>Fig. C-4-1</b></p>

### 4-2. Fine Adjustment

Fixtures and tools used	Measuring tools and connection position	VCR (VCP) status	Adjustment position
<ul style="list-style-type: none"> <li>Oscilloscope</li> <li>Standard test tape</li> <li>Post height adjusting driver</li> </ul>	<ul style="list-style-type: none"> <li>CH-1: PB RF Envelope</li> <li>CH-2: NTSC : SW 30Hz PAL : SW 25Hz</li> <li>Head switching output point</li> <li>RF Envelope output point</li> </ul>	<ul style="list-style-type: none"> <li>Play the standard test tape.</li> </ul>	<ul style="list-style-type: none"> <li>Guide roller height adjusting screw</li> </ul>
<ol style="list-style-type: none"> <li>1) Play the standard test tape after connecting the probe of oscilloscope to the RF envelope output point and the head switching output point.</li> <li>2) Tracking control (playback): Locate it at the center. (Set the RF output to the maximum value via the tracking control when such adjustment is completed after the drum assembly is replaced.)</li> <li>3) Height adjusting screw: Flatten the RF waveform. (Fig. C-4-2)</li> <li>4) Move the tracking control (playback) to the right/left. (Fig. C-4-3)</li> <li>5) Check that the start and the end of the RF output reduction width are constant.</li> </ol>		<b>Waveform</b>  <p><b>Fig. C-4-2</b></p>	
<b>CAUTIONS</b> <p>There must exist no crumpling and folding of the tape due to excess adjustment or insufficient adjustment.</p>		<b>Connection Diagram</b> 	

# DECK MECHANISM ADJUSTMENT

## 5. Audio/Control (A/C) Head Adjustment

**Purpose of adjustment :** To ensure that audio and control signals can be recorded and played correctly by constantly maintaining distance between tape and head, and tape tension between the P3 post and the P4 post.

### 5-1. Prior Adjustment (performed only when no audio output appears in play of the standard test tape)

Fixtures and tools used	VCR (VCP) status	Adjustment position
<ul style="list-style-type: none"> <li>Blank Tape (Empty Tape)</li> <li>Driver (+) Type <math>\phi 5</math></li> </ul>	<ul style="list-style-type: none"> <li>Play the blank tape (empty tape).</li> </ul>	<ul style="list-style-type: none"> <li>Tilt adjusting screw (C)</li> <li>Height adjusting screw (B)</li> <li>Azimuth adjusting screw (A)</li> </ul>

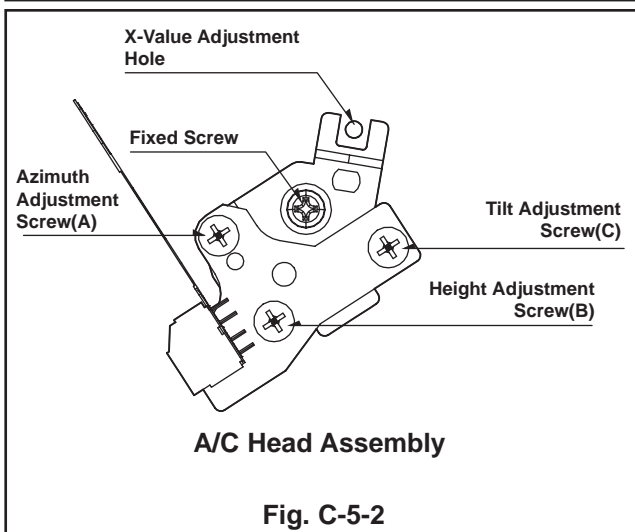
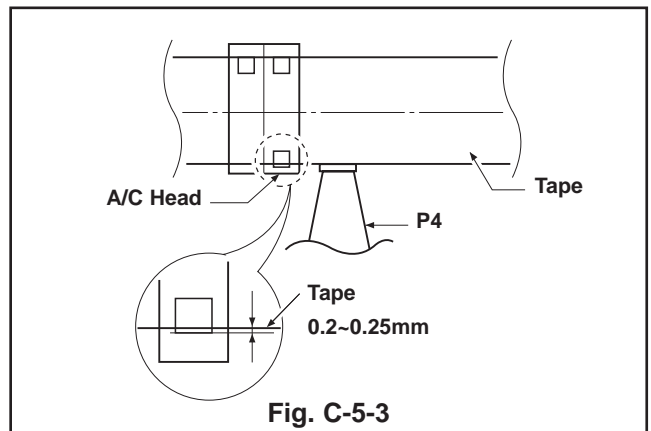
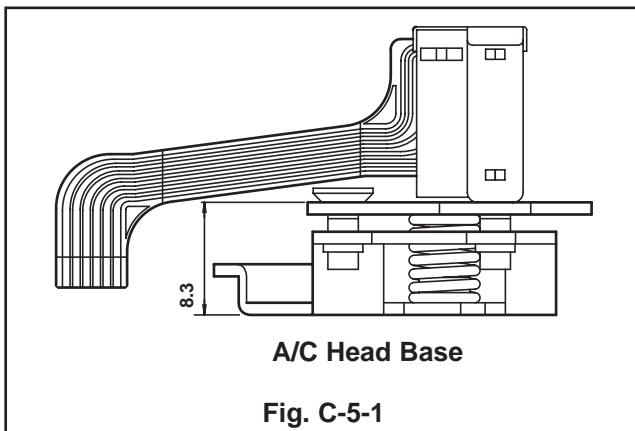
#### Adjustment Procedure/Adjustment Diagrams

- Basically use the A/C head assembly adjusted as in SPEC.
- Check if there is crumpling and folding of the tape around the A/C head. If it is, Turn and adjust the tilt adjusting screw to ensure that the tape corresponds to the bottom guide of the P4, and recheck the tape path after proceeding play for 4-5 seconds.

- Where the tape bottom is not equal to Fig. C-5-3, Adjust the height by using the height adjusting screw (B) and then readjust it by using the tilt adjusting screw (C).

#### CAUTIONS

Always check the height of the A/C head since the most ideal height of the A/C head can be obtained when the bottom part of the tape is away 0.2 ~ 0.25mm from the bottom part of the A/C head.



# DECK MECHANISM ADJUSTMENT

## 5-2. Tape Path Check between Pinch Roller and Take up Guide (Check in the Rev Mode)

- 1) Check the tape pass status between the pinch roller and the take-up guide. (Check if there is crumpling of the tape pass and folding of the take-up guide.)
  - (1) When holding of the take-up guide bottom occurs Turn the tilt adjusting screw (C) clockwise and move the tape to ensure there is no crumbling or folding of the tape.
  - (2) When holding of the take-up guide top occurs Turn the tilt adjusting screw (C) counter-clockwise and move

the tape to ensure there is no crumbling or folding of the tape.

- 2) Check if there is folding of the tape at the bottom or top of the take-up guide in cutting-off the REV mode

### CAUTIONS

If the RF waveform is changed after adjusting the A/C head, perform fine adjustment to ensure the RF waveform is flattened.

## 5-3. Fine Adjustment (Azimuth Adjustment)

Fixtures and tools used	Connection position	VCR (VCP) status	Adjustment position
<ul style="list-style-type: none"> <li>Oscilloscope</li> <li>Standard test tape (only for SP)</li> <li>Driver (+) Type ø 4</li> </ul>	<ul style="list-style-type: none"> <li>Audio Output Jack</li> </ul>	<ul style="list-style-type: none"> <li>Play the standard test</li> <li>Tape, 1KHz, 7KHz.</li> </ul>	<ul style="list-style-type: none"> <li>Azimuth Adjusting Screw (A)</li> <li>Height Adjusting Screw (B)</li> </ul>
<b>Adjustment Procedure</b> <ol style="list-style-type: none"> <li>1) Connect the probe of Oscilloscope to the audio output jack.</li> <li>2) Ensure that Audio 1KHz, 7KHz output is flattened at the maximization point by adjusting the Azimuth adjusting screw (A).</li> </ol>			

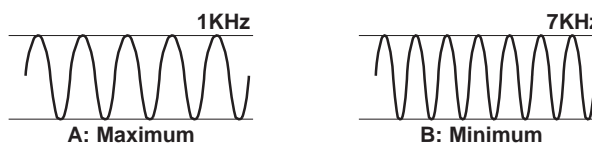


Fig. C-5-4

## 6. X-distance Adjustment

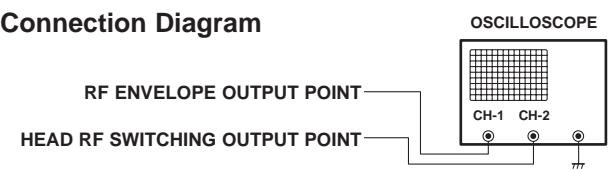
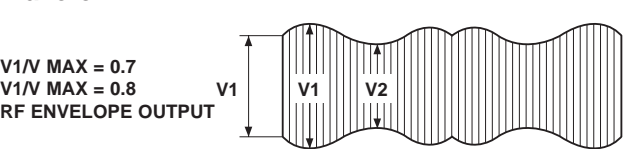
Purpose of adjustment: To maintain compatibility with other VCR (VCP).			
Fixtures and tools used	Connection position	VCR (VCP) status	Adjustment position
<ul style="list-style-type: none"> <li>Oscilloscope</li> <li>Standard test tape (only for SP)</li> <li>Driver (+) Type ø 4</li> </ul>	<ul style="list-style-type: none"> <li>CH-1: PB RF Envelope</li> <li>CH-2: NTSC ; SW 30Hz PAL:SW 25Hz</li> <li>Head switching output point</li> <li>RF Envelope output point</li> </ul>	<ul style="list-style-type: none"> <li>Play the standard test tape.</li> </ul>	Left Right Grove of Base A/C
<b>Adjustment Procedure</b> <ol style="list-style-type: none"> <li>1) After releasing the auto tracking, lightly turn the fixing screw. Turn the (+) type driver (ø 3 ~ ø 4) on the X-distance adjusting hole to the right or left. Adjust the RF envelope level to the maximum point and then fix the fixing screws.</li> <li>2) For the 31mm head, adjust it with the SP tape recorded in the width of 31mm since the head travels on the tape track only for SP with the width of 58mm.</li> </ol>		<b>Connection Diagram</b>	

Fig. C-6



# DECK MECHANISM ADJUSTMENT

## 7. Adjustment after Drum Assembly (Video Heads)

Purpose of adjustment : To adjust and stabilize the height change, X-distance change, etc depending on the guide roller after assembling the drum.			
Fixtures and tools used	Connection position	VCR (VCP) status	Adjustment position
<ul style="list-style-type: none"> <li>Oscilloscope</li> <li>Standard test tape (only for SP)</li> <li>Post Height Adjusting Driver</li> <li>Driver (+) Type <math>\phi 5</math></li> </ul>	<ul style="list-style-type: none"> <li>CH-1: PB RF Envelope</li> <li>CH-2: NTSC : SW 30Hz PAL:SW 25Hz</li> <li>Head switching output point</li> <li>RF Envelope output point</li> </ul>	<ul style="list-style-type: none"> <li>Play the blank tape.</li> <li>Play the standard test tape.</li> </ul>	<ul style="list-style-type: none"> <li>Fine adjustment of guide roller</li> <li>Switching Point</li> <li>Tracking Preset</li> <li>X-distance</li> </ul>
<b>Checking/Adjustment Procedure</b> <ol style="list-style-type: none"> <li>1) Play the blank tape (empty tape) and check whether the guide roller crumbles or wrinkles the tape and adjust it if necessary.</li> <li>2) Check that the RF envelope output waveform is flat, and adjust the height of the guide roller while playing the standard test tape.</li> <li>3) Adjust the switching point.</li> <li>4) Check if the RF envelope output is the maximum when the tracking control locates at the center. If not maximum, set up to ensure that RF envelope output becomes the maximum by turning the (+) type driver (<math>\phi 3 \sim \phi 4</math>) on the base A/C groove.</li> </ol>		<b>Connection Diagram</b>  <b>Waveform</b> 	

## 8. Check of Traveling Device after Deck Assembly

### 8-1. Audio, RF Normalization Time (Locking Time) Check in Play after CUE or REV

Fixtures and tools used	Measuring standard	Connection position	VCR (VCP) status
<ul style="list-style-type: none"> <li>Oscilloscope</li> <li>6H 3KHz Color Bar Standard Test tape</li> <li>Stop Watch</li> </ul>	<ul style="list-style-type: none"> <li>RF Locking Time: Within 5 seconds</li> <li>Audio Locking Time: Within 10 seconds</li> </ul>	<ul style="list-style-type: none"> <li>CH-1: PB RF Envelope</li> <li>CH-2: Audio output</li> <li>RF Envelope output point</li> <li>Audio output jack</li> </ul>	<ul style="list-style-type: none"> <li>Play the 6H 3KHz Color Bar Standard Test tape.</li> </ul>
<b>Checking Procedure</b> <ol style="list-style-type: none"> <li>1) Check that the locking time of the RF and Audio waveform has fallen within the measuring standard in conversion of the play mode from the CUE or the REV mode.</li> <li>2) Perform sections 5 and 6 if it deviates from the standard.</li> </ol>			

### 8-2. Check of Tape Curl and Jam Status

Fixtures and tools used	Fixtures and tools used	Fixtures and tools used
<ul style="list-style-type: none"> <li>T-160 Tape</li> <li>T-120 Tape</li> </ul>	<ul style="list-style-type: none"> <li>There must be no jam or curl at the first, middle and end position of tape.</li> </ul>	<ul style="list-style-type: none"> <li>Travel the tape at the position of its first and end.</li> </ul>
<b>Checking Procedure</b> <ol style="list-style-type: none"> <li>1) Check that there is no abnormality of traveling post status.</li> <li>2) There must be no abnormal operation of the counter in</li> </ol>		
if bottom tape folds. There must be no abnormality of audio signal top tape is damaged. <ol style="list-style-type: none"> <li>3) If there is abnormality, perform the adjustment in sections 4 and 5.</li> </ol>		



# PROTECTION, MAINTENANCE AND CHECK OF VIDEO FUNCTION

## 1. Checking Points prior to Repair

Following abnormal phenomena may be repaired by removal of foreign materials and oil supply. Check if oiling is required or cleaning status is required. Determine that necessity of checking and repair.

Phenomena	Checking Points and Cause	Replacement
Color beat	Pollution of Full-Erase Head	o
S/N, Color Faded	Pollution of Video Head	o
Horizontal, Vertical Jitte	Pollution of Video Head or Tape Transport System	o
Poor Sound, Low Sound	Pollution of Audio/Control Head	o
No tape wound or tape wound loosely, FF or REW impossible, or slow turning	Pollution of Pinch Roller or Belt Capstan Belt	o
Tape loosely wound in REV or Unloading	Deterioration of Clutch Assembly D37 Torque Pollution of Drum and Traveling Device	o Fig. C-9-3

F/E Head

Video Head

A/C Head

Pinch Roller

Belt Capstan

Clutch Assembly A37

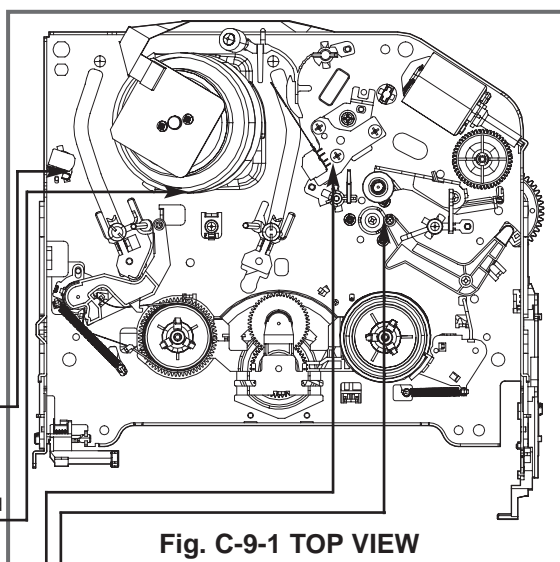


Fig. C-9-1 TOP VIEW

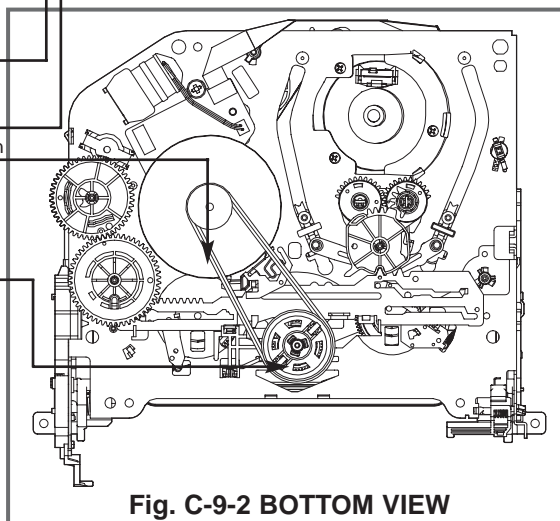


Fig. C-9-2 BOTTOM VIEW

### CAUTIONS

If operation of the position with (O) mark is abnormal even after removing cause, replace it with substitute product since it shows damage or wearing.

\* No. (1) ~ (12) shows sequence that the tape moves from the supply reel to the take-up reel.)

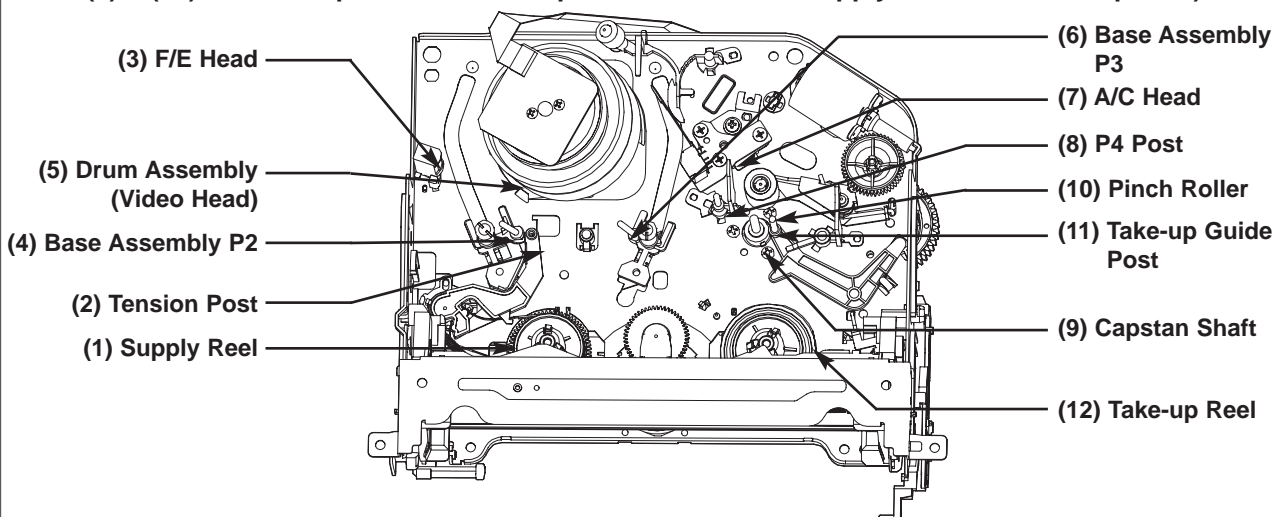


Fig. C-9-3 Tape Transport System

# PROTECTION, MAINTENANCE AND CHECK OF VIDEO FUNCTION

## 2. Essential Check and Repair

Recording density of the video is far higher than the audio. Therefore video parts are very precise so as to allow only error of 1/1000mm or so in order to maintain compatibility with other videos.

If one of these parts is polluted or old, same phenomena will appear as they are damaged.

To maintain clear screen, regular check, replacement of old and damaged parts and oil supply, etc are essential.

## 3. Regular Check and Repair

Check and repair schedule is not constant since they vary depending on method that the consumer uses video and environment where the video is installed at.

However, for the video used by common household, good screen will be maintained if regular check and repair per 1,000 hours is performed. The following chart shows relationship between using time and checking time:

Table 1

Time Requiring Checking Average hours used per day	About 1 year	About 18 months	About 3 years
One hour			
Two hours			
Three hours			

## 4. Tools for Check and Repair

- (1) Grease: Floil G-3114 (KANTO) or equivalent grease (Green)
- (2) Grease: Kanto G-754, PL-433 (Yellow)
- (3) Alcohol (Isopropyl Alcohol)
- (4) Cleaning Patch (cloth)

## 5. Maintenance Process

### 5-1) Removal of Foreign Material

- (1) Removal of foreign material from video head (Fig. C-9-4)  
First try to use a cleaning tape.

Use a cleaning patch if foreign materials are not removed with the cleaning tape due to severely dirty head.

Soak the cleaning patch in alcohol and put it to the head tip. Smoothly turn the drum (turning cylinder) to the right or left (In this case, the cleaning patch must not be moved vertically).

After completely drying the head, test the traveling status of the tape.

If alcohol (Isopropyl Alcohol) remains at the video head, the tape may be damaged when this solution touches the head surface.

Never use a cloth bar (commercial sale)

- (2) Wipe the tape transport system and the drive system with the cleaning patch soaked in alcohol (Isopropyl Alcohol) when removing foreign materials from them.
  - 1) The part touched with the traveling tape is called the tape transport system. The drive system consists of parts to make the tape travel.
  - 2) Care must be exercised so that unreasonable force to change the pattern will not be applied to the tape transport system during removal of foreign materials.

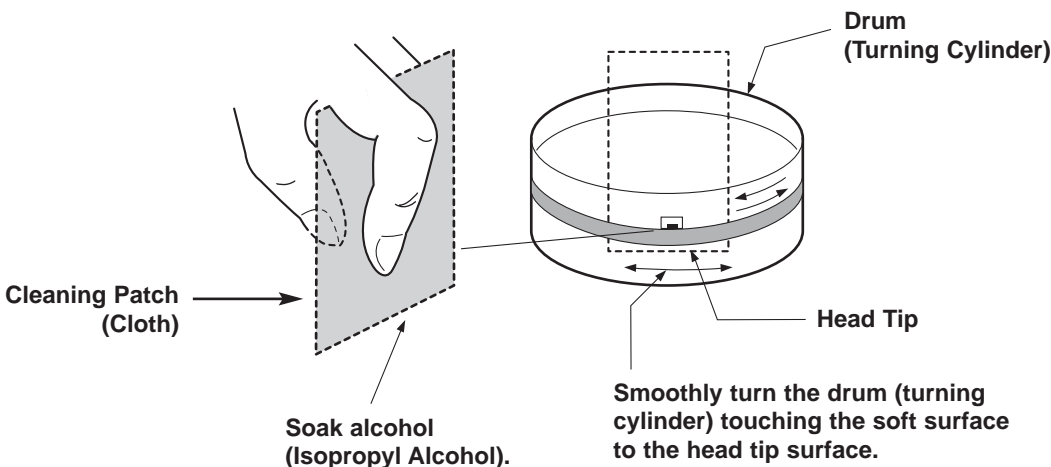


Fig. C-9-4

# PROTECTION, MAINTENANCE AND CHECK OF VIDEO FUNCTION

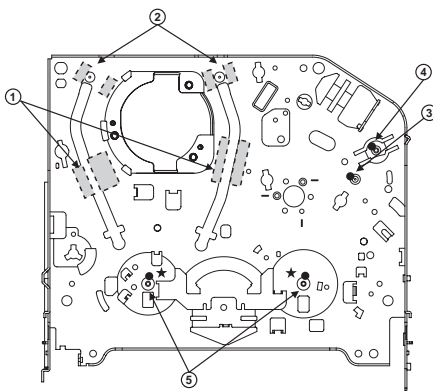
## 5-2) Grease Applications

### (1) Grease Application Method

Apply grease by using a cloth swab or brush. Care must be exercised so that excess quantity should not be used. If the excessive quantity is applied, wipe it with the gauze soaked in alcohol (Isopropyl Alcohol).

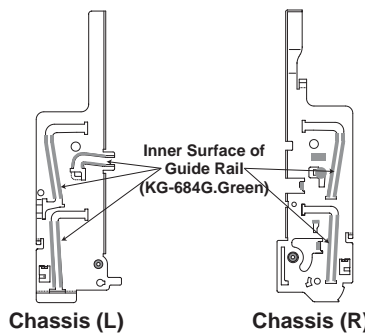
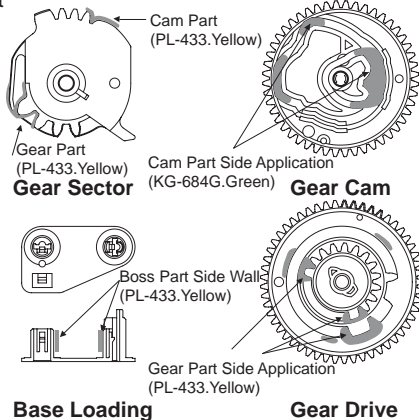
### NOTE: POSITION OF GREASE APPLICATION

- |  |                                  |
|--|----------------------------------|
| (1) Inner Side Surface and Top Surface of Loading Path | (4) Gear Wheel Shaft             |
| (2) Stable Adhesion Part of Base P2, P3                | (5) Reel S. T. Shaft             |
| (3) Arm Pinch Shaft                                    | (1) (2) (3) (4): KG-684G (Green) |
|  | (5): PL-433 (Yellow)             |



Chassis (TOP)

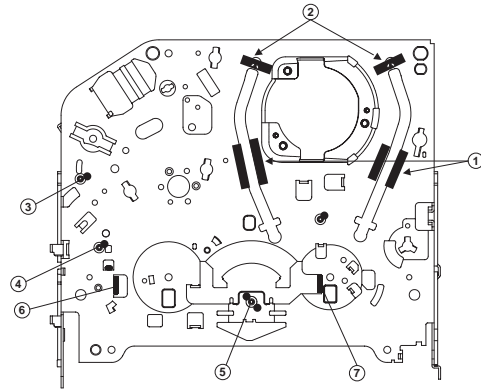
### Gear Part



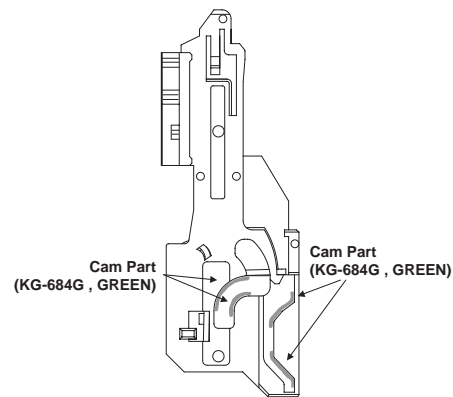
### (2) Regular Grease Application

Apply grease to the designated application position every 500 hour.

- |  |  |
|--|--|
| (1) Inner Side Surface and Top Surface of Loading Path | (6) Guide Part on the Plate Slider Side Wall (Left)  |
| (2) Stable Adhesion Part of Base P2, P3 Coil           | (7) Guide Part on the Plate Slider Side Wall (Right) |
| (3) Gear Cam Shaft                                     | (1) (2) (3) (4) (5) (6) (7): KG-684G (Green)         |
| (4) Gear Drive Shaft                                   |  |
| (5) Clutch Shaft Groove                                |  |



Chassis (Bottom)



Gear Rack F/L

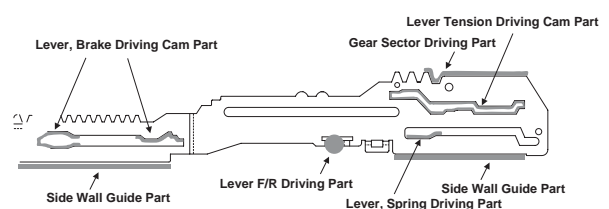
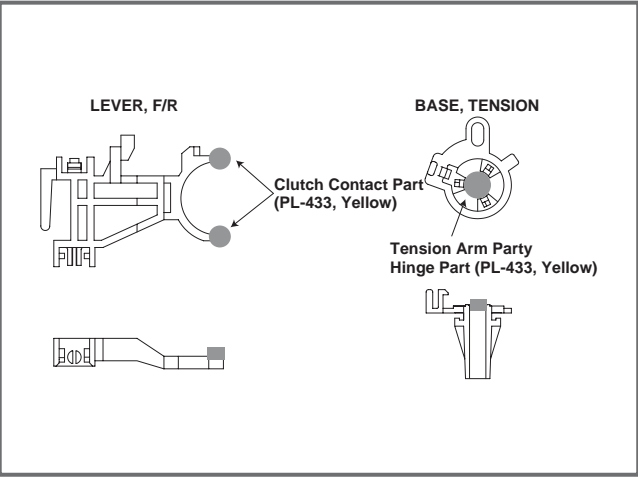


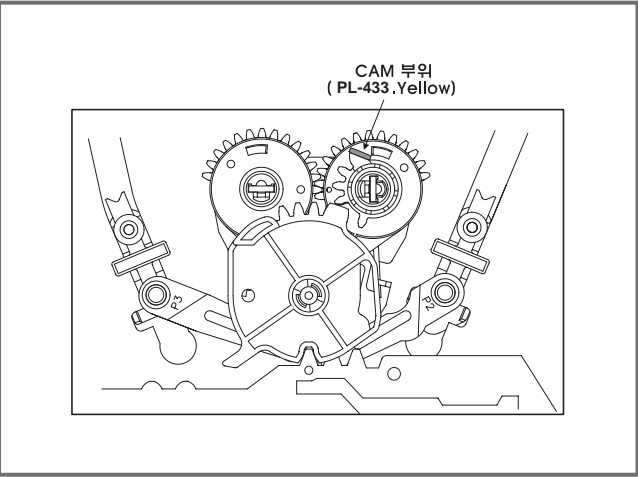
Plate Slider

# PROTECTION, MAINTENANCE AND CHECK OF VIDEO FUNCTION

## Lever, F/R, Base, Tension



## GEAR AY, P2 & P3

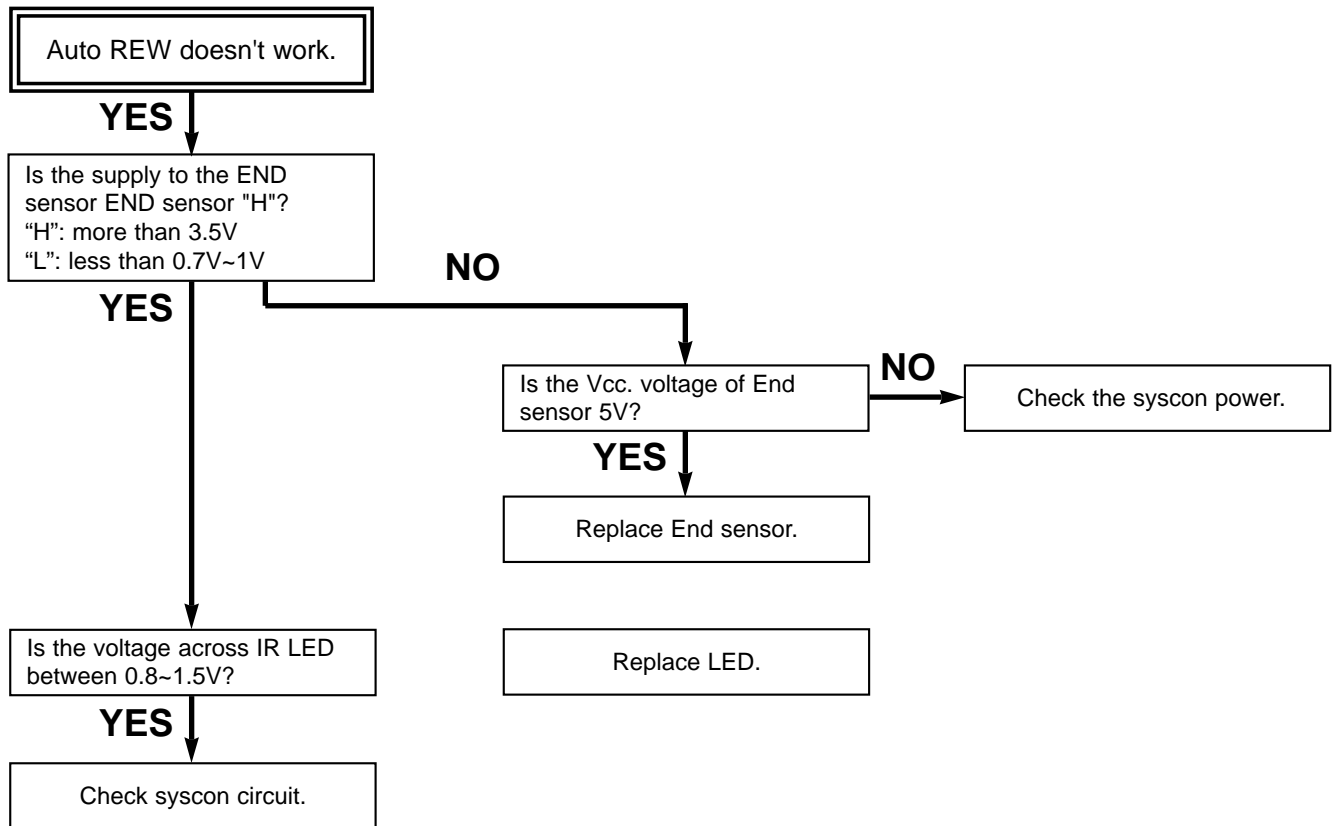


# MECHANISM TROUBLESHOOTING GUIDE

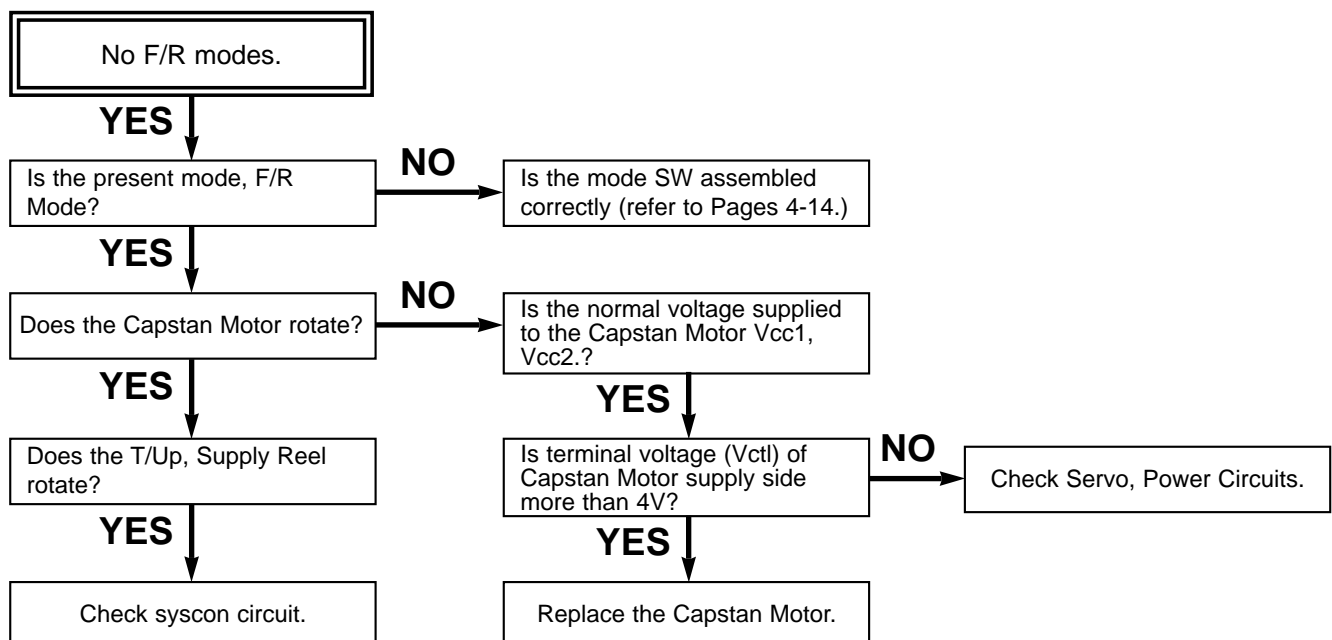
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## 1. Deck Mechanism

### A.

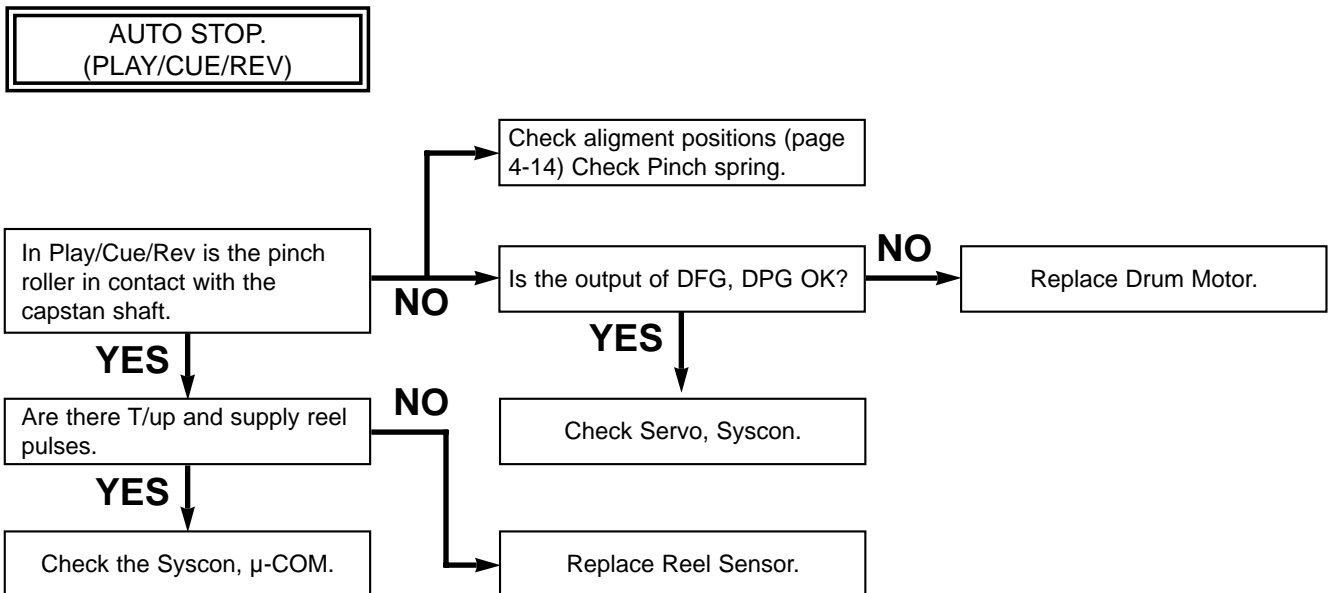


### B.

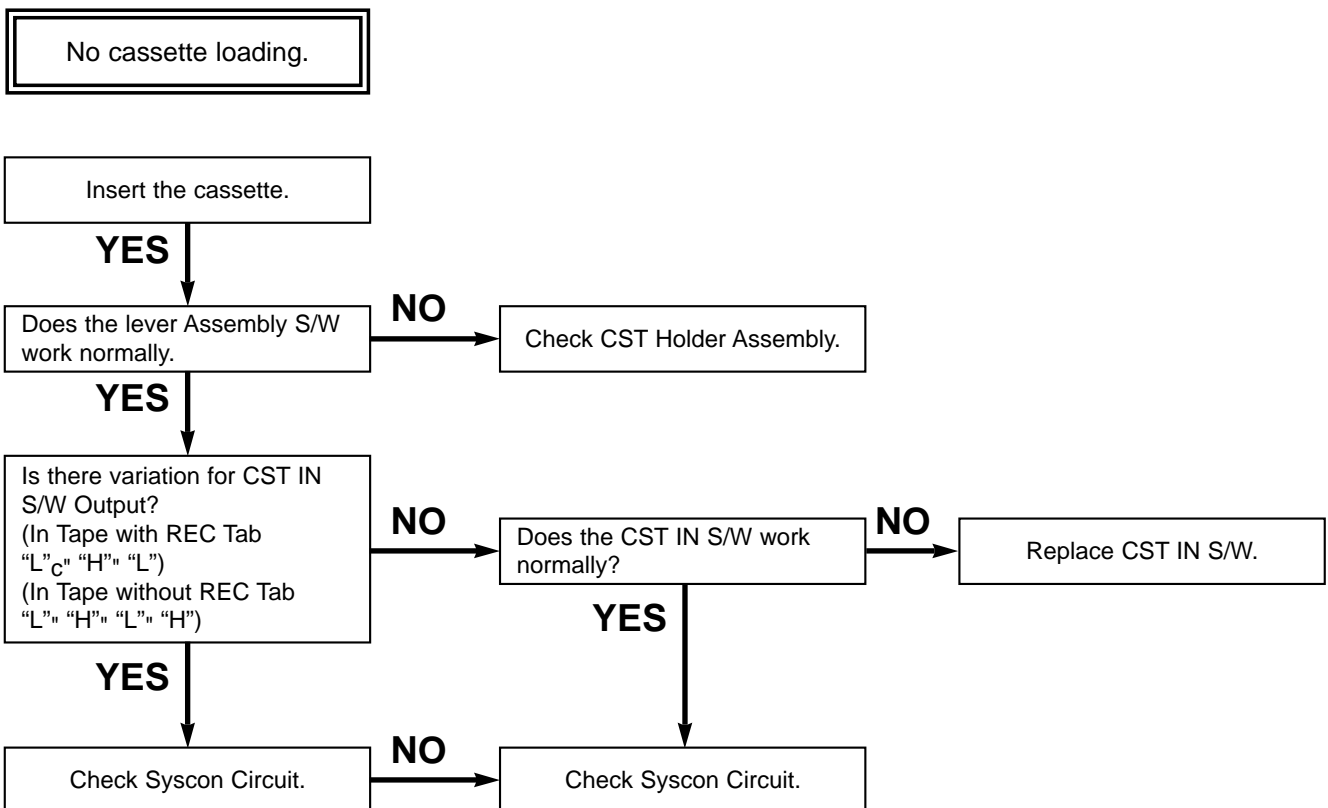


# MECHANISM TROUBLESHOOTING GUIDE

C.



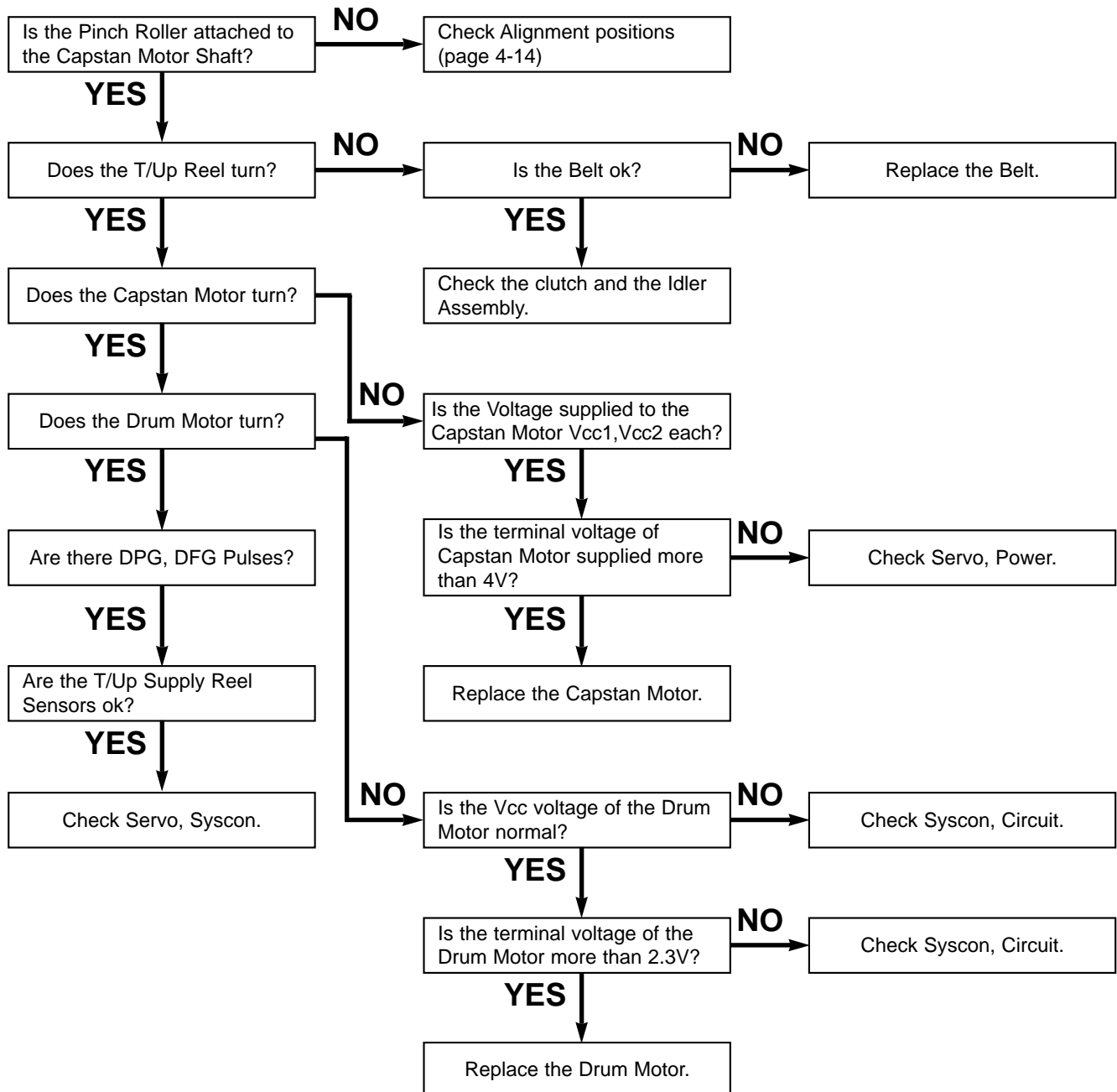
D.



# MECHANISM TROUBLESHOOTING GUIDE

E.

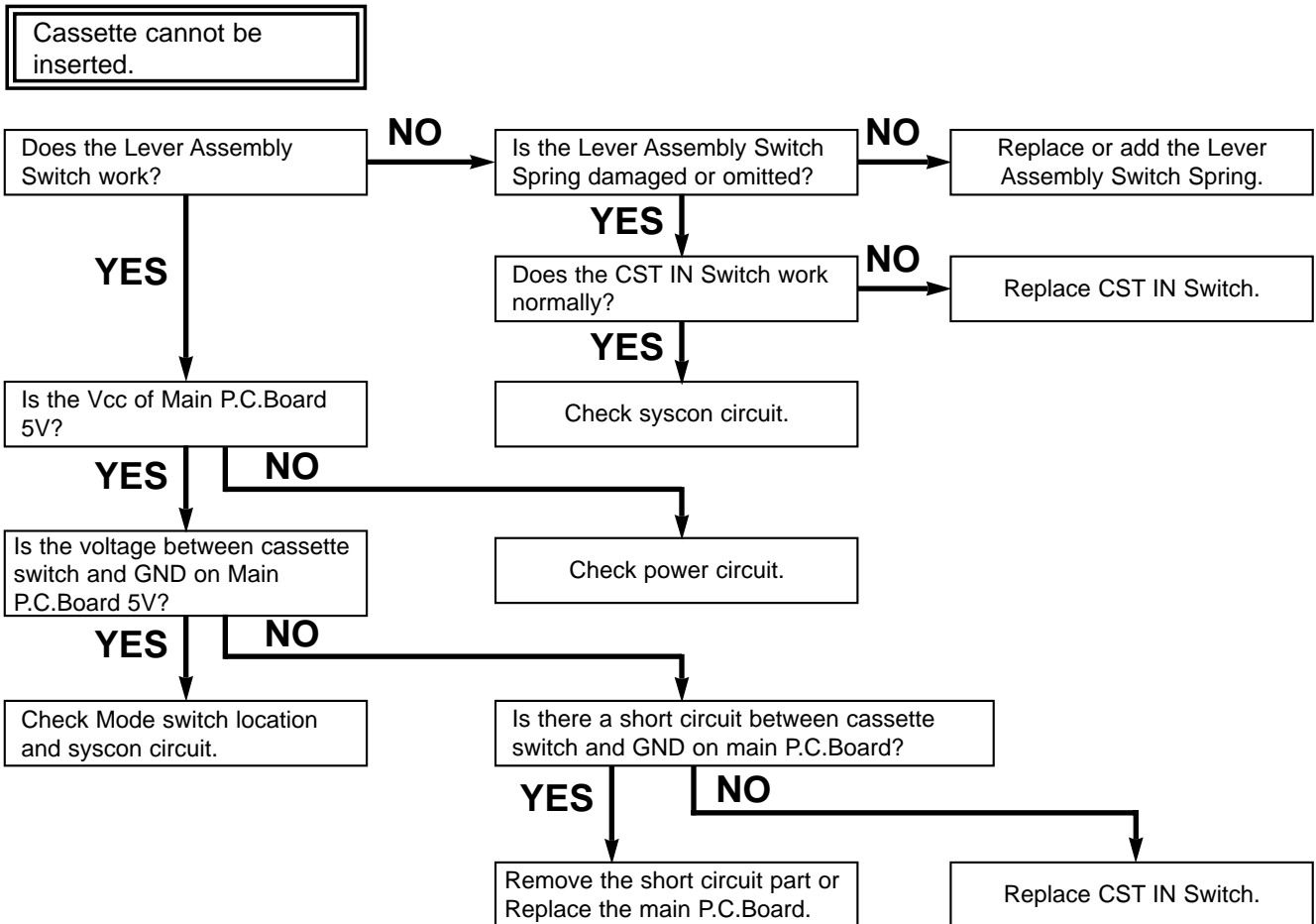
In PB mode Tape  
Presence not sensed.



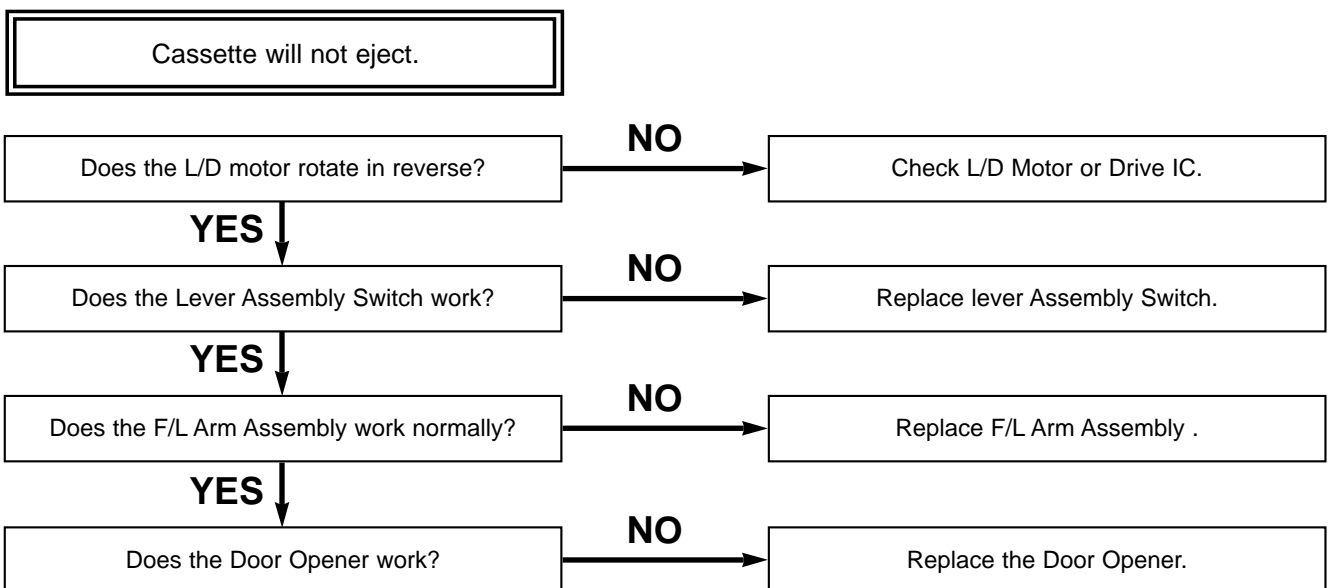
# MECHANISM TROUBLESHOOTING GUIDE

## 2. Front Loading Mechanism

### A.



### B.

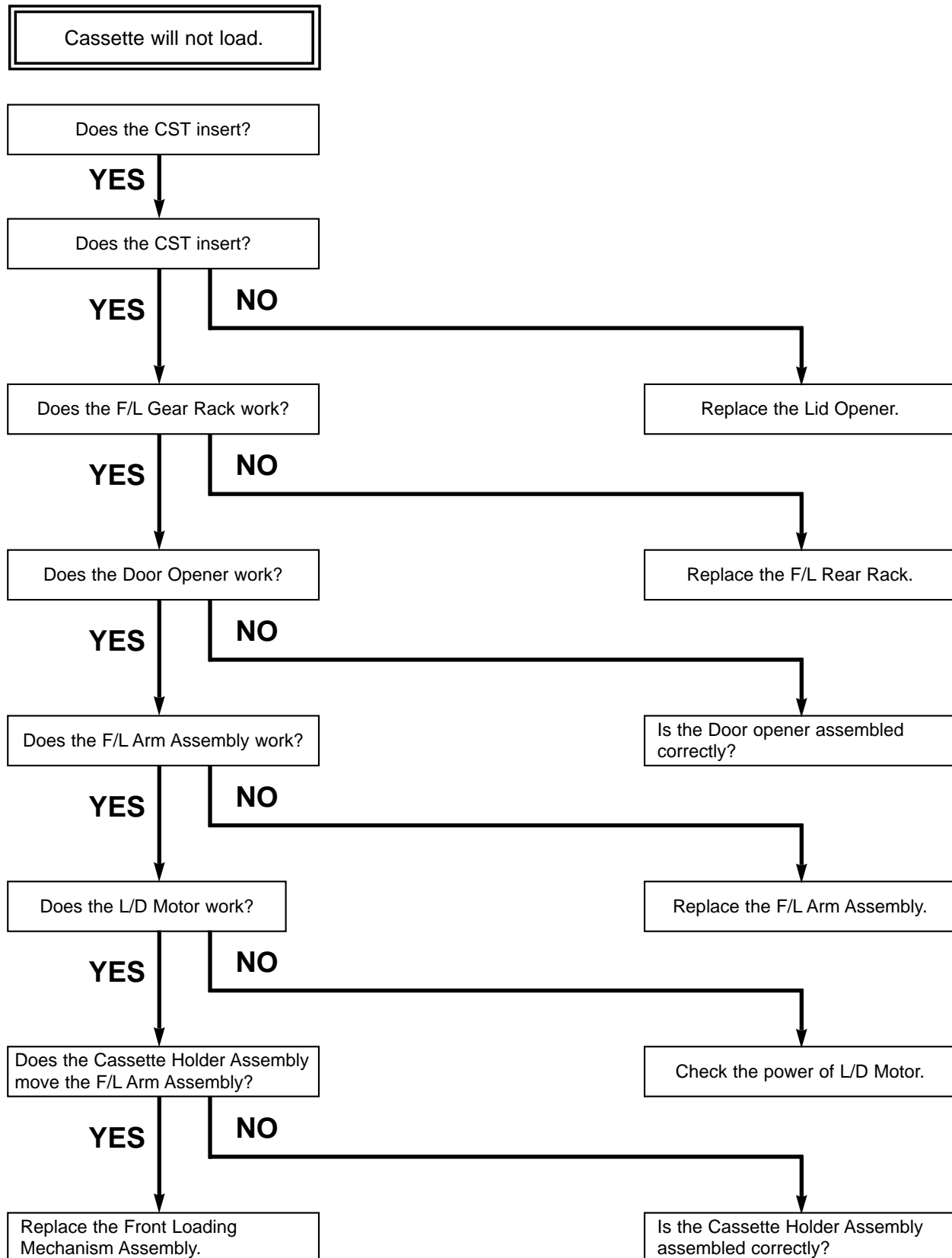




# MECHANISM TROUBLESHOOTING GUIDE

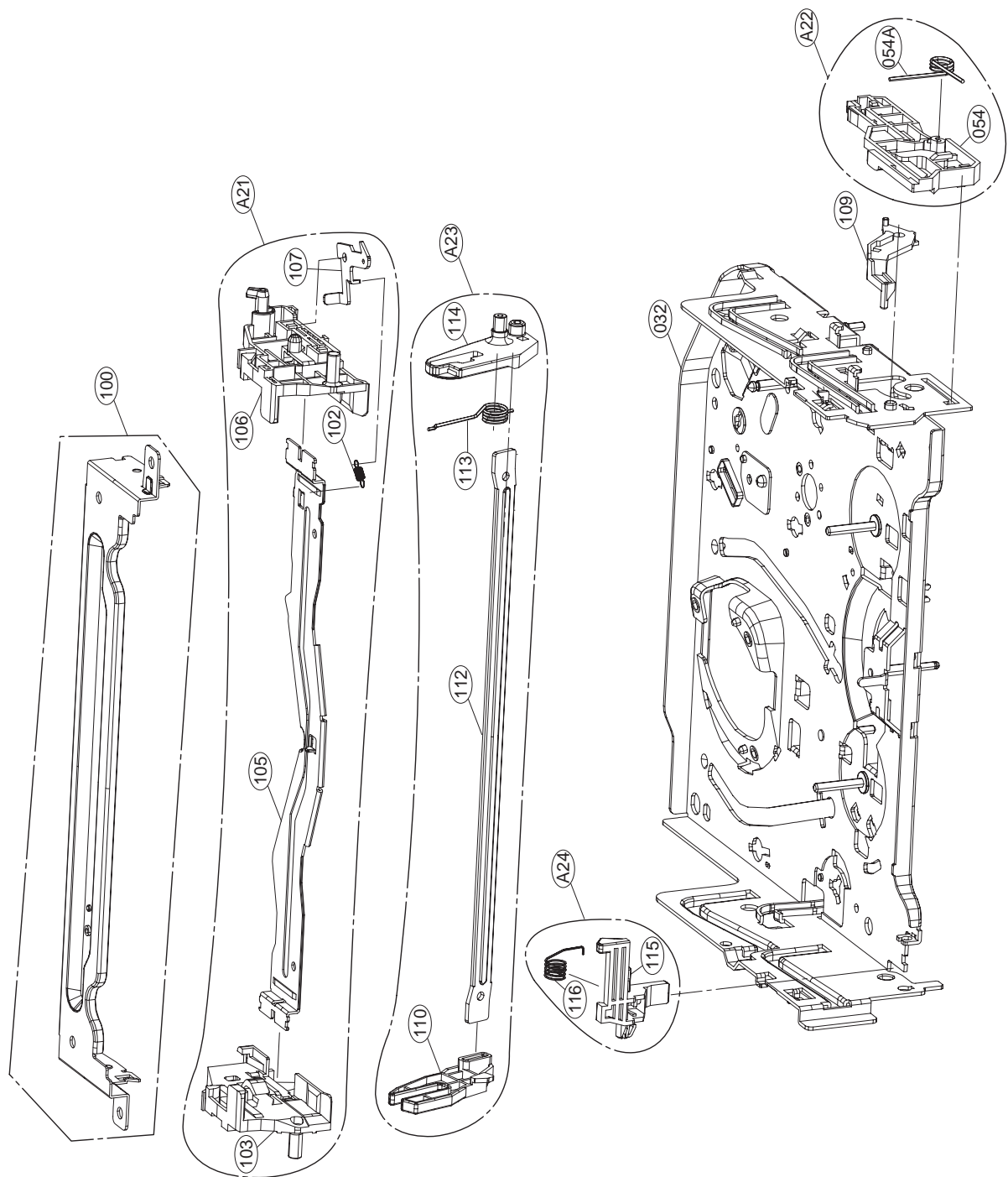
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**C.**



# EXPLODED VIEWS

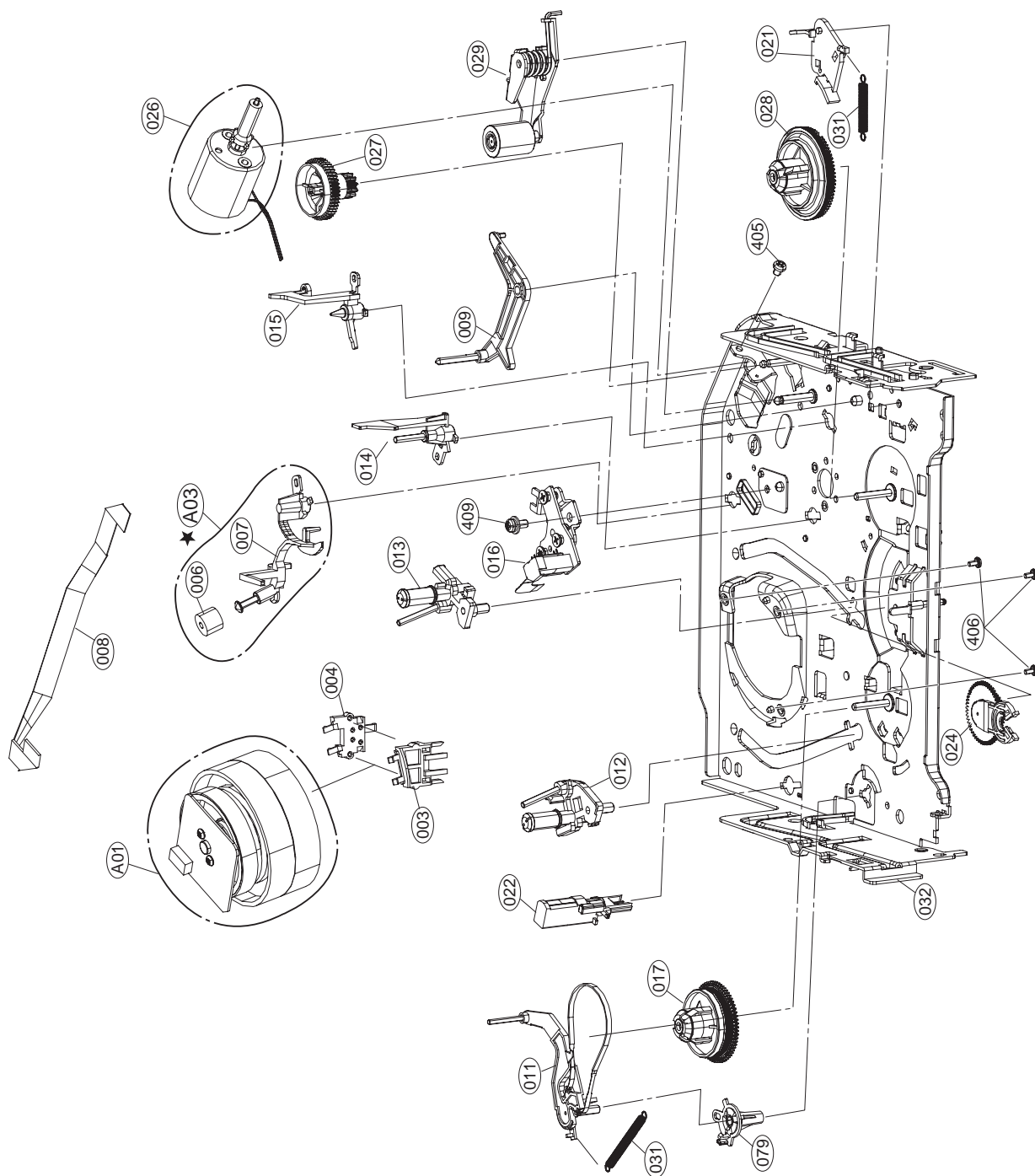
## 1. Front Loading Mechanism Section



# EXPLODED VIEWS

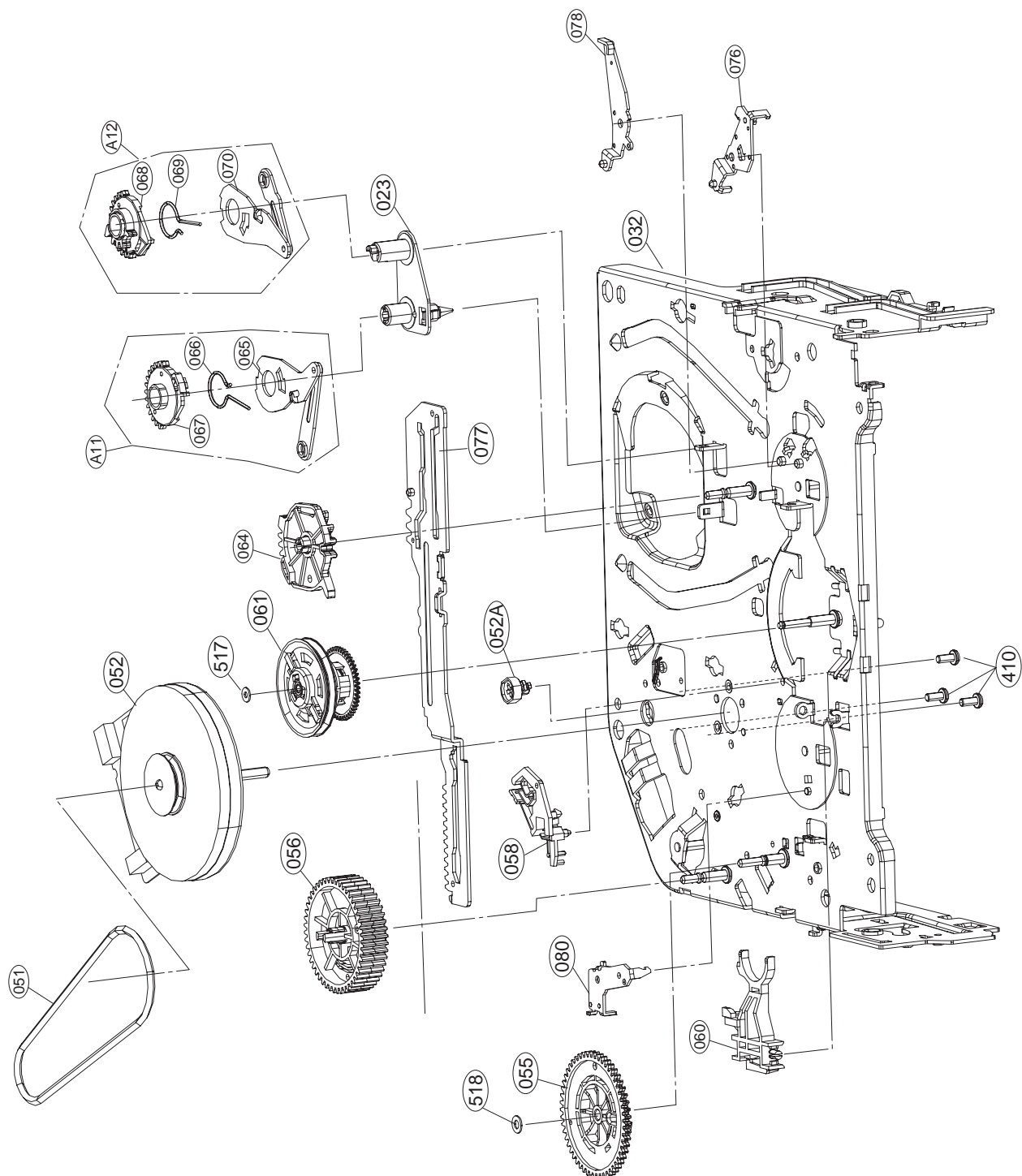
## 2. Moving Mechanism Section (1)

★ OPTIONAL PART



# EXPLODED VIEWS

## 3. Moving Mechanism Section (2)



# MEMO

# SECTION 5

## MECHANISM (DP-10C)

### CONTENTS

#### DECK MECHANISM PARTS LOCATIONS

• TOP VIEW (WITH TRAY) .....	5-2
• TOP VIEW (WITHOUT TRAY DISC) .....	5-2
• BOTTOM VIEW .....	5-2

#### DECK MECHANISM DISASSEMBLY

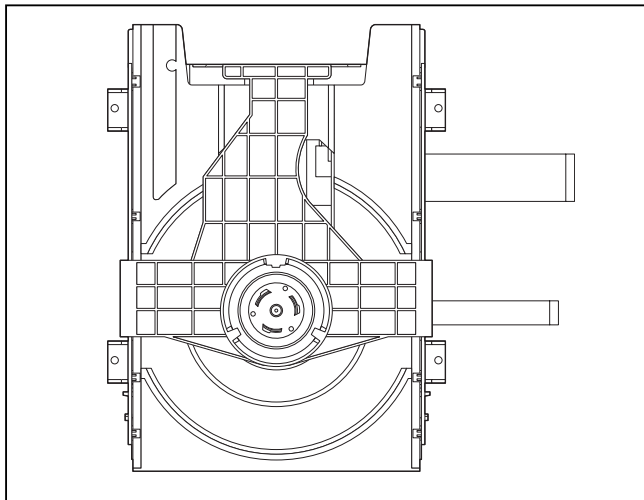
1. MAIN BASE .....	5-3
1-1. Clamp Assembly Disc .....	5-3
1-1-1. Plate Clamp .....	5-3
1-1-2. Magnet Clamp .....	5-3
1-1-3. Clamp Upper .....	5-3
2. TRAY DISC .....	5-3
3. BASE ASSEMBLY SLED .....	5-4
3-1. Gear Feed .....	5-4
3-2. Gear Middle .....	5-4
3-3. Gear Rack .....	5-4
4. RUBBER REAR .....	5-4
5. FRAME ASSEMBLY UP/DOWN .....	5-5
6. BELT LOADING .....	5-5
7. GEAR PULLEY .....	5-5
8. GEAR LOADING .....	5-5
9. GUIDE UP/DOWN .....	5-5
10. PWB ASSEMBLY LOADING .....	5-5
11. BASE MAIN .....	5-5

#### EXPLODED VIEW

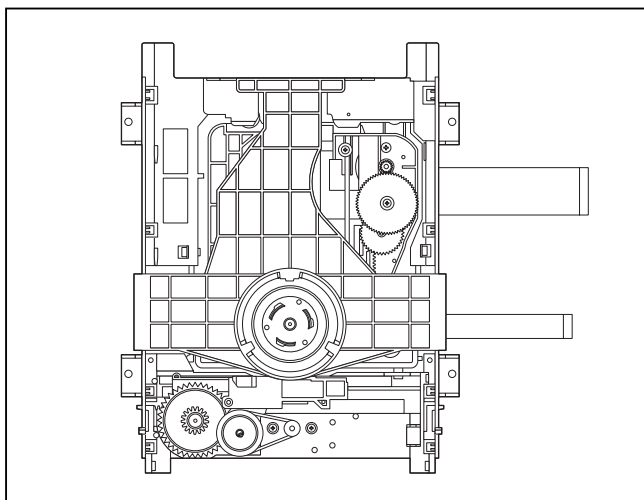
1. DECK MECHANISM EXPLODED VIEW .....	5-7
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# DECK MECHANISM PARTS LOCATION

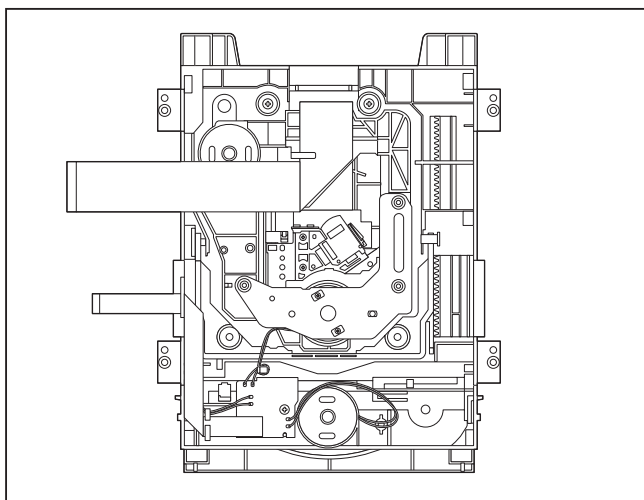
## • TOP VIEW (WITH TRAY)



## • TOP VIEW (WITHOUT TRAY)



## • BOTTOM VIEW



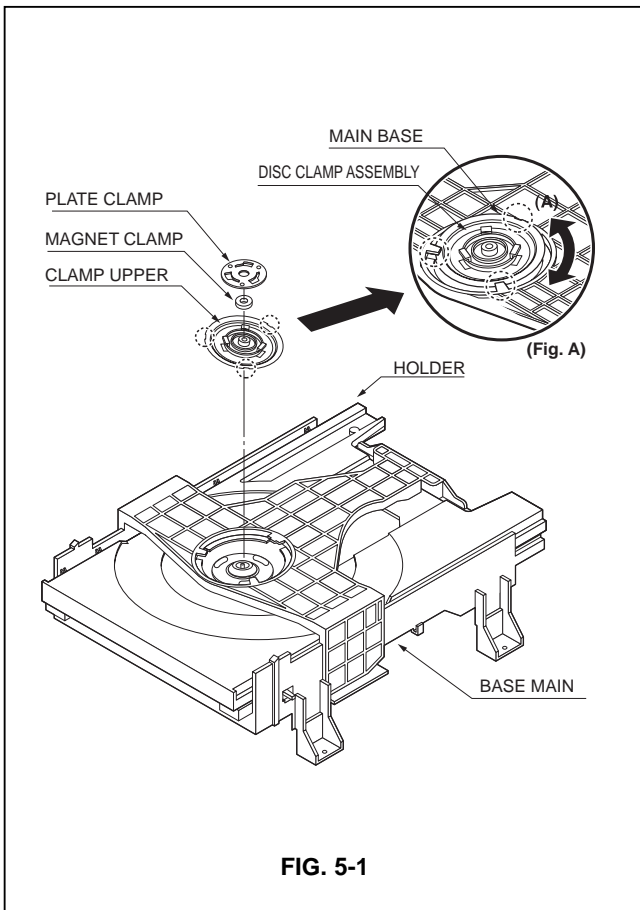
Procedure Starting No.	Parts	Fixing Type	Disassembly	Figure
1	Main Base			5-1
1	2 Clamp Assembly Disc			5-1
1, 2	3 Plate Clamp			5-1
1, 2, 3	4 Magnet Clamp			5-1
1, 2, 3, 4	5 Clamp Upper			5-1
1	6 Tray Disc			5-2
1, 6	7 Base Assembly Sled			5-3
1, 2, 6	8 Gear Feed	4 Screws, 1 Connector 1 Locking Tabs		5-3
1, 2, 6, 8	9 Gear Middle			
1, 2, 6, 8, 9	10 Gear Rack	1 Screw		5-3
1, 2, 7	11 Rubber Rear			5-3
1, 2, 7	12 Frame Assembly Up/Down	1 Screw	Bottom	5-4
1, 2	13 Belt Loading	1 Locking Tab		5-4
1, 2, 13	14 Gear Pulley			5-4
1, 2, 13, 14	15 Gear Loading	1 Locking Tab		5-4
1, 2, 7, 12, 13, 14	16 Guide Up/Down			5-4
1, 2, 13	17 PWB Assembly Loading	1 Locking Tab 1 Hook 2Screw	Bottom	5-4
1, 2, 7, 12, 13, 14, 15, 16, 17	18 Base Main	2 Locking Tabs		5-4

### Note

When reassembling, perform the procedure in reverse order.

The "Bottom" on Disassembly column of above Table indicates the part should be disassembled at the Bottom side.

# DECK MECHANISM DISASSEMBLY



## 1. MAIN BASE (FIG. 5-1)

### 1-1. Clamp Assembly Disc

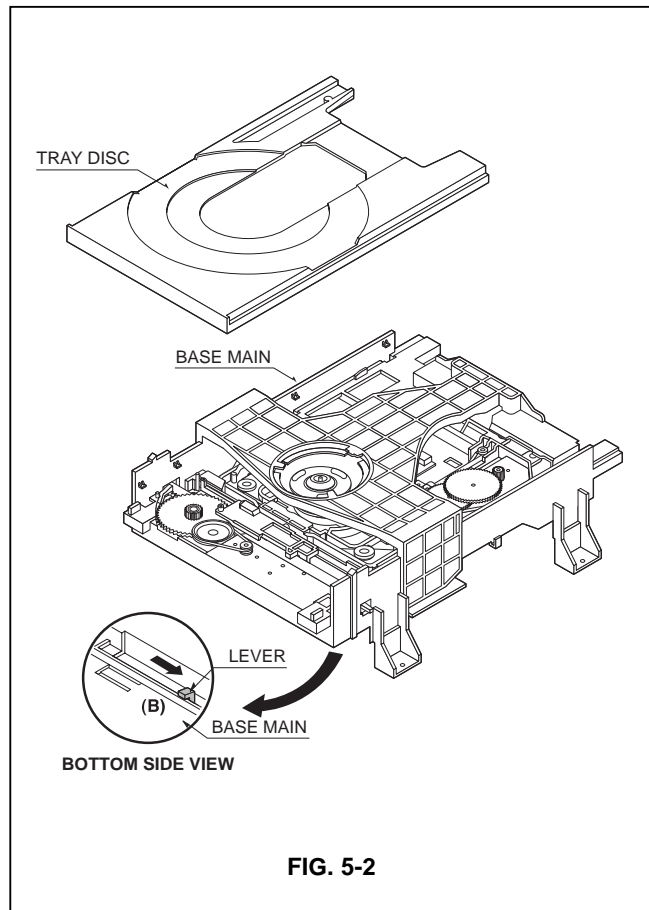
- 1) Place the Clamp Assembly Disc as Fig. (A)
- 2) Lift up the Clamp Assembly Disc in direction of arrow(A).
- 3) Separate the Clamp Assembly Disc from the Holder Clamp.

### 1-1-1. Plate Clamp

- 1) Turn the Plate Clamp to counterclockwise direction and then lift up the Plate Clamp.

### 1-1-2. Magnet Clamp

### 1-1-3. Clamp Upper



## 2. TRAY DISC (FIG. 5-2)

- 1) Insert and push a Driver in the emergency eject hole(A) at the right side, or put the Driver on the Lever(B) of the Gear Emergency and pull the Lever(B) in direction of arrow so that the Tray Disc is ejected about 15~20mm.
- 2) Pull the Tray Disc until it is separated from the Base Main completely.



# DECK MECHANISM DISASSEMBLY

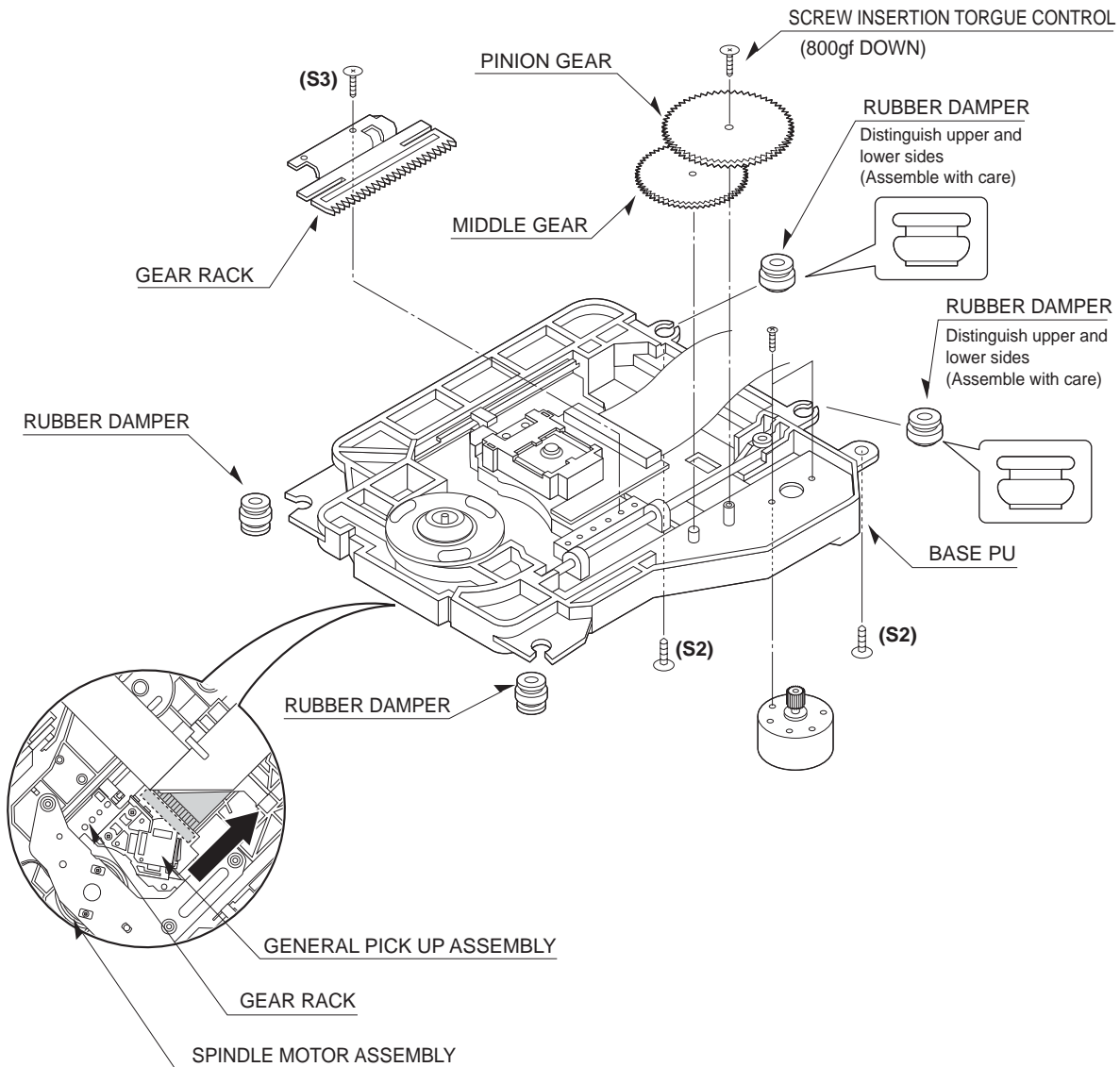


FIG. 5-3

## 3. BASE ASSEMBLY SLED (FIG. 5-3)

- 1) Release 4 Screw(S2).
- 2) Disconnect the FFC Connector(C1)

### 3-1. Gear Feed

### 3-2. Gear Middle

## 3-3. Gear Rack

- 1) Release the Scerw(S3)

## 4. RUBBER REAR (FIG. 5-3)

# DECK MECHANISM DISASSEMBLY

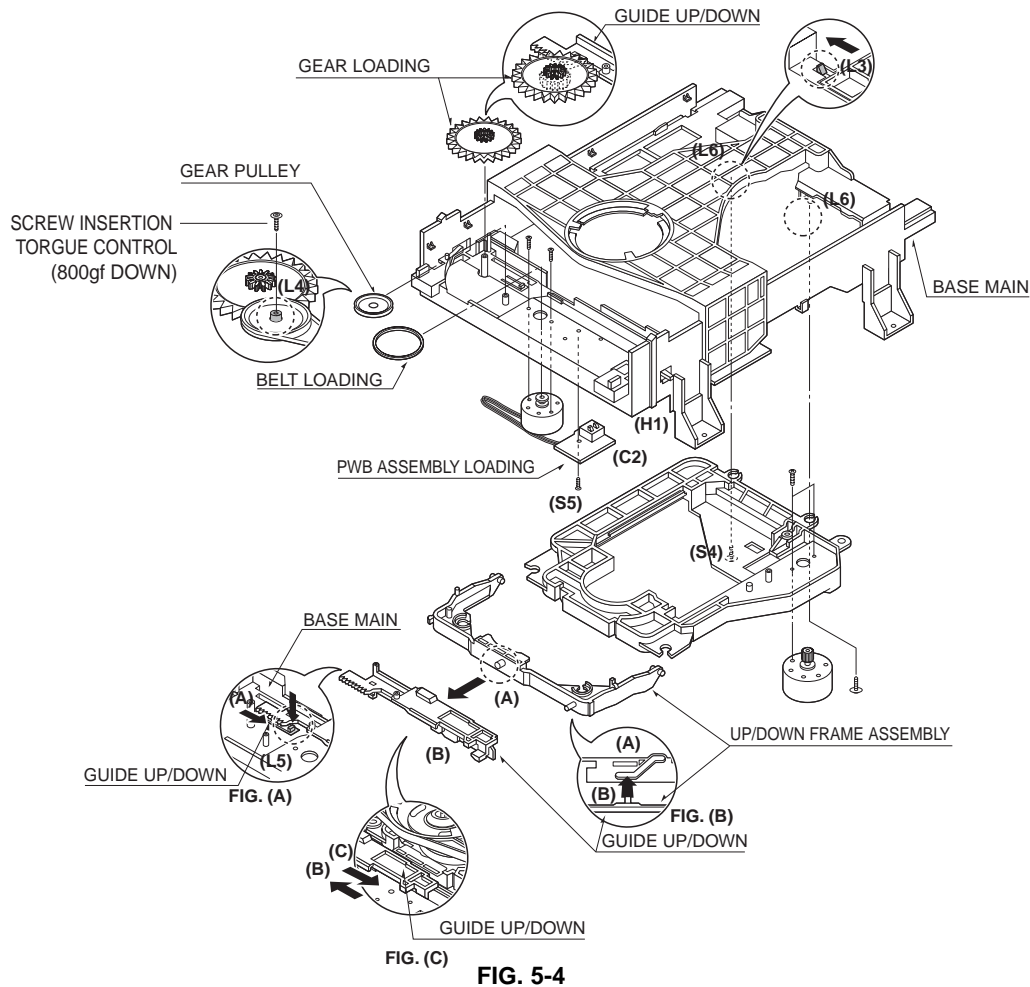


FIG. 5-4

## 5. FRAME ASSEMBLY UP/DOWN (FIG. 5-4)

### Note

Put the Base Main face down(Bottom Side)

- 1) Release the screw(S4)
- 2) Unlock the Locking Tab(L3) in direction of arrow and then lift up the Frame Assembly Up/Down to separate it from the Base Main.

### Note

- When reassembling move the Guide Up/Down in direction of arrow(C) until it is positioned as Fig.(C).
- When reassembling insert (A) portion of the Frame Assembly Up/Down in the (B) portion of the Guide Up/Down as Fig.(B)

## 6. BELT LOADING(FIG. 5-4)

### Note

Put the Base Main on original position(Top Side)

## 7. GEAR PULLEY (FIG. 5-4)

- 1) Unlock the Locking Tab(L4) in direction of arrow(B) and then separate the Gear Pulley from the Base Main.

## 8. GEAR LOADING (FIG. 5-4)

## 9. GUIDE UP/DOWN (FIG. 5-4)

- 1) Move the Guide Up/Down in direction of arrow(A) as Fig.(A).
- 2) Push the Locking Tab(L5) down and then lift up the Guide Up/Down to separate it from the Base Main.

### Note

When reassembling place the Guide Up/Down as Fig.(C) and move it in direction arrow(B) until it is locked by the Locking Tab(L5). And confirm the Guide Up/Down as Fig.(A)

## 10. PWB ASSEMBLY LOADING (FIG. 5-4)

### Note

Put the Base Main face down(Bottom Side)

- 1) Release 1 Screws(S5)
- 2) Unlock the Loading Motor (C2) from the Hook (H1) on the Base Main.
- 3) Unlock 2 Locking Tabs(L6) and separate the PWB Assembly Loading from the Base Main.

## 11. BASE MAIN(FIG. 5-4)

# MEMO

## 1. DECK MECHANISM EXPLODED VIEW DP-10C



MEMO

Handwriting practice area for page 5-9, featuring 20 horizontal dotted lines.

MEMO

Handwriting practice area for page 5-10, featuring 20 horizontal dotted lines.

# SECTION 6. PARTS LIST

MODEL : DVP3350V/01,02,05,19

NSP : Non SVC Parts  
RUN DATE : 29-January-2008

S	AL	LOCA. NO.	12NC	DESCRIPTION	SPECIFICATION	REMARKS
<b>SVC PARTS SECTION</b>						
		300	996510009973	Power Cord Assembly	MP5004A+H03VVH2-F 2X0.75MM2 NM	<b>ONLY 05</b>
		300	996510012186	Power Cord Assembly	HG07-320-06 IP60G NL7976B BLK	<b>01/02/19</b>
		806	996500025543	Cable,Assembly	PAL PLUG PAL PLUG 1.2M 1P BLAC	
		900	996510009972	Remote Controller Assembly	N6 V200C-PP1 PHILIPS W/SHOWVIE	

\* Note:Only the parts mentioned in this list are normal service spare parts.