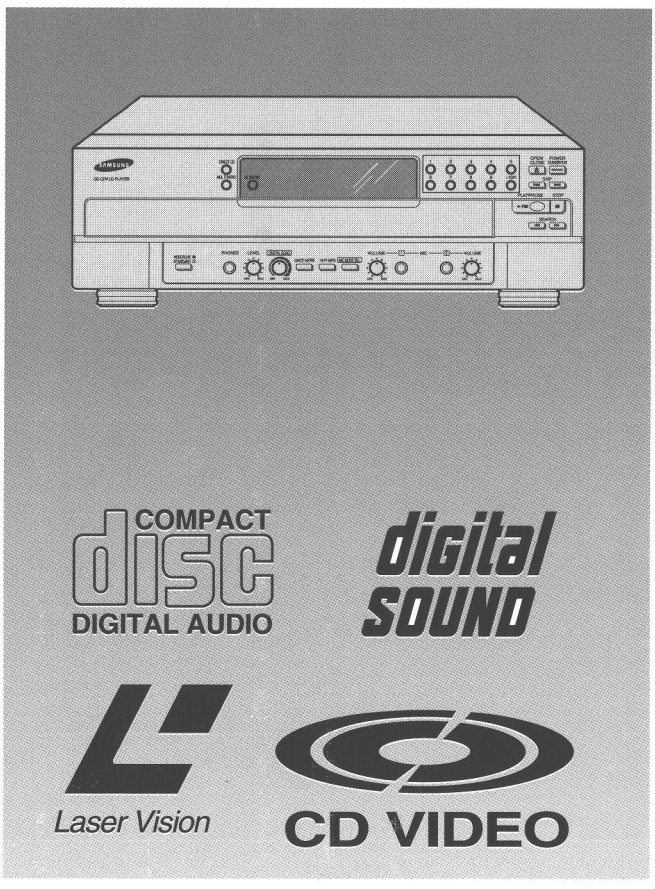
SAMSUNG

CD/CDV/LD PLAYER

DV-530K/DV-430

SERVICE Manual

CD/CDV/LD PLAYER



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1. Comparing chart

(OPTION BLOCK OF MODEL BLANCH)

MODEL / OPTION BLOCK	DV530K	DV430	DV430SC
FRONT PCB	O	X	X
VIDEORCHE	O	X	X
CDG	O	X	X
CAPTION	O	X	O
SUPER	X	X	O

O: Using, X: Not Using

(FRONT OPTION OF MODEL BLANCH)

MODEL / OPTION BLOCK	DV530K	DV430	DV430SC
DIRECT CD	O	O	X
CAPTION	X	X	O
VIDEORCHE/ STANDARD	O	X	X
PHONE JACK	O	X	X
HADPHONE VOLUME	O	X	X
DIGITAL ECHO VOLUME	O	X	X
ONCE MORE	O	X	X
HI-FI MPX	O	X	X
MIC MODE SEL	O	X	X
MIC 1 JACK	O	X	X
MIC 1 VOLUME	O	X	X
MIC 2 JACK	O	X	X
MIC 2 VOLUME	O	X	X

2. SPECIFICATIONS

1. GENERAL

- Power consumption: 35W
- Weight: 9 Kg
- Dimensions: 420(W)x424(D)x120(H)mm
- Operating temperature: +5°C~35°C (41°F~95°F)

2. DISC

2-1. Laser Vision Discs (LD)

- Spindle motor speed
  - –Standard play disc (CAV): 1800rpm
  - –Extended play disc (CLV): 1800rpm (inner periphery) to 600rpm (outer periphery) .....For a 12" disc
- Maximum playing time
  - –12" standard play disc (CAV): 1 hour/both sides
  - –12" extended play disc (CLV): 2 hours/both sides
  - – 8" standard play disc (CLV): 28 min/both sides
  - – 8" extended play disc (CLV): 40 min/both sides

2-2. Compact Discs (CD)

- Diameter: 5", 3"
- Thickness: 1.2mm
- Rotation direction (pick up side): counter clock wise
- Maximum playing time
  - –5" disc: 74 min.
  - –3" disc: 20 min.

2-3. Compact Disc with Video (CDV)

- Diameter: 5"
- Thickness: 1.2mm
- Rotation direction (pick up side): counter clock wise
- Linear speed
  - –Audio portion: 1.2~1.4m/sec.
  - –Video portion: 11~12m/sec.
- Maximum playing time
  - –Audio portion: 20 min. (digital)
  - –Video portion: 5 min. (CLV)

3. VIDEO CHARACTERISTICS

- SIGNAL: NTSC 3.58/QUASI PAL/NTSC 4.43
- Video output
  - –Level: 1Vp-p normal, sync, negative, terminated.
  - –Impedance: 75Ω unbalanced
  - –Jack: RCA jack/RF jack

4. AUDIO CHARACTERISTICS

- Output level
  - –During analog audio output: 200mVrms (1KHz, 40% Modulation)
  - –During digital audio output: 200mVrms (1KHz, -20dB)
- Number of channels: 2
- Output jack: RCA jack
- Digital audio characteristics

Frequency response	20Hz~20KHz
S/N ratio	95dB
Dynamic range	90dB
Channel Separation	75dB
Total harmonic distortion	0.02%

3. Safety precaution

3-1. Class 1 laser product

This laser disc player is classified as a CLASS 1 laser product.

3-2. Laser warning label

The label shown below may be affixed or not according to country.

(UL)

This Product Complies with DHHS Rules 21CFR, Sub chapter J.At date of Manufacture

(CSA)

CERTIFIED ONLY TO CANADIAN ELECTRICAL CODE.

CERTIFIE EN VERTU DU CODE CANADIAN DE LELETRICITE SEULEMENT

(EU)

CLASS 1
LASER PRODUCT

Location: Enclosure back.

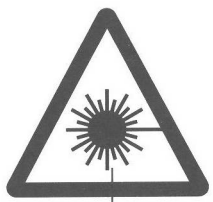
CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATEO AVOIDEXPOSURE TO BEAM

ADVARSEL: USYNLIG LASERSTRÅLING VED ABNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGA UDSAETTELSE FOR STRALING

VARO:AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTINA NAKYMATTÖMALLE LASERSATEILYLLE ALA KATSO SATEESEEN!

VARNING:OSYNLIG LASERSTRÅLNING NAR DENNA DEL AR OPPNAD OCH SPARREN AR URKOPPLAD BETRAKTA EJSTRÅLEN!

(EU)



Location : on the disc clamper or inner side of UNIT door or nearby UNIT chassis.

UL	: Manufactured for U.S.A. Market.
CSA	: Manufactured for Canadian Market.
EU	: Manufactured for European Market.
SCAN	: Manufactured for Scandinavian Market.

3-3.Laser beam warning

ADVERSEL –Usynlig saserstråling ved åbning, når Sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse for stråling.

VARNING –Osylig laserstralning när denna del är öppnad och spärr är urkopplad. Stralen är farlig.

VARITUS –Laite sisältää laserdiodin, joka lähettää näkymätönta silmille vaarallista lasersateilyä.

CAUTION –Invisible laser radiation when door is open and interlocks defeate. Avoid exposure to beam.

3-4. Laser diode specification (Optical pick-up)

- Material : GaAs+GaAlAs
- Wavelength : 760-800nm
- Emission duration : Continuous
- Laser Output : max. 400 μW
  * This output is the value measured at distance 1.6mm from the objective lens surface on the optical pick-up block.
- Classification : CLASS 1

3-5. Warning for servicing

WARNING: When servicing, do not approach the LASER exit with the eye too closely. In case it is necessary to confirm LASER beam emission, be sure to observe from a distance of more than 30cm from the surface of the objective lens on the optical pick-up block.

VARNING: När underhållningsarbeten utförs, närma dig försiktigt och se inte på laserutstrålningen på för nära häll. If all det är nödvändigt att betrygga laserstrålens utströmning. Var säker att kontrollera detta från ett avståand av mer än 30cm (11.81 inch.) fråan den objektiva linsens yta på den optiska utsåndningspunkten.

ADVARSEL: När repareringsarbejdet udfoeres, naerm dig forsigtigt og se ikke på laserudstrålingen påa for naer håand. ^t ilfaeldet at det er noedvaendigt at bestemme laserstrålens udstråling. Vaer sikker på kontrollere dette fra en afstand af mere end 30cm (11.81 inch.) fra den objektive linses overflade på den optiske udsendningspunkt.

VAROITUS: Silmiä on varottava viemästä liian läbeile laser-poistokanavaa huoiion aikana. Jos on välttämätöntä varmistaa Laser-Säteen päästö, pysyttels sitä tarkasteltaessa vähintään 30cm etäiyydellä optisen lukon objecktiivilinssin pinnasta..

3-6. Before returning an instrument to the customer, always make a safety check of the entire instrument, including, but not limited to, the following items:

(1) Be sure that no built-in protective devices are defective or have been defeated during servicing. (1) Protective shields are provided to protect both the technician and the customer. Correctly replace all missing protective shields, including any remove for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including, but not limited to, nonmetallic control knobs, insulating fishpapers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning.

(2) Be sure that there are no cabinet openings throught which adults or children might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, excessively wide cabinet ventilation slots, and an improperly fitted and/or incorrectly secured cabinet back cover.

(3) Leakage Current Hot Check-With the instrument completely reassembled, plug the AC line cord directly into a 120V AC outlet. (Do not use a isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards institute (ANSI) C101.1 Leakage Current for Appliances and Underwriters Laboratories (UL) 1270 (40.7). With the instrument's AC switch first in the ON positin and then in the OFF position, measure from a known earth ground (metal waterpipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle brackets, metal cabinets, screwheads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis.

Any current measured must not exceed 0.5 millamp. Reverse the instrument power cord plug in the outlet and repeat the test.

See Figure 1.

Any measurements not within the limits specified herein indicate a potential shock hazard that must be ellminated before returning the instrument to the customer.

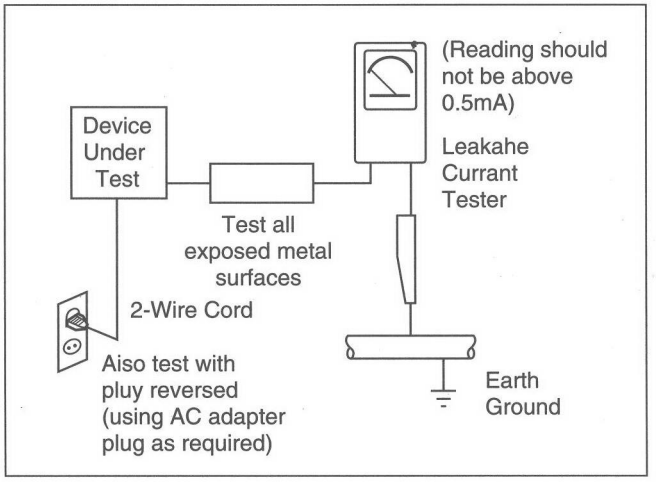


Fig. 1 AC Leakage Test

(4) Insulation Resistance Test Cold Check-(1) Unplug the power supply cord and connect a jumper wire between the two prongs of the plug. (2) Turn on the power switch of the instrument. (3) Measure the resistance with an ohmmeter between the jumpered AC plug and all exposed metallic cabinet parts on the instrument, such as screwheads, antenna, control shafts, handle brackets, etc. When an exposed metallic part has a return path to the chassis, the reading should be between 1 and 5.2 megohm. When there is no return path to the chassis, the reading must be infinite. If the reading is not within the limits specified, there is the possibility of a shock hazard, and the instrument must be repared and rechecked before it is returned to the customer.

See Figure 2.

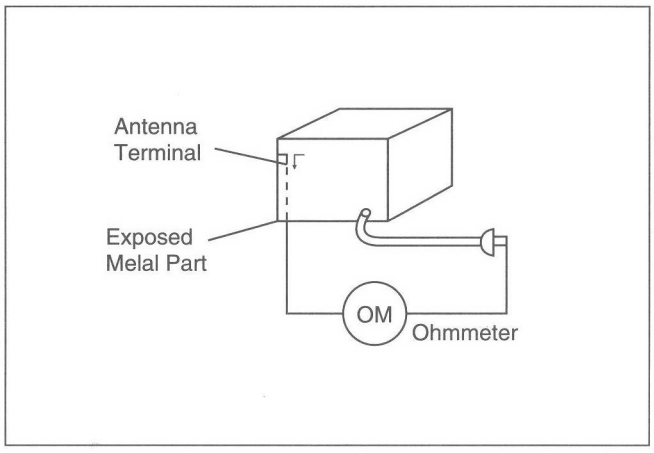


Fig. 2 Insulation Resistance Test

3-7. Read and comply with all caution and safety-related notes non or inside the cabinet, or on the chassis.

3-8. Design Afteration Warning-Do not alter or add to the mechanical or electrical design of this instrument. Design alterations and additions, including but not limited to, circuit modifications and the addition of items such as auxiliary audio output connections, might alter the safety characteristics of this instrument and create a hazard to the user. Any design alterations or additions will make you, the servicer, responsible for personal injury or property damage resulting therefrom.

3-9. Observe original lead dress. Take extra care to assure correct lead dress in the following areas: (1) near sharp edges, (2) near thermally hot parts (be sure that leads and components do not touch thermally hot parts), (3) the AC supply, (4) high voltage, and (5) antenna wiring. Always inspect in all areas for pinched, out-of-place, or frayed wiring. Do not change spacing between a component and the printed-circuit board. Check the AC power cord for damage.

3-10. Components, parts, and/or wiring that appear to have overheated or that are otherwise damaged should be replaced with components, parts and/or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.

3-11. Product Safety Notice-Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by shading, an (*) or a (⚠) on schematisc and parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might created shock, fire and/or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate.

4. Servicing notes

4-1. Before servicing the unit

Be sure to observe the safety notes attached on label, chassis, cabinet top, cabinet bottom and printed circuit board.

4-1-1. Caution on laser beammalfunction

Do not try to access objective lens, when DISC is not on the tray.

When pick-up mechanism replacement is required, be sure to turn power off.

4-1-2. When handling parts

Tube, tape or insulating parts are used for sepa-ration or insulation purposes. Especially parts which generate excessive heat are kept away from PCB or any other sensitive parts. Therefore, when replacing parts, be sure to replace them in their original position.

4-1-3. When fixing wires

Wires should be fixed in such a way with cable-tie so they won't move.

When finished servicing, be sure to leave unit in it's original configuration.

4-1-4. Use specified parts only

The safety specification built into the electronics of this unit require that you use specified parts only. Do not use any other replacements. Using other parts can result in electrical and fire hazard.

4-1-5. After servicing is complete

After servicing is complete, check if there are any missing parts or that wires are properly fixed and any place where over heating or shock is likely to occur, can be found.

4-1-6. Handling the optical pick-up

* The laser diode in the optical pick up may suffer electrostatic breakdown because of potential static electricity from clothing and your body.

The following method is recommended.

(1) Place a conductive sheet on the work bench (The black sheet used for wrapping repair parts.)

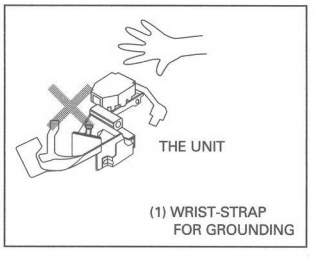
(2) Place the set on the conductive sheet so that the chassis is grounded to the sheet.

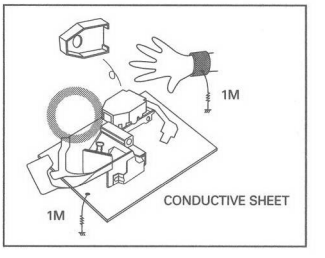
(3) Place your hands on the conductive sheet (This gives them the same ground as the sheet).

(4) Remove the optical pick up block.

(5) Perform work on top of the conductive sheet. Be careful not to let your clothes or any other static sources to touch the unit.

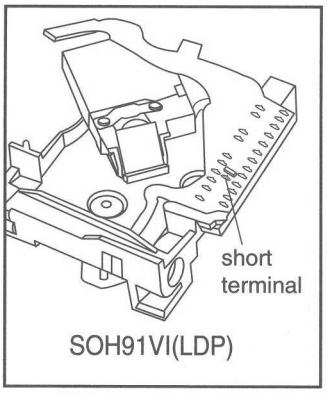
* Be sure to put on a wrist strap grounded to the sheet.
* Be sure to lay a conductive sheet made of copper etc. which is grounded to the table.



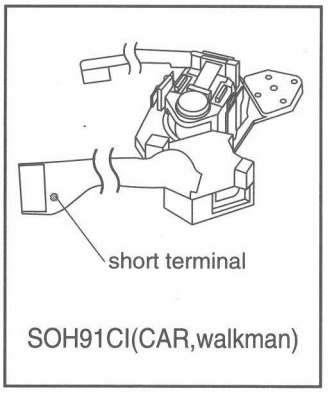


(6) Short the short terminal on the PCB, which is inside the Pick-Up ASS'Y, before replacing the Pick-Up.
(The short terminal is shorted when the Pick-Up Ass'y is being lifted or moved.)

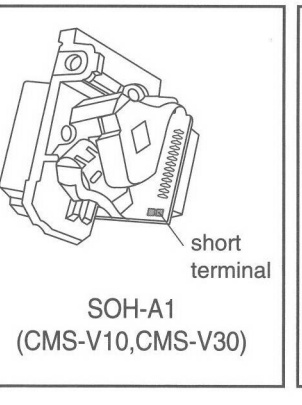
(7) After replacing the Pick-up, open the short terminal on the PCB.



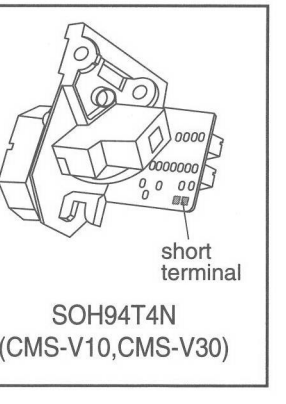
SOH91VI(LDP)



SOH91CI(CAR,walkman)



SOH-A1
(CMS-V10,CMS-V30)



SOH94T4N
(CMS-V10,CMS-V30)

4-2. Servicing Precautions

CAUTION: Before servicing Instruments covered by this service manual and its supplements, read and follow the Safety Precautions section of this manual.

Note: If unforseen circument create conflict between the following servicing precautions and any of the safety precautions, always follow the safety precautions.
Remember: Safety First.

4-2-1. General Servicing Precautions

(1) a. Always unplug the instrument's AC power cord from the AC power source before (1) removing or reinstalling any component, circuit board, module or any other instrument assembly, (2) disconnecting any instrument electrical plug or other electrical connection, (3) connecting a test substitute in parallel with an electrolytic capacitor in the instrument.

b. Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service manual might be equipped.

c. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.

d. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the test instrument positive lead.
Always remove the test instrument ground lead last.

Note: Refer to the Safety Precautions section ground lead last.

(2) The service precautions are indicated or printed on the cabinet, chassis or components. When servicing, follow the printed or indicated service precautions and service materials.

(3) The components used in the unit have a specified flame resistance and dielectric strength. When replacing components, use components which have the same ratings. Components identified by shading, by (*) or by (⚠) in the circuit diagram are important for safety or for the characteristics of the unit. Always replace them with the exact replacement components.

(4) An insulation tube or tape is sometimes used and some components are raised above the printed wiling board for safety. The internal wiring is sometimes clamped to prevent contact with heating components. Install such elements as they were.

(5) After servicing, always check that the removed screws, corponents, and wiring have been installed correctly and that the portion around the serviced part has not been damaged and so on. Further, check the insulation between the blades of the attachment plug and accessible conductive parts.

4-2-2. Insulation Checking Procedure

Disconnect the attachment plug from the AC outlet and turn the power ON. Connect the 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 (see note) should be more than 1 Megohm.

Note: Accesible conductive parts include metal panels, input terminals, earphone jacks, etc.

4-3. ESD, Precautions

Electrostatically Sensitive Devices (ESD)

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

(1) Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic aharge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.

(2) After removing an electrical assembly equipped with ESD devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.

(3) Use only a grounded-tip soldering iron to solder or unsolder ESD devices.

(4) Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESD devices.

(5) Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damge ESD devices.

(6) Do not remove a replacement ESD device from its protective package until immediately before your are ready to install it. (Most replacement ESD devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive materials).

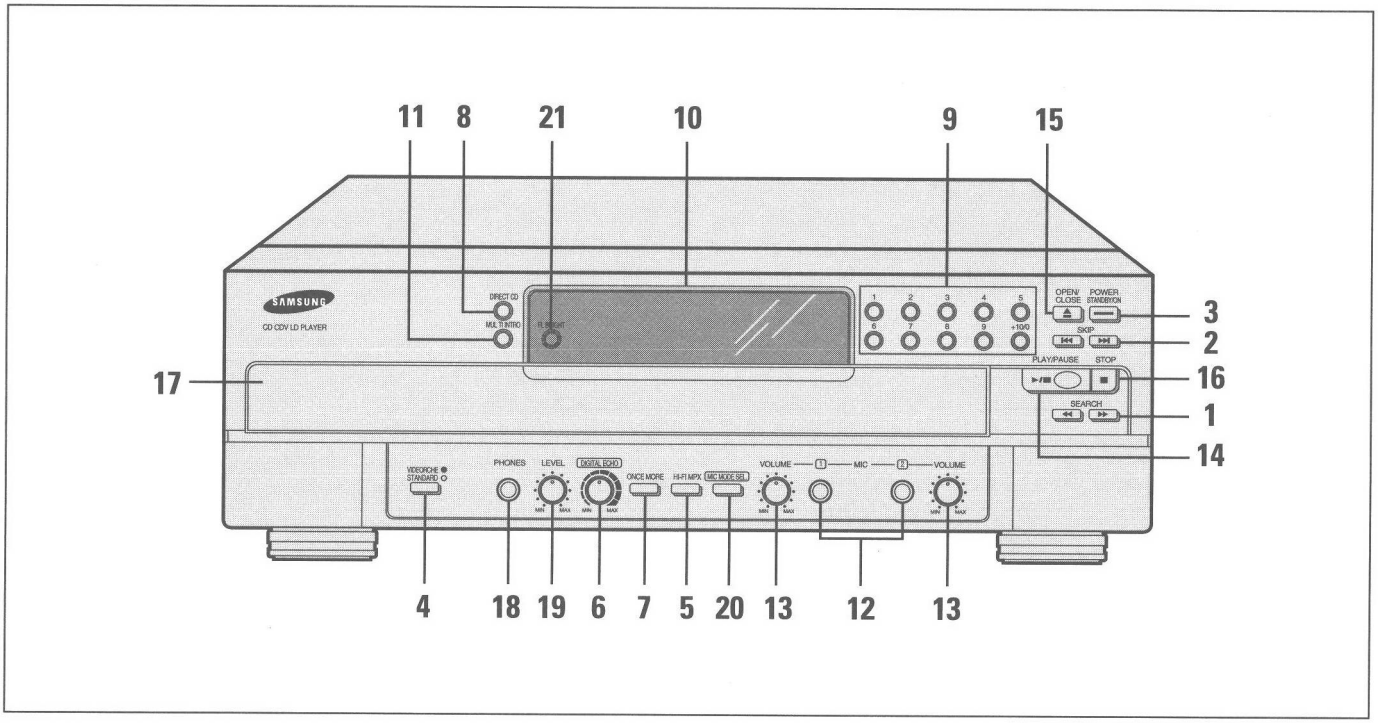
(7) Immediately before removing the protective materials from the leads of a replacement ESD device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

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

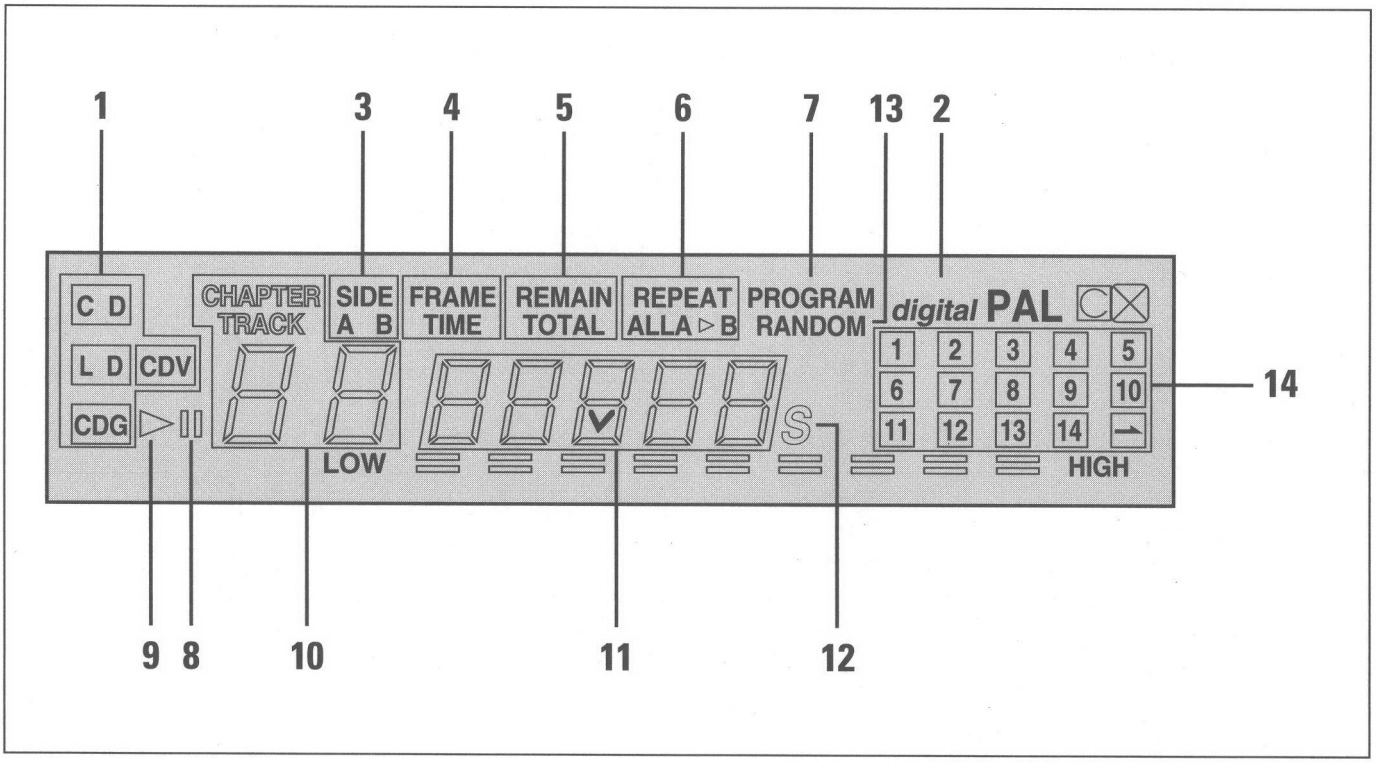
5. LOCATION of CONTROLS

FRONT PANEL



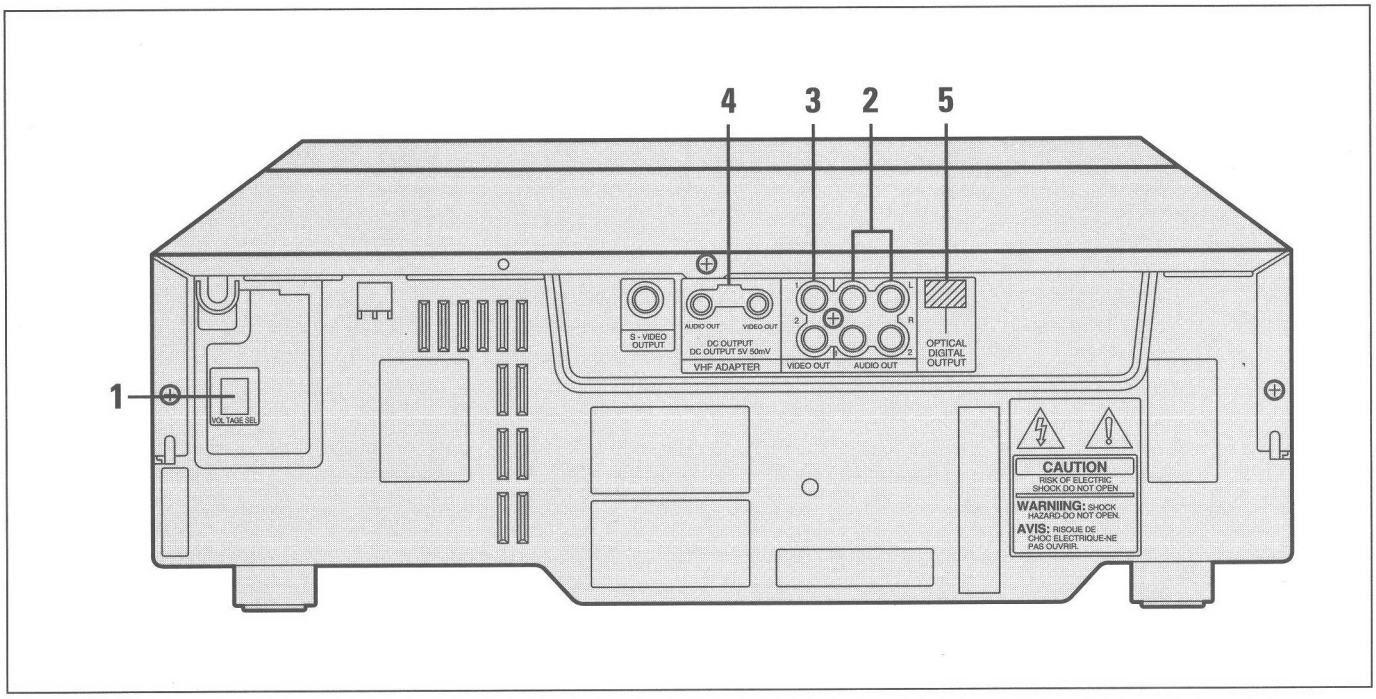
1. SEARCH buttons
2. SKIP buttons
3. POWER buttons
4. MODE SELECTOR Switch
   -VIDEORCHE/STANDARD
5. MPX BALANCE button
6. DIGITAL ECHO knob
7. ONCE MORE button
8. DIRECT CD button
9. DIGIT buttons
10. FUNCTION DISPLAY
11. MULTI INTRO scan button
12. MIC jacks
13. MIC VOLUME knobs
14. PLAY / PAUSE button
15. OPEN/CLOSE button
16. STOP button
17. DISC TRAY
18. PHONES jacks
    -Output jack for a head phone.
19. PHONES LEVEL volume
20. MIC MODE selector button
21. FL BRIGHT button

MULTI FUNCTION DISPLAY



1. LD / CD / CDV indicator
2. DIGITAL SOUND indicator
3. DISC SIDE indicator
4. FRAME / TIME indicator
5. REMAIN / TOTAL indicator
6. REPEAT / indicator
7. PROGRAM indicator
8. PAUSE indicator
9. PLAY indicator
10. CHAPTER / TRACK No. indicator
11. FRAME / TIME No indicator
12. SECOND / STAND BY indicator
13. RANDOM PLAY indicator
14. DIGIT indicator

REAR PANEL



1. VOLTAGE SELECTOR SWITCH

2. AUDIO OUTPUT
   -Connect to the Audio IN of your TV set or stereo amplifier.

3. VIDEO OUTPUT
   -Connect to the VIDEO of your TV monitors. Video signals are available from both terminals.

4. VHF ADAPTER
   -Connect the socket (3-pin) of the RF UNIT (OPTION)

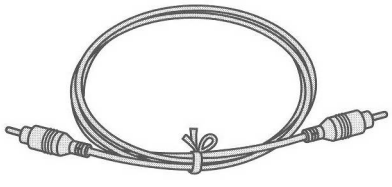
5. OPTICAL DIGITAL OUT
   -This unit can be connected to an Amplifier eqyupped with an optical digital jock.

ACCESSORIES

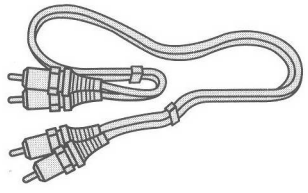
REMOTE CONTROL



VIDEO CORD



AUDIO CORD

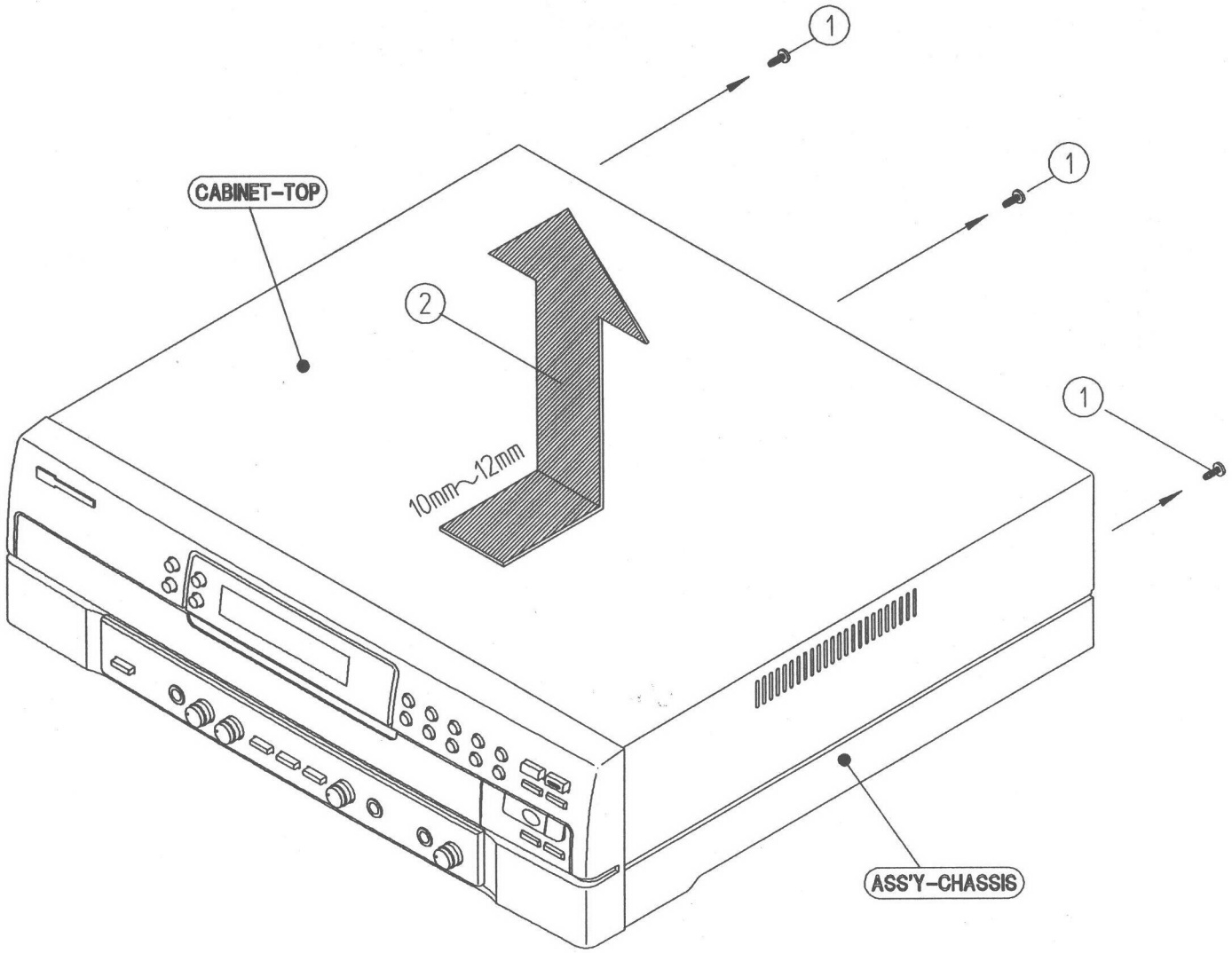


6. DISASSEMBLY INSTRUCTION

6-1. Separation of cabinet top

① Separate 3 E.A of screw (3x10 black).

② Push top 10mm backward horizontally, and separate it upward.

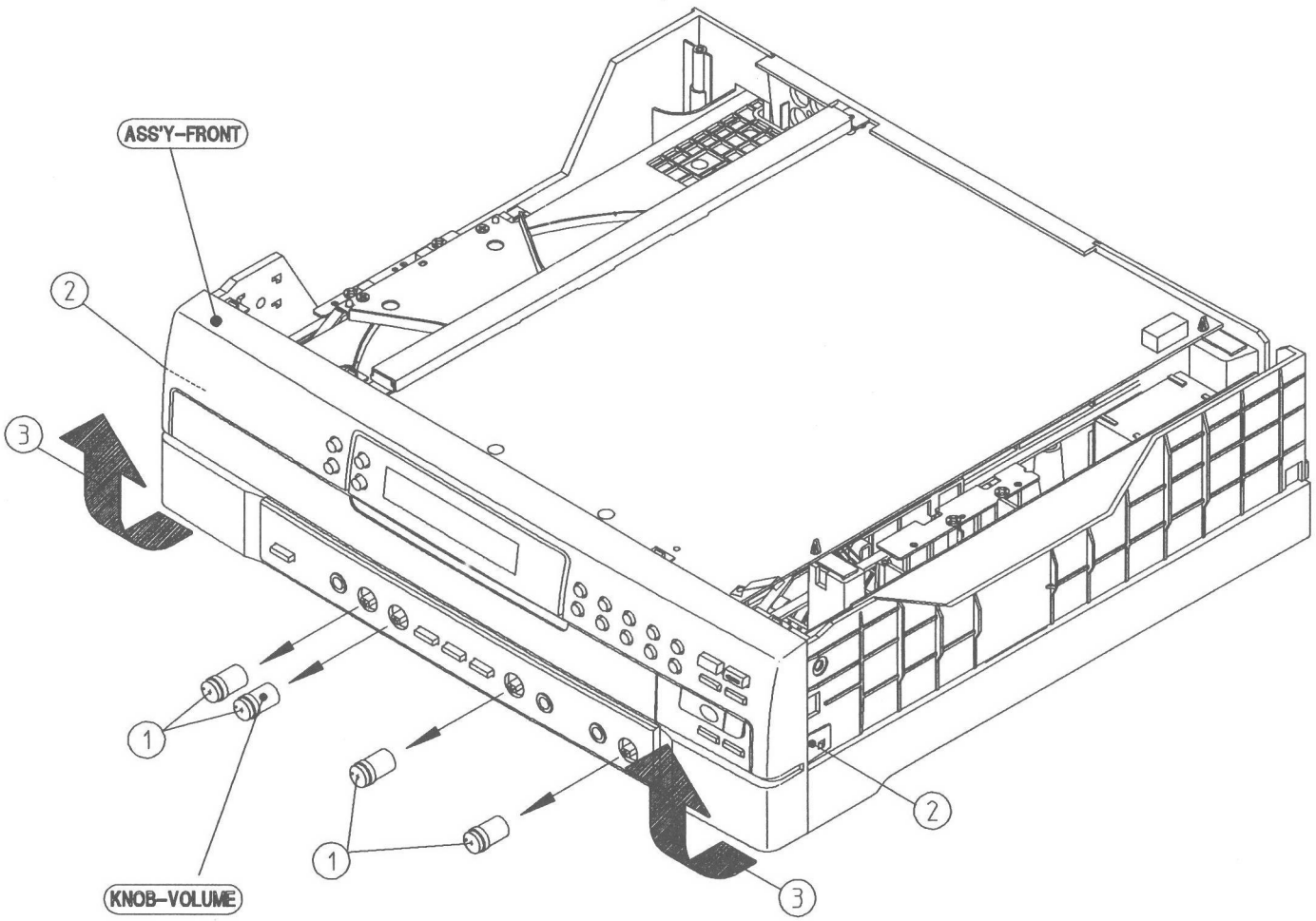


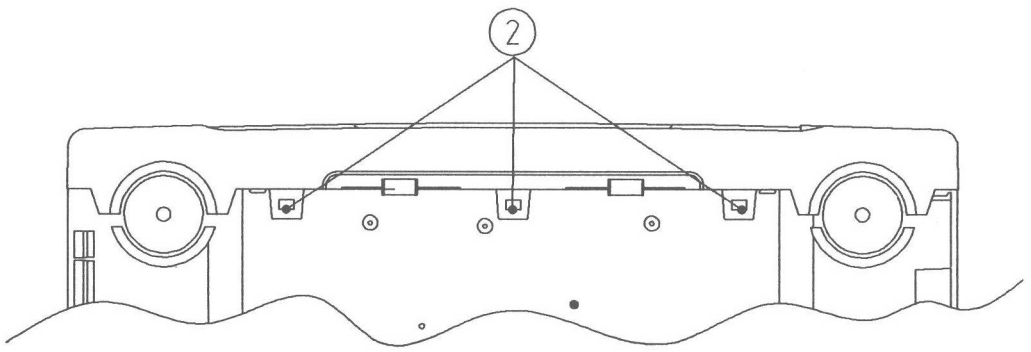
6-2. Separation of saa'y front

① Separate ass'y front by pulling it horizontally using 4 E.A of knob volume.

② Remove 5 E.A of hook more or less (2 EA on right and left side, and 3 E.A on the bottom)

③ Separate Ass'y front by turning it to the arrow direction.



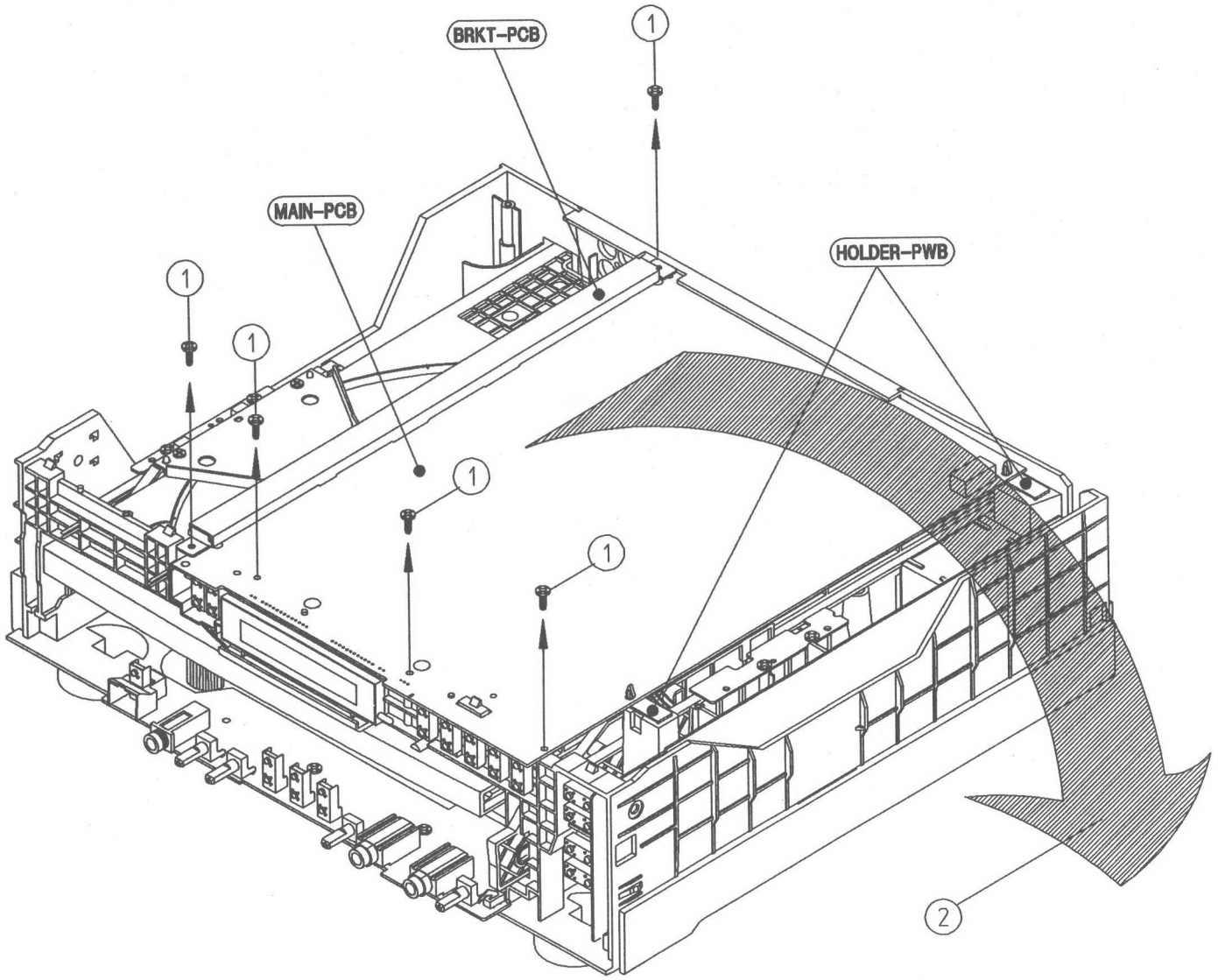


6-3. Separation of cabinet top

6-3-1. When turning main PCB

① Separate 3 E.A of screw (3x10 black).

② Turn main PCB to the arrow direction.



6-3-2. When separating main PCB

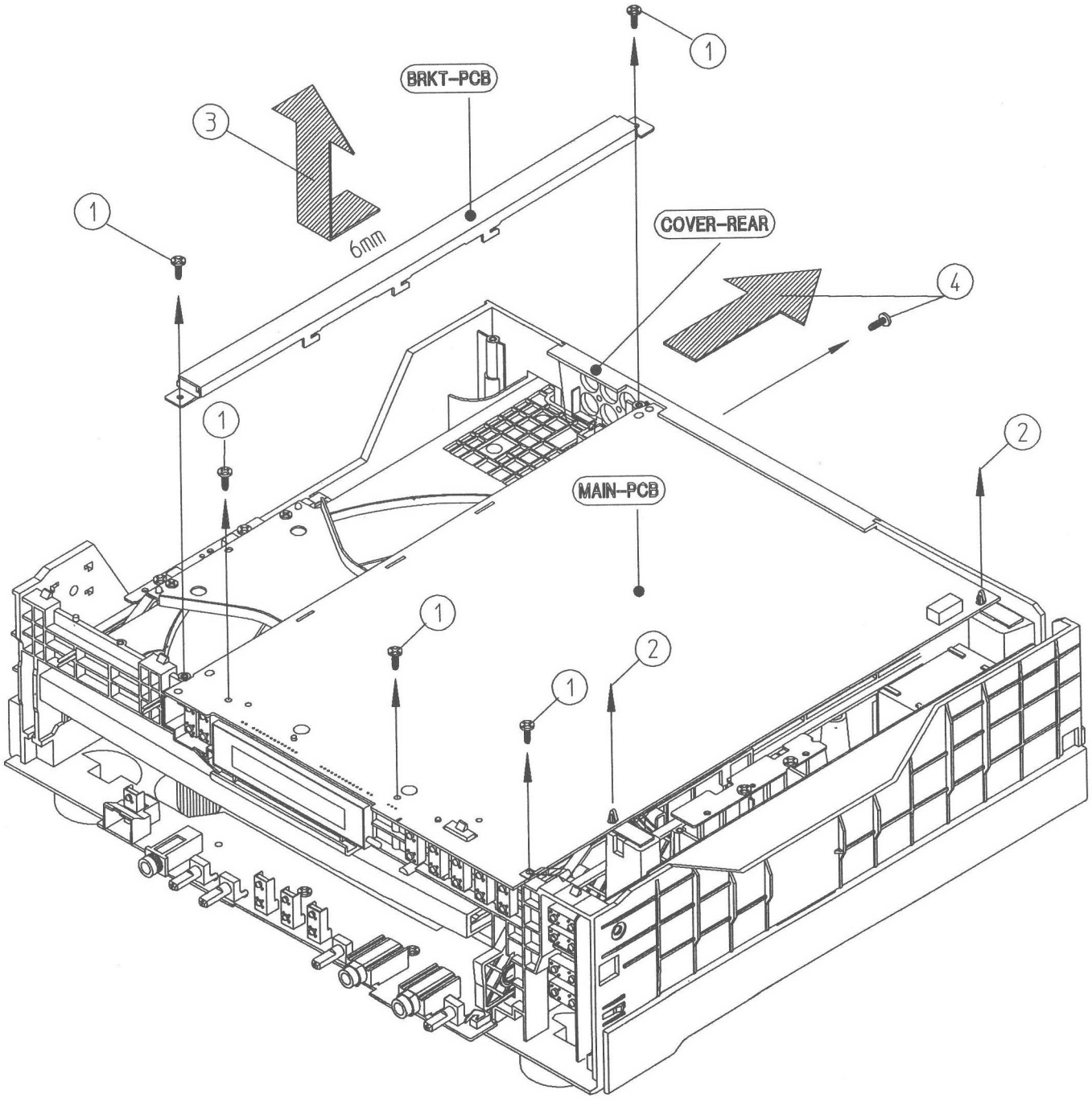
① Separate 3 E.A of screw (3x10 yellow).

② Turn main PCB to the arrow direction.

After separating flexible wire and connector connected to PCB, and separate it by pulling the part connected to 2 E.A of holder PCB.

③ Separate BAKT-PCB to the arrow direction.

④ Separate 1 E.A of screw (3x10 black) and pull out cover rear to the arrow direction.



6-4. Separation of tray

① Turn 2 E.A of screw (3x10 yellow) two or three turns, and fix them on the tray. Do not separate them.

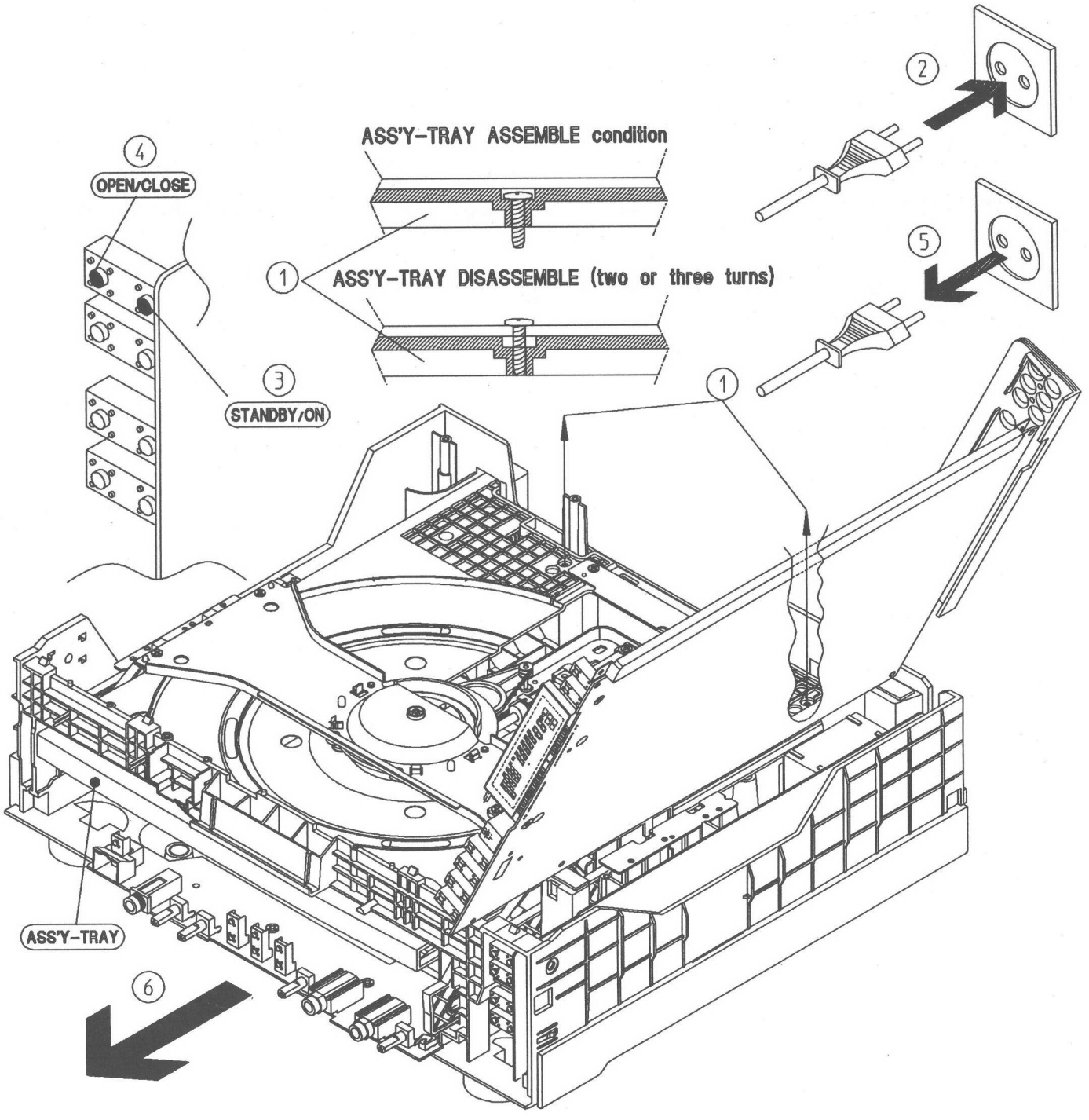
② Connect power cord.

③ Turn power S/W on.

④ Open tray by pressing open/close key.

⑤ Pull out the power cord. (Complete disconnection).

⑥ Pull the tray to the arrow direction (front) and separate it.



- If tray does not open when set power turns on.
- If set power does not turn on.

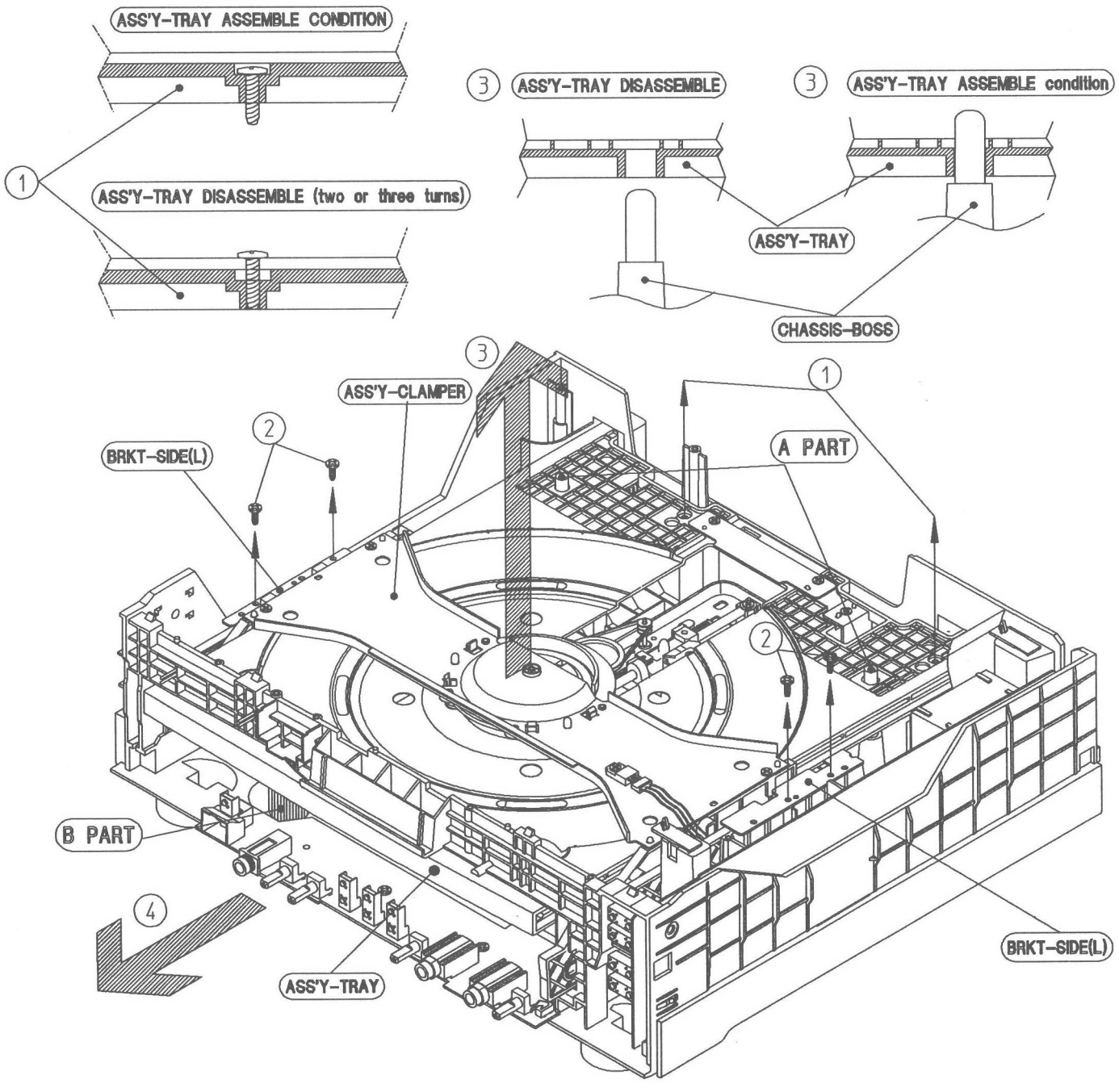
① Turn 2 E.A of screw (3x10 yellow) two or three turns, and fix them on the tray. Do not separate them.

② Separate 4 E.A of screw (3x19 yellow), and separate 3 E.A of bracket side (L).

③ Raise Asse'y-clamper to the vertical direction (arrow), and separate tray rear part hole from chassis boss (two points at A part on the drawing) and guide cam from chassis boss (one point at B part on the drawing)

④ Smoothly pull the tray to the arrow direction (front) and separate it.

•Separation of only front PCB for after-sale service.

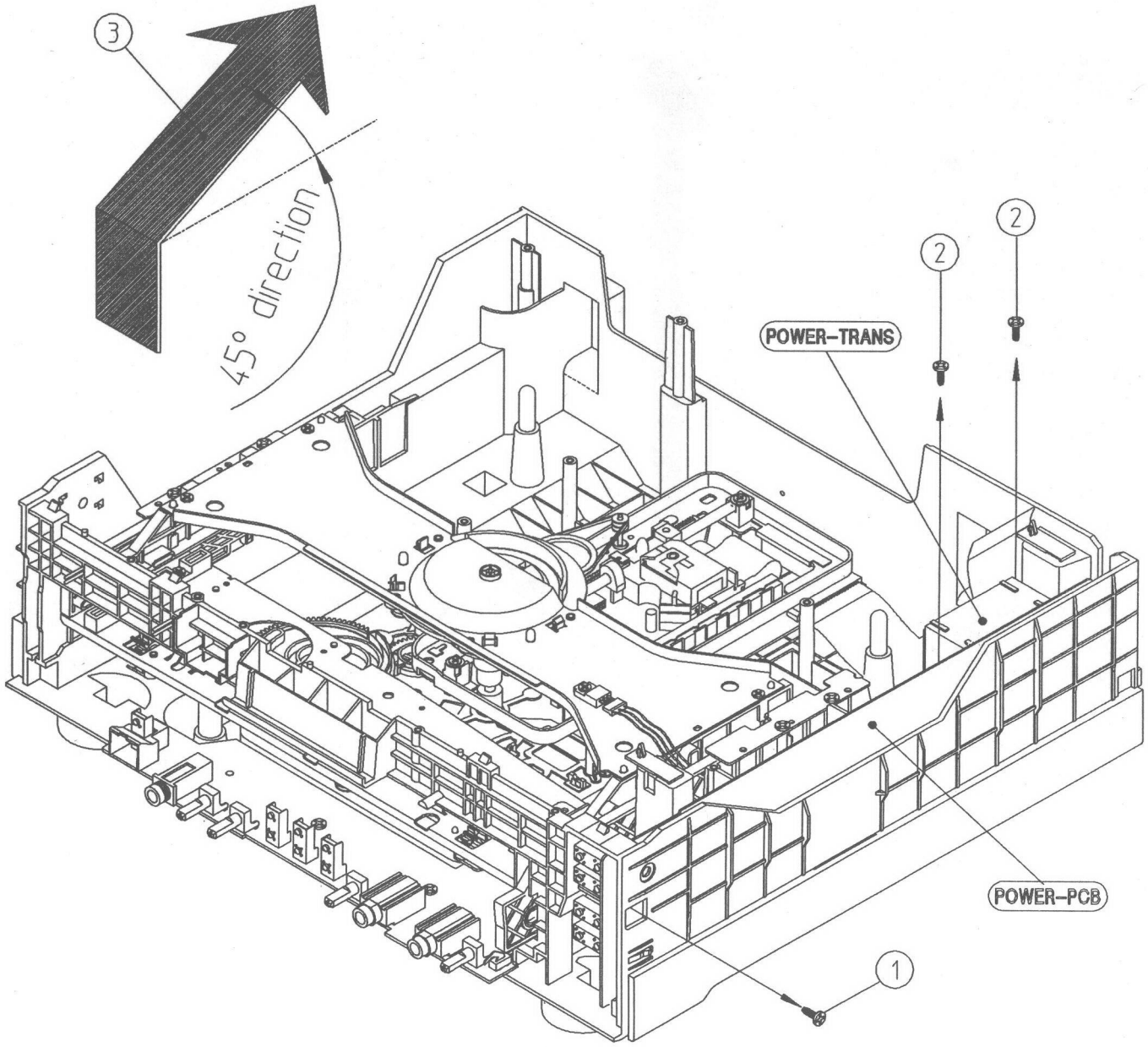


6-5. Separation of power PCB

① Separate 1 E.A or screw (3x10 yellow).

② Separate 2 E.A of screw (4x12 black).

③ Raise power trasns side of power PCB, raise it to the arrow direction (vertical) and separate it by pulling it to the arrow direction.

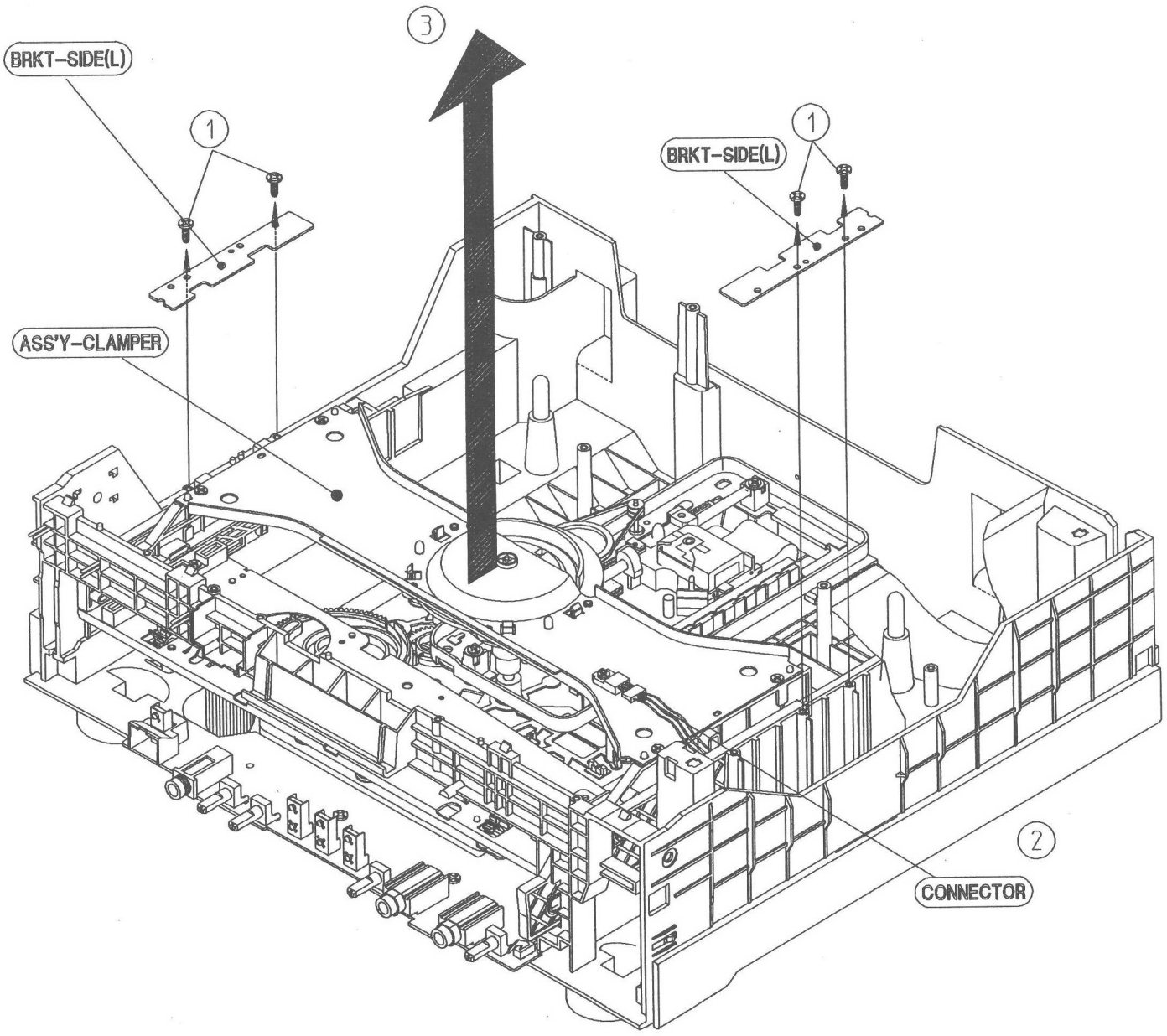


6-6. Separation of ass'y-clamper

① Separate 4 E.A or screw (SPEC 3x10 yellow), and separate 2 E.A of BRKT-SIDE (L)

② Separate CONNECTOR WIRE.

③ Raise ASS'Y-CLAMPER to the vertical direction (arrow), and separate it

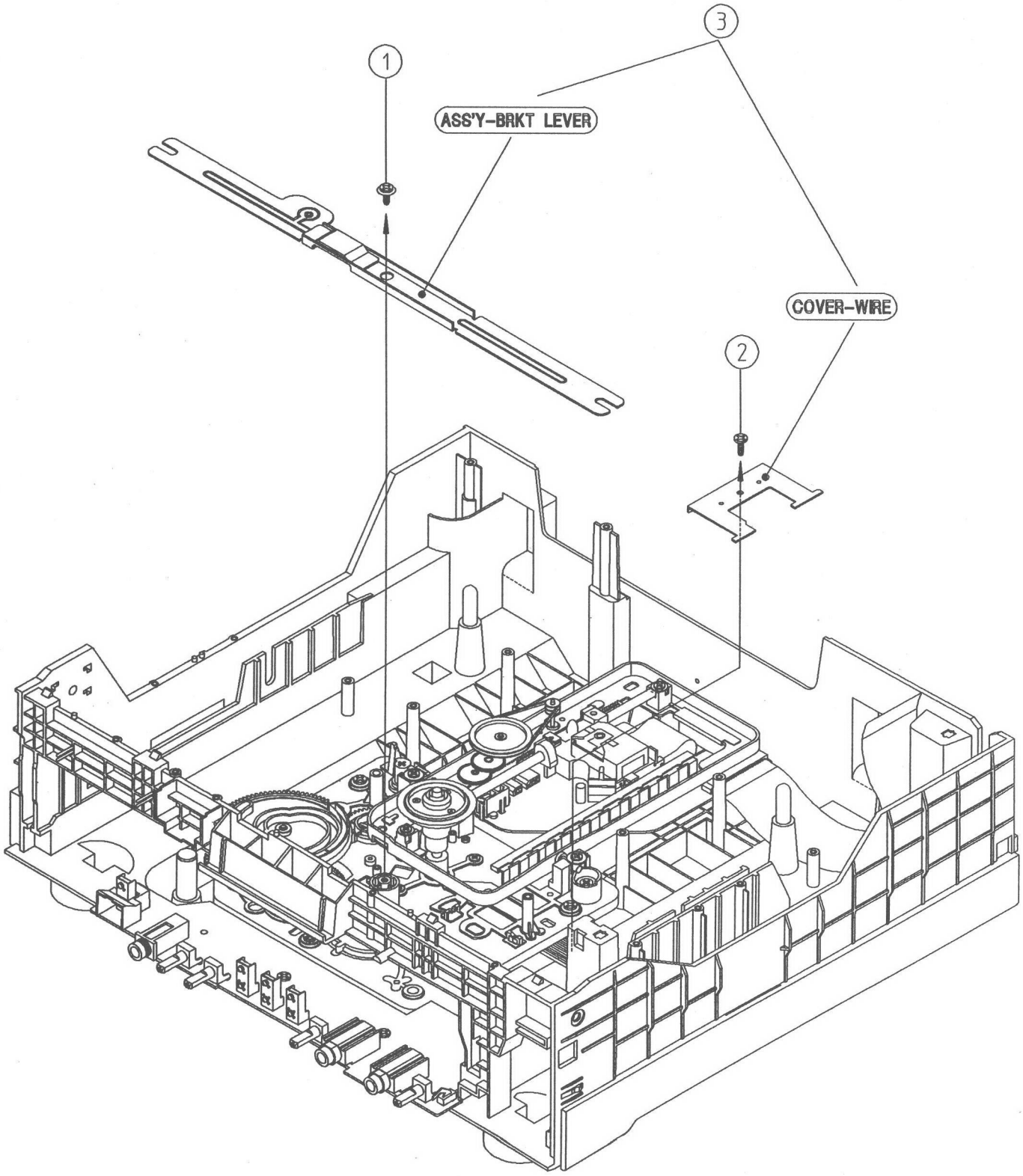


6-7. Separation of BRKT-LEVER and COVER-WIRE

① Separate 1 E.A of screw (3x10 yellow).

② Separate 1 E.A of screw (3x10 yellow).

③ Separate brkt-lever and cover-wire.

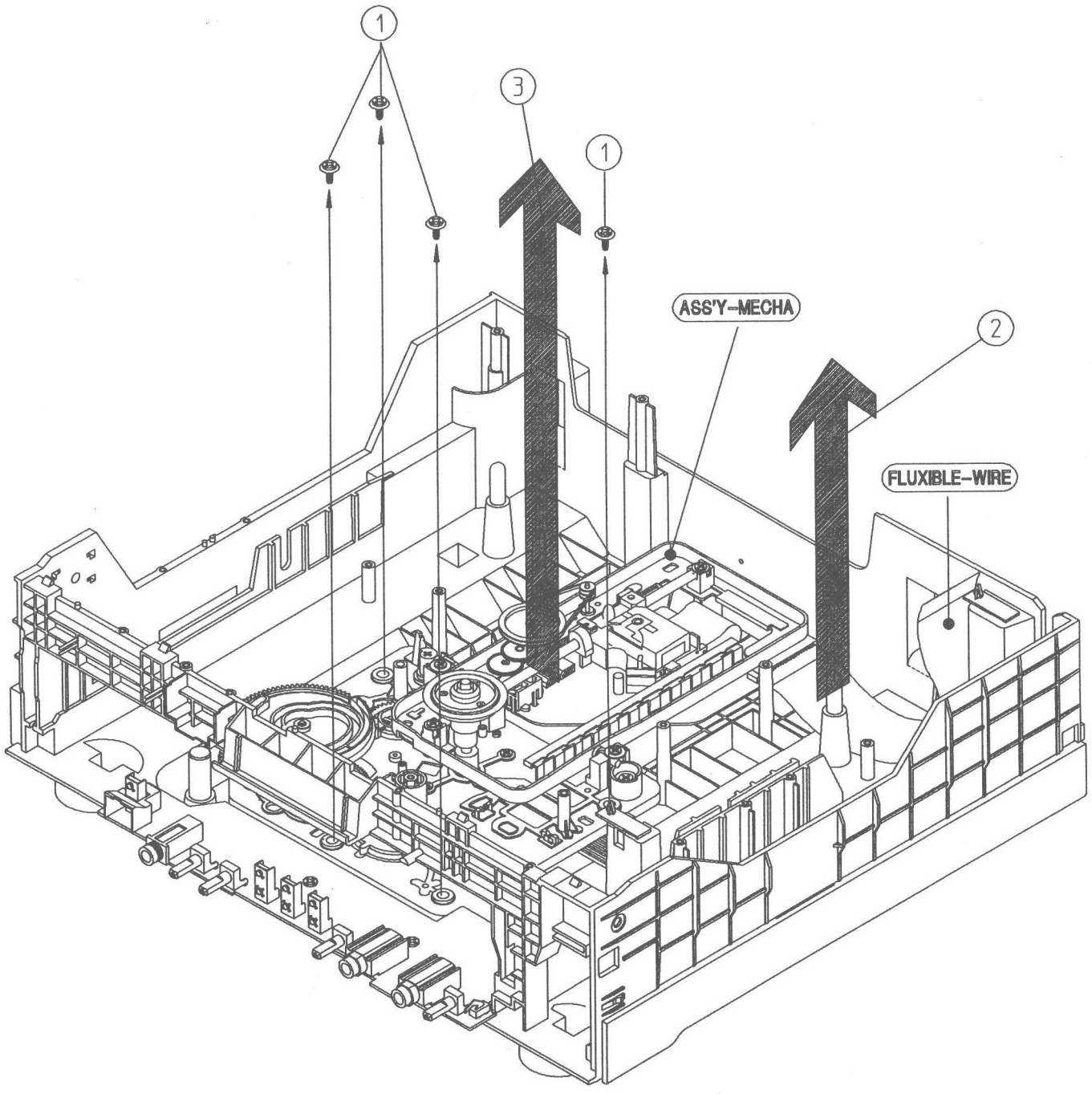


6-8. Separation of ass'y Mecha

① Separate 4 E.A of screw (STUD 4x15 FEFN).

② Pull and separate flexible wire from chassis guide rib.

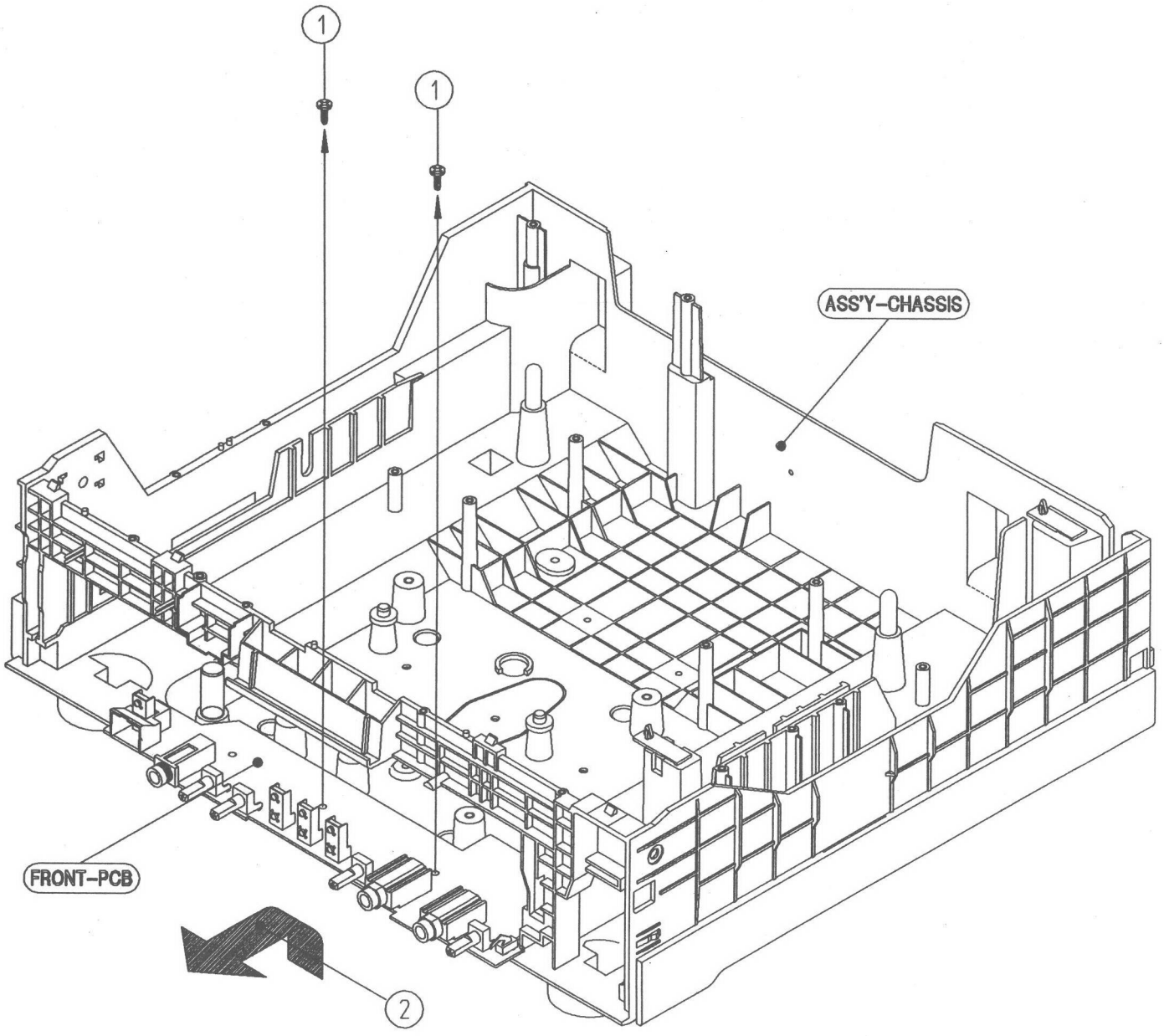
③ Raise the deck to the arrow direction (vertical) and separate it.



6-9. Separation of front PCB

① Separate 2 E.A of screw (3x10 yellow).

② Raise right side of PCB, and pull it to the arrow direction(right) and separate it.



6-10. Separation of front PCB

① Connect power cord.

② Turn power S/W on.

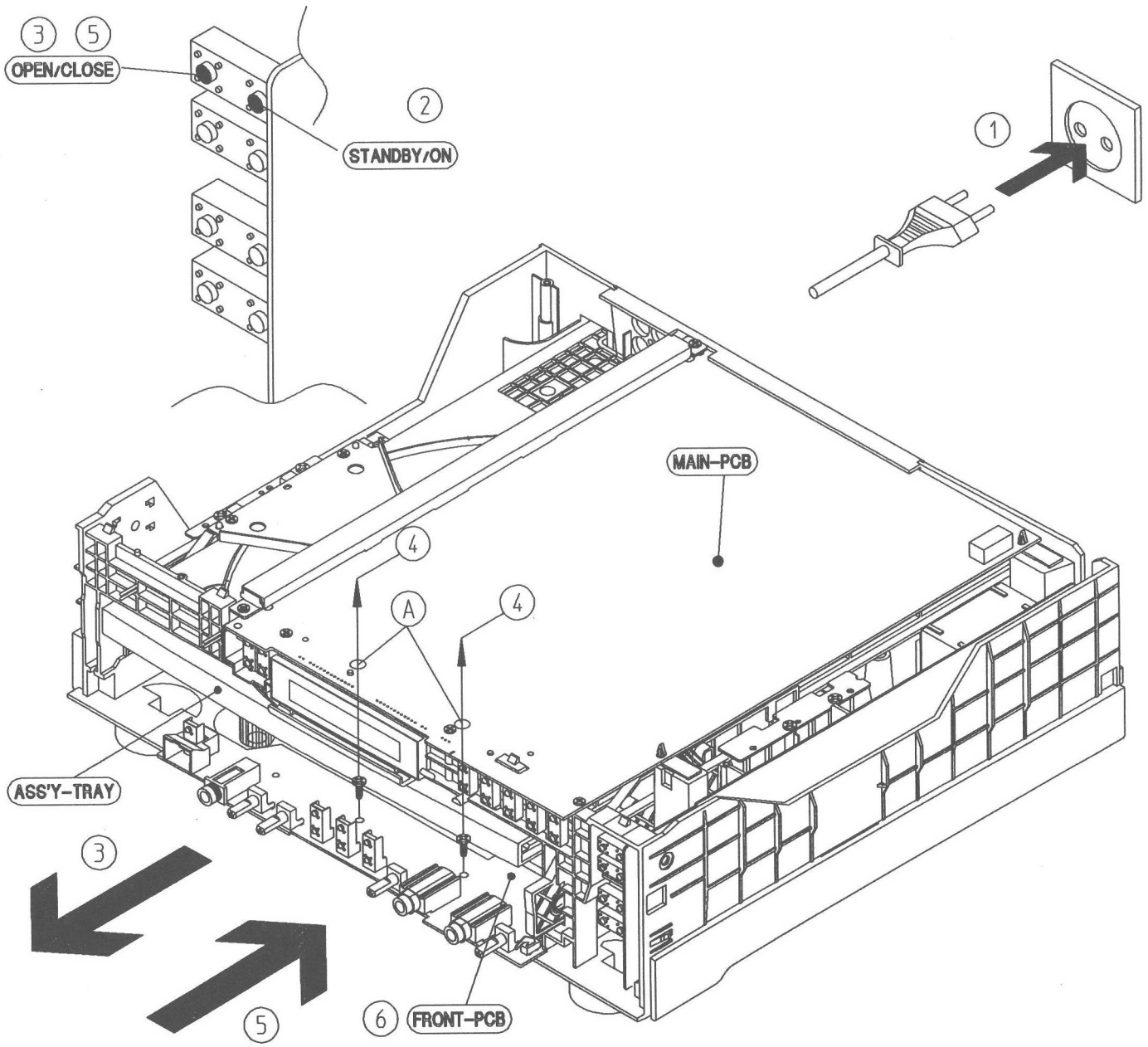
③ Open tray by pressing open/close key.

④ Separate 2 E.A of WW (3x10 yellow) through hole A.

⑤ Close tray by pressing open/close key.

⑥ Slightly raise the right side of PCB, and separate it by pulling it forward.

Caution! : Do not abruptly pull or force it as the wire is connected!

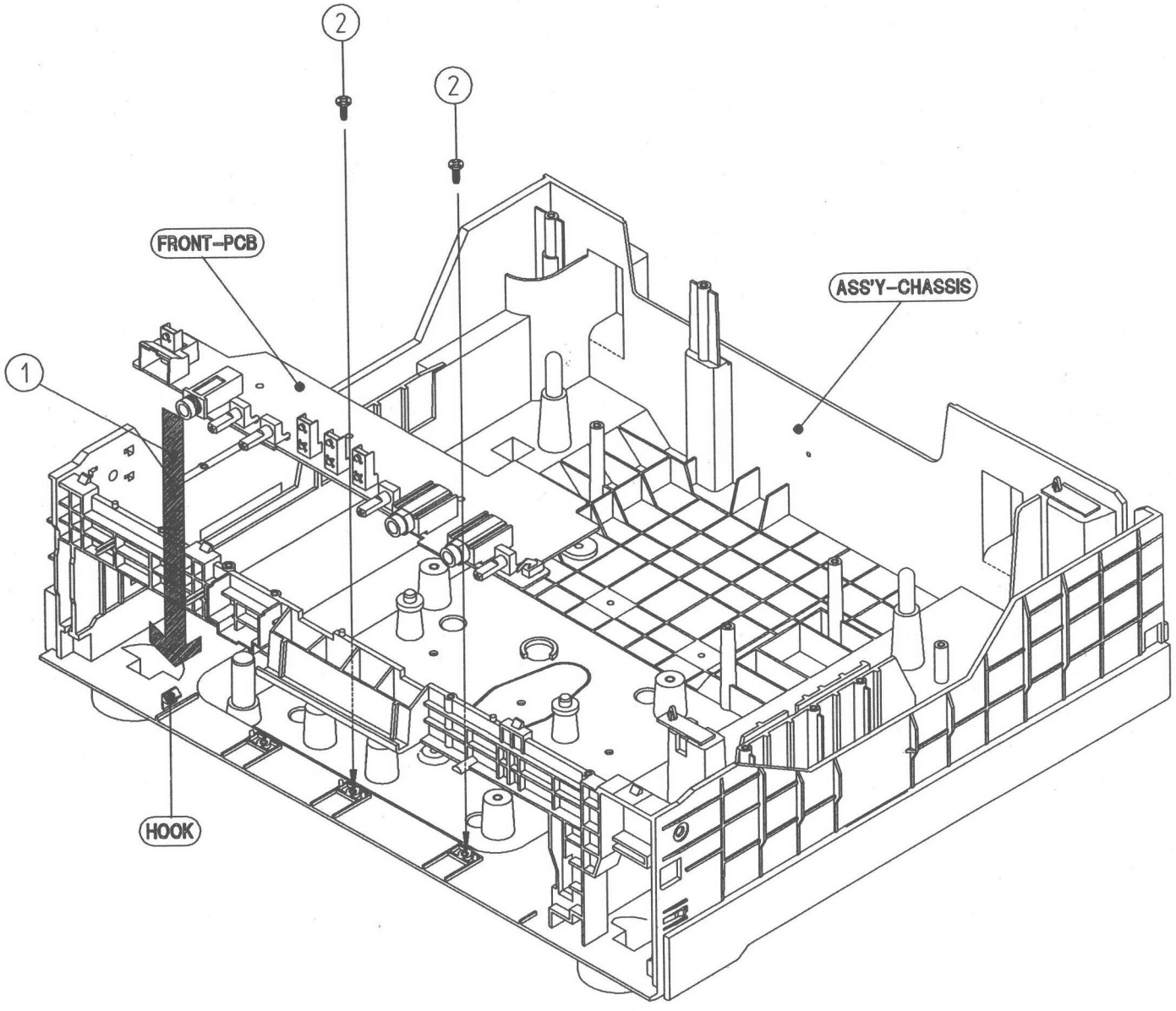


7. Assemble instructron

7-1. Assembling FRONT PCB

① Insert the left side of FRONT-PCB into the hook of CHASSIS and then put the guide hole into the pin of the chassis.

② Fix FRONT PCB with the screw (3x10 Yellow) 2EA.

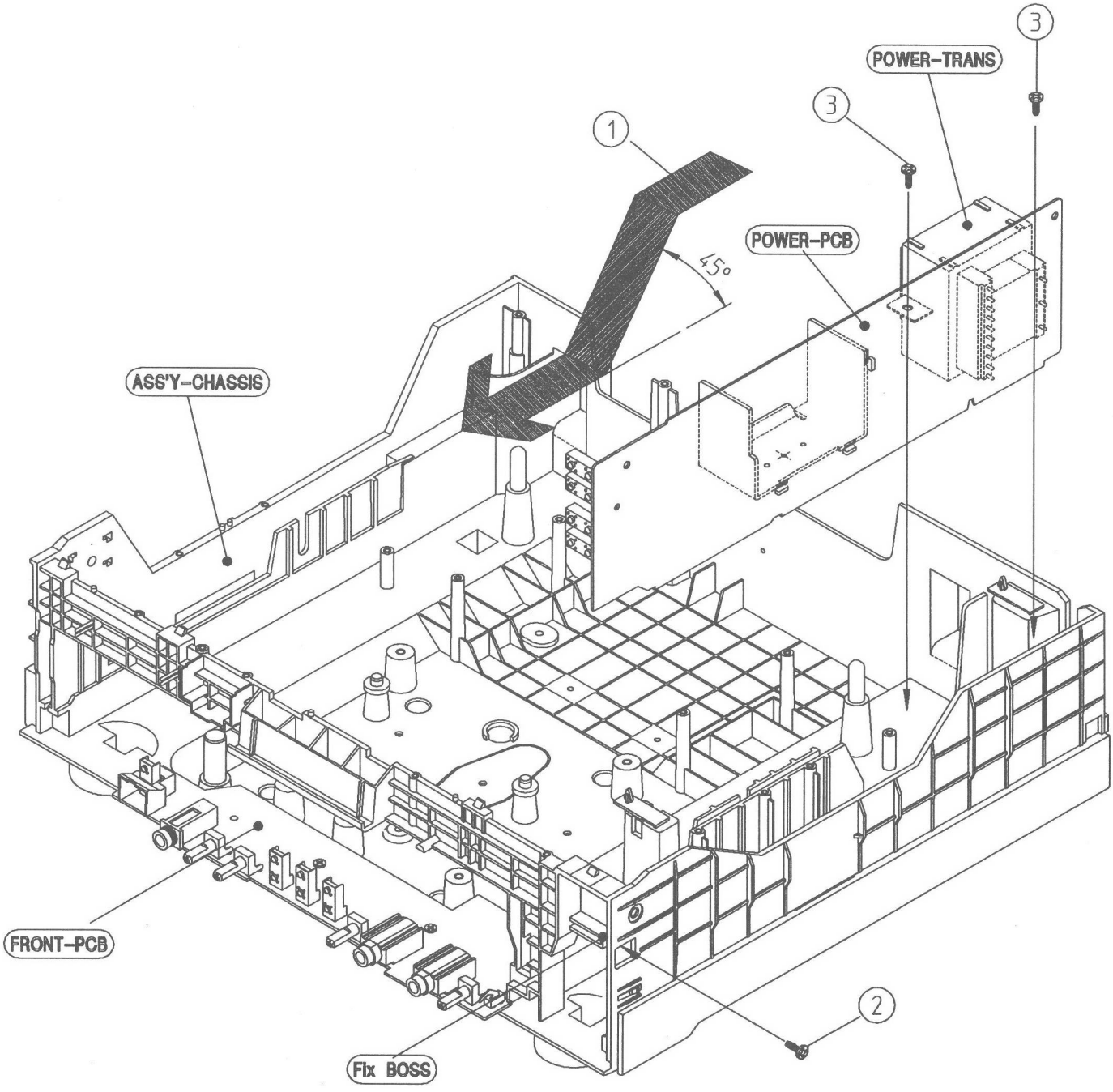


7-2. Assembling POWER PCB

① Make the front side of POWER PCB face down at 45° to keep it from touching the fixing boss of the chassis and then push POWER PCB to the frond side to set the screw assembling hole of the POWER TRANS in the boss

② Fix POWER PCB with the screw (3x10 Yellow) 1EA.

③ Fix POWER TRANS with the screw (4x12 Black) 2EA.



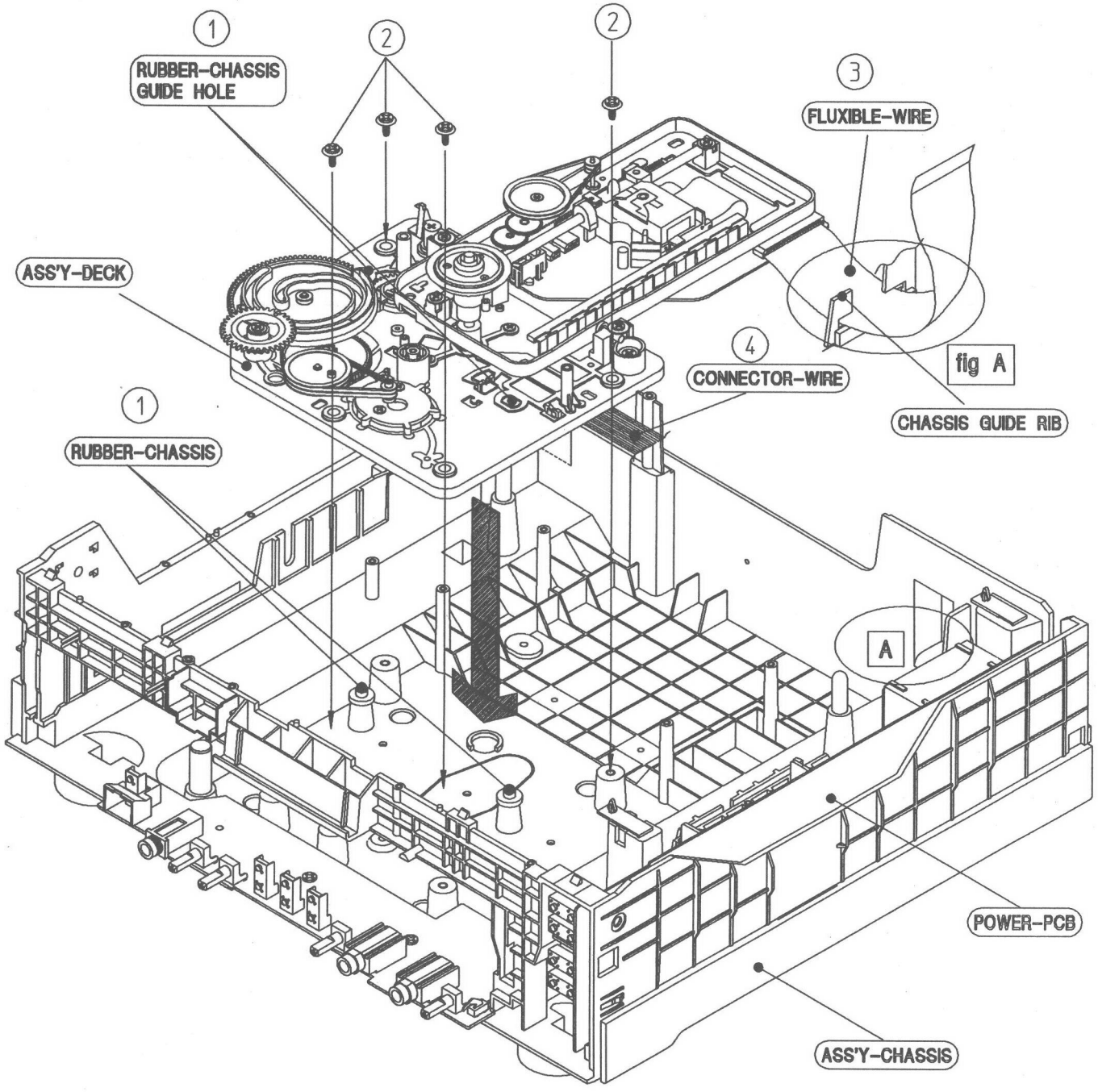
7-3. Assembling ASS'Y MECHA

① Lower DECK to the direction of arrow (below) and insert the deck RUBBER-CHASSIS GUIDE HOLE (2 parts) into RUBBER CHASSIS assembled into MAIN CHASSIS. (Fig. A)

② Fix the ASS'Y-DECK with the screw (Stud 4x5 FEFN) 4EA.

③ Pull the FLUXIBLE WIRE and insert it into the CHASSIS GUIDE RIB.

④ Connect the CONNECTOR WIRE to the POWER-PCB.

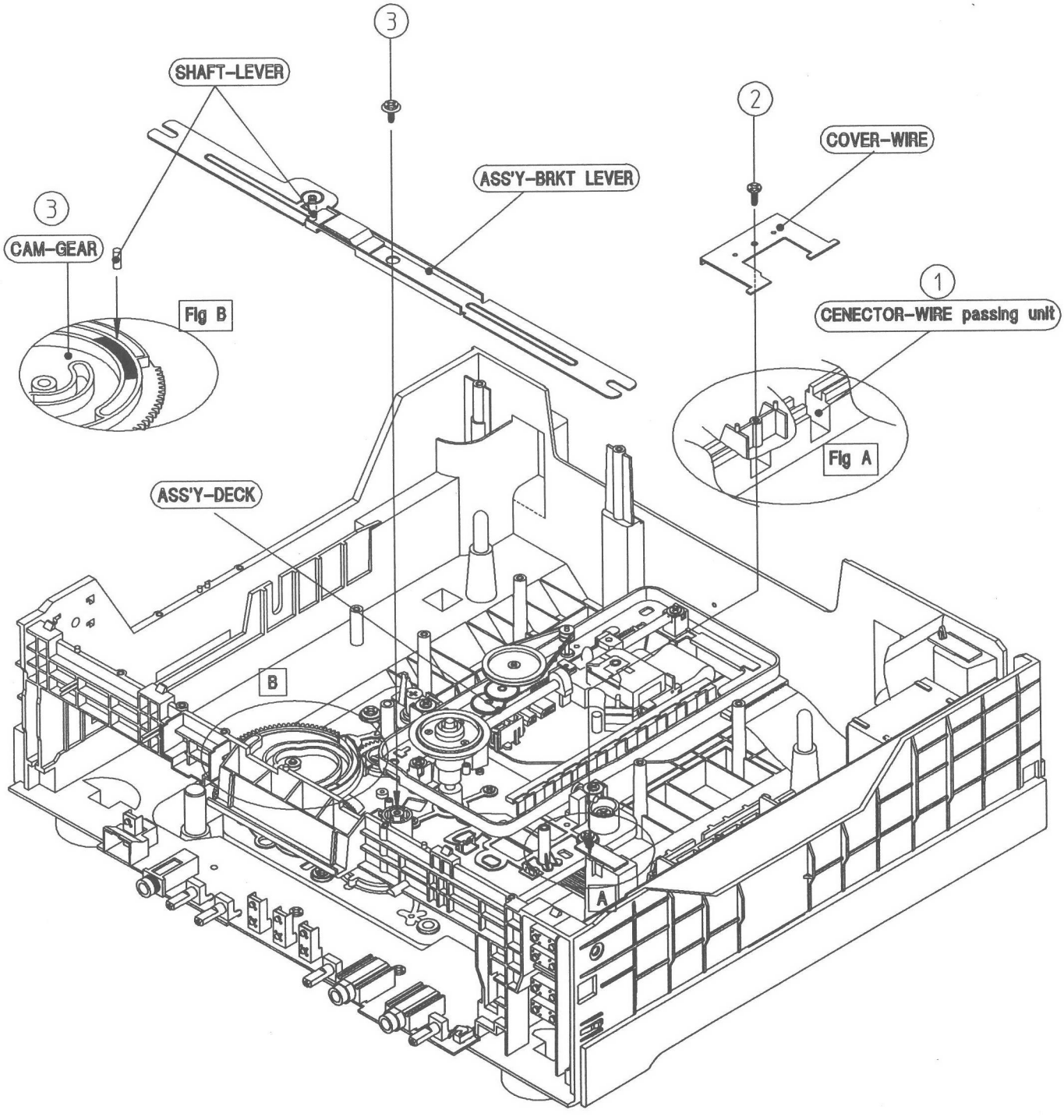


7-4. Assembling ASS'Y BRKT LEVER and COVER WIRE

① Place the FRONT-PCB and the DECK CONNECTOR-WIRE of the deck in the assembling unit of COVER WIRE. (Fig. A)

② Insert the COVER WIRE and then assemble the screw (3x10 Yellow) 1EA.

③ When assembling ASS'Y BRKT LEVER, insert the left side SHAFT-LEVER into the guide (hatching unit) of the CAM-GEAR as shown in the figure and then assemble the screw (BH SPEC 3x10 Yellow) 1EA. (Fig. B)



7-5. Assembling ASS'Y CLAMPER

① Push backward the left GUIDE-CAM of ASS'Y CLAMP while adjusting its right GUIDE-CAM so that it may come out foward.

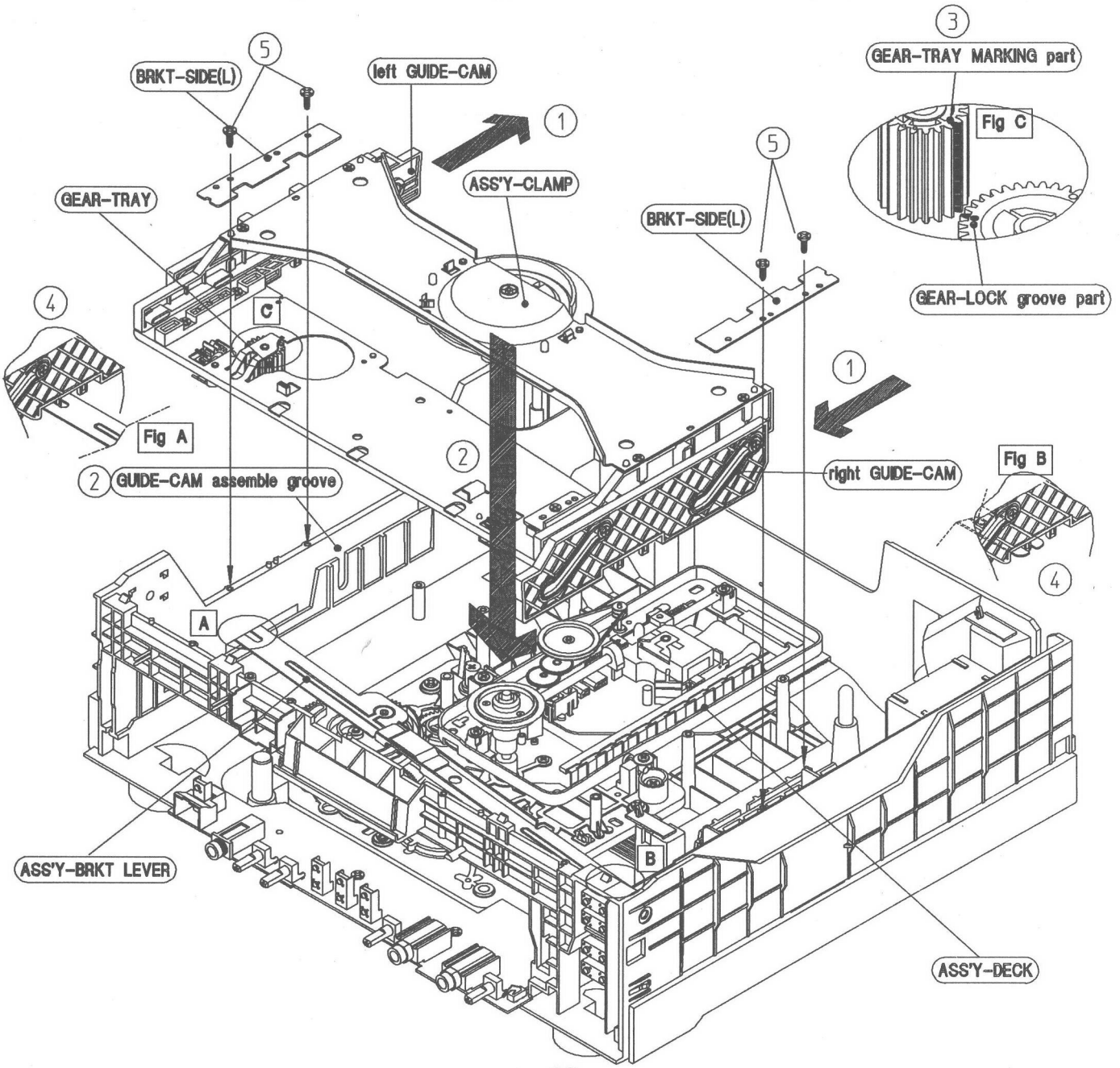
② Lower ASS'Y CLAMP to the direction below (of arrow) and then insert it in the CHASSIS GUIDE-CAM groove.

③ Insert fourth groove in the ASS'Y DECK in the grooved (00) tooth form of the GEAR-TRAY of the ASS'Y CLAMP and the groove (o) unit into the hatching unit as shown in the figure and then lower the ASS'Y CLAMP. (Fig. C).

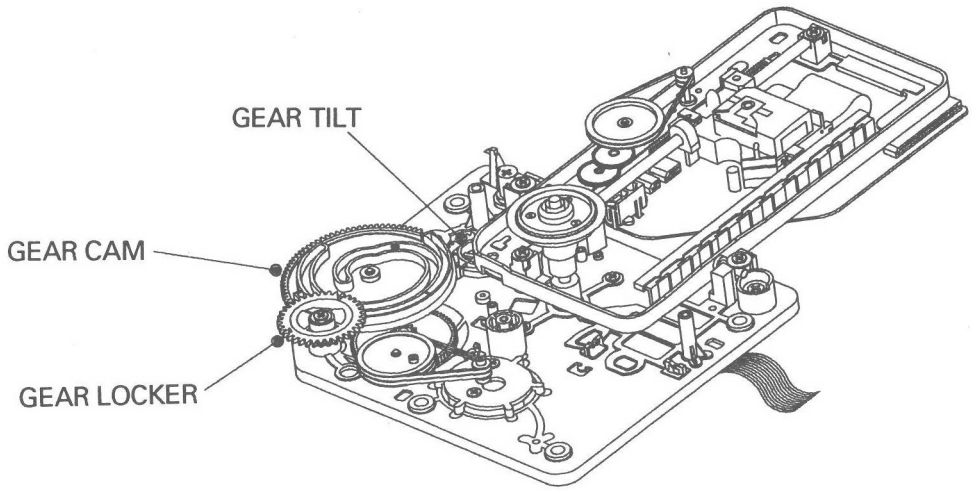
④ Insert the front facing one of the two guide pins of the GUIDE-CAM into the groove of the BRKT LEVER for assembly. (Fig. A, B)

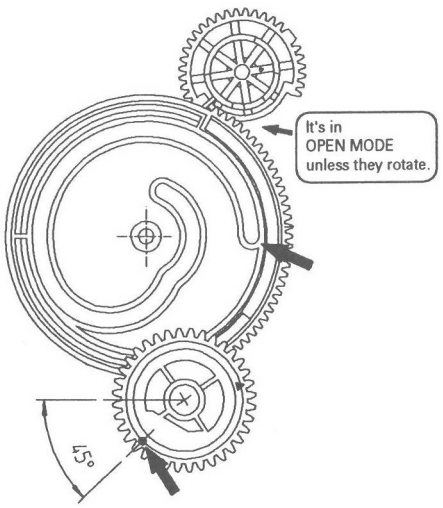
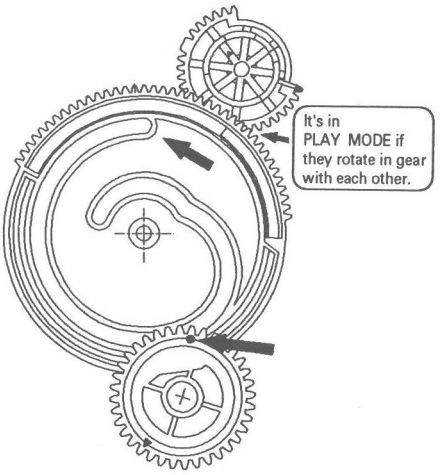
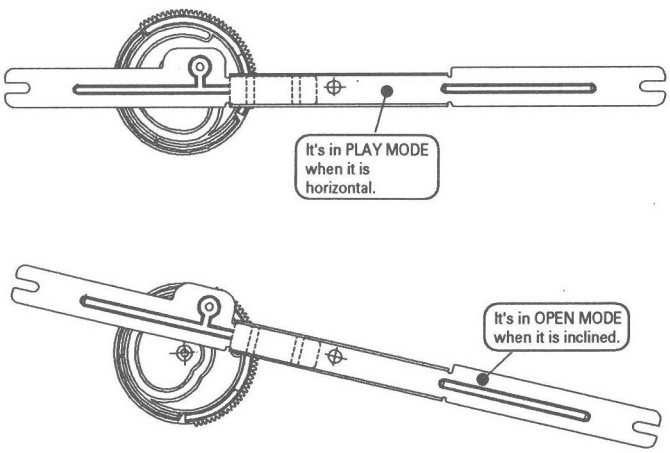
⑤ Fix BRKT SIDE (L) 2EA with the screw (3x10 Yellow) 4EA.

* NOTE: When assembling GUIDE CAM and BRKT LEVER, unless they fit the grooves, it will not work..
* NOTE: When assembling BRKT SIDE (L), the parts of GUIDE CAM should be placed lower than the upper side of the groove of the CHASSIS GUIDE.
* NOTE: When assembling ASS'Y CLAMP, the guide cam of DECK should be kept open.



How To Discern between OPEN and PLAY MODES



No.	Item	Open Mode	Play Mode
1	GEAR CAM, GEAR LOCKER, and TILT GEAR under the condition of MECHA		
2	GEAR CAM and BRKT LEVER under the condition of assembly		

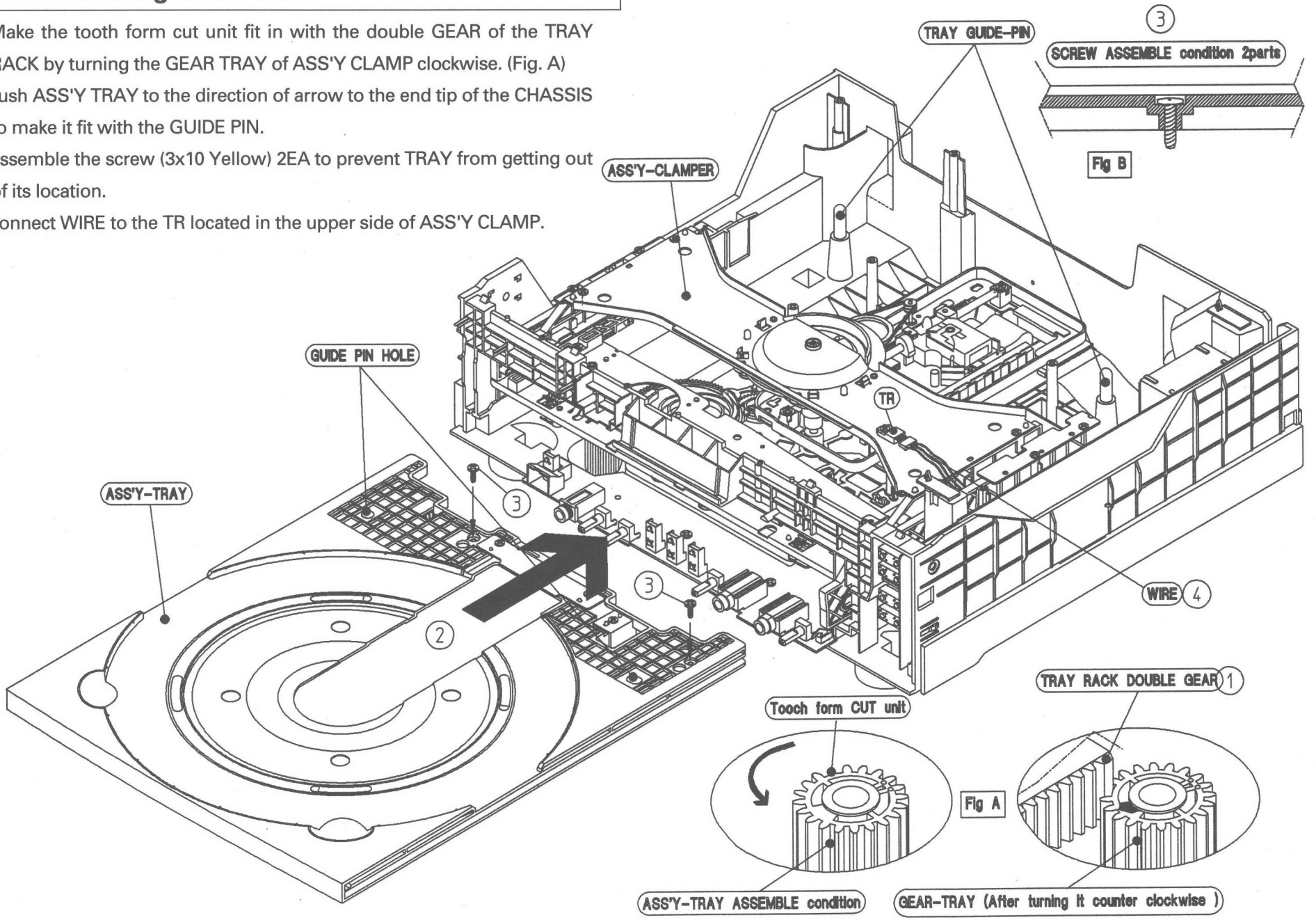
7-6. Assembling ASS'Y TRAY

① Make the tooth form cut unit fit in with the double GEAR of the TRAY RACK by turning the GEAR TRAY of ASS'Y CLAMP clockwise. (Fig. A)

② Push ASS'Y TRAY to the direction of arrow to the end tip of the CHASSIS to make it fit with the GUIDE PIN.

③ Assemble the screw (3x10 Yellow) 2EA to prevent TRAY from getting out of its location.

④ Connect WIRE to the TR located in the upper side of ASS'Y CLAMP.



7-7. Assembling MAIN PCB

① Insert the cover rear into MAIN PCB.

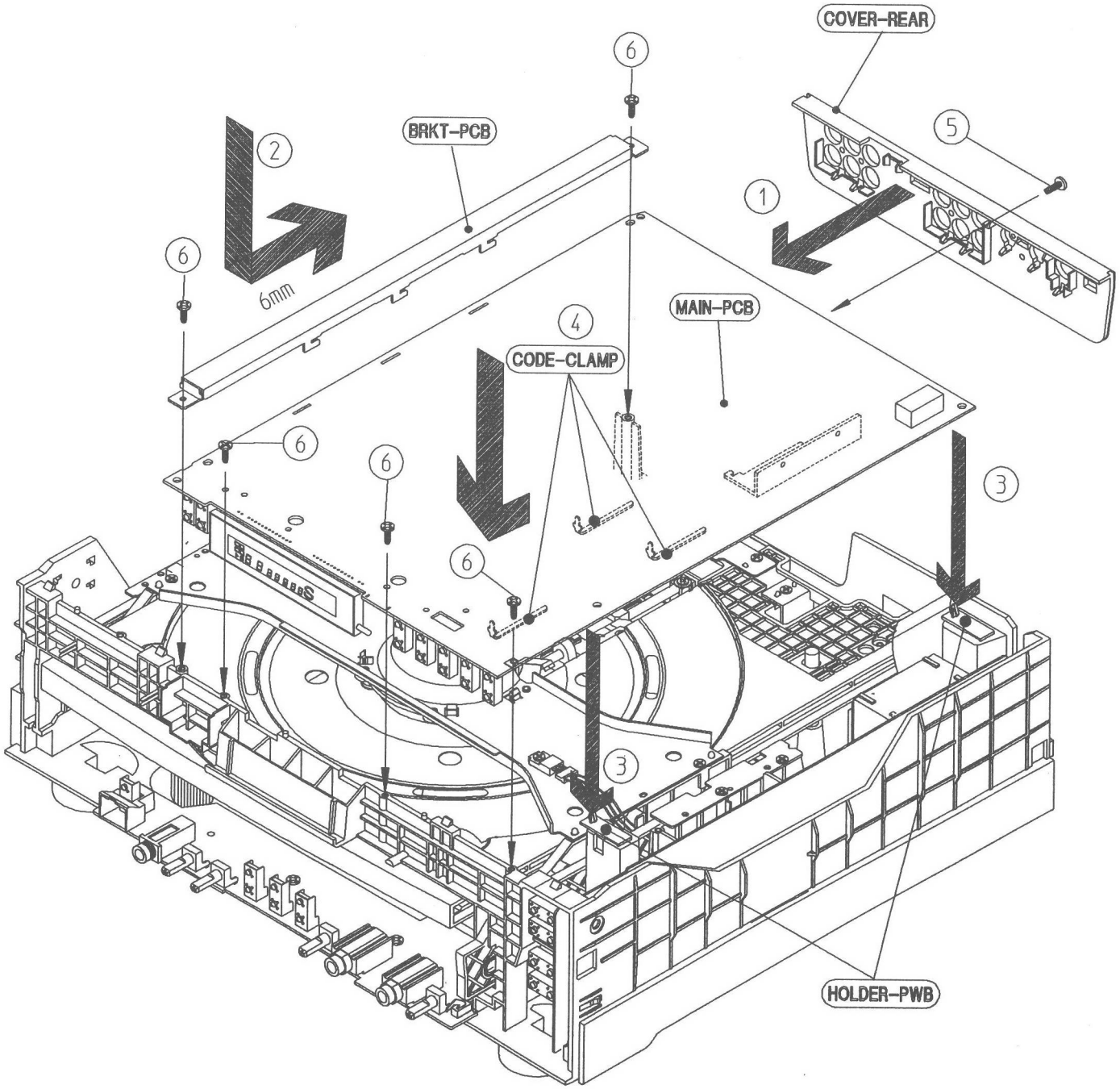
② Insert BRKT PCB to the direction of arrow into MAIN PCB.

③ Lower MAIN PCB to the direction below (of arrow) and the insert it into HOLDER PWB.

④ Turn MAIN PCB and Fix the wire of POWER PCB and FRONT PCB to CODE CLAMP (3EA).

⑤ Fix COVER REAR to MAIN PCB using the screw (3x10 BLACK) 1EA.

⑥ Fix MAIN PCB and BRKT PCB to ASS'Y CHASSIS using the screw (3x10 BLACK) 5EA.



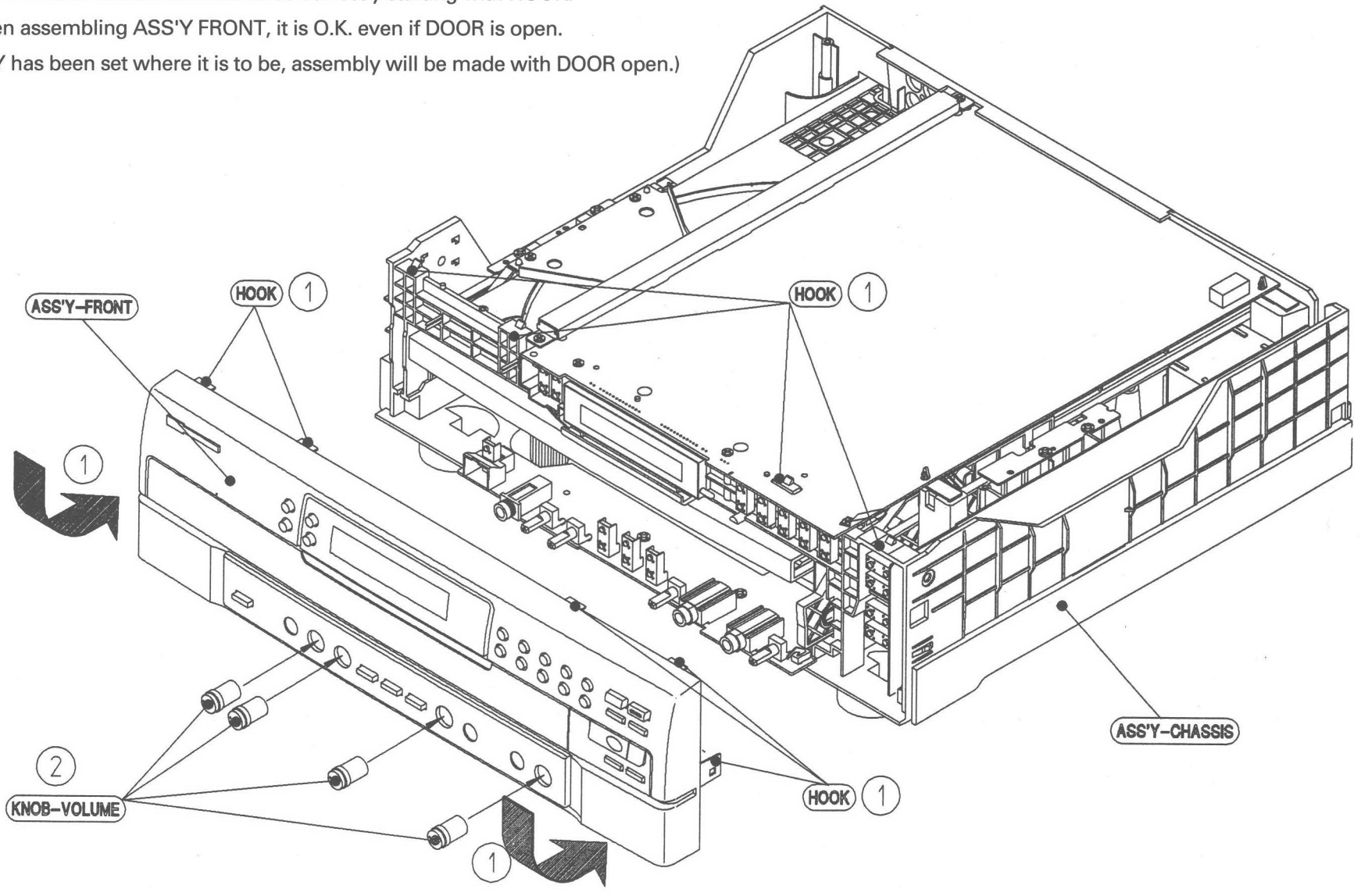
7-8. Assembling ASS'Y FRONT

① Fit HOOK 4EA in the upper side of ASS'Y FRONT into the hook of CHASSIS and then turn it to the direction of arrow to assemble it.

② Insert KNOB VOLUME 4EA.

* NOTE: ASS'Y FRONT should be assembled correctly starting with HOOK.

* NOTE: When assembling ASS'Y FRONT, it is O.K. even if DOOR is open.
(Unless TRAY has been set where it is to be, assembly will be made with DOOR open.)

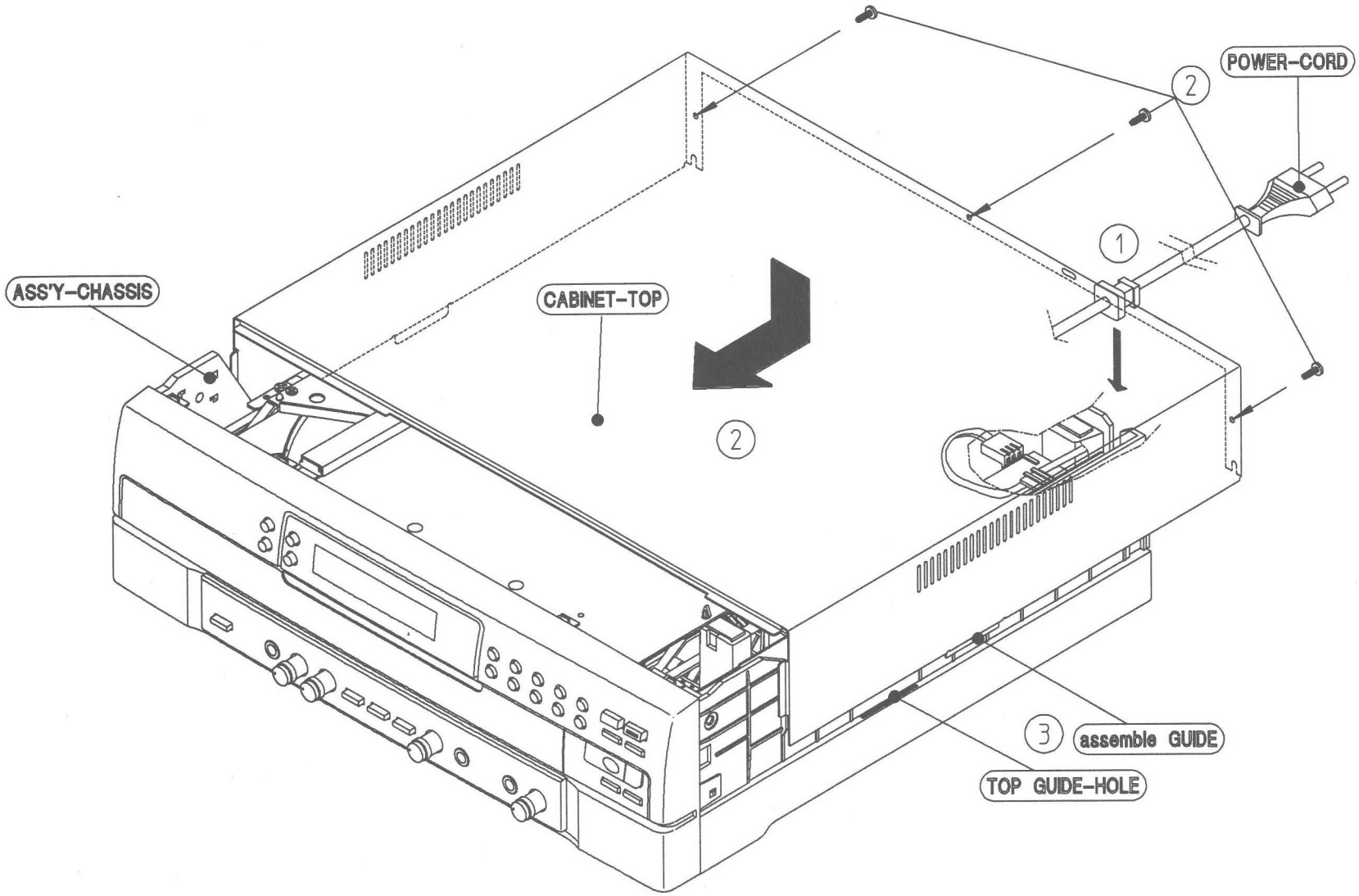


7-9. Assembling CABINET TOP

① Connect POWER CORD to POWER PCB and then insert it into the guide rib of CHASSIS.

② Insert CABINET TOP to the direction of arrow and then assemble the screw (3x10 BLACK) 3EA.

③ When assembling CABINET TOP, check to see if the GUIDE unit has been inserted.



8. Procedures of Disassembling and Assembling MECHA

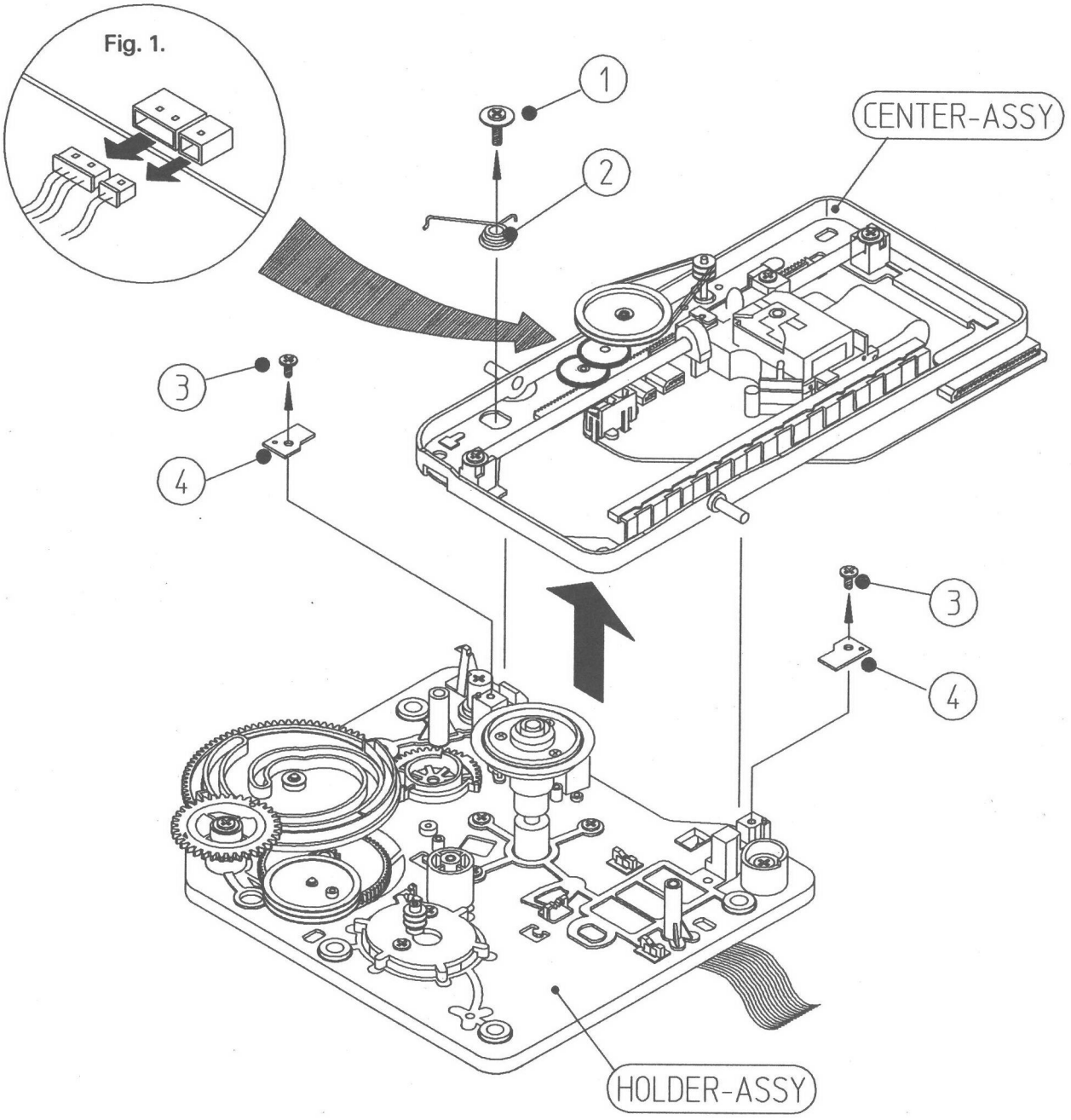
8-1. Assembling CENTER-ASSY

(1) Take apart one ① SCREW (SPEC 3*10 YEL) and seperate one ② SPRING.

(2) Take apart the two left and right side SCREWS of ③ (BH 3*10 YEL) and then seperate BRKT BOSS of ④.

(3) Seperate the CONNECTOR WIRE to which CENTER ASS'Y and HOLDER ASS'Y are connected as shown in Fig. 1.

Fig. 1.



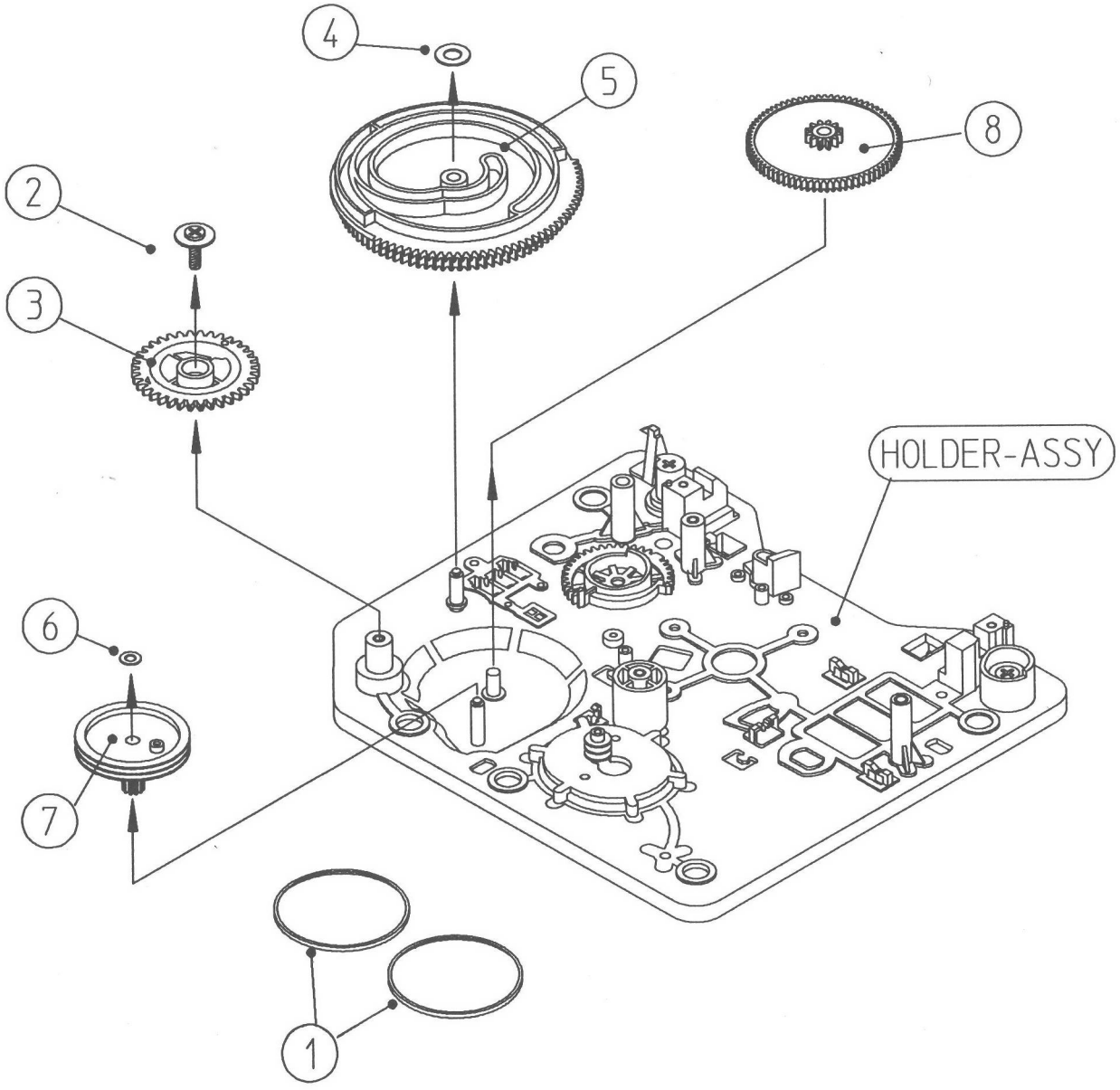
8-2. Disassemebling GEAR in the HOLDER UNIT

(1) Seperate BELT of ①.

(When BELT has been seperated for custody, care should be taken to keep it from being smeared with grease.)

(2) Take apart one ② SCREW (SPEC 3*10 YEL) and then sperate GEAR LOCKER of ③.

(3) Take apart the parts in the order of ④, ⑤, ⑥, ⑦ and ⑧.



8-3. Assembling GEAR CAM

No.	Code No.	DESCRIPTION	SPECIPI CATION	Q'TY	Remarks
1	15213-505-610	GEAR-A	POM (M90-02)	1	
2	11472-0030-00	GEAR-CAM	POM (M90-02)	1	
3	10534-0007-00	WASHER-SLIT	D08 DI2.1 T0.5	1	
4	11474-0025-00	GEAR-PULLEY (TRAY)	POM (M90-02)	1	
5	10534-0007-00	WASHER-SLIT	D08 DI2.1 T0.5	1	
6	11494-0006-00	BELT-TRAY	CR68	2	

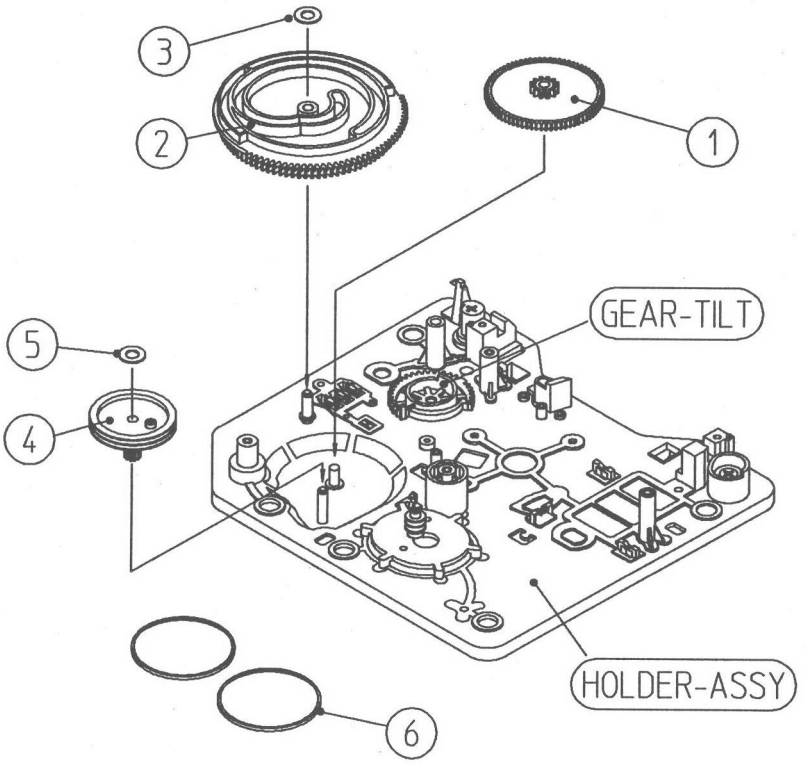
(1) Fig. 1 GEAR-A into the pin.

(2) Fit GEAR CAM into the GEAR TILT of HOLDER-ASSY in the order as shown in the Fig. 1 and then fix ③.

*** There is no location of assembly for ① and ②. After completion of assembly, if ① starts working when ② rotates, it's in normal condition.

(3) Assemble ④ and ⑤ and Connect ⑥ BELT.

(When the belt has been seperated for custody; care should be taken to prevent it from getting stained with grease.)



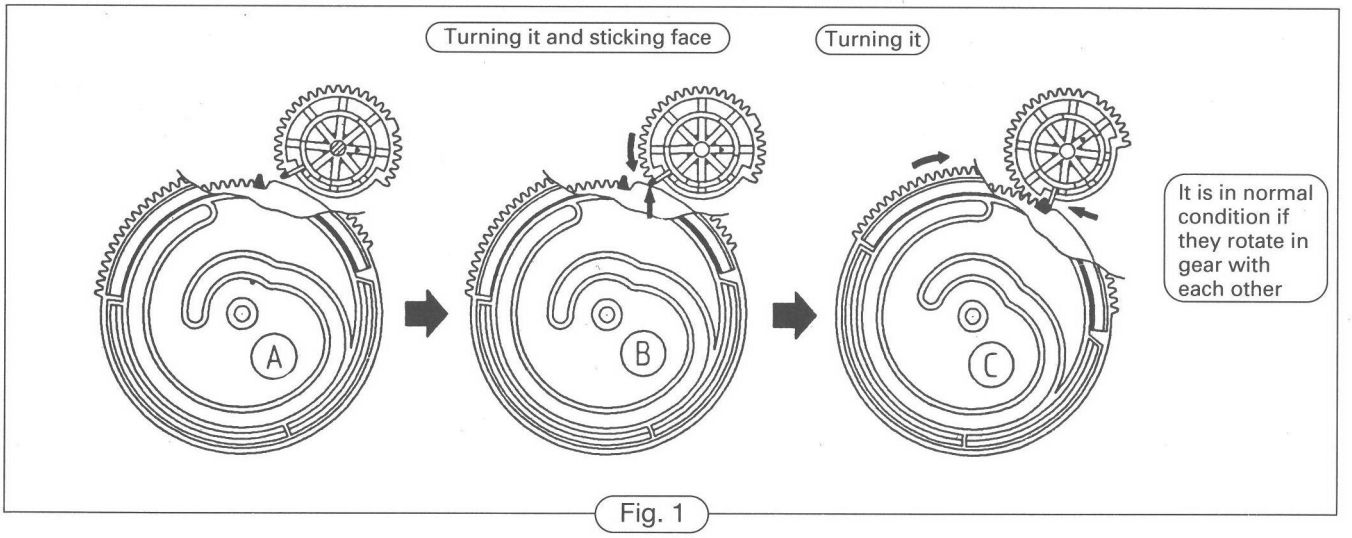
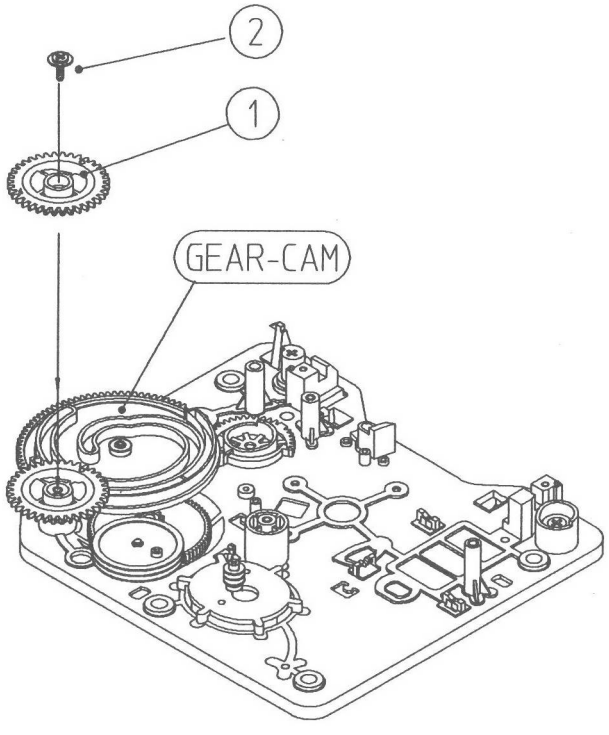


Fig. 1

8-4. Assembling GEAR LOCKER

No.	Code No.	DESCRIPTION	SPECIPI CATION	Q'TY	Remarks
	11473-0026-00	GEAR-LOCKER	POM (M90-02)	1	
	17558-230-101	SCREW TAP SPEC	3*10 FE FZY	1	



(1) Assemble GEAR LOCKER of ① in such a way that the "B" unit of ① may contact "A" RIB unit of GEAR CAM.(Fig. 1)

(2) Fasten one SCREW of ②.

(3) When the screw of ② has been fastened, try to turn ① to the left and then to the right. If it does not turn, it is in normal condition.

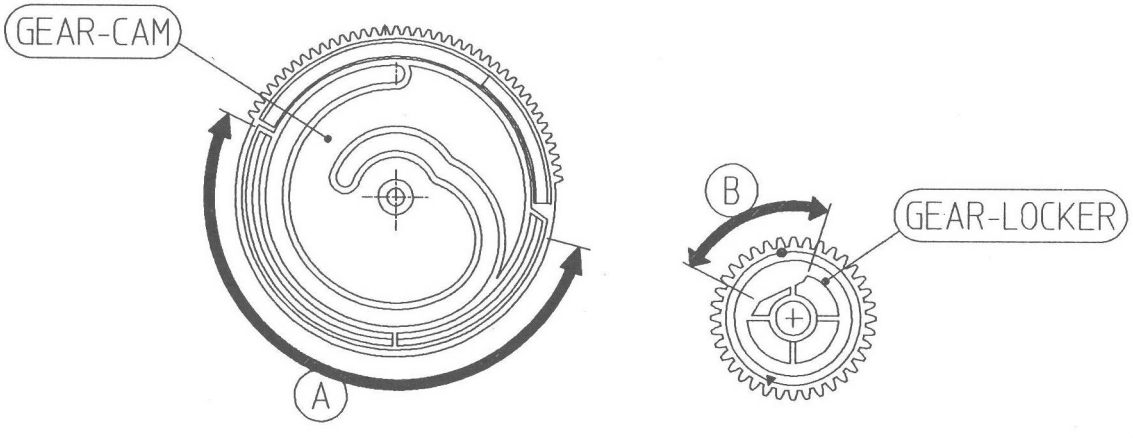
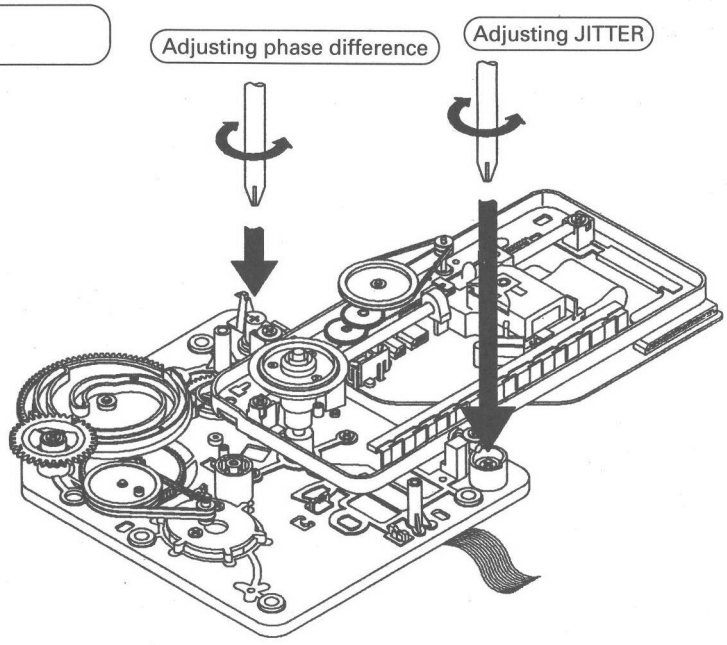


Fig. 1

8-5. Adjusting MECHA

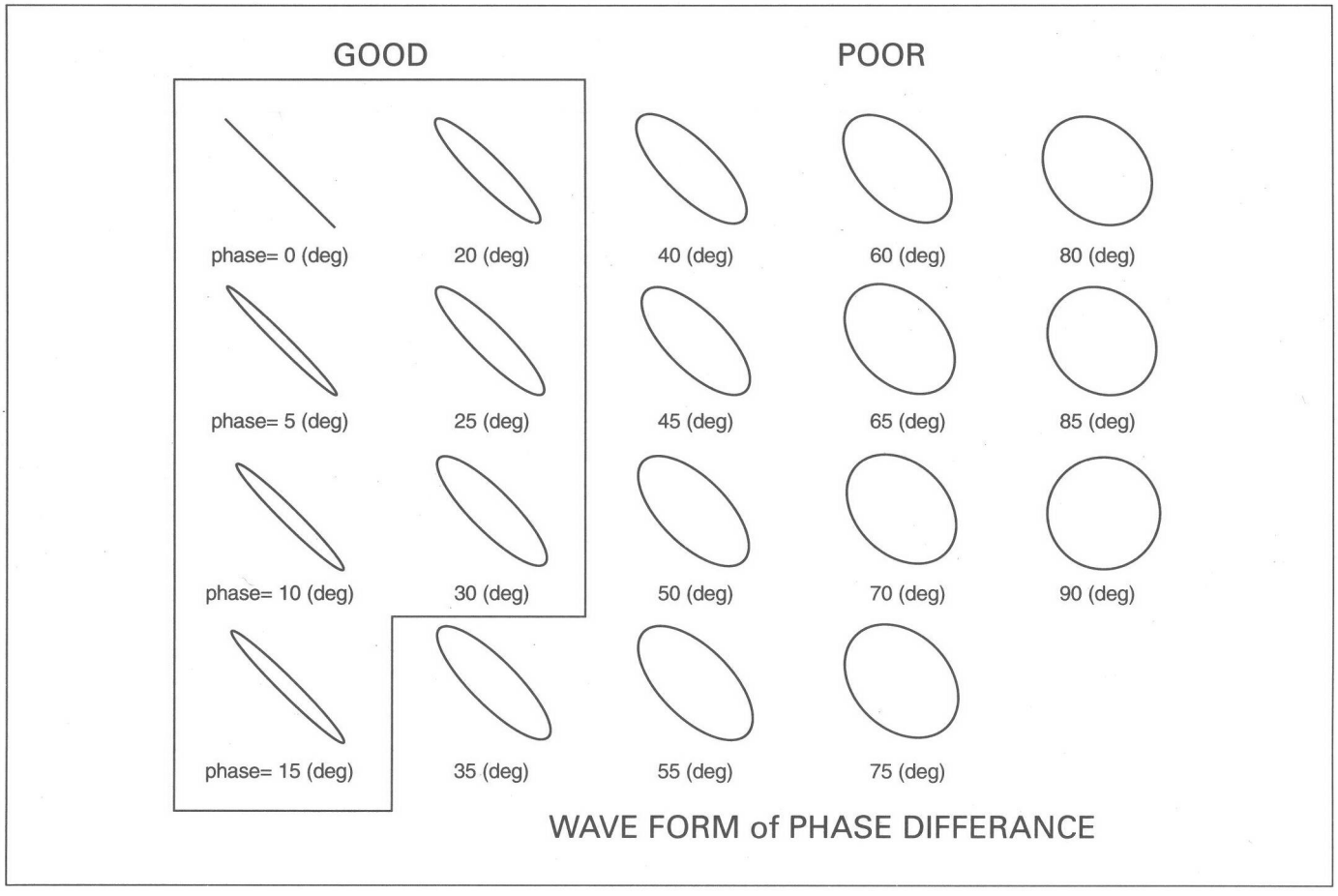


8-5-1. Adjusting Phase Difference

(1) Turn the power on under the condition of assembly and after inserting YEDS-43 DISC, get No.3 music to PLAY.

(2) Turn off the TRACKING SERVO of SLIDE and then make the wave form of on the SCOPE.

(3) Turn the BOSS of the shape-grooved BOSS of MECHA to adjust it at not more than 35 degrees of the wave form below (the lowest value).



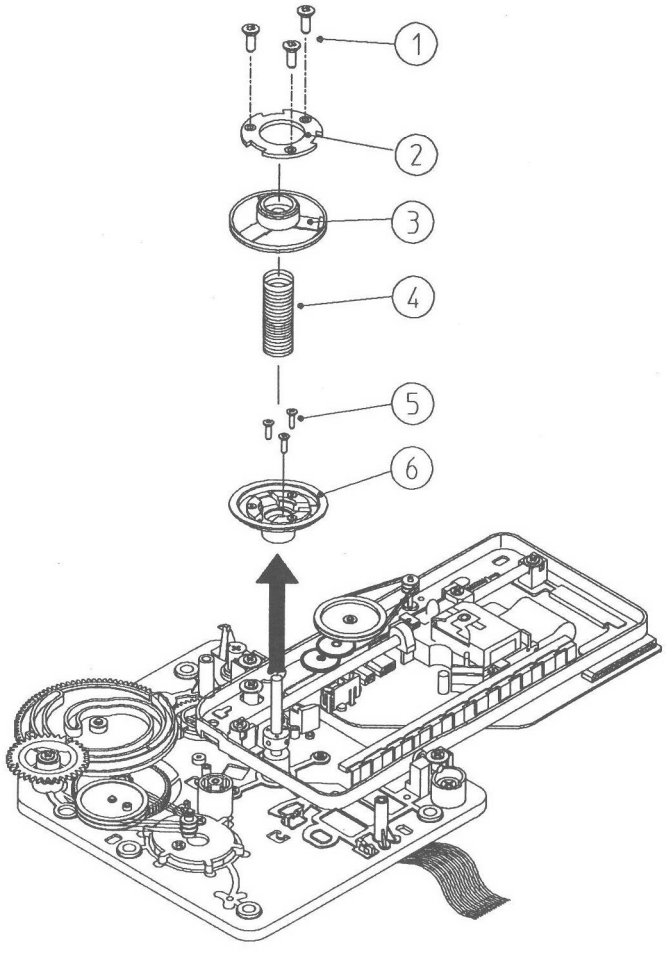
8-5-2. Adjusting JITTER

(1) Turn the power on under the condition of assembly and then insert YEDS-43 DISC and get No.3 music to PLAY.

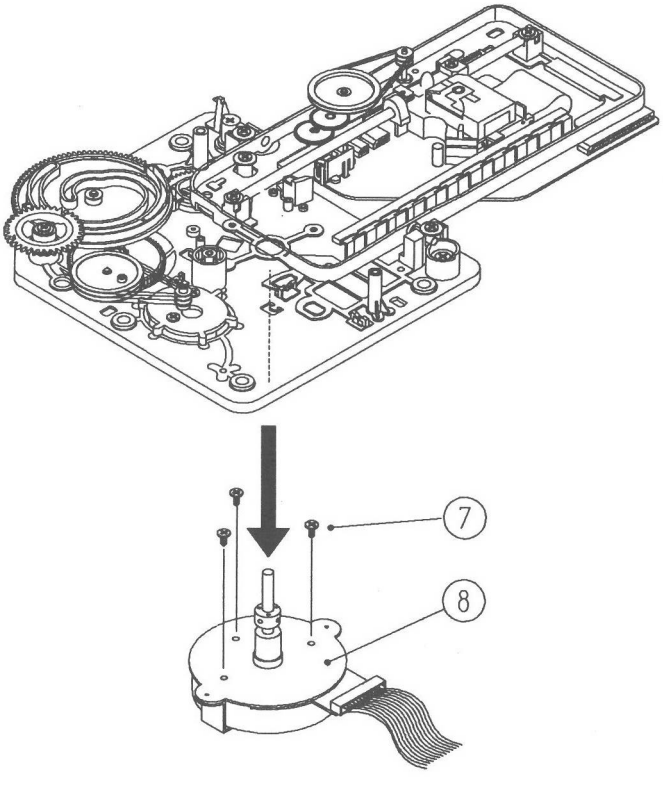
(2) Connect the terminal which prints RF wave forms on the osciloscope to JITTER METER.

(3) Adjust the value of JITTER to be not more than 28nSEC on the jitter meter by turning the shape-grooved BOSS of MECHA. But in such case, adjust it to be of lowest value (the highst value of JITTER).

8-6. How to Replace TURN TABLE and MOTOR SPINDLE



(1) Take apart three screws of ① (FH M2*5 YEL)
(2) Sperate the parts of ②, ③ and ④ in the their order.
(3) Take apart three screws of ⑤ (FH M2*8 BLK)
(4) Seperate forcibly the parts of ⑥ (TURN TABLE) from MOTOR SHAFT.

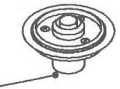


(5) Take apart three screws of ⑦ (FH M2*5 YEL).
(6) Disassemble MOTOR SPINDLE from MECHA.

Assembly should be made in the reverse order.
But in such case, reuse of TURN TABLE and MOTOR SPINDLE is absolutely prohibited.
So replace them with the A/S materials of their kinds.

Code for Materials for A/S

ASS'Y TURN TABLE (A/S) 19119-0162-00

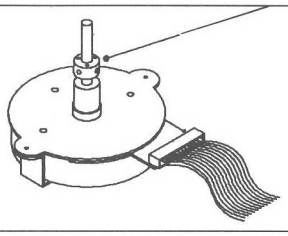


The material is without BUSH.

* When assembling ASS'Y T/T to be replaced, disassemble it and then fit it onto MOTOR.
* In case of the three screws for fastening T/T (⑤) use disassembled parts.

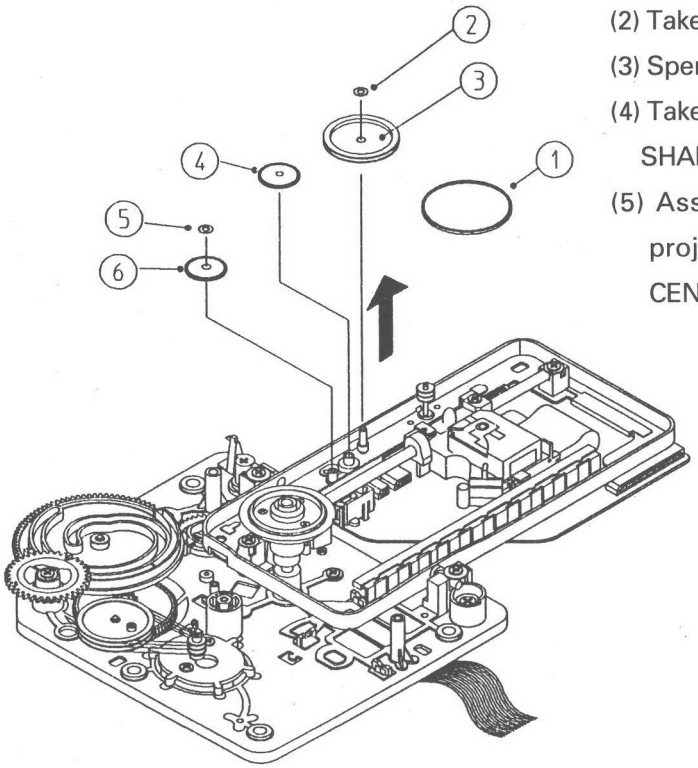
ASS'Y MOTOR SPINDLE (A/S) 19119-0163-00

This material has an assembled BUSH.



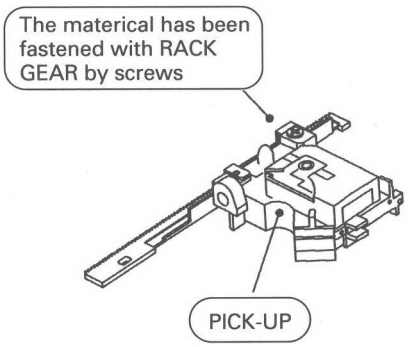
8-7. How to Replace PICK-UP

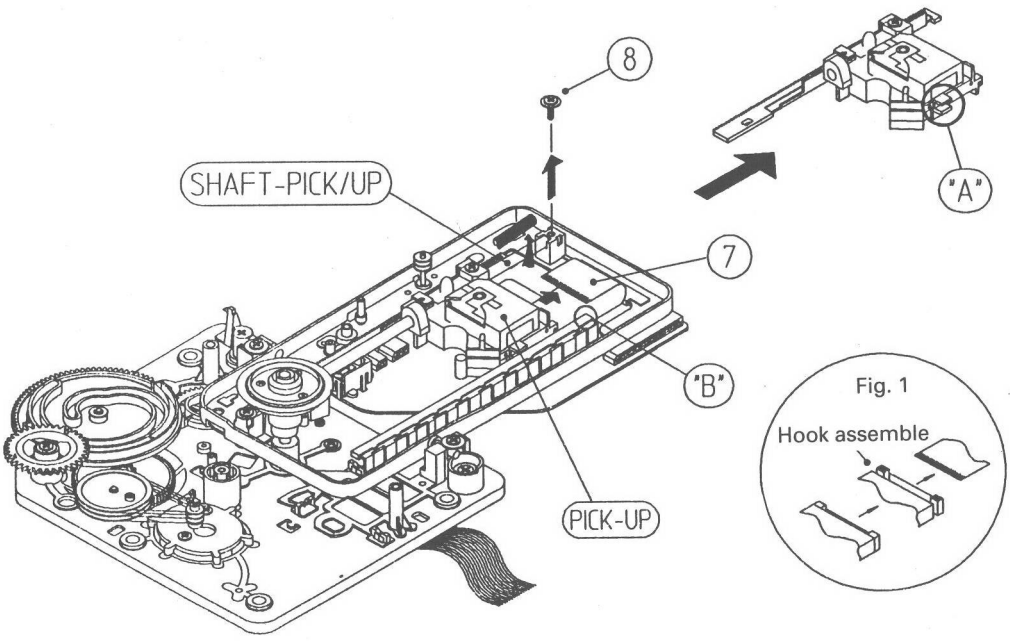
(1) Sperate the belt of ①.
(When the belt has been seperated for custody, care should be taken to prevent it from getting stained with grease.)
(2) Take apart the parts of ②, ③, ④, ⑤, and ⑥ in their order.
(3) Sperate PLATE CABLE from PICK-UP as shown "in Fig. 1".
(4) Take apart one SCREW of ⑧ (SPEC 3*10 YEL) and lift SHAFT PICK-UP to seperate PICK-UP ASS'Y.
(5) Assembly should be made in the reverse order but the projecting part of the "A" of PICK-UP should be fitted onto CENTER UNIT.



Code for materials for A/S

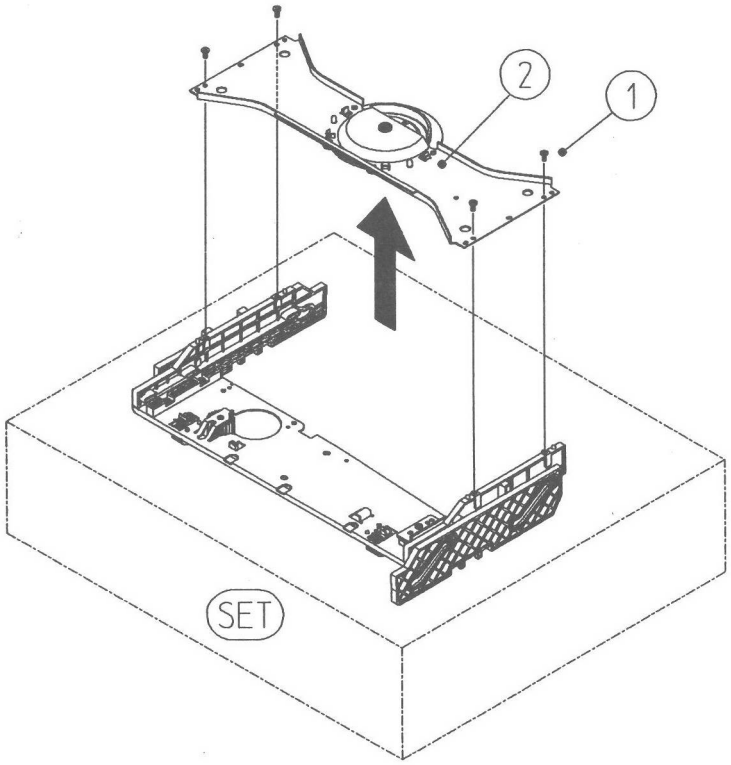
ASSY-PICK/UP (A/S) : 19119-0164-00





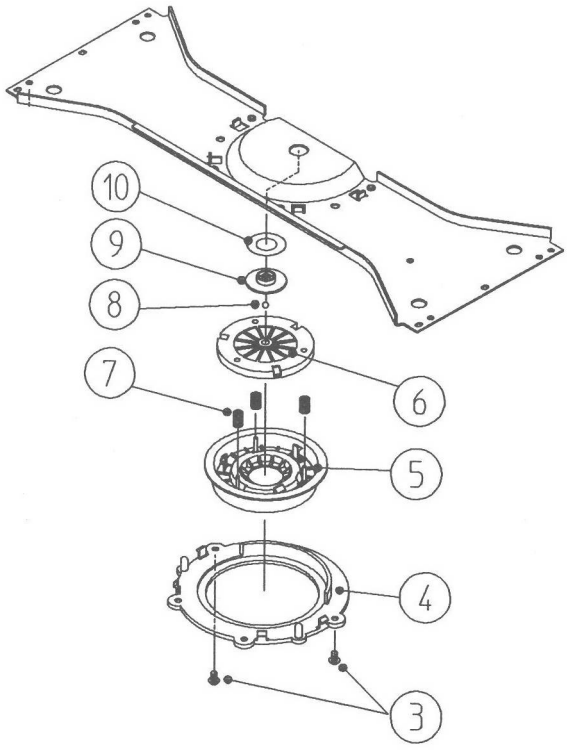
8-8. How to Replace CLAMPER UNIT

No.	Code No.	DESCRIPTION	SPECIPICATION	Q'TY	Remarks
1	17458-230-101	SCREW-TAP TIE BH	2S-3*10 FE FZY	4	
2	16623-620-210	BRACKET CLAMPER	SECC 1.2 T	1	
3	A0102-0013	SCREW-TAP TIE BH	MS-3*6 YEL	2	
4	13313-0072-00	COVER CHUCK	ABS BLK (HF-0601)	1	
5	13333-0003-00	CLAMPER-LOW	POM (TC-3010)	1	
6	13333-0000-00	CLAMPER-UPPER	POM (TC-3010)	1	
7	12724-0096-00	SPRING CLAMPER	STS-W PI 0.5*13	3	
8	15224-503-210	BALL SLIDE	KBC PI 4 SUS 304	1	
9	13383-0004-00	STOPPER BALL	POM (TP-20)	1	
10	10224-0007-00	TAPE-DOUBLE FACE	SOOKWANG NO8OO	1	



(1) Take apart TOP FRONT under the condition of setting, and then after turning MAIN PCB to the right, take apart the four screws of ① and disassemble the whole BRKT (ASS'Y) of ②.

(2) Take apart the two screws of ③ fixed onto the back side of ② BRKT.



(3) Take apart the parts to be replaced in the order of ④,⑤,⑥,⑦,⑧,⑨ and ⑩.

(4) Assembly should be made in the reverse order. But in the process of assembly, grease should be applied to the contact side of the ball of ⑧ and precations taken without fail in order to prevent the DISC contacting side of the part of ⑤ from being stained with grease.

9. Circuit description

9-1. Pick up

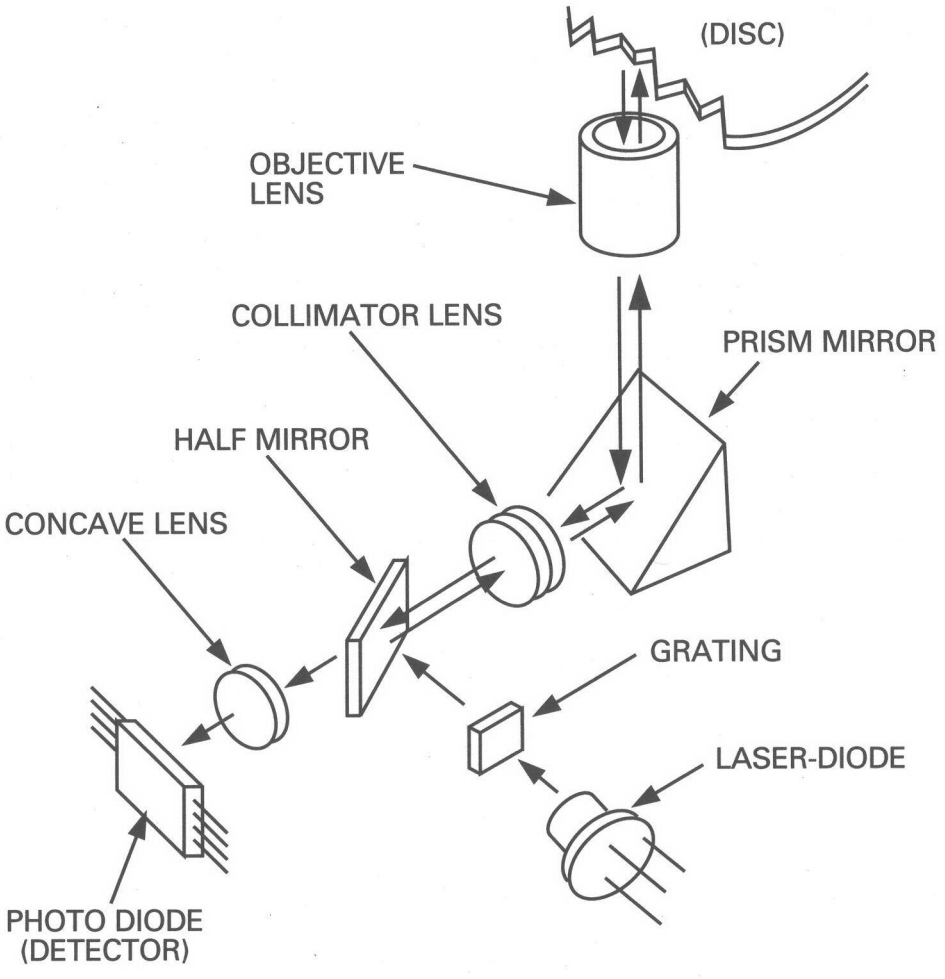


Figure 1. Optical Block

As seen in Figure 1 the linear polarized light from the laserdiode is divided into 3 beams by the grating. The two beams at both sides are for tracking detection and the center beam is used for focus error and pit signal detection. The 3 split beams reflect in a propagation direction 90° by the half mirror and are changed into collimation beam by the collimator lens and send off light to the disc in a right angle by the prism mirror. This beam enters objective lens to 2 axis actuator in a radial direction as well as up and down over a disc focuses upon certain spots on disc pits, the beam is then diffracted by disc pits.

The reflected beam from the disc passes through the objective lens and through a Half-mirror and finally hits a photo diode detector in the reverse direction of it's optical axis.

The plane concave lens moves to make the 3 beam space wider and the objective lens moves to access 2 beams for tracking detection to each photo diode. The half mirror not only functions to divide beams but creates astigmatism for focus control error signal detection.

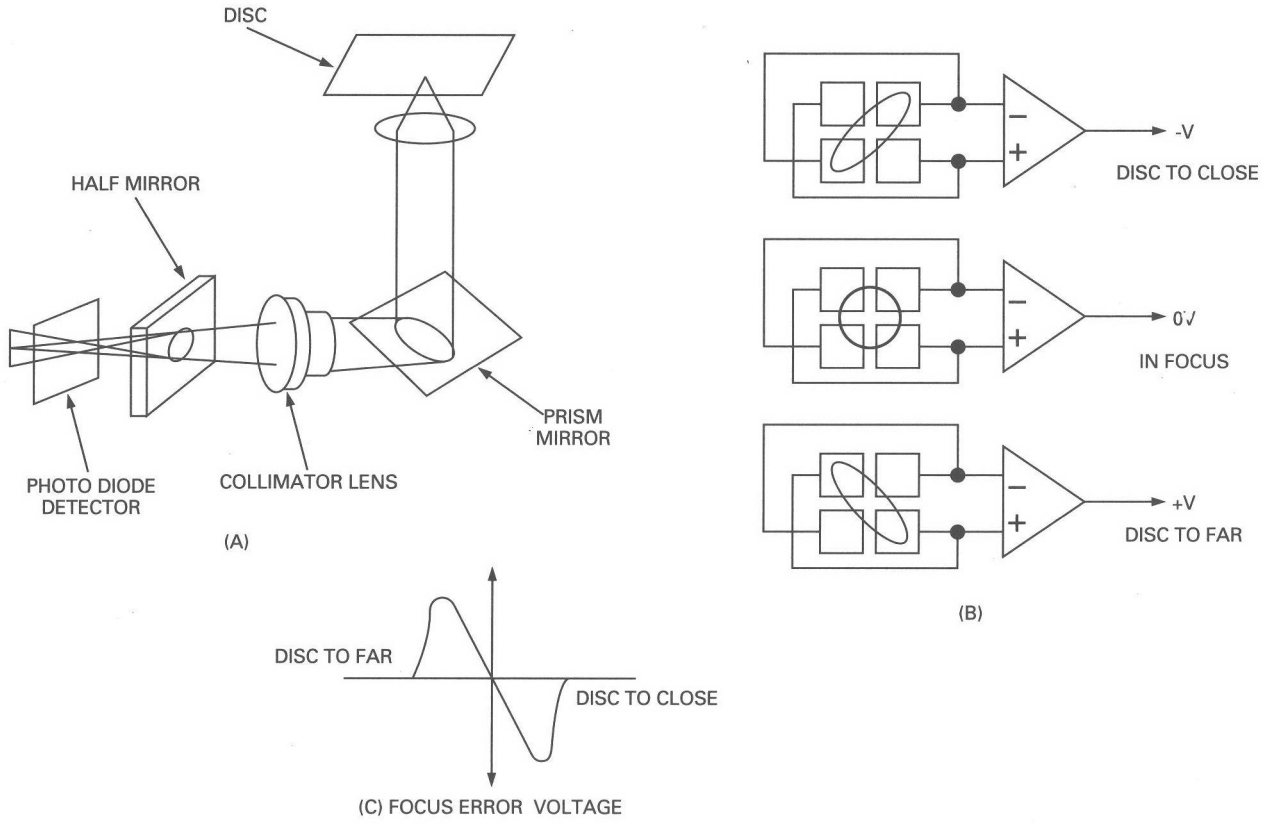


Figure 2. FOCUS Control Signal Detection

Figure 2 shows how the focus control error signals are basically detected. The beam passed through the Half-mirror hits the photo diode. When a disc moves away from the focal point of objective lens, an oval beam like (b) is projected on the photo diode and a focus error voltage like (C) will be detected. Normally, ±1 st order diffraction beam divided at the grating is focused so that a slight spot deviated from the same track can be focused upon the objective lens as shown in the Figure 3 and reflecting beams are detected from both sides (A, C) of photo diode for signal detection respectively thus it's detected by the amount of track and spot deviation by the difference of A & C.

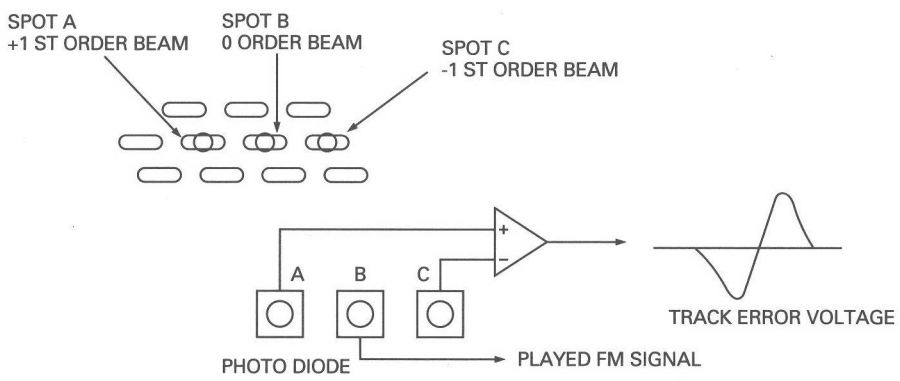


Figure 3. TRACK Control Signal Detection

Figure 4. shows a circuit which detect RF signal, focus error, tracking error and 4D sum signal from beams emitted to photo diode. Focus error signal {(A+C)–(B+D)} is extracted by OP Amps for low frequency of A~D. Objective lens driving servo is activated to make this signal ø. The 4D SUM signal is used to turn 'ON' the Focus servo loop.

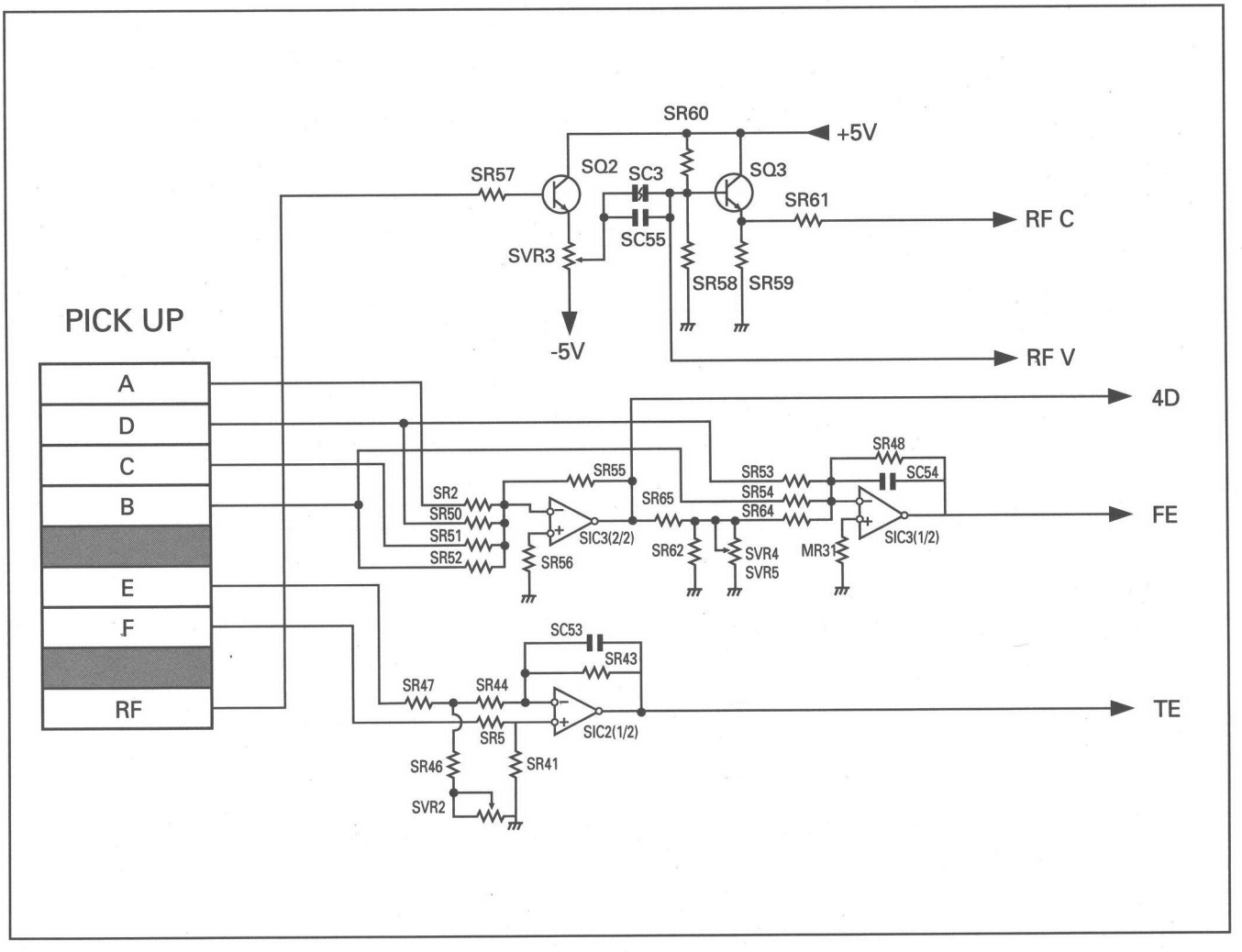


Figure 4. PICK UP Circuit

9-2. FOCUS, TRACKING, SLIDER, TILT SERVO CIRCUIT

9-2-1. Outline

(1) OCUS, TRACKING, SERVO CIRCUIT: It drives the objective lens to accurately follow surface vibration and eccentricity of the disc using the error signal generated by the photo diode.

(2) SLIDER SERVO CIRCUIT: It makes the pick-up assembly track the disc as it moves toward the inside or the outside of the disc.

(3) TILT SERVO CIRCUIT: It detects and corrects disc tilt loading a disc.

These circuits along with the Phase Compensation Amplifier, current source, Logic Circuit operating the analog section and the A/D conversion circuit which operates the logic are all included in the servo IC (SIC6 KA9421) on the servo board.

9-2-2. Description of function (WIC 1)

9-2-2-1. FOCUS SYSTEM

(1) FOCUSING OPERATION: It makes lens up/down adjustments and operates by closing the focus-Loop when the diode SUM (4D SUM-pin 98) and the focus error (pin 100) inputs satisfy the focus Lock conditions.

(2) REFOCUSING: If DSUM (pin 98) input is less than +0.4V (i.e. due to a spot or fingerprint on the disc, or outside oscillation due to warping), it opens the focus-Loop and at the same time moves the lens up and down until the focus Lock conditions are satisfied, at which time it closes the focus-Loop.

(3) CD/LD CONVERSION: It converts the loop gain and phase compensation response of the focus servo acccording to whether the disc curently being played is LD or CD.

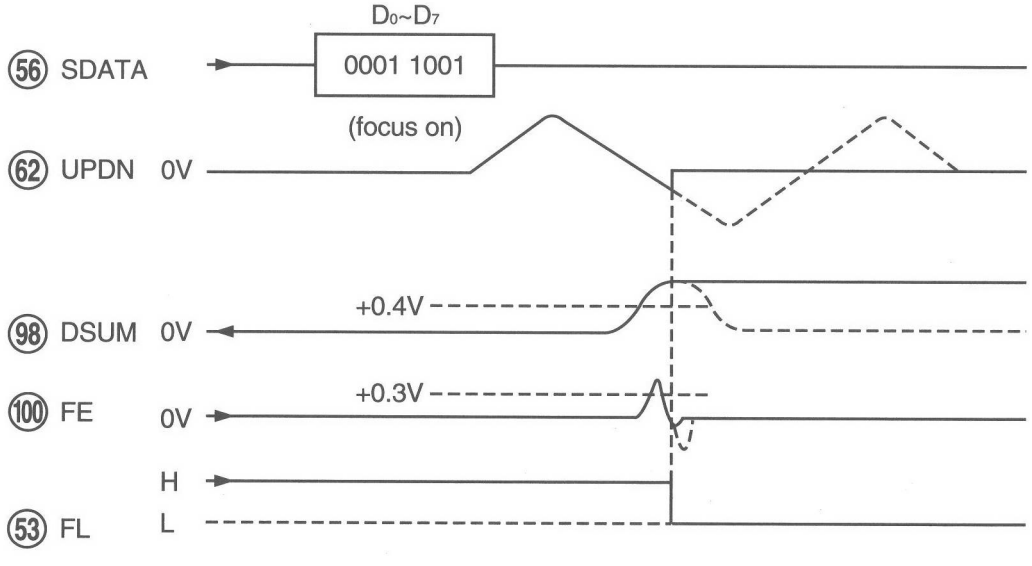


Figure 5. Timing Charts for Focus Operation

9-2-2-2. TRACKING SYSTEM

(1) TRACKING JUMP OPERATION: Track jump starts when JUMP (pin 27) receives a positive pulse at its input and the acceleration and reduction pulse is switched by the zero-crossing of the tracking error signal. SW12 and SW24 are operated jointly during the jump period.

SW12 decreases the gain of the high frequencies during the jump period by changing the Tracking Loop response.

SW24 accelrates the zero-crossing of the tracking error signal, compensates the time delay of the analog circuit and applies a jump pulse to the Actuator. The serial data transmission (pin 30) specifies whether it is a forward or reverse jump.

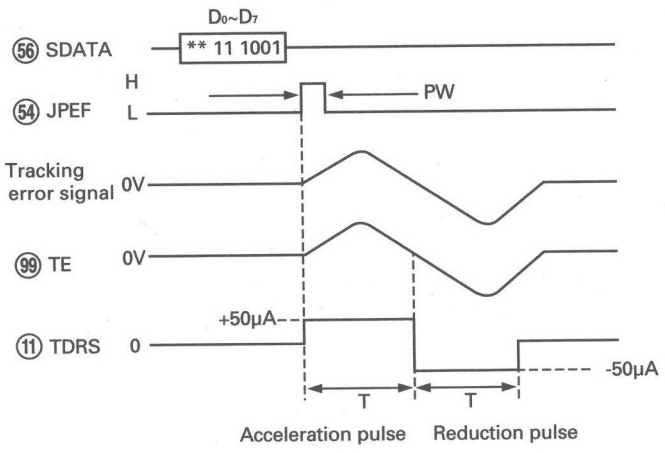


Figure 6. Timing Chart of Forward Jump

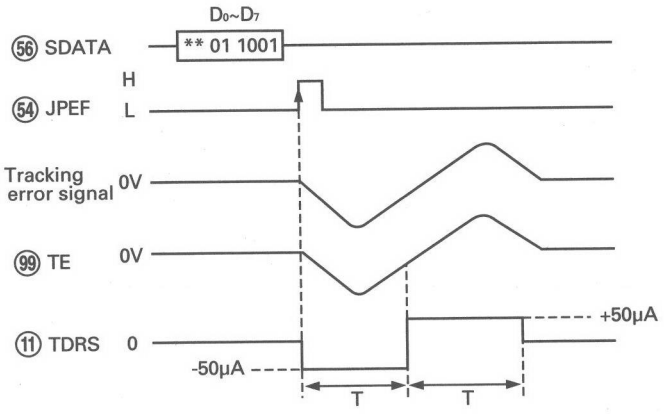


Figure 7. Timing Chart of Reverse Jump

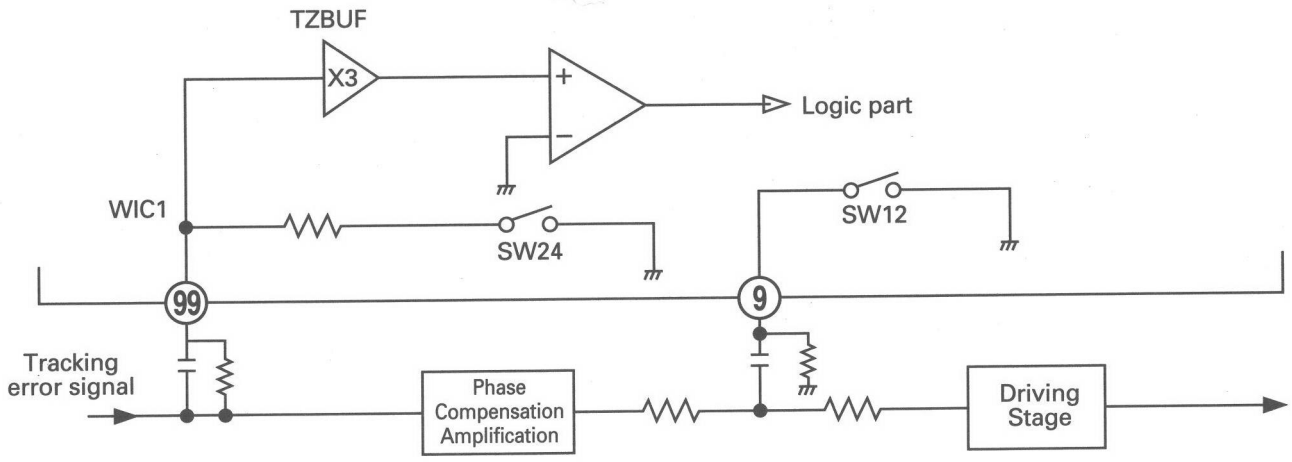


Figure 8. Tracking Jump Circuit

(2) SCAN OPERATION: While scanning from low to middle speed, the tracking servo detects the changing phase of the actuator at STP (pin 12) and opens the tracking loop. When TE (PIN 99) is below a certain frequency, it closes the loop.

9-2-2-3. SLIDER SYSTEM

(1) NORMAL PLAYBACK MODE OPERATION: During normal play operation, the DC component of the Tracking actuator is modulated and converted into a PWM by SCOMP1 or SCOMP2. The triangle wave output from SCOMP1 or SCOMP2 is generated by the capacitor connected to SLP (pin 20), and turns on either SW16 or SW17 while the accelerating pulse is output on SDR1 (pin 18).

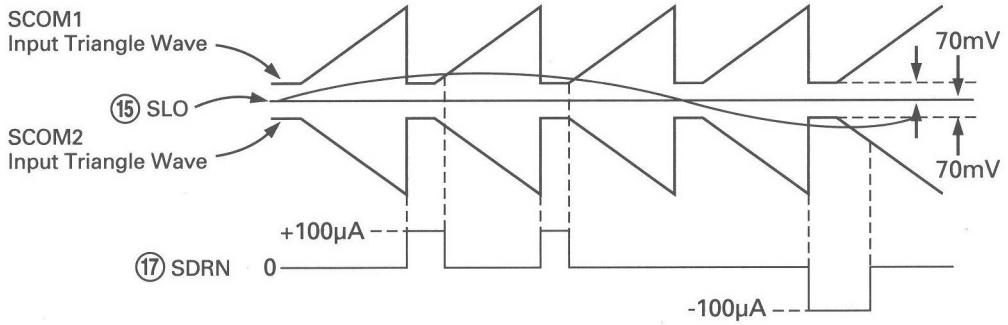


Figure 9. Timing Chart in Play

(2) SCAN MODE OPERATION: During scanning, the serial data transmission signal (pin 30) determines whether output is from SDRN (pin 17) or SDRS (pin 18).

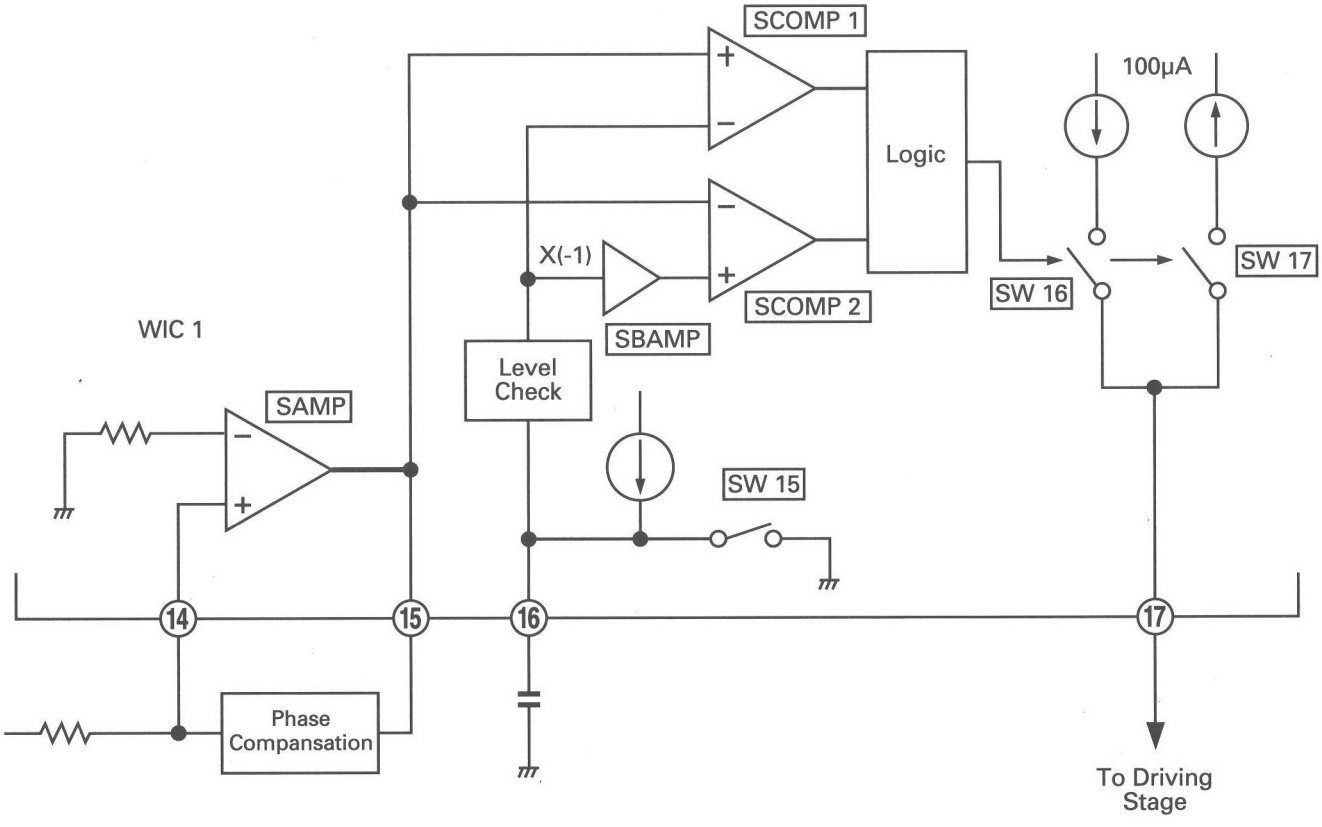


Figure 10. SCAN Phase Compensation Circuit

9-2-2-4. TILT SYSTEM

(1) TILT LOOP OPEN/CLOSE: The tilt servo is controlled by SDATA (pin 30).

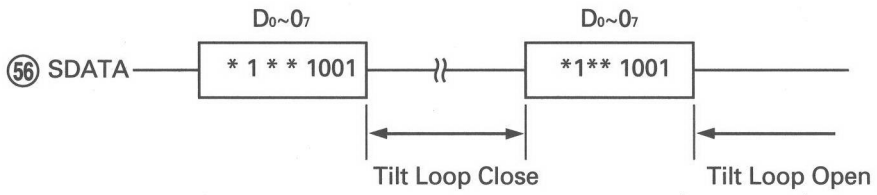


Figure 11. Tilt Data

(2) TILT SERVO OPERATION: The tilt error signal is input to the window comparator TCOMP1 and TCOMP2, and the drive signal is output from TIDRV (pin 4). The drive signal is turned on when the error voltage is over the DRV-ON voltage and turned off when it falls below the DRV-OFF voltage (see Fig. 12). The DRV-OFF voltage can be adjusted at the TIADI pin (pin 3).

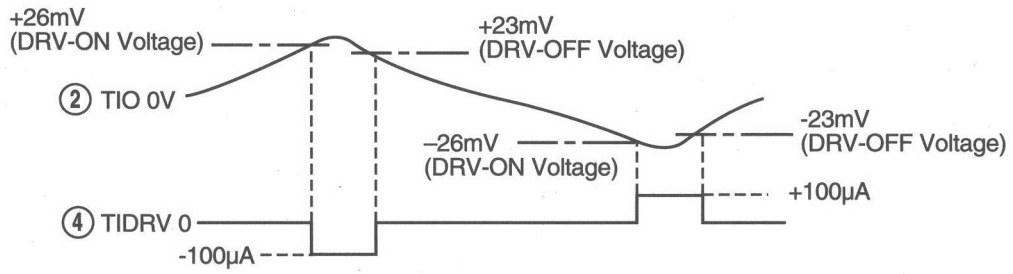


Figure 12. Tilt Timing Chart

In play, the tilt servo loop is open when the laser pick-up reaches the outer periphery of the disc (after 40,000 frames on a 12" CAV disc; after 40 minutes on a CLV disc; after 12 minutes on an 8" CLV disc; after 2 minutes of the video section of a CDV), after which the slope of the laser pickup remains where it was when the tilt servo loop was closed.

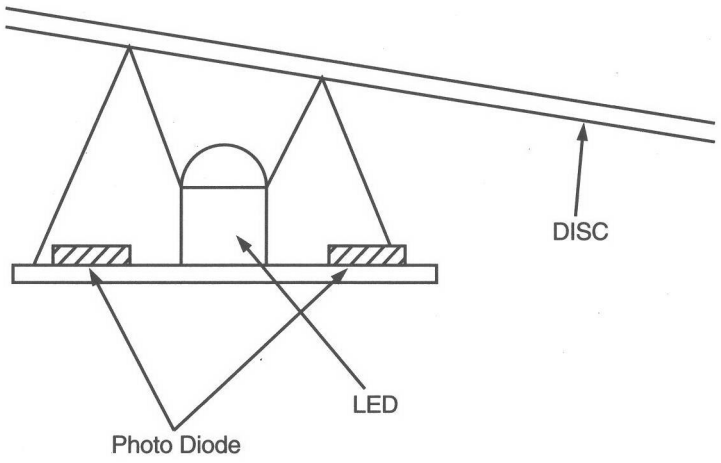


Figure 13. DISC Tilt Detection

9-3. AUDIO SYSTEM

AUDIO SYSTEM is composed of digital and analog blocks.

9-3-1. Analog Audio circuit

At FM signal Analog phonetic circuit passes through 2.3MHz BPF (XFL1, L-CH) and 2.8MHz BPF (XFL2, R-CH). The signal enters to XIC6 (KA9401) PIN74 (R-CH) and PIN71 (L-CH). The entered signal is sent to PIN79 (R-CH) and PIN66 (L-CH) through LIMIT AMP. FM DET and enters PIN1.64. (IF PIN 15 is high, it performs CXNR operation. If is low, it does not).

This output enters PIN18 (R), 47(L), and is finally sent to PIN30 (R), PIN35 (L) when PIN 17 is Low.

9-3-2. Digital Audio circuit

EFM signal generated at SIC 6 (KA9421) enters DASP IC (XIC8. KS9285) PIN55. The signal precessed within DASP is sent to PIN93. 95 (R), PIN88.90(L) through digital filter and D/A converter, and enters the differential AMP of ASP (XIC6, KA9401). (PIN19, 20: R, PIN45, 46L). This output is sents to PIN28 (R), 37(L) through LPF in the ASP, and is finaly sent to PIN30 (R), PIN35 (L) through the internal mode S/W when PIN 17 is Low.

9-3-3. HI-FI MPX SW, AMP circuit

The signal coming from ASP (XIC6) finally comes through the following circuit.

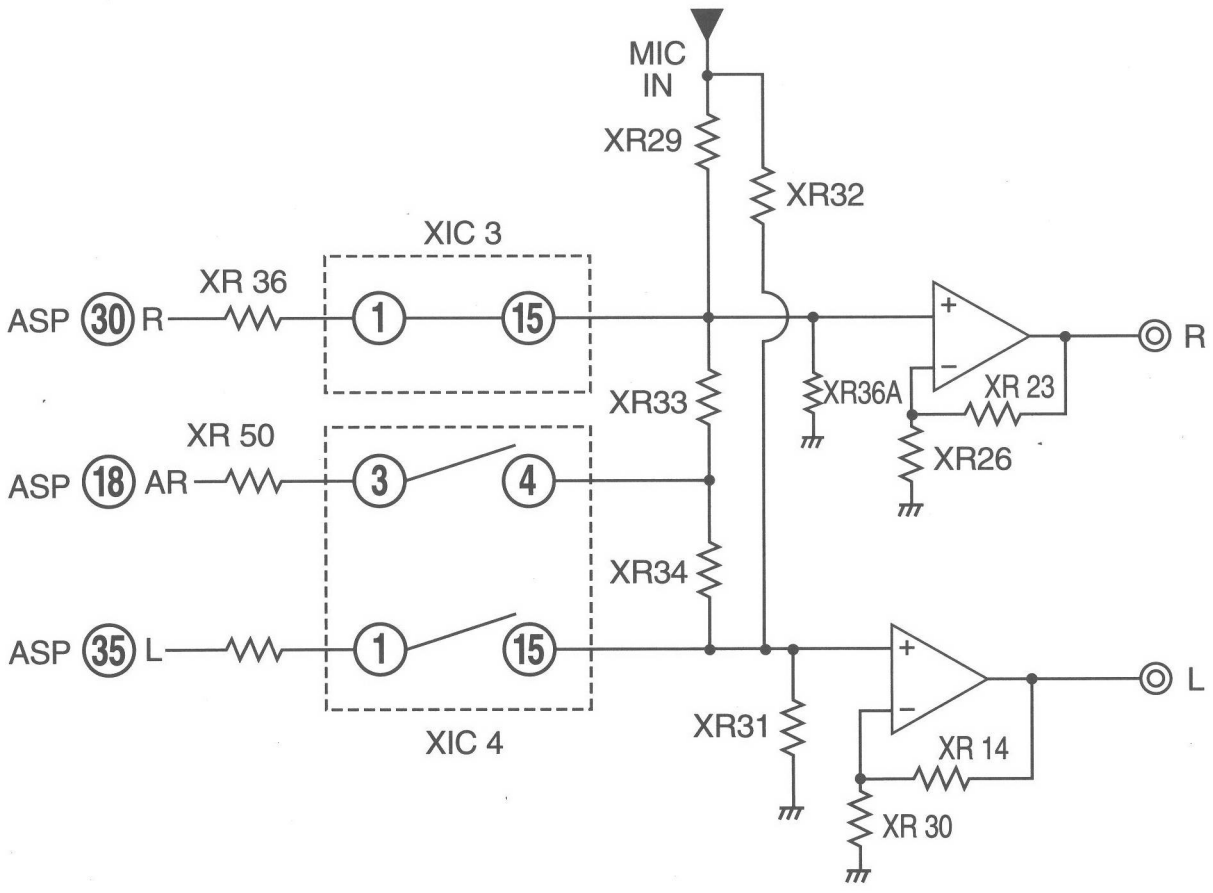


Fig 14.

9-3-4. Audio Block Diagram

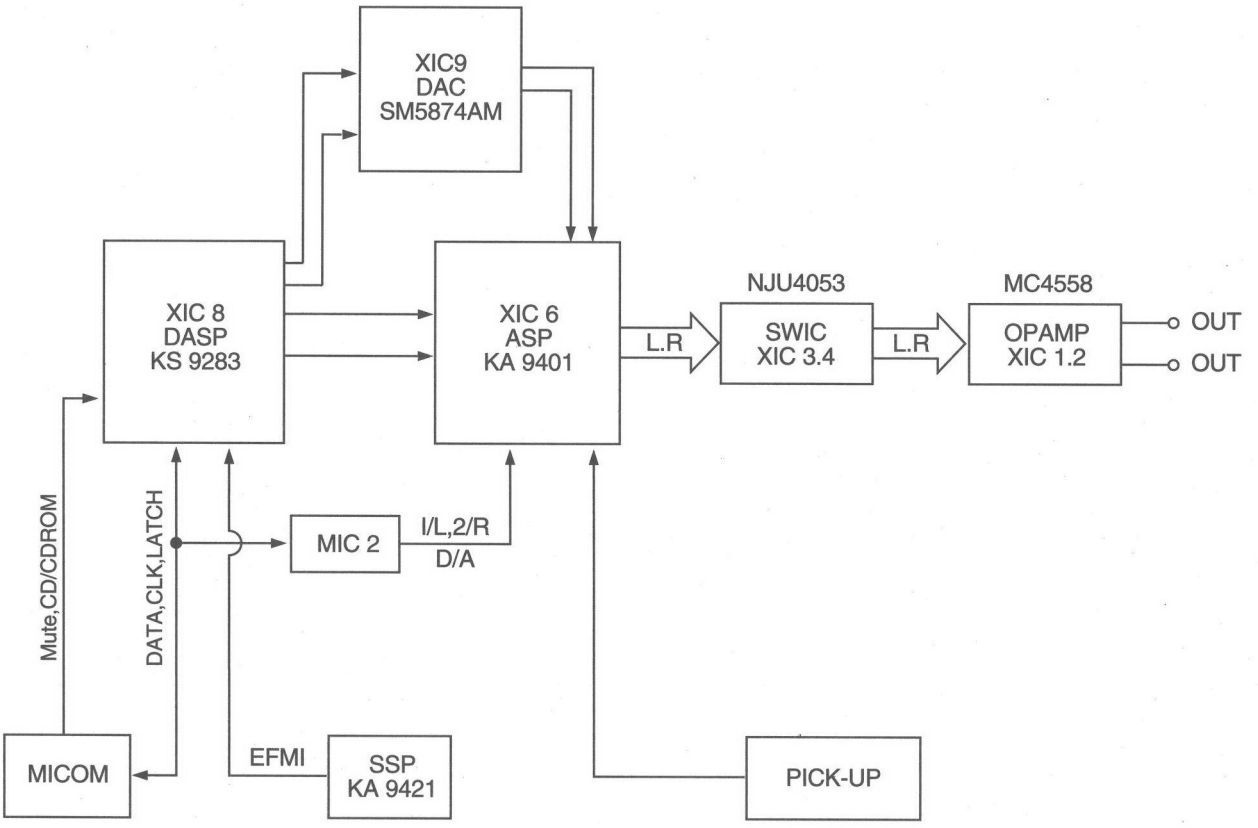


Fig 15.

9-3-5. Front Block Diagram

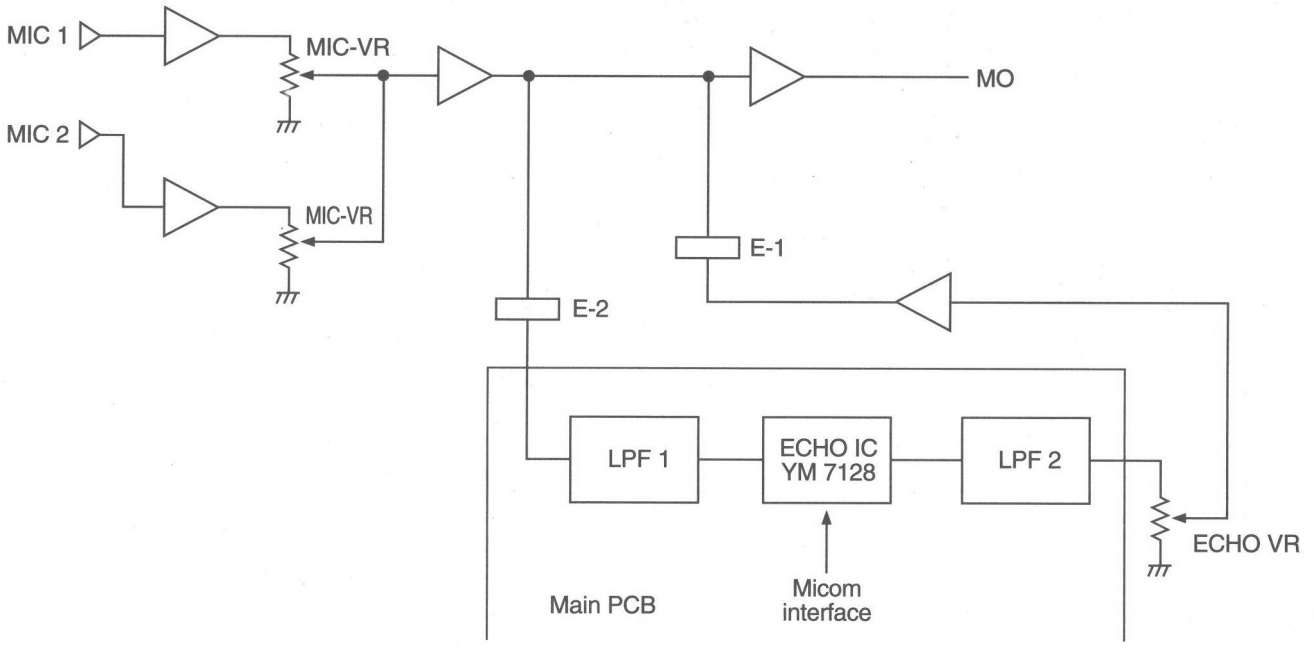


Fig 16.

9-4. VIDEO CIRCUIT

This circuit is a block diagram showing video signal processing by which the received video FM signal recorded in the FM mode in the DISC is restored to the NTSC video signal.

Since this circuit is not processed by the Analog video signal mode, but by the Digital video signal mode, most of the basic functions are built in two ICs to simplify the peripheral circuit, and to reduce the number of elements so that Lower Cost and Higher Performance are realized.

The Video Signal features.

(1) Two Chips only:

(2) High Resolution by Digital Video Signal Processing

- –Digital TBC (Time Base Correction)
- –Digital Noise Reduction
- –Digital BPC Decoder
- –Digital Color Drop-out Compensation:

(3) Built-in OSD

(4) etc.

The Video FM Signal read in the Pick-up passes into the FM Compensation element, which compensates the frequency property of Video FM Signal along by the CLV Disk and the circumference in the CLV Disk, and the compensated signal is fed into 8MHz BPF element of KA9411 IC, where only the video signal band of FM is filtered, which is applied to the FM Demodulator.

The FM Demodulator demodulates the FM Video Signal, which converts to the Base-Band NTSC Video Signal, which is fed to the 5M LPF element, where only the required Video Frequency Band is filtered, which goes into the AMD element to be amplified, and then is applied to KS0118 IC.

KS0118 IC generates 8 fsc clk and the Synchronous Idle in order to absorb the video signal JITTER originated in the Spindle Servo (the IC where the PLL element, an important function of T. TBC, is built-in).

The video signal entered to the KS0118 IC gets clamped in the AGC/D.C. CLAMP element to the constant size and D.C. level so that the A/D Converter element can perform the perfect job, and in the next A/D element, Analog video signal is converted to Digital 8-bit Data.

This A/D Data is divided into two Routes one Route passes into LPF element, Synchronous Separator, and PLL element, the other goes to KA9411 IC.

The 8-bit A/d Data passed into the LPF, Synchronous Separator, and PLL element fed to the Synchronous Separator in order to output the Synchronous Idle (V-SYNIC, C-SYNIC, SYG) required in the KA9411 IC, and using this Synchronous Idle the next PLL element generates the A/D Clock and Write Clock of the TBC RAM element to output the 8fsc' so as to absorb the JITTER.

Also, the video A/D Data entered into the A/D interface of KA9411 IC goes to both the BPC Decoder element and TBC RAM element. In the BPC Decoder element, the Disk informations encoded on the 16, 17 and 18th lines of the Video Signal are decoded in order to communicate with the microcomputer, whereas in the TBC RAM element, the fed 8-bit A/D Data is written by the 4fsc' clock in the RAM composed of 910 cells, and also A/D Data recorded in the RAM is sequentially read by the stable 4fsc clock, thus the TBC (Time Base Correction) is carried out by compensating Time Base Error so that the time of one line (Horizontal cycle) of Video Signal can be 6.35 μs.

Besides, if Drop-out should occur due to any Disc scratch, Drop-out detecting element detects the Drop-out location of the FM Signal input, and this information passes into the RAM address controlling element, and Drop-out compensation is carried out by not recording the location of Drop-out part in the RAM.

A/D Data read in the TBC RAM passes into D.NR element, which attenuates the Noise on its Brightness Signal, then this A/D Data enters into the MIXER where the OSD Data generated through the communications which the microcomputer and the Video A/D Data are mixed, and then these are entered into the D/A element where the Digital Video Information is converted to the Analog Video Information.

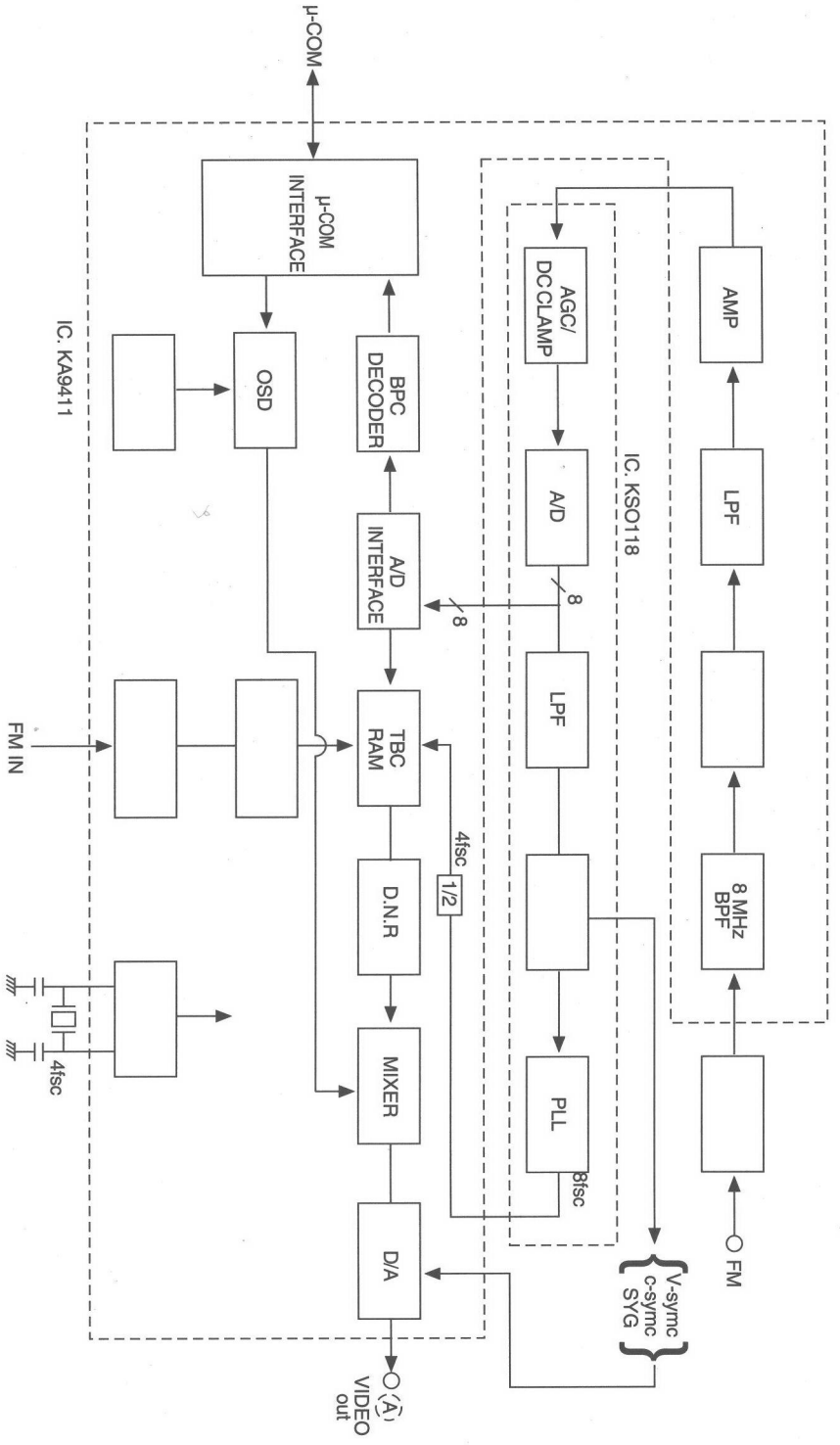


Fig 17.

9-5. SPINDLE SERVO CIRCUIT

Sjpineld Servo circuit controls the turning of disc depending on the type of disc.

FM signal obtained from pick-up is demodulated in the image circuit and enters gen-lock. In gen-lock, C-sync separated from the image signal enters the horizontal sync circuit. The horizontal sync signal obtained here compares the phase with reference horizontal sync signal, and controls the normal turning of spindle depending on this output.

In spindle Servo circuit, the loop-gain is switched depending on the disc size (12 and 8 inches, CD/CDV) and type (CAV, CLV). So it is necessary to switch with CD circuit. In this circuit signal is subject to the system control circuit signal. And the serial data are sent/received here.

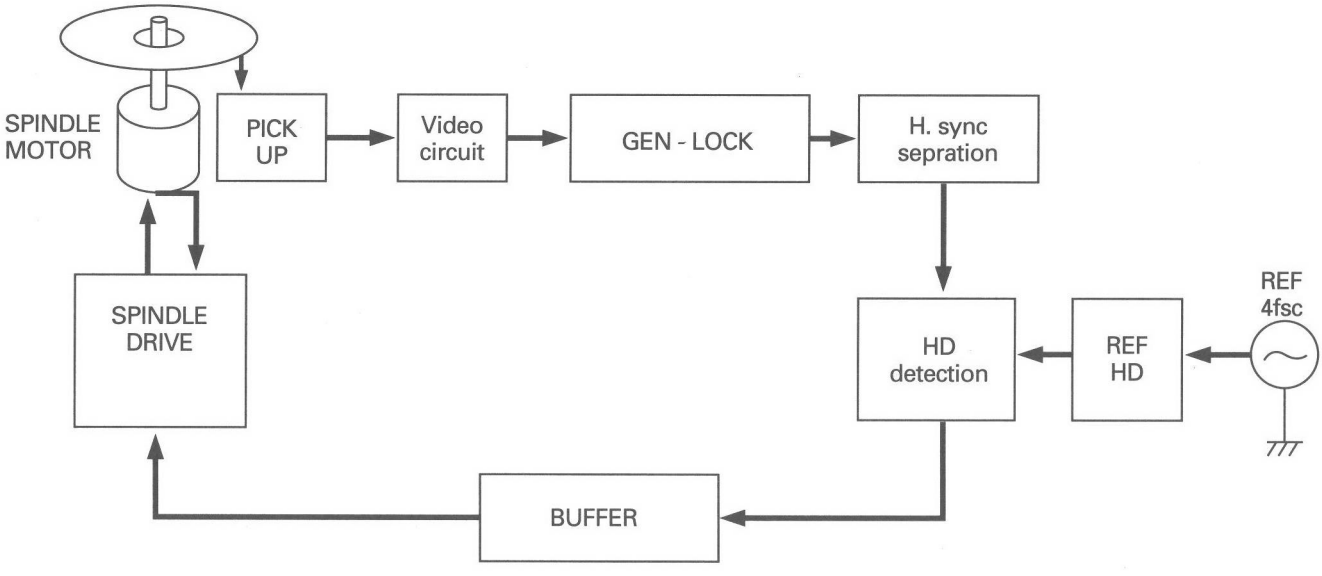


Fig 18.

9-6. SPINDLE MOTOR DRIVE CIRCUIT

TA8413 (PIC5) used here is the IC which controls 3 phase brushless DC motor, receives the motor hall sensor input from PIN 14 thru 19, and and sends signal to PIN 1 thru 6. This signal is amplified at SMA6010 (PIN6), and sequentially drives motor windings LA, LB and LC.

If SP-signal coming from KA9421 is low (OV), C3851 (PQ17) DL turns on and motor operates. If SP-signal coming from KA9421 is high (5V), C3851 (PQ17) DL turns off and motor stops. SP-operates at the frequency of 15.7 KHz during the normal operation.

Ifr SP+ which enters PIN 9 is high (5V)/low (0V) motor turns countercolocwiase/clockwise.

ID/CD signal coming from Micom is 0V/5V when LD/CD operates.

When LD operates, PQ11 turns on and +14, –14V is appiled to motor winding.

When CD operates, PQ11 turns off and +14, 0V is applied to motor widing.

9-7. POWER CIRCUIT

Audio circuit power is converted into secondary power at the power trans, and becomes +/–5V and +/–8V through the constant voltage circuit and IC. +/–5V supplies power to each board on the main PCB, and +/–8V is used as audio power.

And +/–14V is separately supplied for the spindle drive and phonetic circuit and –33V is supplied to main PCB for FLT operation.

In stand by state all the powers except for +/–5V which is supplied to main PCB is supplied. Pressing the power button, +5V comes at port 98 in main micom and is applied to PIC4 through PR8. Therefore all the powers including +/–5V are supplied.

9-8. CDG CIRCUIT(OPTION)

CD Graphic circuit is composed of Graphic decorder IC (SRV9205CA) and RGB Encoder IC (KA2195D). Graphic decorder IC (SRV9205CA) receives data by sending/receiving CLK and DATA (EXCK, SBSO, WFCK) to/from DSP IC (KS9283).

The oscillating frequency of 14.318 MHz enters SRV9205CA (GIC1) PIN80, and is used as a IC internal clock. FSC is sent to PIN73k, and enters PIN6 in RGB Encoder IC (KA2195D). RGB is sent to SRV9205CA (GIC1) PIN68, 69, 70, and enters GIC3 PIN2, 3, 4. And CD Graphic video is sent to RGB Encoder IC (KA2195D) PIN20.

9-9. SYSTEM CONTROL

9-9-1. Outline

Micom function description in system control section.

(1) Servo control

- Focus, tracking, slider, spindle servo is controlled through servo LSI, stops the spindle by detecting FG signal.
- Protects processor in case of spindle lock failure by detecting FG signal.
- Controls on/off of laser tilt servo.
- Detects pick-up position at the inner or outer periphery of a disc.

(2) Video circuit control

- Switches Equalizer,
- Controls Blue-Back screen Video Mute by the data processor.

(3) Audio circuit control

Controls sound output, CS system

(4) Key data input control

Receives key-switch input and designated key function.

(5) Remote control signal control

Receives remote control signal data and judges & handles a designated key.

(6) Disc code signal control

Decodes disc code through data processor and controls disc data.

(7) Crt screen display control

Controls CRT screen display in accordance with remote control input through data processor.

(8) Front loading control

Controls loading motor by detecting switch status when disc is loaded.

(9) Front pcb display control

Controls FLT display.

(10) Digital audio circuit control

Controls DA circuit and detects digital disc signal from DA circuit and switches digital/analog signal.

(11) Disc type judgement

Judges disc size (30cm, 20cm, 12cm/8cm) when disc starts rotating.

Judges CD/CDV on TOC data at inner most pheriphery of a disc.

(12) Mis-clamp detection

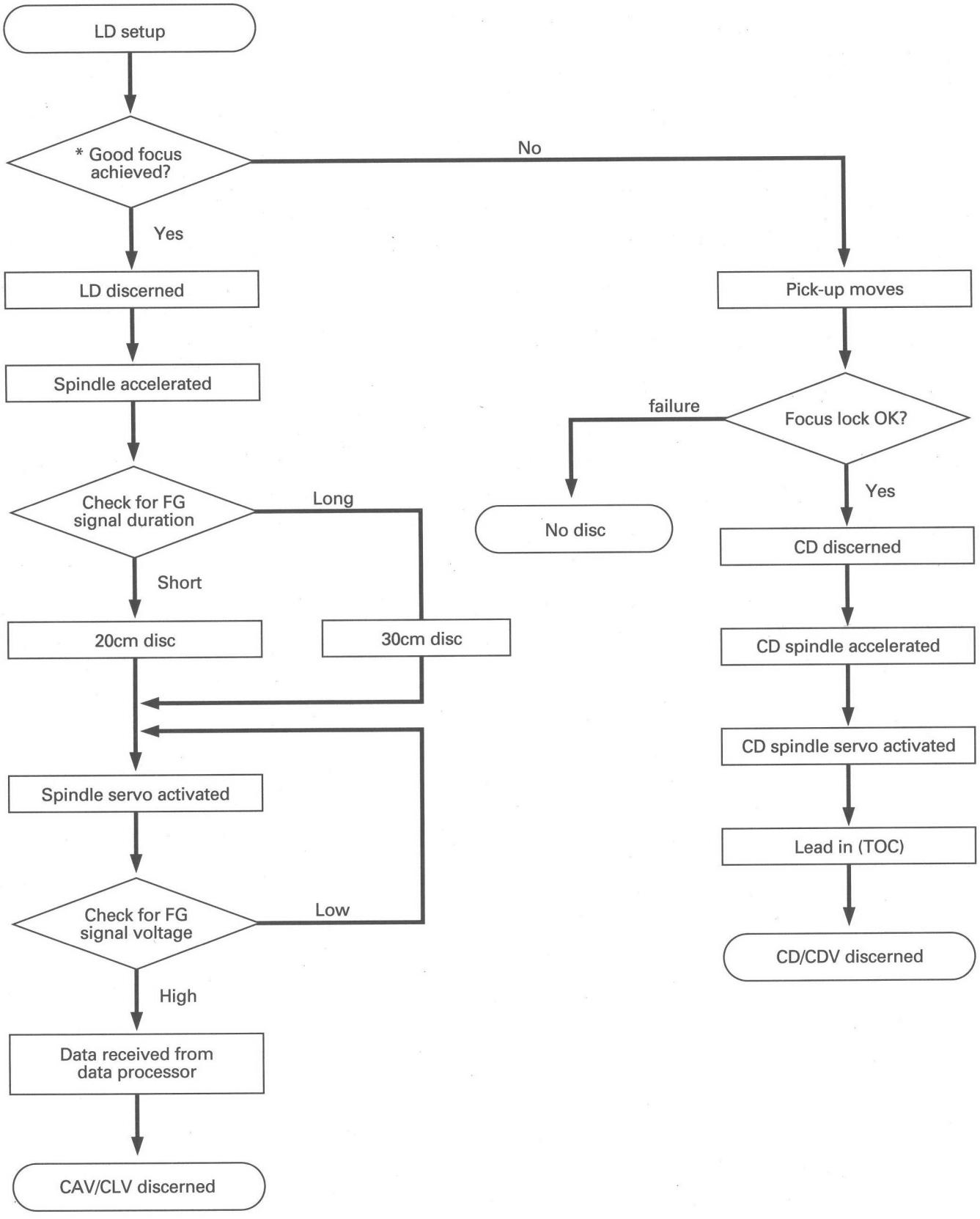
Checks for mis-clamp when a disc is not rotating after loaded and track crossing signals are over the specified number.

(13) Focus drop control

When focus lock signal drops out on play or search mode, slider moves to position that drop out does not occur.

9-9-2. Discerning the kinds of disc

This is a flow outline on how the unit descerns the kinds of disc.



10. Adjustment

Before making adjustment

Adjustment to this unit is not required because adjustment is already done during production procedure. However if readjustment is required, be sure to proceed in the order given.

MEASURING INSTRUMENT

(1) OSCILLOSCOPE
(2) DC VOLTMENTER
(3) MONITOR
(4) FREQUENCY COUNTER
(5) OSCILLATOR

TEST DISC

(1) SAMSUNG DEMONSTRATION DISK
(2) YEDS-43 DISC
(3) STLD-1

JIG PCB

Connect JIG PCB to SCW2 and SCW 3 of MAIN PCB.

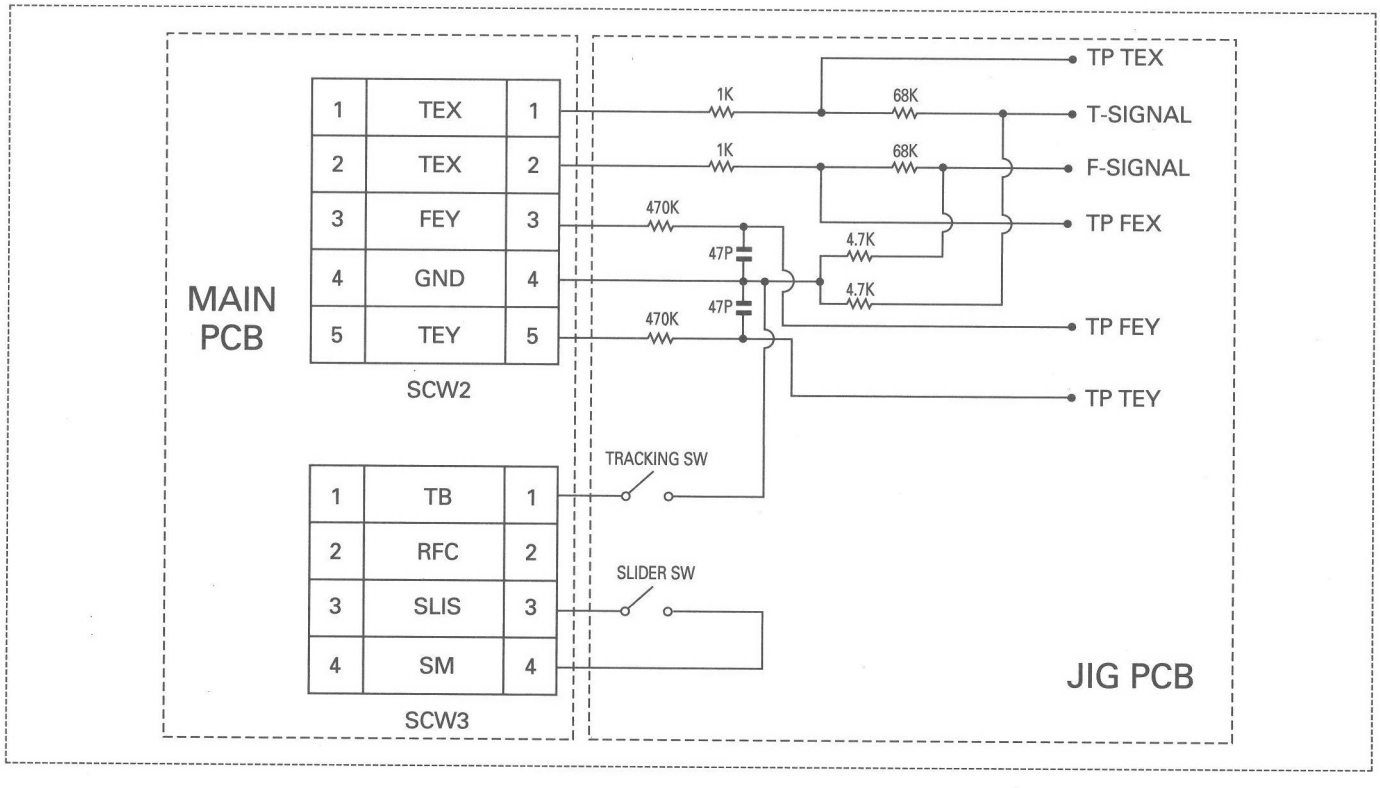
ADJUSTMENT ITEM

10-1 GENERAL ADJUSTMENT
(1) REF (Reference Frequency) adjustment.

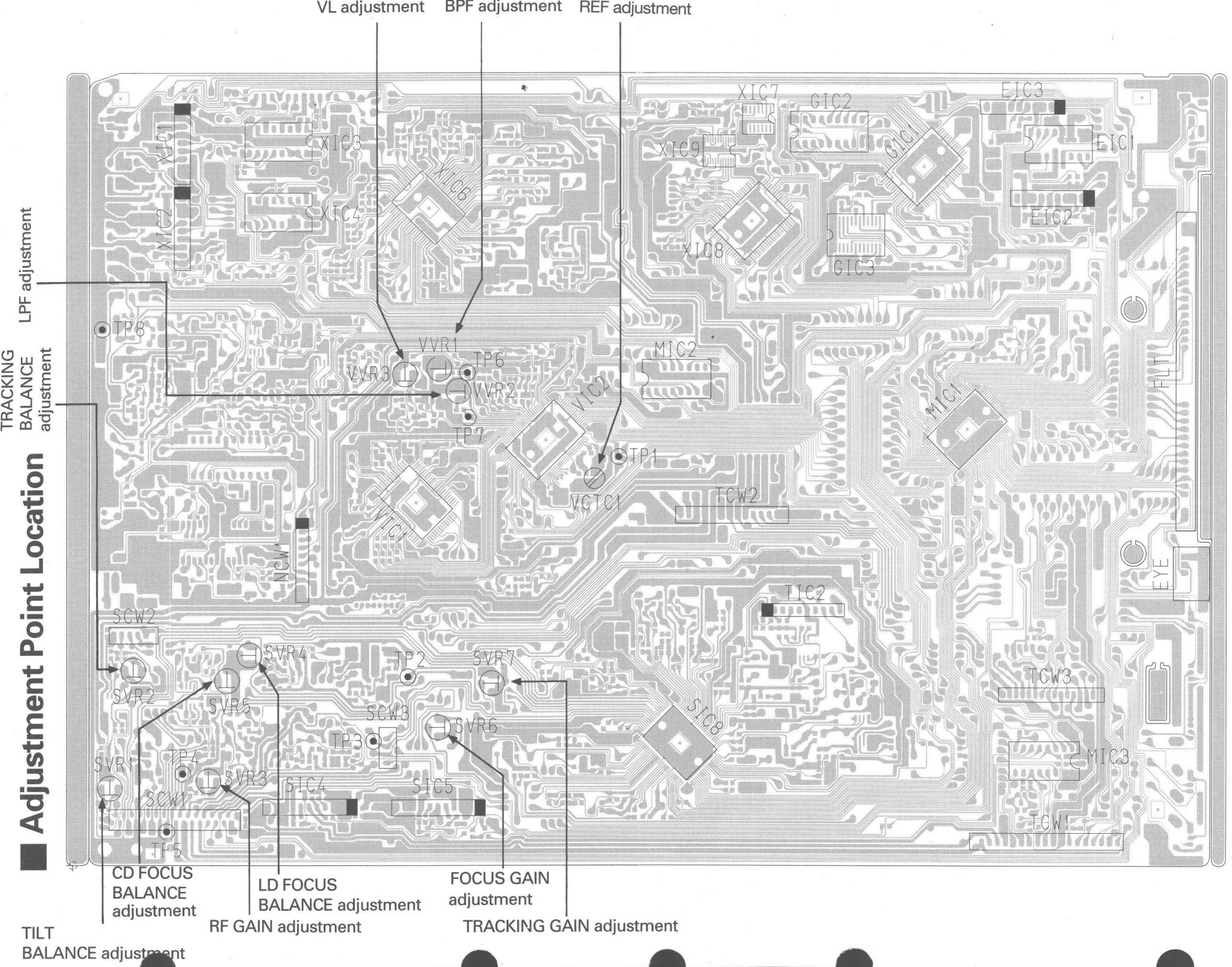
10-2 SERVO ADJUSTMENT
(1) TILT BALANCE adjustment.
(2) TRACKING BALANCE adjustment.
(3) LD FOCUS BALANCE adjustment.
(4) CD Focus Balance adjustment
(5) FOCUS GAIN adjustment.
(6) TRACKING GAIN adjustment.
(7) RF GAIN adjustment.

10-3 VIDEO ADJUSTMENT
(1) BPF (8MHz) adjustment
(2) LPF (5MHz) adjustment
(3) VL (Video Level) adjustment

10-4 PAL ADJUSTMENT
(1) NTSC REF. ADJUSTMENT
(2) PAL REF Adjustment
(3) Y-LEVEL Adjustment
(4) Brust FLAG Adjustment
(5) HUE Adjustment
(6) Color Adjustment



■ Adjustment Point Location



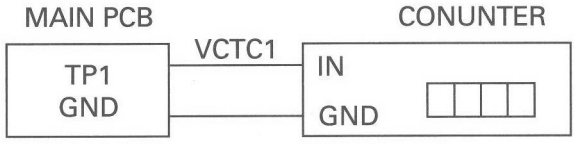
10-1. General adjustment

10-1-1. REF (Reference Frequency) Adjustment

(1) Turn power on and set the unit STOP mode.

(2) Adjust VCTC1 so that frequency counter reads 14,31818 MNHz ± 10Hz

(3) Use 1:1 damping probe.
(TP1: PIN2 of VIC2)



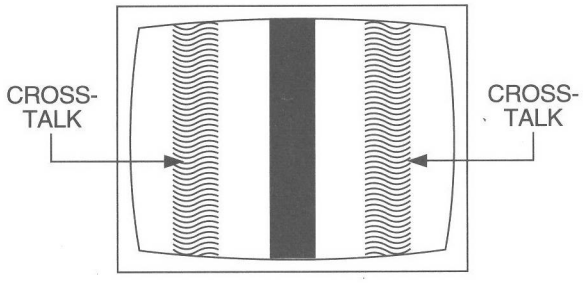
10-2. Servo adjustment

10-2-1. Tilt balance adjustment

(1) Insert STLD-1 disc and press PLAY button

(2) Set the unit on chapter 1 at STILL MODE

(3) Adjust SVR2 so that no cross TALK noise



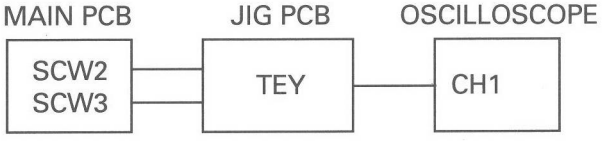
10-2-2. Tracking balance adjustment

(1) Insert SS-DEMON disc and press PLAY button.

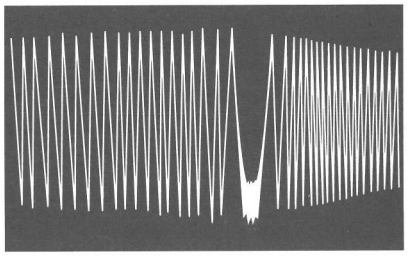
(2) Set 1200 frame at STILL mode.

(3) Connect JIG PCB and turn ON the Tracking SW.

(4) Adjust SVR1 so that the center of waveform at TEY locates at 0V.
(It can be adjustable by using DC voltmeter)



MODE: CH1
TIME/DIV: 2μsec
VOLT/DIV: 50mV
PROBE SETTING 10:1

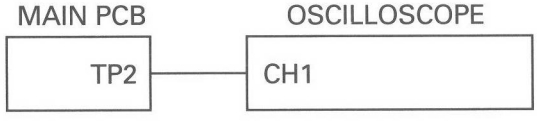


10-2-3. LD Focus balance adjustment

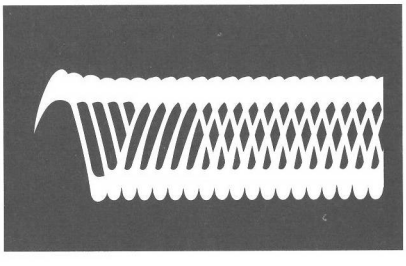
(1) Put SS-DEMON disc in and press PLAY button.

(2) Set the unit on chapter 6.

(3) Adjust SVR4 so that the waveform at TP2 is at the maximum. (TP2: PIN 88 of SIC6)



MODE: CH1
TIME/DIV: 0.5μsec
VOLT/DIV: 50mV
PROBE SETTING 10:1

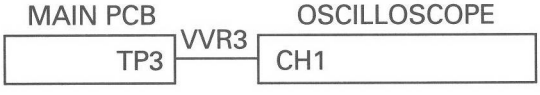


10-2-4. CD Focus balance adjustment

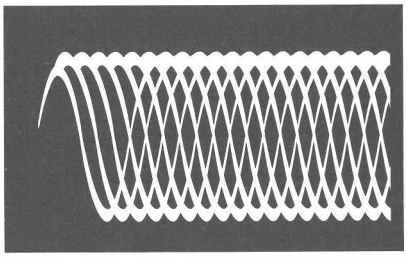
(1) Put YEDS-43 disc in and press PLAY button.

(2) Set the unit on chapter 11.

(3) Adjust SVR3 so that the waveform at TP3 is at the maximum. (TP3: PIN2, "RFC" of SCW3)



MODE: CH1
TIME/DIV: 0.5μsec
VOLT/DIV: 50mV
PROBE SETTING 10:1

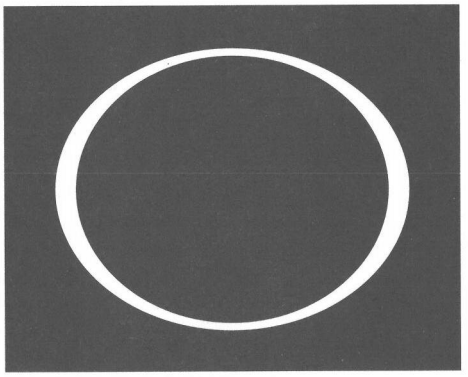


10-2-5. Focus gain adjustment

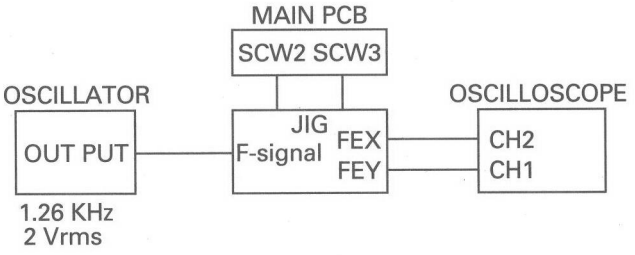
(1) Connect JIG PCB to MAIN PCB.

(2) Put YEDS-43 disc in and set the unit on Chapter 11 and set the unit on PAUSE mode.

(3) Adjust SVR6 in the MAIN PCB so that the waveform is as shown in picture.



MODE: X-Y

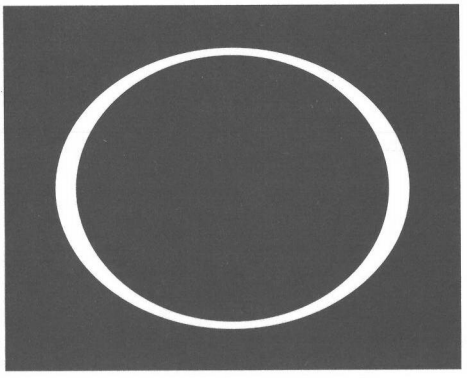


10-2-6. Tracking gain adjustment

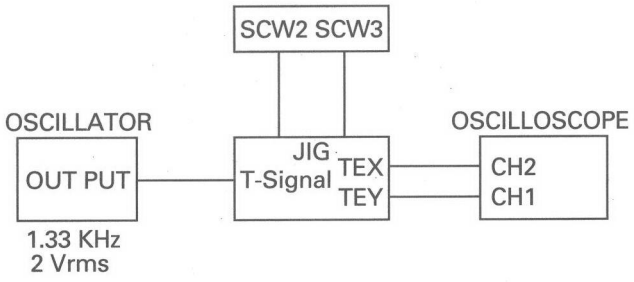
(1) Connect JIG PCB to MAIN PCB.

(2) Put YEDS-43 disc in and set the unit on Chapter 11 and set the unit on PAUSE mode.

(3) Adjust SVR7 in the MAIN PCB so that the waveform is as shown in figure.



MODE: X-Y

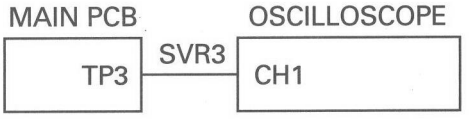


10-2-7. RF Gain adjustment

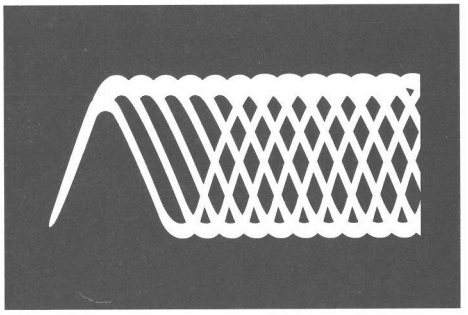
(1) Put YEDS-43 disc in and press PLAY button.

(2) Set the unit on chapter 1

(3) Adjust SVR3 so that the oscilloscope waveform at TP3 is 1Vp-p.
(TP3: PIN 2 "RFC" of SCW3)



MODE: CH 1
TIME/DIV: 0.5/sec
VOLT/DIV: 20mV
PROBE SETTING 10:1



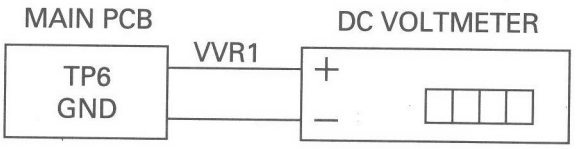
10-3. Video adjustment

10-3-1. 8M BPF Adjustment

(1) Turn Power on.

(2) Adjust VVR1 so that the DC voltmeter reads 3.4V at TP6.

(TP6: PIN 63 of VIC2)

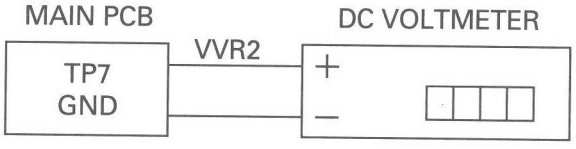


10-3-2. 5M LPF adjustment

(1) Turn Power on.

(2) Adjust VVR2 so that the DC voltmeter reads 3.4V at TP7.

(TP7: PIN 61 of VIC2)



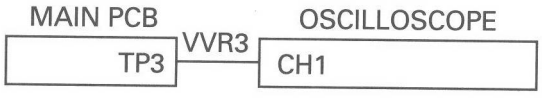
10-3-3. Video level adjustment

(1) Insert STLD-1 DISC and SET the unit on chapter 4.

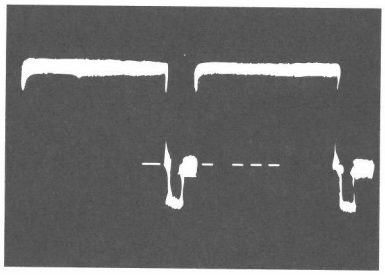
(2) SET the unit on STILL mode

(3) Adjust VVR3 so that the waveform at TP8 is 2Vp-p.

(TP8: PIN2 of NCW1)



MODE: CH 1
TIME/DIV: 20μsec
VOLT/DIV: 20mV
PROBE SETTING 10:1



10-4. PAL ADJUSTMENT

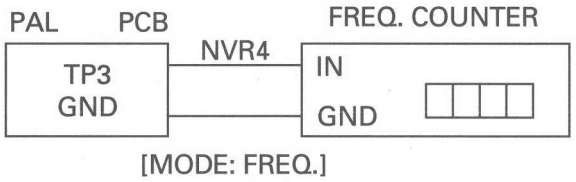
10-4-1. NTSC REF. Adjustment

(1) Turn POWER on and set the unit STOP mode.

(2) Short GND and Pin 23 of NIC 3

(3) Adjust NVR4 so that Freq. Counter reads 3.579545MHz ±10Hz.

(4) Open Pin 23 of NIC 3

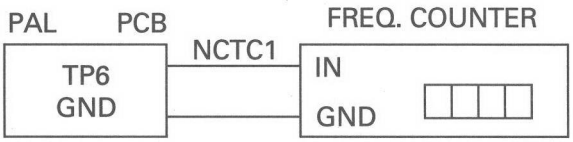


[MODE: FREQ.]

10-4-2. PAL REF. Adjustment

(1) Turn POWER on and set the unit STOP mode.

(2) Adjust NCTC1 so that Freq. Counter reads 4.433619MHz ±20Hz.

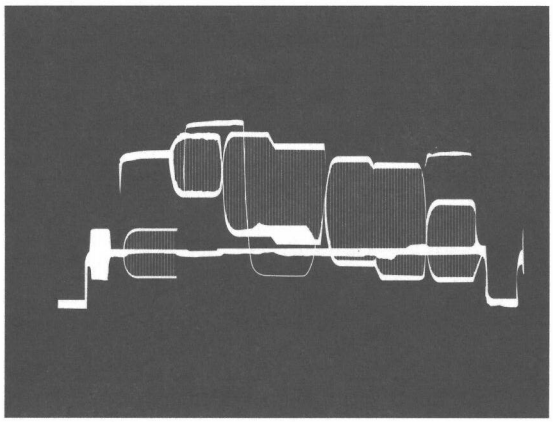


[MODE: FREQ.]

10-4-3. Y-LEVEL Adjustment

(1) Put STLD-1 disc in and set unit an Chater 4, and set the unit on STILL mode.

(2) Adjust NVR2 so that waveform of video-out is 1Vp-p. (75Ω TERMINAL)

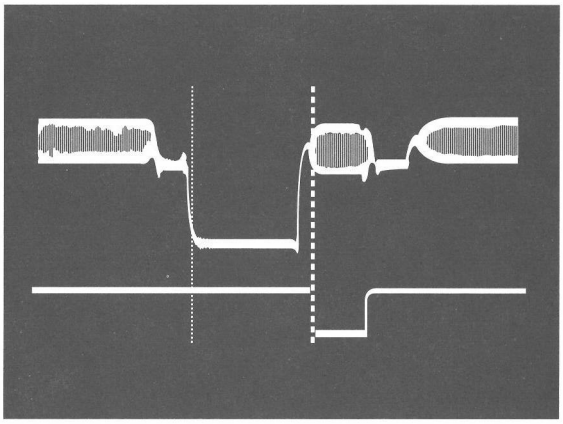


10-4-4. Burst FLAG Adjustment

(1) Put P8-11 disc in and set unit on Chatper 4, and set the unit of STILL mode.

(2) CH1-Video-out
CH2-TP1 (NIC3 Pin3)

(3) Adjust NVR3 so that the falling edge of waveform of CH1 and CH2 is at 5.6μS.



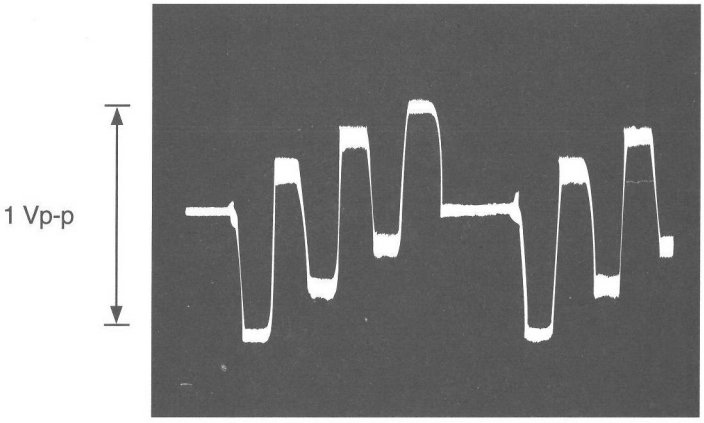
10-4-5. Color Adjustment

(1) Put P8-11 disc and set unit on Chatper 8.

(2) Set the unit on STILL mode.

(3) Adjust NVR1 so that the waveform is as shown in the picture (1Vp-p)

(4) Test point: TR4 (NIC3 Pin 17)



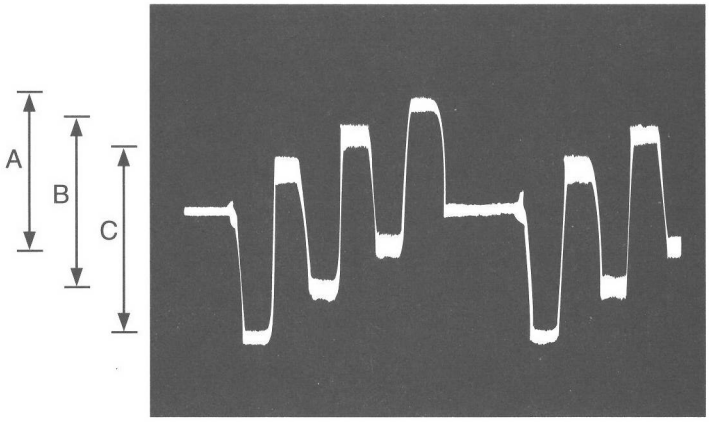
10-4-6. HUE Adjustment

(1) Put P8-11 disc in and set unit on Chapter 8.

(2) Set the unit on STILL mode.

(3) Adjust NVR5 so that A, B and C are all equal.

(4) Test Point: (NIC3 Pin 17).



11. Chip Replacement

11-1. Precaution for the Chip Replacement

(1) Do not touch the part body directly with the soldering iron. ICS, especially TSOP, are easily damaged by heat.
(2) Use care regarding soldering iron tip and avoid rapidly heating parts. Some parts can be damaged by sudden heating. Preheat the part at about 100°C for several minutes before installing it.
(3) Use soldering tip temperature of about 240°C or larger parts, use a slightly higher temperature (about 280°C).
(4) The thin (0.3mm) solder for miniature parts does not contain adequate flux. Supplementary flux is thus needed in most cases.

The NoteMaster 486S/25N series systems are manufactured using flux which can be cleaned by water in the factory. When your replace the part or troubleshooting, use proper flux and solder which can be cleaned by water. Soldering area will corrode, if proper flux and solder are not used in replace. And it may cause a fatal error to the system.

(5) Use care not to damage the circuit pattern, especially when removing.
(6) Because of the many pins, cleanliness of the pattern is extremely important after removing the IC.
(7) Use care to avoid solder bridges. Remove any that occurs.
(8) Position the part carefully. This will also affect the soldering operation. Be very precise in positioning the IC. Soldering opposite pins first holds the IC in place and makes soldering the other pins easier.
(9) Do not reuse removed parts.
(10) Check for solder joints, especially miniature parts with small lead.
(11) A defective trimming resistor cannot be adjusted externally. Replace with an ordinary variable resistor.
(12) It is important to inspect the work with a magnifier. Check after installing (cold solder joints, etc).

11-2. Tools for the Chip Replacement

The tools for the chip replacement are as follows:

(1) Thin tip type soldering iron
(2) Small flat-blade tip type soldering iron
(3) Special desoldering tip iron
(4) Airblower unit
(5) Flat Package Pick-up
(6) Flux can be cleaned by water
(7) 0.3mm thin solder can be cleaned by water
(8) Desoldering wire
(9) Tweezers

11-3. Chip Resistors and Chip Capacitors

11-3-1. Kind jof the Part

The kind of chip resistors and chip capacitors as follows

(1) Thick Film Chip Resistors
(2) Carbon Film Chip Resistors
(3) Metal Film Chip Resistors
(4) Chip Ceramic Capacitors
(5) Chip Trimming Resistors

11-3-2. Removing the Part

The kind of chip resistors and chip capacitors as follows

(1) Using two soldering irons:
① Use thin tip soldering irons.
② Use soldering tip temperature of about 280°C
③ Simultaneously heat both ends of the part.
④ While heating, grasp the part with the tips of the soldering irons and remove it.
⑤ Use desoldering wire to completely remove the old solder from the part location of the board.
⑥ A clean pattern for installing the new part is very important.

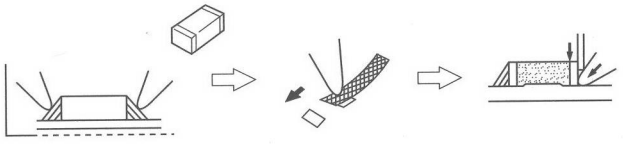


Fig 7-1.

11-3-3. Installing the Part

(1) Clean the area where the new part is to be mounted.
(2) Apply flux.
(3) Set part correctly into position, prevent it from shifting.
(4) Bring the soldering iron tip close to the part contact without actually touching it. Melt thin (0.3mm) solder between the tip and part so that it flows into the part contact.
(5) Check work quality with a magnifier.

11-4. Chip Tantalum Capacitors and Chip Filters

11-4-1. Kind of the Part

The kind of chip tantalum capacitors and chip filters are as follows:

(1) Chip Inductors
(2) Chip Tantalum Capacitors
(3) Chip Tantalum Electrolytic Capacitors
(4) Chip Aluminum Electrolytic Capacitors
(5) Chip Transformers
(6) Chip Filters

11-4-2. Removing the Part

(1) Using special desoldering iron:
① Select soldering tip according to part size.
② Bring the tip into contact with the soldered points.
③ When the solder melts, remove the part.
④ Remove the old solder with desoldering wire.

(1) Using two soldering irons:
① Use small flat-blade tips.
② Heat both ends of the part simultaneously.
③ When the solder melts, grasp and remove the part with the soldering iron tips.
④ Remove the old solder with desoldering wire.

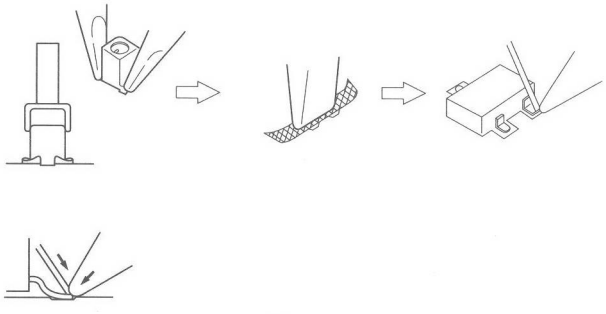


Fig 7-2.

11-4-3. Installing the Part

(1) Clean the area where the new part is to be mounted.
(2) Apply flux
(3) In part correctly into position, prevent it from shifting.
(4) Use sharp soldering iron tip. Bring close to the part contact without actually touching it. Melt thin solder between the tip and part so that if flows into the part contact.
(5) Check work quality with a magnifier.

11-5. Chip VRs, Chip Trimmer Capacitors, Diodes and Tr.

11-5-1. Kind of the Part

The kind of the part is as follows:

(1) Chip VRs
(2) Chip Trimmer Capacitors
(3) Diode
(4) Transistors

11-5-2. Removing the Part

(1) Using two soldering irons:
① Use small flat-blade tips.
② Heat the leads of the part simultaneously.
③ When the solder melts, grasp and remove the part with the soldering iron tips.
④ Remove the old solder with desoldering wire.

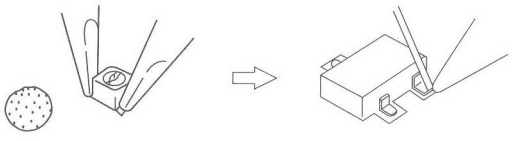


Fig 7-3.

11-5-3. Installing the Part

(1) Clean the area where the new part is to be mounted.
(2) Apply flux
(3) Set part correctly into position, prevent it from shifting.
(4) Use sharp soldering iron tip. Bring close to the part contact without actually touching it. Melt thin solder between the tip and part so that it flows into the part contact.

11-6. Chip ICs

11-6-1. The kind of the Chip ICs

The kind of the chip ICs are as follows:

(1) SOP (Small Outline Package) IC
(2) SSOP (Shrink Small Outline Package) IC
(3) VSOP (Very Small Outline Package) IC
(4) QFP (Quad Flat Package) IC
(5) VQFP (Very Quad Flat Package) IC
(6) PLCC (Plastic Leaded Chip Carrier) IC
(7) TSOP (Thin Small Outline Package) IC

11-6-2. Removing the Part

(1) Using special desoldering iron:
① Select the tip according to the size and shape of the IC.
② Thin" the tip with a small amount of the IC leads.
③ Set the tip squarely over the IC leads.
④ When the solder melts, carefully twist the iron.
⑤ Raise and remove the IC.

(2) Using shaped airblower unit:
① Select the correct nozzle.
② Select the temperature and airblow (suggested: temperature: 7, airblow: 4)
③ Engage the IC removing tool.
④ Use the airblow to preheat the IC for about 5 seconds, then heat with the nozzle until the IC remover lifts the part from the board.

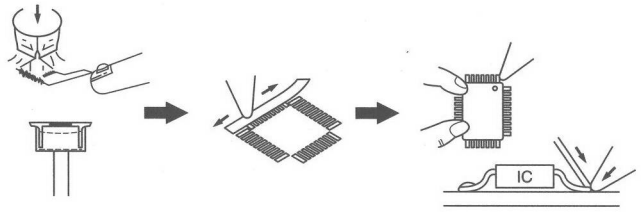


Fig 7-4.

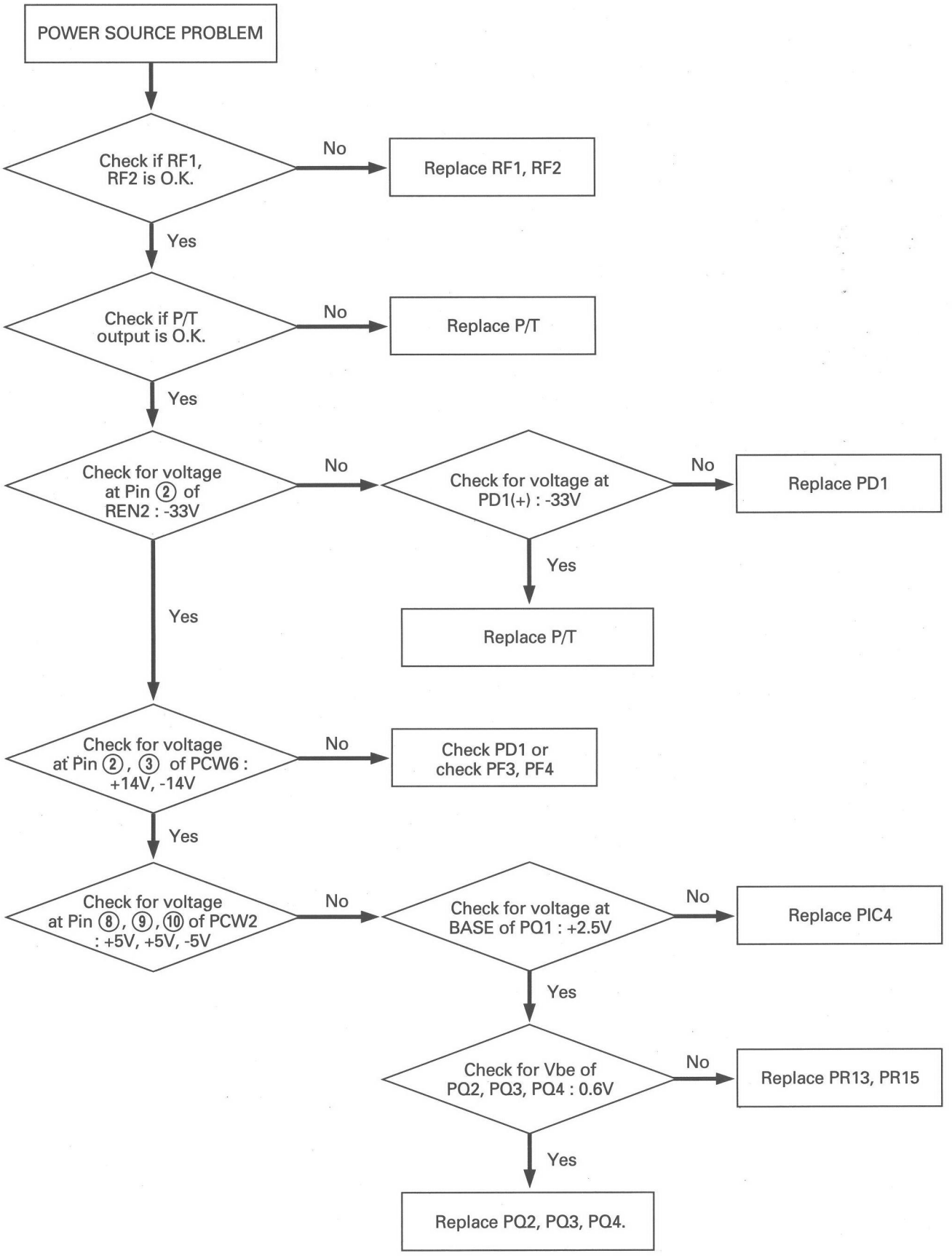
11-6-3. Installing the Part

(1) Use desoldering wire to remove the previous older.
(2) Clean the location.
(3) Apply flux.
(4) Position the IC and solder two pins at opposite sides.
(5) Use a sharp tipped soldering iron and carefully solder each pin. (After graining experience, a thicke tip can be used for better work efficiency.)
(6) Remove any solder bridges with desoldering wire.
(7) Inspect the work with a magnifier.

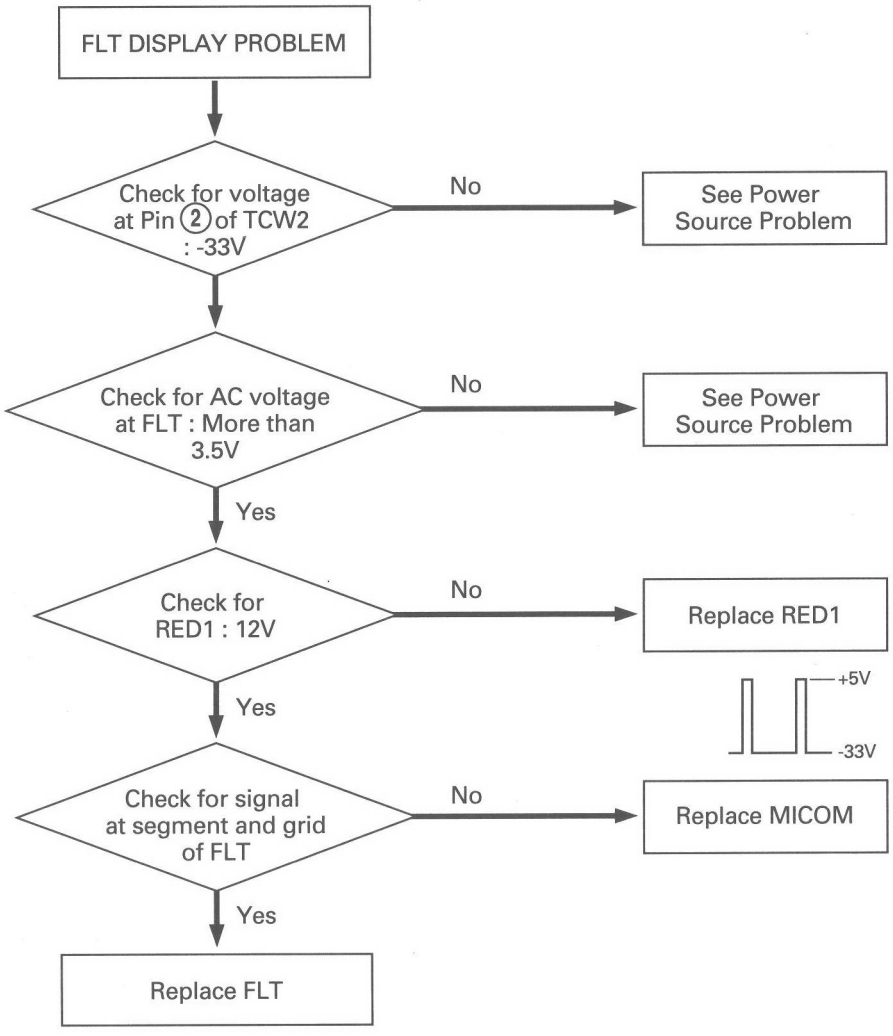
12. Trouble shooting

No.	SYMPTOM	PAGE
12– 1.	Power source problem	68
12– 2.	Flt display problem	69
12– 3.	Remote control unit inoperative	69
12– 4.	No disc error	70
12– 5.	CD Does not play	71
12– 6.	LD Does not play	72
12– 7.	No C-Sync	73
12– 8.	Blue Background not shown	74
12– 9.	No VIDEO SIGNAL	75
12– 10.	Focus does not work	77
12– 11.	Tray does not open	78
12– 12.	Slider motor does not work	79
12– 13.	Spindle motor does not work	80
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12– 17.	Skip problem	84
12– 18.	Tray does not close	85
12– 19.	Crosstalk problem	86
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12– 21.	No digital sound	88
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12– 27.	No OUTPUT ON PAL-MODE	94
12– 28.	Pick-up cheek	95

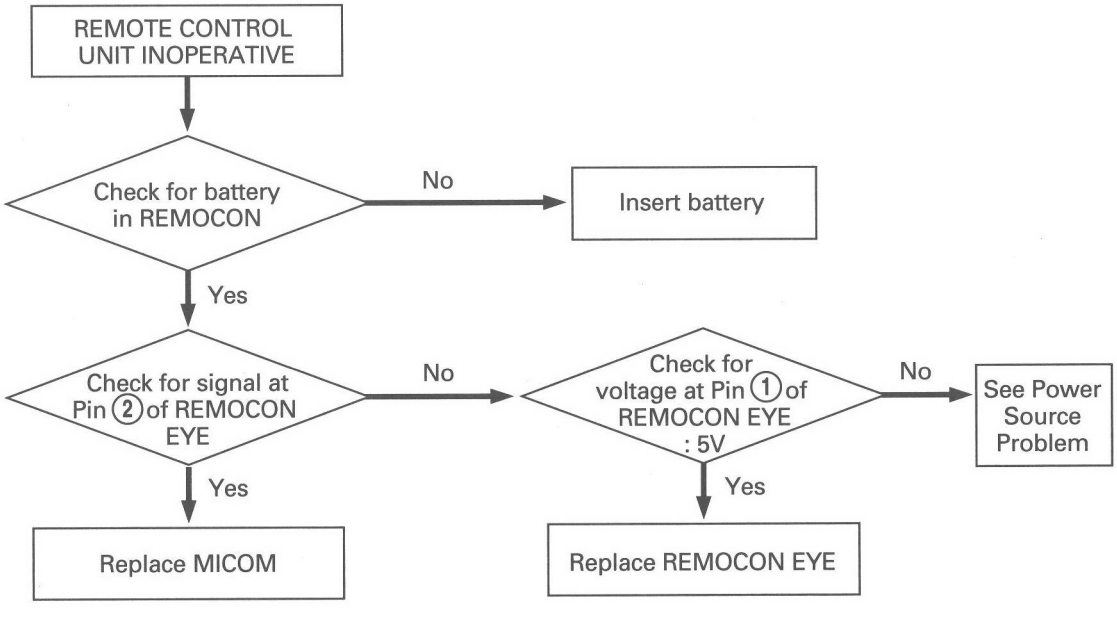
12-1. Power source problem



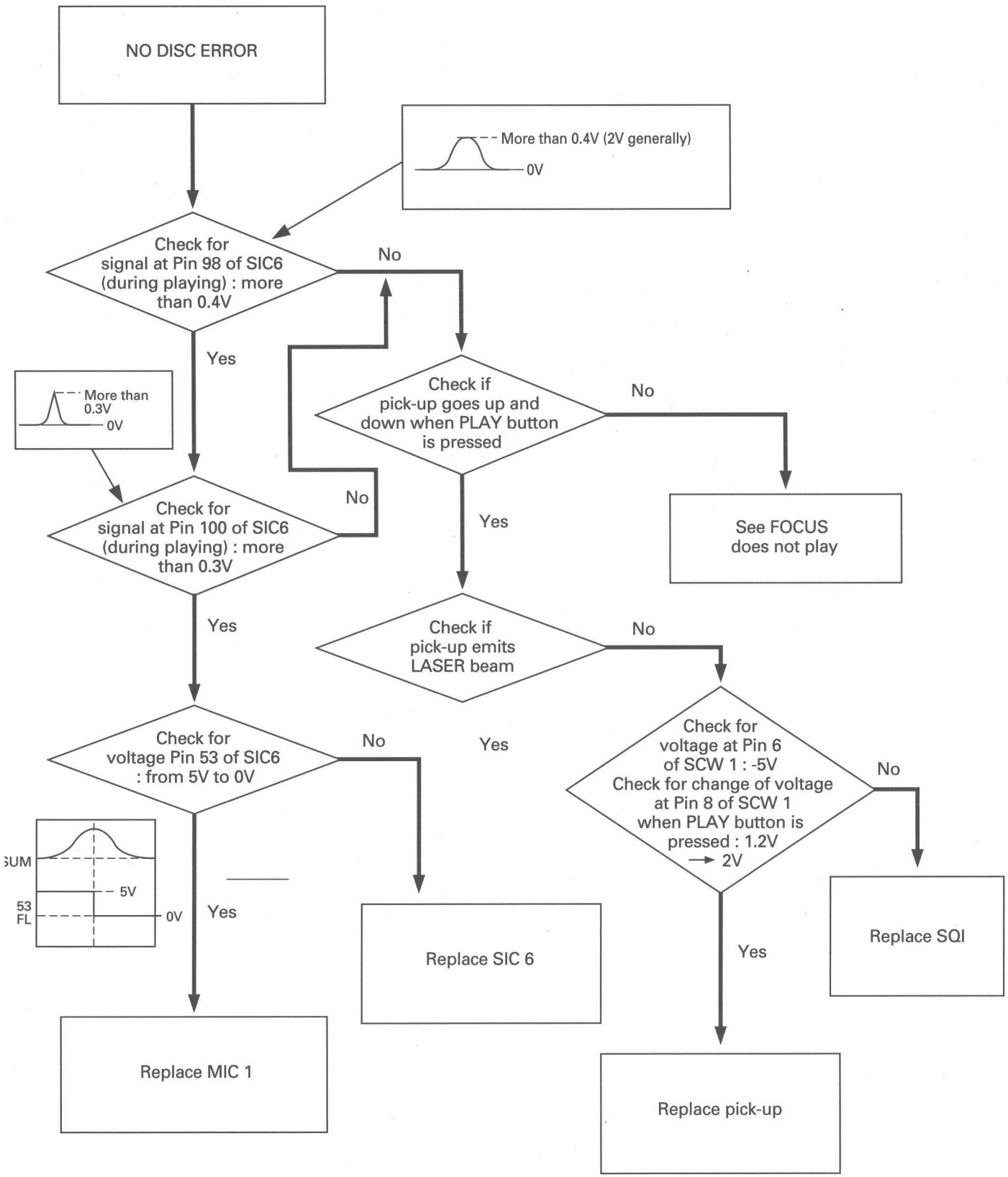
12-2. Flt display problem



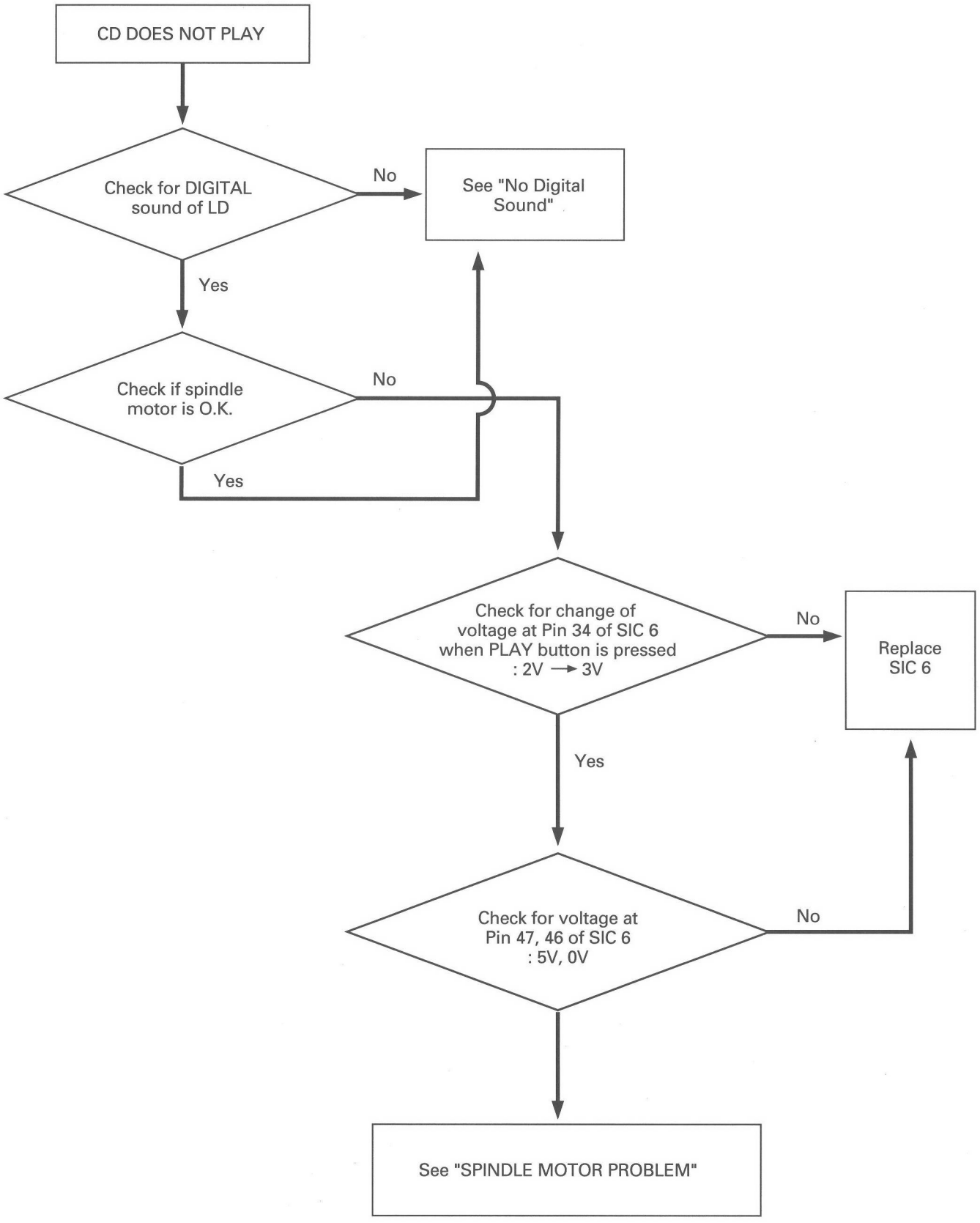
12-3. Remote control unit inoperative



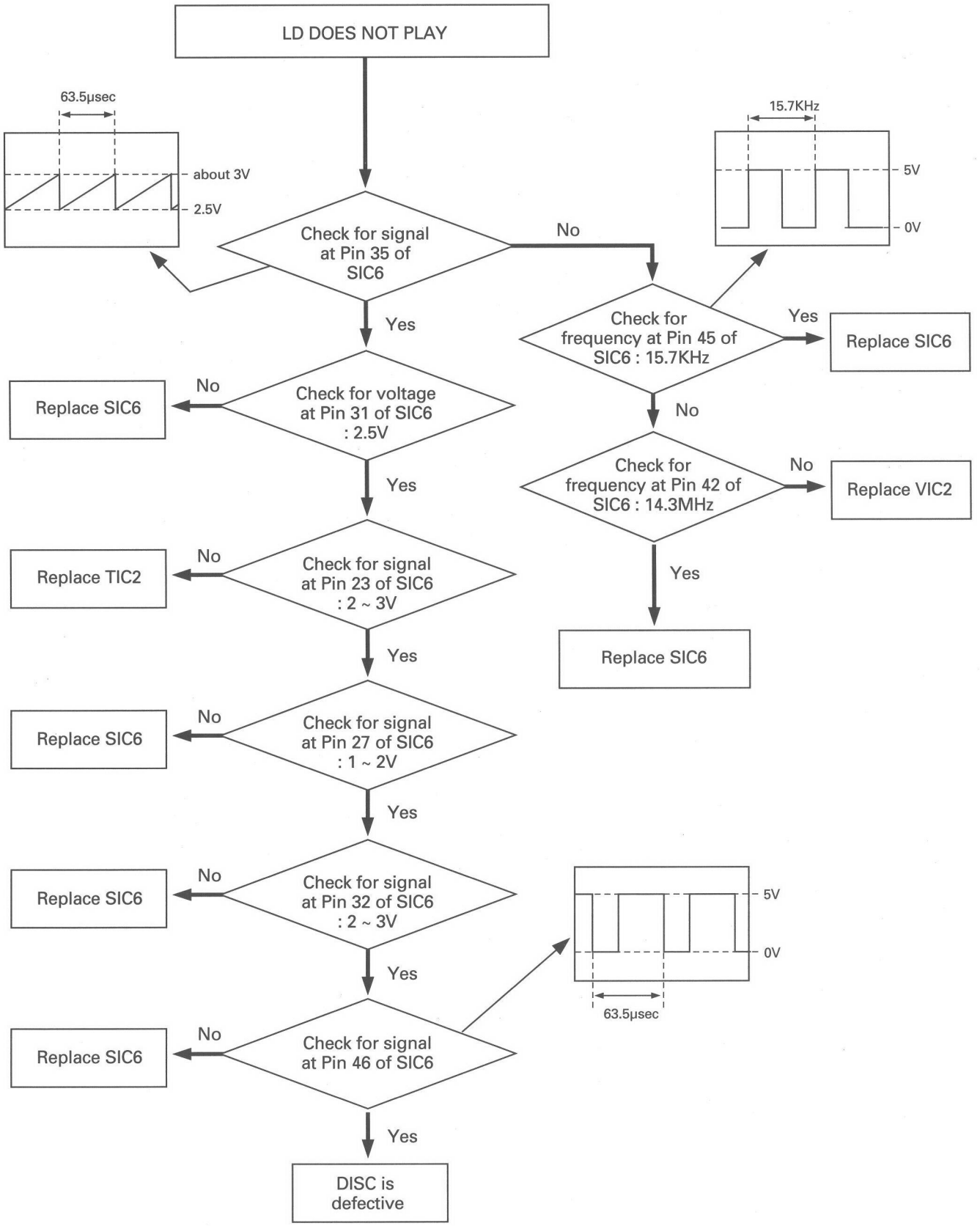
12-4. No disc error



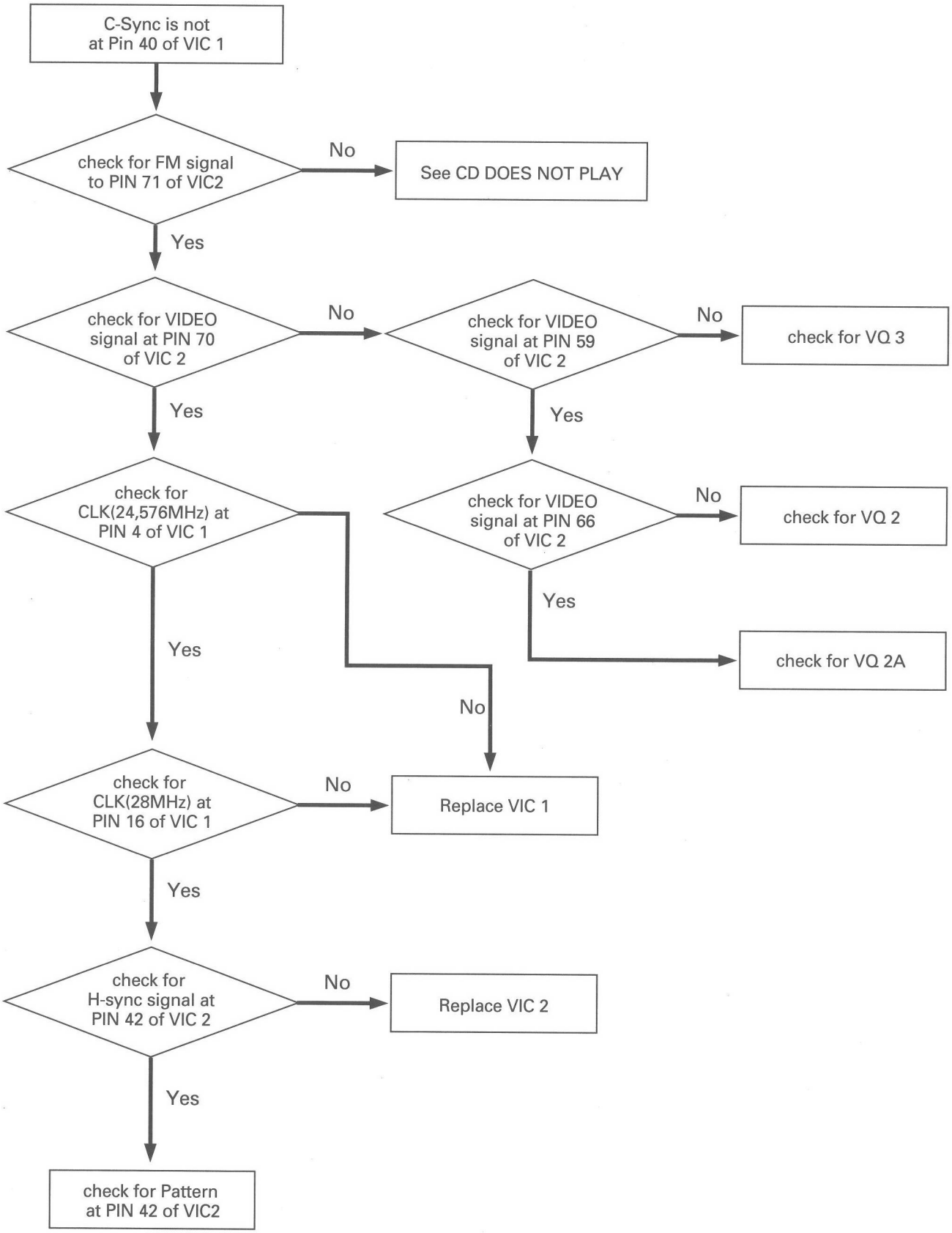
12-5. CD does not play



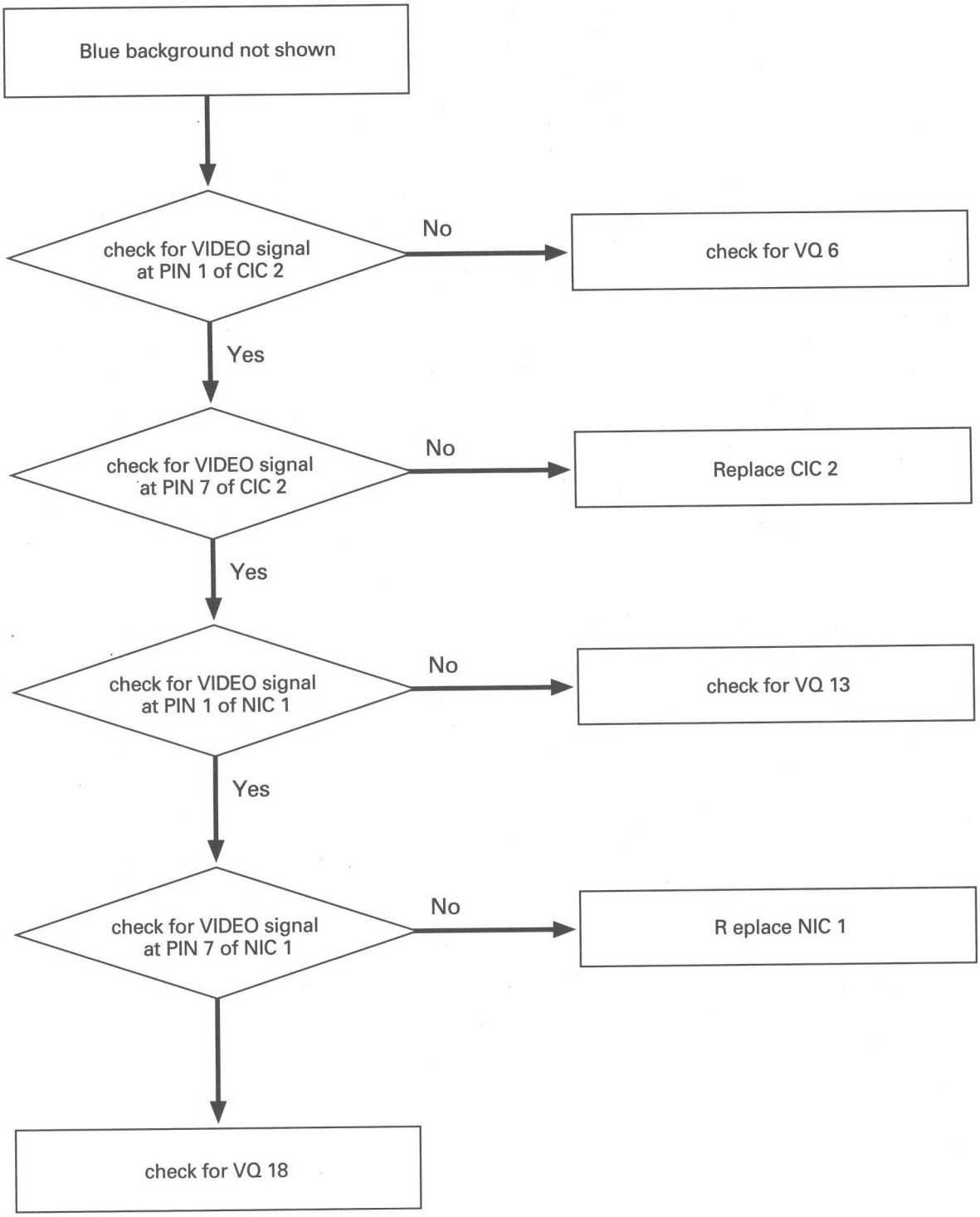
12-6. LD does not play



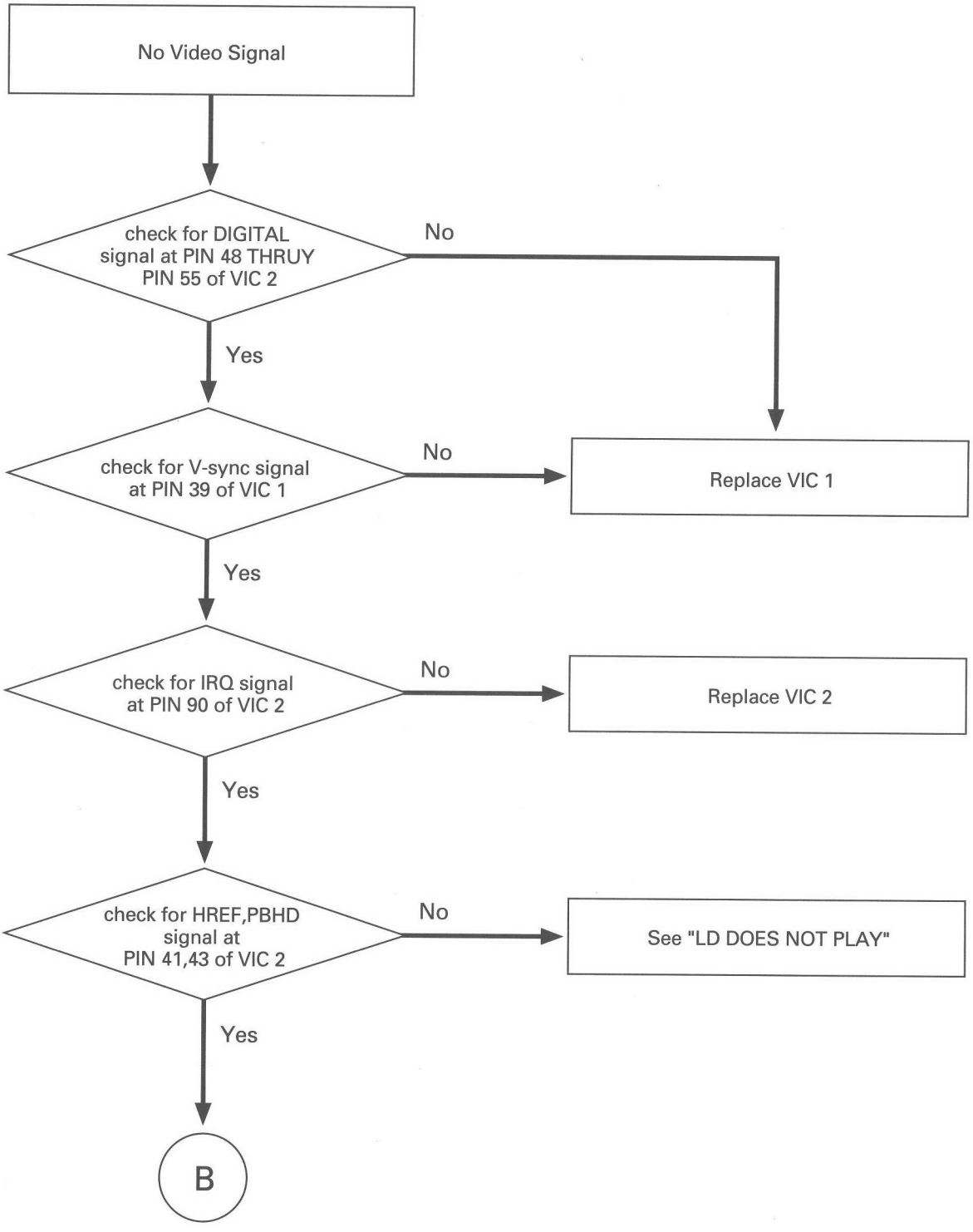
12-7. No C-Sync

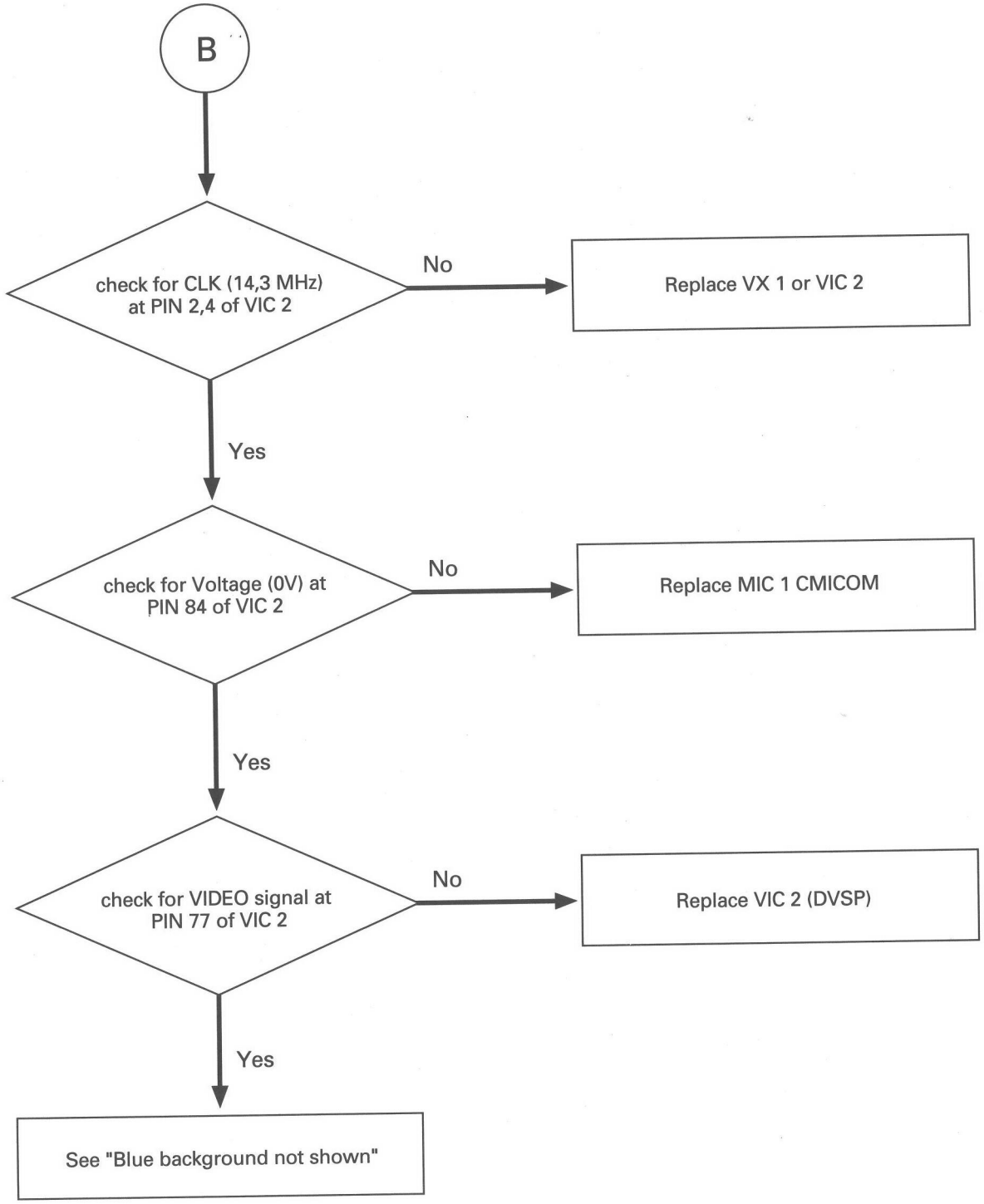

C-Sync is not at Pin 40 of VIC 1
check for FM signal to PIN 71 of VIC2
No
See CD DOES NOT PLAY
Yes
check for VIDEO signal at PIN 70 of VIC 2
No
check for VIDEO signal at PIN 59 of VIC 2
No
check for VQ 3
Yes
Yes
check for CLK(24,576MHz) at PIN 4 of VIC 1
check for VIDEO signal at PIN 66 of VIC 2
No
check for VQ 2
Yes
Yes
check for VQ 2A
No
check for CLK(28MHz) at PIN 16 of VIC 1
No
Replace VIC 1
Yes
check for H-sync signal at PIN 42 of VIC 2
No
Replace VIC 2
Yes
check for Pattern at PIN 42 of VIC2

12-8. Blue background not shown

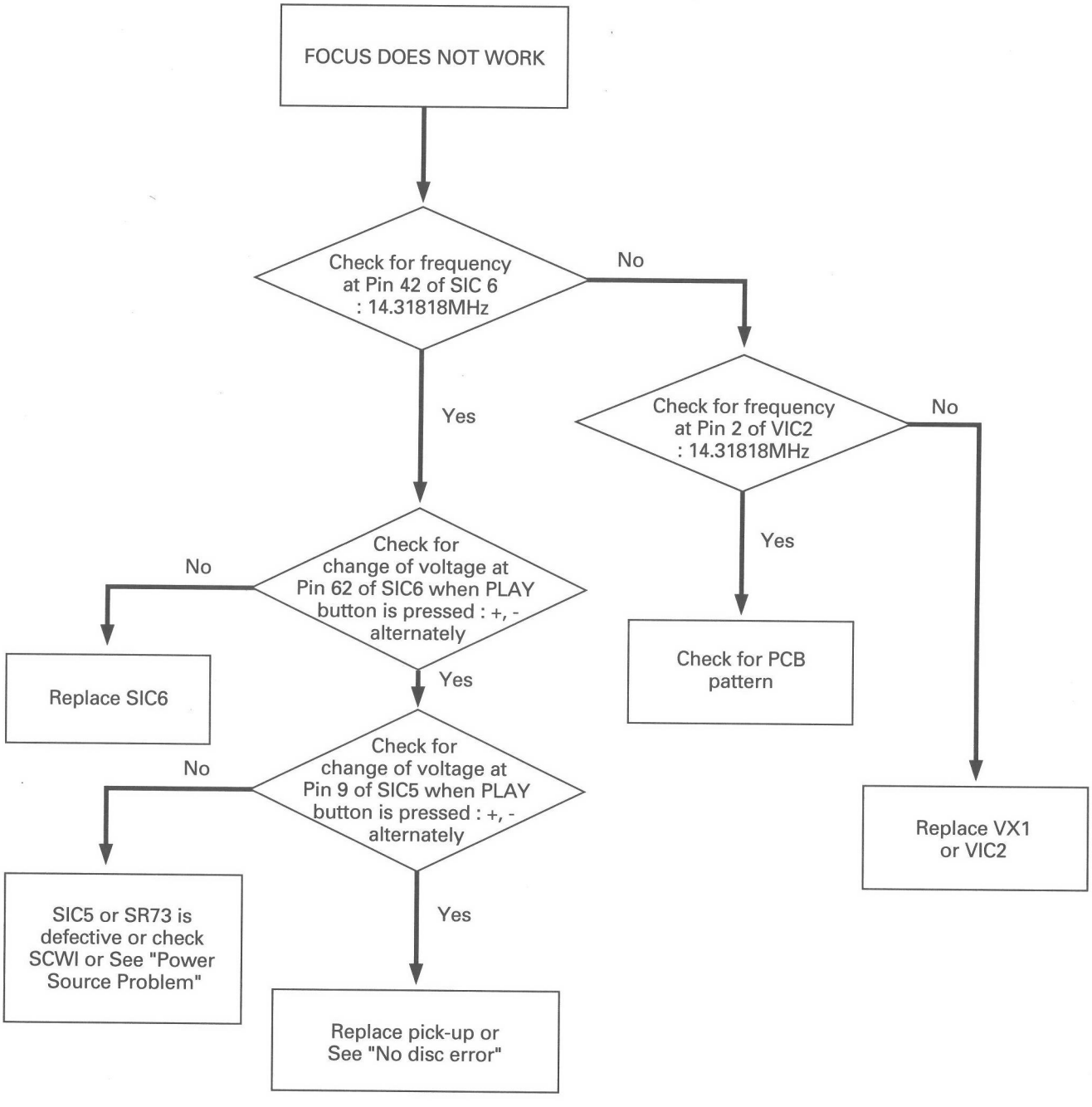


12-9. No video signal

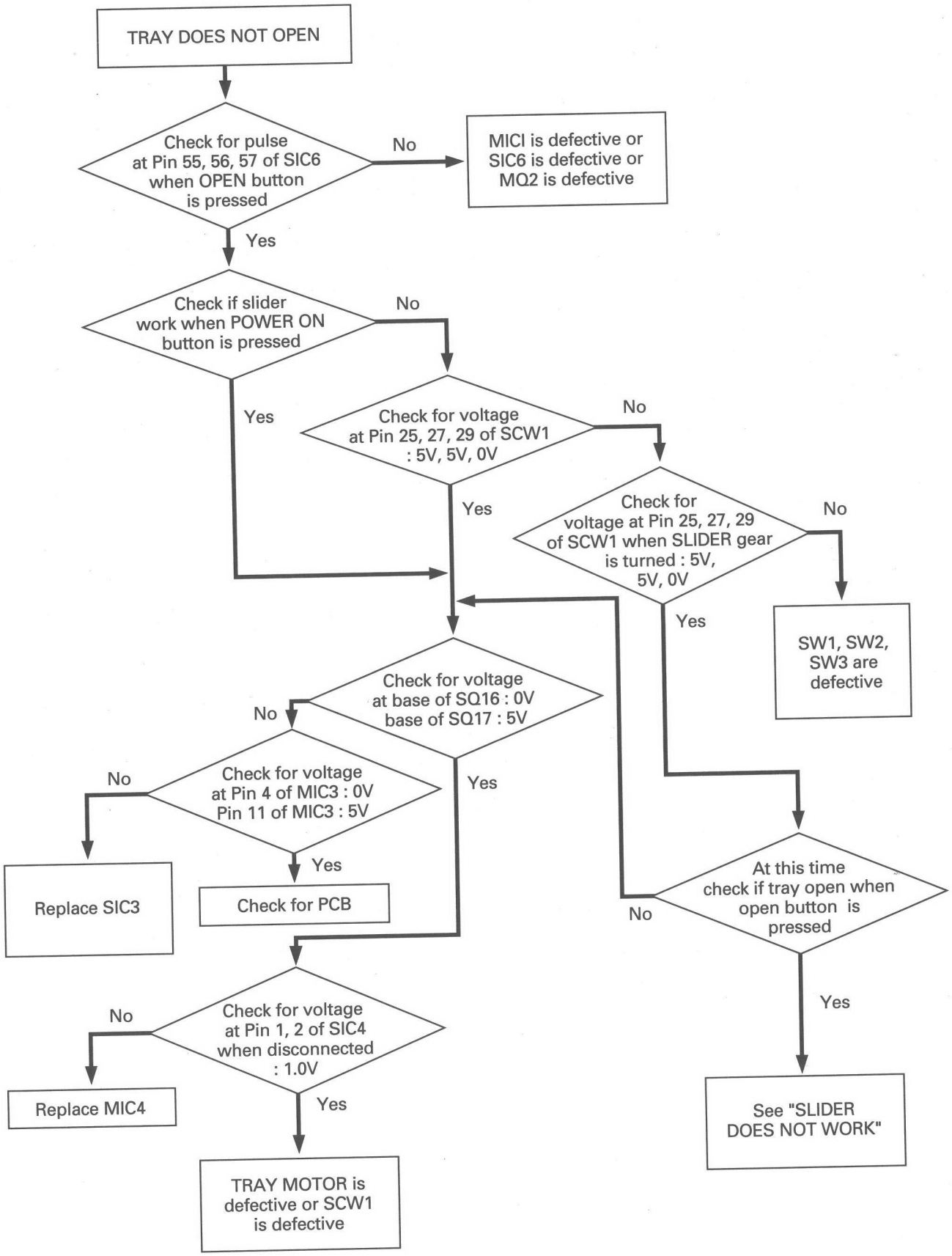



B
check for CLK (14,3 MHz) at PIN 2,4 of VIC 2
No
Replace VX 1 or VIC 2
Yes
check for Voltage (0V) at PIN 84 of VIC 2
No
Replace MIC 1 CMICOM
Yes
check for VIDEO signal at PIN 77 of VIC 2
No
Replace VIC 2 (DVSP)
Yes
See "Blue background not shown"

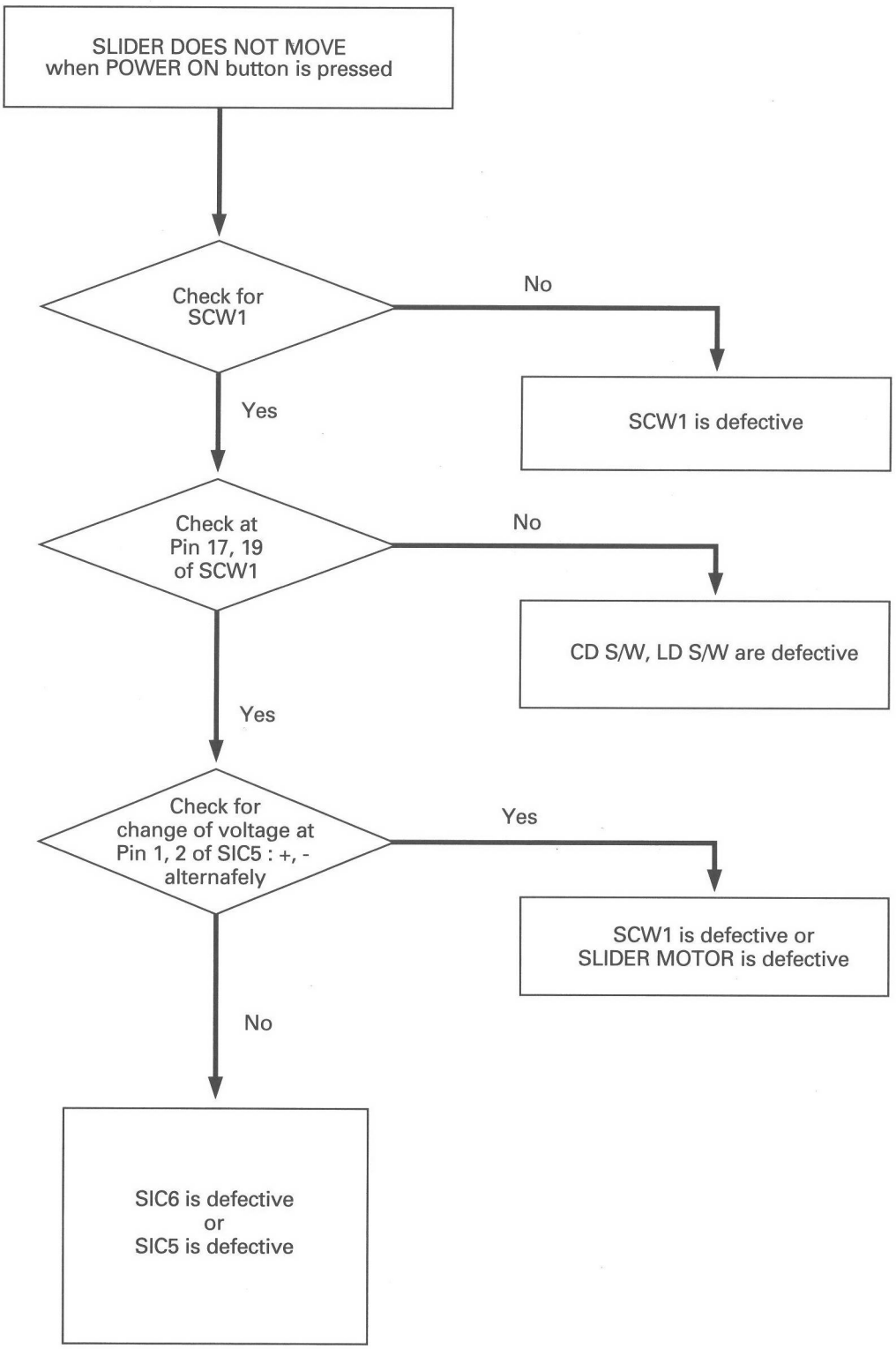
12-10. Focus does not work



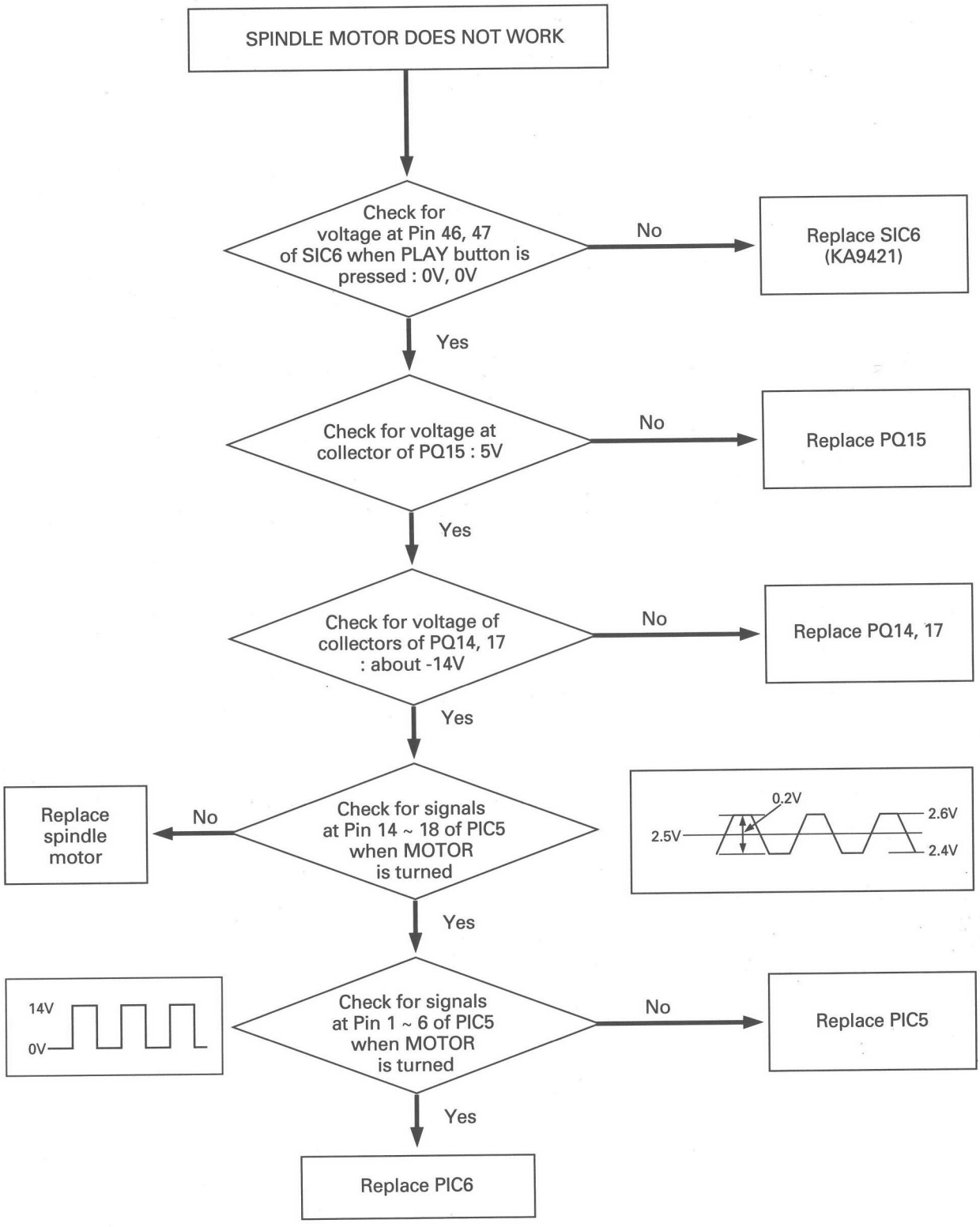
12-11. Tray does not open



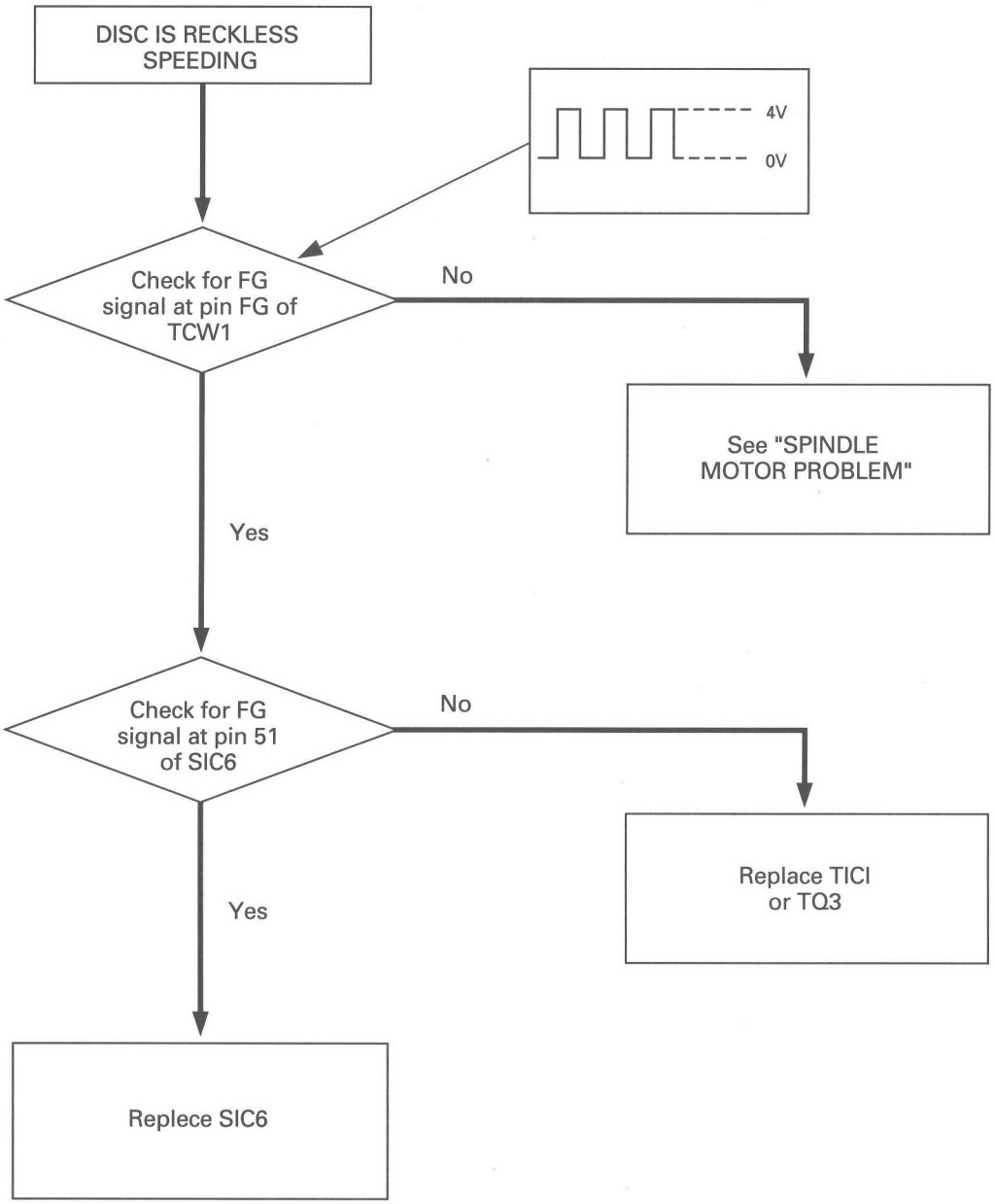
12-12. Slider does not work



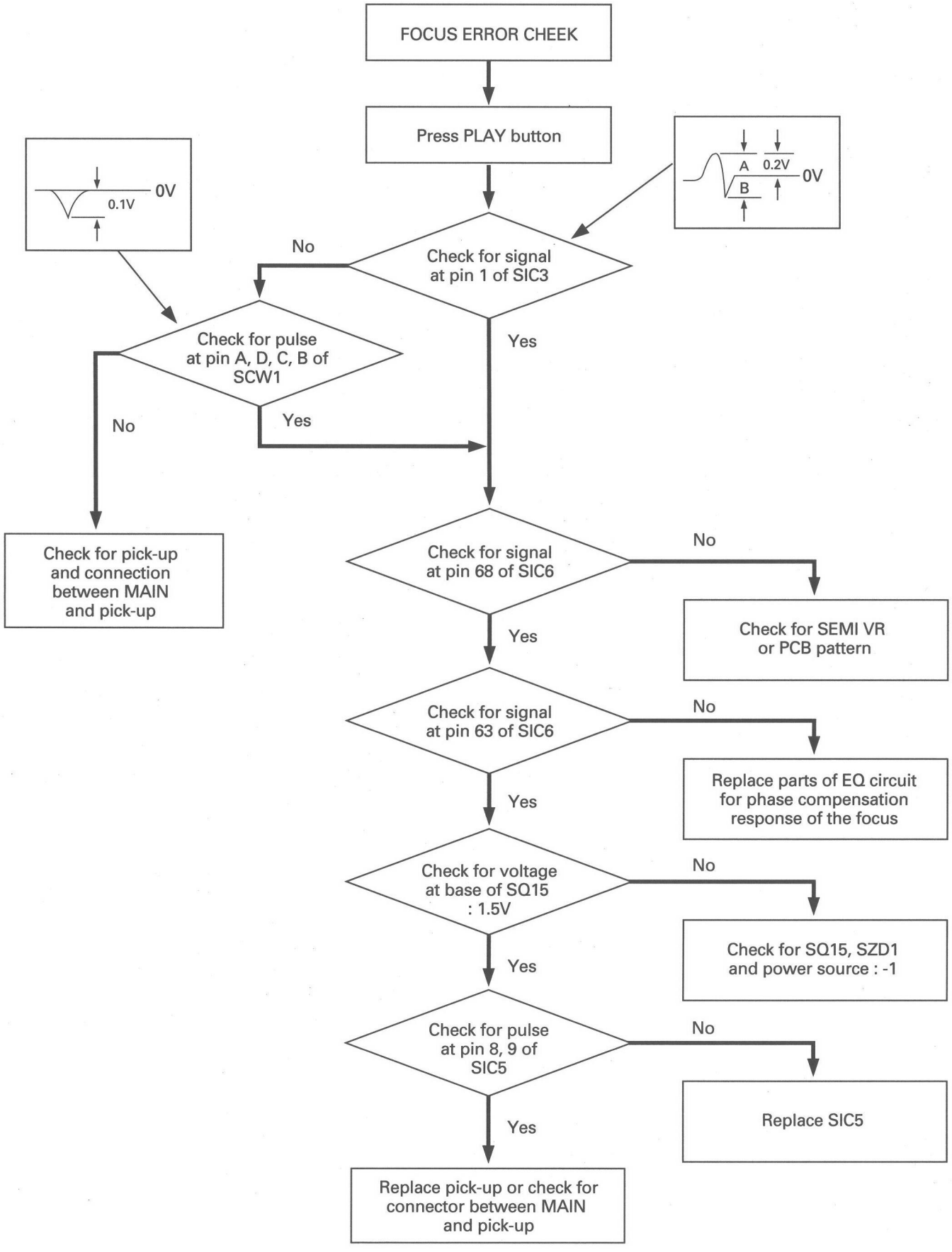
12-13. Spindle Motor Does not work



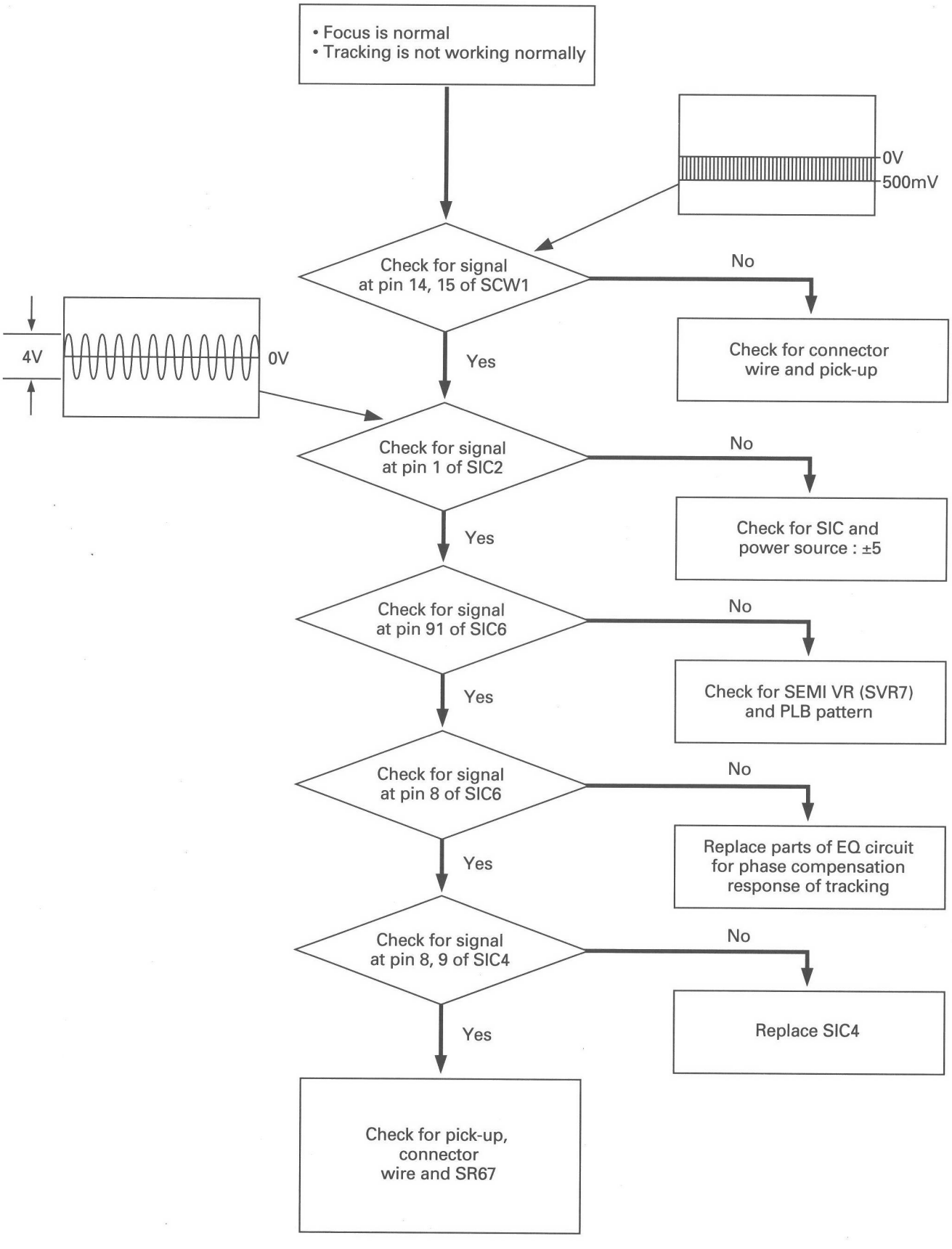
12-14. Disc is reckless speeding



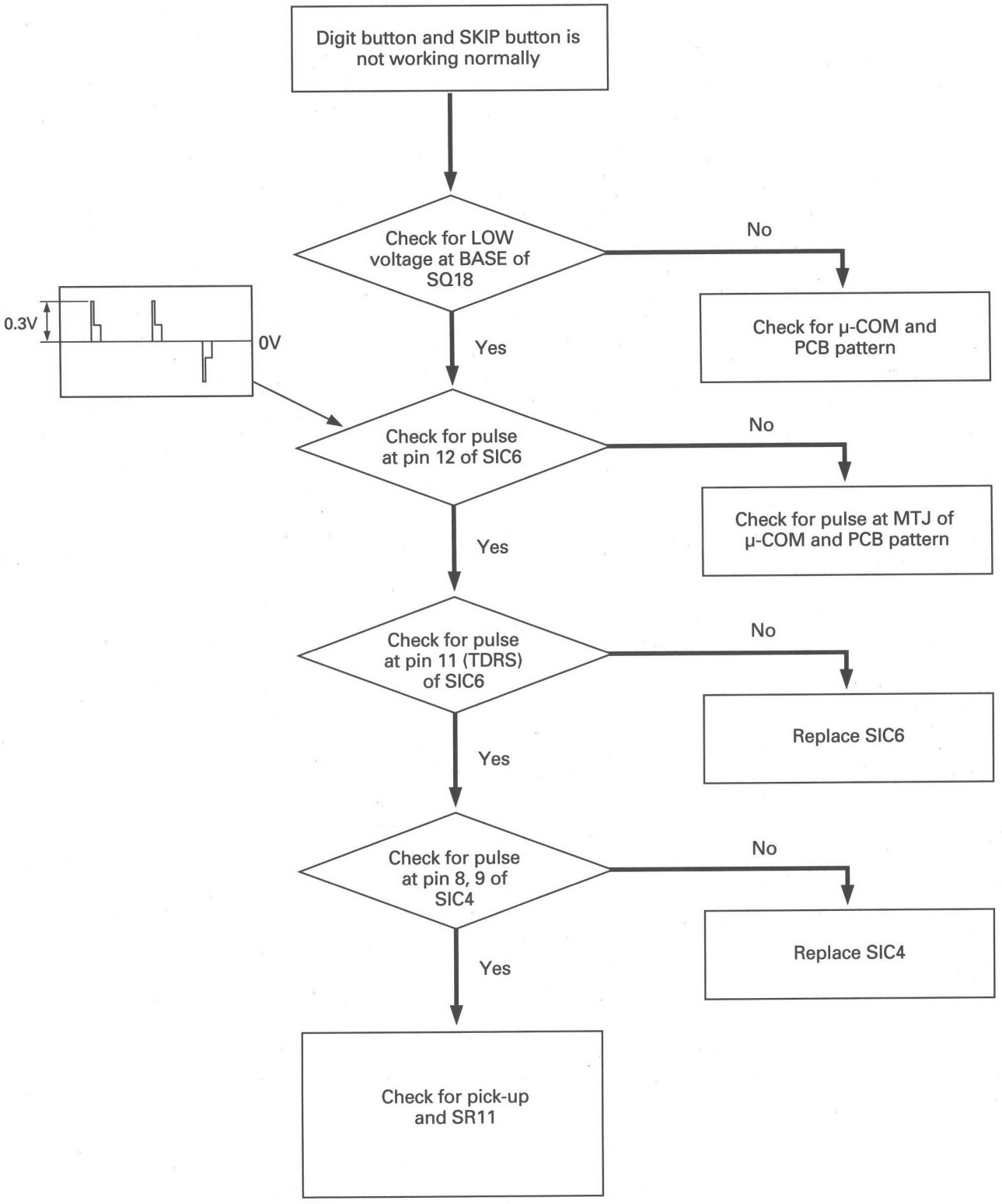
12-15. Focus error check



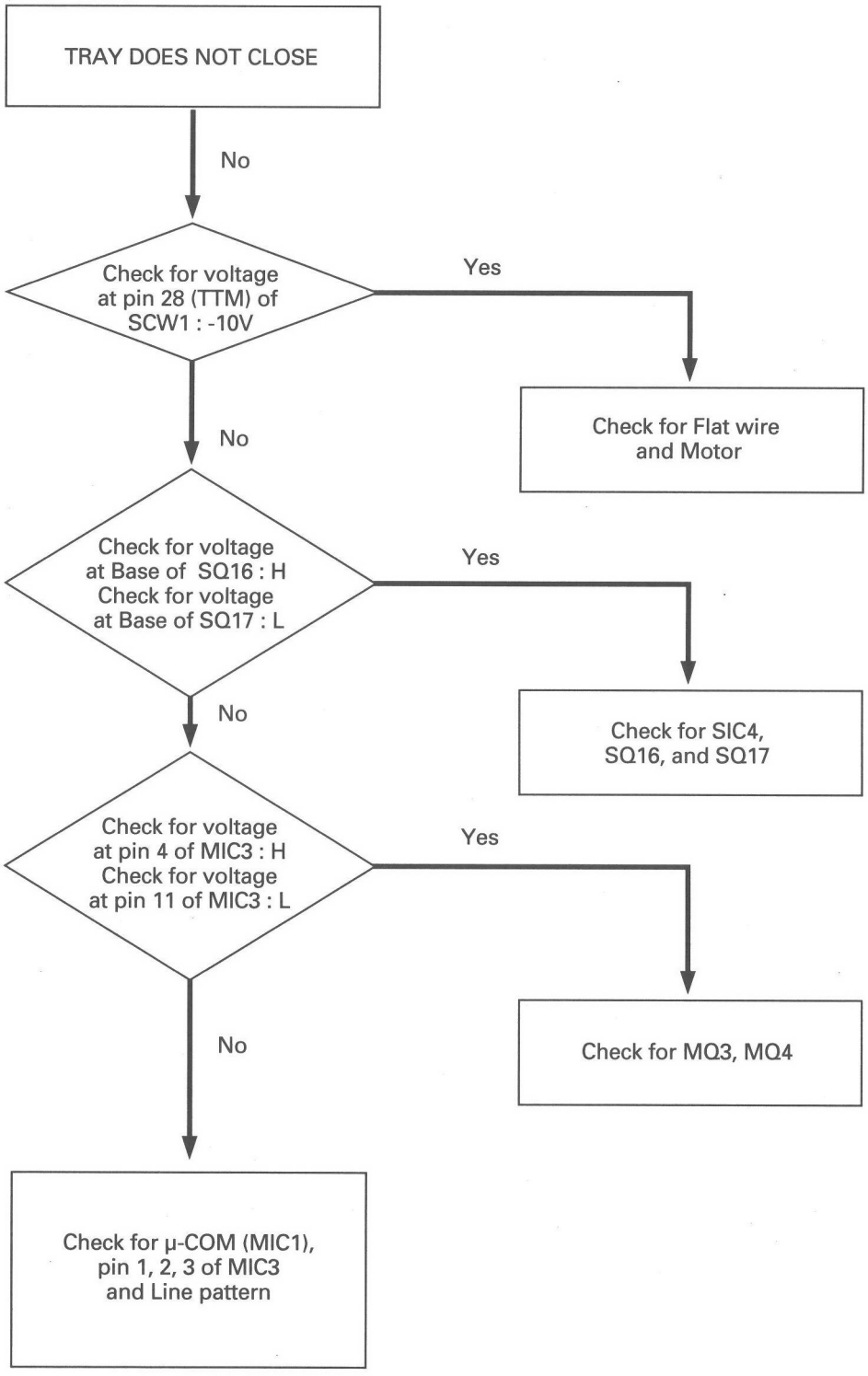
12-16. Tracking is not working normally



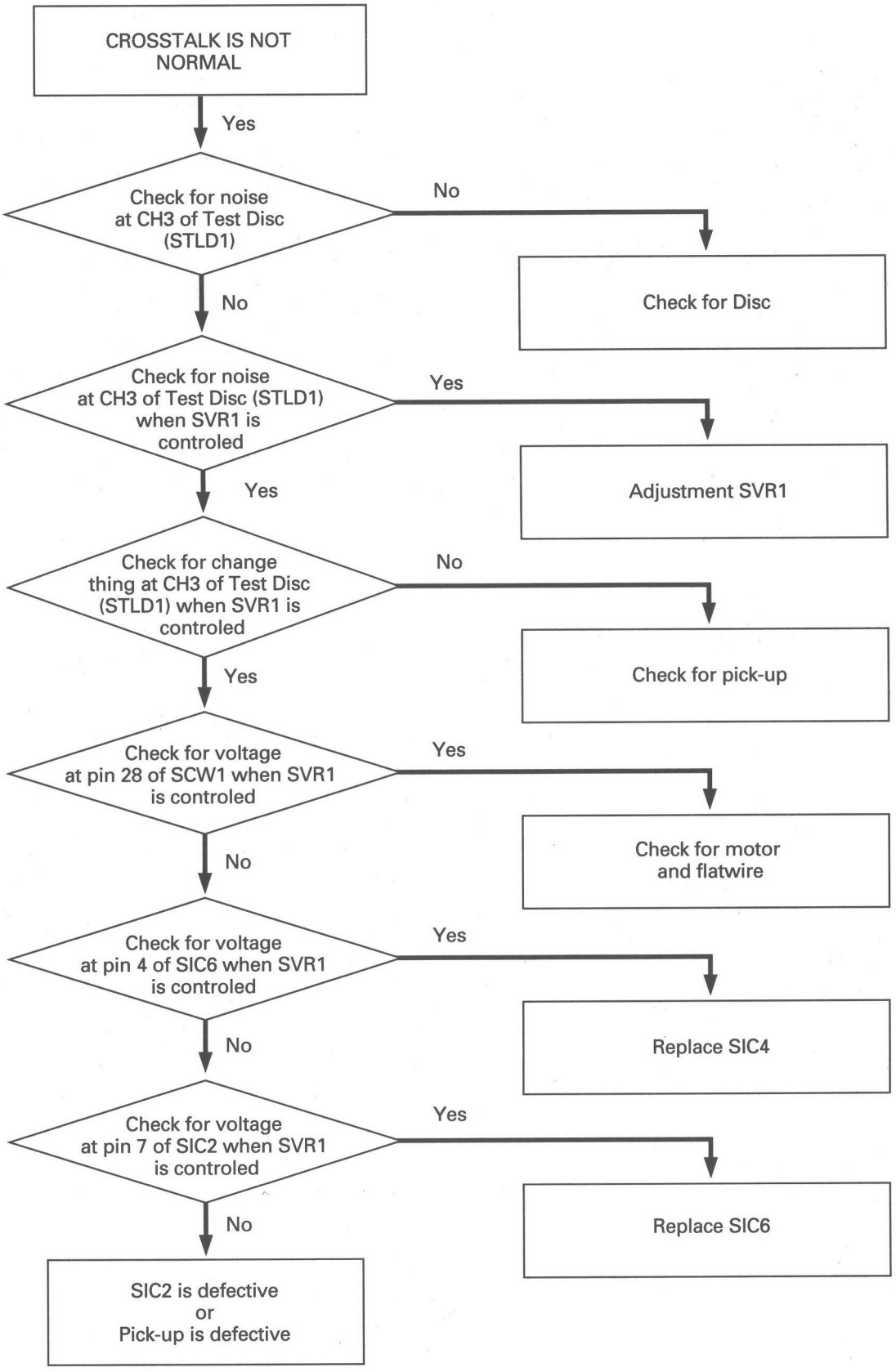
12-17. Digit button and SKIP button is not working normally



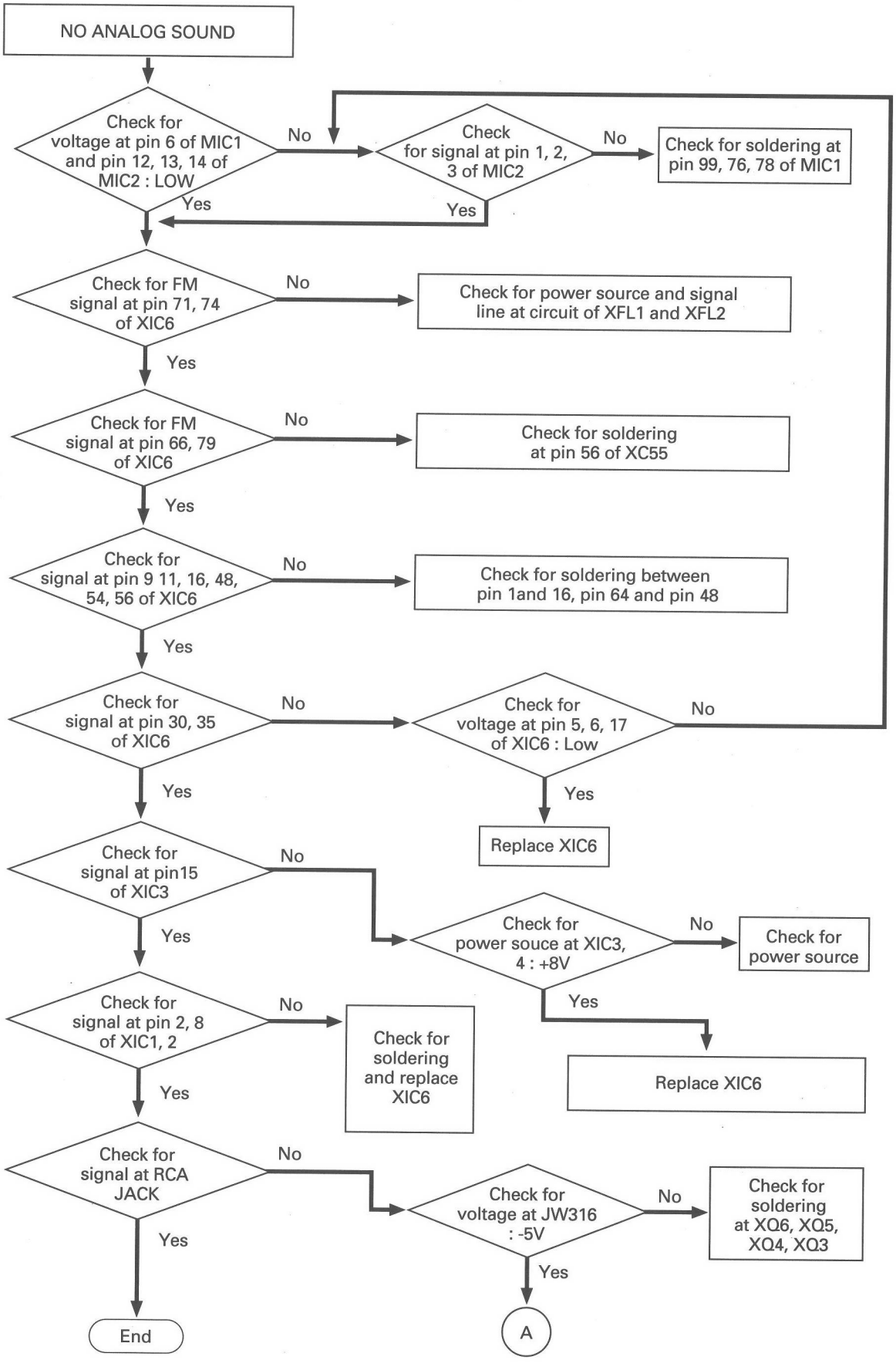
12-18. Tray does not close



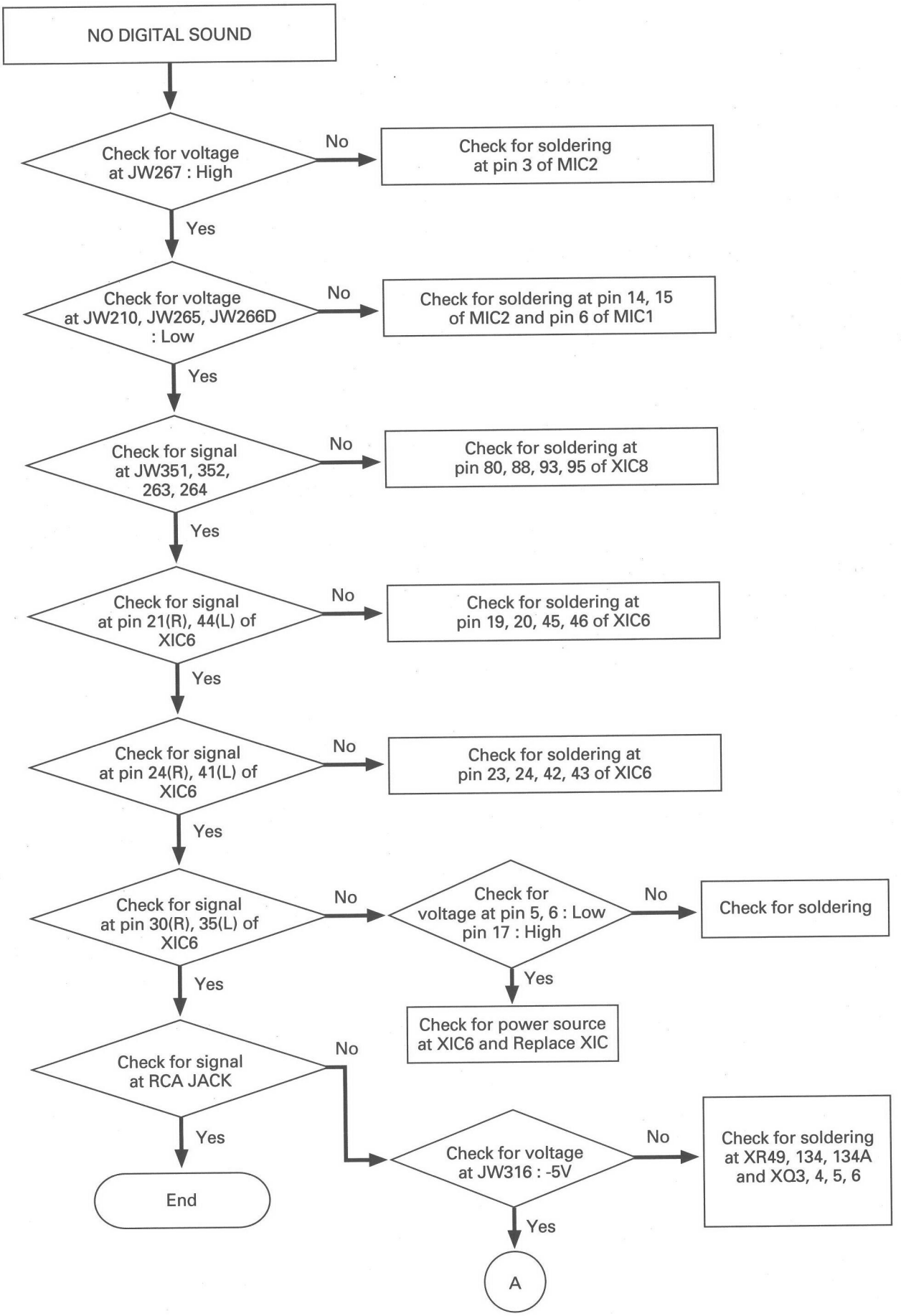
12-19. Crosstalk is not normal

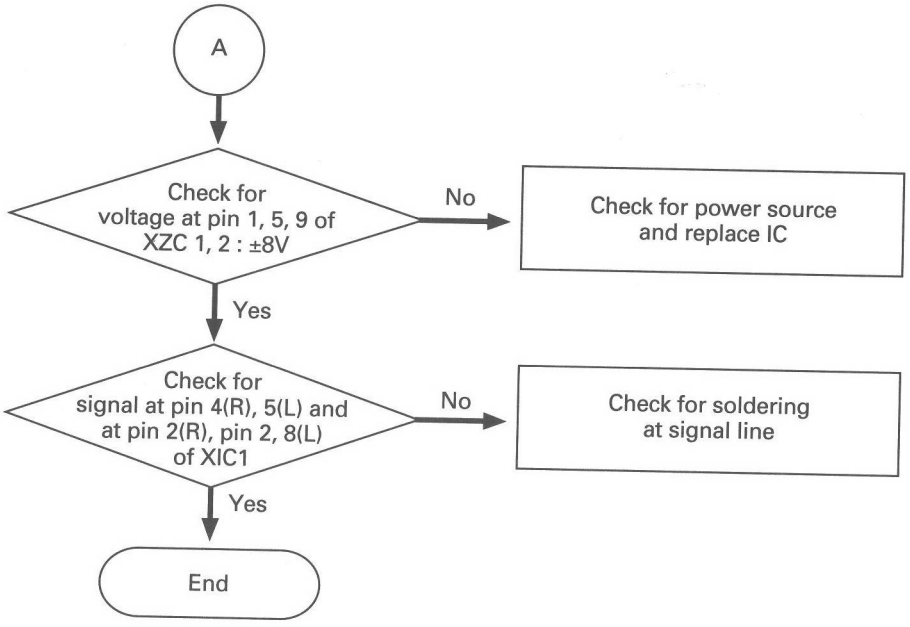


12-20. No analog sound

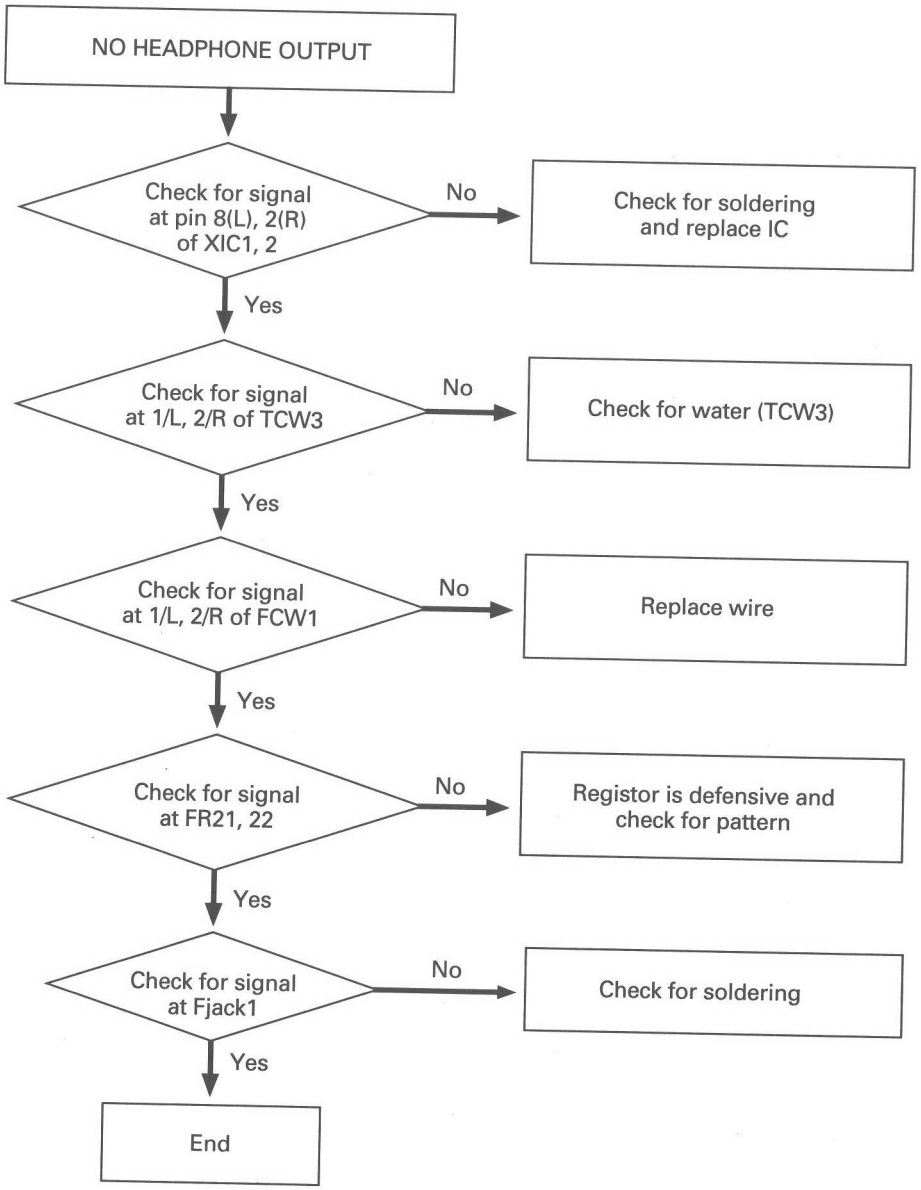


12-21. No digital sound

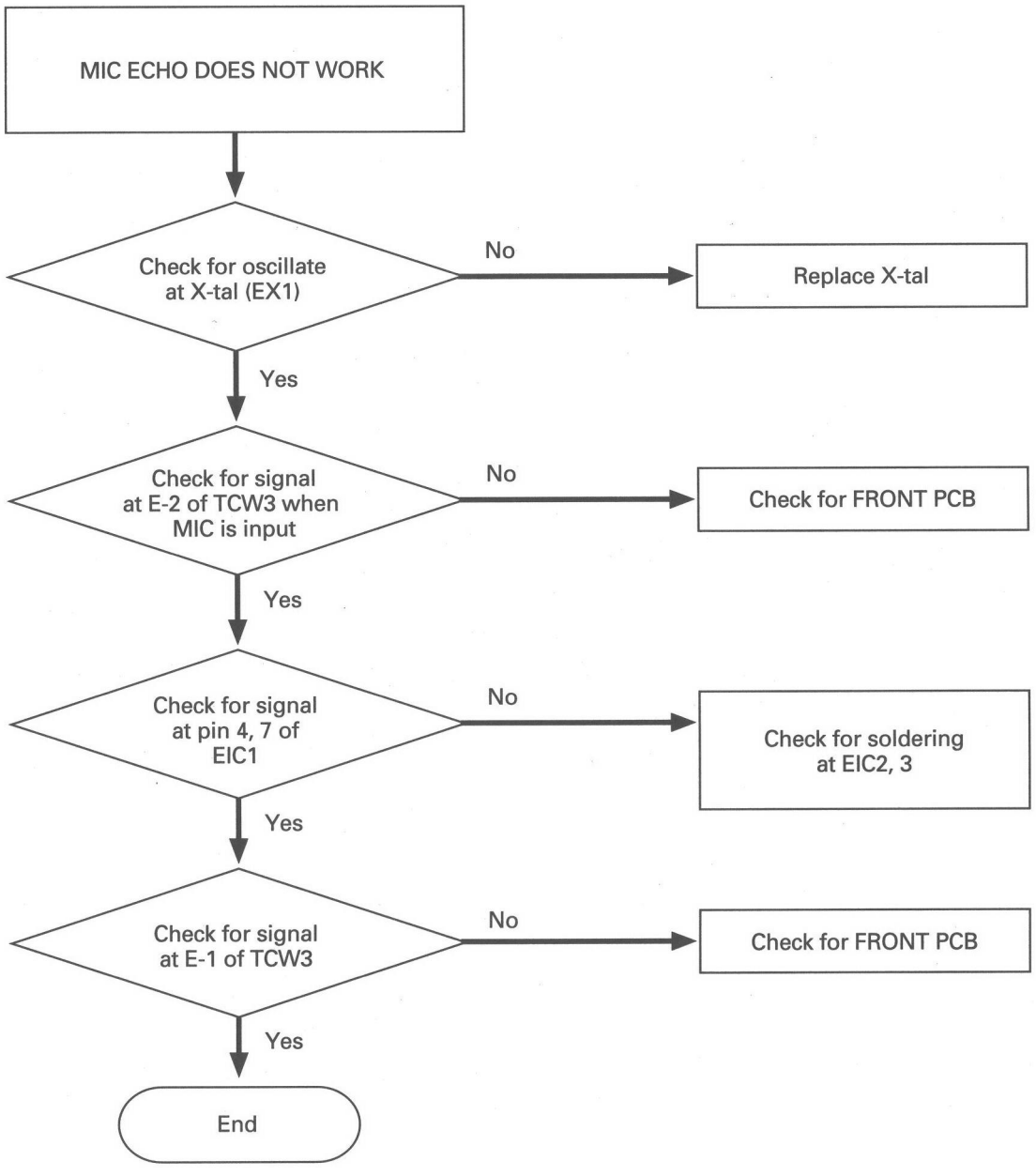




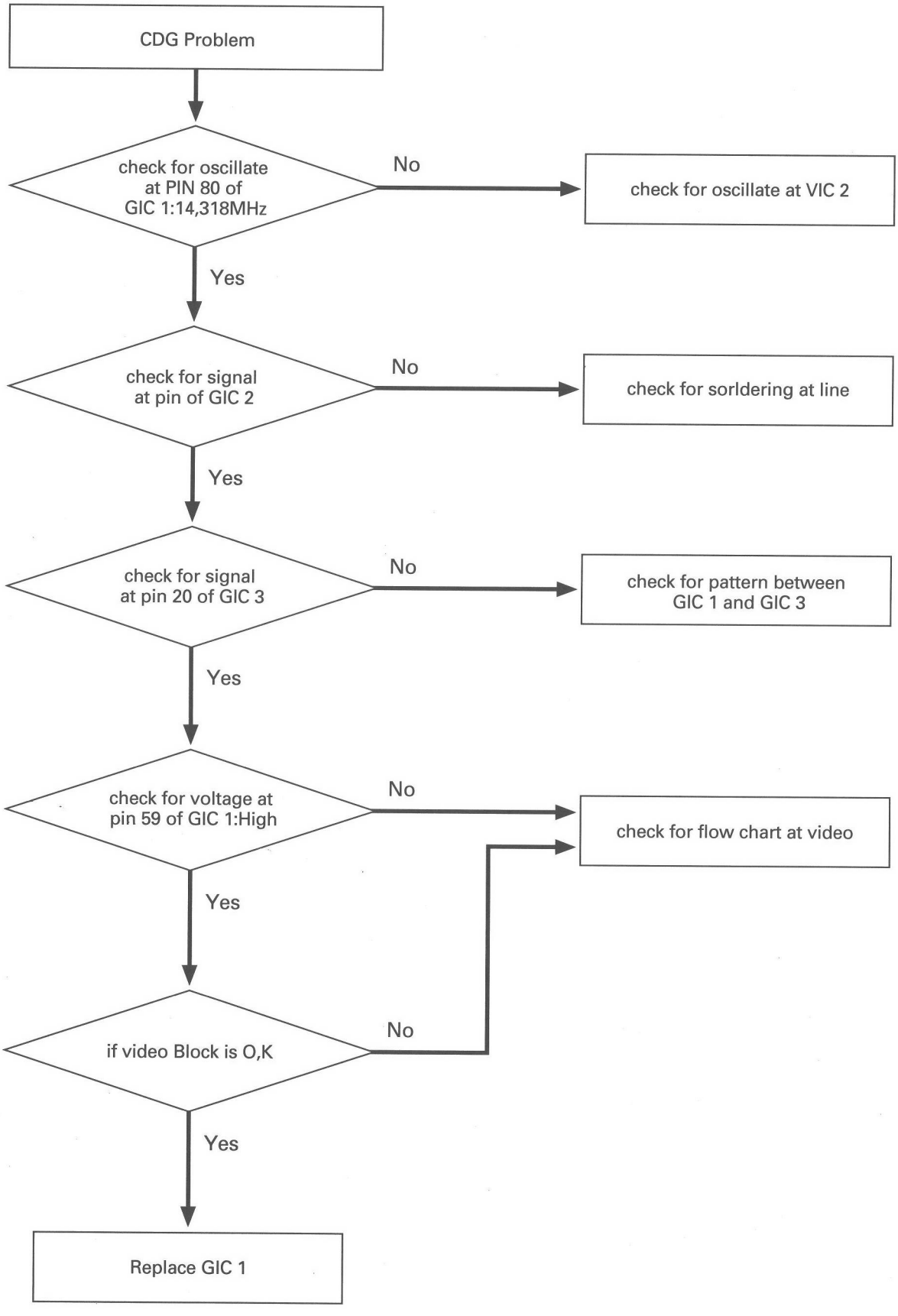
12-22. No headphone output



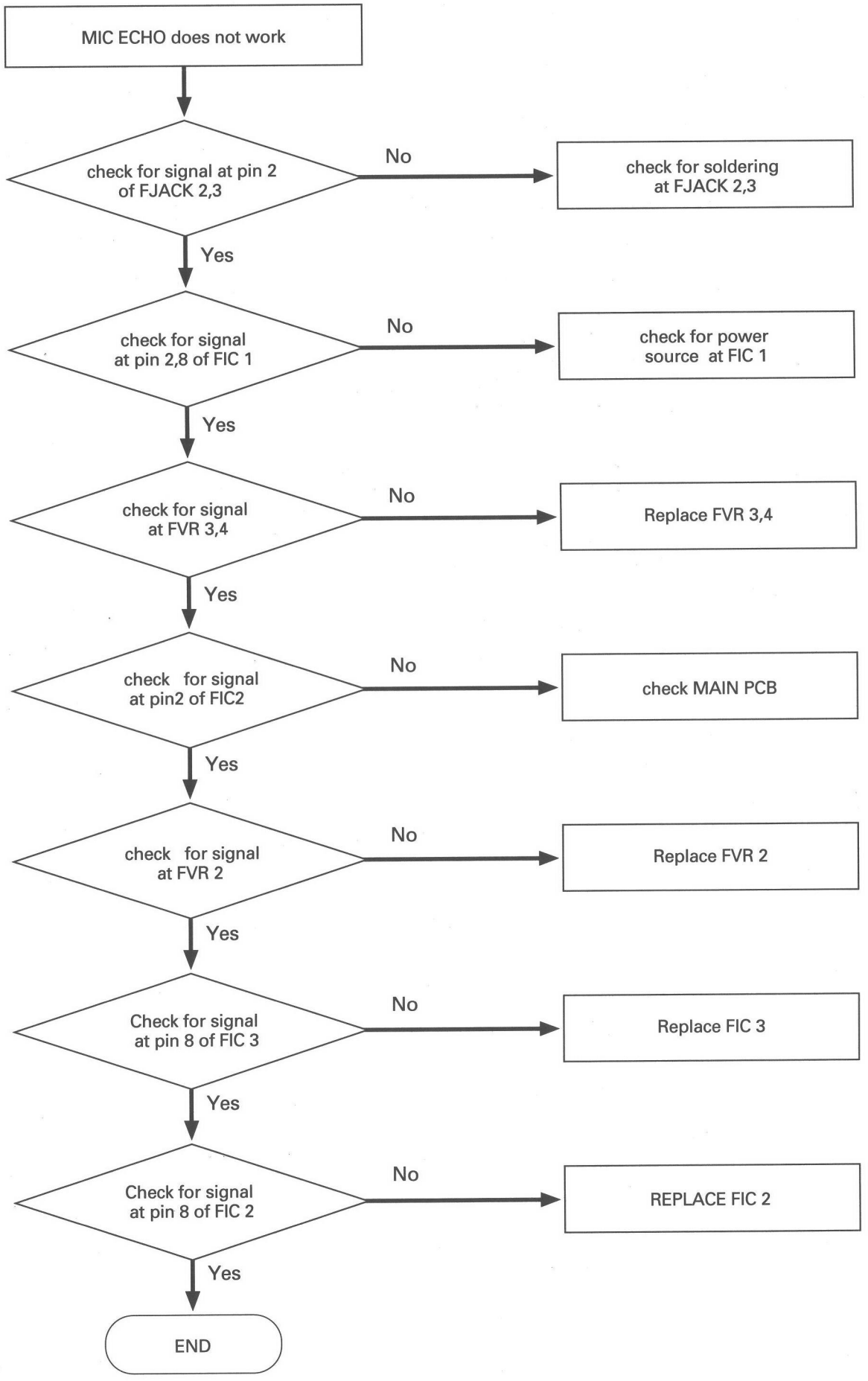
12-23. MIC echo does not work (Main PCB)



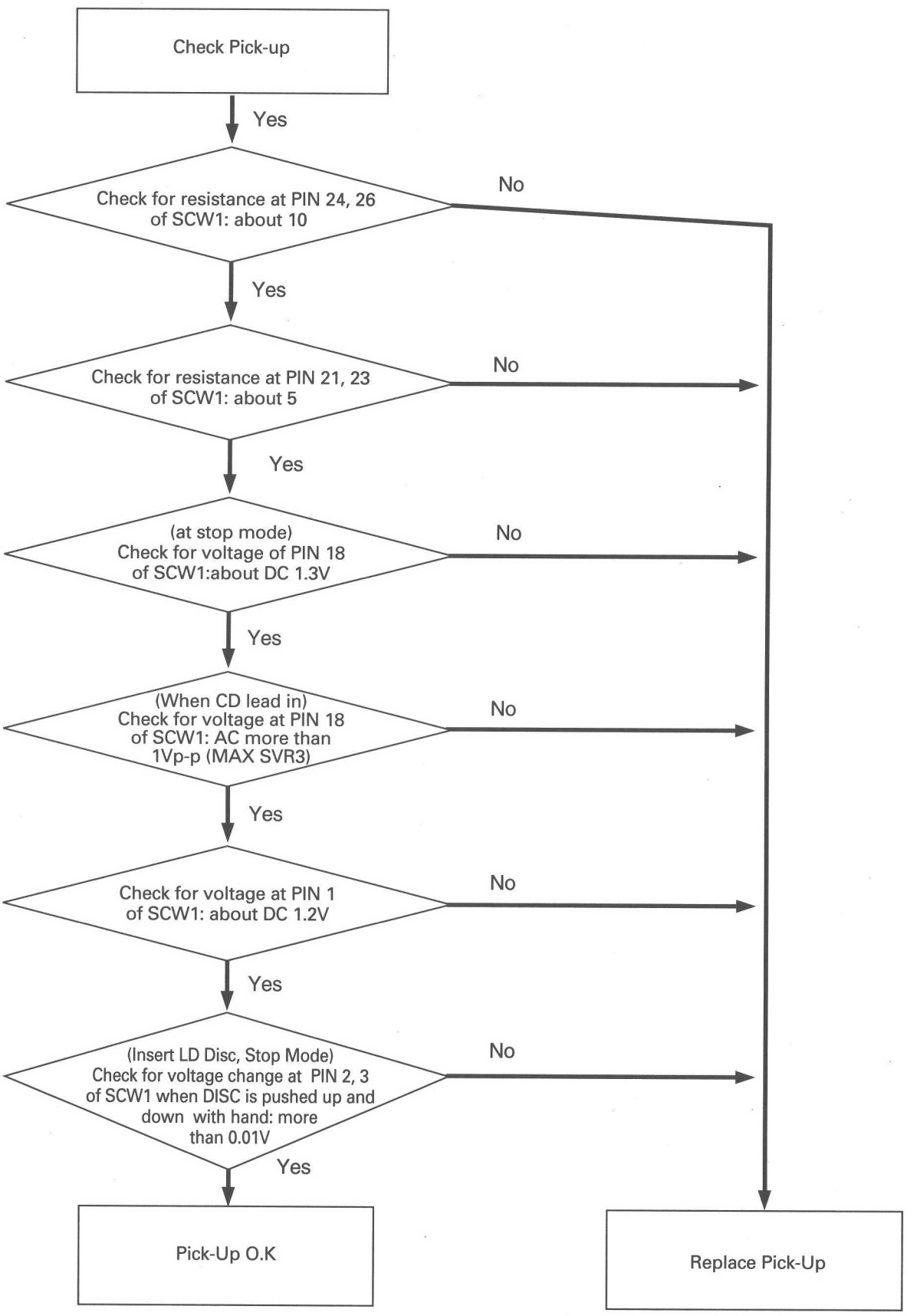
12-24. CDG Problem



12-25. MIC Echo does not work



12-28. Check Pick-up



13. Micom IC pin description(MICI, LC 866232A)

I: Input O: Output

NO	PIN NAME		LABEL	I/O	FUNCTION
1	P52		MTJ	O	MULTI-TRACK JUMP FR SEARCH
2	PWM1		PWM1	O	NOT USED
3	PORT2	P20	SAFTY-S/W	I	DOOR SAFETY SM
4		P22	CDGH	I	CDG DISC CHECK PORT("H" : CDG DISC)
5		P22	DSP-LAT	O	DASP DATA LATCH
6		P23	MUTE	O	AUDIO MUTE
7		P24	ECHO-LAT	O	DSP DATA LATCH
8		P25	KCLK	I	FMV MODEL COMMUNICATION CLOCK
9		P26	KDATA	O	FMV MODEL COMMUNICATION DATA
10		P27	READY	O	FMV MODEL COMMUNICATION READY
11	TEST1		TEST1	I	NOT USED
12	RES		RESET	I	MICOM RESET
13	XT1		XT1		NOT USED
14	XT2		XT2		NOT USED
15	VSS		VSS		GROUND
16	CF1		CF1	I	X-TAL IN
17	CF2		CF2	O	X-TAL OUT
18	VDD		VDD		+5V
19	PORT8	P80/AN0	CRCF	I	SUBQ DATA ERROR CHECK("H" ; OK)
20		P81/AN1	LOCK	I	DIGITAL DISC FRAME SYNC LOCK SIGNAL
21		P82/AN2	SW1	I	DECK SWITCH1
22		P83/AN3	SW2	I	DECK SWITCH2
23		P84/AN4	SW3	I	DECK SIWTCH3
24		P85/AN5	FL	I	FOCUS LOCK CHECK PORT
25		P86/AN6	SENSE	I	FG SENSE INPUT
26		P87/AN7	MODE IN	I	MODEL CHECK PORT("H" : PAL)
27	PORT7	P70/INT0	VD	I	VIDEO DISC VERTICAL SYNC. INPUT(16.6ms)
28		P71/INT1	SCOR	I	SUBQ DATA SYNC SIGNAL(13.3ms)
29		P72/INT2	FG	I	FG PULSE INPUT
30		P73/INT3	REMOCON	I	REMOCON INPUT
31	SO/T0		C	O	VIDEORCHE CONTROL
32	S1/T1		B	O	VIDEORCHE CONTROL
33	S2/T2		A	O	VIDEORCHE CONTROL
34	S3/T3		LED1	O	NORMAL/VIDEORCHE CHECK LED
35	S4/T4		LED2	O	DIRECT CD MODE LED
36	S5/T5		LED3	O	CAPTION MODE LED
37	S6/T6		CDG-RESET	O	CDG PROCESSOR RESET
38	S7/T7		GRID1	O	GRID OUTPUT
39	S8/T8		GRID2	O	GRID OUTPUT

NO	PIN NAME		LABEL	I/O	FUNCTION
40	S9/T9		GRID3	O	GRID OUTPUT
41	S10/T10		GRID4	O	GRID OUTPUT
42	S11/T11		GRID5	O	GRID OUTPUT
43	S12/T12		GRID6	O	GRID OUTPUT
44	S13/T13		GRID7	O	GRID OUTPUT
45	S14/T14		GRID8	O	GRID OUTPUT
46	S15/T15		GRID9	O	GRID OUTPUT
47	Vdd Vpp		VDDVPP		FLT DRIVE (+5V)
48	Vp		VP		FLT DRIVE (–33V)
49	S16		N	O	FLT SEGMENT, KEY OUTPUT
50	S17		O	O	FLT SEGMENT, KEY OUTPUT
51	S18		M	O	FLT SEGMENT, KEY OUTPUT
52	S19		L	O	FLT SEGMENT, KEY OUTPUT
53	S20		P	O	FLT SEGMENT, KEY OUTPUT
54	S21		I	O	FLT SEGMENT, KEY OUTPUT
55	S22		K	O	FLT SEGMENT, KEY OUTPUT
56	S23		J	O	FLT SEGMENT, KEY OUTPUT
57	S24		H	O	FLT SEGMENT, KEY OUTPUT
58	S25		A	O	FLT SEGMENT, KEY OUTPUT
59	S26		B	O	FLT SEGMENT, KEY OUTPUT
60	S27		F	O	FLT SEGMENT, KEY OUTPUT
61	S28		G	O	FLT SEGMENT, KEY OUTPUT
62	S29		C	O	FLT SEGMENT, KEY OUTPUT
63	S30		E	O	FLT SEGMENT, KEY OUTPUT
64	S31		D	O	FLT SEGMENT, KEY OUTPUT
65	PORT0	P00	KEY IN0	I	KEY INPUT 0
66		P01	KEY IN1	I	KEY INPUT 1
67		P02	KEY IN2	I	KEY INPUT 2
68		P03	LD SW	I	LD SW CHECK
69		P04	CD SW	I	CD SW CHECK
70		P05	BUSY	I	SSP STATE INPUT
71		P06	IRQ	I	LD DATA(PHILIPS CODE) ERROR CHECK INPUT
72		P07	TCNT	I	TRACK COUNT INPUT
73	PORT1	P10/S00	DVSP-LAP	O	DVSP DATA LATCH
74		P11/S01	SUBQ	I	SUBQ DATA INPUT
75		P12/S02	SQCK	O	SUBQ DATA CLOCK
76		P13/SCK0	SDATA	O	LSI CONTROL DATA
77		P14/S03	SSP-LAT	O	SSP DATA LATCH
78		P15/SCK1	SCLK	O	LSI CONTROL CLOCK
79		P16/BUZ	JUMP	O	JUMP PULSE SIGNAL
80		P17/PWMO	RST	O	LSI RESET

NO	PIN NAME		LABEL	I/O	FUNCTION
81	PORT3	P30	DI00	I/O	CHARACTER DATA BUS
82		P31	DI01	I/O	CHARACTER DATA BUS
83		P32	DI02	I/O	CHARACTER DATA BUS
84		P33	DI03	I/O	CHARACTER DATA BUS
85		P34	DI04	I/O	CHARACTER DATA BUS
86		P35	DI05	I/O	CHARACTER DATA BUS
87		P36	DI06	I/O	CHARACTER DATA BUS
88		P37	DI07	I/O	CHARACTER DATA BUS
89	VSS		VSS		GROUND(OV)
90	VDD		VDD		+5V
91	PORT4	P40	ACK	I	STORBE OUTPUT SYNC. ACKNOWLEDGE INPUT
92		P41	SG	O	SYNC. GENERATER SELECT CONTROL
93		P42	Tx/Rx	O	DVSP DATA IN/OUT CONTROL
94		P43	ATTN	O	DVSP DEVICE SELECT ATTENTION
95		P44	STB	O	DATA BUS STROBE
96		P45	SQ	O	COLOR BACK CONTROL("H" : COLOR BACK)
97		P46	CFL	O	COLOR BACK CONTROL("H" : COLOR BACK CLEAR)
98		P47	POWERON	O	POWER ON(+5V)
99		P50	EXPLAT3	O	EXPANDEB LATCH3
100		P51	EXPLAT1	O	EXPANDER LATCH1

DV-530K Expander port spec.

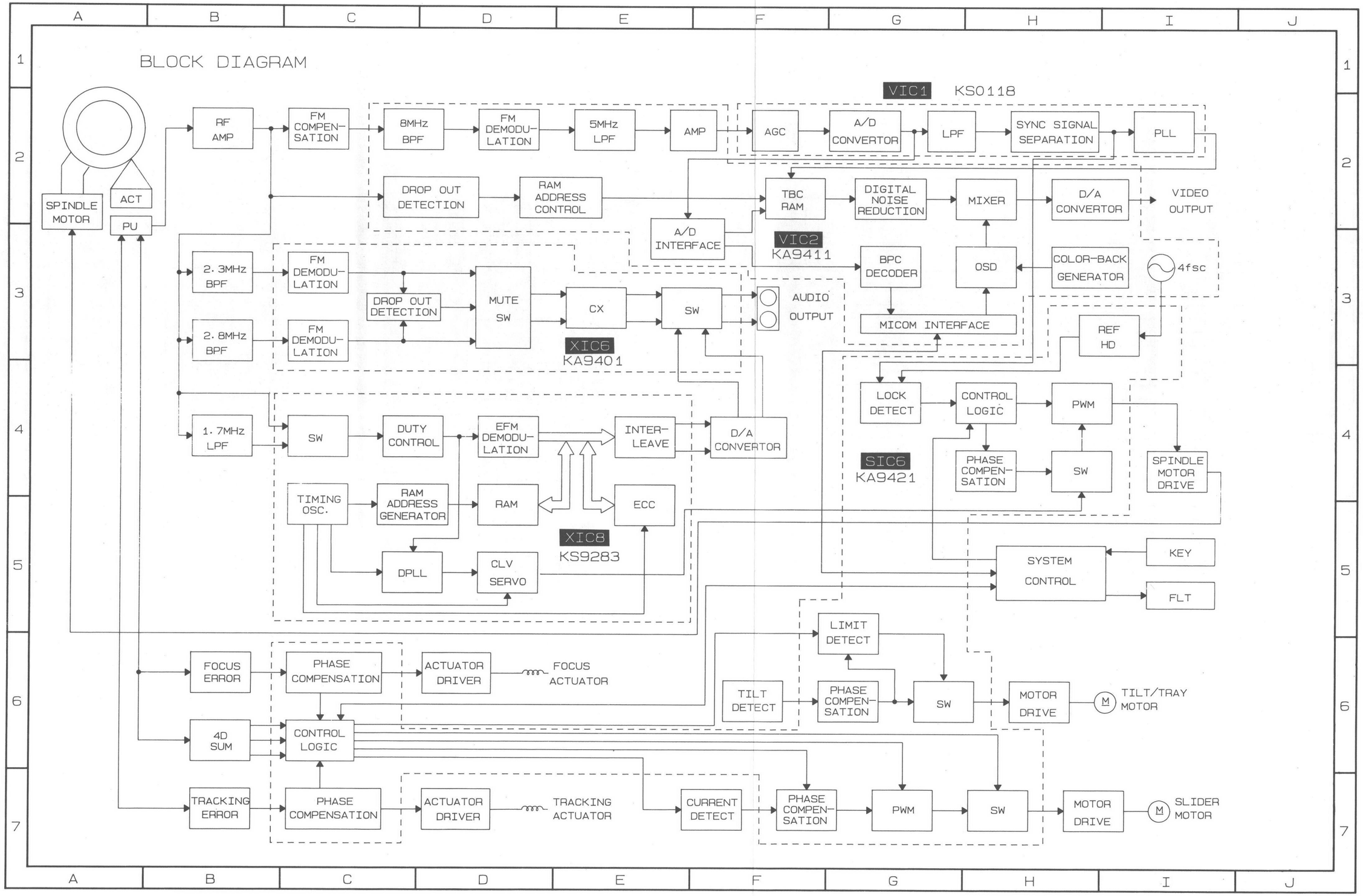
1. EXPANDER1(MIC2, TC 4094)

PIN NO.	PORT NAME	LABEL	I/O	FUNCTION
4	Q1	CD ROM	O	CD/CDROM CHECK OUTPUT
5	Q2	CAPTION-H	O	CAPTION CONTROL
6	Q3	PAL/NTSC	O	PAL/NTSC CONTROL
7	Q4	CX ON	O	CX CONTROL
14	Q5	2/R	O	AUDIO R CHANNEL
15	Q6	1/L	O	AUDIO L CHANNEL
12	Q7	A/D	O	DIGITAL/ANALOG AUDIO CONTROL (D: "H")
11	Q8	MUTE	O	AUDIO MUTE CONTROL

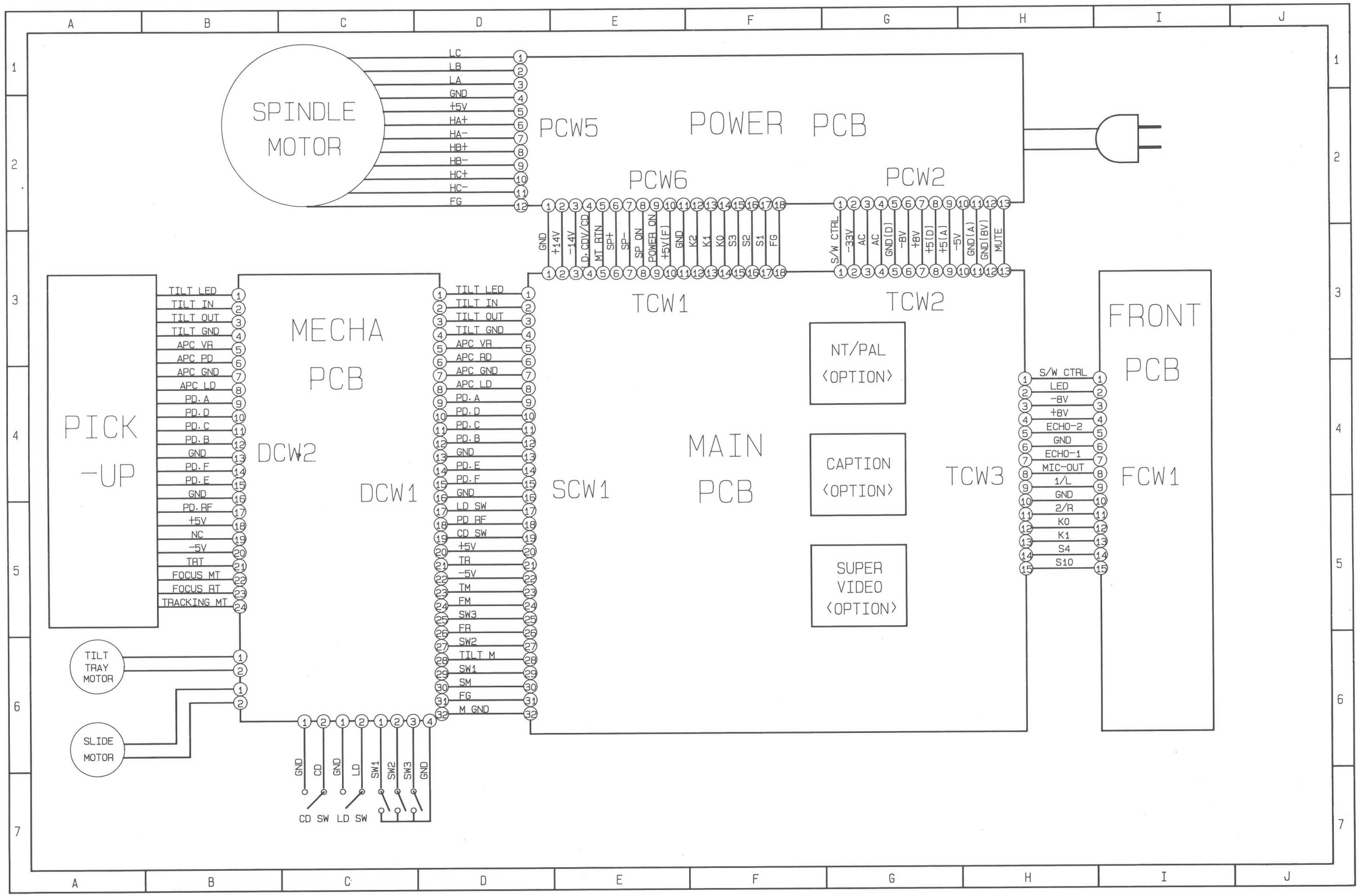
2. EXPANDER3(MIC3, TC 4094)

PIN NO.	PORT NAME	LABEL	I/O	FUNCTION
4	Q1	CLOSE	O	CLOSE MOTOR CONTROL
5	Q2	DAC	O	4D LEVEL CONTROLL
6	Q3	LD/CD, CDV	O	LD: "L", CD, CDV: "H"
7	Q4	SPCONT	O	PLAY: "H", PAUSE: "L"
14	Q5	RFCOR	O	CAV DISC #8000>: "L"
15	Q6	SPON	O	SPINDLE ON: "H"
12	Q7	LD, CDV/CD	O	LD, CDV: "L", CD: "H"
11	Q8	OPEN	O	OPEN MOTOR CONTROL

14. Overall block diagram



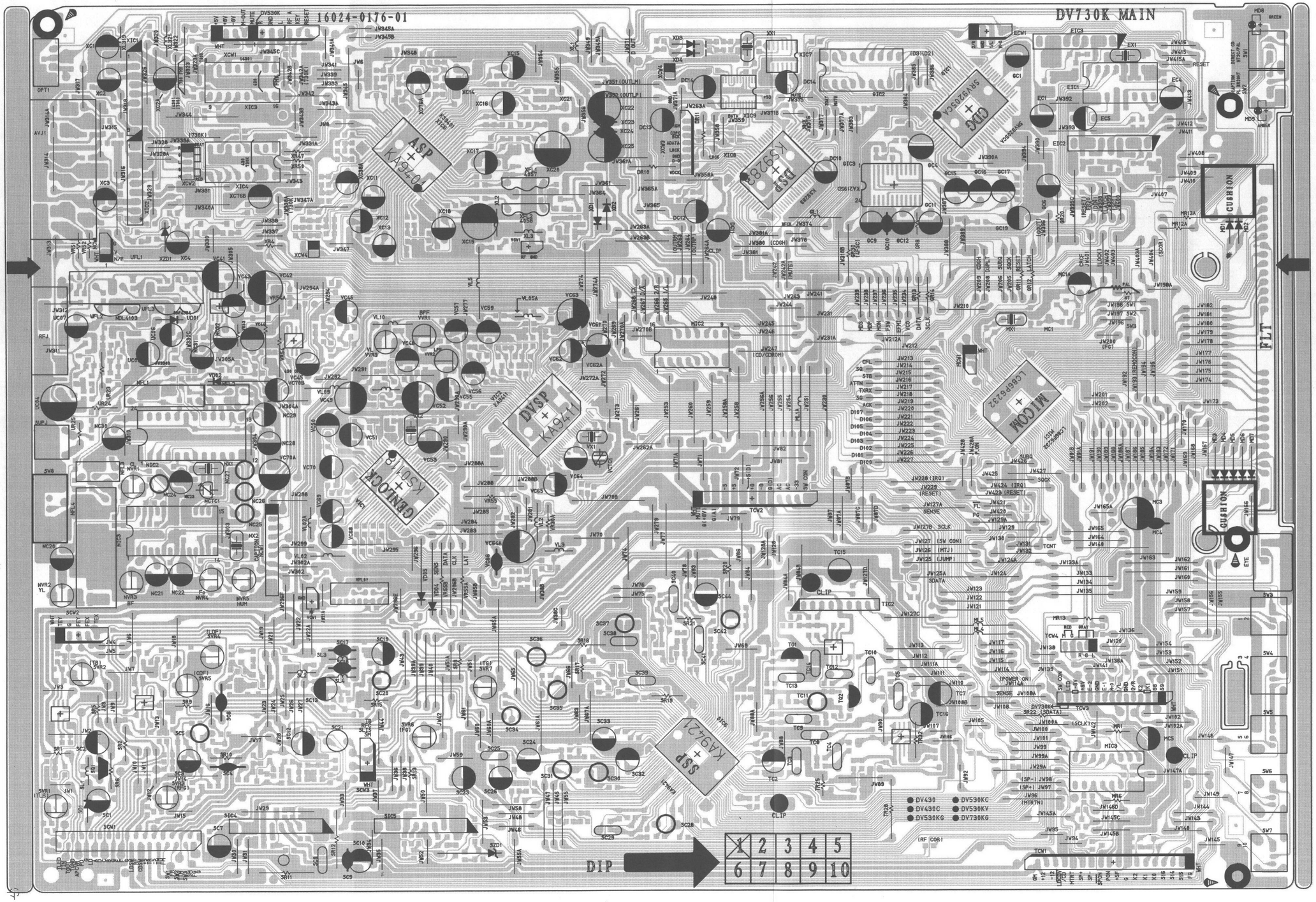
15. Wiring diagram



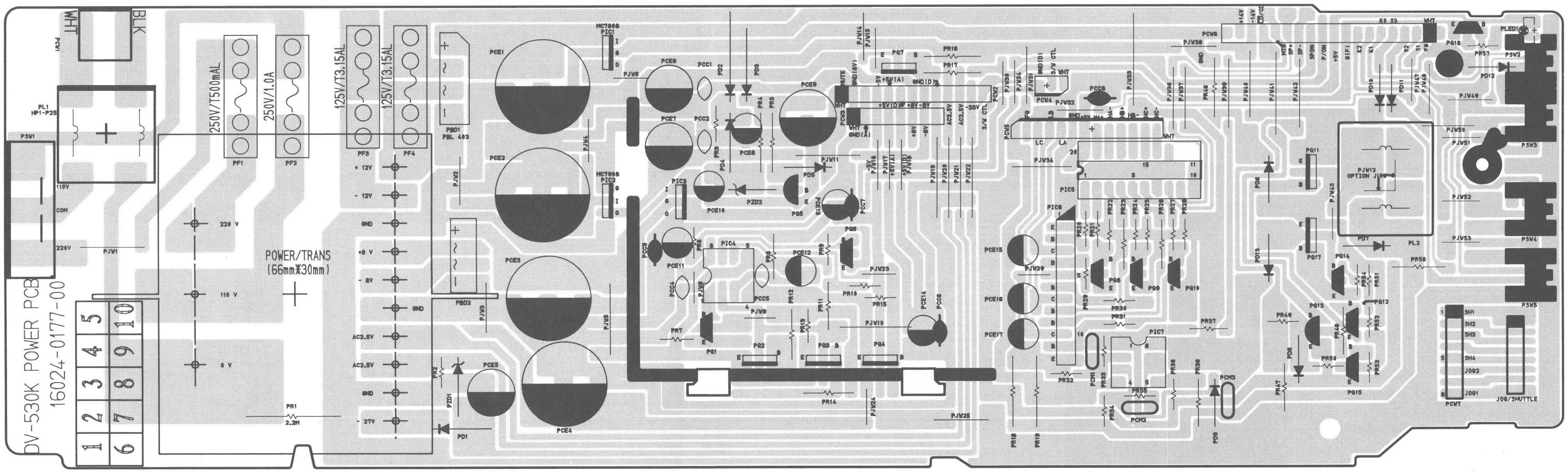
16. Electrical section

16-1. PCB layout

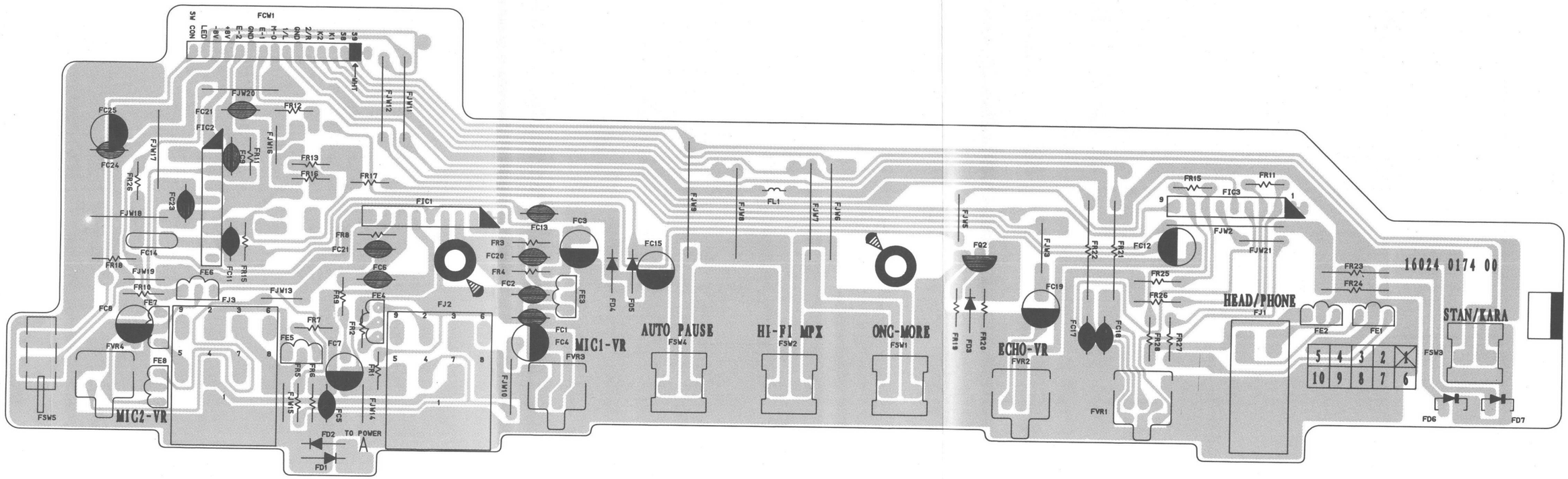
16-1-1. Main PCB

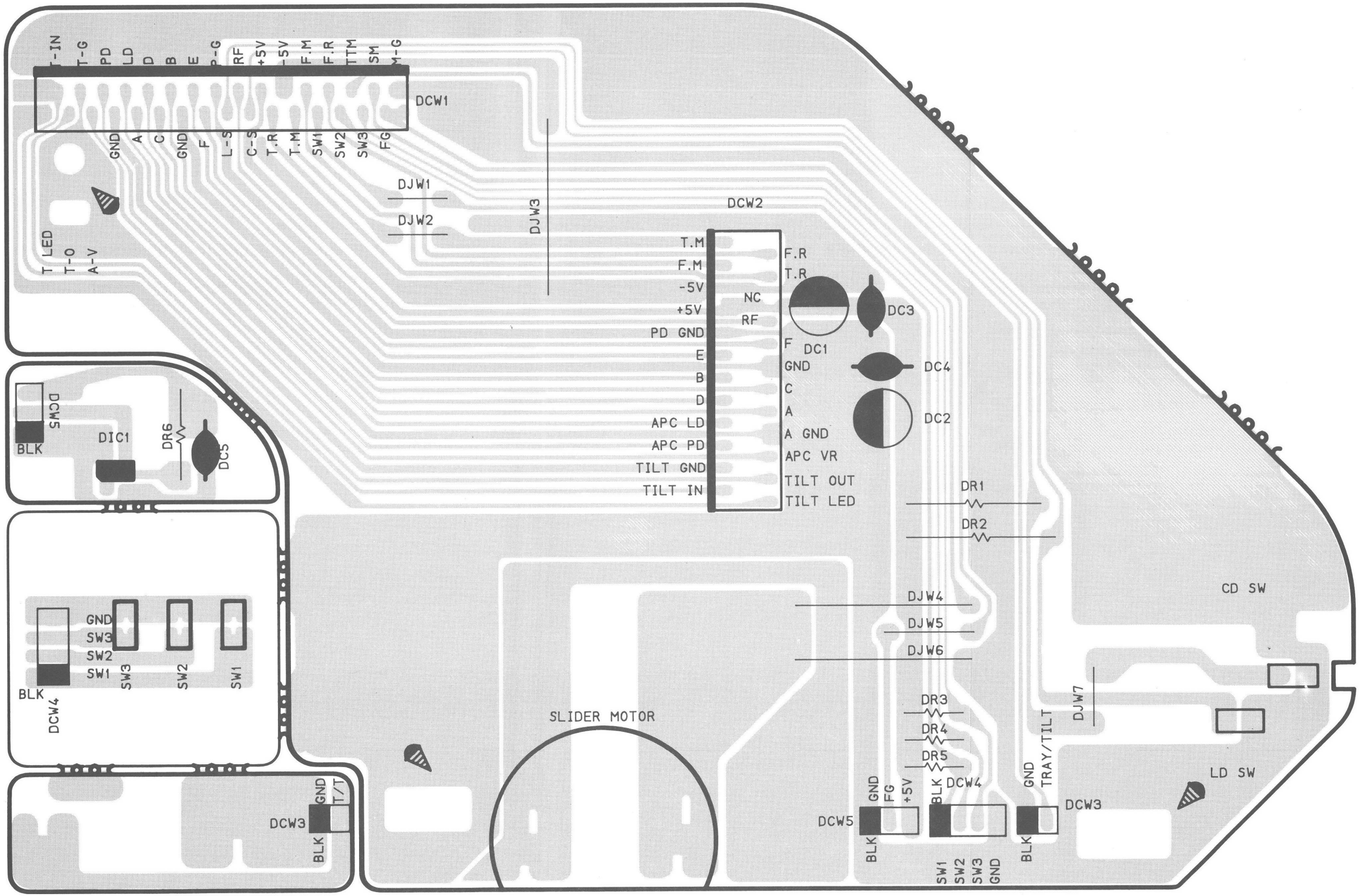


16-1-2. Power PCB



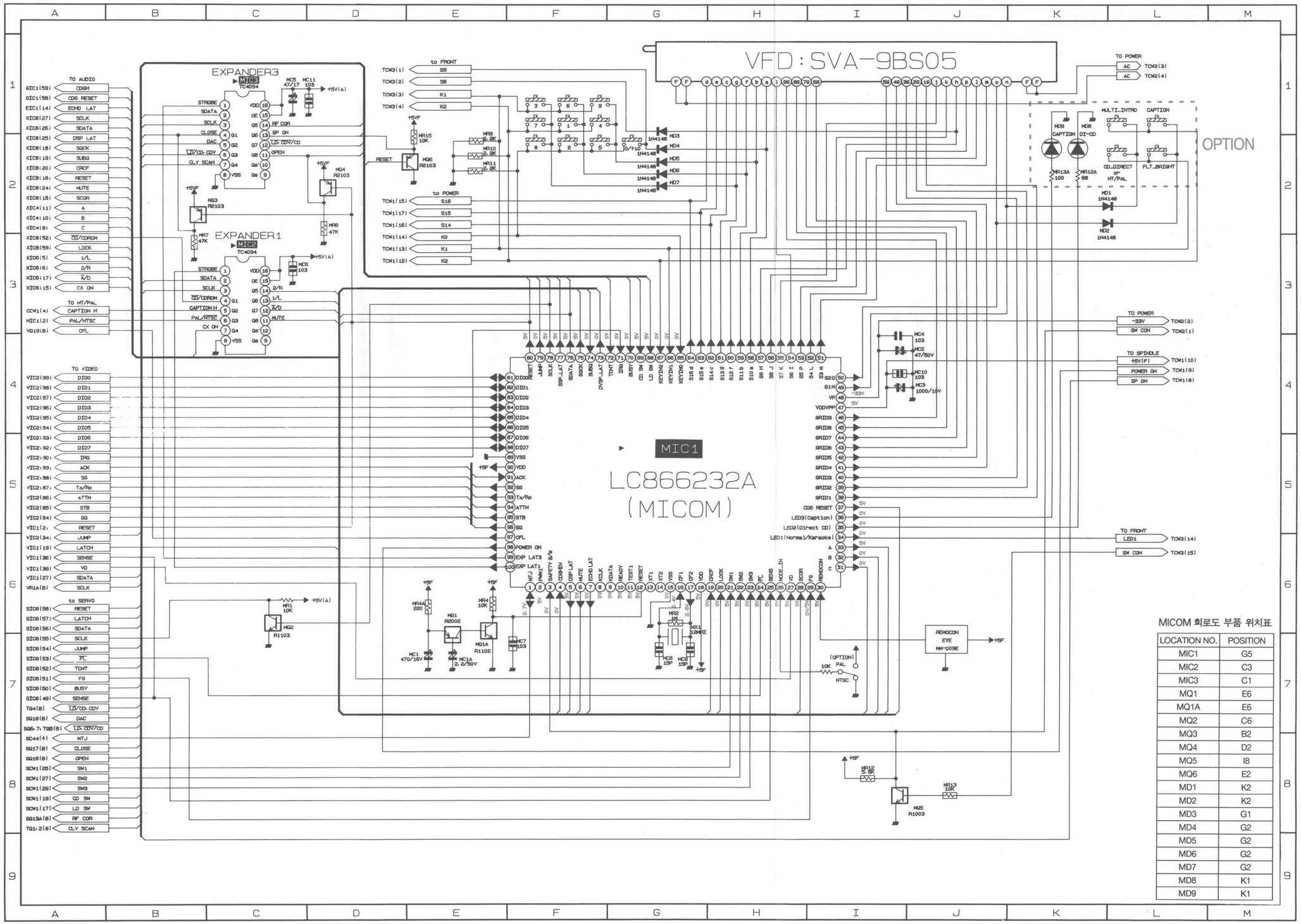
16-1-3. Front PCB




T-IN
T-G
PD
LD
D
B
E
P-G
RF
+5V
-5V
F.M
F.R
TTM
SM
M-G
DCW1
GND
A
C
GND
F
L-S
C-S
T.R
T.M
SW1
SW2
SW3
FG
T LED
T-O
A-V
DJW1
DJW2
DJW3
DCW2
T.M
F.M
-5V
+5V
PD GND
E
B
D
APC LD
APC PD
TILT GND
TILT IN
F.R
T.R
NC
RF
F DC1
GND
C
A
A GND
APC VR
TILT OUT
TILT LED
DC3
DC4
DC2
DR1
DR2
DCW5
DIC1
DR6
DC5
BLK
DJW4
DJW5
DJW6
CD SW
DR3
DR4
DR5
DJW7
LD SW
SLIDER MOTOR
DCW4
DCW3
GND
SW3
SW2
SW1
BLK
DCW4
GND
T/T
DCW3
BLK
GND
FG
+5V
BLK
DCW4
SW1
SW2
SW3
GND
BLK
GND
TRAY/TILT
DCW3

16-2. Schematic diagram

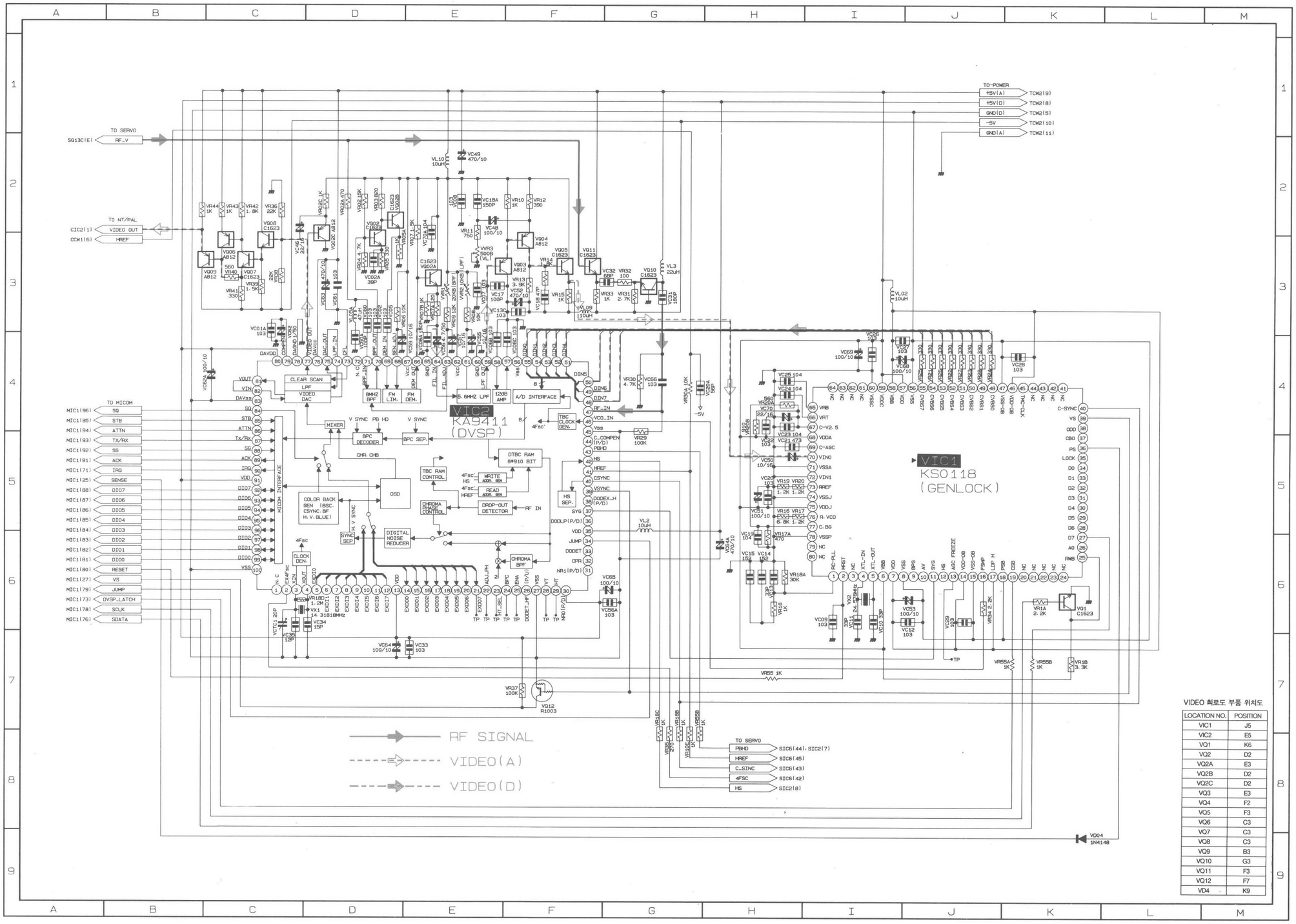
16-2-1. Micom schematic



MICOM 회로도 부품 위치표

LOCATION NO.	POSITION
MIC1	G5
MIC2	C3
MIC3	C1
MQ1	E6
MQ1A	E6
MQ2	C6
MQ3	B2
MQ4	D2
MQ5	I8
MQ6	E2
MD1	K2
MD2	K2
MD3	G1
MD4	G2
MD5	G2
MD6	G2
MD7	G2
MD8	K1
MD9	K1

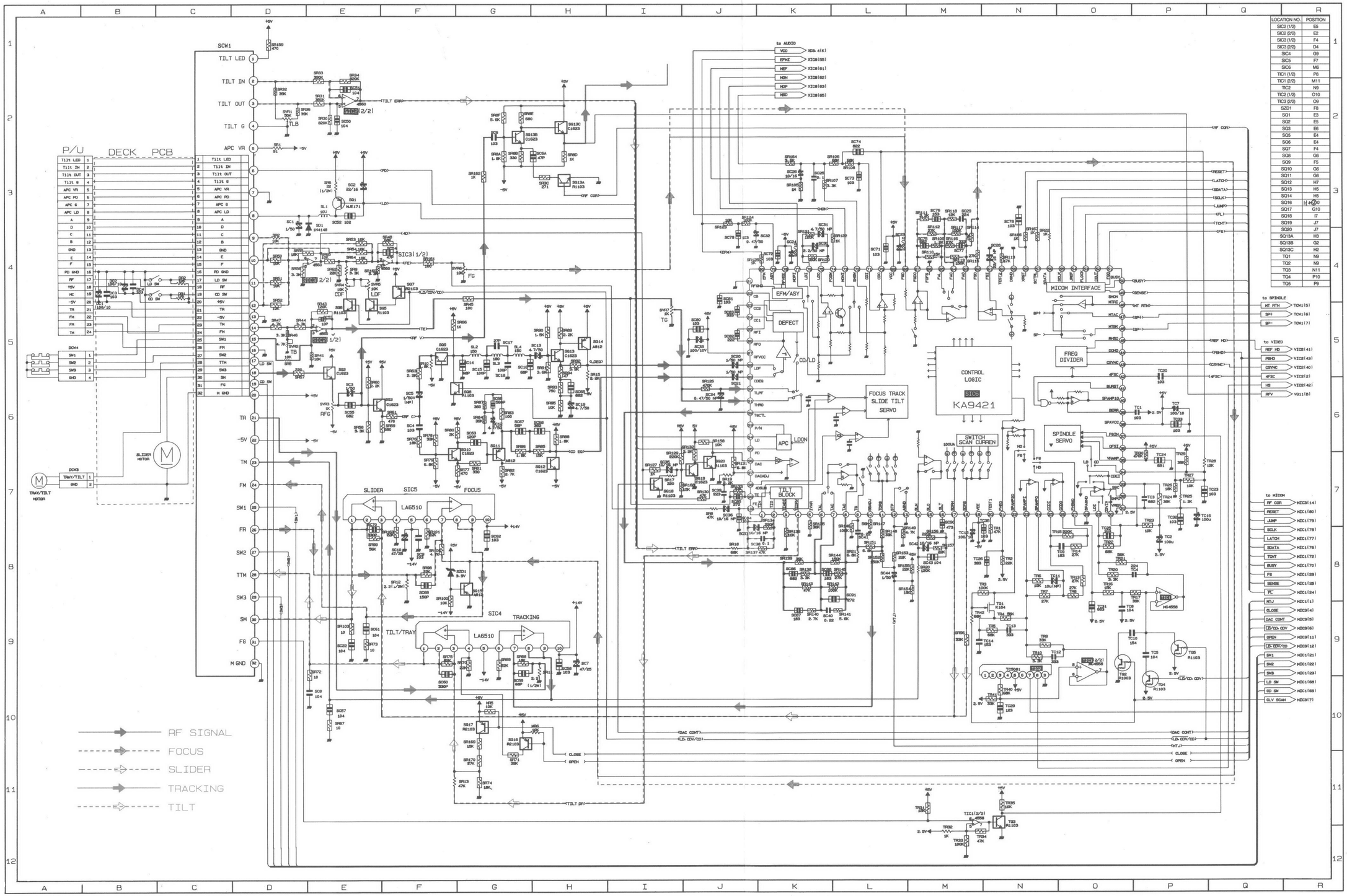
16-2-2. Video schematic



VIDEO 회로도 부품 위치도

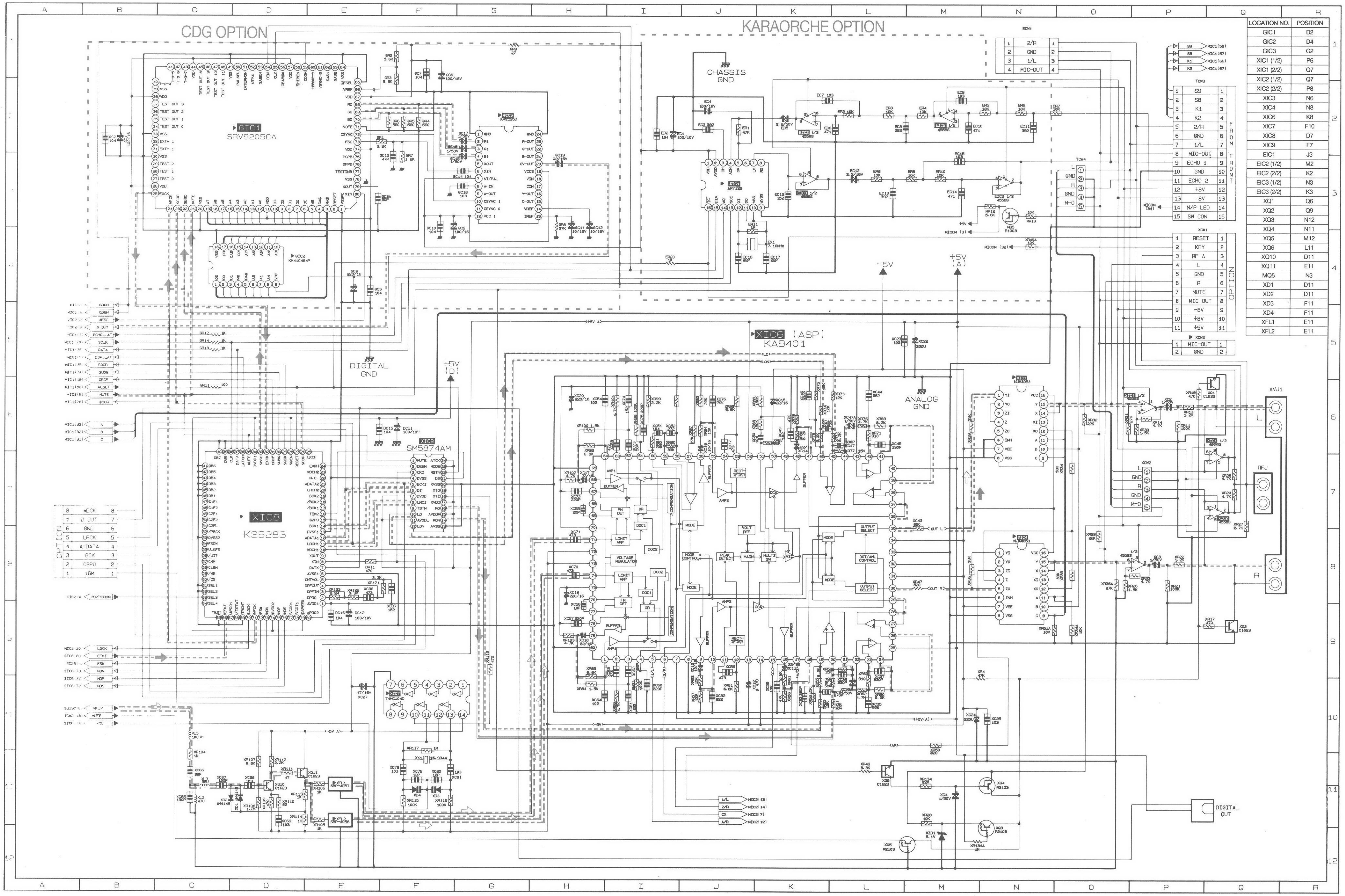
LOCATION NO.	POSITION
VIC1	J5
VIC2	E5
VQ1	K6
VQ2	D2
VQ2A	E3
VQ2B	D2
VQ2C	D2
VQ3	E3
VQ4	F2
VQ5	F3
VQ6	C3
VQ7	C3
VQ8	C3
VQ9	B3
VQ10	G3
VQ11	F3
VQ12	F7
VD4	K9

16-2-3. Servo schematic



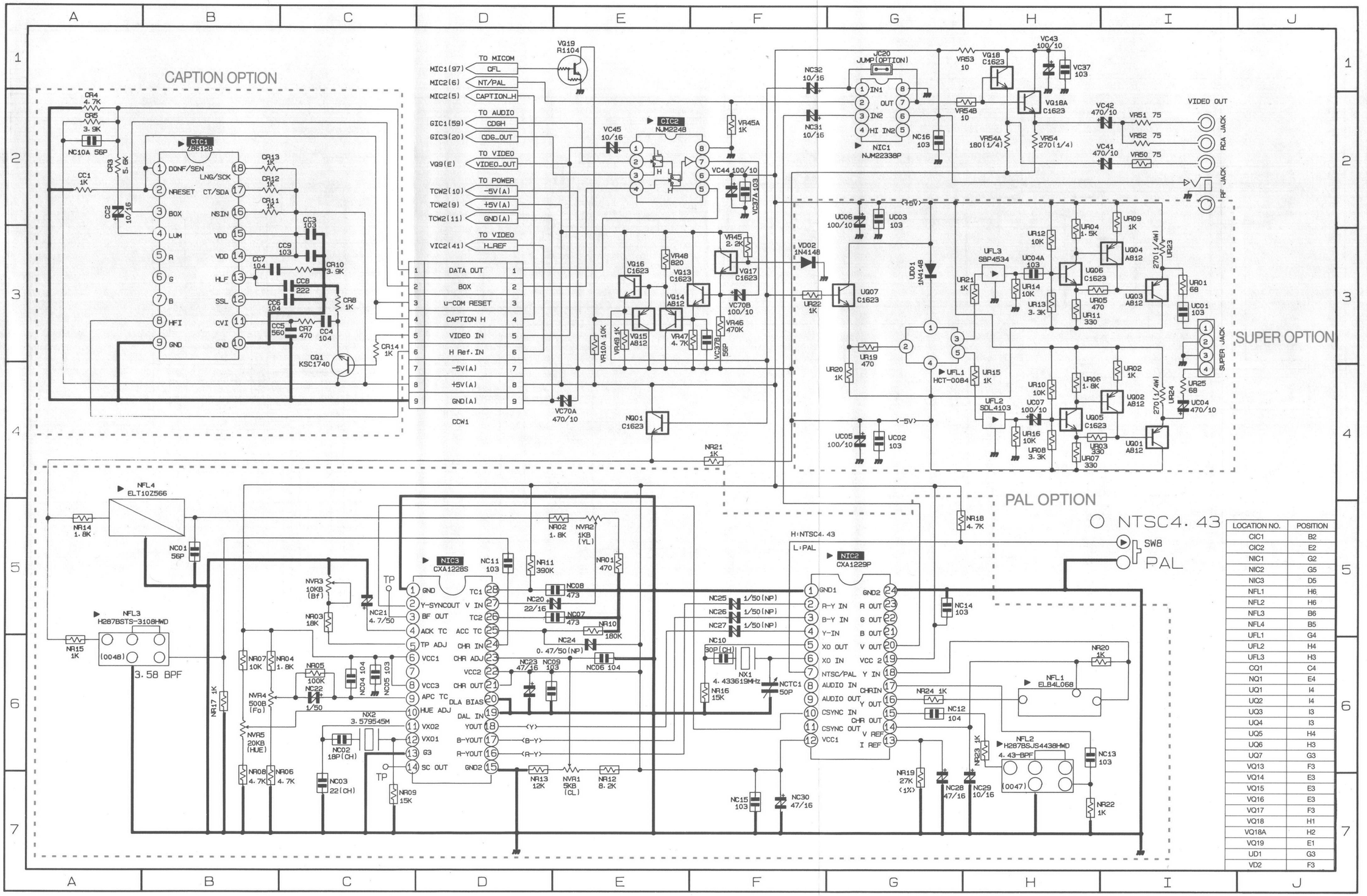
LOCATION NO.	POSITION
SIC2 (1/2)	E5
SIC2 (2/2)	E2
SIC3 (1/2)	F4
SIC3 (2/2)	D4
SIC4	G9
SIC5	F7
SIC6	M6
TIC1 (1/2)	P8
TIC1 (2/2)	M11
TIC2	N9
TIC2 (1/2)	O10
TIC3 (2/2)	O9
SZD1	F8
SQ1	E3
SQ2	E5
SQ3	E6
SQ5	E4
SQ6	E4
SQ7	F4
SQ8	G6
SQ9	F5
SQ10	G6
SQ11	G6
SQ12	H7
SQ13	H5
SQ14	H5
SQ16	H4,O10
SQ17	G10
SQ18	I7
SQ19	J7
SQ20	J7
SQ13A	H3
SQ13B	G2
SQ13C	H2
TQ1	N9
TQ2	N9
TQ3	N11
TQ4	P10
TQ5	P9

16-2-4. Audio schematic



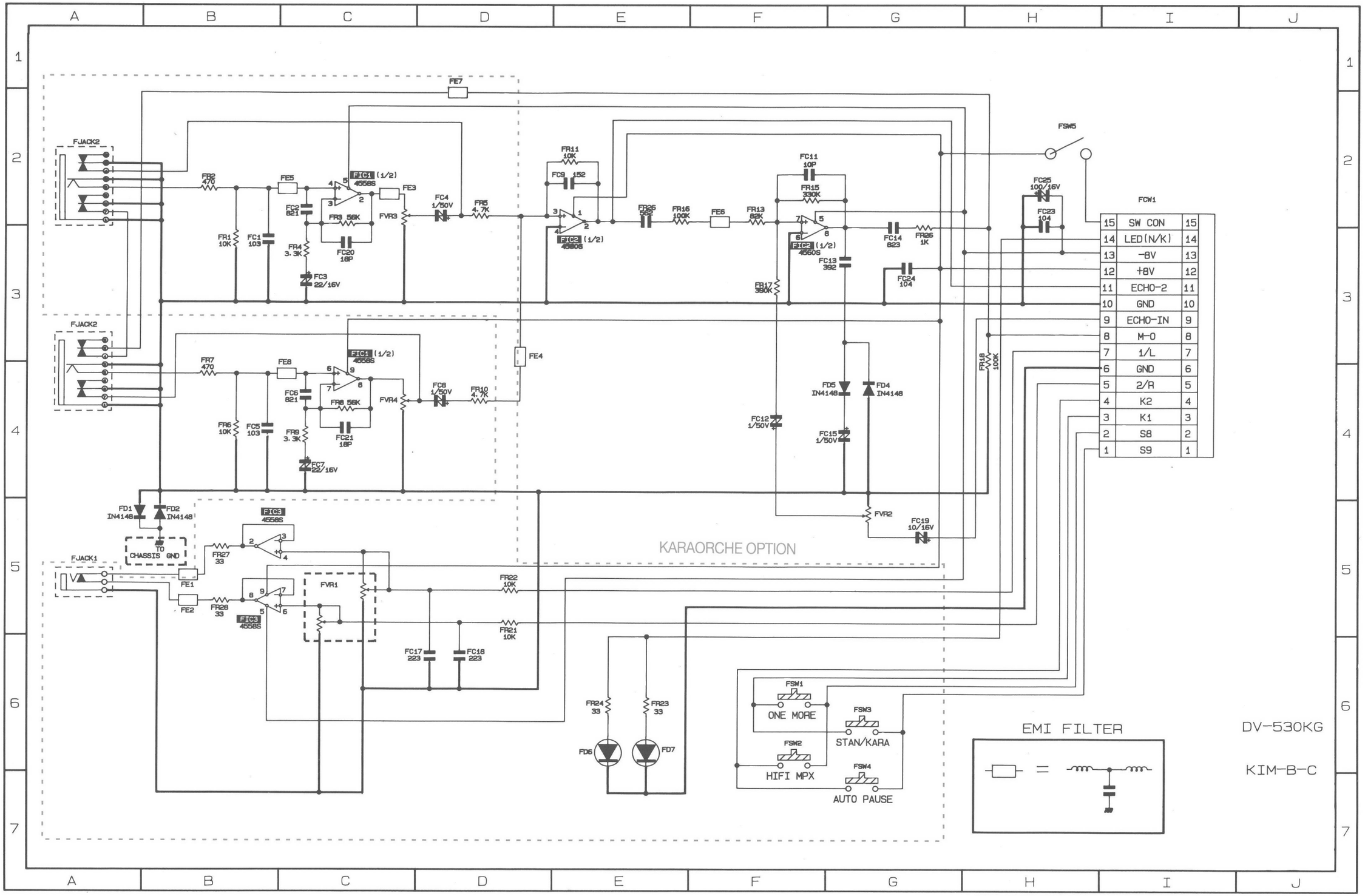
LOCATION NO.	POSITION
GIC1	D2
GIC2	D4
GIC3	G2
XIC1 (1/2)	P6
XIC1 (2/2)	Q7
XIC2 (1/2)	Q7
XIC2 (2/2)	P8
XIC3	N6
XIC4	N8
XIC6	K8
XIC7	F10
XIC8	D7
XIC9	F7
EIC1	J3
EIC2 (1/2)	M2
EIC2 (2/2)	K2
EIC3 (1/2)	N3
EIC3 (2/2)	K3
XQ1	Q6
XQ2	Q9
XQ3	N12
XQ4	N11
XQ5	M12
XQ6	L11
XQ10	D11
XQ11	E11
MQ5	N3
XD1	D11
XD2	D11
XD3	F11
XD4	F11
XFL1	E11
XFL2	E11

16-2-5. NT/PAL schematic

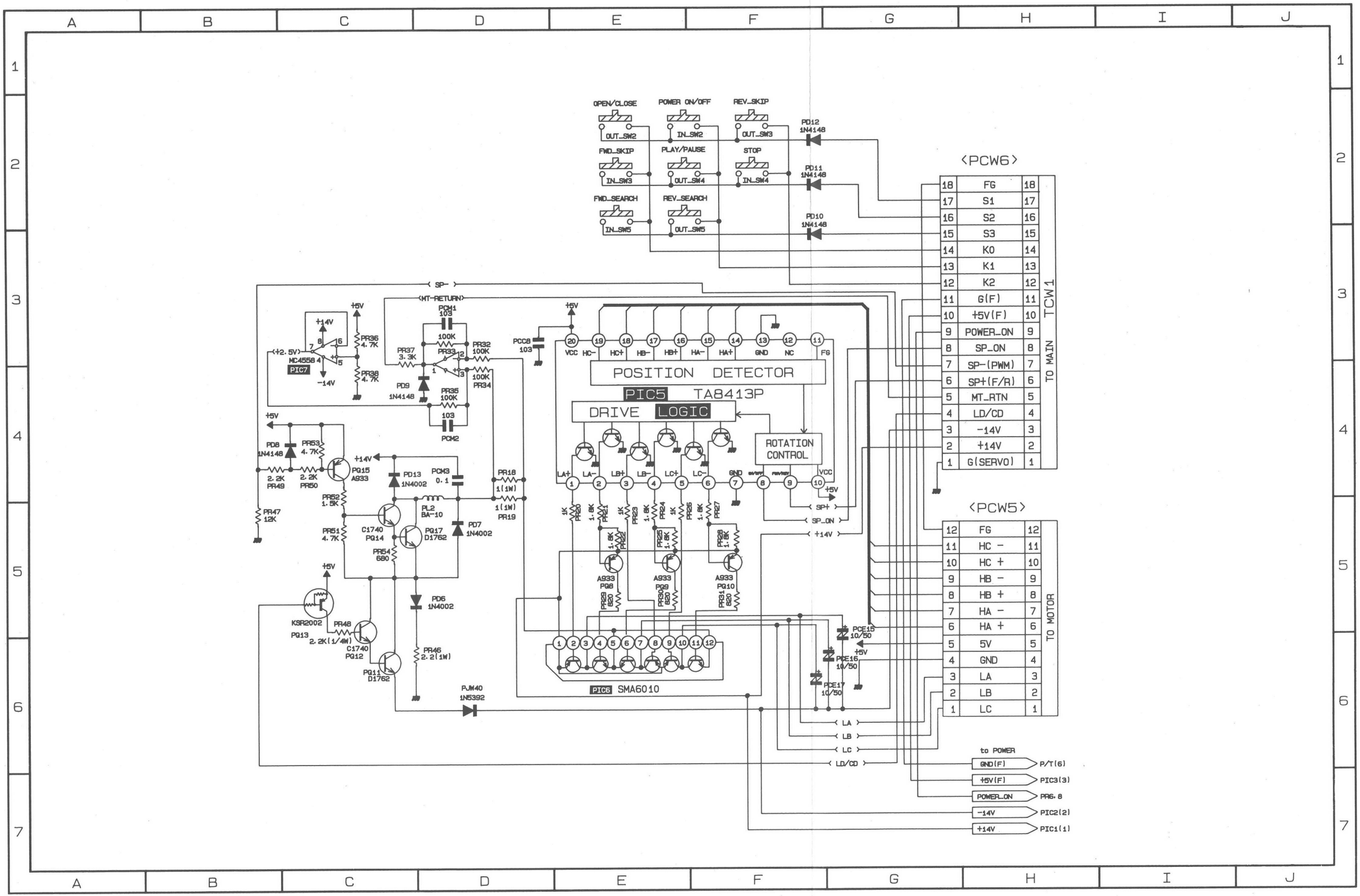


LOCATION NO.	POSITION
CIC1	B2
CIC2	E2
NIC1	G2
NIC2	G5
NIC3	D5
NFL1	H6
NFL2	H6
NFL3	B6
NFL4	B5
UFL1	G4
UFL2	H4
UFL3	H3
CQ1	C4
NQ1	E4
UQ1	I4
UQ2	I4
UQ3	I3
UQ4	I3
UQ5	H4
UQ6	H3
UQ7	G3
VQ13	F3
VQ14	E3
VQ15	E3
VQ16	E3
VQ17	F3
VQ18	H1
VQ18A	H2
VQ19	E1
UD1	G3
VD2	F3

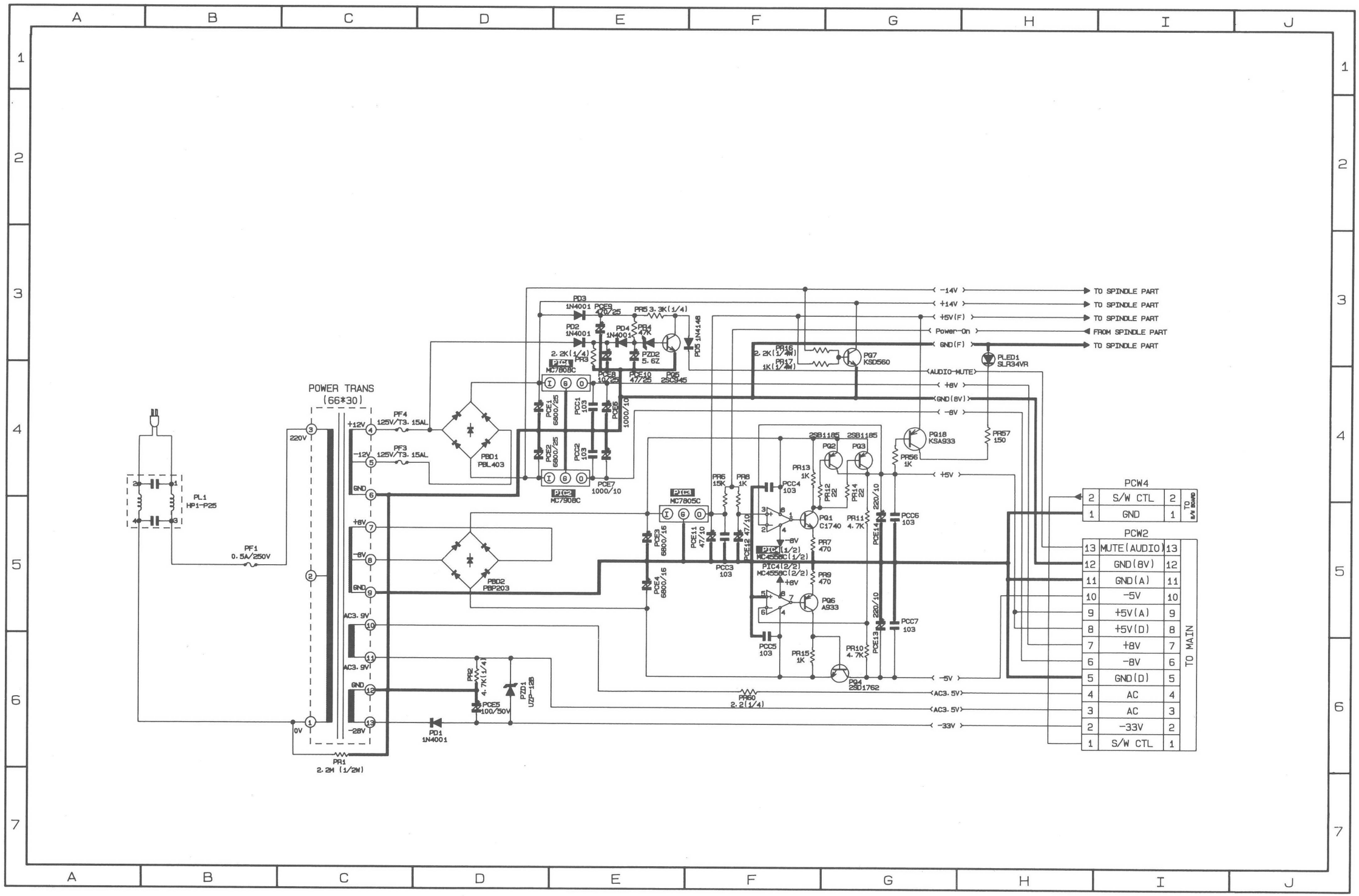
16-2-6. Front schematic



16-2-7. Spindle drive schematic



16-2-8. Power schematic



16-3. Electrical parts list

16-3-1. MAIN

• Exclusiveness part
⚠ Static electricity

⚠ indicates parts for circuit safe guarding purpose. Therefore, when replacing, be sure to use specified parts only.

LOCATION	CODE NO.	DESCRIPTION and SPECIFICATION	Q'TY	REMARK
SR116, 119	11048-477-229	R-METAL OXIDE; RS2T 2.2-J MINI TYPE	2	⚠
XQ109, 110, SQ131, 141, 144	11139-801-022	TR-CHIP; KSA 812	11	
VQ121, 122, 123, 124, 128, VQ151				
XQ105, 106, 112, 113, 114	11139-801-032	TR-CHIP;KSC1623L	19	
XQ115, 150, SQ132, 139, 140				
SQ142, 143, 145, VQ120, 125				
VQ126, 127, 129, 152				
VQ126, 127, 129, 152				
XQ118	11139-801-040	TR-CHIP; KSC1102 (B02)	1	
XQ107, 108	11139-801-050	TR-CHIP; KSC2102 (B52)	2	
SQ134, 135, 138	11139-801-101	TR-CHIP; KSR2103	3	
XQ111, SQ130, 136, 138, 139	11139-801-182	TR-CHIP; KSR1103	9	
SQ146, 147, 148, 149				
VVR101, 112, SVR110	11249-002-150	VR-SEMI FIXED; VZ068TLT-A 5KB HDK H TYPE	3	
VVR102, SVR107, 110	11249-004-020	VR-SEMI FIXED; VZ066HL 1KB HDK	3	
NVR3	11249-102-034	VR-SEMI TAPE-H; EVN-DJA A03B14 (10K)	6	OPTION
VVR1, 2, SVR4, 5, 6,				
VVR105	11249-102-044	VR-SEMI TAPE-H; EVN-DJA A03B24 (20K)	1	
SVR1	11249-102-063	VR-SEMI TAPE-H; EVN-DJA A03B54 (50K)	1	
XC148, 149, SC136, 178, 180	11447-910-103	CONDENSER AXIAL-LEAD; 16V EP050 Y10000	8	
CC226, VC172, 173				
SC182, 184	11449-117-680	CONDENSER AXIAL-LEAD; 50V UP 050 SL68	2	
SC186	11449-148-270	CONDENSER AXIAL-LEAD; 50V UP 050 SL270J	1	
SC183, 187	11449-518-101	CONDENSER AXIAL-LEAD; 50V UP 050 B100-K	2	
SC237	11449-518-102	CONDENSER AXIAL-LEAD; 50V UP 050 B1000-K	1	
XC216, 217, SC191, 204, 231	11505-713-104	C-POLYESTER; CQ921T M50V 0.1M-J	7	
SC245, 248				
SC244	11505-714-123	C-POLYESTER; CQ921T M 50V 0.012M-K	1	
SC234	11505-714-154	C-POLYESTER; TAPING 0.15MF-K50V	1	
SC203	11505-714-223	C-POLYESTER; CQ921T M 50V 0.022M-K	1	
XC214	11505-714-392	C-POLYESTER; CQ921T M 50V 3900-K	1	
XC220, 221	11505-714-393	C-POLYESTER; CQ921T M 50V 0.039M-K	2	
SC198, 228, 229, 232, 238	11517-213-224	C-FILM; CQ921 TM50V 0.22M-J/ECQ-VTH224	5	
XC206, 207	11608-102-104	C-ELECTROLYTIC; SMS T 10V 100M	2	
XC152, 154	11608-102-224	C-ELECTROLYTIC; SMS T 10V 220M	2	
XC103, 105, VC107, 117	11608-102-471	C-ELECTROLYTIC; SMS T 10V 470M	4	
XC145, 157, VC125, 126, 162	11608-103-103	C-ELECTROLYTIC; SMS T 16V 10M	8	
VC164, 167, SC192				
SC190, 193, 194, 233, 236	11608-103-104	C-ELECTROLYTIC; SMS T 16V 100M	12	
VC166, 249, 115, 116, 106				
VC163, 165				
XC147, 150	11608-103-221	C-ELECTROLYTIC; SMS T 16V 220M	2	
XC101, 102, 139, 140, SC141	11608-103-223	C-ELECTROLYTIC; SMS T 16V 22M	15	
XC142, 155, 143, 144, VC160				
JC15R, VIDEO OUT	B1144-0034	CHIP COIL; HF50A CB322513-T	2	⚠
JW140, 403, 264A	14049-033-420	FLERITE BEAD : 3857ST	12	⚠
JW72, 260, 2968, 263B				
JW262A, 258A, GLI				
JW272A, JW311				
XL2	12602-214-518	SBT-0260TF (SBT-0460TF)	1	⚠

LOCATION	CODE NO.	DESCRIPTION and SPECIFICATION	Q'TY	REMARK
XC153, 146, 141, 151, VC129 XC209, 218, 222, SC241, 242 CC243, 223, 224, 225, VC109 VC112, 118, 120, 124, 158 VC159, 161, 170, 171, 174 VC175, 176, 177	11608-103-473	C-ELECTROLYTIC; SMS T 16V 47M	23	
XC137, 138	11608-104-103	C-ELECTROLYTIC; SMS T 25V 10M	2	
SC132, 134, 135	11608-104-473	C-ELECTROLYTIC; SMS T 25V 47M	3	
XC104, 210, 212, 213, SC130 SC133, 227, VC127	11608-106-102	C-ELECTROLYTIC; SMS T 50V 1M	8	
XC208	11608-106-221	C-ELECTROLYTIC; SMS T 50V 0.22M	1	
SC185, 188, 189, VC168, 128	11608-106-472	C-ELECTROLYTIC; SMS T 50V 4.7M	1	
XC156, SC195	11608-156-471	C-ELECTROLYTIC; SMA T 50V 0.47M	2	
SC240	11608-202-101	C-ELECTROLYTIC; NP SMS T 10V 100M	1	
SC200, 205, 230, VC111, 113 VC114	11608-203-100	C-ELECTROLYTIC; NP SMS T 16V 10M	6	
SC199, 239	11608-203-220	C-ELECTROLYTIC; SMST 16V 22M(5x11)	2	
SC179, 235, VC121, 122, 123	11608-206-109	C-ELECTROLYTIC; NP SMS T 50V 1M	5	
SC196	11608-206-229	C-ELECTROLYTIC; NP SMS T 50V 2.2M	1	
XC215, SC201, VC119	11608-206-478	C-ELECTROLYTIC; NP SMS T 50V 0.47M	3	
SC197	11608-206-479	C-ELECTROLYTIC; NP SMS T 50V 4.7M	1	
VCTC02	11829-512-030	C-TRIMMER; TZ03R 20PF	1	
CIC102	12109-401-460	IC-P.D; M51951 BSL	1	⚠
TIC2	12119-101-520	IC-PHASE COMPARATOR; TC5081AP	1	⚠
XIC7	A4004-0258	IC-LOGIC; GD74HCU04D SOP	1	⚠
XIC03, 04	12119-401-220	IC-CMOS AN/SW; NJU4053BD	2	⚠
TIC1, 3, SIC2, 3	12119-401-300	IC-OP AMP; BA4560F-T2	4	⚠
EIC2, 3	12119-401-630	IC-DUAL OP AMP; MC4558S/NJU4558S	5	⚠ OPTION
XIC1, 2, 5, SQ103, 104	12139-601-120	FET; 2SK 184-Y	2	
SQ101	12149-305-100	TRANSISTOR; MJE171/172	1	⚠
XD101, 102, 104, 125, 109 XD110, 114, 117, 118, CD116 CD241, 242, 243, 244, 245 SD107, 120, 121, 122, 123	12169-301-290	DIODE-SW; 1SS53/1N4148, CT: 6PF	22	
UD105, 106				OPTION
XZD01	12169-403-310	DIODE-ZENER; UZ 5.1B/BD501 0.5W	1	
SZD02	12169-403-490	DIODE-ZN; RD 3.9EB/UZ 3.9BM	1	
XVD02, 03	12169-501-220	DIODE-VARICAP; 1SV70A	2	
ED4, MD9	12309-104-580	LED; SLV-31 MC3 TAPE	2	OPTION
SL110, 112	12429-211-151	COIL-CHOKE AXIAL LEAD; RES-1 Q40 LAL02	2	
XL107	12429-211-470	COIL-CHOKE AXIAL LEAD; RES-1 Q40 LAL02	1	
XL109	12429-211-560	COIL-CHOKE AXIAL LEAD; RES-1 Q40 LAL02	1	
SL111	12429-311-181	COIL-CHOKE AX 180UH-02	1	
XL108	12429-411-101	COIL-CHOKE AX 100UH-02	1	
XL101, 113, SL104, VL102	12429-508-100	COIL-CHOKE AX 10UH-04	5	
VL103	13314-0105-00	COVER-SHIELD; DV-530K T0.05 YEL CUP	1	

LOCATION	CODE NO.	DESCRIPTION and SPECIFICATION	Q'TY	REMARK
	13334-0008-00	CLIP-WIRE; DV-530K/DALA-2 L50 W2.6 BLK	1	
	13339-415-010	JACK OPT; TOTX 172	1	
VTA01	13339-415-030	JACK-S; TCS7927-14-4082	1	
TCW2	13349-103-130	CONNECTOR-WAFER; 5267-13	1	
	13519-930-223	SWITCH SLIDE; 00120050 1C-2P STICK	1	
XFL01	14529-710-010	LC FILTER; SRP10223545B-4057-09	1	
XFL02	14529-710-020	LC FILTER; SBP 10228544B-4058-10	1	
VX07	14539-501-080	X-TAL; 14.3MHz	1	
CXTAL3	14539-503-130	CERAMIC-RESONATER; CSA12. OMT	1	
XX01	14539-507-030	CRYSTAL; HC-49/U 16.9344MHZ CL-18PF	1	
XC310, 116, 117	A1100-0705	C-CERAMIC, CHIP; CC 73 COG 50V T 360J	3	
VCT01	A1111-0012	C-TRIMMER, CERA; FTA60-13.5PF	1	
VFL05	A1240-0037	FILTER-LC; BP 3.58M SBP-4534	1	
VFL08	A1240-0048	FILTER-LC; BP 3.58M H287BSTS-3108HWD	1	
VX05	A1280-0038	CRYSTAL; 4.433619MHZ HC-49/U-50PPM	1	
VX06	A1280-0039	CRYSTAL; 3.579545MHZ HC-49/U-50PPM	1	
EX1	A1280-0126	CRYSTAL; 7.15909MHZ HC-49/U-20PPM	1	OPTION
VX2	A1280-0127	CRYSTAL; 24.576MHZ HC-49/u-20PPM	1	
EYE	A1294-0024	MODULE-REMOCON; MM-009E 38KHZ 800	1	
SW1, 2, 3, 4, 5, 6, 7	A3018-0026	SW-TACT, V; SKHT27010A 22.6X8MM 2KEY	7	
VTA02	A3040-0051	JACK-RCA; PI3.5 S-454 3P	1	
XVJ1	A3040-0124	JACK-RCA; PI3.5 S-438P-09 6P	1	
GIC2	A4000-0031	IC-DRAM; KM41C464-08/10 DIP	1	⚠ OPTION
GIC1	A4006-0024	IC-ASIC; SRV-9205-CA QFP	1	⚠ OPTION
GIC3	A4012-0151	IC-LINEAR; KA2195D SOP RGB ENCODER	1	⚠ OPTION
VIC1	A4012-0208	IC-LINEAR; KS0118 QFP GENLOCK	1	⚠
VIC2	A4012-0209	IC-LINEAR; KA9411 QFP DVSP	1	⚠
SIC6	A4012-0210	IC-LINEAR; KA9421 QFP SSP	1	⚠
XIC6	A4012-0211	IC-LINEAR; KA9401 QFP ASP	1	⚠
XIC9	A4012-0292	IC-LINEAR; KA9283 QFP DSP+DPLL	1	⚠
TCW3	A6010-0169	CONNECTOR-WAFER; 53014-1510 2M/M	1	
TCW1	A6010-0753	CONNECTOR-WAFER; 5267-18A WHT STICK	1	
	A6032-0027	WIRE-PLATE; 32/250 UL 2896-B	1	
VFL04	B1146-0003	DELAY-LINE; SDL-4103 220NS DV-600C		
VFL09	B1146-0010	DELAY-LINE; ELT-10Z566 0.60US	1	
VFL07	B1146-0011	DELAY-LINE; ELB-4L068 0.175US	1	
VFL03	B1146-0013	DELAY-LINE; HCF0081 1H NTSC	1	
VFL06	B1240-0047	FILTER-LC; BP 4.43M H287BSJS-K5250	1	
MIC1	B4000-0017	IC-OPT; LC86P6232 QFP	1	⚠
XIC28, VIC18	B4004-0080	IC-LOGIC; TC4094BP DIP	2	⚠
SIC30, 31	B4008-0683	IC-DRIVE; LA6510 STP	2	⚠
NIC1	B4008-0907	IC-VIDEO S/W; NJM2233BM SOP	1	⚠ OPTION
EIC1	B4008-1097	IC-ECHO; YM7128B DIP YAMAHA	1	⚠ OPTION
NIC3	B4012-0039	IC-LINEAR; CXA1228S DIP NTSC/PAL DECODE	1	⚠ OPTION
NIC2	B4012-0040	IC-LINEAR; CXA1229P DIP NTSC/PAL ENCODE	1	⚠ OPTION
CIC2	B4012-0213	IC-LINEAR; NJM2248 QFP	1	⚠
WQ2	B6013-0069	CONNECTOR-FPC; 52045-3210 WHT	1	
XIC9	B4012-0302	IC-LINEAR; SM5874AM SIP D/A CONVERTOR	1	⚠

16-3-2. POWER

LOCATION	CODE NO.	DESCRIPTION and SPECIFICATION	Q'TY	REMARK
PR18, 10	11408-477-109	R-METAL OXIDE; RS1T1-J MINI TYPE	2	⚠
PCC1, 2, 4, 5, 8	11417-344-103	C-CERAMIC; CK45T F 50V 0.01M-Z	5	
PCC3, 6, 7	11447-910-103	CONDENSER AXIAL-LEAD; 16V EP050 Y10000	3	
PCE3, 4	11607-103-682	C-ELECTROLYTIC; MC SMS 16V 6800M	2	⚠
PCE13, 14	11608-102-224	C-ELECTROLYTIC; SMS T 10V 220M	2	
PCC6, 7	11608-102-471	C-ELECTROLYTIC; SMS T 10V470M	2	
PCE11, 12	11608-102-473	C-ELECTROLYTIC; SMS T 10V47M	2	
PCE8	11608-104-103	C-ELECTROLYTIC; SMS T 25V 10M	1	
PCE9	11608-104-471	C-ELECTROLYTIC; SMS T 25V 470M	1	⚠
PCE10	11608-104-473	C-ELECTROLYTIC; SMS T 25V 47M	1	⚠
PCE15, 16, 17	11608-106-100	C-ELECTROLYTIC; SMS T 50V10M	3	⚠
PCE5	11608-106-101	C-ELECTROLYTIC; SMS T 50V 100M	1	⚠
PIC1	12109-401-730	IC-REGULATORS; MC7808BF, 85W	1	
PIC4, 7	12119-401-170	IC-OP AMP; 4558C	2	
PIC3	12119-601-770	IC-REGULATOR; MC7805	1	
PIC2	12119-601-840	IC-REGULATOR; MC7908C	1	
PQ1, 12, 14	12139-307-170	TRANSISTOR; 2SC1740S (R, S) TAPE	3	
PQ 6, 8, 9, 10, 15, 18	12149-102-350	TRANSISTOR; 2SA933S (R, S) TAPE	6	
PQ5	12149-301-900	TRANSISTOR; 2SC945-Y TAPE	1	
PQ13	12159-301-340	TR DIGITAL; KSR-2002	1	
PD1, 2, 3, 4	12169-201-080	DIODE-RECTIFIER; IN 4001, TAPE	4	
PD6, 7, 13	12169-201-090	DIODE-RECTIFIER; IN 4002, TAPE	3	
PBD2	12169-219-320	DIODE BRIDGE; PBP203 2A 200V	1	
PBD1	12169-219-330	DIODE BRIDGE; PBL403	1	
PD5, 8, 9, 10, 11, 12	12169-301-290	DIODE-SW; 1SS53/1N4148. CT: 6PF	6	
PZD1	12169-403-920	DIODE-ZN; 1W 13.8-15.6V UZP-15B	1	
PZD2	12169-404-790	DIODE ZENER; 500MW UZ-5.6BSB TAPING	1	
PLED1	12309-001-220	LED; SLV31VC TAPE	1	
	13019-0196-00	BRACAKT-IC; DV-530K T0.3 WHT SUS27		
PF1, 2, 3, 4	13164-101-913	CLIP-FUSE; PBP 3- 1/2H T0.3 SN	4	
PCW5	13349-103-120	CONNECTOR-WAFER; 5267-12A 12P TYPE	1	
PCW1	13349-156-020	CONNECTOR-WAFER ASSY; 5096-02C	1	
PSW1	13599-502-020	VOLT SELECT; PCB 00120354 220V/110V	1	
PL2	A1151-0025	COIL-LINE FILTER; 12mH-18mH	1	
PL1	14529-819-010	EMI FILTER; HP1-P25	1	
PF1	14709-241-140	FUSE; T 250V 0.5A 20 EUR	1	⚠
PF2	14709-241-200	FUSE; T 250V 1A 20 EUR	1	⚠
PF3, 4	14709-241-280	FUSE; T 250V 3.15A 20 EUR	2	⚠
PCW2	16439-0102-00	CONNECTOR WIRE-BS; 5264/51088-13 1007#	1	
PCW6	16439-0104-00	CONNECTOR WIRE-BS; 5264/51088-18 1007#	1	
CC8	11447-619-222	CONDENSER AXIAL-LEAD; 16V EP050 X2200	1	OPTION
	11447-910-103	CONDENSER AXIAL-LEAD; 16V EP050 Y10000		
C4, 6, 7	11449-010-104	CONDENSER AXIAL-LEAD; 50V UP F100000-Z	3	OPTION
CC5	11449-518-561	CONDENSER AXIAL-LEAD; 50V UP050 B560-K	1	OPTION
CC2	11608-103-103	C-ELECTROLYTIC; SMS T 16V 10M	1	OPTION

LOCATION	CODE NO.	DESCRIPTION and SPECIFICATION	Q'TY	REMARK
CC1	11608-106-111	C-ELECTROLYTIC; SMS T 50V 0.1M	1	
CQ1	12139-307-170	TRANSISTOR; 2SC1740S (R.S) TAPE	1	
CD1	12169-301-400	DIODE-SWITCH; 1N4148M ROHM	1	OPTION
CCW1	13349-150-100	CONNECTOR-DUAL, BODY HEADER; 2566-P10	1	
CIC1	B4012-0108	IC-LINEAR; Z86128 DIP DA TYPE CAPTION	1	⚠ OPTION
PCE1, 2	A1104-0346	C-ELEC; CE 03 C 25V 682-MW	2	
	A1199-0106	TRANS-POWER; E166X30 120V 60HZ		⚠
PSW2, 3, 4, 5	A3018-0026	SW-TACT, V; SKHT270 10A 22.6X8MM 2KEY	4	
PQ7	A4052-0044	TR-HIGH POWER; KSD560-Y 30W 5A 150V	1	⚠
	13059-808-301	POWER-CORD; EP2		
PIC5	B4008-1001	IC-DRIVE; TA8313P DIP	1	⚠
PQ2, 3	B4052-0035	TR-HIGH POWER; 2SB1185-F 25W-3A 70MHZ	2	⚠
PQ4, 11, 17	B4052-0036	TR-HIGH POWER; 2SD1762-F 25W 3A 70MHZ	3	⚠
PIC6	B4062-0007	TR-ARRAY; SMA6010 20W 4A 60V CC X3/CEX3	1	
PC1	14049-033-410	FERITE CORE	1	⚠

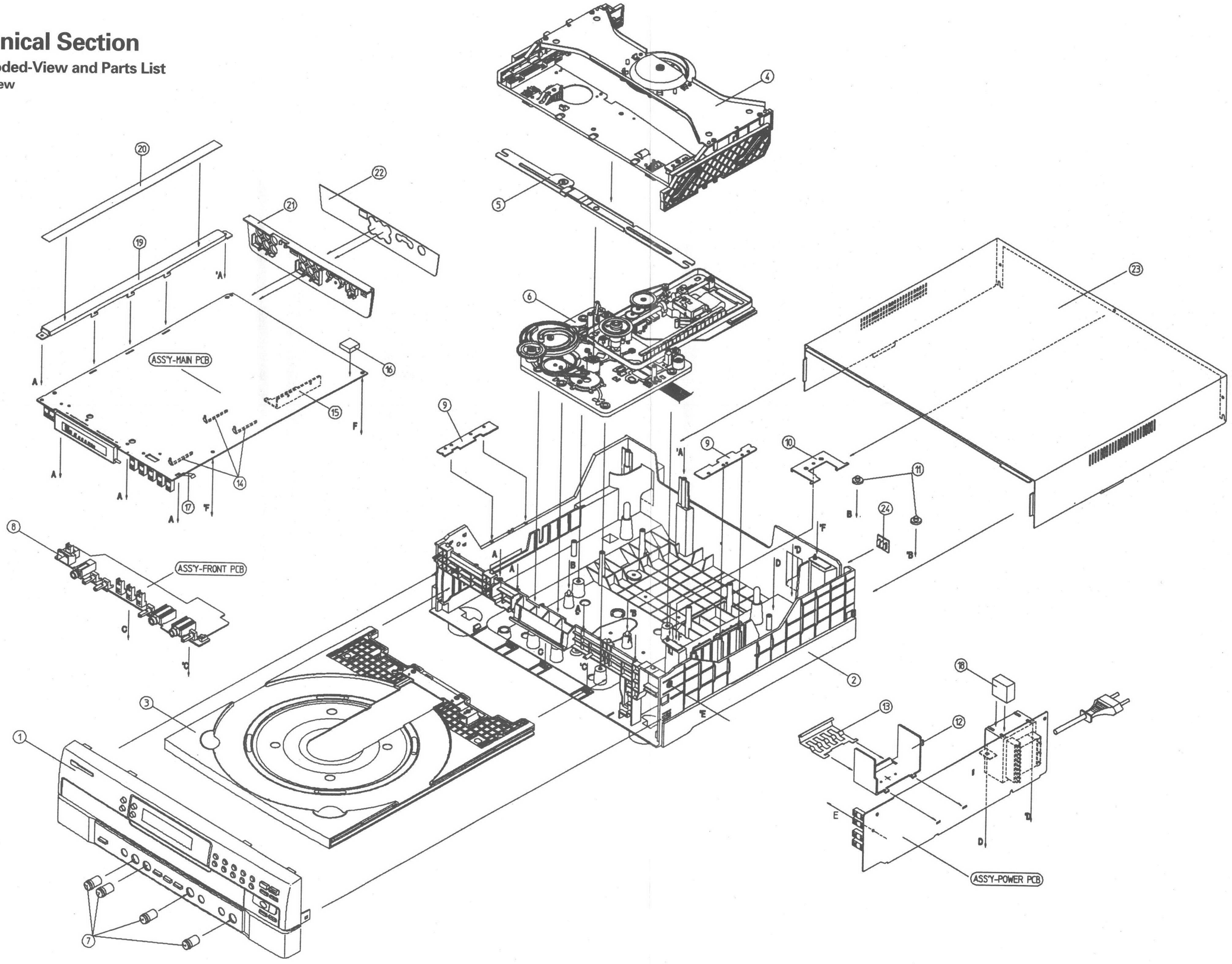
16-3-3. FRONT

LOCATION	CODE NO.	DESCRIPTION and SPECIFICATION	Q'TY	REMARK
FC9	11447-619-152	CONDENSER AXIAL-LEAD; 16V EP050 X1500	1	
FC13	11447-619-392	CONDENSER AXIAL-LEAD; 16V EP050 X3900	1	
FC25	11447-619-562	CONDENSER AXIAL-LEAD; 16V EP050 X5600	1	
FC1	11447-910-103	CONDENSER AXIAL-LEAD; 16V EP050 Y10000	2	OPTION
FC5				
FC17, 18,	11448-010-223	CONDENSER AXIAL-LEAD; 25V TP 050F22000	4	OPTION
FC23, 24				
FC20,	11449-117-180	CONDENSER AXIAL-LEAD; 50V UP050 SL18-J	2	OPTION
FC21				
FC2, 6	11449-518-221	CONDENSER AXIAL-LEAD; 50V UP050 B220-K	2	OPTION
FC22	11505-714-823	C-POLYESTER; CQ921T M50V 0.082M-K	1	
FC19	11608-103-103	C-ELECTROLYTIC; SMS T 16V 10M	1	
FC25	11608-103-104	C-ELECTROLYTIC; SMS T 16V 100M	1	⚠
FC16	11608-103-223	C-ELECTROLYTIC; SMS T 16V 22M	1	⚠
FC4,	11608-106-102	C-ELECTROLYTIC; SMS T 50V 1M	4	OPTION
FC8, 12, 15				
FIC2	12119-401-200	IC OP AMP; NJM4560S	1	
FIC1,	12119-401-630	IC-DUAL OP AMP; MC4558S/NJM4558S	2	OPTION
FIC3				
FQ1	12139-307-170	TRANSISTOR; 2SC1740S (R.S) TAPE	1	
FQ2	12159-301-520	TR DIGITAL; KSR1004	1	
FD1, 2, 3, 4, 5	12169-301-290	DIODE-SW; 1SS53/1N4148, CT; 6PF	5	
FD6, 7	12309-104-580	LED; SLV-31MC3 TAPE	2	OPTION
FJACK2, 3	13339-101-650	JACK-HEAD PHONE; SOQ4694-01 4010	2	OPTION
FCW1	16439-0102-00	CONNECTOR WIRE-RS; 5264/51088-13 1007#	1	
FVR2, 3	A1048-0016	VR-ROTARY, MOLD; BK09K1110303 20KB SGL	3	OPTION
FVR4				
FSW1, 2, 3, 4	A3018-0026	SW-TACT, V; SKHT27010A 22.6X8MM 2KEY	4	OPTION
FVR1	B1048-0020	VR-TORATY, MOLD; BK09K12B 20KB SGL	1	OPTION
FSW5	B3020-0019	SW-MICRO; MPU10108 MMBO 5V1MA B 20G	1	
H/P JACK	B3040-0048	JACK-HEADPHONE; P16.43 HLJ1520-01-3410	1	OPTION
FE1~8	B1247-0048	EMI-FILTER;DSS306-55F223E16	8	•, ⚠
FL1	12602-214-518	COIL-SPRING;SBT-0260TF (SBT-0460TF)	1	⚠

17. Mechanical Section

17-1. Total Exploded-View and Parts List

17-1-1. Exploded-view

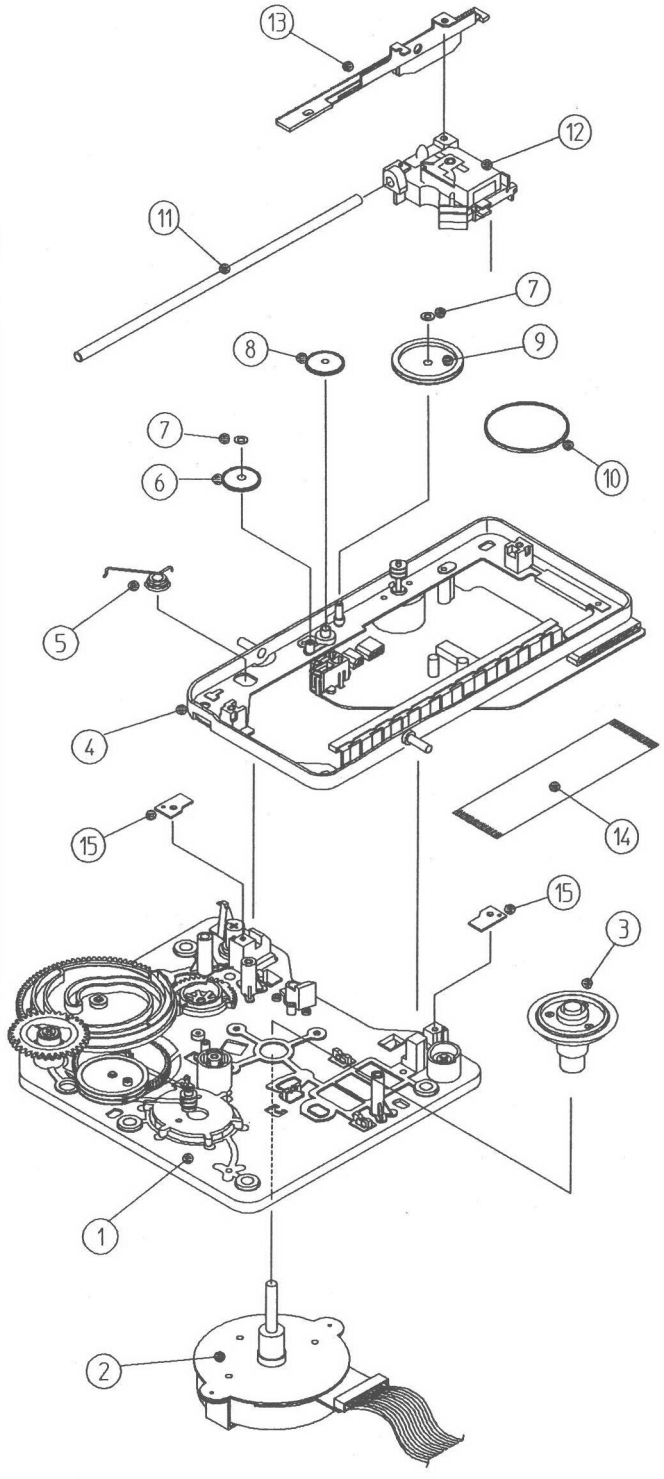


17-1-2. Exploded view Parts list

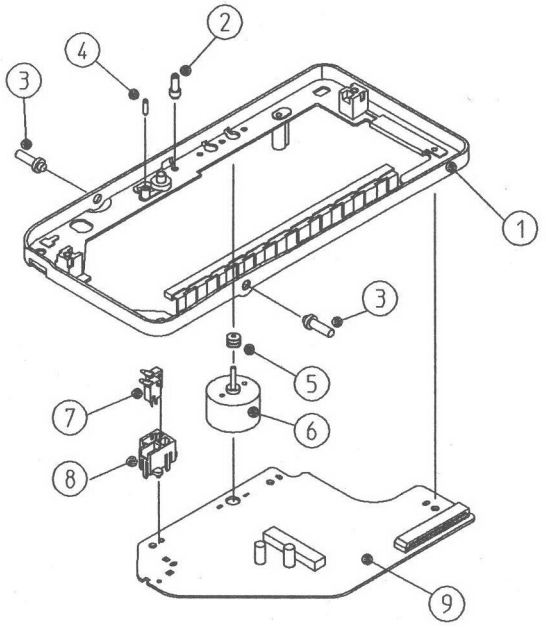
NO	CODE NO	DESCRIPTION	SPECIFICATION	Q'TY	REMARK
1	19119-0036-01	ASS'Y-FRONT CABINET	DV-530KG	1	OPTION
2	19119-0038-00	ASS'Y-MAIN CHASSIS	ASS'Y	1	
3	19111-0070-00	ASS'Y-TRAY	ASS'Y	1	
4	19110-0019-00	ASS'Y-CLAMP	ASS'Y	1	
5	19119-0035-00	ASS'Y-BRKT LEVER	ASS'Y	1	
6	*CVM-55SDOM	ASS'Y-DECK	CMS-55S	1	
7	14084-0367-00	KNOB-VOLUME	ABS 94HB BLK	4	
8	13323-0125-00	HOLDER-LED	ABS 94HB BLK	1	
9	13014-0126-00	BRKT-SIDE (L)	SECC 1.6T	2	
10	13314-0077-00	COVER-WIRE	SECC 1.0T	1	
11	16154-507-910	RUBBER-CHASSIS	HICA 35	2	
12	11122-0033-01	HEAT-SINK	AL 2.0T	1	
13	13019-0196-00	BRKT-IC	SUS 301 0.3T	1	
14	16634-517-300	CORD-CLAMP	DALA-2	3	OPTION
15	11124-0024-00	HEAT SINK-IC	A1050	1	
16	16804-521-510	CUSHION-DECK	EVA SPONGE	1	
17	16624-569-410	BRKT-PCB/G	SUS 0.2T	1	
18	13054-0031-01	CUSHION-PCB	EVA 50°	1	
19	13013-0125-00	BKRT-PCB	SECC 1.2T	1	
20	10214-0042-00	SHEET-HYMERON	HYMERON 0.5T	1	
21	13313-0074-00	COVER-REAR	ABS 94HB BLK	1	
22	14503-0158-00	LABEL-JACK	PVC 0.3T BLK	1	OPTION
23	12003-0135-01	CABINET-TOP	SECC 0.6T	1	
24	13314-0030-00	COVER-VOLTAGE	ABS BLK	1	OPTION

17-2. Mechanical exploded-view and parts view

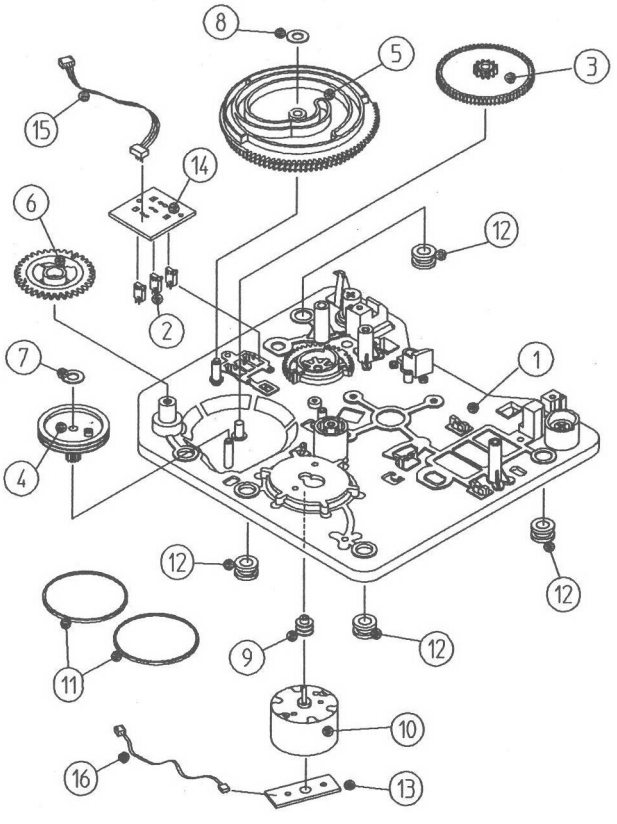
MECHA-ASSY PART EXPLODED-VIEW



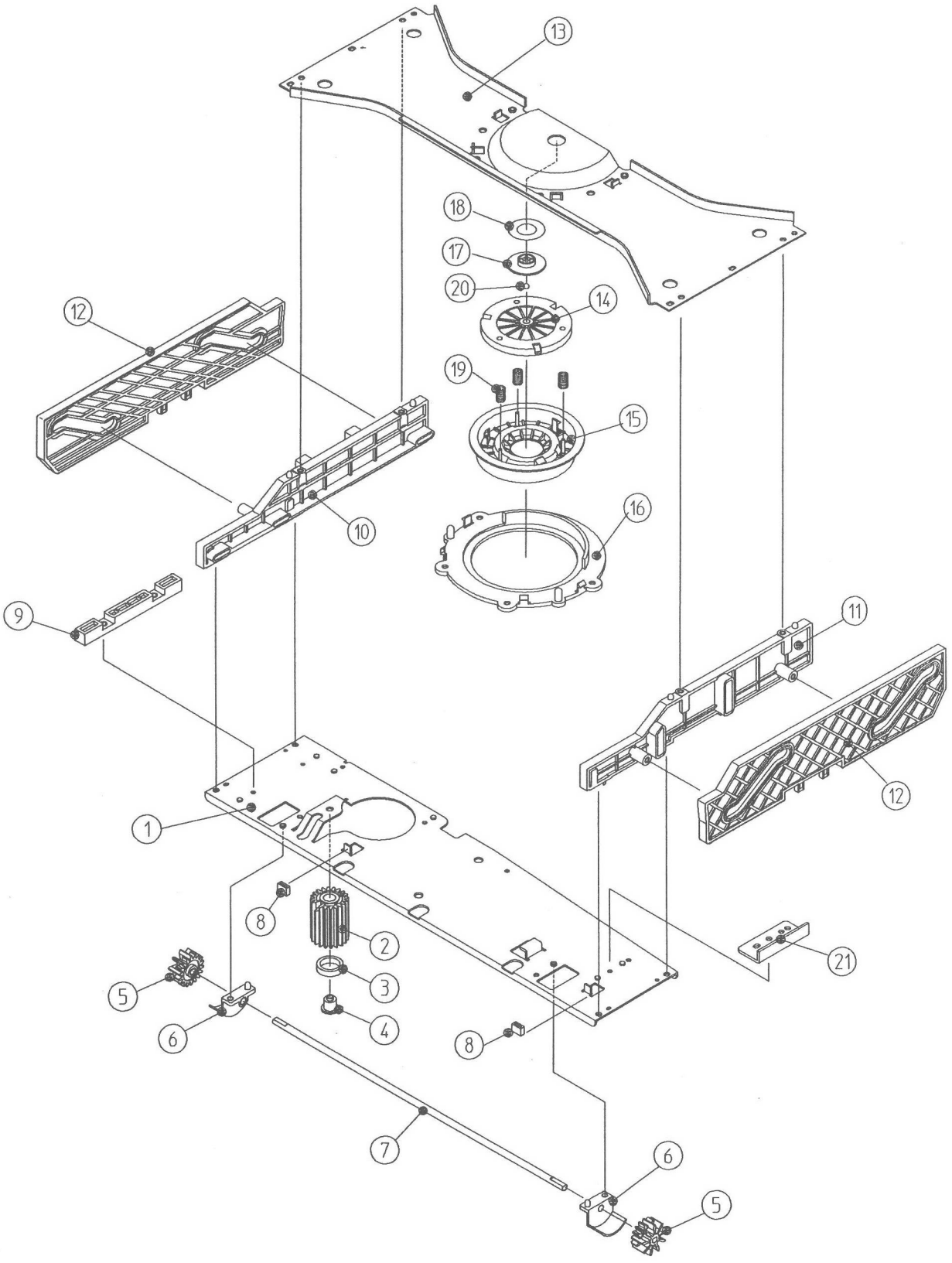
CENTER-ASSY PART EXPLODED-VIEW



HOLDER-ASSY PART EXPLODED-VIEW



ASSY-CLAMPER EXPLODED VIEW



MECHA-ASSY PART

NO	CODE NO	DESCRIPTION	SPECIFICATION	Q'TY	REMARK
1	19119-0034-00	ASSY-BRKT HOLDER	ASSY	1	
2	16829-0005-00	MOTOR-SPINDLE	14V 520MA	1	
3	19203-0001-01	TURN-TABLE	ASSY	1	
4	19119-0033-00	ASSY-BRKT CENTER	ASSY	1	
5	12724-0100-00	SPRING-TORSION	TS STS 304 pi8.5	1	
6	11474-0027-00	GEAR-P/U (A)	POM (M90-02)	1	
7	18314-500-810	O-RING	POLY 1.7x4.5x0.4	2	
8	11474-0028-00	GEAR-P/U (B)	POM (M90-02) BLK	1	
9	11474-0029-00	GEAR-PULLEY (P/U)	POM (M90-02)	1	
10	11494-0005-00	BELT-P/U	CR68 FR1.4x30	1	
11	15104-528-610	SHAFT-P/U	SUS 420 02	1	
12	*SOH91V1	OPTICAL HEAD	SAMSUNG	1	
13	13013-0123-00	BRKT-P/U(M)	EG10T+POM	1	
14	A6032-0030	WIRE-PLATE	24/110	1	
15	16624-572-310	BRKT-BOSS	STS 0.8T	2	

HOLDER-ASSY PART

NO	CODE NO	DESCRIPTION	SPECIFICATION	Q'TY	REMARK
1	13011-0097-00	BRKT-HOLDER (M)	SECC 1.6+POM (M90-02)	1	
2	B3020-0016	SW-MICRO	MLS-18	3	
3	15213-505-610	GEAR-A	POM (M90-02)	1	
4	11474-0025-00	GEAR-PULLEY (TRAY)	POM (M90-02)	1	
5	11472-0030-00	GEAR-CAM	POM (M90-02)	1	
6	11473-0026-00	GEAR-LOCK	POM (M90-02)	1	
7	10534-0007-00	WASHER-SLIT	D08DI2.1T0.5	1	
8	10534-0007-00	WASHER-SLIT	D08DI2.1T0.5	1	
9	15214-515-010	GEAR-PULLEY (B)	POM (M90-02)	1	
10	B3070-0002	MOTOR-DC	RF-500TB 9V	1	
11	11494-0006-00	BELT-TRAY	NEOPRENE BLK	2	
12	16154-508-020	RUBBER-DECK	BUTYL	4	
13	16024-0175-00	PCB-DECK(MODE)	CVM-55S	1	
14	16024-0175-00	PCB-DECK(LOAD)	CVM-55S	1	
15	16439-0048-00	CONNECTOR-WIRE	51004-4P 150MM	1	
16	16439-0049-00	CONNECTOR-WIRE	51004-2P 250MM	1	

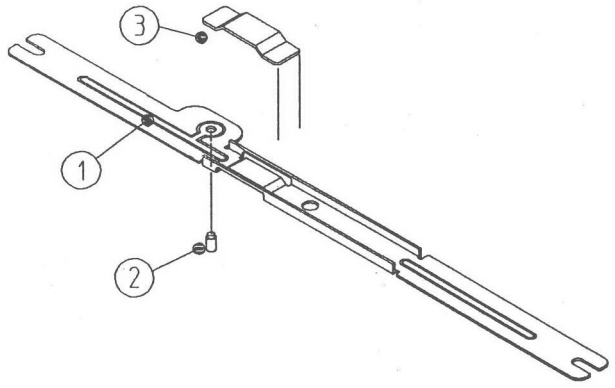
CENTER-ASSY PART

NO	CODE NO	DESCRIPTION	SPECIFICATION	Q'TY	REMARK
1	13012-0099-00	BRKT-CENTER (M)	SECC 1.6+POM (M90-02)	1	
2	11404-0054-00	SHAFT-PULL ET (P/U)	SUM 24L	1	
3	11404-0006-00	SHAFT-BRKT CENTER	SUM 24L	2	
4	15104-531-210	SHAFT-GEAR (A)	SUM 24L	1	
5	11504-0007-00	PULLEY-MOTOR	POM (M90-02)	1	
6	16829-0011-00	MOTOR-SPINDLE	2.5V 110MM	1	
7	B3020-0016	SW-MICRO	MLS-18	2	
8	13323-0082-00	HOLDER-SWITCH	POM (M90-02) BLK	1	
9	16024-0175-00	PCB-DECK	T1.6 W197	1	

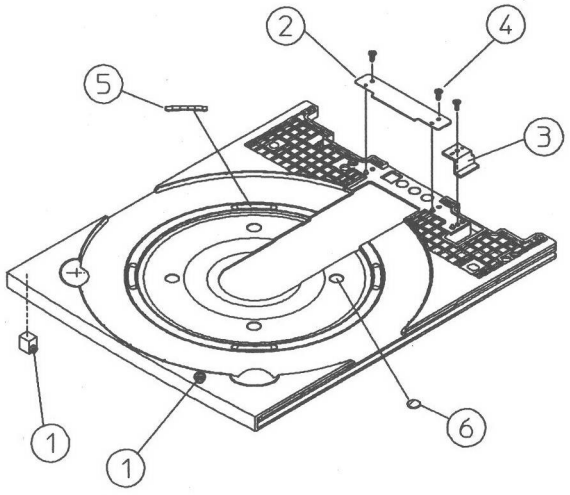
ASSY-CLAMPER PARTS LIST

NO	CODE NO	DESCRIPTION	SPECIFICATION	Q'TY	REMARK
	19110-0019-00	ASSY-CLAMPER	ASSY	1	
1	13012-0094-00	BRACKET-BASE	SECC 1.2T	1	
2	15213-505-910	GEAR-TRAY	POM (M109-LD)	1	
3	11514-0005-00	WHEEL-GEAR	POM (M109-LD)	1	
4	11404-0057-00	SHAFT-TRAY	SUM24L ZN 도금	1	
5	11474-0024-00	GEAR-SYNCRO	PLM (M109-LD)	2	
6	13324-0081-00	HOLDER-SHAFT	POM (M109-LD)	2	
7	11404-0058-00	SHAFT-SYNCRO	SUM24L ZN 도금	1	
8	16414-508-310	DAMPER-TRAY	CR BLACK	2	
9	13354-0019-00	GUIDE-TRAY	POM (M109-LD)	1	
10	13352-0020-00	GUIDE-SLIDE (L)	PBT (GP-2300)	1	
11	13352-0021-00	GUIDE-SLIDE (R)	PBT (GP-2300)	1	
12	13352-0022-00	GUIDE-CAM	POM (M109-LD)	2	
13	16623-620-210	BRACKET-CLAMPER	SECC 1.2T	1	
14	13333-0002-00	CLAMPER-UPPER	POM (TC-3010)	1	
15	13333-0003-00	CLAMPER-LOW	POM (TC-3010)	1	
16	13313-0072-00	COVER-CHUCK	ABS BLK (HF-06601)	1	
17	13384-0004-00	STOPPER-BALL	POM (TP-20)	1	
18	10224-0007-00	TAPE-DOUBLE FACE	SOOKWANG NO800	1	
19	12724-0096-00	SPRING-CLAMPER	STS-W P1 0.5x12	3	
20	15224-503-210	BALL-SLIDE	KBC PI 4.0	1	
21	13014-0169-00	BRACKET-GUIDE	SECC 1.6T	1	

ASSY-BRKT LEVER EXPLODED VIEW



ASSY-TRAY EXPLODED VIEW



ASSY-BRKT LEVER PARTS LIST

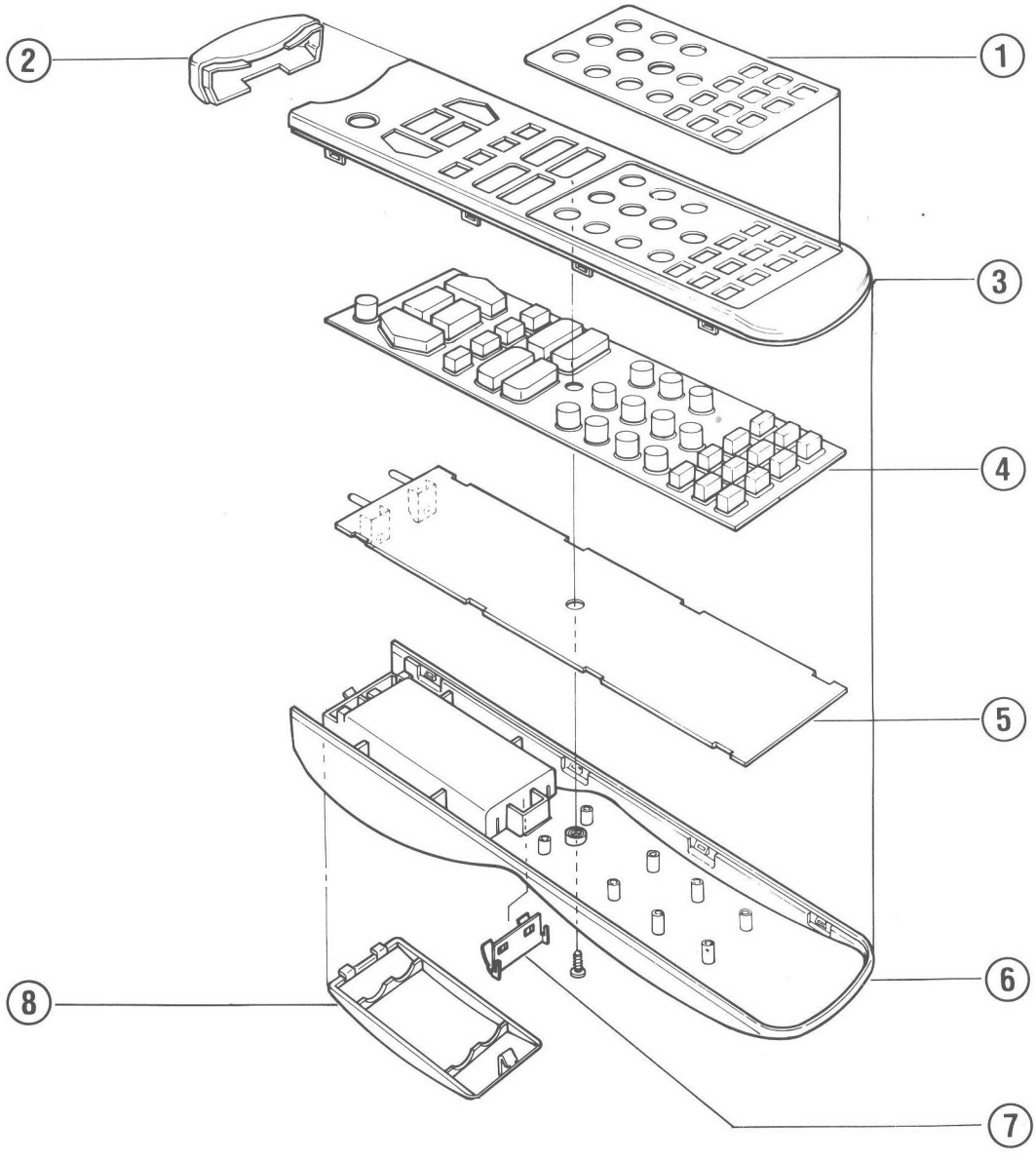
NO	CODE NO	DESCRIPTION	SPECIFICATION	Q'TY	REMARK
1	13013-0095-00	BRACKET-LEVER	SECC 1.2T	1	
2	11404-0059-00	SHAFT-LEVER	SUM24L (ZN)	1	spinning
3	13014-0193-00	BRKT-LE SUPPORT	SECC 1.2T	1	

ASSY-TRAY PARTS LIST

NO	CODE NO	DESCRIPTION	SPECIFICATION	Q'TY	REMARK
1	13600-0007-00	TRAY	ABS BLK (HR-0370D)	1	
2	13014-0168-00	BRKT-TRAY	SUS 1.2T	1	
3	13014-0178-00	BRKT-SUPPORT	SECC 1.6T	1	
4	17458-230-103	SCREW-TAP	TITE BH 3x10 FEFZB	3	
5	13054-0009-01	CUSHION-DISC (L)	LEATHER SHEET 1.4T	4	
6	13054-0027-00	CUSHION-DISC (M)	LEATHER SHEET 0.8T	4	
7	13054-0075-00	CUSHION-TRAY	EVA 45 BLK 5T	1	

Remocon-Ass'y exploded-view and parts list

NO	CODE NO	DESCRIPTION	SPECIFICATION	Q'TY	REMARK
1	14014-0021-01	INLAY-REMOCON	PC 0.5T	1	
2	12713-0008-00	LENS-REMOCN	PC, BLUE	1	
3	12004-0184-01	CABINET-TOP	ABS 94HB	1	
4	13393-0003-02	RUBBER-REMOCON	SILICON	1	
5	DV-530KG/DOM	REMOCON-PCB	DV-530KG/DOM	1	
6	12001-0055-00	CABINET-BOTTOM	ABS 94HB	1	
7	12724-0046-00	SPRING BATTERY-1	SUS 0.15T	1	
8	13313-0026-00	COVER-BATTERY	ABS 94HB	1	
	19233-0017-01	REMOCON ASS'Y	DV-530K/EXP	1	
	12109-401-180	IC-REMOCON	LC 7461M-8100	1	
	12149-401-150	TRANSISTOR	KSD 471-Y, TAPE	1	



18. Abbreviation

AC : Alternating Current
AD : Analog to Digital
ADJ. : ADJustment
AGC : Automatic Gain Control
AM : Amplitude Modulation
AMP : AMPlifier
ANT : ANTenna

BAL : BALance
BPF : Band Pass Filter

C : Condenser, Capacitor
CAV : Constant Angular Velocity
CCD : Charge Coupled Device
CD : Compact Disc
CH : CHannel
CLV : Constant Linear Velocity
Cm : Centimeter
COMP : COMParator
C-SYNC : Composite SYNChronization
CTL : Con Trol
CX : Compatible eXpansion

D : Depth, Diode
D/A : Digital tof Analog
dB : deciBel
DC : Direct Current
DEMOD : DEMODulation
DISP : DISPlay
D.O : Drop Out
DSP : Digital Signal Processor
DV : Digital Video

EFM : Eight to Fourteen Modulation
EQ : EQualizer

FE : Focus Error
FF : Fast Forward
FG : Focus Gain
Fig. : Figure
FL : Focus Loop, Focus Lock
FLT : FL Tuber
FM : Frequency Modulation
FREQ. : FREQuency
FTS : Focus Tracking Slider

GND : GrouND

H : Height, High, Horizontal
HPF : High Pass Filter
H-SYNC : Horizontal Synchornization
Hz : Hertz

IC : Integrated Circuit
I/O : Input/Output
INTROL : INTROduction

Kg : Killogram
KHz : Killo Hertz

L : Left, Low
LD : Laser Disc
LDP : Laser Disc Player
LED : Light Emitting Diode
LPF : Low Pass Filter
LSI : Large Scale Integration

max : maximum
MECHA : MECHAnism
MHz : Mega Hertz
MIC : MICrophone
MICOM : MIcroCOMputer
MID : MIDdle
min : minimum
mV : miliVolt

NO : Number
NR : Noise Reduction
NTSC : National Television System committee

PAL : Phase Alternating Line
PCB : Printed Circuit Board
PLL : Phase Lock Loop
PM : Phase Modulation
PWM : Pulse width Modulation

R : Right
RAM : Random Access Memory
REF : REFerence
REMOCON : REMOte CONtrol
REW : REWind
RF : Radio Frequency
rms : root mean square
ROM : Read Only Memory

sec : second
SG : Signal Generator
S/N : Signal to Noise
spec : specification
SPDL : SPinDLe
STBC : Spindle Time Base Correction
SW : SWitch
sync : synchonization
SYSCON : SYStem CONtrol

TBC : Time Base Correction
TE : Tilt Error
TG : Tracking Gain
TP : Test Point
TRANS : TRANSformer

V : Voltage
VCO : Voltage Controlled Oscillator
VHF : Very High Frequency
VL : Video Level

VOL : VOLume
Vp-p : peak-topeak Voltage
V-SYNC : Vertical SYNChonization
VTVM : Vaccum Tube Volt Meter

W : Weight, Watt

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