DENON

Hi-Fi Component

SERVICE MANUAL

STEREO CD PLAYER

MODEL DCD-3300

NIPPON COLUMBIA CO., LTD.

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FEATURES

The DCD-3300 compact laser disc player utilizes a unique DENON Super Linear Converter which prevents deterioration of sound quality in the PCM playback system, assuring accurate reproduction of sound record on compact laser discs, in the studio or in live sound production areas. The parts for this high performance disc player have been selected with careful discrimination, to produce high quality, realistic playback of the full musical production.

SPECIFICATIONS

AUDIO

No. of channels:	2 channels
Frequency response:	2 ~ 20,000 Hz ± 0.2 dB
Dynamic range:	96 dB
Signal-to-noise ratio:	106 dB
Harmonic distortion:	0.0025% (1 kHz)
Separation:	102 dB (1 kHz)
Wow and flutter:	Less than the measuring limit (±0.001% W. peak)
Output voltage:	FIXED: 2.0V VARIABLE: 6.9V with maximum Line-out volume BALANCE Type: 19 dBm/600Ω load with maximum line-out volume (Variable output voltage is shown without 600Ω load on balance type output.)

DISCS Compact discs are used.

Playing time:	60 min/single side
Diameter:	120 mm

SIGNAL FORMAT

Sampling frequency:	44.1 kHz
Quantization:	16 bit linear/channel
Transmission bit rate:	4.3218 M bits/sec

DIGITAL OUTPUT SIGNAL FORMAT

Format:	Digital audio interface
Coaxial output voltage:	0.5 Vp-p 75Ω
Optical power:	−12 dBm
Optical waveform:	650 nm

PICKUP

System:	Objective lens drive system, laser pickup
Lens drive system:	Two-dimensional parallel drive
Light source:	Semiconductor laser
Wavelength:	780 nm

GENERAL CHARACTERISTICS

Power supply:	50/60 Hz, Voltage is shown on rating label
Power consumption:	25W
Dimensions:	434 (17.1 in) W x 105 (4.1 in) H x 360 (14.2 in) D mm
Weight:	14 kg

FUNCTIONS AND DISPLAY

Functions:	Direct selection, automatic search, programmed selection, repeat playback, manual search, index search, time search
Display:	Track number, index number, time, and program
Other functions:	Two digital output terminals (two coaxial output terminals and one optical output terminal), level fixed output terminal, level variable output terminals (balance and umbalance types)

REMOTE CONTROL UNIT RC-3300

Remote control system:	Infrared pulse system
Power supply:	3V DC Two SUM-4 (standard size four) dry cell batteries
External dimensions:	60 (2.4 in) W x 150 (5.9 in) H x 17 (0.7 in) D mm
Weight:	98 g (Includes batteries)

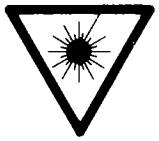
ACCESSORIES Connecting pin cord, optical fiber cable

* Design and specifications are subject to change without notice in the course of product improvement.

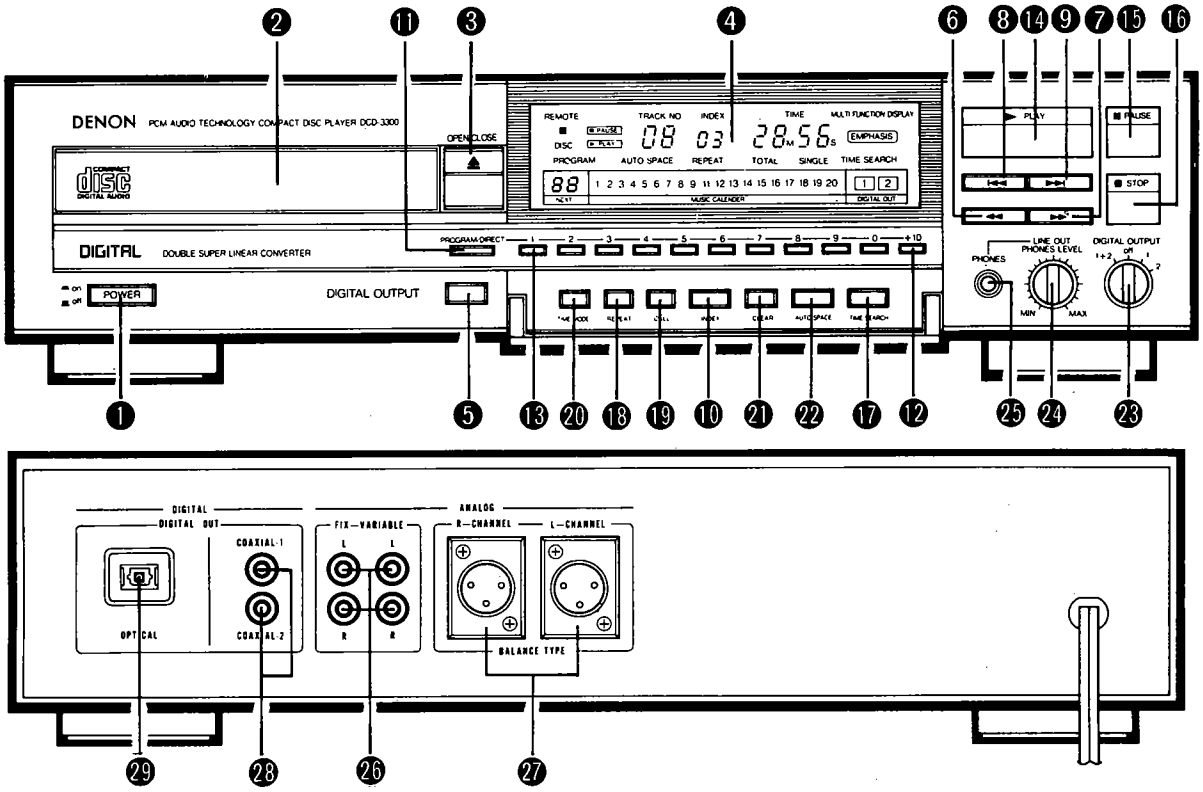
VAROITUS: SUOJAKOTELOA EI SAA AVATA. LAITE SISÄLTÄÄ LASER-DIODIN, JOKA LÄHETTÄÄ SILMÄLLE VAARALLISTA LASER-SATEILYÄ.

ADVARSEL: USYNLIG LASERSTRALING VED ABNING NAR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGA UDSAETTELSE FOR STRALING.

" CLASS I LASER PRODUCT "



NAMES AND FUNCTIONS OF PARTS



❶ Power Switch (POWER)

- Press this switch to turn the power source ON.
- When the power is turned ON, (00) will light up in the TRACK NO section of the display ❹. If no disc is loaded at this time, (00000000) will be displayed after several seconds.
- If a disc is loaded, the DISC indicator will light, the total number of tracks on the disc will be displayed in the TRACK NO. section of the display, and the total playback time will be displayed under the TIME section. The calendar will light up to display the total number of tracks.

❷ Disc Holder

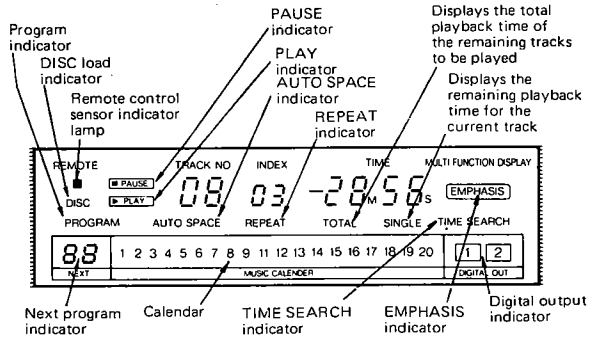
- The disc is loaded into the disc holder for play.
- The disc holder is opened and closed by pressing the disc holder open/close button (▲OPEN/CLOSE) ❸.
- The disc holder can be closed by the play button (▶PLAY), pause button (⏸ PAUSE) and ten-key pad.

❸ Disc Holder Open/Close Button (▲ OPEN/CLOSE)

- The disc holder ❷ is opened and closed by pressing this button.
- Press the button once to eject the disc holder ❷ forward. Press it again to close the holder.
- If the disc holder is closed and a disc has been loaded, the disc is rotated for several seconds, and then the machine enters stop state. The total number of tracks on the disc and the total playback time are then displayed on the digital display ❹

❹ Display

- The display area consists of sections for the track number, the index, the playback time, and the calendar.



❺ Remote Control Photosensitive Window

- This window receives the light transmitted from the wireless remote control unit.
- The RC-3300 wireless remote control unit should be operated while it is pointed in the direction of the photosensitive window.
- When the remote control is operated, the remote control sensor indicator lamp will light in the display area ❹.

❻ Manual Search Reverse Button (◀◀)

- Press this button to move playback in fast reverse.
- When the machine is in play, sound will be produced during the time that the button is being pressed and the fast reverse is operating.
- If this button is pressed while the machine is in the pause state, the fast reverse will operate three times faster than the reverse speed when the machine is in the play state. No sound will be produced.

❼ Manual Search Forward Button (▶▶)

- Press this button to move playback in forward.
- When the machine is in play, sound will be produced during the time that the button is being pressed and the fast forward is operating.
- If this button is pressed while the machine is in the pause state, the fast forward will operate three times faster than the fast forward speed when the machine is in the play state. No sound will be produced.

❽ Automatic Search Reverse Button (⏮)

- Press this button to move the pickup backward, to return to the beginning of the desired track.
- If this button is pressed during playback or pause, the pickup moves back to the beginning of the track that corresponds to the number of times the button was pressed.

❾ Automatic Search Forward Button (⏭)

- Press this button to move the pickup forward and advance to the beginning of the desired track.
- If this button is pressed during playback or pause, the pickup moves forward to the beginning of the track that corresponds to the number of times the button was pressed.

❿ Index Button (INDEX)

- Press this button to begin playback at an index number within a track.
- Select the desired index number by using the ten-key pad.

⓫ Program and Direct Button (PROGRAM/DIRECT)

- Press this button to select the memory program function or direct track selection function.

⓬ +10 Button (+10)

- Press this button to select a track number that is larger than 10.
- The [+10] button is used in conjunction with the ten-key pad ⓭. For example, to select track number 15, press the [+10] button and then [5] on the ten-key pad.
- Similarly, to select track number 32, press [+10], [+10], [+10] and then press [2].

⓭ Ten-Key Pad

- Press for direct music selection, program memory and time search. For example, to play back the third track using the direct selection function, press [3] on the key pad. Track number 3 will then start to play. To play track number 12, press [+10] and then [2].
- To use the key pad in program mode, first press the PROGRAM/DIRECT button to enter the correct mode.
- For time search, press the TIME SEARCH button.

⓮ Play Button (▶ PLAY)

- Press this button to play a disc.
  When the PLAY button is pressed, the [▶ PLAY] indicator lights, and the number of the track being played, the index number, and the elapsed playback time for that track are displayed. The calendar lights to display the all of the playback tracks. The displayed tracks then go out in order as each finished playing.
- When playback of the last track has finished, the [▶ PLAY] indicator goes out, and the machine enters stop state.
- It is also possible to use the PLAY button to close the disc holder after a disc has been inserted. Playback then begins.
- In the TIME SEARCH mode, play starts at any preset time on pressing this button.
- Press this button to start playing in the AUTO SPACE mode.

⓯ Pause Button (⏸ PAUSE)

- Press this button to stop the playback temporarily.
- If the PAUSE button is pressed during playback, the play is stopped temporarily, the [▶ PLAY] indicator goes out, and the [⏸ PAUSE] indicator lights.
- To end the pause, press the PLAY key ⓮.

⓰ Stop Button (■ STOP)

- Press this button to stop the playback.
- The rotation of the disc stops, and the total number of tracks and the total playback time are read out on the TRACK NO, and TIME sections of the display.
- During programmed playback, the total number of tracks programmed in memory and the total programmed performance time are displayed.

⑰ Time Search Button (TIME SEARCH)
- Press this button to designate play starting time.

⑱ Repeat Button (REPEAT)
- Press this button to repeat playback.
- When the [REPEAT] button is pressed, the [REPEAT] indicator lights and repeated playback is performed for all of the tracks on the disc. During programmed playback, all of the tracks programmed into memory are played repeatedly.
  Press the REPEAT button again to cancel the repeat operation.

⑲ Call Button (CALL)
- Press this button to verify the track numbers that have been programmed into memory.
- Press this button to confirm designated time of Time Search.

⑳ Time Mode Button (TIME MODE)
- This button is used to select the type of information to be read out under the TIME section of the display. Either the elapsed playback time of the current track, the remaining playback time for that track, or the playback time for the remaining tracks on the disc can be selected.
  Normally the elapsed playback time of the current track is displayed. If the button is pressed once, the [SINGLE] indicator lights and the remaining time left to play on the track is displayed. If the button is pressed again, the [SINGLE] indicator goes out, and the [TOTAL] indicator goes on, and the playback time for the remaining tracks left on the disc is displayed. If the button is pressed once more, the [TOTAL] indicator goes out and the display returns to the elapsed playback time for that track.
  If the button is pressed so that [TOTAL] indicator lights during programmed playback, the playback time for all of the remaining programmed tracks is displayed.

㉑ Clear Button (CLEAR)
- Press this button to correct the programmed contents of memory.
- Used to clear Time Search.

㉒ Auto Space Button (AUTO SPACE)
- Press this button for silent intervals of about 4 seconds between music tracks.

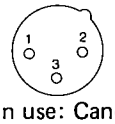
㉓ Digital Output Switch (DIGITAL OUTPUT)
- Used to change from one digital output to another.
- No digital outputs are obtained when the switch is off.

㉔ Volume Control
- Used to control the output levels (volume) of the headphone jack and Line-out (variable and balance type).

㉕ Headphone Jack (PHONES)
- When using headphones, please listen to them at an appropriate volume.
  (Headphones are sold separately.)

㉖ Output Terminals (FIXED-VARIABLE)
- Connect to the amplifier input terminals.

㉗ Output Terminals (BALANCE TYPE)
- Designed for use with a Canon connector, these terminals should be connected to the amplifier balance input/output terminals or audio power transformer input terminals. In either case, ensure input impedance is 600 Ohms.
- Canon connector signal arrangement
  (Back surface diagram)



  No. 1 pin 'COMMON'
  No. 2 pin 'COLD'
  No. 3 pin 'HOT'
- Connector in use: Canon XLR-3-32-type

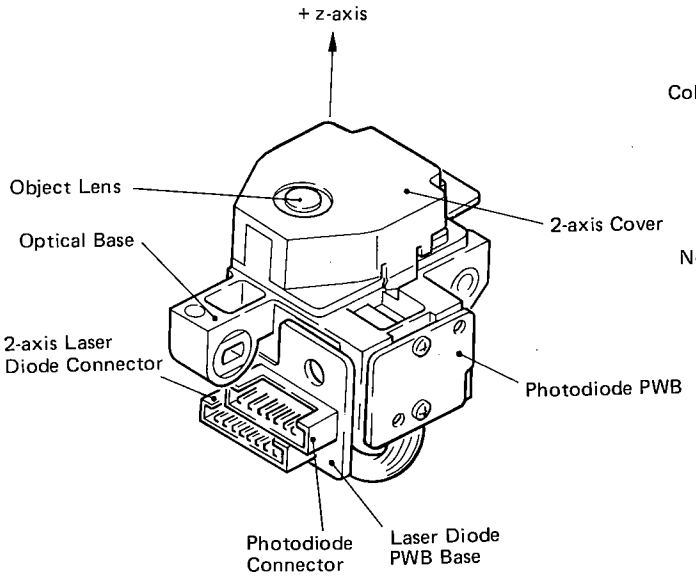
CAUTION: Do not short-circuit the 'COMMON' with the 'HOT' or 'COLD'.

㉘ Digital Output Terminals (DIGITAL OUT, COAXIAL-1, COAXIAL-2)
- Used to output digital data.
  Use the RCA pin cable supplied as an accessory.

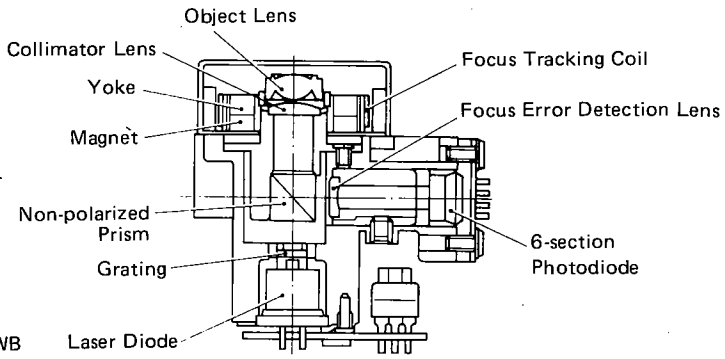
㉙ Digital Output Terminals (DIGITAL OUT-OPTICAL)
- Used to output digital data optically. Use the optical fiber cable supplied as an accessory.
- Optical outputs are possible with DIGITAL OUT 1 and 2, or combined.
- Optical fiber cable in use: Toss rink TOCP155-type.

NOTE FOR HANDLING OF LASER PICK-UP

• DESCRIPTION OF THE COMPONENTS

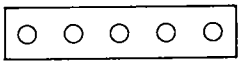


• MAIN PARTS COMPOSITION



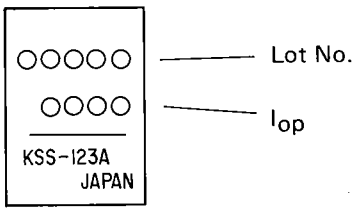
• INDICATION LABELS

1. Serial No.



This denotes the serial number used for quality control in the manufacturing plant.
NOTE: The numbers of figures in English numerals may be changed.

2. Nameplate



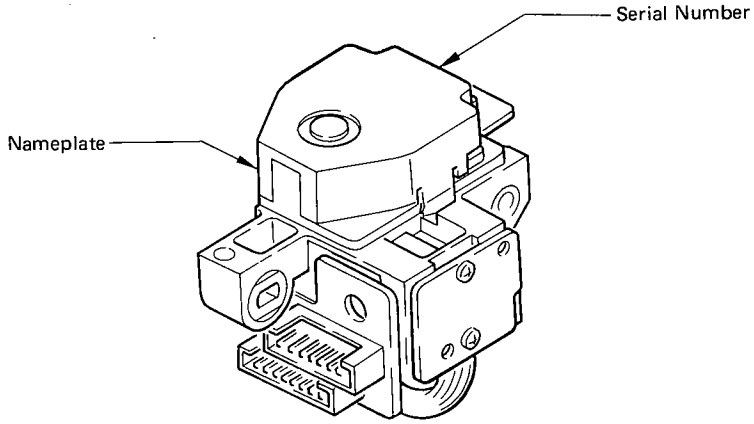
Year (last figure)
Day Month | Quality Control No.
○○ ○ ○ ○
Note: X, Y, Z denote 10, 11, 12.

Down to
10 Figures 1 Figure 1st Decimal Place
○ ○ ○

Control Letter by the Plant

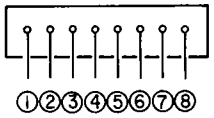
Indication Unit is mA omitted a decimal point.

3. Position of the labels



- CONNECTION DIAGRAM OF CONNECTOR

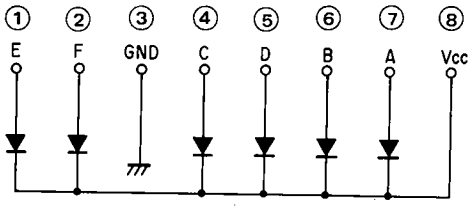
1. Photo Diode Connector (JAPAN SOLDERLESS TERMINAL MFG CO. LTD "PH Series" 8-pin)



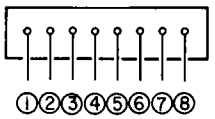
COLOR : WHITE

Pin No.	Description
①	E
②	F
③	GND
④	C
⑤	D
⑥	B
⑦	A
⑧	Vcc

Circuit Diagram



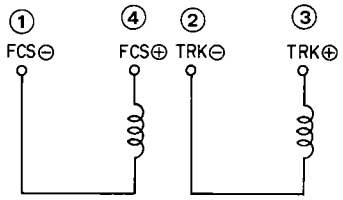
2. 2-axis Laser Diode Connector (JAPAN SOLDERLESS TERMINAL, MFG CO. LTD "PH Series" 8-pin)



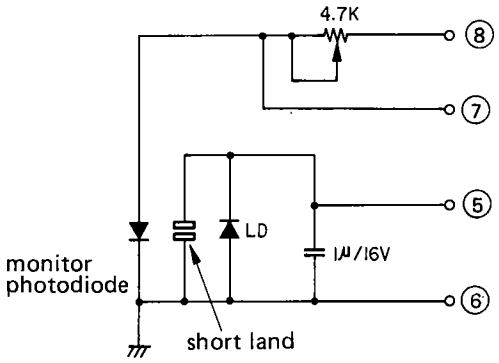
COLOR : RED

Pin No.	Description
①	Focus ⊖
②	Tracking ⊖
③	Tracking ⊕
④	Focus ⊕
⑤	Laser
⑥	GND
⑦	Monitor
⑧	Level Reference

Circuit Diagram of 2-axis



Circuit Diagram of Laser Diode



Cautions for Handling the Laser Pick-up

The laser pick-up KSS-123A is assembled and precisely adjusted using a sophisticated manufacturing process in our plant. Do not disassemble or attempt to readjust it. Please keep the following instructions carefully in handling pick-up.

1. Handle with Care

(1) Storage
Do not store the pick-up in dusty, high-temperatured or high-humidity environments.

(2) Please take care for preventing from shock by falling down or careless handling.

2. Laser Diode (LD)

(1) Protect your eyes
The laser beam may damage the human eye, since the intensity of the focused spot may reach 1.3×10^4 W/cm^2 even if the intensity at the objective lens is 400 μW maximum. As the light beam spreads after focused through the objective lens, it does not effect you in the place as far as more than 30 cms. However, do not look at the laser light beam either through the objective lens directly nor another lens or a mirror.

(2) Poison of As
Since the LD chip contains As (Arsenic), as GaAs + GaAlAs, as known as the poison, although the poison is relatively weak, in comparing with others, e.g. As_2O_3, $AsCl_3$ etc., and the amount is small, avoid putting the chip in acid or an alkali solution, heating it over 200°C or putting it into your mouth.

(3) Avoid surge current or electrostatic discharge
The LD may be damaged or deteriorated by it's own strong light if a large current is supplied to it, even if only a short pulse.
Make sure that there is no surge current in the LD driving circuit by switches or else. Be careful to handle pick-up as it may be damaged in a moment by human electrostatic discharge. The pins of the LD are short-circuited by solder for protection during shipment.
For safety handling of an LD, grounding the human body, measuring equipments and jig is strongly recommended. And still it is further desirable to make use of mat on the platform and floor for handling the LD.
To open the short circuit, remove the soldering quickly with a soldering iron whose metal part is grounded. The temperature of the soldering iron should be less than 320°C (30W).

3. Actuator

(1) The performance of the actuator may be effected if magnetic material is located nearby, since the actuator has a strong magnetic circuit. Do not permit dust to enter through the clearance of the cover.

(2) Cleaning the lens
It may change the specifications by attaching dust or ash on the objective lens. Clean the lens with a cleaning paper dampened a little with 50:50 mixed solvent of IPA (Isopropyl alcohol) and Freon (Freon 113 CCIF-CCIF), not pressing lens with so much strength by the cleaning paper.

4. The Metal Bearing

The metal bearing of Cu-compound sintered alloy is impregnated with oil. You do not normally need lubricate the bushing in initializing time nor supplying oil in running time.

5. Handling

Please handle the laser pick-up with holding the optical base (of aluminum die-casting made).
When either a part of human body or some other things may happen to touch directly with the circuit part of either the laser pick-up or PD, it may cause deterioration, take careful attention in handling this base.

6. Deterioration

When difficulty occurs either in focus or tracking adjustment nor able to adjust the focus or tracking, it seems that the laser pick-up is deteriorated. In these cases, check a value of laser diode current and give a decision for deterioration.

7. Fundamental Deterioration Decision of Laser Pick-up

(1) If a voltage value across Pin 3 of TP401 (−5V) and Pin 4 (iop) of Servo Pre Unit (KU-6050) is V1, the value of laser diode current "iop 1" can be found a formula "iop 1" = $\frac{V1}{22}$.

(2) If a "iop" exceeds ±10% compared with the IOP indication on the laser pick-up mameplate, there is a fair chance for deterioration when it is checked under a circumambient temperature 23°C.

(3) When the circumambient temperature changes ±10°C, "iop 1" will change ±5%. The "iop 1" will also be changed the passage of time.

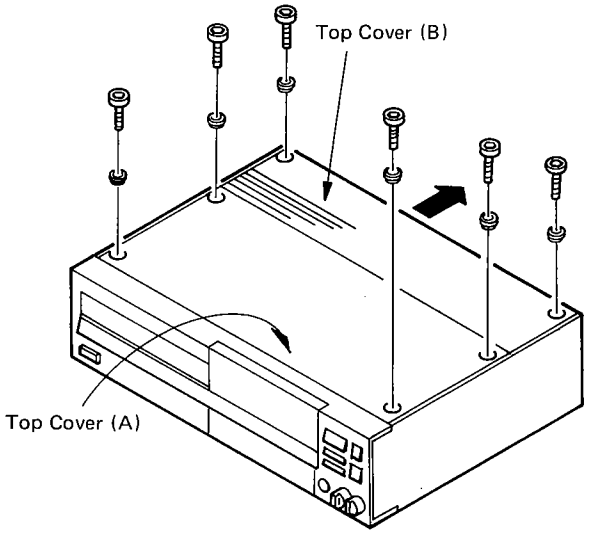
(4) In case of the above conditions taking into consideration and performed the adjustment in proper way, if the HF level at pin ① and pin ② of TP401 in KU-6050 becomes 0.6V or less values; or a gitter occurs great, the laser pick-up is may be deteriorated.

DISASSEMBLY

• Top Cover

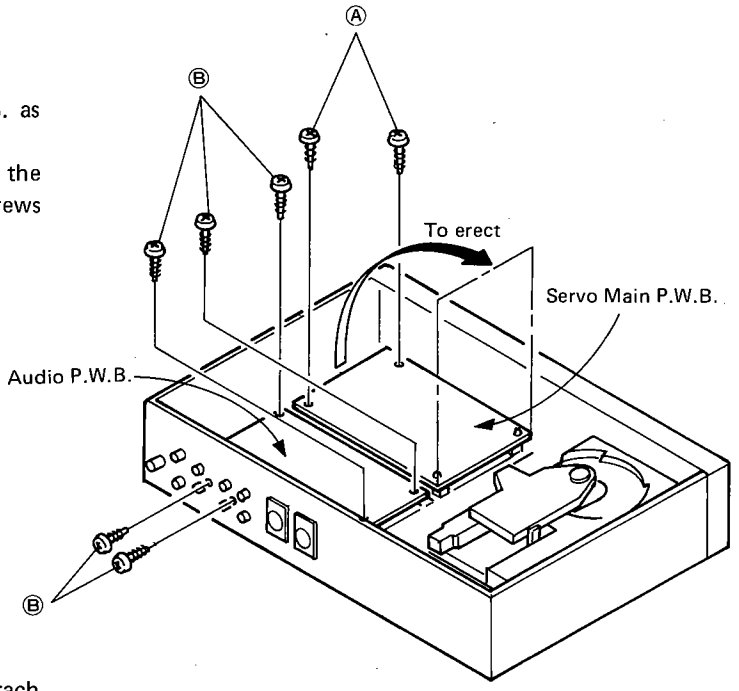
1. Remove the 6 screws holding upper side of the Top Cover with a hex wrench and detach.
2. Slide the Top Cover (B) to the direction the arrow shows and remove.

Note: When assembling, do not excessively tighten the screws with the hex wrench.



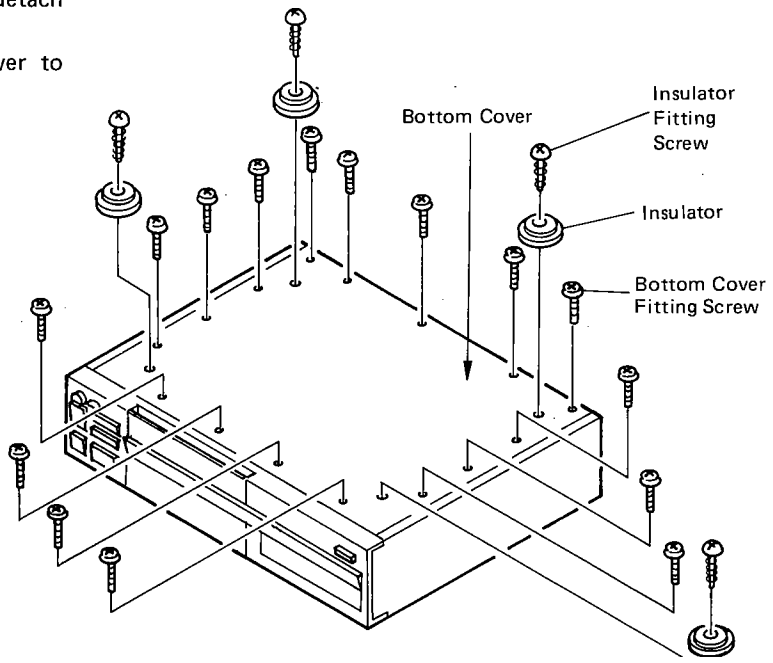
• Printed Wiring Boards

1. Remove the Top Cover.
2. Unfasten 2 screws (A) to erect Servo Main P.W.B. as illustration shows.
3. To detach the Audio P.W.B., remove 5 screws (B), the 3 screws on the upper side of the board, and the 2 screws from the Rear Panel.



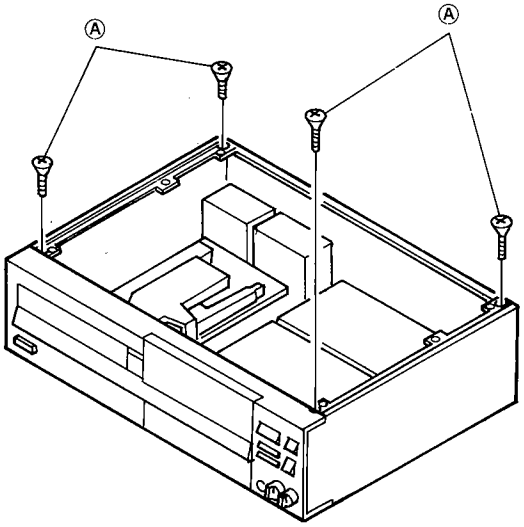
• Bottom Cover

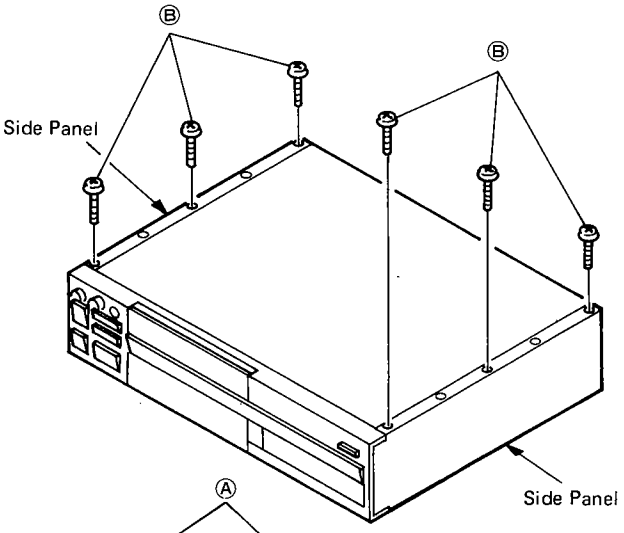
1. Remove the 4 screws securing the Insulator and detach it.
2. Unfasten the 15 screws fitting the Bottom Cover to remove.



- **Side Panel**

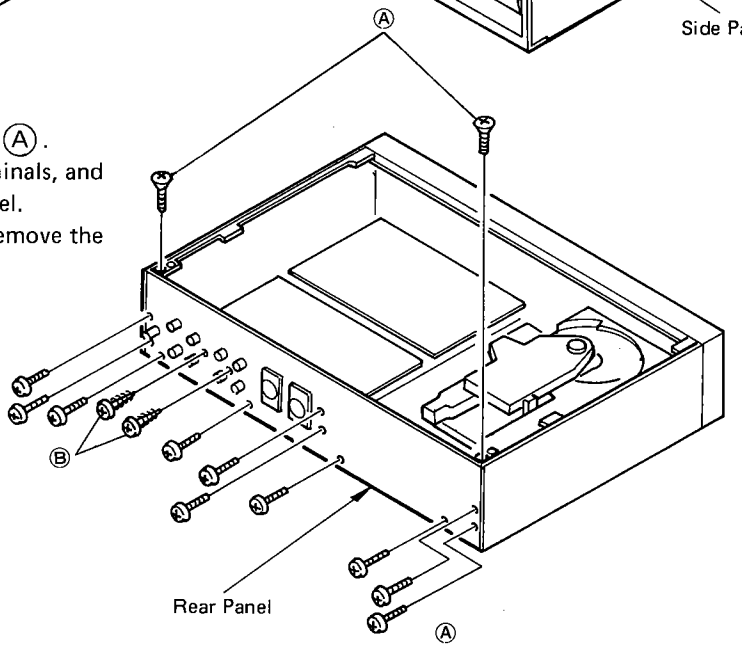
1. Detach the Top Cover, and remove 4 screw (A) from the corners.
2. Unfasten 6 screws (B) to disassemble the Side Panel.





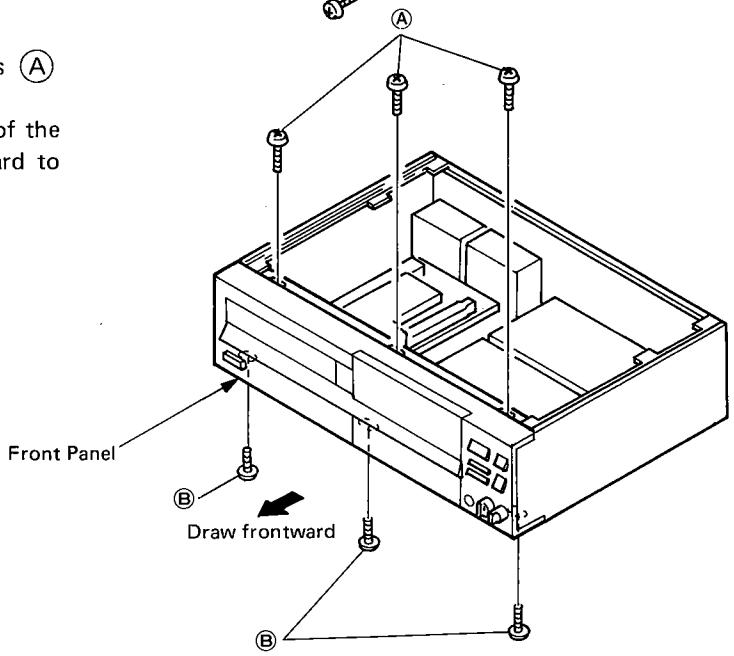
- **Rear Panel**

1. Remove the Top Cover, and unfasten 2 screws (A).
2. Remove 2 screws (B) holding the output terminals, and unfasten other 10 screws securing the Rear Panel.
3. Disconnect the wires from the Rear Panel to remove the Rear Panel.



- **Front Panel**

1. Disassemble the Top Cover, and remove 3 screws (A) securing the upper side of the Front Panel.
2. Unfasten 3 screws (B) holding the bottom side of the Front Panel, and draw the Panel toward frontward to remove.



REMOVAL OF MECHANISM UNIT PARTS

• Pick-up

1. Remove the Top Cover (11).
2. Unsolder the lead of slide motor coil.
3. Detach the Brush Base (10).

Note: Because of a brush attached to the Brush Base is very soft, pay almost care to remove and not to bend. If it is bent, it can not be used. Be sure to handle with care.

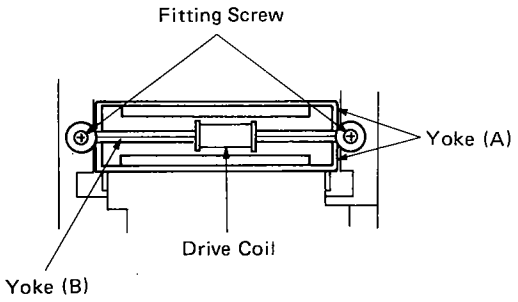
4. Remove the Slide Table (2).
5. Unfastening of the 4 screws tighten the Slide Shaft (M) (3) and the Slide Shaft (S) (4) enables to detach the Pick-up.

• Slide (Linear) Motor

1. Remove the Top Cover (11), and unsolder the lead of slide motor coil.
2. Detach the Brush Base (10), and remove the Potentiometer Ass'y (8).
3. Unfasten the 2 screws fitting the Yoke (A) (5), and detach the Yoke (B) 21 with the drive coil.

• Spindle Motor

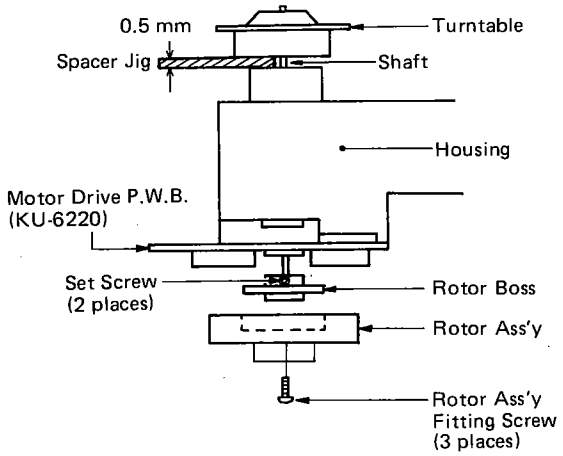
1. Remove the 3 screws holding the Rotor Ass'y (19) and detach.
2. Unfasten the 2 hex socket screws and remove the rotor boss.
3. Detach the Motor Drive Unit (KU-6220) (17).



ADJUSTMENT OF MECHANISM UNIT

• Turntable Height Adjustment

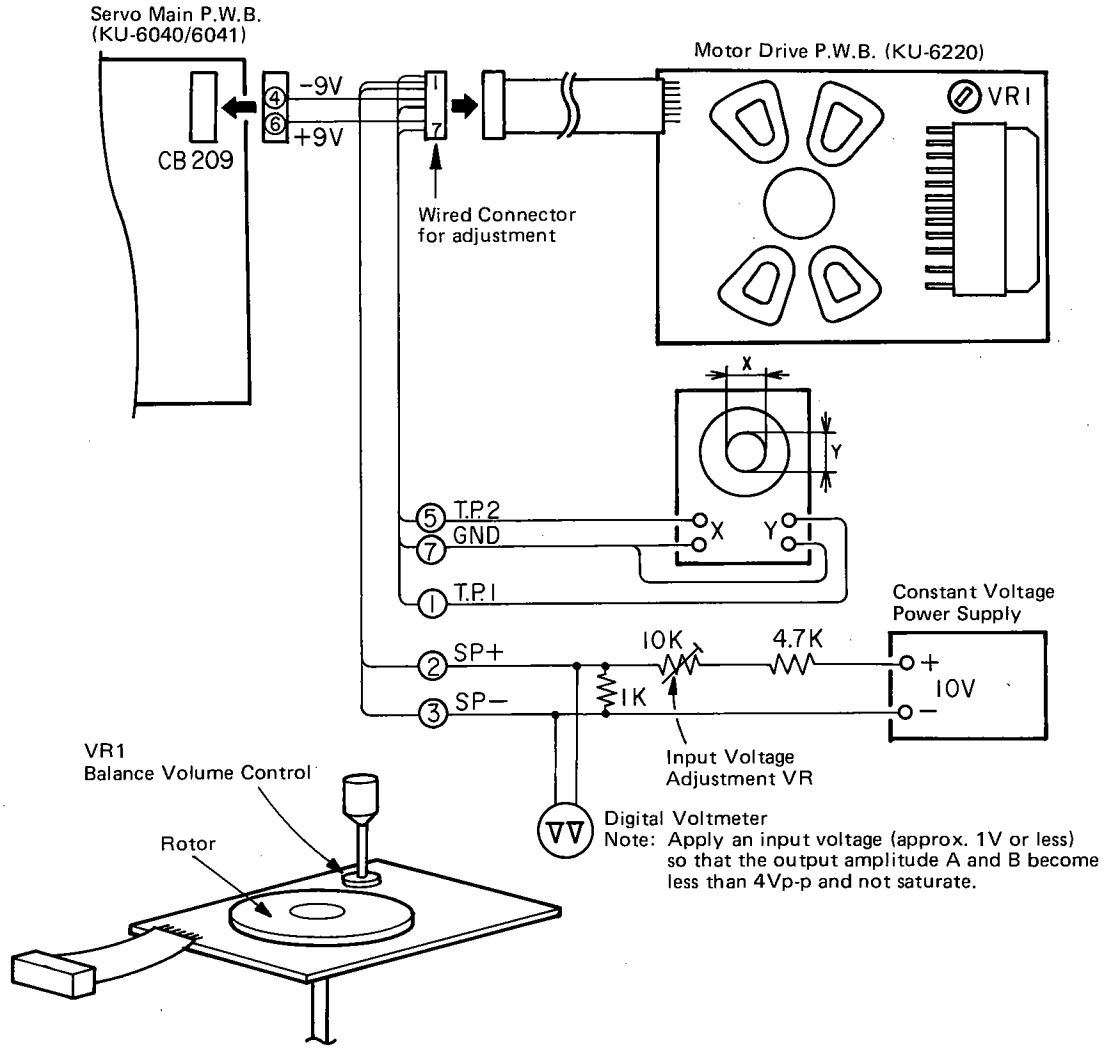
(1) Attach the Motor Drive P.W.B. (KU-6220) to the Housing.
(2) Insert the Turntable Shaft to the Housing, put 0.5 mm spacer jig between the Turntable and the Housing as illustrated.
(3) Insert the Rotor Boss to the Turntable Shaft and tighten with the 2 set screws.
(4) Secure the Rotor Ass'y to the Rotor Boss with the 3 screws.



• Adjustment of Spindle Motor

(1) Remove the loader, and detach the mechanism unit.

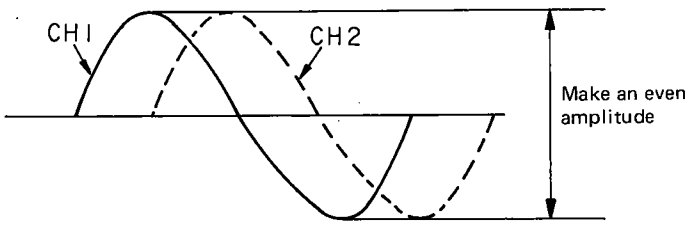
(2) Connect the adjustment wired connector (7P) to the measuring equipments as shown in the illustration.



- For easy way to perform spindle motor adjustment, place the motor as per illustration to revolute the motor.

(3) Adjust balance volume control VR1 and obtain an amplitude of height (Y) and width (X) becomes almost even. (Adjusting the VR1 effects (X) amplitude.)

(4) When using a dual-mode oscilloscope for adjustment, select ALTER or CHOPPER mode and apply an signal to CH1 and CH2, then adjust balance volume control VR1 to obtain an even amplitude for X and Y.



Note: Applying greater input signal causes waveform saturation.

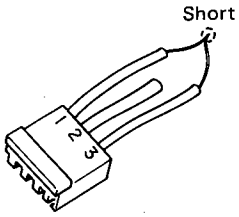
MAINTENANCE AND ADJUSTMENT PROCEDURE

For necessary operations to perform part replacement, repairing, and adjustment, it is feasible by using of operation buttons normally used for playing to adjust tracking, focus, etc. of the laser pick-up, because of a service software (service mode) is programed to a microcomputer employed in this model.

Hereafter the adjustment procedures for each circuit checking and servo system adjustment are explained as the unit is set to service mode condition except for specified case.

1. SETTING OF SERVICE MODE

- Turn off the power (do not load a disc).
- Remove top cover for confirming of inside.
- Short-circuit pins ① and ③, TP-204 of signal processing P.W.B. (KU-6040). It is convenient to use a connector with wires like one the illustration shows.
  Note: Never short-circuit TP-204 after the power turned on.
- By turning on the power, "00" and TOTAL SINGLE indication light on the TRACK NO. section of the display.
- On this state, all buttons' functions for normal playing are inoperative and the disc tray can not be opened or closed.



Short-circuit Connector Jig for TP-204

2. NOTES ON OPERATION BUTTONS IN SERVICE MODE

(1) Play Button (▶PLAY)

Each push of the button to actuate the following servo circuit operation in consecutive order. Pushing it four times actuates all servo operations.

- Push it once : Actuates focus servo circuit ("1" appears on the calendar.)
- Push it twice : Actuates spindle servo circuit ("2" appears on the calendar.)
- Push it three times : Actuates tracking servo circuit ("3" appears on the calendar.)
- Push it four times : Actuates slide servo circuit ("4" appears on the calendar.)

When focus servo operation is defective, it will not go to the next step however the play button is pressed.

Note: And confirm if the designated lights is off in all through lights 1 to 20 at the initial time.

(2) Stop Button (■ STOP)

Pushing the button to cancel all circuit operations. To check servo circuit again or recheck from the beginning, put it.

(3) Automatic Search Button (⏮ ⏭)

In service mode, this button has two functions.

1 In stop state (include the condition after the power is turned on):
The pick-up slides.
While pushing (⏮) side of the automatic search button, pick-up moves to disc center; while pushing (⏭) side, it moves to disc outer circle.

2 In the state when play button (▶PLAY) is pressed four times and all servo circuits are activated:
Performs track jump.
There are three types of track jump (1, 10, 100 tracks) and are switchable by pause button (❚❚PAUSE).

- Except for the above two conditions, this button will not function even if it is pressed.
  (An example: In such a case when the play button is pressed three times and the servos are activated up to tracking.)
- Pushing the track button (⏮ ⏭) while all servo circuits are activated makes the tracking servo gain lowered.

  Note that the adjustment of tracking servo explained later must be performed under the tracking servo is in high gain. To put it in high gain condition, turn off the power once and turn on again, then activate all servo circuits.

(4) Pause Button (❚❚PAUSE)

Switches track jump mode.
It is always reverted to 1 track jump mode whenever the power is turned on.
Each push of the button shifts the mode to 10-track, 100-track, 1-track . . . In 1-track jump "00"; 10-track jump "01"; 100-track jump "02" lights on the display to show respective mode.
Confirmation of track jump mode can be obtained by the time width of tracking error signal.

3. CHECKING OF FOCUS, SPINDLE, TRACKING, AND SLIDE SERVO OPERATIONS

- Be sure to observe the preceding "Turntable Height Adjustment" at the time of repair to remove the turntable or in case of disc hit the tray.
  Also when replaced the parts, be sure to do the following servo system adjustments prior to these adjustments.

(1) Turn off the power and disconnect the jumper to pins ① and ③ of TP-204. Then turn on the power and operate disc holder open-close button (▲OPEN/CLOSE) to load the standard disc.

Note: When TP-204 is shorted, disc holder can not be opened or closed even though the disc holder open/close button is pressed. Displace the lock arm from the lock point enables loading of disc by drawing the disc holder frontward manually. In this case, turning on and off the power is not essential.

(2) Short-circuit pins ① and ③ of TP-204 and turn on the power. Check to see that " 00 " lights on the display. andconfirm whether "TOTAL" or "SINGLE" lighted.

(3) Checking of Focus Servo Operation.

Pushing the play button (▶ PLAY) starts focus search. When the disc is loaded, by detecting of a focusing point of the laser beam on the disc surface to activate focus servo.

When the disc is not loaded, repeats focus search three times and then returns to the former state (the condition before pushing the button).

When the button is continuously pushed, repeats focus search with or without loading of the disc. When the button is released, starts detecting a focusing point within the three times of search operation. In case of focus servo is properly worked, the position of object lens of laser pick-up becomes approximately the same height as actuator cover.

Confirmation of the proper focus servo operation can be checked by a "squeak" sound reproduced when turning the disc clockwise or counterclockwise with the hand lightly.

This sound derives from the movement of actuator for focus servo, so checking of this sound namely to confirm proper operation of focus servo.

Note: Confirming up and down movements of object lens enables checking of focus search operation. Remove the disc and detach the disc clamper so as to look object lens movement more easily, then push play button (▶ PLAY). The object lens repeats moving three times up and down then stops. Through this movement the operation of actuator for focus control can be checked.

(4) Checking of Spindle Servo

After checking the focus servo, push play button (▶ PLAY) again. The disc starts to run.

With this revolution of disc and the indication "2" fails on the calendar, the servo operation can be confirmed.

Note: If the disc does not run due to spindle servo malfunction or runs fast, the following "Checking of Tracking Servo" will be impossible.

(5) Checking of Tracking Servo

Push play button (▶ PLAY) again.

When tracking servo is properly operated, a "Sizzle" sound from the operation of tracking actuator of laser pick-up will be produced.

Confirm that the indication "3" on the calendar fails.

Note: Same as previous column, if it is not properly operated the following checking will be impossible.

(6) Checking of Slide Servo

Note: Before checking, prepare and insert a headphone into the headphone jack with a volume adjusted to adequate level.

Push play button (▶ PLAY) again.

When slide servo is properly operated, the indication "4" fails on the calendar and the sound will be heard through the headphone.

This sound not always be heard normally, for many instances it will be heard as if it is muted.

Note: If there is no sound, the laser pick-up may be set at disc's lead-in or lead-out position. For this case, move the laser pick-up to the program area referring to the column 2.(3).

(7) Checking of Playback Sound

- Connect the line-out of this unit to an appropriate amplifier so that the playback sound can be checked.

Push either side of automatic search button (⏮ , ⏭).

In this state tracking servo becomes low gain and the unit becomes normal playing condition.

(8) Checking of General Functions

Turn off the power and disconnect the jumper to pins ① and ③ of TP-204.

Turn on the power and check all playing controls for proper functions.

Note: Because of a timing of the microcomputer employed in the unit, occasionally it does not accept a command from the button.

In this case do not judge it for defective, repeat the same check for several times.

4. ADJUSTMENT

(1) Before Adjustment

Before starting adjustment, adjust electrical adjustments for spindle motor beforehand.

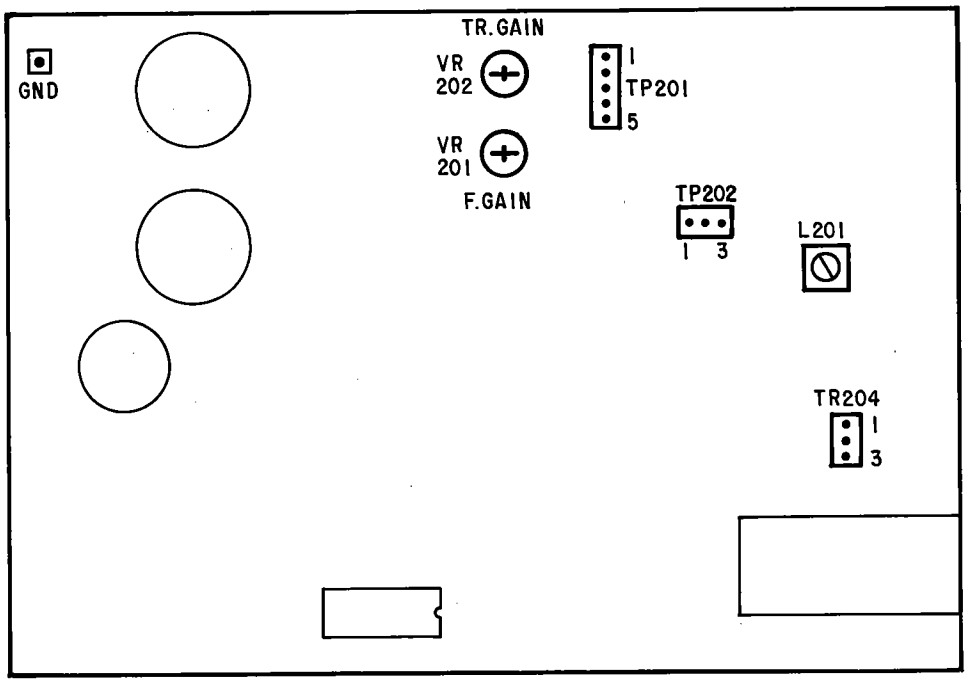
The adjustment of the super-linear converter employed in this unit aiming to reduce a distortion at the time of D/A conversion is unnecessary except for special occasion.

(2) Measuring Equipments and Implements for Adjustment

① Dual-mode oscilloscope
② Specified disc for adjustment
③ Measuring filter
④ Audio frequency oscillator
10 Hz ~ 10 kHz, 0 V ~ 3 Vp-p
⑤ Frequency counter
Count more than 5 MHz
⑥ Connector with wires for signal pick-up
5pins 1 each
4pins 1 each
⑦ Headphones
Checking of playback sound

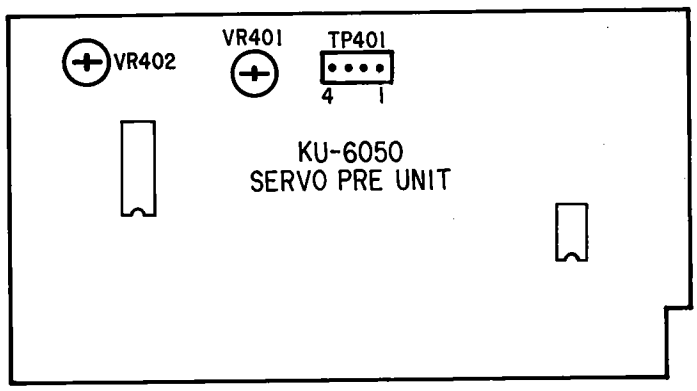
(3) Preparation

KU-6040 Servo Main Unit



① Be sure that the power is off state.
Short-circuit pins ① and ③, TP-204 of servo main P.W.B. (KU-6040) and set the unit to service mode.
② Draw-out the disc holder of mechanism unit frontward.
(Manually move the lock arm located on the side of the disc holder, release the lock of tray, and draw the disc holder frontward.)
③ Connect the wires of signal pick-up connectors to TP-401 (4P) of servo pre P.W.B. (KU-6050) attaching to the mechanism unit and TP-201 (5/6P) of servo main P.W.B. (KU-6040).

KU-6050 Servo Pre Unit



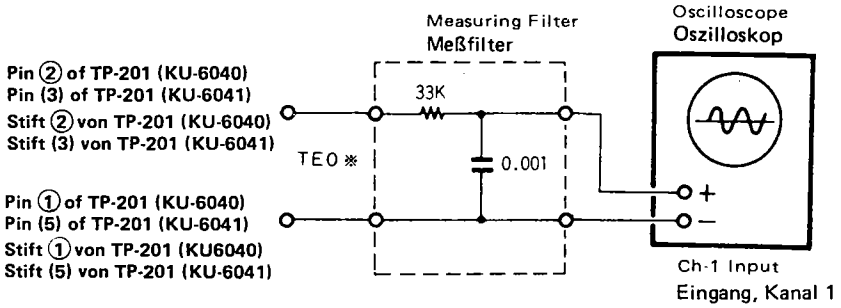
DENON

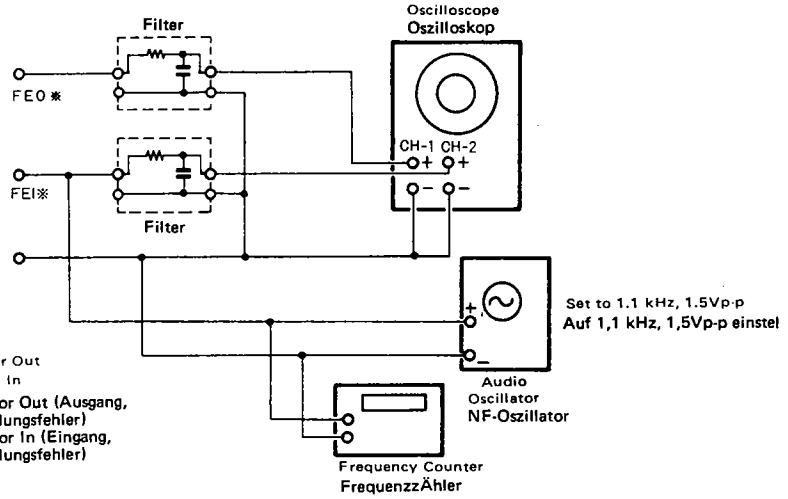
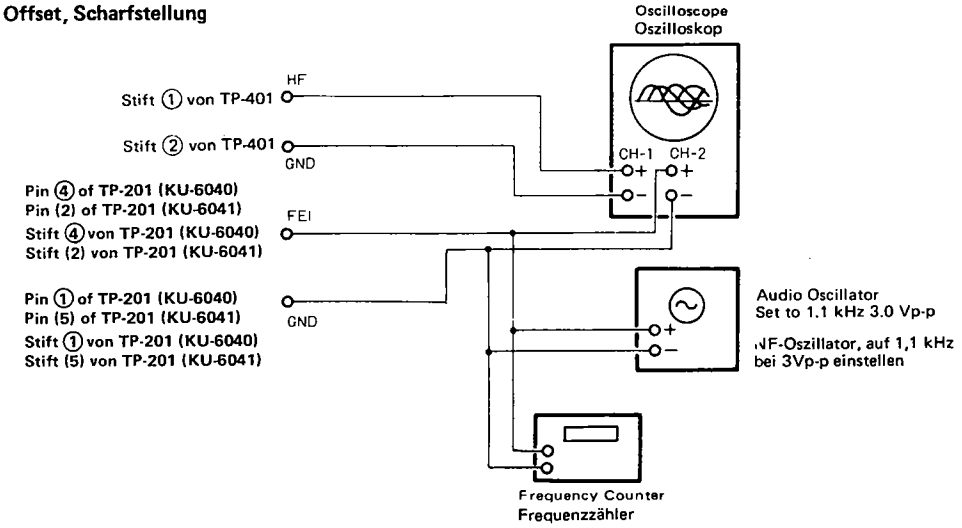
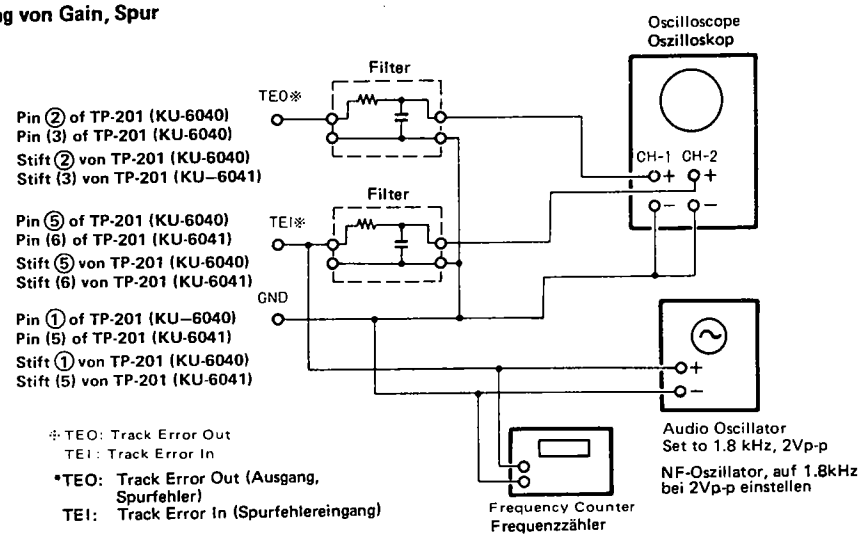
SERVICE MANUAL ERRATA
WARTUNGSANLEITUNG BERICHTIGUNGSTABELLE

STEREO CD PLAYER — MODEL DCD-3300
STEREO-CD-ABSPIELGERÄT — TYP DCD-3300

- As we have found the errors in the above model's service manual which was already issued, Request the correction be made for the following items in your service manual with reference to this list.
- Die bereits gedruckte Wartungsaoleitung weist folgende Fehler auf.

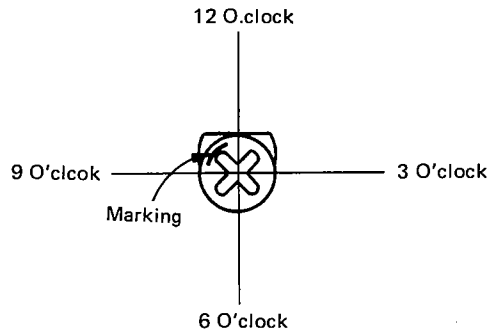
Page Seite	Incorrect Falsch	Correct Richtig
	ENGLISH **(4) Adjustment of PLL** ① Preparation • Similarly short-circuit pins ① and ③ , of TP-203(3P) of servo main P.W.B. DEUTCH **(4) PLL** ① Vorbereitungen • Gleichermaßen die Stifte ① und ③ des (3-poligen) TP-203 der Servohauptplatine kurzschließen.	**(4) Adjustment of PLL** ① Preparation • Similarly short-circuit pins ① and ③ , of **TP-202**(3P) of servo main P.W.B. **(4) PLL** ① Vorbereitungen • Gleichermaßen die Stifte ① und ③ des (3-poligen) **TP-202** der Servohauptplatine kurzschließen.

Page Seite	Correct Richtig
17	ENGLISH DEUTCH **(5) Adjustment of Tracking Offset** **(5) Spuroffset**  ※ TEO: Track error out *TEO: Tracking Error Output (Spurfehlerausgabe)

Page Seite	Correct Richtig
18	ENGLISH DEUTCH (6) Adjustment of Focus Gain **(6) Einstellung von Gain, Scharfstellung** Pin ③ of TP-201 (KU-6040) Pin (1) of TP-201 (KU-6041) Stift ③ von TP-201 (KU-6040) Stift (1) von TP-201 (KU-6041) Pin ④ of TP-201 (KU-6040) Pin (2) of TP-201 (KU-6041) Stift ④ von TP-201 (KU-6040) Stift (2) von TP-201 (KU-6041) Pin ① of TP-201 (KU-6040) Pin (5) of TP-201 (KU-6041) Stift ① von TP-201 (KU-6040) Stift (5) von TP-201 (KU-6041) *FEO: Focus Error Out FEI: Focus Error In *FEO: Focus Error Out (Ausgang, Scharfstellungsfehler) FEI: Focus Error In (Eingang, Scharfstellungsfehler) 
19	**(7) Adjustment of Focus Offset** **(7) Einstellung des Offset, Scharfstellung** Stift ① von TP-401 Stift ② von TP-401 Pin ④ of TP-201 (KU-6040) Pin (2) of TP-201 (KU-6041) Stift ④ von TP-201 (KU-6040) Stift (2) von TP-201 (KU-6041) Pin ① of TP-201 (KU-6040) Pin (5) of TP-201 (KU-6041) Stift ① von TP-201 (KU-6040) Stift (5) von TP-201 (KU-6041) 
20	**(8) Adjustment of Tracking Gain** **(8) Justierung von Gain, Spur** Pin ② of TP-201 (KU-6040) Pin (3) of TP-201 (KU-6040) Stift ② von TP-201 (KU-6040) Stift (3) von TP-201 (KU–6041) Pin ⑤ of TP-201 (KU-6040) Pin (6) of TP-201 (KU-6041) Stift ⑤ von TP-201 (KU-6040) Stift (6) von TP-201 (KU-6041) Pin ① of TP-201 (KU–6040) Pin (5) of TP-201 (KU-6041) Stift ① von TP-201 (KU-6040) Stift (5) von TP-201 (KU-6041) ※ TEO: Track Error Out TEI: Track Error In *TEO: Track Error Out (Ausgang, Spurfehler) TEI: Track Error In (Spurfehlereingang) 

④ Refer to the illustration and set the adjustment VRs on the servo pre P.W.B. (KU-6050) of mechanism unit and servo main P.W.B. (KU-6040) at the following positions. Observe the marking of VR as indicated in the illustration, and set them to preset positions.

VR401 (330 kΩ) → 12 O'clock
VR402 (47 kΩ) → 12 O'clock
VR201 (10 kΩ) → 12 O'clock
VR202 (10 kΩ) → 12 O'clock



⑤ That is all to complete preparations. Following is the adjustment order.

1. PLL
2. Tracking offset
3. Focus gain
4. Focus offset
5. Tracking gain
6. Tracking offset recheck

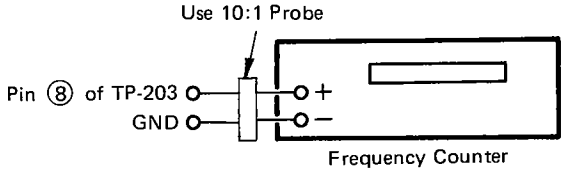
(4) Adjustment of PLL

① Preparation

- Turn the power off.
- Do not load the adjustment disc.
- Check to see that the laser pick-up is set at inner circle of program area (To move pick-up, refer to (5) ②).
- Check to see that the unit is in service mode (Short-circuit pins ① and ③, TP-204 of servo main P.W.B.).
- Similarly short-circuit pins ① and ③ , of TP-203(3P) of servo main P.W.B.
- Turn the power on.
- Confirm that " 00 " illuminates on the display.

② Connection of measuring equipment.

- Connect the frequency counter to the test point PLCK (pin 8 of TP-203) and the ground of servo main P.W.B. as illustration shows.



③ Adjustment

- Rotate L-201 with a non-magnetic screwdriver and obtain 4.22 MHz ± 20 kHz PLL frequency on the frequency counter (4.20 MHz ~ 4.24 MHz).

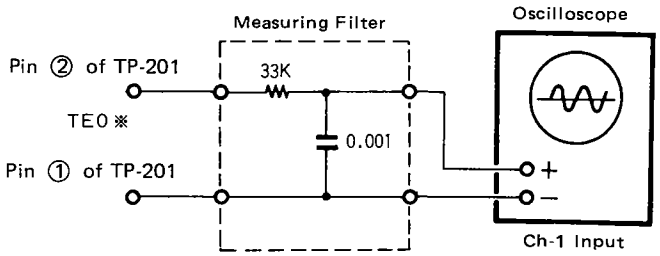
④ End of adjustment

- Turn off the power.
- Remove the short circuit on TP-202 of servo main P.W.B. (Disconnect short-circuit connector.)

(5) Adjustment of Tracking Offset

① Connection of measuring equipment

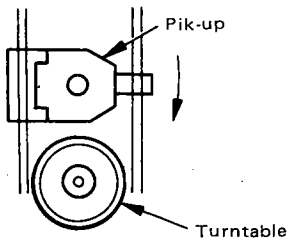
- Connect the oscilloscope to the test point TP-201 on the servo main P.W.B. (KU-6040) through the measuring filter as illustration shows.



※ TEO: Track error out

② Use automatic search button (◀ ▶) to move the laser pick-up close to turntable and place it to program area (recorded portion) near turntable side by the eye.

Note: All adjustments hereafter are feasible when the pick-up position set in the program area however, recommended the pick-up be set at inner circle of disc to avoid increasing of effects due to warp and eccentricity in the outer circle of disc.



③ Load the adjustment disc and close the disc holder manually.

- Turn on the power and check that the unit is in service mode.

④ Adjustment

With a sufficient time interval in between, push play button (▶ PLAY) twice and make the focus servo and spindle servo activated. (Confirm that "2" on the calendar fails.) Disc starts to run. (Refer to (2.(1), 3.(3) ~ (6))

- Terminate the input terminal of oscilloscope to the ground and set the horizontal base line to the center of oscilloscope scale. When it is set, select the input of oscilloscope to DC range.

(6) Adjustment of Focus Gain

① With a sufficient interval of time in between, push play button (▶ PLAY) twice to activate tracking servo and slide servo. (refer to 2-(1), 3-(3) to (6) on pages 14,15)

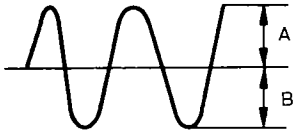
② Plug in the headphone and make sure the playback sound is heard prior to the adjustment.

- Observe a waveform by setting the oscilloscope:—

  Input 0.1 V/DIV (use 10:1 probe)

  Sweep time 1 msec/div or 2 msec/DIV

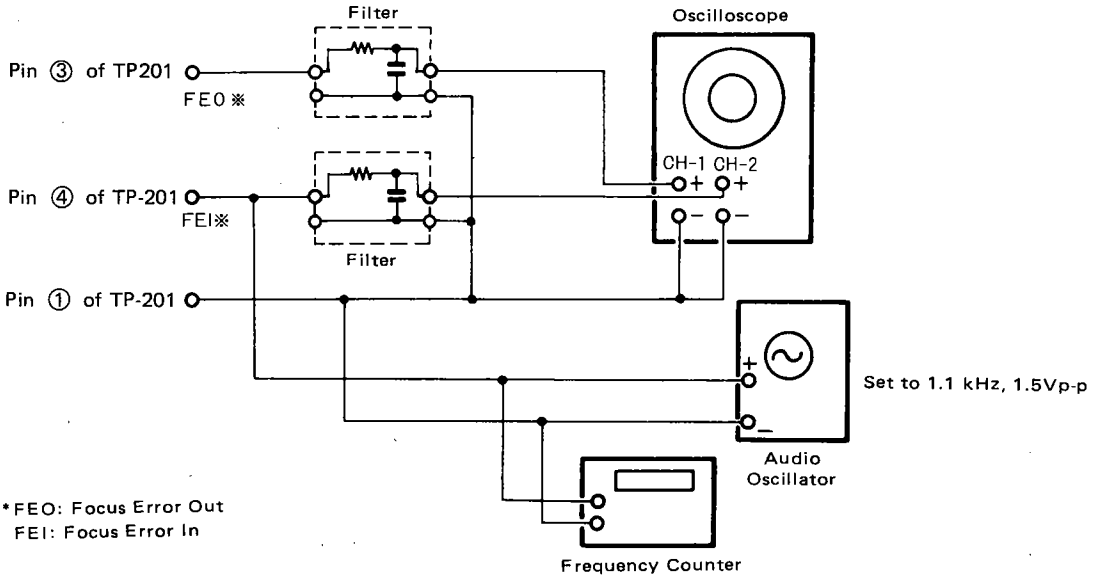
Adjust VR401 on the servo pre P.W.B. (KU-6050) so as to obtain the height of waveform A and B becomes even as illustration shows.



③ Connection of measuring equipment

- Connect the respective measuring equipments to the test point TP-201 of servo main P.W.B. (KU-6040) as per illustration.

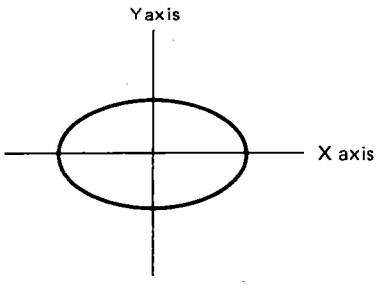
Note: Before connecting the oscillator check the operation of servo (produce sound).



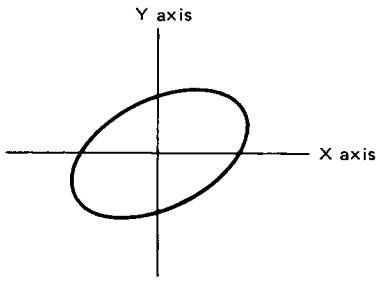
④ Adjustment

- Set the output of audio oscillator to 1.1 kHz, 1.5 Vp-p (±0.1 V).
- Prepare and connect two filters as per illustration.
- Select oscilloscope input to X-Y modes so to observe Lissajous waveform. (Select DC range to observe both X and Y inputs.)

- Adjust VR-201 and obtain Lissajous figure symmetric to X and Y axes. (Adjust the phase of two inputs to 90°.)



Correct waveform



Incorrect waveform

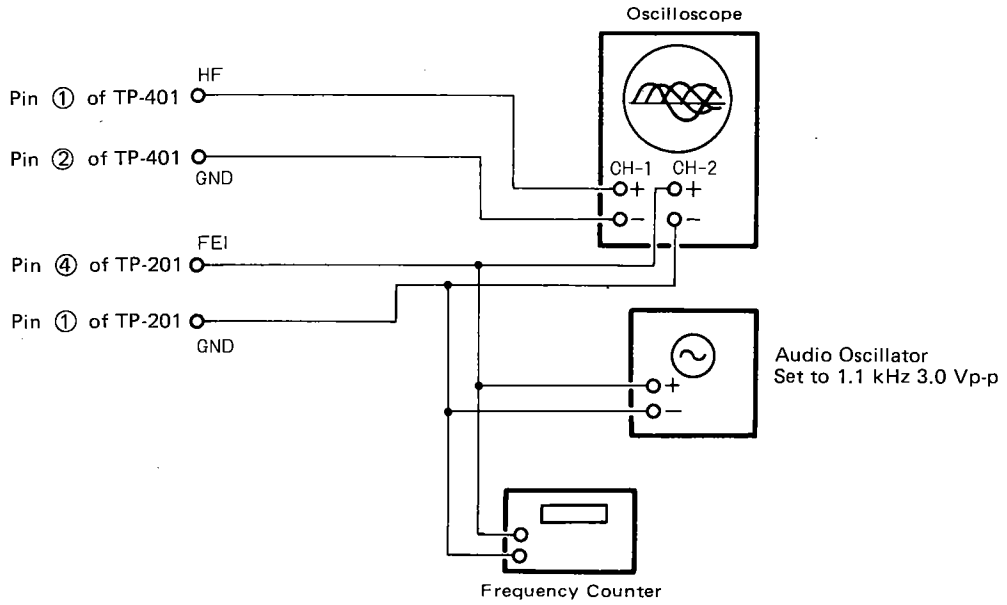
(7) Adjustment of Focus Offset

① Adjust it in the same condition as to focus gain, push play button (▶ PLAY) to activate all servo for adjustment except the measuring equipment connections.

② Connection of measuring equipment

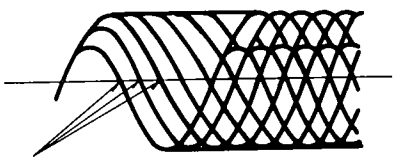
Note: Audio oscillator should be connected during the servo operation.

- Connect the respective measuring equipments to the test points TP-201 of servo main P.W.B. (KU-6040) and TP-401 of servo pre P.W.B. (KU-6050) as per illustration.

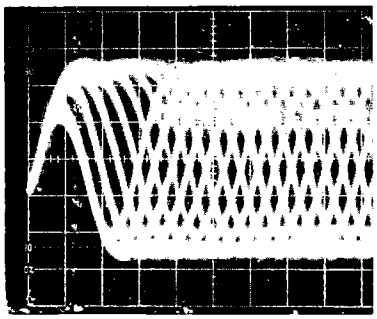


③ Adjustment

- Set the output of audio oscillator to 1.1 kHz, 3.0 Vp-p (±0.1 V).
- Select oscilloscope input mode at CH-1 and set it to 50 mV/DIV or 20 mV/DIV (use 10:1 probe).
  Observe by setting the sweep time to 0.2 or 0.5 μs/DIV range.
- A waveform to observe in this time called "Eye Pattern".
- Adjust VR-402 for a minimum jitter amount.



Adjust the waveform for most fine line.



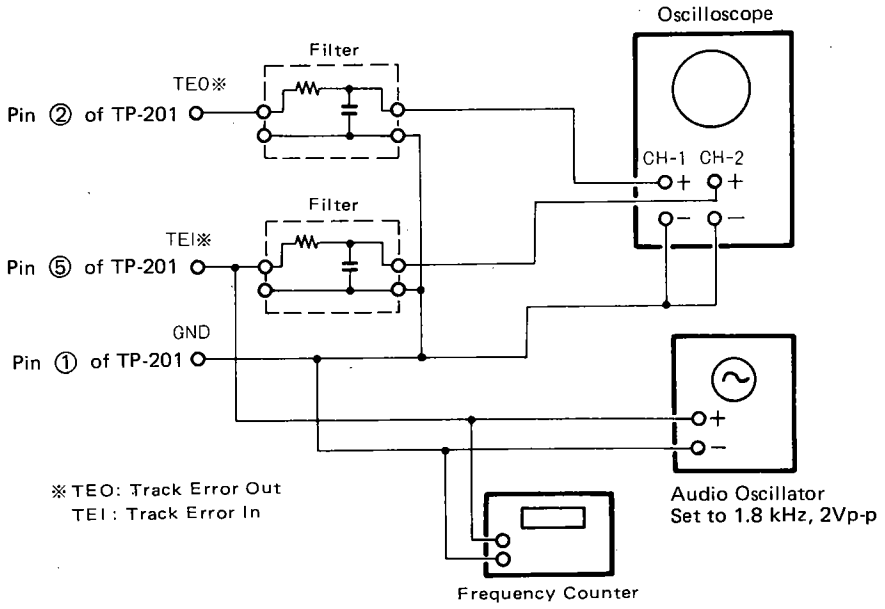
(8) Adjustment of Tracking Gain

① Adjust it in the same condition as to focus gain, push play button (▶ PLAY) to activate all servo for adjustment except the measuring equipment connections.

② Audio oscillator should be connected while the servo is in operation.
If the connection is made before servo operation, causing mis-operation.
If the connection is made in failure, disconnect oscillator, push stop button (■ STOP) to stop all operations, and follow the steps from the beginning.

③ Connection of measuring equipment.
- Connect the respective measuring equipments to the test point TP-201 of servo main P.W.B. (KU-6040) as illustration shows.

④ Adjustment
- Set the output of audio oscillator to 1.8 kHz ± 120 Hz, 2 Vp-p ± 0.1 V.
- Connect two filters as per illustration.
- Select oscilloscope input to X-Y mode so to observe Lissajous waveform. (Select DC range both X and Y inputs.)
- Adjust VR-202 and obtain Lissajous waveform symmetric to X and Y axes. The waveform is the same as focus gain adjustment.



(9) Check of Tracking Offset

① Check the adjustment performed in the previous column (5).
- Push stop button (■ STOP) to stop disc revolution.
- With a sufficient interval of time in between, push play button (▶ PLAY) twice and check that the disc starts to run.

Note: The microcomputer employed in the unit sometimes does not accept button operation. If so, push the button again. Confirm that "2" on the calendar fails.

- Observe a waveform and check that the height of upper and lower waveform are even to the base line. (Reference value: Difference of height between two is 5% or less.)
- If the difference is beyond the value, adjust VR-401.

② That is all to complete adjustments.
- Remove the signal pick-up connector with wires from TP-401 of mechanism unit P.W.B. (KU-6050) and TP-201 of servo main P.W.B. (KU-6040).

PARTS LIST OF P.W. BOARD

KU-6040/6041 SERVO MAIN UNIT

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTOR GROUP			
IC201	2620612009	CX20108	
IC202	2630257001	M-5218P	
IC203,204	2630244001	NJM082D	
IC205	2620733001	HD63A0540-B58P	
IC206	2620635002	LU59001	
IC207	2620512002	HD-74LS-154P	
IC208	2620517007	MSL-917RS	
IC209,210	2630298002	LB1240	
IC211	2630423000	M51953B	
IC212	2620591007	HD74HC00P	
IC213	2620739005	TC74HCU04P	
IC221	2620593005	HD74HC04P	
IC222,223	2620813002	HD74HC30P	
IC224~226	2620591007	HD74HC00P	
IC251	2630147001	μPC78M05H	
IC252	2630286001	HA-178-05	
IC253	2630160004	μPC7905H	
IC254	2630432004	NJM78L05A	
TR201,202	2690038901	RN1210(4.7k--)	
TR203	2740036002	2SD468(C)	
TR204	2720025004	2SB562(C)	
TR205	2710101022	2SA933(Q)	
TR206	2740036002	2SD468(C)	
TR207	2720025004	2SB562(C)	
TR208	2690026900	RN2202(10k-10k)	
TR209	2690038901	RN1210(4.7k--)	
TR210	2740065044	2SD880(Y)/(GR)	
TR211	2720058013	2SB834(Y)/(GR)	
TR212	2690025901	RN1202(10k-10k)	
TR213	2740036002	2SD468(C)	
TR214,215	2720025004	2SB562(C)	
TR216	2690026900	RN2202(10k-10k)	
TR217	2690025901	RN1202(10k-10k)	
TR218	2720046009	2SB561(C)	
TR219	2710101022	2SA933(Q)	
D201	2760405008	S1WB(A)10	
D202	2760433902	DSM1A2	
D203	2760224014	HZ30-2	
D204	2760173084	HZ6C-1	
D205	2760428001	KV1260	
D206	2760236057	HZ5C-3	
D207,209 211	2760049008	1S2076	
D212	2760370007	1SS106	
D213,214	2760049008	1S2076	
D215,216	2760433902	DSM1A2	
D901,902	2760433902	DSM1A2	
D903	2760370007	1SS106	

Ref. No.	Part No.	Part Name	Remarks
CAPACITOR GROUP			
C201	2561034063	CF93A1H823J	0.082μF 50V
C202	2561035004	CF93A1H184J	0.18μF 50V
C203	2533639001	CC45SL1H331J	330pF 50V
C204	2544254006	CE04W1C100M	10μF 16V
C205	2544260074	CE04W1H4R7M	4.7μF 50V
C206	2551120042	CQ93M1H222J	0.0022μF 50V
C207	2533643000	CC45SL1H471J	470pF 50V
C208,209	2544252037	CE04W1A101M	100μF 10V
C210	2531024003	CK45F1H103Z	0.01μF 50V
C211	2561034021	CF93A1H393J	0.039μF 50V
C212	2533635005	CC45SL1H221J	220pF 50V
C213	2561035020	CF93A1H274J	0.27μF 50V
C214	2551121038	CQ93M1H123J	0.012μF 50V
C215	2551121012	CQ93M1H822J	0.0082μF 50V
C216	–	–	–
C217	2533639001	CC45SL1H331J	330pF 50V
C218	2561035033	CF93A1H334J	0.33μF 50V
C219,220	2544254006	CE04W1C100M	10μF 16V
C221	2551120042	CQ93M1H222J	0.0022μF 50V
C222	2561035004	CF93A1H184J	0.18μF 50V
C223	2551121025	CQ93M1H103J	0.01μF 50V
C224	2533637003	CC45SL1H271J	270pF 50V
C225	2551120097	CQ93M1H562J	0.0056μF 50V
C226,227	2561034076	CF93A1H104J	0.1μF 50V
C228,229	2551120084	CQ93M1H472J	0.0047μF 50V
C230	2561034050	CF93A1H683J	0.068μF 50V
C231	2544260045	CE04W1H010M	1μF 50V
C232	2544254006	CE04W1C100M	10μF 16V
C233	2544260045	CE04W1H010M	1μF 50V
C234,235	2551120042	CQ93M1H222J	0.0022μF 50V
C236	2533616008	CC45SL1H360J	36pF 50V
C237	2533633007	CC45SL1H181J	180pF 50V
C238	2533617007	CC45SL1H390J	39pF 50V
C239	2544260045	CE04W1H010M	1μF 50V
C241	2544252037	CE04W1A101M	100μF 10V
C242,243	2533635005	CC45SL1H221J	220pF 50V
C244	2590002011	EECF5R5U104	
C245	2551121025	CQ93M1H103J	0.01μF 50V
C246	2544254022	CE04W1C330M	33μF 16V
C247	2551121025	CQ93M1H103J	0.01μF 50V
C248	2539036006	CK45=1E104Z	0.1μF 25V
C249	2544252037	CE04W1A101M	100μF 10V
C251,252	2544202003	CE04W1C682M	6800μF 16V
C253~255	2539036006	CK45=1E104Z	0.1μF 25V

Ref. No.	Part No.	Part Name	Remarks
C256 ~258	2544163016	CE04W1C331M	330pF 16V
C259	2544166039	CE04W1H102M	1000μF 50V
C260 268,269	2544260045	CE04W1H010M	1μF 50V
C900	2544252066	CE04W1A471M	470μF 10V
RESISTOR GROUP			
VR201, 202	2116048022	V06PB103	
OTHER PARTS GROUP			
	4170043113	HEAT SINK	
	4150307002	INSULATING SHEET	
	4150308001	BUSH	
	4170253000	HEAT SINK	
X-201	3990035001	CST6.00MT	
X-202	2610037005	CSB455E	
L-201	2350017000	INDUCTOR (7μH)	
PT201, 202	2318058001	PULSE TRANS	
SW201	2124187001	SLIDE SWITCH	
TP201	2050190052	5P NH CONNECTOR BASE	
TP202, 204	2050190036	3P NH CONNECTOR BASE	
TP203	2050190094	9P NH CONNECTOR BASE	
CB201	2050190065	6P NH CONNECTOR BASE	
CB202	2050322095	9P CONNECTOR BASE	
CB203	2050271065	6P PH CONNECTOR BASE	
CB204	2050271052	5P PH CONNECTOR BASE	
CB205	2050321038	3P CONNECTOR BASE	
CB206	2050322037	3P CONNECTOR BASE	
CB207	2050321054	5P CONNECTOR BASE	
CB209, 210	2050271078	7P PH CONNECTOR BASE	
CB211	2050298006	23P FFC BASE (S)	
CB212	2050298048	9P FFC BASE (S)	
CB213	2050271036	3P PH CONNECTOR BASE	
CB214	2050323036	3P CONNECTOR BASE	
CB221	2050323052	5P CONNECTOR BASE	
CB222	2050321038	3P CONNECTOR BASE	

Ref. No.	Part No.	Part Name	Remarks
KU-6090 DIGITAL SIGNAL PROCESSOR			
IC701	2620736008	CXD1125	
IC702	2620673006	HM6116FP-4	
IC703	2620734000	SM5804D	

• The carbon resistors at 1/4W, 1/6W are not listed herein.

KU-6030 AUDIO UNIT

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTOR GROUP			
IC101 ~104	2620737007	HCP12601	
IC105	2620735009	PCM56KP	
IC106 108,109	2630360008	NE5532	
IC111,112	2760405008	S1WB(A)10	
IC113	2630288009	HA-178-15	
IC114	2630200003	UPC7915H	
IC115	2630432004	NJM78L05A	
IC116	2630433003	NJM79L05A	
IC145	2620735009	PCM56KP	
IC146 148,149	2630360008	NE5532	
D103,104	2760049008	1S2076	
RESISTOR GROUP			
VR101, 141	EP-5462H19	SLIDE VR (104)	(100kΩ)
R134,174	2440031022	RS14B3A151JNBF	150Ω 1W
R138,178	2440029021	RS14B3A101JNBF	100Ω 1W
R145,147 185,187	2442025065	RS14B3A301JNBF	300Ω 1W
CAPACITOR GROUP			
C101,102	2544188017	CE04W1E472=	4700μF 25V
C103,104	2561033035	CF93B2A474K	0.47μF 100V
C107,108	2544254093	CE04W1C222M	2200μF 16V
C108	2544197011	CE04W1C102M	1000μF 16V
C111,112	2544254006	CE04W1C100M	10μF 16V
C117,119	2544188020	CE04W1E102=	1000μF 25V
C120	2561033035	CF93B2E474K	0.47μF 100V
C122	2554214052	CQ09P1H221J	220pF 50V
C123,124	2554214049	CQ09P1M821J	820pF 50V
C125	2554214052	CQ09P1H221J	220pF 50V
C126	2561033035	CF93B2A474K	0.47μF 100V
C127,128	2544190018	CE04W1H101= (AWD)	100μF 50V
C129	2561033019	CF93B2A105K	1μF 100V
C130	2554210043	CQ09P1H152J	0.0015μF 50V
C132,133	2544190021	CE04W1H221M (AWD)	220pF 50V
C138,139	2539036006	CK45=1E104Z	0.1μF 25V
C157,159	2544188020	CE04W1E102=	1000pF 25V
C160	2561033035	CF93B2A474K	0.47μF 100V
C162	2554214052	CQ09P1H221J	220pF 50V
C163,164	2554214049	CQ09P1H821J	820pF 50V
C165	2554214052	CQ09P1M221J	220pF 50V
C166	2561033035	CF93B2A474K	0.47μF 100V
C167,168	2544190018	CE04W1H101= (AWD)	100μF 50V
C169	2561033019	CF93B2A105K	1μF 100V
C170	2554210043	CQ09P1H152J	0.0015μF 50V
C172,173	2544190021	CE04W1H221M (AWD)	220μF 50V
C114,154	2544190034	CE04W1H220= (AWD)	22μF 50V
C171	2533610004	CC45SL1H200J	20pF 50V
OTHER PARTS GROUP			
	4170253000	HEAT SINK	
L101,141	2350030100	L.P.F COIL	
RL101 ~105	2140097007	RELAY	
	2048222000	4PRCA PIN JACK	
	2048223009	2PRCA PIN JACK	
CB101	2050133064	6P NH CONNECTOR BASE	
CB102 ~104	2050322037	3P CONNECTOR BASE	
CB107	2050271036	3P PH CONNECTOR BASE	
CB121	2050271052	5P PH CONNECTOR BASE	
CB122	2050323036	3P CONNECTOR BASE	
CB142 ~144	2050321038	3P CONNECTOR BASE	

• The carbon resistors at 1/4W, 1/6W are not listed herein.

KU-6050 SERVO PRE UNIT

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTOR GROUP			
IC401	2620613008	CX20109	
IC402	2630257001	M-5218P	
TR401	2740006002	2SD468(C)	
TR402	2690025901	RN1202(10k-10k)	
TR403	2690026900	RN2202(10k-10k)	
D401	2760049008	1S2076	
RESISTOR GROUP			
R414	2452175002	RN14K2E471G	47Ω 1/4W
R415	2452191002	RN14K2E222G	2.2kΩ 1/4W
R416	2452211005	RN14K2E153G	15kΩ 1/4W
R417	2452207006	RN14K2E103G	10kΩ 1/4W
R421	2452148000	RN14K2E360G	36Ω 1/4W
R422	2452153008	RN14K2E560G	56Ω 1/4W
VR401	2116064035	V06PB334	330kΩB
VR402	2116064019	V06PB473	47kΩB
CAPACITOR GROUP			
C401	2544260045	CE04W1H010M	1μF 50V
C402	2551121038	CQ93M1H123J	0.012μF 50V
C404,405	2533611003	CC45SL1H220J	22pF 50V
C406,407	2533615009	CC45SL1H330J	33pF 50V
C408	2544260032	CE04W1HR47M	0.47μF 50V
C409	2551121083	CQ93M1H333K	0.033μF 50V
C410 ~412	2544252024	CE04W1A470M	47μF 10V
C413,414	2531024003	CK45F1H103Z	0.01μF 50V
C415,416	2544254006	CE04W1C100M	10μF 16V
C417	2544252037	CE04W1A101M	100μF 10V
C418	2544250055	CE04W0J471M	470μF 6.3V
OTHER PARTS GROUP			
TP401	2050190049	4P NH CONNECTOR BASE	
CB401	2050298077	15P FFC CONNECTOR BASE (S)	
CB402	2050271094	9P PM CONNECTOR BASE	
CB403	2050271065	6P PH CONNECTOR BASE	
CB403, 404	2050271052	5P PH CONNECTOR BASE	
CB405	2050332027	3P PH CONNECTOR BASE	

• The carbon resistors at 1/4W, 1/6W are not listed herein.

KU-6260 DIGITAL CONTROL UNIT

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTOR GROUP			
IC801	2620593005	HD74HC04P	
IC802,803	2620813002	HD74HC30P	
IC804 ~806	2620591007	HD74HC00P	
IC807	2620739005	TC74HCU04P	
RESISTOR GROUP			
R900	2412338041	RD14B==104J	10kΩ
CAPACITOR GROUP			
C801,802	2533598003	CC45SL1H050D	5pF 50V
C803	2531024003	CK45F1H103Z	0.01μF 50V
OTHER PARTS GROUP			
X-801	3990036013	X'TAL (16.9344MHz)	
	2690058004	TOTX170A	
CB801	2050271078	7P PH CONNECTOR BASE	
CB801	2050321071	7P CONNECTOR BASE	
CB802	2050321038	3P CONNECTOR BASE	
CB804, 806	2050271036	3P PH CONNECTOR BASE	
CB805	2050322037	3P CONNECTOR BASE	

• The carbon resistors at 1/4W, 1/6W are not listed herein.

2U-1435 AUDIO UNIT

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTOR GROUP			
IC701,751	2630360008	NE5532	
CAPACITOR GROUP			
C701,702 751,752	2544190018	CE04W1H101= (AWD)	100μF 50V
OTHER PARTS GROUP			
CB701	2050271036	3P PH CONNECTOR BASE	
CB702	2050321038	3P CONNECTOR BASE	
CB751	2050323036	3P CONNECTOR BASE	
CB752	2050322037	3P CONNECTOR BASE	

• The carbon resistors at 1/4W, 1/6W are not listed herein.

KU-6220 MOTOR DRIVE

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTOR GROUP			
IC001	2630411009	TA7256P	
RESISTOR GROUP			
R1	2471006987	RM73B2B561J	560Ω 1/8W
R2~5	2471013909	RM73B2B224J	220kΩ 1/8W
R6~9	2471008985	RM73B2B392J	3.9kΩ 1/8W
R10,11	2471002965	RM73B2B100J	10Ω 1/8W
R12,13	2471001908	RM73B2B2R2K	2.2Ω 1/8W
VR1	2118002901	:05=B102	1kΩB
CAPACITOR GROUP			
C1,2	2571016945	CK73F1E334Z	0.33μF 25V
C5,6	2570014935	CK73F1E104Z	0.1μF 25V
C7,8	2570012924	CK73F1H222Z	0.0022μF 50V
OTHER PARTS GROUP			
H1,2	2680053022	HW-101C(Q,R)	
L1~4	3460039000	SPINDLE MOTOR COIL	
	2042203009	7P PH CONNECTOR CORD	

KU-6060 KEY DISPLAY UNIT

Ref. No.	Part No.	Part Name	Remarks
	2760370007	1SS106	
	2124388004	TACT SWITCH	
	3934029002	F1P12LM7	
	4990060004	GP1U011	
	4460033008	HOLDER	
	2050298006	23P FFC BASE(S)	
	2050298048	9P FFC CONNECTOR BASE(S)	
	2050298064	7P FFC CONNECTOR BASE(S)	
	2050271036	3P PH CONNECTOR BASE	
	2050323036	3P CONNECTOR BASE	
	2034372003	3P PH CONNECTOR BASE	
	2034373002	3P PH CONNECTOR BASE	

2U-1467G (EU) (EC) LINE FILTER UNIT

Ref. No.	Part No.	Part Name	Remarks
C104	2539036006	CK45=1E104Z	0.1μF 25V
C141,142	2531004007	CK45B1H102K	1000pF 50V
C143,144	2534190034	CE04W1H220= (AWD)	22μF 50V
⚠C601,602	2538014003	CK45F2GAC103M	0.01μF 400VAC
⚠L1	2398019002	LINE FILTER COIL	
⚠	2061039005	FUSE (0.63A)	
⚠	FEP1287	FUSE HOLDER	
	2048198008	H/P JACK	
	2110480000	V250V30KA103	10kΩA
CB603	2050271049	4P PH CONNECTOR BASE	
CB605	2050271065	6P PH CONNECTOR BASE	
	2050217029	2P CONNECTOR BASE	

2U-1467J (EA) (EK) LINE FILTER UNIT

Ref. No.	Part No.	Part Name	Remarks
C140	2539036006	CK45=1E104Z	0.1μF 25V
C141,142	2531004007	CK45B1H102K	1000pF 50V
C143,144	2534190034	CE04W1H220= (AWD)	22μF 50V
⚠C601,602	2538014003	CK45F2GAC103M	0.01μF 400VAC
⚠L1	2398019002	LINE FILTER COIL	
⚠	2061029002	FUSE (0.2AT)	
⚠	FEP1287	FUSE HOLDER	
	2048198008	H/P JACK	
	2110480000	V250V30K103	10kΩA
CB603	2050271049	4P PH CONNECTOR BASE	
CB605	2050271065	6P PH CONNECTOR BASE	
	2050217029	2P CONNECTOR BASE	
	5138254008	FUSE LABEL	
	4150299000	CONDENSER COVER	
	2050217032	3P CONNECTOR BASE	

2U-1467H (E2) LINE FILTER UNIT

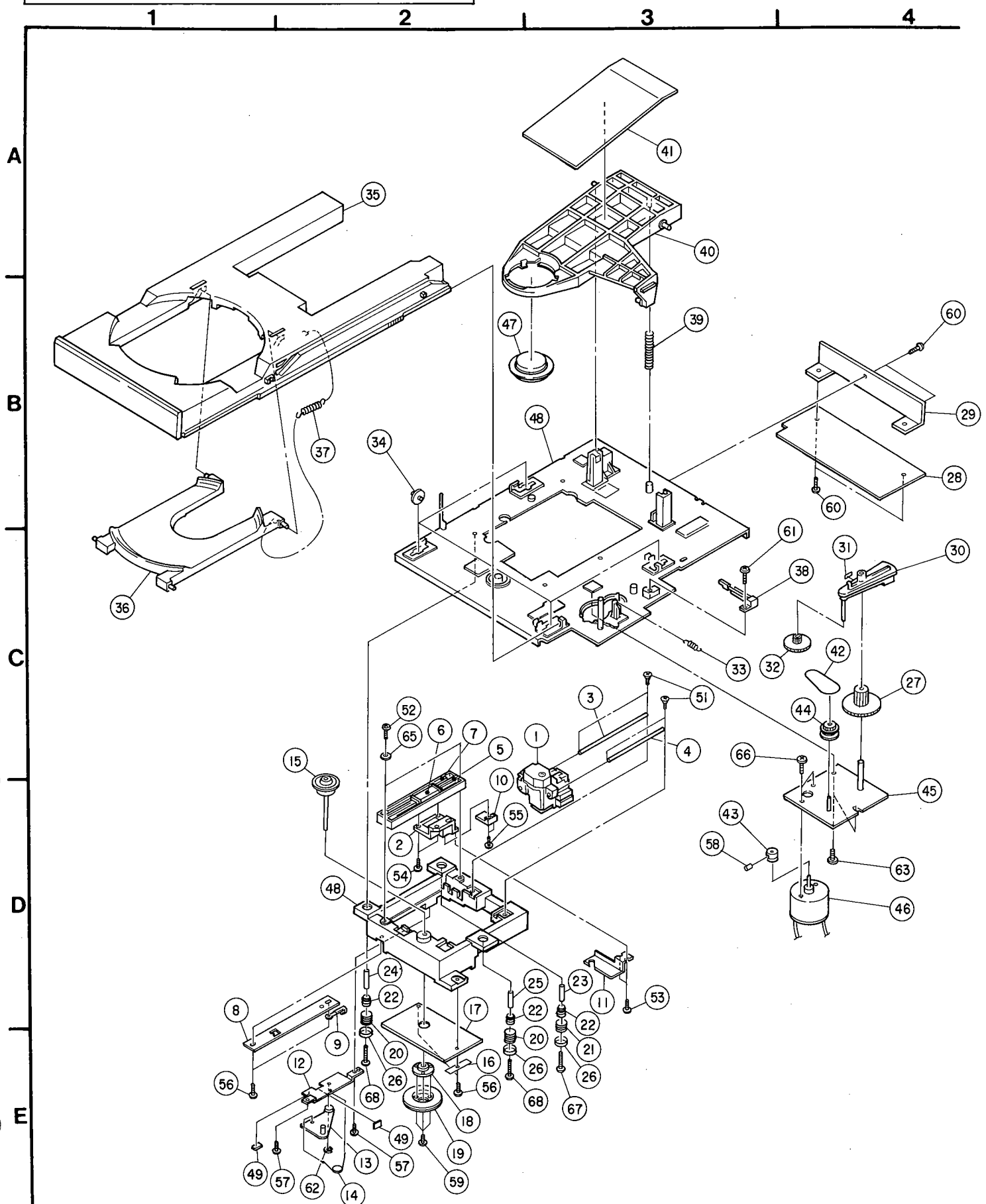
Ref. No.	Part No.	Part Name	Remarks
C140	2539036006	CK45=1E104Z	0.1μF 25V
C141,142	2531004007	CK45B1H102K	1000pF 50V
C143,144	2534190034	CE04W1H220= (AWD)	22μF 50V
⚠C601,602	2538014003	CK45F2GAC103M	0.01μF 400VAC
⚠L1	2398019002	LINE FILTER COIL	
⚠	2061029002	FUSE (0.2AT)	
⚠	FEP1287	FUSE HOLDER	
	2048198008	H/P JACK	
	2110480000	V250V30KA103	10kΩA
CB603	2050271049	4P PH CONNECTOR BASE	
CB605	2050271065	6P PH CONNECTOR BASE	
	2050217029	2P CONNECTOR BASE	
	5138254008	FUSE LABEL	
	4150299000	CONDENSER COVER	
	2050217032	3P CONNECTOR BASE	

2U-1467K (E1) LINE FILTER UNIT

Ref. No.	Part No.	Part Name	Remarks
C140	2539036006	CK45=1E104Z	0.1μF 25V
C141,142	2531004007	CK45B1H102K	1000pF 50V
C143,144	2534190034	CE04W1H220= (AWD)	22μF 50V
⚠C601,602	2538014003	CK45F2GAC103M	0.01μF 400VAC
⚠L1	2398019002	LINE FILTER COIL	
⚠	2061015003	FUSE (500MAT)	
⚠	2020022008	FUSE HOLDER	
	2048198008	H/P JACK	
	2110480000	V250V30KA103	10kΩA
CB603	2050271049	4P PH CONNECTOR BASE	
CB605	2050271065	6P PH CONNECTOR BASE	
	2050217029	2P CONNECTOR BASE	
	5138254037	FUSE LABEL (500mA)	

WARNING:
Parts marked with ⚠ and/or shading have special characteristics important to safety.
Be sure to use the specified parts for replacement.

EXPLODED VIEW OF FG-510 MECHANISM UNIT



PARTS LIST OF FG-510 MECHANISM UNIT

Ref. No.	Part No.	Part Name	Remarks
1	4990047001	LASER P.U	
2	4250189104	SLIDE TABLE	
3	4310224006	SLIDE SHAFT (M)	
4	4310221009	SLIDE SHAFT (S)	
5	4330463106	YOKE (A)	
6	2390012201	COIL ASS'Y	
7	3410028006	MAGNET ASS'Y	
8	2190002000	POTENTIOMETER ASS'Y	
9	4458028009	CORD HOLDER	
10	4250190009	BRASH BASE	
11	4122074208	T. COVER	
12	4122075207	T.PLATE ASS'Y	
13	4122077205	LOCK ARM ASS'Y	
14	4630490002	TWIST SPRING	
15	4210404308	TURNTABLE ASS'Y	
16	4170288004	R. PLATE	
17	KU-6220	MOTOR DRIVE UNIT	
18	4210414107	ROTOR BOSS	
19	4210406102	ROTOR ASS'Y	
20	4630481105	COIL SPRING (A)	
21	4630482105	COIL SPRING (B)	
22	4620071004	DAMPER	
23	4430564002	CALLOR	
24	4430597008	CALLOR (S)	
25	4430609006	CALLOR (B)	
26	4122073005	COVER	
27	4240090106	DRIVE GEAR	
28	KU-6050	SERVO PRE UNIT	
29	4122090305	P.C.B SUPPORT	
30	4210340200	LOCK ARM ASS'Y	
31	1220117028	HIMERON SHEET	
32	4240091202	GEAR	
33	4638260001	SPRING	
34	4250170003	SLIDER ROLLER	
35	PL01A31	LOADER SUB ASS'Y	
36	PT01A07	TRY SUB ASS'Y	
37	4630435106	DISK TRAY SPRING	
38	2124575008	LEAF SW	
39	4630441006	C_AMPER SPRING	
40	4380426507	CLAMPER ARM	
41	4610269101	DAMP SHEET	
42	4240043008	BELT	
43	4210366006	PULLEY (A)	
44	4240100009	GEAR (P)	
45	4121939001	MOTOR PLATE ASS'Y	
46	2170142003	LOADING MOTOR	
47	PC01A17	CLAMPER SUB ASS'Y	
48	4110606303	MECH, PLATE	
49	4610318007	PAD	
51	4712304032	3x8 CFS BKNi	
52	4713303032	3x6 CBS BKNi	
53	4711201039	2.6x4 CPS MFNiB	
54	4711204036	2.6x8 CPS BKNi	
55	4711205035	2.6x10 CPS	
56	4713303029	3x6 CBS-B	
57	4711301036	3x4 CPS (BK)	
58	4744300004	2.6x4 BSS(A)	
59	4713802012	2.6x3 CBS-Z	
60	4737002034	3x6 CBTS(S)-B	
61	4737505023	2.6x10 CBTS(P)-Z	
62	4761003009	3E RING	
63	4737508017	3x10 CBTS(P)-B	
64			
65	4751140002	3 WASHER	
66	4713201011	2.6x4 CBS-Z	
67	4711807022	3x18 CPS BK	
68	4711310056	3x20 CPS	

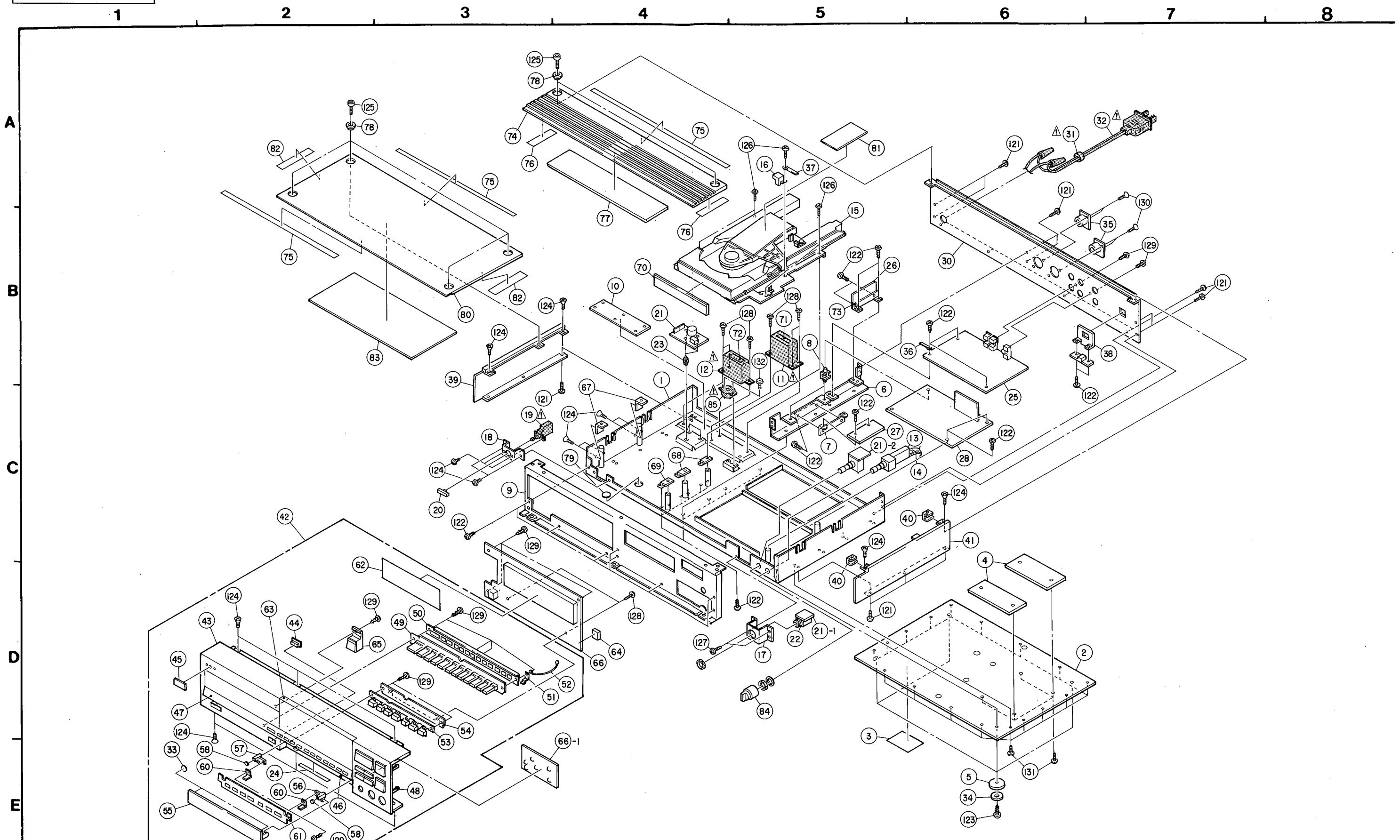
PARTS LIST OF PACKING & ACCESSORIES

Ref. No.	Part No.	Part Name	Remarks
	5030569008	PACKING	
	5020637005	UPPER PLATE	
	5011131015	CARTON CASE	
	5050061007	ENVELOPE	
	2032204005	PIN CORD	
	2690059003	TOCP155 (1.5μ)	
	5111486000	INST. MANUAL	
	5111487009	SWEDISH INST. MANUAL	E2 only
	2033667007	PLUG ADAPTER	E1 only
	4990057004	RC3300	

Remarks symbols in the parts list refer to the following countries and areas.

EA:	Australia	EC:	Canada
E1:	Multiple voltage model	EU:	U.S.A.
E2:	European continent	EK:	United Kingdom

EXPLODED VIEW



PARTS LIST OF EXPLODED VIEW

Ref. No.	Part No.	Part Name	Remarks
1	4110599423	CHASSIS ASS'Y	
2	1050686305	BOTTOM COVER	
	1050686512	BOTTOM COVER	E1 only
3	5131217000	LOCK CAUTION	
4	4410788002	BOTTOM WEIGHT	
5	1040139309	INSULATOR	
6	4110587406	CENTER CHASSIS	
7	4122130003	P.C.B BRACKET	
8	4150261009	P.C.B HINGE	
9	4110589200	FRONT CHASSIS	
10	1290075006	SHEET	
⚠ 11	2335580002	POWER TRANS	EA, E2, EK
	2335582000	POWER TRANS	E1
	2335578001	POWER TRANS	EC, EU
⚠ 12	2335579000	POWER TRANS	EA, E2, EK
	2335581001	POWER TRANS	E1
	2335577002	POWER TRANS	EC, EU
13	2124627008	FLEX ROTARY SW	
14	4350102007	FLEXIBLE SLIDER	
15	FG-510	CD MECHA UNIT	
16	4122138005	L.SW. COVER	
17	4122080001	H/P BRACKET	
18	4122093001	POWER SW BRACKET	
⚠ 19	2123336002	POWER SW	
20	1130840113	POWER KNOB ASS'Y	
⚠ 21	2U-1467G	LINE FILTER UNIT	EU,EC
	2U-1467H	LINE FILTER UNIT	E2
	2U-1467J	LINE FILTER UNIT	EA,EK
	2U-1467K	LINE FILTER UNIT	E1
22	2048198008	H/P JACK	
23	4150200002	P.C.B SUPPORT	
24	1220130005	PULL SHEET	
25	KU-6030	AUDIO UNIT	
26	2U-1435	AUDIO UNIT	
27	KU-6260	DIGITAL CONTROL UNIT	
28	KU-6040	SERVO MAIN UNIT	
29	4122149007	P.W.B. STAY	
30	1050687414	BACK PANEL	
⚠ 31	4450020005	BUSHING	
⚠ 32	2062025005	AC CORD	EA
	2062054005	AC CORD	E1
	2062002031	AC CORD WITH PLUG	E2
	2062031002	AC CORD	EC, EU
	2062024006	AC CORD WITH LABEL	EK
33	4610266007	RUBBER SHEET	
34	4610300002	RUBBER PAD	
35	2050388000	3P CANNON CONNECTOR	
36	EP-4772	CORD CLAMPER	
37	EP-6214	CORD CLAMPER	
38	4122127003	OPTI. PLATE	
39	1020252316	SIDE PANEL (L)	
40	4122145001	EARTH PLATE (B)	
41	1020253315	SIDE PANEL (R)	
42	PF01A34	FRONT PANEL SUB ASS'Y	
43	1441516301	FRONT PANEL	
44	1430482006	REMOCON WINDOW	
45	1319004000	DENON MARK	
46	1460839302	SUB PANEL	
47	1441519311	KEY PANEL	
48	1460849101	KNOB BASE ASS'Y	
49	1130836208	RUBBER KEY BOARD ASS'Y	
50	4122063206	PRESS PLATE	
51	4122144002	EARTH PLATE (A)	
52	2090071018	TERMINAL WIRE	
53	1460841109	7 REN KNOB	
54	4110609009	PROP	
55	1441535104	TRAP DOOR ASS'Y	
56	4010112104	HINGE (A)	
57	4010113103	HINGE (B)	
58	4620072003	CAP	
59	4630477009	SPRING	
60	4630485004	SPRING	
61	1441543109	KEY PLATE	
62	1430484208	FILTER	
63	1430483209	WINDOW	
64	1290077004	SUPPORT (RUBBER)	
65	1130841109	OP/CL KNOB ASS'Y	
66	KU-6060	KEY DISPLAY UNIT	
67	4122155004	STAY (A)	
68	4122156003	STAY (B)	
69	4122157002	STAY (C)	
70	1441517106	LOADER PANEL	
71	5131225005	POWER TRANS LABEL	
72	5131226004	POWER TRANS LABEL	
73	4122149007	P.W.B STAY	
74	1020255106	TOP COVER (B)	
75	1220125007	HIMERON SHEET	
76	1220127005	HIMERON SHEET	
77	4610313002	DAMP SHEET (B)	
78	4250193103	WASHER	
79	4610322006	S. SHEET	
80	1020254107	TOP COVER (A)	
81	5131234009	CLAMPER LABEL	
82	1220126006	HIMERON SHEET	
83	4610312003	DAMP SHEET (A)	
84	1130839108	ROTARY KNOB	
⚠ 85	2123315023	VOLTAGE SELECTOR	E1 only
121	4737015018	3x8 CTBS(S)-B	
122	4737002021	3x8 CBTS(S)-B	
123	4737007026	4x16 CBTS(S)-B	
124	4737003017	3x8 CFTS(S)-B	
125	4755100125	3x12 HSHB	
126	4713303029	3x6 CBS-B	
127	4737005086	3x4 CBTS()S-Z	
128	4737002034	3x6 CBTS(S)-B	
129	4737500044	3x8 CBTS(P)-B	
130	4737012008	3x10 CFTS(S)-N	
131	4737007013	4x10 CBTS(S)-B	
132	4737001035	2.6x6 CBTS(S)-Z	E1 only

WARNING:
Parts marked with ⚠ and/or shading have special characteristics important to safety.
Be sure to use the specified parts for replacement.

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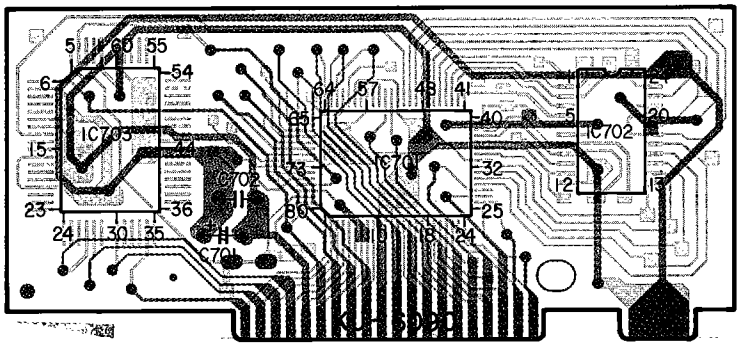
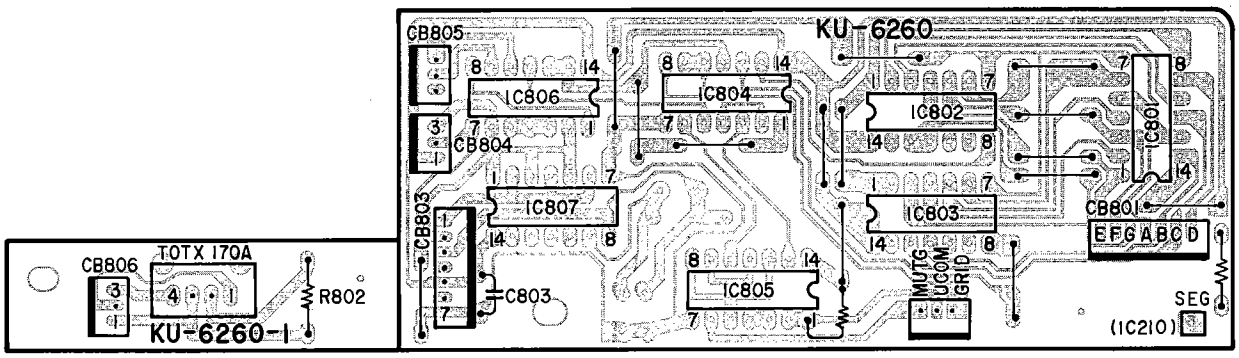
P.W. BOARD

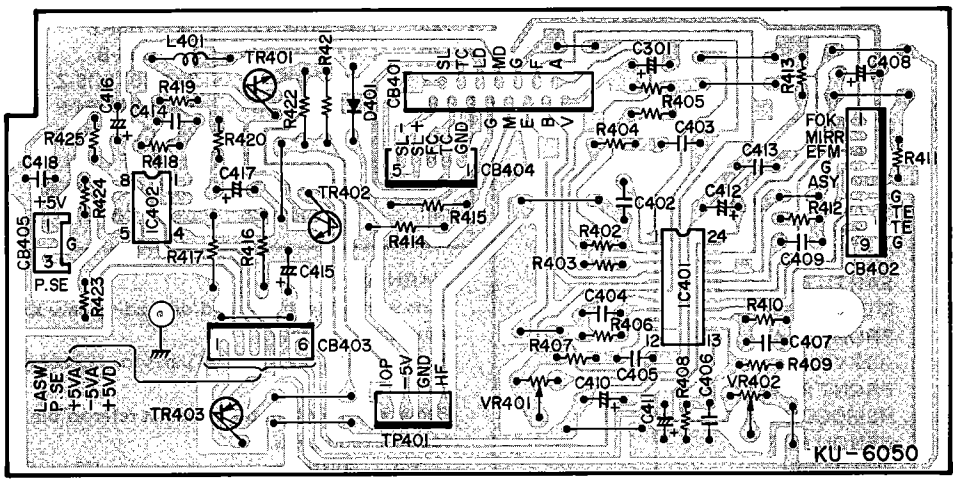
KU-6090 DIGITAL PRO. UNIT

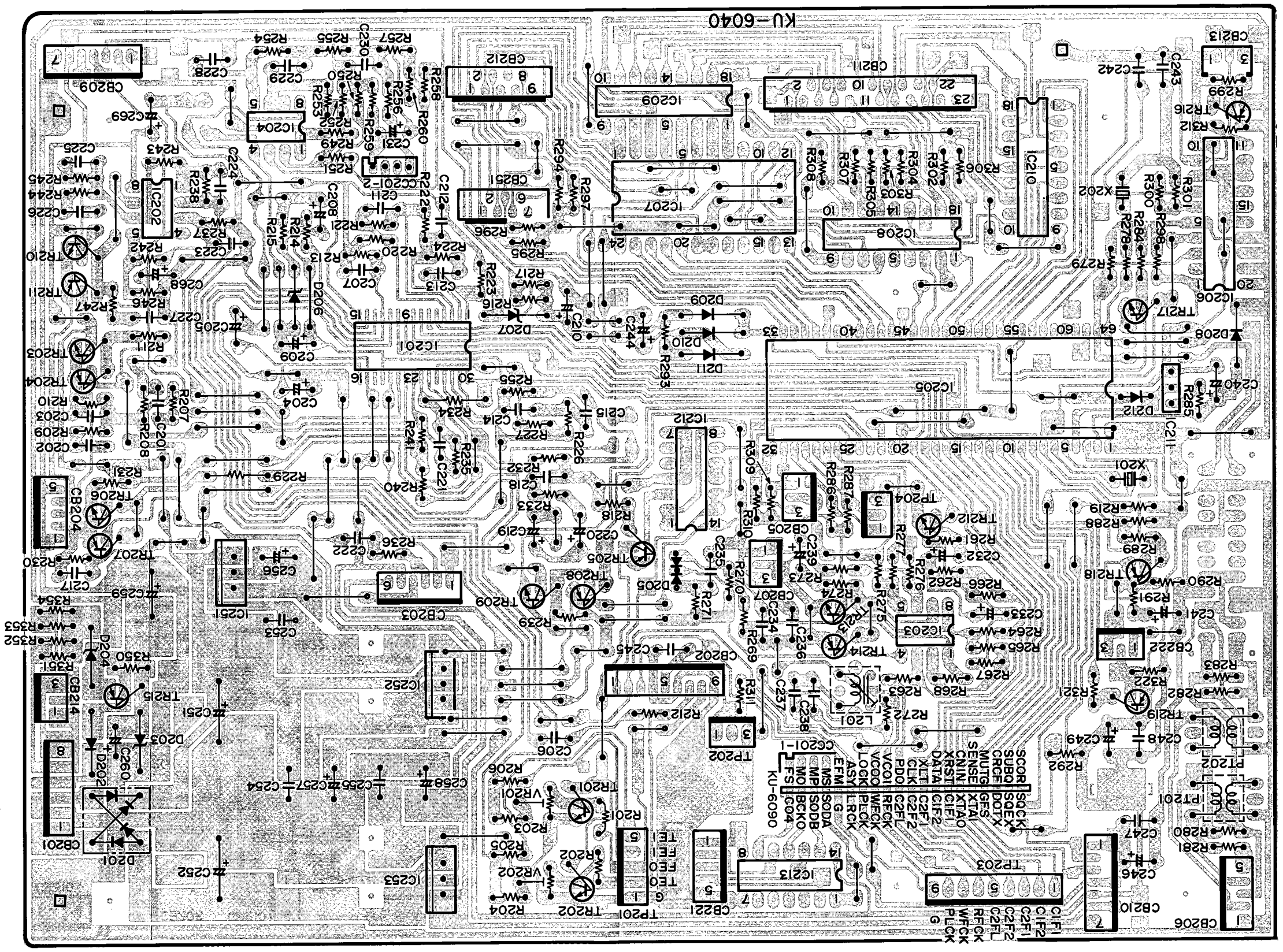


KU-6260 DIGITAL CONTROL UNIT



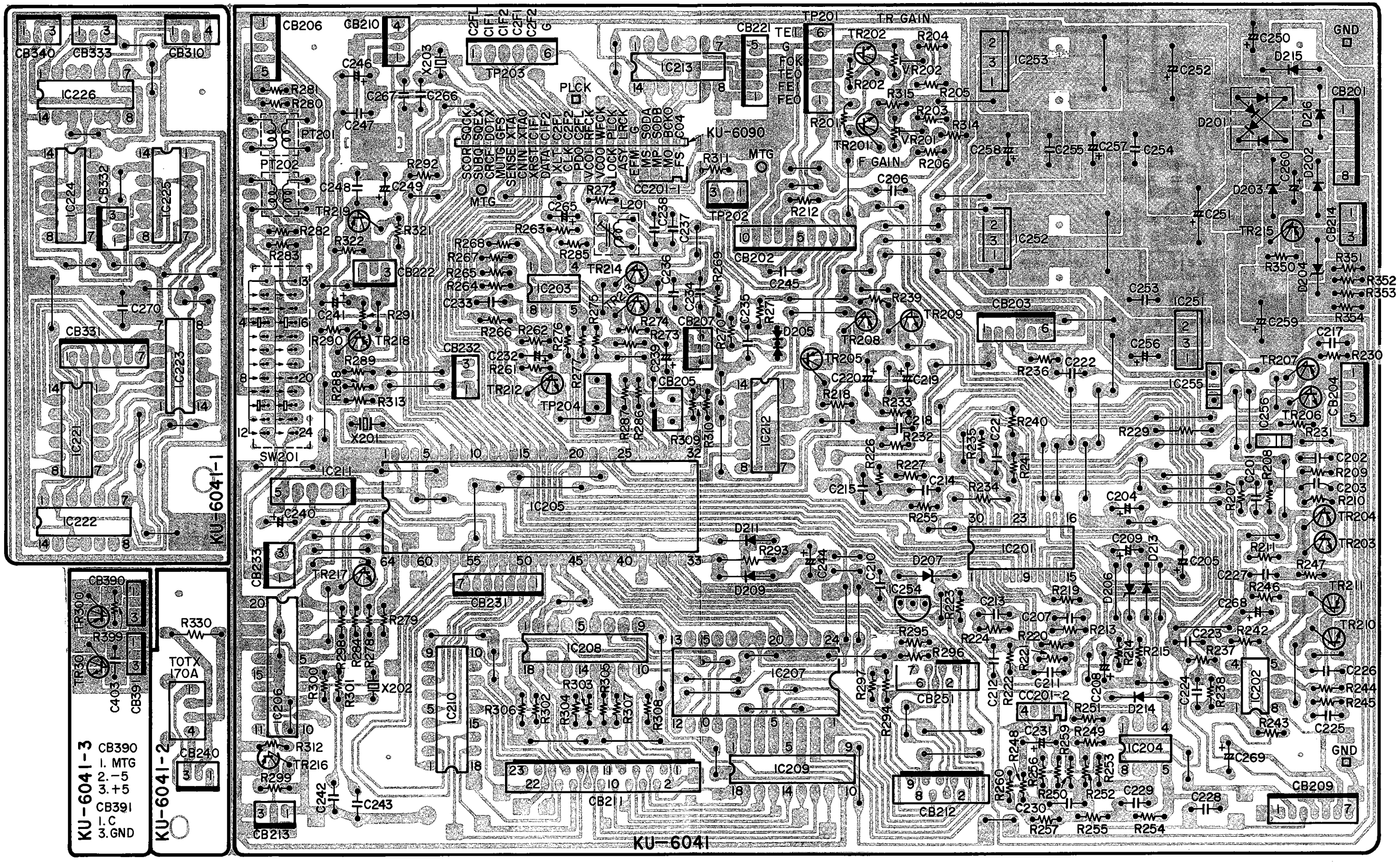
KU-6050 SERVO PRE. UNIT



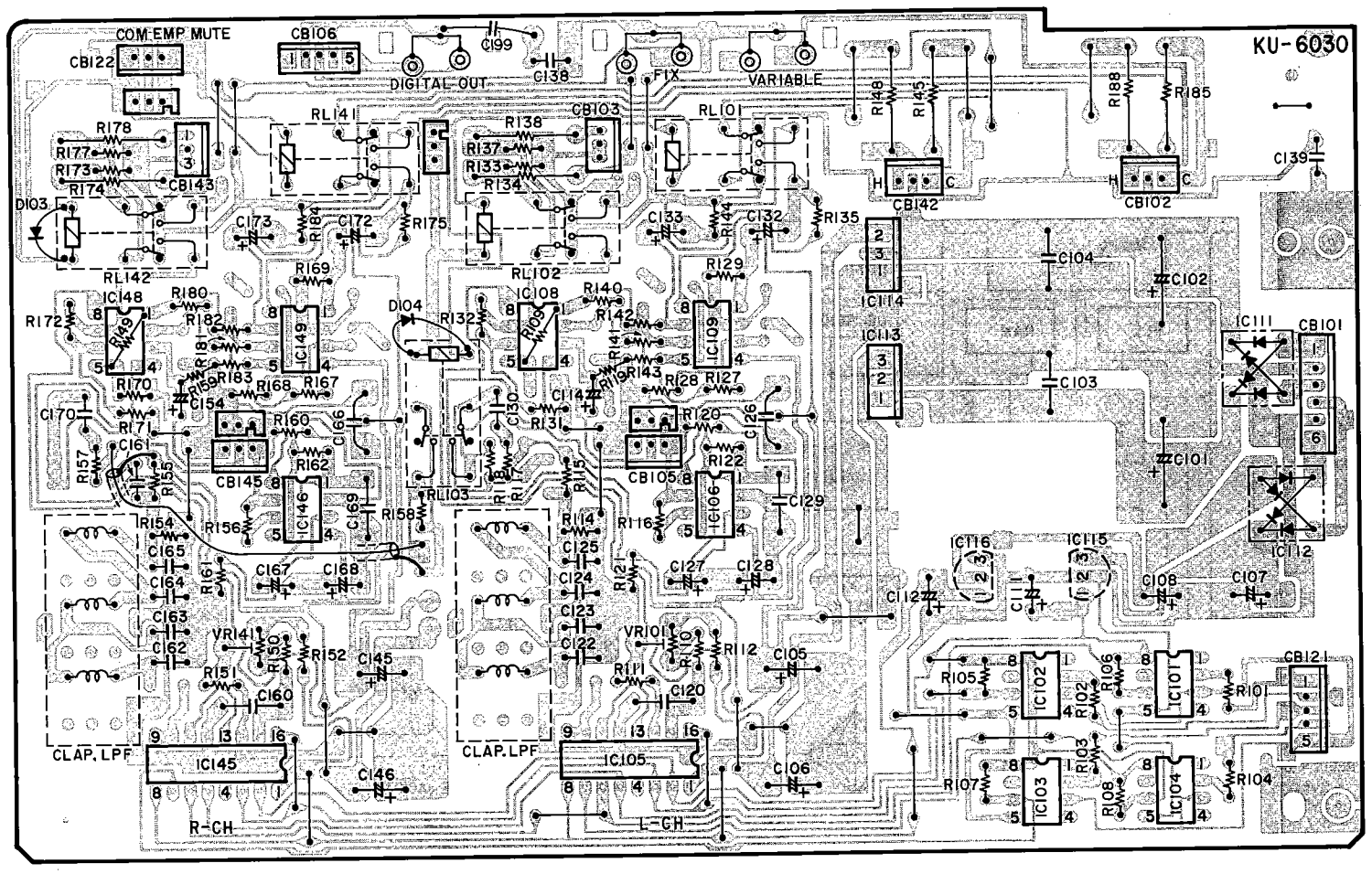


KU6040 SERVO MAIN UNIT

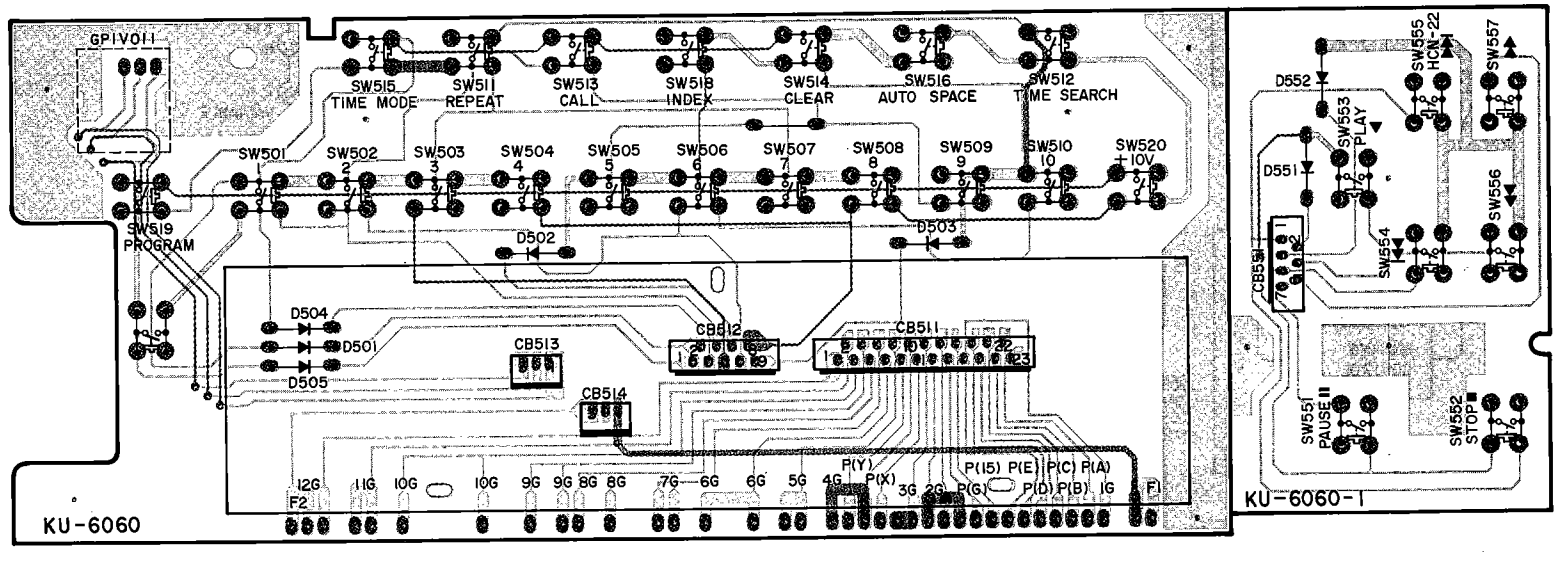
KU-6041 SERVO MAIN UNIT



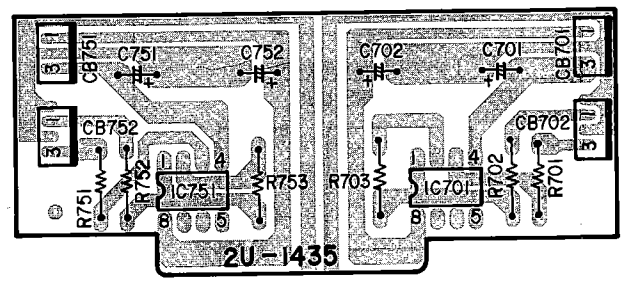
KU-6030 AUDIO UNIT



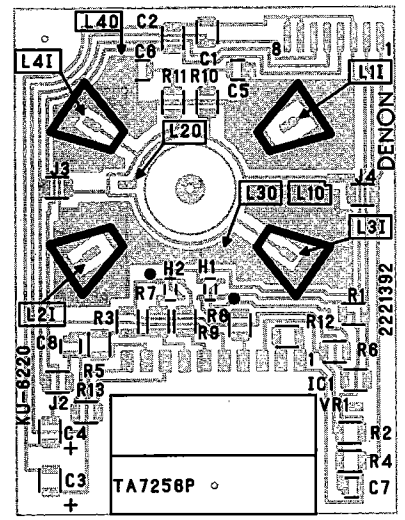
KU-6060 KEY DISPLAY UNIT



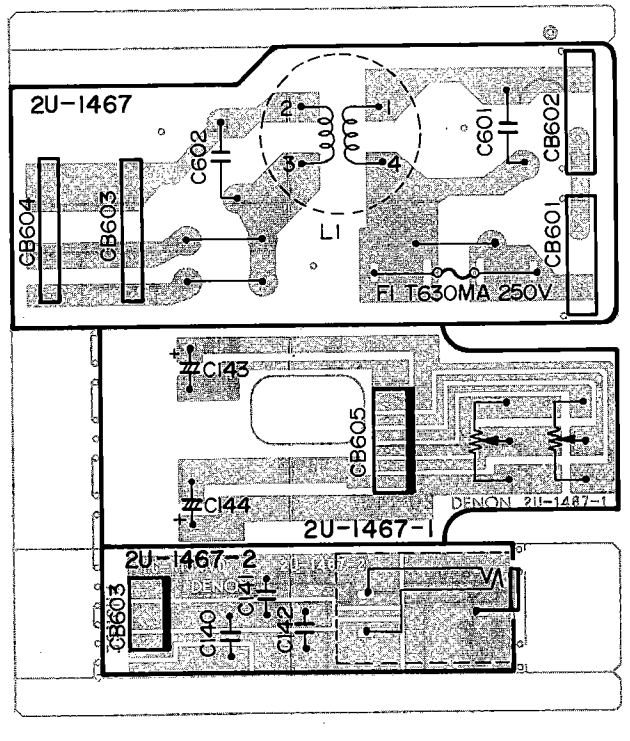
2U-1435 AUDIO UNIT



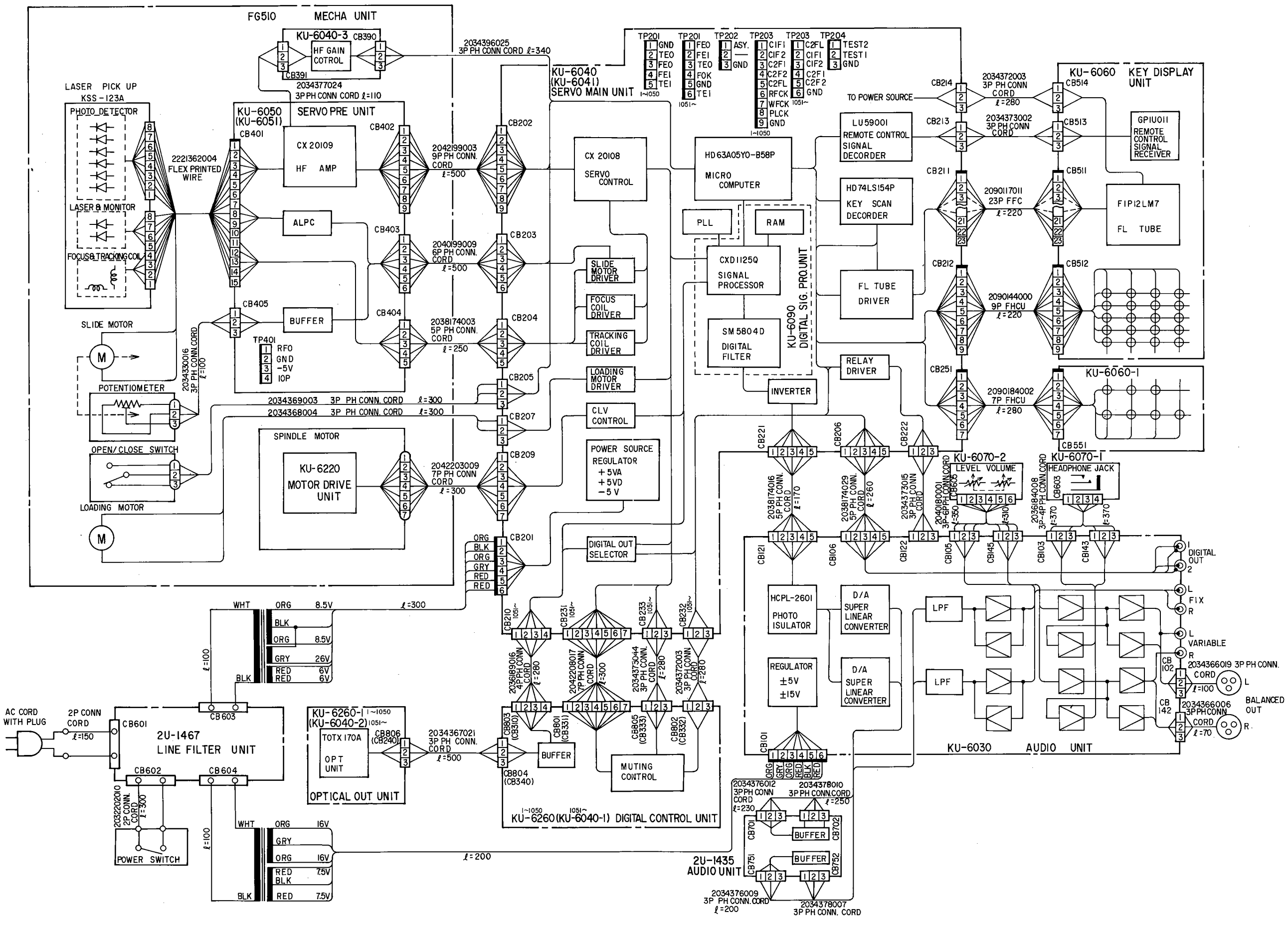
KU-6220 MOTOR DRIVE UNIT



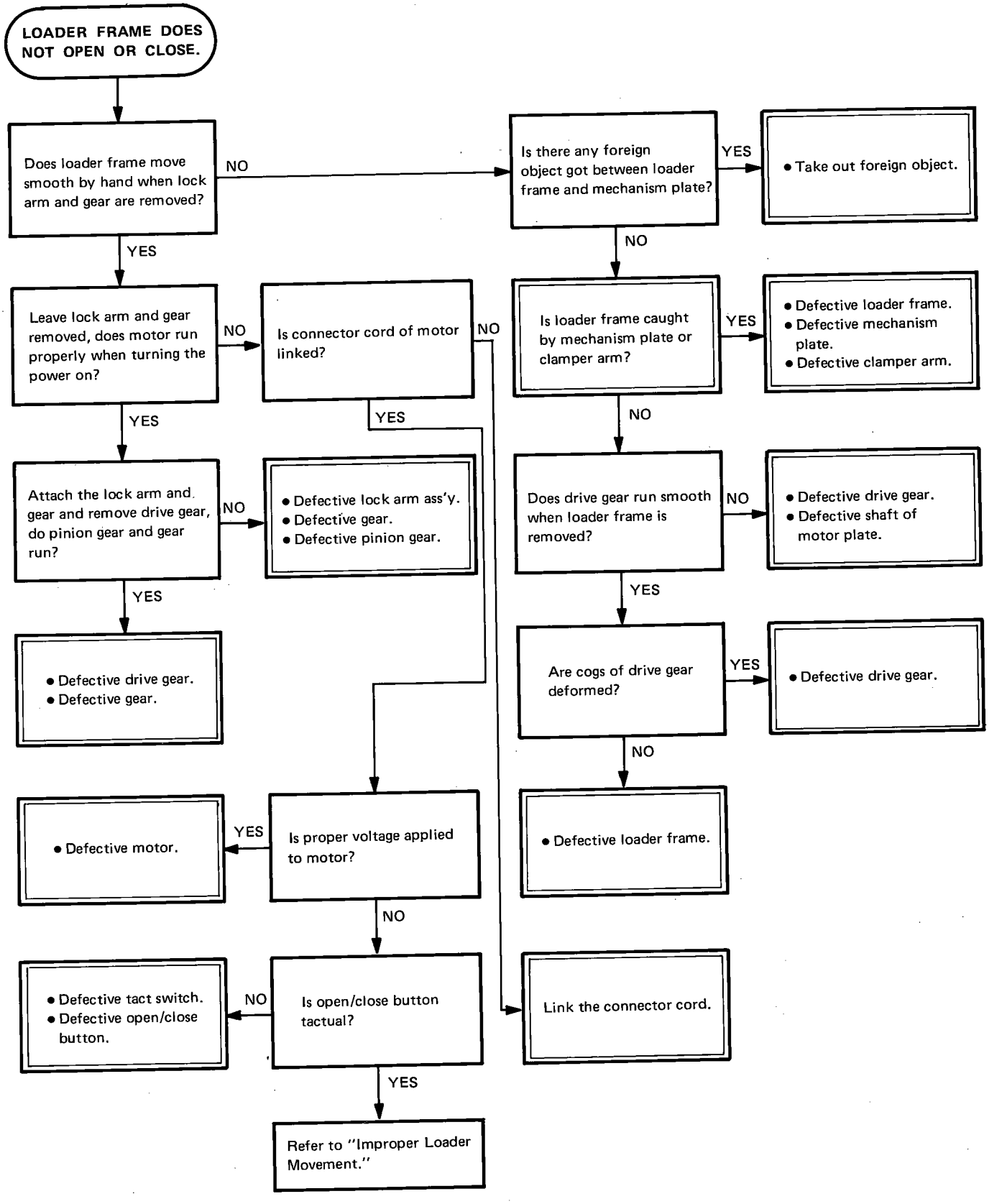
2U-1467 LINE FILTER UNIT

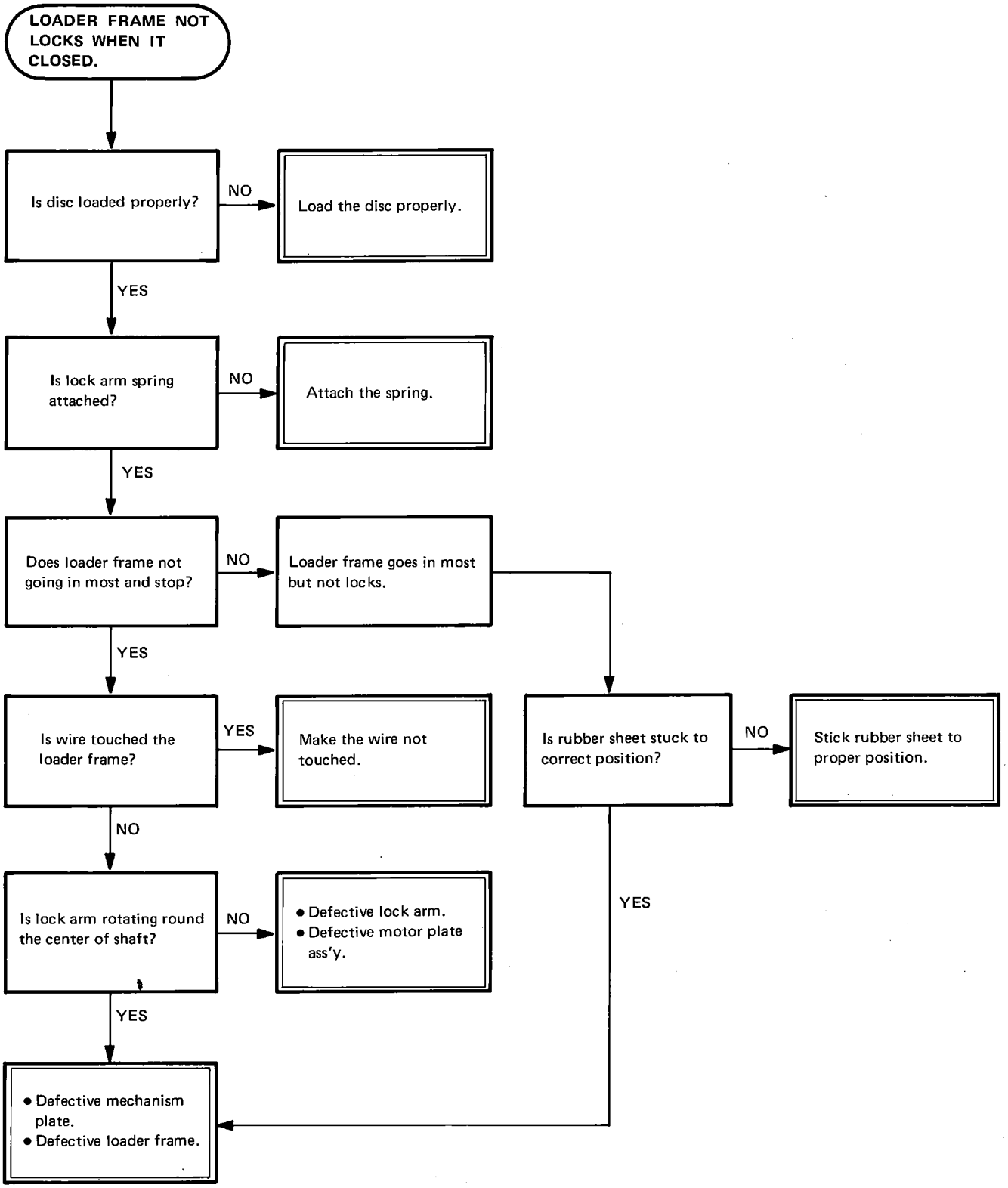


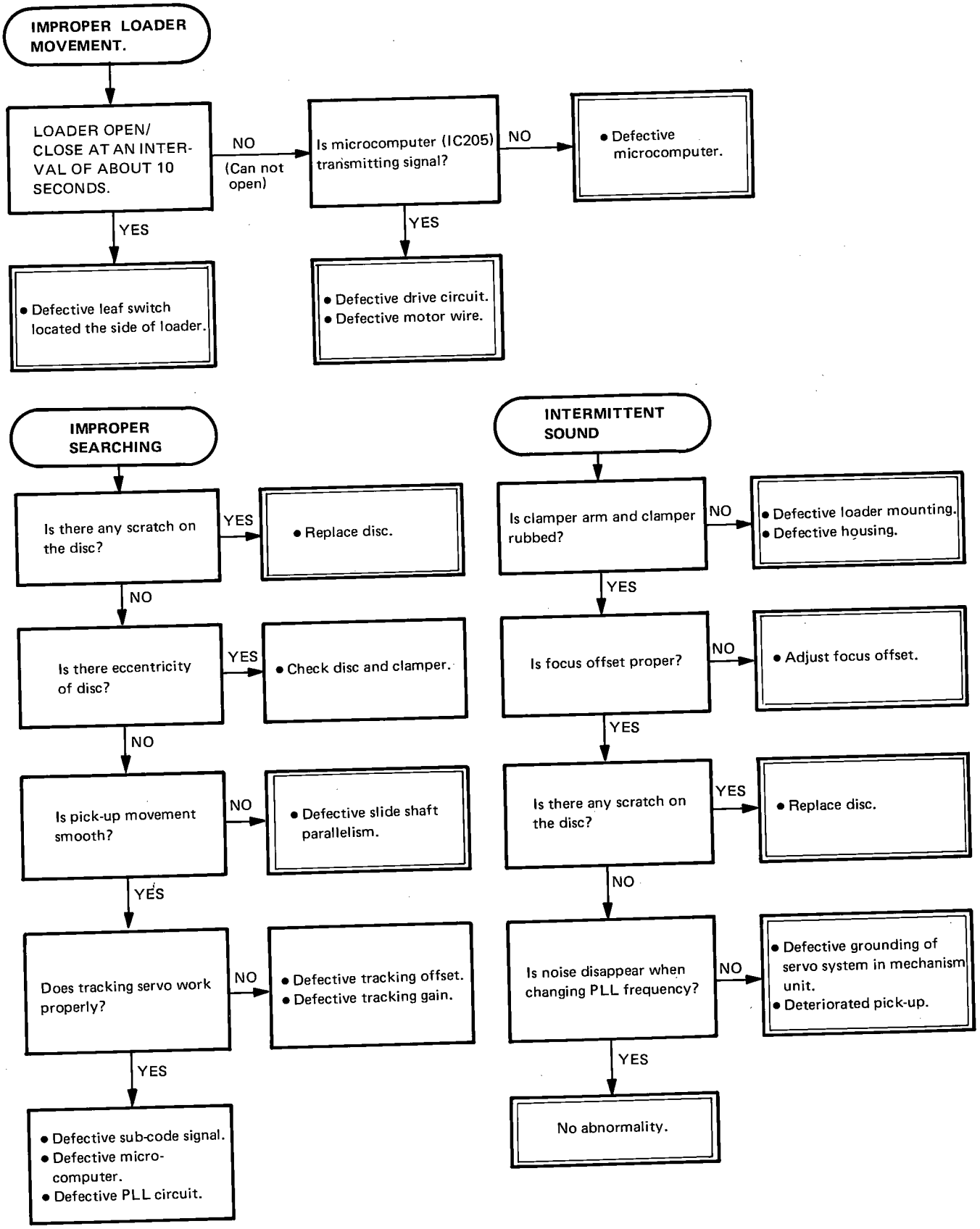
WIRING DIAGRAM

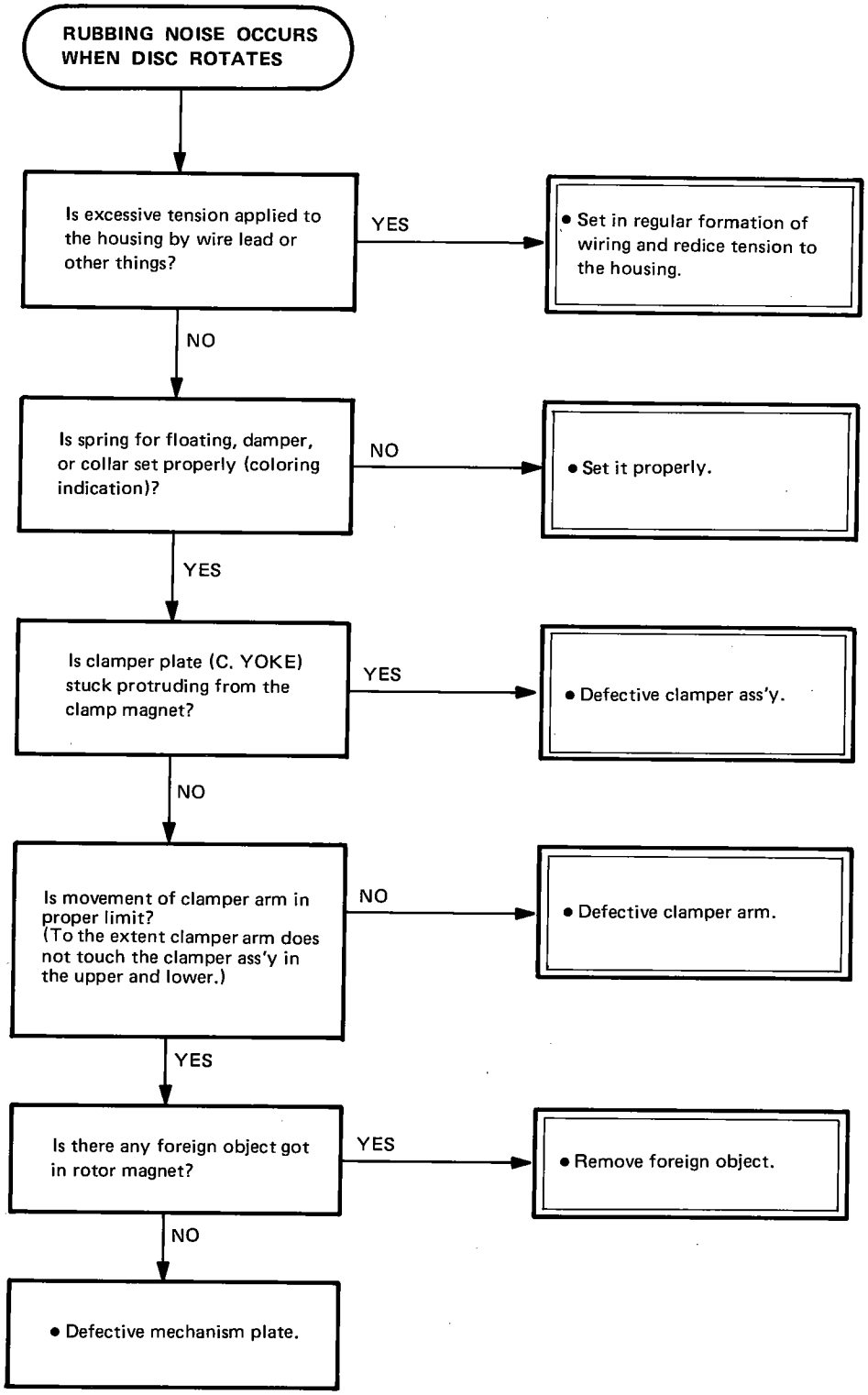


TROUBLESHOOTING

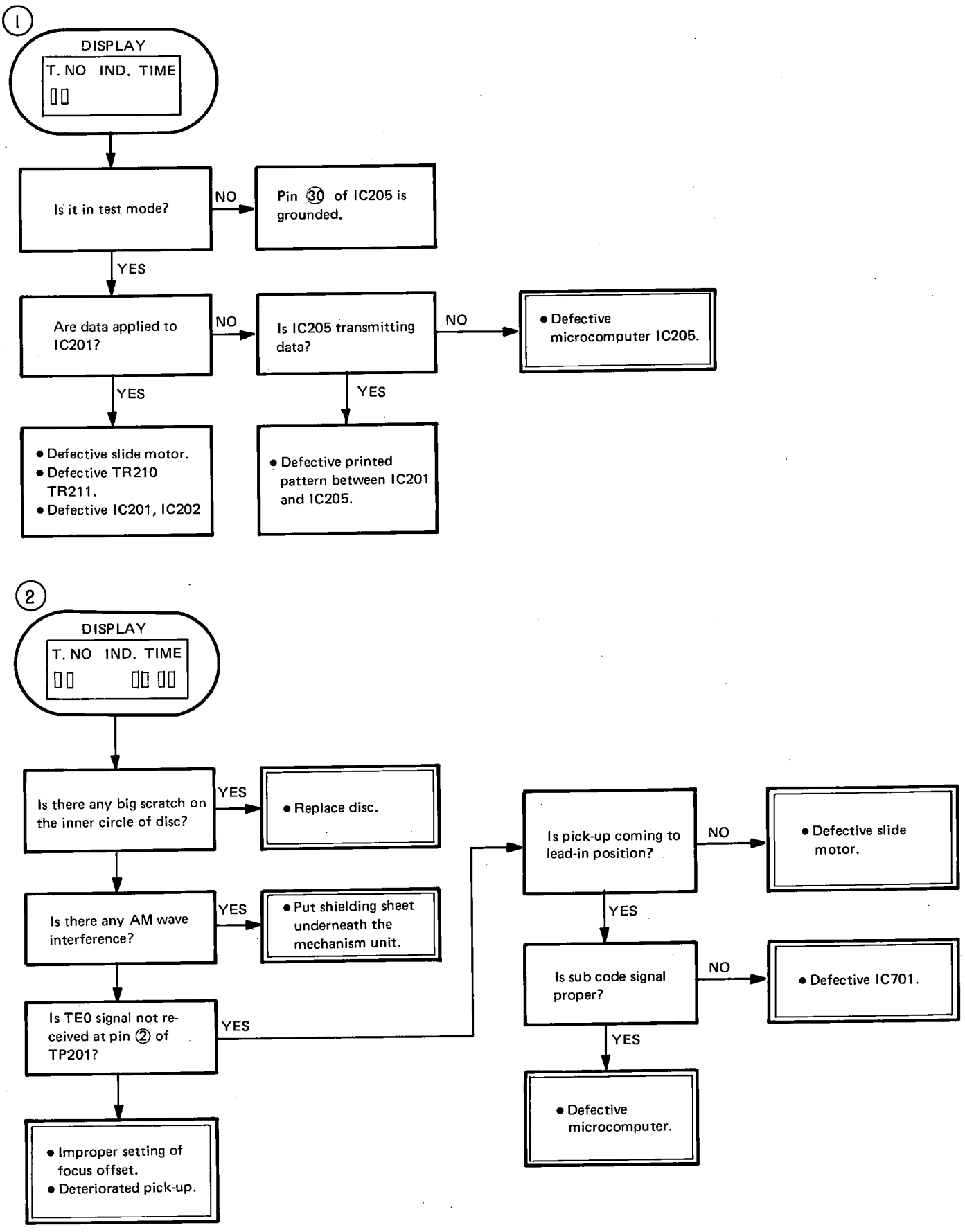


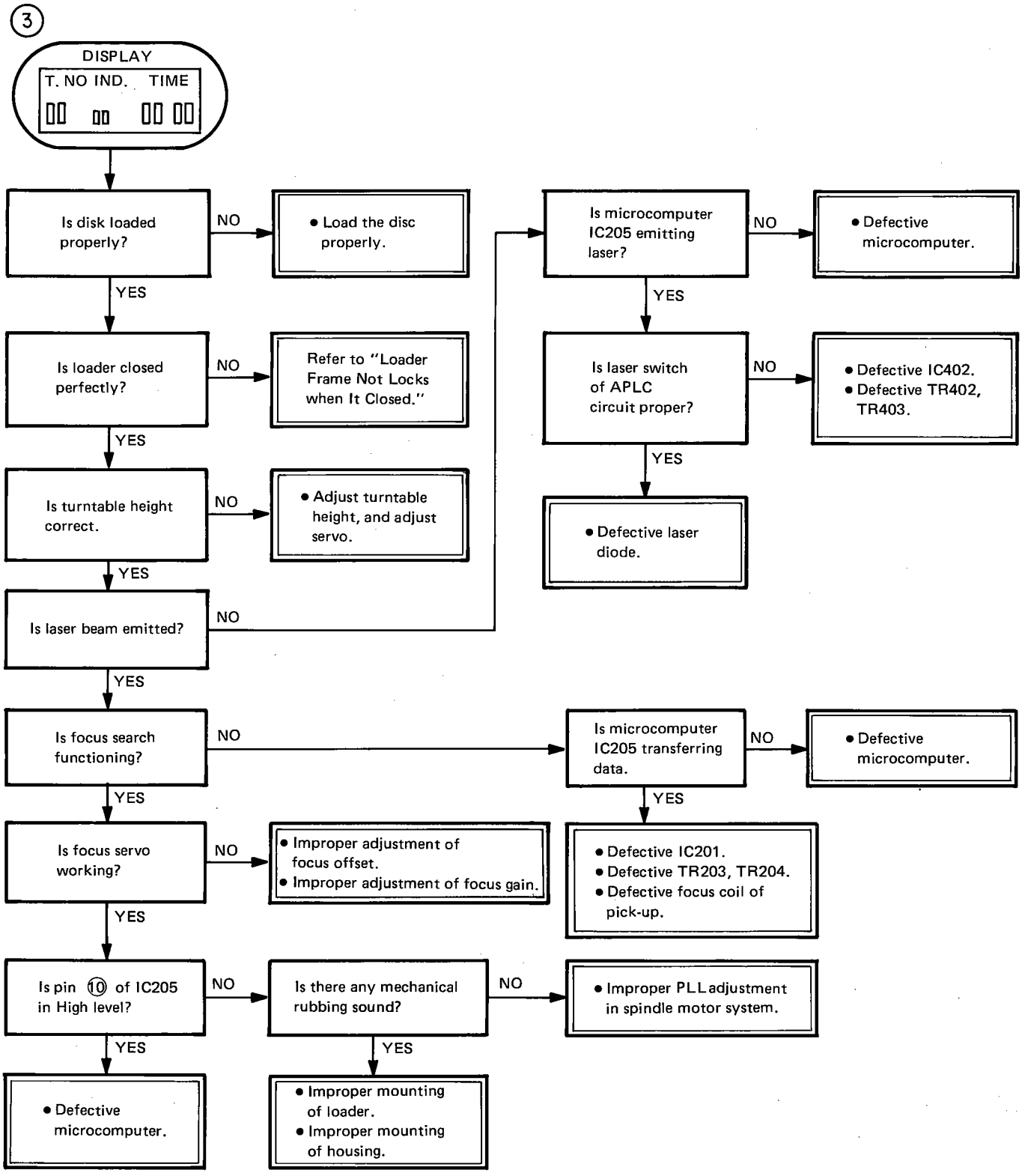

LOADER FRAME NOT LOCKS WHEN IT CLOSED.
Is disc loaded properly?
NO
Load the disc properly.
YES
Is lock arm spring attached?
NO
Attach the spring.
YES
Does loader frame not going in most and stop?
NO
Loader frame goes in most but not locks.
YES
Is wire touched the loader frame?
YES
Make the wire not touched.
NO
Is lock arm rotating round the center of shaft?
NO
• Defective lock arm.
• Defective motor plate ass'y.
YES
• Defective mechanism plate.
• Defective loader frame.
Is rubber sheet stuck to correct position?
NO
Stick rubber sheet to proper position.
YES


IMPROPER LOADER MOVEMENT.
LOADER OPEN/ CLOSE AT AN INTER-VAL OF ABOUT 10 SECONDS.
NO
(Can not open)
Is microcomputer (IC205) transmitting signal?
NO
• Defective microcomputer.
YES
• Defective drive circuit.
• Defective motor wire.
YES
• Defective leaf switch located the side of loader.
IMPROPER SEARCHING
Is there any scratch on the disc?
YES
• Replace disc.
NO
Is there eccentricity of disc?
YES
• Check disc and clamper.
NO
Is pick-up movement smooth?
NO
• Defective slide shaft parallelism.
YES
Does tracking servo work properly?
NO
• Defective tracking offset.
• Defective tracking gain.
YES
• Defective sub-code signal.
• Defective micro-computer.
• Defective PLL circuit.
INTERMITTENT SOUND
Is clamper arm and clamper rubbed?
NO
• Defective loader mounting.
• Defective housing.
YES
Is focus offset proper?
NO
• Adjust focus offset.
YES
Is there any scratch on the disc?
YES
• Replace disc.
NO
Is noise disappear when changing PLL frequency?
NO
• Defective grounding of servo system in mechanism unit.
• Deteriorated pick-up.
YES
No abnormality.


RUBBING NOISE OCCURS WHEN DISC ROTATES
Is excessive tension applied to the housing by wire lead or other things?
YES
• Set in regular formation of wiring and redice tension to the housing.
NO
Is spring for floating, damper, or collar set properly (coloring indication)?
NO
• Set it properly.
YES
Is clamper plate (C. YOKE) stuck protruding from the clamp magnet?
YES
• Defective clamper ass'y.
NO
Is movement of clamper arm in proper limit?
(To the extent clamper arm does not touch the clamper ass'y in the upper and lower.)
NO
• Defective clamper arm.
YES
Is there any foreign object got in rotor magnet?
YES
• Remove foreign object.
NO
• Defective mechanism plate.

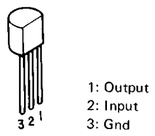
• IMPROPER INITIAL MOVEMENT AT DISC SETTING



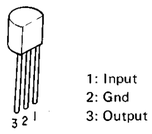

3
DISPLAY
T. NO IND. TIME
Is disk loaded properly?
NO
• Load the disc properly.
YES
Is loader closed perfectly?
NO
Refer to "Loader Frame Not Locks when It Closed."
YES
Is turntable height correct.
NO
• Adjust turntable height, and adjust servo.
YES
Is laser beam emitted?
NO
YES
Is focus search functioning?
NO
YES
Is focus servo working?
NO
• Improper adjustment of focus offset.
• Improper adjustment of focus gain.
YES
Is pin ⑩ of IC205 in High level?
NO
YES
• Defective microcomputer.
Is there any mechanical rubbing sound?
NO
YES
• Improper mounting of loader.
• Improper mounting of housing.
Is microcomputer IC205 emitting laser?
NO
• Defective microcomputer.
YES
Is laser switch of APLC circuit proper?
NO
• Defective IC402.
• Defective TR402, TR403.
YES
• Defective laser diode.
Is microcomputer IC205 transferring data.
NO
• Defective microcomputer.
YES
• Defective IC201.
• Defective TR203, TR204.
• Defective focus coil of pick-up.
• Improper PLL adjustment in spindle motor system.

SEMICONDUCTORS

●IC



NJM79L05A



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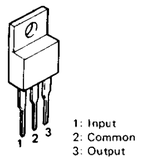

HA178-05
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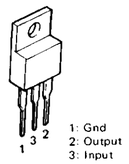
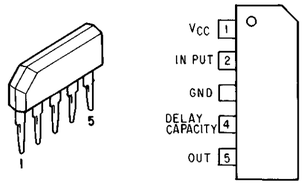


μPC7905H
μPC7915H



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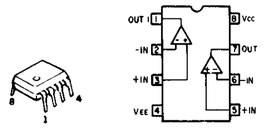

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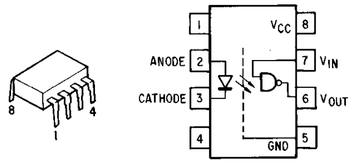

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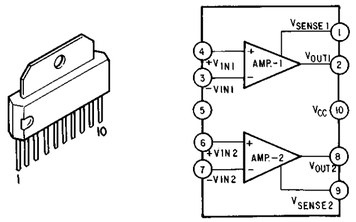
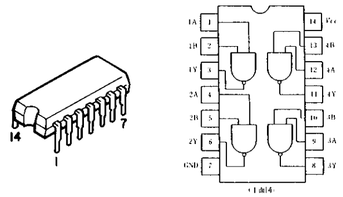


TA7256P



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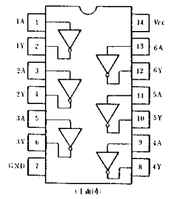

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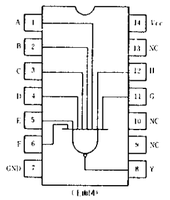

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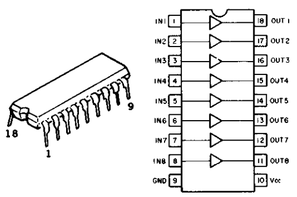

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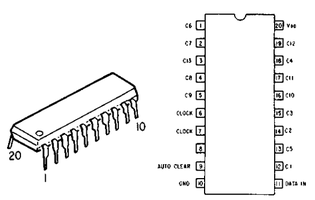

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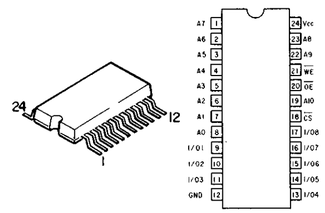

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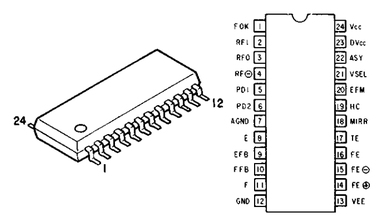

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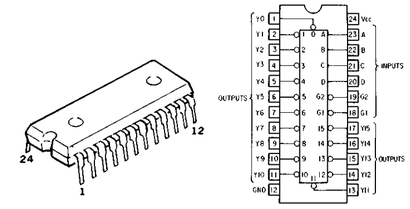

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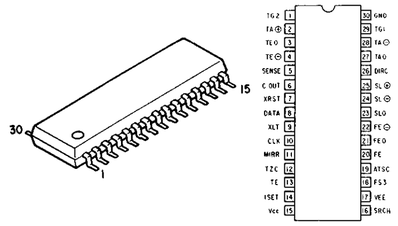

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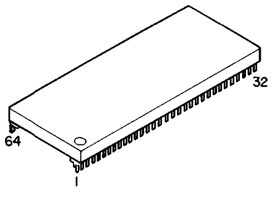
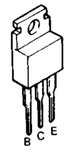


HD63A05YO

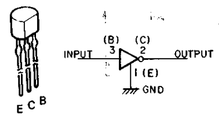
● TRANSISTORS



2SB834(GR/Y)
2SD880(GR/Y)

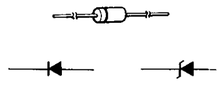
2SA933(Q)

2SB562(C)
2SD468(C)
2SB561



RN1202(10K-10K) NPN
RN2202(10K-10K) PNP
RN1210(4.7K– –) NPN

● DIODES



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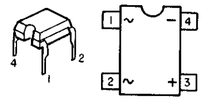
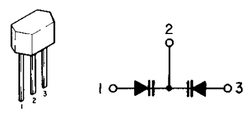
1SS106
DSM1A2

HZ5C-3
HZ6C-1
HZ30-2

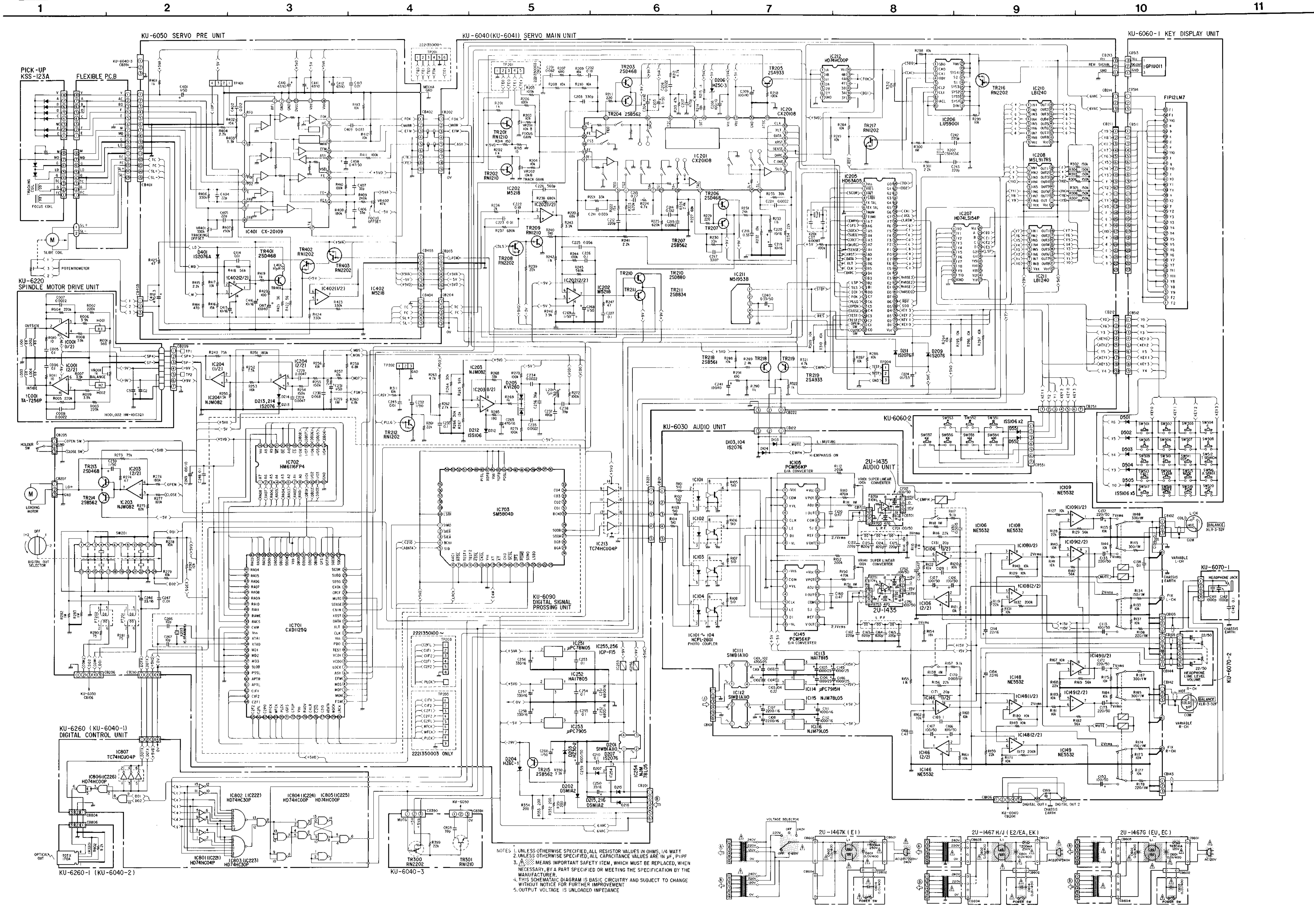


S1WB



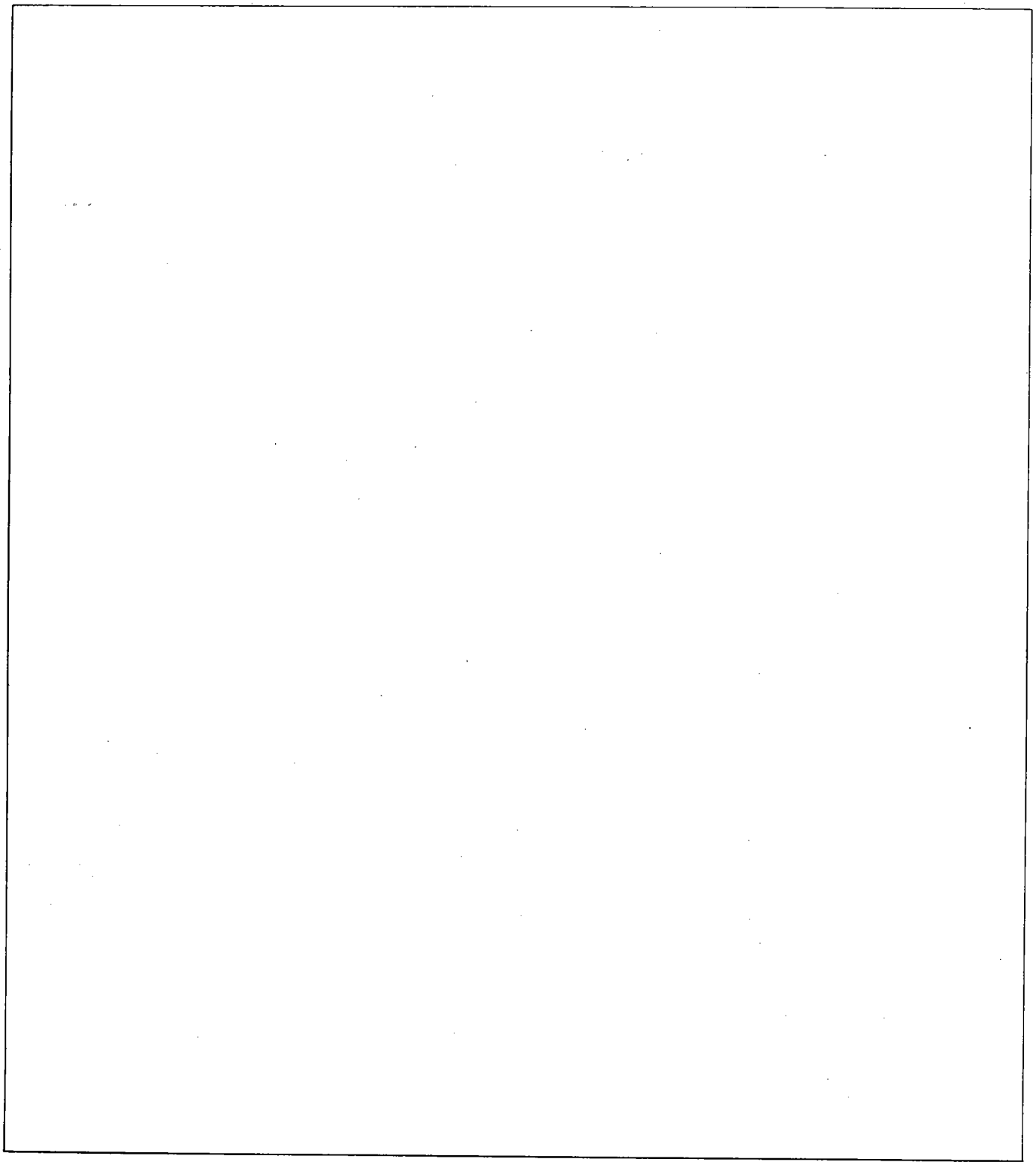
KV1260

SCHEMATIC DIAGRAM



NOTES 1. UNLESS OTHERWISE SPECIFIED, ALL RESISTOR VALUES IN OHMS, 1/4 WATT
2. UNLESS OTHERWISE SPECIFIED, ALL CAPACITANCE VALUES ARE IN μF, P=PF
3. ⚠ MEANS IMPORTANT SAFETY ITEM, WHICH MUST BE REPLACED, WHEN NECESSARY, BY A PART SPECIFIED OR MEETING THE SPECIFICATION BY THE MANUFACTURER.
4. THIS SCHEMATAIC DIAGRAM IS BASIC CIRCUITRY AND SUBJECT TO CHANGE WITHOUT NOTICE FOR FURTHER IMPROVEMENT
5. OUTPUT VOLTAGE IS UNLOADED INPEDANCE

DENON



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