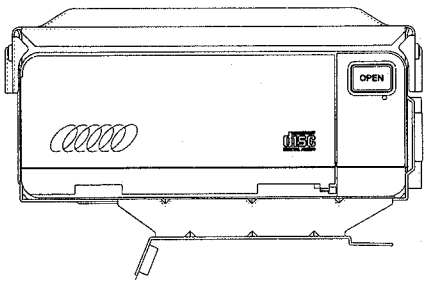
Service Manual

PIONEER
The Art of Entertainment



ORDER NO.
CRT1378

CD PLAYER

CDX-M9071ZT
CDX-M9071ZT-91

COMPACT disc DIGITAL AUDIO

- **These models have been installed in LEXUS ES300.**
- **These models used in combination with KEX-M9071ZT/UC**

Model	Supplementary Model	Part No.
CDX-M9071ZT	CDX-M9071ZT-91	86270-33010

- **Supplementary model is indentical to the original model except for the addition of following items.**

* :Non spare part

Carton	CHA1614
Styrofoam	CHP1372
Styrofoam	CHP1420
Cover	CEG1047
Pin(×1)	*CLA1862
Screw(×4)	BMZ40P080FRD
Caution Card	*CRM1100

- **This additional service manual is designed to be used together with Model CDX-M50/UC Service Manual (CRT1209). Refer to it for disassembly, etc. which are not shown in this manual.**

CONTENTS

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FD MAY 1991 Printed in Japan

1. ADJUSTMENT

1) Precautions

- The CDX-M9071ZT uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to pin no. 21 (approx. 2.5V) of IC351 (CXA1081Q) instead of GND. (VC or VREF at test point)

If VC and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.

Do not connect the negative probe of the measuring equipment to VC and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to VC with the channel 2 negative probe connected to GND.

And since the frame of the measuring instrument is usually at the same potential as the negative probe, change the frame of the measuring instrument to floating status.

If by accident VC comes in contact with GND, immediately switch the regulator or power OFF.

- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.
- Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.
- When loading and unloading discs during adjustment procedures, always wait for the disc to be properly clamped or ejected before pressing the another key. Otherwise, there is risk of the actuator being destroyed. (For example, do not press the [RPT] key while a disc is being moved from magazine to clamp after regulator is switched ON in steps 3 thru 5 of Tracking Balance Adjustment I. Nor should the [EJECT] key (in M9071ZT) be pressed during focus closed status.)

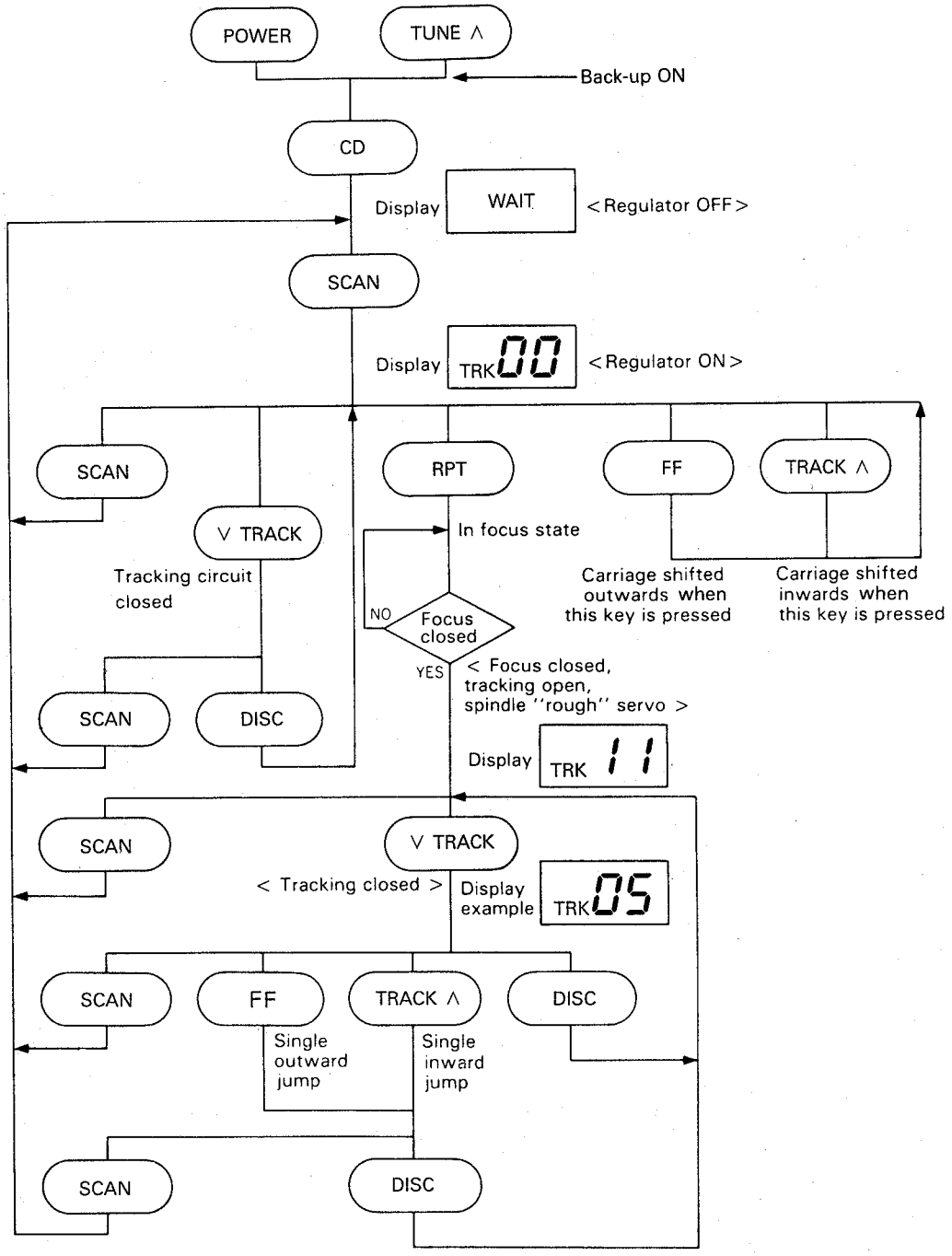
2) Since CDX-M9071ZT is used in combination with a multi-CD control section such as KEX-M9071ZT, all adjustment key operations are executed at that control section.
The KEX-M9071ZT, test mode starting procedure and key operations are included for reference purposes. All keys mentioned in the main text are KEX-M9071ZT keys.

- Test mode starting procedure
  Switch back-up ON while pressing the [POWER] and [TUNE ∧] keys together.
- Test mode cancellation
  Switch the KEX-M9071ZT and CDX-M9071ZT back-up OFF.)

Key functions during test mode.

Key	Function
SCAN	Regulator ON/OFF
FF	FWD kick
TRACK ∧	REV kick
∨ TRACK	Tracking close
DISC	Tracking open
RPT	Focus close

• Flow Chart


POWER
TUNE ∧
Back-up ON
CD
Display
WAIT
<Regulator OFF>
SCAN
Display
TRK 00
<Regulator ON>
SCAN
RPT
FF
TRACK ∧
∨ TRACK
In focus state
Tracking circuit closed
Carriage shifted outwards when this key is pressed
Carriage shifted inwards when this key is pressed
NO
Focus closed
YES
< Focus closed, tracking open, spindle "rough" servo >
SCAN
DISC
Display
TRK 11
SCAN
∨ TRACK
< Tracking closed >
Display example
TRK 05
SCAN
FF
TRACK ∧
DISC
Single outward jump
Single inward jump
SCAN
DISC

• **Adjustment Points**

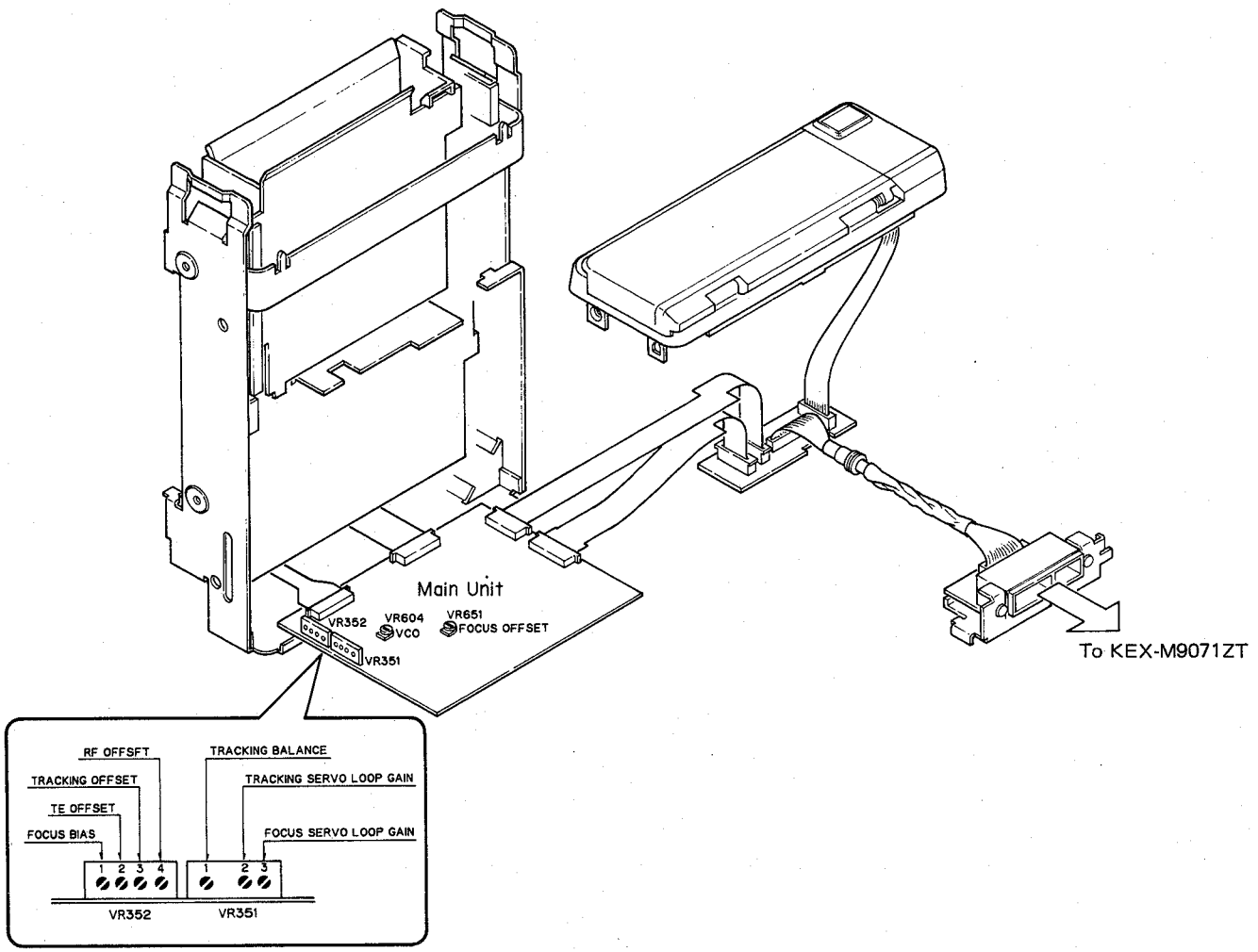


Fig. 1

• Test Point

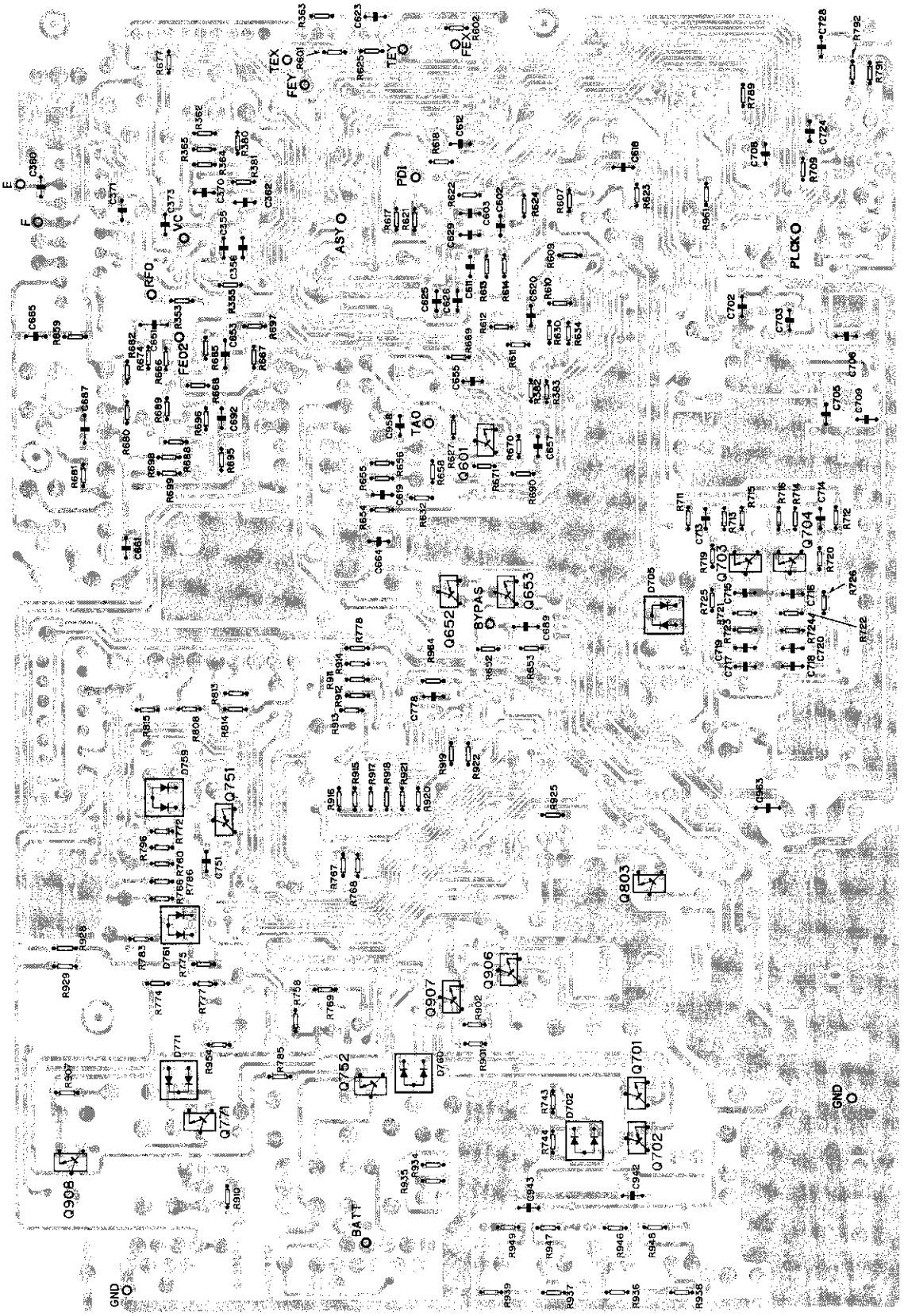


Fig. 2

1.1 Focus Offset Adjustment

● Purpose: To adjust the electrical offset of the focus amplifier to zero.

● Maladjustment symptoms: No focus closing

● Measuring equipment/ jigs	• Multi-meter or oscilloscope
● Measuring point	• FEO2
● Test disc and setting	• Empty magazine, test mode
● Adjustment position	• VR651

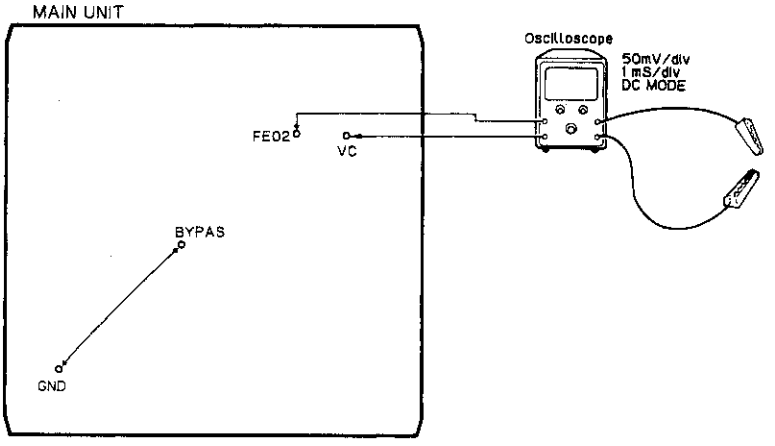


Fig. 3

Adjustment Procedure

1. Connect BYPAS to GND.
2. Switch regulator ON.
3. Using VR651, adjust the FEO2 DC voltage in reference to VC to a value of 0 ± 25mV.

1.2 VCO Free Run Frequency Adjustment

● Purpose: To adjust the EFM decoder reference clock free- run frequency to a suitable value

● Maladjustment symptoms: Spindle lock not possible, distorted sound or no sound at all

● Measuring equipment/ jigs	• Frequency counter
● Measuring point	• Pin No. 70 ($\overline{\text{PLCK}}$) of IC701 (CXD1167Q)
● Test disc and setting	• Empty magazine • Test mode
● Adjustment position	• VR604

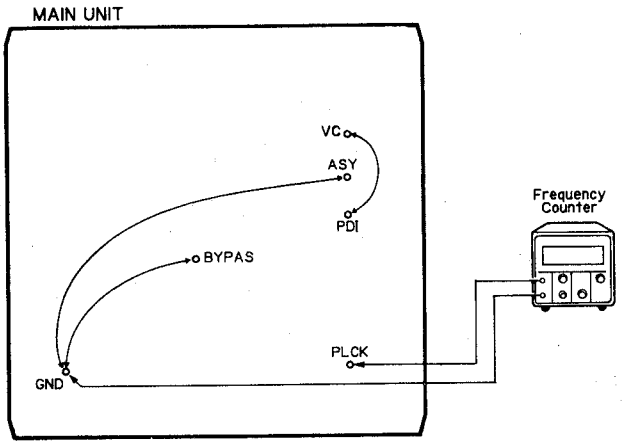


Fig. 4

Adjustment Procedure

1. Connent pin No. 7 (TP ASY) of IC351 to GND.
   Connect BYPAS to GND.
2. Connect pin no. 1 (TP VC) of IC601 to pin no. 28 (TP PDI).
3. Switch regulator ON while in test mode.
4. Connect the frequency counter to pin No.70 (TP PLCK) of IC701 (CXD1167Q).
5. Adjust VR604 to obtain a frequency of 4.57 ± 0.005MHz.
6. Switch regulator OFF.
7. Disconnect the leads connecting TP VC to TP PDI, and TP ASY to GND.

Note: Connect TP VC and TP PDI with leads kept as short as possible.

Note: Connect the frequency counter ground to TP GND as shown in the figure.

1.3 RF Offset Adjustment

● Purpose: To adjust the RF amplifier offset to a suitable value

● Maladjustment symptoms: Focus closure fails readily

● Measuring equipment/ jigs	• Oscilloscope
● Measuring point	• RFO
● Test disc and setting	• Empty magazine • Test mode
● Adjustment position	• VR352-4 (RFO)

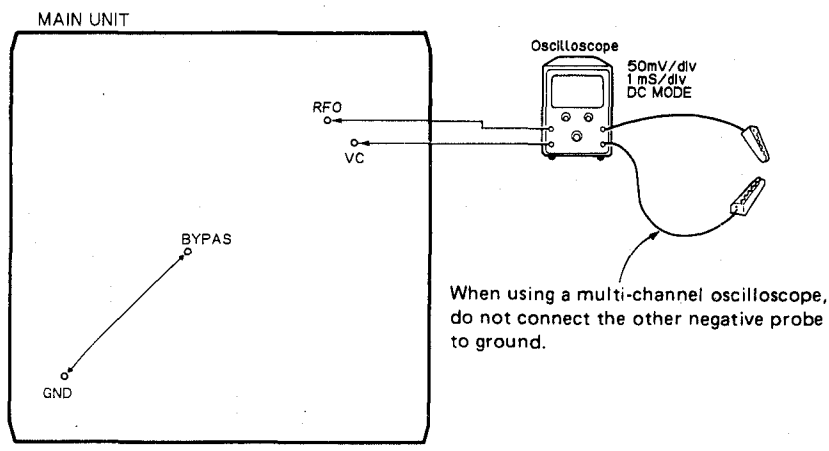


Fig. 5

Adjustment Procedure

1. Connect BYPAS to GND.
2. Switch regulator ON.
3. Using the oscilloscope, measure the RFO DC voltage in reference to VC, and adjust VR352-4 (RFO) to obtain a reading of +40 ± 10mV.

1.4 Tracking Offset Adjustment

● Purpose: To adjust the electrical offset of the tracking amplifier to zero

● Maladjustment symptoms: Search times too long, carriage run-away

● Measuring equipment/ jigs	• Oscilloscope
● Measuring point	• TAO low-pass filter output
● Test disc and setting	• Empty magazine • Test mode
● Adjustment position	• VR352-3 (TO)

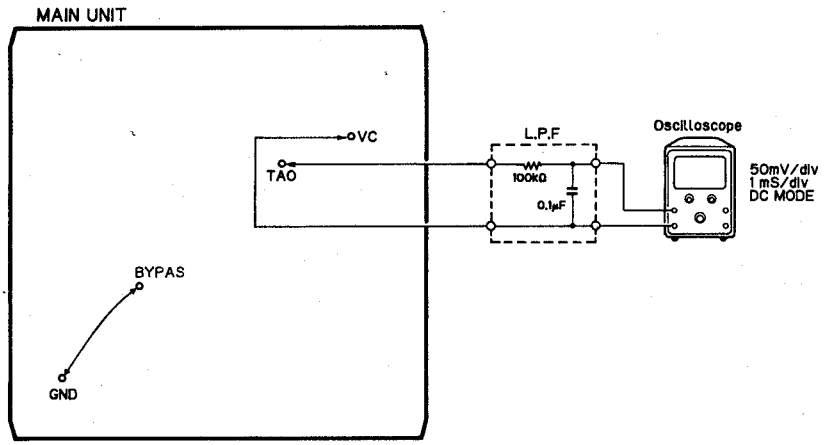


Fig. 6

Adjustment Procedure

1. Insert a low-pass filter between TAO and VC.
2. Check that BYPAS is connected to GND.
3. Switch regulator ON.
4. Using the oscilloscope, measure the TAO LPF output DC voltage in reference to VC, and adjust VR352-3 (TO) to obtain a reading of 0 ± 25mV.
   The low-pass filter may be left in place for later adjustments.

1.5 TE Offset Adjustment - I

● Purpose: To adjust the electrical offset of the tracking servo to zero.

● Maladjustment symptoms: Search times too long, carriage run-away

● Measuring equipment/ jigs	• DC voltmeter
● Measuring point	• TAO low-pass filter output
● Test disc and setting	• Empty magazine • Test mode
● Adjustment position	• VR352-2 (TEO)

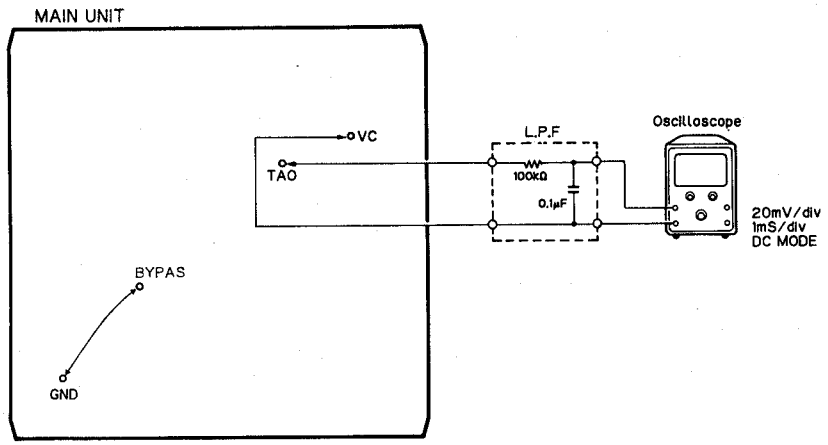


Fig. 7

Adjustment Procedure

1. Check that BYPAS is connected to GND.
2. Switch regulator ON while in test mode.
3. Press the [V TRACK] key to close tracking.
4. Using VR352-2 (TEO), adjust the TAO LPF output DC voltage in reference to VC to a value of 0 ± 10mV.
5. Switch regulator OFF.

1.6 Tracking Balance Adjustment - I

● Purpose: To adjust the tracking servo offset to zero.

● Maladjustment symptoms: Search times too long, poor playability, carriage run-away

● Measuring equipment/ jigs	• Oscilloscope
● Measuring point	• TEY (Tracking error signal), low-pass filter output
● Test disc and setting	• SONY TYPE 4 (or TYPE 3) • Test mode
● Adjustment position	• VR351-1 (T. BAL)

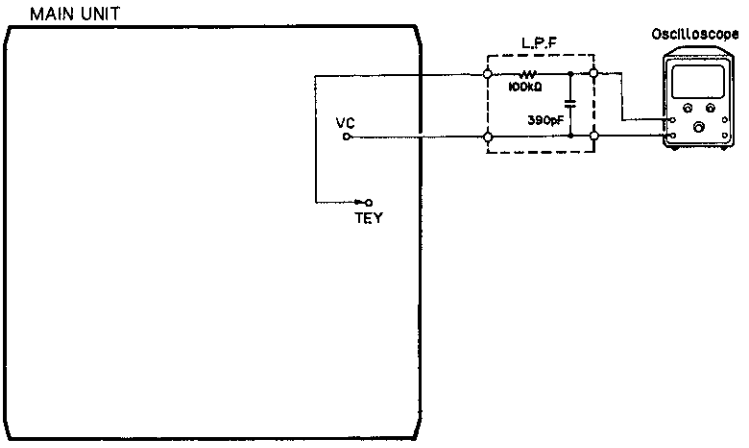
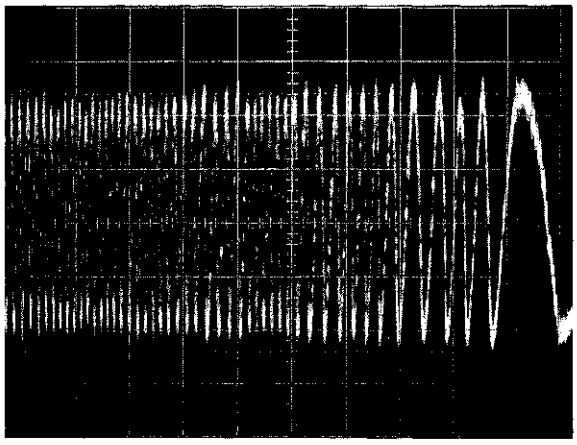


Fig. 8

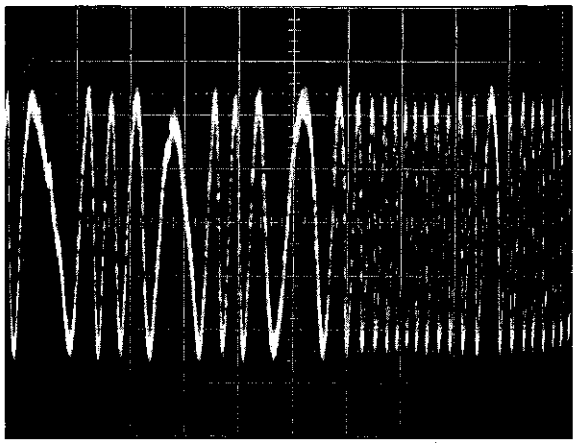
Adjustment Procedure

1. After checking that regulator is OFF, connect the lowpas filter as shown in the diagram.
2. Disconnect BYPAS from ground.
3. Set the test disc (SONY TAPE 4) in magazine tray 6 and load the magazine. Switch regulator ON.
4. Using the [FF] or [TRACK ∧] key, move the pick-up to about the center of the signal surface.
5. Press the [RPT] key to close focus.
6. Using an oscilloscope, observe the TEY signal in respect to VC. Then adjust VR351-1 (T.BAL) to set the positive and negative amplitudes to the same levels. (See Fig. 9-11)
7. Switch the power OFF.
   The low-pass filter may be left in place for later adjustments.



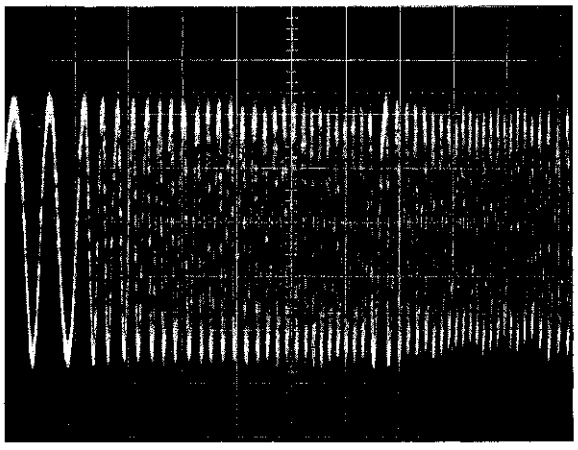
+5% NG

Fig. 9



±0% OK

Fig. 10



−5% NG

10ms/div.
0.2V/div.
DC Mode

Fig. 11

1.7 Tangential Skew Check

● Purpose: To check whether tangential skew has been misaligned or not when replacing the pick-ip unit.

● Maladjustment symptoms: No disc playback; track jumping

● Measuring equipment/ jigs	• Oscilloscope, screwdriver
● Measuring point	• RFO
● Test disc and setting	• SONY TYPE 4 (or TYPE 3) • Normal mode
● Adjustment position	• Pick-up tangential adjustment screw

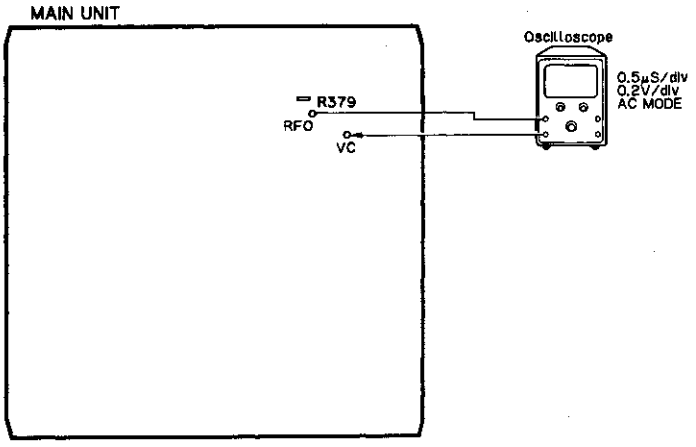
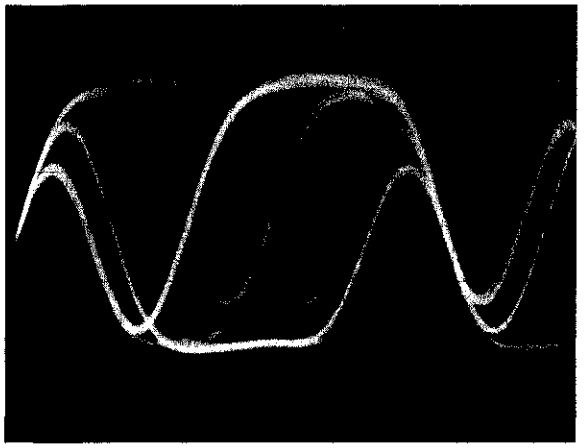


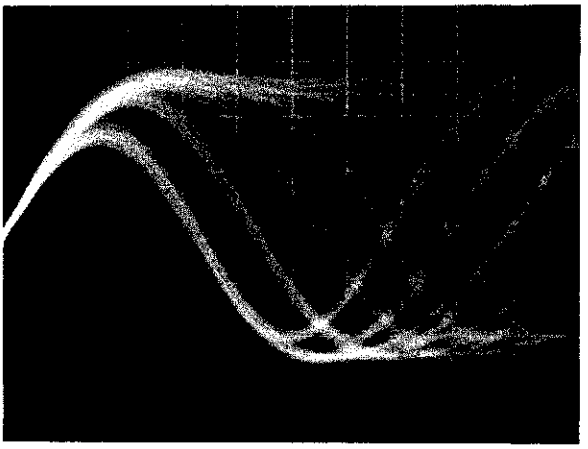
Fig. 12

Adjustment Procedure (with R379 removed)

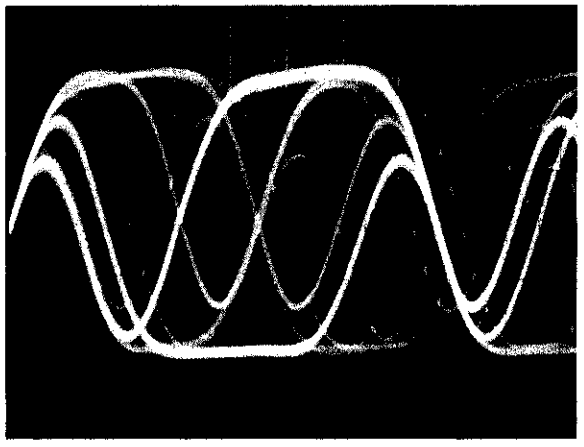
1. Remove R379 (but reconnect after completing adjustment).
2. Play tune TNO 7 in normal mode. (TYPE 3: TNO 23)
3. Check that the valley at the 11T section of the RF waveform is flat.
4. If out of adjustment, readjust to obtain a flat RF waveform. (See Fig. 13-18) Take care not to knock the pick-up with the screwdriver at this stage. (This kind of accident can result in loss of focus.)
5. Switch the power OFF and reconnect R379.
6. Apply "screw-lock" to the tangential adjustment screw.
7. After adjusting tangential skew, also adjust the grating.
8. If tangential skew is seriously out of adjustment, carriage stopping and run-away tend to occur in normal mode. In this case,
   a) Switch to test mode,
   b) Shift the pick-up to signal surface center using [FF] or [TRACK Λ] key.
   c) Press the [RPT] key to close focus.
   d) Press the [V TRACK] key to close tracking.
   e) Observe RFO in respect to VC, and turn the tangential adjustment screw to obtain a flat waveform at the 11T section.
   f) Repeat the adjustment resuming from step 2.



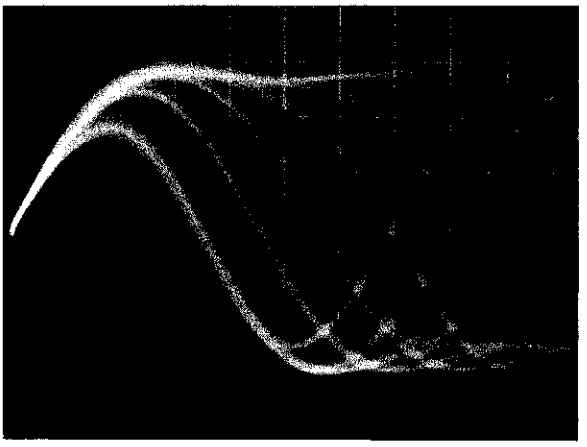
NG Fig. 13



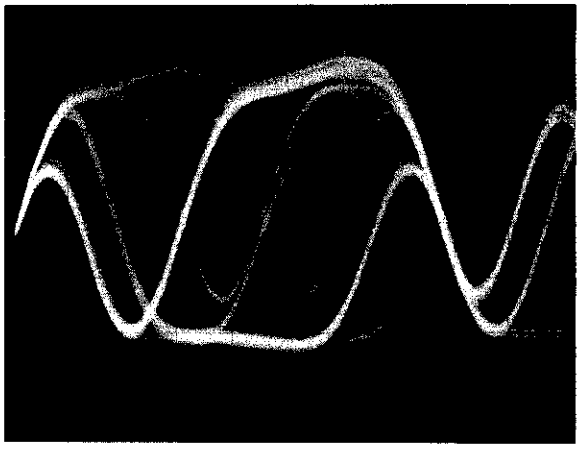
NG Fig. 14



OK Fig. 15

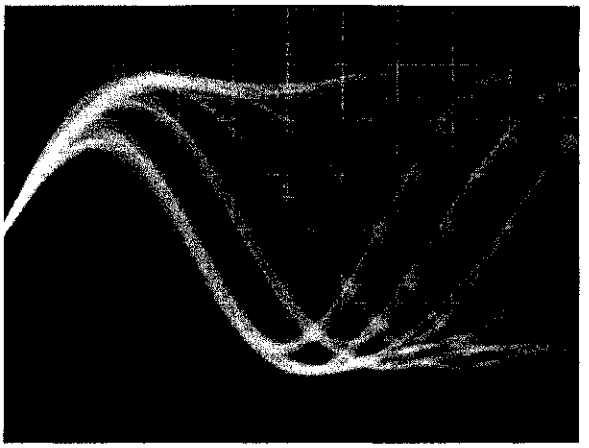


OK Fig. 16



NG Fig. 17

Play tune TN0 7 (TYPE4)

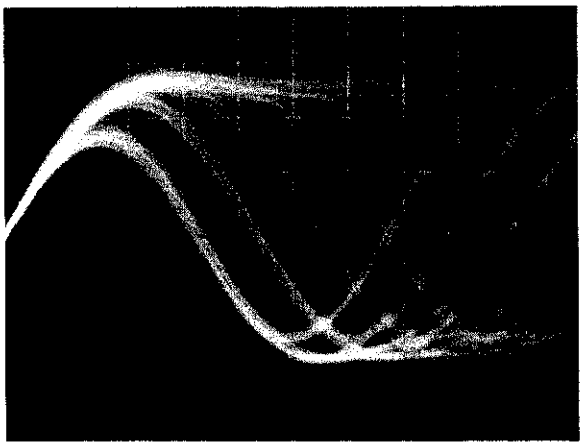


NG Fig. 18

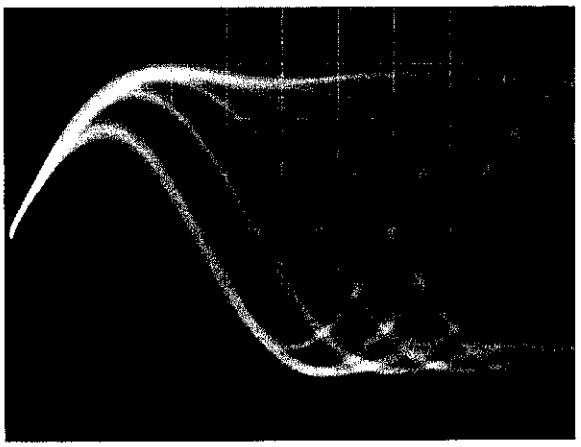
Play tune TN0 12 (TYPE4)

Adjustment Procedure (without R379 removed)

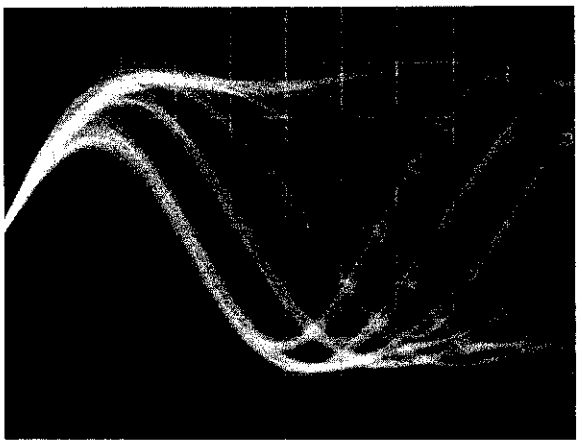
1. Play tune TNO 12 in normal mode. (TYPE 3: TNO 14)
2. Turn the tangential adjustment screw to obtain a good RF waveform eye pattern. Turn the adjustment screw both clockwise and counterclockwise to points where the eye pattern deteriorates, and take the midway point as the adjustment point. As a general guide, look for an overall clear waveform, and one of the diamond shapes in the eye pattern. The diamond shapes should appear in fine lines at the point of optimum adjustment. Take care not to knock the pick-up with the screwdriver at this stage. (This kind of accident can result in loss of focus.) (See Fig. 19-21)
3. Apply "screw-lock" to the tangential adjustment screw.
4. After adjusting tangential skew, also adjust the grating.



NG **Fig. 19**



OK **Fig. 20**



NG **Fig. 21**

1.8 Grating Adjustment

● Purpose: The grating may need adjustment in a replaced pick-up assembly.

● Maladjustment symptoms: No disc playback; track jumping

● Measuring equipment/ jigs ● Measuring point ● Test disc and setting ● Adjustment position	• Oscilloscope, clock driver, grating adjustment filter (bandpass filter) (GGF-133) AC millivoltmeter, two low-pass filters • TEY, E LPF output, F LPF output • SONY TYPE 4 (or TYPE 3) • Test mode • Pick-up grating adjustment hole

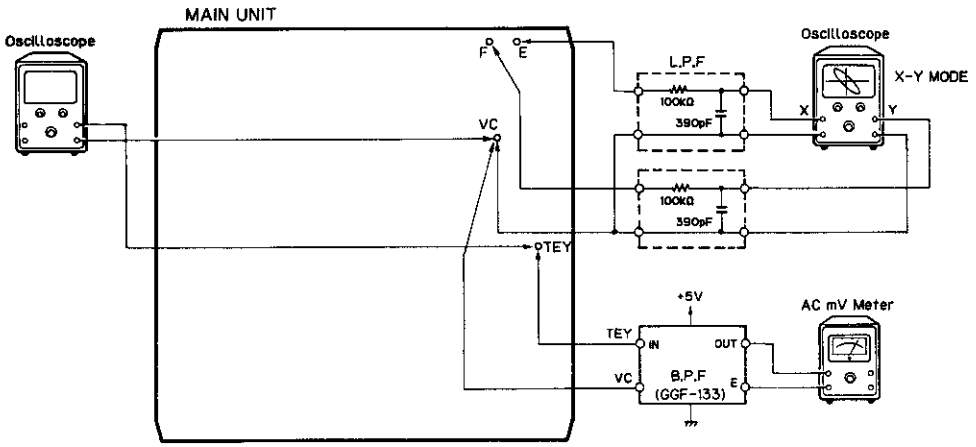


Fig. 22

Adjustment Procedure

1. Connect a low-pass filter (100k, 390p) to test points E, F, and VC as shown in the above diagram.
2. Switch regulator ON in test mode, and load a disc.
3. Press the [RPT] key to close focus.
4. Press the [∨ TRACK] key to close tracking.
5. Using the [FF] or [TRACK ∧] key, move the pick-up to about the center of the signal surface (tune TNO 6). (TYPE 3: TNO 7)
6. Press the [DISC] key to open tracking.
7. While monitoring the TEY filter output by AC milli- voltmeter, turn the grating adjustment hole slowly. The AC voltage increases and decreases while turning the screw. Search for the minimum voltage level. (This corresponds to the position where the grating is on a track, and is referred to as the null point.)
8. Then while monitoring TEY by oscilloscope, turn the driver slowly clockwise from the null point (as seen from under the pick-up) until the first waveform peak amplitude is reached. (See Fig. 24-29)

9. With the E low-pass filter output connected to the X axis of the oscilloscope, and the F low-pass filter output connected to the Y axis, apply an input in AC mode and observe the Lissajous figure.
10. Using the driver, adjust the Lissajous figure to a single line (or as close as possible).
11. Switch regulator OFF and remove the filters.

B.P.F. (GGF-133)

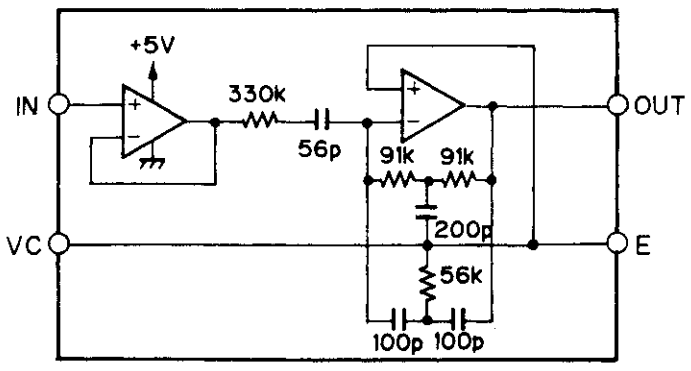


Fig. 23

TEY waveform 10ms/div, 500mV/div

Null Point

Lissajous figure (AC input)
Horizontal axis E 20mV/div
Vertical axis F 20mV/div

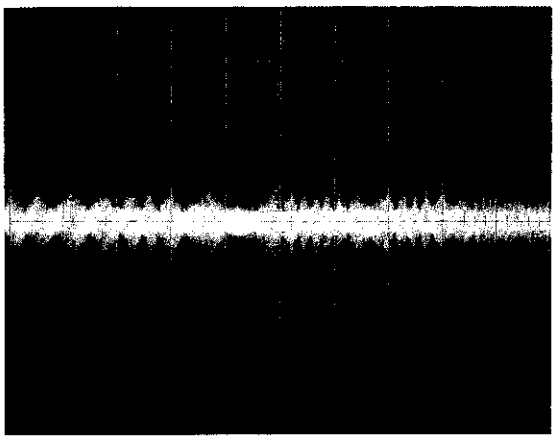


Fig. 24

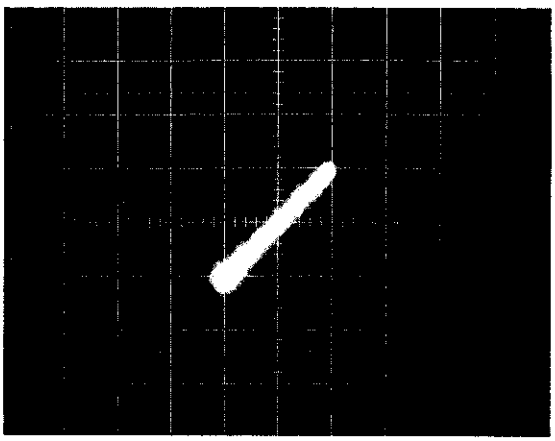


Fig. 25

"Rough" adjustment

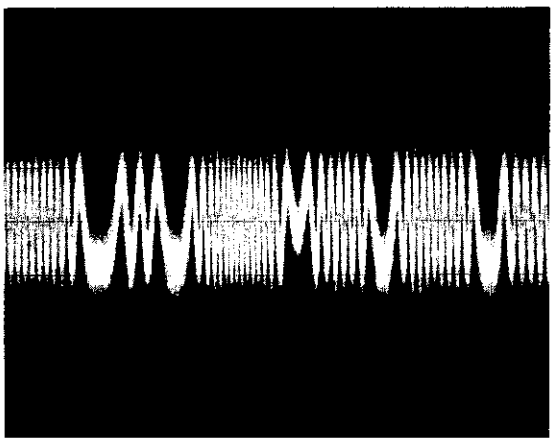


Fig. 26

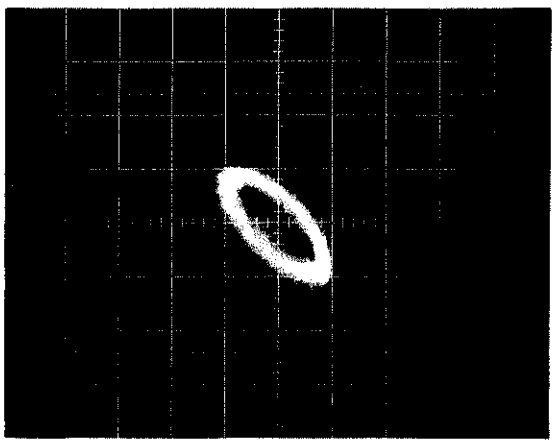


Fig. 27

Final adjustment

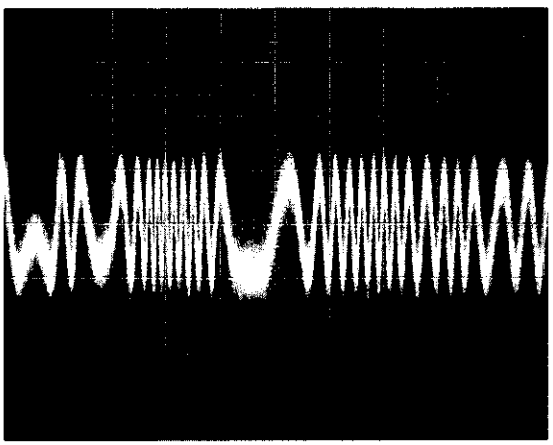


Fig. 28

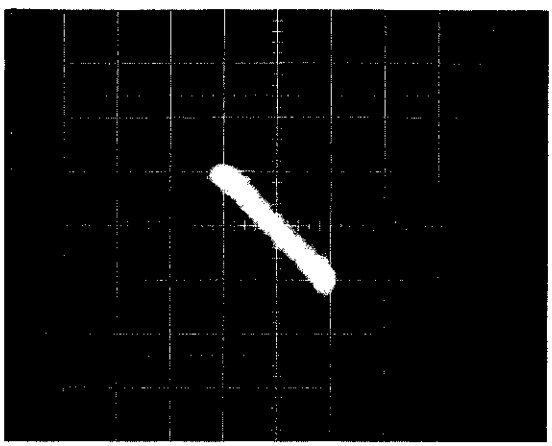


Fig. 29

1.9 Focus Bias Adjustment

● Purpose: To adjust the focus servo bias to an optimum value

● Maladjustment symptoms: Focus closing difficulty, poor playability

● Measuring equipment/ jigs	• Oscilloscope
● Measuring point	• RFO
● Test disc and setting	• SONY TYPE 4 (or TYPE 3) • Normal mode
● Adjustment position	• VR352-1 (FEB)

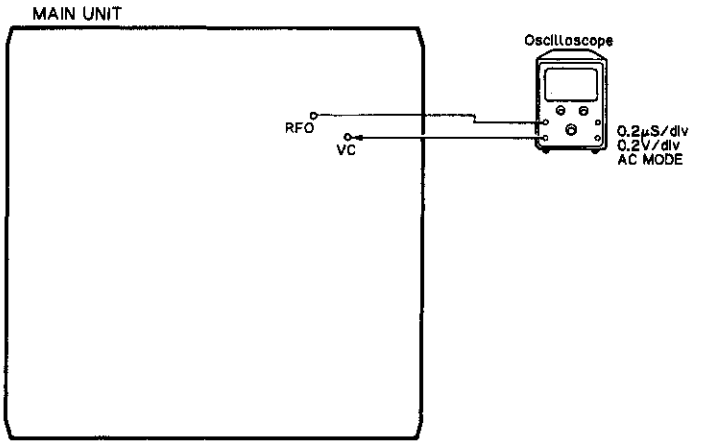
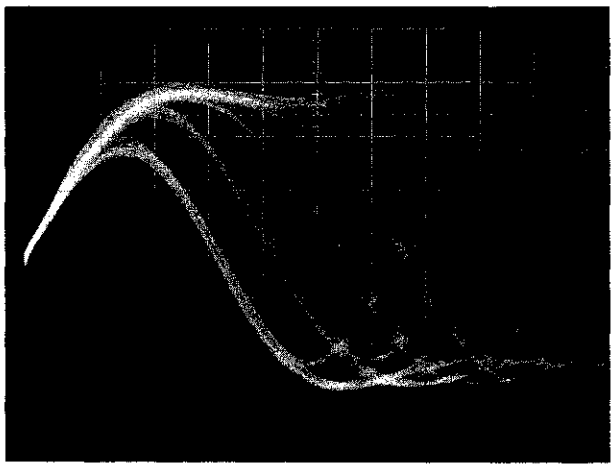


Fig. 30

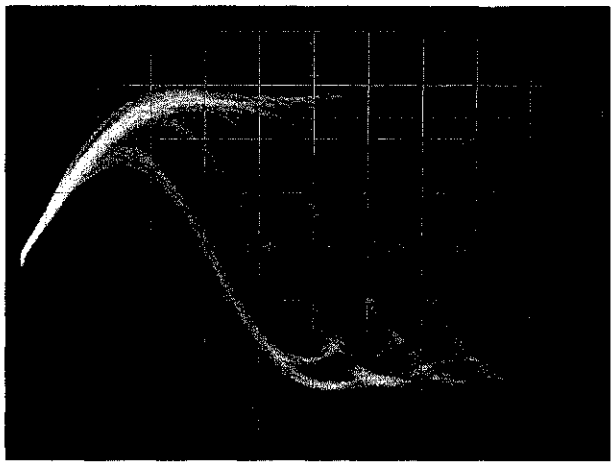
Adjustment Procedure

1. Play tune TNO 12 in normal mode. (TYPE 3: TNO 14)
2. Observe RFO in respect to VC in the oscilloscope, and adjust VR352-1 (FEB) to obtain maximum RF and optimumeye pattern. (See Fig. 31 and 32)



OK

Fig. 31



0.2μs/div.
0.2V/div.
AC Mode

Before adjustment

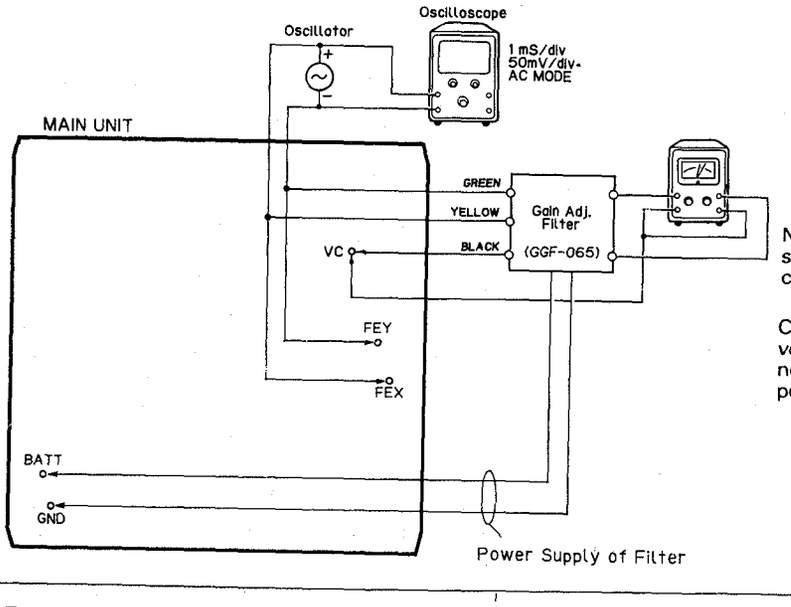
Fig. 32

1.10 Focus Servo Loop Gain Adjustment

● Purpose: To adjust the focus servo loop gain to an optimum value

● Maladjustment symptoms: Poor playability, reduced resistance to vibration, focus closure fails readily

● Measuring equipment/ jigs	• Oscillator, gain adjustment filter (GGF-065), dual meter milli-voltmeter
● Measuring point	• FEX, FEY
● Test disc and setting	• SONY TYPE 4 (or TYPE 3) • Normal mode
● Adjustment position	• VR351-3 (FG)



Note: Leave the negative side of the other oscilloscope channel open.

Connect the negative milli-voltmeter lead to VC, and do not connect VC to the power supply ground.

Fig. 33

Adjustment Procedure

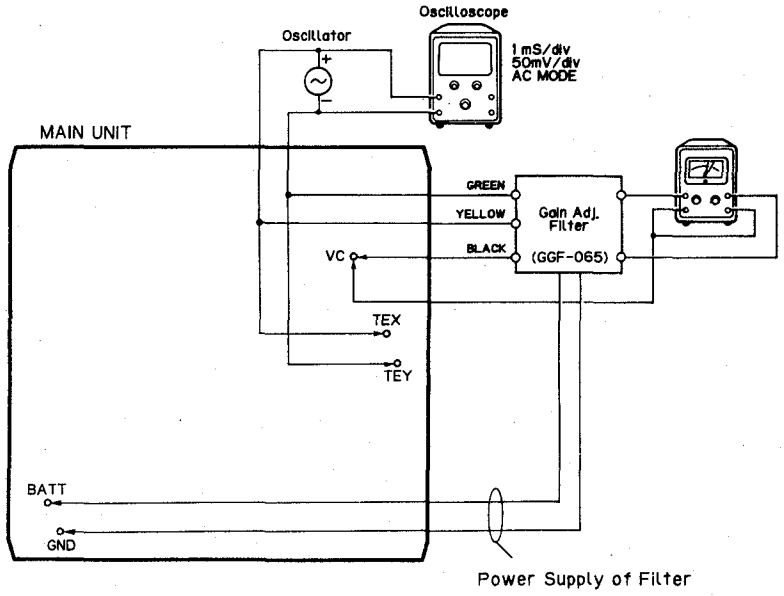
1. After checking that the power is OFF, connect the gain adjustment filter and measuring equipment as shown in the above diagram.
2. Play tune TNO 12 in normal mode. (TYPE 3: TNO 14)
3. Set the oscillator to 1kHz, and observe the FEX/FEY output in the oscilloscope. Adjust the oscillator output to obtain a FEX/FEY output of 100mVp-p.
4. Adjust VR351-3 (FG) to obtain a milli-voltmeter difference of 0 ±0.5dB.

1.11 Tracking Servo Loop Gain Adjustment

● Purpose: To adjust the tracking servo loop gain to an optimum value

● Maladjustment symptoms: Poor playability, reduced resistance to vibration

● Measuring equipment/ jigs	• Oscillator, gain adjustment filter (GGF-065), dual meter milli-voltmeter
● Measuring point	• TEX, TEY
● Test disc and setting	• SONY TYPE 4 (or TYPE 3) • Normal mode
● Adjustment position	• VR351-2 (TG)



Note: Leave the negative side of the other oscilloscope channel open.

Connect the negative milli-voltmeter lead to VC, and do not connect VC to the power supply ground.

Fig. 34

Adjustment Procedure

1. After checking that the power is OFF, connect the gain adjustment filter and measuring equipment as shown in the above diagram.
2. Play tune TNO 12 in normal mode. (TYPE 3: TNO 14)
3. Set the oscillator to 1.4kHz, and observe the TEX/TEY output in the oscilloscope. Adjust the oscillator output to obtain a TEX/TEY output of 100mVp-p.
4. Adjust VR351-2 (TG) to obtain a milli-voltmeter difference of 0 ±0.5dB.

1.12 TE Offset Adjustment - II

● Purpose: To adjust the electrical offset of the tracking servo to zero.

● Maladjustment symptoms: Search times too long, carriage run-away

● Measuring equipment/ jigs	• DC voltmeter
● Measuring point	• TAO low-pass filter output
● Test disc and setting	• Empty magazine • Test mode
● Adjustment position	• VR352-2

Adjustment Procedure

Same as for TE offset adjustment - I, but with the DC voltage of the TAO LPF output adjusted to 0 ± 50mV.
The purpose of this additional adjustment is to correct any deviations generated when carrying out the tracking balance and tracking servo loop gain adjustments after completing TE offset adjustment - I.

1.13 Tracking Balance Adjustment - II

● Purpose: To adjust the tracking servo offset to zero.

● Maladjustment symptoms: Search times too long, poor playability, carriage run-away

● Measuring equipment/ jigs	• Oscilloscope
● Measuring point	• TEY low-pass filter output
● Test disc and setting	• SONY TYPE 4 (or TYPE 3) • Test mode
● Adjustment position	• VR351-1

Adjustment Procedure

Steps 1 thru 5 same as tracking balance adjustment-I.

6. Check that the level difference between the positive and negative amplitudes of the TEY signal is within 5% (See Fig. 9-11). If greater than 5%, adjust with VR351-1.
7. If further adjustment was necessary in step 6, repeat TE offset adjustment -II.

2. BLOCK DIAGRAM

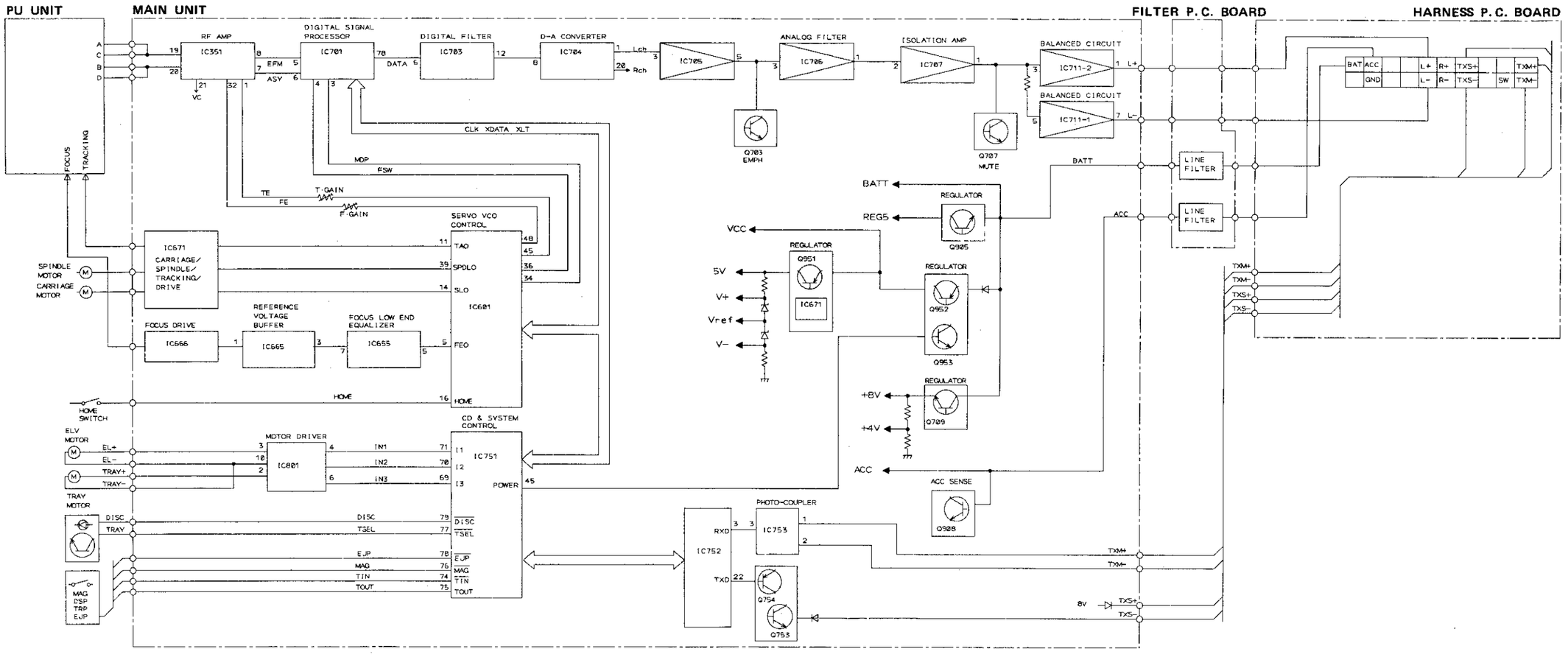
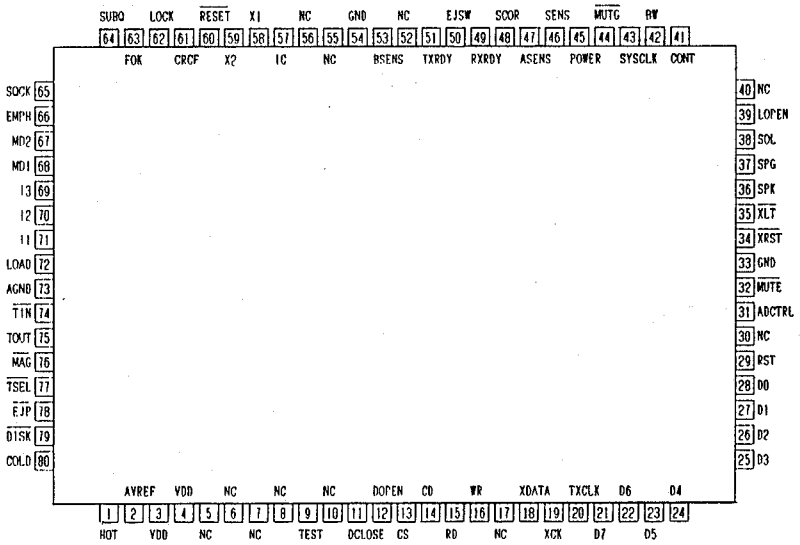


Fig. 35

● ICs

IC751:PD4337A



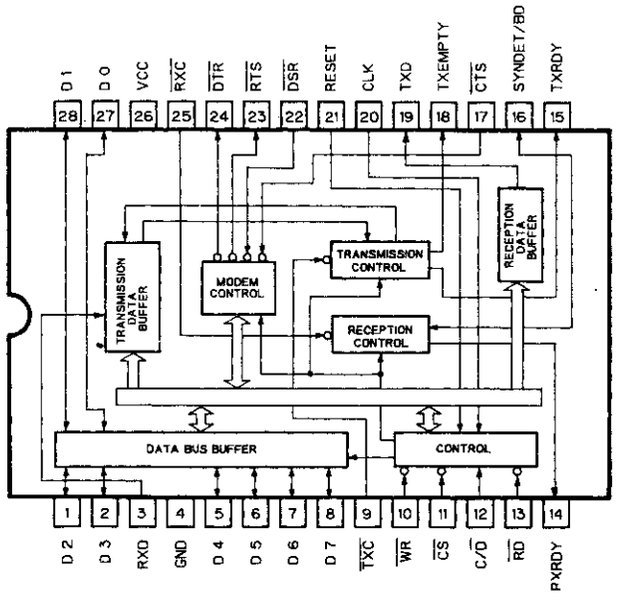
● Pin Functions(PD4337A)

Pin	Pin name	I/O	Output Format	Function
1	HOT	input		High temperature detector
2	AVREF			A/D reference voltage
3	VDD			VDD
4	VDD			VDD
5-8	NC			
9	TEST	input		Unit check mode
10	NC			
11	DCLOSE	input		Door close sense input
12	DOPEN	input		Door open sense input
13	CS	output	C	Chip select for IC752
14	CD	output	C	Command data
15	RD	output	C	Read signal output
16	WR	output	C	Write signal output
17	NC			
18	XDATA	output	C	LSI data
19	XCK	output	C	LSI clock
20	TXCLK	output	C	Transmission clock for IC752
21 | 28	D7 | D0	input/ output	C	Data for IC752
29	RST	output	NH	Reset output for IC752
30, 52	NC			
31	ADCTRL	output	NH	AVref control output
32	$\overline{\text{MUTE}}$	output	NH	Line mute output
33	GND			
34	$\overline{\text{XRST}}$	output	NH	LSI reset
35	$\overline{\text{XLT}}$	output	NH	LSI data latch
36	SPK	output	NH	Spindle kick gain switching
37	SPG	output	NH	Spindle gain switching

Pin	Pin name	I/O	Output Format	Function
38	SOL	output	C	Door open solenoid output
39	LOPEN	output	C	Door open LED output
40	NC			
41	CONT	output	C	Linear driver ON/OFF control output
42	BW	output	C	Spindle drive circuit range switching
43	SYSCLK	output	C	System clock output for IC752
44	$\overline{\text{MUTG}}$	output	C	DSP mute output
45	POWER	output	C	Regurator control output
46	SENS	input		CD LSI internal status monitor input
47	ASENS	input		ACC power supply sensor input
48	SCOR	input		Sub-code synchronization input
49	RXRDY	input		Reception request input pin
50	EJSW	input		Eject switch input
51	TXRDY	input/ output	C	Transmission request input pin
53	BSENS			Back up power supply sensor input
54	GND			
55, 56	NC			
57	IC			Connect to GND
58	X1	input		Oscillator input
59	X2	output		Oscillator output
60	$\overline{\text{RESET}}$			Reset
61	CRCF	input		CR check input
62	LOCK	input		Spindle lock monitor
63	FOK	input		Focus OK
64	SUBQ	input		Sub-code data input
65	SQCK	output	NH	Sub-code clock
66	$\overline{\text{EMPH}}$	output	NH	Emphasis selector output
67	MD2	output	NH	IC701 mode control. Digital output ON/OFF
68	MD1	output	NH	IC701 mode control. Digital output ON/OFF
69 | 71	I3 | I1	output	NH	Loading motor driver control output
72	LOAD	output	NH	CD mechanism power supply on/off
73	AGND			A/D converter GND
74	$\overline{\text{TIN}}$	input		Tray position detector switch 1
75	TOUT	input		Tray position detector switch 2
76	$\overline{\text{MAG}}$	input		Magazine lock switch input
77	$\overline{\text{TSEL}}$	input		Tray position detector photosensor
78	$\overline{\text{EJP}}$			Eject position switch
79	$\overline{\text{DISK}}$			Disc detector input
80	COLD			Low temperature detector

Output Format	Meaning
C	C-MOS
NH	High resistivity N channel open drain

IC752 : MSM82C51A-2GS



3. CONNECTOR FUNCTION DESCRIPTION

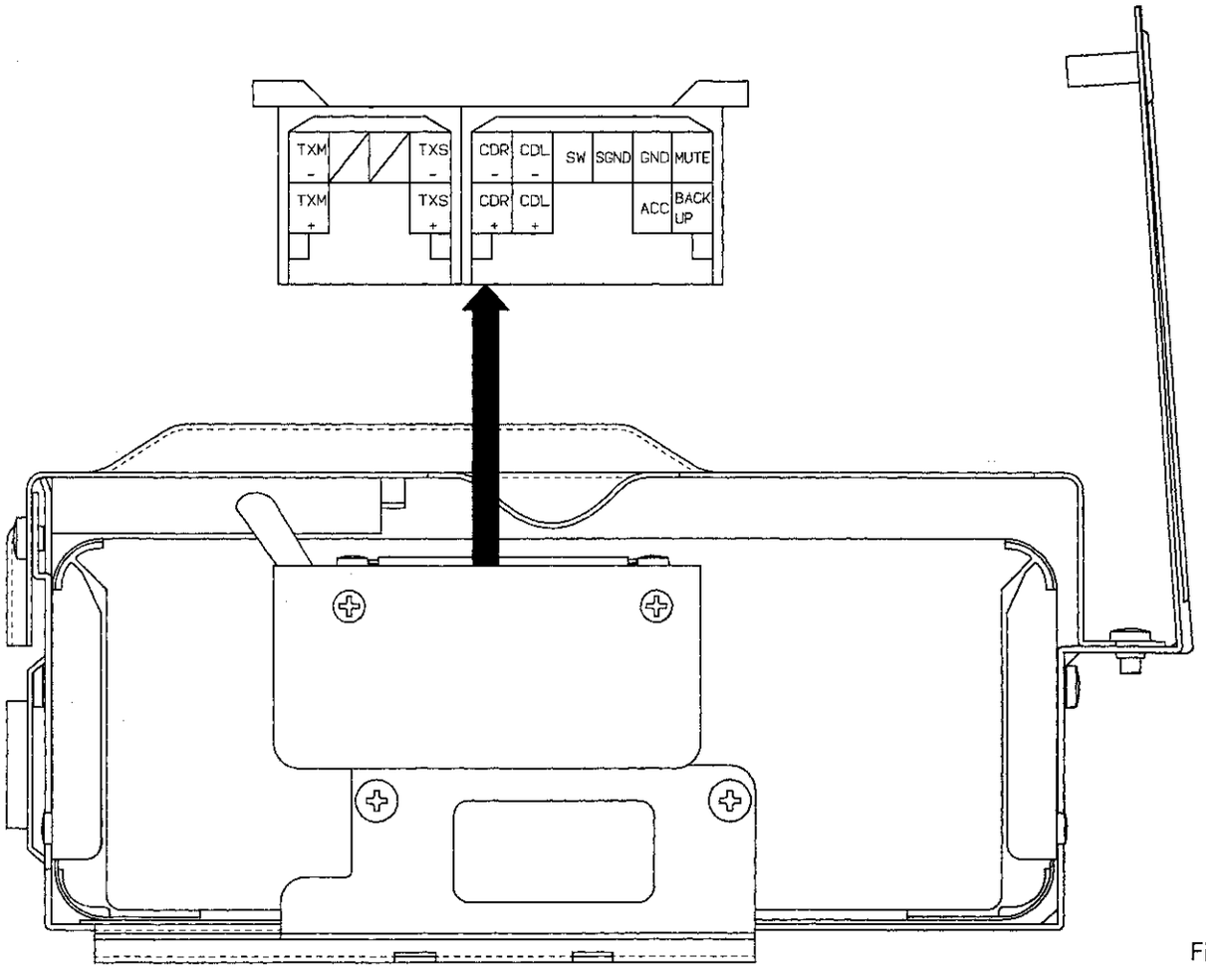
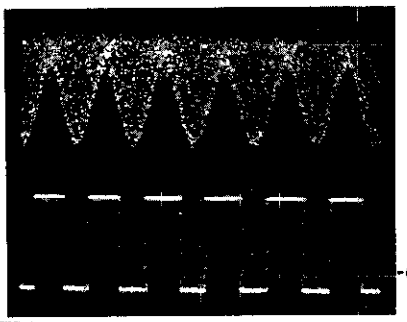


Fig. 36

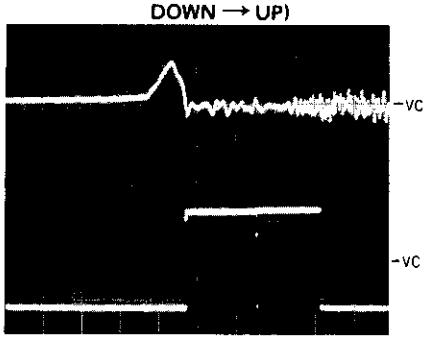
Note: 1. The encircled numbers denote measuring points in the circuit diagram.
2. Reference voltage
G: GND VC: Pin 21 of CXA1081Q (2.5V)

• Wave Forms

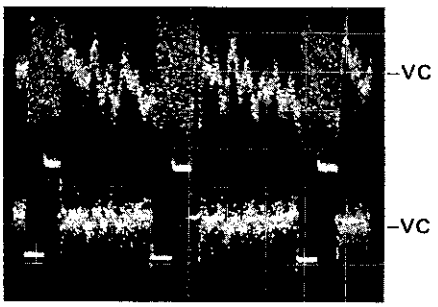
① CH1: RFO 0.4V/div. 0.4ms/div.
② CH2: MIRR 2V/div.
Test mode: Tracking open



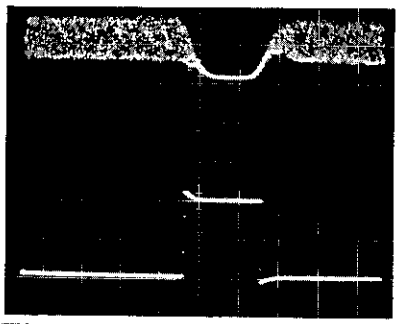
⑦ CH1: FEY 1V/div. 4ms/div.
⑧ CH2: SENS 2V/div.
Normal mode: Focus close (The lens moves DOWN → UP)



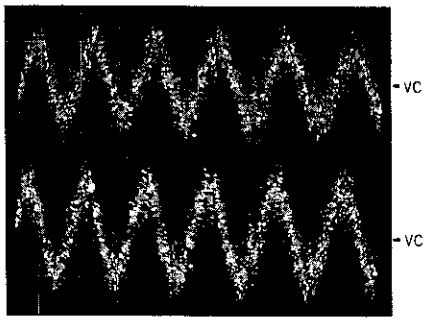
⑨ CH1: TEY 0.4V/div. 4ms/div.
⑪ CH2: TAO 0.4V/div.
Normal mode: Track search (80 track jump)



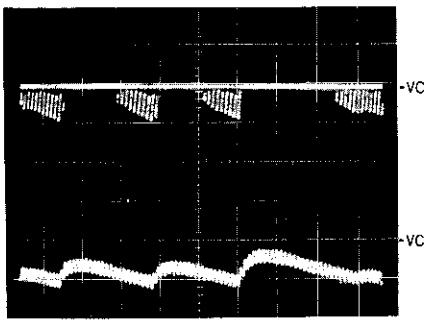
① CH1: RFO 1V/div. 0.4ms/div.
③ CH2: DFCT 2V/div.
Normal mode: The defect part passes 800μm.



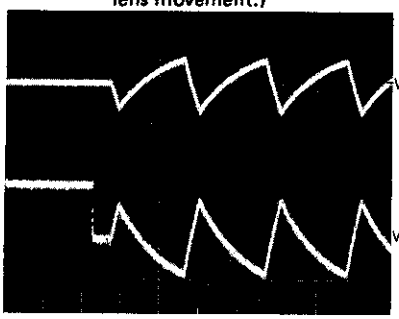
⑨ CH1: TEY 0.4V/div. 0.4ms/div.
⑩ CH2: TZC 0.4V/div.
Test mode: Tracking open



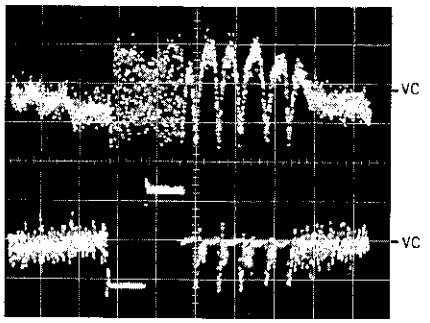
⑫ CH1: SLO 0.4V/div. 2S/div.
⑬ CH2: ATSC 0.02V/div.
Normal mode: PLAY



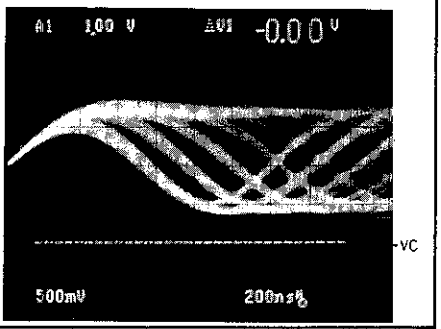
④ CH1: FEO 0.2V/div. 0.4S/div.
⑤ CH2: Pin 7 of CXA1082BQ 0.1V/div.
Test mode: Connect the FOK2 to GND. Focus search is performed. (CH1 is the same phase as the lens movement.)



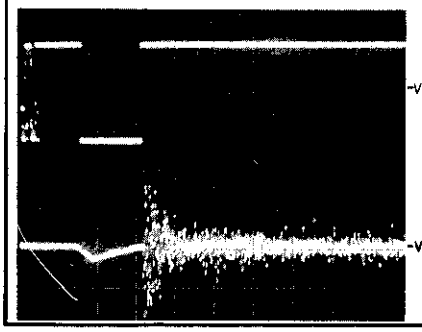
⑨ CH1: TEY 0.4V/div. 2ms/div.
⑪ CH2: TAO 0.4V/div.
Normal mode: Brake wave form when track search is performed.



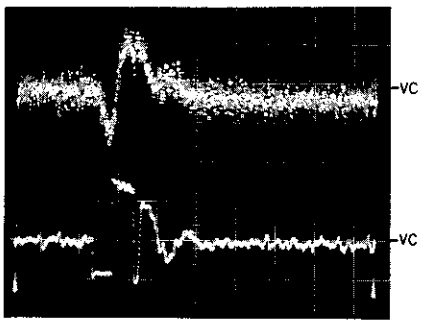
① RFO 0.5V/div. 200ns/div.
Normal mode: PLAY



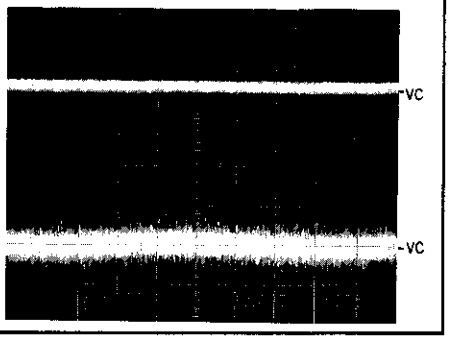
⑥ CH1: FOK2 2V/div. 0.2S/div.
④ CH2: FEO 0.4V/div.
Normal mode: Focus close



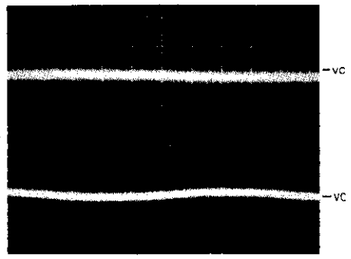
⑨ CH1: TEY 0.4V/div. 0.4ms/div.
⑪ CH2: TAO 0.4V/div.
Test mode: Single jump



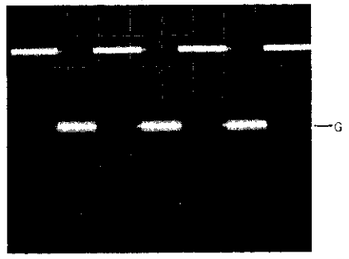
⑦ CH1: FEY 0.5V/div. 20ms/div.
⑭ CH2: FEO2 0.5V/div.
Normal mode: PLAY



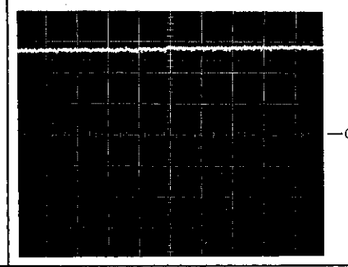
⑨ CH1: TEY 0.5V/div.
⑪ CH2: TAO 0.5V/div. 20ms/div.
Normal mode: PLAY



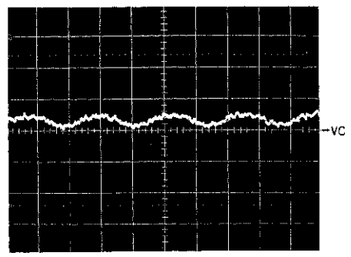
⑰ MDS 2V/div. 50μs/div.
PLAY



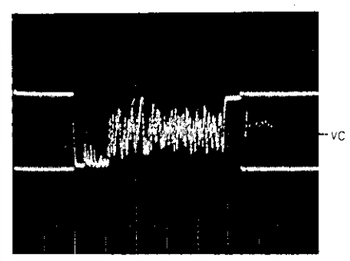
⑲ GFS 2V/div. 200μs/div.
PLAY



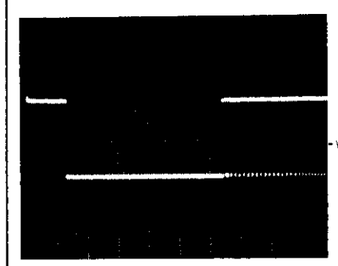
⑮ SPDLO 2V/div. 50ms/div.
PLAY



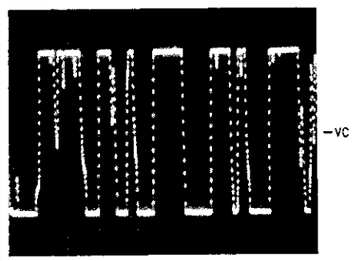
⑰ MDS 2V/div. 0.4S/div.
TRACK COUNT SEARCH



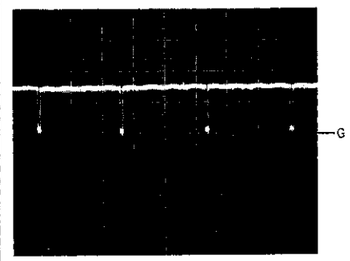
⑲ GFS 2V/div. 0.4S/div.
TRACK COUNT SEARCH



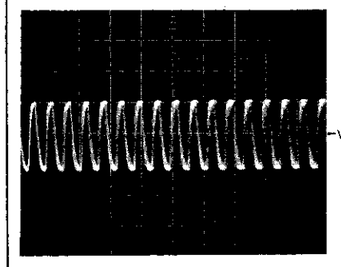
⑮ SPDLO 2V/div. 40ms/div.
12cm DISC TRACK COUNT SEARCH



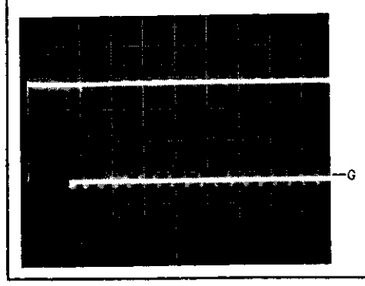
⑱ MDP 2V/div. 200μs/div.
PLAY



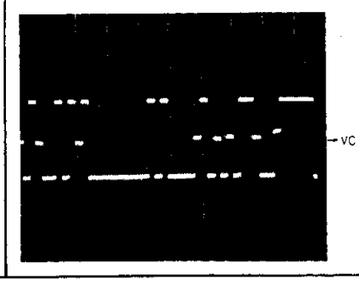
⑳ VCOO 2V/div. 0.2μs/div.
PLAY



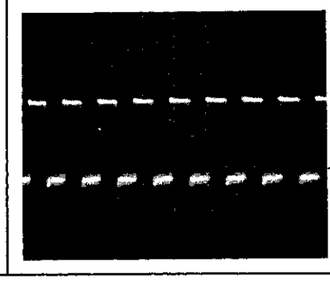
⑯ EFM 2V/div. 0.5μs/div.
PLAY



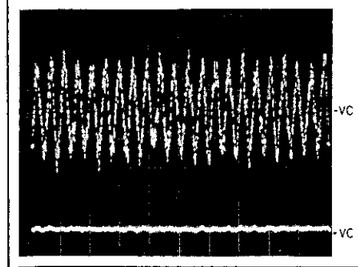
⑱ MDP 2V/div. 10ms/div.
TRACK COUNT SEARCH



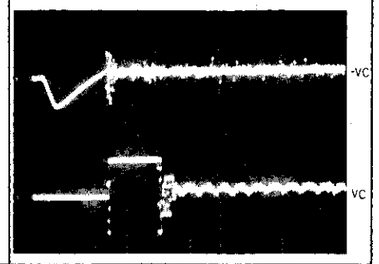
㉑ PLCK 2V/div. 0.2μs/div.
PLAY



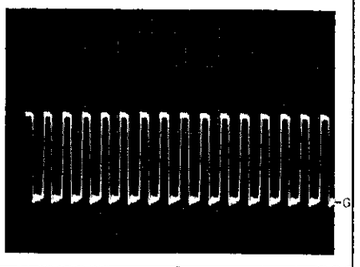
⑨CH1 : TEY 0.4V/div. 0.2ms/div.
⑪CH2 : TAO 0.4V/div.
TRACK COUNT SEARCH



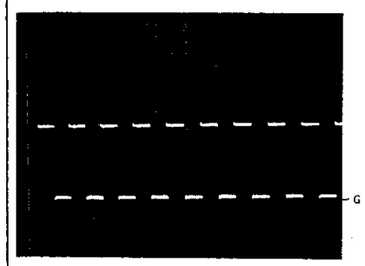
⑭CH1 : FEO2 1V/div. 0.2S/div
⑮CH2 : SPDLO 1V/div.
After 8cm disc loaded



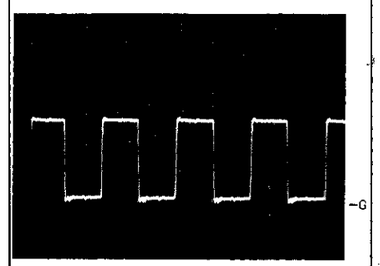
㉗BCLK2(IC704 Pin 9)
2V/div. 0.2μs/div.



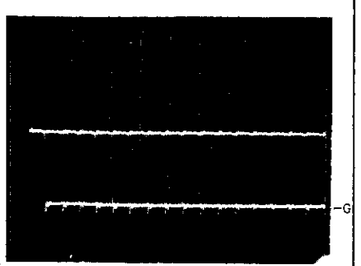
㉙LRCK(IC704 Pin 6)
2V/div.5μs/div.



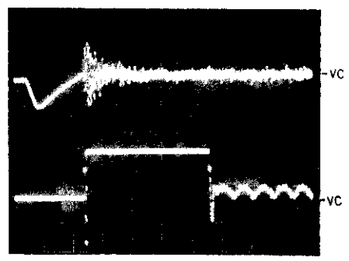
㉓BCLK1(IC703 Pin 7)
2V/div. 0.2μs/div.



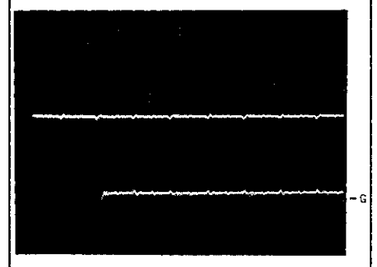
㉘DATA2(IC704 Pin 8)
2V/div. 0.2μs/div.



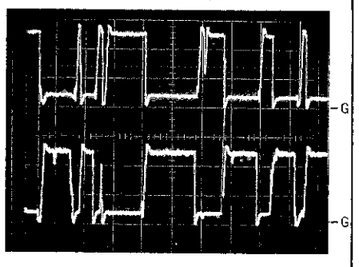
⑭CH1 : FEO2 1V/div.
⑮CH2 : SPDLO 1V/div. 0.2S/div.
After 12cm disc loaded



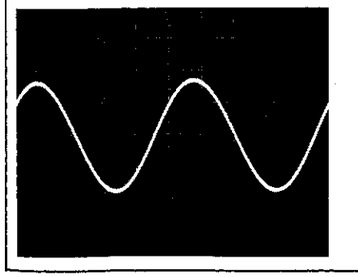
㉕DATA1(IC703 Pin 6)
2V/div. 0.2μs/div.



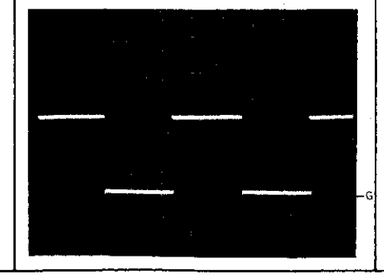
㉚ CH1: S+
㉛ CH2: S− 2V/div. 20ms/div
Test mode: Focus close
tracking Open



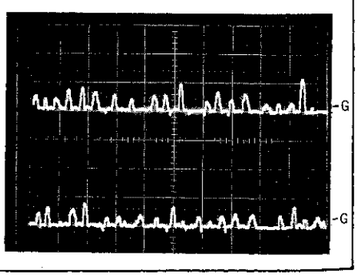
㉒L or R out 0.5V/div. 0.2ms/div.
PLAY(When 1kHz FS)



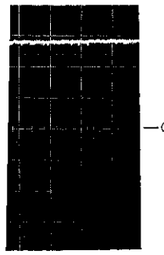
㉖LRCK1(IC703 Pin 5)
2V/div. 5μs/div.



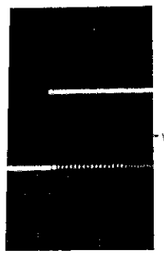
㉜ CH1: T+
㉝ CH2: T− 1V/div. 0.2ms/div.
Normal mode: PLAY



v.
/div.

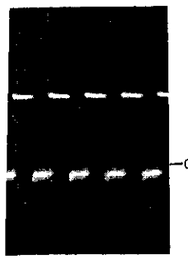


liv.
/div.
IT SEARCH

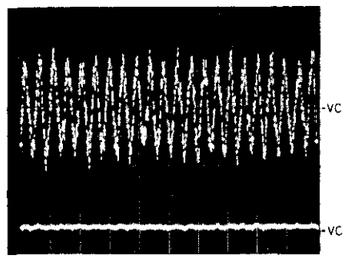


div.
us/div.

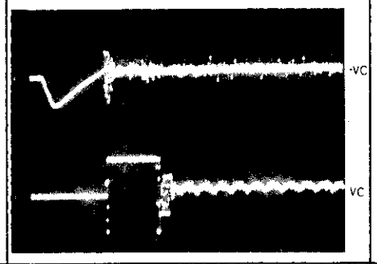
/div.
2μs/div.



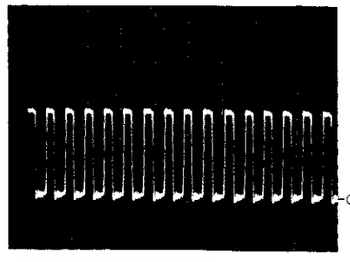
⑨CH1 : TEY 0.4V/div.
⑪CH2 : TAO 0.4V/div. 0.2ms/div.
TRACK COUNT SEARCH



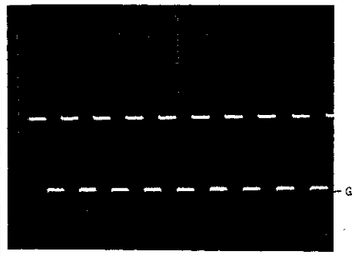
⑭CH1 : FEO2 1V/div. 0.2S/div
⑮CH2 : SPDLO 1V/div.
After 8cm disc loaded



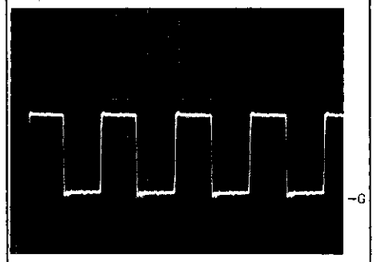
㉗ BCLK2(IC704 Pin 9)
2V/div. 0.2μs/div.



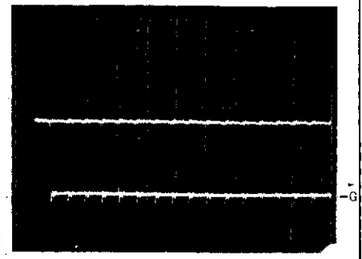
㉙ LRCK(IC704 Pin 6)
2V/div. 5μs/div.



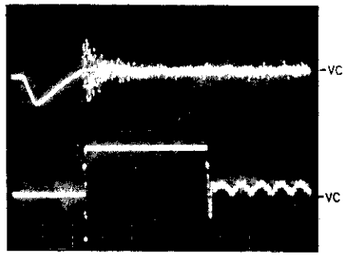
㉓ BCLK1(IC703 Pin 7)
2V/div. 0.2μs/div.



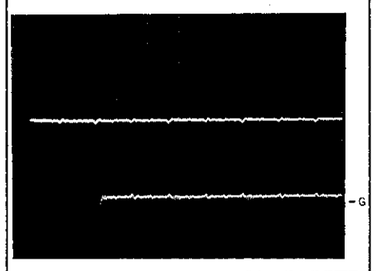
㉘ DATA2(IC704 Pin 8)
2V/div. 0.2μs/div.



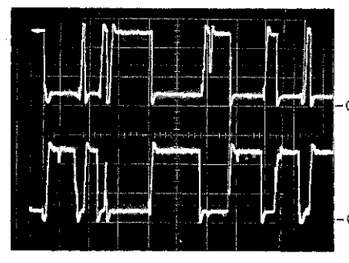
⑭CH1 : FEO2 1V/div.
⑮CH2 : SPDLO 1V/div. 0.2S/div.
After 12cm disc loaded



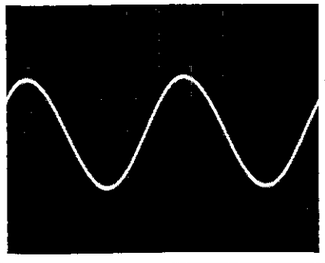
㉕ DATA1(IC703 Pin 6)
2V/div. 0.2μs/div.



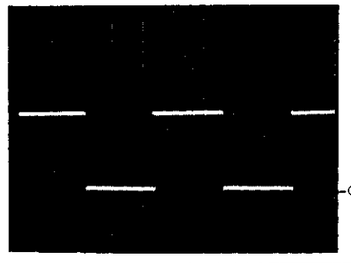
㉚ CH1: S+
㉛ CH2: S− 2V/div. 20ms/div
Test mode: Focus close
tracking Open



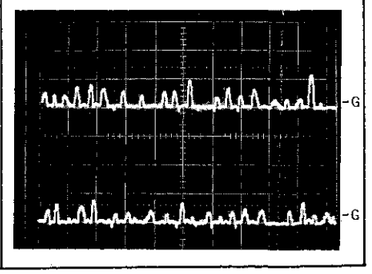
㉔ L or R out 0.5V/div. 0.2ms/div.
PLAY(When 1kHz FS)



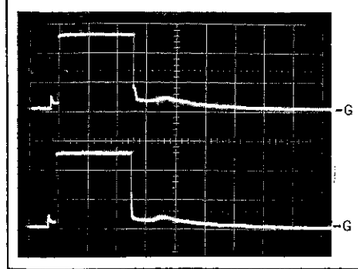
㉖ LRCK1(IC703 Pin 5)
2V/div. 5μs/div.



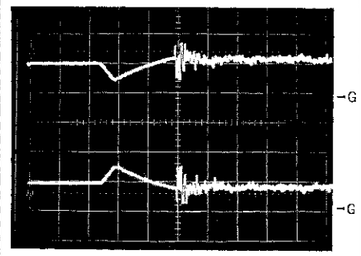
㉜ CH1: T+
㉝ CH2: T− 1V/div. 0.2ms/div.
Normal mode: PLAY



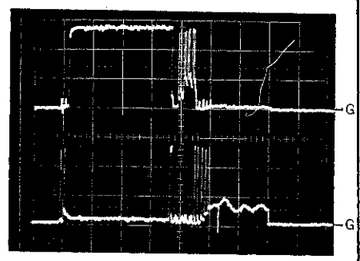
㉞ CH1: F+ 2V/div. 0.5S/div.
㉟ CH2: F−
Regulator ON/OFF



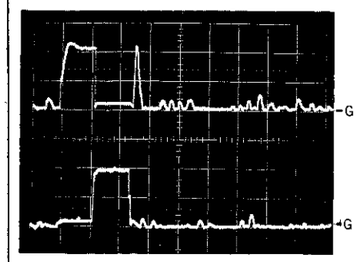
㉞ CH1: F+ 5V/div. 0.2S/div.
㉟ CH2: F−
Focus close



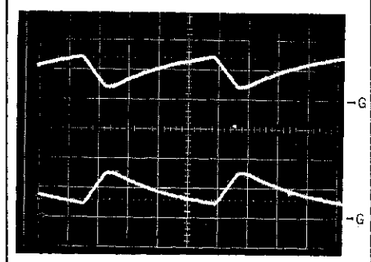
㊱ CH1: C+ 2V/div. 0.5S/div.
㊲ CH2: C−
Normal mode: TNO1→TNO23 jump



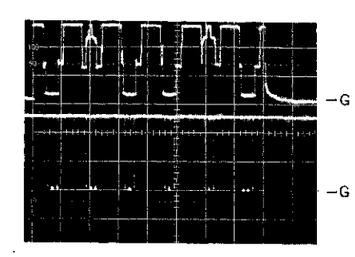
㉜ CH1: T+
㉝ CH2: T− 2V/div. 0.2ms/div.
Single jump forward



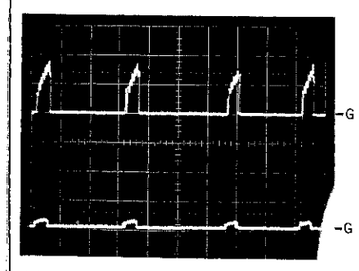
㉞ CH1: F+ 5V/div. 0.2S/div.
㉟ CH2: F−
Search



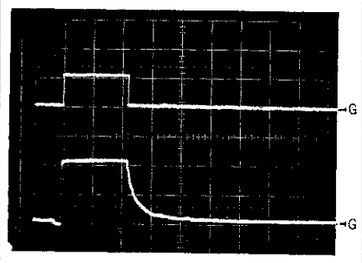
㊵ CH1: DISC 2V/div. 20ms/div.
㊶ CH2: TIN
Tray 1, 3, 4, 6: DISC (12cm DISC)
Tray 2, 5 : NO DISC



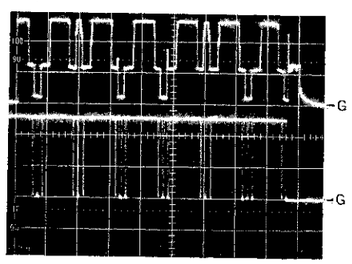
㊱ CH1: C+
㊲ CH2: C− 1V/div. 2S/div.
Normal PLAY



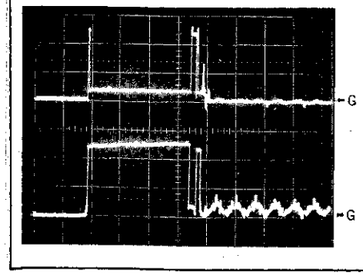
㊳ CH1: CONT 5V/div. 0.5S/div.
㊴ CH2: VD
Normal mode: Power ON/OFF



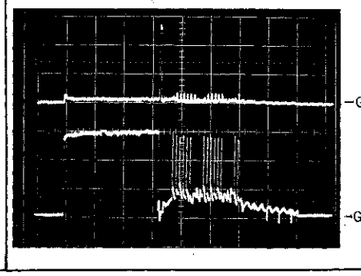
㊵ CH1: DISC 2V/div. 20ms/div.
㊶ CH2: TIN
Tray 1, 3, 4, 6: DISC (8cm DISC)
Tray 2,5 : NO DISC



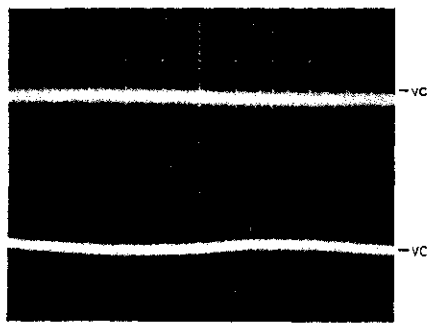
㉚ CH1: S+
㉛ CH2: S− 2V/div. 0.2S/div.
Normal mode: Power ON



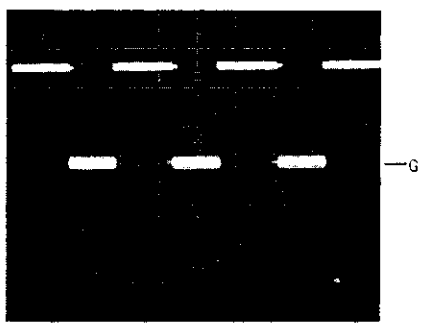
㊱ CH1: C+ 2V/div. 0.5S/div.
㊲ CH2: C−
Normal mode: TNO23→TNO1 jump



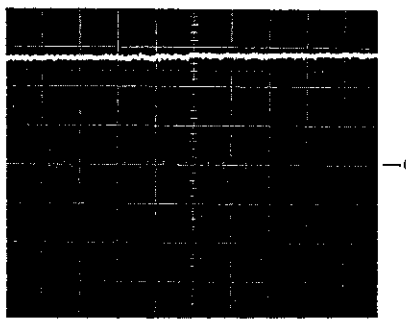
⑨ CH1: TEY 0.5V/div. 20ms/div.
⑪ CH2: TAO 0.5V/div.
Normal mode: PLAY



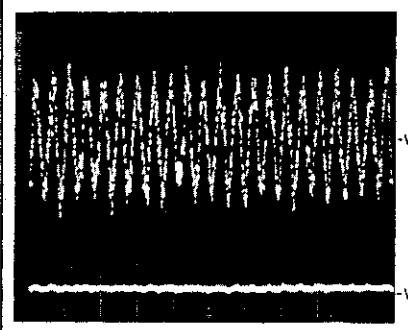
⑰ MDS 2V/div. 50μs/div.
PLAY



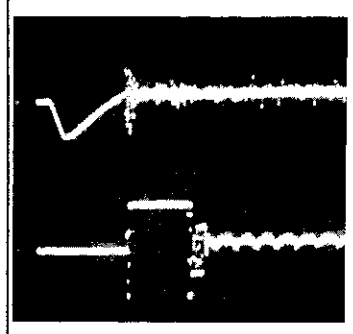
⑲ GFS 2V/div. 200μs/div.
PLAY



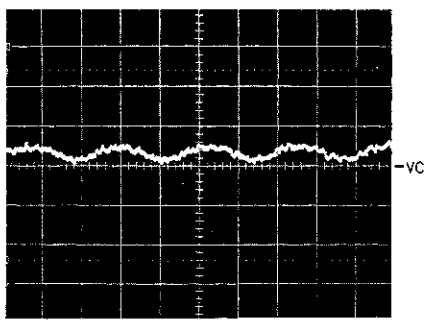
⑨CH1 : TEY 0.4V/div. 0.2ms/div.
⑪CH2 : TAO 0.4V/div.
TRACK COUNT SEARCH



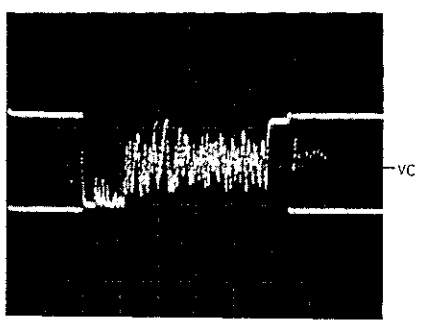
⑭CH1 : FEO2 1V/div. 0.2S/div
⑮CH2 : SPDLO 1V/div.
After 8cm disc loaded



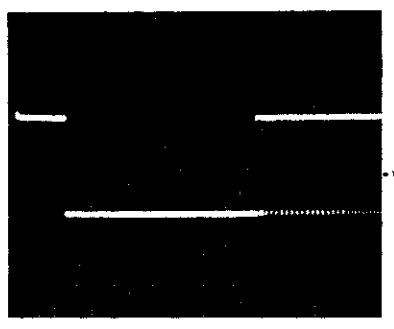
⑮ SPDLO 2V/div. 50ms/div.
PLAY



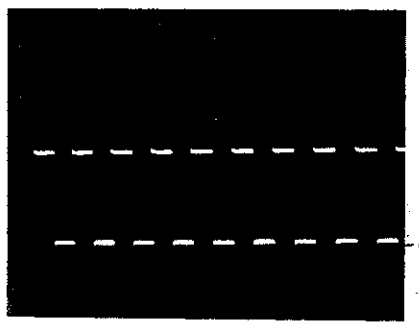
⑰ MDS 2V/div. 0.4S/div.
TRACK COUNT SEARCH



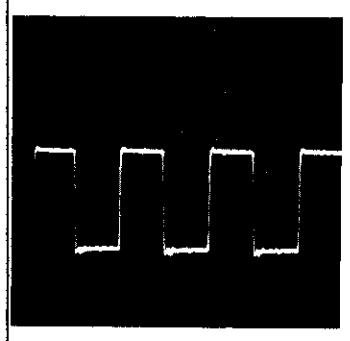
⑲ GFS 2V/div. 0.4S/div.
TRACK COUNT SEARCH



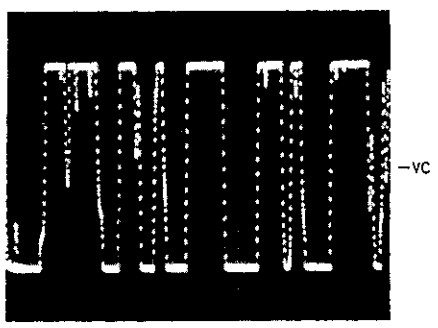
㉙LRCK(IC704 Pin 6)
2V/div. 5μs/div.



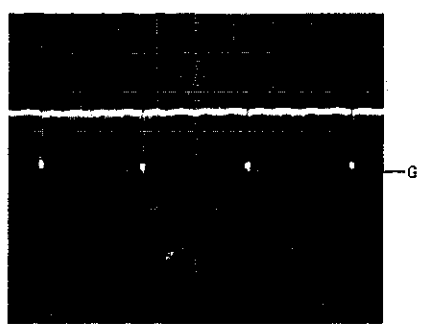
㉓BCLK1(IC703 Pin 7)
2V/div. 0.2μs/div.



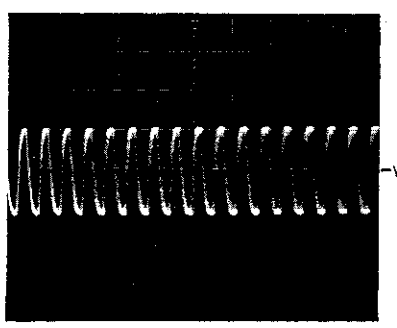
⑮ SPDLO 2V/div. 40ms/div.
12cm DISC TRACK COUNT SEARCH



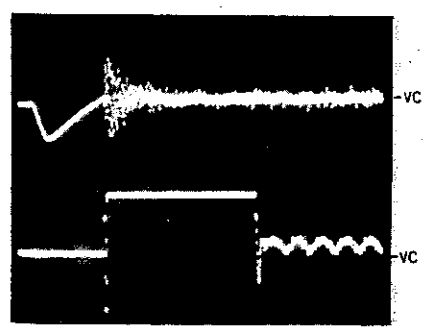
⑱ MDP 2V/div. 200μs/div.
PLAY



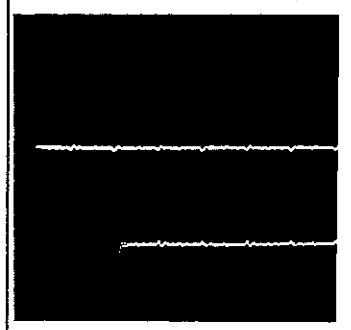
⑳ VCOO 2V/div. 0.2μs/div.
PLAY



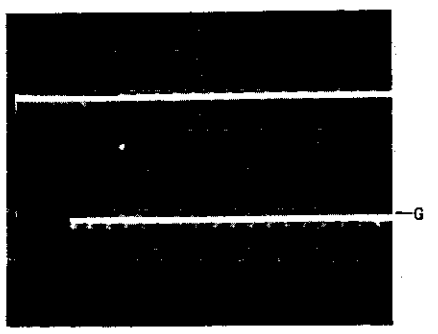
⑭CH1 : FEO2 1V/div. 0.2S/div.
⑮CH2 : SPDLO 1V/div.
After 12cm disc loaded



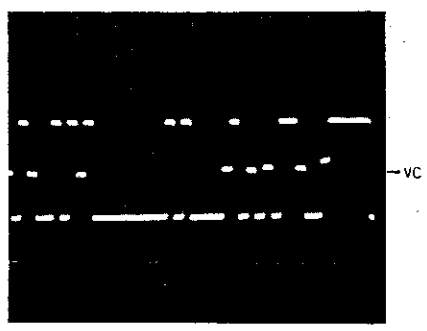
㉕DATA1(IC703 Pin 6)
2V/div. 0.2μs/div.



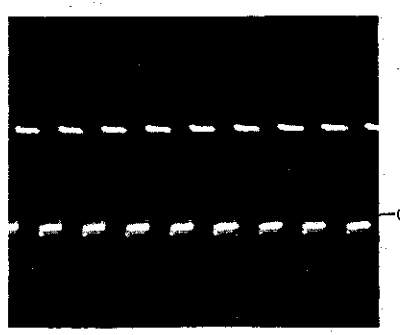
⑯ EFM 2V/div. 0.5μs/div.
PLAY



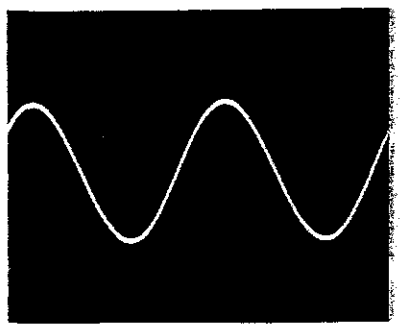
⑱ MDP 2V/div. 10ms/div.
TRACK COUNT SEARCH



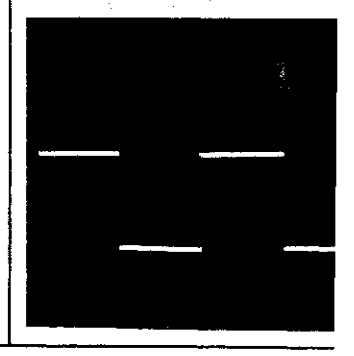
㉑ PLCK 2V/div. 0.2μs/div.
PLAY



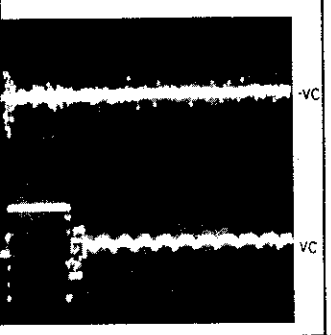
㉔L or R out 0.5V/div. 0.2ms/div.
PLAY(When 1kHz FS)



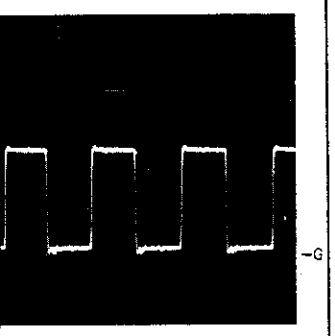
㉖LRCK1(IC703 Pin 5)
2V/div. 5μs/div.



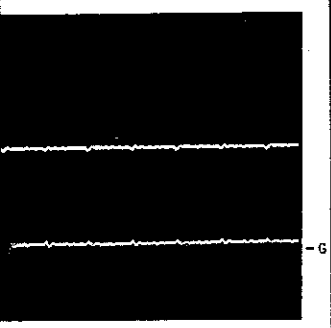
O2 1V/div. 0.2S/div
DLO 1V/div.
8cm disc loaded



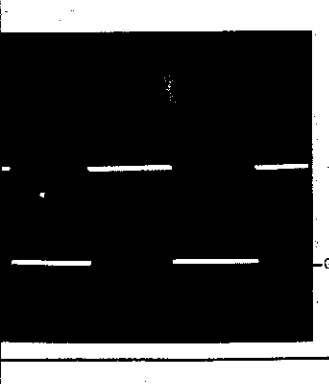
IC703 Pin 7)
0.2μs/div.



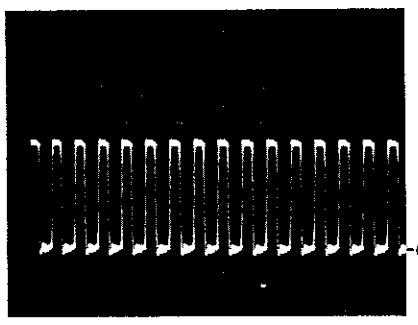
(IC703 Pin 6)
0.2μs/div.



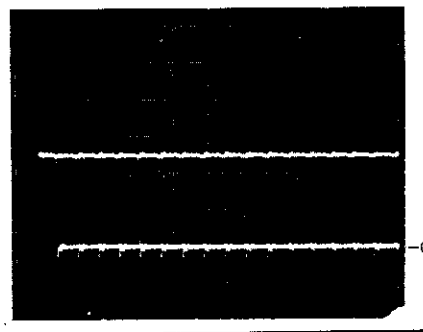
(IC703 Pin 5)
5μs/div.



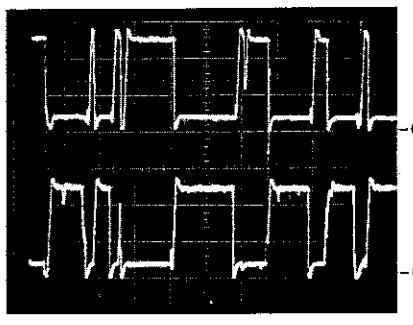
㉙ BCLK2(IC704 Pin 9)
2V/div. 0.2μs/div.



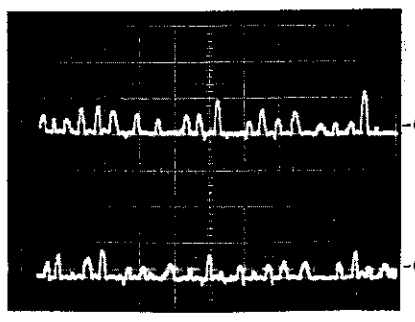
㉘ DATA2(IC704 Pin 8)
2V/div. 0.2μs/div.



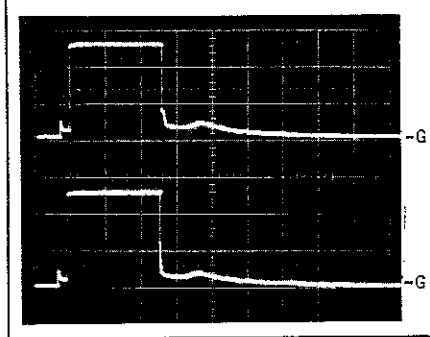
㉚ CH1: S+
㉛ CH2: S− 2V/div. 20ms/div
Test mode: Focus close
tracking Open



㉜ CH1: T+
㉝ CH2: T− 1V/div. 0.2ms/div.
Normal mode: PLAY

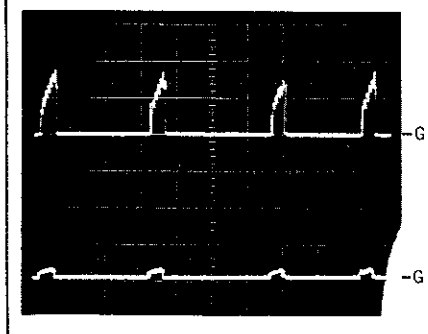


㉞ CH1: F+
㉟ CH2: F− 2V/div. 0.5S/div.
Regulator ON/OFF

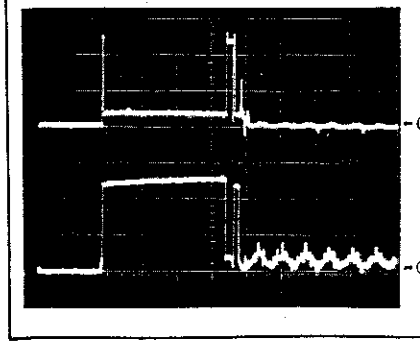


㉜ CH1: T+
㉝ CH2: T− 2V/div. 0.2ms/div.
Single jump forward

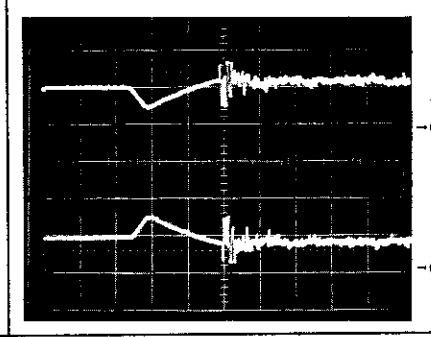
㊱ CH1: C+
㊲ CH2: C− 1V/div. 2S/div.
Normal PLAY



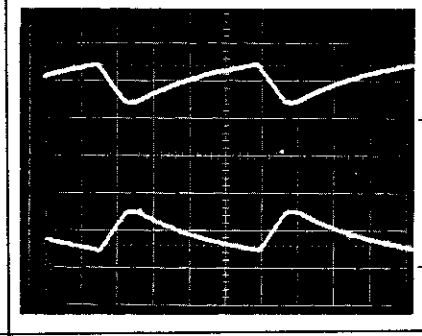
㉚ CH1: S+
㉛ CH2: S− 2V/div. 0.2S/div.
Normal mode: Power ON



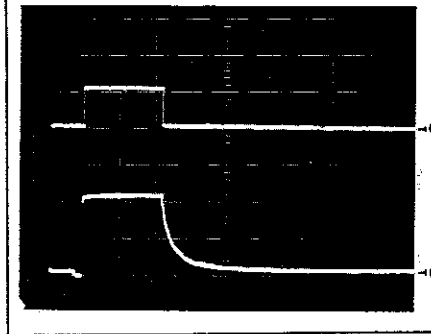
㉞ CH1: F+
㉟ CH2: F− 5V/div. 0.2S/div.
Focus close



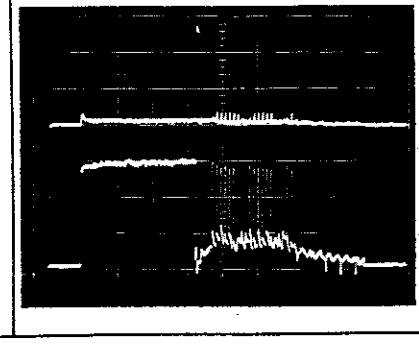
㉞ CH1: F+
㉟ CH2: F− 5V/div. 0.2S/div.
Search



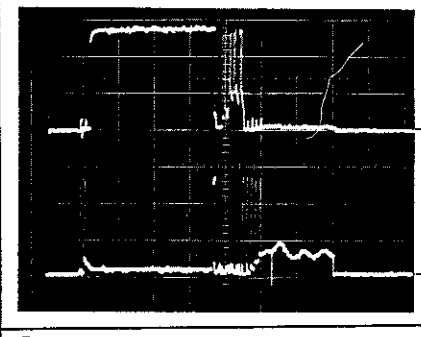
㊳ CH1: CONT
㊴ CH2: VD 5V/div. 0.5S/div.
Normal mode: Power ON/OFF



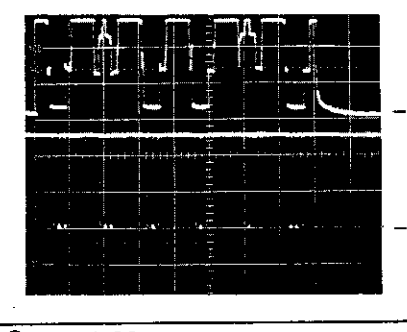
㊱ CH1: C+
㊲ CH2: C− 2V/div. 0.5S/div.
Normal mode: TNO23→TNO1 jump



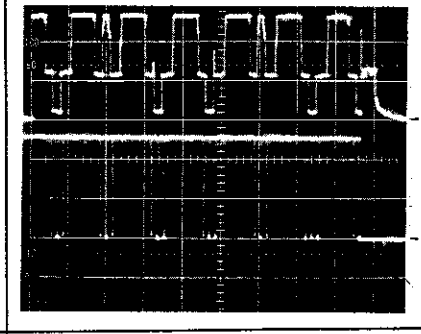
㊱ CH1: C+
㊲ CH2: C− 2V/div. 0.5S/div.
Normal mode: TNO1→TNO23 jump



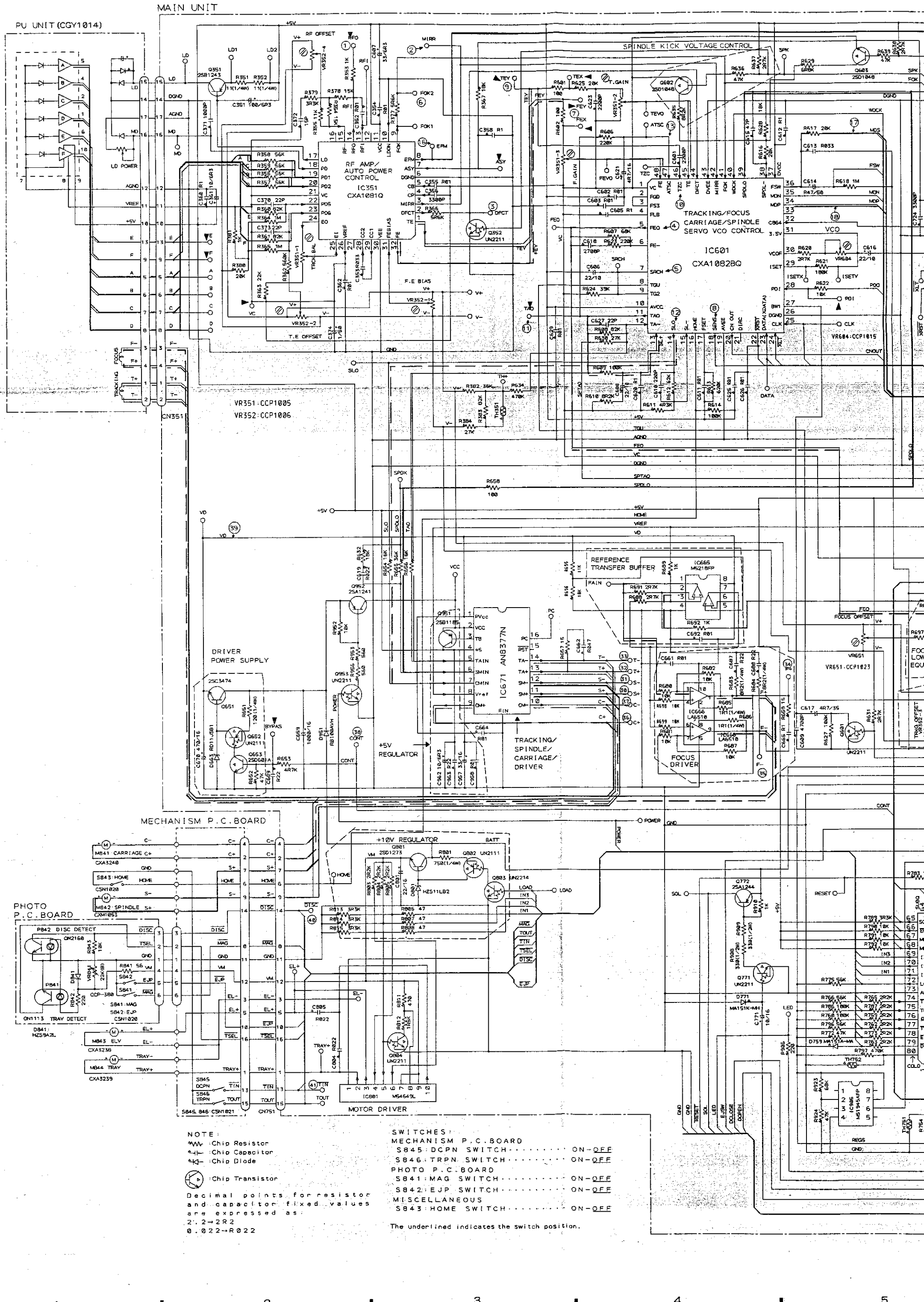
㊵ CH1: DISC
㊶ CH2: TIN 2V/div. 20ms/div.
Tray 1, 3, 4, 6: DISC (12cm DISC)
Tray 2, 5 : NO DISC



㊵ CH1: DISC
㊶ CH2: TIN 2V/div. 20ms/div.
Tray 1, 3, 4, 6: DISC (8cm DISC)
Tray 2,5 : NO DISC



4. SCHEMATIC CIRCUIT DIAGRAM (1)



NOTE:
- :Chip Resistor
- :Chip Capacitor
- :Chip Diode
- :Chip Transistor

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

SWITCHES:

MECHANISM P.C.BOARD
- S845:DCPN SWITCH ..... ON-OFF
- S846:TRPN SWITCH ..... ON-OFF

PHOTO P.C.BOARD
- S841:MAG SWITCH ..... ON-OFF
- S842:EJP SWITCH ..... ON-OFF

MISCELLANEOUS
- S843:HOME SWITCH ..... ON-OFF

The underlined indicates the switch position.

SIGNAL LINE
FOCUS SERVO LINE
TRACKING SERVO LINE
SLEDGE SERVO LINE
SPINDLE SERVO LINE

TO FILTER P.C.BOARD CN971

TO FILTER P.C.BOARD CN970

ISOLATION AMP

ANALOG FILTER

DIGITAL FILTER

D-A CONVERTER

IC701 CXD1167Q DIGITAL SIGNAL PROCESSOR

IC751 PD4337A SYSTEM CONTROLLER

IC752 MSM82C51A-2GS

+5V REGULATOR

+8V REGULATOR

BALANCED CIRCUIT

PHOTO-COUPLER

TRACKING LOW END EQUALIZER

FOCUS LOW END EQUALIZER

VREF BUFFER

MUTE

CN752

Fig. 37

5. SCHEMATIC CIRCUIT DIAGRAM (2)

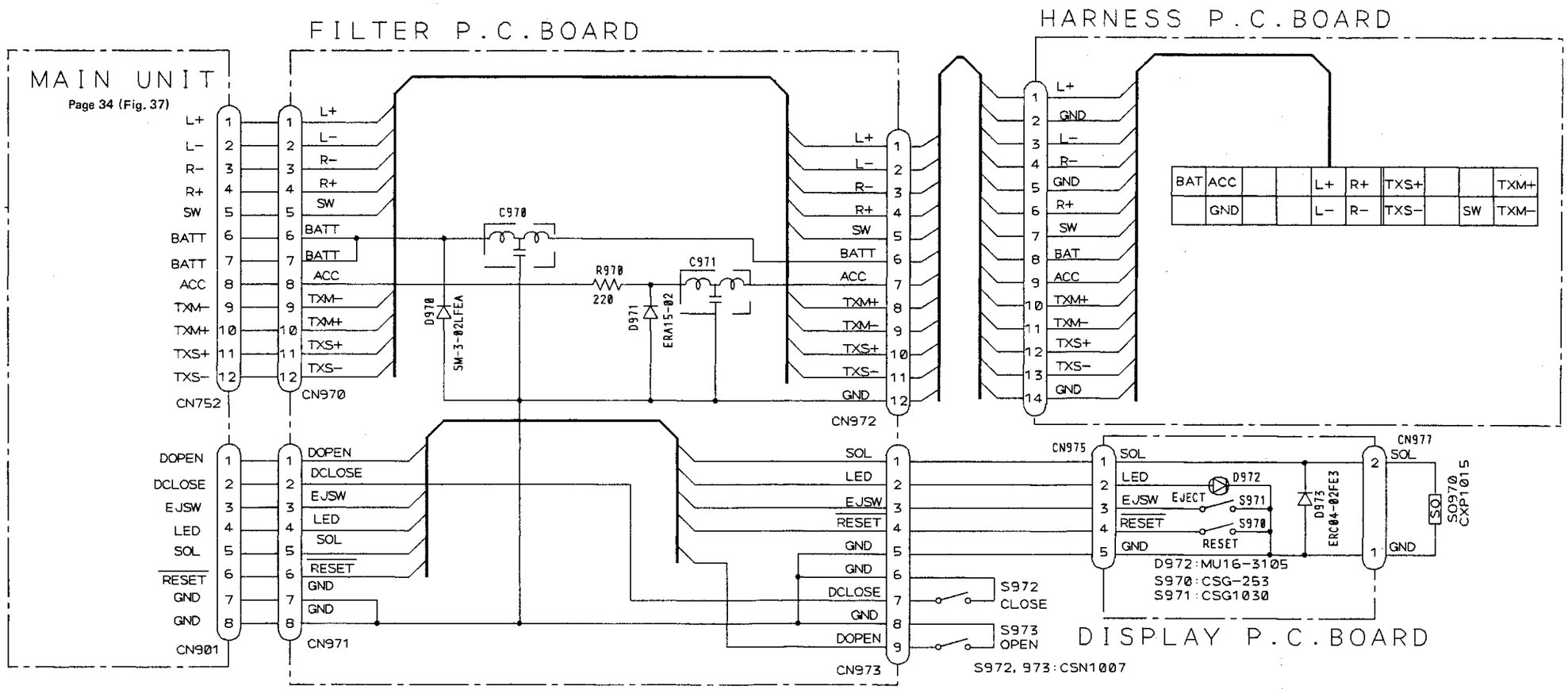


Fig. 38

6. CONNECTION DIAGRAM (1)

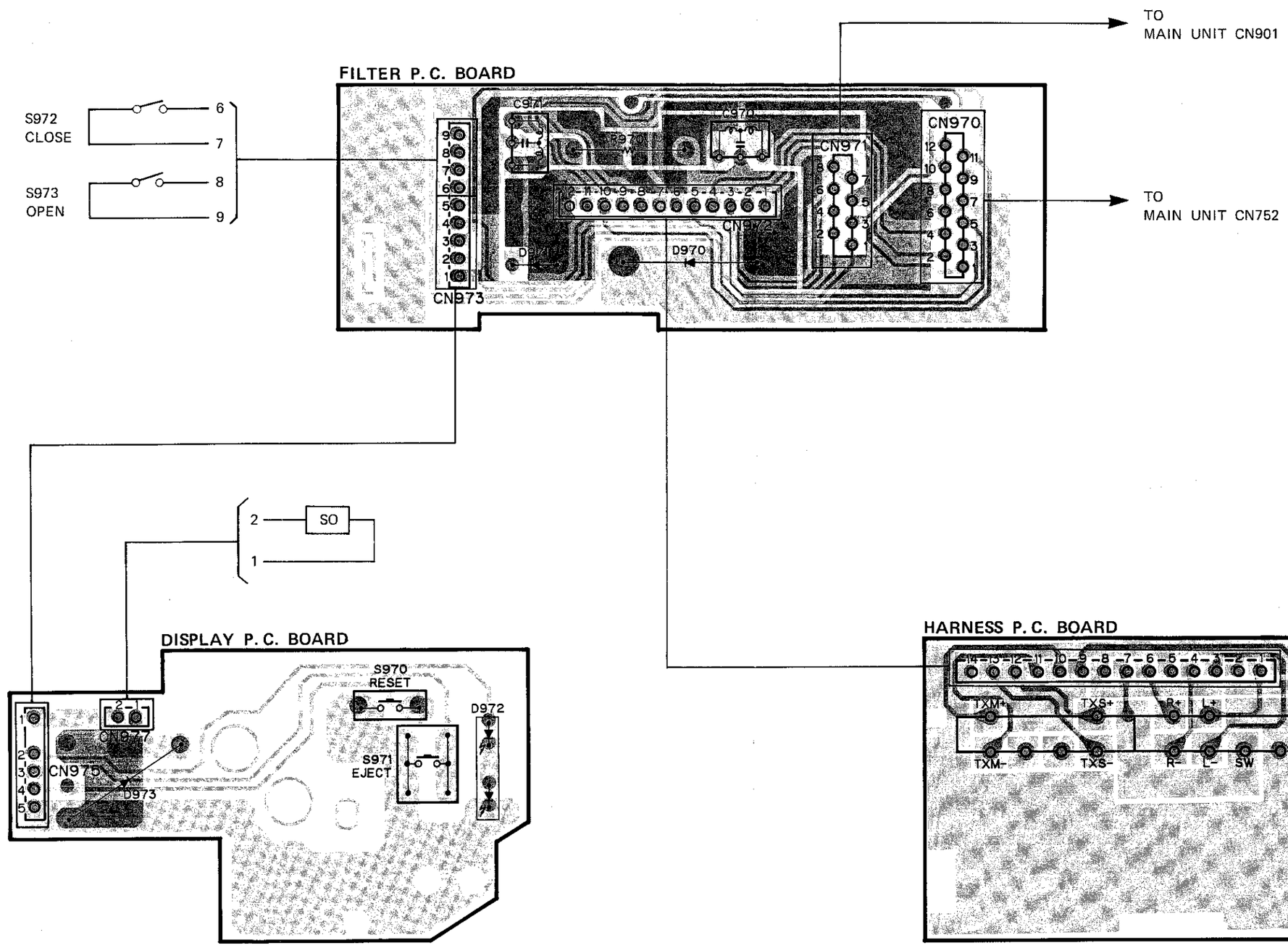
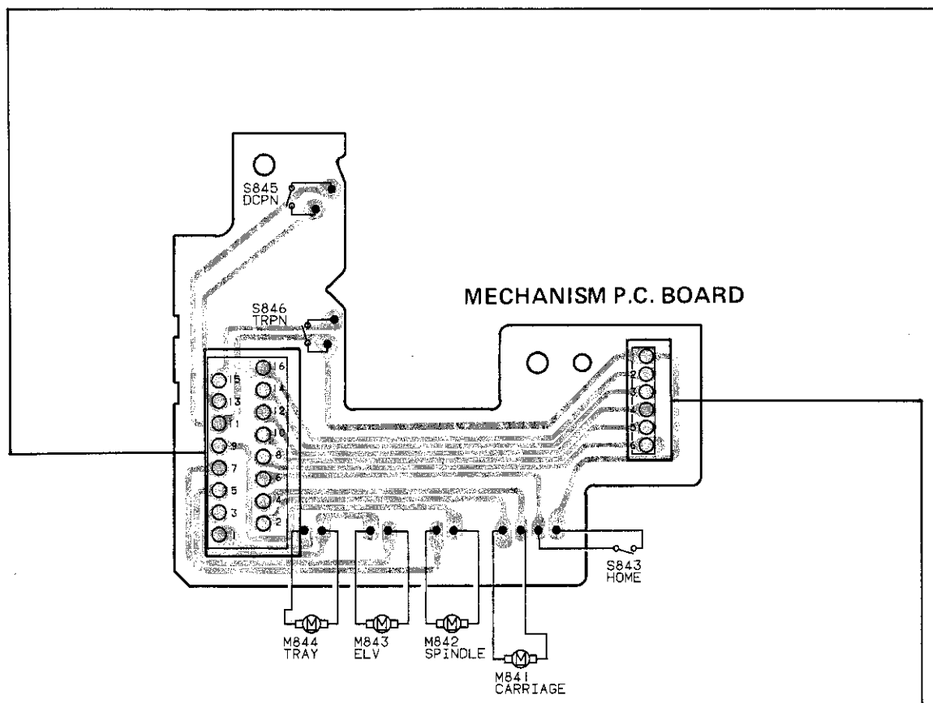
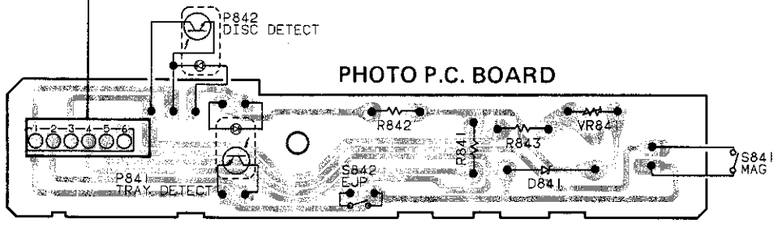


Fig. 39

7. CONNECTION DIAGRAM (2)



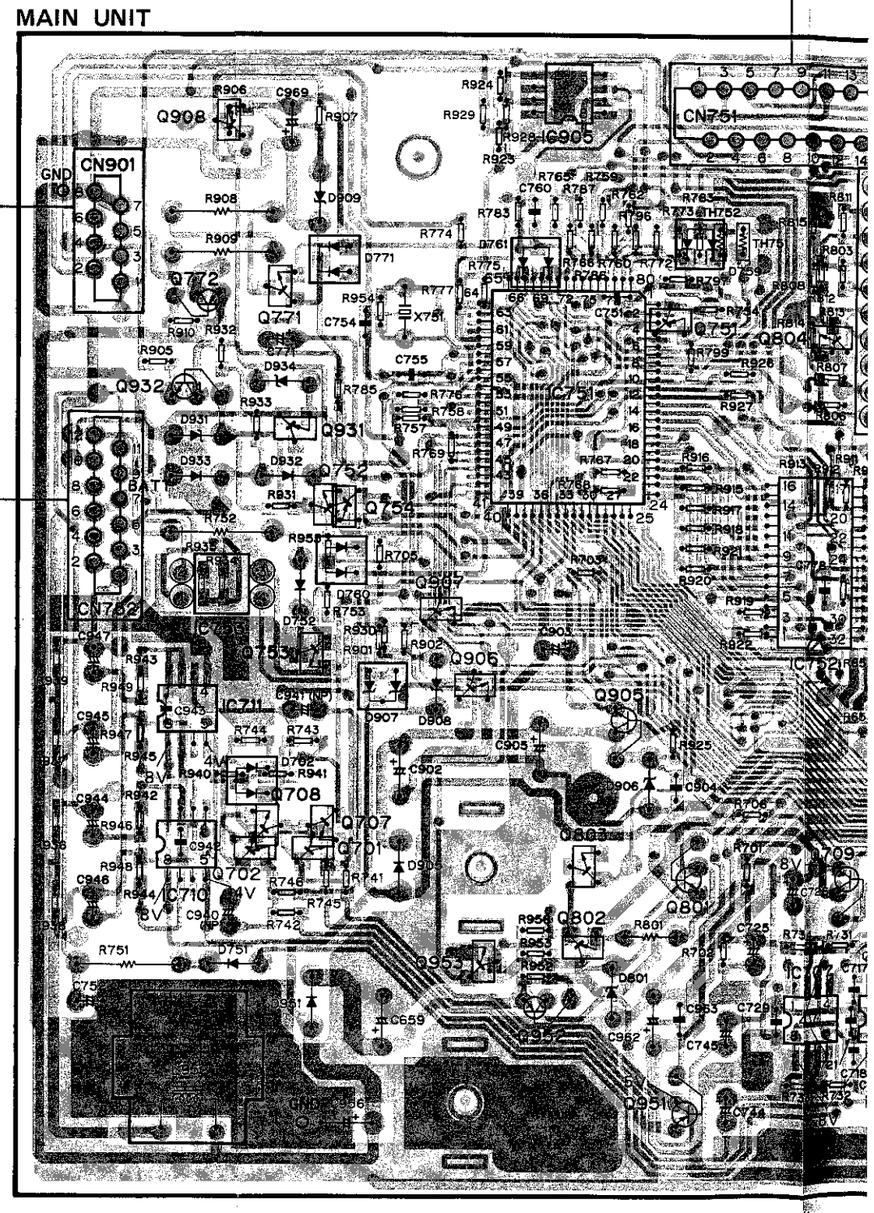


TO FILTER P. C. BOARD CN971

TO FILTER P. C. BOARD CN970

IC. Q	ADJ
Q351	
IC905	
Q908	
IC666	
	VR352
IC655	
IC665	
Q771	
Q751 Q772	
IC351 Q804	
Q932 IC751	
IC801	
Q931	
Q352 IC671	
Q603	
Q752 Q602	VR604
Q754	
Q651	VR351
IC752	
IC601 IC753	
Q907 Q652	
Q601 IC657	
Q753 Q653	VR651
Q906	
IC711	
Q905	
IC710 Q708	
Q702 Q707	
Q803 Q701	
Q709 Q801	
Q802	
Q706	
Q953 IC705	
IC706 Q703	
IC707 IC704	
Q952 Q704	
IC712	
Q951 IC704	
IC703	
IC701	

MAIN UNIT



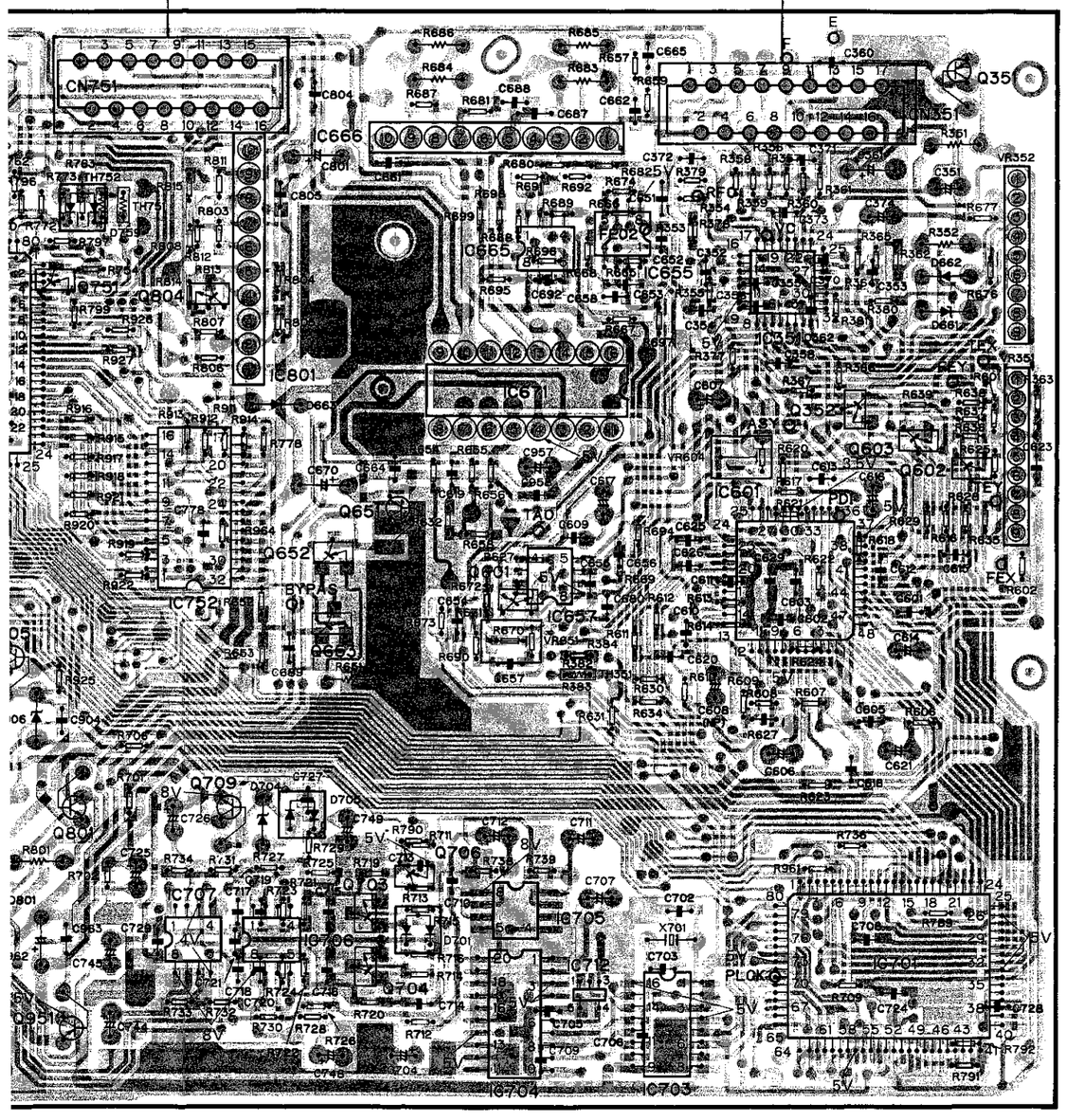

CN751
IC666
IC655
IC801
IC601
IC752
IC657
IC705
IC704
IC703
IC701
Q804
Q665
Q652
Q655
Q709
Q706
Q703
Q704
Q603
Q602
Q351
Q801
Q951
VR352-1
VR352-2
VR352-3
VR352-4
VR351-1
VR351-2
VR351-3
PU UNIT (CGY1014)
LD
MD
LD POWER
AGND
VREF
+5V
E
F
A
B
C
D
FOCUS
F-
F+
TRACKING
T+
T-

Fig. 40

8. CD MECHANISM EXPLODED VIEW

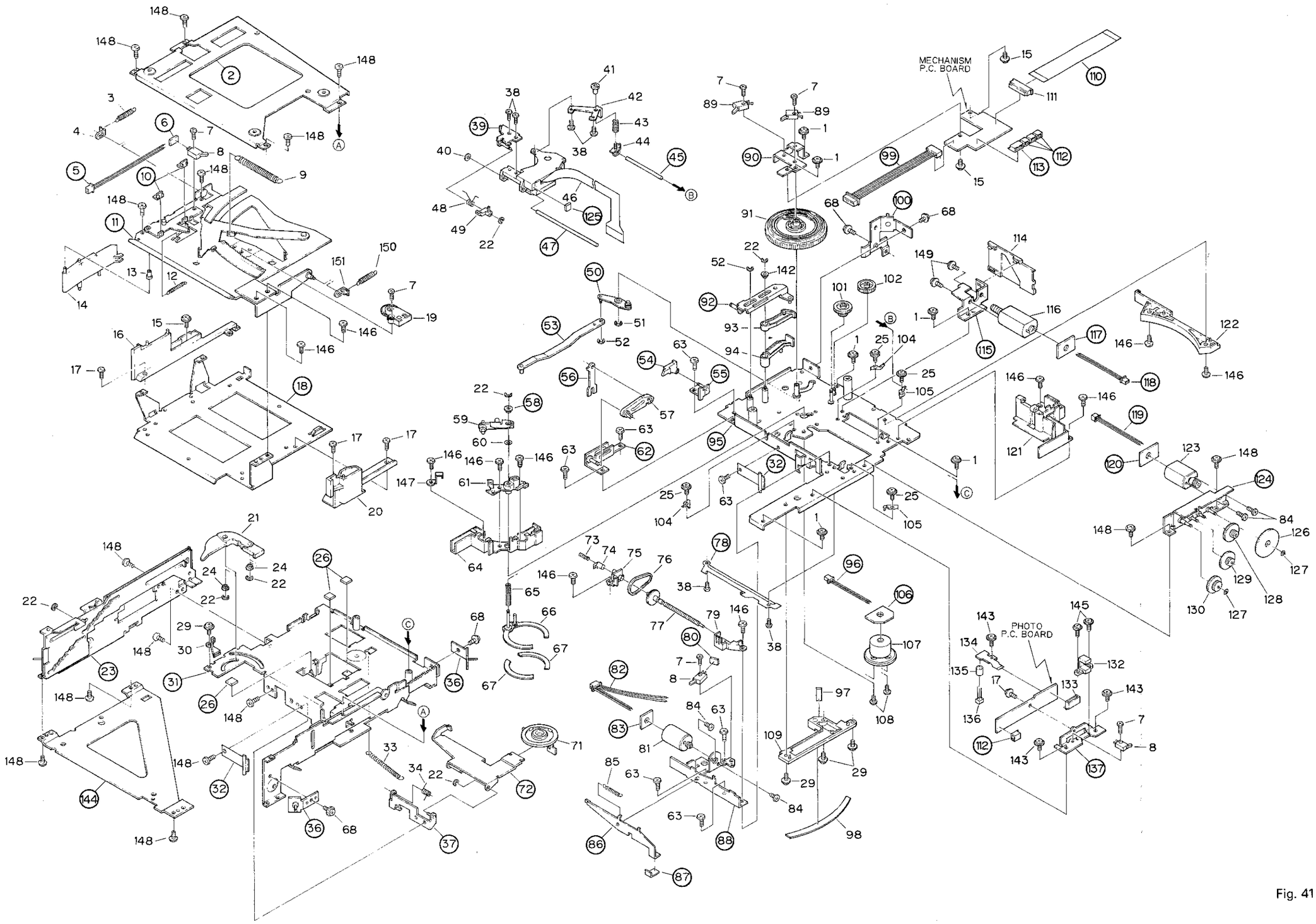


Fig. 41

• Parts List

NOTE:

- *The parts mark subject to refus*
- *Because the pa not spare parts,*

Mark No.	Desc
1	Scre
2	Fram
3	Spri
4	Spri
5	Conn
6	P.C.
7	Scre
8	Swit
9	EJ S
10	Clam
11	Maga
12	Spri
13	Roll
14	Arm
15	Scre
16	Maga
17	Scre
18	Maga
19	Damp
20	Maga
21	Arm
22	Wash
23	Side
24	Roll
25	Scre
26	Cush
27	....
28	....
29	Scre
30	Arm
31	Chas
32	Tray
33	ELV
34	Spri
35	....

● Parts List

NOTE:

- *The parts marked with "◉" may need long time to supply and their supply is subject to refuse as the case may be.*
- *Because the parts with encircled number shown on the dismantling drawing are not spare parts, we are unable to supply them in principle.*

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	PMS20P030FMC	36	Bracket Unit	CXA3673
2	Frame	CNC3455	37	Bracket Unit	CXA3235
3	Spring	CBH1324	38	Screw	CBA1062
4	Spring Holder	CNC3054	39	Holder Unit	CXA1860
5	Connector	CDE2701	40	Cushion	CNV1863
6	P.C.Board	CNP2328	41	Screw	CLA1319
7	Screw	CBA1070	42	Holder	CNC1736
8	Switch	CSN1020	43	Spring	CBH1105
9	EJ Spring	CBH1365	44	Holder	CNV1512
10	Clamper	CNV2375	45	Shaft	CLA1196
11	Magazine Holder Unit	CXA3821	46	PU Unit	CGY1016
12	Spring	CBH1320	47	Shaft	CLA1197
13	Roller	CLA1756	48	Spring	CBH1106
14	Arm	CNV2593	49	Rack	CNV1513
15	Screw	CBA1075	50	Arm Unit	CXA3995
16	Magazine Guide	CNV2369	51	Washer	YE20FUC
17	Screw	CBA1077	52	Washer	YE25FUC
18	Magazine Holder	CNC3039	53	Lever Unit	CXA3542
19	Damper Unit	CXA3242	54	Arm	CNV2449
20	Magazine Guide	CNV2368	55	Bracket Unit	CXA3387
21	Arm	CNV2352	56	Lever	CNC3038
22	Washer	YE15FUC	57	Cam Arm	CNV2354
23	Side Frame Unit	CXA4273	58	Disc UP Collar	CLA1895
24	Roller	CLA1846	59	Arm Unit	CXA4043
25	Screw	PMS20P022FMC	60	Washer	CBE1027
26	Cushion	CNM2555	61	Guide	CNR1163
27	·····		62	Bracket Unit	CXA3227
28	·····		63	Screw	BMZ20P025FMC
29	Screw	CBA1080	64	Holder	CNV2370
30	Arm Guide	CNV2372	65	Disc UP Spring	CBH1323
31	Chassis Unit	CXA4274	66	Disc UP Guide Unit	CXA3236
32	Tray Stopper Unit	CXA3514	67	Sheet	CNM2552
33	ELV Spring	CBH1322	68	Screw	PMS26P030FMC
34	Spring	CBH1321	69	·····	
35	·····		70	·····	

Mark No.	Description	Part No.	Mark No.	Description	Part No.
71	Bracket Assy	CXA3788	111	Connector	CKS1536
72	Arm Unit	CXA3230	112	Plug	CKS1049
73	Spring	CBH1104	113	Plug	CKS1051
74	Spacer	CNV1844	114	Holder	CNV2373
75	CRG Holder	CNV2377	115	Tray Bracket	CNC3598
76	Belt	CNT1020	116	Tray Motor Unit	CXA3729
77	Screw Unit	CXA2375	117	P.C.Board	CNP2303
78	Shaft Cover	CXA3685	118	Connector	CDE2703
79	CRG Holder	CNV2378	119	Connector	CDE2702
80	P.C.Board	CNP1107	120	P.C.Board	CNP2314
81	Motor Unit(Carriage)	CXA3240	121	Guide	CNV2376
82	Connector	CDE2700	122	Disc Guide	CNV2367
83	P.C.Board	CNP2304	123	Motor Unit(ELV)	CXA3238
84	Screw	CBA-098	124	ELV Bracket Unit	CXA3234
85	Spring	CBH1335	125	Cushion	CNT1023
86	8cm Guide Arm	CNC3154	126	Gear	CNV2362
87	Sheet	CNM2630	127	Washer	CBF1038
88	CRG Bracket	CNC3044	128	Gear(Brack)	CNV2363
89	Switch	CSN1021	129	Gear(White)	CNV2371
90	Cam Gear Bracket	CNC3045	130	Gear(White)	CNV2364
91	Cam Gear	CNV2357	131	·····	
92	Cam Lever Unit	CXA3232	132	Photo-Interrupter	ON1113
93	SW Arm	CNV2374	133	Plug	CKS1053
94	SW Arm	CNV2356	134	P.C.Board	CNP2307
95	Chassis Unit	CXA4011	135	Spacer	CNV2365
96	Connector	CDE2704	136	Photo-Interrupter	ON2160
97	Sheet	CNM2554	137	TSEL Bracket	CNC3052
98	Sheet	CNM2553	138	·····	
99	Connector	CDE2699	139	·····	
100	Bracket Unit	CXA4014	140	·····	
101	Wheel	CNV2359	141	·····	
102	Gear	CNV2360	142	Roller	CLA1518
103	·····		143	Screw	CBA1152
104	Holder	CNC1738	144	Frame	CNC3455
105	Holder	CNC1739	145	Screw	CBA1026
106	P.C.Board	CNP2305	146	Screw	CBA1054
107	Motor Unit(Spindle)	CXM1053	147	Spring	CBL1124
108	Screw	HBA-258	148	Screw	BMZ20P030FMC
109	Disc Guide	CNV2366	149	Screw	PMS20P025FMC
110	Connector	CDE2705	150	Spring	CBH1324
			151	Holder	CNC3054

9. CHASSIS EXPLODED VIEW

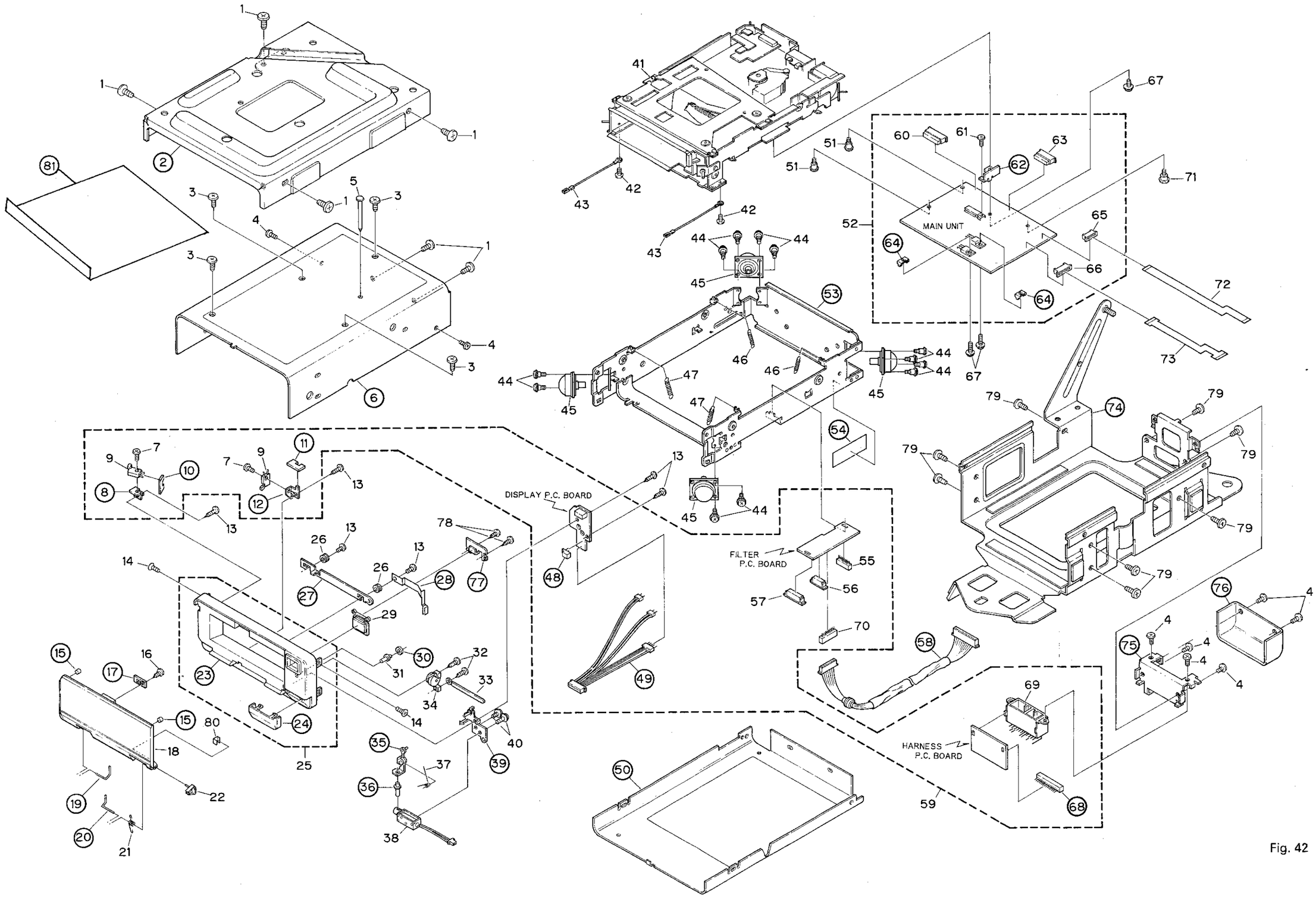


Fig. 42

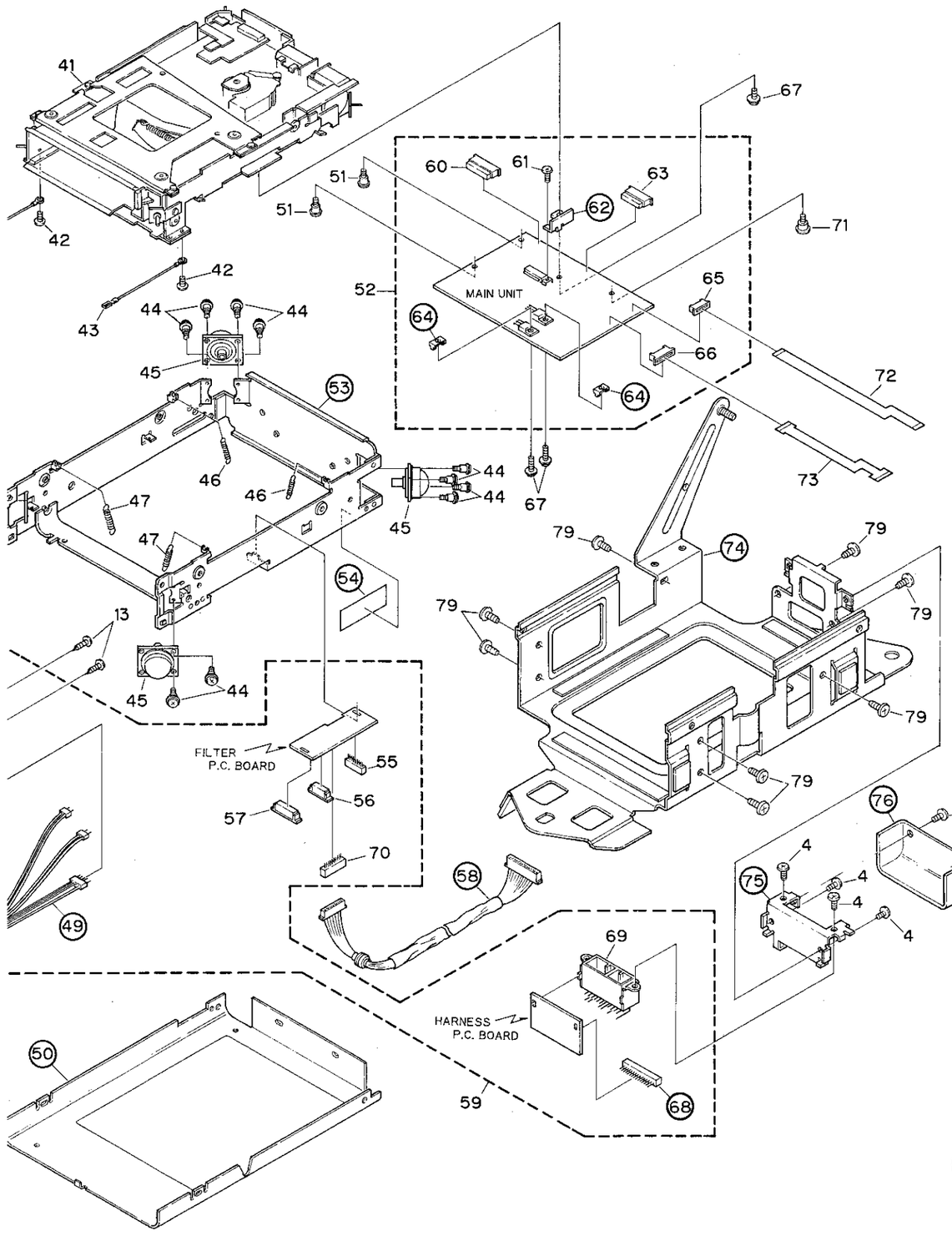


Fig. 42

● Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Screw	BMZ40P050FMC	◉	41	CD Mechanism Unit	CXK2350
	2	Cover Unit	CXA4162		42	Screw	BMZ26P060FMC
	3	Screw (M9071ZT-91)	BMZ40P100FRD		43	Connector	CDE2949
	4	Screw	BMZ30P060FMC		44	Screw	CBA1157
	5	Pin (M9071ZT-91)	CLA1862		45	Damper	CNV2605
	6	Case	CNB1337		46	Spring	CBH1379
	7	Screw	CBA1070		47	Spring	CBH1377
	8	Holder	CNC3142		48	Plug	CKS1632
	9	Switch	CSN1007		49	Connector	CDE2787
	10	P.C. Board	CNP2613		50	Case	CNB1325
	11	P.C. Board	CNP2614		51	Screw	CBA1158
	12	Holder	CNC3143	◉	52	Main Unit	CWX1365
	13	Screw	BPZ26P080FMC		53	Cassis Unit	CXA3530
	14	Screw	CMZ30P060FMC		54	Insulator	CNM2736
	15	Cushion	CNM2828		55	Plug	CKS1042
	16	Screw	BPZ20P080FZK		56	Connector	CKS1499
	17	Plate	CNC3411		57	Connector	CKS1500
	18	Door	CAT1377		58	Connector	CDE3266
	19	Shaft	CLA1713	◉	59	Sub Unit	CWM2543
	20	Shaft	CLA1824		60	Connector	CKS1537
	21	Spring	CBH1358		61	Screw	JGZ17P050FNI
	22	Gear	CNV2287		62	Heat Sink	CNC3087
	23	Grille	CNS1936		63	Connector	CKS1536
	24	Grille Cover	CNS1942		64	Bracket	CNC2377
	25	Grille Unit	CXA3536		65	Connector	CKS1390
	26	Collar	CLA1818		66	Connector	CKS1392
	27	Lever	CNC3410		67	Screw	PMS26P080FMC
	28	Conductor	CNC3345		68	Plug	CKS-578
	29	Button	CAC2463		69	Connector	CKM1043
	30	Cushion	CNM2628		70	Plug	CKS1045
	31	Button	CAC2464		71	Screw	CBA1159
	32	Screw	BPZ20P100FMC		72	P.C. Board	CNP2361
	33	Cramper	HEF-102		73	P.C. Board	CNP2362
	34	Damper Unit	CXA3520		74	Bracket Unit	CXA4050
	35	Arm Unit	CXA3532		75	Holder	CNC3380
	36	Shaft	CLA1817		76	Cover	CNC3381
	37	Spring	CBH1348		77	Holder	CNC3433
	38	Solenoid	CXP1015		78	Screw	BMZ20P050FMC
	39	Holder Unit	CXA3531		79	Screw	BMZ40P060FMC
	40	Screw	PMS20P025FMC		80	Spring	CNC3277
					81	Plate (M9071ZT-91)	CNC3975

10. ELECTRICAL PARTS LIST

NOTE:

- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *The part numbers shown below indicate chip components.*

Chip Resistor
RS1/8S □□□J, RS1/10S □□□J
Chip Capacitor (except for CQS.....)
CKS....., CCS....., CSZS.....

Unit Number :
Unit Name : Filter P.C. Board

Mark	Circuit Symbol & No.	Part Name	Part No.
D	970		SM-3-02LFEA
D	971		ERA15-02
R	970		RN1P221JL
C	970 971		CCG1004

Unit Number :
Unit Name : Display P.C. Board

Mark	Circuit Symbol & No.	Part Name	Part No.
D	972	LED	MU16-3105
D	973		ERC04-02FE3
S	970	Switch(RESET)	CSG-253
S	971	Switch(EJECT)	CSG1030

Unit Number :
Unit Name : Main Unit

MISCELLANEOUS

Mark	Circuit Symbol & No.	Part Name	Part No.
IC	351		CXA1081Q
IC	601		CXA1082BQ
IC	655 657 665 706 707 710 711		M5218FP
IC	666		LA6510
IC	671		AN8377N
IC	701		CXD1167Q
IC	703		SM5807ES-M
IC	704		LC7881MBM
IC	705		UPC358G2
IC	712		TC4SU69F
IC	751		PD4337A
IC	752		MSM82C51A-2GS
IC	753		@N3111
IC	801		M54649L
IC	905		M51945AFP
Q	351		2SB1243
Q	352 804 953	Chip Transistor	UN2211
Q	601 752 771 906	Chip Transistor	UN2211
Q	602 603 707 708	Chip Transistor	2SD1048
Q	651		2SC3474
Q	652	Chip Transistor	UN2111
Q	653	Chip Transistor	2SD601A
Q	701 803	Chip Transistor	UN2214
Q	702 751	Chip Transistor	UN2111
Q	703 704	Chip Transistor	UN2215
Q	706 754 802	Chip Transistor	UN2111
Q	709 932		2SD1859
Q	753	Chip Transistor	2SD601A
Q	772		2SA1244
Q	801		2SD1273
Q	905		2SC3673
Q	907 908	Chip Transistor	2SD601A
Q	931	Chip Transistor	2SA1162
Q	951		2SB1185
Q	952		2SA1241
D	661 662 934		HZS2ALL
D	663		RD11JSB1
D	701	Chip Diode	MA151WA-MN
D	702	Chip Diode	MA151WA-MN
D	704 931		RD7R5JSB2
D	705	Chip Diode	MA153-MC
D	751 752 905 932	933	ERA15-02VH
D	759 760 761	Chip Diode	MA151A-MA
D	771	Chip Diode	MA151K-MH
D	801		HZS11LB2
D	906		HZS6LB1
D	907	Chip Diode	MA3200M
D	908 909		HZS7LB1
D	951		RB100AVH
L	952	Choke Coil	CTH1074
TH	351	Thermister	CCX1006
TH	751	Thermister	CCX1007
X	701	Crystal Resonator	CSS1052
X	751		CSS1036
VR	351	Semi-fixed	CCP1005
VR	352	Semi-fixed	CCP1006
VR	604	Semi-fixed	CCP1015
VR	651	Semi-fixed	CCP1023

RESISTORS

Mark	Circuit Symbol & No.	Part Name	Part No.
R	351 352		RD1/4PS110JL
R	353 381 689 783 910 936		RS1/10S102J
R	354 378 701 702		RS1/10S153J
R	355		RS1/10S113J
R	356 357 358 359		RS1/10S563J
R	360 361 608		RS1/10S823J
R	362		RS1/10S564J
R	363		RS1/10S223J
R	364 365 618 671 954		RS1/10S105J
R	366 377		RS1/10S562J
R	367 628		RS1/10S183J
R	379 705		RS1/10S332J
R	380 617 625		RS1/10S203J
R	382 667		RS1/10S363J
R	383		RS1/10S823J
R	384		RS1/10S273J
R	601 602 658		RS1/10S101J
R	606 940 941		RS1/10S224J
R	607		RS1/10S683J
R	609 614 627 758 760 767 768 774		RS1/10S104J
R	610 709		RS1/10S822J
R	611		RS1/10S432J
R	612		RS1/10S623J
R	613		RS1/10S624J
R	616		RS1/10S203J
R	620 631 637 638 691		RS1/10S272J
R	621		RS1/10S184J
R	622 670 680 681 682 791 792		RS1/10S103J
R	623		RS1/10S224J
R	624 666		RS1/10S393J
R	629		RS1/10S682J
R	630		RS1/10S273J
R	632		RS1/10S183J
R	634		RS1/10S474J
R	635 694		RS1/10S822J
R	636 639 673 906 924 942 943 944 945		RS1/10S473J
R	651		RD1/4PS121JL
R	652 697 725 726 772 902		RS1/10S473J
R	653		RS1/10S472J
R	654 656		RS1/10S163J
R	655		RS1/10S363J
R	657		RS1/10S150J
R	659		RS1/10S150J
R	665 935		RS1/10S562J
R	668		RS1/10S183J
R	669 766 769 775 795 928		RS1/10S563J
R	672		RS1/10S364J
R	674		RS1/10S133J
R	676		RS1/10S201J
R	677		RS1/10S201J
R	683 684		RD1/4PS8R2JL
R	685 686		RD1/4PS1R1JL
R	687 790 799 932 952 955		RS1/10S103J
R	688 690		RS1/10S272J
R	692 738 739 741 742		RS1/10S102J
R	695		RS1/10S113J
R	696 698 699		RS1/10S103J
R	703		RS1/10S513J
R	706 931		RS1/10S681J
R	711 712		RS1/10S511J
R	713 714		RS1/10S181J
R	715 716		RS1/10S244J
R	719 720		RS1/10S392J
R	721 722 723 724		RS1/10S362J
R	727 728 729 730 731 732		RS1/10S472J
R	733 734		RS1/10S622J
R	736		RS1/10S104J
R	743 744 785		RS1/10S222J
R	745 746		RS1/10S333J
R	751 752		RS1/2P121JL
R	753 933		RS1/10S223J
R	754		RS1/10S752J
R	757 759 762 763 765 773 776 787 803 804		RS1/10S222J
R	777 778 786 901 907 911 912 913 914 915		RS1/10S104J
R	789		RS1/10S332J
R	797		RS1/10S474J
R	801		RD1/4PS751JL
R	805 926 927 930		RS1/10S222J
R	806 807		RS1/10S470J
R	808		RS1/10S470J
R	811		RS1/10S471J
R	812		RS1/10S152J
R	813 814 815		RS1/10S332J
R	905		RS1/10S221J
R	908 909		RS1/2P331JL
R	916 917 918 919 920 921 922 961 964		RS1/10S104J
R	923		RS1/10S683J
R	925		RS1/10S153J
R	929		RS1/10S333J
R	934		RS1/10S331J
R	937 938 939		RS1/10S102J
R	946 947 948 949		RS1/10S221J
R	953 956		RS1/10S561J

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
C	351 704 707 903		CEA101M6R3LL
C	352 354 652 680 710 721 729 904		CKSQYB103K50
C	353 613 654		CKSQYB333K25
C	355 362 602 603 611 625 626 629 661 664		CKSQYB103K50
C	356 724		CKSQYB332K50
C	358 605 656 658 727		CKSQYB104K25
C	360 612 620 665 701		CKSQYB104K25
C	361 962		CASA100M6R3
C	370 373		CCSQCH220J50
C	371 708		CKSQYB102K50
C	372		CCSQCH150J50
C	374		CEA010M50LL
C	601		CKSQYB222K50
C	606 616 748 749		CEA220M10LL
C	607		CEA330M6R3LL
C	608		CEA220M10NPLL
C	609 760		CKSQYB472K50
C	610		CCSQCH221J50
C	614		CEAR47M50LL
C	615		CCSQCH470J50
C	617		CEA4R7M35LL
C	618		CKSQYB272K50
C	619		CKSQYB223K50
C	621		CEA4R7M16NPLL
C	623		CKSQYB222K50
C	627		CCSQCH220J50
C	651 653 687 689 963		CKSYB224K25
C	655		CCSQSL681J50
C	657		CKSQYB393K25
C	659 902 905	1000μF/16V	CCH1003
C	662		CKSQYB473K25
C	670	470μF/16V	CCH1080
C	688		CKSYB224K25
C	692 705 706 709 728 751 778 942 943 958		CKSQYB103K50
C	702 703		CCSQCH090D50
C	711 712		CEA220M6R3LS
C	713 714		CKSQYB683K25
C	715 716 717 718 719 720		CCSQCH122J50
C	725 771		CEA100M16LL
C	726		CEA101M10LL
C	744 745		CEA330M10LS
C	752		CEA330M10LL
C	754 755		CCSQCH101J50
C	801		CASA220M16
C	804 805		CKSQYB223K50
C	940 941		
C	944 945		
C	956		
C	957		
C	959		

Unit Number :
Unit Name : Mech

Mark ========= Cir

M	841	
M	842	
M	843	
M	844	
S	843	
S	845 846	

Unit Number :
Unit Name : Phot

Mark ========= Cir

D	841	
S	841 842	
VR	841	
P	841	
P	842	
R	841	
R	842	
R	843	

Miscellaneous Parts

Mark ========= Cir

S	972 973	
SO	970	

Mark	Circuit Symbol & No.	Part Name	Part No.
R	384		RS1/10S273J
R	601 602 658		RS1/10S101J
R	605 940 941		RS1/10S224J
R	607		RS1/10S683J
R	609 614 627 758 760 767 768 774		RS1/10S104J
R	610 709		RS1/10S822J
R	611		RS1/10S432J
R	612		RS1/10S623J
R	613		RS1/10S624J
R	616		RS1/10S203J
R	620 631 637 638 691		RS1/10S272J
R	621		RS1/10S184J
R	622 670 680 681 682 791 792		RS1/10S103J
R	623		RS1/10S224J
R	624 665		RS1/10S393J
R	629		RS1/10S682J
R	630		RS1/10S273J
R	632		RS1/10S183J
R	634		RS1/10S474J
R	635 694		RS1/10S822J
R	636 639 673 906 924 942 943 944 945		RS1/10S473J
R	651		RD1/4PS121JL
R	652 697 725 726 772 902		RS1/10S473J
R	653		RS1/10S472J
R	654 656		RS1/10S163J
R	655		RS1/10S363J
R	657		RS1/10S150J
R	659		RS1/10S150J
R	665 935		RS1/10S562J
R	668		RS1/10S183J
R	669 766 769 775 796 928		RS1/10S563J
R	672		RS1/10S364J
R	674		RS1/10S133J
R	675		RS1/10S201J
R	683 684		RD1/4PS8R2JL
R	685 686		RD1/4PS1R1JL
R	687 790 799 932 952 955		RS1/10S103J
R	688 690		RS1/10S272J
R	692 738 739 741 742		RS1/10S102J
R	695		RS1/10S113J
R	696 698 699		RS1/10S103J
R	703		RS1/10S513J
R	706 931		RS1/10S681J
R	711 712		RS1/10S511J
R	713 714		RS1/10S181J
R	715 716		RS1/10S244J
R	719 720		RS1/10S392J
R	721 722 723 724		RS1/10S362J
R	727 728 729 730 731 732		RS1/10S472J
R	733 734		RS1/10S622J
R	736		RS1/10S104J
R	743 744 785		RS1/10S222J
R	745 746		RS1/10S333J
R	751 752		RS1/2P121JL
R	753 933		RS1/10S223J
R	754		RS1/10S752J
R	757 759 762 763 765 773 776 787 803 804		RS1/10S222J
R	777 778 786 901 907 911 912 913 914 915		RS1/10S104J
R	789		RS1/10S332J
R	797		RS1/10S474J
R	801		RD1/4PS751JL
R	805 926 927 930		RS1/10S222J
R	806 807		RS1/10S470J
R	808		RS1/10S470J

Mark	Circuit Symbol & No.	Part Name	Part No.
R	811		RS1/10S471J
R	812		RS1/10S152J
R	813 814 815		RS1/10S332J
R	905		RS1/10S221J
R	908 909		RS1/2P331JL
R	916 917 918 919 920 921 922 961 964		RS1/10S104J
R	923		RS1/10S683J
R	925		RS1/10S153J
R	929		RS1/10S333J
R	934		RS1/10S331J
R	937 938 939		RS1/10S102J
R	946 947 948 949		RS1/10S221J
R	953 956		RS1/10S561J

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
C	351 704 707 903		CEA101M6R3LL
C	352 354 652 680 710 721 729 904		CKSQYB103K50
C	353 613 654		CKSQYB333K25
C	355 362 602 603 611 625 626 629 661 664		CKSQYB103K50
C	356 724		CKSQYB332K50
C	358 605 656 658 727		CKSQYB104K25
C	360 612 620 665 701		CKSQYB104K25
C	361 962		CASA100M6R3
C	370 373		CCSQCH220J50
C	371 708		CKSQYB102K50
C	372		CCSQCH150J50
C	374		CEA010M50LL
C	601		CKSQYB222K50
C	606 616 748 749		CEA220M10LL
C	607		CEA330M6R3LL
C	608		CEA220M10NPLL
C	609 760		CKSQYB472K50
C	610		CCSQCH221J50
C	614		CEAR47M50LL
C	615		CCSQCH470J50
C	617		CEA4R7M35LL
C	618		CKSQYB272K50
C	619		CKSQYB223K50
C	621		CEA4R7M16NPLL
C	623		CKSQYB222K50
C	627		CCSQCH220J50
C	651 653 687 689 963		CKSYB224K25
C	655		CCSQSL681J50
C	657		CKSQYB393K25
C	659 902 905	1000μF/16V	CCH1003
C	662		CKSQYB473K25
C	670	470μF/16V	CCH1080
C	688		CKSYB224K25
C	692 705 706 709 728 751 778 942 943 958		CKSQYB103K50
C	702 703		CCSQCH090D50
C	711 712		CEA220M6R3LS
C	713 714		CKSQYB683K25
C	715 716 717 718 719 720		CCSQCH122J50
C	725 771		CEA100M16LL
C	726		CEA101M10LL
C	744 745		CEA330M10LS
C	752		CEA330M10LL
C	754 755		CCSQCH101J50
C	801		CASA220M16
C	804 805		CKSQYB223K50

Mark	Circuit Symbol & No.	Part Name	Part No.
C	940 941		CEA010M50NPLL
C	944 945 946 947		CEA470M10LL
C	956	470μF/16V	CCH1080
C	957		CEA330M16LL
C	969		CEA101M50L2

Unit Number :
Unit Name : Mechanism P.C.Board

Mark	Circuit Symbol & No.	Part Name	Part No.
M	841	Motor Unit(Carriage)	CXA3240
M	842	Motor Unit(Spindle)	CXM1053
M	843	Motor Unit(ELV)	CXA3238
M	844	Motor Unit(Tray)	CXA3729
S	843	Switch(Home)	CSN1020
S	845 846	Switch(DCPN, TRPN)	CSN1021

Unit Number :
Unit Name : Photo-P.C.Board

Mark	Circuit Symbol & No.	Part Name	Part No.
D	841		HZS9A2L
S	841 842	Switch(MAG. EJP)	CSN1020
VR	841	Semi-fixed 22kΩ(B)	CCP-380
P	841	Photo-Interrupter	ON1113
P	842	Photo-Interrupter	ON2160
R	841		RD1/4PS560JL
R	842		RD1/4PS221JL
R	843		RD1/4PS103JL

Miscellaneous Parts List

Mark	Circuit Symbol & No.	Part Name	Part No.
		PU Unit	CGY1016
S	972 973	Switch(CLOSE, OPEN)	CSN1007
SO	970	Solenoid	CXP1015