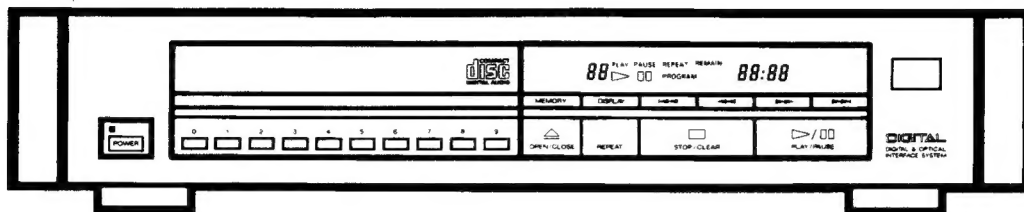


AKAI SERVICE MANUAL



COMPACT DISC PLAYER MODEL **CD-M939**



I. SPECIFICATIONS

Type	Optical	Dimensions.....	385(W) × 74(H) × 330(D) mm (15.2 × 2.9 × 13.0 inches)
Pick-up system	3 beam semi-conductor laser	Weight.....	4.5 kg (9.9 lbs)
Wow & Flutter	Below measurable limits		
Output level/Impedance (Digital).....	0.5Vp-p/75 ohms		
Power requirements.....	120V, 60 Hz for USA & Canada 220V, 50 Hz for Europe except UK 240V, 50 Hz for UK & Australia 110V/120V/220V/240V, 50 Hz/60 Hz convertible for other country		

* For improvement purposes, specifications and design are subject change without notice.

★ SAFETY INSTRUCTIONS

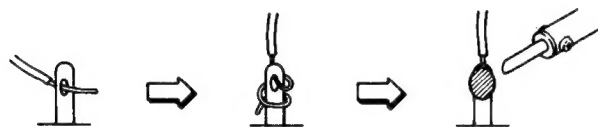
PRECAUTIONS DURING SERVICING

1. Parts identified by the $\triangle$ symbols parts are critical for safety. Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation.

These must also be replaced only with specified replacements.

Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.

3. Use specified internal wiring. Note especially:
 - 1) Wires covered with PVC tubing
 - 2) Double insulated wires
 - 3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note. especially:
 - 1) Insulation Tape
 - 2) PVC tubing
 - 3) Spacers (Insulating Barriers)
 - 4) Insulation sheets for transistors
 - 5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).

7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

SAFETY CHECK AFTER SERVICING

Confirm the specified insulation resistance between power cord plug prongs and externally exposed parts of the set is greater than 10 M ohms, but for equipment with external antenna terminals (tuner, receiver, etc.) and is intended for $\square C$ or $\square A$, specified insulation resistance should be head-phone jacks line-in-out jacks etc. more than 2.2 M ohms (ground terminals, microphone jacks).

★ INFORMATION

SYMBOL FOR PRIMARY DESTINATION

Alphabet indicates the destination of the units as listed below.

Symbols	Principal Destinations
$\square A$	USA
$\square B$	UK
$\square C$	Canada
$\square E$	Europe (except UK)
$\square J$	Japan
$\square S$	Australia
$\square V$	W. Germany only
$\square U$	Universal Area
$\square Y^*$	Custom version

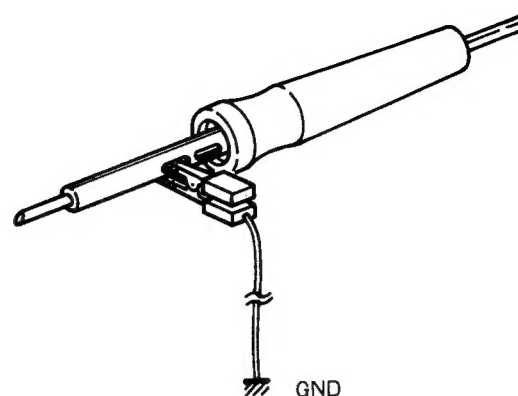
PRECAUTIONS IN REPAIRING

When repairing or adjusting the unit, please note the following points.

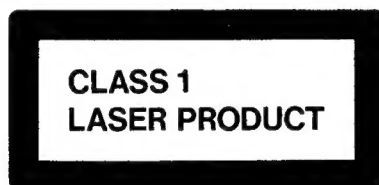
1. Do not put excessive pressure on the mechanical part (operation part), including the pick-up block, as extremely high mechanical precision is required in these parts.
2. When the base is removed for repair or adjustment, make sure that there are no metal objects in the narrow gap between the P.C. board or the mecha parts and the base.
3. The Micro-Computer (M50752 – 401 SP) and the CD signal processing ICs (M51564P and M50421P) can be damaged by static electricity or leakage from a soldering iron during repairing.

While soldering, please take the precautions against leakage as in the illustration.

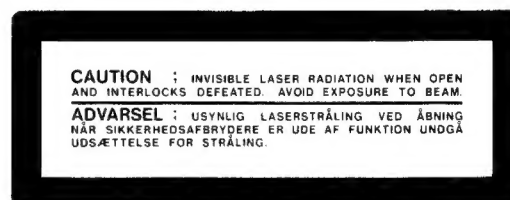
4. Do not loosen any screws in the pick-up block.
When handling the pick-up block, please refer to the points to NOTE when replacing the pick-up block.
5. Keep safety from hazardous invisible Laser Radiation. DO NOT watch the Laser Beam (Objective Lens) directly.
6. Models for the same countries, Laser Warning Labels are affixed on the unit and inside of the unit, as shown below.
Read it carefully for your safety, when repairing or adjusting the unit.



[DENMARK and U.K]

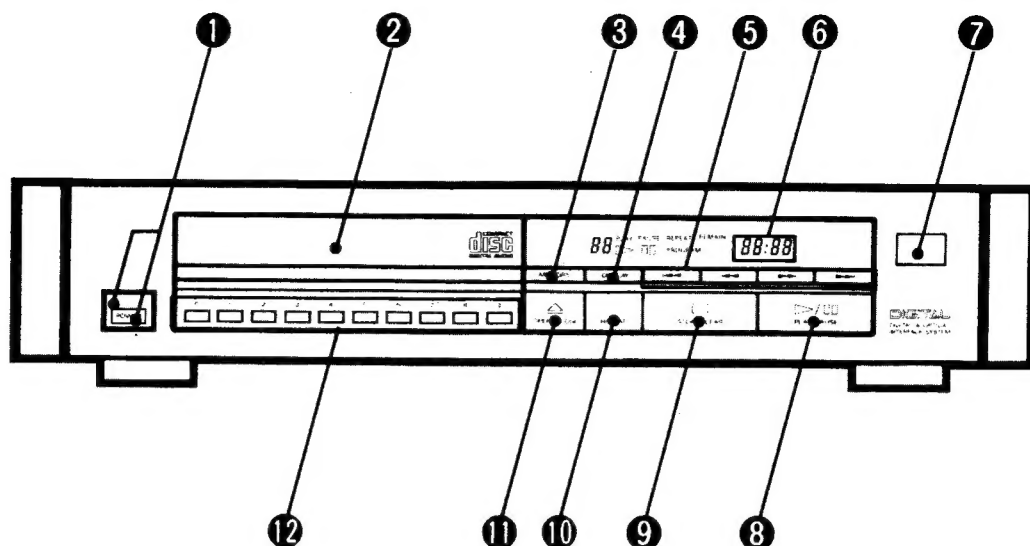


A Label affixed on the unit



A1 A Label affixed inside of the unit

I. CONTROLS



1 POWER Switch and Indicator

To turn the Akai CD player ON and OFF.

2 Disc drawer

Holds a compact disc.

3 MEMORY button

To memorize programs for random program playback. See page 11.

4 DISPLAY button

To choose the display mode, individual time, or remaining time mode display. See page 10.

5 SEARCH $\ll$, $\ll$, $\gg$, $\gg$ buttons

Use these buttons for skip and manual search operation. See page 9.

6 FL (Fluorescent) Display

Shows what mode the Akai CD player is in. See page 10.

7 Remote control window.

Keep clean for proper remote control operation.

8 PLAY/PAUSE $\triangleright/\square$ button

To start playback and to temporarily stop playback. See page 8.

9 STOP/CLEAR $\square$ button

To clear a program or REPEAT play, or to STOP regular play back. See page 8.

10 REPEAT button

To replay a single selection or the entire disc. See page 12.

11 OPEN/CLOSE $\triangle$ button

To load and eject compact discs, to stop compact disc playback and to cancel all the memorized programs. See page 5.

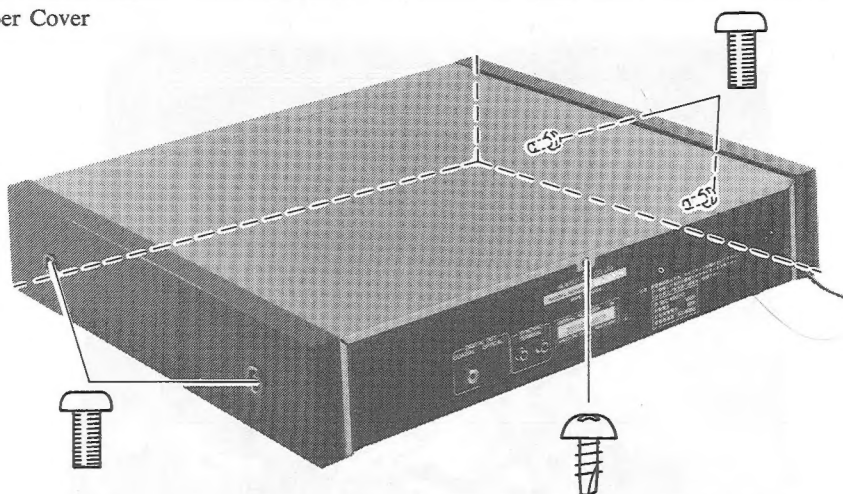
12 Numeric buttons (0 to 9)

Used for direct search and playback of a selection. Also used for programming during random program playback. See page 10 and 11.

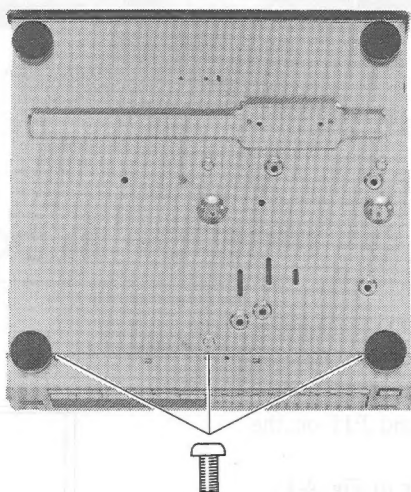
II. DISASSEMBLY

In case of trouble, etc, necessitating dismantling, please dismantle in the order shown in the photographs.
Reassemble in reverse order.

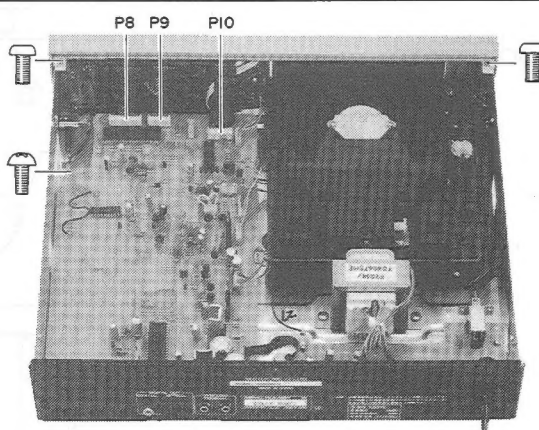
1. Removal of Upper Cover



2. Removal of Front Pannel



3.



* Before remove the Front panel, disconnect the connectors P7, P8, P9 and P10. (while disconnecting the wire from the connector, press upper side of connector.)

III. PRINCIPAL PARTS LOCATION

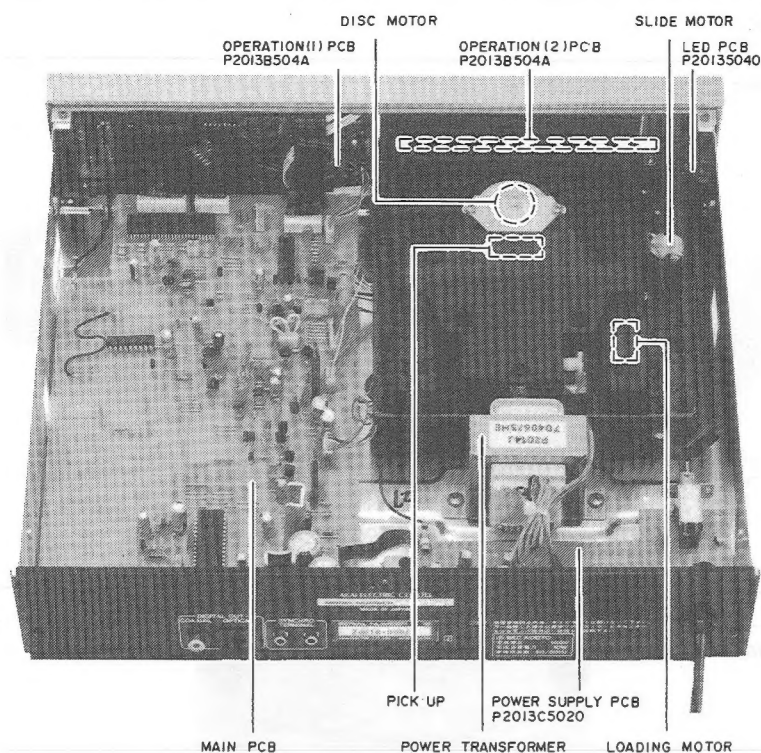


Fig. 3-1

IV. REPLACEMENT OF PICK-UP BLOCK

4-1. REMOVAL OF THE MECHANICAL BLOCK

- ① While power is on, set the disc tray to open condition by press the OPEN/CLOSE button, then turn off the power.
- ② Disconnect the connectors P1, P2, P4 and P11 on the MAIN PCB.
- ③ Remove the screws (A), (B) and (C). (Refer to Fig. 4-1)
- ④ Press the disc tray and set the disc tray to close condition.
- ⑤ Remove the FRONT PANEL.
(Refer to I. DISASSEMBLY)
- ⑥ Remove the MECHANICAL BLOCK from the main chassis.

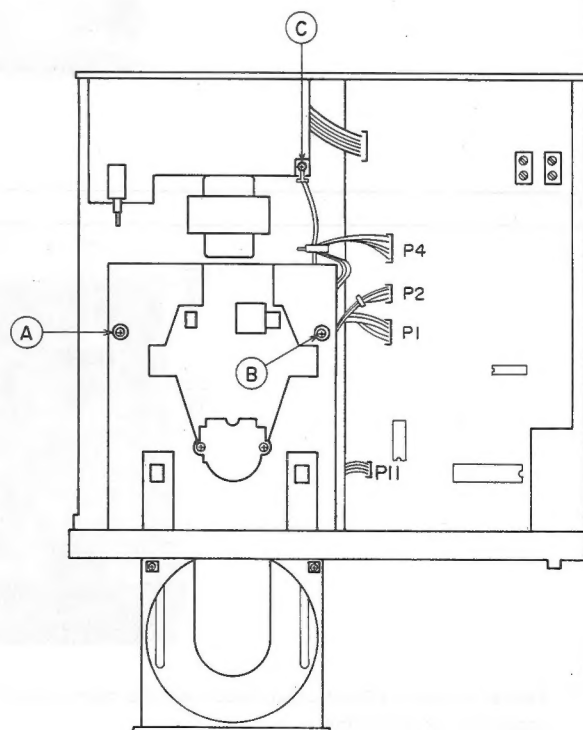


Fig. 4-1

4-2. REMOVAL OF THE PICK-UP BLOCK

- 1) Remove the E ring (D), then remove the gear (E).
- 2) Remove the screws (H), (I), (J) and (K) which fixed guide shaft.
- 3) Disconnect the connectors (6 pin and 9 pin connectors) on the pick-up block, then remove the pick-up block.
- 4) Remove the pick-up fixing screws (L), (M) and (N).

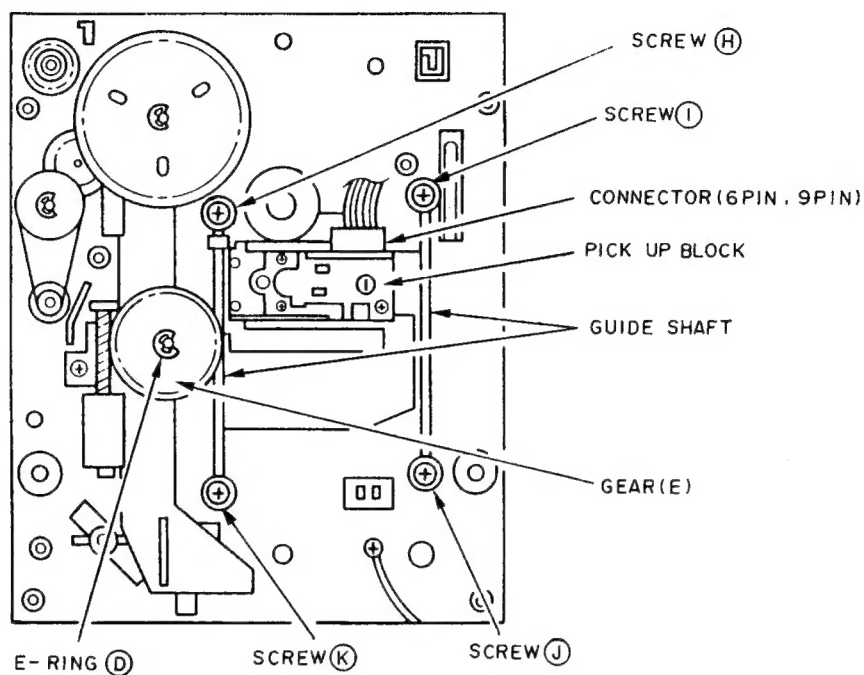


Fig. 4-2

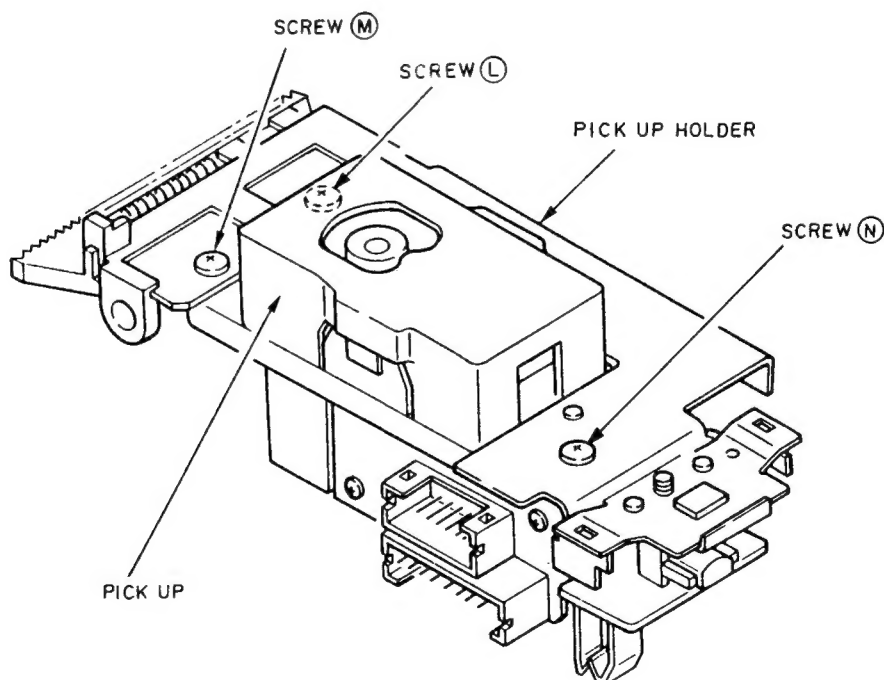


Fig. 4-3

4-3. ADJUSTMENT OF THE PICK-UP BLOCK WHILE SERVICING

4-3-1. Pick-up Inclination Adjustment

Fine inclination adjustment in the jitter direction is necessary after replacing the pick-up. Adjustment is performed by rotating the Jitter Direction Inclination Adjustment Screw. (Refer to Fig. 4-4)

- 1) Connect the oscilloscope between P5 pin ① (HF signal) and GND.
- 2) Set the unit in the **TEST MODE 4**.

NOTE: "How to make test Mode" has been written in VII. ELECTRICAL ADJUSTMENT (SERVO).

- 3) Press the (FF) or (FR) Buttons so that the Jitter Direction Adjustment Screw may situate to the middle of the Inclination Adjustment Hole.

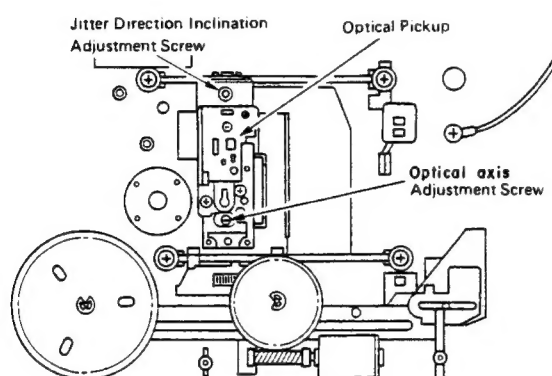


Fig. 4-4

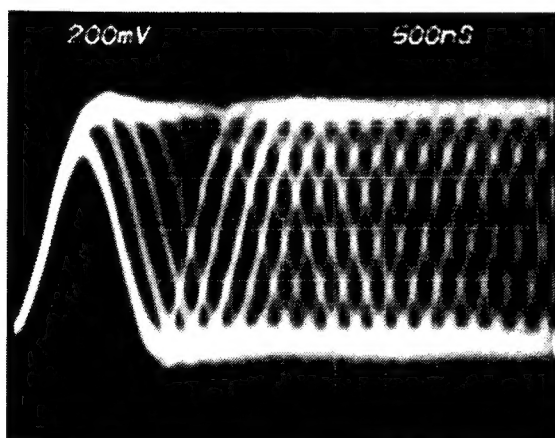
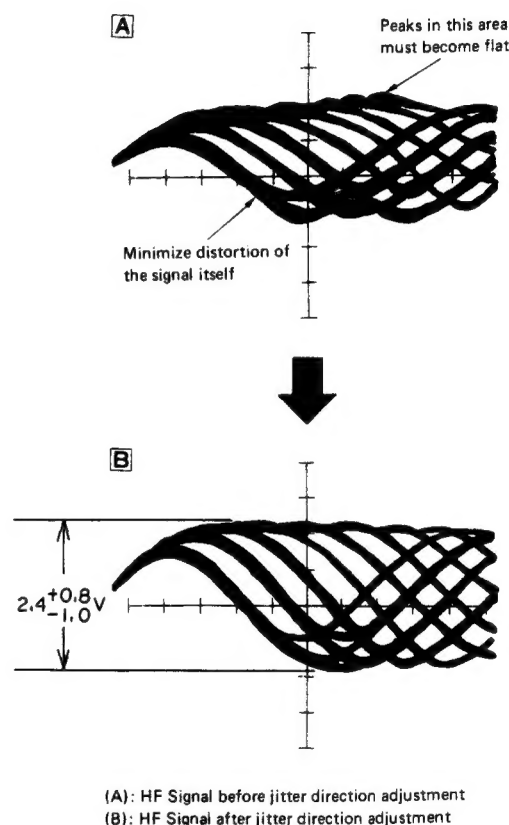


Fig. 4-5

- 4) Confirm that the HF signal (Eye-Pattern) shown in Fig. 4-5.
- 5) Turn right and left the Jitter Direction Adjustment Screw (Fig. 4-4) with the hexagonal driver (2.4 mm) until the HF Signal pattern change from (A) to (B) in Fig. 4-6.
- 6) After adjustment confirm that the HF signal level is within the range indicated below.
Check that HF signal pattern is clear as shown in Fig. 4-6 **B**.



(A): HF Signal before jitter direction adjustment
(B): HF Signal after jitter direction adjustment

Fig. 4-6

4-3-2. ADJUSTMENT OF THE FOCUS OFF-SET

When indication of the Frequency Counter is not decrease than 120 Hz in the VII. ELECTRICAL ADJUSTMENT (SERVO) step 2 FOCUS SERVO OFF-SET adjustment.

Put the washer 0.2 mm (Parts No. ZW-259650) between pick-up and pick-up holder as shown in Fig. 4-7.

After this adjustment all the adjustments in VII. ELECTRICAL ADJUSTMENT (SERVO) are necessary.

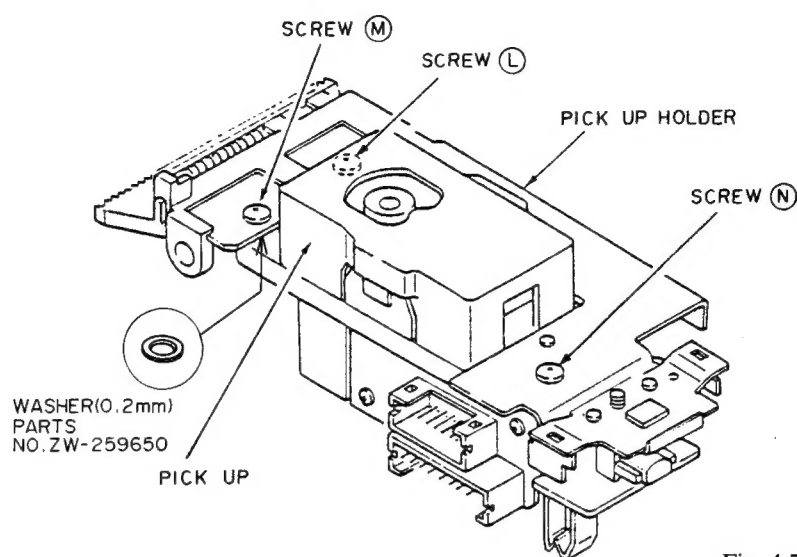


Fig. 4-7

4-3-3. APC (Automatic Power Control)

This circuit is to keep the constant laser power of the pick-up, semi-fixed resistor VR 1 on the pick-up block is adjusted at the factory according to each character of the pick-up, consequently, "DO NOT TOUCH THIS VR 1".

V. REPLACEMENT OF SPINDLE MOTOR

5-1. REMOVE AND ASSEMBLY SPINDLE

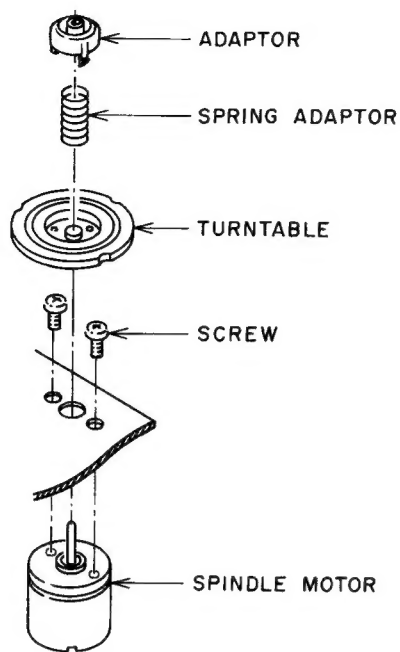


Fig. 5-1

- 1) Pull out the turntable, Spring adaptor and Adaptor.
 - 2) Remove the two Screws.
 - 3) Unsolder two Spindle Motor wires.
 - 4) Solder two wires to the new Spindle Motor.
 - 5) Put the new Spindle Motor on the chassis with two screws.
 - 6) Press-in the turn table on to the Motor shaft.
- Adjust the turntable so that the height of the turntable from chassis become 6.6 ± 0.1 mm (Fig. 5-2).

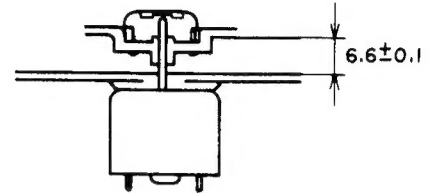
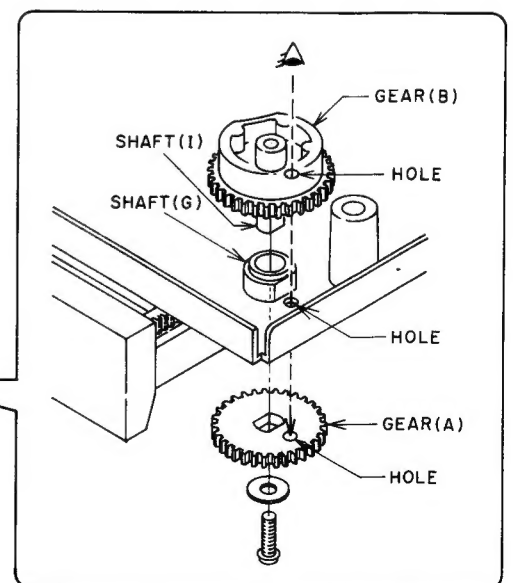
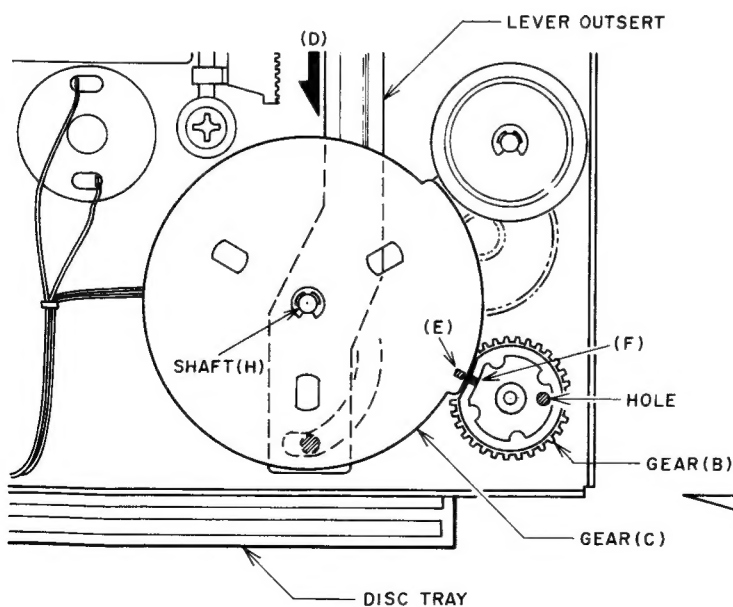


Fig. 5-2

VI. HOW TO INSTALL OF THE LOADING MECHANISM

1. Set the Disc Tray in a loading condition.
2. Set the gear (B) on the shaft (G).
When the gear (B) is set properly, fit the Hole of the gear (B) to the hole of the CHASSIS. (Fig. 6-1)
3. Press the Lever-outsert to fully direction (D).
(Fig. 6-1)
4. Set the gear (C) on the shaft (H).
When the gear (C) is set properly, fit the MARK (E) to the MARK (F). (Fig. 6-1)
5. Set the gear (A) on the shaft (I).
When the gear (A) is set properly, fit the Hole of the gear (A) to the Hole of the CHASSIS. (Fig. 6-1)



VII. ELECTRICAL ADJUSTMENT (SERVO)

ABOUT THE TEST MODE

- * This test mode use for the adjustment or check.
- * Short the pin 1 and 2 of the connector P12 and turn on the power.
Indication of the display on the front panel is "0 TEST" when set to the test mode.
- * Operation key on the front panel does not accept while in the test mode.
- * When release from the test mode, turn the power off.
- * When change the test mode NO., short the pins of the connector P13 as shown below.



TEST MODE OPERATION DISPLAY AND FUNCTION

OPERATION	TEST MODE DISPLAY	FUNCTION
ON	0 7E:57	* Laser diode "OFF" * All servo "OFF" * Short pin ⑥→②. Brake mode from disc motor is rotating
Pin ⑥ Pin ③	1 7E:57	* Laser diode "ON"
Pin ⑥ Pin ③	2 7E:57	* Focus servo "ON"
Pin ⑥ Pin ③	3 7E:57	* Only when focus servo is normal condition Disc motor rotate Audio mute release
Pin ⑥ Pin ①	4 7E:57	* Track servo "ON" * Slide servo "ON"
Pin ⑤ - Pin ③	—	* Pick up move to FF direction
Pin ⑤ - Pin ②	—	* Pick up move to FR direction
Pin ④ - Pin ①	—	* Open and close of disc tray

6

FOCUS SERVO GAIN

1. TEST DISC TYPE III (AT-711881)

2. Test mode 4

3. Connect an oscilloscope to pin ② of connector P2.

4. VR3

5. 1.0 to 1.4V p-p.

5

TRACKING SERVO GAIN

1. TEST DISC TYPE III (AT-711881)

2. Test mode 4

3. Connect an oscilloscope to pin ④ of connector P2.

4. VR1

5. 0.9 to 1.2V p-p.

NO.	ADJUSTMENT ITEM
1.	TEST DISC
2.	TEST MODE NO.
3.	TEST POINT & INSTRUMENT
4.	ADJUSTMENT PART
5.	RESOLT & REMARKS

ADJ. PART

TEST POINT

3

E-F BALANCE

1. TEST DISC TYPE III (AT-711881)

2. Test mode 3

3. Connect an oscilloscope to pin ② of connector P5.

4. VR2

5. A = B (DC Range)

4

OPTICAL AXIS

1. TEST DISC TYPE III (AT-711881)

2. Test mode 3

3. Connect an oscilloscope to pin ② of connector P5.

4. Adjustment screw A

5. Adjust screw A so that the waveform level on the oscilloscope is maximum.

* Before adjustment, move the pick-up so that coincide the adjustment window and adjustment screw A as shown below.

FRONT

* If the eye pattern is not clear, repeat step 2 FOCUS SERVO OFF-SET adjustment.

1

TRACKING SERVO OFF-SET

1. ----

2. Test mode 1

3. Connect an oscilloscope between pin ② of connector P5 and GND

4. VR2

5. 0 ± 5mV (DC Range)

7

PLL FREQUENCY

1. TEST DISC TYPE III (AT-711881)

2. Test mode 4

3. Connect an oscilloscope and a digital DC voltmeter between test pin LPF and GND.

4. VR5

5. Slightly turn the VR5 to counterclockwise so that the noise appear as in Fig A, then turn the VR5 to clockwise and measure with adigital voltmeter at the point noise disappear. (voltage A)

Then slightly turn the VR5 to clockwise so that the noise appear as in Fig. B, then turn the VR5 to counterclockwise and mesure with a digital voltmeter at the point noise disappear. (voltage B)

Set the VR5 at the point of A + B/2 V with the digital voltmeter.

2

FOCUS SERVO OFF-SET (PICK UP MLP-4D2 TYPE)

(PICK UP MLP-4F TYPE)

1. TEST TYPE III. (AT-711881)

2. Test mode 2 and 0.

3. Connect an oscilloscope (DC range) between pin 3 of P5 and GND.

4. VR4.

5. Measure the DC voltage at test mode 2, then set to test mode 0, and adjust VR4 so that the DC voltage at test mode 0 is equal as the DC voltage at test mode 2.

Note: * Use the disc without scratches.
* If the minimum point is out of ± 20° from the center of VR4, refer to the 4-3-1 ADJUSTMENT OF THE FOCUS OFF-SET.

(PICK UP MLP-4D2 TYPE)

1. TEST DISC TYPE III (AT-711881)

2. Test mode 4

3. Connect a frequency counter between pin ⑤ of connector P5 and GND, and connect an oscilloscope between pin ① of connector P5 and GND.

4. VR4

5. Turn the VR4 within the ± 20° from the center so that the indicated frequency on the frequency counter is minimum. (should be less than 120Hz)

SERVICE MANUAL

Downloaded from www.linephaze.com
- Find specs, manuals and used listings across thousands of audio products.

11

VIII. PARTS LIST

ATTENTION

1. When placing an order for parts, be sure to list Part No., Model No. and the description of each part. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.

2. Please make sure that Part No. is correct when ordering.
If not, a part different from the one you ordered may be delivered.

3. Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.

2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.

3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.

4. How to read the Parts List.

2. HEAD BASE BLOCK

REF. NO.	PART NO.	DESCRIPTION
2-1x	BH-T2023A320A	HEAD BASE BLOCK
2-2	HP-H2206A010A	HEAD R/P PR4-8FU C
2-3	ZS-477876	PAN20x03STL CMT
2-4	ZS-536488	BID20x08STL CMT
2-5	ZG-402895	SP CS ANGLE ADJUST

SP (Service Parts) Classification

A small "x" indicates that this part is not shown in the Photo or Illustration.

This number corresponds with the individual parts index number in that figure.

This number corresponds with the Figure Number.

6. MAIN PC BOARD

REF. NO.	PART NO.	DESCRIPTION
6-IC1	EI-324536	IC HD14049BP
6-IC2	EI-336801	IC MB8841-564M
6-C1A	EC-338399	C MMY V 223M 250AC [U,E,B,S]
6-C1B	EC-350949	C MMY V 223M 250DC [J]
6-C1C	EC-338397	C MMY V 223M 125AC [C,A]
6-X1	EI-318384	OSC X'TAL NC-18C

Symbols for primary destination
[A]: AAL(U.S.A.) [S]: SAA(Australia)
[B]: BEAB(England) [U]: U/T(Universal Area)
[C]: CSA(Canada) [V]: VDE(W. Germany)
[E]: CEE(Europe) [Y]: Custom Version
[J]: JPN(Japan)

SP (Service Parts) Classification

These reference symbols correspond with component symbols in the Schematic Diagrams.

- The available PC Board Blocks are listed separately.

5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No. listed at right of Part No.

WARNING

⚠ (*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

⚠ (*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

1. RECOMMENDED SPARE PARTS

Ref. No.	Part No.	Description
1	BB-P2016A290B	NEW 4 MECHA BLK CD-M712 [FORMER]
2	BM-371552	MOTOR RD-050Y-10240 [M901 LOADING MOTOR]
3	BM-376851	MOTOR RF-310T-11400 31.5MM SHAFT [M902 DISC MOTOR]
4	BO-374151	PICK UP MLP-4D2 [FORMER]
5	BO-372165	PICK UP MLP-4F [NEW]
6	*BT-374172	TRANS POW P2014(B,S) [B] [T901]
7	*BT-374171	TRANS POW P2014(E,V) [E,V] [T901]
8	BT-368261	TRANS PULSE TC-1027-04
9	ED-370976	D LED SLB-22PW3 [POWER]
10	ED-360409	D PHOTO PN323B
11	ED-361055	D SILICON DS135E-UB1
12	ED-301911	D SILICON H DS448
13	ED-344280	D SILICON H GMA-01-FY2 F05
14	ED-306724	D SILICON S5277B 100/1.0A
15	*ED-372125	D SILICON 11DF1 100/1.0A
16	*ED-346620	D ZENER H HZ27 2
17	ED-331198	D ZENER H HZ3 A1
18	*ED-338333	D ZENER H HZ5 B2
19	ED-346532	D ZENER H HZ7L A3
20	EH-380185J	FILTER EMI ZBF503S-01
21	EI-371091	IC CXD1075P
22	EI-371544	IC M5M4416P-15
23	EI-371082	IC M50421P
24	EI-372196	IC M50752-402SP
25	EI-375360	IC M50763-464SP CUSTOM
26	EI-371079	IC M51564P
27	EI-371570	IC M54544L
28	EI-371554	IC STA341M
29	EI-371579	IC S8054ALB
30	*EI-315243	IC TA78005AP
31	*EI-362977	IC TA79005P
32	EI-360040	IC TC74HC04P
33	EI-367271	IC UPC1490HA
34	EI-348409	OSC CE CSB400P 0.400000MHZ
35	EI-374176	OSC X'TAL AT-51 16.9344MHZ
36	EM-374177	IND FL 7-BT-83GK
37	*ER-366452	R FUSE H RF25SJ 1/4W 4R7J
38	ES-371577	SW LEAF MSW-1353NBKP [SW912 CLOSE SW]
39	ES-368075	SW LEAF MSW-17600MVCO [SW911 INNER SW]
40	ES-368077	SW MICRO MQS-1BAN [SW913 OPEN SW]
41	*ES-371104	SW PUSH SDDL1082A 01-1 [POWER SW]
42	ES-362883	SW TACT SKHLM
43	ES-360576	SW TACT SKHHPM
44	ET-371075	TR DTA124XS
45	ET-354094	TR DTC144WS
46	ET-308472	TR 2SA1115 E,F,G F05
47	ET-379668J	TR 2SA1392 S,T F05
48	ET-372199	TR 2SA1515 R
49	ET-308141	TR 2SC2603 G F05
50	ET-338410	TR 2SC2878 A,B
51	ET-372197	TR 2SC3377 R
52	MB-202578	BELT GUM

2. MECHA BLOCK

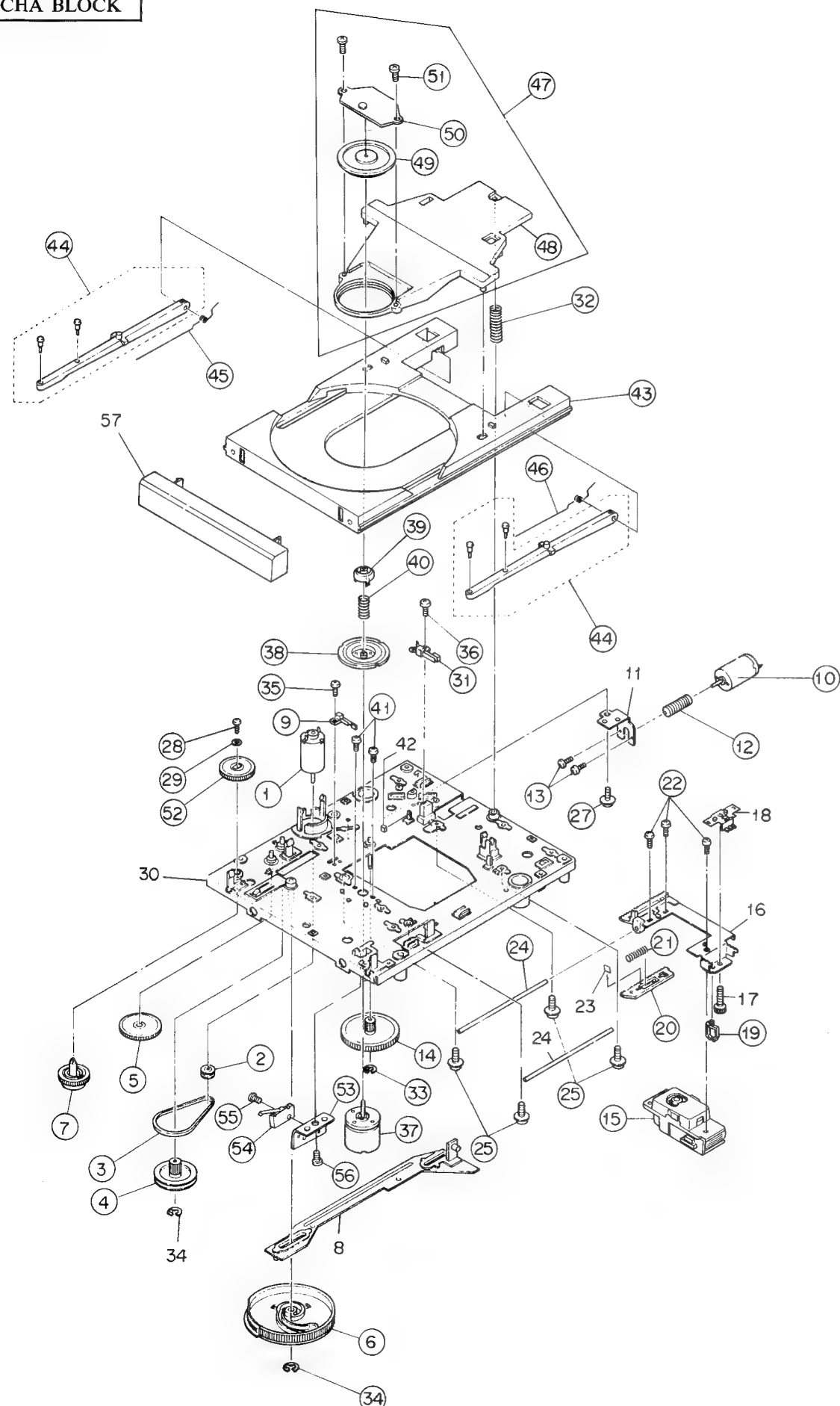
Ref. No.	Part No.	Description
1	BM-371552	MOTOR RD-050Y-10240 [M901 LOADING MOTOR]
2	MR-202576	PULLEY A
3	MB-202578	BELT GUM
4	MR-202579	PULLEY B
5	MZ-202580	GEAR D
6	MZ-202581	GEAR C
7	MZ-202582H05	GEAR B
9	ES-368075	SW LEAF MSW-17600MVCO [SW911 INNER SW]
10	BM-371552	MOTOR RD-050Y-10240 [M903 SLIDE MOTOR]
12	MZ-202426	WORM GEAR
13	ZS-365329	PAN20X03STL BDY PS3
14	MZ-202405	GEAR S
15A	BO-374151	PICK UP MLP-4D2 [FORMER]
15B	BO-372165	PICK UP MLP-4F [NEW]
20	MZ-202514	RACK SLIDE B
21	ZG-202515	SP RACK
22	ZS-419782	BID26X05STL CMT
25	ZS-297641	T2BID30X08STL CMT PW100
26	ZW-259650	PW30X050X020PBR
27	ZS-315511	ST PAN30X06STL CMT CUP
28	ZS-283353	T2BID20X08STL CMT
29	ZW-429120	PW23X090X050STL CMT
31	ES-371577	SW LEAF MSW-1353NBKP [SW912 CLOSE SW]
32	ZG-202570H03	SP CLAMP
33	ZW-329299	RING E200SUP CMT
34	ZW-410051	RETAINING RING E250SUP CMT
35	ZS-365353	PAN17X04STL BDY PS3
36	ZS-370834	BID26X05STL BDY
37	BM-376851	MOTOR RF-310T-11400 31.5MM SHAFT [M902 DISC MOTOR]
38	MZ-202572	TURN TABLE CD
39	MZ-202573H03	ADAPTOR
40	ZG-202574H02	SP ADAPTOR
41	ZS-367463	PAN20X025STL CMT
43	SC-202557H07	DISC TRAY
44	BZ-P2016A240A	NEW DISC HOLDER BLK CD-A405
45	ZG-203098	SP HOLDER L
46	ZG-203099	SP HOLDER R
47	BZ-P2016A250A	NEW DISC CLAMPER BLK CD-A405
51	ZS-367436	PT BID30X05STL CMT
52	MZ-202575H04	GEAR A
54	ES-368077	SW MICRO MQS-1BAN [SW913 OPEN SW]
55	ZS-368088	PAN17X06STL BDY PS3
56	ZS-371013	ST BID30X05STL BDY
57-B	BD-B374165B	PANEL TRAY PART CD-M939-B
57-G	BD-B374165A	PANEL TRAY PART CD-M939-G

NOTE
B - Black
G - Gold

3. P.C BOARD BLOCK

Ref. No.	Part No.	Description
1A	BA-P2014A030A	PC MAIN BLK CD-M939 [FORMER]
1B	BA-P2014A030D	PC MAIN BLK CD-M939(F) [NEW]

MECHA BLOCK



4. MAIN P.C BOARD

Ref. No.	Part No.	Description
D1	ED-344280	D SILICON H GMA-01-FY2 F05
D2	ED-361055	D SILICON DS135E-UB1
D3	ED-361055	D SILICON DS135E-UB1
D4	ED-361055	D SILICON DS135E-UB1
D5	*ED-301911	D SILICON H DS448
D6	*ED-301911	D SILICON H DS448
D7	*ED-301911	D SILICON H DS448
D8	*ED-301911	D SILICON H DS448
D9	ED-344280	D SILICON H GMA-01-FY2 F05
D10	ED-344280	D SILICON H GMA-01-FY2 F05
D11	ED-301911	D SILICON H DS448
D12	ED-301911	D SILICON H DS448
D14	ED-346532	D ZENER H HZ7L A3
D15	ED-344280	D SILICON H GMA-01-FY2 F05
D17	ED-344280	D SILICON H GMA-01-FY2 F05
D18	ED-344280	D SILICON H GMA-01-FY2 F05
D19	ED-344280	D SILICON H GMA-01-FY2 F05
D20	ED-344280	D SILICON H GMA-01-FY2 F05
D21	ED-338333	D ZENER H HZ5 B2
D22	ED-331198	D ZENER H HZ3 A1
FL2	EH-380185J	FILTER EMI ZBF503S-01
FR1	*ER-366452	R FUSE H RF25SJ 1/4W 4R7J
IC1	EI-371079	IC M51564P
IC2	EI-371554	IC STA341M
IC3	EI-371082	IC M50421P
IC4	EI-371544	IC M5M4416P-15
IC5	EI-375380	IC M50763-464SP CUSTOM
IC6	EI-372196	IC M50752-402SP
IC7	EI-371570	IC M54544L
IC8	EI-371579	IC S8054ALB
IC9	*EI-315243	IC TA78005AP
IC10	*EI-362977	IC TA79005P
IC15	EI-371091	IC CXD1075P
IC16	EI-360040	IC TC74HCU04P
J2	EJ-372185	PHONE J 3P HSJ0857-01-320
J3	EJ-372185	PHONE J 3P HSJ0857-01-320
J4	EJ-374175	PIN J JPJ2048-01-060 1P
L1	EO-345924	COIL FIX 1 LAL03KH 680K
L2	EO-345931	COIL FIX 1 LAL03KH 221K
L4	EO-345931	COIL FIX 1 LAL03KH 221K
L5	EO-345922	COIL FIX 1 LAL03KH 470K
L6	EO-345902	COIL FIX 1 LAL03KH 10M
P1	EJ-374191	SOCKET OPTICAL TOTX172
PT1	BT-368261	TRANS PULSE TC-1027-04
TR1	ET-372197	TR 2SC3377 R
TR2	ET-372199	TR 2SA1515 R
TR3	ET-372197	TR 2SC3377 R
TR4	ET-372199	TR 2SA1515 R
TR5	ET-308141	TR 2SC2603 G F05
TR6	ET-308141	TR 2SC2603 G F05
TR7	ET-308141	TR 2SC2603 G F05
TR8	ET-371075	TR DTA124XS
TR9	ET-371075	TR DTA124XS
TR10	ET-371075	TR DTA124XS
TR11	ET-371075	TR DTA124XS
TR12	ET-308141	TR 2SC2603 G F05
TR14	ET-379668J	TR 2SA1392 S.T F05
TR16	ET-308472	TR 2SA1115 E.F.G F05
TR19	ET-308141	TR 2SC2603 G F05
TR20	ET-308141	TR 2SC2603 G F05
TR21	ET-338410	TR 2SC2878 A.B
TR22	ET-354094	TR DTC144WS
TR23	ET-354094	TR DTC144WS
TR24	ET-308141	TR 2SC2603 G F05
TR25	ET-308472	TR 2SA1115 E.F.G F05
TR26	ET-308141	TR 2SC2603 G F05
VR1	EV-356577	R S-FIX H RH0615C 0.10W 103
VR2	EV-356577	R S-FIX H RH0615C 0.10W 103
VR3	EV-356577	R S-FIX H RH0615C 0.10W 103
VR4	EV-356577	R S-FIX H RH0615C 0.10W 103
VR5	EV-357619	R S-FIX H RH0615C 0.10W 104
X2	EI-374176	OSC X'TAL AT-51 16.9344MHZ
X3	EI-348409	OSC CE CSB400P 0.400000MHZ

5. POWER SUPPLY P.C BOARD

Ref. No.	Part No.	Description
C12	*EC-338496	C CE V FZ 472P 400AC
D1	*ED-372125	D SILICON 11DF1 100/1.0A
D2	*ED-372125	D SILICON 11DF1 100/1.0A
D3	*ED-372125	D SILICON 11DF1 100/1.0A
D4	*ED-372125	D SILICON 11DF1 100/1.0A
D5	ED-306724	D SILICON S5277B 100/1.0A
D6	ED-306724	D SILICON S5277B 100/1.0A
D7	ED-306724	D SILICON S5277B 100/1.0A
D8	ED-306724	D SILICON S5277B 100/1.0A
D9	*ED-346620	D ZENER H HZ27 2
D10	*ED-338333	D ZENER H HZ5 B2
SW1	*ES-371104	SW PUSH SDDL1082A 01-1 [POWER SW]

6. OPERATION (1) P.C BOARD

Ref. No.	Part No.	Description
IN1	EM-374177	IND FL 7-BT-83GK
TS1	ES-360576	SW TACT SKHHPM
TS2	ES-360576	SW TACT SKHHPM
TS3	ES-360576	SW TACT SKHHPM
TS4	ES-360576	SW TACT SKHHPM
TS5	ES-360576	SW TACT SKHHPM
TS6	ES-360576	SW TACT SKHHPM
TS7	ES-360576	SW TACT SKHHPM
TS8	ES-360576	SW TACT SKHHPM
TS9	ES-360576	SW TACT SKHHPM
TS10	ES-360576	SW TACT SKHHPM
1	SZ-372107	CUSHION FLD

7. OPERATION (2) P.C BOARD

Ref. No.	Part No.	Description
TS11	ES-362883	SW TACT SKHHLM
TS12	ES-362883	SW TACT SKHHLM
TS13	ES-362883	SW TACT SKHHLM
TS14	ES-362883	SW TACT SKHHLM
TS15	ES-362883	SW TACT SKHHLM
TS16	ES-362883	SW TACT SKHHLM
TS17	ES-362883	SW TACT SKHHLM
TS18	ES-362883	SW TACT SKHHLM
TS19	ES-362883	SW TACT SKHHLM
TS20	ES-362883	SW TACT SKHHLM

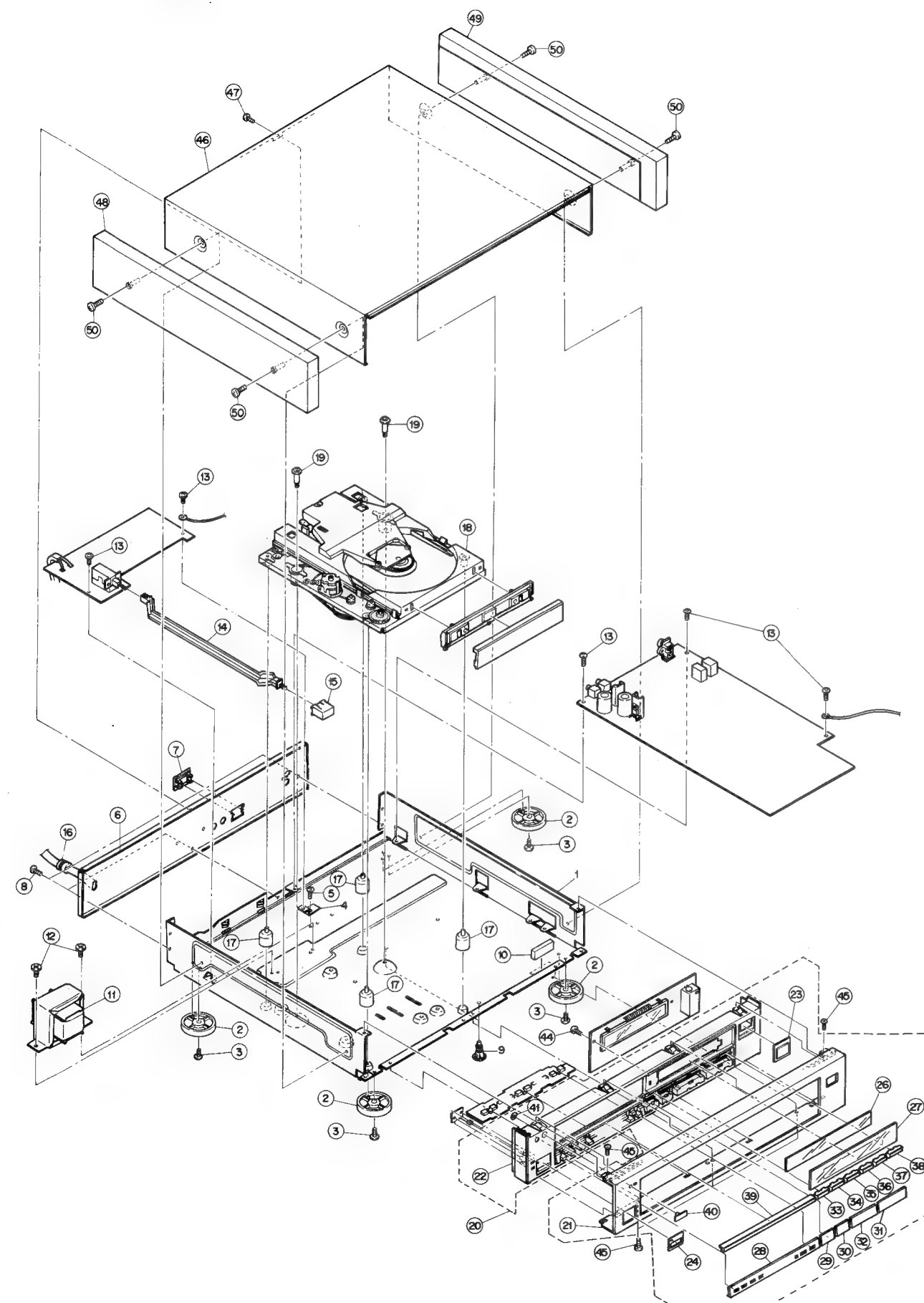
8. SENSOR P.C BOARD

Ref. No.	Part No.	Description
D1	ED-360409	□ PHOTO PN323B
IC1	EI-367271	IC UPC1490HA

9. LED P.C BOARD

Ref. No.	Part No.	Description
D201	ED-370976	D LED SLB-22PW3 [POWER]

FINAL ASSEMBLY BLOCK



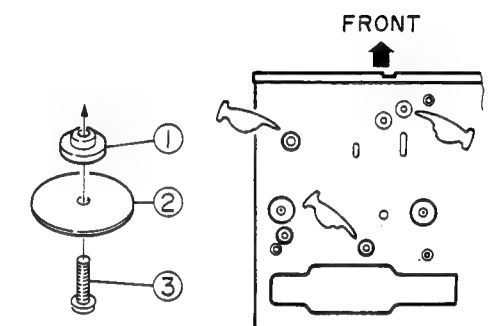
10. FINAL ASSEMBLY BLOCK

Ref. No.	Part No.	Description
2	SA-376945J	FOOT(2) PART
3	ZS-351186	ST BR30X08STL CMT C080
5	ZS-353355	CT BR30X06STL BZN PROJECTION
6A	SP-378533J1	PANEL REAR CD-M939(E) [E]
6B	SP-378534J1	PANEL REAR CD-M939(V) [V]
6C	SP-378535J1	PANEL REAR CD-M939(B) [B]
7	SE-375348	ESCUTCHEON
8	ZS-308673	T2PAN30X20STL NI3 GUIDE
11A	*BT-374171	TRANS POW P2014(E,V) [E,V][T901]
11B	*BT-374172	TRANS POW P2014(B,S) [B][T901]
12	ZS-313796	ST BID40X06STL CMT
13	ZS-336351	T2BR30X08STL NI3
14	MZ-370925	JOINT POWER
15-B	SK-370688B-A	KNOB POWER(B)
15-G	SK-370688A-A	KNOB POWER (G)
16A	*EW-363672	AC CORD 200 0364 LCFL B070 A EV [E,V]
16B	*EW-363684	AC CORD 200 LCFL B070 A B [B]
17	SZ-370924	CUSHION RUBBER
18A	BB-P2016A290B	NEW 4 MECHA BLK CD-M712 [FORMER]
18B	BB-P2016A290A	NEW 4 MECHA BLK CD-A405 [NEW]
19	ZS-202631	SCREW-METAL
20-B	BD-P2014A050A	PANEL FRONT BLK CD-M939-B [INCL. 21 TO 41]
20-G	BD-P2014A050B	PANEL FRONT BLK CD-M939-G
25	SZ-361424	PLATE REMOCON
40-B	SM-370750C	NAME PLATE AKAI B2
40-G	SM-370750B-A	NAME PLATE AKAI-G
41	ZW-653163	RING CS 280STL PKR
42	MT-321129	WIRE BAND B-60
43	MZ-553948	WIRE BAND F-100
44	ZS-310984	PT BR30X08STL CMT
45	ZS-326789	ST PAN30X06STL BNI
46-B	SP-370929B	COVER UPPER B
46-G	SP-370929A	COVER UPPER G
47	ZS-308846	T2BR30X08STL BZN PROJECTION
48	SP-371172	SIDE BOARD (L)
49	SP-371173	SIDE BOARD (R)
50	ZS-365678	SCREW SLIDE TYPE W/WASHER(J)

NOTE
B - Black
G - Gold

11. ACCESARY

Ref. No.	Part No.	Description
1	ZW-202681	WASHER
2	ZZ-302850	LABEL WASHER
3	ZS-331875	PT BR30X12STL CMT
4	ZZ-374173	CORD *P2014
5	EW-355829	CORD W/PLUG 3.5 PIN-PIN



Remove the three pick-up locking screws from the bottom of the CD player before attempting to use it.

Save these screws and reinsert them when transporting the CD player over long distances.

INDEX

Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.
BA-P2014A030A	1A	EI-367271	33	ET-354094	TR22	ZS-370834	36
BA-P2014A030D	1B	EI-367271	IC1	ET-354094	TR23	ZS-371013	56
BB-P2016A290A	18B	EI-371079	26	ET-371075	44	ZS-419782	22
BB-P2016A290B	1	EI-371079	IC1	ET-371075	TR8	ZW-202681	1
BB-P2016A290B	18A	EI-371082	23	ET-371075	TR9	ZW-259650	26
BD-B374165A	57-G	EI-371082	IC3	ET-371075	TR10	ZW-329299	33
BD-B374165B	57-B	EI-371091	21	ET-371075	TR11	ZW-410051	34
BD-P2014A050A	20-B	EI-371091	IC15	ET-372197	51	ZW-429120	29
BD-P2014A050B	20-G	EI-371544	22	ET-372197	TR1	ZW-653163	41
BM-371552	2	EI-371544	IC4	ET-372197	TR3	ZZ-302850	2
BM-371552	1	EI-371554	28	ET-372199	48	ZZ-374173	4
BM-371552	10	EI-371554	IC2	ET-372199	TR2		
BM-376851	3	EI-371570	27	ET-372199	TR4		
BM-376851	37	EI-371570	IC7	ET-379668J	47		
BO-372165	5	EI-371579	29	ET-379668J	TR14		
BO-372165	15B	EI-371579	IC8	EV-356577	VR1		
BO-374151	4	EI-372196	24	EV-356577	VR2		
BO-374151	15A	EI-372196	IC6	EV-356577	VR3		
BT-368261	8	EI-374176	35	EV-356577	VR4		
BT-368261	PT1	EI-374176	X2	EV-357619	VR5		
BT-374171	7	EI-375360	25	EW-355829	5		
BT-374171	11A	EI-375360	IC5	EW-363672	16A		
BT-374172	6	EJ-372185	J2	EW-363684	16B		
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ED-301911	D6	EO-345922	L5	MZ-202426	12		
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ED-306724	D7	ES-360576	TS2	MZ-370925	14		
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ED-344280	D19	ES-362883	TS15	SP-378534J1	6B		
ED-344280	D20	ES-362883	TS16	SP-378535J1	6C		
ED-346532	19	ES-362883	TS17	SZ-361424	25		
ED-346532	D14	ES-362883	TS18	SZ-370924	17		
ED-346620	16	ES-362883	TS19	SZ-372107	1		
ED-346620	D9	ES-362883	TS20	ZG-202515	21		
ED-360409	10	ES-368075	39	ZG-202570H03	32		
ED-360409	D1	ES-368075	9	ZG-202574H02	40		
ED-361055	11	ES-368077	40	ZG-203098	45		
ED-361055	D2	ES-368077	54	ZG-203099	46		
ED-361055	D3	ES-371104	41	ZS-202631	19		
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ED-372125	D4	ET-308141	TR12	ZS-326789	45		
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EI-315243	30	ET-308141	TR24	ZS-351186	3		
EI-315243	IC9	ET-308141	TR26	ZS-353355	5		
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EI-362977	IC10	ET-354094	45	ZS-368088	55		

ABBREVIATIONS (COMPACT DISC)

ABBREVIATION	EXPLANATION	ABBREVIATION	EXPLANATION
A-D	Analog to Digital (Convertor)	Mb	Mega Bits
ADC	Analog to Digital (Convertor)	MDA	Modulation
BCD	Binary Code Decimal	MFM	Modified Frequency Modulation
BPI	Bits per Inch	MM	Mono-stable Multivibrator
CD	Compact Disc	M : FM	Modified Modified Frequency Modulation
CIRC	Cross Interleaving & Reed Solomon Coding	MOD 2	Module 2 (Addition)
CLV	Constant Linear Velocity	MP	Microprocessor
CP	Clock Pulses	MSB	Most Significant Bit
CRCC	Cyclic Redundancy Check Codes	NA	Numerical Aperture
D Level	Decision Level	NRZ	Non Return to Zero
D-A	Digital to Analog (Convertor)	NRZ-I	Non Return to Zero Inverted
DAC	Digital to Analog (Convertor)	P	Parity Data
DAD	Digital Audio Disk	RAM	Pulse Amplitude Modulation
DEM	Dynamic Element Matching	PCM	Pulse Code Modulation
DPD	Differential Phase Detection	PD	Phase Detector
DSV	Digital Sum Value	PE	PHASE Encode
EFM	Eight to Fourteen Modulation	PLL	Phase Locked Loop
EX-OR	EXclusive OR	PNM	Pulse Number Modulation
FIC	Flux Changes per Inch	PPM	Pulse Phase Modulation
FIR	Finite Impulse Response	PWM	Pulse Width Modulation
FP	Front Pulse	Q	Parity Data
FPG	Front Pulse Gate	R,R ₁ ,R ₂ , etc	Data for Right Channel
f	Frequency of Sampling	RAM	Random Access Memory
GF	Galois Field	RPG	Rear Pulse Gate
H & V (Parity)	Horizontal & Vertical	SCOOP	Self Coupled Optical Pick-up
IIR	Infinite Impulse Response	S & H	Sample & Hold
kb	Kilo Bits	S/N	Signal to Noise Ratio
L,L ₁ ,L ₂ , etc	Data for Left Channel	SSG	Standard Signal Generator
LPF	Low Pass Filter	SYS CON	SYSTEM CONTROL
LSB	Least Significant Bit		

AKAI ELECTRIC CO., LTD.

12-14, 2-Chome, Higashi-Kojiya, Ohta-ku, Tokyo, Japan

TEL: Tokyo (742) 5111 CABLE: HIFIAKAI TOKYO TELEX: J26261

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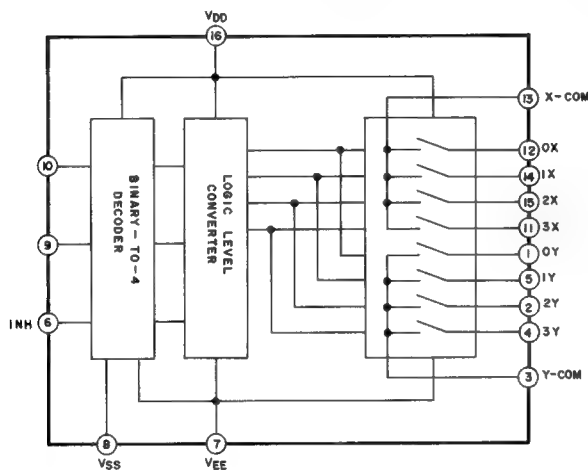
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350 Printed in Japan

AKAI MODEL CD-M939

SCHEMATIC DIAGRAM AND PC BOARDS

M4052BP MULTIPLEXER



TRUTH TABLE

CONTROL INPUTS			"ON" CHANNEL
INHIBIT	B	A	
L	L	L	0X, 0Y
L	L	H	1X, 1Y
L	H	L	2X, 2Y
L	H	H	3X, 3Y
H	*	*	NONE

* DON'T CARE

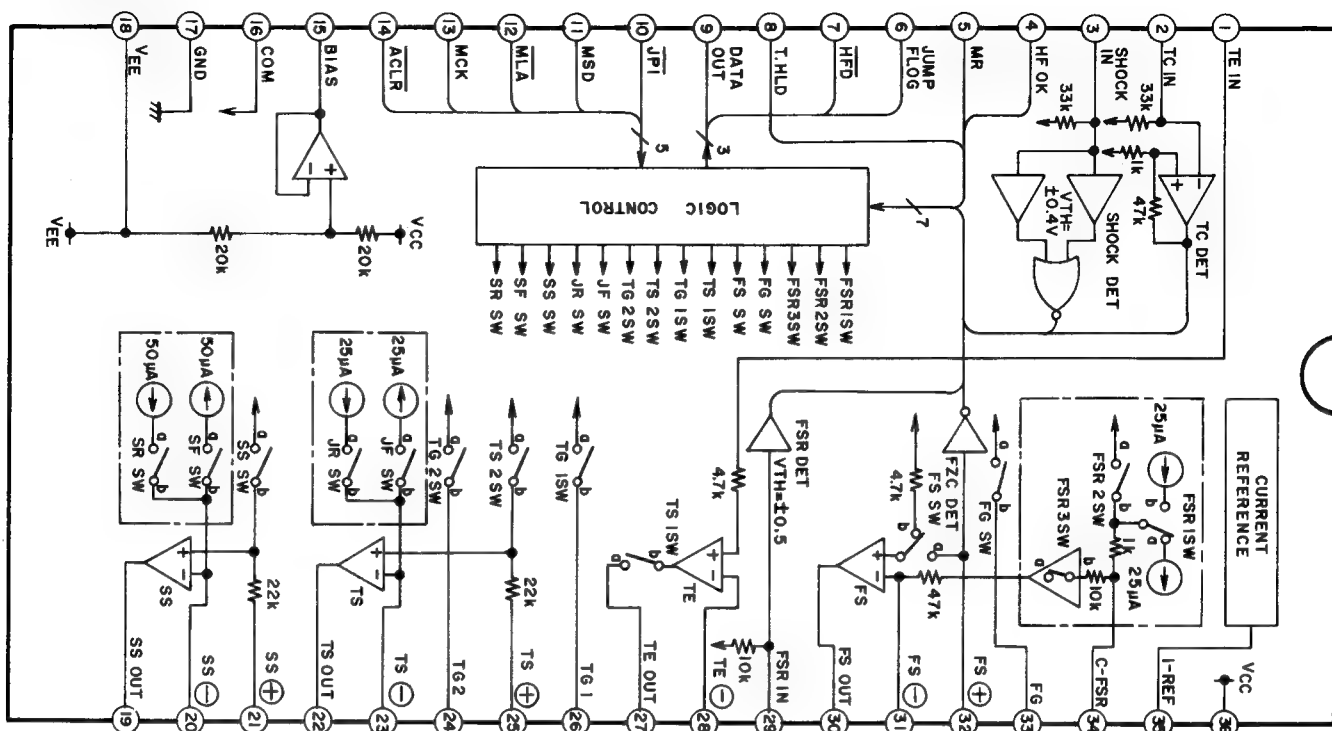
M50421P(SIGNAL PROCESSOR)

PIN NO.	NAME	INPUT/OUTPUT	FUNCTION	PIN NO.	NAME	INPUT/OUTPUT	FUNCTION
1	DDSCK	O	Delayed DSCK. LRCK Latch clock	34	SBCS	O	Sub Code Sch output
3	EMP	O	Enphasis Code output	35	SBCR	O	Sub Code Rch output
4	PWM1	O	Power Disc Motor PWM output 1	36	SBCQ	O	Sub Code Qch output
5	PWM2	O	Power Disc Motor PWM output 2	37	SBCP	O	Sub Code Pch output
6	TEST	I	Test Mode Select input	38	RAS	O	Row Address Stroke output
7	DASEL	I	D/A Interface control input	40	RDB2	I/O	External memory address input output 2
8	DFPAS	I	Digital Filter control input	42	RDB1	I/O	External memory address input output 1
9	IINH	I	Interporation forbidden mode select input	43	RDB4	I/O	External memory address input output 4
10	MSD	I	Micro computer interface serial data input	44	CAS	O	Column Address Stroke signal output
11	MCK	I	Microcomputer interface shift lock input	45	RDB3	I/O	External memory address input output 3
12	MLA	I	Microcomputer interface Data latch clock input	46	WE	O	Right enable signal output
13	ACLR	I	Micro computer interface Resister clear input	48	RAD1	O	External memory address output 1
14	HFD	I	Reproducing short signal input	49	RAD2	O	External memory address output 2
15	HF	I	Reproducing signal input	50	RAD3	O	External memory address output 3
16	IBEE	I	Detection/PLL reference current input	51	RAD7	O	External memory address output 7
17	TLC	O	Slice level control output	52	RAD4	O	External memory address output 4
18	LPF	I/O	PLL loop filter connect	53	RAD5	O	External memory address output 5
19	SYCLK	O	Frame Sync. statu outputs	54	RAD6	O	External memory address output 6
20	VDD2	I	Analog Power	55	RAD0	O	External memory address output 0
22	DRD	O	Law Disc rotate status output	56	VDD1	I	Power
23	EFFK	O	EFM Frame clock output	57	EST2	O	Error status 2
24	SCOR	O	Sub Code Sync. signal output.	58	EST1	O	Error status 1
25	CRCF	O	Sub Code Q CR check output	59	C846	O	Clock output 8.4672MHz
26	SCCK	I	Shift clock (sub code serial output) input	60	C423	O	Clock output 4.2336MHz
27	SCOE2	I	Sub code parallel output P~Sch enable input	61	C16MI	I	1/2 divider input
28	SCOE1	I	Sub code parallel output T~Wch enable input	62	C8M0	O	1/2 divider
29	Vss2	I	GND	63	XI	I	Xtal oscillator input
30	SBCW	O	Sub Code Wch output	64	X0	O	Xtal oscillator output
31	SBCV	O	Sub Code Vch output	65	VSS1	I	GND
				66	DOFK	O	OSC Frame clock output 7.35KHz
				67	DO	O	D/A converter serial
				69	WDCK	O	D/A converter word clock
				70	LRCK	O	D/A converter left, right clock

M50752-402SP SYSTEM CONTROL (MICRO COMPUTER)

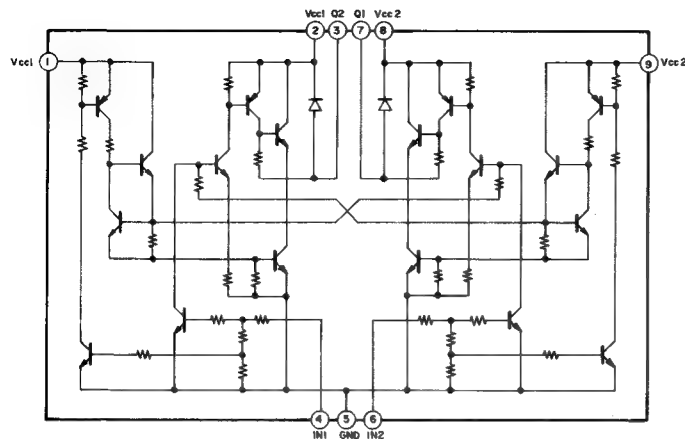
PIN NO.	SYMBOL	I/O	DISCRIPTION
1	OPEN	O	LOADING MOTOR OPEN
2	CLOSE	O	LOADING MOTOR CLOSE
3	JPI	O	1 TRACK JUMP CONTROL SIGNAL OUTPUT
4	MSD	O	MICRO COMPUTER SERIAL DATA TRANSFER CLOCK
5	MCK	O	MICRO COMPUTER SERIAL DATA TRANSFER
6	MLA	O	MICRO COMPUTER SERIAL DATA LATCH
7	MUTE	—	NOT USED
8	ACK	—	NOT USED
9	NC	—	NOT USED
10	DATA IN	I	INTERNAL STATUS INPUT
11	SYCLK	I	FRAME SYNC. STATUS INPUT
12	DRD	I	LAW DISC ROTATE STATUS INPUT
13	SCOR	I	SUB CODE SYNC. SIGNAL INPUT
14	CRCF	I	SUB CODE QCR CHECK INPUT
15	SUBQ	I	SUB CODE Q SIGNAL INPUT
16	KD4	—	
17	TEST	I	TEST MODE SELECT INPUT
18	STB	—	
19	EFFK	I	EFM FRAME CLOCK INPUT
20	NC	—	NOT USED
21	CNVSS	—	GND
22	RESET	I	RESET
23	XIN	I	XTAL OSCILLATOR INPUT
24	XOUT F	—	NOT USED
25	XOUT S	—	NOT USED
26	VSS	—	GND
27	XCIN	I	XTAL OSCILLATOR INPUT
28	XCOUT	—	NOT USED
29	KD3	I	KEY INPUT
30	KD2	I	
31	KD1	I	
32	KD0	I	
33	ϕ	—	NOT USED
34	VP	—	—27V
35	LD ON	O	LASER CONTROL SIGNAL OUT
36	G7	O	DISPLAY SIGNAL OUT
37	G6	O	
38	G5	O	
39	G4	O	
40	G3	O	DISPLAY SIGNAL OUT/KEY OUT
41	G2	O	
42	G1	O	
43	i	O	DISPLAY SIGNAL OUT
44	g	O	
45	f	O	
46	e	O	
47	d	O	
48	c	O	
49	b	O	
50	a	O	
51	VCC	—	+5V
52	VCC	—	

M51564P(PICK UP SERVO)



Pin No.	NAME	Function Block	Input/Output	Function
1	TE IN	Pre. Amp input	I	Tracking error signal input
2	TC IN	Pre. Amp input	I	Track cross signal input
3	SHOCK IN	Pre. Amp input	I	SHOCK detection circuit input
4	HF OK	Pre. Amp input	I	HFOK signal input
5	MR	Pre. Amp input	I	Disc mirror detection signal input
6	JUMP HAG	Micro computer I/O	O	TS OFF · JFJR · BRAKE output (JUMP Mode)
7	HFD	Micro computer I/O	O	MR input = "1" and Track servo loop off HFD = "1"
8	T · HLD	TRACK SERVO	I	TS 1 SW direct control
9	DATA OUT	Micro computer input	O	Internal status output
10	JP1	Micro computer input	I	1 track jump control signal input
11	MSD	Micro computer input	I	Micro computer serial data transfer clock
12	MLA	Micro computer input	I	Micro computer serial data latch
13	MCK	Micro computer input	I	Micro computer serial data transfer
14	ACLR	Micro computer input	I	Internal register flip-flop all clear
15	BIAS	Power	O	Vcc/2 Bias power output
16	COM	Power	I	COMMON ± Power → GND, one level power → BIAS
17	GND	Power	I	GND pin
18	VEE	Power	I	Minus power, one level power → GND
19	SS OUT	SLIDE SERVO	O	Operational amplifier SS output
20	SS	SLIDE SERVO	I	Operational amplifier SS invert input
21	SS	SLIDE SERVO	I	Operational amplifier SS non-invert input
22	TS OUT	TRACK SERVO	O	Operational amplifier TA output
23	TS	TRACK SERVO	I	Operational amplifier TA invert input
24	TG 2	TRACK SERVO	I	Track gain change switch TG 2 output
25	TS	TRACK SERVO	I	Operational amplifier TA non-invert input
26	TG 1	TRACK SERVO	I	Track gain change switch TG 1 output
27	TE OUT	TRACK SERVO	O	Operational amplifier TE output
28	TE	TRACK SERVO	I	Operational amplifier TE invert input
29	FSR IN	FOCUS SERVO	I	Focus research voltage level detector input
30	FS OUT	FOCUS SERVO	O	Operational amplifier FA output
31	FS	FOCUS SERVO	I	Operational amplifier FA invert input
32	FS	FOCUS SERVO	I	Operational amplifier FA non-invert input
33	FG	FOCUS SERVO	I	Focus gain change switch FG output
34	C · FSR	FOCUS SERVO	I	Focus search wave form time constant condenser
35	I-REF	FOCUS SERVO	I	Connect current setup resistor
36	VCC	Power	I	PLUS power

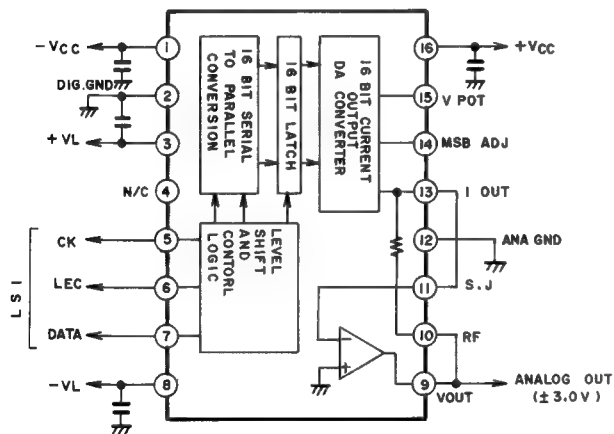
M54544L LOADING DRIVE



TRUTH TABLE

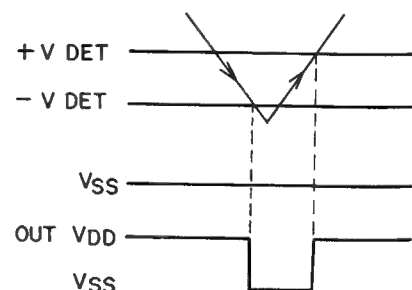
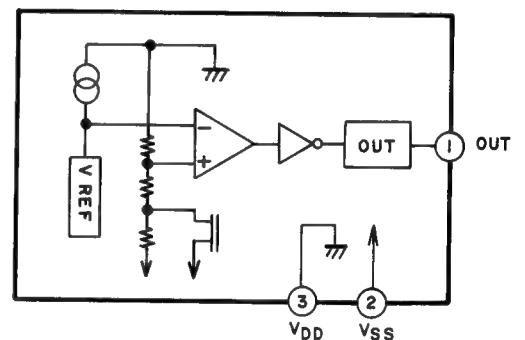
INPUT		OUTPUT		REMARKS
1	2	1	2	
0	0	"OFF" state	"OFF" state	—
1	0	1	0	NORMAL ROTATE
0	1	0	1	RIVERSE ROTATE
1	1	0	0	BRAKE

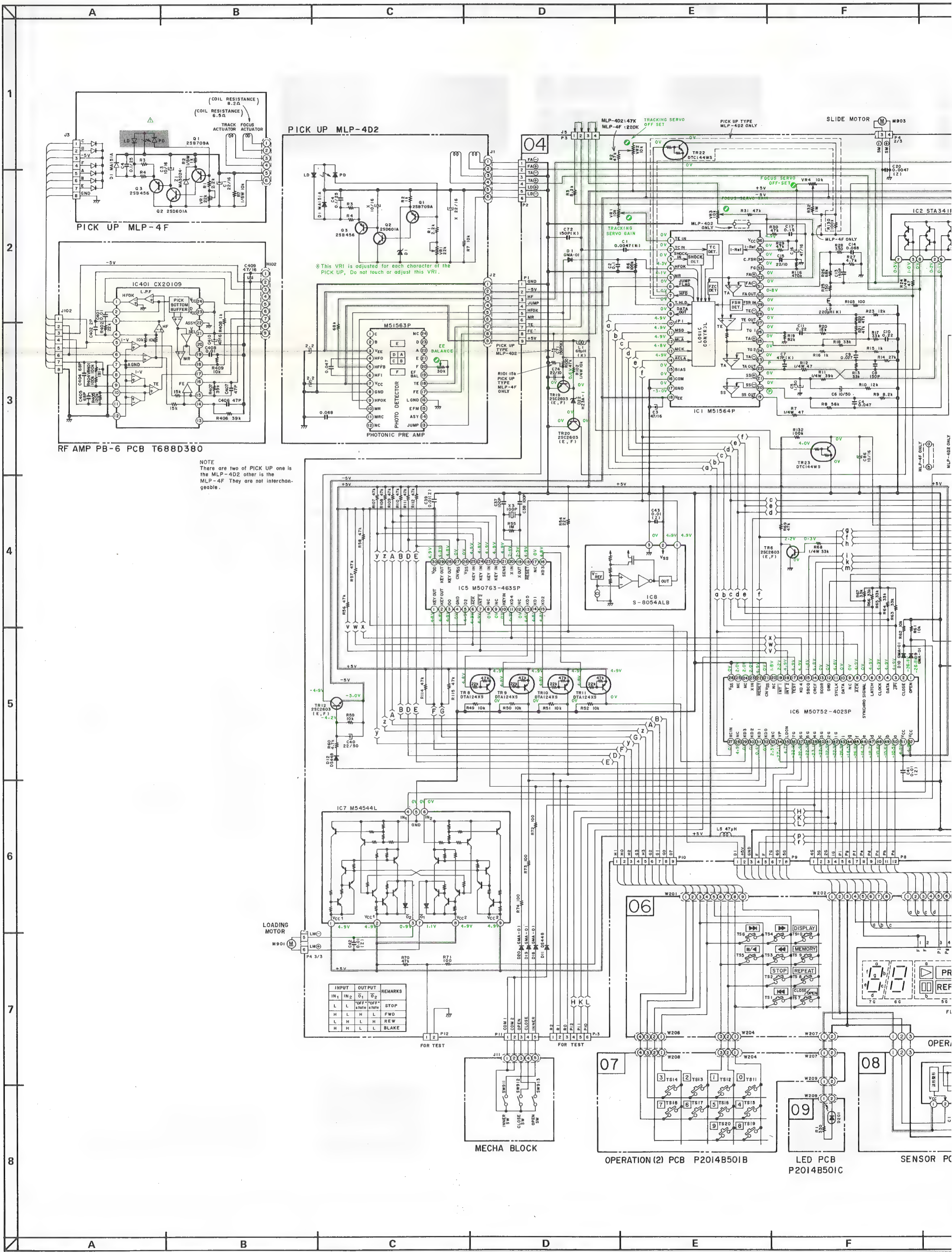
PCM-56PJ 16 BIT D/A CONVERTER

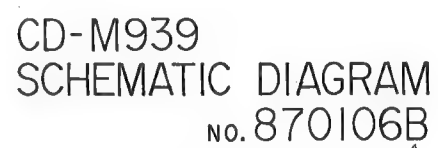


PIN NO.	FUNCTION	PIN NO.	FUNCTION
1	-Vcc	16	+Vcc
2	DIG GND	15	VPOT
3	+VL	14	MSB ADJ
4	N/C	13	Iout
5	CK	12	ANA GND
6	LEC	11	SJ
7	DATA	10	RF
8	-VL	9	Vout

S8054ALB VOLTAGE DETECTOR



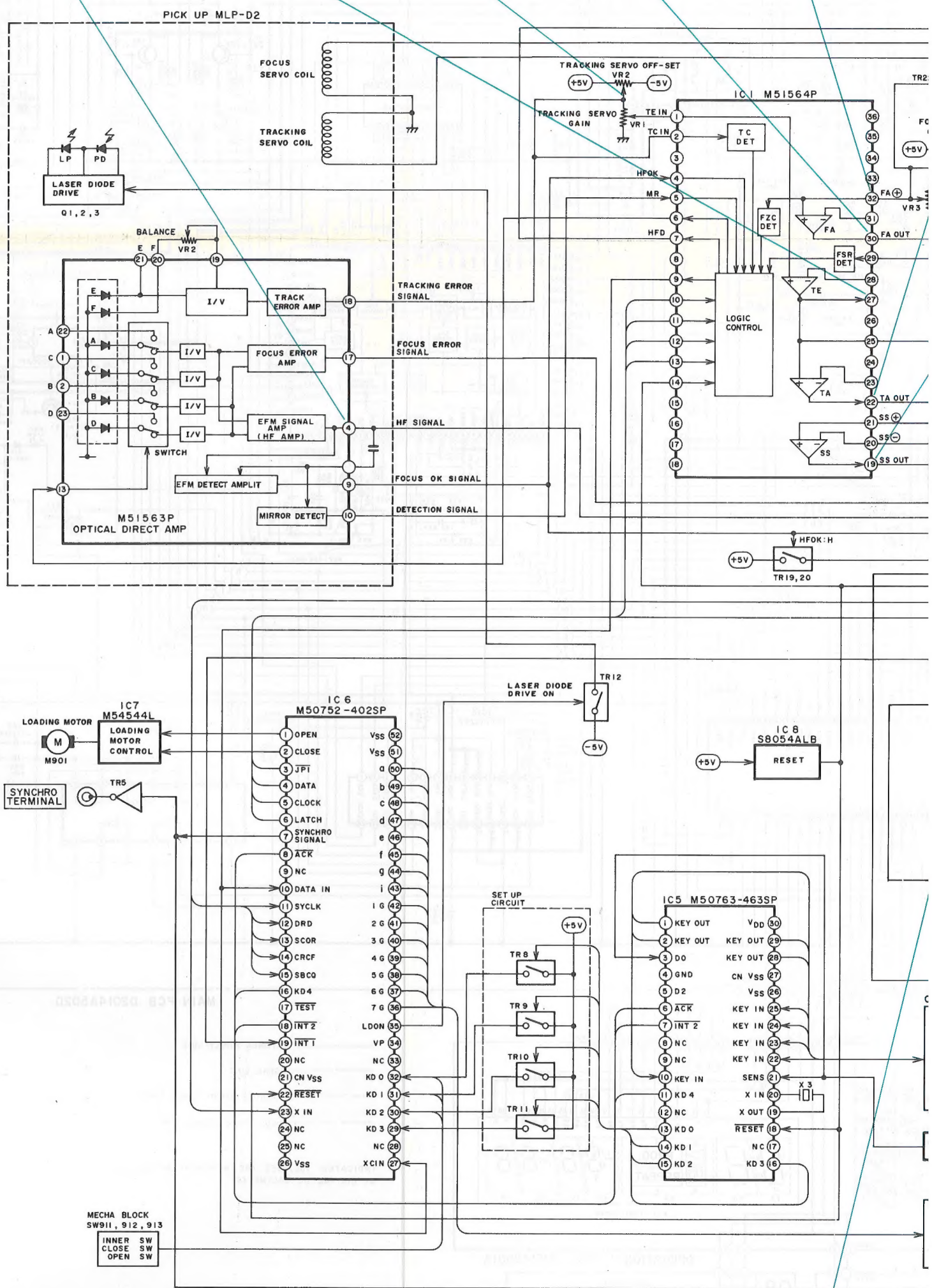


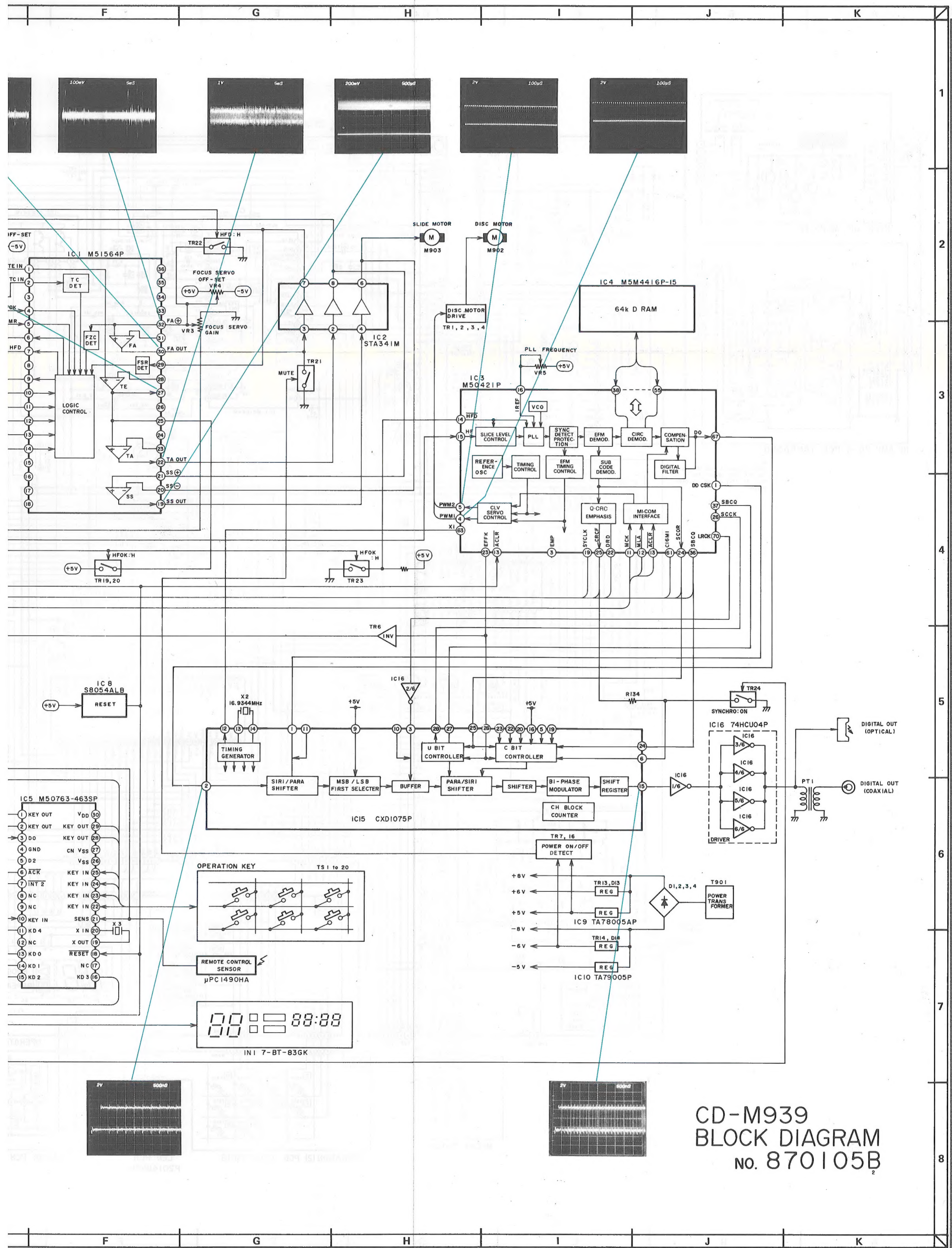


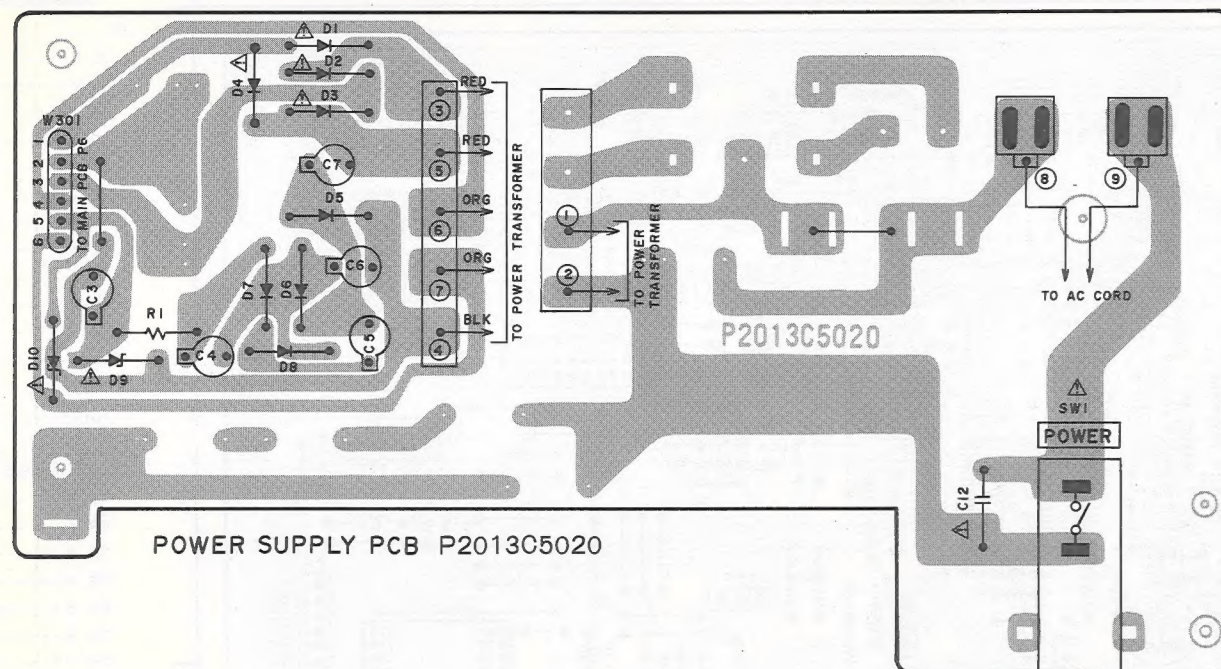
500mV 5ms

200mV 5mS

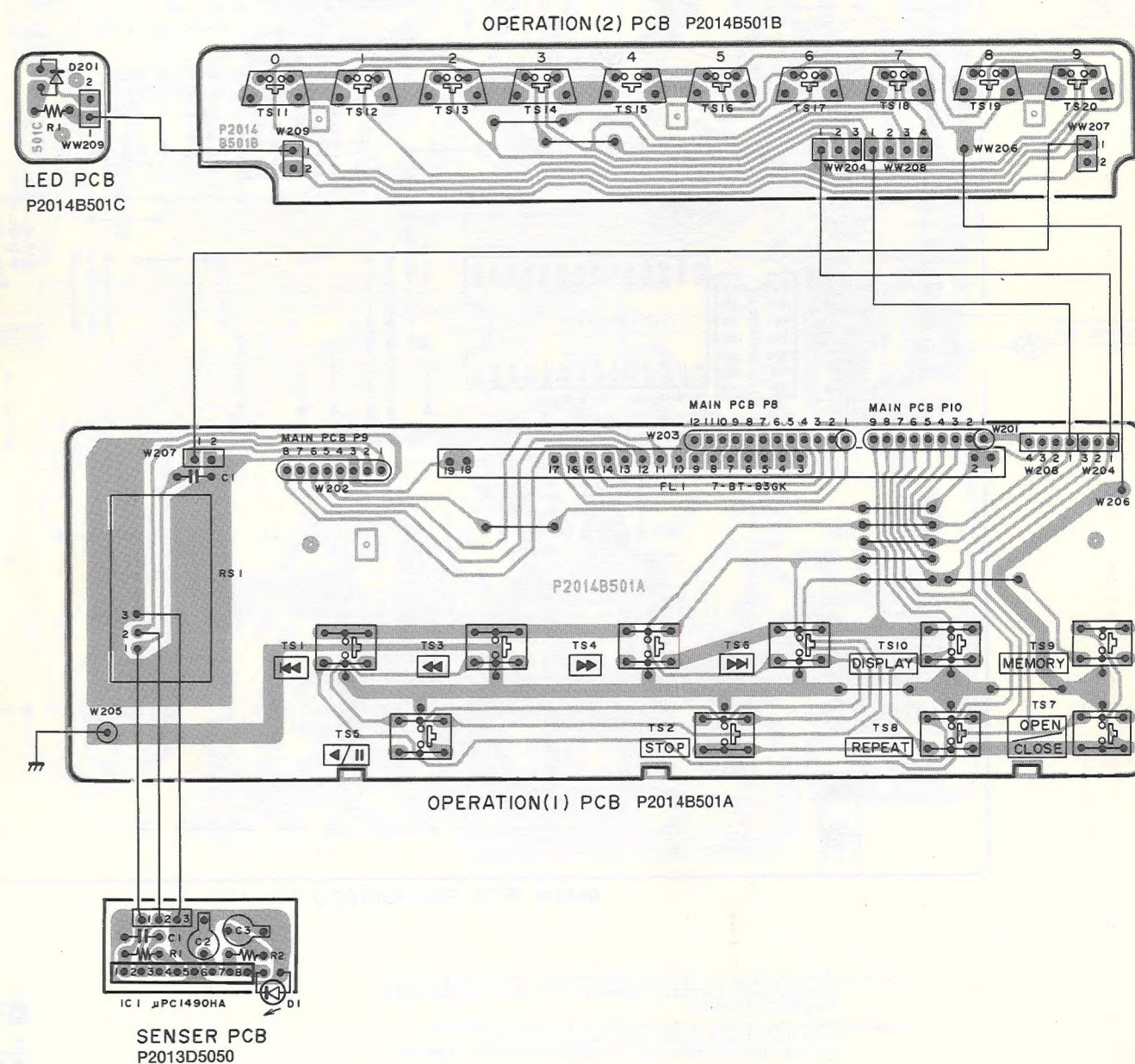
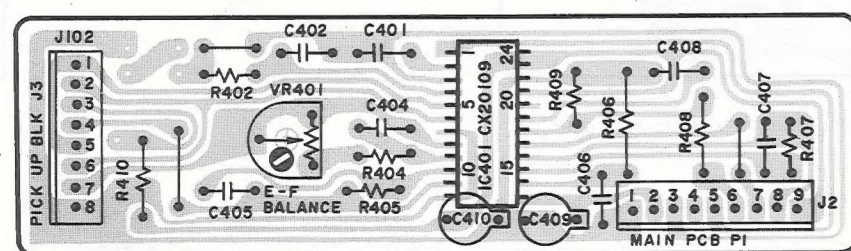
100mV 5mS

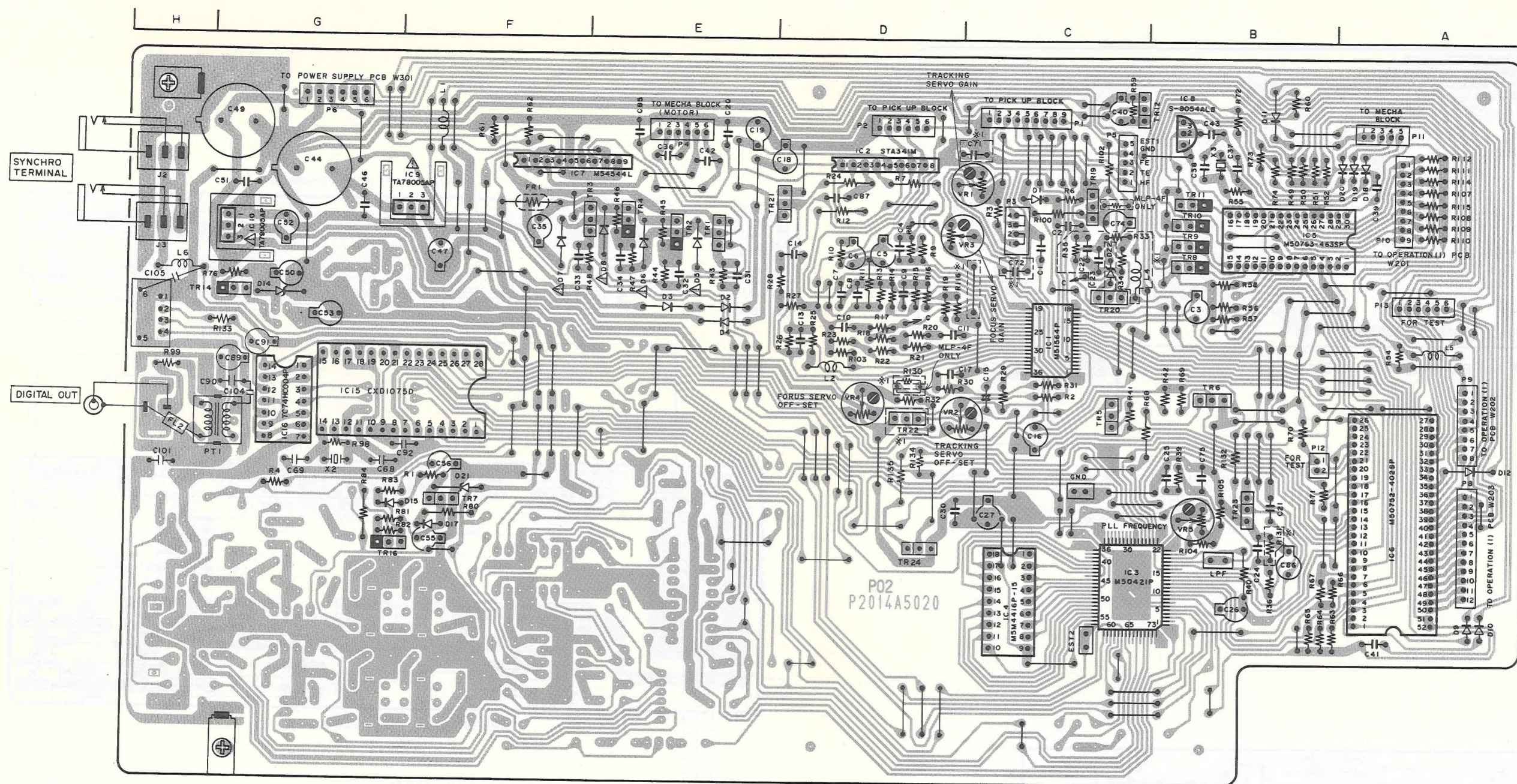






WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.
 AVERTISSEMENT: Δ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.





MAIN PCB P2014A5020

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- PNP TRANSISTOR
- NPN TRANSISTOR
- FET

* : WHEN USING THE PICK UP TYPE MLP-4D2 ONLY.

- 2SA1115
2SC2603
DTC144WS
- DTA124XS
- 2SC3383
2SC2878
2SC3377
2SA1515
- 2SA1248
2SC3116

LOCATION OF COMPONENT

- IC 1-----C2
- IC 2-----D1
- IC 3-----C3
- IC 4-----C3
- IC 5-----B1
- IC 6-----A3
- IC 7-----F1
- IC 8-----B1
- IC 9-----F1
- IC10-----G1
- IC11-----E3
- IC12-----F3
- IC13-----F4
- IC14-----G3

TRANSISTOR

- TR 1-----E1
- TR 2-----E1
- TR 3-----E1
- TR 4-----E1
- TR 5-----C2
- TR 6-----B2
- TR 7-----F3
- TR 8-----B2
- TR 9-----B1
- TR10-----B1
- TR11-----B1
- TR12-----B1
- TR13-----G2
- TR14-----G2
- TR15-----E4
- TR16-----G3
- TR17-----G3
- TR17b-----G4
- TR18-----H3
- TR18b-----G3
- TR19-----C1
- TR20-----C2
- TR21-----D1
- TR22-----D2
- TR23-----B3
- TR25-----G2
- TR26-----G2

CONNECTOR

- P 1-----C1
- P 2-----D1
- P 3-----C1
- P 4-----E1
- P 5-----C1
- P 6-----G1
- P 7-----E4
- P 8-----A3
- P 9-----A2
- PI0-----A1
- PI1-----A1
- PI2-----B3
- PI3-----A2