

ROTEL *hifi*

STEREO COMPACT DISC PLAYER

RCD-940BX

TECHNICAL MANUAL

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Safety Caution

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

THIS SET EMPLOYS A LASER. THEREFORE, BE SURE TO FOLLOW CAREFULLY THE INSTRUCTIONS BELOW WHEN SERVICING.

WARNING !!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

LASER WARNING LABEL

THE LABEL SHOWN BELOW ARE AFFIXED.

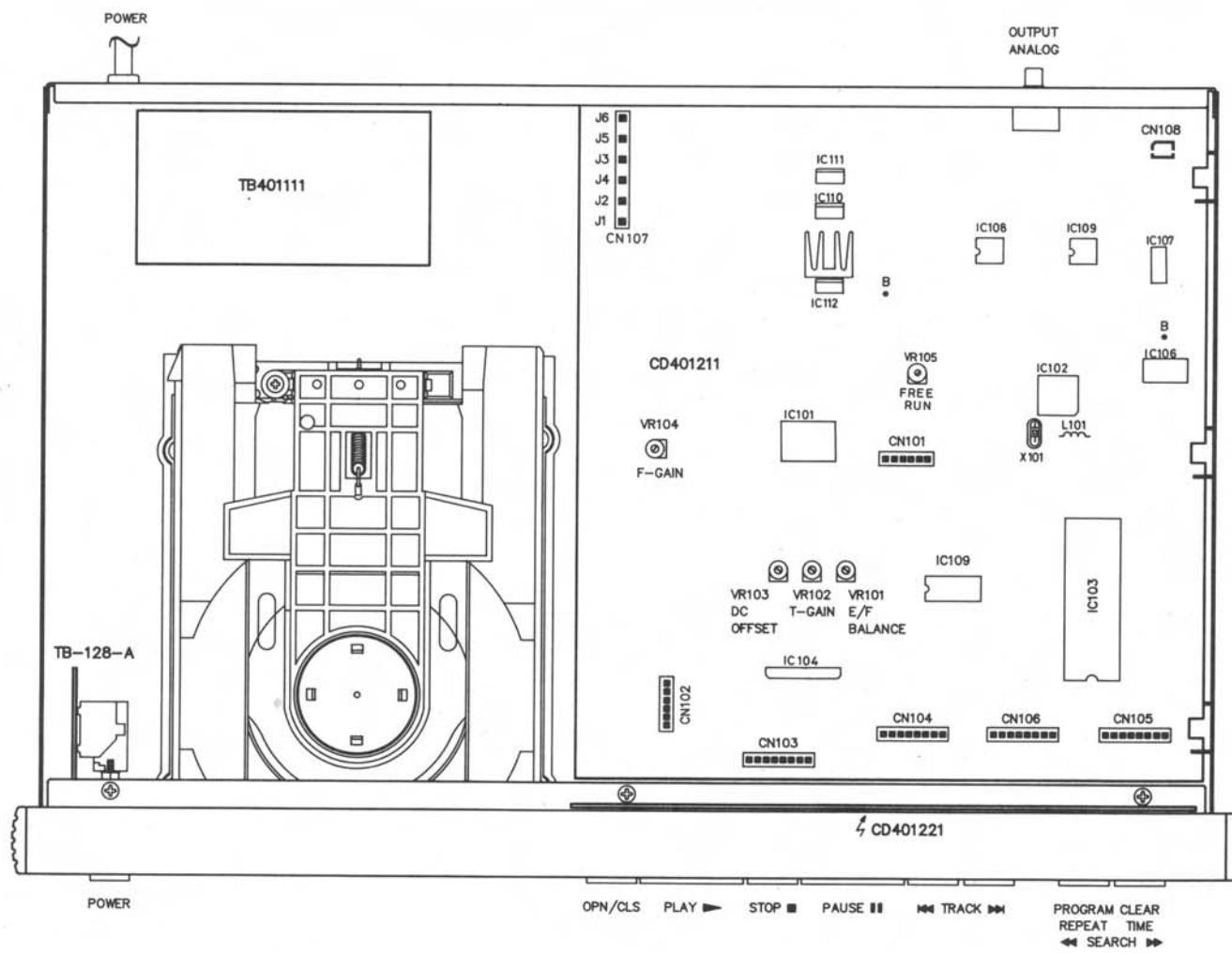
CAUTION

INVISIBLE LASER RADIATION WHEN OPEN, DO NOT STARE INTO BEAM.

DANGER

INVISIBLE LASER RADIATION WHEN OPEN, AVOID DIRECT EXPOSURE TO BEAM.

Chassis Layout



Specifications

RCD 940BX COMPACT DISC PLAYER

Frequency response	5 - 20,000 Hz ± 0.8 dB
Harmonic distortion	< 0.005% @ 1 kHz
Channel separation	> 90 dB @ 1 kHz
Speed accuracy, wow and flutter	Quartz crystal accuracy
Signal to noise ratio	> 110 dB
Digital to analog converter	18 bit linear
Digital filter	8 x Oversampling
Power requirements	115 volts AC 50/60 Hz 230 volts AC 50/60 Hz
Power consumption	30 watts
Weight	4.4 kgs/ 9.7 lbs
Dimensions	440 (w) x 92 (h) x 316 (d) mm 17-3/8" (w) x 3-5/8" (h) x 12-7/16" (d)

All specifications are accurate at the time of printing. Rotel reserves the right to make improvements without notice.

ADJUSTMENT PROCEDURES

REQUIRED EQUIPMENTS

- DC Voltmeter
- Dualtrace Oscilloscope
- Frequency Counter
- Signal Generator
- Plastic Screwdriver
- Test Disc (SONY: YEDS18, TEAC: MCD-111)

SETTING OF INITIAL POSITION OF VOLUME

The variable resistors are set to the following initial positions.

VR101 (E-F BAL)	Mechanical center
VR102 (T GAIN)	Mechanical center
VR103 (TOFFSET)	Mechanical center
VR104 (F GAIN)	Mechanical center
VR105 (PLL)	Mechanical center

FREE RUN FREQUENCY ADJUSTMENT

1. Turn on the power and set the unit to the STOP mode.
2. Connect the frequency counter between jumper PCK and GND (use probes 10:1).
3. Short R138 (IC102 side) and GND.
4. Adjust VR105 so that the frequency counter indicates 4.2218 MHz ($\pm 10\text{KHz}$).

FOCUS OFFSET CONFIRMATION

1. Turn on the power and set the unit to the STOP mode.
2. Connect a DC voltmeter and oscilloscope between jumper FC and GND.
3. Confirm that the indication on the DC voltmeter is -0.7V / -1.5V.

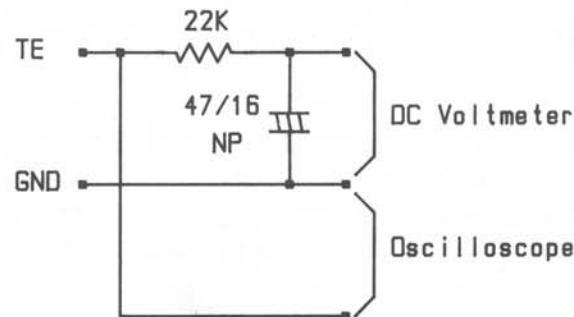
TRACKING OFFSET ADJUSTMENT

1. Turn on the power and set the unit to the STOP mode.
2. Connect a DC voltmeter and oscilloscope between jumper TC and GND.
3. Short jumper TOFF and GND.
4. Adjust VR103 so that the indication on the DC voltmeter is $0.1\text{V} \pm 20\text{mV}$.

NOTE: This adjustment should be made again after the adjustment of tracking Gain and E-F balance.

E-F BALANCE ADJUSTMENT

1. Turn on the power short jumper TEST and GND and jumper TROF and GND so that tracking servo is off.
2. Place test disc MCD-111 on the table load.
3. Connect a DC voltmeter and oscilloscope to jumper TE and GND through the low-pass filter shown below.



4. Press the PLAY button.
5. Adjust VR101 so that the DC voltmeter and oscilloscope is minimum voltage (wave form on oscilloscope is symmetrical to 0V line).

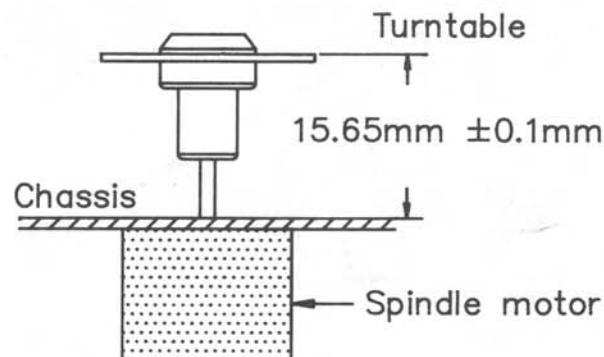
CONFIRMATION HF

Connect an oscilloscope to jumper HF and GND and observe the indication is 2.0 -3.3 Vp-p.

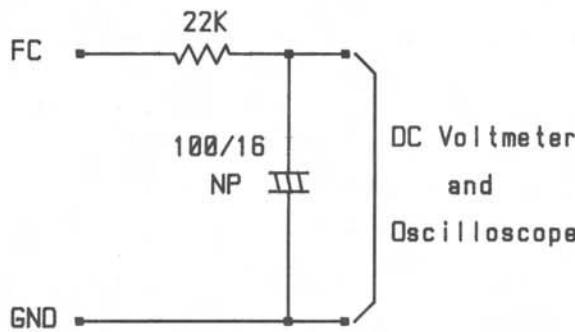
ADJUSTMENT OF TURNTABLE HEIGHT

This adjustment must be made when the motor replaced.

1. Attach the turntable so that its top surface is $15.65\text{mm} \pm 0.1\text{mm}$ from the top of the chassis.

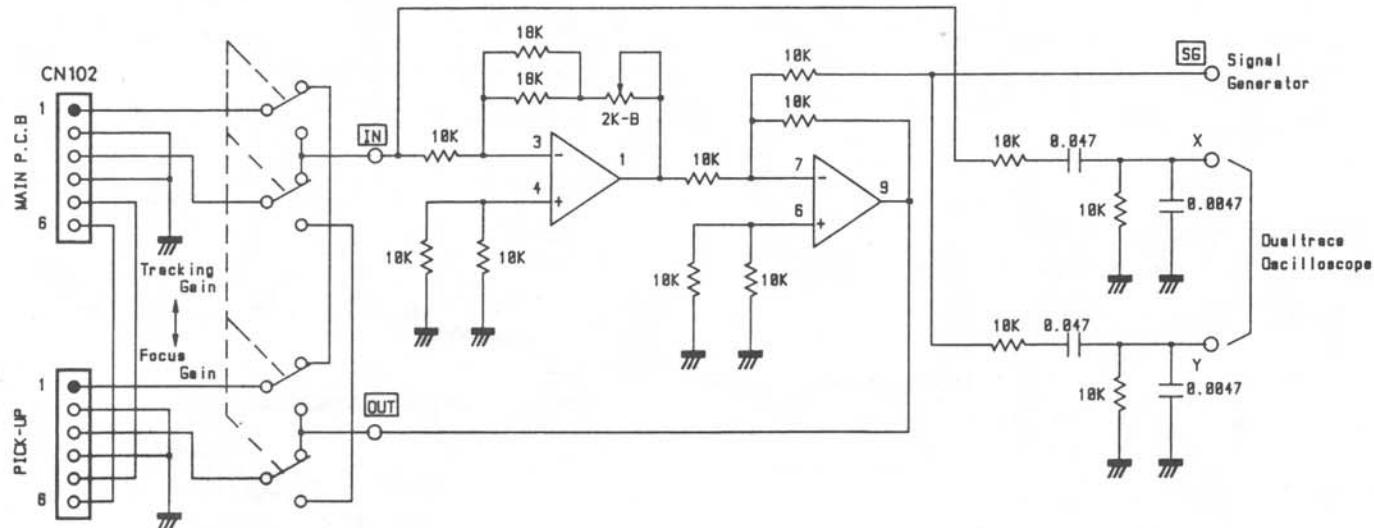


2. Connect test jumper **FC** and **GND** to a DC voltmeter and oscilloscope through the low-pass filter.



3. Turn on the power and playback the first selection on test disc SONY YEDS18.
 4. Readjust the height of the turntable if the reading on the DC voltmeter is not in the range of below.
 INSIDE: $0V \pm 0.2V$.
 OUTSIDE: $0V \pm 0.35V$.
 Adjusting turntable is height by 0.55-0.65mm shift voltage by 1V.

- Remove connector CN102 from the pick-up and connect the measurement circuit between the main PCB and pick-up.
- The IC used is TA7256P.
- VR control 2 kohm shorts IN and SG, 1kHz 1Vp-p is suppled from the signal generator, and adjustment is made for minimum output from OUT.



ADJUSTMENT OF FOCUS/TRACKING GAIN
 The measurement circuit shown in the previous page is necessary for accurate adjustment of the focus and tracking gain. If this circuit cannot be made, make adjustments using the simplified procedure.

SIMPLIFIED ADJUSTMENT PROCEDURE

Tracking gain adjustment

VR102 set to a position 30° from its mechanical center as shown in the diagram below.

Focus gain adjustment

VR104 set to a position 40° from its mechanical center as shown in the diagram below.



PRECISE ADJUSTMENT PROCEDURE

• Tracking gain adjustment

1. Connect the measurement circuit shown above, turn on the power, and mount the test disk.
2. Play back the first selection on the test disk, and apply a 1800Hz 0.5Vp-p signal from the signal generator.
3. Observe the resurge waveforms on the oscilloscopes, and adjust VR102 so that the phase difference of outputs X and Y from the measurement circuit is 90°.

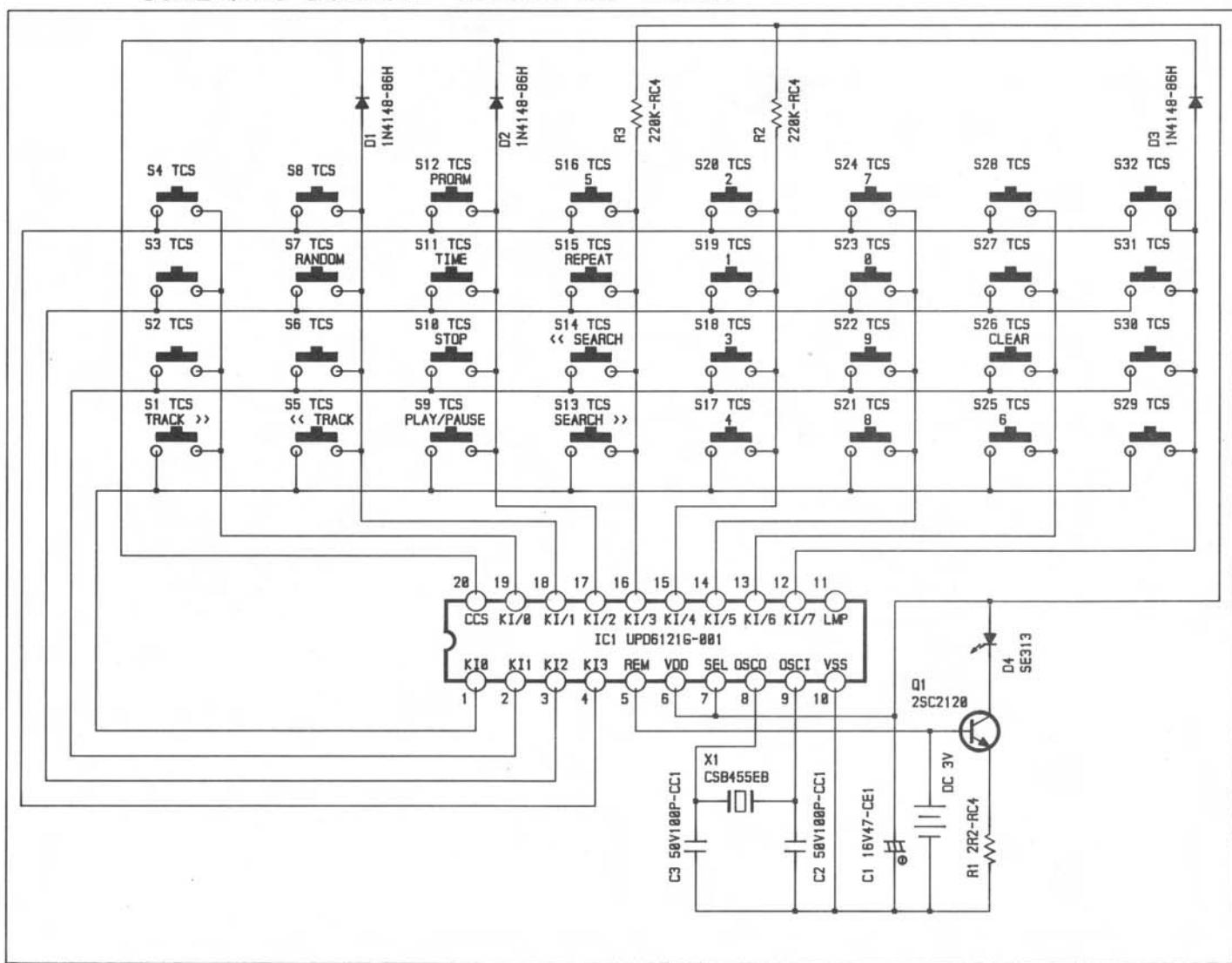
• Focus gain adjustment

1. Connect the measurement circuit shown above, turn on the power, and mount the test disk.
2. Play back the first selection on the test disk, and apply a 1050Hz 0.5Vp-p signal from the signal generator.
3. Observe the resurge waveforms on the oscilloscope, and adjust VR104 so that the phase difference of outputs X and Y from the measurement circuit is 90°.

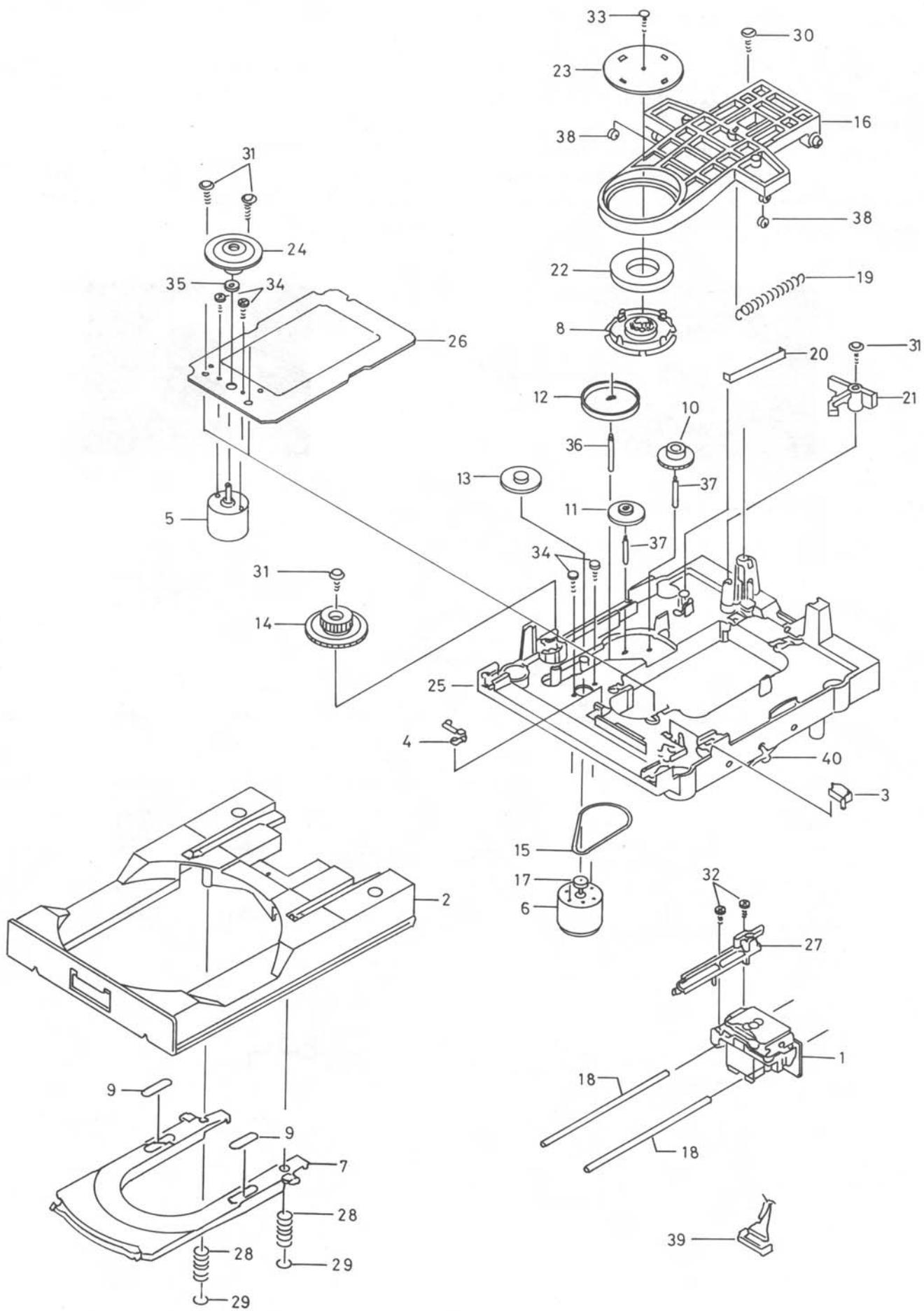


REMOTE CONTROL HANDSET

SCHEMATIC DIAGRAM MODEL NO. RR-921



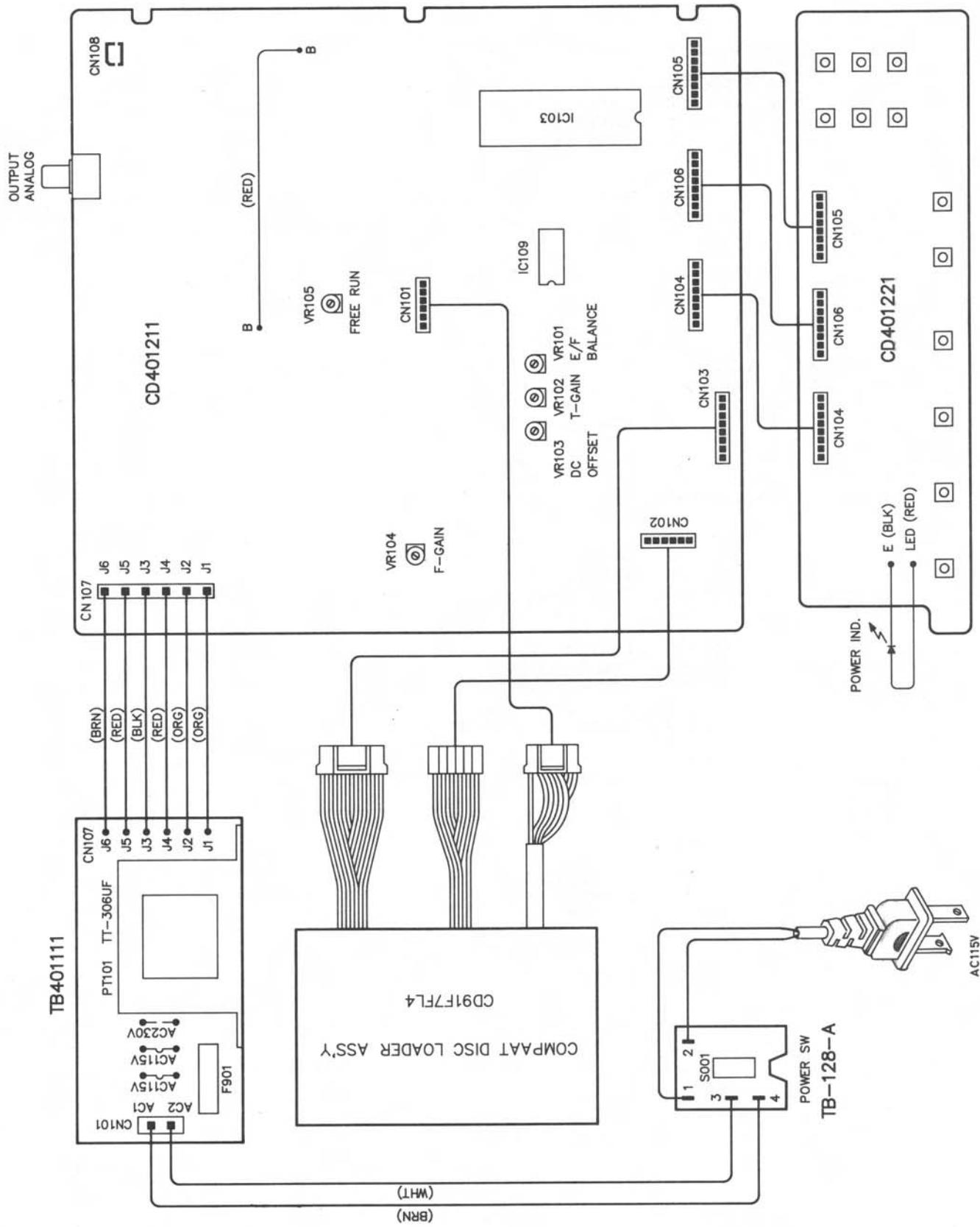
Disassembly Diagram



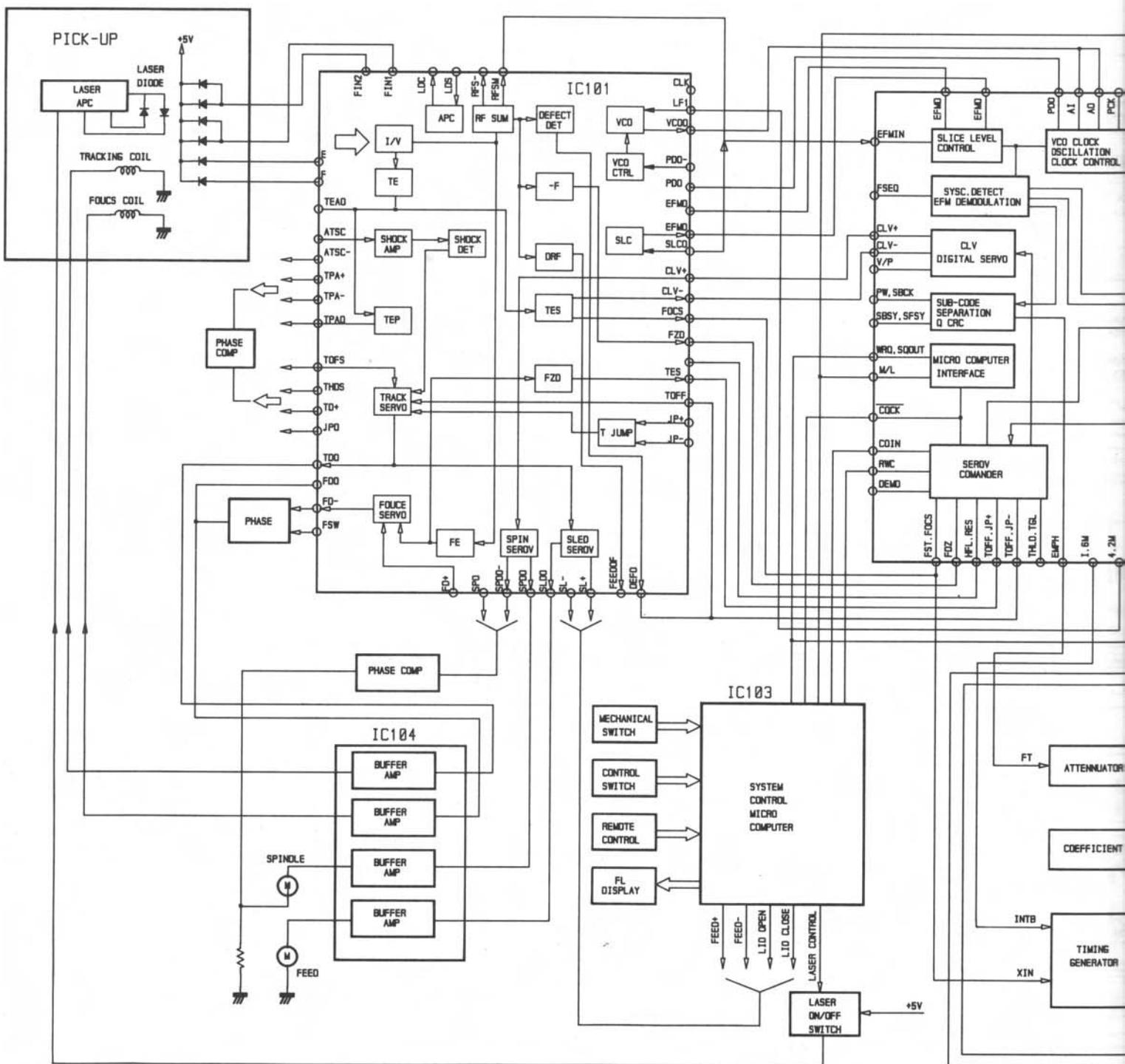
MECHANISM PARTS LIST

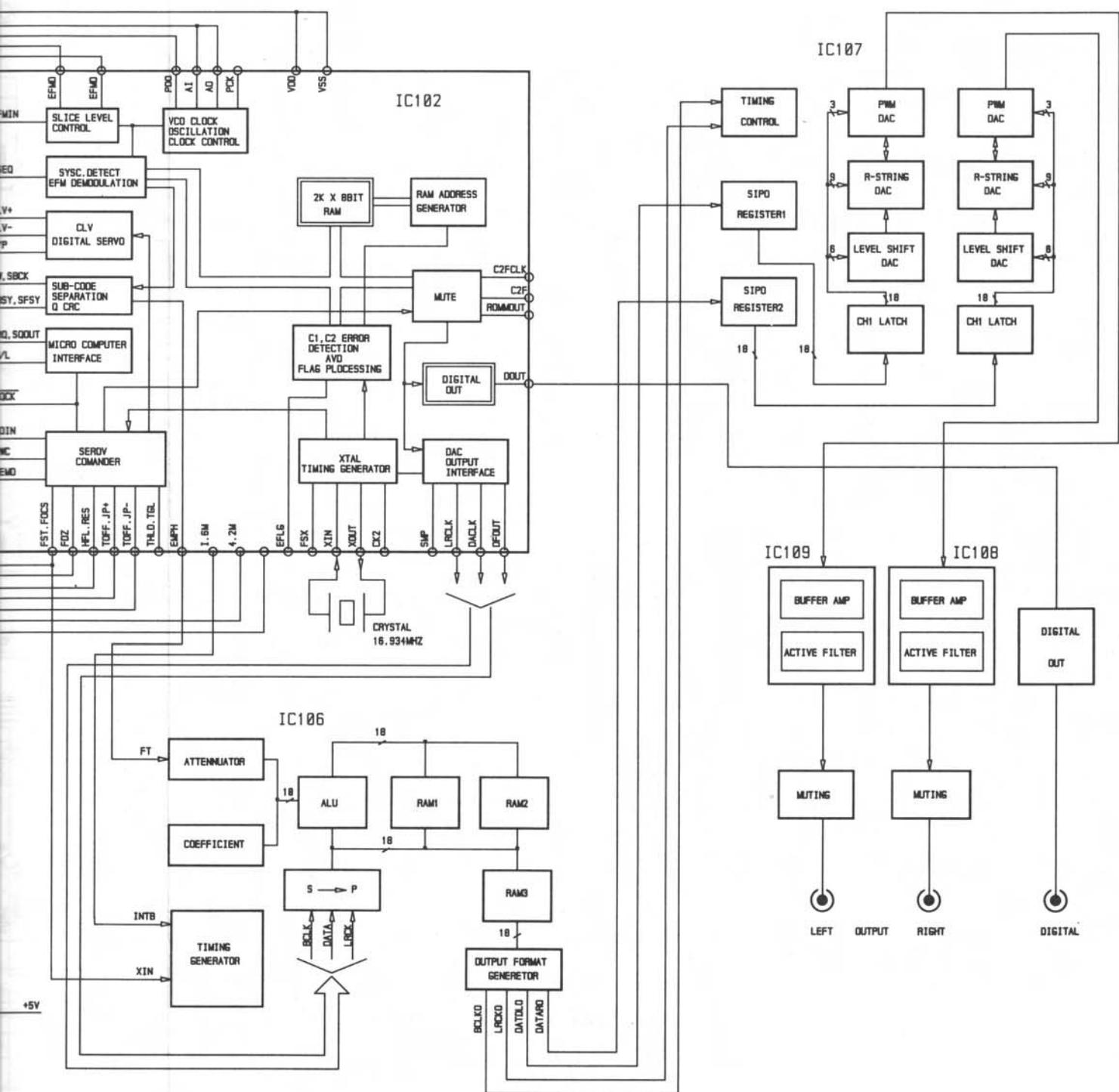
ITEM	DESCRIPTION	PARTS CODE
01-01	4A41000200	PICKUP, LASER, PIK
01-02	2761A00500	TABLE, LOADING
01-03	A231207010	LEVER SW 1PIT
01-04	A231979890	LEAF SW
01-05	A527971820	MOTOR
01-06	OM10A02100	ASSY, MOTOR, 3.0V, 0.3W
01-07	2713A00500	LIFTER, CD, TABLE
01-08	2451A03500	HOLDER, DISC
01-09	2571A01200	FELT, DISC
01-10	2511A07600	GEAR, PINION PICK
01-11	2511A07500	GEAR, LOAD PICK
01-12	2511A07900	GEAR, PULLY
01-13	2511A07700	GEAR, LOAD TABLE
01-14	2511A07800	GEAR, PINION TABLE
01-15	2563A01600	BELT, SQUARE
01-16	2762A00200	FLAP, DISC CLAMP
01-17	2523A01500	PULLY MOTOR
01-18	2744A00200	SHAFT, SLIDE, PICK
01-19	2811A03500	SPRING, TENS, FLAP
01-20	2814A03600	SPRING, PLATE
01-21	2711A04300	ARM, CHANGE
01-22	2641A01300	MAGNET, DISC CLAMP
01-23	2642A00500	YOKE, MAGNET
01-24	B522900300	TURNTABLE ASSY
01-25	2311A05000	CHASSIS, LOAD
01-26	2311A05100	CHASSIS, CD
01-27	2511A07400	GEAR, RACK
01-28	2812A03900	SPRING, COMP, TABLE
01-29	2381002200	SPECIAL SCREW
01-30	M420128300	SCREW (B TITE SEMS) Z
01-31	E421942700	SCREW WASHER
01-32	SE205R001A	SCR FLT PCS 2x5
01-33	SF204R001E	SCR S-TPG PIN 2x4
01-34	SE172R502M	SCR PAN PCS 1.7x2.5
01-35	2383000900	SPECIAL WASHER
01-36	2551A04800	SPINDLE, GEAR L
01-37	2551A04900	SPINDLE, GEAR S
01-38	2751A00800	ROLLER, FRAP
01-39	OJ13A31100	ASSY, CONNECTOR-S.PH9P
01-40	E472907100	WIRE BAND

Wiring Diagram



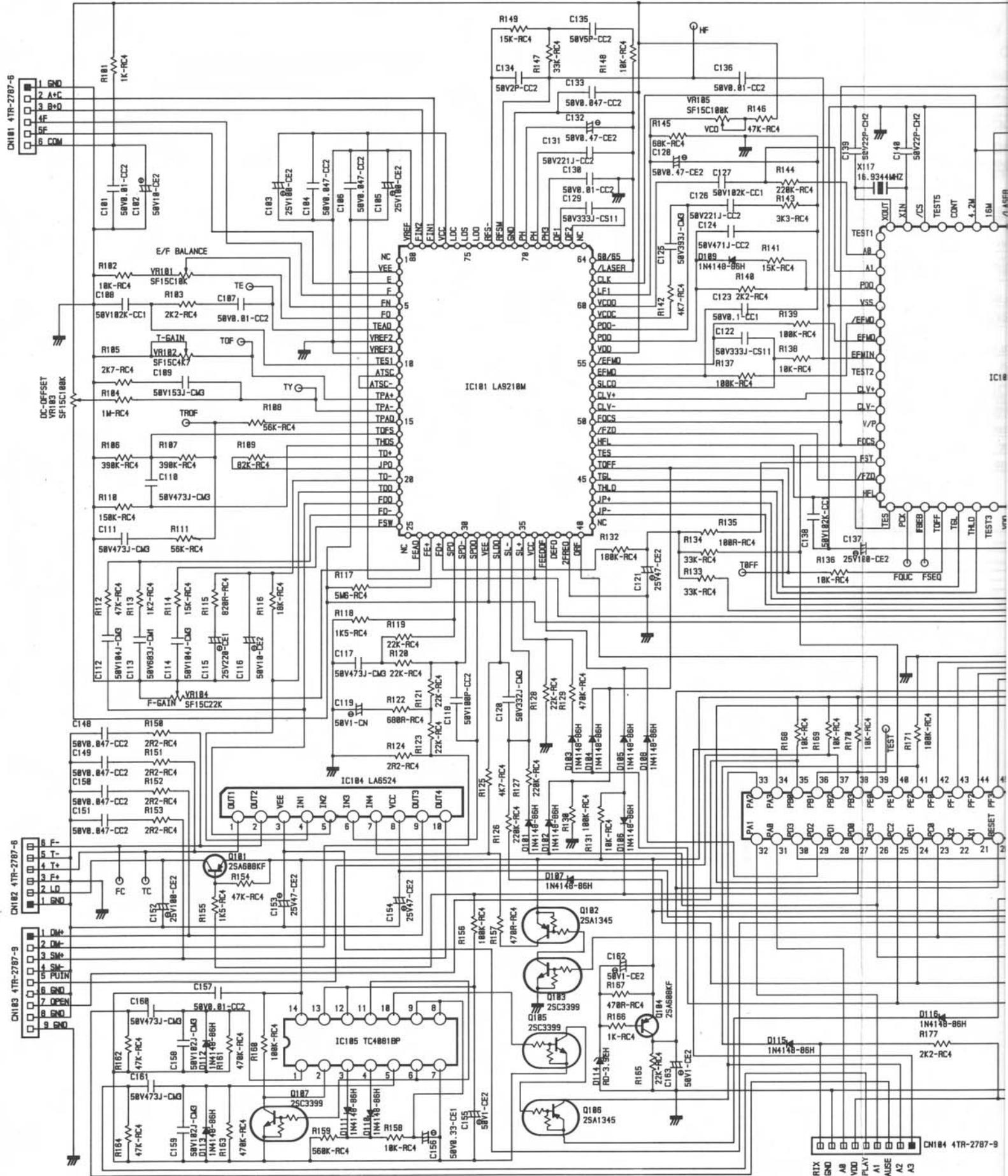
Block Diagram

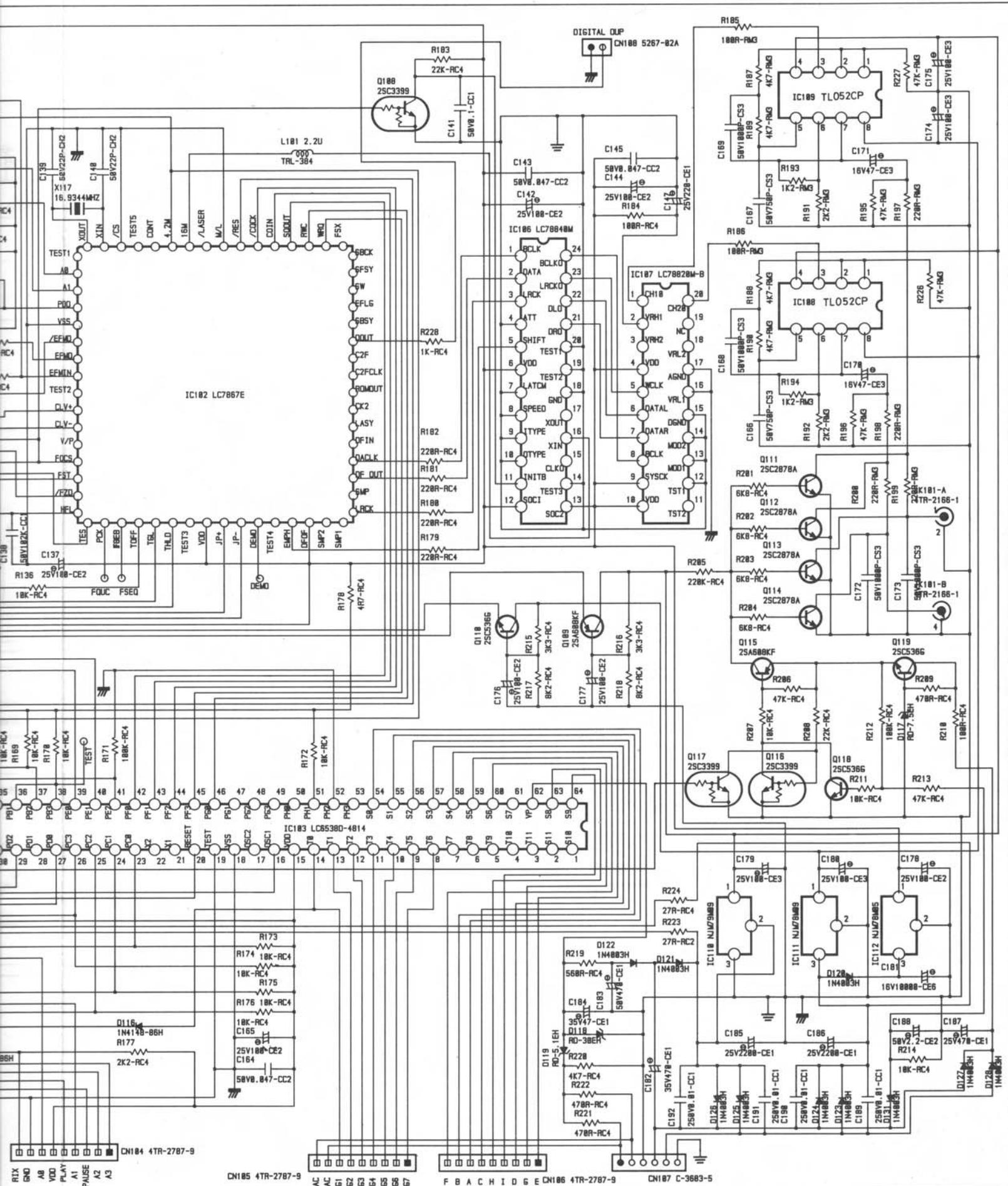




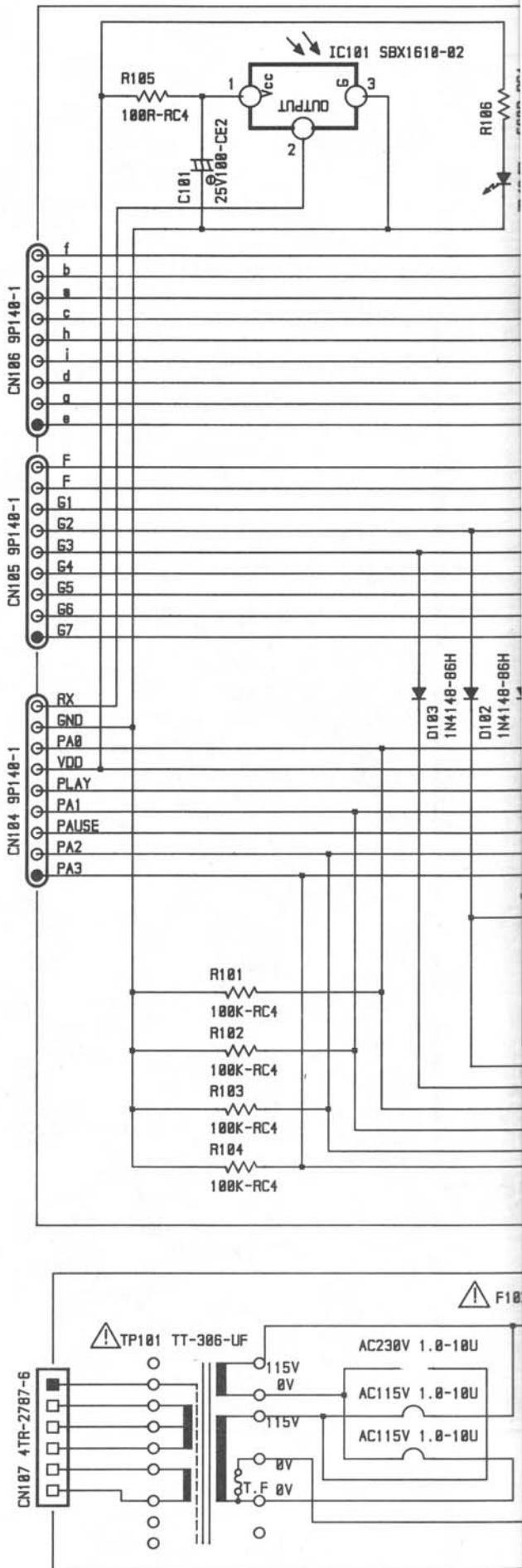
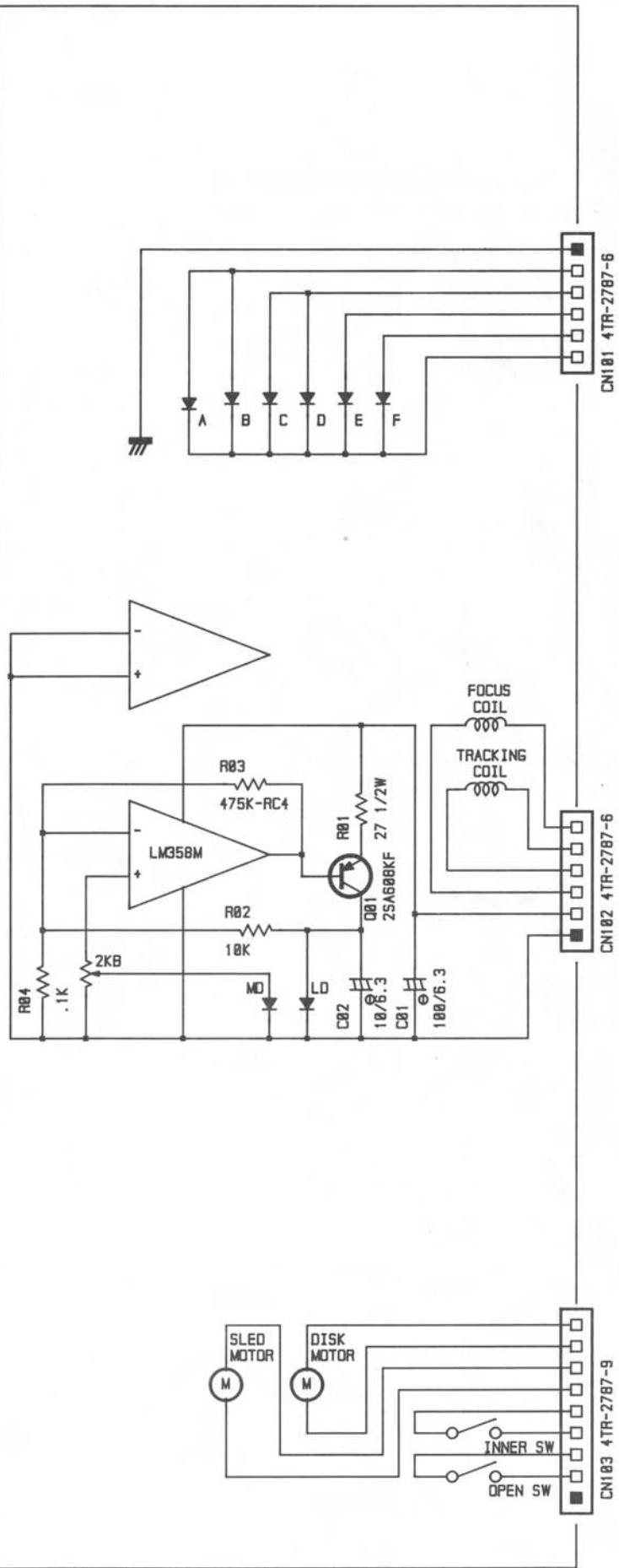
Schematic Diagram

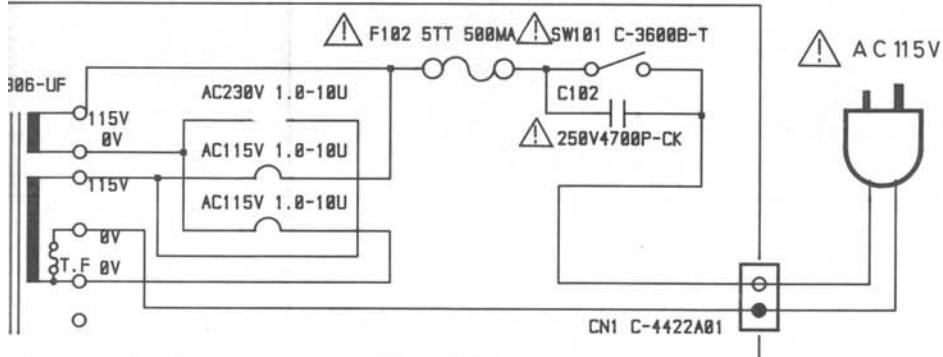
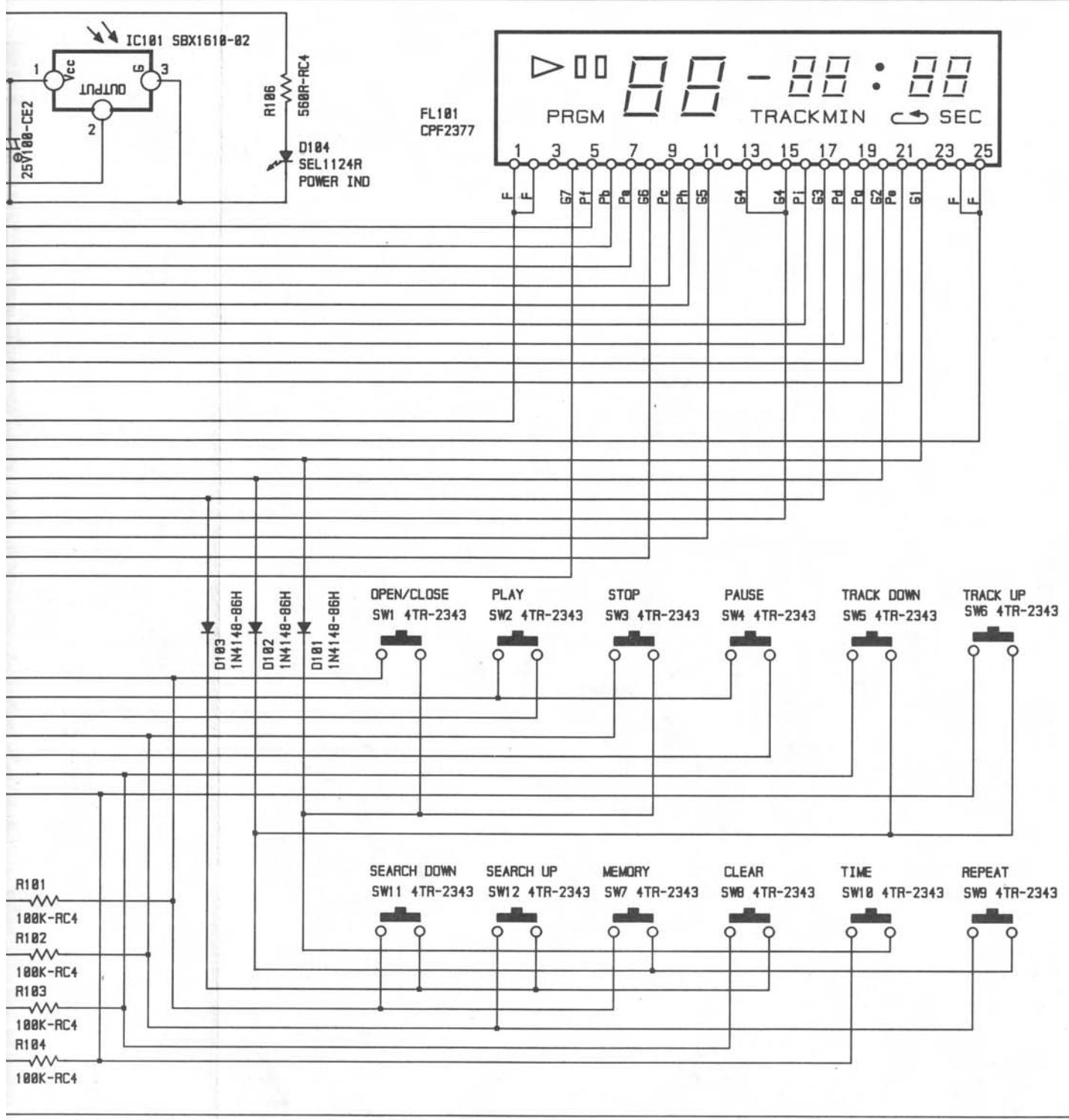
SCHEMATIC DIAGRAM MODEL NO. RCD - 940BX (1/2)





SCHEMATIC DIAGRAM MODEL NO. RCD-940BX (2/2)





Printed Circuit Boards

