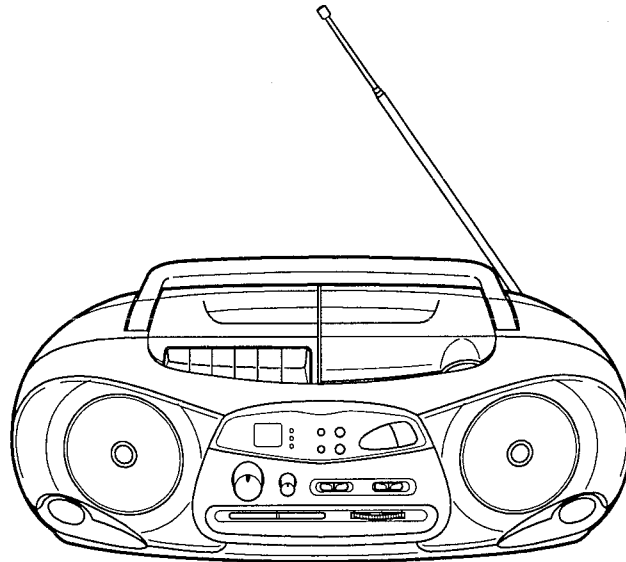


## Service Manual

## CD Radio Cassette Recorder

**MCD-Z100F** (UK)  
(XE)



## Specifications

### PRODUCT CODE No.

142 679 02 (UK) *MCD-Z100*142 679 03 (XE) *MCD-Z100F*

### (CASSETTE SECTION)

Recording System ..... AC bias, 4 track stereo  
Erasing System ..... Magnet erase  
Tape speed ..... 4.75 cm / sec.  
Fast forward and  
rewind time ..... 110 sec. (C-60 tape)

Frequency response ..... 80 - 12,000 Hz

### (CD SECTION)

Channel ..... 2 channel  
S / N ratio ..... 70 dB  
Wow & Flutter ..... Undetectable  
Sampling frequency ..... 44.1 kHz  
Quantization ..... 16 bits linear / ch  
Pickup light source ..... Semi-conductor laser  
Pickup wave length ..... 790 nm  
Laser output ..... Continuous wave max. 0.6 mW

### (RADIO SECTION)

Tuning range ..... FM : 87.5 - 108 MHz  
AM : 522 - 1,611 kHz (UK)  
AM : 526.5 - 1,606.5 kHz (XE)  
Antenna ..... FM : Telescopic rod  
AM : Built-in ferrite bar

### (GENERAL)

Power output ..... 3.0 W x 2 (DC max.)  
50 W (P.M.P.O.)  
Speaker ..... 10 cm x 2, 4 ohms  
Terminal impedance ..... PHONES : 32 ohms  
Power source ..... AC : 230 V, 50 Hz  
DC : 12 V (8 "HP2" size batteries)  
Dimensions ..... 460 x 155 x 250 mm (W x H x D)  
Weight (approx.) ..... 3.2 kg (without batteries)

Specifications subject to change without notice.

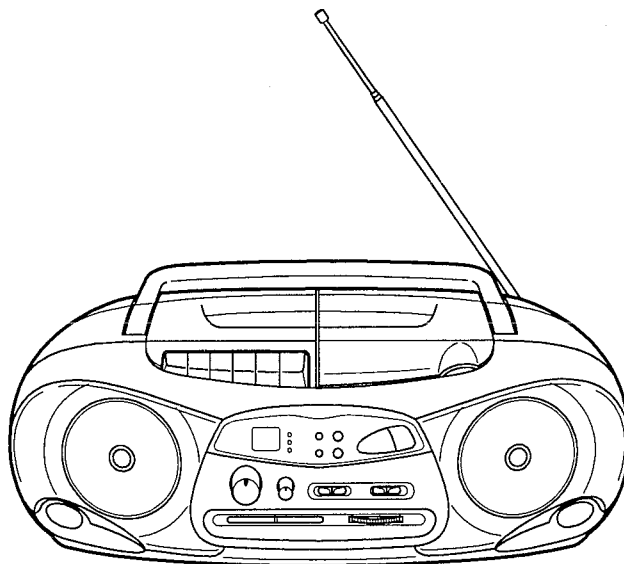
# SANYO

FILE NO. *D-2866*

## Service Manual

## CD Radio Cassette Recorder

**MCD-Z100F** (UK)  
(XE)



## Specifications

### PRODUCT CODE No.

142 679 02 (UK) *MCD-Z100*

142 679 03 (XE) *MCD-Z100F*

### (CASSETTE SECTION)

Recording System ..... AC bias, 4 track stereo

Erasing System ..... Magnet erase

Tape speed ..... 4.75 cm / sec.

Fast forward and

rewind time ..... 110 sec. (C-60 tape)

Frequency response ..... 80 - 12,000 Hz

### (CD SECTION)

Channel ..... 2 channel

S / N ratio ..... 70 dB

Wow & Flutter ..... Undetectable

Sampling frequency ..... 44.1 kHz

Quantization ..... 16 bits linear / ch

Pickup light source ..... Semi-conductor laser

Pickup wave length ..... 790 nm

Laser output ..... Continuous wave max. 0.6 mW

### (RADIO SECTION)

Tuning range ..... FM : 87.5 - 108 MHz

AM : 522 - 1,611 kHz (UK)

AM : 526.5 - 1,606.5 kHz (XE)

Antenna ..... FM : Telescopic rod

AM : Built-in ferrite bar

### (GENERAL)

Power output ..... 3.0 W x 2 (DC max.)

50 W (P.M.P.O.)

Speaker ..... 10 cm x 2, 4 ohms

Terminal impedance ..... PHONES : 32 ohms

Power source ..... AC : 230 V, 50 Hz

DC : 12 V (8 "HP2" size batteries)

Dimensions ..... 460 x 155 x 250 mm (W x H x D)

Weight (approx.) ..... 3.2 kg (without batteries)

Specifications subject to change without notice.

REFERENCE No. **SM580857**

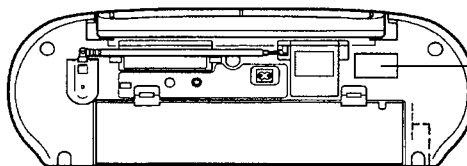
## LASER BEAM SAFETY PRECAUTIONS

- Pickup that emits a laser beam is used in this CD player section.

### CAUTION :

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

LASER OUTPUT ..... 0.6 mW Max. (CW)  
WAVELENGTH ..... 790 nm



CLASS 1 LASER PRODUCT  
LUOKAN 1 LASERLAITE  
KLASS 1 LASERAPPARAT

(XE ONLY)

CAUTION-INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.

ADVARSEL-USYNLIG LASER STRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION, UNDGA UDSÆTTELSE FOR STRÅLING.

VARNING-OSYNLIG LASER STRÅLING NÅR DENNA DEL ÄR ÖPPNAD OCH SPÄRR ÄR URKOPPLAD. STRÅLEN ÄR FARLIG.

VORSICHT! -UNSICHTBARE LASERSTRAHLUNG TRITZ AUS, WENN DECKEL GEÖFFNET UND ENN SICHERHEITSVERRIEGELUNG ÜBERBRÜCKT IST. NICHT, DEM STRAHL AUSSETZEN.

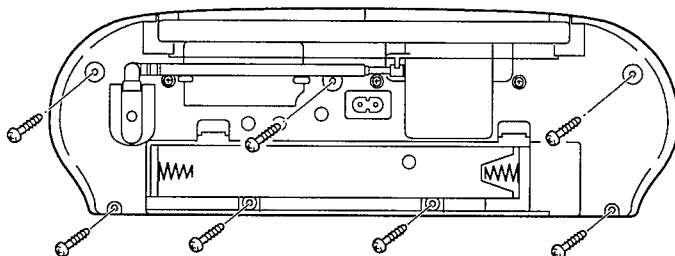
VARO !-Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.



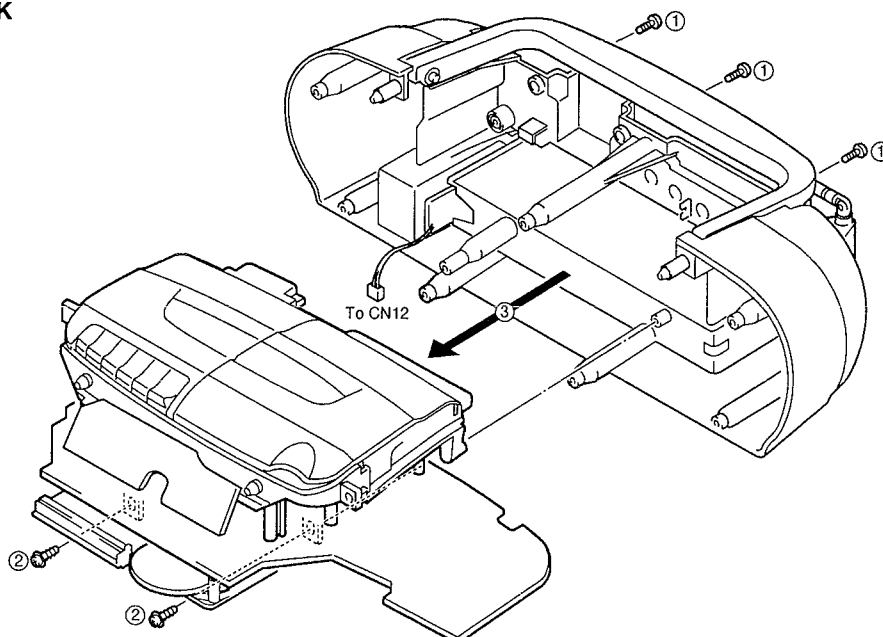
## REMOVAL AND INSTALLATION

- Disconnect the power cord's plug from the electrical outlet.
- All wiring should be returned to the original position after work is completed.
- First have ready many new FIXERS(614 129 4971) for replacement.
- Arrange the lead wires so that they are not near the heat sink.

### 1. CABINET

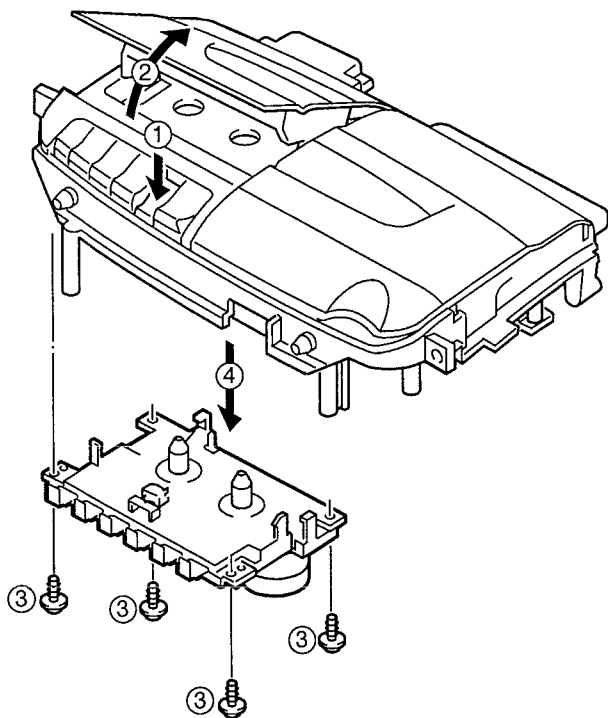


### 2. TOP PANEL BLOCK

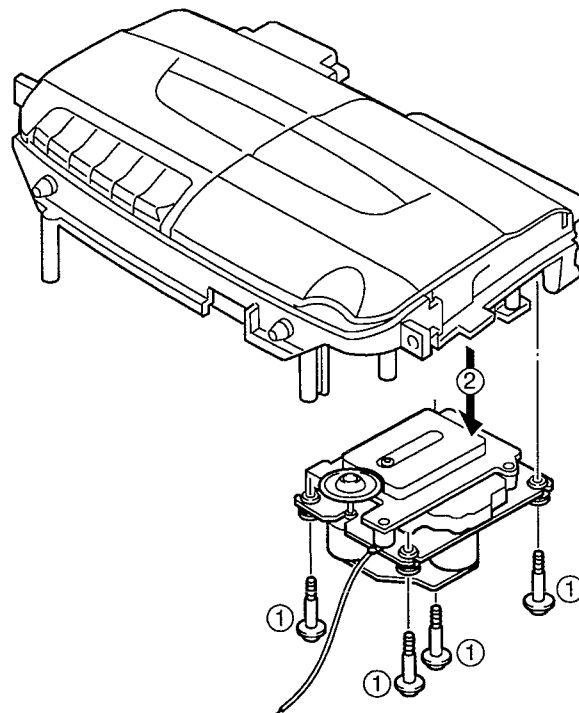


## REMOVAL AND INSTALLATION

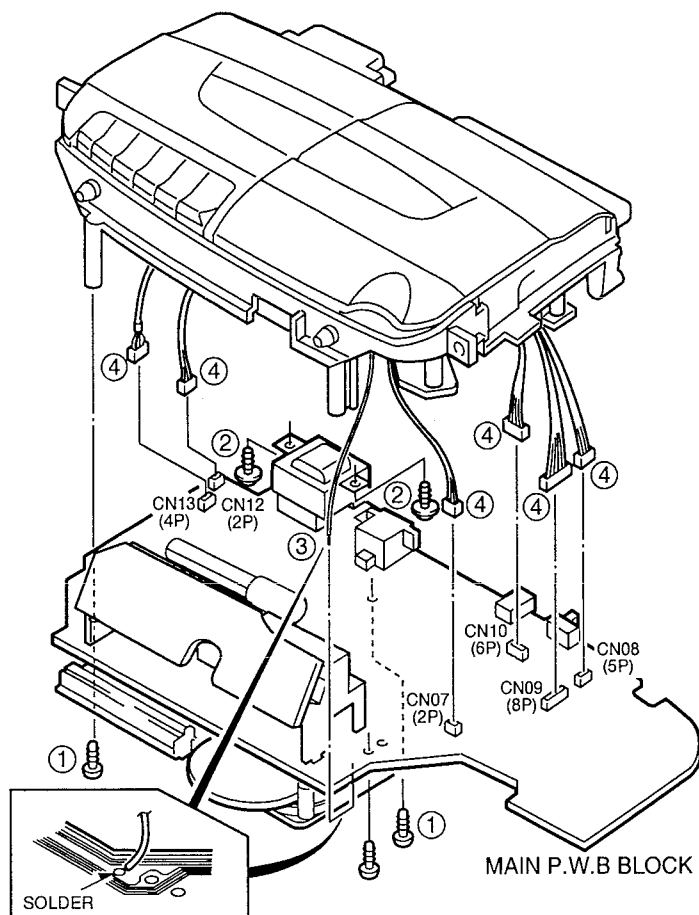
### 3. CASSETTE TAPE SECTION



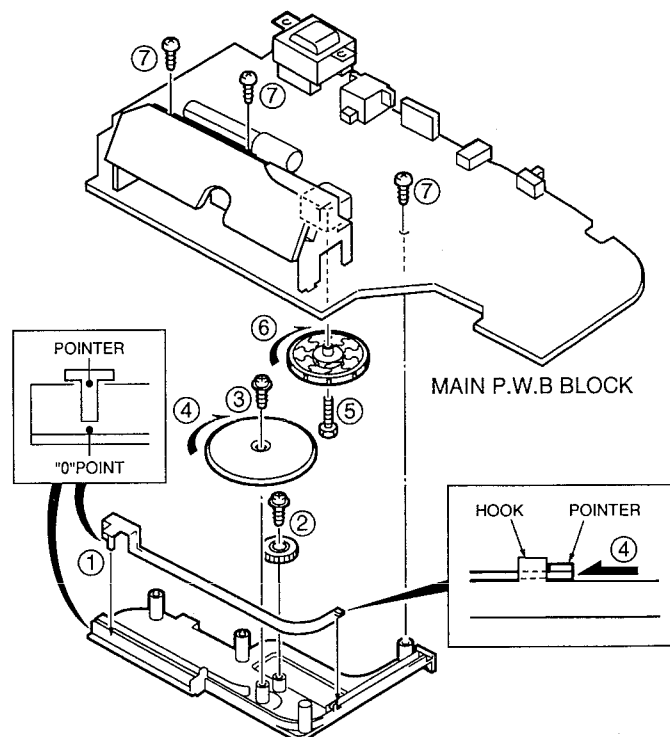
### 4. CD SECTION



### 5. MAIN P. W. BOARD SECTION



### 6. "0" POINT ADJUSTMENT



## TUNER ADJUSTMENTS

- Use a plastic screw driver for adjustments.
- Adjust the intermediate frequency pf AM and FM to the frequency of ceramic filter.
- Set of unit

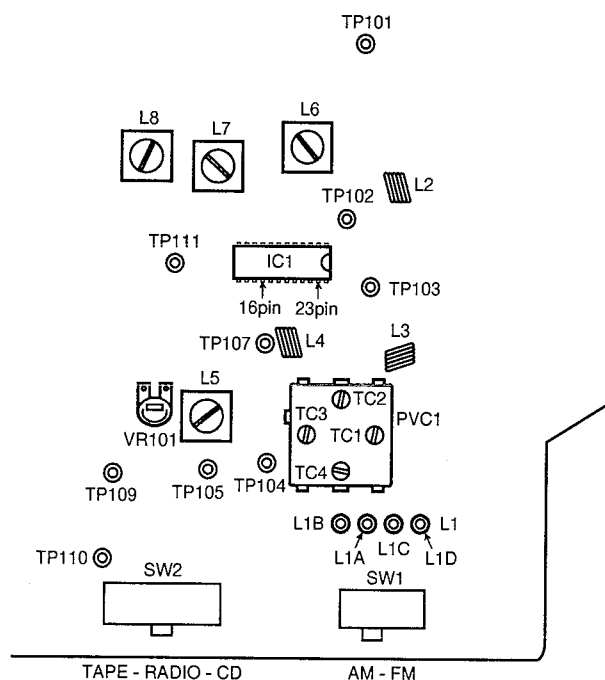
Supply voltage : DC 12V

Output road : Speaker Terminal (8 ohms)

Standard output (Volume control) : 50 mW (630 mV) - at the Speaker Terminal

Function switch : RADIO

## PARTS LOCATION



### 1. AM ADJUSTMENT

Band select switch : AM

Step	Adjusting Circuit	Connection		SG Frequency	Position of tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	IF	Closed the output terminal by sweep generator, it place to VC1(HOT).	Connect sweep generator to IC1 Pin 16(H) and Ground(E).	460 kHz	Low	L7	See Fig.1 For Maximum
2	Tuning coverge	Connect AM SG to TEST LOOP.	Connect VTVM to speaker terminals.	515 kHz	Low end	L5	Max.
3				1650 kHz	High end	TC4	
4	Tracking	Connect AM SG to TEST LOOP.	Connect VTVM to speaker terminals.	600 kHz	600 kHz	L1	Max.
5				1400 kHz	1400 kHz	TC1	
6	Repeat adjustments.						

Set the internal modulation of signal generator to 30% 400Hz.

### 2. FM ADJUSTMENT

Band select switch : FM

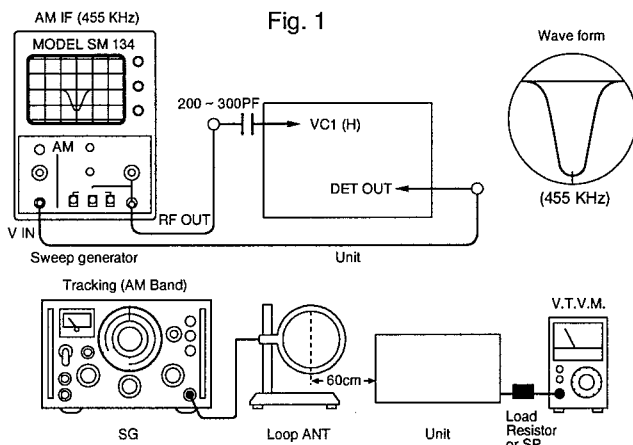
FM Dummy antenna : 75 ohms unbalance

Step	Adjusting Circuit	Connection		SG Frequency	Position of tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	IF (S curve)	Connect sweep generator to IC1 pin 23(H) and Ground(E).	Connect sweep generator to IC1 Pin 16(H) and Ground(E).	10.7 MHz	Low	L8	See Fig.2 For Symmetric
2	Tuning coverge	Connect FM SG to the Upper & same position.	Connect VTVM to speaker terminals.	87.0 MHz	Low end	L4	Max.
3				109.0 MHz	High end	TC3	
4	Tracking	Connect FM SG to the Upper & same position.	Connect VTVM to speaker terminals.	90.0 MHz	90.0 MHz	L3	Max.
5				106.0MHz	106.0 MHz	TC2	
6	Repeat adjustments.						

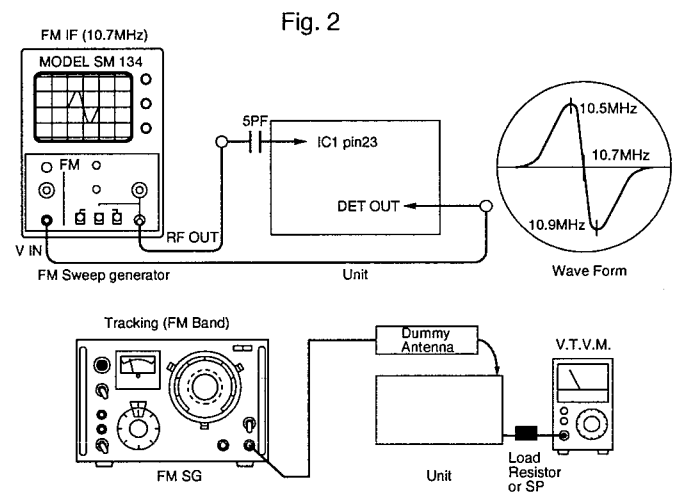
Set the internal modulation of signal generator to 400Hz Dev. 22.5kHz.

## TUNER ADJUSTMENTS

### AM Equipment Connection



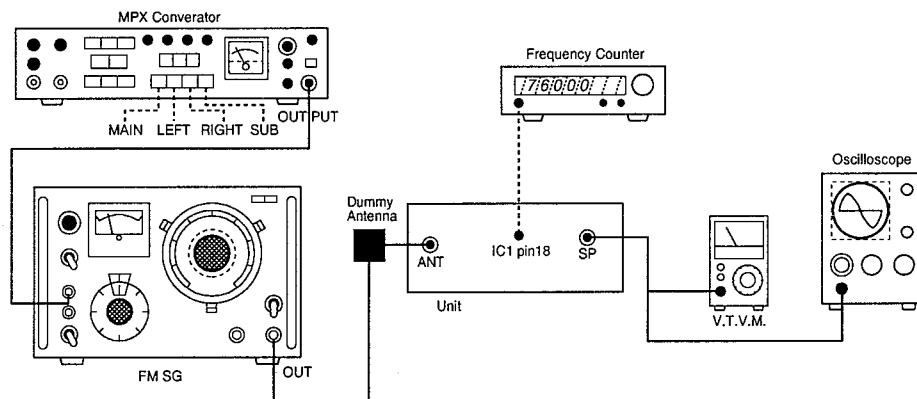
### FM Equipment Connection



### FM MPX(Multiplex) ADJUSTMENT

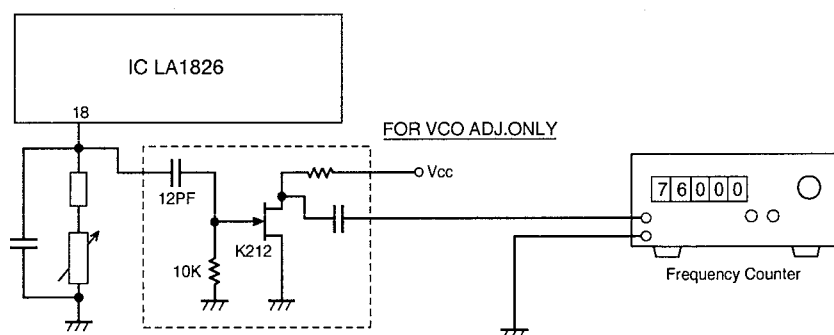
FM MPX circuit uses PLL IC, thus adjustments are very easy.

- Connect test instruments as shown in Fig.3.
- Set signal generator frequency to 98 MHz.
- Set stereo signal generator to 90% main signal and 10% pilot signal.



### VCO ADJUSTMENT

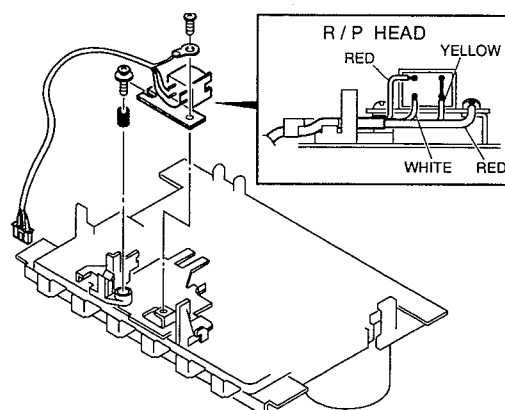
Connect frequency counter between as following connection, adjust VR101 for a reading of 76kHz on the counter as shown in Fig. 4.



## TAPE DECK ADJUSTMENTS

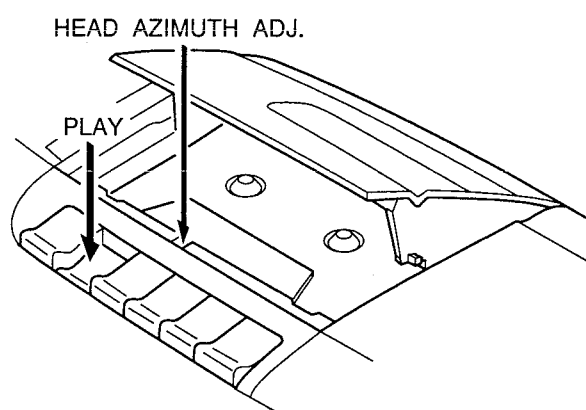
### 1. HEAD REPLACEMENT

- After replacement, demagnetize the heads by using a degausser.
- Be sure to clean the heads before attempting to make any adjustments.
- All wiring should be returned to the original position after work is completed.

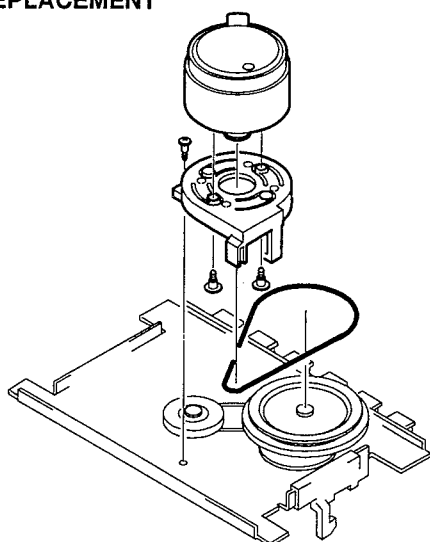


### 2. HEAD AZIMUTH ADJUSTMENT

- (1) Connect the oscilloscope to the PHONES socket.
- (2) Load the test tape(MTT-113N, etc., 10 kHz) for azimuth adjustment.
- (3) Press the PLAY button.
- (4) Use a cross-tip screwdriver to turn the screw for azimuth adjustment so that the left and right outputs are maximized.
- (5) Press the STOP button.
- (6) After completion of the adjustment, use thread lock(TB-1401B) to secure the azimuth-adjustment screw.

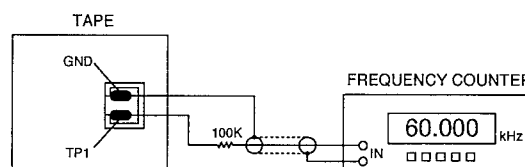


### 3. MOTOR REPLACEMENT



### 4. BIAS FREQUENCY ADJUSTMENT

- (1) Connect the frequency counter to the HEAD terminal.
- (2) Load the test tape(TDK-AD60, etc.).
- (3) Press the REC & PLAY button.
- (4) Use a flat-tip screwdriver to turn the L9 for BIAS adjustment so that the frequency counter becomes 65+/-2kHz.

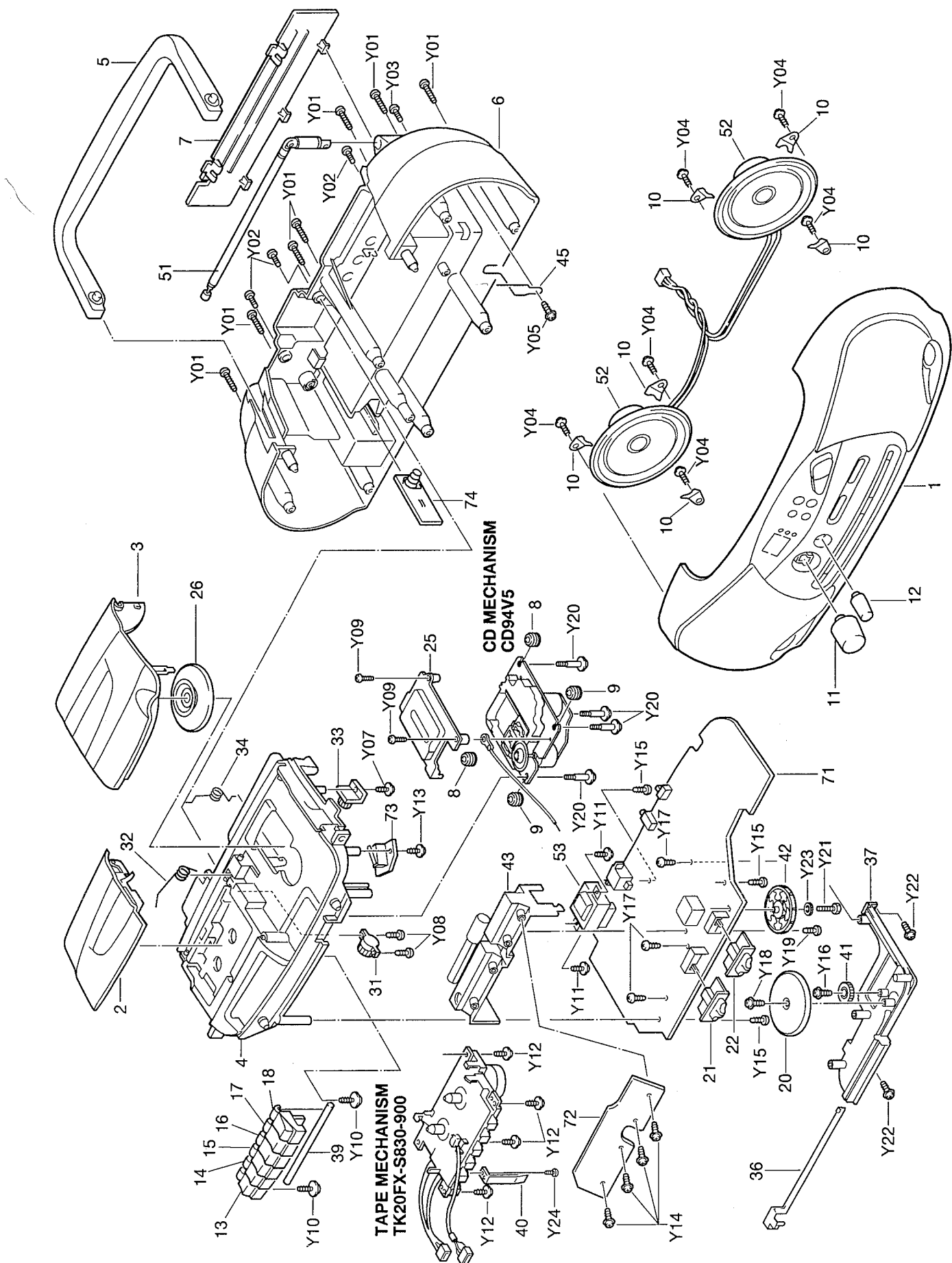


### 5. CHECKING THE MECHANISM TORQUES AND TENSION

- Clean the head, capstan and pinch roller before making any measurement.

Measurement	Take-up torque	Back tension	Tape tension
Cassette for measurement	PLAY : TW-2111A F.FWD/REW : TW2231	PLAY : TW-2111A	Drive-power cassette TW-2412
PLAY	30 - 60 gr.cm	2.0 - 4.5 gr.cm	60 gr or more
F.FWD	55 - 120 gr.cm	---	---
REW	55 - 120 gr.cm	---	---

EXPLODED VIEW (CABINET & CHASSIS)



PARTS LIST

PRODUCT SAFETY NOTICE

EACH PRECAUTION IN THIS MANUAL SHOULD BE FOLLOWED DURING SERVICING. COMPONENTS IDENTIFIED WITH THE IEC SYMBOL  $\Delta$  IN THE PARTS LIST AND THE SCHEMATIC DIAGRAM DESIGNATED COMPONENTS IN WHICH SAFETY CAN BE OF SPECIAL SIGNIFICANCE. WHEN REPLACING A COMPONENT IDENTIFIED BY  $\Delta$ , USE ONLY THE REPLACEMENT PARTS DESIGNATED, OR PARTS WITH THE SAME RATINGS OF RESISTANCE, WATTAGE OR VOLTAGE THAT ARE DESIGNATED IN THE PARTS LIST IN THIS MANUAL. LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS MUST BE MADE TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE PRODUCT TO THE CUSTOMER.

**CAUTION :** Regular type resistors and capacitors are not listed. To know those values, refer to the schematic diagram.  
Regular type resistors are less than 1/4 W carbon type and 0 ohm chip resistors.  
Regular type capacitors are less than 50 V and less than 1000  $\mu$ F type of Ceramic type and Electrical type.

PACKING & ACCESSORIES

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
	614 291 9361	CARTON (UK)	31	645 025 1559	ASSY,GEAR,CASSETTE DOOR
	614 291 9378	CARTON (XE)	32	645 025 2297	CASS DOOR SPRING
	645 025 4314	POLYBAG,UNIT	33	645 025 1542	ASSY,GEAR,CD DOOR
	645 025 2488	CUSHION,R	34	645 025 2594	CD DOOR SPRING
	645 025 2471	CUSHION,L	36	645 024 4001	DIAL POINTER,TUNING
	645 026 9721	LABEL SAFETY	37	645 025 2204	DIAL BARCKET,TUNING POINTER
	645 025 6042	LABEL LASER	39	645 025 2310	CASS BUTTON SHAFT
	614 291 9545	INSTRUCTION MANUAL (UK)	40	645 025 2280	PLATE SWITCH RECORDING
	614 291 9552	INSTRUCTION MANUAL (XE)	41	645 025 2259	TUNING GEAR SMALL
$\Delta$	645 026 7871	AC CORD (UK)	42	645 025 2242	TUNING GEAR,PVC
$\Delta$	645 017 0805	AC CORD (XE)	43	645 025 2211	CONTROL BRACKET
			45	645 025 4291	SPRING ANTENNA CONTACT
				645 025 2334	FOOT RUBBER,18X3

CABINET & CHASSIS

REF.NO.	PART NO.	DESCRIPTION
1	645 026 9752	ASSY,CABINET FRONT (UK)
1	645 026 9769	ASSY,CABINET FRONT (XE)
2	645 026 9608	LID CASSETTE (UK)
2	645 024 3950	LID CASSETTE (XE)
3	645 026 9622	LID CD (UK)
3	645 024 3974	LID CD (XE)
4	645 026 9592	PANEL TOP (UK)
4	645 025 2068	PANEL TOP (XE)
5	645 026 9639	HANDLE (UK)
5	645 024 4018	HANDLE (XE)
6	645 026 9783	ASSY,CABINET REAR (UK)
6	645 026 9790	ASSY,CABINET REAR (XE)
7	645 026 9615	LID BATTERY (UK)
7	645 024 3967	LID BATTERY (XE)
8	645 025 2563	RUBBER CUSHION CD,SOFT
9	645 025 2570	RUBBER CUSHION CD,HARD
10	645 025 2440	SPEAKER CLAMP:99
11	645 025 2099	ROTARY KNOB,VOLUME
12	645 025 2105	ROTARY KNOB,TONE
13	645 026 9653	BUTTON,CASSETTE,REC (UK)
13	645 025 2136	BUTTON,CASSETTE,REC (XE)
14	645 026 9660	BUTTON,CASSETTE,PLAY (UK)
14	645 025 2143	BUTTON,CASSETTE,PLAY (XE)
15	645 026 9677	BUTTON,CASSETTE,REW (UK)
15	645 025 2150	BUTTON,CASSETTE,REW (XE)
16	645 026 9684	BUTTON,CASSETTE,F FWD (UK)
16	645 025 2167	BUTTON,CASSETTE,F FWD (XE)
17	645 026 9691	BUTTON,CASSETTE,STOP / EJECT (UK)
17	645 025 2174	BUTTON,CASSETTE,STOP / EJECT (XE)
18	645 026 9707	BUTTON,CASSETTE,PAUSE (UK)
18	645 025 2181	BUTTON,CASSETTE,PAUSE (XE)
20	645 025 2082	ROTARY KNOB,TUNING
21	645 025 2129	SLIDE KNOB,FUNCTION SWITCH
22	645 025 2112	SLIDE KNOB,BAND SW
25	645 025 2556	CD BRACKET,CD MAIN
26	645 026 3941	ASSY,PULLEY,CD CHUCKING

FIXING PARTS

REF.NO.	PART NO.	DESCRIPTION
Y01	645 025 2389	SCREW 3X18,CABINET REAR
Y02	645 025 2365	SCREW 3X8,PANEL TOP
Y03	645 025 2396	SCREW 3X8,ANTENNA
Y04	645 016 5078	SCREW,3X8,SPEAKER
Y05	645 016 5078	SCREW,3X8,ANT SPRING
Y07	645 016 5078	SCREW,3X8,GEAR
Y08	645 025 2358	SCREW 2.6X8,GEAR HOLDER
Y09	645 025 2402	SCREW 2X8,CD BRACKET
Y10	645 025 2372	SCREW 3X8,CASSETTE SHAFT
Y11	645 025 2426	SCREW 3X12,POWER TRANS
Y12	645 016 5078	SCREW,3X8,DECK MECHA
Y13	645 018 3690	SCREW 3X10,CD SW PWB
Y14	645 016 5078	SCREW,3X8,CONTROL PWB
Y15	645 016 5078	SCREW 3X8,MAIN PWB
Y16	645 016 5078	SCREW,TUNING GEAR
Y17	645 016 5078	SCREW,3X8,TUNING BRACKET
Y18	645 025 2426	SCREW,S 3X12,TUNUNG KNOB
Y19	645 018 0521	SCREW,3X12,BRACKET
Y20	645 025 2600	SPECIAL SCREW,CD
Y21	645 025 2419	SCREW 2.6X16,TUNING GEAR
Y22	645 016 5078	SCREW,3X8,PWB BRACKET
Y23	645 023 7935	TOOTH WASHER 2.6,TUNING GEAR
Y24	411 025 1901	SCREW,S-TPG PAN 2X3

ELECTRICAL PARTS

REF.NO.	PART NO.	DESCRIPTION
51	645 020 3534	ROD ANTENNA
52	645 025 1931	4" SPEAKER
53	$\Delta$ 645 026 9561	POWER TRANSFORMER
FU001	$\Delta$ 645 014 1447	FUSE
CN006	645 025 1993	FLAT WIRE,12P,MAIN-FRONT



PARTS LIST

MAIN P.W.BOARD ASSY

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
71	614 292 1678	ASSY,PWB,AMP-TU-CD (UK)	D0406	645 016 8956	DIODE,CD MAIN
71	614 292 1692	ASSY,PWB,AMP-TU-CD (XE)	D0801	△ 645 016 9250	RECTIFIER,PWR
	645 020 3190	HEADPHONE JACK,JACK	D0802	△ 645 016 9250	RECTIFIER,PWR
	645 026 7949	BRACKET-E,AC SOCKET	D0803	△ 645 016 9250	RECTIFIER,PWR
	645 026 6546	SCREW 2.6X5,Q801	D0804	△ 645 016 9250	RECTIFIER,PWR
	645 014 1966	SCREW,PVC	D0806	645 016 8956	DIODE,PWR
	645 026 9929	SCR 3X12,AC SOCKET	D0807	645 016 8956	DIODE,PWR
	645 026 6522	CABINET MOUNTING PLATE,Q801	D0808	645 016 8956	DIODE,PWR
	645 026 9905	SHIELD PLATE	FU002	△ 645 026 7925	PROTECTOR,PWR
C0109	645 025 1702	POLY CAP 1000PF 50V	FUD01	645 014 2246	FUSE HOLDER
C0111	645 020 3138	POLY CAP 120PF 50V	HS001	645 025 2457	HEAT SINK
C0112	403 061 9003	POLYESTER 4700P M 50V	IC001	645 025 1573	IC LA1826A
C0115	403 057 1202	POLYESTER 0.01U M 50V	IC002	645 020 3237	IC TA2068N
C0116	403 057 1202	POLYESTER 0.01U M 50V	IC003	645 016 9182	IC TA8227P
C0130	403 059 4409	POLYESTER 2200P M 50V	IC004	645 025 1597	IC LA6543F
C0131	403 059 4409	POLYESTER 2200P M 50V	IC005	645 025 1610	IC LC78622E
C0201	403 058 1904	POLYESTER 1500P M 50V	IC006	645 025 1603	IC LA9240M
C0203	403 060 8908	POLYESTER 0.033U M 50V	IC007	645 025 1580	IC LA6541D
C0204	403 060 6904	POLYESTER 3300P M 50V	L0001	645 025 1498	ASSY,BAR ANTENNA
C0210	403 060 6904	POLYESTER 3300P M 50V	L0002	645 020 9338	FM COIL,FM ANTENNA
C0212	403 058 1904	POLYESTER 1500P M 50V	L0003	645 014 1089	FM COIL,FM RF
C0214	403 060 8908	POLYESTER 0.033U M 50V	L0004	645 026 9554	FM COIL,FM OSC FTZ
C0221	403 061 9003	POLYESTER 4700P M 50V	L0005	645 014 1041	OSC,AM OSC
C0229	403 058 1904	POLYESTER 1500P M 50V	L0006	645 025 1733	IFT
C0301	403 059 4409	POLYESTER 2200P M 50V	L0007	645 025 1757	IFT
C0302	403 059 4409	POLYESTER 2200P M 50V	L0008	645 025 1740	IFT
C0303	403 060 8908	POLYESTER 0.033U M 50V	L0009	645 014 1058	BIAS/OSC,AC BIAS
C0304	403 060 8908	POLYESTER 0.033U M 50V	L0301	645 026 9547	AXIAL INDUCTOR,JACK
C0314	403 057 3800	POLYESTER 0.1U M 50V	L0302	645 026 9547	AXIAL INDUCTOR,JACK
C0317	403 057 3800	POLYESTER 0.1U M 50V	L0806	645 020 9321	CHOKE COILS
C0501	403 057 3800	POLYESTER 0.1U M 50V	PVC1	645 025 6592	PVC,AM / FM VC 1-4, TC 1-4
C0601	403 059 8902	POLYESTER 0.22U M 50V	Q0201	645 025 1665	TR 2SC 3330U
C0604	403 060 8908	POLYESTER 0.033U M 50V	Q0202	645 016 9205	TRANSISTOR
C0606	403 061 9607	POLYESTER 0.047U J 50V	Q0203	645 025 1641	TR 2SA 1346-AC
C0608	403 060 5204	POLYESTER 3300P J 50V	Q0301	645 025 1658	TR 2SD 1936-U-AC
C0609	403 058 4608	POLYESTER 0.15U J 50V	Q0302	645 025 1658	TR 2SD 1936-U-AC
C0612	403 056 8905	POLYESTER 1000P M 50V	Q0401	645 025 1641	TR 2SA 1346-AC
C0613	403 057 3800	POLYESTER 0.1U M 50V	Q0402	645 025 1641	TR 2SA 1346-AC
C0614	403 058 4004	POLYESTER 0.015U M 50V	Q0403	645 025 1634	TR 2SA 1317
C0615	403 058 9108	POLYESTER 0.018U J 50V	Q0404	645 025 1634	TR 2SA 1317
C0623	403 059 4409	POLYESTER 2200P M 50V	Q0405	645 025 1672	TR 2SC 3400
C0625	403 060 8908	POLYESTER 0.033U M 50V	Q0406	645 016 9205	TRANSISTOR
C0702	403 135 4507	ELECT 1000U M 10V	Q0407	645 025 1641	TR 2SA 1346-AC
C0808	403 135 0004	ELECT 2200U M 25V	Q0601	645 025 1634	TR 2SA 1317
CF001	645 016 9151	CERAMIC FILTER,10.7MHZ	Q0801	645 026 9530	TR 2SD2061F
CF002	645 022 1606	CERAMIC FILTER,AM / FM	Q0805	645 025 1627	TR 2SB 764E
CF003	645 025 2051	CERAMIC RESONATOR,16.93MHZ	R0301	402 004 5805	FUSIBLE RES 27 J- 1/4W
CN001	645 017 2045	4P WAFER,CASS	SW001	645 025 1788	SWITCH,AM/FM
CN002	645 016 9359	3P WAFER,CASS	SW002	645 025 1795	SWITCH,POWER T/R/CD
CN007	645 016 9342	2P WAFER,CD MAIN	SW003	645 020 9352	PUSE SWITCH,CASS P/R
CN008	645 025 1924	5P WAFER,CD MAIN	SW004	645 016 1896	SWITCH,CASS BEAT CANCEL
CN009	645 026 8823	8P WAFTR,CD MAIN	VR101	645 025 6585	SEMI-FIXED,AM/FM
CN010	645 017 2052	6P WAFER,CD MAIN	VR301	645 025 1726	ROTARY VR,50K
CN011	645 022 1590	AC SOCKET	VR302	645 025 1719	ROTARY VR,50K
CN012	645 020 6771	2P WAFER,CASS	Z0801	△ 645 025 1696	ZENER DIODE
CN013	645 025 1917	4P WAFER,CASS	Z0802	△ 645 017 1703	ZENER DIODE
D0101	645 016 8956	DIODE,AM / FM			
D0102	645 016 8956	DIODE,AM / FM			
D0103	645 014 0945	A F C FV-1043,AM / FM			
D0104	645 016 8956	DIODE,AM / FM			
D0301	645 016 9250	RECTIFIER,PWR			
D0401	645 025 1689	DIODE GMB01-BT			
D0402	645 025 1689	DIODE GMB01-BT			
D0403	645 016 8956	DIODE,CD MAIN			
D0404	645 025 1689	DIODE GMB01-BT			
D0405	645 016 8956	DIODE,CD MAIN			

PARTS LIST

FRONT P.W.BOARD ASSY

REF.NO.	PART NO.	DESCRIPTION
72	614 292 1685	ASSY,PWB,FRONT (UK)
72	614 292 1708	ASSY,PWB,FRONT (XE)
D0901	645 016 8956	DIODE,SWITCH
D0902	645 016 8956	DIODE,SWITCH
D0903	645 016 8956	DIODE,SWITCH
D0904	645 016 8956	DIODE,SWITCH
D0905	645 016 8956	DIODE,SWITCH
D0906	645 016 8956	DIODE,SWITCH
LED02	645 025 1771	LED,PROGRAM
LED03	645 025 1771	LED,REPEAT
LED04	645 025 1771	LED,P / P
LED05	645 026 7901	LED DISPLAY,GREEN
SW901	645 025 1801	SWITCH EVQ-QB205K,PLAY/PAUSE
SW902	645 025 1801	SWITCH EVQ-QB205K,STOP
SW903	645 025 1801	SWITCH EVQ-QB205K,PROGRAM
SW904	645 025 1801	SWITCH EVQ-QB205K,F B
SW905	645 025 1801	SWITCH EVQ-QB205K,F F
SW906	645 025 1801	SWITCH EVQ-QB205K,REPEAT

CD SWITCH P.W.BOARD ASSY

REF.NO.	PART NO.	DESCRIPTION
73	614 292 3849	ASSY,PWB,CD SWITCH (UK)
73	614 292 3856	ASSY,PWB,CD SWITCH (XE)
SW907	645 025 1818	MICRO SW LF-101-0,OPEN / CLOSE

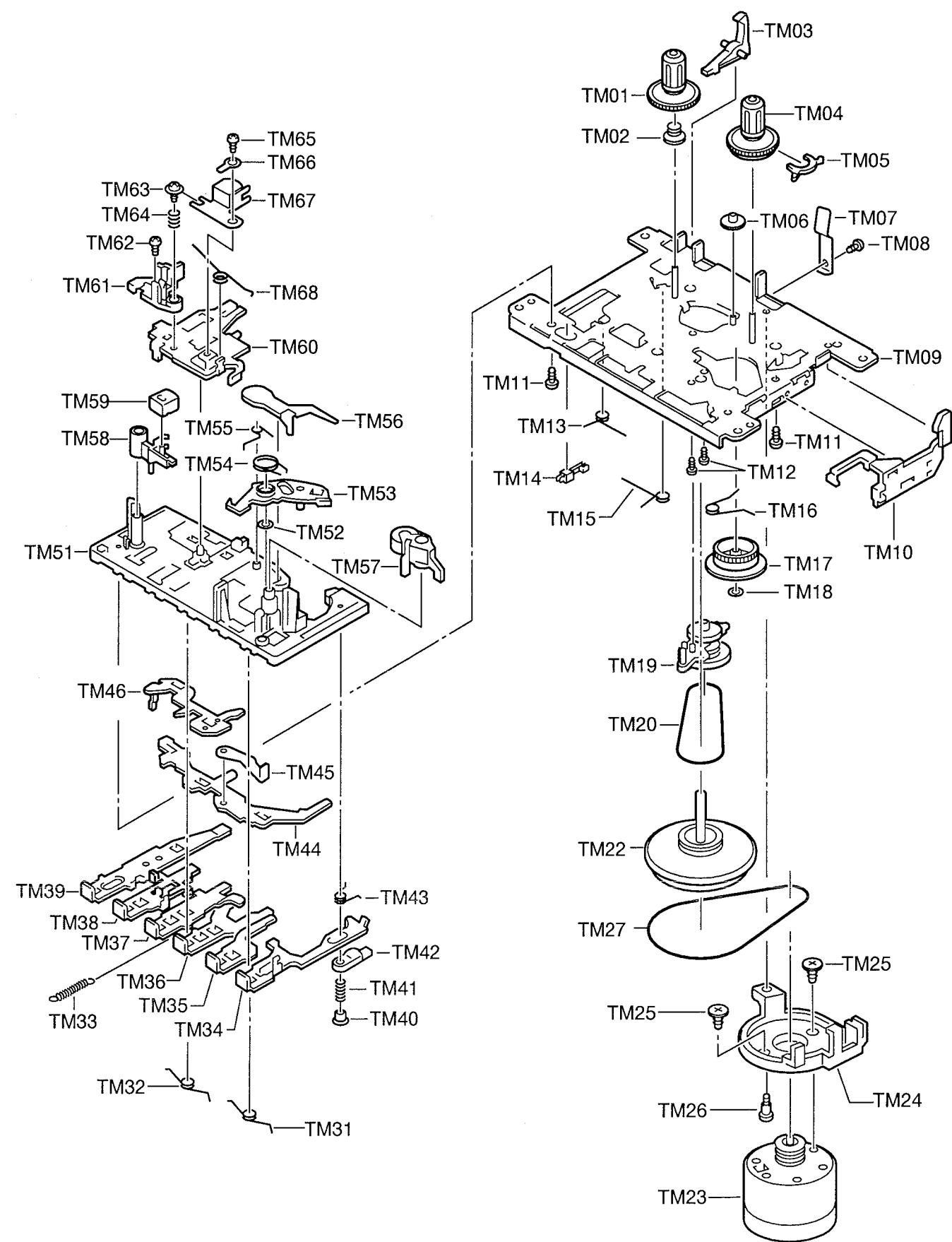
BATTERY TERMINAL P.W.BOARD ASSY

REF.NO.	PART NO.	DESCRIPTION
74	614 292 1043	ASSY,PWB,BATT
	645 025 2013	BATTERY SPRING(-)

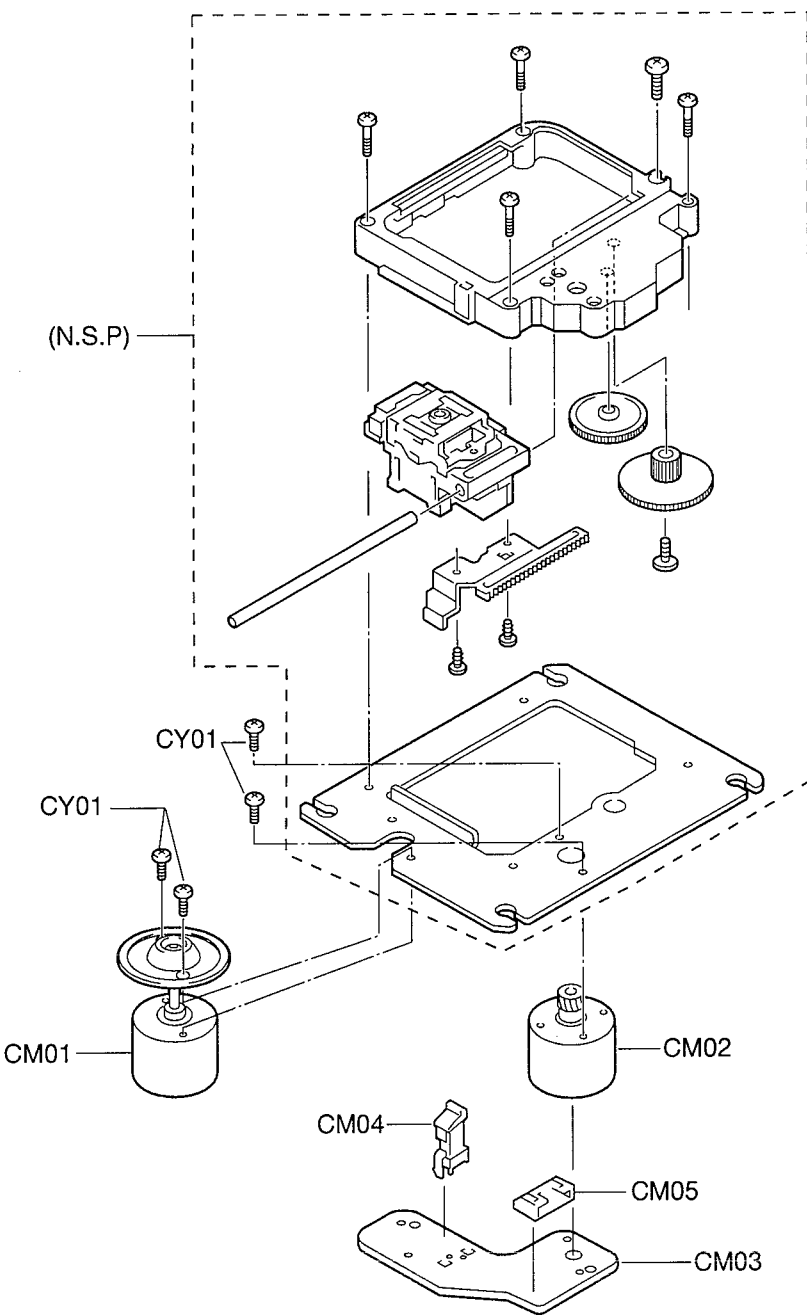
TAPE MECHANISM (TK20FX-S830-900)

REF.NO.	PART NO.	DESCRIPTION
TM01	645 023 8116	S REEL HUB
TM02	645 011 5707	B SPRING
TM03	645 009 1674	RECORD SAFETY LEVER
TM04	645 023 8895	TAKE UP REEL ASSY
TM05	645 009 1629	SENSOR
TM06	645 009 1568	FF GEAR
TM07	645 022 1729	PACK SPRING PLATE
TM08	645 011 5967	C SCREW 2X3
TM09	645 009 1346	CHASSIS ASSY
TM10	645 009 1780	EJECT SLIDE LEVER
TM11	645 014 6862	PB SCREW
TM12	645 011 5899	CT SCREW 2X4.5
TM13	645 009 1445	PS LEVER SPRING
TM14	645 011 5844	SWITCH,MSW-1541T
TM15	645 009 1476	REC BUTTON LEVER SPRING
TM16	645 009 1438	E ACTUATOR SPRING
TM17	645 009 1490	CAM GEAR
TM18	645 011 5981	C WASHER 2X3.5X0.3
TM19	645 011 5516	RF CLUTCH ASSY
TM20	645 011 5813	F BELT W
TM22	645 023 8123	ASSY,FLYWHEEL
TM23	645 025 2617	ASSY,MOTOR
TM24	645 021 5001	MOTOR BRACKET
TM25	645 011 3727	MOTOR COLLER SCREW
TM26	645 011 3734	MOTOR BRACKET SCREW
TM27	645 023 8062	M BELT(C)
TM31	645 009 1421	BUTTON LEVER SPRING(B)
TM32	645 009 1414	BUTTON LEVER SPRING(A)
TM33	645 009 3210	PLAY BUTTON LEVER SPRING
TM34	645 023 8147	PAUSE BUTTON LEVER
TM35	645 011 0795	STOP BUTTON LEVER
TM36	645 011 0788	FF BUTTON LEVER
TM37	645 011 0771	REW BUTTON LEVER
TM38	645 011 0764	PLAY BUTTON LEVER
TM39	645 011 0757	REC BUTTON LEVER
TM40	645 009 1384	PAUSE STOPPER
TM41	645 009 1391	PAUSE LEVER SPRING
TM42	645 011 1211	PAUSE LEVER(E)
TM43	645 009 1407	P CONTROL SPRING
TM44	645 009 1278	PUSH BUTTON ACTUATOR
TM45	645 009 1339	E KICK LEVER
TM46	645 009 1285	SWITCH ACTUATOR
TM51	645 009 1308	BASE ASSY
TM52	645 011 5998	C WASHER 1.45X3.8X0.5
TM53	645 009 1520	GEAR PLATE ASSY
TM54	645 009 1513	GEAR PLATE SPRING
TM55	645 009 1452	M CONTROL SPRING
TM56	645 009 1506	SENSING LEVER
TM57	645 009 1612	PINCH ROLLER ARM ASSY
TM58	645 009 1711	MG ARM
TM59	645 016 5252	MG ERASE
TM60	645 009 1377	HEAD PANEL
TM61	645 009 1353	HEAD BASE
TM62	645 013 7945	SCREW
TM63	645 014 6756	S SCREW
TM64	645 009 1551	AZIMUTH SPRING
TM65	645 011 5875	B SCREW
TM66	645 011 5929	B3 LUG
TM67	645 025 2518	R/P HEAD TC-951,STEREO
TM68	645 009 1360	PANEL P SPRING

EXPLODED VIEW(TAPE MECHANISM)



EXPLODED VIEW(CD MECHANISM)



N.S.P : Not available as service parts.

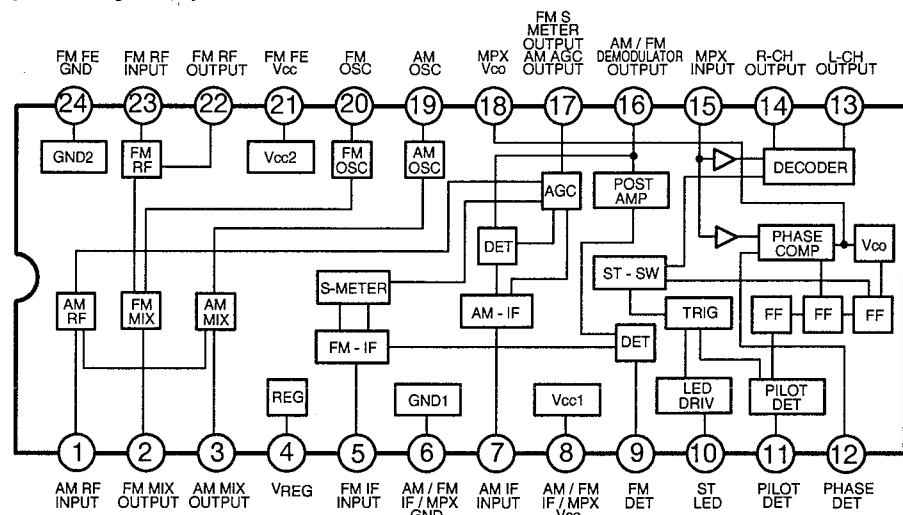
PARTS LIST

CD MECHANISM (CD94V5)

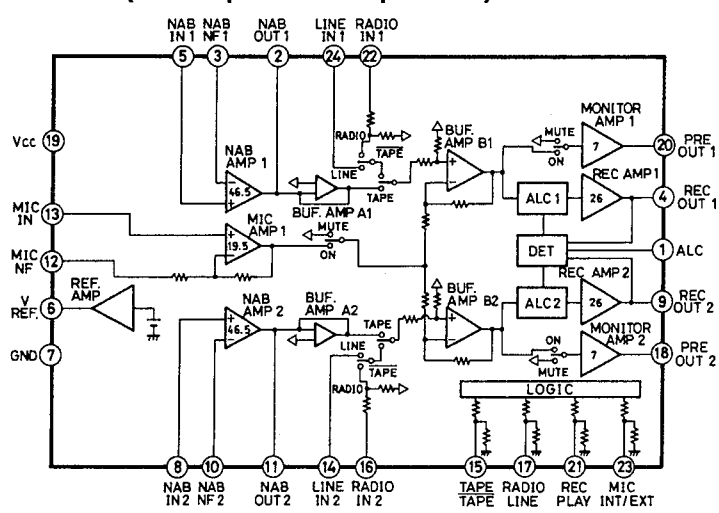
REF.NO.	PART NO.	DESCRIPTION
	645 025 2532	CD MECHANISM (CD94V5)
CM01	620 222 8105	ASSY,MOTOR,SPINDLE,2V
CM02	620 222 8112	ASSY,MOTOR,SLED,6V
CM03	620 223 2911	PWB,MOTOR
CM04	620 223 2928	SWITCH,LEAF
CM05	620 021 8436	PLUG,6P
CY01	411 019 9906	SCREW PAN PCS 1.7X3

## IC BLOCK DIAGRAM & DESCRIPTION

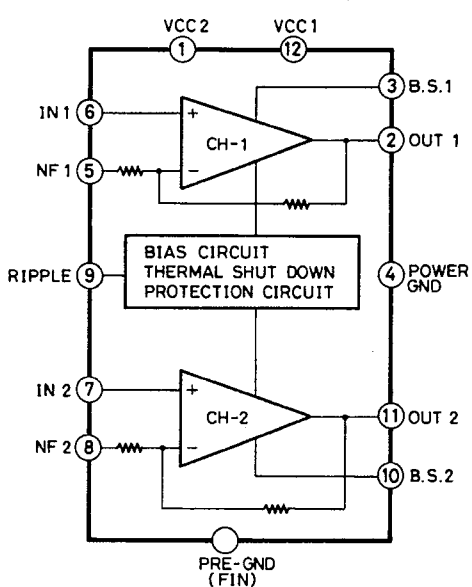
### IC1 LA1826A(Tuner System)



### IC2 TA2068(Pre-Amplifier for Tape-Deck)



### IC3 TA8227P (Main(Power)-Amplifier)



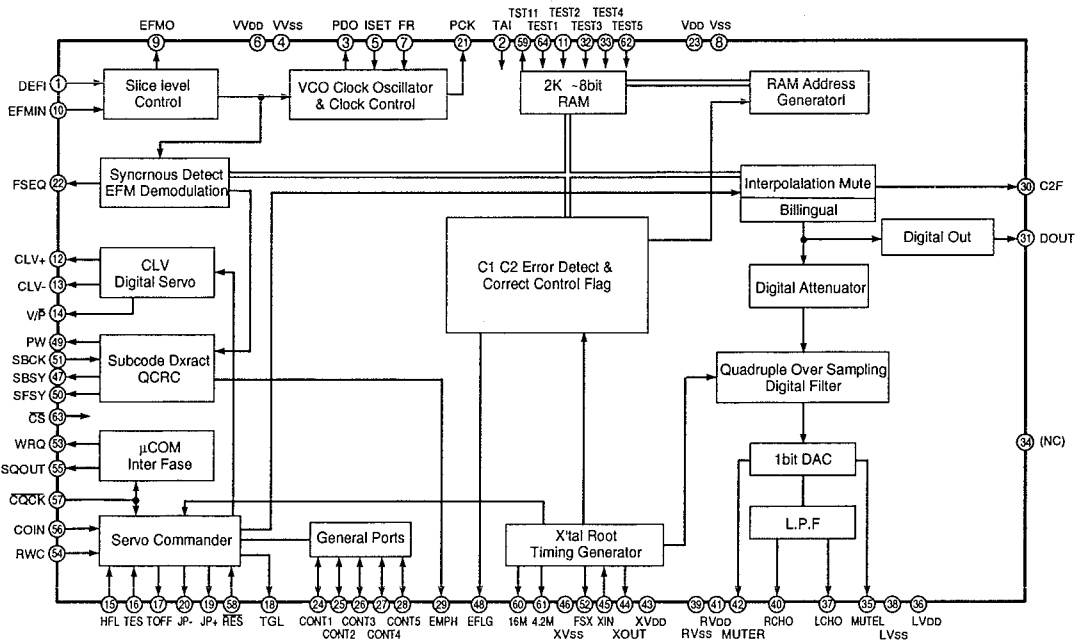
### IC4 LC6543F(Micro-Processor)

No.	Name	I/O	Description	No.	Name	I/O	Description
1	DRF	I/O	RF signal detect	16	OSC1	I	Clock input
2	VDD	-	GND	17	TEST	I	VSS
3	SQOUT	I/O	Interface for LC7822	18	VSS	-	GND
4	COIN	I/O	Interface for LC7822	19	RESET	I	Reset
5	CQCK	I/O	Interface for LC7822	20	SEG-A	I/O	Light up Signal for LED (Segment a)
6	WRQ	I/O	Interface for LC7822	21	SEG-B	I/O	Light up Signal for LED (Segment b)
7	RWC	I/O	Interface for LC7822	22	SEG-C	I/O	Light up Signal for LED (Segment c)
8	A-MUTE	I/O	Audio mute control	23	SEG-D	I/O	Light up Signal for LED (Segment d)
9	FEED+	I/O	Sled motor control	24	SEG-E	I/O	Light up Signal for LED (Segment e)
10	FEED-	I/O	Sled motor control	25	SEG-F	I/O	Light up Signal for LED (Segment f)
11	PUIN	I/O	PU-IN switch	26	SEG-G	I/O	Light up Signal for LED (Segment g)
12	LID-SW	I/O	Lid open switch	27	SEG-H	I/O	Light up Signal for LED (Segment h)
13	D-MUTE	I/O	Mute control	28	DIGIT-1	I/O	Common Signal for LED
14	KEY-IN	I/O	Key Input	29	DIGIT-2	I/O	Common Signal for LED
15	OSC2	O	Clock output	30	PROG	I/O	Program LED

## IC BLOCK DIAGRAM & DESCRIPTION

### IC5 LC78622E(Digital Signal Processor)

No.	Name	I/O	Function	No.	Name	I/O	Function
1	DEFI	I	Input of defect detection signal. (Not used : Connect to 0V)	35	MUTEL	O	L-channel 1-bit DAC. Output of muting for L-channel.
2	TAU	I	For PLL. Input for test. (Surely connect to 0V)	36	LVDD	-	L-channel 1-bit DAC. Power supply for L-channel.
3	PDO	O	For PLL. Output of phase comparator for external VCO.	37	LCHO	O	L-channel 1-bit DAC. Output signal for L-channel.
4	VVSS	-	For PLL. Ground for internal VCO. (Surely connect to 0V)	38	LVSS	-	L-channel 1-bit DAC. Ground terminal for L-channel. (Surely connect to 0V)
5	ISET	AI	For PLL. Connection of resistor for current adjustment of PDO output.	39	RVSS	-	R-channel 1-bit DAC. Ground terminal for R-channel. (Surely connect to 0V)
6	VVDD	-	For PLL. Power supply for internal VCO.	40	RCHO	O	R-channel 1-bit DAC. Output signal for R-channel.
7	FR	AI	For PLL. For adjustment of VCO frequency range.	41	RVDD	-	R-channel 1-bit DAC. Power supply for R-channel.
8	VSS	-	Ground for digital root. (Surely connect to 0V)	42	MUTER	O	R-channel 1-bit DAC. Output of muting for R-channel.
9	EFMO	O	Output of EFM signal for slice level control.	43	XVDD	-	Power supply terminal for crystal oscillation.
10	EFMIN	I	Input of EFM signal for slice level control.	44	XOUT	O	Connection terminal for crystal oscillation. (16.9344MHz)
11	TEST2	I	Input for test. (Surely connect to 0V)	45	XIN	I	Connection terminal for crystal oscillation. (16.9345MHz)
12	CLV+	O	Output for disc motor control.	46	XVSS	O	Ground terminal for crystal oscillation. (Surely connect to 0V)
13	CLV-	O	Output for disc motor control.	47	SBSY	O	Output of Synchronizing signal for sub-code block.
14	V/P	O	Monitor output for automatic selection of rough servo/phase control. H : rough servo, "L" : phase control	48	EFLG	O	Terminal of correction monitor for C1, C2, single and double.
15	HFL	I	Input of track detection signal.	49	PW	O	Output for P, Q, R, S, T, U and W of sub-code.
16	TES	I	Input of tracking error signal.	50	SFSY	O	Output of Synchronizing signal for sub-code flame. When the stand-by the sub-code, leading edge.
17	TOFF	O	Output of tracking OFF signal.	51	SBCK	I	Input terminal of reading clock for sub-code.
18	TGL	O	Output of selection for tracking gain. "L" level : gain up	52	FSX	O	Output terminal of synchronizing signal divided from crystal oscillation (7.35kHz).
19	JP+	O	Output of track jump control.	53	WRQ	O	Output of stand-by signal for output the sub-code Q.
20	JP-	O	Output of track jump control.	54	RWC	I	Input terminal of control signal for read/write.
21	PCK	O	Output of clock monitor for playback EFM data. When rocked the phase : 4.3218MHz	55	SQOUT	O	Output terminal for sub-code Q.
22	FSEQ	O	Output of detection for synchronizing signal. When accordant to detected synchronizing signal from EFM signal and synchronizing signal in internal generation.	56	COIN	I	Input terminal for command from micro-processor.
23	VDD	-	Power supply for digital root.	57	CQCK	I	Input of loading clock for command, or fetching clock for sub-code from SQOUT.
24	CONT1	I/O	Input/Output for general.	58	RES	I	Input terminal of system reset. When ON the power supply, ones the "L".
25	CONT2	I/O	Control by serial data command from micro processor.	59	TST11	O	Output terminal for test. Use the Open status(Normal the output is "L").
26	CONT3	I/O	Control by serial data command from micro processor.	60	16M	O	Output terminal for 16.9344MHz.
27	CONT4	I/O	Not used: Open or 0V	61	4.2M	O	Output terminal for 4.2336MHz.
28	CONT5	I/O	Output of monitor for de-emphasis. Playback during diemphasis disc : "H" level	62	TEST5	I	Input for test. (Surely connect to 0V)
29	EMPH	O	Output of monitor for de-emphasis. Playback during diemphasis disc : "H" level	63	CS	I	Input terminal for chip select signal. (When the un-control, connect to 0V)
30	C2F	O	Output of C2 flag.	64	TEST1	I	Input for test. (Surely connect to 0V)
31	DOUT	O	Output of Digital OUT. (EIAJ foamed)				
32	TEST3	I	Input for test. (Surely connect to 0V)				
33	TEST4	I	Input for test. (Surely connect to 0V)				
34	NC	-	Not connection. (Open)				



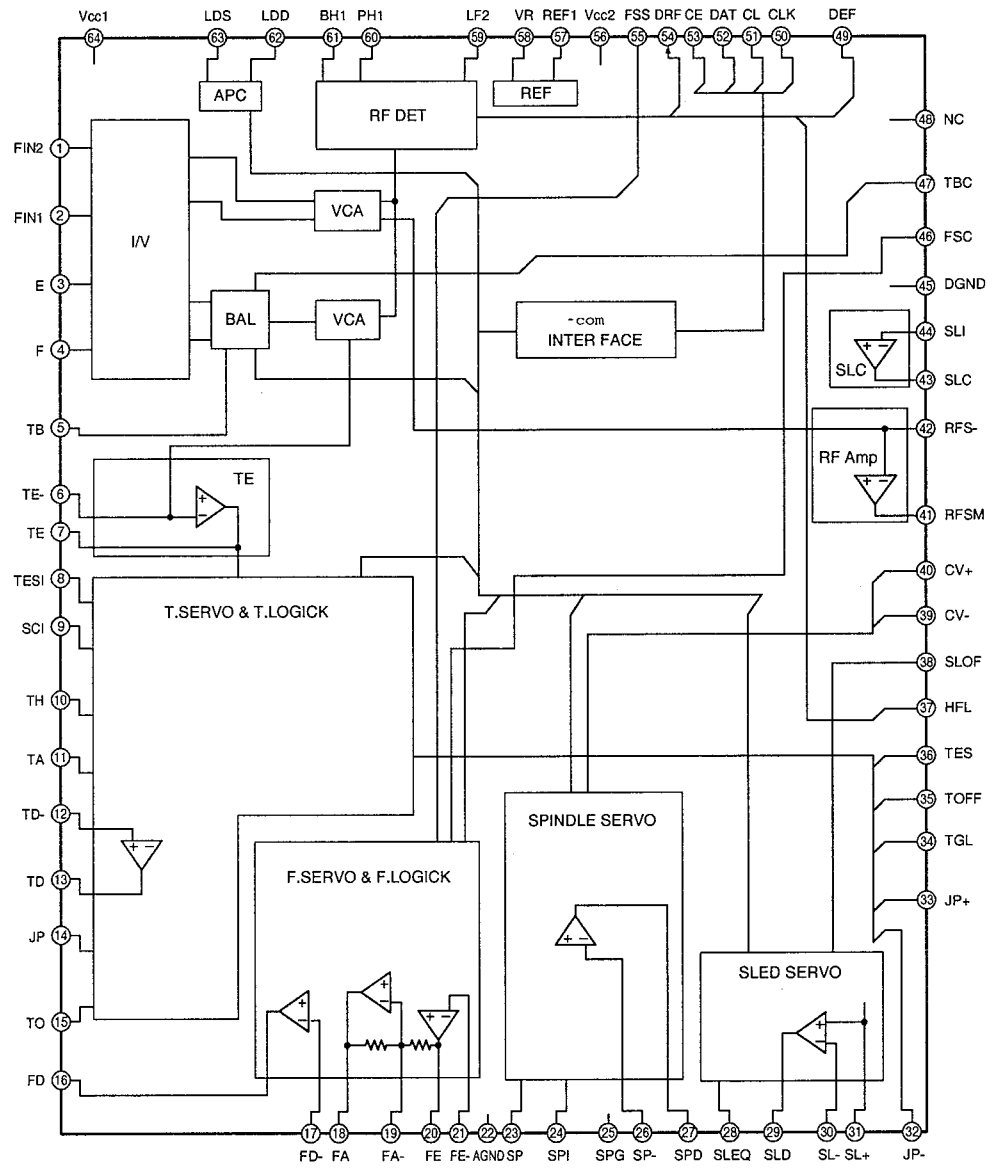
# IC BLOCK DIAGRAM & DESCRIPTION

## IC6 LA9240M(CD RF Servo Signal Processor)

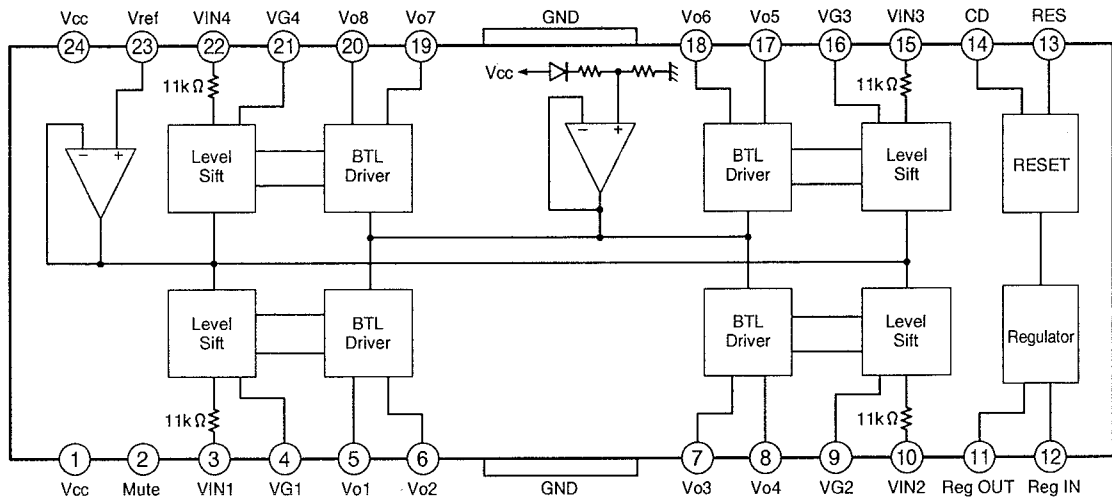
No.	Name	I/O	Function	No.	Name	I/O	Function
1	FIN2	I	Connection pin for photo diode of pickup.	35	TOFF	I	Input pin for tracking off control signal from digital signal processor. TOFF=H: off
2	FIN1	I	FIN2+FIN1=RF, FIN2-FIN1=FE	36	TES	O	Output pin for tracking error sense signal to digital signal processor.
3	E	I	Connection pin for photo diode of pickup.	37	HFL	I	High frequency level signal use detection main-beam position is on the pit or mirror.
4	F	I	E-F=TE	38	SLOF	I	Input pin for sled servo off control.
5	TB	I	Input pin for DC ingredient of TE signal.	39	CV-	I	Input pin for constant linear velocity error signal from digital signal processor.
6	TE-	I	Connection pin for gain setting resistor of TE signal to TE signal pin.	40	CV+	I	
7	TE	O	Output pin for Tracking Error signal.	41	RFSM	O	Output pin for RF signal.
8	TES1	I	Input pin for tracking error sense comparator. TE signal through band pass, and inputted.	42	RFS-	I	Connection pin for gain setting of RF and constant setting of 3T compensation of the EFM signal with RFSM pin.
9	SCI	I	Input pin for shock detection.	43	SLC	O	Slice level control signal is output pin, it control level of data-slice by digital signal processor of the RF waveform.
10	TH	I	Connection pin for time constant setting of tracking gain.	44	SLI	I	Input pin for level control of data-slice by digital signal processor.
11	TA	O	Output pin for TA amplifier.	45	DGND	-	Ground for digital signal.
12	TD-	I	Connection pin for constant of tracking phase compensation, consist of between TD and VR.	46	FSC	O	Input pin for VCO control amplifier, consist of PLL loop filter with VCOC and PDO of digital signal processor.
13	TD	I	Connection pin for constant of tracking phase compensation.	47	TBC	O	Tracking Balance Control
14	JP	I	Connection pin for amplitude setting of tracking jump (kick pulse) signal.	48	NC	-	Not connection
15	TO	O	Output pin for tracking control signal.	49	DEF	O	Output pin for defect detection of disc.
16	FD	O	Output pin for focusing control signal.	50	CLK	I	Input pin for reference clock pulse, input 4.23MHz of digital signal processor.
17	FD-	I	Connection pin for constant of focusing phase compensation, consist of between FD and FA.	51	CL	I	Input pin of clock pulse for command from micro processor.
18	FA+	I	Connection pin for constant of focusing phase compensation, consist of between FD- and FA-.	52	DAT	I	Input pin of data for command from micro processor.
19	FA-	I	Connection pin for constant of focusing phase compensation, consist of between FA and FE.	53	CE	I	Input pin of chip enable for command from micro processor.
20	FE	O	Output pin for Focusing Error signal.	54	DRF	O	Detect RF signal is output pin for RF level detection.
21	FE-	I	Connection pin for gain setting resistor of FE signal to FE signal pin.	55	FSS	I	Focus Serch Select
22	AGND	-	Ground for analog signal.	56	VCC2	-	VCC for servo and digital root.
23	SP	O	Output pin for signal end of input signal of the CV+, CV- pin.	57	REF1	I	Bus control connection pin for reference voltage.
24	SPI	I	Input pin for spindle amplifier.	58	VR	O	Output pin for reference voltage.
25	SPG	I	Connection pin for gain setting resistor, when spindle 12cm mode.	59	LF2	I	Connection pin for taim constant setting of defect detection of the disc.
26	SP-	I	Connection pin for constant of spindle phase compensation with SPD pin.	60	PH1	I	Capacitor connection pin for peak-hold of RF signal.
27	SPD	O	Output pin for spindle control signal.	61	BH1	I	Capacitor connection pin for bottom-hold of RF signal.
28	SLEQ	I	Connection pin for constant of sled phase compensation	62	LDD	O	Output pin of APC(Auto Power Control) circuit.
29	SLD	O	Output pin for sled control signal.	63	LDS	I	Input pin for APC(Auto Power Control) circuit.
30	SL-	I	Input pin for sled signal from micro processor.	64	VCC1	-	VCC for RF root.
31	SL+	I					
32	JP-	I	Input pin for tracking jump signal from digital signal processor.				
33	JP+	I					
34	TGL	I	Input pin for tracking gain control signal from digital signal processor. TGL=H: gain low				

# IC BLOCK DIAGRAM & DESCRIPTION

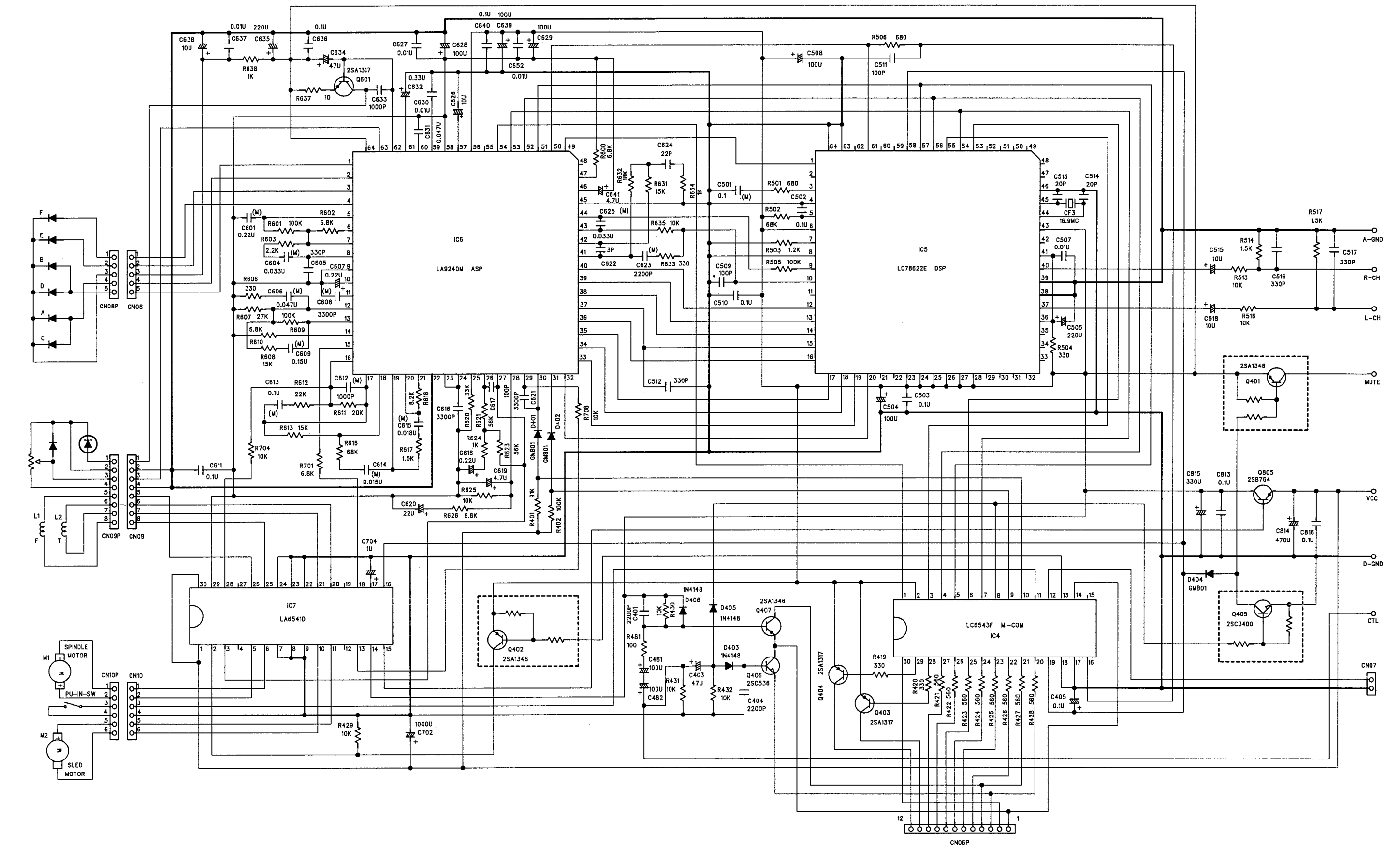
## IC6 LA9240M(CD RF Servo Signal Processor)



# IC7 LA6541D (CD Mechanism Pickup & Motor Driver)



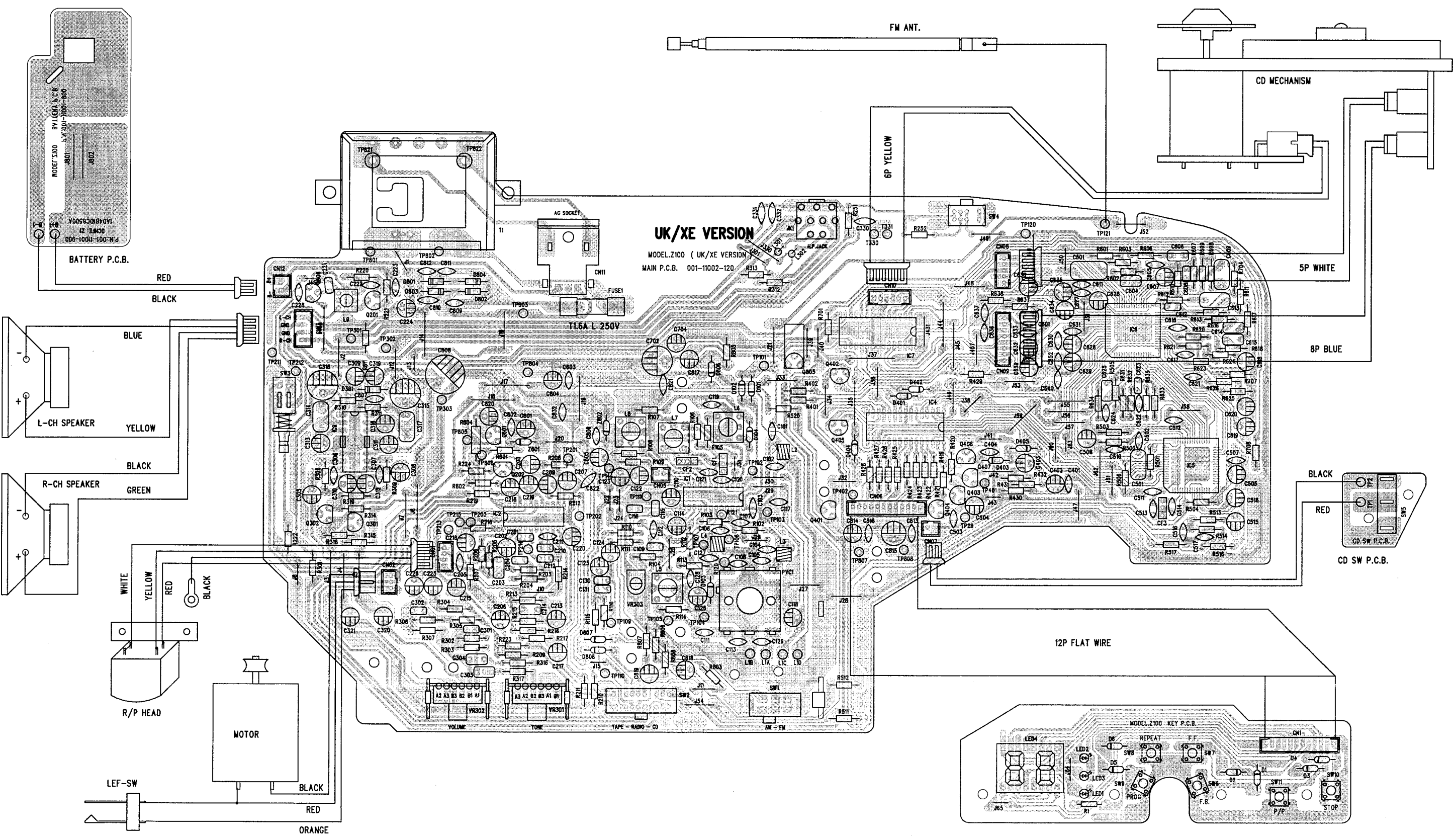
SCHEMATIC DIAGRAM(CD)



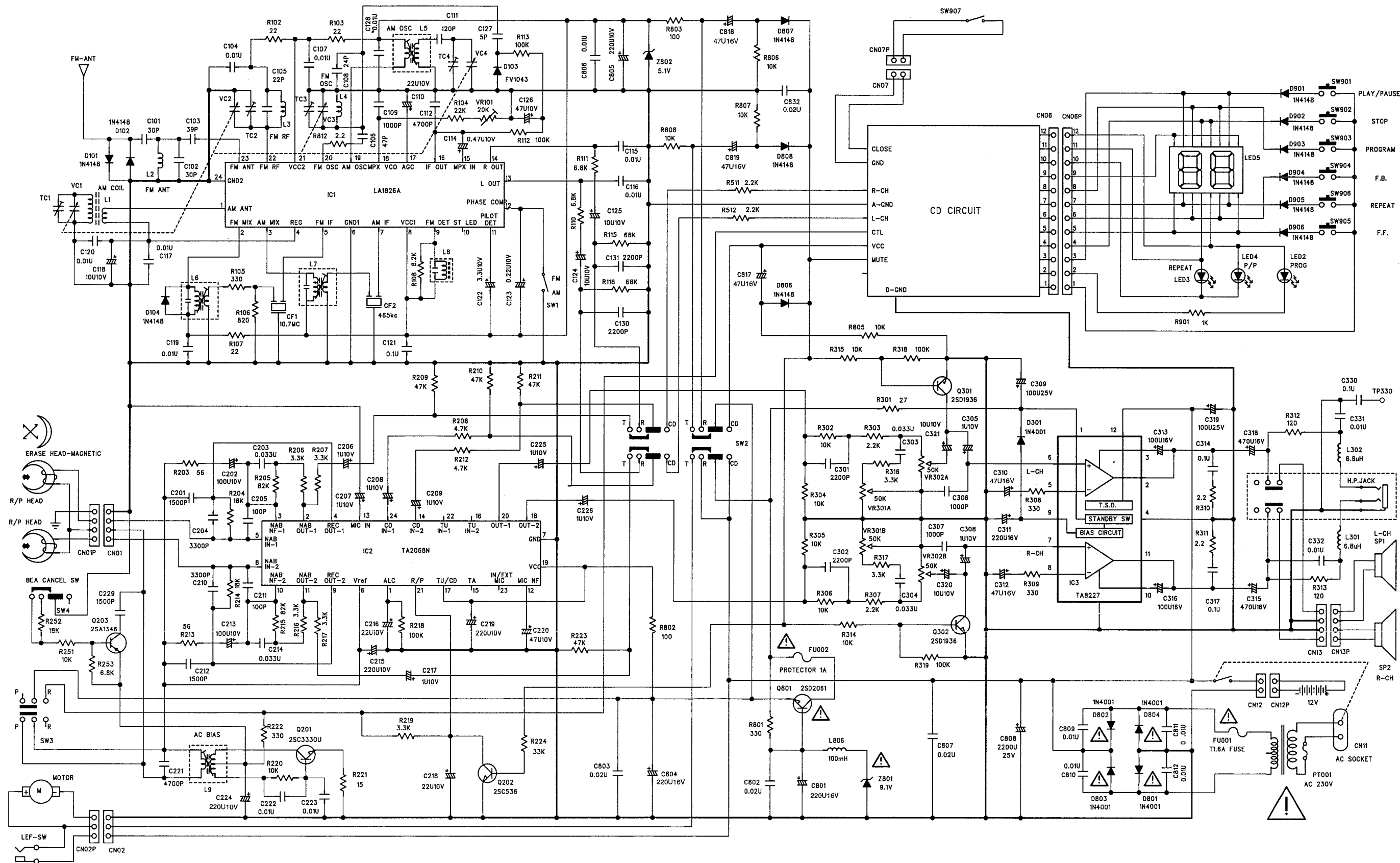
This is a basic schematic diagram.



WIRING DIAGRAM

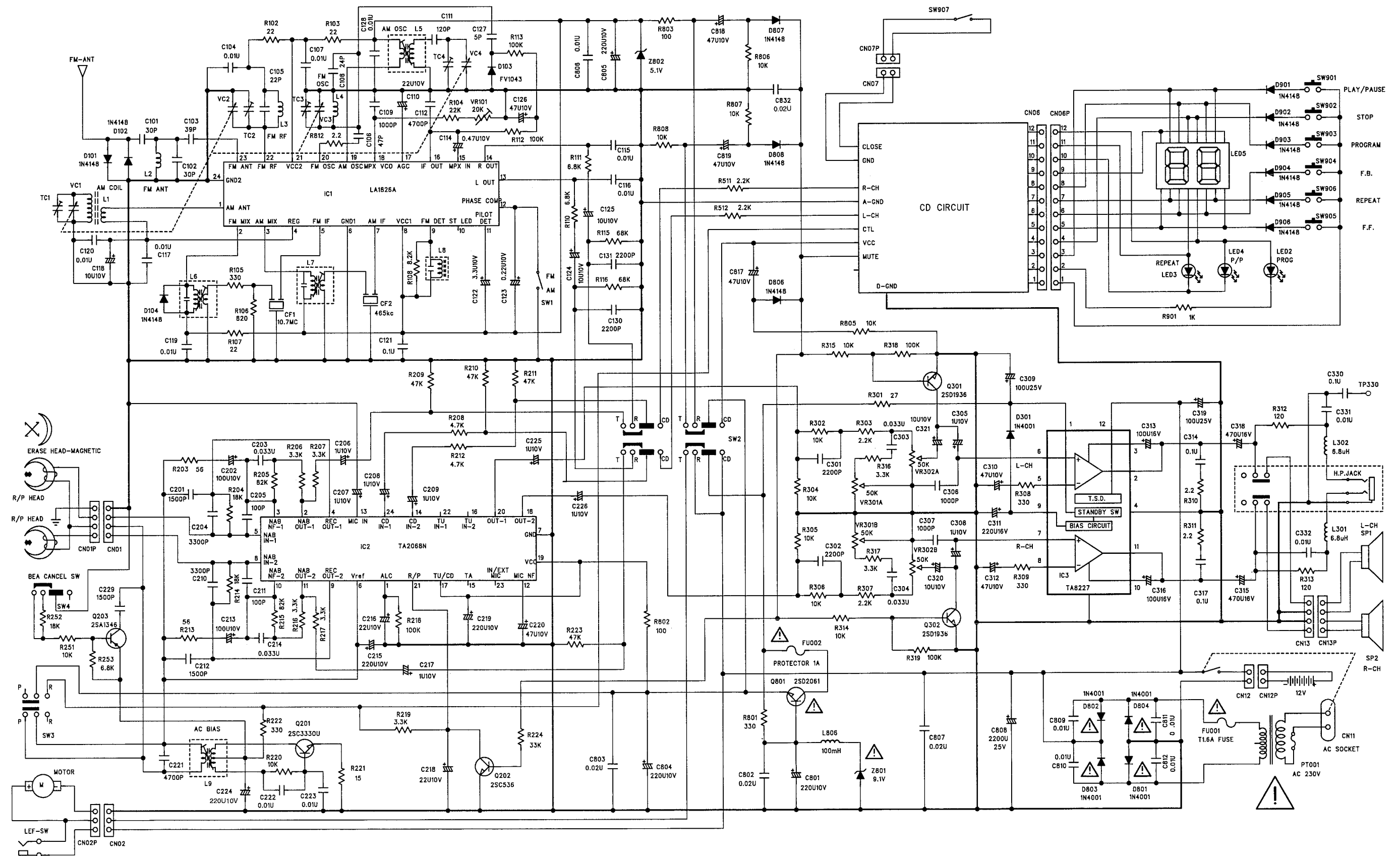


SCHEMATIC DIAGRAM (TUNER, TAPE & MAIN AMPLIFIER < for UK >)



This is a basic schematic diagram.

SCHEMATIC DIAGRAM (TUNER, TAPE & MAIN AMPLIFIER < for XE >)





## VOLTAGE OF IC & TRANSISTOR

### TRANSISTOR (V)

Pin No.	B	C	E
Q201	0.3	6.8	0.2
Q202	0	0	0
Q203	6.6	6.8	0
Q301	0	0	0
Q302	0	0	0
Q401	5.0	0	5.0
Q402	4.9	0	5.0
Q403	4.6	2.4	5.0
Q404	4.6	2.4	5.0
Q405	0	4.0	0
Q406	0	5.0	3.0
Q407	4.9	3.0	5.0
Q601	4.4	1.5	5.0
Q801	9.0	12.0	8.2
Q805	7.6	5.0	8.2

### IC1 LA1826

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FM (V)	1.2	5.2	5.2	1.2	1.2	0	1.2	5.2	5.2	3.3	4.2	4.3	1.0	0.9	4.6	3.9
AM (V)	1.2	5.2	5.2	1.2	1.2	0	1.2	5.2	5.2	3.4	3.3	0	1.6	1.6	1.0	0.5
Pin No.	17	18	19	20	21	22	23	24								
FM (V)	1.3	3.9	5.2	4.6	5.0	5.0	0.9	0								
AM (V)	1.2	0	5.2	5.0	5.2	5.2	0	0								

### IC2 TA2068

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PLAY (V)	0.1	2.0	2.0	1.9	3.0	2.0	0	2.0	1.9	2.0	2.0	2.0	1.6	1.6	0	1.9
REC (V)	0.8	1.9	1.9	2.0	2.0	2.0	0	2.0	2.0	1.6	2.0	2.0	1.6	1.6	0	1.9
Pin No.	17	18	19	20	21	22	23	24								
PLAY (V)	7.5	2.0	7.5	2.0	0	1.9	0.8	1.6								
REC (V)	7.2	2.0	7.2	2.0	6.5	1.9	0.8	1.6								

### IC3 TA8227

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12
(V)	11.7	6.4	11.2	0	0.5	0	0	0.5	6.0	11.2	6.4	12

### IC4 LC6543

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
(V)	0	5.0	0	0	4.7	0	0	4.0	0	0	5.0	0	5.0	5.0	0	2.4
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
(V)	0	0	5.0	0.4	0.4	0.4	0.4	0.4	0.4	4.9	4.9	2.8	2.8	5.0		

### IC5 LC78622

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
(V)	0	0	0.3	0	1.5	5.0	1.5	0	2.5	2.5	0	0	0	5.0	0	0
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
(V)	5.0	5.0	0	0	2.5	0	5.0	0	0	0	0	0	0	5.0	2.5	0
Pin No.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
(V)	0	0	5.0	4.5	1.9	0	0	1.9	4.5	5.0	5.0	2.2	1.4	0	0.1	2.3
Pin No.	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
(V)	0	2.5	0	2.5	0	0	0	0	4.7	5.0	0	2.4	2.4	0	0	0

## VOLTAGE OF IC & TRANSISTOR

### IC6 LA9240

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
(V)	2.5	2.5	2.5	2.5	1.7	2.5	2.5	2.0	2.5	1.7	2.4	2.5	2.5	2.5	2.5	2.5
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
(V)	2.5	2.5	2.2	2.5	2.5	0	1.8	1.8	2.5	2.5	2.5	2.4	2.5	2.5	2.2	0
Pin No.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
(V)	0	5.0	5.0	0	0	5.0	0	0	1.7	2.4	2.5	2.5	0	2.4	2.4	0
Pin No.	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
(V)	0	2.3	4.7	0	0	0	0	5.0	2.4	2.5	1.0	1.3	1.3	4.4	0	5.0

### IC7 LA6541

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
(V)	8.2	0	2.4	2.5	2.5	2.5	0	0	0	2.5	2.5	2.5	2.4	5.0	7.6	5.0
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
(V)	4.9	2.4	2.5	2.5	2.5	0	0	0	2.5	2.5	2.5	2.4	2.5	8.2		

**SANYO**