ORDER NO. ARD-7802011C

Service Manual

Cassette Deck

RS-631

Front-Loading Vertical Hold High Fidelity Stereo
Cassette Deck with Memory Auto Play and Separate
3-Position Bias/Equalization Selectors

RS-631 MECHANISM SERIES

Specifications (Catalog specifications for sales)

Power requirement:	AC; 110/125/220/240 V, 50/60 Hz Power consumption; 13 W
Motor:	FG servo DC motor
Track system:	4-track 2-channel stereo recording and playback
Tape speed:	4.8 cm/s
Wow and flutter:	0.06% (WRMS), ±0.15% (DIN)
Frequency response:	CrO_2/FeCr tape; 25 ~ 16,000 Hz 30 ~ 15,000 Hz (DIN) 40 ~ 14,000 Hz ±3 dB Normal tape; 25 ~ 14,000 Hz 30 ~ 13,000 Hz (DIN) 40 ~ 12,000 Hz ±3 dB
Signal-to-nois ratio:	Dolby NR in; 67 dB (above 5 kHz) Dolby NR out; 57 dB (signal level = max. recording level, CrO_2/FeCr tape)
Fast forward and rewind time:	Approx. 90 seconds with C-60 cassette tape
Input:	MIC; sensitivity 0.25 mV, applicable microphone impedance 400Ω ~ 20 KΩ LINE; sensitivity 60 mV, input impedance 33 KΩ DIN; sensitivity 0.26 mV, input impedance 1.5 KΩ
Output:	LINE; output level 420 mV, load impedance 47 KΩ over DIN; output level 420 mV, output impedance 10 KΩ over HEADPHONE; output level 60 mV, load impedance 8Ω
Rec/pb connection:	5P DIN type
Head:	2-head system 1-HPF head for record/playback 1-double-gap ferrite head for erasure
Dimensions:	43.0 cm(W) × 14.9 cm(H) × 26.7 cm(D)
Weight:	7.6 kg

Specifications are subject to change without notice.

National Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

LOCATION OF CONTROLS AND COMPONENTS

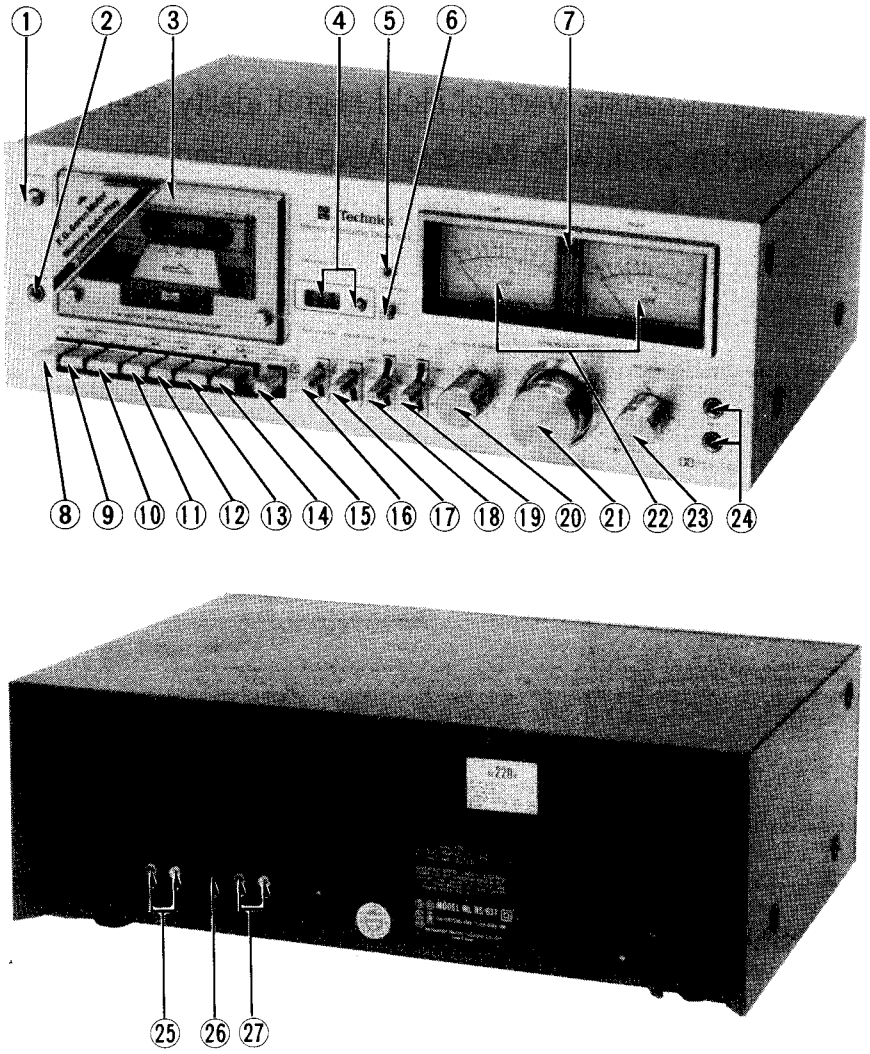


Fig. 1

① Power switch
② Headphones jack
③ Cassette compartment door
④ Tape counter and reset button
⑤ Memory indication lamp
⑥ Memory switch
⑦ Recording indication lamp
⑧ Pause button
⑨ Record button
⑩ Playback button
⑪ Rewind/review button
⑫ Fast forward/cue button
⑬ Stop button
⑭ Eject button
⑮ Timer stand-by button
⑯ Peak-signal-check switch
⑰ Dolby noise-reduction switch
⑱ Bias selector
⑲ Equalization selector
⑳ Output level control
㉑ Line input level controls
㉒ Peak level/VU meters
㉓ Microphone level controls
㉔ Microphone jacks
㉕ Line output jacks
㉖ Record/playback connection socket
㉗ Line input jacks

DISASSEMBLY INSTRUCTIONS

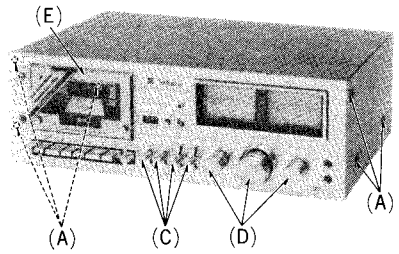


Fig. 2

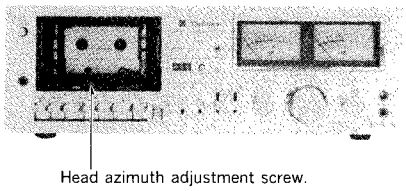


Fig. 3

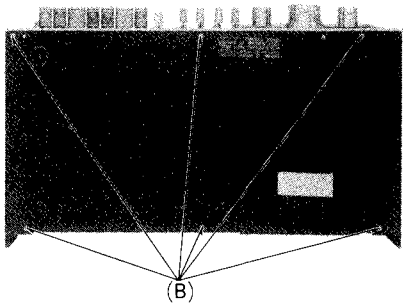


Fig. 4

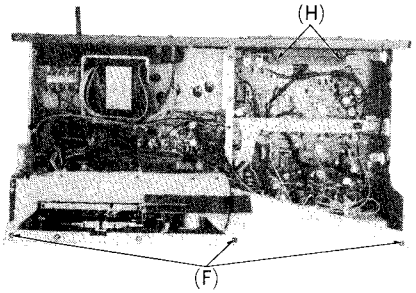


Fig. 5

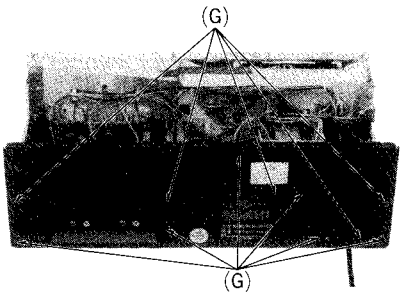


Fig. 6

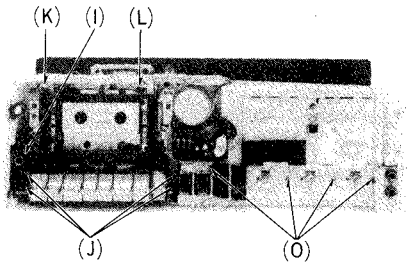


Fig. 7

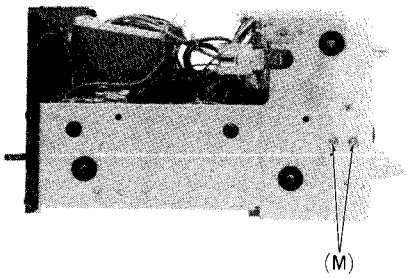


Fig. 8

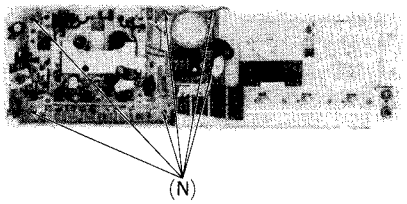


Fig. 9

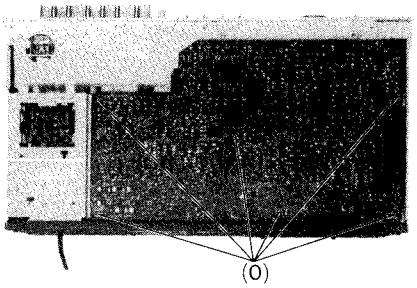


Fig. 10

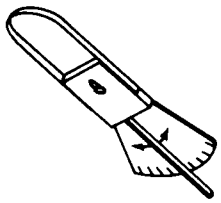
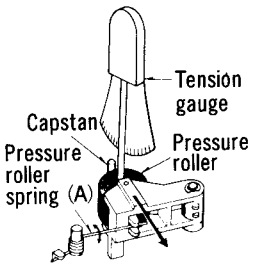
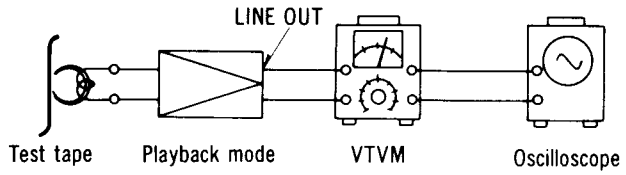
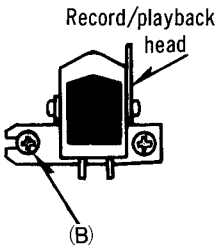
Procedure	To remove ——.	Remove ——.	Shown in fig. ——.
1	Case cover	• 6 black screws ····· (A)	2
2	Bottom cover	• 6 screws ····· (B)	4
3	Front panel	• 4 lever knobs ····· (C) • 3 control knobs ····· (D) • Cassette lid ····· (E) ※ • 3 red screws ····· (F)	2 2 2, 3 5
3	Rear board	• 11 black screws ····· (G) • 2 red screws ····· (H)	6 5
5	Control button assembly and cassette holder	• Headphones jack cover ····· (I) • 4 red screws ····· (J) • Stop ring ····· (K) • Cassette holder spring ····· (L)	7 7 7 7
6	Mechanism	• 2 headphones jack holding screw ··· (M) • 6 red screws ····· (N)	8 9
6	Main amplifier	• 10 red screws ····· (O)	7, 10

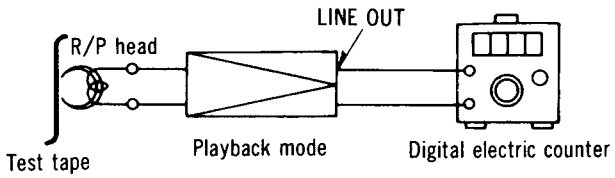
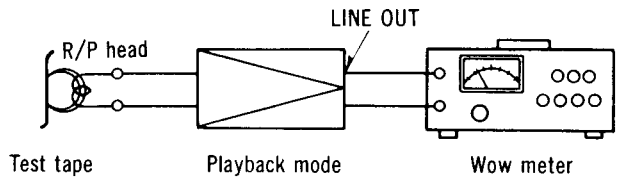
※ The head azimuth can be adjusted by removing the cassette lid (E) as shown in fig. 3.

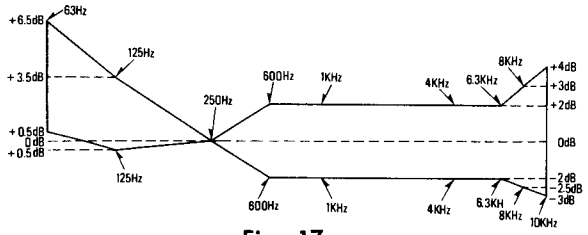
MEASUREMENT AND ADJUSTMENT METHOD

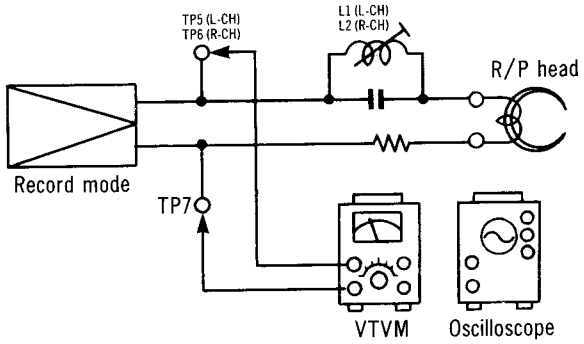
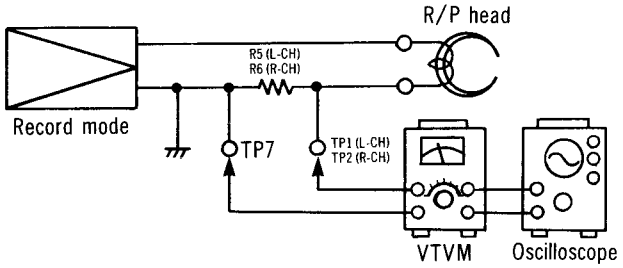
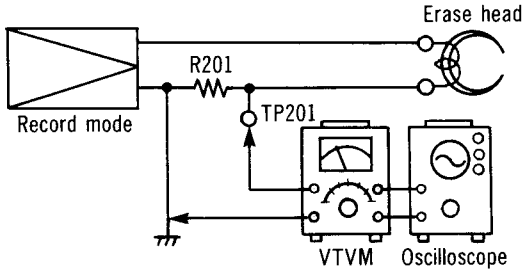
NOTE:

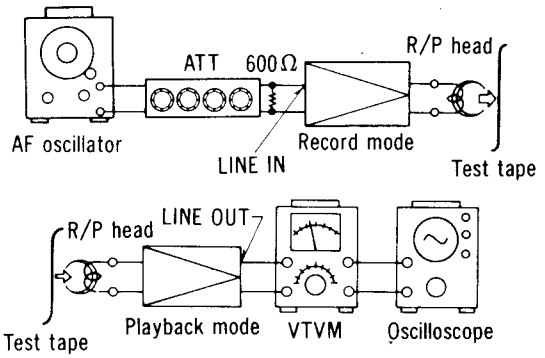
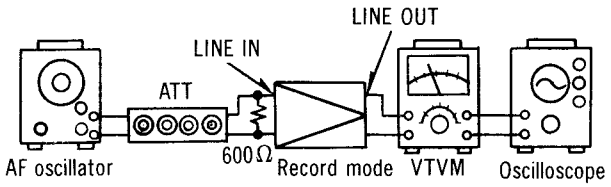
1. Make sure heads are clean.
2. Make sure capstan and pressure roller are clean.
3. Judgeable room temperature: 20±5°C (68±9°F).
4. Dolby NR switch: OUT.
5. Bias selector: LOW.
6. Equalizer selector: 120μS.

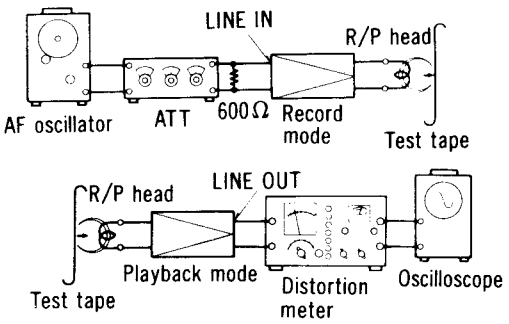
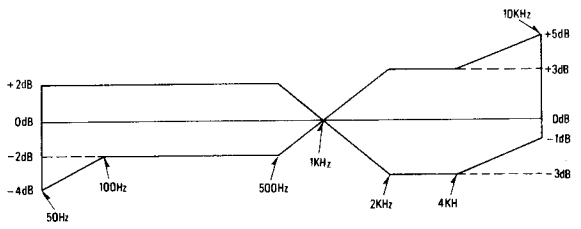
ITEM	MEASUREMENT & ADJUSTMENT	REMARKS
Pressure of pressure roller Equipment: * Tension gauge (max. 500 gr)  **Fig. 11**	1. Place UNIT into playback mode. 2. Hook the tension gauge to pressure roller lever and pull it in the direction of the arrow as shown in fig. 12. 3. Measure the tension at the moment when the pressure roller moves away from the capstan. **Standard value: 400±50 gr** **Adjustment method** Bend the part (A) of the pressure roller spring in either direction shown by the arrow until the correct pressure is attained.	* Playback mode  **Fig. 12**
Takeup tension Equipment: * Cassette torque meter ···QZZSRKCT	1. Mount cassette torque meter on UNIT. 2. Place UNIT into playback mode and read takeup torque. 3. Measure several times and determine the mean value. **Standard value: 55±15 gr-cm**	* Playback mode
Head azimuth adjustment Equipment: * VTVM * Oscilloscope * Test tape (azimuth) ···QZZCFM	**Record/playback head adjustment** 1. Test equipment connection is shown below.  **Fig. 13** 2. Play azimuth tape (QZZCFM 8 kHz). 3. Adjust record/playback head angle adjustment screw (B) in fig. 14 so that output level at LINE OUT becomes maximum. 4. Measure both channels, and adjust levels for equal output. 5. After adjustment lock head adjustment screw with lacquer.	* Playback mode  **Fig. 14**

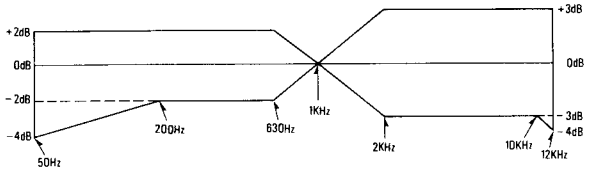
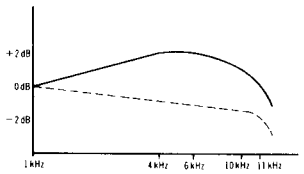
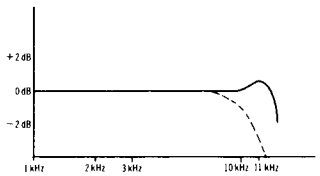
ITEM	MEASUREMENT & ADJUSTMENT	REMARKS
Tape speed Equipment: * Digital electronic counter or frequency counter (RP8067) * Test tape··· QZZCWAT	**Tape speed accuracy** 1. Test equipment connection is shown below.  **Fig. 15** 2. Play test tape (QZZCWAT 3,000 Hz), and supply playback signal to frequency counter. 3. Measure this frequency. 4. On the basis of 3,000 Hz, determine value by following formula: $\text{Tape speed accuracy} = \frac{f - 3{,}000}{3{,}000} \times 100\ (\%)$ where, f = measured value 5. Take measurement at middle section of tape. **Standard value: ±1.5%** **Adjustment method** 1. Play the test tape (middle). 2. Adjust VR201 so that frequency becomes 3,000 Hz. **Tape speed fluctuation** Make measurements in same manner as above (beginning, middle and end of tape), and determine difference between maximum and minimum values and calculate as follows: $\text{Tape speed fluctuation} = \frac{f_1 - f_2}{3{,}000} \times 100\ (\%)$ f_1 = maximum value f_2 = minimum value **Standard value: 1%**	* Playback mode
Wow and flutter Equipment: * Wow meter * Test tape··· QZZCWAT	1. Test equipment connection is shown below.  **Fig. 16** 2. Use wow test tape (3,000 Hz) and measure its playback signal on wow meter. 3. Wow and flutter is expressed in percentage and that measurement can be weighted by JIS network (WRMS). 4. Measure at middle section of test tape. **Standard value: 0.1% (WRMS)**	* Playback mode

ITEM	MEASUREMENT & ADJUSTMENT	REMARKS
Playback frequency response Equipment: * VTVM * Oscilloscope * Test tape ··· QZZCFM	1. Test equipment connection is as same as "Head azimuth adjustment" but use the test tape instead of head azimuth tape (See fig. 17). 2. Place UNIT into playback mode. 3. Playback frequency response test tape. 4. Measure output level at 8kHz, 4kHz, 1kHz, 315Hz, 250Hz, 120Hz and 63Hz, and compare each output level with standard frequency 315Hz, at LINE OUT. 5. Make measurement for both channels. 6. Make sure that the measured value is within the range specified in the frequency response chart. Playback frequency response chart  **Fig. 17** **Adjustment method** If the measured value is not standard, adjust VR1 (L-CH), VR2 (R-CH).	* Playback mode * Output level control ··· MAX
Playback gain Equipment: * VTVM * Oscilloscope * Test tape ··· QZZCFM	1. Test equipment connection is shown in fig. 13. 2. Play standard recording level portion on test tape (QZZCFM 315Hz), and using VTVM measure the output level at LINE OUT jack. 3. Make measurement for both channels. **Standard value: 0.42V (−7dB)** **Adjustment method** 1. If measured value is not standard, adjust VR3 (L-CH), VR4 (R-CH) (See fig. 28 on page 10). 2. After adjustment, check "Playback frequency response" again.	* Playback mode * Output level control ··· MAX
Playback S/N ratio Equipment: * VTVM * Oscilloscope * Test tape ··· QZZCFM * Empty cassette	1. Test equipment connection is shown in fig. 13. 2. Play standard recording level test tape (QZZCFM 315Hz) and read output level on VTVM. Refer to "Playback gain adjustment". 3. Place empty cassette (which has been cut) and playback again. 4. Measure noise level at this time using VTVM, and determine ratio of this level to test tape output signal voltage (315Hz). **Standard value: Greater than 43dB**	* Playback mode * Output level control ··· MAX

ITEM	MEASUREMENT & ADJUSTMENT	REMARKS
Bias leak Equipment: * VTVM * Oscilloscope	1. Test equipment connection is shown below.  **Fig. 18** 2. Place UNIT into record mode. 3. Adjust trap coil L1 (L-CH), L2 (R-CH), so that measured value on VTVM becomes minimum. 4. Take adjustment for both channels.	* Record mode
Bias current Equipment: * VTVM * Oscilloscope	1. Test equipment connection is shown below.  **Fig. 19** 2. Place UNIT into record mode, and bias selector to "LOW". 3. Read voltage on VTVM and calculate bias current by following formula: $\text{Bias current (A)} = \frac{\text{Value read on VTVM (V)}}{10\ (\Omega)}$ **Standard value:** **80±20 (LOW position)** **84±20 (MED position)** **100±20 (HIGH position)** 4. Adjust VR15 (L-CH) and VR16 (R-CH) (See adjustment part location on page 10).	* Record mode * When bias current is adjusted on one channel only, note that bias current on the other channel may vary.
Erase current Equipment: * VTVM * Oscilloscope	1. Test equipment connection is shown below.  **Fig. 20**	* Record mode * Bias selector ··· LOW

ITEM	MEASUREMENT & ADJUSTMENT	REMARKS
	2. Place UNIT into record mode and set the bias selector to LOW position. 3. Read voltage on VTVM and calculate erase current by following formula: $\text{Erase current (A)} = \frac{\text{Value read on VTVM (V)}}{1\,(\Omega)}$ **Standard value: More than 40 mA**	
Overall gain Equipment: * AF oscillator * VTVM * ATT * Oscilloscope * Test tape (reference blank tape) ···QZZCRA for Normal	1. Test equipment connection is shown in fig. 21.  **Fig. 21** 2. Place UNIT into record mode, and equalizer selector to 120μS, bias selector to LOW (for normal tape). 3. Supply 1 kHz signal (−24 dB) from AF oscillator, through ATT, to LINE IN. 4. Adjust ATT until monitor level at LINE OUT becomes 0.42 V (−7 dB). 5. Using test tape, make recording. 6. Playback recorded tape, and make sure the value at LINE OUT on VTVM becomes 0.42 V. 7. If measured value is not 0.42 V, adjust VR9 (L-CH), VR10 (R-CH) (See fig. 28 on page 10). 8. Repeat from step (2).	* Record/playback mode * LINE IN level control ···MAX * Output level control ···MAX * Standard input level: MIC ·····−72±3 dB LINE IN ···−24±3 dB
Level meter Equipment: * VTVM * Oscilloscope * AF oscillator * ATT	1. Test equipment connection is shown in fig. 22.  **Fig. 22** 2. Set the peak check switch to the "METER" position. 3. Supply 1 kHz signal from the AF oscillator, through the ATT, to the LINE IN jack. 4. Adjust ATT so that the monitor level at LINE OUT becomes 0.42 V. 5. Adjust VR11 (L-CH) and VR12 (R-CH) so that the level meters indicate 0 dB. 6. Set the peak check switch to the "IND" position. 7. Then adjust VR13 for R-CH so that left and right level meters show the same indication.	* Record mode * LINE IN level control ···MAX * Output level control ···MAX

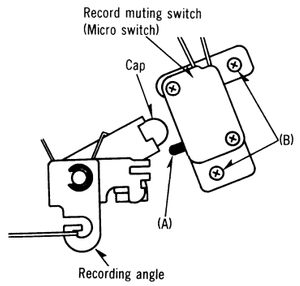
ITEM	MEASUREMENT & ADJUSTMENT	REMARKS
Overall distortion Equipment: * Distortion meter * AF oscillator * ATT * Oscilloscope * Test tape (reference blank tape) ···QZZCRA for Normal ···QZZCRX for CrO_2	1. Test equipment connection is shown in fig. 23.  **Fig. 23** 2. Supply 1kHz signal to LINE IN and adjust ATT so that output level at LINE OUT indicates 0.42V (−7dB). 3. Make recording. 4. Playback and measure distortion factor of output signal. 5. When the distortion factor does not satisfy the standard, check the bias current. When the bias current is lower than standard, distortion will increase. Care should be exercised in the adjustment because the bias current also has an influence on the overall frequency response. Refer to "The overall frequency response" and "The bias current adjustment". **Standard value:** **Less than 2.5% (Normal)** **Less than 4.0% (CrO_2)**	* Record/playback mode * LINE IN level control ···MAX * Output level control ···MAX
Overall frequency response Equipment: * VTVM * AF oscillator * ATT * Test tape (reference blank tape) ···QZZCRA for Normal ···QZZCRX for CrO_2	**Note:** Before measuring, and adjusting, make sure of the playback frequency response (For the method of measurement, please refer to the playback frequency response). 1. Test equipment connection is shown in fig. 21. 2. Load reference blank test tape and place UNIT into record mode. 3. Supply 1kHz signal from AF oscillator through ATT to LINE IN. 4. Adjust ATT so that input level is −20dB below standard recording level (standard recording level=0VU). 5. At this time, LINE OUT level indicates 0.042V. 6. Record each frequency 50Hz, 100Hz, 200Hz, 1kHz, 2kHz, 4kHz and 10kHz (12kHz for CrO_2 tape) at the same level. 7. Playback and express in dB the difference between playback output level of each frequency based on playback output level of 1kHz. 8. Make sure that the measured value is within the range specified in the overall frequency response chart. **Overall frequency response chart (Normal)**  **Fig. 24**	* Record/playback mode * LINE IN level control ···MAX * Output level control ···MAX

ITEM	MEASUREMENT & ADJUSTMENT	REMARKS
	9. Set the bias selector to CrO_2 position. 10. Measure as same as manner above. 11. Make sure that the measured value is within the range specified in the overall frequency response chart for CrO_2 tape below. **Overall frequency response chart (CrO_2)**  **Fig. 25**	
Overall frequency response adjustment (As a standard for adjustment)	**Adjustment 1—Using bias current** 1. When the frequency response between the middle- and high-frequency range becomes higher than the standard value, as shown by the solid line in fig. 26, increase the bias current by turning VR15 (L-CH), VR16 (R-CH). 2. When it becomes lower, as shown by dotted line, reduce the bias current by turning VR15 (L-CH), VR16 (R-CH). **Note:** 1. For adjustment when the bias current is lower than the standard value use the procedure indicated in adjustment 2, because reducting the bias current beyond this point may worsen the distortion factor. 2. For the method of bias current measurement, refer to "Bias current adjustment" on page 6.  **Fig. 26** **Adjustment 2—Using the peaking coil for recording equalization** When the frequency response is flat in the middle-frequency range and makes a sharp rise or drop in the high-frequency range, as shown in fig. 27, adjust by turning the peaking coil L3 (L-CH), L4 (R-CH) for normal tape recording equalization.  **Fig. 27**	
Dolby NR circuit Equipment: * VTVM * AF oscillator * ATT * Oscilloscope	1. Place UNIT into record mode, set the Dolby NR switch to OUT position and supply to LINE IN to obtain −34.5 dB at TP3 (L-CH), TP4 (R-CH) (frequency 5 kHz). 2. Confirm that the value at IN position is 8(±2.5) dB greater than the value at OUT position of Dolby NR switch.	* Record mode * LINE IN level control ··· MAX

ITEM	MEASUREMENT & ADJUSTMENT	REMARKS
Overall S/N ratio Equipment: * VTVM * AF oscillator * ATT * Oscilloscope * Test tape (reference blank tape) ··· QZZCRA	1. Test equipment connection is shown in fig. 21. 2. Supply 1kHz signal to LINE IN and adjust ATT so that output level at LINE OUT indicates 0.42V (−7dB). 3. Make recording. 4. Make another recording without supplying signal (disconnect input plug to LINE IN). 5. Rewind to recorded part and playback. 6. Measure output signal level and no signal level (noise), and determine the ratio in decibels (dB). 7. The value is difference between "Playback S/N and overall S/N", but for decibel calculation refer to "Playback S/N measurement" on page 5. **Standard value: Greater than 40dB (without NAB filter)**	* Record/playback mode * LINE IN level control ··· MAX * Output level control ··· MAX * Erase the tape with a bulk tape eraser.

HOW TO INSTALL THE RECORD-MUTING SWITCH

1. Lock the record button, and then mount it with screw (B) so that the cap and micro switch (A) do not contact each other.
2. Then play the music tape. Durring the playback, press the record button lightly several times, confirm whether the playback sound is interrupted or not.



ADJUSTMENT PARTS LOCATION

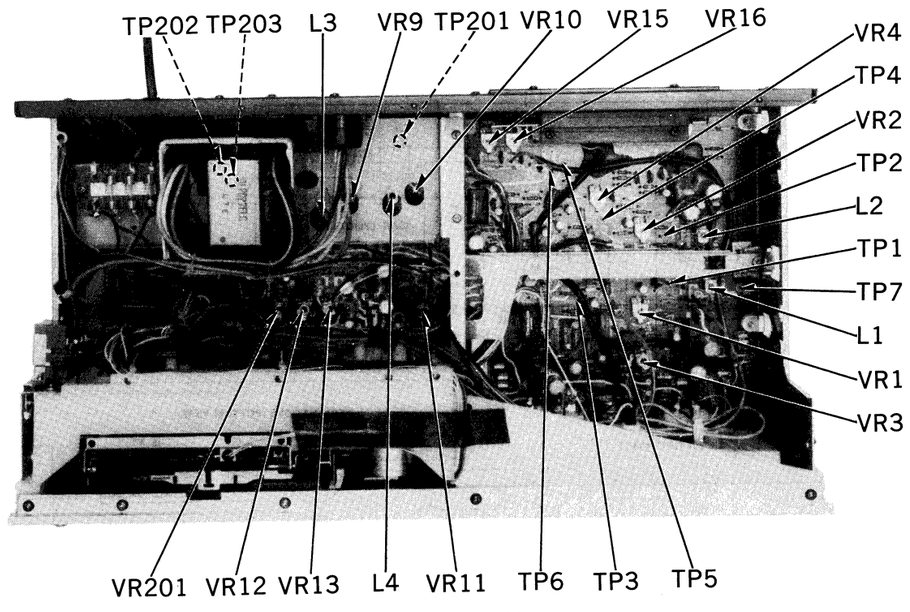
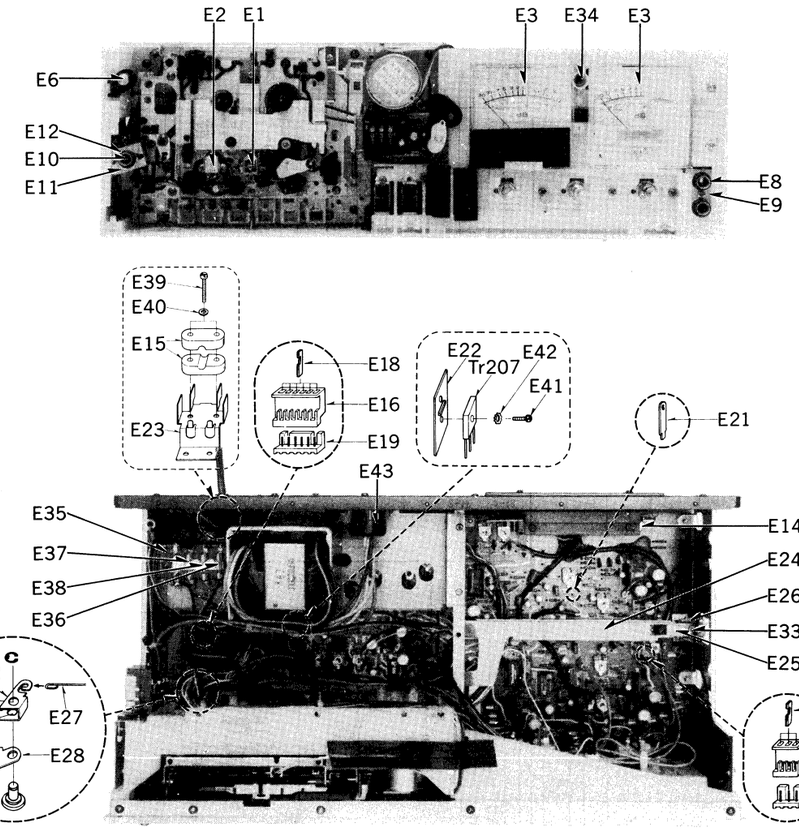


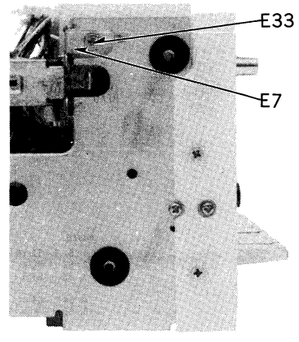
Fig. 28

ELECTRICAL PARTS LOCATION

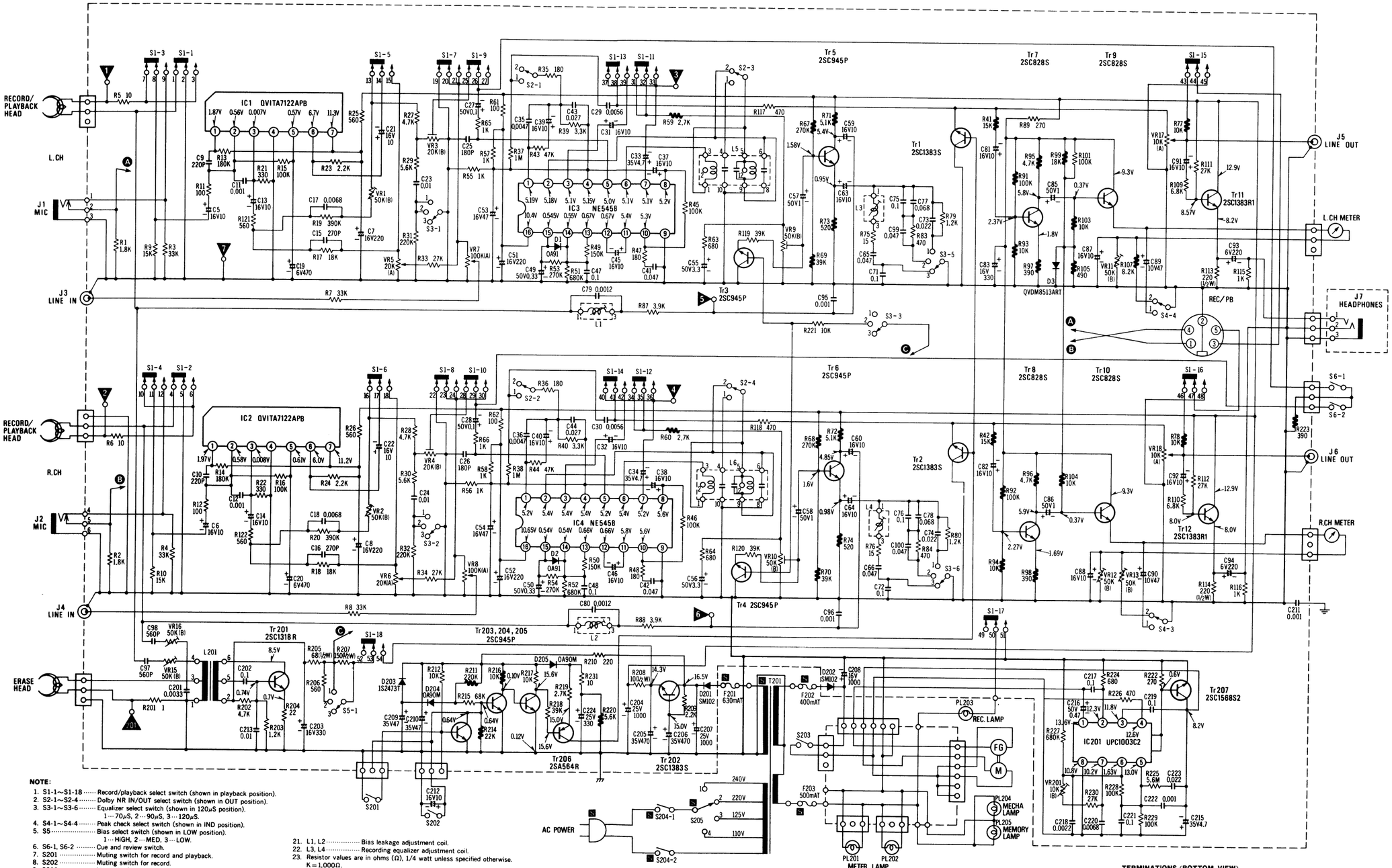


NOTE:
1. Symbols after Ref. No. indicate; ▲ for Scandinavia ● for United Kingdom.
2. S indicates that only parts specified by the manufacturer be used for safety.

Ref. No.		Part No.	Part Name & Description
E1		WY456Z	Record/Playback Head
E2		QWY2122Z	Erase Head
E3		QSL9010RNM	Level Meter with Pilot Lamp
E4 ●	S	QFC1204M	AC Power Cord
E4 ▲	S	QFC1205M	〃
E5		QBJ1425	Power Cord Bushing
E6		QXB0531	Push Button (Power Switch)
E7		QMA3204	Power Switch Angle
E8		QJA0444	Microphone Jack
E9		QMA3229	Microphone Jack Angle
E10		QJA0249	Headphones Jack
E11		QMA3205	Headphones Jack Angle
E12		QNQ1070	Nut
E13		QEJ5002HA	Jack Board Assembly
E14		QMA3207	Jack Board Angle
E15		QTD1164	Power Cord Clamper
E16		QJS1922TN	6 Pin Housing
E17		QJS1921TN	3 Pin Housing
E18		QJT1054	Contact
E19		QJP1922TN	6 Pin Post
E20		QJP1921TN	3 Pin Post
E21		QJT0053	Check Pin
E22		QTH1118	Heat Sink
E23		QMA3370	Cord Angle
E24		QMA3202	Switch Lever
E25		QMA3208	Friction Metal
E26		QBT1787	Lock Lever Spring
E27		QBS1115	Recording Connection Wire
E28		QMA3247	Muting Detection Lever
E29		QMF1692	Cap
E30		QBN1558	Muting Return Spring
E31		QMA3257	Micro Switch Holding Plate
E32		QMA3203	Recording Angle
E33		XSNQ0004S	Step Screw
E34		QBG1222	Pilot Lamp Cover
E35		QTF1039	Fuse Holder
E36	S	XBAQ0003	Fuse (500mAT)
E37	S	XBAQ0008	Fuse (630mAT)
E38	S	XBAQ0007	Fuse (400mAT)
E39		XSN3+25	Screw ⊕3×25
E40		XWA3B	Spring Washer 3φ
E41		XSN26+6	Screw ⊕2.6×6
E42		XWC26B	Lock Washer 2.6φ
E43		RUV387ZB	Switch Cover



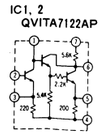
SCHEMATIC DIAGRAM MODEL RS-631



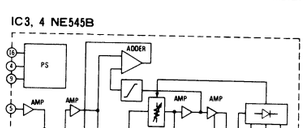
NOTE:

1. S1-1~S1-18 ..... Record/playback select switch (shown in playback position).
2. S2-1~S2-4 ..... Dolby NR IN/OUT select switch (shown in OUT position).
3. S3-1~S3-6 ..... Equalizer select switch (shown in 120μS position).
   1 ··· 70μS, 2 ··· 90μS, 3 ··· 120μS.
4. S4-1~S4-4 ..... Peak check select switch (shown in IND position).
5. S5 ..... Bias select switch (shown in LOW position).
   1 ··· HIGH, 2 ··· MED, 3 ··· LOW.
6. S6-1, S6-2 ..... Cue and review switch.
7. S201 ..... Muting switch for record and playback.
8. S202 ..... Muting switch for record.
9. S203 ..... Motor ON/OFF switch.
10. S204 ..... Power ON/OFF switch.
11. VR1, VR2 ..... Playback equalizer adjustment VR.
12. VR3, VR4 ..... Playback gain adjustment VR.
13. VR5, VR6 ..... Microphone input level control.
14. VR7, VR8 ..... LINE IN input level control.
15. VR9, VR10 ..... Recording gain adjustment VR.
16. VR11, VR12 ..... Peak meter indication adjustment VR.
17. VR13 ..... Level meter balance adjustment VR.
18. VR15, VR16 ..... Bias current adjustment VR.
19. VR17, VR18 ..... Output level control.
20. VR201 ..... Tape speed adjustment VR.
21. L1, L2 ..... Bias leakage adjustment coil.
22. L3, L4 ..... Recording equalizer adjustment coil.
23. Resistor values are in ohms (Ω), 1/4 watt unless specified otherwise.
    K=1,000Ω.
24. Capacitor values are in microfarads (μF) unless specified otherwise.
    P=Pico-farads.
25. All voltage values shown in circuitry are under no signal condition with volume control at minimum position.
    For measurement, use VTVM.
26. The mark (▼) shows test point. e.g. ▼=Test point 1.

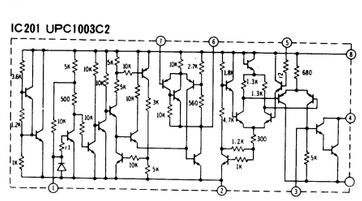
IC1, 2 QVITA7122AP



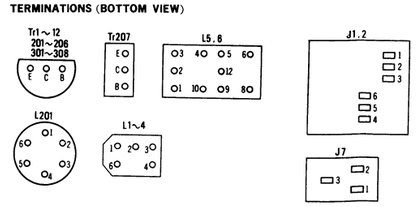
IC3, 4 NE545B



IC201 UPC1003C2



TERMINATIONS (BOTTOM VIEW)



CIRCUIT BOARD

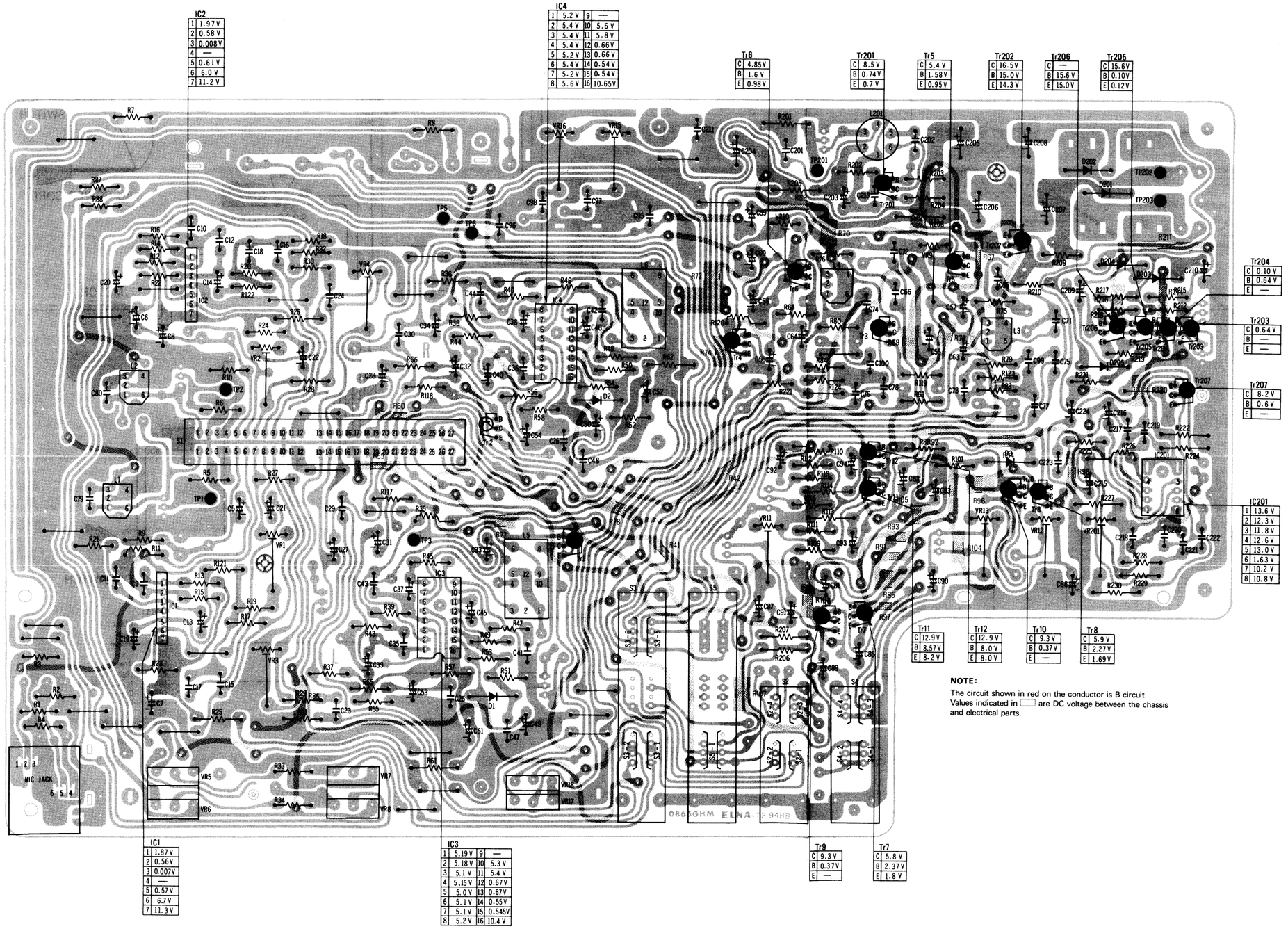
NOTE: 1. Symbols after Ref. No. indicate;
▲···for Scandinavia.
●···for United Kingdom.
2. S indicates that only parts specified by the manufacturer be used for safety.

Ref. No.		Part No.	Part Name & Description
			TRANSFORMERS
T201 ▲	S	QLPD27ELC	Power Transformer
T201 ●	S	QLPA37ELC	〃
			COILS
L1, 2, 3, 4		QLQM0333	Coil
L5, 6		QLM9Z3K	MPX Trap Coil
L201		QLB0155	Oscillator Coil

Ref. No.		Part No.	Part Name & Description
			SWITCHES
S1		QSSI202	Slide Switch (Record/Playback Selector)
S2		QST4215	Lever Switch (Dolby IN/OUT Selector)
S3		QST6311	Lever Switch (EQ Selector)
S4		QST4215	Lever Switch (Peak Check Selector)
S5		QST6311	Lever Switch (Bias Selector)
S6		QSB0186	Leaf Switch (Cue/Review Switch)
S201		QSB0178	Leaf Switch (Muting Switch)
S202		QSM0070	Micro Switch (Muting Switch)

Ref. No.		Part No.	Part Name & Description
S203		QSB0178	Leaf Switch (Motor ON/OFF)
S204	S	QSW2214	Push Switch (Power ON/OFF)
S205	S	QSR1407	Rotary Switch (AC Voltage Selector)
			PILOT LAMPS
PL201		XAMQ35	Level Meter Lamp
PL202		XAMQ35	〃
PL203		XAMQ22P500N	Pilot Lamp (for Record)
PL204		XAMQ34S600W	Pilot Lamp (for Mechanism)
PL205		XAMQ21P400N	Pilot Lamp (for Memory)

MAIN CIRCUIT BOARD

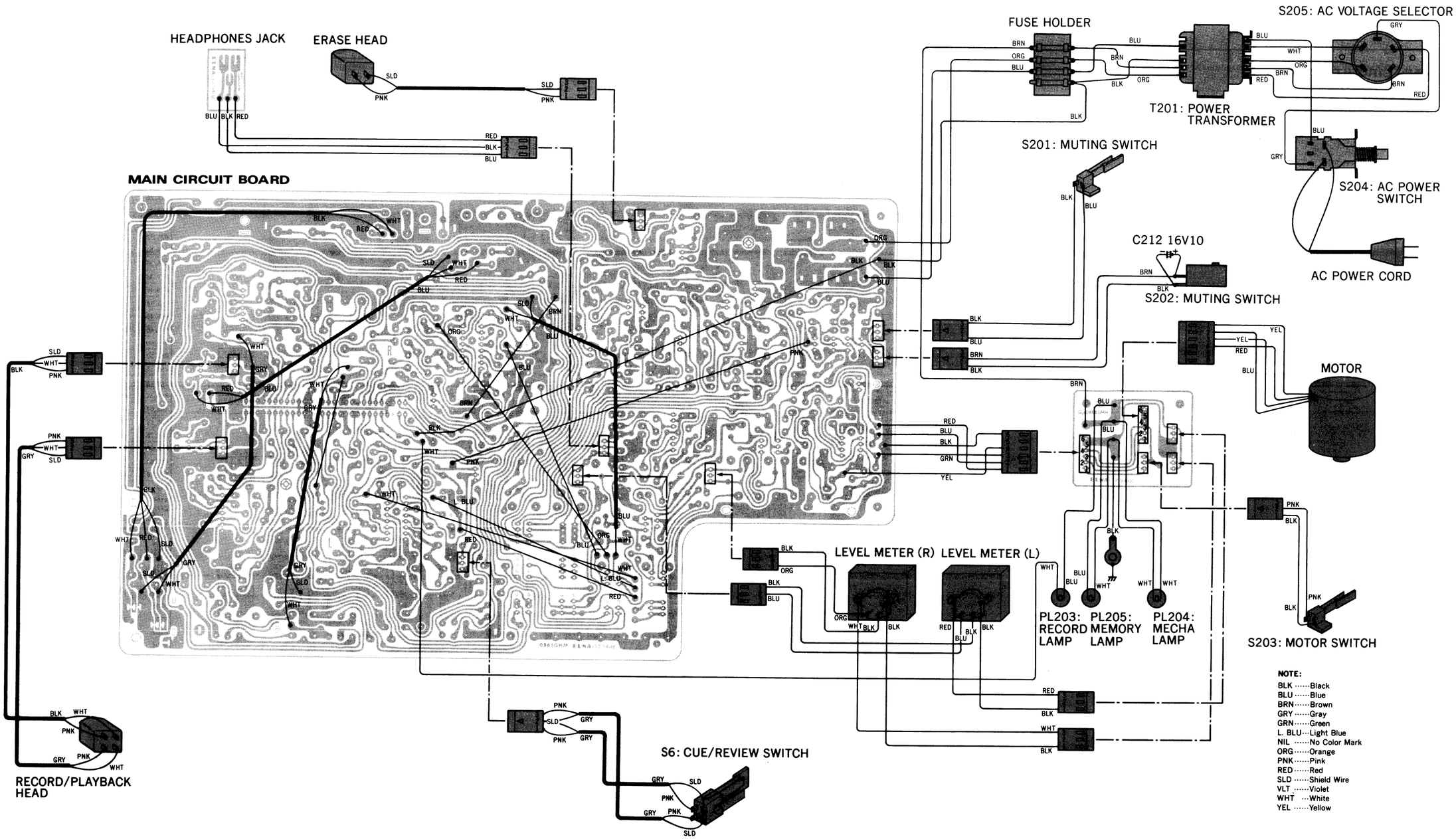


NOTE:
The circuit shown in red on the conductor is B circuit.
Values indicated in ▭ are DC voltage between the chassis and electrical parts.

NOTE: RESISTORS ERD ·····Carbon
ERG ·····Metal oxide
CAPACITORS ECEA ·····Electrolytic
ECCD ·····Ceramic
ECKD ·····Ceramic
ECQM·····Polyster
ECQS ·····Polystyrene

Ref. No.		Part No.	Ref. No.	Part No.
		RESISTORS	VR5, 6	EWKN3AF21A24
			VR7, 8	EWKN3AF21A15
R1, 2		ERD25TJ182	VR9, 10, 11, 12, 13, 15, 16	
R3, 4		ERD25TJ333		EVLS3AA00B54
R5, 6		ERD25TJ100	VR17, 18	EWK9KA025A14
R7, 8		ERD25TJ333	VR201	EVLS3AA00B14
R9, 10		ERD25TJ153		
R11, 12		ERD25TJ101		**CAPACITORS**
R13, 14		ERD25TJ184	C5, 6	ECEA16Z10
R15, 16		ERD25TJ104	C7, 8	ECEA16V220
R17, 18		ERD25TJ183	C9, 10	ECCD1H221K
R19, 20		ERD25TJ394	C11, 12	ECKD1H102MD
R21, 22		ERD25TJ331	C13, 14	ECEA16V10
R23, 24		ERD25TJ222	C15, 16	ECCD1H271K
R25, 26		ERD25TJ561	C17, 18	ECKD1H682MD
R27, 28		ERD25TJ472	C19, 20	ECEA6V470
R29, 30		ERD25TJ562	C21, 22	ECEA16V10
R31, 32		ERD25TJ224	C23, 24	ECQM05103KZ
R33, 34		ERD25TJ273	C25, 26	ECCD1H181K
R35, 36		ERD25TJ181	C27, 28	ECEA50ZR1
R37, 38		ERD25TJ105	C29, 30	ECQM05562JZ
R39, 40		ERD25TJ332	C31, 32	ECEA16V10
R43, 44		ERD25TJ473	C33, 34	ECEA35Z4R7
R45, 46		ERD25TJ104	C35, 36	ECQM05472JZ
R47, 48		ERD25TJ181	C37, 38, 39, 40	ECEA16V10
R49, 50		ERD25TJ154	C41, 42	ECQM05473KZ
R51, 52		ERD25TJ684	C43, 44	ECQM05273JZ
R53, 54		ERD25TJ274	C45, 46	ECEA16V10
R55, 56, 57, 58		ERD25TJ102	C47, 48	ECQM05104KZ
R61, 62		ERD25TJ101	C49, 50	ECEA50ZR33
R63, 64		ERD25TJ681	C51, 52	ECEA16V220
R65, 66		ERD25TJ102	C53, 54	ECEA16V47
R75, 76		ERD25TJ150	C55, 56	ECEA50Z3R3
R79, 80		ERD25TJ122	C57, 58	ECEA50Z1
R83, 84		ERD25TJ471	C59, 60, 63, 64	ECEA16V10
R87, 88		ERD25TJ392	C65, 66	ECQM05473KZ
R89		ERD25TJ271	C71, 72	ECQM05104KZ
R101		ERD25TJ104	C73, 74	ECQM05223KZ
R109, 110		ERD25TJ682	C75, 76	ECQM05104KZ
R111, 112		ERD25TJ273	C77, 78	ECQM05683KZ
R113, 114		ERG12ANJ221	C79, 80	ECQM05122KZ
R115, 116		ERD25TJ102	C81, 82	ECEA16V10
R117, 118		ERD25TJ471	C83	ECEA16V330
R119, 120		ERD25TJ393	C85, 86	ECEA50V1
R121, 122		ERD25TJ561	C87, 88	ECEA16V10
R201		ERD25TJ1R0	C89, 90	ECEA16V47
R202		ERD25TJ472	C91, 92	ECEA16V10
R203		ERD25TJ122	C93, 94	ECEA6V220
R204		ERD25TJ220	C95, 96	ECQM05102KZ
R205		ERG12ANJ680	C97, 98	ECKD1H561KB
R206		ERD25TJ561	C99, 100	ECQM05473KZ
R207		ERG12ANJ151	C201	ECQS1332KZ
R208		ERG12ANJ100	C202	ECQM05104KZ
R209		ERD25TJ222	C203	ECEA16V330
R210		ERD25TJ221	C204	ECEA25V1000
R212		ERD25TJ103	C205, 206	ECEA35V470
R215		ERD25TJ683	C207	ECEA25V1000
R217		ERD25TJ103	C208	ECEA16V1000
R218		ERD25TJ393	C209, 210	ECEA35V47
R219		ERD25TJ272	C211	ECKD1H102MD
R221		ERD25TJ103	C212	ECEA16M10
R222		ERD25TJ271	C213	ECKD1H103ZF
R224		ERD25TJ681	C215	ECEA35V4R7
R225		ERC14GK565	C216	ECEA50ZR47
R226		ERD25TJ471	C217	ECQM05104KZ
R227		ERD25TJ684	C218	ECQM05222KZ
R228, 229		ERD25TJ104	C219	ECQM05104KZ
R230		ERD25TJ273	C220	ECQM05682JZ
R231		ERD25TJ100	C221	ECQM05104KZ
		VARIABLE RESISTORS	C222	ECQM05102KZ
			C223	ECQM05223KZ
VR1, 2		EVLS3AA00B54	C224	ECEA25V330
VR3, 4		EVLS3AA00B24		

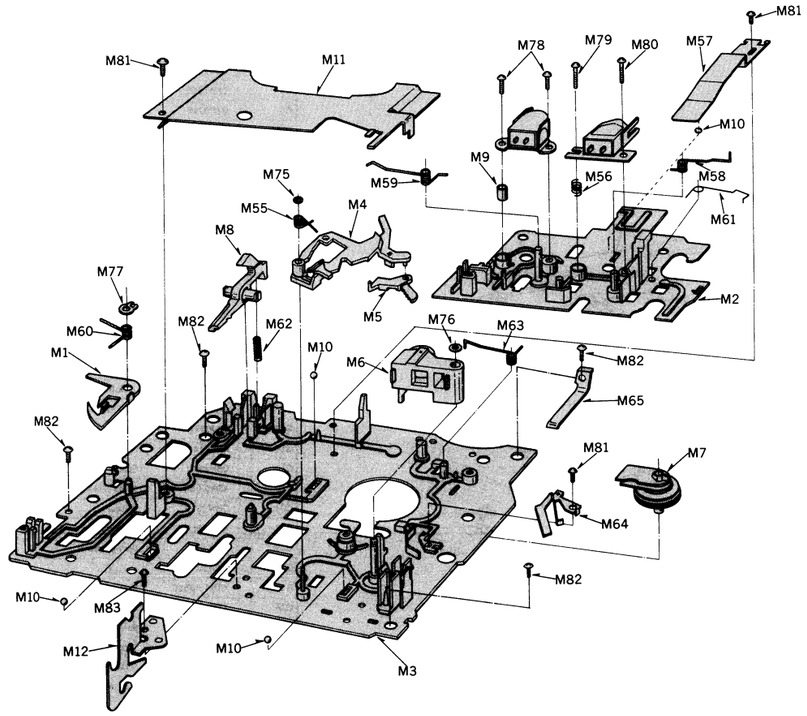
WIRING CONNECTION DIAGRAM MODEL RS-631

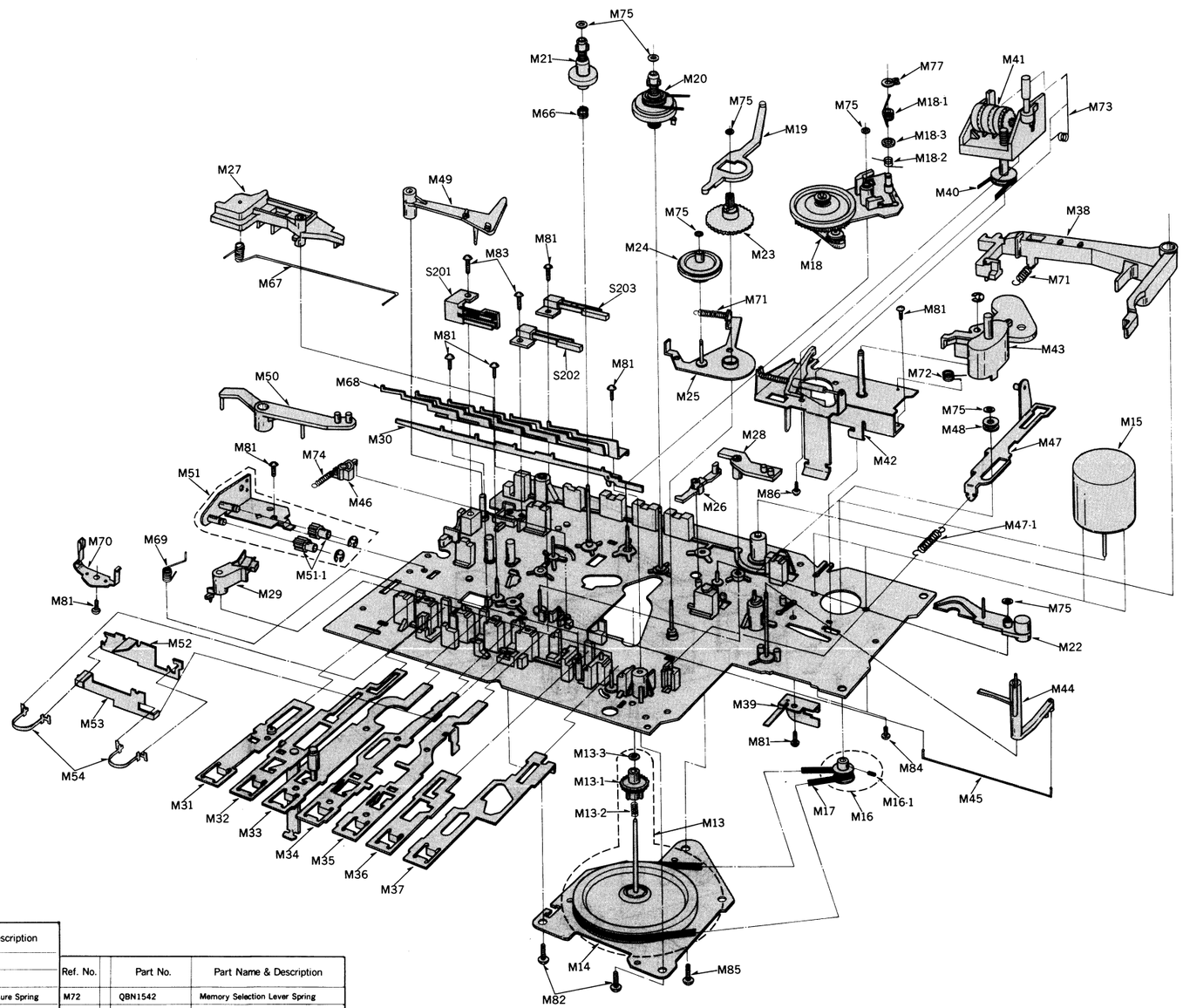


NOTE:

BLK ·····Black
BLU ·····Blue
BRN·····Brown
GRY·····Gray
GRN·····Green
L. BLU···Light Blue
NIL ·····No Color Mark
ORG·····Orange
PNK·····Pink
RED·····Red
SLD·····Shield Wire
VLT·····Violet
WHT ···White
YEL·····Yellow

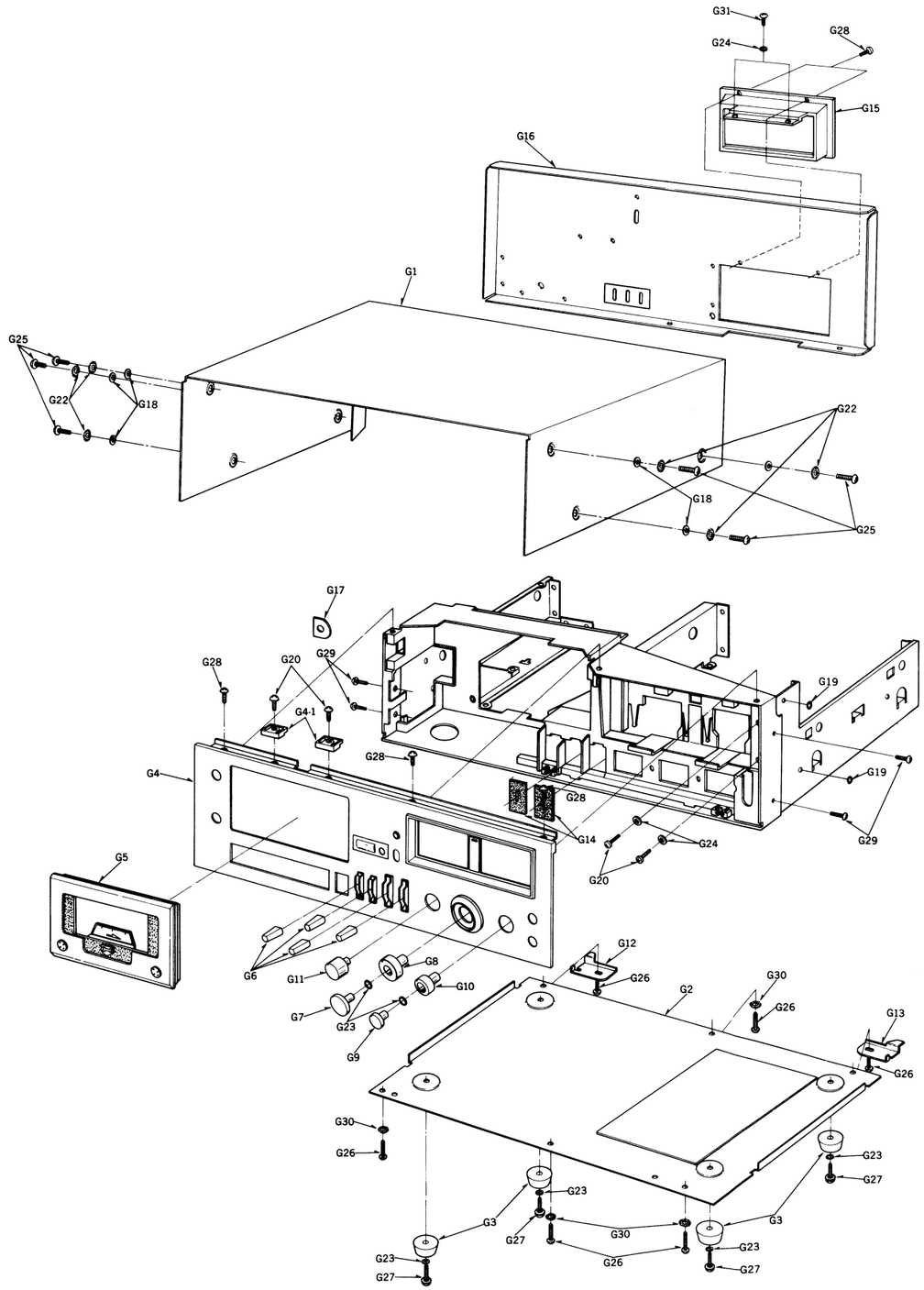
EXPLODED VIEWS

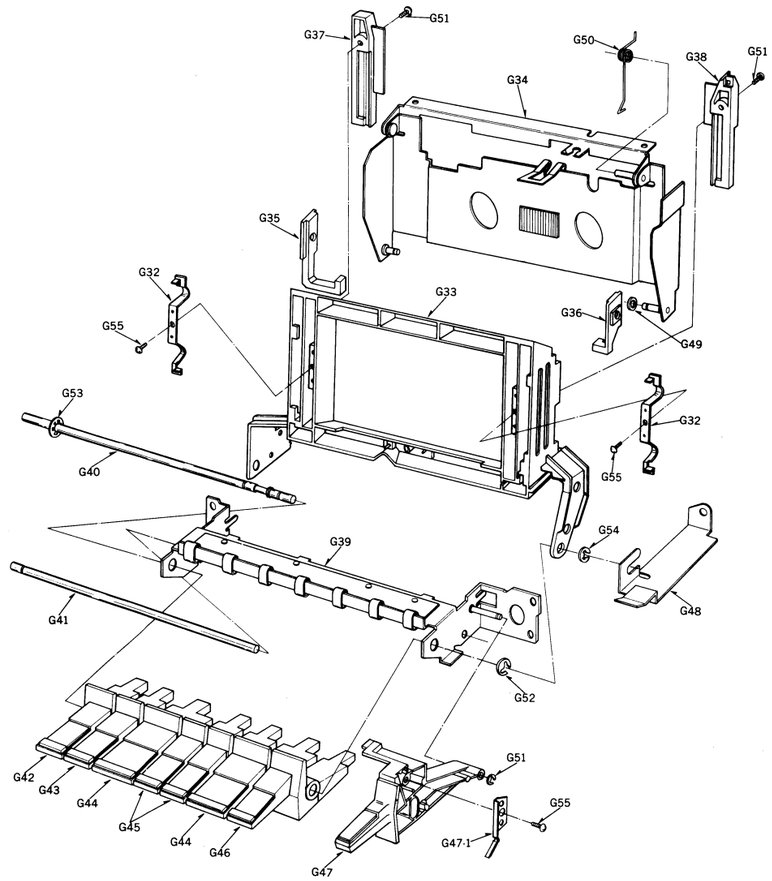




Ref. No.	Part No.	Part Name & Description
M1	QML2898	Pause Lock Plate
M2	QMK1612	Head Base Plate
M3	QXK1951	Upper Base Plate Assembly
M4	QML3047	Obstruction Lever
M5	QML3048	Driving Lever
M6	QXL1057	Pressure Roller Lever Assembly
M7	QXI0098	Takeup Idler Assembly
M8	QML3051	Erase Safety Lever
M9	QMC0061	Erase Head Spacer
M10	QDK1012	Steel Ball 2.5ϕ
M11	QMF1939	Chassis Cover-A
M12	QMA3186	Fulcrum Angle
M13	QXF0131	Flywheel
M13-1	QDG1116	Capstan Gear
M13-2	QBC1301	Capstan Spring
M13-3	QBW2049	Washer
M14	QXH0272	Flywheel Retainer Assembly
M15	MHN8E2RSD	Motor
M16	QXP0567	Motor Pulley Assembly
M16-1	XSN2+3	Screw ⊕2×3
M17	QDB0241	Flywheel Belt
M18	QXL1136	Fast Forward Arm Assembly
M18-1	QBN1517	Fast Forward Spring
M18-2	QBN1559	Fast Forward Arm Spring
M18-3	QMC0080	Collar
M19	QML3040	Cam Lever
M20	QXD0067	Takeup Reel Table Assembly
M21	QXD0084	Supply Reel Table Assembly
M22	QXL1055	Auto-Stop Lever Assembly
M23	QDG1096	Cam Gear
M24	QXG1026	Auto-Stop Gear Assembly
M25	QXL1037	Gear Lever Assembly
M26	QML3042	Auto-Stop Obstruction Lever
M27	QML3217	Pause Lever
M28	QML3049	Cue Lever
M29	QML3124	Lock Release Arm
M30	QXR0275	Lock Rod Assembly
M31	QXR0342	Pause Rod Assembly
M32	QXR0343	Record Rod Assembly
M33	QXR0344	Playback Rod Assembly
M34	QMR1624	Rewind Rod-A
M35	QMR1623	Fast Forward Rod-A
M36	QMR1622	Stop Rod-A
M37	QMR1621	Eject Rod-A
M38	QML3038	Switch Arm
M39	QMA3173	Connection Wire Holding Angle
M40	QDB0240	Counter Belt
M41	QXC0017	Tape Counter
M42	QXA0649	Counter Angle Assembly
M43	QXL1135	Memory Selection Lever (for Silver Face Unit)
(M43)	QXL1151	Memory Selection Lever (for Black Face Unit)
M44	QML3205	Connection Lever
M45	QBS1113	Connection Wire
M46	QMD0016	Rewind Brake Cam
M47	QXR0345	Eject Rod-B
M47-1	QBT1619	Idler Spring
M48	QBJ2088	Counter Pulley
M49	QML3206	Muting Arm
M50	QML3207	Muting Lever
M51	QXG1031	Damper Gear Assembly
M51-1	QDG1102	Holder Gear
M52	QMR1628	Obstruction Rod-A
M53	QMR1629	Obstruction Rod-B
M54	QBP1770	Obstruction Rod Spring
M55	QBN1515	Connection Spring
M56	QBC1278	Head Spring
M57	QBP1773	Head Base Plate Pressure Spring
M58	QBN1488	Pressure Roller Spring
M59	QBN1481	Playback Spring
M60	QBN1480	Pause Lock Spring
M61	QBN1514	Timer Spring
M62	QBC1193	Safety Lever Spring
M63	QBN1513	Idler Spring
M64	QBP1723	Click Spring
M65	QBP1777	Holder Reinforcement Spring
M66	QBC1279	Back Tension Spring
M67	QBN1555	Pause Spring
M68	QBP1664	Operation Rod Spring
M69	QBN1531	Lock Release Arm Spring
M70	QBP1662	Lock Rod Spring
M71	QBT1682	Lock Holding Spring
M72	QBN1542	Memory Selection Lever Spring
M73	QBN1543	Reset Reinforcement Spring
M74	QBT1833	Brake Cam Spring
M75	QBW2008	Snap Washer
M76	QBW2046	〃
M77	XUB4FT	Stop Ring C4ϕ
M79	QHQ1226	Screw
M80	XSN2+10	Screw ⊕2×10
M81	XTN26+5B	Tapping Screw ⊕2.6×5
M82	XTN3+10B	Tapping Screw ⊕3×10
M83	XTN26+8B	Tapping Screw ⊕2.6×8
M84	XSN26+3	Screw ⊕2.6×3
M85	XTN3+20B	Tapping Screw ⊕3×20
M86	XSN3+5S	Screw ⊕3×5

CABINET PARTS





ACCESSORIES

NOTE: Symbols after Ref. No. indicate;
▲···for Scandinavia.
●···for United Kingdom.

Ref. No.		Part No.	Part Name & Description
A1		RP023A	Connection Cord
A2		QFT6TCJNTBFZ	Demonstration Tape
A3 ▲		QQT2227	Instruction Book
A3 ●		QQT2228	〃

PACKINGS

Ref. No.		Part No.	Part Name & Description
P1		QPN3651	Inside Carton
P2		QPA0331	Inner Cushion
P3		XZB50X65A05	Poly Bag
P4		QPA0340	Spacer
P5		QPS0285	Pad

NOTE: Symbols after Ref. No. indicate;
▲···for Scandinavia.
●···for United Kingdom.

Ref. No.		Part No.	Part Name & Description
G1 ▲		QGC1079	Case Cover
G1 ●		QGC1086	〃
G2		QGC1080	Bottom Cover
G3		QKA1065	Rubber Foot
G4		QYP0715	Front Panel Assembly (for Silver Face Unit)
(G4)		QYP0716	Front Panel Assembly (for Black Face Unit)
G4-1		QKJ0235	Stopper
G5		QYF0308	Cassette Lid Assembly (for Silver Face Unit)
(G5)		QYF0309	Cassette Lid Assembly (for Black Face Unit)
G6		QYT0461	Lever Knob
G7		QYT0458	Volume Knob-A
G8		QYT0457	Volume Knob-B
G9		QYT0459	Volume Knob-C
G10		QYT0460	Volume Knob-D
G11		QYT1387	Volume Knob-E
G12		QMA3261	Reinforcement Angle-A
G13		QMA3262	Reinforcement Angle-B
G14		QBH0060	Spacer
G15		QGK2769	Jack Board Ornament
G16		QGC1092	Back Cover
G17		QKJ0237	Headphones Spacer
G18		QBK7143	Fiber Washer
G19		QBH2040	Spacer
G20		XSN3+8S	Screw ⊕3×8
G21		QBW2023	Washer
G22		XWC4BFN	Lock Washer
G23		XWA4B	Spring Washer
G24		XWA3B	〃
G25		XSN4+8BVS	Screw ⊕4×8
G26		XTN3+14B	Tapping Screw ⊕3×14
G27		XSN4+10S	Screw ⊕4×10
G28		XTN3+10B	Tapping Screw ⊕3×10
G29		XSS3+6S	Screw ⊕3×6
G30		XWC3B	Lock Washer
G31		XSN3+8S	Screw ⊕3×8
			Cassette Holder Section
G32		QBP1771	Holder Spring
G33		QKF6008	Cassette Holder
G34		QXH0271	Chassis Cover Assembly
G35		QKF6010	Holder Piece-L
G36		QKF6009	Holder Piece-R
G37		QMG0050	Holder Slider-L
G38		QMG0049	Holder Slider-R
G39		QXA0637	Push Button Holding Angle
G40		QMN2240	Push Button Shaft-A
G41		QMN1861	Push Button Shaft-B
G42		QGO1370	Push Button (PAUSE)
G43		QGO1371	Push Button (REC)
G44		QGO1373	Push Button (PLAY, STOP)
G45		QGO1374	Push Button (FF, REW)
G46		QGO1372	Push Button (EJECT)
G47		QXB0508	Timer Button Assembly
G47-1		QBP1774	Timer Button Spring
G48		QMA3269	Reinforcement Angle
G49		QBW2017	Washer
G50		QBN1554	Chassis Cover Spring
G51		XUC25FT	Stop Ring 2.5φ
G52		XUC4FT	Stop Ring 4φ
G53		QNQ1080	Stop Ring
G54		XUC3FT	Stop Ring 3φ
G55		XTN26+5B	Screw ⊕2.6×5
G56		XTN26+8B	Screw ⊕2.6×8

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