

Service Manual

Cassette Deck

RS-M6

Front-Loading Vertical Hold Stereo Cassette Deck
with Full Auto-Stop Mechanism and Dolby NR

(Silver Type)
(Black Type)



This is the Service Manual for the following areas.

- [D] For All European areas except United Kingdom.
- [N] For Asia, Latin America, Middle East and Africa areas.
- [A] For Australia.

RS-631 MECHANISM SERIES

Specifications

Power requirement: AC; 110/220 V, 50-60 Hz
for All European areas except United Kingdom
AC; 110/125/220/240 V, 50-60 Hz
for Asia, Latin America, Middle East and Africa areas
AC; 240 V, 50-60 Hz
for Australia

Power consumption: 9 W

Motor: Electronic control DC motor

Track system: 4-track 2-channel stereo recording and playback

Tape speed: 4.8 cm/s

Wow and flutter: 0.08% (WRMS), $\pm 0.20\%$ (DIN)

Frequency response: CrO₂/Fe-Cr tape; 30-15,000 Hz
30-14,000 Hz (DIN)
Normal tape; 30-14,000 Hz
30-13,000 Hz (DIN)

Signal-to-noise ratio: Dolby NR in; 66 dB (above 5 kHz)
Dolby NR out; 56 dB (signal level = max. recording level, Fe-Cr/CrO₂ type tape)

Fast forward and

rewind time: Approx. 86 seconds with C-60 cassette tape

Inputs: MIC; sensitivity 0.25 mV, input impedance 33 k Ω
over applicable microphone impedance 600 Ω -10 k Ω

LINE; sensitivity 60 mV, input impedance 47 k Ω

Outputs: LINE; output level 420 mV, output impedance 1.5 k Ω or less, load impedance 22 k Ω over
HEADPHONE; output level 60 mV, load impedance 8 Ω

Rec/pb connection: 5 P DIN type;
input sensitivity 0.25 mV, impedance 8.2 k Ω
output level 420 mV, impedance 5.0 k Ω

Bias frequency: 83 kHz

Heads: 2-head system;
1-supper permalloy head for record/playback
1-double-gap ferrite head for erasure

Dimensions: 41.0 cm (W) $\times$ 14.2 cm (H) $\times$ 20.5 cm (D)

Weight: 3.8 kg

Specifications are subject to change without notice.

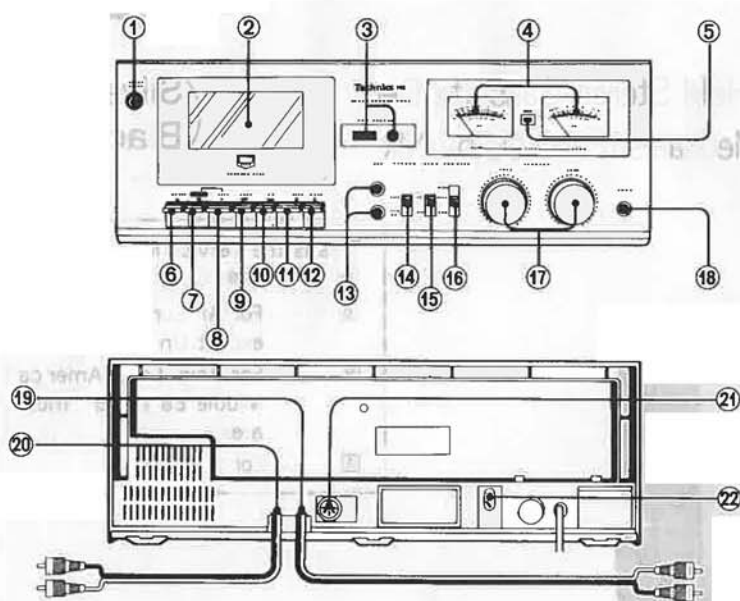
* 'Dolby' and the double-D symbol are trademarks of Dolby Laboratories.

Technics

Matsushita Electric Trading Co., Ltd.

P.O. Box 288, Central Osaka Japan

LOCATION OF CONTROLS AND COMPONENTS



- ① Power switch (power)
- ② Cassette holder
- ③ Tape counter and Reset button (tape counter)
- ④ VU meters (left-level-right)
- ⑤ Recording indication lamp (rec)
- ⑥ Pause button (pause) (II)
- ⑦ Record button (record) (O)
- ⑧ Play button (play) (▶)
- ⑨ Rewind button (rew) (◀◀)
- ⑩ Fast forward button (ff) (▶▶)
- ⑪ Stop button (stop) (■)
- ⑫ Eject button (eject) (▲)
- ⑬ Microphone jacks (mic) (left/right)
- ⑭ Input selector (input select)
- ⑮ Dolby noise-reduction switch (Dolby NR)
- ⑯ Tape selector (tape select)
- ⑰ Input level controls (left/input level/right)
- ⑱ Headphones jack (phones)
- ⑲ Line input cord (LINE IN)
- ⑳ Line output cord (LINE OUT)
- ㉑ Record/playback connection socket (REC/PLAY)
- ㉒ Voltage selector (VOLTAGE SELECTOR)

DISASSEMBLY INSTRUCTIONS

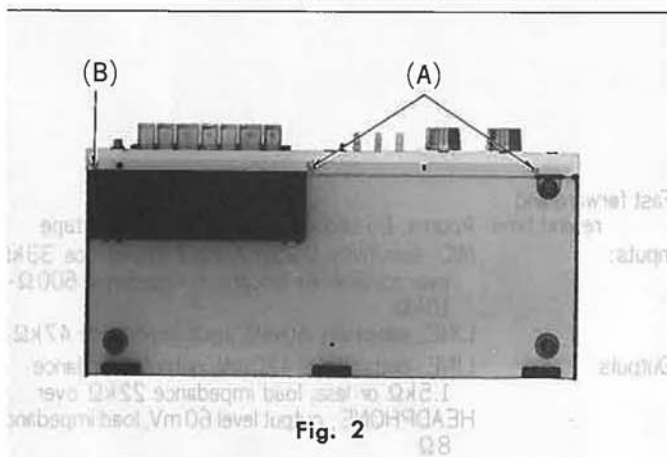


Fig. 2

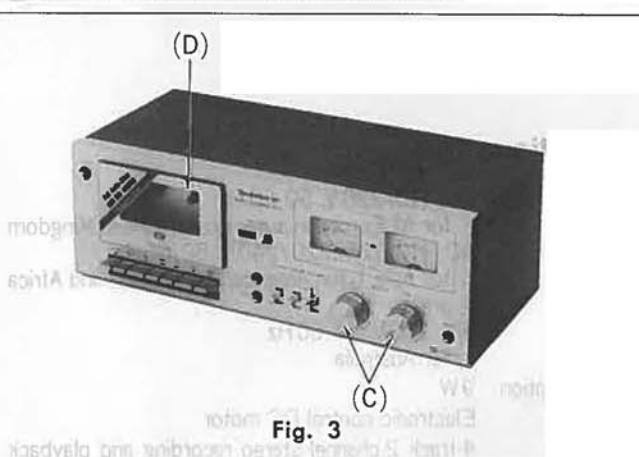


Fig. 3

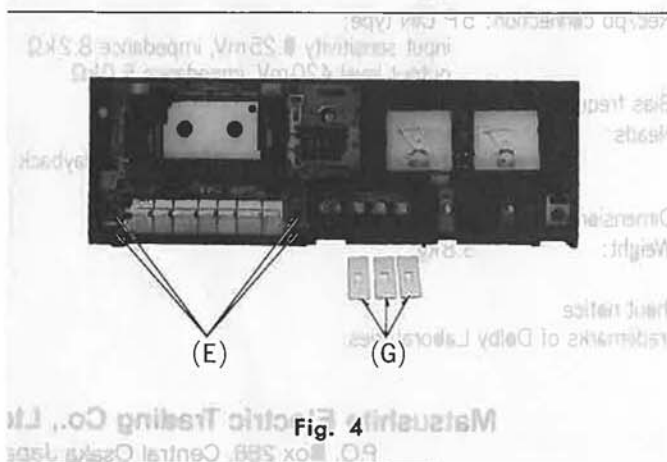


Fig. 4

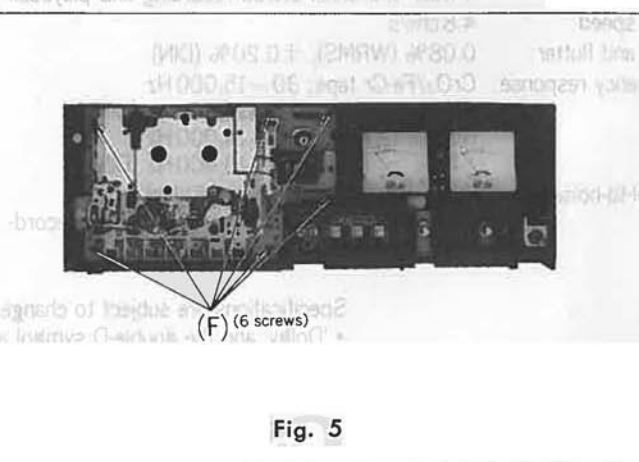


Fig. 5

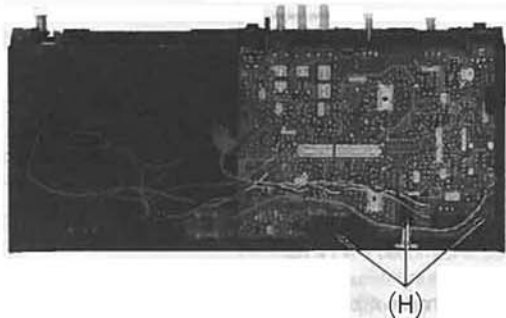
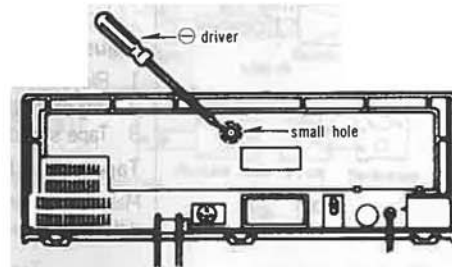


Fig. 6

Caution:

Motor speed can be adjusted through the small hole on the back-side of main case by the $\ominus$ driver as shown in the diagram below.



Procedure	To remove —	Remove —	Shown in fig. —
1	Bottom cover	• 2 screws (A)	2
2	Front panel	• 1 screw (B) • 2 control knob (C) • Cassette lid (D)	2 3 3
3	Control button assembly and cassette holder	• 4 red screws (E)	4
4	Mechanism	• 6 red screws (F)	5
4	Circuit board	• 3 switch shelters (G) • 3 red screws (H)	4 6

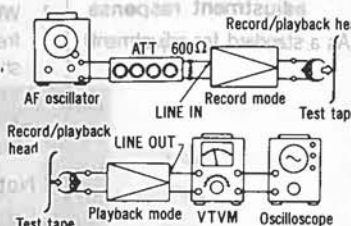
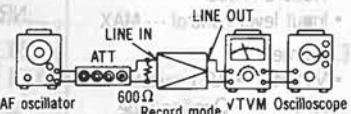
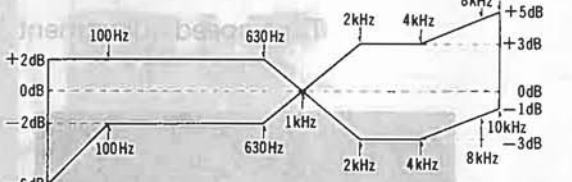
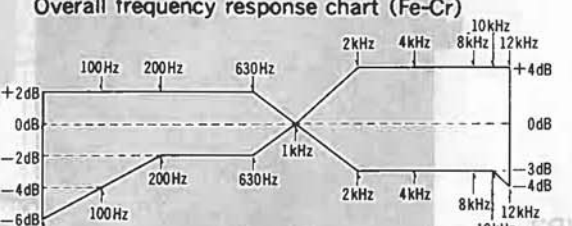
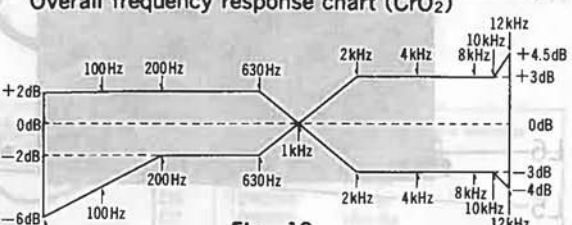
MEASUREMENT AND ADJUSTMENT METHODS

NOTE: Set lever switches and controls in the following positions, unless otherwise specified.

- Make sure heads are clean.
- Make sure capstan and pressure roller are clean.
- Judgeable room temperature: $20 \pm 5^\circ\text{C}$ ($68 \pm 9^\circ\text{F}$)
- Dolby NR switch: OUT.
- Tape selector: Normal position.

ITEM	MEASUREMENT & ADJUSTMENT
A Head azimuth adjustment Condition: • Playback mode Equipment: • VTVM • Oscilloscope • Test tape (azimuth) ... QZZCFM	1. Test equipment connection is shown in fig. 7. 2. Playback azimuth tape (QZZCFM 8kHz) 3. Adjust record/playback head angle adjustment screw (B) in fig. 8 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 Fig. 7 Fig. 8
B Tape speed Condition: • Playback mode Equipment: • Digital electronic counter or frequency counter • Test tape ... QZZCWAT	Tape speed accuracy 1. Test equipment connection is shown in fig. 9. 2. Playback test tape (QZZCWAT 3,000Hz), and supply playback signal to frequency counter. 3. Measure this frequency. 4. On the basis of 3,000Hz, determine value by following formula: $\text{Tape speed accuracy} = \frac{f - 3,000}{3,000} \times 100 (\%)$ where, f = measured value Fig. 9

ITEM	MEASUREMENT & ADJUSTMENT
	5. Take measurement at middle section of tape. Standard value: $\pm 1.5\%$ Adjustment method 1. Playback the test tape (middle). 2. Adjust so that frequency becomes 3,000Hz. 3. Tape speed adjustment VR shown in CAUTION on page 2. Tape speed fluctuation Make measurements in same manner as above (beginning, middle and end of tape), and determine the 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%
㉔ Playback gain Condition: • Playback mode Equipment: • VTVM • Oscilloscope • Test tape ... QZZCFM	1. Test equipment connection is shown in fig. 7. 2. Playback 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: 0.39V Adjustment 1. If measured value is not standard, adjust VR3 (L-CH), VR4 (R-CH) (See fig. 20 on page 5). 2. After adjustment, check "Playback frequency response" again.
㉕ Bias current Condition: • Record mode • When bias current is adjusted on one-channel only, note that bias current on the other channel may vary. • When L5 or L6 is the replaced, preset core position to bottom side of coil and then readjust optimum bias current. Equipment: • VTVM • Oscilloscope	1. Test equipment connection is shown in fig. 10. 2. Place UNIT into record mode, and tape selector to normal position. 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: around 315μA (Normal, Fe-Cr position) around 380μA (CrO₂ position) 4. Adjust L5 (L-CH) and L6 (R-CH) (See fig. 20 on page 5). Note: 1. Adjusting L5 and L6 causes bias current to vary as shown in fig. 11. 2. Bias current is adjusted by portion A (fig. 11). Fig. 10 Fig. 11
㉖ Erase current Condition: • Record mode Equipment: • VTVM • Oscilloscope • Resistor (1Ω)	1. Connect 1Ω resistor between the ground side terminal of erase head and ground lead wire removed (See fig. 13). 2. Connect VTVM to both ends of 1Ω resistor. (See fig. 12). 3. Place UNIT into record mode, and measure voltage across the 1Ω resistor. 4. Determine erase current with the following formula: $\text{Erase current (A)} = \frac{\text{Voltage across both ends of } 1\Omega \text{ resistor}}{1 (\Omega)}$ Standard value: More than 40mA (Normal position), More than 40 mA (Fe-Cr position), More than 55 mA (CrO₂ position) Fig. 12 Fig. 13

ITEM	MEASUREMENT & ADJUSTMENT
F Overall gain Condition: - Record/playback mode - Input level control ... MAX - Standard input level: MIC -72 ± 4 dB LINE IN ... -24 ± 3 dB DIN -49 ± 4 dB Equipment: - AF oscillator - VTVM - Oscilloscope - ATT - Test tape (reference blank tape) ... QZZCRA for Normal	- Test equipment connection is shown in fig. 14. - Place UNIT into record mode, and tape selector to normal position. - Supply 1 kHz signal (-24 dB) from AF oscillator, through ATT, to LINE IN. - Adjust ATT until monitor level at LINE OUT becomes 0.39 V. - Using test tape, make recording. - Playback recorded tape, and make sure the value at LINE OUT on VTVM becomes 0.39 V (-7 dB). - If measured value is not 0.39 V, adjust VR5 (L-CH), VR6 (R-CH) (See fig. 20 on page 5). - Repeat from step (2).  Fig. 14
G Level meter Condition: - Record mode - Input level control ... MAX Equipment: - VTVM - Oscilloscope - AF oscillator - ATT	- Test equipment connection is shown in fig. 15. - Supply 1 kHz signal from the AF oscillator, through the ATT, to the LINE IN jack. - Adjust ATT so that the monitor level at LINE OUT becomes 0.39 V. - Check to see that the level meter stays within the range of -1 dB to $+1$ dB. - If it is beyond the range, carry out the following adjustments: - Open soldered portions a (L-CH) and c (R-CH) indicated as "DOWN" where level more than $+1$ dB. - Open soldered portions b (L-CH) and d (R-CH) indicated as "UP" where level less than -1 dB. (See wiring connection diagram on page 8.)  Fig. 15
H Overall frequency response Condition: - Record/playback mode - Input level control ... MAX Equipment: - VTVM - AF oscillator - ATT - Test tape (reference blank tape) ... QZZCRA for Normal ... QZZCRX for CrO₂ ... QZZCRY for Fe-Cr	- Test equipment connection is shown in fig. 14. - Load reference blank test tape and place UNIT into record mode. - Supply 1 kHz signal from AF oscillator through ATT to LINE IN. - Adjust ATT so that input level is -20 dB below standard recording level (standard recording level -24 dB). - Record each frequency 50 Hz, 100 Hz, 200 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz and 10 kHz (12 kHz for CrO₂ and Fe-Cr tape) at the same level. - Playback and express in dB the difference between playback output level of each frequency based on playback output level of 1 kHz. - Make sure that the measured value is within the range specified in the overall frequency response chart. - Set the tape selector to CrO₂, Fe-Cr position. - Measure as same as manner above. - Make sure that the measured value is within the range specified in the overall frequency response chart for CrO₂ and Fe-Cr tape shown in fig. 17 and 18. Overall frequency response chart (Normal)  Fig. 16 Overall frequency response chart (Fe-Cr)  Fig. 17 Overall frequency response chart (CrO₂)  Fig. 18

ITEM	MEASUREMENT & ADJUSTMENT	ITEM
① Overall frequency adjustment response (As a standard for adjustment)	Adjustment —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. 19, increase the bias current by turning L5 (L-CH), L6 (R-CH). 2. When it becomes lower, as shown by dotted line, reduce the bias current by turning L5 (L-CH), L6 (R-CH). Note: For the method of bias current measurement, refer to "Bias current adjustment" on page 3.	Fig. 19
② Dolby NR circuit Condition: • Record mode • Input level control ... MAX 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 TP4 (L-CH), TP5 (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.	

ADJUSTMENT PARTS LOCATION

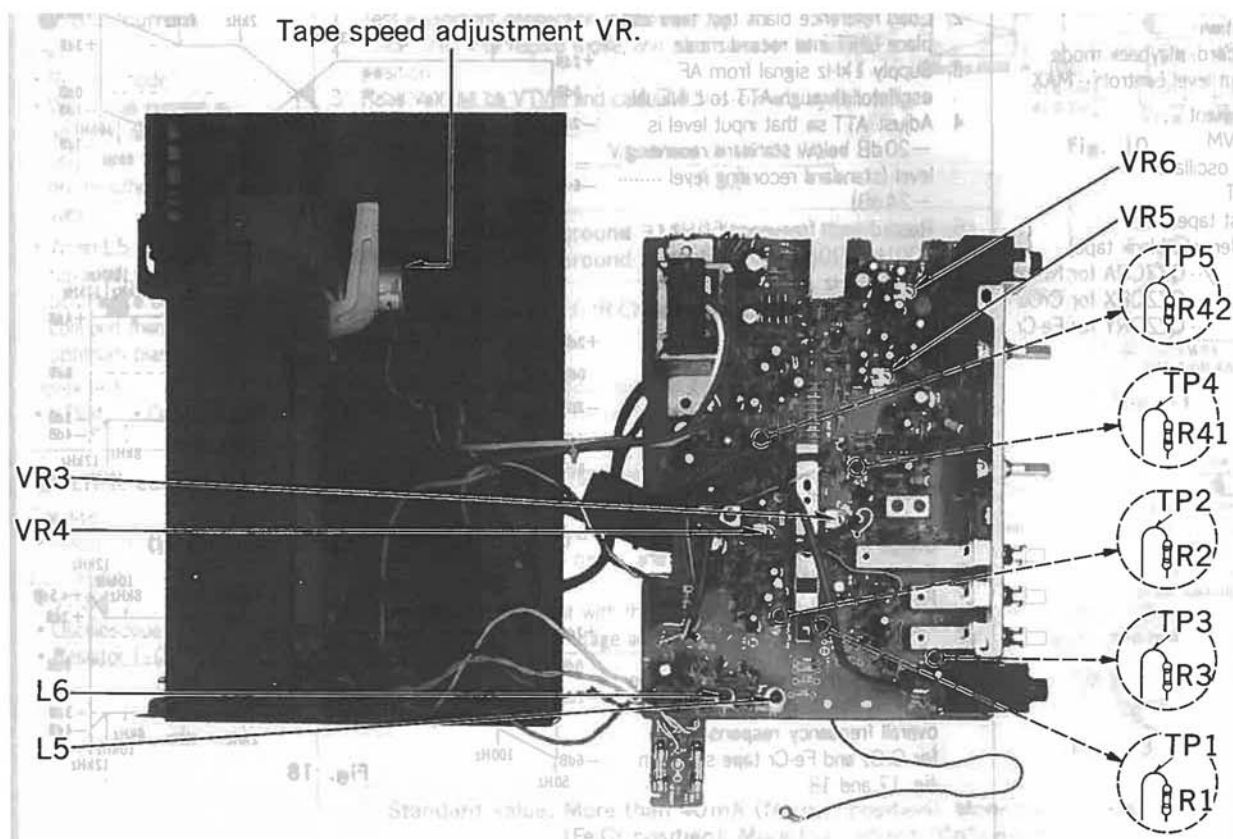
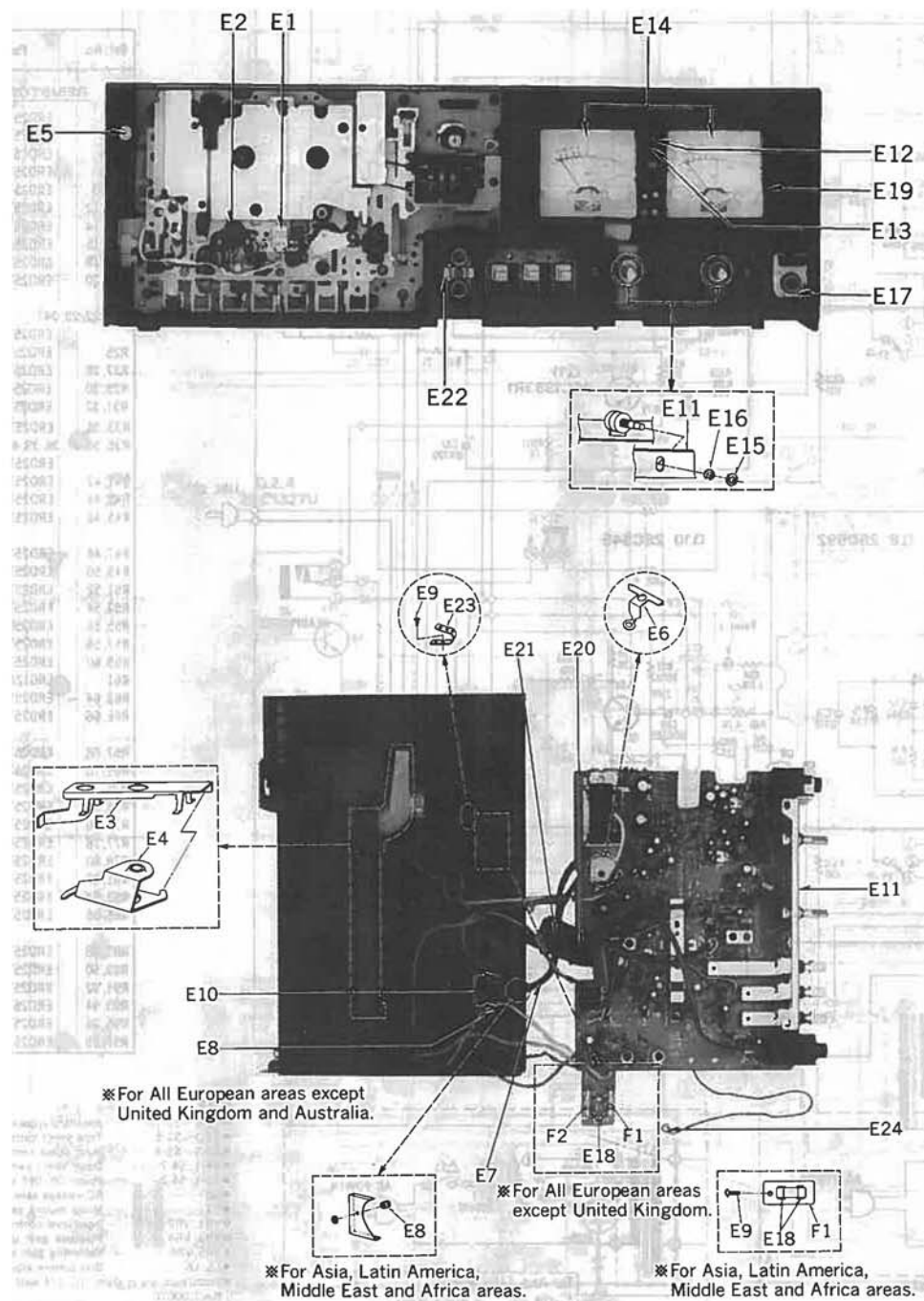


Fig. 20

ELECTRICAL PARTS LOCATION

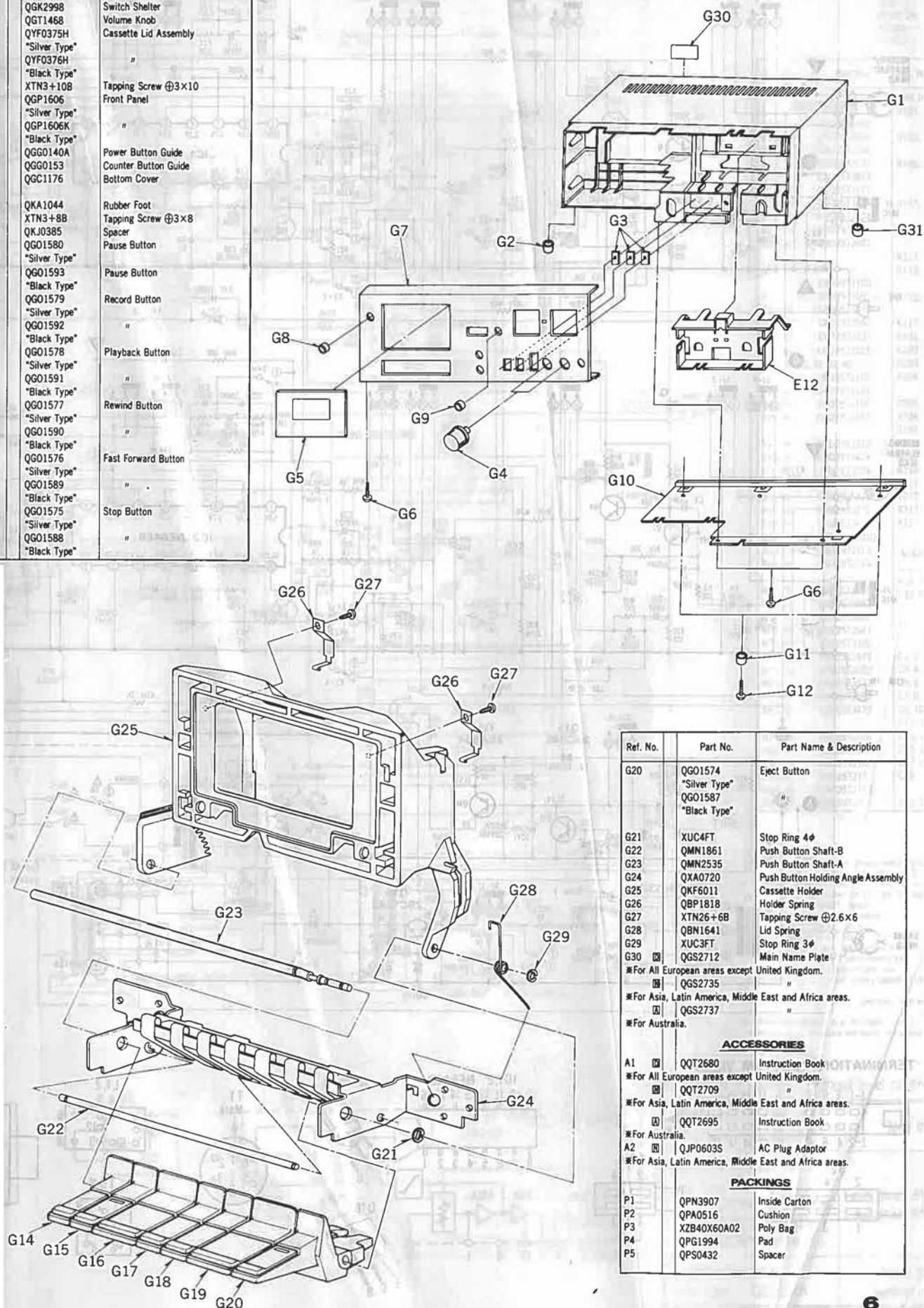


NOTE: Δ indicates that only parts specified by the manufacturer be used for safety.

Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
ELECTRICAL PARTS			※For Asia, Latin America, Middle East and Africa areas.			E14	QSL1109RNM	Level Meter
E1	QWY41132A	Record/Playback Head	E8	QFC1208M	"	E15	QNQ1004	Nut 8 ϕ
E2	QWY21222B	Erase Head	※For Australia.			E16	QWQ2002	Washer
E3	QML3568	Recording Lever-A	E9	QTD1164	Cord Bushing	E17	QNQ1070	Nut 12 ϕ
E4	QML3569	Recording Lever-B	※For All European areas except United Kingdom and Australia.			E18	QTF1054	Fuse Holder
E5	QXR0539	Power Button Assembly	E10	QTD1129	"	※For All European areas except United Kingdom.		
	"Silver Type"		※For Asia, Latin America, Middle East and Africa areas.			E19	QTF1049	"
	QXR0539K	"	E9	XTV3+10BFN	Tapping Screw $\Phi 3 \times 10$	※For Asia, Latin America, Middle East and Africa areas.		
	"Black Type"		E10	XTV3+16BFN	Tapping Screw $\Phi 3 \times 16$	E20	XAMQ21P100N	Pilot Lamp
E6	QMA3840	Earth Plate	E11	QMA3893	Volume Angle	E21	QFC2135	Pin Cord
E7	QFC1204M	AC Power Cord	E12	QKJ0381	Level Meter Holder	E22	QKJ0382	Cord Clamper
※For All European areas except United Kingdom.			E13	QBG1366A	Rubber Bush	E23	QMA3841	Microphone Holder
	QFC1203M	"					RME144ZA	Cord Clamper

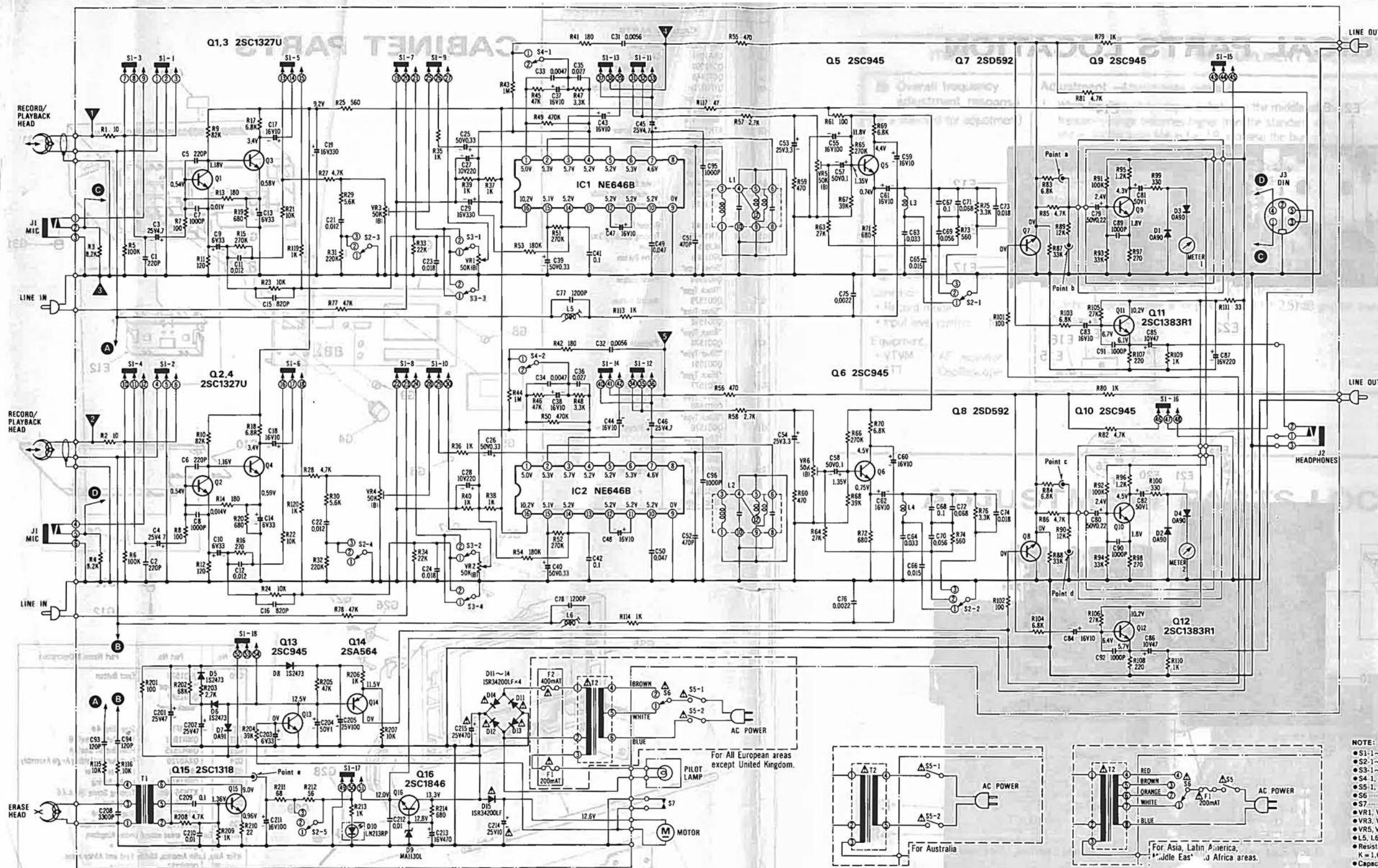
Ref. No.	Part No.	Part Name & Description
CABINET PARTS		
G1	QKM1385K	Main Case
G2	QKA1081	Case Foot
G3	QKG2998	Switch Shelter
G4	QGT1468	Volume Knob
G5	QYF0375H	Cassette Lid Assembly
	"Silver Type"	"
	QYF0376H	"
	"Black Type"	"
G6	XTN3+10B	Tapping Screw $\Phi 3 \times 10$
G7	QGP1606	Front Panel
	"Silver Type"	"
	QGP1606K	"
	"Black Type"	"
G8	QGG0140A	Power Button Guide
G9	QGG0153	Counter Button Guide
G10	QGC1176	Bottom Cover
G11	QKA1044	Rubber Foot
G12	XTN3+8B	Tapping Screw $\Phi 3 \times 8$
G13	QKJ0385	Spacer
G14	QGO1580	Pause Button
	"Silver Type"	"
	QGO1593	Pause Button
	"Black Type"	"
G15	QGO1579	Record Button
	"Silver Type"	"
	QGO1592	"
	"Black Type"	"
G16	QGO1578	Playback Button
	"Silver Type"	"
	QGO1591	"
	"Black Type"	"
G17	QGO1577	Rewind Button
	"Silver Type"	"
	QGO1590	"
	"Black Type"	"
G18	QGO1576	Fast Forward Button
	"Silver Type"	"
	QGO1589	"
	"Black Type"	"
G19	QGO1575	Stop Button
	"Silver Type"	"
	QGO1588	"
	"Black Type"	"

CABINET PARTS



Ref. No.	Part No.	Part Name & Description
G20	QGO1574 "Silver Type" QGO1587 "Black Type"	Eject Button
G21	XUC4FT	Stop Ring 4 Φ
G22	QMN1861	Push Button Shaft-B
G23	QMN2535	Push Button Shaft-A
G24	QXA0720	Push Button Holding Angle Assembly
G25	QKF6011	Cassette Holder
G26	QBP1818	Holder Spring
G27	XTN26+6B	Tapping Screw $\Phi 2.6 \times 6$
G28	QBN1641	Lid Spring
G29	XUC3FT	Stop Ring 3 Φ
G30	QGS2712	Main Name Plate
*For All European areas except United Kingdom.		
	QGS2735	"
*For Asia, Latin America, Middle East and Africa areas.		
	QGS2737	"
*For Australia.		
ACCESSORIES		
A1	QQT2680	Instruction Book
*For All European areas except United Kingdom.		
	QQT2709	"
*For Asia, Latin America, Middle East and Africa areas.		
	QQT2695	Instruction Book
*For Australia.		
A2	QJP0603S	AC Plug Adaptor
*For Asia, Latin America, Middle East and Africa areas.		
PACKINGS		
P1	QPN3907	Inside Carton
P2	QPA0516	Cushion
P3	XZB40X60A02	Poly Bag
P4	QPG1994	Pad
P5	QPS0432	Spacer

SCHEMATIC DIAGRAM



NOTE: RESISTORS

ERG ... Carbon
ERG ... Metal-oxide
ERX ... Metal-film
ERX ... Metal-film
ERQ ... Fuse type metallic
ERC ... Solid
ERF ... Cement

CAPACITORS

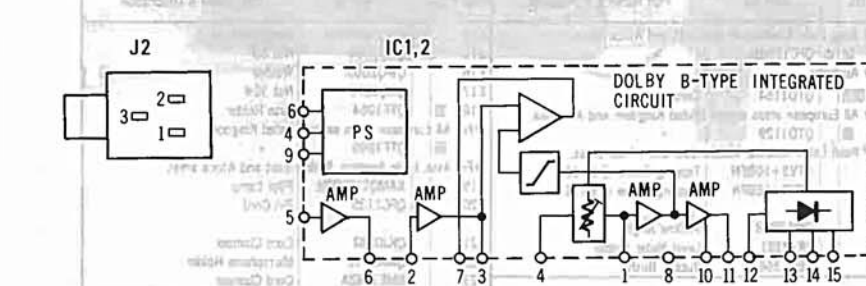
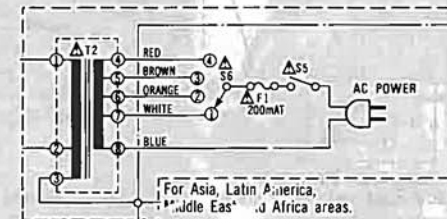
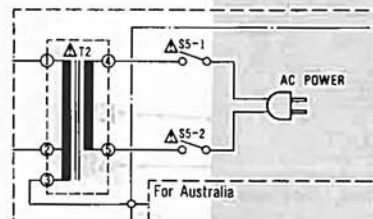
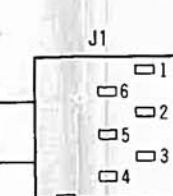
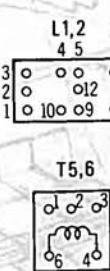
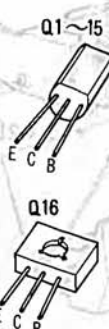
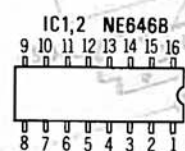
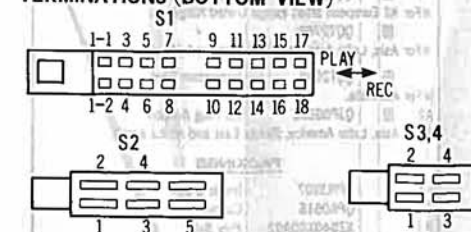
ECG ... Ceramic
ECK ... Ceramic
ECF ... Ceramic
ECF ... Ceramic
ECQ ... Polyester film
ECQ ... Polyester film
ECQ ... Polypropylene
ECE ... Electrolytic
ECE ... Non polar electrolytic
ECQ ... Polystyrene
ECQ ... Tantalum

Ref. No.	Part No.	Ref. No.	Part No.
RESISTORS			
R1, 2	ERD25TJ100	R99, 100	ERD25TJ331
R3, 4	ERD25TJ822	R101, 102	ERD25TJ101
R5, 6	ERD25TJ104	R103, 104	ERD25TJ682
R7, 8	ERD25TJ101	R105, 106	ERD25TJ273
R9, 10	ERD25TJ823		
R11, 12	ERD25TJ121	R107, 108	ERD25TJ221
R13, 14	ERD25TJ184	R109, 110	ERD25TJ102
R15, 16	ERD25TJ274	R111	ERG12ANJ330
R17, 18	ERD25TJ682	R113, 114	ERD25TJ102
R19, 20	ERD25TJ681		
R21, 22, 23, 24	ERD25TJ103	R115, 116	ERD25TJ103
R25	ERD25TJ561		
R27, 28	ERD25TJ472	R117	ERG12ANJ470
R29, 30	ERD25TJ562	R201	ERG12ANJ101
R31, 32	ERD25TJ224	R202	ERG12ANJ683
R33, 34	ERD25TJ223	R203	ERD25TJ272
R35, 36, 37, 38, 39, 40	ERD25TJ102	R204	ERD25TJ393
R41, 42	ERD25TJ181		
R43, 44	ERD25TJ105	R205	ERD25TJ473
R45, 46	ERD25TJ473	R206	ERD25TJ102
R47, 48	ERD25TJ332	R207	ERD25TJ103
R49, 50	ERD25TJ474	R208	ERD25TJ472
R51, 52	ERD25TJ274	R209	ERD25TJ122
R53, 54	ERD25TJ184	R210	ERD25TJ220
R55, 56	ERD25TJ471	R211	ERG12ANJ680
R57, 58	ERD25TJ272	R212	ERG12ANJ560
R59, 60	ERD25TJ471	R213	ERD25TJ102
R61	ERG12ANJ101	R214	ERD25TJ681
R63, 64	ERD25TJ273		
R65, 66	ERD25TJ274		
R67, 68	ERD25TJ393		
R69, 70	ERD25TJ682		
R71, 72	ERD25TJ681		
R73, 74	ERD25TJ561		
R75, 76	ERD25TJ332		
R77, 78	ERD25TJ473		
R79, 80	ERD25TJ102		
R81, 82	ERD25TJ472		
R83, 84	ERD25TJ682		
R85, 86	ERD25TJ472		
R87, 88	ERD25TJ333		
R89, 90	ERD25TJ123		
R91, 92	ERD25TJ104		
R93, 94	ERD25TJ333		
R95, 96	ERD25TJ122		
R97, 98	ERD25TJ271		
VARIABLE RESISTORS			
VR1, 2	EVH3AA067A54		
VR3, 4, 5, 6	EVNKA4AA00B54		
CAPACITORS			
C1, 2	ECCD1H221K		
C3, 4	ECEA25M4R7		
C5, 6	ECCD1H221K		
C7, 8	ECCD1H102ZF		
C9, 10	ECEA0J5330		
C11, 12	ECFWD123KVY		
C13, 14	ECEA0J5330		
C15, 16	ECCD1H821KB		
C17, 18	ECEA1HS100		
C19	ECEA1CS331		
C21, 22	ECFWD123KVY		

NOTE:

- S1-1~S1-18: Record/playback select switch (shown in playback position).
- S2-1~S2-5: Tape select switch (1---Normal, 2---Fe-Cr, 3---CrO₂).
- S3-1~S3-4: Input select switch (1---MIC, 2---LINE IN).
- S4-1, S4-2: Dolby select switch (1---IN, 2---OUT).
- S5-1, S5-2: Power ON/OFF switch.
- S6: AC voltage select switch.
- S7: Motor muting switch.
- VR1, VR2: Input level control.
- VR3, VR4: Playback gain adjustment VR.
- VR5, VR6: Recording gain adjustment VR.
- L5, L6: Bias current adjustment coil.
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.
- K = 1,000Ω.
- Capacity are in microfarads (μF) unless specified otherwise.
- P = Pico-farads.
- The mark (V) shows test point. e.g. V = Test point 1.
- All voltage values shown in circuitry are under no signal condition with volume control at minimum position.
- For measurement, use VTVM.

TERMINATIONS (BOTTOM VIEW)



SPECIFICATIONS • Input level control ... MAX

Playback S/N ratio Test tape ... QZZCFM	More than 45 dB
Overall distortion Test tape ... QZZCRA for Normal ... QZZCRX for CrO ₂ ... QZZCRY for Fe-Cr	Less than 3% (Normal) Less than 4% (Fe-Cr, CrO ₂)
Overall S/N ratio Test tape ... QZZCRA	More than 43 dB (without NAB filter)

NOTE: Δ indicates that only parts specified by the manufacturer be used for safety.

Ref. No.	Part No.	Ref. No.	Part No.
C23, 24	ECFWD183KXY	C201, 202	ECEA1ES470
C25, 26	ECEA50MR33	C203	ECEAJS330
C27, 28	ECEA1CS221	C204	ECEAHS010
C29	ECEA1CS331	C205	ECEA1ES101
C31, 32	ECQM1H562JZW		
C33, 34	ECQM1H472JZW		
C35, 36	ECQM1H273JZW		
C37, 38	ECEA1HS100		
C39, 40	ECEA50MR33		
C41, 42	ECFWD104MXY		
C43, 44	ECEA1HS100		
C45, 46	ECEA1ES470		
C47, 48	ECEA1HS100		
C49, 50	ECFWD473KXY		
C51, 52	ECKD1H471KB		
C53, 54	ECEA1HS3R3		
C55	ECEA1CS101		
C57, 58	ECEA1HSR1		
C59, 60, 61, 62	ECEA1HS100		
C63, 64	ECFWD333KXY		
C65, 66	ECFWD153KXY		
C67, 68	ECFWD104KXY		
C69, 70	ECFWD563KXY		
C71, 72	ECFWD683KXY		
C73, 74	ECFWD183KXY		
C75, 76	ECFWD222KXY		
C77, 78	ECQP1122JZW		
C79, 80	ECEA1HSR22		
C81, 82	ECEA1HS010		
C83, 84	ECEA1HS100		
C85, 86	ECEA1ES470		
C87	ECEA1CS221		
C89, 90, 91, 92	ECKD102ZF		
C93, 94	ECKD1H121K		
C95, 96	ECKD102ZF		

TRANSISTORS

Q1, 2, 3, 4	2SC1327U
Q5, 6	2SC945P
Q7, 8	2SD592NCS
Q9, 10	2SC945P
Q11, 12	2SC1383R1
Q13	2SC945P
Q14	2SA564R
Q15	2SC1318R
Q16	2SC1846S

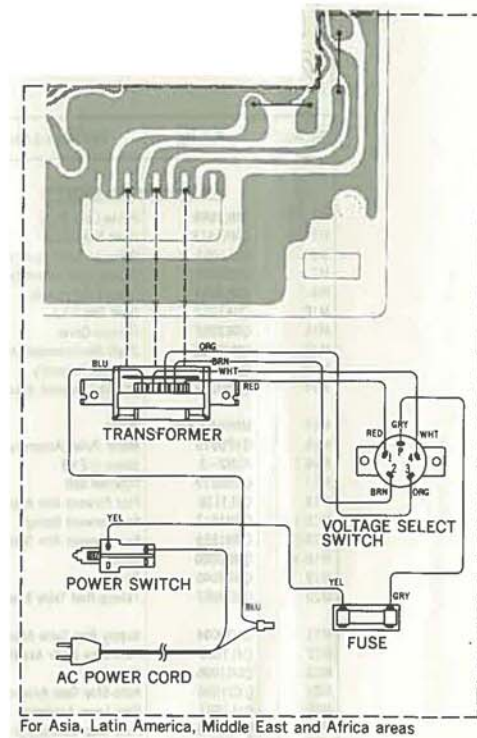
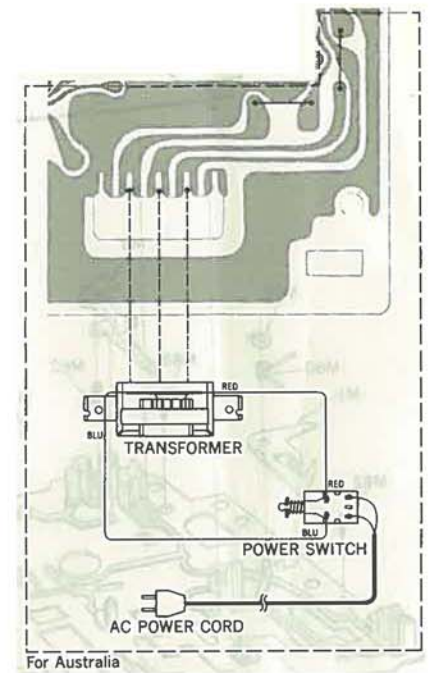
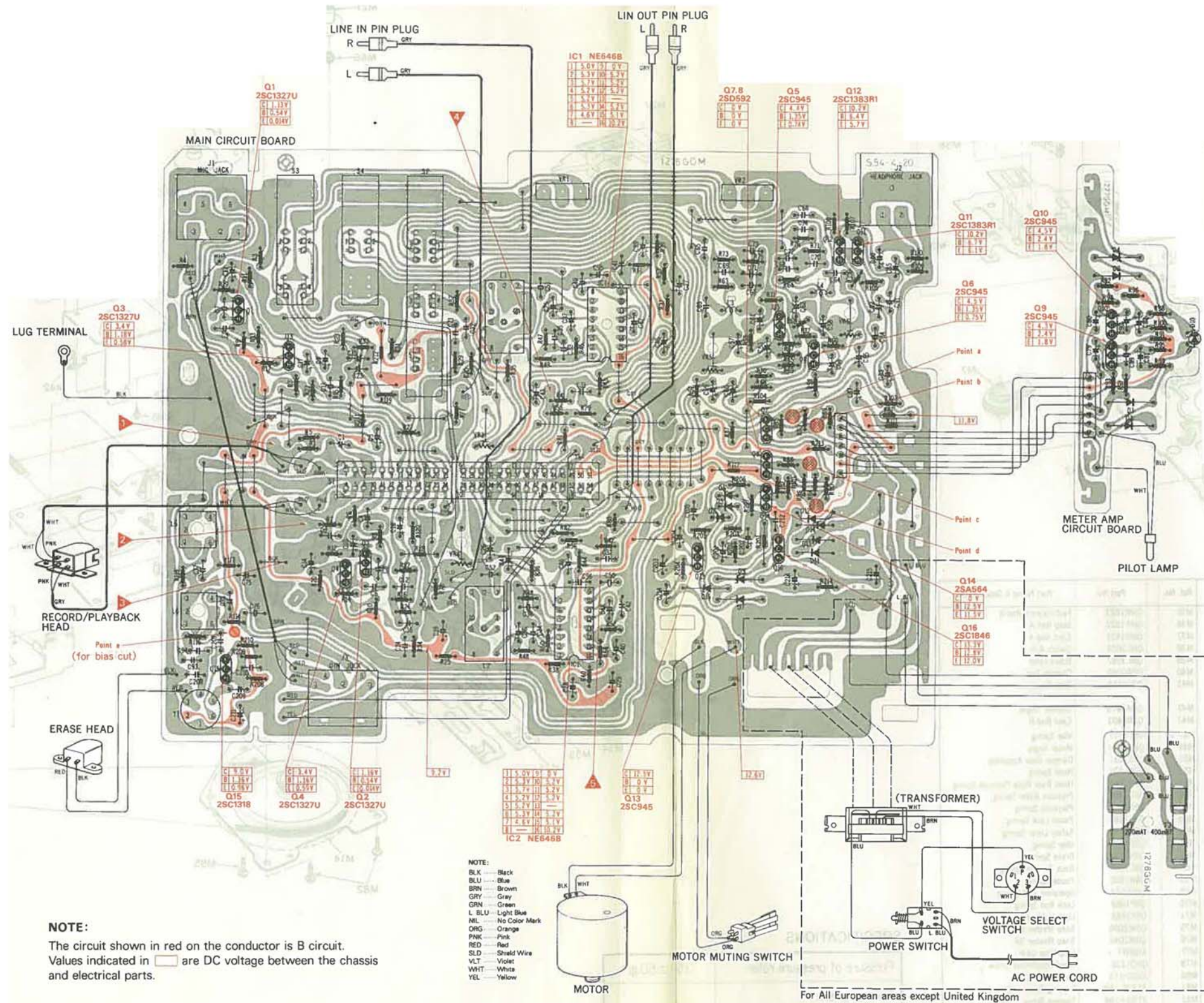
DIODES

D1, 2, 3, 4	0A90Z
D5, 6	1S2473
D7	0A91LF
D8	1S2473
D9	MA1130
D10	LN213RP
D11, 12, 13, 14, 15	1SR34200

INTEGRATED CIRCUITS

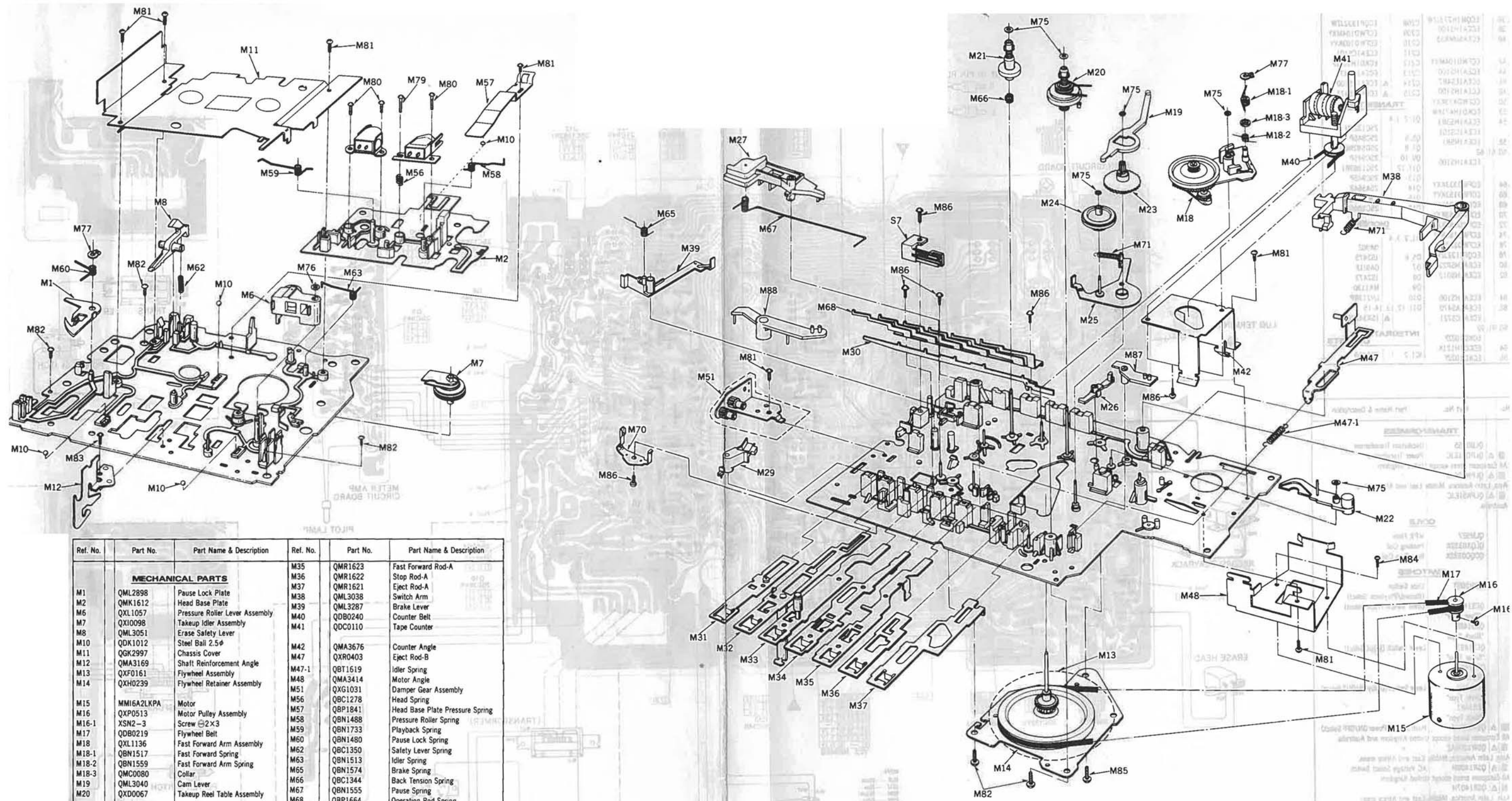
IC1, 2	NE646B
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WIRING CONNECTION DIAGRAM



Ref. No.	Part No.	Part Name & Description
TRANSFORMERS		
T1	QLB0155	Oscillation Transformer
T2	QLPD41EJC	Power Transformer
*For All European areas except United Kingdom.		
	QLPN52EJX	"
*For Asia, Latin America, Middle East and Africa areas.		
	QLPA51EJC	"
*For Australia.		
COILS		
L1, 2	QLM927	MPX Filter
L3, 4	QLQX0332K	Peaking Coil
L5, 6	QCQC0332K	Bias Trap Coil
SWITCHES		
S1	QSSI205T	Slide Switch (Record/Playback Select)
S2	QES1490	"Silver Type"
	QES1485	"Black Type"
S3	QES1491	Lever Switch (Input Select)
	QES1486	"Silver Type"
	QES1487	"Black Type"
S4	QES1492	Lever Switch (Dolby IN/OUT Select)
	QES1487	"Silver Type"
	QES1487	"Black Type"
S5	QSW2214A	Push Switch (Power ON/OFF Select)
*For All European areas except United Kingdom and Australia.		
	QSW1206AZ	"
*For Asia, Latin America, Middle East and Africa areas.		
S6	QSR1409H	AC Voltage Select Switch
*For All European areas except United Kingdom.		
	QSR1407H	"
*For Asia, Latin America, Middle East and Africa areas.		
S7	QSB0247	Leaf Switch (Motor Switch)
FUSES		
F1	XBAQ0013	Fuse (200mA)
*For All European areas except United Kingdom.		
	XBA2E02MN5U	"
*For Asia, Latin America, Middle East and Africa areas.		
F2	XBAQ0007	Fuse (400mA)
*For All European areas except United Kingdom.		
JACKS		
J1	QJA0257A	Microphone Jack
J2	QJA0249C	Headphone Jack
J3	QJS1954H	DIN Jack

EXPLODED VIEWS



Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
MECHANICAL PARTS					
M1	QML2898	Pause Lock Plate	M35	QMR1623	Fast Forward Rod-A
M2	QML1612	Head Base Plate	M36	QMR1622	Stop Rod-A
M6	QXL1057	Pressure Roller Lever Assembly	M37	QMR1621	Eject Rod-A
M7	QX10098	Takeup Idler Assembly	M38	QML3038	Switch Arm
M8	QML3051	Erase Safety Lever	M39	QML3287	Brake Lever
M10	QDK1012	Steel Ball 2.5φ	M40	QDB0240	Counter Belt
M11	QDG2997	Chassis Cover	M41	QDC0110	Tape Counter
M12	QMA3169	Shaft Reinforcement Angle	M42	QMA3676	Counter Angle
M13	QXF0161	Flywheel Assembly	M47	QXR0403	Eject Rod-B
M14	QXH0239	Flywheel Retainer Assembly	M47-1	QBT1619	Idler Spring
M15	MM16A2LKPA	Motor	M48	QMA3414	Motor Angle
M16	QXP0513	Motor Pulley Assembly	M51	QXG1031	Damper Gear Assembly
M16-1	XSN2-3	Screw @2×3	M56	QBC1278	Head Spring
M17	QDB0219	Flywheel Belt	M57	QBP1841	Head Base Plate Pressure Spring
M18	QXL1136	Fast Forward Arm Assembly	M58	QBN1488	Pressure Roller Spring
M18-1	QBN1517	Fast Forward Spring	M59	QBN1733	Playback Spring
M18-2	QBN1559	Fast Forward Arm Spring	M60	QBN1480	Pause Lock Spring
M18-3	QMC0080	Collar	M62	QBC1350	Safety Lever Spring
M19	QML3040	Cam Lever	M63	QBN1513	Idler Spring
M20	QXD0067	Takeup Reel Table Assembly	M65	QBN1574	Brake Spring
M21	QXD0084	Supply Reel Table Assembly	M66	QBC1344	Back Tension Spring
M22	QXL1055	Auto-Stop Lever Assembly	M67	QBN1555	Pause Spring
M23	QDG1096	Cam Gear	M68	QBP1664	Operation Rod Spring
M24	QXG1026	Auto-Stop Gear Assembly	M70	QBP1662	Lock Rod Spring
M25	QXL1037	Gear Lever Assembly	M71	QBT1682	Lock Holding Spring
M26	QML3042	Auto-Stop Obstruction Lever	M75	QBW2008	Snap Washer 2φ
M27	QML3217	Pause Lever	M76	QBW2046	Snap Washer 3φ
M29	QML3124	Lock Release Arm	M77	XUB4FT	Stop Ring C4φ
M30	QMR1735	Lock Rod Assembly	M79	QH1226	Head Adjustment Screw
M31	QXR0342	Pause Rod Assembly	M80	XSN2+10	Screw @2×10
M32	QXR0465	Record Rod Assembly	M81	XTN26+5B	Tapping Screw @2.6×5
M33	QXR0344	Playback Rod Assembly	M82	XTN3+10B	Tapping Screw @3×10
M34	QMR1624	Rewind Rod-A	M83	XTN26+8B	Tapping Screw @2.6×8
			M84	XSN26+3	Screw @2.6×3
			M85	XTN3+25B	Tapping Screw @3×25
			M86	XTN26+6B	Tapping Screw @2.6×6
			M87	QML3504	Cue Lever
			M88	QML3207	Muting Lever

SPECIFICATIONS

Pressure of pressure roller	350 ± 50 gr
Takeup tension	
• Use cassette torque meter ... QZZSRKCT	50 ± 15 gr·cm
Wow and flutter (JIS)	
• Use test tape ... QZZCWAT	0.12% (WRMS)