ORDER NO. ARD-7908072C

Service Manual

Cassette Deck

RS-M02

(Black Face / Silver Face)

Direct-Drive Concise Cassette Deck with Metal Tape Recording Capability

DOLBY SYSTEM

This is the Service Manual for the following areas.

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

RS-M85 MECHANISM SERIES

Specifications

Track system:	4-track 2-channel stereo recording and playback
Tape speed:	4.8 cm/s
Wow and flutter:	0.035% (WRMS), ±0.10% (DIN)
Frequency response:	Metal tape; 20 – 20,000 Hz 30 – 18,000 Hz (DIN) 30 – 17,000 Hz ±3 dB (0 VU) 40 – 13,000 Hz ±3 dB CrO_2/Fe-Cr tape; 20 – 18,000 Hz 30 – 18,000 Hz (DIN) 30 – 16,000 Hz ±3 dB Normal tape; 20 – 18,000 Hz 30 – 16,000 Hz (DIN) 30 – 14,000 Hz ±3 dB
Signal-to-noise ratio:	Dolby* NR in; 68 dB (above 5 kHz) Dolby NR out; 58 dB (signal level = max. recording level, Fe-Cr/CrO_2 type tape)
Fast forward and rewind time:	Approx. 80 seconds with C-60 cassette tape
Inputs:	MIC; sensitivity 0.25 mV, applicable microphone impedance 400 Ω – 10 kΩ LINE; sensitivity 60 mV, input impedance 47 kΩ
Outputs:	LINE; output level 650 mV, load impedance 22 kΩ over HEADPHONE; output level 75 mV, load impedance 8 Ω
Bias frequency:	85 kHz
Motors:	2-motor system Capstan; FG servo control direct-drive motor Reel table; 1-DC coreless motor
Heads:	2-head system 1-SX (Sendust Extra) head for record/playback 1-Sendust/ferrite double-gap head for erasure
Power requirements:	AC; 110/125/220/240 V, 50-60 Hz Preset power voltage; 240 V for United Kingdom and Australia 220 V for Europe
Power consumption:	24 W
Dimensions:	29.7 cm (W) × 9.7 cm (H) × 22.9 cm (D)
Weight:	5.5 kg

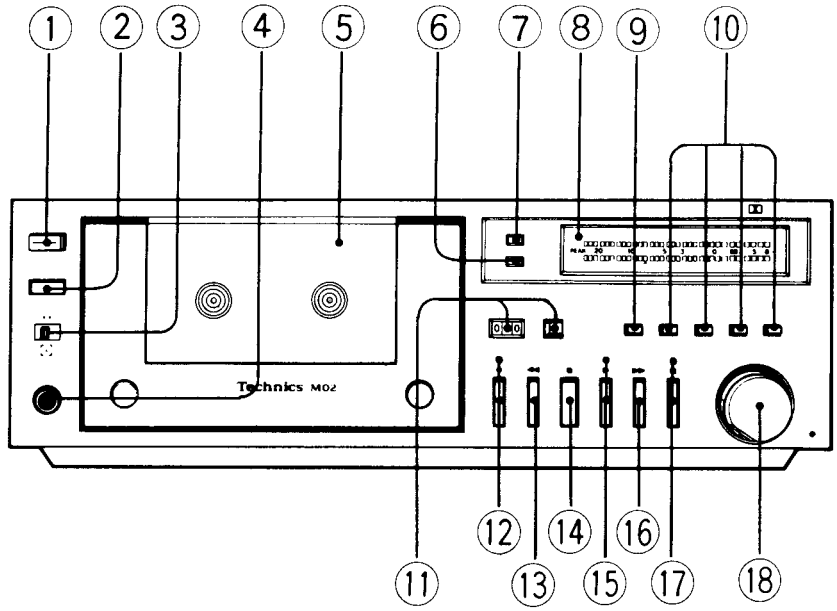
Specifications are subject to change without notice.

* '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



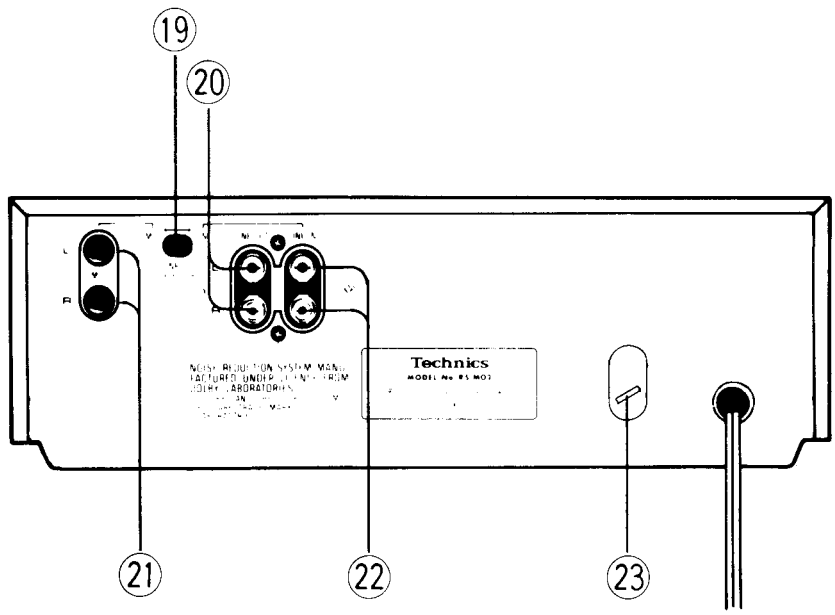


Fig. 1

① Eject button (eject)
② Power switch (power)
③ Timer start switch (timer rec)
④ Headphones jack (phones)
⑤ Cassette holder
⑥ Microphone indication lamp (mic)
⑦ Dolby noise-reduction indication lamp (Dolby NR)
⑧ FL (fluorescent level) meters
⑨ Dolby noise-reduction switch (Dolby NR)
⑩ Tape selectors (tape select-normal/Fe-Cr/CrO_2/Metal)
⑪ Tape counter and Reset button (counter)
⑫ Record button/Record-muting button with LED (rec rec mute ○)
⑬ Rewind button (rew ◀◀)
⑭ Stop button (stop ■)
⑮ Play button with LED (play ▶)
⑯ Fast forward button (ff ▶▶)
⑰ Pause button with LED (pause ❚❚)
⑱ Input level controls (input level)
⑲ Input selector (INPUT SELECTOR MIC/LINE)
⑳ Line output jacks (LINE OUT)
㉑ Microphone jacks (MIC)
㉒ Line input jacks (LINE IN)
㉓ Voltage selector (VOLTAGE SELECTOR)

DISASSEMBLY INSTRUCTIONS

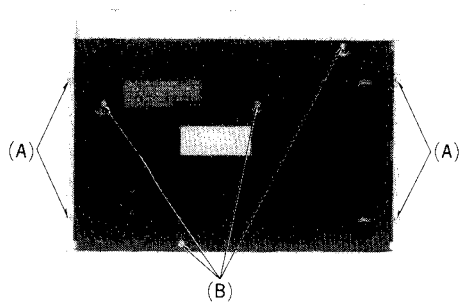


Fig. 2

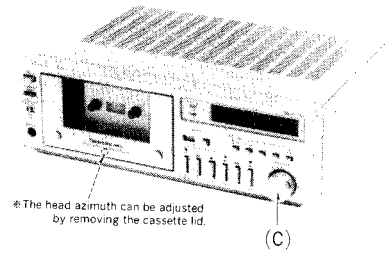


Fig. 3

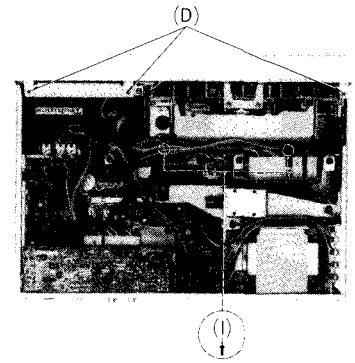


Fig. 4

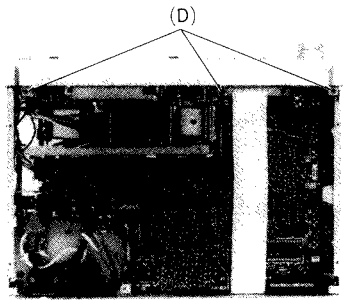


Fig. 5

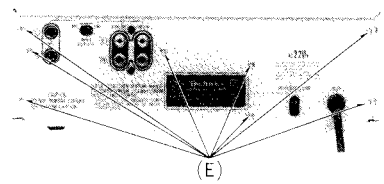


Fig. 6

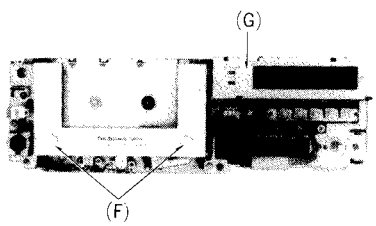


Fig. 7

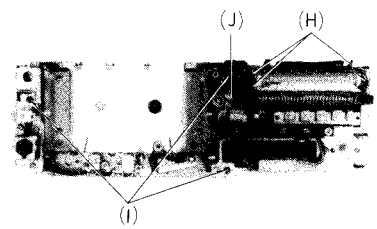


Fig. 8

Procedure	To remove ——	Remove ———	Shown in fig. – –
1	Case cover	• 4 screws ..... (A)	2
2	Bottom cover	• 4 screws ..... (B)	2
3	Front panel	• Control knob ..... (C) • 6 red screws ..... (D)	3 4, 5
3	Back cover	• 8 screws ..... (E)	6
3	Cassette lid	• 2 cassette lid holders ..... (F)	7
6	FL level meter	• Meter cover ..... (G) • 3 meter holders ..... (H)	7 8
6	Mechanism	• 5 red screws ..... (I) • Counter belt ..... (J)	4, 8 8

MAIN CONTROL CIRCUIT OPERATION

Rewind mode

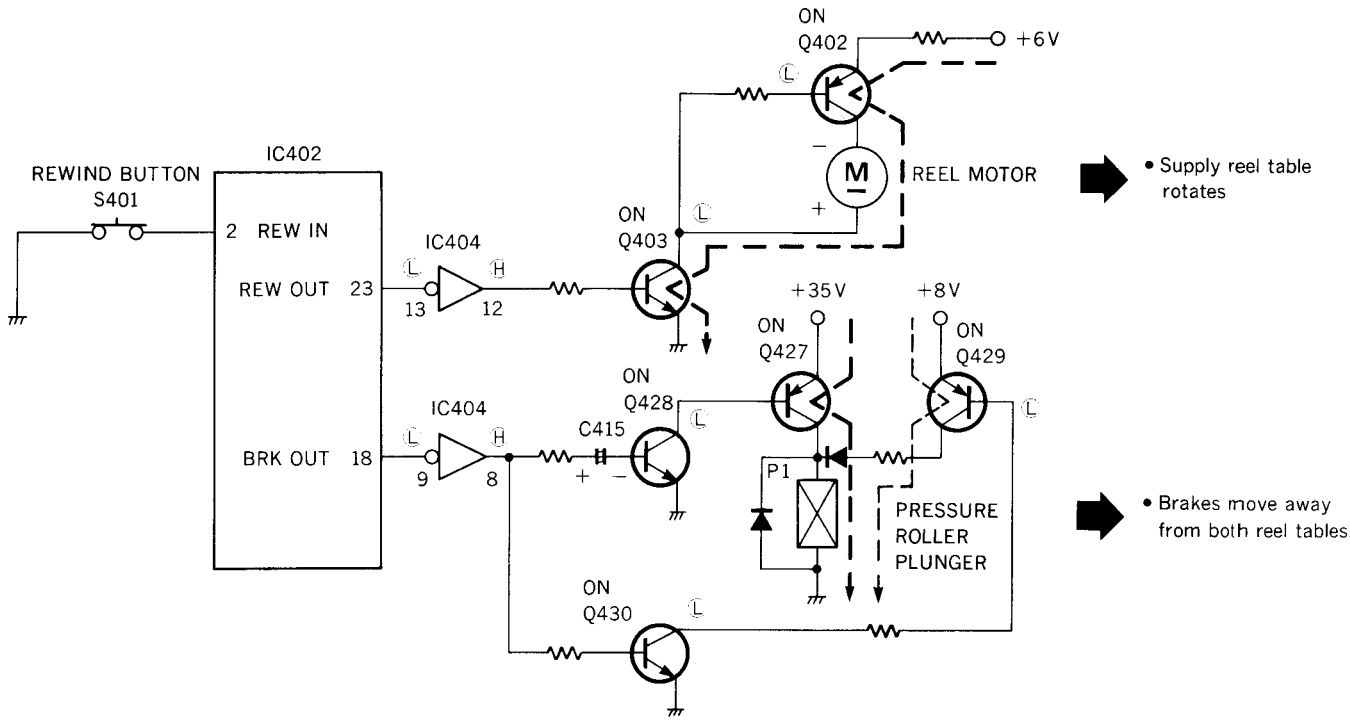


Fig. 9

Fast forward mode

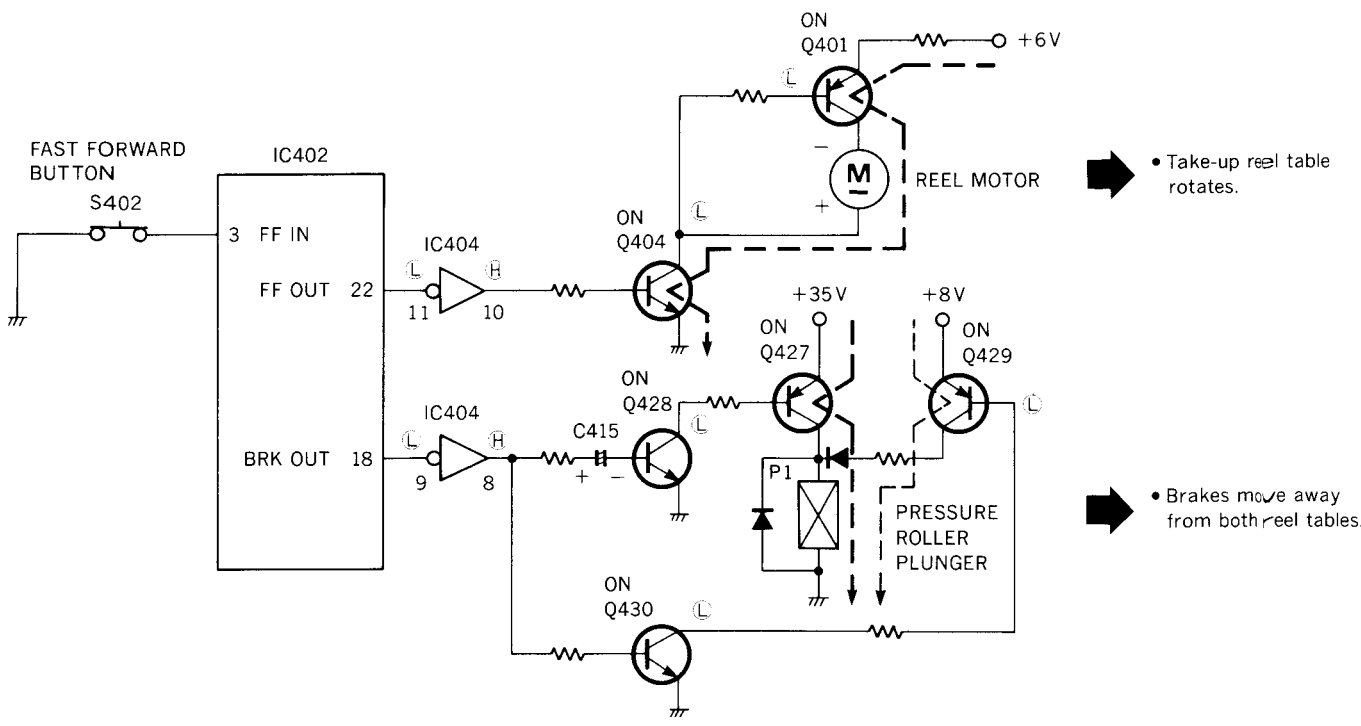
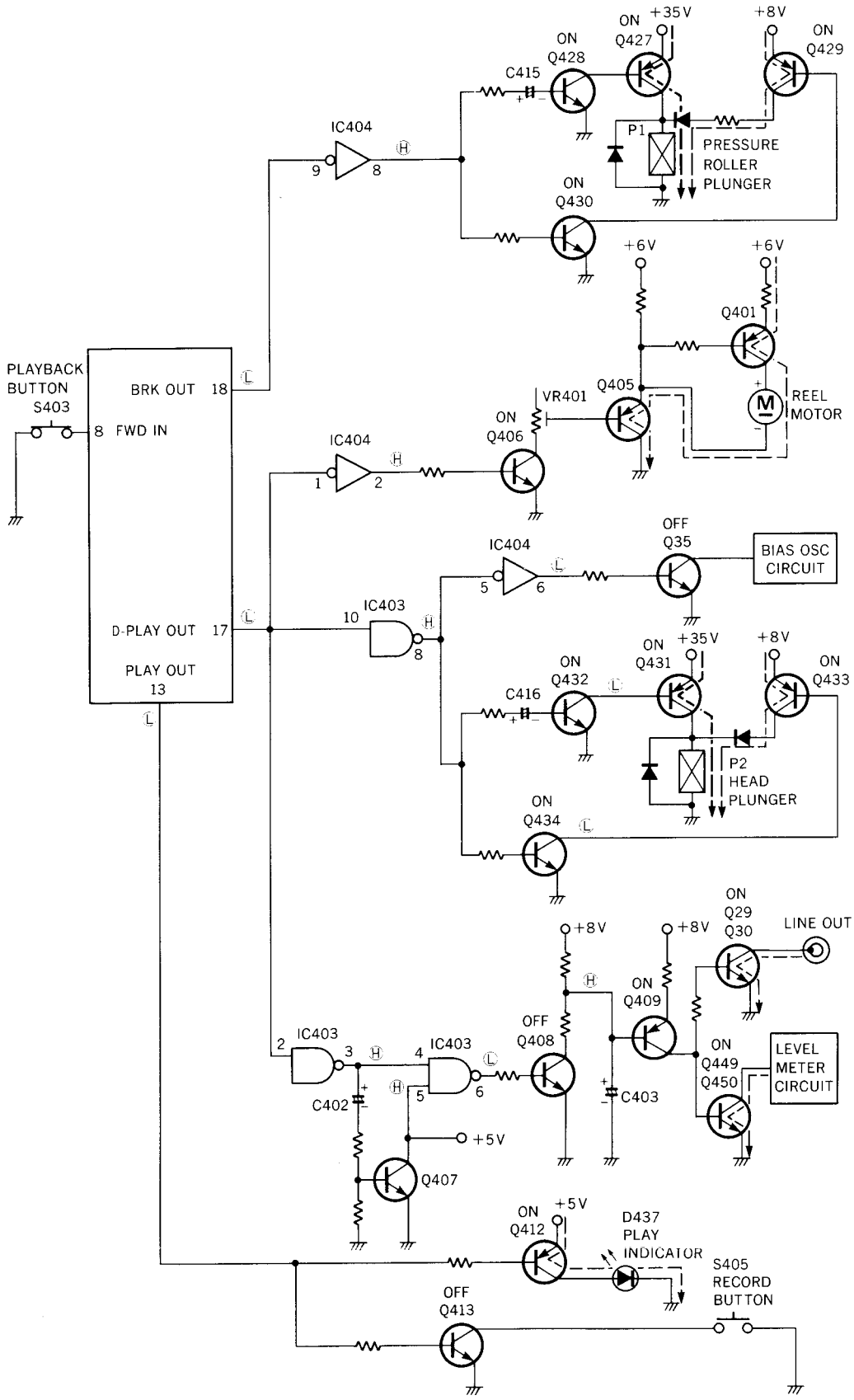


Fig. 10

Playback mode



- Brakes move away from both reel tables.
- Pressure roller contacts capstan.
- Take-up reel table rotates.
- The bias oscillation circuit operates upon depression of the RECORD and PLAYBACK button.
- Head contacts tape.
- During the charging of C403, LINE OUT and level meter are grounded to prevent switching noise.
- Playback indicator illuminates.
- Playback condition is maintained even if record button is pressed during playback.

Record mode

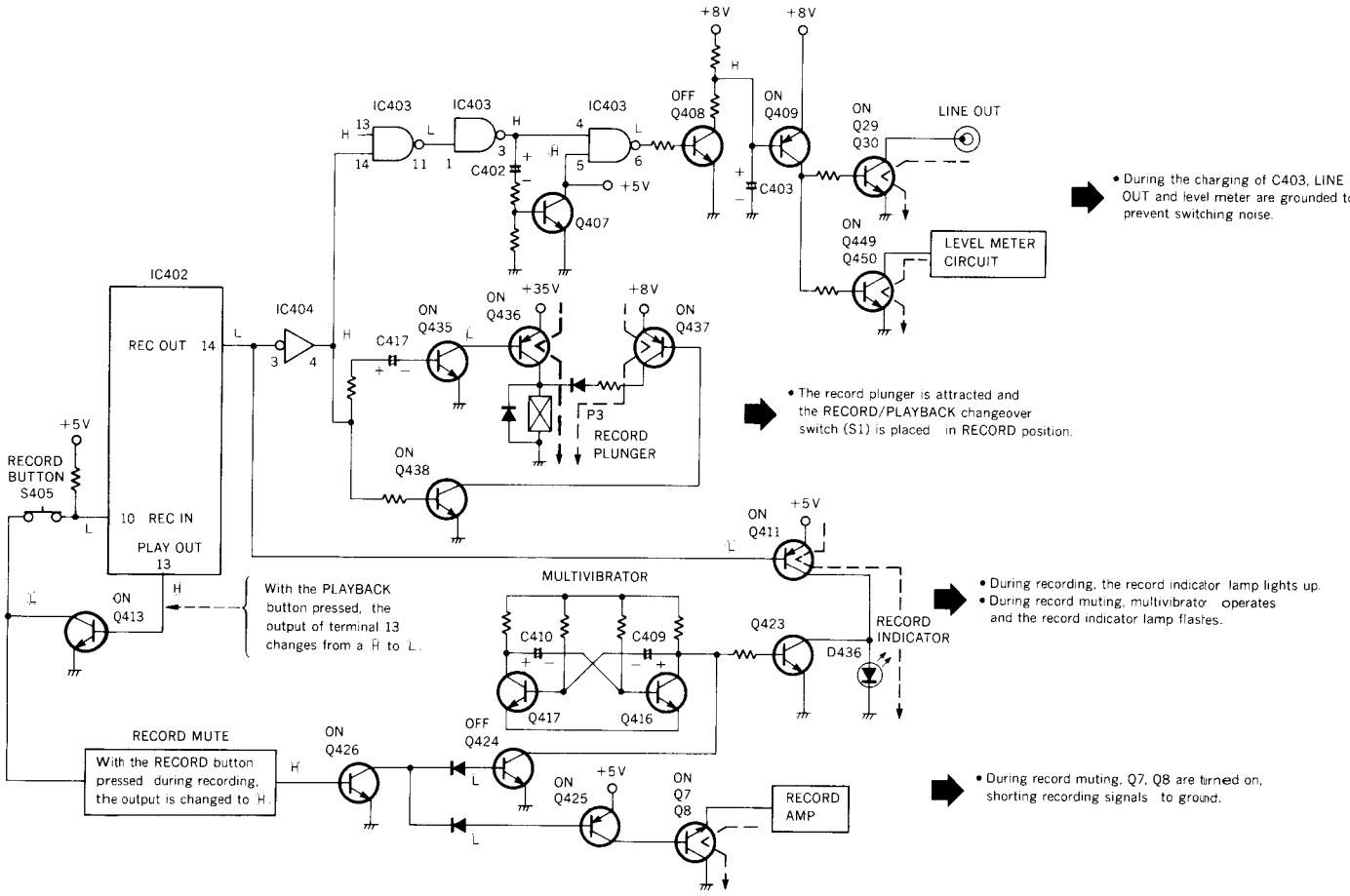


Fig. 12

Pause mode

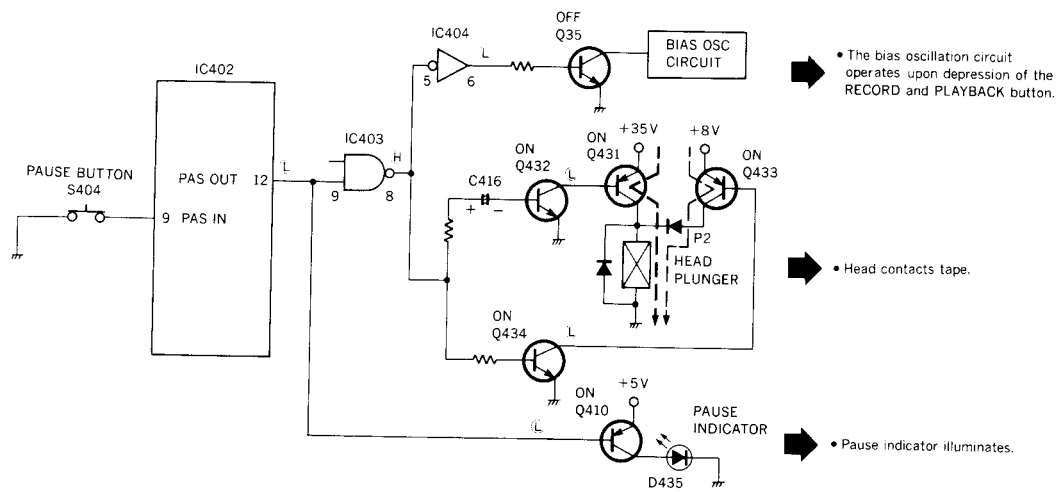
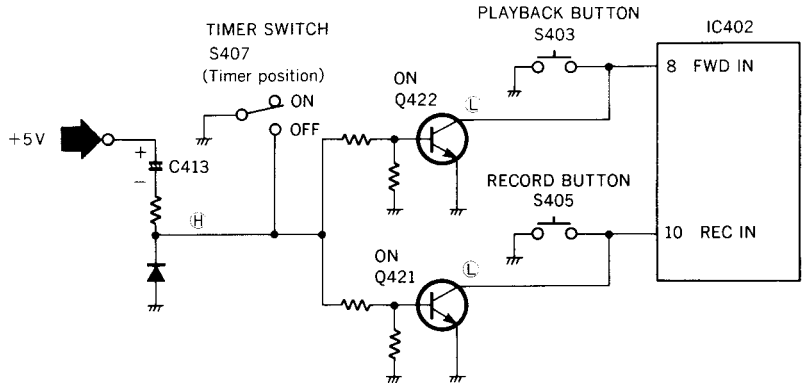


Fig. 13

Timer recording/playback



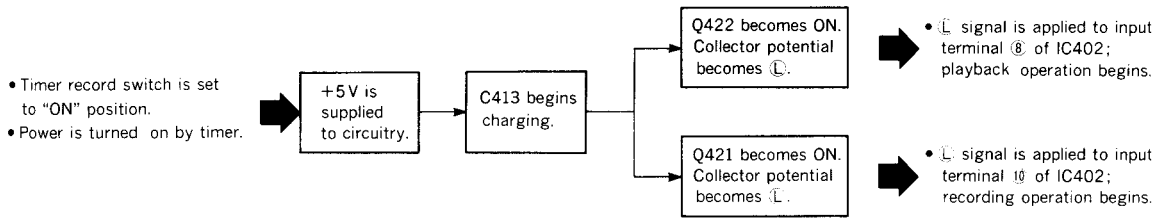
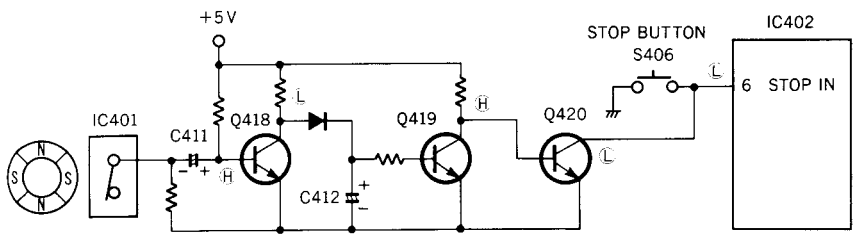
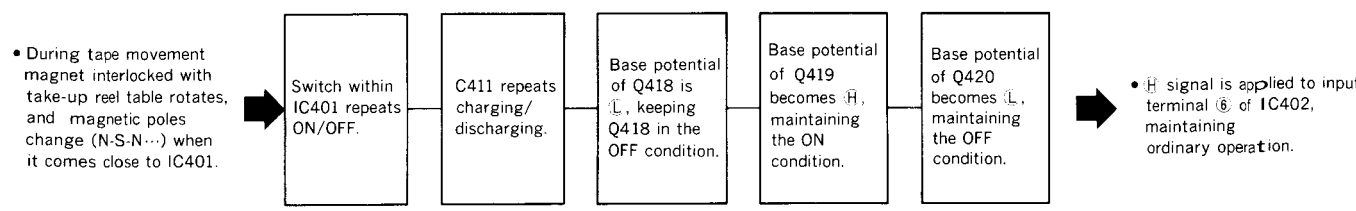


Fig. 14

Full automatic stop





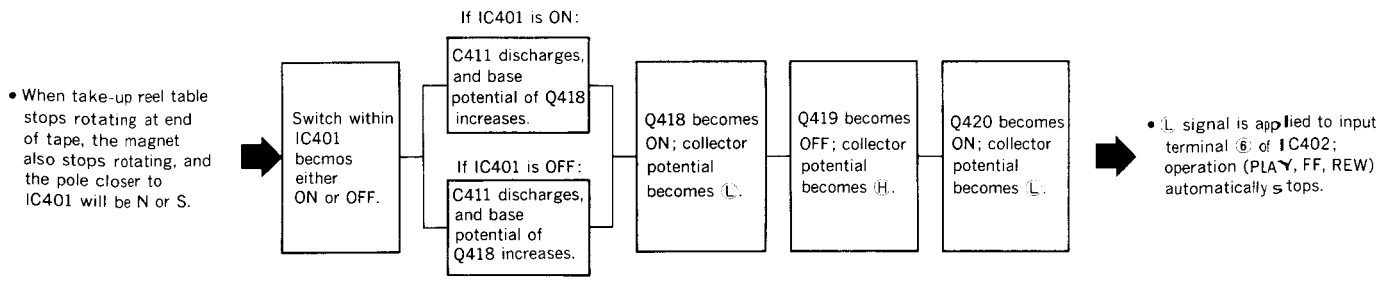
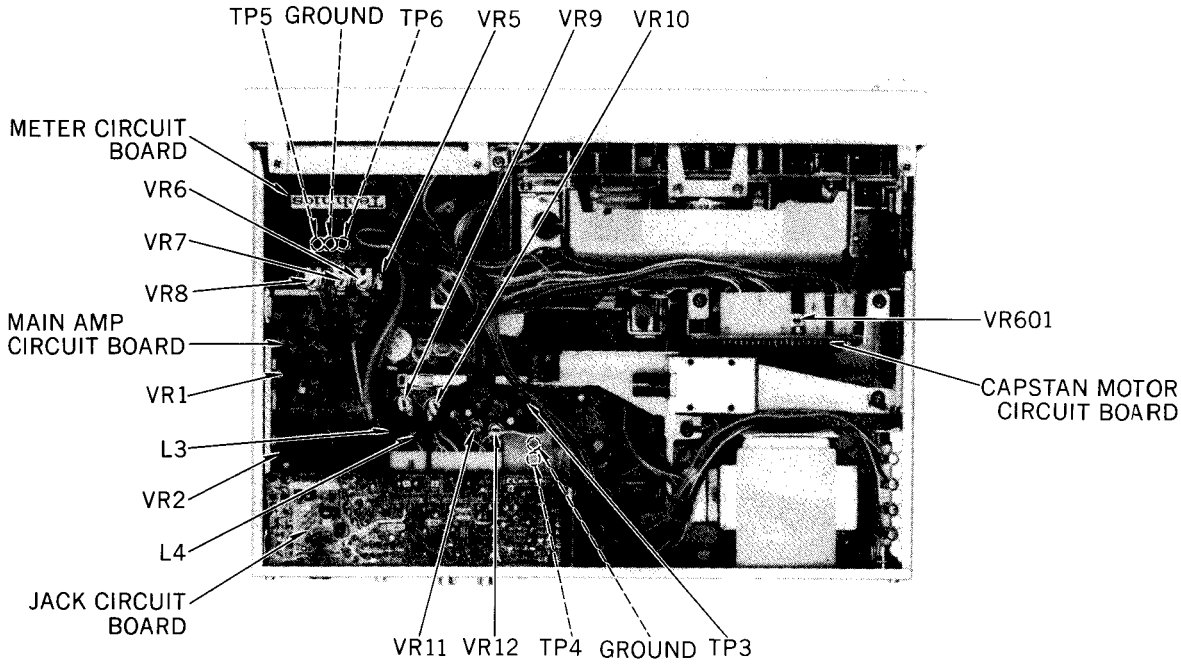
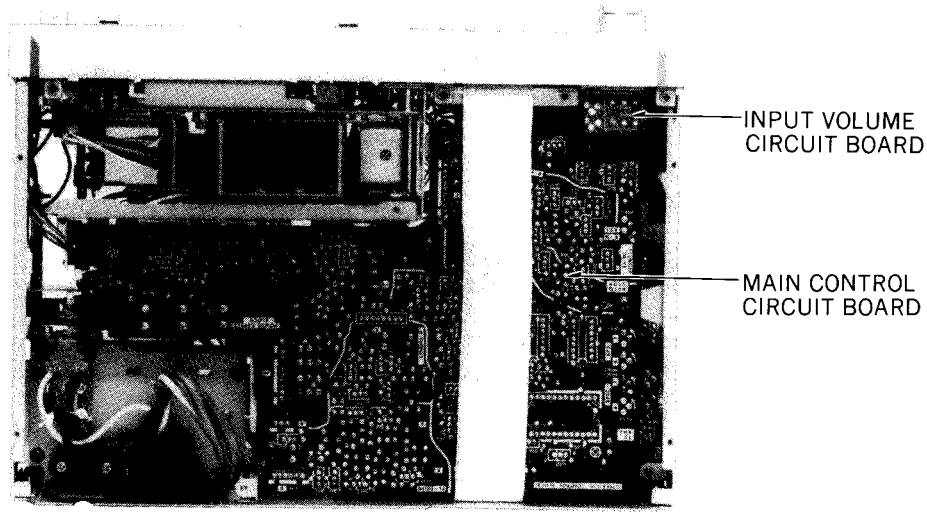


Fig. 15

CIRCUIT BOARDS AND ADJUSTMENT PARTS LOCATION





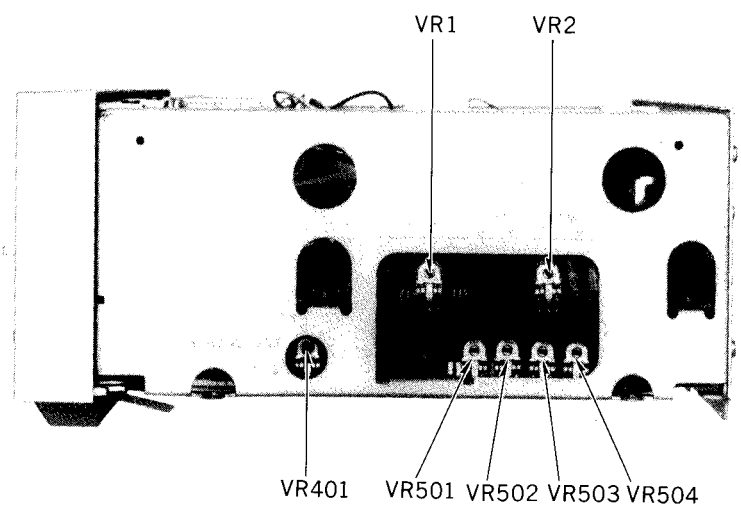
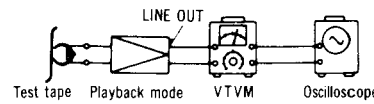
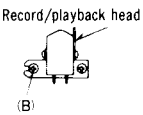
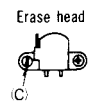
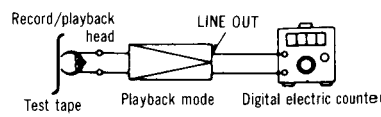


Fig. 16

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±5°C (68±9°F)
- Dolby NR switch: OUT
- Tape selector: Normal
- Input selector: Line in
- Input level control: Maximum

ITEM	MEASUREMENT & ADJUSTMENT
Ⓐ Takeup tension Condition: * Playback mode 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: 35±5 gr-cm** 4. If measured value is not in standard, adjust VR401.
Ⓑ Head azimuth adjustment Condition: * Playback mode Equipment: * VTVM * Oscilloscope * Test tape (azimuth) ··· QZZCFM * Tape path viewer ··· QZZCRD	**Record/playback head adjustment** 1. Test equipment connection is shown in fig. 17. 2. Playback azimuth tape (QZZCFM 8 kHz). 3. Adjust record/playback head angle adjustment screw (B) in fig. 18 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. 17 **Erase head adjustment** 1. Test equipment connection is the same above but use the tape path viewer (QZZCRD) instead of test tape (QZZCFM). 2. Playback this tape. 3. Adjust screw (C) shown in fig. 19 so that the tape may not get curled or malformed by tape guide of the erase head. 4. After adjustment, lock head adjust screw with lacquer.  Fig. 18  Fig. 19
Ⓒ Tape speed Condition: * Playback mode Equipment: * Digital electronic counter * Test tape ··· QZZCWAT	**Tape speed accuracy** 1. Test equipment connection is shown in fig. 20. 2. Playback 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: ±0.5%** 6. If measured value is not within standard, adjust VR601.  Fig. 20 **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: Less than 0.3%**

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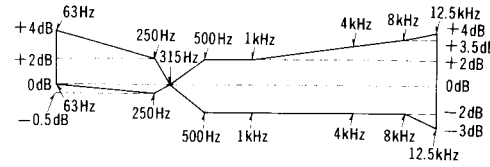
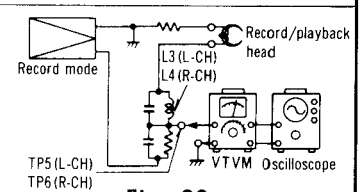
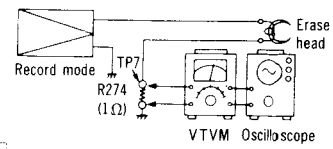
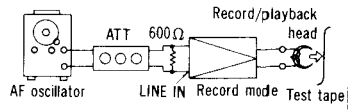
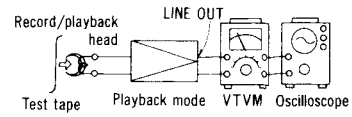
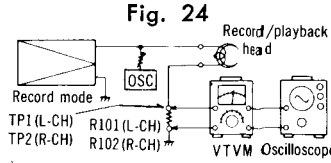
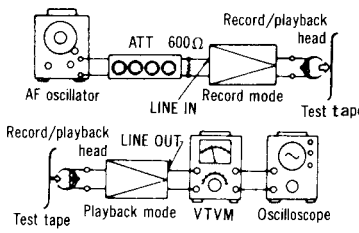
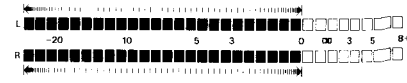
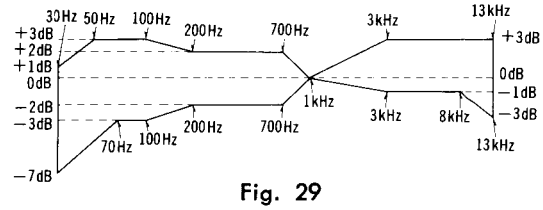
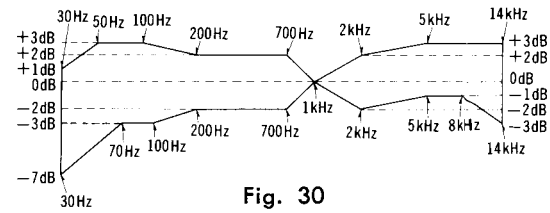
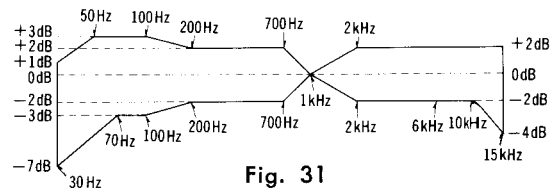
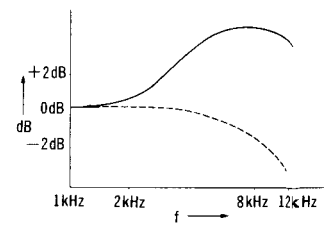
ITEM	MEASUREMENT & ADJUSTMENT
Ⓓ Playback frequency response Condition: * Playback mode Equipment: * VTVM * Oscilloscope * Test tape ··· QZZCFM	1. Test equipment connection is as same as "Head azimuth adjustment" but use the test tape (QZZCFM) instead of head azimuth tape (See fig. 17). 2. Place UNIT into playback mode. 3. Playback the frequency response test tape (QZZCFM). 4. Measure output level at 12.5 kHz, 8 kHz, 4 kHz, 1 kHz, 250 Hz, 125 Hz and 63 Hz, and compare each output level with the standard frequency 315 Hz, 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. 21
Ⓔ Playback gain Condition: * Playback mode Equipment: * VTVM * Oscilloscope * Test tape ··· QZZCFM	1. Test equipment connection is shown in fig. 17. 2. Playback standard recording level portion on test tape (QZZCFM 315 Hz), and using VTVM measure the output level at LINE OUT jack. 3. Make measurement for both channels. Standard value: 0.65±0.10 V Adjustment 1. If measured value is not standard, adjust VR11 (L-CH), VR12 (R-CH) (See fig. 16). 2. After adjustment, check "Playback frequency response" again.
Ⓕ Bias leak Condition: * Record mode * Input level control ··· MAX Equipment: * VTVM * Oscilloscope	1. Test equipment connection is shown in fig. 22 (See AMP circuit board on page 10). 2. Place UNIT into record mode. 3. Adjust trap coils L3 (L-CH), L4 (R-CH), so that measured value becomes minimum (See fig. 16). 4. Make adjustment for both channels.  Fig. 22
Ⓖ Erase current Condition: * Record mode Equipment: * VTVM * Oscilloscope	1. Test equipment connection is shown in fig. 23. 2. Place UNIT into record mode and measure voltage at test point 7. 3. Determine erase current with the following formula: $\text{Erase current (A)} = \frac{\text{Voltage across both ends of R274}}{1\,(\Omega)}$ Standard value: 95±5 mA (Tape selector ··· Metal)  Fig. 23 4. If measured value is not within standard, adjust VR8.
Ⓗ Bias current Condition: * Record mode * Bias adjustment control ··· Center Equipment: * VTVM * Oscilloscope	A. Adjustment for metal position 1. Test equipment connection is shown in fig. 24. 2. Place the test tape (QZZCRZ) in the cassette holder. 3. Press the record and pause buttons. 4. Set the tape selector to metal position. 5. Supply 1 kHz signal from AF oscillator, through ATT to LINE IN. 6. Adjust ATT so that input level is −20 dB below standard recording level. 7. At this time, LINE OUT level indicates 0.065 V. 8. Record 1 kHz and 15 kHz signals. 9. Playback and express in dB the difference between output levels of 15 kHz and 1 kHz. 10. Make sure output level of 15 kHz is not within −1±3 dB compared with output level of 1 kHz. 11. If measured value is not within −1±3 dB, adjust VR9 (L-CH only).   Fig. 24  Fig. 25

ITEM	MEASUREMENT & ADJUSTMENT
	B. Adjustment for normal position 12. Set the tape selector to normal position (test tape QZZCRA). 13. Change test tape to normal tape (QZZCRA). 14. Press the record and playback buttons. 15. Record 1 kHz and 13 kHz signals. 16. Playback and express in dB the difference between output levels of 13 kHz and 1 kHz. 17. Make sure output level of 13 kHz is not within 0 ± 3 dB compared with output level of 1 kHz. 18. If measured value is not within 0 ± 3 dB, adjust VR5 (L-CH, R-CH), VR10 (R-CH). **C. Adjustment for Fe-Cr and CrO_2 positions** 19. Set the tape selector to Fe-Cr position. 20. Change test tape to Fe-Cr tape (QZZCRY). 21. Press the record and playback buttons. 22. Record 1 kHz and 14 kHz signals. 23. Playback and express in dB the difference between output levels of 14 kHz and 1 kHz. 24. Make sure output level of 14 kHz is not within 0 ± 3 dB , compared with output level of 1 kHz. 25. If measured value is not within 0 ± 3 dB , adjust VR6. 26. Set the tape selector to CrO_2 position. 27. Change test tape to CrO_2 tape (QZZCRX). 28. Make the same measurements described in steps 21 to 24 above. 29. If measured value is not within 0 ± 3 dB , adjust VR7. **Measurement** 1. Test equipment connection is shown in fig. 25. 2. Place UNIT into record mode. 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 560μA (Metal position), around 300μA (Normal position), around 320μA (Fe-Cr position), around 415μA (CrO_2 position)
❶ Overall gain Condition: * Record/playback mode * Input level control ··· MAX * Standard input level: MIC ····· −72 ± 3 dB LINE IN ··· −24 ± 3 dB Equipment: * VTVM * AF oscillator * ATT * Oscilloscope * Test tape (reference blank tape) ··· QZZCRA for Normal ··· QZZCRX for CrO_2 ··· QZZCRY for Fe-Cr ··· QZZCRZ for Metal	1. Test equipment connection is shown in fig. 26. 2. Place UNIT into record mode. 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 0.65 V. 5. Using test tape, make recording. 6. Playback recorded tape, and measure the output level at LINE OUT on VTVM. Standard value: 0.65 ± 0.10 V 7. If measured value is not within standard, adjust the following VR. VR1 (L-CH), VR2 (R-CH)  Fig. 26
❷ Fluorescent meter Condition: * Record mode * Input level control ··· MAX * Tape selectors ··· Normal position Equipment: * VTVM * AF oscillator * ATT	1. Test equipment connection is shown in fig. 27. 2. Supply 1 kHz signal (−24 dB) to the LINE IN jack, then press the record button. 3. Adjust the ATT so that the output level at LINE OUT jack becomes 0.65 V (= standard input level). 4. Adjustment at "0 dB": A. Adjust VR501 (L-CH) and VR502 (R-CH) so that the Fluorescent meters show an illuminated indication up to "0 dB" when the input signal level is 0.9 dB higher than the standard input level.  Fig. 27  Fig. 28

RS-M02

ITEM	MEASUREMENT & ADJUSTMENT
	B. Then confirm that the Fluorescent meters show an illuminated indication up to "+1 dB" when the input signal level is 1 dB higher than the standard input level. 5. Adjustment at "−20 dB": A. Adjust VR503 (L-CH) and VR504 (R-CH) so that the Fluorescent meters show an illuminated indication up to "−20 dB" when the input signal level is 15.1 dB lower than the standard input level. B. Then confirm that the Fluorescent meters show an illuminated indication up to "−15 dB" when the input signal level is 15 dB lower than the standard input level. 6. Repeat twice between steps 2 and 5 above.
K 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 CrO_2 ··· QZZCRY for Fe-Cr ··· QZZCRZ for Metal	**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. 26. 2. Load reference blank test tape and place UNIT into record mode. 3. Supply 1 kHz signal from AF oscillator through ATT to LINE IN. 4. Adjust ATT so that input level is −20 dB below standard recording level (standard recording level = 0 VU). 5. At this time, LINE OUT level indicates 0.065 V. 6. Record each frequency 30 Hz, 70 Hz, 200 Hz, 1 kHz, 4 kHz, 8 kHz, 10 kHz, 12 kHz, and 13 kHz (14 kHz for CrO_2 and Fe-Cr, 15 kHz for Metal). 7. Playback and express in dB the difference between playback output level of each frequency based on playback output level of 1 kHz. 8. Make sure that the measured value is within the range specified in the overall frequency response chart. Overall frequency response chart (Normal)  Fig. 29 Overall frequency response chart (Fe-Cr, CrO_2)  Fig. 30 Overall frequency response chart (Metal)  Fig. 31 **Adjustment** 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. 32 increase, refer to bias current adjustment. 2. When it becomes lower, as shown by dotted line, refer to bias current adjustment.  Fig. 32 **Note:** 1. For adjustment when the bias current is lower than the standard value use the procedure indicated in adjustment 2, because reducing 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 9.

ORDER NO. ARD81080072S8-01

Service Manual

Supplement-2

Cassette Deck

RS-M02

(Black Face
Silver Face)

Direct-Drive Concise Cassette Deck with
Metal Tape Recording Capability

* DOLBY SYSTEM

Please use this manual together with the service manual for model No. RS-M02 (original) order No. ARD-7908072C and Supplement-1 order No. ARD-8006066S.

This is the Service Manual for the following areas.

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

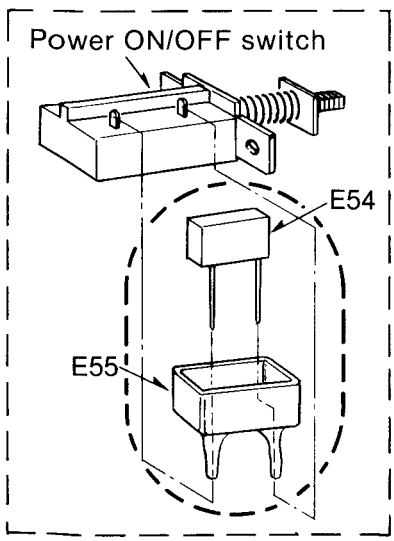
PARTS COMPARISON TABLE:

Please revise the original parts list in the Service Manual to conform to the changes shown herein.
If new parts number are shown, be sure to use them when ordering parts.

Important safety notice.
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

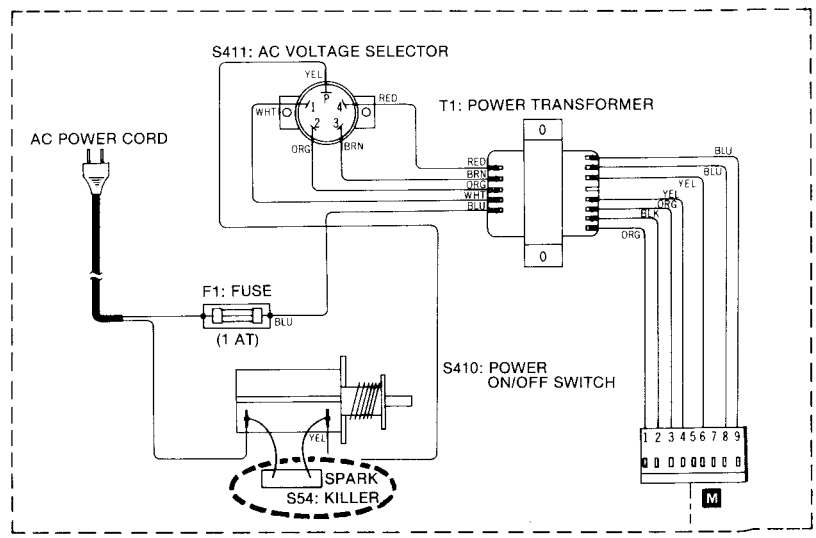
Ref. No.	Parts Name & Description	Parts Number		Remarks
		Former Type	**New Type**	
M28	Shield Plate	QTS1451	QTS1491	
VR13, 14	Variable Resistor	EWKNXAF22A54	EWJSEAF22A54	
E31	Shield Plate (for T1)	QTS1488	QTS1503	
E54 [N] ⚠	Spark Killer	———	QCR008T	Added
※For Asia, Latin America, Middle East and Africa areas.				
E55 [N]	Spark Killer Cover	———	QTW1118	Added
※For Asia, Latin America, Middle East and Africa areas.				

ELECTRICAL PARTS LOCATION (ADDITION)



*** For Asia, Latin America, Middle East and Africa areas.**

WIRING CONNECTION DIAGRAM



*** For Asia, Latin America, Middle East and Africa areas.**

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

Technics

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

(ARD, H.M) Printed in Japan.

ITEM	MEASUREMENT & ADJUSTMENT
Ⓛ 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 −34.5dB at TP3 (L-CH), TP4 (R-CH) (frequency 5kHz). 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 plunger position adjustment	1. Loosen screws (D) shown in fig. 33. 2. Push the plunger all the way into the solenoid as shown in fig. 33. 3. Move plunger angle (E), so that the record/playback select switch (S1) is completely shifted in the direction of arrow (H) as shown in fig. 33. 4. After adjustment, lock screws (D) with lacquer.

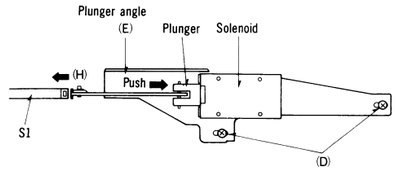
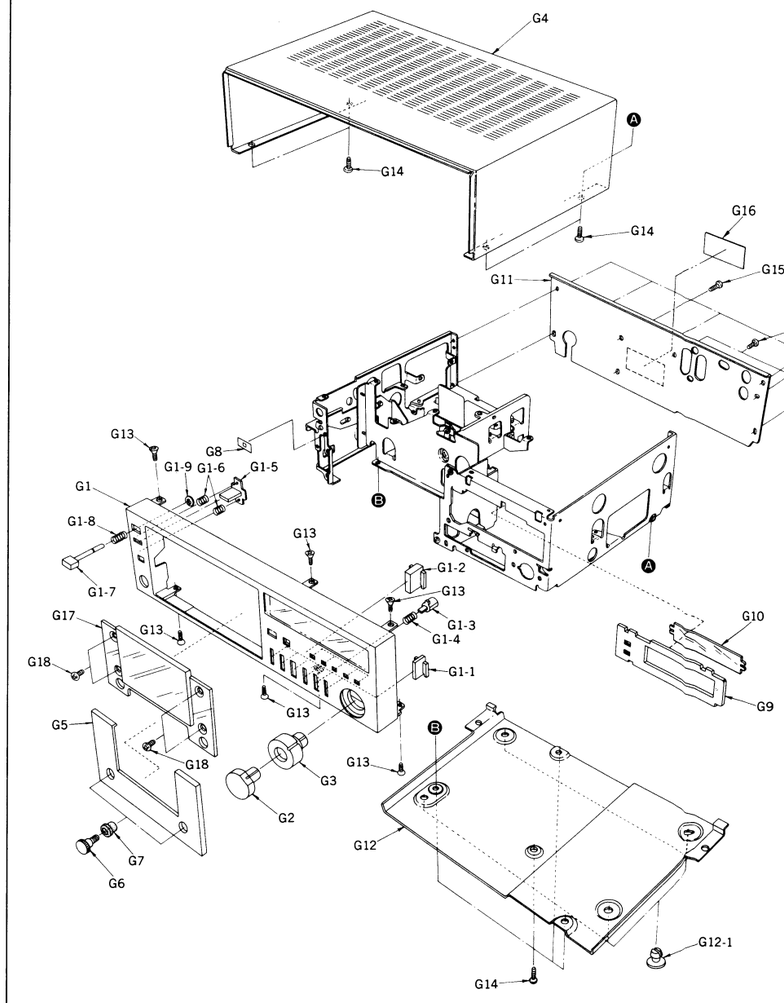


Fig. 33

CABINET PARTS

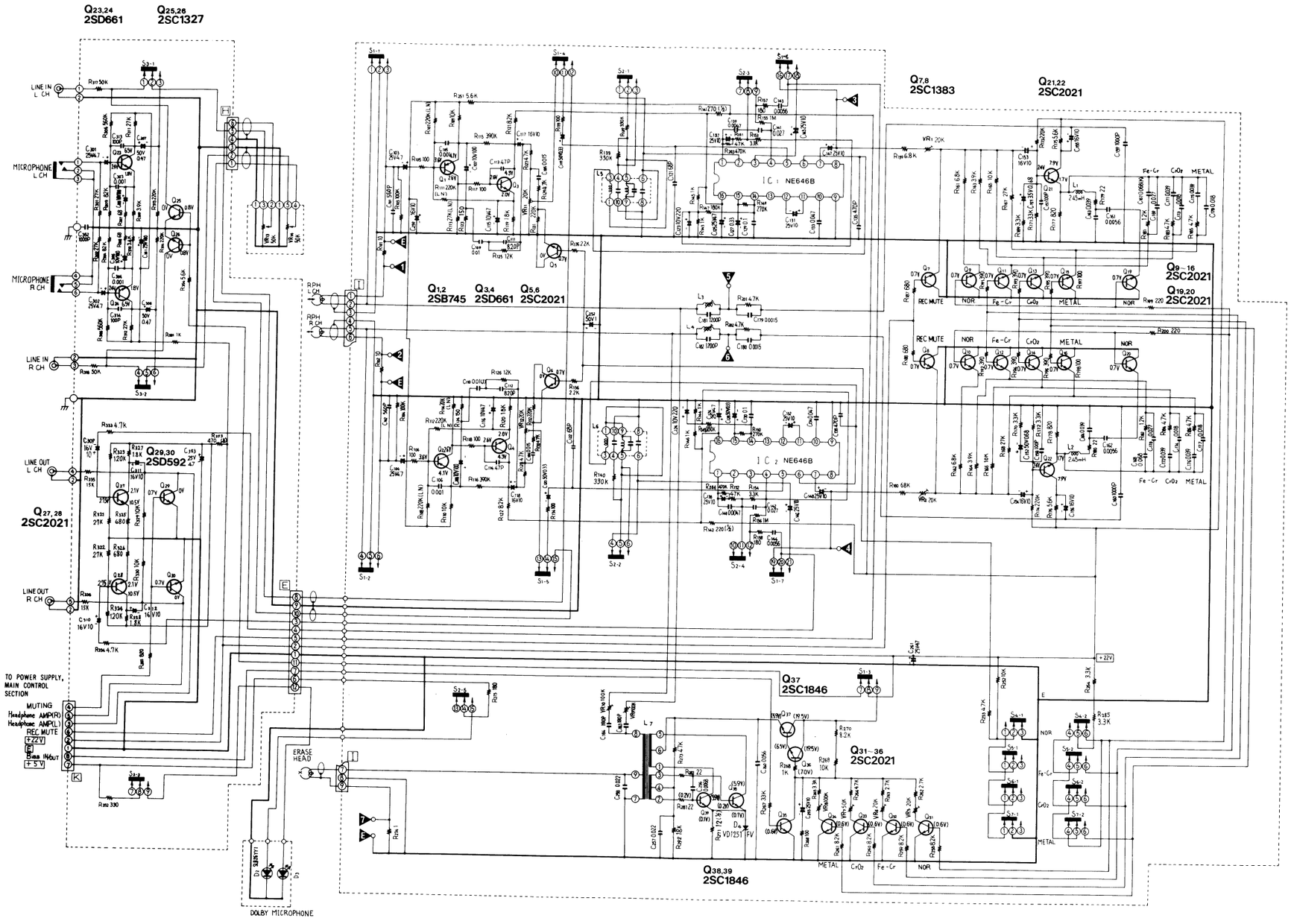
Ref. No.	Part No.	Part Name & Description
	CABINET PARTS	
G1	QYP0893	Front Panel Assembly
	"Silver Type"	
	QYP0893K	"
	"Black Type"	
G1-1	QGO1585	Push Button (A)
	"Silver Type"	
	QGO1585K	"
	"Black Type"	
G1-2	QGO1586	Push Button (B)
	"Silver Type"	
	QGO1586K	"
	"Black Type"	
G1-3	QGO1596	Push Button (Select Button)
	"Silver Type"	
	QGO1596K	"
	"Black Type"	
G1-4	QBC1148	Spring
G1-5	QGO1594	Push Button (Power ON/OFF)
	"Silver Type"	
	QGO1594K	"
	"Black Type"	
G1-6	QBC1187	Spring
G1-7	QXB0642	Push Button (Eject Button)
	"Silver Type"	
	QXB0642K	"
	"Black Type"	
G1-8	QBC1188	Spring
G1-9	XUC25FT	Stop Ring
G2	QYT0540	Volume Knob (A)
	"Silver Type"	
	QYT0540K	"
	"Black Type"	
G3	QYT0541	Volume Knob (B)
	"Silver Type"	
	QYT0541K	"
	"Black Type"	
G4	QGC1145	Case Cover
	"Silver Type"	
	QGC1145K	"
	"Black Type"	
G5	QGK2967	Cassette Lid
	"Silver Type"	
	QGK2967K	"
	"Black Type"	
G6	QHQ1291	Cassette Lid Holding Screw
	"Silver Type"	
	QHQ1291K	"
	"Black Type"	
G7	QBG1551	Cushion Rubber
G8	QGB1962	Switch Cover
	"Silver Type"	
	QGB1962K	"
	"Black Type"	
G9	QKJ0360	Meter Cover (A)
	"Silver Type"	
	QKJ0360K	"
	"Black Type"	
G10	QGL1140	Meter Cover (B)
G11	QGC1172	Rear Board
	"Silver Type"	
	QGC1172K	"
	"Black Type"	
G12		
D B A	QYB0395	Bottom Cover Assembly
*For All European areas and Australia.		
N	QGC1148	"
*For Asia, Latin America, Middle East and Africa areas.		
G12-1	QKA1080	Rubber Foot
G13	XTS3+8BFN	Screw ⊕3×8
G14	XTB3+8JBX	Screw ⊕3×8
	"Silver Type"	
	XTB3+8JFX	"
	"Black Type"	
G15	XTB3+8JFX	Screw ⊕3×8
G16 D	QGS2716	Main Name Plate
*For All European areas except United Kingdom.		
B A	QGS2717	"
*For United Kingdom and Australia.		
N	QGS2718	"
*For Asia, Latin America, Middle East and Africa areas.		
G17	QGR0108	Cassette Lid
G18	XSN26+4	Screw ⊕2.6×4
	ACCESSORIES	
A1	RP023A	Connection Cord
A2	QFTC30S011TZ	Demonstration Tape



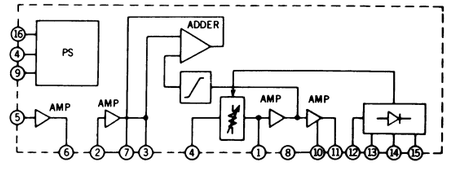
Ref. No.	Part No.	Part Name & Description
A3 N	QJP0603S	AC Plug Adaptor
*For Asia, Latin America, Middle East and Africa areas.		
A4 D	QQT2675	Instruction Book
*For All European areas except United Kingdom.		
B A	QQT2674	"
*For United Kingdom and Australia.		
N	QQT2676	"
*For Asia, Latin America, Middle East and Africa areas.		
	PACKINGS	
P1	QPN3901	Inside Carton
P2	QPA0493	Cushion (A)
P3	QPA0494	Cushion (B)
P4	XZB36X46A02	Poly Bag

SCHEMATIC DIAGRAM

MAIN AMP SECTION



IC1,2 NE646B



SPECIFICATIONS

* Input level control ··· MAX

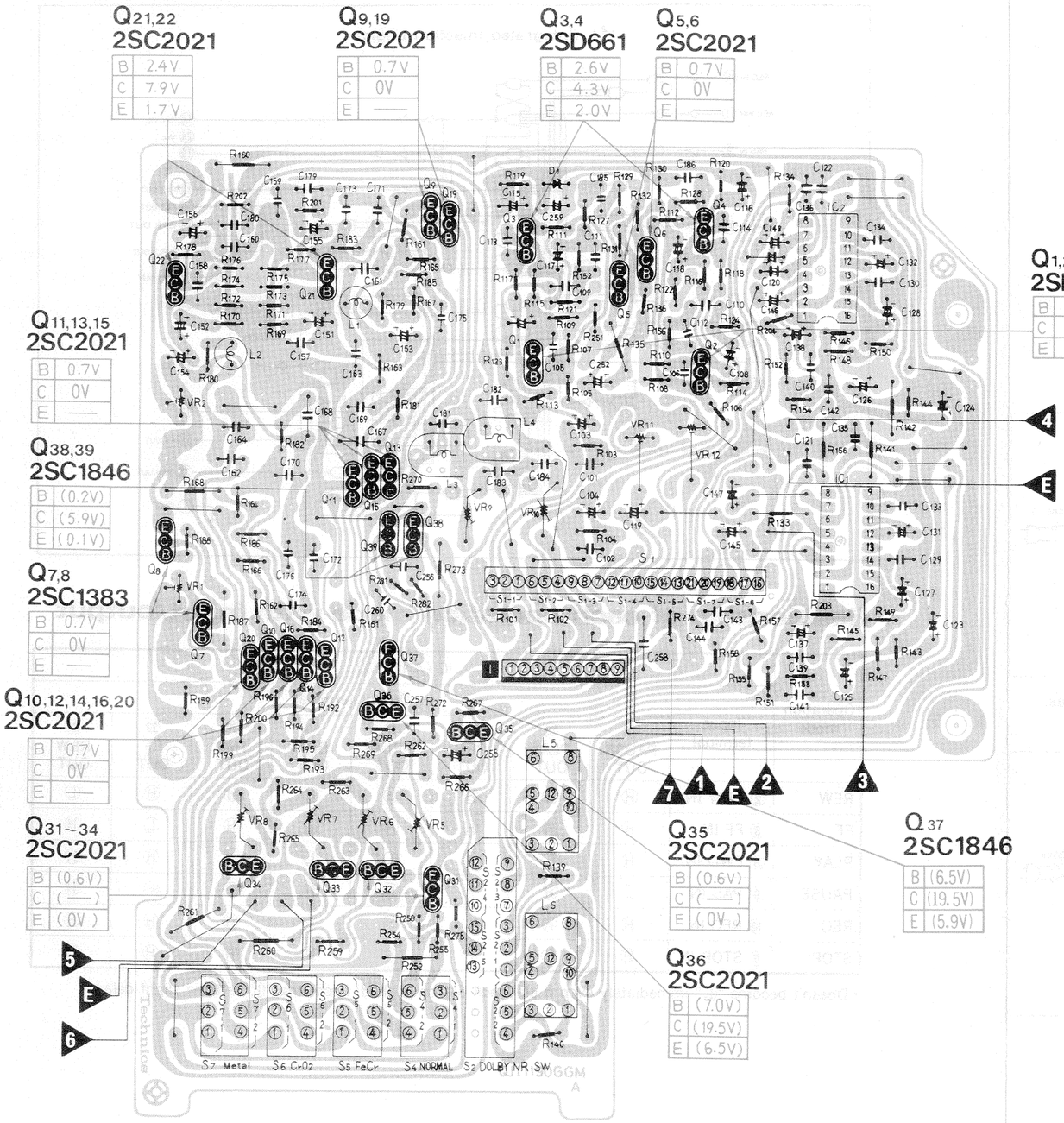
Playback S/N ratio Test tape ··· QZZCFM	More than 47 dB
Overall distortion Test tape ··· QZZCRA for Normal ··· QZZCRX for CrO_2 ··· QZZCRY for Fe-Cr ··· QZZCRZ for Metal	Less than 3.5%
Overall S/N ratio Test tape ··· QZZCRA	More than 45 dB (without NAB filter)

NOTE:

- S1-1~S1-7 ····· Record/playback select switch (shown in playback position).
- S2-1~S2-5 ····· Dolby IN/OUT select switch (shown in OUT position).
- S3-1~S3-3 ····· Input MIC/LINE select switch (shown in LINE position).
- S4-1, S4-2 ····· Tape select switch (for Normal tape).
- S5-1, S5-2 ····· Tape select switch (for Fe-Cr tape).
- S6-1, S6-2 ····· Tape select switch (for CrO_2 tape).
- S7-1, S7-2 ····· Tape select switch (for Metal tape).
- VR1, 2 ····· Recording current adjustment VR.
- VR5 ····· Bias current adjustment VR (for Normal tape).
- VR6 ····· Bias current adjustment VR (for Fe-Cr tape).
- VR7 ····· Bias current adjustment VR (for CrO_2 tape).
- VR8 ····· Erase current adjustment VR (for Metal tape).
- VR9 ····· Bias current adjustment VR (for Metal tape).
- VR10 ····· Bias current adjustment VR (for Normal tape).
- VR11, 12 ····· Playback gain adjustment VR.
- VR13, 14 ····· Input level control.
- L3, 4 ····· Bias trap coil.
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise. K = 1,000 Ω.
- Capacity are in microfarads (μF) unless specified otherwise. P = Pico-farads.
- All voltage values shown in circuitry are under no signal condition and record mode with volume control at minimum position. For measurement, use VTVM.
- The voltage enclose ( ) indicates are measured during record mode.
- The mark (▼) shows test point. e.g. ▼ = Test point 1.

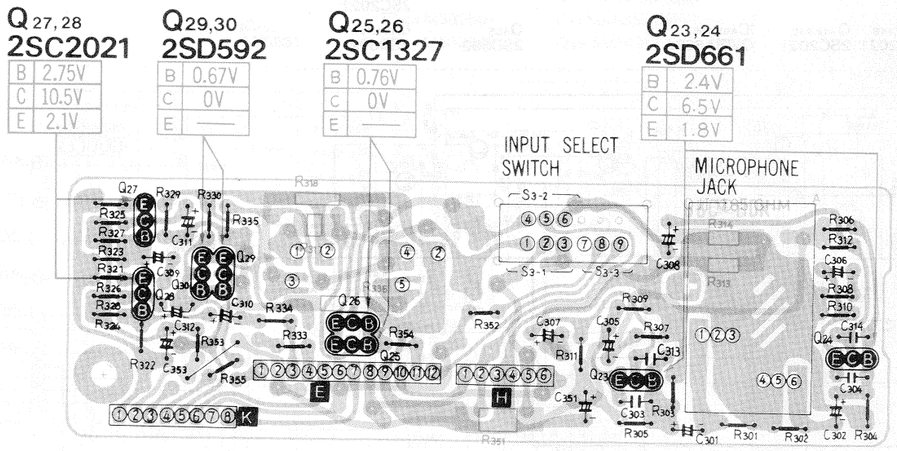
CIRCUIT BOARD

MAIN AMP CIRCUIT BOARD



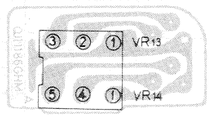
NOTE:
The circuit shown in red on the conductor is +B (bias) circuit.
Values indicated in ☐ are DC voltages between the chassis and electrical parts.
The voltage enclose ( ) indicates are measured during record mode.

JACK CIRCUIT BOARD



LED CIRCUIT BOARD

INPUT LEVEL CONTROL CIRCUIT BOARD



NOTE: RESISTORS
ERD··· Carbon
ERG··· Metal-oxide
ERO··· Metal-film
ERX··· Metal-film
ERQ··· Fuse type metallic
ERC··· Solid
ERF···· Cement

CAPACITORS
ECG☐ ····· Ceramic
ECK☐ ····· Ceramic
ECC☐ ····· Ceramic
ECF☐ ····· Ceramic
ECQM ····· Polyester film
ECQE····· Polyester film
ECQF····· Polypropylene
ECE☐ ····· Electrolytic
ECE☐N ··· Non polar electrolytic
ECQS····· Polystyrene
ECS☐ ····· Tantalum

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

Ref. No.	Part No.
RESISTORS	
R101, 102	ERD25FJ100
R103, 104	ERD25TJ104
R105, 106	ERD25FJ101
R107, 108	ERD25TJ224
R109, 110	ERD25FJ103
R111, 112	ERD25TJ224
R113, 114	ERD25TJ273
R115, 116	ERD25TJ394
R117, 118	ERD25FJ101
R119, 120	ERD25FJ182
R121, 122	ERD25FJ822
R123, 124	ERD25FJ151
R125, 126	ERD25TJ123
R127, 128, 129, 130	ERD25FJ472
R131, 132	ERD25TJ224
R133, 134	ERD25FJ101
R135, 136	ERD25FJ222
R139, 140	ERD25TJ334
R141, 142	ERD50FJ271
R143, 144, 145, 146	ERD25FJ102
R147, 148	ERD25TJ184
R149, 150	ERD25TJ274
R151, 152	ERD25TJ473
R153, 154	ERD25FJ332
R155	ERD25TJ105
R156	ERD25TJ105
R157, 158	ERD25FJ181
R159	ERD25FJ682
R160	ERD25FJ682
R161, 162	ERD25FJ682
R163, 164	ERD25FJ392
R165, 166	ERD25FJ103
R167	ERD25TJ273
R168	ERD25TJ273
R169, 170	ERD25FJ332
R171, 172	ERD25TJ333
R173, 174	ERD25TJ224
R175, 176	ERD25FJ562
R177, 178	ERD25FJ821
R179, 180	ERD25FJ220
R181, 182	ERD25FJ122
R183, 184, 185, 186	ERD25FJ472
R187, 188	ERD25FJ681
R191, 192, 193, 194, 195, 196	ERD25FJ391
R199, 200	ERD25FJ221
R201, 202	ERD25FJ472
R203, 204	ERD25TJ474
R251	ERD25FJ562
R252	ERD25FJ103
R254	ERD25FJ332
R255	ERD25FJ472
R258, 259, 260, 261	ERD25FJ822
R262, 263, 264	ERD25FJ272
R265	ERD25FJ332
R266	ERD25FJ101
R267	ERD25TJ333
R268	ERD25FJ102
R269	ERD25FJ103
R271	ERD50FJ120
R272	ERD25FJ182
R273	ERD25FJ472
R274	ERD25FJ1R0
R275	ERD25FJ181
R281, 282	ERD25FJ220
R285	ERD25FJ332
R301, 302	ERD25TJ273
R303, 304	ERD25TJ823
R305, 306	ERD25TJ564
R307, 308	ERD25FJ680
R309, 310	ERD25FJ392
R311, 312	ERD25TJ273
R321, 322	ERD25TJ273
R323, 324	ERD25TJ124

Ref. No.	Part No.
R325, 326	
	ERD25FJ681
R327, 328	
	ERD25FJ182
R329, 330	
	ERD25FJ103
R333, 334	
	ERD25FJ472
R335	ERD25FJ152
R352	ERD25FJ331
R353	ERD50FJ471
R354	ERD25FJ562
R355	ERD25FJ821
R405	ERD25FJ562
R409	ERD25TJ473
R412	ERD25FJ2R2
R415	ERD25FJ2R2
R416, 417	
	ERD25FJ471
R418	ERD25FJ101
R419	ERD25FJ471
R420	ERD25FJ331
R421	ERD25TJ183
R422	ERD25TJ473
R423	ERD25FJ562
R424	ERD25FJ103
R425	ERD25FJ562
R426	ERD25FJ103
R427	ERD25FJ472
R428	ERD25FJ101
R429, 430	
	ERD25FJ271
R431	ERD25FJ561
R432, 433, 434, 435	
	ERD25FJ472
R436, 437	
	ERD25TJ473
R438	ERD25TJ184
R439	ERD25TJ334
R440	ERD25FJ562
R441	ERD25TJ183
R442	ERD25FJ392
R443	ERD25FJ222
R444	ERD25TJ823
R445	ERD25TJ333
R446	ERD25FJ222
R447	ERD25TJ153
R449	ERD25FJ562
R450	ERD25FJ103
R451	ERD25TJ104
R452	ERD25TJ183
R453, 454	
	ERD25TJ473
R455	ERD25FJ331
R456, 457	
	ERD25TJ473
R458, 459	
	ERD25TJ183
R460	ERD25FJ562
R461, 462	
	ERD25FJ103
R464	ERD25FJ103
R465	ERD25TJ473
R466	ERD25FJ472
R467	ERD25FJ392
R472	ERD25FJ103
R473	ERD25TJ473
R474	ERD25FJ472
R475	ERD25FJ392
R476	ERD25FJ102
R477	ERD25TJ473
R478	ERD25FJ331
R481	ERD25FJ472
R482	ERD25FJ392
R483	ERD50FJ220
R484	ERD25FJ392
R485	ERD25TJ183
R486	ERD25FJ222
R487, 488	
	ERD25FJ392
R489	ERD25TJ122
R490	ERD25TJ183
R491	ERD25FJ392
R492	ERD25TJ153
R493	ERD25FJ392
R494	ERD25FJ822
R495	
DB	ERQ12HJ5R6
*For All European areas.	
NA	ERX1ANJ5R6H
*For Asia, Latin America, Middle East, Africa areas and Australia.	

Ref. No.	Part No.
R536	
DB	ERQ12HJ180
*For All European areas.	
NA	ERG12ANJ180P
*For Asia, Latin America, Middle East, Africa areas and Australia.	
F2 DB △	XBAQ125028
*For All European areas.	
F3 DB △	XBAQ0008
*For All European areas.	
F4 DB △	XBAQ100027
*For All European areas.	
R496	ERD25TJ183
R497 △	ERD25FJ392
R498	ERD25FJ103
R499	ERD25FJ392
R500	ERD50FJ151
R501, 502	
	ERD25TJ224
R503, 504	
	ERD25TJ333
R505, 506	
	ERD25FJ102
R507, 508	
	ERD50FJ221
R509, 510	
	ERD25TJ823
R511, 512	
	ERD25FJ101
R513, 514	
	ERD25TJ823
R515, 516	
	ERD25FJ222
R519	ERD50FJ680
R520	ERD25FJ102
R521, 522	
	ERD25FJ472
R523, 524	
	ERD25TJ273
R525, 526	
	ERD25TJ333
R528	ERD25TJ473
R529, 530	
	ERD25FJ121
R533, 534	
	ERD25FJ180
R536	ERD50FJ180
R537	ERD25FJ102
R539	ERD25TJ183
R540	ERD25FJ102
R541	ERD25FJ222
R543	ERD25FJ472
R602	ERD25FJ221
R603	ERD25TJ104
R604	ERO25CKF1203
R605	ERD25FJ332
R606	ERD25FJ103
R607	ERD25FJ822
R608, 609	
	ERD25FJ270
R610, 611, 612, 613	
	ERD25FJ471
R614, 615, 616, 617	
	ERD25FJ103
R618	ERX12ANJ1R0
R619	ERD25FJ150
R620	ERD25FJ391
R621	ERD25FJ680
R622	ERD25FJ391
R623	ERD25TJ123
R624	ERD25FJ682

VARIABLE RESISTORS

VR1, 2	EVNK0AA00B24
VR5, 6	EVNK4AA00B24
VR7	EVNK4AA00B54
VR8, 9, 10	
	EVNK4AA00B15
VR11, 12	EVNK4AA00B24
VR13, 14	EWKNXAF22A54
VR401	EVNK0AA00B52
VR501, 502	
	EVNK0AA00B15
VR503, 504	
	EVNK0AA00B54
VR601	EVNK0AA00B14

CAPACITORS

C101, 102	
	ECKD1H561K
C103, 104	
	ECEA25M4R7R

Ref. No.	Part No.
C105, 106	
	ECFWD102KVY
C107, 108	
	ECEA10M100
C109, 110	
	ECQM1H103JZ
C111, 112	
	ECKD1H821K
C113, 114	
	ECCD1H470K
C115	ECSF10E47
C116	ECEA1AS470
C117, 118	
	ECEA1HS100
C119, 120	
	ECEA50MR33
C121, 122	
	ECCD1H680K
C123, 124	
	ECEA1AS221
C125, 126	
	ECEA1ES470
C127, 128	
	ECEA50MR33
C129, 130	
	ECFWD104MXY
C131, 132	
	ECEA1HS100
C133, 134	
	ECQM1H473JZ
C135, 136	
	ECKD1H471K
C137, 138	
	ECEA1HS100
C139, 140	
	ECQM1H472JZ
C141, 142	
	ECQM1H273JZ
C143, 144	
	ECQM1H562JZ
C145, 146, 147, 148	
	ECEA1HS100
C149, 150	
	ECKD1H102KB
C151	ECSF35ER68
C152	ECEA50ZR68
C153, 154	
	ECEA1HS100
C155	ECSF16E10
C156	ECEA1HS100
C157, 158	
	ECCD1H101K
C159, 160	
	ECKD1H102KB
C161, 162	
	ECQM1H562KZ
C163, 164	
	ECQM1H393KZ
C167, 168	
	ECQM1H683KZ
C169, 170	
	ECQM1H273KZ
C171, 172	
	ECQM1H393KZ
C173, 174	
	ECQM1H223KZ
C175, 176	
	ECQM1H393KZ
C179, 180	
	ECQM1H152KZ
C181, 182	
	ECQS1122JZ
C183, 184	
	ECCD1H181K
C185, 186	
	ECQM1H153KZ
C252	ECEA1HS100
C255	ECEA1HS100
C256	ECQM1H682KZ
C257	ECQM1H223KZ
C258	ECQF4223KZ
C259	ECSF16E10
C260	ECFWD563KXY
C261	ECEA1ES470
C301, 302	
	ECEA25M4R7
C303, 304	
	ECFWD102KVY
C305, 306	
	ECEA1AS101
C307, 308	
	ECEA50MR22
C309, 310, 311, 312	
	ECEA1HS100
C313, 314	
	ECCD1H101KC
C351	ECEA1ES101
C353	ECEA1ES470
C401	ECEA0JS101

Ref. No.	Part No.
C402	ECEA1HS100
C403	ECEA25N4R7
C404	ECEA1AS331
C405	ECEA1AS221
C406	ECEA1HS100
C407	ECEA2AS010
C408, 409, 410	
	ECEA1HS100
C411	ECEA1CS330
C412, 413, 414	
	ECEA1HS100
C415	ECEA2AS3R3
C416	ECEA1HS100
C417	ECEA2AS2R2
C418	ECEA1ES101
C419 △	ECEA1HS470
C420 △	ECEA1HS102
C422, 423	
	ECEA1AS101
C424	ECEA1AS472
C425	ECEA1VS102
C426 △	ECFWD104MXY
C427, 428	
	ECEA1HS100
C429, 430	
	ECFDD683MXY
C431, 432	
	ECFWD103KVY
C433, 434	
	ECEA1HS100
C435, 436	
	ECEA1HS100
C437, 438	
	ECEA1HS100
C441, 442	
	ECEA1AS221
C443	ECFDD103KVY
C444	ECEA1CS221
C445	ECEA1ES101
C446	ECEA25N4R7
C447	ECEA1HS010
C448	ECEA1ES4R7
C449, 450, 451	
	ECFDD103KVY
C601	ECEA50M1R
C602, 603	
	ECQM1H562KZ
C604	ECKD1H102MD
C605	ECQM1H392KZ
C606	ECQM1H473KZ
C607	ECEA50ZR33
C608	ECQM1H273KZ
C609	ECEA50ZR68
C610	ECSF35ER47
C611, 612	
	ECEA25N4R7
C613	ECSF25E10
C614	ECSF25E1Z
C615	ECQM1H153KZ
C616	ECSF10E3R3
C617	ECQS1682JZ

TRANSISTORS

Q1, 2	2SB745
Q3, 4	2SD661
Q5, 6	2SC2021
Q7, 8	2SC1383
Q9, 10, 11, 12, 13, 14, 15, 16	
	2SC2021
Q19, 20, 21, 22	
	2SC2021
Q23, 24	2SD661
Q25, 26	2SC1327
Q27, 28	2SC2021
Q29, 30	2SD592NCS
Q31, 32, 33, 34, 35, 36	
	2SC2021
Q37, 38, 39	
	2SC1846
Q401, 402	
	2SB643Q
Q403, 404	
	2SD638Q
Q405	2SB643Q
Q406, 407, 408	
	2SC2021
Q409, 410, 411, 412	
	2SA786
Q413, 414	
	2SC2021
Q415, 416, 417, 418	
	2SC828
Q419	2SC2021
Q420	2SC828
Q421, 422, 423	
	2SC2021
Q424	2SC828
Q425	2SA564
Q426	2SC2021
Q427	2SB644

Ref. No.	Part No.
Q428	2SC2021
Q429	2SB641R
Q430	2SC2021
Q431	2SB644
Q432	2SB2021
Q433	2SB641R
Q434, 435	
	2SC2021
Q436	2SB644
Q437	2SB641R
Q438, 439	
	2SB2021
Q440	2SC1846
Q441	2SC2021
Q443	2SD389
Q444	2SB641R
Q445, 446	
	2SC2021
Q447, 448, 449, 450	
	2SC2021
Q451, 452	
	2SC2021
Q453, 454, 455	
	2SD592NCS
Q456	2SA786
Q601, 602, 603, 604	
	2SB643Q
Q605	2SA885

INTEGRATED CIRCUITS

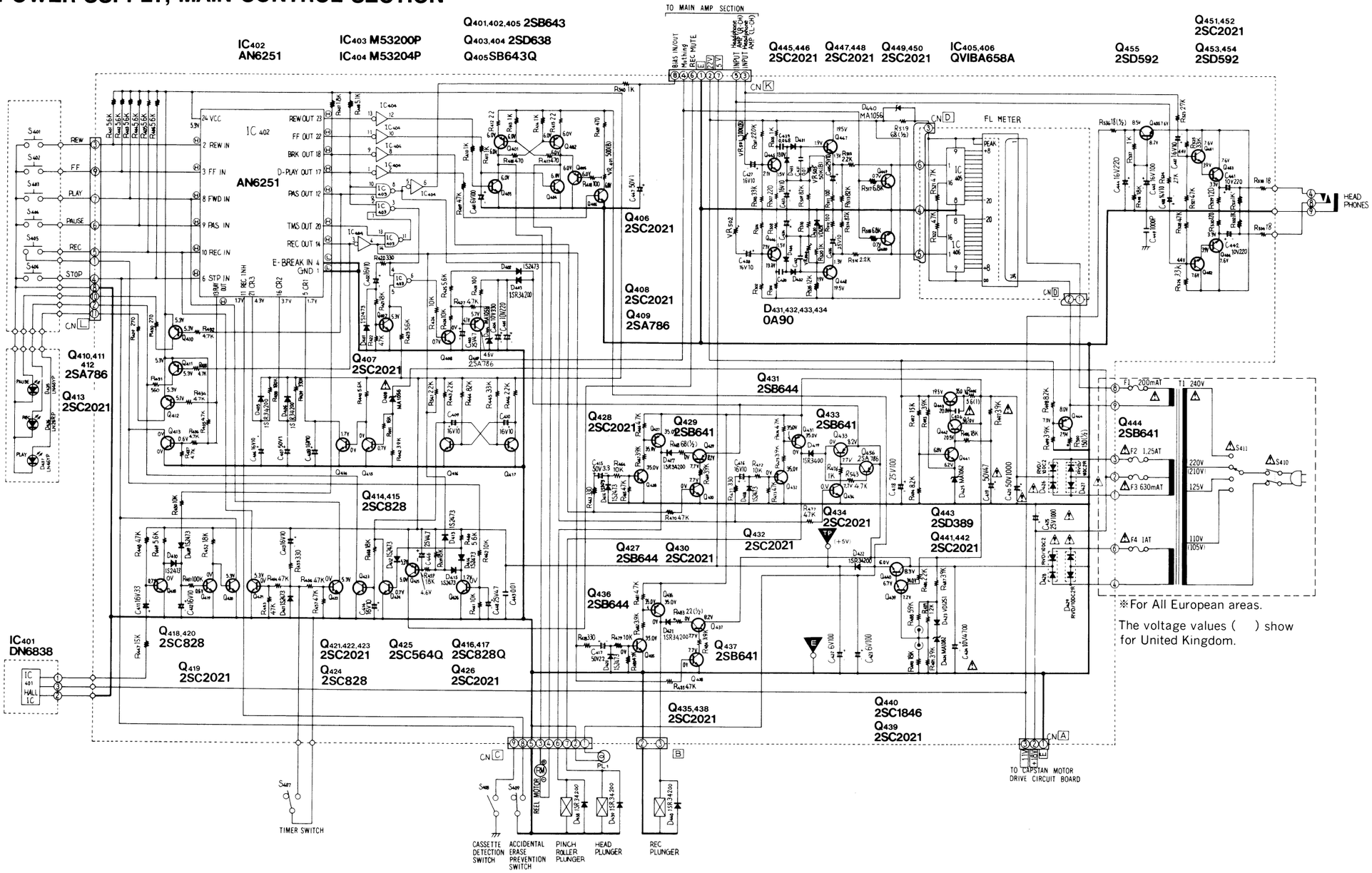
IC1, 2	NE646B
IC401	DN6838
IC402	AN6251
IC403	M53200P
IC404	M53204P
IC405, 406	
	QVIBA658
IC601	AN6633

Ref. No.	Part No.
	DIODES
D2	SLB26YY1
D3	SLB26GG1
D4	VD1251
D401, 402	
	1S2473
D403	SM112
D404	MA1056
D405, 406	
	SM112
D408	MA1056
D409, 410	
	1S2473
D412, 413, 414, 415, 416	
	1S2473
D417	SM112
D418	1S2473
D419	SM112
D420	1S2473
D421	SM112
D422	SM112
D423	VD1251
D424	MA1082
D425	MA1062
D426 △	RVD10DC2
D427 △	RVD10DC2R
D428 △	RVD10DC2
D429 △	RVD10DC2R
D430	VD1251
D431, 432, 433, 434	
	OA90
D435	LN46YP
D436	LN26RP
D437	LN46YP
D438, 439	
	SM112
D440	MA1056

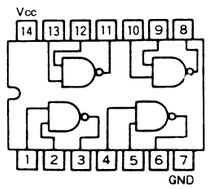
Ref. No.	Part No.	Part Name & Description
		TRANSFORMER
T1 D △	QLPD40ELC	Power Transformer
*For All European areas except United Kingdom.		
BNA △	QLPZ15ELC	"
*For United Kingdom, Asia, Latin America, Middle East, Africa areas and Australia.		
		COILS
L1, 2	QLQX2421Y	Peaking Coil
L3, 4	QLQM0333	Bias Trap Coil
L5, 6	QLM9Z7	MPX Filter Coil
L7	QLB0193K	Bias Oscillation Coil
		PILOT LAMP
PL1	XAMQ41S500	Pilot Lamp
		FUSES
F1 DB △	XBAQ0013	Fuse (200mAT)
*For All European areas.		
N △	XBA2E10NR5	Fuse (1AT)
*For Asia, Latin America, Middle East Africa areas.		
F2 DB △	XBAQ050026	Fuse (500mAT)
*For All European areas.		
F3 DB △	XBAQ0006	Fuse (315mAT)
*For All European areas.		
F4 DB △	XBAQ0008	Fuse (630mAT)
*For All European areas.		
		JACKS
J1	QEJ5024S	Jack Board
J2	QJA0444H	Microphone Jack
J3	QJA0247	Headphones Jack
		SWITCHES
S1	QSS7203	Slide Switch (Record/Playback)
S2	QSWZ501A	Push Switch (Dolby IN/OUT)
S3	QSS4207T	Slide Switch (Input Selector)
S4, 5, 6, 7		
	QSWZ501A	Push Switch (Tape Selector)
S401, 402, 403, 404, 405, 406		
	QSW1111H	Control Key Switch
S407	QSS1102T "Silver Type"	Slide Switch
	QSS1104T "Black Type"	"
S408	QSB0238	Leaf Switch (Cassette Detection Switch)
S409	QSM0067	Micro Switch (Accidental Erase Prevention Switch)
S410		
DBA △	QSW2214A	Power Switch
*For All European areas and Australia.		
N △	QSW1206AZ	Power Switch
*For Asia, Latin America, Middle East and Africa areas.		
S411 △	QSR1407H	AC Power Voltage Select Switch

RS-M02

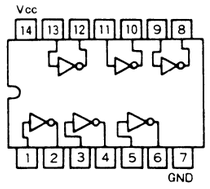
SCHEMATIC DIAGRAM
POWER SUPPLY, MAIN CONTROL SECTION



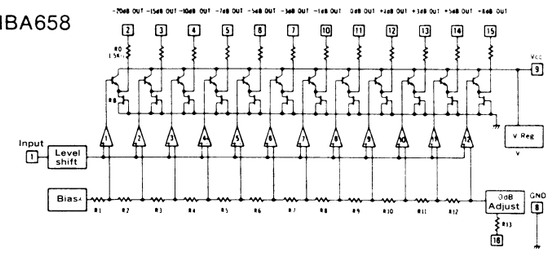
IC403 M53200P



IC404 M53204P



IC405,406 QVIBA658



NOTE:

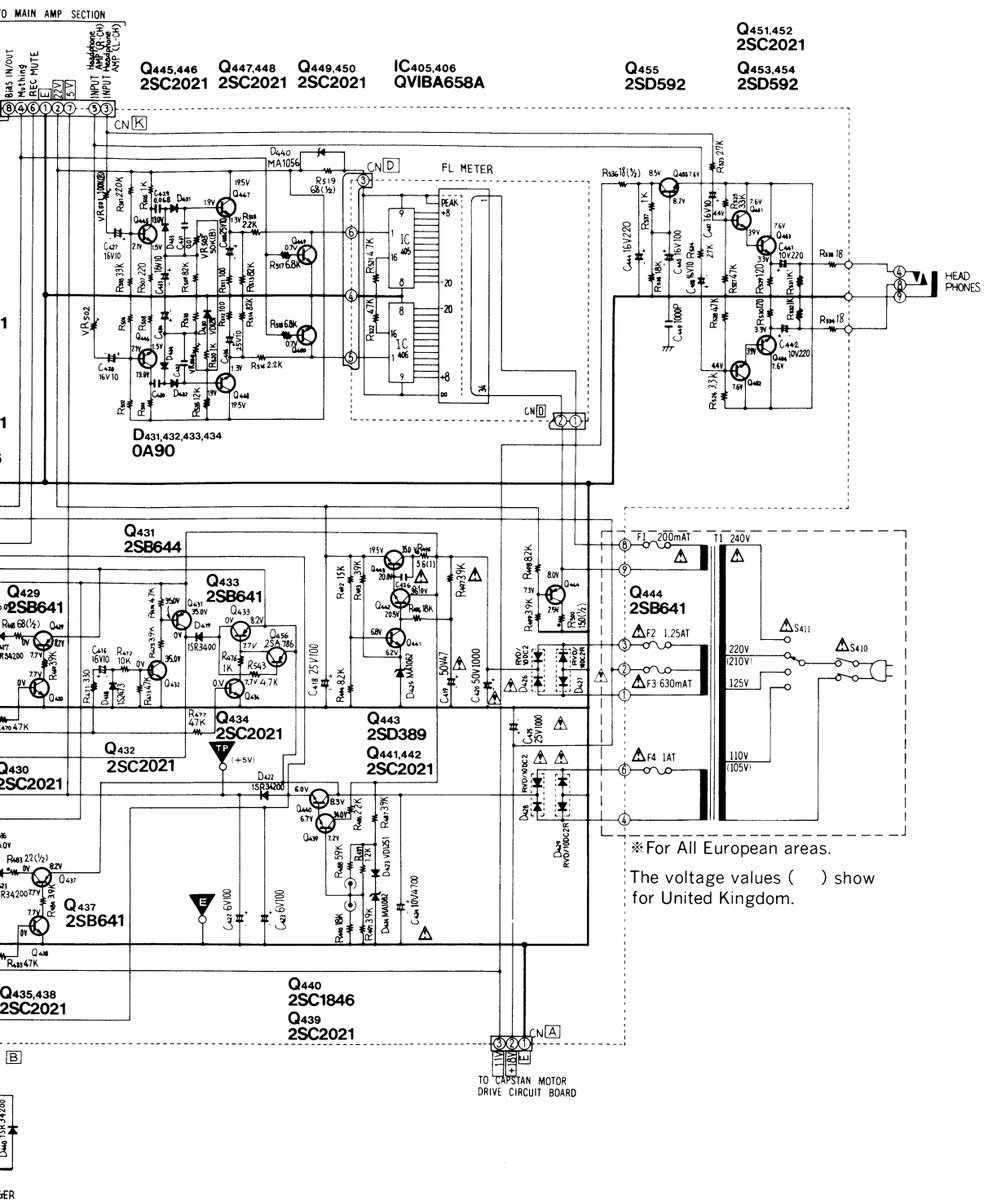
- S401 ..... Rewind button switch.
- S402 ..... Fast forward button switch.
- S403 ..... Playback button switch.
- S404 ..... Pause button switch.
- S405 ..... Record button switch.
- S406 ..... Stop button switch.
- S407 ..... Timer switch.
- S408 ..... Cassette detection switch.
- S409 ..... Erase safety switch.
- S410 ..... Power ON/OFF switch.
- VR401 ..... Takeup torque adjustment VR.
- VR501, VR502 ..... FL meter adjustment VR (for "0dB").
- VR503, VR504 ..... FL meter adjustment VR (for "−20dB").
- 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.
- All voltage values shown in circuitry are under no signal condition and record mode with volume control at minimum position. For measurement, use VTVM.
- ⚠ indicates that only parts specified by the manufacturer be used for safety.

IC (A

Rela

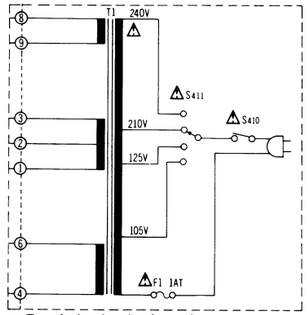
Operat mod
REW
FF
PLAY
PAUSE
REC
STOP

* Doesn

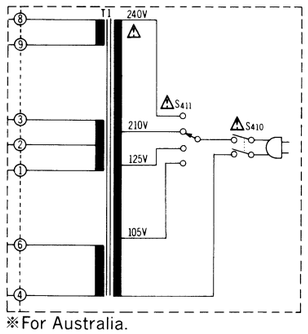


※For All European areas.

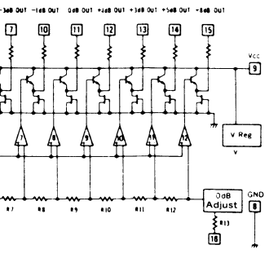
The voltage values ( ) show for United Kingdom.



※For Asia, Latin America, Middle East and Africa areas.



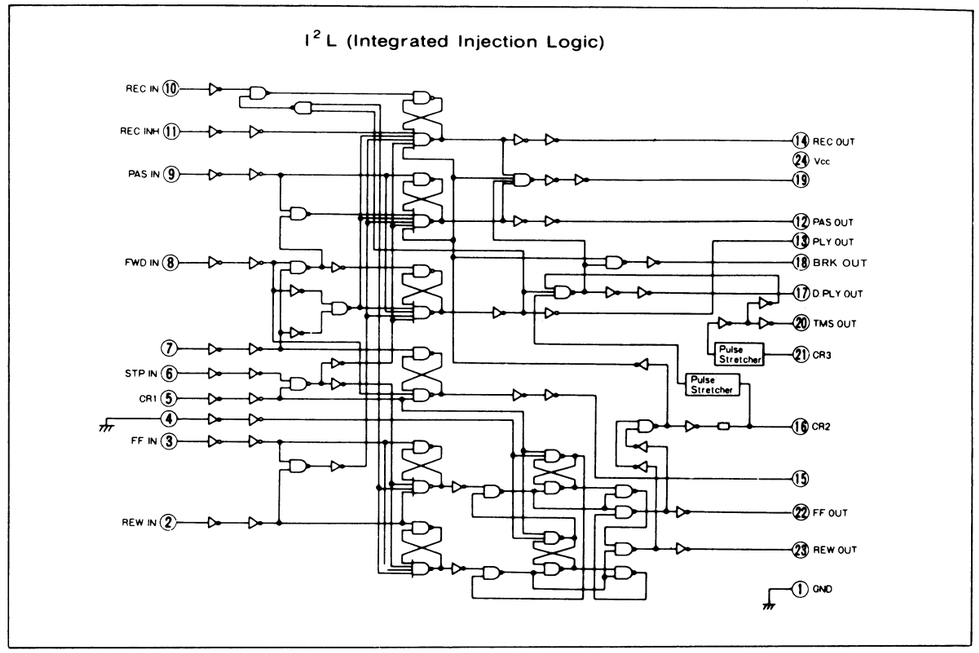
※For Australia.



NOTE:

- S401 ..... Rewind button switch.
- S402 ..... Fast forward button switch.
- S403 ..... Playback button switch.
- S404 ..... Pause button switch.
- S405 ..... Record button switch.
- S406 ..... Stop button switch.
- S407 ..... Timer switch.
- S408 ..... Cassette detection switch.
- S409 ..... Erase safety switch.
- S410 ..... Power ON/OFF switch.
- VR401 ..... Takeup torque adjustment VR.
- VR501, VR502 ..... FL meter adjustment VR (for "0dB").
- VR503, VR504 ..... FL meter adjustment VR (for "−20dB").
- 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.
- All voltage values shown in circuitry are under no signal condition and record mode with volume control at minimum position. For measurement, use VTVM.
- ⚠ indicates that only parts specified by the manufacturer be used for safety.

IC (AN6251) equivalent circuitry

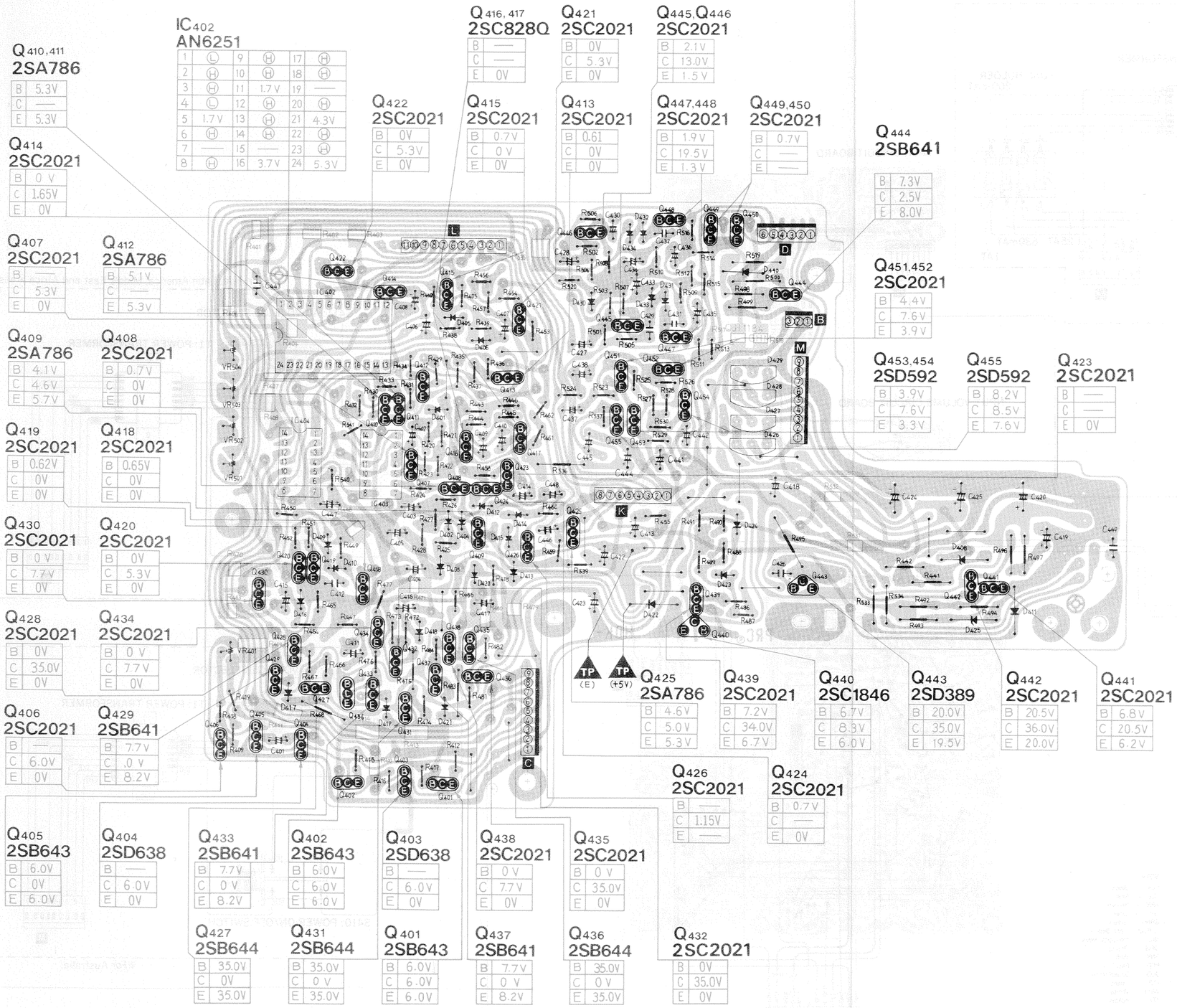


Relationship of each operation mode with input/output

Operation mode	Input terminal	IC (AN6251) Output terminal							
		⑫ PAUSE OUT	⑬ PLAY OUT	⑭ REC OUT	⑰ D-PLAY OUT	⑱ BRK OUT	⑳ TMS OUT	㉒ FF OUT	㉓ REW OUT
REW	② REW IN	Ⓗ	Ⓗ	Ⓗ	Ⓗ	Ⓛ	Ⓗ	Ⓗ	Ⓛ
FF	③ FF IN	Ⓗ	Ⓗ	Ⓗ	Ⓗ	Ⓛ	Ⓗ	Ⓛ	Ⓗ
PLAY	⑧ FWD IN	Ⓗ	Ⓛ	Ⓗ	Ⓛ*	Ⓛ	Ⓗ	Ⓗ	Ⓗ
PAUSE	⑨ PAS IN	Ⓛ	Ⓗ	Ⓗ	Ⓗ	Ⓗ	Ⓗ	Ⓗ	Ⓗ
REC	⑩ REC IN	Ⓗ	Ⓗ	Ⓛ	Ⓗ	Ⓗ	Ⓗ	Ⓗ	Ⓗ
STOP	⑥ STOP IN	Ⓗ	Ⓗ	Ⓗ	Ⓗ	Ⓗ	Ⓗ	Ⓗ	Ⓗ

* Doesn't become "Ⓛ" immediately even if playback button pushed; becoming "Ⓛ" after a slight delay.

POWER SUPPLY, MAIN CONTROL CIRCUIT BOARD



IC402 AN6251

1	L	9	H	17	H
2	H	10	H	18	H
3	H	11	1.7 V	19	—
4	L	12	H	20	H
5	1.7 V	13	H	21	4.3V
6	H	14	H	22	H
7	—	15	—	23	H
8	H	16	3.7 V	24	5.3V

Q410,411 2SA786

B	5.3V
C	—
E	5.3V

Q414 2SC2021

B	0 V
C	1.65V
E	0V

Q407 2SC2021

B	—
C	5.3V
E	0V

Q412 2SA786

B	5.1V
C	—
E	5.3V

Q409 2SA786

B	4.1V
C	4.6V
E	5.7V

Q408 2SC2021

B	0.7V
C	0V
E	0V

Q419 2SC2021

B	0.62V
C	0V
E	0V

Q418 2SC2021

B	0.65V
C	0V
E	0V

Q430 2SC2021

B	0 V
C	7.7V
E	0V

Q420 2SC2021

B	0V
C	5.3V
E	0V

Q428 2SC2021

B	0V
C	35.0V
E	0V

Q434 2SC2021

B	0 V
C	7.7V
E	0V

Q406 2SC2021

B	—
C	6.0V
E	0V

Q429 2SB641

B	7.7V
C	0 V
E	8.2V

Q405 2SB643

B	6.0V
C	0V
E	6.0V

Q404 2SD638

B	—
C	6.0V
E	0V

Q433 2SB641

B	7.7V
C	0 V
E	8.2V

Q402 2SB643

B	6.0V
C	6.0V
E	6.0V

Q403 2SD638

B	—
C	6.0V
E	0V

Q438 2SC2021

B	0 V
C	7.7V
E	0V

Q435 2SC2021

B	0 V
C	35.0V
E	0V

Q427 2SB644

B	35.0V
C	0V
E	35.0V

Q431 2SB644

B	35.0V
C	0 V
E	35.0V

Q401 2SB643

B	6.0V
C	6.0V
E	6.0V

Q437 2SB641

B	7.7V
C	0 V
E	8.2V

Q436 2SB644

B	35.0V
C	0 V
E	35.0V

Q432 2SC2021

B	0V
C	35.0V
E	0V

Q426 2SC2021

B	—
C	1.15V
E	—

Q424 2SC2021

B	0.7V
C	—
E	0V

Q425 2SA786

B	4.6V
C	5.0V
E	5.3V

Q439 2SC2021

B	7.2V
C	34.0V
E	6.7V

Q440 2SC1846

B	6.7V
C	8.3V
E	6.0V

Q443 2SD389

B	20.0V
C	35.0V
E	19.5V

Q442 2SC2021

B	20.5V
C	36.0V
E	20.0V

Q441 2SC2021

B	6.8V
C	20.5V
E	6.2V

Q416, 417 2SC828Q

B	—
C	—
E	0V

Q421 2SC2021

B	0V
C	5.3V
E	0V

Q445,Q446 2SC2021

B	2.1V
C	13.0V
E	1.5V

Q422 2SC2021

B	0V
C	5.3V
E	0V

Q415 2SC2021

B	0.7V
C	0 V
E	0V

Q413 2SC2021

B	0.61
C	0V
E	0V

Q447,448 2SC2021

B	1.9V
C	19.5V
E	1.3V

Q449,450 2SC2021

B	0.7V
C	—
E	—

Q444 2SB641

B	7.3V
C	2.5V
E	8.0V

Q451,452 2SC2021

B	4.4V
C	7.6V
E	3.9V

Q453,454 2SD592

B	3.9V
C	7.6V
E	3.3V

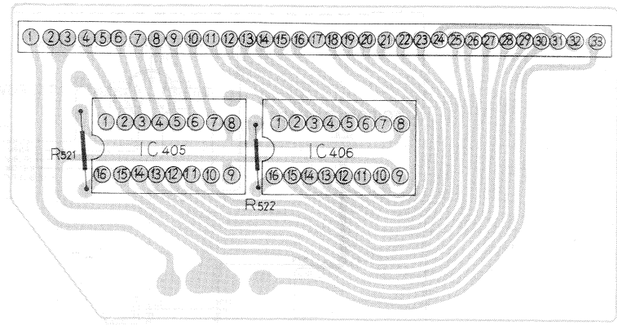
Q455 2SD592

B	8.2V
C	8.5V
E	7.6V

Q423 2SC2021

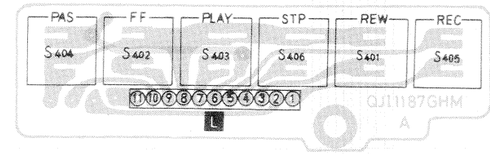
B	—
C	—
E	0V

FL METER CIRCUIT BOARD

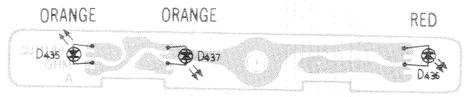


IC405,406 QVIBA658A

CONTROL KEY SWITCH CIRCUIT BOARD



LED CIRCUIT BOARD



HALL IC CIRCUIT BOARD

NOTE:

The circuit shown in red on the conductor is +B (bias) circuit.
Values indicated in [ ] are DC voltage between the chassis and electrical parts.

NOTE:

- VR601……
- Resistance are
  K = 1,000 Ω.
- Capacity are i
  P = Pico-farad
- All voltage val
  and record mo
  For measureme

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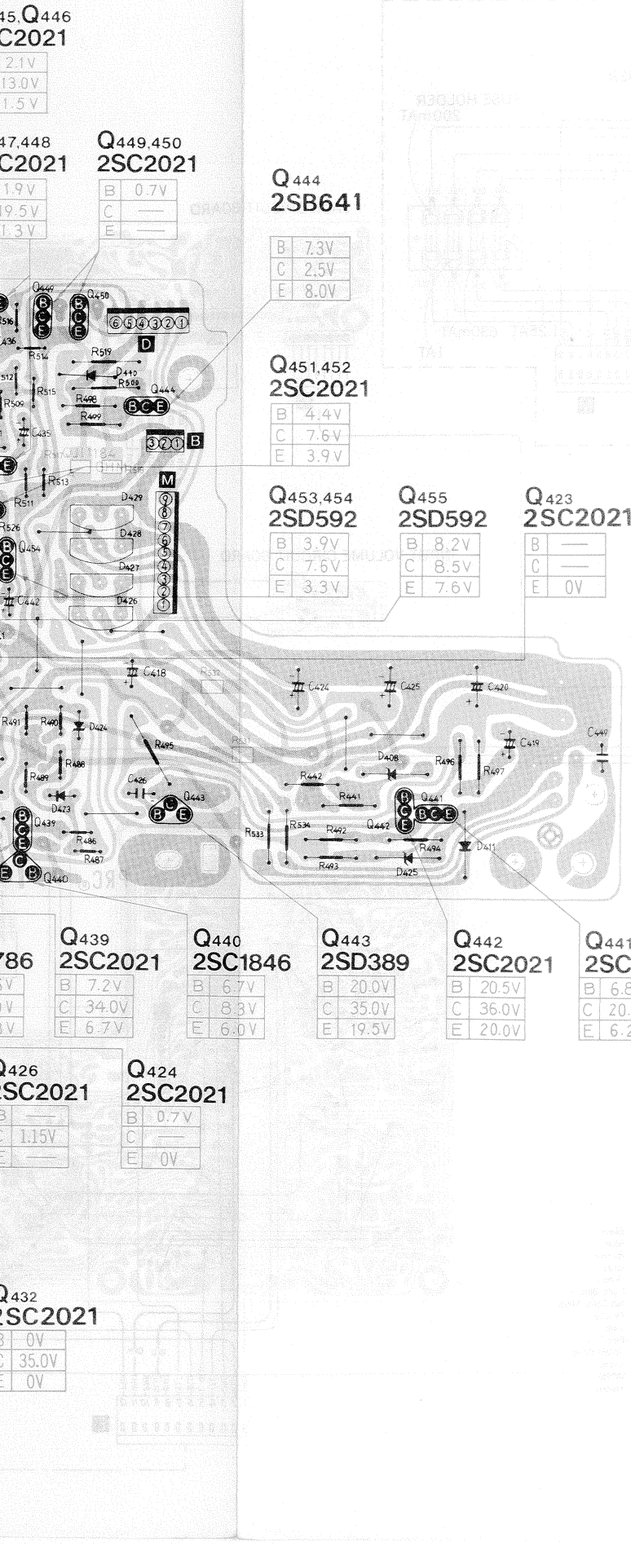
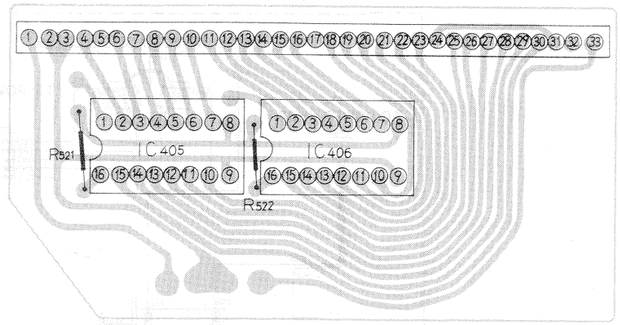
CAPSTA

RS-M02

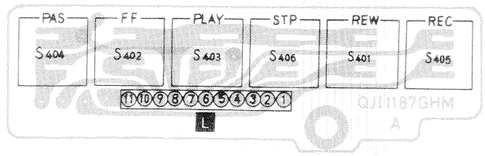


FL METER CIRCUIT BOARD

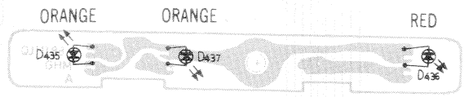


IC405,406
QVIBA658A

CONTROL KEY SWITCH CIRCUIT BOARD



LED CIRCUIT BOARD



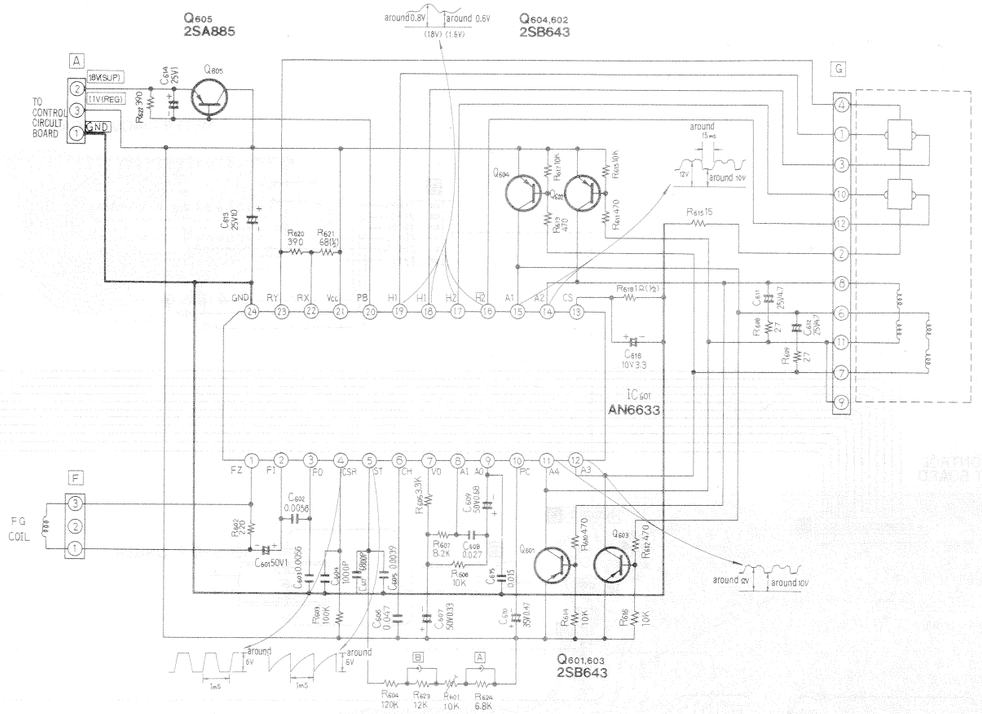
HALL IC CIRCUIT BOARD

NOTE:

The circuit shown in red on the conductor is +B (bias) circuit. Values indicated in ☐ are DC voltage between the chassis and electrical parts.

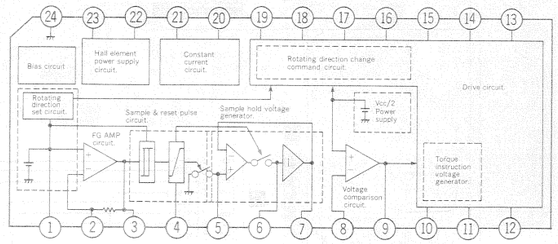
SCHEMATIC DIAGRAM

CAPSTAN MOTOR SECTION

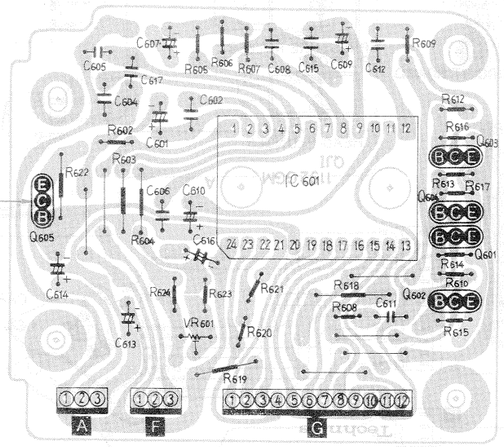


NOTE:

- VR601 ..... Tape speed adjustment VR.
- 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.
- All voltage values shown in circuitry are under no signal condition and record mode with volume control at minimum position. For measurement, use VTVM.

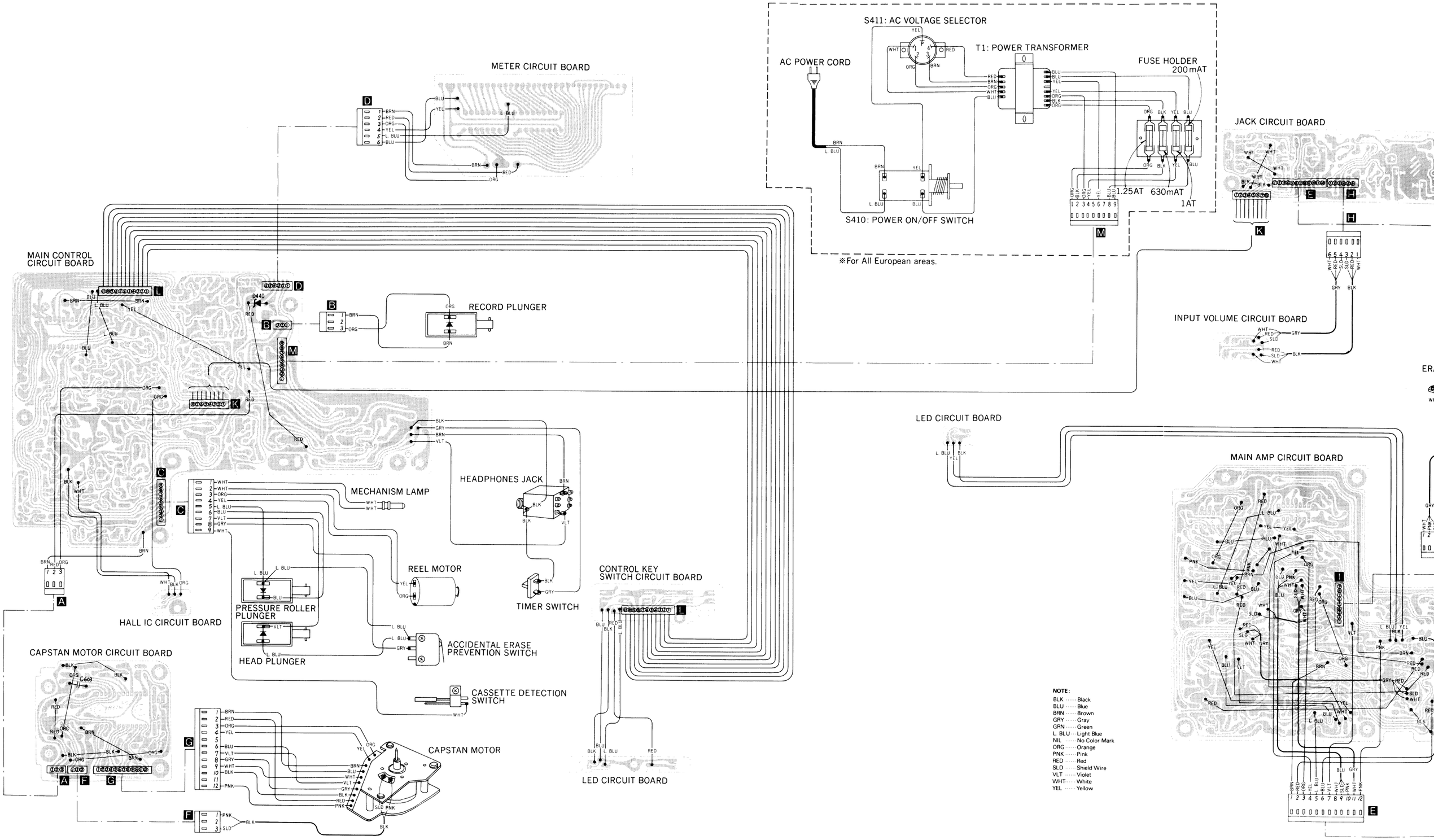


CAPSTAN MOTOR CIRCUIT BOARD



RS-M02

WIRING CONNECTION DIAGRAM



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

CUIT BOARD

R

R SWITCH

CTION

S411: AC VOLTAGE SELECTOR

AC POWER CORD

T1: POWER TRANSFORMER

FUSE HOLDER
200mAT

1.25AT 630mAT 1AT

S410: POWER ON/OFF SWITCH

※For All European areas.

JACK CIRCUIT BOARD

INPUT VOLUME CIRCUIT BOARD

ERASE HEAD

RECORD/PLAYBACK HEAD

LED CIRCUIT BOARD

MAIN AMP CIRCUIT BOARD

CONTROL KEY
SWITCH CIRCUIT BOARD

LED CIRCUIT BOARD

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

※For Asia, Latin America, Middle East and Africa areas.

S411: AC VOLTAGE SELECTOR

AC POWER CORD

T1: POWER TRANSFORMER

F1: FUSE
(1AT)

S410: POWER ON/OFF SWITCH

S411: AC VOLTAGE SELECTOR

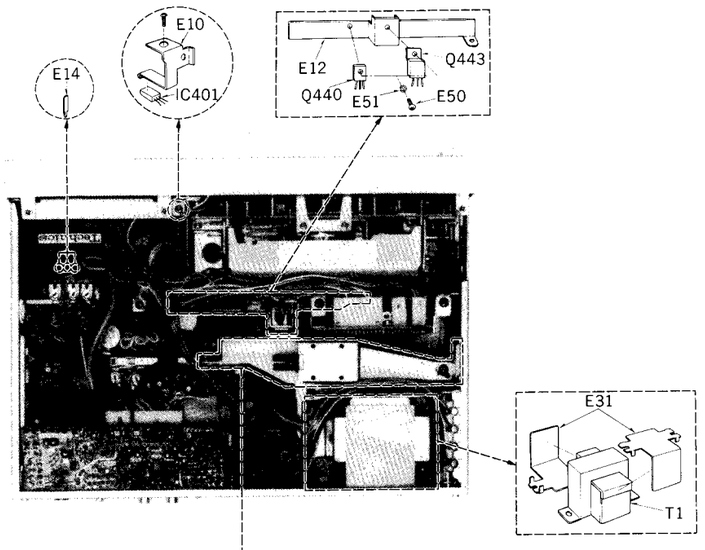
AC POWER CORD

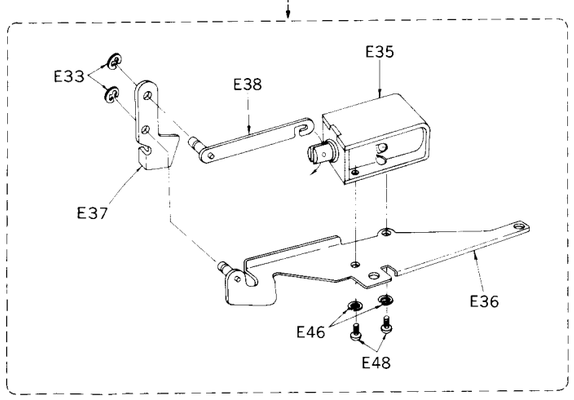
T1: POWER TRANSFORMER

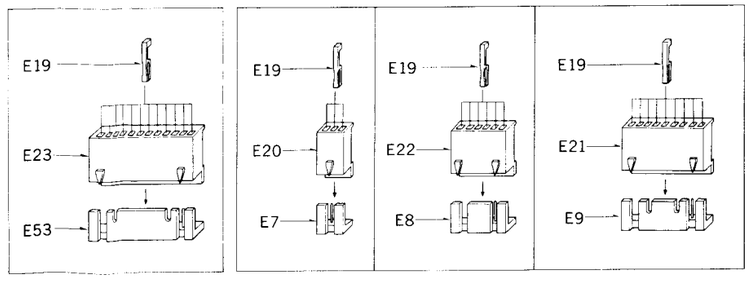
S410: POWER ON/OFF SWITCH

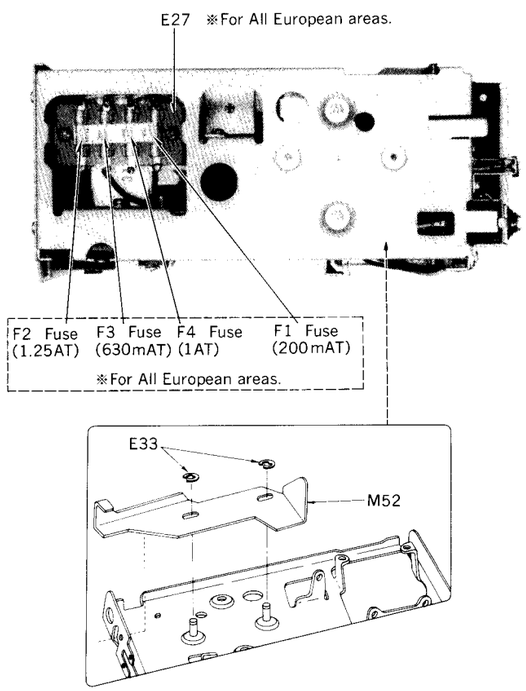
※For Australia.

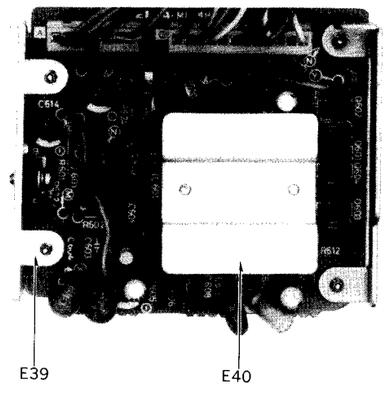
ELECTRICAL PARTS LOCATION

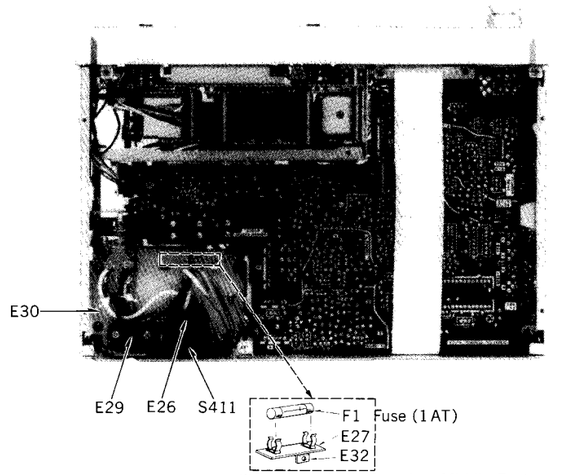


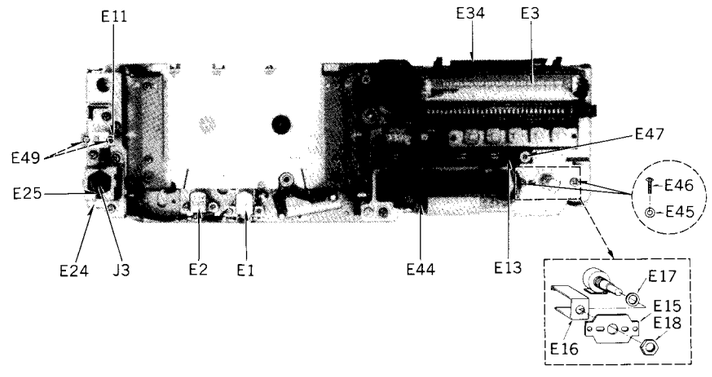


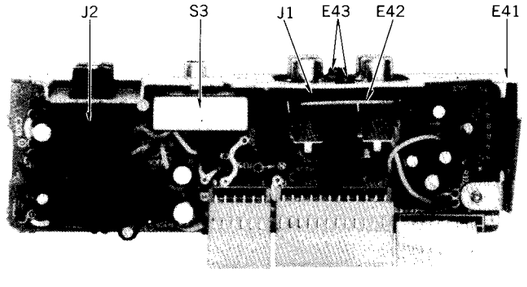


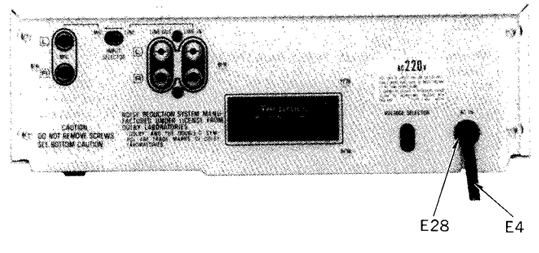








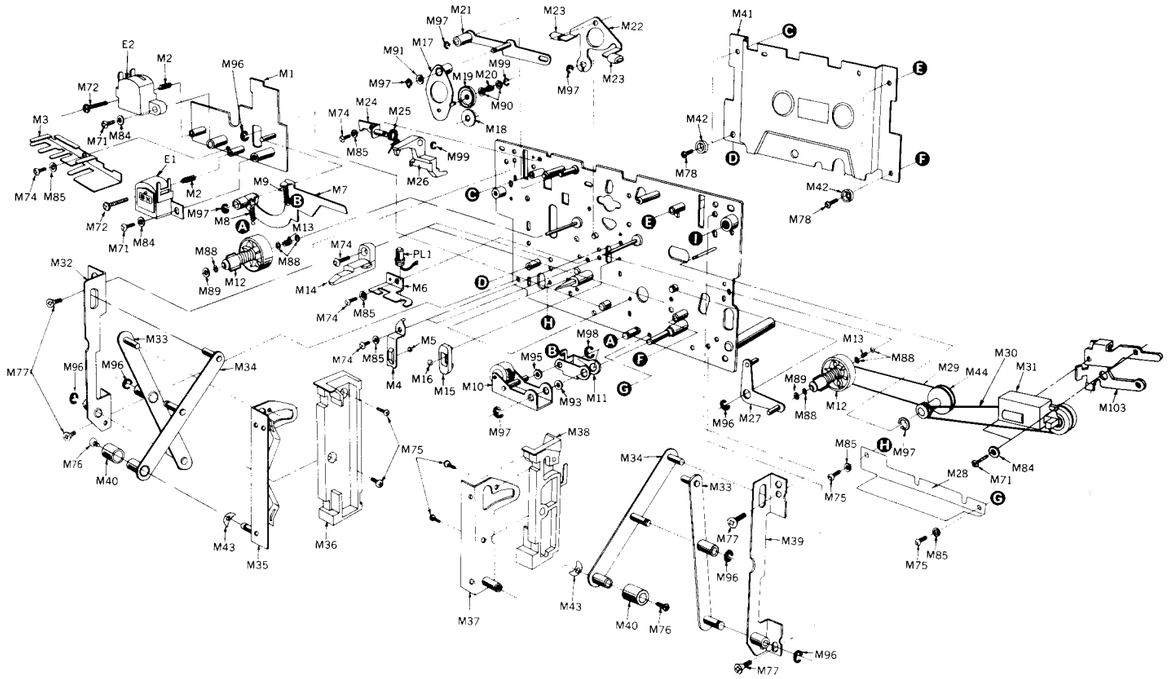


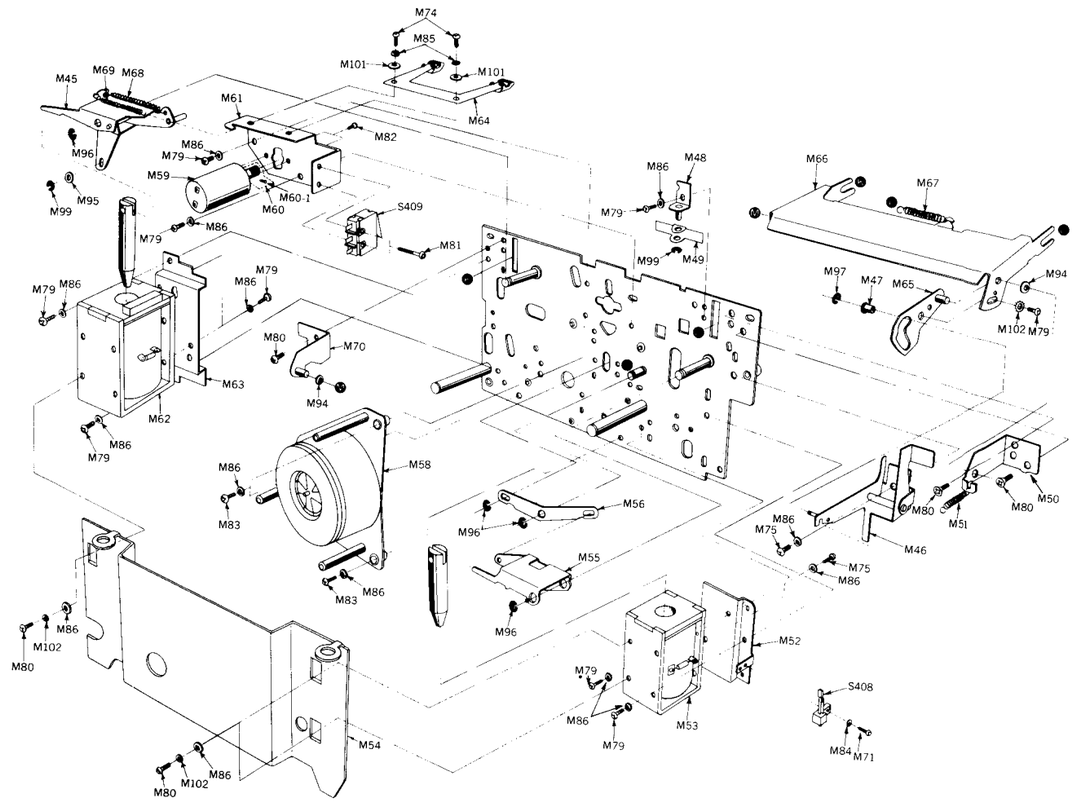


NOTE: ⚠ indicates that only parts specified by the manufacturer be used for safety.

Ref. No.		Part No.	Part Name & Description
		ELECTRICAL PARTS	
E1		WY1416ZA	Record/Playback Head
E2		QWY2133Z	Erase Head
E3		QSLS004RF	Fluorescent Level Meter
E4	Ⓓ ⚠	QFC1204M	AC Power Cord
※For All European areas except United Kingdom.			
	Ⓔ ⚠	QFC1205M	〃
※For United Kingdom.			
	Ⓝ ⚠	QFC1200M	〃
※For Asia, Latin America, Middle East and Africa areas.			
	Ⓐ ⚠	QFC1208M	〃
※For Australia.			
E7		QJP1921TN	3 Pin Post
E8		QJP1922TN	6 Pin Post
E9		QJP1923TN	9 Pin Post
E10		QMA3755	Hall IC Angle
E11		QMA3758	Switch Angle (Timer rec)
E12		QTH1148	Heat Sink
E13		QKJ0358	LED Holder (A)
E14		QJT1067	Check Pin
E15		QMF2070	Volume Angle
E16		QTW1166	Insulator Plate
E17		XWS9A	Washer
E18		QNQ1039	Nut
E19		QJT1054	Contact
E20		QJS1921TN	3 Pin Housing
E21		QJS1923TN	9 Pin Housing
E22		QJS1922TN	6 Pin Housing
E23		QJS1924TN	12 Pin Housing
E24		QMA3753	Headphones Angle
E25		QNQ1051	Nut
E26		QTWM0026	Switch Cover
E27	ⒹⒺ	QTF1039A	Fuse Holder
※For All European areas.			
	Ⓝ	QTF1033	〃
※For Asia, Latin America, Middle East, and Africa areas.			
E28			
	ⒹⒺⒶ	QBJ1425A	Cord Bushing
※For All European areas and Australia.			
	Ⓝ	QTD1129	〃
※For Asia, Latin America, Middle East and Africa areas.			
E29			
	ⒹⒺⒶ	QTD1164	Cord Clamper
※For All European areas and Australia.			
E30		QMA3754A	Transformer Angle
E31		QTS1488	Shield Plate
E32	Ⓔ	QMA3122	Fuse Angle
※For Asia, Latin America, Middle East and Africa areas.			
E33		XUC3FT	Stop Ring(3φ
E34		QKJ0357	Meter Angle
E35		QME0147BK	Plunger
E36		QMF2068	Plunger Angle
E37		QML3501	Plunger Lever (1)
E38		QML3502	Plunger Lever (2)
E39		QTH1147	Heat Sink (A)
E40		QTH1136	Heat Sink
E41		QMA3761	Jack Angle
E42		QMF2069	Jack Board Angle
E43		XSN3+6BNS "Silver Type"	Screw ⊕×6
		XSN3+6BNS "Black Type"	〃
E44		XTV3+8BFN	Screw ⊕×8
E45		XSN3+6S	Screw ⊕×6
E46		XWA3B	Washer
E47		QHQ1177S	Step Screw
E48		XSN3+5S	Screw ⊕×5
E49		XQS16A3FZ	Screw ⊕.6×3
E50		XSN3+8S	Screw ⊕×8
E51		XWG3	Washer
E52		QMR1763	Switch Rd
E53		QJP1924TN	12 Pin Post

EXPLODED VIEWS





Ref. No.	Part No.	Part Name & Description
	MECHANICAL PARTS	
M1	QXK2029	Head Base Plate Assembly
M2	QBCA0008	Head Spring
M3	QTD1261	Head Wires Clamper
M4	QBP1733	Steel Ball Holder-A
M5	QDK1012	Steel Ball 2.5φ
M6	QMA3321	Lamp Angle
M7	QXL1168	Pressure Roller Lever Assembly
M8	QBT1490	Eject Lever Spring
M9	QBT1441	Pressure Roller Spring
M10	QXL1166	Pressure Roller Assembly
M11	QML3267	Pressure Roller Lever-1
M12	QXD0087	Reel Table
M13	QBC1272	Back Tension Spring
M14	QMG0054	Cassette Guide
M15	QMH2009	Steel Ball Holder-B
M16	QDK1006	Steel Ball 3φ
M17	QXL1189	Idler Lever Assembly
M18	QBF1260	Idler Felt
M19	QXI0101	Idler Assembly
M20	QBC1308	Idler Spring
M21	QXL1164	Brake Lever Assembly
M22	QML3273	Brake
M23	QBG1132	Stopper Rubber
M24	QXA0714	Detection Angle Assembly
M25	QBN1573	Detection Lever Spring
M26	QML3285	Detection Lever
M27	QXL1172	Lever-A Assembly
M28	QTS1451	Shield Plate
M29	QDB0167	Counter Belt-A
M30	QDB0259	Counter Belt-B

Ref. No.	Part No.	Part Name & Description
M31	QXC0051	Tape Counter Assembly
	"Silver Type"	
	QXC0055	"
	"Black Type"	
M32	QXA0703	Angle-L Assembly
M33	QXL1191	Link Lever-A Assembly
M34	QXL1190	Link Lever-B Assembly
M35	QXA0706	Holder Angle-L Assembly
M36	QMH2027	Cassette Holder-L
M37	QXA0705	Holder Angle-R Assembly
M38	QMH2028	Cassette Holder-R
M39	QXA0704	Angle-R Assembly
M40	QKJ0245	Spacer-A
M41 Ⓓ	QXH0286	Mechanism Cover
	"Silver Type"	
※For All European areas except United Kingdom.		
Ⓓ	QXH0320	"
	"Black Type"	
※For All European areas except United Kingdom.		
ⒷⓃⒶ	QXH0277	"
	"Silver Type"	
※For United Kingdom, Asia, Latin America, Middle East, Africa areas and Australia.		
M42	QMZ1213	Spacer-B
M43	QBP1135	Spring Washer
M44	QDP1811	Connection Pulley
M45	QXL1165	Lever-B Assembly
M46	QXL1311	Eject Lever Assembly
M47	QDP1758	Rolier
M48	QXA0713	Angle Assembly
M49	QML3284	Release Lever
M50	QMA3314	Connector Angle

Ref. No.	Part No.	Part Name & Description
M51	QBT1753	Playback Lever Spring
M52	QMA3591A	Plunger Angle-L
M53	QME0147	Plunger
M54	QXA0786	Mechanism Reinforcement Angle
M55	QXL1171	Plunger Lever-L Assembly
M56	QML3276	Plunger Lever
M58	QXK2172	Capstan Motor Assembly
M59	MKCN22AE5	Reel Motor
M60	QXP0574	Motor Pulley Assembly
M60-1	XXE26D3FZ	Set Screw
M61	QMA3313	Motor Angle
M62	QXE0249	Plunger
M63	QMA3312	Plunger Angle-R
M64	QXH0276	Cassette Holding Cushion
M65	QXL1173	Lock Lever Assembly
M66	QML3282	Connector Lever
M67	QBT1553	Holder Spring-R
M68	QBT1405	Lever Spring
M69	QBT1713	Record Spring
M70	QXA0702	Connector Angle-R Assembly
M71	XSN2+6	Screw ⊕2×6
M72	QHQ1211	Head Adjustment Screw
M74	XSN26+4	Screw ⊕2.6×4
M75	XSN26+4BV	Screw ⊕2.6×4
M76	XSS2+4	Screw ⊕2×4
M77	XSS3+4S	Screw ⊕3×4
M78	QHQ1185	Step Screw
M79	XSN3+5S	Screw ⊕3×5
M80	XSS3+6S	Screw ⊕3×6
M81	QHQ1182	Step Screw

Ref. No.	Part No.	Part Name & Description
M82	XSN2+3	Screw ⊕2×3
M83	XSN3+8S	Screw ⊕3×8
M84	XWA2B	Spring Washer 2φ
M85	XWA26B	Spring Washer 2.6φ
M86	XWA3B	Spring Washer 3φ
M87	QBW2016	Poly Washer
M88	QBW2012	"
M89	QBW2008	"
M90	QBW2015	"
M91	QBW2017	"
M92	QBW2018	"
M93	QBW2016	"
M94	QBW2019	"
M95	QBK7123	Fiber Washer
M96	XUC3FT	Stop Ring 3φ
M97	XUC25FT	Stop Ring 2.5φ
M98	XUC5FT	Stop Ring 5φ
M99	XUC2FT	Stop Ring 2φ
M100	XSN26+6	Screw ⊕2.6×6
M101	XWG26	Flat Washer
M102	XWC3B	Lock Washer
M103	QMA3750	Counter Angle
M104	XSN2+4	Screw ⊕2×4
M105	QHQ1182A	Step Screw

SPECIFICATIONS

Pressure of pressure roller	400 ± 30 gr
Wow and flutter: JIS	Less than 0.04% (WRMS)

Y.F DDKBNA Printed in Japan