



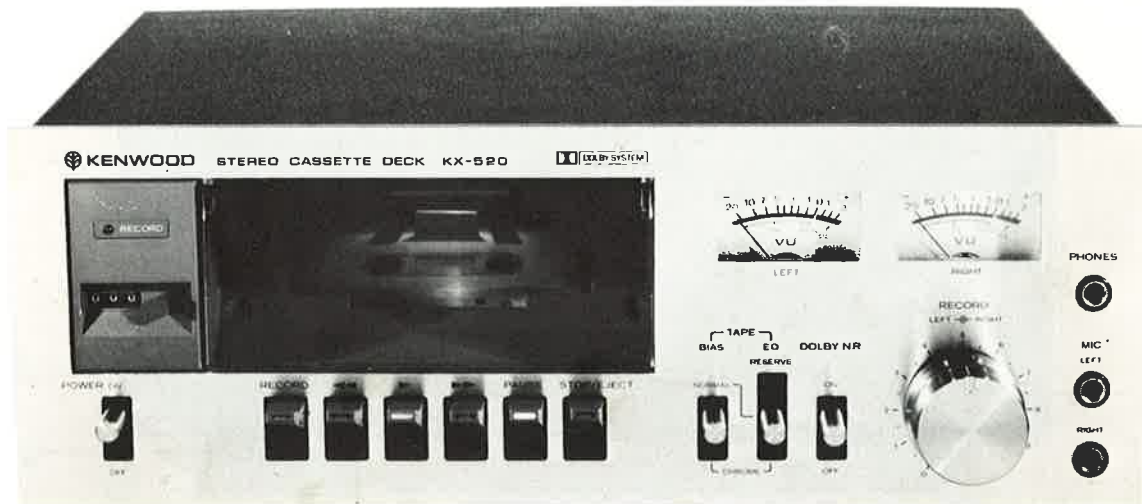
KENWOOD
HI/FI STEREO COMPONENTS

SERVICE MANUAL

KX-520 (KX-502)

NOTE:

Refer to the KX-620 service manual as to STRUCTURE AND OPERATION OF MECHANISM, DISASSEMBLING, MECHANISM ADJUSTMENTS, LUBRICATION, CLEANING, CIRCUIT DESCRIPTIONS and TROUBLESHOOTING. The KX-502 is the KX-520 with a black panel.



STEREO CASSETTE DECK

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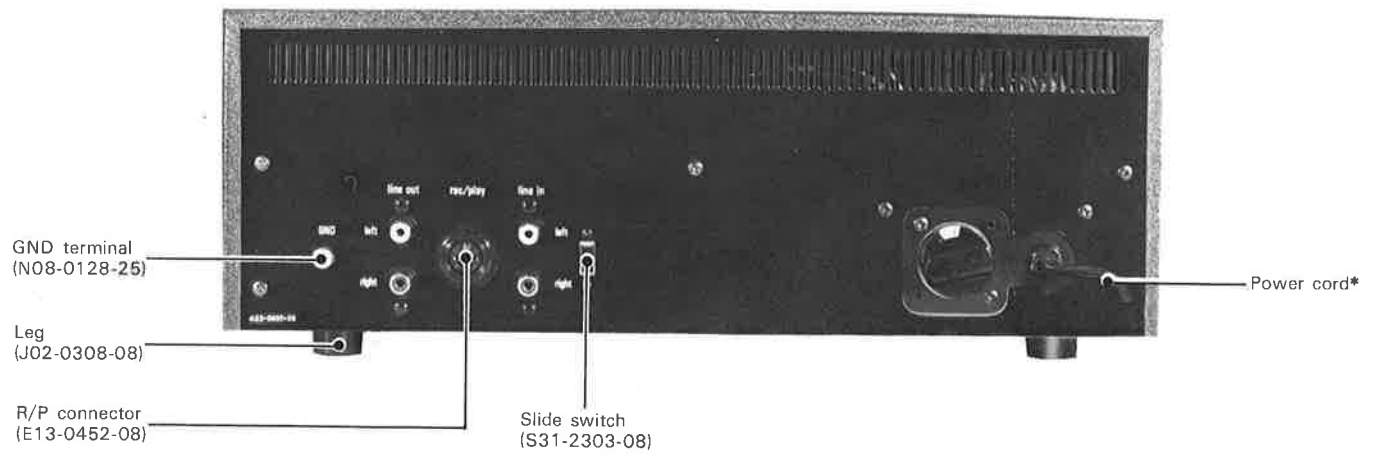
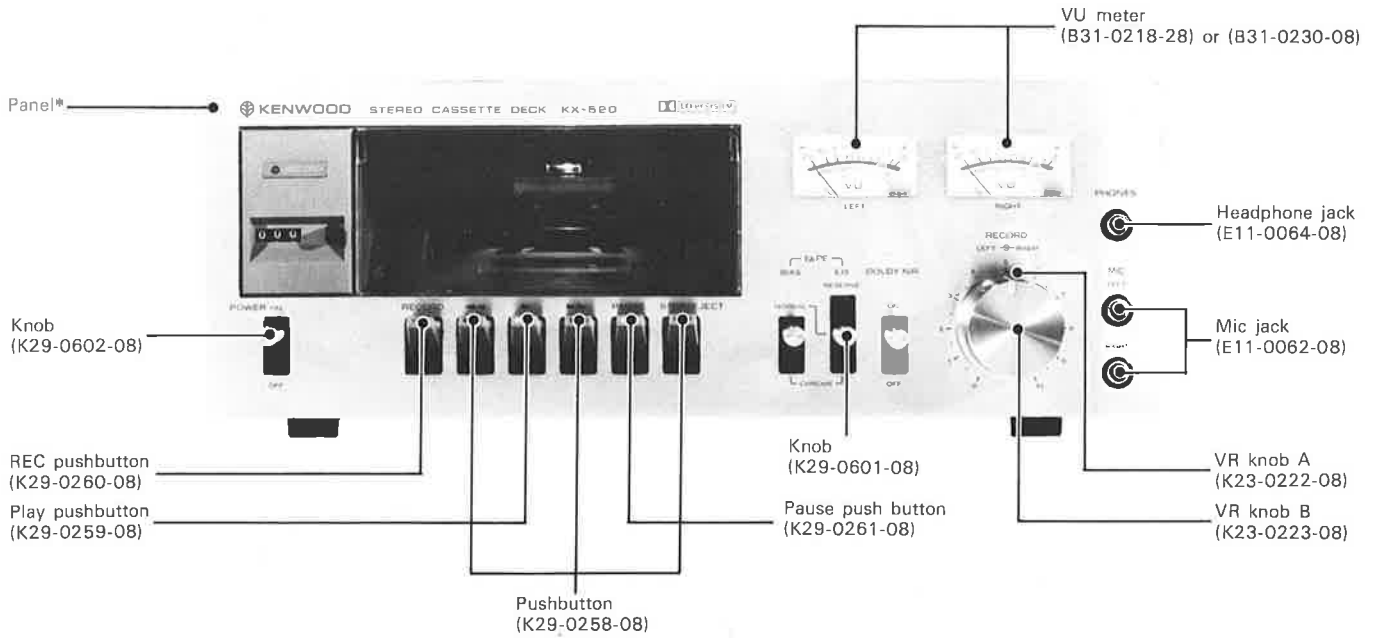
Note:

The products are subject to modification in components and circuits in different countries and regions. This is because each product must be used under the best condition. This manual provides information of modification based on the standard in the U.S., for the convenience of ordering associated components and parts.

U. S. A.....	K
Canada.....	P
PX.....	U
Australia.....	X
Europe.....	W
England.....	T
Scandinavia.....	L
South Africa.....	S
Other area.....	M

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EXTERNAL VIEW



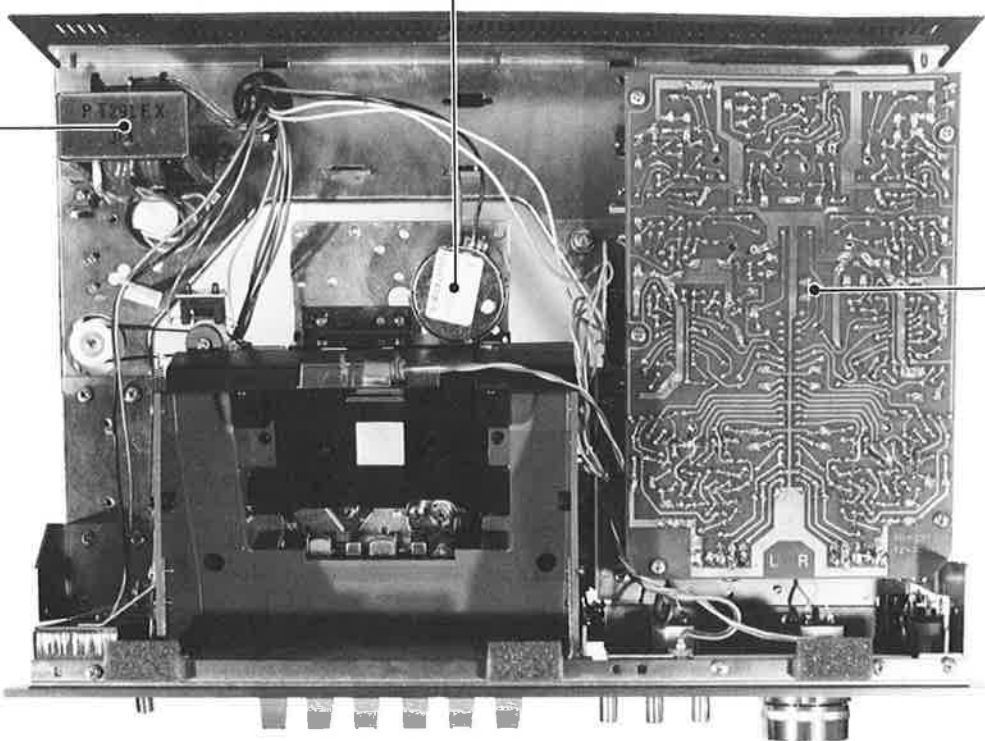
* Refer to Destinations' parts list.

TOP & BOTTOM VIEW

Motor
(T42-0103-08)

Power transformer*

REC/PLAY unit
(X28-1250-00)



Jack unit
(X25-1250-00)

Power supply unit
(X27-1250-00)

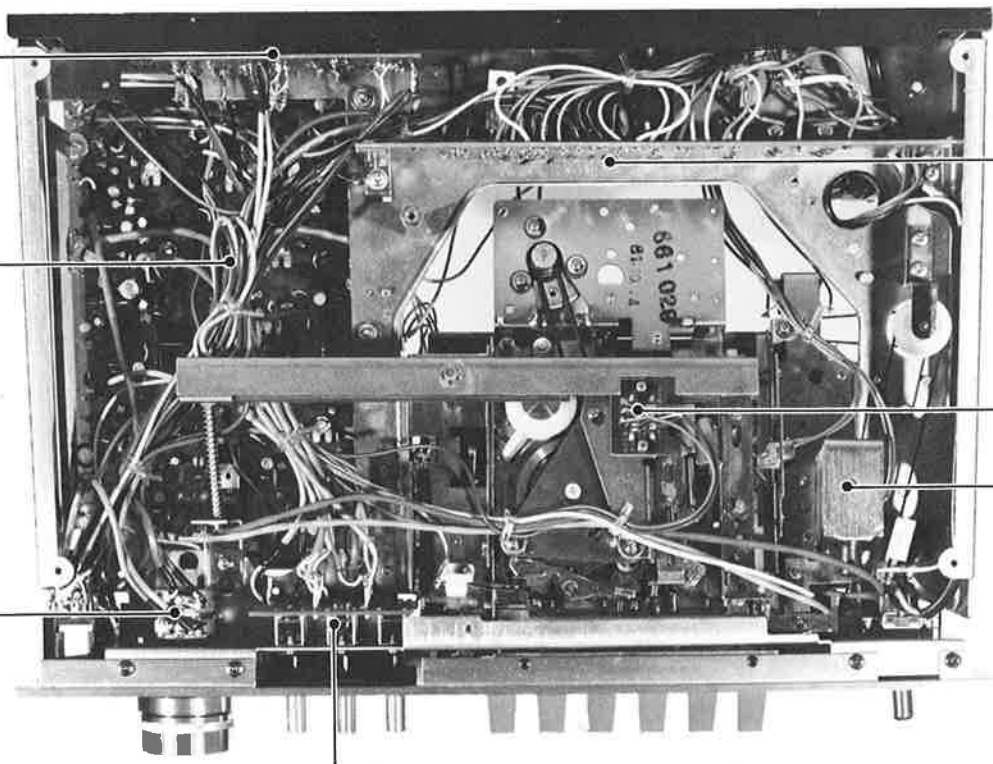
REC/PLAY unit
(X28-1250-00)

Muting unit
(X25-1201-00)

Solenoid
(T94-0051-08)

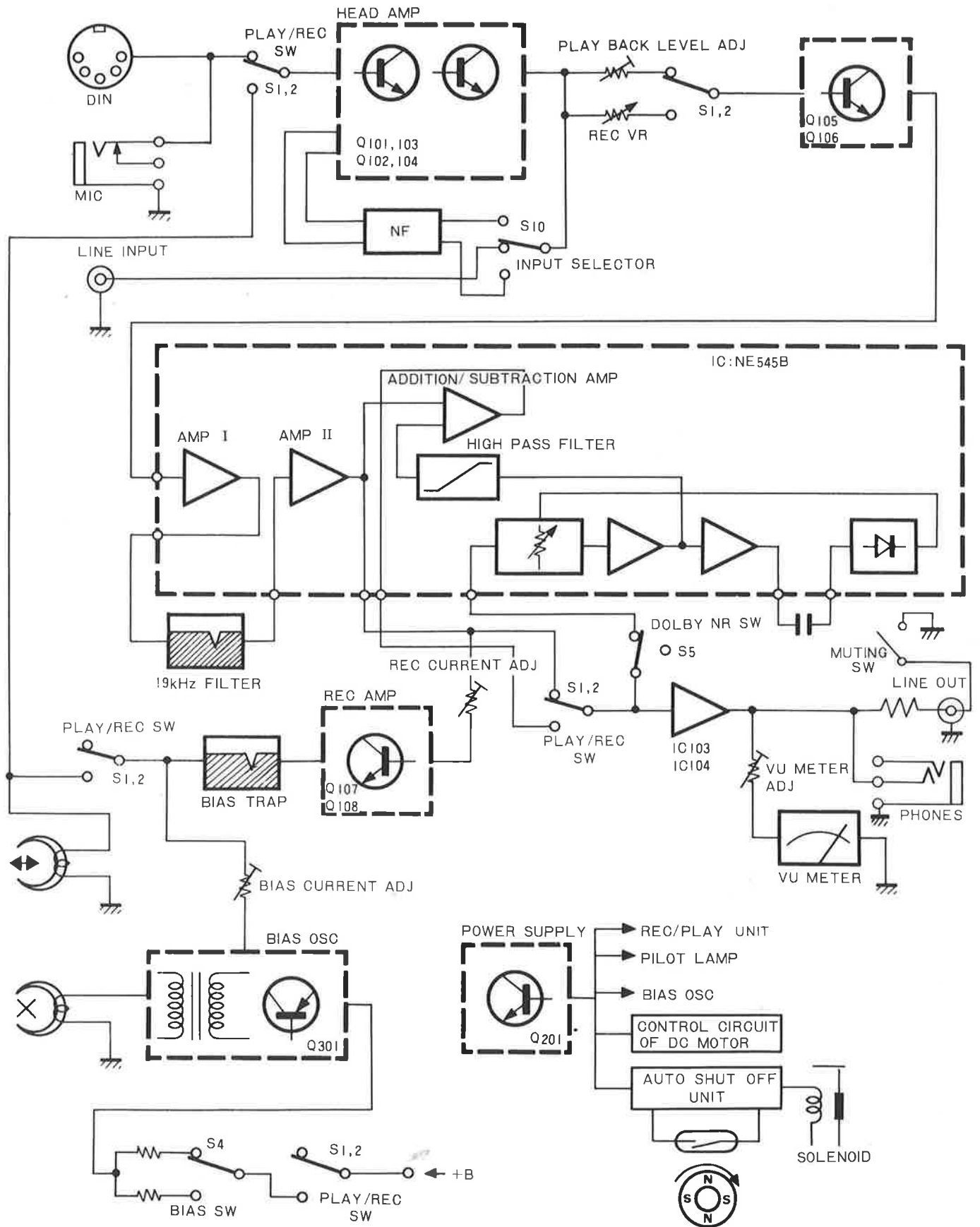
Potentiometer
(R08-4072-08)

Selector unit
(X25-1230-00)



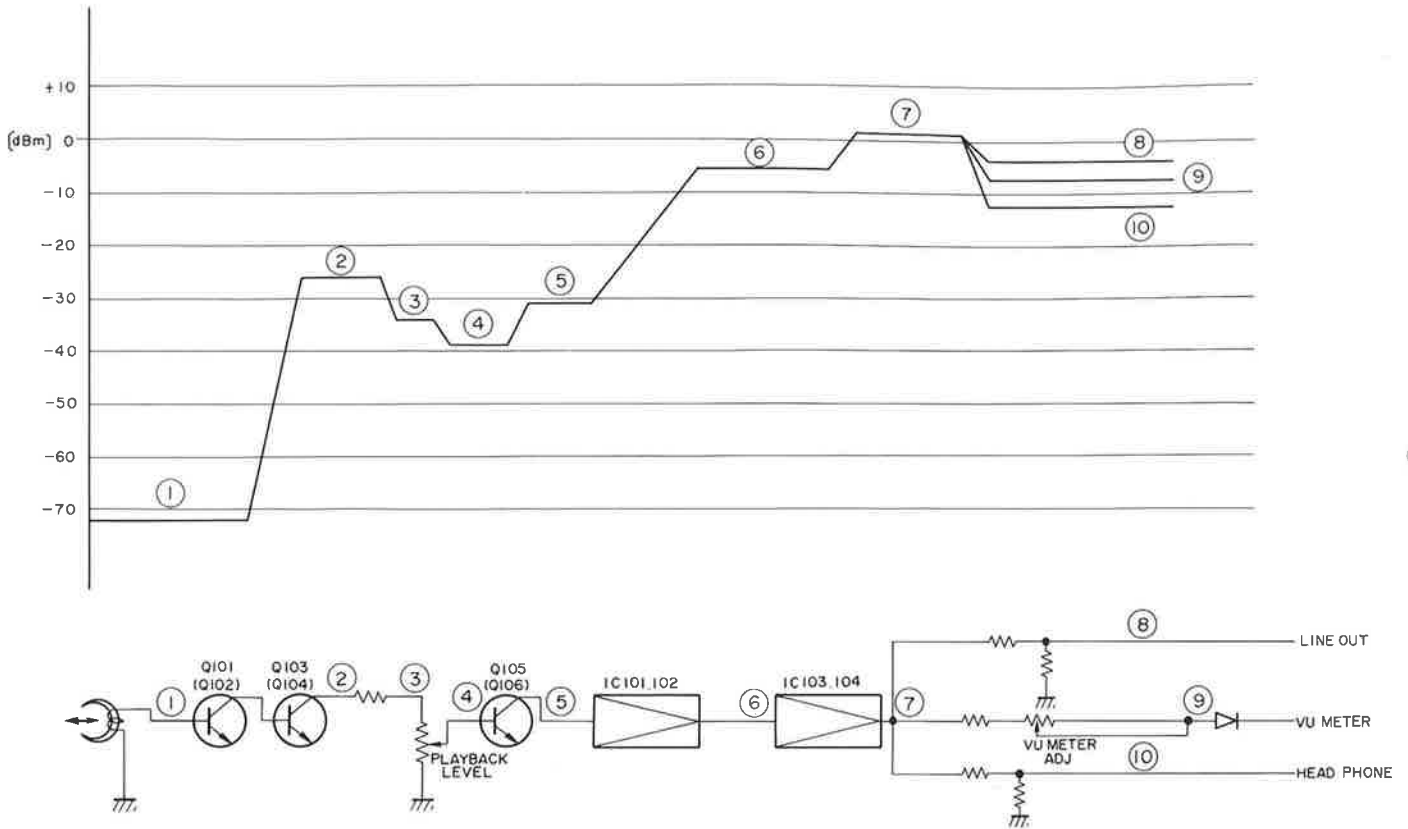
* Refer to Destinations' parts list.

BLOCK DIAGRAM

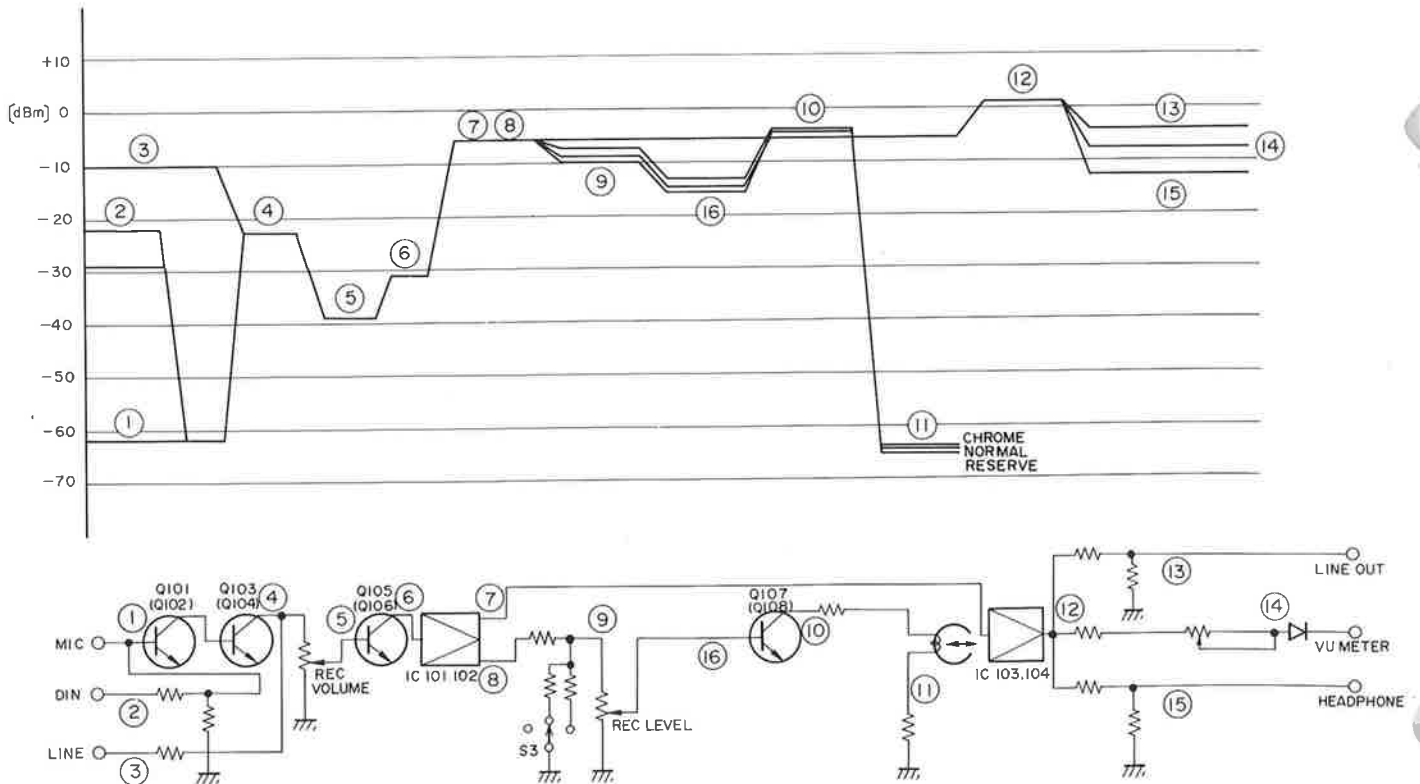


LEVEL DIAGRAM

PB LEVEL DIAGRAM (at 333 Hz)



REC LEVEL DIAGRAM (at 1 kHz)



ADJUSTMENT

1. Test Instruments

SSVM, AG, Scope, Frequency counter, Weighting filter (NAB curve or ASA with A characteristic), Harmonic distortion meter, Band pass filter (Center frequency: 100 Hz, 1 kHz, Attenuation: 18 dB/oct. or more), Cassette type torque gauge, Spring balance.

2. Test Tapes

Recording	Maker	Stock Parts No.
Normal: SD-C90	TDK	T93-0009-05
Chrome: SA-C60	TDK	T93-0010-05
Reserve: DUAD C-60	SONY	T93-0012-00
Playback	Maker	Remarks
MTT-111	TEAC	} Frequency Characteristic
MTT-116L	TEAC	
MTT-116R	TEAC	
MTT-116U	TEAC	

3. Notes for Adjustments and Measurements

- Load resistance:** A pure resistance load of 100kΩ should be connected to the LINE OUTPUT terminal.
- Standard level:** 0 dBs = 0.775V
- The electrical system should be adjusted by dividing it into playback and recording.
Adjustment of recording requires perfect performance of the playback system.
- When head replacement, adjustments, measurements, its stray magnetism must be completely erased by the demagnetizer prior to mounting the tape.
- Unless otherwise designated, measurement should be carried out with the Dolby NR switch off.

4. Meaning of Technical Words

1) Standard recording/playback setting:

INPUT LINE
 TAPE BIAS NORMAL
 TAPE EQUALIZER NORMAL
 DOLBY N.R. OFF
 RECORD VOLUME:

Volume is in its position when recording can be carried out at the level (LINE OUTPUT: -4 dBs) by applying the 1 kHz, -10 dBs signal to the LINE INPUT jack.

2) **Normal recording level:** A level to obtain residual magnetic flux of 160 pWb/mm on the standard playback tape MTT-116U, which is 4 dB below the level 333 Hz or 315 Hz, 0 dB (250 pWb/mm) of the test tape MTT-116L, MTT-116R.

3) **Normal input level:** The standard input level necessary for obtaining the normal recording level. The level at respective input jacks are as specified below. However the input of the DIN connector should be inserted 80kΩ resistor in series.

MIC INPUT -60 dBs (0 VU)
 LINE INPUT -10 dBs (0 VU)
 DIN INPUT -22 dBs (0 VU)

4) **Normal recording condition:** The state obtained by applying the 1 kHz signal to the input jack at the normal input level and by adjusting the recording volume control so that recording can be carried out at the normal recording level. (Volume position is at approx. 5.5 division)

5) **Normal output level:** The standard signal level obtained at the LINE OUTPUT jack when the level reference signal is reproduced from the test tape 315 Hz (333 Hz).

MTT-116L: 333 Hz (250 pWb/mm)
 Output level approx. 0 dBs
 MTT-116R: 315 Hz (250 pWb/mm)
 Output level: 0 dBs
 MTT-116U: 315 Hz (160 pWb/mm)
 Output level: -4 dBs

TEST TAPE SPECIFICATION

MTT-116L	Frequency	1590μS and 120μS	40 Hz ~ 10 kHz 0 dB = 250 pWb/mm	
MTT-116R	Frequency	1590μS and 120μS	40 Hz ~ 10 kHz 0 dB = 250 pWb/mm	
MTT-116U	Frequency	3180μS and 120μS	31.5 Hz ~ 14 kHz 0 dB = 160 pWb/mm	

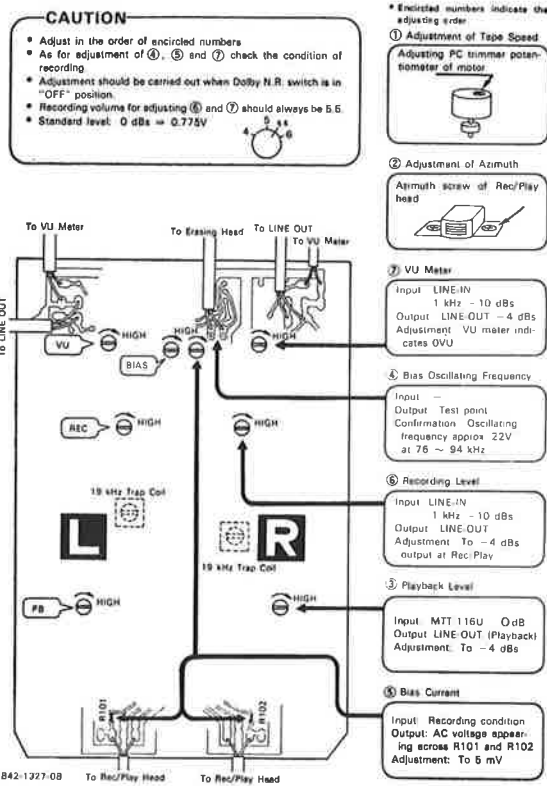
* A normal recording level 250 pWb/mm is approx. 4 dB above the normal recording level 160 pWb/mm.
 * There are some of MTT-116Ls of which recording order of the test signals are different from the figure.

ADJUSTMENT

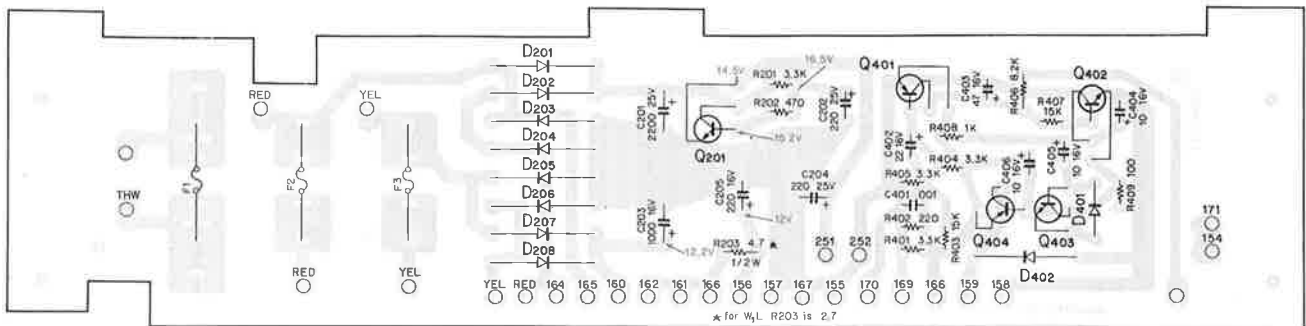
NO.	ALIGN	INPUT SIGNAL	CHECK POINTS	DECK SETTING	ADJUSTING POINTS	ADJUSTING METHOD	REMARKS
TAPE SPEED							
1.	TAPE SPEED	MTT-111	LINE-OUT	Standard playback	PC trimmer potentiometer of DC motor	Frequency counter indicates 3000 Hz	
PLAYBACK SYSTEM							
1.	REC/PLAY HEAD AZIMUTH	MTT-116R, L 10kHz, -10dB	LINE-OUT	Standard playback	Azimuth adj. screw	output level (L, R): Max,	After adjusting, fix it with paint.
2.	PLAYBACK LEVEL (DOLBY LEVEL)	MTT-116R, L 315Hz, 0dB (333 Hz)	LINE-OUT	Playback	VR101 (L) VR102 (R)	Output level: 0dBs	Reference value: +0dBs ±1.5dB
RECORDING SYSTEM (Use TDK: SDC-90 (T93-0009-05) TAPE)							
1	BIAS OSCILLATING FREQUENCY	—	OSC coil T1 on REC/PLAY unit	Recording	—	Check the oscillating frequency: Standard: 85kHz ±10%	Replace the OSC coil if it is deviating from STANDARD
NOTE: If the frequency counter is unavailable, adjust by Lissajous' figure.							
2.	BIAS CURRENT (1)	—	AC voltage of the both ends of R101 (R102)	Standard recording level, Recording volume: 0	VR109 (L) VR110 (R)	5.0mV (Average value)	Confirm next ALIGN
3.	BIAS CURRENT (2)	—	AC voltage of both ends of R101 (R102)	Recording: bias→CHROME, EQUALIZER→CHROME	—	7.5mV (Average value)	
4.	BIAS CURRENT	LINE-IN 1kHz, -10dBs	LINE-OUT	Standard recording ↓ Standard playback	VR109 (L) VR110 (R)	The bias should be set so that the output is lowered 0.5dB below the maximum bias point	The bias should be set at Excessive bias position. The bias becomes excessive when turning clockwise.
5.	RECORDING CURRENT	LINE-IN 1kHz, -10dBs	LINE-OUT	Standard recording ↓ Standard playback	VR105 (L) VR106 (R)	Output level: -4dBs	Reference value: -4dB ±1.5dB
6.	OVERALL FREQUENCY CHARACTERISTIC	LINE-IN 1kHz, -30dBs 10kHz, -30dBs	LINE-OUT	Standard recording ↓ Standard playback	VR109 (L) VR110 (R)	Output level: 1kHz: approx. -24dBs 10kHz: approx. -24dBs	
NOTE: 1. The bias becomes insufficient and high frequency range raise, when turning VR109 and VR110 counterclockwise. 2. The playback level will change when adjusting the bias current. At this time readjust the recording current. 3. VR109 and VR110 are adjusted in bias current so that should be adjusted slightly.							
7.	VU METER	LINE-IN 1kHz, -10dBs	LINE-OUT and VU meter	Standard recording	VR107 (L) VR108 (R)	VU meter indicates 0VU	Reference value: 0VU ±1VU
8.	19 kHz TRAP COIL	LINE-IN 19kHz, -10dBs	LINE-OUT	Standard recording	Coil on Filter unit (X25-1120-00)	19kHz output voltage is minimum	

ADJUSTMENT/PC BOARD

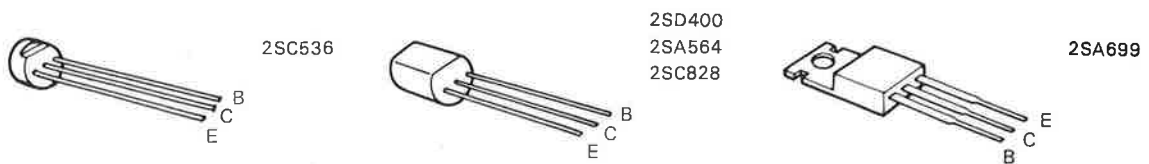
ADJUSTMENT SEAL

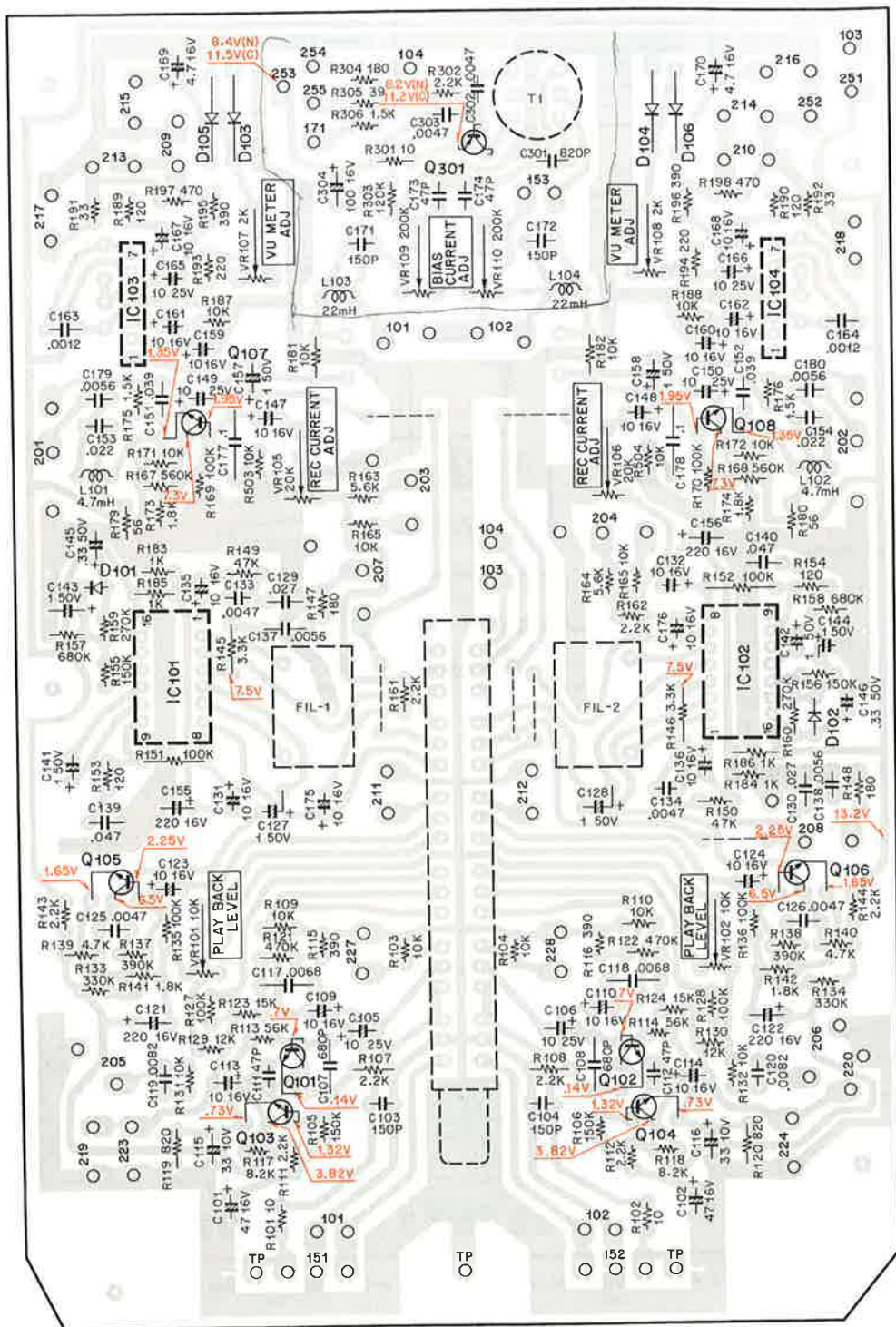


POWER SUPPLY (X27-1250-00)

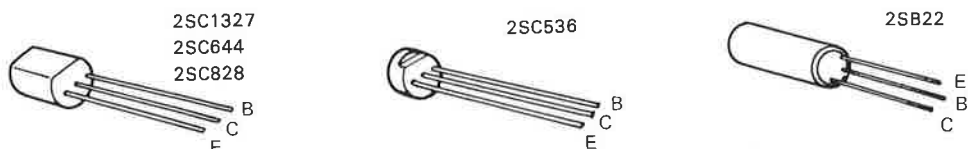


Q201: 2SD400(E), Q401: 2SA564(R), Q402, 403: 2SC536(F) or (G) or 2SC828 (R) or (S), Q404: 2SA699 (R) or (Q), D201~208: 1N4002, D401: TD90016-1, D402: 1N4002



PC BOARD**REC/PLAY/OSC (X28-1250-00)**

Q101~104: 2SC1327(S) or (T), Q105, 106: 2SC644(R), Q107, 108: 2SC536(F) or (G) or 2SC828(R) or (S)
 Q301: 2SB22(BLU), IC101, 102: NE545B, IC103, 104: TA-7066P, D101~106: 1S188 or OA90



DESTINATIONS' PARTS LIST

Symbol ☆ : new parts

Ref. No.	U.S.A. (K)	Canada (P)	PX (U)	Australia (X)	Europe (W)	W(E)	Scandinavia (L)	England (T)	South Africa (S)	Other area (M)	Description
16	A20-1905-08	A20-1905-08	A20-1905-08	A20-1905-08	A20-1905-08	A20-1905-08	A20-1905-08	A20-1907-08	A20-1905-08	A20-1905-08	Panel (silver) ☆
16	—	—	A20-1911-08	—	—	—	—	—	—	—	Panel (black) KX-502 ☆
—	B46-0061-00	B46-0055-10	B46-0051-00	—	—	—	—	B46-0060-00	—	—	Warranty card
—	—	—	B46-0062-00	—	—	—	—	—	—	—	Warranty card
—	B50-2230-00	B50-2232-00	B50-2230-00	B50-2230-00	B50-2230-00	B50-2230-00	B50-2230-00	B50-2231-00	B50-2230-00	B50-2230-00	Instruction manual ☆
—	—	—	B50-2245-00 (KX-502)	—	—	—	—	—	—	—	Instruction manual ☆
8	—	—	E06-0705-05	—	E06-0705-05	E06-0705-05	—	—	—	E06-0705-05	Power voltage selector socket
3	E30-0181-05	E30-0181-05	E30-0545-05	E30-0185-05	E30-0567-08	E30-0578-05	E30-0568-08	040-0306-05	040-0304-05	E30-0545-05	Power cord
F1	—	—	—	F05-1212-08	—	—	—	—	F05-1212-08	—	Fuse 0.125A 250V
F1	—	—	F05-2513-08	—	—	—	—	—	—	F05-2513-08	Fuse 0.25A 250V
F1	F05-2514-08	F05-2514-08	—	—	—	—	—	—	—	—	Fuse 0.25AT 250V
F1	—	—	—	—	—	—	—	F05-1213-08	—	—	Fuse 0.125A 250V (mussete-type)
F2	—	—	—	—	F05-8017-08	F05-8017-08	F05-8017-08	—	—	—	Fuse 0.8AT
F3	—	—	—	—	F06-1022-05	F06-1022-05	F06-1022-05	—	—	—	Fuse 1AT
46	—	—	F07-0236-04	—	F07-0236-04	F07-0236-04	—	—	—	—	Power voltage selector socket cover
37	G13-0410-08	G13-0410-08	G11-0064-08	G11-0064-08	G11-0064-08	G11-0064-08	G11-0064-08	G11-0064-08	G11-0064-08	G11-0064-08	Cushion
2	G13-0411-08	G13-0109-08	G13-0109-08	G13-0109-08	G13-0109-08	G13-0109-08	G13-0109-08	G13-0109-08	G13-0109-08	G13-0109-08	U shaped cushion
—	H01-2239-08	H01-2239-08	H01-2245-08	H01-2239-08	H01-2239-08	H01-2239-08	H01-2239-08	H01-2246-08	H01-2239-08	H01-2239-08	Carton case ☆
—	H25-0171-18	H25-0171-18	H25-0171-18	H25-0171-18	H25-0171-18	H25-0171-18	H25-0171-18	H25-0171-18	H25-0171-18	H25-0159-04	Polyethylene bag
—	—	—	—	—	—	—	—	—	—	H40-0005-04	Anti-rust paper
7	J21-1435-08	J21-1435-08	J21-1436-08	J21-1433-08	J21-1434-08	J21-1434-08	J21-1433-08	J21-1433-08	J21-1433-08	J21-1436-08	Power cord holding plate
6	J41-0006-00	J41-0006-00	J41-0006-00	J41-0024-15	J41-0033-05	J41-0033-05	J41-0033-05	J41-0024-15	J41-0024-15	J41-0006-00	Power cord bushing
34	L01-6081-08	L01-6081-08	L01-6084-08	L01-6084-08	L01-6084-08	L01-6084-08	L01-6082-08	L01-6084-08	L01-6084-08	L01-6084-08	Power transformer ☆
—	R90-0110-08	R90-0401-08	R90-0111-08	R90-0111-08	R90-0110-08	R90-0010-08	—	R90-0111-08	R90-0111-08	R90-0111-08	Spark killer
40	S36-2035-08	S33-2015-08	S36-2035-08	S36-2035-08	S36-2035-08	S36-2035-08	S36-2035-08	S36-2035-08	S36-2035-08	S36-2035-08	Power switch

PARTS LIST

TOTAL

Symbol ☆: new parts

Ref. No.	Parts No.	Description	Re- marks
MISCELLANEOUS			
—	B42-0009-04	Passed sticker	
—	B42-1327-08	Adjustment seal	☆
—	H01-1502-08	Carton case (black)	
—	H10-1419-08	Polystyrene foamed fixture (L)	
—	H10-1420-08	Polystyrene foamed fixture (R)	
—	H25-0078-08	Instruction bag	
—	W01-0301-05	Head cleaning bar	

LED (X25-1110-01)

Ref. No.	Parts No.	Description	Re- marks
SEMICONDUCTOR			
D301	V11-0341-05	LED TLR102	
MISCELLANEOUS			
—	J31-0411-08	LED holder	

MUTING (X25-1201-00)

Ref. No.	Parts No.	Description	Re- marks
SWITCH			
S8	S31-2302-08	Slide switch MUTING	

SELECTOR (X25-1230-00)

Ref. No.	Parts No.	Description	Re- marks
SWITCH			
S3	S32-6003-08	Lever switch TAPE SELECTOR	
S4, 5	S31-2042-08	Lever switch BIAS, DOLBY	

JACK (X25-1250-00)

Ref. No.	Parts No.	Description	Re- marks
CAPACITOR			
C501	CK45B1H102K	Ceramic 0.001 μ F 50WV	
RESISTOR			
R125,126	RD14CY2E102J	Carbon 1k Ω \pm 5% 1/4W	except W,L
	RD14CY2E562J	Carbon 5.6k Ω \pm 5% 1/4W	for W,L

Ref. No.	Parts No.	Description	Re- marks
SWITCH			
S10	S31-2303-08	Slide switch INPUT SELECTOR	
MISCELLANEOUS			
—	E13-0452-08	Input — output jack assembly	

POWER SUPPLY (X27-1250-00)

Ref. No.	Parts No.	Description	Re- marks
CAPACITOR			
C201	CE04W1E222	Electrolytic 2200 μ F 25WV	
C202	CE04W1E221	Electrolytic 220 μ F 25WV	
C203	CE04W1C102	Electrolytic 1000 μ F 16WV	
C204	CE04W1E221	Electrolytic 220 μ F 25WV	
C205	CE04W1C221	Electrolytic 220 μ F 16WV	
C401	CQ92M1H102M	Mylar 0.001 μ F \pm 20%	
C402	CE04W1C220	Electrolytic 22 μ F 16WV	
C403	CE04W1C470	Electrolytic 47 μ F 16WV	
C404~ 406	CE04W1C100	Electrolytic 10 μ F 16WV	
RESISTOR			
R203	RD14CY2H4R7J	Carbon 4.7 Ω \pm 5% 1/2W	except W,L
	RD14CY2H2R7J	Carbon 2.7 Ω \pm 5% 1/2W	for W,L
SEMICONDUCTOR			
Q201	V04-0074-05	Transistor 2SD400(E)	
Q401	V01-0163-05	Transistor 2SA564(R)	
Q402,403	V03-9991-05	Transistor 2SC828(R) or (S) or 2SC536(F) or (G)	
Q404	V01-0164-05	Transistor 2SA699(R) or (Q)	
D201~ 208	V11-0419-05	Diode 1N4002	
D401	V11-0420-05	Diode TD960016-1	
D402	V11-0419-05	Diode 1N4002	
MISCELLANEOUS			
—	J13-0047-08	Fuse holder \times 2 (6 ϕ)	except W,L,T
—	J13-0048-08	Fuse holder \times 4 (5 ϕ)	for W,L
—	J13-0048-08	Fuse holder \times 2 (5 ϕ)	for T

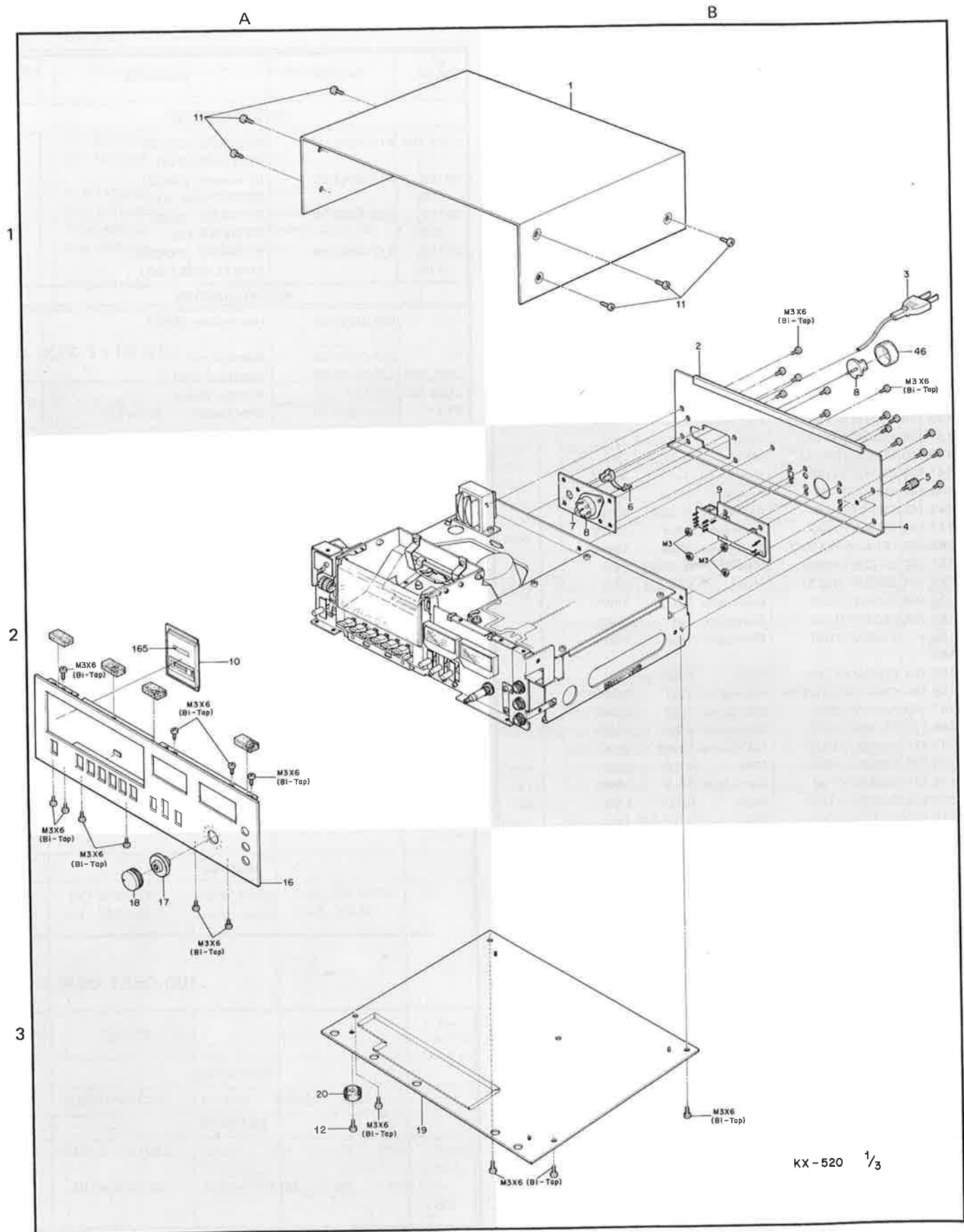
PARTS LIST

REC/PLAY/OSC (X28-1250-00)

Ref. No.	Parts No.	Description	Re- marks
C101,102	CE04W1C470	Electrolytic 47 μ F 16WV	
C103,104	CQ92S1H151J	Polystyrene 150pF \pm 5%	
C105,106	CE04AW1E100CC	Electrolytic 10 μ F 25WV	
C107,108	CC45SL1H681J	Ceramic 680pF \pm 5%	
C109,110	CE04W1C100	Electrolytic 10 μ F 16WV	
C111,112	CC45SL1H470J	Ceramic 47pF \pm 5%	
C113,114	CE04W1C100	Electrolytic 10 μ F 16WV	
C115,116	CE04W1A330	Electrolytic 33 μ F 10WV	
C117,118	CQ93M2D682JMA	Mylar 0.0068 μ F \pm 5%	
C119,120	CQ92M1H822J	Mylar 0.0082 μ F \pm 5%	
C121,122	CE04W1C221	Electrolytic 220 μ F 16WV	
C123,124	CE04W1C100	Electrolytic 10 μ F 16WV	
C125,126	CQ93M1H472KMA	Mylar 0.0047 μ F \pm 10%	
C127,128	CE04AW1H1ROCC	Electrolytic 1 μ F 50WV	
C129,130	CQ92M1H273J	Mylar 0.027 μ F \pm 5%	
C131,132	CE04W1C100	Electrolytic 10 μ F 16WV	
C133,134	CQ92M1H472J	Mylar 0.0047 μ F \pm 5%	
C135,136	CE04W1C100	Electrolytic 10 μ F 16WV	
C137,138	CQ92M1H562J	Mylar 0.0056 μ F \pm 5%	
C139,140	CQ92M1H473J	Mylar 0.047 μ F \pm 5%	
C141,142	CE04W1H1RO	Electrolytic 1 μ F 50WV	
C143,144	C90-0701-08	Aluminum 0.1 μ F 50WV	
C145,146	C90-0702-08	Aluminum 0.33 μ F 50WV	
C147,148	CE04W1C100	Electrolytic 10 μ F 16WV	
C149,150	CE04AW1E100CC	Electrolytic 10 μ F 25WV	
C151,152	CQ92M1H393J	Mylar 0.039 μ F \pm 5%	
C153,154	CQ92M1H223J	Mylar 0.022 μ F \pm 5%	
C155,156	CE04W1C221	Electrolytic 220 μ F 16WV	
C157,158	CE04W1H1RO	Electrolytic 1 μ F 50WV	
C159~ 162	CE04W1C100	Electrolytic 10 μ F 16WV	
C163,164	CQ92M1H122J	Mylar 0.0012 μ F \pm 5%	
C165,166	CE04AW1E100CC	Electrolytic 10 μ F 25WV	
C167,168	CE04W1C100	Electrolytic 10 μ F 16WV	
C169,170	CE04W1C4R7	Electrolytic 4.7 μ F 16WV	
C171,172	CQ92S1H151J	Polystyrene 150pF \pm 5%	
C173,174	CM93D1H470J	Mica 47pF \pm 5%	
C175,176	CE04W1C100	Electrolytic 10 μ F 16WV	
C177,178	CQ92M1H104J	Mylar 0.1 μ F \pm 5%	
C179,180	CQ92M1H562J	Mylar 0.0056 μ F \pm 5%	
C301	CQ92S2C821J	Polystyrene 820pF \pm 5%	
C302,303	CQ92M1H472J	Mylar 0.0047 μ F \pm 5%	
C304	CE04W1C101	Electrolytic 100 μ F 16WV	
RESISTOR			
R113,114	RN14BK2E563FMA	Metal film 56k Ω \pm 1% 1/4W	
R123,124	RN14BK2E153FMA	Metal film 15k Ω \pm 1% 1/4W	
R181,182	RN14BK2E103FMA	Metal film 10k Ω \pm 1% 1/4W	
SEMICONDUCTOR			
Q101~ 104	V03-1327-10	Transistor 2SC1327(S) or (T)	
Q105~ 106	V03-9981-05	Transistor 2SC644(R)	
Q107,108	V03-9991-05	Transistor 2SC828(R) or (S)	
	V03-0339-05	or 2SC536(F) or (G)	
Q301	V02-0057-05	Transistor 2SB22	
IC101,102	V30-0139-05	IC NE545B	
IC103,104	V30-0154-05	IC TA-7066P	
D101~ 106	V11-9990-05	Diode 1S188	
	V11-0197-05	or 0A90	

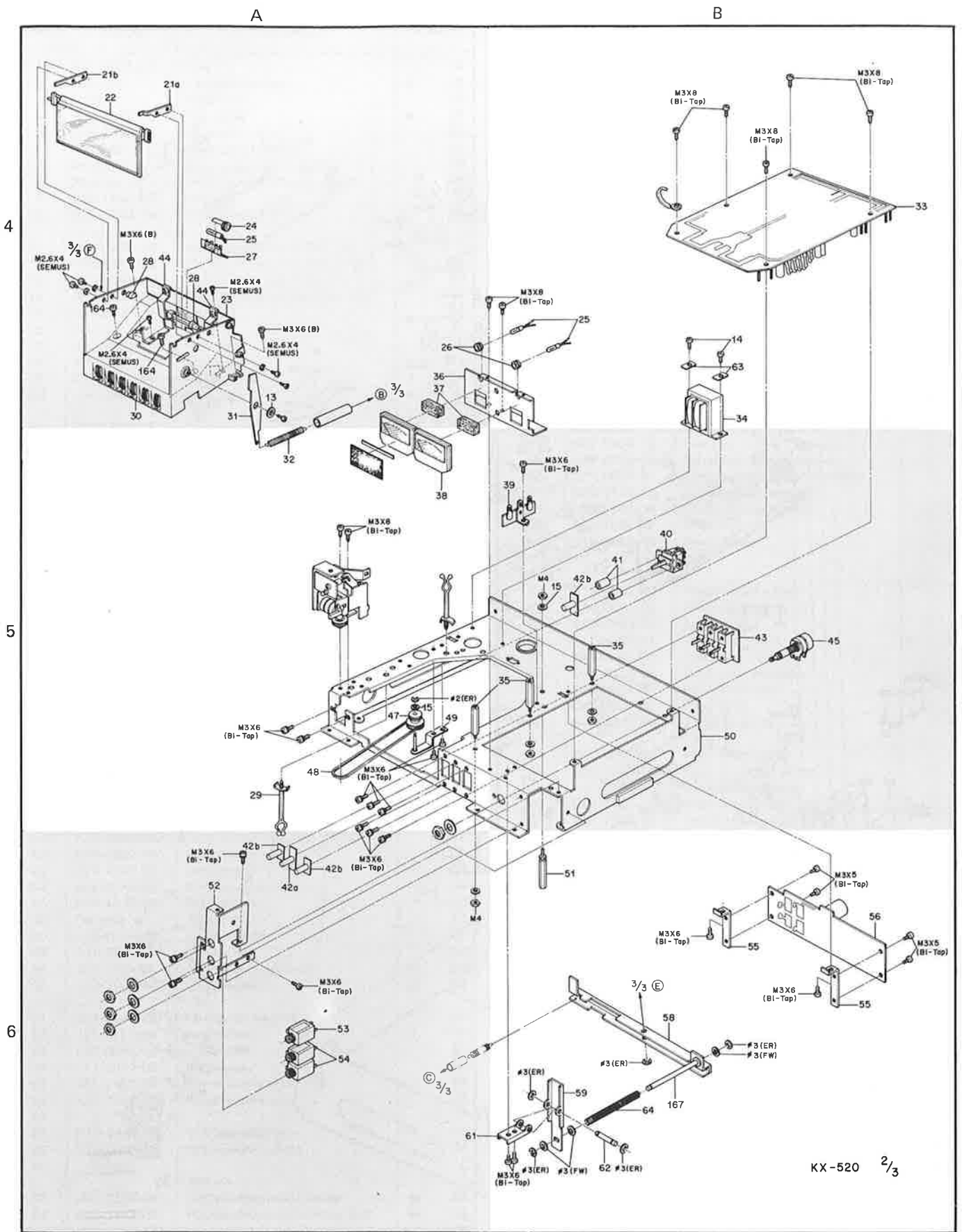
Ref. No.	Parts No.	Description	Re- marks
POTENTIOMETER			
V101,102	R12-3044-08	PC trimmer 10k Ω (B) PLAYBACK LEVEL	
VR105, 106	R12-3043-08	PC trimmer 20k Ω (B) REC CURRENT ADJ	
VR107, 108	R12-1034-08	PC trimmer 2k Ω (B) VU METER ADJ	
VR109, 110	R12-5301-08	PC trimmer 200k Ω (B) BIAS CURRENT ADJ	
MISCELLANEOUS			
—	F02-0033-08	Heat sink for 2SB22	
T1	L32-0189-08	Bias OSC coil	
L101,102	L39-0078-08	Inductor 4.7mH	
L103,104	L39-0077-08	Inductor 22mH	
S1,2	S31-0301-08	Slide switch REC/PLAY	
FL1,2	X25-1120-00	Low pass filter	

EXPLODED VIEW



KX-520 1/3

EXPLODED VIEW



EXPLODED VIEW

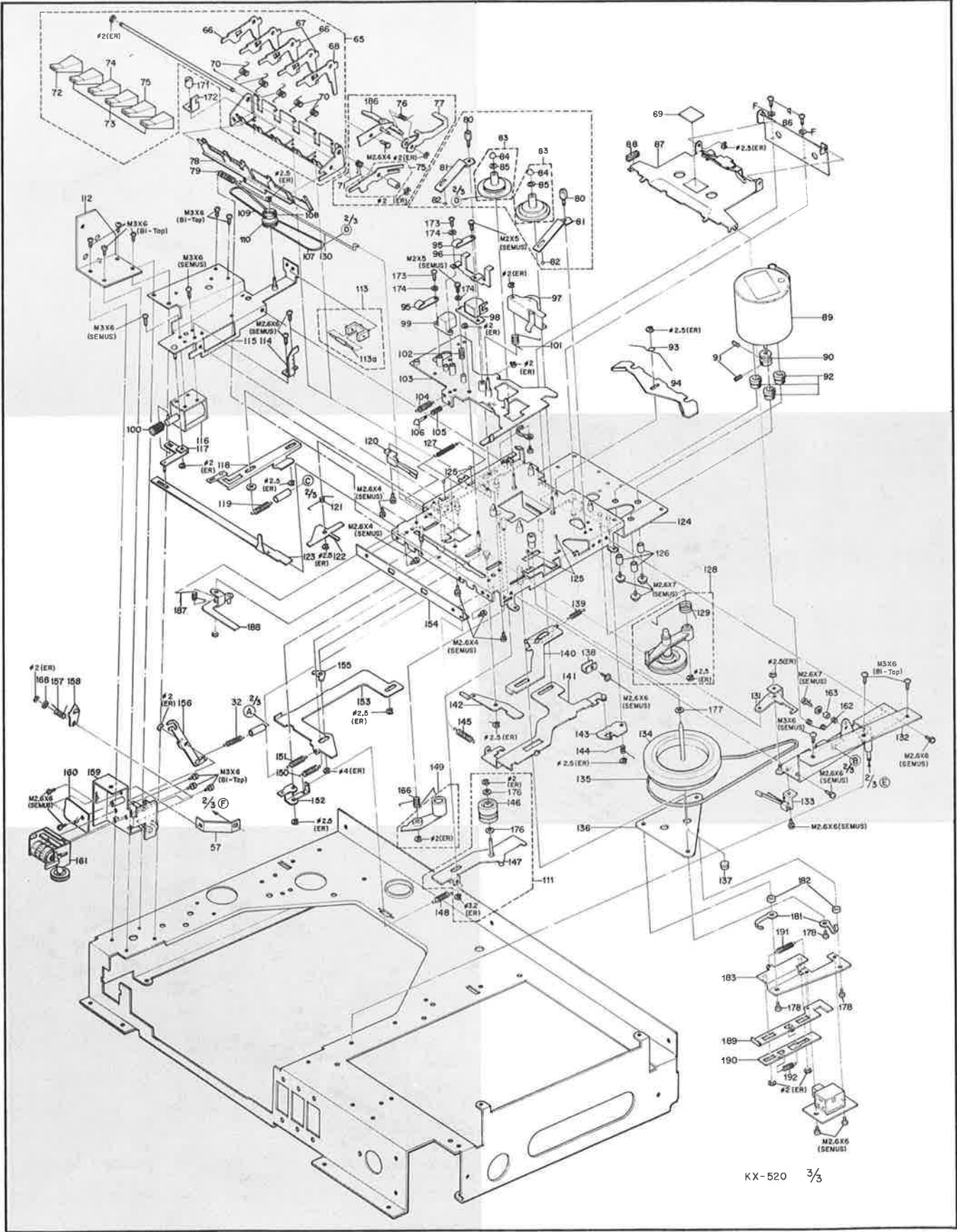
A

B

7

8

9



EXPLODED VIEW PARTS LIST

Symbol ★ means the parts not being kept in stock.

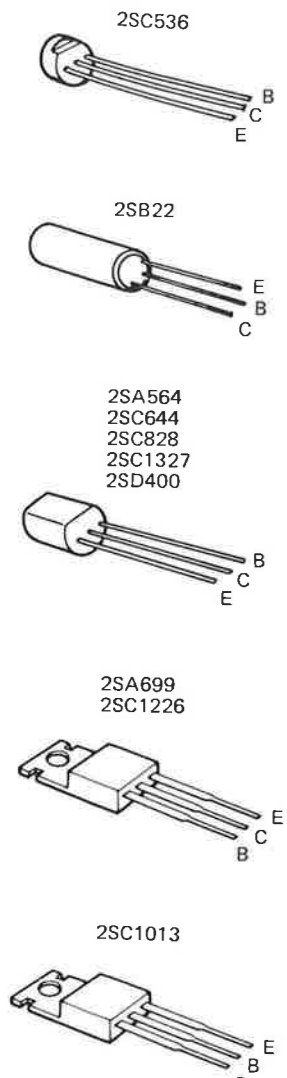
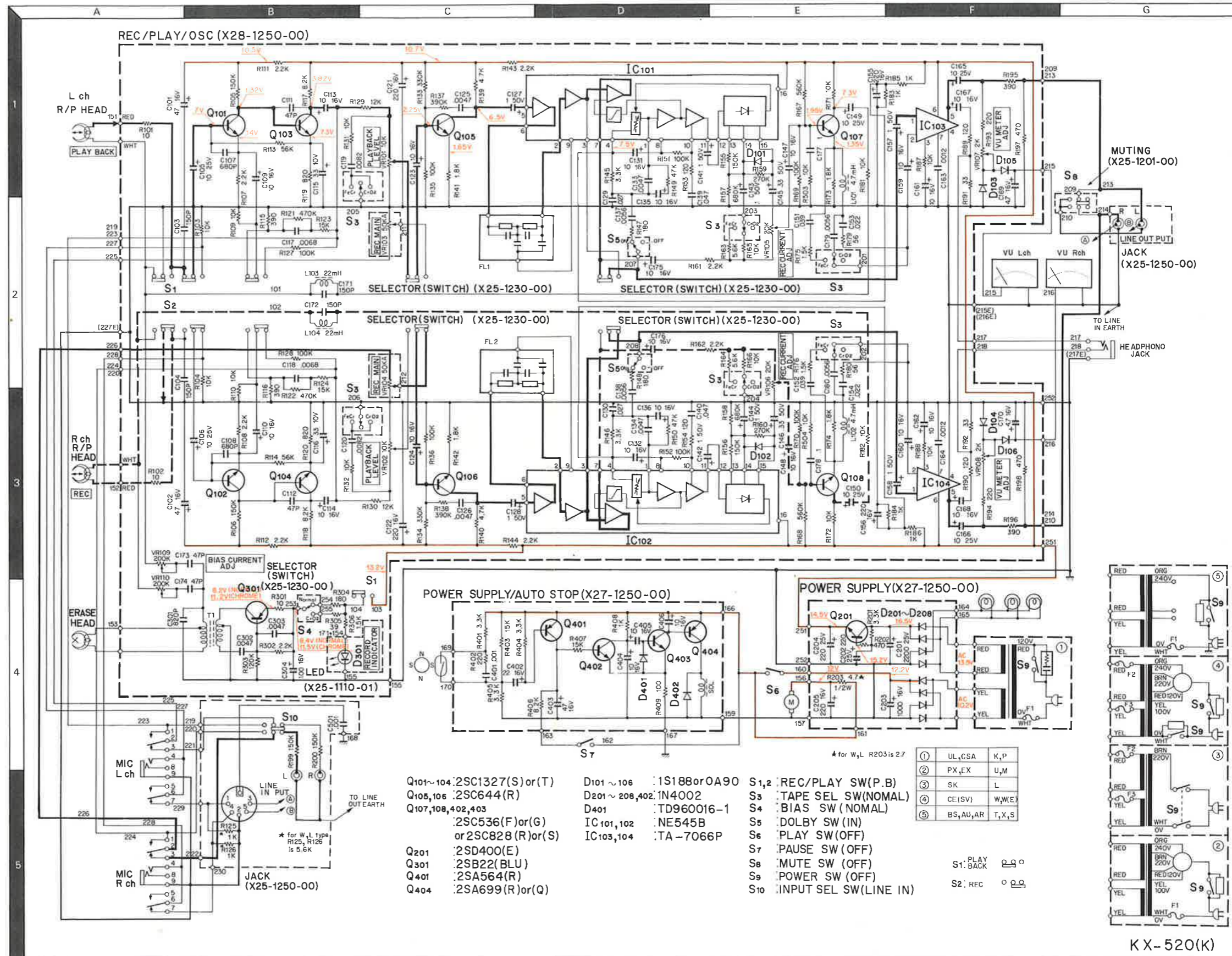
Ref. No.	Parts No.	Description	Remarks	Ref. No.	Parts No.	Description	Remarks
1	A01-0601-08	Case	1B	63	J29-0303-08	Transformer holder	4B
2	Parts list	U shaped cushion	★ 1B	64	G01-0622-08	REC spring	6B
3	Parts list	Power cord	1B	65	K29-0266-18	Pushbutton unit assembly	7A
4	A23-1203-08	Rear panel	★ 2B	66	D10-0208-18	Pushbutton lever A (REC, PLAY)	7A
5	N08-0128-25	GND terminal	2B	67	D10-0209-18	Pushbutton lever B (FF, REW)	7A
6	Parts list	Power cord bushing	2B	68	D10-0210-18	Pushbutton pause lever (PAUSE)	7A
7	Parts list	Power cord holding plate	2B	69	B03-0098-08	Cassette dress plate	7B
8	Parts list	Power voltage selector socket	2B	70	G01-0315-08	Pushbutton spring	7A
9	X25-1250-00	Jack unit	2B				
10	A02-0064-08	Counter cover	2A	71	G01-0317-08	STOP pushbutton spring	7A
				72	K29-0260-08	REC pushbutton	7A
11	N09-0233-08	Bind tap-tight screw (M4 × 8)	1A	73	K29-0258-08	Pushbutton	7A
12	N09-0571-08	Bind tap-tight screw (M4 × 15)	3A	74	K29-0259-08	PLAY pushbutton	7A
13	N19-0260-08	Washer (φ4 × φ8 × 0.8)	4A	75	K29-0261-08	PAUSE pushbutton	7A
14	N09-0228-08	Small tap-tight screw (M4 × 5)	4B	76	G09-0017-08	Eject lever spring	7A
15	N19-0277-08	Washer	5A	77	D10-0213-08	Eject lever	7A
16	Parts list	Panel	3A	78	D10-0212-18	Pushbutton operation plate assembly	7A
17	K23-0222-08	VR knob A	3A	79	G01-0308-08	Operation plate spring	7A
18	K23-0223-08	VR knob B	3A	80	N19-0247-08	Head base spring screw	7A
19	A40-0141-08	Bottom plate	★ 3A				
20	J02-0308-08	Leg	★ 3A	81	G02-0065-08	Head base spring	7A
				82	D90-0017-08	Steel ball (2.5φ)	7A
21a	J21-1459-08	Door holder	4A	83	D03-0006-08	Reel holder assembly	7B
21b	J21-1532-08	Door holder B	4A	84	B09-0008-18	Reel cap	7B
22	A53-0014-18	Door	4A	85	N19-0249-08	Polyethylene slider washer	7B
23	B08-9010-08	Lamp cover	4A	86	J21-1458-08	Cassette plate holder assembly	7B
24	F14-0105-08	Lamp tube C	4A	87	B03-0109-18	Cassette plate assembly	7B
25	B30-0111-08	Pilot lamp (16V 90mA)	4A	88	G13-0101-18	Cassette plate cushion	7B
26	F14-0106-08	Lamp tube D	4A	89	T42-0103-08	DC motor	7B
27	B08-9011-08	Lamp holder	4A	90	D15-0152-08	Motor pulley	7B
28	G13-0102-08	Stopper	4A				
29	J11-0302-08	Lead clamper	5A	91	—	—	—
30	A02-0063-08	Cassette cover	4A	92	G13-0092-08	Motor holder rubber	7B
				93	G03-0011-08	Brake lever spring	7B
31	D10-0217-08	Eject operation lever	4A	94	D10-0198-08	Brake lever	7B
32	G01-0326-08	Lock lever spring	4A,8A	95	J11-0043-08	Lead cord holder	★ 7A
33	X28-1250-00	REC/PLAY unit	4B	96	F01-0042-08	Cassette protector	7A
34	Parts list	Power transformer	4B	97	D11-0205-08	Pinch roller assembly	7B
35	J32-0503-08	PC board holder shaft	5B	98	T34-0004-08	REC/PLAY head	7B
36	J21-1534-08	VU meter holder	★ 4A	99	T32-0004-05	Erase head	7A
37	Parts list	Cushion	4A	100	G01-0332-08	Solenoid spring	8A
38	B31-0230-08 or B31-0218-28	VU meter	5A				
39	E22-0215-05	Lug-type terminal strips	5B	101	G01-0305-08	Pinch roller spring	7B
40	Parts list	Power switch	5B	102	G01-0295-08	Head alignment spring	7A
				103	A11-0068-08	Head base assembly	7A
41	J31-0136-08	Spacer for power switch	5B	104	G01-0301-08	Head base spring	7A
42a	K29-0601-08	Lever switch knob A	6A	105	G01-0328-08	Head base shaft spring	8A
42b	K20-0602-08	Lever switch knob B	6A	106	D39-0043-08	Head base shaft	8A
43	X25-1230-00	Selector unit	5B	107	D16-0054-08	Counter belt (C)	7A
44	J90-0075-08	Cassette guide plate	4A	108	T99-0048-08	Magnet	7A
45	R08-4072-08	REC volume	5B	109	D16-0055-08	Counter belt (B)	7A
46	Parts list	Socket cover	1B	110	D14-0057-08	Counter idler	7A
47	D15-0158-08	Counter pulley	5A				
48	D16-0056-08	Counter belt	5A	111	D10-0440-08	FR lever block assembly	9B
49	J21-1452-08	Pulley holder assembly	★ 5A	112	J21-2233-08	Handle holder	★ 7A
50	A10-1009-08	Main chassis	★ 5B	113	G13-0100-08	Reed switch assembly	7A
				113a	S59-1043-08	Reed switch	7A
51	J19-0497-18	Hexagonal support	6B	114	F09-0043-08	Cassette plate stopper	★ 7A
52	J21-2227-08	Jack holder	★ 6A	115	A13-0143-08	Mechanism chassis holder	
53	E11-0064-08	Phone jack	6A				
54	E11-0062-08	Mic Jack	6A	116	T94-0051-08	Solenoid	8A
55	J21-1451-08	Power supply unit holder	6B	117	J21-1530-08	Shut off coupling plate assembly	8A
56	X27-1250-00	Power supply unit	6B	118	D10-0272-18	REC slide plate	★ 8A
57	—	—	—	119	G01-0327-08	REC operation arm spring	8A
58	D10-0445-08	REC operation arm	★ 6B	120	S46-1006-08	Motor driving leaf switch	8A
59	D10-0444-08	REC operation plate	6B				
60	—	—	—	121	G01-0299-08	REC lever spring	8A
				122	D10-0222-08	REC lever	★ 8A
61	J21-2228-08	REC operation plate holder	★ 6A	123	D10-0435-08	Auto stop operation plate	★ 8A
62	J19-0482-08	REC operation plate holder shaft	★ 6B	124	A10-0480-18	Mechanism chassis assembly	★ 8B
				125	D90-0013-04	Steel ball	8B

EXPLODED VIEW PARTS LIST

Ref. No.	Parts No.	Description	Remarks
126	J31-0128-08	Spacer for motor	★ 8B
127	G01-0294-08	Record defeat plate spring	8A
128	D11-0206-18	Tension arm assembly	8B
129	G01-0298-08	Drive roller arm spring	8B
130	D17-0039-08	Operation plate interlock bar	★ 7A
131	D10-0215-08	Eject timing lever	★ 8B
132	A13-0142-08	Mechanism chassis holder	
		R assembly	8B
133	S46-1007-08	Leaf switch for PAUSE operation	8B
134	D01-0033-08	Flywheel assembly	8B
135	D16-0052-08	Main belt	8B
136	J19-1218-08	Flywheel holding assembly	★ 9B
137	N09-0208-08	Flywheel adjusting screw (for thrust)	9B
138	D19-0203-08	Pause operation lever holder	8B
139	G01-0297-08	FF interlock lever spring	8B
140	D10-0195-18	FF interlock lever assembly	8B
141	D10-0430-08	Pause operation lever assembly	8B
142	D10-0202-08	FF lever	8A
143	D12-0075-08	Pause lock plate	8B
144	G01-0300-08	Pause lock spring	8B
145	G01-0306-08	Pause operation lever spring	8A
146	D14-0055-08	FW idler assembly	8B
147	D10-0193-08	FR lever assembly	9B
148	G01-0302-08	FR lever spring D	9A
149	D14-0056-08	REW idler assembly	8A
150	G01-0307-08	REW lever spring	8A
151	G01-0296-08	Brake operation lever spring	8A
152	D10-0201-08	REW lever B	8A
153	D10-0197-08	Brake operation lever	★ 8A
154	F30-0033-08	Reinforcement plate for mechanism chassis	★ 8A
155	D10-0199-08	Lock defeat plate	★ 8A
156	D10-0218-08	Door lock lever assembly	8A
157	G09-0015-08	Pause lock plate spring	8A
158	D12-0077-08	Pause lock plate A	8A
159	J21-1531-08	Counter holder assembly	★ 8A
160	X25-1110-01	LED unit	8A
161	B35-0017-08	Counter	9A
162	G09-0014-08	Cassette plate click spring	8B
163	J31-0138-08	Spacer for click spring	8B
164	N09-0239-08	Pan head screw	4A
165	B42-0606-08	REC name plate	2A
166	G01-0303-08	Idler B lever spring	8A
167	D21-0617-08	REC coupling rod	6B
168	N19-0232-08	Washer (2.6φ × 0.3)	8A
169	—	—	—
170	—	—	—
171	J32-0231-08	Pushbutton holder support	7A
172	F31-0115-08	Pushbutton holder	7A
173	N09-0206-08	Screw with cog (2 × 6)	7A
174	N19-0235-08	Washer (2φ × 0.4)	7A
175	N70-2003-16	Set screw (M2 × 3)	—
176	N09-0231-08	Spring washer assembly SEMUS	9B
177	N19-0234-08	Washer (2.5φ × 0.25)	8B
178	N09-0573-08	Small screw (M2.6 × 10)	9B
179	—	—	—
180	—	—	—
181	J11-0301-08	Cord clasper	★ 9B
182	J31-0409-08	Collar (φ8 × φ3.2 × 5)	9B
183	A13-0501-08	Slide plate holder assembly	9B
184	—	—	—
185	—	—	—
186	J21-2217-08	Eject lever holding plate	7A
187	G01-0345-08	Mute lever spring	8A

Ref. No.	Parts No.	Description	Remarks
188	D10-0238-08	Mute timing lever	★ 8A
189	D10-0447-08	Slide switch	
		operation plate A	★ 9B
190	D10-0448-08	Slide switch	
		operation plate B	★ 9B
191	G01-0623-08	Slide plate spring A	9B
192	G01-0624-08	Slide plate spring B	9B
M3 × 5	N89-3005-46	Bind tap-tight screw	
M3 × 6 (Bi-Tap)	N89-3006-46	Bind tap-tight screw	
M3 × 8 (Bi-Tap)	N89-3008-46	Bind tap-tight screw	
M3 × 6(B)	N35-3006-45	Bind screw	
M2.6 × 4 (SEMUS)	N09-0203-08	SEMUS screw	
M2.6 × 5 (SEMUS)	N09-0246-08	SEMUS screw	
M2.6 × 6 (SEMUS)	N09-0202-08	SEMUS screw	
M2.6 × 7 (SEMUS)	N09-0200-08	SEMUS screw	
M3 × 6 (SEMUS)	N09-0175-09	SEMUS screw	
M2.6 × 4	N30-2604-46	Flat head screw	
φ2(ER)	N24-3020-60	E ring	
φ2.5(ER)	N24-3025-60	E ring	
φ3(ER)	N24-3030-60	E ring	
φ3.2(ER)	N24-3032-60	E ring	
φ4(ER)	N24-3040-60	E ring	
φ2.6(FW)	N15-1026-46	Flat washer	
φ3(FW)	N15-1030-46	Flat washer	

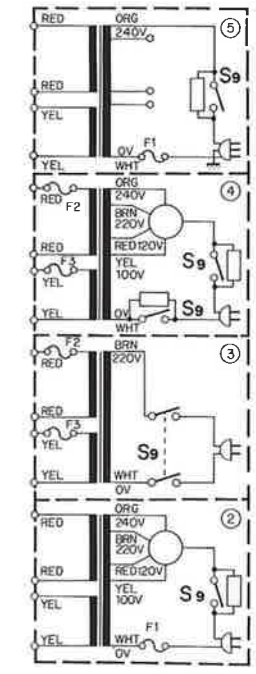
SCHEMATIC DIAGRAM



SEMICONDUCTORS	SUBSTITUTIONS
2SA564(R)	2SA733
2SA699(R)	2SA634
2SB22	2SB556
2SC644(R)	2SC458LG
2SC828(R)	2SC945
2SC1226(R)	2SC1013
2SC1327(R)	2SC1000
2SD400	-

- Q101~104: 2SC1327(S) or (T)
- Q105, 106: 2SC644(R)
- Q107, 108, 402, 403: 2SC536(F) or (G) or 2SC828(R) or (S)
- Q201: 2SD400(E)
- Q301: 2SB22(BLU)
- Q401: 2SA564(R)
- Q404: 2SA699(R) or (Q)
- D101 ~ 108: 1S188 or 0A90
- D201 ~ 208, 402: 1N4002
- D401: TD960016-1
- IC101, 102: NE545B
- IC103, 104: TA-7066P
- S1, 2: REC/PLAY SW (P.B)
- S3: TAPE SEL SW (NOMAL)
- S4: BIAS SW (NOMAL)
- S5: DOLBY SW (IN)
- S6: PLAY SW (OFF)
- S7: PAUSE SW (OFF)
- S8: MUTE SW (OFF)
- S9: POWER SW (OFF)
- S10: INPUT SEL SW (LINE IN)

- ① UL, CSA, K, P
- ② PX, EX, U, M
- ③ SK, L
- ④ CE (SV), W, WE
- ⑤ BS, AU, AR, T, X, S
- S1: PLAY BACK
- S2: REC



KX-520(K)

SPECIFICATIONS

Type: Stereo Cassette Deck with Dolby System
Track System: 4-Track 2-Channel Stereo/Mono Recording/Playback
Usable Tape: Cassette Tape: C-30, C-60, C-90 and C-120
Heads: Recording/Playback: Hard Permalloy Head
 Erase: Ferrite Head
Motor: Electronically-Controlled DC Motor
Tape Speed: 4.75 cm/sec (1-7/8 ips)
Wow and Flutter: Less than 0.09% (WRMS)
 ±0.2% (DIN)
Fast Winding Time: Less than 80 seconds for C-60 tape
Frequency Response: Normal: 30 ~ 13,000 Hz (40 ~ 11,000 Hz ± 3 dB)
 Reserve: 30 ~ 15,000 Hz (40 ~ 12,000 Hz ± 3 dB)
 Chrome: 30 ~ 16,000 Hz (40 ~ 12,000 Hz ± 3 dB)

Signal to Noise Ratio:	JIS		DIN Weighted	
	Dolby OFF	Dolby ON	Dolby OFF	Dolby ON
Normal:	50 dB	58 dB	51 dB	59 dB
Reserve:	52 dB	60 dB	53 dB	61 dB
Chrome:	53 dB	61 dB	54 dB	62 dB

Chrome: 85 kHz AC
Recording Bias: AC type
Erasing Method: AC type
Inputs: Microphones X2: 0.2 mV (−72 dBm)/8 kΩ
(Input Sensitivity/Impedance) for Low impedance (600Ω) microphone
 Line X2: 77.5 mV (−20 dBm)/180 kΩ
 DIN 0.08 mV/kΩ W, L type
 0.4 mV (−65.7 dBm)/4 kΩ Other destinations
Outputs: Line X2: 490 mV (−4 dBm)/100 kΩ
(Output level/Load Impedance) Headphones X1: 48.9 mV (−24 dBm) for 8 or 16Ω Headphones
 DIN 490 mV (−4 dBm)/100 kΩ
Distortion: Normal: 1.5% at 1 kHz OVU
 Reserve: 1.5% at 1 kHz OVU
 Chrome: 2% at 1 kHz OVU
Power Requirements: AC 120V, 60 Hz K, P
 AC 110 ~ 120/220 ~ 240V, 50/60 Hz U, M, W
 AC 240V, 50 Hz T
 AC 220V, 50 Hz L, S, X
Dimensions: W 380 mm (14-31/32")
 D 288 mm (11-15/16")
 H 140 mm (5-1/2")
Weight: 6.1 kg (13.4 lbs)
Built in Features: Dolby Noise Reduction System, Full-Auto Stop Mechanism, Two Step Bias Selector (Normal-Chrome), Three Step Equalization Selector (Normal-Chrome-Reserve), Illuminated Cassette Compartment and Mirror, LED Recording Indicator, Three Digit Tape Counter, Two Large Size Illuminated VU Meters, Two Microphone Jacks, Headphones Jack, DIN-Connector, Input Selector Switch (LINE-DIN), Rear Panel
Supplied Accessories: Audio 2P cord 2
 Head cleaning set 1
Reference Tape: Normal: TDK SD C-90
 Reserve: SONY DUAD C-60
 Chrome: TDK SA C-60

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