KENWOOD

HI/FI STEREO COMPONENTS

SERVICE MANUAL

KR-77

SOLID STATE
AM-FM STEREO RECEIVER

PARTS DESCRIPTION LIST

MAIN CHASSIS (AD-1K) SECTION

PRINTED CIRCUIT

–	RF AMP BLOCK	(UA11133B)
–	IF AMP BLOCK	(UA1223K)
–	MPX BLOCK	(UA14023C)
–	PRE AMP BLOCK	(UA13241B)
–	MAIN AMP BLOCK	(821)

Symbol No.	Description			Part No.	Remarks
CAPACITORS					
C1, 2	Mylar	0.056 μF	±20%		
C3	Electrolytic Tubular	47μF	3.15WV		
C4	Mylar	0.22μF	±20%		
C5	Ceramic	20PF	±10%		
C6	Ceramic	0.02μF	+80%, −20%		
C101	Ceramic	560PF	±20%		
C102	Ceramic	100PF	±10%		
C111	Mylar	1000PF	±20%		
C112	Mylar	0.068μF	±20%		
C113	Mylar	0.15μF	±20%		
C114	Mylar	0.015μF	±20%		
C115	Mylar	0.033μF	±20%		
C116	Mylar	0.0033μF	±20%		
C117	Mylar	0.027μF	±20%		
C118	Mylar	0.0082μF	±20%		
C171	Electrolytic Block	2200μF	35WV		
C172	Mylar	0.22μF	±20%		
C201	Ceramic	560PF	±20%		
C202	Ceramic	100PF	±10%		
C211	Mylar	1000PF	±20%		
C212	Mylar	0.068μF	±20%		
C213	Mylar	0.15μF	±20%		
C214	Mylar	0.015μF	±20%		
C215	Mylar	0.033μF	±20%		
C216	Mylar	0.0033μF	±20%		
C217	Mylar	0.027μF	±20%		
C218	Mylar	0.0082μF	±20%		
C271	Electrolytic Block	2200μF	35WV		
C272	Mylar	0.22μF	±20%		
C301	Ceramic	0.01μF	+100% −0%		
C302, 303	Oil Impregnated paper	0.02μF	±20%		
C304	Electrolytic Block	2200μF	50WV		
C305	Electrolytic Tubular	1000 μF	35WV		
C306	Electrolytic Tubular	100μF	25WV		
C307	Electrolytic Tubular	470μF	35WV		
C308	Electrolytic Tubular	100μF	16WV		
C309	Electrolytic Tubular	220μF	16WV		
C310	Electrolytic Tubular	1000μF	16WV		
RESISTORS					
R1	Fixed Carbon Composition	22Ω	±10%	1/2W	
R2	Fixed Carbon Composition	100kΩ	±10%	1/4W	
R101, 102	Fixed Carbon Composition	100kΩ	±10%	1/2W	
R103	Fixed Carbon Composition	15kΩ	±10%	1/2W	
R104	Fixed Carbon Composition	27kΩ	±10%	1/2W	
R105	Fixed Carbon Composition	100kΩ	±10%	1/2W	
R106	Fixed Carbon Composition	390kΩ	±10%	1/2W	
R111, R112	Fixed Carbon Composition	10kΩ	±10%	1/2W	
R113	Fixed Carbon Composition	4.7kΩ	±10%	1/2W	
R114	Fixed Carbon Composition	5.6kΩ	±10%	1/2W	
R115	Fixed Carbon Composition	150kΩ	±10%	1/2W	
R116	Fixed Carbon Composition	1.5kΩ	±10%	1/2W	
R117	Fixed Carbon Composition	6.8kΩ	±10%	1/2W	
R171, 172	Wire Wound	0.47Ω	± 5%	2W	

PARTS DESCRIPTION LIST

Symbol No.	Description				Part No.	Remarks
R173	Fixed Carbon Composition	2.2Ω	±10%	1W		
R174	Fixed Carbon Composition	1kΩ	±10%	1/2W		
R175	Fixed Carbon Composition	330Ω	±10%	1/2W		
R176	Fixed Carbon Composition	10Ω	±10%	1/2W		
R177	Fixed Carbon Composition	56Ω	±10%	1/2W		
R201, 202	Fixed Carbon Composition	100kΩ	±10%	1/2W		
R203	Fixed Carbon Composition	15kΩ	±10%	1/2W		
R204	Fixed Carbon Composition	27kΩ	±10%	1/2W		
R205	Fixed Carbon Composition	100kΩ	±10%	1/2W		
R206	Fixed Carbon Composition	390kΩ	±10%	1/2W		
R211, 212	Fixed Carbon Composition	10kΩ	±10%	1/2W		
R213	Fixed Carbon Composition	4.7kΩ	±10%	1/2W		
R214	Fixed Carbon Composition	5.6kΩ	±10%	1/2W		
R215	Fixed Carbon Composition	150kΩ	±10%	1/2W		
R216	Fixed Carbon Composition	1.5kΩ	±10%	1/2W		
R217	Fixed Carbon Composition	6.8kΩ	±10%	1/2W		
R271, 272	Wire Wound	0.47Ω	± 5%	2W		
R273	Fixed Carbon Composition	2.2Ω	±10%	1W		
R274	Fixed Carbon Composition	1kΩ	±10%	1/2W		
R275	Fixed Carbon Composition	330Ω	±10%	1/2W		
R276	Fixed Carbon Composition	10Ω	±10%	1/2W		
R301	Metal Film	1kΩ	± 5%	2W		
R302	Fixed Carbon Composition	2.2kΩ	±10%	1/2W		
R303	Fixed Carbon Composition	220Ω	±10%	1/2W		
R304	Resin Coated Wire Wound	150Ω	± 5%	6W		
R305	Resin Coated Wire Wound	560Ω	± 5%	4W		
R306	Fixed Carbon Composition	1.5kΩ	±10%	1/2W		
R307	Fixed Carbon Composition	1kΩ	±10%	1/2W		
	POTENTIOMETERS					
VR1	50kΩ (B) x 2	VOLUME			R09-8018	
VR2	50kΩ (G)	BALANCE			R09-8018	
VR3	50kΩ (A)	BASS			R04-0212	
VR4	50kΩ (A)	TREBLE			R04-0212	
	TRANSISTORS/DIODES					
Q1	ST-303	Regulator				
Q2~5	2SD180, 2SC664 or 2SC494 (R.Y.)	Power Amp.				
D1	1S338-T	Rectifier				
D2, 3	FR-2M	Rectifier				
D4	SW-05S or SD1Y	Rectifier				
D5	1N60	Rectifier				
	SWITCHES					
S1	SELECTOR	Rotary SW	F-5-10-6		S07-158	
S2	TAPE MONITOR/MODE	Rotary SW	Y-2-5-6		S03-634	
S3	LOUDNESS	Lever SW			S10-224	
S4	LOW FILTER	Lever SW			S10-224	
S5	HIGH FILTER	Lever SW			S10-224	
S6	OUTPUT (with POWER SW)	Rotary SW	F-1-4-5		S07-151	
S7	MUTING	Lever SW			S10-224	
S8	AC VOLT SELECT	Slide SW			S60-22D	
	MISCELLANEOUS					
–	Case				A01-AD1K	
–	Chassis				A03-AD1K	
–	Panel Framework	(AA05-AD1K)				
–	Panel				A05-AD1K	
–	Dial Scale	(49 x 290 3t)			A07-AD1K	
–	Sole Plate				A08-AA63	
–	Back Panel				A09-AD1K	
–	Dial Board				A12-AD1K	
–	Front Glass				A20-AD1K	
–	Radiator				A26-31	

PARTS DESCRIPTION LIST

Symbol No.	Description	Part No.	Remarks
–	Radiator	A26-46	
–	Jewel (Red)	A53-205	
–	Thermistor Holder x 2	A90-310B	
–	Lamp Cover	A3794	
–	Amp. Fixing Metal x 2	A3882	
–	Dial Board Holder x 4	A4858	
–	Dial Cover	A4934	
–	Meter Holder	A4969	
–	Metal Fittings (for Jewel)	A4989	
–	Ant. Fixing Metal	A5065	
–	Transistor Cover	A5077	
–	Reflector x 2	A5110B	
–	Name Plate (Destination)	B07-156	
–	Name Plate	B09-190	
–	Name Plate (Instruction)	B09-192	
–	Name Plate (A)	B09-251	
–	Name Plate (Wattage)	B09-252	
–	Name Plate (B)	B09-255	
–	Pulley	D04-89	
–	Flywheel	D05-52B	
–	Dial Spring	D06-02	
–	Dial Strings (1.7m)	D07-03	
–	Dial Shaft	D08-100	
–	Small Pulley x 4	D09-14B	
–	Small Bushing x 3	D10-05	
–	Small Bushing	D10-09	
–	Metal Fittings (for Dial Pointer)	D11-10	
–	Dial Pointer	D12-75	
–	AC Consent	E02-06	
–	PL Socket	E03-02F	
–	Lug	E04-040	
–	Lug x 4	E04-101	
–	Lug x 4	E04-101C	
–	Lug x 11	E04-202	
–	5P Connector Socket	E07-35B	
–	Pin Jack 1P	E08-11C	
–	Pin Jack 2P x 2	E08-12H	
–	Pin Jack 4P	E08-14G	
–	Pin Jack 8P	E08-18E	
–	Handle x 2	E13-36	
–	US Jack x 2	E16-13	
–	Terminal 2P x 4	E20-0201-03	
–	Terminal 4P	E20-0402-03	
–	Transistor Socket x 4	E4082	
–	Beaded Band x 4	E4097	
–	Rubber Bushing	G02-020	
–	Rubber Packing	G03-29	
–	Rubber Band (1.6ϕ x 8 x 0.8 t Black)	G03-30	
–	Rubber Band (25ϕ x 8 x 0.8 t Black) x 2	G03-36	
–	Legs x 4	G10-02	
–	Cord Bushing	G11-19	
–	AC Cord Bushing	G11-25	
–	Polyethylene Cover (430 x 150 x 330)	H02-76	
–	Corrugated Cardboard Case	H04-AD1K	
–	Corrugated Cardboard Case (Exterior)	H04-AD1KB	
–	Instruction Manual	H05-AD1K	
–	Accessory of Corrugated Cardboard Case x 2	H09-AC0KA	
–	Accessory of Corrugated Cardboard Case x 2	H09-AC0KB	
–	Accessory of Corrugated Cardboard Case	H09-AC0KC	
–	Accessory of Corrugated Cardboard Case	H09-AD1KD	
–	Polyethylene Bag	H13-02	
–	Polyethylene Bag (110 x 230 0.07 t)	H13-21	
–	Schematic Diagram	H15-AD1K	

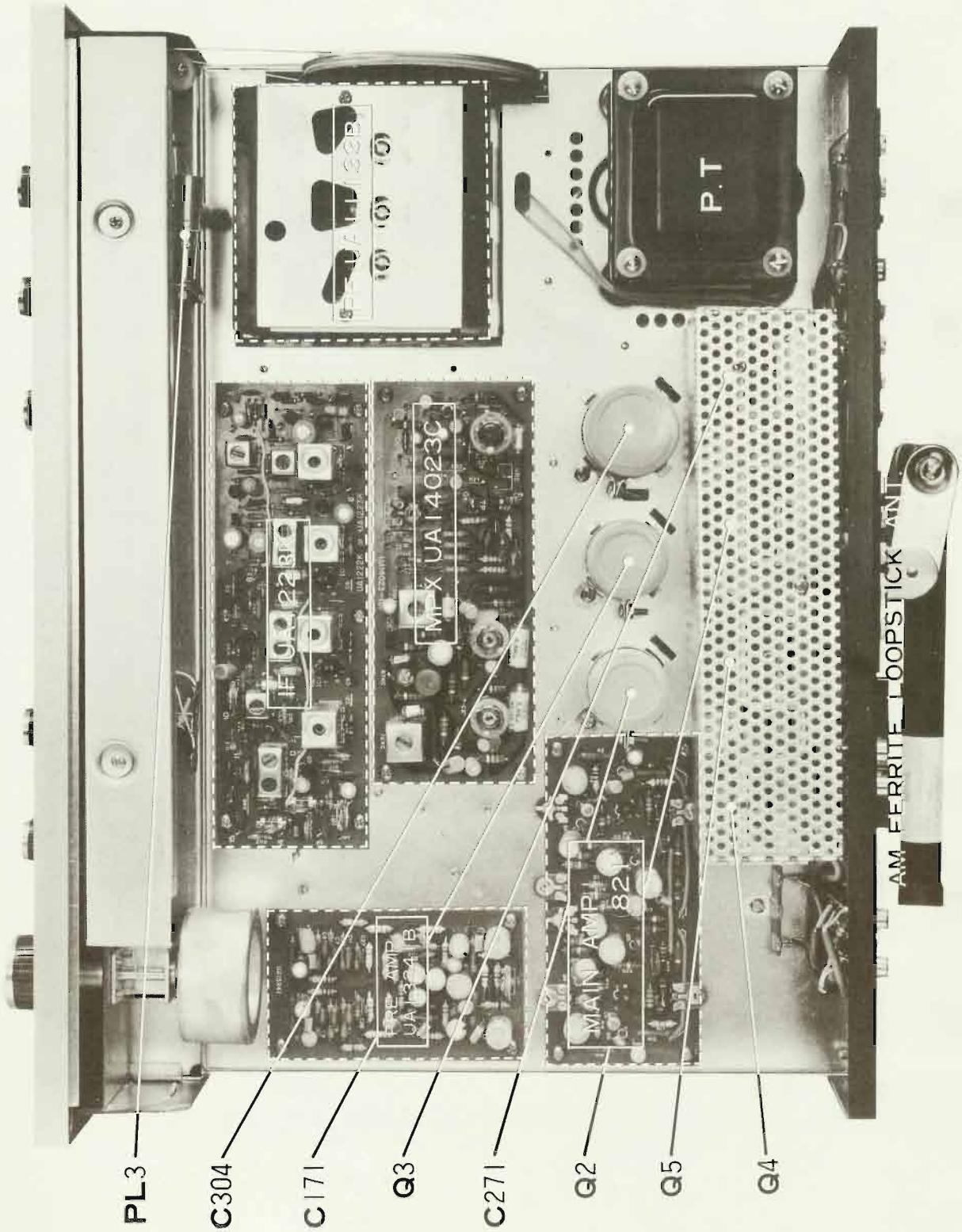
PARTS DESCRIPTION LIST

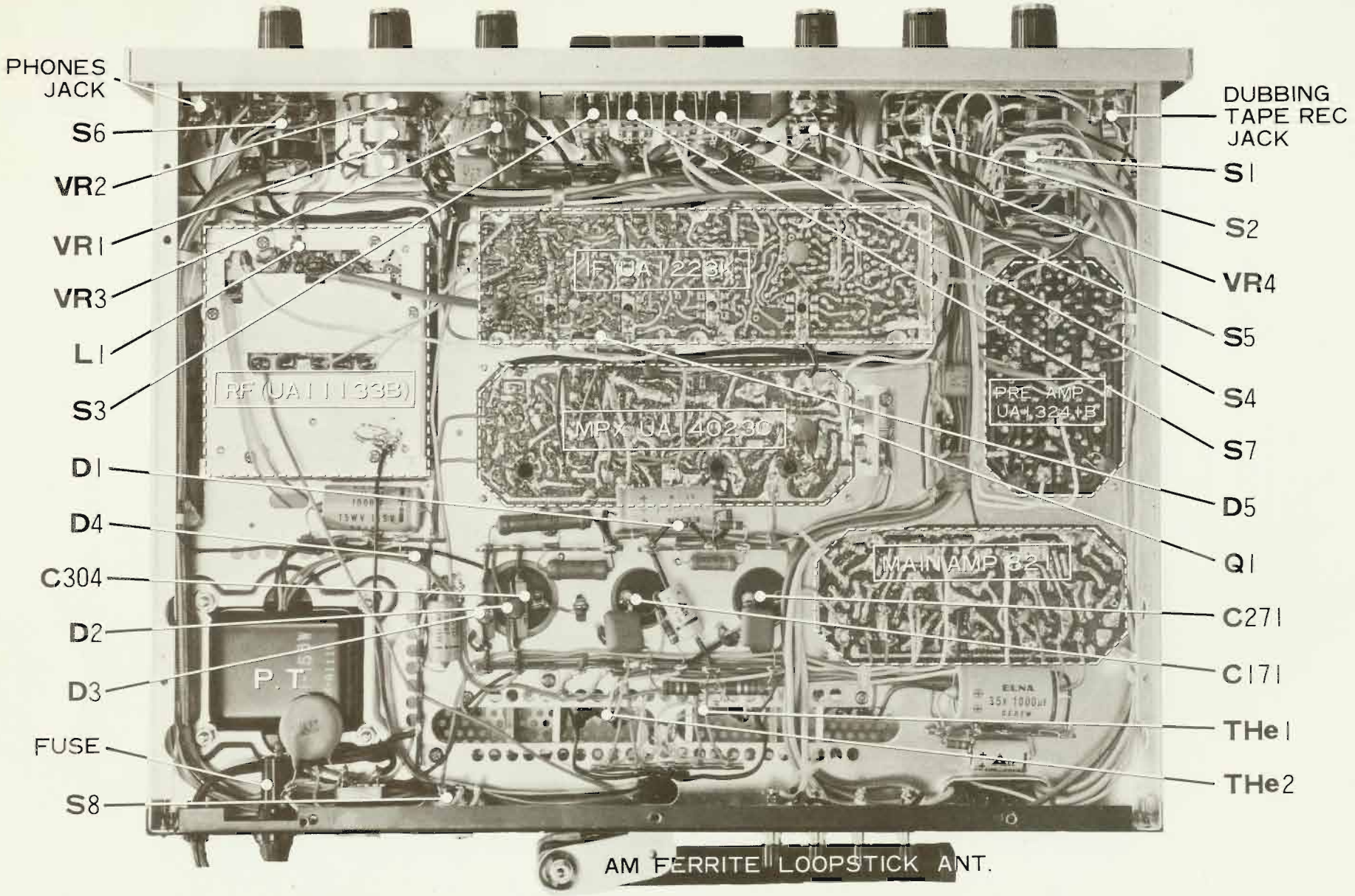
Symbol No.	Description	Part No.	Remarks
–	Warranty Card	H26-02	
–	Pasteboard (for Accessory)	H32-03	
–	Instruction (for Corrugated Cardboard Case)	H4068	
–	Instruction (for AC Power Select)	H4190	
–	Instruction (for AC Power Supply)	H4191	
–	Soft Tape (8 x 35 x 8t Gray) x 2	K11-95	
–	Soft Tape (8 x 50 x 10 t Gray) x 2	K11-98	
–	Soft Tape x 2	K11-402	
–	Soft Tape (10 x 50 x 5t Gray) x 2	K11-406	
ANT.	FM Antenna	L10-04	
ANT.	AM Ferrite Loopstick Antenna	L15-34	
L1	RF Choke Coil	L20-010	
–	Screw (for Terminal)	N08-0002-04	
–	Decorative Screw x 4	N11-63	
–	Speed Nut (Outside Diameter 8 x 14 3 m/m)	N4001	
–	Speed Nut x 2	N4012	
–	Knob BASS, TREBLE, VOLUME/BALANCE	S14-259	
–	Knob TUNING	S14-336	
–	Knob SELECTOR, OUTPUT, TAPE MONITOR/MODE	S14-835	
–	Knob BASS, TREBLE, VOLUME/BALANCE	S14-836	
–	Fuse Holder x 2	S15-09	
–	Fuse Holder x 2	S15-13	
P.L	Pilot Lamp x 2	S16-06	
P.L	Pilot Lamp	S16-19	
P.L	Pilot Lamp	S16-22	
F	Fuse (2A Tube)	S17-02	
–	Slider	S4077	
–	Switch Stopper	S4136	
P.T.	Power Transformer	T01-156W	
M	Meter TUNING	T11-97	
–	Tinned Wire (0.8φ) 0.07m	W03-08	
–	Tinned Wire (1.2φ) 0.2m	W03-12	
–	Tinned Wire (1.6φ) 0.15m	W03-16	
–	Vinyl Tube (1φ Transparency) 0.3m	W07-014	
–	Vinyl Tube (3φ Transparency) 0.3m	W07-03Z	
–	Vinyl Tube (6φ Transparency) 0.3m	W07-06Z	
–	Vinyl Tube (7φ Transparency) 0.23m	W07-07Z	
–	Insulating Tube (2φ) 1.1m	W07-020	
–	Insulating Tube (11φ) 0.1m	W07-110	
–	AC Cord (with Plug)	W09-15	
–	Low Capacitance Shielding Wire 0.2m	W11-012	
–	TV Feeder 0.5m	W16-01	
–	Pin Plug Cord x 2	W18-02	
–	Flexible Wire 6φ	W19-622	
–	P.V.C. Insulated Wire (Black 0.6φ) 4.2m	W32-50	
–	P.V.C. Insulated Wire (Red 0.6φ) 5.3m	W32-52	
–	P.V.C. Insulated Wire (Yellow 0.6φ) 4.0m	W32-54	
–	P.V.C. Insulated Wire (Blue 0.6φ) 4.5m	W32-56	
–	P.V.C. Insulated Wire (White 0.6φ) 4.5m	W32-59	
–	Single-Core Shielded Wire (Black) 1.0m	W51-010C	
–	Single-Core Shielded Wire (Brown) 1.0m	W51-011C	
–	Single-Core Shielded Wire (Red) 0.6m	W51-012C	
–	Single-Core Shielded Wire (Yellow) 2.3m	W51-014C	
–	Single-Core Shielded Wire (Blue) 2.3m	W51-016C	
–	Single-Core Shielded Wire (Gray) 1.2m	W51-018C	
–	Double-Core Shielded Wire 1.2m	W51-020	
–	Toothed Lock Washer KWI9-S		
–	Toothed Lock Washer KW14-S		
–	Flat Washer 4φ x 2		
–	Pan Head Screw (⊕ P3 x 6-F) x 54		
–	Pan Head Screw (⊕ P3 x 8-F) x 18		
–	Pan Head Screw (⊕ P3 x 10-F) x 10		
–	Pan Head Screw (⊕ P3 x 12-F) x 6		

PARTS DESCRIPTION LIST

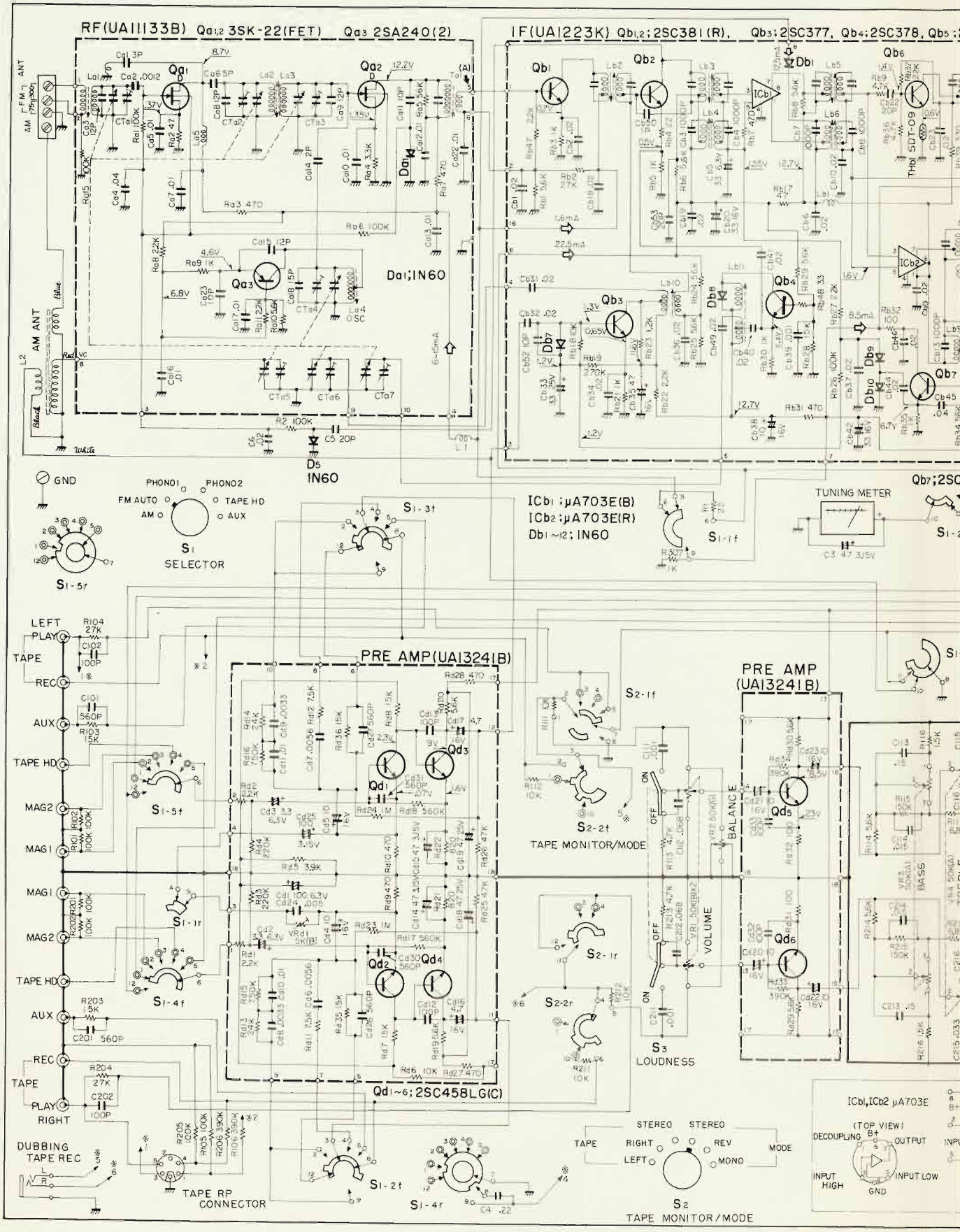
Symbol No.	Description	Part No.	Remarks
–	Pan Head Screw (⊕P3 x 20-F)		
–	Hexagon Nut (N3-F) x 20		
–	Hexagon Nut (N4-F)		
–	Flat Screw (⊕S3 x 6-F) x 4		
–	Flat Washer (W3-F) x 2		
–	Flat Washer (W4-F) x 6		
–	Tapping Screw (⊕TM3 x 6-F) x 29		
–	Tapping Screw (⊕TM3 x 8-F) x 18		
–	Tapping Screw (⊕TM4 x 6-F) x 7		
–	Tapping Screw (⊕TM4 x 10-F) x 10		
–	Screw (for AM Ferrite Loopstick Antenna)		

CHASSIS TOP VIEW

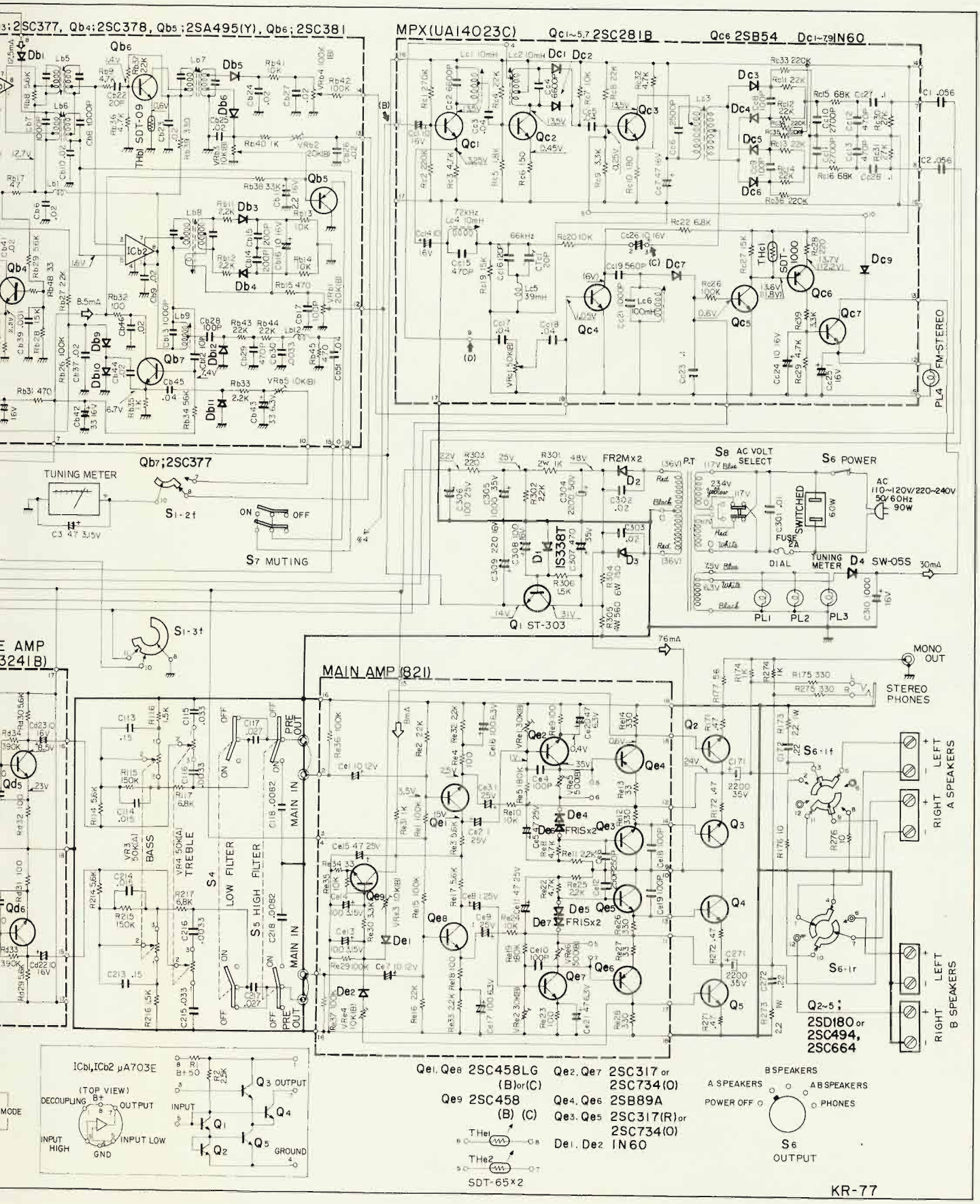




CHASSIS BOTTOM VIEW


RF(UA1133B) Qa1,2 3SK-22(FET) Qa3 2SA240(2)
IF(UA1223K) Qb1,2;2SC381(R), Qb3;2SC377, Qb4;2SC378, Qb5;
Da1;IN60
D5 1N60
ICb1;μA703E(B)
ICb2;μA703E(R)
Db1~12;1N60
Qb7;2SC
TUNING METER
GND
PHONO1
PHONO2
FM AUTO
TAPE HD
AM
AUX
S1 SELECTOR
S1-1f
S1-2f
S1-3f
S1-4f
S1-5f
PRE AMP(UA1324IB)
PRE AMP (UA1324IB)
Qd1~6;2SC458LG(C)
S2-1f
S2-2f
TAPE MONITOR/MODE
S2-1r
S2-2r
S3 LOUDNESS
BALANCE
VOLUME
BASS
LEFT PLAY
TAPE REC
AUX
TAPE HD
MAG2
MAG1
MAG1
MAG2
TAPE HD
AUX
REC
TAPE PLAY
RIGHT
DUBBING TAPE REC
TAPE RP CONNECTOR
S1-1r
S1-2r
S1-4r
S2 TAPE MONITOR/MODE
STEREO
REV
MONO
ICb1,ICb2 μA703E
(TOP VIEW)
DECOUPLING
OUTPUT
INPUT HIGH
INPUT LOW
GND

HEMATIC DIAGRAM



TUNER SECTION

FM ALIGNMENT PROCEDURE

1. Instruments: FM SG, AC VTVM and Oscilloscope
2. Warm-up: Allow 30 minutes warm-up period for receiver and equipments
3. Selector SW: Always place in FM AUTO position
4. Alignment tool: IF transformers require a plastic screwdriver-type alignment tool.

STEP	Align	Dummy Antenna	FM SSG		Tuning Dial Setting	Output Indicator	Adjust	Remarks
			Coupling	Input Signal				
1	IFT	Direct	High side to (A) Low side to Chassis	10.7 MHz (Unmod.)	Any non-interfering setting	Tuning Indicator	(UA11133B) Ta1 (UA1223K) Lb2, 3, 5 Top & Bottom	Maximum Deflection
2	DISCRIMINATOR	300 ohm Carbon Resistor	FM Antenna Terminal	98 MHz 400 Hz (Mod.) 75 kHz (Dev.) 0.5 ~ 1 mV (Input)	Tune for maximum using tuning indicator	VTVM at LEFT output jack of TAPE REC	(UA1223K) Lb7 Top & Bottom	Maximum Deflection
3	RF AMP CIRCUIT	300 ohm Carbon Resistor	FM Antenna Terminal	90 MHz 400 Hz (Mod.) 75 kHz (Dev.) 1.5 ~ 2μV (Input)	90 MHz	VTVM & X-tal earphone at LEFT output jack of TAPE REC	(UA11133B) La1 ~ La4	Maximum Deflection
4	RF AMP CIRCUIT	300 ohm Carbon Resistor	FM Antenna Terminal	106 MHz 400 Hz (Mod.) 75 kHz (Dev.) 1.5 ~ 2μV (Input)	106 MHz	VTVM & X-tal earphone at LEFT output jack of TAPE REC	(UA11133B) CTa1 ~ CTa4	Maximum Deflection
5	Repeat steps 3 & 4 until no further improvement is possible.							
6	OUTPUT LEVEL	300 ohm Carbon Resistor	FM Antenna Terminal	98 MHz 400 Hz (Mod.) 75 kHz (Dev.) 1mV (Input)	Tune for maximum using tuning indicator	VTVM & X-tal earphone at LEFT output jack of TAPE REC	(UA1223K) VRb 1	Set the output level to 1V
7	METER SETTING	300 ohm Carbon Resistor	FM Antenna Terminal	98 MHz 400 Hz (Mod.) 75 kHz (Dev.) 1mV (Input)	Tune for maximum deflection VTVM & X-tal earphone at LEFT output jack of TAPE REC	Tuning Indicator	(UA1223K) Lb7 VRb 2	"4" indicator

When
±1 dB
At AN
voltage
Be sure

1.
2.
3.

STE
1
2

1.
2.
3.

STE
1
2
3
4
5
6

ADJUSTING THE SQUELCH

(MUTING)

When the MUTING SWITCH is set to "ON" position with ANT input at 10 μV, the audio (AF) output should be within ±1 dB of the value at ANT input of 1 mV.
At ANT input of 2.5 μV with MUTING SWITCH set to "ON" position, adjust VRb3 (UA1223K) so that the audio frequency voltage is attenuated to below −40 dB.
Be sure that the set is inoperative when MUTING SWITCH is at "OFF" position.

FM MPX ALIGNMENT PROCEDURE

(a) SCA FILTER

1. Instruments: Audio SG, AC VTVM & Oscilloscope.
2. Selector SW: Always place in FM AUTO position.
3. Warm-up: Allow 30 minutes warm-up period for Receiver and equipments

STEP	Audio Signal Generator Coupling	Audio Signal Generator Frequency	AC VTVM & Oscilloscope Coupling	Adjust	Remarks
1	High side to (B) Low side to chassis	72 kHz (0.5V)	High side to (C) Low side to chassis	(UA14023C) Lc4	Minimum Deflection
2	High side to (B) Low side to chassis	66 kHz (0.5V)	High side to (C) Low side to chassis	(UA14023C) CTc1	Minimum Deflection

(b) MPX

1. Instruments: FM SG, Audio SG, AC VTVM & Oscilloscope.
2. Selector SW: Always place in FM AUTO position.
3. Warm-up: Allow 30 minutes warm-up period for Receiver and equipments.

(Field Strength: 1000 μV at Antenna Terminal)

STEP	FM SSG			19 kHz Pilot Carrier Switch	VTVM & Oscilloscope Connection	Adjust	Remarks
	Coupling	Modulation Frequency	Input Selector				
1	FM Antenna terminal	OFF	OFF	ON	High side to (C) Low side to chassis	(UA14023C) Lc1, Lc2	Maximum Deflection
2	FM Antenna terminal	OFF or 400 Hz	A + B or REVERSE	ON	OFF	(UA14023C) VRc1	Beacon Lamp "ON"
3	To distant of Antenna terminal	400 Hz	A +B or REVERSE	ON	LEFT or RIGHT output jack of TAPE REC	(UAl4023C) Lc3	To obtain a wave form with maximum amplitude and minimum distortion at 400 Hz on oscilloscope
4	FM Antenna terminal	2,000 Hz	A or LEFT	ON	RIGHT output	(UA13241B) VRd1	Minimum Deflection
5	FM Antenna terminal	2,000 Hz	B or RIGHT	ON	LEFT output	(UA13241B) VRd1	Minimum Deflection
6	Repeat steps 4 & 5 until no further improvement is possible.						

(C) BEACON LAMP

1. Instruments: FM SG, FM Stereo Signal Generator.
   Audio SG, AC VTVM (or Circuit Tester) & Oscilloscope.
2. Selector SW: Always place in FM AUTO position.
3. Warm-up: Allow 30 minutes warm-up period for Receiver and equipments.

STEP	FM SSG			19 kHz Pilot Carrier Switch	AC VTVM Oscilloscope Connection	DC VTVM or Circuit Tester Connection	Adjust	Remarks
	Coupling	Modulation Frequency	Input Selector					
1	FM Antenna terminal	98 MHz MOD. F 400 Hz DEV. ±67.5 kHz 1 mV (Input)	Normal	ON	LEFT or RIGHT output Jack of TAPE REC	(UA14023C) "Collector" of Qc4 (T.P.)	(UA1223K) VRb4	6V Tester (DC)
2	FM Antenna terminal	DEV. 25 kHz ±5 kHz	Normal	ON	LEFT or RIGHT output Jack of TAPE REC	OFF	(UA14023C) VRc1	Beacon Lamp "ON"
3	FM Antenna terminal	DEV. 25 kHz ±5 kHz	Normal	ON	LEFT or RIGHT output Jack of TAPE REC	OFF	(UA14023C) Lc6	Beacon Lamp Maximum Brightness
4	FM Antenna terminal	DEV. 25 kHz ±5 kHz	Normal	ON	LEFT or RIGHT output Jack of TAPE REC	OFF	(UA14023C) VRc1	Beacon Lamp Threshold of light off
5	FM Antenna terminal	DEV. ±67.5 kHz 10 μV	Normal	ON	LEFT or RIGHT output Jack of TAPE REC	OFF		Certify the light of Beacon Lamp

ALIGNMENT PROCEDURE

AM ALIGNMENT PROCEDURE

1. Alignment tool: IF transformers require a plastic screwdriver-type alignment tool.
2. Instruments: AM SG, AC VTVM & Oscilloscope.
3. Selector SW: Always place in AM position.
4. Warm-up: Allow 30 minutes warm-up period for Receiver and equipment.

STEP	Dummy Antenna	AM Signal Generator Coupling	Signal Generator Frequency	Tuning Dial Setting	Indicating Meter	Adjust	Remarks
1	Direct	High side to AM antenna terminal, Low side to chassis	455 kHz (400 Hz 30% AM)	Any non-interfering	Tuning Indicator	(UA1223K) Lb4, 6, 9	Maximum Deflection
2		Connect to short loop of wire, Radiate Signal into ferrite loop stick antenna of receiver	600 kHz (400 Hz 30% AM)	600 kHz	Tuning Indicator	(UA1223K) Lb10, Lb11 L2 (BAR ANT.)	Maximum Deflection
3		Connect to short loop of wire, Radiate Signal into ferrite loop stick antenna of receiver	1,400 kHz (400 Hz 30% AM)	1,400 kHz	Tuning Indicator	(UA11133B) CTa5 ~ 7	Maximum Deflection
4	Repeat steps 2 & 3 until no further improvement is possible.						

AMPLIFIER SECTION

PROTECTION ADJUSTMENT PROCEDURES

With an input at AUX, SELECTOR SWITCH at AUX, MODE SWITCH at STEREO, VR max, TONE at FLAT, each LEVER SWITCH at normal, and the connected load to be 4 ohms, gradually increase the input of until the waveforms are clipped, while observing the waveform with the oscilloscope.

At this point, set VRe3 in case of MAIN AMP (821) LEFT-CH and VRe4 in case of RIGHT-CH so that the waveforms show fluctuation. For the sake of good order, repeat lowering and increasing the input to make sure whether any fluctuation is noted in the waveforms before or after the clipping points with the contact load changed to 8 ohms.

The waveforms on the oscilloscope should show iterative effect in case the terminals of the load and short-circuited.

PROCEDURE FOR REPLACING OUTPUT TRANSISTOR

Symptoms:

A. When there is load hum at the speakers.
B. When there is no output at all.
C. When you cannot get rated output.

Replacing Method:

Replace all the four transistors, 2SD180 (NEC) 2SC494 (Y) (Toshiba), 2SC664 (Hitachi) and 2N1488 ~ 90, 2N3055, 2N3772 (RCA).

Adjusting Procedures:

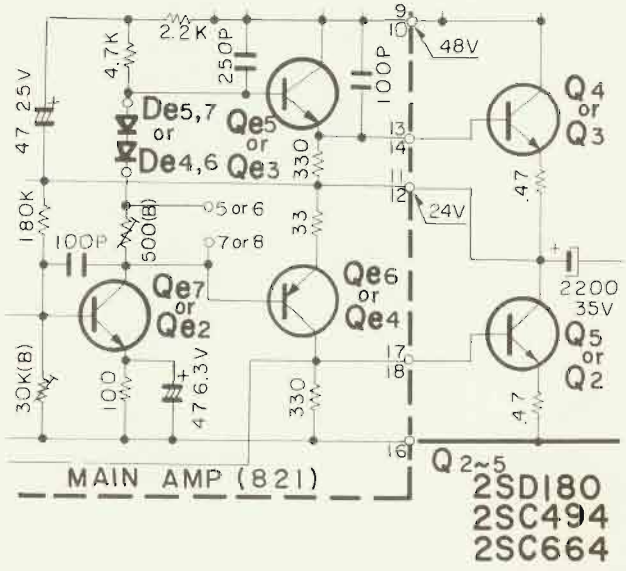
Connect dummy load to output terminals, and connect to the oscilloscope input in parallel.
Set audio generator at 100mV 1000Hz and connect to the AUX terminals.
Advance the front panel volume control until the sine-wave just begins to clip on the oscilloscope.
Adjust DC balance control VRe1 (LEFT) or VRe2 (RIGHT) on the print board "821" until clipping is symmetrical.

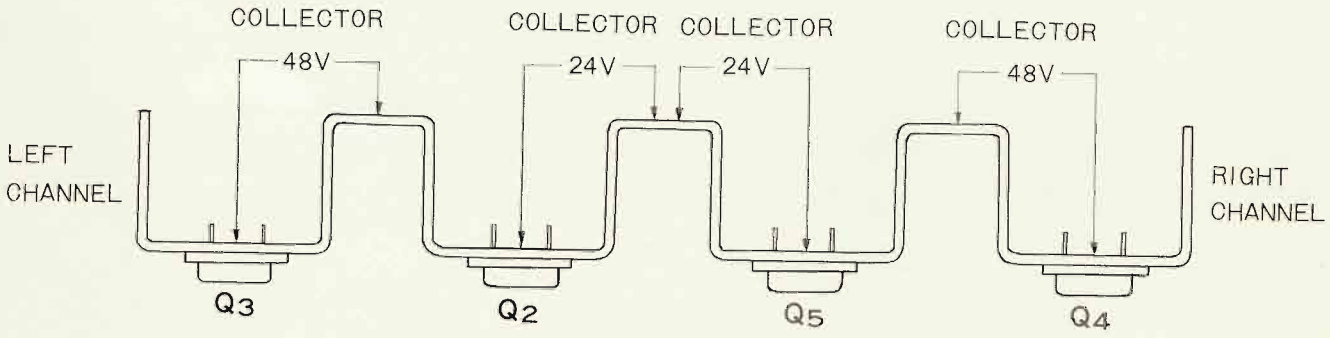
Testing Procedures:

Until replacement is completed, do not operate the set the unit without first testing.
Perform the test according to the following procedures.

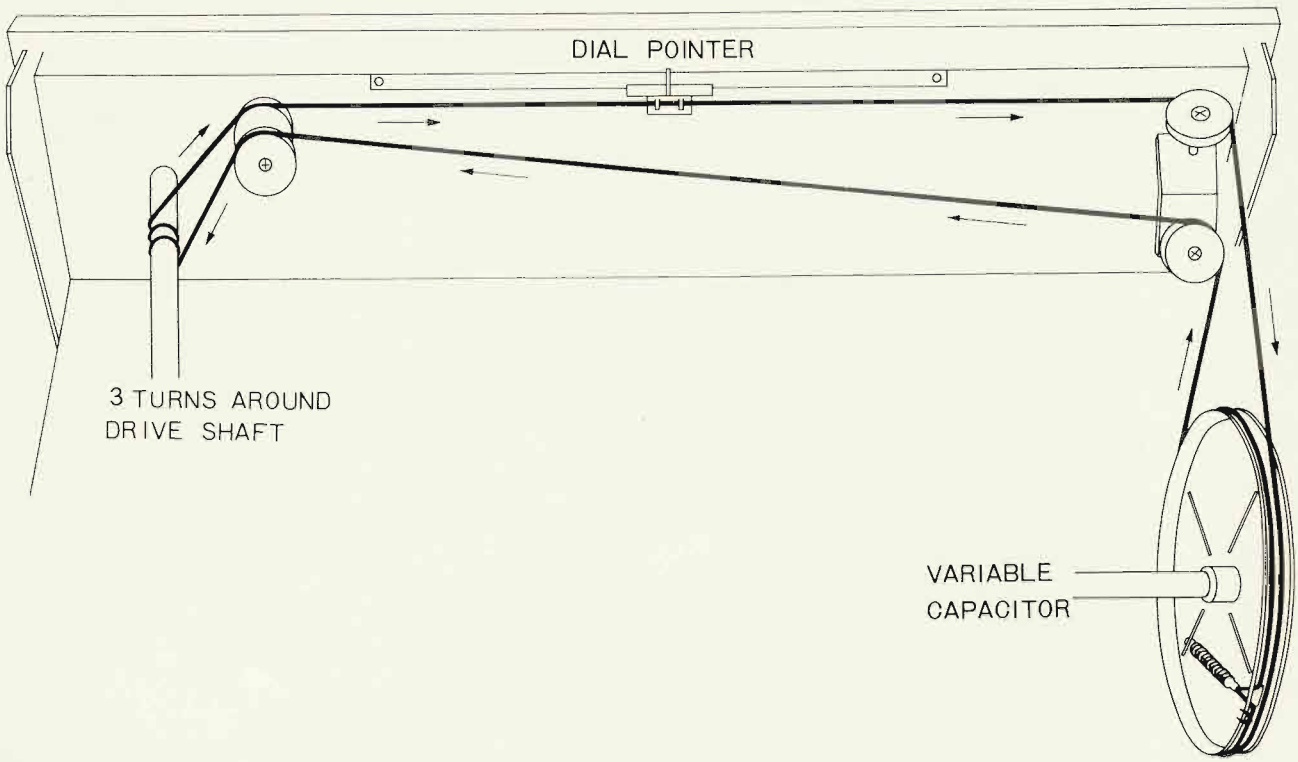
1. Using variable transformer, lower the AC line voltage to approximately 30 volts.
2. Using a tester, measure the voltage between the chassis and "collector" of the power transistor Q4 or Q3.
   If a tester indicates approximately 48V, it is normal.
3. Also measure the voltage between the chassis and "collector" of the power transistor Q5 or Q2.
   If a tester indicates approximately 24V, it is normal.

BOTTOM VIEW OF TRANSISTORS





DIAL CORD STRINGING



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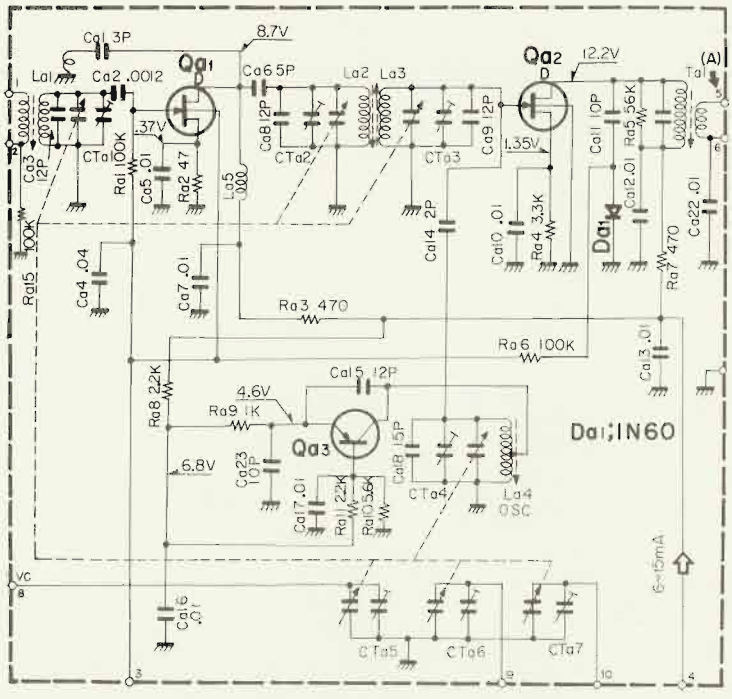
FM RF (UA11133B) SECTION

(KR-77)

SCHEMATIC DIAGRAM

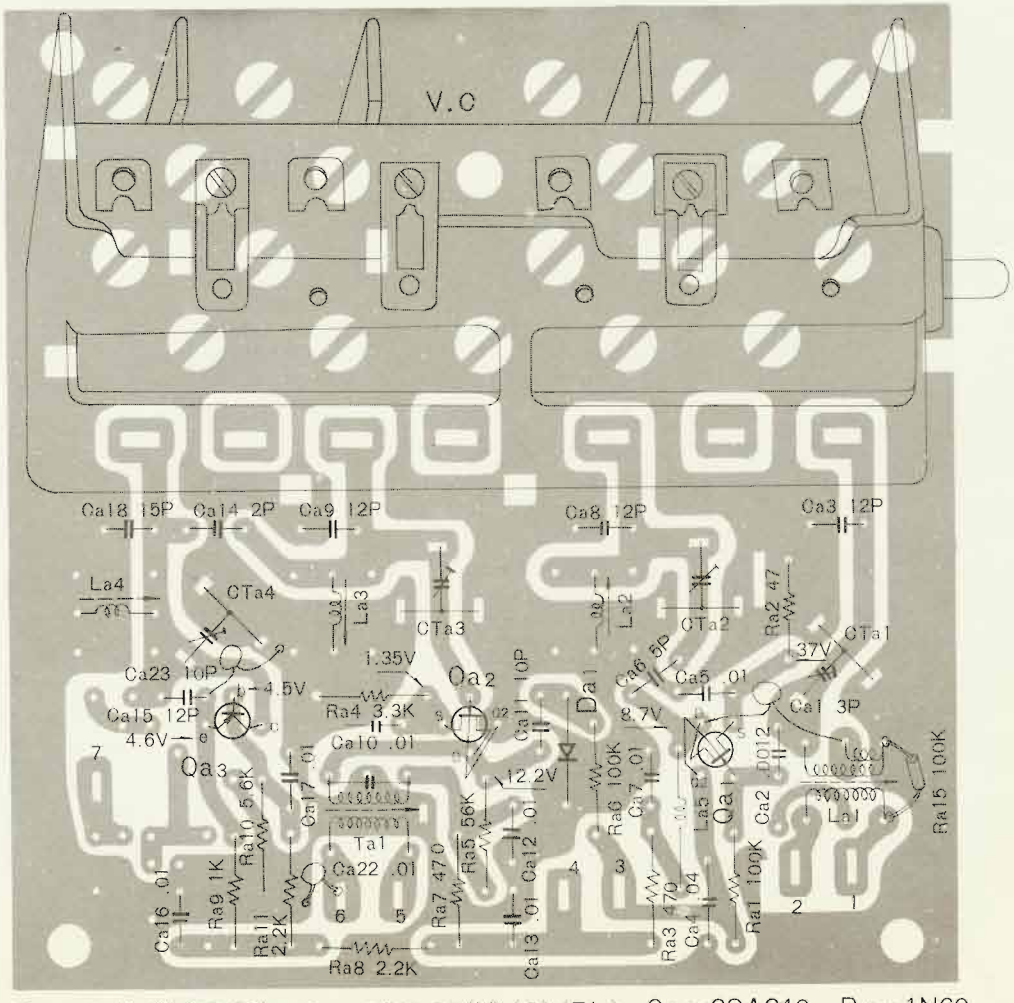


BOTTOM VIEW OF TRANSISTORS

3SK22(Y)or(GR)
3SK22(Y)(GR)or(BL)

2SA240

SEALED CIRCUIT ASSEMBLIES-PHANTOM VIEWS



Qa1; 3SK-22(Y)(G) Qa2; 3SK-22(Y)(G)(BL) Qa3; 2SA240 Da1; 1N60

PARTS DESCRIPTION LIST

Symbol No.	Description				Part No.	Remarks
	CAPACITORS					
Ca1	Ceramic	3PF	±0.25PF			
Ca2	Ceramic	0.0012μ F	±20%			
Ca3	Ceramic	12PF	±10%			
Ca4	Ceramic	0.04μ F	±5%			
Ca5	Ceramic	0.01μ F	±5%			
Ca6	Ceramic	5PF	±0.5PF			
Ca7	Ceramic	0.01μ F	±5%			
Ca8,9	Ceramic	12PF	±10%			
Ca10	Ceramic	0.01μ F	±5%			
Ca11	Ceramic	10PF	±10%			
Ca12,13	Ceramic	0.01μ F	±5%			
Ca14	Ceramic	2PF	±0.25PF			
Ca15	Ceramic	12PF	±10%			
Ca16,17	Ceramic	0.01μ F	±5%			
Ca18	Ceramic	15PF	±10%			
Ca22	Ceramic	0.01μ F	±5%			
Ca23	Ceramic	10PF	±10%			
CTa1~4	Ceramic Trimmer				C4036	
V.C	Variable Capacitor				D01-146	
	RESISTORS					
Ra1	Fixed Carbon Composition	100KΩ	±10%	¼W		
Ra2	Fixed Carbon Composition	47Ω	±10%	¼W		
Ra3	Fixed Carbon Composition	470Ω	±10%	¼W		
Ra4	Fixed Carbon Composition	3.3KΩ	±10%	¼W		
Ra5	Fixed Carbon Composition	56KΩ	±10%	¼W		
Ra6	Fixed Carbon Composition	100KΩ	±10%	¼W		
Ra7	Fixed Carbon Composition	470Ω	±10%	¼W		
Ra8	Fixed Carbon Composition	2.2KΩ	±10%	¼W		
Ra9	Fixed Carbon Composition	1KΩ	±10%	¼W		
Ra10	Fixed Carbon Composition	5.6KΩ	±10%	¼W		
Ra11	Fixed Carbon Composition	2.2KΩ	±10%	¼W		
Ra15	Fixed Carbon Composition	100KΩ	±10%	¼W		
	COILS/TRANSFORMER					
La1	FM ANT Coil				L24-UA11143A	
La2	FM RF Coil				L24-UA11143RA	
La3	FM RF Coil				L24-UA11143RB	
La4	FM OSC Coil				L24-UA11173S	
La5	Choke Coil				L20-010C	
Ta1	FM IFT				L52-10	
	TRANSISTORS/DIODE					
Qa1	3SK22 (Y) or (G), M9085B FET					
Qa2	3SK22 (Y), (G) or (BL), M9085B FET					
Qa3	2SA240					
Da1	1N60					
	MISCELLANEOUS					
–	Printed Circuit Board				S23-185	
–	Front Chassis				A03-UA11143	
–	Front Back Panel				A08-UA11143	
–	Front Shielding Board				A13-UA11133	
–	Front Cover				A90-UA11143	
–	Terminal x 6				N4086	
–	Screw (⊕P3 x 6-F) x 5					
–	Screw (⊕P3 x 4-F) x 2					
–	Vinyl Tube (1.0φ) 0.1m				W07-014	

Cb53	Ceramic	20pF	±10%				

RESISTORS

Rb1	Special Insulated Carbon Film	5.6kΩ	±10%	1/8W		
Rb2	Special Insulated Carbon Film	27kΩ	±10%	1/8W		
Rb3	Special Insulated Carbon Film	1kΩ	±10%	1/8W		
Rb4	Special Insulated Carbon Film	22Ω	±10%	1/8W		
Rb5	Special Insulated Carbon Film	1kΩ	±10%	1/8W		
Rb6	Special Insulated Carbon Film	5.6kΩ	±10%	1/8W		
Rb7	Special Insulated Carbon Film	470Ω	±10%	1/8W		
Rb8	Special Insulated Carbon Film	5.6kΩ	±10%	1/8W		
Rb9	Special Insulated Carbon Film	4.7kΩ	±10%	1/4W		
Rb11, 12	Special Insulated Carbon Film	2.2kΩ	±10%	1/8W		
Rb13, 14	Special Insulated Carbon Film	10kΩ	±10%	1/8W		
Rb15	Special Insulated Carbon Film	470Ω	±10%	1/8W		
Rb17	Special Insulated Carbon Film	47Ω	±10%	1/8W		
Rb18	Special Insulated Carbon Film	10kΩ	±10%	1/8W		
Rb19	Special Insulated Carbon Film	270kΩ	±10%	1/4W		
Rb21	Special Insulated Carbon Film	1kΩ	±10%	1/8W		
Rb22	Special Insulated Carbon Film	2.2kΩ	±10%	1/8W		
Rb23	Special Insulated Carbon Film	1.2kΩ	±10%	1/8W		
Rb24	Special Insulated Carbon Film	56kΩ	±10%	1/8W		
Rb25	Special Insulated Carbon Film	5.6kΩ	±10%	1/8W		
Rb26	Special Insulated Carbon Film	100kΩ	±10%	1/8W		
Rb27	Special Insulated Carbon Film	22kΩ	±10%	1/8W		
Rb28	Special Insulated Carbon Film	15kΩ	±10%	1/8W		

Lb11	AM OSC Coil	L11-70	
Lb12	Choke Coil	L20-010C	

IC's/TRANSISTORS

ICb1	μA703E (B)		
ICb2	μA703E (R)		
Qb1, 2	2SC381 (R)		
Qb3	2SC377		
Qb4	2SC378		
Qb5	2SA495 (Y)		
Qb6	2SC381		
Qb7	2SC377		

DIODES/THERMISTOR

Db1	1N60		
Db3~12	1N60		
THb1	SDT-09		

MISCELLANEOUS

—	Printed Circuit Board	S23-292	
—	Terminal x 16	N4085	
—	Tinned Wire (0.5φ TCW) 0.1 m	W03-05	
—	Vinyl Tube (1φ Yellow) 0.05 m	W07-014	
—	Insulating Sleeve 0.1 m	W07-154	
—	P.V.C Insulated Wire (White) 0.5φ 0.1 m	W32-59	

PARTS DESCRIPTION LIST

Symbol No.	Description	Part No.	Remarks
	CAPACITORS		
Cb1, 2	Ceramic 0.02μF +80%, −20%		
Cb3, 4	Polystyrene Film 1000pF ±20%		
Cb5	Electrolytic Tubular 33μF 6.3WV		
Cb6	Ceramic 0.02μF +80%, −20%		
Cb7, 8	Polystyrene Film 1000pF ±20%		
Cb9, 10	Ceramic 0.02μF +80%, −20%		
Cb11	Electrolytic Tubular 2.2μF 16WV		
Cb12	Ceramic 10pF ±0.5pF		
Cb13	Polystyrene Film 1000pF ±20%		
Cb14, 15	Ceramic 200pF ±10%		
Cb16	Electrolytic Tubular 10μF 16WV		
Cb17	Ceramic 100pF ±10%		
Cb18, 19	Ceramic 0.02μF +80%, −20%		
Cb20	Electrolytic Tubular 33μF 16WV		
Cb22	Ceramic 20pF ±10%		
Cb23~27	Ceramic 0.02μF +80%, −20%		
Cb28	Ceramic 100pF ±10%		
Cb29	Ceramic 470pF ±20%		
Cb30	Ceramic 3300pF ±20%		
Cb31, 32	Ceramic 0.02μF +80%, −20%		
Cb33	Electrolytic Tubular 3.3μF 25WV		
Cb34	Ceramic 0.02μF +80%, −20%		
Cb35	Electrolytic Tubular 47μF 16WV		
Cb36, 37	Ceramic 0.02μF +80%, −20%		
Cb38	Electrolytic Tubular 10μF 16WV		
Cb39	Ceramic 0.001μF +80%, −20%		
Cb40, 41	Ceramic 0.02μF +80%, −20%		
Cb42	Electrolytic Tubular 33μF 16WV		
Cb43	Electrolytic Tubular 33μF 6.3WV		
Cb44	Ceramic 0.02μF +80%, −20%		
Cb45	Ceramic 0.04μF +80%, −20%		
Cb46, 49	Ceramic 0.02μF +80%, −20%		
Cb50	Ceramic 1pF ±0.5pF		
Cb51	Ceramic 0.04μF +80%, −20%		
Cb52	Ceramic 10pF ±0.5pF		
Cb53	Ceramic 20pF ±10%		
	RESISTORS		
Rb1	Special Insulated Carbon Film 5.6kΩ ±10% 1/8W		
Rb2	Special Insulated Carbon Film 27kΩ ±10% 1/8W		
Rb3	Special Insulated Carbon Film 1kΩ ±10% 1/8W		
Rb4	Special Insulated Carbon Film 22Ω ±10% 1/8W		
Rb5	Special Insulated Carbon Film 1kΩ ±10% 1/8W		
Rb6	Special Insulated Carbon Film 5.6kΩ ±10% 1/8W		
Rb7	Special Insulated Carbon Film 470Ω ±10% 1/8W		
Rb8	Special Insulated Carbon Film 5.6kΩ ±10% 1/8W		

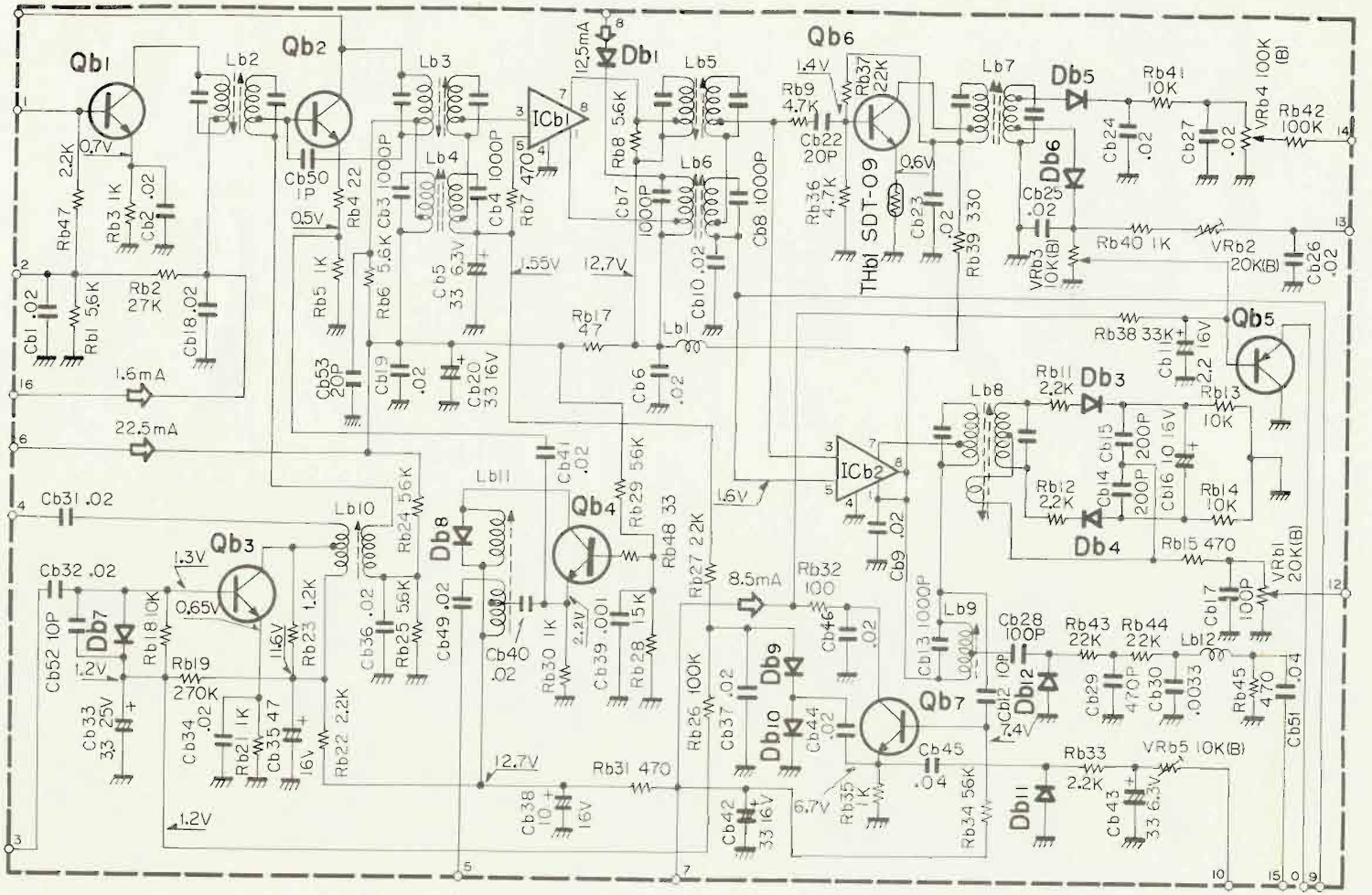
Symbol No.	Description	Part No.	Remarks
Rb29	Special Insulated Carbon Film 56kΩ ±10% 1/8W		
Rb30	Special Insulated Carbon Film 1kΩ ±10% 1/8W		
Rb31	Special Insulated Carbon Film 470Ω ±10% 1/8W		
Rb32	Special Insulated Carbon Film 100Ω ±10% 1/8W		
Rb33	Special Insulated Carbon Film 2.2kΩ ±10% 1/8W		
Rb34	Special Insulated Carbon Film 56kΩ ±10% 1/8W		
Rb35	Special Insulated Carbon Film 1kΩ ±10% 1/8W		
Rb36	Special Insulated Carbon Film 4.7kΩ ±10% 1/8W		
Rb37	Special Insulated Carbon Film 22kΩ ±10% 1/8W		
Rb38	Special Insulated Carbon Film 33kΩ ±10% 1/8W		
Rb39	Special Insulated Carbon Film 330Ω ±10% 1/4W		
Rb40	Special Insulated Carbon Film 1kΩ ±10% 1/8W		
Rb41	Special Insulated Carbon Film 10kΩ ±10% 1/8W		
Rb42	Special Insulated Carbon Film 100kΩ ±10% 1/8W		
Rb43, 44	Special Insulated Carbon Film 22kΩ ±10% 1/8W		
Rb45	Special Insulated Carbon Film 470Ω ±10% 1/8W		
Rb47	Special Insulated Carbon Film 2.2kΩ ±10% 1/8W		
Rb48	Special Insulated Carbon Film 33Ω ±10% 1/8W		
	POTENTIOMETERS		
VRb1	20kΩ (B)	R10-75	
VRb2	20kΩ (B)	R10-115	
VRb3	10kΩ (B)	R10-63	
VRb4	100kΩ (B)	R10-91	
VRb5	10kΩ (B)	R10-114	
	COILS/TRANSFORMERS		
Lb1	Choke Coil	L20-010C	
Lb2	FM IFT	L02-104	
Lb3	FM IFT	L02-102	
Lb4	AM IFT	L01-88	
Lb5	FM IFT	L02-102	
Lb6	AM IFT	L01-88	
Lb7	FM IFT (MUTING)	L02-95	
Lb8	FM IFT (DETECTOR)	L02-64	
Lb9	AM IFT (DETECTOR)	L01-89	
Lb10	AM RF Coil	L12-61	
Lb11	AM OSC Coil	L11-70	
Lb12	Choke Coil	L20-010C	
	IC's/TRANSISTORS		
ICb1	μA703E (B)		
ICb2	μA703E (R)		
Qb1, 2	2SC381 (R)		
Qb3	2SC377		
Qb4	2SC378		
Qb5	2SA495 (Y)		

KENWOOD

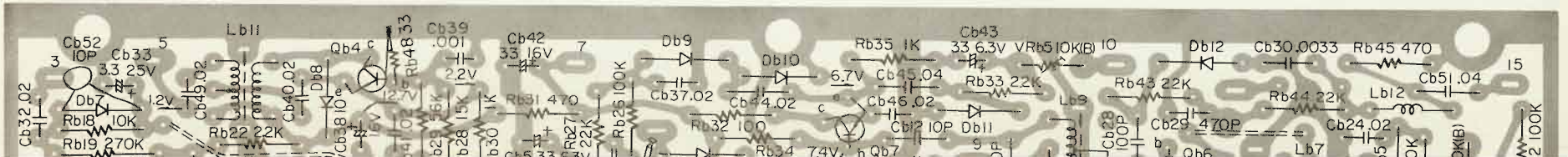
IF (UA1223K) SECTION

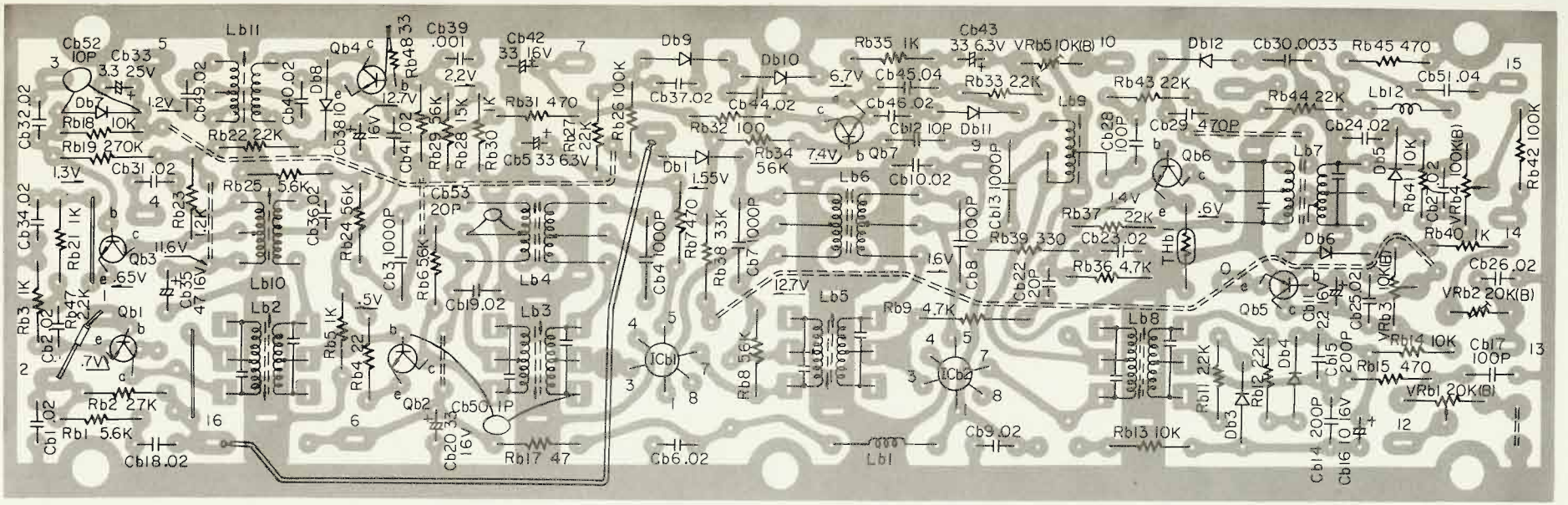
(KR-77)

SCHEMATIC DIAGRAM



SEALED CIRCUIT ASSEMBLIES-PHANTOM VIEWS



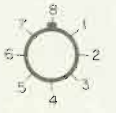


ICb1 ; μA703E(B), ICb2 ; μA703E(R), Db1 ~ 12 ; 1N60 Qb1,2 ; 2SC381(R), Qb3 ; 2SC377, Qb4 ; 2SC378, Qb5 ; 2SA495(Y), Qb6 ; 2SC381

BOTTOM VIEW OF TRANSISTORS

2SC381
2SC381(R)
2SC377
2SC378
2SA495(Y)

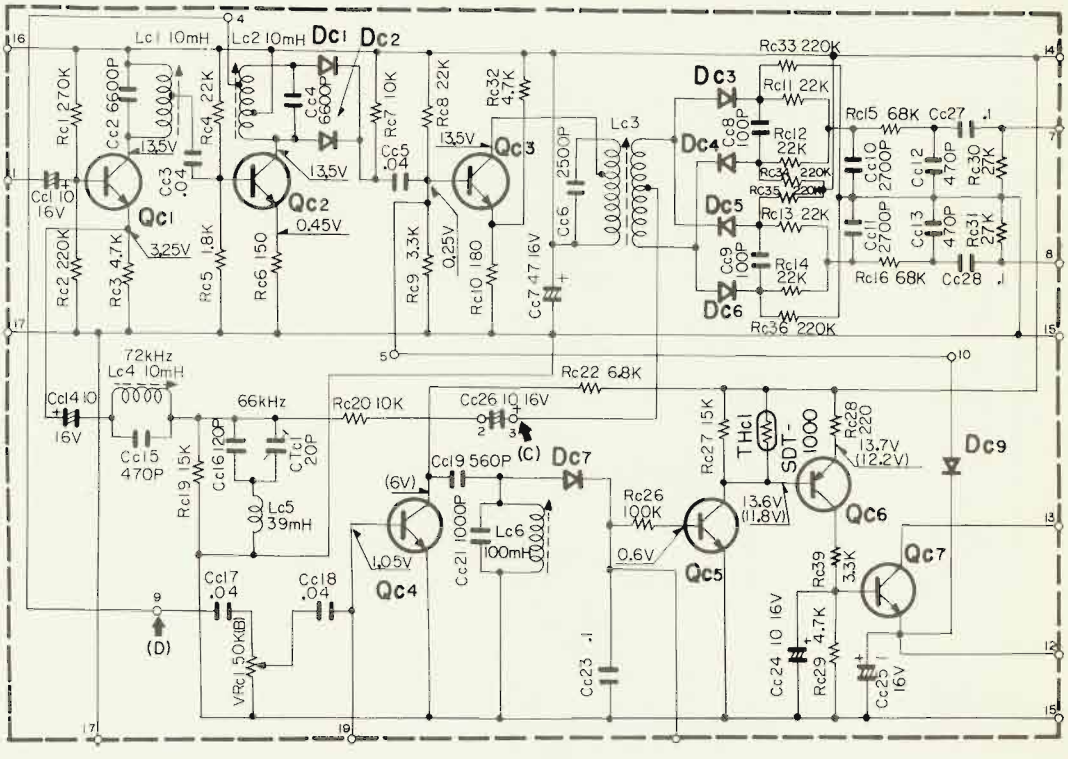
μA703E(B)
μA703E(R)



SCHEMATIC DIAGRAM

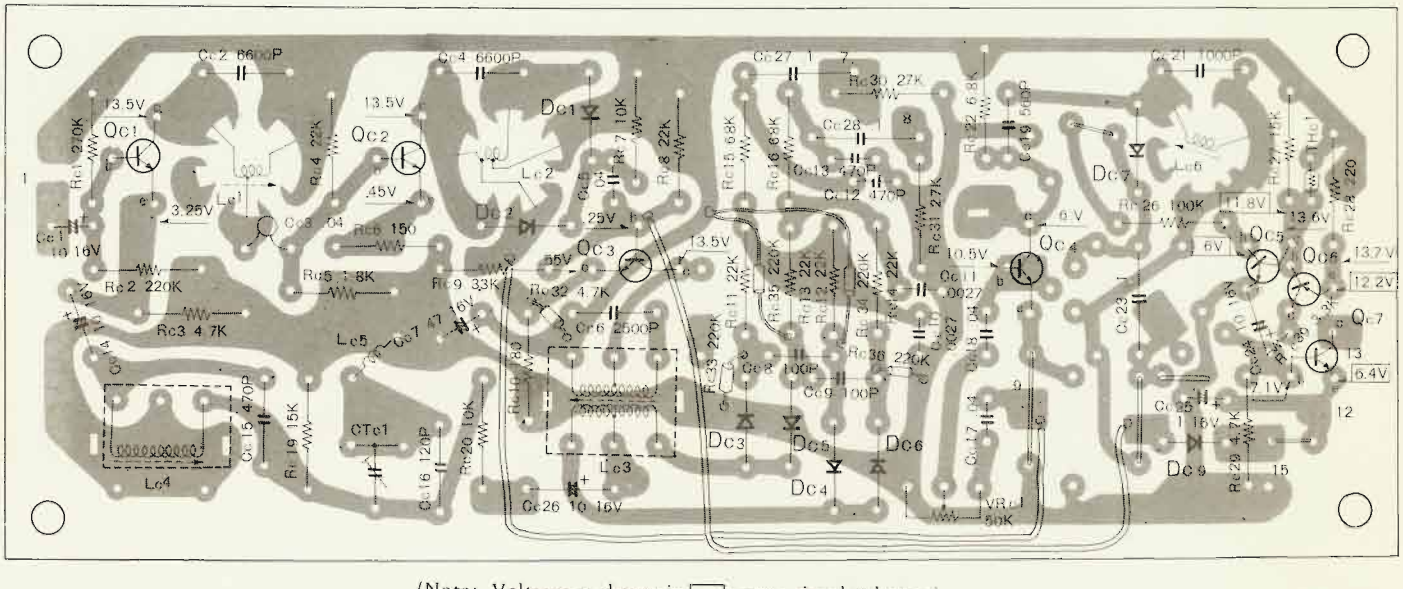
BOTTOM VIEW OF TRANSISTORS

2SB54
2SC281(B)



SEALED CIRCUIT ASSEMBLIES-PHANTOM VIEWS

Qc1~5,7 2SC281B Qc6 2SB54 Dc1~9 1N60 THc1 SDT-1000



(Note: Voltages as shown in ☐ mean signal voltages.)

PARTS DESCRIPTION LIST

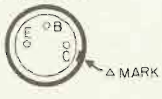
Symbol No.	Description				Part No.	Remarks
	CAPACITORS					
Cc1	Electrolytic Tubular	10μF	16WV			
Cc2	Polystyrene Film	6600PF	±5%			
Cc3	Ceramic	0.04μF	±5%			
Cc4	Polystyrene Film	6600PF	±5%			
Cc5	Ceramic	0.04μF	±5%			
Cc6	Polystyrene Film	2500PF	±5%			
Cc7	Electrolytic Tubular	47μF	16WV			
Cc8,9	Ceramic	100PF	±10%			
Cc10,11	Mylar	2700PF	±10%			
Cc12,13	Ceramic	470PF	±10%			
Cc14	Electrolytic Tubular	10μF	16WV			
Cc15	Polystyrene Film	470PF	±5%			
Cc16	Polystyrene Film	120 PF	±5%			
Cc17,18	Ceramic	0.04μF	±5%			
Cc19	Ceramic	560PF	±20%			
Cc21	Polystyrene Film	1000PF	±5%			
Cc23	Mylar	0.1μF	±20%			
Cc24	Electrolytic Tubular	10μF	16WV			
Cc25	Electrolytic Tubular	1μF	16WV			
Cc26	Electrolytic Tubular	10μF	16WV			
Cc27,28	Mylar	0.1μF	±10%			
CTc1	Trimmer	20PF			C4046	
	RESISTORS					
Rc1	Fixed Carbon Composition	270K Ω	±10%	½W		
Rc2	Fixed Carbon Composition	220K Ω	±10%	½W		
Rc3	Fixed Carbon Composition	4.7K Ω	±10%	½W		
Rc4	Fixed Carbon Composition	22KΩ	±10%	½W		
Rc5	Fixed Carbon Composition	1.8KΩ	±10%	½W		
Rc6	Fixed Carbon Composition	150Ω	±10%	½W		
Rc7	Fixed Carbon Composition	10K Ω	±10%	½W		
Rc8	Fixed Carbon Composition	22K Ω	±10%	½W		
Rc9	Fixed Carbon Composition	3.3K Ω	±10%	½W		
Rc10	Fixed Carbon Composition	180 Ω	±10%	½W		
Rc11~14	Special Insulated Carbon Film	22K Ω	±5%	¼W		
Rc15,16	Fixed Carbon Composition	68K Ω	±5%	¼W		
Rc19	Fixed Carbon Composition	15K Ω	±10%	½W		
Rc20	Fixed Carbon Composition	10K Ω	±10%	½W		
Rc22	Fixed Carbon Composition	6.8K Ω	±10%	½W		
Rc26	Fixed Carbon Composition	100K Ω	±10%	½W		
Rc27	Fixed Carbon Composition	15K Ω	±10%	½W		
Rc28	Fixed Carbon Composition	220 Ω	±10%	½W		
Rc29	Fixed Carbon Composition	4.7K Ω	±10%	½W		
Rc30,31	Fixed Carbon Composition	27K Ω	±5%	¼W		
Rc32	Fixed Carbon Composition	4.7K Ω	±10%	¼W		
Rc33~36	Fixed Carbon Composition	220K Ω	±5%	¼W		
Rc39	Fixed Carbon Composition	3.3K Ω	±10%	¼W		
	POTENTIOMETER					
VRc1	50KΩ (B)				R10-56	
	COILS					
Lc1	19kHz Tune Coil				L17-04	
Lc2	19kHz Tune Coil				L17-05	
Lc3	38kHz Tune Coil				L17-43	
Lc4	Filter Coil				L17-44	
Lc5	Ferri-Inductor 39mH					
Lc6	19kHz Tune Coil				L17-23	
	TRANSISTORS/DIODES/THERMISTOR					
Qc1~5	2SC281B					
Qc6	2SB54					
Qc7	2SC281B					
Dc1~7,9	1N60					
THc1	SDT-1000					
	MISCELLANEOUS					
–	Printed Circuit Board				S23-113	
–	Terminal				N4086	
–	Tinned Wire (0.8φ) 0.09m				W03-08	
–	Vinyl Tube (1φ) 0.3m				W07-014	
–	P.V.C Insulated Wire (Red) 0.2m				W32-52	

SCHEMATIC DIAGRAM

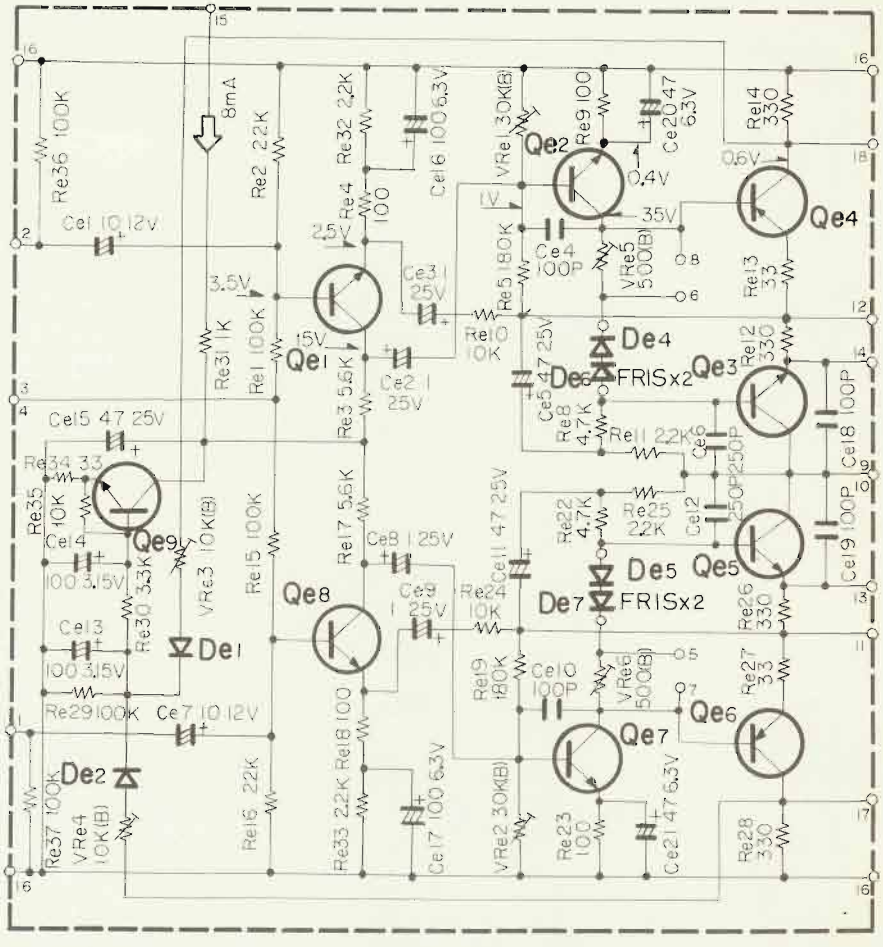
BOTTOM VIEW OF TRANSISTORS

2SC458BorC
2SC458LG(B)or(C)

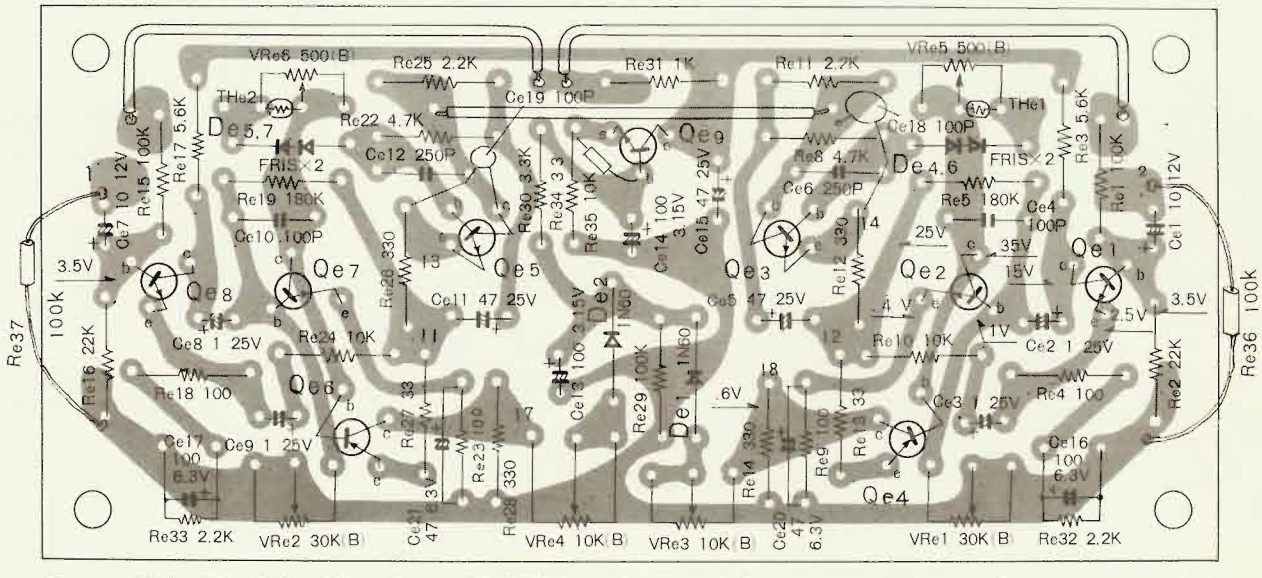
2SC317
2SC317(R)



2SB89A



SEALED CIRCUIT ASSEMBLIES-PHANTOM VIEWS

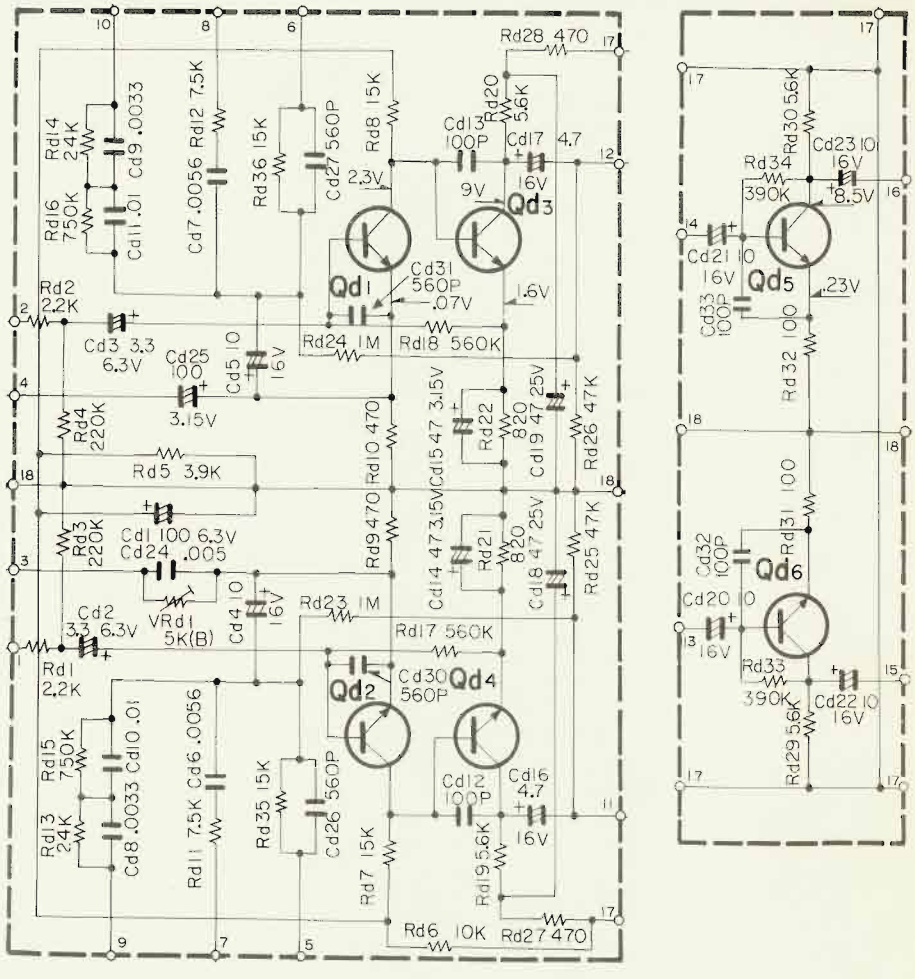


Qe1,8 2SC458LG Ⓑ or Ⓒ Qe2,7 2SC317 or 2SC734(O) Qe3,5 2SC317(R) or 2SC734(O),
Qe4,6 2SB89A, Qe9 2SC458B or C THe1,2 SDT-65

PARTS DESCRIPTION LIST

Symbol No.	Description		Part No.	Remarks
	RESISTORS			
Re 1	Carbon (low noise)	100 kΩ ±10% 1/4W		
Re 2	Carbon (low noise)	22kΩ ±10% 1/4W		
Re 3	Insulated Carbon Film	5.6kΩ ±10% 1/4W		
Re 4	Insulated Carbon Film	100Ω ±10% 1/4W		
Re 5	Fixed Carbon Composition	180kΩ ±10% 1/2W		
Re 8	Fixed Carbon Composition	4.7kΩ ±10% 1/2W		
Re 9	Fixed Carbon Composition	100Ω ±10% 1/2W		
Re10	Fixed Carbon Composition	10kΩ ±10% 1/2W		
Re11	Fixed Carbon Composition	2.2kΩ ±10% 1/2W		
Re12	Fixed Carbon Composition	330Ω ±10% 1/2W		
Re13	Fixed Carbon Composition	33Ω ±10% 1/2W		
Re14	Fixed Carbon Composition	330Ω ±10% 1/2W		
Re15	Carbon (low noise)	100kΩ ±10% 1/4W		
Re16	Carbon (low noise)	22kΩ ±10% 1/4W		
Re17	Insulated Carbon Film	5.6kΩ ±10% 1/4W		
Re18	Insulated Carbon Film	100Ω ±10% 1/4W		
Re19	Fixed Carbon Composition	180kΩ ±10% 1/2W		
Re22	Fixed Carbon Composition	4.7kΩ ±10% 1/2W		
Re23	Fixed Carbon Composition	100Ω ±10% 1/2W		
Re24	Fixed Carbon Composition	10kΩ ±10% 1/2W		
Re25	Fixed Carbon Composition	2.2kΩ ±10% 1/2W		
Re26	Fixed Carbon Composition	330Ω ±10% 1/2W		
Re27	Fixed Carbon Composition	33Ω ±10% 1/2W		
Re28	Fixed Carbon Composition	330Ω ±10% 1/2W		
Re29	Fixed Carbon Composition	100kΩ ±10% 1/2W		
Re30	Fixed Carbon Composition	3.3kΩ ±10% 1/4W		
Re31	Fixed Carbon Composition	1kΩ ±10% 1/2W		
Re32, 33	Insulated Carbon Film	2.2kΩ ±10% 1/4W		
Re34	Fixed Carbon Composition	33 Ω ±10% 1/2W		
Re35	Fixed Carbon Composition	10kΩ ±10% 1/2W		
Re36, 37	Fixed Carbon Composition	100kΩ ±10% 1/4W		
	CAPACITORS			
Ce 1	Electrolytic Tubular	10μF 12WV		
Ce 2, 3	Electrolytic Tubular	1μF 25WV		
Ce 4	Ceramic	100 pF ±10%		
Ce 5	Electrolytic Tubular	47μF 25WV		
Ce 6	Ceramic	250 pF ±10%		
Ce 7	Electrolytic Tubular	10μF 12WV		
Ce 8, 9	Electrolytic Tubular	1μF 25WV		
Ce10	Ceramic	100 pF ±10%		
Ce11	Electrolytic Tubular	47μF 25WV		
Ce12	Ceramic	250 pF ±10%		
Ce13, 14	Electrolytic Tubular	100μF 3.15WV		
Ce15	Electrolytic Tubular	47μF 25WV		
Ce16, 17	Electrolytic Tubular	100μF 6.3 WV		
Ce18, 19	Ceramic	100 pF ±10%		
Ce20, 21	Electrolytic Tubular	47μF 6.3WV		
	POTENTIOMETERS			
VRe 1, 2	30kΩ (B)	DC Bias	R10-55	
VRe 3, 4	10kΩ (B)	Protection Level Set	R10-54	
VRe 5, 6	500Ω (B)	DC Bias	R10-46	
	TRANSISTORS/DIODES/THERMISTORS			
Qe 1,	2SC458LG (B) or (C)	Channel Left AF Amp.		
Qe 2,	2SC317 or 2SC734 (O)	Channel Left Driver		
Qe 3,	2SC317 (R) or 2SC734 (O)	Complementary		
Qe 4,	2SB89A	Complementary		
Qe 5	2SC317 (R) or 2SC734(O)	Complementary		
Qe 6	2SB89A	Complementary		
Qe 7	2SC317 or 2SC734 (O)	Channel Right Driver		
Qe 8	2SC458LG (B) or (C)	Channel Right AF Amp.		
Qe 9	2SC458B or C	Protection		
De1, 2	1N60 or SD46	Rectifier		
De 4～7	FRIS	Stabilizer		
THe 1, 2	SDT-65	Thermistor		
	MISCELLANEOUS			
–	Printed Circuit Board		S23-96	
–	Vinyl Tube 1φ (0.21m)		W07-014	
–	P.V.C. Insulated Wire (Red) (0.29m)		W32-52	

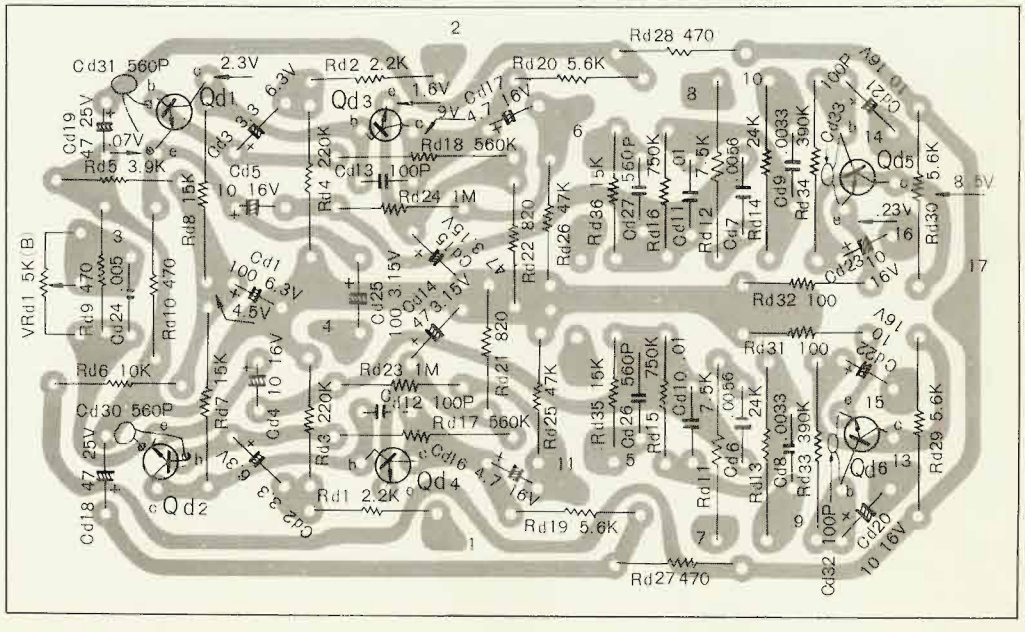
SCHEMATIC DIAGRAM



BOTTOM VIEW OF TRANSISTORS

2SC458LG(C)

SEALED CIRCUIT ASSEMBLIES-PHANTOM VIEWS



Qd1~6 2SC458LGⓒ

PARTS DESCRIPTION LIST

Symbol No.	Description	Part No.	Remarks
	CAPACITORS		
Cd1	Electrolytic Tubular 100 μF 6.3WV		
Cd2, 3	Solid Aluminum 3.3μF 6.3 WV		
Cd4, 5	Electrolytic Tubular 10μF 16 WV		
Cd6, 7	Mylar 0.0056μF ±10%		
Cd8, 9	Mylar 0.0033μF ±10%		
Cd10, 11	Mylar 0.01 μF ±10%		
Cd12, 13	Ceramic 100 PF ±10%		
Cd14, 15	Electrolytic Tubular 47μF 3.15W		
Cd16, 17	Electrolytic Tubular 4.7μF 16 WV		
Cd18, 19	Electrolytic Tubular 47 μF 25 WV		
Cd20~23	Electrolytic Tubular 10μF 16 WV		
Cd24	Ceramic 0.005μF ±20%		
Cd25	Electrolytic Tubular 100μF 3.15WV		
Cd26, 27	Ceramic 560PF ±20%		
Cd30, 31	Ceramic 560 PF ±20%		
Cd32, 33	Ceramic 100PF ±10%		
	RESISTORS		
Rd1, 2	Special Insulated Carbon Film 2.2kΩ ±10% 1/4W		
Rd3, 4	Special Insulated Carbon Film 220k Ω ±10% 1/4W		
Rd5	Special Insulated Carbon Film 3.9kΩ ±10% 1/4W		
Rd6	Special Insulated Carbon Film 10k Ω ±10% 1/4W		
Rd7, 8	Fixed Carbon Composition (low noise) 15kΩ ±10% 1/4W		
Rd9, 10	Special Insulated Carbon Film 470Ω ± 5% 1/4W		
Rd11, 12	Fixed Carbon Composition 7.5kΩ ± 5% 1/4W		
Rd13, 14	Fixed Carbon Composition 24kΩ ± 5% 1/4W		
Rd15, 16	Special Insulated Carbon Film 750kΩ ± 5% 1/4W		
Rd17, 18	Fixed Carbon Composition (low noise) 560kΩ ±10% 1/4W		
Rd19, 20	Special Insulated Carbon Film 5.6kΩ ±10% 1/4W		
Rd21, 22	Special Insulated Carbon Film 820 Ω ±10% 1/4W		
Rd23, 24	Special Insulated Carbon Film 1MΩ ±10% 1/4W		
Rd25, 26	Special Insulated Carbon Film 47kΩ ±10% 1/4W		
Rd27, 28	Special Insulated Carbon Film 470Ω ±10% 1/4W		
Rd29, 30	Fixed Carbon Composition (low noise) 5.6 kΩ ±10% 1/4W		
Rd31, 32	Special Insulated Carbon Film 100Ω ±10% 1/4W		
Rd33, 34	Fixed Carbon Composition (low noise) 390kΩ ±10% 1/4W		
Rd35, 36	Special Insulated Carbon Film 15kΩ ±10% 1/4W		
	POTENTIOMETER		
VRd1	5kΩ (B) Separation Control	R10-53	
	TRANSISTORS		
Qd1~6	2SC458LG (C)		
	MISCELLANEOUS		
–	Printed Circuit Board	S23-156(B)	
–	Tinned wire (0.8φ) 0.07m	W03-08	
–	Vinyl Tube (1φ) 0.07m	W07-014	