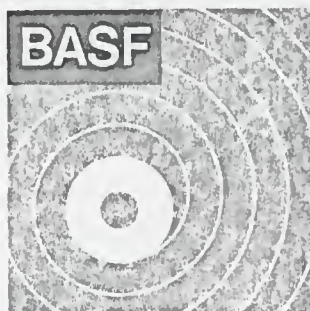


**Service manual  
BASF CC RECORDER 9100**

**May 1972**



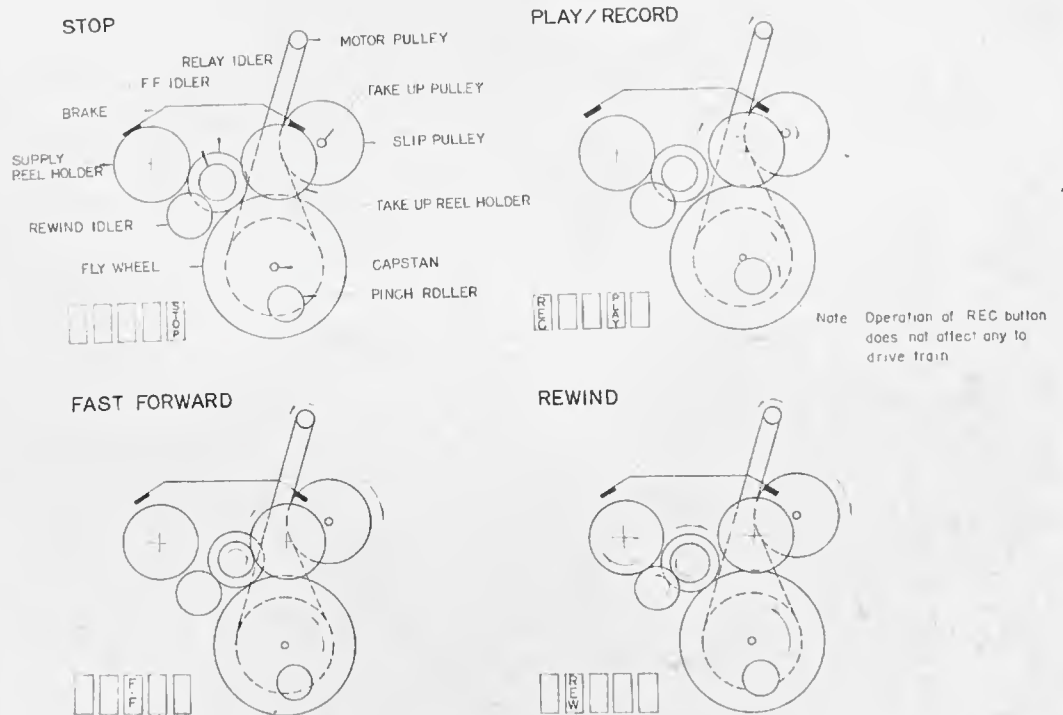
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# I. MECHANICAL DRIVE SYSTEM

The mechanism incorporates a single speed DC motor and a system of belt, idler and pulley. Four (4) modes of tape motion (STOP-PLAY/RECORD/FAST-FORWARD/REWIND) are determined by a control push button located on the top on the recorder, with mechanical sequence as illustrated in FIGURE 1.

FIGURE 1



MECHANICAL DRIVE SYSTEM

## II. MECHANICAL ADJUSTMENT

### - STANDARD TORQUES

Normal torque for each portion to be within the limit of the following chart:

Descriptions	Torques
Pinch Roller Pressure	.250 gr ~ 420 gr
Fast Forward Torque at Reel Holder	minimum 60 gr/cm
Rewind Torque at Reel Holder	minimum 60 gr/cm
Playback Take up Torque at Reel Holder	33 ~ 70 gr

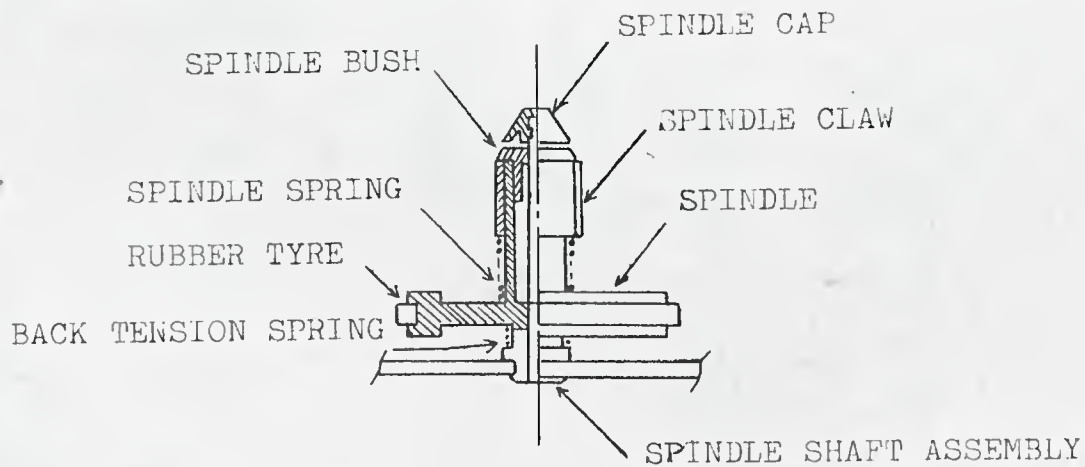
### - INSUFFICIENT REWIND & FAST FORWARD TORQUE ADJUSTMENT

Belt	Motor	Slipping point	Cause	Remedy
Stop	Rotate	Motor Pulley	Insufficient Belt tension	Replace Belt
Stop	Rotate	Motor Pulley	Oil stained Belt	Clean with Carbon Tetrachloride, Alcohol
Move	Rotate	Flywheel & Relay Idler	Insufficient Idler Pressure	Reinforce Spring
Move	Rotate	Flywheel & Relay Idler	Oil stained Belt	Clean with Carbon Tetrachloride, Alcohol
Move	Rotate	Reel Holder & Idler	Insufficient Idler Pressure	Reinforce Spring
Move	Rotate	Reel Holder & Idler	Oil stained Idler	Clean with Carbon Tetrachloride, Alcohol

### - TAKE-UP & SUPPLY REEL HOLDER ASSEMBLY (FIGURE 2)

Lubrication to be made with Standard Vacuum DTE light oil for 1 - 2 drops on rotating part of Reel Holder Assembly when reassembling it.

FIGURE 2



REEL HOLDER ASSEMBLY

### III. AMPLIFIER ADJUSTMENT

#### - HEAD AZIMUTH ALIGNMENT

1. Connect V.T.V.M. across speaker terminal or earphone jack.
2. Reproduce head azimuth alignment tape. (PHILIPS No. HU-715-12 or equivalent)
3. Adjust screw on the left side of record/playback head to obtain maximum reading on V.T.V.M.

#### - RECORDING BIAS ADJUSTMENT

1. Insert 100Ω resistor (dummy load) between ground terminal or record/playback head and chassis ground.
2. Connect V.T.V.M. across above dummy load.
3. Set the recorder at "RECORD" position.
4. Adjust bias adjustment variable resistor VR2 (50KΩ) to obtain 50 mV (500 μA) ± 10 %.

### IV. ROUTINE MAINTENANCE

#### - LUBRICATION

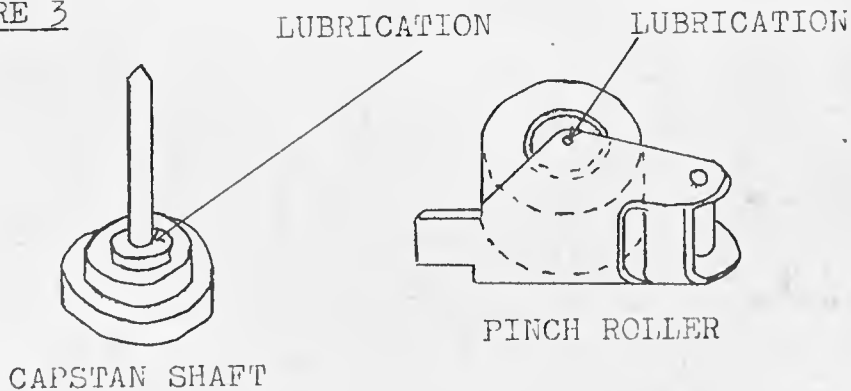
Lubrication should be made by means of the following chart (FIGURE 3):

Oiling Point	Amount	Lubricant
Capstan Shaft	1-2 drops/200 hours	Standard Vacuum DTE light
Pinch Roller Shaft	1-2 drops/200 hours	Standard Vacuum DTE light

#### Note:

1. Do not oil excessively, as it will cause the rubber to slip or strain.
2. Sewing machine oil may be used instead of Standard Vacuum DTE light.
3. Other points (i.e. Idler Shaft etc.) to be lubricated with Silicon Grease or Standard Vacuum light, DTE.

FIGURE 3



LUBRICATION

V. ASSEMBLY REMOVAL

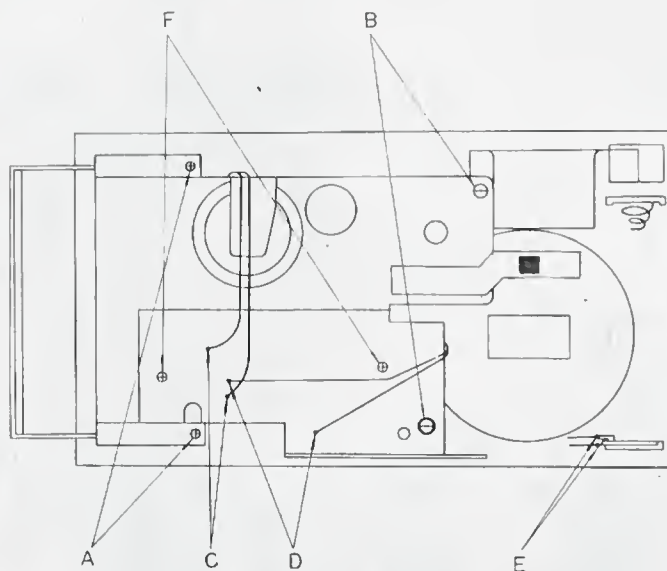
- TO REMOVE MECHANISM ASSEMBLY FROM CABINET

1. Remove five (5) screws from cabinet back cover.
2. Remove two (2) screws A shown in FIGURE 4.
3. Remove two (2) studs B shown in FIGURE 4.
4. Disconnect Level Meter leads (red and black) and Speaker leads (white and black), C and D, shown in FIGURE 4.
5. Disconnect leads to Battery Contact (red and black) E shown in FIGURE 4.

- TO REMOVE PRINTED CIRCUIT BOARD FROM ASSEMBLY

Remove two (2) screws F shown in FIGURE 4.

FIGURE 4



ASSEMBLY REMOVAL



VI. REPLACEMENT PARTS LIST

RUN-1: SERIAL NO. 100001 1033090  
 RUN-2: SERIAL NO. 103001 & UP

SYMBOL	PARTS NO.	TYPE	DESCRIPTIONS	QTY	REMARKS
TAPE RECORDER FINAL ASSEMBLY					
SP	19-22006		Cabinet Unit Assembly	1	
	19-16008		Chassis Unit Assembly	1	
	63906003		Speaker 9cm 8	1	
	19500501		Bracket, Speaker	3	
	91283051		Screw, # 2CPTSx3x8x15CF (speaker bracket)	3	
	91450302		Nut, AHExZN3x15CF (stud)	3	
	91540302		Spring Washer, # 2STLWax3x 15CF (stud)	2	
	19500471		Stud A (bottom cabinet mounting)	3	
	19500481		Stud B (bottom cabinet mounting)	1	
	91013072		Screw, CPIMSx3x12x15CF (bottom cabinet moun- ting)	4	
	91013032		Screw, CPIMSx3x6x15CF (bottom cabinet moun- ting)	1	
	91283071		Screw, # 2CPTSx3x12x15CF (mecha. mounting)	2	
	19503373		Handle Assembly	1	
	19503361		-Handle	1	
	19400171		-Plastic Handle Liner	1	
	18850881		-Screw, Handle Fixing	1	
	91470305		-Nut, EHExBNx2.6x3AF	1	
	19503403		Bracket, PCB Support	1	
	19500521		Metal Plate, Handle Guide	2	
	18850031		Special Washer, Nylon	2	
91012362		Screw, CPIMSx2.6x10x15CF (metal plate mounting)	2		
91510261		Washer, PIWax2.6x15BF (metal plate mounting)	2		

SYMBOL	PARTS NO.	TYPE	DESCRIPTIONS	Q'TY	REMARKS
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ACCESSORIES

	63971003		Microphone (w/stand)	1	
	79759001		Patch Cord	1	
	75512003		AC Cord	1	
			Cassette Tape, Demonstration	1	
			Instruction Booklet	1	
	19800451		Carrying Case (w/shoulder strap)	1	
	19800531		Accessory Carrying Case	1	
	19800462		Shoulder Strap	1	
	18750551		Guaranty Card	1	

PACKING MATERIALS

	19800562		Master Carton (5 sets of individual carton)	1/5	
	19800542		Carton Box, Individual	1	
	19800511		Spacer A (lower side)	1	
	19800521	RUN-2	Spacer B (upper side)	1	
	19800561		Poly Bag (set, carrying case)	2	

CABINET UNIT ASSEMBLY (19-22006)

	19300301		Cabinet Top Cover Ass'y	1	
	19300153		-Cabinet Top Cover	1	
	18700091		-Metal Trim (side of cabinet top cover)	2	
	18700901		-Control Panel	1	
	18450661		-Eject Button, Cassette Case up		
	19500591		-Coil Spring, Eject Button	1	
	19500582		-Guide Plate, Eject Button	1	
	91283031		-Screw, 2CPT5x3x6x15BF (guide fixing)	1	
	91510261		-Washer, PIWAx2.6x15BF (battery holding mounting)	2	
	18700911		-Punching Metal	1	
	19600521		-Adhesive Sheet, Punching Metal	1	



SYMBOL	PARTS NO.	TYPE	DESCRIPTIONS	Q'TY	REMARKS
	19400161		-Battery Holder	1	
	91282321		-Screw, # 2CPTSx2.6x5x15BF (battery holder mounting)	2	
	19300311		Cabinet Bottom Case Assembly	1	
	19300261		-Cabinet Bottom Case	1	
	18700921		-BASF Name Plate	1	
	18750251		-Label, Battery	1	
	19400511		Lid, Battery Compartment	1	
	67905004		Level Meter	1	
	19500511		Bracket, Level Meter Mounting	1	

CHASSIS UNIT ASSEMBLY (19-16003)

VR1	19-24003		Mechanism Unit Ass'y (see break down)	1	
	19-19010		Printed Circuit Board Ass'y (see break down)	1	
	19400991		Knob, Volume Control	1	
	41085001		Variable Resistor W/Switch, 10K (volume) (RV13N14KC10K SG)	1	
	19503421		Bracket, Volume Mounting	1	
	91012322		Screw, CPIMSx2.6x5x15CF (volume mounting bracket)	2	
	91520265		Washer, PBWax2.6x3AF (volume mounting bracket)	2	
	19503662		Bracket, Power Transformer Mounting	1	
	45003025		Power Transformer	1	
	19500491		Bracket, Voltage Selector Switch	1	
	65117002		Switch, Voltage Selector Switch	1	
	19500601		Spring A, Battery Contact (+) (-)	1	
	19504091		Spring C, Battery Contact (+)	1	
	19503391	RUN-2	Plate, Battery Contact (-)	1	

SYMBOL	PARTS NO.	TYPE	DESCRIPTIONS	Q'TY	REMARKS
	91013022		Screw, CPIMSx3x5x15CF (trans. bracket mounting)	1	
	91012332		Screw, CPIMSx2.6x6x15CF (trans. bracket mounting)	1	
	91013022		Screw, CPIMSx3x5x15CF (voltage changeover switch mounting)	4	
	91540302		Washer, 2STLWx3x15CF (power trans. mounting)	7	
	91450302		Nut, AHEXZNx3x15CF (power trans. mounting)	2	
	91012032		Screw, CPIMSx2x6x15CF (AC receptacle mounting)	2	
	91440205		Nut, AHEXBNx2x3AF (AC receptacle mounting)	2	
	91012322		Screw, CPIMSx2.6x5x15CF (PCB mounting)	2	
	91540262		Washer, 2STLWx2.6x15CF (PCB mounting)	3	
	91013052		Screw, CPIMSx3x8x15CF, Power Transformer	2	

PRINTED CIRCUIT BOARD ASSEMBLY (19-19010)

	72920082		Printed Circuit Board Assembly	1	
S1-1 1-6	65902001		Slide Switch	1	
J1	70905001		Jack 3.5 $\phi$ (EAR)	1	
	19400971		Plate, Jack Mounting	1	
J4	70506002		Jack 2.5 $\phi$ (REMOTE CONTROL)	1	
	19501772		Shield Plate	1	
T1	45263006		Trans., In Put	1	
T2	45234003		Trans., Out Put	1	
T3	60778001		Coil, OSC	1	
VR2	41065003		Variable Resistor, 50 K (RV10P-B50K)	1	
L1,2	46920001		Coil, Choke	1	
Tr1	35047818		Transistor, Si. 2SC-644 (R)	1	
Tr2, Tr3	35045417		Transistor, Si. 2SC-828 (Q)	2	
Tr4, Tr5	35023902		Transistor, Ge. 2SB-324 (with heat sink)	2	
Tr6	35045712		Transistor, Si. 2SC-838 (L)	1	

SYMBOL	PARTS NO.	TYPE	DESCRIPTIONS	Q'TY	REMARKS
Tr7	35062523		Transistor, Si. 2SD-261 (H)	1	
D1, D2	36002003		Diode Ge. SD46	2	
D3, D4, D5, D6	36107011		Rectifier Si. 10D-1	4	
Th	38103001		Thermister	1	
R1	40112069		R. Carbon, 470K $\Omega$ 1/4W <sup>±</sup> 10% (RD 1/4 STY 470KKC)	1	
R2, R12 R26	40112037		R. Carbon, 1K $\Omega$ 1/4W <sup>±</sup> 10% (RD 1/4 STY 1.0KKC)	3	
	70051031		DIN Socket, Mic.	1	
	70051012		DIN Socket, Aux.	1	
			Screw, CFIMSx2.6x6x35KF, DIN Socket Mounting	4	
	91430262		Nut AHex1Nx2.6x15CF, DIN Socket Mounting	4	
R3	40112057		R. Carbon, 47K $\Omega$ 1/4W <sup>±</sup> 10% (RD 1/4STY 47KKC)	1	
R4, R13	400112053		R. Carbon, 22K $\Omega$ 1/4W <sup>±</sup> 10% (RD 1/4STY 22KKC)	2	
R5, R17, R31	40112025		R. Carbon, 100 $\Omega$ 1/4W <sup>±</sup> 10% (RD 1/4STY 100HKC)	3	
R6, R10, R11, R23	40112049		R. Carbon, 10K $\Omega$ 1/4W <sup>±</sup> 10% (RD 1/4STY 10 KKC)	4	
R7	40112065		R. Carbon, 220K $\Omega$ 1/4W <sup>±</sup> 10% (RD 1/4STY 220KKC)	1	
R8, R29, R30	40112043		R. Carbon, 3.3K $\Omega$ 1/4W <sup>±</sup> 10% (RD 1/4STY 3.3KKC)	3	
R9	40112038		R. Carbon, 1.2K $\Omega$ 1/4W <sup>±</sup> 10% (RD 1/4STY 1.2KKC)	1	
R14, R18	40112045		R. Carbon, 4.7K $\Omega$ 1/4W <sup>±</sup> 10% (RD 1/4STY 4.7KKC)	2	
R15	40112010		R. Carbon, 5.6 $\Omega$ 1/4W <sup>±</sup> 10% (RD 1/4STY 5.6HKC)	1	
R16, R24	40112019		R. Carbon, 33 $\Omega$ 1/4W <sup>±</sup> 10% (RD 1/4STY 33HKC)	2	
R19	40112034		R. Carbon, 560 $\Omega$ 1/4W <sup>±</sup> 10% (RD 1/4STY 560 HKC)	1	
R20, R25	40112007		R. Carbon, 3.3 $\Omega$ 1/4W <sup>±</sup> 10% (RD 1/4STY 3.3HKC)	2	
R21	40112206		R. Carbon, 24K $\Omega$ 1/4W <sup>±</sup> 5% (RD 1/4STY 24KJC)	1	
R22	40112029		R. Carbon, 220 $\Omega$ 1/4W <sup>±</sup> 10% (RD 1/4STY 220HKC)	1	

SYMBOL	PARTS NO.	TYPE	DESCRIPTIONS	Q'TY	REMARKS
R27	40112051		R. Carbon, 15K $\Omega$ 1/4W $\pm$ 10% (RD 1/4STY 15KKC)	1	
R28	40112011		R. Carbon, 6.8 $\Omega$ 1/4W $\pm$ 10% (RD 1/4STY 6.8HKC)	1	
C1, C3, C10 C14, C30	43001030		C. Electrolytic 4.7 $\mu$ F 10V (CE06WIA4R7)	5	
C2	43001034		C. Electrolytic 47 $\mu$ F 10V (CE06WIA470)	1	
C3	42701011		C. Mylar 470pF 50V $\pm$ 20% (CQ92MIH471M)	1	
C5	43970005		C. Electrolytic 33 $\mu$ F 10V (CE06WIA330)	1	
C6	42701021		C. Mylar 0.022 $\mu$ F 50V $\pm$ 20% (CQ92MIH223M)	1	
C7	42749315		C. Mylar 390pF 50V $\pm$ 5% (CQ09EIH391J,A)	1	
C9, C17	43001031		C. Electrolytic 10 $\mu$ F 10V (CE06WIA100)	2	
C11, C23	43001035		C. Electrolytic 100 $\mu$ F 10V (CE06WIA101)	2	
C12	43001054		C. Electrolytic 2.2 $\mu$ F 10V (CE06WIA2R2)	1	
C13, C26	43001036		C. Electrolytic 220 $\mu$ F 10V (CE06WIA221)	2	
C15, C16	42701138		C. Mylar 0.0082 $\mu$ F 50V $\pm$ 20% (CQ92MIH822KA)	2	
C18	43970004		C. Electrolytic 220 $\mu$ F 10V (CE04WIA221)	1	
C19	42110929		C. Ceramic 0.022 $\mu$ F 50V+80% -20% (CC45FIH223ZA)	1	
C20	42701020		C. Mylar 0.015 $\mu$ F 50V $\pm$ 20% (CQ92MIH153M)	1	
C21	42302026		C. Ceramic 220pF 50V $\pm$ 10% (CC94SLIH221K,A)	1	
C22	42701013		C. Mylar 0.001 $\mu$ F 50V $\pm$ 20% (CQ92MIH102M)	1	
C24	43005063		C. Electrolytic 1000 $\mu$ F 10V (CE06WIA222)	1	
C25	42701023		C. Mylar 0.047 $\mu$ F 50V $\pm$ 20% (CQ92MIH473M)	1	
C27	42701019		C. Mylar 0.01 $\mu$ F 50V $\pm$ 20% (CQ92MIH103M)	1	



SYMBOL	PARTS NO.	TYPE	DESCRIPTION	Q'TY	REMARKS
C28	42701116		C. Mylar 0.0033 $\mu$ F 50V $\pm$ 10% (CQ92MIH332K,A)	1	
C29	43001055		C. Electrolytic 3.3 $\mu$ F 16V (CE06WIC3R3)	1	
C31	42103005		C. Ceramic 0.022 $\mu$ F 25V (CK94YZIE223ZA)	1	

MECHANISM UNIT ASSEMBLY (19-24003)

	79755002		Mechanism Unit	1	
	19400211		Handle Support A (plastic)	1	
	19400221		Handle Support B (plastic)	1	
	91013022		Screw, CPIMSx3x5x15CF (handle support mounting)	4	
	91470265		Nut, EHExBNx2.6x3AF (handle support mounting)	2	
	19400541		Cassette Case Ass'y	1	
			Spring, Cassette Hold (part of cassette case ass'y)	1	
			Screw, CPIMSx2x6x15CF, Cassette Hold Spring Mounting (part of cassette case ass'y)	1	
			Nut, EHExBNx2x3AF, Cassette Hold Spring Mounting (part of cassette case ass'y)	1	
	18450191		Push Button A (stop, play, fast forward, rewind)	4	
	18450221		Push Button B (record)	1	
	19503701		Cassette Case Supporting Plate L (Left)	1	
	19503711		Cassette Case Supporting Plate R (Right)	1	
	19503721		Cassette Case Holder Spring L (Left)	1	
	19503731		Cassette Case Holder Spring R (Right)	1	
			Screw, 2.6x5 W/Spring Washer +	1	
	19503741		Cassette-Up Arm Ass'y	1	
	19503751		Cassette-Up Spring	1	

SYMBOL	PARTS NO.	TYPE	DESCRIPTIONS	Q'TY	REMARKS
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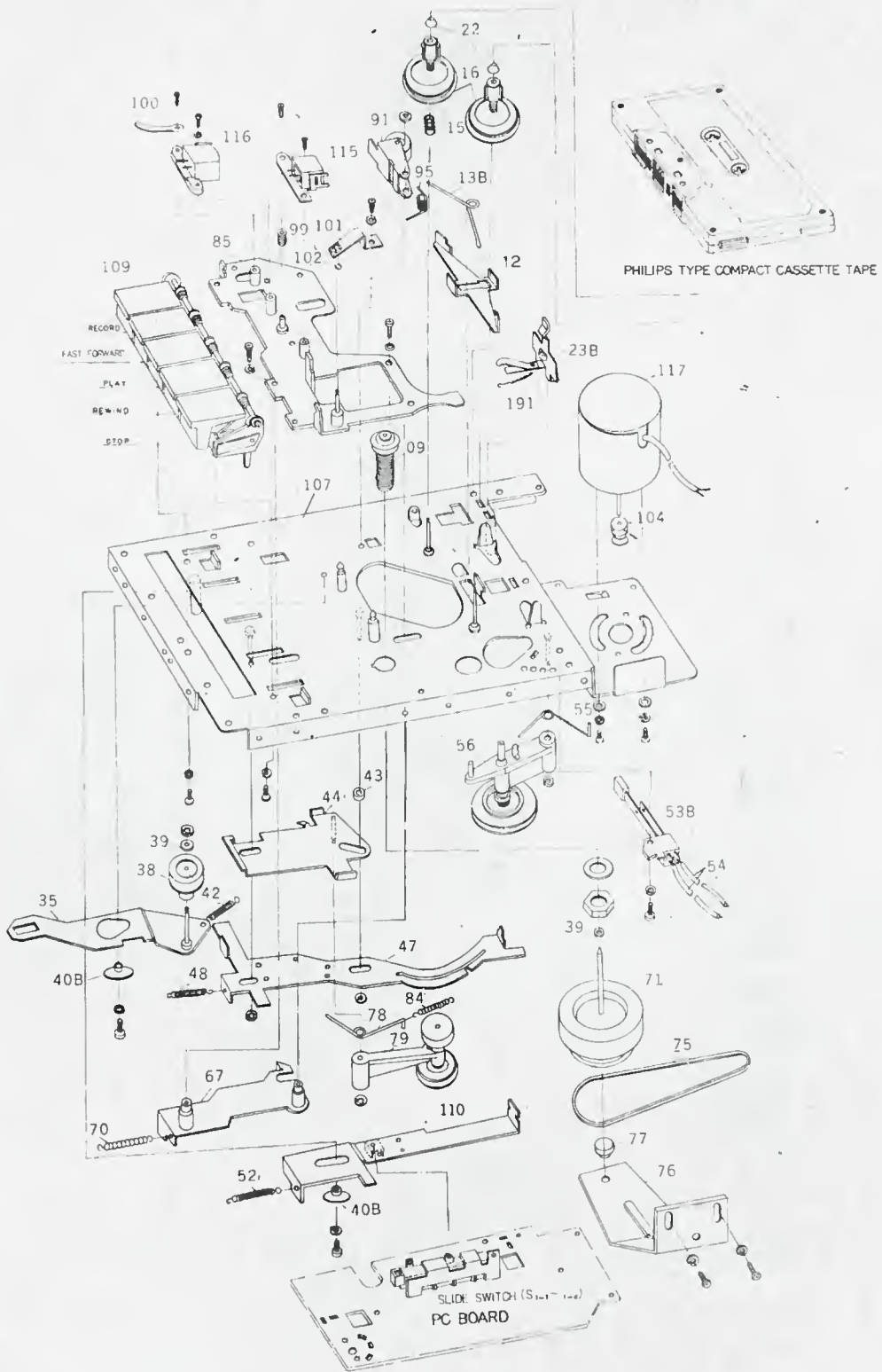
MECHANISM UNIT (79755006)

107	19503691		Main Chassis Ass'y	1	
09	19502041		Bearing, Flywheel	1	
	18850361		Washer 8.1 $\phi$	1	
	18850371		Nut 8 $\phi$ (Hexiagonal)	1	
12	19502071		Brake	1	
13B	19502081		Spring, Brake	1	
			Bakelite Washer A	1	
15	19502091		Spring, Back Tension	1	
16	19400551		Reel Holder Assembly	2	
22	19400581		Cap, Reel Spindle	2	
23B	19502131		Lever, Recording Safety	1	
191	19502141		Spring, Recording Safety Lever	1	
			Spring Pin	1	
109	19503771		Push Button Mechanism Ass'y (w/push button)	1	
			Screw, 2.6x4 W/Spring Washer +	2	
35	19502181		Rewind Arm Ass'y	1	
38	19400591		Rewind Pulley	1	
39	18850381		Bakelite Washer B	1	
			E. Ring 1.5 $\phi$	1	
40B	19503781		Spacer	1	
			Screw, 2.6x4 W/Spring Washer +	1	
42	19502231		Spring, Rewind	1	
43			Middle Base Ring	1	
44	19502241		Middle Base Ass'y	1	
47	19502271		Brake Arm	1	
48	19502281		Spring, Brake Arm	1	
			E Ring 1.5 $\phi$	2	
			Flat Washer 2 $\phi$	2	
110	19502291		Recording Arm Ass'y	1	
52	19502321		Spring, Recording Arm	1	
40B	19503781		Spacer	1	
			Screw, 2.6x5 W/Spring Washer +	1	



SYMBOL	PARTS NO.	TYPE	DESCRIPTION	Q'TY	REMARKS
53B	65907001		Leaf Switch	1	
			Screw, 2.6x5 W/Spring Washer +	1	
55	19502331		Spring, Tension Arm	1	
56	19400601		Tension Arm Ass'y	1	
	11627571		E Ring 2 $\phi$	1	
67	19502381		Slide Arm Ass'y	1	
70	19502411		Spring, Slide Arm	1	
71	19502421		Flywheel	1	
39	18850381		Bakelite Washer B	1	
75	19400641		Belt, Flywheel	1	
76	19502451		Holder, Flywheel	1	
			Screw, 2.6x5 W/Spring Washer +	2	
78	19502471		Spring, Middle Arm	1	
79	19400651		Middle Arm Ass'y	1	
			E Ring 2 $\phi$	1	
84	19502501		Coil Spring	1	
91	19502511		Pinch Roller Ass'y	1	
95	19502541		Spring, Pinch Roller	1	
			E. Ring 2 $\phi$	1	
115	79751003		Head, Record/Playback	1	
116	79751004		Head, Erase	1	
99	19502551		Spring, Head Azimuth Alignment	1	
100			Clamper A	1	
			Flat Screw 2 $\phi$ x 5 -	4	
			Screw, 2.6x8 W/Spring Washer +	2	
			Flat Washer 2 $\phi$	1	
101	19502561		Holder Spring	1	
			Screw, 2.6x5 W/Spring Washer +	1	
102	19502571		Steel Ball 2.5 $\phi$	1	
117	79752005		DC Motor	1	
			Flat Washer 2.6 $\phi$	2	
			Screw 2.6x4 +	2	
			Spring Washer 2.6 $\phi$	2	
104	19502581		Motor Pulley W/Screw	1	
85	19503681		Head Chassis Ass'y	1	

# TAPE TRANSPORT MECHANISM EXPLODED VIEW



TR1 2SC 644

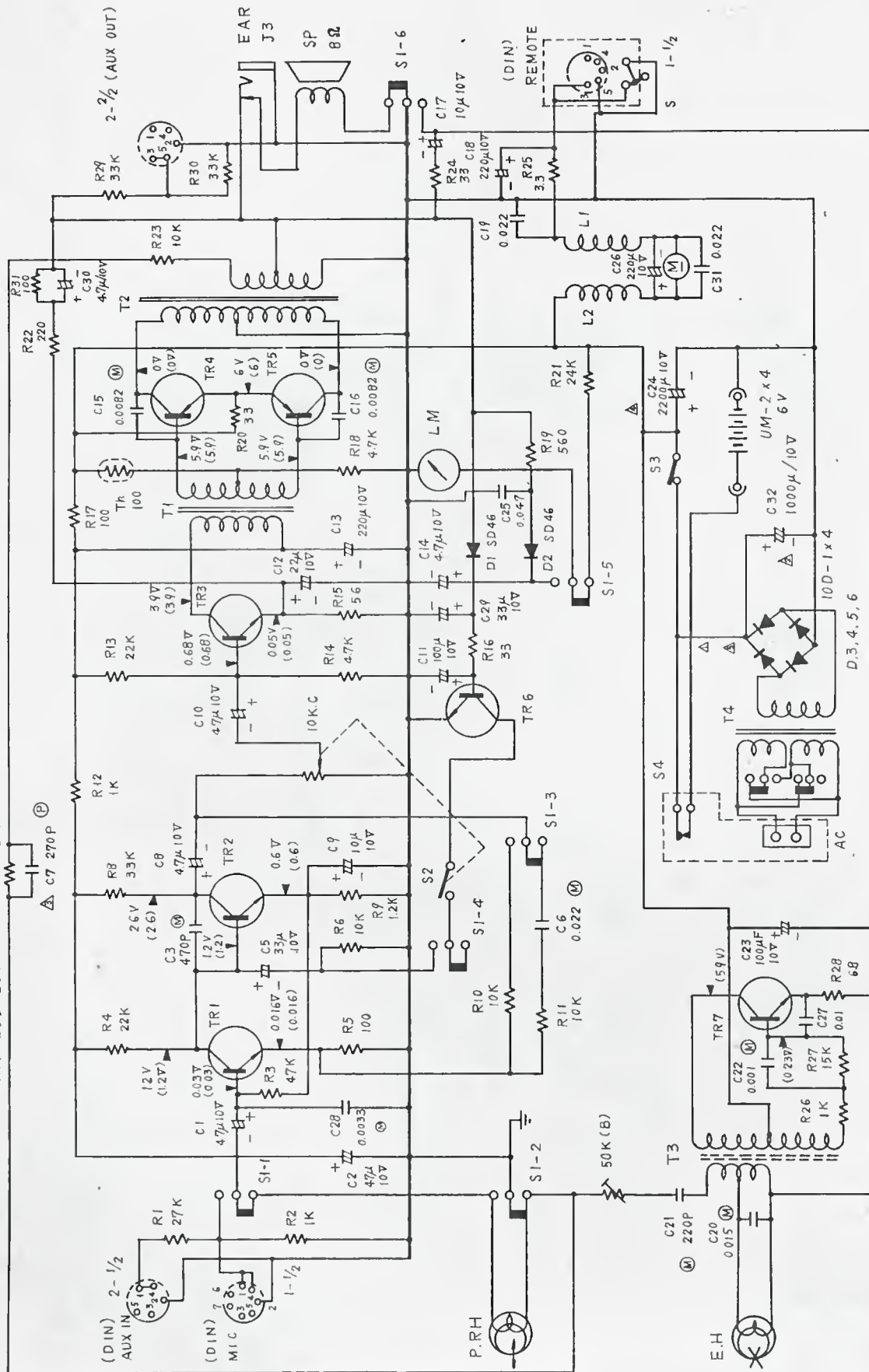
TR2 2SC 828

TR3 2SC 838

TR4,5 SB 324 x 2

TR6 2SC 838

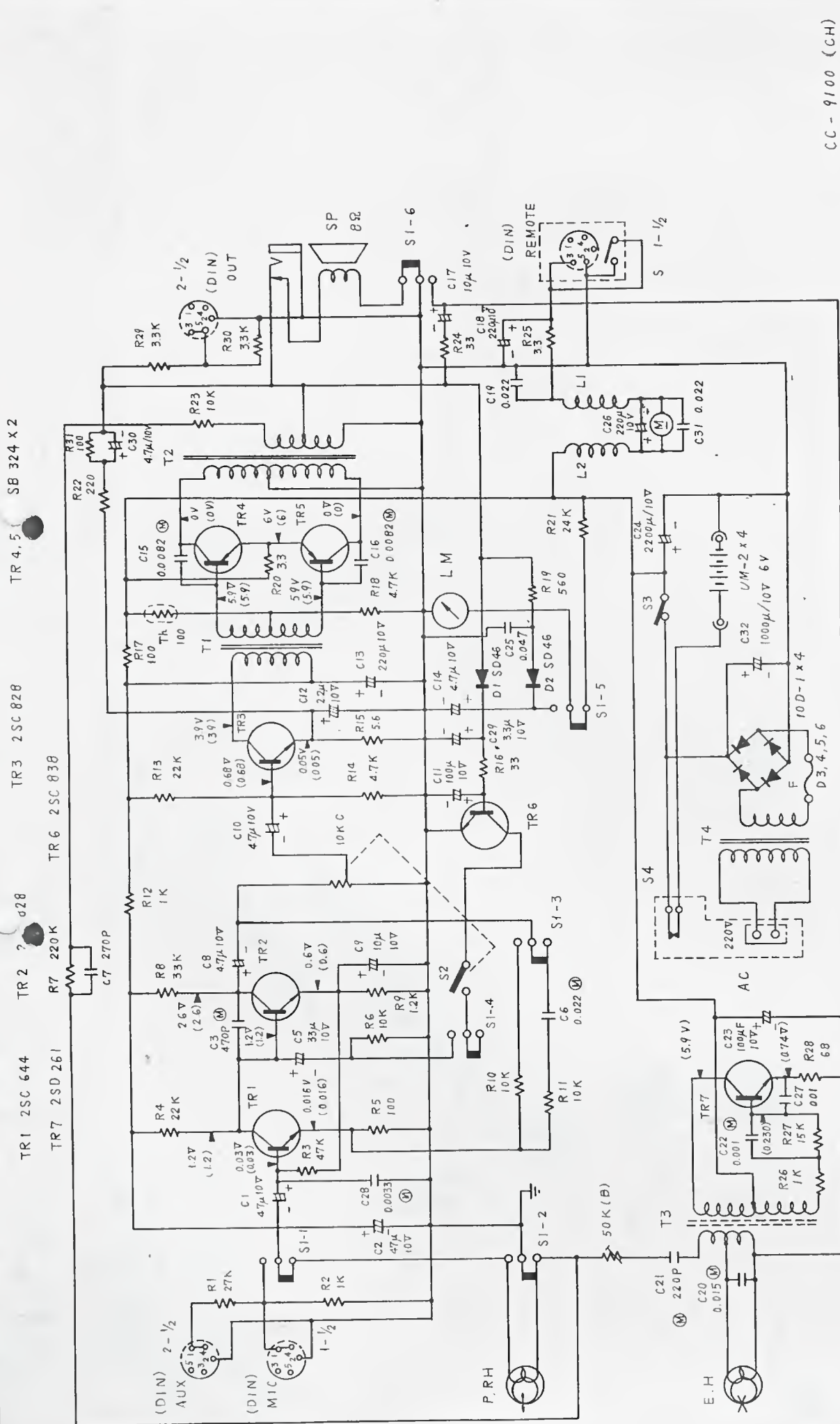
TR7 2SD 261



CC - 9100 (V)

CIRCUIT DIAGRAM

1. Switch (S1 - S1 6) shows its replay position.
  2. Capacitor (C) - Mylar type.  
(P) - Polyester type.  
Without suffix - Ceramic type.
  3. Voltage shown at each transistor indicates the value to the ground at replay position without signal.  
Value at recording position is shown in I.
- Note: Tester with internal resistance 20kΩ/V should be used.



TR1 2SC 644  
 TR2 ? d28  
 TR3 2SC 828  
 TR4,5 SB 324 X 2  
 TR6 2SC 838  
 TR7 2SD 261

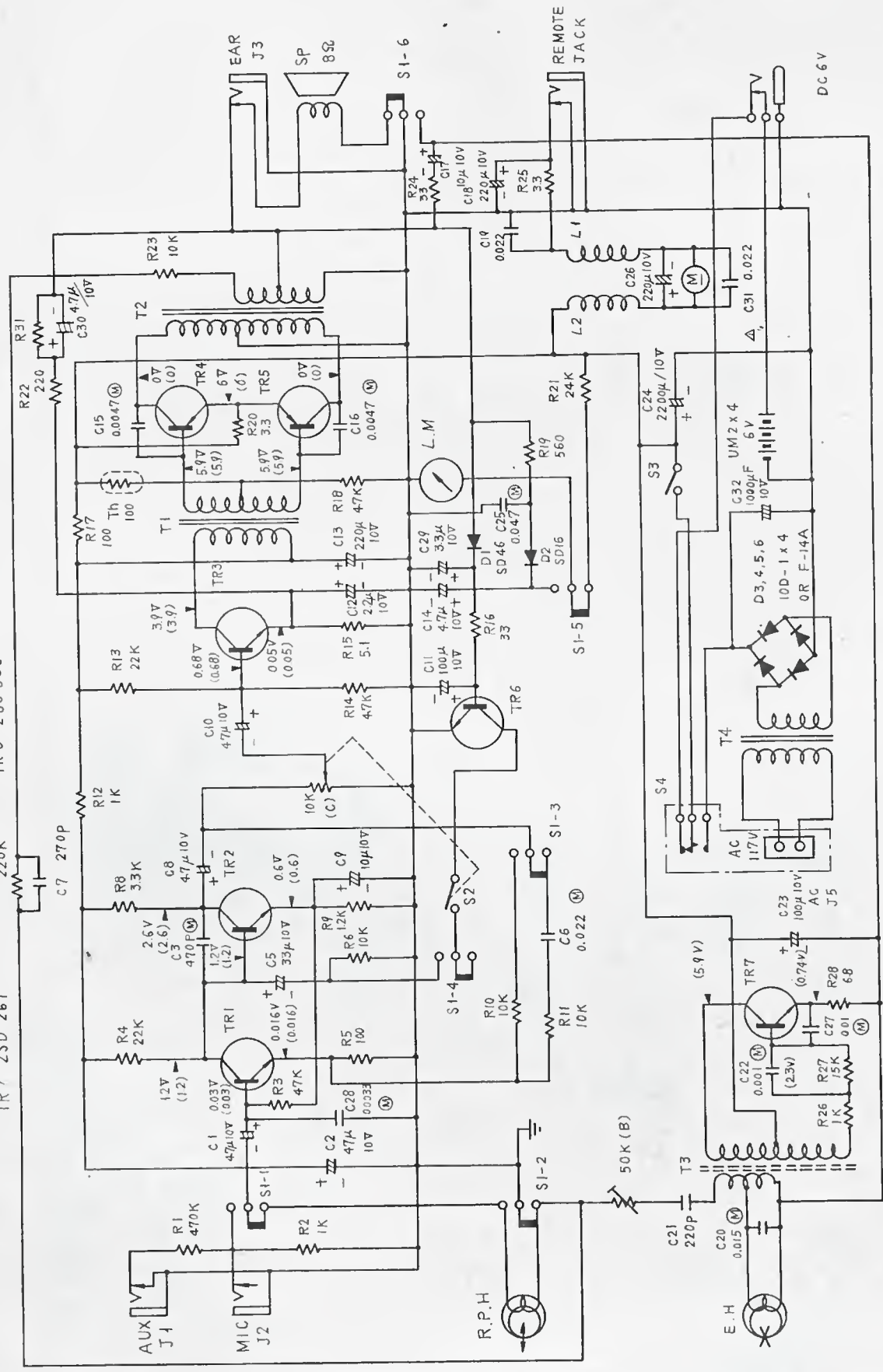
CC - 9100 (CH)

CIRCUIT DIAGRAM

1. Switch (S1-S6) shows at replay position
2. Capacitor (C) - Mylar type  
 (P) - Polyester type  
 Without suffix - Ceramic type
3. Voltage shown at each transistor indicates the value to the ground at replay position without signal  
 Value at recording position is shown in ( )  
 Note: Tester with internal resistance 20kΩ/V should be used.



TR1 2SC 644  
 TR2 2SC 828  
 TR3 2SC 828  
 TR4,5 2SC 828 x 2  
 TR6 2SC 838  
 TR7 2SD 261



CIRCUIT DIAGRAM

CC-9100 (U) & (C)

1. Switch (S1-S6) shows at replay position.
2. Capacitor (C) - Mylar type  
 (M) - Toluethylene type  
 Without suffix - Ceramic type
3. Voltage shown at each transistor indicates the value to the ground at replay position without signal.  
 Value at recording position is shown in ( ) .  
 Note: Tester with internal resistance 20KΩ/V should be used.

TR 4 2 SB 324 x 2

TR 3 2 SC 828

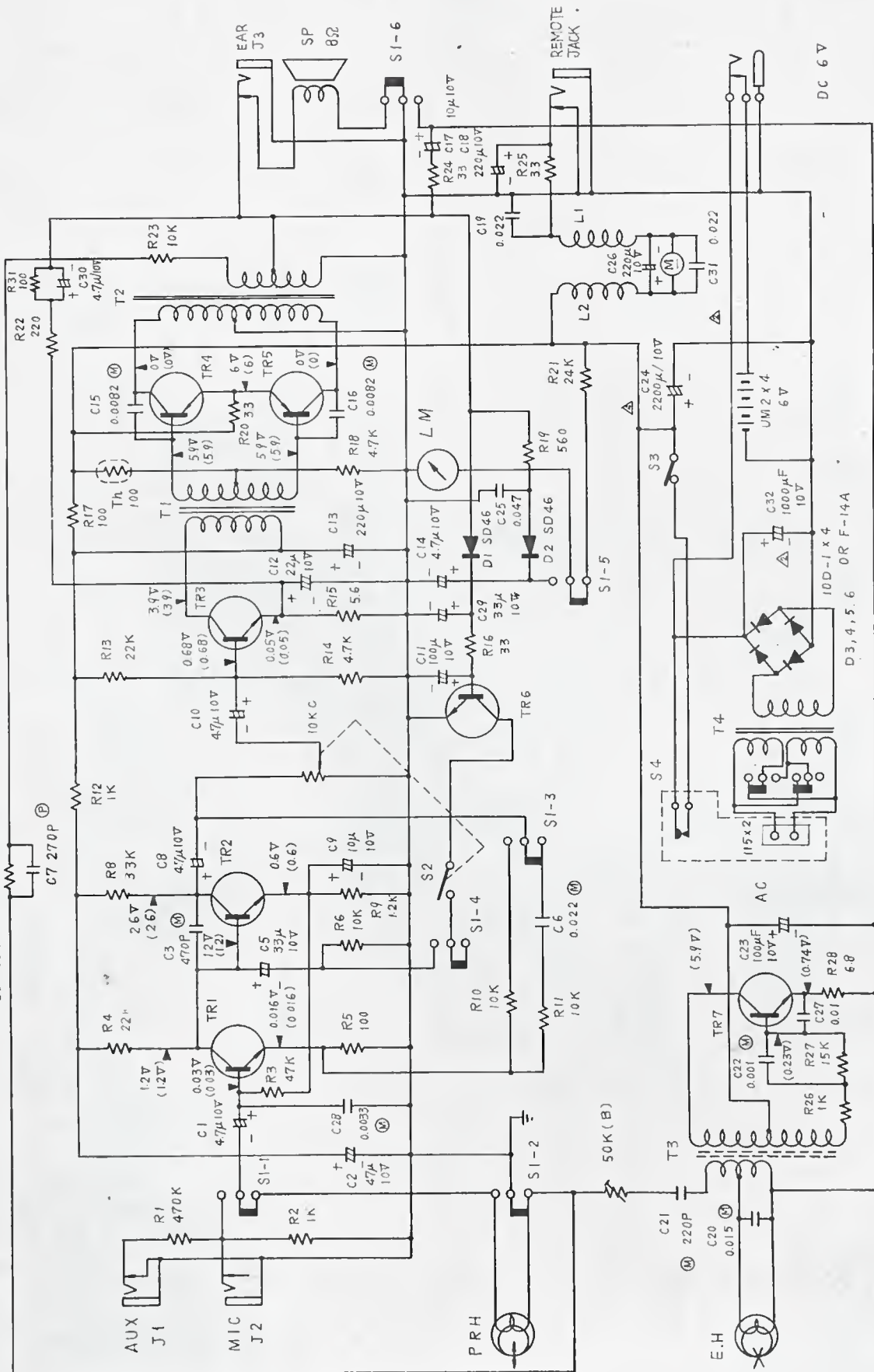
TR 2 2 SC 828

TR 1 2 SC 644

TR 6 2 SC 838

TR 7 2 SD 261

CC-9100 H

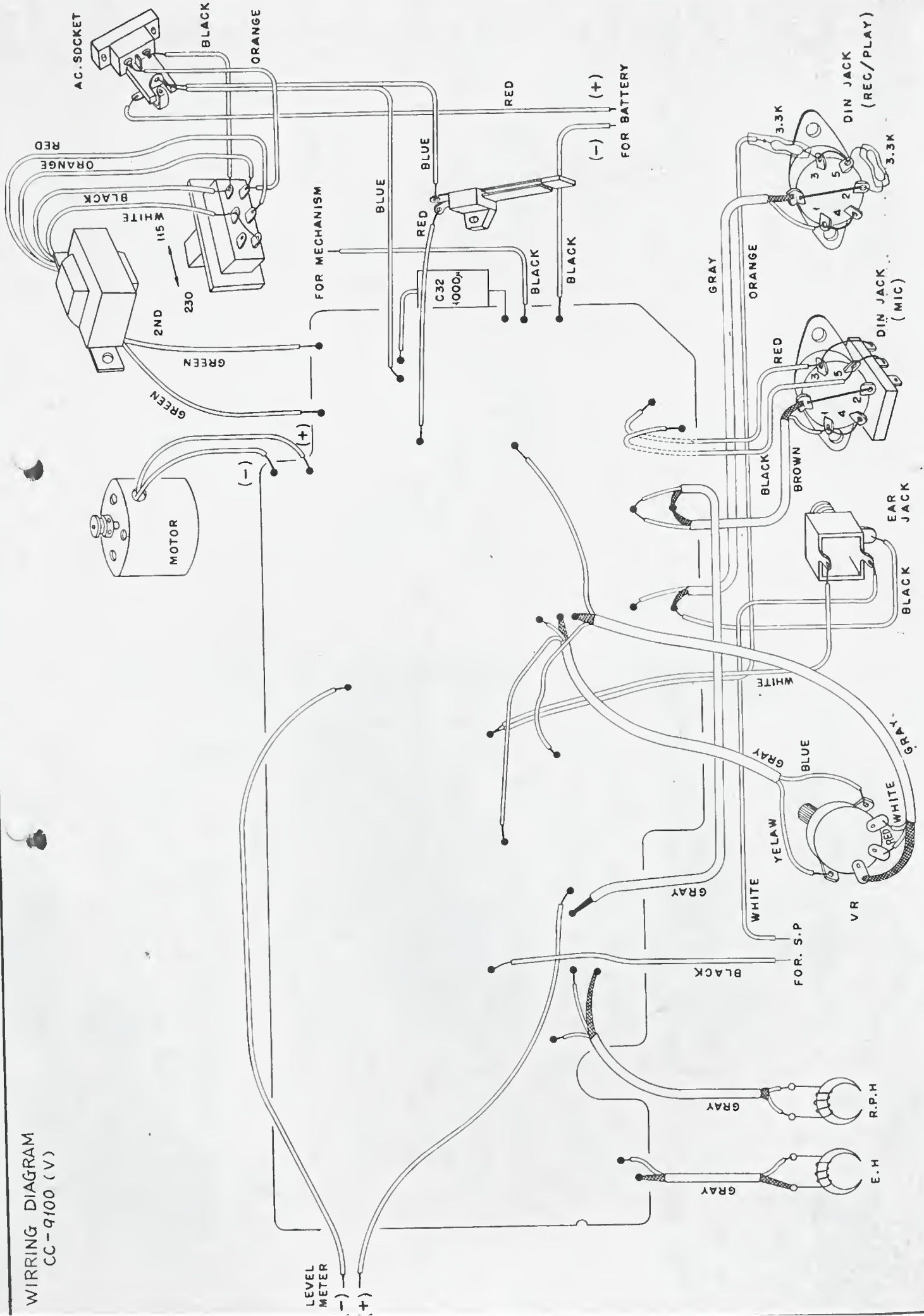


CIRCUIT DIAGRAM

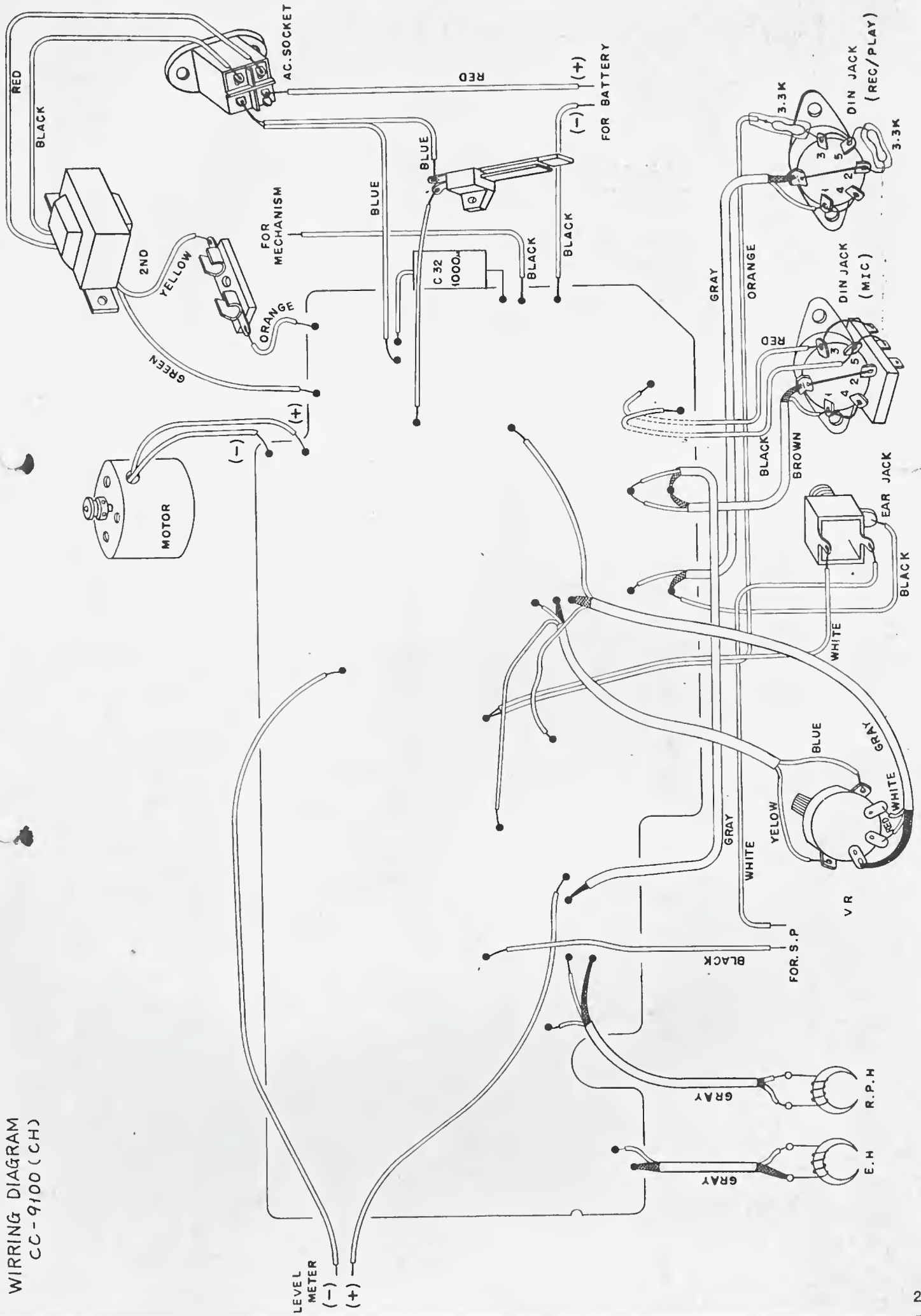
1. Switch (S1-S6) shows at rest position  
 2. Capacitor (C) Molar type  
 (M) - Polystyrene type  
 Without suffix - Ceramic type  
 3. Voltage shown at each transistor indicates the value to the ground at rest position without signal  
 Value at recording position is shown as 1  
 Note: Tester with internal resistance 20KΩ V should be used



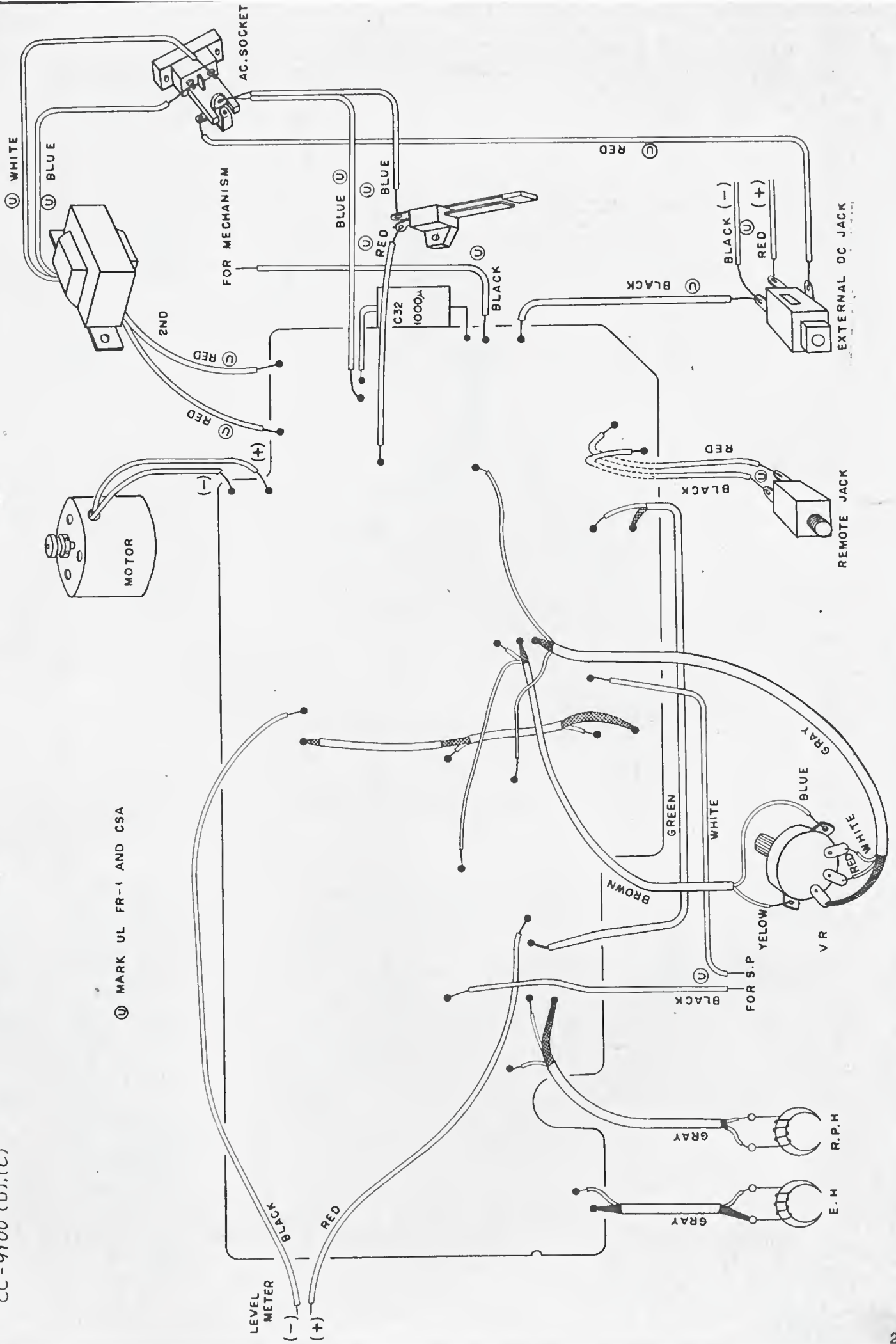
WIRING DIAGRAM  
CC-9100 (V)



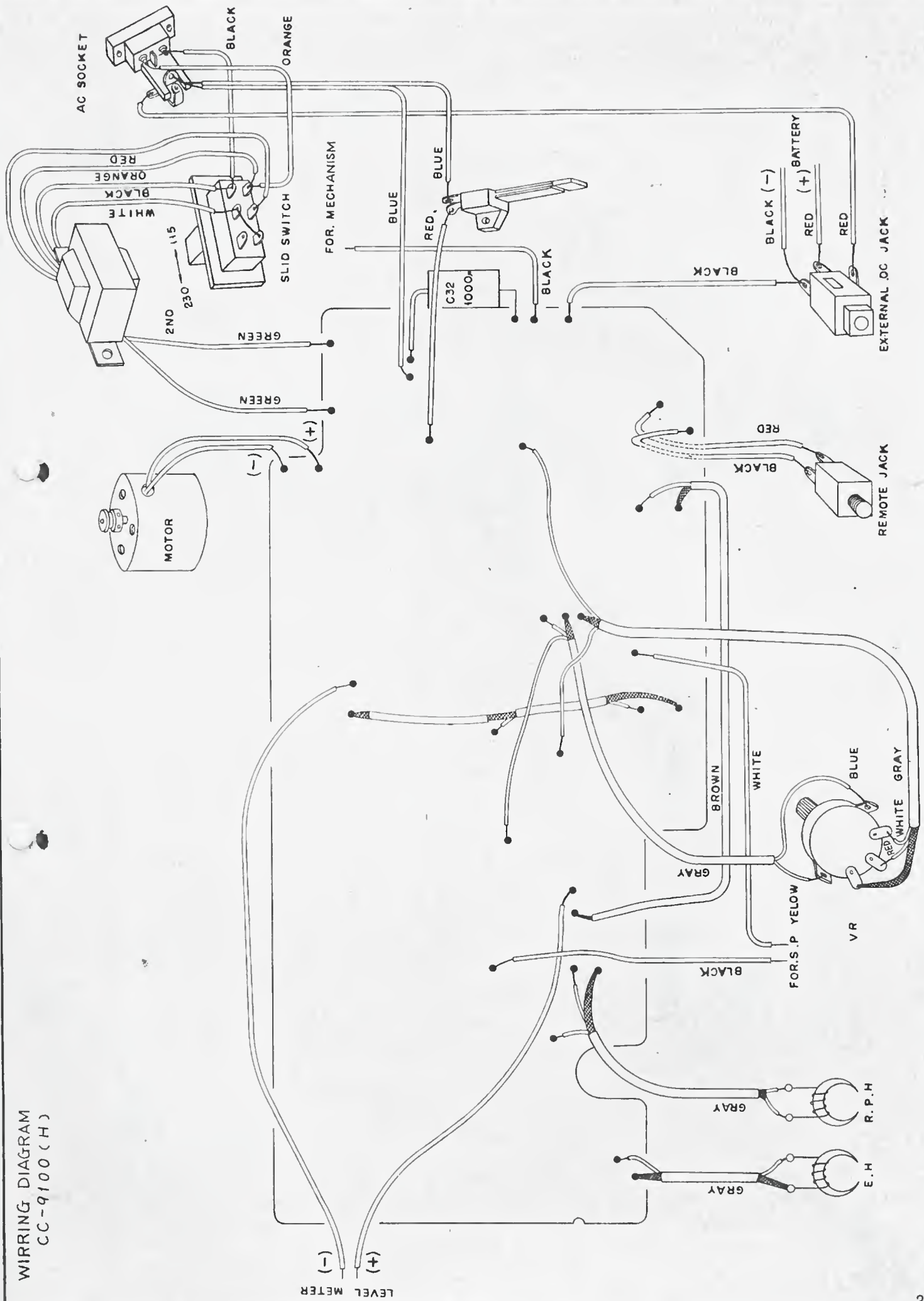
WIRING DIAGRAM  
CC-9100 (CH)



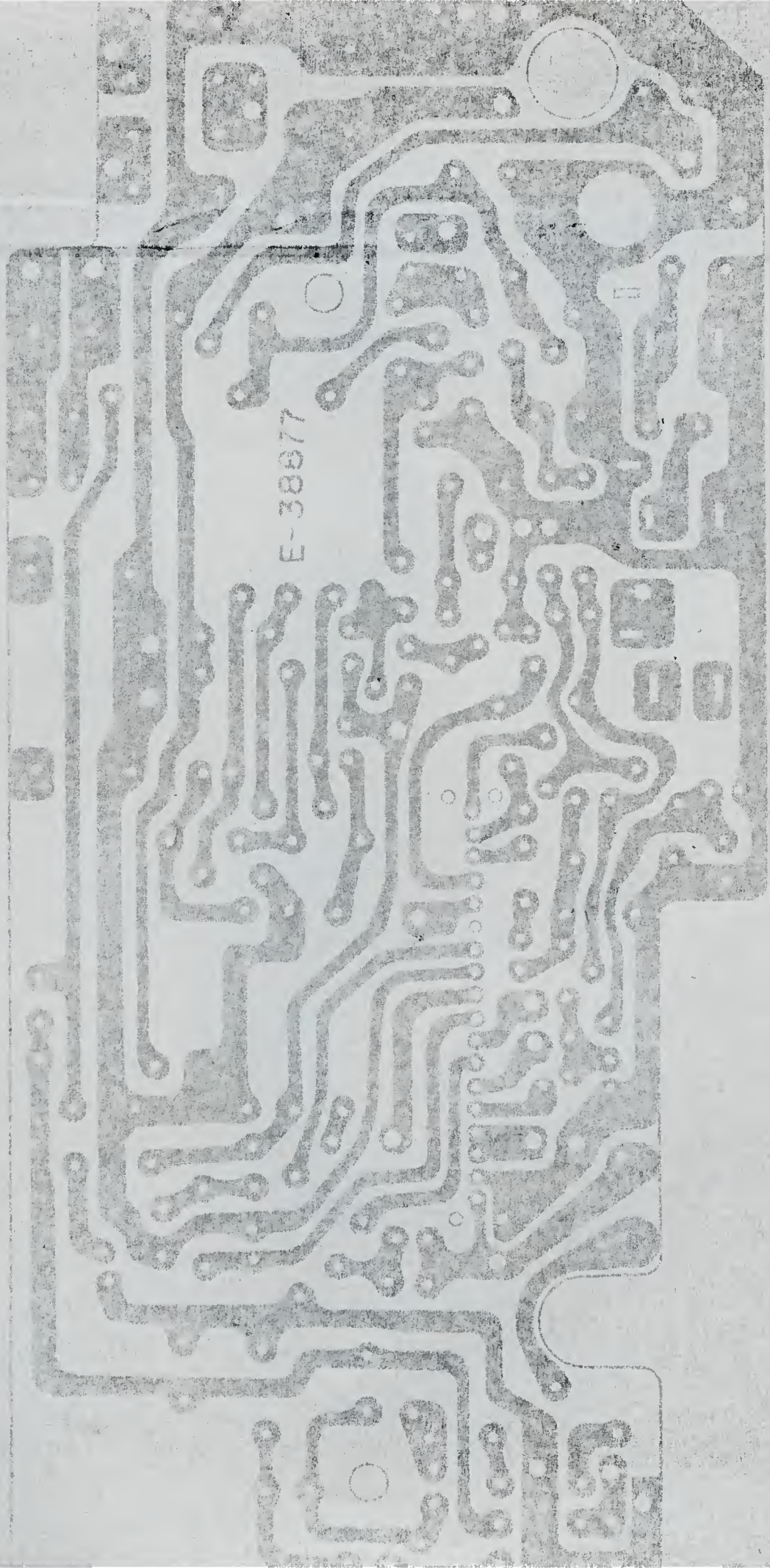
WIRING DIAGRAM  
CC-9100 (U).(C)



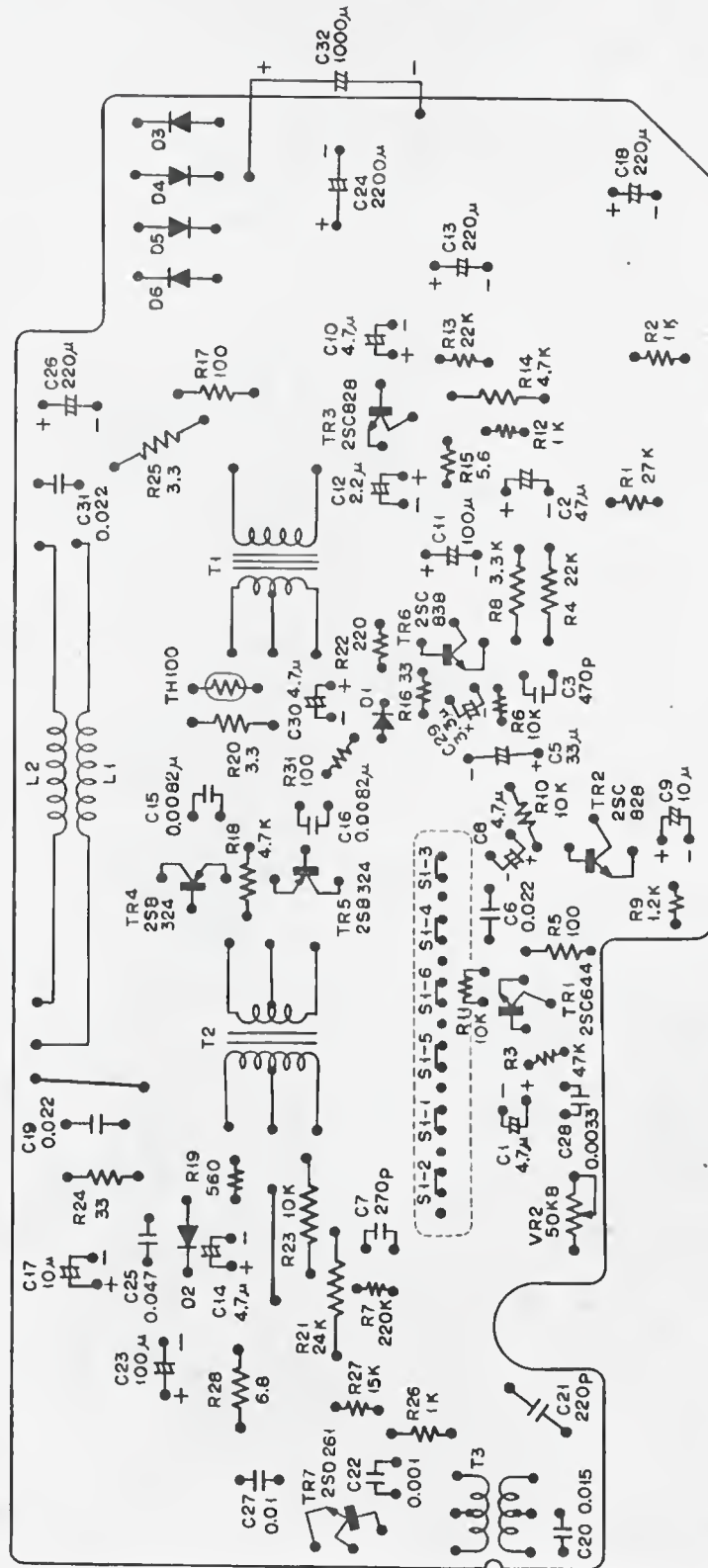
WIRING DIAGRAM  
CC-9100 (H)



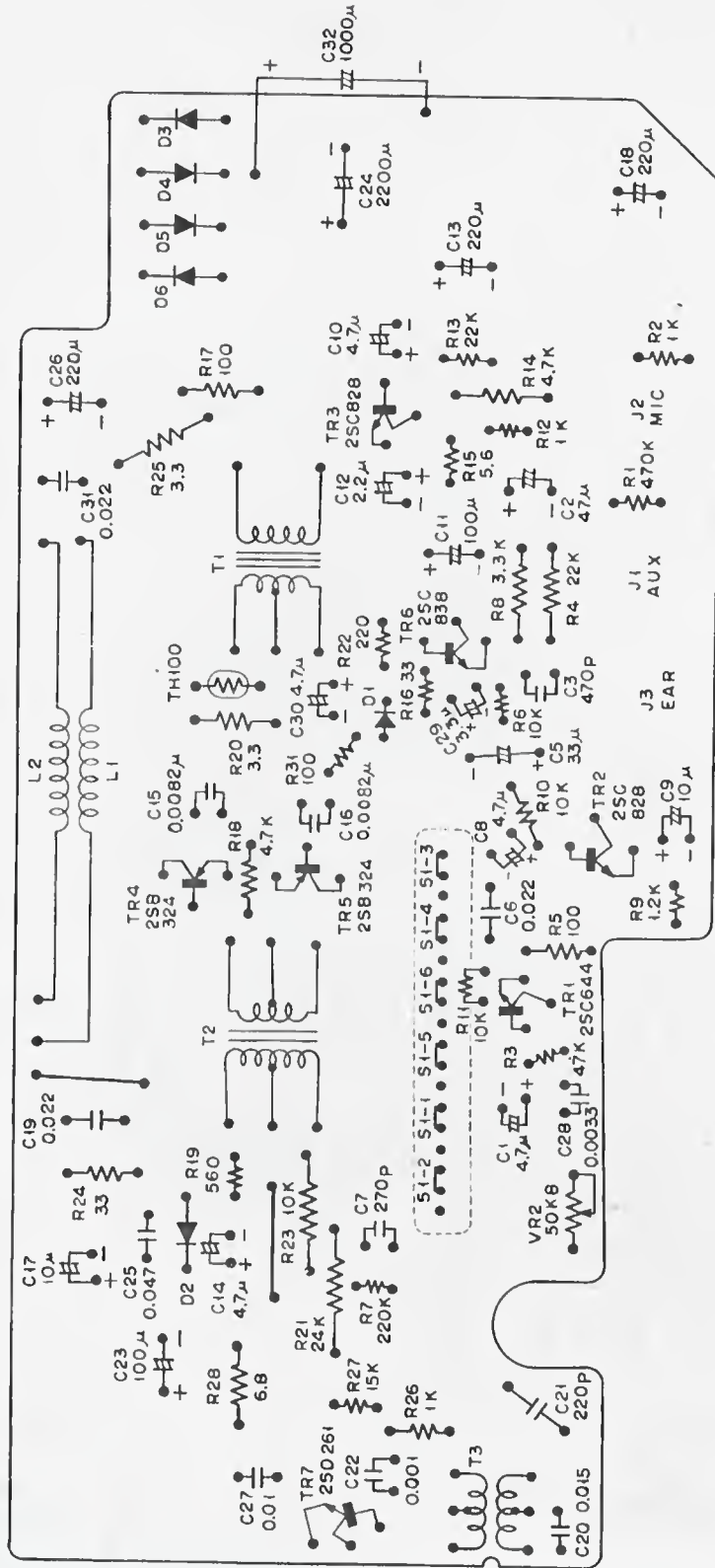




E-38977







PRINTED CIRCUIT BOARD  
 (PRINTED SIDE)  
 CC-9100 (U),(C),(H)