

## CIRCUIT MODIFICATIONS

MODEL	DELETE	ADD
Red Removable Tape Deck No. 1	Note: C26 (.5 mfd) is now removed from earth and is placed in parallel with R39 (1 m.ohm)	
Red Removable Tape Deck No. 2	C1—.01 mfd. 400 V Styroseal Cond.	C1—.01 mfd. 500 V Tubular Ceramic Cond.
Red Removable Tape Deck No. 3	C1—.01 mf. 500 V Tubular Ceramic Cond.	C1—.0039 mf. 200 V $\pm$ 20% Styroseal Cond.
RDX Malvern No. 1	C16—.01 mf. 600 V.W. $\pm$ 20% paper C17—.01 mf. 600 V.W. $\pm$ 20% paper	C16—.0047 mf. 600 V.W. $\pm$ 20% paper C17—.0047 mf. 600 V.W. $\pm$ 20% paper
REC Stirling No. 1	C37—.01 mf. 600 V.W. $\pm$ 20% paper C38—.01 mf. 600 V.W. $\pm$ 20% paper	C37—.0047 mf. 600 V.W. $\pm$ 20% paper C38—.0047 mf. 600 V.W. $\pm$ 20% paper
RDR Autoportable No. 1	R22—1 k.ohms $\frac{1}{2}$ Watt Carbon 20%	R22—1.5 k.ohms $\frac{1}{2}$ Watt Carbon 20%
RDR Autoportable No. 2	R23—2.5 k.ohm Pot.	R23—2.2 k.ohm Pot.
RDR Autoportable No. 3	C19—5 mf. Electrolytic Min. 3V Ducon ES302 C23—5 mf. Electrolytic Min. 3V. Ducon ES302	C19—4 mf. Philips Electrolytic 4V. C426 an/b/4 C23—4mf. Philips Electrolytic 4V. C426 an/b/4
RDM Explorer No. 4	R17—1-5k Morganite Preset Control	R17—1-Ducon 2.5KC PTU Control
RDM Explorer No. 5	R30—100 k.ohms $\frac{1}{2}$ Watt 20% Resistor C26—.047 mfd. 100 Volt Condenser C27—.0001 mfd. Mica Condenser	R30—27 k.ohms $\frac{1}{2}$ Watt 20% Resistor
RDM Explorer No. 6	C23—.01 mfd. 400 V Paper Cond.	C23—.047 mfd. 100 V Paper Cond.
RDM Explorer No. 7	R19—5 k.ohm $\frac{1}{2}$ Watt 5% R31—2 k.ohm $\frac{1}{2}$ Watt 20%	R19—2 k.ohm $\frac{1}{2}$ Watt 10% R31—1 k.ohm $\frac{1}{2}$ Watt 20%
RDM Explorer No. 8	R19—2 k.ohm $\frac{1}{2}$ Watt 10% Resistor	R19—2-2 k.ohm $\frac{1}{2}$ Watt 20% Resistor
RDR Autoportable No. 4	C11—1-15 pf. $\pm$ 1% Ducon CTR/"A" Ceramic Condenser	C11—1-15 pf. $\pm$ 2 $\frac{1}{2}$ % Ducon CTR/N750/A Condenser
RDR Autoportable No. 5	C20—.01 mfd. 400 V Hunts Min. Cond	C20—.01 mfd. + 100% — 0% Type ULD10 "Y6" 50 V Rutilcon HI-K Taiyo Disc Ceramic Condenser

MODEL	DELETE	ADD
REH No. 1	C70—5 pf. $\pm$ 1% Type CDS/N750/500 V C71—Style "A" Ducon Ceramic Conds.	C70—5 pf. $\pm$ .25 pf. Type CDS/N750/500 V C71—Style "F" Ducon Ceramic Conds.
REH No. 2	C37 } 100 pf. Ducon $\pm$ 2.5% C38 } CTR/N750/Style "B" Condensers	C37 } 250 pf. Ducon $\pm$ 5% C38 } CTR/N4700/Style "A" Condensers
REH No. 3	C2 } C17 } C22 } .047 mfd. $\pm$ 20% "Simplex" C33 } CPT/K2000/E 33 V Ceramic C57 } Condensers C58 } C75 } C24 } C47 } C48 } .022 mfd. $\pm$ 20% "Simplex" C49 } CPT/K2000 Ceramic Condensers C50 }	C2 } C17 } C22 } .05 mfd. "TDK" Discap C33 } 50 V Ceramic Condensers C57 } C58 } C75 } C24 } C47 } C48 } .02 mfd. "TDK" Discap C49 } 50 V Ceramic Condensers C50 }
REH No. 4	C2 } C17 } C22 } .05 mfd. "TDK" Discap C33 } 50V Ceramic Condensers C57 } C58 } C75 } C24 } C47 } C48 } .02 mfd. "TDK" Discap C49 } 50 V Ceramic Condenser C50 }	C2 } C17 } C22 } .05 mfd. + 100% — 0% Type ULD12 C33 } "YG" 50 V Rutilcon HI-K Taiyo C57 } Disc Ceramic Condenser C58 } C75 } C24 } C47 } .02 mfd. $\pm$ 100 % Type ULD12 C48 } "YG" 50 V Rutilcon HI-K Taiyo C49 } Disc Ceramic Condensers C50 }
REH No. 5	C23—(.0047 mf.) has been lifted from Cathode of V3 (EBF 89) and placed directly to Earth.	
REH No. 6		R20—1 meg $\pm$ 10% $\frac{1}{2}$ watt Morganite Insulated Resistor C46—250 pf. $\pm$ 5% Ducon CTR/N4700/A Ceramic Condenser
REI No. 1	C1 } 250 pf. $\pm$ 20% Type CDS K2000 C12 } Simplex Style "A" Condensers	C1 } 250 pf. $\pm$ 20% CDS K2000 C12 } Simplex Style "F" Condensers
REN No. 1	C2 } C4 } C7 } .05 mfd. "TDK" Discap C12 } 50 V Ceramic Condensers C16 }	C2 } C4 } .05 mfd. + 100% — 0% Type ULD12 C7 } "YG" 50 V Rutilcon HI-K Taiyo C12 } Disc Ceramic Condensers C16 }
REO No. 1	C5 } C7 } .05 mfd. "TDK" Discap C12 } 50 V Ceramic Condensers	C5 } .05 mfd. + 100% — 0% Type ULD 12 C7 } "YG" 50 V Rutilcon HI-K Taiyo C12 } Disc Ceramic Condensers

UP 80215

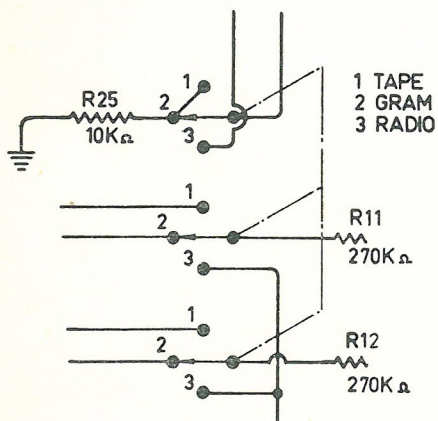
CD/5/61

## CIRCUIT MODIFICATIONS No. 2

MODEL	DELETE	ADD
RDR No. 9	C21—.0022 mf. Ducon "Highseal 85" $\pm 20\%$ TPB444.	C21—Condenser Polyester 2200 pf. $\pm 10\%$ 400 v. Philips C296AC/A2K2.
RDR No. 6	C2 } C3 } C9 } C10 } .047 mf. Ducon "Highseal 85" $\pm 20\%$ C12 } TPB108 Condenser C16 } C17 } C18 } C25 } .01 mf. Ducon "Highseal 85" $\pm 20\%$ C26 } TPB452 Condenser	C2 } C3 } C9 } C10 } Condenser Polyester 47,000 pf. $\pm 10\%$ C12 } 125 v. C296AA/A47K Philips. C16 } C17 } C18 } C25 } Condenser Polyester 10,000 pf. $\pm 10\%$ C26 } 400 v. C296AC/A10K Philips.
RED No. 6	C29—.0022 mf. Ducon "Highseal 85" $\pm 20\%$ TPB644 Condenser.	C29—Condenser Polyester 2200 pf. $\pm 10\%$ 400 v. Philips C296AC/A2K2.
RED No. 5	C20 } .047 mf. Ducon "Highseal 85" $\pm 20\%$ C25 } TPB108 Condenser. C7 —.0047 mf. Ducon "Highseal 85" $\pm 20\%$ TPB648 Condenser. C3 —.047mf. Ducon "Highseal 85" $\pm 20\%$ TPB660 Condenser. C5 } .1 mf. Ducon "Highseal 85" $\pm 20\%$ C14 } TPB664 Condenser. C17 } C28—.0039 mf. Ducon Styroseal DFB219 Condenser.	C20 } Condenser Polyester 47,000 pf. $\pm 10\%$ C25 } 125 v. C296AA/A47K Philips. C7 —Condenser Polyester 4,700 pf. $\pm 10\%$ 400 v. C296AC/A4K7 Philips. C3 —Condenser Polyester 47,000 pf. $\pm 10\%$ 400 v. C296AC/A47K Philips. C5 } Condenser Polyester .1 mf. $\pm 10\%$ C14 } 400 v. C296AC/A100K Philips. C17 } C28—Condenser Polyester 3,900 pf. $\pm 10\%$ 400 v. C296AC/A3K9 Philips.
REF No. 1	C2 } .047 mf. Ducon "Highseal 85" $\pm 20\%$ C6 } TPB108 Condenser. C7 } .022 mf. Ducon "Highseal 85" $\pm 20\%$ C14 } TPB456 Condenser. C10—.047 mf. Ducon "Highseal 85" $\pm 20\%$ TPB460 Condenser. C5 —.047 mf. Ducon "Highseal 85" $\pm 20\%$ TPB660 Condenser.	C2 } Condenser Polyester 47,000 pf. $\pm 10\%$ C6 } 125 v. C296AA/A47K Philips. C7 } Condenser Polyester 22,000 pf. $\pm 10\%$ C14 } 400 v. C296AC/A22K Philips. C10—Condenser Polyester 47,000 pf. $\pm 10\%$ 400 v. C296AC/A47K Philips. C5 —Condenser Polyester 47,000 pf. $\pm 10\%$ 400 v. C296AC/A47K Philips.
REF No. 2	C16—.0022 mf. Ducon "Highseal 85" $\pm 20\%$ TPB644 Condenser. C4 —.022 mf Ducon "Highseal 85" $\pm 20\%$ TPB444 Condenser.	C16—Condenser Polyester 2200 pf. $\pm 10\%$ 400 v. C296AC/A2K2 Philips. C4 —Condenser Polyester 2200 pf. $\pm 10\%$ 400 v. C296AC/A2K2 Philips.
REG No. 1	C2 } .047 mf. Ducon "Highseal 85" $\pm 20\%$ C8 } TPB108 Condensers. C15 } C16—.047 mf. Ducon "Highseal 85" $\pm 20\%$ TPB460 Condenser. C10—.0047 mf. Ducon "Highseal 85" $\pm 20\%$ TPB648 Condenser. C1 } C7 } C9 } .022 mf. Ducon "Highseal 85" $\pm 20\%$ C12 } TPB656 Condenser. C13 } C14—.1 mf. Ducon "Highseal 85" $\pm 20\%$ TPB664 Condenser.	C2 } Condenser Polyester 47,000 pf. $\pm 10\%$ C8 } 125 v. C296AA/A47K Philips. C15 } C16—Condenser Polyester 47,000 pf. $\pm 10\%$ 400 v. C296AC/A47K Philips. C10—Condenser Polyester 4,700 pf. $\pm 10\%$ 400 v. C296AC/A4K7 Philips. C1 } C7 } C9 } Condenser Polyester 22,000 pf. $\pm 10\%$ C12 } 400 v. C296AC/A22K Philips. C13 } C14—Condenser Polyester .1 mf. $\pm 10\%$ 400 v. C296AC/A100K Philips.

REH No. 7	C77—.1 mf. Ducon "Highseal 85" $\pm 20\%$ TPB664 Condenser.	C77—Condenser Polyester .1 mf. $\pm 10\%$ C296AC/A100K Philips.
REH No. 8	C5 } 50 pf. $\pm 1\%$ Ducon CTR Style "B" C21 } N220 Condenser. C35 } C9 } 50 pf. $\pm 1\%$ Ducon CTR Style "B" C27 } N80 Condenser. C42 }	C5 } 50 pf. $\pm 2\frac{1}{2}\%$ Ducon CTR Style "B" C21 } N220 Condenser. C35 } C9 } 50 pf. $\pm 2\frac{1}{2}\%$ Ducon CTR Style "B" C27 } N80 or N75 Condenser. C42 }
REH No. 9	R11 } Resistor, Morganite Type "Y" R47 } 220 ohm 1 watt $\pm 20\%$ R48 }	R11 } Resistor, Morganite Type "Y" R47 } 220 ohm 1 watt $\pm 10\%$ R48 }
REI No. 2	C2 } .047 mf. Ducon "Highseal 85" $\pm 20\%$ C6 } TPB108 Condenser. C11—.022 mf. Ducon "Highseal 85" $\pm 20\%$ TPB456 Condenser. C 7—.0047 mf. Ducon "Highseal 85" $\pm 20\%$ TPB648 Condenser. C5 } .047 mf. Ducon "Highseal 85" $\pm 20\%$ C8 } TPB660 Condenser.	C2 } Condenser Polyester 47,000 pf. $\pm 10\%$ C6 } 400 v. C296AA/A47K Philips. C11—Condenser Polyester 22,000 pf. $\pm 10\%$ C296AC/A22K Philips. C7 —Condenser Polyester 4,700 pf. $\pm 10\%$ 400 v. C296AC/A4K7. C5 } Condenser Polyester 47,000 pf. $\pm 10\%$ C8 } 400 v. C296AC/A47K Philips.
REI No. 3	C15—.0022 mf. Ducon "Highseal 85" $\pm 20\%$ TPB644 Condenser.	C15—Condenser Polyester 2200 pf. $\pm 10\%$ 400 v. C296AC/A2K2 Philips.
REJ No. 1	R2 —Resistor "Thermister" 130 ohm 70% NTC 10/1 w. Philips. B8.320.01A/130E	R2 —Resistor "Thermister" Disc NTC Philips B8.320.01A/130E 10%.
REM No. 1		R3 —470K ohm $\frac{1}{2}$ watt $\pm 10\%$ Morganite Insulated Resistor across the pickup Leads.
REN No. 2		C29—50 pf. $\pm 2\frac{1}{2}\%$ Ducon CTR/N750/A Ceramic Tubular Condenser in parallel with R28 1 m ohm Resistor. C30—50 pf. $\pm 2\frac{1}{2}\%$ Ducon CTR/N750/A Ceramic Tubular Condenser in parallel with R29 1 m ohm Resistor.
REO No. 2		C26—50 pf. $2\frac{1}{2}\%$ Ducon CTR/N750/A Ceramic Tubular Condenser in parallel with R25 1 m ohm Resistor. C27—50 pf. $\pm 2\frac{1}{2}\%$ Ducon CTR/N750/A Ceramic Tubular Condenser in parallel with R26 1 m ohm Resistor.

# MODIFICATIONS TO CIRCUIT DIAGRAMS FOR MODELS RDX, RDZ AND REC



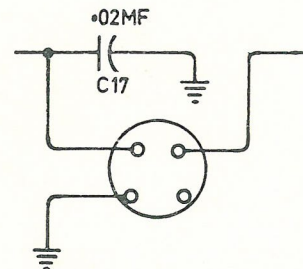
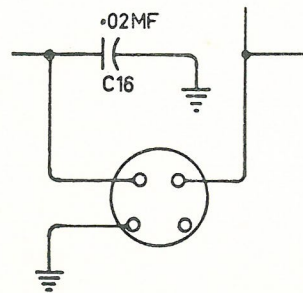
**NOTE** USE THIS SECTION OF MODIFICATION ON MODEL RDZ CIRCUIT DIAGRAM ONLY  
ADD R25 10KΩ 2WATT ±10% CARBON  
SEE SKETCH ABOVE

C17 & C16 (RDX & RDZ)  
C37 & C38 (REC)

Are now .02 uf discap ceramics and are at the ECL82 valve sockets (anode to spigot) and are no longer across the speaker sockets.

C9, C10, R15 & R16 (RDX & RDZ)  
C31, C32, R13 & R14 (REC)

Are now mounted on a tie strip right alongside the volume control. Shielded lead is used to connect to the input grids.



**NOTE** USE THIS SECTION OF MODIFICATION ON MODELS RDX, RDZ & REC.  
DELETE C16 AND C17 .0047MF 600V.W. DUCON HIGHSEAL TPB648 CONDENSERS.  
ADD C16 AND C17 .02MF SIMPLEX CD5EZ CERAMIC CONDENSERS (PRE-TESTED TO MATCHED PAIRS ±2%)  
SEE SKETCH ABOVE

DELETE C9 AND C10 .01MF 400V.W. DUCON STYROSEAL DFB242 CONDS.  
ADD C9 AND C10 .01MF +50% -20% DUCON CTR K6000 STYLE B CERAMIC CONDENSERS.

DRAWN	<i>Bryan J. Jones</i> 16-8-61
CHECKED	<i>R. L. Long</i>
APPROVED	<i>R. L. Long</i>

## CIRCUIT MODIFICATIONS No. 1

MODEL	DELETE	ADD
RED Removable Tape Deck No. 1	Note: C26 (.5 mfd) is now removed from earth and is placed in parallel with R39 (1 m.ohm)	
RED Removable Tape Deck No. 2	C1—.01 mfd. 400 V Styroseal Cond.	C1—.01 mfd. 500 V Tubular Ceramic Cond.
RED Removable Tape Deck No. 3	C1—.01 mf. 500 V Tubular Ceramic Cond.	C1—.0039 mf. 200 V $\pm$ 20% Styroseal Cond.
RDX Malvern No. 1	C16—.01 mf. 600 V.W. $\pm$ 20% paper C17—.01 mf. 600 V.W. $\pm$ 20% paper	C16—.0047 mf. 600 V.W. $\pm$ 20% paper C17—.0047 mf. 600 V.W. $\pm$ 20% paper
REC Stirling No. 1	C37—.01 mf. 600 V.W. $\pm$ 20% paper C38—.01 mf. 600 V.W. $\pm$ 20% paper	C37—.0047 mf. 600 V.W. $\pm$ 20% paper C38—.0047 mf. 600 V.W. $\pm$ 20% paper
RDR Autoportable No. 1	R22—1 k.ohms $\frac{1}{2}$ Watt Carbon 20%	R22—1.5 k.ohms $\frac{1}{2}$ Watt Carbon 20%
RDR Autoportable No. 2	R23—2.5 k.ohm Pot.	R23—2.2 k.ohm Pot.
RDR Autoportable No. 3	C19—5 mf. Electrolytic Min. 3V Ducon ES302 C23—5 mf. Electrolytic Min. 3V. Ducon ES302	C19—4 mf. Philips Electrolytic 4V. C426 an/b/4 C23—4mf. Philips Electrolytic 4V. C426 an/b/4
RDM Explorer No. 4	R17—1-5k Morganite Preset Control	R17—1-Ducon 2.5KC PTU Control
RDM Explorer No. 5	R30—100 k.ohms $\frac{1}{2}$ Watt 20% Resistor C26—.047 mfd. 100 Volt Condenser C27—.0001 mfd. Mica Condenser	R30—27 k.ohms $\frac{1}{2}$ Watt 20% Resistor
RDM Explorer No. 6	C23—.01 mfd. 400 V Paper Cond.	C23—.047 mfd. 100 V Paper Cond.
RDM Explorer No. 7	R19—5 k.ohm $\frac{1}{2}$ Watt 5% R31—2 k.ohm $\frac{1}{2}$ Watt 20%	R19—2 k.ohm $\frac{1}{2}$ Watt 10% R31—1 k.ohm $\frac{1}{2}$ Watt 20%
RDM Explorer No. 8	R19—2 k.ohm $\frac{1}{2}$ Watt 10% Resistor	R19—2-2 k.ohm $\frac{1}{2}$ Watt 20% Resistor
RDR Autoportable No. 4	C11—1-15 pf. $\pm$ 1% Ducon CTR/"A" Ceramic Condenser	C11—1-15 pf. $\pm$ 2 $\frac{1}{2}$ % Ducon CTR/N750/A Condenser
RDR Autoportable No. 5	C20—.01 mfd. 400 V Hunts Min. Cond	C20—.01 mfd. $\pm$ 100% $\pm$ 0% Type ULD10 "Y6" 50 V Rutilcon HI-K Taiyo Disc Ceramic Condenser

MODEL	DELETE	ADD
REH No. 1	C70—5 pf. $\pm 1\%$ Type CDS/N750/500 V C71—Style "A" Ducon Ceramic Conds.	C70—5 pf. $\pm .25$ pf. Type CDS/N750/500 V C71—Style "F" Ducon Ceramic Conds.
REH No. 2	C37 } 100 pf. Ducon $\pm 2.5\%$ C38 } CTR/N750/Style "B" Condensers	C37 } 250 pf. Ducon $\pm 5\%$ C38 } CTR/N4700/Style "A" Condensers
REH No. 3	C2 } C17 } C22 } .047 mfd. $\pm 20\%$ "Simplex" C33 } CPT/K2000/E 33 V Ceramic C57 } Condensers C58 } C75 } C24 } C47 } C48 } .022 mfd. $\pm 20\%$ "Simplex" C49 } CPT/K2000 Ceramic Condensers C50 }	C2 } C17 } C22 } .05 mfd. "TDK" Discap C33 } 50 V Ceramic Condensers C57 } C58 } C75 } C24 } C47 } C48 } .02 mfd. "TDK" Discap C49 } 50 V Ceramic Condensers C50 }
REH No. 4	C2 } C17 } C22 } C33 } .05 mfd. "TDK" Discap C57 } 50V Ceramic Condensers C58 } C75 } C24 } C47 } C48 } .02 mfd. "TDK" Discap C49 } 50 V Ceramic Condenser C50 }	C2 } C17 } C22 } .05 mfd. + 100% — 0% Type ULD12 C33 } "YG" 50 V Rutilcon HI-K Taiyo C57 } Disc Ceramic Condenser C58 } C75 } C24 } C47 } .02 mfd. $\pm 100\%$ Type ULD12 C48 } "YG" 50 V Rutilcon HI-K Taiyo C49 } Disc Ceramic Condensers C50 }
REH No. 5	C23—(.0047 mf.) has been lifted from Cathode of V3 (EBF 89) and placed directly to Earth.	
REH No. 6		R20—1 meg $\pm 10\%$ $\frac{1}{2}$ watt Morganite Insulated Resistor C46—250 pf. $\pm 5\%$ Ducon CTR/N4700/A Ceramic Condenser
REI No. 1	C1 } 250 pf. $\pm 20\%$ Type CDS K2000 C12 } Simplex Style "A" Condensers	C1 } 250 pf. $\pm 20\%$ CDS K2000 C12 } Simplex Style "F" Condensers
REN No. 1	C2 } C4 } C7 } .05 mfd. "TDK" Discap C12 } 50 V Ceramic Condensers C16 }	C2 } C4 } .05 mfd. + 100% — 0% Type ULD12 C7 } "YG" 50 V Rutilcon HI-K Taiyo C12 } Disc Ceramic Condensers C16 }
REO No. 1	C5 } C7 } .05 mfd. "TDK" Discap C12 } 50 V Ceramic Condensers	C5 } .05 mfd. + 100% — 0% Type ULD 12 C7 } "YG" 50 V Rutilcon HI-K Taiyo C12 } Disc Ceramic Condensers

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CD/5/61

**MODIFICATIONS TO MODEL RDX MALVERN — No. 1**

DELETE		ADD	
C16	.01 MF. 600 V.W. $\pm$ 20% PAPER	C16	.0047 MF. 600 V.W. $\pm$ 20% PAPER
C17	.01 MF. 600 V.W. $\pm$ 20% PAPER	C17	.0047 MF. 600 V.W. $\pm$ 20% PAPER

**MODIFICATIONS TO MODEL REC STIRLING — No. 1**

DELETE		ADD	
C37	.01 MF. 600 V.W. $\pm$ 20% PAPER	C37	.0047 MF. 600 V.W. $\pm$ 20% PAPER
C38	.01 MF. 600 V.W. $\pm$ 20% PAPER	C38	.0047 MF. 600 V.W. $\pm$ 20% PAPER

**MODIFICATIONS TO MODEL RDR AUTOPORTABLE — No. 1**

DELETE		ADD	
R22	1 K.OHMS $\frac{1}{2}$ WATT CARBON 20%	R22	1.5 K.OHMS $\frac{1}{2}$ WATT CARBON 20%

**MODIFICATION TO MODEL RED REMOVABLE TAPE DECK — No. 1**

NOTE: C26 (.5 MFD) IS NOW REMOVED FROM EARTH AND IS PLACED IN PARALLEL WITH R39 (1 M.OHM)