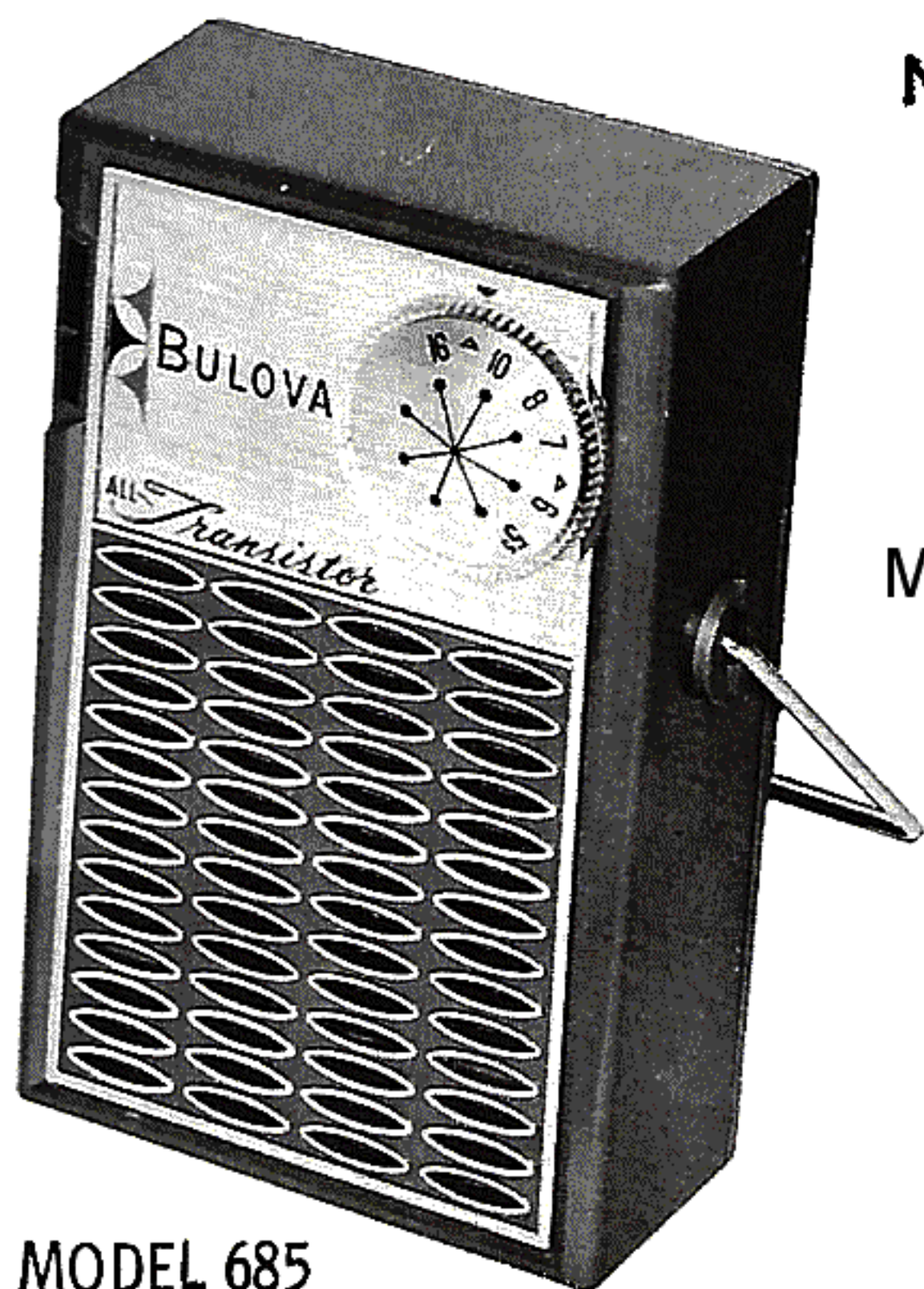


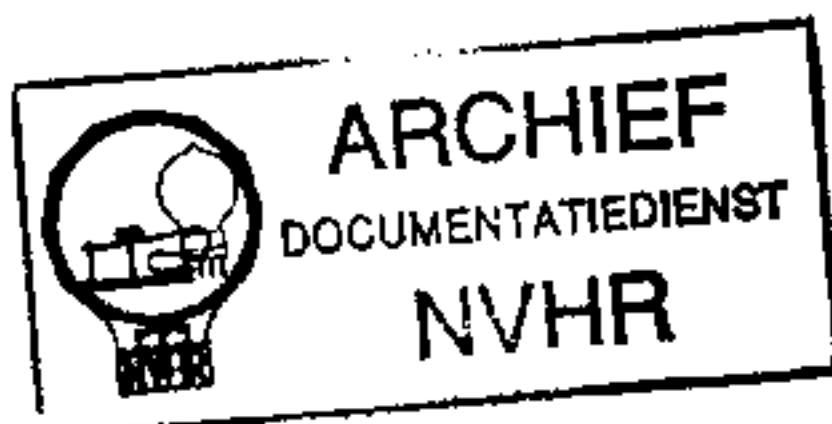
**PHOTOFACT<sup>®</sup> Folder**

with **CIRCUITRACE<sup>®</sup>**

**BULOVA MODELS 681, 682, 683,  
685, 1681, 1682, 1683, 1685**



Ned. Ver. v. Historie v/d Radio



Met dank aan Jef Bos

MODEL 685

<b>TYPE NAME</b>	Bulova Models 681, 682, 683, 685, 1681, 1682, 1683, 1685		
<b>MANUFACTURER</b>	Bulova Watch Co., Bulova Park, Flushing 70, N. Y.		
<b>TYPE OF RECEIVER</b>	Battery Operated Transistorized Portable AM Receiver		
<b>POWER SUPPLY</b>	9 Volts DC	<b>RATING</b>	20 MA@9 Volts DC
<b>TUNING RANGE—BROADCAST</b>	540 — 1600KC		

## ALIGNMENT INSTRUCTIONS

### ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an S9 signal.

**Required Alignment Tools:**

- A1, A2..... GENERAL CEMENT #5097, 8727  
WALSCO #2515
- A3, A5..... GENERAL CEMENT #5004, 5008, 5009  
WALSCO #2520
- A4..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440  
WALSCO #2528, 2543, 2544, 2545

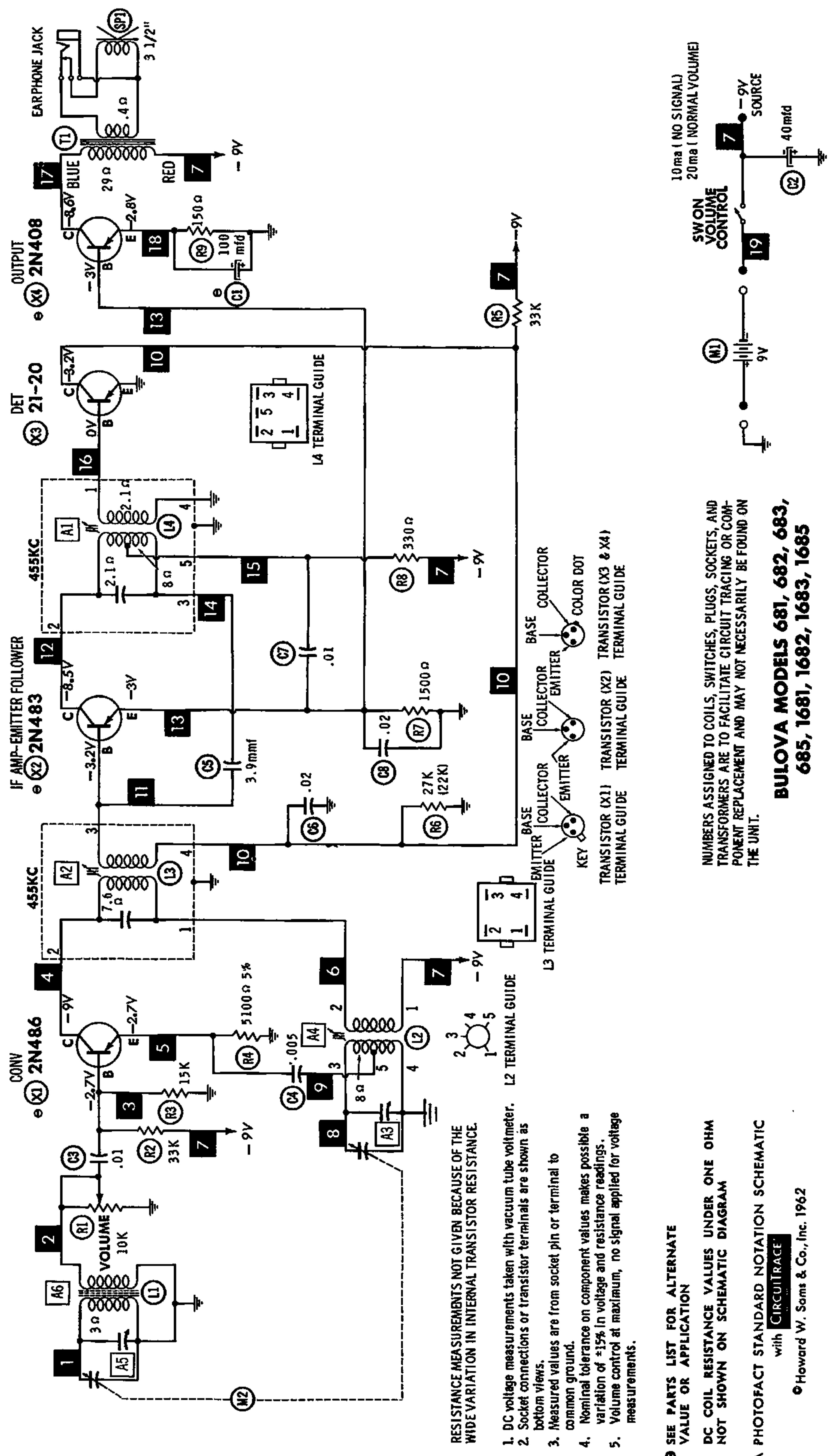
SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
Parallel loop of several turns of wire and radiate signal into loop of receiver.	455KC (400% Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2	Adjust for maximum output.
"	1600KC	1600KC	"	A3	"
"	600KC	600KC	"	A4	Adjust for maximum output while rocking tuning gang.
"	1400KC	1400KC Signal.	"	A5	Adjust for maximum output.
"	600KC	600KC Signal.	"	A6	Rock tuning gang and adjust for maximum output by moving coil turns along ferrite core.

### HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guarantee by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. ©1962 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America





RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of  $\pm 15\%$  in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

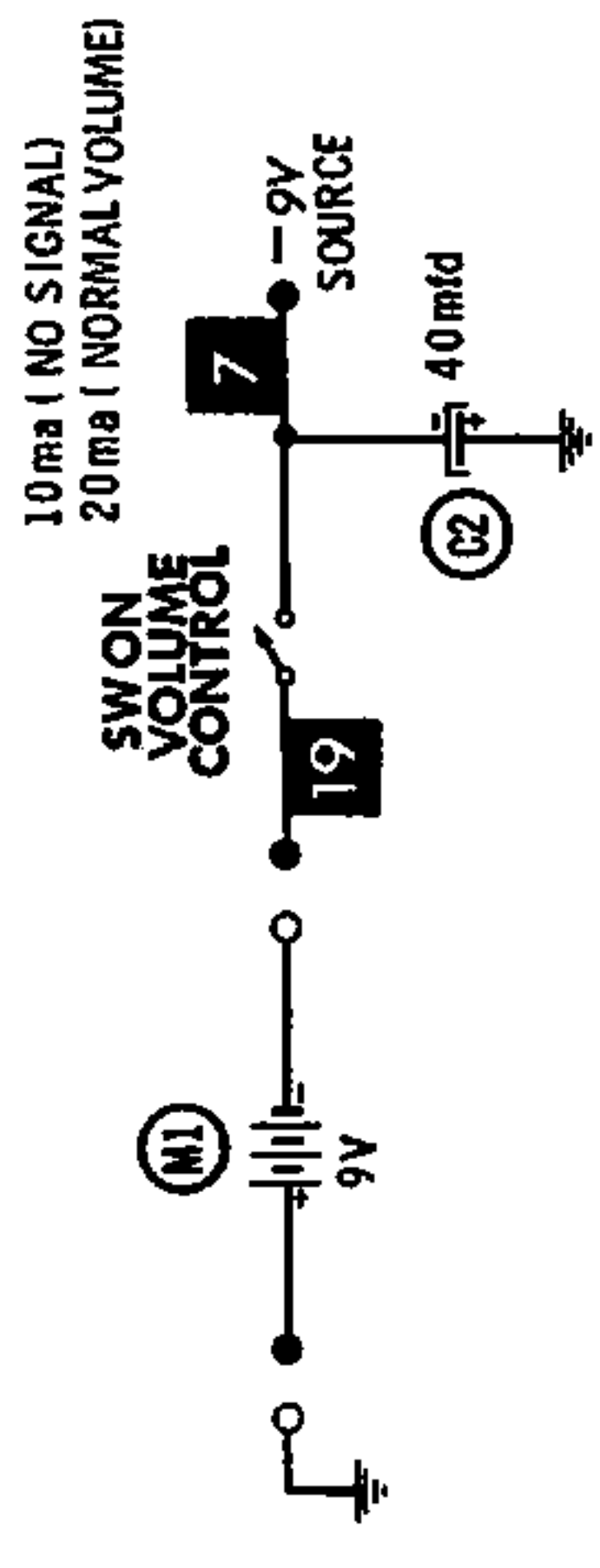
A PHOTOFACT STANDARD NOTATION SCHEMATIC with **CIRCUITAGE**

Howard W. Sams & Co., Inc. 1962

**BULOVA MODELS 681, 682, 683, 685, 1681, 1682, 1683, 1685**

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

TRANSISTOR (X1) TRANSISTOR (X2) TRANSISTOR (X3 & X4)  
 TERMINAL GUIDE TERMINAL GUIDE TERMINAL GUIDE



# PARTS LIST AND DESCRIPTIONS

## TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		TYPE
			RCA PART No.	RAYTHEON PART No.	
X1	2N486 2N412*	Converter Converter	2N412	2N486	PNP PNP
X2	2N483 2N410*	IF Amp. -Emit. Follower IF Amp. -Emit. Follower	2N410	2N483	PNP PNP
X3	2I-20	Detector			PNP
X4	2N408 2N631*	Output Output	2N408	2N633	PNP PNP

\* Alternate

## ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	BULOVA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	100	10		PTT46	NLW100-12	MT1-19	TT15X100	MLV100-10	TE-1119.3
C2	40	10	10-19 <sup>Ⓛ</sup>	PTT44	NLW40-10	MT1-16	TT15X40	MLV40-12	TE-1119

<sup>Ⓛ</sup> Some versions may use 100mf@3V in this application (Part #10-27).

## FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C4	.005		BPD-005	DD-502	L10D5	CCD-502	GP250	10T8-D50
C5	3.9mmf				C10V4C		10TCC-V39	10TCC-V39
C6	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C7	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20

## CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			BULOVA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CYS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	10K	22-17				

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

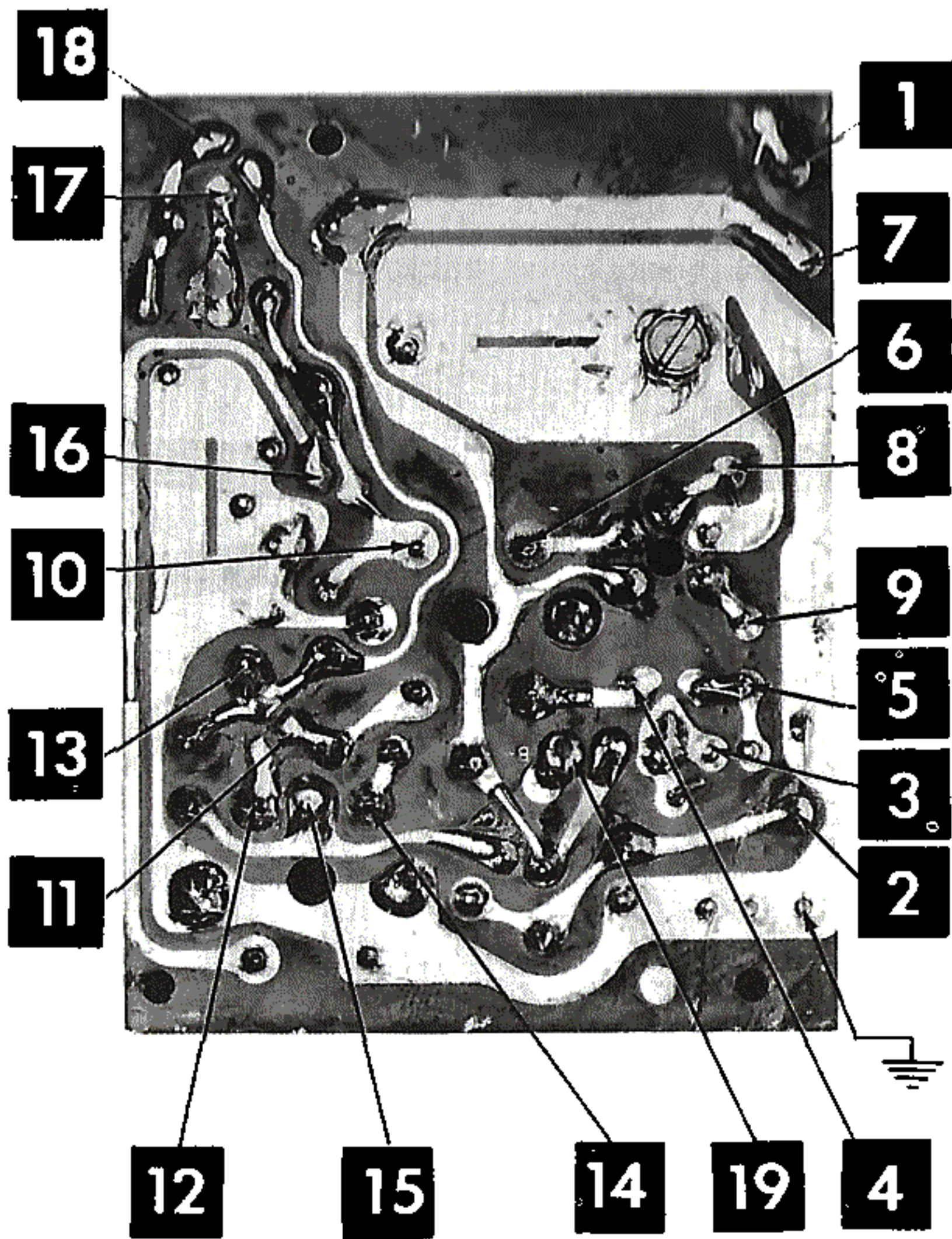
ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	33K				R6	27K			(22K)*
R3	15K				R7	1500Ω			
R4	5100Ω 5%				R8	330Ω			
R5	33K				R9	150Ω			

\* Alternate Value.



# PRINTED BOARD

A 11/2 x 11/2 W. 9400 10000000 Photo



# PARTS LIST AND DESCRIPTIONS (Continued)

## COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		BULOVA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Loopstick	80-17					
L2	Osc.	20-13					
L3	Input IF	24-36					
L4	Output IF	24-37					

## TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	BULOVA PART No.	Merit PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	
T1	900Ω	3-4Ω	24-38					

## SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	BULOVA PART No.	QUAM PART No.	
SP1	3½"	PM	3-4Ω	26-19A	3A07	

## BATTERIES

ITEM No.	VOLTAGE	BULOVA PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V	#21		2U8		218		M-1804	

## MISCELLANEOUS

ITEM No.	PART NAME	BULOVA PART No.	NOTES
M2	Tuning Cap.	12-18	2 Gang

## CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob, Tuning	78-49	Shell Only (Specify Color) Complete (Specify Color)
Knob, Volume	78-50	
Cabinet	70-80	
Cabinet	70-80C	
Handle	70-81	

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors  
8524 (Stranded) Available in Ten Colors



**CHASSIS—TOP VIEW**

