

# PHOTOFACT<sup>®</sup> with

# CIRCUITRACE<sup>®</sup>



TRADE NAME : Panasonic Model T-1

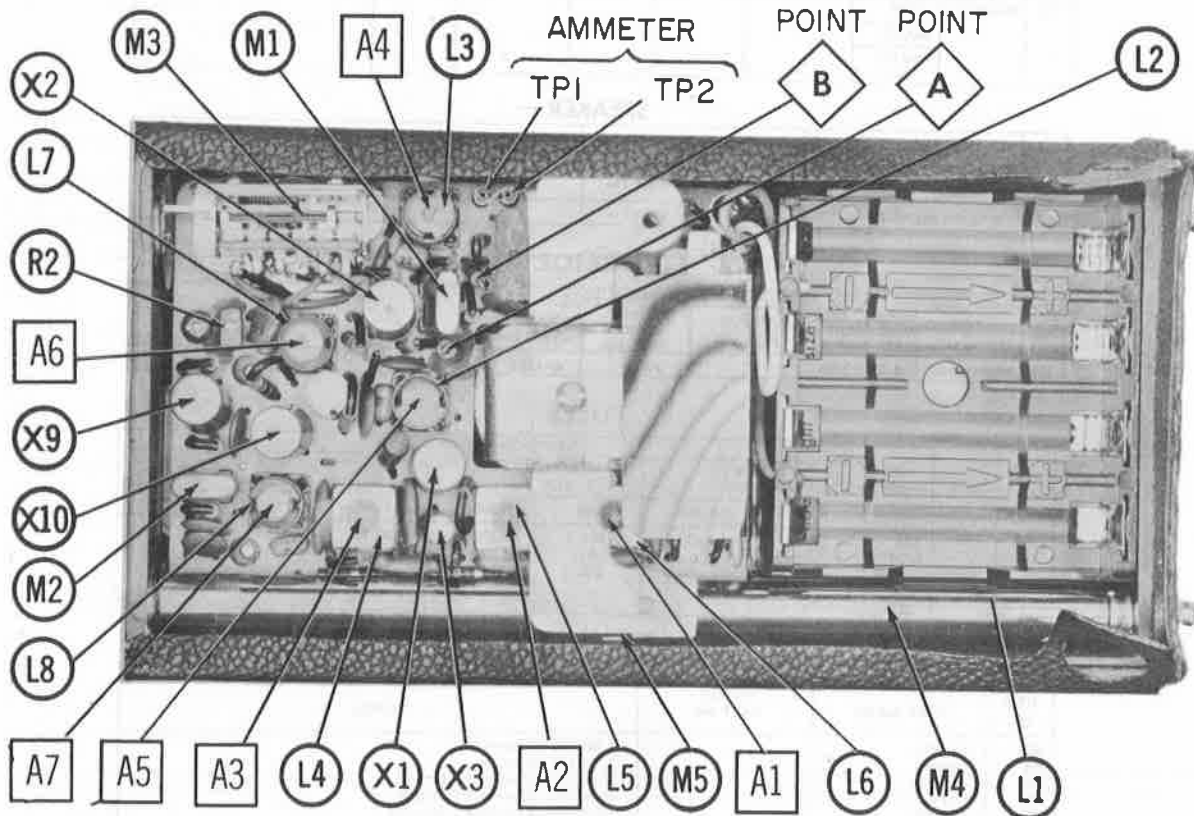
SUPPLIER : Matsushita Electric Corp. of America  
Pan American Bldg.  
220 Park Ave., New York 17, N. Y.  
10 Transistor Transceiver

POWER SUPPLY : 12 Volts DC

RATING : 7.5MA @ 12VDC (Receive, No Signal)  
15MA @ 12VDC (Transmit, No Modulation)

TUNING RANGE : Any one CB Channel 1 thru 22

PANASONIC MODEL T-1



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

# ALIGNMENT INSTRUCTIONS

This transceiver meets all requirements of F.C.C. Rules & Regulations, Part 15, Subpart "E" for low power communications devices and requires no station license. However, only those persons properly licensed by the F.C.C. are permitted to repair or adjust any malfunctioning unit found to be transmitting illegally. (Refer to F.C.C. Rules & Regulations, Part 19, Subpart "D", Section 19.71.)

## Equipment Required

1. AM Signal Generator
2. Ammeter
3. Output Meter
4. Oscilloscope
5. Transistor Radio Battery Eliminator
6. Audio Oscillator
7. Frequency Meter

## Receiver IF Alignment

1. Connect output meter across speaker voice coil (use earphone jack).
2. Set volume control to maximum.
3. Remove batteries. Connect battery eliminator across battery terminals and set to -13.2 volts.
4. Connect high side of signal generator (set to 455 KC, 1000 cycles 30% modulation) through .01 mfd capacitor to rod antenna; low side to point  $\diamond A$ . (NOTE: Fully collapse rod antenna.) Adjust A1, A2, and A3 for maximum output. Keep output of signal generator low enough to maintain reading of .28 volts or less on output meter during adjustments.

## Receiver Osc. and RF Alignment

1. Disconnect signal generator and output meter.
2. Connect negative lead of ammeter (set on 100  $\mu$ a range) to point  $\diamond A$ . Connect positive lead through an OA70 (or equivalent) diode to point  $\diamond B$  as follows:



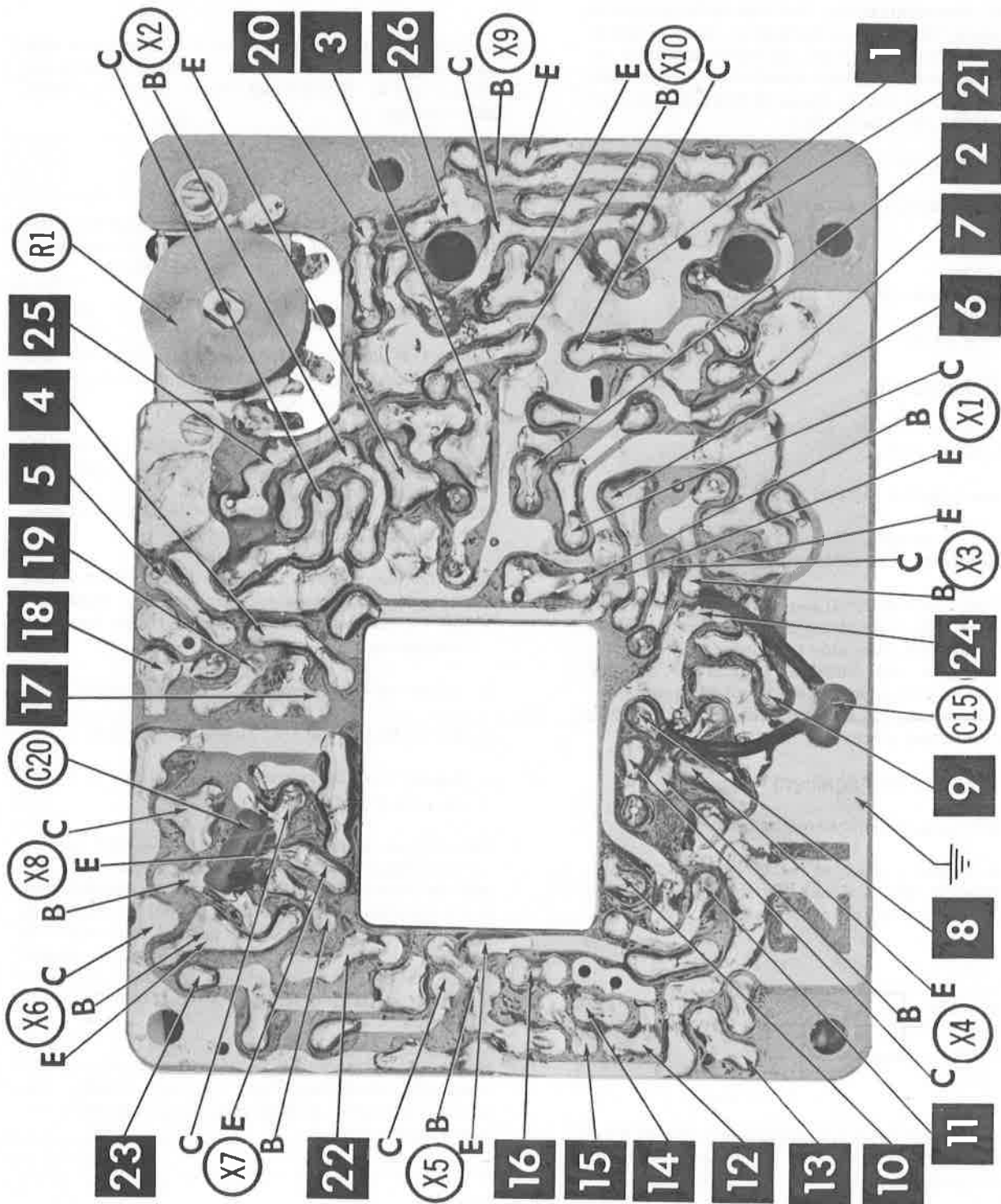
3. Adjust A4 counterclockwise from center of coil form for maximum current reading. Then turn A4 clockwise until reading is 5% less than maximum.
4. Disconnect ammeter and reconnect output meter and signal generator. (Connect generator high side through 13 mmf capacitor to rod antenna; low side to point  $\diamond A$ . Set generator to 27.075 MC (Channel

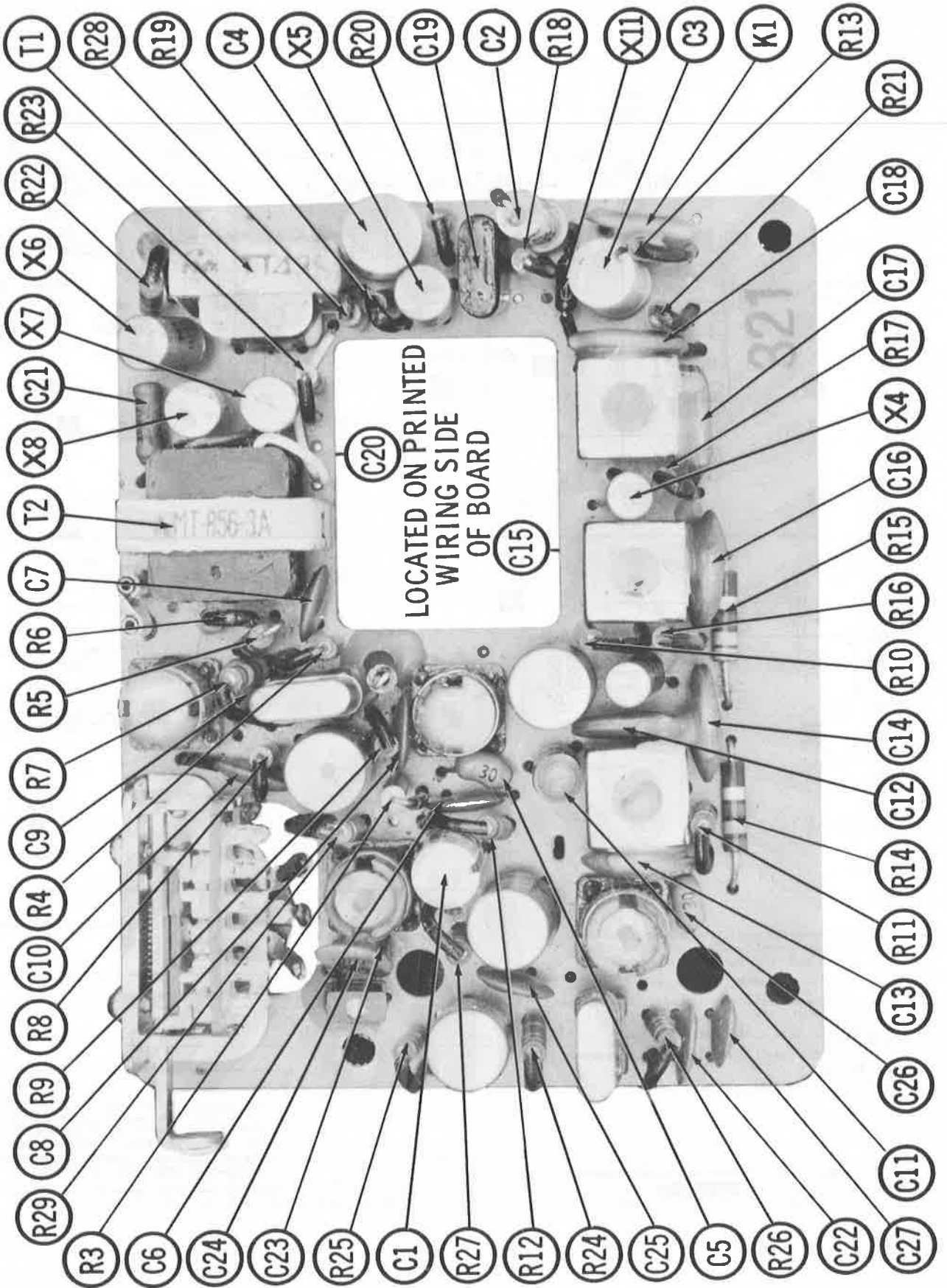
10). Again use 1000 cycles 30% modulation. Adjust A5 for maximum reading on output meter.

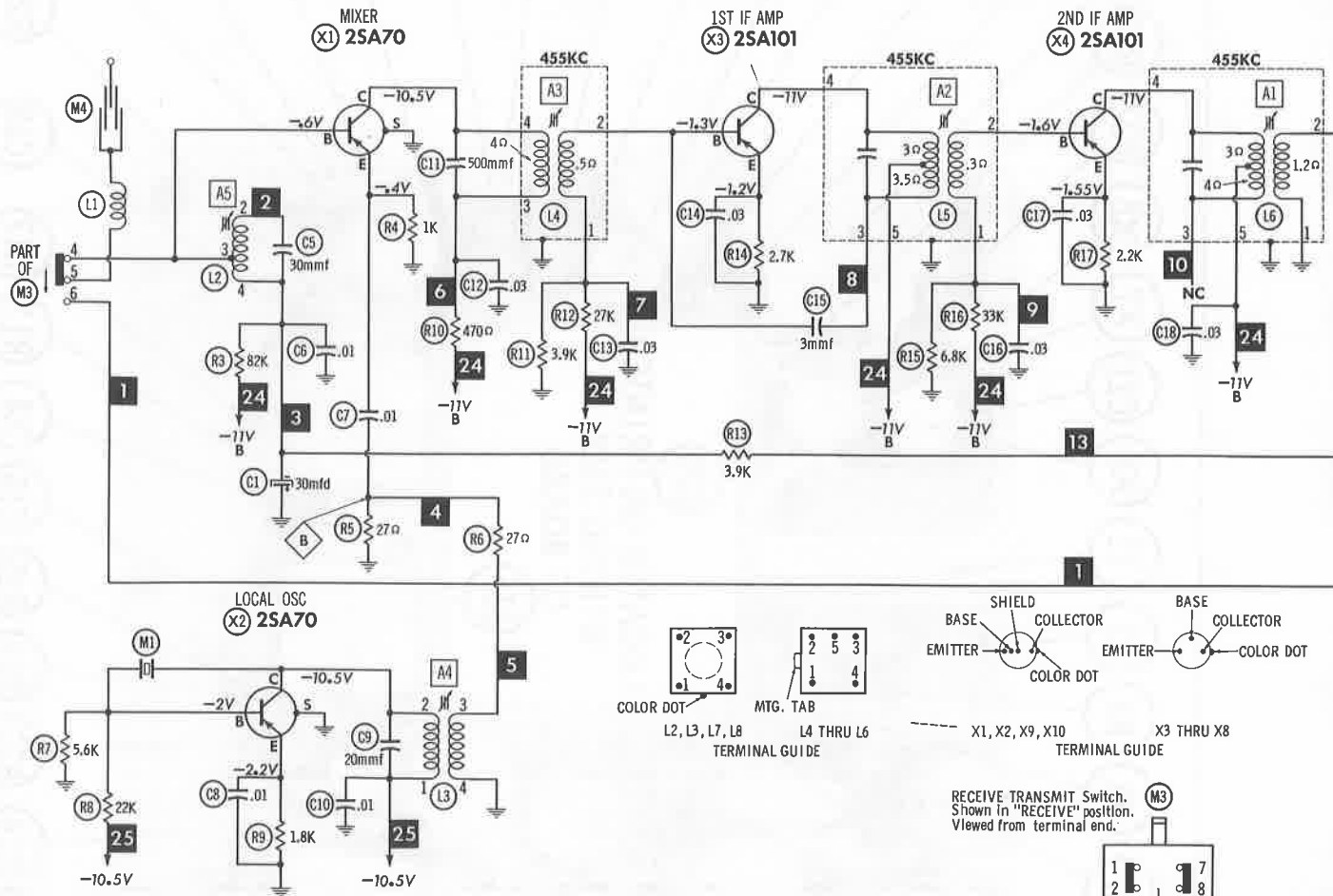
5. Reseal adjustments A4 and A5 with same type wax originally used, then check readings obtained in Steps 3 and 4. If abnormal change is noted, repeat adjustments.

## Transmitter Alignment

1. Remove shorting clip from ammeter test pins. Connect negative lead of ammeter (set on 10 ma range) to Test Pin 1; positive lead to Test Pin 2.
2. Set volume control to maximum.
3. Connect a dummy antenna (13 mmf capacitor and 39 $\Omega$  resistor in series) between rod antenna (fully collapsed) and point  $\diamond A$ .
4. Remove batteries. Connect battery eliminator across battery terminals and set to -13.2 volts.
5. Depress the transmit button located on top of case and make the following adjustments:
  - a. Adjust A6 counterclockwise from center of coil form for maximum current reading. Then turn A6 clockwise until reading is .15 ma less than maximum.
  - b. Adjust A7 for minimum current reading (dip).
  - c. Adjust R2 for current reading of 7.3 ma.
  - d. Repeat Steps 5a, b, and c several times to insure correct adjustment.
6. Connect an audio oscillator (set to 1000 cycles) across speaker voice coil (use earphone jack). Connect the vertical input terminals of an oscilloscope to the earphone jack of another Model T-1 known to be in good operating condition and set this unit up to receive signal from first unit. Depress transmit button on first unit and check to make sure waveform of signal picked up by second unit is free of distortion.
7. Reseal adjustments A6 and A7 with same type wax originally used, then check ammeter readings obtained in Step 5. If abnormal change is noted, repeat adjustments.
8. Disconnect ammeter and replace shorting clip on test pins.
9. Using a good frequency meter, check frequency of transmitter signal to make certain it is within the  $\pm .005\%$  deviation permitted by the F.C.C.



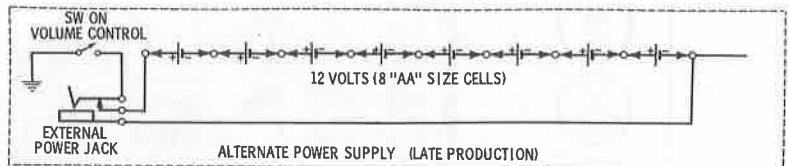




1. All voltages are with respect to ground and were measured with VTVM under "no signal" conditions, with RECEIVE-TRANSMIT switch in "RECEIVE" position unless otherwise noted.
  2. Terminal guides (except M3) are bottom views.
  3. Coil resistances not shown are too low for accurate measurement with ohmmeter.
  4. Capacitance values less than 1 are in mfd.
  5. Standard tolerance of  $\pm 20\%$  on all values except where noted in parts list.
- \* Measured In "TRANSMIT" position.

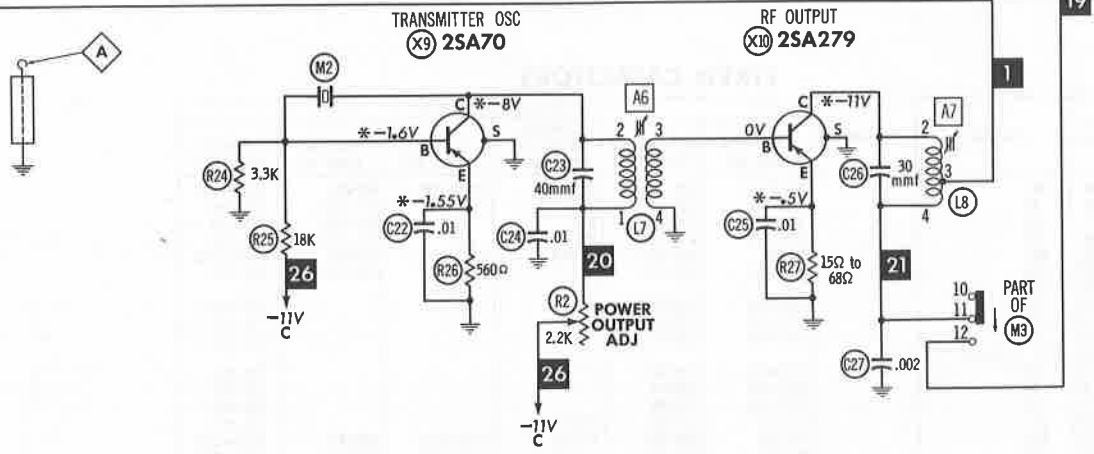
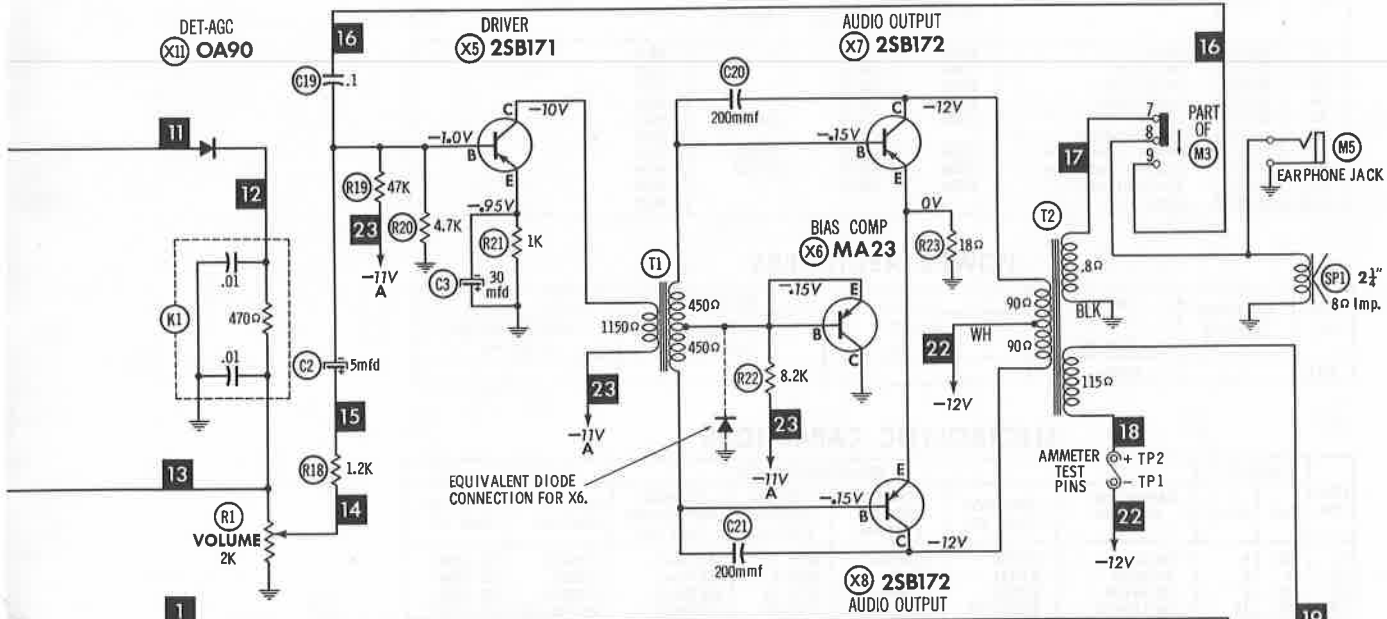
A PHOTOFAC STANDARD NOTATION SCHEMATIC  
with **CIRCUITRACE**

©Howard W. Sams & Co., Inc, 1964

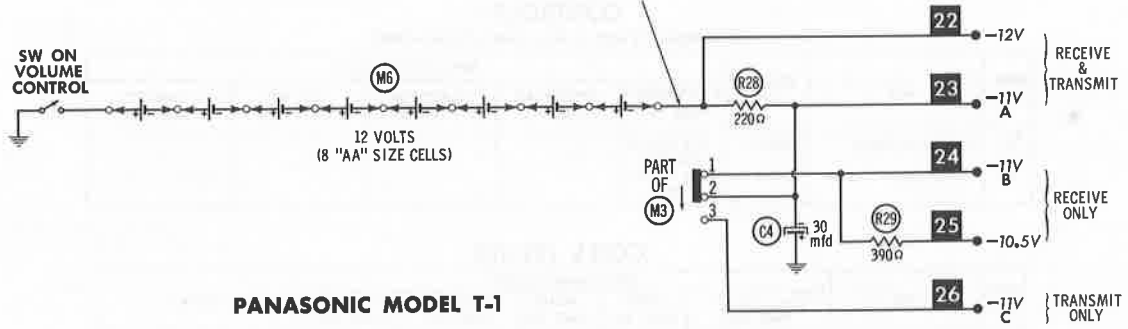


**NOTICE**

This transceiver meets all requirements of F. C. C. Rules & Regulations, Part 15, Subpart "E" for low-power communications devices and requires no station license. However, only those persons properly licensed by the F. C. C. are permitted to repair or adjust any malfunctioning unit found to be transmitting illegally. (Refer to F. C. C. Rules & Regulations, Part 19, Subpart "D", Section 19.71.)



BATTERY CURRENT DRAIN  
 RECEIVE: 7.5ma, Minimum Volume, No Signal  
 8ma, Maximum Volume, No Signal  
 TRANSMIT: 15ma, No Signal



PANASONIC MODEL T-1

# PARTS LIST AND DESCRIPTION

## TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			DELCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	
X1	2SA70	Mixer	DS94	GE-1	2N408	PNP
X2	2SA70	Oscillator	DS94	GE-1		PNP
X3	2SA101	1st IF Amp.	DS25	GE-1		PNP
X4	2SA101	2nd IF Amp.	DS25	GE-1		PNP
X5	2SB171	Driver	DS26	GE-2		PNP
X6	MA23	Bias Regulator				PNP
X7	2SB172	Output - Modulator	DS26	GE-2		PNP
X8	2SB172	Output - Modulator	DS26	GE-2		PNP
X9	2SA70	Transmit Osc.	DS94	GE-1		PNP
X10	2SA279	Final RF				PNP

## POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X11		OA90			

## ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	PANASONIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	30	6	NCA8V30	PTT10	NLW30-6	MT1-13	MLV30-6	TT6X30	TE-1056
C2	5	6	NCT8V5	PTT21	NLW5-15	MT1-3	MLV5-6	TT6X5	TE-1084
C3	30	6	NCA6V30	PTT10	NLW30-6	MT1-13	MLV30-6	TT6X30	TE-1056
C4	30	15	NCA15V30	BCD18025	ECPB412	MT1-10	TT15X30	MLV25-15	TE-1158

## 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.
C5	30	+ .5m mf	DI-30	DD-300	L10Q3	CCD-300	GP430	10TS-Q30
C6	.01		TTD-01	CK-103	H2	CCD-200	TA-110	TG-S10
C7	.01		TTD-01	CK-103	H2		TA-110	TG-S10
C8	.01		TTD-01	CK-103	H2		TA-110	TG-S10
C9	20		DI-20	DD-200	L10Q2		GP420	10TS-Q20
C10	.01		TTD-01	CK-103	H2		TA-110	TG-S10
C11	500							
C12	.03		TTD-03	CK303				TH-S30
C13	.03		TTD-03	CK303				TH-S30
C14	.03		TTD-03	CK303				TH-S30
C15	3							
C16	.03		TTD-03	CK303			TH-S30	
C17	.03		TTD-03	CK303			TH-S30	
C18	.03		TTD-03	CK303			TH-S30	
C19	.1		TTD-1	CK104	H05P1		TG-P10	
C20	200	DI-200	DD-201	L10T2	CCD-201	GP320	10TS-T20	
C21	200	DI-200	DD-201	L10T2	CCD-201	GP320	10TS-T20	
C22	.01	TTD-01	CK-103	H2		TA-110	TG-S10	
C23	40	DI-39	DD-390	L10Q39	CCD-390	GP439	10TS-Q39	
C24	.01	TTD-01	CK-103	H2		TA-110	TG-S10	
C25	.01	TTD-01	CK-103	H2		TA-110	TG-S10	
C26	30	DI-30	DD-300	L10Q3	CCD-300	GP430	10TS-Q30	
C27	.002	DI-2000	DD-202	L10D2	CCD-202	GP220	10TS-D20	

## CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			PANASONIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	2000Ω	SNV16T1.2				
R2	Power Output Adjust	2200Ω	2KΩ 2KC SFR-P6AV 2.2K				

## COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		PANASONIC PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	Antenna Load	ZCO7-J					
L2	RF	TAP3-Z					
L3	Oscillator	TOP3-Z					
L4	1st IF	TI-VIC					
L5	2nd IF	TI-W2					
L6	3rd IF	TI-W4					
L7	Transmit Osc.	TOP3-Y					
L8	Transmit RF	TAP3-Y					

# PARTS LIST AND DESCRIPTION (CONTINUED)

## TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
			PANASONIC PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
	PRI.	SEC.						
T1	1.5	1	TT-43S					

## TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
			PANASONIC PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
	PRI.	SEC. 1						
T2	1000ΩCT	6-8Ω	MT-856-3A					
		SEC. 2						
		10K						

## SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		PANASONIC PART No.	QUAM PART No.	
SP1	2 1/4" PM 6-8Ω	P-250S		

## COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PANASONIC PART No.	REPLACEMENT DATA
K1	Diode RF Filter	.01mfd, .01mfd, 470Ω	CR31PK471	

## MISCELLANEOUS

ITEM No.	PART NAME	PANASONIC PART No.	NOTES
M1	Receive Crystal	HC-18U/27.530	Channel 10 Channel 10 Transmit-Receive (Slide Type, Spring Loaded) Telescopic Whip
M2	Transmit Crystal	HC-18U/27.075	
M3	Switch	PSW-D	
M4	Antenna	RANT180-10	
M5	Earphone Jack Earphone (16Ω)	RJJ-16 EP-P1B	

## BATTERIES

ITEM No.	VOLTAGE	PANASONIC PART No.	REPLACEMENT DATA			NOTES
			BURGESS	EVEREADY	MALLORY	
M6	1.5V		930	1015	M-15R or MN-1500, ZM-9	8 Used

## CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

ITEM	PART No.	ITEM	PART No.
Battery Case	RJK-3802	Push Button, Transmit-Receive	RBC-7
Antenna Rubber Tip	RHG-104	Volume Knob	RBV-19

## WIRING DATA

General-use Hook-up Wire ....	Use BELDEN No. 8530 (Solid) Available in 12 Colors 8524 (Stranded) Available in 12 Colors
Shielded Antenna Lead .....	Use BELDEN No. 8214 Lowest Loss (RG-8/U Type) 8237 Low Loss (RG-8/U) 8240 (Solid) Miniature (RG-58/U) 8259 (Stranded) Miniature (RG-58A/U)
Coiled Microphone Cable .....	Use BELDEN No. 8499 Single Conductor Shielded (Neoprene) 8498 Single Conductor Shielded (Vinyl)
Ignition Noise Suppression ....	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap .....	Use BELDEN No. 8081 (3/8 In.)