

SWEEP FREQUENCY GENERATOR

MODELS 601 AND 602

SERIES 3



®

ELECTRONICS CORPORATION

INDUSTRIAL PRODUCTS DIVISION

PHILADELPHIA, PENNSYLVANIA 19132

JERROLD

SWEEP FREQUENCY GENERATOR



**MODELS 601 AND 602
SERIES 3**

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SWEEP FREQUENCY GENERATOR

Models 601 and 602 - Series 3

GENERAL DESCRIPTION

Jerrold Models 601 and 602 are portable, wide-band sweep frequency generators for testing and aligning rf circuits in the frequency range from 4 to 225 megacycles. Model 601 operates in the range from 12 to 225 mc, Model 602 in the range from 4 to 112 mc. The frequencies covered by each model are divided into 11 overlapping ranges as indicated on the front panel, with a maximum variation of $\pm 5\%$ on any one range. The sweep-width in any range is continuously variable from a minimum of approx. $\pm 1\%$ to a maximum of $\pm 60\%$ of center frequency.

Both models feature a push-pull "Hartley" oscillator swept by a saturable reactor, and controlled by circuitry that levels the oscillator output to within 1 db over the entire sweep width.

The horizontal output can be phased through approx. 360 degrees. The instruments have circuitry for blanking the return trace, thus providing on the oscilloscope a zero reference for gain measurements.

A detector matching trimmer permits the matching of a variety of external detectors to the frequency characteristics of the internal ALC (automatic level control) to obtain accurate oscilloscope presentation.

The Jerrold Sweep Frequency Generator Models 601 and 602 combine the portability and ruggedness that are indispensable in a field instrument with the excellence of performance and versatility of application associated only with laboratory equipment.

SPECIFICATIONS

FREQUENCY RANGES	Model 601: 11 ranges from 12 mc max. on lowest range, to 225 mc min. on highest range. Model 602: 11 ranges from 4 mc max. on lowest range, to 112 mc min. on highest range.	BLANKING	Push-pull front panel switch provides blanking of return trace or no blanking.
SWEEP WIDTH	Variable from $\pm 1\%$ to $\pm 60\%$ of center frequency.	TUBE COMPLEMENT	V-1 RF Sweep Oscillator 6BS8 (Mod. 601) 6992 (Mod. 602) V-2 Cathode Follower 6CU5 V-3 ALC 12AT7 V-4 Blanking 12AT7 V-5 Reactor Driver 6K6 V-6 Reactor Driver 6CL6 V-7 Neg. Voltage Regulator OA2 V-8 Pos. Voltage Regulator OA2
RF OUTPUT RESPONSE (as measured with Jerrold Model D86 Detector)	Model 601: 0.5 volts rms, flat within $\pm \frac{3}{4}$ db. Model 602: 2.5 volts rms, flat within $\pm \frac{1}{2}$ db.	POWER REQUIREMENTS	75 watts approx., 115/230 volts ac, 50/60 cps.
FREQUENCY LINEARITY	The instantaneous frequency corresponds to the instantaneous horizontal deflection voltage within $\pm 4\%$ of the p-p voltage at 2:1 sweep width.	FUSING	Type 3AG, 1 amp., 115 v ac
SOURCE IMPEDANCE	50 ohms	DIMENSIONS	11½" H, 14½" D, 7¾" W
HORIZONTAL SWEEP OUTPUT	Sine voltage of line frequency with phasing over a range of approx. 360 degrees provided.		

OPERATIONAL CONTROLS AND CONNECTIONS

A. FRONT PANEL

Name	Schematic Designation	Type and Position	Function
HORIZONTAL PHASING	R-28	Potentiometer cw and ccw	Controls and adjusts the phase between the driving voltage on the reactor of the sweep generator and the horizontal drive voltage to the oscilloscope.
BLANKING PUSH-PULL	SW-6	Push-Pull Switch mounted on shaft of R-28 PUSH PULL	Blanks return trace. No blanking.
ATTENUATOR 10 DB IN 20 DB OUT	SW-3	2-position switch IN OUT	Provides 10 db attenuation. No attenuation.
	SW-4	2-position switch IN OUT Both switches IN	Provides 20 db attenuation. No attenuation. Provide 30 db attenuation.
ALC	R-9	Potentiometer	Permits fine adjustment of oscillator output level.
NORMAL PHASE REVERSE	SW-2	Toggle Switch NORMAL REVERSE	Transposes the display on the oscilloscope, left-to-right or right-to-left.
CENTER FREQUENCY	R-38	Potentiometer cw and ccw	Controls the mean or resting frequency about which the oscillator sweeps.
POWER ON OFF	SW-1	Toggle Switch ON OFF	Energizes unit from ac source. De-energizes unit.
SWEEP-WIDTH	R-40	Potentiometer cw and ccw	Controls the width of the sweep frequency.
FREQUENCY MC/S	SW-5	11-position switch	Selects one of 11 overlapping sweep frequency ranges.
RF OUT	J-1	F-81 connector (75 ohm) BNC connector (50 ohm)	RF sweep output connector.
HORIZONTAL	J-2	F-61 connector (75 ohm) BNC connector (50 ohm)	Same function as J-2 and J-3 above.

B. CHASSIS CONTROLS

DET. MATCH	C-13	Trimmer	Adjusts frequency characteristics of CR-1 and CR-2 to match those of an external detector.
TILT	C-37	Trimmer	Adjusts flatness of response curve displayed on oscilloscope.
SWEEP WIDTH RANGE	R-50	Potentiometer cw and ccw	Adjusts range of sweep width.
AGC LEVEL LIMIT	R-51	Potentiometer cw and ccw	Limits the automatic gain control level.
LIN.	R-52	Potentiometer cw and ccw	Adjusts linearity of sweep width.

CIRCUIT DESCRIPTION

(Compare with schematic circuit diagrams and parts lists and note the variations in values of some components between Model 601 and Model 602.)

A. RF OSCILLATOR

The radio frequency oscillator uses a twin triode (V-1) in a push-pull circuit, tuned by T-1 and by one of the capacitors C-1 to C-10. Grid bias is provided by the current flowing through grid leak resistors R-1 and R-2. The frequency of oscillation is determined by one of the capacitors C-1 to C-10, switchable through SW-5, and by the variable inductance of the T-1 primary.

Output power from the oscillator passes from the coupling coil on T-1 (this coil is very tightly magnetically coupled to the primary windings) to:

- (a) a voltage measuring circuit R-3, C-12 and rectifier diodes CR-1 and CR-2.
- (b) a back terminating resistor R-4 and thence via an attenuator network to RF OUT jack J-1.

The rf oscillator will tune easily over any one of the 11 bands with the output symmetrical with respect to center frequency when properly adjusted.

B. SWEEP CIRCUIT

The variation in frequency of the sweep oscillator is essentially obtained by varying the inductance of the primary windings on T-1, which in turn is determined by the degree of saturation in the core of T-1. For that purpose the entire T-1 assembly is cradled between the poles of L-2. L-2 is in the plate circuit of tubes V-5 and V-6. The variations in plate current of these tubes create the magnetic field necessary to saturate the core of T-1. The variations in plate current are controlled by the variations in ac drive on the grids of both tubes. This driving voltage is provided by the high voltage secondary of line transformer T-2 via a resistive dropping network. A portion of this voltage is fed to R-40 which acts as sweep width control.

C. CENTER FREQUENCY

The center frequency is controlled by varying the bias of V-5 and V-6. The amount of variation of bias is limited by R-41 (ganged with R-40) in order to hold the display to the useful portion of the sweep oscillator output. R-38, in series with R-41, then provides sufficient bias variation to adjust the center frequency within the range used. The supply voltages to both controls are regulated by VR tubes to provide stability.

D. OUTPUT LEVEL

In order to obtain a voltage output level which is constant with frequency, two diodes CR-1 and CR-2 (see par. A.a), acting as voltage doubler rectifiers, produce a dc voltage the amplitude of which is a measure of the rf voltage impressed on capacitor C-12. This dc voltage is filtered by C-15 and C-16 and applied to the grid of V-3A. V-3A and V-3B is a twin triode connected as a two-stage direct-coupled voltage amplifier. Its plate is connected to the grid of cathode follower V-2. The output of V-2 provides, via T-1, the plate supply for V-1. A delay bias control R-9 (ALC) in the return lead of CR-2 permits to vary the setting of the average voltage around

which the control circuit operates. It thus serves as a fine adjustment for the oscillator rf sweep output voltage.

E. OUTPUT AMPLITUDE SETTING

To further reduce the output level of the sweep generator, as may sometimes be necessary when it is desired to align sensitive equipment, an additional attenuator network has been incorporated in the sweep generator. The attenuation components can be switched in by either one or both switches SW-3 and SW-4. R-9 can still be employed to provide additional fine adjustment of the rf output level.

F. BLANKING CIRCUIT

In many measurement procedures, it is very convenient if the oscillator can be turned off periodically to establish the zero output reference level for the circuit under measurement. Models 601 and 602 have a built-in blanking circuit which can be turned on and off by a push-pull switch SW-6 mounted on HORIZONTAL PHASING control R-28 (refer to Controls Chart). The essential part of the blanking circuit is a phase shifting network in the input to the screen grid of tube V-4A. This network is necessary to assure that the blanking of the output will occur at the extreme high frequency excursion of the oscillator, and will be removed at the extreme low frequency excursion of the oscillator. Tube V-4 generates a square wave which is applied to the automatic gain control circuit at tube V-2. This square wave is used to achieve blanking by periodically cutting off the plate current to V-2, thus removing all B+ from the oscillator tube V-1 and therefore reducing the oscillator output to zero.

G. HORIZONTAL SWEEP FOR OSCILLOSCOPE

Models 601, 602 incorporate a horizontal sweep circuit that insures the oscilloscope display will stay in phase with the frequency variations measured.

The sweep of the oscilloscope then becomes a true frequency reference. The horizontal sweep voltage is taken from windings on transformer T-2 and passed through a phase reversing switch SW-2 and a phasing network C-27, C-28, C-29, R-28, R-29, and R-30 to the output connector J-2 and thence via shielded cable to the oscilloscope. R-28 acts as HORIZONTAL PHASING control. Thus the horizontal output may be adjusted continuously in phase through 180 degrees, or the phase may be reversed 180 degrees and then readjusted by R-28.

H. DETECTOR MATCH AND TILT CONTROL

All models 601 and 602 incorporate a variable capacitor C-13 whose function it is to permit the matching of all external detectors with the internal AGC detectors of the sweep generators. C-13 is accessible under a plug button at the side of the housing. In older models it is located on the right side of the housing as viewed from the front panel, in later series on the left side. In addition, in later models, a variable capacitor C-37 has been added to permit further adjustment for flatness in case an oscilloscope display appears slightly tilted. C-37 is accessible from the chassis top.

MAINTENANCE

GENERAL

Models 601 and 602 have been engineered to provide accurate measurements and to give trouble-free long life service, whether used in the field or as bench instruments. Components have been carefully selected and tested and no maintenance problems should arise if the instruments are used properly and not subjected to abusive handling.

TUBE REPLACEMENT

Except for tube V-1, replacement of one of the other tubes will not critically affect the accuracy of the instrument.

RE-ALIGNMENT AFTER REPLACING V-1

a. Equipment required:

- (1) Laboratory type oscilloscope
- (1) Marker generator, capable of covering the required frequency range.
- (1) Diode detector probe, capable of covering the required frequency range.
- (1) Variable attenuator
- (1) Delay line
- (1) Terminating resistor (50 ohm or 75 ohm, as necessary)

For hook-up see diagram below:

b. Alignment

After connecting the equipment as shown in the hook-up diagram, allow 20-30 minutes for warm-up, then check for:

- (1) Maximum output with ALC at least 0.5 volts rms on all ranges.
- (2) Sweep width to cover at least the range indicated for each switch position.
- (3) The response should be flat within $\pm 3/4$ db at 0.5 volt rms for Model 601 and $\pm 1/2$ db at 2.5 volts rms for Model 602.

SATURABLE REACTOR

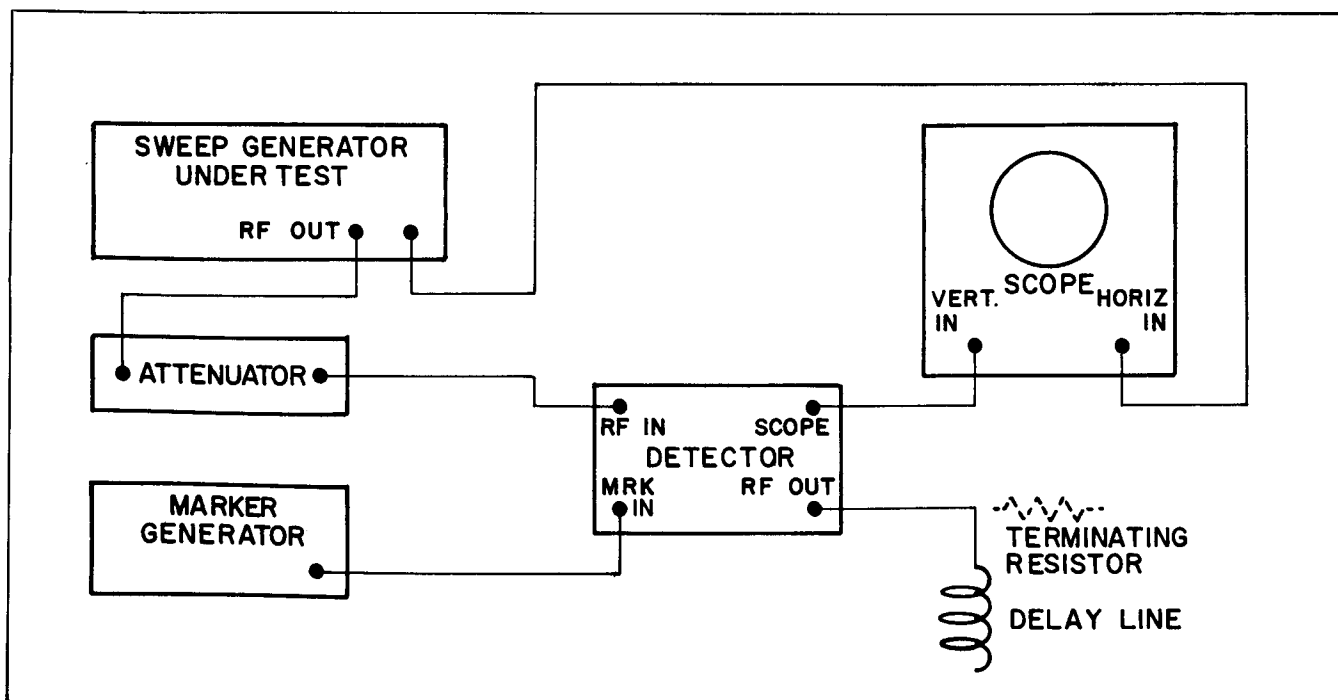
If the saturable reactor section does not function, even after replacing tube V-1, no attempt should be made to repair this circuit. Return the instrument to Jerrold Electronics Corporation, Service Division.

SERVICE

The Jerrold Service Division will effect prompt service on any instrument returned to the factory. For that purpose it is essential that each instrument so returned be accompanied by its identification tag giving the unit's serial number. Describe all characteristics of the equipment failure. Pack carefully and ship prepaid via express.

VOLTAGE AND RESISTANCE MEASUREMENTS

The voltage and resistance measurements charts given will be useful when checking out the instrument.



VOLTAGE AND RESISTANCE MEASUREMENTS CHART

TUBE PIN #	VOLTAGE								RESISTANCE							
	6BS8 or 6922	6CU5	12AT7	12AT7	6K6	6CL6	0A2	0A2	6BS8 or 6922	6CU5	12AT7	12AT7	6K6	6CL6	0A2	0A2
	V-1	V-2	V-3	V-4	V-5	V-6	V-7	V-8	V-1	V-2	V-3	V-4	V-5	V-6	V-7	V-8
1	25	25	—50	50	0	0	0	150	INF.	INF.	450 K*	700 K*	10	0	0	250 K*
2	.25	N.C.	—5	—1	6.3 ac	—5	—150	0	7 K	N.C.	450 K*	1.5 M	0	400 K	8 K	0
3	0	6.3 ac	0	0	200	125	N.C.	N.C.	0	0	0	0	250 K*	250 K*	N.C.	N.C.
4	6.3 ac	0	6.3 ac	6.3 ac	150	0	N.C.	N.C.	0	0	0	0	250 K*	0	N.C.	N.C.
5	0	—50	6.3 ac	6.3 ac	—5	6.3 ac	0	150	0	450 K*	0	0	400 K	0	0	250 K*
6	25	250	—5	—50	75	200	N.C.	N.C.	INF.	250 K*	450 K*	450 K*	200 K*	250 K*	N.C.	N.C.
7	.25	250	—150	—175	0	0	—150	0	7 K	/	15 K	500 K	0	0	8 K	0
8	0	/	—150	—150	0	N.C.	—150	0	0	/	12 K	8 K	0	N.C.	/	/
9	0	/	0	0	/	N.C.	/	/	0	/	0	0	/	N.C.	/	/

NOTES: 1. All measurements made with all controls in minimum counter-clockwise position, BLANKING ON (push).
 2. Resistances marked * will vary with capacitor charge.

REPLACEMENT PARTS

The replacement parts lists appended serve for quick identification of major equipment components and their values. When ordering such parts from Jerrold Electronics Corporation, give the instrument's serial number, the Jerrold part number, and the description as quoted on the parts list.

NOTES:

1. All item numbers with suffix "a" refer to Model 602, indicating the value as it differs from that of the same circuit component used in Model 601 (compare with table on schematic circuit diagram).
2. For variations in the values of circuit components between instruments of 50 ohms impedance and those of 75 ohms impedance, see the second table on the schematic circuit diagram.

**REPLACEMENT PARTS LIST
MODELS 601 AND 602, SERIES 3, IMPEDANCE 50 OHMS**

Item	JERROLD Part #	QTY	Schematic Designation	Mfr's Name	Mfr's #	Description		
						CAPACITORS		
1	121-039 (Model 601 only)	1	C-1	Centralab	TCZ-1.8	1.8 uuf, \pm .25 uuf, 600 v		
2	121-006	1	C-2	Centralab	TCZ-3.3	3.3 uuf, \pm .25 uuf, 600 v		
2a	121-005	1		Centralab	TCZ-2.2	2.2 uuf, \pm .25 uuf, 600 v		
3	121-044	1	C-3	Centralab	TCZ-5.6	5.6 uuf, \pm 0.5 uuf, 600 v		
3a	121-008	1		Centralab	TCZ-5	5 uuf, \pm .5 uuf, 600 v		
4	121-010	1	C-4	Centralab	TCZ-8.2	8.2 uuf, \pm .5 uuf, 600 v		
5	121-011	1	C-5	Centralab	TCZ-10	10 uuf, \pm .5 uuf, 600 v		
5a	121-012	1		Centralab	TCZ-12	12 uuf, \pm 2%, 600 v		
6	121-013	1	C-6	Centralab	TCZ-15	15 uuf, \pm 5%, 600 v		
6a	121-046	1		Centralab	TCZ-18	18 uuf, \pm 5%, 600 v		
7	121-014	1	C-7	Centralab	TCZ-20	20 uuf, \pm 5%, 600 v		
7a	121-016	1		Centralab	TCZ-24	24 uuf, \pm 2%, 600 v		
8	121-019	1	C-8	Centralab	TCZ-30	30 uuf, \pm 2%, 600 v		
8a	121-021	1		Centralab	TCZ-36	36 uuf, \pm 2%, 600 v		
9	121-024	1	C-9	Centralab	TCZ-47	47 uuf, \pm 2%, 600 v		
9a	121-028	1		Centralab	TCZ-62	62 uuf, \pm 2%, 600 v		
10	121-030	1	C-10	Centralab	TCZ-75	75 uuf, \pm 2%, 600 v		
10a	121-036	1		Centralab	TCZ-130	130 uuf, \pm 2%, 600 v		
11	123-115	2	C-12, 30	Erie	GP 2-331 series	1000 uuf, \pm 20%, ceramic		
12	128-505	2	C-13, 37	Erie	535	Trimmer, .7-3 uuf, 350 v		
13	129-108	4	C-14, 31, 34, 35	Erie	327	1000 uuf, \pm 20%, 600 v		
14	129-154	2	C-15, 16	Erie	362	1500 uuf, \pm 20%, 500 v		
15	123-111	1	C-17	Erie	GP series	470 uuf, \pm 10%, 600 v, ceramic		
15a	123-237	1		Centralab	D6-751	750 uuf, \pm 20%, 600 v		
16	127-001	1	C-18	Cornell-Dubilier	BBR-12-150	12 uf, 250 v, electrolytic		
17	125-026	1	C-19	Cornell-Dubilier	PM-6D-47	4700 uuf, 600 v		
18	125-049	1	C-20	Sprague	2TM-P1	0.15 uf, 600 v		
19	127-026	2	C-21, 22	Cornell-Dubilier	BR-2035-T	20 uf, 250 v, electrolytic		
20	125-001	3	C-23, 24, 27	Sprague	67 P47304	0.47 uf, 400 v, paper molded		
21	127-605	1	C-25, 26 (Dual)	Pyramid	TM-D40-350	40/40 uf, 350 v, electrolytic		
22	125-013	2	C-28, 29	Cornell-Dubilier	CUB-4S1	.01 uf, 400 v, paper molded		
23	121-006	1	C-32	Centralab	TCZ-3.3	3.3 uuf, \pm .25 uuf, 600 v		
24	121-040	1	C-33	Centralab	TCZ-2.7	2.7 uuf		
25	121-005	1	C-36	Centralab	TCZ-2.2	2.2 uuf, \pm .25 uuf, 600 v		
26	121-008	1	C-38	Centralab	TCZ-5	5 uuf, \pm .5 uuf, 600 v		
27	124-034	1	C-39	Centralab	TCZ-02	.02 uf, ceramic disc		
						CRYSTAL DIODES		
28	139-100	2	CR-1, 2	Kemtron	IN34	Germanium, point-contact		
						FUSE		
29	101-344	1	FS-1	SLO-BLO	3 AG	1A/125 v		
						CONNECTORS		
30	185-106	1	J-1	Amphenol	31-206	BNC type		
31	188-103	1	J-2	Amphenol	31-102	BNC type		
						CHOKE COILS		
32	143-101	1	L-1	Jerrold	143-101	special		
33	157-015	1	L-2	Electrical Winding Co.	HE-23	solenoid		
34	157-005	1	L-3	Jerrold	157-005	filament choke		
35	109-103	1	L-4	Crowley	XB-7938	filament choke		
						PILOT LIGHT		
36	102-002	1	PL-1	GE	#47	6.3 v ac, 300 ma		
						RESISTORS NOTE: all resistors 1/2 w and \pm 5% unless otherwise stated.		
37	112-506	2	R-1, 2	Allen-Bradley	EB series	15 K		
38	112-380	1	R-3	Allen-Bradley	EB series	1500 Ω		
39	112-182	1	R-4	Allen-Bradley	EB series	39 Ω , \pm 5%, 1/2 w		
40	112-347	1	R-5	Allen-Bradley	EB series	750 Ω		
41	112-614	2	R-6, 20	Allen-Bradley	EB series	100 K, \pm 10%		
42	112-398	1	R-7	Allen-Bradley	EB series	2 K		
43	112-644	1	R-8	Allen-Bradley	EB series	180 K		
44	118-012	1	R-9	Ohmite	CU-5021	Pot. 5 K, 2 w, 3/8" shaft & bush.		
45	112-662	1	R-10	Allen-Bradley	EB series	240 K		

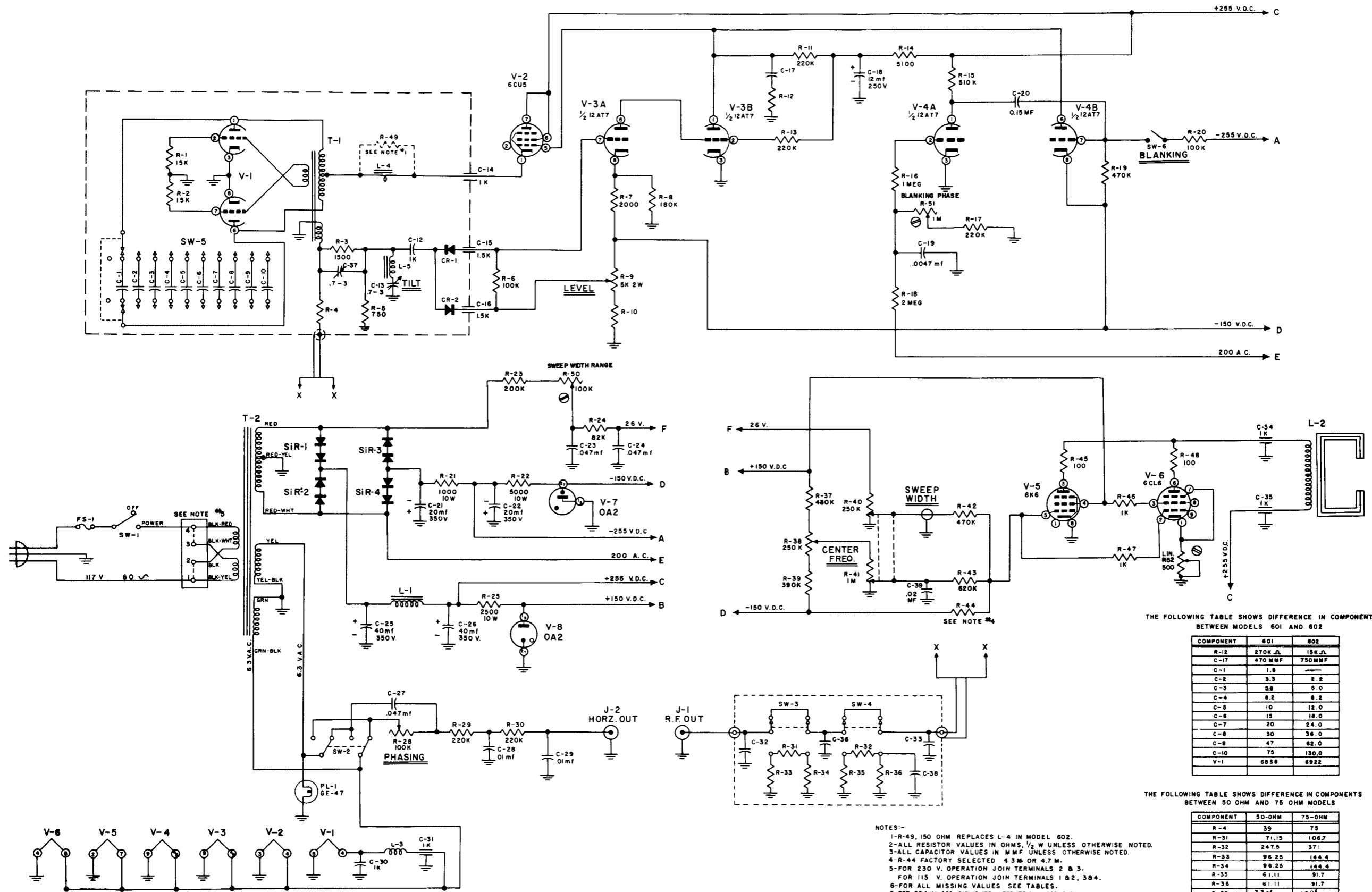
**REPLACEMENT PARTS LIST
MODELS 601 AND 602, SERIES 3, IMPEDANCE 50 OHMS**

Item	JERROLD Part #	QTY	Schematic Designation	Mfr's Name	Mfr's #	Description		
46	112-656	5	R-11, 13, 17, 29, 30	Allen-Bradley	EB series	220 K, \pm 10%		
47	112-668	1	R-12	Allen-Bradley	EB series	270 K, \pm 10%		
48	112-452	1	R-14	Allen-Bradley	EB series	5100 Ω		
49	112-704	1	R-15	Allen-Bradley	EB series	510 K		
50	112-713	1	R-16	Allen-Bradley	EB series	620 K, \pm 10%		
51	112-776	1	R-18	Allen-Bradley	EB series	2 M		
52	112-698	2	R-19, 42	Allen-Bradley	EB series	470 K, \pm 10%		
53	113-005	1	R-21	Tru-Ohm	FRL series	1 K, 10 w, \pm 5%, wirewound		
54	113-021	1	R-22	Tru-Ohm	FRL series	5 K, 10 w, wirewound		
55	112-650	1	R-23	Allen-Bradley	EB series	200 K		
56	112-602	1	R-24	Allen-Bradley	EB series	82 K		
57	113-010	1	R-25	Tru-Ohm	FRL series	2.5 K, 10 w, wirewound		
58	112-110	1	R-26	Allen-Bradley	EB series	10 Ω , \pm 10%		
59	112-198	1	R-27	Allen-Bradley	GB series	47 Ω , 1 w, \pm 20%		
60	118-047	1	R-28	Chicago	K-45	Pot. 100 K, \pm 30%, linear taper, with push-pull switch		
61	115-008	1	R-31	Continental Carbon	CF 15 series	71.15 Ω , 1/2 w, \pm 1% depos. carbon		
62	115-009	1	R-32	Continental Carbon	CF 15 series	247.5 Ω , 1/2 w, \pm 1% depos. carbon		
63	115-007	2	R-33, 34	Continental Carbon	CF 15 series	96.25 Ω , 1/2 w, \pm 1%, depos. carbon		
64	115-005	2 1	R-35, 36 R-37	Continental Carbon	CF 15 series	61.11 Ω , 1/2 w, \pm 1%, depos. carbon		
65	112-692			Allen-Bradley	EB series	430 K		
66	118-060	1 1	R-38 R-39	Chicago Tel. Suppl.	series 35	Pot. 250 K, 1/2 w, linear taper, 3/8" shaft & bush.		
67	112-686			Allen-Bradley	EB series	390 K		
68	118-061	2	R-40, 41	Chicago Tel. Suppl.	series 2-45	Dual Pot. 250 K + 1 M, 1/4 w, linear taper, 3/8" shaft & bush.		
69	112-740	1	R-43	Allen-Bradley	EB series	1 M, \pm 10%		
70		1	R-44			4.3 or 4.7 M (factory selected for each unit)		
71	112-236	2	R-45, 48	Allen-Bradley	EB series	100 Ω		
72	112-362	2	R-46, 47	Allen-Bradley	EB series	1 K, \pm 10%		
73	112-254 (model 602 only)	1	R-49 (replaces L-4 in M. 601)	Allen-Bradley	EB series	150 Ω		
74	118-008	1	R-50	Centralab	Radiohm BA-811-1533	Pot. 100 K, 3/8" slotted shaft w. locking bushing		
75	118-077	1	R-51	Chicago Tel. Suppl.	series 45	Pot. 1 M, 1/4 w, 3/8" slotted shaft & bushing		
75a	118-005	1	R-52			Pot. 500 Ω , \pm 20%, 1/2 w		
						RECTIFIERS		
76	137-706	4	SiR-1, 2, 3, 4	Sarkes-Tarzian	M-150	150 mA, Silicon diodes		
						SWITCHES		
77	162-001	1	SW-1	Carling	T-110B	SPST, Toggle		
78	162-008	1	SW-2	Carling	316-63	SPDT, Toggle		
79	162-003	2	SW-3, 4	Stackpole	SS-50	DPDT, Slide		
80	161-102	1	SW-5	Oak	87166-F6	Wafer		
81	part of 118-047	1	SW-6	Chicago Tel. Suppl.		Push-Pull (part of pot. R-28)		
						TRANSFORMERS		
82	144-031	1	T-1	Jerrold	144-031	Reactor coil assembly		
83	141-154	1	T-2	Jerrold	141-154	115/230 v ac, 60/50 cps Power Transformer		
						TUBES		
84	131-326	1	V-1	RCA	6BS8	Twin-Triode, 9-pin, miniature		
84a	131-602	1		Amperex	6922	Twin-Triode, 9-pin, miniature		
85	131-315	1	V-2	RCA	6CU5	Pentode, 7-pin, miniature		
86	131-400	2	V-3, 4	RCA	12AT7	Twin-Triode, 9-pin, miniature		
87	131-328	1	V-5	RCA	6K6	Pentode, 9-pin, miniature		
88	131-327	1	V-6	RCA	6CL6	Pentode, 9-pin, miniature		
89	132-100	2	V-7, 8	RCA	OA2	Voltage Regulator, 7-pin miniature		

SWEEP GENERATOR

MODELS 601 AND 602

SERIES-3



THE FOLLOWING TABLE SHOWS DIFFERENCE IN COMPONENTS BETWEEN MODELS 601 AND 602

COMPONENT	601	602
R-12	270K Ω	15K Ω
C-17	470 MMF	750 MMF
C-1	1.8	—
C-2	3.3	2.2
C-3	5.0	5.0
C-4	0.2	0.2
C-5	10	12.0
C-6	15	18.0
C-7	20	24.0
C-8	30	36.0
C-9	47	62.0
C-10	75	130.0
V-1	6858	6922

THE FOLLOWING TABLE SHOWS DIFFERENCE IN COMPONENTS BETWEEN 50 OHM AND 75 OHM MODELS

COMPONENT	50-OHM	75-OHM
R-4	39	75
R-31	71.15	106.7
R-32	247.5	371
R-33	96.25	144.4
R-34	96.25	144.4
R-35	61.11	91.7
R-36	61.11	91.7
C-32	3.3 pf	1.2 pf
C-33	2.7 pf	1.2 pf
C-36	2.2 pf	—
C-38	5	—
R-10	SEE NOTE 7	180K

- NOTES:-
- 1-R-49, 150 OHM REPLACES L-4 IN MODEL 602.
 - 2-ALL RESISTOR VALUES IN OHMS, 1/2 W UNLESS OTHERWISE NOTED.
 - 3-ALL CAPACITOR VALUES IN MMF UNLESS OTHERWISE NOTED.
 - 4-R-44 FACTORY SELECTED 4.3M OR 4.7M.
 - 5-FOR 230 V. OPERATION JOIN TERMINALS 2 & 3.
 - 6-FOR 115 V. OPERATION JOIN TERMINALS 1 & 2, 3 & 4.
 - 7-FOR ALL MISSING VALUES SEE TABLES.
 - 8-FOR 50OHM 602 RIO IS 150K, FOR 75 OHM 602 RIO IS 130K.

Warranty

1. The Manufacturer warrants this test equipment, including all its component parts (except tubes, semi-conductors and relays), to be free from defects in material and workmanship under normal use and service, its obligations being limited to making good at its factory any part or parts so warranted which shall within one year after delivery by the Manufacturer be returned to it with transportation charges prepaid and which its examination shall disclose to its satisfaction to have been thus defective.
2. The benefit of this warranty shall not apply to any instrument or part thereof which shall have been repaired or altered outside of a repair unit, authorized or approved by the Manufacturer, in any way so as in the judgment of the Manufacturer to affect its stability and reliability, nor which has been subject to misuse, neglect, accident or improper application.
3. The Manufacturer disclaims any warranty other than as specifically set forth herein, and may discontinue models or alter their specifications without any obligation to incorporate any modifications in equipment previously sold.