

INSTRUCTION MANUAL

for

NATIONAL POWER UNITS

Types 686, 697 and 1286



made by

NATIONAL CO., INC.

MALDEN, MASS., U.S.A.

TABLE I
TYPICAL OPERATING CONDITIONS

VARIABLE	686	1286	697
Primary Voltage	6 V D.C.	12 V D.C.	115 or 230 V A.C.
Frequency	0	0	50/60 cycles/sec.
Heater Voltage	6 V D.C.	12 V D.C.	6.2 V A.C.
Heater Current	3 Amp.	- -	3.4 Amp. A.C.
B Voltage	165 V D.C.	165 V D.C.	240 V D.C.
B Milliamperes	45 D.C.	45 D.C.	70 D.C.
Line Current	6.3 Amp.	- -	.65 Amp.
Power Consumption	38. Watt	- -	70 Watt

Note:- The Type 0Z4 Rectifier Tube is used in the 1286 Power Unit and may be used in the 686 Power Unit in which case the rectifier filament connection (shown dotted) is not needed.

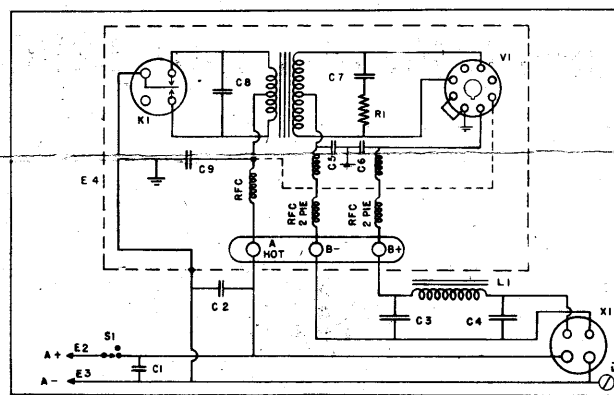


FIGURE 1

CAPACITORS C-10 AND C-11 ARE NOT USED

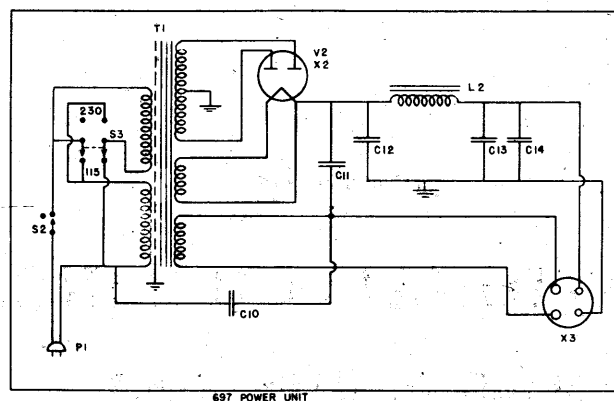


FIGURE 2

NATIONAL TYPE 686 TABLE MODEL POWER UNIT

The National Type 686 Table Model Power Unit operates from a 6 volt DC supply to provide approximately 165 volts at 45 milliamperes DC. The circuit diagram of this unit is shown in Figure 1. Battery clips are provided for convenient connection to a 6 volt storage battery or similar source of power. Output voltages for both A and B supply are available at a four prong socket for convenient plug and cable connection to associated apparatus. Table No. I lists typical operating voltages and currents when used with the National Type HRO Radio Receiver. Parts Lists are given in Table No. II. The Power Unit consists of a Mallory Type 6B200 Vibrapack and a condenser input single section filter. The Vibrapack uses a 6X5 (or 0Z4) type rectifier tube and a Mallory Type 626 vibrator. It should be noted that B- is not connected to the Power Unit chassis; A- is connected to the chassis.

NATIONAL TYPE 1286 TABLE MODEL POWER UNIT

The National Type 1286 Power Unit is similar to the Type 686 Power Unit except that it is designed to operate from 12 volts DC. The Vibrapack is a Mallory 12B200 with a G626 vibrator and an 0Z4 rectifier tube. The voltages available at the output socket are 12 volts DC and 165 volts at 45 milliamperes DC. Table No. I lists typical operating voltages and currents when used with the National HRO-12S Radio Receiver.

NATIONAL TYPE 697 TABLE MODEL POWER UNIT

The National Type 697 Table Model Power Unit operates from 115 or 230 volts AC, 50/60 cycles, to provide 240 volts at 70 milliamperes DC and 6.2 volts at 3.4 amperes AC. The circuit diagram of this unit is shown in Figure 2. Output voltages for both A and B supply are available at a four prong socket for convenient plug and cable connection to associated apparatus. Table No. I lists typical operating voltages and currents when used with the National Type HRO Radio Receiver. Parts Lists are given in Table III.

The Type 697 Power Unit consists of a power transformer, glass Type 80 rectifier tube, and a single section condenser input filter. B- is connected to the Power Unit chassis. The transformer primary and B+ input to the filter are by-passed to one side of the heater supply winding for R.F. filtering. Three models provide operation from 115 V., 230 V., or 115/230 V., the latter employing a switch as shown in Fig. 2.

NATIONAL RACK MOUNTING POWER UNITS

Either of the Table Models 686 or 697 Power Units are available for rack mounting. The National Type numbers for the 686 and 697 Power Units, rack mounted, are SPU-686 and SPU-697, respectively.

CAPACITORS C-10 AND
C-11 ARE NOT USED

TABLE III

PARTS LIST

NO.	SYMBOL	MFR. DESIG.	DESCRIPTION	MFR.
TYPE 697 POWER UNIT				
1	P-1	Allied 150	Cord and Plug	9
1	S-2	20599NU	SPST Toggle	2
1	S-3	20905-H	DPDT Toggle	2
2	C-10,11	1450	Mica: .01 mfd. 300 V DC W	1
1	C-12,13,14	D-7166	Elec: 8-8-8 mfd. 475 V DC W	8
1	L-2	80	17 Henry Choke	6
1	T-1	3385	110-220 V. Power Transformer	6
1	V-2	-80	Rectifier Tube	7
1	X-3	X-18	4-Prong Socket	3
1	X-2	X-18	4-Prong Socket Marked 80	3
TYPE 686 OR 1286 POWER UNIT				
1	E-4	6B200	Vibrapack (686 only)	4
1	E-4	12B200	Vibrapack (1286 only)	4
2	E-2,3	24A	Battery Clips	5
1	S-1	20994	SPST Toggle Switch	2
1	C-1	1467	Mica: .005 mfd. $\pm 10\%$, 300 V DC W	1
1	C-2	G014AB	Paper: .1 mfd. $+20-10\%$, 400 V DC W	8
1	C-3,4	D-7165	Elec.: 8-8 mfd. 475 V DC W	8
1	L-1	80	17 Henry $\pm 20\%$ Inductance	6
1	X-1	X-18	4-Prong Socket	3
1	E-1	HCLUG	Screw Terminal Battery Cable	6
1	V-1	6X5	Rectifier Tube (686 only)	7
1	V-1	OZ4	Rectifier Tube (1286 only)	7
1	K-1	626	Vibrator (686 only)	4
1	K-1	G626	Vibrator (1286 only)	4

Parts employed are as listed, or the equivalent.

LIST OF MANUFACTURERS

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|---|---|
| 1 Aerovox Corporation, New Bedford, Mass. | 5 Mueller Elec. Co., Cleveland, Ohio |
| 2 Arrow-Hart & Hegeman, Hartford, Conn. | 6 National Company, Inc. Malden, Mass. |
| 3 Cinch Mfg. Company, Chicago, Illinois | 7 RCA Mfg. Company, Harrison, N.J. |
| 4 P.R. Mallory & Co, Indianapolis, Ind. | 8 Sprague Products Co. No. Adams, Mass. |
| 9 Cornish Wire Co., New York, N.Y. | |