

Heathkit Manuals

by John Hruza, KBØOKU
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For those of you who have not yet discovered it, the Heath Company is still in business, and still in Benton Harbor. They seem to be in two businesses these days. Primarily, they are still selling educational courses. And they also sell Reflex home security systems through local hardware stores such as Home Depot, Ace Hardware and even K-Mart.

Correspondence can be addressed to Heath Company, POB 1288, Benton Harbor, MI 49023. Product warranty returns should be made to Heath Company, 455 Riverview Dr., Benton Harbor, MI 49022. Phone (616) 925-3273 for repair information.

The Company's main telephone number is (616) 925-6000. Catalogs may be requested at (800) 444-3284 and orders for current products may be placed at (800) 253-0570. Technical assistance on current products may be had by calling (616) 925-4914. I have found the technicians who answer to be very friendly and helpful.

Possibly of most interest to our readers is the parts order phone number. Heath still stocks many (but not nearly all!) parts for older products. They can be ordered by calling (616) 925-5899. Have the part number and your credit card handy.

Finally, Heath keeps microfiche copies of most kit manuals. Prints of these manuals can also be ordered through the parts phone number above. Again, however, you must have the part number. Manuals cannot be ordered by kit model number. This is a bit of a 'Catch-22' because the only place the manual part number shows up is on the manual!

To make manual ordering a little easier, here is a cross reference of selected communications equipment model numbers to manual part numbers. If you know of others, or can correct any errors I may have made below, please contact me at the address above. I will add them to the list and make the expanded list available for a SASE.

All part numbers below must be preceded by "59" to be complete. For example the full number of the AM-1 Antenna Impedance Meter manuals is 595-79. Many have a suffix; I have seen "-01" through "-14". These suffix numbers seem to indicate a new printing, not a new edition, of the manual and aren't needed to order it.

The Heathkit Manual Cross reference List, Communications Products:

Model	Manual	Equipment
AK-5	5-236	Speaker
AM-1	5-79	Ant.Imp. Meter
AR-1	5-17	All-Wave Rcvr
AR-3	5-115	Comm. Type Rcvr
AT-1	5-64	Amateur Xmtr
DX-60B	5-944	Xmtr
DX-100	5-104	Xmtr
GD-1B	5-67	Grid Dip Meter
GD-125	5-775	Q Multiplier
GP-11	5-448	Vibrator Pwr Sply
GW-22	5-595	CB Xcvr
HD-10	5-703	Electronic Keyer
HD-1234	5-1563	Coaxial Switch
HD-1410	5-1692	Electronic Keyer
HD-1416	5-1732	Code Oscillator
HD-1426	5-1956	Field Strength Meter
HD-1984	5-1963	"Micoder II" Mic
HDP-242	7-2378	Desk Microphone
HG-10	5-452	Amateur VFO
HG-10B	5-886	Amateur VFO
HM-10A	5-618	Tunnel Dipper
HM-102	5-1272	RF Power Meter
HM-2102	5-1517	VHF Wattmeter
HM-2141	5-2203	VHF Dual Wattmeter
HN-31	5-527	"Cantenna" DL
HO-10	5-578	Monitor Scope

ceiver AN/FRR-3, in another 7 foot rack. Some of the military gear did the conversion at audio frequencies and some at IF. There were many amateur designs, probably beginning with W2BFD, and then the W2PAT and the W2JAV and the W6NRM designs and the W6FFC "Mainline" designs. People who operated only VHF could get by with a pretty simple terminal unit. Those who operated HF were constantly experimenting with elaborate filtering and detecting schemes to try to pull a little more signal out of the soup.

Jim Haynes, W6JVE

The RME-9D from page 28

the first 4 bands. The 5th band drifts more than it should so I plan to track the problem down some day after 10M opens up again, otherwise it's fine for now. Mechanically the set is very stable and shows no sign of jitter even when dropped or if the table is thumped.

I like the special features RME engineers put into this set, like the AM/CW monitor mode, the single knob BFO/RFG control, the wide dynamic range R-meter and the unique crystal filter design. RME engineers showed much forethought and planning in the way this communications quality set was designed. Also, the AGC is able to handle 1 to 100,000 μ V (R-1 to 60 dB over R-9) signals without distortion - a feat not many receivers can perform, not very well anyway.

Currently I am trying to figure out what transmitter to use with this very fine quality RME radio from the '30's. I see it as a keeper and a receiver I will look forward to using for many years to come. ER

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Model	Manual	Equipment
HP-10	5-332	Trans. Pwr Sply
HP-13	5-638	DC Pwr Sply
HP-20	5-363	Utility Pwr Sply
HP-23	5-635	AC Pwr Sply
HP-23A	5-924	AC Pwr Sply
HP-23C	5-2022	AC Pwr Sply
HS-24	5-698	Mobile Speaker
HS-1661	7-1477	Station Speaker
HW-7	5-1455	Low-Power CW Xcvr
HW-8	5-1754	Low-Power CW Xcvr
HW-12	5-631	80-M SSB Xcvr
HW-22	5-632	40-Meter SSB Xcvr
HW-30	5-364	"Twoer" 2-Meter Xcvr
HW-101	5-1277	SSB Xcvr
HWA-7-1	5-1467	Accessory Pwr Sply
HX-10	5-414	"Marauder" Xmtr
MK-1	5-229	Modification Kit
MT-1	5-240	"Cheyenne" Xmtr
PS-23	5-2314	AC pwr sply.
QF-1	5-113	Q Multiplier
RX-1	5-193	"Mohawk" Rcvr
SA-2060	5-2514	Deluxe Ant. tuner
SB-10	5-201	SSB Adapter
SB-100	5-672	SSB Xcvr
SB-101	5-840	SSB Xcvr
SB-104A	5-1992	SSB Xcvr Ass.
"	5-1994	SSB Xcvr Op.
SB-200	5-682	Linear Amplifier
SB-221	5-2201	Linear Amplifier
SB-300	5-639	SSB Rcvr
SBA-104-3	7-1390	CW Filter Accessory
SBA-300-4	5-712	2-Meter Converter
SBM-102-17	5-538	Modification Kit
SW-717	5-1293	Shortwave Rcvr
TX-1	5-192	"Apache" Xmtr
VF-1	5-91	VFO
VF-2031	5-2085	Hand-Held 2M Xcvr
VHF-1	5-212	"Seneca" Xmtr
XC-2	5-282	2-Meter Converter
	7-308	Guide to Circuit Brds

Editor's Note:

In an upcoming issue John will do a similar article on Heathkit test equipment.

Heathkit Manuals, Part 2

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First, many thanks to all of you who contacted me about my earlier Heathkit manuals article (ER #78, October '95). I was pleased to hear from so many people who are so knowledgeable on this subject. This was a very educational experience, especially useful to me, as I have several of the items listed below but either don't have manuals for them or the manual copies I bought didn't show the manual number. So please keep the correspondence coming; we will all benefit.

Special thanks must go to N2TLV, WH6CWC, K8WPI and KA9NPT for contributing the following additions to the list of Heathkit communications products manuals given in the previous article:

Model	Manual	Equipment
100-139	5-314	RX-1 Tuner Assy
309C	5-96	R.F. Probe
336	5-490	HV Probe
AM-2	5-176	Ref. Pwr Meter
B-1	5-173	R.F. Balun
CA-1	5-166	Conelrad Alarm
CG-1A	5-355	"Mohican" SWL Receiver
DX-20	5-144	Transmitter
DX-40	6-180A	Xmtr Spec Sheet
GH-12A	5-105	Handheld Mic
GR-54	6-740	SWL Receiver Spec Sheet
GR-64	6-702	SW Receiver Spec Sheet
HD-15	5-771	Hybrid Phone Patch
HD-1982	5-1880	"Micoder" Mic
HDP-21A	7-358	Mic
HM-2103	5-1518	RF Wattmeter/ Dummy Load
HM-2140	5-205	HF Dual Wattmeter

HO-10	6-M578	Monitor Scope Spec Sheet
HO-13	6-M681	"HamScan" Panadapt Spec Sheet
HP-23B	5-1416	AC Power Supply
HP-1144	5-1599	AC Power Supply
HP-1175	5-184	Acc. Pwr Supply
HR-10	5-500	Receiver
HW-16	5-863	CW Transceiver
HW-20	5-358	"Pawnee" 2M Amateur Xcvr
HW-47	5-956	2M Transceiver
HW-100	5-904	SSB Transceiver
HW-202	5-1522	2M FM Xcvr
HWA-2036-3	5-1943	Xcvr Pwr Sply
MP-10	5-328	Mobile 110V Inverter
MR-1	5-239	"Comanche" Mobile Rcvr
SA-2040	5-2327	Antenna Tuner
SB-102	5-1058	SSB Transceiver
SB-104	5-1652	SSB Xcvr Assemb.
SB-104	5-1770	SSB Xcvr Oper.
SB-230	5-1596	1KW Linear Amp
SB-300	6-639	SSB Rcvr Spec Sheet
SB-310	6-896	SW Rcvr Spec Sheet
SB-600	5-815	Comm. Spkr
SB-604	5-1600	Accessory Spkr
SB-610	5-949	Monitor Scope
SB-614	5-1686	Station Monitor
SB-620	5-827	"Scanalyser"
SSB-634	5-1667	Station Console
SB-644	5-1656	Remote VFO
SBA-104-1	5-1616	Noise Blanker

Again, all manual numbers given above (or below) must be preceded by "59"; e.g., the complete number for the SBA-104-1 Noise Blanker manual is 595-1616. The exception to this is the early test equipment manual numbers that don't begin with a digit; e.g., G51A and O89B below. These have no prefix; they are complete as shown.

Thanks to K8WPI and KA9NPT for their contributions to the following list of Heathkit test equipment manuals.

The Heathkit Manual Cross-reference List

Test Equipment Products

Model	Manual	Equipment			
AF-1	5-23	Audio Freq. Mtr	IO-30	5-395	Lab 5" scope
AG-10	5-182	Sine-Square Wave Generator	IO-101	5-1242	Vectorscope
			IO-102	5-1285	Solid-State 5" scope
AV-2	5-33	A.C. Voltmeter	IO-4560	5-1728	5 MHz scope
BE-4	5-59	Bat. Eliminator	IP-12	5-563	Bat. Eliminator
BE-5	5-157	Bat. Eliminator	IP-18	5-983	1-15VDC Reg. Pwr Supply
CO-1015	5-1433	Auto Ign. Scope	IP-27	5-859	Regulated LV Pwr Sply
CS-1	5-78	Condensor Sub. Box	IP-32	5-579	Reg. Pwr Sply
CT-1	5-161	Capaci-Tester	IP-2728	5-1955	1-15 VDC Reg Pwr Sply
G-2	G51A	Sine & Square Wave Audio Gen.	IR-5207	5-2196	X-Y Recorder
GD-973A	5-748	SCR Motor Speed Control	IT-5220	5-1773	Isolated AC Pwr Sply
IB-28	5-995	Impedance Bridge	IT-12	5-570	Visual-Aural Signal Tracer
IB-1100	5-1491	Freq. Counter	IT-17/ 21/3117	7-1442	Tube Checker
IB-1103	5-1475	Freq. Counter	IT-18	5-982	Tube Data
IB-5281	5-1958	RLC Bridge	IT-18	5-982	In-/Out-of-Circuit Xstr Tester
ID-29	5-1095	Automotive Tune Up Meter	IT-21	5-537	Tube Checker
ID-4101	5-1954	Electronic Switch	IT-27	5-876	Trans. Checker
IG-18	5-981	Audio Generator	IT-28	5-991	Cap. Checker
IG-42	5-1139	Laboratory Type Signal Gen.	IT-3127	5-1985	Trans.-Diode Checker
IG-52	5-566	TV Alignment Gen.	IT-5230	5-1808	CRT Tester and Rejuvenator
IG-102	5-565	R.F. Generator	IT-5283	5-1960	Signal Tracer
IG-5240	5-1875	Color Generator	MM-1	5-80	VOM
IG-5280	5-1957	RF Oscillator	O-5	089B	5" Oscilloscope
IG-5282	5-1959	Audio Generator	OL-1	5-93	Oscilloscope
IM-11	5-486	VTVM	OR-1	5-255	DC Oscilloscope
IM-13	5-629	Service Bench VTVM	PK-3	5-413	R.F. Probe
IM-16	5-889	Solid-State Bench Voltmeter	SG-8	5-73	Signal Generator
IM-18	5-1154	VTVM	SG-1271	5-1613	Function Gen.
IM-28	5-989	VTVM	SM-600	5-1602	Dig. Multimeter
IM-28	5-1149	VTVM	T-4	5-189	Visual-Aural Signal Tracer
IM-38	5-990	VTVM	TC-2	5-63	Tube Checker
IM-58	5-1003	Harmonic Distortion Meter	TT-1	5-292	Tube Tester
IM-1210	5-187	Dig. Multimeter	TT-1	5-330	Tube Tester
IM-5284	5-1961	Multimeter	TT-1A	5-553	Tube Tester
IMW-11	5-489	VTVM	TTA-1-1	6-553	TT-1A Tube Tester Socket Adapter
IO-12	5-561	Lab. 5" scope	TT-1/1A	7-10	TT-1/1A Sup
IO-18	5-992	Lab. 5" scope	Tube Data Sheets (var dates)		
			V-7A	5-110	VTVM

Heathkit Manuals

Part 3

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This article concludes our list of Heathkit manuals, covering all manuals not covered in our two previous articles, along with their Heathkit order numbers. As in those articles, all manual numbers should be preceded by "59". For example, the complete number for the DX-35 Amateur Transmitter, shown below as 5-123, is 595-123. Exceptions to this are old style numbers like FM32 (for the FM-1 FM Tuner) and special numbers like 390-1405 (for the H-11 reference card).

But first, there is a correction to the Communications Equipment list, printed in ER #78, for October 1995. The article listed the manual number for the HP-10 Transistorized Power Supply as 595-332; this should have been 595-322.

The Test Equipment article, printed in ER #80, for December 1995, included additions to the Communications Equipment list. Here are more communications equipment manuals:

Model	Manual	Equipment
DX-35	5-123	Transmitter
DX-60	5-365	Transmitter
HA-201A	5-2084	2M FM Amplifier
HD-20	5-332	Crystal Calibrator
HP-13A	5-1158	DC Power Supply
HR-1680	5-1830	Receiver
HW-12A	5-829	75M SSB xcvr
HX-1681	5-2240	5-Band CW xmtr
PS-1175	5-2315	AC Power Supply
SA-2060A	5-2971	Antenna Tuner
SA-5010	5-2505	uMatic Keyer
SB-201	5-2207	HF Linear Amp
SB-301	5-822	5-Band Receiver
SB-303	5-1124	5-Band Receiver
SB-401	5-823	5-Band xmtr

SB-401	5-947	5-Band xmtr
SB-500	5-993	2Meter Transverter
SB-630	5-1178	Station Console
SB-650	5-1401	Dig. Freq. Display

And here are additional manual numbers for the Test Equipment list itself:

Model	Manual	Equipment
AV-3	5-147	Audio Voltmeter
C-2	5-8	Condenser Checker
CI-1040	5-1466	Auto Timing Light
CM-1550	5-2273	Engine Analyser
CO-2600	5-2010	Ignition Analyser
"	5-2011	Ignition Analyser & Accessories
IB-102	5-1298	Frequency Scaler
IB-1101	5-1402	Frequency Counter
IM-5218	5-1972	VTVM
IO-21	5-456	3" Oscilloscope
IO-4235	5-1986	35 MHz scope
IO-4510	5-1619	15 MHz scope
0-7	5-1	Oscilloscope
TS-3	5-77	T.V. Align. Gen.

The above correction and additions are thanks to KB4CM, KE6NGW and WØJHS. KB4CM and WØJHS, as well as K8WPI and N2TVL, also contributed to the following lists of Entertainment and Computer Product manual numbers.

The Heathkit Manual Cross-Reference List, Entertainment Products:

Model	Manual	Equipment
AA-18	5-972	Amplifier
AA-60	5-359	Hi-Fi Preamp
AA-100	5-398	Stereo Amplifier
AA-151	5-421	Stereo Amplifier
AC-11	5-471	Multiplex Adapter
AJ-11	5-420	AM/FM Tuner
AJ-12	5-605	FM Stereo Tuner
AJ-1510	5-1373	FM Digital Tuner
AR-13A	5-715	AM/FM Receiver
AR-27	5-890	FM Receiver
AR-29	5-1117	AM/FM Receiver
AS-104	5-1384	Three Way Speaker
BC-1A	5-167	Broadcast Tuner
EA-2	5-187	Hi-Fi 12W Amp
FM-1	FM 32	FM Tuner
FM-2	5-13	FM Tuner
FM-3	5-111	FM Tuner

FM-3A	5-142	FM Tuner			Interpreter source
FM-4	5-260	FM Tuner	H-9	5-1996	Video Terminal Assembly
GD-28	5-997	8-Track Tape Player			Video Terminal operation
GD-325D	5-1083	Electronic Organ	H-9	5-2017	Paper Tape Reader/Punch
GR-21	5-450	FM Radio			Digital Computer assembly
GR-100	5-1423	Color Television	H-10	5-1970	Digital Computer operation
GR-121	5-505	Clock Radio			Reference card
SA-2	5-291	Hi-Fi 14W Amp	H-11	5-2018	Memory Expansion Module
SP-2	5-206	Hi-Fi Preamplifier	H-11	5-2019	Serial Interface Module
SRA-8100-10	5-2537	Earth Station Site Survey	H-11	390-1405	Digital Computer operation
TCR-1	5-279	Clock Radio	H-11	5-2009	Digital Computer operation
TD-17	5-987	Metronome	H-11-1	5-2037	Floppy Disk assembly
TD-1257	5-2168	Metronome			Floppy Disk operation
UA-1	5-186	12 Watt Amplifier	H11-5	5-2224	Video Display Terminal assembly
UA-2	5-295	14 Watt Amplifier			Video Display Terminal operation
W-2	5-50	Williamson Amp	H-11A	5-2161	Disk Operating System Reference
W-3AM	5-162	Williamson Amp			Disk Operating System Reference
W-4B	5-302	Williamson Amp	H-17	5-2160	General Operations Reference
W-4M	5-86	Williamson Amp			DBUG Console Debugger
W-5M	5-103	Hi-Fi Amplifier	H-17	5-2965	EDIT Text Editor
WA-P2	5-89	Preamplifier			ASM Assembly Language
XR-1	5-222	Receiver	H-29	5-2479	Extended Benton Harbor BASIC

The Heathkit Manual Cross-Reference List, Computer Products:

Model	Manual	Equipment			
H-8	5-2013	Computer assemb.	HOS-817-1	5-2474	Disk Operating System Reference
H-8	5-2014	Digital Computer operation	HOS-847-1	5-2474	Disk Operating System Reference
H-8	5-2048	Digital Computer Software Reference	HDOS	5-2475	General Operations Reference
H8-1	5-2028	4K Static Memory	HDOS	5-2476	DBUG Console Debugger
H8-2	5-2033	Parallel I/O Interface	HDOS	5-2477	EDIT Text Editor
H8-3	7-1651	4K Chip Set	HDOS	5-2478	ASM Assembly Language
H8-4	5-2248	Multiport Serial I/O Card operation	HDOS	5-2479	Extended Benton Harbor BASIC
H8-5	5-2032	I/O & Cassett Interface Card	HT-11	5-2225	H-11A Software Reference
H8-9	7-2187	H-8 Modification Kit	IC-2008A	5-1492	Desktop Calculator
H8-21	5-2285	Microsoft BASIC Software Reference	PAM-8	5-2348	Front Panel Monitor
H8-52	5-2462	Cassette Debugging source	WH8-4	5-2206	Multiport Serial I/O Card
H8-53	5-2463	Cassette Text Editor source	WH8-14	5-2082	Line Printer
H8-54	5-2460	Cassette Assembler source	WH8-16	5-2082	16K Static Memory
H8-60	5-2461	Cassette BASIC In	WH8-41	7-1836	Adapter Cable
			WH8-51	7-1836	Adapter Cable

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WH9-61	7-1836	Adapter Cable
WH11-51	7-1836	Adapter Cable
WH-17	5-2195	Floppy Disk
WH-27	5-2167	Floppy Disk

The Heathkit Manual Cross-Reference List, Educational Products:

Model	Manual	Equipment
EB-1010	7-2023	Electronics Dictionary
EE-3105	5-2230	Oscilloscope course
EI-3133	5-1884	Soldering course
EK-1	5-253	Basic Electricity course
EK-2B	5-352	Basic Radio course, Part 2
ER-3701	5-2008	Amateur Radio Novice Lic. course
ER-3702	5-2249	Amateur Radio General Lic. course
ES-600	5-150	Function Generator
EUW-17	5-660	Transistorized Power Supply

The Heathkit Manual Cross-Reference List, Miscellaneous Products:

Model	Manual	Equipment
CS-2048	5-2181	Speed Control
GB-1201	5-1820	Digital Stopwatch
GB-1201E	5-1820	Digital Stopwatch
GC-1195	5-1886	Digital Floor Clock
GC-1197	5-1886	Bookcase Clock
GCA-1195	5-1896	Clock Chimes
GD-51A	5-728	Wireless Intercom
GD-160	5-1297	Intercom
GD-1187	5-1903	Touch Switch
GD-1246A	5-2364	Rechargeable Light
GD-1287	5-2067	Touch Switch
GD-1297	5-2458	Air Cleaner
GD-1776	5-1971	Heating Control
GD-3510	5-2453	Lighting Control
GDA-19-4	5-1230	Digital Servo
GDA-20-1	5-427	Garage Door Opener
GDA-47-4	5-954	Digital 5 Proportional Servo
GDA-1380-1	5-2007	Target Accessory
GP-1044	5-1585	Battery Charger
GTA-18-2	5-1097	Light & Horn Kit
GTA-101-2	5-1328	Lighting Kit

GU-1820	5-2571	AC Power System
ID-1290	5-1544	Weather Station
MI-1031	5-1439	Depth Sounder
MI-2900	5-1456	Fish Spotter
MI-2901	5-1457	Fish Spotter
MI-2916	5-2332	Depth Sounder
MI-2917	5-2333	Remote Readout
PT-1500	5-2236	Darkroom Timer
PTA-1500-2	7-1855	Dual Foot Switch

A 1927 Hartley Oscillator from page 12

used the 201A, 71A, and even older receiving tubes. A few people have used 100 watt transmitting tubes such as the UV203 and the WE-211D. But all these tubes are rare and expensive. While pondering this situation, it occurred to me that there is a low-power triode that is widely available at reasonable cost and that everyone has overlooked until now. I refer to the type 27, which RCA introduced in 1927. All the published data shows the tube used as a detector or class A audio amplifier so there was a question - how would it stand up in a ham transmitter? I built a breadboard Hartley oscillator and discovered that here was the answer for anyone wanting to get into the AWA 1929 QSO Party at low cost!

Part 2 of this article will give complete details on a simple 1-tube '27 Hartley oscillator that puts out 3 watts and which I used in the most recent 1929 QSO Party to work 27 stations. ER

NOTE: If you want to join AWA, write to Joyce Peckham, Box E, Breesport, NY 14816. Dues are \$15 per year.

To join AMI send \$2 to:
AMI
Box 1500
Merrimack, NH 03054

Heathkit Manuals

Part 4

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Since the publication of my last article on Heathkit manuals I have discovered a few more manual numbers. Again, all manual numbers except for the O-5 and V-1 should be preceded by "59"; e.g., the full number for the GW-12 is 595-555.

As I said in the first article of the series, the complete list of all Heathkit manuals known to me is available free to anyone for a large SASE with two stamps sent to me at the above address.

Communications Equipment

Model	Manual	Equipment
GR-64	5-942	Shortwave Receiver
GW-12	5-555	CB Transceiver
GW-52	5-607	1W HH CB Xcvr
HA-10	5-402	Warrior Lin. Amp.
HP-13	6-M638	Pwr Sply Spec Sheet
HW-9	5-3059	QRP CW Xcvr
HW-99	5-3185	Novice CW Xcvr
HW-5400	5-2952	HF SSB Xcvr
HWA-9	5-3061	Access. Band Pack
HW-17A	5-1118	2-Meter Xcvr
HWA-17-2	5-1099	FM Xmtg Adapter
HWA-5400-1	5-2856	AC PS/Spkr/Dig. Clock
HWA-5400-3	5-2968	Key Pad Access.
HX-11	5-499	CW Xmatr
HX-20	5-405	SSB Mobile Xmtr
PSA-9	5-3058	HW-9 Pwr Sply
SB-313	5-1330	SWL Receiver

Test Equipment

Model	Manual	Equipment
IM-2202	5-1573	Digital Multimeter
IM-2212	5-2187	Auto-Ranging DDM Assembly
IM-2212	5-2261	Auto-Ranging DDM Operation
IM-4100	5-1776	Frequency Counter

IN-12	5-571	Resistance Substitution Box
IO-10	5-346	DC Oscilloscope
IP-17	5-1156	Regulated High Voltage Pwr Sply
O-5	089B	5" Oscilloscope
TC-3	5-208	Tube Checker
TS-2	5-9	Television Alignment Generator
V-1	V54 & V58-V62	VTVM

Entertainment Equipment

Model	Manual	Equipment
AR-17	5-891	FM-FM Stereo Rcvr
PT-1	5-205	Professional AM-FM Stereo Tuner

The above information was supplied by KH6MM, Mervyn Ellsworth and myself. ER

R-390/R-390A Current Regulator Substitute

A hint for R-390 series RX's, and I presume this would cover R-390A.

When the current regulator tube gives out, as a replacement use a 12BY7 (A) tube. This tube is a 12 volt filament at 300 mA rating. The only change is to rewire the regulator socket so that pins 4 and 5 are paralleled with the present regulator pins.

That way, you can use either type tube, no one is the wiser. This hint was given to me by an old timer that was an Army MARS member. (the late Warren, WA2LVW).

My R-391 has operated for many years now with this mod and I have not noticed any significant instability or drift of frequency (even when operated in my garage with an octopus of extension cords providing power).

I have not seen this mod mentioned before, but Warren had many R390 and 390As over the years and this is what he did with good luck.

Dale, N2DM