

Results, 5th ARRL 160-Meter Contest



New SW Division multi-op record belongs to WA6LXN/6, operated by WB6ZVC (left) and WB6VZL.

REPORTED BY JIM CAIN,* WA1STN

I HAD THIS adding machine, see? Just a few extra numbers on the 160 contest would be nice, in addition to the sterile listing-by-section at the end. A few numbers wouldn't constitute an editorial cop-out, even in the "lead." Contest results are, after all, numbers; the man with the most wins. So, we press onward into the land of statistics, records, and champions.

The 1974 ARRL 160-meter contest, Dec. 7 and 8, was the fifth edition; certainly techniques and operators could not change dramatically in a mere five years, especially with amateur radio at today's level of technology. 160 meters is for people with land, lots of it, and land gets more expensive by the day. Only a handful of commercial rigs cover 160. There's a power limitation for most of the U.S.; many European countries aren't even allowed on 1.8 MHz, and the evil LORAN lurks around every corner and is manifested in strange sounds at the wrong spots on our receiver dials. W9BRD's tips and information in "How's DX?" and QST articles on 160-meter postage-stamp sized antennas are bound to help, but do really very many people set foot on the lowest of our amateur frequencies? Read on.

In the first ARRL 160 contest, December, 1970, the average score of the top-ten stations (single operator) was 43,140; in the fourth running in 1973, the same average was 67,326. That amounted to an increase of about 50% in three years, or about 17% per year. Could it continue? It could and it did — 1974 average for top-ten dweller

was 84,827, an increase of 26% over 1973! Had enough? Well, there's more.

The 1973 write-up included a box showing all-time division records; in the single-op category only two were left over from 1971 and four from 1972; none of the 1970 division-high scores survived the onslaught of three subsequent contests. Ten of the records from the first four contests were set in 1973, leaving only six standing from previous years (at that time). We're not going to re-print the box this year, although conceivably we should; new division single-op records were set in *twelve* of sixteen divisions. Incidentally, new multi-op records were set in nine of the sixteen. In the single-op list, one '73 record stands, two '72 records, and the '71 Dakota Division record of W0AIIH remains to be broken. At this rate, they'll be lucky to make it through next year.

For the record, 354 entries in 1974 was a handful more than 1973's 338; the previous high score by a single op, 82,871 by K1PBW in 1973, was surpassed by no less than seven operators in 1974; WB8APH attained the top spot, and the new record, with PBW breathing down his neck. What's in store for next year? With new equipment on the market for Top Band and the sunspots all but non-existent now, our crystal ball says the winner will have to make 100K in 1975. Anybody taking bets? — WA1STN

Soapbox

Ain't had so much fun since they brought beer back in the early '30s. - (W3CDZ). Conditions

(Continued on page 55)

*Asst. Communications Manager, ARRL.

VE	2	W4HHN K4YFH	2726- 47-29- 4 2090- 55-19-	6
Maritime	Eastern New York	Northern Florida		East Bay
VE1CD 34,860-264-60-22	W2PV (WB2OEU, opr.)	W4WHK 23,305-190-59-		K6HIH 32,825-251-65- 7
VE1MX 13,200-121-48-	WA2SPL 76,506-435-82-			K6ILG 17,250-171-50-15
W6BYB/VE1 11,086-104-46-19	WA2EAH 44,919-343-63-21	South Carolina		W6RQZ 144- 12- 6- 1
VX1KE 4394- 59-26-	W2DXL 41,958-318-63-	WA4LDM 27,480-220-60-16		K6BE 24- 4- 3- 1
VE1AXT (+VE1BCZ) 15,885-163-45-20	W2HHC 29,328-276-52-18	WA4YZC 18,020-164-53-		
	N.Y.C.-L.I.	WB4SJJ 15,686-169-46-13		Los Angeles
	W2KTU 12,802-173-37-22	WA4OSM 5092- 58-38-10		W6RW (W2IWC, opr.) 45,144-324-66-30
VE2WA 24,062-221-53-15	WA2YJN 12,341-142-43- 9	Southern Florida		W6PAJ 15,022-203-37-11
VE2BYR 10,290-147-35-	W2GP 9360-130-36-	K4IRO 49,654-317-74-20		W6RTT 14,740-166-44-11
VE2GS 5220- 90-29- 8	Northern New Jersey	W4BRB 45,068-274-76-18		WA6VCZ 4779- 87-27-11
	WA2SRQ 73,391-442-79-28	W4DQS 30,555-232-63-16		WA6MBP 4480- 70-32-10
VE3BMV 85,941-511-81-	WB2JYM 70,547-424-79-31	W4OZF 17,524-161-52-11		WA6TLV 1600- 50-16- 3
VE3DWX 16,176-167-48-	W2HUG 18,262-197-46-15	W4ZTB/4 3146- 56-26-18		W6AM 504- 18-14-
VE3EKS 14,061-159-43-	WB2URU 17,052-203-42-33	Tennessee		W6DQX 264- 12-11- 1
VE3CUI 12,456-173-36-19	W2GBY 13,112-140-44-12	K4PUZ 60,580-460-65-16		K5MHG/6 4- 2- 1- 1
VE3JR 10,575-116-45-14	W2DEN 4200- 84-25- 5	W4HYU 16,218-156-51-29		Orange
VE3SLC (VE3DXY, opr.) 7144- 94-38- 8	WA2CCF 96- 8- 6- 1	W4UD 5148- 78-33-11		WB6FNI 28,800-240-60-38
VE3DDP 4176- 72-28-10	Southern New Jersey	W4FDR 756- 21-18- 1		W6AMO 4160- 80-26- 7
VE3ECP (+VE3ARD) 20,539-217-47-	K2JOC 3276- 57-28- 3	K4KIU (+K8KAJ) 52,224-402-64-17		W6BOA 1014- 39-13-
	W2BP 528- 12-11-			WA6LXN/6 (WB6s VZL ZVC) 55,584-371-72-40
Saskatchewan	Western New York	Virginia		Santa Barbara
VE5XU 26,608-222-64-10	K2KTK 59,256-401-72-19	W4OCW 70,308-401-81-31		W6JEO 3024- 72-21-14
British Columbia	W2FHU 36,698-308-59-19	WB4URW 43,214-344-62-18		WA6LBP 2992- 68-22- 6
VE7AKI 10,148-118-43-	W2QIP 13,158-150-43- 9	K4RDU 42,273-330-63-33		W6TYR 256- 16- 8- 9
	W2MTA 8160-120-34- 5	K4VV 29,363-258-57-23		Santa Clara Valley
	WB2ABD 864- 24-18- 1	W4WSF 29,582-271-53-11		WA6PGB 29,323-232-59-
	K2JQ 8- 2- 2- 1	K4JM 28,296-262-54-10		WB6NSF 13,156-143-46-21
USA		W4JHK 21,573-210-51-12		W6GBY 1050- 35-15-12
1	3	W4ZSH 14,490-161-45- 9		W6CLM 40- 5- 4- 1
Connecticut	Delaware	W4KXV 14,016-143-48- 7		San Diego
K1PBW 93,052-481-86-32	W3GL 13,968-132-48- 9	W4KFC 9009-114-39- 3		W6PLH 51,282-318-77-
WA1LNO* 30,000-250-60-13	Eastern Pennsylvania	W4FEW 4232- 92-23-13		K6UA 46,029-321-67-
W1TX 27,000-204-60-18	W3GM 84,162-489-83-30	WB4WVC 1080- 30-18-		K6NY 14,592-152-48-22
WA1PID* 26,334-216-57-	W3JSX 69,125-424-79-	West Indies		W6MAR 7348- 79-44- 3
WA1STN* 23,760-246-48- 9	W3QOR 26,871-252-53- 9	KV4FZ 85,976-406-88-		WA6DNM 1472- 46-16-11
W1SG 21,518-194-53-12	WA3HMM 25,002-227-54-	5		K6KDE 624- 24-13-
WA1STO* 18,000-200-45- 6	W3CNS 20,257-214-47-14	Arkansas		San Francisco
W1BIH 17,888-208-43- 9	K3DTD 8896-139-32-12	WA5RTG 54,457-379-71-20		W6KQG 26,137-217-59-
W1QV 17,844-186-47- 8	Maryland-D.C.	W5MYZ 6120- 90-34- 6		W6ZT 10,400-130-40-20
W1CER* 13,248-138-46- 7	W3IN 86,652-495-83-22	Louisiana		San Joaquin Valley
WA1SCV 1258- 37-17- 6	WA3PIE (K4JSL, opr.) 27,610-248-55-28	W5WMU/5 5344- 82-32- 7		W6GWQ/6 10,080-120-42-14
WA1RDN (WA1STN, opr.)* 180- 10- 9- 1	W3IDZ 25,542-235-54-23	K5LXZ 3840- 60-32- 6		W6MUV 1404- 39-18-13
W4WFL/1* 45- 3- 3-	W3CDZ 11,685-141-41-22	Mississippi		K6TG 1394- 41-17- 4
WA1TXZ (WA1s ODX QXM QZX) 22,095-244-45-20	W9SZR/3 11,310-145-39-	W5RUB 25,812-236-54-12		K6GPB 108- 9- 6- 1
	K3DI 9635-116-41-	K5RFJ 10,100- 98-50-10		Sacramento Valley
	W3FA 6552- 84-39-	WA5NYG/5 8140-110-37-		W6ZGM 27,553-232-59-
	W3MSN 100- 10- 5-	W5GWD 2400- 50-24-20		WA6JVD 26,901-216-61-
Eastern Massachusetts	Western Pennsylvania	W5AO 1178- 25-19-13		Hawaii
K1DIR 42,411-285-67-18	W1FCC/3 35,973-281-63-13	W5BDCY 600- 20-15-		KH6CHC 10,528-106-47-
W1FJJ 36,772-302-58-17	W3UHP 14,994-177-42-13	W5MUG 160- 10- 8- 1		KH6IJ 10,350- 99-46-
W1BB 36,720-213-68-26	W3HDH 14,580-162-45-10	New Mexico		7
W1MX (W2QHO, opr.) 24,837-239-51-24	W3SN 6460- 95-34- 9	W5DO 27,720-217-63-		Arizona
K1CZH 19,236-229-42-	WA3EOQ/3 1140- 27-20- 3	W5RE 6240- 80-39-		W7IR 54,166-362-73-24
W1PL 13,936-104-52- 6	W3LQD 50- 5- 5-	W5MVA 3248- 56-29-10		W7TB 27,820-205-65-28
W1GDB 6496-100-32- 7	4	K5MAT 828- 23-18-		W7YS 7800-100-39-
W1AAI 3304- 59-28-	Alabama	Northern Texas		Idaho
W1DDC 1440- 40-18- 6	K4GTQ 8170- 95-43-10	W5LJU 60,152-403-73-26		WA9RAT/7 5110- 73-35- 7
W1BVL 640- 20-16- 2	W4AP (W4AUP, opr.) 1120- 35-16-	K5ABV 26,867-190-67-15		W7IWU 1088- 32-17- 7
W1ARGA 506- 23-11-	WB4UDE (+K4ZGB) 13,432-146-46-15	WA5KYY 21,112-176-58-28		Montana
WA1MSK (+WA1OML) 9450-135-35- 9		W5QZG 10,710-126-42-10		W7YB (W7LR, opr.) 7566- 97-39- 9
		W5FHX 7831- 94-41-14		W7MKB 3480- 60-29-
Maine	Georgia	W5QF 6903- 87-39-		Nevada
K1ROE 51,552-331-72-	W4YWY 69,520-412-80-	WB5CKM/5 (+K5s LZJ SOR 33,835-245-67-29		W7ABX 13,373-154-43-18
WA1IOG 11,700-150-39-11	K4QMQ 51,129-363-69-27			Oregon
WA1NMW 98- 7- 7- 2	W4VRO 18,518-197-47-13	Oklahoma		WA7TDZ 25,312-217-56-27
	WA4APG 16,830-162-51-17	K5JVI 32,550-228-70-17		K7WWR 13,524-147-46-12
W6MZW/1 18,096-168-52-12	WB4RUA 9306- 96-47- 3	WA5ZKN 23,320-212-55-30		W7LNG 4553- 77-28-
W1HDI 15,662-191-41-20	W4WRY 1160- 26-20-	K5QNM (+WB5JFR) 16,744-158-52-24		W7IMP 1120- 28-20- 2
W1FZ 11,398-139-41-	K4KZP 100- 10- 5-	Southern Texas		Utah
W1BPW 2856- 58-24- 5		K5RLW/5 48,990-333-71-21		W7CYH 20,072-193-52-20
K1HZN/1 (+K1GDS) 10,800-150-36-	Kentucky	W5RPJ 11,352-129-43-17		WA7SLG (WA7GWU, opr.) 14,040-127-52-14
	K4GSU 89,934-557-78-26	W5EVL/5 2781- 50-27-		K1PKQ/7 1520- 40-19- 1
Rhode Island	K4FU 44,890-329-67-17	W5AQF 2568- 52-24- 6		Washington
K1ZFV 11,200-160-35- 8	W4KFB 4500- 75-30-10	W5RTQ (+WA5ZNY) 71,442-420-81-29		W7DG/7 (WA7ILC, opr.) 18,921-178-51-32
W1OP (WA1POJ, opr.) 6660-111-30- 9	W4KVK/4 (W4s TBU YOK 29,456-260-56-	K5DEG (+WB5HOD) 32,240-242-65-31		WA7OFH 18,391-172-53-18
W1KMW (WA1RFT, opr.) 676- 26-13-	WB4ZSA WA9ZFM) 44,574-314-69-29	Canal Zone		
Vermont	North Carolina	KZ5AA 15,785-130-55-17		
K1HKK 26,208-243-52-12	W4TMR 44,574-314-69-29			
W1EBW 1152- 32-18- 2	WB4SXX 11,760-147-40-10			

K3MNT/7 10,080-112-45-11
W7NP 7956-102-39-7
W7WMY 6080- 80-38- 8
W7MCU 4970- 71-35- 8
W7DAZ 4550- 65-35- 5
W7IEU 4488- 66-34-16
W0PSI/7 1976- 52-19
W7APN 1088- 34-16-
K7GGD 858- 33-13- 2
WA7NUY 16- 4- 2-
K7IDX (+W7DZO) 25,200-197-63-28
K7JCA (+W7EXM Auggie) 9360-117-40-20

8

Michigan

K8VOP 46,848-363-64-20
K8LJO 35,670-306-58-33
WB8RGN 25,636-245-52-18
WA8TDY 20,904-198-52-12
W8OOR 18,144-189-48-14
K8HWW 15,604-166-47-13
WA8MOA 13,724-146-47-12
W8LHE 5495- 77-35- 2
WB8DSG 3120- 60-26- 4
W A 8 S J X (+ W A 8 W C Z
W B 8 D M C)
38,454-330-58-20
W8KAZ (+WB8LZV)
33,002-283-58-28
W8YDK/8 (K8s NTK SWW W8s
JWQ VPD SWD WA8s TMP
YIT YUZ WB8s AKH CKW
LCN MWR ex K8IQY)
12,200-151-40-23

Ohio

K8CCV/8 77,077-481-77-32
W8DB 55,944-366-74-21
WA8PLZ (WB8AYC, opr.)
51,545-395-65-29
K8CVJ 20,784-215-48-13
WB8LDI 18,001-190-47-25
W8EX 8151-100-39-
K8NIA 7560-105-36-16
W8VZE 6534- 99-33- 6
W8PMJ 3190- 55-29- 2
WB8DO 1472- 29-23-
W8LT (WA1LKU W8ERD WB8s
F WQ IBZ JXS)
54,599-377-71-25
WB8QMC (+WB8GMN)
51,405-365-69-32
WA8YEE (+WB2FGA)
48,008-347-68-
WA8YWX (+W8IDM)
33,002-283-57-20
K8KXX (+K8GZQ)
23,406-249-47-23
WB8GUJ (+WB8s GOH JJI
MVR RIB ROO)
16,940-191-44-16

West Virginia

WB8APH 93,156-520-84-36
W8GIO 46,920-339-68-
K8QYG 24- 4- 3-

9

Illinois

W9FIU/9 66,000-402-80-
W9OHH 35,406-275-63-
W9PNE 32,192-247-64-21
K9HWL 25,854-207-62-16
WB9BMY 21,840-210-52-18
W9ABA 10,686-137-39-11
WA9WMK 10,480-131-40-18
W9WYB 10,168-121-41- 9
W9UDK 8280-115-36- 5
W9HPG 5478- 83-33- 7
K9LWR 5214- 79-33- 8
K9LUK 5180- 74-35- 2
W9UC 1596- 38-21- 5
WA9LVJ 1080- 30-18- 5

Indiana

W9LT 24,030-221-54-11
W9SFR 21,400-211-50-12
W9NFC 19,947-150-61-18
WA9BWY (+WA9MXG)
58,030-413-70-31

W9EI (+W9NJD)
24,960-240-52-22
K9LIH (+W3YWJ WB9MDJ)
22,540-245-46-18
WA9FUD (+W9VNE WB9LTY)
8100-111-36-11

Wisconsin

WA9MCC/9 63,764-412-76-24
WB9ZVN 25,810-221-58-20
W9GIL 16,320-164-48-
WA9HEU 12,400-155-40-10
WB9ITD 6882-111-31-13
K9DAF 6480- 90-36- 5
WB9HZT 2438- 53-23-13
W9GI 616- 22-14-

0

Colorado

K0ZCM (W0LBP, opr.)
65,817-459-71-29
WA0CVS 53,410-377-70-
WA2WMT/0 13,923-135-51-10
W0MS (+W0Bs CMM HBS)
53,868-399-67-
Iowa
WA0VDX 51,204-372-68-21
W0N1L 43,056-309-68-23
W0II 7298- 83-41- 7
WA0YRX/0 1344- 42-16-
W0IS/0 (+K9DDA WB9s FGN
JWH WA0s JEK NLI ODK
UIB WGL WNE)
30,250-275-55-

Kansas

K0KU (W0LBP, opr.)
67,221-459-77-27
W0ODT 8400-100-42-
WA0RIF (+W0s AWB PSN
WA0VCE WB0BCU)
38,976-303-64-32

Minnesota

W0PFV 55,296-378-72-26
W0OAW 54,316-358-74-
WB0ANT 37,554-283-66-14
W0IYP 22,605-204- 5- 7
K0IJP 19,980-185-54-10
WB0HLC 12,936-147-44-10
W0HW 12,095-146-41- 7
W0IH 5680- 71-40- 5
W0RHI 2574- 48-26- 6
WB0LJH 408- 17-12-
0AW (+K0IEA WA0YLN)
44,170-311-70-24

Missouri

W0GK 12,936-147-44-11
W0BV 3660- 61-30- 6

Nebraska

W0AIH 69,560-455-74-18
W0MSC 17,368-167-52-14

North Dakota

W0ZTL 20,020-182-55-11
K0FRP/0 10,080-126-40-12

DX

Republic of Ireland

EI9J 1404- 39-18-

Isle of Man

GD4BEG 2024- 44-23-

Wales

GW3UCB (G4BRK, opr.)
2392- 52-23- 9

Ecuador

HC1CW (+HC1XG)
16,224-169-48-

Haiti

HH2W 9996-119-42-16

Japan

JA2GQO 728- 26-14-
JA2UEO 468- 18-13-
JA5EZI 8- 2- 2- 1
JR6CF 8- 2- 2-

Finland

OH2BO 100- 10- 5-

Czechoslovakia
OK1ATP 672- 24-14-
Netherlands
PA0HIP 2070- 45-23-

Costa Rica

T12CF 2646- 49-27-
T12BEV 2052- 38-27-

Venezuela

YV5CKR 3696- 56-33-

Cayman Islands

ZF1TT 26,620-242-55-

Check Logs

W1HGT W4REZ W5LWG
W6DGH W8BHD G3RWL
G3UBR

TOP TEN

Single

Multi

WB8APH	93,156	W5RTQ	71,442
K1PBW	93,052	WA9BWY	58,030
K4GSU	89,934	WA6LXN/6	55,584
W3IN	86,652	W8LT	54,599
KV4FZ	85,976	W0MS	53,868
VE3BMV	85,941	K4KIU	52,224
W3GM	84,162	WB8QMC	51,405
K8CCV/8	77,077	WA8YEE	48,008
W2PV	76,506	W0AW	44,170
WA2SPL	75,816	WA0RFF	38,976

DIVISION LEADERS

Single Op.	Division	Multiop.
W3IN	Atlantic
W9FIU/9	Central	WA9BWY
W0PFV	Dakota	W0AW
K4PUZ	Delta	K4KIU
K4GSU	Gr. Lakes	W8LT
W2PV	Hudson
W0AIH	Midwest	WA0RFF
K1PBW	New England	WA1TXZ
WA7TDZ	Northwestern	K7IDX
K6HIH	Pacific
WB8APH	Roanoke
K0ZCM	Rocky Mt.	W0MS
KV4FZ	Southeastern	WB4UDE
W7IR	Southwestern	WA6LXN/6
W5LUJ	West Gulf	W5RTQ
VE3BMV	Canadian	VE3ECP

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good; noise dropped just for the weekend. Need a better skyhook to cross the pond. - (VE3DWW). This is the first time in 42 years that I have worked 160 and it sure sounds different than it did then. - (W0GK). I can see Western Mass from my shack door but, for the fourth year in a row, no WM QSO. - (WA2SPL). Band conditions seemed better

One of eight operators putting Mississippi in logs this year - W5GWD.

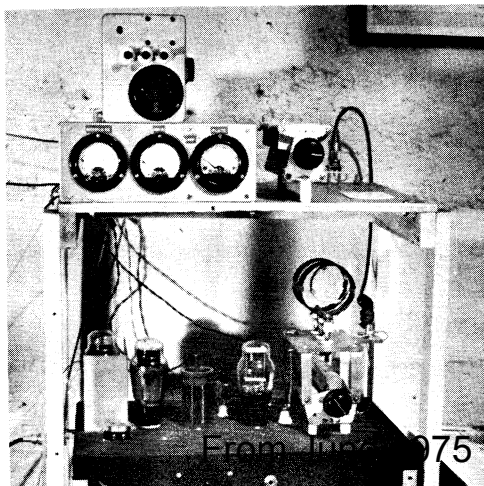




HC1CW — a fine job from Ecuador. Those who have operated from that part of the world know that Top Band is anything but cooperative.

than in past years. Maybe the rock salt that I dumped around the vertical to kill weeds helped. - (W6ZGM). Antenna tuner box was half full of water Friday night. Matching capacitor was completely submerged. - (K3MNT/7). Spent too much time listening on the 1200-foot beverage I put up for the occasion, so my QSO total was reduced, but working OH2BO sure sold me on beverages! - (W4QCW). If anyone had told me that I would work 36 states in 45 sections on my 40-meter dipole I would have said they were crazy. - (W3HDD). I found it of interest that some 37% of my QSOs were made in the 1830-1850 kHz part of the band. I felt it really helped the QRM problem to spread out a little. - (W4TMR). A fun band plus exceptionally good conditions is equal to a fantastic weekend. Really enjoyed it. - (WB6NSF). I live on a 38 X 90 lot so antenna was a 66-foot Windom about 25 feet high. Very poor antenna, but did work ZF1TT in Cayman. - (W0ODT). All the work spent on my antenna certainly paid off. - (W5LUJ). Thanks to my wife for all her understanding. - (K4RDU). My antenna didn't fit in my lot so used the bushes to hold up the extra wire. - (K0FRP/Q). Had to use a frequency counter for the whole contest because neither receiver I used had 160 calibration. - (WA1RFT, opr. of W1KMV). Think that I ran the lowest power this year . . . 1.2 watts. - (W4EZW). Heard a couple of Europeans here but no luck working them. In general the operators seemed to be more well mannered than in past contests. The DX window was clear most of the time. - (WA0VDX). The first night seemed to be the best at this QTH. - (HH2WF).

QST



Matvi-40

(Continued from page 38)

material used here has an incremental inductance value of A_L of 7580 mH/1000 turns. Different values of inductance may be calculated using the following equation:

$$\frac{L_1}{(N_1)^2} = \frac{L_2}{(N_2)^2}$$

L_1 = Known A_L .

N_1 = 1000 turns.

L_2 = Inductance (known or unknown).

N_2 = Number of turns (known or unknown).

Where L_1 = 7580 mH and N_1 = 1000 turns. The equation is the same as that used with the Amidon cores used in rf circuitry.

Although it does not have the steep skirt selectivity that a more elaborate passive or active filter may have, the tuned transformer approach yields excellent results for a minimum number of components and cash outlay.

The transformer assembly is held down on the pc board with a No. 4-40 X 1-inch screw and washer through its center mounting hole. Be careful not to apply excessive torque to the screw when assembling the unit because the ferrite material is extremely brittle and may crack.

The detected audio is amplified by Q4 and then applied to 2000-ohm headphones via J2. When constructing the unit, don't forget C20 on J2; it prevents rf from being transferred to the headphone cord and being reradiated into the front end of the receiver. This was a source of spurious oscillations which caused considerable grief when the circuit was being developed. The problem also showed up on a completed unit from which C20 was omitted.

The receiver has a comfortable listening level with three or four microvolts input. Af output is "controlled" by positioning the headset for a comfortable audio level. For strong signals they may be laid on the table and used as a loudspeaker.

The receiver board is quite versatile and can be used as a product-detector/af-preamplifier stage in a superheterodyne circuit by changing L3, L4, and C3 to resonate at the intermediate frequency and replacing the VFO input with a BFO of the proper frequency to produce a beat note. The board requires a Vcc jumper to operate. The jumper location on the board may be observed in Fig. 3.

In Part II of this article, we'll describe the driver and amplifier stages, plus tune-up procedures. Meanwhile, readers interested in constructing the station can begin accumulating the parts shown in Fig. 1 and in the parts list. **QST**

Here's the W2KTU transmitter, good for 173 QSOs from N.L.I.

QST for