

**U. S. DEPARTMENT OF COMMERCE
RADIO DIVISION**

RADIO SERVICE BULLETIN

ISSUED MONTHLY

Washington, July 31, 1931—No. 172

CONTENTS

	Page		Page
New stations.....	2	Miscellaneous—Continued.	
Alterations and corrections.....	4	Niton, England, direction-finding station recalibrated.....	20
Miscellaneous:		Weather bulletins for shipping transmitted by Karlsborg, Sweden.....	21
Changes in the list of vessels equipped with a radio compass.....	18	Theory of design and calibration of vibrating-reed indicators for radio range beacons.....	21
Broadcasting station frequency measurements during June.....	18	A course indicator of pointer type for the visual range-beacon system.....	21
New branch office opened at Miami, Fla.....	20	Automatic volume control for aircraft radio receivers.....	21
Ratifications of the International Radiotelegraph Convention.....	20		

ABBREVIATIONS AND SYMBOLS

The necessary corrections to the List of Commercial and Government Radio Stations of the United States and to the International Lists of Radio Stations, appearing in this bulletin under the heading "Alterations and Corrections," are published after the stations affected in the following order:

Name	= Name of station.
Loc.	= Geographical location: W=west longitude, N=north latitude, S=South latitude, E=east longitude.
Call	= Call signal (letters) assigned.
Type	= Type of wave classified as follows: A1=continuous wave (tube), A arc=continuous wave, A2=interrupted continuous wave, A3=phone, B=spark.
Fy.	= Frequency in kilocycles; normal frequency in italics; wave length in meters in parentheses.
Power	= Height (meters) of antenna and intensity of current (meter-amperes) at its base (sample of manner in which published—100/100) or the normal radiated power expressed in meter-amperes (sample of manner in which published—100 m. amp.).
Service	= Nature of service maintained: PG=general public (ship to shore), PR=limited public (if noted to public, correspondence between fixed stations), P=private (limited commercial and special), O=Government business exclusively.
Class	= FX=fixed station (point-to-point service), RG=radio-compass station, FA=aeronautical station, AB=aviation beacon, RF=circular radiobeacon, B=ship station, FC=coast station, A=aircraft.
Hours	= Hours of operation: N=continuous service, X=no regular hour, Y=sunrise to sunset.
Accts.	= Message accounts settled by.
M. R. T. Co.	= Mackay Radio & Telegraph Co.
R. C. A.	= Radio Corporation of America.
R. M. C. A.	= Radiomarine Corporation of America.
T. R. T. Co.	= Tropical Radio Telegraph Co.
O. w.	= Continuous wave.
I. c. w.	= Interrupted continuous wave.
A. C.	= Alternating current.
V. t.	= Vacuum tube.
M. a.	= Meter-amperes.
U. S. L.	= Applies only to the List of Commercial and Government Radio Stations of the United States.
Δ	= Equipped with a radio compass (direction finder).

This Edition is the First Supplement to the Annual List of Commercial and Government Radio Stations of the United States, Edition June 30, 1931

NEW STATIONS

Commercial land stations, alphabetically, by names of stations

[Additions to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1931, and to the International List of Fixed and Land Stations, published by the Berne bureau]

Station	Class	Call signal	Frequency in kilocycles, meters in parentheses	Service	Hours	Licensee
Atlantic City, N. J. ¹	FA, FX	WEEQ	3,070 (97.71), 3,076 (97.5), 4,164 (72.04), 5,690 (52.73), 6,320 (47.46).	P	X	Aeronautical Radio (Inc.).
Charleston, S. C. ²	FA, FX	WEEC	-----do-----	P	X	Do.
Duluth, Minn. ³	FA, FX	WSDL	2,680 (111.94), 3,004 (99.86), 5,375 (55.81).	P	X	Do.
Fort Wayne, Ind. ⁴	FA, FX	WSDJ	3,082 (97.33), 3,088 (97.15), 5,510 (54.44).	P	X	Do.
Little Rock, Ark. ⁵	FA, FX	KGUU	2,326 (128.97), 2,344 (127.98), 3,238 (92.64), 3,244 (92.47), 3,452 (86.9), 3,460 (86.7), 3,468 (86.5), 3,484 (86.1), 4,140 (72.46), 5,600 (53.57), 5,630 (53.26), 6,260 (47.92), 6,275 (47.8).	P	X	Do.
Memphis, Tenn. (municipal air- port) ⁶	FA, FX	WSDK	-----do-----	P	X	Do.

¹ Loc. (approximate) 74° 27' 35" W., 39° 21' 40" N.; type, A1, A3.

² Loc. 80° 02' 17" W., 32° 53' 51" N.; type, A1, A2, A3.

³ Loc. (approximate) 92° 00' 00" W., 45° 30' 00" N.; type, A1, A2, A3.

⁴ Loc. (approximate) 85° 08' 30" W., 41° 08' 30" N.; type, A1, A2, A3.

⁵ Loc. (approximate) 92° 15' 00" W., 34° 45' 00" N.; type, A1, A2, A3.

⁶ Loc. 89° 58' 48" W., 35° 03' 00" N.; type, A1, A2, A3.

Commercial ship stations, alphabetically, by names of vessels

[Additions to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1931, and to the International List of Ship Stations, published by the Berne bureau]

Name of vessel	Call signal	Rates, all services (cents)	Service	Hours	Owner	Message account settled by—
Babs ¹	WFEG		P	X	S. Nicholas Jacobs	Owner.
Barbara C ²	WFED	8	PG	X	W. R. Chamberlin	M. R. T. Co.
Fishing Float No. 3 ³	WFEF	8	PG	X	Fishermen's Packing Corporation.	Owner.
Folly ⁴	WFEJ		P	X	Joseph Marino	Do.
Iona ⁵	WFEH		P	X	William C. Burgess, Sergeant, U. S. Air Corps.	Do.
Panama ⁶	WFEK	8	PG	X	Masakichi Ishii & Co.	Thompson & Holgerson.
President Warfield ⁷	KGQC	8	PG	X	Baltimore Steam Packet Co.	R. M. C. A.
Ruth L.	WFEQ		P	X	Walter R. Lindsay	Owner.
Samona II ⁸	WFEN	8	PG	X	Willetts J. Hole	
Santa Margarita ⁹	WFEM	8	PG	X	Galapagos Fishing & Transport Co. (Ltd.).	R. M. C. A.
Sao Joao ¹⁰	WFEL	8	PG	X	Frank S. Mitchell	Owner.
Sequoia	WFEP	8	PG	X	Myrtle F. Bryson	Sou' West Trading Co.
Tappawinga II.	WFER				Frank A. Cressy, jr.	Owner.

¹ Type, A3; fy., 2,350 (127.7); power, 10/1.

² Type, A1, A2; fy., 375 (800), 400 (750), 425 (705), 468 (640), 500 (600).

³ Type, A1; fy., 375 (800), 425 (705), 500 (600), 2,320 (129.3); power, 12/1.

⁴ Type, A3; fy., 2,350 (127.7).

⁵ Type, A3; fy., 425 (705), 500 (600); power, 1.5/4.5.

⁶ Type, A1; fy., 5,525 (54.3), 5,555 (54), 8,330 (36.01), 11,050 (27.15), 16,660 (18.007); power, 20/3.

⁷ Type, A2; fy., 375 (800), 400 (750), 425 (705), 468 (640), 500 (600); power, 12/4.

⁸ Type, A1, A2; fy., 375 (800), 425 (705), 468 (640), 500 (600), 8,290 (36.19), 8,330 (36.01), 8,450 (35.5), 11,050 (27.15), 11,110 (27), 11,230 (26.71), 13,240 (22.66), 13,270 (22.61), 16,580 (18.094), 16,660 (18.007), 16,860 (17.794).

⁹ Fy., 5,525 (54.3), 8,290 (36.19), 8,330 (36.01), 8,450 (35.5), 11,050 (27.15), 11,110 (27), 11,230 (26.71), 13,240 (22.66), 13,270 (22.61), 16,580 (18.094), 16,660 (18.007), 16,860 (17.794).

¹⁰ Type, A1; fy., 8,290 (36.19), 16,580 (18.094), 16,660 (18.007); power, 12.33/2.

Commercial aircraft stations, alphabetically, by names of craft

[Additions to the List of Radio Stations of the United States, edition of June 30, 1931, and to the International List of Aircraft Stations published by the Berne bureau]

Station	Call signal	Frequency, in kilocycles; meters in parentheses	Service	Hours	License
NC-424H (NAT 101)	KHSUF		P	X	National Air Transport (Inc.)
NC-626V ¹	KHWAZ	3,070 (97.71), 3,076 (97.5), 5,690 (52.72).	P	X	Eastern Air Transport (Inc.)
NC-707Y	KHROL		P	X	American Airways (Inc.)
NC-708Y	KHRPK		P	X	Do.
NC-709Y	KHRQJ		P	X	Do.
NC-710Y	KHRRJ		P	X	Do.
NC-711Y	KHRSH		P	X	Do.
NC-712Y	KHRIG		P	X	Do.
NC-713Y	KHRUF		P	X	Do.
NC-714Y	KHRVE		P	X	Do.
NC-727K ²	KHWBY	3,070 (97.71), 3,076 (97.5), 5,690 (52.72).	P	X	Eastern Air Transport (Inc.)
NC-728K ³	KHWCX	do.	P	X	Do.
NC-784Y	KHFUF		P	X	Pan American Airways (Inc.)
NC-813H ¹	KHFJQ	333 (900), 414 (725), 500 (600), 1,688 (177.72), 2,662 (112.70), 3,070 (97.71), 5,690 (52.72), 8,015 (37.43).	P	X	Do.
NC-968V	KHRYB		P	X	American Airways (Inc.)
NC-997V	KHRZA		P	X	Do.
NC-3041 ¹	KHVEV	3,106 (96.59)	P	X	Ford Motor Co.
NC-9671	KHXAZ		P	X	American Airways (Inc.)
NC-10355	KHSVE		P	X	National Air Transport (Inc.)
NR-227W ¹	KHVDW	375 (800), 414 (725), 457 (655), 500 (600), 3,112 (96.4), 5,525 (54.29).	P	X	Transamerican Airlines Corporation, 2011 Union Trust Building, Cleveland, Ohio.
NR-687E ¹	KHV CX	do.	P	X	Do.

¹ Type, A1, A3.

² Type, A1, A2, A3.

³ Type, A3.

Government land stations, alphabetically, by names of stations

[Addition to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1931, and to the International List of Fixed and Land Stations published by the Berne bureau]

Station	Class	Call signal	Frequency, in kilocycles; meters in parentheses	Service	Hours	Owner
Block Island, R. I.	FC	NOD		O	X	U. S. Coast Guard.

Commercial and Government land, ship, aircraft, radiobeacon, and direction-finding stations, alphabetically by call signals

Call signal	Name of station	Call signal	Name of station
KGQC	President Warfield.....b	KHWCX	NC-728K.....a
KGUO	Little Rock, Ark.....fa, fx	KHXAZ	NC-9671.....a
KHFJQ	NC-813H.....a	NOD	Block Island, R. I.....fc
KHFUF	NC-784Y.....a	WEEC	Charleston, S. C.....fa, fx
KHRIG	NC-712Y.....a	WEEQ	Atlantic City, N. J.....fa, fx
KHROL	NC-707Y.....a	WFED	Barbara C.....b
KHRPK	NC-708Y.....a	WFEF	Fishing Float No. 3.....b
KHRQJ	NC-709Y.....a	WFEH	Babs.....b
KHRRJ	NC-710Y.....a	WFEJ	Iona.....b
KHRSH	NC-711Y.....a	WFEI	Folly.....b
KHRUF	NC-713Y.....a	WFEK	Panama.....b
KHRVE	NC-714Y.....a	WFEL	Sao Joao.....b
KHRYB	NC-968V.....a	WFFM	Santa Margarita.....b
KHRZA	NC-997V.....a	WFEN	Samona II.....b
KHSUF	NC-424H (NAT 101).....a	WFEP	Sequoia.....b
KHSVE	NC-10355.....a	WFEG	Ruth L.....b
KHV CX	NR-687E.....a	WFER	Tappawinga II.....b
KHVDW	NR-227W.....a	WSDJ	Fort Wayne, Ind.....fa, fx
KHVEV	NC-3041.....a	WSDK	Memphis, Tenn. (municipal airport).....fa, fx
KHWAZ	NC-626V.....a		
KHWBY	NC-727K.....a	WSDL	Duluth, Minn.....fa, fx

Relay broadcasting stations, alphabetically, by names of stations

[Additions to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1931]

Station	Call signal	Frequency in kilocycles; meters in parentheses	Power (watts)	Owner
<i>Portable</i>				
Illinois: Chicago-----	W9XAB	1,564 (191.82), 2,368 (126.68)	7½	Chicago Federation of Labor.

Experimental, relay broadcasting, and visual broadcasting stations grouped by districts, alphabetically, by call signals

Call signal	District and station	Call signal	District and station
W9XAB	Ninth district: Chicago, Ill. (portable).		

ALTERATIONS AND CORRECTIONS

COMMERCIAL LAND STATIONS

Alterations and corrections to be made to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1931, and to the International List of Fixed and Land Stations, published by the Berne bureau]

ANGOLA, IND.—Fy., add 3,166 (94.75), 3,172 (94.57), 3,178 (94.39), 5,570 (53.86), 5,660 (53).

ATLANTA, GA. WPDY.—Power, 18.5/1.8.

BERKELEY, CALIF.—Loc., 122° 15' 43.8" W., 37° 52' 23.6" N.; type, add A3.

BROOKSVILLE, PA.—Fy., add 3,166 (94.75), 3,172 (94.57), 3,178 (94.39), 5,570 (53.86), 5,660 (53).

BROWNSVILLE, TEX. (MUNICIPAL AIRPORT).—Fy., strike out 278 (1,080), 12,210 (24.57).

CHATHAM, ALASKA.—Read Chatham, Alaska radio; loc., 134° 51' 37" W., 57° 31' 07" N.; type, add A3; fy., strike out 179 (1,675), 191 (1,570), 428 (700), add 246 (1,220), 256 (1,170), 262 (1,145), 460 (650), 2,428 (123.55), 3,160 (94.93); power, 32/3; service, strike out P, add PG; licensee, R. R. Farish.

CINCINNATI, OHIO (LUNKEN FIELD).—Fy., strike out 3,484 (86.1), add 3,238 (92.64), 3,244 (92.47), 5,600 (53.57).

ELEGIK, ALASKA, RADIO.—Power, 16/1.5; service, strike out P, add PR.

EKUK, ALASKA, RADIO.—Power, 16/3; service, strike out P, add PR.

INDIANAPOLIS, IND. WAEA.—Fy., strike out 5,540 (54.15), add 5,510 (54.45).

KOGGIUNG, ALASKA, RADIO.—Power, 16/1; service, strike out P, add PR.

KVICHAK, ALASKA, RADIO KHB.—Power, 27.5/6.

LEWISBURG, PA. (NEAR).—Fy., add 3,166 (94.75), 3,172 (94.57), 3,178 (94.39), 5,570 (53.86), 5,660 (53).

LITCHFIELD, OHIO.—Fy., add 3,166 (94.75), 3,172 (94.57), 3,178 (94.39), 5,570 (53.86), 5,660 (53).

LOCKANOK, ALASKA, RADIO.—Power, 16/1; service, strike out P, add PR.

MEMPHIS, TENN. WPI.—Fy., add 3,112 (96.4), 4,116 (72.88), 5,525 (54.3), 6,515 (46.05).

MIAMI, FLA. WKDL.—Fy., strike out 278 (1,080), 333 (900), 414 (725), 500 (600), 6,350 (47.24), 12,210 (24.57); power, 15.2/1.25.

MOBILE, ALA. WPP.—Fy., add 3,112 (96.4), 4,116 (72.88), 5,525 (54.3).

NAKNEK, ALASKA, RADIO.—Fy., strike out 219 (1,370), add 268 (1,120).

NASHVILLE, TENN.—Fy., add 3,238 (92.64), 3,244 (92.47), 5,600 (53.57).

NELLIE JUAN, ALASKA, RADIO.—Loc., 148° 10' 18" W., 60° 32' 48" N.

NEW ORLEANS, LA. (MENEPEE AIRPORT).—Class, add FA; type, add A2, A3; fy., add 3,238 (92.64), 3,244 (92.47), 3,452 (86.9), 3,460 (86.7), 3,468 (86.5), 3,484 (86.1), 5,600 (53.57), 5,630 (53.29).

NUSHAGAK, ALASKA, RADIO KIJ.—Fy., add 460 (650); power, 17/4; service, strike out P, add PR; hours, 7 to 12 a. m., and 8 to 12 p. m. daily.

NUSHAGAK, ALASKA, RADIO KNJ.—Power, 30/4.

NUSHAGAK, ALASKA, RADIO KNO.—Power, 16/3; service, strike out P, add PR.
 PILOT POINT, ALASKA, RADIO.—Power, 26/6; service, strike out P, add PR.
 SAN JUAN, P. R. (PAN AMERICAN AIRPORT) WMDU.—Loc., 66° 00' 06" W.,
 16° 38' 14" N.; fy., strike out 278 (1,080), 12,210 (24.57); power, 12.2/1.5.
 TULSA, OKLA. KSY.—Fy., add 2,722 (110.21), 2,734 (109.72), 4,108 (73.02),
 6,365 (47.13).
 WICHITA, KANS.—Loc., 97° 15' 06" W., 37° 37' 54" N.; fy., add 2,722 (110.21),
 2,734 (109.72), 4,108 (73.02), 6,350 (47.24), 8,015 (37.43).
 YAKUTAT, ALASKA, RADIO.—Fy., strike out 274 (1,095), add 272 (1,105); power,
 32.5/2.1; service, strike out P, add PR.
 Strike out all particulars of the following-named station: Rocky Point, N. Y.,
 WJN.

The following changes have been made in the June 30, 1931, edition of the Annual List of Commercial and Government Radio Stations of the United States.

BAYTOWN, TEX.—Fy., 418 (717.7) read 418 (720).
 EVANS BAY, ALASKA—Read Evans Bay, Alaska radio; class, add FC; service,
 add PR.
 EXCURSION INLET, ALASKA.—Service, strike out P, add PG.
 KAHUKU, HAWAII KQH.—Licensee, R. C. A. Communications (Inc.).
 KAHUKU, HAWAII KRO.—Licensee, R. C. A. Communications (Inc.).
 LANSING, ILL. WCQ.—Class, strike out AB; fy., strike out 278 (1,080).
 LARENA, P. I., RADIO.—Fy., 214 (1,140) read 214 (1,400).
 SAND POINT, ALASKA (permanently moored vessel "International").—Type,
 A1; fy., 252 (1,190).

Strike out all particulars of the following-named stations: Akron, N. Y.; Arlington, Tenn.; Brunswick, Ohio, WNDB; Brunswick, Ohio, WNDC; Buffalo, N. Y., radio WAM; Chicago, Ill., radio WFL; Cleveland, Ohio, radio WTK; Cleveland, Ohio, WTL; Columbus, Ohio, WCL; Columbus, Ohio, WNDM; Dayton, Ohio; Dearborn, Mich., WFO; Detroit, Mich., radio WDI; Duluth, Minn., radio WME; Ishpeming, Mich.; Laurel, Md., WNDN; Laurel, Md., WNDO; Milford, Ohio; Milwaukee, Wis., WNDL; New Brunswick, N. J., WNDP; Peoria, Ill.; Plainfield, Ill.; Scobeyville, N. J.; Scow No. 5 (moored vessel near Nushagak, Alaska); South Lyon, Mich.; Springfield, Ill.; Taunton, Mass., WNDG; Taunton, Mass., WNDH; Trenton, N. J.

COMMERCIAL SHIP STATIONS, ALPHABETICALLY, BY NAMES OF VESSELS

[Alterations and corrections to be made to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1931, and to the International List of Ship Stations, published by the Berne bureau]

Strike out all particulars of the following-named vessels: Arminda, Gar, Sr.

The following changes have been made in the June 30, 1931, edition of the Annual List of Commercial and Government Radio Stations of the United States.

ABERCOS.—Accts., R. M. C. A. (U. S. L.).
 A. L. KENT.—Fy., strike out 468 (640).
 AMERICAN LEGION.—Accts., M. R. T. Co.
 ARGOSY WCEO.—Fy., add 8,290 (36.19), 8,330 (36.01), 8,450 (35.5), 11,050 (27.15), 11,110 (27), 11,230 (26.71), 13,240 (22.66), 16,580 (18,094), 16,660 (18.007), 16,860 (17.794).
 ASAMA.—Type, A1, A2; fy., 5,525 (54.3), 8,290 (36.19), 8,330 (36.01), 8,450 (35.5), 11,050 (27.15), 11,110 (27), 11,230 (26.71), 13,240 (22.66), 16,580 (18.094), 16,660 (18.007), 16,860 (17.794); power, 14.3/1.5.
 BARBARA C.—Type, A1, A2; fy., 375 (800), 400 (750), 425 (705), 468 (640), 500 (600).
 BELLFLOWER.—Accts., R. M. C. A. (U. S. L.).
 BENJAMIN BREWSTER.—Type, strike out B; fy., strike out 143 (2,100), 151 (1,985), 157 (1,910), 159 (1,885), 160 (1,875).
 BOSTON.—Type, strike out B; fy., add 151 (1,985).
 BOWDOIN.—Fy., strike out 8,330 (36.01), add 8,290 (36.19), 13,240 (22.66), 16,580 (18.094), 16,660 (18.007).
 CALAMARES.—Fy., add 155 (1,935).
 CARRILLO.—Fy., add 155 (1,935).
 CHICKEN OF THE SEA.—Fy., strike out 5,525 (54.3), 5,555 (54).
 CIPANGO.—Type, A1, A2; fy., 5,525 (54.3), 8,290 (36.19), 8,330 (36.01), 8,450 (35.5), 11,050 (27.15), 11,110 (27), 11,230 (26.71), 13,240 (22.66), 16,580 (18.094), 16,660 (18.077), 16,860 (17.794); power, 13.9/1.5.

CITY OF DALHART.—Accts., R. M. C. A. (U. S. L.).

CITY OF NORFOLK.—Type, strike out B, add A1, A2; fy., add 400 (750), 468 (640), 5,525 (54.3), 5,555 (54), 6,590 (45.52), 6,605 (45.42), 8,290 (36.19), 8,450 (35.5), 11,050 (27.15), 11,110 (27), 13,240 (22.66), 16,660 (18.007), 16,580 (18.094), 22,100 (13.575), 22,200 (13.514); hours, strike out X, add N.

COELLEDA.—Accts., R. M. C. A. (U. S. L.).

COLDWATER.—Accts., R. M. C. A.

DAYLIGHT.—Type, A1, A2; fy., 143 (2,100), 151 (1,985), 153 (1,960), 157 (1,910), 159 (1,885), 160 (1,875), 375 (800), 400 (750), 425 (705), 468 (640), 500 (600); power, 22.86/15.

DEFENDER.—Fy., strike out 8,450 (35.5), add 16,580 (18.094), 16,660 (18.007).

EXCAMBION.—Type, A1, A2; fy., 375 (800), 400 (750), 425 (705), 468 (640), 500 (600), 5,525 (54.3), 5,555 (54), 6,590 (45.52), 6,605 (45.42), 8,290 (36.19), 8,450 (35.5), 11,050 (27.15), 11,110 (27), 13,240 (22.66), 16,580 (18.094), 16,660 (18.007), 22,100 (13.575), 22,200 (13.514).

FRANCIS E. POWELL.—Type, strike out B, add A1, A2; fy., add 400 (750), 468 (640); power, 20/4.

GENERAL W. C. GORGAS.—Power, 25/7.

GEORGE PEIRCE.—Fy., add 157 (1,910).

HARRY BOWEN.—Fy., strike out 454 (660), add 400 (750), 468 (640).

HOXIE.—Accts., R. M. C. A. (U. S. L.).

ISAAC T. MANN.—Fy., add 454 (660).

LA MERCED.—Fy., strike out 143 (2,100), 151 (1,985), 160 (1,875); power, 45/9.

LEVIATHAN.—Fy., strike out 13,260 (22.62), add 13,210 (22.71).

MARGO.—Fy., add 410 (730); power, 20/10.

METAPAN.—Fy., add 155 (1,935).

MUNARGO.—Type, strike out A arc; fy., strike out 151 (1,985), 153 (1,960), 160 (1,875), add 5,525 (54.3), 5,555 (54), 6,590 (45.52), 6,605 (45.42), 8,290 (36.19), 8,450 (35.5), 11,050 (27.15), 11,110 (27), 13,240 (22.66), 16,580 (18.094), 16,660 (18.007), 22,220 (13.501); accts., M. R. T. Co.

NELLWOOD II.—Fy., add 394 (760).

NEVADA.—Fy., strike out 454 (660).

NEW ORLEANS.—Fy., add 355 (845).

OLYMPIC WEEZ.—Type, A1; fy., 5,525 (54.3), 5,555 (54), 8,330 (36.01), 11,050 (27.15), 16,580 (18.094), 16,660 (18.007); power, 20/5.

PAN BOLIVAR.—Fy., add 143 (2,100), 151 (1,985), 153 (1,960), 157 (1,910), 159 (1,885), 160 (1,875), 400 (750).

PATRICK HENRY.—Accts., R. M. C. A. (U. S. L.).

PASTORES.—Fy., add 155 (1,935).

PENQUIN KOMJ.—Fy., strike out 454 (660).

SANTA MARIA WPBW.—Fy., 5,525 (54.3), 5,615 (53.42), 6,590 (45.52), 6,635 (45.21), 8,290 (36.19), 8,330 (36.01), 8,450 (35.5), 11,050 (27.15), 11,230 (26.71), 13,240 (22.66), 16,580 (18.094), 16,860 (17.794).

SANTA MARTA.—Fy., add 155 (1,935).

SEEANDBEE.—Hours, strike out X, add N.

SIERRA WKCM.—Fy., strike out 460 (650); power, 24/3.

TOLOA.—Fy., add 155 (1,935).

TRIPP.—Accounts, R. M. C. A. (U. S. L.).

ULUA.—Fy., add 155 (1,935).

VANDA.—Fy., add 468 (640).

VELERO III.—Power, 16.5/10.

VILEEH.—Type, A1, A2; fy., 375 (800), 425 (705), 454 (660), 500 (600), 8,290 (36.19), 8,330 (36.01), 8,450 (35.5), 11,050 (27.15), 11,110 (27), 11,230 (26.71), 13,240 (22.66), 16,580 (18.094), 16,660 (18.007), 16,860 (17.794); power, 21.3/1.5; service, PG; hours, X, rates; 8 cents per word; accts., R. M. C. A.

WARD.—Accts., R. M. C. A. (U. S. L.).

WEST CUSSETA.—Fy., strike out 454 (660).

WESTERN QUEEN.—Accts., R. M. C. A. (U. S. L.).

WESTERN WAVE.—Hours, add X.

WEST SELENE.—Accts., R. M. C. A. (U. S. L.).

WILLIAM A. MCKENNEY.—Fy., strike out 454 (660).

ZACAPA.—Fy., add 155 (1,935).

Strike out all particulars of the following-named stations: Lake Folcroft, Lake Freeland, Lake Frugality, Lake Hemlock, Lake Kyttele.

COMMERCIAL AIRCRAFT STATIONS, ALPHABETICALLY, BY NAMES OF CRAFT

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1931, and to the International List of Aircraft Stations, published by the Berne bureau]

NC-75K, NC-142M, NC-144M, NC-145M, NC-146M, NC-147H, NC-231E, NC-300N, NC-304N, NC-395E, NC-396E, NC-454E, NC-659M (Havana), NC-660M (Cuba), NC-663M (Trinidad), NC-666M, NC-667M, NC-668M, NC-670M.—Fy., add 1,688 (177.72).

NC-805E.—Fy., add 3,238 (92.64), 3,244 (92.47), 3,452 (86.9), 3,460 (86.7), 5,630 (53.28).

NC-811H, NC-812H, NC-814H.—Fy., add 1,688 (177.72).

NC-880E, NC-881E.—Fy., add 3,238 (92.64), 3,244 (92.47), 3,452 (86.9), 3,460 (86.7), 5,630 (53.28).

NC-943M (Haiti), NC-944M (San Juan), NC-945M, NC-946M (Port of Spain), NC-3314, NC-8000, NC-8020, NC-8044, NC-9107, NC-9137, NC-9151, NC-9701, NC-9775, NC-9776, NR-41V.—Fy., add 1,688 (177.72).

Strike out all particulars of the following-named stations: NC-658M, NC-666M, NC-671M (Fleetster No. 2), NC-672M (Fleetster No. 3), NC-855M, NC-9673.

The following changes have been made in the June 30, 1931, edition of the Annual List of Commercial and Government Radio Stations of the United States:

Strike out all particulars of the following-named stations: F-106, F-112, No. 400 W. A. E.

GOVERNMENT LAND STATIONS, ALPHABETICALLY, BY NAMES OF STATIONS

Alterations and corrections to be made to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1931, and to the International List of Fixed and Land Stations, published by the Berne bureau]

Strike out all particulars of the following-named stations: Fort Eustis, Va. (Lee Hall), Fort George G. Meade, Md. (Baltimore), Fort Howard, Md. (Baltimore), Granada, Nicaragua.

The following changes have been incorporated in the June 30, 1931, edition of the Annual List of Commercial and Government Radio Stations of the United States:

ABERDEEN PROVING GROUNDS, MD.—Class, add FA; power, 15/8.

ANACORTES, WASH. (SECTION BASE 12).—Type, strike out A3, add A2; hours, N. ANCHORAGE, ALASKA.—Read Anchorage, Alaska, radio; class, add FC; loc. (approximate) 159° 05' 00" W., 61° 13' 00" N.; fy., add 500 (600); service, add PG; rates, 6 cents (30 centimes) per word.

AUGUSTA, ME. (FIRST DISTRICT U. S. N. R.).—Service, 0; hours, X.

BALBOA, CANAL ZONE (FIFTEENTH DISTRICT U. S. N. R.).—Class, strike out FC, add FX; hours, add X.

BARATARIA, LA.—Type, strike out A3, add A2; hours, N.

BETHEL, ALASKA.—Read Bethel, Alaska radio; class, add FC; fy., add 500 (600); service, add PG; rates, 6 cents per word.

BILOXI, MISS. (SECTION BASE 15).—Type, strike out A3, add A2; hours, N.

BOSTON, MASS. WVO.—Power, 34/8.

BOWMAN FIELD, KY. (LOUISVILLE).—Power, 45/8.

BUFFALO, N. Y.—Type, A1, A2; hours, N.

BURGESS FIELD, PA. (UNIONTOWN).—Power, 45/7.

CAMP DEVENS, MASS. (AYER).—Type, strike out A2, add A1; power, 13/1.5.

CAMP KNOX, KY. (LOUISVILLE).—Type, strike out A1, add A2; power, 25/8.

CAMP McCLELLAN, ALA. (ANNISTON).—Name changed to Fort McClellan, Ala. (Anniston); type, strike out A2, add A1; power, 19/4.

CAMP NICHOLS, P. I. (RIZAL).—Type, strike out A2, A3; power, 25/3.5.

CAMP STEPHEN D. LITTLE, ARIZ. (NOGALES).—Power, 14/2.4.

CANDLE, ALASKA.—Service, PR; hours, Y.

CAPE HENRY, VA.—Type, strike out A3; add A2; hours, N.

CAPE MAY, N. J.—Type, strike out A3; add A1, A2; hours, N.

CHANUTE FIELD, ILL. (RANTOUL).—Power, 18/6.

CHARLESTON, S. C. (SECTION BASE 3).—Class, strike out FX, add FC; type A1, A2; hours, strike out X, add N.

CINCINNATI, OHIO.—Fy., strike out 344 (870), add 332 (905).

CLARK FIELD, P. I. (CAMP STOTSENBERG).—Power, 30/7.

CLEVELAND, OHIO.—Type, A1, A2; hours, N.

CRISSEY FIELD, CALIF. (PRESIDIO OF SAN FRANCISCO).—Power, 25/5.

CUMBERLAND FIELD, MD. (CUMBERLAND).—Power, 45/4.

- DRYDEN, TEX.—Power, 22/6.2.
 DRY TORTUGAS LIGHTHOUSE, FLA.—Type, strike out A2, add A3.
 FENWICK ISLAND SHOAL LIGHTSHIP, DEL.—Type, strike out B, add A2.
 FERNANDINA, FLA. (SECTION BASE 20).—Type, A1, A2; hours, N.
 FORT ADAMS, R. I. (NEWPORT).—Power, 35/8.5.
 FORT BARRANCAS, FLA. (PENSACOLA).—Power, 14/7.
 FORT BENJAMIN HARRISON, IND. (INDIANAPOLIS).—Power, 45/8.
 FORT BENNING, GA (COLUMBUS).—Power, 14/1.5.
 FORT BLISS, TEX. (EL PASO).—Power, 90/8.
 FORT CLARK, TEX. (BRACKETTVILLE).—Power, 45/6.
 FORT CROCKETT, TEX. (GALVESTON).—Power, 19/5.
 FORT D. A. RUSSELL, TEX. (MARFA).—Power, 55/5.5.
 FORT DE LESSEPS, CANAL ZONE (CRISTOBAL).—Power, 14/1.6.
 FORT DES MOINES, IOWA (DES MOINES).—Power, 15/2.
 FORT DRUM, P. I. (RIZAL).—Type, A1; power, 13/2.5.
 FORT ETHAN ALLEN, VT. (ESSEX JUNCTION).—Power, 45/7.4.
 FORT EUSTIS, VA. (LEE HALL).—Power, 45/4.5.
 FORT FRANCIS E. WARREN, WYO. (CHEYENNE).—Power, 9/2.5.
 FORT GEORGE WRIGHT, WASH. (SPOKANE).—Type, strike out A2, add A1.
 FORT GEORGE G. MEADE, MD. (BALTIMORE).—Power, 16/6.
 FORT GRANT, CANAL ZONE (BALBOA).—Power, 12/1.2.
 FORT HANCOCK, N. J. (HIGHLAND BEACH).—Power, 37/8.
 FORT HAYES, OHIO (COLUMBUS).—Power, 60/14.
 FORT HOWARD, MD. (BALTIMORE).—Power, 30/6.
 FORT HUACHUCA, ARIZ. (NOGALES).—Power, 60/7.5.
 FORT KAMEHAMEHA, HAWAII (HONOLULU).—Power, 23/10.
 FORT LAUDERDALE, FLA.—Class, strike out FC, add FS; type, A1, A2; hours, N.
 FORT LEAVENWORTH, KANS. WYM.—Type, A1, A2, A3.
 FORT LEAVENWORTH, KANS. (LEAVENWORTH), WVC.—Type, add A3; power, 85/8.
 FORT MACARTHUR, CALIF. (SAN PEDRO).—Power, 30/8.
 FORT MCINTOSH, TEX. (LAREDO).—Type, strike out A2, add A1; power, 48/6.
 FORT MCPHERSON, GA.—*Read* Fort McPherson, Ga. (Atlanta); power, 60/18.
 FORT MILLS, P. I. (CORREGIDOR ISLAND).—Power, 64/6.
 FORT MONMOUTH, N. J. (LONG BRANCH LABORATORIES).—*Read*, Fort Monmouth, N. J. (Oceanport).
 FORT MONMOUTH, N. J. (OCEANPORT), WTW.—Power, 30/7.
 FORT MONROE, VA.—*Read* Fort Monroe, Va. (Old Point Comfort); power, 32/5.8.
 FORT OGLETHORPE, GA.—*Read* Fort Oglethorpe, Ga. (Chattanooga, Tenn.); power, 15/1.7.
 FORT OMAHA, NEBR. (OMAHA).—Power, 60/5.
 FORT PREBLE, ME.—*Read* Fort Preble, Me. (Portland); power, 9/1.25.
 FORT RANDOLPH, CANAL ZONE.—*Read* Fort Randolph, Canal Zone (Margarita Island, Colon); power, 9/1.5.
 FORT RILEY, KANS. (JUNCTION CITY).—Power, 23/6.
 FORT RINGGOLD, TEX. (RIO GRANDE).—Power, 25/2.5.
 FORT SANTIAGO, P. I.—Class, add FC.
 FORT SHAFTER, HAWAII (HONOLULU).—Power, 24/6.5.
 FORT SHERMAN, CANAL ZONE.—*Read* Fort Sherman, Canal Zone (Cristobal); power, 20/1.7.
 FORT SILL, OKLA. (LAWTON).—Power, 40/7.5.
 FORT SNELLING, MINN. (ST. PAUL).—Power, 22/5.
 FORT STORY, VA. (VIRGINIA BEACH).—Power, 17/1.6.
 FORT THOMAS, KY.—*Read* Fort Thomas, Ky. (Newport); power, 30/5.
 FORT TOTTEN, N. Y.—*Read* Fort Totten, N. Y. (Whitestone, L. I.); power, 32/4.
 FORT WAYNE, MICH. (BATTLE CREEK).—*Read* Fort Wayne, Mich. (Detroit); type, strike out A2, add A1; power, 25/8.
 FORT WINFIELD SCOTT, CALIF., PRESIDIO OF SAN FRANCISCO.—Type, A1, A2, A3; power, 30/5.
 FORT WINT, P. I. (SUBIC BAY).—Power, 20/1.5.
 FORT WORDEN, WASH.—Type, A1, A2, A3; power, 35/5.5; hours, Y.
 FRANCE FIELD, CANAL ZONE (COLON).—Power, 23/8.
 GLOUCESTER, MASS.—Type, A1, A2; hours, N.
 GOVERNORS ISLAND, N. Y.—Power, 42/8.
 GRANADA, NICARAGUA.—Loc. (approximate) 85° 59' 00'' W., 11° 56' 00'' N.; type, A1.
 HAINES, ALASKA.—Power, 28/5.

- HATBOX FIELD, OKLA. (MUSKOGEE).—Power, 45/8.
 HOLY CROSS, ALASKA.—Power, 20/2.5.
 HOT SPRINGS, ALASKA.—Power, 20/2.5.
 IDITAROD, ALASKA.—Power, 30/2.5.
 JEFFERSON BARRACKS, MO. (ST. LOUIS).—Power, 30/10.
 JUNEAU, ALASKA.—Read Juneau, Alaska radio; class, add FC; fy., add 500 (600); power, 75/6; service, add PG; rates, 6 cents (30 centimes) per word.
 KANAKANAK, ALASKA.—Read Kanakanak, Alaska radio; class, add FC; fy., add 500 (600); service, add PG; rates, 6 cents (30 centimes) per word.
 KELLY FIELD, TEX. (SAN ANTONIO).—Class, add FA; power, 24/7.
 KETCHIKAN, ALASKA, RADIO.—Power, 90/10.
 KODIAK, ALASKA, RADIO.—Hours, Y.
 KOTZEBUE, ALASKA.—Read Kotzebue, Alaska radio; class, add FC; fy., add 500 (600); power, 30/2.5; service, add PG; rates, 6 cents (30 centimes) per word.
 LANGLEY FIELD (HAMPTON), VA.—Power, 28/6.
 LIVINGOOD, ALASKA.—Power, 16/2.5.
 LORDSBURG, N. MEX.—Power, 14/6.5.
 LUKE FIELD, HAWAII (PEARL HARBOR).—Power, 22/8.
 MARCH FIELD, CALIF. (RIVERSIDE).—Power, 45/8.
 MATHER FIELD, CALIF.—Read Mather Field, Calif. (Sacramento); type, add A2, A3; power, 23/7.5; hours, Y.
 MAXWELL FIELD, ALA. (MONTGOMERY).—Power, 23/8.
 MEMPHIS, TENN. (WEST MEMPHIS).—Loc. (approximate) 90° 03' 00" W., 35° 06' 00" N.; type, A1, A2, A3; power, 45/6.
 MIDDLETOWN, PA.—Power, 31/6.5.
 MITCHELL FIELD, N. Y. (MINEOLA, L. I.).—Power, 25/5.
 MOBILE, ALA.—Class, strike out FC, add FS; type, A1, A2; hours, N.
 NEW LONDON, CONN., NOU.—Type, A1, A2; hours, N.
 NEWPORT, R. I. (TORPEDO STATION), NBK.—Hours, strike out X.
 NEWPORT, R. I. (TORPEDO STATION), NHB.—Hours, strike out X.
 NOME, ALASKA, RADIO.—Power, 30/20.
 NULATO, ALASKA.—Power, 50/10.
 ORLANDO, FLA. (SEVENTH DISTRICT, U. S. N. R.).—Hours, strike out.
 PENSACOLA, FLA., NAS.—Fy., strike out 500 (600).
 PETERSBURG, ALASKA.—Read Petersburg, Alaska radio; class, add FC; fy., add 500 (600); power, 26/5; service, add PG; rates, 6 cents (30 centimes) per word.
 POINT BARROW, ALASKA.—Read Point Barrow, Alaska radio; class, add FC; fy., add 500 (600); power, 33/2.5; service, add PG; rates, 6 cents (30 centimes) per word.
 POINT BONITA, CALIF.—Type, A1, A2; hours, N.
 POLLOCK RIP SLUE LIGHTSHIP, MASS.—Type, strike out B, add A2.
 POPE FIELD, N. C. (FORT BRAGG).—Class, add FA; power, 33/8.
 PORT ANGELES, WASH. (SECTION BASE 13).—Type, A1, A2; hours, N.
 PORT TOWNSEND, WASH.—Type, A1, A2; hours, N.
 PRESIDIO OF MONTEREY, CALIF. (MONTEREY).—Loc. (approximate) 121° 55' 00" W., 36° 36' 00" N.; type, A1.
 QUARRY HEIGHTS, CANAL ZONE (BALBOA).—Class, add FC.
 ROCKAWAY BEACH, N. Y.—Type, A1, A2; hours, N.
 ROCKWELL FIELD, CALIF. (CORONADO).—Power, 23/8.
 RUBY, ALASKA.—Power, 20/2.5.
 ST. GEORGE REEF LIGHTHOUSE, CALIF.—Type, A3.
 ST. JOHNS RIVER LIGHTSHIP, FLA.—Loc. (approximate) 81° 18' 00" W., 30° 23' 30" N.; type A2.
 ST. LOUIS, MO.—Class, add FC; power, 50/10.
 ST. PETERSBURG, FLA. (SECTION BASE 21).—Type, A1, A2; hours, N.
 SAN FRANCISCO, CALIF. (TWELFTH DISTRICT U. S. N. R.).—Hours, X.
 SAN FRANCISCO, CALIF. (PRESIDIO OF SAN FRANCISCO) WVY.—Class, add FC; fy., add 12,765 (23.5).
 SAN FRANCISCO LIGHTSHIP, CALIF.—Hours, first 15 minutes every hour between 8 a. m. and 9.15 p. m.
 SAN JOSE FIELD, P. I.—Loc. (approximate) 121° 54' 00" E., 10° 46' 00" N.; type, A1.
 SAN PEDRO, CALIF. (SECTION BASE 17).—Type, A1, A2; hours, N.
 SANTURGE, P. R. (SAN JUAN DISTRICT U. S. N. R.).—Hours, strike out X.
 SAULTE STE. MARIE, MICH.—Type, A1, A2; hours, N.
 SCOTCH CAP LIGHTHOUSE, ALASKA.—Type, add A2; fy., strike out 750 (400), 870 (345), 1,010 (297), 1,172 (256).

- SCOTT FIELD, ILL. (BELLEVILLE).—Power, 24/9.
 SELFRIDGE FIELD, MICH. (MOUNT CLEMENS).—Power, 25/7.5.
 SEWARD, ALASKA, RADIO.—Power, 69/8; fy., strike out 13,095 (22.91).
 SITKA, ALASKA.—Power, 23/5.
 SQUAW HARBOR, ALASKA, RADIO.—Power, 25/10.
 STANNARD ROCK LIGHTHOUSE, MICH.—Type, strike out A2.
 STATEN ISLAND, N. Y.—Type, A1, A2; hours, N.
 SWIFTSURE BANK LIGHTSHIP, WASH.—Type, add A2.
 TACOTNA, ALASKA.—Power, 20/2.5.
 TAU, SAMOA.—Fy., strike out 500 (600).
 TELLER, ALASKA.—Read Teller, Alaska radio; class, add FC; fy., add 500 (600); power, 21/2.5; service, add PG; rates, 6 cents (30 centimes) per word.
 TUCSON, ARIZ.—Power, 22/7.
 VALDEZ, ALASKA, RADIO.—Power, 36/2.5.
 WASHINGTON, D. C. NMH.—Type, A1, A2; hours, N.
 WASHINGTON, D. C. (WASHINGTON DISTRICT U. S. N. R.).—Hours, X.
 WASHINGTON, D. C. WLM.—Hours, Y.
 WEST POINT, N. Y.—Power, 58/6.
 WINTHROP, MASS.—Type, A1, A2; hours, N.
 WOODS HOLE, MASS. (SECTION BASE 18).—Type, A1, A2; hours, N.
 WRANGELL, ALASKA.—Read Wrangell, Alaska radio; class, FC; fy., add 500 (600); power, 23/5; service, add PG; rates, 6 cents (30 centimes) per word.
 WRIGHT FIELD, OHIO (FAIRFIELD).—Power, 48/10.

GOVERNMENT SHIP STATIONS, ALPHABETICALLY, BY NAMES OF STATIONS

[Alterations and corrections to be made to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1930, and to the International List of Ship Stations, published by the Berne bureau]

The following changes have been incorporated in the June 30, 1931, edition of the Annual List of Commercial and Government Radio Stations of the United States.

- ABEL P. UPSHUR.—Fy., 375 (800), 425 (705), 500 (600); service, PG; hours, N; rates, 8 cents per word.
 ACTIVE.—Fy., 375 (800), 425 (705), 500 (600); service, PG; hours, N; rates, 8 cents per word.
 ACACIA.—Type, A2; fy., strike out 300 (1,000), add 375 (800).
 ACUSHNET.—Fy., strike out all frequencies, add 375 (800), 425 (705), 500 (600).
 AGASSIZ.—Fy., 375 (800), 425 (705), 500 (600); service, PG; hours, N; rates, 8 cents per word.
 ALDEBARAN.—Type, add A2; fy., strike out 273 (1,100), 429 (700), add 396 (760), 428 (700), 500 (600); power, 14/10.
 ALERT.—Fy., 375 (800), 425 (705), 500 (600); service, PG; hours, N; rates, 8 cents per word.
 AMARANTH.—Type, A2; fy., strike out 189.2 (1,585), 342.9 (875), 419.6 (715), add 180 (1,665), 190 (1,580), 423 (710).
 A. MCKENZIE.—Type, strike out A1, add B; fy., strike out 429 (700), add 159 (1,885), 396 (760), 428 (700), 500 (600); power, 26/12.
 ANEMONE.—Type, A2.
 ANNAPOLIS.—Accts., Secretary of State, Harrisburg, Pa.
 ANTIETAM.—Fy., 375 (800), 425 (705), 500 (600); service, PG; hours, N; rates, 8 cents per word.
 APACHE.—Fy., strike out all frequencies, add 375 (800), 425 (705), 500 (600); service, PG; hours, N; rates, 8 cents per word.
 ARCATA.—Fy., strike out all frequencies; service, strike out PG, add O; hours, strike out N, add X; rates, strike out.
 ASTORIA.—Service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
 AZALEA.—Type, A2.
 BARNARD.—Fy., strike out 429 (700), add 396 (760), 428 (700), 500 (600).
 B. M. HARROD.—Fy., strike out 429 (700); add 396 (760), 428 (700), 500 (600); power, 21/6.
 BONHAM.—Fy., 375 (800), 425 (705), 500 (600); service, PG; hours, N; rates, 8 cents per word.
 BOUTWELL.—Fy., 375 (800), 425 (705), 500 (600); service, PG; hours, N; rates, 8 cents per word.
 CAHOKIA.—Fy., 375 (800), 425 (705), 500 (600); service, PG; hours, N; rates, 8 cents per word.

- CAHOONE.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- CALIFORNIA.—Hours, strike out N, add X
- CAMBRAI.—Type, add A2; fy., strike out 125 (2,400), 139.5 (2,150), 315 (952), 375 (800), 425 (706), add 153 (1,960), 159 (1,885), 396 (760), 429 (700), 4,255 (70.5), 8,510 (35.25), 12,765 (23.5), 17,020 (17.62); power, 21/15; hours, Y.
- CAPTAIN CLARENCE M. CONDON.—Type, strike out A1, add B; fy., strike out 429 (700), 480 (625), add 159 (1,885), 500 (600); power, 14/4.
- CAPTAIN JAMES FORNANCE.—Type, strike out A1, add B; fy., strike out 275 (1,090), 429 (700), add 159 (1,885), 396 (760), 428 (700); power, 14/3.
- CAPT. EDWARD P. NONES.—Type, add A2, A3; fy., strike out 396 (760), 480 (625), add 666 (450), 750 (400), 500 (600); power, 10/2.
- CARRABASSET.—Fy., 375 (800), 425 (705), 500 (600); service, PG; hours, N; rates, 8 cents per word.
- CARTIGAN.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- CASSIN.—Fy., 375 (800), 425 (705), 500 (600).
- CEDAR.—Type, A2; fy., strike out 8,705 (34.46).
- CHAMPLAIN.—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- CHATEAU THIERRY.—Type, add A2; fy., strike out 250 (1,200), 307 (977), 429 (700), add 153 (1,960), 159 (1,885), 396 (760), 428 (700), 4,255 (70.5), 8,510 (35.2), 12,765 (23.5), 17,020 (17.62); power, 16/15.
- CHELAN.—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- COLONEL GEORGE ARMISTEAD.—Type, add A2, A3; fy., strike out 275 (1,090), 429 (700), 480 (625), add 428 (700); power, 14/3.5.
- COLONEL GEORGE F. E. HARRISON.—Type, A2, A3; fy., strike out 480 (625), add 428 (700), 500 (600); power, 16/3.5.
- CONYNGHAM.—Fy., 375 (800), 425 (705), 500 (600).
- COOK.—Hours, X.
- CORWIN.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- CRANE SHIP No. 1.—Service, strike out PG; add O; hours, strike out N, add X.
- CRAWFORD.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- CUBA.—Type, add A2; fy., strike out 250 (1,200), 400 (750), 450 (667), add 159 (1,885), 396 (760), 428 (700); power, 14/5.
- CULEBRA.—Type, strike out A1, add B; fy., strike out 429 (700), add 396 (760), 428 (700), 500 (600); power, 19/5.
- CUMMINGS.—Fy., 375 (800), 425 (705), 500 (600).
- CUYAHOGA.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- CYPRESS.—Type, A2.
- DALLAS NRW.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- DAN C. KINGMAN.—Type, strike out A1, add B; fy., strike out 429 (700), add 396 (760), 428 (700), 500 (600), power, 19/5.
- DAVIS.—Fy., 375 (800), 425 (705), 500 (600).
- DELLWOOD.—Type, strike out A1, add B; fy., strike out 307 (977), 425 (706), add 159 (1,885), 396 (760), 428 (700), 500 (600); power, 21/8.
- DELTA.—Type, A1; fy., 396 (760), 428 (700), 500 (600); power, 16/8.
- DEXTER.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- DILIGENCE.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- DIX.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- EAGLE.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- EAGLE 22.—Service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- ED. J. HOWARD.—Type, strike out A1, add B; fy., strike out 429 (700), add 396 (760), 428 (700), 500 (600); power, 14/5.
- ERICSSON.—Fy., 375 (800), 425 (705), 500 (600).

- EWING.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- FAUNCE.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- FERN.—Type, A2.
- FORT CHARTRES.—Fy., strike out 2,610 (114.9), add 2,604 (115.2); power, 16/7.5.
- FORT GAGE.—Type, add A2, A3; fy., strike out 2,610 (114.9), add 2,604 (115.2); power, 14/1.5.
- FORWARD.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- FREDERICK LEE.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- GALLATIN.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- GENERAL ABSALOM BAIRD.—Type, add A2, A3; fy., strike out 429 (700), 480 (625), add 428 (700), 500 (600), 750 (400); power, 14/4.5.
- GENERAL EDWARD O. C. ORD.—Type, add A2, A3; fy., strike out 250 (1,200), add 396 (760), 428 (700), 500 (600); power, 26/2.8.
- GENERAL GEORGE H. WEEKS.—Fy., strike out 225 (1,333), 429 (700), add 500 (600), 666 (450), 750 (400); power, 20/2.5.
- GENERAL GREENE.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- GENERAL G. W. GETTY.—Type, add A2, A3; fy., strike out 250 (1,200), 429 (700), add 666 (450), 750 (400), 500 (600); power, 10/1.3.
- GENERAL J. FRANKLIN BELL.—Type, add A2, A3; fy., strike out 429 (700), 480 (625), add 428 (700), 500 (600); power, 14/5.
- GENERAL JOHN M. SCHOFIELD.—Type, add A2; fy., strike out 67 (4,480), 273 (1,100), add 428 (700), 500 (600); power, 22/4.
- GENERAL MIFFLIN.—Fy., strike out 396 (760), 429 (700), add 500 (600); power, 14/2.
- GENERAL RICHARD ARNOLD.—Fy., strike out 429 (700), add 428 (700), 500 (600); power, 14/5.
- GENERAL R. N. BATCHELDER.—Type, strike out A1, add B; fy., strike out 429 (700), add 428 (700), 500 (600); power, 14/3.5.
- GENERAL ROBERT ANDERSON.—Type, strike out A1, add B; fy., strike out 429 (700), add 159 (1,885), 428 (700), 500 (600); power, 14/3.5.
- GENERAL ROYAL T. FRANK.—Type, add A2, A3; fy., strike out 273 (1,100), 480 (625), add 396 (760), 428 (700), 500 (600); power, 16/3.
- GENERAL WILLIAM M. GRAHAM.—Type, add A2, A3; fy., strike out 450 (666), 480 (625), add 428 (700), 750 (400), 500 (600); power, 23/3.
- GEORGE E. BADGER.—Fy., 375 (800), 425 (705), 500 (600); service, PG; hours, N; rates, 8 cents per word.
- GOUVERNEUR.—Type, A1; fy., 396 (760), 428 (700), 500 (600); power, 14/4.5.
- GRANT.—Type, add A2; fy., strike out 250 (1,200), 307 (977), 425 (706), add 153 (1,960), 159 (1,885), 396 (760), 428 (700), 500 (600), 4,255 (70.5), 8,510 (35.25), 12,765 (23.5), 17,020 (17.62); power, 19/20.
- GRESHAM.—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600).
- GRIFFITH.—Fy., 396 (760), 428 (700), 500 (600).
- HAIDA.—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- HARRIET LANE.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- HEATHER.—Type, strike out B, add A2.
- HENRY FLAD.—Fy., strike out 429 (700), add 396 (760), 428 (700), 500 (600); power, 18/6.
- HERNDON.—Fy., 375 (800), 425 (705), 500 (600); service, PG; hours, N; rates, 8 cents per word.
- HIBISCUS.—Type, A2.
- H. S. TABER.—Fy., strike out 429 (700), add 396 (760), 428 (700), 500 (600); power, 16/3.
- HUNT.—Fy., 375 (800), 425 (705), 500 (600); service, PG; hours, N; rates, 8 cents per word.
- HYACINTH.—Type, A2; fy., strike out 189.27 (1,585), 343 (875), 420 (715), add 180 (1,665), 190 (1,580), 423 (710).
- ILEX.—Type, strike out B, add A2.
- INDIANAPOLIS.—Service, strike out O, add PG; hours, N; rates, 8 cents per word.

- INSPECTOR.—Type, add A2; fy., strike out 273 (1,100), add 396 (760), 428 (700), 500 (600); power, 14/8.
- IOTA.—Type, strike out A1, add B; fy., strike out 429 (700), add 396 (760), 428 (700), 500 (600); power, 16/-.
- ITASCA.—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, N; rates, 8 cents per word.
- IVY.—Type, A2.
- JACKSON.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- JOHN EWENS.—Fy., strike out 429 (700), add 396 (760), 428 (700), 500 (600); power, 14/-.
- JOSEPH HENRY.—Type, add A2; fy., strike out 480 (625), add 428 (700), 500 (600); power, 12/7.
- JUPITER.—Fy., strike out 429 (700), add 396 (760), 428 (700), 500 (600); power, 13/3.5.
- KICKAPOO.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- KIMBALL.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- KUKUI.—Type, strike out B, add A2.
- LARKSPUR.—Type, strike out B, add A2.
- LEGARE.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- LOTUS.—Type, strike out B, add A2.
- LOUISVILLE.—Service, strike out O, add PG; hours, N; rates, 8 cents per word.
- LT. COL. HERMAN C. SCHUMM.—Type, strike out A1, add B; fy., strike out 480 (625), add 428 (700), 500 (600); power, 14/5.
- LUDINGTON.—Fy., add 500 (600), 17,020 (17.62); power, 16/15; service, strike out O, add PR; hours, strike out N, add Y.
- LUPINE.—Type, A2.
- LUZON.—Service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- MAGNOLIA.—Type, strike out B, add A2.
- MAHONING.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- MAJOR ALBERT G. JENKINS.—Type, strike out A1, add B; fy., strike out 480 (625), add 428 (700), 500 (600); power, 16/-.
- MAJOR EVAN THOMAS.—Type, add A2; fy., strike out 250 (1,200), 307 (977), 425 (706), add 500 (600); power, 16/2.5.
- MAJOR WILLIAM P. PENCE, JR.—Fy., strike out 396 (760), 480 (625), add 500 (600); power, 14/2.5.
- MANGROVE.—Type, A2; service, O; hours, X.
- MANHATTAN.—Service, strike out PG, add O; hours, strike out N, add X; rates, none.
- MANZANITA.—Type, strike out B, add A2.
- MAPLE.—Type, A2; service, O; hours, X.
- MARIGOLD.—Type, strike out B, add A2; fy., strike out 189.27 (1,585), 343 (875), 500 (600), add 180 (1,665), 190 (1,580), 423 (710).
- MASCOUTIN.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- MAYFLOWER.—Type, strike out B, add A2.
- McDOUGAL.—Fy., 375 (800), 425 (705), 500 (600).
- McLANE.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- MEIGS.—Type, add A2; fy., strike out 125 (2,400), 250 (1,200), 307.7 (977), 425 (706), add 153 (1,960), 159 (1,885), 396 (760), 428 (700), 4,255 (70.5), 8,510 (35.25), 12,765 (23.5), 17,020 (17.62); power, 19/12.
- MENDOTA NRUF.—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- MENDOTA NATM.—Service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- MERRITT.—Fy., strike out 250 (1,200), 307 (977), add 153 (1,960), 159 (1,885), 396 (760), 428 (700), 4,255 (70.5), 8,510 (35.25), 12,765 (23.5), 17,020 (17.62); power, 19/12.
- MILEY.—Type, add A2, A3; fy., strike out 396 (760), 450 (666), 480 (625), add 666 (450), 750 (400), 500 (600); power, 16/1.5.

- MINDANAO.**—Service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- MISSISSIPPI WYCT.**—Type, strike out A1, add B; fy., strike out 429 (700), add 396 (760), 428 (700), 500 (600); power, 14/5.
- MODOC.**—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600); service, strike out O, add PG; service, strike out X, add N; rates, 8 cents per word.
- MOJAVE.**—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600); service, PG; hours, N; rates, 8 cents per word.
- MONTGOMERY NRPG.**—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- MORGAN-LEWIS.**—Fy., strike out 429 (700), add 396 (760), 428 (700), 500 (600).
- MORRIS NRPF.**—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- NANSEMOND.**—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- NAUGATUCK.**—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- NEMAHA.**—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- NEW ORLEANS.**—Service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- NORTHAMPTON.**—Service, strike out O, add PG; hours, N; rates, 8 cents per word.
- NORTHLAND.**—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- ORION.**—Strike out all particulars.
- ORCHID.**—Type, strike out B, add A2.
- OSSIPEE.**—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600).
- PAMLICO.**—Fy., 375 (800), 425 (705), 500 (600).
- PATRIOT.**—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- PEQUOT.**—Fy., 375 (800), 425 (705), 500 (600); service, PG; hours, N; rates, 8 cents per word.
- PERRY NRWQ.**—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- PETREL.**—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- PONTCHARTRAIN.**—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- PORTER.**—Fy., 375 (800), 425 (705), 500 (600).
- PORTLAND.**—Service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- PULASKI.**—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- RANGER.**—Service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- REDWING.**—Fy., 375 (800), 425 (705), 500 (600); service, PG; hours, N; rates, 8 cents per word.
- RELIANCE.**—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- RENO.**—Type, add A2, A3; fy., strike out 429 (700), add 500 (600); power, 16/1.5.
- ROSE.**—Type, strike out B, add A2.
- RUSH.**—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- SAN PABLO.**—Type, add A2; fy., strike out 425 (706), add 396 (760), 428 (700), 500 (600); power, 16/1.5.
- SAN PEDRO.**—Type, add A2, A3; fy., strike out 396 (760), 480 (625), add 500 (600), 666 (450), 750 (400); power, 13/1.5.
- SARANAC.**—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, N; rates, 8 cents per word.
- SATURN.**—Type, strike out A1, add B; fy., strike out 429 (700), add 396 (760), 428 (700), 500 (600); power, 14/5.
- SAVANNAH WYDB.**—Type, strike out A2; fy., add 500 (600).

- SEBAGO.—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, N; rates, 8 cents per word.
- SEMINOLE.—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600).
- SENECA.—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600).
- SEQUOIA.—Type, A2.
- SHAW.—Fy., 375 (800), 425 (705), 500 (600).
- SHAWNEE.—Fy., 375 (800), 425 (705), 500 (600); service, PG; hours, N; rates, 8 cents per word.
- SHOSHONE.—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- SLOCUM.—Type, strike out A1, add B; fy., strike out 429 (700), add 396 (760), 428 (700), 500 (600); power, 20/3.5.
- SNOHOMISH.—Fy., 375 (800), 425 (705), 500 (600).
- SOMME.—Type, add A2; fy., strike out 125 (2,400), 250 (1,200), 307 (977), 425 (706), 1,429 (2,100); add 153 (1,960), 159 (1,885), 396 (760), 428 (700), 4,255 (70.5), 8,510 (35.25), 12,765 (23.5), 17,020 (17.62); power, 22/10.
- SPEEDWELL.—Type, A2.
- SPRIGG-CARROLL.—Fy., strike out 429 (700), add 396 (760), 428 (700), 500 (600); power, 14/5.
- SPRUCE.—Type, A2.
- S. MIHEL.—Type, add A2; fy., strike out 143 (2,100), 375 (800), 425 (706), add 153 (1,960), 159 (1,885), 396 (760), 428 (700), 4,255 (70.5), 8,510 (35.25), 12,765 (23.5), 17,020 (17.62); power, 16/15.
- S. C. 252.—Service, strike out O, add PG; hours, N; rates, 8 cents per word.
- S. C. 431.—Hours, strike out X, add N.
- S. C. 433.—Hours, strike out X, add N.
- S. C. 437.—Hours, strike out X, add N.
- SUMAC.—Type, A2; fy., strike out 189.2 (1,585), 343 (875), 420 (715), add 180 (1,665), 190 (1,580), 423 (710).
- SUNFLOWER.—Type, A2.
- TAHOE.—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- TALLAPOOSA.—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600).
- TAMARCA.—Fy., 375 (800), 425 (705), 500 (600); service, PG; hours, N; rates, 8 cents per word.
- TAMPA.—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600); service, PG; hours, N; rates, 8 cents per word.
- TECUMSEH.—Type, add A2; fy., add 428 (700), 500 (600); power, 14/7.5.
- TIGER.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- TORPEDO TEST BARGE No. 1.—Service, O; hours, X.
- TORPEDO TEST BARGE No. 2.—Service, O; hours, X.
- TORPEDO TEST BARGE No. 3.—Service, O; hours, X.
- TORPEDO TEST BARGE No. 4.—Service, O; hours, X.
- TRAVIS.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- TUCKER.—Fy., 375 (800), 425 (705), 500 (600).
- TULIP.—Type, A2.
- TUSCARORA.—Fy., 375 (800), 425 (705), 500 (600).
- TUSCUMBIA.—Type, add A2; fy., strike out 115.1 (2,607), add 428 (700), 500 (600); power, 16/7.5.
- UNALGA.—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600).
- VIGILANT.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- WAINWRIGHT.—Fy., 375 (800), 425 (705), 500 (600).
- WELBORN C. WOOD.—Fy., 375 (800), 425 (705), 500 (600); service, PG; hours, N; rates, 8 cents per word.
- WILKES.—Fy., 375 (800), 425 (705), 500 (600).
- WILLETS POINT.—Type, add A2; fy., strike out 273 (1,100), 545 (550), 429 (700), add 396 (760), 428 (700), 500 (600); power, 14/8.
- WILLOW.—Type, A2; fy., strike out 396 (755), add 230 (1,305), 375 (800), 410 (730), 428 (680), 500 (600).

- W. L. MARSHALL.—Type, strike out A1, add B; fy., strike out 429 (700), add 396 (760), 428 (700), 500 (600); power, 19/8.
- WM. T. ROSSELL.—Type, strike out A1, add B; fy., strike out 429 (700), add 396 (760), 428 (700), 500 (600); power, 25/8.
- WOLCOTT.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- WOODBURY.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- YEATON.—Fy., 375 (800), 425 (705), 500 (600); service, strike out O, add PG; hours, strike out X, add N; rates, 8 cents per word.
- YAMACRAW.—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600).
- ZETA.—Fy.; add 500 (600); power, 16/4.

AIRWAY RADIOBEACON STATIONS

[Alterations and corrections to be made to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1931, and to the International List of Stations Performing Special Services, published by the Berne bureau]

The following changes have been incorporated in the June 30, 1930, edition of the annual list of commercial and Government radio stations of the United States.

Strike out all particulars of the following-named station: Albuquerque, N. Mex.

MARINE RADIOBEACON STATIONS

[Alterations and corrections to be made to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1931, and to the International List of Stations Performing Special Services, published by the Berne bureau]

THUNDER BAY ISLAND LIGHTHOUSE, MICH., AND POE REEF LIGHTHOUSE, MICH.—
New method of distance finding: Same as published in Radio Service Bulletin for last month for Detour Lighthouse, and Point Betsie Lighthouse, Mich.

COMMERCIAL AND GOVERNMENT LAND, SHIP, AIRCRAFT, RADIOBEACON, AND RADIO-COMPASS STATIONS, ALPHABETICALLY BY CALL SIGNALS

KGIN, read Chatham, Alaska, radio; KUR, read Evans Bay, Alaska, radio; WLY, read Fort Monmouth, N. J. (Oceanport); WTD, read Fort Wayne, Mich. (Detroit); WTG, read Wrangell, Alaska, radio; WTN, read Fort Preble, Me. (Portland); WTQ, read Petersburg, Alaska, radio; WUF, read Fort Monroe, Va. (Old Point Comfort); WUL, read Fort Totten, N. Y. (Whitestone, L. I.); WUR, read Fort McClellan, Ala. (Anniston); WUS, read Fort Oglethorpe, Ga. (Chattanooga, Tenn.); WUV, read Fort Thomas, Ky. (Newport); WVR, read Fort McPherson, Ga. (Atlanta); WXA, read Juneau, Alaska, radio; WXB, read Point Barrow, Alaska, radio; WXE, read Anchorage, Alaska, radio; WXI, read Bethel, Alaska, radio; WXW, read Kotzebue, Alaska, radio; WZAG, read Mather Field, Calif. (Sacramento); WZE, read Kanakanak, Alaska, radio; WZR, read Teller, Alaska, radio; WZU, read Fort Sherman, Canal Zone (Cristobal); WZV, read Fort Randolph, Canal Zone (Margarita Island, Colon); strike out all particulars following the call signals KEGP, KEXL, KFZD, KHCCX, KHCIR, KHCNM, KHEKP, KHEOL, KHFXC, KHKNM, KHKRI, KHKVE, KHY, KLOE, NERN, WAM, WAN, WCL, WCOU, WDI, WDUU, WFL, WFO, WHDD, WJN, WKDA, WKDE, WME, WNDB, WNDC, WNDD, WNDE, WNDF, WNDG, WNDH, WNDI, WNDJ, WNDK, WNDL, WNDM, WNDN, WNDO, WNDP, WNDQ, WNDR, WTK, WTL, WUD, WUK, WVQ, WVQ.

BROADCASTING STATIONS, BY CALL SIGNALS

[Alterations and corrections to be made to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1931, and the International List of Broadcasting Stations, published by the Berne bureau]

KCRC (Enid, Okla.).—Licensee, Enid Radiophone Co.
KFUL (Galveston, Tex.).—Licensee, News Publishing Co. (Inc.).
KFXV (Flagstaff, Ariz.).—Licensee, Albert H. Schermann.

- KFYR (Bismarck, N. Dak.).—Post-office address, 320 Broadway, Bismarck, N. Dak.
- KOH (Reno, Nev.).—Licensee, The Bee (Inc.).
- KSOO (Sioux Falls, S. Dak.).—Power, 2,500.
- WIBA (Madison, Wis.).—Post-office address, 111 King St., Madison, Wis.
- WKBW (Amherst, N. Y.).—Licensee, Buffalo Broadcasting Corporation.
- WOOD (Furnwood, Mich.).—Post-office address, Madison Theater Building, Detroit, Mich.
- WQBC (Vicksburg, Miss.).—Power, 500.
- WRBJ (Hattiesburg, Miss.).—Licensee, Hattiesburg Broadcasting Co. (W. E., F. E., P. L. Barclift and J. G. Harbour).
- WXYZ (Detroit, Mich.).—Post-office address, Madison Theater Building, Detroit, Mich.

EXPERIMENTAL STATIONS, ALPHABETICALLY, BY NAMES OF STATIONS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1931]

New Jersey: Ocean Township (W2XJ).—Fy., add 60,000 (5) to 400,000 (0.75).

Aircraft

NC-3041 (W8XA).—Strike out all particulars.

The following changes have been incorporated in the June 30, 1931, edition of the annual list of commercial and Government radio stations of the United States.

Illinois: Chicago (W9XC); New York: New York (W2XQ).—Strike out all particulars.

Portable

District of Columbia: Washington (W3XU); United States (throughout) (W10XA); United States (throughout) (W10XB); United States (throughout) (W10XC); United States (throughout) (W10XD); United States (throughout) (W10XE).—Strike out all particulars.

United States (throughout) (W10XJ).—Fy., 23,100 (12.99), 25,700 (11.67), 26,000 (11.54), 27,100 (11.07), 34,600 (8.67), 41,000 (7.32), 51,400 (5.83), 60,000 (5) to 400,000 (.75), 401,000 (.74) to 3,000,000 (.1).

RELAY BROADCASTING STATIONS, ALPHABETICALLY, BY NAMES OF STATIONS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1931]

The following changes have been incorporated in the June 30, 1931, edition of the Annual List of Commercial and Government Radio Stations of the United States.

New Jersey: Coytesville (W2XAL).—Licensee, Short Wave Broadcasting Corporation.

VISUAL BROADCASTING STATIONS BY NAMES OF STATIONS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1931]

The following changes have been incorporated in the June 30, 1931, edition of the Annual List of Commercial and Government Radio Stations of the United States.

New York: Long Island City (W2XR).—Fy., add 43,000 (6.98) to 46,000 (6.52), 48,500 (6.19), to 50,300 (5.96), 60,000 (5) to 80,000 (3.75).

Portable

United States (throughout) (W10XG).—Fy., 43,000 (6.98), to 46,000 (6.52), 48,500 (6.19) to 50,300 (5.96), 60,000 (5) to 80,000 (3.75).

MISCELLANEOUS

CHANGES IN THE LIST OF VESSELS EQUIPPED WITH A RADIO COMPASS

The following-named vessels are additions to the lists published in Commercial and Government Radio Stations of the United States, edition June 30, 1930, and the International List of Ships Stations published by the Berne bureau.

These changes have been made in the 1931 edition of the list first named.

Name	Call signal	Owner
COMMERCIAL		
North King	KFEW	Alaska-Portland Packers Association (Inc.).
GOVERNMENT		
Aurora	NRGA	U. S. Coast Guard.
Boxer	NIQM	U. S. Navy.
Cayuga	NRUW	U. S. Coast Guard.
Geo. E. Badger	NRDO	Do.
Hermes	NRGH	Do.
Houston	NIQF	U. S. Navy.
Icarus	NRGJ	U. S. Coast Guard.
Sterrett	NIDZ	U. S. Navy.

The radio compass has been removed from the following-named vessels: Commercial—Admiral Fiske, Northern Light; Government—Ammen, Burrows, Fanning, Farquhar, Florida, Henley, Jouett, Manning, Trippe.

BROADCASTING STATION FREQUENCY MEASUREMENTS DURING JUNE

During June 4,793 measurements made of 330 broadcasting stations showed that 97 at no time deviated as much as 50 cycles, 71 deviated over 50 cycles one or more times but did not go above or below 100 cycles from their frequencies and 69 went over 100 but not as much as 200. The other 93 measured deviated over 200 cycles.

As not all of the 613 broadcasting stations were measured, it must be borne in mind that those not measured undoubtedly are as efficient in maintaining their frequency as those measured and mentioned in the following lists.

UNDER 50 CYCLES

Call signal	Transmitter location, studio location in parentheses	Call signal	Transmitter location, studio location in parentheses
KDKA	Wilkins Township, Pa. (Pittsburgh).	KYA	San Francisco, Calif.
KFBB	Great Falls, Mont.	WAAF	Chicago, Ill.
KFDM	Beaumont, Tex.	WABC	New York, N. Y.
KFEQ	St. Joseph, Mo.	WBAK	Harrisburg, Pa.
KFH	Wichita, Kans.	WBBR	Rossville, N. Y. (Brooklyn).
KFJR	Portland, Oreg.	WBEN	Martinsville, N. Y. (Buffalo).
KFNF	Shenandoah, Iowa.	WBRC	Birmingham, Ala.
KFQD	Alma-Holy City, Calif.	WBSO	Needham, Mass.
KFSU	San Diego, Calif.	WCAO	Baltimore, Md.
KFSG	Los Angeles, Calif.	WCBA	Allentown, Pa.
KFWB	Hollywood, Calif.	WCBM	Baltimore, Md.
KGBX	St. Joseph, Mo.	WCDA	Cliffside Park, N. J. (New York, N. Y.).
KGBZ	York, Nebr.	WCFL	Chicago, Ill.
KGNF	North Platte, Nebr.	WCLO	Janesville, Wis.
KGO	Oakland, Calif. (San Francisco).	WCSE	Scarboro, Me. (Portland).
KGW	Portland, Oreg.	WDAF	Kansas City, Mo.
KHQ	Spokane, Wash.	WEAN	Providence, R. I.
KJR	Seattle, Wash.	WEBC	Superior, Wis.
KMBC	Independence, Mo. (Kansas City).	WEDO	Chicago, Ill.
KMO	Tacoma, Wash.	WEEI	Weymouth, Mass. (Boston).
KMPC	Beverly Hills, Calif.	WENR	Downers Grove, Ill. (Chicago).
KOIL	Council Bluffs, Iowa.	WFAA	Grapevine, Tex. (Dallas).
KOMO	Harbor Island, Wash. (Seattle).	WFI	Philadelphia, Pa.
KPO	San Francisco, Calif.	WFIW	Hopkinsville, Ky.
KSAC	Manhattan, Kans.	WGCM	Mississippi City, Miss. (Gulfport).
KSD	St. Louis, Mo.	WGN	Elgin, Ill. (Chicago).
KSOU	Sioux Falls, S. Dak.	WGST	Atlanta, Ga.
KSTP	Radio Center, Minn. (St. Paul).	WGY	Schenectady, N. Y.
KTAR	Phoenix, Ariz.	WHAP	New York, N. Y.
KVI	Des Moines, Wash. (Tacoma).	WHAS	Louisville, Ky.
KWJJ	Portland, Oreg.		

UNDER 50 CYCLES—Continued

Call signal	Transmitter location, studio location in parentheses	Call signal	Transmitter location, studio location in parentheses
WHEC	Rochester, N. Y.	WOC	Davenport, Iowa.
WABO		WOI	Ames, Iowa.
WHFC	Cicero, Ill.	WOL	Washington, D. C.
WHN	New York, N. Y.	WOS	Jefferson City, Mo.
WHO	Des Moines, Iowa.	WOW	Omaha, Nebr.
WHP	Lemoyne, Pa. (Harrisburg).	WOWO	Fort Wayne, Ind.
WIP-	Philadelphia, Pa.	WRAX	Philadelphia, Pa.
WFAN		WRBX	Roanoke, Va.
WISN	Milwaukee, Wis.	WRHM	Fridley, Minn. (Minneapolis).
WJAR	Providence, R. I.	WRNY	Coytesville, N. J. (New York, N. Y.).
WJTL	Oglethorpe University, Ga.	WRUF	Gainesville, Fla.
WJZ	Bound Brook, N. J. (New York, N. Y.).	WSB	Atlanta, Ga.
WLWZ	Bangor, Me.	WSBC	Chicago, Ill.
WLS	Downers Grove, Ill. (Chicago).	WSUI	Iowa City, Iowa.
WMAL	Washington, D. C.	WTAG	Worcester, Mass.
WMCA	Hoboken, N. J. (New York, N. Y.).	WTAR-	
WMSG	New York, N. Y.	WPOR	Norfolk, Va.
WMT	Waterloo, Iowa.	WTIC	Mt. Avon, Conn. (Hartford).
WNYO	New York, N. Y.	WTMJ	Brookfield, Wis. (Milwaukee).
		WXYZ	Detroit, Mich.

UNDER 100 CYCLES

KBPS	Portland, Oreg.	WDWF-	
KEK	Do.	WLSI	Cranston, R. I. (Providence).
KFAB	Lincoln, Nebr.	WEAF	Baltimore, N. Y. (New York, N. Y.).
KFAO	Los Angeles, Calif.	WEVD	Forest Hills, N. Y. (New York, N. Y.).
KFI	Do.	WFBL	Collamer, N. Y. (Syracuse).
KFRC	San Francisco, Calif.	WFBM	Indianapolis, Ind.
KFUM	Colorado Springs, Colo.	WFLA-	
KPXF	Denver, Colo.	WSUN	Clearwater, Fla.
KGA	Spokane, Wash.	WGAR	Akron, Ohio.
KGDM	Stockton, Calif.	WGR	Amherst, N. Y. (Buffalo).
KGEF	Los Angeles, Calif.	WHB	Kansas City, Mo.
KGER	Long Beach, Calif.	WHDH	Gloucester, Mass. (Boston).
KGGF	Coffeyville, Okla.	WIBO	Desplaines, Ill. (Chicago).
KGLZ	Grant City, Mo.	WIBW	Topeka, Kans.
KHJ	Los Angeles, Calif.	WJR	Sylvan Lake Village, Mich. (Detroit).
KLZ	Denver, Colo.	WJSV	Mount Vernon Hills, Va. (Alexandria).
KMA	Shenandoah, Iowa.	WKBN	Youngstown, Ohio.
KOA	Denver, Colo.	WKJC	Lancaster, Pa.
KOIN	Portland, Oreg.	WKRC	Cincinnati, Ohio.
KOL	Seattle, Wash.	WLEY	Lexington, Mass.
KPCB	Do.	WLOE	Chelsea, Mass. (Boston).
KROW	Richmond, Calif. (Oakland).	WLW	Mason, Ohio (Cincinnati).
KRSC	Seattle, Wash.	WMAQ	Addison, Ill. (Chicago).
KTAB	Oakland, Calif. (San Francisco).	WMBC	Detroit, Mich.
KTNT	Muscatine, Iowa.	WMBD	Peoria Heights, Ill.
KVOO	Tulsa, Okla.	WMBI	Addison, Ill. (Chicago).
WAAB	Lexington, Mass.	WNBFF	Binghamton, N. Y.
WAAM	Newark, N. J.	WNBH	Fair Haven, Mass. (New Bedford).
WBAL	Glen Morris, Md. (Baltimore).	WOR	Kearny, N. J. (Newark).
WBZ-		WOV	Secaucus, N. J. (New York, N. Y.).
WBZA	Millis Township, Mass. (Boston).	WPG	Atlantic City, N. J.
WCAM	Camden, N. J.	WPTF	Raleigh, N. C.
WCAU	Byberry, Pa. (Philadelphia).	WRC	Washington, D. C.
WCCO	Anoka, Minn. (Minneapolis).	WSM	Nashville, Tenn.
WCHI	Deerfield, Ill. (Chicago).	WSMB	New Orleans, La.
WDOD	Brainerd, Tenn. (Chattanooga).	WTAM	Brecksville Village, Ohio (Cleveland).
WDRC	Bloomfield, Conn. (Hartford).	WVRL	Woodside, N. Y.

UNDER 200 CYCLES

KDYL	Salt Lake City, Utah.	KNX	Los Angeles, Calif. (Hollywood).
KECA	Los Angeles, Calif.	KPRC	Houston, Tex.
KFJF	Oklahoma City, Okla.	KREG	Santa Ana, Calif.
KFOX	Long Beach, Calif.	KRLD	Dallas, Tex.
KFVD	Culver City, Calif.	KTBR	Portland, Oreg.
KFWI	San Francisco, Calif.	KTHS	Hot Springs, Ark.
KGAR	Tucson, Ariz.	KTM	Santa Monica, Calif. (Los Angeles).
KGRS	Amarillo, Tex.	KTRH	Houston, Tex.
KLS	Oakland, Calif.	KWK	Kirkwood, Mo. (St. Louis).
KMCS	Inglewood, Calif.	KXO	El Centro, Calif.
KMJ	Fresno, Calif.	KYW-	
KMMJ	Clay Center, Nebr.	KFKX	Bloomingsdale Township, Ill. (Chicago).
KMOX	St. Louis, Mo.		

UNDER 200 CYCLES—Continued

Call signal	Transmitter location, studio location in parentheses	Call signal	Transmitter location, studio location in parentheses
WADC	Tallmadge, Ohio.	WKAR	Lansing, Mich.
WAIU	Columbus, Ohio.	WKY	Oklahoma City, Okla.
WAPI	Birmingham, Ala.	WLIT	Philadelphia, Pa.
WBAP	Grapevine, Tex. (Fort Worth).	WMC	Bartlett, Tenn. (Memphis).
WBBM	Glenview, Ill. (Chicago).	WMMN	Fairmont, W. Va.
WBT	Charlotte, N. C.	WMPC	Lapeer, Mich.
WCAH	Columbus, Ohio.	WNAC	Quincy, Mass. (Boston).
WCSC	Charleston, S. C.	WNAX	Yankton, S. Dak.
WDAY	Fargo, N. Dak.	WNBR	Memphis, Tenn.
WDBJ	Roanoke, Va.	WNJ	Newark, N. J.
WDEL	Wilmington, Del.	WOAI	Selma, Tex. (San Antonio).
WDSU	Gretna, La. (New Orleans).	WODX	Springhill, Ala. (Mobile).
WEHS	Cicero, Ill.	WOKO	Albany, N. Y.
WELK	Philadelphia, Pa.	WPAP	Cliffside, N. J. (New York, N. Y.).
WFBR	Baltimore, Md.	WQAO	
WGRF	Evansville, Ind.	WPEN	Philadelphia, Pa.
WGES	Chicago, Ill.	WQBO	Vicksburg, Miss.
WHAM	Rochester, N. Y.	WREN	Lawrence, Kans.
WHBL	Sheboygan, Wis.	WRJN	Racine, Wis.
WILM	Carrcroft-Edge Moor, Del. (Wilmington).	WRVA	Mechanicsville, Va. (Richmond).
WJAZ	Mount Prospect, Ill. (Chicago).	WSBT	South Bend, Ind.
WJJD	Mooseheart, Ill.	WSPD	Toledo, Ohio.
WJKS	Gary, Ind.	WWL	New Orleans, La.

The following table offers a comparison of measurements made during the past recent months beginning with December, 1930:

Month	Number measured	Under 50	Under 100	Under 200	Over 200
December.....	339		35 (13.5%)	66 (16.5%)	238 (70%).
January.....	363		54 (15%)	102 (27%)	207 (58%).
February.....	367		99 (27%)	55 (15%)	213 (58%).
March.....	337	65 (19.3%)	63 (18.8%)	77 (22.8%)	132 (39.1%).
April.....	314	72 (22.9%)	54 (17.2%)	92 (29.3%)	96 (30.6%).
May.....	326	78 (23.9%)	89 (27.3%)	68 (20.9%)	91 (27.9%).
June.....	330	97 (29.4%)	71 (21.5%)	69 (20.9%)	93 (28.2%).

NEW BRANCH OFFICE OPENED AT MIAMI, FLA.

A new branch office of this service has been opened in the fourth radio district, located in Room 1424, Dade County Building, Miami, Fla. Those residing in or near Miami should apply to the radio inspector in that city for information pertaining to radio operator licenses, station licenses, and other matters properly pertaining to the work of the Radio Division.

RATIFICATIONS OF THE INTERNATIONAL RADIOTELEGRAPH CONVENTION

By a note dated June 17, 1931, received at the Department of State on June 20, the British Ambassador at Washington informed the Secretary of State that the adherence of the British colonies, protectorates, and mandated territories, received August 15, 1930, to the international radiotelegraph convention, signed at Washington, November 25, 1927, includes also adherence to the general and supplementary regulations signed at the same time as the convention.

The American Minister to Latvia forwarded to the Secretary of State on May 26, 1931, a copy of the Valdibas Vestnesés, No. 112, May 22, 1931, in which is published the law providing for the ratification by Latvia of the international radiotelegraph convention and the general and supplementary regulations, signed at Washington, November 25, 1927.

NITON, ENGLAND, DIRECTION-FINDING STATION RECALIBRATED

This station, located in $1^{\circ} 17' 10''$ W., $50^{\circ} 34' 41.8''$ N., has been recalibrated so that the bearings given in the following sectors are normally accurate: 122° – 204° , 216° – 245° . Bearings given in the sectors 058° – 121° , 205° – 215° , 246° – 289° , should be regarded as unreliable.

WEATHER BULLETINS FOR SHIPPING TRANSMITTED BY KARLSBORG, SWEDEN

This station, call signal, SAJ, transmits weather bulletins at 1050 and 2200 on 70.2 kc/s. (4,275 m), A1; for the eastern part of the North Sea and the coasts of Sweden, issued by the Statens Meteorologisk-Hydrografiska Anstalt (Stockholm). The bulletins depend on meteorological observations obtained at 0700 and 1800, respectively, and commence with the word "Wetherreport." Each bulletin is divided into four parts, of which part I is in code and the remainder in plain English language.

THEORY OF DESIGN AND CALIBRATION OF VIBRATING-REED INDICATORS FOR RADIO RANGE BEACONS

In a paper of the above title, by G. L. Davies, Research Paper 338, Bureau of Standards Journal of Research, July, 1931, there is given a general treatment of the theory of design of vibrating reed indicators, which was developed in connection with measurement and design work on the tuned-reed course indicator for the aircraft radio range beacon. Design equations are given for two types of reeds. From the results of both theory and experiment, the effects of the various factors of design and operation upon the reed frequency are discussed and the calibration procedure necessary to take into account these factors is outlined. The equations and conclusions may be readily adapted to apply to any similar vibrating system.

Reprint copies of this paper will be available within a few weeks and may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. The price will be quoted by that office on application.

A COURSE INDICATOR OF POINTER TYPE FOR THE VISUAL RADIO RANGE-BEACON SYSTEM

In a paper of the above title, by F. W. Dunmore, Research Paper 336, Bureau of Standards Journal of Research, July, 1931, a form of radio range-beacon course indicator is described. In this device, called a reed converter, the course indications are given, not by observing the two reed motions, but by means of a zero-center pointer-type indicating instrument. The motion of the two reeds generates small alternating voltages, which when rectified by oxide rectifiers and passed in opposing polarities through a zero-center instrument, serve to give course indications by the deflection of the instrument needle in the direction of deviation of the airplane from the course. In this paper there is also described the combination of this course indicator and the high-frequency fog landing beacon course indicator into one indicating instrument.

Reprint copies of this paper will be available within a few weeks and may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. The price will be quoted by that office on application.

AUTOMATIC VOLUME CONTROL FOR AIRCRAFT RADIO RECEIVERS

In a paper of the above title, by W. S. Hinman, jr., Research Paper No. 330, Bureau of Standards Journal of Research, July, 1931, an automatic volume-control device is described for use primarily in the reception of visual type radio range-beacon signals, the device being easily applied to existing aircraft radio receiving sets. This device operates on the output voltage of the receiving set, and is provided with a filter unit to prevent operation of the automatic volume control by signals other than those from the range beacon. The controlling voltage is derived from the output of the receiving set, part of which is rectified and then applied as negative bias to the radio-frequency amplifier. The automatic volume control maintains a substantially constant output voltage for input voltage variations of the order of 5,000 to 1. A distance indicator, operating in conjunction with the automatic volume control device, is provided to serve as a gage of distance from the transmitting station.

Reprint copies of this paper will be available within a few weeks and may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. The price will be quoted by that office on application.