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EDITOR-Craig Crawford, ZL3TLB (03) 484-739

TECHNICAL EDITOR-Scott Campbell, ZL3NR (03) 597-608

ILLUSTRATIONS EDITOR— John Henden, ZL3AFV

ADVERTISING MANAGER— **Denise Crawford** (03) 484-739

EDITORIAL ADDRESS EDITOR BREAK-IN P.O. BOX 1733 CHRISTCHURCH

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FROM THE EDITOR

Our cover this year depicts the logos involved in the big event in Auckland over the week November 11 to 17 when the New Zealand Association of Radio Transmitters (Inc.) will host the Sixth Conference of the International Amateur Radio Union. Region 3 Association. Delegates from Amateur Societies from all over the Pacific region will be joined with representatives from Great Britain and the United States at what will be the most important Amateur Radio Conference ever held in New Zealand.

With some very special guests from the International Telecommunications field having been invited there is expected to be significant media interest in the proceedings of this conference. A spin-off of this publicity will be increased public awareness of Amateur Radio and NZART. In the lead-up months to this conference, *Break-In* will inform members of details of this international event and a full report of the proceedings will appear in a special issue, cover

dated December 1985.

Call Book 1985 has been extensively updated to ensure all information is the most current available. In addition a number of new features have been added, including an extension to the callsign listings of Amateur Operators in the Pacific Islands.

I believe that Call Book is the most often used reference that members possess. In the past I have sometimes found it difficult to locate various pages in a hurry, and to improve this I have altered the order of the contents drastically. I hope once you are familiar with the content of the Call Book and logical order which the entries are arranged, you will find Call Book easier to use.

Next year I will be working toward complete modernising Call Book. All entries will be completely re-written and many new details will be added. The size of the book will be changed and all pages will be reset in a more modern typeface. In preparation for this major overhaul, I require feedback from you, the member. Please drop mea note to advise what chapters you require added, extended, reduced, or deleted, and any other comments you wish to make. It's your Call Book . . . you be the judge.

Every year we sell a large number of Call Books to nonmembers. Consequently the Call Book is an excellent medium to advertise our hobby and our Association; and the better we can make the Call Book the better that promotion will be. Charles Parton ZL3CP has been associated with the production of Call Book for over fifteen years. Many members are under the impression that the Callsign Listing in Call Book are just a reproduction of the New Zealand Post Office listings. This most definitely is not so. Unfortunately the NZPO listings are not the definitive data sets that they could be. The ultimate list is compiled by Charles from a number of sources—the NZPO, NZART membership print-out, the Wyatt & Wilson page data sets, members' correspondence, road maps and various other sources of information are amalgamated into Charles' list reproduced here, the most accurate available. What Charles does not know about Amateurs in New Zealand is not worth knowing. Now in his eightieth year, his experience, knowledge and dedication are some of the main reasons for the success of Call Book.

Non-members using and abusing NZART facilities annoy me! Especially annoying letters from non-members complaining that we have not changed or corrected their callsign listing. Call Book is an NZART document primarily for the use of NZART members. We have no obligation to non-members, who should advise the Post Office of any amendments required, as stated in the Radio Regulations.

Now that there is a special NZART portion of *Call Book* many of the advantages of membership can be seen at a glance. At ten cents a day it is a bargain.

To me it is worth a contribution of at least ten cents a day for the work being undertaken by the Association to ensure the retention of our privileges and frequencies in one of this world's most sought after resources, the radio spectrum. No one can deny that NZART has a proven record of providing the best possible case for the maintenance and improvement of the "rights" of New Zealand Amateurs. The competition for the radio spectrum can only get more intense in the future, and the fight must go on. NZART needs the assistance of all Amateur Radio Operators to ensure that your favourite bands and modes of operation will be available for you to use tomorrow.

Craig Crawford, ZL3T LB

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New Zealand Amateur Radio Stations

ZL1 Callsign Listings

ZL1AA—Auckland Branch NZART (Inc.) (Trustees: G Kilpatrick and T. Duxbury), Corner Kohimarama and St. Heliers Roads, P.O. Box 18-003. Auckland 6

ZL1AB—North Shore Branch NZART (Trustees: W. J. Briden, A. M. Wooler and J. F. Powell), 145 Beach

Road, Castor Bay, Auckland 9.
ZL1AC—Spackman, L. S., 136 Churchill Road, Rothesay
Bay, Auckland 10.

ZL1AD—Cuthbert, D. McM., 18 Earnoch Avenue, Takapuna, Auckland 9.

ZL1AE-Duffin, R. W., 60 Church Road, Napier ZL1AF-Ogier, I. W., 147 Otaika Road, Whangarei.

ZL1AG-Gilbert, L. H., 3b Lillian Place, Orewa ZL1AH-Wightman, J. D., Rocky Cutting Road, R.D. 5.

Tauranga ZL1Al—Badman, R. G., 22 Somme Crescent, Hillcrest,

Hamilton.

ZL1AJ-Culloty, H. F. J., 5 May Street, Hillcrest, Hamilton. ZL1AK-ZL1AL

ZL1AM—Northland Branch NZART (Inc.), (Trustees: D Birt and I. W. Ogier), 12 Ngahere Drive, Maunu, Whangarei.

ZL1AN—Bold, G. E. J., 15 Kauri Road, Birkenhead, Auckland 10.

ZL1AO—Limbrick, D. R., 45 Lynden Avenue, Northcote. Auckland 9.

ZL1AP-Den Exter, J. M. G., 184 Rangatira Road, Birkdale, Auckland 10, P.O. Box 39-369, Auckland

ZL1AQ-Rouse, G. C., 1 Mears Road, Hamilton.

ZL1AR-Walsh, J. S., Maungatapu Road, Glenfalls, R.D. 1, Morrinsville.

ZL1AS-McRae, I. H., Flat 1, 19 Church Street, Northcote, Auckland 9.

ZL1AT—Pawson, E., 6 County Road, Torbay, Auckland 10.

ZL1AU-

ZL1AV-Tremayne, D. T., Spencer Road, Lake Tarawera, Rotorua.

ZL1AW-Bailey, C. A., 261 Papamoa Beach Road, R.D. 7, Te Puke

ZL1AX-Crooks, G. E., 12 Red Beach Road, Orewa.

ZL1AY-Henry, A. E. J., 23 Pah Road, Onerahi, Whangarei.

ZL1AZ-Brown, M. A. 38 Cyclarama Crescent, Massey, Auckland 8

ZL1BA—Scarborough, W. A., P.O. Box 26-028, Epsom, Auckland 3.

ZL1BB—Bunting, A. B., 3 Hillary Heights Avenue, Henderson, Auckland 8.

ZL1BC-Smith, K. E., 12 Montgomery Crescent, Melville,

ZL1BD-Wilson, A., Waingaro Road, R.D. 1, Ngaruawahia. ZL1BE—Rose, L. T., 230 Morningside Road, Whangarei. ZL1BF—Hall, R. J., 73 Te Kanawa Street, Henderson.

Auckland 8.

ZL1BG-Far North Districts Amateur Radio Club, 8 North Road, Kaitaia.

ZL1BH-Creasy, S. C., 7 Crowther Terrace, Taupo

ZL1BI-Freeman, S. J., 236a Scenic Drive, Titirangi, Auckland 7

ZL1BJ-Liewellyn, J. D., 7 Moreland Road, Mt. Albert, Auckland 3.

ZL1BK-Long, R. J., 175 Green Lane Road, Green Lane, Auckland 5.

ZL1BL—Chew, J. B., Wight Street, Huntly.

ZL18M—Palmer, P. R., 4 Aramutu Road, Mt. Roskill, Auckland 4.

ZL1BN—Kirkwood B. J., 147 John Street, Ponsonby, Auckland 2

ZL1BO—Laing-Smith, I. E., 3 Westmortand Street, Grev. Lynn, Auckland 2

ZL1BP-Harris, W. F. H., 80 Roberts Road, Te Atatu South, Auckland 8

ZL1BQ-The Auckland VHF Group (Trustee: J. R. Dunn), Hazel Avenue, Mt. Roskill, Auckland 4, P.O. Box 10-138 Balmoral.

ZL1BR-Hanson, K. O., 10 Shelly Beach Road, Surfdale, Waiheke Island.

ZL1BS—Bisley, A. F. S., 27 Awatere Avenue, Hamilton ZL1BT—Thorpe, G. B., 19 Rolleston Street, Kihikihi.

ZL1BU-Kealey, D. T., 64a Lloyd Avenue, Mt. Albert, Auckland 3.

ZL1BV-Birch, R. W., Riverside Drive, Whangarei.

ZL1BW-Seccombe, A. R., 2 Mt. Royal Avenue, Mt. Albert, Auckland 3.

ZL1BX—Smith, M. A., 32 Glenveagh Drive, Hillsborough, Auckland 4

ZL1BY-Opotiki Branch 72 NZART (Trustee: G. J. Pedersen), Club Rooms, St. John Street, Opotiki.

ZL18Z—Howitt, I. M., 15 Frederick Street, Otorohanga, ZL1CA—Wyllie, C. B., 9 Netena Road, Hillcrest, Hamilton. ZL1CB—Te Awamutu Radio Club (Trustee: M. W. Brown).

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ZL1CP-

ZL1CQ-

ZL1CR—Ngakuru, R. A., 31 Wihongi Street, Kaikohe. ZL1CS—Shaw, C. E., Wedgewood Place, Whakatane. ZL1CT-Stubbs, G. L., 12 Kenneth Hopper Place.

Whangaparaoa.

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ZL1CV—Firman, R. J., 19 Tainui Street, Onerahi, Whangarei.

ZL1CW-Scott, P. D., 18 Nutsey Avenue, Northcote, Auckland 9

ZL1CX-

ZL1CY-Webster, D. M., 46 Speight Road, Kohimarama, Auckland 5

ZL1CZ-Duxbury, T. A., 338 St. Heliers Bay Road, Auckland 5

ZL1DA-Wilde, C. J., 237 Forrest Hill Road, Forrest Hill, Auckland 10

ZL1DB-Dugmore, K. F., C/- Power Board, 4 Gilmore Street, Te Puke.

ZL1DC-

ZL1DD—Foster, A. E. G., P.O. Box 215, Ostend, Waiheke

ZL1DE

ZL1DE—Adshead, G. O., 22 Taylor Street, Avondale, Auckland 7

ZL1DF-Thames Radio Club, Branch 41, NZART, (Trustee: A. B. L. Ludwig), 702 Richmond Street.

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Whakatane.

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ZL1FH-Barkman, 903/45 Stanley Point Road, Devonpoint, Auckland 9.

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ZL1FN—Keesing, S., 34 Laburnum Road, Avondale, Auckland 7.

ZL1FO-Cooper, E. R., 5 Awarua Crescent, Orakei, Auckland 5.

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ZL1GP-Henderson, R. J., 87 Grange Road, Mt. Eden, Auckland 3

ZL1GQ-Coates, W. W. Tamihana Street, Matamata. ZL1GR-

ZL1GS—Webb, J. L., 1 Willow Place, Whangarei. ZL1GT—Hooker, B. N. N., 9 Amorino Drive, Hibiscus

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ZL1GU-Rolfe, E. M., 41 Rangimarie Crescent, Snells Beach, Warkworth

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Whenuapai, Village, Auckland. ZL1GY—Shinnick, D. A., 45 Antrim Crescent, East Tamaki. Auckland.

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ZL1HA—Miller, R. C., Te Kemara Ávenue, Paihia. ZL1HB—Homer, H. L., 823 Te Atatu Road, Auckland 8.

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- Auckland 7
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- ZL1IY-Cleland, D. E., 52 Alfred Street, Fairfield, Hamilton.
- ZL1IZ-Waitomo Branch No 55, NZART, (Trustee: 1. M. Howitt), 15 Frederick Street, Otorohanga.
- ZL1JA-Sager, J. H., 8 Renton Road, Mt. Albert, Auckland 3.
- ZL1JB-Nalder, C. H., Belk Road South, R.D. 3, Tauranga.
- ZL1JC-Granger, P. L., 7 Trent Street, Avondale, Auckland 7.
- ZL1JE—Blomfield, R. J., Terrace Road, Te Kuiti. ZL1JF
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- ZL1KT-Teviotdale, D. A., Fairbank Road, Rotorua. ZL1KU-Oliver, M. J., Coopers Beach, C/- P.O. Mangonui
- ZL1KV-
- ZL1KW-Kawerau Branch NZART (Trustee: G. R. W. Whitwell), ATC Hall, Onslow Street, Kawerau.
- ZL1KX-Walford, K. W., 7 Glen Street, Castlecliffe, Wanganui.
- ZL1KY-Yearsley, E. S., 37A Hattaway Avenue, Bucklands Beach, Auckland. ZL1KZ-
- ZL1LA-Rolfe, R. L., 16 Stillwater Crescent, R.D. 3, Silverdale.
- ZL1LB-Laurent, L. M., 3 Grande Vue Road, Manurewa, Auckland.
- ZL1LC—Bird, W. A., 239 Nelson Street, Invercargill, ZL1LD—Williams, P. M. (Mrs), 144 Titirangi Road, New Lynn, Auckland 7
- ZL1LE—Egan, B., 12 Island View Terrace, Howick, Auckland.
- ZL1LF-Elder, J. W., 17 Cedar Road, Mt. Eden, Auckland 4.
- ZL1LG-Anderson-Smith, W. J., 10 Beach Road, Omokoroa, Tauranga.
- ZL1LH-Cowie, D. J., 52 Prince Regent Drive, Bucklands Beach, Auckland
- ZL1LI-Hughes, P. D., 85 Pupuke Road, Birkenhead, Auckland 10.
- ZL1LJ-Speight, R. R., 42 Ngatiawa Street, Onehunga, Auckland 6.
- ZL1LK-
- ZL1LL-Cook, S., 27 Neville Street, Point Chevalier. Auckland 2.
- ZL1LM-Marsden, A. N., 9 Wanaka Place, Pakuranga, Auckland.

ZL1LN

ZL1LN—Simmons, A. L., 69 Roberts Avenue Extension. Bayswater, Auckland 9.

ZL1LO-Robinson, L., 102 Eban Avenue, Northcote, Auckland 9.

ZL1LP-Parsons, E. R., 10 Bridgeman Road, Te Awamutu.

ZL1LQ-Ball, W. G., 50 Hillside Road, Otahuhu, Auckland 6.

ZL1LR-Anderson, P. C., 32 Gilmore Street, Waihi. ZL1LS-

ZL1LT-Edwards, J. R., Messengers Road, R.D. 3, Silverdale.

ZL1LU-

ZL1LV-Beagley, C. T., 13 Namata Street, Onehunga, Auckland 6.

ZL1LW-Prinn, G. W. H., 199 Whatawhata Road, Dinsdale, Hamilton.

ZL1LX—Barltrop, C., 228 Old Taupo Road, Taumarunui. ZL1LY-

ZL1LZ-Dunwoody, M. L., 14 Bridgeman Road, Te Awamutu

ZL1MA-Small, T. H., 32b Martin Road, Manurewa. ZL1MB—Farley, W. F., 8 Puriri Avenue, Te Puke. ZL1MC—Hume, S. T., 17 Humber Crescent, Gate Pa. Tauranga.

ZL1MD-

ZL1ME-Geard, M., 1/30a Walter Street, Takapuna, Auckland 9.

ZL1MF-Crabtree, A. W., Martin Road, Waihi. ZL1MG-Moore, J. P., 29 Valley Road, Rocky Bay. Waiheke Island.

ZL1MH-Veale, A. M. O., 31 Rangitoto Avenue, Remuera, Auckland 5.

ZL1MI—Carter, W. L., Ongarue, R.D., Taumarunui. ZL1MJ—Schwass, B. R., 24 Mokorua Grove, Whakatane. ZL1MK—Keeley, A. L. D., 100 Shakespeare Street, Leamington, Cambridge.

ZL1ML-Lee, M. E., 31 O'Brien Road, Rocky Bay, Waiheke Island.

ZL1MM-Garde-Browne, M., Katikati, Bowentown Road, Athenvee, R.D. 2

ZL1MN—Nisbet, D. I., 4 Williams Avenue, Kaikohe. ZL1MO—Spackman, I. H., 78 Waima Crescent, Titirangi, Auckland 7

ZL1MP-Poulton, G. G., 7 Rickard Place. New Lynn. Auckland 7

ZL1MQ-Betson, C. W., 140 Golf Road, Green Bay, Auckland 7

ZL1MR-Irwin, P. M., 29 Glendale Road, Whangarei. ZL1MS-Inder, J. H., 19 Rushton Avenue, Otumoetai, Tauranga.

ZL1MT-Stevens, W. A. W., 11/97 Vermont Street.

Finsonby, Auckland 2. ZL1MU--Crooks, D. M., 13 Burrows Avenue, Karori, Wellington 5.

ZL1MV—Garrard, R. C., 235b Titirangi Road, Auckland 7, ZL1MW—Huggard, B. F., 12 McClintock Road, Massey, Auckland 8.

ZL1MX—Currie, D. J., 127 Ridge Road, Howick, ZL1MY—Jamieson, A. S. (Miss), 99 Frederick Street, Hillsborough, Auckland 6.

ZL1MZ-Karl, P. J., Main Road, Ohaupo.

ZL1NA-Wilson, G. D. 1, Mt. Roskill Road, Mt. Roskill, Auckland 4.

ZL1NB-Hitch, G. W., 167 Happy Valley Road, Wellington. ZL1NC-Miller, J. G., 31 Sierra Street, Glendowie, Auckland 5.

ZL1ND—Cobbe, D. J., C/- D. T. Tremayne, 149 Spencer Road, Lake Tarawera, Rotorua.

ZL1NE-Bustard, A. J., 34 Raurimu Avenue, Onerahi, Whangarei.

ZL1NF-Garrett, R., 13 Rockisle Road, Torbay, Auckland 10.

ZL1NG—Muller, J., 29 Newhaven Terrace, Mairangi Bay, Auckland 10.

ZL1NH-White, N. R., Norton Road, Otumoetal, Tauranga, ZL1NI-

ZL1NJ—Ecclesfield, B. D., 1333 Cameron Road, Greenton, Tauranga.

ZL1NK-Mander, N. K., 38 Arundel Street, Mt. Roskill, Auckland 4.

ZL1NL-Openshaw, J. E., Werenui Road, R.D. 3,

Kaukapakapa.
ZL1NM—Crocker, T. W., 70 Rosehill Drive, Papakura.
ZL1NN—Douglas, J. W., 91 Churchill Road, Murrays Bay, Auckland 10.

ZL1NO-Leyden, G. G., 35 Rogers Road, Manurewa. ZL1NP-Skepelhorn, A. M., 20 Kemp Road, Massey, Auckland.

ZL1NQ-Barrell, S. J., 26 Mains Avenue, Whangarei. ZL1NR—Edmonds, J. A., 92 Beach Road, Ahipara. ZL1NS—Kilsby, M. R., 16 Abbotleigh Avenue, Te Atatu

North.

ZL1NT—Hill, B. J., 169 Rimu Street, Hamilton ZL1NU—Griffiths, K. B., 142 Glengarry Road, Glen Eden,

Auckland 7.

ZL1NV—Page, I. T., 77 Campbell Road, Mt. Maunganui.

ZL1NW—Mason, M. D., 11 Strange Grove, Otumoetal, Tauranga.

ZL1NX—Baveystock, S. C., 2 Fraser Street, Tauranga. ZL1NY—Frater, D., 8 Wayne Place, Mt. Roskill,

Auckland 4.

ZL1NZ-Duthle, D. A., Morrisons Road, Matapouri Bay, Northland.

ZL1OA-Jack, M. C., 14 Ellen Avanue, Takapuna, Auckland 10.

ZL10B-Northern Wairoa Electronics Club, Local Government Centre, Hokianga Road, Dargaville. ZL10C—Shaw, L. S. (Mrs), Wedgewood Place, Hillcrest,

Whakatane.

ZL10D—Wallace, J. A. L., 56 Pakura Street, Te Awamutu. ZL10E—Roddie, J. J., 12 Cronin Place, Beachhaven. Auckland 10.

ZL1OF-Wapp, A., Glenbrook Station Road, R.D. 1, Waluku.

ZL1OG-Lambie, L. B., 22 Kavanagh Place, Papakura, Auckland.

ZL1OH-Fairhead, A. D., 55 Patterson Avenue, Mission Bay, Auckland 5.

ZL1OI-Bourne, H. K., 54 Whitehaven Road, Glendowie, Auckland 5.

ZL1OJ-Dowling, H. J., 52 Aurora Terrace, Hillcrest, Hamilton.

ZL10K-Moir, E. V., 110 Western Hills Drive, Whangarei. ZL1OL-Oliver, B. M., 65 Archers Road, Glenfield. Auckland 10.

ZL10M—Windsor, K. W., 36 Chatswood Grove, Birkenhead, Auckland 10.

ZL10N-Eglinton, G. K., 20 Mahoe Street, Matua, Tauranga.

ZL100-Dreaver, B. G. W., 7 Matipo Road, Te Atatu North, Auckland 8

ZL10P—White, I. H., 150 Kent Street, Carterton.
ZL10Q—Renfrew, H. F., 12 Kasper Street, Warkworth.
ZL10R—Mullions, R. E., 37 Williams Avenue, Morrinsville.
ZL10S—Rogers, G. V., 142b Clyde Street, Hamilton.

ZL1OT—Jacobson, E. J., Maromaku, Bay of Islands. ZL1OU—Berry, D. C., 47d Kingsway Avenue, Sandringham, Auckland 3.

ZL10V-Kirton, F. N., 14 Dennis Avenue, Manurewa. ZL1OW—Burrows, J. W. L., R.D. 1, Lower Kalmai, Tauranga.

ZL10X-ZL1OY-Mudford, K. H., Pikonui Road, Richmond Downs,

R.D. 1, Walton. ZL1OZ-Mason, J. A., P.O. Box 30, Swanson.

ZL1PA-Papworth, A. G., 5 Lilburn Street, Warkworth. ZL1PB-Hanlon, K. R., 1/2 Pine Road, Orewa.

ZL1PC-Lewis, E. C., 54 Sylvan Avenue, Woodlands Park, Titirangi, Auckland 7.

- ZL1PD-Edgar, J. E. R., 32 Robley Crescent, Glendowie, Auckland 5
- ZL1PE-Ward, M. R., 17 Mizpah Road, Browns Bay, Auckland 10.
- ZL1PF—Conlon, P. W., 166b Hinemoa Street, Rotorua. ZL1PG—Morgan, J. A., 38 Dreadon Road, Manurewa. ZL1PH—Yates, C. M., Linwood Road, Karaka, R.D. 1,
- Papakura.

- ZL1PI—McDonald, A. K., 8 Francis Street, Whakatane. ZL1PJ—Dare, P. H., 19 Glenfield Road, Rotorua. ZL1PK—King, P. D., 75 Mount View Drive, Rotorua. ZL1PL—Grise, M. J., 109 Norwood Road, Bayswater, Auckland 9.
- ZL1PM-
- ZL1PN-Briden, W. J., 576a Beach Road, Rothesay Bay, Auckland 10.
- ZL1PO—Bullin, G. K., 32 Otumoetai Road, Tauranga. ZL1PP—Smithson, G. W., C/- Trevellyn Home, 1340 Victoria Street, Hamilton.
- ZL1PQ—Kirkpatrick, J. S., 7 Robertson Road, Mangere, Auckland.
- ZL1PR—Farrell, J. F., Old Taupiri Road, Ngaruawahia. ZL1PS—Brown, T. G., 2 Hilston Place, Onehunga,
- Auckland 6.
- ZL1PT—Twiss, D. P. L., M,V. Kiwa/ZMH 2205, Sutphur Point, Tauranga.
- ZL1PU-Nathan, I. J., Unit 2, 6 Snead Place, Hamilton.
- ZL1PV—Guide, N. G., 182 16th Avenue, Tauranga. ZL1PW—Wrigley, P. H., 16 Glover Place, Onerahi,
- Whangarei.
- ZL1PX—Martin, H. L., 25 Cockayne Crescent, Sunnynook, Auckland 10.
- ZL1PY-

- ZL1PZ—Sexton, I. M., 10 Fair Oaks, Pukekohe. ZL1QA—Yeats, C. Whitford Road, Whitford. ZL1QB—Manukau Branch NZART (Trustees: N. H. Dunningham, W. K. Leng), 8 Guide Place, Kolmar Road, Papatoetoe.
- ZL1QC-Strachan, J. M., 44 Stredwick Drive, Torbay, Auckland 10
- ZL1QD-Richards, T. L., 18 Thompson Street, Wellington 1.
- ZL1QE-Pullar, J. C., 7 Waterlea Avenue, Mangere Bridge, Auckland.
- ZL1QF—Kirkwood, C. P., 1 Zenith Place, Conifer Grove, Takanini.
- ZL1QG-Morris, D. C., 5 Woodside Road, Henderson, Auckland 8
- ZL1QH—Cooke, S. R., 166 Ridge Road, Howick, Auckland.
- ZL1QI—Gillett, P. A., 11 Argyll Road, Tauranga. ZL1QJ-
- ZL1QK—Stone, W. H., 5 Winslowe Place, Papakura, ZL1QL—Borck, L. J. F., 6 Curtis Street, Whangarei, ZL1QM—Ockleston, G. W., 17 Bracken Avenue, Epsom,
- Auckland 3.
- ZL1QN—Hedges, K., 244 Titirangi Road, Auckland 7.
- ZL1QO—Elowsson, B. W., 9 Sanctuary Point, Pakuranga. ZL1QP—Breden, J. E., 14 Korawhai Street, Mt.
- Maunganui. ZL1QQ—Bush, G. H., 24 Rushton Avenue, Otumoetai,
- Tauranga. ZL1QR-Thomas, W. R., 74 Kitenui Avenue, Mt. Albert, Auckland 3.
- ZL1QS-Mason, J. F., 59 Lancaster Road, Birkdale, Auckland 10.
- ZL1QT—Presswood, W. H., 61 Bream Bay Drive, Ruakaka, Northland.
- ZL1QU-Marshall, J. R., 14 Hapua Place, Taupo.
- ZL1QV—Young, L. G. "Brooklands", Harkness Road, R.D. 1, Papakura,
- ZL1QW-Binnie, A. G., 703 New North Road, Mt. Albert, Auckland 3.
- ZL1QX-Mowatt, G. C., 37 Cliff Road, St. Heliers, Auckland 5.

- ZL1QY-Williams, R. G., 60 The Parade, Bucklands Beach, Auckland,
- ZL1QZ-Rhodes, M. C. L., 24 Comins Crescent, Mission Bay, Auckland 5.
- ZL1RA—Waddell, A. S., One Tree Point Road, Ruakaka. ZL1RB—Grant, E. W., Barry Road, Waihi. ZL1RC—Saunders, A. G., 935 Heaphy Terrace, Claudelands, Hamilton.
- ZL1RD-Slewart, T. K., 237 Birkdale Road, Birkenhead, Auckland 10.
- ZL1RE-Roper, D. J., 39a Mataura Road, Waihi.
- ZL1RF-Matamata Amateur Radio Club (Trustee: J. W. Rasmussen), 65 Smith Street, Matamata.
- ZL1RG—Rentoul, J. M., 15 McCracken Avenue, Hamilton. ZL1RH—Claridge, A. R. C., Waitetoko, P.B. Turangi. ZL1RI—McLaughlin, J., 60 Awatere Avenue, Beerescourt,
- Hamilton.
- ZL1RJ—Jarlov, R. W. E., 85 Mallard Drive, Rotorua. ZL1RK-Western Suburbs Radio Club (Trustee: N. E.
- Smith and G. L. Wilson) P.O. Box 15-122, New Lynn, Auckland 7
- ZL1RL—Fitchett, S. A., 2 Kahu Road, Panmure, Auckland 6.
- ZL1RM-Jeffs, J. F. C., 77 Pohutukawa Drive, Hamilton.
- ZL1RN—Lewis, K. J., 25 Magee Place, Hamilton, ZL1RO—Knox, A. T., 11 Hasbury Avenue, Epsom, Auckland 3.
- ZL1RP—Bryce, D. G., 95 Awatapu Drive, Whakatane. ZL1RQ-
- ZL1RR—Ryan, D. F., 129 Cook Street, Howick.
- ZL1RS—Boggiss, R. J., 8 Silverton Road, Waihi. ZL1RT—Maginnity, D., 3/18 John Street, Raglan. ZL1RU—Harrison, L. R., 439 Tamaki Drive, St. Heliers,
- Auckland 5. ZL1RV—Gilbert, J. L., Flat 1a, 75 Owens Road, Epsom,
- Auckland 3. ZL1RW—Wilson, R. M., 78a Arney Road, Remuera
- Auckland 5.
- ZL1RX-McConchie, A. G., 86 Ivanhoe Road, Grey Lynn, Auckland 2.
- ZL1RY-Shimmin, R. L., 130 Union Road, Howick, Auckland.
- ZL1AZ-Shead, K. F. S., 57 Pleasant Road, Glen Eden, Auckland 7
- ZL1SA-Franklin Branch NZART (Inc.), (Trustee: M. A.
- Armstrong), Franklin Road, Pukekohe.
 ZL1SB—Sapich, S., Forest Hill Road, R.D. 1, Henderson, Auckland B.
- ZL1SC-Corrigan, M. L., 110b Hillside Road, Glenfield, Auckland 10
- ZL1SD-Colguhoun, R.D. 2, Tay Street, Grey Lynn, Auckland 2.
- ZL1SE-Riddle, W. C. M., 22 Maihi Crescent, Maungatapu. Tauranga.
- ZL1SF—Cooper, M. A., 60 Old Te Kuiti Road, Otorohanga, ZL1SG-
- ZL1SH—Adair, M. W., 41 Seavista Avenue, Birkdale, Auckland 10.
- ZL1SI-Caskie, W. I., 35 Peter Buck Road, Avondale, Auckland 7.
- ZL1SJ-Holmes, G. C., 22 Pigeon Mountain Road, Bucklands Beach
- ZL1SK-Thomas, M. A., 52 Bollard Avenue, Avondale, Auckland 7
- ZL1SL-Pratt, N. G., 28 Seaspray Drive, Bucklands Beach, Auckland.
- ZL1SM-Halligan, D. A., 72 Shetland Street, Glen Eden, Auckland 7
- ZL1SN-King, P. G., R.D. 10. Frankton.
- ZL1SO-Miller, R. L., 52 Hinekura avenue, Taupo. ZL1SP-
- ZL1SQ-Van Den Heuvel, T., 9 Laing Place, Otumoetal, Tauranga.
- ZL1SR—Coppell, B. L., 128A James Street, Whakatane.

ZL1SS

ZL1SS-Skellon, D. B., 36 Mountbatten Avenue, Glenfield, Auckland 10

ZL1ST-Smith, N. E., 7 Kelwyn Road, Kelston Auckland 7

ZL1SU—MacDiamid, D. R. N., Hone Heke Road, Kerikeri,

ZL1SV—Perkins, J. A., 2 Ponui Place, Mairangi Bay. Auckland 10

ZL1SW-Curling, L. K., 14 Clotworthy Crescent, Operahi, Whangarei.

ZL1SX-Kirkham, A. L., 38 Waller avenue, Bucklands Beach

ZL1SY-Adult Rehabilitation Unit Radio Club (Trustees: J. I. Ridpath, P. R. Moroney), Browns Road, Малигеwa

ZL1SZ-Evans, M. J., 62 Henderson Street, Whakatane. ZL1TA-Mortensen, N. R., 16 Melrose Road, Hillsborough, Auckland 4

ZL1TC-Metcalfe, A. D., 24 Hogan Street, Hamilton.

ZL1TD—Corby, D. G., R.D. 1, Paeroa. ZL1TE—Lynneberg, R., 15 Terewha Street, Turangi. ZL1TF-Morrison, I. McG., 31a Telstar Place, Birkenhead, Auckland 10.

ZL1TG-Rumming, E., 50 Corlett Street, Rotorua. ZL1TH—Te Puke Branch NZART (Trustee: M. F. Gray).

No. 2 State Highway, Te Puke.

ZL1TI—Godkin, I. P., 45 The Boulevard, Pakuranga. ZL1TJ—Matthys, J. K. C., 2 Thwaites Place. Cambridge. ZL1TK—McLelland, L. C., 114 Astley Avenue, New Lynn, Auckland 7

ZL1TL

ZL1TM—Spence, K. L. J., 28 Chorley Avenue, Henderson, Auckland 8

ZL1TN-Barron, K. H., 230 Riddell Road, Glendowie,

Auckland 5.
ZL.1TO—Potter, J. W., West Coast Road, Oratia, Auckland 7

ZL1TP—Tauranga Branch NZART Inc. (Trustee: D. J. Parkinson). Sixteenth Avenue. Tauranga. ZL1TQ—Elliott, K. G., Red Bluff Rise. Campbells Bay,

Auckland 10

ZL1TR-Hawkins, W. H., 3 Fowley Avenue, Te Atalu-South, Auckland B

ZL1TS-Prentice, L. G., 5 Mountain View Road. Morningside, Auckland 3.

ZL1TT—Roberts, R. L., 39 Kay Drive, Blockhouse Bay, Auckland 7

ZL1TU-Bond, P. L., 1340 Whangaparaoa Road, Whangaparaoa

ZL1TV-Willis, B. G., 1/13 Park Avenue, Takapuna, Auckland 9.

ZL1TW—Barnett, E. K., Bethlehem, R.D. 1, Tauranga, ZL1TX—Davis, G. P., C/- E. I. C. Office, Wellington, ZL1TY—Monk, W. K. G., Matipo Avenue, Rotorua, ZL1TZ—Stewart, G. W., 31 Levers Road, Tauranga,

ZL1UA-Harvey, J. K., 2 West Street, Waihi Beach (P.O. Box 10).

ZL1UB-Wilson, D. A., 15 Frieston Road, Milford, Auckland 9

ZL1UC—South Pacific DX and Contest Group, (Trustees: ZL1BXA, ZL1BTZ), C/- H. Buxton, 32 Castleton Street, Birkdale, Auckland 10.

ZL1UD-Williams, G. K., Main Street, Walton.

ZL1UE-Williams, M. K., Jury Road, R.D. 10, Frankton.

ZL1UF-Mudford, N. P., 140 Victoria Street, Cambridge

ZL1UH-Mathieson, V. J., 8 Sandspit Road, Waluku. ZL1UI-Cardno, I. M., 47 Ngataringa Road, Devonport, Auckland 9. (Portable).

ZL1UJ—Jenner, K. W., 15 Garmons Way, Milford. Auckland 9.

ZL1UK—Beech, S. C., 53 Pupuke Road, Northcote, Auckland 9.

ZL1UL-Gilmore, G. H., Gilmore Road, Tuhikaramea, Hamilton

ZL1UM-Chamberlin, J. H. W., Kawakawa Bay Road, Clevedon

ZL1UN-Allard, R. A., 84 Ballarat Street, Ellerslie. Auckland 5.

ZL1UO-Reilly, J. F., 2 Vale Street, Tauranga.

ZL1UP-

ZL1UQ-Vermeer, J. H., 18 Eskdale Road, Birkdale, Auckland 10

ZL1UR-Dixey, H. B., 51 Tautari Street, Orakei, Auckland 5.

ZL1US-Armstrong, M. A. S., 77 Queen Street, Pukekohe. ZL1UT-Still, W. J., 14 Meadowbank Road, Meadowbank, Auckland 5.

ZL1UU-Twadell, A. S., 66 Reeves Road, Pakuranga. ZL1UV-Morch, J. H. S., 65 Hallberry Board, Mangere East, Auckland,

ZL1UW—Tinsley, H. G., 18 Grandview Road, Hamilton, ZL1UX—Hamilton Branch NZART (Inc.) (Trustee; R. M. McLeod), Dinsdale Road, Hamilton,

ZL1UY-

ZL1UZ-Truman, A. R., 54 Mt. Albert Road, Mt. Albert, Auckland 3

ZL1VA-Jessup, G. R., 15 Modena Crescent, St. Heliers, Auckland 5.

ZL1VB-Munro, R. G., 12 Chayter Avenue, Burnham Camp.

Camp.

ZL1VC—Hall, L. J., 7 Kiwi Street, Matamata.

ZL1VD—Cutler, J. L., 182 St Aubyn Street, New Plymouth.

ZL1VE—Webber, H. W. B., 19 Pamela Place, Tauranga.

ZL1VF—Moller, L. J., 50 Sikkim Crescent, Wirl, Auckland.

ZL1VG—Bicheno, N. C., 100 Wood Bay Road, New Lynn.

Auckland 7 ZL1VH-Sanne, J. H., 49 Cameron Road, Hamilton.

ZL1VI-Rubie, A. E., 4 Citrus Avenue, Waihi Beach South. ZL1VJ-Page, A. E., 4 Vivien Drive, Omokoroa, Tauranga,

ZL1VK—Papakura Branch N.Z. Association of Radio Transmitters (Trustee G. S. Reed), 510 Great South Road, Papakura.

ZL1VL—Brake, L. H., Mahurangi Heads, R.D. 2, Warkworth.

ZL1VM-Arnold, R. R., 21 Seaview Road, Milford, Auckland 9

ZL1VN-McKain, M. L., 17 Tupaea Place, Cherrywood, Tauranda.

ZL1VO-Wnillans, F. L., 4/35 Killarney Street, Takapuna, Auckland 9.

ZL1VP—Rule, V. J., Horseshoe Bush Road, Dairy Flat R.D. 2, Albany.

ZL1VQ-Ludwig, A. B. L., 702 Richmond Street, Thames. ZL1VR—Gilligan, C. R., 201 McQuarrie Street. Invercargill, ZL1VS—Deverall, W. H., 24 Deuxberry Avenue, Northcote,

Auckland 9.

ZL1VT-Andreasen, J. H., 26 Braeinar Road, Castor Bay Road, Auckland 10.

ZL1VU-

ZL1VV-Kempson, C. M., Merlins James Drive, Church Bay, R.D. 1. Lyttelton.

ZL1VW-Nasmith, M. K., 2/10 Jenelin Road, Henderson, Auckland 8.

ZL1VX-Johnson, L. E. C., 25 Tamatea Drive, Snell's Beach, Warkworth,

ZL1VY-McWha, D., 168 Kitchener Road, Pukekohe. ZL1VZ-Frieberg, A. G., Unit 2, 15 John Davis Road, Mt. Roskill, Auckland 4.

ZL1WA-Reynolds, E. R., 38 Lowtherhurst Road, Massey, Auckland 8.

ZL1WB—Rowlings, B. H., 6 Mason Street, Onerahi, Whangarei

ZL1WC-Rickard, P. V., C/- E. J. Duffy, 19 Princes Avenue, Mt. Roskill, Auckland 4.

ZL1WD-Davey, W. C., 165 Riddell Road, Glendowie, Auckland 5.

- ZL1WE—Farrell, M., 126 Glamorgan Drive, Browns Bay, Auckland 10.
- ZL1WF-McNae, G. S., 10 Manaia View Road, R.D. 1. Ruakaka.
- ZL1WG-Boric, H. V., 27 Clearly Road, Panmure, Auckland 6.
- ZL1WH-Coe, P. H., 68 Elizabeth Street, Taupo.
- ZL1WI-Milam, R. E., 184 Sturges Road, Henderson, Auckland 8.
- ZL1WJ-Sainsbury, J. R. D., 15 Beechwood Road, Browns Bay, Auckland 10.
- ZL1WK-MacDonald, J. E., 171 Cook Street, Howick, Auckland.
- ZL1WL—Clarke, R. F. R., 26 Kendale Drive, Mathesons Bay, Leigh, Auckland

- ZL1WM—Hill, E. J., 16 Kensington Avenue, Whangarei. ZL1WN—Evans, G. E., 10 Neems Place, Manurewa. ZL1WO—McGechie, P. C., 14 Auckland Road, Warkworth. ZL1WP—Johnstone, M. R., 268 Great South Road,
- Manurewa.
- ZL1WQ-Whitehead, E. J., House 59, Tokanui Village,
- Private Bag, Te Awamutu. ZL1WR—Cullen, R. G., 9 Fairview Road, Te Awamutu.
- ZL1WS-Hartley, A., Unit 1, 148 Robertson Road, Mangere, Auckland.
- ZL1WT—Cummins, S. C., 80 Pakura Street, Te Awamutu. ZL1WU—Moseley, M. R., 34 Domain Street, Waiuku.
- ZL1WV-Fleetwood, F., 2/10 Tina Place, Pakuranga, Auckland.
- ZL1WW—Jensen, J. T., 106 Victoria Street, Pukukohe. ZL1WX—Marshall, A. T., 4 Links Avenue, Mt. Maunganui. ZL1WY—Yorke, R., 19 McLean Avenue, Papatoetoe.
- ZL1WZ-Deslandes, E. N., Rimu Road, R.D. Oratia. Auckland 7
- ZL1AAA-Gordon, B. D., 11 Siota Crescent, Kohimarama, Auckland 5.
- ZL1AAB-Cardy, K. G., 28 City View Terrace, Birkenhead, Auckland 10.
- ZL1AAC—Hammond, K. F., 14 Coppelia Avenue, Omokoroa, R.D. 2, Tauranga.
- ZL1AAD-
- ZLTAAE-Yearsley, J. K., R.D. 6, Tauranga
- ZL1AAG—Walker, R. L., 273 Taupo Road, Taumarunui. ZL1AAG—Hutchinson, J. A., 16 Walter Park, Whakatane. ZL1AAH—Backhouse, R. B., Ararimu Valley Road, R.D. 2, Waimauku.
- ZL1AAl-de Jong, J. W., 10 Kingdale Road, Henderson, Auckland 8.
- ZL1AAJ~
- ZL1AAK-Stephens, C. H. L., 56 Karaka Street, Takapuna. Auckland 9.
- ZL1AAL-Hart, J. D., Apt. G6, 45 Stanley Point Road. Devonport, Auckland 9. ZL1AAM—Scott, P. L., 25 Chatsworth Crescent,
- Pakuranga.
- ZL1AAN-Falkner, H. T., 8 Kapai Street, Devonport, Auckland 9.
- ZL1AAO—Blamey, G., 173 King Edward Avenue, Belmont. Auckland 9.
- ZL1AAP-Swift, L. W., 13 Ardern Avenue, Stammore Bay. Whangaparaoa.
- ZL1AAQ-Palmer, W. J., 168 Birkdale Road, Birkdale, Auckland 10.
- ZL1AAR-Terrill, R., 90 Clyde Street, Tokoroa.
- ZL1AAS-Litten, R. J., 146 Sandspit Road, Howick, Auckland
- ZL1AAT—Swain, R. A., 39a College Road, Edgecumbe, ZL1AAU-Elley, C. B., 14 Handley Place, Onerahi. Whangarei
- ZL1AAV-Aberhart, E. R., 48 Maybury Street, Glen Innes, Auckland 6.
- ZL1AAW-Berntsen, B. M., 2 Te Mahoe Power Station Village, Te Teko.
- ZL1AAX—Andrews, G. S., 14 Aquarius Drive, Rotorua, ZL1AAY—King, O. L., 8 Gracechurch Drive, Papatoetoe.

- ZL1AAZ-
- ZL1ABA-Jefferies, S. E., 60 Middleton Road, Remuera. Auckland 5
- ZL1ABB-Russell, M. C., 25 Sturdee Road, Manurewa. Auckland.
- ZL1ABC-Biddle, L. W., 80 Matipo Road, Te Atatu North, Auckland.
- ZL1ABD-Wise, F. B., 187 Edmonton Road, Te Atatu South, Auckland.
- ZL1ABE-Lawrence, A. E., 7 Te Hono Street, Maungatapu ZL1ABF-Rubie, E. S., 14 Ambler Avenue, Glen Eden, Auckland 7.
- ZL1ABG--Rae, D., No. 12 Pirika Street, Dargaville. ZL1ABH-Boreham, D. C., 35 Aldersgate Road, Mt. Roskill, Auckland 4
- ZL1ABI-Maggs, A. R., 32 Potter Avenue, Northcote, Auckland 9
- ZL1ABJ-Fergusson, D. D., Flat 1, 2 Ascot Place, Te Awamutu.
- ZL1ABK-
- ZL1ABL-Dale, A. J., 61 Rodney Street, Welfsford.
- ZL1ABM-Humphry, M. L. G., C/- Post Office, Tairua, Thames
- ZL1ABN—Reay, M. J. F., 76 Carrington Avenue, Hamilton. ZL1ABO-Webster, W. A., 38 The Crescent, Waihi Beach.
- ZL1ABP-Rutter, K. L., 26 Halsey Drive, Lynfield, Auckland 4.
- ZL1ABQ-McGill, A. K., 15 Manapouri Place, Pakuranga.
- ZL1ABR-Skinner, R. E., Seddon Avenue, Waihi.
- ZL1ABS—Sheffield, M. J., 1 R.D., Greenhithe, Auckland. ZL1ABT—Stead, G. M., 93 White Swan Road, Mt. Roskill, Auckland 4.
- ZL1ABU-Lyall, G., 86 Turangi Road, Grey Lynn, Auckland 2.
- ZL1ABV—Howick and District NZART (Trustee: H. R. T. Henderson), 11 Chesley Place, Bucklands Beach
- ZL1ABW-Oldfield, A. J., 11 Collingwood Road, Waiuku. ZL1ABX-Dukes, J. R., 102 Awaruku Road, Torbay,
- Auckland 10
- ZL1ABZ—Hume, D. S., 91 Eivers Road, Whakatane. ZL1ABZ—Johnson, I. P., 36 Cullen Crescent, Tokoroa. ZL1ACA—Whittaker, J. C., Carter Road, Oratia, Auckland. ZL1ACB—Gaylard, G. C., 3 Michael Avenue, Dinsdale, Hamilton.
- ZL1ACC-Davies, J. H., 22 Harapaki Road, Remuera, Auckland 5.
- ZL1ACD—Hill, J. R., C/- NZED, Private Bag, Otahuhu. ZL1ACE-Annear, D. G., 110 Cook Street, Howick, Auckland.
- ZL1ACF-Abbott, P. N., 1 Douglas McLean Avenue, Napier
- ZL1ACG—Caldwell, E. G., 267 Mt. Wellington Highway. Mt. Wellington, Auckland 6.
- ZL1ACH-Ten Velde, R. J. M., 14 Aorangi Road, Paeroa.
- ZL1ACI-Pearce, R. E., East Tamaki Road, R.D. 1, Howick.
- ZL1ACJ-Turner, R. H., 7 Keiss Street, Blenheim. ZL1ACK-
- ZL1ACL—Field, M. L., 11 Featon Road, Waihi. ZL1ACM—Daniels, S. G., 26 Albert Road, Devonport, Auckland 9
- ZL1ACN—Messent, D. L., Main Road, Murupara (Box 23). ZL1ACO—Grusning, H. N., Beattys Road, Pukekohe. ZL1ACP—Powell, F. C., Flat 3, 1 Kingsford Road, Mt. Eden, Auckland 3.
- ZL1ACQ
- ZL1ACR—Ramsay, F. M., Te Ranga Estate, R.D. 4, Kaeo. ZL1ACS-Clarke, J. K., 106 Bassett Road, Remuera,
- Auckland 5 ZL1ACT-Bate, A. M., 1b Pacific Avenue, Mt. Maunganui. ZL1ACU-Mt. Albert Grammar School Radio Hobbies
 - Club, (Trustees: I. A. Gee and N. A. Walker), Alberton Avenue, Mt. Albert, Auckland 3.

ZL1ACW

ZL1ACW—Campbell, C. W., View Road, Hikurangi, ZL1ACX-Rous, B. W., 56 Tamahere Drive, Glenfield. Auckland 10.

ZL1ACY—Billing, C. J., 2 Norfolk Road, Stanmore Bay. Whangaparaoa

ZL1ACZ-Williams, B. C., 4 Kay Drive, Blockhouse Bay, Auckland 7

ZL1ADA—Carr, R. F., 32 Kentigern Close, Pakuranga, Auckland.

ZL1ADB—Ataya, P. G. E. G., 4204 Great North Road, Henderson, Auckland 8.

ZL1ADC-Meharry, R. G., Martin Road, R.D. 1, Te Kauwhata.

ZL1ADD-Irving, E. B., 26 Dudley Avenue, Huntly. ZL1ADE-Duffy, E. J., 19 Princes Avenue, Mt. Roskill, Auckland 4.

ZL1ADF—Evetts, B., 208 James Street, Whakatane, ZL1ADG—Hunt, C. W., C/- Post Office, Hangatiki, S.H. 3, Otorohanga.

ZL1ADH-Nichols, D. E. G., 8 School Road, Te Atatu, Auckland 8.

ZL1ADI-Rademacher, C. A., Wrights Road, R.D. 2, Albany.

ZL1ADJ-Green, A. W., 49 Redwood Drive, Massey, Auckland 8

ZL1ADK—Francis, I. K., 54 Cornwall Road, Papatoetoe. ZL1ADL—Wilkins, D. N., 5 Ethel Street, Sandringham, Auckland 3.

ZL1ADM—de Lacey, N. E., 1 Hall Street, Hamilton. ZL1ADN-Piggott, J. K., 1022 East Coast Road. Auckland 10.

ZL1ADO-Sullivan, J. K., 153 St. Helier's Bay Road, St. Heliers Bay, Auckland 5.

ZL1ADP-Medland, F. J., 882 Whangaparaoa Road. Whangaparaoa.

ZL1ADQ—Lawrence, P., 36 Patons Road, Howick, ZL1ADR—Dickin, R., C/- Dickins Florist, Broadway, Matamata

ZL1ADR-Dickin, R., Matamata, C/- Dickin's Forest, Broadway.

ZL1ADS-Tibbles, E. J., 19 Kotanui Street, Army Bay, Whangaparaoa.

ZL1ADT-Orr, K. R., 127 Grafton Road, Grafton, Auckland 3.

ZL1ADU—Warren, N. G., 2 Albert Road, Papatoetoe, ZL1ADV—Crutcher, L. R., 2/45 Millen Avenue, Pakuranga, ZL1ADW—Clark, B. E., 88 Lincoln Park Avenue, Henderson, Auckland 8.

ZL1ADX-The Church of Jesus Christ of Latter Day Saints. (Trustee: N. K. Thompson), 11 Huron Street, Tak ipuna, Auckland 9.

ZL1ADY-Purdie, M. D., 41 Hayr Road, Auckland 4. ZL1ADZ-Did-Dell, R. J., 2/296 Blockhouse Bay Road, Blockhouse Bay, Auckland 7

ZL1AFA-James, D. L., 8 Kesteven Avenue, St. Heliers. Auckland 5.

ZL1AFB—Offord, J. L., 28 Arnwood Street, Manurewa. ZL1AFC—Neighbours, E. R., 210 Grange Road, Olumoetai, Tauranga.

ZL1AFD—Osborne, R., 117 Matua Road, Tauranga. ZL1AFE—De Renzy, P., Puketutu Road, R.D. 2, Matamata. ZL1AFF

ZL1AFG-Hogg, O. B., 5 Ozone Road, Stanmore Bay, Whangaparaoa.

ZL1AFH-McGeachie, T., 2 Rata Road, Devenport, Auckland 9.

ZL1AFI-ZL1AFJ-Phillips, J. F. E., 36 Mt. Roskill Road. Auckland 4.

ZL1AFK-Welch, D., 58 Turanga Road, R.D. 1, Henderson, Auckland 8

ZL1AFL-Flatt, D. A., 2a Somerfield Street, Ellerslie, Auckland 5.

ZL1AFM-

ZL1AFN—Monks, W. J. S., 53 Vernall Street, Hamilton. ZL1AFO—Hudson, S. T., 2/97 Wheturangi Road. Greenlane, Auckland 5.

ZL1AFP—Wood, L. M., 8 Grassy Downs Place, Hamilton. ZL1AFQ—Rosan, D. A. R., Gills Road, R.D. 4, Albany. ZL1AFR—McCartney, B. J., 32 Gallileo Street,

Ngaruawahia. ZL1AFS-Cowley, T. C. M., 850 Beach Road, Waiake, Auckland 10

ZL1AFT-Walker, K., 44 Second View Road, Beachlands, Auckland.

ZL1AFU-Murphy, R. J., 20 Kestrel Place, Glen Innes, Auckland 6.

ZL1AFV—Boyce, A. R., 26 Shakespeare Street, Cambridge.

ZL1AFW-Whillans, D., 139 Kohimarama Road, Kohimarama, Auckland 5

ZL1AFX—Marsh, H. H., 5 Bonita Avenue, Stanmore Bay, Whangaparaoa, Auckland. ZL1AFY—Haydon, A. E., 10 Ngapipi Road, Orakei,

Auckland 5.

ZL1AFZ-McLean, J. P., Pureora Forest Schoolhouse, Pureora Forest.

ZL1AGA—Rasmussen, J. W., 65 Smith Street, Matamata. ZL1AGB—Rorke, D., 14 Dysart Road, Tauranga. ZL1AGC—Passau, K. M., Awanui Rise, P.O. Box 628,

Papakura.

ZL1AGD-Millar, I. G. S., 24 Entrician Avenue, Remuera, Auckland 5.

ZL1AGE-Dalton, R. S., 31 Hikurangi Terrace, Taumarunui.

ZL1AGF-Morris, N. C., Unit 3, 659 Mt. Albert Road, Royal Oak, Auckland 3.

ZL1AGG-Jarman, J. E., Morgans Road, R.D. 2, Matamata.

ZL1AGH-Murphy, A. J., 33 Carey Street, Hamilton. ZL1AGI--Gardener, R. S., 44 Masters Avenue, Hamilton. ZL1AGJ-

ZL1AGK—Bradfield, D. S., 183d Clarkin Road, Hamilton. ZL1AGL—Fischer, H. G., 98 Gillies Avenue, Epsom, Auckland 3.

ZL1AGM—Sloane J. P., 14 Whiteacres Drive, Pakuranga. ZL1AGN—Campbell, M. H., Fencourt Road, R.D. 1. Cambridge.

ZL1AGO-Williams, J. R., 144 Titirangi Road, New Lynn, Auckland 7

ZL1AGP-Horwood, H., 233 King Street, Whakatane ZL1AGQ-Zimmerman, F. M., 48 Kitchener Road, Milford, Auckland 9.

ZL1AGR-Cotton, J. K., 90 Karaka Road, Beachlands, Auckland.

ZL1AGS—Collins, P. E., 185 Victoria Street, Cambridge. ZL1AGT—Taylor, E. R., 18 The Circle, Whangaparaoa. ZL1AGU—Sterling, I. H., 27 Cromwell Street, Mt. Eden. Auckland 3.

ZL1AGV—Dixon, L. N., 18 Koru Street, Mangere Bridge, ZL1AGW—McDonald, D. F., Margaret Place, Ha Hei, R.D. 1, Whitlanga.

ZL1AGX-Clark, A. T., 19 St. Leonards Road, Epsom, Auckland 3

ZL1AGY—Easton, J. A., R.D. 9, Wheki Valley Hill, Whangarei.

ZL1AGZ—Delaney, J. D., 41 Birdwood Road, Swanson, Auckland 8. ZL1AHA-Boyd, J. M., 30a Matai Stret, Rotorua.

ZL1AHB-Sloan, B. H., 20 Acorn Street, Royal Oak, Auckland 3

ZL1AHC-Grayston, G. H., 34 Mangapiko Street, Te Awamutu.

ZL1AHD—Franklin, M. J., 52 Northboro Road, Takapuna, Auckland 9

ZL1AHE-Morrison, K., 38 Edward Avenue, Orewa. ZL1AHF--Biddle, R. R., 55 Becroft Drive, Forrest Hill, Auckland 10.

ZL1AHG-Ward, M. B., 50 Jervis Street, Rotorua.

ZL1AHH-ZL1AHI-Randerson, K. D., 12 Montgomery Avenue, Onerahi, Whangarei.

ZL1AHJ-Anderson, A. P., 421 Pukehangi Road, Rotorua

ZL1AHK—Tester, W., 48 Pulham Road, Warkworth. ZL1AHL—McLellan, G. L., 1 Icarus Place, Rotorua. ZL1AHM—Bell, A. D., Main Road, Waimana.

ZL1AHN-

ZL1AHO-Sykes, R. J., 1/12 Huapai Street, Onehunga, Auckland 6.

ZL1AHP-Greendale, L. S., 103 Haverstock Road, Mt. Albert, Auckland 3.

ZL1AHQ-Field, G. H., 11 Featon Road, Waihi, Thames Valley.

ZL1AHR—Nolan, J. I., 3 Dairy Road, East Tamaki. ZL1AHS—Turnwald, T. F., 63 Beach Road, Castor Bay. Auckland 9.

ZL1AHT—Buckland I. D., 231b Titiranoi Road, Titirangi, Auckland 7. ZL1AHU—Seakins, P. J., 99 Exmouth Road, Northcote,

Auckland 9.

ZL1AHV-Adams, W., 8 Burling Avenue, Whangarel. ZL1AHW-Hoban, R. P., Waikeria Road, No. 4 R.D., Te Awamutu.

ZL1AHY—Wallace, D. W., 68 Aotea Crescent, Tokoroa, ZL1AHZ—Kidd, B. F., 26 Ellesmere Crescent, Pakuranga, Auckland.

ZL1AIA-White, C. M., No. 1 R.D., Tokoroa.

ZL1AIB-Fordham, S. N., 17 Fratley Avenue, Pakuranga. ZL1AIC—Dewar, D., 6 Syntax Place, Conifer Grove, Takanini.

ZL1AID—Leng, W. K., 36 Great South Road, Papatoetoe. ZL1AIE-Morris, A. D., 438 River Road, Hamilton.

ZL1AIF-

ZL1AlG-Falkner, G. R., 1o Mirovale Place, Sunnynook, Auckland 10.

ZL1AIH-McCormack, R. K. F., Vivian Bay, Kawau Island. ZL1AII-McFarlane, I. R., 18 Huntly West Road. Ngaruawahia.

ZL1AIJ—Blake, C. B., Blackwell Drive, Tryphena, Great Barrier Island

ZL1AIK—Lewis, P. J., 21 Middleton Road, Remuera, Auckland 5.

ZL1AIL-Christie, W. E., 24 Bryce Avenue, Mt. Roskill, Auckland 4

ZL1AIM—Kebble, S. W., 62 Riversview Road, Cooks Beach, R.D. 1, Whitianga. ZL1AIN—Frazerhurst, T. L., 81 East Street, Hamilton. ZL1AIO—Rimmer, Mrs E. M., 28 Douglas Street,

Whakatane.

ZL1AIP-Parker, T. H., Totara Valley Road, R.D. 1, Thames.

ZL1AIQ-Veale, G. A., 31 Rangitoto Avenue, Remuera. Auckland 5.

ZL1AIR-ZL1AIS-

ZL1AIT—Haggo, J. M. K., 3 Horne Street, Hamilton, ZL1AIU—Eastern Bay of Plenty Branch NZART (Trustee: J. L. King), 26 Pouwhare Street, Whakatane.

ZL1AIV-Tilsley, D. G., 4 Littlejohn Street, Mt. Roskill, Auckland

ZL1AIW-Watson, E. T., 25 Franklin Road, Ponsonby, Auckland 1.

ZL1AIX-Robinson, W. J., "Ahuareka", Whitford-Maraetai Road, R.D. 1, Howick. ZL1AIY—Necklen, S. A., 69 Stranolar Drive, Walkowhai,

Auckland 4.

ZL1AIZ-Lake, P. B., 12 Brasenose Place, Tawa, Wellington.

ZL1AJA—Hallett, R. C., 6 Dominion Street, Takapuna, ZL1AJB-Moore, J. K., 33 Churchill Street, Pukekohe.

ZL1AJD-Krippner, F. J., Te Rore, R.D. No. 6, Te Awamutu.

ZL1ALC

ZL1AJE-Ansell, M. E., 32 Routley Drive, Glen Eden, Auckland 7

ZL1AJF-Krippner, J. A., Te Rore, R.D. No. 6, Te Awamutu.

ZL1AJG-McLaughlin, B., 50 Kings Road, Panmure, Auckland 6.

ZL1AJI-

ZL1AJJ-Craig, G. H., 209 Adventure Drive, Whitby, ZL1AJK-

ZL1AJL—Johnstone, C. A. (Miss), 6 Syntax Place, Conifer Grove, Takanini.

ZL1AJM—Bloxham, W. J., Annett Road, Kumeu. ZL1AJN—Holmes, W. S., R.D. 1, Waiuku. ZL1AJO—Jones, D. A. Lot 1086, Pauanui, Ocean Beach.

ZL1AJP—Willcocks, R. J., 181 Corks Road, Whangarei. ZL1AJO—Hogan, A. H., 171 Hall Street, Hokitika. ZL1AJR—Chapman, R., 50 Rukutai Street, Mission Bay, Auckland 5.

ZL1AJS—Barker, J. A., 2/28 Rapallo Place, Pakuranga. ZL1AJT—Jessop, G. D., 24 Merton Road, St. Johns. Auckland 6.

ZL1AJU—Barnard, B. F., 31 Harrisville Road, Tuakau. ZL1AJV—Irving, P. J., 13 Shortt Avenue, Mangere Bridge, Auckland.

ZL1AJW-Grant, R. C., 18b Impala Place, Mt. Roskill, Auckland 4

ZL1AJX—Cox, J. B., 8 Mail Road, Weymouth, Auckland. ZL1AJY—Barratt, M. P., J. Irwin Road, Awhitu, R.D. 4.

ZL1AJZ-Stewart, R. N., 152 Cliff View Drive, Green Bay. Auckland 7

ZL1AKA-Harris, J. W., 79 Stillwater Crescent, R.D. 3. Silverdale

ZL1AKB—Gillard, M. L. N., 22 Stewart Street, Whakatane, ZL1AKC—Crook, B. W., 4 Kelly Street, Rotorua, ZL1AKD—Clay, W. V., 15 Vaughan Crescent, Murrays

Bay, Auckland 10.

ZL1AKE—Exeter, M. N. L., 5 Dolphin Street, Pakuranga. ZL1AKE—Miller, F. W., 17 Harris Street, Te Puke. ZL1AKG—Quinn, P. T. M., 9 Page Place, Hamilton. ZL1AKH—Paterson, W., 329a Oceanbeach Road, Mt.

Maunganui.

ZL1AKI—Tait, C. V., 2 Grassy Downs Place Hamilton. ZL1AKJ—Turvey, A. E., 353 Titirangi Road, Titirangi, Auckland 7

ZL1AKK-Ellison, C. L., 165 Alexandra Street, Te Awamutu.

ZL1AKL—Eagle, E. H., 9 Lewis Road, Lynmore, Rotorua. ZL1AKM—McLean, P. A. C/- N. Crook, House 9, Marsden Point Road, Marsden Point

ZL1AKO-Otto, R. H., Riddell Road, Kerikeri.

ZL1AKP—Doar, S. W., 40 Corks Road, Whangarei, ZL1AKQ—Brant, A. E., 48 Wintere Road, Papatoetoe. ZL1AKR-

ZL1AKS-Wigley, J. N., 43 Ocean View Road, Northcote. Auckland 9

ZL1AKT—Follett, M. S., 39 Edmund Road, Rotorua. ZL1AKU—O'Donoghue, D. J., 22 Stanley Avenue, Milford. Auckland 9.

ZL1AKV—Bell, D. C., 19 Advene Road, Howick, ZL1AKW—Horne, D. W. J., 3 Vine Avenue, Tauranga, ZL1AKX—Passau, M. B., Awanui Rise, P.O. Box 628,

Papakura. ZL1AKY-Reed, G. S., 510 Great South Road, Papakura.

Auckland. ZL1AKZ-Landor, P. M., 26 Spencer Terrace, Takapuna, Auckland 9.

ZL1ALA—Halden, J. E. Bush Road, R.D. 2. Ngatea. ZL1ALB—Allen, D. G., 2/241 Penrose Road, Mt.

Wellington, Auckland 5.

ZL1ALC-James, M. K., 25 Sovereign Place, Glenfield, Auckland 10.

ZL1ALD

ZL1ALD—Smith, D. W., 110 Douglas Street, Whakatane. ZUIALE—Johnston, A. B. (Mrs), 63 Red Hill, Papakura. ZUIALE—Gibbs, P. N., 21 Flynn Street, Hamilton.

ZL1ALG-Osborne, G. J., 34 Cobham Drive, Kawerau. ZL1ALH-Lochmann, I. G., Nui Dat Barracks, Fort Dorset,

Seatoun, Wellington. ZL1ALI—Mee, N. J. F., 2/16 College Road, St. Johns. Auckland 5.

ZL1ALJ-

ZL1ALK-Reed, C. M. (Mrs), 510 Great South Road, Papakura

ZL1ALL-Young, W. G., 60 Tohunga Crescent, Parnell, Auckland 1

ZL1ALM—Mutch, J. T., 11 Goulstone Road, Whakatane. ZL1ALN-Duncan, K. G., 2 Marsh Avenue, Milford, Auckland 9

ZL1ALO-Giles, P. M., 11a Ozich Avenue, Te Atatu South, Auckland 8.

ZL1ALP—Harding, F. W., 16 Vonnell Place, Glenfield, Auckland 10.

ZL1ALQ—Deverick, E. I., 19 Pouwhare Street, Whakatane, ZL1ALR—Kay, S. B., 1a Burwood Crescent, Remuera, Auckland 5

ZL1ALS—Wylde, J. E., 14 Arran Place, Tokoroa, ZL1ALT—Bowyer, J. V. M., 586 River Road, Fairfield, Hamilton.

ZL1ALU-

ZL1ALV-Ussher, R. G., 4 Wychwood Crescent, Rotorua. ZL1ALW-

ZL1ALX—Gubb, G. K., 15a Omana Road, Papatoetoe. ZL1ALY—Matthys, J. K. C., 99 Wordsworth Street, Cambridge

ZL1ALZ-Luke, A. R., 44 Great South Road, Papakura ZL1AMA—Murphy, D. J., 7 Harris Street, Mt. Maunganui. ZL1AMB—Milne, M. B. Fahey Road, R.D., Bombay. ZL1AMC

ZL1AMD-Turner, C. T., 20 Gwilliam Place, Auckland Central.

ZL1AME-Crook, F. G., 12 Ascot Avenue, Devenport, Auckland 9

ZL1AMF—Gosling, K. F., 5 Wiles Avenue, Remuera,

Auckland 5. ZL1AMG—Kirby, E. G., 10/29 Owens Road, Epsom. Auckland 3.

ZL1AMH—Hughes, W. J., 12a James Evans Drive, Northcote, Auckland 9.

ZL1AMI—Jamieson, R. A., Oropi Road, R.D. 3, Tauranga, ZL1AMJ—Saunders, J. R., 68 Lynbrook Avenue, Avondale. Auckland 7

ZL1AMK—Jensen, E. W., 166 Godley Road, Titlrangi, Auckland 7.

ZL1AML-Lawrence, L. J., 28 McCullough Avenue, Mt Roskill, Auckland 4. (Portable)

ZL1AMM-Murphy, R. E., 35 Winstone Road, Mt. Roskill, Auckland 4.

ZL1AMN-Johnston, D. A., 63 Red Hill, Papakura, Auckland.

ZL1AMO-Wright, R. W., 28 Chorley Avenue, Massey, Henderson, Auckland 8

ZL1AMP—West Auckland Radio Communication Group, (Trustee: I. A. Gee), 7 Elcoat Avenue, Henderson, Auckland 8

ZL1AMQ-Male, F. G., 67 Waipuna Road, Mt. Wellington. Auckland 6.

ZL1AMR-ZL1AMS-

ZL1AMT-Moore, D. A., 19 Bay Street, Orewa

ZL1AMU—Jury, R. B., 55 Willerton Avenue, New Lynn, Auckland 7.

ZL1AMV-Robinson, P. J., 49 Princess Road, Otumoetai. Tauranga.

ZL1AMW-Wallace, A. J., House 27, NZED, Whakamaru. P.B., Mangakino.

ZL1AMX—Daniel, G. G. (Mrs), Whangaumu Street, R.D. 3 Whangarei

ZL1AMY-Fletcher, I. G., 248 East Coast Road, Takapuna North, Auckland 10

ZL1AMZ—Glendenning, T., 75 Cardiff Road, Pakuranga. ZL1ANA—Barker, J. R. (Mrs), 26 Lyndhurst Street. Te Atatu, South, Auckland 8

ZL1ANB—Dimmock, T. L., 20 The Crescent, Walhi Beach, ZL1ANC—McMahon, R. D., 27 Rosamund Avenue.

Blockhouse Bay, Auckland 7. ZL1AND—Turner, A. B., 7 Acmena Lane, Pakuranga, Auckland

ZL1ANE-Gingles, J. C., Te Maika Road, Ngunguru. R.D. 3, Whangarei

ZL1ANF—Beale, W. M., 12 Emerson Street, Te Aroha, ZL1ANG—Frazerhurst, L. F., 81 East Street, Hamilton. ZL1ANH-Hunt, G. K., 30 Grande Vue Road, Kawaha Point, Rotorua.

ZL1ANI-

ZL1ANJ-Ellis, J. M., 3 Hawera Road, Kohimarama, Auckland 5

ZL1ANK-Daniel, J. E., Whangaumu Street, R.D. 3, Whangarei.

ZLIANE-

ZL1ANM-Barnett, N. M., 29 Terra Nova Street, Glen Eden, Auckland 7

ZL1ANN-Tricker, D. A. G., 134 Main Road, Hilltop. Orewa.

ZL1ANO-Birch, F. C., 33 Hoskins Avenue, Hillsborough. Auckland 4

ZL1ANP-Parsons, N. L. (Mrs), 10 Bridgman Road, Te Awamutu.

ZL1ANQ—Herdman, R. J., 5 Sullivan Street, Whakatane. ZL1ANR—Gibbins, E. G., 114 Thirdview Avenue, Bucklands Beach.

ZL1ANS-Knapp, D. T., 1/103 John Downs Drive, Browns Bay, Auckland 10

ZL1ANT-Parr, J. E., 42 Parlane Street, Addington, Christchurch 2.

ZL1ANU-Tutton, M. L., 219 Panama Road, Otahuhu, Auckland 6.

ZL1ANV—Creed, R. M., 38 Hollywood Avenue, Titirangi, Auckland 7

ZL1ANW-Curtis, C. E., 5 Argyle Road, Browns Bay, Auckland 10.

ZL1ANX—Reid, A. A., 62a Puke Road, Paeroa. ZL1ANY—Pearce, S. G., 83 Knights Road, Rothesay Bay. Auckland 10.

ZL1ANZ—King, P. J., 153 Elizabeth Drive, Tokoroa. ZL1AOA—Davidson, D. M., 229 Akoranga Drive. Northcote, Auckland 9

ZL1AOB—Harrop, G. N., 8 Waingaro Road, Ngaruawahia. ZL1AOC—Henderson, H. R. T., 11 Chesley Place. Bucklands Beach, Auckland

ZL1AOD—Byrnes, C. D., 31 Rosehill Drive, Papakura. ZL1AOE—Gillgren, S. J., 30 Hall Street, Kihikihi. ZL1AOF—King, J. L., 26 Pouwhare Street, Whakatane. ZL1AOG—Hastings, W. W., 35 Dundas Road, Whangarei.

ZL1AOH—Stewart, M. I., 4 Page Place, Hamilton, ZL1AOH—Trethowen, V. G., 16 Herne Bay Road, Herne Bay, Auckland 2.

ZL1AOJ-Robinson, J. R., 24a McKay Drive, Temple View, Hamilton.

ZL1AOK-Handisides, W. S., 117 East Coast Road. Milford, Auckland 9

ZL1AOL-

ZL1AOM-Brown, M. W., 15 Douglas Avenue, Te Awamutu.

ZL1AON-Edginton, K. S., 69 East Street, Hamilton. ZL1AOO-Holly, W., 51 Wallace Road, Paparoetoe ZL1AOP-Frewin, H. G., 42 Walmsley Road, Waihi ZL1AOQ-Upsdell, D. M., 19 Bonito Place, Glenfield, Auckland 10.

ZL1AOR-Mayne, P., 55 Dorset Street, Picton. ZL1AOS-

- ZL1AOT-Margison, I., 3/28 Towai Street, St. Heliers,
- Auckland 5. ZL1AOU—Southen, H. J., State Highway 2, Te Puna R.D. 2, Tauranga

ZL1AOV-

- ZL1AQW-Frankham, D. W., 18 Sabulite Road, Glen-Eden, Auckland 7
- ZL1AOX-Ashley, I. T., 5 Willoughby Avenue, Howick. ZL1AOY-Young, I., 9 Orakau Avenue, Epsom. Auckland 3.
- ZL1AOZ-Mackay, W. J., 49 Gladstone Road, Parnell. Auckland 1
- ZL1APA-Hardy, R., 196 Atkinson Road, Titirangi, Auckland 7.
- ZL1APB-McDonald, R. W., 100 Kauri Road, Whenuapai.
- ZL1APC-Chaytor, J. M., 20 Homestead Road, Whangaparaoa.
- ZL1APD-Mulcahy, A. F., Residence 8, Makara Fladio. Wellington 5.
- ZL1APE—Corbett, A. B. S., 10 Roseberry Avenue, Birkenhead, Auckland 10.
- ZL1APF-Bateman, T. L., Lambert Street, Thames.
- ZL1APG—Perston, K. J., 15 Fergusson Street, Kawerau. ZL1APH—Dittmer, C. R., 31 George Street, Morrinsville. ZL1API—Hendrie, J. G., 54 Monarch Avenue, Glenfield.
- Auckland 10.
- ZL1APJ—Jessen, R., 156 Tamamutu Street, Taupo.
 ZL1APK—Turvey, G. R., 89 Homedale Street, Rotorua.
 ZL1APL—Tague, T. F. E., Unit 2, 15 Birdwood Crescent,
 Parnell, Auckland 1.
- ZL1APM—Bowers, J., 104 Hinemoa Avenue, Taupo, ZL1APN—Martin, B. B., Puriri Park, Orewa.
- ZL1APO—Penney, G. A., 13 Kea Street, Katikati. ZL1APP—Haysmith, C. A., Mount Rex, R.D. 3, Helensville,
- Auckland 8.
- ZL1APQ-Crook, N. W. W. G., House 9, C/- Post Office, Marsden Point.
- ZL1APR—Rosborough, J. L., Greenslade Road, Ragian.
- ZL1APS—Browne, N. H., Kerepehi R.D. 1, Paeron. ZL1APT—Jones, E. B., C/- N.Z. Foundation for the Bfind, 545 Parnell Road, Auckland 1
- ZL1APU-Sowerby, B. W., 42 Cheriton Road, Howick ZL1APV-Fisher, J. R., 35 Shoreham Street, Blockhouse Bay, Auckland 7

- Bay, Auckland 7.

 ZL1APW—Marx, A. S., 43 Island View Road, Rotorua.

 ZL1APX—Duncan, S., Trotters Avenue, Waiomu, Thames.

 ZL1APY—Harris, L. M. Saies, Totara North.

 ZL1APZ—Franks, R. A., Scotsmans Valley Road, R.D. 1.

 Morrinsville, (P.O. Box 11-022 Hamilton).

 ZL1AQA—Hood, W. F., 31 Stanley Street, Matamata.

 ZL1AQB—Howe, A. M., 5 Philip Street, Papatoetoe.

 ZL1AQC—Sinclair, V. A., 90 Oruamo Place, Beachaven,
- Auckland 10.
- ZL1AQD—Crossman, V. T., 38 Milton Road, Otumoetal, Tauranga.
- ZL1AQE-Wright, D. P., 3 Coquille Place, Bucklands Beach.
- ZL1AQF-Sheehan, T. J., 2 Heaton Grove, Birkenhead, Auckland 10.
- ZL1AQG-Tarlton, I. M., 8 North Road, Kaitaia.
- ZL1AQH—Holland, H. A., R.D., Ruakaka. ZL1AQI—Hogenesch, K. A., C/- Farm School, P.O. Box 3,
- Clive. ZL1AQJ—Wrigley, J. S., 5 Derwent Street, Western Springs, Auckland 2.
- ZL1AQK-Brown, C. D., 112 Beach Road, Onerahi, Whangarei.
- ZL1AQL-Roberts, C. C., 70 Richardson Road, Mt. Albert, Auckland 3.
- ZL1AQM-Loffley, M. M., 23 Park Road, Western Heights, **Potorua**
- ZL1AQN-Simpson, G. C., 58 Orion Street, West Brook,
- ZL1AQO—Gee, I. A. (Ivan), 5 Rhodes Avenue, Mt. Albert, Auckland 3.

- ZL1AQP—Parsonage, W., 31 Auckland Road, St. Heliers. Auckland 5
- ZL1AQQ-Shepherd, G. W., 60 Chivalry Road, Glenfield, Auckland 10.
- ZL1AQR-Tokoroa Branch NZART (Branch 57), (Trustee:
- I. P. Johnson), 36 Cullen Crescent, Tokoroa, ZL1AQS—Sexton, J. E., Paparimu, R.D. 3, Papakura.
- ZL1AQT-Smith, A. G., 17 Raniera Place, Rotorua. ZL1AQU-Boyer, C., 34 Oran Road, Panmure, Auckland 6.
- ZL1AQV—Barclay, S. N., 9 Beswick Place, Birkenhead, Auckland 10.
- ZL1AQW-Roberts, I. G., 44 Masterton Road, Rothesay Bay, Auckland 10.
- ZL1AQX—Toomey, A. H., 38 Bradbury Road, Howick, ZL1AQY—Knaggs, G. R., 31 Henderson Crescent, Tauranga.
- ZL1AQZ-Clutterbuck, E. W., 54 Brandon Road, Glen. Eden, Auckland 7
- ZL1ARA—MacDonald, A. D., 82 Dinsdale Road, Hamilton. ZL1ARB—Smith, P. L., 172 Chivalry Road, Glenfield, Auckland 10.
- ZL1ARC-McKenzie, C. J. C., 16 Stafford Road, Northcote, Auckland 9.
- ZL1ARD-Duncan, L. E., 14 Cowley Drive, Temple View,
- ZL1ARE-Pedersen, G. J., Stoney Creek Homestead, via Union Street, Opotiki.
- ZL1ARF-Wallis, B. S., 9 Verran Road, Birkenhead, Auckland 10.
- ZL1ARG-Millar, R. W. K., Mullet Point, R.D. No. 2, Warkworth.
- ZL1ARH-Rowe, P. R., 220 Balmoral Drive, Tokoroa. ZL1ARI-Dodds, D., C/- Pukewhero Farms, Stuart Road, R.D., Bombay.
- ZL1ARJ-Wadey, A. P., Karaka Road, Parakao, Whangarei.
- ZL1ARK-Callander, J. C., 4 Steeple Rise, Pakuranga, Auckland 6.
- ZL1ARL—Neno, M. R., No. 4 Road, R.D. 3, Te Puke. ZL1ARM—Matthews, J. C. H., 1 Mayfair Crescent, Mairangi Bay, Auckland 10.
- ZL1ARN—Brown, J. T., 32 English Street, Hamilton, ZL1ARO—Gardener, W. J. R., 199 Malfroy Road, Rotorua.
- ZL1ARP—Perry, T. C., 4 Dovedale Place, Hamilton. ZL1ARQ—Dunhill, I. H., 19 Goring Road, Mt. Albert, Auckland 3.
- ZL1ARR-Russell, A. M., 4 Milich Terrace, Te Atatu. Auckland B.
- ZL1ARS-
- ZL1ART—Thomas, A. M., 105 Colombo Street, Hamilton, ZL1ARU—Langridge, E. R., 56 Somerset Road, Mt. Roskill, Auckland 4
- ZL1ARV-Jones, R., 15 Saffron Street, Birkdale, Auckland 10
- ZL1ARW-Forsyth, J. T., 14 Eden Street, Mangere East. ZL1ARX-Wright, P. W. J., 1002 Rata Street, Hastings.
- ZL1ARY-Chandler, R. W., 36 Eastern Beach Road, Bucklands Beach
- ZL1ARZ—Gibbs, F. I., 22 Fairview Place, Te Puke, ZL1ASA—George, R. F., 68 Cliff Road, Torbay,
- Auckland 10.
- ZL1ASB-Blake, J. J., 32 Kiwi Road, Point Chevalier. Auckland 2.
- ZL1ASC-McCann, C. S., 10 Ngatoa Place, Glenfield, Auckland 10.
- ZL1ASD—Bayley, E., 16 Woolfield Road, Papatoetoe. ZL1ASE-
- ZL1ASF-Parkinson, D. A. J., 22 Hiwihau Place, Glenfield, Auckland 10.
- ZL1ASG—Sanderson, J. B., 25 Raurimu Avenue, Onerahi, Whangarei.
- ZL1ASH-Williamson, O. G., 11 Keddell Street, Frankton,

ZL1ASI-Johns, M. D., 267 Riddell Road, Glendowie, Auckland 5.

ZL1ASJ—Gillooly, T. B., 25 Holt Avenue, Torbay, Auckland 10.

ZL1ASK—Jenkinson, H. D., Great South Road, Ohaupo. ZL1ASL—Rimmer, K. S., 19b Arawa Road, Whakatane. ZL1ASN—Kenealy, R. D., 103 Kihikihi Road, Te Awamutu. ZL1ASN—Adams, R. E. V., 21 Ashby Avenue, Glendowie, Auckland 5

ZL1ASO-

ZL1ASP-Abbott, R. F., 65 Kaimanawa Street, Taupo. ZL1ASQ-Bell, J. A., 19a Jellicoe Road, Murrays Bay, Auckland 10

ZL1ASR-Hartnell, G. W., 2 Burndale Terrace, Manurewa. ZL1ASS-

ZL1AST-McMonagle, C. L., Te Rore, R.D. 6, Te

ZL1ASU-Little, D. C., 25 Marellen Drive, Red Beach, Orewa.

ZL1ASV-Phillips, R. L., 27a Seaview Road, Milford. Auckland 9.

ZL1ASW-Cambridge Amateur Radio Club (Trustee: D. H. Hamblyn), Shelley Street, Leamington, Cambridge

ZL1ASX-Leeman, G., 76 Stillwater Crescent, R.D. 3, Stillwater.

ZL1ASY-Morgan, J. G., Kakapu Road, Tapu Point. Russell, (P.O. Box 77 Russell), ZL1ASZ—Anderson, A. N., Flat 2, 32 Trafalgar Street,

Onehunga, Auckland 6

ZL1ATA-Totley, H. G. R., 300 St. Heliers Bay Road. Auckland 5

ZL1ATB—Arcus, G. B., 2 Francis Street, Takapuna, Auckland 9

ZL1ATC—Auckland YL Amateur Radio Club, 99 Frederick Street, Hillsborough, Auckland 4

ZL1ATD-Marsden, J. R. G., 56 Kimpton Road, Papatoetoe.

ZL1ATE-Babich, A. T., 111 Aranui Road, Mt. Wellington,

Auckland 6. ZL1ATF—Sainsbury, D. G., Tanners Point, R.D. 1, Katikati

ZL1ATG—Geddes, G. D. S., Reinga Road, Kerikeri. ZL1ATH—Daley, N. J., 155 Mahoe Street, Hamilton. ZL1ATI—Ward, C. J., 34 Marsden Street, Takapuna,

Auckland 9. ZL1ATJ-Cowell, R. E., 30 Cron Avenue, Henderson, Auckland 8.

ZL1ATK-Millar, T. R. C., 25 Moana Crescent, P.O. Box 34, Mangakino

ZL1ATL-Park, R. J., 205 Hape Road, Thames.

ZL1ATM—Barrett, N., 42 Scott Avenue, Mangere Bridge, Auckland.

ZL1ATN-Hay, H. C. C., Flat 5, 2 Grove Road, Sandringham, Auckland 3.

ZL1ATO—Taumarunui Branch NZART (Inc.), (Trustee: C. Barltrop, 228 Taupo Road) P.O. Box 141 Taumarunui.

ZL1ATP-Vugler, A. J., C/- 25 Island View Road, Western Heights, Rotorua.

ZL1ATQ—Salter, R. T., Brind Road, Russell, ZL1ATR—Swan, J. D., 9 Acacia Place, Bell Block, New Plymouth.

ZL1ATS—Hoyle, R. P., 3 Hobson Street, Waihi, ZL1ATT—Louisson, G. M., 2 Oakley Avenue, Hamilton.

ZL1ATU—Hayhurst, K. W., 204 Mill Street, Thames. ZL1ATV-Robertson, N. L., 23 Tauhara Street, Green Bay, Auckland 7.

ZL1ATW-Meenagh, M. B., 23 Herbert Street, Kihikihi, Te Awamutu.

ZL1ATX—Vogel, H., 20 Harapaki Road, Meadowbank, Auckland 5.

ZL1ATY—O'Keefe, J. F., 511 Scenic Drive, R.D. 1, Auckland 8.

71.1ATZ—Jepson, L. J., 10 Gannet Place, R.D. 1. Buakaka

ZL1AUA--Wilson, B. E., 10a Jaemont Avenue, Te Atatu South, Auckland 8.

ZL1AUB—Walkins, G. A., 1/18 Rosehill Drive, Papakura. ZL1AUC—Everton, F. F., 58 Rewi Street, Torbay. Auckland 10.

ZL1AUD—Diamond, C. S., R.D. Rawene, Hoklanga. ZL1AUE—Walker, J. H., Manala View Road, One Tree Point, Ruakaka, ZL1AUF-O'Hagen, M. G., St. Patricks Presbytery, 59

Queen Street, Te Puke.

ZL1AUG—Street, G. H., 8 Weston Avenue, Papatoetoc. ZL1AUH—Murray, N. V., Te Toro, R.D. No. 4, Waiuku. ZL1AUI—Banks, R. S., Te Haumi Bay, Bay of Islands. ZL1AUJ—Warman, R. W., Hospital Road, Te Kopuru. ZL1AUK-Hill, M. J., 119 Sutherland Road, Oturnoetai,

Tauranga.

ZL1AUL—Thomas, R. D., 15 Hapi Street, Westbrook, Rotorua.

ZL1AUM-Maddock, C. N., 75a Methuen Road, Avondale, Auckland 7

ZL1AUN—Inder, A. M. (Mrs), 19 Rushton Street, Otumoetai, Tauranga.

ZL1AUO-Forrester, T., 84 Revans Street, Featherston. ZL1AUP-

ZL1AUQ-Pople, D. A. O., 19 Kingdale Road, Henderson, Auckland 8.

ZL1AUR—Watson, I. B., 7 Elizabeth Street, Pakuranga. ZL1AUS—Insley, J. F., 257a Pohutukawa Avenue, Ohope. ZL1AUT—Brennan, P. T., 216 Cambridge Road,

Tauranga.

ZL1AUU-White, J. H. S., 31 Gibbons Road, Weymouth. ZL1AUV—Sanders, J. G., Greenslade Road, Raglan. ZL1AUW—Wooler, A. M., 40 Powrie Street, Glenfield,

Auckland 10. ZL1AUX—Greaves, G. J., 44 Blake Road, Mangere East. ZL1AUY—Burkinshaw, D. E., 30 Tiroroa Avenue, Te Atatu

South, Auckland 8. ZL1AUZ-Lovelock, J. M., 1 Trafalgar Street, Onehunga, Auckland 6.

ZL1AVA-Haag, W. K., 29 Ferguson Avenue, One Tree Hill, Auckland 5.

ZL1AVB-Miller, S. P., 7 Ranch Avenue, Beachhaven, Auckland 10.

ZL1AVC-Bretherton, E. C., 24 Iles Road, Rotorua. ZL1AVD-Bell, D. G., 48 Dundee Place, Blockhouse Bay, Auckland 7.

ZL1AVE-Atchinson, D. R., 783 Great South Road, Papatoetoe.

ZL1AVF-Bavage, L. H., 39 Alnwick Street, Warkworth. ZL1AVG-Rotorua Branch NZART (Trustee: L. Fish), P.O. Box 1984, Amohau Street, Rotorua.

ZL1AVH-Alder, S. H., 19 Horoeka Avenue, Mt Eden, Auckland 3.

ZL1AVI-Kyle, B. V., 76 St. Andrews Road, Epsom, Auckland 3.

ZL1AVJ—Harper, M. J., 34 Tuatara Drive, Kamo. ZL1AVK—Ruffell, W. L., 8 St. Aubyn Street, Devonport. Auckland 9.

ZL1AVL—Manning, A. J., 7 Churchill Street, Putaruru. ZL1AVM—Means, C. B., 22 Miles Crescent, Newlands, Wellington 4.

ZL1AVN—McElwain, B. R., 12 Vine Street, Hamilton. ZL1AVO-Robertson, V. S., 2 Jaemont Avenue, Te Atatu South, Auckland 8.

ZL1AVP-Tweedie, L. E., 5 Quebec Road, Milford, Auckland 9

ZL1AVQ—Auckland University Radio Club, (Trustee: B. Egan), 32 Princes Street, Auckland 2.

ZL1AVR—Rowe, J. P., 24 Okareka Place, Pakuranga, Auckland.

ZL1AVS—Burge, A. W., 55 Halver Road, Manurewa. ZL1AVT-Alexander, C. J., 29 Kauri Road, Whenuapai. ZL1AVU-Garlick, C. W., 4 James Place, Papakura.

- ZL1AVV—McFayden, E. J., 30 Princess Street, Marton. ZL1AVW-Wing, B. E., 11 McMurdo Avenue, Melville, Hamilton.
- ZL1AVX-Johnston, D. J., 25 Buckland Road, Epsom, Auckland 3.
- ZL1AVY-Tennent, D. R., 107a New Windsor Road, Avondale, Auckland 7.
- ZL1AVZ-Ryall, B. J., 195 Te Atatu Road, Te Atatu South, Auckland 8.
- ZL1AWA-Voss, A., 28 Matipo Street, Taupo.
- ZL1AWB-Ryan, R. V., 50 Surf Road, Stanmore Bay, Whangaparaoa.
- ZL1AWC—Twaites, D. F., 33 Commodore Parry Road, Milford, Auckland 9.
- ZL1AWD-Parsons, J. N., 64 Mt. Roskill Road, Mt. Roskill, Auckland 4.
- ZL1AWE-Nicholson, A. J., 3/30 Atarangi Road, Greenlane, Auckland 5.
- ZL1AWF—Sexton, E. A., Paparimu R.D., Papakura. ZL1AWG—Palmer, H. W., 26 Hilton Road, Lynmore.
- Botorua. ZL1AWH-Sopp, C. E., Cable Bay, Block Road, R.D. 3. Kaitaia.
- ZL1AWI-Bott, A. G., Karangahake Orchards, River Road. P.O. Box 28, Karangahake, via Paeroa.
- ZL1AWJ—Carey, R. G., Turanga-o-moana, Matamata. ZL1AWK—Moore, G. D., 7 Brighams Creek Road, Whenuapai, Kumeu, R.D. 2, Auckland.
- ZL1AWL-Brooks, D. S., C/- Claris P.O., Medlands Valley, Great Barrier Island.
- ZL1AWM-Rudkin-Whyte, L. V., 186 Balmoral Drive, Tokcroa.
- ZL1AWN—Erasmus, J. D., 99 Balmoral Drive, Tokoroa. ZL1AWO—Pepperell, B. F., 17 Armagh Street, Hamilton. ZL1AWP—Dennison, A. S., Heron Park Orchard, Levley
- Lane, Katikati.
- ZL1AWQ-Johnson, P. R., 22 Huia Street, Rotorua. ZL1AWR-Goodacre, H. W., Pickering Road, R.D. 3. Hamilton.
- ZL1AWS-O'Connell, K. D., 97 Malfroy Road, Rotorua. ZL1AWT-Everitt, A. B., 11 Luplau Crescent, Howick.
- ZL1AWU-Rouse, C. A., 18a Ridge Road, Browns Bay, Auckland 10.
- ZL1AWV-Vause, W. S., 21 Huia Road, Otahuhu, Auckland 6.
- ZL1AWW-Welford, G. H., 30 Churchill Avenue. Manurewa.
- ZL1AWX—Jillings, M. A., 71 Hutchinson Road, Howick, Auckland.
- ZL1AWZ-Leitch, T. G., 38 David Street, Morrinsville.
- ZL1AXA—Burgess, G. W., 14 Binda Place, Howick. ZL1AXB—Murdoch, P. J., 183 Glengarry Road, Glen Eden, Auckland 7
- ZL1AXC-Chapman, C. B., 35 Cosgrave Road, Papakura. ZL1AXD-
- ZL1AXE—Spackman, M. L., The Vicarage, 20 Church Street, Devonport, Auckland 9. ZL1AXF—McRae, E. D., 33 Ewings Road, Whangarei.
- ZL1AXG-Woods, M. H., 31 King Street, Grey Lynn, Auckland 2.
- ZL1AXH-
- ZL1AXI--Foote, J. R., Dip Road, Kamo.
- ZL1AXJ-Waring, B. A., 50 College Road, St Johns, Auckland 6.
- ZL1AXK—Edgar, L. D., 11 Puriri Road, Whenuapai. ZL1AXL-Roberts, B. L., 148 Terry Street, Blockhouse Bay, Auckland 7
- ZL1AXM--Cook, K. J., 105 Forrest Hill Road, Forrest Hill, Auckland 10.
- ZL1AXN-Anderton, T. E., 734 Massey Road, Mangere Central.
- ZL1AXO—Bareman, K., 17 Matipo Road, Te Atatu North, Auckland 8.
- ZL1AXP—Voss, F. (Mrs), 28 Matipo Street, Taupo.

- ZL1AXQ—Hardwick, D. B., 80 Rawhiti Avenue, Matamata. ZL1AXR—Rogers, L. F. C., 21 Alma Street, Te Atatu, Auckland 8.
- ZL1AXS-ZL1AXT-DeLuca, B. C., 18 Gwilliam Place, Freemans
- Bay, Auckland 1 ZL1AXU—Orchard, M, P., 1 The Heads, Whakatane. ZL1AXV—Richardson, K, R., 38 Elliot Street, Papakura. ZL1AXW-Truscott, W. P., 21 Ihaka Place, Papatoetoe,
- Auckland. ZL1AXX-Smith, R. I., Caton Road, R.D. 2, Waitakere, Auckland 8.
- ZL1AXY-Hjorring, B. G., 48 Smythe Road, Henderson, Auckland B.
- ZL1AXZ-Sample, K. W., Kawerau Straight, R.D. 2, Whakatane.
- ZL1AYA-D'Arcy, A. E., 3 Sea Vista Avenue, Birkdale, Auckland 10.
- ZL1AYB—Bowkett, J. A., 19 School Road, Ngongotaha. ZL1AYC—Shipman, N. J., 15 Masefield Street, Howick. ZL1AYD—Thomson, J. D., 15a Milford Road, Milford,
- Auckland 9. ZL1AYE-Midwinter, G. E. D., Otalka Valley Road, R.D. 10, Whangarei.
- ZL1AYF-Price, D. A., 115 Upland Road, Remuera. Auckland 5.
- ZL1AYG—Shepherd, J., 52 Wintere Road, Papatoetoe. ZL1AYH—Wallace, A. D., 56 Pakuna Street, Te Awamutu. ZL1AYI~
- ZL1AYJ-Jones, E., 104b Ravenwood Drive, Forest Hill, Auckland 10.
- ZL1AYK—McMaster, A. J., 19 Mons Avenue, Mt. Roskill, Auckland 4.
- ZL1AYL—Young, M. G., 9 Orakau Avenue, Auckland 3. ZL1AYM—Tennant, C. H., 4 Brent Place, Manurewa.
- ZL1AYN-Lowe, R. A., 64 Taumahi Street, Bulls. ZL1AYO-Seaman, H. A., 86 Taylor Street, Blockhouse
- Bay, Auckland 7 ZL1AYP-Pickles, D. S., 371 Pakuranga Road, Pakuranga, Auckland
- ZL1AYQ-Maindonald, J. D., 17 McKenzie Road, Owhata. Rotorua.
- ZL1AYR-Hylands, R. J., 37 Princess Street, Northcote, Auckland 9.
- ZL1AY\$-Stewart, R. W., 232 Great South Road, Remuera, Auckland 5.
- ZL1AYT-Valois, D. A., 46 McDowell Crescent, Birkenhead, Auckland 10,
- ZL1AYU—Thorley, A., 50 Cosgrave Road, Papakura. ZL1AYV—Dingley, M. J., 2139 Great North Road. Avondale, Auckland 7.
- ZL1AYW-Speedy, S. L., 3 O'Neills Avenue, Takapuna, Auckland 9.
- ZL1AYX—McLeod, M. N. A., Albany Heights Road, R.D. 2, Albany, Auckland
- ZL1AYY-Candy, F. A., Puketi Road, R.D. 1, Okaihau. ZL1AYZ-Natzke, R. L., 25 Racecourse Road, P.O. Box 87, Te Awamutu.
- ZL1AZA—Robertson, K. F., 27 Napier Avenue, Takapuna, Auckland 9.
- ZL1AZB-Young, R. D., 29a George Street, Te Kulti, P.O.
- ZL1AZC-Wilson, G. E., 1 Kiwi Street, Hamilton.
- ZL1AZD-
- ZL1AZE-Miller, B. D., 20 Imperial Terrace, Kilbirnie, Wellington 3.
- ZL1AZF-Powell, W. L., Silverhill Road, Te Hana. ZL1AZG-Greene, R. E., 40 Hope Farm Avenue, Pakuranga
- ZL1AZH-Gower, R. A., C/- Regional Engineer's Office, Federal House, Auckland.
- ZL1AZI-Hirst, J. R., 1a Northboro Road, Takapuna, Auckland 9.
- ZL1AZJ-Sutherland, S. F., Ruaroa Road, R.D. 1, Kaitaia.

```
ZL1AZK
```

ZL1AZK-Keucke, F. H., 45 Weston Avenue, Mt. Albert, Auckland 3

ZL1AZL-Greenhalgh, R. W., KieKie Road, Aria.

ZL1AZM—Addison, R. R., 14 Clifton Road, Whakatane, ZL1AZN—Fisher, J. W. R., 38 Sylvan Avenue, Woodlands Park, Auckland 7

ZL1AZO-

ZL1AZP-Anderson, B. B., 43 Hallberry Road, Mangere East, Auckland.

ZL1AZQ-McKenzie, H. W., 121 Kiripaka Road, Whangarei.

ZL1AZR—Rea, J. S., 119 Kohimarama Road, Auckland 5. ZL1AZS—Christeson, E. L., 76 Highland Park Parade, Howick, Auckland

ZL1AZT-Clare, I. K., Minden Road, Te Puna R.D. 6, Tauranga.

ZL1AZU—Netson, B. C., 59 Percy Street, Warkworth, ZL1AZV—Ward, A. J., 75 Cockle Bay Road, Howick.

ZL1AZW-Zajonskowski, K. L., 34 David Street. Morrinsville.

ZL1AZX—Armstrong, J. B., 10 Normanby Street, Kawerau. ZL1AZY—Green, R. G., 9 Bruce Avenue, Hamilton.

ZL1AZZ—Darrall, P. G., 11 Irene Crescent, Hamilton, ZL1BAA—Radio Society of N.Z. (Inc.) (Trustee; J. K. Clarke), 106 Bassett Road, P.O. Box 2336,

Auckland 1. ZL1BAB—Cooper, W. G., 41a Kelvin Road, Papakura. ZL1BAC—Hilliar. S. W., 10 Rewhiti Avenue, Takapuna, Auckland 9.

ZL1BAD-Knowles, R. E., Main Road, Onewhero, R.D. 2, Tuakau.

ZL1BAE—Waihi Branch NZART, (Trustee: O. J. Morgan), 1 Waitete Road, Waihi.

ZL1BAF-Woolf, H. L., 8 Rawhiti Road, Onehunga, Auckland 6

ZL1BAG—McLennan, E. D., 18 Oxford Street, Tirau. ZL1BAH - Waiuku College Amateur Radio Club, (Trustee: A. K. Shaw), Waiuku College, Waiuku.

ZL1BAJ—Candy, B. R., Puketi Road, R.D. 1, Okaihau. ZL1BAK-Burrage, D. H., 11 Bannister Place, Avondale, Auckland 7

ZL1BAL—Ball, T., Second Avenue, Waihou. ZL1BAM—Milligan, J. W., 88 Tiraumea Drive, Pakuranga. ZL1BAN—Hampton, D. G., 1079 Heaphy Terrace.

Hamilton.

ZL1BAO—Martin, H. R., 18 Benfora Place, Mangere. ZL1BAP—Parr, J. B., 9 Willow Way, Pakuranga, Auckland. ZL1BAQ-Heaven, K. J., 46 Workers Road, Wellsford.

ZL1BAR-Martensen, J. E., 34 Lawrence Street, Herne Bay, Auckland 2.

ZL1BAS-Morgan, O. J., 1 Waltete Road, Waihi.

ZL1BAT-Rodda, D. E. A., Heights Road, Helveta, R.D. 1, Pukekohe.

ZL1BAU-Bakulich, J. V. M., Mt. Wesley Road, Dargaville. ZL1BAV—Vial, S. B., 159 Kowhai Road, Mairangi Bay, Auckland 10.

ZL1BAW—Coleman, R. E., 94 Darraghs Road, Tauranga, ZL1BAX—Slaven, C. P., 19 Gilmore Street, Waihi, ZL1BAY—Tariton, B. M., 8 North Road, Kaitaia, ZL1BAZ—Davis, S. R., 16 Toru Road, Te Atatu,

Auckland 8.

ZL1BBA—Orchard, B. P., 10 Donnelly Street, Waihi. ZL1BBB—Scrivener, G. Y., 295 Ocean Beach Road, Mt. Maunganui.

ZL1BBC—Coleman, P. J., R.D. 5, Whangarei. ZL1BBD—Sowerby, J., 24 Blackburn Street, Hamilton. ZL1BBE-

ZL1BBF-Lusk, R. I. B., 130 Scenic Drive, Titirangi, Auckland 7

ZL1BBG-Dennis, D. M., Main Road, Te Hana.

ZL1BBH—Green, A. T., 98 Albert Street, Hamilton East.

ZL1BBJ-Ede, R. P. A., 76 Idlewild Avenue, Mangere.

ZL1BBK-Allan, G. D., 194 Beach Road, Campbells Bay, Auckland 10.

ZL1BBL-Taylor, M. F. W., 9 Earle Place, Acacía Bay, Taupo.

ZL1BBM-Ashton, H. G., 1 Border Road, Henderson, Auckland 8.

ZI,1BBN-Parr, W. R. (Mrs), Paterangi Road, Te Awamutu. ZL1BBO-Mahurangi College Radio Club, (Trustee: T. N.

Lowry) Woodcocks Road, Warkworth. ZL1BBP—Peace, K. I., P.O. Box 69, Te Awarnutu. ZL1BBO—Maxwell, S. G., 26 Tuhaere Street, Orakei,

Auckland 5 ZL1BBR-Chamberlin, P. C., Kawakawa Bay Road, No. 2

R.D., Clevedon. ZL1BBS-Kilpatrick, G., 48a Polygon Road, St. Heliers,

Auckland 5.

ZL1BBT—Orchard, H. M., 10 Donnelly Street, Waiht. ZL1BBU—Medley, E. J., 10 Grosmont Terrace, Otumoetai, Tauranga.

ZL1BBV---Mangakino Amateur Radio Club, P.O. Box 93, Mangakino.

ZL1BBW—Williams, K. Ody Road, Taurikura, R.D. 4, Whangarei.

ZL1BBX-Warriner, A. D., 17 Balgay Street, Christchurch

ZL1BBY-Brown, F. W. S., 221b Queen Street, Pukekohe. ZL1B8Z---Holt, R., 10 Collingwood Road, Waluku

ZL1BCA—Batkin, B. W., Batkin Road, Hunua, R.D. 4, Papakura.

ZL1BCB-

ZL1BCC—Crandatl, S., Waihi Road, Paeroa. ZL1BCD—Roberts, A.R., 33 Elliott Crescent, Rotorua. ZL1BCE-Eckett, J. A. B., 23 Pinedale Place, Henderson, Auckland 8.

ZL1BCF-Williamson, D. E. J., 73 Hillcrest Road, Papatoetoe.

ZL18CG—Ridpath, J. I., 50 David Avenue Manurewa. ZL18CH—Davis, B. C. B., 3 Dennis Avenue, Manurewa.

ZL1BC1—Sinctair, N. S., 29 Meadowland Street, Tauranga. ZL1BCJ-Steel, R. E., 81 St Heliers Bay Road, St Heliers, Auckland 5.

ZL18CK—Braddock, F. W., 18 Masters Avenue, Hillcrest, Hamilton.

ZL1BCL-Lewis, V. A., 38b Burwood Road, Matamata. ZL1BCM—Mayhill, F. A., 24 Manson Street, Tauranga. ZL1BCN—Messent, A. J., Main Road, Murapara (Box 23).

ZL1BCO-Taupo Branch NZART (Trustee: Mr M. Taylor), Taupo County Depot, Spa Road, Taupo.

ZL1BCP-Peters, S. J., 43 Wilsher Crescent, Henderson, Auckland B.

ZL1BCQ-

ZL1BCR-Ball, W. J. R., 39 Wordsworth Road, Manurewa.

ZL1BCS—Cole, B. L., 72 Florance Avenue, Orewa. ZL1BCT—Kelston Boys' High School Radio Club, (Trustee: J. W., Goodsir), Archibald Road, Kelston, Auckland 7.

ZL1BCU—Boyd, B. F., 34 Carrington Street, Hamilton. ZL1BCV—White, J. W., 58 Kohe Street, Whangarei. ZL1BCW—Webber, H. C., 405 Karaka Road, Thames. ZL1BCX—Fasher, N. C., 123 Peary Road, Mt. Eden.

Auckland 3.

ZL1BCY—McMillan, D. L., 371 Dey Street, Hamilton. ZL1BCZ—Drummond, D. T., 5 Griffiths Place, Hamilton. ZL1BDA—Wright, C. C., 3 Livingstone Street, Milford,

Auckland 9.

ZL1BDB—Trevena, M. R., 7 Waimahia Avenue, Weymouth.

ZL1BDC—Brown, N. G., 8 Tui Grove Te Haumi, Paihia. P.O. Box 136.

ZL1BDD-Bowman, M. J., 8 Morice Place, Torbay, Auckland 10.

ZL1BDE-Visser, P., 4 Kauri Crescent, Matamata.

ZL1BDF-Petherick, G. R., 84 Aroha Avenue, Morningside, Auckland 3.

ZL1BDG-Mogford, F. L., 74 Buchanan Street, Opotiki.

ZL1BDH—Latham, G. W., 3 Anzac Street, Te Kuiti. ZL1BDI-Draper, N., 61 Churchill Road, Murrays Bay. Auckland 10.

ZL1BDJ—Monk, E. C. (Mrs), Matipo Avenue, Rotorua. ZL1BDK—Jacobson, C. J., Tatton Road, Whatitiri, Whangarei

ZL1BDL—Meese, R. R., 3/13 Nixon Street, Whangarei, ZL1BDM—Hansen, A. F., No. 8 Punga Grove Avenue, Whangarei.

ZL1BDN—McGivern, J. A., 11 Marlowe Road, Avondale.

Auckland 7, ZL1BDO—Mancer, E. S., 4 Poto Street, Henderson. Auckland 8.

ZL1BDP—James, J. R., 53 Hatepe Avenue, Taupo. ZL1BDQ—Wilkins, S. J., Baddeleys Beach, R.D. 2, Matakana, Warkworth.

ZL1BDR-Griffin, E. F., 1 Charlton Avenue, Mt. Eden. Auckland 3.

ZL1BDS—McKay, G. N., 5 Takitimu Street, Whenuapai. ZL1BDT—Ngakura, N. H., 31 Wihongi Street, Kaikohe. ZL1BDU—Catton, B., 39 Andrew Road, Howick.

ZL1BDV-Schischka, G., 4 Gilliam Street, New Lynn, Auckland 7

ZL1BDW-Brown-Douglas, F. J., 14 Cross Street, Taumarunui.

ZL1BDX—James, R. A., 1/21 Kaimanawa Street, Taupo. ZL1BDY—Seakins, J. M., 99 Exmouth Road, Northcote, Auckland 9.

ZL1BDZ—Hoban, C. J. (Mrs), No. 4 R.D., Te Awamutu. ZL1BEA—Hall, V., 31 Cliff Road, St. Heliers, Auckland 5.

ZL1BEB—Williams, P., Kaihere, R.D., Ngatea.
ZL1BEC—Cobham, W. T. R., 24 Pukeko Street, Rotorua.
ZL1BED—Patchett, P. B., 35a Roberts Road, Te Atatu

South, Auckland 8. ZL1BEE—Takapuna Grammar School Radio Club (Trustee: T. F. Turnwald), Lake Road, Takapuna, Auckland 9.

ZL18EF-Fitzgerald, B. E., 39 Mount View Road, Melville, Hamilton.

ZL1BEG—McFarlane, G. M., 3 Tui Place, Tokoroa. ZL1BEH-Trye, K. G., 20 Lewisham Street, Howick, Auckland.

ZL1BEI-Ellis, M. R., 74 Kirkbride Road, Mangere. Auckland.

ZL1BEJ-McCabe, B. R., 130 Takahe Road, Titirangi, Auckland 7

ZL1BEK--McTurk, P. T. R., 40 Silverton Road, Waihi. ZL1BEL-Lees, B., 76 Cascades Road, Pakuranga.

ZL1BEM—Lockwood, D. C., 7 Adams Street, Waihi, ZL1BEN—Doggett, G. A., 35 Puriri Road, Manurewa, ZL1BEO—Witheford, P. S., Staff Residence, Northlands

Base Hospital, Whangarei.
ZL1BEP—Sharpe, N. R., Twinpines Orchard, Waimate
North, R.D. 1, Ohaeawai.

ZL1BEQ—McGee, S. R., 3 Ion Road, Kawerau. ZL1BER—Crompton, R. P. K., Beinga Road, Kerikeri. ZL1BES—Barnes, J. C., 27 Magnolia Grove, Maungaraki, Lower Hutt.

ZL1BET-Copeman, N. J. P., 13 Stewart Street, Helensville.

ZL1BEU—Jamieson, L. I. D., Ngunguru, R.D. 3, Whangarei

ZL1BEV—Derecourt, M. J., 2 Stonehurst Avenue, Waiuku. ZL1BEW—Dodds, P. B., 42 Waimarie Road, Whenuapai Village, Kumeu.

ZL1BEX-Wilson, A. L. G., 16 Rahiri Road, Mt. Eden, Auckland 4.

ZL1BEY—Smart, J. B., 157 Rodney Street, Wellsford. ZL1BEZ—Miller, P. G., C/- Sergeants Mess, RNZAF Base.

ZL1BFA-Butcher, P. D., 20 Arrowsmith Avenue, Taupo. ZL1BFB-Walker, I. D., 51 Caronia Crescent, Mt. Roskill. Auckland 4.

ZL1BFC-Hellyar, J. S., 25 Queens Parade, Devonport, Auckland 9.

ZL1BFD-Potts, G. C., Alfriston Road, R.D. 1, Manurewa. ZL1BFE—Harland, J. C., 9 Papanui Street, Tokoroa. ZL1BFF—McGrath, R., 4 Bank Street, Birkenhead, Auckland 10.

ZL1BFG—Cooper, E. H., 38 Parkinson Avenue, Mt. Roskill, Auckland 4.

ZL1BFH—Perkins, I. M., 74 Tawari Street, Matamata. ZL1BFI—Lilley, E. J., 68 Houchens Road, Hamilton.

ZL1BFJ—Adams, L. B., 3 Sim Street, Matamata, ZL1BFK—Frakes, M. C., 21 Beach Road, Howick, Auckland.

ZL1BFL—Spayde, S. L., 44 Selwyn Road, Rotorua. ZL1BFM—Andrews, T. I., 17 Grey Street, Hamilton. ZL1BFN—Mathew, J. C. H., Shepherds Road, Kerikeri. ZL1BFO—Griffin, J. D., C/- Mrs D. Yates, Karaka, R.D. 1,

Papakura. ZL1BFP-Gaeth, O. J., 125 Linton Crescent, Whangamata.

ZL1BFO.—Daniel, A. G., 8 Clifford Street, Kaikohe. ZL1BFR.—Beere, J. E. L., Main Road, R.D. 1, Howick. ZL1BFS.—Blrt, K. D., 12 Ngahere Drive, Maunu,

Whangarei.

ZL18FT-Wesley Intermediate School Radio Club (Trustee: R. J. Rowntree), Sandringham Road Extension, Mt. Roskill, Auckland 4.

ZL1BFU-ZL1BFV—Huckin, G. S., 56 Don Buck Road, Massey, Auckland 8.

ZL1BFW~ ZL1BFX—Broadley, C. L., Waiotahi Creek Road, Thames. ZL1BFY—Donaldson, D. L., 80 Woolfield Road, Papatoetoe.

ZL1BFZ—Robertson, D. J., 29c Youngs Road, Papakura. ZL1BGA-Martin, G. K., 18 Ben Lora Place, Mangere, Auckland

ZL1BGB-Glover, D. R., 5 Wyman Place, Pakuranga. ZL18GC-

ZL18GD-Wensley, C. E., 1/27 Puriri Avenue, Greenlane, Auckland 5.

ZL1BGE-Whitwell, G. R., 274 River Road, Kawerau.

ZL1BGF-Kerr, I. S., 27 Lewis Street, Paeroa.
ZL1BGG-The Boys' Brigade First Papakura Coy. Radio
Club, (Trustee: C. W., Garlick), 4 Coles Crescent, Papakura.

ZL1BGH—George, L. H., 65 King Street, Opotiki, ZL1BGI—McCarthy, A. C., 33b Steeles Lane, Rotorua, ZL1BGJ—Morrison, C. W., 3 Duncansby Road,

Whangaparaoa.

ZL1BGK—Bugden, K. G., Nikau Gardens, State Highway 2, Thornton, Whakatane. ZL1BGL—Zammit, P., 2 Iwitahi, R.D. 3, Taupo, ZL1BGM—Mocely, J. (Mrs), 38 Cliffview Drive, Green Bay,

Auckland 7. ZL1BGN-Rounthwaite, T., 18 Duncan Avenue,

Henderson, Auckland 8.

ZL1BGO-Davies, S. N. M., 90b Hastings Road, Mairangi Bay, Auckland 10.

ZL1BGP—Paltridge, J. S., 37 Imrie Avenue, Mangere East. Auckland. ZL1BCQ-McChesney, G. R., 5/1 Oakland Avenue,

Papatoetoe. ZL18GR-Maddern, D. E., 14 Pukerau Crescent, Te

Awamutu.

ZL1BGS—Waterhouse, F. L. K., Flat 5, Block B, Pensioner Flats, Maitland Street, Tauranga.

ZL1BGT—Reid, L. R., 17 Luxor Place, Rotorua. ZL1BGU—Felt, B., Shelly Beach Road, St. Marys Bay.

Auckland.

ZL1BGV—Roberts, M. J., 11 Grey Street, Hamilton. ZL1BGW-Maude, R. de M., 68 Levers Road, Otumoetai,

ZL1BGX-McKenzie, R. D., 13 Edinburgh Street, Tokoroa.

ZL1BGY-

ZL1BGZ-Forsyth, A. B., 37 College Road, Edgecumbs.

ZL1BHA

ZL1BHA-

Thames.

ZL1BHB-Riley, S. G., 18 Charles Road, Rotorua.

ZL1BHC-Walker, A. N., Grane Road, R.D. 5, Hikurangi. ZL1BHD-Weddell, E. I., Seaview Avenue, Te Puru,

ZL1BHE-Matthews, J. F., 26 Oceanview Road, Northcote, Auckland 9.

ZL1BHF-Sloan, W. J., 20 Acorn Street, Royal Oak, Auckland 3.

ZL1BHG-

ZL1BHH-Ferguson, M. E., 2/323 Ocean Beach Road, Mt. Maunganui.

ZL1BHI—Dingle, W. M., 27 Caseys Avenue, Hamilton. ZL1BHJ—Dekker, J., 3 Irene Crescent, Hamilton.

ZL1BHK-Riley, J., 51 Pallant Street, Manurewa, Auckland.

ZL1BHL—Taylor, G. L., 46 Bruce Avenue, Hamilton. ZL1BHM—Te Puke C., Foster Road, R.D. 10, Frankton. ZL1BHN—Oliver, K. W., 14 Reese Jones Grove,

Maungaraki, Lower Hutt.

ZL18HO—Vickerstaff, A. A., 75 Waller Avenue, Bucklands Beach.

ZL1BHP—Potter, W. H., 23 Tui Street, Whakatane. ZL1BHQ-Powell, J. F., 47 Becroft Drive, Forrest Hill, Auckland 10.

ZL1BHR—Kovac, J. D., 32 Bond Street, Grey Lynn, Auckland 2.

ZL1BHS-Hutchinson, S. R., 293 St. Heliers Bay Road,

Auckland 5. ZL1BHT—Newcombe, B. R., Wallace Road, Te Puna, R.D. 2, Tauranga.

ZL1BHU-Watson, A. G., 204a Valley Road, Mt. Maunganui.

ZL1BHV—Davis, W. H., 55 Pihanga Street, Taupo. ZL1BHW—Parkinson, M. A., 24 Roosevelt Road, Rotorua. ZL1BHX—Travaglia, A. S., Engineer's Residence, Kaitaia Hospital.

ZL1BHY—Young, C. R., 1 Aotearoa Terrace, Murrays Bay, Auckland 10.

ZL1BHZ—May, D. V., 20 Learmonth Avenue, Birkenhead, Auckland 10.

ZL1BIA—Oliver, J., 29 Kotare Crescent, Whangarei. ZL1BIB—Hookman, C. R., 3/405 Beach Road, Mairangi Bay, Auckland 10.

ZL1BIC—Byrnand, J. L., 7 Albert Street, Hawera. ZL1BID—Davis, E. T., 26 Royal Arch Place, Papakura. ZL1BIE—Belcher, G. M., C/- Post Office, Te Poi.

ZL1BIF-Stowers, S. J. (Miss), 6/42 Fulford Street, New

Plymouth. ZL1BIG-Cubitt, B. L., 48 Verbena Road, Birkdale, Auckland 10.

ZL1BIH-Hearn, W. A., 10 The Nook, Algies Bay, Warkworth.

ZL1BII—Shakes, L. C., 131 River Road, Kawerau. ZL1BIJ-Williams, L., 8 Anna Watson Road, Bucklands Beach.

ZL1BIK-McKechie, K. H., 13 Cron Avenue, P.O. Box 69-051, Te Atatu South, Auckland 8.

ZL1BIL—Edwards, M. B., 17 Citrus Avenue, Waihi Beach. ZL1BIM-E. C. (Mrs), 58 Peary Road, Mt. Eden, Auckland 4.

ZL1BIN—Nutting, L. G. W. D., 71 Golf Road, New Lynn, Auckland 7.

ZL1BIO-Shepherd, I. H., 11a Saltburn Road, Milford, Auckland 9.

ZL1BiP-Bingham, L. H., Walker Road East, R.D. 2, Katikati.

ZL1BIQ-Puffett, K. H., 51 McKean Avenue, Manurewa. ZL1BIR—Rist, T. A., 73 Miller Road, Mangere, Auckland. ZL1BIS-

ZL1BIT-

ZL1BIU-Tan Yok Kuang, 18 Kororo Street, Northcote, Auckland 9.

ZL1BIV-Garrett, J. W., 45 Karaka Road, Beachlands, Auckland.

ZL1BIW—Ward, L., 60 Ranfurly Street, Dargaville. ZL1BIX—Soppet, D. A., 4a Ruarangi Road, Mt. Albert, Auckland 3.

ZL18IY-Kralicek, V. J., 232 Bucklands Beach Road, Bucklands Beach.

ZL1BIZ-Henry, E. J. (Mrs), 27 McRae Road, Mt. Wellington, Auckland 6.

ZL1BJA—Hendriksen, R. H. E., No. 1 R.D. Wellsford, ZL1BJB—Beale, D. J., Great South Road, P.O. Box 39, Drury

ZL1BJC—Orchard, L. J. (Mrs), 1 The Heads, Whakatane. ZL1BJD—Woods, G., 99 Chapel Street, Tauranga. ZL1BJE—Appleby, W. M., Moodys Road, R.D. 2,

Whakatane.

ZL1BJF-Henderson, A. R., 322 St. Heliers Bay Road, St.

Heliers, Auckland 5.
ZL1BJG—Gray, M. F., 31 Karewa Parade, Papamoa Beach, Te Puke.

ZL1BJH-Jekel, H. B., 8 Oregon Place, Papakura. ZL1BJI-Goodsir, J. W., 163 Glengarry Road, Glen Eden, Auckland 7

ZL1BJJ-Morris, T. J., Paparoa Road, Te Puna, R.D. 2, Tauranga.

ZL1BJK-Turner, R. W., Main Road, Waitoa.

ZL1BJL—Williams, C., R.D. 2, Cambridge. ZL1BJM—Cain, M. C., 10 Valiant Street, Mangere,

Auckland. ZL1BJN-Thomas, G. A., 2/46 Seabrook Avenue, New

Lynn, Auckland 7. ZL1BJO—Wright, W. O., 2 Forbes Place, Kawerau. ZL1BJP—Parkinson, D. J., 36 Western Road, Otumoetai,

Tauranga.

ZL1BJQ-Wardley, D. E., 45c Ambler Avenue, Glen Eden, Auckland 7. ZL1BJR-Daley, J. A., 65 Lincoln Park Avenue, Massey,

Auckland 8. ZL1BJS—Thomas, N. W., 38 Splitt Avenue, Hamilton. ZL1BJT—Dougan, J. K., 35 Tunis Road, Panmure,

Auckland 6.

ZL1BJU-Thompson, N. K., 20 Waipuia Place, Greenhithe, R.D. 1, Auckland. Postal address C/-Counter, P.O. Takapuna.

ZL1BJV—Turvey, W. W., 20 Nutsey Avenue, Northcote, Auckland 9. ZL1BJW—Hallett, W. R., 37 Savoy Road, Glen Eden,

Auckland 7.

ZL1BJX—Clark, L. D. G., 140 East Tamaki Road, Otara. ZL1BJY—Garratt, P. R., 294 Massey Road, Mangere East, Auckland.

ZL1BJZ-Farmer, J. B. S., 88 Ngapuhi Road, Remuera, Auckland 5.

ZL1BKA-McIntosh, G. S., 10 Watson Place, Papatoetoe. ZL1BKB-Williams, C., 13 Wren Street, Woodlands, Waikanae,

ZL1BKC—De Langen, H., 9 Cambrai Road, Raglan. ZL1BKD—Busch, C. T., Post Office, Kawakawa. ZL1BKE—Beets, R. F., 7 Beswick Place, Birkdale,

Auckland 10.

ZL1BKF--Marshall, O. H., 16 Dunlop Drive, Pauanui Beach.

ZL1BKG-Wilson, T. G., 53 Tirimoana Road, Te Atatu, Auckland 8.

ZL1BKH-Hogg, E. R., 33 Simmons Crescent, Rotorua. ZL1BKI-Salmond, A. R., 2/9 Tomintoul Place, Howick. ZL1BKJ-Sandlant, P. W., 17 Mayfair Crescent, Mairangi

Bay, Auckland 10. ZL1BKK-Edwards, K., 49 Ocean Road, Surfdale, Waiheke

Island. ZL1BKL-Lister, M. W. (Mrs), Jeffs Road, East Tamaki,

R.D., P.O. Box 23-508, Papatoetoe East.

ZL1BKM-Engel, F. W., 33 Fairmount Road, Glen Eden, Auckland 7.

ZL1BKN—Codlin, J. K., 3 Little Barrier Avenue, Whangaparaoa, Auckland.

ZL1BKO-Blyth, R. A., 6 Holland Avenue, Point England, Glen Innes, Auckland 6.

ZL1BKP—Searle, K. A., 453 Nelson Road, Gisborne. ZL1BKQ—Adams, C. W., 18 Tizards Road, Birkenhead, Auckland 10.

ZL1BKR-Hill, R. S., 14 Sunline Place, Ngongotaha. ZL1BKS—Cunliffe, V. G., Newells Road, R.D. 3, Hamilton. ZL1BKT—Dowding, P., 14 Galbraith Avenue, Hamilton. ZL1BKU—Davidson, B. J., 9 Tennyson Street, Northcote,

Auckland 9

ZL1BKV—Coombs, M. J., 3 Poutini Place, Manurewa. ZL1BKW—Lees, G. D., Coulter Road, R.D. 1, Henderson,

Auckland 8.

ZL1BKX-Rodgers, A. E., 19 Cradock Street, Avondale, Auckland 7.

ZL1BKY-Rankin, A. N., 85 Hastings Road, Mairangi Bay, Auckland 10.

ZL1BKZ-Henry, R. I., 27 McRae Road, Mt. Wellington, Auckland 6.

ZL1BLA-Fox, R. D., 36 Galaxy Drive, Mairangi Bay, AUckland 10.

ZL1BLB-Churcher, B. R., 2 Thorley Street, Mt Eden, Auckland 4.

ZL1BLC-Morris, T. N. J., 47 Boundary Road, Blockhouse bay, Auckland 7.

ZL1BLD—Ward, M. T., Silverhill Road, Te Hana. ZL1BLE—Stewart, B. D. Tauhoa, RD 4, Warkworth.

ZL1BLF—Poletti, M. J., 69 Willis Road, Papakura. ZL1BLG—Borland, K., Wendywood Lane, Kerikeri. ZL1BLH—Wilson, A. B., 17b Mizpah Road, Waiake,

Browns Bay, Auckland 10.
ZL1BII—Ockleston, E. W., 25 Killarney Street, Takapuna. Auckland 9.

ZL1BLJ-Hutchins, M. G. D., 92 Pah Road, Howick, Auckland.

ZL1BLK-Elliott, K. L., 349a Beach Road, Browns Bay, Auckland 10

ZL1BLL—Adnitt, E. (Mrs), 10 Laing Place, Otumoetai, Tauranga

ZL1BLM-

ZL1BLN—First Tauranga Scount and Venturer Radio CLub, Cora Judd Scout Centre, (trustee: R. A. Gilett), Botanical Road, Tauranga

ZL1BLO-Holt, J., 10 Collingwood Road, Waiuku. ZL1BLP-Burrows, G., 7.25 Waterview Road, Papakura, Auckland.

ZL1BLQ—Salmons, R. J., 2 Townhend Cresent, Tauranga, ZL1BLR—Fish, L. G., 14 Willow Avenue, Hannah's Bay, Rotorua.

ZL1BLS-Smith, J. B., 45 Thornlow Street, Glendene, Auckland 7

ZL1BLT—Alderwick, G. B., 7 Outram Grove, Ketson, Lower Hutt.

ZL1BLU-

ZL1BLV—Howells, D., 5 Weka Street, Rotorua. ZL1BLW—Cook, L. J., McCarthy Street, Waihou.

ZI1BLX-Weston, G. A., 179 Rosebank Road, Avondale, Auckland 7.

ZL1BLY-

ZL1BLZ-Tunnicliffe, G. W., 16 Wilding Avenue, Northcote, Auckland 9.

ZL1BMA—Grey, G. R., 24a Dallinghoe Cresent, Milford. Auckland 9.

ZL1BMB—Moroney, P. R., 12 Pallant Street, Manurewa. ZL1BMC—Peters, D. E., 80 Pohutukawa Avenue, Ohope.

ZL15MD-Shaw, R. K., 49 Sea Vista Drive, Pukerua Bay, Auckland 6.

ZL1BME-

ZL1BMF-Kerr, N. I., 10 Tamatea Avenue, Taupo, ZL1BMG—Slone, J., Thornton Road, R.D. 1, Cambridge.

ZL1BMH-Baker, R. F., 2/18 Tui Glen Road, Birkenhead, Auckland 10.

ZL1BMI-Wilson, E. L., 368 Pt Chevailer Road, Auckland 2

ZL1BMJ—Taylor, A. K., 47 Maugham Drive, Bucklands Beach.

ZL1BMK-Watt, R. G., 11a Saltburn Road, Milford, Auckland 9.

ZL1BML—Harris, A. W., 131 Tennessee Avenue, Mangere

ZL1BMM—Dalton, E. V. C., 19 Tautari Street, Orakei, Auckland 5.

ZL1BMN-

ZL1BMO—Silk, G. C., 92 King Street, Cambridge. ZL1BMP--MacMillan, L. P. A., 15 Godden Cresent,

Mission Bay, Auckland 5. ZL1BMQ—Marr, A. H., 27 Houhere Place, Tikipunga, Whangarei

ZL1BMR—Keon, G. G., 261 Sturges Road, Henderson, Auckland 8.

ZL1BMS-Rhodes, J., 281c Hillsbrough Road Mt. Roskill, Auckland 4.

ZL1BMT—Haultain, A., 54 Henderson Street, Whakatane. ZL1BMU—Lowry, M. R., Lowry Road, Bombay, Auckland. ZL1BMV—Walker, V. L., Kings Road, Paihia.

ZL1BMW-Cunningham, M., 1/75 Evelyn Road, Howick, Auckland.

ZL1BMX-Greenaway, W. P., 10 Searanke Place, Hamilton.

ZL1BMY-Clegg, R. J., 47 Churchill Road, Murrays Bays, Auckland 10.

ZL1BMZ—Padgett, A. B., 22 Finnerty Avenue, Howick, Auckland.

ZL1BNA-Marr, W. R. G., 27 Houhere Place, Tikipunga, Whangarei.

ZL1BNB-Newman, M. D., 13 Nikau Street, Wanganui. ZL1BNC—Murray, L. G., 9 Maungawhare Place, Tauranga. ZL1BND—Smith, S. H. G., 37 Gavin Street, Ellerslie,

Auckland 5.

ZL1BNE-Williamson, R., 21 Lyttelton Avenue, Forrest Hill, Auckland 10.

ZL1BNF—James, A. H., Pyes Pa Road, R.D. 3, Tauranga. ZL1BNG—Orton, N. J., 6 Hardley Street, Hamilton. ZL1BNH—Murphy, P. M., Oaklands Road, R.D. 1,

Papakura. ZL18NI-Brant, P. A., 41 Regent Street, Papatoetoe.

ZL1BNJ-Pedersen, W. J., Union Street, Opotiki. ZL1BNK—Painting, F. J., 42 Hospital Road, Kawakawa. ZL1BNL—Schrickel, H. J. E., 8 McPherson Street,

Remuera, Auckland 5.

ZL1BNM—Larcombe, D. C., 2/68 Ireland Road, Panmure, Auckland 6.

ZL1BNN-Brill, A. J., 83 Stoff Avenue, Birkdale, Auckland 10

ZL1BNO-Twiname, M. H., 30 Richard Farrel Avenue, Remuera, Auckland 5.

ZL1BNP-Were, B. J., 5 Hazelwood Avenue, Dinsdale, Hamilton.

ZL1BNO-Gamble, A. A. R., 11a Sunnypark Avenue, Papakura. ZL1BNR-Sando, B. C., 1/76 Heathcote Road, Castor Bay,

Auckland 9. ZL1BNS-Rogers, R. V. J., 79 Whittaker Road, Rotorua.

ZL1BNT-Murray, K. G., 55a Main Avenue, Kensington, Whangarei.

ZL1BNU-Mancer, P. J., 4 Poto Street, Henderson, Auckland 8

ZL1BNV-Keatinge, R. N., 1/13 Minto Road, Remuera, Auckland 5

ZL1BNW--Collins, J. V., 65 Paine Street, Judea, Tauranga.

ZL18NX—Toft, T. B., 19b Ngapuhi Road, Remuera, Auckland 5.

ZL1BNY-Shakes, D. B., 12 Deuxberry Avenue, Northcote, Auckland 9.

ZL1BNZ-Clough, D. L. W., 5 Kelly Street, Rotorua.

ZL1BOA

Rotorua.

ZL1BOA-Wigg, J. D., Flat 1, 57 Rawhiti Road, Onehunga, Auckland 6.

ZL1BOB—Morgan, G. B., 26 Otalka Road, Whangarei.

ZL1BOC—Dennis, G. A., 91 Bridge Street, Opotiki. ZL1BOD—Norrie, B. C., 102 Browns Bay Road, Browns Bay, Auckland 10.

ZL1BOE-Bongard, R. J. P., 72 Oliver Road, Bucklands Beach, Auckland.

ZL1BOF—Urguhart, G. A., 9 Four Trees, Howick. ZL1BOG—Donnelly, D. R., 19 Fairview Street, Hamilton,

ZL1BOH—Dermody, J. M., 40 Bertram Street, Warkworth. ZL1BOI—Clinton-Baker, D., 99 Kiripaka Road, Whangarei. ZL1BOJ—Wilson, W. J., 22 Larcy Road, Lynmore,

ZL1BQK—Rowntree, R. J., 106 New Windsor Road, Avondale, Auckland 7

ZL1BOL—Johnson, A. C., 127 Malfroy Road, Rotorua. ZL1BOM—Glasgow, M. R., Waipapa Block Road, R.D. 6, Tauranga.

ZL1BON—White, N. C., Station Road, Omokoroa, R.D. 2, Tauranga.

ZL1BOO-Charlesworth, J., 97a Pine Avenue, Melville. Hamilton.

ZL1BOP-Emery, N. F., 10 Charmaine Road, Torbay, Auckland 10.

ZL1BOQ—Duffy, D. B. H., 53 Chorley Avenue, Massey, Auckland 8.

ZL1BOR-McNamara, L. (Mrs), 32 Galileo Street, Ngaruwahia.

ZL1BOS—Williams, J. B., Kainui Road, Taupiri. ZL1BOT—Shuker, C. J., 18 Mason Avenue, Pukekohe. ZL1BOU—Moroz, Z., 5 Kayle Glen Road, Massey. Auckland 8.

ZL1BOV-Deacon, J. W., C/- 16 Beach Grove, Omokoroa, R.D. 2. Tauranga.

ZL1BOW-Fendley, G. L., 10 Vanda Place, Greerton, Tauranga.

ZL1BOX—Boys, B. C., C/- Muriwai Lodge, Auckland, ZL1BOY—Minchin, H. E., House 48, C/- Post Office, Arapuni.

ZL1BOZ-Williams, G. C., 1 Valencia Place, Manurewa. ZL1BPA-Corin, T. G., 2 Innistree Drive, Ellerslie, Auckland 5.

ZL1BPB—Smith, R. A., 37 Kensington Road, Waihi, ZL1BPC—Starmer, M. A., 80 Dickson Road, R.D. 7, Papamoa. Te Puke.

ZL1BPD--Cochrane, C. D., 100 Manaia Road, Tokoroa. ZL1BPE-Queen Street Assembly of God Radio Club (Trustees: P. R. Garratt and R. E. Dent), 510

Queen Street, Auckland. ZL1BPF-Wilcox, H. J., 64 Taylor Road, Mangere Bridge, Manukau City.

ZL1BPG-Jones, N. É., 16 Woodbridge Lane, Milford, Auckland 9.

ZL1BPH—Fransham, G. E., 29 Tamaki Avenue, Otahuhu, Auckland 6.

ZL1BPI-Ronke, B. R., Weston Lea Drive, R.D. 2. Hamilton.

ZL1BPJ-

ZL1BPK—Junge, A. G., 128 Stanley Avenue, Te Aroha. ZL1BPL—Kuzinas, J. A., Tanners Point Road, R.D. 1,

ZL18PM—Browne, L. (Mrs), Kerepehi R.D. 1, Paeroa. ZL1BPN-Johnson, E. A., 28 Fifth Avenue, Whangarei. ZL18PO-Bach, E. A., 134 Methuen Road, Avondale, Auckland 7.

ZL1BPP-Wilkins, D. J. H., 9 Selwyn Crescent, Milford. Auckland 9.

ZL1BPQ—Nettleingham, F. J., Matahui Road, Katikati. ZL1BPR-Dunn, J. R., 264 Glenvar Road, Torbay. Auckland 10.

ZL18PS-Winefield, J. W., 15 Seascape Road, Remuera, Auckland 5.

ZL1BPT—Burrage, S. G., 6 Bannister Place, Avondale, Auckland 7

ZL1BPU-Greenman, M., 43a Wheturangi Road, One Tree Hill, Auckland 5.

ZL1BPV—McLellan, A. D., 1 Short Street, Kawerau, ZL1BPW—Foreman, Q. S., 4C Seaview Road, Milford, Auckland 9.

ZL1BPX-

ZL1BPY-Glasson, P. R., 6 Challenger Street, St. Heliers, Auckland 5.

ZL18PZ—Chatfield, D. J., 61 Kurapae Road, Taupo. ZL18QA—Doell, E. D., 11 Sandspit Road, Waiuku, ZL18Q8—Howie, P. C., 28 Pohutukawa Road,

Beachlands.

ZL1BQC-Woolf, P. H., 2 Bourbon Terrace, Karori, Wellington 5.

ZL1BQD—Runciman, R. J., 36 Cardiff Road, Pakuranga, ZL1BQE—Dix, K., 21 Adel Place, Weymouth, Auckland, ZL1BQF—Ryan, L. J., 31 Lewin Road, Epsom Auckland 3, ZL1BQG—McQuillan, P. R., 40 Exminster Street,

Blockhouse Bay, Auckland 7, ZL1BQH—Lawson, T. A., 19 View Road, Glenfield, Auckland 10.

ZL1BQI-

ZL1BQJ—Tetenburg, C. R., 42 Pererika Street, Rotorua. ZL1BQK—Shackleton, R. V., 8 Rongopai Place, Kaitala. ZL1BQL—Weir, R. M., 3 Penbury Place, Avondale East, Auckland 7.

ZL1BQM-Walker, B. F., 23 Jaemont Avenue, Te Atatu South, Auckland 8,

ZL1BQN-Green, E. N., 499 Otumoetai Road, Tauranga. ZL1BQO-

ZL1BQP-Buckton, M. D., 14 Cockle Bay Road, Howick, Auckland.

ZL1BQQ—Lowther, B. L., 5 Grey Street, Opotiki. ZL1BQR—Washer, J. F., Rings Road, Coromandel. ZL1BQS—Sadgrove, P. C., 53 Dignan Street, Point Chevalier, Auckland 3.

ZL1BQT-LeVarre-Waters, I. D., 127 Whitney Street,

Blockhouse Bay, Auckland 7.
ZL1BQU—Pattinson, J. W., 76 Cordella Street, Stratford.
ZL1BQV—Rogan, J. K., 47 Sainsbury Road, Mt. Albert,
Auckland 3.

ZL1BQW-

ZL1BOX—Clark, L. C., 36a Jubilee Crescent, Whakatane, ZL1BQY—Clayton C. J., 19 The Esplanade, Bucklands Beach, Auckland.

ZL1BQZ-Jarvis, S. A., P.O. Box 2140, 61a James Street, Whakatane.

ZL1BRA—Hancock, P. R., 59 Birch Street, Taupo. ZL1BRB-Rompa, A. P. A., 22 Abbotleigh Avenue, Te Atatu, Auckland 8.

ZL1BRC-Ross, S. J., 127 Selwyn Avenue, Mission Bay. Auckland 5.

ZL1BRD—Timms, D. E., Kendall Road, Kerikeri. ZL1BRE--Christensen, P., 74 Manurewa Drlve, Tauranga. ZL1BRF-Stormont, B. I., 49 Kildare Avenue, St. Heliers, Auckland 5

ZL1BRG-Macken, S. A. (Mrs), 42 Seaview Road, Whakatane.

ZL1BRH-Slms, H., 8 Rata Street, Mangakino. ZL1BRI-

ZL1BRJ-Furness, J. B., 25 Arcadia Road, Epsom, Auckland 3

ZL18RK—Stewart, D. A., 11 Kerry Dell, Howick. ZL18RL—Cornwall, I. J., 10 Park Avenue, Northcote. Auckland 9.

ZL1BRM—Ainsworth, C. R., 12a Corrella Road, Takapuna, Auckland 9.

ZL1BRN-Norgate, M. H., 49 West View Crescent, Onerahi, Whangarei.

ZL18RO—Brenner, B. N., 67 Norwood Road, Bayswater, Auckland 9.

ZL1BRP-Price, P. G., 16 Ruahine Street, Tauranga,

- ZL1BRO-Macken, C. G. C., 42 Seaview Road. Whakatane
- ZL1BRR-Wallace, M. R., 37 Church Street, Onerahi, Whangarei.
- ZL1BRS—Sutherland, S. D., 333b Triangle Road, Massey, Auckland 8.
- ZL1BRT—Benjamin, R. D., Tutukaka, 3 R.D., Whangarei. ZL1BRU—Gilbert, W. S., 4 Oroua Street, Te Puke. ZL1BRV—Gardiner, P. R., 42 Wordsworth Road,
- Manurewa.
- ZL18RW-Boghurst, A. D., 19c Te Anau Place,
- Pakuranga.
 ZL1BRX—Bain, E. M., 58 George Crescent, Buckland, R.D. 2, Pukekohe.
- ZL1BRY—Anderson, H. C., R.D. 5, Otorohanga. ZL1BRZ—Hill, B., 8 McLean Street, Whangarei.
- ZL1BSA-Cammell, J. A., 40 Te Kawa Road, One Tree Hill, Auckland 6.

- ZL1BSC—Pearce, S. W., 16 Donald Road, Kaitala, ZL1BSD—Millett, J. C., 5 Mariners Grove, Algies Bay, Warkworth.
- ZL1BSE—Stitt, E. L., Old School Road, Maungakaramea. ZL1BSF—Talsma, P., 22 MacDonald Road, Hamilton. ZL1BSG—Pearce, T. K. L., 23 Aurea Avenue, Pakuranga.
- Auckland.
- ZL1BSH-The 807 Contest Group, (Trustees: J. R. Ogden and M. L. Corrigan) P.O. Box 32-374, Auckland West.
- ZL1BSI—Hetherton, J. K., 30 Westbourne Avenue. Rotorua.
- ZL1BSJ-Stewart, R. C., C/- Chatham Islands Radio, Chatham Islands.
- ZL1BSK-Clougher, K. S., 13 Stanton Terrace, Mt. Roskill, Auckland 4.
- ZL1BSL-Wilson, G. L., 7 Cron Avenue, Te Atatu South, Auckland 8.
- ZL1BSM-Te Aroha and District R.C. (Branch 77),
- (Trustee: R. W. Turner), Rewi Street, Te Aroha. ZL1BSN—Wallingford, N., 44 3rd Avenue, Tauranga. ZL1BSO—Harvey-Brain, V. C., 7 Hamilton Road, Surfdale, Waiheke Island
- ZL1BSP-Gallert, W. H., 19 Fergusson Avenue. Sandringham, Auckland 3.
- ZL1B\$R-Smith, D. J., 67 Harbour View Road, Omokoroa.
- ZL18SS-ZL1BST—Stirling, B. T., 13 Waitawa Place, Rotorua. ZL1BSU—Coles, H. G., Department of Labour Hostel,
- Otahuhu, Auckland
- ZL18SV—Mace, R. J., 9 Grampian Street, Tokoroa. ZL18SW—Deng, A. G., 65 Orams Road, Manurewa. ZL18SX—Garton, W. G., 5 Beaudine Avenue, Glenfield. Auckland 10.
- ZL1BSY-Gerritsen, J., 8 Raupo Street, Matamata ZL18SZ-
- ZL1BTA-Rodgers, S. J., 19 Craddock Street, Avondale. Auckland 7.
- ZL1BTB-Pinfold, M. A., Millars Road, Lake Okareka. Rotorua.
- ZL1BTC—Churchouse, M. J., 48 Selwyn Road, Howick, ZL1BTD—Smith, T. S., 122a Birkdale Road, Birkdale, Auckland 10.
- ZL1BTE—Munn, D. J., 43 Cecil Street, Hamilton. ZL1BTF-
- ZL1BTG-

- ZL1BTH—Lundy, C. S., 19 Challinor Street, Hamilton.
 ZL1BTH—Lundy, R. J., Flanagan Road, Drury.
 ZL1BTJ—Blythen, L. E., 32a Scarborough Terrace, Mt.
 Victoria, Wellington 1.
 ZL1BTK—Parkinson, R. J., 70 Vandeleur Avenue,
- Birkdale, Auckland 10.
- ZL1BTL—Rowe, N. G., 24 Okareka Place, Pakuranga. ZL1BTM-Stratford, N. E., Main Road, Cable Bay, R.D. 3, Kaitaia.

- ZL1BTN—Ashmore, P. A., 17 Farm Street, Mt. Maunganul, ZL1BTO—McIntosh, C. E. L., 8 Tilbrook Place, Papakura. ZL1BTP-Tubby, E. L. (Mrs), 470 Papamoa Beach Road.
- R.D. 7, Te Puke.

 ZL18TQ—Allen, R., RNZN Field Station, Great Barrier Island.
- ZL1BTR--Jeffares, R. J., 52 Amy Street, Ellerslie, Auckland 5.
- ZL1BTS—Trebes, C. E., 11 Lamont Street, Hamilton. ZL1BTT—Mackay, C. D., 84 Francis Street, Takapuna. Auckland 9.
- ZL1BTU—Orange, L. R., 95 Balmain Road, Birkenhead, Auckland 10.
- 71.1RTV
- ZL1BTW—Halliday, H., 20 Hillcrest Road, Orewa. ZL1BTX—van der Meulen, F. P., 20 Walter Street,
- Takapuna, Auckland 9
- ZL1BTY-Maindonald, D. C., 5 Peter Terrace, Castor Bay, Auckland 9.
- ZL1BTZ-Hall, C. W., 37 Morton Avenue, Forrest Hill, Auckland 10.
- ZL1BUA—Mohr, A. K., 21 Alma Crescent, Papakura. ZL1BUB—Lowensteijn, M. J., 47 Woodlands Road, Opotiki.
- ZL1BUC-
- ZL1BUD-Morris, G. A., Weston Lea Drive, R.D. 2, Hamilton
- ZL18UE-Dawson, J. W., Schultz Road, R.D. 2, Waipu. Northland.
- ZL1BUF—Mullions, R. D., 23a Fairview Road, Rotorua. ZL1BUG—Davis, W. D. (Mrs), 55 Pihanga Street, Taupo. ZL1BUH—Cox-Smith, G. W., 7 Vectis Road, Hillcrest.
- Hamilton.
- ZL1BUI—Willis, R. P., 32c Puckey Avenue, Kaitaia. ZL1BUJ—Mackey, C. J., Richard Road, Kauri, Whangarei. ZL1BUK—Duske, J. S., 11 Pendene Place, Forrest Hill, Auckland 10.
- ZL1BUL—Holmes, N. E., 10 Otakau Road, Milford, Auckland 9.
- ZL1BUM-
- ZL1BUN—Smith, J. B., C/- 36 Cardiff Road, Pakuranga. ZL1BUO—Hurst, L., 36 Ripon Crescent, Meadowbank, Auckland 5.
- ZL1BUP-
- ZL18UQ-Marshall, B. W., 357 Titirangi Road, Titirangi, Auckland 7.
- ZL1BUR—Linton, S. J., 6 Bridgman Road, Te Awamutu. ZL1BUS—O'Brien, T., Wisemans Road, R.D. Waitoa. ZL1BUT—Eggleton, P. W., 2/143a Manuka Road, Glenfield, Auckland 10.
- ZL1BUU—Levin, P. C., Tahuna Road, Ohinewai, Hamilton. ZL1BUV—Lewis, F. T., 222 Glamorgan Drive, Torbay, Auckland 10.
- ZL1BUW-Walton Scout Group Radio Club, (Trustee: G. K. Williams), Main Road, Walton.
- ZL1BUX-Atchinson, J. M., 783 Great South Road, Papatoetoe, Auckland 5.
- ZL1BUY-Finn, W. J., 61 Ross Street, Onerahi, Whangarei.
- ZL1BUZ—Pont, A., 23 Mount View Drive, Rotorua. ZL1BVA—Cullen, J. K., 71 Paterson Street, Mt.
- Maunganui.
- ZL1BVB—Yuen, S. T., 24 Jamaica Place, Blockhouse Bay, Auckland 7.
- ZL1BVC-McNab, P. O., 18 Tudor Road, Henderson, Auckland 8.
- ZL1BVD—Skinner, D. E., R.D. 1, Raglan. ZL1BVE—Lelieveld, J. J., 58 Montgomery Crescent. Hamilton, ZU1BVF—Keatinge, L. M. L. (Mrs), 8 Barnard Street,
- Matamata.
- ZL1BVG-Reid, D., 116 Archers Road, Glenfield, Auckland 10.
- ZL1BVH-Bishop, R. B., 39 Cooper Street, Pukekohe,

ZL1BVI

ZL1BVI-Bolland, P. A., 50 Sunrise Avenue, Mairangi Bay. Auckland 10

ZL1BVJ-Jones, P., 41 Caronia Crescent, Mt. Roskill, Auckland 4.

ZL1BVK-Learmond, A. H., 14 Takapu Street, Henderson, Auckland 8

ZL1BVL-Morris, W. J., 140 Atawhai Road, Palmerston North.

ZL1BVM—Sharman, R., Te Puia Street, Kamo, ZL1BVN—van der Hulst, P. W., 212 Ohaupo Road, Hamilton.

ZL1BVO—Messenger, G. E., 104 Elizabeth Street. Taupo. ZL1BVP—Chang, J. Y. S., 3 Madeleine Avenue, Glendowie, Auckland 5.

ZL1BVQ—Edmonds, J. W., Ferry Road, Kerepehi. ZL1BVR—Parkinson, W. H. J., 51 Jacaranda Avenue. Birkdale, Auckland 10.

ZL1BVS-Marquart, S. A. R., 29 Clyside Avenue, Bucklands Beach.

ZL1BVT-Slegh, J. P., Tauhei, R.D. 5, Morrinsville. ZL1BVU-

ZL1BVV-Boylan, R. P., 59 Coronation Road, Glenfield, Auckland 10

ZL1BVW-Souchoff, A. A., 28 Pentland Avenue, Mt. Eden, Auckland 3.

ZL1BVX—Steele, E. J., 19 Isobel Street, Rotorua. ZL1BVY—Timmer, L., 9 Eclipse Place, Bucklands Beach. ZL1BVZ-Dowling, B. N., 47 Gray Avenue, Mangere East,

Auckland. ZL1BWA-Weller, A. M., 21 Eastcliffe Road, Castor Bay, Auckland 10.

ZL1BWB—Humphrey, G. A., 113 17th Avenue, Tauranga, ZL1BWC—Comber, J. P., 21 Castor Place, Rotorua, ZL1BWD—Dobbs, L., 55 Campbell Street, Taumarunui,

ZL18WE-

ZL1BWF-Harris, W. R. B., 17 Cosy Place, Howick. ZL1BWG-Scahill, B. G., Unit 1, 1 Allenby Road,

Papatoetoe. ZL1BWH-Sheldon, B. R., 16 Carter Street, Mt.

Maunganui. ZL1BWI-Rose, A., 4251 Great North Road, Henderson. Auckland 8

ZL1BWJ-Wham, C. J. L., 3 Totara Avenue, Matamata. ZL1BWK-McConnochie, B. D., 8 Farmer Street, Te

Aroha. ZL1BWL-Shaw, D. A., 34 Mariborough Avenue, Glenfield,

Auckland 10. ZL1BWM-Trayes, D., P.O. Box 50, Ahipara.

ZL1BWN-Halke, G. T., Flat 4, Saorsa Village, St. Marys Road, Waipu.

ZL1BWO-Barnaby, N. S., 42 Mains Avenue, Whangarei. ZL1BWP-Horn, B. R., 5 Monique Place, Hamilton.

ZL1BWQ-

ZL1BWR-Ten Brocke, G., 53 Morrison Drive, Hobsonville, Auckland.

ZL1BWS-

ZL1BWT--MacLean, A., 4 Quibray Place, Howick. ZL1BWU-Price, L. J., 2/19 Mahoe Avenue, Remuera,

Auckland 5. ZL1BWV-Thompson, G. M., Otuhi Road, Maungatapere.

ZL1BWW—Georgeff, N. P., 116 Springfield Road, Rotorua. ZL1BWX-Littlejohn, A., 12 Parkvale Road, Otomoetai, Tauranga.

ZL1BWY—Collins, S. J., Beach Road, Kohukohu. ZL1BWZ—Harold, E. A. E., 32 Ellis Avenue, Mt. Roskill, Auckland 4.

ZL1BXA-Buxton, H. C., 32 Castleton Street, Birkdale, Auckland 10

ZL1BXB—Grut, M. A., 97 Tiri Road, Whangaparaoa. ZL1BXC-Tout, R. P., 4 Mayall Avenue, Birkdale,

Auckland 10. ZL1BXD-Vencatachellum, V., 8 Laser Place, Glenfield, Auckland 10.

ZL1BXE-Weller, J. F., 21 Eastcliffe Road, Castor Bay, Takapuna, Auckland 9.

ZL1BXF-Young, M. B., 44 Toroa Street, Torbay, Auckland 10.

ZL1BXG-

ZL18XH—Croucher, P. J., 22 Manuka Drive, Waikeria, ZL18XI—Flower, C. B., 62 Verbena Road, Birkdale,

Auckland 10.

ZL1BXJ-Eman, J. J., 6 Shakespeare Road, Takapuna, Auckland 9.

ZL1BXK-Herrold, N. G., Hall Road, R.D. 1, Waiuku. ZL1BXL-Suckling, E. E., 4 Seabreeze Road, Devonport. Auckland 9.

ZL1BXM—Miers, E. D., Lindquist Road, Ararua, R.D. 2, Matakohe.

ZL1BXN—Cullen, O. D., R.D. 2 Maungaturoto, Northland. ZL1BXO—Grut, C. St. C, 97 Tiri Road, Whangaparaoa. ZL1BXP—Walsh, A. R., Kereone, R.D. 1, Morrinsville.

ZL1BXQ-Walton-Tubb, A. I. P., 120 Maskell Road, St. Heliers, Auckland.

ZL1BXR—Robb, R., Taumata Road, Pyes Pa, R.D. 3, Tauranga.

ZL1BXS—Miller, P. G., R.D. 1, Russell, ZL1BXT—James, C. H., 16 May Street, Hamilton. ZL1BXU—Davis, L. H., 8 Munital Street, Taupo. ZL1BXV—Todd, A. J., 46a Hutton Street, Otahuhu,

Auckland 6.

ZL1BXW—Modderman, E. J., 13 Ingram Street, Papakura. ZL1BXX—Hawkins, C. R., 56 Pine Ävenue, Hamilton. ZL1BXY—Makin, W. H., C/- J. & C. Hook, Waimamaku. ZL1BXZ—Winsborough, L. F., 20 Williams Street,

Cambridge. ZL1BYA-Martinson, L. R., 52 Hobsonville Road, Massey, Auckland 8.

ZL1BYB-Stewart, L. F., 54 Forest Lake Road, Hamilton. ZL1BYC—Cornish, G. M., Ponga Road, R.D. 4, Papakura, ZL1BYD—Emmett, G. J., 119 Udy's Road, Pakuranga,

Auckland.

ZL1BYE—Thomas, R. S., 54 Lynmore Avenue, Rotorua. ZL1BYF—Werder, K. J., Springdale Road, Waitoa. ZL1BYG—Morey, E. J., 27 Fairview Road, Te Awamutu.

ZL1BYH—Farnborough, R., 9 Glendale Drive, Hamilton. ZL1BYI-Ramsay, I. S., 8 Locke Avenue, Hillsborough,

Auckland 4. ZL1BYJ-Bible College of N.Z., 221 Lincoln Road,

Henderson, Auckland 8. ZL1BYK—Howell, H. G. M., 53 Chatsworth Crescent,

Pakuranga, Auckland. ZL18YL—Alloway, F. R., Main Road, Tatuanui. ZL1BYM-

ZL1BYN--Thompson, N. M., 75 Walworth Avenue, Pakuranga, Auckland.

ZL1BYO-Williamson, B. M., 158 Etizabeth Drive, Tokoroa.

ZL1BYP-

ZL1BYQ—Ashmore, R. W., 17 Farm Street, Mt Maunganui, ZL1BYR—Whyte, W. S., 4 Regent Street, Tauranga.

ZL1BYS-Harris, R. H., 17 Navarre Road, Glendowie,

Auckland 5. ZL18YT-Rodney Branch 71 NZART (Inc.), School Road,

Wellstord ZL1BYU-McAra, R. W., 31 Jvy Place, Birkdale,

Auckland 10. ZL1BYV-Greaves, I. G., 28 Acacia Bay Road, Taupo.

ZL1BYW-Allan, W. W., Hairini, R.D. 5, Te Awamutu. ZL1BYX-Coatsworth, W. K., 7 Chartwell Crescent, Hamilton.

ZL1BYY—Cartwright, G. ... 6 Haycock Avenue, Mt Roskill, Auckland 4. ZL1BYZ—Shaw, J. N., Main Road, Paerata.

ZL1BZA—Barnett, Z., 11 Williamson Avenue, Morrinsville. ZL1BZR-Cox, G. W., 141 Garnet Road, Westmere,

Auckland 2

ZL1BZC-Ash, D. E., 69 Tanekaha Road, Titirangi, Auckland 7.

- ZL18ZD-Bishop, N. L., 11 Whiteacres Drive, Pakuranga. ZL1BZE—Cordes, R. K., 177 Rathoar Road, Henderson, Auckland 8
- ZL1BZF-Kates, L., 21 View Road, Campbells Bay, Auckland 10.

71 1BZG-

- ZI 18ZH—Van der Zee, T. P., 51 Greenhaven Avenue. Papakura.
- ZL1BZI—Newman, D. A., 112 The Avenue, Lynfield, Auckland 4.
- ZL1BZJ— Lodge-Osborn, D., Turanga Road, R.D. 1. Henderson, Auckland 8.
- ZL1BZK-Greenhill, D. R., 5 Hogan Street, Pukekohe. ZL1BZL-Ellis, D. G. R., 7 Kaiwaka Road, Onerahi, Whangarei.
- ZL1BZM—Cundy, C. R., 38 The Avenue, Albany,

ZL1BZN-

- ZL18ZO—Roberts, A. D. L., R.D. 4, Waiuku. ZL18ZP—Kennard, T. J., 536a Tararu Road, Thames. ZL18ZQ—Galland, J. M. J. E., C/- 109 Norwood Road,
- Bayswater, Auckland 9.
- ZL1BZR—Thomson, M. G., 24 Basley Road, Rotorua. ZL1BZS—Chiswell, D. A., Old Waimate North Road,
- ZL1BZT—Guyton, C. N., Sangro Road, R.D. 1, Reporoa. ZL1BZU-
- ZL1BZV-Surman, J. D., 27a Lloyd Avenue, Mt. Albert, Auckland 3.
- ZL1BZX—Hill, D. B., 25 Camellia Avenue, Ruakaka. ZL1BZY—Johnson, R. W., 23 Lachlan Place, Mangere, Auckland.
- ZL1BZZ—Holmberg, R. E., 316b Levers Road, Tauranga.

ZL1N

- ZL1TAA-Allison, M. A., P.O. Box 107, Surfdae, Waiheke Island, Auckland
- ZL1TAB-Thomas R. P. T., 21 High Road, Glenfield, Auckland 10.
- ZL1TAC-Ramsay, D. J., 10 Mary Henry Place. Whakatane.
- ZL1TAD-Johnston, R. B., 48 Ngaio Street, Orakei, Auckland 5.
- ZL1TAE-English, B. D., 35A Yattendon Road, St. Heliers Bay, Auckland 5.
- ZL1TAG-Plimley, A. E., 104 Porawai Road, Thames.
- ZL1TAH—Norris, L.R., 4 Gordon Street, Hamilton. ZL1TAI—McBurney, R. T., 25 Hamilton Road, Papatoetoe. ZL1TAJ-Jones, A. R., 213 Whitney Street, Blockhouse
- Bay, Auckland 7. ZL1TAK—Sergent, P. A., 20 Marie Avenue, Te Atatu South.
- ZL1TAL-Drew, L. E., St. Peter's School, Private Bag. Cambridge.

ZL1TAM-

- ZL1TAN—O'Callaghan, D. R., 8a Komaru Street, Remuera, Auckland 5
- ZL1TAO-Kimber, W. C., 50 Main Road, Titahi Bay, Wellington.
- ZL1TAP-Adams, R. J. J., 27 Strong Street, St. Johns, Auckland 6.
- ZL1TAQ-Logan, H., 27 Carlton Crescent, Maraetai Beach, Auckland,
- ZL1TAR-Wilkinson, R. N., 19 Island Bay Road,
- Beachhaven, Auckland 10
 ZL1TAS—Aymes, A. O., 8 Steadman Street, Taumarunui.
 ZL1TAT—Brown, I. W., 35 Lancaster Street, Hamilton.
 ZL1TAU—Coghlan, P. R., 18 Essex Street, Te Atatu South,
- Auckland 8.
- ZL1TAV—Small, B. C., 62 Paice Avenue, Sandringham, Auckland 3.
- ZL1TAW-Totman, T. W., 1/91 Browns Road, Manurewa. ZL1TAX—Andrews, S. D., 35 McGrath Street, Napier.

- ZL1TAY—Thornton, D., 23 Duncan Avenue, Sandringham, Auckland 3
- ZL1TAZ-Purdy, G. N., 4 Ramelton Road, Mt. Roskill, Auckland 4.
- ZL1TBA—Parsons, D. R., 14 Freeman Place, Te Awamutu,
- ZL1TBB—Carter, R., 1218 Huia Road, Huia, Auckland. ZL1TBC—Jackson, K. D., 51 Murdock Street, Grey Lynn, Auckland 2.

ZL1TBD

ZL1TBE-Goode, R. J., 1/11 Lovelock Avenue, Mt. Eden, Auckland 2

- ZL1TBG—Sanson, R. G., 57a Bertram Street, Warkworth, ZL1TBH-
- ZL1TBI-Archibald, G., C/- Mrs A. Were, 12 Western Street, Matamata,
- ZL1TBJ-Burrows, J. J., 2 West Lynn Road, New Lynn, Auckland 7
- ZL1TBK-Harris, K. A., 95 Colwill Road, Massey. Auckland 8.
- ZL1TBL—Uren, P. E., Main Road, R.D. 1, Huntly, ZL1TBM—Harvey, R. F., 33 Birdwood Avenue,
- Papatoetoe.
- ZL1TBN-Sanders, P., 56 Glenview Terrace, Hamilton.
- ZL1TBO-Phillips, R. A., 90 Owairaka Avenue, Mt Albert, Auckland 3.
- ZL1TBP--Croll, D., 25 Pouwhare Street, Whakatane.
- ZL1TBQ—Angell, A. R., 46 Crane Street, Mt. Maunganui. ZL1TBR—McIntyre, R., 3 Tihi Road, Rotorua. ZL1TBS—Smith, L. J., 123 Sandspit Road, Howick, Auckland.

ZL1TBT-

- ZL1TBU—Doherty, G. F., 34 Chelsea View Drive, Birkenhead, Auckland 10.
- ZL1TBV-Liddle, B. D., 12 Pollen Street, Kawerau,
- ZL1TBW—Matthews, D. B., 30 Fairburn Street, Otaika. ZL1TBX—Shipman, M. T., 205 Manuka Road, Glenfield, Auckland 10.
- ZL1TBY—Seccombe, J. G., Oaklands Road, R.D. 1. Papakura.
- ZL1TBZ—Tatton, W. C., 7 Realm Place, Massey, Auckland 8.
- ZL1TCA—Chatterton, B., 6 Littler Place, Hamilton, ZL1TCB-
- ZL1TCC—Topler, K. K., 11 Edith Place, Hamilton. ZL1TCD—Knox, R. M., 446 Hillsborough Road, Mt.
- Roskill, Auckland 4. ZL1TCE—Nation, D. L., 14 Beerscourt Road, Hamilton, ZL1TCF—Fortune, T. La T., 129 Bleakhouse Road,
- Howick.
- ZL1TCG-Neal, S. G., McR., 40 Rodney Street, Wellsford. ZL1TCH-Burton, R.C., 65 Sunrise Avenue, Mairangi Bay, Auckland 10.
- ZL1TCI—Scutts, W. J., 509 Brown Street, Thames. ZL1TCJ—Jackson, L. H., 8 Edmund Street, St. Hefiers,
- Auckland 5.
 ZL1TCK—Woolley, M. G., 5a Springbank Lane, Te Atatu North
- ZL1TCL-Hollinshead, P. B., 73a Dunbarton Street. Redwood, Christchurch 5.
- ZL1TCM—McGlashan, I., Waitoki, Kaukapakapa. ZL1TCN—Herbert, E. R., 368 Fraser Street, Tauranga.
- ZL1TCO-Tapp, A. J., Mt. Tiger Road, Whangaroa County.
- ZL1TCP-Ellis, J. L., 25 Seddon Street, Te Kuiti,
- ZL1TCQ-ZL1TCR—Bell, K. G., 16 Bedlington Avenue, Manurewa.
- ZL1TCS—Lovett, K. J., 28 Innismara Avenue, Manurewa. ZL1TCT—Hobbis, E. A., 150 Hinewa Road, Tauranga. ZL1TCU—Legg, M. E., 35 Blackmore Orive, Rotorua.
- ZL1TCV—Frazerhurst, W. K., 12 Loloma Drive, Bucklands Beach.
- ZL1TCW—Dancy, T. M., 35 McMillan Place, Howick. ZL1TCX—Franke, M. A., 33 Goodwin Road, Papakura.

ZL1TCY

ZL1TCY—Robinson, E. E., 89 Kimpton Road, Papatoetoe.

ZL1TCZ-

ZL1TDA-Dowle, B. L., 5 Beaconsfield Street, Devonport, Auckland 9.

ZL1TDB-Raffles, Mrs M. T., 54 Rockfield Road, Ellerslie, Auckland 5.

ZL1TDC-

ZL1TDD—Zeusche, P. R., Yacht "Antalya", Opua. ZL1TDE—Davis, W. L., 48 Chatsworth Crescent,

Pakuranga, Auckland.

ZL1TDF-Blair, D. J., 15 Tramway Road, Birkdale, Auckland 10.

ZL1TDG-Morris, V., 116 Union Road, Howick, Auckland.

ZL1TDH-Greenbrook, G. R., 17a Fraser Road,

Devonport, Auckland 9.
ZL1TDI—Lee, C. P., 211 St. John's Road, Meadowbank,
Auckland 5.

ZL1TDJ—Burton, R. D., 11 Henderson Valley Road, Henderson, Auckland 8.

ZL1TDK—Devery, B. N., 60 Main Road, Gisborne. ZL1TDL—Littin, A. C., Te Hana, 1 R.D., Wellsford.

ZL1TDM-Eyre, E.N., 3/27 Montieth Crescent, Remuera, Auckland 5.

ZL1TDN—Horton, L. C. A., 35 Seavista Drive, Pukerua Bay.

ZL1TDO—Campbell, L. M., 7 Queensway, Three Kings, Auckland 4.

ZL1TDP—Clough, S. D., 5 Kelly Street, Rotorua.

ZL1TDQ-Wallace, N. L., 1/39 Hakanoa Street, Grey Lynn, Auckland.

ZL1TDR—Harding, B. D., 5 Dalfas Place, New Windsor, Auckland 7.

ZL1TDS-Sinton, A. M., 4 Wheretia Street, Taupo.

ZL1TDT-

ZL1TDU—Anderson, L. J., 3 Seymour Road, Henderson, Auckland B.

ZL1TDV—Penwarden, E. C., 13 Kupe Place, Tokoroa.

ZL1TDW—Neil, A. W., 7 Sharpley Place, Hamilton, ZL1TDX—Turnball, G. R. H., 159 Bucklands Beach Road, Bucklands Beach.

ZL1TDY—Pooley, E. A., 8 Shaw Road, Waihi Beach. ZL1TDZ—Miller, C. J., 45 Bell Road, Remuera, Auckland 5.

ZL1TFB—Cooper, S. W., 41a Kelvin Road, Papakura. ZL1TFC—Godfrey, J. P., 15 Crompton Road, Massey. Auckland 8.

ZL1TFD--Iversen, R. J., 1/3 Akehurst Avenue, New Lynn, Auckland 7.

ZL1TFE—Carter, P. R., 2 Harford Place, Pakuranga. ZL1TFF—Dreadon, A. H., 54 Devon Crescent, Bulls. ZL1TFG---Ballantyne, D. L., Bush Road, Albany,

Auckland.

ZL1TFH—Gillgren, S. J., 30 Hall Street, Kihikihi. ZL1TFI—Briggs, M. J., Otway Road, R.D. 3. Te Aroha.

ZL1TFJ-Enerson, F. J. C., 20 Brookfield Terrace, • Otumoetai, Tauranga.

ZL1TFK—Deverell, H. C., 44 Mackesy Road, Whangarei. ZL1TFL—Hawkes, R. G., 26 Penzance Road, Mairangi Bay, Auckland 10.

ZL1TFM—Whitney, J. R., 4 Dawson Street, Hamilton. ZL1TFN-

ZL1TFO-

ZL1TFP—Purdy, R. G., 4 Ramelton Road, Mt. Roskill, Auckland 4.

ZL1TFQ—Davies, M. J., 9 Alberon Street, Parnell, Auckland 1.

ZL1TFR-Taylor, R. I. H., 40 Ferndale Road, Mt. Wellington, Auckland 6.

ZL1TFS-

ZL1TFT-Brown, G. J., 25 Bailey Road, Mt. Wellington, Auckland 6.

ZL1TFU-Radford, L. C., 27 Miltonia Avenue, Henderson, Auckland 8.

ZL1TFV-White, P. R., 51 Cobham Drive, Morrinsville. ZL1TFW-Savage, J., 151 Valley Road, Henderson, Auckland 8.

ZL1TFX—Rowe, R. A., 1 Summit Terrace, Hamilton. ZL1TFY-Munyard, D.A., 40 Fitzwater Place, Henderson, Auckland 8.

ZL1TFZ-Brown, M. A., 38 Cyclarama Crescent, Massey. Auckland 8.

ZL1TGA-Haley, A. M. E., 30 Buckingham Crescent, Papatoetoe.

ZL1TGB-Johnston, D. R., 37 Mossburn Grove, Kelson, Lower Hutt.

ZL1TGC-Henderson, V. N., 217 Glenfield Road, Glenfield, Auckland 10.

ZL1TGD-Topping, R. M., 164 Coronation Road, Mangere.

ZL1TGE-Rush, W. J., 1/110 Pukuatua Street, Rotorua. ZL1TGF-

ZL1TGG-Soppit, T. R., 58 Commodore Drive, Lynfield, Auckland 4.

ZL1TGH-Nissen, K. H., 23 Hamilton Road, Herne Bay, Auckland 2.

ZL1TGI-Collier, P. G., 8 Holden Avenue, Hamilton.

ZL1TGJ—Dick, G. W., 14 Ennis Avenue, Pakuranga. ZL1TGK—Caulfield, R. E., 2 Penbury Place, Avondale, Auckland 7

ZL1TGL—Burnnand, T. T., 19 Sylvia Road, St. Heliers Bay, Auckland 5.

ZL1TGM-

ZL1TGN-Lindop, P. R., 3/26 Hawkins Street, Meadowbank, Auckland 5.

ZL1TGO-Johnstone, C. K., Butchers Bridge Road, Waiuku.

ZL1TGP—Bielby, R. K., 4 Bennett Road, Pakuranga. ZL1TGQ—Shackleton, E. G., 5 Masten Terrace, Kaitaia. ZL1TGR—Hoole, G. L., 31 Esplanade, Te Kuiti. ZL1TGS—Smith, J. M., 25 Darren Crescent, Bucklands

Beach.

ZL1TGT-

ZL1TGU-

ZL1TGV—Holmes, B. S., 9 Miro Place, Waiuku. ZL1TGW—Watson, E. H. C., Eastbank Road, Thornton,

R.D. 3, Whakatane.

ZL1TGX-McNamara, A. E., 32 Galileo Street, Ngaruawahia.

ZL1TGY—Prank, A., 13 Riley Place, Fitzroy, Hamilton. ZL1TGZ—Purvis, A. W., 25 Mataura Road, Waihi.

ZL1THA-Sleeman, D. W. W., C/- P.O. Box 378, Greymouth.

ZL1THB-

ZL1THC—Buxton, R. J., 78 Maeroa Road, Hamilton.
ZL1THC—Buxton, R. W., 17 Hetet Street, Te Kuiti.
ZL1THE—Fletcher, D. O., 24 Guy Road, Kaikohe.
ZL1THF—McDonald, K. W., Wynyard Street, Kawakawa.
ZL1THG—Bevan, T. M., 42 Dalton Crescent, Hamilton.
ZL1THH—Bridger, S. J., 35 Taumata Road, Mt. Albert,
Auckland 3.

ZL1THI-Hay, N. L., 9 Mooney Street, Hamilton. ZL1THJ-Paul, R. E., 414 Whangaparaoa Road. Whangaparaoa.

ZL1THK— ZL1THL—Kostevc, G. R., 28 Glenshee Place, Highland Park, Howick.

ZL1THM-Kermode, W. R., 4 Harmony Avenue, Otahuhu, Auckland 6.

ZL1THN-Crozier, D. K., 154 Grey Street. Onehunga, Auckland 6.

ZL1THO-McNeil, D. R., 45 Kingsley Drive, Ngongotaha. ZL1THP-

ZL1THQ-Tunnicliffe, G. O. L. J., 10 Meade Street, Whakarewarewa, Rotorua.

ZL1THR-Lawson, D. W., 906 Three Kings Road, Three Kings, Auckland 4.

ZL1THS-Malcolmson, M. R. J., 409 Frazer Street, Tauranga.

- ZL1THT-Smith, A. B., 37 Portal Crescent, Hamilton. ZL1THU-Cooke-Willis, S. D., 15 Madras Street.
- Khandallah, Wellington 4, ZL1THV—Crawford, W., 27 Hillview Road, Ngaruawahia. ZL1THW-Thwaites, I. G., 28 Golf Road, New Lynn, Auckland 7
- ZL1THX-Moretti, G. S., 471 Albert Street, Palmerston. North
- ZL1THY—Dennis, G. A., 20 Red Hill Road, Papakura. ZL1THZ—Parkinson, C. R., 2/5 Paris Place, Birkenhead, Auckland 10.
- ZL1TIA-Dingley, D. G., 2139 Great North Road,
- Avondale, Auckland 7.

 ZL1TIB—Prentice, G. S., 2/26 Hyde Road, Browns Bay, Auckland 10.
- ZL1TIC-ZL1TID-
- ZL1TIE—Brewis, J., 10 Memorial Drive, Whangarei. ZL1TIF—Postlewaight, C. G., 8 Stranolar Drive, Mt.
- Roskill, Auckland 4.
- ZL1TIG-Patmer, L. H., 10 Puketapu Crescent, Taumarunui.
- ZL1TIH-
- ZL1TII—O'Brien, K.M.J., 41 Grebe Place, Christchurch 4. ZL1TIJ—Marshall, D. R., 12 Simon Ellice Drive, Glenfield, Auckland 10.
- ZI,1TIK-
- ZL1TIL-ZL1TIM-Stead, J. E., Lindquist Road, R.D. 2, Matakohe.
- ZL1TIN-Taylor, K. L., 7 Rangipola Place, Turangi.
- ZL1TIN—Tayor, K. L., 7 Manghola Place, Turangi. ZL1TIO—Bowers, S., 21 Hingaia Street, Turangi. ZL1TIP—Hickson, D. L., 41 Kururau Road, Taumarunui. ZL1TIQ—Watcon, J. R., 19 Tania Place, Blockhouse Bay, Auckland 7.
- ZL1TIR-Little, G. J., 2 Tenterden Avenue, Mt. Eden, Auckland 3.
- ZL1TIS-Lochore, M., Pomona Road, R.D., Kumeu. ZL1TIT-
- ZL1TIU-Parker, D. W., 99 Balmoral Road, Mt. Eden, Auckland 4.
- ZL1TIV-Husband, D. T., 9 Mariana Place, Glen Eden. Auckland 7.
- ZL1TIW-Doherty, S., 4 Springside Place, New Lynn, Auckland 7.
- ZL1TIX-
- ZL1TIY-Pearce, P. B., 23 Aurea Avenue, Pakuranga. ZL1TIZ-
- ZL1TJA—Powell, A. T., 6 Manuka Street, Taupo. ZL1TJB—Watt-Wyness, S. C., 1 Wynsfield Garden, St. Heliers, Auckland 5.
- ZL1TJC-Phayer, J., 4 Korimako Place, Tokoroa. ZL1TJD-Lechtenborger, J. H. W., 8 Mahoe Road,
- Titirangi, Auckland 7. ZL1TJE-Richardson, W. A., 38 Elliot Street, Papakura,
- Auckland. ZL1TJF—Fraknovary, G. A., 10 Canberra Avenue, Lynfield, Auckland 4.
- ZL1TJG-French, T. G., 13 Bannerman Road, Auckland 2. ZL1TJH-Gyde, G. N., C/- NZED, Peachgrove Road, Hamilton.
- ZL1TJI-
- ZL1TJJ-Dennis, J. M., Main Road, Te Hana.
- ZL1TJK-Munden, A. J., House 8, Kinleith, Tokoroa.
- ZL1TJL-Loque, J. F., No. 7 Braggs Avenue, Taumarunui.
- ZL1TJM-McPherson, G. J., 49 Heybridge Street, Manurewa.
- ZL1TJN-Thompson, N. M., 75 Walworth Avenue, Pakuranga.
- ZL1TJO-Russell, H. F., 36 Scotts Road, Stanmore Bay, Whangaparaoa.
- ZL1TJP-Staynes, C. J., 1 Spylan Road, Maori Hill, Dunedin.
- ZL1TJQ-King, K. G., 227 St. Heliers BAy Road, St. Heliers, Auckland 5.

- ZL1TJR—Trickett, N. D., 20 Ridings Road, Remuera. Auckland 5.
- ZL1TJS-
- ZL1TJT-
- ZL1TJU-Dawson, D. H., 11 Sanctuary Point, Pakuranga. ZL1TJV-
- ZL1TJW-Carroll, M. J., 11a Hamlin Road, Mt. Wellington, Auckland 6.
- ZL1TJX-Black, C. W., 91 Tiverton Road, Avondale, Auckland 7.
- ZL1TJY—Hall, P. J., 90 College Road, Edgecumbe. ZL1TJZ—Mitchell, G., 4/3 Towai Street, St. Heliers, Auckland 5
- ZL1TKA-Hindmarsh, R. J., 78 Kelvin Road, Papakura.
- ZL1TKB—Shaw, A. G., 70 Tongariro Street, Hamilton, ZL1TKC-
- ZL1TKD-Taylor, W. T., Kaweka Street, New Lynn, Auckland 7.
- ZL1TKE-Clark, D. W., 29 Puriri Road, Whenuapai Village. ZL1TKF—Wisdom, R. B., 36b Beaumont Crescent, New Plymouth.
- ZL1TKG—Talbot, V. G., 6 Clifton Road, Hamilton, ZL1TKH—Leys, S. W., 14 Bassett Road, Remuera,
- Auckland 5.
- ZL1TKI—Trayes, D. J., Beach Road, Ahipara, Northland, ZL1TKJ—Baas, K., 14 Parkview Place, Pakuranga.
- ZL1TKK-Murphy, B. R., 19 McClintock Road, Massey, Auckland 8.
- ZL1TKL-Meads, D. R., 32 Kowhai Street, Tokoroa. ZL1TKM-
- ZL1TKN-Baylis, M. R., 1 Munro Street, Whangarei. ZL1TKO-
- ZL1TKP-Gibson, J. W., 67 Fentonmill Road, Kawerau. ZL1TKO-
- ZL1TKR-Foster, B. E., 30 Moresby Avenue, Waihi.
- ZL1TKS-Duncan, A. K., 113 Waipapa Road, Hataitai, Wellington 3.
- ZL1TKT-Pearson, F. W., 19 Tamaki Street, Ngongotaha, Rotorua.
- ZL1TKU-Hilliar, D. J., 13 Chipping Dale, Mangere Bridge, Auckland.
- ZL1TKV-Mickan, J. L., 2a Forsythe Place, Massey, Auckland 8.
- ZL1TKW-Bodman, K. I., 21 Bernard Street, Hamilton. ZL1TKX-Greensmith, A. S., Maddrens Road, Marua, R.D. 1, Hikurangi.
- ZL1TKY—Porter, A. L., 50 Ballance Street, Kawerau. ZL1TKZ—Blomfield, A. G., 23 Radiata Lane, Birkenhead.
- Auckland 10. ZL1TLA-Koolen, J. F. L., 32 Kings Road, Panmure,
- Auckland 6.
- ZL1TLB—Scott, M. P., 191 King Street, Cambridge. ZL1TLC—May, A. P., 56 Lantana Road, Green Bay, Auckland 7
- ZL1TLD—Walker, W. D., 46 Mountain View Road. Otorohanga.
- ZL1TLE—Millett, M. J., 8739 Railway Settlement, Hinuera. ZL1TLF—Cadness, R. H., 109 Glamorgan Drive, Torbay, Auckland 10.
- ZL1TLG—Williams, I. G., 33 Reelick Avenue, Pakuranga. ZL1TLH—Dunlop, B. W., 39 Kitenui Avenue, Mt. Albert, Auckland 3.
- ZL1TLI—Craig, N. A., 606 Richmond Street, P.O. Box 496. Thames
- ZL1TLJ—Edmonds, C. R., 52 Grey Street, Kawerau.
- ZL1TLK-ZL1TLL-Wilson, P. G., NZED Village, Mangakino.
- ZL1TLM-ZL1TLN-Onrust, F., 37a Sylvia Road, St. Heliers, Auckland 5.
- ZL1TLO—Bouwknegt, H. G., 16 Shortland Street, Whangarei.
- ZL1TLP—Yerex, B. S., 24 High Street, Rotorua. ZL1TLQ—McMillan, D. J., 4 Inaka Place, Matamata.

ZL1TLR

ZL1TLR—Walton, R. W., R.D. 2, Maungaturoto, Whangarei

ZL1TLS-Voss, E. I., 28 Matipo Street, Taupo.

ZL1TLT-Egan, D. A., 12 Island View Terrace, Howick, Auckland.

ZL1TLU-Waterhouse, D. C., 29a Puriri Park Road, Whangarei.

ZL1TLV—Oxner, E. A., Mossop Road, R.D. 1, Tokoroa, ZL1TLW—Innes-Jones, F. A., 81 Waller Avenue, Bucklands Beach.

ZL1TLX--Drake, M. J., C/- Ararimu, Ramarama. ZL1TLY--Gregory, K. E., 802 New North Road, Mt. Albert, Auckland 3.

ZL1TLZ-Miller, J. E. (Mrs), 17 Harris Street, Te Puke.

ZL1TMA—Appleyard, B. H., 8 Cherrie Road, Beachlands, Auckland.

ZL1TMB-McDonald, B. D., 7 Orlano Avenue, Mt. Roskill, Auckland 4.

ZL1TMC-Currie, P. G., 35 Balgowan Terrace, Takanini, Auckland.

ZL1TME—Schwarz, M. W., Bayly Road, Tirau. ZL1TMF—Ralston, W. B., 32 Sylvania Drive, Tauranga. ZL1TMG-Greenfield, R. S. T., 33 Tui Crescent, Maunu,

Whangarei.

ZL1TMH—Hutton, W. M., 9 Hoterini Street, Ohope. ZL1TMI—Moseley, S. F., 34 Domain Street, Waiuku.

ZL1TMJ-

ZL1TMK-Krause, R. E., 7 Gordon Street, Kawerau.

ZL1TML-

ZL1TMM-Stocker, R. V., 7 Dalmevy Close, Mairangi Bay, Auckland 10.

ZL1TMN-

ZL1TMO-Lawry, M. G., No. 27 Karapiro Village, Karapiro Hydro, Hamilton.

ZL1TMP—Cummins, J. E., 80 Pakura Street, Te Awamutu.

ZL1TMQ-McCarthy, J. W., 2/38 Anthony Crescent,

Glenview, Hamilton. ZL1TMR—Dean, M. I. J., 8 Tui Crescent, Waiatarua, R.D.,

ZL1TMS-Watson, C. D., Eastbank Road, R.D. 3, Whakatane.

ZL1TMT—Haywood, J. R., 22 Buscombe Road, Henderson, Auckland 8.

ZL1TMU-Smith, G. R., 948 Dominion Road, Mt. Roskill, Auckland 4.

ZL1TMV-Wilkinson, C., 35/139 Greys Avenue, Auckland 1.

ZL1TMW-Marsh, D. J., No. 7 R.D., Wharehine, Wellsford.

ZL1TMX—Burnett, D. B., 1b Gilliam Street, New Lynn, Auckland 7.

ZL1TMY—Studholme, D. L., 22 Anita Avenue, Mt. Roskill, Auckland 4.

ZL1TMZ-

ZL1TNA-Tomlinson, G. H., 372 Mahurangi East Road, Snells Beach, Warkworth.

ZL1TNB-

ZL1TNC—Mason, D. R., 15 Cleary Avenue, Whakatane.. ZL1TND—Sapich, S., Forest Hill Road, R.D. 1, Henderson, Auckland B.

ZL1TNE—Edwards, W. D., 21 Grey Street, Hamilton. ZL1TNF—Ruediger, J., 153 Totara Drive, Hamilton. ZL1TNG—Blackford, B. R., 105 Thackeray Street, Upper

Hutt.

ZL1TNH-Chesterman, A. R., Flat 1, 16 Whytehead Crescent, Kohimarama, Auckland 5.

ZL1TNI—Bowler, S. J., Tapps Road, R.D. 1, Huntly. ZL1TNJ—Rowe, R. G., 32 Manawa Road, Remuera

Auckland 5.

ZL1TNK—Davis, A. G., 3 Fred Judd Crescent, Whakatane. ZL1TNL—Scothern, D. J., 64 Princess Road, Waihi.

ZL1TNM-Van Duin, R. J., Upper Queen Street, Pukekohe.

ZL1TNN-

ZL1TNO—O'Loan, T. J., 16 Grosvenor Street, Cambridge, ZL1TNP—Pratt, W. R., 304 Shakespeare Street,

Cambridge.

ZL1TNQ-Talbot, A. M., 64 Woodlands Cresent, Browns Bay, Auckland 10.

ZL1TNR-Bielby, F. L., 17 Old North Road, Orewa.

ZL1TNS-

ZL1TNT-Maginnity, D. N., 15 Carlyle Street, Te Aroha.

ZL1TNU—McCusker, A. B., 18 Bowen Street, Kawerau. ZL1TNV—Laird, A. G., 197 River Road, Kawerau. ZL1TNW—Smith, K. W., 40 Topliss Drive. Torbay, Auckland 10.

ZL1TNX—Chappell, P. J., 3 Kiwi Street, Te Kuiti. ZL1TNY—Quedley, F. J., 16 Woodhall Road, Epsom, Auckland 3.

ZL1TNZ—Johnstone, M. B., 30b Orchard Road, Hamilton. ZL1TOA—Sergejew, A. A., 192a Blockhouse Bay, Road,

Avondale, Auckland 7 ZL1TOB—Crawford, J. V., 39 King Street, Whangarei, ZL1TOC—Plank, M. S., 12 Nan Place, Pakuranga,

Auckland.

ZL1TOD-McAuliffe, K., 50 Humber Crescent, Tauranga, ZL1TOE-Pennell, A. E., 35 Wellesley Grove, Gate Pa. Tauranga.

ZL1TOF-Baker, G. S., 3/106 Celtic Crescent, Ellerslie. Auckland 5.

ZL1TOG-Taylor, L. R., 21 Dingle Road, St. Heliers, Auckland 5.

ZL1TOH-

ZL1TOI-Fennell, S. G., 15 Buckley Road, Epsom, Auckland 3.

ZL1TOJ-

ZL1TOK-Hopkins, K. R., Ruakura Road, R.D. 4, Hamilton.

ZL1TOL—Anderson, M. G., 42 Boakes Road, Mt. Wetlington, Auckland 6.

ZL1TOM-Harrison, E. C., 3 St. Patrick Row, Whangamata.

ZL1TON-Mitchell, B. A., 12 Ward Street, Waharoa. ZL1TOO-

ZL1TOP-Pook, L. M., R.D. 2, Hinuera Road, West, Matamata.

ZL1TOQ-Ahston, I. M., 7 Cunliffe Place, Glenfield, Auckland 10.

ZL1TOR—Adams, N. J., "Holmlea", 5 R.D., Hamilton, ZL1TOS—Miller, J. C. H., 29 Bellevue Avenue, Northcote, Auckland 9.

ZL1TOT-ZL1TOU-

ZL1TOV-Van Dam, A. H., 16 Browning Street, Manurewa.

ZL1TOW-Orr, W. B., 22 Rhodes Avenue, Mt. Albert, Auckland 3.

ZL1TOX-Stevenson, J. F. G., 3 Finlow Drive, Te Atatu South, Auckland 8.

ZL1TOY—McGilp, F. C., 42 Howe Street, Howick. ZL1TOZ—Kennedy, R. M., Long Bay Road, Coromandel,

ZL1TPA-Gibson, S. R., 101 Mellons Bay Road, Howick, Auckland.

ZL1TPB—Brooks, R. K., 391 Ellerslie Panmure Highway, Panmure, Auckland 6.

ZL1TPC-Conlon, P. M., 41 Collier Avenue, Karori, Wellington 5.

ZL1TPD—Downs, G. M., 6 Glen Road, Henderson, Auckland B.

ZL1TPE-McEwen, D. J., 9 Roby Street, Te Atatu North, Auckland.

ZL1TPF-

ZL1TPG—van Loon, Q. J. M., 2 Khandallah Place, Avondale, Auckland 7.

ZL1TPH-Hayman, S. R., 10 Flora Street, Porirua. ZL1TPI-Smirk, A. T., 10 Masons Avenue, Herne Bay, Auckfand 2.

ZL1TPJ-Walker, B. J., Crane Road, R.D. 5, Hikurangi.

- ZL1TPK-Fisher, G. L. S., 3 Raleigh Street, Mt. Eden. Auckland 3
- ZL1TPL-Holland, C. W., 2/30 St. Vincent Avenue, Remuera, Auckland 5.
- ZL1TPM—Wilson, G. R. S., 38 Hetherington Road. Swanson, Auckland 8,
- ZL1TPN—Nielsen, R. P., 92 McGarvey Road, Whakatane. ZL1TPO—Vos. P. M., 15 Ngahue Crescent, Whenuapai, Auckland
- ZL1TPP-Locke, S. D., 15 Isabel Street, Acacia Bay, Taupo.
- ZL1TPQ—Richardson, W. J., 57 Esk Street, Tauranga,
- ZI 1TPR ZL1TPS-Bryant, R. S., 44a Pleasant Road, Glen Eden,
- Auckland 7. ZL1TPT-Reid, K. S., 38 Willis Road, Papakura.
- ZL1TPU-ZL1TPV-
- ZL1TPW-Carse, R. D., 76 Andrew Road, Howick, Auckland.
- ZL1TPX—Manning, B. F., 21 Farmer Street, Te Aroha. ZL1TPY—Wanhill, I. G., 37 Nixon Road, Titirangi, Auckland 7.
- ZL1TPZ-
- ZL1TQA— ZL1TQB—Lake, A. R., 10 Rewarewa Płace, Matua. Tauranga.
- ZL1TQC-Tarlton, I. H., 8 North Road, Kaitaia.
- ZL1TQD-Dil, W. T., 2/12 Rugby Road, Birkenhead, Auckland.
- ZL1TQE—Palmer, G. M., 71 West Street, Pukekohe. ZL1TQF—Webster, E. T., 40 McIntyre Road, Mangere
- Bridge, Auckland. ZL1TQG—Lee, S. W., 124 Favona Road, Mangere, Auckland.
- ZL1TQH-Whittaker, V. W., 17 Princess Street, Tauranga. ZL1TQI-Reed, G. N., 1 Church Bay Road, Oneroa.
- Waiheke Island ZL1TQJ-Gregory, G. J., 11 Dundale Avenue, Blockhouse
- Bay, Auckland 7. ZL1TQK-Earl, S. C., 219 Miro Street, Manunui, Taumarunui.
- ZL1TQL-McLean, A. G., Gisborne Point, Lake Rotoiti, Rotorua.
- ZL1TQM-Joseph, D. H., 38 Sunnybrae Road, Glenfield, Auckland 10.
- ZL1TQN-Woodward, N. F., Tumu Road, R.D. 9, Te Puke. ZL1TQQ~
- ZL1TQP-Eaton, P. R., 8 Penrhyn Road, Mt. Eden, Auckland 3.
- ZL1TQQ-Hobday, D. S., 12 Onedin Place, Titirangi, Auckland 7.
- ZL1TQR-Kennedy, I. R., 24 Wade River Road. Whangaparaoa.
- ZL1TQS-Wharton, K., 1/8 Mirrabooka Avenue, Howick, Auckland.
- ZL1TQT-Reid, J. D., 15 Dunbar Place, Tokoroa,
- ZL1TQU-
- ZL1TQV
- ZL1TQW-O'Keefe, R. A., 8 Raetihi Crescent, Mt. Albert, Auckland 3.
- ZL1TQX—Bott, J. C. (Mrs), River Road, Karangahake, via Paeroa P.O. Box 28.
- ZL1TOY—Watson, M. A. V., Poihipi Road, R.D. 1, Taupo. ZL1TQZ—Rowe, I. S., 39 Studfall Street, Pakuranga, Auckland.
- ZL1TRA-Cox, R. O., 190 Old Wairoa Rod, Papakura.
- ZL1TRB-Edmonds, M. J., 36 Bruce Road, Glenfield, Auckland.
- ZL1TRC-Hardwick, D. E., 66 Norrie Street, Melville, Hamilton.
- ZL1TRD—Tyson, T. W., Hikamutu, Taumarunui. ZL1TRE-
- ZL1TRF-De Wit, R., 1 Pegasus Drive, Rotorua.
- ZL1TRG-Benner, G. T., 51 Puriri Street, Helensville.

- ZL1TRH-Walker, A. V. Mrs. 51 Caronia Crescent, Mt. Roskill Auckland 4
- ZL1TRI-Watson, C., 85 Cameron Street, Onehunga, Auckland 6.
- ZL1TBJ-
- ZL1TRK-
- ZL1TRN—Huljich, A. P., 137 Totara Road, Whenuapai. ZL1TRM—Johnson, J. I., 18 Stirling Grove, Tauranga. ZL1TRN—Doughty, C. A., Brookley Road, Manurewa,
- Auckland. ZL1TRO-Schulz, P. M., 37 Croall Crescent, Hamilton,
- ZL1TRP-
- ZL1TRQ-Hall, G. R., 18 Dufek Crescent, Sockburn, Christchurch 4.
- ZL1TRR-Morrow, I. E., Nikau Road, R.D. 2, Pokeno.
- ZL1TRS-
- ZL1TRT-
- ZL1TRU—Hunt, P. J., 29 Cobham Drive, Kawerau. ZL1TRV—Huljich, P. A., 137 Totara Road, Whenuapai. ZL1TRW—Codling, R. D., 59 Bandon Street, Frankton, Hamilton.
- ZL1TRX-Wilson, J. P., 10 Brian Avenue, Milford, Auckland 9.
- ZL1TRY—Keatinge, A. R., 8 Barnard Street, Matamata. ZL1TRZ—Martens, P. H., 623 Pukehina Parade, R.D. 9, Te
- Puke.
- ZL1TSA-James, K. C., 123 McLeod Boad, Te Atatu. Auckland 8
- ZL1TSB-
- ZL1TSC-
- ZL1TSD-Wilson, W. B., 29 Paterson Street, Pahiatua.
- ZL1TSE-Abernethy, C., 20 Zetland Terrace, Kelburn, Wellington 5
- ZL1TSF-Fish, A. P., 9 Seaview Terrace, Mt. Albert, Auckland 3.
- ZL1TSG-Hanley, A. B. D., 8/248 Great North Road. Henderson, Auckland.
- ZL1TSH-
- ZL1TSI-Edlin, W. F., 83 Settlement Road, Papakura. Auckland.
- ZL1TSJ-Cope, G. B., 20a Louvain Avenue, Mt. Roskill, Auckland 4.
- ZL1TSK—Ladyman, D. R., 26 Carlton Street, Te Archa. ZL1TSL—Darvil, K. J., 38 Caen Road, Panmure,
- Auckland 6
- ZL1TSM-Garnett-Frizelle, H. H., 144b Nixon Street. Hamilton.
- ZL1TSN-Hollis, M. A., 98 The Drive, Epsom, Auckland 3. ZL1TSO-Soysa, S. W., 2 Madill Road, St. Andrews,
- Hamilton.

- ZL1TSQ—Attrill, J. J., 7 Tawa Street, Mt. Maunganui. ZL1TSR—Reynolds, E. W., 13 Coronation Street, Takapuna, Auckland 9.
- ZL1TSS—Armstrong, R. C. 142 King Street, Cambridge. ZL1TST—Young, J. R., 56 Allison Street, Opunake.
- ZL1TSU-Osborne, P. L., 14 Oakfield Crescent, Hamilton. ZL1TSV-Talbot, I. C., 64 Woodlands Crescent, Browns
- Bay, Auckland 10.
- ZL1TSW-Sinton, J. J., 4 Wheretia Street, Taupo.
- ZL1TSX-
- ZL1TSY-Law, J. A., 45 South Lynn Road, Titirangi, Auckland 7.
- ZL1TSZ-Thomas, R. V., 141 Douglas Street, Whakatane. ZL1TTA-Fairweather, K. D., 33 Savoy Road, Glen Eden, Auckland 7.
- ZL1TTB-Wevers, W. F., 3/268 Meola Road, Pt. Chevalier. Auckland 2.
- ZL1TTC-
- ZL1TTD-Downard, I. F., 252 Malfroy Road, Rotorua.
- ZL1TTE-Cooke, D. C., 13 Walmer Road, Pt. Chevalier, Auckland 2.
- ZL1TTF-

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ZL1TTG
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ZL1TTG-Mellars, L. R., 564 Beach Road, Rothesay Bay, Auckland 10.

ZL1TTH-

ZL1TT!-Hunter, R. A., 13 Datura Place, Sunnynook, Auckland 10.

ZL1TTJ-Holmes, C. J., 73b Browns Road, Manurewa. ZL1TTK-Nettleingham, J., Matahui Road, Katikati.

ZL1TTL-

ZL1TTM-

ZL1TTN—Goffin, C. P., C/- Police College, Porirua. ZL1TTO—Curran, W. J., Awaiti Road, Paeroa. ZL1TTP—Stagpoole, V. M., 10 Hilton Road, Rotorua.

ZL1TTR—Presling, R. C., Vospers Road, R.D. 2, Putaruru. ZL1TTS—Karrasch, D. F., 24 Brooks Road, Papakura. ZL1TTT-

ZL1TTU-Godbert, F. D., Waipapa West Road, R.D. 2,

ZL1TTV-Mather, P. B., 3 Felicity Place, Glenfield. Auckland 10

ZL1TTW—Grundy, C. A. F., 15 Pooles Road, Te Aroha. ZL1TTX—Moss, G. D., 54 Alexander Street, Howick.

ZL1TTY-Vujcich, L. M. G., Horrells Road, R D. 4. Morrinsville

ZL1TTZ-Broad, A. L. E., Northwood Avenue, R.D. 4. Kaitaia.

ZL1TUA—Miller, K. I., 134 College Road, Edgecumbe. ZL1TUB-Borman, T. G., 3 Manuka Street. Hamilton. ZL1TUC-Cuthbert, E. W., 12 Kitenui Avenue, Mt. Albert

Auckland 3 ZL1TUD-Graham, D. W., 11 Galbraith Street, Rotorua.

ZL1TUE-

ZL1TUF-Cook, B. W., 34 Sunset Road, Taupo-

ZL1TUG-

ZL1TUH-Addis, B. G., 119 Motatau Road, Papatoetoe, Auckland.

ZL1TUI-

ZL1TUJ-Marr, G. E., 11 Liley Place, Remuera, Auckland 5

ZL1TUK-Aymes, N. C., Mountain View Road, Otorohanga

ZL1TUL—Richardson, R. W., 3 McKenzie Avenue, Otorohanga.

ZL1TUM-Stewart, K. R., 14 Lisa Crescent, Rotorua. ZL1TUN--

ZL1TUO-Hope, G. L., Terena Street, Mamaku, Rotorua.

ZL1TUP—Comer, R. J., Greenhithe Road, R.D. 4, Albany, ZL1TUQ—Campkin, A. D., 11 Lyford Crescent, Forrest Hill, Auckland 10.

ZL1TUR-McLean, K. R., 94 Wood Bay Road, Titirangi, Auckland 7

ZL1TUS-Watson, D. C., Eastbank Road, Thornton, R.D. 3, Whakalane.

ZL1TUT—Alexander, S. J., Waihou Valley, R.D. 3, Okaihau.

ZL1TUU-

ZL1TUV--King, A. P., 3/139 Campbell Road, One Tree Hill, Auckland

ZL1TUW-Lindquist, I. D., 4 Martin Place, Panmure, Auckland 6.

ZL1TUX-Raffles, G. E., 34 Dundee Place, Blockhouse Bay, Auckland 7

ZL1TUY—Young, R. A., 21 George Street, Waihi. ZL1TUZ—Quirk, L., 41 Castleford Street, Green Bay, Auckland 7.

ZL1TVA-Richardson, R. D., C/- Sergeants Mess, RNZAF Base, Wigram, Christchurch 4. ZL1TVB—Zorn, J. A. F., 2139 Great North Road,

Avondale, Auckland 7.

ZL1TVC

ZL1TVD-

ZL1TVE-Willis, D. R., Rawene, P.O. Box 10.

ZL1TVF-

ZL1TVG-Hynes, J. K., 35 Central Avenue, Whangarei.

ZL1TVH—Blake, K. J., Eagles Hill Road, R.D., Waimana. ZL1TVI—Allan, R. W., Wainiu Road, Raglan.

ZL1TVJ-

ZL1TVK-Swainston, R. F., 53 Tainui Road, Titirangi, Auckland 7.

ZL1TVL-Moores, R. E., 49 Baycroft Avenue, Tauranga. ZL1TVM-

ZL1TVN-Nairn, D. G., 8 Bridge Avenue, Te Atatu. Auckland 8.

ZL1TVO-Sylvester, R. L., 19 Ringwood Street, Torbay, Auckland 10

ZL1TVP-Aikin, P. M., 179 Hokianga Road, Dargaville. ZL1TVQ-Boyce, K. R., 33 Lambeth Fload, Mt. Roskill, Auckland 4.

ZL1TVR-Leadley, A. M., Mangaotaki Road, Piopio.

ZL1TVS-Hancock, S. C., 2a Waimokihi Place, Christchurch 2

ZL1TVT-Smith, C. P., 3 Washington Avenue, Glendowie, Auckland 5.

ZL1TVU-

ZL1TVV—Contesse, L., 26 Second Avenue, Whangarei, ZL1TVW—Griffin, W. P., 2/100a Portland Road, Remuera, Auckland 5.

ZL1TVX-

ZL1TVY-Bain, E. M., 58 George Crescent, Buckland, R.D. 2. Pukekohe.

ZL1TVZ—Bartle, D. L., 13b Seymour Road, Henderson, Auckland 8.

ZL1TWA-Northcott, J. A., 147a Main North Hoad, Otorohanga.

ZL1TWB-Wills, T. J. E., 112 Ngamotu Road, New Plymouth.

ZL1TWC-Rowe, N. L., 20 Pukehangi Road, Rotorua. ZL1TWD-Sparkes, D. G., 28 Kowhai Park, Kawerau.

ZL1TWE—Norris, D. R. H., 14 Manning Street, Hamilton. ZL1TWF—Brown, C. J., 35 Lancaster Street, Hamilton. ZL1TWG—Moseley, S. R., 34 Domain Street, Waiuku.

ZL1TWH-Zein, D. B., 22 Stafford Place, Tokorna, ZL1TW!--Lydiate, K., 52 Fitzwater Place, Henderson,

Auckland 8. ZL1TWJ-Ross, E. J. A., 74 Kumlin Avenue, Tauranga.

ZL1TWK-Schafer, M. T. E., 10 Canterbury Place, Parnell, Auckland 1

ZL1TWL—Christensen, R. A., 13 Manson Street, Greerton, Tauranga.

ZL1TWM--Rhodes, R. W., 45 Rangeview Road, Henderson, Auckland 8.

ZL1TWN-Ching, Chen-Bon, R., 101 Litten Road, Howick, Auckland

ZL1TWO—McKinlay, M. P., 55 Salamanca Road, Glenfield, Auckland 10.

ZL1TWP-Stoney, D. B., Alpine Road, Kaukapakapa, Auckland.

ZL1TWQ-Hall, M. J., Norfolk Avenue, Reotahi. ZL1TWR-Palmer, S. D., 71 West Street, Pukekohe. ZL1TWS-

ZL1TWT-Broughton, P. Y., Kaimaumau, Waiharara, R.D., Kaitaia.

ZL1TWU—Bott, B., 12a Peri Street, Tauranga. ZL1TWV—Cleave, V. J., 75 Taunton Terrace, Blockhouse

Bay, Auckland 7.

ZL1TWW-Beatson, C. J., Hinemaru Street, Queen Elizabeth Hospital, Rotorua

ZL1YWX--McFadzean, P. A., 40 Hain Avenue, Mangere East

ZL1TWY-Woollett, S. C., 128 Terry Street, Blockhouse Bay, Auckland 7.

ZL1TWZ-Russell, G. C., 26 Dundee Place, Blockhouse Bay, Auckland 7.

ZL1TXA-

ZL1TXB-Fredericksen, K. P., 5 Vonnell Place, Glenfield, Auckland 10.

ZL1TXC-Perston, J. M., 15 Fergusson Street, Kawerau. ZL1TXD-Keymer, G. B., 43 Laburnum Road, Mt Roskill, Auckland 4.

- ZL1TXE—Murdoch, A. J., 23 Kingsland Avenue, Auckland 3.
- ZL1TXF-Lake, J. S., 17 Glynnbrooke Street, Te Atatu South, Auckland 8.
- ZL1TXG-Rhodes, I. M., 24 Lingfield Street, Glenfield, Auckland 10.
- ZL1TXH--Schultz, W., Schultz Road, R.D. 2, Waipu.
- ZL1TXI—Culloty-Marsh, D. L., 5 May Street, Hamilton, ZL1TXJ—Slyfield, P. J., 156 Campbell Road, Greenlane, Auckland 5.
- ZL1TXK-
- ZL1TXL—Robotham, D., 22 Maddison Place, Takapuna. Auckland 9.
- ZL1TXM—Dexter, J. D. G., 43 Owens Road, Epsom, Auckland 3.
- ZL1TXN—Vickery, W.L., 38 Links Road, New Lynn, Auckland 7.
- ZL1TXO-Dawson, R. N., 3 Wainone Place, Warkworth. ZL1TXP—Schultz, P. O., Schultz Road, R.D. 2, Waipu, ZL1TXQ—Rowe, A. N., 24 Okareka Place, Pakuranga.
- ZL1TXR—McDonald, R. J., 18 Fairview Road, Kati Kati. ZL1TXS—Nield, f. J., 2/36 Hogan Street, Hamilton. ZL1TXT-Reynolds, R. J., 9a Swansea Place, Tamatea,
- Napier. ZL1TXU—Cook, D. G., 18 Coventry Road, Hamilton. ZL1TXV-Byrnand, J. A., 10 Church Street, Onerahi,
- Whangarei. ZL1TXW-
- ZL1TXX-Kelly, D. B., 69 Argyll Street, Greerton, Tauranga.
- ZL1TXY-
- ZL1TXZ-Boot, I. O. G., 4 Hillstan Place, Onehunga, Auckland 6.
- ZL1TYA—Cartine, I. A., 3/32 Ebdentown Street, Upper Hutt
- ZL1TYB—Atkinson, G. F., 10 Kohe Kohe Street, Kelston, Auckland 7
- ZL1TYC—Fitzpatrick, J. D., 7 River Road, Kawerau. ZL1TYD—Hill, A. C., 43 South Lynn Road, Titirangi,
- Auckland. ZL1TYE—Brien, G. J., 33 Rosalind Road, Glenfield, Auckland 10.
- ZL1TYF—Towler, T. J., 3/3 Domain Avenue, Ngongotaha. ZL1TYG—Millen, T. A., 50 Barry Road, Waihi.

- ZL1TYI—Bridger, G. D., 102 Hospital Road, Whangarei. ZL1TYJ—Balt, R. J., R.D. 1, Turangi. ZL1TYK—Dunningham, A. G., 9 Kahu Street, Rotorua. ZL1TYL-Taylor, P. J., 14 Gollan Road, Mt Wellington,
- Auckland 6.
- ZL1TYM—Tuck, P. J., 112 15th Avenue, Tauranga. ZL1TYN—Dunlop, B. V., Unit 1, 239 Robertson Road. Mangere, Manukau City.
- ZL1TYO-
- ZL1TYP-Thompson, G. O., Brown Road, R.D. 3, New Plymouth.
- ZL1TYQ—Sadler, W., 35 Patterson Street, Mt. Maunganui ZL1TYR-
- ZL1TYS-Field, B. V., 23 Ross Street, Onerahi, Whangarei.
- ZL1TYT-Lowe, E. R., 86 Dinsdale Road, Hamilton.
- ZL1TYU-Purves, P. S., 8/81 Lakes Road, Hamilton.
- ZL1TYV-Jenkins, M. W., 35 Robertson Street, Rotorua.
- ZL1TYW-Middlemiss, G. D., Eureka Station Road, R.D. 4,
- ZL1TYX—Pabbruwe, H. I., 99 Bradbury Road, Howick.
- ZL1TYY-Lindesay, D.A., 260 Kepa Road, Mission Bay, Auckland 5.
- ZL1TYZ-Jenner, A. M., 51 Waharoa Road, East Matamata.
- ZL1TZA-Jenner, R. P., 51 Waharoa Road, East Matamata ZL1TZB-Martinson, L. R., 2/24 Colwill Road, Massey, Auckland 8.
- ZL1TZC-McConnochie, K. N., 10 Miro Street, Te Aroha.

- ZL1TZD-Dodds, A. M., Paparimu School House, R.D. 3, Paparimu, Papakura.
- ZL1TZE-Davison, J. G., 19 Thompson Terrace, Manurewa.
- ZL1TZG-
- ZL1TZH-Hunt, E. J., 78 McAnnalley Street, Manurewa.
- ZL1TZI-
- ZL1TZJ-Page, S. B., 717 East Coast Road, Browns Bay, Auckland 10.
- ZL1TZK-Carter, R. H., 6 Beckenham Avenue, Royal Oak. Auckland 3.
- ZL1TZL—Rowe, G. J., Te Rahu Road, R.D. 3.. Whakatane.
- ZL1TZM—Van der Werff, M. L., 2139 Great North Road, Avondale, Auckland 7.
- ZL1TZN-
- ZL1TZO-Veber, R. A. K., 17 Ngaiwi Street, Orakei, Auckland 5.
- ZL1TZP-Doell, S. D., 11 Sandspit Road, Waiuku.
- ZL1TZQ-
- ZL1TZR-Fendall, M. D., 39 Jones Crescent, Melville. Hamilton.
- ZL1TZS-Finer, W. R., 27 Divich Avenue, Te Atatu South, Auckland 8.
- ZL1TZT—Bestwick, A. J., 8 Hakanoa Street, Huntly.
- ZL1TZU—Miller, R. T., Wellington Street, Russell, ZL1TZV—Stockley, L. A. F., 32 Grove Road, Papakura. ZL1TZW-Wills, J. E. M., 13 Mahia Road, Manurewa,
- Auckland. ZL1TZX-Fryer, B. S., 38 Monarch Avenue, Glenfield, Auckland 10.
- ZL1TZY-Noble, P. V., 22 Clagery Street, Sandringham, Auckland 3.
- ZL1TZZ—Skinner, D. E., 75 Lynbrooke Avenue, New Lynn, Auckland 7
- ZL1UAA—Shirley, L. T., C/- Post Office, Pukemiro. ZL1UAB—Petrie, G. W., 70 Mansel Avenue, Hillcrest,
- Hamilton. ZL1UAC-Moore, I. D., 7 Fyfe Road, Waihi Beach ZL1UAD-Blackwell, D. M., 6 Kenny Road, Remuera.
- Auckland 5. ZL1UAE-Eeninkwinkel, J., La Trobe Track, R.D. New
- Lynn, Auckland. ZL1UAF-Shearer, D. A., 31b Aldred Road, Remuera, Auckland 5.
- ZL1UAG-Tyson, J., 9 Paewai Road, Glen Eden, Auckland 7.
- ZL1UAI—Spayde, M. L. C., 44 Selwyn Road, Rotorua. ZL1UAJ—Howard-Taylor, A., 32 Bruce Road, Glenfield.
- Auckland 10. ZL1UAK—Rogers, L. A., Spains Road, Awanui, ZL1UAL—Barea, H., 15 Darley Street, Hamilton, ZL1UAM—Crook, S. A., 4 Kelly Street, Rotorua, ZL1UAN—Ah-Chan, W. R., 61 Devon Street, Rotorua.

- ZL1UAO-
- ZL1UAP—Johnson, G. C., 49a Butley Drive, Pakuranga. ZL1UAQ—Carter, S. B., 26 Balwyn Avenue, Tihi-O-Tonga,
- Rotorua.
- ZL1UAR—Hishon, B. N., 450 Te Rapa Road, Hamilton. ZL1UAS—Kane, F. L. D., 54 Prey Street, Kawerau. ZL1UAT—Parkinson, W. H. J., 51 Jacaranda Avenue, Birkdale, Auckland 10.
- ZL1UAU-Clarke, K. B., 22 Farnborough Cresent. Mangere, Auckland.
- ZL1UAV—Simpson, I. G., Fri Village, Rotorua. ZL1UAW—Jansen, R. M., 14a Brightwell Place, Hamilton. ZL1UAX-
- ZL1UAY—Ogden, I. D., 146 King Street, Cambridge. ZL1UAZ—Anderson, G. M., 421 Pukehangi Road, Rotorua. ZL1UBA—Johnson, P. R., 22 Huja Street, Rotorua.
- ZL1UBB-Gardiner, R. S. A., 53 Northboro Road, Takapuna, Auckland 9.

```
ZL1UBC
```

ZL1UBC-Bowring, A. E., House 33, Electricity Department Village, Karapiro.

ZL1UBD-

ZL1UBE—Harries, G. E., 8 Jeeves Place, Whangarei ZL1UBF—Marshall, C. D., 14 Kapua Place, Taupo. ZL1UBG—Millar, R. C., 82 Mount View Drive, Rotorua.

ZL1UBH-Miller, R. N., 266 Whitaker Street, Te Aroha.

ZL1UBI—Smith, N. C., Youngsons Road, Whakamarama, R.D. 6, Tauranga.

ZL1UBK—Brown, G. A., 16a Ocean Road, Ohope. ZL1UBK—Falloon, G. A., 17 Latham Avenue, Pakuranga. ZL1UBM—Willis, B. E., 195 Taharepa Road, Taupo. ZL1UBN—Cooke, S. R., 166 Ridge Road, Howick, Auckland.

ZL1UBO-

ZL1UBP-Peryer, C. J., 66 Richard Farrell Avenue, Remuera, Auckland 5.

ZL1UBQ-Crossett, T. A., 18 Raihara Street, Kaikohe.

ZL1UBR-

ZL1UBS—Watchman, S. J., 83 Cass Street, Kaiapoi. ZL1UBT—Sanne, G. T., 46 Miro Street, Mt Maunganui. ZL1UBU—McAra, R. W., 31 Ivy Place, Birkdale,

Auckland 10.

ZL1UBV-Withers, P. G., 187 Morningside Road, Whangarei.

ZL1UBW-Libeau, F. L., 10 Asbury Crescent, Campbells Bay, Auckland 10.

ZL1UBX—Glass, B. L., 18 Jellicoe Road, Murrays Bay, Auckland 10.

ZL1UBY-Murphy, S. B., 4 Jillian Drive, Ranui, Auckland 8.

ZL1UBZ—Caffell, P. H., 1a Ferndown Avenue, Papatoetoe, ZL1UCA—Lang, R. G. C., 28b Olsen Avenue, Hillsborough, Auckland 4.

ZL1UCB-Stewart, R. S., 87 Tirimoana Road, Te Atatu, Auckland 8.

ZL1UCC-Martin, D. L., 132a Western Hills Drive, Whangarei.

ZL1UCD—Stift, P. J., Old School Road, Maungakaramea. ZL1UCE—Warner, P. J., 36 Harvey Street, Taupo. ZL1UCF—Allan, D. P., 194 Beach Road, Campbells Bay,

Auckland 10.

ZL1UCG-Ferguson, I. A., 36 Stanley Point Road,

Devonport, Auckland 9. ZL1UCH—Hayter, J. W., 22 Omapere Road, Kaikohe. ZL1UCI-

ZL1UCJ—Teviotdale, E. R. (Mrs), Fairbank Road, Rotorua, ZL1UCK—Jane, T. R., C/- M. A. Leevwenburg, R.D. 2, Parakao, Whangarei.

ZL1UCM—Parr, R., Paterangi Road, Te Awamulu. ZL1UCN—Prater, R. E., 34 Waterloo Road, Howick Auckland.

ZL1UCO-

ZL1UCP-Henneveld, L. R., Whau Valley Road, Kensington, Whangarei.

ZL1UCQ-

ZL1UCR-Laurenson, M. R., 14 Corbett-Scott Avenue, Epsom, Auckland 3.

ZL1UCS-Stubbing, M. P., 37 Vanessa Crescent, Glendowie, Auckland 5.

ZL1UCT-Medland, J. C., 11 Laser Place, Glenfield. Auckland 10.

ZL1UCU-Stephens, J., "Moana Rei", Pole No. 4, Kissing Point, Whangarei.

ZL1UCV-

ZL1UCW-Gravatt, B. P., 23 Boyce Avenue, Mt Roskill, Auckland 4.

ZL1UCX-Hynds, A. G., 59 The Strand, Tauranga.

ZL1UCY-Crosland, A. J., 36 Te Puea Avenue, Meremere

ZL1UCZ-Tooke, B. H., Eastern Boundary Road, Whakatane.

ZL1UDA-Jones, G. M., 9 Aberdeen Road, Castor Bay, Auckland 9

ZL1UDB-ZL1UDC-

ZL1UDD-Seel, D. A., 10 Bledisloe Court, Pukekohe.

ZL1UDE—Morey, E. R., 128 Nixon Street, Hamilton. ZL1UDF—Streiff, D. R., 18 Anzac Avenue, Morrinsville. ZL1UDG—Wells, G. G., 2nd Avenue, Waihou.

ZL1UDH-ZL1UDI-

ZL1UDJ-Duffell, A. H., 8 Grassy Downs Place, St. Andrews, Hamilton.

ZL1UDK-

ZL1UDL-Owen, M. C., 25 Brains Road, Kelston, Auckland 7

ZL1UDM—Stannard, E. A., Ngatira Road, Lichfield, R.D. 2, Putaruru.

ZL1UDN-Rowe, S. W., 8 Maunsell Road, Parnell, Auckland.

ZL1UDO-

ZL1UDP—Humphrey, G. A., 113 17th Avenue, Tauranga. ZL1UDQ—Moss, D. H. P., 54 Alexander Street, Howick. ZL1UDR—Crawley, H. V., 5/238 Onewa Road, Birkenhead.

Auckland 10.

ZL1UDS—Fleming, J., 43 Burns Street, Leamington, Cambridge.

ZL1UDT-McCarral-Smythe, E. G., 191 Wade River Road, Whangaparaoa.

ZL1UDU—Fletcher, O. D., 24 Guy Road, Kaikohe. ZL1UDV—Frogley, C. D., 22 Mellows Bay Road, Howick, Auckland.

ZL1UDW-

ZL1UDX-Glenholme, A. J., 124 Rathgar Road, Henderson, Auckland 8.

ZL1UDY

ZL1UDZ-Greenman, P. M., 43a Wheturangi Road, One Tree Hill, Auckland 5.

ZL1UEA-

ZL1UEB-

ZL1UEC-Hynds, K. E., 13 Ngahue Crescent, Whentapai, Auckland.

ZL1UED-Kendrick, W. B., 6 McCullough Avenue, Papatoetoe.

ZL1UEE-Kevey, E. F., 26 Spencer Terrace, Takapuna, Auckland 9 ZL1UEF-Porter, J. W., C/- H. Porter, 45 Ward Street,

Pukekohe. ZL1UEG-Lee, J. A., Oropi Road, Pyes Pa, R.D. 3,

Tauranga.

ZL1UEI-Pritchard, R. E., Unit 10, 26a Sunnynook Road, Forrest Hill, Auckland 10.

ZL1UEJ-Maindonald, P. G., 17 McKenzie Road, Owhata, Rotorua.

ZL1UEK—Morecraft, I. G., 8 Valley Road, Pukekohe. ZL1UEL—Abraham, G. J., 25 Churchill Street, Whakatane.

ZL1UEM-ZL1UEN-Peters, J. W., 79 Sunset Road, Rotorua.

ZL1UEO-Porter, M. J., 45 Ward Street, Pukekohe. ZL1UEP

ZL1UEQ-Mowatt-Wilson, K. A., 106 Moore Street, Northcote, Auckland 9.

ZL1UER-Reid, D., 116 Archers Road, Glenfield, Auckland 10.

ZL1UES—Royds, P. I., 25 Ridge Street, Tauranga. ZL1UET-Seymour, D. J., 11 Addington Avenue, Manurewa.

ZL1UEU-Taylor, M. L., 21 Dingle Road, St. Heliers, Auckland 5.

ZL1UEV-

ZL1UEW-

ZL1UEX-Turnwald, J. B., 8 Miller Street, Point Chevalier, Auckland 2 ZL1UEY-Voigt, R. E., Hawkins Crescent, Kerikeri.

ZL1UEZ-

```
ZL1UFA-Wallath, A. J., 21 Omana Avenue, Epsom,
          Auckland 3
ZL1UFB-McDonald, A., 7 George Street, Waihi.
ZL1UFC-Warburton, J. J., 1046 Papamoa Beach Road.
          R.D. 7, Te Puke.
ZL1UFD—Ward, B. J., 4 Queen Street, Waihi Beach. ZL1UFE—White, D. E. G., 34 Haseler Crescent, Howick,
          Auckland.
ZL1UFG—Wright, K. R., Stuart Road, Bombay, Auckland. ZL1UFG—Zeeders, P. J., R.D. 2, Te Aroha. ZL1UFH—Nisbet, G. S., 4 Williams Avenue, Kaikohe.
ZL1UFI-
ZL1UFJ-
ZL1UFK-Biggar, D. R., 6 Pickwick Parade, Howick,
          Auckland
ZL1UFL-Allen, G. D., 19 Robley Crescent, Glendowie,
          Auckland 5.
ZL1UFM-Rodda, M. J., Heights Road, Helvetia, R.D. 1,
          Pukekohe.
ZL1UFN—Gallaugher, I. R., Potts Road, R.D. 1, Howick.
ZL1UFO-
ZL1UFP-Rumble, O. W., 5 Apollo Place, Rotorua.
ZL1UFO-Nilsson, R. E., 1 Caernarvon Street, Dinsdale,
          Hamilton.
ZL1UFR-Williamson, D. H., 38a Waikato Esplande,
          Ngaruawahia.
ZL1UFS—Shaw, P. J., Selwyn Crescent, Ohaupo.
ZL1UFT—Jacques, M. A., 171 Whitney Street, Blockhouse
          Bay, Auckland 7.
ZL1UFU—Brott, R. O., Church Road, R.D. 2, Kaitaia. ZL1UFV—Turton, J. W., C/- Puriri Park, Orewa. ZL1UFW—Nicholls, G. R. B., 7 Eastern Beach Road,
          Bucklands Beach.
ZL1UFX-
ZL1UFY-James, T. C., 12 McHardy Place, Glenfield,
          Auckland 10.
ZL1UFZ-Pirihi, R. G., No. 2 Officers Mess, RNZAF Base,
          Wigram, Christchurch.
ZL1UGA-Mueggenburg, G. A., 21 Glen Terrace,
          Otumoetai, Tauranga.
ZL1UGB-
ZL1UGC—Armstrong, G. W., 5 Jervois Street, Kawarau. ZL1UGD—Parr, A. J., C/- Parr, R.D. 3, Ohaupo. ZL1UGE—Benner, M. T., 5 Keikei Road, Mangere Bridge.
          Auckland.
ZL1UGF—Dempsey, J. M., 47 Elizabeth Street, Rotorua. ZL1UGG—Hewer, P. K., 16 Adel Place, Weymouth. ZL1UGH—Walsh, R. H. N., 84 Paraonui Road, Tokoroa. ZL1UGI—Parsonage, P. C. J., 166 Bucklands Beach Road,
          Bucklands Beach, Auckland,
ZL1UGJ-
ZL1UGK—
ZL1UGL—Donaldson, P. N., 24 Miro Street, Murupara.
ZL1UGM-Mowry, A. K., 8 Cobham Street, Taneatua.
ZL1UGN-
ZL1UGO-
ZL1UGP-
ZL1UGQ-
ZL1UGR-Bain, F. J., 58 George Crescent, Buckland,
          R.D. 2, Pukekohe.
ZL1UGS—Black, A. C., 5 Sonlands Drive, Manurewa. ZL1UGT—Gulliver, K. E., 147 Edgewater Drive,
           Pakuranga.
ZL1UGU-Bird, C. A., 616 Tararu Road, Thames.
ZL1UGV-
ZL1UGW-
ZL1UGX-
ZL1UGY-
ZL1UGZ-
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ZL1UHE-Boyle, D. H. K., Main South Road, Otorohanga. ZL1UHF-Auckland VHF Group (Inc.).
ZL1UHG-
ZL1UHH-Bird, K. J., 616 Tararu Road, Thames.
ZL1UHI-Hill, J. L., Labour Department, Otahuhu,
          Auckland.
ZL1UHJ—Spiers, D. J., Cranes Road, Kauri, Whangarei.
ZL1UHK—Cavanaugh, F. N., 6 Harvey Place, Kohimarama.
          Auckland 5.
ZL1UHL-
ZL1UHM—Ellmers, L. A., Ward Drive, Opua, Paihia.
ZL1UHN—Jacobson, I. R. B., 38 Manawa Road, Remuera,
          Auckland 5.
ZL1UHO-Craig, G. G. P., 128 Nixon Street, Hamilton.
ZL1UHP-Smith, A. D., 21a Himalaya Cresent, Lynfield,
          Auckland 4
ZL1UHQ—Smith, D. J., 156 Regitoto Road, Papatoetoe. ZL1UHR—Wendelborn, L. N., 46 Danbury Drive, Torbay,
          Auckland 10.
ZL1UHS-Windram, M. R., 30 Pluto Place, Birkenhead,
          Auckland 10.
ZL1UHT-Griffin, M. E., 12 Valley Road, Pukekohe.
ZL1UHU-
ZL1UHV-Tennent, R. C., 107a New Windsor, Avondale,
          Auckland 7
ZL1UHW-Waikato VHF Group (Trustees: T. M. Bevan
          and I. W. Brown). Beacon located in Hamilton.
          City.
ZL1UHX—Brammer, P. A., Ashers Road, R.D. 5,
          Tauranga
ZL1UHY—Smith, W. L., 7 Raewyn Street, Whangarei, ZL1UHZ—Sutton, L. M., 207 Fergusson Drive, Thames, ZL1UIA—Paton, J. S., 1 Tamariki Avenue, Kelston,
          Auckland 7.
ZL1UIC-Gilbert, A. J., Bruntwood, R.D. 1, Cambridge.
ZL1UID-
ZL1UIE—Bach, M. E., 134 Methuen Road, Avondale,
          Auckland 7.
ZL1UIF-Welcome, P. M., 79 Evelyn Road, Howick.
ZL1UIG—Abbot, S. A., 6 Hanna Street, Te Aroha.
ZL1UIH—Ruiter, R., 43 Woolley Street, Christchurch 7.
ZL1UII—Bridge, B. E. A., 17 Paddington Street, Glen
          Innes, Auckland 6.
ZL1UIJ-Burgess, N. R., 44 Priestley Drive, Bucklands
          Beach, Auckland.
ZL1UIK-
ZL1UIL—Mossley, M. J., Troutbeck Road, Galatea. ZL1UIM—Campbell, R. S., 25 Eccles Place, Otara,
          Auckland 7.
ZL1UIN-Nortje, F. C., Waiotira Road, R.D. 1, Waiotira,
ZL1UIO—Frew, D. J., 125 Grampian Street, Tokoroa.
ZL1UIP—Glass, G. W., 72 Tasman Drive, Tokoroa.
ZL1UIQ—Wilken, R. M., 59 Northcote Road, Takapuna.
          Auckland 9.
ZL1UIR—Wilson, G. J., 21 Betley Crescent, Hamilton. ZL1UIS—Smiley, R. E., Pakiri Block Road, Tomorata, R.D. 4, Wellsford.
ZL1UIU-Jenkins, S. E. M., 35 Robertson Street, Rotorua.
ZL1UIV—Drummond, A. J., 17 Roosevelt Road, Rotorua. ZL1UIW—Dawson, P. C., 40 Pouwhare Street, Whakatane.
ZL1UIX-
ZL1UIY-Carlen, H. E., 106 Portland Road, Remuera.
          Auckland
ZL1UIZ—Barnett, N. R., 52a Cameron Road, Hamilton.
ZL1UJA—Morrissey, M. A., 8 Faulkner Park, Taumarunui.
ZL1UJB—Baylis, M. R., 1 Munro Street, Whangarei.
ZL1UJC-
ZL1UJD—Stewart, B. C., R.D. Larmers Road, P.O. Box
          421, Kaitaia.
ZL1UJE-
ZL1UJF-Davies, L. J., 22 Brighton Road, Waihi Beach.
ZL1UJG-
```

Auckland 1.

Rotorua.

ZL1UHA-McLaren, G. C., 13 Te Mai Road, Whangarei.

ZL1UHC-Simpson, J. M., 58 Orion Street, West Brook,

ZL1UHD-Chilcott, S. J., 13 Sarawia Street, Newmarket,

ZL1UHB-Crowe, B. C., 4 Irvine Street, Hamilton.

```
ZL1UJH
ZL1UJH-Rodger, T. R. R., 14 King Street, Cambridge.
ZL1UJI-
ZL1UJJ-Wilson, I. A., 28 Butler Road, Kerikeri.
ZL1UJK-Harris, J. M., 21 Tapper Crescent, Tikipunga,
        Whangarei.
ZL1UJL-Miller, R. P., 129 Church Street, Onerahi,
        Whangarei.
ZL1UJM—Hardie, B. G. S., 66 Onslow Avenue, Epsom,
        Auckland 3.
ZL1UJN-Type, O. H. D., 14 Wanganui Avenue, Herne
Bay, Auckland 2.
ZL1UJO—Cranna, A. W., 47 Coronation Road,
        Morrinsville.
ZL1UJP-MacDiarmid, R. M., C/- Knox College, Arden
        Streetm Dunedin.
ZL1UJO-
ZL1UJR-Jarvis, I. H., 1/11 Meadowbank Road, Remuera,
        Auckland 5.
ZL1UJS-Ferguson, K. D., 3 Grove Lane, Pakuranga,
        Auckland.
71.1U.IT-
ZL1UJU-Runciman, S. R., 84 Commissariat Road, Mt.
        Wellington, Auckland.
ZL1UJW-Hughey, S. T., 22 Coleridge Drive, Hamilton.
ZL1UJX-Clarkson, E. J., 16 Hautu Staff Village, Turangi.
ZL1UJY-
ZL1UJZ-McCarthy, J. A., 309 Mt. Eden Road,
        Auckland 3.
ZL1UKA—Jackson, B. T., 461 Main Road, Orewa. ZL1UKB—Morris, R. A., 79 Vine Street, Mangere East,
        Auckland.
ZL1UKC-Nicholson, R. J., 27 Normandy Place,
        Henderson, Auckland B.
ZL1UKD-
ZL1UKE-
ZL1UKF-
ZL1UKG-
ZL1UKH-
ZL1UKI-Ujdur, R., Main Road, Awanau.
ZL1UKJ-
ZL1UKK-
ZL1UKL-McLean, A. K., 10 Orpheus Place, Papakura.
ZL1UKM-Greenaway, A. W., 11 Darraghs Road,
        Otumoetai, Tauranga.
ZL1UKN-
ZL1UKO-Ngakuru, D., 31 Wihongi Street, Kaikohe.
ZL1UKP-
ZL1UKQ—List, D. A., 139 Malfroy Road, Rotorua.
ZL1UKR—Sargon, R. P., 2/3224 Great North Road, New
Lynn, Auckland 7.
ZL1UKT-Dancy, N. K., 35 McMillan Place, Howick.
ZL1UKU-
ZL1UKV-
ZL1UKW-Grant, J. I., 34 Benalder Crescent, Tokoroa
ZL1UKX-Van Kuilenburg, P. H., 64 Rockfield Road, One
        tree Hill, Auckland.
ZL1UKY-Haines, D. R., 17 St. Mary's Avenue, Te
```

ZL1ULS—Duncan, R., 173 Taharega Road, Taupo, ZL1ULT—Olliff, G. M., 19 Sorrell Crescent, Bucklands Beach ZL1ULU—Chubb, T., 30 Orinda Close, Howick, ZL1ULV—Turnwald, M. J., 29 Cliff View Drive, Greenbay. Auckland 7. ZL1ULW-Barnett, R. W., C/- Himitangi Radio, Foxton. 71 11 JL X-ZL1ULY-Pivac, M. A., 15 McArthur Avenue, St Heliers, Auckland 5. ZL1ULZ-Bradman, R. J., 58 Fancourt Street, Meadowbank, Auckland 5. ZL1UMA—Wilton, L. A., 3 Bryce Place, Palmerston North. ZL1UM8-Young, K. M., C/- Central Post Office, Auckland ZL1UMC—Dyer, R. J., 5 Browne Street, Kawerau. ZL1UMD—Pope, K. B., 8 Fenton Terrace, Te Puke. ZL1UME ZL1UMF-Edson, D. A., 95 Coronation Road, Morrinsville. ZL1UMG-Wallace, L. G., House 27, Whakamarau Village, Mangakino. ZL1UMH-ZL1UMI-Hardie, M. P., 1 Cronin Place, Beach Haven, Auckland 10. ZL1UMJ—Reid, D. M., Te Kooti Road, R.D. 5, Kutarere. ZL1UMK—Winefield, C. S., 7 Kaka Crescent, Tokoroa. ZL1UML—Harland, W. R., 23 Maraetai Village, Maraetai Dam, Mangakino. ZL1UMM-York, K. E., 16 Te Kamo Street, Ruakaka, Northland. ZL1UMN-Barnett, E. W., 11 Williamson Avenue, Morrinsville. ZL1UMQ-Hemsworth, K., 6 Freyberg Place, Howick. ZL1UMP—Lister, B. A., Jeffs Road, R.D., Papatoetoe. ZL1UMQ—Melsom, R. C., 1/27 Holland Road, Takapuna, Auckland 9 ZL1UMR-ZL1UMS—Allen, P. P., Mawson Avenue, Kerikeri. ZL1UMT—Marr, L. R., 22 Swan Crescent, Pakuranga. ZL1UMU-ZL1UMV-MacKay, T. D., Leith Street, Dunedin. ZL1UMW-ZL1UMX-ZL1UMY-ZL1UMZ-Cavanaugh, M. A., 6.9 Ranier Street, Ellerslie, Auckland 5. ZL1UNA-Beilamy, P. R., 6 Rewa Road, Mt Eden, Auckland 4 ZL1UNB-Gatland, E. C., 19 Forrest Hill Road, Takapuna, Auckland 10 ZL1UNC-Morgan, H. J., 3 Sonia Avenue, Remuera, Auckland 5. ZL1UND-Sanders, R. W., Main Road, Glenbervie, Whangarei ZL1UNE-Page, G. J., 26 Alastair Avenue, Owhata. Rotorua. ZL1UNF-ZL1UNG—Bowdler, R. M., 17 Kelston Street, New Lynn, Auckland 7. ZL1UNH-Wifliams, H. J., 30 Halberg Street, Glenfield, Auckland 10. ZL1UNI-Smith, S. R., 49 Hill Road, Manurewa ZL1UNJ-Booth, B. W. G., & Penney Avenue, Mt. Roskill, Auckland 4.

ZL1ULL—Dmitrieff, S., 189 Buckland Road, Mangere,

ZL1ULM-Heap, C. E., Wharfe Road, Herald Island,

ZL1ULO-Wykes, P. B., 14 Eugen Place, Glenfield,

Auckland

ZL1ULN-

ZL1ULP-

ZL1ULQ-

ZL1ULR-

ZL1UNK-

Whenuapai.

Auckland 10.

Awamutu.

Rotorua

Haven, Auckland 10.

ZL1ULA-

ZL1ULD-

ZL1ULF-

ZL1ULG-

ZL1UKZ-Millar, R. N., 30 Paine Street, Tauranga.

ZL1ULB-Salt, G. G. R., Rerewhakaaitu Road, R.D. 3,

ZL1ULE-Sutherland, C. E., Ruaroa Road, R.D. 1, Kaitaia

ZL1ULH-McGregor, G. R., 20 Drome View Place, Beach

ZL1ULI—Littlewood, B. R., 34 Mason Avenue, Pukekohe, ZL1ULJ—Tommas, P. W., 10 Gibbs Crescent, Papakura, ZL1ULK—Griffen, D. G., 12 Valley Road, Pukekohe,

ZL1ULC-Batchelor, M. H., Kotuhu Street, Rotorua.

ZL1UNL-Whittome, G. A., 61 Moire Road, Massey, Auckland 8. ZL1UNM-Scouse, P. N., 10 Eastview Road, Glen Innes, Auckland 6. ZL1UNN-ZL1UNO-Mattler, C. K. H., 25 Seddon Street, Te Kuiti. ZL1UNP-Johnson, F. T. J., 49 Youngs Road, Papakura. ZL1UNQ—Dickinson, S. B., 10 Neems Place, Manurewa. ZL1UNR—Brown, D. S., 56 Bertram Street, Warkworth. ZL1UNS—Bell, K., 7 June Place, Torbay, Auckland 10. ZL1UNT-Matthews, J. H., 13 Radcliffe Street, Whangarei. ZL1UNU-Kearney, C. R., 31 Dagenham Street, Manurewa. ZL1UNV—Kendall, J. D., 16 Ferguson Avenue, Greenlane, Auckland 5. ZL1UNW—Driver, M. J., Purerua, R.D. 1, Kerikeri. ZL1UNX—Horn, D. G., Tautiti Road, R.D. 3, Te Aroha. ZL1UNY-Fairest, T. R., Tapuwae Road, Poratarao, R.D. 7. Te Kuití. ZL1UNZ—Van Kuilenburg, P. A., 64 Rockfield Road, One Tree Hill, Auckland. ZL1UOA—Smith, I. G., 39 Bell Street, Kawerau. ZL1UOB—West, B. D., 94a Nelson Street, Opotiki. ZL1UOC—Candy, F. A., Puketi Road, R.D. 1, Okaihau. ZL1UOD-Furby, N., Whakamaru NZED Village. Mangakino. ZL1UOE—Grayling, R. A., 24 Merchant Avenue, Te Atatu South, Auckland 8. ZL1UOF—Hanley, B. D., 8/248 Great North Road, Henderson, Auckland 8. ZL1UOG-Redgrave, C. I., R.D. 1, South Kaipara Heads, Helensville. ZL1UOH-Ewen, D. T., 113 Main Road, Waipu. ZL1UOI—Forlong, R. D., 5/3 June Place, Hamilton, ZL1UOJ—Blakey, C. T., Ryans Road, R.D. 5, Wellsford. ZL1UOK-Bell, K. A., Somner's Quarry, Mountfield Road, Waipu. ZL1UOL-ZL1UOM-Jane, M. I., 87 King Street, Waiuku. ZL1UON-Zuppicich, A. N., 52a Cameron Road, Hamilton. ZL1UOO-Bain, A. M., 58 George Crescent, Buckland, R.D. 2, Pukekohe. ZL1UOP-Schultz, T. F., Schultz Road, Waipu. ZL1UOQ—Lonergan, O., 84 4th Avenue, Tauranga, ZL1UOR—Evans-McLeod, B. E., 21 Laurence Street, Gate Pa, Tauranga. ZL1UOS-Davy, K. J. P., Mataiawhera Street, Rotorua. ZL1UOT—Davy, C. J., Mataiawhera Street, Rotorua. ZL1UOU—Tottenham, R. D., 13a Andrew Road, Howick. Auckland. ZL1UOV-ZL1UOW-Weils, E. L., 9 Tamaki Bay Drive, Pakuranga, Auckland. ZL1UOX—Eisenring, R. A., 4 Renown Avenue, Greenlane, Auckland 5 ZL1UOY-Prince, R. P., 104 Freyberg Street, Otumoetai, Tauranga. ZL1UOZ-Robb, R., Taumata Road, Pyes Pa, R.D. 3, Tauranga. ZL1UPA-Blewett, B.D., 323 Don Buck Road, Massey. Auckland. ZL1UPB--Le Cornu, E. M. O., Kiwitahi, R.D 1, Morrinsville. ZL1UPC-Heslop, W. T., 19 Corinna Street, Welcome Bay, Tauranga. ZL1UPD—Grayson, A. W., 56 Kemp Road, Kerikeri. ZL1UPE-Watson, D. L., 2/283 Kohimarama Road, Kohimarama, Auckland 5.

ZL1UPI-Liefting, A. J., 23 Boyce Avenue, Mt Roskill, Auckland 4 ZL1UPJ-Hooson, R. L., Main Dargaville Highway, R.D. 9, Whangarei ZL1UPK—Whittington, A. N., R.D. 5, Tuakau. ZL1UPL—Turner, J. H., 184 Levers Road, Tauranga. ZL1UPM—Dunne, G. M., 26 Treeways, Pakuranga. ZL1UPN-McNaughton, G. B., 12 Pierce Road, Milford, Auckland 9. ZL1UPO-Moore, H. J., 22 Pukehana Avenue, Epsom, Auckland 3. ZL1UPP—Sinclair, D. J., 86 Alexander Street, Howick. ZL1UPQ—Morris, S. A., Weston-Lea Drive, R.D. 2, Hamilton. ZL1UPR—Rayner, B. J., 46 York Street, Hamilton. ZL1UPS-Nesfield, J. C., 143 Atkinson Road, Titirangi, Auckland 7 ZL1UPT-Francis, S. D., 43a Whenurangi Road, Greenlane, Auckland 5 ZL1UPU-Adlam, R. A., C/- Avionics Squadron, FINZAF Base, Auckland. ZL1UPV-Edwards, P. F., 6 Melody Lane, Otahuhu, Auckland. ZL1UPW-ZL1UPX-ZL1UPY-ZL1UPZ-

Amendments
· · · · · · · · · · · · · · · · · · ·

Auckland.

Rotorua.

ZL1UPF-McKee, R. R., 9 Wattle Street, New Lyn.

ZL1UPG—Harris, N. G., 402 Manugatapu Road, Turanga. ZL1UPH—McCormack, R. J., House 10, Fri Village.

SHIFTING HOUSE?

Remember to advise the following:

AMATEUR LICENCE—

Inform the Radio Inspector at your nearest Post Office Engineers Office—see page 155

BREAK-IN-

Advise the General Secretary, NZART HQ, P.O. Box 40-525, UPPER HUTT, of your new address. Mention your callsign and membership number.

CALL BOOK LISTING—

To ensure correct list of your address in the *Call Book*, notify Callsign Amendments, P.O. Box 1733, Christchurch. Remember to include your callsign.

ZL2 Callsign Listings

- 2AA-Selwood, G. R., 14 Invercargill Drive, Kelson, Lower Hutt
- ZL2AB—Wilkinson, D., 8a Koru Road, R.D. 4, New Plymouth.
- ZL2AC—Turnbull, P., 6 Steele Road, Hamilton.
- ZL2AD-Harris, E. W., 83 Ormond Road, Gisborne,
- ZL2AE-Lancaster, A. B., 47 Frank Wilson Terrace, New Plymouth.
- ZL2AF—Wilkinson, J., 30 Lancaster Street, Levin. ZL2AG—Bruce, J. R., C/- J. C. Bruce, No. 1 R.D. Taihape.
- ZL2AH—Reed, W., St. J., 11 Wood Street, Upper Hutt. ZL2AI—1st Kelburn 1909 Scout Group Radio Club, 39
- Ngaio Road, Kelburn, Wellington 5. ZL2AJ—Parminter, H. V., 121 The Ridgeway, Wellington 2
- ZL2AK-Rowson, L. T., 141 Tukapa Street, Westown, New Plymouth.
- ZL2AL—Jennings, L. F., 203 Beresford Street, Hastings, ZL2AM—Shirley, J. R., "Burnside", Bayview, Napier.
- ZL2AN—Shepherd, E. R., 203 South Park Road, Hastings. ZL2AN—Shepherd, E. R., 203 South Park Road, Hastings. ZL2AO—Branigan, C. K., 3 Central Terrace, Lower Hutt. ZL2AP—Eade, A., 137 Winchester Street, Levin. ZL2AQ—Gabites, J. F., 31 Espin Crescent, Wellington 5.

- ZL2AR—Central Hawkes Bay Branch NZART (Inc.). Pukeora, Waipukurau.
- ZL2AS—Stevens, P. S., 913 Victoria Street, Hastings. ZL2AT—Beale, E. W., 301 Frimley Avenue, Hastings.
- ZL2AU-Wilson, W. C., Flat 2, 538 High Street, Lower
- ZL2AV—Paterson, P. A., 15 Marriner Street, Palmerston North.
- ZL2AW—Bonnington, R. L., Cable Bay R.D. 1, Nelson.
- ZL2AX—Black, J. W., 20 Thompson Road, Napier. ZL2AY—McComb, D. R., 20 Montrose Street, Nelson. ZL2AZ—Clarkson, T. R., 35 Walter Road, Lowry Bay.
- Wellington.
- ZL2BA-Grantham, T. C., P.O. Box 10-367, Wellington. ZL2BB-Bradshaw, F. R., 40 Simla Avenue, Havelock North.
- ZL2BC—Gentry, K. R., 8 Chudleigh Grove, Wellington 4.
- ZL2BD-Brown, G. E., 35 Chamberlain Street, Nelson.
- ZL2BE-Woolfard, C. J., 16 Caernarvon Drive, Flaxmere, Hastings.
- ZL2BF
- ZL2BG-Williams, P. G., Mangakuri, Private Bag,
- ZL2BH-McGregor, I. J., 20 Davis Crescent, Upper Hutt.
- ZL2BI---Wogan, M. S., 54 Kamahi Street, Stokes Valley. ZL2BJ-Gibson, G. A., 14 Seddon Street, Aramoho,
- Wanganui. ZL2BK-Simpson, G. R., 8a Faulkland Drive, Blenheim.
- ZL2BL-Beswick, D. J. 283 Happy Valley Road, Wellington.
- ZL2BM-Nankivell, F. R., 133 Main Road, Bay View, Napier.
- ZL2BN—Tatton, L. A., 102 Smart Road, New Plymouth.
- ZL2BO-Dixon, H. C., 22 Kainui Road, Wellington 3.
- ZL2BP-Walker, J. G., 106 Salisbury Street, Richmond, Nelson.
- ZL2BQ-Mitchell, A. W., 1 View Road, Melrose, Wellington 3.
- ZL2BR-Hunt, A. F., 8 Manu Crescent, New Plymouth.
- ZL2BT-Tanner, A. R., Karere Road, Kairanga, Longburn.
- ZL2BU-Lane, F. J. K., 33 Buckley Road, Melrose, Wellington 3.
- ZL2BV-Tozer, B. R., 16 Godwin Crescent, Wanganui. ZL2BW-Harling, D. S., 142 Quebec Boad, Nelson.
- ZL2BX-Creswell, A. F., 17 Atiawa Street, Petone.
- ZL2BY-Berry, R. E., 29 Benares Street, Khandallah, Wellington 4.
- ZL2BZ-Dunn, A. E., 33 MacArthur Street, Levin.

- ZL2CA-Vernall, R. B., 90 Campbell Street, Wellington 5. ZL2CB-Bartlett, J. R., 18 Lynda Avenue, Paparangi,
- Wellington 4.
- ZL2CC—Rowe, C. F., 28 Clyma Street, Upper Hutt. ZL2CD—Hamer, W. H., 40 Awa Road, Wellington 3.
- ZL2CE—Bicknell, J. A., Papawai Road, Greytown. ZL2CF—Southern Hawkes Bay Vintage Radio Club,
 - (Trustee: A. E. Law), Private Bag, Mangatoro. Dannervirke.
- ZL2CG-Cornick, M. L., 23 Oakley Avenue, Marton.
- ZL2CH-McGrath, F. P., 4 Cautley Street, Richmond. Nelson.
- ZL2CI-Sinton, A. J., 6 Chester Street, Greenmeadows. Napier.
- ZL2GJ-Hitchcock, R. F., 18 Wikiriwhi Crescent, Palmerston North.
- ZL2CK-Fleming, J. C., 33 Clifton Drive, Waitara. ZL2CL ZL2CM-Hastings, F. W., 258 Waterloo Road, Lower Hutt.
- ZL2CN-Innes, D. D., 1247 High Street, Taita, Wellington.
- ZL2CG-Neumer, G., 48 Ava Street, Petone.
- ZL2CP-Cormack, J. B. B., 63 Queenwood Road, Levin.
- ZL2CQ-Henderson, J. M., Howie Road, Fern Flats. R.D. 2, Marton. ZL2CR—Miller, N., 36 Stanley Street, Berhampore,
- Wellington 2.
- ZL2CS-Anderson, B. R. S., 13 Pembroke Road, Stratford. ZL2CT—Glasgow, S. J., 40 Fairs Road, Palmerston North.
- ZL2CU—Bell, C., 22 Oswald Street, Gisborne. ZL2CV—Fulton, J. M. L. H., 60 Shelbourne Street, Nelson. ZL2CW-Gilbert, G. B., 18 Edgecombe Street, Newlands,
- Wellington 4. ZL2CX-Dolan, J. B., 9 Devon Road, Wanganui.
- ZL2CY-François, L. G., 21a Avon Place, Richmond, Nelson.
- ZL2CZ-
- ZL2DA-Henderson, B. G., 5 Waipapa Terrace, Wellington 3.
- ZL2DB—Brown, A. D., 138 Wakefield Street, Wellington 1.
- ZL2DC-Chisholm, W. P., 86 Featherston Street, Palmerston North
- ZL2DD—Scott, D. F., 68 Chatsworth Road, Silverstream, ZL2DE—Davis, G. S. F., 40 Leicester Street, Palmerston
- ZL2DF-Fraser, O. L., 9 Bentinck Street, Upper Hutt.
- ZL2DG—Bayley, G. S., 902 Churchill Street, Hastings. ZL2DH—Welsh, J. W., 37 Hamilton Road, Queenstown.
- ZL2DI-Shortt, J. H., 80 Savage Crescent, Palmerston North.
- ZL2DJ-
- ZL2DK--Holst, E. A. O., Highway 56, Bainesse R.D. 7, Palmerston North.
- ZL2DL-MacDonald, J. L., 32 Grey Street, Marton. ZL2DM-
- ZL2DN-Lucas, D. C., 30 Russell Street, Westport.
- ZL2DO—Wiffen, M. A., 138 Beach Road, Haumoana.
- ZL2DP-Budd, G. L., 59 The Drive, Tawa, Wellington.
- ZL2DR—Danrell, R. A., 43 Matai Street, Waikanae. ZL2DS-Horowhenua Branch NZART Inc., (Trustee: E. P.
- Tombs), Ihakara, R.D. 1, Levin,
- ZL2DT—Cordy, J. G. G., 50 Strathmore Avenue. Wellington 3.
- ZL2DU-Millane, M. L., 132 Campbell Street, Karori, Wellington 5.
- ZL2DV-Campbell, B. E., 111 Mount View Road, Wanganui
- ZL2DW-Hughes, W. J. T., 25 Cobden Street, Gisborne. ZL2DX-Patchett, G. P., 223 Sutherland Road, Lyall Bay,
- Wellington 3. ZL2DY-Parsons, A. D., 30 John Street, Upper Hutt.
- ZL2DZ—Brasell, C. R., 20 Rimutaka Street, Paraparaumu.

ZL2FA

ZL2FA-Butler, G. B., 46 Winter Street, Gisborne.

ZL2FB-Matthews, S. C., 36 Peters Avenue, Palmerston North.

ZL2FC—Courts, C. G., 35 Daniel Street, Masterton. ZL2FD—Butel, D., 39 Mulberry Street, Lower Hutt. ZL2FE-Falkner, B. A., 49 Karina Terrace, Palmerston

ZL2FF—Roberts, N. M., 10 Malda Grove, Khandallah, Wellington 4

ZL2FG-Torrie, A. W., 66 Ferguson Street, Palmerston North.

ZL2FH-Garth, P. E., Birch Hill, Motu. ZL2FI-Gaunt, P. J., 2 Peterhouse Street, Tawa. Wellington.

ZL2FJ—Withy, D. G., 16 Kenmore Street, Newlands, Wellington 4. ZL2FK—Huggins, W. P., 495 Karaka Bay Road,

Wellington 3.
ZL2FL—Kuring, K. C., 60b Eatwell Avenue, Paraparaumu Beach.

ZL2FM—Burr, E. J., 87 Stanley Road, Gisborne.

ZL2FN-Heinz, W. E., 74 Beasley Avenue, Paparangi, Wellington.

ZL2FO-Brennan, C. F., Tuamoana Road, Lake Rotoiti, Rotorua.

ZL2FQ—Burgoyne, T. A., 158 St. Vincent Street, Nelson. ZL2FR—Dyett, N. D., 71 Courts Street, Wellington 3. ZL2FS—Priest J. R., 26 Woolcombe Terrace, New Plymouth.

ZL2FT—Dixon, C. W., 76 Lahore Street, Wairoa. ZL2FU—Hird, E. J., 61 Mantell Street, Seatoun,

Wellington 3. ZL2FV-Richter, B. E., 32 Puriri Terrace, Palmerston

North. ZL2FW—Harbridge, L. W., 20 Mascot Street, Tawa. ZL2FX—Wright, R. J., 11 Church Street, Wellington 1. ZL2FY—Harkett, R. J., 57 Effice Street, Mt Victoria.

Wellington 1

ZL2FZ—Reeve, R. P., 129 South Road, Masterton. ZL2GA—Johnson, D. F. T., 15 Field Street, Upper Hutt. ZL2G8—Lovie, I. G. B., 166 Kennedy Road, Napier.

ZL2GC-Ruane, M., 12 Oakleigh Street, Maungaraki. Lower Hutt.

ZL2GD-Beeby, R. E., 53 McKinley Crescent, Wellington 2.

ZL2GE—Brown, J. E., 8 Cardinal Place, Glendowie, Auckland 5.

ZL2GF—Cooper, C., 14 Rewai Street, Paraparaumu. ZL2GG—Smith, W. T., 17 Oxford Street, Palmerston

ZL2GH—Altewell, B. E., 19 Iranui Road, Gisborne. ZL2GI—Banks, K. G., 29 Taunton Place, Stoke, Nelson. ZL2GJ-Pearce, R. A., 17 Lake Ferry Road, R.D. 2,

Featherston. ZL2GK—Motueka Branch NZART (Trustee: J. Ross), 30

Trewavas Street, Motueka. ZL2GL—Dormer, F. G., Marquet Place, Tairua via Thames. ZL2GM—Minshall, G. T., 57 Bedford Street, Northland, Wellington 5.

ZL2GN-Reakes, G. C., 5 Paisley Street, Levin.

ZL2GO—Fownes, H. G., 71 Rimu Road, Paraparaumu. ZL2GP-

ZL2GQ-Morgan, R. S. H., 39 Larsen Crescent, Tawa. ZL2GR-Stiles, G. R., 34 Brougham Street, Nelson.

ZL2GS-Henry, A. S., 2C Crescent Street, Richmond. ZL2GT-

ZL2GU—Hanley, R. H., 15 Pirie Street, Palmerston North. ZL2GV—Hutton, J. D., Porirua Pharmacy, 18 Mungavin Avenue, Porirua.

ZL2GW—Beatson, A. P., Orinoco, R.D. 1, Motueka. ZL2GX—White, J. M., 152 Lytton Road, Gisborne. ZL2GY—Taillie, L. I., Old Post House, Te Kemara Avenue,

Paihia.

ZL2GZ-

ZL2HA-Gentry, L. J. (Mrs), 8 Chudleigh Grove, Wellington 4.

ZL2HB-Anderson, R. W., 17 Moonstone Grove, Upper

ZL2HC-Bradbury, N. H., 19 Avon Street, Waterloo, Lower

ZL2HD-Andrews, J. R., 66 Khandallah Road, Khandallah, Wellington 4.

ZL2HE—Law, A. E., Mangatoro, Private Bag, Dannervirke, ZL2HF—French, W. B., 4 Rata Place, Masterton, ZL2HG—Breen, P. W., 75 Douglas McLean Avenue,

ZL2HH—Simpson, L. J., 4 Seddon Street, Walkanae, ZL2HI—Willis, M. W., 41 Wyoming Avenue, Murrays Bay, Auckland 10.

ZL2HJ—Garrett, W. E., 22 Waiwera Place, New Plymouth. ZL2HK—Reader, D. M., Eastern Bays, R.D., Duvauchelle.

ZL2HL—Gray, I. T., River Road, Reparoa South, ZL2HM—Dinnan, E. J., 6 Warren Street, Paparangi,

Wellington 4. ZL2HN—Dayman, F. R., 31 Fergusson Drive, Gisborne.
ZL2HO—Warner. B. A., 8 Willow Grove, Wainulomata.
ZL2HP—Kendrick, T. J., 3 Ascot Street, Palmerston North.
ZL2HQ—White, L., Ladies Mile, Eltham.
ZL2HR—Pannett, B. W. J., 60 Larsen Crescent, Tawa,

Wellington.

ZL2HS—Shennan, C. V., Great North West Highway (3), P.O. Box 30, Turakina.

ZL2HT—Hooker, D. D., 17 Durham Drive, Havelock North. ZL2HU—Craig, T. M., C/- 8 Linley Place, Levin. ZL2HV—Hutt Valley Branch NZART Inc., (Trustees: R. B. Glassey and P. R. Williams), P.O. Box 30-519,

Lower Hutt.

ZL2HW—Marsh, N. O., 16 Harris Street, Waitara. ZL2HX—Cossgrove, D. A., 7 Torquay Terrace. Wellington 2.

ZL2HY—Green, W. J., 6 Ash Street, Gisborne. ZL2HZ—Eckford, T. S., 47 Park Terrace, Blenheim. ZL2IA—Sturm, A. B., 288 Dowse Drive, Lower Hutt.

ZL2IB-Dannervirke Branch NZART Inc., (Trustee: B. W. Amies), 8 Ruahine Street, Dannervirke

ZL2IC—Sharman, L. A., 43 Tom Parker Avenue, Napier. ZL2ID—Black, A. E., 8 McLintock Street, Westpark,

Wellington 4.

ZL2IE—Millard, O. J., Main Road, Clive ZL2IF—Rolle, E. G., 2/14 Arapiki Road, Stoke, Nelson, ZL2IG—Tombs, E. P., Ihakara, R.D. 1, Levin.

ZL2IH-

ZL2II-Caldwell, D. G., 38 Jubilee Road, Khandallah, Wellington 4.

ZL2IK-Mulhare, P. J., 53 Exeter Crescent, Napier. ZL2IL-Pottinger, R. S., 32 De Menech Grove, Avalon,

Lower Hutt. ZL2IM-McLea, Q. F., 322 Devon Street West, New

Plymouth. ZL2IN-Crumpton, R. E., 27 Kapiti Crescent, Titahi Bay.

ZL2IO-Collins, E. S., Main Road, Wakapuaka, R.D. 1,

ZL2IP-Treeby, R. J., 7 Turehu Street, New Plymouth.

ZL21Q—Cassey, R., 360 Trafalgar Square, Nelson. ZL21R—Cuttriss, N. A., 90 Normandale Road, Lower Hutt. ZL2IS-

ZL2IT-Lilley, E. C. C., 3/10 Caxton Street, Napier. ZL2IU—Purdey, R. G., 17 Akatea Street, Berhampore, Wellington 2.

ZL2IV-Gorman, D. D., 11 David Crescent, Karori, Wellington 5.

ZL2IX-Parker, C. H., Tiraumea Road, Pahiatua. ZL2IY—Gorman, W. D., 15 Hildreth Street, Karori, Wellington 5.

ZL2IZ-Bartleet, J. R., Valley Road, Gisborne.

ZE2JA--Wanganui Branch NZART (Inc.), (Trustees: B. E. Stewart, F. R. Withers), 2 Peat Street, Wanganui. P.O. Box 7058, St. Johns.

ZL2JB~

ZL2JC—Cook, S. A., 57 Stanley Crescent, Nelson. ZL2JD—Duncan, J. R., 7 Crown Hill, Onepoto, Titahi Bay. ZL2JE—Morison, R. D., 40 Kiriwai Road, Paramata.

ZL2JF

ZL2JG-Anderson, G. A., 20 Leybourne Avenue. Waikanae.

ZL2JH-Nicol, D. S., 12 Hewitts Road, R.D., Linton. ZL2JI—Thompson, J. P., 1 Healey Place, Gisborne. ZL2JJ—Byam, S. P., R.D. 2, Waverley. ZL2JK—Butler, D. B., Gorge Road, R.D., Otaki.

ZL2JL-Prime, D. R., 57 Waerenga Road, Otaki.

ZL2JM-Moore, J. A., 1 Denbigh Street, Feilding. ZL2JN—Hodder, A. A., 394 Somme Parade, Wanganui. ZL2JO—Lambert, N. H., 19 Isobel Grove, Wainuiomata.

ZL2JP-Hinchcliffe, R. G., Castlepoint Lighthouse, P.O.

Box 183, Masterton.

ZL2JQ—White, J. T., 31 Cawthron Crescent, Nelson.

ZL2JR—Bradley, R. G., 125 Conclusion Street, Ascot Park, Porirua.

ZL2JS-Black, I. W., 46 Harris Street, Marton. ZL2JT-Mackie, J. B., 8 Tarata Street, Stoke. ZL2JU-

ZL2JV-Crawford, C. R. H., 20 Chapman Crescent, **Naenae**. ZL2JW-Jarvis, M., 52 Churton Drive, Johnsonville,

Wellington 4 ZL2JX-Hodgson, E. R., 20 Colombo Street, Palmerston North

ZL2JY-Vincent, G. C., Muhunoa East Road, R.D. 20, Ohau, Levin.

ZL2JZ—Dawson, A. H., 34 Hudson Avenue, Upper Hutt. ZL2KA—Blakeley, P. W., 78 Upland Road, Kelburn, Wellington 5.

ZL2KB-Kapiti Branch 69 NZART Inc. (Trustee: E. A McPhee), Paraparaumu Beach, P.O. Box 1608. ZL2KG—Moess, C. R., 13 Churchill Avenue, Feilding. ZL2KD—Shepherd, D. A. C., 13 View Road, Titahi Bay. ZL2KE—Smith, W. A. D., Ngakoti Street, Urenui.

ZL2KF-Fellows, S. K., 21 Harbourview Road, Wellington 5

ZL2KG-Sharland, K. O., Kina Beach Road, R.D. 1, Upper Moutere

ZL2KH-Bennett, V. H., 57 Victoria avenue, Palmerston North.

ZL2KI—Armstrong, M. W., 6a North Street, Ava, Petone. ZL2KJ—Casey, B. F., 45 Ames Street, Paekakariki, ZL2KK—Kerr, R. F., 22 Pope Street, Cambourne,

Plimmerton.

ZL2KL-Johns, T. H., 4 Sydney Place, Wanganui. ZL2KM—Robertson, G. A., 34 Upham Street, Taradale. ZL2KN—Trainor, A. P. T., 118 Dimock Street, Titahi Bay, Wellington.

ZL2KO-Manawatu Branch NZART Inc., (Trustee: R. H. Hanley), 15 Pirie Street, Palmerston North. P.O. Box 1718.

ZL2KP-Lowe, E. E., 17 Ellesmere Crescent, Palmerston North.

ZL2KQ-Spiers, M. E., 231a Scott Street, Blenheim. ZL2KR--Cole, K. R., 10b Pohutukawa Crescent, Raumati Beach.

ZL2KS-Marlborough Branch NZART Inc., (Trustee: F. Stretch), Wither Road, Extension, Blenheim.

ZL2KT—Brooker, R. G., Ikanui Road, Hastings. ZL2KU—Donald, R. J., Long Bay Road, Wyuna Bay, R.D., Coromandel.

ZL2KV-Martin, C. J. T., Mountain Road, Inglewood. ZL2KW-

ZL2KX-Wickstead, C. G., 1/25 Avondale Road, Taradale,

ZL2KY-Conner, M. G., 3 Oxford Crescent, Upper Hutt. ZL2KZ-Kingston, G., 53 Tannadyce Street, Wellington 3. ZL2LA-Landsdown Scout Group, Burling Park, Roberts Road, Masterton,

ZL2LB-Milner, M. O., 38 Lincoln Avenue, Tawa.

ZL2LC

ZL2LD-Munn, P. M., 111 Essex Street, Masterton. ZL2LE—Pinhey, J., 210 Tukapa Street, New Plymouth. ZL2LF—Dingley, P. D., C/- Rex Orange, 12 Munro Street, Napier.

ZL2LG—Dunning, S. P., 17 Kanpur Road, Wellington 4. ZL2LH—Sharland, R. T., 409 Wakefield Quay, Nelson. ZL2LI—Simpson, C. J. C., 125 Broderick Road,

Johnsonville, Wellington 4.

ZL2LJ-O'Grady, P. L., 8 Cambridge Street, Tawa. ZL2LK-Karamu High School Amateur Radio Club, (Trustee: L. F. Jennings), Windsor Avenue, Hastings.

ZL2LL-Ready, C. S., 46 Rhodes Street, Newtown, Wellington 2.

ZL2LM—Merrick, L. F., 22 Bledisloe Avenue, Netson. ZL2LN—Davenport, N. B., 186 High Street, Motueka. ZL2LO—Kerr, C. M., 73 Cornfoot Street, Wanganui. ZL2LP—Wickham, H. W., 42 Wilford Street, Upper Hutt.

ZL2LQ—Coote, D., 19 Corlett Road, Plimmerton.
ZL2LR—Schollum, W. D., 150 Rutene Road, Gisborne,
ZL2LS—Kirkland, F. S., Petane Grange, R.D. 2, Napier.

ZL2LT-

ZL2LU-Bustard, A. T., 102a Hillcrest Road, Raumti Beach.

ZL2LV-Ryan, J. F., 44 Sylvan Avenue, Waikanae. ZL2LW—Wright, E. J., 14 Tennyson Street, Upper Hutt.
ZL2LX—Motion, R., 5 View Road, Melrose, Wellington 3.
ZL2LY—Masters, W. C., 8 Waerenga Road, Otaki.
ZL2LZ—Rumsey, J. R., 21 Malone Road, Lower Hutt.

ZL2MA-McGuire, K. J., 70 Dimock Street, Titahi Bay. ZL2MB-Montgomerie, J.C., 11 Gardiner Place, Havelock North.

ZL2MC-McPhee, E. A., 15 Bluegum Road, Paraparaumu Beach.

ZL2MD-Mills, C. W., 43 Great North Road, Wanganui. ZL2ME—Roe, C. R., 44 Daysh Street, Naenae, Lower Hutt. ZL2MF—O'Leary, B. J., 31 Durie Street, Wanganui.

ZL2MG-Waimarino Branch NZART Inc. (Trustee: G. W.

Luscombe), Main Road, Waiouru. ZL2MH—Neal, E. W., 64 Mairangi Road, Wadestown, Wellington 1.

ZL2MI-McCulloch, J. G., 81 Kemp Street, Kilbirnie,

Wellington 3.

ZL2MJ—Perry, F. G., Gorge Road, Otaki.

ZL2MK—Puddy, R. D., 42 Chester Street, Taradale, Napier.

ZL2ML—Castles, C. R., 2 Kauri Street, Gisborne. ZL2MM—Adcock, H. F., 78 Opaki Road, Masterton. ZL2MN—Meyer, L. H., 23 Canterbury Street, Tamatea,

Napier. ZL2MO—Brown, N. L 33 Milton Street, Upper Hutt. ZL2MP—Powell, W. H., Vogel Street, Shannon.

ZL2MQ-Crook, P. M., 6 Bale Place, Havelock North.

ZL2MS—Blair, D. I., 9 Dickson Crescent, Wanganui. ZL2MS—Thomasen, L. H., 5 Princes Street, Feilding. ZL2MT—Railton, G. H., 8 Dell Road, Raumati South.

ZL2MU—Jupp, A. L., 1322 Devon Road, 42 R.D., Waitara. ZL2MV-Fail, D. G., 68 Brightwater Terrace, Palmerston North.

ZL2MW-Clark, M. J., 115 Maxwell Road, Blenheim. ZL2MX—Bellini, B. C., 11 Handley Place, New Plymouth. ZL2MY—Spackman, T. J., 1 Ash Place, R.D. 4, New Plymouth.

ZL2MZ—Pool, B. L., 9 Rembrandt Avenue, Linden. ZL2NA—Shanks, J. M., 21 Pokohiwi Road, Normandale, Lower Hutt.

ZL2NB-Barlow, F. E., 15 Sutherland Crescent, Melrose, Wellington 3. ZL2NC-Lethbridge, P. J., 7 Salcombe Terrace, New

Plymouth.

71.2ND

ZL2ND—Shaw, A. J., "Little Broom", R.D. 2, Napier.

ZL2NE—Cavanagh, K. J., Grays Road, R.D. 1, Plimmerton.

ZL2NF—Frazer, G. C., 14 Hinton Road, Napier. ZL2NG—Aked, M. S., 10 Vaucluse Avenue, Paraparaumu

ZL2NH—Bayly, R. B., Wainui Road, Gisborne. ZL2NI—Dumbleton, G. W., 6 Naughton Terrace, Kilbirnie, Wellington 3.

ZL2NJ-Tarrant, P. E., 104 Main Street, Foxton. ZL2NK-Donaldson, B. J., Wellington Radio, P.B., Wellington.

ZL2NL—Clinch, V. J., 20 Scotland Street, Picton, ZL2NM—Stewart, H. A. S., Lockwood Road, R.D. 5, Palmerston North.

ZL2NN-Pye, J. C., 33 Wyndham Road, Pinehaven, Upper Hutt.

ZL2NO—Grace, K. E., 9 Te Ara Road, Pukerua Bay, ZL2NP—Smith, F. J. A., 78 Meeanee Road, Taradale,

ZL2NQ-Evaroa, D. T., C/- Makara Radio, Private Bag. Karori, Wellington.

ZL2NR—Rubery, T. F., 3 McDonald Place, Marton. ZL2NS—Douche, W. P., 347 Ohiro Road, Brooklyn, Wellington 2.

ZL2NT—Sutton, C. H., 6 Andrew Street, Stoke, Nelson, ZL2NU—Budd, L. A., 69 Tahuri Street, Manaia, Taranaki. ZL2NV-Johnston, A. F., 21 Brooklin Avenue, Atawhai, Nelson.

ZL2NW-Newcombe, C. H., 28 Coverdale Street, Napier. ZL2NX—Bell, L. G., 80 Seatoun Heights Road, Wellington 3.

ZL2NY—Weissberg, B. G. Otuhi Road, R.D. 9, Whangarei, ZL2NZ—Milner, G. L. (Mrs), 38 Lincoln Avenue, Tawa, Wellington.

ZL2OA - Wairarapa Branch NZART, Hood Aerodrome, Manaia Road, Masterton.

ZL2OB-Pye-Smith, J., St Arnaud, R.M.D., Nelson. ZL2OC—Lambie, W. L., 230 Taita Drive, Lower Hutt. ZL2OD—Barnes, W. D., 142 Renall Street, Masterton. ZL2OE—Logan, D. J., 42 Horokiwi Road, Newlands,

Wellington 4.

ZL2OF—Pentelow, L. C., Kina Road, No 1 R.D., Opunake, ZL2OG—Chisnall, R. R., 135 Muller Road, Blenheim, ZL2OH—McMillan, W. I., 7 Hillary Street, Tawa, ZL2OH—Upchurch, G. E., 22d Puriri Street, Wanganui.

ZL2OJ-ZL2OK—Dickson, A. J., 18 Manuka Street, Palmerston.

North. ZL2OL-Sigglekow, R. W., 9 Raukawa Street, Stokes Valley.

ZL2OM-Blagdon, R. W., 9 Knights Avenue, Paraparaumu Beach.

ZL2ON—Symons, R. T., 11 Blenheim Street, Taradale. ZL200-Smith, A. H., Rangiotu-Rongotea Road, R.D. 7, Palmerston North.

ZL2OP-Scambary, G. E., 54 Athlone Cresent, Lower Hult.

ZL2OQ-Prichard, G. H., 14 Queen's Road, New Plymouth.

ZL2OR-Osborne, D. O., 9 Greenock Place, Palmerston North.

ZL2OS-Lonsdale, J., 41 Maxwell Avenue, Wanganui. ZL2OT-Girling, J. R., 23 Miro Street, New Plymouth. ZL2OU-

ZL2OV-Lee, W. C., 11 Henderson Street, Karori, Wellington 5.

ZL2OW-Forbes, W. D., 28 Strathmore Avenue, Seatoun, Wellington 3.

ZL2OX-Turner, R., 10 Guadeloupe Crescent, Grenada Village, Wellington 4.

ZL2OY-Dobbing, S. J., 56 Pohutukawa Drive, Pukete, Hamilton.

ZL2OZ-Martin, O. W., 21b Cadman Street, Dannevirke.

ZL2PA-Leete, J. B., 22 Landsdowne Crescent, Masterton. ZL2PB-McLaren, H. B., 49 Green Street, Tahunanui, Nelson

ZL2PC—Mitchell, G. W., 20 Tainui Street, Raumati Beach, ZL2PD—Woodfield, A. O. J., 8 Beatty Avenue, Karori, Wellington 5.

ZL2PE-Watkins, H. L., 73 Argyle Avenue, Palmerston North.

ZL2PF-King, T., 126 Russell Street, Gisborne.

ZL2PG-Laird, A. K., 79 Totara Crescent, Waterloo, Lower

ZL2PH—Hanify, G. C. P., 18 Rangiora Avenue, Kaiwharawhara, Wellington 4.

ZL2PI-Treleaven, A. R., 88 Monrad Street, Palmerston North.

ZL2PJ—Spellman, P. J., 36 Record Street, New Plymouth, ZL2PK—Allan, J. L., 56 Para Place, Miramar, Wellington 3, ZL2PL—Young, C. T., 3a Princeton Road, Raumati Beach, ZL2PM—Coneybeer, G. B., 103 Campbell Street,

Wanganui.

ZL2PN—Robinson, V. E., 43 Hillcrest Street, Masterton. ZL2PO—Tout, R. E., 547 Rocks Road, Nelson. ZL2PP—Sinclair, J. D. J., 13 Marlowe Street, Stoke, Nelson.

ZL2PQ—Sayer, L. A., 84 Herbert Street, Masterton. ZL2PR—Speedy, S. B. "Woodbank", P.B. Dannevirke. ZL2PS—Petone Technical Inst. Radio Club, 19 Camillia

Terrace, Lower Hutt. ZL2PT—Meyrick, B. B. P., 14 Churcher Street, Feilding, ZL2PU—Pye, J. T., 33 Wyndham Road, Pinehaven, Upper

Hútt. ZL2PV—Molony, M., 66 Longfellow Street, Upper Hutt ZL2PW—Vickers, E., 120 Heta Road, New Plymouth.

ZL2PX-Nelson Polytechnic Radio Society, C/- Electrical Engineering Department, P.B. Nelson.

ZL2PY-Heslop, H. G., 18 Chamberlain Street, Tahunanui, Nelson.

ZL2PZ-Russell, D. L., 105 Orangi Kaupapa Road, Wellington 5.

ZL2QA-Kermeen, L. V., 22 Chittick Street, Stokes Valley. ZL2QB-Trustrum, H. N. J., 35 Waimea Road, Waikanae Beach, Waikanae.

ZL2QC-Noble, W. A., 161 Grand Drive, Remuera, Auckland 5.

ZL2QD-de la Cour, C., 17 The Drive, Tawa. ZL2QE—Byrn, H. L., 77 Renall Street, Masterion. ZL2QF—Patea Branch NZART Inc., (Trustee: D. W. Robinson), 88 Wanawapou Road, Hawera.

ZL2QG-Brunton, W.R., 98 Hospital Road, Blenheim. ZL2QH—Barnes, C. J., 8 Second Street, Masterton. ZL2QI—Cheesman, R. A., 20 Parkway, Wainuiomata. ZL2QJ—Lane, L. A., 41 Punga Street, Tangimoana.

ZL2QK-Kenny, E. J., 5 Townley Street, Gisborne.

ZL2QL—Neilson, L., 187 West Street, Greytown. ZL2QM—Burry, J. P. P., 4 Barnett Place, Piramai. ZL2QN—Burrell, G. A., 20a Tawa Terrace, Tawa. ZL2Q0-

ZL2QP—Smith, W. E., 7 Fox Street, Opunake, ZL2QQ—Cook, S. T., 57 Stanley Crescent, Nelson, ZL2QR—Abel, A. J., 20 Ranfurly Road, Fellding

ZL2QS-Padman, N. B., 12a McHardy Street, Havelock ŽL2QT-

ZL2QU—Hitchins, M. J., 56 Tutere Street, Waikanae. ZL2QV-

ZL2QW—Carr. P., 21 Hardie Grove, Featherston. ZL2QX—Robinson, D. M., 21 Blackmore Drive, Rotorua.

ZL2QY—Neilson, P. D. (Mrs), 13 Matene Street, Otaki, ZL2QZ—Wright, B. E., 27 Stanley Street, Wainulomata. ZL2RA—Petrie, B. J. N., 17 Glen Road, Raumati South. ZL2R8—Thompson, C. I. N., 19 Bideford Street, New

ZL2RC-Jackett, N. K., 404 Pepper Street, Hastings. ZL2RD-Andrews, N. A., Wensley Road, Richmond, Nelson.

- ZL2RE-Norling, E. W. J., 17 Ngarimu Street, Palmerston North.
- ZL2RF—Fletcher, A. E., 480 Ferguson Drive, Upper Hutt. ZL2RG—Robb, P. J., 19 Seon Place, Birkdale, Auckland
- ZL2RH—Munro, C. R., Holbern Parade, Foxton Beach, ZL2RI—Savell, B. E., 4 Burnham Street, Petone, ZL2RJ—Hopgood, D. J., 45 Lomita Road, Johnsonvile, Wellington 4.
- ZL2RK-McKenzie, K., 17 Karepa Street, Brooklyn, Wellington 2.
- ZL2RL-Berg, L. B., 8 Walkare Avenue, Lower Hutt. ZL2RM-Ross, A., 35 Purau Avenue, Diamond Harbour, Lyttelton.
- ZL2RN-Royal Naval Amateur Radio Society, (NZ Branch), (Trustee: N. A. T. Hardy), 55 Kakariki Grove Waikanae.
- ZL2RO-Ashford, J. W., 99 Queen Street, Richmond. ZL2RP-Goodger, B. E. G., 15 Waterworth Avenue, Napier
- ZL2RQ—Small, J., 3 Bristol Street, Upper Hutt. ZL2RR—Tucker, S. A., 48a Cleghorn Street, Blenheim.
- ZL2RS—Will, J. H., P.O. Box 249, Feilding. ZL2RT—Jackson, H. R., Takarei Terrace, Mokau. ZL2RU—Rowe, I. S., 88 Washington Avenue, Brooklyn,
- Wellington 2.
- ZL2RV—Wells, R. E., Tawhara Station, Wairoa. ZL2RW—Farrell, P. J., 30 Coverdale Street, Napier. ZL2RX—Randall, R. E. B., 32 Rotomanu Crescent,
- Mangakino
- ZL2RY~Baker, P. N., 100 Tireti Road, Titahi Bay. ZL2RZ—Wall, A. M., "Glentui", Homeward Road, R.D. 12, Masterton.
- ZL2SA-Hamer, B., 5 Harewood Grove, Fendalton Park, Upper Hutt.
- ZL2SB—Petherick, E. R., 23 Anaru Street, Raumati Beach. ZL2SC—Sickler, R. A., 3 Mahoe Street, New Plymouth.
- ZL2SD—White, R. L., 74 Norbiton Road, Foxton. ZL2SE—
- ZL2SF-Lewis, A. W., 18 Finlay Terrace, Mt. Cook, Wellington 2
- ZL2SG-Kingston, R. H., 19 Trigg Crescent, Taradale, Napier.
- ZL2SH-Beale, A. L., 14 Te Oti Street, Paraparaumu Beach.
- ZL2SI—Winn, W. H., 7a Telford Crescent, Oakura. ZL2SJ—Norden, A. P., 81 Horoeka Street, Stokes Valley. ZL2SK—Adamson, D. P., 17 Florence Avenue, Palmerston North
- ZL2SL—Gibson, E. N., House 11, Makara Radio, Private Bag, Karori, Wellington 5.
- ZL2SM-Knox, G., 46 Moores Valley Road, Wainiomata.
- ZL2SN-Black, R. B., Omahu Road, R.D. 5, Hastings. ZL2SQ--McDonell, D., 124 Cook Street, Palmerston North.
- ZL2SP-Pahiatua Branch NZART (Inc.), (Trustee: H. Angelini), Main Road North, Pahiatua.
- ZL2SQ—McQuillan, H., Tasman R.D. 1, Upper Moutere. ZL2SR—Carran, S. R., 26 Arawa Road, Hataitai, Wellington 3.
- ZL2SS-
- ZL2ST—Rolfe, D., 12 Haydon Street, Palmerston North, ZL2SU—Harris, J. R., 3 John Street, Stokes Valley, ZL2SV—Searle, J. N. L., 62 Gurney Road, Kelson, Lower
- ZL2SW-Wedderspoon, W., F7/2 Scarborough Terrace, Mount Victoria, Wellington 3.
- ZL2SX-Andrews, D. V., 66 Khandallah Road, Wellington 4.
- ZL2SY- Hartwell, L. W., 41 Kells Avenue, Wanganui. ZL2SZ-Pye, E. G. (Mrs), 33 Wyndham Road, Pinehaven, Upper Hutt.
- ZL2TA-McNearnie, K. B., 8 Dunk Place, Palmerston
- ZL2TB—Linney, E., 191 California Orive, Totara Park, Upper Hutt.

- ZL2TC—Dale, K. W., 4 Foyle Street, Wellington 2. ZL2TD—Murphy, A., Haven Road, Collingwood, Nelson. ZL2TE-Ireson, S., 21 Woodleigh Street, New Plymouth. ZL2TF-McKelvie, H. J. M., 32 Fitzroy Street, Napier.
- ZL2TF—McKelvie, H. J. M., 32 Frierry dieser, Hapter ZL2TG—Parker, B. W., 59 Routley Crescent, Upper Hutt. ZL2TH—Weenink, H., 16 Mahoe Street, Lower Hutt. ZL2TI—Conner, D. P., 40 Marewa Road, Hataitai,
- Wellington 3.
- ZL2TJ—Torley, J. D., 37 Fitzroy Road, Napier, ZL2TK—Garing, T. R., 17 Cotswold Crescent, Newlands, Wellington 4.
- ZL2TL—Wright, H. A. L., 130 Pukepapa Road, Marton. ZL2TM—Mulvena, M. J., 82 Whites Road, Hope.
- ZL2TN-Brighting, T. L., 18 Ashford Avenue, Palmerston North.
- ZL2TO-Waltara Branch NZART (Trustee: D. B. Allen), 1
- ZL2TP—Pascoe, E. J., 22 Centennial Crescent, Gisborne, ZL2TP—Pascoe, E. J., 23 Iona Road, Havelock North, ZL2TR—Laurie, G., 37 Handyside Street, Linden,
- Wellington.
- ZL2TS-Nixon, H. W. J., 19 Bay Drive, Titahi Bay, Wellington.
- ZL2TT-Wills, R. E., 20 Bledisloe Crescent, Wainuiomata. ZL2TU-
- ZL2TV-Boyer, J. P., 32 Beachville Crescent, Nelson. ZL2TW-McCutcheon, O. D. F., C/- 13 Moeller Street,
- Taradale ZL2TX—Hardy, N. A. T., 55 Kakariki Grove, Waikanae.
- ZL2TY-ZL2TZ—Scott, L. V., 7/46 Washington Avenue, Brooklyn,
- Wellington 2. ZL2UA-Vickers, E. R., 87 Townsend Road, Miramar, Wellington 3.
- ZL2UB-Lowe, J. M., 23 Te Whiti Road, Korokoro, Petone. ZL2UC-Saunderson, R. W., 26 Waiho Terrace, Porirua.
- ZL2UD-Rodda, P. J., 11 Avion Terrace, Paraparaumu Beach.
- ZL2UE-Kibblewhite, K. W., 13 Rangitikei Street, Wanganui East.
- ZL2UF-Arthur, D. B., 216a Harris Street, Kaiti, Gisborne.
- ZL2UG—Richardson, A. S., 9 Rimu Street, New Plymouth, ZL2UH—Leslie, D. A., 3 Carter Street, Belmont, Lower
- ZL2UI—Bailey, I. L., 42 Catlins Crescent, Palmerston North, 2UJ—Allan, L. L. (Mrs), 56 Para Place,
- Allari, Zuberhalari, C. E. (Mrs), 56 Para Prace, Miramar, Wellington 3.

 ZL2UK—Hulls, C. H., 11 Margaret Street, Levin, ZL2UK—Lyford, A. W., 8 Roto Street, Tahunanui, Nelson, ZL2UM—Hollard, C. S., Main Road, Urenui R.D., New
- Plymouth. ZL2UN-Robinson, C. B., 58 Denbigh Road, Fielding, P.O.
- Box 429.
- ZL2UO-Ellison, W. L., 1 Ra Roa Flats, Main North Road, Westshore, Napier.
- ZL2UP—Pert, P. E., 7 Agate Grove, Upper Hutt. ZL2UQ—Williams, R. C., 16 Brooker Grove, Newlands,
- Wellington 4
- ZL2UR-Lockie, H. A., 70 Cashmere Avenue, Wellington 4.
- ZL2US-Gawn, J. E., 44 Lonsdale Crescent, Wellington 3.
- ZL2UT-Davoren, B. J., 25 Rutene Street, Gisborne.
- ZL2UU-Hannah, R. J., 806 Dufferin Street, Hastings. ZL2UV-Kibble, A. R., Horokiwi Hill, Petone.
- ZL2UW-Naulls, R. D., 14 Miriona Grove, Paekakariki, ZL2UX-
- ZL2UY-Parker, H. J., 15 Bush Street, Naenae, Lower Hutt.
- ZL2UZ-Spotswood College Amateur Radio Club,
- (Trustee: B. P. Finch), Private Bag, New Plymouth. ZL2VA-Vaughan, D. L., 3 Chaffey Crescent, Titahi Bay, Wellington.
- ZL2VB-Browne, A. H., 98 Renown Road, Raumati South,

ZL2VC

ZL2VC-Zawodny, C. J., 21 Holdsworthy Road, New Plymouth.

ZL2VD—Tideman, A. L., R.D. 2, Nelson.
ZL2VE—Hansen, G. H., 9 Sanders Avenue, Napier.
ZL2VF—Ross, J., Post Office, Motueka.
ZL2VG—Smith, I. R., "Lyndon", R.D. 3, Te Karaka.
ZL2VH—Upper Hutt Branch NZART Inc., (Trustee: G. F. Smith), Upper Hutt Civil Defence Buildings, Upper

ZL2VI—Manning, E. E., 655 Aberdeen Road, Gisborne. ZL2VJ—Angelini, H. J., R.D., Pahiatua. ZL2VK—Wallace, I. R., 22 Parson Street, Wanganui.

ZL2VL-

ZL2VM—Bull, M. B., 51 Liverpool Crescent, Napier. ZL2VN—Gaudin, W. G., 18 Trafalgar Street, New Plymouth.

ZL2VO—Hayman, G. C., 73 Makora Road, Masterton. ZL2VP—Cheshire, A. H., 5 Seddon Street, Upper Hutt. ZL2VQ—Gaudin, G. C. (Mrs), 18 Trafalgar Street, New

Plymouth.

ZL2VR—Chapman, D. J., 459 Kennedy Road, Napier. ZL2VS-Miller, H. R., 41 Alexandra Street, Marton.

ZL2VT—Arthur, A. J. (Mrs), 216a Harris Street, Gisborne, ZL2VU—Freeman, J. F., 88 Marellen Drive, Red Beach,

ZL2VV—Henry, R. G., 76 Virginia Road, Wanganui. ZL2VW—Gray, O. T., 16 Gonville Avenue, Wanganui. ZL2VX—Dickson, S., 67 Mills Road, Wellington 2. ZL2VY-Klein, B. J., 49 Milne Crescent, Taita.

ZL2VZ-Eyles, J. R., 30 Surrey Street, Richmond. ZL2WA-Wellington VHF Group (Trustee: P. R. Williams).

P.O. Box 12-259, Wellington. ZL2WB—Wellington Branch NZART Inc., (Trustee: W. D. Gorman), 40 Awe Road, Seatoun, Wellington 3.

ZL2WC—Crabtree, W. D., P.O. Box 87, Napier. ZL2WD—Deller, F. J. G., 10 Butler Street, Naenae, Lower

ZL2WE—Stead, J. C., 908 Clive Street, Hastings. ZL2WF—Wensiey, N. L., 1/27 Puriri Avenue, Greenland, Auckland 5.

ZL2WG-Nunns, H., 42 Norman Road, Gisborne.

ZL2WH-McAuley, A. W., 151 Townsend Road, Miramar, Wellington 3.

ZL2WI-Wilkinson, J.G., 40 Konene Street, Rotorua. ZL2WJ-Ross, J. B., Moncrieff Avenue, Tahunanui, Nelson.

ZL2WK-Hattersley, S. G., 15 Rata Street, Nelson. ZL2WL-Hurrell, L. W., 9 Hereford Place, Tamatea,

ZL2WM-Lagerstedt, E. C., 83 Gordon Street, Dannervirke.

ZL2WN-Carlisle, J. W., 32 Nile Street, Lower Hutt. ZL2WO-Burnett, A. M. A., 51 Cawthorn Crescent, Wakatu, Nelson.

ZL2WP—Ohakea Transmitting Club, (Trustee: J. L. McDonald), RNZAF Base, Ohakea.

ZL2WQ-

ZL2WR-Whitehead, E. S., 33 Morse Street, Marewa, Napier

ZL2WS-Scott, W. G., P.O. Box 859, Napier.

ZL2WT-Thomson, W. J., 33 Donald McLean Street, Newtown, Wellington 2.

ZL2WU-Mathewson, J. R., 15 Korau Street, Stokes

ZL2WV-Rowe, J. B., 8 Evelyn Place, New Plymouth. ZL2WW-

ZL2WX-Day, D. G., 106 Cleveland Terrace, Nelson. ZL2WY-Mildon, J. W., 78 Gordon Street, Dannevirke. ZL2WZ—Gabriel, R. E., 37 Latitude Close, Whitby,

Paramata ZL2YL-NZ WARO (Trustee: Mrs L. J. Gilchrist, 20 Vogel Street, Hawera).

ZL2AAA-White, M. C., 502 Huia Street, Hastings. ZL2AAB—Cole, G. H., 26 Wensley Road, Richmond. ZL2AAC—Bridgman, A. H. S., 146 Kamahi Street, Stokes Valley.

ZL2AAD-Bartlett, L. R., 9 Waverley Street, Gisborne. ZL2AAE-Kelling, A. R., 17 Pare Street, Wainui Beach, Gisborne.

ZL2AAF-Duncan, R. E., 107 Ironside Road, Johnsonville, Wellington.

ZL2AAG-Barker, E. J., 12 Ashford Avenue, Palmerston North.

ZL2AAH-Sayers, R. K. F., 24 Gardiner Grove, Wainuiomata.

ZL2AAI---McPake, E. G., 7 Balgownie Avenue, Wanganui. ZL2AAJ---Davis, S. B., 7 Somme Parade, Wanganui.

ZL2AAK-Hubbard, J. A., 36 Queenswood Road. Levin.

ZL2AAL—King, K. U., 505 Fenwick Street, Hastings.
ZL2AAM—Wilson, I. J., 83 Cracroft Street, Waitara.
ZL2AAN—Thompson, R. N., 1010 Gordon Road, Hastings.
ZL2AAO—Shakel, M. W. O., C/- Post Office, Opua.

ZL2AAP—Meek, P., 59 Alexander Avenue, Napler. ZL2AAQ—Jeffers, R. J., 42 Raine Street, Wanganui. ZL2AAR-Te Punga Scout Group, Harley Street, Masterton.

ZL2AAS-McCutcheon, H. A., 351 High Street. Dannervirke.

ZL2AAT-Mowat, K. H., 9 Ruamoana Place, Omokoroa. R.D. 2, Tauranga.

ZL2AAU-Starck, A. J., 177 Smart Road, R.D. 2, New Plymouth.

ZL2AAV—Cooper, R. L., 29 Hudson Avenue, Bulls. ZL2AAW—Berbedes, P. G., 12 Beach Street, Tangimoana. ZL2AAX—Martin, L. H., 64 Glen Road, Stokes Valley, Wellington.

ZL2AAY-Turnbull, W. I., 5 Annandale Street, New Plymouth.

ZL2ABA—Grundy, C. G., 119 East Frederick Street, Mayfair, Hastings. ZL2ABA—Harris, W. V., 55 Tom Parker Avenue, Napier. ZL2ABB—Campbell, S. H., 20 Erin Street, Palmerston North.

ZL2ABC-

ZL2ABD-Stampa, K. W., Normanby Road, Manaia. ZL2ABE—Erwood, E., 190 Waimea Road, Nelson. ZL2ABF—Foley, T. J., 115 Taradale Road, Napier. ZL2AGB—McGee, N., 13 Limerick Grove, Porirua. ZL2ABH—Rowley, F., 3/135 Cook Street, Palmerston

North. ZL1ABI—Smith, D. L., 1004 Gordon Road, Hastings. ZL2ABJ—Napier Branch, NZART (Trustee: W. Forsyth).

C/- 2 Meeanee Quay, Westshore, Napier. ZL2ABK—Jones, Y. F. (Mrs), 10 Christina Grove, Lower Hutt.

ZL2ABL-Bramley, K. J., 14 Rembrandt Avenue, Linden. ZL2ABM-Elvy, D. L., 34 Collier Avenue, Karori, Wellington 5

ZL2ABN-Ridding, G. B., 25 Rakeiora Grove, Korokora, Petone.

ZL2ABO-Hughes, A. H., 117 Park Road, Palmerston North.

ZL2ABP-McLaren, W. G., Flat 1, 22 Hawker Street, Mt. Victoria, Wellington 1.

ZL2ABQ-Keenan, D., Št. J., 13 Ruru Crescent, Heretaunga Park, Silverstream

ZL2ABR—Parkinson, J. H., 1009 Rata Street, Hastings. ZL2ABS—Trustrum, E. G., 160 Mrine Parade, Napier. ZL2ABT—Turner, O. D., Cadman Road, Dannevirke. ZL2ABU-Van der Burga, J. E. C., 19 Penny Lane,

Silverstream. ZL2ABV-Mitchell, P. R., 6 Grey Street, Feilding.

ZL2ABW-Steer, D. W., 24 Dorset Avenue, New Plymouth. ZL2ABX-Bishop, R. T., 1 Bowling Road, Greenmeadows, Napier.

ZL2ABY—Huggard, J. D., 22a Rimu treet, New Plymouth. ZL2ABZ-Moore, J. A. W., 42 Wright Street, Wellington 2.

- ZL2ACA—Barnett, W. J., R.D. 1, Mapua, Upper Moutere. ZL2ACB-Pengelly, A. P., 56 Wilberforce Street, Wellington 3.
- ZL2ACC-Sutherland, J. M., 600 Peoper Street, Hastings.
- ZL2ACD—Corric, R. D., 31 Main Road, Rahotu. ZL2ACE—Greene, R. P., 17 Oswald Crescent, Newlands, Wellington 4.
- ZL2ACF-Stagpoole, V. M., 10b Motueka Street, Ngaio, Wellington 4.
- ZL2ACG—Glassey, R. B., 422 Jackson Street, Petone ZL2ACH—Robertson, B. R., 537 Ruahine Street, Palmerston North.
- ZL2ACI—Tawa College Radio Club, (Trustee: F. R. J. Dean), Tawa College, Duncan Street, Tawa
- ZL2ACJ—Watson, J. S., 24 Gardener Street, Levin. ZL2ACK—Brown, R. W. N., 9 Duke Street, Pahiatua.
- ZL2ACL—Myhill, J., 173 Ngamolu Road, New Plymouth. ZL2ACM—Gore, C., Roberts Line, P.O. Box 40, Bunnythorpe
- ZL2ACN—Lakeman, D. T., 55a Manuka Street, Masterton. ZL2ACO—Jeffs, D. E., 132 Hill Road, Belmont, Lower
- ZL2ACP-Brosnan, V. W., N.Z. Forest Service, Private Bag, Tikokino.
- ZL2ACQ-ZL2ACR—Wagenvoort, P. J., 127 Hataitai Road, Hataitai, Wellington 3.
- ZL2ACS-Mai, G. A., 8 Wheatley Avenue, Pakuranga, Auckland.
- ZL2ACT—Smith, G. F., 26 Sheridan Crescent, Upper Hutt.
- ZL2ACU—Finlay, P. A., 154 Parkvale Road, Wellington 5. ZL2ACV—Steel, J. R., 192 Coutts Street, Wellington 3. ZL2ACW—Gotlieb, R., 6 Holborn Drive, Stokes Valley.
- ZL2ACX—Hart, F. M., 82 Oriel Avenue, Tawa. ZL2ACY—Hewitt, E. S., 402a Kimbolton Road, Fielding.
- ZL2ACZ—Bickerstaff, R. B., 12 Enfield Road, Napier. ZL2ADA—Anderson, J. K., 1 McKenzie Avenue, Napier. ZL2ADB—Barrow, G. W. B., 60 Bledisloe Crescent, Wainuiomata.
- ZL2ADC-Weston, W. F., 35 Kummer Crescent, Masterton.
- ZL2ADD-Lund, O. M., 1 Cherry Grove, Strathmore, Wellington 3
- ZL2ADE-Turner, A. L., 108a Hillcrest Road, Raumati
- ZL2ADF—Barrett, D. W., 7 Victor Street, Dannevirke. ZL2ADG—Donovan, G. J., 7 Marine Parade, Paraparaumu. ZL2ADH-Boyd, I. McL., 132 Wainuiomata Road,
- Wainuiomata. ZL2ADI-Blackwood, R. L., 2 Sommerville Terrace, Tawa,
- Wellington. ZL2ADJ—Billing, H. B., 8 Witako Street, New Plymouth, ZL2ADK—Purdie, C. M. (Mrs), 1 Canberra Square, Bulls.
- ZL2ADL-Gilbert, T. J., 5A Newbourne Crescent, Blenheim.
- ZL2ADM-Smith, I. G., Hill View, Guppy's Road, Greenmeadows, Napier.
- ZL2ADN-Stuart, J. D., 11 Kipling Street, Palmerston North.
- ZL2ADO-ZL2ADP-Vile, M. E., 41 Tanera Cresent, Brooklyn. Wellington 2
- ZL2ADQ-Dickson, P., Main Road, Makerua, R.D. 4, Palmerston North.
- ZL2ADR-Brown, K. L., 210 Sydney Street West, Thorndon Wellington 1.
- ZL2ADS—Shearer, A. D., 100 Harper Street, Wanganui. ZL2ADT—Brown, W. C., 9 Rawhiti Street, Nelson. ZL2ADU—Gorton, H. J., 12 Seddon Street, Waikanae.
- ZL2ADV-Frew, R., 50 Fraser Street, Wainuiomata. ZL2ADW-West, J. D., 17 Chesney Street, Bell Block, New Plymouth.
- ZL2ADX—Scott, J. R., Brooklyn Valley, F.D. 3, Motueka. ZL2ADY—Blaikie, J., 36 Parker Street, Blenheim. ZL2ADZ—Renner, W. G., C/- Post Office, Ormond.

. .

- ZL2AFA-Rae, A. O., 38 Newbury Street, Palmerston North
- ZL2AFB—Burr, A. J., 25 Waiwera Place, New Plymouth. ZL2AFC—Burr, M. K., 48 Holborn Drive, Stokes Valley. ZL2AFD—Dolman, P. A., 30 Tennyson Street, Stoke,
- ZL2AFE-Clarkson, R. J., 13 York Street, Eltham. ZL2AFF-King, F. B., 14 Wadsworth Street, Takaka,
- Golden Bay.

 ZL2AFG—Gentry, L. R., Parkhill Road, R.D. 2, Hastings.

 ZL2AFH—Hill, J., 6 Manga Pirau Street, R.D. 31, Manakau.

 ZL2AFI—Nicholls, G. A., 6 Rosedale Crescent, Palmerston
- ZL2AFJ—Simpson, M. C., 234c Vanguard Street, Nelson, ZL2AFK-Ford, P. L., 2/23 Maple Grove, Maungaraki,
- Lower Hutt. ZL2AFL—Jordan, N., 12 Caesars Place, Churton Park,
- Wellington 4. ZL2AFM-Hawke, P. D., 91a Tipahi Street, Nelson.
- ZL2AFN-MacLean, A. K., Hukaroa Road, Raetihi. ZL2AFO—Burney, R. J., 115 Kowhai Street, Nae Nae. Lower Hutt.
- ZL2AFP—Wassilieff, C., 69 Tiber Street, Island Bay. Wellington 2.
- ZL2AFQ—Lawson, E. J., 22 Bryon Street, Upper Hutt. ZL2AFR—Gorman, B. D., 3a Mowbray Street, Timaru. ZL2AFS-Chew, L. R., 87 Ngamotu Road, New Plymouth.
- ZL2AFT-Anderson, B. P., 431 Albert Street, Palmerston North.
- ZL2AFU—Udy, H. A. F., R.D. 7, Pahiatua. ZL2AFV—Titahi Bay Branch NZART (Trustee, R. S. H.
- Morgan), Tireti Hall, Titahi Bay. ZL2AFW—Jones, B. N., 13 Taupata Street, Castlectiff, Wanganui.
- ZL2AFX-Newton, R. J., R.D. 2, Blenheim. ZL2AFY-Smith, I. M., Hinerangi Road, Hatuma,
- Waipukurau. ZL2AFZ-Studd, G. C., 70 Russell Street, Napier.
- ZL2AGB—Martelletti, G. P., 44 Kapuni Street, Manaia. ZL2AGC—Waldmann, K. J., 20 Tawai Street, Upper Hutt. ZL2AGD—Kampkes, B., 135 Main Road, Bay View, Napier.
- ZL2AGE—Mouritsen, J., 14 Ashridge Road, Napier. ZL2AGF—Budd, W. G. J., 30 Turakina Street, New
- Plymouth. ZL2AGG—Graham, S. C., 2 Drake Street, Feilding.
- ZL2AGH—Marshall, A. W., 32 Plymouth Road, Hastings. ZL2AGI—Giles, F. A., 1006 Sussex Street, Hastings. ZL2AGJ—Coatham, S. P., 319 Nayland Road, Stoke,
- Nelson.
- ZL2AGK-
- ZL2AGL-Livingston, R. P., Palmers Road, R.D. 1, Brightwater, Nelson.
- ZL2AGM-Weaver, D. B., 6 Tankersley Crescent, Masterton.
- ZL2AGN-Thompson, J. B., 50 Collingwood Street, Palmerston North.
- ZL2AGO-Wolf, J. M., 4 Ondine Place, Glenfield, Auckland 10.
- ZL2AGP—Weir, D. G., 4 St. Francis Grove, Lower Hutt. ZL2AGQ—Cleveland, F. L., 38 Havelock Street,
- Vogeltown, Wellington 2.
- ZL2AGR—Williams, R. L., 15 Pinney Avenue, Lower Hutt. ZL2AGS—Gotlieb, G. D. (Mrs), 6 Holborn Drive, Stokes Valley.
- ZL2AGT-Wright, J. M., C/- Mr G. R. Hawtree, 26 Stewart Street, Aramoho, Wanganui,
- ZL2AGU-Steel, G. J., Corner Arataki and Te Mata Roads, Havelock North.
- ZL2AGV—Woodall, T. A., Cable Bay, R.D. 1, Nelson, ZL2AGW—Gillon, K. R., P.O. Box 30-201, Lower Hutt. ZL2AGX-
- ZL2AGY-Marr, A. H., 3 Crown Hill, Titahi Bay, Wellington.

```
ZL1AGZ
```

ZL2AGZ—Grey, P. S., Havelock Road, Havelock North.

ZL2AHA-Wards, I. J., Manutahi, R.D. 2, Patea.

ZL2AHB—Bowater, S. J., 26 Marshall Street, Wellington 5. ZL2AHC—White, S. J., 20 Henley Crescent, Napier.

ZL2AHD--

ZL2AHE-Wilson, A. J., 65 Conclusion Street, Ascot Park, Porirua.

ZL2AHF—Dodson, A., 33 Cluny Road, Plimmerton. ZL2AHG—McCormick, J. D., 32 Eugenia Rișe, Manurewa.

ZL2AHH—Bint, T. E., 53 Trewavas Street, Motueka. ZL2AHI—Meads, A. M., 272 High Street, Eltham. ZL2AHJ—Ward, J. D., 20 Kentucky Way, Palmerston

ZL2AHK—Knofflock, T. C., 41 Scotland Street, Picton. ZL2AHL—Harris, F. C., 53 Fairs Road, Milson, Palmerston North.

ZL2AHM-Smith, R. A., 121 Slacks Road, Palmerston North.

ZL2AHN—Ashley, R. A., Te Horo Beach Road, R.D., Otaki.

ZL2AHO—Owen, D. W., 12 Whirinaki Street, Upper Hutt. ZL2AHP—Warren, J. S., 20 Bellringer Road, Massey, Auckland 8.

ZL2AHQ—Hyde, A. S., Julyan Street, Shannon, ZL2AHR—Hawtree, G. R., 26 Stewart Street, Aramoho,

Wanganui.

ZL2AHS—Dailas, S., 96 Te Anau Road, Wellington 3. ZL2AHT—Frost, H. A., 77 Meanee Road, Taradale, Napier. ZL2AHU—O'Hara, E. R., "Omega", Ngaumu Road, Masterton.

ZL2AHV—Cook, J. A., 16 Rui Street, Tahunanui, Nelson.

ZL2AHW—Russell, S. J., 511 Grays Road, Hastings. ZL2AHX—Greaney, E. C., 168 Waghorne Street, Napier. ZL2AHY—Howard, C. B., 24b Clearmont Crescent, New Plymouth.

ZL2AHZ—Gray, C. P., 835a High Street, Lower Hutt. ZL2AIA—Steel, R., 183 Carlyle Street, Napier.

ZL2AIB-Campbell, W. A., 225a Tukapa Street, New Plymouth.

ZL2AIC-Drogemuller, C. H., 25d Egmont Street, Wanganui.

ZL2AID-

ZL2AIE—Parker, W. J., 61 Nelson Street, Blenheim. ZL2AIF—Archer, R. W., 20 Snowden Avenue, Palmerston

ZL2AIG—Catt, G. D., 11 Taverner Street, Carterton. ZL2AIH—Harding, A. G. F., 6 Bowline Place, Whitby, Porirua.

ZL2AII—Saville, M. P., 9 Bird Grove, Stokes Valley, ZL2AIJ—Newbery, M. D., 111 Houghton Bay Road, Wellington 3.

ZL2AIK—Smyth, W. M., 51 London Street, Eltham. ZL2AIL—McManaway, P. H., R.D. 1, Matarawa, Carterton.

ZL2AIM-Muir, R. J., 1/43 Beatrice Avenue, Hillcrest, Takapuna, Auckland 10.

ZL2AIN—James, L. A., 110 Redwood Street, Blenheim. ZL2AIO-Voss, R. B., Mill Road, Kopane, 6 R.D., Palmerston North.

ZL2AIP—Curry, R. G., 1 Flaxmere Street, Waikanae. ZL2AIQ—Harvey, S. C., 802 Clive Street, Hastings. ZL2AIR—Morris, S. W., Main Highway, Clareville,

Carterton.

ZL2AIS—Cramer, F. H., 34 James Street, Inglewood. ZL2AIT—Whiting, P. C., Flat 1, Wellington Radio, P.B.,

ZL2AIU-Jepson, N. M., 94 Slacks Road, Palmerston

ZL2AIV—Mitchell, W. J., 52 Locking Street, Nelson. ZL2AIW—Sutherland, I. R., 61 Elizabeth Street, Blenheim.

ZL2AIX—Gemmell, A. F., 5 Birman Place, Porirua East. ZL2AIY—Hunter, G.L., 1 King Street, Nelson. ZL2AIZ—Wright, L. L., 30 Discovery Drive, Whitby.

Paramata.

ZL2AJA-Plum, B. F., 6 Porritt Place, Stoke, Nelson.

ZL2AJB-Hodge, L. D., 23 Kent Crescent, Palmerston North.

ZL2AJC—Hulse, R. L., 24 Hautana Square, Lower Hutt. ZL2AJD—Dodds, J. E., Upper Moutere, Nelson. ZL2AJE—Carpenter, E. O., 21 York Avenue, Tamatea,

Napier.

ZL2AJF—Vernon, J. H., 130 Mairangi Road, Wellington 1. ZL2AJG—Giblin, A. G., Wensley Road, Richmond, Nelson.

ZL2AJH-Andrewes, L. M., 12 Whareroa Road, Raumati

ZL2AJI-

ZL2AJJ—McHardy, R. A., 762 Gladstone Road, Gisborne. ZL2AJK—Martin, E. O., 32 Frederick Street, Lower Hutt. ZL2AJL—Sutherland, D. C., 170 Parsons Street, Wanganul.

ZL2AJM—Cooksley, G., 25 Chelwood Street, Palmerston North.

ZL2AJN—Heinz, D. P., 56 Tukuka Street, Nelson.
ZL2AJO—Scott, A. D., 11 Tiri Road, Whangaparaoa.
ZL2AJP—Vartha, I. R., 7 Collett Street, Lower Hutt.
ZL2AJQ—Compier, J. C., 35 Endcliffe Road, Gisborne.
ZL2AJR—Teward, G. J., 26 Horopito Road, Waikanae.
ZL2AJS—Wanganui Boys' College Radio Club (Trustee;

M. J. Beale), Ingestre Street, Wanganui.

ZL2AJT-ZL2AJU-Johnston, A. H., Flat 2, 1 Tainui Street, Stoke, Nelson.

ZL2AJV—Small, I. R., 207 Tudor Avenue, Hastings. ZL2AJW—Marston, K., 5 Johnston Crescent, Rotorua. ZL2AJX-Moore, K. J., 54 Herbert Avenue, Palmerston

ZL2AJY-ZL2AJZ—Wellington Polytechnic Radio Society. (Trustees: R. Stevens, S. Swan, and S. Adams), C/- School of PETE., P.B., Wellington 2.

ZL2AKA—Ribbon, C. E., 34 Abbott Street, Gisborne. ZL2AKB—Keik, C. E., 460 Frankley Road, New Plymouth. ZL2AKC—Larkin, J. F. L., 88 Hillcrest Road, Raumati

ZL2AKD-Faulding, R. G., 5 Manuka Street, Palmerston

ZL2AKE-Watson, M. B., 25 Milne Street, Marton. ZL2AKF—Peffers, W. F., 57 Kakarika Grove, Waikanae. ZL2AKG—McGonigal, J. W. R., 17 Surrey Street,

Taradale, Napier.

ZL2AKH—Hayward, W. B., 155 Washington Road, Nelson.

ZL2AKI—Moles, G. J., 5 Edward Street, Bulls. ZL2AKJ—Freeth, C. A., 25 Marybank Road, Marybank,

ZL2AKK—Moss, J. B., 9 Seyton Street, Stratford. ZL2AKL—Howard, W. S., Stoney Creek Road, Bunnythorpe.

ZL2AKM-

ZL2AKN-Smith, L. K., 75 Ngamotu Road, New Plymouth. ZL2AKO-Oakley, J. W., "Twelve Oaks", Main Road North, Paraparaumu.

ZL2AKP-

ZL2AKQ-Littleford, R. H., 4 Parnell Street, Lower Hutt. ZL2AKR—Roberts, E., 116 Kowhai Street, Lower Hutt. ZL2AKS—Taylor, D., 31 Ahuriri Street, Wellington 3.

ZL2AKT-Bundle, R. J., Mahoe Street, Linden, Wellington.

ZL2AKU-Gordon, I. R., 106 Te Anau Road, Hataital,

Wellington 3. ZL2AKV—Copeland, R. N., P.O. Box 40-525, Upper Hutt. ZL2AKW-King, T. C., 72 Chelmsford Street, Wellington 4.

ZL2AKX-Morris, E. C., 3 Peel Place, Wainulomata. ZL2AKY-Comber, C. M., 54 Reid Avenue, Hawera.

ZL2AKZ-Barden, T. W. A., Harris Street, Waitara.

ZL2ALA-Kenny, A. R., 17 Reynolds Street, Taita. ZL2ALB-Broadbent, N. D., R.D. 20, Ohau, Levin. ZL2ALC-Maxwell, H. J., 7 Rakeiora Grove, Korokoro,

Petone.

- ZL2ALD-Donkin, E. N. R., 20 Forth Crescent, Glenview, Hamilton.
- ZL2ALE—Roberts, A. L., Durham Drive, Havelock North. ZL2ALF—Marr, Y. E., 3 Crown Hill, Titahi Bay.
- ZL2ALG-Fredericksen, C. A., 18 Champion Terrace, Nelson.
- ZL2ALH-Imlay, B. W., 46 Tilbury Street, Lower Hutt. ZL2ALI-Clark, E. A., 28a Field Street, Silverstream, Upper
- ZL2ALJ-Fetcher, A. B., 127 Melbourne Road, Island Bay, Wellington 2.
- ZL2ALK-Borlase, R. C., 289 Fitzherbert Avenue, Palmerston North.
- ZL2ALL—Tompkins, A. W., Rangiwahia, R.D. Mangaweka. ZL2ALM—Lovegrove, P. J., 145 Carlisle Road, Brown Bay, Auckland 10.
- ZL2ALN—Broderick, T. E., 173 Hill Street, Richmond. ZL2ALO—Forsyth, W., 2 Meeanee Quay, Westshore, Napier.
- ZL2ALP—Paton, P. J., 41 Hyde Road, Wainuiomata.
- ZL2ALQ-Appleton, J. W., 17 Bone Crescent, Hawera. ZL2ALR-
- ZL2ALS-Morris, R. A., 16 Bristol Square, Lower Hutt. ZL2ALT-
- ZL2ALU—Turnham, P. E., 243 Waterloo Road, Lower Hutt. ZL2ALV—Warburton, A., 3 Raleigh Street, Mt. Eden, Auckland 3.
- ZL2ALW—Barnett, L. J., 5 High Street, Ekelahuna. ZL2ALX—Tarrant, G. W., Rawhitirua, R.D. 8, Masterton.
- ZL2ALY-Walker, C. M., Flat 1, 21 Dorking Road, Wellington 2.
- ZL2ALZ—Healey, G. W. R., 78 Sidlaw Street, Strathmore Park, Wellington 3.
- ZL2AMA-Flack, A. B., 17 Turriff Crescent, Tawa, Wellington.
- ZL2AMB—Chinery, P. R. J., 192 High Street, Eltham. ZL2AMC—Sargent, F. W., 1 Barriball Street, New Plymouth.
- ZL2AMD-Lamont, D. H., 393 Taradale Road, Napier. ZL2AME-Heath, C. A., 9 Patutu Grove, Upper Hutt. ZL2AMF-
- ZL2AMG-Wensley, L. A., Beach Road, Motueka.
- ZL2AMH—Dew, E. E., 55 McHardy Street, Havelock North. ZL2AMI-Stewart, R. G., 105 Orangi Kaupapa Road, Wellington 5
- ZL2AMJ-Johnson, J. F. C., 15 Field Street, Upper Hutt. ZL2AMK---Vendt, G. R., 60 Bird Grove, Stokes Valley
- ZL2AML-Warner, T. R., 32 Endeavour Street, New Plymouth
- ZL2AMM-Morris, S. J., 1 Sidfaw Street, Wellington 3. ZL2AMN-
- ZL2AMO-Spackman, M. L., 2/168 Gloucester Street, Taradale, Napier
- ZL2AMP-Fretter, M. E., 144 Mt. View Road, Wanganui. ZL2AMQ-Nicholls, C. A., 135 Benmore Avenue, Palmerston North.
- ZL2AMR-Feilding and Districts Radio Club (Trustee: B. B. P. Meyrick), 14 Churcher Street, Feilding.
- ZL2AMS-Marton Branch NZART Inc., (Trustee:
- O. D. Hunt), C/- 21 Oxford Street, Marton. ZL2AMT—Garmonsway, T. L., "Hiria" Rangiwaea, Taihape.
- ZL2AMU-Ashe, D. A., 34 Wai-iti Crescent, Lower Hutt. ZL2AMV-Mudford, D. W., 58 Le Quesne Road, Bay View, Napier.
- ZL2AMW-Hobman, R. V., 8 Queens Drive, Lyall Bay. Wellington.
- ZL2AMX-Wiggins, H., 178 Wadestown Road, Wellington 1
- ZL2AMY-Davies, D. D., Makara Beach, R.D. 1, Karori,
- ZL2AMZ—Humphris, G. J., 18 Horokiwi Road, Newlands, Wellington 4.
- ZL2ANA—Neilson, A. K., 13 Matene Street, Otakı. ZL2ANB—Fenton, F. A., 27 Blake Street, Waitara.

- ZL2ANC-Watkins, W. T., 218 St. Aubyn Street, New Plymouth.
- ZL2AND—Wallace, R. I., Fox Street, Featherston, ZL2ANE—Cooney, J. L., 53 Wainuiomata Road,
- Wainuiomata.
- ZL2ANF-Martin, R. W., Whareama Home, Stoke, Nelson.
- ZL2ANH—Hoskin, J. C., 5 Tarata Street, Stoke, Nelson.
- ZL2ANI-McLeod, S. A., 4 Trevelyan Street, Onekawa, Napier.
- ZL2ANJ-McNabb, G. M., 91 Trewavas Street, Motueka.
- ZL2ANK-Johnson, J. F., 90 McLeod Street, Upper Hutt. ZL2ANL-McNeill, J. H., 19 Russell Street, Marton.
- ZL2ANM-Butler, R. J., 1a Blake Street, Waitara.
- ZL2ANN—Rahotu Coastal Branch NZART Inc., (Trustee: C/- L. C. Pentelow), Kina Road, Opunake. ZL2ANO-
- ZL2ANP—Williamson, J. J., Waituna, 9 R.D., Feilding, ZL2ANQ—Keane, Rev. P. M., 61 Main Road, Makaraka,
- Gisborne.
- ZL2ANR—Robertson, J., 100 Cluny Road, Plimmerton.
- ZL2ANS-Martin, D. W., 111 Avenue Road, Greenmeadows, Napier.
- ZL2ANT-
- ZL2ANU—Bennett, K. P., 44b Wither Road, Blenheim. ZL2ANV-
- ZL2ANW-White, R. W., 10 Wairere Road, Wanganui. ZL2ANX—Central Institute of Technology Radio Club, (Trustee: D. St. J., Keenan), CIT, Somme Road, Trentham.
- ZL2ANY-Williams, C. F., 10 Atkinson Street, Normanby
- ZL2ANZ—Barber, V. L., 36 Roslyn Road, Napier. ZL2AOA—Wall, T. F., Mahaki, R.D. 1, Martinborough. ZL2AOB—Parker, D. T., 7 Darwin Road, Gisborne. ZL2AOC—Hamilton, A. M. M., 39 Ngaio Road, Kelburn,
- Wellington 5.
- ZL2AOD-Catterall, J. A., Parkers Road, Tahunanui, Nelson
- ZL2AOE-Wood, T. E., 12 Rerewe Grove, Oaklands, Upper Hutt.
- ZL2AOF—Reardon, V. W., Autler Road, Manaia. ZL2AOG—Green, G. R., 168 High Street, Bulls.
- ZL2AOH-Tompkins, M. A., Karewarewa Road, Rangiwahia.
- ZL2AOI-Malkin, E., 1007 Konini Street, Hastings. ZL2AOJ-Ryder, S. F., 67 Gillespies Road, Upper Hutt.
- ZL2AOK-Ross, D. H., 5 Stamford Grove, Lower Hutt. ZL2AOL-McBeth, D. O., Ridgewood Drive, R.D. 1, New
- Plymouth. ZL2AOM-
- ZL2AON-Crossley, R. S., 15 Broadhead Avenue, Wanganui.
- ZL2AOO-ZL2AOP-Mackintosh, A. B., 34 Marian Drive, Gisborne. ZL2AQQ-Moodie, L. S., 105 Messines Road, Karori,
- Wellington 5. ZL2AOR-Langevad, M. W., 21 Estuary Road, Weymouth,
- Auckland ZL2AOS-
- ZL2AOT-Yanko, P. L., 35 Freyberg Terrace, Greymouth. ZL2AOU-Howan, V. E. (Mrs), 59 Houghton Bay Road, Wellington 3
- ZL2AOV--McNeil, D. A., 58 Fraser Avenue, Johnsonville, Wellington 4.
- ZL2AOW-Purvis, R. H., Violet Street, Waihi. ZL2AOX-Edwards, M. R., Nui Dat Barracks, Fort Dorset,
- Seatoun, Wellington, ZL2AOY-Robertson, J. G., 550 Queen Sreet, Levin.
- ZL2AOZ-Davidson, W. E., No. 10 R.D., Palmerston North.
- ZL2APA—Chippendale, J. G., R.D. 29, Kaponga. ZL2APB-
- ZL2APC—Burton, H., 34 Hathaway Avenue, Wellington 5.

ZL2APD

ZL2APD—Holmwood, E. A., 23 Featherston Street, Palmerston North.

ZL2APE—Parnell, J. C., 87 Duncan Terrace, Wellington 3. ZL2APF-Lusty, F. W., 40 Ihaia Street, Waitara.

ZL2APG—Sutherland, N., 75 Weld Street, Wellington 1. ZL2APH—Haisman, R. A., 27 Valley Road, Gisborne.

ZL2API-Gillette, H. C., 6 Mahoe Avenue, Palmerston North

ZL2APJ-Vaughan, R. G., 205 Rosetta Road, Raumati Beach.

ZL2APK—Campbell, E. P., 7 Reeve Drive, Havelock North. ZL2APL—Westwood, I. J., 35 Oruaiti Crescent, Ashhurst. ZL2APM—Parker, T. C., 5 Damian Grove, Lower Hutt.

ZL2APN—Swinburn, N. B., 2a Hinau Street, Tawa. ZL2APO—Rae, B. W., 42 Hatton Street, Christchurch 6. ZL2APP—Donkin, A. E., Flat 5, 72 Freyberg Street, Wellington 3.

ZL2APQ-Aydon, A., 71 Weka Street, Nelson.

ZL2APR-Pope, T. R., 80 Victoria Street, Carterton.

ZL2APS—Sullivan, D. H., 51 Bath Street Levin. ZL2APT—Ropata, P. T., 11 Kittyhawk Row, Bulls.

ZL2APU-ZL2APV—Jury, G. V., 529c Carrington Road, R.D. 1, New Plymouth.

ZL2APW-Vickerman, J. R., 187 Belvedere Road, Carterton.

ZL2APX—O'Dwyer, M., 135 Guppy Road, Taradale, Napier.

ZL2APY-Hartwig, G., 66 Lincoln Street, Ashhurst.

ZL2APZ—Benson, K. J., 5 Iredale Road, Hawera. ZL2AQA—Allen, D. B., 1 Brookes Terrace, Waitara. ZL2AQB—Murphy, G. C., 19 Cheviot Road, Lowry Bay, Wellington.

ZL2AQC-Doyle, D., 47 Cashmere Avenue, Khandallah, Wellington 4.

ZL2AQD—Watson, J. E., 50 Ellesmere Avenue. Wellington 3.

ZL2AQE-Shorland, J. H., 12 Lenox Grove, Wellington 4. ZL2AQF—Ward, J. G., 18 Shakespeare Terrace, Napier. ZL2AQG—Thorpe, W., Clifton, R.D. 1, Takaka.

ZL2AQH-Voss, S. J., Mill Road, Kopane, 6 R.D., Palmerston North

ZL2AQI-Cheyne, J. A., 12 Aberdeen Avenue, Palmerston North.

ZL2AQJ-Mount St. Mary's Radio Club, (Trustee: M. G. O'Hagen), Mt. St. Mary's Seminary,

Greenmeadows, Napier. ZL2AQK—Millard, A. J., 34 Volga Street, Wellington 2. ZL2AQL—Spearman, M. B., 5 Člimie Crescent, Hawera. ZL2AQM-

ZL2AQN-Heald, P. J., Pekapeka Road, Waikanae. ZL2AQO-Wilson, K. A. (Mrs), 80 Wycliffe Street, Onekawa, Napier

ZL2AQP—Clouston, T. W., 28 Fox Street, Opunake, ZL2AQQ—Ammundsen, J. G., 21 Old Coach Road. Johnsonville, Wellington 4.

ZL2AQR—Crawley, R. J. C., 1018 Totara Street, Hastings. ZL2AQS—Duckworth, P. D., 7 Einstein Street, Gisborne. ZL2AQT—Gabb, K. J., 2 Beth Street, Trentham.

ZL2AQU-Anderson, G. W. J., 32 Chichester Drive, Silverstream

ZL2AQV—Smith, R. E., 8 Dell Road, Raumati South. ZL2AQW-Laing, D. J. H., 6 McDonald Street, Taita, Lower Hutt.

ZL2AQX—MacArtney, R. A., 7 Fromont Street, Wanganui. ZL2AQY—Olson, E. L., 58 Titania Street, Stratford. ZL2AQZ—Edgecombe, C. J., Ngawhini Road, Ararata,

R.D., Hawera.

ZL2ARA—Buckley, R., 30 Sackville Street, New Plymouth. ZL2ARB—Davis, J., 19 Titoki Street, Gisborne

ZL2ARC-Christie, R. F., 259 Cambridge Street North, Levin

ZL2ARD—Schofield, D. T., 34 Kiwi Road, Raumati Beach. ZL2ARE—Harris, L. W., 7 Cameron Road, Napier.

ZL2ARF-

ZL2ARG-Nelson Branch NZART (Trustee: J. G. Walker), Club Rooms, Maitai Valley Road, Nelson

ZL2ARI—Robinson, D. A., 25 Hurahura Road, Gisborne. ZL2ARI—Wills, A. J., 73 Donovan Road, Paraparaumu. ZL2ARJ—Stidolph, S. R., 5 Reeve Street, Levin.

ZL2ARK-Wilkins, R. R., Iona Road, Havelock North. ZL2ARL—Prior, R. T., 28 Shelley Street, Palmerston North, ZL2ARM—Peel, J. S., 19 The Esplanade, Westshore, Napier.

ZL2ARN—Stewart, D. G., 1 Edgewater Street, Walkanae. ZL2ARO—Blakemore, D. G., 14 Cavendish Square. Wellington 3.

ZL2ARP—Collins, R. J., 22 Chums Road, Paraparaumu Beach.

ZL2ARQ-

ZL2ARR-House, T. S. R., 115 Brougham Street, Wellington 2.

ZL2ARS-

ZL2ART-McQuinlan, T., 6 Whanake Street, Titahi Bay. ZL2ARU-Hawke, M. A. (Miss), 34 Hokio Beach Road,

ZL2ARV—Black, R. C., 25 Marsden Road, Stoke, Nelson, ZL2ARW—Williams, P. R., 15 Pinny Avenue, Lower Hutt. ZL2ARX-Pomfret-Brown, G. E., 34 Leicester Street, Stoke, Nelson.

ZL2ARY-Jenks, M. D., 34 Waitaki Street, Christchurch 7. ZL2ARZ-Collins, J. L., 19 Haig Street, Wairoa.

ZL2ASA-Dinsdale, B., 14 Benmore Avenue, Palmerston North.

ZL2ASB—Anderson, N. H., 109 Aro Street, Wellington 2. ZL2ASC-Denton, R. J., 17 Rangiora Terrace, Tahunanui, Nelson.

ZL2ASD—Darby, A. R., 63 Plateau Road, Te Marua, Upper Hutt.

ZL2ASE—Williams, H. B., 77 Coast Road, Wainulomata. ZL2ASE—Fogerty, S. F., 367 High Street, Motueka. ZL2ASG-Waterall, T. H., 26 William Street, Hataitai, Wellington 3.

ZL2ASH-Clark, B. S., 143 Heke Street, Ngaio, Wellington 4.

ZL2ASI—Law, A., 1 Kopara Grove, Stokes Valley. ZL2ASJ—Major, J. E., 86 Quebec Street, Wellington 2. ZL2ASK—Tuffnell, B. R., 5 Champion Road, Richmond. ZL2ASL—Leitch, J. H., Dudley Road, R.D. 6, Inglewood, ZL2ASM—Glew, R. E., 58 Hendersons Line, Marton.

ZL2ASN—Soughtton, R. G., 29 Moore Street, Featherston, ZL2ASO—Sewell, J. R., 57 Hine Street, Wainuiomata.

ZL2ASP—Colguhoun, T. R., 39 Melrose Street, Island Bay, Wellington 2.

ZL2ASQ-ZL2ASR-Gill, A. H., Middle Road, R.D. 11, Hastings. ZL2ASS-

ZL2AST--Groombridge, J. E., 15 Oakleigh Street, Maungaraki, Lower Hutt.

ZL2ASU-Grainger, R. E., 6 Joll Street, Karori, Wellington 5. ZL2ASV-

ZL2ASW—Avery, G. S., Camerons Line, Feilding. ZL2ASX—Quinney, W. F. G., 508 Frimley Road, Hastings. ZL2ASY—Currie, R. G., 75 Hair Street, Walnulomata. ZL2ASZ-

ZL2ATA—Johnson, J. M., 6 Huia Street, Pahiatua. ZL2ATB-Blackwell, F. N., 103 Kenmore Street, Newlands, Wellington 4.

ZL2ATC-Harris, E. J. (Mrs), 7 Cameron Road, Napier. ZL2ATD-

ZL2ATE-Manley, R. C., 22 Amberley Avenue, Palmerston

ZL2ATF-Dee, R. A., 29 Glovers Road, Haiswell, Christchurch 3.

ZL2ATG-Ditchburn, R. G., 93 Marsden Street, Lower Hutt.

ZL2ATH-

ZL2AT1—Cartwright, K. C., 8 McNaughton Street, Waitara.

ZL2ATJ—Trye, M., 38 Ngaio Road, New Plymouth. ZL2ATK—Williams, V. V. H. (Mrs), Atkins Road, Patutahi, P.O. Box 78, Gisborne.

ZL2ATL-Williams, C. M., Atkins Road, Patutahi, P.O. Box 78. Gisborne.

ZL2ATM—Aplin, E. L., 16 Kaka Street, Masterton, ZL2ATN—Casey, S. F., 45 Ames Street, Paekakariki, ZL2ATO—Oborn, L. E., 91 Norton Park Grove, Lower Hutt.

ZL2ATP-Hursthouse, M. W., 16 Nile Street, Nelson. ZL2ATQ—No. 21 Squadron Air Training Corps Radio Club, (Trustee: W. B. French), Cornwall Place, Masterton.

ZL2ATR-

ZL2ATS-Huberts, G. H., 24 Lysnar Street, P.O. Box 6. Gisborne.

ZL2ATT—Thompson, A. J., 11 London Terrace. Palmerston North.

ZL2ATU-Horn, I. G., 79 Thatcher Street, Castlecliff, Wanganui.

ZL2ATV-Clench, H. J., 13 llam Grove, Kelson, Lower Hutt.

ZL2ATW-Lang, W. J., 138 Buick Crescent, Palmerston North

ZL2ATX-Haskell, E. H. E., 38 Palmyra Way, Bucklands Beach, Auckland,

ZL2ATY-Stent, J. A., 44 Kempton Street, Greytown. ZL2ATZ-Shortall, J. P., 82 Menin Road, Onekawa, Napier.

ZL2AUA-

ZL2AUB-Moore, P. J., 54 Herbert Avenue, Palmerston North.

ZL2AUC-Keegan, R. J., 11 Malagahn Grove, Johnsonville, Wellington.

ZL2AUD—Martin, W., 4 Bella Grove, Naenae, Lower Hutt. ZL2AUE—King, M., Flat 21, 10-12 Austin Street. Wellington 1.

ZL2AUF-Blair, S. G., 15 Poplar Grove, Thorndon, Wellington 1.

ZL2AUG-Farguharson, W. L., 12b Collie Street. Manurewa.

ZL2AUH-Pool, B. L., 9 Rembrandt Avenue, Linden. ZL2AUI-Danrell, F. R., 1215 North Willowpark Road,

ZL2AUJ-Catchpole, D., 25 Taipakupaku Road, Miramar, Wellington 3.

ZL2AUK-Leckie, D. A., 12 Pencarrow Crescent, Wainuiomata.

ZL2AUL-Bird, J. W., 131 Whites Line East, Lower Hutt. ZL2AUM-Shrimpton, H. N., 89 Green Street, Tahunanui,

ZL2AUN-Francis, L. J., 1 Worcester Street, Taradale, Napier.

ZL2AUO-Bould, J. R., 5 Beatty Street, Levin. ZL2AUP-Stephens, D. A., 2 Riverbend Road, Napier.

ZL2AUQ-Delaware Guide Company Radio Club, (Trustee: J. H. Bromley, 56 Tui Glen Road, Atawhai, Nelson.

ZL2AUR—Tong, Tse-Ying, 24 Flanders Avenue, Napier, ZL2AUS—Stewart, B. E., 1 Caversham Road, Mosston, Wanganui.

ZL2AUT-Morton, L. W., P.O. Box 40-252, Upper Hutt. ZL2AUU-Morman, A. R., 1 Jenks Street, Foxton. ZL2AUV-Rockell, J. E., 6/26 Phillips Street, Wellington 4.

ZL2AUW—Nash, A. L. J., Honi Taipua Street, Manakau. ZL2AUX—Lewer, D. H., 113 Pukepapa Street, Marton. ZL2AUX—Murphy, N. J., 69 Ames Street, Paekakariki. ZL2AUZ—Blair, R. L., 12 Cleland Street, Palmerston

ZL2AVA-McLauchlan, A. A. W., 81 parker Avenue, Levin.

ZL2AVB-Hargreaves, A. P., 29 King Edward Street, Eltham.

ZL2AVC-McDermott, R. J. O., 194 Glenmore Street, Kelburn, Wellington 5. ZL2AVD-Upston, A. J., 49 Karaka Street, Wainuiomata. ZL2AVE-Fittis, A. H., 5 Tyndall Street, Pahiatua. ZL2AVF-Gibbs, L. V., 19 Camellia Terrace, Lower Hutt. ZL2AVG-

ZL2AVH-Chong, A. V., 240 Whiringki Road, B.D. 2. Napier

ZL2AVJ—Savage, R. B., 2a Waverley Street, Richmond. ZL2AVJ—McNabb, M. D., 91 Trewayas Street, Motueka. ZL2AVK-Kane, D., 11 Bay Street, Petone

ZL2AVL—Luscombe, G. W., Main Road, Walouru. ZL2AVM—Morris, R. H. C., 21 flangoon Street, Khandallah, Wellington 4

ZL2AVN-Evans, J., 9 John Sims Drive, Khandallah, Wellington 4

ZL2AVO-Davis, B. F., 1/19a Parkers Road, Tahunanui Neison.

ZL2AVP-Roylands, D. M., Landsroy Poultry Farm, Ohariu Valley, Johnsonville, ZL2AVQ-Dement, F. W. H., 162 Bartholemew Road,

ZL2AVR-Dinnie, J. A., 12 Burrows Avenue, Karori,

Wellington 5.

ZL2AVS—Heath, B. O., 32 Nikau Street, Eastbourne. ZL2AVT—Tremear, K. D., 12a Thynne Street, Foxton. ZL2AVU—England, S. J., 3 Akatea Street, Berhampore, Wellington 2.

ZL2AVV-Hewitt, I. R., 21 Camerons Line, R.D. 5, Feildina.

ZL2AVW-Carter, J., 17 Doralto Road, New Plymouth. ZL2AVX-

ZL2AVY—Owen, M. L., Main Road, Makara, P.O. Box 17-048, Karori, Wellington 5.

ZL2AVZ-Freyburg High School Radio Club, (Trustee: ZL2AV2—Freyburg High School Hadio Club, (Trustee:
P. W. French), Freyburg Street, Palmerston North,
ZL2AWA—Farquhar, W. E., 17 Stansell Avenue, Nelson,
ZL2AWB—Craigie, C. J., 45 Gillespies Road, Upper Hutt,
ZL2AWD—Petrie, P., 7 Sharon Place, Palmerston North,
ZL2AWD—Frost, R. J., 60 Juliet Street, Stratford.

ZL2AWE-Cooke, P., 46 Sutherland Crescent, Palmerston

North. ZL2AWF—Alexander, D. G., 34 Tennyson Street, Petone. ZL2AWG—Roberts, J. C., 40 Grahams Road.

Christchurch 4. ZL2AWH-Brosnan, D. C., 9 Virginia Place, New Plymouth.

ZL2AWI-Sherley, H. F., 37 Kiwi Road, Raumati Beach. ZL2AWJ-Woodhouse, C. W., 32 Chesterton Street. Wellington.

ZL2AWK—Wilson, L. G., 32d Bauchop Road, Lower Hutt. ZL2AWL—McMillan, E. M., 31 Riverbend Road, Napier. ZL2AWM—Macdonald, K. A., 68b Chatswoth Road, Upper Hutt

ZL2AWN-Lewis, L. D., 25 Allen Terrace, Linden. ZL2AWO-Campin, J. W., 24 Clarence Cox Crescent, Napier.

ZL2AWP-Wills, A. E. (Mrs), 112 Ngamotu Road, New Plymouth.

ZL2AWQ-Moir, D., 5 Harpham Street, Taradale, Napier. ZL2AWR-Hunt, O. D., 21 Oxford Road, Marton ZL2AWS-Sayers, P. A., 97 Happy Valley Road, Ohiro

Bay, Wellington 2. ZL2AWT-Hopwood, F. B., 109 Park Road, Palmerston North.

ZL2AWU—Tiller, B. A., 59 Mark Avenue, Paparangi, Wellington 4.

ZL2AWV-Wooding, R. A., 32 Mahoe Street, Linden. ZL2AWW-Hawera Branch NZART (Inc.), 2 Milmoe Street, Hawera.

ZL2AWX-Jacobsen, E. J. Clifton R.D. 1, Takaka. ZL2AWY-Williams, D. M., 28 Highbury Avenue, Palmerston North.

ZL2AXA-Beale, M. J., 183 Great North Road, Wanganui. ZL2AXB-Crawley, D. R. K., Campbell Road, Brunswick, Wanganui.

ZL2AXC

ZL2AXC-Ragan, J. H., 46 Selwyn Crescent, Wanganui.

ZL2AXC—hagair, v. 1., 46 Sewyn Crescert, Wange ZL2AXD—Belding, W. E., 30 Duke Street, Levin. ZL2AXE—Phibbs, I. D., 39 Paramata Street, Nelson.

ZL2AXF—Widmer, J. B., Otaraoa Road, R.D. 43, Waitara. ZL2AXG—Young, W. D. D., 20 Rexwood Street, Carlerton. ZL2AXH—Aitchison, W. B., 35 Cranwell Street, Churton

Park, Wellington 4.

ZL2AXI-Woodgyer, M. G., 710 Western Hutt Road, Manor Park, Lower Hutt.

ZL2AXJ-Holdsworth, R., 3 Best Street, Wainuiomata. ZL2AXK-Sommerville, W. V., Dunn Street, Eamont Village.

ZL2AXL-Harvey, P. R., 4a Norton Road, Otumoetai, Tauranga.

ZL2AXM—Wilkins, S. J., 108 Holborn Drive, Stokes Valley, ZL2AXN—Crane, R. G., 101 Anzac Parade, Wanganui, ZL2AXO—Mathers, R. W., P.O. Box 54, Takaka.

ZL2AXP-Latta, I. K., 31 Collingwood Street, Palmerston North.

ZL2AXQ-Rowlands, R. E., 55 Fairview Crescent, Kelburn, Wellington 5

ZL2AXR-Ramsay, K. A., 79 Yule Street, Lyall Bay, Wellington 3.

ZL2AXS—Bowden, B. A., 340 Portsmouth Road, Flaxmere,

ZL2AXT-Bremford, J. D., 9 Winston Street, Crofton Downs, Wellington 4.

ZL2AXU-Wharton, J. H., 14 Celia Street, Stratford. ZL2AXV-Huls, n. J. R., 7 Earlston Grove, Lower Hutt. ZL2AXW-

ZL2AXX-Radio Club, New Plymouth Boys' High School, New Plymouth.

ZL2AXY-Devenport, J. A., 17 Sunny Grove, Wainulomata.

ZL2AXZ—Goodfellow, D. R., 13 Miro Road, Raumati. ZL2AYA—Little, A. J., 7 Earl Street, Levin.

ZL2AYB-Fisher, W. G., 40 Beauchamp Street, Karori, Weltington.

ZL2AYC—Richards, H. J., 5 Meachen Crescent, Blenheim. ZL2AYD—Barker, B. A., Cole Street, Dannevirke.

ZL2AYE-Wastney, R. J., 126 The Ridgeway, Stoke, Nelson.

ZL2AYF—Amies, B. W., 8 Ruahine Street, Dannevirke, ZL2AYG—Bowden, R. E., 10 Kennedy Grove, Stokes Valley.

ZL2AYH-Simpson, A. R., 2 Milmoe Street, Hawera. ZL2AYI-Brooks, J. D., 72 Wikiriwhi Crescent, Palmerston

ZL2AYI—Visser, A., 72 McLeod Street, Upper Hutt. ZL2AYK—Kelly, R. W., 406 South Road, Hawera. ZL2AYL—Anderson, R. S., 22 Tilbury Street, Lower Hutt. ZL2AYM—Scholefield, C. O., Spring Grave, R.D. 1,

Wakefield

ZL2AYN-Patchett, J. P., 48 Glen Road, Raumati. ZL2AYO—Hurley, G., 19 Hillcrest Road, Raumati. ZL2AYP—Pretty, R. A., 57 Nevay Road, Miramar, Wellington 3.

ZL2AYQ—Hill, K. J., 27 Welland Place, Wellington 2, ZL2AYR—Kingston, B. L., 91 Inkerman Street, Renwick, Blenheim.

ZL2AYS-Burton, H. C., 34 Stewart Street, Aramoho, Whanganui.

ZL2AYT—Bolton, P. E., 27 Ariki Street, Lower Hutt ZL2AYU—Leask, D. W., 11 Cannon Street, New Plymouth. ZL2AYV-Struthers, G. J., 18 Adams Lane, Blenheim.

ZL2AYW—Thwaites, C. L., 4 Brian Bary Street, Blenheim. ZL2AYX—Pohl, K. P., 58 Norton Park Avenue, Lower Hutt. ZL2AYY—Waghorn, T. J., 82 Chelmsford Street, Ngaio, Wellington 4.

ZL2AYZ—Cousins, W. G., 1 Clinton Way, Wellington 2, ZL2AZA—Borrell, D., 5 Taupo Crescent, Plimmerlon, ZL2AZB—McKay, D. K., 28 Eltham Road, Blenheim, ZL2AZC—Dunn, D. A., 1017a Frederick Street, Hastings. ZL2AZD-

ZL2AZE-Stretch, F., 122 Muller Road, Blenheim.

ZL2AZF-Hodgson, B. J., 89 Miromiro Road, Normandale, Wellington.

ZL2AZG—Dagg, R. L. 51 Sunderland Drive, Flaxmere, Hastings.

ZL2AZH-Noel, L. E. H., Humber Street, Rongotea. ZL2AZI—Boivin, R. A., 6 Puketea Place, Palmerston North. ZL2AZJ—Cole, A. G., 9 Glanmire Road, Newlands,

Wellington 4. ZL2AZK-Lankshear, B. R., 222 Howick Road, Blenheim.

ZL2AZN—Belt, G. J., Victoria Terrace, Ohau. ZL2AZM—Cooper, B. V., 25 Reid Avenue, Hawera. ZL2AZN—Walker, D. G., 16 Stephen Street, Johnsonville,

Wellington 4. ZL2AZO—Oddie, A. D., 5 Greenhill Road, Nelson ZL2AZP—Pinny, H. G., 8 Wakefield Grove, Waikanae. ZL2AZQ—Sutherland, H. B., 96a Princes Drive, Nelson. ZL2AZR—Harris, M. G., 222 Main South Road,

Paraparaumu.

ZL2AZS—Bush, C. J. T., 40 Branch Road, New Plymouth. ZL2AZT—Thomas, G. D., 1 Pringle Street, Taita, Lower Hutt.

ZL2AZU-Potroz, M. L., 77 Browne Street, Waitara. ZL2AZV-Stephen, J. M., 6 Leghorne Lane, Havelock North.

ZL2AZW-Thompson, E. M., 90 Opaki Road, Masterton. ZL2AZX-

ZL2AZY—Owen, S. C., Main Road, Makara. ZL2AZZ—Randall, J. H., 7a Sunny Glen, Waikanae.

ZL2BAA-Hodgson, E. R., 20 Colombo Street, Palmerston North.

ZL2BAB-Hammond, A. J., 2 Doris Street, Richmond. ZL2BAC-Osborne, T. G., 17 Mallard Grove, Churton Park, Welfington 4.

ZL2BAD—Bennett, W. A., Tucker Road, R.D. 1, Gisborne. ZL2BAE—Searing, J. J., 16 Hudson Street, Island Bay, Wellington 2.

ZL2BAF—Donoghue, C. J., 9 Highfield Place, Levin. ZL2BAG—Martin, P. J., Palmer Road, R.D. 29, Kaponga. ZL2BAH-Mace, R. R., Main South Road, R.D. 4, Omata, New Plymouth.

ZL2BAI—Garth, D. J., Birch Hill Station, Motu. ZL2BAJ—Blackley, D., 116 Darlington Road, Miramar, Wellington 3.

ZL2BAK-

ZL2BAL-Laing, A. J., 4/454 Church Street, Palmerston

ZL2BAM-Durdle, B. M., 27a Montana Place, New Plymouth.

ZL2BAN—Davison, G., Forlongs Road, R.D. 7, Feilding, ZL2BAO—Wilson, J. E., 808 Kiwi Street, Hastings, ZL2BAP—McDonald, R. N., 17 Brougham Street, Wellington 1.

ZL2BAQ-Carr, P. H., 17 Timaru Grove, Kelson, Lower Hutt.

ZL2BAR-Allardice, M. H., 49 Raykott Terrace, Wellington 4.

ZL2BAS—Longly, S. McL., 9 Lambton Road, Napier. ZL2BAT—Ramage, B. H., 39 West Street, Greytown. ZL2BAU-Maflett, P. J., 40 Martin Street, Monaco. ZL2BAV-

ZL2BAW-McCarron, J. R., 24 Marewa Road, Hataitai. Wellington 3

ZL2BAX-Stevens, E. F., 60 Kuratatawhiti Street, Greytown, Wairarapa

ZL2BAY—Elvy, S. J., 176a Scott Street, Blenhiem. ZL2BAZ—Forrester, I. J., 3 Duncraig Road, Silverstream, **Upper Hutt**

ZL2BBA-Rundie, W. J., 5 Downsview Place, Pukerua

ZL2BBB-Hearn, W. J., 125 Renown Road, Raumati.

ZL2BBD-Urwin, H. C. R., 14 Brook Street, Nelson. ZL2BBE-

ZL2BBF-Feickert, B., 61 Field Street, Silverstream. ZL2BBG-Withers, F. R., 19 Brassey Road, Wanganui.

- ZL2BBH-Jansen, J. H., 1 Pufflett Road, Havelock North. ZL2BBJ—Corney, A. C., 43 Clutha Avenue, Wellington 4.
- ZL2BBK-
- ZL2BBL-Barwick, L. G. A., 2/14 Rotherham Street, Christchurch 4.
- ZL2BBM—Black, E. G., 119 The Ridgeway Vogeltown, Wellington 2
- ZL2BBN-Finch, B. P., 142 Brooklands Road, New Plymouth.
- ZL2BBO—Lealand, T. P., 16a Hunter Street, Hawera. ZL2BBP—Childs. P. L., 30 Snowdens Crescent, Blenheim. ZL2BBQ—Edgar, M. M., 8A Lemari Avenue, Stoke, Nelson.
- ZL2BBR—1st Greytown Scout Troop R.C. (Trustee: J. Bicknell, Papawai Road, Greytown).
- ZL2BBS—Doig, A. M., 68 Arlie Road, Plimmerton. ZL2BBT—Grove, K. E., 3 Lomond Street, Newlands. Wellington 4.
- ZL2BBU—Pearmain, C. E., 47 Alton Street, Nelson, ZL2BBV—Gorst, T. H., 2 Belmont Street, Havelock North, ZL2BBW—Byles, T. W., 16 Wedgewood Grove, Palmerston North.
- ZL2BBX—Buchanan, T. M., 9 Manchester Street, Petone. ZL2BBY—Bray, H. J. J., 7 Alexandra Road, Wellington 3, ZL2BBZ—Dickson, L. P., Lower Okoki Road, 45 R.D., Urenui.
- ZL2BCA—Scott, D. L., 10 Wairnea Road, Nelson, ZL2BCB—Tunnicliffe, C. G., 128 Vogel Street, Palmerston
- ZL2BCC-Chang, A. G. M., 3 Maple Grove, Maungaraki, Lower Hutt.
- ZL2BCD—Dean, F. R. J., 47 Tweed Road, Papakowhai. ZL2BCE—Race, C. P., 985 Fergusson Drive, Upper Hutt. ZL2BCF—Pratt. D. H., 15 Trigg Streetm Momona,
- Dunedin. ZL2BCG-Jackson, J., 19 Grey Street, Motueka. ZL2BCH-Brayshaw, K. V., 63 Balfour Street. Welington 2.
- ZL2BCI-Brownlie, J. A., Nga-Tuhoe Station, Private Bag 191, Wairoa.
- ZL2BCJ—Hul, S. Y., 7/4 Scarborough Terrace, Mt. Victoria, Wellington 1.
- ZL2BCK—Thorp, G. R., 110 Riverbend Road, Napier-ZL2BCL—Dagg, A. H., 77 Barker Road, Marewa, Napier. ZL2BCM-Hargreaves, D. P., 301 Beresford Street, Hastings.
- ZL2BCN-Littin, P. L., 56 Tanera Crescent, Brooklyn, Wellington 2.
- ZL2BCO—Gooch, G. M., Mangatarata Road, Waipukurau. ZL2BCP-Bromley, J. H., 56 Tui Glen Road, Atawhai, Nelson.
- ZL2BCQ-ZL2BCR-
- ZL2BCS—Hooker, B. C. A., 704a Duke Street, Hastings.
- ZL2BCT-Clements, D. J., Main Road, Greytown.
- ZL2BCU-Stephenson, W. R., Allandale R.D. 1, Greytown. ZL2BCV-Williams, C. W., 151 Waihi Road, Hawera.
- ZL2BCW-Kerr, M. J. B., 50a Chelmsford Street, Wellington 4.
- ZL2BCX—Luxford, J. W., R.D. 9, Feilding
- ZL2BCY-Wallen, E. J., 66 Wildish Street, Gisborne. ZL2BCZ—Balley, I. K., 21 Monrad Street, Palmerston. North.
- ZL2BDA-Angus, R. H. R., 89 Taradale Road, Napier. ZL2BDB-Herbert, J. W., 2 Rose Flats, 17 Totara Street, Upper Hutt.
- ZL2BDC—Smith, A. A., 18 Nikau Street, Wanganui. ZL2BDD-Harris, R. S., Mt. Adde, R.D. 4, Blenheim.
- ZL2BDE—Gisborne Boys' High School Radio Club (Trustee: W. G. Renner), Roebuck Road, Gisborne
- ZL2BDF-Garratt, H., 172 Knights Road, Lower Hutt. ZL2BDG-Head, B. P., 80 Somerset Road, Wanganui. ZL2BDH-Hulse, J. C., Pughs Road, R.D., Richmond.

- ZL2BDI-Grenfell, N. W., 112 Fitzherbert Street, Featherston.
- ZL2BDJ-Sutherland, G. D. K., 40 Budge Street, Blenheim.
- ZL2BDM—Mote, B. J., 55 Burness Road, Greenmeadows.
- ZL2BDN-New Plymouth Branch NZART (Trustee: J. Pinhey), Marsland Hill, New Plymouth.
- ZL2BDO-Inglewood High School Radio Club, (Trustee:
- F. H. Cramer), 34 James Street, Inglewood. ZL2BDP—Hutchens, W. R., 87 Matai Road, Raumati South
- ZL2BDQ-Johnson, W. J., 363 Westminster Avenue. Napier.
- ZL2BDR—Greig, N. A., 145 Normandale Road, Lower Hutt.
- ZL2BDS-Corbett, A. A., 587 Featherston Street, Palmerston North.
- ZL2BDT-Robotham, R. W., 30 East Street, Palmerston. North.
- ZL2BDU-Pickett, B. T., 4 Harrow Place, Palmerston, North.
- ZL2BDV-Inge, S. R., 9 High Street, Island Bay, Wellington 2.
- ZL2BDW-Smith, G. B., 1299 Fergusson Drive, Upper Hutt.
- ZL2BDX-Hedderick, R. A. M., 6 Karen Crescent, Hamilton.
- ZL2BDY—Tait, M. A., 6A Miro Street, Masterton. ZL2BDZ—Johnson G. V., Oete Road, Kohinui, R.D. 2, Pahiatua.
- ZL2BEA—Oliver, R. D., 109 Wise Street, Wainulomata. ZL2BEB—Harnett, R. M. T., 53/24 Rolleston Street,
- Newtown, Wellington.
 ZL2BEC—Hislop, R. G., 44 Donnelley Drive, Wainuiomata.
 ZL2BED—Dunkley, G. J., 53c Chatsworth Road, Silverstream.
- ZL2BEE-Williams, D., 12 Kippenberger Street, Masterton. ZL2BEF-London, P. R., 24 Golf Road, Manor Park, Upper Hutt.
- ZL2BEG—Croop, B. A., 7 Blue Mountains Road. Silverstream.
- ZL2BEH-Trye, K. G., 20 Lewisham Street, Howick. ZL2BEI-Hastings Branch NZART (Trustee: A. J. H.
- Gilchrist), 309-311 Lyndon Road East, Hastings. ZL2BEJ-Squire, D. N., White Rose Dairy, Main Road, Okato.
- ZL2BEK—Campbell, L. T., 14 Leighton Avenue, Lower Hutt.
- ZL2BEL-Hoogeveen, W., 35 Ramanui Avenue, Hawera. ZL2BEM—Mackrell, T. F., Mata School, P.B. Tokomaru Bay
- ZL2BEN—Fretter, M. S. E., 144 Mount View Road. Wanganui.
- ZL2BEO—Colley, M. J., 31 Croucher Street, Richmond. ZL2BEP—Whiteford, P. C., 54 Aurora Terrace, Wellington 1.
- ZL2BEQ-Penberthy, P. M., 5 R.D., Rangitiki Line, Newbury, Palmerston North.
- ZL2BER—Crompton, R. P. K., Reinga Road, Kerikeri. ZL2BES—Catt, D. V., 16 Wyndham Street, Carterton. ZL2BET—Toomath, B. E., 24 Nile Street, Lower Hutt.
- ZL2BEU-ZL2BEV-Vondruska, A. J. J. M., 14 Awarua Street, Ngaio.
- Wellington 4. ZL2BEW-Brownie, R. S., 34 Shakespeare Avenue, Upper
- ZL2BEX—Ramsay, D. A., Fox Hill, R.D. 1, Wakefield. ZL2BEY—Wilkins, A. G. J., 138 Ironside Road,
- Wellington 4.
- ZL2BEZ-Clark, A. R., 22 Honry Street, Blenheim.

ZL2BFA

ZL2BFA-Parkinson, R. M. (Mrs), 38 Sovereign Street. Nelson

ZL2BFB-Wilde, R. H., 179 Cook Street, Palmerston North.

ZL2BFC-Cattermole, B. L., 7a Cheyne Walk, Newlands, Wellington 4.

ZL2BFD-Walshe, R. J., 42 Wainuiomata Road, Wainuiomata.

ZL2BFE—Edgar, F., North Street, Motueka. ZL2BFF—Cummerfield, G. C., 3 Croxley Place, Palmerston North.

ZL2BFG—Webley, H. R., 32e Mission Street, Lower Hutt. ZL2BFH—Holt, D., 117 Iranui Road, Gisborne.

ZL2BFI—Young, D. E., 97 Rosetta Road, Raumati South. ZL2BFJ—Ireland, P. J., 45 George Street, Levin. ZL2BFK—Potroz, K. N., 206 Mayfair Avenue, Hastings. ZL2BFL-

ZL2BFM-Thomas, K. F., 24 Upjohn Street, New **Plymouth**

ZL2BFN-Crabtree, J. A., 2 Nagpur Terrace, Khandallah, Wellington 4.

ZL2BFO-

ZL2BFP-Kinge, G. H., 62 Oak Street, Gisborne.

ZL2BFO-

ZL2BFR-Wiggins, H. N., 23 Slacks Road, Palmerston North.

ZL2BFS-Rushton, G. A. W., 2/57 Rajkot Terrace, Broadmeadows, Wellington 4.

ZL2BFT—Cavanagh, B. J., 67 Alexander Avenue, Napier. ZL2BFU—Lacey, G., 27 Bledisloe Street, Masterton. ZL2BFV—Molver, W. C., 22a Ballance Street, New

Plymouth.

ZL2BFW-Peters, R. E. F., 50 Arapiki Road, Stoke, Nelson. ZL2BFX-

ZL2BFY-Lambert, R., 12 Betts Avenue, Masterton. ZL2BFZ-Thum, F. A., 107 Houghton Bay Road,

Wellington 3. ZL2BGA—Grainger, K. B., 7 Tudor Court, Paraparaumu Beach.

ZL2BGB—Barnett, C. J., 169 Derwent Street, Island Bay, Wellington 2.

ZL2BGC-

ZL2BGD-York, R. W. F., 41a Nelson Street, Blenheim.

ZL2BGE—Boyle, L., 37 Lewis Avenue, Wanganui, ZL2BGF—Toms, R. V., 45 Moncur Drive, Rotorua, ZL2BGG—Collins, A. P. B., 517 Fitzroy Avenue, Hastings.

ZL2BGH-Bridge, G. H., 38 Ngatoto Street, Ngaio, Wellington 4.

ZL2BGI-Pycroft, W. J., 12 Ellesmere Avenue, Miramar, Wellington 3.

ZL2BGJ-Jonas, G. M., C/- Wellington Radio, Karori, Wellington.

ZL28GK—England, V. I. (Mrs), 29 Horokiwi Road, Newlands, Wellington 4.

ZL2BGL-Conway, I. W., Caseys Road, Blind River, Seddon.

ZL2BGM—Munro, P. J., 1/80 Henakura Avanue Taupo. ZL2BGN—Eccles, K. R., 3 Rice Crescent, Newlands, Wellington 4.

ZL2BGO—Grove, P. E., 38 Tilbury Street, Lower Hutt. ZL2BGP—Griffith, K. C., 235 Karori Road, Wellington 5. ZL2BGQ-Buckton, G. S., 93 Middle Renwick Road, Blenheim.

ZL2BGR-McEwen, E. J., 17 Intermediate Street, Masterton.

ZL2BGS-Benson, C. C., 8a Clinton Way, Mornington, Wellington 2.

ZL28GT—Bennett, P., 19 Wainui Street, Nelson. ZL28GU—Clemens, W. E., 5 Lowry Street, Richmond. ZL2BGV-Simpson, W. N., 23 High Street North, Motueka. ZL2BGW-Kisby, M., 33 Woodhouse Avenue,

Wellington 5 ZL2BGX-Smith, W. H., 65Sefton Street, Wadestown, Wellington 1.

ZL2BGY-Bennett, A. J., 26 Prospect Terrace, Johnsonville, Wellington.

ZL2BGZ—McLean, G. M., 24 Buick Street, Petone. ZL2BHA—Squardron 27 Blenheim A.T.C., (Trustee: F. Stretch, Omaka Aerdrome, Blenheim).

ZL2BHS—Kitching, L. A., 9 Isel Place, Stoke, Nelson.
ZL2BHC—Wilcox, C., 26 Te Miti Street, Paekakariki.
ZL2BHD—Bateman, G. W., 54 Murray Avenue, Hawera.
ZL2BHE—Walker, D. C., 24 Victoria Road, New Plymouth. ZL2BHF-Meachen, J. A., 31 Perry Street, Silverstream,

Upper Hutt.

ZL2BHG—Lawson, J. R., 144 Hospital Road, Blenheim. ZL2BHH—Burnham, E. D., 15 Tawa Street, Levin. ZL2BHI—Orams, K. J., 13 Eagle Street, Wellington 5. ZL2BHJ-

ZL2BHK-Johnson, D. H., 85 Holdsworth Avenue, Trentham.

ZL2BHL—Fowler, R. L., Main Road, R.D. 3, Riwaka.
ZL2BHM—Matthews, E. F., Ngamatapouri, R.D. Waitotara.
ZL2BHN—Allardyce, J. P. G., St. Patrick's College, Evans
Bay Parade, Kilbirnie, Wellington 3,
ZL2BHO—Henderson, R. L., Waiohiki.
ZL2BHP—Walker, J., 4 St. Ronans Avenue, Lower Hutt.
ZL2BHQ—Miller, A., 27 Fairfield Avenue, Lower Hutt.

ZL2BHR—Inwood, R. G., 150 High Street, Bulls. ZL2BHS—Bowden, C. J., 300 Rintoul Street, Berhampore, Wellington 2.

ZL2BHT—McLaren, D. M., 37 Nile Street, Nelson. ZL2BHU—Reddan, J. F., 5 Edinburgh Crescent Blenheim. ZL2BHV—Kilgour, A. D., 12 Miriona Grove, Paekakariki.

ZL2BHW-Quayle, R. P., 7 Te Pari Pari Road, Pukerua Bay.

ZL2BHX—Vernon, T. J. E., 1 Whio Street, Taihape, ZL2BHY—Johnson, B. L., 25 John Street, Trentham, Upper Hutt

ZL2BHZ-Searle, P. M., 58 Russell Street, Gisborne. ZL2BIA-

ZL2BIB-Meikle, D. A., 25 Hudson Avenue, Bulls. ZL2BIC-MacLeod, D., 18 Manuwai Drive, Matua, Tauranga.

ZL2BID-Gordon, A. F. W., 64 King Street, Taradale, Napier.

ZL2BIE-Phillips, E. L., 52 Stephenson Street, Blenheim. ZL2BIF-McKain, S. J., 1354 Main North Road, R.D. 42, Waitara.

ZL2BIG—Bingham, W. J., Elizbeth Street, Feilding. ZL2BIH-Ward, A. L., C/- 3 Severn Terrace, Palmerston North.

ZL2BII—Wincer, R. A., Ronga Valley, R.D. 1, Rai Valley, ZL2BII—Pugh, A. G. E., 6 Smith Street, Paekakariki. ZL2BIK-Pearce, W. M., 117a Hospital Road, Blenheim. ZL2BIL-Morris, R. K., 5 Lilac Lane, Maungaraki, Lower

ZL2BIM-Green, A. K., 71 Frederick Street, Hillsborough, Auckland 4

ZL2BIN-Fletcher, G. L., 9 Jackson Street, Marybank, Nelson.

ZL2BIO—Barnes, D. J., 16 Jackson Street, Nelson. ZL2BIP—Staples, P. 1 Sturdee Street, Wairoa. ZL2BIQ—Thorner, G. S., 3 Mars Avenue, Sandringham, Auckland 3.

ZL2BIR—Kidd, P. R., 70 McLeod Street, Upper Hutt. ZL2BIS—Porter, I. G., 14 Avonside Drive, Christchurch 1.

ZL2BIT—Central Insitute of Technology Radio Club, (Trustee: H. J. Maxwell), Electronics Department, Heretaunga.

ZL2BtU—McCaw, J. I., 3 Thornley Street, Titahi Bay, ZL2BtV—Kendali, G. N., Ohiwa Harbour Road, R.D. 3, Opotiki.

ZL2BIW—Rusbatch, G., 116 Lyndhurst Road, Hastings. ZL2BIX-Archer, D. R., Main Highway, R.D. 9, Palmerston North.

ZL2BIY-Galyer, R. A., 906 Albert Street, Hastings. ZL2BIZ-Stephenson, W. V., 460 Te Moana Road, Waikanae.

ZL2BJA—Salmen, A. H., 8 Mudie Street, Lower Hutt. ZL2BJB—Horne, D. A., 116 Waterloo Road, Lower Hutt. ZL2BJC-Hill, I. McK. G., 29 Holdsworth Avenue, Trentham.

ZL2BJD—Robson, E. H., 64 Alexander Avenue, Napier. ZL2BJE—Meek, S. M., C/- Chatham Island Radio. Chatham Islands.

ZL2BJF—Beaumont, A. P., 39 Peck Street, Lower Hutt. ZL2BJG—McGregor, B. A., 10 Saville Row, Johnsonville, Wellington 4.

ZL2BJH--Woodward, C. A., 37 Cockayne Road, Khandallah, Wellington 4.

ZL2BJI—Robinson, D. W., 88 Manawapou Road, Hawera ZL2BJJ—Coss, R. J., 17 Margaret Street, Palmerston

ZL28JK-Lindsay, R. H., 32 Waiti Crescent, Lower Hutt. ZL2BJL-French, P. W., 77a Pahiatua Street, Palmerston North.

ZL2BJM—Dewick, J. A., 98 Riverbend Road, Napier. ZL2BJN—Cooper, S. D., 225 St. Aubyn Street, New Plymouth.

ZL28JO-Cathcart, S. J., 17 Westhaven Grove, Palmerston North.

ZL2BJP--De Grey, P. J., 156 Brooklands Road, New Plymouth.

ZL2BJQ-Guest, R., 15 Webber Street, Paraparumu Beach.

ZL2BJR--Wilkinson, K. S., C/- W. St. J. Reed, 11 Wood Street, Upper Hutt.

ZL2BJS—Jamieson, D. R., 2 Waipuná Street, Blenheim. ZL2BJT—Navy League Sea Cadels Radio Club, (Trustee: R. J. Hitler), MV Tutira, 4 Guildford Street, Levin.

ZL2BJU-Thompson, J. J., 15 Golf Road, Paraparaumu Beach. ZL2BJV-Menzies, K. J., Main Road, Grovetown,

Blenheim. ZL2BJW-Halligan, G., 23 Heathcote Place, Palmerston

North. ZL2BJX-Thompson, J. S., 124 Manuka Street, Stokes

Valley ZL2BJY-

ZL2BJZ-Murdock, H. D. A., 15 Arawa Street, Raumati Beach

ZL2BKA-Dale, J. S. A., 16 Kiwi Road, Devonport, Auckland 9.

ZL2BKB-ZL2BKC-

ZL2BKD-Barriball, E. C., 66 Bell Street, Linden. ZL2BKE—Glassey, E. C., 422 Jackson Street, Petone. ZL2BKF—Tompkins, B. H., Upper Wairau Road, R.D. 4. New Plymouth.

ZL2BKG—Thorpe, R., 10 Harewood Grove, Silverstream, ZL2BKH—Wharton, C. D., Tinui School House, Blackhill Road, Tinui.

ZL2BKI—Hurst, J. J., 154 Kahu Road, Paremata. ZL2BKJ—Dalcom, B. P. W., 21 Gebbie Road, Taradale,

Napier.

ZL2BKK—Powell, D. B., 34 Dundee Street, Invercargill. ZL2BKL—Allen, B. W., Hursthouse Road, R.D. 2, Patea. ZL2BKM—Meek, A. P., 41 Huntleigh Park Way, Ngaio, Wellington 4.

ZL2BKN-Burling, B. N. G., 62 Hospital Road, P.O. Box 4022, Napier.

ZL2BKO-Christensen, K. D., 4/159 Férguson Street, Palmerston North.

ZL2BKP--MacDonald, J. V., 4/34 Allen Road, Raumati Beach.

ZL2BKQ-Hardcastle, J. L., 2/11 Rotomahana Terrace, Remuera, Auckland 5.

ZL2BKR—Truman, H. J., 21 Rintoul Grove, Stokes Valley. ZL2BKS—Brown, K. J., 2/8 Motueka Street, Ngaio, Wellington 4.

ZL2BKT-Pike, H. M. R., C/- Mr A. Neilson, 13 Matene Street, Otaki.

ZL2BKU—Burton, F. S., 9 Broadhead Avenue, Wanganui.

ZL2BKV—Catt, A. C., 14 Mary Street, Masterton. ZL2BKW-Harrowfield, T. R., 22 Buick Crescent, Palmerston North.

ZL2BKX-Nightingale, P. H., 35 Shakespeare Avenue, Upper Hutt.

ZL2BKY—Cox. K. L., 37 Cuba Street, Petone. ZL2BKZ—Rodrigues, J. F. C., 115 Brooklands Road, New Piymouth

ZL2BLA—Hyde, G. D., 130 The Parade, Paekakariki. ZL2BLB—Robertson, L. J., 15a Bayswater Place. Newlands, Wellington 4.

ZL2BLC-Ottaway, J. T. J., 32 Owen Street, Belmont, Lower Hutt.

ZL2BLD—Turner, B. W., Cadman Road, Dannervirke. ZL2BLE—Dew, A. W., 54 Solway Street, Masterton. ZL2BLF—Kooy, W., 39 Waiho Terrace, Porirua.

ZL2BLG-Patterson, R. A., 338 High Street, Dannevirke. ZL2BLH-Ellison, D. M., Highway 2, Opapa, Hawkes Bay. ZL2BLI—Inkster, D. J., 12 Thames Street, Ohakune. ZL2BLJ—Hodgkinson, J., Medway Street, Rongatea.

ZL2BLK-

ZL2BLL-Shaw, V.S., 13a Weathers Place, Taradale,

ZL2BLM-Rait, N. A. H., 2 Revans Street, Featherston. ZL2BLN-Scarrott, P. E., Buchanan Road, Bay View, Hawkes Bay.

ZL2BLO-Moore, P. C., 8 Maxwell Street, Napier. ZL2BLP-Rogers, G. K., 7 Barclay Street, Newlands, Wellington 4.

ZL2BLQ—Mangin, S. G., 33 West Street, Greytown.
ZL2BLR—Withey, R. W., 5 Manawapou Road, Hawera.
ZL2BLS—Lavery, M. W., 16 Morrissey Street, Hawera.
ZL2BLT—Bourke, R. H., 179 Fairfield Road, Hawera.
ZL2BLU—Smith, W. B., 12 Clifford Street, Hawera.
ZL2BLV—Christian, J. M., 19 Homelands Avenue.

Feilding.

ZL2BLW—Batt, L. A., 33 Waterhouse Road, Masterton. ZL2BLX-McLauchlan, A. C. L., 122 Redwood Avenue,

ZL2BLY-

ZL2BLZ—Soma, B., 52 Gloaming Hill Road, Titahi Bay. ZL2BMA-Calvert, R. H. G., Fabians Road, R.D. 1, Greytown.

ZL2BMB-Walker, M. K. R., 58 Ernest Street, Ranui Heights, Porirua.

ZL2BMC—Childs, J. R., 5 Savage Crescent, Waipukurau. ZL2BMD—Pearson, R. K., 22 Parakai Street, Paraparaumu. ZL2BME—Clarke, G. R., 33 Tirangi Road, Wellington 3, P.O Box 14-175, Kilbirnie.

7t 2BMF-

ZL2BMG—Duntop, J. A., 23 Tarata Street, Wanganui, ZL2BMH—Irving, J. E., C/- Irvings Dairy, Bridge Street. Bulls,

ZL2BMI-Sears, E. J., Ferry Road, Spring Creek, Havelock.

ZL2BMJ-Railton-Jacks, P. N., 31 Seaforth Avenue, Palmerston North.

ZL2BMK-Bowman, R. F., 146 Conclusion Street, Ascot Park, Porirua.

ZL2BML-McCormick, C. D. K., 13 Main Road, Westshore, Napier.

ZL2BMM—Pickering, L. D., 8 Andrew Street, Blenheim. ZL2BMN-Irving, J. E., 30 Achilles Street, Stratford.

ZL2BMO-Garrod, J., 8 Alfred Sheat Street, Richmond, Nelson.

ZL2BMP-Barnes, T. H., 25 Maymorn Road, Te Marua, Upper Hutt.

ZL2BMQ-Mouat, W. A., C/- Pukeroa Home, P.B., Waipukurau.

ZL2BMR—Vining, L. G., 49 Havelock Avenue, Palmerston

ZL2BMS—Moore, M. B., 65f Whites Line East, Lower Hutt. ZL28MT-Harris, G. F., 15 Montana Road, Upper Hutt.

ZL2BMU

ZL2BMU-Cutler, A. D., 41 Rodney Street, Howick, Auckland.

ZL2BMV—Hathaway, R. L. S., 18 Adams Lane, Blenheim. ZL2BMW—Foster, P. K., 76 Sefton Street, Wellington 1. ZL2BMX—McIver, D., 65 Doraito Road, New Plymouth. ZL2BMY—Meek, E., 16 Grant Street, Dannevirke.

ZL2BMZ-Murray, P. L., 43 Lorne Crescent, Flaxmere, Hastings. ZL2BNA—Hitchman, G. J., Feilding Road, Feilding.

ZL2BNB-Watker, R. A., 4 Westerham Place, Nelson. ZL2BNC-Cook, R. A., 4 Malda Grove, Khandallah, Wellington 4.

ZL2BND-Smith, T. W., 1 Antico Street, Melrose, Wellington 3.

ZL2BNE—Marr, N. C., 22 Dillon Street, Blenheim. ZL2BNF—Grant, L. G., 34 Ferguson Street, Bay View.

ZL2BNG—Gibellint, J. A., 71 Point Road, Monaco, Nelson, ZL2BNH—Bastin, F. T., 103 Gascoigne Street, Hastings, ZL2BNI—Gardner, N. N., 158 Nile Street East, Nelson. ZL2BNJ—French, M. J., 6 Islington Street, Trentham. ZL2BNK—Moore, C. J., HMNZS Tamaki, Vauxhall Road,

Devonport, Auckland 9. ZL2BNL—Cook, M. J., 111 Riwai Street, Paraparaumu. ZL2BNM—McKay, P. G., Rowley Crescent, Grovetown,

Blenheim.

ZL2BNN-Robinson, H. T., 18 Collingwood Street, Lower Hutt.

ZL2BNO—Taylor, R. D., 21 McLaren Street, Mangaroa, Upper Hutt.

ZL2BNP—Johnson, P. G., 6 Huia Street, Pahiatua. ZL2BNQ—Claydon, K. W., 183 Tukapa Street, New

Plymouth.

ZL2BNR—Bos, F., 34 Albert Street, Pahíatua. ZL2BNS—Townshend, A. P., 35a Marybank Road, Nelson. ZL2BNT—Hudson, G. J., 5 Konini Street, Masterton. ZL2BNU-Ryba, K. A., 65 Te Awe Awe Street, Palmerston North.

ZL2BNV—Lowe, P. A., 47a Austin Street, Mt. Victoria, Wellington 1.

ZL2BNW-Walbridge, S. W., 62 Kings Crescent, Lower Hutt.

ZL2BNX—Isherwood, K., 22 Elm Street, Gisborne, ZL2BNY—Harrison, W. F., 21 Churchill Avenue, Wairoa. ZL2BNZ-Trubshaw, J. R., Main Highway, R.D. 4,

Palmerston North. ZL2BOA—Thorp, M. D., 110 Riverbend Road, Napier, ZL2BOB—Priest, B. W., 21 Winchester Street, Palmerston North.

ZL2BOC—Longburn Adventist College Radio Club, P.O. Box 1, Longburn.

ZL2BOD—Gilchrist, L. J. (Mrs). 20 Vogel Street, Hawera. ZL2BOE—Large, R. A., 44 Donnelley Drive, Wainulomata. ZL2BOF—Nixon, S. M., 131a Motuhara Road, Plimmerton. Wellington.

ZL2BOG—Joyce, G. T., Valley Road, Gisborne, ZL2BOH—Hadfield, L. C., 52 Percy Street, Blenheim, ZL2BOI—Moretti, G. S., 12 Milverton Avenue, Palmerston North

ZL2BOJ-Harris, R. E., 14 Hamua Place, Waitara. ZL2BOK-

ZL2BOL-Biggins, B. F., 70 Lohia Street, Khandallah, Wellington 4

ZL2BOM—Phillips, O. K., 118 Long Melford Road, Palmerston North.

ZL2BON—Farley, R. G., Yacht *Phoebetria*, Havelock, ZL2BOO—Hope, M. R., The Teme, R.D. 6, Blenheim. ZL2BOP-Bradley, R. L., 7 Chichester Street, Gisborne. ZL2BOQ-Groat, J. E., 586 Ferguson Street, Palmerston

North. ZL2BOR-Smith, J. W., 68 Golders Road, Upper Hutt.

ZL2BOS-Grant, H. H., 15 Grove Street, Nelson. ZL2BOT-Kennedy, S. R., 52 Mangati Road, Bell Block, New Plymouth.

ZL2BOU-Carter, A. F., 13 Todd Place, Richmond, Nelson.

ZL2BOV—Griffiths, B. A., Main North Road, Urenui. ZL2BOW—Howan, A. R., 59 Houghton Bay Road.

Houghton Valley, Wellington 3.

ZL2BOX—Holwerda, R. R., 66 Kiwiwai Road, Paramata.

ZL2BOY—Clarke, R. G., 3 Whitby Place, New Plymoutn.

ZL2BOZ—Flowers, F. J., Cemetery Road, Dannevirke.

ZL2BPA—Scutts, 114 Maupuia Road, Miramar, Wellington 3.

ZL2BPB-Sandilands, L. C., 30 Weir Terrace, Waiouru. ZL2BPC—Hayward, E. V., 155 Washington Road, Nelson, ZL2BPD—Donovan, P. E., 24 Kano Street, Karori, Wellington 5.

ZL2BPE-Vennix, J. H., 112 Brougham Street, Wellington 1.

ZL2BPF-Cotter, M. C., 24 Rodney Street, Woburn, Lower Hutt.

ZL2BPG-Harding, B. P., 55 Hillside Drive, Maoribank, Upper Hutt.

ZL2BPH-Simmonds, J. H., Kahutara Road, R.D. 1, Featherston.

ZL2BPI-Watt, I. D., 9 Edelweiss Grove, Timberlea, Upper

ZL2BPJ—Millett, J. J. M., 24 Kiwi Street, Masterton. ZL2BPK—Johns, B. K., 83 Brougham Street, Mt. Victoria, Wellington 1.

ZL2BPL-Kerslake, M. G. R., 11 Chilton Grove, Lower Hutt.

ZL2BPM--McIntyre, D. R., Masterton Road, R.D. 4, Pahiatua.

ZL2BPN--Thompson, I., 8 Dampier Avenue, Palmerston North.

ZL2BPO-Mainwaring, P., 7 Chichester Drive, Silverstream, Upper Hutt.

ZL2BPP-South Wairarapa Amateur Radio Club, P.O. Box 163. Featherston.

ZL2BPQ-ZL2BPR-

ZL2BPS-Stewart, P. J., Akatarawa Road, R.D. 2, Upper Hutt.

ZL2BPT~ ZL28PU-ZL28PV-ZL28PW-

ZL2BPX-Thompson S. A., 8 Dampier Avenue. Palmerston North.

ZL2BPY-Crook, D. J., 11 Forward Street, Greenmeadows, Napier.

ZL2BPZ-Trayes, D. J., Beach Road, Ahipara, Northland.

ZL2N

ZL2TAA-Stanners, J. L., 81 Eden Street, Island Bay, Wellington 2.

ZL2TAB—Hinton-Cooper, K. E., 49 Titania Street, Stratford.

ZL2TAC-

ZL2TAD—Mallinson, E. J., 64 Seymour Street, Blenheim. ZL2TAE—Cooney, G. P. 2/240 Fergusson Drive. Silverstream. ZL2TAF-

ZL2TAG-Bennett, A. G., 33 Ngatitoa Street, Tawa. ZL2TAH-Pope, H. N., 171 Howick Road, Blenheim. ZL2TAI-Stannard, S. J., 25a Colchester Street, Newlands,

Wellington 4. ZL2TAJ-Squires, D. R., 6 Waipounamu Drive, Lower

Hutt. ZL2TAK-Ingham, C. G., 138 Dowse Drive, Maungaraki, Lower Hutt.

ZL2TAL-Gyde, R. V., 148a Pioneer Road, New Plymouth. ZL2TAM—Cooper, I. L., 116 Rutene Road, Gisborne. ZL2TAN—Fairbairn, R., 49 Salisbury Road, Richmond.

ZL2TAO-Oldham, I. D., 31 Harbour View Road, Lower Hutt.

- ZL2TAP-Baker, W. R. E., 118 Taylor Terrace, Tawa. ZL2TAQ—Hadfield, C. I., 42 Benmore Avenue, Palmerston.
- ZL2TAR—Ingham, J. D., 138 Dowse Drive, Maungaraki, Lower Hutt.
- ZL2TAS-Marsh, J. K., Main Road, Oakura, New
- Plymouth, ZL2TAT—Smith, K. R., 12 Marewa Road, Hataitai, Wellington.
- ZL2TAU-Wilson, S. J., 77 Wadestown Road Wellington 1
- ZL2TAV-Bodell, E. W., 42 Ormond Street, Woodville. ZL2TAW-
- ZL2TAX—Barnes, E. J., 54 Brooker Grove, Newlands, Wellington 4.
- ZL2TAY-Crook, R. J., 23 Palanga Crescent, Thorndon, Wellington.
- ZL2TAZ-
- ZL2TBA-Higgott, L. G., Main Road, Wharekaho Beach, Whitianga
- ZL2TBB—Drew, A. L. B., 16 Tuatoru Street, Eastbourne. ZL2TBC-
- ZL2TBD—Owen, N. A., 45d Oxford Street, Tawa.
 ZL2TBE—Hood, S. W., 122 Duncan Street, Wanganui.
 ZL2TBF—Carnley, L. J., 14 Buckley Road, Wellington 3.
 ZL2TBG—Snelson, K. H., 12 Staithes Drive North, Whitby.
- Porirua.
- ZL2TRH—Henderson, G. J., 30 Wisteria Grove, Lower Hutt.
- ZL2TBI-Kuiti, N. M., 68 Milton Terrace, Picton. ZL2TBJ-
- ZL2TBK—Love, G. A., 2 Karaka Crescent, Levin. ZL2TBL—Lott, A. G., 11 Poynter Street, Blenheim. ZL2TBM—Bradley, G. S., 125 Tasman Street.
- Wellington 2.
- ZL2TBN—Shennan, B. V., 31 Rossiter Avenue, Lower Hutt.
- ZL2TBO—Cameron, C. R., 21 Woodman Drive, Linden, ZL2TBP—Norgrove, A. E., C/- BCNZ Receiving Station Quartz Hill, Makara, Private Bag, Karori,
- Wellington 5.
 ZL2TBO-Wills, R. E., 12d City View Grove, Lower Hutt. ZL2TBR-
- ZL2TBS—Ward, L. A., 11 Pinny Avenue, Lower Hutt. ZL2TBT—Marfeli, E. M., 1082 Fergusson Drive. Upper
- ZL2TBU-Stevens, J. E. R., 48 Chesterton Street.
- Johnsonville, Wellington 4, ZL2TBV—Cocker, G. D., 8 Aquarius Drive, Rotorua. ZL2TBW-
- ZL2TBX-
- ZL2TBY-Annand, R. C., 67 Joll Road, Havelock North. ZL2TBZ-Milsom, M. A., 79 Barnard Street, Wadestown, Wellington.
- ZL2TCA-Poulsen, J. M., 12 Campbell Street, Fielding. ZL2TCB-Dobbs, A. J., 14 Oaklands Grove, Upper Hutt.
- ZL2TCC-Brown, G. R., 28 John Street, Stokes Valley.
- ZL2TCD-Phillips, A. R. J., Mount St. Mary Seminary, Church Road, Napier,
- ZL2TCE-Taylor, I. L., 1 High Road, Hawera.
- ZL2TCF-Clifford, 1. R., 9 Falcon Street, Porirua.
- ZL2TCG-Stipkovits, S., 76 View Road, Houghton Bay, Wellington 3.
- ZL2TCH-Coombridge, J. P., Marchant Road, Kaitoke. ZL2TCI-Calhaem, I. M., 19 Solander Place, Whitby.
- Paremata. ZL2TCJ-Preston, R. T., 16b Witako Street, Lower Hutt. ZL2TCK-Kerdemelidis, G., 70 Chelsea Street,
- Christchurch 6. ZL2TCL-Lacey, J. D., 39 Poto Road, Lower Hutt.
- ZL2TCM-Downs, F. W. P., 58a Chatsworth Road, Silverstream.
- ZL2TCN-Barnhill, J. D., 26 Garfield Street, Brooklyn, Wellington 2.

- ZL2TCO-Denton, S. B., 18 Roto Street, Tahunanui, Nelson.
- ZL2TCP-Foley, M. J., Mt. Saint Mary's Seminary, Church Road, Taradale.
- ZL2TCQ-
- ZL2TCR-
- ZL2TCS—Aston, A. G., 91 Hair Street, Wainuiomata. ZL2TCT—McFarlane, P. H., 4 Lambley Road, Titahi Bay. Wellington.
- ZL2TCU-Milne, R. J., Chemistry Division, DSIR, Private Bag, Petone.
- ZL2TCV—Sainsbury, R. P., 34 York Street, Masterton.
- ZL2TCW—Wheatley, M. J., 92 Oxford Street, Ashhurst, ZL2TCX—James, B. T., 1/413a Main Road, Stoke, Nelson, ZL2TCY—Ball, P. S., 15 Padnell Crescent, Newlands,
- Wellington.
- ZL2TCZ—Strafford High School Radio Club, (Trustee: P. Greenwood), P.O. Box 204, Strafford, ZL2TDA—Dawson, D. J., 35 McLean Street, Woodville.
- ZL2TDB-Gloag, G. F., 39 Ross Street, Woodville
- ZL2TDC-Crook, D. J., 11 Forward Street, Greenmeadows, Napier
- ZL2TDD—Clarke, T. R., 192 Helston Road, Paparangi, Wellington 4.
- ZL2TDE—Apperley, E. S., 27 Torridon Road, Miramar, Wellington 3.
- ZL2TDF—Dicker, J. L., Waimea West, R.D., Brightwater, Nelson.
- ZL2TDG—Gill, J. I., 16 Greer Crescent, Tawa, ZL2TDH—Cathro, D. G., 9a Motueka Street, Ngaio.
- Wellington 4.
- ZL2TDI-Doney, P. A., 7 York Street, Gonville Junction, Wanganui. ZL2TDJ-
- ZL2TDK-Bibby, G. S., 9 Fromont Street, Wanganui East, ZL2TDL-
- ZL2TDM-ZL2TDN—Therkleson, G. L., 25 Tajeri Crescent, Kelson,
- Lower Hutt. ZL2TDO—Hyde, P. R., 26 Randwick Crescent, Moera.
- Lower Hutt. ZL2TDP—Charles, C. F., 87 Pasedena Crescent, Totara
- Park, Upper Hutt. ZL2TDQ-
- ZL2TDR-Gilchrist, H. T., 261 Te Moana Road, Waikanae. ZL2TDS—Boyd, C. B., 39 Cuba Street, Palmerston North. ZL2TDT-
- ZL2TDU-Walker, G. J., 4/35 Green Street, Tahunanui, Nelson
- ZL2TDV-Grover, D., 3 Kanpur Road, Broadmeadows, Wellington 4.
- ZL2TDW-Devenport, B., C/- Coventry Station, Private Bag, Muriwai, Gisborne.
- ZL2TDX—Simmons, P. R., Blenheim Fire Station, P.Q. 8ox 196, Blenheim.
- ZL2TDY—Richards, J. H., 633 High Street, Lower Hutt. ZL2TDZ—Morrison, C. M. K., 63a Church Street, Devonport, Auckland 9.
- ZL2TFB—Cox, R. J. C., 20 Storey Avenue, Hamilton, ZL2TFC-Carruthers, B. M., 940 Mangorei Road, New Plymouth.
- ZL2TFD—Peters, J. M., 2 Vogel Place, Napier. ZL2TFE-Mitchell, C. A. BCNZ Home, Titahi Bay.
 - ZL2TFF-Symon, D. R., 8 Richmond Street, New Plymouth.
- ZL2TFG—Crawley, W. G., 75 Somerset Road, Wanganui. ZL2TFH-
- ZL2TFI-Pickett, B. M., 9 Amyes Road, Christchurch 4. ZL2TFJ-
- ZL2TFK--McEwen, C. R., 59 Amanda Avenue, Dinsdale, Hamilton.
- ZL2TFL-Bone, P. M. C., 1004 Francis Hicks Avenue, Hastings.

ZL2TFM

ZL2TFM—Dewar, D. B., Onslow Road, Patutahi, ZL2TFN—Hoeksema, R. C., 11 Rhodes Drive, Palmerston

North.

ZL2TFO—Brown, E. J., 5 Thames Street, New Plymouth, ZL2TFP-Blackley, E. C., 26 Kaitawa Crescent, Paraparaumu.

ZL2TFQ-McMillan, R. H., 30 Matipo Street, Eastbourne. ZL2TFR-

ZL2TFS-

ZL2TFT-Stohr, F. A., 36a Pretoria Street, Lower Hutt.

ZL2TFU-ZL2TFV—Etheridge, P. R., 4 Wharf Street, New Plymouth. ZL2TFW-Van Gorkom, H., 17 Makora Road, Otaihanga,

Paraparaumu. ZL2TFX—Underwood, C. F., 60 Cavendish Road. Christohurch 5.

ZL2TFY-

ZL2TFZ—Sayer, J. B., 55 Cockburn Street, Masterton.

ZL2TGA—Phillips, T. H., 30 Ngatitoa Street, Porirua. ZL2TGB—Edwards, A. T., 35 Bledisloe Crescent.

Wainuiomata.

ZL2TGC—O'Leary, C. M., 21 Isabel Grove, Wainuiomata. ZL2TGD—Scott, S. P., 11 Rudd Crescent, Blenheim. ZL2TGE—Hughes, T., 2 Chatham Street, Wellington 2, ZL2TGF—Moore, T. E., 24 Normanby Street, Newtown, Wellington 2.

ZL2TGG-Porritt, G. R. E., 114 Akatarawa Road, Upper Hutt.

ZL2TGH-Miller, G. A., 8 Hughes Avenue, Palmerston North.

ZL2TGI-Steenson, A. D., St. Andrews Road, Havelock

ZL2TGJ—Johnson, T. S., 512 Huia Street, Hastings.

ZL2TGK—Gill I. L., 69 Cambria Street, Nelson.
ZL2TGL—Rumsey, F. C., 21 Malone Road, Lower Hutt.
ZL2TGM—Meads, G. T., 3 Moa Street, Inglewood.
ZL2TGN—Berry, R. M., 10 Nimon Street, Havelock North.

ZL2TGO-

ZL2TGP—Collegiate School Radio Club, (Trustee: J. B. Storey), Liverpool Street, Wanganui.

ZL2TGO-Greenbank, R. J., 31 Somes Crescent, Newlands, Wellington 4. ZL2TGR—Barraud, J. M., 1 Michigan Crescent, Totara

Park, Upper Hutt. ZL2TGS-Leckie, G. F., Flat 3, 36 Pascal Street,

Palmerston North. ZL2TGT-

ZL2TGU-Layton, G. R., 54a Nicholson Road, Khandallah. Wellington 4.

ZL2TGV—Illingsworth, R. J., 178 Main Road, Tawa. ZL2TGW—Clifford, K. S., 22 Tarawa Street, Paekakariki, ZL2TGX—Morrison, J. F., 27 Mulgrave Street, Ashhurst. ZL2TGY-

ZL2TGZ-Allmand, H. M., Te Horo.

ZL2THA-

ZL2THB—Cote, R. K., 117 Rewai Street, Paraparaumu. ZL2THC—Erikson, A. Mci., 8a Cautley Street, Richmond, ZL2THD—Riggs, P. T., 470 Stokes Valley Road, Stokes

Valley. ZL2THE—Allen, J. G. J., 4 Nicholls Avenue, Lower Hutt. ZL2THF—Chean, Y. C., 23 Myrtle Street, Lower Hutt.

ZL2THG-Mackie, A. J., 8 Tarata Street, Stoke, Nelson.

ZL2THH—Robbins, B. J., Quartz Hill, P.B. Wellington. ZL2THI—Marshall, D. W., 195 Egmont Street, Patea.

ZL2THJ—Gill, T. B., 69 Cambria Street, Nelson. ZL2THK-Simcox, J., Racecourse Road, P.O. Box 327. Waipukurau.

ZL2THL-Leask, D. W., 11 Cannon Street, New Plymouth. ZL2THM-

ZL2THN-Osmond, C. M., 124 Tilley Road, Paekakariki, ZL2THO-Parker, D. A., 55 Argyle Avenue, Palmerston North.

ZL2THP—Dewsnap, A. V., 30 Ruru Crescent, Heretaunga, Upper Hutt.

ZL2THQ-Newlands, R. G., 42 Old Porirua Road, Ngaio, Wellington 4

ZL2THR—Poletti, K. M., Finnerty Road, 21 R.D., Stratford, ZL2THS—Shaw, J. L., 13a Weathers Place, Taradale, Napier

ZL2THT-

ZL2THU-Cropp, I. E., 7 Blue Mountains Road, Silverstream.

ZL2THV-Neill, W. J., 14 Martin Grove, Normandale. Lower Hutt.

ZL2THW—Muir, A. W., 1 Fox Street, Ngaio, Wellington 4. ZL2THX—Blanchard, O. C., 13h York Grescent, New Plymouth.

ZL2THY-McCarthy, W. S., 26 Bangor Street, Flaxmere, Hastings.

ZL2THZ-

ZL2TIA—Clough, D. H., 3 Argyle Place, New Plymouth, ZL2TIB—Annabell, R. B. S., Makakaho, Waitotara Valley, ZL2TIC—Wildbore, D. I., 7 Tawa Street, Levin.

ZL2TID-Baker, N. E., 118 Tayor Terrace, Tawa.

ZL2TIE—Guildford, A. E., 117 Townsend Road, Wellington 3

ZL2TIF-Leckie, D. A., 12 Pencarrow Crescent, Wainulomata.

ZL2TIG-Mair, D. I., Lower Bull Road, R.D. 2, Patea. ZL2TIH-

ZL2TII-Prosser, R. H. C., 9/14 Kirkwood Avenue, Ilam, Christehurch 4.

ZL2TIJ-Ordish, J. I., 12a Constable Street, Newtown, Wellington 2.

ZL2TIK-Buchanan, I. A., Motuoapa, A.D. 2, Turangi. ZL2TIL-Maxwell, D. M., 8 Martin Grove, Lower Hutt. ZL2TIM-Lumsden, K. M., 18 Cargill Street, Papakura,

Auckland. ZL2TIN-

ZL2TIO-Sheard, C. J., 6 Greenock Place, Palmerston

ZL2TIP-McConnel, O. D., 34 Woolwich Close, Whitby, Paramata

ZL2TIQ-Brieseman, P. J., 14 Tainui Terrace, Tawa. ZL2TIR-Donoghue, R. H., 10 Finnimore Terrace, Wellington 2

ZL2TIS-Winton, L. J., 44 Coventry Avenue, Tamatea, Napier.

ZL2TIT—Taylor, A. F., 54 Emano Street, Nelson. ZL2TIU—Brownlie, S. M., Ligar Bay, R.D. 1, Takaka.

ZL2TIW-Anderson, A. E., 76 Skibo Street, Dunedin. ZL2TIX—Smith, T. R., 31 Bird Grove, Stokes Valley, ZL2TIY—Harmsworth, J., Jonkers Road, Waitakere,

Auckland 7. ZL2TIZ—Gilchrist, J. V., 96 Newlands Road, Newlands. Wellington 4.

ZL2TJA-Walker, A. L., 53 Green Street, Tahunanui,

ZL2TJB—Fitzsimons, D. F., 44a Waimea Road, Nelson. ZL2TJC-Wakely, B., 30 Lees Grove, Wainuiomata. ZL2TJD-

ZL2TJE-Brett, L. H., 1/50 Buckley Road, Melrose, Wellington 3.

ZL2TJF-Graham, G. J., 32 Caldwell Road, Woodbourne, Blenheim.

ZL2TJG-McBain, J. R., 18 Pandora Avenue, Rotorua. ZL2TJH-O'Shea, P. F., 39 Liverpool Crescent, Flaxmere. Hastings.

ZL2TJI—Bould, R. M., 97 Ohariu Road, Wellington 4. 2L2TJJ—Hannon, G. J., 600 Massey Street, Hastings. ZL2TJK-Williams, G. C., 18 Ronberg Street, Palmerston.

North. ZL2TJL—Thompson, R. E., 25 Findlay Street, New

Plymouth ZL2TJM-Baker, R. E., 95 Ruahine Street, Palmerston North

ZL2TJN-Cristensen, T. G., Main Highway, R.D. 2, Whirinaki, Napier.

ZL2TJO—Brice, D., 43 Fairview Avenue, Feilding, ZL2TJP—Bryant, P., 62 Clarence Street, Vogeltown, Wellington 3.

ZL2TJO—Hawker, B. C., 1 Avion Terrace, Paraparaumu. ZL2TJR—Robinson, G. N., 2/25 Essex Road, Mt. Eden, Auckland 3.

ZL2TJS-Sivyer, G. R., 11 Wisteria Grove, Maungaraki, Lower Hutt.

ZL2TJT—Schmidt, J. T., 9 Ponderosa Grove, Maoribank, Upper Hutt.

ZL2TJU-Singleton, R. J., 9 Westleigh Way, Newlands, Wellington 4

ZL2TJV-Pointon, A. C., 21 Balgownie Avenue, Gonville. Wanganui.

ZL2TJW-Stewart, K. F., 1 Caversham Road, Mosston. Wanganui.

ZL2TJX—Evans, E. T., 16 Davidson Avenue, Napier. ZL2TJY—Frazer, G. J., 14 Hinton Road, Taradale, Napier. ZL2TJZ—Sutton, M. O., 1/32 Churchill Avenue,

Richmond.

ZL2TKA-Rickards, C. M., 21a Longview Drive, New Plymouth.

ZL2TKB-Cook, M. A. L., 84 Green Street, Tahunanui. Nelson.

ZL2TKC-ZL2TKD-ZL2TKE-

ZL2TKF-Hodge, D. M., 19 King Street, Fielding

ZL2TKG-Wright, M. A., 28 Cunliffe Street, Wellington 4. ZL2TKH-

ZL2TKI-Sanson, I. M., C/- P.O. Box 65, Waitangi, Chatham Islands.

ZL2TKJ-Harmsworth, A. G., Jonkers Road, Waitakere. ZL2TKK-De La Cour, L. R., 17 The Drive Tawa. Wellington.

ZL2TKL—Thornton, W. H., 404 Hart Drive, Hastings, ZL2TKM—McRoberts, K., 49 Arrow Street, Nelson. ZL2TKN-Andrews, S. R., 26 Tokomaru Drive, Havelock North.

ZL2TKO-

ZL2TKP—Fleming, A. J., 33 Clifton Drive, Waitara. ZL2TKQ—Meads, A. M., 272 High Street, Eltham. ZL2TKR—Brown, R. G., 64b Tipahi Road, Nelson.

ZL2TKS-Winter, R. M., 54 Chapter Street,

Christchurch 5.

ZL2TKT—Verry, A. C., 52 Athlone Crescent, Lower Hutt. ZL2TKU-

ZL2TKV—Burns, F. N. R., 1010 Waipuna Street, Hastings, P.O. Box 3051

ZL2TKW-Butt, A. J., 26 Hornsey Road, Melrose, Wellington 3.

ZL2TKX—Reynolds, M. G., Wilder Settlement Road, R.D. 1. Porangahau.

ZL2TKY—Pattle, K. A., 10 Woodstock Terrace, Tawa. ZL2TKZ—Wilkinson, K. T., 177a Ocean Beach Road. Mount Maunganui.

ZL2TLA-Lagerstedt, B. A., 26 Russell Road, Wainuiomata.

ZL2TLB-

ZL2TLC-Wills, M. J., 19 Ruskin Road, Newlands, Wellington 4

ZL2TLD-McAllister, G. B., P.O. Box 3675, Wellington. ZL2TLE-Campbell, W. H. R., Paerau Road, R.D. 1, Masterton.

ZL2TLF-Sargent, D. J., Motukawa Road, R.D. 7, Inglewood.

ZL2TLG-ZL2TLH-

ZL2TLI-Wood, M. K., 5 Moki Street, Titahi Bay. Wellington.

Zt2TLJ-Jones, B. L., 11 Turville Crescent, Newlands, Wellington 4.

ZL2TLK-Ram, A., 70 Percy Dyatt Drive, Karori, Wellington 5.

ZL2TLL-Wallace, D. P., 149 Orangi Kaupapa Road, Wellington 5.

ZL2TLM—Fowles, G. F., 90 Clarence Cox Crescent, Napier.

ZL2TLN-Nicholson, C. L., 1b/186 The Terrace, Wellington 1.

ZL2TLO-

ZL2TLP-

ZL2TLQ-Baker, I. H., 21 Liverpool Crescent, Flaxmere,

ZL2TLR—Smith, B. W., 261a Riverside Drive, Lower Hutt. ZL2TLS—Prout, S. A., 23 Roy Terrace, New Plymouth, ZL2TLT—Benson, A. P., 49 Harbour View Road, Lower

Hutt

ZL2TLU—Nicholls, R. M., C/- District Engineer's Office. Post Office, Napier.

ZL2TLV-

ZL2TLW—Gifford-Moore, R. J., 10 Nalanda Crescent. Broadmeadows, Wellington 4.

ZL2TLX—Cook, V. R., 95 Niblett Street, Wanganui. ZL2TLY—Gunn, J. A., 23 Middlesex Street, Pates. ZL2TLZ-

ZL2TMA-Wicks, P. M. J., 15 Curtis Street, Northland, Wellington 5.

ZL2TMB-Balfour, G. W., "Wharenui", Wilder Settlement, R.D. 1, Porangahau.

ZL2TMC—Savory, M. O., 15 Mana Avenue, Titahi Bay. ZL2TMD—Chariton, G. H., 5 Marne Street, Palmerston North.

21.2TMF-

ZL2TMF—Saynor, E. K., 62 Kamahi Street, Stokes Valley. ZL2TMG—Williamson, D. E., 83 Main Road, Titahi Bay. ZL2TMH—Harvey, S. R. T., 49 Herbert Avenue,

Palmerston North.

ZL2TMI—Lill, V. E., 33 Tawa Terrace, Tawa. ZL2TMJ—Major, G. M., 12 Mokau Place, Palmerston. North.

ZL2TMK—Synnott, M. H., 54b Severn Street, Wellington 2. ZL2TML-Willis, W. P., 11 Baywater Place, Newlands, Wellington 4.

ZL2TMM-Green, J. W., 40 Bancroft Terrace. Johnsonville, Wellington 4.

ZL2TMN-

ZL2TMO—Sayliss, F. D., 701n Hastings Street, Hastings, ZL2TMP—Herbert, D. J. (Mrs), 2 Rose Flats, 17 Totara Street, Upper Hutt.

ZL2TMQ-Stewart, I. L., Flat 5, Mandalay Flats, R.D. 9, Maunu, Whangarei.

ZL2TMR—Riggs, H. J., Flat 2, 18 Clifton Terrace. Wellington 1

ZL2TMS—Pallesen, P. A., 808n Riverslea Road, Hastings, ZL2TMT—Bondy, F., 24 William Street, Hataitai, Wellington 3.

ZL2TMU-McGhie, R. C., 8 Kashmir Avenue, Upper Hutt, ZL2TMV—McAuliffe, P. N. G., Kelso Street Takeaways, Kelso Street, Tokoroa.

ZL2TMW—Penney, L. J., 21a Weld Street, Blenheim, ZL2TMX—Smith, C. F., 407 Princes Street, Hastings. ZL2TMY—Gall, B. D., 25 Walkers Road, Longburn. ZL2TMZ—Woodfield, N. C., 51 Sladden Street, Lower Hutt.

ZL2TNA-Lambert, M. G., 54 Donald Street, Karori, Wellington 5.

ZL2TNB—Langford, K. H., 46 East Street, Greytown, ZL2TNC-Jago, J. N., 63 Reimenschneider Street, Manaia.

ZL2TND—Neumer, E., 7 Copeland Street, Lower Hutt. ZL2TNE—Beechey, R. D., 165 Broderick Road,

Johnsonville, Wellington.

ZL2TNF-Clarkson, K. G., 45 Fraser Crescent, Upper Hutt. ZL2TNG-Burrell-Smith, M. L. C., 5 Kinlock Crescent. Blenheim.

ZL2TNH-

ZL2TNI-Sutton, T. D., 17 Tory Street, Nelson,

```
ZL2TNJ
```

ZL2TNJ-Crook, C. M., 23 Patanga Crescent, Thorndon, Wellington

ZL2TNK-Kinraid, G. J., 6/62 Old Karori Road, Karori, Wellington 5.

ZL2TNL—Shearer, D. B., 20 Walsh Street, Gisborne, ZL2TNM—Baird, I. F., 19 Lighthouse Road, Napier, ZL2TNN—Dobson, H. M., 76 Valley Road, Gisborne,

ZL2TNO

ZL2TNQ—McLachlan, I. M., 38 Ranfurly Street, Gisborne. ZL2TNQ—Plowman, T. S., 141 Thompson Road, Napier. ZL2TNR—Hopkins, D. J., 28 Ruahine Street, Trentham. ZL2TNS—Huttley, J. D., 89 Ormond Road, Gisborne. ZL2TNT—Scott, G. W., R.D. 4, Palmerston North.

ZLZTNU-

ZL2TNV-

ZL2TNW—Earl, T. H., "Fernlea", 17 Mallard Grove, Churton Park, Wellington.

ZL2TNX—Brown, K. J., 1a Limmer Place, Browns Bay, Auckland 10.

ZL2TNY-MoIntosh, R. W., 35 McHardie Street, Upper Hutt.

ZL2TNZ-Hawker, A. R., 94 Harrington Road, Henderson, Auckland 8.

ZL2TOA-Waterson, I. B., 4a Antonio Street, Stratford. ZL2TOB-

ZL2TOC--Atkins, P. D., 45 Sunbrae Drive. Upper Hutt. ZL2TOD—Robinson, M. G., 3 Punga Street, Mt Eden, Auckland 3.

ZL2TOE-Graham, P. B., 12 Totara Terrace, Miramar, Wellington 3.

ZL2TOF-Vincent, P. C., 7 Pharazyn Street, Feilding.

ZL2TOG--ZL2TOH-Fulton, J. E. R., 22a Trelissick Crescent, Ngaio, Wellington 4.

ZL2TOI-Wilson, P., 3 Collier Avenue, Karori, Wellington 5.

ZL2TOJ-Williams, P. R., 47 Burns Street, Hawera ZL2TOK-Waldron, D. M., 27 Maher Place, Porirua. ZL2TQL-Buchanan, G. C., 17 Humphries Place.

Paimerston North. ZL2TOM-Crosby, P. L., 63 Tukapa Street, New Plymouth.

ZL2TON-Scherf, M. W., 29 Tiber Street, Island Bay, Wellington.

ZL2TOQ-

ZL2TOP—Coley, N., 84 Main Road, Wainuiomata. ZL2TOQ-Dayson, B. E., 115 Fitzherbert Street,

Featherston

ZL2TOR-Woods, D. J., Ngaio Road, R.D. 5, Feilding ZL2TOS—McCallum, B. C., 78a Bell Road, Lower Hutt. ZL2TOT—Bowman, P. W., 4 Grange Park Avenue.

Raumati South. ZL2TOU-Brunton, R. G., 15 Gladstone Street, Woodville.

ZL2TOV-ZL2TOW-Ellis, N. M., 47 Rawhiti Street, Greerton,

Tauranga.

ZL2TOX-Lyon, K. W., 176 Taita Drive, Avalon, Lower Hutt.

ZL2TOY-Banks, G. J., 10 Essex Street, Stratford. ZL2TOZ-O'Donnell, M. J., 65 Kennedy Drive, Levin. ZL2TPA-Robbie, D. R., Puketona Junction, R.D. 2,

Kerikeri ZL2TPB-

ZL2TPC—Briggs, W. V., 5 Collingwood Street, Levin.

ZL2TPD-Randall, D. N., 37 Manuka Street, Otaki.

ZL2TPE-Clarke, G. E., P.O. Box 14-175, Kilbirnie, Wellington.

ZL2TPF-Gordon, R. G., 15 Donnelly Drive, Wainulomata.

ZL2TPG—Ward, P. J., 32a Polstead Road, Nelson. ZL2TPH—Knowles, W. D., Halls of Residence, C.I.T., Upper Hutt.

ZL2TPI-Greenbank, I. J., 47 Woodland Road, Johnsonville, Wellington 4.

ZL2TPJ—Jardine, B. J., 9 Weston Avenue, Palmerston

ZL2TPK-Stoks, F. G., 17 Adelaide Road, Petone ZL2TPL-

ZL2TPM—Dawson, E. B. H., 75 Muratai Road, Eastbourne, ZL2TPN—Dormer, P. C. (Miss), 8 Awhiorangi Promenade. R.D. 1 Henderson, Auckland 8.

ZL2TPO-

ZL2TPP—Caldwell, J. D., 27 Harris Street, Marton.
ZL2TPQ—Browning, K. F., 56 Cole Street, Dannevirke.
ZL2TPR—McLennan, A. A., 89 Derwent Street, Island Bay, Wellington 2.

ZL2TPS-Purdie, B. E., 1 Canberra Square, Bulls ZL2TPT

ZL2TPU-Watt, T. W., 4 Compass Way, Whitby, Paremata.

ZL2TPV-

ZL2TPW—Annett, D. A., 23 Davis Crescent, Upper Hutt. ZL2TPX—Wiggins, M. A., 23 Slacks Road, Palmerston North.

ZL2TPY-Mundell, K. W., 6 Alberta Road, New Plymouth. ZL2TPZ-Martin, R. J., 10 Godley Street, Waterloo, Lower

ZE2TOA-Nixon, P. J., 14 Huia Road, Days Bay, Eastbourne.

ZL2TQB—Sinclair, M. L., 1 Porritt Place, Tamatea, Napier, ZL2TQC—Kerr, C. M., 73 Cornfoot Street, Wanganui. ZL2TQD-Fulton, H. R., 74 Sievers Grove, Porirua.

ZL2TQE-Piper, G. L., 30 Merton Street, Hobsonville, Auckland.

ZL2TQF

ZL2TQG—Newton, P. J., 70 Hobson Street, Wellington 1. ZL2TQH—Woolf, J. C., 141 Marine Parade, Wellington 3. ZL2TQI—Tucker, N. R. A., Napier Road, Havelock North, ZL2TQJ—Maddock, R. H., 18 Churton Cresent, Taita. ZL2TQK—Maxwell, C. H., 8 Martin Grove, Lower Hutt.

ZL2TQL-

ZL2TQM—Scott, D. C., 38 Vance Street, Shannon. ZL2TQN—Paris, S. J., 18 York Street, Masterton.

ZL2TQ0

ZL2TQP-Quinn, C. J., 29 Dominion Park Road,

Johnsonville, Wellington 4.

ZL2TOQ—Hill, H. R., 3a Balliol Drive, Tawa.

ZL2TQR—Orsborn, P. R., 22 Denbigh Street. Feilding.

ZL2TQS—Barraud, R. W., 1 Michigan Crescent, Totara

Park, Upper Hutt. ZL2TQT-Craw, G. J., Coupars Road, R.D. 3, Palmerston

ZL2TQU-Atkinson, D. T., 49 Tirangi Road, Rongotai,

Wellington 3. ZL2TQV-Barnett, A. D., 53 Davidson Crescent, Tawa.

ZL2TQW-Castle, D. J., 37 Tui Street, Lower Hutt.

ZL2TQX—Rushton, B. H., 36 Orr Crescent, Lower Hutt. ZL2TQY—Hood, R., 24 Seddon Street, Palmerston North.

ZL2TQZ-Harkness, P. D., 357 College Street, Palmerston

ZL2TRA—Chapman, M. A., Presbyterian Manse, Hanmer Springs.

ZL2TRB-Gaskin, R. B. P. M., 36 Kitchener Street, Wanganui

ZL2TRC—Barth, M. J., 98 Puriri Street, Christchurch 4. ZL2TRD-

ZL2TRE-Jennings, S. B., 91 Clouston Park Road, Upper Hutt.

ZL2TRF-Hare, L. S., 6 Rosebank Avenue, Avalon, Lower Hutt.

ZL2TRG—Omer, P., 88 Valley Road, Gisborne. ZL2TRH—Darby, P. R., 25 South Road, New Plymouth. ZL2TRI—Harper, E. J., 233 The Esplanade, Petone.

ZL2TRJ—Goodin, I. V., 163 Colombo Road, Masterton. ZL2TRK-

ZL2TRL—Jarvis, M. D., 440 Ruahine Street, Palmerston

ZL2TRM—MacKenzie, H. R., 23 Balgownie Avenue, Wanganui.

- ZL2TRN-Rossiter, N. W., 1 Bayview Drive, Waikawa Bay, Picton.
- ZL2TRO—Campbell, J. D. Mc., 10 Burma Road, Khandallah, Wellington 4.
- ZL2TRP-Pyne, R. E., 12 Tweed Road Papakowai. Parémata.
- ZL2TRQ—McKenzie, N. A., 3 May Avenue, Napier, ZL2TRR—Cameron, H. K., 1 Tasman Street, Levin. ZL2TRS—Jamieson, P. A., 32 Anaru Street, Raumati
- ZL2TRT-Tindale, R. W., C/- BCNZ, Private Bag, Titahi Bay, Wellington.
- ZL2TRU—Van Kuyk, P. F., 1/133 Cuba Street, Petone. ZL2TRV—Yaldwyn, J. S. C., 107 Kanpur Road. Wellington 4.
- ZL2TRW-Richards, D. G., 60 Soames Crescent, Wellington 4.
- ZL2TRX—Apperley, L. R., 531 Ferguson Street, Palmerston North.
- ZL2TRY—Stewart, A. H., 110 High Street, Bulls. ZL2TRZ—Tonkin, J. R., 15 Ahuriri Street, Strathmore Park, Wellington 3.
- ZL2TSA-Bold, M. R., 162 West Street, Feilding. ZL2TSB-
- ZL2TSC-Field, A. C., 9a Lingham Crescent, Torbay, Auckland 10.
- ZL2TSD-Keen, N. K. M., 10 Hawtrey Terrace, Wellington 4.
- ZL2TSE—Thompson, A. B. J., 164 Tasman Street, Nelson, ZL2TSF—Chilsholm, W. J. R., 29 Sutherland Road, Melrose, Wellington 3.
- ZL2TSG—Brader, J. M., 17 Rossiter Avenue, Lower Hutt. ZL2TSH—Cord, B. A., 13 Standish Street, Inglewood.
- ZL2TSI-Allison, D. N., 78 Fyvie Avenue, Linden, Wellington. ZL2TSJ-
- ZL2TSK-Millard, G., 12 Buckley Road, Island Bay,
- Wellington 3.
 ZL2TSL—Jordan, B., Waingake Road, Manutuke.
 ZL2TSM—Brown-Douglas, F. A., Flat 4, 68 Oban Street, Wellington 1.
- ZL2TSO—Goodwin, D. R., 18 Brees Street, Lower Hutt. ZL2TSP—Salt, B. R., 514a Fenwick Street, Hastings.
- ZL2TSQ—Matheson, A. R., Rata Street, Tokomaru. ZL2TSR—Meharry, A. G., 24 Derby Street, Stoke, Nelson.
- ZL2TSS
- ZL2TST-Bernon, B. A., 7 Spur Grove, Titahi Bay.
- ZL2TSU—Bristow, E. J., 77 Matcher Street, Wanganui. ZL2TSV—Clarke, E. W., 72 Reynolds Street, Taita, Lower Hutt.
- ZL2TSW—Gibellini, S. P., 71 Point Road, Monaco, Nelson, ZL2TSX—Walker, D. J., 36 Ardrossan Avenue, Flaxmere, Hastings.
- ZL2TSY-ZL2TSZ-McQuiod, K. J., 11 Barton Grove, Naenae. ZL2TTA—McNeil, I. J., 111 Norana Road, Upper Hutt. ZL2TTB—Marshall, A. J., 59 Rex Street, Miramar,
- Wellington 3.
- ZL2TTC-Adamson, F. R., 26A Hargreaves Street, Wellington 2.
- ZL2TTD—Preston, P. J., 10a Percival Street, Wellington 1, ZL2TTE—Crampton, J. F., 11 Linton Street, Blenheim, ZL2TTF—Christianson, N. J., 133 Cecil Road, Wadestown,
- Wellington 1. ZL2TTG—Sule, J. E., 6 Antico Street, Melrose, Wellington 3.
- ZL2TTH-Ereckson, D. C., 352 Main Road, Tawa.
- ZL2TTI-McKenzie, K. R., 11 Upham Terrace, Palmerston
- ZL2TTJ-Johnston, K. A., 21 Madras Street, Khandallah, Wellington 4.
- ZL2TTK—Gridley, N. J., 11 Humphries Street, Greytown.
- ZL2TTM—Dekker, J. C., 127 Winchester Street, Levin.

- ZL2TTN-Speight, L. G., C/- Riverside Motor Camp, 470 Gloucester Street, Taradale.
- ZL2TTO—Ede, A. R., 126 Epuni Street, Lower Hutt. ZL2TTP—Hunter, D. R., 16 Torlesse Street, Wakatu. Nelson.
- ZL2TTQ-
- ZL2TTR-
- ZL2TTS—Jansen, C. T. F., 10 Karepa Street, Brooklyn West, Wellington 2. ZL2TTT-
- ZL2TTU-Morgan, T. J., Fletts Road, R.D. 2, Upper
- ZL2TTV—Thomas, W. M., 32 Fleet Street, Naenae. ZL2TTW—Campion, S. G., 5 Sandhurst Way, Chartwell,
- Wellington 4. ZL2TTX-Walker, R. S., 21 Dorking Road, Brooklyn, Wellington 2.
- ZL2TTY-Boyce, M. L. P., Awahuri, R.D. 6, Palmerston
- ZL2TTZ-McDermid, G. V., 19 Wyndham Road, Pine Haven, Upper Hutt.
- ZL2TUA—Smith, K. V., 11 Mayroyd Terrace, Nelson. ZL2TUB—Moorcroft, T. K., 9 Clarence Street, Gisborne.
- ZL2TUC— ZL2TUD—Futter, R. J., 4 Van der Velden Way, Horokiwi, Wellington
- ZL2TUE—Wright, W. A., 28 Wallscourt Place, Normanby, ZL2TUF—Love, P. K., 45 Motuhara Road, Plimmerton, ZL2TUG—Woodham, R. B., 42 Adams Lane, Blenheim.
- ZL2TUH-Irwin, W. P. M., 26 Bronte Street, Nelson. ZL2TUI—Bergen, E. A., 22 Skerman Street, Marton. ZL2TUJ—Bulled, J. L., 20 Stanley Street, Wainuiomata.
- ZL2TUK-
- ZL2TUL—Stade, J. F., 6 Rudland Street, Stoke, Nelson. ZL2TUM—Griffiths, S. L., 65 Hedges Street, Sanson. ZL2TUN-
- ZL2TUO-Bullen, D. W., 2 Orsino Place, Stratford.

- ZL2TUP—Cullen, E. R., 17 Cadman Street, Dannevirke, ZL2TUP—Cullen, E. R., 17 Cadman Street, Dannevirke, ZL2TUQ—Cutriss, H. N., 75a Tiber Street, Wellington 2, ZL2TUR—Banks, M., 10 Essex Street, Stratford, ZL2TUS—Kirkness, M. A., 12 Argyle Street, Wanganui, ZL2TUT—McPherson, D. B., 19 Alexandra Street, Marton.
- ZL2TUU-Davis, H. W., 38 Agra Crescent, Khandallah, Wellington 4.
- ZL2TUV—Jepson, S. J., Forest Lakes Road, R.D. Otaki, ZL2TUW—Humphreys, E. M., 16 Fergusson Street, Stoke,
- ZL2TUX-Breen, J. P., 42 Barker Road, Napier.
- ZL2TUX—Breen, J. F., 42 Barker Hoad, Napier.
 ZL2TUY—Prankerd, D. G., 95 Stewart Drive, Wellington 4.
 ZL2TUZ—Turner, P. D., 42 Titiromoana Road, Korokoro.
 ZL2TVA—Burney, G. L., 6 Kennedy Grove, Stokes Valley.
 ZL2TVB—Seed, B. V., 831 Cashmere Road, Christchurch.
 ZL2TVC—Price, P. J., C/- Mana Hotel, Mana Promenade,
- Paramata.
- ZL2TVD-ZL2TVE-
- ZL2TVF—Jury, L. S., 20 Whenua View, Titahi Bay, ZL2TVG—Havell, K. G. L., C/- Mt. St. Mary's Seminary,
- Church Road, Napier.
- ZL2TVH—Topliss, P. G., 7 Victoria Heights, Netson, ZL2TVI—Spittle, G. D., 9 Epping Grove, Karori,
- Wellington 5.
- ZL2TVJ-Bodley, R. A., 158 Washington Avenue, Wellington 2.
- ZL2TVK-
- ZL2TVL-
- ZL2TVM-McAdam, N. M., 38 Shakespeare Avenue. Upper Hutt.
- ZL2TVN-
- ZL2TVO-Scott, P. A. L., 23 Kaimanawa Street, Paraparaumu.
- ZL2TVP—Eden, A. D., 16b Chamboard Place, Nelson, ZL2TVQ—Wilson, M. L., 11 Sturdee Street, Wellington 1,

ZL2TVA

ZL2TVR—Babington, J. E., 10 Moana Street, Ohawe Beach, Hawera.

ZL2TVS-Mahon, P. D., 100 Mercury Way, Whitby, Paramata.

ZL2TVT—Jenkins, A. D., 7 Princes Street, New Plymouth. ZL2TVU—Grammer, T. R., C/- Mr D. Laing, 6 McDonald Street, Lower Hutt

ZL2TVV-Newland, P. B., 25a Tawa Terrace, Tawa.

ZL2TVW-ZL2TVX-

ZL2TVY-Smith, R. L., 5 Chika Street, Berhampore, Wellington 2.

ZL2TVZ—Janes, P. A. F., 8a School Road, Gisborne. ZL2TWA—Harrall, A. E., 90 Gayhurst Road, Dallington. Christchurch 6.

ZL2TWB—Fell, L. J., 16a Farmer Street. Blenheim.

ZL2TWD—Feist, D. M., 2 Arnot Avenue, Upper Hutt. ZL2TWE—McIntosh, D. C., 3/37 Wendover Road, Glendowie, Auckland 5

ZL2TWF-Bate, K. C., Flat 10, 48 Oriental Parade, Wellington 1.

ZL2TWG—Baxter, G. A., 54 Naenae Road, Lower Hutt, ZL2TWH—Mustchin, N. D., C/- Lincoln College,

(Student), Lincoln

ZL2TWI—Ward, A. T., 82 Karaka Street, Wanganui. ZL2TWJ—McColl, I. M., 24 Rosebank Avenue, Lower Hutt. ZL2TWK—Siddall, R. M., 538 Marshlands Road.

Christchurch 9

ZL2TWL—Williams, R. E., 129 Scott Street, Dunedin. ZL2TWM-Wilson, C. I., B Tay Street, Wanganui. ZL2TWN-Tipler, B. F., Mangaehu Road, R.D. 22.

Stratford. ZL2TWO-

ZL2TWP—Aimers, A. G., C/- RNZAF, Woodbourne. ZL2TWQ—Glassey, R. B., 401 Featherston Street. Palmerston North.

ZL2TWR-Corkery, P. J., 24 Grenville Street, New Plymouth.

ZL2TWS---Wysocki, J. M., 8 McDonald Street, Taita. ZL2TWT-Purton, S. D., 376 Botanical Road, Palmerston North.

ZL2TWU-Evan, D. F., 184 No. 3 Line, Wanganui. ZL2TWV-Coppell, D. W., 2 Centennial Crescent, Gisborne

ZL2TWW-Tullock, N. G., 24 Field Street, Silverstream, Upper Hutt

ZL2TWX-Lindop, T. R., 31 Rochester Street, Tamatea, Napier

ZL2TWY--Neal, N. P., 699 Murdoch Road East, Hastings. ZL2TWZ--Murphy, P. C., 274 Songer Street, Sloke. Nelson.

ZL2TXA—Hastings, L. P., 12 Godley Street, Lower Hutt. ZL2TXB—Palmer, T. M., 168 Dowse Drive, Lower Hutt. ZL2TXC—Stutter, A. J., 1/82 Ormand Road, Woodville.

ZL2TXD-Hogan, T. J., 19 Ruskin Road, Newlands, Wellington 4.

ZL2TXE-Waters, R. J., 32 Taft Street, Brooklyn, Wellington 2.

ZL2TXF-Hume, S. R., 96 Ohoka Road, Kaiapoi. ZL2TXG-Muldrock, J. H., 9 Station Road, Waverley.

ZL2TXH-Spicer, D. M., 16a Devon Road, Wanganui. ZL2TXI-Large, M., 44 Donnelley Drive, Wainuiomata.

ZL2TXJ-Hoare, M. F., 31 Nairn Street, Mt. Cook, Wellington

ZL2TXK—Duncan, G. R., 59 Harold Holt Avenue, Onekawa.

ZL2TXL—Eastergaard, A. G., 44 Kirkwall Drive, Lower

ZL2TXM—Douglas, R. T., 76 Virginia Road, Wanganui. ZL2TXN-Prentice, R. J., 179 George Street, Stokes Valley.

ZL2TXO-

ZL2TXP-Prentice, A. J., 178 George Street, Stokes Valley.

ZL2TXQ-

ZL2TXR-Bell, G. W., 8 Pope Street, Plimmerton. ZL2TXS—MacGregor, S. J., 25 Waihemo Street, Porirua. ZL2TXT—Martin, E. D., 2 Dorothy Place, Bay View,

ZL2TXU—Anderson, J. G., 64 Reid Avenue, Hawera. ZL2TXV-

ZL2TXW-Sunnex, T. H., Taupo Road, Bay View, Hawkes

ZL2TXX-Penney, B. J., 20 Konini Street, Nelson. ZL2TXY-Duncan, R. G., 3/69 Simla Crescent, Khandallah, Wellington 4.

ZL2TYA-Ashwell, D. H., 29a Avondale Road, Taradale. ZL2TYB-Lockycr, R. H., 11 Trevelyan Street, Napier.

ZL2TYC-

ZL2TYD-Good, C. L., 80 Waimumu Road, Massey, Auckland 8.

ZL2TYE—Tudor, G. T., 153 Cracroft Street, Waitara. ZL2TYF—Scott, H. J., 10 Waimea Road, Nelson. ZL2TYG—Wilson, W. C., 2/538 High Street, Lower Hutt.

ZL2TYH-

ZL2TYI-Tayler, L. R., 2 Terrace Grove, Paparangi, Wellington 3

ZL2TYJ-Symon, M. D., 30 Magdalen Crescent, Pirimai, Napier.

ZL2TYK—Burley, C. J., 52 Longfellow Street, Upper Hutt. ZL2TYL—Clarke, B. T., 14 Pomare Road, Belmont, Lower

ZL2TYM—Milson, R. T., 16 Nikau Street, Eastbourne, ZL2TYN—Rinsma, H. R., 10 Quebec Road, Nelson, ZL2TYO—Leslie, G., 35 Robinson Street, Foxton.

ZL2TYP—Archer, P. J., 37 Torlesse Street, Nelson. ZL2TYQ—Eade, P. D., 1/2 Selkirk Street, Tamatea, Napier. ZL2TYR—Robertson, D. R., 117 Spinnaker Drive, Whitby.

Paramata. ZL2TYS-Laird, E. J., 18 Adelaide Street, Petone. ZL2TYT-Wilde, R. G., Upper Pakihikura Road, R.D. 3,

Hunterville ZL2TYU-Arbernethy, R. J., 20 Zetland Terrace, Kelburn,

Wellington 5. ZL2TYV-Drever, I. A. R., 22 Akaroa Avenue, Palmerston

ZL2TYW—Collins, C. C., 5 Cawthron Crescent, Neison.

ZL2TYY—Headifen, T. G., 27 Bush Street, Lower Hutt. ZL2TYZ—Hardisty, N. E., 26 Birdwood Road, Lower Hutt.

ZL2TZA-ZL2TZ8—Pritchard, C. D., C/- Post Office District

Engineer's Office, Wanganui. ZL2TZC—Rumens, K. W., 13 St. Catherines Terrace.

ZL2TZD—Hoy, M. H., 39 Highland Park Parade. Pakuranga, Auckland

ZL2TZE—Conza, P. J., 4 McFarlane Place, Blenheim, ZL2TZF—Hutley, D. A., 5 Westbourne Road, Remuera, Auckland 5.

ZL2TZG-Sargent, G. R., Motukawa Road, R.D. 7, Inglewood

ZL2TZH-Helson, N. G., 18 Potomaru Street, Lower Hutt. ZL2TZI-Harmsworth, W. A., Jonkers Road, Waitakere, Auckland 7

ZL2TZJ-Heard, N. H., 28 Tawa Terrace, Tawa ZL2TZK-Edwards, R. V., 191 Oxford Street, Ashhurst.

ZL2TZL-ZL2TZM—Russell, S. G., 85 Rugby Street, Palmerston.

ZL2TZN—Springer, M. J., 33 Dujgan Street, Wanganui. ZL2TZO-Martin, G. T., R.D. 5, Longlands, Hastings. ZL2TZP-

ZL2TZQ-Thompson, R. M., R.D. 8, Nikau, Pahiatua. ZL2TZR-Collins, G. J., 44 Tararua Terrace, Palmerston North.

- ZL2TZS-Barriball, O. P., C/- Pukeiti Lodge, R.D. 4, New Plymouth. ZL2TZT—King, M. J., 4a Anthony Street, Linden. ZL2TZU—Selwood, G. R., 14 Invercargill Drive, Kelson,
- Lower Hutt. ZL2TZV—Tong, B. J., 99a Manawatu Street, Palmerston. North.
- ZL2TZW-ZL2TZX--Hoskins, R. H., 25 Ludlam Crescent, Lower Hutt. ZL2TZY-
- ZL2TZZ—iMeek, E. P. 16 Grant Street, Dannevirke. ZL2UAA-
- ZL2UAB-McKerrow, R. J., Outward Bound School,
- ZL2UAC—Pedder, R. A., 8 Thomas Hook Street, Tawa. ZL2UAD—MacDonald, J. R., 39 Aniseed Grove, Upper
- ZL2UAE—Mifroy, R. J., 41 Castlerea Street, Wainuiomata. ZL2UAF—Hill, M. B., 25a Woodmancote Road, Khandallah, Wellington 4.
- ZL2UAG—Rumsey, D. C., 64 Tasman Road, Otaki Beach, ZL2UAH—Butter, N. A., 23 McKenzie Avenue, Raumati
- ZL2UAI-Slater, P., 25 Stanley Avenue, Palmerston North.
- ZL2UAK—Huberts, G. H., 24 Lysnar Street, Gisborne. ZL2UAL—Huberts, K., 24 Lysnar Street, Gisborne. ZL2UAM—Pollard, P. B., 29 Seddon Crescent, Gisborne.
- ZL2UAN—Wills, A. R., 10 Castle Crescent, Stokes Valley. ZL2UAO—Murphy, G. R., 274 Songer Street, Stoke,
- Nelson ZL2UAP-Heard, G. R., 24 Clearmont Crescent, New
- Plymouth. ZL2UAQ-McCrea, D. J., 115 Ferguson Street, Palmerston North.
- ZL2UAR-Finlay, E. McD., 51 Chamberlain Street, Tahunanui, Nelson.
- ZL2UAS—Slater, D. J., 35 Wyndham Road, Ashhurst, ZL2UAT—Griffith, R. L., 81 River Terrace, Brightwater,
- ZL2UAV-Mulder, D. J., 28 McGuire Street, Hawera. ZL2UAW--ZL2UAX-
- ZL2UAY—Terris, C. A., 45 Marlowe Street, Stoke, Nelson, ZL2UAZ—Pearless, D. H., 107 McLeod Street, Upper Hutt. ZL2UBA—Maitland, I. J., 93 Wellington Road, Wainuiomata.
- ZL2UBB-Gibson, R. I., 31 Hobart Street, Wellington 3. ZL2UBC-ZL2UBD-
- ZL2UBE-Davies, R. G., 21 Gentian Street, Timberlea, Upper Hutt
- ZL2UBF—Graham, R. A., 270 Stout Street, Gisborne. ZL2UBG—Lowes, C. W., 27 St Hill Lane, Havelock North. ZL2UBH—Cole, L. R., 8 London Road, Korokoro.
- ZL2UBI Terris, R. D., 45 Marlowe Street, Stoke, Nelson, ZL2UBJ Curran, B. I., 43 Porangahau Road, Waipakurau
- ZL2UBK-Webber, D., 4 Victory Crescent, Tawa.
- ZL2UBL-Harper, G. D. J., 13 Sunbrae Drive, Silverstream. ZL2UBM-Taylor, G. J. W., Hammericks Road, R.D. 3. Blenheim.
- ZL2UBN-Briggs, A. G., 580 Lowe Street, Hastings. ZL2UBO-
- ZL2UBP-Riordan, I. M., Upper Takaka, Nelson.
- ZL2UBQ-Freer, R. I. R., 240 Kennedy Road, Napier.
- ZL2UBR-Christie, A. J., 259 Cambridge Street, Levin. ZL2UBS-
- ZL2UBT-
- ZL2UBU-Howie, I. M. C., 9 Trelissick Crescent, Ngaio, Wellington 4.
- ZL2UBV-ZL2UBW-Greenwood, P., 41 Simons Street, New Plymouth.

- ZL2UBX—Grubner, L., 290e Cockayne Road, Ngaio, Wellington 4.
- ZL2UBY-Hucker, O. W., 61 Polson Street, Wanganui. ZL2UBZ-
- ZU2UCA—Gilchrist, R. J., 51 Hendersons Line, Marton, ZL2UCB—Rimmer, B. J., 24 McDonald Street, Napier, ZL2UCC—Mantell, W. R., 41 Edgecumbe Street,
- Wellington 4. ZL2UCD—Calvert, D. A., Fabians Road, R.D. 1, Greytown, ZL2UCE-
- ZL2UCF-
- ZL2UCG-Birchalf, O. J., 20 Hillcrest Drive, Palmerston North.
- ZL2UCH~ ZL2UCI--Rawdon, P. D., 2 Picasso Grove, Belmont, Lower Hutt.
- ZL2UCJ—Stewart, P. J., Akatarawa Road, C/- Postal Counter, Post Office, Upper Hutt.
- ZL2UCK-Pahl, D. G., 57 Greenwood Street, Motueka.
- ZL2UCL—White, R. J., 9 Kings Crescent, Porirua. ZL2UCM—Mordecai, D. M. R., 257 Mill Road, Otaki. ZL2UCN—Burston, E. S. D., Pakihikura, R.D. 3.
- Hunterville.
- ZL2UCO-Young, B. D., 97 Rosetta Road, Raumati South.
- ZL2UCP-Doney, G. I., 7 York Street, Wanganui, ZL2UCQ-
- ZL2UCR-
- ZL2UCS—McPherson, M. E., 19 Alexandra Street, Marton. ZL2UCT—Oborn, D. E., 91 Norton Park Grove, Lower
- ZL2UCU—Carter, R. S., 101b Scott Street, Blenheim. ZL2UCV—Wright, S. W., 28 Wallscourt Place, Normanby.
- ZL2UCW-ZL2UCX—Davis, S. L., 37 Golf Road, Tahuna, Nelson, ZL2UCY—Lawrence, R. A., Pembroke Road, R.D. 21,
- Stratford. ZL2UCZ-
- ZL2UDA-
- ZL2UDB-Learmouth, B. H., Main Road, Kopane, R.D. 6, Palmerston North
- ZL2UDC—Lark, M. J., Beach Road, Motueka. ZL2UDD—Reese, E. W. J., 50 Harold Holt Avenue, Napier. ZL2UDE—Senior, R. J., 34 Lahore Street, Wairoa.
- ZL2UDF—Webb, V. M., 12 Laurent VC Street, Hawera. ZL2UDG—Phillips, R. S., 42 Caldwell Road, Woodbourne, Blenheim
- ZL2UDH-Knebel, D. J., 28 Chartwell Drive, Crolton Downs, Wellington 4. ZL2UDI~
- ZL2UDJ-Ritchie, L. T., 26 Maunder Street, Marton.
- ZL2UDK-
- ZL2UDL—Nixon, T. J., 16 Balliol Drive, Tawa. ZL2UDM—Grapes, R. D. H., 2 Anglesey Place, Palmerston. North.
- ZL2UDN-ZL2UDO---Mulligan, G. D., 224 Karori Raod, Wellington 5.
- ZL2UDP-Cooper, A. J., 6 Denholm Road, Napier. ZL2UDQ—Bos. F., 34 Albert Street, Pahiatua. ZL2UDR—Cole, G. P., 58 Woodhouse Avenue.
- Wellington 5
- ZL2UDS-Durbridge, D. S., 19 Colombo Street, Palmerston North
- ZL2UDT—Clarkson, M. J., 14 Skippage Road, Featherston.
- ZL2UDU-Parker, H. R., 59 Routley Crescent, Upper Hutt.
- ZL2UDV—Lambert, J., 12 Betts Avenue, Masterton. ZL2UDW—Cheer, B. W., 17 Merton Crescent, Napier.
- ZL2UDX-Lawn, M. J., 2 Kiwi Place, Tawa. ZL2UDY-
- ZL2UDZ-Andrews, I. F., 66 Shakespeare Avenue, Upper Hutt.
- ZL2UEA-Goldfinch, R. Q., 15 Arthur Hobson Avenue. Pirimai.
- ZL2UEB-Wilkinson, J., 69a Park Road, Carterton.

```
Nelson.
ZL2UEC-
                                                                       ZL2UGI-
ZL2UED-
                                                                       ZL2UGJ-
ZL2UEE—Gardner, A. P., 6 Alberta Road, New Plymouth. ZL2UEF—Whittaker, J. W., 128 Moohan Street,
                                                                       ZL2UGK-George, S. B., 6 Seymour Street, Waitara.
                                                                       ZL2UGL-Southam, J. E., 32 Kandy Crescent, Ngaio,
         Wainulomata.
                                                                                Wellington 4
ZL2UEG-Thorp, R. J., 26 Southwark Avenue, Tamatea.
                                                                       ZL2UGM-Thomson, B. J., 16 Victory Crescent, Tawa.
         Napier
                                                                       ZL2UGN-Gregory, B., 46 Corinna Street, Porirua
ZL2UEH—Ames, M. L., Queen Stret East, R.D. 1, Levin, ZL2UEI—McConnel, W. K., 41 Riddlers Crescent, Petone.
                                                                       ZL2UGO—Harper, I. R., 12 Findhorn Place, Papakowhai. ZL2UGP—Pears, D. M., 17 Palmer Crescent, Heretaunga,
ZL2UEJ-
                                                                                Upper Hutt.
ZL2UEK-
                                                                       ZL2UGQ-Comrie, A. C., 31 Wellington Road,
ZL2UEL-Lane, J. R., C/- NZED, Woodlands Road, R.D.
                                                                                Wainuiomata.
         3. Woodville.
                                                                       ZL2UGR-Smith, P. R., Unit 1 53 Clifford Raod,
ZL2UEM-Miller, C. D., 72b Blackrock Road, Newlands,
                                                                                Johnsonville, Wellington 4,
         Wellington 4.
                                                                       ZL2UGS-Jones, B. R., 24 Matanina Grove, Haywards.
ZL2UEN-Wakefield, W. J., 52 Totara Street,
                                                                       ZL2UGT-
         Wainuiomata
                                                                       ZL2UGU-
ZL2UEO-Stucke, P. W. S., Highup Lindups Road, Upper
                                                                       ZL2UGV—Senior, J. I. M., 34 Lahore Street, Wairoa.
         Moutere
                                                                       ZL2UGW-Cumings, L. J., 76 Brandon Street,
ZL2UEP-McNab, P. C., P.O. Box 138, Blenheim.
                                                                                Featherston.
ZL2UEQ-Berger, R., 38a Morley Street, New Plymouth.
                                                                       ZL2UGX-
ZL2UER-
                                                                       ZL2UGY-Reisima, A. J., 31 Perry Street, Silverstream,
ZL2UES-
                                                                                Upper Hutt.
ZL2UET-Harding, B. P., 55 Hillside Drive, Maoribank,
                                                                       ZL2UGZ—Hodgkinson, J., Medway Street, Rongotea.
ZL2UIA—Brandwood, M. D., 10a Te Kiteroa Grove.
         Upper Huit
ZL2UEU—Hislop, R. G., 44 Donnelley Drive, Wainuiomata. ZL2UEV—Tong, J., 52b Truscott Avenue, Johnsonville,
                                                                                Churton Park, Wellington 4.
                                                                       ZL2UIB-Morrish, J. D., 47 Everest Street, Khandallah,
         Wellington 4
                                                                                Wellington 4.
ZL2UEW-Aurisch, P. J., 2 Taranaki Street, Wanganui.
                                                                       ZL2UIC—Kerley, P., 38 Somerset Street, New Plymouth, ZL2UID—Imamura, K., 5 Rama Crescent, Khandallah,
ZL2UEX-
ZL2UEY-Collins, G. N., 16 Oxford Street, Marton
                                                                                Wellington 4.
ZL2UEZ—Conroy, T. R., 37 Stratford Street, Blenheim, ZL2UFA—Wilson, B. D., 4 Potutu Grove, Upper Hutt.
                                                                       ZL2UIE—Rozmus, J. E., 101 Gonville Avenue, Wanganui, ZL2UIF—Ward, T. W., 1/358 Devon Street East, New
ZL2UFB-
                                                                                Plymouth.
ZL2UFC-Meek, P. K., 42 McLeod Street, Upper Hutt.
                                                                       ZL2UIG-Merrilees, P. R., 44 Golders Road, Upper Hutt.
ZL2UFD-
ZL2UFE—Vickers, M. P., 2 George Street, Eltham.
ZL2UFF—Pannek, R., 11 Miro Street, Upper Hutt.
ZL2UFG—Randall, J. H., 7a Sunny Glen, Waikanae.
                                                                       ZL2UIH-
                                                                       ZL2UII—Goodall, R. N., 31 Plymouth Road, Flaxmere,
                                                                                Hastings.
                                                                       ZL2UIJ-Marr, Y. E., 3 Crown Hill, Titahi Bay.
ZL2UFH-Huntingdon, R. J., 11 Thistle Street, Napier.
                                                                       ZL2UIK-
ZL2UFI-
                                                                       ZL2UIL-Davidson, M. W., 12 Highfield Place, Levin.
ZL2UFJ--Baker, G. C., 110 Wood Street, Palmerston
                                                                       ZL2UIM—Duffy, M. J., 23 Ngarara Road, Waikanae.
ZL2UIN—Gregory, A., 46 Corinna Street, Porirua.
        North
ZL2UFK-
                                                                       ZL2UIO-
ZL2UFL-Cotter, M. C., 24 Rodney Street, Woburn, Lower
                                                                       ZL2UfP—Hills, J. D., 16 Miro Street, New Plymouth, ZL2UfQ—Baldwin, P. J., 12 Airedale Place, Waitara.
ZL2UFM-Lambert, A. C., 44 Strange Street, Waitara.
ZL2UFN—Blyde, G. R., 18 Egmont Street, Kaponga. ZL2UFO—Davies, S. P., 226 Mitchell Street, Brooklyn
                                                                       ZL2UIR-Were, G., 180 Regan Street, Stratford
                                                                       ZL2UIS-Hoogeveen, W., 35 Ramanui Avenue, Hawera.
                                                                       ZL2UIT-Cash, I. M., 40 Hutchins Street, Waitara.
         Wellington 2
                                                                       ZL2UIU---
ZL2UFP-Cordy, M., 50 Strathmore Avenue, Strathmore
                                                                       ZL2UIV—Candy, S. T. R., P.O. Box 56-072, Linden, Tawa.
        Park, Wellington 3
                                                                       ZL2UIW-
ZL2UFQ-Asmus, J. M., 16 Palliser Place, Palmerston
                                                                       ZL2UIX-Abel, A. J., 20 Ranturly Road, Feilding
         North
                                                                       ZL2UIY-Baird, S. L. C., 22 The Sounding, WHitby,
ZL2UFR-Gibson, B. S., 142 Te Mata Road, Havelock
                                                                                Paramata.
         North
                                                                       ZL2UIZ-Armstrong, P. A., 26 Ferndale Place, Feilding.
ZL2UFS-Kent, A. A., 5 Raymond Terrace, Lower Hutt.
                                                                       ZL2UJA
ZL2UFT-Johnston, A. A., 26 Grey Street, Woodville,
                                                                       ZL2UJB
ZL2UFU-Page, A., 6 Matai Place, Otaki
                                                                       ZL2UJČ
ZL2UFV-
                                                                       ZL2UJD
ZL2UFW-Baldwin, T. N., 38 Princess Street, Waitara.
                                                                       ZL2UJE
                                                                       ZL2UJF
ZL2UFY-Whale, D. M., 301 Kennedy Road, Napier.
                                                                       ZL2UJG
ZL2UFZ-
                                                                       ZL2UJH
ZL2UGA-
                                                                       ZL2UJI
ZL2UGB-
                                                                       ZL2UJJ
ZL2UGC-
                                                                       ZL2UJK
                                                                       ZL2UJL
ZL2UGD—Herbert, J. O., Mataro Road, RD 45, Urenui.
ZL2UGE-
                                                                       ZL2UJM
ZL2UGF-Burling, M. L., 51 Catherine Cresent, Pararangi,
                                                                       ZL2VHP-Manawatu Branch NZART, (Trustees: H. N.
        Newlands, Wellington 4.
                                                                                Wiggins, and S. J. Cathcart). (Beacon Station
ZL2UGG-Syme, D. R., 17 Rogers Road, Bay View,
                                                                                located at Mt. Stewart, Mt. Biggs Road.
                                                                                Palmerston North.)
        Napier.
```

ZL2UGH-Newport, C. W., 162 Kawai Street South,

ZL2UEC

ZL3 Callsign Listings

- ZL3AA-Cheeseman, J. P., 20 Stanley Crescent, Nelson ZL3AB-
- ZL3AC-Christchurch Branch NZART Inc., (Trustee: D. J. MacKay), Galbraith Avenue, Avonside, Christchurch 6.
- ZL3AD-Donehue, W. R., No. 1 R.D., Timaru. ZL3AE-Festing, D. A., Main Road, Oxford, North
- Canterbury ZL3AF-Ashburton Branch NZART Inc., (Trustees: V. P. Lovett and K. W. Stirling), Mona Square, Ashburton
- ZL3AG-Roberts, G. C., 59 Thomson Street, Ashburton ZL3AH-Jones, D. L., 53 Wales Street, Halswell, Christchurch 3
- ZL3AI—Fraser, D. J., Glenmark Street, Waipara. ZL3AJ—McDonald, K. R., 74 McBratneys Road,
- Christchurch 6. ZL3AK—Sandford, G. G., 44/3 Peel Street, Geraldine, ZL3AL—Smythe, G. C., 300 Withells Road, Christchurch 4.
- ZL3AM—Kirk, R. E., 43 Dover Street, Christchurch 1. ZL3AN—Duff, B. F., 30 Frensham Crescent, Christchurch 6
- ZL3AO-Bell, M. W., 203 Weston Road, Christchurch 5. ZL3AP—Tomlinson, H. C., 446 Hills Road, Christchurch 5.
- ZL3AQ—Lovett, V. P., 148 Alford Forest Road, Ashburton. ZL3AR—Whyte, B. T., 17 Cambridge Street, Ashburton. ZL3AS—Sams, C. G. A., 80 Straven Road, Christchurch 1.
- ZL3AT-Marquet, L. J., 23 Nortons Road, Christchurch 4. ZL3AU-
- ZL3AV-Wills, S. P., 26b Marshall Street, Christchurch 2. ZL3AW-
- ZL3AX-Tillman, N. W., 69 Soleares Avenue, Christchurch 8.
- ZL3AY-Mason, G. E., Mason's Flat, Hawarden.
- ZL3AZ-Rayner, D. A., 23 Waitohi Street, Christchurch 4.
- ZL3BA-Drumm, B. G., 12 Martin Street, Hamilton.
- ZL3BB—Gray, G. W., 6 Muir Street, Wanganui. ZL3BC—Harrison, J., "Pinaki" Motunau, R.D., Greta Valley
- ZL3BD-Ludwig, M., 105 Beachville Road, Christchurch 8. ZL3BE-Christchurch Boys' High School Radio Club,
- (Trustee: T. J. S. Wignall), Straven Road, Christchurch 1 ZL3BF-Sall, S. J., 234 Ilam Road, Fendalton,
- Christchurch 4.
- ZL3BG-Himing, L. C., 23 Coopers Road, Shirley, Christchurch 6.
- ZL3BH-Bowman, G. R. B., 158 Revell Street, Hokitika. ZL3BI—Brice, K. L., 18 College Avenue, Christchurch 5 ZL3BJ—Hunter, L. C., 42 Stanton Crescent, Christchurch 2
- ZL3BK-Halliburton, G. A., 6 Barlow Street, Christchurch 4.
- ZE3BL-Holland, B. N., 75 Blankney Street, Christchurch 4
- ZL3BM-Cook, D., 5 Swindells Road, Waikuku Beach,
- North Canterbury.
 ZL3BN—Sim, G. W., 47 Teesdale Street, Christchurch 5.
 ZL3BO—King, M. R., 2/16 Tuahine Crescent, Wainui, Gisborne.
- ZL3BP--Mountford, T. G., 141a Otipua Road, Timaru. ZL3BQ-Urlwin, A. J. (Mrs), 30 Ryeland Avenue. Christchurch 4
- ZL3BR-White, M. G., Mangawhero Road, P.O. Box 62, Eltham 5.
- ZL3BS-Tweedie, S. B., 167 Wales Street, Oaklands, Christchurch 3
- ZL3BT—White: E. I., 5 Clementine Lane, Christchurch 8. ZL3BU—McNeill, E. D., 43b Bowenvalo Avenue, Christchurch 2.
- ZL3BV-Schaef, L. M., 10 Bridge Street, Greymouth. ZL3BW—Burt, G. L., 114 Marsden Road, Greymouth, ZL3BX—Pattrick, B. L., 422 Innes Road, Christchurch 5.

- ZL3BY-Halford, B. B., P.O. Box 16-055, Hornby, Christchurch 4
- ZL3BZ—Johnson, C., 10 Harris Street, Pleasant Point. ZL3CA—Sandford, T. W., Unwin Road, Orton R.D.
- Temuka. ZL3CB-Newton, B. A. (Mrs), 23 Crofton Road, Christchurch 5.
- ZL3CC—Crosby, K. G., 138 Peel Street, Westport, ZL3CD—Smillie, J. W., 7 Barnes Street, Timaru, ZL3CE—Hewson, J. N., 20 Darroch Street, Christchurch 5, ZL3CF—Lec, C., 7 Harcourt Street, Grey Lynn,
- Auckland 2.
- ZL3CG—Silverwood, K., Waimangaroa. ZL3CH—McKnight, S. G. J., 24 Celia Street.
- Christchurch 8.
- ZL3C1-Isherwood, B., 134 Park Street, Hokitika.
- ZL3CJ-Bell, R. G., 50b Murray Place, Christchurch 1.
- ZL3CK—Seay. M. R., Meadowcroft, 3 R.D., Christchurch. ZL3CL—McKay. A. D. G., 2 Cedars Street, Christchurch 2. ZL3CM—Burrell, K. M., 5 Jacaranda Grove, Maungaraki,
- Wellington. ZL3CN-
- ZL3CO-Wylie, P. B., 101 Englefield Road. Christchurch 5.
- ZL3CP—Parton, C. W., 78 Diamond Avenue, Spreydon, Christchurch 2.
- ZL3CR-Harvey, C. R., 27 The Terrace, Timaru.
- ZL3CS-Downer, G. H., Larcombs Road, No. 5 R.D., Christchurch.
- ZL3CT—Bennett, R. S., 38 Omahau Crescent, Twizel. ZL3CU—Moffatt, S. Z., 33 Bidwell Street, Timaru. ZL3CV—Gilligan, M. S. J., 368 Barrington Street,
- Christchurch 2.
- ZL3CW—Gitsham, F. J., C/- Regional Engineers Office, P.O. Box 1473, Christchurch.
- ZL3CX--Raper, T. C., C/- Bible College, 221 Lincoln Road, Henderson, Auckland 8.
- ZL3CY-Hutchison, D. E., 44 Hawthorndon Road, Christchurch 4
- ZL3CZ-Felmingham, C. E., 97 Cowper Street, Greymouth.
- ZL3DA-Fletcher, G. K., 16 Kahu Street, Burnham, Christchurch.
- ZL3DB—Buschl, B. D., 6/30 Gambia Place, Papanui, Christchurch 5
- ZL3DC-Grindrod, R. J., 103 Gardeners Road, Christchurch 5.
- ZL3DD—Mitchell, A. R., 55 Shoreham Street, Blockhouse Bay, Auckland 7.
- ZL3DE—Hawes, S. C., Timaru Hospital, Timaru. ZL3DF—Yoeman, J. C., 110 Bristol Street, Christchurch 1, ZL3DG—Hood, N. D., 47A Aorangi Road, Christchurch 5.
- ZL3DH-Hardie, W. S., 245a Harewood Road, Christchurch 5.
- ZL3DI—Tylee-Porter, G. J., Crossgates Farm, Cryers Road, Southbridge, R.D. 3, Christchurch.
- ZL3DJ-Gill, M. E., "Beckscote", No. 1 R.D., Ashburton ZL3DK-
- ZL3DL—Barker, L. G., 37 Burwood Road, Christchurch 9.
- ZL3DM-Calvert, R. L., 253a Waimairi Road, Christchurch 4.
- ZL3DN-Westland Branch NZART Inc., (Trustee: D. F. Martin), 28 High Street. Greymouth.
- ZL3DO-Sharp, V. E. E., 10 Sewell Street, Linwood, Christchurch 6
- ZL3DP-Meikle, B., District Engineers' Office, Post Office, Nelson.
- ZL3DQ-Boddy, A. W., 9 Bolton Avenue, Spreydon, Christhourch 2
- ZL3DR-Godfrey, R. J., Main South Road, R.D. 2. Kaikoura.

ZL3DS

ZL3DS-Brewster, D. W., 860 Avonside Drive, Christchurch 6

ZL3DT-

ZL3DU—Wilson, V. J., 33 Roseberry Street, Christchurch 2.

ZL3DV-Jefferis, E. W., 15 Kingsgate Place,

Christchurch 5. ZL3DW-Edward, L. N. M., 45d Glenharrow Avenue.

Christchurch 4.

ZL3DX-McGee, W. H., 11 Glenavon Place, Christchurch 4.

ZL3DY—Firman, R. K., 181 Morgans Road, Timaru. ZL3DZ—Thomson, G., 24 George Street, Pleasant Point, ZL3FA—Davis, M. C., 30 City View Terrace, Birkenhead. Auckland 10.

ZL3FB—Schroeder, W. F., The Vicarage, 8 Roxburgh Street, Christchurch 2.

ZL3FC-Guthrie, M. W., 74 Merivale Lane, Christchurch 1. ZL3FD-

ZL3FE-Brown, R. A., 17 Rathlin Street, Christchurch 5, ZL3FF-Kelly, I. J. H., 74 Heta Road, New Plymouth. ZL3FG~

ZL3FH-

ZL3FI-Smith, E. S., 112 Russell Street, Westport. ZL3FJ—Brown, D. A., 62 Hudson Street, Christchurch 5. ZL3FK—Hepburn, L. D., 22 Gwynfa Avenue, P.O. Box 1410, Christchurch 2,

ZL3FL—Cox, W. F., 55 Daniels Road, Christchurch 5. ZL3FN—Campbell, R. J., 6 Candys Road, Christchurch 3. ZL3FN—Wilson, R. J., 9 Sumner Street, Christchurch 2. ZL3FO—Blackmore, J. H., 364 Riverlaw Terrace, St.

Martins, Christchurch 2.

ZL3FP—Kyle, E. A. J., 12a Mountfort Street, Christchurch 2.

ZL3FQ—Hamlin, J. H., 26 Brabourne Street. Christchurch 2.

ZL3FR—Fisher, R. G., Sarjants Road, Te Puru, Thames, ZL3FS—Seed, D. P. (Mrs), 831 Cashmere Road, Halswell, Christchurch 3.

ZL3FT-

ZL3FU—McPhail, T. K., 7 Ostend Place, Christchurch 4. ZL3FV—McCracken, W. D., 14 Northcote Road, Papanui, Christchurch 5

ZL3FW-O'Brien, J. R., 508 Marine Parade, Christchurch 7.

ZL3FX-

ZL3FY-Gardner, R. 62 Palatine Terrace, Christchurch 2 ZL3FZ-Fraser, B. H. L., 113 Beresford Street,

Christchurch 7. ZL3GA—Allan, N. J., 11 Longmuir Street, Christchurch 4, ZL3GB—Cronin, D. W., 86 St. Martins Road, St. Martins,

Christchurch 2.
ZL3GC—Baker, D. M., 10 Lisava Avenue, Timaru.
ZL3GD—Kingan, S. G., Anama, R.D. 8, Ashburton.
ZL3GE—Welford, A. R., 12 Devon Street, Timaru.

ZL3GF-Bool, W. A., 145 South Bay Parade, South Bay, Kaikoura.

ZL3GG-Hamilton, H. G., 25 Whitby Street. Christchurch 5.

ZL3GH-Mitchell, N. J., 15 Blossomdale Place. Christchurch 5

ZL3GI—Halliburton, G. J., 6 Barlow Street, Fendalton. Christchurch 4.

ZL3GJ—Reynolds, A. E., 117 Roker Street, Christchurch 2 ZL3GK—Richardson, T. C. W., 5 Cicada Place, Christchurch 4

ZL3GL-Philips, R. J., 15 Wyn Street, Hoon Hay, Christchurch 2

ZL3GM-

ZL3GN-Dacombe, A. N., 33a Huntsbury Avenue. Christchurch 2.

ZL3GO-Scott, T. R., Ruapuna, No. 5 R.D., Ashburton, ZL3GP-Middlemiss, P. G., 71 Kelly's Road, Christchurch 5.

ZL3GQ-Watson, P. W., Hamptons Road, R.D. 4, Christchurch.

ZL3GR-Archer, R. G., 12 Takahe Drive, Cashmere. Christehurch 2.

ZL3GS—Wright, G. M., 25 Dunedin Street, Christchurch 5 ZL3GT—Somerville, J. H., 14 Park Lane, Timaru, ZL3GU—Keys, J. R., 60 Huxley Street, Sydenham,

Christehurch 2

ZL3GV-Kerdemelidis, T., Flat 3, 421 Worcester Street, Christehurch 1.

ZL3GW-

ZL3GX—Chapman, A. S., 7 Dellow Place, Christchurch 2, ZL3GY—Morgan, D. K., 6a Mendip Place, Christchurch 5, ZL3GZ—Morgan, D. K., Galwieldig Place, Offisichter S. ZL3GZ—Smith, H. E., North Road, Clinton. ZL3HA—Arrold, H. F., 23 Cornwell Street, Christchurch 1. ZL3HB—Deans, R. H., Tara, Coalgate. ZL3HC—Brittenden, C. E. R., 329 Wainoni Road.

Christchurch 7

ZL3HD-Chambers, D. H., 5 Stiles Place, Dallington, Christchurch 6

ZL3HE-Harris, J. G., 528 Hagley Avenue, Christchurch 1. ZL3HF~

ZL3HG—Davy, K. T., 17 Hatton Street, Timaru

ZL3HH—Wylie, R. L., 21 Vickery Street, Kaiapoi. ZL3HI—Holtum, J. W. A., 44 Melrose Road, Island Bay. Wellington 2.

ZL3HJ-Hyndman, A. W., 270 Halswell Junction Road, Christchurch 3.

ZL3HK-Hayes, W. F., 90 Bright Street, Cobden. Greymouth.

ZL3HL—Thompson, S. A., 48 Tosswill Road, Prebbieton, ZL3HM—Evans, C. E., 123 Beach Road, Kaikoura, ZL3HN—Holtum, J. W., 461 Johns Road, Harewood.

Christchurch 5 ZL3HO—Lowry, R. C., 10 Palmers Road, North Beach,

Christchurch 9. ZL3HP—Hildebrand, D. E., 26 Ballance Street, Runanga. ZL3HQ-Moors, E. M. C., 8 Torlesse Street, Southbrook, Rangiora.

ZL3HR—Leitch, A., 113 Beresford Street, Christchurch 7. ZL3HS-Kempthorne, J. H., 44 Cannon Hill Crescent. Christchurch 8.

ZL3HT—Lyford, A. R., 156 Pembroke Road, Stratford, ZL3HU—Sandford, B. D., 205c Waimea Terrace. Christchurch 2.

ZL3HV-

ZL3HW-Wallace, C. W., 14 Brookby Crescent, Christchurch 4

ZL3HX-Marshall, D. A., 4 Geisha Road, Waikuku, North Canterbury.

ZL3HY-Fleming, J. G., 107 Lonsdale Street, Christchurch 9

ZL3HZ-Southgate, W. A., 7 Paeroa Street, Christchurch 4.

ZL3IA—Tyerman, P. F., 9 Elstow Place, Christchurch 2, ZL3IB—Walker, J. R. L., 19 Athol Terrace, Christchurch 4 ZL3IC—McCulloch, E. N., 21 Norwich Street,

Christchurch 6.

ZL3ID—Pettigrew, W. L., 148 Peel Street, Westport, ZL3IE—Hopkinson, L. G., 107 Evans Street, Timaru ZL3IF—Stickings, P. C., 5 Kowhai Street, Ravensbourne,

Dunedin.

ZL3IG-ZL3IH-Preston, W. L., Rhoborough Downs, Fairlie ZL3II-

ZL3IJ—Inglis, J. M., 288 Estuary Road, Christchurch 7, ZL3IK—Murray, J. C., 3 Kitchener Place, Opawa,

Christchurch 2

ZL3IL-ZL3IM-

ZL3IN-Cax, R., 16 College Avenue, Christchurch 5 ZL3IO-Crossman, G. D., 2 Wallingford Road, Temuka. ZL3IP—Anderson, J., 40a Sneyd Štreet, Kaiapoi

ZL3IQ-Drummond, W. P., 11 Reid Crescent, Ashburton.

ZL3IR-Benson, A. F., 32 Euston Street. Christchurch 4.

ZL3IS-Soanes, G. A., 245 Westminster Street. Christchurch 1

2L3IT—MacDonald, J. D., 42 Buchanan Street, Timaru. ZL3IU—Gray, N. G., Springburn, R.D. 1, Ashburton, ZL3IV—Cumming, H. W., Arthurstown Road, Hokitika. ZL3IW-Maddren, G. R. H., 139 Soleares Avenue,

Christchurch 8

ZL3IX—Hope, G. M., 25 Jonning Place, Redwood, Christchurch 5.

ZL3IY—Vickery, K., 139 Reven Street, Kaiapoi. ZL3IZ—Duncan, A., 8 D'Arcy Street, Richmond. ZL3JA—Avery, J. L., 59 Taylors Mistake Road, Sumner,

Christchurch 8

ZL3JB-Nutley, A., C/- Alp Sports, 216 Hereford Street, Christchurch 1.

ZL3JC-Watson, J. P., 64 MacDonald Street, Timaru.

ZL3JE—Stewart, D. A., 33 King Street, Pareora.
ZL3JF—Henderson, H. P., 35 Hillview Crescent, Timaru.
ZL3JG—Rawstorn, G. J., 108 Monks Spur Road.

Christchurch 8.

ZL3JH-Kingston, E. W. A. H., 18 Smith Street, Woolston, Christchurch 6.

ZL3JI—Foulds, L. F., 131 Cuthberts Road, Christchurch 6. ZL3JJ—Crump, M. W., 9 Peraki Street, Kaiapoi. ZL3JK-Williams, H. E., 51 Westholme Street,

Christchurch 5.

ZL3JL-McFarlane, A. R., 48 Chalmers Avenue, Ashburton.

ZL3JM—Bennett, P. W., 319 King Street, Temuka. ZL3JN—Mummery, B. H., 8 McIntyre Street.

Christchurch 1

ZL3JO-Papesch, A. J. G., 25 Powell Crescent, Christchurch 4. ZL3JP---Langley, E. W., 22a Neill Street, Hornby,

Christchurch 4.

ZL3JQ—Poll, A. K., 155 Halswell Road, Christchurch 2. ZL3JR—Kelly, S. J. C., 6b Peters Lane, Christchurch 2. ZL3JS—Pruden, H. C. L., 84 Cresswelf Avenue,

Christchurch 6.

ZL3JT—Ward, C. A., 329 Wainoni Road, Christchurch 7. ZL3JU—Sorensen, A. G., 62 Shortland Street,

Christchurch 6.

ZL3JV—MacGeorge, B. A., 9 Opie Street, Waimate, ZL3JW—Anderson, R. A., 9 Greenwood Street, Mairehau, Christchurch 1.

ZL3JX—Rowlands, T. E., "Ruthin", R.D. Kaiapoi, ZL3JY—Stalker, J. P.,. Greenpark, No. 4 R.M.D., Christchurch.

ZL3JZ-Dumbleton, R. S., 8 Bradford Avenue, Christchurch 2.

ZL3KA-Macer, J., 31 Colwyn Street, Christchurch 5. ZL3KB-

ZL3KC-Cuttriss, S. A., 33 Brabourne Street. Christchurch 2.

ZL3KD-Diedrichs, G. H., 16 Kildare Terrace, Lincoln,

ZL3KE-McGrath, R. E., 42 Lyndhurst Crescent, Christchurch 7

ZL3KF—Pettitt, E. R., 6a Usk Street, Timaru. ZL3KG—Willmott, W. R., C/- Willmotts Drapers. 26 Royal Arcade, Timaru.

ZL3KH-

ZL3KI-Jackson, D. W., 42 Churchill Street, Kaikoura. ZL3KJ—Jones, E. V., 155 Derby Street, Westport.
ZL3KK—Goodare, T. T., 8 Cutts Road, Christchurch 4.
ZL3KL—Howell, B. C., No. 6 Deepdale Street,
Christchurch 5.

ZL3KM-Woodfield, M. K., 74 Marlborough Street,

Greymouth.
ZL3KN—Ellis, T. C., Flat 3, 460 Gloucester Street, Christohurch 1

ZL3KO-Stroobant, A. D., 19 Rothesay Bay Road, Rothesay Bay Auckland 10

ZL3KP-Parr, W. E., 30 Cranbrooke Ave, Christchurch 5. ZL3KQ-Hellyar, G. L. 7 Jameson Avenue, Christchurch. ZL3KR-Hughes, A. G., 4 Exton Street, Christchurch 5. ZL3KS-Downer, M. H., 34 Torquay Place.

ZL3KT—Olsson, E. E., 14 Bentley Street, Christchurch 4. ZL3KU—Waters, K. A., 11 Burnett Street, Timaru. ZL3KV—Brown, H. H., 22 Birkenhead Street,

Christchurch 4.

Christchurch 5.

ZL3KW-Faass, S. R. F., 13a Miriana Street, Maungatapu, Tauranga.

ZL3KX—Harrington, R. J., Mount Harris Road, 9 R.D., Waimate.

ZL3KY—Talbot, A. D., 37 Park View Terrace, Timaru. ZL3KZ—Neilson, J. B., 37 Eastling Street, Bishopdale, Christchurch 5

ZL3LA-Ludbrook, S. W., 255 Woodham Road. Christchurch 6

ZL3LB-Hamilton, W. R., 17 Braithwaite Street. Christchurch 4.

ZL3LC—Corner, P. E., 7 Deepdale Street, Christchurch 5. ZL3LD—Saunders, B. C., 14 Stackhouse Avenue,

Christchurch 5.

ZL3LE-Guard, B. N., 80 Hassall Street, Timaru. ZL3LF-

ZL3LG—Jackson, C. J., 74 Cambridge Street, Ashburton. ZL3LH—Muir, D.N., 104 Torea Street, Granity, ZL3LI—Neal, J. V., 3 Branscombe Street, Timaru.

ZL3LJ-Wigram Radio Hobbies Club, (Trustee: D. K. Hampton), RNZAF Station, Wigram, Christchurch 4.

ZL3LK-McGowan, J. S., 75 Eastern Terrace,

Christchurch 2.

ZL3LL—Leadley, J. M., "Woodlands", R.D. 7, Ashburton.

ZL3LM—Burrell, N. W., 63 Kotare Street, Christchurch 4.

ZL3LN—Penney, V. J., 326 Rivertaw Terrace, Christchurch 2.

ZL3LO—Cairns, A., 21a Soleares Avenue, Christchurch 8. ZL3LP—Brown, H. P., 8 Neill Street, Hornby,

Christchurch 4. ZL3LQ—Paltridge, K. K., 131 Warrington Street, Christchurch 1.

71.3LB-

ZL3LS—Miller, G. C., 47 Cox Street, Christchurch 1. ZL3LT—Stanbury, A. C., 43 Dunedin Street, Northcote, Christchurch 5.

ZL3LU-Campbell, G. R., 24 Rosamund Place, Christchurch 3

ZL3LV-Davey, R. L., 30 Grassmere Street, Christchurch 5.

ZL3LW-Lowe, C. A. K., 15 Auburn Avenue. Christchurch 4.

ZL3LX-Kirkpatrick, I. J., 99 Bickerton Street. Christchurch 6.

ZL3LY-Eddington, J. A., 23 Ferner Street, Christchurch 6. ZL3LZ— ZL3MA—Kingswell, G. N., "Highlands", P.O. Box 93,

Geraldine.

ZL3MB-Wilson, M. J. G., 23 Vauxhall Street, Christchurch 5.

ZL3MC-McKenzie, D. S., 176 Ilam Road Christchurch. ZL3MD-

ZL3ME—Bramley, C. J., 7 Edward Street, Prebbleton. ZL3MF—Oates, D. J., Carters Beach, C/- P.O. Box 20, Westport.

ZL3MG-Urlwin, R. A., 30 Ryeland Avenue, Christchurch 4.

ZL3MH-Macer, D. R. J., 31 Colwyn Street, Christchurch 5.

ZL3MI-Sullivan, R. E., 103a Jeffreys Road, Christohurch 5.

ZL3MJ—Lewis, C. T., 30 Te Rama Place, Christchurch 6, ZL3MK—Phillips, A. S., 148 Brookside Terrace, Bryndwr, Christchurch 5.

ZL3ML-McNicol, A. D., 26 Gainsford Street, Christchurch 4.

ZL3MM

ZL3MM-Hills, R. I., 25 Rapaki Road, Christchurch 2.

ZL3MN-

ZL3MO-Murphy, P. C., 60 Dunns Avenue, Pines Beach, Kajapoj

ZL3MP-Cardwell, A. M., 18 Edward Avenue, St. Albans, Christchurch 1

ZL3MQ-McMaster, R. J., 8 Greens Road, Kaiapoi R.D. 1. ZL3MR-Warner, J. A., 11 Goulds Road, Timaru.

ZL3MS-Brash, J. P., 14 Rydal Street, Christchurch 2 ZL3MT-

ZL3MU-Henshall, E. H. (Mrs), 281 Innes Road, Christchurch 5.

ZL3MV-Morrin, E. C., 45 Wychbury Street, Spreydon. Christchurch 2.

ZL3MW—Watt, J. M., 44 Ward Street, Kaikoura.
ZL3MW—Cason, A. V., 198 Otipua Road, Timaru.
ZL3MY—Searle, R. W., P.O. Box 33, Harihari.
ZL3MZ—Garlick, P. R., 23 Lydia Street, Greymouth.
ZL3NA—Robinson, D. G., Kowhitirangi, R.D., Hokitika.
ZL3NB—Swann, A., 29 Manor Place, Bryndwr,

Christchurch 5.

ZL3NC—Ingram, R. C., Rapahoe, Greymouth, ZL3ND—Liddell, C. G., 356 Avonside Drive, Christchurch 6

ZL3NE-Gyde, R. M., 26 Anita Avenue, Mt. Roskill, Auckland 4.

ZL3NF-Long, R. O., 103 Grey Street, Ashburton.

ZL3NG-ZL3NH-Rogers, P. J., Corner Cashmere and Happy

Home Roads, Christchurch 3. ZL3NI—Walker, D. N., 7 Levens Lane, Temuka.

ZL3NJ-ZL3NK—Golledge, C. W., 28 Vialou Street, P.O. Box 740,

Hamilton. ZL3NL-Tait, A. McM., 8 Ashbourne Street,

Christchurch 5. ZL3NM-Young, R. S., Anarewa Crescent, Stephens Bay, Motueka.

ZL3NN-Walshe, J. R., 79 Wellington Street, Picton.

ZL3NO-Johannis, K. L., 33 Wilton Crescent, Christchurch 5.

ZL3NP-Johnstone, G. V. O., 23 Roswell Place, Christchurch 4.

ZL3NQ-Drever, G. R., 139 Belt Road, Ashburton. ZL3NR-Campbell, L. S., 83 Farrington Avenue.

Christchurch 5 ZL3NS-Ositis, T., 128 Brookside Terrace, Christchurch 5.

ZL3NT-Blackwell, G. C., 3 Dobson Street, Christehurch 2.

ZL3NU-Collett, L. M., 263 Cannon Hill Crescent, Christchurch 8.

ZL3NV-O'Connor, E. P., 6 Stephens Street, Rangiora. ZL3NW-Macintosh, R. M., Main North Road, R.D. 1, Kajapoi.

ZL3NX-Smith, W. C., 71 Glenroy Street, Woolston, Christchurch 6.

ZL3NY—Stapley, G. P., 73 Davis Crescent, Ashburton, ZL3NZ—Fletcher, J., 187 Lincoln Road, Christchurch 2, ZL3OA-MacDonald, B. A., 21 Moffitt Street, Brooklyn,

Wellington 2

ZL308—McCann, C. P., 26 Mount View Drive, Rotorua. ZL30C—Horne, R. C., 115 Blackett Street, Rangiora. ZL30D—Barnes, G. J., 9 Strack Place, Redwood, Christchurch 5.

ZL3OE-Richards, D. L., 38 Frankleigh Street, Christchurch 2.

ZL3OF-Milne, I. F., 137 Southampton Street, Christchurch 2.

ZL3OG—Sandford, C.J., 38 St. Albans Avenue Mt. Eden, Auckland 3

ZL3OH—Knoef, F. J. C., 54 Harbour Road. Christchurch 9

ZL301-

ZL3OJ-Digby, N. M., 93a Perry Street, Christchurch 5.

ZL3OK-ZL3OL-

ZL3OM—Ferrand, C., 14 Leverett Place, Christchurch 9. ZL3ON-Nicholls, J. B., 3 Cliff Street, Christchurch B.

ZL300-

ZL3OP-Prebble, N. W., 134 Waimairi Road Christchurch 4.

ZL3OQ-Sorensen, E. A., 37 Hendon Street, St. Albans, Christchurch 1

ZL3OR-Sewell, J. M., 120 Stanmore Road, Linwood, Christchurch 1

ZL3OS-ZL3OT-Bromley, R. N., 391 Sawyers Arms Road, Christchurch 5.

ZL3OU-Bellamore, A. H., 87 Radley Street,

Christchurch 2 ZL3OV-Scrivener, E. H., Flax Cottage, Main North Road,

Waikuku. ZL3OW-Coman, H. O., 24 Digby Place, Christchurch 6.

ZL3OX-ZL3OY-Coull, G., 45 Seven Oaks Drive, Christchurch 5.

ZL3OZ-Burberry, R. L., 25 Percival Street, Beckenham. Christchurch 2

ZL3PA—Jenner, D. J., Waitangi, Chatham Islands. ZL3PB—Lobb, G. W., 64 Peel Street, Westport. ZL3PC—Abernethy, J. L., 21 Murray Street, Rangiora. ZL3PD—Pluck, R. L., Forbes Road, Tai Tapu.

ZL3PE-Carruthers, J. E., 80 Gilberthorpes Road, Hornby, Christchurch 4.

ZL3PF—Asher, A. S., 168 Maidstone Road, Christchurch 4, ZL3PG—Thomson, G., 59 Grey Road, Timaru, ZL3PH—Rowe, B., 250 Grahams Road, Burnside,

Christchurch 5.

ZL3PI-Bartrum, B. R., 31b Bowenvale Avenue, Cashmere, Christchurch 2.

ZL3PJ—Grewar, M. A., 244 Hampden Street, Hokitika. ZL3PK—Tapper, J. R., C/- 104 Mooray Avenue, Christchurch 5.

ZL3PL—Lobb, R. E. (Mrs), 64 Peel Street, Westport, ZL3PM—McGee, P. D., 1 Craigleburn Street, Darfield.

ZL3PN—Boorer, G. F., 48a Newton Street, Timaru.
ZL3PO—Turner, D. K., 39 Dillons Point Road, Bienheim.
ZL3PP—Robinson, P. C., 140 Douglas Street. Timaru. ZL3PQ-Were, D. A., 97 Campbell Road, Onehunga,

Auckland 6. ZL3PR-Petersen, C. M., 24 Derby Street, Westport ZL3PS-Davidson, F. W., 25 Sledmere Street, Bryndwr, Christchurch 5.

ZL3PT-Douglas, J. C. (Miss), "Giggleswick", Seymour Street, Millerton.

ZL3PU—Higgs, R. B., 51 Roker Street, Christohurch 2.

ZL3PV—Walker, W., Springston.
ZL3PW—Bevin, J. F., 25 Taylor Avenue, Christchurch 5.
ZL3PX—Chapman, G. A., 35 Harrison Street,

Christchurch 1. ZL3PY-

ZU3PZ-Jackson, W. B., 42 Churchill Street, Kaikoura. ZU3QA-Prentice, A. E., 8b Peters Lane, Spreydon. Christchurch 2

ZL3QB-McGlashan, D. C., 5016 Ilam Road, Christchurch 5.

ZL3QC-Mullis, N. A., 104 Mooray Avenue, Christchurch 5.

ZL3QD—Arcus, A. C., 3 Manuka Street, Nelson, ZL3QE—Browne, E. M. J., 9 Sarsfield Street, Southbridge.

ZL3QF-Cotton, M., 10 Hugh Street, Kaiapoi.

ZL3QG-Ross, G. L., 255 Cannon Hill Crescent, Christchurch 8

ZL3QH-Stanton, K. A., 7 Ruthergien Avenue, P.O. Box 31-095, Christchurch 4,

ZL3QI-Wornall, C. J., 5 Mento Terrace, St. Andrews Hill, Christchurch 8.

ZL3QJ-Havord, P. R., 16 Worsleys Road, Christchurch 2. ZL3QK-Dawson, R., 41 Garlands Road, Christchurch 2.

ZL3QL-Carrell, T. D., 33 Ryeland Avenue, Christchurch 4.

ZL3QM-Blackie, B. W., 27 West Bett, Rangiora.

ZL3QN—Barber, F. E., 20 Lomax Place, Christchurch 4. ZL3QO—Allan, J. M., Pittville Street, North Loburn, R.D. 2 Rangiora.

ZL3OP-Spence, R. D., 15a Kidson Terrace, Christchurch 2.

ZL3QQ-Seed, T. J., 831 Cashmere Road, Halswell, Christchurch 3.

ZL3QR—Gillman, G. H., 104 Rangiora Road, Woodend. ZL3QS—Sword, J. A. D. S., 395 Halswell Road,

Christchurch 3. ZL3QT-Delis, J. B. G., 455a Johns Road, Harewood,

Christchurch 5.

ZL3QU—Borrell, R. P., 93 Chapter Street, Christchurch 5. ZL3QV—Smith, R. H., 76 Santa Maria Avenue, Christchurch B.

ZL3QW-

ZL3QX-Mayo, G. J. L., 9 Westenra Terrace, Christchurch 2.

ZL3QY-Belcher, E. W., 1 Hall Street, Cobden, Greymouth.

ZL3QZ—Daniels, F. J. H., Ngakawau, via Westport. ZL3RA—Riach, C. D., 25 Buffon Street, Waltham, Christchurch 2.

ZL3RB-Davis, A. W., Aylesbury, No. 1 R.D., Christchurch.

ZL3RC—Signal, C. B., 4 Ranfurly Street, Timaru. ZL3RD—Davey, D. R., 44 Teesdale Street, Burnside, Christchurch 5.

ZL3RE-Bott, R. A., 8 Blakiston Street, Christchurch 2. ZL3RF—Dickey, C. N. 20 Todd Avenue, Christchurch 5. ZL3RG—Jaeger, R. A., 400 Queens Drive, Lyall Bay, Wellington.

ZL3RH—Pumpa, P. G., 2 Thornton Street, P.O. Box 57 Darfield.

ZL3RI-Hughes, J. O., 82 Half Street, Cobden. Greymouth.

ZL3RJ-Hutton, B. G., 5 Rosamund Place, Christchurch 3. ZL3RK-McKenzie, T. J., 73 Cygnet Street, Christchurch 9.

ZL3RL-Tunnicliffe, D. N., 17 Panorama Road.

Christchurch 8. ZL3RM—Lauder, B. C., 10 Seafield Place, Christchurch 7, ZL3RN—Yeates, D. R., 69 St. Andrews Hill Road, Christchurch 8.

ZL3RO—Walsh, G. J., 22 Grants Road, Gisborne, ZL3RP—Nobbs, R. L., 22 Shand Crescent, Christchurch 4. ZL3RQ-

ZL3RR-North Canterbury Amateur Radio Club, (Trustee: R. C. Horne), Civil Defence HQ Building, Percival Street, Rangiora. ZL3RS—Campbell, D., 61 Hall Street, Cobden,

Greymouth

ZL3RT—Rayner, L. A., 5 Redwood Place, Oxford, North Canterbury. ZL3RU—Bennett, R. G. T., 60 Kirkwood Avenue.

Christchurch 4.

ZL3RV-Rigg, I. K., 50 St. John Street, Christchurch 6. ZL3RW-MacKay, D. J., 22 Waipara Street, Christchurch 2

ZL3RX-South Westland Branch NZART Inc., (Trustee: G. R. B. Bowman), Police Station, Hokitika.

ZL3RY—Clark, E. J., 5 Albert Terrace, Christchurch 2. ZL3RZ—King, S. P., 12 Nayland Street, Christchurch 8. ZL3SA—Gibbs, R. A., 11 Pandora Street, Christchurch 9. ZL3SB—Riordan, A. A. C., 95 Crofton Road, Harewood.

Christchurch 5.

ZL3SC-Shearman, G. D., 68 Proctor Street, Christchurch 5.

ZL3SD-Powell, M. B., 229 Wairakei Road, Christchurch 5. ZL3SE-Harvey, M. A., 130 Wills Street, Ashburton.

ZL3SF-Maloney, J. N., 31 Middlepark Road, Christchurch 4.

ZL3SG-Harbeck, A. D., 28 Martbern Crescent, Christchurch 5.

ZL3SH-Gourdie, W., 18 Anvers Place, Spreydon, Christchurch 2.

ZL3SI—Little, G. W., 81A Banks Avenue, Christchurch 6. ZL3SJ—Fraser, G. J., 206 Major Hornbrook Road, Christchurch 8.

ZL3SK—Pattrick, T. L., 422 Innes Road, Christchurch 5. ZL3SK—Leeming, D. S., 92 Clyde Road, Christchurch 4. ZL3SM—Graham, B. N., 90 Churchill Street, Kaikoura. ZL3SN—Oldham, J. E., 40 Russell Street, Westport. ZL3SO—Kilkelly, J. W., Haselden Street, Westport.

ZL3SP-ZL3SO-Hadfield, A. I., 1/284 Manchester Street,

Christchurch 1. ZL3SR-Webster, R. D., 10a Rarangi Road, St. Heliers,

Auckland 5. ZL3SS-Langrish, T. F., 36 Bowenvale Avenue, Christchurch 2.

ZL3ST-Williams, K. E., 2/31 Truro Street, Sumner, Christchurch 8.

ZL3SU—Orchard, P. J., 15 Palmerston Street, Greymouth. ZL3SV—Watson, G. L., P.O. Box 262, Motueka. ZL3SW—Carter, D. R., Mt. Gay, Pleasant Point. ZL3SX—Silcock, F. N., 26 Sylvia Street, North Brighton, Christchurch 9.

ZL3SY-Thomas, P. A., 270 Centaurus Road, Christchurch 2

ZL3SZ-Dalrymple, D. L., 65 Frankleigh Street, Christchurch 2.

ZL3TA-Ritchie, M. V. H., 11 Hands Road, Hillmorton, Christchurch 2.

ZL3TB-

ZL3TC—Smith, T. M. (Mrs), North Road, Clinton. ZL3TD—Daly, P. P., 117 Emmett Street, Shirley,

Christchurch 1. ZL3TE-Turner, J. N., 2/202a Main Road, Redcliffs, Christchurch 8.

ZL3TF—Isles, P. R., 50 Woodville Street, Christchurch 1, ZL3TG—Copland, G. M., 11 Peel Street, Christchurch 5.

ZL3TH—Gould, P. N., No. 10 R.D., Waimate. ZL3TI—Button, B. H., 86 Lake Terrace Road, Burwood. Christchurch 6.

ZL3TJ—Currie, W. J., 31 Haselden Street, Westport. ZL3TK—Martin, D. F., 28 High Street, Greymouth. ZL3TL—Paterson, M. S., 120 Hastings Street,

Christchurch 2.

ZL3TM—Buchanan, W. A., 49 Peel Street, Geraldine. ZL3TN—Dowling, D. W., Fairview, R.D. 2, Timaru. ZL3TO—Harvey, S. J., F3/368 Brougham Street, Christchurch 2.

ZL3TP—MacLean, A. G., 9 Horton Street, Pleasant Point. ZL3TQ—Agnew, G. A., 282 Waterloo Road, Hornby. Christchurch 4.

ZL3TR-Haynes, J. C., 26 Roosevelt Avenue, Christchurch 1

ZL3TS—Smith, A. E., 23 Deloraine Street, Christchurch 2, ZL3TT—Symes, A. C. O., 5 Gilwell Street, Christchurch 6, ZL3TU—Sharnock M. A., 6 Ashby Place, Christchurch 5.

ZL3TV—Ching, W. M., 108 Eton Street, Ashburton. ZL3TV—Riley, T. R., 19 Sullivan Avenue, Opawa, Christchurch 2.

ZL3TX—Strong, W. S., 20e Hackthorne Road, Christchurch 2.

ZL3TY—McQuarrie, R. J., 14 Weenink Road, Greymouth, ZL3TZ—Rio, N. N., C/- Chatham Islands Radio, Chatham Islands

ZL3UA-Mulholland, F. S. T., 4 Bramwell Street. Dallington, Christchurch 6.

ZL3UB-Stevenson, H. H., 16 Wilsons Road, Christchurch 2.

ZL3UC-Eden, G. G., 278b Memorial Avenue, Christchurch 5.

ZL3UD-

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ZL3UE
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ZL3UE-Prattley, R. H., Ellesmere Road, R.D. 2,

Christchurch.

ZL3UF-Prue, B. O., 111 Union Street, New Brighton, Christehurch 7.

ZL3UG—Lewis, G. H. 173 Palmers Road, Christchurch 9. ZL3UH—Lewitt, T. W., 139 Grimseys Road,

Christchurch 5.

ZL3UI-

ZL3UJ-Gitsham B. L. (Mrs). C/- Regional Engineers Office, P.O. Box 1473, Christchurch.

ZL3UL—Smith, A. F., 39 Wesley Street, Kaiapoi. ZL3UM—Boyes, G. S., 6 Marshall Street, Christchurch 2.

ZL3UN—Marshall, A. J., No. 7 R.D., Ashburton. ZL3UO—Hutton. F. W. A., 17 Manhire Street, Spreydon, Christehurch 2.

ZL3UP-McNicholl, M. W., 32 English Street, Christehurch 4.

ZL3UQ-Black, A. W., 48 Checketts Avenue, Halswell,

Christchurch 3.

ZL3UR—South Canterbury NZART Inc., (Trustee: S. Z. Moffatt), 32 Newton Street, Timaru.

ZL3US—Smith, P. G., 6 Cameron Street, Ashburton, ZL3UT—Hartley, D., 23 Wellington Street, Linwood. Christohurch 1

ZL3UU—Gordon, M., 3 Rydal Street, Christchurch 2, ZL3UV—Coles, L. F., 232 Shortland Street,

Christchurch 6.

ZL3UW-Conroy, H., 51 Bellbrook Crescent, Shirley, Christchurch 1

ZL3UX—Vincent, L. L., Lismore, R.D. 5, Ashburton, ZL3UY—Brown, A. G., 355 Pine Avenue, South Brighton, Christchurch 7.

ZL3UZ-McKenzie, C. D., 333 Wainoni Road,

Christchurch 7.
ZL3VA—Williams, D. T., 13 Liggins Street, Christchurch 6
ZL3VB—Winter, D., 8 Baretta Street, Christchurch 2.

ZL3VC—Walton, W. E. 74 Patten Street, Christchurch 6.

ZL3VD-ZL3VE—No. 36 (ATC) Squardron Radio Club (Trustee: M. W. Duncan, Army Hall, Gresson Street, Greymouth).

ZL3VF-

ZL3VG—Burling Claridge, J. A., Motor Camp, Main South Road, Hokitika

ZL3VH--Roozen, A. C. M., P.O. Box 80, 40 Forbes Road. Tai Tapu.

ZL3VI-Melhuish, B. J., 34 St Andrews Hill Road, Christchurch 8.

ZL3VJ—MacGeorge, A. A. G., 10 Manurere Street, Christchurch 4.

ZL3VK-Lawrence, J. E., 25 Andrew Street, Timaru. ZL3VE-Ellen, S. N., 65 Dunedin Street, Papanul North,

Christohurch 5. ZL3VM-

ZL3VN-Bradley, J. N., 169 Weston Road, Christchurch 5. ZL3VO-Elder, J., 30 Maling Street, Christchurch 6.

ZL3VP—Bradshaw, G. J., 159 Ashgrove Terrace, Christchurch 2.

ZE3VQ-

ZL3VR-McMaster, A. S. (Mrs), Greens Road, R.D. 1,

ZL3VS—Uden, B. G., C/- 56 Whitcombe Street, Temuka. ZL3VT-Vasta, A. I., 13 Kaka Road, South Bay, Kaikoura.

ZL3VU-Hayes, R. S., 7 Flannery Street, Leeston. ZL3VV—Christchurch West Amateur Radio Club, Holmes

Park Reserve, (Trustees: D. Borgfeldt and L.

Hunter, 6 Barlow Street, Christchurch 4). ZL3VW—Winskill, I. E., Caverhill, No. 1 R.D., Cheviot, ZL3VX—Parry, R. I., 18 Sunvale Terrace, Christchurch 2.

ZL3VY—Dixon, A. P., 16 Kildare Terrace, Lincoln.

ZL3VZ—Paterson, A. J., 52 Cavendish Road. Christchurch 5.

ZL3WA-Howarth, R. J., 175 Fifield Terrace, Christchurch 2

ZL3WB—Russell, J., 3 Husser Place, Christchurch 2. ZL3WC—Reeves, N. J., Carters Beach, R.D. 2, Westport, ZL3WD—Gilbert, G. R., 3 Lyttelton Street, Lincoln.

ZL3WE-Longson, H. J. O., 21 Kinnalrd Place, Spreydon, Christchurch 2.

ZL3WF—Wade, D. L., 8 Sabys Road, Halswell, Christchurch 3.

ZL3WG-Baird, J. F., 11 Aynsley Terrace, Christchurch 2. ZL3WH—St. Andrews College Radio Club. (Trustees: F. W. A. Hutton and G. W. Little, Papanui Road, Christchurch 5).

ZL3WI-Wilkinson, J. F., 14 Hewlings Street, Christchurch 1.

ZL3WJ-Young, W. H., 74a Innes Road, Christchurch 5.

ZL3WK-Martin, E., (Mrs), 867 Ferry Road, Christchurch 2.

ZL3WL—O'Connell, G. E., 31 Murray Street, Greymouth, ZL3WM—Oliver, J. A., Main Road, Tai Tapu.

ZL3WN—Askey, G., 106 North Avon Road, Christchurch 1. ZL3WO—Welsh, L. D., 18 Woodlands Place, Christchurch 7.

ZL3WP-Reefton-Buller Branch NZART (Trustee: T. E. Wallis, 88 Wakefield Street, Westport).

ZL3WQ-Mackay, C. J., 34 Peel Street, Cobden. Greymouth.

ZL3WR-Martin, V. E., 867 Ferry Road, Christchurch 2, ZL3WS—Tombling, F., 20 Derwent Street, Christchurch 5. ZL3WT—Duncan, M. W., 37 Mountfort Street,

Christchurch 2

ZL3WU—Wright, A. F., 65 Ludstone Road, Kaikoura. ZL3WV—Rigby, F., 54 Greenpark Street, Christchurch 2. ZL3WW—Werry, B. W., 123 Dyers Pass Road,

Christchurch 2.

ZL3WX—Smillie, B., 19 Greenfield Place, Christchurch 5, ZL3WY—Yeates, J. M. (Mrs), 69 St. Andrews Hill Road, Christchurch 8

ZL3WZ--

ZL3AAA—Garlick, R. A., 23 Lydia Street, Greymouth, ZL3AAB—Garlick, Z. H. (Mrs), 23 Lydia Street, Greymouth.

ZL3AAC—Sneddon, J., 30 Hoterini Street, Ohope. ZL3AAD—Alderson, G. E., 7 Priors Road, R.D. 1, Rangiora.

ZL3AAE—Millard, H. W., 41 Jeffreys Road, Christchurch 5. ZL3AAF-Crichton, R. J. C., 98 Estuary Road,

Christchurch 7 ZL3AAG—Batterbury, C., C/- The Vicarage, Main Road, Mayfield

ZL3AAH-O'Brien, W. M., 255 Estuary Road, Christchurch 7

ZL3AAI-Grey, G. R., 89 Walters Road, Christchurch S. ZL3AAJ-Werner, S. H., 74 Seven Mile Road, Runanga.

ZL3AAK-Wathne, S. R., 487 Greers Road, Christchurch 5

ZL3AAL-Vincent, R. K., 5 Miro Street, Karoro, Greymouth.

ZL3AAM—Matheson, M. D., 4 South Belt, Rangiora. ZL3AAN—Colville, L. M., 115 Cameron Street, Ashburton, ZL3AAO—Ballantyne, S. T., 9 Wilsons Road, St. Martins,

Christchurch 2.

ZL3AAP—Ashburton Air Scout Group (Trustee: A. J. Marshall), Manio-o-roto Park, Chalmers Avenue, Ashburton.

ZL3AAQ—Banks, L. F., Buller Gorge, P.B. Westport, ZL3AAR—Adams, P. H. L., 7 Alexander Terrace.

Greymouth. ZL3AAS-Silke, A. J., 9 Parker Street, Christchurch 4.

ZL3AAT-van Waelsden, F. H. A. M., 208 Grimseys Road, Christchurch 5.

ZL3AAU—Miller, J. G., 30 Fairford Street, Christchurch 5. ZL3AAV—Hart, L. J. W., 61 Wakefield Street, Westport. ZL3AAW-Swinton, A. D., Gainsborough Motor Lodge. 263 Bealey Avenue, Christchurch 1.

ZL3AAX-Clark, E. R., 5 Chedworth Avenue, Christchurch 5 ZL3AAY-Bowie, A. F. S., 10 Claremont Avenue.

Christchurch 5.

ZL3AAZ—Harris, G. P., 218 Lyttelton Street, Christchurch 2.

ZL3ABA—Allan, S. L., 56 Para Street, Wellington. ZL3ABB—McKay, D. J., 55 Wingate Street,

Christchurch 5.

ZL3ABC-Hooker, R. O., 272 Wainoni Road

Christchurch 7.
ZL3ABD—Hancock, C. W. I., 17 Mafeking Street,
Christchurch 7.

ZL3ABE—Roberts, B. M., 135 Russell Street, Westport. ZL3ABF—Webbink, J. H., 11 Wattle Drive, Christchurch 9. ZL3ABG-Winter, M. F., 19 Kapian Avenue,

Christchurch 4. ZL3ABH-Middlemiss, J. R., 427 Linwood Avenue,

Christchurch 6 ZL3ABI-Hagley High School Radio Club, (Trustee: A. S. Asher), Hagley High School, Hagley Avenue, Christchurch 1.

ZL3ABJ-Jensen, B. D., 21 Colwyn Street, Christchurch 5. ZL3ABK—Keen, H. A., 36 Lindsay Street, Timaru. ZL3ABL—Brookes, I. A., 34 Allnatt Street, Temuka.

ZL3ABN-Lawry, D. W., Emerson Crescent, Church Bay, Banks Peninsula.

ZL3ABO-

ZL3ABP-Snushall, J. G., "Conway Hills", Private Bag, Kaikoura.

ZL3ABQ-Bailey, K. W., 15 Webb Street, RNZAF Base, Woodbourne.

ZL3ABR-ZL3ABS—Smith, G. B., 39 Roberta Drive, Christchurch 2. ZL3ABT-

ZL3ABU-

ZL3ABV-Jackson, P., McQueens Road, Cheviot. ZL3ABW-

ZL3ABX-

ZL3ABY-O'Sullivan, K. D., 16 Ashmore Avenue, Cobden, Greymouth.

ZL3ABZ-ZL3ACA—ZL3 Canterbury 10-10 Chapter (Trustee: B. H. Mummery), B Mointyre Street, Christchurch 1.

ZL3ACB-Mollison, G. W. P., 517 Russley Road, Christchurch 5.

ZL3ACC-Chambers, C. H., 21 De Ville Place, Christchurch 6.

ZL3ACD-Batchelor, G. W., 41 Kirkwood Avenue. Christchurch 4.

ZL3ACE—Dodgshun, J. C., 10 Devonport Lane, Christchurch 1.

ZL3ACF-Richardson, J. T., 3 Monowai Crescent, Christohurch 9.

ZL3ACG-Heyward, K. W., 61 Niven Street,

Christchurch 7.
ZL3ACH—White, D. J., 7 R.D., Waimate.
ZL3ACI—Shirley Boys' High School Radio Club, (Trustee: C. J. Wornall), North Parade. Christchurch 1. ZL3ACJ—Parker, T. L., 4 Margot Lane, Christchurch 8 ZL3ACK—Leeming, N. V., 17 Heaton Rhodes Place,

Christchurch 2.

ZL3ACL—Bidlake, R. P., 72a Canada Street, Timaru, ZL3ACM—Zampese, M. J. (Mrs), 26 Olwyn Terrace, Frankton, Hamilton

ZL3ACN-Honey, R. M., 167 Brittan Street, Hokitika. ZL3ACO-

ZL3ACP-Van Slooten, F., 16 Greenhurst Street, Christchurch 4.

ZL3ACQ-ZL3ACR-Chapman, A. R. B., 35 Proctor Street, Christchurch 5.

ZL3ACS-Borgfeldt, C. D., 37 Blankney Street, Hornby, Christohurch 4.

ZL3ACT-Patten, G. J., 435 Lower Styx Road, Christchurch 9

ZL3ACU—McKay, B., 23 Palmside Street, Christchurch 2. ZL3ACV—Hickman, K. A., 5 Cotswold Avenue,

Christehurch 5. ZL3ACW-Crawford, W. E. H., 29 Sounty Street, Christchurch 5.

ZL3ACX-Robbins, K. F., 83 Springfield Road, Christchurch 1.

ZL3ACY-ZL3ACZ—Ingram, R. T., 80 Romily Street, Westport, ZL3ADA—Bell, R. W., 32 Flower Street, Christchurch 5, ZL3ADB—Crase, G. E., 63 Wakefield Street, Westport.

ZL3ADC-ZL3ADD--

ZL3ADE-Ayre, G., RNZAF Station, Wigram. Christchurch 4.

ZL3ADF-Hirtzel, J. E., 5/512 St. Asaph Street, Christchurch 1.

ZL3ADG—Burnside High School Radio Club, (Trustee: C. J. Carlisle), Greers Road, Christchurch 5.

ZL3ADH-Boote, R. J., 8 Hinton Road, Karoro. Greymouth.

ZL3ADI-Ingram, A. W. W., 60 Nortons Road, Christchurch 4.

ZL3ADJ—Jennings, L. W., 5 Ilex Place, Kaiapoi. ZL3ADK—Fitzgerald, K. P., 24 Mathers Road,

Christchurch 2 ZL3ADL-Wise, R. A., 36 Springs Road, Sockburn. Christchurch 4.

ZL3ADM-Fitzgerald, E. O., 8 Blossomdale Place. Bishopdate, Christchurch 5.

ZL3ADN-Nicholson, R. S., 84 Kendal Avenue, Burnside, Christchurch 5.

ZL3ADO-

ZL3ADP-MacDonald, D. C., 14 Glassey Drive, P.O. Box 294, Ashburton

ZL3ADQ-Hamilton, J. C., 178 Halswell Junction Road, Christchurch 3.

ZL3ADR—Pritchard, B. D., 14 Selwyn Street, Leeston, ZL3ADS—Squire, D. D., Waitohi, Temuka, ZL3ADT—Johnson, R. D., 189 Queensbury Street,

Christchurch 6.

ZL3ADU-Van der Knapp, H., 150 Tautahanga Road. Turangi.

ZL3ADV-Phillips, R. W., 148 Brookside Terrace, Christchurch 5.

ZL3ADW-Phillips, H. J. (Mrs), 148 Brookside Terrace, Christchurch 5

ZL3ADX-

ZL3ADY—Cady, F. M., 52 Aorangi Road, Christchurch 5. ZL3ADZ—Wignall, T. J. S., 15 Plynlimon Road, Christchurch 5.

ZL3AFA-Kelly, C. W. B., 34 Liverton Crescent, Christchurch 5.

ZL3AF8—Stirling, K. W., 127 Trevors Road, Ashburton, ZL3AFC—Simpson, P. R., No. 3 R.D., Karamea, ZL3AFD—Haberecht, D. C., 272 Wainoni Road, Christchurch 7.

ZL3AFE-Zampese, L., 26 Olwyn Terrace, Frankton, Hamilton.

ZL3AFF-O'Brien, C. M., 255 Estuary Road, Christchurch 7.

ZL3AFG—Wylks, W. G., C/-Dr T. J., Seed, 831 Cashmere Road, Halswell, Christchurch 3.

ZL3AFH-Latham, W. I., 168 McKenzie Avenue, Christchurch.

ZL3AFI-Hillmorton High School Radio Club, (Trustee: M. J. Prior), 18 Sundale Terrace, Christchurch 2. ZL3AFJ—Stone, W., 69 Mary Street, Papanui,

Christchurch 5.

ZL3AFK-Mason, J. L., 9 Greenwood Street. Christchurch 1.

ZL3AFL-Chalk, J. A., 46 Osburne Street, Amberley.

ZL3AFM

ZL3AFM-

ZL3AFN-Griffiths, J. P., 105 Brougham Street, Westport. ZL3AFO—Christensen, P. J., 37 Northcote Road, Papanui, Christchurch 5

ZL3AFP-Smith, D. L., 53 Farquhars Road, Christchurch 5.

ZL3AFQ—Duxbury, I. N., 99 Maidstone Road. Christchurch 4.

ZL3AFR-

ZL2AFS-Pearcy, E. A., 239 Condell Avenue, Papariui, Christchurch 5

ZL3AFT-Williamson, C. N., St. John of God Hospital, Nash Road, Halswell, Christchurch 2.

ZL3AFU-Lealand, A. N., 26 Marriner Street, Sumner, Christchurch 8.

ZL3AFV-Henden, J. R., 221 Innes Road, St. Albans, Christchurch 5.

ZL3AFW—Wilson, W. E., 232 Coast Road, Wainuiomata. ZL3AFX—Morrin, M. E., 45 Wychbury Street, Christchurch 2.

ZL3AFY-Clements, R. J., 5 Northfield Road, Christchurch 5

ZL3AFZ-Hall, C. L., 20 Sumner Street, Spreydon, Christchurch 2

ZL3AGA-Bolland, N., 12 Brent Place, Christchurch 5. ZL3AGB—Barrett, T., 47 Arnold Street, Sumner, Christohurch 8.

ZL3AGC-Perkins, C. M., C/- K. East, Greys Road, Amberley.

ZL3AGD-Holland, A. D., 5 Parkland News, 326 The Terrace, Wellington.

ZL3AGE-Holland, J. A. (Mrs), 5 Parkland News, 326 The Terrace, Wellington

ZL3AGF—Blanchard, J. S., 82 Grey Road, Timaru. ZL3AGG—Pope, G. C., 21 Beverley Hill, Timaru. ZL3AGH—Banks, J., 418 Greers Road, Christchurch 5,

ZL3AGI-Leys, T., 46 Waratah Street, Christchurch 7. ZL3AGJ—Whitlow, T. J., 45 Geddis Street, Rangiora. ZL3AGK—Lucas, T. H., 8 Willryan Avenue,

Christchurch 9.

ZL3AGL-

ZL3AGM-Jackson, B. A., 42 Churchill Street, Kaikoura,

ZL3AGN—Vuleta, M. S., 19 Aviemore Street, Timaru. ZL3AGO—McManus, T. C., Maungati, R.D. 2, Timaru. ZL3AGR—Thomson, C. C., 10 Hopping, Street

ZL3AGP-Thomson, G. G., 10 Hanrahan Street, Christchurch 4

ZL3AGO—Harris, D. W., 67 Ayers Street, Rangiora, ZL3AGR—McAlfister, C. R., 8 Lakewood Drive,

Christchurch 6 ZL3AGS-Murray, A. G., 92 Hackthorne Road, Cashmere, Christchurch 2

ZL3AGT—Foster, I. M., Cronadun, R.D. 1, Reefton. ZL3AGU—Dallimore, S. C., 26 Marybank Road. Atawhai, Nelson

ZL3AGV-Sampson, D., 4 Islay Place, Christchurch 4. ZL3AGW-Enright, M. T., 437 Barrington Street, Christchurch 2

ZL3AGX—McCutcheon, R. B. W., 9 Gunns Crescent, Christchurch 1.

ZL3AGY-Moyle, J. R., 169 Riccarton Road. Christchurch 4.

ZL3AGZ-Allen, N. G., 26 Hennessy Place, Spreydon, Christchurch 2.

ZL3N

ZL3TAA-Fletcher, J. N., 13 Snapper Road, Stillwater, R.D. 3, Silverdale.

ZL3TAB-Hyde, I. E., 4 Powell Crescent, Christchurch 4. ZL3TAC-Collins, B. A., 21 Manor Place, Christchurch 5. ZL3TAD-Cullen, L., 46 Wilton Crescent, Christchurch 5. ZL3TAE-Clark, M. W., 114 Charles Street, Linwood,

Christchurch 1.

ZL3TAF-Taege, B. S., 84 Racecourse Road, Christchurch 4

ZL3TAG-Down, S. J., 219 Grahams Road, Christchurch 5.

ZL3TAH-Heese, B. J., 37 Woodlands Place, Christchurch 7

ZL3TA!-Grandiek, J. N., 1 Outram Street, Napier. ZL3TAJ-

ZL3TAK-Woods, A. K., 6 Waipara Street, Christchurch 2.

ZL3TAL—Harrison, K. B., 5 Kevin Street, Christchurch 2. ZL3TAM—Mason. G. J., 6 Bideford Place. Christchurch 6. ZL3TAN—Vanden Broek, C. P. A., 383 Greers Road,

Christchurch 5. ZL3TAO-MacPherson, I. W., 27 Dunbarton Street, Christchurch 5.

ZL3TAP-Van Schooten, L. A. A., 85 Kingsford Street, Christchurch 6.

ZL3TAQ-

ZL3TAR-Johnson, H. M., 102 Warrington Street, St. Albans, Christchurch.

ZL3TAS—Ross, P. J., 4 Oakfield Street, Christchurch 5. ZL3TAT—Baker, E. J. A., Murray Place, Lake Tekapo. ZL3TAU—Butcher, P. W., 16 William Street, Lincoln. ZL3TAV—Parr, W. B., 16a Wildberry Street.

Christchurch 2.

ZL3TAW-

ZL3TAX—Churchward, M. J., 1/39c Middleton Road. Christchurch 4.

ZL3TAY-Ross, M. J., 35 Purau Avenue, Diamond Harbour, Lyttelton

ZL3TAZ-Green, R. B., 365 Armagh Street, Christchurch 1. ZL3TBA-

ZL3TBB-Wormald, R. G., 247a Wairakei Road, Christchurch 5.

ZL3TBC-Grenfell, A. D., 61 Dunbars Road, Christchurch 3.

ZL3TBD—Symonds, A. C., 19 Stiles Place, Christchurch 6. ZL3TBE—Pritchard, D. V., C/- 67 Beverley Road, Timaru. ZL3TBF-

ZL3TBG—O'Neill, T. J., 89 Pages Road, Christchurch 6. ZL3TBH—Osborne, R. R. W., C/- Camp David R.D. 3, Waipara.

ZL3TBI-

ZL3TBJ-Baird, K. A., 18 Grey Crescent, Kaiapoi. ZL3TBK-Foster, I. M., Cronadun, R.D. 1, Reefton. ZL3TBL-ZL3TBM-

ZL3TBN-

ZL3TBO-Strachan, I. S., 41 New Brighton Road. Christchurch 6.

ZL3TBP-Evans, J. S., 11 Eros Place, Christchurch 9. ZL3TBQ—Johnstone, D. E., 291 Burwood Road. Christchurch 9.

ZL3TBR-Black, D. R., 11 David Street, New Plymouth. ZL3TBS-Johnson, J. G., Main Road, Pohara, R.D. 1, Takaka.

ZL3TBT—Lee, M. O., 260 Cashmere Road, Christchurch 3.

ZL3TBU-

ZL3TBV—Heazlewood, C. R., 4 Westmoreland Place, Christchurch 4

ZL3TBW-Stevenson, N. H., 16 Kendal Grove Wainuiomata.

ZL3TBX-Lilly, M. A., 600 Halswell Road, Christchurch 3. ZL3TBY-Dowie, T. D. M., C/- 257 West Street,

ZL3TBZ-Smith, P. G., Maronan Road, No. 8 R.D., Ashburton:

ZL3TCA-Knewstubb, F. R., 219b Beach Road, Christchurch.

Ashburton.

Christchurch 2.

ZL3TCC—Norris, T. P., 60 Peer Street, Christohurch 4. ZL3TCD—Ireland, A. J., 76 Conway Street,

ZL3TCE—Cobb, P. B., 351 Lyttelton Street, Christchurch 2.

ZL3TCF-Newton, G. R., 30 Tomes Road, Papanui. Christchurch 5.
ZL3TCG—Deans, J. M., Tara, Coalgate.
ZL3TCH—Chapman, M. H., 23 Huntsbury Avenue.

Christchurch 2

ZL3TCI-Lucas, P. K., Cape Foulwind Road, R.D. 2. Westport

ZL3TCJ--Collister, C. V., 14 English Street, Christchurch 4.

ZL3TCK-Hayward, B. L., 2 Merito Place, Ohope, Wakatane

ZL3TCL—Averill, T. L. F., 99 Puriri Street, Christchurch 4. ZL3TCM—Ramsey, R. B., 31 Rollesby Street, Christchurch 2.

ZL3TCN-

ZL3TCO-Stein, M. S. D., 376 Manchester Street.

St. Albans, Christchurch 1.

ZL3TCP—Parish, I. J., 7 Shotover Street, Queenslown, ZL3TCQ—Jack, K. S., 45 Hornbrook Street, Temuka.

ZL3TCS—Morris, N., 73 Grampian Road, Christchurch 5, ZL3TCT—McCaw, R. C., 6 Farndale Place, Christchurch 4.

ZL3TCU-Duxbury, J. S., 51 Aorangi Road,

Christchurch 5. ZL3TCV—Rumens, F. A., 51a Wainoni Road, Christchurch 6

ZL3TCW-Hickman, A. E., 5 Cotswold Avenue, Christchurch 5.

ZL3TCX-Zi.3TCY—Farrall, N. R., 12 Muir Avenue, Christchurch, 3 ZL3TCZ-

ZL3TDA-ZL3TDB-Milne, O. D., 12 Stanbury Avenue,

Christchurch 2. ZL3TDC—Thomson, R. Y., 6 Princes Street, Temuka. ZL3TDD—Marks, J. W. J., 20 Dobson Street,

Christchurch 2.

ZL3TDE-Masters, R. L., 2 Hay Street, Oriental Bay, Wellington 1.

ZL3TDF—Smith, B. A., "Charodale", Old West Coast Road, 1 R.D., Christchurch. ZL3TDG—Jenkins, R. M., 62c Rockinghorse Road,

Christchurch 7. ZL3TDH—Clark, N. L., 37 Radbrook Street. Christchurch 4.

ZL3TDI-Telfer, P. B., 39 Liverton Crescent, Christchurch 5

ZL3TDJ-Beazley, D. A., Punga Grove, Hans Bay, Lake Kaniere.

ZL3TDK-Emmett, B. A., 446 Bower Avenue. Christchurch 9.

ZL3TDL-ZL3TDM—Harding, J. M., 15 Elm Grove, Christchurch 1. ZL3TDN—Tait, J. J., 30 Hargood Street, Christchurch 6. ZL3TDO—Cottle, D. E., 31 Chester Street West,

Christchurch 1. ZL3TDP—Parker, B. D., 18 Godley Street, Temuka. ZL3TDQ—Downey, E. J., 67 Tuckers Road, Christchurch 5.

ZL3TDR—Smith, K. J., 17 Tyne Street, Timaru, ZL3TDS—Taylor, E. G., 335 Hills Road, Christchurch 1, ZL3TDT—Drury, B. D., 20 Ryeland Avenue, Fendalton.

Christchurch 4.

ZL3TDU-ZL3TDV--Wyles, G. L. M., 416 Memorial Avenue, Christehurch 5

ZL3TDW-Felgate, 1, F., RNZAF Base, Hobsonville, Auckland.

ZL3TDX-Woods, B. M., 2 Cresswell Avenue, Burwood, Christohurch 6.

ZL3TDY-Cavill, J. P., 36 Outram Grove, Kelson, Lower Hutt.

ZL3TDZ-Dineen, R. T., 82 Greenpark Street. Christchurch 2

ZL3TFA-Hall, B. W., 27 John Street, Temuka. ZL3TFB-Bool, W. J., 32 Trafalgar Street, New Plymouth.

ZL3TEC:

ZL3TFD-Rhodes, D., Rapaki, P.O. Box 44, Lyttelton ZL3TFE

ZL3TFF-Harris, G. T., 14 Ocean View Terrace, Sumner, Christchurch 8

ZL3TFG-MacKay, D. R., 56 Purchas Street. Christchurch 1

ZL3TFH-Hudson, R. F., 109 Shakespeare Street, Greymouth.

ZL3TFI-Wright, B. A., 311 Riccarton Road,

Christchurch 4.

ZL3TFJ—Lundy, R. J., 47 White Street, Rangiora ZL3TFK—Weir, R. G., 64a Selwyn Street, Christchurch 2. ZL3TFL-Wood, P. J., 48 Saunders Street, Dunedin.

ZL3TFM-MacFarlane, M. J., Whatawhata Hill Country Research Station, Private Bag, Hamilton.

ZL3TFN-Wood, K. L. B., 15 Ardmore Place, Christchurch 5

ZL3TFO-Parks, L. R., 158 Mairehau Road, Christchurch 9.

ZL3TFP-Davies, B. K., 6 Manurere Street, Christchurch 4. ZL3TFQ—Dawkes, R. L. Flat 2, 209 Queensbury Street. Christohurch 6

ZL3TFR-Smales, K. A., 18 Portfield Street, Macandrew Bay, Dunedin.

ZL3TFS—Soal, D. F., 62 Nelson Street, Ashburton, ZL3TFT—Maunder, H. B., 23 Buchanans Road, Christchurch 4.

ZL3TFU-Mathieson, H. M., 349 Main South Road. Hornby, Christchurch 4.

ZL3TFV-Burke, J. P., 246 Main North Road, Redwood, Christchurch 5.

ZL3TFW—Van Til, H. J., 32a Awamutu Grove, Lower Hutt. ZL3TFX—West, R. O., 73 Dunbars Road, Christchurch 3. ZL3TFY—Tizzard, R. W., 9 Cherry Place, Christchurch 5. ZL3TFZ—Wilson, D. W. T., Seafield, No. 7 R.D.,

Ashburton.

ZL3TGA—Aitken, G. D., 38 Hooker Avenue, Bryndwr, Christchurch 5

ZL3TGB-Graham, J. C., 170 Hampshire Street, Christchurch 7.

ZL3TGC-Looyer, T. A., 63 Halberg Street, Christchurch 6

ZL3TGD-Daigneault, P., 258 Edgeware Road. Christchurch 1.

ZL3TGE-

ZL3TGF—Rae, P. D., 5 Winters Road, Christchurch S. ZL3TGG—Noble, P. J., 18 Pahi Place, West Harbour. Auckland 8.

ZL3TGH-Bell, H. R., Upper Parsonage Road, Waimate. ZL3TGI—Lintott, N., 49 Jocelyn Street, Christchurch 5. ZL3TGJ—Cherry, W. D., 131 Rose Street, Somerfield, Christchurch 2

ZL3TGK-Brown, P. G., Acton Road, Rakaia. ZL3TGL-Van Lindt, R., 10 Silverdale Place, Christchurch 6.

ZL3TGM-Flecknoe, G. A., 6 Kyeburn Place, Christohurch 4.

ZL3TGN-

ZL3TGO-

ZL3TGP—Parkyn, P. R., 86 Rahera Street, Christchurch 2. ZL3TGQ-

ZL3TGR—Timewell, I. D., 40 Victoria Street, Timaru. ZL3TGS—Mantell, G. N., 1 Logie Place, Christchurch 6.

ZL3TGT-Buxton, A. W., 31a McBratneys Road. Christchurch 6.

ZL3TGU-Bissland, D. J., 2 Highgate Avenue, Christchurch 1

ZL3TGV-Winslade, R. H., 15 Hunt Street, Timaru.

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ZL3TIY-Fyffe, N. B. H., 31a McBratneys Road,
ZL3TGW
                                                                                                                                    Christchurch 6.
 ZL3TGW-Hart, A. R. K., 11 Hampton Road,
                                                                                                                     ZL3TIZ-Dixon, B. J., 81 Shakespeare Street, Greymouth,
               Christchurch 5.
                                                                                                                      ZL3TJA-
 ZL3TGX-Henry, D. H., 34 Alexandra Street,
                                                                                                                     ZL3TJB-Johnstone, P., 419 Cashmere Road,
               Christchurch 1.
                                                                                                                                    Christchurch 3.
 ZL3TGY-
                                                                                                                      ZL3TJC-
ZL3TGZ--Moyle, C. M., 169 Riccarton Road,
                                                                                                                      ZL3TJD-Wilson, P. J., 58 Harrow Street, Christchurch 1,
               Christchurch 4.
ZL3THA—Heaton, J., 58 Firth Street, Cobden, Greymouth, ZL3THB—Cree, R. A., 18 Woolley Street, Christchurch 6, ZL3THC—Holden, R. W., 454 Colombo Street,
                                                                                                                     ZL3TJE-
                                                                                                                      ZL3TJF-
                                                                                                                     ZL3TJG-Robinson, S. R., P.O. Box 252, Nelson.
                                                                                                                     ZL3TJH-Robinson, P. J., 20 Leonie Place,
               Christchurch 2.
                                                                                                                                    Christchurch 7.
 ZL3THD-Claydon, R. C., 45 Liverton Crescent,
                                                                                                                     ZL3TJI--
               Christchurch 5.
ZL3THE—Bartlett, K. E., Fairdown, R.D. 1, Westport, ZL3THF—Higley, D. J., 171 Main Road, Amberley, ZL3THG—Keeley, L. J., 23 Willis Street, Ashburton, ZL3THH—Smith, G. R., 110 Pages Road, Christohurch 6, 213THH—Smith, G. R., 110 Pages Road, Christohurch 6, 213THH—Smith, G. R., 110 Pages Road, Christohurch 6, 213THH, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2018, 2
                                                                                                                     ZL3TJJ-Ward, A. J., 99 Panorama Road, Christchurch B.
                                                                                                                     ZL3TJK—Price, J. G., 31 Rhodes Street, Timaru. ZL3TJL—Lye, R. D., 7 Cromer Place, Christohurch 7. ZL3TJM—Dillon, G. A., 5a Cameron Street,
                                                                                                                                   Christchurch 2.
ZL3THI—Hurrell, M. A., 1 Helmores Lane, Christchurch 1, ZL3THJ—Philpott, J. W., 3 Argo Place, Christchurch 5, ZL3THK—Errington, G. S., 39b Helmores Lane,
                                                                                                                     ZL3TJN-
                                                                                                                     ZL3TJO-Sutherland, J. G., 12 Jocelyn Street,
                                                                                                                                    Christchurch 5
               Christchurch 1
                                                                                                                     ZL3TJP-Walker, R. W., C/- 56a Burwood Road,
ZL3THL-Hillary, D. N., 84 Isleworth Road,
                                                                                                                                    Christchurch 9.
               Christchurch 5.
                                                                                                                     ZESTJQ-
ZL3THM-Sandford, N. D., 45 Torrens Road, Hillmorton,
                                                                                                                     ZL3TJR—Carter, R. S., 34 Cameron Street, Ashburton, ZL3TJS—Whitfield, B. W., 101 Soleares Avenue, Mt.
               Christchurch 2.
ZL3THN-Price, G. D., 358 Breezes Road, Christchurch 7.
                                                                                                                                    Pleasant, Christchurch 8.
 ZL3THO-
                                                                                                                     ZL3TJT—Nicol, J. R., 10 Lochee Street, Christchurch 4. ZL3TJU—McConnell, M. M., 90 Springfield Road,
ZL3THP-Platt, R. G., Main South Road, Rolleston.
 ZL2THQ-Corbett, R. K., 1 Dalton Place, Christchurch 5.
                                                                                                                                    Christchurch 1
 ZL3THR-
                                                                                                                     ZL3TJV—Osborne, K. W., 67 MacDonald Street, Timaru. ZL3TJW—Pollard, J. P. W., 363 Hills Road,
ZL3TH$-Hopwood, P. R., 36a Clivedon Place,
               Christchurch 5.
                                                                                                                     Christchurch 1. ZL3TJX—Laughton, T. J., 43 Rowley Avenue, Hoon Hay,
ZL3THT-
ZL3THU-McMaster, B. T. R., 72 Fleete Street,
                                                                                                                                   Christchurch 2.
               Christchurch 6.
ZL3THV—Bennett, B. D., 319 King Street, Temuka, ZL3THW—Deta Mare, D. G., 6 Taramea Street,
                                                                                                                     ZL3TJY--Allan, S. E. (Mrs), Pittville Street, North Loburn,
                                                                                                                                   R.D. 2, Rangiora.
                                                                                                                     ZL3TJZ—McKim, J. L., 17 Wattle Drive, Christchurch 9. ZL3TKA—Gumbrell, C. B., 31 Parkinson Avenue,
               Christchurch 2
ZL3THX-Ferriss, A. E., 50 Marriner Street,
                                                                                                                                   Christchurch.
               Christchurch 8.
                                                                                                                     ZL3TKB-
ZL3THY—Fearn, R. D., 27 Bledisloe Terrace, Hamilton, ZL3THZ—Barron, A. D., 124 St. James Avenue.
                                                                                                                     ZL3TKC-
                                                                                                                     ZL3TKD—Godfrey, C. Y., R.D. 2, Kaikoura.
ZL3TKE—Vallance, D. J., 39 Vancouver Crescent,
Wainoni, Christchurch.
              Christchurch 5.
ZL3TIA-
ZL3TIB-Hely, M. O., 76 Santa Rosa Avenue,
                                                                                                                     ZL3TKF-Greentree, P. C., 31 Rata Street, Christchurch 4.
               Christchurch 3.
                                                                                                                     ZL3TKG--
ZL3TIC-Foubister, M. A., 94 Hoon Hay Road,
                                                                                                                     ZL3TKH-MacRae, G. A., 434 Harewood Road,
              Christchurch 2.
                                                                                                                                   Christchurch 5.
ZL3TID-Dyer, W. M., 25 Branwyn Street, Christchurch 5.
ZL3TIE-
                                                                                                                     ZL3TKI—Empson, T. M., 53 McKenzie Avenue.
                                                                                                                                   Christchurch 2.
ZL3TIF-
                                                                                                                     ZL3TKJ-
ZL3TIG-McNeill, R. G., 78 McMaster Street, Invercargill.
                                                                                                                     ZL3TKK—Chapman, A. F., 17 Baker Street, Ashburton. ZL3TKL—O'Caltaghan, D. P., 353 Hills Road,
ZL3TIH---Braas, B., 4 Wendover Street, Christchurch 5. ZL3TII--Freeth, G. D., 25 Ngarimu Street, Christchurch 6.
ZL3TIJ—Wilde, R. C., Gladstone Street, Hawarden, ZL3TIK—Rodgers, P. N., 29 Porter Street, Ashburton, ZL3TIL—Errington, J. G., 39b Helmores Lane,
                                                                                                                                   Christchurch 1
                                                                                                                     ZL3TKM-Cox, A. R., 54 Hawkesbury Avenue, St. Albans,
                                                                                                                                   Christchurch 1
                                                                                                                     ZL3TKN—Hill, J. R., 253 Avonhead Road, Christohurch 4. ZL3TKO—Jaynes, V., 9 Waish Street, Hamilton. ZL3TKP—Gardiner, I. D., 197 Weston Road,
              Christchurch 1.
ZL3TIM-
ZL3TIN—Saville, P. G., 2 Smartlea Street, Christchurch 2. ZL3TIO—Stewart, P. G. C., 76 Patten Street,
                                                                                                                                   Christchurch 5.
                                                                                                                     ZL3TKQ-
              Christchurch 6.
                                                                                                                     ZL3TKR—Dwy r, D. S., 15 Cygnet Street, Christchurch 9. ZL3TKS—Thomas, A. J., 327 Armagh Street,
ZL3TIP-
ZL3TIQ—McCorkindale, D. R., 52 Canada Street, Timaru. ZL3TIR—Williams, P. S., 24 Newnham Terrace.
                                                                                                                                   Christohurch 1
                                                                                                                     ZE3TKT-Grant, L. J., C/- Mrs J. Stackhouse, 16 Clayton
              Christchurch 4.
                                                                                                                                   Road, Amberley.
ZL3TIS-Donnelly, E. J., 249 Bower Avenue.
                                                                                                                     ZL3TKU—Barr, R., 542 Halswell Road, Christchurch 3. ZL3TKV—Lang, A. N., 62 Rahera Street, Christchurch 2.
              Christchurch 9.
ZL3TIT-
                                                                                                                     ZL3TKW-Williamson, I. S., C/- 14 Ebbing Place,
ZL3TIU-
                                                                                                                                   Christchurch 5.
ZL3TIV-
ZL3TIW—Armstrong, E. W., 15 London Street, Weston. ZL3TIX—Stevens, J. B., 410 Wairakei Road, Christchurch 5.
                                                                                                                     ZL3TKX-Patterson, H. W., 33 Leinster Terrace, Lincoln.
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ZL3TKY-Goodwin, P. G., 92 Edward Avenue,

Christchurch 1.

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ZL3TKZ—Creek, A. R., 88 Randolph Street.
          Christchurch 6.
ZL3TLA—Reed, B. S., 16 Mackenzie Avenue, Opawa,
          Christchurch 2.
ZL3TLB-Crawford, C. R., 81 Balrudry Street,
          Christchurch 4.
ZL3TLC-
ZL3TLD-
ZL3TLE-Weir, D. R. (Mrs), 64a Selwyn Street,
          Christchurch 2.
ZL3TLF-
ZL3TLG-Steffensen, K. A., 190 Rutland Street,
          Christoharch 5.
ZL3TLH~
ZL3TLI—Rowe, B. C. T., 40 Harris Street, Waimate, ZL3TLJ—McConnell, D. A., 84 Gardiners Road,
          Christchurch 5.
ZL3TLK-Trethowen, I. S., Glenmark Drive, Waipara,
North Canterbury.
ZL3TLL—Kerr, B. A., Pohara, RD 1, Takaka.
ZL3TLM—Mills, M. D., 75a Arthur Street, Blenheim.
ZL3TLN-
ZL3TLO-McCombs, J. D., 8 Freeman Street,
         Christchurch 8
ZL3TLP-Hughes, T. R. J., 32 Grampian Street.
          Christchurch 5.
ZL3TLQ-Harrall, E. D., 90 Gayhurst Road, Dallington.
          Christchurch 6.
ZL3TLR—Lee, P. B., 23a Salford Avenue, Christchurch 5, ZL3TLS—Serra, K. C., 46 Trent Street, Avonside,
          Christohurch 1.
ZL3TLT—James, K. D., 46 Lydia Street, Greymouth. ZL3TLU—Chapman, R. C., 30 Picton Avenue.
          Christchurch 1
ZL3TLV-Chapman, B. R. (Mrs), 30 Picton Avenue,
Christchurch 1.
ZL3TLW—Perry, S. J., 255 Hoon Hay Road,
Christchurch 2.

ZL3TLX—Vickers, L. W., 17 Walkers Road, Lyttelton.

ZL3TLY—Beckett, M. C., 2 Pages Road, Lyttelton.

ZL3TLZ—Harrison, M. C., 3 Veitch Road, Christchurch 5.

ZL3TMA—Hull, P. F., 585 Devon Street East, New
          Plymouth.
ZL3TMB-
ZL3TMC-McGregor, W. L., Flat 2, 11 Gibbon Street,
          Christohurch 2.
ZL3TMD-
ZL3TME—Boyd, R. V., 404 Cashmere Road,
          Christchurch 3.
ZL3TMF-Wilson, J. O., 9 Merton Street, Hobsonville,
          Auckland.
ZL3TMG-
ZL3TMH—Hutchison, B., 15 Tabart Street, Christchurch 2, ZL3TMI—Kerdemelidis, C., 33 Kingham Place,
          Christchurch.
ZL3TMJ—Hughes, R. E., 158 Jollie Street, Hokitika. ZL3TMK—Officer, B. C., P.O. Box 1650, Dunedin.
ZL3TML-Mallon, G. F., 5 Chelsea Street, Christchurch 6.
ZL3TMM--
ZL3TMN-
ZL3TMO-
ZL3TMP--
ZL3TMQ—Pot, M. J., 5 Racecourse Road, Ashburton.
ZL3TMR-
ZL3TMS-
ZL3TMT-Yee, C. Y., 2 Papanui Road, Christchurch 1.
ZL3TMU-
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ZL3TMU-Nicholls, P. J., 33 Seven Mile Road, Runanga.

ZL3TMZ-Dale, A. J. E., 30 Cuffs Road, Christchurch 6.

ZL3TMX-Lovell, J. D., 41 Yardley Street, Avonhead,

ZL3TMY-Payne, D. W., 204 Rutland Street,

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ZL3TNA-
ZL3TNB-Phillips, J. S., Flat 1, 64 Packe Street.
          Christchurch 1.
ZL3TNC-Parker, M. J., 99 Gardiners Road,
          Christchurch 5.
ZL3TND-Taylor, M. L., 21 Newmark Street,
          Christchurch 5.
ZL3TNE—Egan, P. D., 664 George Street, Dunedin, ZL3TNF—Cooper, K. J., 3 Wherstead Road,
          Christchurch 2.
ZL3TNG—Hulston, G. F., 15 Roker Street, Christchurch 2. ZL3TNH—Drowley, C. A., 9 Whitby Place, Kaikoura, ZL3TNI—Sinclair, L. C., 28 Palmside Street, Christchurch 2.
ZL3TNJ-
ZL3TNK-von Biel, H. A., 15 Leinster Road,
          Christchurch 1.
ZL3TNL-Maunsell, P. B., 4 Ashcroft Place,
          Christchurch 5.
ZL3TNM-
ZL3TNN—Searle, G. G., C/- Post Office, Hokitika. ZL3TNO—Pearce, S. J., 21 Glenmore Avenue, Christchurch 5.
ZL3TNP—Cook, C. A., 188 Beach Road, Christchurch 9. ZL3TNQ—Riordan, G. B., 25a Taylors Avenue,
          Christchurch 5.
ZL3TNR-Freeman, L. P., 11 Cyanet Street,
          Christchurch 9.
ZL3TNS-Clay, P. D., 18 Bateups Road, Richmond,
          Nelson.
ZL3TNT—Withers, N. C., 57 Bristol Street, Christchurch 1. ZL3TNU—Grueber, P. R., 23 Fairford Street,
          Christchurch 5.
ZL3TNV-King, J. H., 69 Withells Road, Avonhead,
          Christchurch 4,
ZL3TNW—McRobie, W. D., 47 Maltby Avenue, Timaru. ZL3TNX—Allison, H. C. F., 31 Naseby Street,
         Christchurch 1.
ZL3TNZ-Gillick, K. J., 119a Prestons Road,
          Christchurch 5.
ZL3TOA-Gowers, R. J., 5 Longly Place, Riccarton,
          Chrischurch 2.
ZL3TOB-
ZL3TOC—Marshall, R. W., 19 Fraser Crescent, Twizel. ZL3TOD—Robertson, C., 15 Wittys Road, Avonhead,
          Christchurch 4.
ZL3TOE—Steel, P. J., 57 Woolley Street, Christchurch 7. ZL3TOF—Warren, P. A., 4/57 Sherborne Street,
          Christchurch 1.
ZL3TOG—Smith, R. J., 30 Aurora Street, Christchurch 4. ZL3TOH—Fordyce, A. A., 35 Juniper Street,
          Christchurch 5.
ZL3TOI—King, A. F., The Chalets, Barry Street, P.O. Box 129, Gromwell.
ZL3TOJ—Mayers, D. R., Loburn, R.D. 2, Rangiora. ZL3TOK—Prier, N. G., 39 Camden Street, Christohurch 5.
ZL3TOL-
ZL3TOM-
ZL3TON-Homewood, B. S. D., 69a Aorangi Road,
          Christchurch 5.
ZL3TOO-
ZL3TOP-Back, C. R., Wellington Street, Christchurch 1.
ZL3TOQ-
ZL3TOR—Turnbull, J. W. M., 304 Cannon Hill Crescent.
          Christchurch 8.
ZL3TOS-
ZL3TOT-Cross, M. J.,
ZL3TOU-
ZL3TOV—
ZL3TOW—Smith, M. G., 327 Waimairi Road,
          Christchurch 5.
ZL3TOX-Wilson, D. A., 189 Ashburton-Rakaia Gorge
```

Road, Methyen,

Christchurch 4.

Christohurch 5.

ZL3TOY	ZL3TQW-Novotny, V. G., 69 Gregan Crescent,
	Christchurch 5.
ZL3TOY—Britnell, C. B., 7 Impala Place, Christchurch 4.	ZL3TQX—Statter, S. E., 7 Oakfield Street, Christchurch 5.
ZL3TOZ-Hurst, D. W., 12 Orr Street, Ashburton.	ZL3TQY—Francis, C. G., 6 Pratt Street, Christchurch 9.
ZL3TPA—Elliott, R. W., 32 Clifford Avenue, Fendalton,	ZL3TQZ—Williams, N. D., 16 Vancouver Crescent,
Christchurch 1.	Christchurch 6.
ZL3TPB—	ZL3TRA
ZL3TPC—Payne, A. T., 9 Factory Road, Belfast,	ZL3TRB
Christchurch 5.	
ZL3TPD—Cornish, B. J., 5 Birchdale Place,	ZL3TRC
Christchurch 3.	ZL3TAD
ZL3TPE—	ZL3TRE
ZL3TPF—Trumper, M. A., 15 Peraki Street, Kaiapoi.	ZL3TRF
ZL3TPG—Gordon, I. N., 10 Murdoch Street.	ZL3TRG
Christchurch 5.	ZL3TRH
ZL3TPH—Grey R. W., 33 Gilby Street, Linwood,	ZL3TRI ZL3TRI
Christchurch 1.	ZL3TRJ
ZL3TPI—Parry, D. G., 18 Sunvale Terrace, Cashmere,	ZL3TRK
Christchurch 2.	ZL3TRL
ZL3TPJ—Van Roy, H. P. A., 453 Mairehau Road,	ZL3TRM
Christchurch 9.	ZL3TRN
ZL3TPK—Roberts, B. M., 135 Russell Street, Westport.	ZL3TRO
ZL3TPL—Davidson, A. H., 143 Eastern Terrace,	ZL3TRP
Christchurch 2.	ZL3TRQ
ZL3TPM—	ZL3TRR
ZL3TPN—	ZL3TRS
ZL3TPO—	ZL3TRT
ZL3TPP—	ZL3TRU
ZL3TPQ—	ZL3TRV
ZL3TPR—Coyle, C. J., 159 Ashmore Street, Halfway Bush	ZL3TRW
Dunedin.	ZL3TRX
ZL3TPS-Moyle, J. R., 19 Marley View Street,	ZL3TRY
Christchurch 2.	ZL3TRZ
ZL3TPT—Thompson, B. N., 18 Gunns Crescent.	
Christchurch 2	
ZL3TPU-Jackson, W. G., 117 Fisher Parade, Pakuranga,	Amendments
Auckland.	
ZL3TPV—Davy, K. T., 17 Hatton Street, Timaru.	
ZL2TPW—	.,,,,
ZL3TPX—	
ZL3TPY—Fotheringham, J. P., 260 Waterloo Road, Lower	
Hult.	
ZL3TPZ—Campbell, G. J., 23 O'Briens Road, Sockburn,	
Christchurch 4.	
ZL3TQA—	
ZL3TQB—English, K. A., 9 Roberts Road, Christchurch 4	·
ZL3TQC—Graham, J. N., 90 Churchill Street, Kaikoura.	
ZL3TQD—Roxburgh, J. G., 13 Pound Road, Leeston.	and the second s
ZL3TQE—Aitchison, M. S., 61 Longlellow Street.	
Christchurch 2.	
ZL3TQF—	
ZL3TQG—	
ZL3TQH—Wiltshire, R., 21 Pascoe Avenue,	,
Christchurch 1. ZL3TQI—Beveridge, G. W., 9 Macaulay Place, Twizel.	
ZL3TQJ—Morrison, L. I., 39 Simon Street, Twizel.	
ZL3TQK—Whitfield, S. J. N., 48 Hawthornden Road,	1000 to 1000 t
Christchurch 4.	
ZL3TQL—Burling Claridge, G. R., C/- Motor Camp,	y is internet in the library and
Hokitika.	
ZL3TQM—Steele, T. M., 3/100, Martin Street, Upper Hutt	101 10 10 10. 10
ZL3TQN—Strachan, J. W., 13 Rimu Street, Timaru.	
ZL3TQO—Gardiner, P. K., 237 Greers Road,	
Christchurch 5.	and a marketing of opening or done
ZL3TQP—	
ZL3TQQ—Allan, L. R., 45 Pine Avenue, Christchurch 7.	
ZL3TQR—Judkins, W. D., 12 Buchanans Road,	h
Christchurch 4.	p bigg on a committee
ZL3TQS—Fazackerley, J. I., 3/82 Linwood Avenue,	
Christchurch 1.	
ZL3TQT—Batchelor, G. W., 41 Kirkwood Avenue,	salainne er eer eer janna
Christchurch 4.	
ZL3TQU - Westhead, K. M., 387 Pine Avenue,	10100010100 s
Christchurch 7.	
ZL3TQV—Pringle, J. R., 335 Waimairi Road,	
Christchurch 4.	

ZL4 Callsign Listings

- ZL4AA-Bell, F. D., Private Bag, Shaq Valley Station, Palmerston
- ZL4AB—Gray, H. A., 102 Brownston Street, Wanaka. ZL4AC-
- ZL4AC-Bradwin, C. C., "Popotunoa", R.D. 1, Clinton.
- ZL4AE-
- ZL4AF-Falconer, A. E., Whiterig, No. 1 R.D., Gore, P.O. Box 214
- ZL4AG-Boshier, R. F., 30 Ayton Drive, Glenfield, Auckland 10.
- AL4AH—Sansom, W. R., 17 Renfrew Street, Dunedin. ZL4AI—Shore, K. H., 1 Upland Street, Dunedin. ZL4AJ—Agnew, A. C., 105 Cavell Street, Dunedin. ZL4AK—Dowman, W. F., 99 Aln Street, Oamaru.
- ZL4AL-Eastern Southland Branch NZART Inc., (Trustee:
- A. N. Allan), R.D. 4, Charlton, Gore.

 ZL4AM—Earland, F. P., 88 Main South Road, Burnside,
 Green Island, Dunedin.
- ZL4AN-Tunnicliffe, W. M., 32 Holyhead Road, Outram.
- ZL4AO—Allan, A. N., Charlton, No. 4 B.D., Gore. ZL4AP—Smith, R. C., Pine Bush, No. 5 B.D., Invercargill.
- ZL4AQ-Whyte, R. A., 7 Charles Street, Gore. ZL4AR-Cole, R. S., 46 Walton Park Avenue, Fairfield,
- Dunedin. ZL4AS—Gray, L. C., 16 Lincoln Terrace, Balclutha. ZL4AT—Treweek, C. A. (Mrs), 9 Layard Street.
- Invercargill. ZL4AU-Ernst, R. W., Awarua Radio, Invercargill.
- ZL4AV—Pickford, L. C. Taiepa Road, R.D. 9, Invercargitl. ZL4AW—Pickford, W. J., Black Road, 9 R.D., P.O. Box 491, Invercargill.
- ZL4AX-Sandford, H. D., 37 Martin Road, Fairfield, Dunedin.
- ZL4AY-McLeod, J. H., 284 Talbot Street, Invercargill.
- ZL4AZ—Sidey, T. K. S., 16 Tolcarne Avenue, Dunedin, ZL4BA—Jones, G. L., 8 Yare Lane, Balclutha, ZL4BB—Brookes, R. G., 319 Tramway Road, Invercargill,
- ZL4BC—Ferris, J. L., Manuherikia Road, Alexandra, ZL4BD—Helean, F. P., 3 Passmore Crescent, Maori Hill,
- Dunedin. ZL4BE-Whiteley, F., 31 Maybank Street, Opoho, Dunedin.
- ZL4BF-Smith, L. K., 1a Wycherley Drive, Bucklands Beach, Auckland
- ZL4BG-Mitchell, J. R., 49 McKerrow Street, Dunedin. ZL4BH—East Otago High School Radio Club, (Trustee:
- M. G. Askinj, P.O. Box 58, Palmerston, Olago. ZL4BI—Caldwell, J., Seaward Road, Edendale, Invercargill.
- ZL4BJ--Wickens, J. R., 9 Fleet Street, Masterton.
- ZL4BK-McDonald, N. M., 16 Howard Street, Macandrew Bay, Dunedin.
- ZL4BL-Millar, T. E., 17a Normanby Street, St. Kilda, Dunedin.
- ZL4BM-Ashley, F. O., Rata Road, Otatara RD 9. Invercargill.
- ZL48N—Collett, D. K., 27 Devon Street, Otautau. ZL480—Jackson, V. R., Milton Park, R.D. 1, Invercargill, ZL48P—Collett, W. G., 35 Wharfdale Street, Macandrew
- Bay, Dunedin. ZL4BQ-Brown, A. R., Wainakarua Road, Kakanui, Oamaru.
- ZL4BR-Thompson, H. G., 47 Forth Street, Mataura.
- ZL4BS— ZL4BT—McKenzie, J. D., 268 Wai-iti Road, Timaru. ZL4BU—Stephens, R. D., 34 Kildare Street, Invercargill.
- ZL4BV—Stephens, R. D., 34 Kildare Street, Invercargill, ZL4BV—McConnell, J. R., 73 Banks Street, Invercargill, ZL4BV—Williamson, B. C., Horrace Street, Cromwell, ZL4BX—Anderson, J. L., 64 MainRoad, Brighton, Dunedin, ZL4BY—Jenner, M. G., 40 Murano Street, Dunedin, ZL4BZ—Eve, G. R., C/- Tauraroa Area School, R.D. 8, Mesparii.
- Whangarei ZL4CA-Williamson, A. E., Leicester Street, Hampden.

- ZL4CB-English, O. C., 82 Isleworth Road, Christchurch 5.
- ZL4CC-Checketts, C. V. (Mrs), 21 Highfield Terrace. Invercargill.
- ZL4CP—Dimmock, C., 92 Exmouth Street, Invercargill. ZL4CE—Searle, J. H., 71 Connon Street, Invercargill. ZL4CF—McLaren, A. D., 16 Melbourne Street, South Dunedin.
- ZL4CG—Bathurst, C. F., Mokotua, R.D. 7, Invercargill. ZL4CH—Spry. W. D., 19 Strathern Avenue, Avonhead, Christchurch 4.
- ZL4CI-ZL4CJ-Angell, J. C., 24 Douglas Street, P.O. Box 161, Wakatipu, Queenstown.
- ZL4CK—Wark, A. J., 1 Sutcliffe Street, Dunedin. ZL4CL—Cameron, M. E. (Mrs), 46 Cargill Street, Dunedin. ZL4CM—Martin, A. J. T., 8 Lark Street, Oamaru.
- ZL4CN-Peterson, A., McN., 26 Actea Street, Dunedin E1.
- ZL4CO-Thomas, R. E., Avon Street, P.O. Box 23, Athol, Southland
- ZL4CP-Shea, A. E., 23 Kaka Road, St. Leonards. Dunedin. ZL4CQ-
- ZL4CR—Middleton, C. E., 36 Green Street, Mosgiel, ZL4CS—Finlay, C. S., 5/2 Will Street, Green Island,
- Dunedin.
- ZL4CT—Southland Boys High School Radio Club. (Trustee: R. W. Evans), Herbert Street, Invercargill.
- ZL4CU—Dudley, G. J., Pomona Road, R.D. 11. Invercargill.
- ZL4CV—McKenzie, J., 234 George Street, Invercargill, ZL4CW—Barker, W. G., 30 Kowhai Avenue, Invercargill, ZL4CX—Warburton, N. O. (Mrs), 75a Shetland Street,
- Dunedin.
- ZL4CY-McNeill, T. J., 39 Eton Street, Otautau. ZL4CZ-Brain, E. R., 38 Cranley Street, Dunedin.
- ZL4DA-Harman, I. A., 49 Alexander Street, Abbotsford, Green Island.
- ZL4DB—Cahill, E., Earnscleugh Road, Alexandra.
- ZL4DC—Cambridge, D. A. H., R.D. 1, Cromwell.
 ZL4DD—Anderson, R. A., 39 Glendining Avenue, Dunedin.
 ZL4DE—Magon, T. E., C/- Awarua Radio, Private Bag.
- Invercargill.
- ZL4DF-ZL4DG-Wolf, W. G. W., 1 Freyberg Road, Fairfield,
- Dunedin.
- ZL4DH—Hope, D. F., 48 Prince Street, Winton. ZL4DI—Bain, C. B., 24 McKerrow Street, Waverley, Dunedin
- ZL4DJ-Baird, R. A., Dunstan Road, 2 R.D., Alexandra, ZL4DK-
- ZL4DL-Lestie, A. J., 8 Stanley Street, Mornington Dunedin W1
- ZL4DM—Crockett, W. M., Glenpark, Dunback Road, Palmerston.
- ZL4DN—Sharp, J. R., 41 Greenhill Avenue, Wakari, Dunedin.
- ZL4DO-Sutton, R. J., Woodhill Forest, R.D. 3, Waimauku.
- ZL4DP-Ewens, W. S., 215 Broughton Street, Gore. ZL4DQ-Maslen, I. A., 62 Chambers Street, Dunedin.
- ZL4DR—Irving, J. T., 28 King Street, Mosgiel. ZL4DS—Carr. D. W., 46 Saunders Street, Dunedin. ZL4DT—Preddy, S. G., 105 Glenross St., Dunedin.
- ZL4DU-Stiglish, C. A., 58 Argyle Street, Mornington. Dunedin.
- ZL4DV-Richards, P. D., Waipori Falls, Otago. ZL4DW-Babington, A. M., 162 Pomona Street,
- Invercargill.

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ZL4DZ
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ZL4DZ-Willetts, N. E., 23 Yarmouth Street, Balclutha.

71 4FA

ZL4FB-Boulton, J. R., 26 Leftrum Street, Cromwell. ZL4FC—Dominey, R. J., Residence 5, Awarua Radio. ZL4FD—Hedge, H. G., 86 Nichol Street, Lake Hawea. ZL4FE-McConnachie, M. J., 3 Lakeside Drive, Lake

Waitaki.

ZL4FF ZL4FG—Russell, W. J., 255 Yarrow Street, Invercargill, ZL4FH—Hall, J. N., 8 Watkin Street, Pine Hill, Dunedin.

ZL4FI-Askin, M. G., Moeraki, R.D. 2, Palmerston, Otago ZL4FJ-Austin, F. J., 8 Dunblane Street, Dunedin.

ZL4F3—Austit, F. K. G., 192 Rutland Street, Christchurch 5. ZL4FK—Fisher, harron, D. A., Signal Hill, Dunedin. ZL4FM—Ramsay, K., 79 Banks Street, Invercargill. ZL4FN—Egan, M. A. (Mrs), 181 Helensburgh Road.

Dunedin. ZL4FO-Gorman, F. J., 8 Scutari Street, Wyndham.

ZL4FP—McLeod, R. J., 134 Bay View Road, Dunedin, ZL4FP—McLeod, R. J., 134 Bay View Road, Dunedin, ZL4FR—Jatlantyne, R. E., 125 London Street, Dunedin, ZL4FR—Jeromson, W. J., 196 Highcliff Road, Dunedin, ZL4FS—Faulkner, D. N., C/- Awarua Radio Station, Invercargill.

ZL4FT-Mitchell, G. L., 42 District Road, Sawyers Bay,

Dunedin. 71.4FU-

ZL4FV-Willoughby, J. R., 136 Elizabeth Street, Invercargill.

ZL4FW-Watson, P. J., Curio Bay, No. 1 B.D., Tokanui, Invercargill.

ZL4FX—O'Reilly, P. R., 60 Surrey Street, Dunedin, ZL4FY—Dunlop, R. M., 82 Catherine Street, Invercargill, ZL4FZ—Smart, R. G., 99 Joy Street, Christchurch 6.

ZL4GA-Homer, G. C., 5 Conway Street, MacAndrew Bay, Dunedin.

ZL4GB—Carter, D. J., 60 Antrim Street, Invercargill. ZL4GC-Shand, T. J., 52 Bremner Road, Faifleld,

Dunedin.

ZL4GD—Wilkey, T. G., 184 Gore Street, Bluff. ZL4GE—Hurring, C. J., 1a Belmont Lane, Dunedin, ZL4GF—Balan, S. C., 45a Brandon Road, Glen Eden, Auckland 7

ZL4GG—Boddy, K. H., 47 Newcastle Street, Clyde. ZL4GH—Hay, J. K., 1/188 Victoria Avenue, Bemuera, Auckland 5

ZL4Gt-St. Peters College Radio Club, (Trustee: R.

Paulson), Kakapo Street, Gore.
ZL4GJ—Service, T. R., 5 Bremridge Place, Hamilton.
ZL4GK—Colvin, L. J., 37 Locksley Avenue, Dallington, Christchurch 6.

ZL4GL—Gilder, N. J., 37 Pomona Street, Gore. ZL4GM—Ellis, D. D., 146 Exmouth Street, Invercrgill. ZL4GN—Lodge, S. F., 35 Graham Street, Mosgiel. ZL4GO—Thomas, M. E., NZED, Roxburgh, Private Bag,

Roxburgh.

ZL4GP-Harnett, P. J., 3 Crosby Street, Dunedin. ZL4GO-Southland Branch NZART Inc., (Trustee: H. N. Checketts), Ettrick Street, P.O. Box 1260. Invercargill

ZL4GR-Earland, M. E. (Mrs), 88 Main South Road, Green Island, Dunedin

ZL40S-Graham, E. J. W., F2/426 Armagh Street, Christchurch 1.

ZL4GT—Skinner, L. C., 200 Surrey Street, Dunedin. ZL4GU—Mussen, R. L., 30 Lyon Street, Invercargill. ZL4GV—Seidelin, H. P., 22 Maryhill Terrace, Dunedin, ZL4GW—McDonald, B. N., 39 Louisa Street, Invercargill.

ZL4GX-Collie, D. B., 48 Thurso Street, Invercargill.

ZL4GZ—Wills, M. E., 48 Purdue Street, Invercargill, ZL4GZ—Mitchell, B. A. E., 23 Wharenul Road, Rotorua, ZL4HA—Young, B. S., 9 Crescent Street, Purakanul,

Dunedin.

ZL4HB—Russell, V. T., 39 Swinton STreet, Invercargill. ZL4HC-Waters, M. J., 244 Brockville Road, Dunedin.

ZL4HD—Findlater, J. L. L., 37 Gormack Street, Balclutha. ZL4HE—Montgomery, A. M., 4 Hoylake Street, Outram.

ZL4HF-Kindon, H. A. R., 53 Montague Street, Dunedin. ZL4HG-McNeill, S. J. E., 40 Arawa Street, Dunedin.

ZL4HH-St. Pauls High School Amateur Radio Club. (Trustee: K. H. Sellar), 240 Rettray Street, Dunedin.

ZL4HI—Bruce, F., 170 Pine Hill Road, Dunedin. ZL4HJ—Bulger, J. W., 1 King Street, Mosgiel. ZL4HK—McNaught, R. G., 309 Ythan Street, Invercargill.

ZL4HL—Smirk, A. H., 68 Cannington Road, Maori Hill, Dunedin

ZL4HM—Whelan, M. L., 142 West Street, Invercargill. ZL4HN—Booth, W. J., Drummond, Southland.

ZL4HO—Sutton, K. E., 97 Grey Street, Invercargill. ZL4HP—Rait, B. G., Longwood, No. 1 R.D., Riverton.

ZL4HQ—Williams, J. C., 143 Albert Street, Invercargill. ZL4HR—Nisbet, G. J., 50 Clermiston Avenue,

Corstorphine, Dunedin. ZL4HS—Marsh, W. E. J., Wah Road, Otstara, R.D. 9,

Invercaroili.

ZL4HT-Powley, D. M. L., 17 Colchester Crescent, Newlands, Wellington 4.
ZL4HU—James Hargest High School Radio Club (Trustee:

F. Taylor), Layard Street, Invercargill. ZL4HV—Baxter, R. M., 456 Peninsula Road, Kelvin

Heights, Queenstown

ZL4HW-Robertson, K. W., C/- Awarua Radio, Private Bag, Invercargill.

ZL4HX-Paulson, R., St. Peters School, Kakapo Street, Gore.

ZL4HY-Baxter, P. M. (Mrs), 456 Peninsula Road, Kelvin. Heights, Queenstown

ZL4HZ-Hagen, K. B., 1 NZED Substation Findlay Road, Invercargitt.

ZL4IA-Baker, J. C., P.O. Box 111, Wanaka. ZL4IB-

ZL4IC—Cockeram, M. R., 262 Ythan Street, Invercargill. ZL4ID—Hill, S. G., 54 Rhodes Terrace, Dunedin.

ZL4IE-Mason, J. A., 29 Cannington Road, Dunedin.

ZL4IF—Christie, J. B., 18 Shandon Road, Dunedin, ZL4IG—Fox, A. R. E., 39 David Street, (P.O. Box 475), Invercardill.

ZL4IH-Frame, S. R., 38 Melbourne Street, Invercargill. ZL4II—Fraile, S. R., 36 Methodille Steet, Invercargili, ZL4II—Hollebon, K. W., frvine Road, 2 R.D., Dunedin, ZL4IJ—Duerden, T. W. M., 166 Layard Street, Invercargill, ZL4IK—Emslie, C. R., 44 Barr Street, Balaklava, Dunedin.

ZL4IL—Salmon, J. D., 7 Picardy Street, Dunedin. ZL4IM-Norton, J., Pukerau, Southland.

ZL4IN—Faulkner, W. E., 124 Frank Street, Gore. ZL4IO—Harkness, J. W., 74 Mulford Street, Concord,

Green Island, Dunedin, ZL4IP-Patterson, B. R., 66 Koremata Street, Green Island,

Dunedin. ZL4IQ-Knowles, D. C., 3 Watkin Street, Dunedin.

ZL4IR-Jensen, M. O., 16 Delpha Street, Dunedin. ZL4IS-Smirk, B. A., 68 Cannington Road, Maori Hill, Dunedin.

ZL4IT-Sawyers, R. N., 32 Leckhampton Street, Caversham Glen, Dunedin.

ZL4fU-Swale, C. S., 28 Hastings Street, Ohai.

ZL4fV—Looser, E. A., 6b Lunciman Street, Green Island, Dunedin.

ZL4fW-Holden, P. J., 175 Scott Street, Dunedin. ZL4IX—Hasler, D. G., 9 White Road, Burnham.

ZL4IY-Piercy, H. J., 206 Bowmont Street, Invercargill. ZL4IZ—Jeffery, I. W., P.O. Box 96, Balfour, Southland.

ZL4JA—Birse, K. C., 19 Heaphy Street, New Plymouth, ZL4JB—Rose, J. R., Otatara, Invercargill.

ZL4JC-McLennan, E. J. (Mrs), 11 Emerson Street,

Concord, Dunedin ZL4JD-Dudley, J. T., 11 Fraser Street, Waikiwi, Invercargill,

ZL4JE-Elliot, J., 36 Grange Street, Dunedin.

- ZL4JF—South Otago Branch NZART (Trustee: J. L. L. Findlater), Main South Road, Balclutha.
- ZL4JG-MacDonald, E. R., 318 Main South Road, Green Island Dunedin.
- ZL4JH—Harrow, J. C., 529 Tweed Street, Invercargill, ZL4JI—Woods, J. R., Taiepa Road, Otatara, R.D. 9. Invercargill.
- ZL4JJ—Ferris, R. J., 269 Stokes Valley Road, Stokes Valley.

- ZL4JK—Stanton, M. G., R.D. 6, Gore. ZL4JL—Stewart, R. D., 4 Arawa Street, Gore. ZL4JM—Richardson, J., Aurorai Station, Private Bag. Omakau.
- Omakau.

 ZL4JN—Haig, A. V., 43 Melbourne Street, Dunedin.

 ZL4JO—Johnstone, M. O., Newhaven, 1 R.D., Owaka.

 ZL4JP—McKenzie, G. A., Waiparu, No. 7 R.D., Gore.

 ZL4JQ—Torrance, A. M., 5 Hart Street, Dunedin.

 ZL4JR—Rait, J. N. (Mrs), Longwood, No. 1 R.D., Riverton.

 ZL4JS—Stonehouse, R. P. M., 63 Bamborough Street,

- Invercargill.
- ZL4JT—Jennings, J. T., 5 Danube Street, Dunedin, ZL4JU—Middleton, C. H., C/- Alpine Helicopters, R.D. 1, Cromwell.
- ZL4JV-Barry, J. M., 26 Brougham Street, Westport. ZL4JW-Watson, R. J., 13 Oregon Drive, Kelvin Heights. Queenstown.
- ZL4JY-Otago Branch NZART (Trustee: R. W. G. Kingston), 109 Macandrew Road, Dunedin.
- ZL4JZ-ZL4KA-Spence, P. C., 62 Roy Crescent, Concord,
- Dunedin. ZL4KB—Gearing, W. J., Felldene Farm, R.D. 2, Wakefield.
- Nelson. ZL4KC—Air Training Corps Radio Club, No. 12 Invercargill Squadron, (Trustee; R. A. McNeill), Army Hall. Victoria Avenue, Invercargill.
- ZL4KE—Colyer, J. V., 17 Clutha Street, Alexandra. ZL4KF—France, K. N., 41 Glencarron Street, Alexandra. ZL4KG—Rhodes, T. W., 78 Spottiswoode Street.
- Dunedin E1.
- ZL4KH—Shine, D. H. J., 11 Northview Crescent, Roslyn,
- Dunedin, ZL4KI—Poole, F. L., Marama Avenue, Otatara, P.O. Box 575, Invercargill.
- ZL4KJ—Robertson, D. C., 45 Maitland Street, Invercargill, ZL4KK—Gillick, M. M., 30 Oakland Street, Dunedin E1, ZL4KL—Lister, K. B., 37 Marine Parade, Macandrew Bay.
- Dunedin.
- ZL4KM—Craig, A. J., 3 Milner Street, Oamaru.
- ZL4KN—Findlater, R. B., 88 George Street, Invercargill, ZL4KO—Williams, T. J., 48 Every Street, Dunedin, ZL4KP—Cochrane, W. G., 19 Centennial Avenue,
- Balclutha. ZL4KQ—Symonds, J. R., 27 Lewin Street, Balclutha. ZL4KR—Pearce, A. M., 173 Helensburgh Road, Dunedin. ZL4KS—Orlon, A., 25 Cass Street, Temuka. ZL4KT—Waring, D., 183 Shetland Street, Dunedin.

- ZL4KU—Taylor, S. J., 12 Chelmsford Street, Invercargill. ZL4KU—Patton, J. A., 2 Douglas Place, R.D. 7, Te Puke. ZL4KW—Kibblewhite, K. C., Larch Hill, Frankton Road,
- Queenstown.
- ZL4KX-McCormick, B. P., 39 Moana Crescent, Dunedin. ZL4KY-Jones, H. A., 1 Edinburgh Place, Balclutha.
- ZL4LA—McKellar, I. C., 34 Claremont Street, Dunedin, ZL4L8—Beagley, G. T., Precelley Street, Allanton, R.D. 2, Mosgiel.

- ZL4LC—Carroll, E. P., 6 Benhar Street, Dunedin.
 ZL4LD—Haines, P. C., 37 Wairoa Street, Dunedin.
 ZL4LE—Evans, L. M., Tussock Creek, R.D. 6, Invercargill.
 ZL4LF—Masterton, D., 17 Lochend Street, Dunedin.
- ZL4LG-Beardsmore, G. F., 22 Woodside Terrace. Andersons Bay, Dunedin.

- ZL4LH—Milsom, P. S., 20 Lanark Street, Mosgiel. ZL4LI—Amon, L. E. S., 700 Castle Street, Dunedin. ZL4LI—McKenzie, A. I., 24 Scotland Terrace, Green
- Island, Dunedin
- ZL4LK—Whitty, M. J., 20 Edinburgh Street, Green Island. Dunedin.
- ZL4LL—Benson, J. A., 15 Heath Street, Andersons Bay, Dunedin.
- ZL4LM—Naflawalla, A., C/- 1 Upland Street, Dunedin. ZL4LN—Tall, E. J., 19 Graham Street, Mosgiel. ZL4LO—Singleton, J. (Mrs), Waikawa R.D. 1, Tokanui.
- ZL4LP—Seilar, K. R., 34 City Road, Dunedin.
- ZL4LQ-Corstorphine Radio Club, (Trustee: G. J. Nisbet).
- 50 Clemiston Avenue, Dunedin. ZL4LR—Hunt, F. G., 38 Dame Street, Waikouaiti. ZL4LS—Howie, G. A., 12 Theyers Street, Alexandra.
- ZL4LT-ZL4LU—Costard, T. J., 17 Stirling Street, Andersons Bay,
- Dunedin. ZL4LV—Johnson, P. W., Saddle Hill Road, P.O. Box 71,
- Dunedin.
- ZL4LW—Woodford, L. A., 90 Palmerston Street, Riverton, ZL4LX—Evans, R. W., 66 Carnaryon Street, Invercargill, ZL4LY—Macaskill, D. J., 34 Stirling Street, Invercargill,
- ZL4LZ-Telford, B., Ruru Avenue, Otatara, R.D. 9,
- Invercargill.
- ZL4MA—Fergusson, T. R., 592 Tay Street, Invercargill. ZL4MB—Andrews, S. E., 14 Como Street, Dunedin. ZL4MC—McGowan, D. F., 7 Arthur Street, Oamaru.
- ZL4MD-Hayes, K. J., Ortive Street, Cromwell. ZL4ME-
- ZL4MF—Bell, J. W., 66 Elizabeth Street, Invercargill. ZL4MG—McKenzie, W. J., 9 Main Street, Tuatapere. ZL4MH—McKenzie, E. D., 6 Drivers Road, Dunedin.
- ZL4MI—Mitchell, J. S., D. 2, Dunedin.
 ZL4MJ—Mitchell, J. S., 109 Layard Street, Invercargill.
 ZL4MK—Kingston, R. W. G., 12 Kenilworth Street.
- Waverley, Dunedin. ZL4ML—Lamont, M. S., 3 Garden Place, Glenleith,
- Dunedin.
- ZL4MM—Murray, R. W., Ripponvale, Cromwell. ZL4MN—Mosley, J. D., 67 Gladstone Road, Dunedin.
- ZL4MO-Askey, A. J., 30 Murano Street, Waverly, Dunedin.
- ZL4MP—Crichton, J., 14 Bernica Street, Port Chalmers. ZL4MQ—Reynolds, W. J., 189 George Street, Invercargill. ZL4MR—Mabon, A. C., 29 Crosby Street, Dunedin. ZL4MS—Dalliessi, P. J. C., Chertsey Court, 217d Ruahine Street, Terrace End. Palmerston North, P.O. Box
- ZL4MT-Matthews, R. H., Main Road, Mokotua, R.D. 1.
- Invercargill.
 ZL4MU—Cook, R. K., 230 Crawford Street, Invercargill. ZL4MV—Dawson, G. L., 32 Vernon Street, Invercargill. ZL4MW—Ward, W. T. R., 29 Wellesley Avenue,
- Invercargill.
- ZL4MX—Govan, W. A., 28 Ann Street, Dunedin.
- ZL4MY—Treweek, M. E., 9 Layard Street, Invercargill. ZL4MZ—Sherlaw, W. G., Waipori Falls.
- ZL4NA—Dinkelaar, F., 59 Stirling Road, Benhar. ZL4NB—Barkman, D. J., 42 Nairn Street, Kaikorai. Dunedin.
- ZL4NC—Holding, N., 93 Dunrobin Street, Waverley, Dunedin.
- ZL4ND—Cunninghame, P. J., 63 High Street, Mosgiel. ZL4NE—Smith, B. A. C., C/- The Hostel, Pompalona Hutt, Te Anau.
- ZL4NF-
- ZL4NG—Simmons, R. H., 544 Tay Street, Invercargill, ZL4NH—McRodden, P., 93 Tomahawk Road, Andersons Bay, Dunedin.
- ZL4NI-Braddock, A. R. (Mrs), 39 Norton Street, Gore. ZL4NJ-Scott, I. R., 514 Yarrow Street, Invercargill.

ZL4NK

ZL4NK--Kan, N. C. Y., 90 North Road, North East Valley, Dunedin N.E.1

ZL4NL—Taylor, A. J., 37 Dipton Street, Invercargill. ZL4NM—Taylor, F., 318 Chelmsford Street, Invercargill. ZL4NN—Gibb, L., 22 Bridger Street, Dunedin.

ZL4NP—Goodin, N. H., 325 Tomahawk Road, Dunedin.

ZL4NQ-Queenstown Branch (75) NZART (Trustee: K. C. Kibblewhite), Council Chambers, Ballarat Street, Queenstown.

ZL4NR—McVie, K. R., 29 Granville Terrace, Dunedin, ZL4NS—Hagen, R. L., House 1, NZED Substation, Findlay Road, Invercargitt.

ZL4NT-No. 46 (Mosgiel) Squadron ATC Radio Club, (Trustee: P. S. Milsom), Taieri Airport, Dunedin.

ZL4NU—Mackay, A. J., Montana, 2 R.D., Heriot, ZL4NV—Selwyn, T. A., C/- NZED Substation, R.D. 2, Cromwell

ZL4NW—Lee, N. P. C., 51 Dome Street, Invercargill, ZL4NX—Eleveneaux, D. H., 46 Greenock Street, Dunedin.

ZL4NZ—Young, P. F., No. 3 R.D., Winton. ZL4NZ—Reid, K. W., 25 Highfield Terrace, Invercargill. ZL4OA—McCutcheon, M. C., Littles Road, Dalefield,

Queenstown.

ZL4OB—Jackson, G. A., 88 Ravenswood Road, Dunedin, ZL4OC—Smith, R. F., 4 Spiers Road, Dunedin, ZL4OD—Parsons, R. D., 69 Oreti Street, Invercargill.

ZL4OE-Cumming, C. L., 2 Hinkley Terrace, Company Bay, Dunedin.

ZL4OF-Adams, C. A., 38 Warden Street, Opoho, Dunedin.

ZL4OG—No. 28 (Gore) Squadron, ATC Radio Club, (Trustee: R. A. Whyte), Drill Hall, Avon Street,

ZL4OH-McNeill, R. A., 7 WHitney Street, Blenheim. ZL4O1—Sim, R. J., Henderson Street, Wingatui

ZL4OJ—Collie, D. B., 147 Tory Street, Wellington, ZL4OK—McGlinn, A. J., 61 Youghal Street, Wanaka, P.O. Box 20.

ZL4OL-McAlevey, M. J., Double Hill Road, Waitati. ZL4OM—McIver, P. D., 5/18 Avon Street, Oamaru. ZL4ON—Summerell, B. W., 15 Carnaryon Street, Invercargill.

ZL400—Central Otago Branch NZART, Dunstan Road, R.D. 2, Alexandra.

ZL4OP—Morris, D. P., 134 Stobo Street, Invercargill, ZL4OQ—Shore, B. F. (Mrs), 1 Upland Street, Dunedin, ZL4OR—Reeves, W. A., 205 Tomahawk Road, Andersons

Bay, Dunedin.

ZL4OS-ZL4OT-

ZL4OU-North Otago Branch NZART, (Trustees: M. J. McConnachie, and N. C. McLeod, A. J. Craig), 3 Earn Street, Oamaru.

ZL4QV-Major, L. H., 16 Maybank Street, Opoho, Dunedin.

ZL4OW-Vincent, S. V., 30 Charles Street, Weston, Oamaru.

ZL4OX-Checketts, R. N., 21 Highfield Terrace, Invercargill.

ZL4OY-Hannagan, C. C., Council Flats, Waitangi, Chatham Islands

ZL4OZ—Adams, D. A., 18 Soper Road, Mosgiel. ZL4PA—Lamb, M. A., 90 Princes Street, Invercargill.

ZL4PB-Christie, D. A., 116 Birdwood Avenue, Beckenham, Christchurch 2.

ZL4PC-Haigh, F., C/- 99 Eglinton Road, Mornington, Dunedin.

ZL4PD-Neill, K. G., 38 Teignmouth Street, Green Island, Dunedin.

ZL4PE-Blyth, B. W., Price Road, Winton.

ZL4PF-Lindsay, M. G., C/- Wellington Fladio, Private Bag. Wellington.

ZL4PG-Lloyd, D. A., 180 Forbury Road, Dunedin.

ZL4PH—Drayton, G. J., 64 Margaret Street, Invercargill. ZL4PI—Huband, G. J., 70 Spencer Street, Dunedin. ZL4PJ—Blain, W. A., 640 Tay Street, Invercargill.

ZL4PK—McLean, G. P., 87 Easther Crescent, Dunadin.

ZL4PL~ ZL4PM-Marsh, P., 33 Falcon Street, Dunedin.

ZL4PN—Masti, P., 33 Falcon Street, Diffeon.
ZL4PN—Skeet, B. R., 15 Arnoft Street, Alexandra.
ZL4PO—Price, L. J., C/- Chatham Island Radio.
ZL4PP—Cairns. J. G., Coal Creek, Roxburgh,
ZL4PQ—Pryde, G. W., 25 Brownville Crescent, Maori Hill,

Dunedin.

ZL4PR—Russell, P. F., Bryson Road, Otatara, 9 R.D., Invercardill.

ZL4PS-Stonehouse, P. R., 63 Bamborough Street, Invercargill.

ZL4PT-Thompson, K. P., 180 Mornington Road, Dunedin,

ZL4PU-Watson, G. M., Oamaru Airport, Oamaru. ZL4PV-Virtue, A. D. S., Shropshire Street, P.O. Box 18, Kingston.

ZL4PW-Stevens, C. A. (Mrs), 5 Lanes Road, Bridge Hill, Alexandra.

ZL4PX—McMillan, A. D. K., Moeraki, R.D. 2, Palmerston, Otago.

ZL4PY—Ball, G. L., 51 Carr Road, Mt. Roskill, Auckland 4. ZL4PZ-Gilchrist, A. J. H., 20 Vogel Street, Hawera.

ZL4QA-Grieve, L. M. Kennington, 1 R.D., Invercargill. ZL4QB-Grocott, R. F., 49 Holyoake Crescent, Lower Hutt

ZL4QC-Walton, A. D., 12 Exeter Street, Abbotsford, Dunedin.

ZL4QD—Hand, K. A., 45 Aotea Street, Dunedin. ZL4QE-

ZL4QF-Barclay, K. W., Waikaia Road, Riversdale. ZL4QG-Nilson, F. E. G., 19 District Road, Roseneath,

Sawyers Bay, Dunedin. ZL4QH—Adams, R. J., 4a Wharfe Street, Oamaru. ZL4QI—McDiarmid, K. G., 41 Towey Street, Oamaru.

ZL4QJ—Burtenshaw, J. S., 101 Tramway Road, Hamilton.

ZL4QK—Cross, A., 11 Ryehill Street, Calton Hill. Dunedin. ZL4QL—Smithies, R. B., 78 Regent Street, Invercargill. ZL4QM—McLaren, J. B., 52 Bayfield Road, Dunedin. ZL4GN-Bonney, J. E., 61 View Street, Invercargill. ZL4QO-Lawson, D., 48 Saddle Hill Road, Fairfield,

Dunedin ZL4QP-Harwood, P. J., 42 Caulfield Street, Ranfurly.

ZL4QQ-Marshall, W. H., 39 Bellona Street, St. Kilda. Dunedin.

ZL4QR-Dickie, P. J., Myross Bush, 2 R.D., Invercargill. ZL4QS-Lochhead, J. R., "The Balloon", R.D. 1, Kaitangata.

ZL4QT—Donoghue, A. M., P.O. Box 6036, Dunedin North. ZL4QU—Piper R. V., 209 Chelmsford Street, Invercargill. ZL4QV—Walsh, J. F., 138 George Street, Invercargill.

ZL4QW—Askin, S. M., 14 O.R.D., Oamaru. ZL4QX—Melvin, J. W., 6 Trent Street, Oamaru. ZL4QY-Williams, J. W., 72 Russell Street, Alexandra.

ZL4QZ-ZL4RA—Drayton, M. J., 64 Margaret Street, Invercargill.

ZL4RB—Naish, A. W., Kakanui, 5 R.D., Oamaru. ZL4RC-Wekking, J. H. J., 38 Jollie Road, Twizel, ZL4RD-Perrin, L. D., Kakapuaka, R.D. 3, Balclutha.

ZL4RE—Murgatroyd, E. M., 97 Factory Road, Mosgiel, ZL4RF—Osborne, H. F., 8 Conway Crescent, Invercargill, ZL4RG—Calvert, K. G., Centre Bush, 2 R.D., Winton.

ZL4RH-No. 5 (Dunedin) Squadron A.T.C. Radio Club. Army Drill Hall, Bridgeman Street, Dunedin.

ZL4RI-Simpson, B. J., Bainfield Road, R.D. 1, Invercargill.

ZL4RJ—Elliott, A. J., 19 Bain Street, Waikiwi, Invercargill, ZL4RK—Simpson, I. E., 58 Price Street, Waikiwi, Invercargill.

ZL4RL-Chirnside, A. J., Flat 13, Dorset Towers, 110 Park Terrace, Christchurch 1

ZL4RM-Wijkstra, E., 28 White Street, Invercargill.

```
ZL4RN-Donoghue, A. M., P.O. Box 6036, Dunedin North.
ZL4RO—Graham, J. D., 2 Joseph Street, Gore. ZL4RP—Gillions, R. M., 24 Peel Street, Lawrence.
ZL4RQ-Pycroft, B. E., 261 Wellington Wainuiomata.
ZL4RR-Moore, J. S. F., 49 Nelson Street, Dunedin
ZL4RS—Jonker, J. A., 31 Burns Street, Milton.
ZL4RT—Smith, D. J., "Avoca", 2 R.D., Gore.
ZL4RU—Powe, R. L., Horserange Road, Palmerston.
ZL4RV—Tamplin, A. F. K., 57 Argyle Street, Dunedin. ZL4RW—Bailey, W. D., 35 Tyne Street, Roslyn, Dunedin. ZL4RX—MacDiamid, R. M., C/- Knox College, Arden
          Street, Dunedin.
ZL4RY—Richardson, L. J., 37 Newcastle Street, Clyde, ZL4RZ—Johnson, G. C., 476 Herbert Street, Invercargill
ZL4N . . . .
ZL4TAA—Woods, A. M., 5 Allison Crescent, Dunedin. ZL4TAB—Olsen, W. J., 1 Garnet Street, Gore. ZL4TAC—Parish, D. A., 25 Truscot Avenue, Johnsonville,
          Wellington.
ZL4TAD-Wilhelmson, G. R., 24 Aberdeen Road, St. Clair,
          Dunedin.
ZL4TAE-Thomas, T. M., 8 Challis Street, Dunedin.
ZL4TAF-Bridgman, G. C., 13 Louisa Street, Invercargill.
ZL4TAG-Enright, A., 22 Main Road, Waldronville,
          Dunedín.
ZL4TAH-Checketts, G. N., 21 Highfield Terrace,
          Invercargill.
ZL4TAI-Divett, R. L., 33 Main Road, Bridgehill,
          Alexandra
ZL4TAJ-Paterson, E. G., Waianiwa, Southland.
ZL4TAK-Bowen, D. J., 9c Ravelston Street, Dunedin.
ZL4TAL—Russell, N., 186 Yarrow Street, Invercargill,
ZL4TAM—McLellan, B. A. F., 115 Highcliff Road, Dunedin. ZL4TAN—Kramer, K. H., 21 Humphrey Street, Wakatipu.
ZL4TAO-Hetherington, M. B., 36 Mary Street,
          Invercargill.
ZL4TAP-Johnston, G. H. L., 230 Talbot Street.
          Invercargill.
ZL4TAQ-Howell, A. D., 9 Mercer Street, Balaciava,
          Dunedin.
ZL4TAR—Kirkby, K. J., Oven Hill Road, Millers Flat. ZL4TAS—Helm, P. D., 28 Stafford Street, Ranfurly.
ZL4TAT-McCombie, B. J., 15 Taumata Road, Pukerua
          Bay, Wellington.
ZL4TAU—Richards, O. C., 31 Maitland Street, Dunedin. ZL4TAV—Gordon, G. P. C., 9 Salmond Street, Dunedin. ZL4TAW—Gillies, I. B., 7 Duncraig Street, Invercargill.
ZL4TAX-
ZL4TAY-Field, E. T., Ocean Beach Freezing Co., Ocean
          Beach.
ZL4TAZ-Wade, R. B., 25 Rewa Street, Sunshine,
          Dunedin
ZL4TBA-Croy, P. R., R.D. 2, Challis Point, Dunedin.
ZL4TBB-Sapwell, H. W., 4 McDonald Street, Dunedin.
ZL4TBC-
ZL4TBD-
ZL4TBE-
ZL4TBF-McNamara, B. R., 104 Russell Street, Alexandra,
ZL4TBG-Gavin, B. M., 88 Joseph Street, Invercargill,
ZL4TBH-Lind, A. R., 145 Jeffery Street, Dunedin.
ZL4TBI-
ZL4TBJ-
ZL4TBK-
ZL4TBL-MacDonald, C. S., Oreti Plains, R.D. 1, Winton.
ZL4TBM-Roxburgh, A. J., 50 Maitland Street, Dunedin.
ZL4TBN-Nelson, D. A., 23 Grant Dalton Drive, Taieri
          Airport, Mosgiel.
ZL4TBO—Stewart, E. A., 1 Millington Street, Dunedin, ZL4TBP—Staite, G. T., 8 Forlar Street, Mosgiel.
ZL4TBQ-Campbell, A. J. N., Myross Bush, R.D. 11,
```

```
ZL4TBS-Anderson, M. H., 28 Thompson Street,
          Queenstown.
ZL4TBT-
ZL4TBU-
ZL4TBV-Wilson, P. W. R., 236 Tajeri Road, Dunedin.
ZL4TBW-Wards, D. J. 140 May Street, Invercargill.
ZL4TBX-No. 5 (Dunedin) SQN, ATC Radio Club.
          (Trustee: L. F. Thomson), Bridgeman Street,
          Dunedin.
ZL4TBY-Reid, D. R., 8 Manse Street, Waimate.
ZL4TBZ~
ZL4TCA-Griffith, I. W., 17 Gilmore Street, Dunedin.
ZL4TCB-
ZL4TCC-Le Quesne, P. W. H., 41 Mary Huse Grove,
          Manor Park, Wellington
ZL4TCD-Todd, R. J., Naumai Street, Gore
ZL4TCE—Wilkins, R. J., 44 Heriot Row, Dunedin, ZL4TCF—Norgrove, T. J., 9 Dakota Place, Waldronville.
          Dunedin
ZL4TCG-
ZL4TCH-
2L4TCI—Barker, B. B., Larnach Castle, Dunedin, ZL4TCI—Wagener, A. R., C/- R. D. Wagener, Main Road,
          R.D. 4. Kaitaia.
ZL4TCK—Mawby, D. J., 40 Gordon Terrace, Gore.
ZL4TCL—Allan, G. L., 6 Brunell Street, Dunedin.
ZL4TCM—Ireland, B. D., 482 Thames Highway, Oamaru.
ZL4TCN—Logan, L. N., 18 Asquith Street, Caversham,
          Dunedin.
ZL4TCO-
ZL4TCP-
ZL4TCQ-
ZL4TCR—Beadle, A. J., 9 Kilgour Street, Dunedin,
ZL4TCS-Hobbs, J. McD., 150 Marshlands Road,
          Christchurch 6
ZL4TCT
ZL4TCU—Bryant, D. J., 20 Northfield Avenue, Dunedin,
ZL4TCV-
ZL4TCW-Smith, A., 592 Tweed Street, Invercargill.
ZL4TCX—Greenyer, S. H., 17 Totara Street, Invercargill, ZL4TCY—Childs, P. B., 17 Duckworth Street, Dunedin, ZL4TCZ—Neill, D. O., 46 Pioneer Crescent, Wakari,
          Dunedin
ZL4TDA—Clearwater, B. G., 36 King Street, Mosgiel.
ZL4TDB—Wilden, J. H., 46 Hocken Street, Dunedin, ZL4TDC—Dickison, K. W., 23 Flower Street, Fairfield,
          Dunegin
ZL4TDD—Ross, G. D., North Road, Makarewa. ZL4TDE—Gailagher, P. R., 5 Hawtrey Terrace,
          Johnsonville, Wellington 4.
ZL4TDF—Jacob, W. F., 366 Cobham Drive, Hamilton. ZL4TDG—Webber, R. J., 42 Ryehill Street, Dunedin. ZL4TDH—Singleton. F. C., 72 Quintin Drive, Te Anau.
ZL4TDI-
ZL4TDJ-Dingwall, A. B., 47 Gilkison Street, Dunedin.
ZL4TDK—Dwyer, W. A., 21 Summertime Avenue,
          Dunedin.
ZL4TDL-Jones, I. E., P.O. Box 295, Mosgiel.
ZL4TDM-Laurie, C. S., 43 Dunbarton St., Christchurch 5.
ZL4TDN-
ZL4TDO-Cathro, S. G., 1 Beverley Place, Dunedin.
ZL4TDP—Spence-Ord, K. D., 5 Kenmure St., Alexandra. ZL4TDQ—Weatherall, K. M., 35 Clarendon Street,
          Dunedin North.
ZL4TDR-Zoest. A. R., 116 Evans Street, Dunedin.
ZL4TDS-McKendrick, G. F., 23 Gormack Street.
          Balclutha.
ZL4TDT—Johnson, W. A., 16 Herbert Street, Gore. ZL4TDU—Lynn, I. G., 26 Larkin Street, Dunedin.
ZL4TDV—Parsons, D. J., 69 Oreti Street, Invercargill. ZL4TDW—Caley, R. H., 35 Main Road, Fairfield, Dunedin.
ZL4TDX-McAllum, H. J. E., 32 a Wroxton Terrace,
```

Fendalton, Christchurch 1.

ZL4TDY-Morrow, G. L. 31 Morton Street, Invercardill.

Invercargill.

ZL4TBR—Smith, C. J., 592 Tweed Street, Invercargill.

ZL4TDZ

ZL1TDZ-McDonald, V. E., 5 Perth Street, Mosgiel. ZL4TFA-Winter, R. E. S., 549 Tweed Street, Invercargill. ZL4TFB-

ZL4TFC-Thaver, M. P., 24 Chisholm Place, Dunedin. ZL4TFD—Ball, D. R., 2a Derwent Street, Oamaru.

ZL4TFF—Bokser, D. L., 3 Earn Stret, Oamaru. ZL4TFG—Neill, P. G., 38 Teignmouth Street, Green Island, Dunedin. ZL4TFH-

ZL4TFI—Brodie, J. T., 630 Castle Street, Dunedin. ZL4TFJ-Shirreffs, C. S., 145 Scandrett Street, Invercargill. ZL4TFK-

ZL4TFL—Collier, J. B., 14 Sargood Street, Dunedin. ZL4TFM—Westaway, K. F., C/- Forestry Training Centre, P.O. Box 943, Rotorua.

ZL4TFN-Mann, I. A., Kokonga, R.D. 3, Ranfurly.

ZL4TFP—Bedford, W. M., 110c Stafford Street, Dunedin. ZL4TFQ-Baldwin, C. W., 97 District Road, Green Island, Dunedin.

ZL4TFR-ZL4TFS—Browne, D. J., 23 Hayle Street, Oamaru. ZL4TFT—Rietveld, M. T., 26 Alva Street, Dunedin. ZL4TFU-

ZL4TFV-Calder, D. G., 6 Union Street, Winton. ZL4TFW-

ZL4TFX—Ormandy, P. W., 36 Avon Street, Oamaru. ZL4TFY-MacDonald, D. T., 155 Brockville Road. Dunedin.

ZL4TFZ—Christie, G. A., 37 Garnet Street, Gore. ZL4TGA-Scott, P. R., 99 Gilkinson Street, Dunedin. ZL4TG8-Grant, W. A., 7 Lochend Street, Dunedin. ZL4TGC-Bowie, D. R., 302 Main Road, Green Island, Dunedin.

ZL4TGD—Downey, B. T., Portobello Road, Vauxhall, Dunedin.

ZL4TGE—Thompson, P. G., 4 Aiken Road, Wanganui. ZL4TGF-Williams, G. B., 64 Forfar Crescent, Invercargill. ZL4TGG-Keen, R. G., 274 Highcliff Road, Andersons Bay, Dunedin. ZL4TGH—Connolly, R. C., 56 Rockside Road, Dunedin..

ZL4TGI-

ZL4TGJ-Pettigrew, A. D., 384 McQuarrie Street, Invercargill

ZL4TGK-Butt, G. J., 58 Teviot Street, Invercargill. ZL4TGL—Smith, R. A. J. A., West Plains, Waikiwi, Invercargill.

ZL4TGM—Black, W. A., 46 Hawthorne Avenue, Dunedin, ZL4TGN—Nisbet, R. A., 90 Salisbury Street, Christchurch, ZL4TGO—McAlevey, K. T., 30 Henderson Street,

Invercargill. ZL4TGP-Watson, R. M., 114 Cannington Road, Maori Hill, Dunedin.

ZL4TGQ—Andrews, B. D., 14 Como Street, Dunedin, ZL4TGR—Watson, D. K., 114 Cannington Road, Maori Hill, Dunedin.

ZL4TGS—Faulkner, D. L., 34 Clifden Road, Tuatapere. ZL4TGT-Gerrie, A. L., 105 Riselaw Road, Calton Hill Road, Dunedin.

ZL4TGU—Beeby, P. J., 1 Oxford Street, Balclutha. ZL4TGV—Allan, R. P., 29 Venus Street, Invercargill. ZL4TGW—McGregor, T. R., 6 Freyberg Street, St Kilda. Dunedin.

ZL4TGX-Kitchen, J. R., 48 Scroggs Hill Road, Brighton ZL4TGY—Parris, R. C., 59 Rata Drive, Otematata. ZL4TGZ—Paterson, S. L., Waianiwa.

ZL4THA-Hall, S. J., 93 Ashmore Street, Halfway Bush, Dunedin.

ZL4THB—Rait, R. J., "Longwood", R.D. 1. Riverlon. ZL4THC—Andrews, J. W. A., 65 Stuart Street, Invercargill. ZL4THD—Johnston, W. K., 27 Home Street, Mt. Victoria. Wellington 1.

ZL4THE— ZL4THF—Burge, G. G., 217 Elgin Road, Mornington, Dunedin

ZL4THG—McAuliffe, K. J., 184 Morton Place, Invercargill, ZL4THH—Searle, J., 22 Chisholm Place, Andersons Bay, Dunedin.

ZL4THI-Christie, A. R., 9 Koremata Street, Green Island, Dunedin.

ZL4THJ-Rabbidge, M. J., "Crayburn", No. 1 R.D., Tokanui, Southland,

ZL4THK-Armstrong, E. W., 15 London Street, Weston, North Otago.

ZL4THL—Davidson, R. J., Earnscleugh Road, Clyde. ZL4THM—Pope, N. H., 38 Teignmouth Street, Green Island, Dunedin.

ZL4THN—McLeod, N. C., 65 Stuart Street, Oamaru. ZL4THO—Larsen, S. N., 108 Rosebank Avenue, Wakari, Dunedin.

ZL4THP-Da-Rin, K. J. V., 63 Playfair Street, Dunedin. ZL4THQ-Crimp, G. R., 439 South Road, Caversham, Dunedin.

ZL4THR—Stronach, N., 78 View Street Manapouri. ZL4THS—Q'Cain, P. J., 394 Nees Street, Invercargill. ZL4THT—Blee, A. R., 7 Campbell Street, Alexandra. ZL4THU-Soper, K. G., 17 Heyward Street, Invercargill. ZL4THV-Stevens, D. B., 34 Kildare Street, Invercargill. ZL4THW-ZL4THX-

ZL4THY-Englefield, B. R., 27 Bennett Road, Ocean View, Brighton.

ZL4THZ-McLean, C. V., Longbush, R.D. 1, Invercargill. ZL4TIA-Larsen, C. M., 108 Rosebank Street, Wakari, Dunedin.

ZL4TIB-Wallace, W. D., 17 Delphic Street, Sawyers Bay, Dunedin.

ZL4TIC—McAuslan, M., 54 Moray Ptace, Dunedin, ZL4TID—McRae, G. F., "Parkend", No. 2 R.D., Wyndham, ZL4TIE—Barber, B. J., "Glencoe", R.D. 2, Invercargill, ZL4TIF—Hair, F. G. de, 27 Bourke Street, Invercargill.

ZL4TIG—Hill, A. R. M., 16 Wyre Street, Kaitangata. ZL4TIH—Jackson, G. A. G., 23 Naish Street, Balclutha. ZL4TII—Pierson, W. E., 16 Naish Street, Balclutha.

ZL4TIJ-Tonkin, P. W., 13 Wharldale Street, Macandrew

Bay, Dunedin. ZL4TIK-

ZL4TIL-

ZL4TIM—Watson, N. R., 114 Cannington Road, Dunedin. ZL4TIN-

ZL4TIO--Moore, J. S., 6 Echovale Avenue, Dunadin, ZL4TIP--Dupont, C. C., 6 Lothian Street, Invercargill.

ZL4TIQ-McLaren, G. D., 12 Douglas Street, Wakatipu. ZL4TIR—Woodrow, P. J. Baker Street, Stirling. ZL4TIS—Williams, A. R., 26 Centre Street, Invercargill.

ZL4TIT-

ZL4TIU-ZL4TIV—Cosgrove, S. B., 46 Derwent Street, Oamaru. ZL4TIW—King, D. J., 218 Gordon Road, Mosgiel.

ZL4TIX—Pryor, D. J., 19 Peverel Street, Christchurch 4. ZL4TIY-Larooy, G. M., 617 York Street, Hastings

ZL4TIZ—Thomson, A. A., 488 Leith Street, Dunedin. ZL4TJA—Smaill, D. C., 5 Totara Street, Ravensbourne, Dunedin.

ZL4TJB-ZL4TJC—Cavanagh, D. B., 3 Fairview Avenue, Invercargill.

ZL4TJD-Williamson, P. B. A., Flat G, Austen Court, 82 Forth Street, Dunedin.

ZL4TJE-Townsend, A. A., 479 Herbert Street, Invercargill.

ZL4TJF—Thomson, L. F., 47 Resthill Crescent, Hamilton. ZL4TJG—Burke, J. J., 74 Rochdale Road, Invercargill. ZL4TJH-Balch, R. M., 28 Glengyle Street, Dunedin. ZL4TJI-ZL4TJJ-

ZL4TJK-

ZL4TJM—Fleury, B. R., 30 Ventnor Street,	
ZL4 IJW Predict, D. H., 30 Vehillor Sileet,	Bunedin
	Durieom.
ZL4TJN—Pearce, B. H., "Dunvegan", Clint	on.
ZL4TJO—	
ZL4TJP—	
ZL4TJQ-Coxhead, M. D., 26 Ngaio Road,	Kelburn,
Wellington 5.	
ZL4TJR—Smither, M. E., 210 Brockville Ro	ad, Dunedin.
ZL4TJS-Holland, B. J., 5 Dawson Place, A	Alexandra.
ZL4TJT-Holland, J. P., 6 Dawson Place, A	Alexandra
ZL4TJU—	
ZL4TJV—Lowe, A. F., 287 Barrow Street, E	Haiff
ZL4TJW—Kennett, M. V., 36 Hillary Street,	Little Littl
Dunedin.	
ZL4TJX	
ZL4TJY-Currie, M. R., 15 Ferry Street, Wy	ndham.
ZL4TJZ—	
ZL4TKA—Tamblyn, J. M., Grafton Hitls, Co	oal Creek, R.D.,
Roxburgh.	
ZL4TKB—Knox, B. W., 30 Huia Street, St L	eonards,
Dunedin.	
ZL4TKC-Greenwood, T. N., Marama Aver	nue South.
Otatara, R.D. 9, Invercargill.	
ZL4TKD—Anderson, N. L., 141 Catherine 5	Street
	MICCI,
Invercargill.	
ZL4TKE—	
ZL4TKF—	
ZL4TKG-Pigou, S. L., 72 Inglewood Road	, Invercargill.
ZL4TKH—Turner, K. F. M., Waimatutu, 8 F	I.D.,
Invercargill.	
ZL4TKI—	
ZL4TKJ-Aldridge, J. T., 4a Lanes Road, B	ridge Hill.
Alexandra.	
ZL4TKK-Spence, R. W., 343 Herbert Street	et. Invercargill
ZL4TKL-Watson, G. M., Oamaru Airport,	Osmanı
ZL4TKM-Mitchell, G. D., 78 Manapouri St	raat
Ravensbourne, Dunedin,	reet,
ZL4TKN—	
ZL4TKO	
ZL4TKP—Hogg, G. M., 6 Michie Street, Be	ilknowles,
Dunedin.	
ZL4TKQ-Tamplin, N. L. A., 57 Argyle Stre	et, Dunedin.
ZL4TKR-Bennett, G. J., 156a Main South	Road, Green
Island, Dunedin.	
ZL4TKS-Mason, E. C., 16 John Street, Ra	nturiv.
ZL4TKS-Mason, E. C., 16 John Street, Ra	nturly.
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street,	Invercargill.
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In	Invercargill.
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKV—	Invercargill. vercargill.
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKV— ZL4TKW—Dickison, J. C., "The Old House	Invercargill. vercargill.
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKV— ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore.	Invercargill. vercargill.
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKV— ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKX—	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKV— ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKX— ZL4TKY—Paul, L. G., 132 Leith Street, Dur	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKV— ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKX—	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKV—Zwies, O. H., 232 King Street, In ZL4TKV—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKX— ZL4TKY—Paul, L. G., 132 Leith Street, Dur ZL4TKZ—	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKV— ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKY— ZL4TKY—Paul, L. G., 132 Leith Street, Dur ZL4TKZ— ZL4TKZ—	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKX— ZL4TKX— ZL4TKX— ZL4TKZ— ZL4TKZ— ZL4TKZ— ZL4TKZ—	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKX— ZL4TKY—Paul, L. G., 132 Leith Street, Dur ZL4TKZ— ZL4TKZ— ZL4TLA ZL4TLA ZL4TLB ZL4TLB	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKX— ZL4TKY—Paul, L. G., 132 Leith Street, Dur ZL4TKZ— ZL4TLA ZL4TLA ZL4TLB ZL4TLC ZL4TLD	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKV— ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKY— ZL4TKY—Paul, L. G., 132 Leith Street, Dur ZL4TKZ— ZL4TLA ZL4TLB ZL4TLB ZL4TLD ZL4TLD ZL4TLD	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKV— ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKX— ZL4TKX—Paul, L. G., 132 Leith Street, Dur ZL4TKZ— ZL4TLB ZL4TLB ZL4TLB ZL4TLC ZL4TLD ZL4TLE ZL4TLE	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKX— ZL4TKX— ZL4TKX— ZL4TKZ— ZL4TKZ— ZL4TLB ZL4TLB ZL4TLB ZL4TLD ZL4TLD ZL4TLD ZL4TLE ZL4TLE	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKX— ZL4TKX— ZL4TKX— ZL4TKZ— ZL4TKZ— ZL4TLA ZL4TLB ZL4TLB ZL4TLB ZL4TLC ZL4T	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKV— ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKY—Paul, L. G., 132 Leith Street, Dur ZL4TKZ— ZL4TKZ— ZL4TLB ZL4TLB ZL4TLB ZL4TLC ZL4TLC ZL4TLE ZL4TLE ZL4TLE ZL4TLE ZL4TLE ZL4TLE ZL4TLE ZL4TLE ZL4TLE	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKX— ZL4TKX— ZL4TKX— ZL4TKZ— ZL4TKZ— ZL4TLA ZL4TLB ZL4TLB ZL4TLB ZL4TLC ZL4T	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKX— ZL4TKX— ZL4TKZ— ZL4TKZ— ZL4TKZ— ZL4TLB ZL4TLB ZL4TLB ZL4TLD ZL4TLE ZL4TLE ZL4TLE ZL4TLE ZL4TLE ZL4TLE ZL4TLE ZL4TLE ZL4TLG ZL4TLH ZL4TLL ZL4TLJ ZL4TLJ ZL4TLJ	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKX— ZL4TKX— ZL4TKZ— ZL4TKZ— ZL4TKZ— ZL4TLB ZL4TLB ZL4TLB ZL4TLD ZL4TLE ZL4TLE ZL4TLE ZL4TLE ZL4TLE ZL4TLE ZL4TLE ZL4TLE ZL4TLG ZL4TLH ZL4TLL ZL4TLJ ZL4TLJ ZL4TLJ	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKX—ZL4TKX—ZL4TKX—ZL4TKZ—ZL4TKZ—ZL4TKZ—ZL4TKZ—ZL4TLB ZL4TLB ZL4TLB ZL4TLB ZL4TLB ZL4TLB ZL4TLC ZL4TLB ZL4TLC ZL4TLB ZL4TLC ZL	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKX— ZL4TKX— ZL4TKZ— ZL4TKZ— ZL4TKZ— ZL4TLA ZL4TLB ZL4TLB ZL4TLB ZL4TLC ZL4TLC ZL4TLC ZL4TLG ZL4TLG ZL4TLG ZL4TLH ZL4TLI ZL4TLI ZL4TLI ZL4TLL ZL4TLL ZL4TLL ZL4TLL ZL4TLL ZL4TLL ZL4TLL ZL4TLL ZL4TLL	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKU—Zwies, O. H., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKY— ZL4TKX— ZL4TKX— ZL4TKX— ZL4TKZ— ZL4TKZ— ZL4TLB ZL4TLB ZL4TLB ZL4TLB ZL4TLC ZL4TLB ZL4TLC	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKU—Zoak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKX— ZL4TKX— ZL4TKX—Paul, L. G., 132 Leith Street, Dur ZL4TKZ— ZL4TLB ZL4TLB ZL4TLB ZL4TLB ZL4TLC ZL4TLE ZL4TLF ZL4TLG ZL4TLL ZL4TLI ZL4TLJ ZL4TLJ ZL4TLL ZL4TLL ZL4TLL ZL4TLM ZL4TLN ZL4TLN ZL4TLN ZL4TLN ZL4TLN	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKX— ZL4TKX— ZL4TKX— ZL4TKZ— ZL4TKZ— ZL4TKZ— ZL4TLB ZL4TLB ZL4TLB ZL4TLB ZL4TLC ZL4TLB ZL4TLC ZL4TLB ZL4TLC ZL4	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKX—ZL4TKY—Paul, L. G., 132 Leith Street, Dur ZL4TKZ—ZL4TKZ—ZL4TLB ZL4TLB ZL	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKT—Doak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKV— ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKY—Paul, L. G., 132 Leith Street, Dur ZL4TKZ— ZL4TKZ— ZL4TLB ZL4TLB ZL4TLB ZL4TLB ZL4TLC ZL4TLC ZL4TLC ZL4TLC ZL4TLL	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKU—Zoak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKV— ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKX— ZL4TKX— ZL4TKX— ZL4TKZ— ZL4TKZ— ZL4TLB ZL4TLB ZL4TLB ZL4TLB ZL4TLC ZL4TLE ZL4TLF ZL4TLG ZL4TLL ZL4TLN ZL4TLN ZL4TLN ZL4TLN ZL4TLN ZL4TLN ZL4TLN ZL4TLO ZL4TLP ZL4TLC	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKU—Zoak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKX— ZL4TKX— ZL4TKX—Paul, L. G., 132 Leith Street, Dur ZL4TKZ— ZL4TLB ZL4TLB ZL4TLB ZL4TLB ZL4TLC ZL4TLB ZL4TLC ZL4TLB ZL4TLC ZL4TLL ZL4TLN ZL4TLN ZL4TLN ZL4TLN ZL4TLN ZL4TLC ZL4TLD ZL4TLC ZL4TLD ZL4TLC	Invercargill. vercargill. ", Mainholm,
ZL4TKS—Mason, E. C., 16 John Street, Ra ZL4TKU—Zoak, N. L., 205 Princess Street, ZL4TKU—Zwies, O. H., 232 King Street, In ZL4TKV— ZL4TKW—Dickison, J. C., "The Old House R.D. 1, Gore. ZL4TKX— ZL4TKX— ZL4TKX— ZL4TKZ— ZL4TKZ— ZL4TLB ZL4TLB ZL4TLB ZL4TLB ZL4TLC ZL4TLE ZL4TLF ZL4TLG ZL4TLL ZL4TLN ZL4TLN ZL4TLN ZL4TLN ZL4TLN ZL4TLN ZL4TLN ZL4TLO ZL4TLP ZL4TLC	Invercargill. vercargill. ", Mainholm,

ZL4TLW ZL4TLX ZL4TLY ZL4TLZ

Amendments

New Zealand **Dependencies**

ZL5-Ø Callsign Listings Antarctica

ZL5Al—Holwerda, R. R., Scott Base, Antarctica. ZL5AG—Lewis, G. H., Vanda Station. ZL5AR—Holdsworth, R., Scott Base. ZL5TEH-Earl, T. H., Scott Base.

NZART Monitoring Service

ZL6IW—NZART Monitoring Service, C/- ZL1BAD, R. E. Knowles, Onewhero, R.D. 2, Tuakau

Chatham Islands

ZL7AA-Hyndman, R. H., P.O. Box 71. Waitangi ZL7OY-Hannigan, C. C., Council Flats, P.O. Box 121. Waitangi ZL7PA—Jenner, D. J., Tuku Road, Waitangi, ZL7PO—Price, L. J., C/- Radio Station, Waitangi. ZL7TZ-Rio, N. N., Tuku Road, Waitangi. ZL7BJE—Meek, S., C/- Radio Station. Waitangi. ZL7BSQ—Money, G. N. C., C/- Post Office Radio Station, ZL7NAB—Pringle, W. M., C/- Radio Station, Waltangi. ZL7TKI—Sanson, I. M., P.O. Box 65, Waltangi. ZL7UCU—Carter, B. S., C/- Radio Station, Waltangi.

Kermadec Islands

ZLBAFH-Latham, W. I., Rapul Island, Kermadecs.

Auckland and Campbell Islands

ZL9

ZLØ

Overseas Visitors

Amendments	
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South Pacific **Amateur Radio Stations**

Callsign Listings

Cook Islands ZK1AA—Kingan, S., P.O. Box 66, Matavera, Rarotonga. ZK1AC—Francis. R., P.O. Box 47, C/- Cablewireless Ltd.,

Parotonga ZK1AD—Dean, A., P.O. Box 259, C/- Post and Telecommunications, Rarotonga.

ZK1AF—Sjolund, E. A., Ex SMØAGD.
ZK1AG—Story, F., P.O. Box 525, Nikao, Rarotonga,
ZK1AH—Hosking, A. V., P.O. Box 459, Nikao, Rarotonga,
ZK1AN—Davis, Sir Thomas, Prime Minister's Department, Rarotonga.

ZK1AQ—Malcom, R., Atiu Island. ZK1AR—Darling, R. S., QSL via WB6HGH. ZK1BA—Grantham, T., C/- NZMOT, Rarotonga. ZK1BB—Cook Island Boys' Brigade, C/-ZK1AD, P.O. Box 259, Rarotonga.

ZK1BC—Bayly, R., Arorangl, Rarotonga. ZK1BD—Ellis, M., C/- NZMOT, Rarotonga. ZK1BF-Feikirt, B., Rarotonga.

ZK18F—Feikirt, B., Rarotonga.
ZK18G—Gordon, B., QSL via ZL1AAA.
ZK18P—Savage, H., P.O. Box 168, Takuvaine, Rarotonga.
ZK18S—Boy Scouts, P.O. Box 120, Rarotonga.
ZK18T—Alturau, T., Tupapa, Rarotonga.
ZK1BW—Waters, B., Tupapa, Rarotonga.
ZK1CA—Naulls, R., Rarotonga.
ZK1CG—Rivera. V., P.O. Box 618, Rarotonga.
ZK1CH—Colquinoun, R., Rarotonga.

ZK1CP—Francis, M. T., C/- ZL2BNJ. ZK1CP—Utanga, T., P.O. Box 98, Rarotonga, ZK1CQ—Wright, R., QSL via ZL1AMO.

ZK1CR-Holt, R., ex ZL1BBZ

ZK1CS—Swoboda, W., P.O. Box 19, Matavera, Rarotonga, ZK1CT—Guinea, Dr. A., P.O. Box, Atupa, Rarotonga, ZK1CV—Blake, R., P.O. Box 143, Ruatonga, Rarotonga,

ZK1CY—Pearson, N., P.O. Box 15, Rarotonga. ZK1CY—Tuatai, P.O. Box 209, Matavera, Rarotonga. ZK1DA—Dobson, A., P.O. Box 269, Rarotonga. ZK1DB—Gibbons, A., P.O. Box 277, Rarotonga.

ZK1DC—Saphore, E., QSL via 3D2ES ZK1DD—Clarke, D. J., Aitutakí.

ZK1DF-Parker, J, via FO8DF ZK1DG-Goodger, J., Rarotonga

ZK1DP—Shan, Y., C/- P.O. Box 259, Rarotonga. ZK1DP—Lang, B., Rarotonga. ZK1DR—Cresswell, A., Rarotonga. ZK1DW—Wilson, W. O., Rarotonga. ZK1DW—Wilson, W. O., Rarotonga.

ZK1DX-Inwood, R., NZMOT, Rarotonga.

ZK1GC-Clarke, G. R., NZMOT, Rarotonga, QSL via

ZL2BME ZK1GE-Clarke, G., NZMOT, Rarotonga, QSL via

ZK1JS—Scutts, L. J., ex ZK2JS, Niue Islands, ZK1MA—Tupou, T., C/- ZK1CY, Matavera, Rarotonga, ZK1RE—Ellis, R. K., P.O. Box 49, Rarotonga.

ZK1WL-Latham, W. I., Penrhyn Island.

Amendments

Fiji

3D2AA—Aisake, A., Lot 19 Vunimoli Road, Labasa.
3D2AJ—Molsaac, A. J., P.O. Box 425, Suva.
3D2AN—Wooller, M. J., P.O. Box 184, Suva.
3D2CC—Carter, T. F., Box 461, Lautoka.
3D2CM—Northcott, R. L., P.O. Box 1168, Suva.
3D2CS—Broadbridge, E. K., P.O. Box 1046, Suva.
3D2CT—Jimenez, C. T., P.O. Box 567, Suva.
3D2DI—Smith, W. J., P.O. Box 184, Suva.
3D2DM—Meyers, D. D., P.O. Box 184, Suva.
3D2EC—Corner, R. E., Wakaya Island.
3D2EF—Finlay, E. McD., P.O. Box 3248, Lami, Suva.
3D2ER—Singh Raj, P.O. Box 184. Suva.
3D2ES—Saphore, E., C/- UN Mineral Resources
Department, Suva.
3D2FK—Kloss, F. R., P.O. Waiyevo, Taveuni, Fiji Islands.
3D2G—Goodrich, J. D., Box 3126, Lami.
3D2JG—Goodrich, J. D., Box 1168, Suva.
3D2MP—Prakash, M., P.O. Box 5324, Raiiwaqa, Suva.

3D2MP—Goodich, J. D., Box 1166, Suva.
 3D2MP—Prakash, M., P.O. Box 5324, Raiwaqa, Suva
 3D2MR—Mar. G., 41 Boron Road, Suva, Fiji Islands.
 3D2NB—Harding, F. W., C/- MV Tuicakau II, Marine Department, Suva.

3D2PG—Glover, P. J., P.O. Box 5090, Raiwaqa, Suva. 3D2PS—Schulz, A. F. P., P.O. Box 1168, Suva. 3D2PT—Truscott, W. P., P.O. Box 270, Suva. 3D2RA—Allan, P. R., Box 631, Suva. 3D2RH—Hallen, R. B., C/- Cincpacrep, American

3D2RH—Hallen, R. B., C/- Cincpacrep, American Embassy, Suva.

3D2ZM-Frazier, P. E., G.P.O. Box 184, Suva.

A35AO—Otaki, A.

3S2SS—First Suva Scout Group, Box 2344 Government Buildings, Suva. 3D2UR—USP Amateur Radio Club, Box 1168, Suva.

Tonga

A35BA-Johnson, B. A A35CG-Gardiner, C. H. A35CQ-Hypnarouski, J. F. A35EA—Wight, R. W. A35EB—Bradley, E. D A35ES-Shimizu, E. A35FI—Amateur Club of Tonga, Nuku'alofa. A35FF-Fechner, F A35GH-Hanna, T. A35JG—Gardiner, J. M. A35JH—Henderson, J. L. A35JL-Lee, J., Nuku'alofa. A35JM-Maynard, J. H. A35LH-Hanna, T. L. (Mrs) A35LJ-Orchard, L. J. A35LM—MacMillan, L. A. A35MA—Chesher, R. H. A35MJ—Donns, M. J. A35MC—Donns, M. J. A35MC—Knowle, M. C. A35MO—Orchard, M. P. A35MP—Potts, D. M., Nei'afu, Vava'u. A35MS—Schuster, M. A35NK—Knowle, J. N. A35PG—Goldstern, P., Nei'afu, Vava'u. A35PP-Cairns, J. G. A35RS-Sutton, R. J. A35SA—Moore, R. J., Nuku'alofa. A35SD—Davis, J. D. A35SN—Lippman, W. A. A35TB—Bender, T. R. A35WW-Nagi, A. A35ZH-Hoover, H.

Niue

ZK2AE—Coleman, H. A., P.O. Box 57, Niue Island, ZK2BW—Now ZK1BW, see Cook Island listing. ZK2IK—now ZL2IK, see New Zealand listing. ZK2JL—Lee, J. R., P.O. Box 15, Nukua'lofa, Tonga. ZK2NU—Niue Amateur Radio Club, P.O. Box 37, Niue Island.

ZK2RD—Douglas, R., P.O. Box 37, Niue Island, ZK2RS—now ZL4DO, see New Zealand listing. ZK2ST—Tiakia, S., P.O. Box 37, Niue Island.

Vanuatu

YJ8DE—Discombe, R., P.O. Box 56, Port Vita, Efate Island.

YJBDX—Vanuatu Amateur Radio Society, C/- Robert Leong, P.O. Box 50, Port Vila, Efate Island, YJBES—Santo Amateur Radio Society, C/- James Hige.

YJBES—Santo Amateur Radio Society, C/- James Hige, Santo Radio Station, P.O. Box 162, Luganville, Santo Island.

YJ8FB—Beardsley, F., P.O. Box 604, Port Vila, Efate Island.

YJ8GG—des Fontains, G. G., PRV, Norsup, Malekula Island.

YJ8GX—Georges, A. S., Civil Aviation Department, Port Vila. Efate Island.

YJ8JH—Hannaford, J. W., P.O. Box 665, Port Vila. Efate Island.

YJ8JL—Laub, C. J., P.O. Box 828, Port Vila, Efate Island, YJ8JN—Nixon, J. R., P.O. Box 276, Port Vila, Efate Island, YJ8LT—Gaetan, L., Anabourou, P.O. Box 423, Port Vila, Efate Island.

YJ8MC—Clement, M. M., P.O. Box 731, Port Vila, Efate Island.

YJBNCW—Colling-Wood, J. B., P.O. Box 342, Port Vila, Efate Island.

YJ8NJW—Watson, J. E., P.O. Box 683, Port Vila, Efate Island.
YJ8NKB—Barlow, A. K., P.O. Box 730, Port Vila, Efate

Island, YJ8OK--Watson, T. L., P.O. Box 683, Port Vila, Efate

Island.

YJ8PM—Moderan, P., P.O. Box 226, Luganville, Santo Island.

YJ8RF—Fewster, R., P.O. Box 743, Port Vila, Efate Island, YJ8RG—Graham, R. S., P.O. Box 229, Port Vila, Efate Island.

YJ8TT—Cheung, A., P.O. Box 63, Luganville, Santo Island.

YJ8VDL—Lum, D. J., P.O. Box 65, Luganville, Santo Island.

YJ8VH!—Schulz, C. S., P & T Radio Section, Port Vila, Efate Island.

YJ8VOB—O'Brien, C. J., P.O. Box 743, Port Vila, Efate Island.

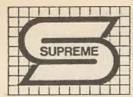
YJ8VRL—Leong Robert, P.O. Box 50, Port Vila, Efate Island.

YJ8YD—Didou, J.-Y., P.O. Box 196, Luganville, Santo Island.

YJ8YS—Yatuka Sato, SPFC, P.O. Box 19, Luganville, Santo Island.

Amendments

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SUPREME AERIALS FOR THE RADIO ENTHUSIAST

BANDMASTER 20-17-15-12-10 A new addition to our range of beam antennas.

- * Operates 20, 17, 15, 12, 10 metres.
- * Front to Back Ratio up to 20 db.
- * S.W.R., Less than 1.8 to 1 at resonance.
- * Maximuim Element Length, 3.66 metres.
- * Power Rating: 300 Watts P.E.P.
- * FEED: 52 ohm coax
- * Mast Diameter: 45mm O.D. \$513-00

VERTICALMASTER

This is our fatest vertical designed for excellent DX operation for those with small sections - this would be the best vertical around.

- * Operates 160,80,40 and 20 metres
- * Full height of 12m used on all bands
- * Fed with 52 ohm co-ax
- * Suitable for modern transmitters
- * 5/8 wavelength on 20 metres with tow angle of radiation
- * Easily mounted to post or building
- * Air wound Hi-Q resonators
- * No tuner required

DISCONEMASTER

This aerial is the ideal broadband antenna for the VHF enthusiast or the listener with a scanning receiver. Available for the Commercial Service Operator.

- Broadband coverage 70 MHz to above 450 MHz
- * Full 16 element performance
- * No matching required
- * Universal mounting bracket
- Very low angle of radiation
- * Plus aircraft and commercial bands
- * All round tooker fully omni-directional
- * 50 ohm co-ax to SO239
- Extra strong aluminuim hub \$117-90
 Commercial version \$162-00

SLIM MASTER

A new "convenient" aerial for the VHF hand held operator, to give added gain over the Rubber Duckie for portable operation.

- * Convenient fold away portable aerial
- * Up to 6 dB gain over Rubber Duckie
- * Complete in convenient carry satchel
- * Easily and quickly "erected"
- * Flexible 1.5m long
- * Fitted with BNC plug
- * Completely enclosed
- Ideal for portable or home station \$25-00.

SUPREME AERIALS - BEST HEARD ON THE AIR

ALL (TEMS PLUS PACK & FREIGHT PRICES AS AT 1st JUNE 1985. Subject to change without notice. Send a S.A.S.E. Envelope for our Antenna Catalogue.

BANDMASTER 20-15-10

This beam is proving to be the most popular HF beam around ZL, giving top performance at an attractive price.

- * Rated up to 300 watts
- * Lightweight enclosed traps
- * Boom length 3.66m, element length 7.79m
- * Feedline 52 ohm co-ax
- * Broadband coverage of 20, 15 and 10 metres
- * Front to back ratio up to 20 dB
- * SWR less than 1.5 to 1.0 resonance
- * Anodised aluminium throughout \$394-65

POWERMASTER

This tribander, has the same specification as the BAND—MASTER, but is rated up to 2 KW. \$453-60

SIGNALMASTER

Extremely popular versatile 7 band vertical that requires tittle space and effort to erect - really great for those who want all band operation but with little available space.

- * Automatic operation
- 1 Single 52 ohm feedline
- * Easy to install
- * No tuner required
- * Covers 160 through to 10 metres plus 30 metres
- * Full height of 8cm effectively used on all bands
- * Air wound HI-Q resonators
- * SWR less than 1.5 to 1.0 resonance \$291-60

WIREMASTER

This versatile all band dipole is extremely popular, enabling dipole operation on more than 1 band. The most popular combination is 80 and 40 metres with 1 feedline. Available in any frequency for the Commercial Service Operator.

- * Easily installed system
- * Two or more dipoles presented to transmitter
- * Any combination of frequencies available
- * Full aerial kit available
- * Traps are totally enclosed
- * Real space saver
- * Low SWR at resonance
- * Traps are low loss design \$53-50 pair Commercial \$91-00 pair

MOBILEMASTER

This is the ultimate aerial for the mobile enthusiast - is a must for today's solid state transceiver, giving truly automatic operation on 4 bands. Just switch bands - the aerial takes care of itself. No tops or whips to change.

- * Operates 80, 40, 20, 15 and 10 metres
- * Easy to tune with tip tuning
- * SWR better than 1.5 to 1.0 at resonance
- * Helically wound on tapered fibreglass
- * Fits standard 5/8" base
- * Stored in convenient carry tube
- * Engineered with slim profile and lightweight
- No matching network required
- * Overall height 3 metres
- * Top loading for top performance
- * Quickly removed and assembled
- * Just drive and change bands \$155-00



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HARD TO GET TYPES

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FT209R/FT709RHANDHELDS

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Two 4 bit CPU's: 10 memories tindependent Tx & Rx1, reverse/simplex leither) by single key touch, scanning; manual-auto band Ifull or partial)
—memory, clear-busy, skip-select, programmable power save system
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FT209R...P.O.A. FT709R...P.O.A.

FT757GX

THE BIGGEST SELLER

Every item narmally sold as an extra is provided as stendard, including AM and FM modes, a 600Hz narrow CW filter, israbic keyer with dot-dash memory, 25KHz marker generator, IF shift and width filters, affective naise blanker and AF speech processor all at no extra charge.



FT203R & FT703R HANDHELDS

"THUMBWHEEL" TINY HANDHELD

Ultra compact 65W x 34D x 153Hmm, synthesised handheld. Computer offide design and component insertion with chip capacitors and resistors has produced this modern marvel: 2.5W RF (10.8v) (3.5W RF (12V)), it has VOX (for use with YH-2 lightweight headest, and built in 'S'/PO meter. Supplied with tone burst, helical and appropriate case.

> FT203R PO.A. FT703R...P.O.A

FT757GX...\$2296-00

FT2700RH — TWO-IN-ONE

The ultimate 2M and 70cms. FM radio built on Yeesu's new die-cast aluminium chassis, allowing 25W output on both bands. Two 4 bit CPU's allow simple operation of the dual VFO's



operation of the dual VFO's 10 channel memory, with back up. Oual: receiver front ends local synthesisers, IF's and transmitter RF stages gives full duplex capabiliti. Comprehensive scenning facilities allow continuous or skip scenning upper and lower band scanning limits can be set as well as monitoring priority memory from one band to enother. Large green LCO gives aesthetically pleasing and easy to read at the touch of a button. The PO/S meter is a distinctive two colour graphical LCO incorporated into the main display.

FT270R/RH-LARGE ON OUTPUT

FT270R/RH is a 2M FM Transceiver built on a unique oiecast aluminium heatsink with ducting which alfows a continuous 45W output (RH model). The R model is rated at 25W output. The LCD display



FRG8800

The latest from Yaesu, A great receiver using all the latest technology available, 150KHz to 30MHz, AM wide-narrow-SSB FM wide-narrow-VHF option.

VHF Convertor (optional)

The FRV-8800, extends coverage to include 118-174MHz all within the main frame, thereby allowing monitoring of PMR, marine and air bands, as well as 2M.

The FRG-8800 is operated as before via the

keyboard or VFO, and the memory still holds any frequency and mode. The actual VHF frequency is displayed on the main LCD to a resolution of 100 MHz.

FT2700RH...\$1055-00 FT270R/RH..\$1140-00 FRG8800....\$P.O.A.



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The IC-751 could be called the flagship of the ICOM range as it features 32 memory channels. full HF receive capability, digital speech synthesizer, computer control and power-supply options. The 751 is fully compatible with ICOM auto units such as the AT-500 and IC-2KL. The IC-751 now has a remote push-button frequency selector pad.

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CW and AMTOR compatibility.

The first IF is 70.045 MHz. Any XIT and RIT adjustment is shown on the display. The transmitter features high reliability 2SC2904 transistors in a low IMD (-32dB@100W) full 100% duty cycle. For more detailed information on this excellent set, please get in touch with us.



ICOM IC-R71

What more can be said about this receiver that has not been said already the choice of the experts.

IC-751......\$2842-00 IC-02A......\$529-00 IC-R71... ...\$P.O.A.

HS-10) \$98-95 HS-10SB)



THE COMMUNICATIONS CENTRE OF NEW ZEALAND





NZART Information Section



GENERAL SECRETARY

NZART Headquarters P.O. Box 40-525 UPPER HUTT

NZART HEADQUARTERS 6th Floor Astral Tower Building (entrance on west side of building) 88-90 Main Street UPPER HUTT

- —Application for Membership.
- —Subscription Renewals.
- -Publication Department.
- -Change of address to which Break-In is sent.
- -General Inquiries.

Note: Membership Number and Callsign should be on all correspondence.

NEW ZEALAND ASSOCIATION OF RADIO TRANSMITTERS

-1985-

Annual Subscription \$37.00
Junior Subscription \$25.00
Family Subscription \$13.00
per family member with a maximum of \$50.00 per family.
Concessionary membership on application to the General Secretary.

Call Book Members \$6.50 Non-members \$8.50

Break-In Single copy \$3.30

BREAK-IN

The Official Journal of New Zealand Association of Radio Transmitters (Inc.).

Published monthly except January. Call Book supplement published each June.

Editor: Craig Crawford, ZL3TLB.

—All Articles, Advertising, Hamads, Letters to the Editor, Amendments to Call Book Listing.

Address:

Editor
BREAK-IN
P.O. Box 1733
CHRISTCHURCH

OFFICIAL BROADCASTS

The monthly NZART Official Broadcast is made by:

ZL2IY, WELLINGTON 3900 kHz

on the last Sunday of each month except December, when the broadcast is made on the Sunday before Christmas.

The time of the broadcast is 8 p.m., except when New Zealand Daylight Time is operating the broadcast time is 9 p.m.

Members and Branches are welcome to submit material to ZL2IY for consideration for inclusion in the broadcasts.

CONFERENCE OFFICIAL BROADCAST

The Official Conference Broadcast is held on the Sunday of Queen's Birthday Weekend at 8 p.m.

TELETEXT

NZART Teletext Editor, Tony Dale ZL3TMZ, Cuffs Road, Christchurch Phone (03) 887-913.

TVNZ Teletext Page 304

SLOW MORSE TRANSMISSIONS

Slow Morse broadcasts are made from the following NZPO-authorised stations:

ZL2KB—Frequency: 3550 kHz, Lower Side Band.

Time—1845 to 1930 hours. Monday to Friday, inclusive.

Programme—Computer generated random morse in groups, with readout, at sneeds rising from 5 to 14 wpm each month.

ZL2ABJ—Frequency: 3530 kHz.

Time—1930 to 2000 hours, Tuesdays and Thursdays, Transmission content is plain language as advised in *Break-In*.

Reception reports welcomed by each station.

AREC SECTION LEADERS NET

A monthly net of all AREC Section Leaders is held on the 3rd Monday of each month at 7.30 p.m. Net is conducted by OC AREC, ZL2EX on 3900 kHz, Upper Sideband.

NEW ZEALAND ASSOCIATION OF RADIO TRANSMITTERS INC.



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> Teletext Editor: Tony Dale, ZL3TMZ

The New Zealand Association of Radio Transmitters Incorporated

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1929	R. J. Orbell	ZL1AX
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1945-46	E. B. Lough	ZL2OG
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1985	T. D. Carrell	ZL3QL

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1947 W. D. Gorman, ZL2IY

1948 J. F. Freeman, ZL2AFB/2VU

1948 T. R. Clarkson, ZL2AZ1950 Mrs W. Hall

1953 R. Cassey, ZL2IQ

1961 J. M. White, ZL2GX1964 H. F. Arnold, ZL3HA

1966 C. G. Liddell, ZL3ND
 1980 F. R. W. Andrews, ZL2IJ

1982 G. C. Blackwell, ZL3NT

1983 A. G. Godfrey, ZL1HV

Milestones

- 1923 Regulations for Amateur, Experimental and Broadcasting stations gazetted on January 17. By June, nine licences had been issued. First amateur radio contact with Australia on April 26, 1923, between Frank Bell 4AA and Chas McClurcan 2CM on 160 metres.
- 1924 May 22, Ivan O'Meara 2AC in Gisborne, contacted C. Braggio CB8 in Argentina.
 September 21, 4AA made first two-way contact with 6BCB in North America, on 118 metres.
 October 18, 6 p.m., the first-ever direct 2-way radio contact with Britain, between Shag Valley 4AA Frank Bell, and London, Cecil Goyder 2GZ, on 92 metres.
- 1925 International Amateur Radio Union formed in Paris on April 18, with 23 countries represented. Z4AA Member of Executive Committee. Number of licences reached 100.
- 1926 In Auckland on August 16, the New Zealand Association of Radio Transmitters formed. Subscription 2/6d for six months. First portable transmitter/receiver licence to 2GA.
- 1927 International Telecommunication Union Conference in Washington established internationally-agreed frequency bands. Sangster Shield contest started.
- 1928 January, first issue of Break-In. On September 23, Hilton Arthur OZIAN made first overseas contact on 10 metres working Australian station OA3CP in Melbourne.
- 1929 ZL became the amateur radio prefix for New Zealand. NZART admitted to IARU. Harmonically related bands came into use. QSL Bureau handled 390 inward cards at a cost of 13/8d. NZART negotiated a reduction in licence fee from £2/2/- to £1/10/-.
- 1930 March 11, 9 p.m., ZL1AA made contact with F8AW for first 10 metre contact between New Zealand and Europe. Myrtle Earland, ZL3AG, first YL operator.
- 1931 February 3, Napier earthquake—the genesis of AREC. QSL Bureau handling outward cards at ½d each within New Zealand and 1d each for overseas.
- 1932 March 6, first AREC Field Day. Radio Regulations gazetted, increase in morse test speed to 12 wpm.
- 1933 NZART log book available at 1/6d. Official broadcasts resumed at 15 wpm.
- 1934 Two-way aeronautical mobile contact made on 5 metres (60 MHz) between ZŁ4BV and ZL4CA. NZART became an Incorporated Society.
- 1935 TV experiments authorised on the 5 metre band and on wavelengths below 1 metre. ZL2RC and ZL2OG communicated over a 8.5 mile path on 5 metres. VK/ZL/OC contest started.
- 1936 First E-M-E attempts, on 5 metres using ICW.
- 1938 First TV article published in Break-In.

- 1939 World War II closed down amateur radio for the duration. Break-In published in cyclo-styled form throughout.
- 1945 December 8, 7.30 p.m., "'H' Night". Amateur radio in New Zealand resumed on 3.5 to 3.96 MHz and 58.5 to 60 MHz only. Morse test at 15 wpm.
- 1946 Memorial Contest started. 50 to 54 MHz made available. Call Book included in NZART subscription as service to members. Official broadcasts by ZL2IY commenced.
- 1947 First two-way contact across Cook Strait on 50 MHz. 50 MHz record made by ZLIHY and ZL4BK at 635 miles.
- 1948 First article on SSSC (SSB) in Break-In. First contacts on 2400 MHz, by ZL4BP and ZL4DH. First two-way trans-Tasman contacts on 50 MHz.
- 1949 The Maori language accepted as plain language for amateur radio.
 Name of REC changed to Amateur Radio Emergency Organisation (AREO) but changed almost immediately to Amateur Radio Emergency Corps (AREC).
 144 to 148 MHz made available.
 144 MHz record contact by ZL3AQ and ZL3JX at 54 miles.
 World record 50 MHz contact between ZL4GY and USA.
- 1951 ZL2ACB and ZL3LE make the first inter-district contact 144 MHz.
 World record 144 MHz contact, 1340 miles between ZL3AR and VK2AH.
- 1952 Frequency Measuring Contest started.
 National Field Day started.
 First two-way SSB contact, between ZLIAU and ZL1QS.
 First ZL2 to ZL4 contact on 2 metres between ZL2SM and ZL4BN.
 21 to 21.45 MHz available.
 Examination became 50 multi-choice questions.
- 1953 420 MHz record contact of 50 miles between ZL3AR and ZL3AO.
- 1954 First two-way contact on 10GHz, between ZL2AKP and ZL2GQ.
 First transistor articles in Break-In.
 First transistorised transmitter, on 160 metres by ZL4GP.
 Foreign languages permitted as plain language for amateur radio.
- 1956 First two-way RTTY contact between New Zealand ZLIWB and USA WØBP.
- 1958 On-air demonstration of 405 line TV on 420 MHz by ZL2APC.
- 1959 Midnight January 31, 50 to 51 MHz withdrawn for use by Channel 1 TV.
- 1960 ZL2GX achieves world first 300 DXCC.

- 1961 OSCAR-1 launched December 14, first heard by ZL2HP on December 17
- 1962 Minimum age for amateur operators' certificate reduced to 14 years. Maximum power limit raised from 100 watts to 150 watts final anode input power. WARO formed.
- 1963 Doug Gorman ZL2IY awarded MBE in Birthday Honours for services to amateur radio and SAR. Non-morse licence for operation above 144 MHz introduced.
- 1964 First hand-held 2 metre solid-state transceiver demonstrated by ZL2APC.
- 1965 First all-electronic scanning receiver demonstrated by ZL2APC. First Auckland to South Island QSO on 144 MHz, by ZL1AZR and ZL2ASF.
- 1966 Integrated circuits mentioned in Break-In.
- 1967 First mention of FETs in Break-In. Establishment of beacons on 144, 432 and 1215 MHz approved. Slowscan TV on HF bands approved. Reciprocal Licensing introduced.
- 1968 IARU Region 3 Association formed, at Sydney.
 1969 Use of "Hertz" adopted by NZPO.
- World Record E-M-E contact between ZL1AZR and SM7BAE on 144 MHz.

 ZM prefix permitted for Cook Bi-centenary.

 ZL1WD appointed command station for Australia —OSCAR-5
- 1970 First amateur band repeater authorised in Christ-church.
 "Bandplan Committee" formed for 2 m repeaters.
 New New Zealand Radio Regulations introduced.
 Grades I. II and III replaced the HF permit system.
 First participation in JOTA.
- 1971 2 metre FM repeaters established at Whangarei and Waikato.
 ITU Space Conference in Geneva.
 Birth of Amateur Satellite Service.
 Second IARU Region 3 conference, in Tokyo.
- 1972 All grades of operators authorised to work through OSCAR-6. ZLIWB appointed Command Station for OSCAR-6.
- 1973 Morse speed reduced to 12 wpm for Grade I Operators.
- 1974 ZM prefix permitted for Commonwealth Games. First full-colour ATV test-pattern transmitted by ZL2TAR.
- 1975 Third IARU Region 3 Conference, in Hong Kong.
- 1976 Use of 1803 to 1813 kHz authorised. Golden Jubilee of NZART celebrated. Sir William Pickering guest speaker at conference. Tone digits first used on a repeater, by ZL2AMJ. Licence fee raised to \$6.00. First full-colour cover for Break-In.
- 1977 Novice grade licence introduced.
- 1978 40 metres band extended to 7.3 MHz on a non-interference basis.
 Fourth IARU Region 3 Conference, in Bangkok, Wellington ATV repeater operational.
 First two-way contact on 24 GHz, by ZL2ARW and
- ZL2TRV.

 1979 Licence fee raised to \$10.00.

 Hart Postlethwaite WB6CQW guest speaker at Conference.

WARC in Geneva, NZART paid for an Amateur Service representative (ZL2AMJ) to attend as a member of the New Zealand delegation.

Term of office of President and Council extended to

two years.

50 to 50.15 MHz sharing arrangement introduced. First Cook Strait crossing by two-way ATV, by ZL2TWM and AL2ASF.

First 432 MHz E-M-E contact with USA by ZL2BCG, and K5JL.

- 432 MHz E-M-E record contact by ZL2BCG and 15MSH.
- 1980 World record E-M-E contact between ZL3AAD and DL9KR on 432 MHz.
 QSL Bureau handled 247 000 cards at a cost of \$1300.
 Frequency Management Working Group established.
 Callsigns made permanent for operators moving between radio districts.
- 1981 Conference opened by His Excellency the Governor-General.
 ZL0 prefix introduced for visitors to NZ.
 Random 5-letter groups approved for morse broadcasts from approved stations.
 144 MHz bandplan changes to 600 kHz offset for FM repeaters.
- 1982 Licence fee raised to \$13.
 10.1 MHz band made available.
 Non-morse operators permitted on 51 to 53 MHz band.
 Fifth IARU Region 3 Association Conference, at Manila.
 AREC 50th Birthday celebrations.
 - Tasman Sea crossed on 1296 MHz, by ZL1AVZ and VK2BDN.
- 1983 World Communications Year, ZM prefix used.
 Tom Clarkson ZL2AZ received MBE in Birthday
 Honours List for services to amateur radio.
 New Frequency Allocation List gives extended band at
 1.8 MHz, and new bands above 47 GHz. Grade 11
 and Novice Bands at 28 MHz. CW or Phone, identification by RTTY operators no longer a regulatory
 requirement, Bandplans and emissions for the Amateur
 Service to regulate.
 Packet radio used in New Zealand by ZLs IAOX.

TWN, 1UFK. World record for packet radio by ZL1AOX, and W31OI on 28 MHz band. First NZ to Chatham Islands contacts on 144 MHz.

band by ZL4OY/C and ZL3AR.

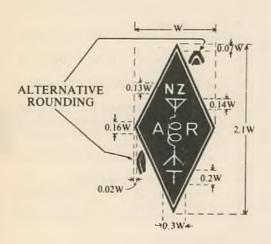
First ZL-ZL moon bounce contact between ZL3AAD and ZL2AQE on the 432 MHz band on July 16. A similar feat achieved on August 15 on the I296 MHz

First 610 MHz contact in ZL by ZL2AQE and ZL2ARW on December 3, between Mt. Kaukau and Kakanui.

World Amateur Radio International Conference (WARIC) held in Tokyo.

- 1984 Chatham, Kermadec, and Auckland/Campbell Islands became ZL7, ZL8, and ZL9 respectively.
 Review of Amateur Service by NZPO.
 Morse transmission authorised for Grade III operators.
 First operation from the top of Mt. Cook (ZL3TIG, hand-held 2 m).
- 1985 18.068 MHz band made available. Sixth IARU Region 3 Association Conference, at Auckland, with visit by IARU President.

The NZART Badge and Emblem



The NZART Badge (first developed in 1926) comprises a diamond emblem, one unit wide, 2.1 units high, with white or silver lettering and lines on a black background.

The letters NZART in plain block capitals appear.

The symbol for an aerial (two completed triangles), an inductor (two and one-half turns in an anticlockwise direction, descending), and a counterpoise (three radial lines with tips in line) appear neatly between the letters NZ (0.13 units high) and T (0.2 units high) with the letters A and R (0.16 units high) to the left and right of the inductor, respectively. All lines and lettering are 0.02 units thick. The inductor to fit a rectangle 0.18 by 0.32 units. The counterpoise dimensions to be the same as the aerial 0.3 units wide by 0.14 units high. The diamond is outlined with an enclosing line.

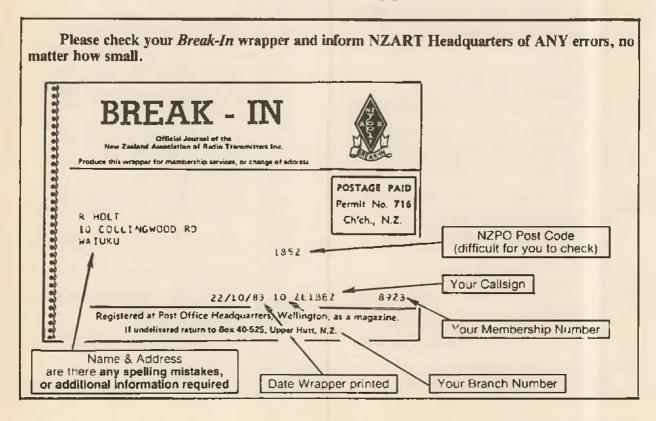
The points of the diamond may be sharp, or alternatively, rounded. If rounded, the reduction at the widest point to be 0.02 units and 0.07 units at the top and bottom points.

The tolerance on all dimensions is ±5%.

[This specification developed by NZART Council in 1982.]

Break-In of November 1982, page 24, gives more details of the NZART badge.

"Break-In" Wrapper



NZART MEMBERSHIP

Provides you with . . .

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Armishaw, K. I., 2L1290, 3 Winifred Avenue, Glenfield, Auckland 10.
Armstrong, M., 36 Buchanan Street, Opotiki.
Asher, J. E., 43 Withers Road, Tiltrangi, Auckland 7.
Aston, M. F., 5 Weir Terrace, Waiouru,
Atkinson, H. R., 98 Condell Avenue, Christchurch 5.
Austin, T. D., 19 Flagstaff Road, Bluff.

Barnes, B. R., ZL2301, C/- 6 Victory Place, Wanganui.
Bath, E. J., 72 Seventeenth Avenue, Tauranga.
Baylis, M., 6 Alexander Street, Whangarei.
Bethwaite, I. M., Flat 1, 104 Grove Street, Nelson.
Bilton, R. C., ZL1221, 17 Brydon Place, Avondale, Auckland 7.
Blair, R. A., ZL 1305, 22 Allison Street, Mt. Roskill, Auckland 4.
Blyde, J. V., P.O. Box 7, Tirau.
Bocock, J. W., 64 Uxbridge Road, Howick.
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Bright, G., 107 Sunnyside Road, Henderson, Auckland 8.
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Bronlund, T., Albert Street, Coromandel.
Bryan, G. W., 37 Reeves Road, Pakuranga.
Buchanan, A. H., ZL2276, Flat 3, 502 Devenport Road, Tauranga.
Butler, M. K., 3203 Great North Road, New Lynn, Auckland 7.

Calvert, C. S. H., 651 River Road, Hamilton.
Camran, A. K., P.O. Box 9302, Hamilton.
Carran, P. S., 8 Copenhagen Place, Christchurch 2.
Cassie, A. F., 68 Oriel Avenue, Tawa.
Charlton, O. F., ZL2245, F110 Central Park Flats, 20 Nairn Street,
Wellington 1.
Clark, S., R.D. 4, Ponsford Road, Waiuku.
Clark, G. W., ZL1253, 9 Albert Road, Kelston, Auckland.
Cochrane, A. J., Inaha Road, R.D. 11, Hawera.
Couchman, J. N., P.O. Box 319, Palmerston North.
Coughey, P., ZL1304, 8 Graham Street, Hamilton.
Cox, W. R., ZL2299, 25 Jeep Road, Raumati South.
Crawford, D. M., 81 Balrudry Street, Christchurch 4.
Culley, G., 1065 Great North Road, Point Chevalier, Auckland 2.

Darby, D'E. C., 79 Olsen Avenue, Hillsborough, Auckland 4. Davis, K. L., R. D.2, Otorohanga.
Dawson, S. F., 23 Ansonby Street, Avonhead, Christchurch.
Dent, P. W., 6 Mathew Place, Whangarei.
Dickens, D. J., ZL4105, 201 Oxford Street, Dunedin.
Dickinson, R., 8 Mawson Avenue, Torbay, Auckland 10.
Donaldson, M. H., P.O. Box 899, Papakura.
Donnelt, A., 73 Ngaio Street, Waikanae.
Dupont, C. C., 6 Lothian Crescent, Invercargill.

Ellis, G. P., ZL364, 74 Le Cren Street, Timaru. Elowsson, B., ZL1223, 9 Sanctuary Point, Pakuranga, Auckland. Erlynne, L. R., Mullet Boat *Esme*, C/- Post Office, Kerikeri. Eteveneaux, G., ZL2236, 8 Clematis Grove, Lower Hutt. Evans, A., ZL1298, P.O. Box 164, Matamata. Evans, I. A., ZL4117, 179 Kana Street, Mataura. Faigan, I. Box 21, Millers Flat, Central Otago.
Farrow, J., ZL202, 25 Wai-fit Crespent, Lower Hutt.
Feldon, D. C., ZL2269, 4 Allardice Street, Dannevirke.
Fenton, E., Post Office, Moerewa.
Ferguson, K. D., 3 Grove Lane, Pakuranga.
Fisher, R. J., Head. Tatu, Ohura.
Fletcher, J. L., 127 Melbourne Road, Island Bay, Wellington.
Forrest, I. E., 61 Hartley Street, Foxton Beach.
Forsythe, L. J., 1 Burnett Street, Ashburton.
Fowler, A. G., 108 Orlando Street, Stratford,
Fowler, H. McK., 1285 High Street, Lower Hutt.
Fox, J. W., P.O. Box 14, Te Puia Springs.
Frew, T., ZL487, Longwood, No. 1 R.D., Riverton.

Gardner, D. J., ZL1302, Tawa Street, Rotowaro.
Geange, S. W., 2a Victoria Street, Levin.
Gee, D. M., ZL139, 5 Rhodes Avenue, Mt. Albert, Auckland 3.
George, S. B., 6 Seymour Street, Waitara.
Gillman, B. J. E., ZL3123, 104 Highway 72, Woodend.
Godkin, R., 31 Cardrona Street, Christchurch 6.
Gooddin, V., 18 Hautu Village, Turangi.
Goodwin, M. S., ZL2291, 11 Moray Place, Papakowhai, Wellington.
Goodwin, R. J., Ohingaiti, R.D. 54, Kimbolton.
Gordon, M. J., 60 Bridge Street, South Brighton, Christchurch 7.
Gorman, J. G., ZL1269, 15 Clark Road, Papakura, Auckland.
Goulding, P., 3 Radbrook Street, Christchurch 4.
Grayson, R. I., C/- 25 Rembrandt Street, Papakura.
Grey, G. J., ZL2257, 17 Kitchener Terrace, Raroa, Johnsonville.
Griffin, G. C., P.O. Box 856, Taupo.
Groom, J. P., P.O. Box 240, Putaruru.
Guilford, A. A., 700 Castle Street, Dunedin.
Gullett, I. W., 7 St. Georges Gate, Wanganul.
Gusscott, N., 4 Penrose Street, Lower Hutt.

Haines, C. A., ZL4113, 37 Wairoa Street, Dunedin. Hardie, D., ZL3135, P.O. Box 209, Greymouth. Harty, T. R., R.D. 2, Drury, South Auckland. Harwood, J. H., ZL3138, 46 Ward Street, Kaikoura. Harwood, R. D., ZL2305, 187 Matai Road, Raumati Beach. Hastings, A. W.A., P.O. Box 10-219, The Terrace, Weilington. Headifen, R. A., 43 Pilcher Cressent, Lower Huft. Highman, R. E., P.O. Box 49, Seffon. Hitchcox, G., F1/14 Lenton Street, Christchurch 6. Holt, E., 10 Collingwood Street, Waiuku. Hoogeveen, S., ZL2292, P.O. box 156, Hawera. Hook, G. J., 77 East Street, Feilding. Hull, O. R., C/- 12 Grainger Road, Te Atatu, Auckland 8. Hunter, G. R. K., 145 Mellons Bay Road, Howick. Hurtell, H. C., 11 Carnavon Street, Invercargill. Hutchinson, G. J., Eltham Road, R.D. 32, Opunake Huxley-Jones, D., 1 Mulberry Street, Maungaraki, Lower Hutt.

James, A. R., 413 Frederick Street, Hastings.
Jamieson, J. W., P.O. Box 5, Dannevirke.
Jefferson, N. R., 14 Matariki Street, Broadbay, Dunedin,
Jensen, C. G., S1b Parklands Drive, Christchurch 2,
Johnson, R. A., ZL2217, Cliff Road, R.O. 1, Marton,
Jones, A. W. 68 17th Avenue, Tauranga,
Jones, P. A., ZL1261, 85 Heath Street, Hamilton
Jones, L. R., ZL1277, 49 "ale Hoad, S1, Heliers, Auckland 5,
Jones, A., 19 Pitcairn Place, Avondate, Auckland 7.

Killick, R. F., P.O. Box 14-083, Christchurch Airport. Killip, R. N., 4 Covill Avenue. Te Atatu South, Auckland 8. King, A. E. J., ZL480, 2 R.D., Balclutha. King, C. M., 85 Mountain View Road. Otorohanga.

NON-TRANSMITTING MEMBERS

Lane, J. R., C/- NZED, R.D. 3. Woodville.
Lausten, S., P.O. Box 4256, Kamo, Whangarei,
Ensor, M., 84 Wheturangi Road, One Tree Hill, Auckland.
Lee, J. W., 48 Tinirau Street, Wangarrui
Lee, I. K. M., 11 Knigges Avenue, Wellington 1.
Lever, H. D., P.O. Box 33, Onerca, Waiheke Island.
Levin, C. G. W., R.D. 9, Palmerston North.
Lewin, B. E., ZL2277, 63 Pasadena Crescent, Totara Park, Upper
Hutt.
Lloyd, L. V., 20 Huia Street, Pahiatua.

Lloyd, L. V., 20 Huia Street, Pahiatua. Logan, R. S., ZL1267, P.O. Box 15-411, New Lynn, Auckland. Luxlon, L. F., 219 Mt. Pleasant Boad, Christchurch 8.

McCann, R. D., 70a Pukepapa, Marton.
MacLardy, W. J., P.O., Box 87, Whitianga.
MacLean, H. R., 7 Woodstock Terrace, Tawa.
Marsh, L. A., 4 Stirling Place, Tokoroa.
Marshall, D. W., 7 Cobden Lane, Napier.
McCallum, R. L. P.O. Box 9, Dunedin.
McDonald, A. G., 24 Christina Street, Invercargill.
McFadyen, D. G., 1 Hikurangi Terrace, Taumarunui.
McGaughey, J. D., R.D. 1, Russell.
McGuighey, J. D., R.D. 1, Russell.
McGuighey, J. D., R.D. 1, Russell.
McIntosh, C. S., 6 Ward Street, Epsom, Auckland 3.
McIntosh, C. S., 6 Ward Street, Runanga.
McIntye, D. R., P.O. Box 159, Pahiatua.
McSpeer, R., ZL227, 29 Crosby Road, Fairfield, Hamilton.
McKey, A. W., ZL387, P.O. Box 350, Ashburton.
McLaughlin, J., ZL2225, 817 Gordon Road, Hastings,
McMinn, J. V., 67 Brougham Street, Wellington 1.
McSherry, O. E., 24a Tilford Street, Christchurch 6.
McCutcheon, M. C., P.O. Box 261, Queenstown.
Mercer, A., 67 Juniper Road, Mairangi Bay, Auckland.
Midwinter, G. G., 473 Ruahine Street, Palmerston North.
Milligan, D. A., 6 Holmburn Street, Welcome Bay, Tauranga.
Milne, A. W., 18 Kensington Street, Tokoroa.
Mison, D. R., C7- Dick Smith Electronics, Private Bag, New Market,
Mitchell, M. D., ZL1248, P.O. Box 13-501, Onehunga, Auckland 6.
Mitchell, M. D., ZL1248, P.O. Box 13-501, Onehunga, Auckland 6.
Mitchell, M. D., ZL1248, P.O. Box 13-501, Onehunga, Auckland 6.
Mitchell, M. D., ZL1248, P.O. Box 13-501, Onehunga, Auckland 6.
Moore, J. G., ZL272. Sergeants' Mess, Army Training Group,
Walouro.
Moss, R. V., ZL2196, 19 Mysore Street, Khandatlah, Wellington 4.
Mulligan, G. D., 224 Karori Road, Wellington 5.

Nicholls, M. L., P.O. Box 79, Wakatipu. Nisbet, A. C., C/- Data Bank Systems, P.O. Box 6475, Te Aro, Wellington. Nussberger, M., P.O. Box 125, Putaruru.

O'Cain, P. J., 394 Ness Street, Invercargill.

Palmer, P. C., 145 Bay View Road, St. Clair, Dunedin. Park, R. A., ZL2259, P.O. Box 30-152, Lower Hutt. Parker, R. E., 5 George Street, Morrinsville. Parker, D. J., ZL2272, C./- Post Office, Sanson. Parker, G. T., 2/46 Highland Park Drive, Howick. Parsons, C., 44 Yearsley Place, Manurewa, Auckland. Pattison, M., ZL2286, 78 Mana View Road, Paremata. Pavitt, I. D., 40 Bridge Street, Opotiki. Pearce, Z. M., ZL2129, 17 Lake Ferry Road, R.D. 2, Featherston. Perkins, P. M., ZL2189, 20 Moohan Street, Wainuiomata, Wellington, Pickering, D. W., 8 Andrew Street, Blenheim. Pye, E., ZL2163, 33 Wyndham Road, Pinehaven, Upper Hutt. Pye, J., ZL2162, 33 Wyndham Road, Pinehaven, Upper Hutt.

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Ramsay, R. W., 4 R.S., Eketahuna.
Rawdon, S. H., ZL2293, 2 Picasso Grove, Belmont, Lower Hutt.
Reece, J. R., Ariki Avenue, 9 R.D., Otatara, Invercargill.
Reeves, L. J., 1022 Maraekakaho Road, Hastings.
Renshaw, D. W., ZL2302, P.O. Box 40-423, Upper Hutt,
Renton, R. A., ZL475, 53 Charlotte Street, Balclutha.
Ritchle, W. G., ZL1210, Mount Cook School, P.O. Box 31, Mount Cook
Robertson, J. H., Blackmount Station, R.D. 2, Otautau.
Robinson, P., 10b Barribal Street, New Plymouth.
Rodgers, S., 19 Craddock Street, Avondafe, Auckland 7.
Russell, R. D., 54 George Street, Blenheim.
Ryan, M. D., 95 Hewer Crescent, Naenae, Lower Hutt.

Scott, B. W., ZL243, 36 Lakeside Drive, Papakura.
Seakins, P. J., 99 Exmouth Road, Northcote, Auckland 9.
Sharples, H., 27 Wairere Road, Wanganur.
Sibun, G. L., 1 Christmas Road, Manurewa, Auckland.
Simmonds, K. R., 41 Porritt Avenue, Birkenhead, Auckland 10.
Spearing, G., 17 Rugby Road, Birkenhead, Auckland 10.
Spooner, B., Kinonaku School, R.D. 4, Te Kuiti.
Starling, C. R., P.O. Box 16, Otorohanga.
Streeter, P. J., ZL3104, 14 Maltby Avenue, Timaru.
Stringer, P. J., ZL3136, P.O. Box 20-082, Bishopdale, Christchurch, Sutton, G. A., Dunn Road, Ararimu, R.D. 3, Drury.

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Van Asch, G. E., "Burtergill", Seddon. Van Veen, H. M., 161 Evans Street, Opoho, Dunedin.

Waayer, H. G. J., 6 Delphine Street, Sawyers Bay, Dunedin.
Wait, R. S., 24b Westfield Avenue. Templeton, Christchurch 4.
Walker. G. P., Little Sheppard and Walker, P.O. Box 25-007,
Christchurch.
Wall, T. R., 4 Lupton Street, Waverley.
Watkins, K. R., 67 Carthew Street, Okato,
Watson, G. R., 75 Grey Street, Woodville.
Webb, B. D., Z1,2262, 71 Hillside Drive, Upper Hutt.
Webley, D. K., 133 Kenilworth Road, Hastings.
Westerbaan. B. H., Z1,1307, R.D. 3, Te Awamutu.
Westland, R. E. Z1,1310, 123 Golf Road, Taumarunui.
Whale, W. R., 50 Mary Huse Grove, Manor Park, via Trentham.
Wiggins, F. G., Z1,1306, D25 Glenmore Hostel, Tokoroa.
Wilkins, B., Z1,2258, 700 Huis Street, Camberley, Hastings.
Williams, D. S., Z1,2205, 156 Main Road, Wainuiormata.
Williamson, T. J., P.O. Box 25-111, St. Heliers, Auckland 5.
Wilson, I. W., Z1,141, 80 Wycliffe Street, Onekawa, Napier, Wooding, J. B., 32 Mahoe Street, Linden.

Young, B. D. (Mrs), 97 Rosetta Road, Raumati South.

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Aplin, F., VK2ZFE, 15 Banksia Street, Orange, NSW 2800, Australia.

Bange, E. J., VK4NFC, 28 Weinholt Street, Sherwood, Queensland 4075, Australia

Barrington, R. K., VK2DOV, 37 Oatley Park Drive, Oatley, NSW 2223, Australia

Barry, F. N., K6RTU, 105 Solana Drive, Los Altos 94022, USA Bishop, R. B., VE7BCM, 5150 Wallace Avenue, Delta, British Columbia V4M1AI, Canada

Boe, T., N/Keisermark 15, N-3190 Horten, Norway,

Broadbridge, E. K., 3D2CS, C/- P.O. Box 1048, Suva Fiji, Bruyne, W., PA3BLL, Marshallplein 26, Z286LM Ryswyk ZH, The Netherlands.

Bull, R. K., VE7DIO, 7775 Nixon Road, Rosedale, BC VOX 1XO, Canada

Burchell, R. K., 55 Carranya Road, Lake Cove, NSW 2066, Australia.

Campbell, A., GM3VAR, 15 Greenlaw Drive, Paisley, Rentrewshire. Scotland.

Clarke, B. S., VK5BS, 17 Sycamore Avenue, Novar Gardens, SA 5040, Australia.

Coan, E. D., C/- Yaesu, Japan, CPO Box 1500, Tokyo, Japan, Cobbe, D. J., Zt,1ND, Transworld Electronics In., 240 Pauma Place, Escondido CA 92025, USA.

Cooksley, G., ZL2AJM, 17 Manilla Road, Tamworth, 2340 NSW, Australia.

Costello, A. D., VK3YT, 1 Mansfield Avenue, Mt Clear, Vic 3350. Australia.

Couch, D., VK6WT, 9 The Grove, Wembley 6014, West Australia, Creasy, S. C., ZL1BH, Tyburn House, Sha Ha, Sai Kung, NT, Hong

Kong. Cresswell, A. F., ZL2BX, C/- Apia Observatory, PB, Apia, Western Samoa.

Cruden, M. C. . VK2ASC, 9 Nicka Road, Narrabeen, NSW 2101. Australia.

Cuncliffe, R., G6THV, 2 Elizabeth House, Didsbury Road, Stockport,

SK4 2AY, England. Curling, L. K., VK3NM, 18 Lexington Street, Vermont, Vic 3133, Australia.

Discombe, R., YJ8DE, P.O. Box 56, Vila, New Hebrides. Douglas, R. J., ZK2RD, P.O. Box 159, Niue Island.

Edward, R. D., VK6AOK, 13 Broome Street, Nedlands, W.A. 6009, Australia

Elliott, R. W., VK1ZAH, 93 Shackelton Circuit, Mawson, ACT 2607. Australia

Forbes, R. W., WB6GFJ, P.O. Box 1, Los Altos, CA 94022, USA Fraser, B. H., ZL3FZ, Route 3, Box 3455, Orland, CA 95963, USA. Gardiner, B., VK3AIE, 5 Chalmers Grove, Ferntree Gully, Vic 3156. Australia

Geddes, G., VE7GEO, RR2 Bush Road, Port Alberni, B.C., Canada, **V9Y 7LG**

Grant, L. J., VK2KYJ, 45 Monash Street, Wentworthville NSW 2145. Australia

Greenock & Dis A.R., GM4CEA, C/-Mr.R., McCraken, 6 Binnie Street, Gourock, Inverciyde, PA19 IJS Scotland.

Halbach, E. B., W5WJQ, 804 Highway 304, Thibodaux, Los Angeles

70301, USA
Hathaway, R. L. S., G3JHi, 30 Berkley Drive, Hornchurch, Essex RM11 3PY, England.
RM11 3PY, England.

NSW 2580, Australia

Hoover, H. III, W6ZH, 1520 Circle Drive, San Marino, CA 91108, USA.

Hutchings, P. G., VK3KPH, 8 Yonde Court, Greensborough, Vic. 3088. Australia.

 Irvine, E. J., VK3BXA, "Moorilyn", Thoona, Vic 3726, Australia. Ishikawa, K., JA2AUI, 62 Kinjo Nishio-Shi, Aichi-Ken 445, Japan.

Jamieson, E. C., VK5LP, 1 Quinns Road, Forreston, SA 5233, Australia.

Kain, G. H., 2 West Market Street, Suite 403, Continental Square, York, PA 17401, USA

Kelly, B., VE7CBK, 8700 Minter Road, Richmond, BC V7C 3T9. Kokkai-Toshokan, Kagaku-Mz, Ngatacho Chiyoda-Ku, Tokyo, Japan.

Laidlaw, D. J., VK3KDI, 12 Markham Street, Kyabram, Vic 3620. Australia.

Lickfeld, Prof. Dr. K. G., DL3FM, Rombecker WEG71 D-4330, Mulheim A D Ruhr 1, West Germany

Louttit, L. W., VK2BE, 17 Thompson Street, Earlwood, NSW 2206. Australia.

Manatt, W., W6ECF, P.O. Box 792, Arnold, CA 95223, USA Mawhinney, P. E., VK2AFW, F1/23 Badminton Road, Croydon, NSW 2132. Australia.

McDougall, D. S., W9IV, 776 Brookwood Drive, Olympia Fields, Illinois 60461, USA.

McLellan, D. P., VK3BJT, 14 Fairway Drive, Kew East, Vic 3102, Australia. Merritt, F., VE7AF

VE7AFJ, 1851 Meredith Road, Nanaimo, BC, Canada, V98 2M6

Miller, E. D., ZL1JU, 5/13 Rose Street, Southport, Queensland 4215, Australia.

Moore. W. M., VK2HZ, 29 Pitt Street, Springwood, NSW 2777.

Australia.

Muratore, E., P.O. Box 376, Alyangula, 'Groote Eylandt, NT 5798, Australia.

Mutzelburg, R. K., VK4IY, E. Spicer Street, Laidley, Queensland 4341, Australia.

Nallawalla, A. (Flt. Lt.), ZL4LM. Admino BAAF Academy, BAAF Base, Point Cook, Vic 3029, Australia.
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Nordeen, H. D., K7OUV, Star Route-Box 28, Olga, Washington 98279, USA.

OVERSEAS MEMBERS

O'Donnell, C. R., WA6MDO, 726 Raymundo Avenue, Los Altos, CA 94022, USA.

Philipps, J., VE3CVX, 1389 Milton Avenue, Mississanga, Ontario, L5G 365 Canada.

Phillips, R. W., ZL3ADV, C/- Air Niugini Eng., P.O. Box 7186. Boroko, Papua New Guinea.

Pyne, C. H., N6FBP, 390 Ninita Parkway, Pasadena, CA 91106, USA.

Reid, D. D., W9RWD, P.O. Box 773, Tremont, Illinois 61568, USA. Rockley, G. C., KI4MK, 1680 Curlew, Palm Harbour, Fla 33563, USA. Rogers, G. L., VK6RO, 18 Banksis Street, Bunbury, WA 6230, Australia.

Rudnicki, A. J., K6IA. 4999 La Ramada Drive, Santa Barbara, CA 93111, USA.

Saito, T., JE1GBI, 23-12 Ohsawa 3-Chome, Koshigaya-City, Sailama 343, Japan.

Secretary Orange A.R.C., P.O. Box 1065, Orange, NSW 2800, Australia.

Sheley, J. W., KA6DXY, 5849 Hansen Drive, Pleasanton, CA 94566, USA.

Sioane, C., VK2EEC, 2 Lancelot Street, Blacktown 2148, Australia, Smith, J. W., K47APJ, 5717 NE56 Seattle, Washington 98105, USA, Suryadarma, E., YB9BZZ, 10 Jalan Rlau, Jakarta, Indonesia, Sutherland, G. YK2ZSG, 15 Marine View, Newcastle 2300, Australia, Svensen, A. G., VK2CAS, 8 Reid Road, Winmalee, NSW 2777, Australia.

Taylor, C., VK5CE, 2 Kismet Avenue, Highbury, SA 5089, Australia. Thomas, R., FK8AU, P.O. Box 637, Noumea.

Trebitcock, E. W., BRS195, 5/17 Cooloongatta Road, Camberwell, Vic 3124, Australia.

Truscot, W. P., ZL1AXW, P.O. Box 270, Suva, Fiji.

Truscot, W. P., ZLTAXW, P.O. Box 270, Suva, Fiji. Tutton, J. K., VK3ZC, 11 Cooldongata Road, Camberwell, Vic 3124, Australia.

Valentine, B., VK2BAV, 24 Wordester Street, Collaroy, NSW 2097, Australia

Van Nimwegen, J., KO6I, DVH Corporation, 16117 Leadwell Street, Van Nuys, CA 91406, USA.

Velzeboer, P. H., ZL25GC, Drosten 30, 9481 GE, The Netherlands. Von Stanke, E. J., VK5KU, 25 Shepherdson Road, Mt Gambier, SA 5290, Australia.

WIA NSW Division, P.O. Box 1066, Paramatta, NSW 2150, Australia. WIA Queensland Division, C/- Guy Minter, 4 Angelina Street, Macgregor, Queensland 4109, Australia. WIA South Australian Division, P.O. Box 1234, Adelaide, Australia.

WIA South Australian Division, P.O. Box 1234, Adelaide, Australia. WIA Victoria Division, 412 Brunswick Street, Fitzroy, Vic 3065, Australia.

Wallace, A. D., VK3DOP, 14 Tootals Road, Dingley, Vic 3172, Australia.

Wardlaw, D., VK3ADW, 21 Tormey Street, Vic 3104, Australia. Waters, A. B., ZK1BW, C/- Post Office, Rarotonga. Watkins, W. A., VK2DEW, P.O. Box 1117, Orange, NSW 2800,

Australia
Wilkinson, K. S., JG1YCI, C.P.O. Box 1748, Tokyo, Japan 100-91.
Wilson, R. L., VK2BRC, Glencoe, Canobolas Road, Orange, NSW 2800, Australia.

Wilson, C. R., K1GVA, 61 Warwick Street, Portland, Maine 04102, USA.

Wilson, P., VE6CQY, 2420 Ninth Avenue, NW, Calgary, Alberta T2N1E7, Canada.

Wylks, W. G., VK2BWY, 14 Hector McWilliam Drive, Tuross Head, NSW 2537, Australia.

Break-In and Call Book by airmail

OVERSEAS MEMBERS MAY RECEIVE BREAK-IN AND CALL BOOK BY AIRMAIL IF REQUIRED

APPLY TO THE GENERAL SECRETARY FOR DETAILS

NZART BRANCH DIRECTORY

01 ASHBURTON

Clubroom Address: Vintage Car Club Rooms, Maronan Road, Tinwald, Ashburton, Branch Callsign: ZL3AF, Trustee's Callsigns: ZL3AFB; ZL3AQ.

Branch Net Frequency: 144.600. Date/Time of Net: Mondays 8.30 p.m. Secretary: J. M. Leadley. ZL3LL.

Postal Address for Correspondence; P.O. Box 361, Ashburton. President; L. L. Vincent, ZL3UX. AREC Section Leader: A. F. Chapman, ZL3TKK, 17 Baker Street Ashburton, Phone 7737.

Meeting Information: Second Monday each month except January, Vintage Car Club Rooms, Tinwald, 7.30 p.m.

D2 AUCKLAND

Clubroom Address: 400 St John's Road, Meadowbank, Auckland 5 (Down driveway beside Telephone Exchange opposite St.

(Down driveway beside Telephone Exchange opposite St. Helens Bay Road intersection).

Branch Callsign: ZL1AA

Trustee's Callsigns: ZL1CZ; ZL1BBS.

Branch Net Frequency: HF-3.650 MHz, VHF 146.6 MHz,

Date/Time of Net: HF: Mondays 2100 NZST, VHF: Mondays and

Wednesdays 2015 NZST.

Secretary: R. N. (2015) Kestings, ZL1BNIV, Phone 546-471.

Secretary: R. N. (Ross) Keatinge, ZL1BNV, Phone 546-471. Postal Address for Correspondence: P.O. Box 18-003, Glen Innes,

Auckland 6.

President: J. S. (John) Rea, ZL1AZR, Phone 583-053. AREC Section Leader: D. M. (Don) Webster, ZL1CY, 46 Speight Road, Kohimarama, Auckland 5. Phone 555-554 (home),

737-999 Ex 8551 (work).
Deputy Section Leader: D. G. (Dave) Dingley, ZL1TIA, 2139 Great
North Road, Avondale, Auckland 7. Phone 889-394 (home),

885-730 (work) Meeting Information: Third Tuesday of each month from January to November at 7,30 p.m. AGM is on second Tuesday in December. January meeting is informal. AREC meets on the last Wednesday of each month having five Wednesdays.

Radio Classes: Enquire from Secretary

Other Information: Branch Contact Officers, ZL1AZR and ZL1BNV (as above) or R. J. (Bob) Murphy, ZL1AFU (Phone 580-634). Visitors to Auckland are most welcome at meetings. Clubrooms are often open on Saturday mornings.

03 WESTERN SUBURBS RADIO CLUB INC

Clubroom Address: 3000 GT North Road, New Lynn, opposite Hire Pool

Branch Callsign: ZL1RK

Trustee's Callsigns: ZL1ST: ZL1BSL

Branch Net Frequency; 3570 kHz, 146,525.
Date/Time of Net. HF: 7.30 p.m. non-meeting Mondays.
VHF: 7.30 p.m. Thursdays.
Secretary: N. E. Smith, ZL1ST.

Postal Address for Correspondence: P.O. Box 15-122, New Lynn, Auckland 7

President: David Ash, ZL1BZC

AREC Section Leader: Andrew Mitchell, ZL3DD, 55 Shoreham Street, Blockhouse Bay, Auckland 7. Phone 887-244 (home), 799-011 (work).
Deputy Section Leader: Kevin Butter, ZL1ABP, Phone 675-798

(work), 572-890 Ext 838 (work).

Meeting Information: First and third Mondays of each month at 7.30 p.m. except Public Holidays.

Radio Classes: Tuesday at Kelston B.H.S., Wednesday Rutherford H.S. 7.00 p.m., Lecturer ZL1AXT. Phone 768-488.

04 CAMBRIDGE RADIO CLUB

Clubroom Address: "Band Rotunda" Learnington Domain, Scott Street, Learnington, Cambridge.

Branch Callsign: ZL1ASW. Trustee's Callsign; ZL1HP

Branch Net Frequency: 146,575, 3,560. Date/Time of Net: 0900 NZST.

Secretary: R. C. Armstrong, ZL1TSS

Postal Address for Correspondence: 142 King Street, Cambridge.

President: Des. H. Hamblyn, ZLTHP. AREC Section Leader: A. R. Boyce, ZL1AFV, 26 Shakespeare Street. Learnington, Phone (Cambridge) 6107 (home), (Cambridge) 7169 (work)

Deputy Section Leader: P. E. Collins, ZL1AGS, 185 Victoria Street, Cambridge, Phone (Cambridge) 4654 (home), (Cambridge) 7169 (work)

Meeting Information: Last Tuesday month 7.30 p.m., visitors welcome.

Radio Classes: Mondays 7.30 p.m., Instruction. Tuesday's 7.30 p.m., Construction the Monday meetings are run as work shops with subjects announced on 695 Waikato each Sunday

05 CHRISTCHURCH

Clubroom Address: 27 Galbraith Avenue, Christchurch. Clubroom Telephone Number: 899-626.

Branch Callsign: ZL3AC Trustee's Callsign: ZL3RW

Branch Net Frequency: Christchurch 675

Date/Time of Net: Sunday, 11.00 a.m. Secretary: B. B. Halford, ZL3BY.

Postal Address for Correspondence: P.O. Box 1733, Christchurch. President; J. E. Carruthers, ZL3PE.

AREC Section Leader: Geoff Chapman, ZL3PX, 35 Harrison Street, Christchurch 1, Phone 851-815 (home), 790-900 Ext 842 (work)

Deputy Section Leader: Gareth Bradshaw, ZL3VP, 159 Ashgrove Terrace, Christchurch 2, Phone 35-406 (home), 790-900 Ext

881 (work).

Meeting Information: First Wednesday each month at 7.45 p.m. (Branch and General): Second Wednesday each month at 7.45 p.m. (AREC): Third Wednesday each month at 7.45 p.m. (VHF).

Radio Classes: Tuesday and Thursday 7.00 to 9.00 p.m., February to

September. (Enquiries to Tricity House Ltd., 209 Manchester Street, Christchurch).

Other Information: Contact information: D. J. Mackay, ZL3RW, Phone 383-211 (home), 60-410 (work); J. E. Carruthers, ZL3PE, Phone 497-441; G. Bredshaw, ZL3VP, Phone 35-406 (name), 790-900 Ext. 881 (work)

Repeater Trustees: D. J. Mackay, ZL3RW

06 DANNEVIRKE BRANCH N.Z.A.R.T.

Clubroom Address: Civil Defence H Q .- Corner Queen and Princess Streets, Dannevirke,

Branch Callsign: ZL2IB

Trustee's Callsign: ZL2ABT Sranch Net Frequency: 3860 kHz

Date/Time of Net: Sunday 0930 Hours.

Secretary: O. W. Martin, ŽL2OZ.

Postal Address for Correspondence: 21b Cadman Street, Dannevirke, President: Wayne Jacobsen.

AREC Section Leader: A. E. Law, ZL2HE, Private Bag, Dannevirke. Phone 25-808 (home), 25-808 (work)

Deputy Section Leader: K. Browning, ZL2TPO, 68 Cole Street, Dannevirke. Phone 6322 (home), 6322 (work)

Meeting Information: Fourth Monday of each month, contact Secretary phone 7415 as possible meeting could be in Woodville. Repeater Trustees: Keith Browning, ZL2TPQ, Gary Gloag, ZL2TDB.

07 Not Allocated.

08 EASTERN SOUTHLAND

Clubroom Address: C/o W. E. Faulkner, 124 Frank Street, Gore. Branch Callsion: ZL4AL Trustee's Callsign: ZL4AO. Secretary: W. E. Faulkner, ZL4IN.

Postal Address for Correspondence: 124 Frank Street, Gore. President: J. Graham, ZL4RO.

AREC Section Leader: R. A. Whyte, ZL4AQ, 7 Charles Street, Gore

Phone 6793 (home), 7433 (work).
Deputy Section Leader: A. N. Allan, ZL4AO, "Chariton" R.D. 4, Gore

Phone 7288 (home).
Meeting Information: Fourth Tuesday each month at places arranged Repeater Trustees: A. N. Allan, ZL4AO; R. Todd, ZL4TCD.

09 Not allocated

10 FRANKLIN AMATEUR RADIO CLUB (INC)

Clubroom Address: Stadium Drive, Pukekohe, Branch Callsign: ZL1SA.

Trustee's Callsign: ZL1US

Branch Net Frequency: 3700 kHz, 145.00 MHz.

Date/Time of Net: Sunday 9.00 a.m. on 3700 kHz, Sunday 7.30 p.m. on 145.00 MHz.

Secretary: R. Holt, ZL1BBZ, Phone (Waiuku) 59-549 (home), (Waiuku) 58-089 (Auckland) 758-999 (Wellington) 738-118 all

Ext. 8746 (work).

Postal Address for Correspondence: 10 Collingwood Rd, Waiuku.

President: R. J. Jeffares, ZI1BTR, Phone (Auckland) 597-688 (home).

(Auckland) 263-8421 (work).

AREC Section Leader: N. G. Herrold, ZL1BXK, Hall Road, R.D. 1, Waiuku, Phone (Waiuku) 58794 (home), (Waiuku) 59318

(work).
Deputy Section Leader: C. J. Shuker, ZL1BOT, 18 Mason Avenue,
Pukekohe, Phone (Pukekohe) 87-350 (home), (Tuakau) 68-696 (work)

Deputy Section Leader: B. 8. Littlewood, ZL1ULI, 34 Mason Avenue, Pukekohe, Phone(Pukekohe), 89-568 (home), (Pukekohe) 89-139, [Auckland] 774-129 (work)

Meeting Information: Third Tuesday every month 8.00 p.m.

11 GISBORNE AMATEUR RADIO CLUB INC.

Clubroom Address: Kaiti Hall, Gisborne

Branch Callsign: ZL2AA

Trustee's Callsign: ZL2ANQ

Branch Net Frequency: 146.90.

Date/Time of Net: Sunday 1100. Secretary: Keith Isherwood, ZL28NX.

Postal Address for Correspondence: P.O. Box 1017, Gisborne. President: Basil Davoren, ZL2UT.

AREC Section Leader: Roly Haisman, ZL2APH, 27 Valley Road, Gis-

borne Phone 86-422 (home), 85-098 (work). Deputy Section Leader: Rib Compier, ZL2AJQ, 35 Endcliffe Road Gisborne: Phone 88-636 (home), 85-099 (work)

Meeting Information: Every second Monday each month at 7,30 p.m. activities meeting every fourth Monday each month at 7.30 p.m.

Radio Classes: For information contact president or secretary Repeater Trustees: ZL2TNP ZL2UBF.

12 HAMILTON RADIO CLUB

Clubroom Address: Seddon Road, Hamilton.

Branch Callsign: ZL1UX.

Trustee's Callsign: ZL1AZZ

Branch Net Frequency: 3.680 MHz, 146.525. Date/Time of Net: HF: Monday 7.30 p.m. VHF. Thursday 8.30 p.m. Secretary: C. R. Hawkins, ZL1BXX.

Postal Address for Correspondence: P.O. Box 606, Hamilton.

President: K. J. Lewis, ZL1RN. AREC Section Leader: C. V. Tait, ZL1AKI, 2 Grassy Downs Place, Hamilton, Phone 492-616 (home)

Deputy Section Leader: P. G. Darrall, ZL1AZZ, 11 Irene Crescent, Hamilton, Phone 75-757 (home), 78-669 Ext. 72 (work).

Meeting Information: First Wednesday of month at clubroom, Seddon Road

Radio Classes: Tuesday at 7.30 p.m. at Clubrooms, Seddon Road

13 HASTINGS/HAVELOCK NORTH

Clubroom Address: Civil Defence H.O. Lyndon Road E, Hastings. Branch Callsign: ZL2BEI.

Trustee's Callsign: ZL2B1W

Trustee's Callsign: ZL2BIW.
Branch Net Frequency: 3.615 MHz.
Date/Time of Net: Sundays 9.30 a.m. (NZ Time)
Secretary: Jocelyn Wilson, ZL2BAO.
Postal Address for Correspondence: P.O. Box 3080, Hastings.
President: Gwyn Ruschbach, ZL2BIW.
AREC Section Leader: Pete Stevens, ZL2AS, 901 Victoria Street,
Hastings, Phone 89-726 (work).
Meeting: Information: Every fourth, Wednesday, of each, month at

Meeting Information: Every fourth Wednesday of each month at 7:30 p.m. in C.D. H.Q.

Repeater Trustees: ZL2AN (2 m) R. Shepard, ZL2IT (2 m) E. Lilly, ZL2AQR (6 m rptr) R. Crawley.

14 HAWERA AMATEUR RADIO CLUB

Clubroom Address: Civil Defence Room, District Council Building Albion Street, Hawera,

Branch Callsign: ZL2AWW, Trustee's Callsign: Roy Simpson, ZL2AYH.

Postal Address for Correspondence: 132 Manawapou Road, Hawera.

President: Roy Simpson, ZL2AYH.

AREC Section Leader: Ian Wards, ZL2AHA, Lower Manutahi Road, AREC Section Leader: Ian Wards, ZCZARA, Lower Maridian Road, R.D. 2, Patea, Phone (062) 24-222. Meeting Information: Third Monday every month, Civil Defence room, District Council Building, Albion Street, Hawera.

15 CENTRAL HAWKES RADIO CLUB

Clubroom Address: "Pukeora" Home of Disabled, P.O. Box 591 Branch Callsign: ZL2AR.

Trustee's Callsign: ZL2ACP

Branch Net Frequency: 3650 kHz

Date/Time of Net: Sunday 2000 NZT. Secretary: J. Simcox, ZL2THK.

Postal Address for Correspondence: P.O. Box 327 Wajoukurau.

President: G. M. Gooch, ZL2BCO

Meeting Information: Third Monday.
Contact officer G. Gooch P.O. Waipukurau, Phone 68-130 Ext. 80.

16 HOROWHENUA

Sranch Callsign: ZL2DS

Trustee's Callsign: ZL2IG

Branch Net Frequency: 3590 kHz, Levin 720, Date/Time of Net: HF: 0900 every Sunday, VHF 1000 every Sunday, Secretary: E. D. Burnham, ZL2BHH,

Postal Address for Correspondence: 15 Tawa Street, Levin,

President: H. F. Christie, ZL2ARC AREC Section Leader: C. J. Donoghue, ZL2BAF, 9 Highfield Place,

Levin, Phone (Levin) 87-695 (home).
Deputy Section Leader: R. F. Christie, ZL2ARC, 259 Cambridge Street, Levin, Phone 83-330 (home), 87-035 (work).

Meeting Information: Monthly on fourth Wednesday except December Contact Secretary re venue. Phone 85-970 (home) 48-795

(work).

Repeater Trustees: Levin 720 ZL2CP ZL2BAF

17 HUNTLY

Club Inactive

18 HUTT VALLEY

Clubroom Address: Birch Street, Lower Hutt. Clubroom Telephone Number: 669-961.

Chibronii Eaphinie Vandes 2008.

Branch Callsign: ZL2HV.

Trusfee's Callsigns: ZL2ASO, ZL2ARW.

Branch Net Frequency: 80 m. 2 m.

Date/Time of Net: HF: Sunday at 9.00 a.m. VHF: Wednesday at 7.00 p.m.

Secretary: Mrs E. Rothschild. Postal Address for Correspondence: P.O. Box 30519, Lower Hutt.

Postal Address for Correspondences.

President: B. Wright, ZL2QZ.

AREC Section Leader: B. Sewell, ZL2ASO, 1 Riverside Grove, Wainuiomata, Phone 646-929 (home), 666-919 (work).

Deputy Section Leader: B. Wright, ZL2QZ, 27 Stanley Street, Wainuiomata, Phone 646-433 (home), 666-969 Ext. 714.

Meeting Information: First Monday in the month except June which is second Monday. No meetings in January. Meetings are held in the Hutt Valley Tramping Club Rooms, Birch Street reservo, at 7.30 p.m.

Radio Classes: Held as tutors and students offer. Correspondence course held by Technical Correspondence Institute is encouraged with tutorials as required. Contact the secretary if interested.

Other Information: Repeater is 700. Civil Defence ZL2QZ, B. Wright. Secretary's address (work) 27 Dudley Street, Lower Hutt. Repeater Trustees: ZL2ARW, ZL2TAR.

19 INGLEWOOD

Clubroom Address: 34 James Street, Inglewood, Taranaki. Clubroom Telephone Number: 67-314.

Branch Net Frequency: 146,475.

Date/Time of Net: Every Sunday 8:30 a.m. Secretary: Tarry Martin, ZL2KV.

Postal Address for Correspondence; P.O. Box 74, Inglewood, Taranaki.

President: Peter Cramer, ZL2AIS.

AREC Section Leader: Tarry Martin, ZL2KV, P.O. Box 74, Inglewood, Taranaki, Phone 67-627 (home), (New Plymouth) 87-609

Ext. 850 (Oacnul) (work).

Deputy Section Leader: J. H. Leitch. ZL2ASL, Dudley Road. Inglewood, Phone 67-421 (home).

Meeting Information: Third Wednesday each month at the clubrooms.

20 MANAWATU AMATEUR RADIO SOCIETY

Clubroom Address: Totara Road, Palmerston North.

Branch Callsign: ZL2KO.

Trustee's Callsign: ZL2GU

Pranch Net Frequency: 3.5 MHz, 695.

Date/Time of Net: HF: Sunday 9.30 a.m. VHF: Thursday 8.00 p.m.

Secretary: Shirley Thompson, ZL2TBX.

Postal Address for Correspondence: Box 1718, Palmerston North.

Prantidate: Stan Matthews, ZL25R.

Postal Address for Correspondence: Box 1718, Palmerston North.
President: Stan Matthews, ZL2FB.
AREC Section Leader: Bryan Jardine, ZL2TPJ, 9 Weston Avenue,
Palmerston North, Phone 83-199 (home).
Meeting Information: Branch Meetings first Wednesday of month
7,30 p.m. at clubrooms. Committee meetings third Wednesday 7,30 p.m.

Radio Classes: Tuesdays 7.30 p.m. at clubrooms, construction even-ings second and fourth Wednesdays. Repeater Trustees: Harry Wiggins, ZL2BFR: Pete Moore, ZL2AUB.

21 MANUKAU RADIO CLUB INC.

No information received.

22 MARLBOROUGH

Clubroom Address: Hegglun Hall, (CDHQ), Wither Road, Extensions, Blenheim.

Clubroom Telephone Number: 87-039

Branch Callsign: ZL2KS

Trustee's Callsigns: ZL2BGQ, ZL2AZE.

Branch Net Frequency: 3570 kHz. Secretary: Don Jamieson, ZL2BJS

Postal Address for Correspondence: P.O. Box 432, Blenneim.

Postal Address for Correspondence: P.O. Box 432, Blenheim. President: Grant Simpson, ZL2BK. AREC Section Leader: Neville Marr, ZL2BVE, 22 Dillon Street, Blenheim. Phone 81-527 (home), 84-259 (work). Deputy Section Leader: Frank Stretch, ZL2AZE, 122 Muller Road. Blenheim. Phone 89-814 (home), 87-039 (work). Meeting Information: Second Thursday of each month at 8 00 p m Repeater Trustees: Grant Simpson, ZL2BK; Ken Menzies, ZL2BJV.

23 MARTON

No information received.

24 MOTUEKA BRANCH

Clubroom Address: Old Courthouse High Street, Motueka. Branch Callsign: ZL2GK. Secretary: M. J. Lark, ZLZUDC

Postal Address for Correspondence: Moteuka Quay, Moteuka,

President: J. R. Scott, ZL2ADX. phone 88-960. AREC Section Leader: Jim Ross, ZL2VF. Meeting Information: Contact secretary.

Repeater Trustees: Jim Jackson, ZL2BCG; Roger Fowler, ZL2BHL.

25 NAPIER AND DISTRICTS BRANCH 25 N.Z.A.R.T.

Clubroom Address: 123 Latham Street, Napier, Branch Callsign: ZL2ABJ.

Branch Callsign: ZL2ABJ.
Trustee's Callsign: ZL2ALO.
Branch Net Frequency: 147.25.
Date/Time of Net: Tuesday 8.30 p.m.
Secretary: John Breen, ZL2TUX.
Postal Address for Correspondence: P.O. Box 4030, Napier.
President: J. McGonigal, ZL2AKG.
AREC Section Leader: AREC Section Leader: Stan White, ZL2AHC,
20 Henley Crescent, Napier, Phone 436-410 (home), 53-299
Ext. 345 (work).
Deputy Section Leader: Mike Bull, ZL2VM, 51 Liveroool Crescent.

Deputy Section Leader: Mike Bull, ZL2VM, 51 Liverpool Crescent, Napier, Phone 436-052 (home), 53-299 Ext. 809 (work). Meeting Information: 7.30 p.m. third Sunday in

month at the clubrooms.

Radio Classes: Hawke's Bay Community College. Other Information: Other Information: Contact Officer, Marilyn Thorp. ZL2BOA, Phone 434-238.

Repeater Trustees: Repeater Trustees: L. Winton, ZL2TIS: D. Walker, ZL2TSX.

26 NELSON AMATEUR RADIO CLUB (Inc.)

Clubroom Address: Maitai Valley, Nelson. Branch Callsign: ZL2ARG.

Trustee's Callsign: ZL2BP

Date/Time of Net: Wednesdays (except Club night) 2000 on VHF; Sundays 0900 on HF.

AREC Section Leader: John Garrod, ZL2BMO, 8 Alfred Sheat Street, Richmond, Phone RD8884 (home), RD6079 (work).

Deputy Section Leader: Andrew Mackie, ZL2THG, 8 Tarata Street, Stoke, Nelson, Phone NN77-584 or NN79-425 (home), NN79-699 (work).

Meeting Information: Fourth Wednesday of each month (except December) commencing at 1930 hours at the Clubrooms

Radio Classes: At Nelson Polytechnic . Phone NN81-189 during office hours for further information... Other Information: Visitors most welcome. A varied and interesting

programme including auctions, hidden transmitter hunts, videos and computers

Repeater Trustees: Dave Scott ZL2BCA, Doug Fitzsimmons ZL2TJB.

27 NEW PLYMOUTH AMATEUR RADIO CLUB Clubroom Address: CD HQ, Marshland Hill, New Plymouth, Branch Callsign: ZL2BDN, Trustee's Callsign: ZL2LE.

Trustee's Callsign: ZL2LE.
Branch Net Frequency: New Plymouth 720.
Date/Time of Net: Sunday 1000 hours.
Secretary: John Myhlli, ZL2ACL.
Postal Address for Correspondence: P. O. Box 675, New Plymouth.
President: Ross Kennedy (until May 1985), ZL2BOT
AREC Section Leader: Wayne Gaudin, ZL2VN/ZL2EB, 18 Trafalgar
Street, New Plymouth, Phone 35-800 (home), 79-092 (work).
Deputy Section Leader: David Leask, ZL2AYU, 11 Cannon Street,
New Plymouth, Phone 33-493 (home), 510-680 (work).
Meeting Information: Branch meeting third Tuesday at 1930 hours.

Meeting Information; Branch meeting third Tuesday at 1930 hours Radio Classes: As arranged by Taranaki Polytech.
Other Information: AREC Deputy: John West, ZL2ADW, 17 Chesney
Street, Bell Block, New Plymouth, Phone 70-635 (home),

86-165 (work)

Repeater Trustees: Andy Fleming ZL2TKP, Chrls Rickards ZL2TKA.

28 NORTHLAND BRANCH

Branch Callsign: ZL1AM.

Trustee's Callsions: ZL1BFS, ZL1AF

Trustee's Canagns; 2C16F5, 2C1AF. Branch Net Frequency: Whangarei 720; 3740 kHz. Date/Time of Net: Each Monday at 7:30 p.m. on 720; Each Sunday at 9.00 a.m. on 3740.
Secretary: Allan Walker, ZL18HC.
Postal Address for Correspondence: P.O. 8ox 711, Whangarei President: Bruce Hill, ZL18HZ.

President: Bruce Hill, ZL1BRZ.

AREC Section Leader: John Ramsay, ZL1KG, 120 Kamo Road,
Whangarei, Phone 71-904 (home), 83-059 (work).

Deputy Section Leader: Mike Thompson, ZL1BWV, P.O. Box 10,
Maungatapere, Phone MPE312.

Meeting Information: First Wednesday of each month at 7,30 p.m. at

Northland Community College, Raumanga.

Radio Classes: Every Thursday from March 21 until September examination, 7.30-9.30 at Northland Community College.

Repeater Trustees: Doug Birt, ZL18FS: Ian Ogier, ZL1AF.

29 NORTH SHORE BRANCH

Clubroom Address: Kennedy Park, 145 Beach Road, Castor Bay

Branch Callsign: ZL1AB

Trustee's Calisions: ZL1BHQ, ZL1AUW

Branch Net Frequency: 3780 kHz.
Date/Time of Net: Sunday mornings at 0900
Secretary: Val Collins, ZL1GB.

Postal Address for Correspondence: P.O. Box 33358, Takapuna 9.

Postal Address for Correspondence: P.O. Box 33358, Takapuna 9. President: Peter Smith, ZL1ARB. AREC Section Leader: Alan Wooller, ZL1AUW, 40 Powrie Street, Glenfield 10, Phone 444-2423 (home), 527-069 (work). Deputy Section Leader: Terry James, ZL1UFY, 12 McHardy Place, Glenfield 10, Phone 444-6384 (home). Meeting Information: First Monday of each month except June when. second Monday, Informal meetings at Clubrooms every Saturday 9:30 a.m. to noon.

Radio Classes: Westlake Boys' High School, Also recommend Technical Correspondence Institute Amateur Radio Study

Course

30 OTAGO

Clubroom Address, 109 Macandrew Road, Dunedin.

Clubroom Telephone Number: 53-003

Branch Callsign: ZL4JY.

Branch Calisign: ZL43Y.
Trustee's Calisigns: ZL4MK.
Branch Net Frequency: Dunedin 690.
Date/Time of Net: Sundays at 9.00 a.m.

Date/Time of Netr Sundays at 9.00 a.m.
Secretary: K. A. Hand, ZL4QD.
Postal Address for Correspondence: P.O. Box 5485, Dunedin.
President: T. E. Miller, ZL4BL.
AREC Section Leader: W. Black, ZL4TGM, 46 Hawthorne Avenue,
Dunedin, Phone 36-263 (home), 741-414 (work).

Meeting Information: Each Wednesday at 8.00 p.m. except late

December and early January.

Radio Classes: Held at Otago Polytechnic, Commence May.

Other Information: Contact Officers: ZL4AI, ZL4OQ, Keith and

Brenda Shaw, Phone 62-618, Repeater Trustee: R. W. G. Kingston, ZL4MK

31 PAHIATUA

Clubroom Address: Main Road North Branch Callsign: ZL2SP.

Trustee's Callsign: ZL2VJ Branch Net Frequency: 3570 kHz.

Date/Time of Net: Tuesdays at 8.00 p.m. Secretary: H. J. Angelini, ZL2VJ.

Postal Address for Correspondence: R.D. 2 Pahlatua.

President: R. W. Brown, ZL2ACK. AREC Section Leader: P. Johnson, ZL2BNP, 6 Huia Street, Pahiatua,

Phone 8094 (home), 7456 (work)

Deputy Section Leader: G. Johnson, ZL2TZL, Oete Road, Pahiatua,

Phone 7736 (home), B433 (work).
Meeting Information: Second Tuesday each month.

32 RAHOTU ÇOAŞTAL No information received.

33 ROYORUA AMATEUR RADIO CLUB (Inc)

33 HOTORUA AMATEUR RADIO CLUB (In Clubroom Address: Amohau Street, Rotorua. Branch Callsign: ZL1AVG.
Trustee's Callsign: ZL1BLR.
Branch Net Frequency: 147.350 MHz.
Date/Time of Net: Each Friday at 8.00 p.m.
Secretary: Bill Wilson. ZL1BOJ.

Postal Address for Correspondence: P.O. Box 1984. Rotorua

Postal Address for Correspondence: P.O. Box 1984, Hotorua, President: Len Fish, ZL18LR, AREC Section Leader: Phil King, ZL1PK, Phone 85-024 (home), Deputy Section Leader: Peter Anderson, ZL1AHJ, Phone 86-486 (hame)

Meeting Information: Club meets second Tuesday, each calendar

manth

month.

Radio Classes: Walariki Community College.

Other Information: Visitors always welcome.

Repeater Trustees: Brian Crook, ZL11SKC; Phil King, ZL1PK.

34 SOUTH CANTRBURY

No information received

35 SOUTH OTAGO

Clubroom Address: Main South Road, Balclutha.

Branch Callsign: ZL4JF

Trustee's Callsign: ZL4HD

Branch Net Frequency: 3565 kHz. Date/Time of Net: Weekly on Mondays at 8.00 p.m.

Secretary: John R. Lochhead, ZL4QS

Postal Address for Correspondence: P.O. Box 251, Balclutha

President: L. D. Perrin, ZL4RD.

AREC Section Leader: Gordon Jones, ZL4BA, 8 Yard Lane, Bal-clutha, Phone 80-590 (home), 82-023 (work). Deputy Section Leader: Noel Willetts, ZL4DZ, 23 Yarmouth Street,

Balclutha, Phone 82-409 (work).

Meeting Information: First Tuesday each month (except January) at

8 n.m.

36 SOUTH WESTLAND

Clubroom Address: Civil Defence HQ, Hokitika Airport. Branch Callsign: ZL3RS.

Trustee's Callsign: ZL3BH.
Secretary: J. A. Claridge, ZL3VG.
Postal Address for Correspondence: C/- Motor Camp, Hokitika.

President: G. Bowman, ZL3BH

AREC Section Leader; J. Hogan, ZL1AJQ, 141 Hall Street, Hokitika. Meeting Information: Third Tuesday at Civil Defence HQ. Contact

Secretary for details. Radio Classes: Contact J. Hogan

37 SOUTHLAND BRANCH (Inc.)

Clubroom Address: 249 Ettrick Street, Invercargill. Clubroom Telephone Number: 88-686.

Branch Callsign: ZL4GQ

Trustee's Callsigns: ZL4OX, ZL4TFJ Branch Net Frequency: 680 FM.

Date/Time of Net: Every Sunday at 8 p.m.

Secretary: John Willoughby, ZL4FV

Postal Address for Correspondence: P.O. Box 1260, Invercargill

President: Doug Faulkner, ZL4FS.

AREC Section Leader: Neville Checketts, ZL4OX, 21 Highfield Ter-

race, Invercargill, Phone 66-599 (home), 66-599 (work). Deputy Section Leader: Malcolm Davidson, ZL4NO, 34 View Street,

Invercargill, Phone 68-564 (home).

Deputy Section Leader: Mike Cockeram, ZL4IC, 262 Ythan Steet,

Deputy Section Leader: Mike Gookeram, 20410, 202 Finan Greet, Invercargill, Phone 84-845 (home).

Meeting Information: Third Tuesday each month (except January) at 8 p.m. at Clubrooms. AREC Meetings, first Tuesday of each

month (except January) at 7.30 p m.
Radio Classes: Enquire R N. Checketts. ZL4OX, P O. Box 1260, Invercargili. or Phone 66-599. Classes held Monday

evenings. Other Information: Contact Officer Malcolm Davidson, ZL4NO, 34 View Street, Invercargitt.

Repeater Trustees: Neville Checketts, ZL4OX; Cliff Shirreffs, ZL4TFJ.

38 TAUMARUNUI

Clubroom Address: Reservoir Hill, Rangaroa, Taumarunui. Clubroom Telephone Number: 9788.

Branch Callsign: ZL1ATO Trustee's Callsigns: 2L1LX

Branch Net Frequency: 147.150 MHz. Date/Time of Net: Sundays at 2000 hours. Secretary: Martin Morrissey, ZL1UJA

Postal Address for Correspondence: P.O. Box 141. Taumarunui.

Postal Address for Correspondence: P.O. Box 141, Taumarunui, President: Lew Palmer, ZL1TIG, AREC Section Leader: Ross Walker, ZL1AAF, 273 Taupo Road, Taumarunui, Phone 7901 (home), 7901 (work), Deputy Section Leader: John Clarkson, ZL1UJX, 16 Hautu Village, Turangi, Phone 5501 (home), 8627, ext. 899 (work), Meeting Information: Second Monday each month at 7.30 p.m. Contact Speciators for warus.

tact Secretary for venue. Repeater Trustees: Ross Walker, ZL1AAF; Martin Morrissey, ZL1UJA;

Lew Palmer, ZL1TIG.

39 TAURANGA AMATEUR RADIO CLUB

Ciubroom Address: 16th Avenue, Tauranga, Branch Callsign: ZL1TP, Trustee's Callsign: ZL1BOW, Branch Net Frequency: 3.600 MHz. Date/Time of Net: Sundays at 9 a.m. Secretary: W. S. Whyte, ZL1BYR. Postal Address for Correspondence: P.O. Box 6003, Tauranga. President: Mr J. V. Collins, ZL1BNW. AREC Section Leader: D. J. Murphy, 7 Harris Street, Mt. Maunganui,

Phone 53-388 (home), 88-088, ext. 43 (work).

Deputy Section Leader: E. J. Medley, ZL18BU, 10 Grosmont Terrace,
Tauranga, Phone 63-256 (home), 84-199 (work).

Meeting Information: First Thursday each month at 1930 hours at the

Clubrooms. Radio Classes: Wednesdays 1900-2100 hours (March to September), Other Information: VHF Net Wednesday at 2030 hours on 680 repeater

Repeater Trustees: P. A. Gillett, ZL1QI; M. R. Glasgow, ZL1BOM.

40 TE AWAMUTU AMATEUR RADIO CLUB

Clubroom Address: Civil Defence Rooms, Bank Street, Te Awamutu Branch Callsign: ZL1CB. Trustee's Callsign: ZL1AOM Branch Net Frequency: 3865 kHz Date/Time of Net: Tuesday at 8.00 p.m. and Thursdays at 9.00 p.m. Secretary. Sam Gillgren. ZL1AOE. Postal Address for Correspondence: P.O. 8ox 583, Te Awamutu. President: Richard Hoban, ZL1AHW.

AREC Section Leader: Ewen Parsons, ZL1LP, 10 Bridgman Road, Te Awamutu. Phone 5487 (home), 6747 (work) Meeting Information: Third Wednesday each month.

41 THAMES

Branch Callsign: ZL1DF Trustee's Callsign: ZL1BCW Branch Net Frequency: 3650 kHz Date/Time of Net: Sundays at 0900 hours. Secretary: K. W. Hayhurst, ZL1ATU

Postal Address for Correspondence: 204 Mill Street, Thames.
President: H. C. Webber, ZL1BCW.
AREC Section Leader: K. W. Hayhurst, ZL1ATU, 204 Mill Street,
Phone 87-330 (home), 88-688 (work).

Meeting Information: Second Wednesday each month at 7 45 p.m.
Contacts: President Phone 86-475; Secretary Phone 87-330,
Radio Classes: Weekly—Contact H. C. Webber, ZL18CW. Phone 86-475.

42 TITAHI BAY

Clubroom Address: Tireti Hall, Tireti Road, Titahi Bay. Clubroom Address: Tireti Hall, Tireti Hoad, Tilalli Bay.
Branch Callsign: ZL2AFV.
Trustee's Callsign: ZL2GO
Branch Net Frequency: 3710 kHz.
Date/Time of Net: Sundays at 11 a.m.
Secretary: Paul Newland, ZL2TVV.
Postal Address for Correspondence: 25a Tawa Terrace, Tawa.
President: Yvonne Marr, ZL2ALF.
ASSC Section Leader: Des Coote, ZL2LO, 19 Corlett Road, Plint AREC Section Leader: Des Coote, ZL2LO, 19 Corlett Road, Plimmerton, Phone 338-392 (home).

Meeting Information: First Tuesday of each month (except January)

at 7.30 p.m. at the Glubrooms Other Information: Repeater, Titahi Bay 675. Contact Officer: Jim Hurst, ZL2BKI.

Repeater Trustees: Jim Hurst, ZL2BKI; Ian Clifford, ZL2TCF.

43 WAIHI AND DISTRICTS AMATEUR RADIO CLUB

Clubroom Address: Martha Street, Waihi. Clubroom Telephone Number: Walhi 7141

Branch Caffsign: ZL1BAE Trustee's Callsign: ZL1BAS

Branch Net Frequency: 3.825 MHz; 146.575 MHz. Date/Time of Net: HF: Sunday 9 p.m.-9.15 p.m.. VHF: Sunday 9.15

p.m.

Secretary: M. L. (Rina) Field (Mrs), ZL1ACL.

Postal Address for Correspondence: P.O. Box 93, Waihi.

President: Peter Anderson, ZL1LR,

AREC Section Leaders of LELEK.

AREC Section Leader: Allan Bott. ZL1AWI. River Road, Karagahake.
Via Paeroa, Phone (0816) 8887 (home). (08163) 7019 (work).

Deputy Section Leader: George Field, ZL1AHO, 11 Featon
Road, Waihi. Phone (08163) 7240.

Meeting Information: First Wednesday of each month (except January) at 7.30 p.m. at Clubrooms.

44 MATAMATA RADIO CLUB

Branch Callsign: ZL1RF. Trustee's Callsign: ZL1AGA Branch Net Frequency: 3560 kHz. Date/Time of Net: Sunday at 0900 hours. Secretary: I. M. Perkins, ZL18FH.

Postal Address for Correspondence: 74 Tawari Street, Matamata.

President: J. W. Rasmussen. ZL1AGA.

AREC Section Leader: W. W. Coates, ZL1GQ, 25 Tamihana Street, Matamata, Phone 7107 (home).

Deputy Section Leader: J. W. Rasmussen, ZL1AGA, 65 Smith Street, Matamata, Phone 7069 (home). Matamata, Phone 8269 (home), 8058 (work).

Meeting Information: Second Wednesday each month at 1930 hours

in Staff room of Matemate Borough Council.

Other Information: Contact memberL D. B. Hardwick, Broadway Pharmacy, Matemate.

45 WAIMARING

Branch Callsign: ZL2MG Trustee's Callsign: ZL2AVL. Secretary: G. W. Luscombe, ZL2AVL. Postal Address for Correspondence: 5 Main Road, Wallourus President: D. Inkster, ZL2BL1 AREC Section Leader: G. W. Luscombe, ZL2AVL, 5 Main Road, Walouru, Phone 56-707 (home).

Meeting Information: Please contact Secretary for information.

46 WAIRARAPA

Clubroom Address: Manaia Road, Hood Aerodrome, Masterton. Branch Callsign: ZL2OA Trustee's Callsign: ZL2FC Branch Net Frequency; 146.8 MHz.
Date/Time of Net: Sundays 8 p.m. (Daylight saving time 8:30 p.m.)
Secretary: Mrs Jeanette Lambert, ZL2UDV.

Postal Address for Correspondence: P.O. Box 860, Masterton.
President: Arthur Dew, ZL2BLE.
AREC Section Leader: Jeff Sayer, ZL2TFZ, 56 Cockburn Street, Masterton, Phone 83406 (home)

Deputy Section Leader: Colin Coutts, ZL2FC, Daniell Street, Masterton, Phone 80-426 (home), 80159 (work).

Meeting Information: Second Monday each month at 7.30 p.m. at Clubrooms

Repeater Trustees: Jeff Sayer, ZL2TFZ; Robin Reeve, ZL2FZ

47 WAITARA

Clubroom Address: Waitara Borough Council Chambers, Queen

Street, Waltara B Street, Waltara Branch Callsign: ZL2TO. Trustee's Callsign: ZL2AQA. Secretary: Sid McKain, ZL2BIF.

Postal Address for Correspondence: 1354, Devon Road, R.D. 42, Waitara.

President: Lindsay Dickson, ZL2BBZ AREC Section Léader: Jonathon Herbert, Zt2UGD, Mataro Road, R.D. 45, Urenui, Phone 441 (home).

Meeting Information: First Sunday of each month.

48 WANGANUI AMATEUR RADIO SOCIETY (Inc.)

Clubroom Address: Deerstalkers Hall, 2 Peat Street

Branch Callsign; ZL2JA

Trustees' Callsigns: ZL2AUS: ZL2BGE.

Branch Net Frequency: 3.66 MHz. Date/Time of Net: Sunday, 7.30 p.m Secretary: Barry Stewart, ZL2AUS.

Postal Address for Correspondence: P.O. Box 7058, St. Johns, Wanganui

President: Alec Smith, ZL2BDC

AREC Section Leader: Craig Mills, ZL2MD, 43 Great North Road, Wanganui, Phone 50-766 (home), 54-109 (work). Deputy Section Leader: Bob Jeffers, ZLZAAQ, 42 Raine Street.

Wanganui, Phone 32-107 (home), 54-109 (work).

Meeting Information: First non-Public Holiday Monday each month

(except January) at 7.30 p.m.
Radio Classes: Contact Wanganui Community College.
Other Information: Contact/Publicity Officer: Godfrey Gray ZL3BB.

Phone 45-644 (home), 58-564 (work). Repeater Trustees: P. A. Doney, ZL2TDI; L. Boyle, ZL2BGE

49 WESTLAND BRANCH

Branch Callsign: ZL3DN

Trustee's Callsign: ZL3TK Secretary: Kevin D. O'Sullivan, ZL3ABY.

Postal Address for Correspondence: C/- 16 Ashmore Avenue, Cohden.

President: Eric W. Belcher, ZL3QY.
AREC Section Leader: Eric W. Belcher, ZL3QY, 47 Cowper Street,
Greymouth, Phone 6764 (home), 5039 (work).
Deputy Section Leader: D. W. W. Steeman, ZL1THA, Power Road.

Greymouth, Phone 6630 (home), 7069 (work)

Meeting Information: First Wednesday in month (except January) at 7.30 p.m. in Greymouth Borough Council Chambers

Radio Course: Interested people on correspondence course. Where needed members give assistance.

Other Information: Contact Officer: Zelda Gartick ZL3AAB, 23 Lydia

Street, Greymouth, Westland repeater 695

Trustees: R. J. Boote, ZL3ADH; D. W. W. Sleeman, Repeater ZL1THA

50 WELLINGTON

Clubroom Address: M.E.D. Cafeteria, Webb Street, Wellington Branch Callsign: ZL2WB.

Trustee's Callsign: ZL2AQC

Branch Net Frequency: 3570 kHz.

Date/Time of Net: Sundays at 11.00 a.m. Secretary: W. J. Chisholm, ZL2TSF.

Postal Address for Correspondence: P.O. Box 6464, Te Aro, Wellington

President: Trevor King, ZL2AKW.

AREC Section Leader: Steve Carran, ZL2SR, 26 Arawa Road, Haitaltai, Phone 861-815 (home), 859-159 ext. 838 (work).

Deputy Section Leader: J. R. Rumsey, ZL2LZ, 21 Malone Road, Lower Hutt, Phone 696-787 (home), 721-569 ext. 768 or 712 or 898 (work)

Meeting Information: Third Tuesday each month (except December) at 7.30 p.m.

Other Information: Projects Officer: Mike Kerr, ZL2BCW, Phone 793-913 (home)

51 EASTERN BAY OF PLENTY

Clubroom Address: Waiewe Street, Whakatane. Clubroom Telephone Number: WHK 87-000. Branch Callsign: ZL1AIU Trustee's Callsign: ZL1AOF

Pranch Net Frequency: 3722 kHz.

Date/Time of Net: Mondays at 1900 hours.

Secretary: E. W. Horwood, ZL1KI.

Postal Address for Correspondence: P.O. Box 2165, Whakatane. President: Alan McDonald, ZL1PI

AREC Section Leader: Murray Evans, ZL1SZ, Henderson Street, Whakatane, Phone 8B-409 (home), 88-249 (work)
Deputy Section Leader: Colin Shaw, ZL1CS, Wedgewood Place, Whakatane, Phone WHK 85-566 (hottas).
Meeting Information: Second Wednesday each month (except January)

ary) at 1930 hours.

Radio Classes Thursdays, Whakatane High School.

Other Information: Contact Officer: Alan McDonald, ZL1PI, Phone WHK 88-967

52 NORTHERN HAWKES BAY

No information received.

53 TE PUKE

State Highway No. 2 next to Te Puke Holiday Park and Hostel. Branch Callsign: ZL1TH, Trustee's Callsign: ZL1BJG.

Branch Net Frequency: 3.6 MHz; 146.8 MHz. Date/Time of Net: HF; Sundays 0900 hours, VHF; Wednesdays 2030 hours

hours.
Secretary: M. Neno, ZL1ARL.
Postal Address for Correspondence: No. 4 Road, R.D. 3. Te Puke.
President: M. F. Gray, ZL1BJG.
AREC Section Leader: E. A. A. Brown, ZL1B, 20 Gilmore Street. Te
Puke, Phone 38-722 (home).
Deputy Section Leader: F. I. Gibbs, ZL1ARZ, 22 Fairview Place. Te
Puke, Phone 39-643 (home).
Meeting Information: Second Tuesday each month at 1930 hours at
Clubrooms. Committee: First Saturday afternoon each
month; i.e. before each Club meeting.
Radio Classes: Hobbies class Saturdays 1900 hours at Clubrooms.

Radio Classes: Hobbies class Saturdays 1300 hours at Clubrooms. Theory class (as required) Saturdays 1500 hours at Clubrooms.

Other Information: Branch Nets are combined Tauranga/Te Puke, Callsign ZL1TP, ZL1TH depends on Net Controller.

54 PATEA

Branch Callsign: ZL2QF

Trustee's Callsigns: ZL2TLY, ZL2KW, ZL2BJI.
Secretary: D. W. Robinson, ZL2BJI.
Postal Address for Correspondence: P.O. Box 438, Hawera President: Alan Meads, ZL2AHI.

AREC Section Leader: Graeme Bateman, ZL28HD, 54 Murray Avenue. Hawera, Phone 84-793 (home)

Deputy Section Leader: John Gunn, ZL2TLY, Main South Road. Manatahi, Phone 24-127 (home), 24-125 (work). Meeting Information: Third Monday each month at Hawera Primary

School. Repeater Trustees: John Gunn, ZL2TLY; Graeme Palmer, ZL2KW

55 WAITOMO RADIO CLUB

Clubroom Address: Thompson Avenue, Otorohanga, Clubroom Telephone Number: 8907.

Branch Callsign: ZL1(Z

Trustee's Callsign: ZL1BZ

Branch Net Frequency: 3850 kHz: 146,850 MHz kHz. Date/Time of Net: HF: Monday 2000 hours. VHF: Sunday 0900 hours Secretary: Jacki Ellis, ZL1TCP.

Postal Address for Correspondence: P.O. Box 316. Te Kuiti

President: Eric Carter, ZL1IM.

AREC Section Leader: Russell Young, ZL1AZB, 29a George Street, Te Kuiti. Phone 87-359 (home). 88-132 (work)

Deputy Section Leader: Ihian Howitt, ZL1BZ, 15 Frederick Street, Otorohanga, Phone 7349 (home), 8871 (work).

Meeting Information: First Thursday each month (except January) at 7.30 p.m. (8.00 p.m. daylight saving time). Radio Classes: Monday evenings at 7.30 p.m. at Clubrooms at Otoro-

hanga. Repeater Trustees: Russell Richardson, ZL1TUL: Jeff Northcott, ZL1TWA.

56 CHRISTCHURCH WEST AMATEUR RADIO CLUB

Clubroom Address: Holmes Park, English Street, Upper Riccarton. Branch Callsign: ZL3VV

Grandin Gallsign: ZESYV.
Trustee's Callsigns: ZL3BJ, ZL3ACS.
Secretary: R. A. Wise, ZL3ADL.
Postal Address for Correspondence: C/- P.O. Box 31-095. Ilam. Christchurch 4.

President: J. R. L. Walker, ZL3IB

Meeting Information: Meetings held fourth Wednesday of each month at lounge, Oddfellows Lodge Hall, Brake Street, Upper Ric-carton, Premises open 7.30 p.m. Visitors welcome.

Other Information: Morse classes at Holmes Park Clubrooms. Contact phone for Secretary: 499-631 Repeater Trustees: G. Halliburton ZL3GI; M. O. Hely, ZL3TIB

57 TOKOROA

Clubroom Address: Strathmore Park, Tokoroa. Branch Callsign: ZL1AQR.
Trustee's Callsign: ZL1ALS.
Branch Net Frequency: 7025 kHz.
Date/Time of Net: Fridays at 2000 hours. Secretary: Louis Marsh.
Postal Address for Correspondence: P.O. Box 16, Tokoroa.

President: Duncan Frew, ZL1UIO.
AREC Section Leader: George Wilson, ZL1AZC, 1 Kiwi Street, Tokoroa, Phone 69-247 (home), 61-999 (work).
Meeting Information: Third Monday each month (except January) at

1930 hours at the Clubrooms

Repeater Trustees: Erwin Penwarden, ZL1TDV; Neil Walsh, ZL1UGH.

58 HELENSVILLE

In recess.

59 MANGAKINO AMATEUR RADIO CLUB

Branch Callsign: ZL1BBV Trustee's Callsigns: ZL1ATK, ZL2RX. Branch Net Frequency: 7225 repeater. Date/Time of Net: Mondays at 7.30 p.m. Secretary: Alan Wallace, ZL1AMW. Postal Address for Correspondence: P.O. Box 93, Mangakino. President: Dick Millar, ZL1ATK.

AREC Section Leader: Alan Wallace, ZL1AMW, 27 Whakamaru Village, Mangakino, Phone 28-524 (home), 28-217 (work),

Deputy Section Leader: Warren Harland, ZL1UML, 23 Maraetai Village, Mangakino, Phone 28-810 (home), 28-039 (work).

Meeting Information: Held in members' homes—contact Secretary for information.

Radio Classes: As required—contact Secretary.
Repeater Trustees: Dick Millar, ZL1ATK; Alan Wallace, ZL1AMW

60 TAUPO

Clubroom Address: Taupo County Depot, Spa Road, Taupo, Clubroom Telephone Number: 84-602. Branch Callsign: ZL1BCO. Trustee's Callsign: ZL188L Branch Net Frequency: 675 repeater Date/Time of Net: Mondays at 2200 hours. Secretary: Ian Greaves, Zl.1BYV. Postal Address for Correspondence: 28 Acadia Bay Road, Taupo. President: John Bowsrs, ŽL1APM. AREC Section Leader: Mery Taylor, ZL1BBL, 9 Earle Place, Acada Bay, Taupo, Phone 88-281 (home). Deputy Section Leader: John Bowers, ZL1APM, 104 Hinemoa Avenue, Taupo, Phone 89-601 (home), 48-216 (work). Meeting Information: Meetings held at Branch Clubrooms on first Thursdays of month at 2130 hours. Repeater Trustees: Peter Butcher, ZL1BFA; lan Greaves, ZL1BYV.

61 CENTRAL OTAGO

Clubroom Address: Alexandra Fire Station, Centennial Avenue. Branch Callsign: ZL400. Trustee's Callsigns: ZL4DJ, ZL4GG. Branch Net Frequency: 3660 kHz. Date/Time of Net: Tuesdays at 8 p.m. Secretary: D. Mulder, ZL2UAV.
Postal Address for Correspondence: 4 Schaumann Street, Alexandra. President: Peter Helms, ZLATAS.

AREC Section Leader: Ewan C. Mason, ZLATKS, 49 John Street, Ranfurly, Phone RNF 146-D (home), RNF 146-M (work).

Deputy Section Leader: Jim Aldridge, ZLATKJ, 48 Lanes Road, Alexandra, Phone 6677 (home), Clyde 878 (work). Meeting Information: Second Tuesday each month at Clubrooms. Repeater Trustees: A. Blee, 2L4THT; J. Richardson, ZL4JM.

62 REEFTON-BULLER

Clubroom Address: 8 Queen Street, Westport. Branch Callsign; ZL3WP. Branch Callsign; ZL3WP.
Trustees' Callsigns: ZL3AFN, ZL3ADB.
Branch Net Frequency: 3.880 MHz.
Date/Time of Net: Sundays at 8 p.m.
Secretary: G. W. Lobb, ZL3PB.
Postal Address for Correspondence: 64 Peel Street, Westport, Phone

7461.

President: W. J. Currie, ZL3TJ.

AREC Section Leader: J. Griffiths, ZL3AFN, 105 Brougham Street, Westport, Phone 8399 (home), 7259 (work).

Deputy Section Leader: G. Crase, ZL3ADB, 59 Wakefield Street, Westport, Phone 7116 (home), 7259 (work).

Meeting Information: First Monday each month (except January) unless Statutory Holiday, then next Monday.

Radio Classes: Check with Secretary for instruction and hooks available.

Radio Classes: Check with Secretary for instruction and books available

Other Information: Repeater frequency 675. (Also channel B AM). Repeater Trustees: ZL3AFN; ZL3ADB.

63 UPPER HUTT

Clubroom Address: Rear of Upper Hutt City Council Buildings, Fergusson Drive, Upper Hutt (next to Civil Defence Headquarters).

Clubroom Telephone Number: 288-769 ext. 847 (day) 288-764 (even-

ings). Branch Callsign; ZL2VH Trustee's Callsign: ZL2ACT Branch Net Frequency: 730; 860. Date/Time of Net: Continuous, Secretary: Peter Norden, ZL2SJ.

Postal Address for Correspondence: P.O. Box 40-212, Upper Hutt.

President: Norm Cuttriss, ZL2IR.

AREC Section Leader: Geoff Smith, ZL2BDW, 1299 Fergusson Drive, Upper Hutt, Phone 268-866 (home), 673-154 (work). Deputy Section Leader: Jim Meachen, ZL2BHF, 31 Perry Street.

Silverstream, Phone 278-694 (home), 666-969 (work).
Meeting Information: First Monday of each month (except (January). Radio Classes: Held between March and April. Contact Secretary for current information.

Other Information: Contact Officer: ZL2AKV, Phone 282-170 (daytime only).

Repeater Trustees: Gavin Smith, ZL2ACT.

64 NORTH OTAGO

Clubroom Address: Reservoir Road, Oamaru. Branch Callsign: ZL4OU. Trustee's Callsign: ZL4FE Branch Net Frequency: 3850 kHz; Oamaru 670. Secretary: D. J. Browne, ZL4TFS. Postal Address for Correspondence: 23 Hayle Street, Oamaru. President: N. McLeod, ZL4THN. AREC Section Leader: D. L. Bokser, ZL4TFF, 3 Earn Street, Oamaru, Phone 45-480 (home), 47-444 (work).

Deputy Section Leader: A. J. Craig, ZL4KM, 3 Milner Street, Oamaru, Phone 71-995 (home), 47-444 (work).

Meeting Information: Second Monday each month.

Other Information: Contact Officer: D. L. Bokser, 3 Earn Street.

Oamaru, Phone 45-480.

Repeater Trustees: A. Craig, ZL4KM; N. McLeod, ZL4THN; N. McConnochie, ZL4FE.

65 PAPAKURA RADIO CLUB (Inc.)

Clubroom Address: 2a Wood Street, Papakura.

Clubroom Telephone Number: 299-8871 (Bus.), 299-8874 (A/H)

Branch Callsign: ZL1VK.

Trustee's Callsign: ZL1AKY

Branch Net Frequency: 3,755 MHz; 146,475 MHz,
Date/Time of Net; HF: Sunday mornings 0900 (local). VHF: Sunday mornings 0930 (local). Secretary: L. A. F. Stockley, ZL1TZV

Postal Address for Correspondence: P.O. Box 397, Papakura. President: M. Passau, ZL1AKX.

President: M. Passau, ZLTAKA.

AREC Section Leader: M. Passau, ZLTAKX, P.O. Box 628, Papakura, Phone 298-4575 (home).

Deputy Section Leader: R. Gamble, ZLTBNQ, 11a Sunnypark Avenue. Papakura, Phone 299-6189 (home), 298-5662 (work).

Meeting Information: Second Wednesday of each month at 1930 hours (local). AREC Section: Meets Glubrooms fifth Wednesday nesay of each month (where appropriate) in Clubrooms at 1930 hours (local).

Other Information: Newsletter Editor: Dave Johnston, ZL1AMN. Awards: Carol Johnston, ZL1AJL, P.O. Box 397, Papakura.

66 AUCKLAND VHF GROUP (Inc.)

Clubroom Address: Hazel Avenue, Mt. Roskill, Auckland.

Branch Callsign: ZL16Q Trustee's Callsign: ZL1BPR

Branch Net Frequency: 146,900 MHz. Date/Time of Net: Sundays at 8.15 p.m.

Secretary: Julie Cooke, ZL1UEX

Postal Address for Correspondence: P.O. Box 10-138, Balmoral, Auckland 4.

President: Vaughan Henderson, ZL1TGC. AREC Section Leader: D. Webster, ZL1CY, 46 Speight Road, Kohimarama, Auckland 1, Phone 555-554 (home), 737-999 ext. 8564 (work).

Deputy Section Leader: Dave Dingley, ZL1TIA, 2139 Great North Road, Avondale, Auckland 7, Phone 889-394 (home), 885-730 (work).

Meeting Information: Second Mondays of each month at 7.30 p.m. Meeting Information, Second Mondays of each Information, Second Mondays of each Information and Programmar. Other Information: Contact phone numbers: 418-1071 or 478-7549. Repeater Trustees: Colin McKenzie, ZL1ARC; Quentin Foreman, ZL1BPW.

67 KAWERAU AMATEUR RADIO HOBBIES CLUB

Clubroom Address: ATC Hall, Onslow Street, Kawerau.

Branch Callsign: ZL1KW Trustee's Callsign: ZL1BGE

Secretary: R. J. Dyer, ZL1UMC. Postal Address for Correspondence: 5 Browne Stret, Kawerau.

President: J. D. Fitzpatrick, ZL1TYC.

AREC Section Leader: G. R. Whitwell, ZL1BGE, 274 River Road,
Kawerau, Phone 7175 (home), 7799 (work).

Deputy Section Leader: D. McLellan, ZL1BPV, 1 Short Street, Kawerau, Phone 8277 (home).

Meeting Information: Third Wednesday of each month at 7.30 p.m.

Other Information: Contact phone numbers: Secretary KEU 6199: President KEU 7159

Repeater Trustee: Edgecumbe 700, G. R. Whitwell, ZL1BGE,

68 NORTH CANTERBURY AMATEUR RADIO CLUB

Clubroom Address: Barough Council Yard, Percival Street, Rangiora. Branch Callsign: ZL3RR,

Trustee's Callsign: ZL3OC

Branch Net Frequency: 3665 kHz.

Date/Time of Net: Monday preceeding second Thursday of each month at 8.30 p.m

Secretary: G. H. Gillman, ZL3QR. Postal Address for Correspondence: P.O. Box 89, Rangiora.

President: Mrs A. S. McMaster, ZL3VR, AREC Section Leader: Mrs A. S. McMaster, ZL3VR, Greens Road, R.D. 1, Kaiapoi, Phone 8278 (home).

Meeting Information: Second Thursday of each month (except January) at 7.30 p.m.

Radio Classes: Tuesday evenings at Hawarden High School, Wednesday evenings at Clubrooms, Rangiora

69 KAPITI

Clubroom Address: McLean Street, Paraparaumu Beach (above Moeller Menswear).

Clubroom Telephone Number: 87-132.

Branch Callsign: ZL2KB. Trustee's Callsign: ZL2MC

Branch Net Frequency: 146,525 MHz. Date/Time of Net: Sundays at 8.00 p.m. Secretary: Peter Scott, ZL2TVO.

Postal Address for Correspondence: P.O. Box 1608, Paraparaumu Beach.

President: Hank Murdoch, ZL2BJZ,

AREC Section Leader: Dave Scholfield, ZL2ARD, 34 Kiwi Road, Raumati Beach, Phone (058) 88-841 (home) (058) 85-146 (work).

Deputy Section Leader: Len Blackley, ZL2TFP, 26 Kaitawa Crescent, Paraparaumu, Phone (058) 87-048 (home), (058) 87-048

Meeting Information: Alternate Wednesdays at 8.00 p.m. at Clubrooms

Radio Classes: Contact Hank Murdoch, ZL2BJZ, Phone (058) 88-918. Repeater Trustees: 685—Len Blackley, ZL2TFP, 885—Len Blackley, ZL2TFP; Steven Jepson, ZL2TUV.

70 FEILDING RADIO CLUB

Clubroom Address: Community Centre, Fergusson Street, Feliding

Clubroom Telephone Number: 35-548.

Branch Callsign: ZL2AMR. Trustee's Callsign: ZL2PT.

Secretary: A. J. Abel, ZL2QR

Postal Address for Correspondence: P.O. Box 416, Feilding

President: G. J. Hitchman, ZL2BNA.

AREC Section Leader: G. J. Hitchman, ZL2BNA, Colyton Road, Feitding, Phone 35-847 (home).
Deputy Section Leader, A. J. Abel, ZL2QR, 20 Ranfurly Road, Felid-

ing. Phone 36-538 (home).

Meeting Information: Second Monday each month in Clubrooms at

8.00 p.m. Radio Clases: Contact Secretary.

71 RODNEY

Clubroom Address: Civil Defence Buildings, School Road, Wellsford.

Clubroom Telephone Number: WFD 8139

Branch Caltsign: ZL18YT

Trustee's Cattsians: ZL1AHK, ZL1AZU

Branch Net Frequency: 3740 kHz.
Date/Time of Net: Sundays at 0900 hours.

Secretary: B. C. Nelson, ZL1AZU.

Postal Address for Correspondence: 59 Percy Street, Warkworth.

Postal Address for Correspondence: 59 Percy Street, Warkworth.
President: D. S. Brown, ZL1UNR.
AREC Section Leader: R. G. Sanson, ZL1TBG, 57a Bertram Street,
Warkworth. Phone WW 8474 (home), WW 8059 (work).
Deputy Section Leader: L. Vujicich, ZL1TTY, Goatley Road, Warkworth, Phone WW 8290 (home).

Meeting Information: Second Wednesday each month (except January and December) at 2000 hours. Venues vary between Clubrooms Wellsford and County Office Warkworth.

Radio Classes: Support with TCI Course.

Other Information: Contact Officers: Warkworth, Ron Dawson, Phone WW 7111 (home), WW8112 (work); Wellsford, Alan Dale, Phone WFD 8938 (home).

Repeater Trustees: W. Tester, ZL1AHK, Phone WW 7299; A. Dale, ZL1ABL, Phone WFD 8938.

72 OPOTIKI RADIO CLUB No information received

73 NORTHERN WIRDA ELECTRONICS CLUB No information received.

74 WELLINGTON VHF GROUP (Inc.)
Clubroom Address: MED Caleterla, Webb Street, Wellington.
Branch Callsign: ZL2WA. Brain Callsign: ZLZWA.
Trustee's Callsign: ZL2ARW.
Branch Net Frequency: Wellington 850; Belmont 710.
Date/Time of Net: Continuous.
Secretary: Gail and Murray Milner, ZL2NZ and ZL2LB.

Postal Address for Correspondence: P.O. Box 12-259, Wellington North.

President: David Andrews, ZL2SX.

AREC Section Leader: John Rumsey, ZL2LZ, 21 Malone Road, Lower Hutt, Phone 695-787 (home), 721-569 (work). Deputy Section Leader: John Yaldwyn, ZL2TRV, 107 Kampur Road,

Broadmeadows, Phone 783-222 (home), 856-729 (work). Meeting Information: Last Thursday of each month at 7.30 p.m.

Radio Člasses: Contact Secretary.

Other Information: Contact Officer: Ken Johnston, ZL2TTJ, Phone

795-786.

Repeater Trustees: Peter Williams, ZL2ARW: Terry Osborne, ZL2BAC: John Yaldwyn, ZL2TRV; Doug Ingham, ZL2TAR.

75 QUEENSTOWN

Branch Callsign: ZL4NQ. Trustee's Callsign: ZL4KW. Secretary: Mark Nicholls.

Secretary: Mark Nicholls.

Postal Address for Correspondence: P.O. Box 79, Wakatipu.

President: Murray McCutcheon, ZL4OA.

AREC Section Leader: Russ Watson, ZL4JW, 13 Oregon Drive, Kelvin Heights, Phone 1229R (home), 538 (work).

Deputy Section Leader: Doug Virtue, ZL4PV, P.O. Box 18, Kingston, Phone Garston 585 (home).

Meeting Information: Irregular meetings second Thursday of each month at 8.00 p.m. For further information contact Secretary Phone 297 (work) or members on Queenstown 685 repeater.

Repeater Trustees, Russ Watson, ZL4JW; Dave McLaren, ZL4TIQ

76 KAIKOURA RADIO CLUB

76 KAIKOURA HADIO CLUB
Clubroom Address: 90 Churchill Street, Kaikoura.
Clubroom Telephone Number: 100.
Trustee's Callsigns: ZL3PZ, ZL3GF.
Branch Net Frequency: 690 MHz.
Date/Time of Net Saturdays at 7.30 p.m.
Secretary: W. A. Bool, ZL3GF.
Postal Address for Correspondence: Cl. P. D. Boy Postal Address for Correspondence: C/- P O. Box 24, Kaikoura. President: C. E. Evans, ZL3HM, AREC Section Leader: W. B. Jackson, ZL3PZ, 42 Churchill Street Phor a 153 (work). Meeting Information: Second Monday each month. Repeater Trustees: W. B. Jackson, ZL3PZ; W. A. Bool, ZL3GF

77 TE AROHA AND DISTRICTS RADIO CLUB

Meeting Information: Third Tuesday each month

Clubroom Address: Rewi Street, Te Arpha. Clubroom Telephone Number: 48-026. Clubroom Telephone Number: 48-026.
Branch Callsign: ZL18SM.
Trustee's Callsigns: ZL18JK.
Branch Net Frequency: 3883 kHz.
Date/Time of Net: Tuesdays 0830 NZST.
Secretary: D. G. Horn, ZL1UNX.
Postal Address for Correspondence: P.O. Box 24, Te Aroha.
President: J. H. Sanne, ZL1VH.
AREC Section Leader: B. W. McConnochie, ZL18WK, 8 Farmer
Street, Te Aroha, Phone 48-871 (home), 48-189 (work).
Deputy Section Leader: S. A. Abbot, ZL1UIG, 9 Harina Street, Te
Aroha, Phone 49-832 (home), 49-083 (work).
Meeting Information: Third Tuesday each month. 78 FAR NORTH DISTRICTS AMATEUR RADIO CLUB

Branch Callsign: ZL1BG.

Branch Callsign: ZL1BG.
Trustee's Callsigns: ZL1BAY, ZL1AZJ.
Branch Net Frequency: Far North 710; 3.665 MHz.
Date/Time of Net: HF; Sundays at 8 p.m. VHF; Thursdays at 8 p.m.
Secretary: Rusself Shackleton, ZL1BQK.
Ostal Address for Correspondence: P.O. Box 81, Kaitaia.
President: Stan Sutherland, ZL1AZJ.
AREC Section Leader: Stan Sutherland, ZL1AZJ, Suaroa Road, Kaitaia.
President: Stan Sutherland, ZL1AZJ, Suaroa Road, Kaitaia.

AREC Section Leader: Stain Sumeriant, ZETAZJ, Kuaroa Road, Kartaia, Phone 14970 (home).

Deputy Section Leaders: Kaitaia: Brian Tarlton, Zt.18AY, 8 North Road, Kaitaia, Phone 961 (home). Kerikeri: Don Cottle, ZL1HH, Rainbow Falls Road, R.D. 2, Kerikeri: Phone 79-086 (home). Kaikohe: Dan Fletcher, ZL1THE: 24 Guy Road, Kaikohe: Phone 604 (home). Kaikoha, Phone 609 (home)

Meeting Information: Second Wednesday each odd month in member's homes

Radio Classes: Contact Brian Tarlton, Phone 961 Kaitaia. Repeater Trustees: Far North 710—Stan Sutherland ZL1AZJ; Brian

Tarlton, ZL1BAY, Kalkohe 715—Brian Tarlton, ZL1BAY; Trevor Crossett, ZL1UBQ.

79 HOWICK AND DISTRICTS RADIO CLUB

79 HOWICK AND DISTRICTS RADIO CLUB
Clubroom Address: Wellington Street, Howick.
Branch Callsign: ZL1T8
Trustee's Callsign: ZL1AOC.
Branch Net Frequency: 3.820 MHz.
Date/Time of Net: Sundays at 0900 hours.
Secretary: Bert Toomey, ZL1AQX,
Postal Address for Correspondence: P.O. Box 82170, Highland Park.
President: Toom Marsdon, ZL1 M.

President: Tony Marsden, ZL1EM. Meeting Information: First Wednesday each month in at 7.30 p.m. Other Information: VHF Net 146.575 MHz Wednesdays at 2000 hours Repeater Trustee: A. M. M. Hamilton, ZL1AOC

80 HIBISCUS COAST AMATEUR RADIO CLUB (Inc.)

Clubroom Address: Leighton Heights, Whangaparaon Road, Whangaparaoa

Clubroom Telephone Number: HBC 45-195 Branch Callsign: ZL1HO Trustee's Callsigns: ZL1AG, ZL1APC

Branch Net Frequency: 3720 kHz.
Date/Time of Net: Sundays at 0900 hours.

Secretary: A. Kinnell.

Postal Address for Correspondence: P.O. Box 65, Whangaparapa. President: Trevor Ferguson, ZL1FU.
AREC Section Leader: Trevor Ferguson, ZL1FU, 55 Cochrane Avenue.

Arkles Bay, Whangaparaoa, Phone HBC 47-423 (home). AK 275-0789 ext. 718 (work).

Deputy Section Leader: Jack Freeman, ZL2VU, 88 Marellan Drive Red Beach, Phone HBC 65-115 (home).

Meeting Information: Generally fourth Monday each month (except December when second Monday) at 7.30 p.m. Committee meetings second Wednesday each month at 7.30 p.m.

81 WAIKATO VHF GROUP INC.

No information received.

82 SOUTHERN WAIRARAPA AMATEUR RADIO CLUB

Clubroom Address: P.O. Box 163, Featherston Branch Callsign: ZL2BPP. Trustee's Callsign, ZL2QW. Secretary: Pauline Carr, ZL2QW. Postal Address for Correspondence: P.O. Box 163. Featherston. President: Neil Rait, ZL2BLM. Meeting Information: To be decided. Other Information: Information re membership etc. contact ZL2QW Phone FSTN 89-576 or ZL2UE8, Phone Carterton 7867.

AFFILIATED GROUP HAWKES BAY VHF GROUP (Inc.)
Branch Net Frequency: Napier 725; UHF repeater 438.70 MHz (870) Date/Time of Net: Tuesday 2030 hours. Postal Address for Correspondence: P.O. Box 4030, Napier

Meeting Information: Last Sunday in month at Branch 25 Clubrooms at 1930 hours and alternate months at Irongate Kindergarten Flaxmere

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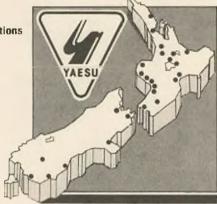
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Radio Doctor Shop 9-11 Moxham Avenue Halaitai, WELLINGTON-ZL2AHS

Lankshear Electronics 16 Scott Street BLENHEIM-ZL2AZK

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☐ Remittance MUST accompany all orders.

☐ Some publications may be out of stock at time of ordering. All orders will be recorded and members will be advised of approximate delivery date.

(Overseas Postage Extra)

NZART PUBLICATIONS DEPARTMENT

P.O. Box 40-525 UPPER HUTT NEW ZEALAND

Video Tape Library

Listed below are current titles of video tapes held in the Headquarters video tape library for loan to Branches. The only charge is for postage. Each tape comes within the 500 gram non-standard second-class mail rate at 60c and this can be multiplied up for more than one tape posting.

However, a quick turnaround of tapes is essential for the scheme to operate. Don't put the tape away in a drawer after your Branch meeting. Have it in the post the same evening. Once Branch held on to a tape for six months and one other circulated among Branches without advising Headquarters.

Titles are:

- 1. All China RDF Competition.
- The Happy Flyers EDF.
- 3. Moving up to Amateur Radio plus A Ham's Wide World.
- 4. The Aerial Circus with Dud Charman, G6C.L.
- 5. Amateur Radio's Newest Frontier (W5LFL).
- 6. Yaesu Productions.
- 7. NAREC 50, Branch 24.
- 8. Communications-The Hidden Revolution by NZPO.
- 9. Integration and Launch of AMSAT OSCAR-10.

Applications to:

R. N. Copeland, ZL2AKV, General Secretary.





R. E. KNOWLES, ZLIBAD

The Frequency Management Group is responsible to Council for the development of bandplans and recommendations for each Amateur band, the drafting of policy documents pertaining to operation on each band, the preparation of documentation for World Administrative Radio Conferences, and the co-ordination of Amateur repeaters and beacons in New Zealand.

Members are: Fred Johnson, ZL2AMJ (Chairman); Jamie Pye, ZL2NN (Secretary); Merv Passau, ZL1AKX; Tom Bevan, ZLITHG; Tcd Barnes, ZL2TAX; David Andrews, ZL2SX; and Craig Crawford, ZL3TLB. Technical Consultant: Doug Ingham, ZL2TAR.

All correspondence should be addressed to:

SECRÉTARY, FMWG, 33 Wyndham Road, Pinehaven, UPPER HUTT.

The NZART Monitoring Service is part of a world-wide organisation of Amateur monitoring stations that are concerned with the activities of non-amateur stations in amateur

The aim of the Monitoring Service is the preservation of the Amateur exclusive bands and the protection of Amateur privileges in shared bands.

The objects of the Monitoring Service is to identify, report, and have removed, from Amateur Bands all non-amateur stations operating in breach of the ITU Convention and

Reports on "Intruders" should be sent to ZLIBAD—Call Book address.

Ionospheric Prediction Service

1. The ionospheric prediction charts published monthly in Break-In are compiled from data supplied by the lonospheric Prediction Service of the Australian Department of Science and Technology. These show in graphical form both the optimum working frequency (OWF) and the absorption limiting frequency (ALF) for a representative selection of circuits from Wellington.

2. The OWF can be taken to be the highest frequency that will be usable for 90 per cent of the time. It is normally 15 per cent lower than the predicted maximum usable frequency (MUF). Generally, the OWF will be within ± 15 per cent of the predicted value unless a large ionospheric disturbance occurs. However, there will be occasions when frequencies considerably above the predicted fre-

quency will be usable.

3. The ALF (sometimes referred to as the lowest usable high frequency) is the frequency below which normal communication on a given path is not possible because of absorption in the ionosphere. The value of the ALF is subject to considerable spread and cannot be precisely defined. At frequencies near the ALF, reception depends largely on the radiated power, receiver sensitivity and signal-to-noise ratio.

4. From the foregoing it can be seen that for any particular circuit, communication should be possible on all frequencies between the OWF and the ALF. Where the ALF is shown as tending to zero, the transmission path concerned will be in darkness and communication at that time could be possible on all bands below the OWF.

5. The circuits listed in *Break-In* have been chosen to give as wide a coverage as possible, noting that the predictions are valid for places up to some hundreds of kilometres from the cities designated. For places outside these limits, it may be possible to derive an approximate figure for places

in the same general area or direction.

- 6. Except as shown, predictions are for the shortest route to the distant point. Note that the short route to London lies approximately northwest and the long route approximately southeast from New Zealand, However, as southwestern Europe lies nearly at the antipodes of New Zealand, other transmission paths to this area are possible under certain conditions. Long route propagation to other areas may also be possible at times. A great circle azimuthal map based on Wellington will be found helpful for DX work.
- 7. Finally, there is no substitute for experience in DX operating, and necessarily simplified predictions extending over a whole month can only be useful as a general guide. Experience will soon confirm that there are considerable variations from the predicted values.

Morse Code Training

by PETER SMITH, ZLIARB

Sooner or later, every would-be amateur is faced with the problem of learning the Morse Code. How this is attempted will, of course, depend on the student's particular circumstances but it has now been established that for the majority of learners, any problems associated with mastering the code stem directly from the manner of their introduction to it.

In the past it was considered necessary to learn the letters by sight before attempting to recognise their sounds. This led to the creation of what were called "plateuax" or barriers at particular speeds or levels of attainment. They were often so difficult to overcome that many students considered themselves incapable of learning what is basically a simple set of 30 or so sounds.

The only method that ensures success is one based on the aural rather than the visual senses and the set of introductory cassettes available from Premier Learning Systems does just this. Though not an official NZART project or activity the manager of Premier Learning Systems does offer NZART members an attractive discount upon proof of membership.

These tapes do not make learning CW easy or effortless but for the candidate forced to study alone or at inconvenient times the programme is undoubtedly the best value available in New Zealand and is only a fraction of the cost of comparable overseas systems.

The current range of tapes include:			
Identity	Content	Normal	NZAR1
C-ONE	Introduction to Morse. Five		
	C-60 cassettes covering the		
	alphabet in 20 sessions with		
	spoken accompaniment	\$20.00	\$16.00
C-TWO	Random 5-letter groups with a		
	printed checklist, 7-10 wpm	\$4.50	\$3.50
C-THREE	Random 5-letter group with a		
	printed checklist, 10-15 wpm	\$4.50	\$3.50
C-FOUR	Plain language texts in three		
	minute segments with spoken		
	checklist, 8-12 wpm	\$4.50	\$3.50
C-FIVE	Plain language text in three		
	minute segments with spoken		
	checklist 10-15 wpm	\$4.50	\$3.50
C-SIX	Numerals 0-9 with full and		
	abbreviated zero and spoken		
	accompaniment	\$4.50	\$3.50
C-SEVEN	Random letters, figures and		
	some special characters with		
	printed checklist. At the		
	higher speeds this is a difficult		
	tape but does provide excel-		
	lent training for DX working.		
	Speed range 10-15 wpm	\$4.50	\$3.50

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The NZART QSL Bureau

How the QS1. Bureau operates

The purpose of the NZART QSL Bureau is to facilitate the exchange of QSL cards between NZART members and with radio amateurs in other countries.

Most national radio societies operate a QSL bureau for the benefit of their members. Some make an extra charge for this service, while others, of which NZART is one, provide it free as a service to their members.

When the cards arrive at the bureau those destined for abroad are sorted into countries, tied into parcels and despatched in bulk to the appropriate overseas QSL bureaux which are operated by member societies of the International Amateur Radio Union.

The NZART QSL Bureau is one of the network of bureaux established throughout the world by the IARU to provide a service to all members. Cards are sent regularly to these bureaux from New Zealand. However, there are many countries without bureau facilities and amateurs operating there usually have QSL managers.

NZART Bureau cannot guarantee to deliver cards to these amateurs or their managers. To assist the bureau in these cases please write the QSL manager's callsign on the back of

Use of the bureau is not claimed to be the quickest way to exchange cards but it is the cheapest.

A free service is provided by NZART.

For the service to continue members are requested to follow the simple rules which are designed to help the voluntary bureau staff,

Outward Cards

Send all QSL cards for onward transmission to the QSL Manager at the address below:

NZART OŚŁ BUREAU P.O. BOX 40-212 **UPPER HUTT**

When sending your cards to the bureau please follow these

- (1) Print the callsign of the person to whom the card is addressed clearly and in large letters on both sides of the card so that it may be seen at a glance.
- (2) Sort all cards

(a) into New Zealand Call Areas, and

- (b) into USA Call Areas (W1/K1/AA1/N1, W2/K2) AA2/N2), and
- (c) Australian Call Areas, and
- (d) all others into alphabetical order.
- (3) Pack all cards the same way round.

(4) Pack the cards in securely; the use of flimsy envelopes may result in cards breaking loose in transit.

(5) Weigh all packets carefully before despatch in order to

ensure that adequate postage is paid.

(6) Choose QSL cards which do not exceed normal postcard dimensions (140 \times 90 mm). Large cards invariably have to be folded, while small cards are difficult to handle. Photocopy paper is not a substitute for cards and will not be accepted.

(7) Enclose either the address label from the current Break-In

wrapper OR 10c for each card enclosed.

Cards received without the wrapper will be treated as non-members' cards and charged accordingly.

Inward Cards

Cards for despatch to stations within New Zealand are sorted into one of the following groups:

ZL3/4

Z.I.2 ZL5 to 9

and sent to a sub-bureau where the sub-manager associates

the cards with the envelopes he holds on file.

The sub-bureaux are arranged in callsign groups NOT areas. If you are a ZL! living anywhere in New Zealand your cards are held by the ZL1 sub-bureau. Similarly with ZL2, ZL3 and ZL4.

Addresses of Sub-Bureaux

ZL1—J. Small ZL1KQ. 32 Paddington Street, Glen Innes, Auckland 6.

ZL2-Titahi Bay Branch, NZART 100 Tireti Road.

Titahi Bay.

ZL3/4-T. J. McKenzie ZL3RK.

73 Cygnet Street, Christchurch 9

ZL5/9—J. Reed ZL2AH, P.O. Box 40-212, Upper Hutt,

Collecting cards from the Bureau

Supply your QSL Sub-Bureau with stamped, selfaddressed envelopes (of size not less than 170×170 mm), preferably manila.

Make sure your address is legible on the self-addressed, stamped envelope. Print your callsign on the front of the envelope. The sub-bureau deals only with callsigns not with operator's names,

Any specific requests for forwarding cards should be

printed on the back of the envelope.

These instructions can be: "send when 20 cards" "send when weighs 250 g" "send end of month July"

or similar requests.

Envelopes should be numbered and "Last Envelope" marked on one so that the recipient automatically knows when to renew the supply. Envelopes stamped with higher value stamps are not sent until the appropriate postage weight of cards has accumulated.

Packet post is the most economical rate for sending cards to the bureau. Make sure that the postage stamps are the correct value. Remember the bureau has to pay double the

deficient postage plus a surcharge.

General Notes

(1) Cards for amateurs who have neglected to send envelopes are retained for six months, after which the cards are destroyed. Amateurs who do not wish to collect cards should notify the QSI. Bureau accordingly.

(2) Overseas members of NZART in countries where there is no QSL service operated by the IARU member society for that country, may send their eards to the NZART

OSL Bureau for distribution.

(3) Overseas amateurs who are not members of NZART may send cards addressed to ZL stations only direct to

the NZART QSL Bureau.

(4) The facilities of the NZART OSL Bureau are available both to transmitting and receiving members of the Association. Listeners are reminded, however, that their reports should contain sufficient information to be of genuine value to the transmitting members concerned. Reception reports relating to short-wave broadcasting stations cannot be accepted.

(5) Licensed ZL amateurs who are non-members of NZART may send stamped self-addressed envelopes to the submanager for collection of their cards.

(6) The outgoing service is available to non-members for 10c per card.

(7) Cards received without the Break-In wrapper or the current remittance will not be processed.

(80 USA has 10 bureaux, Australia has 9 bureaux. Please sort cards accordingly. Unsorted cards receive low priority.

Alaska	Czechoslavakia	Hong Kong	ING QSL BUREAU Montserrat	South Africa
Algeria	Denmark	Hungary	Morocco	Spain
Andorra	Diibouti	Iceland	Nauru	Sri Lanka
Angola	Dominica	India	Netherlands	St. Lucia
Antigua	Dominican Republic	Indonesia	Netherlands Antilles	St. Vincent
Argentina	Ecuador	Iraq	New Caledonia	Sudan
Austral/French	Egypt	Iran	Nicaragua	Surinam
Antarctic Islands	El Salvador	Ireland	Nigeria	Svalbord
Australia	Faroe Island	Israel	Northern Ireland	Swaziland
Austria	Fiji Islands	Italy	Norway	Sweden
Azores	Finland	Ivory Coast	Oman	Switzerland
Bahamas	France	Jamaica	Pakistan	Syria
Bahrain	French Guiana	Japan	Panama	Thailand
Bangladesh	French Oceania	Jordan	Papua New Guinea	Togo
Barbados	Gambia	Kenya	Paraguay	Tonga
Belgium	German	Korea	Peru	Transkei
Bermuda	Democratic Rep.	Kuwait	Philippines	Trinadad & Tobago
Bolivia	German Federal Rep.	Lebanon	Poland	Turkey
Brazil	Ghana	Liberia	Portugal	USA
Brunei	Gibraltar	Liechenstein	Puerto Rica	Uruguay
Canada	Great Britain	Luxembourg	Rhodesia	USSR
Canal Zone	Greece	Madeira Island	Romania	Vanuatu
Cape Verdi Republic	Greenland	Malawi	Rwandi	Vatican
Cayman Island	Guhan	Malaysia	Samoa	Venezuela
Chile	Guadaloupe	Malta	San Marino	Virgin Islands
China Colombia	Guatemala	Marshall Islands	Scotland	Wales
	Guyana	Mauritius	Senegal	Western Samoa
Cook Islands Costa Rica	Haiti	Mexico	Sierra Leone	Yugoslavia
Cuba	Hawaii	Monaco	Singapore	Zaire
Cyprus	Honduras	Mongolia	Solomon Islands	Zambia

STANDARD SPECIFICATION FOR OSL CARDS

Purpose

(a) A QSL card is the written confirmation of a contact between two amateur radio stations. To some it is the ultimate courtesy of a QSO.

(b) This specification has been prepared to help designers of QSL cards ensure completeness and effectiveness within the recommended size.

2. Design

The design falls into three distinct categories:

(a) The radio and station information to be conveyed for

the card to achieve its purpose.

- (b) The dimensions, layout and presentation necessary to ensure a speedy passage through OSL bureaux and postal services which are becoming increasingly auto-
- (c) The artistic additions to "personalise" the card.

3. Information

- (a) Station worked;
 - (i) The words "Confirming QSO with . . . "

- (ii) The callsign of the station worked.
- (iii) Signal report as RS or RST.
- (iv) The date and time in UTC of the QSO.
- (v) Band or frequency in MHz.
- (vi) Mode of transmission as two-way, SSB, etc.
- (b) Your Station:
 - (i) Callsign.
 - (ii) Location and time of contact,
 - (iii) Whether portable, mobile, aeronautical or maritime mobile
 - (iv) Name and postal address.
- (c) It is a good practice to:
 - (i) Have all dat on one side of the card.
 - (ii) Include relevant information for awards, e.g. country, NZART branch, ITU zone, etc.
- (d) The information should be entered on the card so that the longer card axis is parallel to the direction of
- (e) All information should be clear and legible with the callsigns dominant.

4. Dimensions and Layout

To ensure ease of sorting and processing through the QSL bureaux and postal services a QSL card should:

(a) Be "postcard" size. 140×90mm (5½×3½")

(b) Not folded or heavily embossed.

(c) Be printed on 177g/m² pasteboard or similar card. Do not use duplicator or photocopy paper.

(d) Have a space on the front sufficiently large for the callsign of the station contacted to be entered in characters at least 12mm high, and spaces for the information of paragraph 3 to be entered.

(e) The back should preferably be left clear. If anything is printed or written on the back it is essential that the right hand side be kept clear for the callsign of the station to which the card is addressed. (See illustration overleaf.) 5. Artistic Additions

Provided the above essentials are met there is no limit to the artistic embellishment possible, in accepted good taste,

Language

New Zealand stations should use English. The Q code and generally accepted abbreviations may be used. N.B. The correct abbreviation for best wishes is 73.

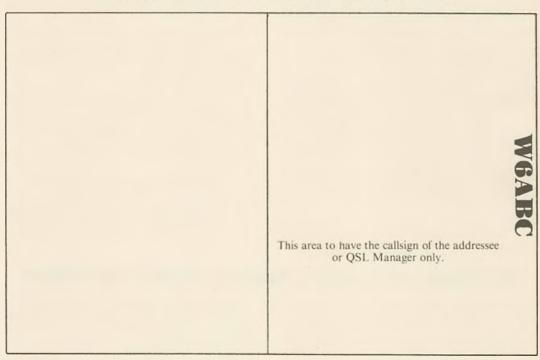
7. Consultation

The services of the NZART QSL Manager are available for advice on any QSL matter at P.O. Box 40-212, Upper Hutt.

Note:

The individual amateur may design a card on any size or dimensions, but cards to be sent to the bureau should conform to the above standard.

MAXIMUM RECOMMENDED SIZE FOR A QSL CARD



Radio Training Scheme

with IAN JEFFERY, ZL4IZ

P.O. Box 96, Balfour

The Radio Training Scheme has several aims. These are: To provide members of NZART with study material to help them to pass the exam for the Amateur Radio Operator's Certificate;

To provide training aids and other assistance;

To give assistance to members who want to further their knowledge of various aspects of their hobby.

To meet these aims, the Radio Training Scheme provides:

Notes on specific subjects including;
Mathematics, Introduction to Digital Logic,

Home Study, Course Syllabuses.

A reprint service for articles appearing in past issues of *Break-In*;

Provision of taped lectures on specialist amateur radio topics, available for Branches to use at meetings, etc.

Details of these services are available from:

Radio Training Scheme, P.O. Box 96,

BALFOUR.

Please include a current Break-In wrapper and SASE.

The Radio Training Scheme also prepares material for publication in *Break-In*, which includes examination questions and answers, construction articles, and notes on topics of interest to beginners.

The NZART Reciprocal Licence Bureau

With appropriate licences and approvals, New Zealand radio amateurs may operate in some overseas countries. This is possible through "reciprocal agreements" between governments, through "Commonwealth recognition", or by guest licences". These three arrangements are distinctly different and apply in different countries in different ways.

It can be a lengthy business to get approval to operate in some countries. A residential qualification of months may be needed. Some countries prohibit portable and hand-held operation and may require that the station installation be inspected and tested. Procedures, rules and bands available vary considerably.

Countries with reciprocal agreements with New Zealand include Sweden, Switzerland, French Republic, United States of America and the Netherlands, Additions to this list can be expected. Countries with Commonwealth recognition include Australia, Canada, and the United Kingdom. Countries with guest licences include South Africa.

Council have appointed Russ Garlick, ZL3AAA, as the co-ordinator for the "NZART Reciprocal Licence Bureau." Should you contemplate an overseas trip, an early enquiry could assist you to obtain overseas operating privileges. Russ keeps information on the requirements and procedures that a ZI, radio amateur should follow to operate in many countries. He can supply the address of the licensing authority with whom you should correspond in most countries, and the address of the IARU amateur radio society. It will be appreciated that a long lead-time is necessary in your dealings with overseas administrators.

Finally, it would be appreciated if you could provide Russ with copies of licences, regulatory brochures, etc., when you return, so that your experience can be used to assist other

The address is: Mr R. A. Garlick, ZL3AAA, 23 Lydia. Street, Greymouth, Remember to tell Russ that you are an NZART member.

A Guide for OVERSEAS AMATEURS to obtain a **NEW ZEALAND LICENCE**

Holders of certificates issued in Australia, Botswana, Canada, Cook Islands, India, Niue, Papua New Guinea. United Kingdom, Zimbabwe and the Irish Republic are recognised as equivalent to Grades I, II or III (New Zealand) as the case may be and granted a licence upon application and payment of a fee, i.e.,

- (a) Less than 12 wpm morse Grade III.
- (b) 12 wpm but no evidence of operator experience. Grade II.
- (c) 12 wpm and proven experience (submissions of a log. photostat of entries proving over 50 contacts, or similar evidence and number of years active on the Air), Grade I.

Those licensed under (a) or (b) obtain higher qualifications by passing the appropriate examination in the usual way.

It is necessary, when applying for a New Zealand licence to produce the following:

- Operator's Certificate.
- (2) A certificate to indicate the morse speed at which the applicant is qualified.
- (3) If no evidence can be submitted, the applicant may sit the examination in the normal way.
- (4) A birth certificate, or evidence of date of birth is
- (5) All applicants must submit a permanent postal address. to where all correspondence can be sent
- (6) All applicants for a licence must give at least TWO WEEKS NOTICE before a licence can be processed.
- (7) Visiting amateurs will be allocated a callsign from the

To Obtain an Austalian Amateur Licence by Visitors

Applicants visiting Australia for up to one year can apply for an equivalent Australian Amateur licence in one of two ways—either in advance, if time permits, or in person direct to the Department of Communications, Radio Regulatory and Licensing Branch of the department in any State, capital, city or radio inspectors' offices in certain major centres.

Whichever method is adopted could result in delays. A copy (endorsed as correct by a person delegated to issue such a licence) or original of the applicant's valid licence and/or certificate is essential. Do not send originals through the post. The licence fee at present is \$18.00.

If advance application can be made, it should be sent to:

The Assistant Secretary, Licensing Policy and Operations Branch, Department of Communications, G.P.O. Box 5412CC, Melbourne, Victoria 3001, AUSTRALIA.

A delay of up to three months could occur before any reply could be expected. The reply would ask the applicant to complete an RB80 application for a licence form and a declaration of secrecy.

Provided documentation is in order there should be no difficulties in obtaining a licence by bona fide visitors. It is not known for certain if New Zealand novice licensees would be able to obtain and Australian Novice Licence but since most of the Australian requirements are lower than those imposed in New Zealand no particular difficulties ought to arise.

For anyone with a New Zealand licence intending to live in Australia for any period of time longer than twelve months there should be no general difficulties because there is a reciprocal agreement in force between the two countries. Much the same application procedures apply as listed above for hong fide visitors from any country including New Zealand.

The kind of licence issued in Australia would be the equivalent of the applicant's home licence. Non-morse licensees would be entitled to an Australian Limited Licence restricted to operations on VHF and upwards. The recipient of an Australian licence would have to conform to Australian amateur band conditions.

To obtain a USA Amateur Visitors Licence

Reciprocal Agreements

Aliens who hold a valid amateur licence issued by their government may apply to the Federal Communications Commission for a permit to operate in the US only if a reciprocal operating agreement exists between the US and the above-mentioned government. Reciprocal agreements are currently held with these 65 countries: Argentina, Australia, Austria, Bahamas, Barbados, Belgium, Belize, Bolivia, Botswana, Brazil, Canada, Chile, Columbia, Costa Rica, Denmark, Dominican Republic, Ecuador, El Salvador, Fiji, Finland, France, Germany (Federal Republic of), Greece, Grenada, Guatemala, Guyana, Haiti, Honduras, Iceland, India, Indonesia. Ireland, Israel, Italy, Jamaica, Jordan, Kiribati, Kuwait, Liberia, Luxembourg, Monaco, Netherlands, Netherlands Antilles, New Zealand, Nicaragua, Norway, Panama, Paraguay, Peru, Philippines, Portugal, St. Lucia, Sierra Leone, Solomon Islands, Spain, Suriname, Sweden, Switzerland, Trinidad, Tuvalu, United Kingdom, Uruguay, Venezuela, and Yugoslavia.

Application

Send a completed FCC Form 610-A to the FCC, Gettysburg, Pennsylvania 17325, USA. Be sure to include a photocopy of your current amanteur licence. You should apply at least 60 days in advance of your need, to allow for ample processing time.

A US citizen living overseas, having an alien licence cannot

obtain a reciprocal permit for operating in the US. Only noncitizens may obtain permits. If an alien becomes a US citizen, the reciprocal permit becomes invalid, and the amateur must then take a US amateur exam and apply for a regular US licence and callsign.

Identification on the Air

You will sign your home (native) call, plus the Morse "i" or phone "portable", followed by the representative prefix of the call area where you are located (for example, LUIAAA/WI and YU7ZZZ KP4). At least once during each contact with another amateur station, you must give your geographical location (in English) as nearly as possible by city and state, commonwealth or possession.

Frequencies and Transmitter Power

You will have all the privileges that you have in your home country as long as they do not exceed the privileges of the Amateur Extra Class licence of the USA.

Period Permit is Valid

The permit is valid for one year, unless your native licence expires sooner. It is renewable.

Copies of FCC Form 610 are available from Information Services Department, ARRI. Headquarters, 225a Main Street, Newing-

ton, CT 06111, USA. (Please enclose SAE and 2 IRCs.)

Statement showing eligibility of Persons holding various Overseas Amateur Licences and Operators' Certificates for Australian Amateur Station Licences under Reciprocal Agreements

Administration	Class of Certificate or Licence Held	Australian Amateur Licence for which Holder is eligible	Remarks
U. Kingdom	British Amateur Licence A British Amateur Licence B	Full Privilege Limited	
USA	Extra Class Licence Advanced Class Licence General Class Licence Technician Class Licence Novice Class Licence	Full Privilege Full Privilege Full Privilege Limited	Not acceptable
Canada	Advanced Amateur Radio Operator's Certificate	Full Privilege	
New Zealand	N.Z. Amateur Operator's Certificate N.Z. Amateur Operator's Certificate (non- morse)	Full Privilege Limited	
Malaysia	Current Amateur Station Licence Current Amateur Station Licence	Full Privilege* Limited*	*Where applicant furnishes acceptable evidence that he has qualified in telegraphy at a speed of 12 or more words per minute. †Where no acceptable evidence is furnished of telegraphy qualifications
Singapore		Same as for Malaysia	
India	Amateur Wireless Telegraphy Station Licence	Full Privilege	
W. Germany	Class B Class C Class A	Full Privilege Limited Novice	Arrangement Arrangement Arrangement



International Amateur Radio

(Prepared by the NZART Overseas Committee)

You, a radio amateur, should be familiar with these two international bodies:

The International Telecommunication Union

The ITU is the highest authority for the regulation of all radio services. It is recognised by the United Nations as the specialised agency responsible for the control of telecommunications. Its Convention has the status of a treaty which is binding on all nations which sign it.

The members of the ITU are countries—some 160 of them, New Zealand is a member and the New Zealand Post Office is the administration which represents New Zealand in ITU

The purposes of the ITU are: to maintain and extend international co-operation for the improvement and rational use of telecommunications of all kinds; to promote development of technical facilities and efficient operation of telecommunications services; and to harmonise the actions of all nations to attain these ends.

The ITU has its headquarters in Geneva, and holds frequent conferences concerning some or all of the radio services. The Amateur Service (which includes the Amateur Satellite Service) is of most interest to us, but the activities of the other services have to be closely monitored too.

The conclusions reached by ITU conferences are the basis for regulations.

The World Administrative Radio Conference held in Geneva in 1979 (WARC-79) gave rise to the ITU Radio Regulations 1982, further revised by the 1983 WARC for the Mobile Services, and now form the ITU Radio Regulations 1985.

All tadio services within the borders of New Zealand are controlled by the New Zealand Radio Regulations and these reflect the ITU Radio Regulations.

The International Amateur Radio Union

The IARU is a voluntary union of amateur radio societies and was founded in 1925. NZART, with more than 120 other societies, is a member. The prime purpose of IARU is the protection of the Amateur Service.

The TARU is controlled by an Administrative Council (AC) which is composed of a President, Vice-President and two representatives from each of the three regions: Region 1 is Europe, the USSR and Africa; Region 2 is the Americas; and Region 3 is the rest of the world.

An International Secretariat (IS) provides the Secretary and administrative services. Any amateur radio society can be nominated to provide the IS; it then has the privilege of nominating the President and Vice-President. Currently the American Amateur Radio Relay League (ARRL) is the IS society.

The "Business" of IARU is transacted at a series of triennial regional conferences arranged so that one is held each year. The member-societies of the region meet at these regional conferences to discuss common problems, to find common solutions, to determine policy, and to otherwise promote the viability of amateur radio in the region. Each individual IARU member society provides input to the international scene through the mechanism of the regional conferences.

New Zealand is in Region 3, and NZART is a founder member of the IARU Region 3 Association, founded in 1968. The Association Secretariat is in Tokyo. Between conferences the affairs of the region are attended to by the Association's five Directors who are elected at the regional conference to serve until the next conference. NZART is a very active member of the Region 3 Association.

Links and recognition

IARU enjoys "recognition" by the ITU and can be admitted to ITU conferences with "observer" status. This is of tremendous significance because it provides the opportunity to contribute to and to even directly influence what is done by the national delgations at ITU conferences. The IARU is usually directly represented at ITU conferences by a specially-selected "Observer Team" drawn from specialists in amateur radio affairs from IARU societies world-wide.

In addition IARU has an indirect influence through members of national delegations who are also radio amateurs.

For some important ITU conferences (e.g. WARC-79), a representative of the Amateur Service has been included in some national delegations to ITU conferences. NZART financed a representative in New Zealand's delegation to WARC-79. This is a task that will need repeating for a forthcoming conference. The training of suitable people has already commenced and budgeting is planned.

NZART has access to the New Zealand administration via the NZART-Post Office Liaison Officer, and from there to the ITU. A first objective for NZART is to deserve and keep the goodwill of the Post Office, hence to continue the enlightened official attitude New Zealand radio amateurs have enjoyed in the past, to ensure that official New Zealand influence in ITU circles will be in the right direction.

In addition, through the IARU Region 3 Association, NZART is able to assist other societies in an effort to have the right things for amateur radio done by their administrations.

International problems for Amateur Radio

All classes of radio Service compete to ensure working space in the radio frequency spectrum which is a shared resource. Most Services wield very strong influence through government representatives at ITU conferences where decisions are affected by many factors, political, economic and social. At times the atmosphere is hostile to amateur radio, some decisions take many years to implement. The patient pursuit of long-term policies is needed to promote the future welfare of the Amateur Service.

Some Services (broadcasting is a typical example) have great resources, money and political influence. The Amateur Service by contrast must rely entirely on support from national amateur radio societies through national administrations and by IARU Observers at conferences.

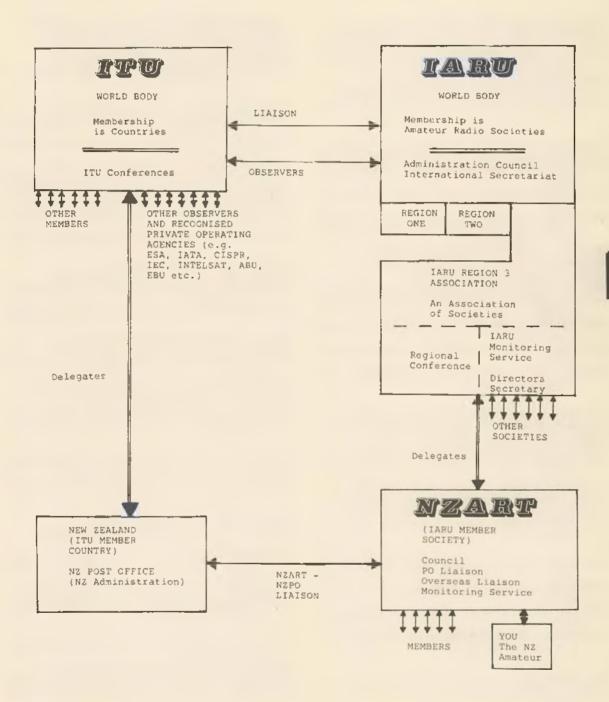
The cost of this continuing vigilance is high and comes from radio amateurs in national societies and from devoted voluntary efforts by amateur radio specialists. It is an ongoing problem and your support is important.

Where do I fit in?

As a radio amateur, your NZART membership is vital to all of us. Membership of NZART, and through that your support to the NZART-Post Office liaison and overseas liaison, is vital. It is essential to all the other radio amateurs that you be a member. You are playing your part to ensure

the continuance of amateur radio for everybody. You should be encouraging every other radio amateur to belong and help with the work too.

Remember, there is no actual security for the Amateur Service. Constant vigilance, time and money to protect our regulatory provisions are needed.



International Amateur Radio Union List of Member Societies

March 25, 1985

ALGERIA: Amateurs Radio Algeriens (ARA). ANDORRA: Unio Radioaficionats Andorrans (URA). ANGOLA: Liga dos Amadores de Radio Angola (LARA). ANTIGUA AND BARBUDA: Antigua and Barbuda Amateur Radio Society (ABARS).

ARGENTINA: Radio Club Argentino (RCA).

AUSTRALIA: Wireless Institute of Australia (WIA).

AUSTRIA: Osterreichischer Versuchssenderverband (OVSV).

BAHAMAS: Bahamas Amateur Radio Society (BARS). BAHRAIN: Amateur Radio Association Bahrain (ARAB). BANGLADESII: Bangladesh Amateur Radio League (BARL)

BARBADOS: Amateur Radio Society of Barbados (ARSB).

BELGIUM: Union Belge des Amateurs-Emetteurs/Unie der Belgische Amateur-Zenders (UBA) Union der Belgischen Amateurfunker.

BELIZE: Belize Amateur Radio Club (BARC).

BERMUDA: Radio Society of Bermuda (RSB).

BOLIVIA: Radio Club Boliviano (RCB).

BOTSWANA: Botswana Amateur Radio Society (BARS). BRAZIL: Liga de Amadores Brasileiros de Radio Emissão (LABRÉ).

BRITISH VIRGINISLANDS: British Virgin Islands Radio League (BVIRL).

BULGARIA: Bulgarian Federation of Radio Amateurs

BURMA: Burma Amateur Radio Transmitting Society (BARTS).

CANADA: Canadian Radio Relay League (CRRL). CAYMAN ISLANDS: Cayman Radio Society (CRS). CHILE: Radio Club de Chile (RCC).

CHINA: Chinese Radio Sports Association (CRSA). COLOMBIA: Liga Colombiana de Radioficionados

(LCRA).

COSTA RICA: Radio Club de Costa Rica (RCCR). CUBA: Federación de Radioficionados de Cuba (FRC). CYPRUS: Cyprus Amateur Radio Society (CARS).

CZECHOSLOVAKIA: Central Radio Club of Czechoslovakia (CRCC).

DENMARK: Eksperimenterende Danske Radioamatorer (EDR)

DJIBOUTI: Association des Radioamateurs de Djibouti (ARAD).

DOMINICAN REPUBLIC: Radio Club Dominicano (RCD).

DOMINICA, COMMONWEALTH OF: Dominica Ama-. teur Radio Club (DARC)

ECUADOR: Guayaquil Radio Club (GRC). EL SALVADOR: Club de Radioaficionados de El Salvador (CRAS).

FAROE ISLANDS: Faroes Radio Amateurs (FRA). FIJI: Fiii Association of Radio Amateurs (FARA). FINLAND: Suomen Radioamatooriliitto (SRAL). FRANCE: Reseau des Emetteurs Français (REF).

FRENCH POLYNESIA: Club Occanien de Radio et d'Astronomie (CORA).

GAMBIA: Radio Society of the Gambia (RSTG). GERMANY (Democratic Republic of): Radioklub der

D.D.R. (RKDDR).

GERMANY (Federal Republic of): Deutscher Amateur-Radio-Club (DARC).

GHANA: Ghana Amateur Radio Society (GARS). GIBRALTAR: Gibraltar Amateur Radio Society (GARS). GREECE: Radio Amateur Association of Greece (RAAG).

GRENADA; Grenada Amateur Radio Club (GARC). GUATEMALA: Club de Radioficionados de Guatemala (CRAG)

GUYANA: Guyana Amateur Radio Association (GARA).

HAITI: Radio Club d'Haiti (RCH).

HONDURAS: Radio Club de Honduras (RCH).

HONG KONG: Hong Kong Amateur Radio Transmitting Society (HARTS).

HUNGARY: Magyar Radioamator Szovetseg (MRASZ).

ICELAND: Islenzkir Radioamatorar (IRA). INDIA: Amateur Radio Society of India (ARSI).

INDONESIA: Organisasi Amatir Radio Indonesia (ORARI).

IRELAND: Irish Radio Transmitters Society (IRTS). ISRAEL: Israel Amateur Radio Club (IARC).

ITALY: Associazione Radioamatori Italiani (ARI).

IVORY COAST: Association des Radio-Amateurs Ivoiriens (ARAI).

JAMAICA: Jamaica Amateur Radio Association (JARA). JAPAN: Japan Amateur Radio League (JARL). JORDAN: Royal Jordanian Radio Amateur Society

(RJRAS).

KENYA: Radio Society of Kenya (RSK). KOREA: Korean Amateur Radio League (KARL).

LEBANON: Association des Radio-Amateurs Libanais

LESOTHO: Lesotho Amateur Radio Society (LARS). LIBERIA: Liberia Radio Amateur Association (LRAA).

LUXEMBOURG: Reseau Luxembourgeois des Amateurs d'Ondes Courtes (RL).

MALAYSIA: Malaysian Amateur Radio Transmitters' Society (MARTS).

MALTA: Malta Amateur Radio League (MARL). MAURITIUS: Mauritius Amateur Radio Society (MARS).

MEXICO: Liga Mexicana de Radio Experimentadores (LMRE).

MONACO: Association de Radio-Amateurs de Monaco (ARM).

MONTSERRAT: Montserrat Amateur Radio Society (MARS).

MOROCCO: Association des Radio-Amateurs du Moroc (ARRAM).

MOZAMBIQUE: Liga dos Radio Emissores de Mocambique (LREM).

NETHERLANDS: Vereniging voor Experimenteel Radio Onderzoek in Nederland (VERON).

NETHERLANDS ANTILLES: Vereniging voor Experimenteel Radio Onderzoek in Nederlandse Antillen (VERONA).

NEW ZEALAND: New Zealand Association of Radio Transmitters (NZART).

NICARAGUA: Club de Radioexperimentadores de Nicaragua (CREN).

NIGERIA: Nigerian Amateur Radio Society (NARS). NORWAY: Norsk Radio Relae Liga (NRRL).

OMAN: Royal Omani Amateur Radio Society (ROARS).

PAKISTAN: Pakistan Amateur Radio Society (PARS). PANAMA: Liga Panamena deRadio Aficionados (LPRA). PAPUA NEW GUINEA: Papua New Guinea Amateur Radio Society (PNGARS).

PARAGUAY: Radio Club Paraguayo (RCP). PERU: Radio Club Peruano: (RCP).

PHILIPPINES: Philippine Amateur Radio Association (PARA).

POLAND: Polski Zwiazek Krotkofalowcow (PZK). PORTUGAL: Rede dos Emissores Portugueses (REP).

ROMANIA: Federatia Romana de Radioamatorism (FRR).

SAN MARINO: Associazione Radioamatori della Repubblica di San Marino (ARRSM).

SENEGAL: Association des Rudio-Amateurs du Senegal (ARAS).

SIERRA LEONE: Sierra Leone Amateur Radio Society (SLARS).

SINGAPORE: Singapore Amateur Radio Transmitting Society (SARTS).

SOLOMON ISLANDS: Solomon Islands Radio Society (SIRS).

SOUTH AFRICA: South African Radio League (SARL), SPAIN: Union de Radioaficionados Espanoles (URE), SRI LANKA: Radio Society of Sri Lanka (RSSL).

SURINAME: Vereniging van Radio Amateurs in Suriname (VRAS).

SWAZILAND: Radio Society of Swaziland (RSS).
SWEDEN: Foreningen Sveriges Sandarcamatorer (SSA).
SWITZERLAND: Union Schweizerischer KurzwellenAmateure (USKA).

SYRIA: Technical Institute of Radio (TIR).

THAILAND: Radio Amateur Society of Thailand (RAST). TONGA: Amateur Radio Club of Tonga (ARCOT). TRINIDAD AND TOBAGO: Trinidad and Tobago

Amateur Radio Society (TTARS).

TURKEY: Turkiye Radya Amatorleri Cemiyeti (TRAC).

UNITED KINGDOM: Radio Society of Great Britain (RSGB).

URUGUAY: Radio Club Uruguayo (RCU). USA: American Radio Relay League (ARRL). USSR: Radio Sport Federation of the USSR (RSF).

VANUATU: Vanuatu Amateur Radio Society (VARS). VENEZUELA: Radio Club Venezolano (RCV).

WESTERN SAMOA: Western Samoa Amateur Radio Club (WSARC).

YUGOSLAVIA: Savez Radio-Amatera Jugoslavije (SRJ).

ZAIRE: Union Zairoise des Radio-Amateurs (UZRA). ZAMBIA: Radio Society of Zambia (RSZ). ZIMBABWE: Zimbabwe Amateur Radio Society (ZARS).

Travelling Overseas?

Russ Garlick (ZL3AAA), Co-ordinator for the NZART Reciprocal Licence Bureau can provide up-to-date information for those wishing to operate while overseas. Refer page 110.

1984 International Amateur Radio Union Summary of Annual Reports

(May 10, 1984)

		egion l								
Country	Total	Total	Society	Licensed	Liberia	120	120	35	2	35
Cirainiy	Operators	Stations	Members	Members		315	315	282	26	
Algeria	150	102	220	` 102	Luxembourg	143				50
Andorra	97	97	81	81	Malta	143	149	65		15
Angola	Ап	nateur Rac	lio Suspend	ded	Mauritius		30	39		
Austria	?	4 630	4 300	3 450	Monaco	48	48	31		31
Bahrain	40	43	40	22	Мотоссо	98	98	. 98		98
Belgium	4 200	4 200	4 400	2 601	Mozambique	12.210		ır Radio S		
Botswana	46	46	25	15	Netherlands	13 210	13 380	13 750	8 40	
Bulgaria	1 200	850	?	1 200	Nigeria	140	140	560		10
Cyprus	120	120	120	120	Norway	5 526	5 526	3 786	3 22	
Czechoslovakia	2 404	2 695	9 022	2 404	Oman	63	66	136		53
Denmark	10 216	10 216	6 100	4 400	Poland	3 000	3 230	7 000	3 00	
Diibouti	30	25	15	14	Portugal	5 050	3 043	2 045	L 95	
Faroe Islands	104	110	100	78	Romania	1 605	1 395	4 861	1.60	
Finland	4 103	4 039	4 338	4 000	San Marino	11	12	11		1
France	13 050	13 050	12 000	6 920	Senegal	110	70	28		28
Gambia	54	55	25	23	Sierra Leone	13	14	24		13
German D.R.	2 063	1 889	15 000	2 063	South Africa	5 300	5 300	2 705	2.15	
German F.R.	48 645	50 350	46 203	37 811	Spain	26 000	26 000	15 620	13 08	
Ghana			lio Suspeno		Swaziland	?	21	24		19
Gibraltar	23	17	32	15	Sweden	9 188	9 188	6 461	5 69	19
Greece	400	404	550	400	Switzerland	?	3 356	4 067	2.82	4
	3 800	1 950	5 100	1 950	Svria	10	10	37	1	10
Hungary Iceland	3 800	1 930	153	91	Turkey	0	0	750		0
Ireland	1 441	1:367	688	462	USSŘ	28 000	35 000	136 000	11.08	30
	900	900	400	320	UK	40 000	40 000	33 000	20 00	00
Israel					Yugoslavia	3 250	4 882	55 000	3 25	50
Italy	20 000	18 000	11 450	8 460	Zaire	50	50	50	5	50
Ivory Coast	80	81	30	25	Zambia	21	21	20		13
Jordan	119	120	119	119	Zimbabwe		-	ation Not	Availab	[e
Kenya	67	68	85	29		1.000				
Lebanon	104	104	65	30	Average	4 600	4 687	7 164	2.70	
Lesotho	25	25	17	15	Total	263 000	267 136	408 363	154 34	+ /

	Re	gion 2		
Antigua & B.	46	44	46	46
Argentina	25 000	25 000	2 180	1 952
Bahamas	52	52	23	21
Barbados	200	200	80	60
Belize	122	122	122	122
Bermuda	114	?	82	75
Bolivia	1.788	1.788	1.788	1.788
Brazil	21 000	21 000	56 500	21 000
Br. Virgin Is.	9	9	10	9
Canada	24 000	24 000	4 691	4 250
Cayman Islands	28	28	22	18
Chile	4 300	4 300	2 200	1 540
Colombia	5 300	4 700	1.700	1.500
Costa Rica	1 482	1 482	216	187
Cuba	424	45!	424	300
Comm.				
Dominica	65	22	37	22
Dominican Rep	2 000	2 200	325	290
Ecuador	878	816	524	470
El Salvador	280	280	150	150
Granada	?	20	43	30

Darian 1

Guatemala	538	538	120	120
Guyana		Inform	nation Not	Avaiable
Haiti –	19	18	19	19
Honduras	?	?	110	80
Jamaica	79	62	130	?
Mexico	2 340	2 340	995	985
Montserrat		?	33	31
Neth, Antilles	115	115	70	50
Nicaragua	140	140	135	135
Panama	750	750	400	400
Paraguay	1.300	890	1 550	1.300
Peru	1.071	862	742	666
Suriname	78	60	65	65
Trinidad & T.	150	150	200	150
USA	417 551	421 732	131 767	112 906
Uruguay	3 723	2 603	367	328
Venezuela	12 500	11 000	1 570	1 500
Average	14 655	14 667	5 818	4 242
Total	527 573	527 999	209 436	152 700

	rce	gion 3							
Country	Total Operators	Total Stations	Society Members						
Australia	14 780	14 780	8 093	7 473	Sri Lanka	107	107	94	72
Bangladesh	0	0	30	0	Thailand	510	482	510	510
Burma	•		r Radio Si		Tonga	19	?	28	8
China	45	3	500	45	Vanuatu	25	27	20	18
Fiji	15	15	15	15	Western Samoa	7	7	?	7
Fr. Polynesia	?	182	130	120	Average	26 700	26 656	7 419	6 500
Hong Kong	170	170	155	153	Total	587 000	586 422	163 218	142 500
India	1 400	1.400	320	300					
Indonesia	10 000	10 000	11 000	10 000					
Japan	?	550 338	129 944	119 472					
Korea	841	676	6 678	?					
Malaysia	120	120	270	120		We	orldwide		
New Zealand	5 702	5 846	4 013	3 194	Average	12 000	12 014	6 791	3 900
Pakistan	75	75	112	52					
PNG	98	98	39	23	Total worldwide	Operators	1 378 00	Ю	
Philippines	2 500	2 000	1 200	500	Total worldwide	Stations-	1 381 557		
Singapore	55	47	46	35	Total worldwide	Society M	lembers—7	81 017	
Solomon Is.	?	?	23	20	Total worldwide				

International Amateur Radio Union

ADMINISTRATIVE COUNCIL

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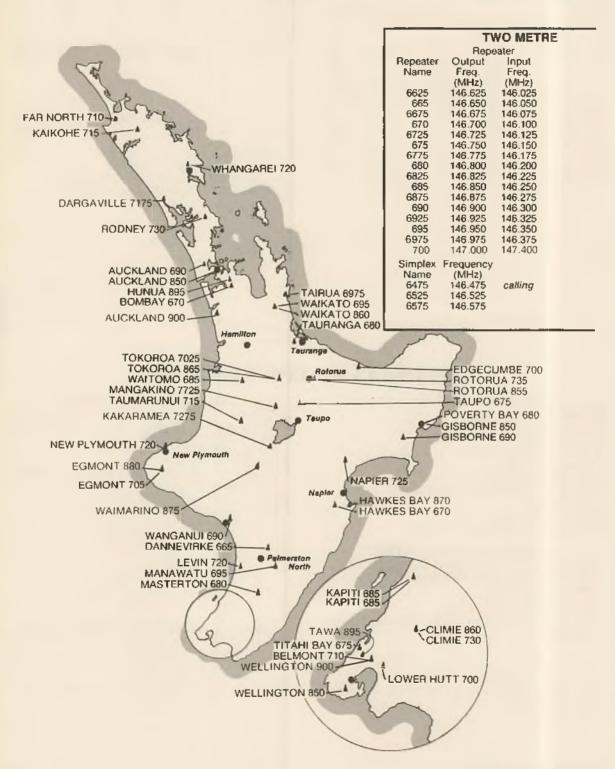
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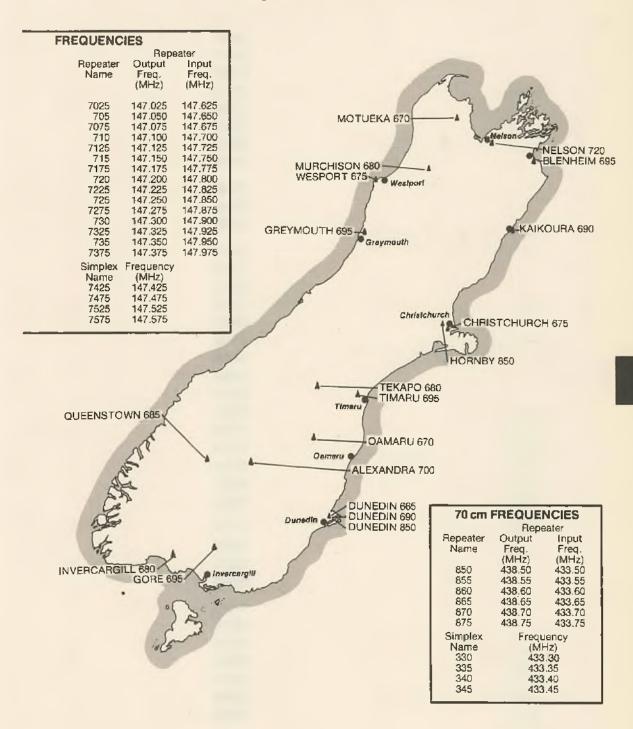
Region 2: M. L. Gibson, W7JIE, 1215 N. 28th Place, Renton, WA 98056, USA,

Region 3: R. E. Knowles, ZL1BAD, Onewhero, R.D. 2, Tuakau, New Zealand.

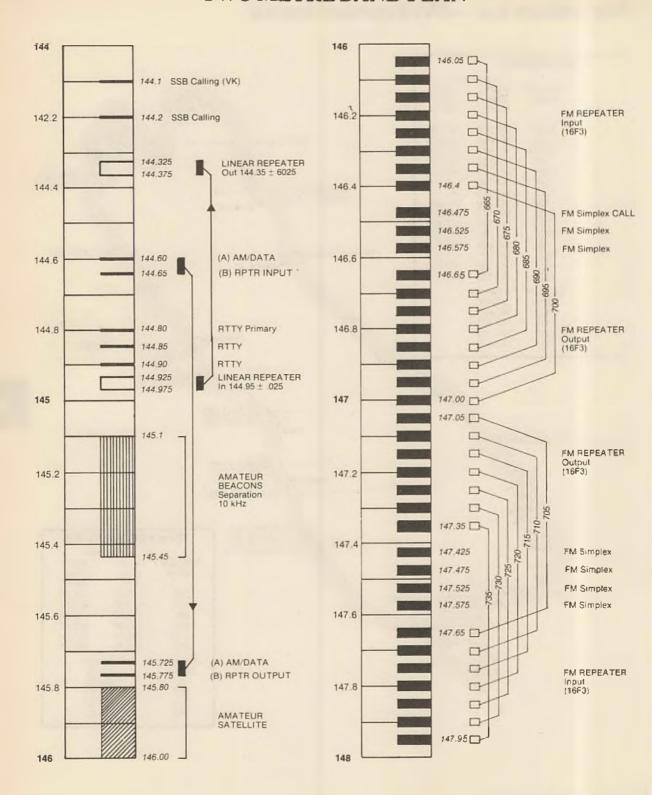
New Zealand Association of Radio



Transmitters Inc.—FM Repeater Service



TWO METRE BAND PLAN



New Zealand Amateur Radio FM Repeater Service

TWO METRE BAND

Name	Site	Output Freq.	Height mASL	Power Out	Trustees
Far North 710	Mount Maungataureia	147.100	513	12	ZLIAZJ, ZLIBAY
Kaikohe 715	Browns Hill	147.150	388	10	ZLIUBQ, ZLIBAY
Whangarei 720	Parakiore	147.200	392	25	ZLIAF, ZLIBFS
Dargaville 7175	Hokianga Road	147.175	61	20	ZLITVP, ZLIBAU
Rodney 730	Dome	147.300	341	10	ZLIABL, ZLIAHK
Auckland 690	Ruaotewhenua	146.900	198	25	ZLIARC, ZLIBPW
Bombay 670	Mount Puketutu	146.700	376	25	ZLIARC, ZLIBPW
Tairua 6975	Tairua	146.975	349	10	ZLITHG, ZLITNT
Waikato 695	Mount Te Aroha	146.950	944	12	ZLITAT, ZLITNT
Tauranga 680	Mount Minden Te Puna	146.800	286	10	ZLIBOM, ZLIQI
Edgecumbe 700	Mount Edgecumbe	147.000	777	10	ZLIBGE, ZLITAT
Waitomo 685	Rangitoto Range	146.850	869	15	ZLITUL, ZLITWA
Tokoroa 7025	Whakamaru	147.025	793	25	ZLITDV, ZLIUGH
Rotorua 735	Mount Ngongotaha	147.350	757	15	ZLIPK, ZLIAKC
Mangakino 7225	Bakers Road	147.225	315	25	ZLIAMW, ZLIAKT
Taupo 675	Maroanui	146.750	897	12	ZLIBFA, ZLIBYV
Taumarunui 715	Hikurangi	147.150	770	25	ZLITIG, ZLIAAF, ZLIUJA
Kakaramea 7275	Kakaramea	147.275	1313	25	ZLIUJA, ZLIAAF, ZLITIG
Poverty Bay 580	Kaiti Hill	146.800	122	10	ZL2TNP, ZL2UBF
Gisborne 690	Whakapunake	146,900	950	10	ZL2TNP, ZL2UBF
Napier 725	Taraponui	147.250	1308	10	ZL2TIS, ZL2ALO, ZL2TSX
Hawkes Bay 670	Kahuranaki	146.700	652	10	ZL2AN, ZL2IT
New Plymouth 720	Power Station Chimney	147.200	190	12	ZL2TKA, ZL2TKP
Egmont 705	East Mount Egmont	147.050	1559	20	ZL2TLY, ZL2ALT
Wanganui 690	Shakespeare Road	146.900	90	11	ZL2BGE, ZL2TDI
Dannevirke 665	Mount Wharite	146.650	915	9	ZL2TDB, ZL2TPQ
Manawatu 695	Pahiatua Track	146.950	488	8	ZL2BFR, ZL2AUB
Levin 720	Moutere	147.200	50	10	ZL2CP, ZL2BAF
Masterton 680	Mount Rangituman	146.800	604	25	ZL2FZ, ZL2TFZ
Kapiti 685	Mount Field	146.850	615	6	ZL2TFP
Climie 730	Mount Climie	147.300	867	20	ZL2ACT
Titahi Bay 675	Onepoto Reservoir	146.750	90	10	ZL2TCF, ZL2BKI
Belmont 710	Mount Belmont	147,100	450	20	ZL2ARW, ZL2TRV
Lower Hutt 700	Mount Fitzherbert	147,000	_	12	ZL2ARW, ZL2TAR
Motueka 670	Mount Campbell	146.700	1328	25	ZL2BCG, ZL2BHL
Nelson 720	Grampians	147.200	392	20	ZL2BCA, ZL2TJB
Blenheim 695	Jamies Knob	146.950	277	25	ZL2AYC, ZL2BK
Murchison 680	Mount Murchison	146.800	1469	20	ZL2BCA, ZL2TJB
Westport 675	Cape Foulwind Lighthouse	146.750	91	15	ZL3AFN, ZL3ADB
Kaikoura 690	Kaikoura Peninsula	146.900	91	15	ZL3PZ, ZL3GF
Greymouth 695	Sewell Peak	146.950	834	20	ZL3ADH, ZL1THA
Christchurch 675	Marleys Hill	146.750	488	20	ZL3RW
Tekapo 680	Mount Rollesby	146.800	1371	20	ZL2AFR, ZL3PN
Timaru 695	Mount Studholme	146.950	1088	20	ZL2AFR, ZL3PN
Oamaru 670	Station Peak	146.700	886	20	ZL4FE, ZL4THN, ZL4KM
Alexandra 700	Fruitlands	147.000	1478	15	ZL4THT
Queenstown 685	Double Cone	146.850	2286	22	ZL4JW, ZŁ4TIQ
Dunedin 665	Higheliff	146.650	310	10	ZL4MK
Dunedin 690	Mount Cargill	146.900	674	25	ZL4MK
Gore 695	McLeod's Hili	146.950	640	15	ZL4AO, ZL4TCD
Invercargill 680	Bald Hill, Otautau	146.800	798	20	ZL4OX, ZL4TFJ

New Zealand Amateur Radio FM Repeater Service (continued) SEVENTY CENTIMETRE BAND

Name	Site	Output Freq.	Height mASL	Power Out	Trustees
Auckland 850	Mt. Eden	438.500	200	25	ZLIARC, ZLIBPW
Auckland 900	Port Waikato	439.000	400	25	ZLIARC, ZLIBPW
Hunua 895	Clements Hill	438.950	300	3	ZLIARC, ZLIAKX
Waikato 860	Mount Te Aroha	438.600	944	20	ZLITHG, ZLITNT
Tokoroa 865	Whakamaru	438.650	793	25	ZLITDV, ZLIUGH
Rotorua 855	Mount Ngongotaha	438.550	757	10	ZLIPK, ZLIAKC
Gisborne 850	Cook Hospital	438,500	72	10	ZL2TNP, ZL2UBF
Egmont 880	East Mount Egmont	438,800	1559	20	ZL2TLF, ZL2APZ, ZL2TXG
Waimarino 875	Turoa Skifield	438.750	2050	25	ZL2BL1, ZL2TWS
Hawkes Bay 870	Peak House	438,700	389	10	ZL2TSX, ZL2TDC
Kapiti 885	Paraparaumu Beach	438.850	30	25	ZL2TFP, ZL2TUV
Climie 860	Mount Climie	438.600	867	20	ZL2ACT
Tawa 895	Not Finalised Yet	438.950		25	ZL2ARW, ZL2TRV
Wellington 850	Mount Victoria	438.500	195	20	ZL2BAC, ZL2TRV
Wellington 900	Mount Helmont	439.000	450	25	ZŁ2ARW, ZL2TRV
Hornby 850	Cass Peak	438.500	522	25	ZL3GI, ZL3TIB
Dunedin 850	Mount Cargill	438.500	674	2	ZL4MK

Other Repeaters

Name	Site	Output Freq. MHz	Input Freq. MHz	Mode∄ Use	Height mASL	Power Out	Trustees
Moerangi Linear 435	Moerangi Heights	144.350	144.950	X8	743	10	ZLIBTB
Gisborne ATV	Kaiti Hill	443.250	1251.250	C3/F3	122	50	ZL2TNP, ZL2UBF
		448.750	1256.750	TV/Phone			
Manawatu 5725	Pahiatua Track	145.725	144.600	F3	288	10	ZL2BFR, ZL2AUB
				Phone/Data			
Wellington 120	Point Howard	1271.200	1291.200	F3	100	7	ZL2ARW, ZL2TRV
Belmont ATV	Mt. Belmont	614.250	443.250	C3/F3	450	100	ZL2ARW, ZL2TAR
		619.750	448.750	TV:Phone			
Karori ATV	Karori	1244.250	614.250	C3/E3	260	0.1	ZL2TRV, ZL2TAR
Extender		1249.750	619,750	TV Phone			
		433.250	1277,250				
1		448.750	1282,750				
Wellington 6625	Hawkins Hill	146.625	146.025	FD	533	25	ZL2BAC, ZL2TRV
				Phone/Data			
Westport 5775	Mt. Rochfort	145.775	144.650	Λ3	1041	20	ZL3AFN, ZL3ADB
Christehureh 5775	Cashmere	145.775	144,650	Λ3	193	20	ZL3RW
Timaru 6625	Mt. Horrible	146.625	146.025	A3	475	15	ZL2AFR, ZL3PN
-				Phone Data			
Dunedin Linear 435	Higheliff	144.350	144,950	X8	210	2	ZL4MK
Invercargill 5775	Bluff Hill	145.775	144.650	Δ3	265	15	ZL4OX, ZL4TFJ

Short Term Special Purpose FM Repeaters These repeaters are portable and are activated for SAR. CD and other AREC use only.

Name	Output Freq.	Input Freq.	Power Out	Trustees
Auckland STSP 6825	146.825	146.225	6	ZLIMP, ZLIARC, ZLIBNY
Auckland STSP 875	438.750	433.750	4	ZLIARC, ZLIAKX
Masterton STSP 6725	146.725	146.125	5	ZL2FZ, ZL2TFZ
Wellington STSP 6875	146.875	146.275	25	ZL2ARW, ZL2TRV
Christchurch STSP 7275	147.275	147.875	01	ZL3RW
Alexandra STSP 6625	146.625	146.025	10	Z1_4THT. ZL4JM

New Zealand Amateur Radio Beacons

Name	Site	Call	Freq. MHz	Mode	Height mASL	Power Out	Trustees
Upper Hutt 10 m	Mount Climic	ZL2MHF	28.230	FI	867	5	ZL2ACT
Auckland 6 m	Nihotupu	ZLIUHF	51.020	F1	330	25	ZLIARC, ZLIBPW
Hawkes Bay 6 m	Fernhill	Z1.2MHB	51.030	F2	100	10	ZL2KT, ZL2BIW
Manawatu 6 m	Pahiatua Track	ZL2VHM	52.250	FI	488	8	ZL2BFR, ZL2AUB
Upper Hutt 6 m	Mount Climie	ZL2MHF	52.510	F1	867	2	ZL2ACT
Blenheim 6 m	Blenheim	ZL2S1X	52.490	F2	60	10	ZL2TZP, ZL2BK
Auckland 2 m	Mount Otau	ZLIVHF	145.100	ΑI	337	10	ZLIARC, ZLIBPW
Waikato 2 m	Hamilton	ZL1VHW	145.150	FL	97	10	ZLITHG, ZLITAT
Taranaki 2 m	Inglewood	ZL2VHT	145.225	FI	239	01	ZL2TSH
Wellington 2 m	Hawkins Hill	Z1.2UHF	145.200	FI	533	12	ZL2BAC, ZL2TRV
Takaka 2 m	Takaka Hill	ZL2VHN	145.280	A3	915	1	ZL2BCA, ZL2TJB
Christchurch 2 m	Christchurch	ZL3VHF	145.300	FI	30	20	ZL3RW
Dunedin 2 m	Rotary Park	ZL4VHF	145.400	FI	160	10	ZL4MK
Invercargill 2 m	Southland Hospital	ZL4VHI	145.425	Δ1	25	5	ZI.4OX, ZI.4TFJ
Auckland 70 cm	Nihotupu	ZLIUHF	433,100	F1	330	10	ZLIARC, ZLIBPW
Waikato 70 cm	Hamilton	ZLIVHW	433.150	FI	97	10	ZLITHG, ZLITAT
Taranaki 70 cm	Inglewood	ZL2VHT	433.225	F1	239	10	ZL2TSH
Wellington 70 cm	Hawkins Hill	ZL2UHF	433.000	F1	533	12	ZL2BAC, ZL2TRV
Takaka 70 cm	Takaka Hill	ZI.2VHN	433.080	A3	915	1	ZL2BCA, ZL2TJB
Christehurch 70 cm	Marleys Hill	ZL3UHF	433.200	F!	488	!	ZL3RW
Auckland 23 cm	Nihotupu	ZLIUHF	1297.100	F2	330	10	ZLIARC, ZLIBPW
Waikato 23 cm	Hamilton	ZLIVHW	1297.150	E1	97	10	ZLITHG, ZLITAT
Taranaki 23 cm	Inglewood	ZL2VHT	1297.225	F1	239	5	ZL2TSH
Wellington 23 cm	Hawkins Hill	ZL2UHF	1297.000	FI	533	5	ZL2BAC, ZL2TRV
Auckland 3 cm	Nihotupu	ZLIUHF	10.25 GHz	F2	330	0.040	ZLIARC, ZLIBPW
Wellington 3 cm	Hawkins Hill	ZL2UHF	10.25 GHz	F2	533	0.030	ZL2BAC, ZL2TRV
Wellington 24 GHz	Hawkins Hill	ZI.2UHF	24.10 GHz	F2	533	0.005	ZL2BAC, ZL2TRV

NZART Repeater Rules

- a. The Radio Regulations to apply at all times not withstanding anything in these rules.
- b. The Trustees as listed on the NZPO licences have the final responsibility for the operation of the repeater.
- Repeaters are to be available for use by all licensed amateurs.
- d. AREC traffic has absolute priority.
- Stations using repeaters are to fully identify when calling.
- f. "Overs" to be kept as short as possible. They should not exceed 3 minutes. A pause of 3 seconds must be left between "overs" to allow access by users with priority traffic.

- g. All users must have regard for other users by ensuring that they do not use a repeater for an excessive time, especially in busy periods. If stations can work direct on simplex frequencies they should do so.
- Simplex frequencies to be used for test and system development purposes wherever possible.
- Tone digits (single or dual tones of short duration) for remote control and calling purposes are permitted on any New Zealand 2m FM repeater.
- j. Stations MUST also use callsigns IN SPEECH in the usual manner when using tone digits,
- k. The full Repeater Policy (which details the responsibilities to be accepted by users of repeaters) is published in *Break-In*, August 1981, page 31.

Designated New Zealand VHF/UHF Frequencies

52,050	SSB Simplex Calling
52,100	AM Simplex
52.525	FM Simplex
38.020	1 III SIMPLEA
[44,200	SSB Simplex Calling
144.800	RTTY Primary
144.850	RITY
144.900	RTTY
145.800-146.000	
146.475	FM Simplex Calling
146.525	FM Simplex
F46.575	EM Cimalia
147.425	FM Simplex
	FM Simplex
147.475	FM Simplex
147.525	FM Simplex
147.575	FM Simplex
432.125-432.175	
432.200	SSB Simplex Calling
433,300	FM Simplex Calling
433.350	FM Simplex
433,400	FM Simplex
433.450	FM Simplex
435.100-435.300	
436.000-437.000	Amateur Satellite (Phase IIIB)
443.250	ATV Video
448,750	ATV Sound
614.250	ATV Video
619.750	ATV Sound
1269.0-1270.0	Amateur Satellite (Phase IIIB)
1296.200	SSB Simplex Calling

SHF Designated Frequencies

S	UGGESTED ONL	.Y
Calling	FM Calling	30 MHz
Frequencies	Frequencies	IF FM
1296.20	1297.30	
2304.20	2305.30	2304-2334
3456.20	3457.30	3350-3380
5760.20	5761.30	5815-5845
10368.20	10369.30	10265 - 10295
24192.20	24193.30	24165-24195

80 Metre Calling/Listening Frequency: 3675 kHz 40 Metre Calling/Listening Frequency: 7075 kHz

GALBRAITH PROJECTS

POWER SUPPLY-PS2

Specifications: 13.5 volts at 8 amps continuous. Current limited with fold-back. Ideal for all radio equipment up to 50 watts.

Price: \$143.00. P&P \$4.50

KEYER PADDLE-GK111

lambic key paddle, a must for those building electronic keyers. Many thousands of these sold

Price: \$14.90. Includes P&P.

RF PRE-AMPLIFIER-RF1

2, 6, 10 metres and CB. 18 dB gain 2.5 dB NF. Kit includes all parts.

Price: \$8.95. Includes P&P.

VHF CONVERTER—RC1

Two metre MOSFET converter 20 to 200 MHz. Any IF. Complete kit except for crystal.

Price: \$14.25. Includes P&P.

RTTY TERMINAL

DT600 type receive terminal. AK3 crystal-controlled AFSK generator. RS232C In/Out. All on one double-sided PC board with power supply. This is NOT at kit. Includes PC board, five tunable potcores and full information.

Price: \$72.50, P&P \$1.50.

Magnet Driver Board, RS232C In/Out to Creedtype teleprinter magnet, PC Board only.

Price: \$7.00

NICAD BATTERY CHARGER—NC1

12 volts In 45 mA Out constant current. This is an ideal kit for charging handheld radios or torches with rechargeable batteries, from the car battery. Kit includes all parts.

Price: \$7.80. Includes P&P.

NEW FROM GALBRAITH
SWR and RF POWER METER—SML/SWR25

1 kW rating, 3.5–150 MHz, complete with two meters and UHF sockets at each end. A chance of a lifetime.

Price: \$24.00. Includes P&P. TWO-METRE POWER AMP 1.5 W In. 25 W Out.

To be announced soon.

GALBRAITH

PROJECTS

P.O. Box 1733 CHRISTCHURCH

An activity of the Christchurch Branch of NZART

New Zealand VHF Amateur Records

March 1985

It is well-known that Amateur Radio Operators can talk all over the world. However, there are Amateur frequency bands in the very high frequency (VHF) spectrum—above 30 MHz—which require special effort to cover distances beyond the horizon. Also, the higher the frequency used, the more difficult communication becomes.

The following are VHF distance records held by New Zealand Amateur Radio operators (ZL prefix). The callsign in

parenthesis is the current call held, and the /P indicates portable operation.

Band	Record	Stations	Date	Distance (km)
6 metres (52 MHz band)	Overseas	ZL3NE to VEIAVX (Canada)	16-11-80	15 555
2 metres (144 MHz band)	Internal	ZL2ARW/P to ZL18J8/P	03-02-82	1 069
2 metres (144 MHz band)	Overseas	ZL2HP to VK5BC (Australia)	23-12-65	3 195
2 metres (144 MHz band)	Moonbounce	ZL2BGJ to DL8DAT (West Germany)	16-11-84	18 524 (World Record)
70 cm (432 MHz band)	Internal	ZL2ARW/P to ZLIBJB/P	03-02-82	1 069
70 cm (432 MHz band)	Overseas	ZL2TGZ to VK2RU (Australia)	08-02-82	2 480
70 cm (432 MHz band)	Moonbounce	ZL3AAD to F9FT (France)	18-05-80	18 951 (World Record)
70 cm (432 MHz band)	Television	ZL2TWS/P to ZL2ASF/P	31-01-82	373
50 cm (610 MHz band)	Internal	ZL2AQE/II to ZL2ARW/P	03-12-83	44
23 cm (1296 MHz band)	Internal	ZL1THG/P to ZL2ARW/P	30-01-82	687
23 cm (1296 MHz band)	Overseas	ZLIAVZ to VK2BDN (Australia)	09-02-82	2 131
23 cm (1296 MHz band)	Moonbounce	ZL3AAD to PAØSSB (Netherlands)	13-06-83	18 788 (World Record)
12.5 cm (2300 MHz band)	Internal	ZLITHG/P to ZL2ARW/P	31-01-82	687
9 cm = (3300 MHz band)	Internal	ZL2AQE/P to ZL2ARW/P	06-03-83	547 (World Record)
5 cm (5800 MHz band)	Internal	ZL2AQE/P to ZL2ARW/P	29-01-83	225
3 cm (10000 MHz band)	Internal	ZLtTHG/P to ZL2BFC/P	25-01-81	390
1.25 cm (24000 MHz band)	Internal	ZL1BHX/P to ZL1BQK/P	27-10-84	39.5

The VHF records are administered on behalf of NZART (Inc.) by H. N. Wiggins, ZL2BFR. All claims must be made in writing to P.O. Box 1718, Palmerston North, giving frequencies, date, callsigns used, locations of both stations and confirmed distance.

Names of Record Holders:

 ZL3NE
 R, M, Gyde

 ZL2ARW
 P, R, Williams

 ZL18JB
 D, J, Beale

ZL2HP ZL2BGJ ZL2TGZ ZL3AAD ZL2TWS ZL2AFS ZL1THG ZL1AVZ ZL2AQE ZL2BFC ZL1BHX ZL1BQK T. J. Kendrick G. M. Jonas H. M. Allmand G. E. Alderson J. M. Wysocki S. F. Fogerty T. M. Bevan B. J. Ryall J. H. Shorland B. L. Cattermole A. S. Travaglia R. V. Shackleton



Amateur Satellites

The forthcoming year looks to be an interesting one for amateur satellites. There are currently six experimental satellites, and the prospect of up to five additional satellites scheduled for launch by mid-1986. The required ground station performance to access these satellites ranges from relatively modest for the low-orbit RS series, to fairly elaborate for the high orbit OSCAR-10. The addition of satellites with digital access modes will increase the available range even further.

Satellite Frequency Allocations

International agreements make provisions for the amateur satellite service to operate in the 7 MHz, 14 MHz, 18 MHz, 21 MHz, 24 MHz, 28 MHz, 144 MHz, 432 MHz, 1260 MHz, 24 GHz, 3.4 GHz, 5.6 GHz, 10 GHz, 24 GHz, 47 GHz, 75 GHz, 142 GHz and 240 GHz bands.

At present technological and other limitations has led to only some of these allocations being used.

Satellite Modes

The "mode" of a satellite's operation refers to the particular amateur bands being used for the uplink (earth to space) and downlink (space to earth). The following list shows modes that are, or have been, in use:

Mode	Uplink	Downlink
A	2 m	10 m
В	70 cm	2 m
J	2 m	70 cm
K	15 m	10 m
L	23 cm	70 cm

A given satellite may operate in more than one mode and its "operating schedule" gives the times and days when a particular mode will be operating. Generally, operation is only in one mode at a time.

		Operating Frequen	ncies for curre	ent satellites	
Satellite	Mode	Uplink Frequency	Maximum Uplink Power (EIRP)	Downlink Frequency	Beacon
OSCAR-9	N/A	N/A	N/A	7.001 MHz, 14.00 MHz 21.00 MHz, 28.001 MHz 2.4 GHz, 10.47 GHz	145.825 MHz 435.025 MHz
OSCAR-10	B L	435.027-435.179 1269.05-1269.85	500 W 10 kW	145.97-145.825 MHz 436.95-435.150 MHz	145.810 MHz 436.040 MHz
OSCAR-11	N/A	N/A	N/A	As for OSCAR-9*	
RS 5	Α	145.91-145.95	80 W	29.41-29.45 MHz	29.41 MHz
RS 7	A	[45.96-J46.00	80 W	29.46-29.50 MHz	29.34 MHz
RS 8	A	145.96-146.00	80 W	29.46-29.50 MHz	29.46 MHz

*UoSAT OSCAR-II also carries a store-and-forward packet radio transponder. Frequencies were not available at time of printing. Watch forthcoming issues of *Break-In* for details.

Orbital Parameters

The orbit of a satellite is described by a series of orbital parameters also known as Keplerian Orbital elements. In addition, two other terms are used for Earth orbiting craft. These are PERIGEE or point of closest approach and APOGEE which is the furthest distance away. While a simpler approach works for the low-altitude, circular orbit

satellites, such as OSCAR-9, It and the RS-series, the Phase III type craft such as OSCAR-10, have a highly elliptical orbit and require more sophisticated data to define their orbit. These are given by the Keplerian elements. The following is a list of these and their definitions:

Epoch Time (T)—This is not strictly an orbital element but rather a time reference which is needed in any element set to

indicate an instant at which the remaining numbers are valid. The epoch is usually chosen to be the middle of the observation intervals used when deriving the set.

Mean Motion (M)—The number of complete orbits the satellite makes in one day. The reciprocal of N is the PERIOD (P), the time required to complete one orbit. Once the mean motion is known, a quantity called the SEMI MAJOR AXIS (SMA), can be computed. This is defined as one-half of the straight line between the apsides (i.e. the apogee and perigee). Occasionally, either period or SMA will be given in place of the mean motion.

Mean Anomaly (M)—An indication of where the satellite is along its orbit at the epoch time. Specifically, it is a measure of time since perigee, expressed as an angular proportional quantity with 360 degrees equal to one orbital period. For example, a mean anomaly of zero says that the satellite is at perigee; a mean anomaly of 90 degrees indicates that the satellite is one-quarter past perigee.

Since satellites in elliptical orbits do not move at a constant rate, the "angle" represented by the mean anomaly does not correspond to any measureable, physical angle. However, knowing the mean anomaly and the eccentricity (see below), one can compute the TRUE ANOMALY. This is the angle (as seen from the centre of the Earth) between the perigee point and the satellite's current position measured in the direction the satellite is travelling.



Eccentricity (e)—The degree of "lopsidedness" of the orbit, e=0 would be a perfect circle; 0 < e < 1 is an ellipse; e=1 is a parabola, and e > 1 is a hyperbola.

Now that the size and shape of the orbit have been defined, it is necessary to know how the egg-shaped orbital ellipse is rotated within its orbital plane with respect to an external reference.

Argument of Perigee (w)—The angle, as seen from the centre of the earth, measured in the orbital plane, in the direction of motion of the satellite between the equator and the perigee point. An argument of perigee between 0 and 360 degrees represents an apogee in the Northern Hemisphere.

Next, the orbital plane must be oriented with respect to an external reference frame. Two values are required. They are:

Inclination (i)—The angle between the orbit plane and the

earth's equator. An inclination of zero means the satellite is always above the equator; an inclination of 90 degrees indicates that the satellite passes over both poles on each orbit.

Right Ascension of Ascending Node (RAAN)—The angle measured along the equator, between the First Point of Aries (a reference colestial longitude) and the point on the orbit plane where the satellite crosses the equator going northward. The First Point of Aries is defined as the point at which the sun crosses the equator into the Northern Hemisphere at the first instant of Spring, "Right Ascension" is necessary here because this value refers to a fixed point in space; longitude measurements would depend on the position of the rotating earth.

Unfortunately, the elements outlined above assume a perfect earth. This is not the case in the real world and such other factors as the oblate spheroid of the earth, gravitational pull from the moon and sun, atmospheric drag and thrust all contribute to what are called PERTURBATIONS. The most important factor for most long-term change is the non-spherical shape of the earth. It causes both short- and long-term changes in the argument of perigee and right ascension of ascending node. Additionally, for low altitude satellites, drag can be appreciable.

The first factor is easily calculated from other orbital elements; the second can at best be approximated. The DRAG FACTOR (N/2), indicates the rate of orbital decay by its effect on the mean motion, N. A drag-free orbit has a constant N; atmospheric drag will remove energy from the satellite and increase its mean motion at the rate of $2 \times N$ revolutions per day. But, as the satellite drops into a lower orbit, atmospheric drag will increase. Therefore, predictions based on just a single drag term are, at best, approximations.

DX QUADS

A NO COMPROMISE 2 ELEMENT QUAD ANTENNA AS USED BY MANY LEADING DXer's

SPECIFICATIONS:

BANDS: 20, 15 and 10 metres (other frequencies above 14MHz can be added)
BOOM LENGTH: 2.1m
TURNING RADIUS: 3.3m
FORWARD GAIN: 7dB+
F/B RATIO: 20dB or better
SWR: 1.5:1 or better across whole band
RATING: up to 2kW PEP
FEEDLINE: single 50 or 75 ohm coax

MAST DIAMETER: up to 52mm with clamps supplied

Complete kit includes 8 fibreglass rods, heavy duty boom, mounting brackets, gamma match, wire and instructions.

PRICE \$310.00

FREIGHT WITHIN NZ \$15.00 (weight 11.5kg)
ADDITIONAL ELEMENT AND 2.1m BOOM
\$125.00

Contact GRAEME, ZLIANH

ROZ CRAFT LTD

30 GRAND VUE RD, ROTORUA. Phone (073) 86852

Keplarian Elements

Elements for	UO-11	AO-10	UO-9
Epoch Day	85 94.61913766	85 88.84421726	85 96.45071767
or Date	4-APR-85 UTC	29-MAR-85 UTC	6-APR-85 UTC
at Time	14:51:33.494	20:15:40.371	10:49:2.007
Decay Rate	9.00000E-07	-7.30000E-07	1.55500E-05
Eccentricity	0.0014672	0.5980595	0.0003469
R. A. A. N.	161,3191	146.0091	82.5009
Inclination	98.2029	26.1822	97.6273
Arg of Perigee	93.0612	0.0300	131,2995
Mean Anomoly	267.2313	0.1738	228,8525
Mean Motion	14.61956704	2.05858183	15.27129519
S.M.A., km	7064.9555	26102.7953	6862.4921
Orbit Number	5828	1349	19428
Ht at Apogee (km)	697.161	35335.660	486.713
Ht at Perigee (km)	676.430	4113.611	481,952
Anom Period	98.498129	699,510692	94.294556
Allow Tellou	30.430.23	0331310024	311231333
Elements for	RS-5	RS-7	RS-8
Epoch Day	85 94.70048541	85 91.41562912	85 95.72789763
or Date	4-APR-85 UTC	I-APR-85 UTC	5-APR-85 UTC
at Time	16:48:41.939	09:58:30.356	17:28:10.355
Decay Rate	4.00000E-08	4.00000E-08	4.00000E-08
Eccentricity	0.0008496	0.0021670	0.0018440
R. A. A. N.	344.8842	342.0018	346.8867
Inclination	82.9667	82.9654	82.9651
Arg of Perigee	217.5568	152.4003	273.1657
Mean Anomoly	142.4875	207.8193	81.7287
Mean Motion	12.05049706	12.08692145	12.02952683
S.M.A., km	8036.4171	8020.2636	8045.7539
Orbit Number	14505	14509	14492
Ht at Apogee (km)	1665.085	1659.483	1682.430
Ht at Perigee (km)	1651.429	1624.724	1652.758
Anom Period	119.497145	119.137036	119.705456

FORTHCOMING SATELLITES

Satellite	Launch Date March 1986 January 1986 March 1986 ?	w JAMSAT
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AIMING CHARTS

RUSSIAN RS-SERIES AIMING CHART FOR AUCKLAND								
	ΛC		TCA LOS		TCA		TCA	
Eq.	Add	Brg	Add	El	Brg	Add	Brg	Dist
Xing	H min	°T	Min		°T	Min	°T	km
105	1.37	155	+05	02	130	+09	109	4640
110	1.35	165	+08	06	125	+15	090	4310
120	1.34	170	+10	15	120	+20	065	3554
130	1.34	178	+12	27	106	+23	045	2795
150 150 160	1.34 1.34 1.35 1.36	182 185 190 195	+12 +12 +12 +10	47 73 62 37	110 145 297 253	+24 +24 +24 +22	025 008 353 335	2110 1722 1840 2396
180 190 200	1.36 1.37 1.38 1.42	205 211 230	+09 +08 +03	21 09 01	254 253 245	+20 +16 +05	315 294 256	3150 2976 4800
310	1.07	080	+07	04	115	+12	140	4433
320	1.03	055	+09	14	101	+19	155	3604
330	1.01	035	+11	27	100	+22	160	2781
340	1.00	017	-12	43	097	+24	165	2077
350	1.00	000	+12	80	107	+24	172	1684
000	1.00	343	-12	62	262	+24	176	1828
010	1.01	326	+11	36	262	+23	182	2412
020	1.03	307	+11	21	244	+21	187	3135
030	1.07	280	÷08	10	239	+17	191	3914
040	1.12	254	+05	03	230	+10	204	4618
150	1.34	185	+12	73	145	+24	008	1722
160	1.35	190	+12	62	297	+24	353	1840
170	1.36	195	+10	37	253	+22	335	2396
180	1.37	205	+09	21	254	+20	315	3150
190	1.38	211	+08	09	253	+16	294	3976
200	1.42	230	+03	01	245	+05	256	4800
310 320 330 340 350 000	1.07 1.03 1.01 1.00 1.00	080 055 035 017 000 343	+07 +09 +11 +12 +12 +12	04 14 27 43 80 62	115 101 100 097 107 262	+12 +19 +22 +24 +24 +24	140 155 160 165 172 176	4433 3604 2781 2077 1684 1828
010	1.01	326	+11	36	262	+23	182	2412
020	1.03	307	+11	21	244	+21	187	3135
030	1.07	280	+08	10	239	+17	191	3914
040	1.12	254	+05	03	230	+10	204	4618

	UoSAT OSCAR-9 AIMING CHART FOR WELLINGTON								
		A	OS		TCA		LC)S	TCA
	Eq. Xing	Add H min	Brg °T	Add Min	El	Brg. ∘T	Add Min	Brg. °T	Dist km
P M	144 150 160 170 180 190 200	1.21 1.20 1.19 1.18 1.18 1.18 1.19	122 140 153 167 178 193 210	+03 +04 +06 +06 +05 +05 +03	03 09 26 74 32 11 02	100 096 078 021 244 240 241	+06 +08 +11 +11 +10 +09 +05	068 048 013 349 322 296 262	2375 1861 1067 548 916 1700 2403
A M	320 330 340 350 000 010	0.55 0.53 0.53 0.52 0.53 0.55	076 050 025 358 330 300	+04 +05 +05 +06 +05 +03	07 20 52 41 15 04	118 115 090 261 267 263	+08 +10 +11 +11 +10 +06	161 175 187 200 211 232	2021 1254 660 777 1492 2295

OSCAR-10

Access time will vary with up to 10 hours per day. For latest orbital predictions, refer to *Break-In* monthly listings. These are regularly updated and are very accurate.

Predicting when OSCAR-10 will be in range can be difficult without a computer so it is suggested that for general working you listen to the band 145.810 MHz to 145.970 MHz for any signals, either using an omnidirectional antenna or use a beam and sweep from West to East through North. If signals are audible, peak your beam on then and good luck!

Subscribe to AMATEUR SATELLITE REPORT

A bi-monthly newsletter

Amateur Satellite Report 221 Long Swamp Road, Wolcott, CT 06716, USA.

Definition of Abbreviations

Eq. Xing: North bound, ascending node equator crossing point in degrees longitude west of 0°.

AOS: Aquisition of Satellite. This time must be added to the equator crossing time.

TCA: Time of Closest Approach. The Add column is added to the AOS time to give TCA.

LOS: Loss of Satellite. The Add column is added to the AOS time to give time at LOS.

Brg: Bearing of satellite in degrees true at stated time.

El: Elevation of the satellite in degrees above the horizon.

RTIY (Baudot, ASCII)

RADIO TELETYPE

Operating Frequencies

80 metres 3610-3640 kHz 40 metres 7040-7060 kHz 20 metres 14080-14100 kHz 15 metres 21080-28100 kHz 10 metres 28080-28100 kHz

Selcal and Net Frequencies (Net)

80 metres 3545.00 kHz ± 30 kHz 40 metres 7045.00 kHz ± 30 kHz

Selcal Stations (as at 1/4/85)

Station	Access Code	Operating Times
ZLIAMW	WRUZ	24 hours
ZL2HO	WRUB	weekdays 1800-2400
		weekends/holidays—24 hours
Z1.2SD	WRUF	most evenings and weekends
ZL2ADU	WRMH	most evenings and weekends
Z1.20L	nnnn	24 hours
Z1,2A1.	MENU	most evenings and weekends

Engineering Net now 3615 kHz SSB

News Bulletins are broadcast every Sunday as follows:
1000 hours NZ 40 metres Baudot
1900 hours NZ 80 metres ASCII
1930 hours NZ 80 metres Baudot

ARRL broadcasts daily at 0200, 0500 and 2300 hours UTC on 7095, 14095, and 21095 kHz.

WIA broadcasts Sundays: 7045 and 14095 at 1230 UTC 3545 at 0930 UTC

Standards

RTTY is generally sent on LSB on all bands. Mark 2125 Hz tone. Space 2295 Hz tone. Shift 170 Hz.

Speed is generally 45.45 Bands but many stations including all Selcal stations use 50.0 Bands.



W.A.R.O.

N.Z. WOMEN AMATEUR RADIO OPERATORS

President: Jeanne Gilchrist. ZL2BOD

Callsign: ZL2YL

WARC was formed in 1961-62 by a small but keen group of YL transmitters and has steadily grown both in numbers and enthusiasm ever since.

For the annual subscription (constantly under review, but \$5.00 in 1984-85) members receive four quarterly Bulletins containing items of interest to operators and friends, with special attention to YL activities.

Associated members – YLs who do not have a transmitting licence are welcome, as are YLs from overseas, many of whom are sponsored by ZL members.

Objects

To promote and encourage friendship and interest in Radio amongst women Radio Amateurs.

Officers 1984-85

President: Jeanne Gilchrist, ZL2BOD. Vice-President: Lyn Sayer, ZL2PQ. Secretary: Catherine Purdie, ZL2ADK. Treasurer: Laureen Tubby, ZL1BTP. Award Custodian and Contest Manager Vicki Shaw, ZLIOC, P.O. Box 2088 Whakatane, N.Z.

National YL Net

Celia Reed, ZLIALK, Net Controller. Second Monday each month at 8 p.m.—3700 kHz.

South Island Net

Anne McMaster, ZL3VR, Net Controller. First Monday each month at 8 p.m.—3700 kHz.

North Island Net

Shirley Freeman, ZLIMY, Net Controller. Third Monday each month at 8 p.m.—3700 kHz.

All held at 9 p.m. NZDT during daylight saving.

Sub-Editor to Break-In:

Marilyn Thorp, ZL2BOA, 110 Riverhead Road, Napier.



A.R.E.C. AMATEUR RADIO EMERGENCY CORPS

with JIM MEACHEN ZL2BHF

AREC Procedure

In most AREC search operations outside stations are quite often called upon to assist with relay work and these stations find difficulty in following AREC operating procedure. The following is the *basic* procedure for Telephony. CW procedure is covered in the AREC Manual.

- 1. Establishing contact: "ZL2EXA ZL2EXA ZL2EXA. This is ZL2EX. How do you copy? Over."
- ZL2EXA acknowledges as follows: "ZL2EX this is ZL2EXA Roger, your signals, Readability 5, strength 8, go ahead. Over"
- ZL2EX replies: "Roger, 1 have message for you, Message begins, ZL2EX 1, 121320. Addressed Andrews. Text begins, Weather here fine, Signature Gorman, End of message, Over.
- ZI.2EXA replies: "Roger No. 1. I have no traffic for you, Over."
- 5. ZL2EX replies: "Roger: No further traffic here. Over."
- ZL2EXA replies: "Roger, ZL2EX, this is ZL2EXA, out."





Note 1: The use of the signing procedures "over" and "out". When you sign "out" it is very desirable to check the channel before you call your next station. Signing out means you have finished you contact final finals should be avoided.

Note 2: You will see callsigns have been omitted except for calling and signing. Callsigns should, however, he used (a) when other stations are in the operating net, (b) when conditions are poor and there could be some doubt. In these cases the operating station simply signs over as follows: "ZL2EX this is ZL2EXA Over."

The use of correct operating procedures, whilst it may appear irksome and over-efficient to some, does save considerable time if every operator is aware of what to expect. We should aim at efficiency; efficiency saves time, and seconds are very valuable when a channel is busy. No one objects to the odd wisecrack or personal remark; these all help to relieve the tension, but these remarks must be kept to times when channels are not busy. If a channel is busy, he brief and clear messages quickly and efficiently. Should an operator have an urgent message to clear, he should break in on the channel and say so—but he should use his discretion with the degree of urgency of his message—bearing in mind that out-station traffic must, for obvious reasons, have priority in the use of the channel.

Note 3: The procedure phrase "Break" is never to be used as a directive to another station to transmit. The correct signal for this purpose is the word "over".

EMERGENCY PROCEDURES

Emergency and Distress Calling:

Where it is required to attract attention in cases of emergency or distress, there are certain phone and CW calls that are internationally recognised. These should be employed only where absolutely necessary for safety of life or property.

DISTRESS: On CW send "SOS" (send this as a single signal); on phone say "Mayday". These signals indicate that the sender is in grave and imminent danger and requests immediate assistance. The distress call has absolute priority over all other transmissions.

(This signal has absolute priority over all other signals. All stations that hear it must immediately cease any transmission capable of interfering with the distress traffic, and shall continue to listen on the frequency used for the distress call. The call is not to be addressed to a particular station, and acknowledgement of receipt shall not be given before the distress message, which follows it is sent.)

URGENCY: On CW send "XXX XXX XXX"—send each letter distinctly. On phone say "PAN" (pronounced "pahn") three times. These signals indicate that the calling station has a very urgent message to transmit concerning the safety of a ship, aircraft, vehicle, or some person on board or in sight. The urgency signal has priority over all other communications except distress.

SAFETY: ("TTT" or "SECURITE" spoken three times, (pronounced "SAYCURITAY") indicating a navigational or meteorological warning.

It is allowable in cases of extreme emergency to use any frequency or mode of transmission whatever, if the operator considers that he may thus obtain assistance more quickly—but this action should only be taken when normal methods are inadequate.

When using distress or urgency signals always announce call sign and location and if no contact is made, keep calling with the important parts of the information—you may be heard by some station which is unable to reply.

AREC EMERGENCY FREQUENCIES

AREC is permitted to operate on the following frequencies which are reserved for AREC use in emergencies:

1875 - 1900k Hz

3500 3900

7100

2m frequencies by local arrangement.

The general calling frequency for stations requiring assistance in emergency is 3900 kHz. Upper Sideband and this frequency is monitored by AREC personnel during such mishaps as severe storms, power failures, earthquakes, etc.

Once the initial contact has been made, transmission should be made only on 3.9MHz or 3.5MHz.

The callsigns given on this page are the basic section callsigns. In an AREC Section operation or practice, base callsign is to be a three-letter callsign ending in "A".

The basic two-letter callsign of the Section is allocated to the Section Leader on a permanent basis.

AREC CALLSIGNS

Д,	IEA.	Auckland
Ž1.	1EB	North Shore
71	LEC.	Hamilton

ZLIEC Hamilton ZLIED Te Awamutu

ZLIEF Vaihi

ZLIEG Northland ZLIEH Waikato East

ZL1EJ Thames ZL1EJ Tauranga

ZLIEK Western Suburbs ZLIEL Cambridge

ZLIEM Eastern Bay of Plenty

ZLIEN Franklin ZLIEO Kawerau

ZLIEP Waitomo ZLIEQ Rotorua ZLIER Tokoroa

ZLIES Papakura ZLIET Taupo

ZLIEV Manukau ZLIEV Te Puke ZLIEW Rodney

ZLIEY Opotiki
ZLIEZ Northern Wairoa
ZL6EA Far North

ZL6EB Te Aroha
ZL6EC Hibiscus Coast
ZL2EA Gisborne

ZL2EB New Plymouth ZL2EC Central Bawkes Bay

ZL2ED Wanganui ZL2EE Hastings

ZL2EF Kapiti ZL2EG Northern Hawkes Bay

ZI.2EH Dannevirke ZI.2EI Manawatu ZI.2EJ Wairarapa ZI.2EK Rahotu

ZI.2EI. Upper Hutt
ZI.2EM Wellington
ZI.2EN Nelson

Z1.2EO Murlborough Z1.2EP Inglewood Z1.2EQ Napier Z1.2ER Walmarino

ZI.2ES Horowhenua ZI.2ET Titohi Bay ZI.2EU Pahiutua

ZL2EV Patea
ZL2EW Marton
ZL2EY Huit Valley
ZL2EZ Tawa

ZI.7EA Feilding ZI.7EB Hawera ZI.3EA Christchurch

ZL3EB Westland
ZL3EC South Canterbury
ZL3ED Ashburton

ZL3EF South Westland
ZL3EF Rection-Buller
ZL3EG Rangiora

ZL3EH Kaikoura ZL4EA Otago

ZI.4EB Eastern Southland ZI.4EC Southland ZI.4ED Balclutha

ZI.4EE Otago Central ZI.4EF North Otago

ZI.4EG Queenstown
ZI.1EX Area Communications Officer, Auckland
ZI.2EX Communications Manager, Wellington

ZL3EX Area Communications Officer, Christchurch ZL4EX Area Communications Officer, Dunedin

The three-letter callsigns of the Section first called upon to provide communications shall be used for all stations in the forward area, and shall be allocated by the Section Leader of that Section. In a mountain search, the callsign ending in "A" is to be allocated to the base station in control of the base to road-end operations (e.g., Local Police Station or Local SAR centre); the callsign ending in "B" to the main road-end station; the one ending in "C" to the station controlling communications in the forward area, (i.e. the Field Search Headquarters); and the remainder of the callsigns to other stations as required.

Where a station is required to operate as a relay for distant stations his basic Section call sign plus the letter "X" should be used as the Relay Station call sign (e.g. ZL2ELX).

AREC SECTION LEADERS NET

A monthly not of all AREC Section Leaders is held on the third Monday of each month at 7.30 p.m. The Net is conducted by the OC AREC, ZL2EX, on 3900 Hz Upper Sideband.

THE PHONETIC CODE

The Phonetic Code should be used with considerable discretion. Its primary purpose is to obviate confusion between letters and figures which have similar sounds. e.g., BCDEGPTV, AKJ, MN, QU, FS, TWO, THREE, FIVE, NINE.

The possibility of confusion increases greatly under adverse operating conditions such as adjacent channel interference, high level of acoustic and electrical background noise, poor audio quality (including inferior articulation), fading, etc. Under these conditions more frequent use of the phonetic code may be necessary. However, when there is a complete absence of interference of any kind and signals are perfectly readable, phonetics can be eliminated except for difficult place names, proper names, and unusual words. Regardless of the quality of the circuit phonetics should always be used for callsigns during the establishment of initial contact. It is important to memorise the code thoroughly and to avoid using substitute words.

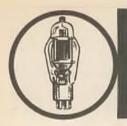
For prompt delivery of Break-In

ensure that the correct postal code has been printed on the wrapper

Phonetic Alphabet

Some words are likely to be misunderstood when passed over radio telephone circuits, due to phonetic similarity. A number of phonetic alphabets have been introduced to overcome this. The following being the most generally accepted at the present time.

A	ALFA	AL fah
В	BRAVO	BRAH voh
C	CHARLIE	CHAR lee
D	DELTA	DELL tah
Е	ECHO	ECK oh
F	FOXTROT	FOKS trot
G	GOLF	GOLF
Н	HOTEL	hoh TELL
1	INDIA	IN dee ah
J	JULIETT	JEW lee ETT
K	KILO	KEY loh
l.	LIMA	LEE mah
M	MIKE	MIKE
N	NOVEMBER	no VEM ber
0	OSCAR	OSS cah
P	PAPA	pah PAH
Q	QUEBEC	Kwee BECK or Key BECK
R	ROMEO	ROW me oh
S	SIERRA	see AIR rah
T	TANGO	TANG go
U	UNIFORM	YOU nee form or OO nee form
V	VICTOR	VIK tor
W	WHISKEY	WISS key
X	X-RAY	ECKS ray
Y	YANKEE	YANG kee
Z	ZULU	Z00 loo
1		WUN
2		T00
3		THUH-REE
4		FO-WER
5		FIYIV
6		SIX
7		SEVEN
8		AIT
9		NINER
0		ZERO



OLD TIMERS **CLUB**

Compiled by COLIN MORRISON, ZLIBGJ Assisted by DON SUTHERLAND, ZL2AJL

The objects of the Old Timers' Club (ZL) are set out in our .Constitution adopted in 1954. They are as follows:

(a) To recognise service to Amateur Radio;

(b) To revive and maintain interests and good fellowship among the older members in the common cause.

(c) To offer aid to Young Timers.

Full Membership is available to any ZL amateur who has held an amateur licence for the last 25 years or more and is still an active amateur. In addition, Associate Membership is available to any ZL amateur who has attained the age of 60 vears (and over) and has been an active amateur for 20 or more years. Voting privileges are not available to Associate Members.

No subscription or entrance fee is payable. However, a small donation is acceptable with the membership application to assist the Club's modest expenses, mainly postage and stationery, which are helped from time to time with other small donations.

Application for Membership forms may be obtained from a member of the Districts Representative Committee or from the National Secretary and evidence of eligibility which is to be submitted shall include:

Date of original licence;

2. Operator's Certificate number;

Original Callsign held and any others;

4. Present Callsign and address;

5. Full name;

Sufficient postage to cover postal charges;

7. All applications for membership must be proposed and seconded by two members of the OTC.

On acceptance a Certificate is issued to all Full and Associate Members. In addition, a further handsome Certificate of Merit is presented to those members who attain 50 years and 60 years of Amateur Service.

The Club is duly affiliated to the New Zealand Association of Radio Transmitters.

All correspondence should be addressed to the National Secretary:

> G. E. Brown, 35 Chamberlain Street, NELSON.

If a reply is expected, please enclose a stamped, selfaddressed envelope.

OFFICE BEARERS

Patron: D. Wilkinson, ZL2AB.

Grand Old Man: J. W. Black, ZL2AX.

General Secretary: G. E. Brown, ZL2BD.

Net Chairman: J. W. Black, ZL2AX.

Assistants: J. E. Gawn, ZL2US;

S. P. Wills, ZL3AV:

G. E. Mason, ZL3AY.

80 Metres: C. J. Barnes, ZL2OH.

Districts Representative Committee:

A. E. Allen, ZLIJQ;

J. E. Gawn, ZL2US; L. C. Hunter, ZL3BJ;

K. H. Shore, ZL4AI.

Assistants:

G. C. Rouse, ZL1AQ;

R. H. Hanley, ZL2GU;

E. W. Belcher, ZL3QY;

V. R. Jackson, ZL4BO.

OTC Column in Break-In:

Scribe: C. W. Morrisson, ZL1BGJ; Assistant Scribe: D. C. Sutherland, ZL1AJL.

Certificates Preparation:

L. E. C. Johnson, ZLIVX

National Nets are held every Sunday from 10.00 a.m. with a formal start at 10.30 a.m. on the 40 and 80 metre bands as follows:

 $7058 \pm kHz$ (SSB, AM, CW)

3850 kHz AM (A3).

Should conditions on 40 metres be unsatisfactory, the Net Controller may decide that the Net will QSY to 80 metres on 3755 kHz, Please check this frequency if in doubt,

Awards: The Old Timers' Club Cup is an Annual Award made on a non-competitive basis to the elected GRAND OLD MAN of the year. A Certificate, in keeping with this grand office, is presented to the holder, as a permanent reminder.

The Montgomery Cup, also, is available for presentation on an annual basis, to a member or members who have contributed the most worthy item or articles to Break-In.

A supplement up-dating the Directory of Members of the OTC (the Blue Book) may be obtained from the National Secretary at the cost of \$1.00 POST FREE. The total cost of the Directory (plus the Supplement) remains at \$3.00 POST FREE.



DX-ING

With RON MURPHY, ZLIAMM

The early days of radio gave us the terminology DX-D for distance and X for mileage as an unknown quantity. An early simple broadcast band receiver usually with an inverted L acrial and it was an unknown mileage indeed with those low strength signals crackling through the ether from distant countries at optimum times of the year. Then came the advent of shortwave frequencies and more regular reception resulted throughout the year until we have today's conditions and sophisticated equipment but the DX terminology is still retained.

As with all hobbies it is what you put into it that decides the outcome. We all have our personal commitments which determine the amount of motivation, time and financial outlay available for amateur radio. It can be great fun. fascinating, enjoyable and on occasions, with chasing DX, most frustrating. It is possible to work the world with the simplest of radio equipment and wire antennas but it will take time. On the other hand you can speed up the process by outlaying your finances to equip the station with the most modern radios and the biggest antenna farm. In the urban area you are not likely to have land available for an antenna farm so must compromise with a monoband or multiband antenna. Out on the farm is the reverse and the opportunity to erect all the antennas you may desire. Here we must appreciate the advantages of our country-dwelling associates with their antenna farms when they give better signal reports to DX stations. Sometimes we in the cities cannot even hear the station that they are fortunate to QSO and some listeners even have queried if our country friend is only talking make believe? It can be truly appreciated when driving through the country areas to view these antenna installations.

To this point you will have decided on your capital outlay on equipment and the physical space available for the antennas. A well-tuned antenna is critical if you wish to radiate efficiently the RF power generated by the transmitter. If you are just commencing your activities on the higher frequencies it will be found easy to work a considerable number of countries within the first few months while present band conditions continue. Most countries on the DXCC list have resident amateur operators so regular activity on the bands will gain you a considerable number. If you wish to improve your countries tally then listen out for news of forthcoming. DXpeditions to the rarer ones and concentrate on making time available for when they are in operation. Much DX news is available from reading various publications and

listening on the bands or to DX nets.

While it's true that working DX is relatively easy, one can still get the feeling of knocking one's head against the proverbial brick wall. This usually comes from trying to work the one station on the band that everyone in the world needs and making that attempt on 20-metre SSB with 100 watts to a dipole when propagation is favouring another call area. At that particular time, all that's happening is that one is creating additional QRM with no possible chance of getting through. To save frustration and increase enjoyment of our

hobby, it would be better to think about how to approach DXing to get maximum enjoyment out of the equipment available. The DX sport should be approached much differently with a 6 element monobander than with 100 watts to a dipole.

DXing can be 75 per cent operator and 25 per cent station. That's part of the reason that big stations sometimes lose out in the pile-ups while a smaller station with an operator who knows how to time his calls may get through first. Operating techniques to get you through faster can be learned and will

also enhance your overall operating enjoyment,

Propagation is the great equaliser in both contest and DX operating. The important thing to recognise here is that when you have it, you have it, and when you don't, you don't. Recognition of your propagation advantage is important, as you can call for hours without propagation and just be creating QRM for others and frustration for yourself. Familiarisation by listening on the bands can help, as you can learn what times to work desired areas and also what bands to use at different times of the day. A successful DXer listens, listens, listens. . . . A good tip is to load up on the band prior to listening then you are ready to immediately transmit should a wanted station be heard. Many a station can be lost in the subsequent pile-up should you be slow off the mark. If in doubt, seek out the advice of an experienced DX operator.

Many DXpeditions and DX stations prefer to work you on a different frequency, one will then find that a remote VFO or a good receiver incremental tuning (RIT) on your transceiver, or to have a separate receiver and transmitter combination, a must, in order to work them. To illustrate, if a DX station is working on 14.195 MHz, he will indicate to the listener where he will listen for you and others to transmit; calling on his frequency, you will receive no reply. Always there are the few who try to work the DX stations several times to make sure that they are in the log; a number of leading DXers in these DXpeditions will wipe the call from the log if seen more than once per band, those who contact several times are only jeopardising other's chances.

On CW a DXpedition station is usually found lower in frequency than the pile-up. Start tuning very slowly and carefully because he is usually coming back in short bursts of calls and reports and it is easy to pass over the frequency. Once you have identified him then it is necessary to find out his operating style or technique. Where is he listening? Is he picking the calls at random on different frequencies or is he going up the band or down? Endeavour to find the stations he is working and establish the pattern. Once you know that. try to zero beat the last contact on the frequency or just slightly up or down. With a reasonable signal this is usually the quickest way to work him. It is well worth the time to find out the pattern. Alternatively you can just pick a frequency in his listening area and keep calling until hopefully he finds

As an aid in working DX, time charts and an azimuth map based on ZL are very useful in your search for DX. From the map you can work out the short and long paths to various much sought-after countries of the world.

An accurate time-piece in the shack cannot be overemphasised and if you are a DXer always be on UTC. If you should also need to have local time then install a second time-piece for that purpose. Remember to check the UTC clock at regular intervals for accuracy and double check after you have worked a rare country to make sure that the entry in his log will coincide closely with your timing.

When QSLing a DX station you should always put the time in UTC (GMT or Z) and not NZST and always remember to write the date as July 6 1984 and not 6/7/1984. If your SSB contact was two-way, mark your QSL as such; this small thing may help to give somebody more joy for

some coveted award.

When QSLing to a DX station send a card via the ZL Bureau if it is to a common enough country and he is agreeable but if the DX amateur states to send it direct, do so and not by the bureau, noting in your log the way sent. Some stations indicate to send by a QSL Manager. Many of the managers are featured in QSL Managers lists and other DX publications. It is advisable not to write callsigns or other radio jargon on mailing envelopes to remote areas.

When you apply direct to a QSL manager then it is essential that you include a self-addressed envelope and sufficient International Reply Coupons (IRCs) to cover return postage. On average, send three coupons for an airmail reply. Your reply envelope should be of a large size (160×110mm) as QSL card dimensions vary considerably.

Reply coupons are available from post offices or enquire of your local NZART branch secretary or trading table for any surplus made available by local members. Double check your QSL card that it has all the details correct to enable the manager to instantly find your QSO in the log otherwise it will go into the holding tray. The waste paper basket is the end result if you have the date or frequency band wrong and some tolerance just may be granted for a small time discrepancy. Do not waste your postage by having been careless. Rarely does the DX station particularly want your card so the sending of his card is normally a favour to you. Please make his continued enjoyment of the hobby free of unnecessary frustrations with the logs.

On writing direct to an operator for his card then it is again essential to adopt the same procedures as with the QSL managers. An exception is when you discuss in your QSO as to whether IRCs are to be included. With ever increasing costs the average operator is not prepared to finance direct

postal replies and you will not receive a reply.

One should keep a book on the rare DX stations, hard to confirm States, unusual prefixes or information on missing zones and countries on various bands. QSL cards to managers should show where sent, when, how sent and how long it takes to get back, will be of assistance to you in your pursuit of that elusive DX.

Remember, the ZL DX News Net on 3.600 MHz at 0730Z each Friday, check in or monitor and gain for yourself current DX information.

GOOD LUCK and BEST DXING.

Lorrela

New Zealand Counties

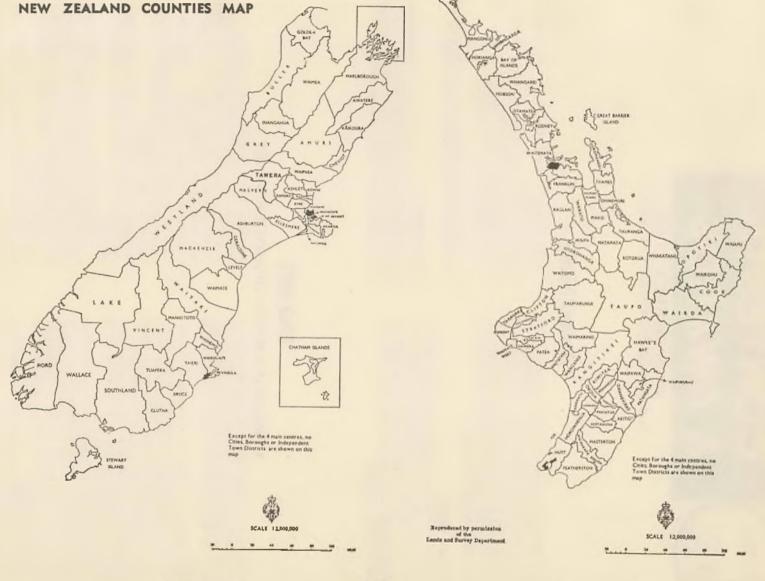
1st District
Bay of Islands
Coromandel
Franklin
Gt Barrier/ Waiheke
Hauraki Plains
Hobson
Hokianga
Mangonui
Matamata
Ohinemuri
Opotiki
Otamatea
Otorohanga
Piako
Raglan
Rodney
Rotorua
Taumarunui
Taupo
Таптапда
Thames
Waikato
Waipa
Waitemata
Waitomo
Whakatane

Whangarei Whangaroa

2nd District
Akitio
Awatere
Clifton
Cook
Dannevirke
Egmont
Eketahuna
Eltham
Featherston
Golden Bay
Hawera Hawles Bas
Hawkes Bay
Horowhenua Hutt
Inglewood
Kairanga
Kiwitea
Manawatu
Marlborough
Masterton
Oroua
Pahiatua
Patangata
Patea
Pohangi
Rangitikei
Stratford
Taranaki

Waipu
Waikohu
Waimarino
Waimate West
Waimea
Waipawa
Waipukurau
Wairarapa South
Wairoa
Waitotara
Wanganui
Woodville
3rd District
Akaroa
Amuri
Ashburton
Ashley
Buller
Chatham Islands
Cheviot
Ellesmere
Eyre
Geraldine
Grey
Halswell
Heathcote
Inangahua
Kaikoura
Kowai

Leveis
Mackenzie
Malvern
Mt Herbert
Oxford
Paparua
Rangiora
Tawera
Waimairi
Waimate
Waipara
Wairewa
Westland
4th District
Bruce
Clutha
Fiord
Lake
Maniototo
Peninsula
Southland
Stewart Island
Tairi
Tuapeka
Vincent
Waihemo
Waikouaiti
Waitaki
Wallace



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NUMBER

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PA BBITION FIR THE



with JOCK WHITE, ZL2GX and assistant PETER KENNY, ZL2QK

Award Notes

When applying for an award, whether through NZART or through an Overseas Society, courtesy demands that you observe the following: (1) PRINT you name, address and callsign; (2) Clearly state what award (and endorsements) you are applying for: (3) Supply checking sheet with callsigns, dates of QSOs, mode, etc. (4) Enclose required funds (currency IRC stamps) as requested.

For NZART Awards

1. The usually accepted rules apply to all NZART awards.

 NZART stresses the HONOUR SYSTEM. Awards applicants need NOT hold QSL cards for claimed contacts. It is sufficient to merely certify that the QSO was legitimately made. Thus no QSL rule applies ONLY to NZART sponsored awards.

- Endorsements for mode/time location etc. made at applicant's request.
- Stamps or currency from any country accepted instead of IRC but cheques NOT desirable.
- Post applications to Awards Manager ZŁ2GX, 152 Lytton Road, Gisborne, New Zealand.
- ***APPLICATION FORMS suitable for most awards are available from Contest Manager (SASE please).

Cost of Awards

NB—Cost given for awards are those for ZL applicants. Overseas applicants pay \$1 for each NZART award EXCEPT WAP (\$2.00) and 5×5 (\$2.00) or where reciprocal arrangements have been made. Airmail postage is \$1 extra.

ENZART

A PRESTIGE AWARD TO HONOUR NZART

- In three parts—(A) Basic award requires 200 points with endorsements for 250, 300, 350 points. (B) Honour award requires 400 points with endorsements for each additional 50 points. (C) HONOUR PLAQUE for 500 points.
- Points carned as follows by contacting an NZART member who is on the voting roll of the Branch concerned—Phone QSO, 1; CW QSO, 2; Club Station QSO, 2; YI. op. QSO, 1; UHF, VHF QSO, 1; Mobile QSO, 1; AMSAT QSO, 1; Branch President QSO, 1.
- It is essential to clearly determine that the operator contacted is a financial member of NZART and on the voting roll of the Branch concerned.
- 4. Contacts claimed with a Branch Station must be from a Clubroom or other permanent headquarters, or alternatively when the station is being operated in a contest, from an exhibition, or other activity of a similar kind. Contacts as a result of callsign "swapping" at a member's QTH are not eligible.
- Contacts with mobiles are eligible only when the mobile station is within 30 miles of his Branch's Clubrooms or his own QTH. (Note rule 3 above.)

- 6. One station may be claimed in several categories—e.g., the Branch President can be claimed for both phone and for CW as well as for Branch President but EACH claimed must be for a seperate contact, and the contacts must be not less than 24 hours apart.
- 7. Contacts must be "phone to phone" or "CW to CW".
- "Club Net" contacts are not eligible until the net concludes, while contacts made in an organised "awards net" with MC etc., are not eligible.
- Permanent changes of QTH by claimant are permitted and likewise contacts made during genuine temporary operation.
- 10. ZL applicants must be members of NZART and all applicants must certify that each contact made fulfils award requirements, No QSL card need be held or submitted but applications must be made on special Check List—cost 10 cents plus SASE (large). Contacts must date 1/11/76 or later.
- Each certificate costs \$1. Endorsements free but SASE required.
- 12. Applications to NZART Awards Manager, Z1.2GX.

"WORKED ALL PACIFIC"

Contacts required with 30 different "Oceania Countries" from WAP list-

Because prefixes change from time to time, no prefixes are given in the list of eligible countries. The point of eligibility is the COUNTRY-not the prefix. Cost \$1.50.

Eligible countries . . . (Any Oceania country) (i.e.) eligible as Oceania for WAC. (See DXCC list.)

Five Band WAP

Contact any 30 eligible Pacific Countries (as count for Oceania for WAC), each on FIVE different bands making a total of 150. Send list of log extracts (QSLs not required to be held) to Awards Manager. . . with \$6. REWARD; Wooden Shield surmounted with NZART badge and suitably inscribed. (Extra overseas postage for AIRMAIL \$2.)



A VHF AWARD

Contacts required on any VHF band (or mixture of VHF bands) with ZL1, ZL2, ZL3, ZL4, Cost-\$1.00. Endorsement for Satellite OSOs.

NEW ZEALAND AWARD

Available to all radio amateurs other than ZL.

Requirements:

35 contacts with ZL1.

plus 35 contacts with ZL2.

plus 20 contacts with ZL3.

plus 10 contacts with ZL4.

plus I contact with ZL "territory"-

either from N.Z. Antarctica, Chatham Is.; Kermadec Is; or Campbell Is. This one contact may be substituted by 20 ordinary ZL contacts if desired.

This makes a minimum of 101 contacts which should be dated from December 8, 1945. (Cost \$1.00.)

PLEASE NOTE:

Designation ZL1, ZL2, ZL3, ZL4, .

- 1. Because of licensing policy, the prefix ZL1, ZL2, ZL3, ZL4 does not necessarily indicate a specific location in a "callsign area"
- 2. Until NZART policy on this matter has been clarified and promulgated in Break-In the following rulings will prevail . . .

Awards:

Credit will be given for the station contacted ACCORD-ING TO ITS LOCATION irrespective of prefix—in one of the four licensing areas.

Contests:

Because of the difficulty of a short "rational explanation" during a contest, credit will be given for the PREFIX, irrespective of location.



"WORKED ALL NEW ZEALAND"

Contacts required for 45 different Branches of NZART EXCEPT FOR OVERSEAS APPLICANTS (for whom only 35 are required). Special endorsement when WAZL completed within 12 month period. NB: Mobiles operating outside their own Branch Area must use the Branch Number of the area in which they are operating (for WAZL credit). Cost S1.

NZART BRANCHES FOR WAZL

- 01 Ashburton
- 02 Auckland
- 03 Western Suburbs
- 04 Cambridge
- 05 Christchurch
- 06 Dannevirke
- 08 East Southland
- 09 Egmont
- 10 Franklin
- 11 Gisborne
- 12 Hamilton
- 13 Hastings-Havelock Nth
- 14 Hawera
- 15 Hawke's Bay Central
- 16 Horowhenua
- 17 Huntly
- 18 Hutt Valley 19 Inglewood
- 20 Manawatu
- 21 Manakau 22 Marlborough
- 23 Marton
- 24 Motueka
- 25 Napier
- 26 Nelson
- New Plymouth
- Northland
- 29 North Shore
- 30 Otago
- 31 Pahiatua
- Rahotu Coastal 33 Rotorua
- 34 South Canterbury
- 35 South Otago
- South Westland
- Southland
- 38 Taumarunui
- 39 Tauranga
- 40 Te Awamutu
- 41 Thames Valley

- 42 Titahi Bay
- 43 Waihi
- 44 Matamata Radio Club
- 45 Waimarino
- 46 Wairarapa
- 47 Waitara
- 48 Wanganui
- 49 Westland
- 50 Wellington
- 51 Eastern Bay of Plenty
- 52 Northern Hawkes Bay
- 53 Te Puke
- 54 Patea
- 55 Waitomo
- 56 Christchurch West
- 57 Tokoroa
- 58 Helensville
- 59 Mangakino
- 60 Taupo
- 61 Central Otago
- 62 Reefton-Buller
- 63 Upper Hutt
- 64 North Otago
- 65 Papakura
- 66 Auckland VHF 67 Kawerau
- 68 North Canterbury
- 69 Kapiti
- 70 Feilding
- Rodney
- Opotiki
- 73 Northern Wairoa
- 74 Wellington VHF
- 75 Queenstown
- 76 Kaikoura 77 Te Aroha & Districts
- 78 Far North
- 79 Howick & Districts
- 80 Hisbiscus Coast
- 81 Waikato VHF Group



100 points required from QSOs with Z1, stations on the following basis;

50 MHz band contacts count 1 point.

144 MHz band contacts count 3 points.

432 MHz band contacts count 6 points.

(Further bands may be added in the future.)

The same station may be claimed once on any one band but may be claimed repeatedly on different bands.

Endorsement stickers available for 200, 300 400, 500 points. (Cost \$1,00.)



NEW ZEALAND COUNTIES

Basic award requires contacts with 20 different New Zealand Counties. Endorsements for 40, 60, 80, 100 are made with a special certificate for 112, Map showing Counties is on page 167, while checking sheet is available from NZART (see below).

- Initial certificate with any or all endorsements to 100 costs \$1.
- Separate endorsements to 100, after issue of basic award, cost 20 cents for any group—or 1 IRC. Plus SASE.
- 3. Special Certificate for "NZC 112" costs \$1.
- Checking Sheets which MUST be used and which are returned to applicant for record purposes cost 20 cents (1 1RC)
- NZC "224" the "224" Shield was instituted to recognise very outstanding achievement —that of "double 112" with different stations contacted in the relevant counties for each NZC 112. Current cost is \$40. Applicants for NZC 224 must first hold TWO NZC 112 awards.
- The operator on a "County DXpedition" whether mobile or Fixed Portable may claim that County for his own NZC credit.
- The original "Counties List" will be maintained irrespective of deletions or additions. The criteria will be the actual area of operation which must be determined by the honour of the operator.
- Overseas applicants extra \$2 for postage on "224" plaque.

"5×5"

FIVE BY FIVE

This Premier Award has been instituted to recognise the increasing interest in Five Band DX operation. The initial award requires that the same station be contacted on five bands repeated with five different DXCC countries. First endorsement after a further five has been contacted (total of ten) with the 20 endorsement requiring another ten and so on to 100. Certified list with full QSO data and fee of \$2 which includes all endorsements. Certificate is outstanding and is overprinted in embossed gold. Contacts must date from 1945. Applications to ZL2GX.

NZLA

NZ LAKESIDE AWARD

- For Basic Award, contacts are required with stations operating on the shores of TEN (10) freshwater lakes in New Zealand. Endorsements for each additional 10 lakes up to 40; Honour Award for 50 lakes with further endorsements for each additional 10.
- Stations must be located within ONE kilometre of the water or in a town on the lake shore.
- Full rules are with the Check Sheets which MUST be used when applying for NZLA—these cost 20 cents plus SASE (large).
- Basic Award costs \$1, and large SASE for any endorsement.
 Honour Award is \$1 and SASE for any endorsement.
- Check sheets from Awards Manager ZI.2GX, to whom all applictions must be directed.
- 6. Eligible contacts must date 1/5/76 or later.
- NOTE: Check Sheets are returned to applicant and make up a complete record of lakes credited towards award. Basic work for this award was done for NZART by Mike Groth ZLIAHE.

"ZL-72" Award

Overseas stations work 50 different ZL stations during 1972; ZL stations work 100 as follows: 35 ZL1, 35 ZL2, 20 ZL3, 10 ZL4 during 1972, Certified list with \$1 to Awards Manager ZL2GX.

"ZL-73""ZL-74""ZL-75""ZL-76""ZL-79""ZL-80""ZL-81"
"ZL-82" "ZL-83" etc.

Rules as for ZL-72 except ZI, and or ZM are acceptable. Certificate will be rather unusual but appropriate. All applications to ZL2GX.—(GCR) or 25 contacts on 160 with all districts represented.

"ZLA" Award

Contacts required with Auckland City ZL1. Wellington City ZL2. Christchurch City ZL3, Dunedin City ZL4, Antarctica ZL5, Campbell Island, Chatham Island, Kermadec Island. Applications must send certified list to Awards Manager ZL2GX with \$1 or stamps from country of applicant. Specially produced certificate.

MIA

MINOR ISLANDS AWARD

For contacts with minor islands off the NZ coast – e.g. Kapiti Island; Portland Island; Great Barrier Island; Little Barrier Island; Waiheke Island; D'Urville Island; Rangitoto Island; Kawau Island; Motutapa Island; etc. from which FIVE contacts are required. Certified list with \$1 to ZL2GX.

N.B. So called "islands" in Auckland area which are connected to mainland by a causeway are not eligible.

ZL1 Award

Basic Award required contacts with 125 stations dating post-war, Endorsements 175 and 250.

ZL2 Award

Basic Award requires contacts with 100 different ZL2 stations dating post-war. Endorsements for 150 and 200.

ZL3 Award

Basic Award requires contacts with 50 different ZL3 stations dating post-war. Endorsements for 75 and 100.

ZL4 Award

Basic Award requires contact with 25 different Z1.4 stations dating post-war. Endorsements for 35 and 50. Note: Cost of ZL1/2/3/4 Certificates is \$1 each with any endorsements. Further endorsements will cost 10 cents or 1 IRC UNLESS a new certificate is required instead of the "sticker", in which case the cost is 35 cents. On issue, certificates will be endorsed for band/mode as requested and for any yearly period of time (January through December). Such endorsements are of course available to applicants at any time after the

initial award has been made. ZL or ZM combination

is OK. APPLICATIONS with list to ZL2GX.

Tiki Award

Work five different ZLs, each on FIVE different hands dated-post war. Cost \$1.



CAPTAIN JAMES COOK AWARD

To perpetuate the memory of this world famous navigator and seaman—in three classes: 1. Basic "Sailor Class" requires contacts with — G in Yorkshire; FO8, ZL2; VK2; KH6... For "Officer Class" "Sailor Class" contacts as well as ZL1, ZL3, ZL4, VK3, VK4, VK9 New Guinea, and any Antarctic station... For "Command Class", as for "Officer Class" as well as any five of the following — VE2, VO, VR5, YJ8, FK8, CE8, KL7. Certified list (confirmations not required) with \$1 to ZL2GX.

Antipodes Award

All-round Achievement recognised as-

- L. TECHNICAL
 - (a) Stations of claimant (receiver, transmitter, antenna) to be home built, to be completely of amateur design and construction which the operator has personally developed and constructed.
 - (b) Commercially constructed equipment or kitsets from any source are not eligible.
- 2. OPEŘATING

Three QSOs to be made with stations (these stations NO I required to meet above requirements) in the general "antipodes continental area" of the claimant (e.g. ZL to Europe).

APPLICATIONS TO ZL2GX (NZART) with SI with certification that rules have been observed. (Award suggested by ZL2AMJ.)

Other Awards—Not Official

IARU REGION III OPERATING AWARD

To publicise Region III

- 1. The award is available to licensed amateurs and SWLs.
- Contacts made after April 5 1982 are eligible but certificates will date from January 1 1983 as part of WORLD COMMUNICATIONS YEAR.
- QSL cards NOT required. Send certified list of eligible contacts from Log Book.
- 4. Cost is \$1 surface (\$2 airmail) for postage charges only.
- Basic Award requires seven countries; Silver Star endorsement requires 12 countries; Gold Star endorsement requires 17 countries.
- 6. Awards may be endorsed for any mode or band.
- Eligible countries; Japan; Australia: New Zealand; Korea; Philippines; Hong Kong; Thailand; Papua New Guinea; Eiji: Singapore; India: Indonesia; Malaysia; Sri Lanka; Tonga; Western Samoa; Solomon Islands.
- Applications to NZART Awards Manager, 152 Lytton Road, Gisborne, New Zealand.

AUCKLAND BRANCH CERTIFICATE

For Overseas Stations ONLY—to QSO eight members of Auckland Branch (02) since 1-1-57. Branch Station ZL1AA counts as two members. NO QSLs required—send list of stations worked with relevant QSO data. N.B.—NOT all Auckland stations are members of Auckland Branch.

WORKED NEW ZEALAND NOVICES AWARD

To encourage QSOs with NZ Novices. For Basic Award QSO 10 New Zealand Novices, including ONE from each of Z1 1, Z1.2, Z1.3, Z1.4 districts. Endorsements for 25 (two QSOs from each call area); 100 (ten QSOs from each call area), 100 (ten QSOs from each call area), with all contacts on or after 1-10-79. Certificates may be endorsed "all CW" or "all phone". No QSLs required . . . , send certified list with relevant QSO data. Novice Band is 3.525 to 3.575MHz.

APPLICATIONS FOR ABOVE to Awards Manager, Auckland Branch, Box 18-003, Glen Innes, Auckland, Cost is \$1 for each certificate with no charges for endorsement.

CHRISTCHURCH AWARD



Requirements: Christchurch amateurs 25 different stations; rest of ZL—15 stations; VK—10 stations; rest of world—5 stations. Cost: ZL's 50 cents; others US\$1.00 or equal, Applications to Awards Manager, Box 1733, Christchurch.

BAY OF PLENTY AWARD

Overseas stations contact 5 stations in the area (Opotiki, Rotorua, Tauranga, Whakatane) while ZL require 10 or 5 on VHF. Send certified list with 8 IRC or 50 cents to ZLIBJP, 36 Western Road, Otumoetai, Tauranga.

HOROWHENUA AWARD

For contacts in Branch 16 area—Levin, Otaki, Waikanae, Shannon, with bonus points for amateurs in various categories. Involved rules—apply for details, E. Tombs, ZL2IG, Ibakara, R.D. I, Levin, with SASE.

KAPITI AWARD

Contacts since 1-1-76 with Kapiti Club (Branch 69) as follows—Stations in ITU Region 1-5 contacts: Region 2-7; Region 3-9 except for VK and ZI, which require 15 contacts on bands 160 to 10 or 5 contacts on VHF: UHF. Contacts with club station ZL2KB counts as two ordinary contacts. Net and repeater contacts ineligible; ONF contact only with any one club member; special endorsements for single band all phone all CW. Certified list with 3 IRC or 50 cents US for DX (50 cents for ZLs) to Box 1608, Paraparaumu Beach.

MANAWATU AWARD

For overseas stations working FIVE stations who are members of Manawatti Branch NZART. Certified list and \$1 or 5 IRCs to ZL2AFT, 431 Albert Street, Palmerston North.

NELSON MOBILE AWARD

- Mobile to Fixed, 100 points required (must include two Branch 26 contacts).
- Mobile to Mobile, 50 points required (must include one Branch 26 contact).
- Fixed to Mobile, 100 points required (must include one Branch 26 contact).
- Worked Mobiles in 40 NZ Counties (must include one from Waimea).
- Worked Mobiles from 35 NZ Branches (must include one from Branch 26).
- 6. Mobile station to work 35 prefixes.

One point for each contact in own radio district, two points in adjacent districts and three points in alternative or DX. First two Branch 26 contacts count four points each. Duplicate contacts are not allowed except in County section.

QSLs not required. Two Amateurs should verify the log submitted. Refer to full details in July 1969 *Break-In*. CHC rules apply.

Applications with \$1 (endorsements 25 cents) to Nelson Branch, Box 463, Nelson.

PAPAKURA RADIO CLUB "21" AWARD

For contacts with 20 members of Papakura Radio Club PLUS ZL3VK dating from 1/1/77. Band/mode endorsements; certificates not numbered; cost 50 cents. Apply to Miss C. Johnson, ZL3AJ1., 63 Red Hill, Papakura.

GISBORNE AWARD





Requirements: Contacts after January 1, 1969, as follows: Gisborne amateurs—10 different stations ZL—tour stations

rest of world—two stations. Cost: \$1. Apply to ZL2GX.

REEFTON-BULLER AWARD

Basic Award requires contact with any five Branch members; Merit Award requires in addition to Basic that ZLs contact—one Branch 62 Mobile, one XYL, and the Club Station ZL3WP while overseas stations contact any of those mentioned. Special merit for contacts made in 1973 between October 1 and December 31. No QSLs required. Send certified list with \$1 to ZL2GX. List of members, etc., available from Branch 62 Secretary.

UPPER HUTT AWARD

Available to amateurs/SWLs with any required endorsement for contacts after July 2, 1972 with stations operating in Upper Hutt Valley which count as ONE point except YL ops and Club Station ZL2VH which count as TWO points. Upper Hutt applicants require total of 15 points; rest of NZ require teo; Overseas require five points. Certified list with FULL QSO data (no QSL cards) with 50 cents or 5 IRCs to Upper Hutt Award, Box 40-212, Upper Hutt, NB; Mobile stations operating in the Valley count as a contact. Upper Hutt Club members outside the Upper Valley also count as a contact. No repeater contacts eligible.

WANGANUI AWARD

For contacts since 1/1/82 with permanent residents in the Wanganui area—one point; with Wanganui-based mobile stations regardless of location—one point; with Zl.2JA—two points. Overseas stations require three points; Zl.s require eight points on HF bands or six points on VHF bands (repeater contacts not acceptable).

QSO details with \$1 to ZL2AHR, Box 7058, St. Johns, Wanganui.

WESTERN SUBURBS RADIO CLUB AWARD

For contacts wth any New Zealand amateur station. Use last letters of call signs to make up words WESTERN SUB-URBS RADIO CLUB. Branch 03 members may be used as bonus to replace any missing letters. Endorsement for band/mode. Certified list with 50 cents (overseas 6 IRC or \$1) to WSRC, P.O. Box 15-122, New Lynn, Auckland 7.

HUTT VALLEY AWARD

One point for contacts dating after March 1, 1976, with members of Branch 18—any band/mode but NO repeater contacts eligible: TWO points for any YL contact; TWO points for contacts with Club Station ZL2HV and two extra points if applicant uses equipment operated by power generated on the site from natural sources (wind, solar, water, etc).

ZLs require total of ten points; overseas stations five points. Endorsements for additional five points and MERIT for single band operation or when all contacts are on CW. Applications with details of equipment used, etc., and fee of SI to Awards Manager. Box 30-519, Lower Hutt, New Zealand.

See Breuk-In April 1983 for details of *50th ANNI-VERSARY AWARD for period March 1 December 31 1983.

WARO AWARDS

General:

Contacts may be in any mode, any band, with applicant's contacts all from the same QTH (except as in VHF section), but contacts via repeaters, in WARO nets or contests are incligible for WARO Awards. No QSLs are required. Send list certified by one other licensed radio amateur to Custodian, Vicki Shaw, ZLIOC, P.O. Box 2088, Whakatane, with sufficient postage for return of Award.

WARO Main Award:

ZL and VK stations work 12 WARO members resident in New Zealand, DX stations work six. Contacts to date from June 1, 1969. Endorsement seals available to ZL and VK stations for each additional 12 contacts. DX stations six. Contacts with DX members of WARO qualify for endorsements but applications must contain at least three ZL contacts.

VIIF Section:

Ten VHF contacts with WARO members dating from January 1, 1979. WARO members and/or applicants may be home station, mobile or portable. Endorsements for each additional five.

SWL Section:

Z1, and VK stations list 20 contacts heard with WARO members, DX list 10, dating from January 1, 1979. List full log details with call signs of both stations concerned. Endorsements for each additional 10 (5 for DX stations).



PANIA OF THE REEF

An old Maori legend tells how Pania, lured by the siren voices of the sea people, swam out to meet them. When she endeavoured to return to her lover, she was transformed into the reef which now lies beyond the breakwater at Napier, New Zealand.

RSGB Awards



- N.B.: South Africa contacts must date before June 1, 1961.
- Send to NZART Awards Manager for RSGB Awards application form for all RSGB Awards—this lists all acceptable call areas.
- Return completed application form to NZART Awards Manager with QSL cards for certification. Cards and list will then be returned.
- Post application to RSGB with British Postal Note for 7/for each award.

WBC— WORKED BRITISH COMMONWEALTH

Confirmations required from British stations in each of the five recognised continental areas—America; Asia: Oceania; Africa; Europe.

BCTRA-BRITISH COMMONWEALTH RADIO TRANSMISSION AWARD

Confirmations required from 50 call areas in the Commonwealth. Endorsements available for modes/bands.

BCRRA-BRITISH COMMONWEALTH RADIO RECEPTION AWARD

As for BCRTA above except for SWLs only.

DXLCA-DX LISTENERS' CENTURY AWARD.

For SWLs only, 100 different countries confirmed as per RSGB Countries list,

CDX—COMMONWEALTH DX CERTIFICATE

Confirmation required from 50 Commonwealth call areas on 14 MHz in addition with at least 50 call areas on bands other than 14 MHz, making a total of 100 call areas, A most attractive certificate.



ARRL Awards

WAS-WORKED ALL STATES

Send checking list with confirmations from the 50 States of the USA direct to ARRL. (Also 5 Band WAS.)



DXCC-DX CENTURY CLUB

DXCC certificate and Lapel Badge are available as follows . . .

- 1. MIXED—contacts in any mode made since 15/11/45.
- PHONE—contacts on phone only made since 15/11/45.
- 3. CW-contacts made on CW since 1 1 75.
- 4. RTTY—contacts made on radioteletype since 15/11/45.
- 160 METRES—contacts made on 160 metres since 15 11 45
- SATELLITE—contacts made since 1/3/65 through polar-sun synchronous satellites of altitudes less than 1500 miles.

ENDORSEMENTS are available (EXCEPT for 160-Metres and RTTY DXCCs) for accredited totals between 100 and 250 in groups that will at least bring the new total to a number divisible from 25; for totals between 250 and 300 in groups that will bring the new total to a number divisible by 10; for totals over 300—to a number divisible by five.

APPLICATIONS must be posted direct to ARRL, 225 Main Street, Newington, Conn. U.S.A. 06111 with QSL cards and a check list with countries claimed listed in order as given in DXCC Countries List.

CHARGES—none except sufficient funds for safe return of QSL cards. This must be by Registered Mail—for 100 cards.

5BDXCC—FIVE BAND DXCC—confirmations required from 100 different countries on five different bands since 1/1.69. Phone and/or CW may be used. Applications must be made on a special form available only from ARRL.

New Zealand Post Office Frequency Allocation List for Amateur Stations

Valid from January 1, 1985

_		
Frequency Band	Notes	Use restricted to Certificate holders of
1800 to 1950 kHz	3 and 6	Grades 1 and 11
3.50 to 3.90 MHz 3.525 to 3.575 MHz	1 and 3 1 and 3	Grades I and II Novice
7.00 to 7.10 MHz 7.10 to 7.30 MHz	1 and 2 7	Grade I Grade I
10.10 to 10.15 MHz	1, 3 and 6	Grade I
14,00 to 14.35 MHz	1 and 2	Grade 1
18.068 to 18.168 MHz	1 and 3	Grade I
21.00 to 21.45 MHz	1 and 2	Grade I
27.12 MHz	4 and 8	Grades I, II and III
28.00 to 29.70 MHz 28.10 to 28.60 MHz	2 2	Grades I and II Novice
50.00 to 50.15 MHz 51.00 to 53.00 MHz	9	Grades I and II Grades I, II and III
144.0 to 146.0 MHz 146.0 to 148.0 MHz	I and 2	Grades I. II and III Grades I, II and III
430 to 449.75 MHz	2 and 3	Grades 1, 11 and 111
610 to 620 MHz	3	Grades I, II and III
1.24 GHz to 1.30 GHz	2 and 3	Grades I, II and III
2.30 GHz to 2.45 GHz	2. 3 and 4	Grades 1, II and III
3.30 GHz to 3.50 GHz	2 and 3	Grades 1, II and III
5.65 GHz to 5.85 GHz	2, 3, and 4	Grades 1, II and III
10.0 GHz to 10.5 GHz	2 and 3	Grades 1, II and III
24.00 to 24.05 GHz 24.05 to 24.25 GHz	2 and 4 3 and 4	Grades 1, II and III Grades I, II and III
47.0 to 47.2 GHz	2	Grades I, II and III
75.5 to 76.0 GHz 76.0 to 81 GHz	2 2 and 3	Grades I, II and III Grades I, II and III
119.98 to 120.02 GHz	3	Grades 1, 11 and III
142 to 144 GHz 144 to 149 GHz	2 2 and 3	Grades I, II and III Grades I, II and III
241 to 248 GHz 248 to 250 GHz	2 and 3 2	Grades I, II and III Grades I, II and III
275 GHz to 400 GHz	5	Grades I, II and III

The class of emission from an amateur station should be selected in the light of the total available bandwidth for all users and shall be in accordance with current operating practice.

NOTES

- The bands at 3.5 MHz, 7.0 MHz, 10.1 MHz, 14.0 MHz, 18.068 MHz, 21.0 MHz and 144 MHz are available for use by all stations at times of natural disaster in connection with international relief operations.
- The bands 7.0 to 7.1 MHz; 14.0 to 14.25 MHz; 21.00 to 21.45 MHz; 28.0 to 29.7 MHz; 144 to 146 MHz; 435 to 438 MHz; 1260 to 1270 MHz (earth-to-space direction only); 2.4 to 2.45 GHz; 3.40 to 3.41 GHz; 5.65 to 5.67 GHz (earth-to-space direction only); 5.83 to 5.85 GHz (space-to-carth direction only); 10.45 to 10.5 GHz; 24.0 to 24.05 GHz; 47.0 to 47.2 GHz; 75.5 to 81 GHz; 142 to 149 GHz; and 241 to 250 GHz may be used for amateur satellite communications.
- This band is shared either on an equal or on a secondary basis with other radio services. Amateur use is on a strict non-interference basis to stations of these other services.
- 4. The frequencies 27.12 MHz, 2.45 GHz, 5.8 GHz; and 24.125 GHz are designated for industrial, scientific and medical (ISM) purposes with emissions confined within ± 163 kHz, ± 50 MHz, ± 75 MHz, and ± 125 MHz respectively of these frequencies. Amateur stations operating within these limits must accept interference from ISM equipment.
- The band 275 to 400 GHz is allocated for use by amateur stations on a temporary and non-interference basis for experimentation and development purposes.
- 6. Until further notice the following spot frequencies are not to be used: 1800 kHz (± 3 kHz), 1860 kHz (± 3 kHz), 10.130 MHz (± 3 kHz). The frequencies of 1850 kHz-1950 kHz should be used with caution as they are also used for navigation purposes.
- Operation is on a strict non-interference basis to broadcasting services.
- Telecontrol and telemetry operation only. Power not to exceed 5 watts.
- The band 50-50.15 MHz is allocated for temporary use on a non-interference basis to existing services. Operation is only permitted outside television programme hours.

New Zealand Bandplans

These plans help you comply with the official Frequency Allocation List: The class of emission from an amateur station shall be selected in the light of the total available bandwidth for all users and shall be in accordance with current operating practice.

These plans represent current operating practice.

Band	Emission
(MHz)	(see notes)
1.8-1.95	6
3.5-3.55	N
3.55-3.9	6
7.0-7.03	N
7.03-7.3	6
10.1-10.15	N
[4.0-14.1]	N
[4.1-14.35	6
18.068-18.11	N
18.11-18.168	6
21.0-21.1	N
21.1-21.45	6
24.89-24.93*	N
24.93-24.99*	6
27.12 ± 0.163	T
28.0-28.1	N
28.1-29.5	6, B. S.
29.5-29.7	10
50.0-50.15	6
Amateur Bands	
51 to 440 MHz	30. B, R. S
Amateur Bands	
440 MHz to 1.3 GHz	7. B. R. S
All Amateur Bands	
above 2.3 GHz	W, B, R, S
*When available.	

See page XX for designated frequencies and detailed bandplans.

All amateurs are reminded of:

 The ITU Radio Regulations (Edition of 1982), including:

307. The bandwidths of emissions shall also be such to ensure the most efficient utilisation of the spectrum; in general this requires that bandwidths be kept at the lowest value which the state of the technique and the nature of the service permit.

1804 All stations shall radiate only as much power as is necessary to ensure a satisfactory service.

Notes:

- N = Narrow-band modes: i.e. CW and RTTY. RTTY operating is normally at the high-frequency end of the segment. Call Book-listed seleal (RTTY selective calling) frequencies should be avoided by stations using other modes. SSB phone may be used for morse practice texts by stations in 3.53-3.55 MHz segment.
- 6 = All modes except MCW and AFSK, to a MAXIMUM bandwidth of 6 kHz.
- 10 = All modes except MCW and AFSK to a MAXIMUM bandwidth of 10 kHz.
- 30 = All modes to a MAXIMUM bandwidth of 30 kHz.
- 7 = All modes to a MAXIMUM bandwidth of 7 MHz.
- W = Wideband modes.
- B = Beacons: Transmitting on Call Book-listed beacon frequencies should be avoided.
- R = Repeaters; Transmitting on Call Book-listed repeater frequencies should be avoided for direct contact in their service areas.
- S = Satellites in current use: Terrestrial contacts are not recommended in the segments 29.3-29.5, 145.8-146.0, 435-438, 1260-1270 MHz and on higher satellite-used frequencies.
- T = Telecontrol and telemetry only.
- The New Zealand Radio Regulations 1970, including: 40. (Not to cause harmful interference to other stations).
 - 45. (No monopoly of allocated frequencies.)
 - 145. (Permitted power limit.)
- NZART Current Policy, Section 12A, Bandplans, (Break-In, page 2, October 1983):
 - d. All radio amateurs are requested to observe the published New Zealand bandplans which are to assist others to follow their interests with minimum impact on you, and to assist you to follow your interests with minimum impact on others.

Explanatory Information on Classes of Emission

A new method of classifying emissions was developed at the World Administrative Radio Conference, Geneva, 1979 (WARC-79). Full details are contained in Article 4 of the International Radio Regulations. The following is a condensed summary for amateur radio purposes;

1. There are three parts to the expression:

(i) The first four characters express the necessary bandwidth with the unit of bandwidth being placed at the position of decimal point.

e.g. 200H = 200 Hertz bandwidth 4K00 = 4 kHz bandwidth.

(ii) The next group of three characters express the type of modulation and the nature of the modulating signal:

e.g. A3E; A = Double sideband

3 = A single channel containing analogue information.

E = Telephony.

J3E: J = Single sideband, suppressed carrier

3 = A single channel containing analogue information

E = Telephony

(iii) The last two characters express further information on the nature of the modulating signal but are not mandatory.

(Most amateur signals do not need the last two characters.)

e.g., JN: J = sound of commercial quality.

N = Nature of multiplexing. (None is used in amateur emissions so N is always used.)

NOTE: It is mandatory to use three (without bandwidth), seven, or nine characters when expressing a class of emission.

Two common types of amateur signals (CW and SSB are expressed in the following form:

*100HAIA = 100 Hertz bandwidth. Continuous wave telegraphy, morse code, i.e.,

†2K70J3E = 2.7 kHz bandwidth Telephony, single sideband suppressed carrier (single channel).

 The Tables below show the designations of amateur emissions. These are the fifth, sixth, and seventh characters of the expression:

Fifth character-type of modulation:

Amplitude Modulation

A = Double sideband

B = Single sideband, full earrier

R = Single sideband, reduced or variable level carrier

J = Single sideband, suppressed carrier

B = Independent sideband

C = Vestigial sideband

Angle Modulation

F = Frequency modulation

G = Phase modulation

Phase Modulation

K = Amplitude modulated

L = Modulated in width/duration

M = Modulated in position/phase

Previously expressed as AI Previously expressed as A31 Sixth character—Nature of signal(s) modulating the main carrier.

- I = A single channel containing quantised or digital information without the use of a modulating subcarrier
- 2 = A single channel containing quantised or digital information with the use of a modulating subcarrier
- 3 = A single channel containing analogue information

Seventh character—Type of information:

A = Telegraphy—aural reception (CW)

B = Telegraphy—for automatic reception (RTTY)

C = Facsimile

D = Data, telemetry, telecommand

E = Telephony F = Television

The special eighth and ninth characters used in amateur transmission are:

Eighth - Details of signal:

K = Narrow band voice modulation

M = Monochrome television

N = Colour television

Ninth-Nature of Multiplexing

N = None.

THE R-S-T SYSTEM

Readability

- I Unreadable.
- 2—Barely readable, some words distinguishable.
- 3-Readable with considerable difficulty.
- 4-Readable with practically no difficulty.
- 5-Perfectly readable.

Signal Strength

- 1—Faint signals, barely perceptible.
- 2—Very weak signals.
- 3-Weak signals.
- 4-Fair signals.
- 5 Fairly good signals.
- 6-Good signals.
- 7-Moderately strong signals.
- 8-Strong signals.
- 9-Extremely strong signals.

Tone

- 1-Extremely rough hissing note.
- 2-Very rough AC note, no trace of musicality.
- 3-Rough low-pitched AC note, slightly musical.
- 4-Rather rough AC note, moderately musical,
- 5-Musically-modulated note.
- 6-Modulated note, slight trace of whistle.
- 7—Near DC note, smooth ripple,
- 8—Good DC note, just a trace of ripple.
- 9-Purest DC note.

If the signal has the characteristic stability of crystal control, add the letter X to the R-S-T report. If there is a chirp, the letter C may be added to so indicate. Similarly for a click, add K.

This reporting system is used on both CW and voice, leaving out the "tone" report on voice.

Amateur Radio Service Examination Syllabus

(Information supplied by the NZ Post Office-from Pamphlet RT4)

General

- The examination for an Amateur Operator's Certificate is set within the provisions of the Post Office Act and Radio Regulations made thereunder. It does not replace any examination provided for under the Electrical Registration Act
- 2. Except as provided for in Regulation 73, an Amateur Operator's Certificate may be issued only to a natural-born or naturalised British subject, who is not less than 14 years of age.
- 3. There are three grades of Amateur Operator's Certificate which provide for the operation of amateur stations on authorised frequencies as follows:

Grade I: All New Zealand Amateur Bands

Grade II: 1800-1950 kHz, 3500-3900 kHz, 27.12 MHz, 28.00-29.70 MHz, 50.00-50.15 MHz, 51.00-53.00 MHz and bands above 144 MHz.

Grade III: 27.12 MHz, 51.00-53.00 MHz, and bands above 144 MHz.

4. In addition, provision is made for a Novice Licence (see paragraphs 14 to 27).

Syllabus

To obtain an Amateur Operator's Certificate of Grade III, a candidate is required to pass an examination com-

Section A: A written examination in the elementary principles of electricity, radio communication techniques, and in the adjustment and operation of radio apparatus used in a typical amateur station (see also Appendix I); and

Section B: A written examination in such of the radio regulations as are applicable to the amateur service.

6. To obtain an Amateur Operator's Certificate of Grade II, a candidate is required to pass an examination com-

Sections A and B (see paragraph 5); and

- Section C: A morse operating test, both sending and receiving, each for a period of three minutes, at a speed of twelve words a minute, five letters comprising a word. The receiving test is to be written.
- 7. To obtain an Amateur Operator's Certificate of Grade I, a candidate is required to have operated in the bands allocated to Grade II operators below 50 MHz for at least a year and to have had not less than 50 contacts in this band. In addition the candidate is required to show by a further morse operating test (as outlined in Section C of paragraph 6 above) that he is still capable of sending and receiving 12 wpm. On satisfying these requirements a certificate of Grade I will be
- 8. If the holder of a Certificate of Grade III subsequently passes a morse operating test of 12 wpm he will be issued with a Certificate of Grade II.

Partial Pass

9. Credit will not be given for a pass in individual sections except where a candidate in the examination for a Certificate of Grade II passes Sections A and B but fails in the morse operating test, a partial pass will be granted. This will remain valid indefinitely.

Date of Examination

The examination is conducted on the first Wednesday, in March and September. The morse operating test is held in the morning and Sections A and B between the hours of 1.30 p.m. and 4.30 p.m. Morse operating tests to complete partial passes or to qualify for a Certificate of Grade I are held on the first Wednesday of each month. The written sections cannot be taken separately.

Recounts

11. Recounts of examination marks may be obtained on application to the nearest Post Office Engineer's Office.

12. Intending candidates should make application at the nearest Post Office Engineer's Office on Form Radio 8 which should show whether the examination is for a Certificate of Grade I, Grade II, or Grade III. The candidate's birth certificate should accompany the application which must reach the Engineer's Office not later than the first of the month preceding that in which the examination is held.

Fees

13. For a Certificate of Grade II or Grade III: \$13.00. For a morse test only, i.e., to complete a partial pass. Grade II or to qualify for a Grade I Certificate: \$6.00. Recounts: \$6.00 for each section of the examination.

NOVICE AMATEUR OPERATORS

14. To obtain a licence for novice operation a candidate is

required to pass an examination comprising:

(1) A simple written examination in the elementary principles of electricity, and radio communication techniques, covering the subjects detailed in Appendix 1.

(2) A written examination in such of the radio regulations as are applicable to the amateur service; and

- (3) A morse operating test, both sending and receiving, each for a period of three minutes, at a speed of six words a minutes, five letters comprising a word. The receiving test is to be written.
- No exemptions or credits will be granted in respect of any section of the examination, except that the holder of a Grade III Amateur Operator's Certificate will be granted a licence for novice operation on passing the morse test as outlined in sub-paragraph (3) above.

Holders of Grade III certificates will not be permitted to sit the morse test for a novice qualification at times other than

those set down for the novice examination.

16. No partial passes will be granted in respect of any section of the novice examination and no credits will be granted for any section of subsequent amateur operators examinations.

Examinations

- Examinations will be conducted on the first Wednesday of February and August. The morse operating test is held in the morning and the written papers between the hours of 2.00 p.m. and 4.00 p.m.
- 18. Failure in the morse operating tests will automatically fail a candidate for a novice qualification. Candidates who

fail the morse test may, if they wish, sit the written sections of the examination on the understanding that no credits will be issued in respect of any section.

Applications

19. Intending candidates should make application at the nearest Post Office Engineer's Office (see also paragraph 12). Applications will not be accepted from persons who have previously held a licence for novice amateur operation or from those holding a Grade I or Grade II amateur operators certificate.

Fees

20. The fee for the novice examination is \$13.00

Licences

- 21. No certificate will be issued to the successful candidates, but licences and callsigns may be obtained from the Radio Inspection Branch of the local Post Office Engineer's Office upon payment of the licence fee of \$13.00.
- 22. Licences will not be issued to persons under 14 years of age.
- 23. Successful candidates in the examination who are under 14 years of age may take up the licence on their 14th birthday on the understanding that the licence expires on the date prescribed, or delay until the start of the first novice licensing period following their 14th birthday.

Validity of Licences

- 24. Licences for novice amateur operators are nonrenewable and will be issued for a maximum period of one year. Under no circumstances will the period of validity be extended beyond the expiry date shown on the licence.
- 25. Licences issued following the February examination will be valid from April 1 to March 31 the following year, and those issued following the August examination will be valid from October 1 to September 30.

Special Conditions

26. The following special conditions will apply:

- Operation is restricted to CW and AM (including SSB) in the band 3525-3575 kHz and 28,10-28,60 MHz.
- (2) Power is restricted to 10 watts DC input to the final RF stage.

Callsigns

27. Callsigns will be issued from a series beginning Z1.1NAA, Z1.2NAA, ZL3NAA or Z1.4NAA as appropriate.

Text Books

The Radio Amateur's Handbook, American Radio Relay League. Published yearly.

Basic Radio Training Manual, published by the New Zealand Association of Radio Transmitters,

The above-mentioned books are available from the New Zealand Association of Radio Transmitters (Inc.), P.O. Box 40-525, Upper Hutt.

The Radio Regulations (1970) (reprint) and Amendments is available from Government Bookshops.

Specimen Papers

29. Copies of specimen examination question papers may be obtained from Post Office Engineer's Offices at a cost of 50c per set.

APPENDIX I

Electrical Principles

Sources of EMF. Physical and electrical properties of resistors, capacitors and inductors. Electrical properties of resistors, capacitors and inductors both individually and in combination when connected to a source of alternating or direct voltage and the effect of varying the frequency of the alternating voltage on these properties. The relationship between peak, RMS and mean value of a waveform. The use of Ohm's Law to relate voltage to current flowing through an impedance and the determination of power dissipated in that impedance. The electrical properties of resonant circuits both coupled and individual. Schematic diagram symbols.

Thermionic valves and semi-conductor devices

General construction, operation and electrical characteristics of valves and semi-conductor devices. Biasing methods. Basic circuit configurations and variations involving input impedance, output impedance and gain. Amplifier classification. Positive feedback and oscillator types. Frequency synthesis. Gates and diode switching. Power rectification, smoothing and voltage regulation. Distortion, harmonics, negative feedback, push-pull operation.

Receivers

Principles of operation and factors influencing the performance of receivers intended to receive the permitted modes of emission on any frequency available to the amateur operator.

Propagation

The means of propagating radio waves of any frequency available to the amateur operator. Factors which influence propagation conditions.

Antennas

Characteristics of common types of antenna both directional and non-directional. Transmission lines. Standing wave patterns and standing wave ratios. Coupling of transmitters to transmission lines and transmission lines to antennas.

Transmitters

Methods of generating and increasing the level of radio frequency energy using any of the permitted modes of emission on any frequency available to the amateur. Technical characteristics of the various modes of emission available to the amateur operator. Transmitter adjustments. Microphones.

Interference

Frequency stability. Means of preventing or reducing to acceptable levels unwanted emissions. Means of climinating or reducing interference to nearby electronic equipment.

Measurements

Measuring instruments. Measurements of frequency, power, alternating and direct voltage and current, resistance, standing waves. Use of the oscilloscpe,

Safety

Safety precautions and resuscitation practices,

Post Office—Regional and District Engineer's Offices

All amateur radio licensing matters.

· Examinations for Amateur Radio Operator's Certificate.

District	Address	P.O. Box	Phone No.
POST OFFICE HEADQUARTERS Radio Regulatory Section	Wellington East Post Office 21-23 Cambridge Terrace, Wellington	9343	850-009
Whangarei	Post Office, Rathbone Street, Whangarei	442	81-299
Auckland	Regional Engineer's Office, Federal Street, Auckland		792-920
Hamilton	District Engineer's Office, Hamilton	Private Bag	391-199
Rotorua	Post Office, Hinemoa Street, Rotorua	141	73-899
Gisborne	District Engineer's Office, Grey Street, Gisborne	1144	84-199
Napier	Post Office, Napier	341	53-299
New Plymouth	State Insurance, Gill Street, New Plymouth	540	80-989
Wanganui	Post Office, Ridgeway Street, Wanganui	422	54-477
Palmerston North	District Engineer's Office, Palmerston North	Private Bag	68-179
Masterton	Telephone Exchange, Lincoln Road, Masterton	455	84-189
Wellington	Anvil House, Wakefield Street, Wellington	293	859-999
Nelson	Post Office, Nelson	542	82-289
Greymouth	Post Office, Greymouth	Private Bag	4044
Christchurch	St. Elmo Court, Hereford Street, Christchurch	1473	794-500
Timaru	Post Office, Thames Street, Timaru	545	81-179
Dunedin	Post Office, Dunedin	605	742-878
Invercargill	Post Office, Dee Street, Invercargill	813	48-800

Maidenhead Locator System

Folke Rasvall, SM5AGM

The earth's surface is divided into 18×18 "fields", each one 20° (longitude) \times 10° (latitude). Each field is divided into 10×10 "squares", each one $2^{\circ} \times 1^{\circ}$. Each square is finally divided into $24 \times$ "sub-squares", each one $5' \times 2.5'$. The fields are indicated by two letters, the squares by two digits and the sub-squares by two letters. The direction of the numbering is always west to east and north to south in all parts of the earth's surface.

Many readers might now ask why the system is based on 2° × 1° blocks instead of 1 × 1°. There are two reasons for this. The first and most important reason is historical. Thousands of amateurs in Europe have used thousands of hours to collect the 2° × 1° squares and many countries declared that any new locator must be based on the old 2° × 1° squares to be acceptable. The original reason that 2° × 1° was chosen thirty years ago was that Europe was so far from the equator that 2° × 1° blocks look more like squares than 1° × 1°. The other reason is that if we want to arrive at 1° × 1° we must use four letters. Since we do not want to locator to consist of only letters we must use digits for the final subdivision arriving at 6' × 6'. In the Maidenhead Locator the sub-squares are 5' × 2.5' representing a somewhat closer accuracy. A possible solution would have been to start with both letters and digits in the first position giving 10° × 10° fields and 1° × 1° squares, but then the format would not have been constant (letters and digits in the same

position). A long discussion about the reasons for the Maidenhead Locator can be found in an article in *Radio Communication*. November 1980, pp. 1160-1163, by G4ANB.

Finding One's Locator

Start by finding your longitude and latitude in degrees and minutes from a map and use the computer-printed table for any place worldwide. When finding the final two letters, keep in mind that the square is two degrees wide. For example the fractional part of 173°16' is 1°16', not 16', Example: Longitude 173°16'E and latitude 41°48'S gives locator RE68PE.

Practical Use

For many years the old locator has been exchanged in Europe during all types of contacts. This has many advantages: You always know the position of the other station within 5 km, and you know where to direct your antenna, you know the distance, you can collect the fields and squares for lists and awards, you can use them in contests as multipliers or for bonus points, etc. Since the Maidenhead Locator was introduced in USA in January 1983, it has become very popular and much faster than expected. Expeditions are often made to rare squares in the same wasy as as done in Europe for many years, e.g., to FM51 at the eastern tip of Massachusetts.

MAIDENHEAD LOCATOR

CENERAL DESCRIPTION:

EMCH WIEFD IS DIAIDED IMID 10 * 10 SWIMBES' EMCH DME 5 * 1 DEGMEES' THE ERRITA'S SURFROE IS DIVIDED INTO 18 * 18 FIELDS, ERCH DAE 20 * 10 DEGREES.

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BESAFT EN 19 NC

The Amateur's Code

The radio amateur is:	
CONSIDERATE	never knowingly uses the air in a manner such as to lessen the enjoyment of others.
LOYAL	offers loyalty, encouragement and support to fellow amateurs, local club and National Society through which amateur radio is represented to Government, the International Amateur Radio Union and the International Telecommunication Union.
PROGRESSIVE	with knowledge abreast of science, a well-built and efficient station and operation above reproach.
FRIENDLY	slow and patient sending when requested; friendly advice and counsel to the beginner; kindly assistance, co-operation and consideration for the interests of others. These are the hallmarks of the amateur spirit.
BALANCED	radio is a hobby never interfering with duties owed to home, job, school or community.
PATRIOTIC	station and skill always ready for service to community and country.

DXCC Countries List

Current Countries Total 135-Revised 1985-Reproduced courtesy ARRL

			70	NE		
PREFIX	COUNTRY	Sent and W.	ודט כם			
A2	Botswana	AF	57	38		
A3	Tonga	ÖC.	62	32		
A4	Oman	AS	39	21.		
A5	Bhutan	AS	41	22		
A6	United Arab Emirates	AS	39	21		
A7	Qatar	AS	39	21		
A9	Bahrain	AS	39	21		
AA (See K)						
AΡ	Pakistan	AS	41	21		
BV	Taiwan	AS	44	24		
BY	China	AS	IAI	23		
C2	Nauru	Q¢	65	31		
C3	Andorra	EU	27	14		
C5	The Gambia	AF_	46	35		
C6	Bahamas	NA	11	08		
C9	Mozambique	AF	53	37		
ČE	Chile	SA	14,16	12		
CE9/KC4 ▲	Antarctica	ΔN	(B)	(C)		
CE9 (See VP8)						
CEØA	Easter 1.	\$A	63	12		
CEØX	San Felix	SA	14	12		
CEØZ	Juan Fernandez	SA_	14	12		
CM, CO	Cuba	NΑ	11	OB.		
CN	Morocco	ΑF	37	33		
CP	Bolivia	ŠΑ	12,14	10		
CR9	Macao	AS	44	24		
CT	Portugal	EU	37	14		
CT2	Azores	EU	36	14		
CT3	Madeira Is.	AF	36	14		
CX t	Uruguay	SA	14	13		
D2, 3	Angola	ΑF	52	36		
D4	Cape Verde	AF	46	35		
D626	Camoros	AF.	53	39		
DA,DF,DJ,DK,DL2	Fed, Rep, of Germany	EU	28	14		
DU	Philippines	OC.	50	_27		
EA	Spain	EU	_37	14		
EA6	Balearic Is.	EU	37	14		
EA8	Canary Is.	AF.	_36	33		
EA9	Ceuta and Melilla	AF	.37	33		
EI	frefand	EU.	27	14		
<u>EL</u>	Liberia	ΑF	46	35		
EP	Iran	AS	40	21		
ET	Ethiopia	AF	48	37		
F	France	EU	27	14		
FB8W	Crozet	AŁ	68	39		
FB8X	Kerrjuelen Is.	AF	68	. 39.		
F88Y(See CE9)						
F88Z	Amsterdam&St Paul Is	_	68	39		
FC1	Corsica	EU	.28	15		
FG	Goadeloupe	NA	11	08		
FG. FS	Saint Martin	NA	1.1_	- 80		
FH26	Mayotte	Α÷	53	.39		
FΚ	New Caledonia	OC	56	32		
FM	Martinique	NΑ	11_	08		
FO	Clipperton I.	NA	10	07		
FO	Er Polynesia	OÇ.	63	32		
FP	St. Pierre & Miguelon	NΑ	09	05		
FR4	Glerioso Is	Αľ	53	39		

DOGG. W		- 2	ZONE		
PAEFIX	COUNTRY	and the same	iru	ca	
FR4	Juan de Nova, Europa	AF	53	39	
FR	Reumon	ΑF	53	39	
FR	Tromelin	AF	53	39	
FW	Wallis & Futuna Is,	ОC	62	32_	
FY	Fr. Guiana	SA	12	09	
G	England	EU	27	14	
GD	Isle of Man	EU		14	
GI	Northern Ireland	ĒŪ	27	14	
GJ, GC	Jersey	ĒÜ	27	14	
GM	Scotland	EU	27	14	
GU, GC	Guernsey & Dep.	ΕU	27	14	
GW'	Wales	EU	27	14	
H4, VR4	Solomon Is.	OC.	51	28	
HA HA	Hungary	EU	28	15	
HB		_			
нвф	Switzerland	EU		14	
	Liechtenstein	EU		14	
HC	Ecuador	SA	12	10	
HC8	Galapagos Is.	SA	12	10	
HH	Haiti	NA	11	08	
HI	Dominican Republic	NA	11	08	
HK	Colombia	SA	12	09	
HKØ	Malpelo I.	NA		10	
нкф	San Andres & Providencia	NA	11	07	
HL, HM	Korea	AS	44	25	
HP	Panama	NA	11	07	
HR	Honduras	NA	11	07	
HS	Thailand	AS	49	26	
HV	Vatican	EU	28	15	
HZ, 7Z	Saudi Arabia	AS	39	21	
1, 17	Italy	Ēυ	28	15	
IS	Sardinia	EU	28	15	
J2, FL8	Djibouti	AF	48	37	
J3, VP2G	Grenada & Dep.	NΑ	_ 11	-08	
J5, CR3	Guinea-Bissau	AF	46	35	
J6, VP2L	St. Lucia	NA	. 11	08	
J7, VP2D	Dominica	NA	11	08	
JB, VP2S	St. Vincent & Dep.	NA	11	OΒ	
JA JN, KA	Japan	AS	46	25	
JD, KA 15	Minami Torishima	AS	45	27	
JD, KA 16	Ogasawara	AS	45	27	
JT	Mongolia	AS		23	
JW	Svalbard	EU	18	40	
JX	Jan Mayen	EU	18	40	
JY	Jordan	AS	39	20	
K, W, N, AA-AL	United States of America		6.7.8	3.4.5	
KC4 (See CE9)	Table of the state	777	V	W.4.J	
KC628(E.Caroline Is)	Fed States of Micronesia	oc	65	.27	
KC629(W.Caroline la)	Rep. of Belau	ÖC	64	27	
KG4	Guantanamo Bay	NA	11 -	08	
KH1, KB6		OC.		31	
KH2, KG6	Guam		61.62		
KH3, KJ6		20	64	27	
KH4, KM6	Johnston I	00	61	31_	
	Midway Is	OC.	61	31	
KH5, KP6	Palmyra, Jarvis Is,	OC.	61	_31	
KH5K, KP6	Kingman Reef	OĈ.	61	31	
KH6	Hawaiian (s,	OC.	61	31	
	Kure I.	OC.	12.1		
KH8, KS6	American Samoa	<u> 175. j</u>	-61	31	

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PREFIX	COUNTRY	Special Section 1	ITU	Cá	PREFIX	COUNTRY	age of the same	ารับ	CO
KH9, KW6	Wake I.	loc.	65	31	Түтэ	Benin	AF	46	35
KHØ,KG6R,S,T	Mariana Is,	OC.	64	27		Mali	AF	46	35
KL7	Alaska	NA	1.2	2/		European Russian SFSR	EU	(E)	16
KP1, KC4				00	UAT UKT	Franz Josef Land	EU	75	40
KP2. KV4	Navassa I.	NA.	11	08	UAT.UKT(See CE9)	Franz Josef Land	EU	10	40
KP4	Virgin Is,	NA.	11_	08	, , , , , , , , , , , , , , , , , , , ,	Kaliningradsk		20	1.0
	Puerto Rico	NA	11	08			ÉU	29	15
KP4, KP527	Desection Is.	NA_	11	08		Asiatic R.S.F.S.R.	AS	(F)	(G)
KX6	Marshall Is.	OC.	65	.31		Ukraine	ΕU	29	16
LA,LB,LF,LG,LJ	Norway	ΕŲ	18	14	UC2,UK2A/C/UL/0/S/W		EU .	29	16
LA (See CE9)						Azerbaijan	AS ·	29	21
LU	Argentina	SA	14,16	13		Georgia	AS	29	21
LUZ (Sae CE9,VP8)						Armenia	AS	29	21
LX	Luxembourg	Eu	27	14		Turkoman	AS	30	17
LZ	Bulgaria	EU	28	20		Uzbek	AS	30	17
M11 (See T7)						Tadzhik	AS	30	17
N (See K)						Kazakh	AS	30	17
OA	Peru	SA	12	10		Kirghiz	AS	31	17
OD	Lebanon	AS.	39	20		Moldavia	ΕU	29	16
OE	Austria	ΕŲ	28	15		Lithuania	ΕU	29	15
OH	Fintand	ΕŲ	19	15		Latvia	Ĕυ	29	15
OHØ	Aland Is,	ΕŲ	18	15		Estonia	EU	29	15
OJØ	Market Reef	ΕU	18	15		Antigua, Barbuda	NA	11	08
<u>OK</u>	Czechoslovakia	EU	28	15		Belize	ÑΑ	11	07
ON	Selgium	Ĕυ	27	14		Canada	NΑ	(H)	1.5
OR4(See CE9)						Sable I.	NA	09	05
OX, XP	Greenland	NA.	5,75	40	VE1	St. Paul I.	NA	09	05
OY	Faroe is.	EU	18	14	VK	Australia	OC.	(1)	29,30
OZ	Denmark	ĘU	.18	14	VK.	Lord Howe I.	OC	60	30
P27	Papua New Guinea	ÖC	51	28	VK9	Willis L	OC.	60	30
PA,PD,PE,PI	Netherlands	ĘŲ.	27	14	VK9	Christmas I.	OC	60	30
PJ2, 3, 4, 9	Neth, Antilles	SA	11	09		Cocos-Keeling Is.	ŌČ.	54	29
PJ5, 6, 7, 8	St. Maarten, Saba, St. Eustatius	NA	11	08		Mellish Reef	OC.	55	30
PY, PP, PR PW	Brazil	ŜA	(D)	11		Nortolk I.	OC.	60	32
PYØ	Fernando de Noronha	SA	13	11	VKØ(See CE9)	NOTOIK I.	00	00	32
PYØ	St. Peter & St. Paul Rocks	SA	13	11		Heard I.	ĀF	68	39
PYØ	Trindade & Martin Vaz. Is.	ŠA	15	11		Мандиаси:	OC.	GO	30
PZ	Surmam	SA	12	09	VO (See VE)	Considerate I	O.C.	00	-30
\$2	Bangladesh	AS	41	22	VP2E15	Anguilla	NA	11	08
S7	Seychelles	AF	53	39	VP2K15	St. Kitts, Nevis	NA	11	08
S9, CR5	San Tome & Principe	AF	47	36	VP2M15	Montserrat	NA	11	08
SK, SL, SM	Sweden	EU	18	14	VP2V15	Brit, Virgin Is.	NA	11	08
					VP5	Turks & Caicos Is.	NA	11	08
SP	Poland	FU	28	15	VP8 (See CE9)	Turks or Calcus 15.	IVA	11	-00
SI	Sudan	AL.	48	31	VP8 (366 CE9)	Falkland Is.	SA	16	13
STØ	Southern Sudan	AF	48	34	VP8, LU-Z	So, Georgia Is	SA	73	13
SU	Egyp1	A٤	38	34	VP8, LU-Z	So, Orkney Is,	SA	73	13
SV	Greece	Ēυ	28	20	VP8, LU-Z	So, Sandwich Is.	SA	73	13
SV	Crete	EU	28_	20	VP9, LU Z,CE9,HFØ,4K	So, Shetland Is.	SA	73	13
SV	Dodecanese	Ēυ	28	20	VP9, LU 2, CE3, HF B, 4K	Bermuda	NA.	11	05
SV	Mount Athos	En.	28	20					-
	Tuvalu	ÖC	65	31	VQ9 VR6	Chagos	AF.	63	39
T30,VR1	W. Kiribati (Gilbert & Ocn Is)		65	31	VS5	Pitcairn L Bruner		54	
T31,VR1	C. Kiribati (Brit, Phoenix Is.)	_	62	31	VS6		00	44	28
T32,VR3	East Kiribati (Lige Is.)	OC:	61	31		Hong Kong	AS	44	24
T7(M1, 9A)	San Marino	EU:	_28	15	VS9 (See 8Q)	India	A.C.	4.1	200
TA		EU/AS	39	20	VU	India	AS	41	22
i F	fceland	EU.	17	_40		Andaman & Nicobar Is.	AS.	49	26
TG	Guaternala	NA	11	07	VU7	Laccadive Is,	AS	41	22
	Costa Rica	NA	11	07	W (See K)	11.			- 0.0
TI	GOGGO / HEB	4 . 4	11	07	XE	Mexico	NA	10	06
TI TI9	Cocos I.	NA			XF4	Revilla Gigedo	NA.	10	06
T1 T19 TJ		AF	47	38		TTETTING OIGOGO	147	10	-00
T1 T19 TJ TL8	Cacas I.	AF AF	47	36	XP (See OX)				
TI T19 TL8 TN9	Cocos I. Cameroon	AF	47		XT17	Upper Volta	AF	46	35
TI TI9 TJ TL8 TN9 TR10	Cocos I. Cameroon Central African Rep.	AF AF	47	36	XT17	Upper Volta Kampuchea	AF AS	46 49	35 26
TI T19 TL8 TN9	Cocos I. Cameroon Central African Rep. Congo	AF AF	47 47 52	36 36	XT17	Upper Volta	AF	46	35

PRESIN	COUNTRY	Com's water	ZO	VE.
PREFIX	COUNTRY	Gra'	ITU	CO
XZ	Burma	A5	49	26
Y2-9, DM, DT≥	German Dem, Rep.	EU	28	14
YA	Afghanistan	AS	40	21
YB, YC21	Indonesia	OC.	54	28
YI	Iraq	AS	39	21
YJ	New Hebrides	0.0	56	32
YK	Syria	AS	39	20
YN, HT	Nicaragua	NA	11	07
YO	Romania	EU	28	20
Y\$	El Salvador	NA	11	07
YU	Yugoslavia	EU	28	15
YV	Venezuela	SA	12	09
YVØ	Aves I.	NA	11	80
72, 7E	Zimbabwe	AF	53	38
ZA	Albania	EU	28	15
ZB	Gibraltar	EU	37	14
ZC	Cyprus (UK)	A5	39	20
207	St. Helena	AF	66	36
ZD8	Ascension I.	AF	66	36
ZD9	Tristan da Cunha & Gough I	AF	66	38
ZF	Cayman Is.	NA	11	08
ZKI	So. Cook Is.	OC.	62	32
ZK1	No. Cook Is.	OC	62	32
ZK2	Niue	OC.	62	32
ZL	New Zealand	OC	60	32
ZL	Auckland I. & Campbell I.	00	60	32
ZL .	Chatham Is.	OC.	60	
ZL	Kermaded Is,	OC.	60	32
	Kermandi, 15,	ŲŪ	00	. 34
ZL5 (See CE9)	Tallah fa	00	(10)	7.1
ZM7 ZP	Tokelau Is.	OC	62	31
	Paraguay	SA	-14	11
ZS1-6 se, 74, v9)1	South Africa	AF	57	38
7S1 (See CE9)		4.5		00
ZS2	Princ Edward & Marion Is	AF	57	38
ZS3	(Napribia) S.W. Africa	AF	57	38
1AØ1	Soy, Mil. Order of Malta	EU	28	15
151	Spratty Is.	AS:	50	26
3A .	Monaco Agalega & St. Brandon	EU	27	_14
3B6.7		AF	53	39
3B9	Mauritius	AF	53	39
3B9	Rodriguez I.	AF	53	39
30	Equatorial Guinea	AF_	47	36
3CØ	Annobon	AF	52	36
3D2	Fili Is,	OC.	56	32
3D6	Swaziland	AF	57	38
3V	Turnsia	AF	37	33
			46	35
3X	Rep. of Guinea	AF		
3X 3Y	Rep. of Guinea Bouvet	AF	67	38
3X 3Y 3Y	Rep. of Guinea			
3X 3Y 3Y	Rep. of Guinea Bouvet	AF	67	38
3X 3Y	Rep. of Guinea Bouvet	AF	67	38
3X 3Y 3Y 3Y(See CE9)	Rep. of Guinea Bouvet	AF AN	67	38
3X 3Y 3Y 3Y(See CE9) 4K (See CE9)	Rep. of Guinea Bouvet Peter I Sri Lanka	AF	67 72	38 12
3X 3Y 3Y 3Y(See CE9) 4K (See CE9) 4S	Rep. of Guinea Bouvet Peter I Sri Lanka I, T.U. Geneva	AF AN AS EU	67 .72 .41	38 1,2 22 14
3X 3Y 3Y 3Y(See CE9) 4K (See CE9) 4S 4U	Rep. of Guinea Bouvet Pater I Sri Lanka I.T.U. Geneva Hig., United Nations	AF AN AS EU NA	67 72 41 28 08	38 12 22 14 05
3X 3Y 3Y 3Y See CE9) 4K (See CE9) 4S 4U 4U 4U	Rep. of Guinea Bouvet Peter I Sri Lanka 1.T.U. German Hig., United Nations Yennan	AF AN AS EU NA AS	67 72 41 28 08 39	38 12 22 14 05 21
3X 3Y 3Y 3Y See CE9) 4K (See CE9) 4S 4U 4U 4U 4W 4X 4Z	Rep. of Guinea Bouvet Pater I Sri Lanka I T.U. Geneva Hig., United Nations Yennen Israel	AF AN AS EU NA AS AS	67 72 41 28 08 39 39	38 12 22 14 05 21 20
3X 3Y 3Y 3Y See CE9) 4K (See CE9) 4S 4U 4U 4W 4W 4X 47 5A	Rep. of Guinea Bouvet Peter I Sri Lanka LT.U. Geneva Hq. United Nations Yenwin Israel Libya	AF AN EU NA AS AS	67 72 41 28 08 39 39 38	38 12 22 14 05 21 20 34
3X 3Y 3Y 3Y See CE9) 4K (See CE9) 4S 4U 4U 4W 4X 47 5A 5B	Rep. of Guinea Bouvet Pater I Sri Lanka IT.U. Genera Ifq. United Nations Yenen Israel Libya Cyprus	AF AN EU NA AS AS AF AS	67 72 41 28 08 39 39 38 39	38 12 22 14 05 21 20 34 20
3X 3Y 3Y 3Y See CE9) 4K (See CE9) 4S 4U 4U 4W 4X 47 5A 5B	Rep. of Guinea Bouvet Pater I Sri Lanka I.T.U. Genera Hq., United Nations Yenuar Israel Libya Cyprus Tanzania	AF AN AS AS AF AS AF	67 72 41 28 08 39 39 38 39 53	38 12 22 14 05 21 20 34 20 37
3X 3Y 3Y 3Y(See CE9) 4K (See CE9) 4S 4U 4U 4W 4X 47 5A 5B 5B	Rep. of Guinea Bouvet Pater I Sri Lanka I.T.U. Geneva Hig., United Nations Yéniva Israel Libya Cyprus Tanzania Nigeria	AF AN AS AS AF AS AF AF	67 72 41 28 08 39 39 38 39 53 46	38 12 22 14 05 21 20 34 20 37 35
3X 3Y 3Y 3Y[See CE9] 4K (See CE9) 4S 4U 4U 4W 4X 47 5A 5B 5B	Rep. of Guinea Bouvet Peter I Sri Lanka I.T.U. Geneva Hig., United Nations Yenien Israel I. Ibya Cyprus Tanzania Nigeria Malagasy Rep.	AF AN EU NA AS AF AS AF AF AF	67 72 41 28 08 39 39 38 39 53 46 53	38 12 22 14 05 21 20 34 20 37 35 39
3X 3Y 3Y 3Y(See CE9) 4K (See CE9) 4S 4U 4U 4W 4X 47 5A 5B 5H 5N 5R 5T18	Rep. of Guinea Bouvet Pater I Sri Lanka I.T.U. Gernava Hig., United Nations Yennan Israel Libya Cyprus Tanzania Nigeria Malagssy Rep. Mauritania	AF AN AS EU NA AS AF AF AF AF	67 72 41 28 08 39 39 38 39 39 53 46 53 46	22 14 05 21 20 34 20 37 35 39 36
3X 3Y 3Y 3Y(See CE9) 4K (See CE9) 4S 4U 4U 4W 4X 47 5A 5B 5H 5N 5R 5118 5U19	Rep. of Guinea Bouvet Pater I Sri Lanka I.T.U. Gernara Hig., United Nations Yennari Israel I.bya Cyprus Tanzania Nigeria Malagasy Rep. Mauritania Niger	AF AN AS AS AF AS AF AF AF AF	67 72 41 28 08 39 39 38 39 39 38 46 63 46 46	38 12 22 14 05 21 20 34 20 37 35 39 35
3X 3Y 3Y 3Y(See CE9) 4K (See CE9) 4S 4U 4U 4W 4X 47 5A 5B 5H 5N 5R 5T18	Rep. of Guinea Bouvet Pater I Sri Lanka I.T.U. Gernava Hig., United Nations Yennan Israel Libya Cyprus Tanzania Nigeria Malagssy Rep. Mauritania	AF AN AS EU NA AS AF AF AF AF	67 72 41 28 08 39 39 38 39 39 53 46 53 46	22 14 05 21 20 34 20 37 35 39 36

PREFIX	COUNTRY	200	ZONE		
	COUNTRY	grin.	ITU	CO	
5X	Uganda	AF	48	37_	
57	Kenya	AF	48	37	
60,T5	Somali	AF	48	37	
6W20	Senegal	AF	46	35	
6Y 1	Jamaica	NA	11	0.8	
70	People's Dem. Rep. of Yemen	AS	39	21	
7P	Lesotho	AF	57	38	
70	Malawi	AF	53	37	
7X	Algeria	AF	37	33	
7Z (See HZ)					
&J [See CE9]					
8P	Barbados	NA	_11	08	
8Q, VS9	Maldive Is.	AS/AF	41	22	
8R	Guyana	SA	12	09	
9A,(M11),T7	San Marino	EU	28	15	
9G22	Ghana	ĂΕ	46	35	
9H	Malta	ĘU	28	15	
9.1	Zambia	AF	53	36	
9K	Kuwait	AS	30	21	
9L	Sierra Leone	AF	46	35	
9M223	West Malaysia	AS	54	28	
9M6,823	East Malaysia	AS	54	28	
9N	Nepal	AS	42	22	
90	Zaire	AF	52	36	
9U24	Burundi	AF	52	36	
9725	Singapore	AS	54	28	
9X24	Rwanda	AF	52	36	
9Y	Trinidad & Tobago	SA	11	09	
J2/A	Abu Ail, Jabal at Tair	AS	39	21	

CONTINENT	ZONE NOTES
AF = AFRICA	(A) 33, 42, 43, 44
AN = ANTARCTICA	(B) 67, 69 - 74
AS = ASIA	(C) 12, 13, 29, 30, 32, 38, 39
EU = EUROPE	(D) 12, 13, 15
NA = NORTH AMERIC	4 (E) 19,20,29,30
OC = OCEANIA	(F) 20 · 26, 30, 35, 75
SA = SOUTH AMERICA	(G) 17, 18, 19, 23
	(H) 2, 3, 4, 9, 75
	(f) 55, 58, 59

NZART CALL BOOK, 1985 157

- 1. Unofficial Prefix
- (DA, DJ, DK, DL) Only contacts made September 17, 1973, and after, will count for this country.
- (DM, DT, Y2-9) Only contacts made September 17, 1973, and after, will count for this country.
- (FR7) Only contacts made June 25, 1960, and after, will count for this country.
- 5, (JD, KA1) Formerly Marcus Island.
- 6. (JD, KA1) Formerly Bonin and Volcano Islands,
- (P2) Only contacts made September 16, 1975, and after, will count for this country.
- (TL) Only contacts made August 13, 1960, and after, will count for this country.
- (TN) Only contacts made August 16, 1960, and after, will count for this country.
- (TR) Only contacts made August 17, 1960, and after, will count for this country.
- (TT) Only contacts made August 7, 1960, and after, will count for this country.
- (TU) Only contacts made August 7, 1960, and after, will count for this country.
- (TY) Only contacts made August 1, 1960, and after, will count for this country.
- 14. (TZ) Only contacts made June 20, 1960, and after, will count for this country.
- (VP2) For credits on QSOs made before June 1, 1958, see page 97, June 1958 QST.

- (T2, VR8) Only contacts made January 1, 1976 and after, will count for this country.
- (XT) Only contacts made August 6, 1960, and after, will count for this country.
- (5T) Only contacts made June 20, 1960, and after, will count for this country.
- (50) Only contacts made August 3, 1960, and after, will count for this country.
- (6W) Only contacts made June 20, 1960, and after, will count for this country.
- (BF, YB) Only contacts made May 1, 1963, and after, will count for this country.
- 22. (9G1) Only contacts made March 5, 1957, and after, will count for this country.
- (9M2, 4, 6, 8) Only contacts made September 16, 1963, and after, will count for these countries.
- (9U5, 9X5) Only contacts made July 1, 1962, and after, will count for these countries.
- (9V1) Contacts made between September 15, 1963 and August 9, 1965, will not count for this country.
- (D6, FHB) Only contacts made July 5, 1975, and after, will count for this country.
- (KP4) Only contacts made March 1, 1979, and after, will count for this country.
- 28. (KC6) Includes Yap Islands beginning January 1, 1981.
- 29. (KC6) Doesn't include Yap 1s. beginning January 1, 1981.
- Also DP, F88Y, LA, LU-Z, QR4, UA1, UK1, VKØ, VP8, ZL5, ZS1, 3Y, 4K, 8J. QSL via country under whose auspices the particular station is operating.



FOR FULL DETAILS
BEFORE AND AFTER
THE CONFERENCE
OF THE YEAR

Stay Tuned to Break-In Credit for any of these countries can be given if the date of contact with the country in question agrees with the date(s) shown in the

corresponding footnote.					
225514	steri-ate.	ZO	N.E		
PREFIX	COUNTRY	Day.	ITU	ÇΩ	
(AC31)2	Sikkim	AS	41	22	
(AC41)3	Tibet	AŞ	41	. 22	
C94	Manchuria	AS	23.33	23	
CN26	Tang:er	AF	37	33	
CR85	Damao, Diu	AS	41	22	
CR86	Gpa	AS	41	22	
CR834	Port, Timor	OC.	54	28	
DA,DJ,DK,DL,DM7	Germany	EU	28	14	
EA58	fn	AF	37	33	
EA938	Rio de Org	AE	37	33	
ET29	Eritrea	AF	48	37	
FF810	Fr. West Africa	AF	46	35	
FH35	Comoros	AF	53	39	
FI811	Fr. Indo-China	AS	49	26	
EN13	French India	AS	41	22	
FQ813	Fr. Equatorial Africa	AF	47,52	36	
HKØ42	Bajo Nuavo	NA	11	- 80	
114	Trieste	£ψ	28	15	
1515	Italian Somaliland	AF	48	37	
JD/7J 49	Qkino Tori-shima	A5	45	27	
JZØ16	Netherlands, N. Guinea	00	51	28	
KP3,K\$4,HKØ42	Serrana Bank & Roncador Cay	NA	11	07	
KR6,9,JR6,KA617		AS	45	25	
KS418	Swan Islands	NA	11	07	
K Z39	Canal Zone	NA	7.1	07	
P2,VK919	Papua Territory	00	51	28	

PREFIX	COUNTRY	, and	201	A.F.
FREEIA	COUNTRY	Spart and Bar	ITU	ca
P2,VK919	Terr. New Guinea	00]	51	28
PK1,2,320	Java	OC.	54	28
PK470	Sumatra	OC.	54	28
PK520	Netherlands Borneo	O.C.	54	28
PK620	Celebe & Molucca Is.	OĆ.	54	28
UNIZI	Karelo-Finnish Rep.	EU	19	16
V022	Newfoundland, Labrador	NΑ	09	02
VQ1_5H123	Zanzibar	AF.	53	37
VQ624	British Somaliland	AF	48	37
VQ934	Aldabra .	AF	53	39
AØ38	Desnoches	AF	53	39
AQ32	Farquhar	AF	53	39
VS425	Sarawak	AS	54	28
V\$9H26	Kuria Muria I.	AS	39	21
ZC525	British North Borneo	AŞ	54	28
ZC627	Palestine	AS	39	20
ZD428	Gold Coast, Togoland	AF	46	35
(IM1)29	Minerya Reef	00	62	32_
70/VS9K41	Kamaran Is.	AS	39	21
8Z443	Saudi Arabia/Iraq Neutral Zone	AS	39	21
9K3,8Z530	Kuwait/Sa, Arabie Ntri, Zone	AS	39	21_
9M225	Malaya	AS	54	28
95431	Saar	EU	. 28	14
9U532	Ruanda-Urundi	AF	52	36
33	Blenheim Reef	AF	41	39
37	Geyser Reef	AF	53	39

- 2 (AC3) Only contacts made before May 1, 1975, will count for this country. Contacts made May 1, 1975, and after, count as India.
- 3. (AC4) Unly contacts made before June 1, 1974, will pount for this country.
- 4 (C9) Only comacts made before September 16, 1963, will count for this country
- 5 (CN2) Only contacts made before July 1, 1960, will count for this country
- will count for this country.

 6. (CRB) Only conflicts made before January 1, 1992, will count for this country.

 7. (DA, DJ, DK, DJ), DM) Only contacts made before September 17, 1973, will count for this country.

 8. (EAP) Only contacts made May 13, 1969, and before, count for this country.

 9. (EAP) Only contacts made November 14, 1962, and before, will count for this country.
- 10 JFFb) Only contacts made August 6, 1960, and -before will count for this country 13 (FB) Only confacts made before December 21, 1950, will count for this country
- 12 (FN) Unly contacts made before Nusember 1, 1954, will count for this country
- 13 (FON) Only contacts made August 16, 1960, and before, will count for this country
- 14 (II) Only custacts made before April 1, 1957, will count for the populity. Contacts made April 1, 1957, and after, count as fially
- 45 (15) Only contacts made June to, 1960, and before, will count for this country.

- 16 [JZd) Only contacts made before May 1, 196), will count for this country
- 17 (KR6, JR6, KA6) Unly contacts made before May 15, 1972, will count for this country. Contacts made May 15, 1972, and after count as Japan
- 18 (KS4) Only contacts used before September 1, 1972, will count fur this country. Contacts made September 3, 1972, and after, count as Honduras
- 15 (P2, VKN) Only contacts made before September 15, 1975, will count for this country 20 (PKI, 2, 3, 4, 5, 6) Only contacts made beture May 1, 1960, will count fur this country
- nay 1, 1901, will count for fine country
 21 (UNI) Only contacts made fune 30, 1960, and
 cfore will count for this country. Contacts made fully
 1960, and after, count at European Russian S.F.S.R. 2) (VO) Only contacts made before April 1, 1949, will count for this country
- 21 (VQL, SIII) Only contacts made before June 1, 74, will count for this country
- 24 (VO6) Only contacts made June 30, 1960, and before, will count for this country
- before, will count fair this yearing.

 13. (YSA, 2CS, 9M2) Only contacts made September

 15. 1963, and before, will count for this country.

 26. (YS9H) Only contacts made before November

 20. (1967, will count for this country. Contacts made

 December 1, 1969, and after, count as Uman.
- 27 (ZCh) Only contacts made July 1, NhR and before, will count for this country.
- 28 (ZD4) Only contacts made March 5, 1957, and done will count for this country
- 29 (tM) Only contacts made July (5, 1972, and be-lore, will count for the country. Contacts made July 16, 1972, and after, count as Longa.

- 30 (9K3, 875) Only contacts made belief December 15, 1999, will count for this country. 31 (954) Only contacts made belief April 4, 1952, and after count as Germany. 52 (915) Only contacts made between July 4 (1960, and July 1, 1992, will count fur this country.

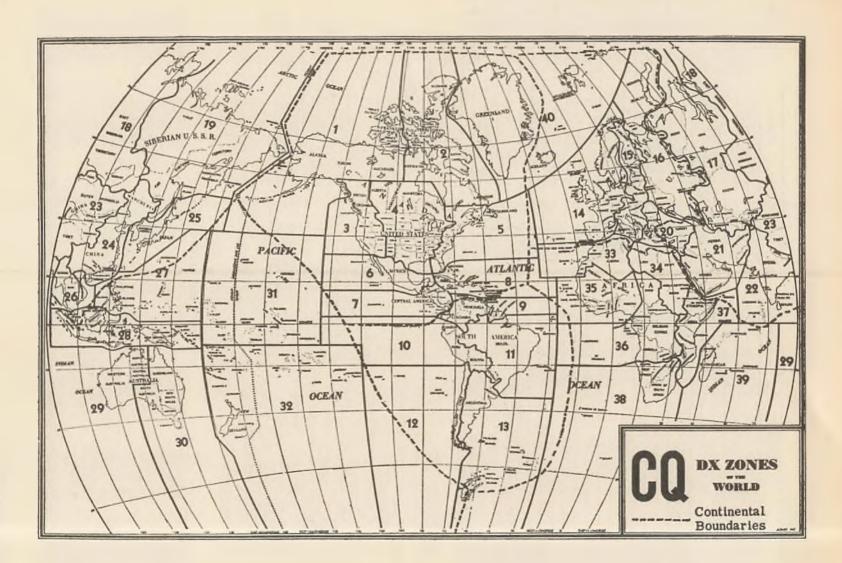
- and July 1, 1997, will count the line country.

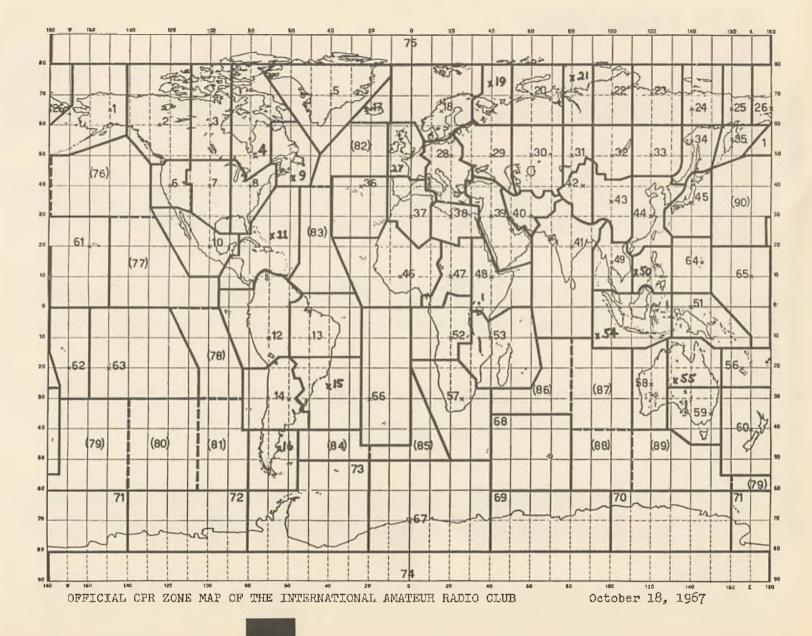
 33. 4 Birnheim. Reelf. Only contacts: made between
 May 2, 1967, and July 1, 1975, and after, country.

 Contacts made July 1, 1935, and after, country as Chapity. 54 (CH8) Only contacts made before September 15 1976, will count for this country
- 35 (FB) Only contacts made before July 6, 1971, count toward this country
- To (VQ9) Only contacts made before June 29, 1976 count for these countries
- 37 (Geyser Reel) Only contacts made between May 4, 1967 and March 1, 1978, will count for this country
- 3K IEAS Only contacts made before January 6, 1976 will count for this country. 39 (KZ) Only contacts made before October 1-1929 ill count for this country
- 40 (ID 74) Unit contacts made between May 30, 1976 and November 30, 1970, will count for this country Contacts made December 1, 1980, and after, count as Opacawara
- (70 VS9K) Only confacts triade before March 11
- 47 ORKE INPANATINE Date contacts made below hybridge IT 2001 and count for those countries. 41 (474) 1001 contacts made below December 20 1001, and count for the country.

PREFIX CROSS REFERENCES

AC+(See A5) AP (See S2-3) AX (See VK)	FB8 (See FR7) FB8 (See 5R8) FD (See 5V)	FQ8 (See TL) FU8 (See YJ) HE (See HB9)	MP4M (Sec A4) MP4Q (Sec A7) MP4T (Sec A6)	VP6 (See 8P) VP7 (See C6) VQ1 (See 5H1)	V\$9 (See 70) V\$90 (See A4) VX9 (See VEI)	ZM6 (See 5W1) ZS7 (See 3D6) ZS8 (See 7P8)
CN9 (See CN2, 8) CR3 (See J5) CR4 (See D4) CR5 (See S9) CR5 (See CR3)	FE& (See TJ) FF4 (See TJ) FF7 (See \$T) FF8 (See TY) FF8 (See TZ)	HG (See HA) HT (See YN) IM (See IS) UT (See YN) IM (See IS)	OF (See OH) OQSØ (See 9QS) PK (See YB) PX1 (See C) VK9 (See C2) VK9AA-MZ (See P2	VQ2 (Sec 912) VQ3 (Sec 5113) VQ4 (Sec 5Z4) VQ5 (Sec 5Z5) VQ5 (Sec 3B6,7,8,9)	VYM (See VEI) XF (See XE) YNØ (See YN) YT (See YII) YZ (See YU) ZBI (See SHI)	ZS9 (See A2) 3W8 (See XV5) 3Z (See SP) 4A (See XF) 4M (See XF)
CR6 (See D2, 3) CR7 (See C9) CR10 (See CR8) DX (See DU) EAØ (See 3C) FA (See 7X) FB8 (See FH8)	FFR (See XT) FF8 (See 5U7) FF8 (See 6W8) FL8 (See J2) FQ8 (See TN) FQ8 (See TR) FQ8 (See TT)	JR6 (See KR6, 8) KA6 (See KR6, 8) KG61 (See JD, KA1) LAJ G (See CE9,3Y) LAJ P (See JX, JW) MP4B (See A9) MP4D (See A6)	VP2G (See J3) VP2K (See VP2E) VP3 (See 8R) VP4 (See 9Y4) VP5 (See ZF1) VP5 (See 6Y5)	VR2 (See 3D2) VR4 (See H4) VR5 (See A3) VS1 (See 9M2) VS1 (See 9M1) VS2 (See 9M2)	ZDI (See 9f.1) ZDI (See 5f.1) ZDI (See 5f.2) ZDI (See C5) ZDI (See 9f.1) ZDI (See 3DI6) ZDI (See 7QT)	6D (See XE) 6D4 (See XE4) 7G (See 3X) 7J (See JD1) 8F (See YB) 8Z5 (See 9K3) 9E, 9F (See ET3) 9M4 (See 9V1)





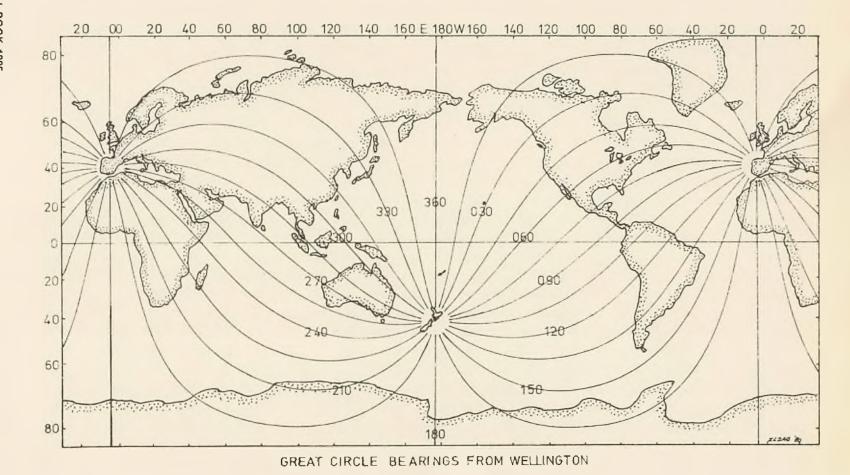
Great Circle DX Bearings Based on Wellington

prepared by RON MURPHY, ZLIAMM

Listed below are the approximate short path bearings based on the great circle map centered on Wellington. These listings, based on true N, will point your directional antenna in the appropriate direction before final adjustment depending on the sharpness to which the antenna was installed. The long path bearings are about 180 degrees in the opposite direction.

A good inexpensive Azimuth (great circle on Wellington) map, number NZMS 47, is obtainable from metropolitan offices of the Department of Lands and Survey of New Zealand. Available from overseas are several computer-derived DX beam headings.

neadings.					
A2 210 G A3 20 GC A4 270 GD A5 295 GI A6 275 GJ, GU A7 275 GM A9 275 GW AP 280 H4 BV 315 HA BY 315 HB C2 N HB0 C3 280 HC C5 155 HC8 C6 95 HH C9 230 HI CE 130 HK CE0 110, 120 HK0 CO 80 HL CN 220 HP CP 125 HR CR9 305 HS CT 130 HV CT2 90 HZ CT3 140 I CX 140 IS CY9, 0 65 J2 D2, 3 210 J3 D4 150 J5 D6 230 J6 DJ 320 J7 DU 310 J8 EA 238 JA EA6 250 JD EA8 140 JT EA9 180 JW E1 10 JX EL 180 JY EP 280 K ET 245 KC6 FD, FE 310 KH3 FG 100 FH CR9 305 KH6 FC 230 KH1 FG 100 FH CE 230 KH3 FF 230 KH4 FF 230 KH6 FF 230 KH	345 KX 345 LA 5 LU 15 LX 345 LZ N OA 350 OD 335 OE 300 OH, OJ 300 OK 310 ON 100 OX 90 OY 90 OZ 90 P2 100 PA 90 PJ 325 PJ7 90 PY 90 PY 90 PY 285 PZ 280 S2 260 S7 280 S2 260 S7 280 S9 270 SM 245 SP 95 ST 155 SU 95 ST 155 SU 95 T2 95 T30 335 T31 335 T32 325 T5 5 TA 265 TF 60 TG 320 TI 90 TJ 320 TK 20 TL N TN 30 TR 20 TL N TN 30 TR 21 TY 350 TZ 320 UAI 15 UA2 90 UB 90 UC 90 UD	350 UF 335 UG 335 UG 135 UH 325 UI 100 U1. 275 UM 305 UO 330 UP 310 UQ 330 UR 20 VE VK 330 VK9L 310 VK9X 330 VK9Y 95 VK9N 90 VK0M 125. 145 V2 100 V3 290 V4 240 V85 205 VP2 330 VP5 310 VP8 250 VP2 330 VP8 250 VP9 260 VQ9 270 VR6 N VU7A N VU7A N VU7A N VU7L 245 XE 280 XF4 280 XF4 280 XT 15 XU 90 XV 90 XX 205 XZ 230 Y2-9 205 YA 210 YB, C, D 200 YI 220 YJ 160 YK 190 YO 320 YS 320 YU 330 YV 300 ZA 290 ZB2	290 ZC 290 ZD7 290 ZD8 290 ZD9 290 ZD9 290 ZZ SF 290 ZK IN 285 ZK IS 320 ZK2 320 ZK3 320 ZK3 320 ZL7 50 ZL8 280 ZL9 290 ZP 275 ZS 270 ZS3 340 IA0 220 IS 210 3A 95 3B6, 7 85 3B8 95 3B9 290 3C 95 3C0 95 3D2 150 3D6 30 3V 265 3X 90 3Y 305 4S 270 4U/ITU 285 2H 295 SH 295 SH 295 SH 295 SS 305 ST 290 SW 300 SZ 270 GO 320 SV 320	270 9G 180 9H 170 9J 170 9J 170 9M 220 91 90 9M 50 9M 60 9N N 9Q 30 9V 125 210 200 280 285 235 235 235 235 235 236 205 N 220 250 155 185 280 300 65 255 265 260 270 230 195 225 160 175 175 20 235	



NZART CALL BOOK, 1985

WORLD TIME CONVERSION CHART IN HOURS

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Night	2200			1AM	2AM	зАМ	4AM	5AM	6AM	7AM	BAM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM
2300 Mid 1AM 2AM 3AM 4AM 5AM 6AM 7AM 8AM 9AM 10AM 11AM Noon 1PM 2PM 3PM 4PM 5PM 6PM 7PM 8PM 9PM 10	2300		1AM	2AM	зАМ	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3РМ	4PM	5PM	6PM	7PM	8PM	9PM	10PM

With this chart you can convert standard time in any time zone to GMT or fell what lines it is in other parts of the world. To correctly use this chart visuality such for frontiel line as a complete circle. From your time zone including for two lines are pass middle and the convert when you pass middle and the convert when you pass the international data line. There is not change in data when you pass both middle and to morrow when you pass the international data line. There is not change in data when you pass both middle that international data line going in one effection. For instance at 8.7M in New York Eastern Standard Time it is 2.4M tomorrow in Berlie, Germany and 19.4M tomorrow in Sydney, Australia. Always trace in this shortest direction from your times zone in find what lines it is not only other zone. Copyright 1933 badio Amster Call Beact, Sec., Chicago, USA.

Allocation of International Callsigns

	, mocadon or men		Cansi Bi is
AAA-ALZ	United States of America	HNA-HNZ	Iraq (Republic of)
AMA-AOZ	Spain	HOA-HPZ	Panama (Republic of)
APA-ASZ	Pakistan (Islamic Republic of)	HQA-HRZ	Honduras (Republic of)
ATA-AWZ	India (Republic of)	HAS-HSZ	Thailand
AXA-AXZ	Australia	HTA-HTZ	Nicaragua
AYA-AZZ	Argentine Republic	HUA-IIUZ	El Salvador (Republic of)
A2A-A2Z	Botswana (Republic of)	HVA-HVZ	Vatican City State
A3A-A3Z	Tonga (Kingdom of)	HWA-HYZ	France
A4A-A4Z	Oman (Sultanate of)	HZA-HZZ	Saudi Arabia (Kingdom of)
A5A-A5Z	Bhutan (Kingdom of)	H2A-H2Z	Cyprus (Republic of)
A6A-A6Z	United Arab Emirates	H3A-H3Z H4A-H4Z	Panama (Republic of) Solomon Islands
A7A-A7Z	Qatar (State of)	H6A-H7Z	Nicaragua Nicaragua
A8A-A8Z A9A-A9Z	Liberia (Republic of) Bahrain (State of)	H8A-H9Z	Panama (Republic of)
BAA-BZZ	China (People's Republic of)	IAA-IZZ	Italy
CAA-CEZ	Chile	JAA-JSZ	Japan
CFA-CKZ	Canada	JTA-JVZ	Mongolian People's Republic
CLA-CMZ	Cuba	JWA-JXZ	Norway
CNA-CNZ	Morocco (Kingdom of)	JYA-JYZ	Jordan (Hashemite Kingdom of)
COA-COZ	Cuba	JZA-JZZ	Indonesia (Republic of)
CPA-CPZ	Bolivia (Republic of)	J2A-J2Z J3A-J3Z	Djibouti (Republic of) Grenada
CQA-CUZ	Portugal	J4A-J4Z	Greece
CVA-CXZ CYA-CZZ	Uruguay (Oriental Republic of) Canada	J5A-J5Z	Guinea-Bisseau (Republic of)
C2A-C2Z	Nauru (Republic of)	J6A-J6Z	Saint Lucia
C3A-C3Z	Andorra (Principality of)	J7A-J7Z	Dominica
C4A-C4Z	Cyprus (Republic of)	J8A-J8Z	Saint Vincent and the Grenadines
C5A-C5Z	Gambia (Republic of)	KAA-KZZ	United States of America
C6A-C6Z	Bahamas (Commonwealth of the)		
C7A-C7Z	World Meteorological Organisation	LAA-LNZ	Norway
C8A-C8Z	Mozambique (People's Republic of)	LOA-LWZ	Argentine Republic
DAA-DRZ	Germany (Federal Republic of)	LXA-LXZ	Luxembourg
DSA-DTZ	Republic of Korea	LYA-LYZ LZA-LZZ	Union of Soviet Socialist Republics Bulgaria (People's Republic of)
DUA-DZZ	Philippines (Republic of the)	1.2A-1.9Z	Argentine Republic
D2A-D3Z	Angola (People's Republic of)		
D4A-D4Z	Cape Verde (Republic of)	MAA-MZZ	Great Britain and Northern Ireland
D5A-D5Z	Liberia (Republic of)	NAA-NZZ	United States of America
D6A-D6Z	Comoros (Federal and Islamic Republic)	OAA-OCZ	Peru
D7A-D9Z	Republic of Korea	ODA-ODZ	Lebanon
EAA-EHZ	Spain	OEA-OEZ	Austria
EIA-EJZ	Ireland	OFA-OJZ	Finland
EKA-EKZ	Union of Soviet Socialist Republics	OKA-OMZ	Czechoslovakia Socialist Republic
ELA-ELZ	Liberia (Republic of)	ONA-OTZ	Belgium
EMA-EOZ	Union of Soviet Socialist Republics	OUA-OZZ	Denmark
EPA-EQZ	Iran (Islamic Republic of)	PAA-PIZ	Netherlands (Kingdom of the)
ERA-ESZ	Union of Soviet Socialist Republics	PJA-PJZ	Netherlands Antilles
ETA-ETZ	Ethiopia	PKA-POZ	Indonesia (Republic of)
EUA-EWZ	Byelorussian Soviet Socialist Republic	PPA-PYZ	Brazil (Federative Republic of)
EXA-EZZ	Union of Soviet Socialist Republics	PZA-PZZ	Suriname (Republic of)
FAA-FZZ	France	P2A-P2Z P3A-P3Z	Papua New Guinea Cyprus (Republic of)
GAA-GZZ	Great Britain and Northern Ireland	P4A-P4Z	Netherlands Antilles
HAA-HAZ	Hungarian People's Republic	P5A-P9Z	Democratic People's Republic of Korea
нва-нвг	Switzerland (Confederation of)		
HCA-HCZ	Ecuador	QAA-QZZ	(Service abbreviations)
HEA-HEZ	Switzerland (Confederation of)	RAA-RZZ	Union of Soviet Socialist Republics
HFA-HFZ	Poland (People's Republic of)	SAA-SMZ	Sweden
HGA-HGZ	Hungarian People's Republic	SNA-SRZ	Poland (People's Republic of)
HHA-HHZ	Haiti (Republic of)	SSA-SSM	Egypt(Arab Republic of)
HIA-HIZ	Dominican Republic	SSN-STZ	Sudan (Democratic Republic of the)
HJA-HKZ	Colombia (Republic of)	SUA-SUZ	Egypt (Arab Republic of)
HLA-HLZ	Republic of Korea	SVA-SZZ	Greece Pagadadada (Dagada): Pagadalia aft
HMA-HMZ	Democratic People's Republic of Korea	S2A-S3Z	Bangladesh (People's Republic of)

S6A-S6Z	Singapore (Republic of)	ZAA-ZAZ	Albania (Socialist People's Republic of)
S7A-S7Z	Seychelles (Republic of)	ZBA-ZJZ	Great Britain and Northern Ireland
S9A-S9Z	Sao Tome and Principe (Dem. Rep. of)	ZKA-ZMZ	New Zealand
TAA-TCZ		ZNA-ZOZ	Great Britain and Northern Ireland
	Turkey	ZPA-ZPZ	Paraguay (Republic of)
TDA-TDZ	Guatemala (Republic of)	ZQA-ZQZ	Great Britain and Northern Ireland
TEA-TEZ	Costa Rica	ZRA-ZUZ	South Africa (Republic of)
TFA-TFZ	Iceland	ZVA-ZZZ	Brazil (Federative Republic of)
TGA-TGZ	Guatemala (Republic of)		
THA-THZ	France	Z2A-Z2Z	Zimbabwe (Republic of)
TIA-TIZ	Costa Rica	2AA-2ZZ	Great Britain and Northern Ireland
TJA-TJZ	Cameroon (United Republic of)	3AA-3AZ	Monaco
TKA-TKZ	France	3BA-3BZ	Mauritius
TLA-TLZ	Central African Republic		
TMA-TMZ	France	3CA-3CZ	Equatorial Guinea (Republic of)
TNA-TNZ	Congo (People's Republic of the)	3DA-3DM	Swaziland (Kingdom of)
	France	3DN-3DZ	Fiji
TOA-TQZ		3EA-3FZ	Panama (Republic of)
TRA-TRZ	Gabon Republic	3GA-3GZ	Chile
TSA-TSZ	Tunisia	3HA-3UZ	China (People's Republic of)
TTA-TTZ	Chad (Republic of the)	3VA-3VZ	Tunisia
TUA-TUZ	Ivory Coast (Republic of)	3WA-3WZ	Viet Nam (Socialist Republic of)
TVA-TXZ	France	3XA-3XZ	Guinea (Revolutionary People's Rep. of)
TYA-TYZ	Benin (People's Republic of)	3YA-3YZ	Norway
TZA-TZZ	Mali (Republic of)	3ZA-3ZZ	Poland (People's Republic of)
T2A-T2Z	Tuyalu		
T3A-T3Z	Kiribati Republic	4AA-4CZ	Mexico
T4A-T4Z	Cuba	4DA-4IZ	Philippines (Republic of the)
T5A-T5Z	Somali Democratic Republic	4JA-4LZ	Union of Soviet Socialist Republics
T6A-T6Z	Afghanistan (Democratic Republic of)	4MA-4MZ	Venezuela (Republic of)
		4NA-4QZ	Yugoslavia (Soc. Federal Republic of)
UAA-UQZ	Union of Soviet Socialist Republics	4PA-4SZ	Sri Lanka (Democratic Soc. Rep.)
URA-UTZ	Ukrainian Soviet Socialist Republic	4TA-4TZ	Peru
UUA-UZZ	Union of Soviet Socialist Republics	4UA-4UZ	United Nations Organisation
VAA-VGZ	Canada	4VA-4VZ	Haiti (Republic of)
VHA-VNZ	Australia	4WA-4WZ	Yemen Arab Republic
VOA-VOZ	Canada	4XA-4XZ	Israel (State of)
VPA-VSZ	Great Britain and Northern Ireland	4YA-4YZ	International Civil Aviation Organisation
		4ZA-4ZZ	Israel (State of)
VTA-VWZ	India (Republic of)		
VXA-VYZ	Canada	5AA-5AZ	Libya (Socialist People's Libyan Arab
VZA-VZZ	Australia		Jamahiriya)
V2A-V2Z	Antigua	5BA-5BZ	Cyprus (Republic of)
WAA-WZZ	United States of America	5CA-5GZ	Morocco (Kingdom of)
XAA-XIZ	Mexico	5HA-5IZ	Tanzania (United Republic of)
		5JA-5KZ	Colombia (Republic of)
XJA-XOZ	Canada	5LA-5MZ	Liberia (Republic of)
XPA-XPZ	Denmark	5NA-5OZ	Nigeria (Federal Republic of)
XQA-XRZ	Chile	5PA-5QZ	Denmark
XSA-XSZ	China (People's Republic of)	5RA-5SZ	Madagascar (Democratic Republic of)
XTA-XTZ	Upper Volta (Republic of)	5TA-5TZ	Mauritania (Islamic Republic of)
XUA-XUZ	Democratic Kampuchea	5UA-5UZ	Niger (Republic of the)
XVA-XVZ	Viet Nam (Socialist Republic of)	5VA-5VZ	
XWA-XWZ	Lao People's Democratic Republic		Togolese Republic
XXA-XXZ	Portugal	5WA-5WZ	Western Samoa
XYA-XZZ	Burma (Soc. Republic of the Union of)	5XA-5XZ	Uganda (Republic of)
YAA-YAZ	Afghanistan (Democratic Republic of)	5YA-5ZZ	Kenya (Republic of)
YBA-YHZ	Indonesia (Republic of)	6AA-6BZ	Egypt (Arab Republic of)
		6CA-6CZ	Syrian Arab Republic
YIA-YIZ	Iraq (Republic of)	6DA-6JZ	Mexico
YJA-YJZ	New Hebrides	6KA-6NZ	Republic of Korea
YKA-YKZ	Syrian Arab Republic	60A-60Z	Somali Democratic Republic
YLA-YLZ	Union of Soviet Socialist Republics	6PA-6SZ	Pakistan (Islamic Republic of)
YMA-YMZ	Turkey	6TA-6UZ	Sudan (Democratic Republic of the)
YNA-YNZ	Nicaragua		
YOA-YRZ	Roumania (Socialist Republic of)	6VA-6WZ	Senegal (Republic of the)
YSA-YSZ	El Salvador (Republic of)	6XA-6XZ	Madagascar (Democratic Republic of)
YTA-YUZ	Yugoslavia (Soc. Federal Republic of)	6YA-6YZ	Jamaica
YVA-YYZ	Venezuela (Republic of)	6ZA-6ZZ	Liberia (Republic of)
YZA-YZZ	Yugoslavia (Soc. Federal Republic of)	7AA-71Z	Indonesia (Republic of)
Y2A-Y9Z	German Democratic Republic	7JA-7NZ	Japan

70A-70Z	Yemen (People's Democratic Rep. of)	8ZA-8ZZ	Saudi Arabia (Kingdom of)
7PA-7PZ	Lesotho (Kingdom of)	9AA-9AZ	San Marino (Republic of)
7QA-7QZ	Malawi (Republic of)	9BA-9DZ	Iran (Islamic Republic of)
7RA-7RZ	Algeria (Algerian Democratic and Popu-	9EA-9FZ	Ethiopia
	lar Republic)	9GA-9GZ	Ghana
7SA-7SZ	Sweden	9HA-9HZ	
7TA-7YZ	Algeria (Algerian Democratic and Popu-		Malta (Republic of)
	lar Republic)	9IA-9JZ	Zambia (Republic of)
7ZA-7ZZ	Saudi Arabia (Kingdom of)	9KA-9KZ	Kuwait (State of)
ILA-ILL	Saudi Atabia (Kingdom or)	9LA-9LZ	Sierra Leone
8AA-81Z	Indonesia (Republic of)	9MA-9MZ	Malaysia
8JA-8NZ	Japan	9NA-9NZ	Nepal
8OA-8OZ	Botswana (Republic of)	90A-9TZ	Zaíre (Republic of)
8PA-8PZ	Barbados	9UA-9UZ	Burundi (Republic of)
8QA-8QZ	Maldives (Republic of)	9VA-9VZ	Singapore (Republic of)
8RA-8RZ	Guyana	9WA-9WZ	Malaysia
8SA-8SZ	Sweden	9XA-9XZ	Rwanda (Republic of)
8TA-8YZ	India (Republic of)	9Y A-9ZZ	Trinidad and Tobago

Prefixes by Countries

For information previously contained in this pages, refer to the DXCC Countries List, page 155.

Australian 2 m Repeater Channel Numbers and Frequencies

Repeater Channel No,	Repeater Input Frequency (MHz)	Repeater Output Frequency (MHz)	Repeater Channel No.	Repeater Input Frequency (MHz)	Repeater Output Frequency (MHz)	Repeater Channel No.	Repeater Input Frequency (MHz)	Repeater Output Frequency (MHz)
6625	146.025	146.625	6900	146.300	146.900	7125	147,725	147.125
6650	146.050	146.650	6925	146.325	146.925	7150	147.750	147.150
6675	146.075	146,675	6950	146.350	146.950	7175	147.775	147.175
6700	146.100	146.700	6975	146.375	146,975	7200	147.800	147.200
6725	146.125	146.725	7000	146.400	147.000	7225	147.825	147,225
6750	146.150	146,750	7025	147.625	147.025	7250	147.850	147.250
6775	146,175	146,775	7025	147.625	147,025	7275	147.875	147.275
6800	146,200	146.800	7050	147.650	147.050	7300	147.900	147.300
6825	146.225	146.825	7075	147,675	147.075	7325	147.925	147.325
6850	146.250	146.850	7.100	147,700	147,100	7350	147.950	147.350
6875	146.275	146.875				7375	147.975	147.375

Australian 2 m FM Simplex Channel Numbers and Frequencies

Channel No.	Frequency (MHz)	WIA Band Plan Recommended use for specific frequencies	Channel No.	Frequency (MHz)	WIA Band Plan Recommended use for specific purposes
6425	146,425	Secondary voice channel	7400 7425	147,400 147,425	ATV Liaison (national) ATV Liaison (national)
6450	146.450	Primary voice channel	7450	147.450	ATV/SSTV/FAX
6475	146.475	Secondary voice channel	7475	147.475	SSTV/FAX Liaison
6500	146,500	Calling channel (national)	7500	147.500	No specific recommendation
6525	146.525	Secondary voice channel	7525	147.525	No specific recommendation
6550	146.550	Primary voice channel	7550	147.550	Microprocessor Net
6575	146.575	Secondary voice channel	7575	147.575	Data Net
6600	146.600	RTTY (national)	7600	147,600	Data Net

Notes: 1. Recommended use is for guideline purposes only.

2. Use of 146,000 MHz is not recommended as it interferes with the satellite band.

3, 144,925, .950, .975 for microprocessor-controlled continuous morse transmissions.

Australian 70 cm FM Simplex Frequencies

Frequency MHz	Recommended Use	Frequency MHz	Recommended Use
438.750 438.775 438.800 438.825 438.850 438.875 438.900 438.925 438.950 438.975 439.000	RTTY WICEN Voice Secondary Data SSTV Voice Nat Primary	439.025 439.050 439.075 439.100 439.125 439.150 439.200 439.225 439.250	Data Packet Data Packet Voice Secondary

Channels with no specific recommendation and channels between 433,750 and 434,250 may by used for any purpose.

Australian Repeater Service

AUSTRALIAN CAPITAL TERRITORY

Area	Callsign	Freq.	Time Out (Min)	Mode	Power Watts	Mobile Range (km)	Height ASL (m)	Site	Sponsor	Status
TWO METRES Canberra ACT	VKIRAC VKIRGI	6900 6950	4.0 4.0	Voice Voice	10 25	100 150		Black Hill Mt. Ginini	Australia Capital Territory, WIA Australia Capital Territory, WIA	0
UHF Canberra	VKIRUC	8525	3.0	Voice	10	50	_	Canberra City	Canberra Radio Society	т

NEW SOUTH WALES

Area	Callsign	Freq.	Time Out (Min)	Mode	Power Watts	Mobile Range (km)	Height ASL (m)	Site	Sponsor	Status
TWO METRES										
Western Blue Mountains	VK2RDX	6650	3.5	Voice	10	80	1362	Mt. Bindo	St. George ARS	0
North Coast Coffs Harbour	VK2RCH	6650	3.0	Voice	9	50	300	Bruxner Park	Coffs Harbour ARC	0
Moree Inverell	VK2RMI	6650	4.0	Voice	30	50	660	Terri Hie Hie	North West ARG	0
Sydney	VK2RTY	6675	-15	RTTY	40	_	200	Pennant Hills	ANARTS	0
North Coast/Pt. Macquarie	VK2RPM	6700	3.5	Voice	25	25	50	Pt. Macquarie	Oxley Region ARC	0
Central WestOrange	VK2RAO	6700	3.0	Voice	50	100	1397	Mt. Canobolas	Orange ARC	0
South Coast-Ulladulla	VK2RMU	6700	3.5	Voice	35	50	150	Milton	Mid South Coast ARC	0
Central Coast/Gosford	VK2RAG	6725	3.0	Voice	20	80	303	Somersby	Central Coast ARC	0
Far South Coast, Bega	VK2RFS	6750	3.3	Voice	10	150	870	Mt. Mumbulla	Far South Coast ARC	0
New England/Tamworth	VK2RTM	6750	3.0	Voice	20	120	930	Mt. Sterling	Tamworth ARC	0
Riverina Wagga	VK2RWG	6750	4.5	Voice	10	90	490	Mt. Flackney	Wagga ARC	0
Far North Coast: Lismore	VK2RIC	6800	5.0	Voice	25	40	100	Parrots Nest	Summerland ARC	0
Sydney-Metro	VK2RLE	6800	3.5	Voice	30	60	240	Heathcote	St. George ARS	0
Orana Region: Warrumbungles	VK2RCC	6800	3.0	Voice	25	150	1100	Needle Point	Orana Region ARC	0
Riverina/Griffith	VK2RGF	6850	3.0	Voice	12	100	450	Mt. Binya	Griffith RC	0
South Coast Wollongong	VK2RAW	6850	4.0	Voice	25	50	769	Mt. Murray	Illawarra ARS	0
New England/Sunnedah	VK2RAB	6850	4.0	Voice	10	50	440	Porcupine Reserve	North West ARC	0
Sydney/North Beaches	VK2RMB	6875	3.0	Voice	25	25	150	Terry Hills	Manly Warringah DRC	0
Newcastle/Hunter Valley	VK2RAN	6900	5.0	Voice	30	50	300	Mt, Sugarloaf	Hunter Branch RG	0
Central West/Condoblin	VK2RRT	6900	5.0	Voice	8	50	441	Boona Mount	Albert ARC	0
Sydney/Lower North Shore	VK2RGR	6925	2.5	Voice	10	20	30	North Ryde	Gladesville ARC	0
New England/ Tablelands	VK2RNE	6950	4.0	Voice	01	110	1503	Mt. Rumbee	North West ARC	0
Sydney/Metro	VK2RWI	7000	3.5	Voice	35/140	100	240	Dural	WIA (NSW) Division	0
Blue Mountains	VK2RMB	7050	3.5	Voice	15	50	900	Mt. Tomah	Blue Mountains ARC	0
Sydney/Eastern Suburbs	VK2ROT	7075	3.0	Voice	20	25	90	Paddington	OTC ARC	0

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Australian Repeater Service (Continued)

NEW SOUTH WALES (Continued)

Area	Callsign	Freq.	Time Out (Min)	Mode	Power Watts	Mobile Range (km)	Height ASL (m)	Site	Sponsor	Status
Central West Grenfell	VK2RWM	7100	3.0	Voice	25	60	575	Grenfell	Parkes & District ARC	0
Hunter Region Newcastle	VK2RTZ	7100	1.5	Voice	10	50	400	Watagan Ranges	Westlakes ARC	0
Statewide Emergency	_	7125	-	WICEN	-		-	NSW WICEN	Portable 1	0
Sydney - Emergency	VK2RWS	7150	0.5	WICEN	10	50	140	Chatswood	NSW WICEN Committee	0
Statewide Emergency	-	7175	-	WICEN	-	-	-	NSW WICEN	NSW Portable 2	- 0
South Coast Nowra	VK2RSD	7200	4.0	Voice	10	50	600	Cambewarra L'Out	Shoalhaven ARC	-0
Sydney	VK2RST	7225	4.0	SSTV	10	25	25	Lane Cove West	Gladesville ARC	- 0
Sydney Upper North Shore	VK2RNS	7250	3.5	Voice	10	25	225	Hornsby	Hornsby District ARC	-0
South Coast North Wollongong	YK2R1L	7275	4.0	RTTY/ Voice	10	50	398	Sublime Point	Illawarra ARS	0
South Highland Mittagong	VK2RHR	7350	3.0	Voice	10	75	862	Bowral	South Highlands ARC	0
Sydney South West	VK2RLD	7375	4.0	Voice	35	50	370	Razorback	Liverpool & Districts ARC	0
SEVENTY CENTIMETRES South Highlands Central Coast—Gosford Wyong	VK2RTK VK2RAG	8025 8075	3.0	Voice Voice	Ж.		303	High Range Somersby	Trio Kenwood South Highlands Central Coast ARC	T 0
South Coast - Wollongong	VK2RUW	8225	4,0	Voice	10	40	100	Port Kembla	Illawarra ARS	0
Sydney - Emergency	VK2RWS	8275	1.0	WICEN	.5	10	140	Chatswood	NSW WICEN Committee	0
North Coast Taree	VK2REE	8325	3.0	Voice	15	40	930	Tarce District	Taree ARC	T
Blue Mountains Central	VK2RUT	8375	3.0	Voice	15	40	500	Kurrajong	Blue Mountains ARC	0
Sydney South Suburbs	VK2RUH	8425 8475	4.0	Voice Voice	25 20	25	100 50	Hurstville	St. George ARS	0
Sydney West Suburbs	VK2RRS		4.0 3.5	Voice	10	25 60	240	Parramatta	Gladesville ARC	0
Sydney General	VK2RW1 VK2RUM	8525 8625	3.0	Voice	5	50	240 50	Dural New Lambton	WIA (NSW) Division Newcastle ATC & UHF Club	0
Newcastle Hunter Region		8675	5.0	Voice	50	75	300		Hunterbranch RG	
Newcastle Hunter Valley	VK2RAN	8675				40		Mt. Sugarloaf Mt. Nardi		0
Far North Coast Lismore	VK2RSC VK2RH.	8725	5.0 4.0	Voice RTTY	10 5	30	300 398	Sublime Point	Summerland ARC	0
South Coast North Wollongong	VK2RH.	8723	4.17	LICELLY.	2	30	378	Summe rount	Illawarra ARC	0

Future Sydney systems will use channels in the 9000 (434,900-434,975 input) series.

To enable New Zealand repeaters to have clear channels for possible openings, no VK2 coastal allocations will be made from the 8000 series ending in either 00 or 50.

Australian Repeater Service (Continued)

VICTORIA	1		Time			Mobile	Height		T	- 1
Area	Callsign	Freq.	Out (Min)	Mode	Power Watts	Range (km)	ASI. (m)	Site	Sponsor	Statu
TWO METRES										
Shepparton	VK3RGV	6650	3.5	Voice	25	120	800	Mt. Wombat	Victoria WIA	0
Melbourne	VK3RMI.	6700	2.5	Voice	50	120	600	Mt. Dandenong	Victoria WIA	0
Duven	VK3RON	6700	2.5	Voice	25	_	-	Duyen	Victoria WIA	0
Corryong	VK3RNC	6700	2.5	Voice	25	_		Mt. Mittamatite	Victoria WIA	0
Ballarat	VK3RBA	6750	3.0	Voice	1.5	60	750	Mt. Bunningyong	Victoria WIA	0
Latrobe Valley	VK3RLV	6800	2.5	Voice	40	100	730	Mt. Tassic	Eastern Zone W1A	0
Mildura	VK3RMA	6800	4.0	Voice	100	60	50	Mildura Airport	North West Zone WIA	0
Mt. Macedon	VK3RMM	6850	2.5	WICEN	*001	120	1011	Mt. Macedon	Victoria WIA	0
Swan Hill	VK3RSH	6900	2.5	Voice	40	50	60	Swan Hill	Swan Hill ARC	0
East Gippsland	VK3REG	6900	4.5	Voice	25	100	560	Denalds Knob	Eastern Zone W1A	T
Grampians	VK3RWZ	6950	2.5	Voice	25	130	1170	Mt. William	Western Zone WIA	0
Geelong	VK3RGL	7000	3.0	Voice	400*	140	400	Mt. Anakie	Victoria WIA	0
Wodonga	VK3RNE	7000	3.0	Voice	25*	60	E158	Mt. Big Ben	North East Zong WIA	0
Warrambool	VK3RWL	7050	2.5	Voice				Mt. Warrambool	Victoria WIA	()
Robinvale	VK3RVL	7050	2.5	Voice	10		_	Robinvale	Victoria WIA	0
Omeo	VK3RGO	7050	2.5	Voice	20	_		Mt. Livingstone	Victoria W1A	l T
Bright	VK3RPB	7100	2.5	Voice	5	_		Mt. Porepunkah	Victoria WIA	1
South Gippsland	VK3RSG	7100	3.0	Voice	25	-	_	Bass Hill	Victoria WIA	0
Geelong	VK3RGC	7125	2.5	Voice	20		_	Montepellier	Victoria WIA	T
Bendigo	VK3RCV	7150	3.0	Voice	40*	100	730	Mt. Alexandria	Midlands Zone WIA	0
Melhourne	VK3REC	7175	3.0	Voice	25	80	600	Mt. Dandenong	Eastern Suburbs Club	ő
West Gippsland	VK3RWG	7225	3.0	Voice	10			Warrangul	Eastern Zone WIA	O
Melhourne	VK3RTY	7350	-	RTTY	25	-	600	Mt. Dandenong	Victoria W1A	0
SEVENTY CENTIMETRES										
Melbourne	VK3RMU	8075	3.0	Voice	5		_	Mt. St. Leonard	Victoria WIA	T
Melbourne	VK3ROU	8225	4.0	Voice	50		600	Mr. Dandenong	Victoria WIA	0
Gippsland	VK3RGU	8375	4.0	Voice	15	19	_	Carrajung	Eastern Zone WIA	0
Melbourne	VK3RAD	8525	3.0	Voice	20		-	Mitcham	70 cm Group	0
Wodonga	VK3RNU	8525	3.0	Voice	5	_	1051	Mt. Stanley	Victoria WIA	0
Mildura	VK3RRU	8825	2.5	Voice	5		_	Merbien	Victoria WIA	T
Portable	VK3RWI	8625	1000	WICEN	5	N/A	N/A	N/A	Victoria WICEN	0
rampians	VK3RWU	8675	3.0	Voice	25	100	1170	Mt. William	Victoria W1A	T
Mt. Macedon	VK3RCU	9275	3.5	WICEN	25	1000	1101	Mt. Macedon	Victoria WIA	0
Shepparton	VK3RDU	9425	3.0	Voice	10	-	-	Mt. Major	Victoria WIA	T
Geelong	VK3RBU	9575	3.0	Voice	10		1000	120	Victoria WIA	T
Melbourne	VK3RPU	9725	3.0	Voice	10	-	_	Arthur's Seat	Victoria WIA	T
TWENTY-THREE CENTIMI					2.0				10 1. 11/14	т
Melbourne	VK3RIC	1253.5	2.5	Voice	10				Victoria W1A	
SIX METRES					24		600	NA. The land		120
Melbourne	VK3RTN	3675	-	Voice	25	140	600	Mt. Dandenong	Victoria WIA	T
Melbourne	VK3RMH	3900	_	Voice		150	-	Hurstbridge	Victoria WIA	0

OUEENSLAND

Brisbane

Brishane

Bundaberg

North Coast

Gold Coast

Bundaberg

Brisbane

Brisbane

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Australian Repeater Service (Continued)

Area	Callsign	Freq.	Time Out (Min)	Mode	Power Watts	Mobile Range (km)	Height ASL (m)	Site	Sponsor	Status	
TWO METRES											ı
Gold Coast	VK4RGC	6700	_	Voice	20/160*	80÷	500	Mt. Tamborine	Gold Coast ARS	0	ı
Rockhampton	VK4RAR	6700	5.0	Voice	20/50*	50		Rockhampton	Central Queensland Branch WIA	0	ı
Townsville	VK4RAT	6700	8.0	Voice	25/50*	75	584	Mt. Stuart	Townsville ARC	0	ı
Bundaberg	VK4RBU	6800	4.0	Voice	20/40*	80+	620	Mt. Goonaneman	Bundaberg ARC	0	ı
Mt. Isa	VK4RML	6800 ·	-	Voice	20*	1007	-	_	Mt Isa ARC	0	ı
Darling Downs	VK4RDD	6850	4.5	Voice	15*	20	640	Mt. Mowbullan	Darling Downs RC	0	ı
North Coast	VK4RNC	6850	-	Voice	10	50+	450	Mt. Nambour	Sunshine Coast ARC	0	L
Ipswich	VK4RAL	6900	4.5	Voice	20	40	120	Mt. Crosby	Ipswich and District ARC	0	ı
Gladstone	VK4RGB	6900	3.0	Voice	20/50*	60	180	Caliope Range	Gladstone ARC	T	ı
Cairns	VK4RCA	6950	_	Voice	10	160÷	1650	Mt. Bellenden Ker	Cairns ARC	0	ı
Brisbane	VK4RBN	7000	3.5	Voice	25/100*	80	630	Mt. Glorious	Brisbane VHF Group	0	ļ
Mackay	VK4RMK	7000	5.0	Voice	18:30*	20	17	N.E. Mackay	Mackay ARC	0	ı
Brisbane	VK4RBT	7050	4.5	RTTY/	20/83	50	233	Mt. Cotton	S.E. Queensland Teletype Group	0	1
				Voice							1

10

10

5:20*

10*

25 100

Voice

RITTY

Voice

Voice

Voice

Voice

Voice

Voice

85

50±

60

60+

 $50 \pm$

620

450

500

560

620

7150

7250

7300

B075

8225

8375

8525

8675

4.0

VK4RAG

VK4RBS

VK4RQT

VK4RNC

VK4RGC

VK4RBC

VK4RBU

VK4R

Springhall

Nr Nambour

Mt. Cootha

Mt. Tamborine

Brisbane South

Mt. Goonaneman

Mt. Goonaneman

WICEN

Rum City RTTY Group

Sunshine Coast ARC

Brisbane VHF Group

Gold Coast ARS

Bundaberg ARC

S.E. Queensland ATV Group

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SOUTH AUSTRALIA

SEVENTY CENTIMETRES

Area	Callsign	Freq.	Time Out (Min)	Mode	Power Watts	Mobile Range (km)	Height ASL (m)	Site	Sponser	Status
TWO METRES										
Mid North	VK5RMN	6700	5.0	Voice	10	80	730	The Bluff	South Australia WIA	0
Adelaide	VK5RHO	6850	3.5	Voice	25	80	410	Houghton	South Australia WIA	0
Mt. Gambier	VK5RMG	6900	5.0	Voice	25	50	100	Mt. Gambier	South Eastern Radio Group	0
Adelaide	VK5RAD	7000	3.5	Voice	15	80	610	Crafers	South Australia WIA	0
Alice Springs	VK5RCA	7000	3.5	Voice	20	20	-	Alice Springs	Alice Springs Comm, Coll. RC	0
SEVENTY CENTIMETRES										
Adelaide		8525	4.0	Voice	5		610	Crafers	South Australia WIA	0

Australian Repeater Service (Continued)

Area	Callsign	Freq.	Time Out (Min)	Mode	Power Watts	Mobile Range (km)	Height ASL (m)	Site	Sponsor	Status
TWO METRES								1		
Bunbury	VK6RSW	6650	-	Voice	-		-	Bunbury	South West ARG	P
Perth	VK6RAP	6700	3	Voice	40	80	360	Roleystone	Western Australia Repeater Group	0
Albany	VK6RAL	6700	-	Voice		_	-	Albany	Southern Electronics Group	T
Wickham	VK6RWK	6700		Voice	-	50	-	Wickham	Wickham ARC	- 0
Wyndham	VK6RWH	6700		Voice			-	Wyndham	VK6GU and WA Repeater Group	0
Perth	VK6RTH2	6750	5	Voice	-	_	-	Tie Hill	WA Repeater Group	- 0
Perth	VK6RTH	6800	5	Voice	40	100	230	Tie Hill	Western Australia Repeater Group	0
Albany	VK6RAA	6800	3	Voice	40	100	420	Mt. Barker	Southern Electronic Group	0
Karratha	VK6RNP	6800	,	Voice		50		Karratha	North West RS	0
Exmouth	VK6REX	6850		Voice				Tower Zero	North West RS	0
Kambalda	VK6RKB	6850		Voice	_		_	Kambalda	Kalgoorlie Repeater Group	0
Bunbury	VK6RBY	6900	5	Voice	25	150	520	Mt. William	Western Australia Repeater Group	1 0
Mt. Newman	VK6RMN	6900		Voice		25	-	Mt. Newman	North West RS	1 ř
Perth	VK6RPD	6950	3	Voice	40	70	70	Wait Bently	W.A.I.T. ARC	0
Emergency	VK6REE	6975	, ,	Voice	40	147	137	Trail is intry	Western Australia Repeater Group	lő
Emergency	VK6REE	7000		Voice	_				Western Australia Repeater Group	lő
Wagin	VK6RAW	7000	5	Voice	25	80	400	Mt. Latham	Great Southern Repeater Group	1 0
	VK6RAK	7000	5	Voice	40	40	400	Kalgoorlie	Kalgoorlie Repeater Group	1 6
Kalgoorlie Geraldton	VK6RGN	7000	5	Voice	15	100	400	Geraldton	Geraldton ARC	l ő
	VK6RNW	7000	,	Voice	13	35	400	Pt. Hedland	Northwest ARS	0
Pr. Hedland		7050		RITTY				Nedlands	AARTG	P
Perth Perth	VK6RTY	7100	5		-	_		Double View	West Coast ARC	0
	VK6RWC	7200	2	Voice			-	Cataby	Western Australia Repeater Group	1 b
Cataby	VK6RCT	7250		Voice		_	-	Mt. Saddleback		P
Boddington	VK6RMS	7300	ì	Voice	=		-	Ocean Hill	Western Australia Repeater Group	
Fneabba	VK6REN		Ī	Voice					Western Australia Repeater Group	l p
Brusselton	VK6RBN	7350		Voice		_		Brusselton	Western Australia Repealer Group	'
SIX METRES										
Perth	VK6RSM	53.8	=			_	-	Tie Hill	Western Australia Repeater Group	Т
		Out	}							
		53.2								
		In								
			-							
								-		
SEVENTY CENTIMETRES										
Perth	VK6RUF	3525		-	-	_	-	Roleystone	Western Australia Repeater Group	0
		In								
		8525								
		Out								

NZART CALL BOOK, 1985

Australian Repeater Service (Continued)

TASMANIA

Area	Callsign	Freq.	Time Out (Min)	Mode	Power Watts	Mobile Range (km)	Height ASL (m)	Site	Sponsor	Status
TWO METRES										
Hobart	VK7RHT	6700	2.5	Voice	70	190	1310	Mt. Wellington	South Branch WIA	0
North West Coast	VK7RNW	6750	5.0	Voice	30	001	160	Ulverstone	North West Branch WIA	0
North East Coast	VK7RAA	7000	5.0	Voice	60	150	1400	Mt. Barrow	North Branch WIA	0
East Coast	VK7REC	6900	2.5	Voice'	10	120	970	Snow Hill	WIA	T
SEVENTY CENTIMETRES										
Hobart		8525	-	Voice	_	_	_	_	WIA	T
Hobart	VK7RTC	8600	-	Voice	8:32	50		Mt. Nelson		0
North East	VK7RAB	8650	3.0	Voice	8:70	100	1190	Mt. Arthur	Northern Branch WIA	0
North West	VK7RAC	8650		Voice	3.6	_	_	Table Cape		1

Australian Amateur Television Repeaters

			Frequ	ienejes					
Area	Call- sign	In	pul	Ou	tput	Site	Spousor	Status	
		Vision	Sound	Vision	Sound				
Wagga	VK2RTW	444.2511	449.75H	579.25H	584.75 H	Williams Hill	NSW Division WIA	0	
Melbourne	VK3RTV	444.25	449.75	579.25	584.75	Mt. Dandenong	Victoria WIA	0	
Adelaide	VK5RTV	426.25H	431,7511	597.00H	584.50H	O'Halloran Hill	South Australia Division WIA	0	
Central North	VK5RCN	Pri. 444.25H Sec. 426.25V Pri. 579.00H Sec.	Pri. 449.75H Sec. 431.75V Pri. 584.50H Sec.	444.25H	449.751t	Barunga Range	South Australia Division WIA	0	
Perth	VK6ROD	426.25	431.75	579.25	584.75	Doubleview	Rod Henderson, VK6RH	0	
North West Tasmania	VK7RTV	444.25V	449.75V	426.25H	431.75H	Mt. Duncan	NW ATV Group	()	

[H = Horizontal

V = Vertical]

Australian Amateur Frequency Bands

Amateur stations licensed to holders of Amateur Operators' Certificates of Proficiency or equivalent or higher qualifications:

(a) Authorised transmitting frequency hands: Medium Frequency Band (kHz)

1800~1825 1825-1875 (a)

High Frequency Bands (MHz) 3.50-3.70, 3.794-3.8 (a), 7.00-7.10, 7.10-7.3 (a), 10.1-10.15 (d). 14.00-14.35, 18.068-18.168 (a), 21.00-21.45, 24.890-24.990 (a) 26.96-27.23 (c) (d), 28.00-29.70

Very High Frequency Bands (MHz)

52-54, 144-148

Ultra High Frequency Bands (MHz) 420-450 (a), 576-585 (b), 1240-1300 (a)

2300-2450 (a) (c)

Super High Frequency Bands (GHz) 3.300-3.500 (a), 5.650-5.850 (a) (c) 10.000 10.500 (a), 24.000 25.050 24.050-24.250 (a) (c)

Notes: (a) The Amateur Service is the secondary service in this band.

- (b) This band is allocated on a temporary basis until required by the Broadcasting Service.
- (c) The whole or part of this band is designated for industrial, scientific and medical purposes. Radio-communication services operating within the band must accept any harmful interference that may be experienced from the operation of industrial, scientific or medical equipment.
- (d) The band 26.96 to 27.23MHz has been temporarily withdrawn from amateur use.
- (i) Types of emission authorised:

All bands: A1, A3, A3A, A3B, A3H, A3J, A4 (\pm 3kHz), F1 (up to 850Hz shift), F3 (\pm 3kHz), F4 (\pm 3kHz), Automatic Telegraphic Systems: F1 (up to 850Hz shift), A2 and F2 (\pm 3kHz).

Slow Scan Television: A5, F5 (= 3kHz).

All bands above 52MHz:

A0, A2, F2, F3, F4 (# 8kHz), P0.

All bands above 420MHz:

A5, P1, P2D, P2E, P2F, P3D, P3E, P3F.

(ii) Authorised transmitter power:

A3A, A3J-400 watts (peak envelope output power from final stage) Pulse-120 watts peak envelope output power from final stage multiplied by the duty cycle) Other emissions - 120 watts (output power from final stage)

- (b) Amateur stations licensed to holders of Amateur Operators' Limited Certificates of Proficiency or equivalent qualifications:
 - Authorised transmitting frequency bands:

Very High Frequency Bands (MHz) 52-54, 144-148

Ultra High Frequency Bands (MHz)

420-450 (a), 576-585 (b).

24,050-24,250 (a) (c)

1215-1300 (a), 2300-2450(a) (c)

Super High Frequency Bands (GHz) 3.300-3.500(a), 5.650-5.850(a)(c). 10.000-10.500 (a), 24.000-24.050.

Types of emission authorised: tii)

All bands above 420MHz:

All hands above 52MHz:

A0, A3, A3A, A3B, A3H, A3J, A4 (\pm 3kHz), F3, F4 (\pm 8kHz), P0. Automatic Telegraph Systems F1 (up to 850Hz shift), A2 and F2 (± 3kHz). Slow Scan Television: A5, F5 (± 3kHz).

A5, P3D, P3E, P3F,

(iii) Authorised transmitter power: A3A. A3J-400 watts (peak envelope output power from final stage) Pulse-120 watts (peak envelope output power from final stage multiplied by the duty cycle) Other emissions-(120 watts output power from final stage)

- (c) Novice Amateur station licensees:
 - Authorised transmitting frequency bands:

High Frequency Bands (MHz)

3.525-3.625, 21-125-21,200, 26.960-27.230(c)(d). 28,100-28,600.

Types of emission authorised: All bands:

A1, A3, A3A, A3B, A3H, A3L

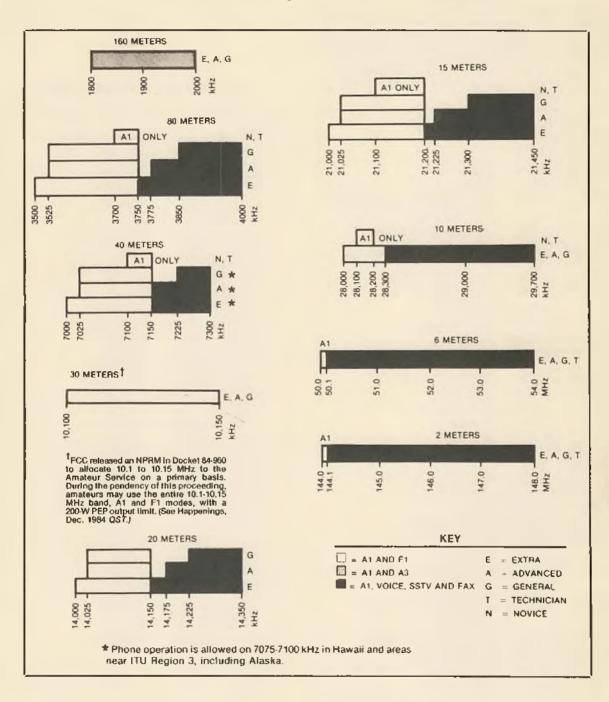
(iii) Authorised transmitting power: A3A, A3J-30 watts (peak envelope output power (rom final stage) A1, A3, A3B, A3H-10 watts (mean power output from final stage)

Amateur Bands in the United Kingdom

The Schedule of frequency bands, powers, etc, which for the sake of convience, appear in an identical format in both the Class A and Class B licences.

Frequency bands in	Status of allocation	The state of the bid.	PUBLICULE	m power	Permitted types of
MHz	The Amateur Service	The Amateur Satellite Service	Carrier	PEP	transmissin
f,810- 1.850 1.850 2.000	Available to amateurs on a basis of non-interference to other services.	No allocation.	9 dBW	15 6BW	Morse Telephony RTTY Data Facsimile SSTV Morse Telephony Data Facsimile SSTV
3.500 3.k00	Primary, Shared with other services.	No allocation.			Morse
7.000 7.100	Primary.	Primary.			Telephony
10,100 (0,150		No allocation.	20 dBW	26 dBW	RTTY
14.000 14.250	Secondary.	Primary.	20 00 11	207 1117 49	Data
14,250-14,350	Primary.	No allocation			Facilitie SSTV
18.068 (8).81	Avaitable to amateurs on a basis on non-interference to other services. Antennas limited to horizontal polarisation, maximum gain 0 dB with sespect to a balf-wave dipole.	Nn allocation.	10 4B#/	-	Merse, AIA only
21,000-21,450	. Primary.	Primary.	20 dBW	26 dBW	Morse Telephony RTTY Data Facsimile STTV
24.890 24.990	Available to umateurs on a basis of non-interference to other services. Antennas timited to horizontal polarisation, maximum gain 0 dB with respect to a half-wave dipole.	No allocation,	10 dBW	-	Morse, AlA only
28.000 29.700	Primary.	Primary.	30 dBW	26 dBW	Morse
70.025 70.500	Secondary basis until further notice. Subject to not causing interference to other services. Use of any frequency shall cease immediately on demand of a government official.	No allocative.	16 dBW	22 dBW	Telephony RTTY Data Facsimile
144.0 146.0°	Primary.	Primary.	20 dBW	26 dBW	SSTV
430.0 431.0	Secondary. This band is not available for use within the area bounded by: 53°N 02°E, 55°N 02°E, 53°N 03°W, and 55°N 03°W.		10 dBW	In dBW	Morse
431.0 432.0	Secondary. This hand is not available for use: (a) within the area bounded by: 53°N 02°E. 55°N 02°E. 53°N 03°W. and 55°N 01°W. (b) within a 100 km radius of Charing Cross 51°20°20°N 00°9°724°W.	No allocation.	c.r.p.	e.r.p.	Telephony RTTY Data Facsimile SSTV Television
432.0 435.0		No allocation,		_	1
435.0 438.0	Secondary.	Secondary.	20 dBW	26 dBW	
438.0 440.0		No allocation.			
1240 1260		No attocation.			
1260 1270		Secondary, Earth to Spuce only.			
1270-1325	Secondary.				
2310-2100		No allocation.			
2400 - 2450	Secondary. Users must accept interference from the ISM allocations in this hand,	Secondary, Users must accept interference from the ISM allocations in this band.			
3400-3475	Committee	No allocation.			
5650 5670	Secondary.	Secondary, Earth to Space only,			
5670 5680		No allocation.			
5755-5765 5920-5930		2 WE WIN PLATION.			Morse
5830 5830 5830 5850	Secondary. Users must accept interference from the 18M allocations in this hand.	Secondary. Users must accept interference from the ISM allocations in this band. Space to Earth only.	20 dBW	26 dBW	RTTY Date Facsimile
10000 10450	C 4:	No allocation.			SSTV
10450-10500	Secondary	Secondary,			Televisio
24000 - 24050	Primary. Users must accept interference from the ISM allocations in this band.	Primary. Users must accept interference from the ISM allocations in this band.			
24050 24250	Secondary. This band may only be used with the written consent of the Secretary of State. Users must accept interference from the ISM allocations in this band.	No allocation.			

United States of America Amateur Frequency Allocations



Beacon Stations

INTERNATIONAL 28 MHz BEACON PROJECT

This project is sponsored and encouraged by IARU Region I and organised by Alan Taylor, G3DME. The establishment of the beacon stations has stimulated scientific interest in the propagation paths revealed by the reception of the beacons. In addition they fulfil a practical role by providing signals on what may be otherwise a dead band.

QSL address for all beacons is via ZL3ND, 356 Avonside

Drive, Christchurch 6.

	D1110, C)	misteriaren o.	
	Freq. (MHz)	Call Sign	ДТН
	28.175	VE3TEN	Canada
	28.201	LU8ED	Argentina
	28.2025	ZS5VHF	Natal
	28,2025	9J2B	Zambia
	28.205	DL0[G]	Mt. Predighstul, east of Munich.
			On 28,200 for 5 min at the hour
			and 30 min past.
	28.210	3B8MS	Signal Mount Mauritius
1	28.2125	ZD9GI	Gough Island, South Atlantic
	28.215	GB3SX	Crowborough, England, 10W
1	28.2175	VE2TEN	Chicoutimi, Quebec
1	28.220	5B4CY	Cyprus, 26 w GP ant.
	28.220	LU4XS	Tierra Del Fuego, 5 w.
			5/8 vertical
	28.2225	HG2BHA	Hungary
	28.225	EA6AU	Balearic Island
	28.225	VE8AA	Canada
	28,230	ZL2MHF	Mt Climie, New Zealand
	20 225	LIBODA	50 w, vertical dip.
	28.235	VP9BA	Southampton, Bermuda
	28.2375	LASTEN	Oslo, Norway
	28.240	OA4CK	Lima, Peru
	28.2425	ZSICTB	South Africa Bahrain
1	. 28.245 28.249	A92C ZLIANB	Zimbabwe
	28.250	LUIUG	Argentina
	28.2575	DK0TE	Konstanz, Germany
	28.249	VK5WI	Adelaide, Australia
	28.2615	VK2RSY	Sydney, Australia
	28.264	VK6RWA	Perth. Australia
	28.264	PY2EXD	Brazil
	28.266	VK6RTW	Albany, Australia
	28.270	VK4RTI.	Townsville, Australia
	28.270	ZS6PW	South Africa
	28.2725	9L1FTN	Sierra Leone
i	28.2775	DEGAAB	Lutjenberg, North Germany
1	20.2772	DIONID	40 w GP ant.
	28.280	YV8AYV	Venezuela
ı	28.284	VP8ADE	Falkland Island, V-beam
	20.204	*10/\DL	to England
	28,290	VS6HK	Hong Kong 4 w GP ant.
	28.295	VU2BCN	Bangalore, India (QRT?)
	28,300		
		PY2AMI	Sao Paulo, Brazil South Africa
	28.3025	ZSISTB	.,
1	28.315	ZS6DN	South Africa

The above frequencies are listed or as actually measured by ZLIBAD. They may vary in practice due to drift or the difference between their mark and space frequencies.

AMATEUR BAND BEACONS

Freq. (MHz)	Call Sign	О ТН
(MLLIN)		
50.005	H44HIR	Honiara
50.008	JA2lGY	Mie
50.020	GB3SIX	Anglesey
50.045	OX3VHF	Greenland
50.050	GB3NHQ	England
50.075	VSISIX	Hong Kong
50.109	JDIYAA	Japan
50.945	ZSISIX	South Africa
52.033	P29BPL	Loloata Island
52.100	ZK2S1X	Niue
52.150	VKØCK	Macquarie Island*
52.200	VK8VF	Darwin
52.300	VK6RPH	Perth*
52.325	VK2RHV	Newcastle
52,330	VK3RGG	Geelong*
52,350	VK3RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.420	VK2RSY	Sydney
52,425	VK2RGB	Gunnedah
52.435	VK3RMV	Hamilton*
52.440	VK4RTL	Townsville
52.450	VK5VF	Mt. Lofty
52,460	VK6RPH	Perth
52,465	VK6RTW	Albany
52,470	VK7RNT	Launceston
144.019	VK6RBS	Busselton
144,410	VKTRCC	Canberra
144.420	VK2RSY	Sydney
144.430	VK3RTG	Melbourne*
144.435	VK3RMV	Hamilton*
144,465	VK6RTW	Albany
144.480	VK8VF	Darwin
144.530	VK3RGG	Geelong†
144.535	VK3RGI	Gippsland†
145.000	VK6RPH	Perth
147,400	VK2RCW	Sydney
432.057	VK6RBS	Busselton
432.159	VK6RPR	Nedlands
432.420	VK2RSY	Sydney
432.425	VK3RMB	Ballarat
432.440	VK4RBB	Brisbane
1296.171	VK6RBS	Busselton
*Not heard	f recently.	
†Testing		
1		

Small Ships Radio-telephone Service

TABLE OF FREQUENCIES

2182 kHz.

The international distress safety and calling frequency for radio-telephony.

All ships licensed for operation in the authorised marine radio-telephone service frequency bands between 1605 kHz and 2850 kHz must be able to transmit and receive on the frequency of 2182 kHz. Distress, urgency and safety calls should be made on this frequency when establishing communication with other stations of the maritime service and for use by coast stations to announce the transmission on other frequencies of traffic lists. The exchange of traffic or other radio communications except distress, or urgency traffic should be carried out on a working or inter-ship frequency so as to leave 2182 kHz available for the reception of distress calls. Safety traffic should also be exchanged on a working or inter-ship frequency.

Stations, other than those in distress should listen for a reasonable period before transmitting on 2182 kHz to make

sure no distress traffic is being sent.

established on 2182 kHz or 2045 kHz.

2045 kHz

Supplementary calling frequency when 2182 kHz occupied with distress traffic.

2068 kHz 2456 kHz 2638 kHz
For intership working after communication has been

2162 kHz 2012 kHz

These frequencies are for use by ships wishing to send messages to Post Office coast stations or Harbour Board stations after communication has been established on 2182 kHz. They may also be used by Harbour Board stations as a working frequency.

2444 kHz 2480 kHz

For use at privately-operated coast stations and by ships for exchanging messages after communication has been established on 2045 kHz or 2182 kHz.

2104 kHz

Chatham Islands Radio working frequency.

2153 kHz

Wellington Radio working frequency.

2207 kHz

Auckland Radio working frequency.

2423 kHz

Awarua Radio working frequency.

2089 kHz 2129 kHz

For communication with shore stations licensed to provide communication facilities for aquatic sporting events. These frequencies are also used by land stations providing communication for sporting events.

4125 kHz

Supplementary distress, safety and calling frequency used by coast and ship stations.

4419.4 kHz 4143.6 kHz

Working frequency for use by New Zealand coast stations and New Zealand licensed ships after initial contact has been established on 4125 kHz.

6215.5 kHz

Supplementary distress and calling frequency for radiotelephony.

6218.6 kHz

A coast and inter-ship working frequency for stations after communication has been established on 6215.5 kHz.

Channel 16 (156.8 MHz)

The international distress, safety and calling frequency for the maritime mobile VHF radio-telephone service.

All ships licensed for operation in the authorised bands between 156 MHz and 174 MHz must be able to transmit and receive on this frequency.

Channel 6 (156.3 MHz)—Channel 8 (156.4 MHz)

For inter-ship working. As with Channel 16 all vessels fitted with VHF must be able to transmit and receive on Channel 6.

Channel 12 (156.6 MHz)—Channel 14 (156.7 MHz)
For communication with coast stations on port opera-

Channel 60 (156.025 MHz)—Channel 61 (156.075 MHz) Channel 62 (156.125 MHz)—Channel 63 (156.175 MHz) Channel 64 (156.225 MHz)

Two frequency talk-through repeater channels.

Channel 68 (156.425 MHz)

tion matters.

For use nationally by rescue organisations. Also for communication with Wellington Radio.

Channel 71 (156.575 MHz)—Channel 74 (156.725 MHz) Channel 77 (156.875 MHz)

For working between coast stations and ship stations after communication has been established on Channel 16. Available for aquatic events.

CLASSES OF EMISSION

2182 kHz

The class of emission to be used on the distress, safety and calling frequency shall be A3E or single sideband full carrier (H3E).

1605 kHz 2850 kHz

Working frequencies in the band 1605-2850 kHz shall be single sideband suppressed carrier (J3E).

4143.6 kHz 4125 kHz 4419.4 kHz 6218.5 kHz Class J3E only.

Post Office Coast Station Broadcasts

The following broadcasts are made from Post Office Coast Stations daily, A preliminary call is made on 2182 kHz and the broadcasts are made on the working frequencies at the times shown.

	Awarua Radio ZLB (2423 kHz)	Wellington Radio ZLW (2153 kHz)	Auckland Radio ZLD (2207 kHz)	Chatham Islands Radio ZLC (2104 kHz)
List of messages on hand	1220* 1620*	1235* 1635*	1240* 1640*	0645* 1845*
Navigational warnings	0003 0403 0803 1203 1603 2003	0006 0406 0806 1206 1606 2006	0009 0409 0809 1209 1609 2009	0012 0412 0812 1212 1612 2012
Meteorological warnings and coastal weather forecasts	0503 0848 [±] 1103* 1703* 2303	0518 0903† 1118 1718 2318	0533 0918† †133* 1733* 2333	
Weather reports from coastal stations (lighthouses, etc)	0725 1325 1925	0735 1335 1935	0740 1340 1940	
Chatham Islands-New Zealand area bulletin including relevant meteor- ological warnings	0940 2140	1003 2203	_	0950 2150
Chatham Islands forecast, including rele- vant meteorological warnings	-	m-a		1550
Forecast for area from New Zealand to Fiji, between 160° E and 170° W including relevant meteorological warnings	_		22 8*	

VHF WEATHER BROADCASTS

	Auckland Radio (Channel 71)	Wellington Radio (Channel 68/71)
Auckland Harbour, and Hauraki Gulf	0300 0700 0900 1100 1300 1500 1700 2100	_
Coastal area	_	0515 1115
Cook	1.6	1715 2315

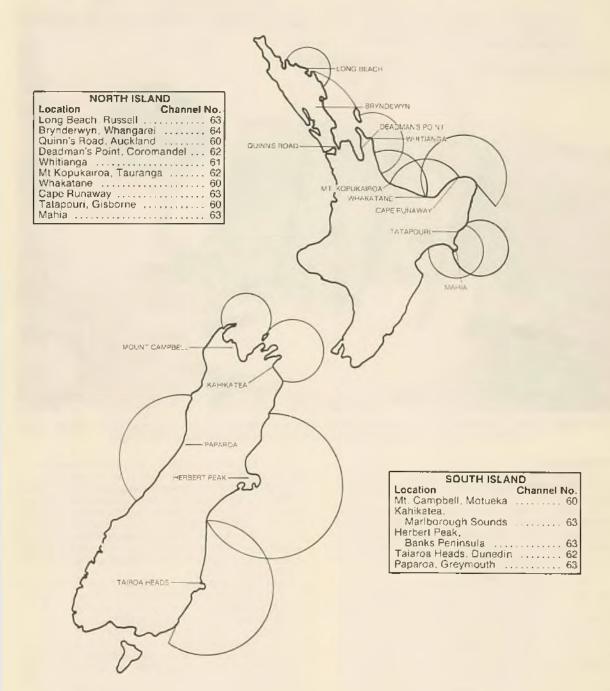
Marine Radiobeacons

Station	Call- sign	Freq.	1	Position
Cape Reinga	CR	290	34° 25′ 55″ 5	S 172° 40′ 54″ E
Moko Hinau	MU	294	35° 54′24″ 5	S 175° 07'00" E
Cuvier Island	CV	302	36° 26′ 20″ 5	S 175° 46′ 36″ E
East Cape	EC	320	37° 41′ 27″ 5	S 178° 32′ 52″ E
Table Cape	TC	314	39° 06′ 50″ 3	S 177° 59′34″ E
Stephens Island	SP	305	40° 40′ 06″ 3	
The Brothers	BR	317	41° 06' 18" 3	S 174° 26′ 30″ E
Cape Campbell	CC	286	41° 44′ 12″ 3	S 174° 16' 18" E
Steep Head	LB	294	43° 44′ 48″ 5	S 173° 07′36″ E
Tajaroa Flead	TR	320	45° 47'08"!	S 170° 43′ 56″ E
Dog Island	DL	306	46° 39' 08" 3	S 168° 24′32″ E
Puysegur Point	PY	290	46° 09′30″	S 166° 36′54″ E

Aeronautical Beacons

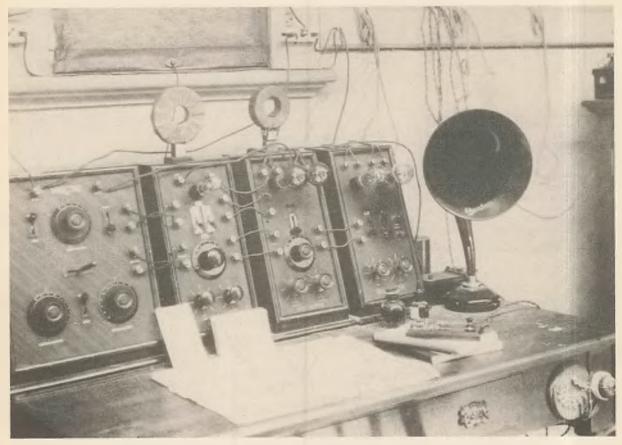
Station	Call- sign	Freq.	P	osition		
Ashburton	AS	254	43° 54' 23" S	171° 48′ 24″ E		
Chatham Is.*	CI	322	43° 57′ 27″ S	176° 34'01" W		
Christchurch	CH	274	43° 27' 38" S	172° 34'01" E		
Dunedin	DN	338	45° 47' 55" S	170° 28' 38" E		
Gisborne	GS	346	38° 40' 20" S	177° 59′20″ E		
Hokitika	HK	310	42° 43' 52" S	170° 57′ 22″ E		
Kaikoura	KT	326	42° 25' 20" S	173° 41'43" E		
Kaitaia	KΤ	238	35° 01′ 50″ S	173° 14′30″ E		
Napier	NR	354	39° 28' 27" S	176° 52′ 17" E		
Nelson	NS	394	41° 17' 58" S	173° 07150" E		
New Plymouth	NP	370	39° 00' 14" S	174° 10′ 56″ E		
Oamaru	OU	302	44° 56′ 56″ S	171° 07′ 56″ E		
Tauranga	TG	266	37° 40' 11" S	176° 12'00" E		
Wairoa	WO	246	39° 03' 47" S	177° 24' 44" E		
Waiuku	WI	254	37° 16′ 10″ S	L74° 48150" E		
Wanganui	WU	382	39° 57′ 40″ S	175° 01′35" E		
Waverley	WY	330	39° 45′ 57″ S	174° 39′02″ E		
Wellington	WN	298	41° 20′ 24″ S	174° 48′ 48″ E		
Westpoint	OT	398	37° 03′ 44″ S	174° 36′ 34″ E		
Westport	WS	278	41° 44′ 36″ S	171° 34′46″ E		
Whakatane	WK	362	37° 55′ 35″ S	176° 54′55″ E		
Whangarei	WR	386	35° 50′ 11″ S	174° 27′ 22″ E		
Whenuapai	WP	206	36° 49′31″ S	174° 34′ 34″ E		
Wigram	WG	406	43° 32′ 54″ S			
Woodend	OD	262	43° 20′ 39″ S	172º 42'03" E		
*No 24-hour service. Operated only on request through						
Chatham Island Radio ZLC.						

VHF Marine Repeaters



NZART CALL BOOK, 1985

Timekeeping in New Zealand



The Barndept radio receiver used for the reception of overseas time signals until the late 1930s. Signals were recorded by tapping the hand key in synchronisation with the incoming signals.

Historical review

The DSIR took over responsibility for the Time Service when the Department was formed in 1926, but the story goes back much further

It all began in 1862, when Captain Stephen Carkeek, Controller of Customs, recommended to the Superintendent of Wellington Province that a transit instrument, an astronomical clock, and a time ball be placed in the new Custom House which was to be erected on what eventually became the site of the General Post Office.

A transit instrument allows mean local time to be calculated. This is the time appropriate to the longitude of the point of measurement, relative to the Greenwich Meridian, allowing four minutes per degree of longitude, or one hour per 15 degrees. It was not until 1886 that the General Government proclaimed a uniform time for New Zealand, based on the meridian 172°30′ East. The advent of the telegraph had made rapid communications possible and therefore the concept of a uniform time feasible without the need for observations in every town and port. New Zealand was in fact the first country to establish a uniform time by legislation, and its scientists played an important role in establishing uniform time zones in certain other countries.

A new Colonial Observatory was built in Wellington in 1869 in the Bolton Street Cemetery, on the site where the Richard John Seddon memorial now stands. Seddon's death in 1906, and the choice of the site for the memorial, precipitated the move of the Observatory to its present site in the Botanical Gardens in Kelburn. A small red brick building was erected on the site of the old Gardens Battery. It was completed in 1907 and became known as the Hector Observatory, after Sir James Hector who had been Director of the Colonial Observatory.

Experiments with radio time signals began in 1916, with the reception of signals from Melbourne and transmission to ships in the vicinity of New Zealand and to Tahiti. Other regular services were established in 1919.

In 1926 the Department of Scientific and Industrial Research was formed, and became responsible for the Time Service. Although precision in time signals of a quarter of a second was claimed until the 1950s, the actual errors were often greater than this. The Geophysics Division of the DSIR was formed in 1951, and took over administrative responsibility for the Time Service. It was not until 1962, however, that any real advances were made. Clocks which used the very stable electrical oscillations of quartz crystals were

installed. Checks were made regularly against radio time signals from overseas which were obtained from astronomical observations, and appropriate corrections were made for the propagation time to Wellington.

More recently, the world's time has been related to an even more stable clock than our rotating earth—the vibrations of the caesium atom. Each element has its characteristic frequency of vibration, such as that of sodium which gives us the familiar orange colour of highway lighting. The characteristic frequency for caesium is particularly stable. A caesium clock is operated by the Physics and Engineering Laboratory of the DSIR, and is accurate to one second in 3000 years. New Zealand Standard Time (NZST) is now maintained by referring the quartz clocks to the new source. The original pendulum clocks are still operating, but astronomical measurements are no longer necessary.



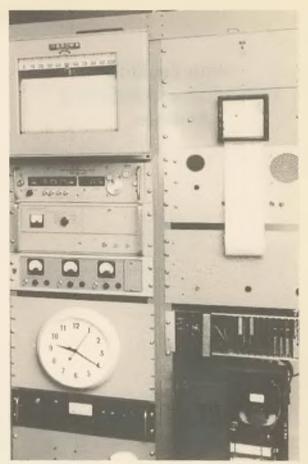
The Kelburn Observatory, Wellington.

Standard Time and Daylight Saving

The Mean Time Act of 1868 gave us a time of 11 hours 30 minutes ahead of Greenwich Mean Time. This was until 1927 when the clocks were advanced one hour for the summer, This daylight saving measure was not well received, so in the following year the advance was reduced to half an hour. After the advance in 1944 the clocks were not put back for the winter. Because this was equivalent to adopting a new standard time meridian, the position was regularised by the New Zealand Standard Time Act of 1945. New Zealand Standard Time is thus 12 hours ahead of Greenwich Time, now called Universal Time (UT), i.e., it is the mean time for the 180° meridian. The Time Act of 1974 allowed for an advance of one hour, normally from 0200 hours NZST on the last Sunday in October until 0200 hours NZST on the first Sunday in March of the following year. This defined New Zealand Daylight Time (NZDT) to be 13 hours ahead of Universal Time.

Time Signals

The most widely used time signals are those broadcast by the Broadcasting Corporation of New Zealand, on the National Programme. These signals are transmitted every hour and consist of six "pips" of 1000 Hz tone, at one second intervals, the beginning of each pip marking the exact second. When a pip marks the exact hour, its length is doubled. The precision with which the beginning of the long



A portion of the quartz crystal time-keeping equipment.

pip marks the exact hour is usually less than 100 microseconds (0.0001 seconds) as it leaves the Observatory. Delays along telephone lines to the Broadcasting Corporation and in radio propagation to the remote parts of New Zealand can amount to a few milliseconds.

On certain occasions there are seven pips broadcast. This happens when, by international agreement, Universal Time is delayed by one second to keep it in step with astronomical time as determined by the Earth's rotation. This is done when necessary, but is not predictable because the Earth's rotation rate is variable when compared with the extremely stable caesium clocks. Universal Time was set up to be slightly fast, so that a "leap second" could be added on the first day of January or July, if necessary.

Why all this accuracy?

There will always be a need for accurate time-keeping. Digital watches are now commonplace, and their owners are naturally conscious of accurate time. In the scientific community, astronomers and scismologists, among others, need access to accurate clocks for their measurements, and it is very convenient to have time signals obtainable via the broadcast band on any domestic radio.

Every effort will be made to ensure that the accuracy of the time signals is maintained, and perhaps even improved as technology develops.

(DSIR Extension Information 36)

New Zealand Television Broadcasting Stations

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 1976 Cartina.
- The channel numbers and polarisation are shown than 3,91 the front number being the TV1 channel the second TV2,with H or V denoting horizontal or vertical polarisation.
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T,STUDHOLME

MT.CARGILL

CALLEN

New Zealand Television Channels

	Frequency	Video	Sound
Channel	Bandwidth	Frequency	Frequency
	MHz	MHz	MHz
1	44 - 51	45.25	50.75
2	54 - 61	55.25	60.75
3	61 – 68	62.25	67.75
4	174 - 181	175.25	180.75
5	181 - 188	182.25	187.75
6	188 195	189.25	194.75
7	195 - 202	196.25	201.75
8	202 - 209	203.25	208.75
9	209 - 216	210,25	215.75
10	216 - 223	217.25	222.75
General Inford	mation:		

General Information: TV Receivers, Sound IF, 33.4 MHz, Video 38.9 MHz.

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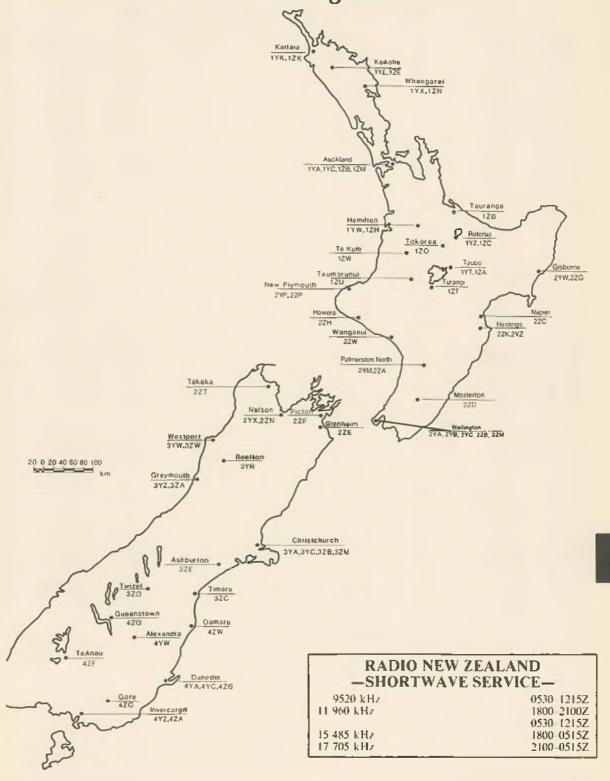
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Standby power plant

SUPPORT THE ADVERTISERS THAT SUPPORT BREAK-IN

NZART CALL BOOK, 1985 190

BROADCASTING CORPORATION OF NEW ZEALAND Radio Transmitting Stations



MF BROADCASTING STATIONS

STO		TRANSMITTER LOCATION	POWER KW	EMER- GENCY POWER		HGT M	STRUCTU OBSTR LOHTS		SITE HGT	Lat. Deg		ri,h		S J. Ea Min		LOCATION OF TRANSMITTER BACKUP	LOCATION	EMER- GENGY POWER
17) 17) 17) 17) 17)	1026 S 981 1215 1026 S	WAIPAPAKAURI WAIPAPAKAURI OHAFAWAI OHAFAWAI OTAIKA OTAIKA	2222	Yes Yes Mo Mo Yes Yes	Mast Mast Mast Mast Nast	55 55 55 55 90 90	No No No No No	A62 A62 A62 A62 A62	2 183 183 6	35 35 35 35 35 35	02 02 21 21 46 46	15 15 45 54 54	173 173 173 173 174 174	14 14 52 52 19	47 25 25 15	Transmitter Transmitter Transmitter Transmitter	WILANGARET 12N REPCATER WHANGARET 12N REPEATER WHANGARET WHANGARET	Yes Yes Yes Yes Yes Yes
177 170 126 126	582 1080	HENDERSON HENDERSON HENDERSON HENDERSON	20. 10. 10. 2.	Yes Yes Yes Yes	Mast Mast Mast Mast	153 153 122 122	Yes Yes Yes	Yes Yes No	15 15 9	36 36 36 36	51 50 50	03 46 46	174 174 174 174	17 17 17 17	46 46 51 51	Transmitter Transmitter Transmitter Transmitter	AUCKLAND AUCKLAND AUCKLAND	Yes Yes Yes Yes
123 179 120 120 121	1413 1512	CUREKA EUREKA HILTSDOWN TAUMARUNUT WAYTOMO	5. 2. 1. 0.4	Yes Yes Yes Yes	Mast Mast Mast Tower Mast	98 98 55 41 55	No No No No	Yes Yes Yes No Yes	50 50 259 167 70	37 38 38 38	91 41 10 53 16	45 00 15 26	175 175 175 175 175	24 47 15 08	14 14 35 36 00	Transmitter Transmitter Transmitter Transmitter	HAMILTON HAMILTON TOKOROA TAUMARUMUI TE KUITI	Yes Yes Na Yes
172 120 120 124 173 173	1008	PAENCAROA PAENGAROA ETHIOTONGA TAUPO TAUPO TURANGI	10. 10. 2. 2. 2. 0.1	Yes Yes Yes Yes No	Mast Mast Mast Tover Tover Mast	153 153 55 53 53 21	No Yes Yes Yes No	Yes Yes Yes Yes Yes	29 29 431 423 423 423 366	37 37 38 38 38 38	48 18 10 40 40 58	45 45 36 23 23 52	176 176 176 176 176 176 175	24 13 04 47	45 50 25 25 56	Transmitter Transmitter Studio Transmitter	ROTORUA TAURANGA ROTORUA TAUPO TAUPO 1ZA REPEATER	Yes Yes No No No
220 219		MATMUT	2.	Yes Yes	Hast Hast	53 53	No No	Yes Yes	15 15	38 38	41 41	44 44	178 178	03 03	45	Studio Transmitter	GISODANE GISBORNE	Yes Yes
247	630	DPAPA	20.	Yes	Hest Hast	88	ND No	Yes No	53 53	39 39	48 48	02	176	ha hà	34	Transmitter	NAPIER	Yes
2Z H	765	DPAPA	5.	Yes	Mast	88	Mo No	Yu 6 No	53	39 39	48	02	176	40 40	34	fransmitter	HASTINGS	Но
276		PAKOSHAT	2.	Yes	lover	41	Мо	No	15	39	33	46	176	51	57	Transmitter	NAPIER	Yes
27 P 27 P 27 II	1530	BELL BLOCK BELL BLOCK RORMANBY	2. 2.	Yes Yes No	Mast Hast Tower	53 53 41	Yes Yes No	Yes No	8 8 134	39 39	02 02	51 58 58	174 174 174	07 07 16	38 38 17	Transmitter Transmitter Transmitter	NEW PLYMOUTH NEW PLYMOUTH PZP REPEATER	Yes Yes
274 274 278 278		KATTOKE HATBANGA KATBANGA WATNGAWA	2.	Yes Yes Yes Yes	Mast Mast Mast Mast	59 51 53 59	Yes Yes Yes Yos	Ves Ves Ves Ves	61 20 20 137	39 40 40 40	57 20 20 58	37 37 00	175 175 179 179	04 34 34 35	(1 1 1 2 1 2 1 2 0 0 0	Transmitter Transmitter Transmitter Transmitter	WANGANUT PAUPERSTON NET PAUPERSTON NET MASTERTON	Yes Yes Yes Yos
55H 55H 54H 54C 54V	567 657 783 1035 1161	THAN BAY	100, 50, 20, 20, 2,	Yos Yos Yos Yos Yos	Mast	220 220 122 122 47 47	No No No Yes No	Yes Yes Yes Yes Yes	67 67 66 66 195 195	41	05 05 05 05 17	47 47 41 41 44	179 179 179 179 179 179	50 50 50 50 47	13 13 58 58 49 42	fransmitter fransmitter fransmitter Transmitter Transmitter	WELLINGTON WELLINGTON WELLINGTON WELLINGTON WELLINGTON	Yes Yes Yes
27N 2YX 2ZE 2ZF 2ZF	1341 1116 1519 5 1519 5 1269	STOKE STOKE BLENSETH PICTON TABAKA	2. 2. 1. 0.1 0.4	No No Yes No No	Mast Mast Tower Tower Mast	53 53 41 41 45	Yes Yes No No	Yes Yes No No	12 12 9 7 3	41 41 41 41	19 19 31 17 50	49 49 03 15	173 173 173 174 172	12 57 00 50	50 50 33 53 20	Studio Transmitter Transmitter Transmitter	MELSON HELSON BLENHEIM 2ZE REPEATER 2ZN REPEATER	Yes Yes Yes Yes Yes
3YA	675	GEBRIES PASS	20.	Yes	Tower	91	No No	Mo No	223	h3 43	41	39 46	172 172	38 38	37 35	Transmitter	CHRISTCHURCH	Yes
376 378 378 378	963 1098 1323 873	GEOBLES PASS OURUHFA MAESWELL WINCHMORE	10, 5, 2, 1,	Yes No Yes	Mast	122 137 31 90	No No Yes No	Yes Yes Yes	193 2 23 162	#3 #3 #3	96 33 98	46 48 38 96	172 172 172 171	18 40 34 42	47 09 48 18	Transmitter Transmitter Transmitter Transmitter	CHRISTCHURCH CHRISTCHURCH CHRISTCHURCH ASHBURTON	Yes Yes Yes
3YZ 3ZA 3ZR 3YW 3ZW	918 747 1521 1458 1287	KUMARA KUMARA REEFTON CAPE FOULWEND CAPE FOULWIND	10, 2, 0,1 0,4 2,	Yes Yes Yes Yes Yes		153 153 61 41 41	No No No No	Yes Yes No No No	32 32 488 50 50	42 42 47 41	34 34 07 46 46	29 29 20 06 06	171 171 171 171 171	08 08 51 27 27	32 32 30 56 56	Transmitter Transmitter Transmitter Transmitter	GREYMOUTH GREYMOUTH 3YZ/3ZA RPTR 3YZ RPTR 3ZA RPTR	Yes Yes Yes Yes
320 320	1152 1985	FAIRVIEW	5. 0.1	Yes No	Mast Mast	90 28	No No	Ves No	128 170	&4 44	24 14	13 55	171 170	08 05	22 27	Transmitter	TIMARU 320 REPEATER	Yes Yes
44% 446 446 446 446 446 446 446 446 446	810 900 1044 1134 639 1395	HIJGHOLIFF HIGHOLIFF HIGHOLIFF QUEENSTOWN ALEXAKORA WESTON	20. 10. 10. 2, 2, 2.	Yes Yes Yes Yes Yes	Mast Tover	153 153 122 41 107 55	Yes Yes No No No	YPS YPS No No Yes No	343 343 278 312 308 65	45 45 45 45 45	53 53 53 02 09 04	13 13 04 45 52 21	170 170 170 170 168 169 170	35 35 35 40 23 55	40 13 42 34 43	Transmitter Transmitter Transmitter Transmitter Transmitter Transmitter	OUNEDIN OUNEDIN DUNEDIN 4YA/4ZB BETR 4YA/4ZB RETR GAMARU	Yes Yes Yes Yes Yes
472 428 475 420	720 864 612 558	DACRE DACRE TE ANAU DACRE	20. 10. 0.4 5.	Yes Yes Yes	Mast Mast Mast Mast	98 55 98	No No No No	Y05 Y65 Y65 Y65	61 61 246 61	46 46 45 46	19 19 29 19	13 13 52 13	168 168 167 168	37 37 52 37	16 16 31 16	Transmitter Transmitter Transmitter Transmitter	INVERCARGILL INVERCARGILL AZA REPEATER GORE	Yes Yes Yes No

S - Denotes Synchronous Operation

NORMAL HOURS OF TRANSMISSION

All Stations continuous except the following: CONCERT PROGRAMME (YC's) DG00-2400

| 2YD | during Parliament|: Twes-Thurs | 1400-2400 | Fr: | 0900-1300 | 1800-2700 | Sub | 0900-2200 | Sub | 0900-2200 |

New Zealand Private Broadcast Stations

Medium Wave

IXA	1476 kHz	5 kW	Radio Hauraki—Hauraki Enterprises Ltd., Box 1480, Auckland (Emergency standby power available at studio and transmitter.)
tXI	1332 kHz	5 kW	Radio 1—Radio I Ltd., Private Bag, Auckland (Emergency standby power available at studio and transmitter.)
IXP	1593 kHz	5 kW	Radio Pacific—Radio Pacific Ltd., Ryan Place, Manakau. (Emergency standby power available at the transmitter only.)
IXW	954 kHz	2 kW	Radio Waikato—Independent Broadcasting Co. Ltd., Box 9540 Hamilton.
IXX	1242 kHz	2 kW	Radio Whakatane—Radio Bay of Plenty Ltd., Box 383 Whakatane. Murupara—Synchronous Relay—100 W.
2XG	1503 kHz	2 kW	Radio Rhema—(see 3XG).
2XL	801 kHz	2 kW	Radio Rhema—(see 3XG).
2XS	828 kHz	2 kW	Regional Radio—Manawatu Radio Co. Ltd., P.O. Box 446, Palmerston North. (Standby power at studio and transmitter.)
2XW	891 kHz	5 kW	Windy Music—Capital City Radio Ltd., Box 558, Wellington. (Emergency standby power available at studio, normal and standby transmitters.)
3XA	1260 kHz	2 kW	Radio Avon—Radio Avon Ltd., Box 1260, Christchurch, (Emergency standby power available at both studio and transmitter.)
3XG	1503 kHz	2 kW	Radio Rhema—Radio Rhema Incorporated, P.O. Box 21, Christchurch, Synchronous Repeater, 2XG Wellington, 2 kW. P.O. Box 572, Wellington.
4XA	531 kHz	2 kW	Radio Otago Central—Alexandra, C/- Radio Otago Ltd., Box 1210, Dunedin. (Emergency standby power available.) Synchronous Relay Stations on 1359 kHz: Queenstown, 1 kW; Wanaka, 100 W.
4XD	1305 kHz	250 W	Dunedin Radio—Otago Radio Association Inc., Box 404, 180 Rattray St., Dunedin.
4XF	1224 kHz	2kW	Foveaux Radio—Foveaux Radio Ltd., Private Bag, Invercargill. (Emergency standby power available at both studio and transmitter.)
4XO	1206 kHz	2 kW	Radio Otago Dunedin—Otago Radio Dunedin, Box 1210. Dunedin. (Emergency standby power available at both studio and transmitter.)

New Zealand Private Broadcast Stations

FM Broadcasting Stations

Broadcasting Corporation of New Zealand

1YW-FM	91.4 MHz	Waikato	Concert Programme
2YZ-FM	91.4 MHz	Hawkes Bay	Concert Programme

Private FM Stations

	_	KCC-FM-Northland FM Radio Club, P.O. Box 100, Whangarei.
91 MHz	T×10 kW T×2.5 kW (ERP=50 kW)	Magic FM Metropolitan FM Ltd, P.O. Box 33-644, Auckland.
89.4 MHz	2×10 kW 10 kW 50 kW ERP (ERP=50 kW)	Stereo 89—Stereo FM Ltd, P.O. Box 5089, Auckland.
89.8 MHz	50 kW ERP	898 FM-Independent Broadcasting Co. Ltd. P.O. Box 9640, Hamilton.
92.7 MHz	3 kW ERP	Radio Hawkes Bay - P.O. Box 193, Hastings.
	89.4 MHz	1×2.5 kW (ERP=50 kW) 89.4 MH/ 2×10 kW 10 kW 50 kW ERP (ERP=50 kW) 89.8 MHz 50 kW ERP

Short-Term Warrant Broadcast Stations

ISTU	91.8 MHz	-	Campus Radio—University of Auckland, Private Bag, Auckland.
TIXC	1440 kHz	_	Radio Contact—University of Waikato.
_	89.0 MHz	_	Radio Active-Victoria University, Wellington.
	1442 kHz	_	Radio U-University of Canterbury, Private Bag, Christchurch.
4SAO	91 MHz		Radio One-University of Otago.

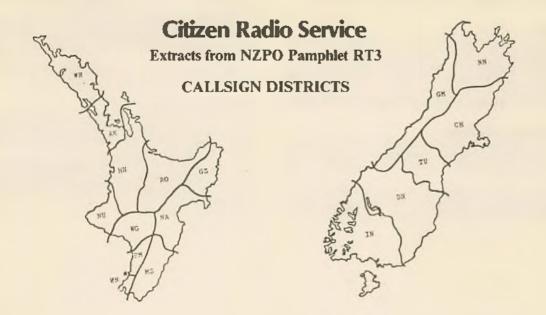
Australian Television Channels

	Vision	Frequency
Channel	Carrier	Limits
	Frequency	MHz
0	46,25	45 - 52
1	57.25	56 - 63
2 3	64.25	63 - 70
3	86.25	85 - 92
	95.25	94 - 101
4 5	102.25	101 - 108
5A	138.25	137 - 144
6	175.25	174 - 18t
7	182.25	181 - 188
8	189.25	188 - 195
9	196.25	195 - 202
10	209.25	208 - 215
ti	216.25	215 222

New Zealand Television Channels

	Frequency	Video	Sound			
Channel	Bandwidth	Frequency	Frequency			
	MH2	MHz	MHz			
1	44 - 51	45.25	50,75			
2	54 – 61	55.25	60,75			
2	61 - 68	62.25	67.75			
4	174 - 181	175.25	180,75			
5	181 - 188	182.25	187.75			
6	188 - 195	189.25	194.75			
7	195 - 202	196.25	201.75			
8	202 - 209	203.25	208.75			
9	209 - 216	210.25	215.75			
10	216 - 223	217.25	222.75			
General Information:						
	. Sound 1F, 33.4	4 MHz.				

Video 38.9 MHz.



Regulations

 Regulations governing the licensing and operation of citizen radio stations in New Zealand are contained in the Radio Regulations 1970, Part VI, and amendments.

Licensing

2. A licence is issued in respect of each citizen radio set and this remains in force so long as the annual fee is paid by the due date or until the licence is withdrawn or revoked. A renewal account is rendered annually for each licence. This is payable at the commencement of the licensing year and if the fee remains unpaid for six weeks from the due date the licence is no longer deemed to be valid. The licensee shall not be eligible for any compensation or consideration in the event that a licence is revoked or suspended for any reason.

Citizen radio sets will be licensed only for communication within New Zealand. They may be operated as hand-held walkie-talkies, mobiles (in vehicles), or base stations and used for any legitimate purposes within the scope of the service. Communication with stations outside New Zealand is not permitted. Operation of Citizen equipment from aircraft is not permitted under the International Radio Regulations.

Equipment Specifications

3. Only equipment that has been type-approved by the New Zealand Post Office may be used for citizen radio stations. Sets so approved will bear a type-approval number which will be shown on the licence. Applicants must submit the equipment to the Post Office at time of licensing. This action is necessary to ensure that the equipment meets certain constructional requirements and will operate in such a manner that no interference will be caused to other services.

For the information of manufacturers and importers of equipment to be used at citizen stations a detailed specification (RTA23) outlining the conditions under which typeapproval may be obtained is available from Post Office Headquarters, Wellington, or from Post Office District Engineers' Offices.

Class of Emission

 Only voice telephony of type A3 (double sideband with carrier) may be used.

Frequency Usage

6. Eleven channels have been allocated in New Zealand for "general use" by licensed citizen stations as follows:

Channel	1 - 26.425	MH2	Channel 6-26.550 MHz
	2 - 26.450	MHz	7—26.575 MHz
	3 - 26.475	MHz	826,600 MHz
	4-26.500	MHz*	9-26.625 MHz
	5 - 26.525	MHz	10-26,650 MHz
			11—26.675 MHz

*Designated for calling only.

For Government Departments, public bodies, and approved operators† only, the following channels are designated:

†The term "approved operators" is intended to provide for users such as construction firms, crane operators, farmers and the like, who use citizen stations for purely business communication purposes. It should be recognised that only business communications can be carried out on channels 12-14 and that if social working is also required it would be necessary for this to be carried out on the 11 general channels.

Power

8. The maximum unmodulated power that may be used by citizen stations is 2. Watts output. This is considered to be adequate to satisfy the short-range communication requirements for which the service is intended. In addition, it permits a high degree of channel sharing with a minimum of

interference between stations. This power limitation applies whether the equipment is used as a base or mobile station and whether it is operated from mains supply or batteries.

Antenna

9. The antenna shall preferably be an integral part of the equipment and may be any omnidirectional, vertically polarised antenna with a gain not exceeding that of a half-wave dipole. If separately mounted, a non-radiating line of coaxial type must be used. No other form of antenna shall be permitted. Directional beam aerials (e.g. Yagis) are not permitted.

Modification of Equipment

10. In the event that changes are made in the basic electrical or mechanical design of type-approved equipment fresh type-approval is necessary and an additional fee must be paid.

If the fitting of additional channels is undertaken the equipment must be submitted to the nearest Radio Inspection Branch for re-inspection. No fee is involved. In such

cases the additional crystals and sockets must be enclosed within the equipment case and switching of channels is the only permissible method of frequency changing. The modifications must be made in a professional manner.

The modification of component values or other alterations to circuitry, including the use of microphones other than that with which the equipment was type-approved, is strictly

Ancillary equipment such as amplifiers are not permitted to be used in conjunction with a citizen station.

Operating Procedures

If. A callsign will be allocated by the Post Office for each set licensed. The callsign allocated to a station consists of the district prefix followed by a number and only this callsign may be used by that station.

In calling other stations the callsign of the station being called should be transmitted first followed by the word "from" and the callsign of the station transmitting, thus:

AK 500 from AK 510 WN 870 from WN 121

Standard Frequency Transmissions

by L. SPACKMAN, ZLIAC

WWV & WWVH

The National Bureau of Standards broadcasts standard time and frequency transmissions continuously through stations WWV and WWVH.

Station WWV is located at Fort Collins, Colorado, Station WWVH is located at Kauai, Hawaii. Both stations broadcast on the radio frequencies of 2.5, 5, 10, 15 MHz and 20 MHz.

Both stations are controlled by caesium atomic oscillators. The frequencies are stable to better than one part in 10th at all times, compared with the primary atomic standards maintained at the NBS Boulder laboratories. Changes in the propagation medium cause frequency changes which are several orders greater than the uncertainties described above.

STANDARD TIME SIGNALS

Seconds pulses are transmitted continuously, even during tones and announcements, and are derived from the same oscillator which generates the carrier frequency. Each minute, except the first of the hour begins with an 800 millisecond tone of 1000 Hz at WWV and 1200 Hz at WWVH. The first minute of the hour begins with an 800 millisecond tone of 1500 Hz from both stations.

All time announcements are referred to in terms of Coordinated Universal Time, UT. More precisely, the actual reference time scale is the Co-ordinated Universal Time Scale as maintained by the NBS.

The 0 to 24 hours system is used starting with 0000 at longitude zero. The first two figures give the hour and the last two figures give the minutes past the hour when the tone returns. The time announcement refers to the end of an announcement interval, i.e., to the time when the 0.8 second long audio tone begins.

At WWV a male voice announcement of Co-ordinated Universal Time is given during the last 7.5 seconds of each minute. At 10.35 UT for instance, the voice announcement, given in English is: "At the tone, ten hours thirty-five minutes Co-Ordinated Universal Time".

At WWVH a female voice announcement of UT is given during the period 45 seconds to 52.5 seconds after the minute. It should be noted that the voice announcement of WWVH precedes that of WWV by 7.5 seconds. However, the tone markers referred to in both announcements occur simultaneously, although they may not be so received due to propagation effects. The use of a female voice at WWVH and a male voice at WWV assists in distinguishing the two stations.

UNIVERSAL TIME CORRECTIONS

With the use as from the beginning of 1972 of the atomic time scale as the International time scale and because the rate of rotation of the earth is not constant, differences between mean solar time (UTI) and atomic time will accrue which in time could become inconvenient. It is therefore necessary to make periodic adjustments to the atomic scale so that it roughly approximates UTI. Therefore, instead of frequent small corrections, as in the past, large corrections of one full second will be made at intrequent intervals, which are not expected to average more than one a year and will usually be made on the last day of either June or December.

During 1984 an adjustment was made on June 30 so that the atomic time scale leads UT1 by 23 seconds. The atomic time scale will thus, at all times, be within a second of mean solar time. These corrections will be encoded and broadcast

once every minute from both stations.

The method of coding UT1 corrections uses a system of double second pulses. The first through the seventh second pulse, when marked by a double pulse, will indicate a "plus" correction, and from the ninth through the fifteenth a "minus" correction. The eighth second pulse is not used. The amount of correction is determined by counting the number of second pulses which are doubled. For example, if the first, second and third second pulses are doubled the UT1 correction is 0.3 seconds. Or if the ninth, tenth, eleventh, twelfth, thirteenth and fourteenth second pulses are doubled, the UT1 correction is "minus" 0.6 seconds. The UT1 correction is also encoded in the IRIG-H BCD code.

STANDARD AUDIO FREQUENCIES

Standard audio frequencies of 440 Hz, 500 Hz and 600 Hz are broadcast by the two stations. The duration of each transmitted tone is approximately 45 seconds. A 600 Hz tone is broadcast by WWV during odd minutes and during even minutes by WWVH, A 500 Hz tone is broadcast during alternate periods unless occe announcements or silent periods are scheduled. The 440 Hz tone is broadcast beginning one minute after the hour at WWV and two minutes after the hour at WWV. The 440 Hz tone is omitted during the first hour of the UTC day to act as a day marker.

No audio tones or special announcements are broadcast during a semi-silent period from either station. The periods are from 45 to 50 minutes after the hour from WWV and from 15 minutes to 20 minutes after the hour at WWVH.

The 29th and 59th seconds are omitted in each minute. Each pulse is preceeded by 10 milliseconds of silence and followed by 25 milliseconds of silence.

PROPAGATION AND GEOPHYSICAL FORECASTS

A broadcast of radio propagation conditions and solar activity is broadcast in voice during part of every eighteenth minute of each hour from WWV. The announcements are short term forecasts, updated as required, every six hours if needed. Those operators particularly interested should consult QST, January 1975, page 84, for specific details.

Omega navigation system status reports are broadcast in voice from WWV at 16 minutes after the hour and from WWVH at 47 minutes after the hour. The International Omega Navigation System is a very low frequency radio navigation aid operating in the 10 to 14 kHz frequency band. Eight stations are in operation around the world. Omega, like other radio navigation systems, is subject to signal degradation caused by ionospheric disturbances at high latitudes. The Omega announcements are given to provide users with immediate notification of such events.

ANTENNAS AND MODULATION

The broadcasts on 5, 10 and 15 MHz from WWVH are from phased vertical half wave arrays. They are designed and orientated to radiate a cardioid pattern directing maximum gain in a westerly direction. The 2.5 MHz antenna at WWVH and all antennas at WWV are half wave vertical dipoles which radiate omnidirectional patterns,

At WWV and WWVH, double sideband amplitude modulation is employed with 50 per cent modulation on the steady tones, 25 per cent for the IRIG-H code, 100 per cent

for seconds pulses and 75 per cent for voice.

VNG

The Australian Post Office experimental Standard Frequency and Time Station VNG, Lyndhurst, Victoria, is controlled by an atomic source and the accuracy is comparable with standard frequency stations in other parts of the world. As far as New Zealand is concerned it has the advantage of a shorter transmission path. The frequencies used are 4.5, 7.5 and 12 MHz.

The time signals comprise 50 millisecond and 5 millisecond bursts of 1000 Hz at one second intervals. The minutes are identified by substituting the 5 millisecond pulses for the 50 millisecond bursts towards the end of each minute and omitting the 59th second pulse. During minutes five, ten and each succeeding five minutes, nine short 5 millisecond pulses are transmitted at the end of each minute. During all other minutes only four short 5 millisecond pulses are transmitted. Announcements in voice are made during minutes 14, 29, 44 and 59.

Differences between atomic (UTC) time an mean solar time are encoded and broadcast every minute. The system used is the same as that used by WWV/WWVH.

The 4.5 MHz transmission is from 0945 to 2130 hours UT. The 7.5 MHz transmission is continuous except for a silent period from 2230 to 2245 hours UT. The 12 MHz transmission is from 2145 to 0930 hours UT.

ZLF

Station ZLF, operated by the frequency standard section of the Physics and Engineering Laboratory, DSIR, Private Bag, Lower Hutt, New Zealand, transmits on a frequency of 2.5 MHz every Wednesday afternoon (excepting Public Holidays) from 1300 to 1600 hours NZST. The transmission comprises an unmodulated carrier, the call sign being given at the beginning and end of the transmission. The carrier is derived directly from the New Zealand frequency standard which uses three caesium beam oscillators. The frequency is correct to within one part in 1011 and is thus comparable to WWV and WWVH. This is the most accurate standard frequency transmission available in New Zealand.

Where Can I Find It?

Break-In references of importance to all radio amateurs

NZART Policies

Code of Practice for BCI/TVI cases: October 1981, pages 37 to 44

Content of ATV transmission: May 1984, page 19.

NZART Current Policy: August 1982 pages 25 to 29, plus update October 1983, page 2.

Pirate operators and improperly licensed stations: August 1983, page 3.

Policy on Amateur Bands: November 1983, page 2. Policy on Citizens Band: April 1982, page 3.

Policy on Radio Interference: August 1982, page 29.

Repeater and Beacon Policy: August 1981, pages 31 to 38, plus update August 1982, page 31.

Rules for AREC; November 1981, pages 30 and 31. Technical Standards for FM Repeaters: August 1982, page 31.

NZPO Letters

Amateurs responsible for own bandplanning: July 1983, page 2.

AREC Exercises: January/February 1984, page 3. Callsigns held for two years: July 1980, page 255.

Club Stations—callsigns and operator grades; September 1979, page 358.

Conduct of Morse Practice Sessions: April 1982, page 2. Examination Marking procedures: October 1981, page 4. Examination Room procedure: June 1981, page 2.

Mainland Call Suffix transportable to ZL7, 8, 9: October 1983, page 2.

Malicious Interference; November 1981, page 2.

Members of immediate family may speak but not operate: August 1980, page 310.

Transmitting equipment—control of sales: July 1980, page 255.

Use of callsign suffixes /P /M and /MM: August 1984, nace 4

Use of Tape Recorders on-air: January 1951, page 76.

Use of "ZM" prefix; November 1983, page 2.

Use of 5-letter groups for Morse Training: April 1982, page 2.

"ZL" not to be omitted from callsigns: May 1958, page 3. "ZL0" callsigns for visitors: December 1980, page 551.

Miscellaneous

Amateur Bands and their use at time of natural disaster— Resolution 640; August 1983, page 21.

AREC and NZART membership: August 1984, page 33.
Civil Defence and the Radio Amateur—CD Bandplan:
December 1981, pages 18 to 21.

Friedom of Speech: September 1984, page 18. LOCATOR System: August 1984, page 14.

NZART Badge background: November 1982, page 24.

Radio Amateurs—assistance to Police: December 1982, page 34.

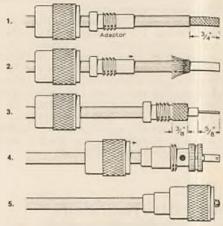
Spectrum piracy: November 1983, page 14.

Towers and Townplanning: December 1982, page 36 and March 1983, page 21.

Coaxial plug assembly

UHF type (clamped screen) — PL259

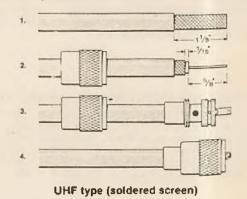
- Cut end of cable even. Remove vinyl jacket ‡in. Slide coupling ring and adaptor on cable.
- 2. Fan braid slightly and fold back as shown.
- Position adapter to dimension shown. Press braid down over body of adapter and trim to kin. Bare kin, of conductor. Tin exposed centre conductor.
- Screw plug sub-assembly on adapter. Solder braid to shell through solder holes. Use enough heat to create bond of braid to shell. Solder conductor to contact.
- For final assembly, screw coupling ring on plug sub-assembly.



UHF type (clamped screen)

UHF type (soldered screen) — PL259

- 1. Cut end of cable even. Remove vinyl jacket 1kin.
- Bare §in. of centre conductor. Trim braided shield. Slide coupling ring on cable. Tin exposed conductor and braid.
- Screw the plug sub-assembly on cable. Solder asembly
 to braid through solder holes. Use enough heat to
 create bond of braid to shell. Solder centre conductor
 to contact.
- For final assembly, screw coupling ring on plug subassembly.



RSGB VHF/UHF Manual

Characteristics of Coaxial Cables available in New Zealand

by REX CASEY, ZL2IQ

Racol Coaxial Cables

Туре	R.106	RG59B/U	R.206	R.205	R.104	R.108	R.203	R.101	R.201
Jacket OD	10.28	6.20	5.38	5.20	5,10	5.10	5.10	4.04	3.98
Shield OD	8.04	4.30	3.84	4.16	3.54	3.54	3.84	2.76	3.14
Dielectric OD	7.24	3.70	3.56E	3.56E =	2.94	2.94	3.24E	2.16	2.54E
Centre Conductor	7/0.75	1/0.60	7/0,25	1/0.45	1/0.80	14/0.2	7/0.25	7/0.20	7/0.20
Capacitance (pF/m)	98	67	56	33	95	95	52	95	95
Velocity Factor	0.66	0.66	0.78	0.78	0.66	0.66	0.78	0.66	0.78
Characteristic									
1mpedance	50	75	75	120	52	50	75	55	75
Attenuation in							i		1
dB 100 m:									
LMHz	-	-	_	3.60		_			_
10 MHz	2.00	-	3.60	8.90	4.30		3.60	6.60	4.90
50 MHz	4.40	-	8.50	-	9.50	_	6.60	16.40	11.20
100 MHz	6.70	11.50	11.80		14.10		11.50	23,60	15.70
200 MHz	9.80	16.50	17.40	_	21.30	29.50	17.40	33.50	23.60
500 MHz	-	27.00	_		464		_		_

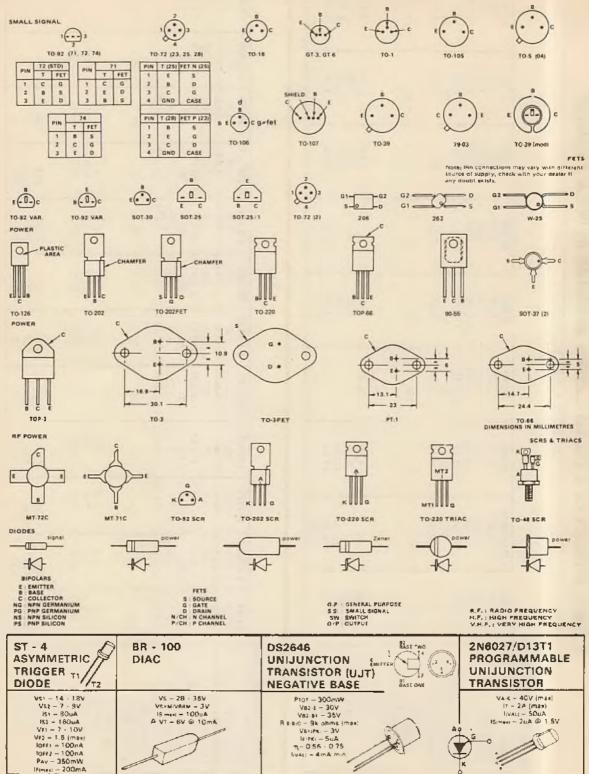
AWA Coaxial Cables

Туре	RG8U	URM67	RGIIU	URM57	RG59U	URM70	RG58U	URM43	RG58A/U	URM76	ASC2002	304SP
Jacket OD	10.3	10.3	10.3	10.3	6.2	5.8	5.0	5.0	5.0	5.0	5.1	3.9
Shield OD	1.8	1.8	8.1	8.1 -	5.0	3.9	3.6T	3.6	3.6T	3.61	3.7	2.5
Dielectric OD	7.2	7.2	7.2	7.2	3.7	3.2	3.0	3.0	3.0	3.0	3.2E	1.9
Centre Conductor	7 0,725	7 0.77	7 0.405	1/1.15	1 0.634	7 0.17	1/0.813	1/0.9	19.0.18	7/0.32	7 0.25	7/0.20
Capacitance (pF/m)	97	99	67	68	70	69	94	95	98	95	56	95
Kilovolts Peak	7	4.8	7	5 ·	3.25	1.8	2.8	2.75	2.8	1.8	-	_
Velocity Factor	0.659	0.666	0.659	0.666	0.659	0.669	0.659	0,674	0.659	0.674	_	-
Characteristic												
Impedance	52	50	75	75	73	75	53.5	50	50	50	75	50
Attenuation in											1	
dB 100 m:										·	1 1	
] 10 MHz	1.8	2.2	2,15	1.9	3.6	4.7	4.1	6.4	4.7	5.4	- :	
100 MHz	6.2	7.4	7.5	6.2	11.2	15.2	15.0	14.4	16.0	17.0	12.0	_
200 MHz	8.8	10.8	10.8	10.0	16.0	24.0	22.5	20.7	24.2	34.0	£7.0	_
Power Rating												
(in Watts):		i										
10 MHz	685	1800	490	1800	270	470	200	460	190	440	-	_
100 MHz	3500	540	3500	570	1200	148	1000	350	1000	(40)		_
200 MHz	975	360	975	385	380	102	300	235	290	95	_	_

Note: The manufacturers in 1974 quoted the Velocity Factor of ASC2002 as 0.764-0.896. Measurements made by the author give a figure of 0.80.



Semiconductor Outlines



Conversion Factors (Metric-Imperial)

= 0.039 inch 1 millimetre (mm) 1 centimetre (cm) = 10 mm = 0.3937 inch 1 metre (m) = 100 cm= 39.37 inches., 3,28 feet, 1,094 yards kilometre (km) = 1000 m= 3280.8 feet, 1094 yards, 0.621 miles l gram = 1000 mg= 0.035 ounces (average) 1 kilogram (kg) = 1000 g= 2,2046 pounds 1 tonne = 1000 kg= 0.98 ton, 2204.6 pounds I cubic centimetre (cm3) = 1000 mm3 = 0.6102 cubic inches I cubic metre (m1) = 35.3 cubic feet, 1.3 cubic yards I litre (I) = 0.220 imperial gallons, 0.264 US gallons I kilopascal = 0.145 lbs/sq.inch, 0.009867 atmospheres I kilojoule = 0.948 BTU, 0.239 kilocalories, 737.56 ft./lb 1 kilowatt = 0.134 horsepower, 73.7 ft.lb/s 1 Newton = 0.2248 lb force 1 Tesla = 10 000 gauss I Weber = 10x maxwell

Transmission Line Characteristic Impedance

Single wire

Two wire

 $Zo = 138 \log(4D/d)$

Four wire

 $Z_0 = 138 \log(1.41 D/d)$

d = diameter of wire

D = distance between adjacent wires

D = distance above earth

Coaxial

 $Zo = 138 \log(D/d)$

 $Zo = 276 \log(2D/d)$

d = diameter of inner D = diameter of outer

D = distance between wires

Properties of Insulating Materials

Property	Material							
rtoperty	Nylon	Polystyrene	Glass	Perspex	PVC	Teflon	Rubber	
Minimum dielectric strength kV/mm	10	20	12	9	16	16	12	
Relative permittivity	3-7	2.4-3	4.5-10	2.2–3.2	3.1	2.0	3.2	
Volume resistivity	1010-1013	1030-1016	1010	1014	1013	FO15	1014	
Dissipation factor at I MHz	0.02-0.13	100.0>	0.001-0.01	0.02-0.03	< 0.01	< 0.0003	0.28	

Useful Formulae

- Wavelength (in metres) Free space = 300/f (MHz) Half-wave wire dipole = 143/f (MHz)
- Resonant frequency of an LC circuit $f = 0.159155 / \sqrt{(LC)}$
- The quality factor or Q or a circuit at resonance is $Q = 2\pi f L/r$
- The 3 dB bandwidth of such a single tuned circuit B = f(res)/Q
- Estimate of transformer rating Output = 31 A2 watts where A = core cross-section in sq.ins. or Output = $4.8 A^2$ watts if A is in sq.cm.

DC Resistance of Conducting Materials Relative to Copper

Resistance Ratio
1.6
3.8
4.1
12
1,4
5.9
12
63
4.1
6.7
6.4
0.97
43
6.6
3.6

Commonly used Symbols and Abbreviations

			,		
A	ampere	c1	centre tap	GHz	gigahertz
AC	alternating current	CTCSS	continuous tone coded	gnd	ground
A D	analogue-to-digital		squelch system		
AF	audio frequency	CW	continuous wave (code):	H	henry
afc	automatic frequency control		clockwise	HAAT	height above mean terrain
afsk	audio frequency shift keying			HF	high frequency (3-30 MHz)
age	automatic gain control	D/A	digital-to-analogue	HFO	heterodyne-frequency
Ah	ampere hour	dB	decibel		oscillator
alc	automatic load (or level) control	dBd	antenna gain referenced to a dipole	hpf	highest possible frequency; high pass fifter
AM	amplitude modulation	DBDM	double-balance diode mixer	H.I.	high tension
a.m.	morning	dBi	antenna gain referenced to a	Hz	hert7
AMSAT	Radio Amateur Satellite Corporation		isotropic, a dipole has a gain of 2.14 dBi	ı	corrent
AM FOR	Amateur Teleprinting	dBm	decibel referred to 1 milliwatt	IARU	Internation Amateur Radio
	Over Radio	dBW	decibel referred to 1 watt		Union
anl	automatic noise limiter	DC	direct current	1C	integrated circuit
uni	аптеппа	det	detector	i-d	identification; identifier
AOS	acquisition of signal	DF	direction finder; direction	ED:	inside diameter
ARA	Amateur Radio Association		finding	IF	intermediate frequency
ARC	Amateur Radio Club	DtP	dual-in-line package, 14 to	IMD	inter-modulation distortion
AREC	Amateur Radio Emergency		16 pins	1.0	input/output
	Corps	dpdt	double-pole double-throw	IRC	international reply coupon
ARS	Amateur Radio Society;	dpst	double-pole single throw	ISB	independent sideband
	Amateur Radio Station	dsb	double sideband	ITU	International Telecommunica-
ASCII	American National Standard	DTL	diode-transistor logic		tion Union
	Code for Information	DTMF	dual tone multi-frequency	IW	Intruder Watch
	Interchange	DVM	digital voltmeter		
ATV	amateur television	DX	long distance	j	indicator for reactive
avc	automatic volume control	DXCC	DX Century Club		component of an impedance
AWG	American wire gauge		h.		(+j inductive; -j capacitive);
az-el	azimuth-elevation	E	voltage	IEET	joule
D 4 616	75 - 7 - 411	ECL	emitter-coupled logic	JFET	junction field-effect transistor
BASIC	Beginner's All-purpose	ECO	electon-coupled oscillator	L.	1-31- 1000
	Symbolic Instruction Code	EHF	extra high frequency (30-	k K	kilo, 1000
_	(computer language)	EHT	300 GHz)		kilobyte; Kelvin
b	byte; a group of bits or binary		extra high tension	kg kHz	kilogram
bc	digits, usually eight. broadcast	еігр	effective isotropic radiated power	km	kilohertz (10²) kilometre
BCD	binary-coded-decimal	EMC	electro-magnetic capability	kV	kilovolt
BCL	broadcast interference	E-M-E	earth-moon-earth (moon-	kW	kilowatt
bel	broadcast listener	T- 144-FP	bounce)	kWh	kilowatt hour
hd	baud (bits/sec)	emi'	electromotive force (voltage)	10, 11, 11	(CALLANDE ALVAL
ber	bit error rate	EMI	electro-magnetic interference	L.	inductance
hit	binary digit	EMP	electromagnetic pulse	Ĩ.C	inductance-capacitance
BFO	heat-frequency oscillator	EPROM	erasable programmable	LCD	liquid crystal display
bpf	band pass filter		read-only memory	LED	light-emitting diode
bw	bandwidth	EUV	extreme ultraviolet radiation	LF	low frequency (30-300 kHz)
		EQX	equator crossing	lhep	left-hand circular polarisation
C	Celsius	erp	effective radiated power	1.MO	linear master oscillator
CATV	cable television			LO	local oscillator
CB	citizens band	ſ	frequency	loran	long-range navigation
CCIR	International Radio	F	farad; Fahrenheit	LOS	loss of signal
	Consultative Committee	FAX	facsimile	lp	long periodic; long path
CCIT	Consultative Committee for	FCC	Federal Communications	LSB	lower sideband; least
	International Telegraph and		Commission		significant bit
	Telephone (ITU)	FD	Field Day	LSI	large-scale integration
CCS	constant current source	FET	field-effect transistor	1.T	low tension
cctv	closed circuit television	FF	flip-flop	lud"	lowest usable frequency
ccw	coherent CW; counter-	FM	frequency modulation	lw:	longwave; long wire
	clockwise	FMT	frequency measuring test		
CD	civil defence	FMWG	Frequency Management	m	metre (distance or band);
Ch	channel	ć.,	Working Group	14	mili: (10 ⁻³)
cm	centimetre	fot	optimum working frequency	М	mega (10 ⁶)
CMOS	(or COSMOS)—	[sd	full scale deflection	mA	milliampere (one-thousandth
	complimentary-symmetry	FSK	frequency-shift keying	A 1.	of an Amp)
	metal-oxide semiconductor			mAh	milliampere hour
соах	coaxial cable or connector	g G	gram	MARS	Military Affiliate Radio
COR	carrier-operated relay		giga (10%)	MATU	System
CPU	central processing unit	GaAs FET	gallium arsenide field-effect	MATV MF	multi-access television medium frequency
CQ	general call to all stations	GDO	transistor grid-dip or gate-dip oscillator	1411.	(300-3000 kHz)
CRT	cathode-ray tube	(II)()	free-gib or fare-gib oscingtor.		(220, 2000 K113)

mН	millihenry	PSK	phase-shift keying	TV	television
MHz	megahertz (10%)	PTO	permeability-tuned oscillator	TVI	television interference
mike; mic	microphone	b.l.f.	push-to-talk	Tx	transmitter
mini-DIP	dual-in-line package of 8 pins	PSU	power supply unit		b 15 1 6
mi; h	miles per hour	_	d of the second states	UHF	ultra-high frequency
m)/s	inites per second	Q	figure of merit (tuned circuits)	1117	(300-3000 MHz)
mix	mixer	QRP	low power (less than 10 watts	UJT	uni-junction transistor
mm	millimetre	ZNIET I D	input)	UoSAT	University of Surrey
MO	master oscillator	QTHR	address correct in Call Book		educational/research satellite
MOS	metal oxide semiconductor	_		uch	(Great Britain)
mod	modulator	R	resistance	USB	upper sideband
modem	medulator demodulator	RAM	random access memory	UTC	Universal Co-ordination Time
MOX	manually operated switching	R/C	radio control	υV	ultra-violet light
IDS .	millisecond	R-C	resistor-capacitor	• .	ls ts
m.s.	meteor scatter	TOVE	receiver	V	volt; voltage
m/s	metres per second	rev/min	revolutions per minute	VCO	voltage-controlled oscillator
MSB	most significant bit	RF_	radio frequency	VCR	video cassette recorder
MSI	medium-scale integration	RFC	radio-frequency choke	VCXO	voltage-controlled crystal
MSTV	medium-scan television	RFI	radio-frequency interference	UEDO	oscilator
MUF	maximum usuable frequency	thep	right-hand circular	VFBO	variable-frequency beat
MUX	multiplex; multiplexer		polarisation	VEO	oscillator
mV	millivolt	RI	Radio Inspector	VFO	variable frequency oscillator
mW	milliwatt	RIT	receiver incremental tuning	VHF	very-high frequency
		RLC	resistor, inductance, capacitor	va e	(30-300 kHz)
n	nano (†0 -9)		network	VLF	very-low frequency (3-30 kHz
nbfm	narrow-band frequency	rms	root-mean-square	VLSI	very large-scale integration
	modulation	RO	radio officer	VOM	volt-ohm-milliammeter
nbvm	narrow-band voice	ROM	read-only memory	VOX	voice-operated switching
	modulation	rptr	repeater	VR	voltage regulator
n.c.	no connection	RS	Radiosport Satellite (USSR)	VSWR	voltage standing-wave radio
NC	normally closed	RSGB	Radio Society of Great Britain	VTVM	vacuum-tube voltmeter
NF	noise figure	RST	readibility-strength-tone	VU	volume unit
NiCad	nickel cadmium	RI	Radiotelephone	VXO	variable crystal oscillator
NL	noise limiter	RTL	resistor-transistor logic	11/	
NMOS	n-channel MOS	RTTY	radioteletype	W	watt
NO	normally open	Rx	receiver	WAC	Worked All Continents
npn	negative-positive-negative			WARC	World Administrative Radio
nS	nanosecond	S	second; Seimens	11/45	Conference
NZART	New Zealand Association of	SAE*	self-addressed envelope	WAS	Worked All States
	Radio Transmitters	SASE	stamped SAE	wbfm	wide-band FM
		SCR	silicon-controlled rectifier	Wh	watt-hours
OD	outside diameter	SHF	super-high frequency	wpm	words per minute
OM	old man		(3-30 GHz)	WW	wire wound; wire wrap
op amp	operational amplifier	SINAD	Ratio of Signal to Noise and	WX	weather
osc	oscillator		Distorting	X	contano.
OSCAR	Orbiting Satellite Carrying	SM	silver mica (capacitor)		reactance
()//	Amateur Radio	SNR: S/N	signal-to-noise ratio	XCVT	transceiver
OTC	Old Timers' Club	spdt	single-pole double-throw	XO	crystal oscillator
07	ounce	spst	single-pole single-throw	xfmr	transformer
1.79	Van.ee	SS	Sweepstakes; spread spectrum	xmtr	transmitter
-	pico (10 ⁻¹²)	SSB	single sideband	xtal	crystal
p P	•	SSC	AMSAT Phase III special	XYL; YF	wife
PA	power		service channels	7	immedanas
174	power amplifier; public address system	SSI	small-scale integration	Z Z	impedance see UTC
PAM	pulse amplitude modulation	SSTV	slow-scan television	_	SEE OTC
PCB	printed or etched circuit board	STSP	short-term special purpose	čr	alpha; angles; common-base
PCM	pulse code modulation		(FM repeaters)	u	forward current-transfer ratio
PEP	•	SWL	shortwave listener		of a bipolar transistor
PEV	peak envelope power peak envelope voltage	SWR	standing-wave ratio	β	beta; angles; current gain of
pF	picofarad	sync	synchronous; synchronising	ρ	common-emitter transistor
ph			synchronous satellite carrying		amplifiers
PIN	phone	.,	Amateur Radio transponder	7	delta; increments
PIV	positive intrinsic negative		Tittalear Radio Gallaponde	Ē	
	peak inverse voltage	ſΑ	technical advisor	гь	epsilon; base of natural
pk pk pk	peak to meak	TCA	time of closest approach	Z.	logarithm 2,7183 zeta; impedance
pk-pk	peak to peak	TE		e e	
PLL PM	phase-locked loop	tfc	trans-equatorial (propagation) traffic	λ	theta; angles lambda; wavelength; longitude
	phase modulation	THz			
PMOS	p-channel MOS	THD	tetrahertz (10%) total harmonic distortion	ц	mu; micro (10 °); amplification (actor;
. מד. ק	afternoon night				•
pnp	positive-negative-positive	tpi T-R	turns per inch	-	permeability
ppi	plan position indicator (radar)	TTL; Til.	transmit-receive	π <u>Σ</u>	pi, 3,14159
pot	potentiometer	TTY	transistor-transistor logic		sigma; summation; dielectric
PROM	programmable read-only	171	teletypewriter (from Teletype,	Ω	phi; angles; latitude
DDV	memory		the trade mark of Teletype Corporation)		omega: resistance in ohms
PRV	peak reverse voltage		Corporation)	6)	omega; angular velocity of $2\pi f$

NZART CALL BOOK, 1985

Abbreviations for CW work

AΛ		After all	OB	Old boy
AB		All before	OC	Old chap
ABT		About	OG	Old girl
ADR,	ADS .	Address	OM	Old man
AGN		Again	OP, OPR	Operator
ANT		Antenna	OT	Old timer, old top
			PBL	Preamble
BCI		Broadcast interference	PSE, PLSE	Please
BCL		Broadcast listener	PWR	Power
BK		Break; I wish to break-in (interrupt) a		
	1	transmission in progress	PX	Press
BN		All between; been	R	Received as transmitted; are (sometimes
BUG	:	Semi-automatic key		also used as a decimal point, e.g. 1R5)
B4		Before	RCD, RCVD	Received
~			RCVR, RX	Receiver
C		Yes	REF	Refer to; referring to; reference
CFM		Confirm; I confirm	RFI	Radio frequency interference
CK		Check	RIG	Station equipment
CL		am closing my station; call	RPT	Repeat; 1 repeat
CLD, c		Called; calling	RTT RTTY	Radioteletype
CPI, C	`PY +	Сору	RX RCVR	Receiver
CQ	4	Calling any station	RPRT REPT	Report
CS		Callsign	SA	
CUAG		See you again		Say
CUL.		See you later	SASE	Self-addressed, stamped envelope
CW	4	Continuous wave, i.e. radio telegraphy	SED	Said
			SIG	Signal
DE		From	SINE	Operator's personal initials or nickname
DLD,	DLVD 1	Delivered	SKED	Schedule
DR	1	Dear	SRI	Sorry
DX		Distance, foreign countries	SSB	Single sideband
ED		Here	SUM	Some
ER			SVC	Service
ES		And; &	T	Zero (0)
FB		Fine business, excellent	TFC	Traffic
FER		For	THO	Though
FM	1	Frequency modulation, from	THRU, THRO	
0.		• •	TMW	Tomorrow
GA		Go ahead, continue sending,	TNX, TKS	Thanks
		good alternoon	TT	That
GB		Goodbye	TU. TKU	Thank you
GBA	•	Give better address	TVI	Television interference
GE		Good evening	TX	Transmitter
GG		Going, grounded grid	TXT	Text
GM		Good morning		
GN	•	Good night	U	You
GND	1	Ground	UR, URS	Your, you are; yours (sometimes YR
GUD	•	Good		or YRS)
111	,	Laurahan biah	VFO	Variable frequency oscillator
HI		Laughter, hìgh	VY	Very
HPE		Hope	WA	Word after
HR		Here, Hear, Hour	WB	Word before
HV, H		Have		
HW		How	WD, WDS	Word; words
LID		A poor operator	WID	With Washed working
		t poor operator	WKD, WKG	Worked; working
MA, M	11LS	Milliamperes	WL	Well; will
MNI		Many	WUD	Would
MSG		Message	wx	Weather
M		· ·	XCVR	Transceiver
N		No; or North	XMTR, TX	Transmitter
NCS		Net control station		Crystal
ND		Nothing doing	XYL, YF	Wife
NIL.		Nothing, I have nothing for you	YI.	Young lady
NM		No more		· .
NR		Number	73	Best regards
NW		Now	88	Love and kisses

Q-code

	Q-
QRG	Will you tell me my exact frequency (or that of)?
	Your exact frequency (or that of) is kHz.
QRH	Does my frequency vary? Your frequency varies.
QRI	How is the tone of my transmission? The tone of your transmission is (1. Good; 2. Variable; 3. Bad)
QRK	What is the intelligibility of my signals (or those of)?
	The intelligibility of your signals (or those of) is (1. Bad; 2. Poor; 3. Fair; 4. Good; 5. Excellent)
QRL	Are you busy? I am busy with). Please do not interfere.
QRM	Is my transmission being interfered with? Your transmission is being interfered with (1. Nil; 2. Slightly; 3. Moderately; 4. Severely; 5. Extremely)
QRN	Are you troubled by static? 1 am troubled by static (1-5 as under QRM)
QRO	Shall I increase power? Increase power.
QRP	Shall I decrease power? Decrease power.
QRQ	Shall I send faster? Send faster (wpm).
QRS	Shall I send more slowly? Send more slowly (wpm).
QRT	Shall I stop sending? Stop sending.
QRU	Have you anything for me? I have nothing for you.
QRV	Are you ready? I am ready.
QRW	Shall I inform that you are calling him on kHz?
	Please inform that I am calling kHz.
QRX	When will you call me again? I will call you again at hours (on, kHz).

OSA What is the strength of my signals (or those of The strength of your signals (or those of . . .) is . . . (1. Scarcely perceptible; 2. Weak; 3. Fairly good; 4. Good; 5. Very good.) QSB Are my signals fading? Your signals are fading. **QSD** Are my signals mutilated? Your signals are mutilated. Can you hear me between your signals and if so OSK can I break in on your transmission? I can hear you between my signals; break in on my transmission. QSL Can you acknowledge receipt? I am acknowledging receipt. QSM Shall I repeat the last message I sent you, or some previous message? Repeat the last message which you sent me [or message(s) number(s) . . .]. **QSN** Did you hear me (or . . .) on . . . kHz? I did hear you (or ...) on ... kHz. **QSO** Can you communicate with . . . direct or by relay? I can communicate with . . . direct (or by relay through ...). OSP Will you relay to . . .? I will relay to ... OST General call preceding a message addressed to all amateurs and ARRL members. OSU Shall I send or reply on this frequency (or on ...kHz)? Send or reply on this frequency (or on ... kHz). QSV Shall I send a series of Vs on this frequency (or Send a series of Vs on this frequency (or . . . kHz). OSW Will you send on this frequency (or on ... kHz)? I am going to send on this frequency (or on ... kHz). Will you listen to ... on ... kHz? OSX I am listening to ... on ... kHz. OSY Shall I change to transmission on another frequency? Change to transmission on another frequency (or on . . . kHz). OSZ Shall I send each word or group more than once? Send each word or group twice (or ... times). OTC How many messages have you to send? I have ... messages for you (or for ...). OTH What is your location? My location is . . . What is the correct time? QTR.

The time is . . .

Who is calling me?

You are being called by ... (on ... kHz).

ORZ

Serial Numbers Record

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- The IC-02AT-As per IC-02A but with touch tone pad
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- The IC-505—6 metres over the shoulder portable rig with built-in batteries and antenna, gives 3-4 watts SSB, CW (and FM with option), but also gives 10 watts when run off a 12-14 volt system for mobile/home base use 8898
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- -New att-mode 432 MHz rig, matching styling with the IC-751 and the IC-271, 32 memories, scanning, built-in optional pre-amp. The IC-471optional built-in AC power supply (\$329 or \$298 with set), a really nice piece of equipment, with a very useful 80 walts to contribute to your satellite operation, or other 432 MHz use-a great high power 432 rig \$2084
- The IC-490A—All-mode 432 rig exactly as per the IC-290 except covers 430-440 MHz. Mobile or home base—10 watts
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- The IC-4AT—As per IC4A but with touch tone pad

The IC-04A-As per the IC-02A but 430-440 MHz

The IC-04AT—As per IC-04A but with touch tone

1296 MHz GEAR

The IC-120—Another ICOM first! A complete 1296 MHz FM transceiver ready to go. Covers 1260-1300 MHz in 10 kHz or 20 kHz steps with 1 MHz up/down, six memory channels, 1 watt output transmit, receive sensitivity less than 0.5 µV for 20 dB noise quieting, tess than 0.3 µV for 12 dB \$848 SINAD

HF GEAR

The IC-730—The very best HF mobile or home base all solid state transceiver. This very compacting comes complete with the ICOM "built-ins" such as twin VFOs, memory channel, speech processor, band pass tuning, a very hot and advanced receiver featuring a built-in switchable pre-amp for those weak DX stations, three-speed tuning down to a band spread of 1 kHz per 360 degrees of the tuning knob. Supplied complete with IC-HM10 remote tuning/scanning microphone for fantastic mobile convenience. All HF bands 80 through 10 metres, 100 watts \$1698 out on SSB and CW, but also has AM for those who require it

\$1243

\$549 \$61B

\$559

\$599

The IC-745—Brand new adaption of the popular IC-740, now includes full general coverage receive 100 kHz-30 MHz. It has the same band spread in the "Ham Band" mode, has the usual three-speed band spread down to 1 kHz per 180 degrees of funing knob rotation, 100 watts out on SSB, CW, RTTY, FM, plus AM receive, speech compressor, notch filter, IF shift/PBT, scanning, all-mode squelch, built-in keyer option, and the very convenient built-in AC power supply option, at \$329 or \$298 if supplied with the IC-745. The IC-745 with desk microphone \$1898 The IC-751—ICOM'S TOP OF THE LINE HF RIG.—The new standard of comparison, replacing the well-known IC-720A. The same matching styling as the new generation IC-271 and IC-471 rigs. Full general coverage receive 100 kHz-30 MHz, full Ham Band coverage, the usual convenient three-speed band spread, superb receive sensitivity, bullt-in pre-amp, 32 memories with seven year lithium battery, scanning 100 watts out on SSB, CW, RTTY, FM, and has an AM transmit and receive mode with PBT and notch filter, high performance speech processor, all mode squelch, adjustable AGC, and noise blanker, and last, but not least, the ICOM developed J-FET DBM gives the receiver a 105 dB dynamic range. Supplied complete with FM option, marker and desk microphone (PS25 built-in supply \$329 or \$298 with set) \$2543 HF Package Deals—The IC-730, IC-745 or IC-751 purchase together with the IC-PS20, IC-AT-100/IC-AT500 fully automatic antenna tuners, or the IC-AH1 mobile whip will get you a \$50 discount. Communications Receivers—The commercial grade IC-R71 covers all the HF Ham Bands with full band spread, and yet by selecting the general coverage mode, it covers 100 kHz to 30 MHz continuous. SSB, CW, AM, RTTY (and FM with the option). It also has a built-in pre-amp and superb sensitivity. 12 volt DC or 240 volt AC operation, 32 memory channels and even an infra-red remote tuning option. Ham price \$1498 **ANTENNAS** TET HF BEAMS—Feature flat response over the whole band, exceptional gain, and light-weight, 6061 aluminium alloy construction with stainless fittings, 2 kW rating. IDEAL FOR SOLID STATE RIGS. The TET HB-33SP-three elements, 8.5 dB on 14 and 21 MHz, 10 dB on 28 MHz, 29.8 ibs The TET HB-43SP-four-elements, 10 dB on 14 and 21 MHz, 11 dB on 28 MHz, 38.7 lbs \$899 The IC-AH1—Automatic band-switching, mobile FM whip for use with IC-730 and 720A, 80, 40, 20, 15 and 10 metres \$732 HF Trapped Verticals--The TET MV-5BH--Covers 80, 40, 20, 15 and 10 metres. A good, well-priced unit at \$29B The TET MV-SBHR—As for the 5BH, except has recent, loaded radial elements, one for each band mounted horizontally on the base 2435 Dipoles—HF--The SCE-MBD8010 complete 135 foot dipole, hard-drawn copper wire, imported ceramic centre insulator, imported 2 kW "open wire" ladder line (100 foot supplied), a quality unit ready to go. Feed with balanced output tuner for excellent low loss multiband operation \$73 The SCE-GSRV-102 foot dipole for restricted space, multi-band operation. Has 34 foot of ladder line feeder (same construction and quality as SCE-MBD8010). Feed direct with balanced tuner or through convenient length of coax from tuner to the ladder line. Ready to go on 80, 40, 20, 15 and 10 metres \$88 HF Mobile Whips—Covers 80, 40, 20, 15 and 10 metres. Three helical whips, five stainless steel tips and a top-over base—the complete set \$105 **VHF ANTENNAS** The SCE 2/58G-2 metres, 5/8 mobile whip with gutter grip \$24.50 The SCEH-2CL-2 metres collinear, 3.7 dB, has radial hub unit \$47,50 The SCEH-432CL-432 MHz collinear 3.7 dB and also uses radial hub unit \$42 BEAMS—2 metres, five-element, 8 dB, with balun \$45.50, 2 metre, 11-element, LPY \$107, 432 MHz, seven-element, 10 dB with balun \$108 **ROTATORS** The U100-VHF/UHF rotator, 240 volts AC \$219 The KR400—HF rotator for the TET beams, 240 volt \$398, mast-mount for the KR400 if required \$42 The KR600—Elevation rotator for OSCAR antennas \$479 ANTENNA ACCESSORIES—Hard drawn stranded copper wire, 140 feet \$14.90, imported egg insulators \$2.30, imported foam coax, RG8U\$5.35 metre, RG8X \$2.52 metre, (note RG8U is 2 kW), 470 ohm ladder line \$48/100 feet, six-core rotator cable \$1.20 metre, Bauns 1:1 Bencher \$84, BN86 \$64, 4:1 baluns also \$64, Palomar RX noise bridges \$167, Drake 2 kW low filters \$89, coax switches, two position \$62, four position \$160, 50 chm PL259 jumper leads, half metre \$7.80, 1 metre \$7.95 SWR Meters—Twin meter 1.5 to 150 MHz **LINEAR AMPLIFIERS** The ICOM IC-2KL—All solid-state linear, 160-10 metres, including the new bands, auto band switching with new IC-720A or with the IC-720 when fitted with an LDA unit. Runs 1 kW input on SSB and CW. No tune up! Expensive but how convenient. Complete with AC power supply tanan THE MICROWAVE MODULES

\$1154

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Cardiopulmonary Resuscitation (CPR)

Airway



ESTABLISH UNRESPONSIVENESS

-shake and shout.

CALL FOR HELP. POSITION VICTIM flat on back on firm surface.

OPEN AIRWAY.

Clear out mouth. Tilt head well back. Lift chin with fingers.

Breathing





Look, listen and feel for breathing. If absent:

BEGIN RESCUE BREATHING.

Keep victim's head tilted back. Pinch nostrils.

Take deep breath, blow firmly with tight seal over victim's mouth.

Give FOUR QUICK BREATHS initially.

Chest must rise and fall.

irculation













EFFECTIVE CPR REQUIRES REPEATED STRUCTION USING TRAINING MANIKINS

The National Heart Foundation of New Zealand

CHECK CAROTID PULSE.

Place two fingers on victim's Adam's apple, then slide into groove at its side. If pulse absent:

BEGIN EXTERNAL CARDIAC

COMPRESSION. Kneel by victim With HEEL of hands, press lower half of breastbone downward 3-5cm (1½-2").

The fingers may be extended or interlocked, or the top hand may grip the wrist of the hand underneath. Keep arms straight and fingers clear of chest.

Press down straight towards spine. ONE RESCUER: 15 compressions

> (80/minute) 2 quick breaths.

TWO RESCUERS: 5 compressions (60/minute)

1 breath.

CHILDREN 1-8 years: Use heel of one hand to depress breastbone 2.5 - 3.5 cm $(1-1\frac{1}{2})$; rate 80/minute. CONTINUE CPR until natural breathing starts again and pulse returns, or advanced care is available.