LO·KEY NEWS BULLETIN

CRAMBE 3.5MHZ WED.29/10/86 10.30Z REMEMBER

CW OPERATORS QRP CLUB
WE DO MORE WITH LESS
5W
QRP

PUBLISHED QUARTERLY

CONTENTS

WE DO MORE WITH LESS !

25 12th AVENUE W. MOONAH, HOBART, TASMANIA AUSTRALIA

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AWARDS/CONTEST MANAGER — LEN O'DONNELL VK5ZF (1)

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VK3 — NEIL EMENY VK3CGE (19)

VK5 — JEFF WALLACE VK5BJF (57)

VK7 — RAI TAYLOR VK7VV (3)

O,SEAS DX — JAY STURDIVANT KV7X (78)

SCRAMBLE 3.5MHZ
WED.29/10/86
10.30Z

LO-KEY PUBLISHED MARCH-JUNE-SEPTEMBER-DECEMBER

ANNUAL MEMBERSHIP FEES INCLUDING LO-KEY

VK-$A8. ZL SURFACE MAIL $A9.-AIRMAIL $A10. DX AIRMAIL $A12.
IRC'S NOT ACCEPTABLE.
MONEY ORDERS/CHEQUES PAYABLE TO THE CW.OPS QRP CLUB

INFO NET 3.60MHZ FRIDAYS 10.30Z

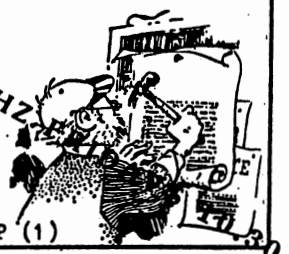
THE OCEANIA CW ☆ QRP ☆ CONTEST 1986

DATES.....Sat. Nov. 15 and Sun. Nov. 16 1986.
Duration.....Total of 48 hours (0000Z Nov. 15 to 2400Z Nov. 16)
MODE...CW only...CALL...CQ QRP...Bands...1.8mhz. to 28mhz.(not WARC)
SECTIONS.....QRP.Single Op./Single Band....Multi Band/Single Op.
QRP.Multi Op./Single Band....Multi Band/Multi Op.
QRO.Single Op./Single Band....Single Op./Multi Band.
SWL. Multi Band.....Single Band.
PERIOD.....Full Period 48 hours.
Half Period Any 24 consecutive hours within the 48 hour period.
EXCHANGE.....RST plus serial no. starting from 001 up to 999.
QRP POWER OUTPUT..... 5 Watts(max.) QRO POWER OUTPUT..... Over 5 Watts.
SCORING.....QRP stations....Up to 1 watt....6points
Between 1 and 2 watts....5points
Between 2 and 3 watts....4points
Between 3 and 4 watts....3points
Between 4 and 5 watts....2points.
QRO stations....Over 5 watts.....1point QRO to QRP only
SWL stations....Each QRO station logged in test.... 1point
Each QRP station logged in test.... 3points
VALID LOG.....Must contain a min. of 10 entries to qualify for entry to test
Multipliers.....Every contact in a different ITU Zone counts as a multiplier on each band, Multiply contact score by 2 if QRP X QRP
BONUS SCORE.....Field stations multiply your grand total score by 2
Conditions.....Contestants may work each other once per band in each 24hr period
All entrants please use separate log sheet for each band
Each logged QSO to show Date, Time GMT, Station worked, RST exchange, multiplier, Power output, points claimed, Grand total.
The grand total score is derived from the total points from all bands X total multipliers from all bands X bonus score.
ENTRIES.....All entries must have summary sheet showing calculation of grand total score, Name and QTH, Callsign and Signature. Include usual contest declaration.
CERTIFICATES....QRP Single Operator Single band Highest score on each band.24/48hr
QRP Single Operator Multi band Highest score....24/48hr
QRP Multi Op. Single band Highest Score....24/48hr
QRP Multi Op. Multi band Highest Score.....24/48hr
QRO Single Op Single band Highest Score....24/48hr
QRO Single Op. Multi band Highest score....24/48hr
SWL Single band... Multiband Highest score.24/48hr
CLOSING DATE....Entries to be addressed to: Contest Manager, Len O'Donnell, 33 Lucas Street, Richmond, S.A. 5033, Australia. no later than 29th Dec.1986.

CONTEST SPONSERED BY...CW OPERATORS QRP CLUB...
CONTEST MANAGER LEN O'DONNELL 33 LUCAS ST RICHMOND SOUTH AUSTRALIA 5033

INFO NET 3.620MHZ

THE PRESIDENT'S PAGE



From Len VK5ZF/QRP (1)

I have a great deal of pleasure in reporting this quarter's Club Business, through this column. The Committee has every reason to be happy, with what has been achieved, up to the time of writing this. May I list for you, what has been done so far....

(1). Club callsign procedures finalised, with the issue of VK5BCW as the Club station callsign.

(2). The Club "Info" net implemented on 3620khz approx Fri. and Sat. evenings each week at 1030z. The net has been very successful, many of our Members, along with a number of visitors, have checked into the nets.

(3). The backlog of Contest Certificates has been sent out, to all Members who have been waiting patiently for them.

(4). A new DX Scoreboard activity has been introduced in this issue of Lo-Key.

(5). A new VK Scoreboard activity has been introduced in this issue of Lo-Key.

(6). The PR Dept. is in gear, and so far has been responsible for signing up 14 new members.

(7). The PR. Dept. has also been busy publicising our Oceania CW QRP Contest and WCM award.

(8). Club Logo stickers are now available.

(9). Club QSL cards are available.

(10) A Club QRP information book is now circulating amongst our members.

(11) A letter has been forwarded to Rod VK6KRG/QRP (28) our Technical Problems Advisor, to see if he would be able to design a Simple 10mhz Tx., as a club project. Eventually working up to a full 10mhz transceiver.

(12) The possibility of producing and issuing a membership certificate in the near future, has been discussed.

(13) Membership numbers unused at present from resignations, are now being re-issued.

(14) A rise in Membership dues from $8 to $10, due to ever increasing costs was discussed.

(15) The possibility of the Club owning its own Copying Machine has been discussed.

I believe after reading the above account of the Committee's activities for the Quarter, you will agree with me, that it has been a good Quarter for the Club.

Perhaps the greatest pleasure I have experienced this last three months is the way the Members are now beginning to take an active interest in the running of the Club. Members are deciding to give a hand, where they can, without being asked. It would appear that the Club is beginning to mature, and well on the way to establishing a good reputation in the QRP world.

My intentions are to guide the CW Operators QRP Club to be the leading QRP and CW Club in Region 3. We will be aiming our Public Relations and Membership drive at the Oceania and Asian areas. While I respect the other European and American QRP Clubs, I do not want our Club to be a carbon copy of them. Rather I want our Club to develope its own style and personality, in its approach to QRP and CW.

WQF News

FROM THE WORLD QRP FEDERATION

From.... Ted Leca VK4EML/QRP (11) WQF Delegate.

Detailed below is the Constitution of the WORLD QRP FEDERATION:

1. NAME: The organisation shall be known as the World QRP Federation.

2. OBJECTIVES: The objectives of the World QRP Federation (WQF) are:

   2.1 To encourage the use of QRP (defined as a DC input not exceeding 10w or an RF output not exceeding 5w) on all amateur bands and using all transmission modes.
   2.2 To strive to improve two-way communication between QRP stations located in different countries and different continents.
   2.3 To maintain a regular interchange of ideas and information on QRP matters between member Organisations.
   2.4 To encourage improvements in QRP techniques, both operating and technical.
   2.5 To exchange journals, where these are published by member Organisations, and to allow reproduction of items from such journals with suitable acknowledgement.
   2.6 To protect the interests of QRP operators by making collective representations to the IARU and national radio societies when this is deemed necessary.
   2.7 To engage in any other activity considered to be of benefit to QRP operators.

3. MEMBERSHIP QUALIFICATIONS: Membership will be limited to Organisations which are prepared to accept the objectives stated in paragraphs 2.1 to 2.7 and are either devoted solely to QRP or have a properly organised QRP Section the Manager of which is a member of the executive committee of the Organisation concerned. Founder Membership shall be by invitation. Subsequent applications will require the unanimous approval of the WQF Executive Committee.

4. OBLIGATIONS OF MEMBERSHIP: These are:
   a) To support the objectives stated in paragraphs 2.1 to 2.7
   b) To nominate a person to act as a WQF Executive Committee Member
   c) To meet postage and similar expenses incurred by this E.C. Member

5. GOVERNING BODY: WQF shall be governed by an Executive Committee made up from the persons nominated under paragraph 4 (b). This Committee shall elect one of its members as Chairman, and one as Secretary. The office of Chairman shall last for one year, after which there shall be a further election. The period of office of the Secretary shall be decided by the Committee. Committee business will normally be carried out via the mails.

It is interesting to note that these are the same details of Membership that the CW Operators QRP Club agreed to some 2½ years ago. Ted is still awaiting an answer from David K5NT, the Sect. WQF, to his letter. (Len 1)

INFO NET 10.30z FRIDAY 3.620MHZ

VK5 REPORT

A FEW NOTES FROM VK5, BY JEFF., VK5BJF

Well as many of you are aware, the information net on Friday and Saturday nights has got off to a good start. The ssb net has been controlled mainly by our enthusiastic President, Len VK5ZF with help from Max., VK5OS. Our club callsign VK5BCW is now in use. Len has been doing a mighty fine job and putting a lot of effort into the club. I am sure that he would like to hear you all sometime on the information net. C.w. stations are most welcome too!

Don, VK5AIL is building a 160m version of the "Tassie Devil" but has struck a few problems but will eventually sort them out. Max., VK5OS is gathering parts for a VK5GZ memory "CQ caller" unit. Good luck with the projects fellows.

Our hard working treasurer, Kevin, VK5AKZ has been busy cutting up our club logo QSL stickers ready for distribution. Thanks, Kevin, I will be sending in my order before this goes to press!

During a recent outback trip into the far north of VK5, I called into our club information net but the O.M.'s participating that night had trouble copying my ssb, despite the 20 metres of wire antenna strung over a stunted tree (they don't grow very big in the desert). Of course the problem was solved by transmitting c.w. mode. They tell me the signals absolutely pounded in then! There's a lesson in that experience.

May I offer some thoughts on QRP operating. Despite the effectiveness of our mode (and antenna systems) it does happen sometimes that our contact is struggling to copy us. So, if after the initial exchange of information, you want to have a "rag-chew", please take pity on the other operator and don't feel ashamed to increase power out of fairness to him/her. Try answering weak CQ's if there are no strong signals on the band. They may not hear you at all but sometimes you can be quite surprised to get good reports for your 2 or 3 watt effort from DX stations which are quite weak! Just the vagaries of propagation, I guess.

Now I must get this of to Rai, our hard working editor.

Cheerio to all from South Australia.

Jeff. VK5BJF mbr. no. 57

SCRAMBLE 3.5MHZ WED.29/10/86 10.30Z

NEW MEMBERS PAGE

One of the most pleasing aspects of being President of the CW Operators QRP Club, is to welcome new members to the club. So it gives me the greatest of pleasure, to welcome the following QRPers to our ranks.

(17)	VK4JZ	LEN SCHMIDT	33 Hill Crescent, Carina Heights, Queensland, 4152
(6)	K6MDJ	FRED TURPIN	P.O.Box 145, Cedar Pines Park, California 92322, U.S.A.
(18)	WA2YMW	BILL BREARE	P.O.Box 867, Hicksville, New York 11802, U.S.A.
(24)	VK2PLV	COLIN CHRISTIE	40 Old Berowra Road, Hornsby, New South Wales. 2077
(9)	W3TS	MIKE MICHAEL	R.D.I., Box 144, Lykens, P.A. 17048, U.S.A.
(44)	VK4BSD	STAN DEAN	380 St. Vincents Road, Nudgee, Queensland, 4014.
(30)		BRIAN O'BRIEN	14 Belgrave Street, Neutral Bay, New South Wales 2089.
(20)	VK4UG	DAVE RICHARDS	12A Savannah Street, Redcliffe, Queensland. 4020
(23)	VK2FJ	NEV SHAW	22 River Rd., Oatley, New South Wales. 2223
(26)	VK7FN	NEIL FITZPATRICK	16 Iron Cliff Rd., Penguin, Tasmania. 7316
(96)	G3RJV	REV. GEORGE DOBBS	St. Aidans Vicarage, 498 Manchester Rd., Rochdale, Langs OL11 3, England.
(97)	VK3EMC	JOHN CARWARDINE	3 Heidleberg Drive, Wodonga, Victoria, 3690.
(98)	VK7RO	RICHARD ROGERS	48 Knocklofty Tce., West Hobart, Tasmania 7000.
(27)		BOB NEVILLE	124 Roscommon Rd., Boondall, Queensland 4034.
(35)	VK2EXD	COL McDOUGALL	"Woodlands", Coolamon, New South Wales 2701.

If you hear any of these new members on the air, please make them feel welcome, and help them all you can.

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SEND SLOWLY, NOVICES AND NEW MEMBERS MAY WANT TO CONTACT YOU....

WED.29/10/86 10.30Z

SCRAMBLE 3.5MHZ

1986 QRP FIELD DAY

Wanted to let you know [illegible] 1986 QRP Field Day here in the U.S. came off fairly well for the "Zuni-Loop Expeditionary Force" once again at our site in our mountain site campground at 7,100 foot elevation. This ;year we came up ;with 8 operators: K6MDJ, NX6M, W6SIY, WN6F, W6SKQ, N6GA, N7FEG and WF6D. The last operator WF6D drove 4 and half hours from Central California to be with us and I would have to say that is a testimonial to QRP comradery to say the least, and he enjoyed it so much that he will be back nextlyear....

This year we found that there were other radio clubs up on the mountain and once we had visitors to our site checking out the antenna farm we had erected and was in awe from what he was looking at.....they simply could not figure out how we topped 90-100 foot trees.....it was fairly simple....we used sling shots....and hauled those monsters up in the air. These other radio clubs were the QRO type and their antennas were up a measly 30 to 40 foot at the most and most used little Honda generators to supply their power and pumped 100 watts or so into their skyhooks.

Our antennas theis year:
15 meters - ZL Special Beam
20 meters - Six-Shooter Broadside Array
40 meters = 3 element Delta loop
80 metersm - VK2ABQ Button Beam

Scoring:	BAND	CW	SSB
	15	60	109
	20	172	85
	40	169	34
	80	58	32
		459	253
		GRAND TOTAL	712

We ran three rigs, two Argonauts and one HW-9 with power supplied from a car battery. The propogation forecast was fairly accurate with below normal conditions forecasted for the first Saturday the 28th of June and high normal conditions forecasted for the 29th of June/Sunday. There was a definite marked increase in contacts Sunday morning when the 15 meter band opening up all the way. We just could not talk fast enough on SSB to keep ;up with the pace...hi...hi... Weather conditions were favorable for good sunburns with clear skies and above normal temperatures and very few bugs to get into our hair and skin this year.. fairly dry also. Judging from our activity this year with the selected antennas we found that all antennas worked the way we expected them to except for the VK2ABQ button beam on 80 meters....we found that the time it took to erect the antenna and the resultant heavy QRN conditions that resulted, we may opt to forego such a large antenna next year and concentrate on a more simple antenna for the band. Hope that lthe 10 meter band will come alive before FD 87.....

Oh, by the way the "Official" name of our motley group is the "Zuni-Loop Mountain Expeditionary Force"...I left out the word mountain in the beginning...hi.. We sort of compete with other groups (QRP) some of them namely - "Mad Men of Missillon" by WB8VGE and the "Harper Air Hawks" by K5VOL and there is another group up in l land but cannot remember there names. Most of these fellows run in the one watt category, so not to be too discouraged about our score this year we are seriously contemplating competing with these notables with our l watt entry in 1987 Field Day. We have learned that WB8VGE and group suffered a fatality with one of their crew having an unfortunate accident with an axe requiring some 30 stiches on his head and face. Our group only had one problem with one fellow having a hay=fever attack but he perserved through the whole melee....hi...hi...

BOB W6SKQ #67

MEMBERS PROFILE

JACK FORD VK4SF/QRP...Club Member No. 14

Here is a little of my history, so that the other Members of the Club, may know a little more about me.

I started off with the radio bug about 1939, while still going to school, and built Crystal sets and 1 valve regenertive receivers. During the War years (W.W.2), I served my time as an Electrical Apprentice, and also learned the Morse code. I sat for the A.O.C.P. in 1947, and came on the air with some simple "home-brew" CW gear. I experimented with phasing type SSB in the early 50s, and constructed a copy of the Swan 240 circuit in the early 60s. After that I put together a 5 band transistor transceiver, using germanium type transistors, and a Collins filter driving TV type valves in the P.A., in about 1966. Next I experimented with QRP SSB, over many years. In 1976 I invested in my first "Black Box" a FT101B, and have had some type of commercial gear in the shack ever since, but still like building my QRP projects.

Over the last couple of years, I have spent some time building up keyers, keyboard and computers, and learning to drive the computer has taken up a lot of spare time. For many years now, I have competed in the contests, and I love the QRP sections. I have gathered a few certificates from the ARRL, CQ, and the NZART for the QRP sections, but at the present time the way the conditions are, QRP contesting is very hard and a little frustrating, as members would know.

I enjoy the QSOs on the Fri. and Sat. evening Club nets, even though I have some industrial deafness. Luckily CW tone is much easier to hear, so I look forward to many contacts with Club members. There is about 16 months to go, before my retirement, and then I will be able to play Ham radio a good deal of the day. At present I am still working at the "Coal-mine", and I am on call 24 hours a day, so there is not much time for the things that I would like to be doing. I would very much like to get more involved with the Club, and when I retire that will be my chance.

If any of the members are interested in a machine language QRP contest programe for a Tandy color computor, please get in touch with me, it sure takes the hard work out of operating. Regards and best wishes to all members

Good QRPing

Jack VK4SF/QRP

FRIDAYS 09.30Z

QW ACTIVITY HOUR

INFO NET FRIDAYS 10.30Z. 3.6MHZ

BITS AND PIECES

LOOK

From... President Len O'Donnell (1)VK5ZF

The idea of a H.K.C. and I. Book (Hints, Kinks, Circuits and Information), has taken off like a rocket. Book No.1 is now doing the rounds of those Members who contacted me to be placed on the book list. Here are the names on that list, which are in the order the book will be coming to you.

1. VK6KRG....Rod (28)	2. VK3ADX....Merv (85)	3. VK3BCO..Rod (85)
4. VK3CVF...John (12)	5. VK2CWH....Ted (89)	6. VK4SF..Jack (14)
7. VK4BML....Ted (11)	8. VK5OS.....Max (2)	9. VK5AIL..Don (75)
10. VK5BJF...Jeff (57)		

Feed-back I have received so far has been great, with many complimentary remarks being passed. I think we have a winner here. If your name is not on the above list, and you would like to see this collection of 100 double sided QRP Information sheets, CONTACT ME NOW. The second list is being formed NOW, and your name MUST be on the list, for you to see the book. The only cost to the Members is the postage to the next name on the list. Sheets are loose, for easy photo-copying.

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I would like to acknowledge the co-operation and help given by way of publicity, to the CW Operators QRP Club, by the WIA VK2 Div., VK4 Div. and VK5 Div., on their Sunday morning broadcasts recently. Our Club has had a number of enquiries, due directly to this publicity. Thanks to these Divisions of the Wireless Institute of Australia. Our Members appreciate your fine gestures.

****

Member No. 11 Ted has not been too well of late, and he has advised me that he has had an operation recently. I know all our Members join with me , in wishing Ted a speedy recovery. A get-well card, on your behalf, has been sent to Ted. Take it easy mate, we all love you.

****

As this will be the last issue of Lo-Key, before the Oceania CW QRP Contest will be held, I would like to take this opportunity to remind all Members, to make the effort and give this year's Contest a go. It will be held on Sat. and Sun. 15th. and 16th. Nov. 1986, and you will find all the necessary information on the Contest on Page 3 of this issue of Lo-Key. Also you will find a log sheet enclosed with Lo-Key, to record your contacts during the Contest, so that all that is needed now to make this the best Contest yet is YOUR participation. Begin to plan for it now, and keep that weekend free. I believe we all can get a "Leave Pass" if we try. Even if you do not operate QRP very much, I do not think it is too great a burden to ask you to put the Club and QRP first, for one week end in the year. There has been a lot of effort put in to publicising this Contest both here in Australia and Overseas. This would be all wasted if our Members fail to participate, so mark the date 15th and 16th Nov. '86 on your calendar NOW.

YOU MIGHT EVEN ENJOY THE CONTEST.

****

Our Club besides being a QRP Club, is also a CW Club, and I would like to push this aspect of our group a lot more than we are doing at present. To this end I am looking for any general articles on CW operating, Keys, Keyers, Key Click Filters, Audio filters suitable for CW, and any early history of CW operation. Can you help me please.

AUSTRALIA
VK5ZF/QRP

OPERATOR: LEN O'DONNELL

Q.T.H.: 33 LUCAS ST., RICHMOND, S.A. 5033, AUSTRALIA

CONFIRMING QSO WITH

CALL SIGN	DAY	MONTH	YEAR	TIME (GMT)	FREQ Mhz	MODE	R	S	T

EQUIPMENT:..... *POWER OUTPUT:*.....

ANTENNA:..... *PLSE QSL* ☐ *TNX QSL* ☐

"WE DO MORE WITH LESS"

A number of our newer members have written to me, with regard to the Club QSL Card. The above reproduction is the only official design, and can be obtained from Rai VK7VV/QRP (3), at $65 per 1000. Of course your own call sign, QTH, and club number are included on the card. It advertises the Club and QRP very well, without taking the stations identity away.

****

Do you recall in the last issue of Lo-Key I asked Members to write to me, and give me details of their greatest distance QRP contacts on each band, since they have been members of the Club. Well I received the following QRP distance record claims from Matt ZL1ATW (34), and I tell you that they are not too bad at all. Congradulations Matt, you are way out in front of the VK boys, and they are going to have to put in some hard work to knock you off top spot on the following bands.

1.8mhz. No claims received.
3.5mhz. ZL1ATW to VK4LX 6/6/84 RSTs 439/579 1.5watts Mile-age 1375
7mhz. ZL1ATW to HB0NL 23/9/84, RSTs 539/579, 2.5w, Mile-age 12400
10mhz. No claims received
14mhz. ZL1ATW to SM5BCO 31/12/84, RSTs 439/589, 2.5w, Mile-age12520
18mhz. No claims received.
21mhz. ZL1ATW To ON4VN 24/3/84, RSTs 559/589, 2.5w, Mile-age. 12750
24mhz. No claims received
28mhz. ZL1ATW to VE3NQI 6/4/84, RSTs 439/569, 2.5w, Mile-age 13550
52mhz. No claims received.
144mhz. No claims received.
430mhz. No claims received.

Having read this you now think you have done better than Matt, well you have still got to convince me, so lets have those details in time for the next issue of Lo-Key, and we will see how good you really are. In the mean time and at least for this quarter, Matt is Club Record Holder on 5 HF bands.

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MAKE IT , DON'T BUY IT, WHEN YOU HAVE BUILT IT USE IT, QRP IS IT.

CW ACTIVITY HOUR FRIDAYS 09.30Z

SCRAMBLE 3.5MHZ WED 29/10/86

AWARDS AND CONTESTS NEWS

3.620MHZ INFO NET 10.30Z FRIDAYS

May I again draw your attention to the OCEANIA CW QRP CONTEST, run by the CW operators QRP Club, on the 15th. and 16th. Nov. '86. Plan NOW to be in it THEN. Maybe we can set a Club record, with the number of members participating. There are approx 75 members in the club at the pres-ent time. Surely we can put 65 QRP stations on the air for this week-end. A Club log-sheet has been included in this issue of Lo-Key, to make it easy for you to make out your log for the contest. It is time to stand up and be counted if we are going to put QRP on the map in region 3. YOUR club needs YOUR support, to do this NOW.

****

Things are happening in the Contest/Awards section of club activities, as you can read in this Lo-Key. As promised there are two new Score-board contests, and these are detailed with regard to rules and times. This has been done to help eliminate several advantages, the DX mem-bers had over the VK members. It is my intention to settle on a format of Scoreboard activity such as this over the next few years. I can see no point in making changes, just for the sake of change. In forming the rules of the two Scoreboards, I have tried to incorporate many of the suggestions, that members have made to me, since I have taken over the job of Award/Contest Manager. I also know that I am unable to please everybody, but these two new "Scoreboards" should please the majority of our members, and that is all I can hope to achieve. Both "Scoreboards" are now open, so start sending in your progressive logs to me, by early Dec, so I can record your efforts on the "SCOREBOARD" in Dec. issue of Lo-Key. Inserted in this issue of Lo-Key, you will have received a sample copy of the Scoreboard log sheet, and when you make up your own log sheets please USE THE FORMAT ON THE SAMPLE, for both VK and DX scoreboard log sheets. Also please remember to send a separate sheet for each band you work, in each of the Scoreboards. Re-member it is a fun activity, so let's get some friendly rivalry going and ENJOY the Scoreboards.

****

SCRAMBLE.....SCRAMBLE.....SCRAMBLE.....SCRAMBLE.....SCRAMBLE.....SCRAMBLE.....

A CW SCRAMBLE will be held on the night of WED. 29th. Oct. 1986 at 1030Z on the 3.5 mhz band. Duration of scramble will be for 3 hours, and will conclude at 1330Z. Object of the Scramble is to work as many CW stations on 3.5mhz as possible in the 3 hour period. Now for the scoring.....

For working CW QRO station VK.....1 point.
For working CW QRO station ZL or DX.....5points.
For working CW 2 X QRP.....3points.
For working Club Station VK5BCW/QRP.....10points.
For working MYSTERY STATION.....25points.

There is no checking in to be done, just come up on 3.5mhz at 1030Z on Wed 29th Oct and start calling. All entrants are asked to use QRP (5watt output max.), and when calling use CQ QRP TEST. All logs are to be sent to Awards/Contest manager Len (1) as soon as possible after the advent, results in Dec. issue of Lo-Key. With regard to the MYSTERY STATION, only he and myself know his identity. He will be operating during the contest, and I will add 25 points to all logs received, who have worked this station. IT WILL BE A FUN NITE SO JOIN IN

AWARDS AND CONTESTS NEWS (Cont.)

To conclude the previous news on the scramble. Certificates will be awarded to the first, second and third, Full Call members and First, Second, Third, Novice members. A certificate will be issued to any SWLs sending in a Log. I ask all Members to use this scramble as a preliminary "run-up" to the Oceania CW QRP Contest in Nov.

****

There will be a Worked VK POST CODES AWARD detailed in the Dec. issue of Lo-Key. It will need 100 mixed state post codes for the basic award. Up grading to 100 post codes from each state. This should just about make every QSO our members have using QRP CW, useful for this award. Look out for the details.

****

The WCM-HCM Award run by our Club, is up and away, as it commenced on the 1st. Aug. '86. If you use the Scramble and the Oceania QRP contest you could easily notch up quite a number of points for this award. The Club station VK5BCW/QRP will be activited to help Members. score the necessary contacts.

SCRAMBLE 3.5MHZ WED.29/10/86. 10.30Z

MORE BITS AND PIECES

I am happy to announce that Rai (3) has been a busy boy, in producing sheets of adhesive stickers for the use of club members. They are printed in black on a white background, and feature the club logo. These are available NOW from Kevin (43) our Treasurer, in sheets of 24. The price will be $2.75 per 112 including postage for VK members. Overseas members would have to allow extra for postage.

****

The Club is keen to begin a regular CW Net once a month on 3.5mhz, as soon as possible. With this in mind, I am looking for 2 volunteers, that can handle themselves on the Key, to run the net. Here is an opportunity to help the Club and the members, by doing something that you are good at. If you are interested, and would like to give it a go, please get in touch with Len (1).

****

Speaking about volunteers, and good Keymen, the Management of this Club, is desirous of obtaining a good set of Morse Tapes, to help our Members improve their CW. Is there a Member willing to put together a series of tapes at various speeds, to help achieve this aim. A good speed sense and good spacing is essential. WILL YOU HELP then contact Len (1), and we will talk about the details.

****

One of the main costs that the club runs into very frequently, in the administration of the club, is the cost of photo-copying. In the preparation of Lo-Key, Club Letterheads, Information sheets, Club information book, etc. we do use photo-copying a great deal. I believe that the time has arrived for us to have our own PHOTO-COPIER. I need to send out lots of "Info-Sheets" if I am going to get the Membership up to 200. That costs money.So with this thought in mind I am launching a Fund to buy our own Photo-Copier. Any Member wishing to donate $1 or more to the fund, please send your donation to our Treasurer Kevin (43). To open the fund I am donating $20 toward the Photo-Copier myself. Do you want to see the Club grow, then join me.

Len(1).

SPECIAL 30METER ISSUE DECEMBER

..... CW OPERATORS QRP CLUB .....

VK SCOREBOARD RULES

By Award/Contest Manager Len O'Donnell (1) VK5ZF/QRP

1. (a) ... Only the CW Mode shall be used in this Contest.
   (b) ... Peak output power into the antenna (key down condition), will NOT exceed 5 (Five) watts.
   (c) ... Power levels will be determined by methods or calculations, by each individual station, that give an accurate assessment of power output. The "Honour System" will be sufficient.
2. (a) ... Point scoring will be based on the following table...
   UNDER 500 KM.....1 point for all power levels.
   OVER 500 KM.....2 points for 5 watt power level.
   3 points for 4 watt power level.
   4 points for 3 watt power level.
   5 points for 2 watt power level.
   6 points for 1 watt power level.
   10 points for 500 Mw power level.
   15 points for 250 Mw power level.
   20 points for 100 Mw/less power level.
   (b) ... 2 X QRP contacts count double points for each contact, disregarding the power level used.
   (c) ... The Australia Map No. 150 as printed and published by Gregory's Guides and Maps Pty. Ltd., 142 Clarence St., Sydney, N.S.W. 2000, will be considered the standard reference for the measurement of distance in the scoring table. These maps are available from most stationery stores throughout Australia.
   A circle should be drawn on the map at the 500 KM distance, using your QTH as the centre point for the circle.
   (d) ... All authorised bands in the Amateur Service are permitted for scoring purposes.
   2 X VHF and 2 X UHF contacts count double points for each contact, disregarding the power level used.
   The same station can be worked once on each band, and then worked again on each band after each completed 24 hour period after the initial contact.
   (e) ... Only contacts with VK Stations (VK1 to VK8) are valid for scoring. Stations worked may be non-members of the club, QRO or QRP.
3. (a) ... Exchange will consist of RST (min. 3 / 1 / 9). Cross band and cross mode contacts are not valid. Contest QSOs are valid, also portable and mobile contacts are permitted for scoring purposes.
4. (a) ... The VK Scoreboard will commence on 1st Oct. '86 and conclude on 31st. Aug. '87. Progress log sheets to be sent in to the Award/Contest Manager, by the 10th. Dec. '86, 10th. March '87, 10th. June '87, and 10th Sept. '87.
   All entries to be on Club log sheets obtainable from the Awards/Contest Manager, and please use one sheet for each band.
5. (a) ... Certificates will be awarded to the 1st. 2nd. and 3rd. overall top scorers, and top scorer in each individual band. Additional certificates can be issued at the discression of the Award/Contest Manager, if thought necessary.

IT IS A FUN CONTEST...DESIGNED FOR YOUR PARTICIPATION...BE IN IT.

..... CW OPERATORS QRP CLUB .....

DX SCOREBOARD RULES

By Award/Contest Manager Len O'Donnell (1) VK5ZF/QRP

To encourage Members to expand their CW QRP activities in the DX field the Club has instituted a NEW DX Scoreboard. The rules and regulations governing a Members entry upon the Scoreboard, are as shown below.

1. (a) ... CW mode only shall be used.
   (b) ... Peak output power into the antenna will NOT exceed 5 watts.
   (c) ... Power levels will be determined by methods or calculations by each station, that give an accurate assessment of output. The historical "Honour System" will be sufficient.
2. (a) ... Submission of score logs must be separated into individual bands, and the scoreboard will be tabled as such.
   (b) ... QSL cards are NOT required as proof of valid contacts, log extracts are acceptable with a declaration of authenticity.
   (c) ... Only DX contacts after zero hours Z 1st Oct. 1986, shall be valid for point scoring.
3. (a) ... The number of points for EACH INDIVIDUAL CONTACT shall be calculated by ADDING the points gained per Rules 4.(a), (b) and (c), and then multiplied by the power output factor as per Rule 5. (a).
   (b) ... If the DX Station is also QRP, then the result of the above calculation SHALL BE DOUBLED.
   (c) ... All authorised amateur bands are permitted to be used. Cross-mode or cross-band contacts are NOT admissible. Mobile or portable operation is valid. Contest QSOs will be accepted for point scoring purposes.
4. (a) ... DX STATIONS WORKED: Each DX station worked will count as ONE POINT only. The same DX station may be claimed for scoring repeatedly per band, provided NOT LESS THAN 24 HOURS have expired since the previous QSO with that same station on that band.
   (b) ... DX COUNTRIES WORKED: Each DX country worked will count as ONE POINT only. The same DX country may be claimed for DX scoring, ONCE ONLY per band.
   (c) ... DX PREFIXES WORKED: Each different DX prefix worked will count as ONE POINT only. The same DX prefix may be claimed for DX scoring once only per band.
5. (a) ... POWER OUTPUT FACTOR MULTIPLIER for each individual QSO:
   Indicated Power Output
   0 - 1 watt...X 6 : over 1 watt - 2 watts...X 5 : over 2 watts - 3 watts...X 4 : over 3 watts - 4 watts...X 3 : over 4 watts - 5 watts...X 2 :
   (b) ... TOTAL PROGRESSIVE SCORE ON EACH BAND: Each members tally of total Stations, Countries and Prefixes worked on each band will be recorded and indicated on the Scoreboard.
   (c) ... GRAND TOTAL SCORE: This shall be the TOTAL POINTS SCORE to-date for each member, and accrued from points gained on all bands.
   (d) ... DATES The 1986 - 87 Scoreboard will conclude on 30th. Sept. 1987 at 2400Z. Results will be printed in the Dec. '87 Lo - Key. Please ensure that progressive score logs reach the Awards/Contests Manager Len VK5ZF/QRP, 33 Lucas St., Richmond, S.A. 5033, Australia., in time to be included in each issue of Lo - Key. Please use the Club Log Sheets if possible.
   (e)... CERTIFICATES Will be awarded to the 1st., 2nd., 3rd., Overall, and each individual Band Winner.

CW ACTIVITY HOUR FRIDAYS 09.30 3.530MHZ

☆ CHELMSFORD QRP ☆

Many members have requested information on this QRP rig so I have put together an abridged version of the article by Mike Kerr, ZL2BCW (no relation to our own VK5BCW). Acknowledgement is given to the originator of the design Roy Llewallen W7EL, see QST August 1980, and to Mike Kerr ZL2BCW, who developed the concept and produced the Chelmsford version.
Intending builders will gain more insight into the design by reading the above mentioned article by Roy and articles in NZ Break In November 1983 and October 1985. I believe that P.C.Bs are available, the cost was $20NZ in 1985 so write to Branch 50 P.O. box 6464 Wellington NZ for current prices.

THE TRANSMITTER

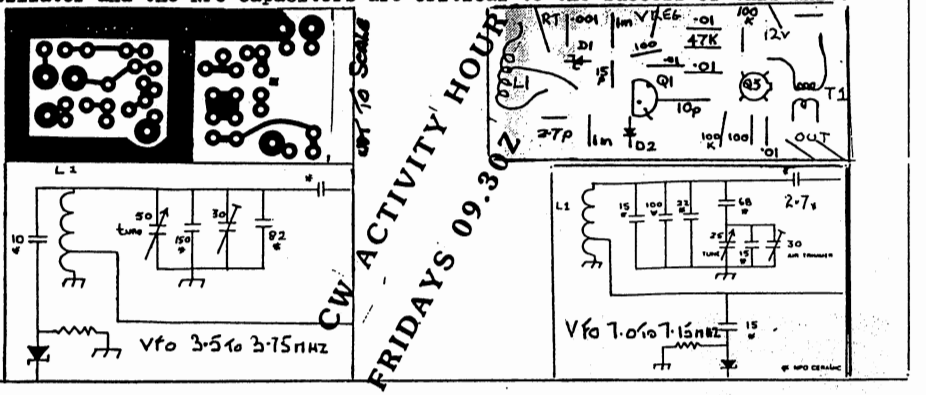
This employs a 3N3553 in the final PA with a double pi-network output filter. This stage is easily driven to the design output level of 1.5watts by a driver 2N2222A which is in turn driven by the VFO. Keyed waveform shaping is performed by Q6 2N3906 which keys the supply to the 2N2222A and the sidetone oscillator U3. The VFO consists of an MPF102 as a Hartley with a 40673 as the buffer. this circuit works extremely well with low drift and an output of between 0.7V to 1.0VRMS across 50ohms.

The RECEIVER

An MCL SBL 1 DBDM kicks of for the receiver,it shares the VFO and also the final stage pi-network filter. There is no reason why a homemade DBDM could not be used..The mixer is terminated in 50 ohms at each port and the recovered audio goes to a preamp Q9 which should be a low noise device such as a BC109 or 2N3904. The active decoupler Q8(DC amplifier)helps to get over the hum problems inherent in many Direct Conversion receiver designs.

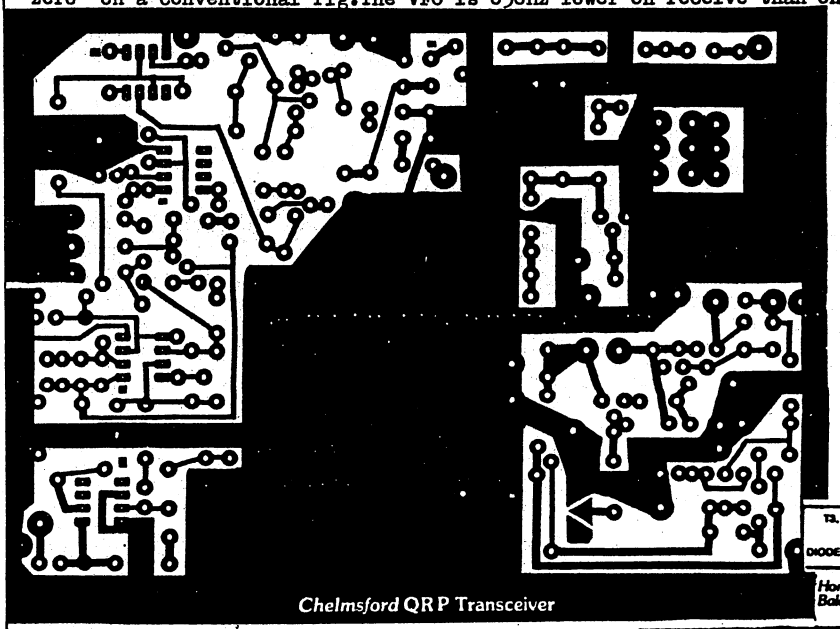
THE VFO

The original VFO used a 2N4416 as a Hartley and a pair of 2N3904s as a buffer. I could'nt get any 2N4416s so I used an MFF 102 instead. It all worked OK, except that the output was low and this was due to the particular MPF102 I was using.MPF102s vary a lot and the output went between 0.3V to 1.1VRMS across a 50 ohm dummy load depending on the individual FET. Anything over 0.6-0.7V is OK. The oscillator has been designed to operate with very low values of gate coupling capacitor to assist with stability. Some models would go with as little as 2.2pF and others needed as mush as 4.7pF, the difference is probably due to variations in the Q of the capacitors and inductance used in the VFO tank circuit. Because of the carrier shift problem I encountered, I changed the buffer circuit to use an RCA 40673 dual gate FET. This change did not fix the problem which turned out to be caused by poor shielding of the VFO itself. Nevertheless, the 40673 buffer worked fine so I left it in place.
The ciruit shown here using a selected MPF102 and a 40673 works well. it is simple and uses few parts and is worth noting that it adapts well to a wide range of frequency bands. The recommended Amidon type 6(yellow)core for the oscillator and the NPO capacitors are critical to the success of this unit.



SETTING UP

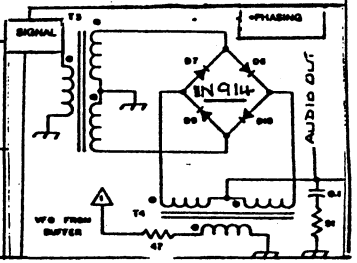
Make sure that the VFO tunes over the desired range, with the R/T control centred. Different diodes in the DI position will have different capacities and the the I5Pf NPO capacitor in series with DI may need to be altered in value to give the required range of control from the R/T potentiometer. About 2khz should be enough. If all is well, the total current drawn at this time should not exceed 20 to 25 mA. With a 50 ohm resistive dummy load connected to the antenna socket, set the Ik drive level potentiometer to mid travel and then depress the key, the current drawn should increase, but not to more than 250mA. Also, the sidetone should come on, and the receiver mute. Tuning the 60pF trimmer in the collector of Q4, the 2N2222A driver, shoud cause the total current drawn to peak smoothly. C2, the PA collector tuning should now be adjusted for maximum output. the exact value of C2 will depend on the characteristics of the Zener diodeclamp, D4. A nominal value is given in the coil table. The transmitter will work happily at any voltage between I2 and I3.5VDC and the above adjustments including the drive level, should be repeated until you get about 8.7 VRMS across the dummy load at a totalcurrent drain for the whole rig, of between 2I0 to 250mA. I used a big trimmer of the oscillator padder type for C2 untill tuneup was completed and then replaced it with an appropiate fixed capacitor(s). Finally, measure the frequency of the rig with the key down, then offset the receiver frequency with the R/T control to 650 Hz and mark the spot for future reference. At this point the control is in its normal position for answering a call etc, and equates to "zero" on a conventional rig.The VFO is 650Hz lower on receive than on transmit

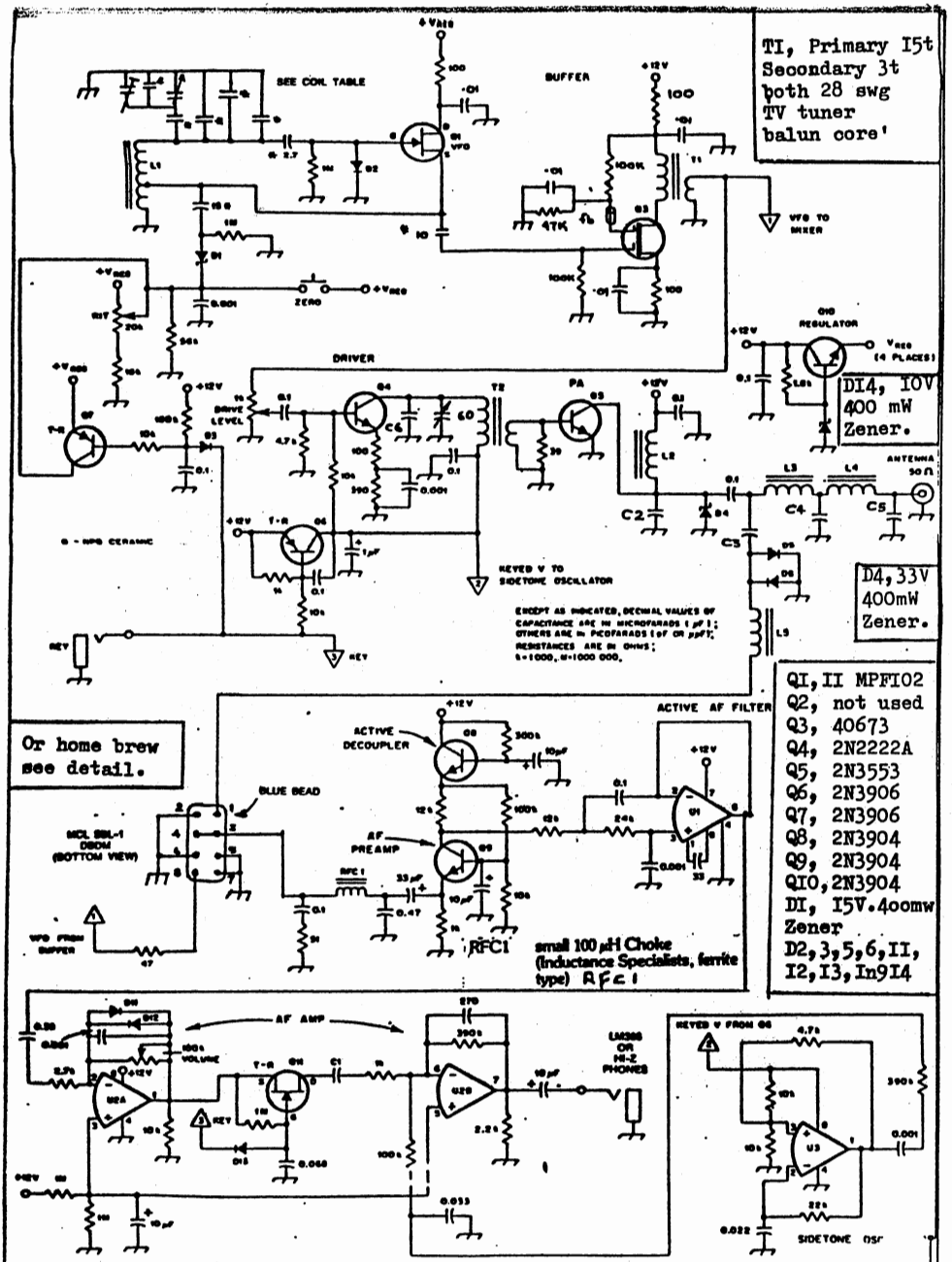


Coil and Capacitor table for 40 and 80 metres

	T2	C6	L2	L3	L4	L5	C2	C3	C4	C5
	6.7μH	47pF	10μH	1μH	1μH	9.4μH	390pF	50pF	910pF	455pF
	Pri 35t		43t	19t	19t	58t	nominal			
40m	Sec 4t		28swg	26swg	26swg	36swg				
	28swg									
	T50-6		T50-2	T37-6	T37-6	T37-6				
	13.4μH	100pF	20μH	2μH	2μH	18.8μH	820pF	100pF	1800pF	910pF
	Pri 52t		60t	22t	22t	62t	nominal			
80m	Sec 5t		30swg	30seg	30swg	32swg				
	32swg									
	T50-2		T68-2	T37-2	T37-2	T50-2				

L1, VFO inductor: 40m 3μH, 26t 26swg tapped at 7t above ground. T50-6
80m 6μH, 35t 26swg tapped at 8t above ground. T68-6





NOTE .
This abridged article will suit the experienced home brewer, less experienced persons are well advised to obtain copies of QST August 1980 (W7EL RIG). N.Z BREAK-IN November 1983 (THE CHELMSFORD QRP TRANSCEIVER). N.Z BREAK-IN October 1985 (THE CHELMSFORD REVISITED) by Mike Kerr ZL2BCW. Good Luck. ED.

FULL SCALE

SCRAMBLE 3.5MHZ WED. 29/10/86

TORIOD TIMES

INTRODUCTION

Being one of the members who suggested more explanation in technical articles for beginners like me, I decided to 'put my pen where my mouth is' and make a contribution in a technical area - so here goes.....

Toroids are frequently used in tuned circuits, filters & broadband transformers. Sometimes you may not have the right core or want to change the inductance to suit a different band. The following notes aim to help. They are in 4 parts : * Comments * Cracking the Codes * Step-by-Step Guide to the Use of Tables * Formula One-Two-Three.

COMMENTS

These notes deal with only a couple of aspects of the use of toroids & say nothing about things like power dissipation capabilities or special needs for VHF & say little about practical construction.

The information has been gleaned from suppliers' data and radio handbooks. Many figures are 'rough' - coating thicknesses & initial permeabilities vary & the use of formulae can vary between suppliers. But the data should be quite O.K. as a guide, if followed by practical experimentation.

And windings are never done perfectly, are they !

Please let me know of any mistakes/misunderstandings you find !

CRACKING THE CODES

First, let's try to crack the identification codes. Here are my guesses:

Amidon e.g. FT-50-43 and T-68-2

First part: Material group - T = iron powder toroidal core; FT = ferrite.
Second part: Size - approx. outer diameter - 50 is 0.5" & 68 is 0.69"
Third part: Material mix number - many different mixes with a wide range of properties. Several shown in Table B.

Neosid e.g. 4327R/2/F25

First part: Size etc. - All the ferrite toroids start with 432; the 4th figure indicates outer/inner diameters, but not in a consistent way, although they do increase in increments of 0.25", 0.5" etc.; R probably stands for Ring core.
Second part: Height (or thickness) - In sets of 3, with /1/ the smallest & /3/ the largest.
Third part: Material mix - Ferrites start with F.

Philips/Ferroxcube e.g. 4322 020 97170 (Philips number)

The first 7 numbers apply to toroids; the last 5 start with 97 for coated toroids; otherwise they appear to be meaningless.

STEP-BY-STEP GUIDE TO USE OF TABLES

Now - How to find out inductance or decide on number of turns to wind. The tables refer to some of the readily available (in UKland) cores.

Step 1: Do you know number of turns of wire & details of the toroid & want to know value of inductance ?
If NO, go to Step 3.

Step 2: Use Table A to find value of inductance.
See Use of Tables box in Table A.
e.g. (1) Amidon iron powder T-50-6 with 42 turns. From table, A_L = 40uH per 100 turns, therefore L = (A_L x T^2)/10,000 = (40x42^2)/10,000 = 7.1uH.
e.g. (2) Neosid ferrite 4327R/2/F25 with 40 turns. From table, A_L = 35mH per 1,000 turns, therefore L = (A_L x T^2)/1,000,000 = (35x40^2)/1,000,000 = 0.06mH

Step 3: Do you know the required inductance and want to know the number of turns to wind on a toroid?
If NO, this guide won't help here.

Step 4: Do you know which toroid core is to be used?
If YES, go to STEP 6.

Step 5: Choose an appropriate core material group, material mix & toroid size.
Table B lists some of the available materials, with suggestions, and Table A has core sizes.

STEP 6: Use Table A to find number of turns for a given core & inductance.
See Use of Tables box in Table A.
e.g. Suppose target is 0.06mH with an Amidon FT-50-43 core.
From table, K = 43.7. Therefore T = K$\sqrt{L}$ = 43.7$\sqrt{0.06}$ = 10.7 turns.
Maybe start with about 13 turns to allow for later trimming.

To choose an 'equivalent' toroid, find the inductance of the known toroid & then work out the number of turns for the substitute. Obviously it's 'safer' to use a core of similar permeability & size. Cores can be stacked to increase the height.

Note that the main size dimension you need from the tables is the inner diameter, which determines the number of turns of a given size wire you can fit on.

NOTES: 1. Iron powder has much better temperature stability than ferrite. Is preferred for tuned circuits.
2. Amidon suggests use larger sizes of cores for lower frequencies in the range and smaller sizes for higher frequencies.
3. High permeability gives high inductance, or fewer turns for a given inductance. Ferrite is preferred for broadband transformers.

FORMULA ONE - TWO - THREE

This part follows through 3 formulae of interest in understanding toroid selection tables.

Suppose you want to alter a tuned circuit to suit a different band, but don't want to alter capacitances. The rule of thumb for (say) halving the frequency is simply to double the number of turns (maybe using thinner wire to make it fit on the core). Why is it so?

Formula One: In a tuned circuit $Fres = 1/(2\pi\sqrt{LC})$ so if you want to halve Fres without changing C then you need to multiply coil inductance L by 4.

Formula Two: If L is provided by a wound toroid , then $L = A_L \times T^2$ where L is inductance, T is number of turns & A_L is the inductance of one turn (Inductance Index), which depends on core size & material (with L & A_L in same units). This means that you only need to double T to cause L to multiply by 4. Presto! Double the turns & you halve the resonant frequency (or if you want to multiply Fres by 4 then divide T by 4 plus allowance for later trimming).

So you can manipulate A_L (by changing the core) & number of turns T to reach a target inductance - but can we calculate A_L ?

Formula Three: The formula for a toroid is $A_L = (0.4\pi\mu)/(le/Ae)$ where A_L is in nH, μ is the initial permeability of the core material, le is effective magnetic path length in mm (just less than average circumference) & Ae is the effective cross-sectional area of one side of core in mm^2.

Now le/Ae halves if a toroid is doubled in size without changing its proportions, because le doubles but Ae area is x4. So, without changing the core material the Inductance Index A_L has doubled. Note that a drop in le can give higher A_L if the ring is 'thicker' i.e. if Ae is large enough.

If you fill the core up with windings (twice as many on twice the size) the new inductance will be 8x the original figure, because $L = A_L \times T^2$. A_L has doubled & so has T. Fres will be divided by $\sqrt{8}$, which is nearly 3.

Incidentally, A_L may be in various units & refer to more than one turn. e.g. A_L of Amidon FT-50-43 is 523 mH/1000 turns. This gives $L = A_L \times (T/1000)^2$ & $T = 1000 \times \sqrt{L/A_L}$. Be careful to use the right formula to suit the particular definition of A_L in use!

Well, now you know why I've been having such a torrid time!

Don
VK5AIL (75)

CW ACTIVITY HOUR

09.30Z FRIDAYS

IDENTIFICATION —VKSAIL 18AUG'86	OUTER DIAMETER	INNER DIAMETER	HEIGHT	A_L	K
AMIDON IRON POWDER TOROIDAL CORES MATERIAL: MIX #2 (E) CODE – RED					
T-200A-2	50·8 2·000	31·8 1·250	25·4 1·000	218	6·8
T-200-2	50·8 2·000	31·8 1·250	14·1 0·555	120	9·1
T-130-2	33·0 1·300	19·8 0·780	11·1 0·437	110	9·5
T-106-2	26·9 1·060	14·5 0·570	11·1 0·437	135	8·6
T-80-2	20·2 0·795	12·6 0·495	6·4 0·250	55	13·5
T-68-2	17·5 0·690	9·4 0·370	4·8 0·190	57	13·2
T-50-2	12·7 0·500	7·7 0·303	4·8 0·190	49	14·3
T-37-2	9·5 0·375	5·2 0·205	3·3 0·128	40	15·8
T-25-2	6·5 0·255	3·0 0·120	2·4 0·096	34	17·1
AMIDON IRON POWDER TOROIDAL CORES MATERIAL: MIX #6 (SF) CODE – YELLOW					
T-106-6	26·9 1·060	14·5 0·570	11·1 0·437	116	9·3
T-80-6	20·2 0·795	12·6 0·495	6·4 0·250	45	14·9
T-68-6	17·5 0·690	9·4 0·370	4·8 0·190	47	14·6
T-50-6	12·7 0·500	7·7 0·303	4·8 0·190	40	15·8
T-37-6	9·5 0·375	5·2 0·205	3·3 0·128	30	18·3
T-25-6	6·5 0·255	3·0 0·120	2·4 0·096	27	19·2
T-16-6	4·1 0·160	2·0 0·078	1·5 0·060	19	22·9
T-12-6	3·2 0·125	1·6 0·062	1·3 0·050	17	24·3

IDENTIFICATION —VKSAIL 18AUG'86	OUTER DIAMETER	INNER DIAMETER	HEIGHT	A_L	K
AMIDON FERRITE TOROIDAL CORES MATERIAL: MIX #43					
FT-240-43	61·0 2·400	35·6 1·400	12·7 0·500	1240	28·4
FT-114-43	29·0 1·142	19·1 0·750	7·5 0·295	603	40·7
FT-82-43	21·0 0·825	13·2 0·520	6·4 0·250	557	42·4
FT-50B-43	12·7 0·500	7·9 0·312	12·7 0·500	1140	29·6
FT-50A-43	12·7 0·500	7·9 0·312	6·4 0·250	570	41·9
FT-50-43	12·7 0·500	7·1 0·281	4·8 0·188	523	43·7
FT-37-43	9·5 0·375	4·7 0·187	3·2 0·125	420	48·8
FT-23-43	5·8 0·230	3·0 0·120	1·5 0·060	188	72·9
AMIDON FERRITE TOROIDAL CORES MATERIAL: MIX #61					
FT-240-61	61·0 2·400	35·6 1·400	12·7 0·500	173	76·0
FT-114-61	29·0 1·142	19·1 0·750	7·5 0·295	79	112·3
FT-50-61	12·7 0·500	7·1 0·281	4·8 0·188	68	121·3
FT-37-61	9·5 0·375	4·7 0·187	3·2 0·125	55	134·5
FT-23-61	5·8 0·230	3·0 0·120	1·5 0·060	25	300·8

IDENTIFICATION —VKSAIL 8SEP'86	OUTER DIAMETER	INNER DIAMETER	HEIGHT	A_L	K
PHILIPS FERROXCUBE FERRITE TOROIDAL CORES MATERIAL: 4C6 CODE – VIOLET					
4322-020-97200	36·0 1·417	23·0 0·906	15·0 0·591	133	86·4
4322-020-97190	23·0 0·906	14·0 0·551	7·0 0·276	69	120·0
4322-020-97180	14·0 0·551	9·0 0·354	5·0 0·197	44	150·6
4322-020-97170	9·0 0·354	6·0 0·236	3·0 0·118	24	202·9
4322-020-97160	6·0 0·236	4·0 0·157	2·0 0·079	16	248·5
NEOSID FERRITE TOROIDAL CORES MATERIAL: F25					
4329R/1/F25	19·1 0·750	12·7 0·500	3·2 0·125	10	311·6
4329R/2/F25	19·1 0·750	12·7 0·500	6·4 0·250	21	219·8
4329R/3/F25	19·1 0·750	12·7 0·500	9·5 0·375	31	179·6
4327R/1/F25	12·7 0·500	6·4 0·250	3·2 0·125	18	239·0
4327R/2/F25	12·7 0·500	6·4 0·250	6·4 0·250	35	169·0
4327R/3/F25	12·7 0·500	6·4 0·250	9·5 0·375	53	137·6
NEOSID FERRITE TOROIDAL CORES MATERIAL: F14					
4329R/1/F14	19·1 0·750	12·7 0·500	3·2 0·125	45	149·1
4329R/2/F14	19·1 0·750	12·7 0·500	6·4 0·250	91	104·8
4329R/3/F14	19·1 0·750	12·7 0·500	9·5 0·375	136	85·7
4327R/1/F14	12·7 0·500	6·4 0·250	3·2 0·125	77	114·0
4327R/2/F14	12·7 0·500	6·4 0·250	6·4 0·250	154	80·6
4327R/3/F14	12·7 0·500	6·4 0·250	9·5 0·375	232	68·7

VKSAIL 8SEP'86

BRAND	MIX NUMBER & COLOUR CODE	μi INITIAL PERMEABILITY	USEFUL FREQUENCY RANGES MHz: TUNED CIRCUITS	USEFUL FREQUENCY RANGES MHz: BROADBAND TRANSF'MERS & FILTERS
MATERIAL GROUP: IRON POWDER See Notes 1,2&3 below				
AMIDON	2 (or E) RED	10	2 – 10	0·5 – 30
"	6 (or SF) Yellow	8	?90 10 – 20	2 – 50
MATERIAL GROUP: FERRITE See Notes 1&3 below				
AMIDON	43 Nil	850	0·01 – 1	1 – 50
"	61 Nil	125	0·2 – 10	10 – 200
NEOSID	F14 ?	220	?	0·1 – 5
"	F25 ?	50	?	1 – 50
PHILIPS FERROXCUBE	4C6 VIOLET	100	?	0·1 – 50

USE OF TABLES

SIZES ARE GIVEN IN mm & INCHES e.g. 25·4 / 1·000 ; WITH NO ALLOWANCE FOR COATING

	IRON POWDER	FERRITE
T	NUMBER OF TURNS OF WIRE $T = K\sqrt{L}$	
K	PARAMETER READ FROM TABLE $K = 100/\sqrt{A_L}$	$K = 1000/\sqrt{A_L}$
L	INDUCTANCE IN μH $L = \frac{A_L T^2}{10000}$	INDUCTANCE IN mH $L = \frac{A_L T^2}{1000000}$
A_L	L PER 100 TURNS	L PER 1000 TURNS

WCM CHECK LIST 5 BAND

NR. STN.	3·5	7	14	21	28	NR. STN.	3·5	7	14	21	28
32. VK1FB						28. VK6KRG					
5. VK2AKE						87. VK7BS					
22. VK2BVH						42. VK7BZ					
89. VK2CWH						91. VK7LJ					
95. VK2DMV						36. VK7JE					
4. VK2JAC						40. VK7JK					
92. VK2MMW						38. VK7KBA					
41. VK2QB						88. VK7NBN					
85. VK3ADX						37. VK7NRE					
82. VK3BGH						98. VK7RO					
97. VK3BMC						86. VK7RS					
7. VK3BPG						53. VK7SA					
13. VK3BXA						3. VK7VV					
76. VK3CBO						69. VK7ZO					
52. VK3CFK						34. ZL1ATW					
19. VK3CGE						31. W5QJM					
84. VK3CIG						67. W6SKQ					
12. VK3CVF						70. WA1JVY					
47. VK3DXH						68. WB2OUQ					
93. VK3KRL						83. WB6MTR					
94. VK4ATZ						90. K2JT					
11. VK4BML						74. K7DAP					
55. VK4FAL						81. KA4LKH					
15. VK4RE						78. KV7X					
14. VK4SF						63. NM7M					
58. VK5AGP						62. VE3JFH					
75. VK5AIL						96. G3RJV					
43. VK5AKZ						50. G8PG					
8. VK5BA						17. VK4JZ					
C/S VK5BCW						6. K6MDJ					
57. VK5BJF						18. WA2YMW					
16. VK5FN						24. VK2PLV					
2. VK5OS						9. W3TS					
66. VK5PH						44. VK4BSD					
1. VK5ZF											
54. VK6ATM											
80. VK6KHZ											