HAM RADIO NEWS

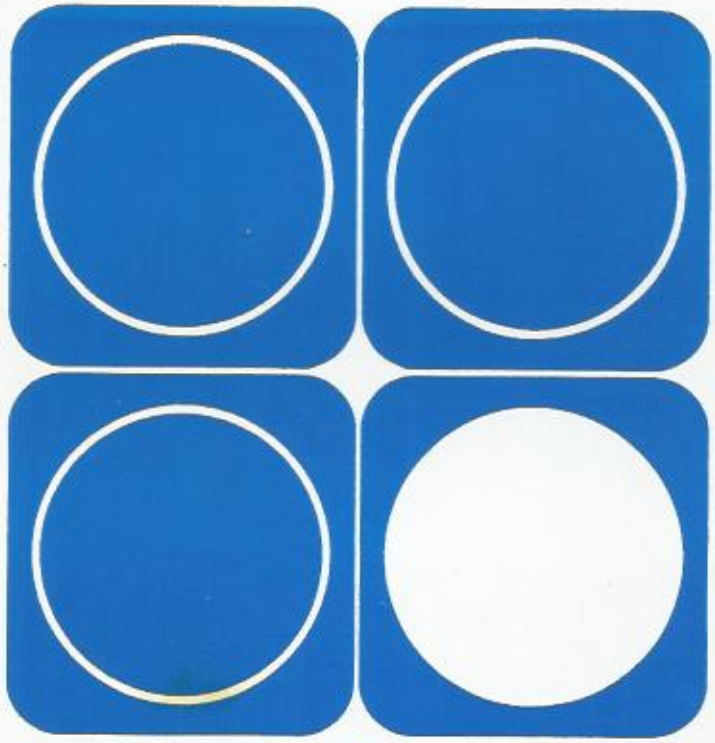
XI

Vol. ~~XI~~ No. 4 Oct - Dec 2005

The Journal of Amateur Radio Society of India (Member of IARU)

Price: Re.1

"AMATEUR RADIO - A NATIONAL RESOURCE"



SEANET BANGALORE 2005

JOTA IN BANGALORE 1,2,3

1

2

3

4

5

6

7

8

JOTA IN MUMBAI 4,5,6,7,8

PRESIDENT'S REPORT

This issue of HRN will be the last one for this administration. The next issue will be under the new administration to be elected on 15th January 2006. Some of us hope to get re elected to continue the activities started by us. We were not able to achieve as much as we planned but some progress has been made in various activities. We have now 70 new members (19 Life members, 48 Corporate members, 3 Club members). The accounting of the society is being regularized and with the help of Chartered Accountants, it will be completed soon.

Under the aegis of ARSI the regional IARU directors conference was held in Bangalore in the 1st week of October. The conference was attended by Directors from the region, representatives from other regions and IARU head office. At the conference the venue and the date for the IARU regional conference was finalized. It will take place in the first week of August 2006 in Bangalore, we hope that about 29 member countries will attend. All delegates plus secretarial staff and representatives from other regions will make up about 60 to 70 people attending the conference.

The task for the new committee will be to bring in more members for ARSI and pursue old members in arrears to rejoin. The constitution of ARSI has been amended from time to time, it is necessary to print the up to date constitution for distribution to members. Before doing this perhaps it will be a good idea to review the entire constitution and re-write it if necessary. If such an exercise is taken up it will be necessary to call for an extraordinary general body meeting to rectify the amendments.

Some of us in the present administration are contesting and hope to be elected at the AGM. This will ensure the continuity of activities and the trend in which ARSI is progressing.

I wish all members a very merry Christmas and a very happy New Year.

The International YL Meet
will be held in Mumbai
from 26th to 29th October 2006
www.geocities.com / mumbaiylmeet
contact : VU2SWS
Email : sarla.yl@gmail.com

THE EDITOR SPEAKS:

It has been very hectic for me in the last 3 months. Ever since I returned from W land, in early September, I have been involved in the planning and organizing of the International YL Meet, to be held in Mumbai between the 26th and 29th of October 2006. It is my first experience of organizing an international event and I find it extremely challenging. I of course am totally dependent on two very important tools. One is the internet and the other, my radio. Every time I work any station, whether dx or VU, I keep informing them about this event and then send them an email with the full description!

So far many ladies from all over the world have shown an interest in visiting our wonderful country. For them, specially the ones from the western world, India is something exotic. When they come here, I hope to show them an India which is not only a country with a vibrant culture but also technologically as competent as any country in the world. The whole group will also be visiting Delhi, Agra Jaipur and Goa.

Its now time for a change of guard at the ARSI. The AGM is proposed to be held next month wherein the elections will also take place. I hope that many people do take an interest in the society and come forward. What ARSI requires is a strong, dedicated, perhaps young leader.

Atanu, VU2ATN informs us all that that the Department of Information Technology, Govt. of India is going to organise a meeting of power utilities on Dec 12,'05 1030 AM to discuss and work out the modalities towards evolving a pilot project on BPL. While the initiative is fine for spreading internet, VoIP etc at a cheaper cost, for us Radio Amateurs, it is the beginning of the end. My request to all of you is to please discuss this amongst yourselves and your clubs and send in your suggestions as to what is the action we should all take. I think we need to keep aside all our affiliations and unite to talk to the government. Please take this seriously.

Once again the year is coming to an end. I hope all of you have had a great 2005. May 2006 bring you great happiness and lots of radio activity. Merry Christmas and a Happy New Year. 73

Sarla

OFFICE BEARERS

President : R. Ramchandra VU2RCR (Chandru) 488, 14th Main, 3rd Block, Koramangala, Bangalore - 560034 / LL (080) 2553 6853 / Email:rcr@vsnl.com

Vice President: Ms Sarla Sharma, 7,Gaurav Apts, Behind Ashok Nagar, Nahur, Mulund (West) Mumbai 400080 LL, (022) 25682361 / 98211 66411 E.Mail:coilnrs@bom3.vsnl.net.in or sarla_sharma@hotmail.com

General Secretary: G. Govind VU2GGM 406, Padmanabha Nagar, Bangalore- 560070, LL, (080) 2669 2465

Treasurer: K. Ravindran VU2RC (Ravi) 95, Rainbow Drive, Sarjapur Road, Bangalore - 560035. LL,(080) 28441588 / Cell 09886228800 /Email : kinetic@asia.com

Editor: Ms. Sarla Sharma

QSL Manager: D.P.De, VU2DPD, 45/5 Moore Avenue, Kolkata-700040 LL (033) 24114719.

QSL Bureau: P.O.Box 17116, Kolkata -700033.

Awards Manager & Monitoring Systems Coordinator : B.L. Manohar, "Arasu" VU2UR, MIG-6, 80 Ft. Road, KST, Bangalore-560060. Tel.(080) 28482680 Email:vu2ur@lycos.com / vu2ur@rediffmail.com

The current address of the society is

ARSI, P. O. Box No. 3462, Bangalore -560034.

PAYMENT INSTRUCTIONS

All payments to be made by draft in the name of ARSI payable in Bangalore. Money Order can be sent to the above address. No payments by cheques please.

ARSI NEWS GROUP

http://groups.yahoo.com/group/ARSI
To Subscribe: ARSI-subscribe@yahoogroups.com
To Unsubscribe: ARSI-unsubscribe@yahoogroups.com
Please send any submissions to arsimail@vsnl.net
73 Raj VU2ZAP Moderator ARSI newsgroup

W.P.C Address :
Asst. Wireless Adviser,
Government of India, Ministry of Communications & Information Technology, Department of Telecommunications, WPC Wing, Amateur Section, 6th Floor, Sanchar Bhavan, New Delhi 110001.
Mr.Irshad Ahmed is the Engineer looking after Amateur Radio matters.
Ph. : 011-23355441. Fax : 011-2371 6111

Contents :

Club New 3, 16
International News 4
Homebrew NSH-1 6-12
Ham Radio@120 kms per hour 13,14
Seanet 2005 15
Ragchewing with VU2ATV 16
Kudos Korner 16
Advertisement 5

Membership Category	Admission Fees(Rs)	Annual Fees(Rs)
Patron	15000	Nil
Life* (For existing Corporate member)	2250	Nil
Life *	2450	Nil
Corporate (Individual with Valid Amateur Licence)	50	150
Corporate (Club, Society or Institution with Licence)	100	200
Associate (Individual, no Licence required)	50	75
Associate (Club, Society or Institution without Licence)	100	200
Student Member	20	30

*Senior citizens ,i.e, those above 65 yrs, can become life members by paying Rs.1000 only, instead of 2250(1200/-for NEW senior non members instead of 2450/)-YLs will be entitled to this reduced rate after they reach 60 yrs.

Advertisent Rates:

Back cover.....	Rs.5000	(4 colour)
Inside back cover.....	Rs.1500	(B & W)
(Add 4000 for 4 col)		
Inside Full Page.....	Rs.1200	(B & W)
Inside Half Page	Rs. 700	(B & W)

The Adur Amateur Radio Club conducted the Ham Expo 2005 at Govt.UP School on 13th November 2005 for the 10th year in succession. About 250 Hams and SWLs attended the function. Being a special event, XYLs were also invited and they graced the occasion along with their harmonics. The function was inaugurated by OM Prem,VU2RPC from Kovilpatti. OM Girirsh Babu, VU2KGB spoke about his experience as a ham and the role of the hobby in our everyday lives. OM Gopi, VU2EGM spoke as to how he used amateur radio to communicate between his head office in Idukki district and a remote place in the forest during the construction of a hydro electric station, which was highly appreciated by the authorities. He is now conducting a relief net on 7.035 mhz everyday from 7.30 to 7.45 hrs, which is very popular. OM Natarajan informed the audience that the Quilon Amateur Radio League would be celebrating its 25th anniversary by conducting the Ham Fest at Kollam. Prof Eugine Pandalai, VU2EGM, released the souvenir along with VU2 IRH, OM Ibrahim. There was a good display of materials and ham accessories by VU2PTR, OM Thyagarajan, VU3NSH, OM Harishanker and many others. The XYLs talked about their lives as YLs of Hams, which was enjoyed by all.

IIH organised "SILICON CITY HAM MEET 2005" a one day convention on Sunday, 9th October 2005 at S.J.R.College, Ananda Rao Circle, Bangalore-560 009. Prof. K. Balaveer Reddy (Vice Chancellor of Visveswaraiah Technological University, Belgaum) inaugurated the convention. Sri K.B.Krishna Murthy, VU3VIP (Member of Parliament), Sri S.Suri (Chairman, National Institute of Amateur Radio - Hyderabad) and Dr C.U.Manjunath (Principal, S.J.R.College) were present and addressed the gathering.

The second transponder (Dutch) on the Hamsat is now operational with Uplink frequency : 435.220-435.280 MHz, and Downlink frequency : 145.870-145.930 Mhz Beacon : CW at 145.859330 MHz (145.86 MHz) . The Beacon CW message reads like: "This is VUSAT nw with the Dutch mode UV transponder made by William Leijenar 73 de PE1RAH HI HI HI"

Repeater VU2LEU is dedicated to the nation. The repeater QTH is about 4500 Ft. above the sea level and gives good coverage to South Tamil Nadu & Kerala. Repeater's Output frequency (Tx): 145.850 MHz.Repeater's Input frequency (Rx): 145.250 MHz. with Negative shift (-0.600 MHz)

A new repeater is operational at Pune at a temprory location on 144.400Mhz +600Khz. The permanent location of this repeater would be Sinhgarh and its accessility would connect Mumbai, Pune and nearby areas like Ahmednagar.

JOTA was celebrated in Mumbai with the Mumbai Amateur Radio Society putting up stations in 3 locations . The station at Shree Ram Welfare High School in Andheri was operated by Sandesh (VU2SXF), Jayesh (VU2ESP), Ivor (VU2IVO), Mukesh (VU2OMV), Arun (VU3AUA), Pravin (VU3PAN) and SWL - Nilesh Dixit. 100 scouts and guides from 5 schools from Goregaon, Borivali & Bandra (bmc school), participated in the event Contacts were made with A47JOTA and other stations from Muscat, Oman with 59 RST. The Second station was at Suman Nagar High School, Chembur which was operated by Jaiprakash (VU2JPN), Sarla (VU2SWS), Shailesh (VU2LOC), Gubbi (VU2GBI), Andrews (VU2LLM), Ananta (VU3MWH) SWLs Rohit, Aditya and Shilpa. HF Contact was made with A47JOTA and VHF Contacts were made with other local stations Sudhir (VU2SVS), Percy (VU2PLE), Zarir (VU2VPQ) and Mahesh (VU2IIA).235 scouts & guides from 6 schools from the neighbouring participated in this event. The Third station was put up at Shanti Nagar High School at Mira Road, operated by-Sandip (VU2UGO), Shailesh (VU2SFN), Dilip (VU3DGB), Deepak (VU2CDP), Ulhas (VU2UBP), Suren (VU2SFH) and SWL Vijay. 2 Schools with 323 Scouts and 161Guides ,22 Bulbuls and 22 Cubs participated. HF Contacts with A47JOTA, VU2ARC/SXE, VU2BSG/JOS, VU2RBI were made. All the three locations were QRV on HF using inverted `V' antennas for 40M, 20M & 15M and on VHF simplex as well as duplex via Mumbai Repeater.

Bangalore had 3 HF stations which operated the JOTA. 1. VU2ARC - Bangalore Amateur Radio Club at State Scout HQ. 2. VU3LLE - Little Lilly English School, Mahalakshmi Layout, Bangalore 3. VU2LCI - Lions Clubs International ARC 4. VU2GUR - From SJR Public School. On VHF there was maximum activity thanks to VU2TWO, Repeater of the city from Repeater Society of Bangalore for making it possible. On HF several contacts were made with Sri Lanka, Oman, Maldives JOTA stations. A total of hundred scouts and guides participated.

On Sunday, November 27, 2005 the BCDX Net celebrated its 17th anniversary. It was conducted as usual by Mr.Sanil, VU3SIO, from Kozhikode on 7085 kHz LSB on the 40 Meter band at 8.30 am IST (0300 UTC). Several stations from South India checked into the net on this special occasion and conveyed their felicitations. Sanil and others gave information on their latest catches of the past week which has become a very routine affair now. This net on the

(Cont. on page 16)

IDA, the licencing authority in Singapore has approved the allocation of the 7.1-7.2MHz band for Singapore amateurs with immediate effect and on a secondary use basis subject to the following- Maximum transmit power 100 watts. Spot frequencies of 7.135, 7.160 and 7.170MHz are to be avoided -To adopt a "listen before talk protocol" -The use is on a non-interference and non-protection basis. IDA have confirmed that this band will be allocated to the amateur service on primary basis with effect from 29 March 2009.

-The launch of the Student Space Exploration and Technology Initiative (SSETI) Express satellite, which will carry an Amateur Radio package, has been postponed indefinitely. The delay was due to a failure of one of the payloads scheduled to go into space during the launch from Russia. "Early indications suggest that we have a delay of at least one month, but this is not confirmed," the spokesman said. "This is, of course, very unfortunate, but it is not critical," he went on. "The spacecraft can easily wait for the new launch date without any significant problems, and we will fly it as soon as we can." The launch already had been put off by three days earlier this month. When it does fly, the SSETI Express, which also carries three CubeSat picosatellites, will leave Earth from Plesetsk Cosmodrome via a Cosmos-3M LV vehicle. The Cosmos-3M will deploy the Topsat, China DMC and the low-Earth orbit 60 kg SSETI Express satellites. Plans call for downlinking AX.25 telemetry at 9.6 kb on 437.250 MHz and at 38.4 kb on The Cosmos-3M will deploy the Topsat, China DMC and the low-Earth orbit 60 kg SSETI Express satellites. Plans call for downlinking AX.25 telemetry at 9.6 kb on 437.250 MHz and at 38.4 kb on 2401.835MHz. The satellite will be turned into a single-channel amateur FM voice Mode U/S transponder after the transmitter serves initial telemetry duty. SSETI Express will, in turn, release the three CubeSats--NCUBE-2, UWE-1, and XI-V. The XI-V ("sai five") package will include a CW beacon on 437.465 MHz and FM packet on 437.345 MHz. The ESA SSETI Express initiative aims to increase the number of European students working in the fields of space technology and science by giving them practical hands-on experience of working on space missions. Created in 2000, the SSETI Express program brings students from 21 European universities together via the Internet to discuss building and launching a satellite. ESA's role is to provide managerial and technical coordination. To date 35 teams from 23 universities in 14 countries are involved in the SSETI Program. The SSETI Express Mission Operations Pages, the AMSAT-UK and the AMSAT-NA Web sites provide additional information on this project.

Mark Petrovic, AE6RT, has a gem for us this week called Beacon. It is a fully distributed peer-to-peer radio beacon network implementation written in cross-platform Java. Beacon's role is to collect from the user "band open" observations and make them available to other users running the application. It is sort of like a DX cluster, but only distributes propagation information and does not seek to provide any information about specifics of contacts, such as precise operating frequency or DX call sign. Simply stated, Beacon puts propagation condition information aboveall else.

Http://petrovic.org/Beacon/

Some big changes in Australia. This with the introduction of a new Foundation Class ham radio ticket and a revamping of the nations entire licensing structure.

At least 1,000 new radio amateurs are expected in Australia over the next 12 months with the introduction of the new entry level Foundation License. VK is abuzz with excitement as the first Foundation Licenses are issued they have a distinctive four-letter callsign suffix. This all comes in the wake of recent research that confirmed a serious decline in amateur radio in Australia for the past 15 years. An estimated 450 people are queued up for the new license, and that's purely by word-of-mouth without any media publicity. The Foundation License requires candidates to study basic electronics, radio theory, safety and the regulations. The Wireless Institute of Australia has published a 90-page license manual study book. Training courses are popping up around the nation.

Candidates are tested by a written 30 question combined theory and regulations paper, plus a 40 minute practical assessment that involves recognition of station components, assembling them into a working station, knowledge of IRLP DTMF, CTCSS, and interference mitigation methods. They must demonstrate how to use bands plans referenced to their license conditions. The license restructure in Australia that occurred last month has resulted in five previous license grades being amalgamated into two the top level Advanced, and middle level Standard. A result is much more on air activity being heard, with the former band restrictions on some licensees now lifted many are taking to the 20-metre band for the first time. All in all, things are looking up down-under due in no small measure to the enormous effort by the Wireless Institute of Australia which has set up the new system. It's even now fielding questions from other radio societies eager to learn about the Aussie approach, to kick-starting amateur radio.

Jim Linton, VK3PC

VHF Repeater at Yatiyantota, Sri Lanka. Input : 145.050 MHz Output : 145.650 Mhz

(English Language Discrepancies may please be excused - Editor)

NSH-1

(A single conversion Super Heterodyne 40m band receiver for SWLs & New Comers)

by N.S.HARISANKAR VU3NSH

SPECIFICATION AND FEATURES

- Single Conversion
- Stable VFO
- BFO with pitch control !!
- 2W AF output
- Roll - off AF filter !!
- No wire link or jumper on PCB!!
- Two types of antenna input !!
- All operating controls are at one side !!
- Multi pitch for 2 types of ceramic filters
- DG FET RF amplifier and mixer
- Gain control for RF Amp
- Easily available and economical components
- 3 pole band pass filter

Now a days the art of homebrewing is changed to **`plug and play'** manner and that leads to the ruin of the real charm of the same and due to this the SWLs and HAMs loosing their skill and knowledge in radio techniques. These kind of guys making lot of pit falls while making their own RF coils, assembling and at alignment. I hope this project 'NSH 1' will give some knowledge and a practice about receiver assembling, calibration etc. in 'do it yourself manner'.

This is a single band solid state amateur band receiver project, meant for SWLs and new comers. The complete sections are on a single PCB and all components for this project are available in the local market. The criteria of this project is simple circuit with low priced components, all operating controls on front panel including BFO pitch control, RF gain control, volume control, tuning and AM - SSB/CW selector etc. for good speech quality audio, this circuit employs a simple speech filter known as AF roll-off filter, which will give good speech quality and it can cut the noises of neighboring stations. I spent 40 days for circuit designing, assembling, testing, calibration, PCB designing etc. I started the first PCB which is manually designed for the test. The main aim is to avoid unwanted jumpers and zigzag connections on the PCB. After testing the PCB is finalized. The track side of the PCB design is as ground plain or called copper pour or polygon type to prevent unwanted QRM - like inter stage signal coupling, leakage and other parasitic problem. The total size of the PCB is 21.5 cm x 9 cm.

I wish to thank VU2ARA, VU2HRS, VU2VWN, VU2ITI, VU2VKC, VU3FID, VU2LLN and SWLs, Mr. Rejeesh, Mr. Sajeesh, Mr. Vinod for giving enormous support and help regarding this project. This project is dedicated to my mother Smt. N.S. Jayavalli and all SWLs and HAMs

BEFORE SOLDERING THE PCB NSH-1

- Avoid chaotic start, read the assembling manual thoroughly.
- Check all components like transistors, resistors, coils etc. with multimeter
- Check all styroflex (polystyrene) capacitors and its value with capacitance meter.
- Assemble each section and check and tune it like AF amp, VFO, BFO etc.....
- For best results in SSB, use Murata Ceramic Filter CFG 455 J

In NSH-1 PCB, you may find additional holes and soldering points. These are to accommodate different size of components in styroflex capacitor area, Ceramic filter, S-meter etc.

FOR PROPER ALIGNMENT USE

1. Multimeter - Analog or Digital
2. RF milli voltmeter or RF probe
3. RF signal generator or RF oscillator - 7 MHz ± and 455 KHz
4. Frequency counter - 30 MHz type
5. Capacitance meter (which is usually found along with multimeter)

ASSEMBLING THE PCB

First you should assemble Audio Amplifier, then test it by touching your finger or a live soldering iron at volume control input, it will produce humming sound on speaker. You can vary the volume control to confirm its action. If it is OK, then assemble speech filter based upon compressing of BC 549 C with associated resisters and capacitors. After soldering this section put your finger at 20nF and 1K ohm junction. The speaker will produce a sharp audio hum.

The next stage you have to assemble is the VFO (Variable Frequency Oscillator) known as Low Frequency Oscillator (LO). This is the most critical section. The main capacitor for this stage is the polystyrene (Styroflux). This VFO section is based on BC 549 C bi-polar transistors with associated components forms a collpitts oscillator. The frequency is varied (while tuning) by a gang capacitor for tuning across the band. The VFO frequency can set at a mid position of the gang by adjusting the slug core of L5. the VFO is to be tuned between 6.545 MHz to 6.645 MHz for the 7 to 7.1 MHz reception (Subtracting 455 KHz from 7MHz = 6.545 MHz and Subtracting 455 KHz from 7.1 MHz = 6.645 MHz). The required gang capacitance is around 15 to 20 pf. We can use 2J or 2X gang with a series capacitor to pull down the total capacitance of 15 to 20 pf for 7 to 7.1 MHz Rx spread. The most important thing for the perfect stability is the emitter - base voltage of the first transistor, it must be a positive voltage level (keeping the first transistor in class A mode). Normally due to erratic component, real value and printed value of the capacitor, vague design, erratic feedback occurs and due to this voltage becomes zero or negative. This will give heavy drift from the set-up frequency and also will generate lot of harmonics. In this design the emitter base voltage is around (0.37V) read by me and the maximum drift read is around 30 Hz !!! If the feedback level of a VFO stage is low, the oscillation may swing. If the feed back level is heavy, the oscillation goes to clamping or saturation. Normally every home brewers using FET VFO for the stability, escaping from bipolar VFOs and they are not at all achieving the stability. One can assemble this bipolar VFO with the cost of single FET. I have assembled three numbers of bipolar VFOs and fully satisfied with their performance. The RF voltage from VFO is set by trimming L6 to maximum level. The capacitor 100 PF styroflex parallel with tank coil L5, or, 3 nos. of parallel connected 33 PF styroflex can be used for the better stability. In this design I am using 30PF air gang capacitor (TDK Japan) in VFO. The capacitor 22PF series with the gang is deciding the band spread level. Trim L6 core for getting maximum RF voltage at output to mixer FET injection. It should be 0.7V to 1V. If the voltage is more than one volt then reduce the coupling capacitor 180 pf to 100 pf at buffer transistor input.

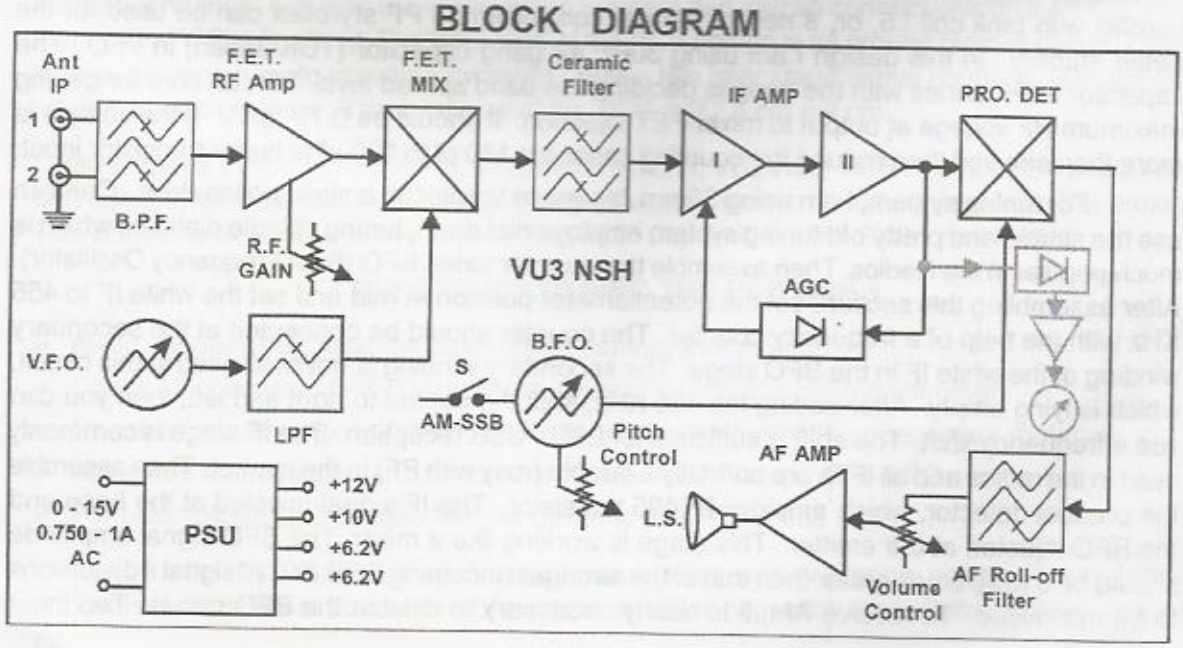
For tuning system, I am using 36mm Japanese Vernier as a slow motion drive. One can use the simple and pretty old tuning system employs dial drum, tuning spindle dial cord which is much popular in the Radios. Then assemble the varactor tuned BFO (Beat Frequency Oscillator). After assembling this section, set the potentiometer position at mid and set the white IF to 455 KHz with the help of a frequency counter. The counter should be connected at the secondary winding of the white IF in the BFO stage. The secondary winding is not at all used in this circuit, which is lying empty. After setting the 455 KHz, shift the control to right and left, then you can see a frequency shift. The shift is sufficient for LSB - USB reception. The IF stage is commonly used in the radios and all IFTs are normally available (rosy with PF) in the market. Then assemble the product detector, which employs BF495 transistor. The IF signal injected at the base and the BFO injected at the emitter. This stage is working like a mixer. The BFO signal amplitude should be 5 to 20 times grater than that of the strongest incoming SSB or CW signal if distortions to be minimised. To receive AM, it is nearly necessary to disable the BFO circuit. Two input

signals (IF & BFO) are fed into the product detector. The difference in frequency (after filtering and removing the IF and BFO signal) is fed to AF stage. AM signals can be copied satisfactorily on receiver which have good IF selectivity. The AM signal is tuned in as though it were an SSB signal when properly tuned, the heterodyne from the AM carrier is not audible The regenerated AF signal is taken through an RC pi-filter which is connected with the roll off AF filter input. The IFT's should be tuned for 455 KHz with using a modulated signals from signal generator. The ceramic filter SFU 455 B is a wide band width type. It is easily available in the general market. The specific SSB narrow filter is CFG 455 J. This will give an accurate band width for SSB reception. The mixer stage employs a popular dual gate MOS FET. Using FET, in mixer stage, eliminate the cross modulation problem and reduce noise levels. At gate - 1, the RF signal is injected from RF amplifier and in gate - 2, LO signal is injected from VFO. Due to FET mix the LO injection should be high for the high input impedance of FET. The RF amplifier is based on dual gate FET BF 966 S. At gate 2, the control voltage is supplied through a Potentiometer, this will acts as RF gain control. In gate 1, the RF signal is injected from Band Pass Filter (BPF).

The front end is having 3 pole band pass filter, it will pass the wanted frequency of 7 MHz to 7.1 MHz. Tune L1 for 7025 MHz, L2 for 7050 and L3 for 7075 MHz. The antenna input is marked like A and B. At point A you can connect any tuned antenna like inverted V or flat dipole. At point B you can connect a fixed short length wire or a whip like 1.5m etc. and trim the trimmer for getting more gain. After aligning L1, L2 and L3, tune L4 to get maximum signal. It should be on 7050 Mhz. For a S meter, there can be a conventional type VU meter or you can apply simply, any readily available, LED VU meter. For the input signal to VU meter circuit you can take it from AGC line, AF roll off input, or from AF filter output near to volume control input point and it is up to you. One can select the level from second IF output through a detector diode and a simple buffer amp stage for an analogue meter reading (as shown in the block dig.).

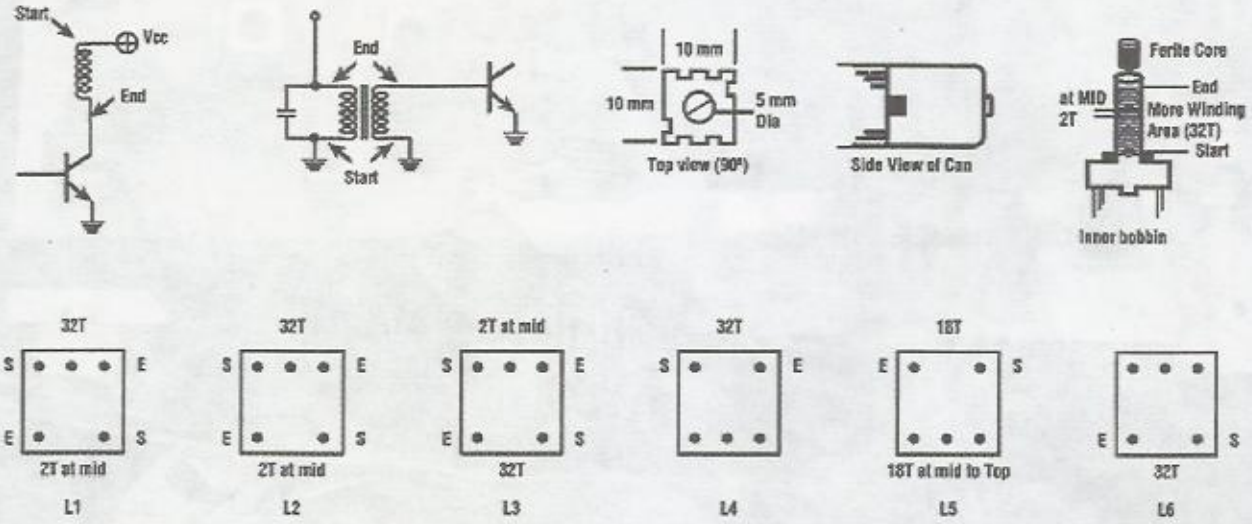
The coils L1 to L6 should wind on slug core IF can type. Put some glue like 'quick fix' on the winding surface. First make more winding and then make less winding at mid position (32 turns first, then 2 turns over it). While winding you must avoid gap in between the turns and it should be tight winding. The tank coil L5 is winding from mid position to top. Refer the **START** point 'S' and the **END** point 'E'. After winding L5, L6 you should put some wax on it's coil . You cannot apply wax on the coils of L1, L2, L3 and L4. You should wrap a bit of cello type on the coils of L1, L2, L3 and L4. The winding wire is 35 SWG or 36 SWG only. All windings are in clockwise. For a frequency read out, PIC IC based frequency counter is most suitable for this project. The software setup of PIC IC; in one mode it should be 455 KHz + VFO frequency for 7MHz to 7.1MHz reading, in second mode you can read direct counting so that you can read BFO frequency.

BLOCK DIAGRAM

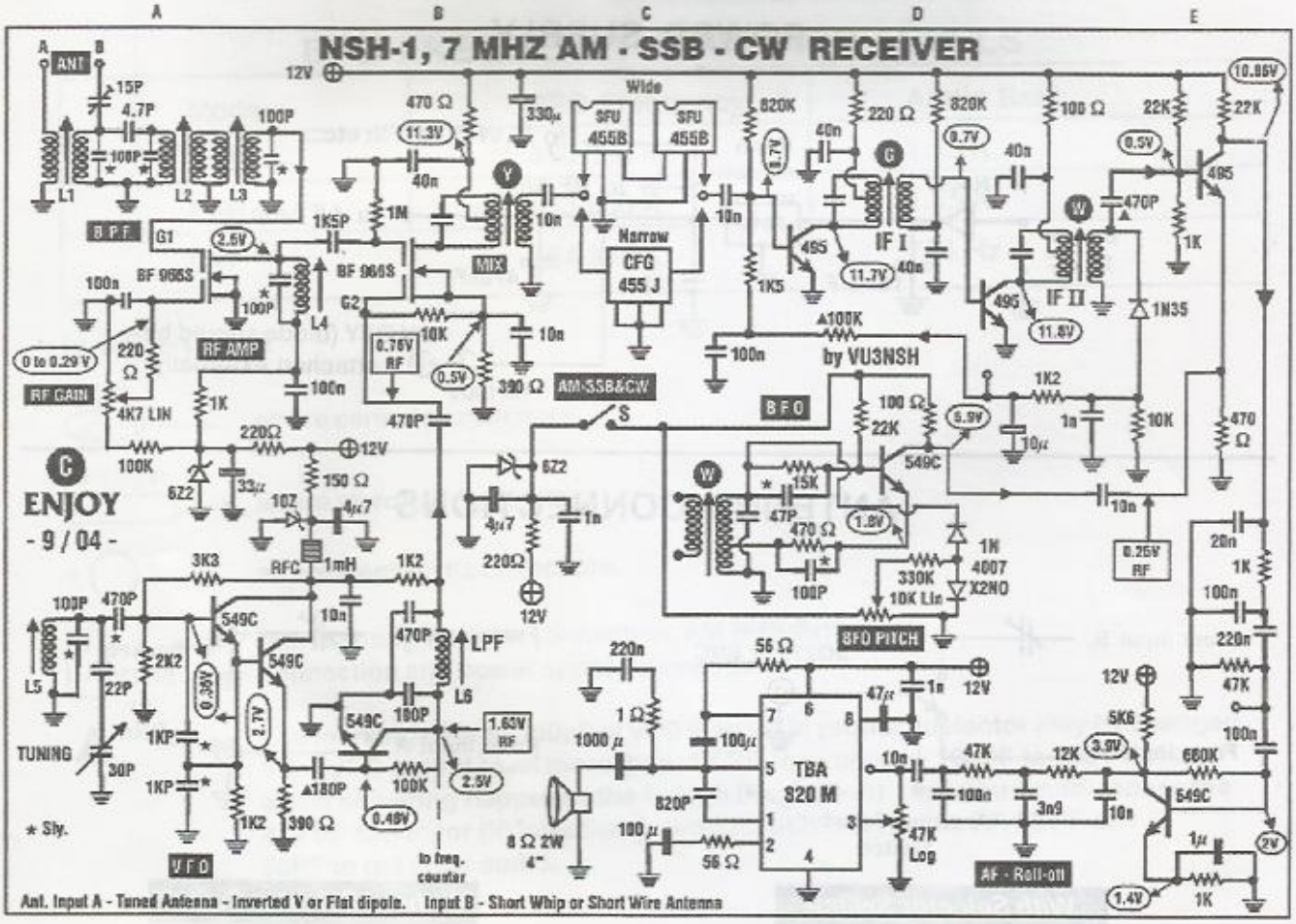


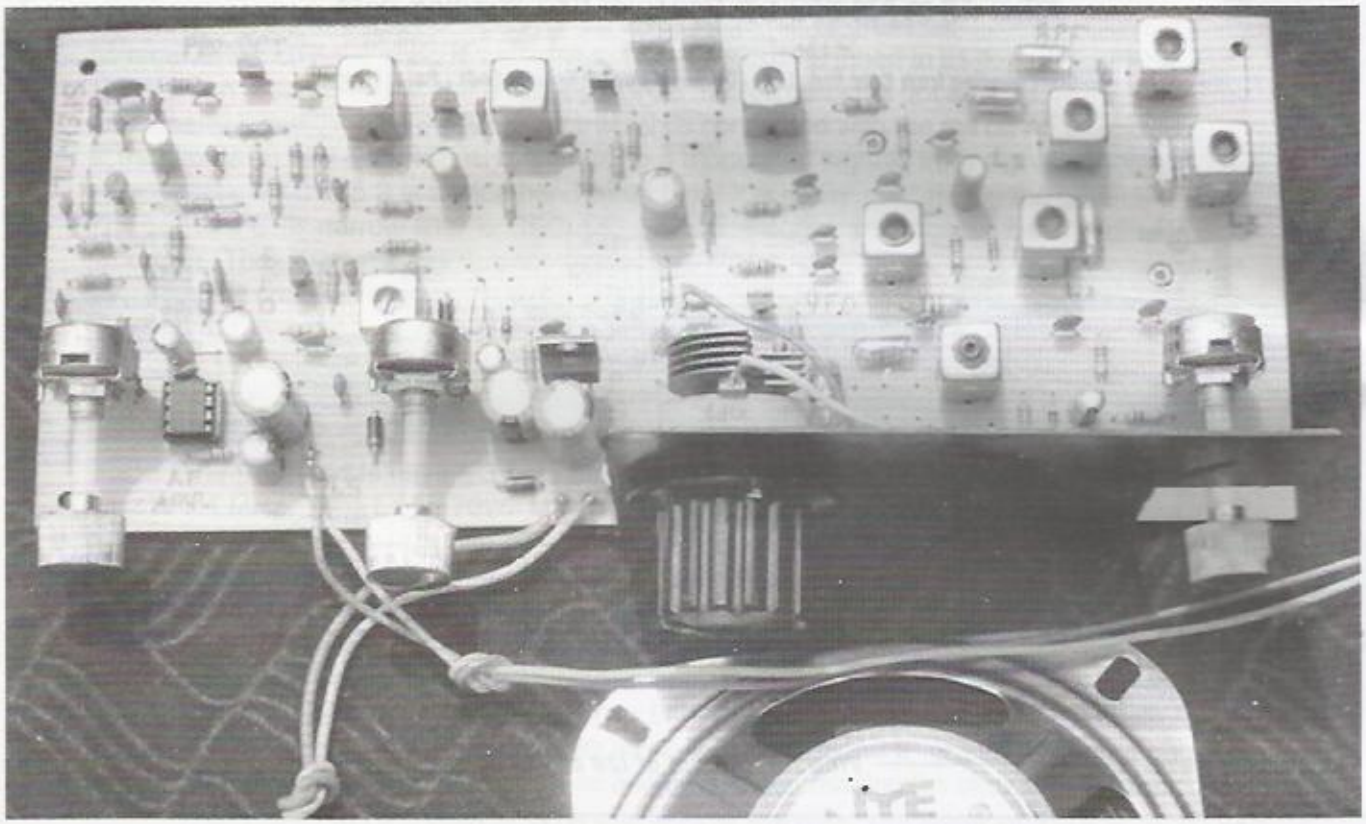
NSH1 40 m AM SSB CW Receiver Coil Winding Data

Start winding from Cold End, i.e., (DC Supply or DC Ground End) . Refer figure.



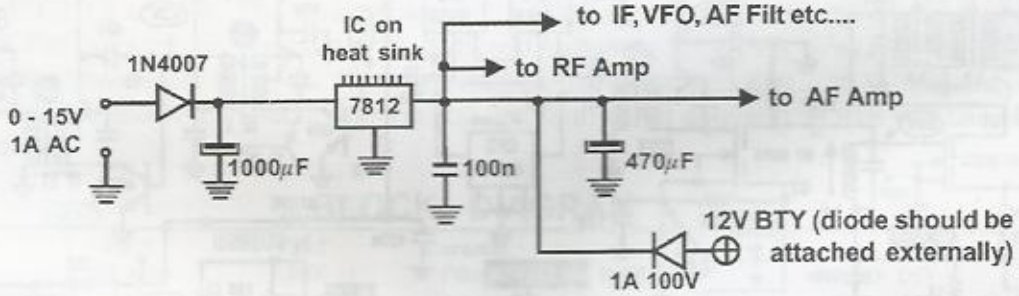
Views of Bottom of the coils



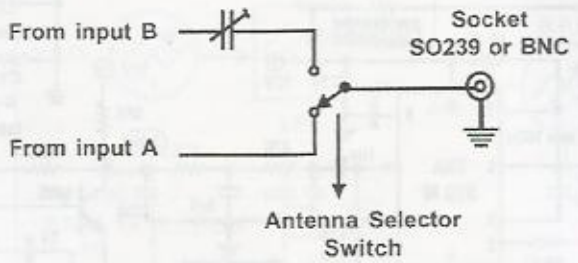


'NSH -1' Assembled Prototype 7 Mhz. AM-SSB-CW Receiver

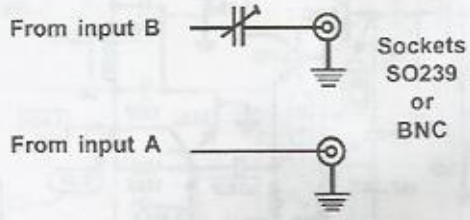
POWER SUPPLY



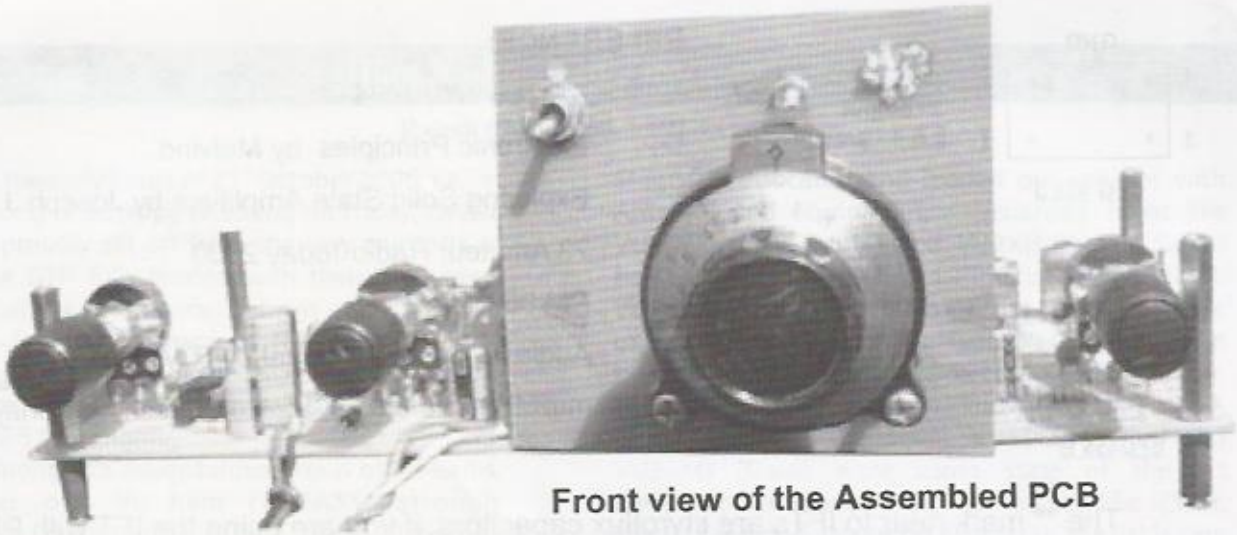
ANTENNA CONNECTIONS



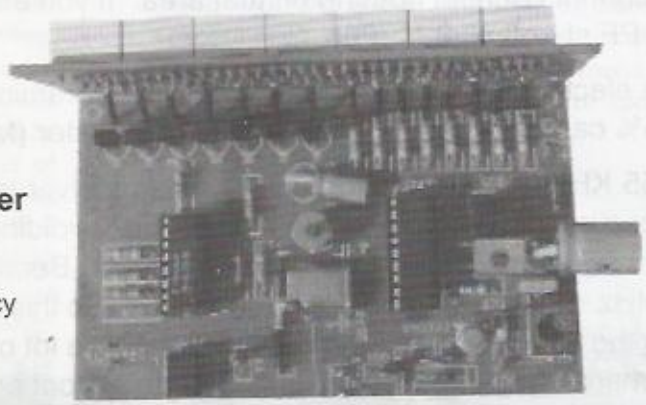
With Selector Switch



Without Selector Switch



Front view of the Assembled PCB



PIC IC based Frequency Counter

This is capable of counting
direct frequency and the offset frequency

BFO FREQUENCY STANDARD LEVELS

Mode	BFO Frequency	Audio Beat
USB	456.350 K	1.35 K
LSB	453.650 K	1.35 K
CW	454.300 K	700 Hz

In NSH-1 PCB

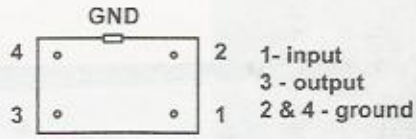
10n → all are ceramic capacitors.

* 100 P → all are styroflux capacitors.

\+ → all are electrolytic capacitors.

→ representing speaker connection, AM SSB switch connection and power supply connection

▲ → The marking near to 180pF at VFO stage & in product detector may be changed. If the VFO output level more than 1V RF, then change 180PF to 100 PF. If the audio shivering happens (due to high IF injection) then you sould reduce the 470 PF capacitor (IF Injection to product detector) to 100 PF, 82 PF or 56PF to get clear audio.



CFG 455 J

SFU455 B

REFERENCE:

* ARRL 1976, 1984.
* Electronic Principles by Malvino.
* Exploring Solid State Amplifiers by Joseph J. Carr
* 73 Amateur Radio Today 2000
* RM 96 Project
* Audio IC Circuits Manual by R.M. Marston
* muRata, Telefunken, Elektor, Fairchild, Vishay

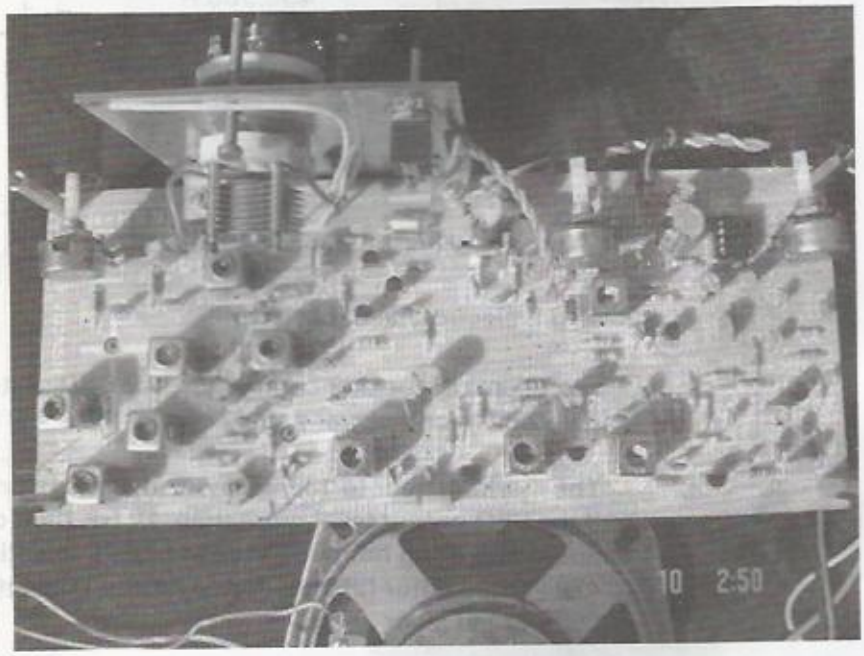
The ** mark near to IFTs are styroflux capacitors, if you are using the IFT with PF type, then you cannot connect nothing on that area. If you are using IFTs without PF then you must use 2700 PF styroflux at ** area.

All electrolytic capacitors are 25V type, ceramic capacitors are 60V type, All resistors are ¼W 5% carbon type. If possible use 1% resistor (MFR) at VFO area.

Due to 455 KHz IF (Low Frequency IF), this receiver is having broadcast band (BC). Image problem occurs in evening and night time. For avoiding this problem, the only solution is to keep the IF frequency in a higher level like 9 MHz. Because of using 9 MHz IF, the filter should also in 9 MHz and this will cost Rs. 1,500/- plus. So this is not at all an economic project. Other solution is the Duel Conversion. But this will give a lot of troubles for a beginner in the case of test instruments, alignment etc. In this design, at front end, 3 pole BPF is used to minimise the image problem. If you are facing the image problem, you can change the antenna input to the point A or B, or you can reduce the RF amplifier gain for reducing the overloading.

For PCB Contact :

N.S.Hari Sankar VU3NSH,
"Sankar Nilayam"
Ambikapuram,
Palakkad - 678 011
Kerala, India
Ph.: +91-491-2576102



Ham Radio@120 Kms/hour

Rajesh Chandwani, VU2OEC

In the early hours of 21st October 2005, i.e., at the beginning of a happy weekend on Friday, twelve VU Hams proudly set off from the very comforts of their home QTH fully loaded with their homebrew and state of the art commercial rigs and antennae. After few flashes for snaps at New Delhi Railway Station and many first eyeball QSOs, we boarded the Chandigarh Shatabdi Express being pulled by the strong WAP5 ABB Engine.

Among this adventurous group of 12 hams, there was one YL ham (VU2AXS) strongly representing YL fraternity. After a short briefing by VU2MB (Bhanu) and VU2PSQ (Prashant) over the hot cup of coffee, everyone got QRL in rag-chewing. Hams, viz., VU2BDX (Bharat), VU3RDZ (Rakesh), VU2SXG (Gaur) expressed their concern over the dying homebrew interest and urged fellow hams to make a group, which could revive the old days of home-brewing and CW communication. VU3BPA's (Arun) shack, which is also his morning QTH (PLC Institute of Electronics in West Delhi with almost all available test equipment facilities and expertise) was considered to be an ideal location for home-brewing.

From Left: VU2XD, VU2OEC, VU3SCD, VU2AXS, VU2DED, VU2PSQ, VU2MUE, VU3RDZ and VU2BDX at Kala Gram (Rally HQs. Chandigarh)

By the time, the 11-ham strong communication team reached Chandigarh; excitement was at its peak for the roadshow. Our team leaders VU2MB, VU2PSQ and later one VU2KQY (Ketan), Communication Adviser, who joined us from Mumbai, met the COC (Clerk of the Course - Navaz Sandhu), other car rally officials and introduced all the members of the Ham team. Within no time, we were issued with our kit, i.e., 2 T-shirts and 2 caps giving us a nice rally official look. After some rounds of the Rally Headquarters, viz., Kala Gram on the Chandigarh-Ambala highway, among the loud roaring Balenos/Gypsies during Stage-I, we located and loaded our vehicles with Antenna and equipment. Experienced hams like VU2DED (Ajay Gupta) and VU2XD (Kumar Sahib) helped a novice ham like me in checking the SWR. VU2BDX could not stop himself, as he felt nostalgic of his past memories of car rallies in Chennai, when he used to attend such events alongwith his father. Luckily, few participants were known to him.

VU2MUE (Sandeep), VU3SCD (Sumit) and VU2SXG (Gaur) were using state of the art equipments/antennae from companies like ICOM, Yaesu, Kenwood, Diamond Antennas the list is very long. VU2AXS (Anu) the lone YL ham was quite experienced with car rally communication as this being her 3rd car rally (including mega-events like Himalayan Car Rally) looked quite confident and relaxed.

VU2MUE (Sandeep Baruah)

In the evening, at 1900 hrs, we finally set off in our predetermined vehicles of Stage Commanders and Marshals. This being just a casual ride upto Dharampur on the Chandigarh Shimla road, hams left no opportunity of 2 mtr mobile communication. Most of the vehicles had children of YPS (Yadvindra Public School, Mohali), who were also in the same T-shirts and caps. There job was to help in time check and other related work. They really enjoyed the funny QSOs exchanged by hams enroute Dharampur and could not stop laughing. YPS boys asked several queries pertaining to ham licence, call signs, equipment cost and especially about the range of the VHF, HF and so on.

By 2130 hrs, we all had dinner at a small highway restaurant loaded with pullovers, sweater and jackets. The temperature was about ten degrees centigrade. From now on, Hams were divided into three groups. VU2MB and VU2PSQ headed for Rally Base towards Kasuali, Himachal Pradesh. The first communication group comprising VU2DED, VU2XD,

VU3RDZ, VU2SXG and VU2OEC, were stationed at Nayanagar under the command of Amarjung Singh the Stage Commander. The other communication group had VU2BDX, VU2AXS, VU3SCD, VU3BPA and VU2MUE under the Stage Commander Shri Manu Virmani.

Both the communication groups were fortunate to have hams like VU2SXG and VU3BPA as they are really good in bringing back to life any damaged equipment during rally.

Next day, early in the morning at 0400 hrs, someone knocked at our door and I found two boys standing with very early morning tea. They conveyed the decision of the Stage Comamnder that we will be departing at 0500 hrs. That was really shocking as we slept last night at 0000 hrs and I immediately pushed Guptaji (VU2DED) and told him about this sudden schedule. A little short of 0500 hrs, we got the ring at the intercom, the Stage Commander wanted to know as to how long we will take. I said "20 minutes" and he replied back "I will give you 15 minutes". This really made us work at the double-speed, somewhat like cartoon creature and by 0500 hrs we were in our vehicles. It was still dark outside. The whole cavalcade of official vehicles proceeded towards the Kasuali road and suddenly took right turn on the unpaved road full of mud and stones, thus giving us the initial feel of adventure and two tough days ahead. In the meanwhile, we were busy testing our signal reports with mobile hams and rally base.

VU2MB (Bhanu), Praneet and Navaz Sandhu, COC at Rally Base, Kasuali

VU2MB (Bhanu), Navaz (COC), Praneet and VU2PSQ (Prashant) outside Rally Base, Kasuali

After all the bunting work, hams were placed at Start, SOS-5, SOS-10, SOS-15 and End positions. Above all, hams felt themselves at the top of the world, as they were the sole communication link for the whole show. This also gave them experience of the field day. As soon as the car numbers, triple zero, double zero and zero car passed the very first Baleno participant car arrived the start and the show began amidst the vroom and crackling radio sound. Suddenly, all the radios were put to their best test while handling the rally communication. Novices like me watched the whole show with eyes wide open and enjoyed the very moment, that is, the cars, uniforms, food packets, the hilly rural location of Himachal Pradesh, the weather, presence of media personnel and above all ham radio.

At the end of the day, Stage-I hams were asked to reach Chandigarh. By evening, after a tiring day, we checked in at Hotel Parkview, Chandigarh. As everyone was dead tired, so took refuge in their respective rooms and later on joined at the buffet with fulfillment and happiness.

The 2nd ham group had to do 2nd round of roadshow next day and reached Chandigarh in the evening marooned, perplexed and really tired. Finally, everyone thanked God as no untoward event occurred and participated in the huge party or closing ceremony the last even at grounds of Kala Gram (Rally Headquarters). Hams were handed over with mementos for their selfless work by the winners of the rally, i.e., the JK Tyre Team (Naren and Kumar) amidst the applauds and cries of fellow hams.Winners: JK-Tyre Team and real winners: Hams with mementos By next morning, everyone was busy in their morning QTH. Ham radio again proved its might and Importance over everything. The Rally was the M1 Power Challenge Rally, a round of the Indian National rally Cup held annually.

SEANET 2005

By VU2RCR Chandru

The South East Asia Amateur Radio Network (SEANET) was established in 1964 on 20m (14.320 MHz plus or minus QRM). The objective of this Net is to promote international understanding and fellowship among hams and to relay emergency, medical, urgent or priority traffic. This on-the-air meeting which has taken place without fail daily at 1200 UTC for many years has strengthened unity and co-operation amongst Hams around the world, especially those within the SE Asia region. The Net also provides Hams an opportunity for testing their equipment and propagation conditions on the 20m band

The first convention, or Eyeball QSO of SEANET, took place on the island of Penang, Malaysia, in December 1971 when about 30 amateurs met. Present at that historic meeting were the first Seanet Controller, Paddy Gunasekera 4S7PB of Sri Lanka and stalwarts like 'Big John' Van Leader 9M2IR, 9V1OQ, HS1AIR, Ebby Lucas 9V1QG of Singapore and Eshee Razak 9M2FK of Malaysia. The subsequent Conventions were held in Bangkok, Singapore, Manila, Kuala Lumpur, Jakarta, Cebu, Kuching, Chiang Mai, Darwin, Dhaka, Malacca, Koh Sumai, Chennai, Darwin, Brunei, Pattaya, Kota Kinabalu, Perth, Johor Bahru, and this year in Bangalore, India.

The convention took place in Bangalore at the Taj Gateway Hotel on October 7th, 8th, and 9th. The convention was attended by delegates from Malaysia, Korea, Japan, Australia, New Zealand, Germany, USA, Trinidad, Thailand, and China. The total number of delegates who attended the conference was 75 and out of these 40 were overseas delegates.

As the very objective of the Seanet Conference is a chance to eyeball between delegates and make new friends and meet old ones, the emphasis was on opportunities to do just that. The cuisine was mostly Indian and the atmosphere informal.

The half day sightseeing tour of Bangalore city on Saturday morning took the delegates all over Bangalore and gave them a quick overview of the city and environs, the old and the new. This was followed by a typical South Indian "Thali" lunch at the Ballal Residency Hotel which was a special experience for most of the overseas delegates.

A special cultural programme, lasting about an hour by the Karnataka State Department of Kannada, which was staged just before the formal banquet on Saturday, was enjoyed by all. It was spoilt somewhat by torrential rain as the plan was to have it outdoors where the artistes could move freely. For the formal banquet the delegates were mostly dressed in their traditional national or regional costumes, and most country delegates gave a short speech on their Seanet experience.

On Sunday morning, for the Technical Session, Mr. Gupta, Programme Director of ISRO gave an informative talk on Hamsat, India's first Amateur satellite. The very detailed audio visual presentation took the delegates through the background, planning and launch of this satellite which is being enjoyed and used by hams all over the world. It was a very interesting talk and appreciated by everybody.

It is the usual practice to decide on the Conference venues 2 years in advance at the every convention. At the Bangalore convention the venue for 2007 was decided as Changmai in Thailand. The 2006 event is to be held in Osaka, Japan. The visiting Japanese delegation to Bangalore made an excellent presentation of their plans for Seanet 2006.

The Bangalore Seanet Convention was organized by a core group consisting of VU2KKZ, VU2RCR, VU2GMN, VU2GGM and VU2POP.

Just ignore him. He said to me "shall we go to FM..?? I think that means "Feline Motherhood"and he knows I'm spayed !

Ragchewing with VU2ATV, Ashutosh

It was in June of 1990 when I had finished my final year engineering exams and I was awaiting my results. I was in Hyderabad then. My tryst with Amateur radio began when my father had gone to a paper merchant and he saw a small booklet Called Wireless world (I don't even remember the exact name of the booklet now). Later I read the magazine of the Kerala Amateur Radio Society. It had a picture of Late Shri Rajiv Gandhi VU2 RG on its front cover. I was excited as I read it, as it gave me an insight into the world of amateur radio.

Acting on the information as to how to procure a licence, I sent a self addressed envelope to the WPC, Ministry of Communications , New Delhi. But I never received an answer. There was no internet to give a Google search for a HAM radio classes or clubs where I could get more information!!!!

Again my father was the one who saw the NIAR board on his way back from office and I promptly enrolled my self in their classes. I passed with grade 1. My papers were lost in Sanchar Bhavan and so I got my licence after a long wait of 2 years. After operating the NRO club station for a few years, I finally had my own station 8 years later.

In between I made attempts to build my own 20m radio, but I was misguided on my antenna. The SWR damaged my RF amplifier, and the 5000 rupees I had spent on my experiment went down the drain. That was the end of my Home brewing. The learning from this experiment was tremendous.

Now I live in Thane, a suburb of Mumbai. My present shack consists of an ICOM -746 Pro and a compact 3 element 5 band Yagi, the MA5B from Cushcraft. It is a fantastic antenna and with a privilege of being able to mount it at about 150 feet above the ground, I have a fantastic take off angle. Now I am a very active ham on all bands on SSB and manage to spend a lot of time in ham radio activity. I use Log-eqf as my logging software and am experimenting with all modes of radio.

I am married and have 2 harmonics, twin boys. They are 6 years old. My XYL is a housewife and is an interior designer by profession. However she is not practicing at the moment as looking after both the harmonics is more than full time job!!!

Please look out for me on the band and give me a shout and I would love to make contact with as many VU hams as possible.

(Club News continued from page no. 3)

Amateur Radio Band was started son exactly 17 years back on November 27 in 1988 by the following Hams viz. Mr.Shanmughasundaram VU2FOT, Mr. Victor Goonetilleke 4S7VK and JoseJacob, VU2JOS. This group used to meet regularily at various times on the band to exchange BC DX news. This later transformed into a regular net. The unique thing about this net is that it has helped Hams to become BC Dxers and BC Dxers to become Hams! The net is conducted on Sundays at 0300 to 0330 UTC (8.30 to 9.00 am IST) on 7085 kHz in the 40 meters to exchange BC DX News by Hams who are also BC DXers and covers South India/ Sri Lanka/ Maldives. Thenet controllers now a days are Mr.Sanil VU3SIO and Mr. Neel VU3BGK etc.

A special call-sign ATOJCB, was operated by VU2DSI, Datta from Ahmednagar on 30/11/05 and 4/12/05, to commomerate the Birth date of Shri J.C.Bose, the eminent scientist. A total of 880 contacts with 89 countries on all bands were made. Datta was interviewed by *All India Radio, A, Nagar and a programme was broadcast regarding the birth date of Shri J.C.BOSE and info about HAM RADIO on 30/11/2005 at 600 P.M. Local news-papers published articles about Shri J.C.BOSE and ham radio. Datta was helped by VU2CBU Prashant. BELGAUM NET, AIR NET, CHARMINAR NET and MALABAR NET were all informed about the special call-sign operation on the radio. VU2UR,VU2CBU, VU2PAL, VU2ORN,VU2HSN, VU2CPV,VULB,5H9KR,VU2VWN, VU2HOC, Anil Kadam(ham from Washington D.C.),VU2HFR,VU2SE and many HAMS from South- India helped a lot in this event.

KUDOS KORNER

Congratualtions to:

SWL VU-0020, T.K.Vishwanathan for receiving the WFRC from Frankford Radio Cub USA, DPXF Class 1, CW,SL No.70 from France, JIIA(Japanese Iota Islands Award), Sl.No.80 from Japan and Participation certificate in IOTA's 40th Anniversary Award Programme.

VU2SWS, YL Sarla for receiving the DXCC for 100 countries worked in SSB

VU2NXM, OM Basappa for receiving the DXCC for 100 countries worked in CW

VU2RBI, YL Bharathi for winning the Sandy Lynch Award in recognition of her Dxpedition to Andaman Island and her heroic work in the aftermath of the Indian Ocean Tsunami.

SEANET - 2005

Registered with the registrar of Newspapers under R. No. 59916 / 94

SEANET - 2005

Printed and Published by Ms. Sarla Sharma on behalf of Amateur Radio Society of India & Printed at J. P. Graphics, 2/100, Bhandup Indl. Estate, L.B.S. Marg, Bhandup (W), Mumbai - 78. Telefax : 55993659, Email:jpgraphics@vsnl.net & Published At 7, Gaurav Apt., Nahur, Mulund (W), Mumbai - 400 080. Tel. : 25682361. Editor - Ms. Sarla Sharma.