

*** HELLO FROM G4VBU ***

As you all are aware Sean's commitments are now such that he had asked for someone to take over this newsletter. So it gives me great pleasure in thanking Sean for all his hard and dedicated work in the production of past newsletters. I hope that my new roll as Editor will keep the ball rolling in the right direction ! It is my intention to provide 6 issue's per year. At this time of writting, however, we do not have the funds to cover the cost of production, so if you would like this news letter to continue then please send in your contributions. We have set our rate of membership fees for 1989 as follows:-

U.K. & Eire £3.50 : G, GW, GM, GD, GJ, GU, GI and EI

D.X. & Europe £4.50 :

*** 7.065 SUNDAY NET ***

Don't stay in bed lads ! ... the net needs you ! ... so give us a call for the very latest info on Mods, Faults, Reports, (and only if to find out that G4VBU's out of bed) ! ... On 7.065 MHz up or down a bit (QRM) ! Time at 1100 Gmt ! ... On a radio near you ! (FT102)

*** A.G.C or G3EWF IQ TEST ***

One evening not so long ago the phone rang ! ... Hello Jim its Andy G3EWF, got bit of a problem with the rig old boy ! ... well I turned the rig on early this morning, the sound was very distorted, also I can't turn down the volume, he explained. O.K Andy I said, will be round your QTH in about half an hour. I jumped into my Plastic Pig (Reliant Robin) and off I jolly well went. I always like poping over to Andy's QTH because ... Hi Jim, like a coffee old boy ? have a cigar said Andy (Andy is a bit of a diplomat when the Rig Doctor calls) ! ... Andy switched on the 102 ... Yes the sound was distorted, I turned down the Volume, funny still got sound ! ... I looked hard at the rig ! ... Ah um er ! ... I think, better switch the A.G.C. back on ... Andy muttered *** Pillock *** quietly !

*** HELP LINE ***

For technical information you can telephone Jim at Bristol (0272) 781265. The best time to phone will be between 2130 - 2230 (Week-Days) or 0930 - 1130 (Saturdays).

*** BRAIN DAMAGE *** From Don G3JIE

Having suffered the problems of runaway P.A. current on my FT102 and subsequently replacing all 3 P.A. Finals, I looked at various publications and decided that secondary grid emission must be a prime suspect. R.C.A. also state that the screen and control grid supplies should be of a low impedance. Schematics for the FT102 seemed to indicate that these supplies were not particular of a low impedance.

Being a good practical amateur able to build, adapt or use parts of published circuits to my own advantage is all very well and good, but this problem needed some design ability. This put me pritty well down in the class !

At this stage I had to rest and try to regain my confidence which was sagging due to my inability to get around the design impass. But like most good bed time stories this had what I thought was to be a good ending. It came in the form of FT102 User Issue 3 1988, page 2, Modification details to cure thermal runaway by Peter G3RZP. This looked to be well within my capabilities.

As allways when attempting to do any mods, I take all covers off to see exactly what is involved and also what size components can be accomadated, because the junk box will be the first port of call for parts.

My feeling of well being and thought of one evenings work being sufficient to complete the task soon came to an abrupt end !

Item 1 in the said article "cut Brown wire on P.A. P.C.B. ", this I took to be board PB 2355. Problem was PB 2355 had no Brown wire going to it, also no pads marked "28M".

Item 2 says "cut Blue/White striped wire going to pad marked 160 V". Problem was PB 2355 had no Blue/White wire going to it and again no pads marked 160 V.

Item 3 says "short diode D02 on P.A. P.C.B." !!! Yes you guessed it, no prizes given. Big mug of tea called for, leave shack for 24 hours so head can clear.

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Questions ...

- (a) Was Issue 3 printed on April 1st ? : Did'nt think so !
- (b) Is the editor a sadist ? : Don't think so, he seem so nice on the nets !
- (c) Had Peter got it all wrong ? : Very unlikely !
- (d) Had I misunderstood ?

Number 1 Son read it and said that he understood the article the same way as me (his call G1KYV). Many mugs of tea later, I had collected my self together (a Man of many parts !) and decided to go back to basics, like checking photos in the FT102 manual.

Page 38 shows a bottom view of the FT102 and clearly indicates PB 2355 (P.A. Board). Two differences between my rig and the photo were noted:-

- (1) Wires coming into bottom L.H. section of board in the photo in fact on my rig come to the top centre of the board.
- (2) Two large holes in the chassis just visible below top R.H. side of PB 2355 on photo, were totaly obscured by the board on my rig.

Checking closely I found that my final board is numbered PB 2355 and also I have an additional board bolted along the top edge of my PB 2355, (this is the board which covers the 2 large holes on photo). This extra board is marked PB 2356A. I had not previously looked for any other numbers, assuming that PB 2355 was for all the P.A. boards.

A very close check of the manual and all schematics failed to reveal any mention of PB 2356A, also I could not find diode D02 any where in the screen circuit of the P.A. on my schematic. Likewise no 160 V available from any power supply according to my schematics.

At this point a just perceptable change in my luck took place, parts list showed a Relay Unit 2 with PB 2356A as the P.C.B. It also listed the elusive D02 as D9902 a 10D10 diode. So at last I know where the Relay, diode ect. that Peter mentions are situated, but still do not have a schematic for them, neither are any pads marked.

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My next step is to trace out all the wiring for the additional board, make my own diagram, then try and relate to the information that Peter provided. That should put me back to square one i.e. looking at the FT102 to weigh up exactly what needs doing. My one evening of estimated time has up to now become 2 plus a 4 hour Saturday afternoon and still no mod done.

73's Don (G3JIE)

Answers ...

On page 55 of the Instruction Manual (Ref: RECT A PB 2349A) the AC 190 V. via D02/D03 provide the screen voltage of 210 V. and 180 V. which is then fed to the P.A. screen Relay on PB 2355. Note that it has been marked up on the P.C.B. as 160 V and 210 V when it is in fact 180 V. On the main diagram RECT A Unit is marked up as PB 2352 and the 210 V is fed to the 6146B's via L01 as screen volts. Also the main diagram shows that the 180 V is fed directly to the 12BY7A screen grid. Ye Gods !!! Whats that Bleeding Relay doing !!!

Will Jim fix it ? Is there life after Yaesu ? Did it rain last year ? ... Next Issue all will be revealed.

73's Jim (G4VBU)

*** K'NOBS ***

Most of us have at some time or another, had the problem of a loose Mode switch. The nut under the knob works loose (sounds fun). So how do I get the knobs off... good point !

(1) Pull the rig forward, so that it's edge is level with the front of your work bench.

(2) Take a large flat bladed screw-driver, turn Mode switch to the Tune position, fit blade of screw-driver (flat end !!) under the plastic bottom part of the knob, hold the rig with one hand and push blunt end of screw-driver against work bench.

(3) The Meter Select, Band switch, AF/RF, Clar/Tone, Notch/APF, Shift/Width and Drive pull off. Do not try to pull off the Loading, Plate or the Preselect knobs as the plastic couplers will snap ! To get off you must undo the grub screws inside the rig and pull out each shaft with the knob still attached.

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(4) The Tuning Knob can be removed by firstly pulling off the rubber jacket and the insertion of an allen key into the slot revealed, undoing the grub screw.

*** FILTER TIPS (Cough!) ***

Having got your grubby mitts on one of those all singing and dancing SSB/CW Filters, you fit it and your not very well pleased with the results. When our Mr. Yaesu made that nice FT102 for you it was given the very best I.F. alignment possible with very sophisticated test equipment. To compete with his many competitors, he provides an option for the installation of narrow CW and SSB Filters. To fit them as a standard part at the manufactory stage, would put up the cost of each rig he makes by many £££'s. (Yen: Dong: Ding: Dollops ect.)

The installation of an 8-pole crystal filter is in it self an art, that requires the correct impedance and alignment to it's own centre frequency. In most instances the centre frequency is not the same as the standard filter fitted. That is why after installation of a narrow filter, realignment of the I.F. stage must be made.

Alignment can be made very easily because that very nice Mr. Yaesu has given you a very good signal generator the frequency marker. The I.F. alignment procedure is as follows:-

(1) Turn on rig and let it warm up for about 40 minutes. Take off top case, fit speaker, fit dummy load to rig or A.T.U., turn on marker switch (back of rig), set band switch to 14 Mhz and tune dial for 14.250 MHz.

(2) Set Shift and width to centre, A.P.F. and Notch out (off), A.G.C. on, A.G.C out (fast), N.B. out (off) and NAR out (off).

(3a) Standard filter : Turn Mode switch to Tune, turn main dial for a reading of about S5 on signal meter, turn back R.F. gain just to the point where the S meter just starts to rise and adjust for Max reading on S meter T1030, T1029 on R.F. Unit (Page 44), T2001, T2002, T2003 on I.F. board (Page 45) and T2008 also on I.F. board.

(3b) SSB narrow filter XF8.2.HSN : Turn Mode switch to USB, Press on Narrow switch e.g NAR in (on), turn main dial for the point where the S meter reading is about S5 and R.F. gain as in (3a) and adjust for Max reading on S meter T2004, T2005, T2018 and T2006 on I.F. board (Page 45) then turn Mode switch to LSB and adjust T2003 for Max S meter reading.

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(3c) CW (600 Hz) filter XF8.2HC : As for (3b) but turn Mode to CW only.

(3d) CW (300 Hz) filter XF8.2HCN : As for (3b) but turn Mode to CW only.

(3e) CW (500 or 270 Hz) filters XF455C or XF455CN : Turn Mode switch to CW NAR, set S meter and R.F gain as in (3a) and adjust T2008, T2006 for Max S meter reading. (Page 45)

NOTE Page 44/45 is in the FT102 Instruction Manual : Trimming tools for ALL I.F. Transformers MUST be with a phosphor bronze blade at each end designed to fit 4mm and 6mm cores (e.g. Maplin part BR51F).

NOTE I work about 50% of my time on CW and 50% on SSB. I have found that although I have narrow CW and narrow SSB filters fitted to my rig, I have aligned it as for (3a), (3b) and (3e) because I have on more than one occasion, particularly on 40 Mtr Nets wanted that extra sharp filtering that the narrow SSB gives. (3c) and (3d) are a MUST for the 100% CW boys, but it's up to you ...

Jim G4VBU

*** T.V.I and R.F.I ***

Each issue, I will be giving info on T.V.I, so lets kick off with this one. B.T. New Type Telephones (Short Wave Radio Receivers) a better name for them . In Bristol don't phone B.T. as the only thing B.T. Bristol will do for you is Bill you for your phone call !!!

Take a 2 inch ferrite ring, unplug B.T. Telephone, at about 1 FT. from Unit (the bit with the buttons on ! not the Handset) and form a coil by winding the lead (close wound) 3/4 ways round the ring.

*** FAULTS ***

It is my intention to start a catalogue of faults and cures on the FT102, FC102, FV102 and SP102 using an index system. Each fault will be given a reference code. The first letter will be T (FT102), C (FC102), V (FV102) and S (SP102). The first number is the Volume number, the second number will be the Issue number of the news-letter where info is contained.

Example:- T21001

FT102 fault : Look at Volume 2 in Issue 1 (T21)

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IDENT:	FAULT:	REMEDY:
T21001	RX drift when clarifier fuction is on.	Change Relay RL01 on Local Unit: Fit Maplin Part YX94C 12 Volt.
T21002	ALC reading on meter is intermittent mainly on 10 Mtrs.	Check and tighten up fixing screws on RF board.
T21003	Intemittent Bias Current reading (SSB no Mod)	Clean VR01 (Bias Pot) on RECT A Board with switch cleaner and then reset bias (75 mA).
T21004	No Tune up Volts and no Bias current reading on meter (No TX).	Check HT Volts on P.A. (850 V - 900 V) and if No Volts Change HT fuse. If P.A. Volts ok then Check Screen Volts on 6146B's (aprox 210 V) Goto T21005
T21005	No tune up Volts, no Bias current reading on meter (No TX) and no Screen Volts 6146B's	Check R04 on RECT A board for open circuit 470 R 2 watt: Fit Maplin 3 watt wirewound resistor Part W470R WW.
C21001	Can't get A.T.U to Tune down (G5RV type aerials) on 10 Mtrs.	Inside A.T.U. look for the large self supporting coil (back part of A.T.U.) and stretch out or squeeze in coil (not during key up !) to get S.W.R in range on that Band.

*** NEXT ISSUE ***

R.F. Relay Faults: I can not recommend that any Relay in the FT 102 is cleaned with switch cleaner. The only cure is to change the 5 Relays on the R.F. Board. The only one's that I can recommend are obtained via Maplin a fully enclosed type of relay. The 12 volt Part Number is YX94C (2 required), the 24 Volt Part Number is FM92A (again 2 are required) and the 12 Volt DPDT Part YX95D (1 required). In the next issue I will be giving a run down on fitting these types of Relays.

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73's Jim G4VBU

Referring to T21005 : Over the last 2 years I have had a number of FT 102's in for repair with no TX faults. In every case when the fault has been no screen volts the P.A. valves have been Sylvania types fitted and R04 on RECT A board has been found to be open circuit.

Recently I fitted 3 Sylvania 6146B's (Yes Sylvania ECG) in my FT102. As a precaution I checked my R04 on the RECT A Board and yes the resistor was hot ! The 2 watt rating should be fine for the screen current required so I thought, was it parasitic oscillation ? Putting the wave meter by R04 on TX yes lots of LF oscillations . Fitting the R.C.A. valves back in and much better ! Changing R04 to a 3 watt WW type and fitting Sylvania valves back in, the LF oscillations were very much reduced. I have set up the bias for 75 mA and adjusted the Final Amplifier Neutralization. Tuning up on 10 Mtrs for 300 mA. for aprox 150 Watts P.E.P. and TXing at 230 mA SSB with nice 20 minute overs, no sign of that dreaded thermal runaway.

73's Jim G4VBU

*** WANTED ***

FV102DM in good condition: Trevor GOCEM (0272) 642867

*** ADVERTS ***

6146B's GE match set of 3's £33.00 + £1.25 pp : 12BY7A £4.00 + £1.00 pp
A special price to FT 102 User's members from G3LSD (Lt. Cd. E. Diggle),
Netherton Cottage, The Elms, Stoke Damerel, Plymouth, PL3 4BR.

Will swap FT102 MK6 for one exactly the same: POINTLESS SWAPS Ltd.
Bristol.

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