

*** HELLO FROM G4VBU ***

I hope that you all enjoyed our Issue 1 and my thanks to all for your many comments. The quality of the photo-copying was not as good as I had wanted as about 20% of the copy was of a very poor standard.

My thanks to Andy (G3EWF) and to Don (G3JIE) for their input to the mag. Keep sending in the letters lads ...

*** SUNDAY NET ***

Our Sunday Nets on 7.065 MHz are getting a better response from our members now with very good input. The Net frequency of 7.065 MHz however is possibly about the worse choice that we could of made.

We are going to change the frequency from 9th July 1989 to 7.082 MHz + QRM .

*** FINANCE ***

Some members outside the U.K. have sent in their membership fees in their National Currency. The problem is that the Bank will make a charge of £1 to exchange for Sterling. So for example if you were to send me \$10 Australian I will get £3.52 in Sterling for it and a £5 Eira will give £3.07. Please send Bank Drafts in Sterling.

The cost of photo-copying the news-letter worked out at 48 pence per copy. I am at present looking for a better price.

Listed below is an example of cost for 4 Issues:-

	U.K.		OUTSIDE U.K.	
News-letter	4 x 48p	= £ 1.92	4 x 48p	= £ 1.92
Envelopes	4 x 13.5p	= £ 0.54	4 x 13.5p	= £ 0.54
Postage	4 x 19p	= £ 0.76	4 x 26p	= £ 1.04
W.P. costs	1 x 35p	= £ 0.35	1 x 35p	= £ 0.35
Total		<u>£ 3.57</u>		<u>£ 3.85</u>

Unless I can find a better price for photo-copying then there is no way that I can produce 6 Issues per year. Any suggestions ?

*** 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).

*** NEW TYPE RELAYS ***

One of the main problems with the FT 102 is intermittent receive, due to faulty relays on the R.F. Board. There has been many suggestions of treatment such as 'sell it quick !' or 'hit it with a sledge hammer'.

The symptoms are when working that nice D.X. station, his 5/9 + signal drops down to a 4/0 and blipping the 'Mox' button his signal jumps back up to 5/9+. Some times pressing the 'R.F. Amp' button will recover it. Some users will keep pressing the 'Mox' button in and out many times before they QSO this will some times help.

Cleaning the relays with switch cleaner at best will provide a short term solution, but most likely will do more damage to the relays.

Fitting the 'official S.M.C. Relays' will provide a short term cure of about 1 or 2 years. I know that some users are on their 3rd set of relays. So what is the problem with these relays ?

1. The plastic cover on the relay is not an air-tight seal, so dust can get onto the contacts.
2. The mechanical construction is of a very poor quality, the leaf spring is very flimsy and the contacts are not silver coated.
3. The under seal on some relays have small gaps around the pins, so when soldered in, flux runs up the pin onto the contacts.

All in all it is not surprising that we have trouble with them. The only solution is to fit a better type. I recommend that all 5 relays on the R.F. Board are replaced with the 'Maplins type' for price details please refer to 'ADS back page'. Of the five replacements, 3 will fit in with no problems, one will require a wire link to be fitted and one (12 V D.P.D.T.) will require some small P.C.B. work.

This work requires the removal of the R.F. Board and a competent engineer to carry out the surgery, 3 hours of uninterrupted time, many cups of tea and a swear box !

Parts: (From Maplins)

12 V.	YX94C	2 required
12 V.	YX95D	1 required
24 V.	FM92A	2 required

(Next Page O.M.) >>>

*** PRE-OP ***

Disconnect mains supply and any other leads to your Rig. If Rig has been powered up over last hour or so, do not take off covers for at least 1 hour (H.T. Caps. will be charged up to 900 V. d.c)!

1. Take off the top and bottom covers of Rig. Unplug 12BY7A.
- 1.1 Set Band Switch to '10 MHz' position.
- 1.2 Turn 'Load' fully anticlockwise, unscrew grub screws and pull off knob with shaft attached.
- 1.3 Turn 'Plate' to 9 O'Clock position, unscrew grub screws and pull out shaft and take off cupplers.
- 1.4 Turn 'Pre-select' fully anticlockwise, unscrew grub screws and pull off knob with shaft attached.
- 1.5 Unplug all plugs on R.F. P.C.B., * CUT & MARK * white wire at front R.H. side of P.C.B.
- 1.6 * CUT & MARK * White wire and Brown wire at R.H. end of P.A. (2 pins out of P.A. case).
- 1.7 * CUT & MARK * Orange wire, Red/White wire and Yellow wire at back part of R.F. Board. Cut Orange wire off at top of resistor end. (Pins are on P.C.B.)
- 1.8 The Band Switch shaft is connected from the front selector, through the R.F. Wafers to the Band Change Switch in the P.A. box. It is very important that the Band Switch is set in the '10 MHz' position. On the outside of the P.A. box, you will see the P.A. Switch shaft Nut that retains the P.A. Switch. This Nut must be unscrewed (not all the way !) as to enable you to push in the P.A. Switch slightly for clearance. Then holding the Band Switch Knob unscrew the grub screws on the front shaft cuppler and then the back cuppler.
- 1.9 Turn the Rig on its side and unscrew A.F. Board and its screen plate (to get to solder side of R.F. Board). On the solder side of the P.A. end (R.F. Board) *CUT & MARK White wire and unsolder Earth brade. Turn Rig back so that it is in its normal position and unsolder Earth brade on Switch screen plate, unscrew Black screen wire (P.A. end) and unscrew R.F. Board fixing screws.

* The term 'CUT & MARK' is to cut wire about 1/8th inch away from the pin so as to leave a small amount of the coloured wire still in connection with the pin. This technique will enable you to easily identify your reconnections later.

(Next Page O.M.) >>>

- 1.10 Now the hard bit ! lift the R.F. Board up slightly and with care push Board towards the P.A. Band Switch and release back shaft cuppler and then release the front cuppler. Lift out R.F. Board and wipe sweat off forehead, pay swear box and have cup of tea !
- 1.11 If you did not unscrew the nut on the P.A. Band Switch, now is the time to order your new P.A. Band switch ! and pay swear box !

*** SURGERY ***

- 2.0 Lay your R.F. Board on clean work-bench, unscrew the 2 cross point screws at front section of wafer to release bakelite strip and release circlip on shaft. Locate RL05 24 V. Relay, unsolder and fit (FM92A). Locate RL04 24 V. Relay, unsolder and fit (FM92A). Locate RL03 12 V. Relay, unsolder and fit (FM94C).
- 2.1 Locate RL01, unsolder and fit new part (FM94C) and note new type Relay has not got dummy pin in same position so will require a wire link jumper to be fitted.
- 2.2 Locate RL02 and unsolder. Note the new (YX95D) Relay is not of the same pinning. Refer to Notes a to c and Figure 1 below and make the following mods to the P.C.B.

- The Relay coil pins are located in a different position so drill two 1.5 mill holes into the P.C.B. at positions x on diagram (Figure 1).
- The N.C. contacts on the old relay are the N.O. contacts on the new Relay and so you will have to cut P.C.B. tracks and make links as shown on diagram (Figure 1) and then fit new Relay.
- Check all connections to diagram (Figure 1).

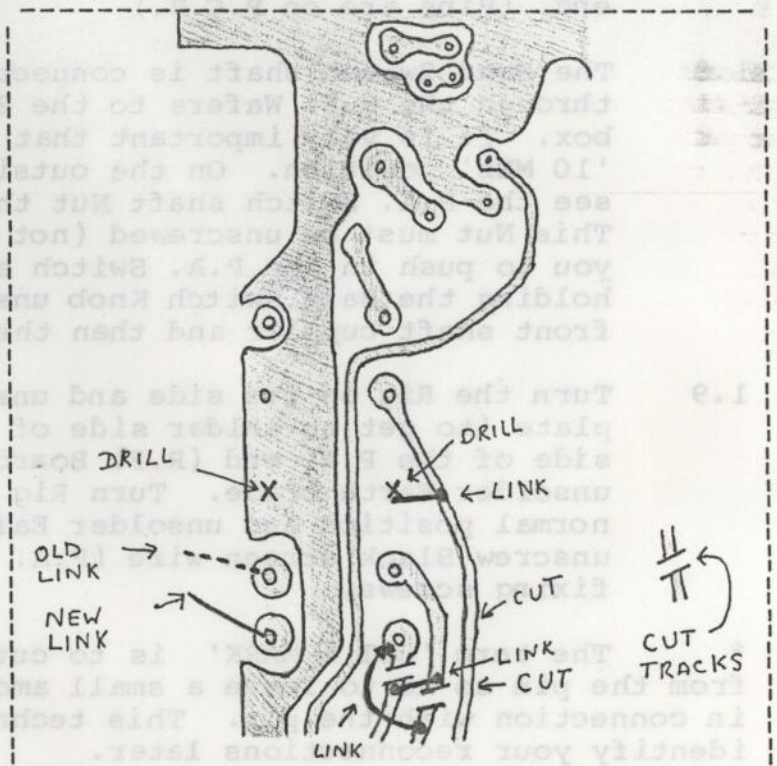


Figure 1

(Next Page O.M.) >>>

*** RECOVERY ***

- 3.0 Refit bakelite strip and circlip. Check P.C.B. for any dry solder joints or shorts.
- 3.1 Refit Band Switch cupplers to shaft and slide on black plastic fittings (hold in place with tape). Do not yet screw up grub screw on back cuppler to P.A. Switch or change position of Band Switch Knob.
- 3.2 Relocate R.F. board and slot in cupplers (not easy !).
- 3.3 Refit P.C.B. Screws, Plugs, Earth Staps, White wire and Brown wire on P.A. case, White wire at front of P.C.B. and Yellow wire, Red/White and Orange to tags P.C.B. and tighten up P.A. Switch nut. Refit White and Screen lead to underside of R.F. board and refit Screening plate and A.F. board.
- 3.4 Take off P.A. cover and P.A. side cover and take out 6146B by the P.A. Band switch.
- 3.5 Looking at the back of the P.A. Band Switch you will see a support plate running from the top of the last wafer to the bottom. On the L.H. side of the plate are 6 connections from the P.A. wafer to the P.A. Tank coil. From top left (11 O'Clock) to bottom L.H. side (7 O'Clock) the Band positions are 10, 14, 18, 21, 24.5 and 28 MHz. With the Band Change switch in the 10 MHz position check that the P.A. Tank coil wafer wiper is located at (11 O'Clock) and if ok then screw up P.A. cuppler grub screw.
- 3.6 With all the Band Switch grub screws tight, turn band Switch Knob from 10 MHz to 28 MHz and check that the P.A. Band Switch wiper is locating in each position corectly. If not so the unscrew P.A. cuppler grub screw and apply light force to the left or the right side of Band Change Switch Knob, tighten up P.A. cuppler grub screw and recheck.
- 3.7 Refit 6146B, P.A. side cover and refit 12BY7A.
- 3.8 Refit 'Load' Knob, shaft and shaft cuppler to load cap. shaft.
- 3.9 Refit 'Plate' shaft and cupplers to plate cap. shaft.
- 3.10 Refit 'Pre-select' shaft and Knob.
- 3.11 Refit P.A. cover, top and bottom covers.

The swear box will now contain many coins of you local currency sufficient for several pints of beer.

(Next Page O.M.) >>>

FROM GI4PCQ

Hi Jim and all the 102 Users.

Congrats on Vol 2, issue 1. It is great that so many of our original members have re-registered for volume 2 of the newsletter. I have retained all the original membership numbers as well as adding new ones for brand new members, so we have upwards of 170 users listed, of which over 100 are taking vol.2.

THE NET

40 meters on Sunday mornings has been quite busy (11.00 British local time around 7.065). There have been the usual problems with QRM and a move up the band is under consideration. Nice to hear Hans PA3CNY again when skip permitted - Hans was one of our early members (38). Speaking of early members, Jamie EI3FZ (No.2) has gone solid-state with a Kenwood 440 line-up and his good friend, ex-Kerryman Mike GOJWX (155) threatens to do the same !

ATU OVERHAUL

I recently had the experience of losing a segment of the bandswitch on my FC102. There was a small crackle during TX and then the switch wouldn't rotate properly afterwards. Inspection showed some of the contacts on the rearmost wafer had melted - this was with 100 watts !

It is not possible to get a wafer on its own and in the end a complete new switch had to be obtained from Japan. At almost £50 I felt slightly ripped off! Putting it in was also not much fun. I had hoped to just replace the faulty ceramic wafer but the old one shattered when I tried to prise it off, so I didn't want to try that on the new one. I began the painstaking job of de-soldering all the contacts on the old switch and removing it...practically all the innards had to come out of the ATU to achieve this. I made drawings of all the connections beforehand to be safe. It is interesting how Yaesu achieved the (supposedly) high power rating of this unit by twinning together the contacts on the back and front of each wafer.

I had to replace a bulb in the SWR meter at the same time and this proved straightforward...the meter assembly comes away easily with a few screws and the glass is actually held on to the meter with a layer of black tape. The bulb (obtained from SMC) was easy to solder in position.

After unscrewing the Antenna sockets at the rear a few times I managed to break the PCB connection to the SWR sensor/relay board..watch this: the antenna sockets are soldered straight in to the board - it is easy to unseat them.

ATU POWER READINGS

My ATU's power meter, on the PEP setting, shows upwards of 200 watts on 40M and 150ish on 20m and 15m..I am suspicious of this, can any other user confirm such readings ?

(Next Page O.M.) >>>

ALC READINGS

A recent stateside contact, W3BYI (he had TWO 102s) complained that one of his rigs wouldn't move the ALC meter on TX, but only on 20m SSB! It starts off OK but drops away after 30 mins use (driver tube failing?). It is otherwise perfect on all other bands...is the ALC circuitry bandswitched? I don't think so. The driver is, isn't it? I reminded him that if you QSY far away from the original tune-up frequency, the PRESELECTOR needs to be re-peaked, otherwise you'll certainly lose some drive and ALC won't move. Anyway I promised to get help....experts please contact W3BYI, Mr G. Thompson, at 4012 Walrad St. Baltimore, Md. 21229 USA, or else advise me via the NET or via Packet @ GB7TED-2.

CORRECTING CW CHIRP

I found a report (in an old QST mag) from Carl AA4MI, of a cure for CW chirp when using the VOX semi-break-in facility on the FT102. As the VOX circuit keys the rig, a rising tone chirp is heard. This fault was apparently common on early models and the suggested cure is to remove C153, a 3.3uF capacitor which charges when the VOX circuit is keyed. The location is the LOCAL board 2345, accessible from the bottom cover...simply cut one lead...it is a tubular capacitor standing on end. In newer rigs the component has been left out.

FAULTY GE VALVES

Harry Leeming G3LLL of Holdings Electronics, Blackburn has been a useful source of matched triple 6146B final tubes for our group. Until recently these were always American GE brand, which worked well in the 102. Harry now advises that his last batch of GE 6146 valves were down on power out and he had to send them all back. He tested pairs in a 101ZD against alternatives and found that the heater volts had to be increased up to 7.5V to get even 70 Watts out from the new valves!

6-year-old used GEs and 3-year-old unused National 6146Bs gave this with normal 6.3V heater supply. A pair of 10-year-old unused RCA tubes gave 80 Watts under normal conditions. The results from the new batch were very variable (full test data forwarded to Jim). The best pair gave 55W at 6.3V, so be warned!

Harry is now offering SYLVANIA as alternatives, but they are more expensive...please see his ads. There was some concern in the past about the SYLVANIAS in the 102 causing thermal runaway. Please let us know if you have tried these with success.

PROTECTING YOUR RF AMP

A recent bout of electrical storms has reminded me how easy it is to lose the FET in the RF amp of your receiver's front-end as a result of transients arising from nearby strikes. In the past we have suggested switching the RF amp out when the rig is not in use. However it now occurs that, because it is relay-switched, it may come back in when power is removed from the rig...or does it? Perhaps the RF amp is normally out and only comes in when the rig is powered up. Can anyone

(Next Page O.M.) >>>

confirm which? (Relays only switched in with power on Rig ! Ed.)
 Anyway the safest bet is to disconnect the antenna from the rig and ground it and the antenna socket if storms are about..a heavy duty coaxial switch can be used for this. That should protect your pre-amp against everything except a direct hit, in which case you won't be needing it anyway!

10 METER POWER LEVELS

Some confusion has arisen (judging from NET discussion) regarding the level of Plate current to run on 10 meters. The manual doesn't say that you CAN'T TUNE UP for the usual 300 mA Ic, but it definitely advises limiting drive on FM and CW to 200 mA during TX - this will give you only about 40W. Some of us have found that SSB working at higher drive levels can cause the standing current to creep up alarmingly...especially if you are long-winded like me!

I have written to Yaesu for their comments. G4VBU has suggested (last issue) that R04 may be the answer to all our thermal runaway worries. We shall see...meanwhile watch that Ic on 10M....it's going to be an interesting band for the new few years!

That's all for now,
 Best 73s , Sean GI4PCQ (102 User Group Co-Ordinator)

***** NEXT ISSUE *****

In our next issue we will continue with the faults list and T.V.I. info. Our feature item will be on improvements to the product detector and I.F. stages. Some items were held over this time as Sean's letter was included in this issue. I am sure that you all agree that it is very informative so many thanks Sean from all users.

***** BITS & BOBS *****

One of the problems with me working in a Hospital is that my work hours can change from week to week. For the most part however I work from 1PM to 9PM Mondays to Fridays and on (week 1) a Saturday from 1PM to 9PM and on (week 2) a Sunday from 9AM to 9PM. So for most times I will be on the Net every other Sunday. I will hold a mid-week Net on our Net frequency at 1000 GMT Wednesday and a Saturday Net at 1000 GMT. Dx stations will find me (G4VBU) most nights at 2030 GMT. working on 21.380 MHz with Trevor (G0CEM) beaming U.S.A.

Our Spanish Users would like this news letter published in Spanish that is not possible but is there anyone who can speak the lingo? We are looking for someone to translate our news letter on cassette tape, any offers please?

Best 73s , Jim G4VBU (102 User Group Editor)

(Last Page O.M.) >>>

(Next Page O.M.) >>

