M31-2-1

BRITAIN

re have been a few changes. Some with some of the pirate ships, probably started with Radio music influence. In any case,) radio; this was subsequently quite low power and not likely to London-1458 in Cape Town in 1979, . But give it a go! This list (recently synchronized now) as well at of it comes from the Arctic 87. I will update it from time to

R. Orwell, Ipswich
R. Victory, Portsmouth
BBC R3, synchro
BBC R3, synchro
Saxon R., Edmunds
R. West, Bristol
Marcher Sound, Prestatyn
Centre R., Leicester
Pennine R., Bradford
BBC WS, Orford Ness
Hereward R., Peterborough
R. Ulster, synchro
BBC R. Solent, Bournemouth//999
Cardiff BC Co., Cardiff
Mercia Sound, Coventry
Essex R., Chelmsford
Manx Radio, Douglas I-O-M
R. Lincolnshire, Lincoln
Wiltshire R., Chippenham
R.210, Reading
Essex R., Southend on Sea
BBC R4, Redmoss
BBC Radio London
BBC R.Birmingham
BBC R. Manchester
BBC R. Newcastle
BBC R. Carlisle, Carlisle
BBC R4, Torquay
BBC R. South West, Torbay
BBC R. Merseyside, Liverpool
BBC R. 162, Bournemouth
BBC R. Humberside, Hull
BBC R. Brighton, Brighton
BBC R4, Carlisle
BBC R4, Torbay(Torquay?)
BBC R. Oxford, Oxford
BBC R. Stoke on Trent, S on T
BBC R. Nottingham, Nottingham
R. Wyvern, Worcester(XR)//954
Capital Radio, London
BBC R. Bristol, Bristol
R. Forth, Edinburgh
R. City, Liverpool
BBC R. Cleveland, Middlesboro
R. Hallam, Sheffield
R. Tay, Perth//1161
BBC R. Bristol, Taunton//1548
BBC R.Norfolkshire, King's Lynn

Guildford
Red Rose R., Blackpool
Northside Sound, Londonderry
R. Yorkshire, York
R. Cambridgeshire, Cambridge
R. Gwent, Gwent
R. Devon
R. Kent, Canterbury, Dover, Thanet area
Preston
Gwent Area BC, Newport
Londonderry

Digital TRF Readout; The Easy Way!

By Bill Block and Frank Aden, Jr.

The PCIM 177 is a LCD readout module with 26 different IF offsets built in. The unit will work with LW, AM, FM, and SW but needs a prescaler unit to operate above 3999.9 khz. A 5 volt incandescent light is also included.

The PCIM 177 is available from Printed Circuits International, 1145 Sonora Court, Sunnyvale CA 94086. Cost is $25 postpaid.

For Broadcast Band only all you have to do is connect the unit to a 3-7 voltage source and the input to your receiver's local oscillator.

We decided to install the unit in the Radio Shack TRF. Before you read on please note the unit does generate interference on the Broadcast Band. To solve this problem we decided to use a SPST switch to turn the display on/off. The TRF's power source of 6 volts is used to power the PCIM 177.

No noticeable shift in the TRF's tuning was noted so a buffer circuit is probably not required. The unit has very low power comsumption so little drain will be put on the TRF's batteries.

Another SPST switch is used to allow momentary operation of the unit's light but since the TRF's 6 volts is too high a voltage drop resistor must be used. We found that 33 ohms to be acceptable, dropping the voltage to 4.8 volts.

We installed the module in the front of the TRF just left of the speaker. Cutting the hole took several hours (you have to be very careful) and a coping saw was found to be the best was to go.

The IRCA TECHNICAL GUIDE is the best reference on how to get into the TRF. We recommend the use of shielded audio cable for all hookups and advise to keep all leads as short as possible. Note only the inner conductor is used.

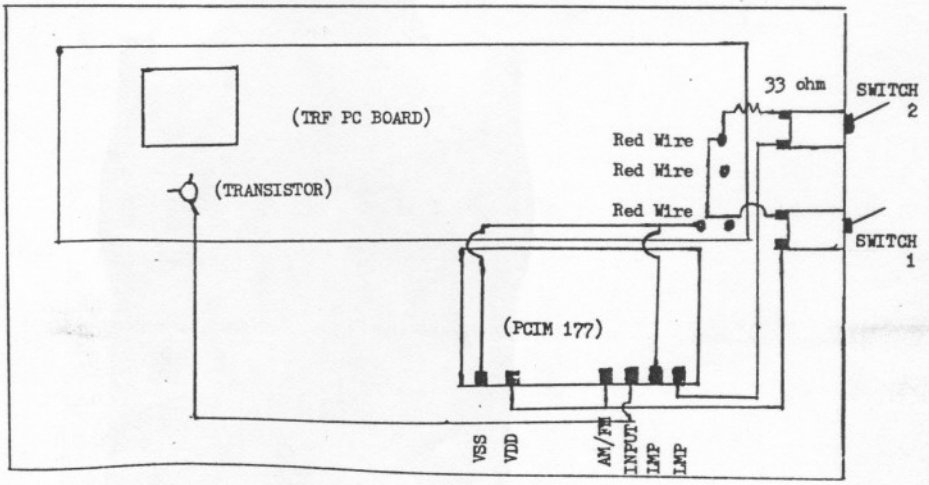
Solder the wires to the module as flat as possible (do not let up stick upward) otherwise the AC power cord compartment will be in the way once the receiver is put back together. Also use a pencil type soldering gun only as a regular type gun will be too hot for both the PCIM 117 and the TRF's components.

For those who want to avoid the interference problem it is suggested to install the module in a mini-box using audio cable to connect with the TRF. Install a jack on the rear of the TRF with connections to ground and the local oscillator. A battery holder can be used to power the unit instead of the TRF's power.

Step by step instructions follow:

1. Run wire from module LMP to terminal 1 of switch 2.
2. From other terminal of switch 2 run a 33 ohm resistor to the top right hand red wire of the TRF's PC board.
3. Run a wire from this position to switch 1 terminal 1.
4. From switch 1 terminal 2 run a wire to VDD on the module.
5. Run jumper cable on module from VDD to AM/FM.
6. From other LMP position on module run a wire to the bottom right hand inside red wire on the TRF's PC board.
7. Run another wire from this posistion to VSS on the module.
8. Run wire from input on module to bottom lead of the transistor (below tuning capacitor) on the TRF's PC board, solder this very carefully, use a heat sink if possible. It is suggested to put a little solder on the wire then soldering it to transistor. Do not touch the transistor lead with the soldering pencil directly.

Switch 1 turns on the display, switch 2 turns on the lamp. Now align the TRF as per instruction in the IRCA TECHNICAL GUIDE. Happy tuning!

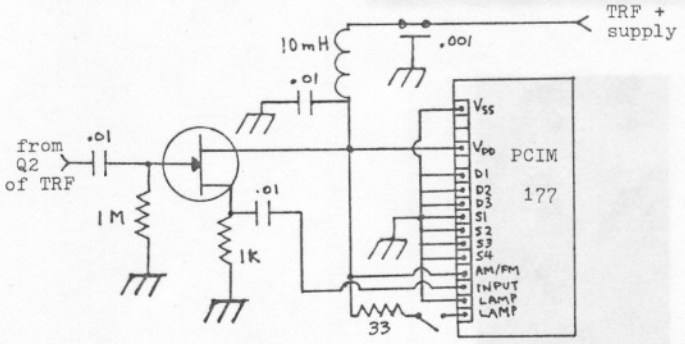


More on Digital Readout for the TRF by NHP

The PCIM177 LCD digital display described by Frank Aden and Bill Block in the May 1, 1982 DX Monitor is an ideal match for the Realistic 12-655 (and the later 12-656) "TRF", and probably other AM DX portables. It uses 5 to 7 volts DC at a very low current, is compact, and relatively cheap at $25.

There are a couple of problems however. The major one mentioned by Block and Aden is that the unit develops broadband noise which is easily detected by the loop antenna of the radio. The simplest solution to the problem is to switch the unit off once the frequency is determined. It bothered me to be switching the readout on and off all the time, and I also wanted to use the module with more sensitive receivers as well, so I tried suppressing the noise, with a good deal of success. Putting an LC filter between the TRF power supply/battery pack and the 177 V_{DD} input certainly reduces the noise to a degree, but the module itself radiates the noise, so there's still a lot left to be picked up by the antenna, if the module's anywhere near it, e.g. inside the radio's case.

So the module was bolted into a 2¼x3¼x1" aluminum minibox with a suitable hole cut in the front for the display. The LC filter was contained within the box as was an FET source follower:

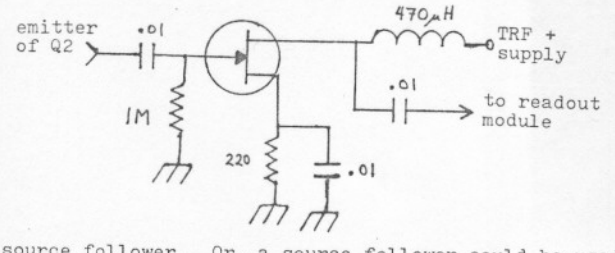


The FET can be any common N-channel RF type (MPF102, 2N3819 etc.) Although I didn't wire in the lamp in mine, I have indicated it; the lamp should be switched, as it draws much more current than the rest of the module. Some may question the source follower at the input, as the PCIM177 already has a high input impedance. The module works fine without the input circuit, but there is about 15 mV rms of 6.5536 MHz energy (from the 177's crystal oscillator) at the module input which is then radiated back to the input of the TRF. This signal interacts with harmonics of the TRF's local oscillator yielding birdies at about 1578 and 1070 kHz. These can be lived with, but what the heck, might as well do the job properly, and eliminate them with this input circuit. The feedthrough capacitor in the LC filter circuit can probably be replaced by an ordinary capacitor if a feedthrough isn't available.

The box is now bolted to the left side of the TRF's speaker grille. A BEZ-10 bezel from Ambit International is used to pretty up the display (the MB-10 from PCI is the same thing I believe).

The .1 kHz accuracy may seem a bit too fine for some; one should be able to get accuracy to the nearest kHz (with .1 kHz blanked) by disconnecting "D2" and "D3" on the module from the ground, and attaching them to the V_{DD} line. Other possibilities are noted in the data sheet which comes with the device. The accuracy of the readout may lead to the realization that the IF filter of the TRF is not exactly 455 kHz. My TRF's signals peak about 1 kHz below their true frequency, indicating a 454 kHz IF filter. Next mod, a better IF filter?

Finally, my TRF's converter transistor didn't put out enough of a voltage through shielded cable to drive the PCIM177 entirely accurately. If this is a problem, an amplifier can be quickly haywired together off the edge of the PC board, such as one below:



The components are small and can be self supporting. Again, any N-channel RF FET can be used here. With any luck, your TRF won't need this. Conversely, this circuit could be built next to the readout module and a short shielded cable run to it from the emitter of Q2, thus eliminating source follower. Or, a source follower could be used at Q2, and a transistor amplifier (as shown in the PCIM177 data sheet) used at the module.

So, it was a bit of work, but I now have a digital display for my TRF which can be left on while using the radio. There is no noise or birdies interfering with the weakest signal, even using a Shotgun loop a few inches from the display. This lack of readout noise bodes well for using the PCIM177 with high sensitivity DX receivers. The PCIM177 is available from Printed Circuits International, 1145 Sonora Court, Sunnyvale, CA 94086.

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