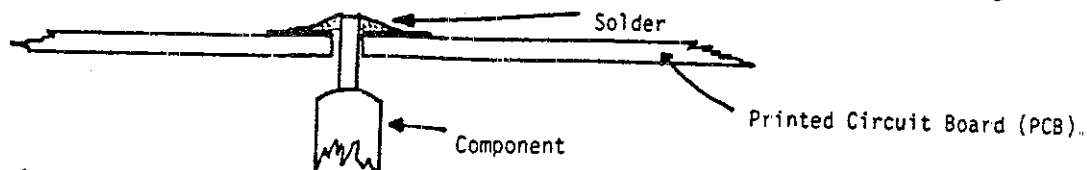


Tools required:- Small tipped soldering iron about 30 watts, small side cutters, long nosed pliers, trimming tool.

Make sure you have all the correct parts and tools before you start. It is advisable to read all the paper-work through at least once before you plug in the iron. Start by fitting the resistors. Refer to the parts list and select R1, fit this into the holes marked for it on the circuit board, pushing it down so that it is not standing up on long legs! Bend the legs over slightly so the resistor will not fall out when you turn the board over, then solder it to the printed circuit track. To solder properly you should hold the iron so that it is in contact with both the track and the component lead, so that they both heat up for a second or so, then keeping the iron in place, touch the solder onto the joint and wait for a second or so for it to run freely over the lead and circuit track. Remove the iron as soon as the solder has flowed along the lead and track. The soldering iron should have been in contact with the lead and track for a total time of about 4 seconds - any longer and you risk damaging the component or the board. Next cut the component lead as close to the joint as possible.



When you have fitted all the resistors, fit the capacitors, taking care to connect the electrolytics the correct way round (see note on parts list). Next fit the diodes and integrated circuits (D1,D2,IC1&IC2). Take care to fit these the right way round and do not apply more heat than is necessary to make a good joint. Now fit TR1,TR2&TR3, again watch out for overheating - leave these transistors with about a 1/4" (6mm) lead above the circuit board.

NOTE double check that you have installed all the electrolytic capacitors and semiconductors the right way round in the board before you solder them in!

Next fit the link to the circuit board. This is simply made by selecting a suitable offcut component lead and soldering it between the holes marked for it on the board. Now install the coils as shown on the parts list. Beware! incorrect connections here have been the most common fault made by constructors. We have redesigned the board a little to make it easier to get these right, but there are still quite a few wires that could go to the wrong holes!

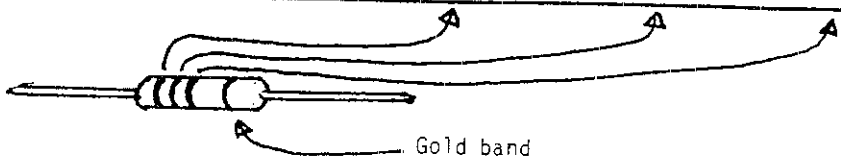
Now is the time to make a thorough check that all the parts are correctly placed in the board and that all the solder joints are bright and good, if you suspect a poor joint, resolder it with a little fresh solder.

When you are sure that all is well, refer to the module wiring diagram and install the board in a suitable case and connect up the external components as shown. Note that there are two connection points for CV2 on the board, these are marked "a" and "b". connect CV2 to the terminal listed as most suitable in the table on the module wiring diagram. In the 80M version of this kit we have provided a capacitor, C22, that is not fitted to the circuit board. This is for wiring across the terminals of CV1, if a 50pF component is being used. If you are using a larger value for CV1, there is no need to fit this capacitor.

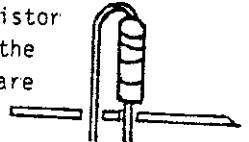
Before you switch the set on, double check the wiring again, virtually all faults are caused by poor soldering or incorrect connections, component failures are very, very rare indeed.

Connect up a 12 to 14 volt battery or power supply (NOTE Negative Earth) and switch on. With the volume control turned up, you should be able to hear a hiss in the loudspeaker or headphones. Set CV1 to half mesh and CV2 so that its vanes are fully meshed. Using another shortwave radio, listen on the lowest frequency you want the radio to receive and tune the core of L3 with an insulated trimming tool until you can hear the DcRx local oscillator is tuned to the same frequency. To do this it is best to simply connect the antenna sockets of the two radios together, the local oscillator signal will then be very strong and easy to hear. You can now calibrate the receivers dial using a HOWES XM1 or other suitable calibrator. Connect up a good antenna and tune the band using CV2 until you find a signal, now adjust CV1 for the best signal strength, retune CV2 slowly for the most readable signal. If you are new to listening to single sideband (SSB) signals, you will probably find tuning them in a little tricky at first, but you will soon master the art. We hope you enjoy listening to your new DcRx. It is amazing what you can hear on a simple set!

RESISTORS						Fitted	Checked
Part No.	Value	Colour Code					
		1st band	2nd band	3rd band			
R1	33k	Orange	Orange	Orange			
R2	1k0	Brown	Black	Red			
R3	470R	Yellow	Violet	Brown			
R4	470R	"	"	"			
R5	1k0	Brown	Black	Red			
R6	100R	Brown	Black	Brown			
R7	270R	Red	Violet	Brown			
R8	100k	Brown	Black	Yellow			
R9	270R	Red	Violet	Brown			
R10	100k	Brown	Black	Yellow			
R11	1M5	Brown	Green	Green			
R12	4k7	Yellow	Violet	Red			
R13	100R	Brown	Black	Brown			
R14	22k	Red	Red	Orange			
R15	2R2	Red	Red	Gold			
R16	270R	Red	Violet	Brown			
R17	100k	Brown	Black	Yellow			



Mount the resistor like this if the holes for it are close together.



CAPACITORS				Fitted	Checked
Part No.	Value	Description of component marking			
C1	10pF	marked 10			
C2*	100µF	" 100µF 25V			
C3	.1µF	" 104K			
C4	.01µF	" 103			
C5	.01µF	" 103			
C6	.01µF	marked 103			
C7	.1µF	" 104K			
C8	.01µF	" 103			
C9	.1µF	" 104K			
C10	22pF	" 22			
C11	47pF	marked 47			
C12	.1µF	" 104K			
C13	.01	" 103			
C14	.1	" 104K			
C15*	100µF	" 100µF 25V			
C16	.1µF	marked 104K			
C17*	100µF	" 100µF 25V			
C18	.01µF	" 103			
C19	1nF	" .001 or 102			
C20*	100µF	" 100µF 25V			
C21	100pF	" 100 or N10			

***WARNING** C2,C15,C17&C20 MUST be put in the correct way round. The longer component lead goes to the hole marked "+", the lead indicated by a "-" on the side of the component goes to the hole marked "-".

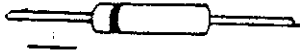
SEMICONDUCTORS

TR1, TR2 & TR3

2N3819



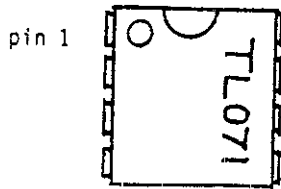
D1 and D2



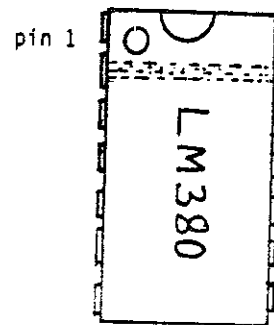
D1 is 1N4148. These sometimes have their type number printed on them, but this is unusual. The parts we normally supply have several coloured bands on them, the widest band indicates the lead that must go to the hole marked with a "+" sign on the board. We sometimes supply an orange coloured 1N4148 which has a single black band on it to mark the "+" end.
D2 is a BZY88 diode and this has its type number marked on it- you need good eyes or a magnifying glass though!

IC1 and IC2

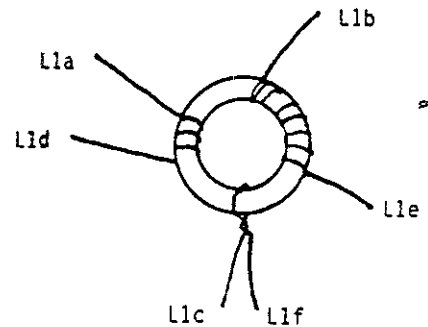
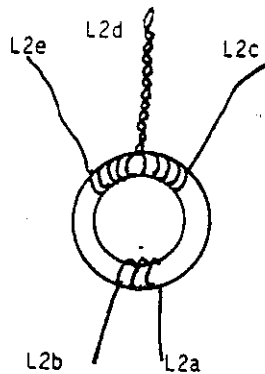
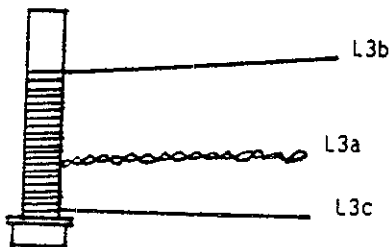
Pin 1 is often marked with a spot.



TL071 or TA75071P

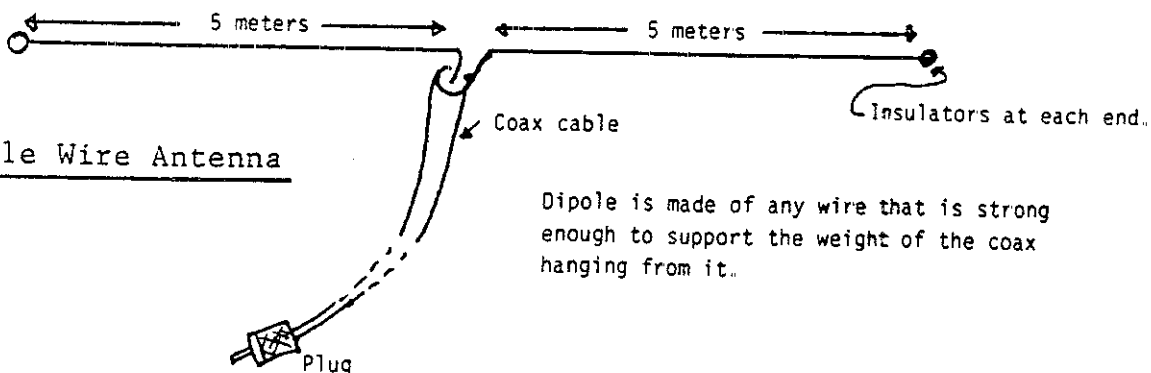


COILS 20/30Meter Version

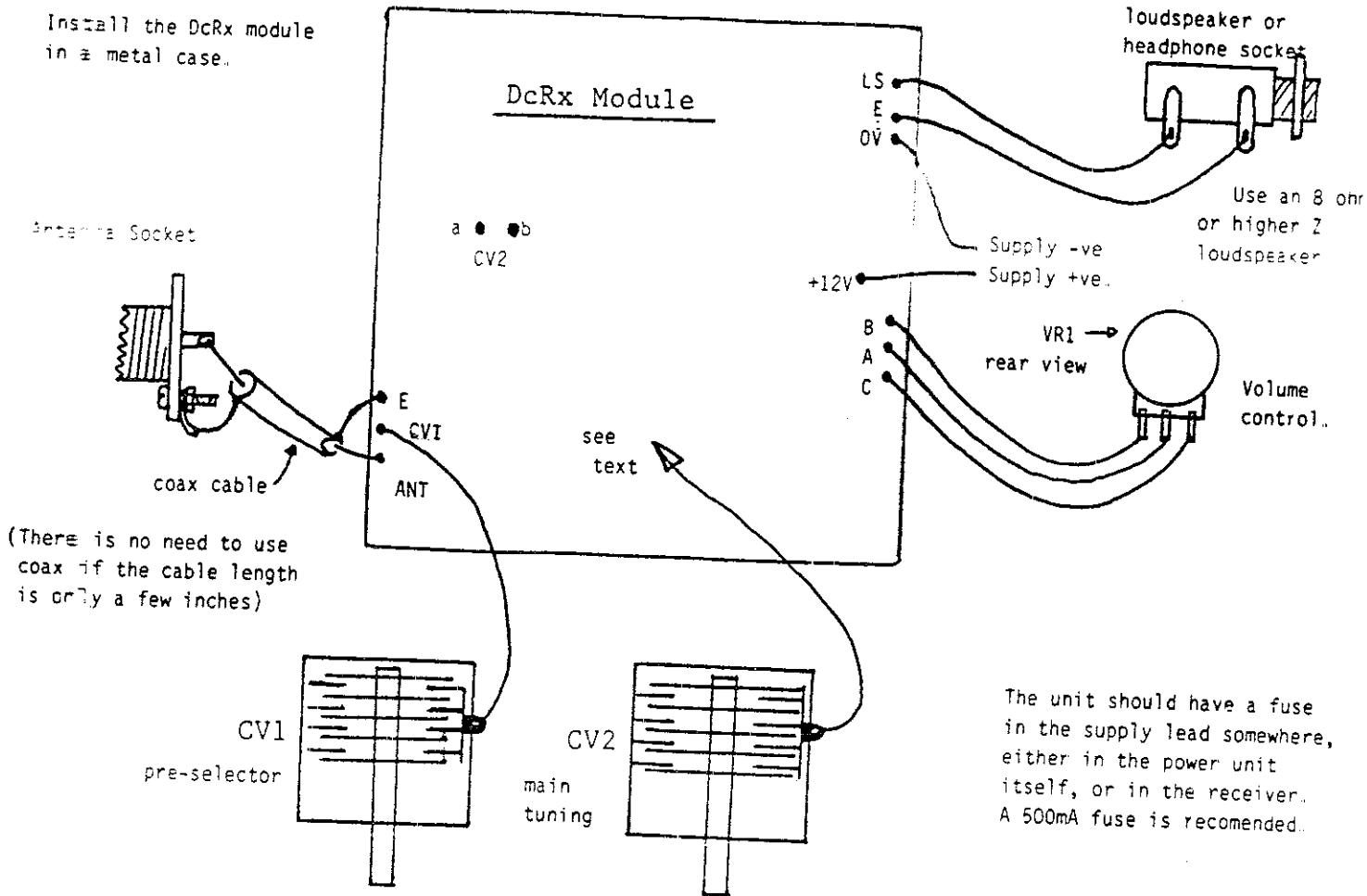


Coils are supplied ready-wound and with tinned leads for easy assembly, be carefull to get the leads in the right holes.

Simple Wire Antenna



Dipole is made of any wire that is strong enough to support the weight of the coax hanging from it.



Connection to the moving vanes of the tuning capacitors is normally made via the fixing screws which will connect these plates to the chassis of the receiver. If the moving vanes are insulated from the fixings in the devices you are using, then wire them to the case metalwork.

CV1 and CV2 are variable air-spaced capacitors. The use of 50pF components is recommended, but other values can be used. The value of CV1 is not very critical, use a device of 50pF or more, if you have a larger value in the junk-box, then it will probably be OK. For full band coverage a 50pF device is recommended for CV2, the main tuning control. A smaller value will mean that you won't be able to tune all the band, a larger value and tuning will be very sharp and rather more difficult.

Connection details for various values of CV2

- Wire CV2 to point CV2a on the PCB if using a 50pF component on 20 or 40M.
- Wire CV2 to point CV2b on the PCB if using a 50pF device on 80Meters.
- Wire CV2 to point CV2a on the PCB if using approx 350pF on 80Meters.
- If you have a 5pF capacitor, you can use this on 20M by connecting it to point CV2b.

You will need to use a "proper" antenna if you are going to get good results from this, or for that matter any, receiver. A few feet of wire is not good enough. Details of a simple wire dipole are shown on the Parts List 2 sheet. If you can not get a full size dipole up, then we would recommend the use of a piece of wire as high and clear as possible, with an antenna tuning unit to help the performance. Any antenna should be as high and as much in the clear as you can manage for best results. We would also recommend that you use a slow-motion reduction drive for CV2 to make tuning easier.

