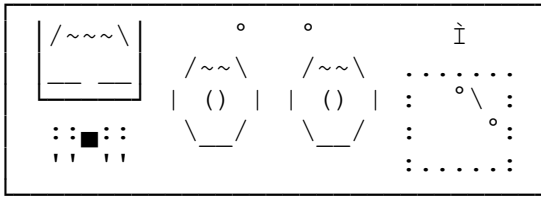


Palstar AT1500CV ATU

By G8MNY

(Updated Jul 13)

(8 Bit ASCII graphics use code page 437 or 850, Terminal Font)

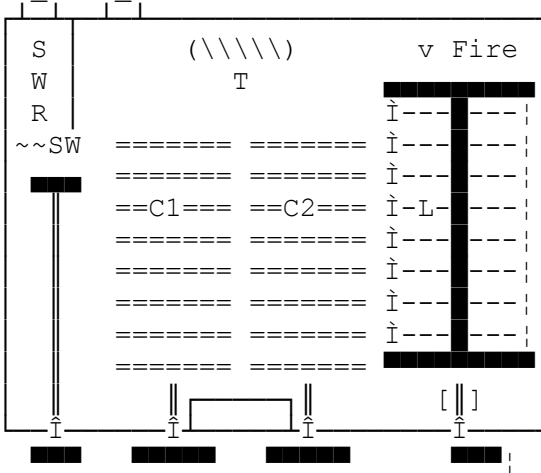


FEATURES

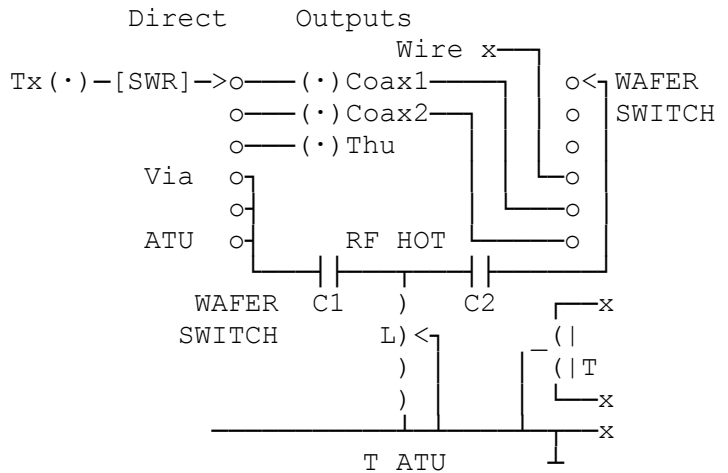
- 4:1 Balun transformer for balanced output.
- Direct: coax 1, & 2, & bypass outputs.
- Tuned: coax 1, & 2, & wire outputs.
- 300W & 3kW cross needle lit power meter
- 60W & 600W reflected.
- The T arrangement C L C has with vernier counter on the inductor.

This unit is not fitted with the same sized capacitors or smaller rotary ceramic & wire roller coaster as shown in the 2 Radcom articles below (*), but it uses slightly smaller capacitors (still 4.5kV rated) & a large surface area static silver plated flat spiral coil (very high Q) with a rotating internal 2 surface gripping roller similar, but bigger than the one used in the MFJ 989D.

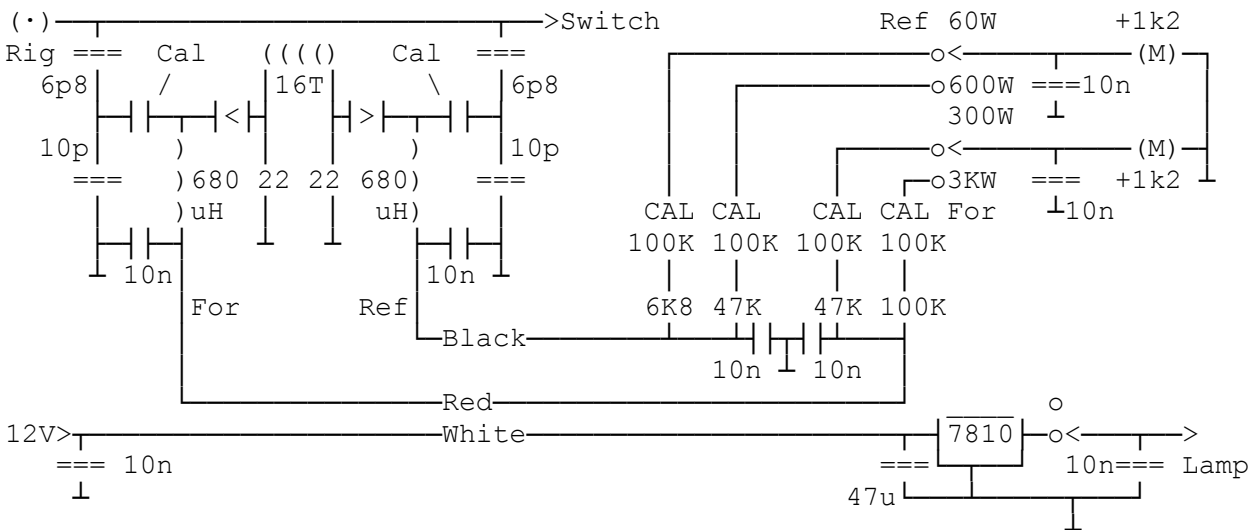
INTERNAL LAYOUT



SIMPLIFIED CIRCUIT



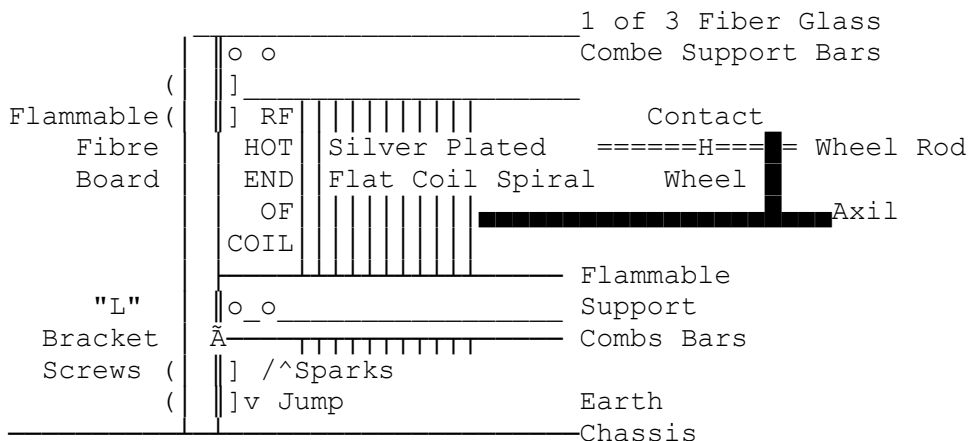
SWR CIRCUIT



HI Q ROLLER COASTER

Unfortunately this large 1500W QRO ATU flashed over & caught fire (smells of burning), due to poor design of the QRO roller coaster coil mounting brackets, flammable construction fibre board, & inexperienced user (me) when tuning up with only 400 Watts.

On the back coil insulator combs, there are 3 right angle brackets, that have sharp corners only a few mm away from the "RF HOT" top of the tuned circuit, & are mounted on flammable thick fibre glass board.



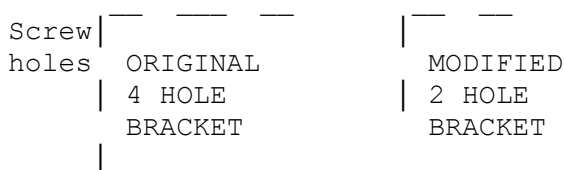
The Caps C1 & C2 are designed for very high voltage & should be the first thing that arcs over, but not these sharp cornered brackets!

REPAIR

The burnt fibre board & shaped mounting comb strip must be cleaned of any charred material with a sharp knife. This may mean removal & part disassemble of the roller coaster support combe bars.

MODIFICATION

To stop reoccurrence at the RF hot ends of the 3 "L" shaped brackets, they were cut down in length & the redundant nuts & bolts left out of each.



Doing this to all 3 brackets (even the top one not near to ground), adds about 1cm to the flashover arc distance! And has no effect on the sturdiness of the roller coaster assembly as long as the bolts are kept tight.

OTHER BURN MARKS

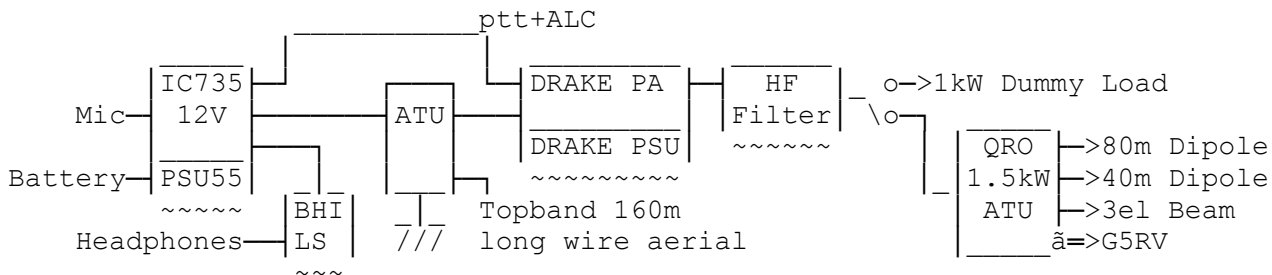
The 3 combe supports bars can suffer. They are all different with the coil slots all moved 1/3 of the pitch. But I have managed to reverse the top one so the burnt RF hot end, is now the cold end.

LOOSE SCREWS

As this unit has been used for /P work, some other screws had soon rattled lose despite locking washer nuts! These have been tightened up & threads painted.

IN USE

I use it for /P demonstration stations with a DRAKE L-4B PA or T500M PA & IC735 exciter, on mains or generator.



The small ATU after the Rig (VECTRONICS VC300LP) can select an internal dummy load or the long wire. On WARC bands the extra ATU is used to tune out the DRAKE L-4B linear's bad SWR of its "out of tune" input matching circuits, the PA output tank circuit matches quite OK.

The HF LP filter is sometimes used to make sure there are no VHF harmonics, if the station is in a sensitive RF area & "direct no ATU" to aerials may be used. With the G5RV then the ATU's transformer balanced output is used.

For public demos, a RF proof AF PA is used with mic audio from the AUX socket of the IC735 & BHI noise reducing LS system, so that both sides of the QSO can be clearly heard.

* RSGB Radcom Review Article May 2005 P26, & Comparative one to the MFJ 989D Jan 2007 P30.

See also my Tech buls "HF ATU & SWR Bridge VC300LP/QT-1", "Drake TC-3300-LP QRO LP Filter", "Drake WH7 QRO HF SWR Bridge" & "QRO 1kW HF Metered Dummy Load".

Why don't U send an interesting bul?

73 De John, G8MNY @ GB7CIP