

## SOME TRICKS TO PROTECT A COLLINS 30L-1

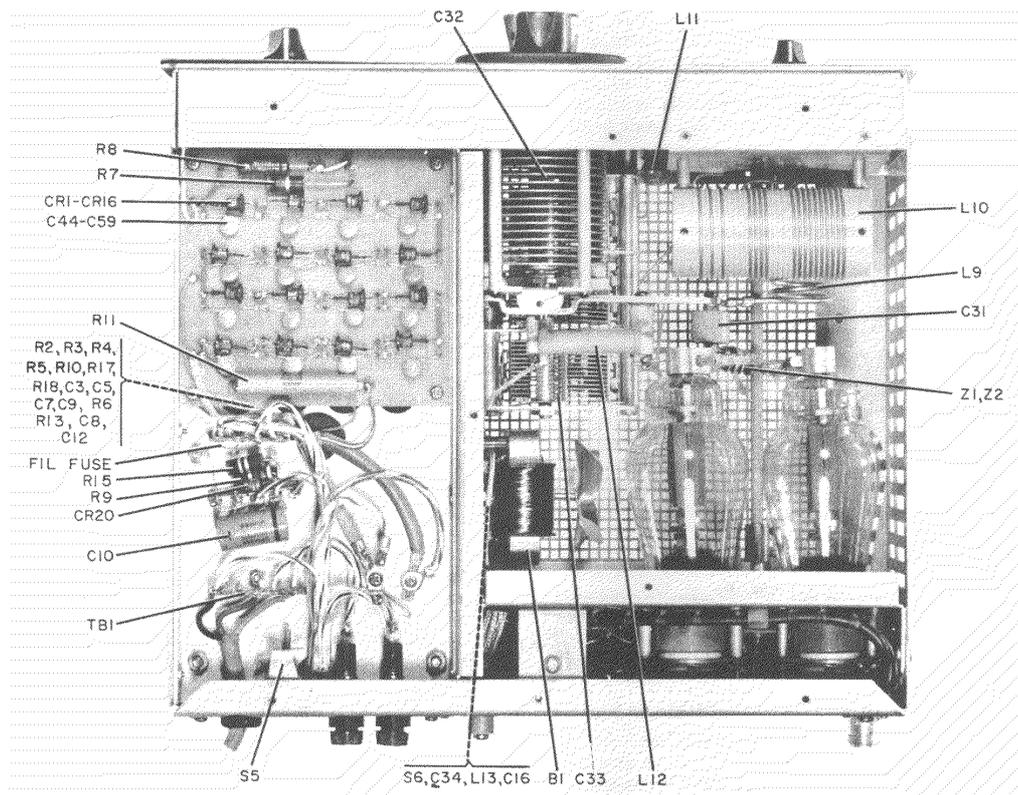
The Collins 30L-1 is widely used all over the world and is one of the most sturdy amplifiers that can be found , some minor modifications can avoid a lot of troubles and allow the amplifier to run safer

Quality US made 811A are very difficult to find and the Chinese tubes on the market are not so sturdy and prone to all kind of problems mostly due to bad manufacturing process an added problem in Europe is the additional stress due to standardization of the mains voltage , 230V , and very often found at 240V !

what can happen in a triode vacuum tube ? mostly excessive plate current which can come from reasons

### OVERCURRENT PROTECTION

if you have a look on the amplifier near the diodes board you can see a small buss wire connecting the filament center tap (white-green-ref wire) to the ground  
this small bus wire noted "FIL FUSE" does not appears on some schematics and is very important : it will open and protect the 811A's , should an excessive plate current arise in the amplifier



open your 30L-1 and make sure this little wire fuse is present near the diodes board on the power supply side , and have not been changed for a too big wire just by chance !

1 inch of # 26 tinned buss wire is recommended by Collins (2.5cm of 3/10e mm wire )  
small pieces of wires like that can usually be borrowed from a section of ordinary mains cord

## HIGH VOLTAGE FLASH

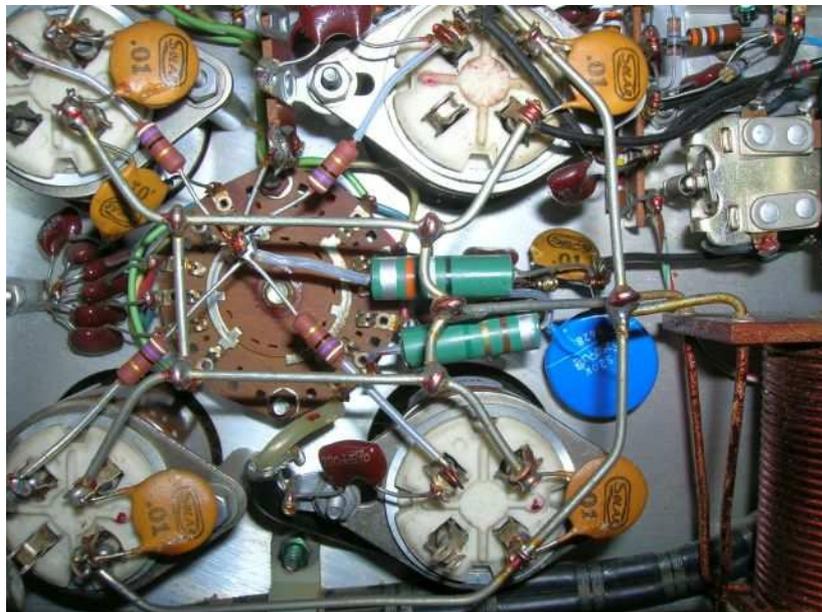
A more destructive process can also arise :

a metallic particle due to a bad manufacturing process , a shock , or everything you have , can move around the electrodes into the glass envelop and cause a short between grid and plate : this is very dangerous and destructive not only for the 811's but also for the bias circuitry

including the antenna relay coil (a difficult part to find particularly in Europe)

a good solution is easy to find : a MOV can be soldered parallel to C2 , and as the voltage at this point can be as high as 170V, any MOV around 200 or 250V can be used

I used a Siemens S20K250 because I had it at hand but any other similar device can be implemented



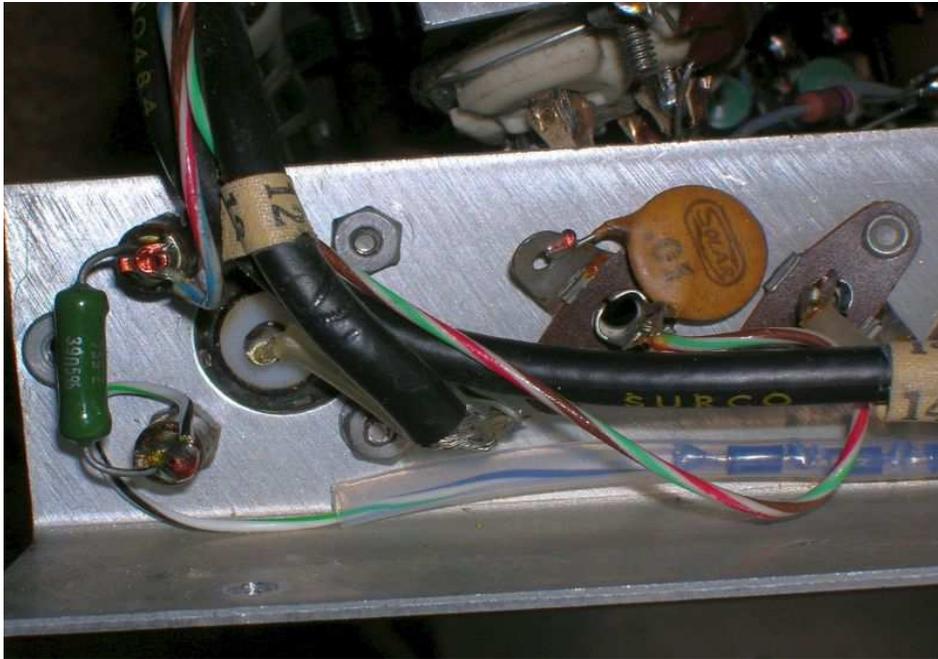
## HIGH PLATE DISSIPATION

the temperature of the amplifier can run very high : this is due to a high idle current in the 811A's . The idle current is mostly governed by the 39 Ohms resistor R28 which is located under the output "N" antenna connector

in the 8th edition of the manual , Collins has changed the value of this resistor for a 56 Ohms , but there is another way to decrease the current that can be found in some publications : you can insert a string of silicon diodes in serie with R28 : acting as a "Zener " the effect of the series connected diodes will increase the bias on the tubes and decrease the idling current : I found 3 x 1N4007 perfect for # 140-160W of plate dissipation but it is very easy to try another number of diodes to fullfit your requirements

don't forget to use some spaghetti around the diodes to avoid any short-circuit

If you don't want to modify the inside of the amplifier , the diodes string can be simply inserted in the wire connecting the amplifier to the transmitter or transceiver



**Good luck and take care , almost 2000V are present in the amplifier and they can kill you**

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