

CAUTION!

WIRED FOR 117 VAC

**EXTERNAL TUNER IS
RECOMMENDED**

**INTERNAL TUNER MAY DAMAGE
AMP. ESPECIALLY ON WIRE
ANTENNAE**

USE AN EXTERNAL ANTENNA TUNER!

FL-7000 Care

Input AC Power:

While the FL-7000 has a wide input AC Power Range, I have noticed in all the FL-7000 Amplifiers I repair that most damage is moreover caused by the Input AC Power set to 220 VAC or above and is due to the input voltage floating upwards of 277 VAC in some areas in the country.

The FL-7000 works just as well with simple wiring of 117VAC and less risk of damage is caused by unregulated AC power at this level.

When your FL-7000 is returned to you, it WILL BE set up for 117 VAC input and you will notice no difference in operation.

Using an External Tuner (a must):

The Internal Automatic Antenna Tuner in the FL-7000 is not the greatest, but it does work. The risk is always there when you are in the "tune" mode that may cause a catastrophic failure, mainly in the PA Units (i.e. RF Transistors). A very simple solution to this problem that will keep your FL-7000 amplifier working for years is to use a Manual External Tuner and keep the Internal Tuner in the OFF position. It is faster, more reliable, and you will not have the high cost of replacing the RF Power Transistors due to the stress the Antenna Tuning Procedure applies to them.

In MOST cases when a catastrophic failure occurs (not all) the FL-7000 will be trying to tune in the 160 through 40 meter bands. (ESPECIALLY USING LONG WIRE ANTENNAS). The problem is, as the FL-7000 is tuning, the input impedance to the exciter is constantly changing resulting in variations in power output from the exciter. At times it can overdrive the FL-7000 at such high levels that the power supply will rail, causing shutdown. If the protection circuit does not catch the current surges fast enough, the result will be one of more RF Transistors that will "blow" OR one of the 47 VCC regulators will open, causing more damage to the RF transistors by supplying more than the rated supply voltage to the PA.

External Automatic Antenna Tuners are NOT recommended to be used with the FL-7000 because of the same principals. Recommendations are the Ameritron ATR-15, or similar. They work great, are faster and will save the life of your FL-7000.

Drive Power:

The input drive power of the FL-7000 is different from band to band due to the impedance irregularities in the input stages and non linearity of the RF Power Transistors. In most cases as the frequency gets lower, the drive power will drop as well. Typical input on 10 meters is 70 to 80 watts drive for full output power, however below 40 meters, it is typical to see as little as 30 to 40 watts drive for a full output.

Be careful and monitor the OUTPUT and CURRENT meters on the FL-7000 as you go lower in frequency to be sure you are not overdriving. In most cases the FL-7000 will shutdown and cause you to reset. However if you use the ALC line and set the limit to 600 or 700 watts of output power with the rear ATTENUATOR switch ON (rear of the FL-7000) you should be ok for rapid band changing. Use caution on the lower bands as much as you can to avoid an overdriving condition.

Thermal Cooling:

Make sure that there is plenty of room behind your FL-7000 as well as no dust or dirt UNDER your FL-7000. The FL-7000 has twin speed fans on the bottom and a single speed fan on the rear. The rear fan cools the 47 VDC regulator heat sink and the bottom fan cools the PA Units mounted on the combiner unit.

Several people tell me that they “stack” radios on top of the FL-7000. This can become a real problem as the FL-7000 can not deliver the required volume of air to cool the PA units. These PA units get extremely hot and when they reach about 180 degrees the “jet engine” sound will be heard as the bottom fan throttles up to full speed temporarily until cooling has taken place, then will throttle down to a slower speed eventually shutting off.

If the FL-7000 is warm during power off, the internal fans will continue to run (even with the power off) until cooling is completed. As this cooling takes place with the power off, one or more LEDS (Fan 1 and/or Fan 2) will stay illuminated until the end of the cycle. Periodically make sure BOTH fans operate and spin free. Dust can build up in the fan cages and as a result, less cooling takes place and also requires the fans to stay on longer than necessary.

Yaesu FT-1000 MARK V (200 watt version) BE CAREFUL:

The Yaesu FT-1000MP Mark V has many factory problems, mainly the “Full Power Output Spike” every time the radio is keyed. This can occur regardless of where you have the power setting in the menu 4.0 or trying to limit the output power with microphone

gain control settings. Be advised that most amplifiers, not limited to the FL-7000, are destroyed by this constant full 200 watt spike at the input to the amplifier(s).

At this time there is no known cure for it however if you want to see if your FT-1000 is one of the ones that does have this problem, you will need an oscilloscope and trigger is set to the rising edge of the transmit enable pulse. Typical is 200 mS at full power which is fast enough that the FL-7000 protection will not see it and cause a shutdown due to a catastrophic fault.

The best thing to do is sell the 200 watt version, get the standard MP or the Field versions of the FT-1000 which still have the problem, however it will not damage the amplifier with a "Full Power 100 watt Spike". See more about this at www.google.com and type in "Yaesu Full Power Spike"

Things to know about your FL-7000

- 1) Replace the bottom feet which are in the shipping box.
- 2) During shipping , sometimes the fan shrouds get bent inwards stopping fan operation which will cause an overheat to occur during operation. When you get your FL-7000 and before you operate it, make sure BOTH the rear fan and bottom fan spin free using a thin object inserted into the screen mesh and rotate the blades.
- 3) As the Frequency goes lower, DRIVE will be lower as well, typical input on 80 meters is only 40 watts for 700 out! Watch input power carefully. You do not need the ALC line hooked up as long as you are careful off this. Output power from the FL-7000 should average below 700 watts.
- 4) If you ever see more than 50 VDC on the front meter (VCC), shut down at once.
- 5) Leave the unit wired for 117 VAC , it works MUCH better here.
- 5) Please post your likings to www.eham.net Product Reviews , [Amateur Radio Equipment Repair Companies](#)

Also I have a new website , spread it around!!!! <http://n4ats.com>

Thanks...

N4ATS
407-873-3070

		Serial 81150023		5/25/2009
UNITS	VDC	PROTECT		
Protect	3.72	X		Modified
60 Amp Upgrade	OK			Modified / Upgraded
Balance	0.316	X		
SWR Window	1.8:1	X		
Power Supply	47.0 VDC			Modified / Upgraded
Current / Max Pwr	27 Amps			
RTTY	32 VDC	X		
Ripple / Sharp	.325 mV	X		Modified
Tuner	OK			
Band Edges	1.9:1	X		Modified
Ant Selector	OK			
L.E.D's	OK			
Pulse Power	OK	X		Modified
Inrush (softstart)	OK			
Hi SWR		X		Modified
No Antenna		X		
RF Transistors	OK			
Balance (25 Ohm)	OK			
Balance (50 Ohm)	OK			
Bias (L-PA)	0.131			
Bias (R-PA)	0.124			
Combiner	OK			
Power Divider	OK			
FAN 1	OK			Hi/Low speed OK
FAN 2	OK			Hi/Low speed OK
Lithium Bat #1	OK			
Lithium Bat #2	OK			
Drive	45 Watts	X		
0 - Attenuator	700 Watts	X	Output	
1- Attenuator	625 Watts	X	Output	
ALC	OK	X		
LPF	OK			Modified
Protector	Ok	X		Modified
Processor	OK	X		
Condition				Nice Clean 3 button
Lamps	OK			