

its modulation level to approximately 90%. Then adjust P.A. Load and P.A. Tune Controls on the Mark II for optimum output with minimum flat-topping of the modulation envelope. Next, remove modulation and check the total power input with carrier only. It should not exceed the legal 1000 watt limit. Reduce coupling from the exciter as required to control input.

CAUTION: It is quite possible to run well in excess of the legal power limit on CW as well as SSB with the Mark II. The design of an amplifier with excellent linear characteristics up to the legal limit results in this capability. The burden of operating within legal limits falls on the operator and Swan Electronics Corporation is not responsible for improper or illegal operation. Every well informed operator should be familiar with measurement procedures, and with mathematical calculations of power level. When ever possible, an oscilloscope should be used to monitor peak power levels, since ordinary meters are unable to do so.

12. **RTTY Operation.** The Mark II is rated at a minimum of 800 watts continuous input power for RTTY service. The full legal limit of 1000 watts may be run for periods up to 1 hour or longer when ventilation is adequate. Temperature rise of the power transformer is the main limiting factor, and it is limited to a maximum of Tuning procedures when using FSK or AFSK are essentially the same as when tuning for CW operation. Care must be observed in order to hold input power to the legal limit. For continuous operation, it is important that adequate ventilation be provided. In a confined, relatively warm environment, the equipment will naturally run hotter, and additional ventilation from an auxiliary fan may be advisable. Normally, however, this will not be required. Temperature rise is the sole criterion.

MAINTENANCE

There will be little maintenance required in the Mark II amplifier. The 3-400Z tubes will provide thousands of service hours when operated according to instructions. Deterioration of a tube will generally be indicated by a change in idling current or inability

to draw normal plate current, or both. It is normal for the plates to show a fairly bright red color at full dissipation rating of 400 watts. Uneven coloring and a difference in color between two tubes may indicate tube failure. However, except for occasional field problems which may occur with any electronic device, the tubes may be expected to operate month after month and year after year with no problems. **NOTICE—** If warranty replacement is required, the tubes must be shipped to the tube manufacturer with a complete failure report. Do not ship them to your dealer or to Swan Electronics as this will only delay warranty adjustments.

Other components are also operated conservatively, and well within nominal ratings. The electrolytic filter capacitors in the power supply are computer grade, meaning that they have a much higher degree of purity and quality control than conventional types. Life expectancy of these filters is approximately 10 years. The silicon diodes used in the supply are hermetically sealed and are not likely to ever fail or wear out. They are rated at 600 PIV, 1 ampere.

The blower motors are lifetime lubricated and likewise are not expected to require maintenance of any kind.

Relay contacts do a certain amount of sparking, and may require cleaning and very slight burnishing after a long period of use. K2, the large AC relay in the power supply, is the most likely to experience pitting of the contacts and should be burnished lightly if it has any tendency to stick.

The amplifier function switch which switches from Power Off to Tune CW and SSB positions is the most vulnerable to possible damage because it is switching the high voltage transformer secondary. This switch has a 45 degree index, and should be moved with reasonable speed from Tune-CW to SSB position. If it is moved slowly, the contacts can draw an arc, which will eventually damage the contacts. The earliest Mark II units had switches with standard silver plated brass contacts at this point. Newer switches use sterling silver contacts to reduce the possibility of contact failure. These switches are available for replacement if it should ever be required. The new switch may be identified as having both a phenolic and ceramic wafer section. The earlier switch had only a ceramic section.

Silver Contacts installed.