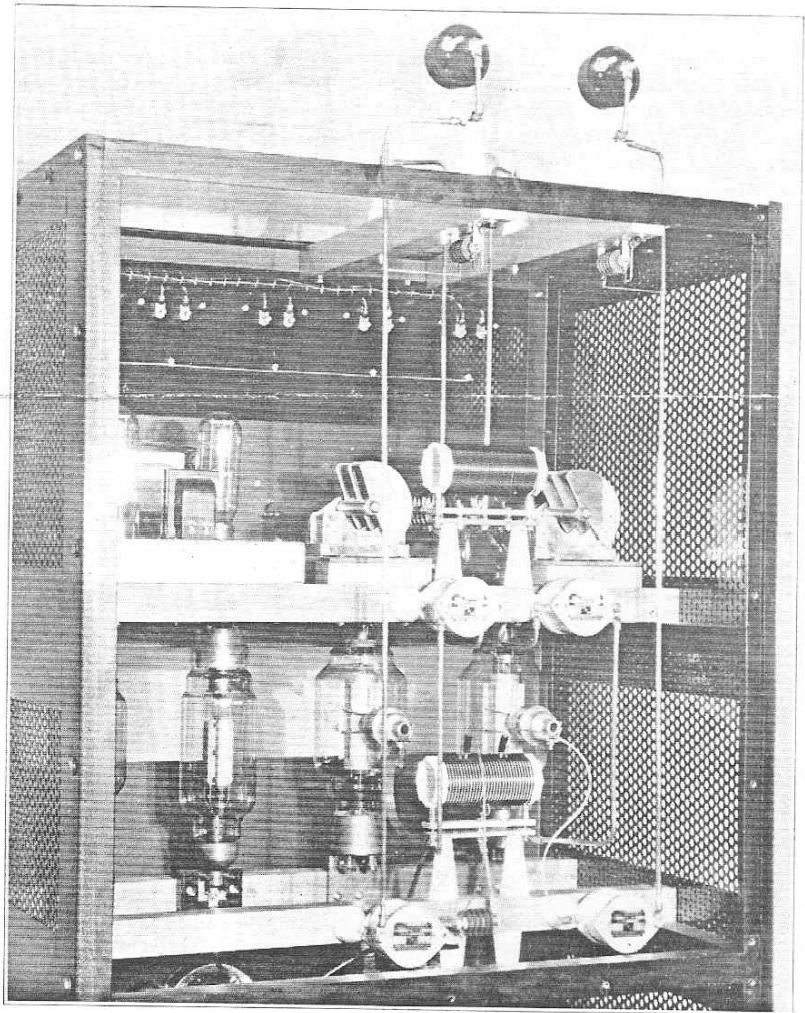
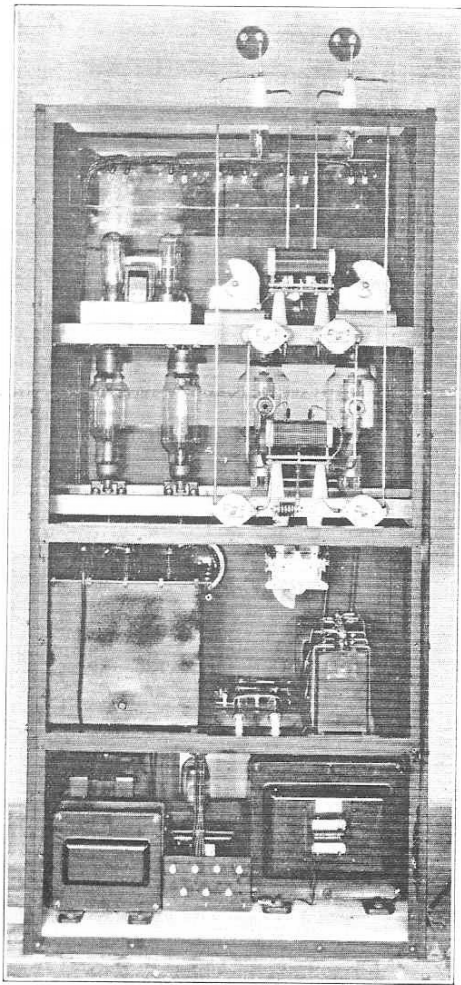


Constructional Details of the Special Byrd 20B



Two Federal F-100A tubes are used in pushpull in the class C stage. The plate input to these tubes is normally 1.5 kw. (0.5 ampere at 3,000 volts.) The 750 watts of audio power required to modulate this input is obtained from the two 849 class B modulators. The Federal tubes give excellent account of themselves and operate efficiently in this transmitter on frequencies up to 30 mc. The tubes have plain tungsten filaments which draw 50 amperes at 11 volts.

The picture at the left discloses the power supply equipment on the lower platform. The large plate transformer weighs 250 pounds and is rated at 5 kva. The other two iron core units are plate reactors handling 1 ampere D.C. The rectifier tubes are Federal 375A's. The class B transformer is mounted in an oil tank on the second platform at the left. At the right of this transformer are the Pyranol, 5000 volt filter condensers and the filament transformer for the F-100A's. Immediately above the filter condensers is

the plate tank circuit. Standard Collins-Isolantite coil forms are used, since they exhibit lower losses than copper tubing coils, which have more metal in the magnetic field of the coil. The coils are worked at a low value of tuning capacity at all frequencies. Above the large tubes at the right is shown the grid tuning circuit and the one inch spaced neutralizing condensers. The pushpull 845 class A driving amplifier is at the left.

The close-up photograph at the right shows the RF chokes connected between the feeder lines and ground. This provision is necessary in order to drain off the static charges which accumulate on the antenna during the severe Antarctic storms. The equipment used on the previous Expeditions did not have this feature and static flash-overs damaged the apparatus several times during operation. Thermoammeters are mounted externally and are in series with the antenna feed lines.