

ring locked inserts are provided in the center boss. A 0.246 inch inside diameter tube with a 0.065 inch wall is welded to the flat disc to provide a port for generator outgassing gas fill operations.

The lower cover is a disc 6.875 inches diameter and is nearly identical with the upper cover in configuration. Differences include a hollow center boss 1.78 inches outside and 1.38 inches inside diameter and a concentric ring which is 5.25 inches outside diameter.

RTG's S/N 37 through S/N 40 have tubes in one cover only, while RTG's S/N 41 through S/N 53 have tubes in both covers. The change to two tubes facilitated purge type outgassing of the generator.

The covers are bolted to the housing with 1/4 inch diameter titanium alloy bolts. These bolts are locked in place with HM21A-T8 magnesium alloy bolt retainers (see Fig. III-7). A channel shaped seal ring is placed in the void above the bolts, is welded to the housing on the outer lip, and is welded to the cover on the inner lip. The upper cover seal ring is fabricated of HM31A-F condition magnesium alloy and the lower cover seal ring is fabricated of HM21A-T8 magnesium alloy.

The electrical receptacle is a Deutsch hermetic 26 pin type. The seal between the receptacle and the housing is by a Viton rubber O-ring. Viton material 77-545 was used on RTG's S/N 37 through S/N 48 and improved Viton material 747-75 was used on RTG's S/N 49 through S/N 53. The change in materials was instituted to provide a better seal between the shell and the glass insert. The receptacle is retained on the housing with a standard receptacle nut which is wired to prevent loosening during vibration.

The housing, fins, and end covers, with the exception of interface surfaces such as mounting lugs, are sprayed with an emissive coating which augments the heat rejection capability. The coating, which is applied after the surface has been specially prepared, consists of two to three mils of zirconia in a sodium silicate binder. The coated surface possesses an emissivity of about 0.9 and a solar absorptivity on the order of 0.2.

4. Instrumentation

SNAP 19/Pioneer RTG's contain two instrumentation sensors, a resistance temperature device (RTD) and a thermistor. These devices indicate the hot junction temperature and the fin root temperature, respectively.