2.10.1 INTRODUCTION.

The caution and warning system (C&WS) monitors critical parameters of most of the systems in the CM and SM. When a malfunction or out-of-tolerance condition occurs in any of these systems, the crew is immediately alerted in order that corrective action may be taken.

2.10.2 FUNCTIONAL DESCRIPTION.

Upon receipt of malfunction or out-of-tolerance signals, the C&WS simultaneously identifies the abnormal condition and alerts the crew to its existence. Each signal will activate the appropriate systems status indicator and a master alarm circuit. The master alarm circuit visually and aurally attracts the crew’s attention by alarm indicators on the MDC and by an audio tone in the headsets. Crew acknowledgment of an abnormal condition consists of resetting the master alarm circuit, while retaining the particular systems status malfunction indication. The capability exists for the crew to select several modes of observing systems status and master alarm indicators and of monitoring CM or SM systems.

2.10.3 MAJOR COMPONENT/SUBSYSTEM DESCRIPTION.

The C&WS consists of one major component, the detection unit. It is located behind MDC-3, and therefore is neither visible nor accessible to the crew during the mission. The balance of the system is made up of visual indicators, aural alerting and associated circuits, and those switches required to control the various system functions. Visual indicators include the two uppermost fuel cell electromechanical event devices on MDC-3, as well as all systems status and master alarm lights.

The detection unit circuits consist of comparators, logic, level detectors, lamp drivers, and a master alarm and tone generator. Also incorporated are two redundant power supplies that furnish regulated +12 and -12 dc voltages for the electronics.

Inputs to the detection unit consist of both analog and event-type signals. The analog signals are in the 0- to 5-volt d-c range. Alarm limits for these signals trigger voltage comparators, which, in turn, activate logic and lamp-driver circuits. This causes activation of the master alarm circuit and tone generator, illumination of applicable systems status lights on MDC-2, and for certain measurements, activation...