

LORAN-C MONITORING

N87-27600

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The Loran-C monitor developed by Ohio University will collect Loran signal data for storage on magnetic tape. Stationed at the Ohio University Airport, Athens, Ohio, the monitor will provide valuable information concerning the daily and seasonal variation of the Loran-C signals for use in non-precision approach studies. With the aid of a second monitor, located in Galion, Ohio, it can be determined if the errors found at a particular geographic location correlate with those found at another location. This will provide some indication as to how far apart future monitors can be positioned to obtain accurate non-precision approach data for various airports.

The monitor uses an ARNAV AVA-1000 Loran-C receiver, which provides outputs of TD's, SNR's, signal strengths, and envelope-to-cycle discrepancies once per 60 seconds. The monitor computer, a Commodore 64, averages five such outputs and assigns a time stamp which is the time-of occurrence of the third sample.

A uninterruptable power supply (see figure 1) was added to keep the monitor operating during short-period power outages. Along with this, a heating system was provided to keep the monitor operating during the cold winter months.

Work this year has been devoted to data collection, data reduction, plot generation, and general monitor maintenance (fig. 2).

Five technical memoranda have also been written containing plots of TD's and SNR's from June through October's Loran-C data. These reports represent the first few in a series containing interim raw data collected from the Loran-C monitor located at the Ohio University Airport, Athens, Ohio. Listed below are the reports already written:

- TM (NASA) 99 FAA/OHIO UNIVERSITY LORAN-C MONITOR
INTERIM DATA REPORT NO. 1
- TM (NASA) 100 FAA/OHIO UNIVERSITY LORAN-C MONITOR
INTERIM DATA REPORT NO. 2
- TM (NASA) 101 FAA/OHIO UNIVERSITY LORAN-C MONITOR
INTERIM DATA REPORT NO. 3
- TM (NASA) 102 FAA/OHIO UNIVERSITY LORAN-C MONITOR
INTERIM DATA REPORT NO. 4
- TM (NASA) 103 FAA/OHIO UNIVERSITY LORAN-C MONITOR
INTERIM DATA REPORT NO. 5

A literature search, already under way, will contain collected information from various dial-up data base information services. This information will be used to write a report on Loran-C navigation systems (fig. 3).

CIRCUIT DESIGN OF BACKUP SYSTEM

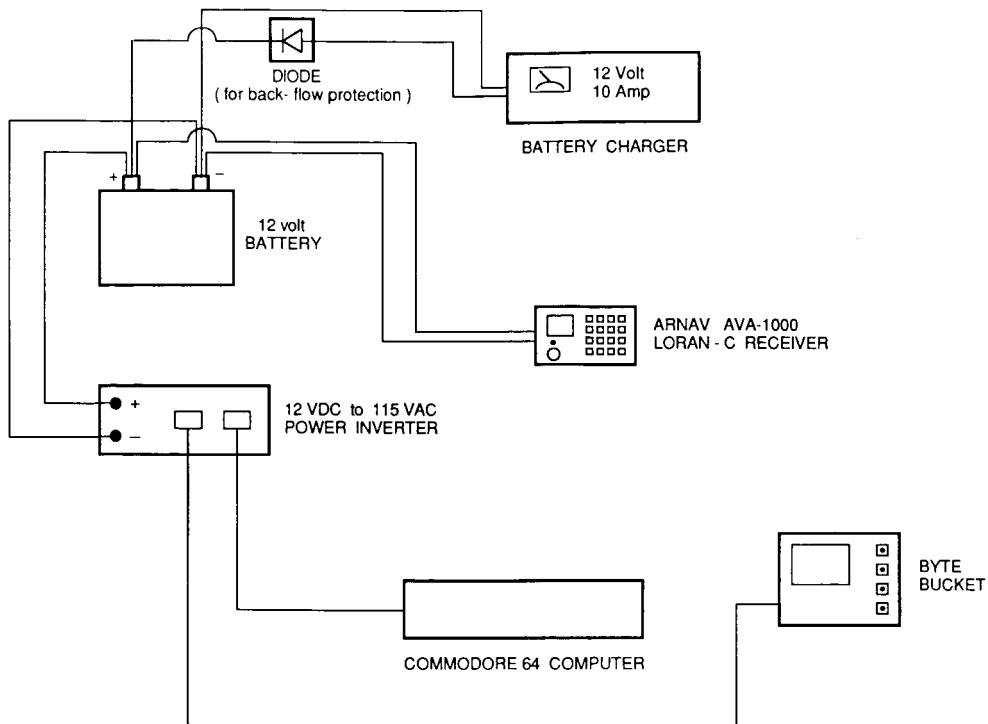


Figure 1

TASKS COMPLETED THIS PAST QUARTER

- * MAINTAINED MONITOR
- * TRANSFERRED DATA COLLECTED ON BYTE BUCKET CASSETTE TAPES TO MAGNETIC TAPES
- * PLOTTED LORAN - C TD'S AND SNR'S FOR TECHNICAL MEMORANDA
- * INSTALLED A HEATER IN THE BUILDING WHERE THE MONITOR IS LOCATED
- * INSTALLED BACK-UP POWER SYSTEM FOR THE MONITOR
- * STARTED LITERATURE SEARCH

Figure 2

FUTURE PLANS

- * CONTINUE TO MAINTAIN MONITOR
- * REDUCE AND PLOT DATA FOR
TECHNICAL MEMORANDA
- * CONTINUE LITERATURE SEARCH
AND WRITE REPORT ON LORAN - C
NAVIGATION SYSTEMS

Figure 3