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Memorandum M-2040

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Air Traffic Control Project
Servomechanisms Laboratory
Massachusetts Institute of Technology
Cambridge, Massachusetts

SUBJECT: BI-WEEKLY REPORT, MARCH 3, 1950

1.0 GENERAL

(W. G. Welchman)

N-2039 contains an analysis of LANTRAC, a proposed approach system on which Mr. Gabelman asked us to comment. It proved to be an interesting system, similar to our idea of azimuth controlled descent in that it is a moving curve system. Like Barnett's orbiting system Lantrac uses a wide sweeping path to the final approach entry and consequently has the defect that for some directions of initial approach it imposes very long detours, while for other directions it does not provide the necessary flexibility.

We have received (on loan until 28th March) a copy of the report of RTCA SC-14, dated August 1949 and entitled, TEST PROCEDURES AND PERFORMANCE REQUIREMENTS, AIRBORNE RADIO EQUIPMENT, UTILIZING PULSE TECHNIQUES. The performance requirements in which we are interested are not specified, a further indication of the difficulty of obtaining the information that we need.

(C. R. Wieser)

The past period has been spent in preparation of SR-4. A rough draft is very nearly complete.

(W. K. Linvill)

I have completed the part of the appendix for Summary Report 4 which summarizes the flight characteristics of the airplanes, gives representative parameter values for the differential equations, and describes within limits what the linear range for the various quantities is. The second part of the appendix which discusses the need for filtering a noisy signal before sampling it is under preparation.

(A. Orden)

Geometrical analysis of "reference paths" for azimuth progress control was carried to a point which appears sufficient for our

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(A. Orden) - continued

present purposes. The results are being written up from the point of view of presenting certain "building blocks" which should be considered during the formulation of integrated approach plans.

M-2038 was written, presenting a preliminary formulation of a stabilization system for radial progress control, which would be a system in which the "moving curves" are concentric circles. The memo suggested that deviations from an assigned radial progress schedule be combined with a heading reference function to serve as heading input to an auto-pilot. The analogous system for azimuth progress control was worked out in greater detail.

The next two weeks will be directed toward examination of the effect of wind on azimuth control.

(D. R. Israel)

This last two-week period has been devoted chiefly to the preparation of a report on a system of approach to a helix. It is expected that this note will be distributed shortly.

A draft for a thesis proposal has been prepared, the tentative title of the thesis to be, "The Application of a High Speed Digital Computer to the Present Day Air Traffic Control System." This thesis proposal is now being read by Linvill and Welchman, under whose combined supervision the investigation will be carried out.

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