

Digital Computer Laboratory
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

SUBJECT: BIWEEKLY REPORT 23 JUNE 1957

To: Frank M Verzuh

From: Scientific and Engineering Computation Group

1. MATHEMATICS, CODING AND APPLICATIONS

1.1 Introduction

During the past two weeks 539 coded programs were run on the time allocated to the Scientific and Engineering (S and EC) Group. These programs represent part of the work that has been done on 38 of the problems that have been accepted by the S and EC Group

1.2 Programs and Computer Operation

<u>Problem No.</u>	<u>Title</u>	<u>Minutes</u>
100	Comprehensive System of Service Routines	63.0
126 D.	Data Reduction	103.8
131	Special Problems (Staff Training, etc.)	26.6
193 L.	E.V. Problem for Propagation of E.M. Waves	144.6
199 N.	Compressible Flow in a Tube	1.0
203 D,N.	Response of a Building Under Dynamic Loading	424.6
236 C.	Transient Response of Aircraft Structures to Aerodynamic Heating	3.0
245 N.	Theory of Neutron Reactions	994.1
253 N.	APW as Applied to Face- and Body-Centered Iron	376.8
256 C.	WWI-1103 Translation Program	15.9
257 C.	Horizontal Stabilizer Analysis	378.3
260 N.	Energy Levels of Diatomic Hydrides	97.7
262 N.	Evaluation of Two-Center Molecular Integrals	102.4
273 N.	Cosmic Ray Air Shower	21.7
274 N.	Multiple Scattering	14.0
278 N.	Energy Levels of Diatomic Hydrides LiH	759.6
285 N.	APW as Applied to Chromium Crystal	81.8
288 N.	Atomic Wave Functions	674.1
290 N.	Polarizability Effects in Atoms and Molecules	75.8
300 L.	Tropospheric Propagation	10.4
310 C.	Rocket Trajectory Calculations	35.2
312 L.	Error Analysis	4.8
317 C.	Stability Derivatives from Flight Test Data	77.4
327 L.	Prediction Analysis	73.6
341 C.	Statistical and Dynamic Methods in Forecasting	16.4
360 B.	Dynamic Response of Shear Walls	63.4

361 B,N.	Growth of Fatigue Cracks	30.0
364 C.	Blast Response of Rotor Blades	15.4
380 B.	Switching Circuits	15.7
387 C.	Determination of Velocity Potential	98.8
388 D.	Temperature Distribution Aircraft Generators	97.5
389 D.	Supersonic Flow of Air in a Tube	19.5
394 C.	Automatic Programming for Machine Tools	68.8
400 C.	Temperature and Stress Response	55.3
402 N.	Monte Carlo Inventory Control Study	14.2
407 C.	Diffusion Boundary Layer	95.3
408 C.	Frequency Spectrum of Magnesium	44.2
411 B,N.	Lever Cavity Klystron	133.1

1.3 Computer Time Statistics

The following indicates the distribution of WWI time allocated to the S and EC Group.

S and EC Programs	84 hrs.	27.5 min.
Lincoln Programs	3 hrs.	53.4 min.
Magnetic Tape Test		41.6 min.
Scope Calibration		9.6 min.
PETR Test		20.9 min.
Test Storage Check		10.5 min.
Demonstrations (no. 131)		26.6 min.
Total Time Logged	90 hrs.	23.4 min.
Div. 6 Conversions, Inter-run, Operations, etc.	4 hrs.	54.3 min.
Total Time Assigned	98 hrs.	14.7 min.
Usable Time, Percentage	96.78%	
Number of Programs	539	