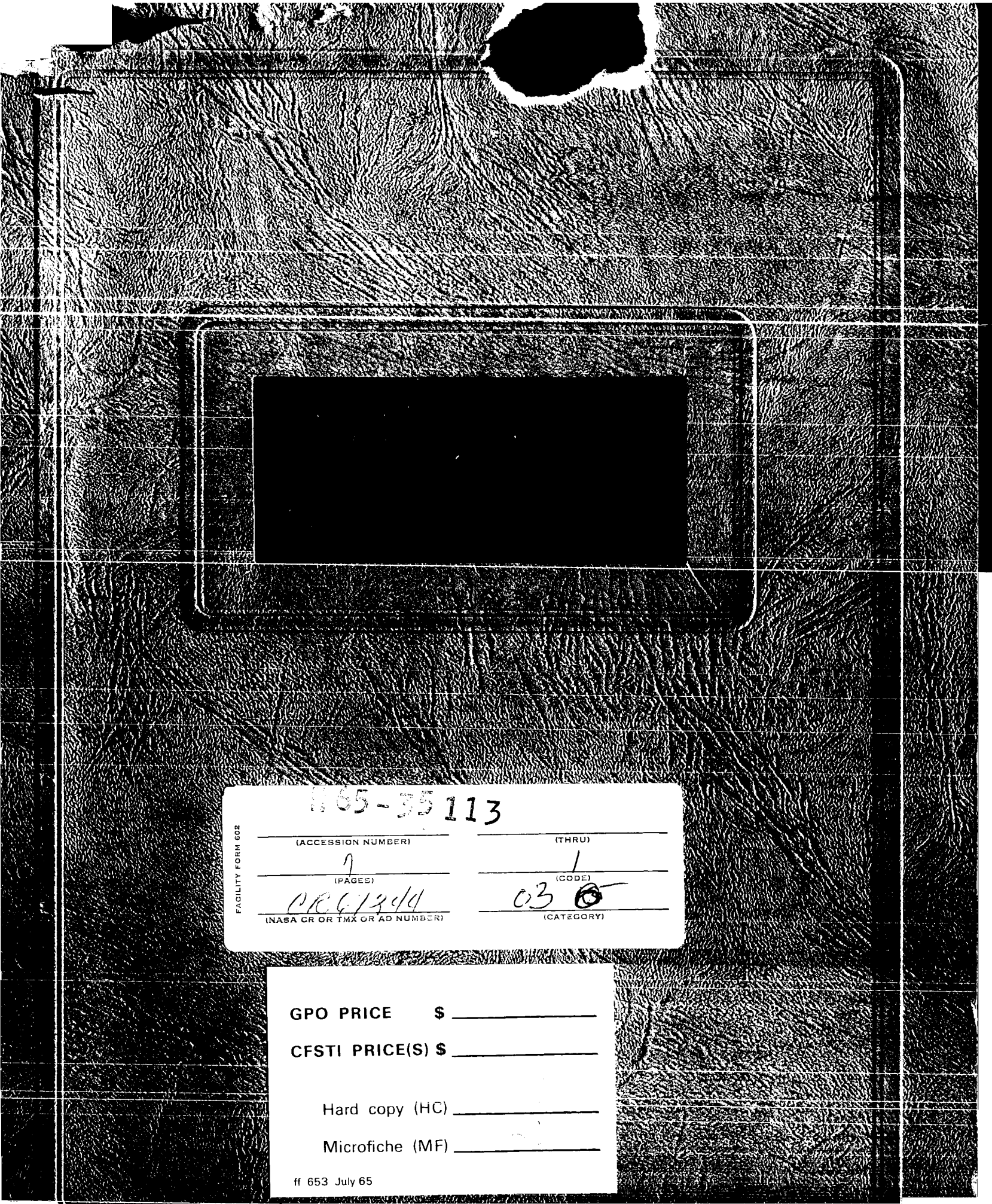


DEVELOPMENT AND FABRICATION OF ADVANCED DESIGN RATE GYRO MONTHLY PROGRESS REPORT NO. 1

For the period

19 June to 31 July 1963

Prepared for

George C. Marshall Space Flight Center
Huntsville, Alabama

Contract No.: NAS 8-5464
Request No.: TP3-84116(1F)

By

J. Mott, Project Supervisor
Inertial Division
SPERRY GYROSCOPE COMPANY
Division of Sperry Rand Corporation
Great Neck, New York

August 14, 1963

CA-4211-0194

Copy No. 6

DEVELOPMENT AND FABRICATION

OF

ADVANCED DESIGN RATE GYRO

MONTHLY PROGRAM REPORT NO. 1

1. INTRODUCTION

This is the first monthly progress report on the development and fabrication of the Advanced Design Rate Gyro (Fluid Tube) under Contract No. NAS 8-5464, June 19, 1963 and received by Sperry July 1st. This report describes progress during the 14 actual working days from July 1st to July 19th. The Sperry plant was shut down from July 20th to August 4th for the annual vacation. In spite of this vacation time, an effort was successfully made to stay on schedule, and the work during this period proceeded according to the program plan submitted to the George C. Marshall Flight Center in the Sperry Proposal CA-I.D.1526, April 1963.

2. WORK PERFORMED DURING CURRENT REPORT PERIOD

2.1 The experimental gyro model (see Figures 1 and 2) was assembled. It was possible to complete the model ahead of schedule because some parts required for assembly were available from previous

efforts. Also, the experimental model utilizes conventional slip rings and .003 in. thick aluminum transducer diaphragms. The deliverable engineering model will have inductive slip rings and .002 in. magnesium diaphragms. Magnesium diaphragms are also being manufactured for use in the experimental model if the threshold of the present experimental model is found to be too high.

2.2 The signal preamplifier breadboard, Figure 3, was designed and assembled.

2.3 A new GENISCO rate of turn table, Model C-181, with a range of .01-1200 deg/sec (Purchased as Sperry Capital Equipment item) was delivered and is presently being installed. This table's use is scheduled for the needs of the contract program. Components of earth's rate will be used as input rates for tests in the region of .001 deg/sec.

2.4 The layout for the deliverable engineering model was started.

3. WORK CONTEMPLATED

The work will continue as outlined in the original program plan.

4. LIAISON WITH GEORGE C. MARSHALL SPACE FLIGHT CENTER

Mr. Starke T. Cline, Guidance and Control Systems Branch, Astrionics Division, visited the Sperry plant on July 16th for technical discussions. The experimental assembly and a preliminary layout for the deliverable item were shown to Mr. Cline. A hurried attempt to demonstrate the performance of the experimental model to Mr. Cline failed because of roughness in the drive of the rate table, noise in slip rings of the rate table and a highly microphonic signal pre-amplifier.

5. MAN-HOURS EXPENDED

Short Order Shop: 45 man hours

Technician: 95 man hours

Engineering: 100 man hours

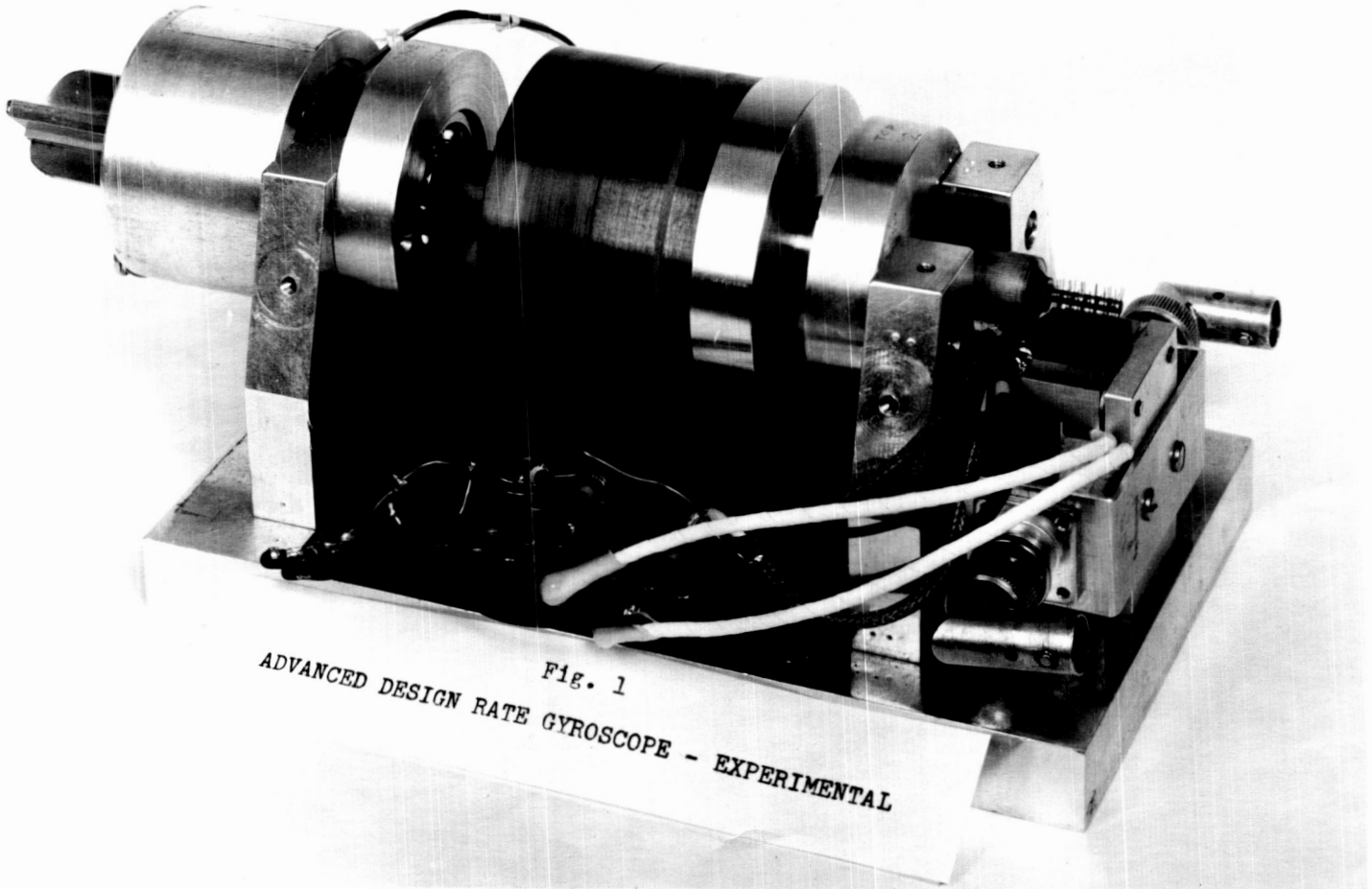


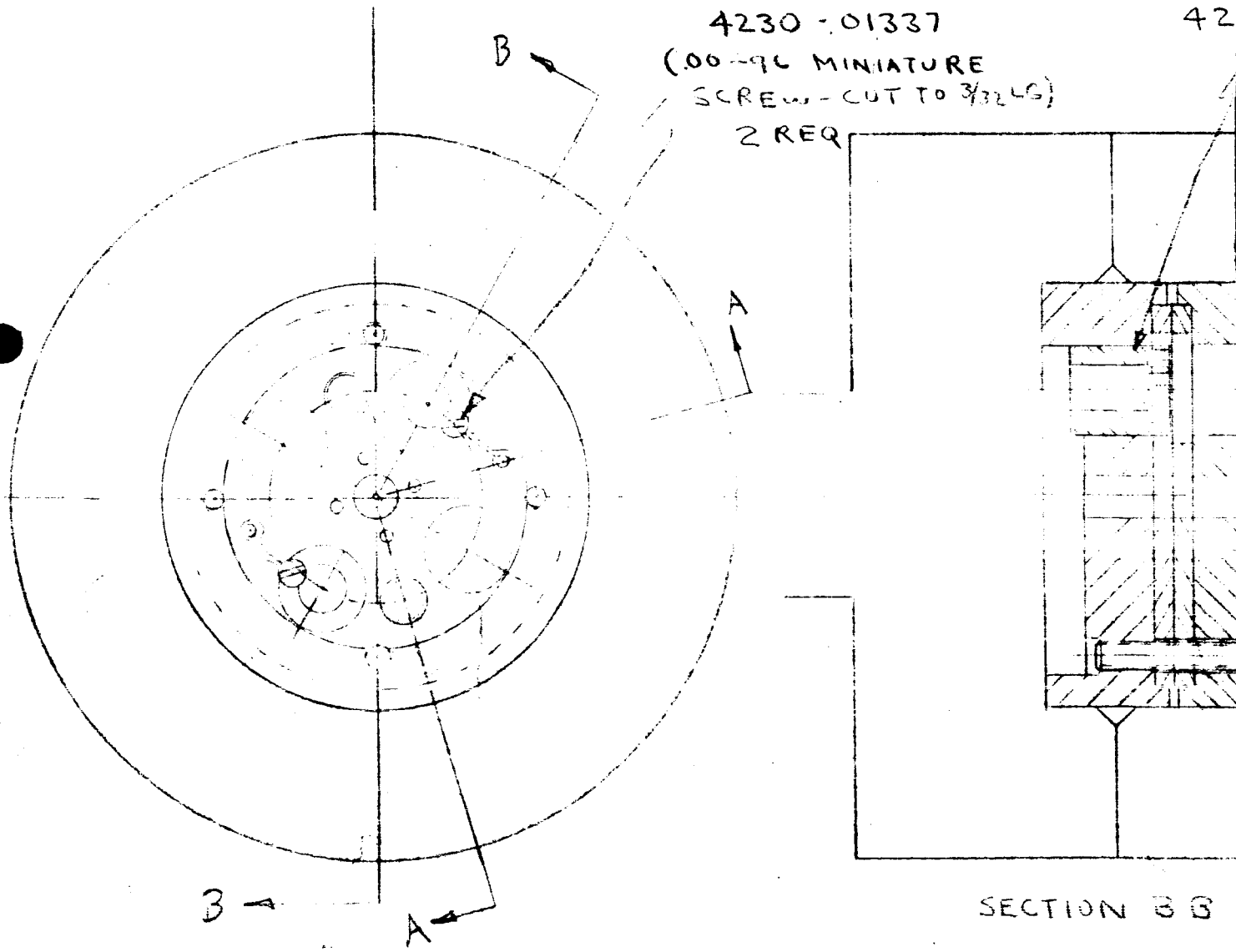
Fig. 1

ADVANCED DESIGN RATE GYROSCOPE - EXPERIMENTAL

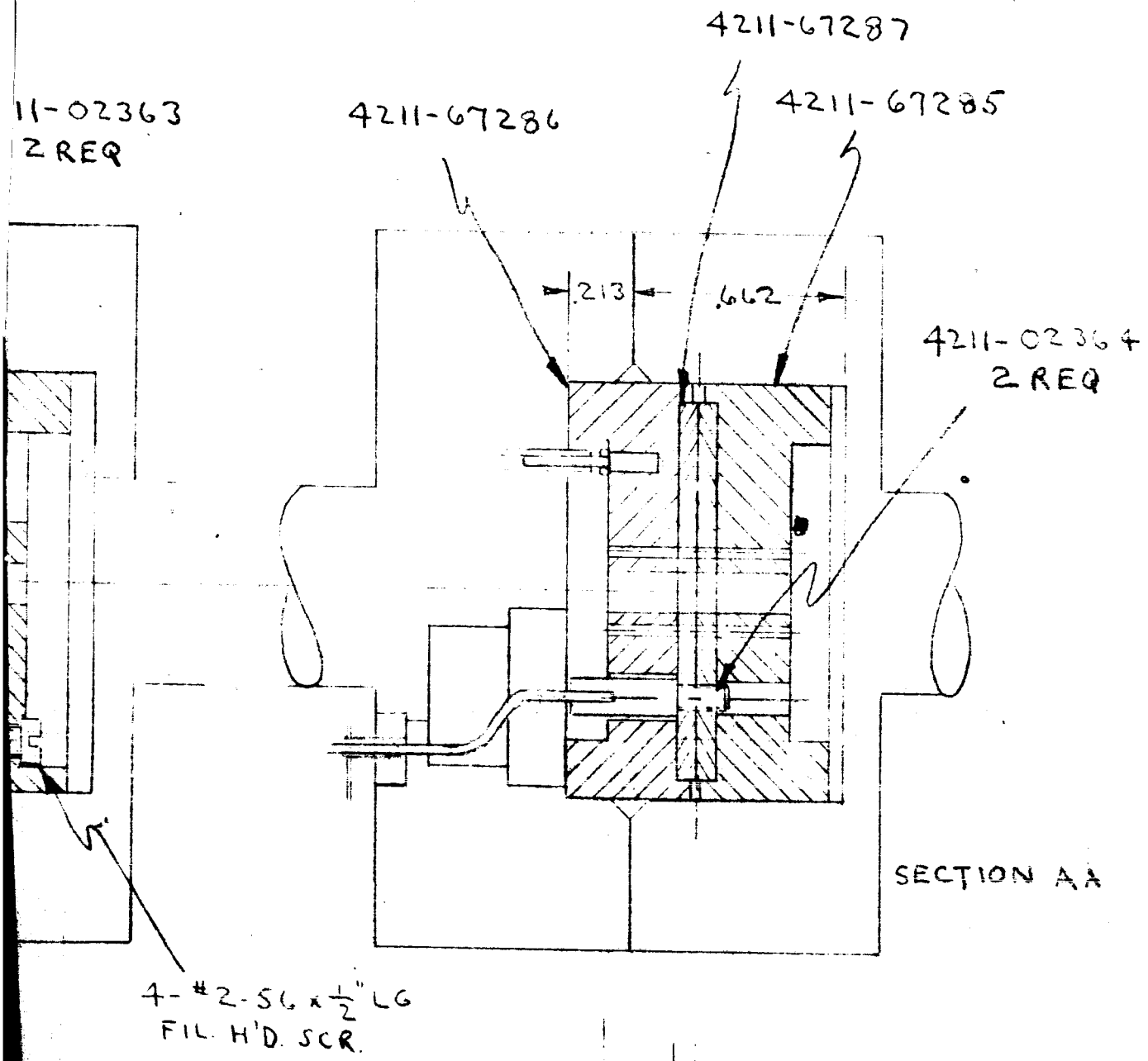
1

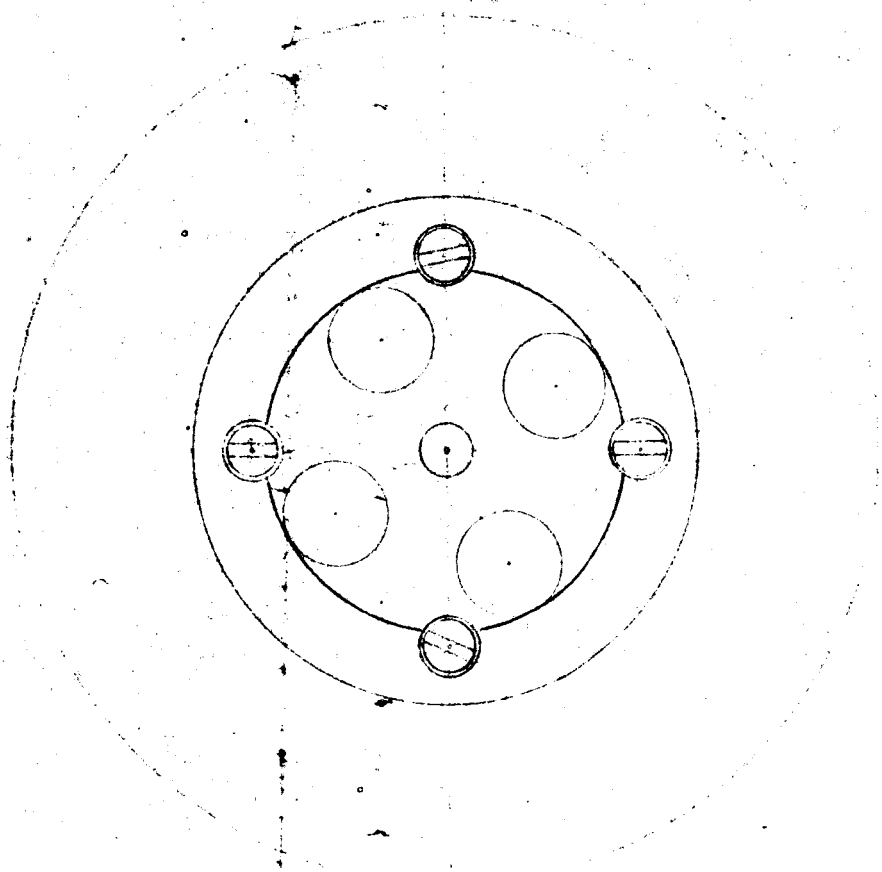
FIG. 2

ADVANCED
EXPERIMENTAL



DESIGN RATE GYRO –
GYRO MODEL LAYOUT





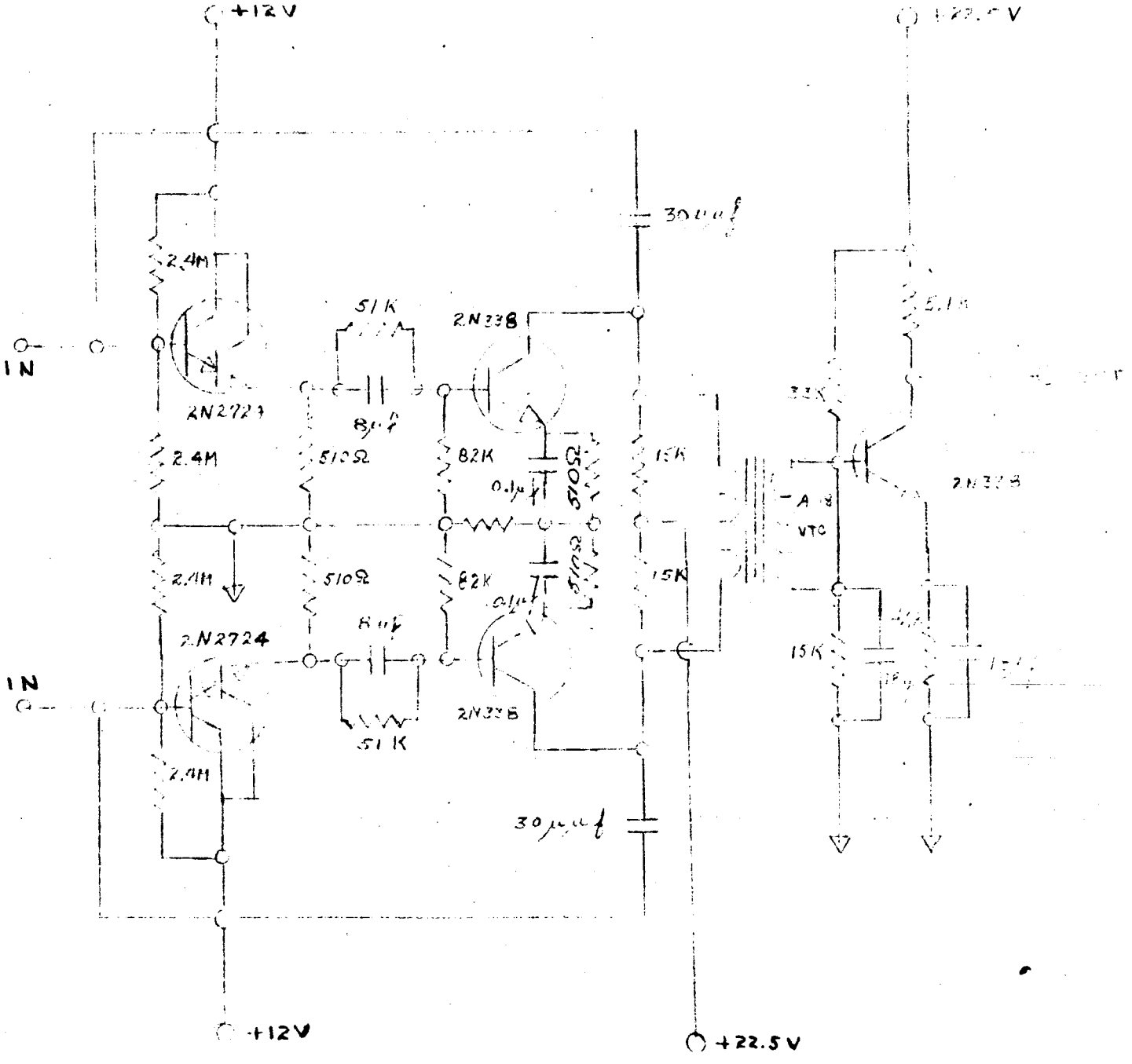


FIG. 3

SIGNAL PREAMPLIFIER

DISTRIBUTION LIST

Copies	Name
1 – 8	Customer (via R. Reig, 1A8)
9	Engineering Liabrary, 1A38
10	J. Mott, C–2
11	R. Reig, 1A8
12	L. Sackett, C–2
13	R. L. Wathen, 3S118
14	E. W. Whitcomb, C–2
15	W. G. Wing, 1X115