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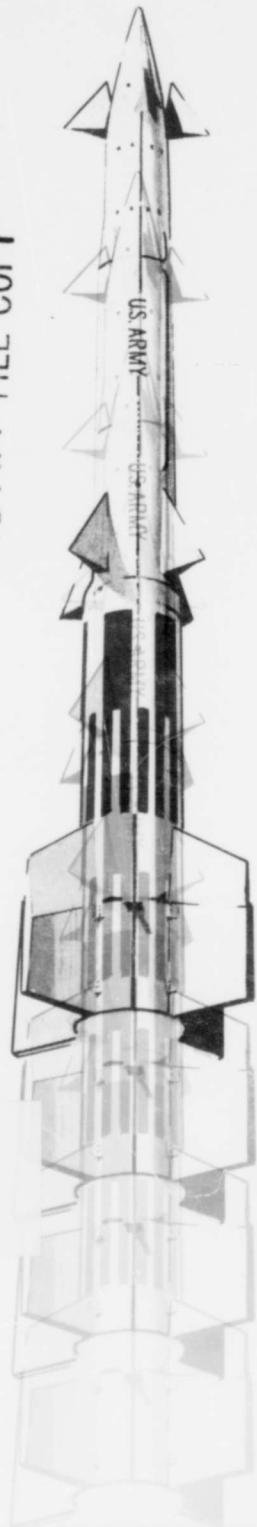
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# BALLISTIC CAMERA SYNCHRONIZATION & CONTROL SYSTEM

CONTRACT NUMBER DA-30-069-ORD-3291

Progress Report No. 9



5-20150

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LINK DIVISION  
GENERAL PRECISION, INC.



**BALLISTIC CAMERA SYNCHRONIZATION  
& CONTROL SYSTEM**

**Contract Number DA-30-069-ORD-3291**

**Progress Report No. 9**

**Link Division  
General Precision, Inc.**

**January 15, 1962**

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**FOREWORD**

This progress report is submitted in accordance with Article I, paragraph c(1) of Contract No. DA-30-069-ORD-3291. This ninth report documents the period from 1 December 1961 to 31 December 1961.

## SUMMARY

↓  
The oscilloscope was received, modified to blank the shutter camera pulses and installed in the system. The frequency standard was received and installed in the system. The G-4 Averaging Circuit was checked out; the accuracy is plus or minus five microseconds. A modification of the Rotating Disc Shutter Opening Circuit is presented. ↗

## 1.0 Introduction

This is the ninth in a series of monthly reports covering the progress of the Ballistic Camera Synchronization and Control System. These reports will provide a technical record of the development program. The work completed in the previous month will be covered, and an outline given of the work to be done for the next reporting period. Major problems that arise will also be reported.

## 2.0 Present Program Status

During the past month, the frequency standard and the oscilloscope were delivered and are now installed in the system. The oscilloscope has been modified to blank the sweep for the Camera Shutter Pulse. The G-4 Averaging Circuit has been checked out. The circuit will lock onto a G-4 Pulse Train within plus or minus five microseconds.

The Ballistic Camera Synchronization and Control System is 90% complete. At this time, no fabrication work is being done on the control system because Technical Exhibit C has not been included in the contract.

### 3.0 Remote Control Panels

Figures 3-1 and 3-2 are wiring diagrams of the remote controls. The Astrodome Control Panel will be constructed and wired by Link. Link will furnish the switches for the Sky Screen Control Panel. The wiring of this panel can be accomplished by Link or White Sands Missile Range. If Link is to be responsible for the wiring, the layout of the panel that the switches go into must be available to Link. This problem will be resolved when Mr. John C. Davies visits Link.

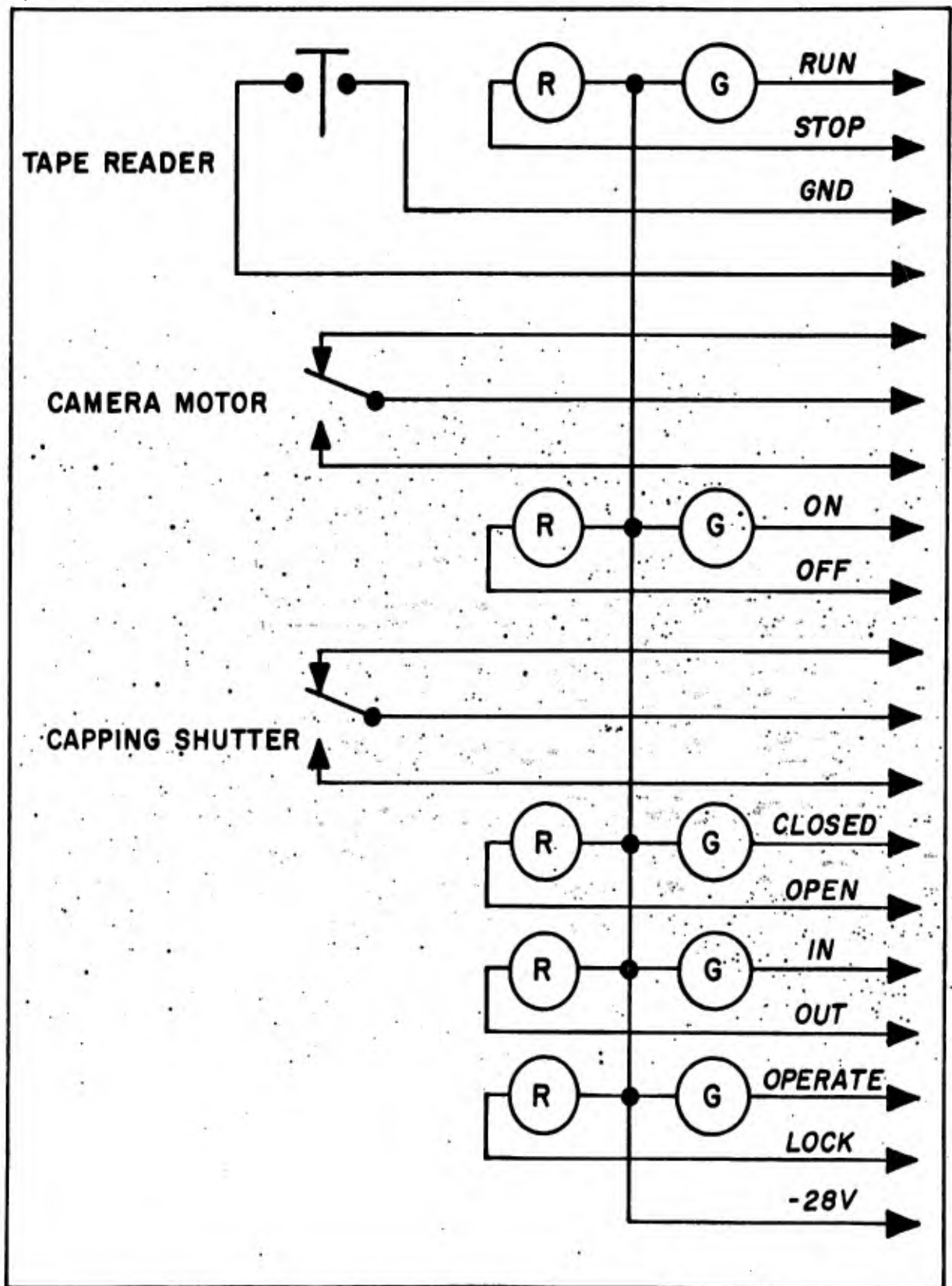


Figure 3-1 Sky Screen Director Control Panel

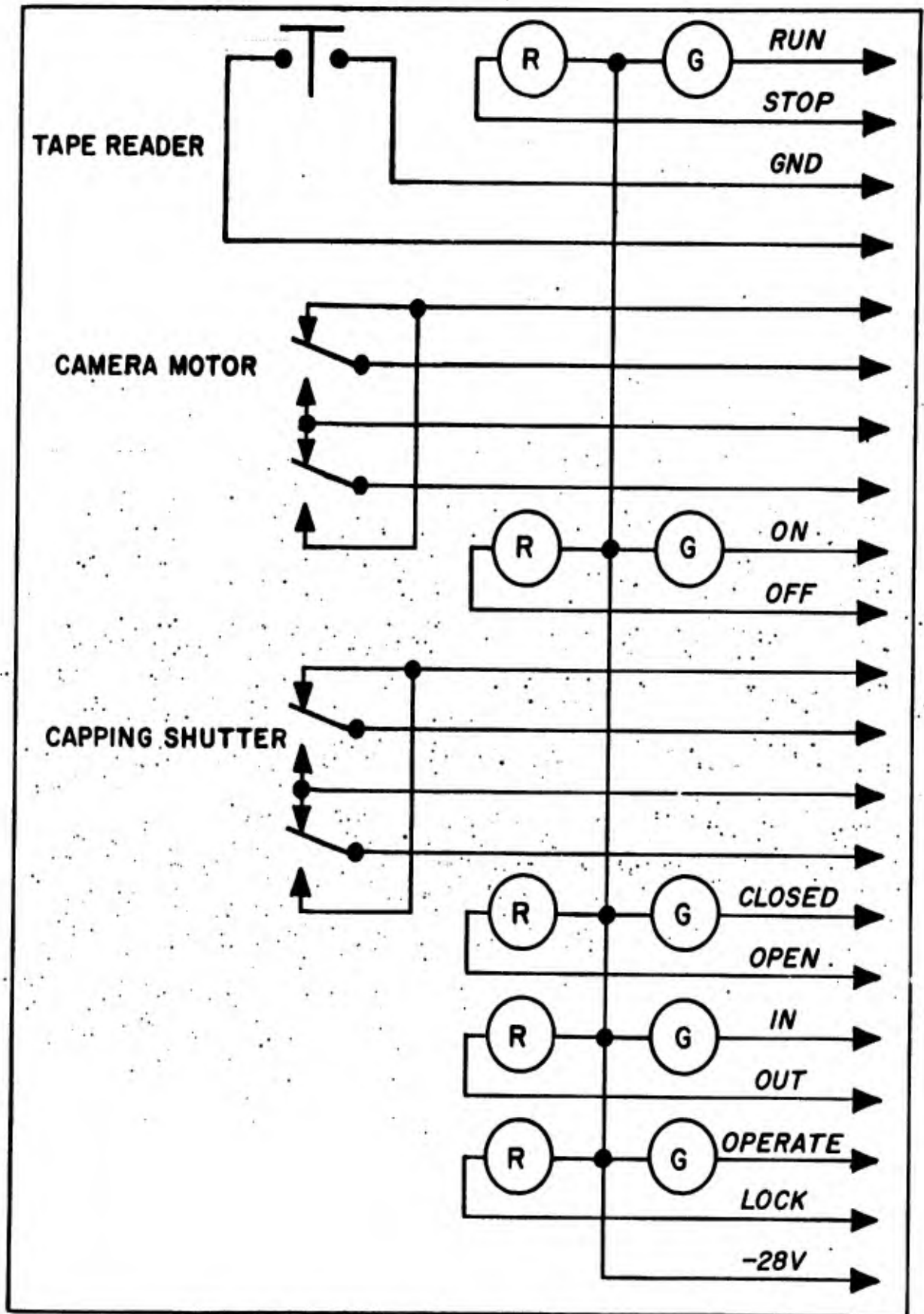


Figure 3-2 Astrodome Control Panel

#### 4.0 Technical Exhibit C

Link has assumed that the description of Technical Exhibit C, as described in Progress Report No. 8, is satisfactory. All Logic Engineering has been completed for Technical Exhibit C. The plans for the detail design are formulated and the parts to be used have been selected. When Technical Exhibit C becomes part of the contract, Link will be immediately ready to start work on it.

## 5.0 Rotating Disc Shutter Opening Circuit

The Rotating Disc Shutter Opening Circuit has been modified. Figure 5-1 is a diagram of the new circuit. The two modifications are the addition of load resistors for the amplifier and the addition of camera-motor switches.

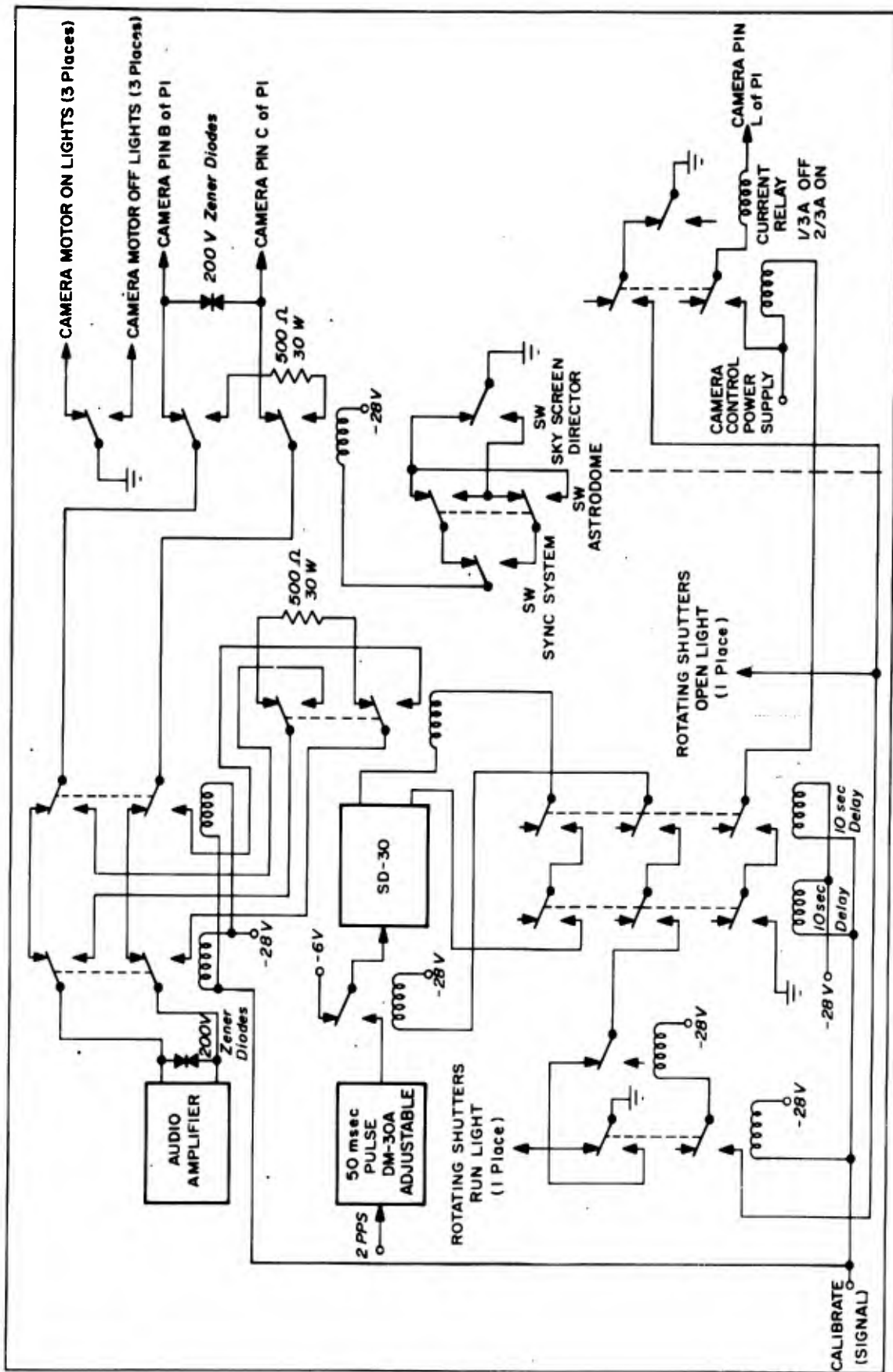


Figure 5-1 Rotating Disc Shutters Opening Circuit No. 2

## 6.0 Interface and Installation

When Mr. John C. Davies visits Link, Palo Alto, the interface problems between the equipment built by Link and the equipment furnished by White Sands Missile Range will be resolved. Also at this time a program for the installation and testing of the Camera Synchronization and Control System will be projected.

7.0 Program for the Subsequent Reporting Period

The program for the next reporting period is to install and check out the Tape Reader and to check out the Synchronization System that uses the camera simulator.

## 8.0 Program Schedule

The Line of Balance Delivery Schedule shows that 2 March, 1962, is the delivery date. The schedule takes into account Technical Exhibit B but does not consider Technical Exhibit C. The delivery date that includes Technical Exhibit C will be determined when the "go-ahead" is received by Link for Technical Exhibit C.



2

7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

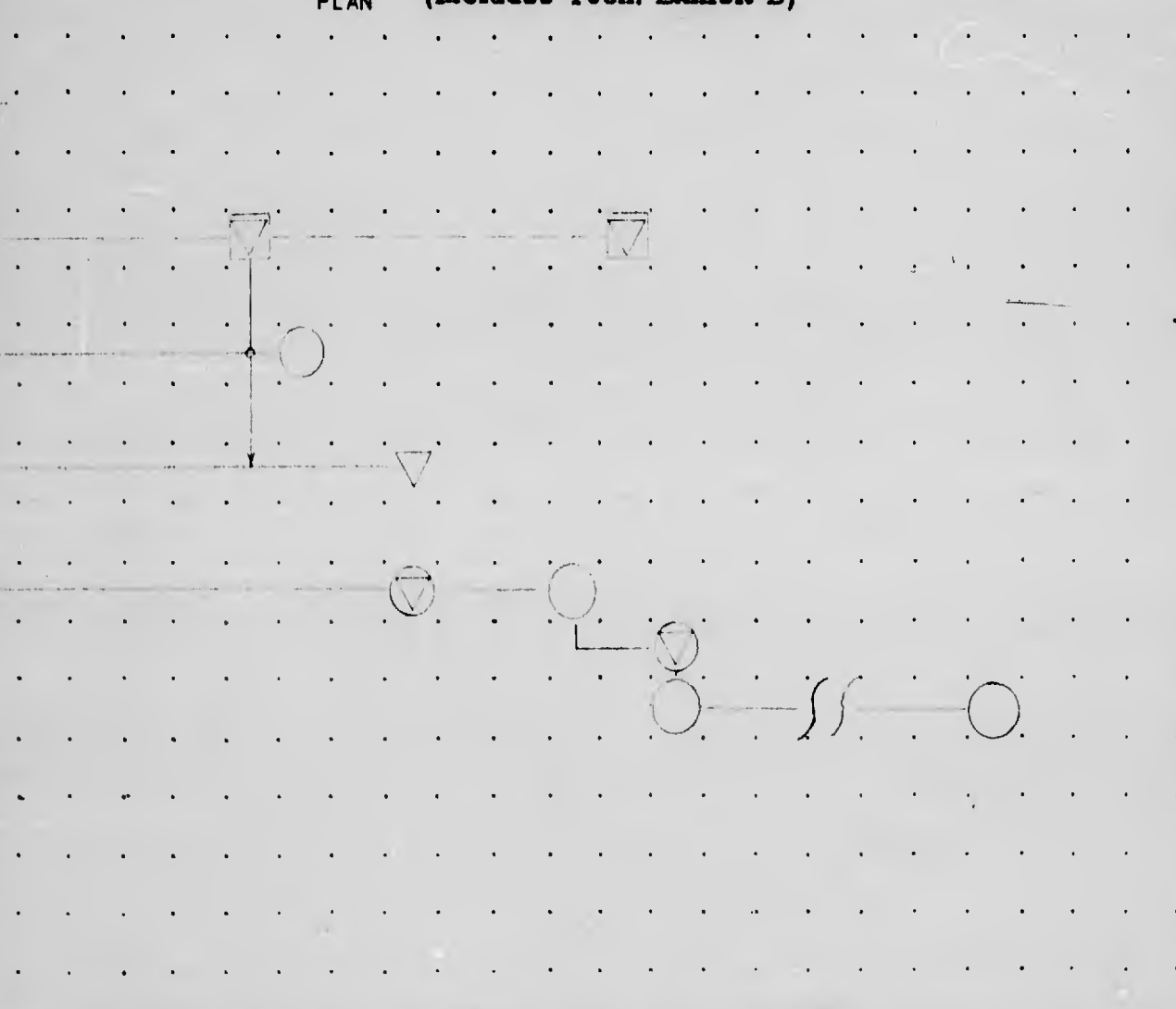
**BALLISTIC CAMERA**  
 (Includes Tech. Exhibit B)

(Revised 12-7-61)

PLAN

**LEGEND**

-  DELIVERY TO CUSTOMER
-  CUSTOMER SUPPORT
-  CUSTOMER ACTION
-  VENDOR OR SUB-CONTRACT ACTION
-  CONTRACTUAL ACTION
-  PROCUREMENT ACTION
-  FABRICATION OR ASSEMBLY
-  PURCHASE PARTS
-  COMPANY MADE PARTS
-  REPORT TO CUSTOMER
-  TEST OR INSPECT
-  STUDY OR ANALYSIS
-  SYSTEMS DESIGN OR DEVELOPMENT
-  DETAIL DESIGN
-  INTERNAL TRANSFER
-  RAW MATERIAL



8 15 22 29 5 12 19 26 2 9 16 23 2 9 16 23 30  
 DEC JAN FEB MAR

WORKING PERIOD PRIOR TO SHIPMENT

GENERAL PRECISION, INC.



GENERAL PRECISION INC.  
LINK DIVISION  
FUND REPORT

This fund report is submitted in accordance with Article I,  
Paragraph (c) (2) of Contract No. DA-30-069-ORD-3291. This  
9th report documents the period from 12/1/62 to 12/31/61.

1) Total Dollar value of contract	399,600
2) Funds expended during the reporting period	9,058
3) Total funds expended to date on contract	121,641
4) Balance of funds remaining on the contract	277,641
5) Projected rate or expenditure for the next reporting period	107,625

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