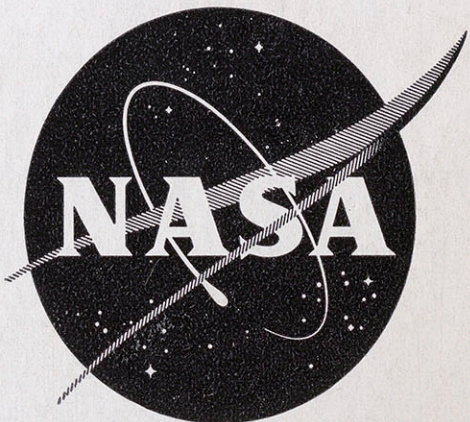




TOP HORIZONTAL

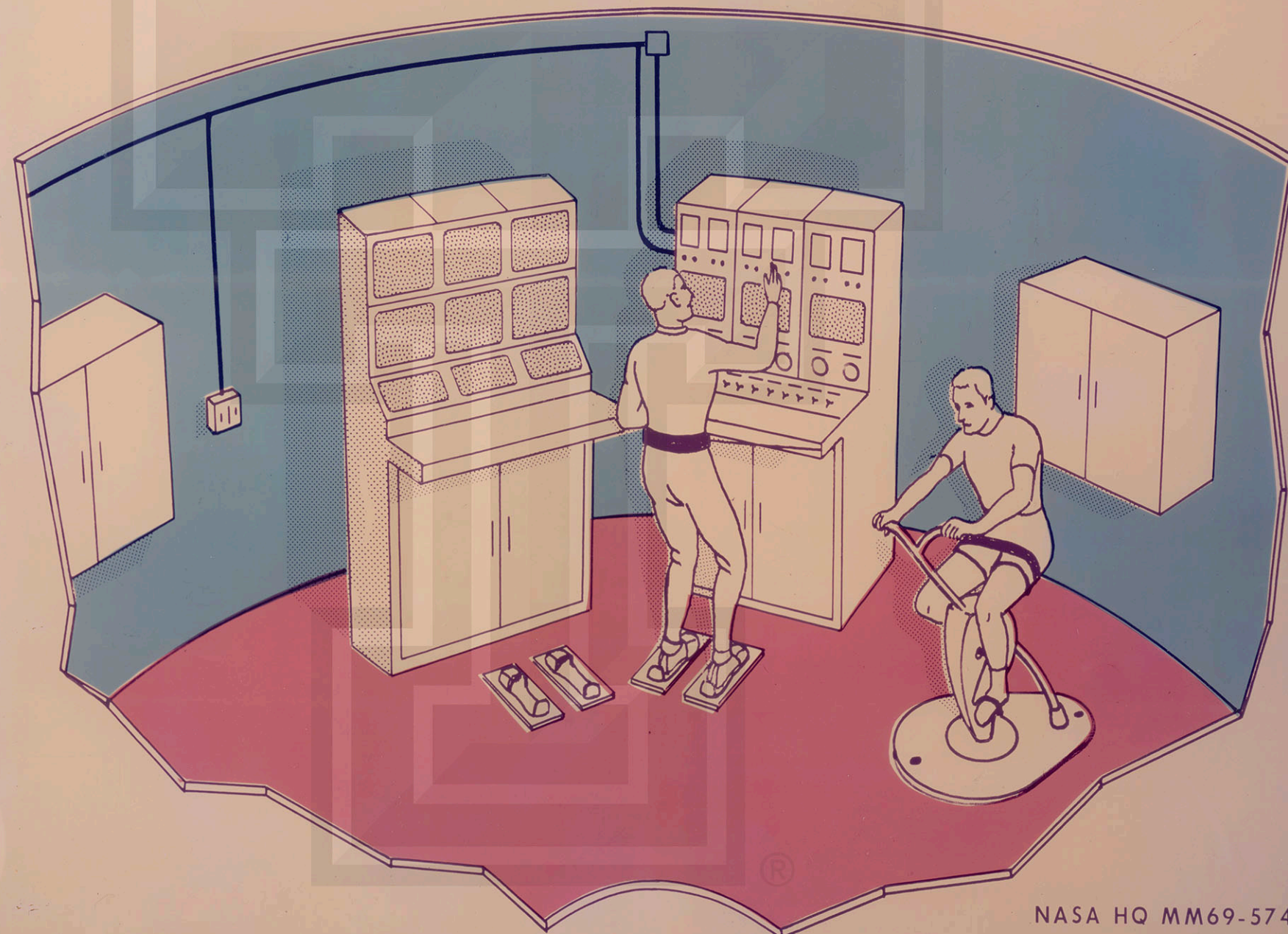
NUMBER MM 69-5745

6-27-69

NOTES:

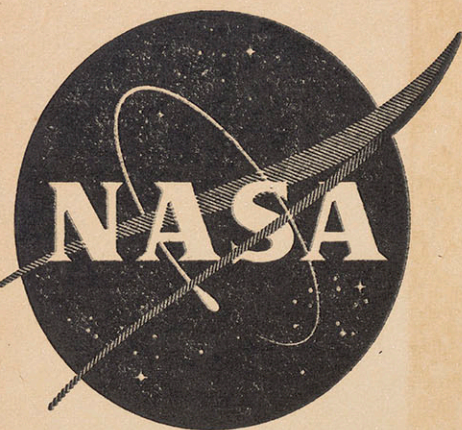
IMBLMS

INTEGRATED MEDICAL/BEHAVIORAL LABORATORY MEASUREMENT SYSTEM



TOP VERTICAL

NASA HQ MM69-5745
6-27-69



TOP HORIZONTAL

NUMBER _____

NOTES:

IMBLMS PHASE B4

START FEB. 1, 1970

SAME TWO CONTRACTORS (G.E. AND IMSC)

DURATION NINE TO TWELVE MONTHS

A - FIRST SEVEN TO TEN MONTHS PRIMARY

B - LAST TWO MONTHS SUSTAINING

CONTENT: SECTION A - 7 TO 9 MONTHS

I. DESIGN REQUIREMENTS AND PRELIMINARY DESIGN OF FLIGHT IMBLMS

II. MANAGEMENT, PLANNING, AND COST DOCUMENTS

III. PROPOSAL FOR PHASE C

IV. MOCKUP AND TIME LINE PROCEDURES

N SECTION B - 2 MONTHS

V. TIME LINE TESTING

VI. REQUIREMENTS AND CONCEPTS FOR ADDITION OF CLINICAL DIAGNOSTIC

AND THERAPEUTIC CAPABILITY TO IMBLMS

MINIMAL REQUIREMENTS FOR PHASE B4 ARE TASKS, I, II, AND III

WILL ACCOMPLISH TASKS IV, V, VI TO THE EXTENT POSSIBLE WITHIN PRESENT

FUNDING LIMITATION.



TOP VERTICAL



OBJECTIVE

TO ASSIST NASA IN PREPARING TEST PLANS AND OBTAINING DETAIL PERFORMANCE DATA FOR:

1. FEEDBACK INTO FLIGHT DESIGN
2. IDENTIFYING PARALLEL DEVELOPMENT REQUIREMENTS
3. COMPARATIVE ANALYSIS BY NASA
4. OBTAINING EXPERIMENT BASE LINE DATA

STATUS/PROGRESS THIS QUARTER:

- CONTRACTOR FBB FAMILIARITY - IN PROGRESS
- TEST PLANS AND PROCEDURES FOR FBB TESTING AT MSC - IN PROGRESS
- SETUP AND CHECKOUT OF TEST EQUIPMENT AT MSC - IN PROGRESS
- PREPARE FOR INSTALLATION OF FBBS AT MSC - IN PROGRESS



NUMBER _____

This image shows a single sheet of cream-colored paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or printed text on the paper. A small portion of a yellowed, aged piece of paper is visible at the top edge, suggesting this might be a page from an old notebook or binder.

GOALS

PROGRAM MILESTONES

STATUS REPORT

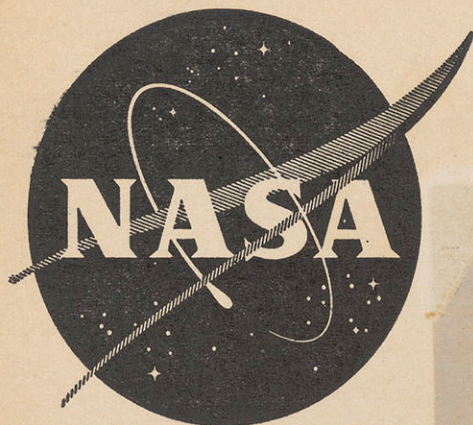
MEASUREMENT REQUIREMENTS

NASA FORM 682 (MAY 62)

★ GPO : 1966 OF-208-861

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

TOP VERTICAL



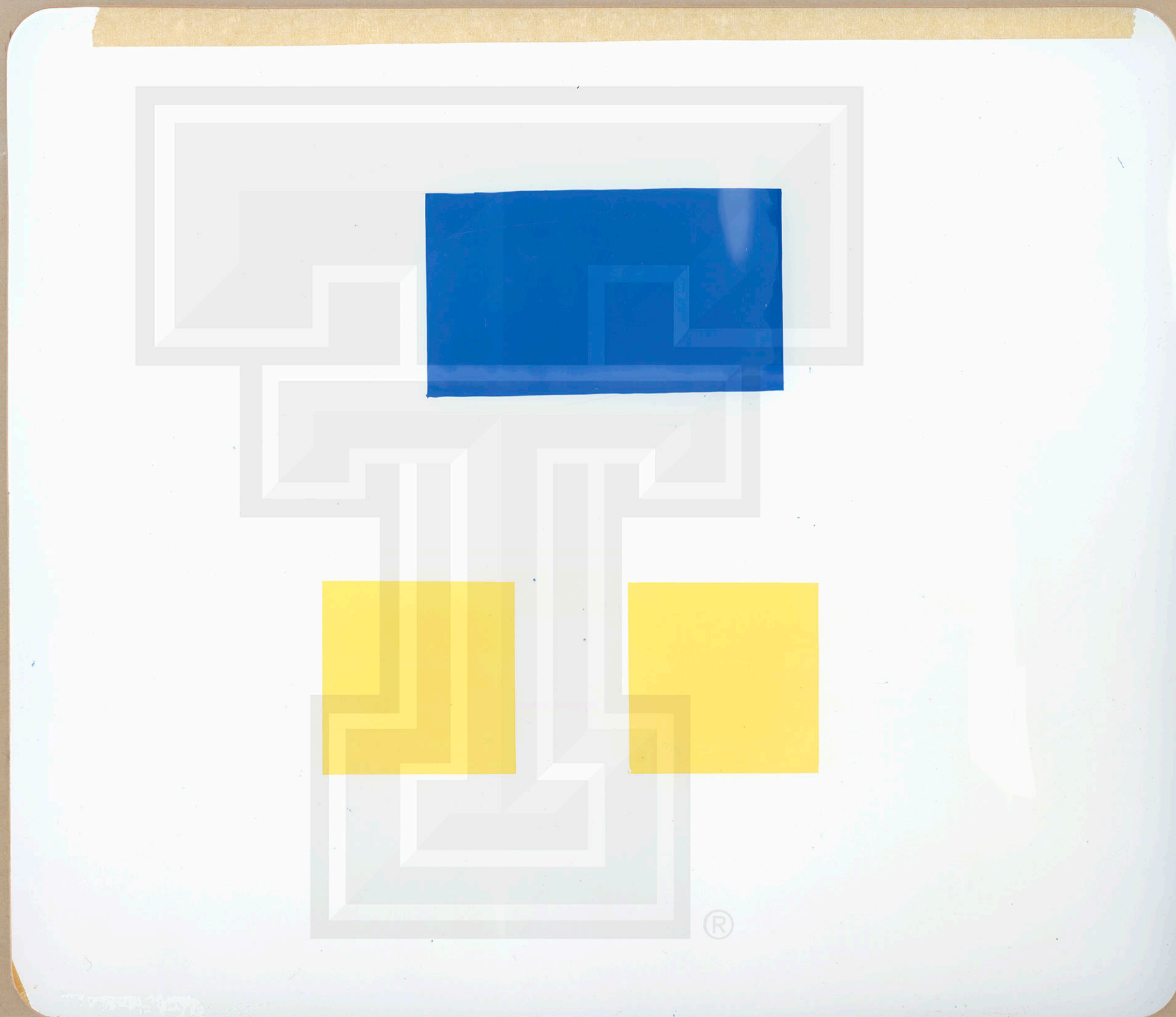
TOP HORIZONTAL

NUMBER 8

9

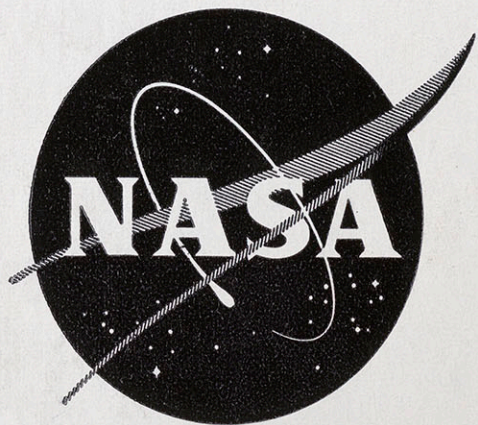
NOTES:

Handwritten notes area with horizontal lines.



TOP VERTICAL

FIG-8



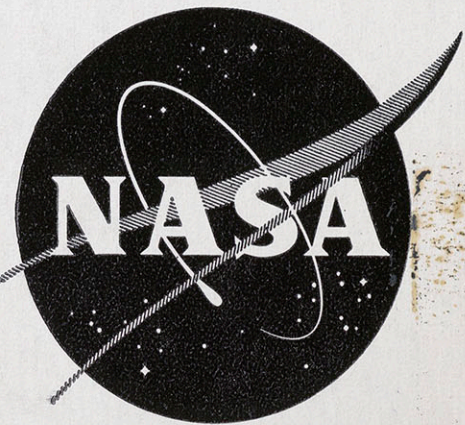
TOP HORIZONTAL

NUMBER 570-29195

NOTES:



TOP VERTICAL



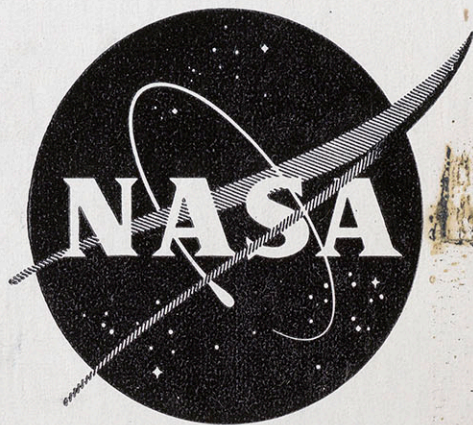
TOP HORIZONTAL

NUMBER 570-29190

NOTES:



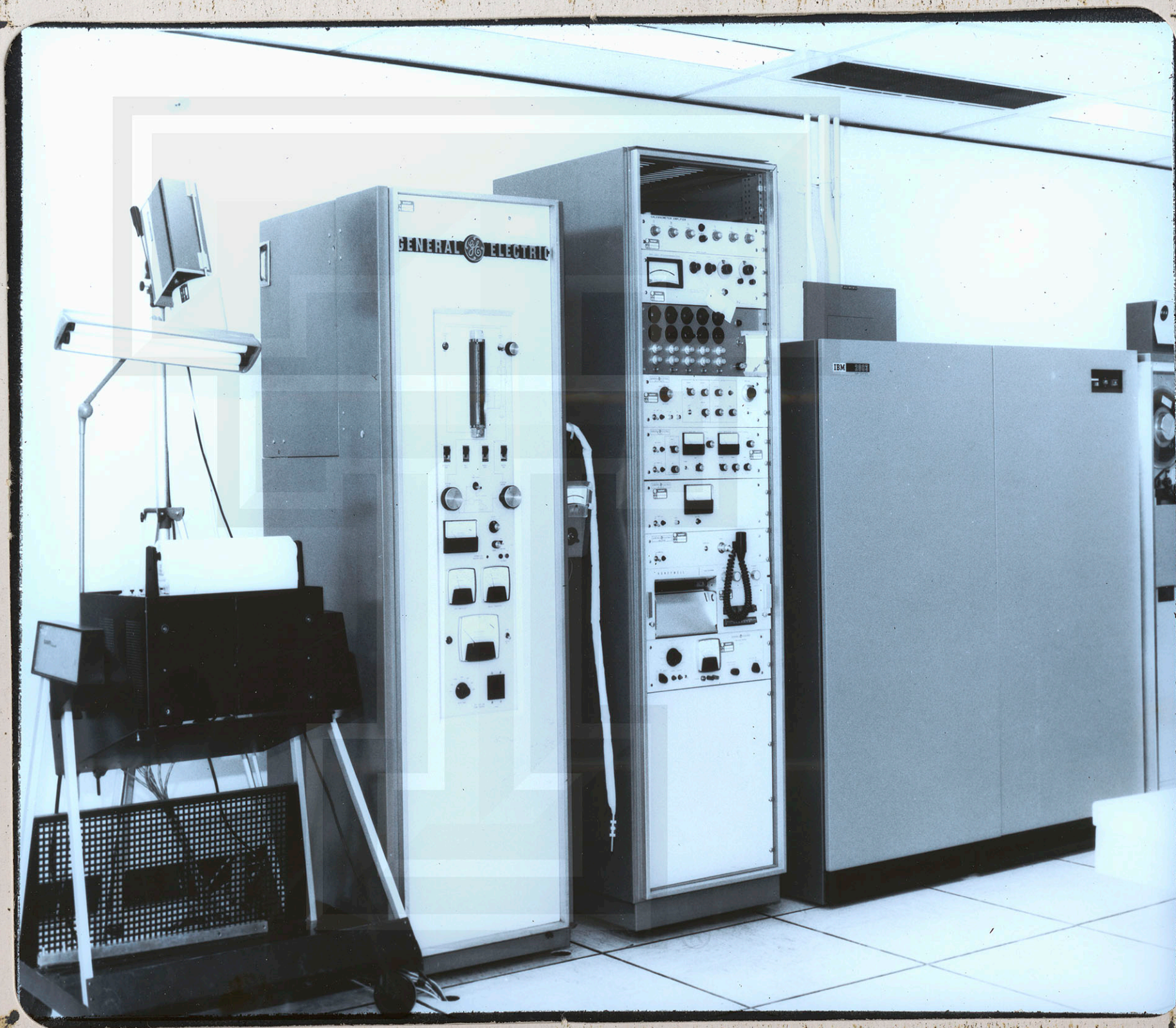
TOP VERTICAL



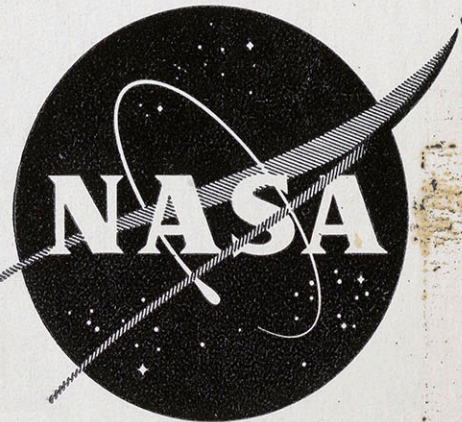
TOP HORIZONTAL

NUMBER 570-29191

NOTES:



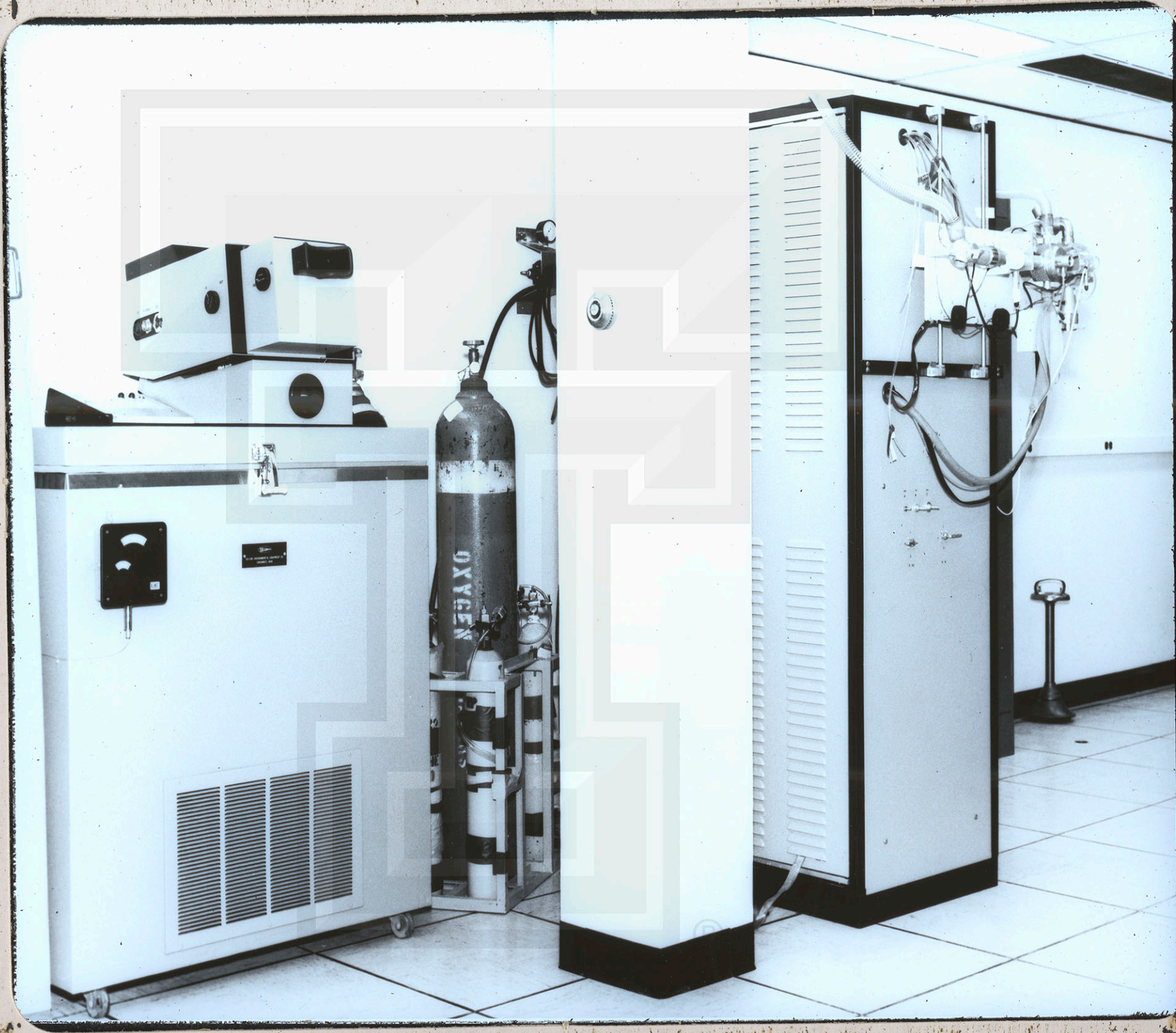
TOP VERTICAL



TOP HORIZONTAL

NUMBERS 70-29192

NOTES:



TOP VERTICAL



NUMBER _____

[illegible]

PRIMARY OBJECTIVE:

- EMPHASIS ON:

- IMBLMS MEASUREMENTS:

- NEUROLOGICAL
- CARDIOVASCULAR
- RESPIRATORY
- METABOLISM AND NUTRITION
- ENDOCRINOLOGY
- HEMATOLOGY
- MICROBIOLOGY AND IMMUNOLOGY
- BEHAVIORAL EFFECTS
- CLINICAL LABORATORY EVALUATIONS
- ENVIRONMENTAL MEASUREMENTS

TOP VERTICAL



NUMBER _____

This image shows a blank, cream-colored page with faint horizontal ruling lines. The paper has a slightly textured appearance and a few small, dark spots, possibly due to age or scanning artifacts. The lines are evenly spaced and run horizontally across the page.

DATE
9-15-69

- I. FBB DEFINITION.....COMPLETE
- II. FBB DESIGN.....COMPLETE
- III. FBB ASSEMBLY.....COMPLETE IN OCTOBER
- IV. FBB TEST PLANS AND PROCEDURES.....PARTIALLY COMPLETE
- V. FBB TESTING.....START END AUGUST
- VI. TEST DATA ANALYSIS.....START SEPTEMBER
- VII. EDU REQUIREMENTS.....AS SCHEDULED, JANUARY

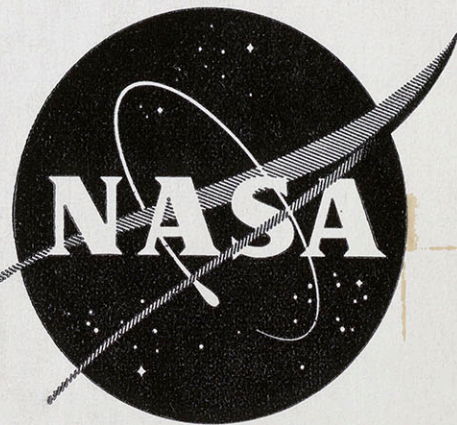
1.1 M BACH

MSC: LAB REMODELING IN PROCESS

FEB INTERFACES AND SUPPORT ARE BEING PROVIDED

TEST CONTRACTOR WORKING CONSTRUCTIVELY

TOP VERTICAL



TOP HORIZONTAL

NUMBER 570-29185

NOTES:



TOP VERTICAL



NUMBER _____

[illegible]

GOALS

DESCRIPTION

PROGRAM MILESTONES

MEASUREMENT REQUIREMENTS

2nd det (AAP)

TOP VERTICAL

1995

OUT

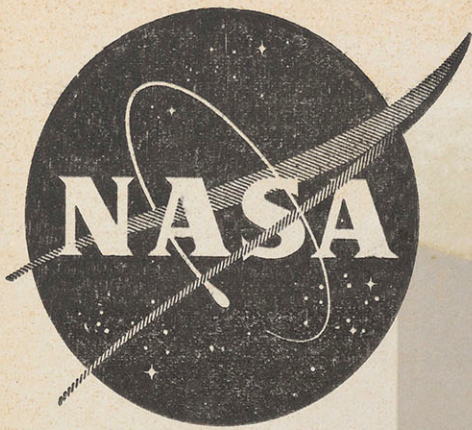


NUMBER _____

This image shows a single sheet of cream-colored paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

SYSTEM

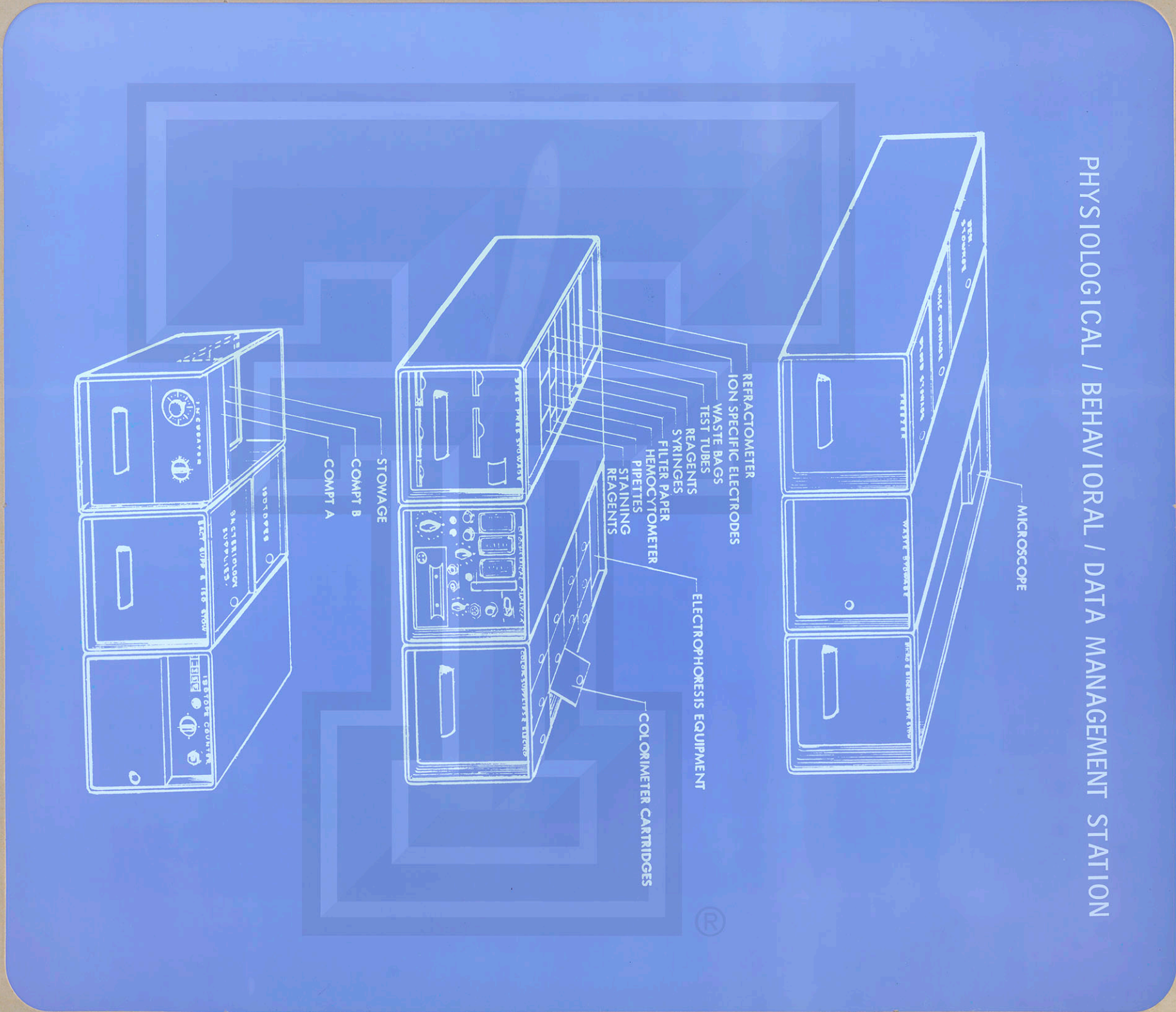
TOP VERTICAL

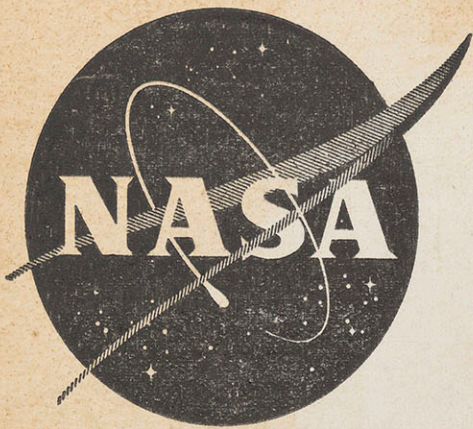


TOP HORIZONTAL

NUMBER _____

NOTES:



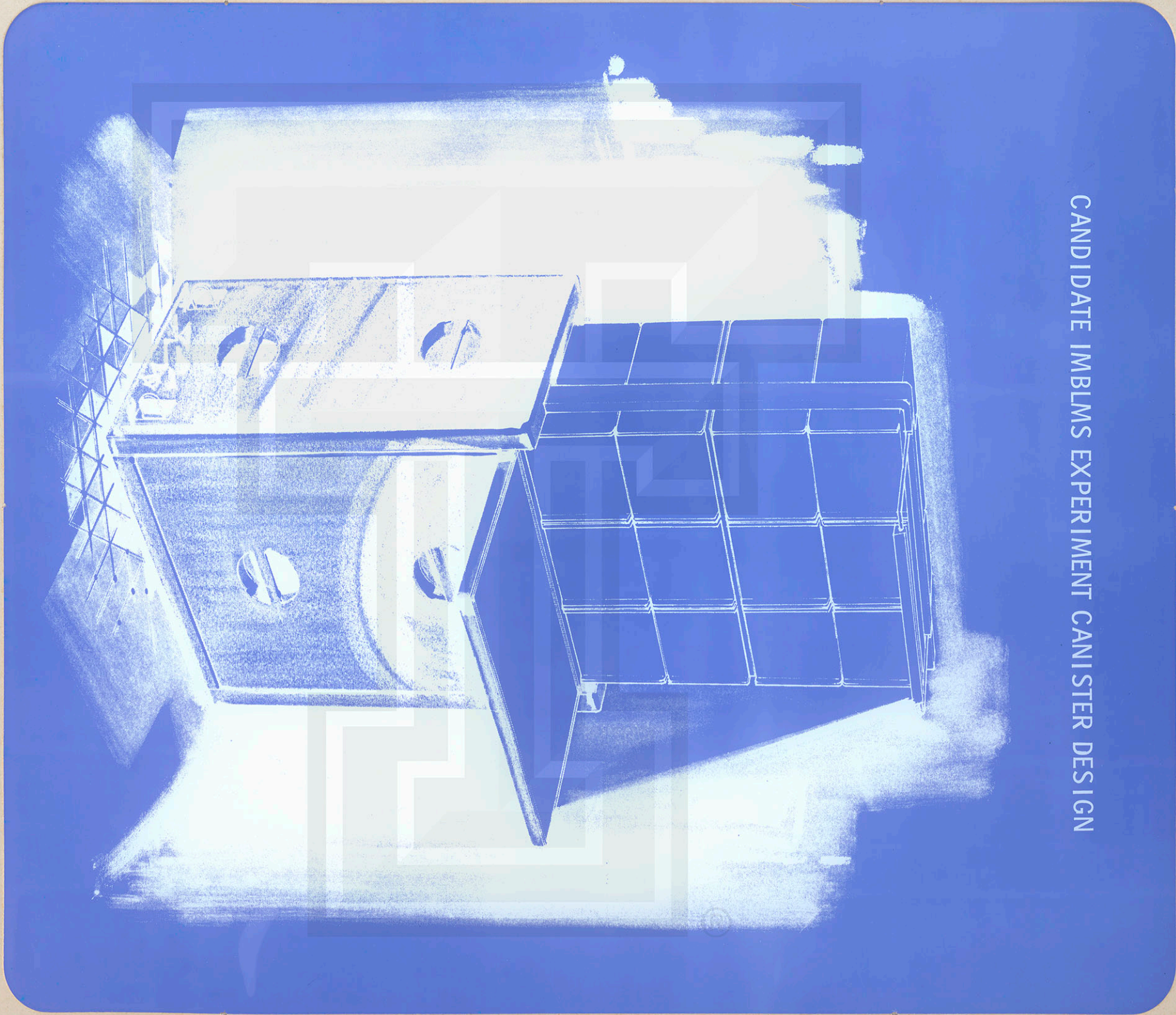


TOP HORIZONTAL

NUMBER _____

NOTES:

Lined area for notes.



CANDIDATE IMBIMS EXPERIMENT CANISTER DESIGN

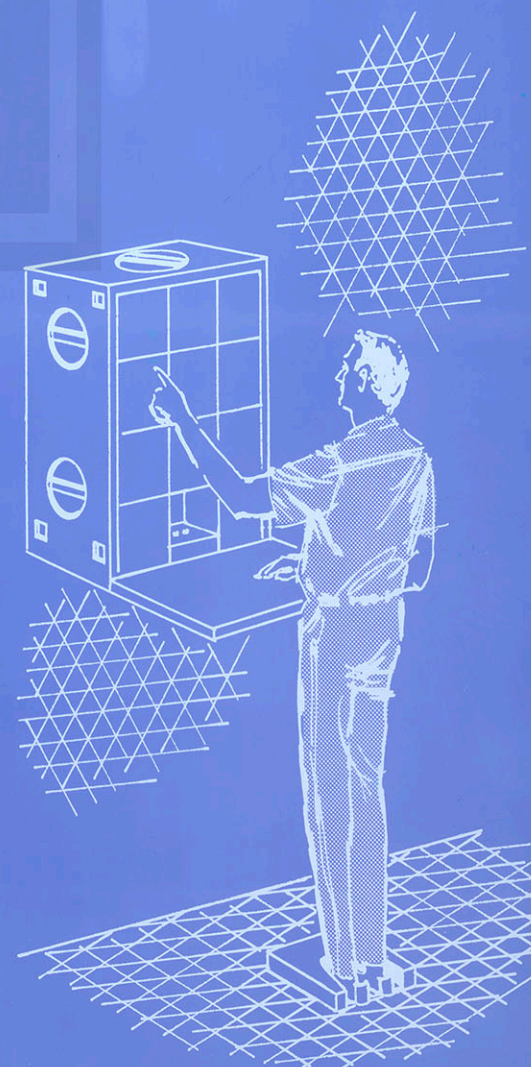
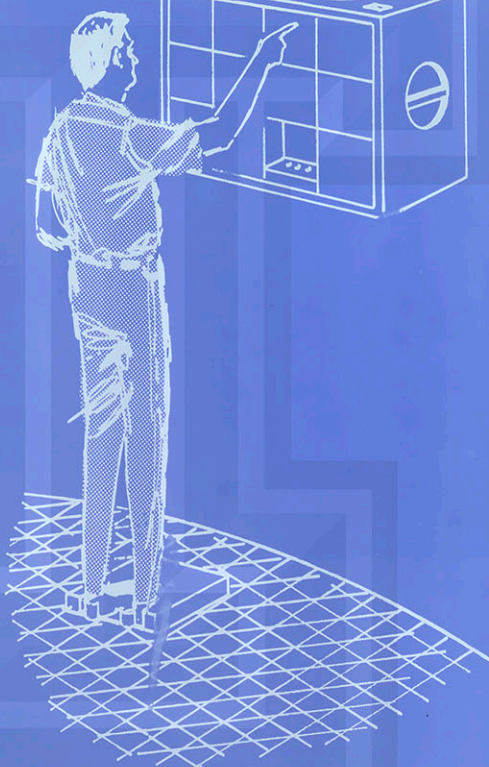
TOP VERTICAL



NUMBER _____

This image shows a single sheet of cream-colored paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

CREW COMPARTMENT WALL MOUNT



TOP VERTICAL



NUMBER _____

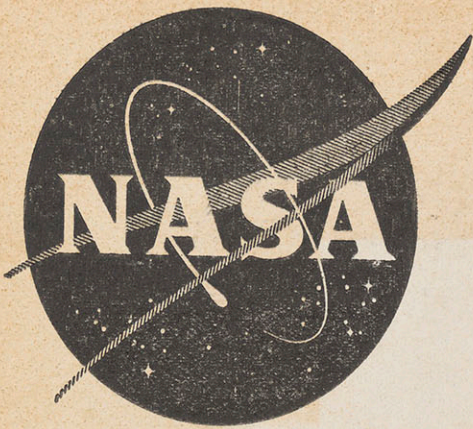
This image shows a blank, aged, cream-colored page, likely an endpaper or flyleaf of a book. The paper has a slightly textured appearance with some minor creases and discoloration, characteristic of old paper. There is no text or other markings on the page.



TOP VERTICAL

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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TOP HORIZONTAL

NUMBER _____

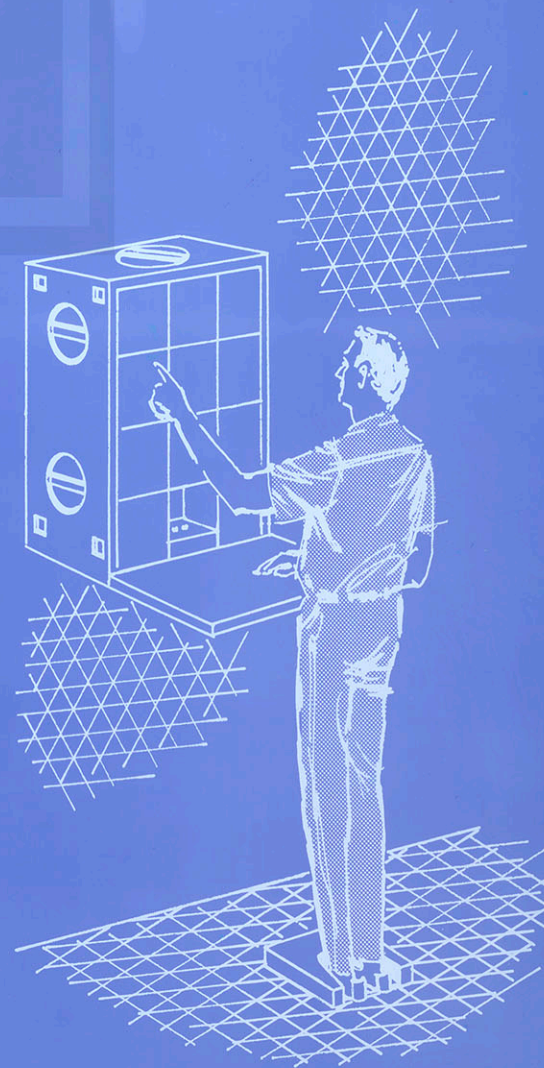
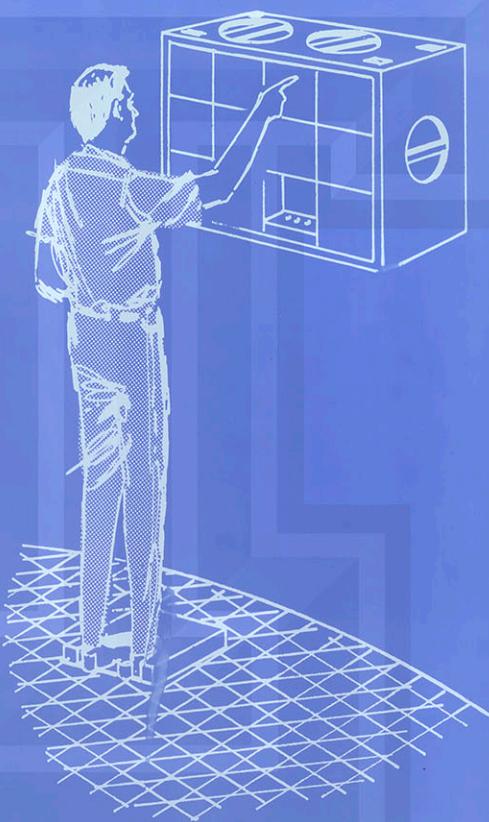
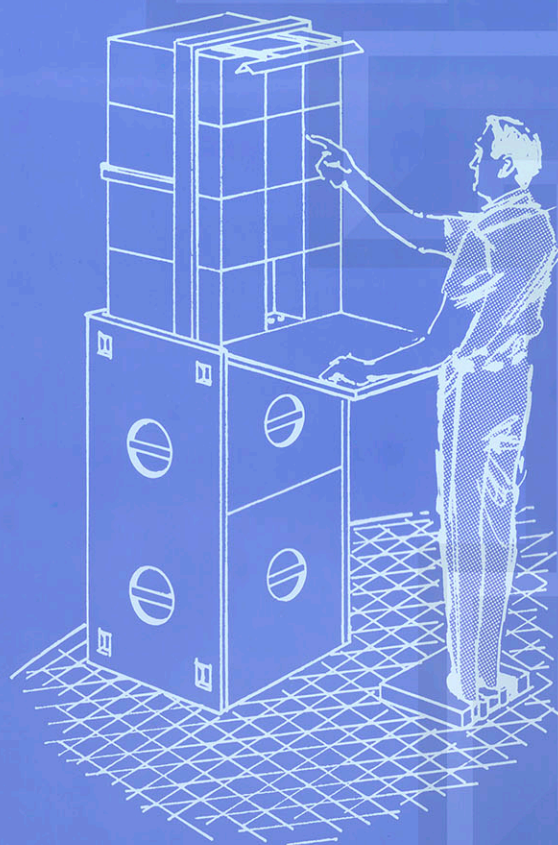
TOP VERTICAL

NOTES:

FLOOR MOUNT

CARRIER WALL MOUNT

CREW COMPARTMENT
WALL MOUNT



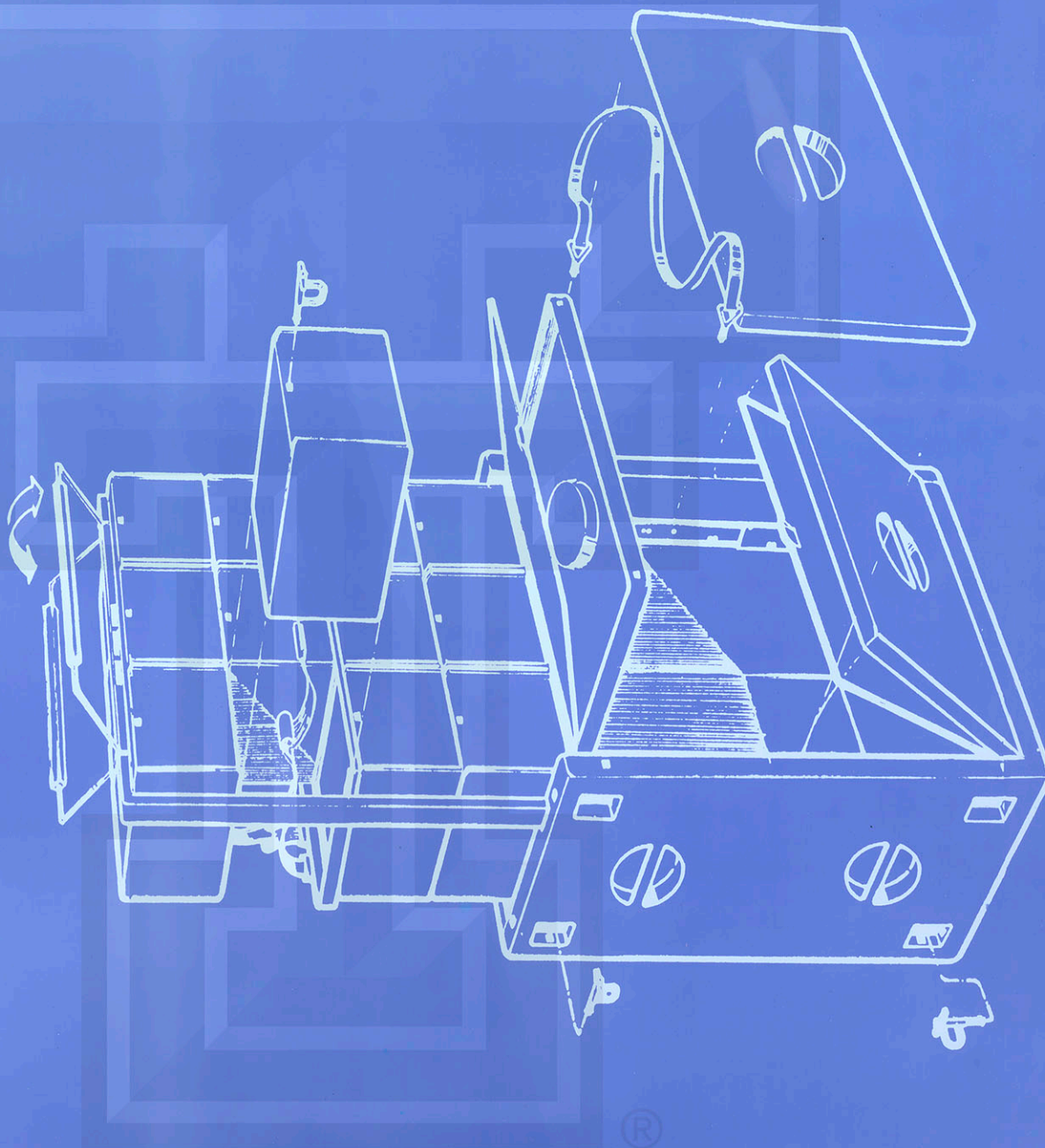
IMBLMS EXPERIMENT CANISTER MOUNTING



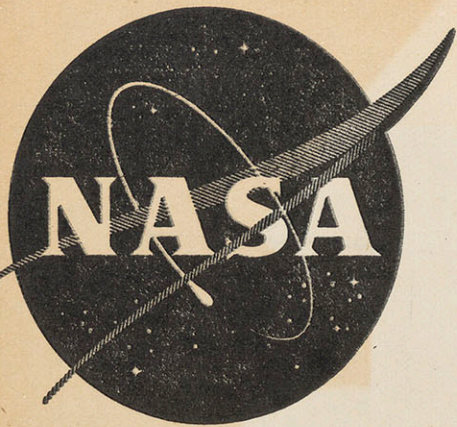
NUMBER _____

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

MECHANICAL LAYOUT OF CANISTER DESIGN



TOP VERTICAL



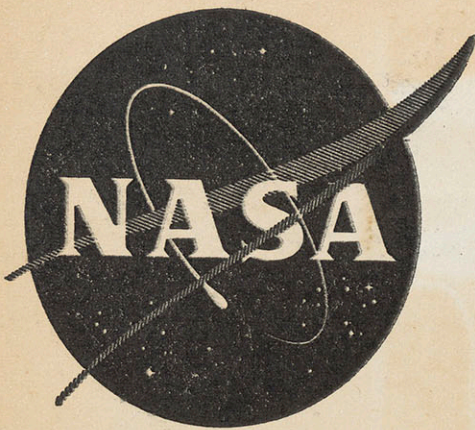
TOP HORIZONTAL

NUMBER _____

NOTES:

<u>IMBIMS FY 70 FUNDING</u>	
PHASE B4 CONTRACTS	\$2,200
MSC TEST CONTRACT (BOEING)	150
LAB. EQUIPMENT AND SUPPLIES (MSC).	100
PARALLEL DEVELOPMENT EFFORTS	<u>150</u>
TOTAL	\$2,600

TOP VERTICAL



TOP HORIZONTAL

NUMBER 3

NOTES:

PHASE B 4

OBJECTIVE: TO INITIATE THE DESIGN AND DEVELOPMENT OF A FLIGHT SYSTEM

- . TASK I DESIGN
- . TASK II PROGRAM PLANNING
- . TASK III PHASE C & D PROPOSALS
- . TASK IV FLIGHT DESIGN MOCKUP (NON-FUNCTIONAL)
- . TASK V TIME LINE ANALYSIS
- . TASK VI DEVELOP VEHICLE INTERFACES
- . TASK VII DEFINITION OF LMBLMS CLINICAL CAPABILITY

STATUS:

- . PHASE B 4 RFP TO CONTRACTOR 13 NOV 69
- . PROPOSALS DUE MSC 22 DEC 69
- . CONTRACTS 1 MAR 70

PROGRESS THIS QUARTER:

- . PROGRAM REVIEW - Mr. Mathews
- . SEB APPOINTED BY Dr. Mueller
- . PROCUREMENT PLAN SIGNED BY Dr. Paine
- . PHASE B 4 WORK STATEMENT AND RFP PREPARED, COORDINATED, REVIEWED, AND ISSUED

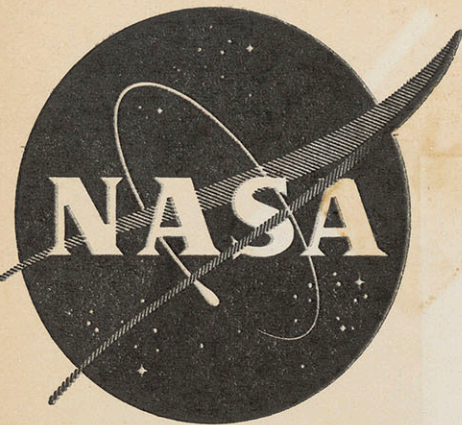
PHASE B 4 DURATION -- 9 MONTHS

FIXED PRICE CONTRACTS

SELECTION OF SINGLE CONTRACTOR AT END OF B 4

TOP VERTICAL

TOP HORIZONTAL

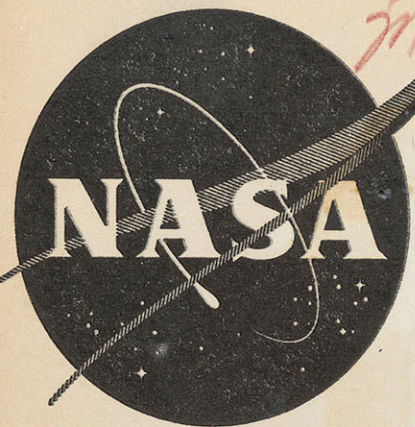


NOTES:

PHASE B3		
OBJECTIVE: DESIGN, ASSEMBLE, TEST, AND DELIVER A FUNCTIONAL BREADBOARD (FBB)		
TASK	STATUS	PROGRESS THIS QUARTER
I DEFINE FBB DESIGN AND PERFORMANCE REQUIREMENTS	COMPLETE	
II DESIGN FBB	COMPLETE	DESIGNS COMPLETED/MODIFIED FOR UNCOMPLETED ITEMS
III ASSEMBLE FBB AND INSTALL AT MSC AFTER TASK <u>V</u> TESTING	ASSEMBLY COMPLETE	COMPLETED FBB ASSEMBLIES, COM- PLETING CHECKOUT TESTING FOR ASSEMBLY ACCEPTANCE
IV FBB TEST PLANS AND PROCEDURES (FOR TASK <u>V</u>)	COMPLETE	PLANS AND PROCEDURES COMPLETED, REVIEWED, MODIFIED & APPROVED
V FBB PERFORMANCE TEST	IN PROGRESS	TESTING STARTED AND BEING WIT- NESSED BY NASA PERSONNEL AND CONSULTANTS
VI TEST DATA ANALYSIS	IN PROGRESS	ANALYSIS STARTED (TASK <u>V</u> DEPENDENT)
VII PRELIMINARY DESIGN REQUIREMENTS FOR EDU	IN PROGRESS	STARTED

TOP VERTICAL

3
MILKING



TOP HORIZONTAL

NOTES:

Lined area for notes.

IMBLMS
QUARTERLY PROGRESS REPORT
15 December 1969

- . Phase B3
- . Phase B4
- . FBB Testing (MSC)
- . FY 70 Budget

®

TOP VERTICAL



NUMBER _____

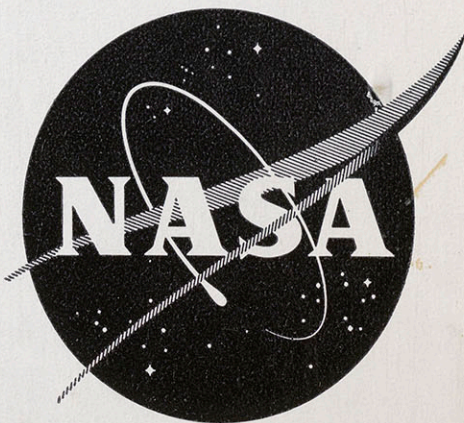
This image shows a single sheet of white, vertically-oriented paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are some small, faint brown spots or stains on the paper, particularly near the top right and bottom right corners. The paper appears to be a standard notebook or ledger page.

MEASUREMENT REQUIREMENTS

VISUAL TASK WITH HEAD ROTATION

BALLISTOCARDIOGRAM

TOP VERTICAL



TOP HORIZONTAL

NUMBER _____

NOTES:

I M B L M S

MEASUREMENT REQUIREMENTS

RESPIRATORY

ALVEOLAR $p\text{CO}_2$	ZPN
RESPIRATORY DEAD SPACE	VITAL CAPACITY
ALVEOLAR VENTILATION	TIMED VITAL CAPACITY (VC_1 ", VC_3 ")
RESIDUAL VOLUME	INSPIRATORY CAPACITY
AIRWAY RESISTANCE	EXPIRATORY RESERVE VOLUME
LUNG COMPLIANCE	TIDAL VOLUME
CARDIAC OUTPUT	MINUTE TIDAL VOLUME
O_2 CONSUMPTION	MAXIMUM INSPIRATORY FLOW
CO_2 PRODUCTION	MAXIMUM EXPIRATORY FLOW
DIFFUSING CAPACITY	MAXIMUM BREATHING CAPACITY
RESPIRATORY RATE	ALVEOLAR $p\text{O}_2$

®

TOP VERTICAL



NUMBER _____

This image shows a single page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper has some minor discoloration and small dark spots, particularly near the top right corner. The edges of the paper are slightly irregular.

MEASUREMENT REQUIREMENTS

SENSORY

VISION

ACUITY

DEPTH PERCEPTION

BRIGHTNESS THRESHOLD

DARK ADAPTATION

COLOR PERCEPTION

PHORIAS

VISUAL FIELDS

CRITICAL FLICKER FUSION

PHOTO STRESS

AUDITORY

PITCH THRESHOLDS

PITCH DISCRIMINATION

AUDITORY TEMPORAL ACUITY

SPEECH INTELLIGIBILITY

AUDITORY ABSOLUTE THRESHOLD

CUTANEOUS

PRESSURE THRESHOLDS

TOP VERTICAL

DATE



NUMBER _____

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

CONCENTRATION (PROBLEM SOLVING)

TOP VERTICAL

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MSFEB
APPROVED
BUT NOT
FUNDED ~~BY~~
AAP FUNDS
INSUFFICIENT



NUMBER _____

This image shows a single page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper has a slightly textured appearance and some minor discoloration or foxing, particularly towards the bottom right corner. There is no handwriting or printed text on the page.

MEASUREMENT REQUIREMENTS

ENVIRONMENT

PRESSURE

ATMOSPHERIC COMPOSITION

TEMPERATURE

HUMIDITY

SPACECRAFT MOTION

NOISE

RADIATION

TOP VERTICAL



NUMBER _____

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper appears slightly aged or off-white. There is no handwriting or other markings on the page.

LABORATORY ANALYSIS

PLASMA

SODIUM

POTASSIUM

CHLORIDE

CALCIUM

PROTEINS

GLUCOSE

PHOSPHATE

PLASMA VOLUME

SGOT

SGPT

ALKALINE PHOSPHATE

BILIRUBIN

CHOLESTEROL

UREA NITROGEN

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TOP VERTICAL



NUMBER _____

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

MEASUREMENT REQUIREMENTS

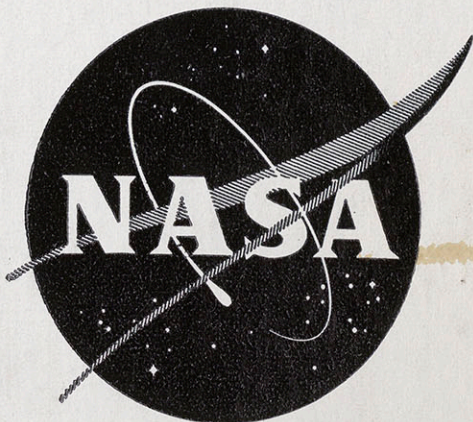
MICROBIOLOGY

BACTERIA/ FUNGI

**CULTURE/SENSITIVITY
STAIN
OBSERVE
IDENTIFY
TRANSMIT
PHOTOGRAPH**

TOTAL BODY WATER

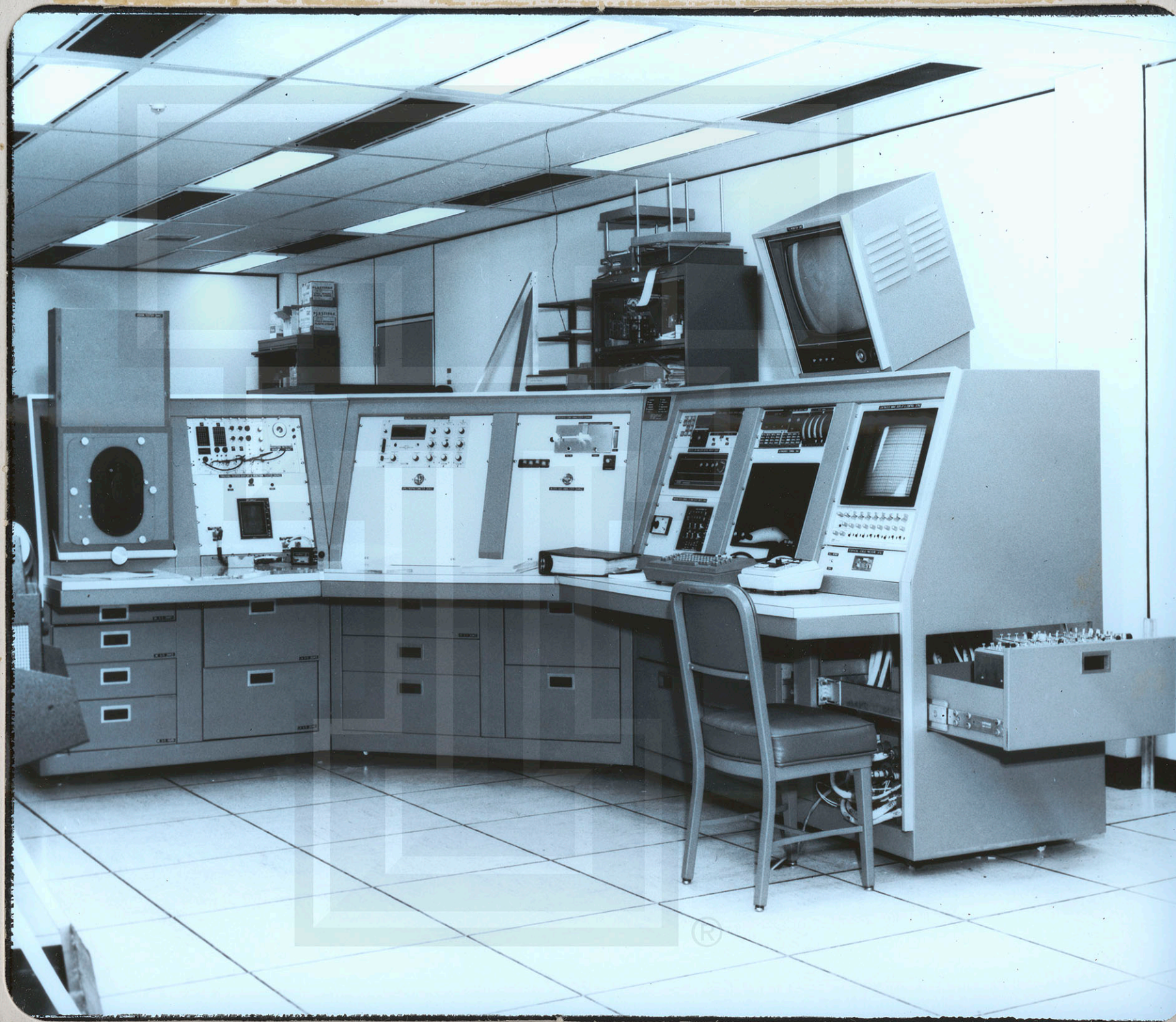
TOP VERTICAL



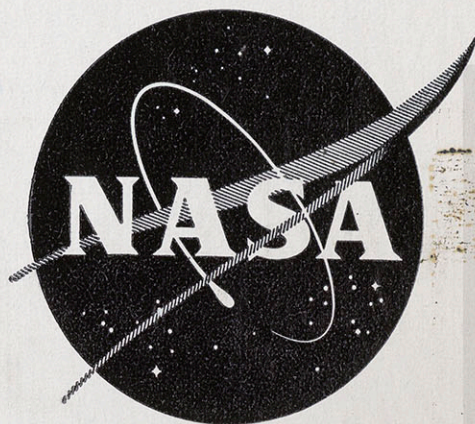
TOP HORIZONTAL

NUMBER 570-29189

NOTES:



TOP VERTICAL

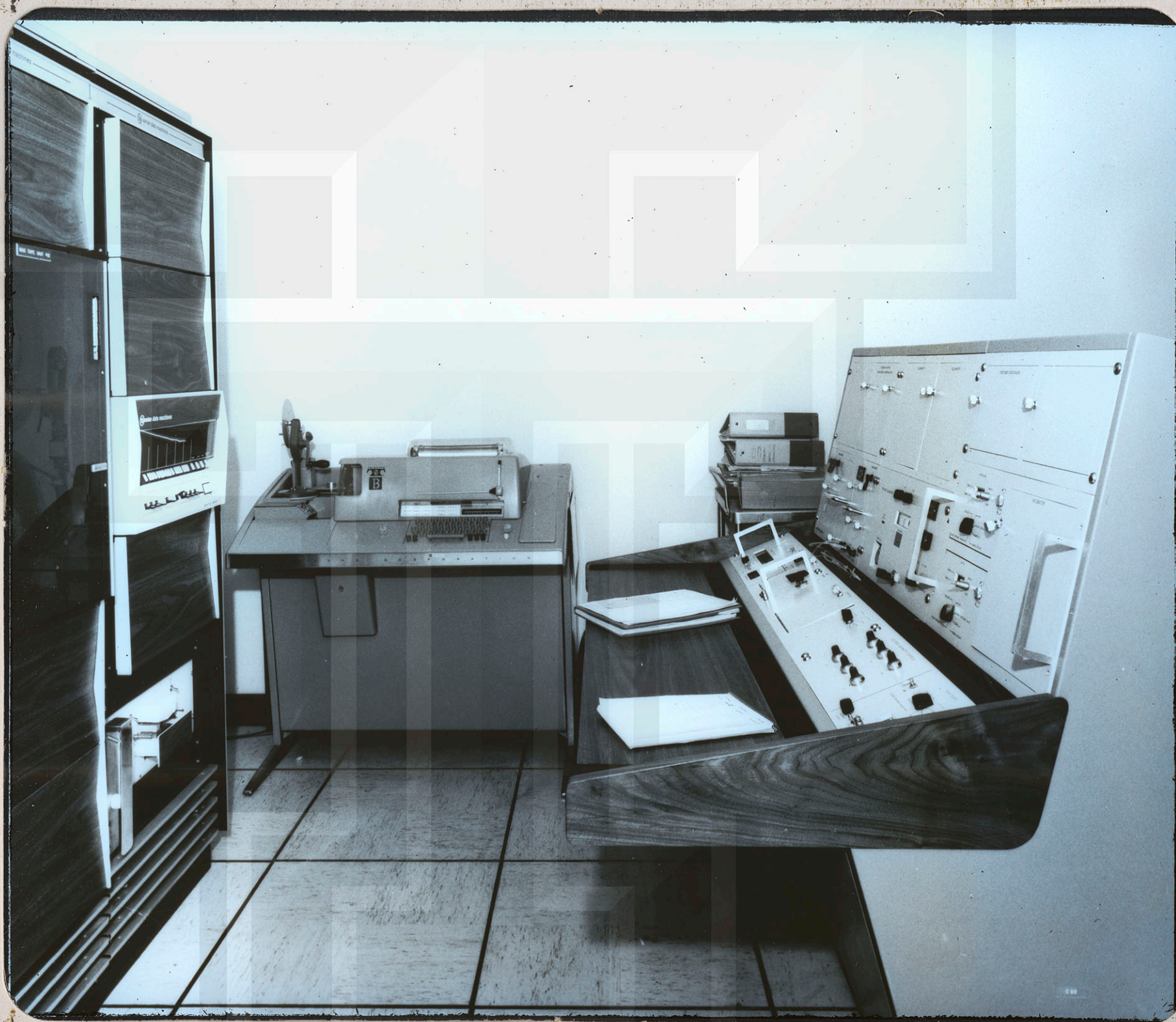


NOTES:

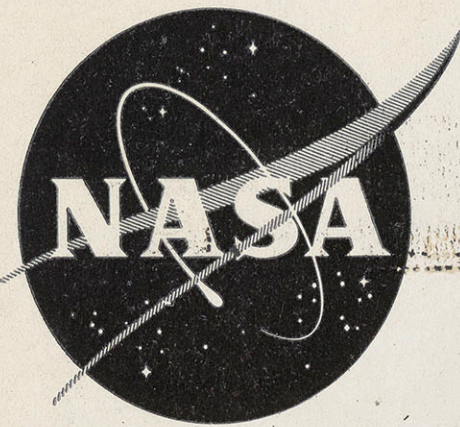
Lined area for notes, consisting of approximately 20 horizontal lines.

TOP HORIZONTAL

NUMBER 570-29187



TOP VERTICAL

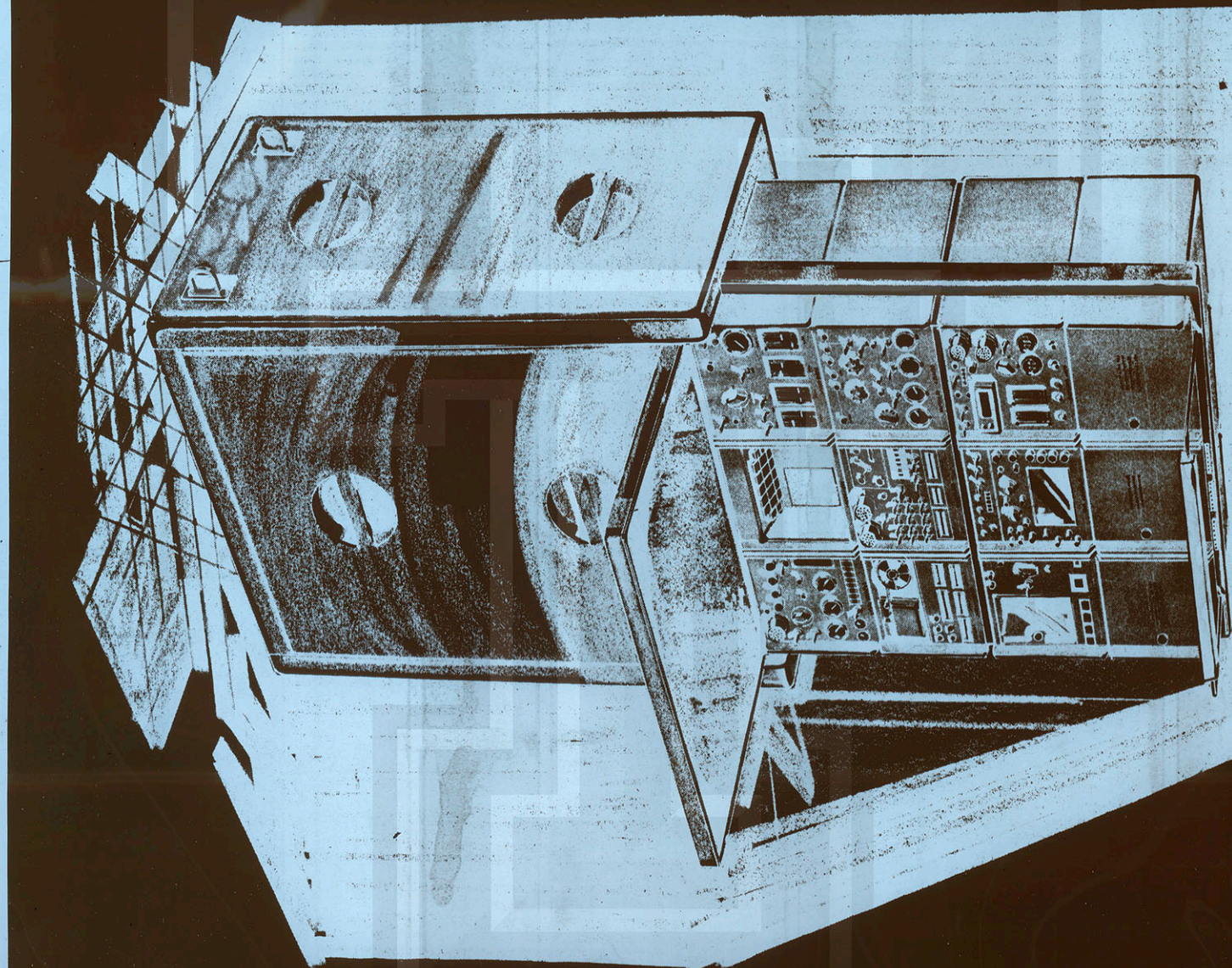


TOP HORIZONTAL

NUMBER

14

NOTES:



FUNCTIONAL ARRANGEMENT
OF PHYSIOLOGICAL / BEHAVIORAL / MANAGEMENT MODULES
IN EXPERIMENT CANISTER

TOP VERTICAL

14

NASA USE ONLY