

Volume VI

X-10
XIV.1

SATURN HISTORY DOCUMENT
University of Alabama Research Institute
History of Science & Technology Group

Date ----- Doc. No. -----

GEORGE W. ...
JOHN ...
CENTER
HUNTSVILLE, ALABAMA

August
1964

SATURN V
MANAGEMENT INFORMATION
AUGUST 1964

FOR NASA INTERNAL USE ONLY

MANAGERIAL DATA CENTER
MARSHALL SPACE FLIGHT CENTER

PREFACE

This document contains copies of management charts maintained in the Managerial Data Center of the Executive Staff on the Saturn V project. To facilitate use of this document, all Saturn V classified data has been removed and will be published in Volume XI. A list of these charts are shown on the "Table of Contents". Information on other MSFC activities will be published in separate volumes as indicated on the "Schedule for Publication of Data Bank Charts" contained in this volume.

Facilities related to the Saturn V project are contained in Michoud and Mississippi Test Operations, Volume II; Huntsville Facilities, Volume III; and Facilities--Various Locations and Other Centers, Volume VII. Detailed engine charts relating to the Saturn V project will be contained in Engines, Volume VIII.

Most of the charts in this volume are included in Dr. von Braun's, Dr. Rees', and Mr. Gorman's Management Information Consoles. The "Table of Contents" identifies the use of each.

Information for these charts has been furnished the Data Center by the various offices and laboratories of MSFC. All Industrial Operations information is furnished through the Projects Management Data Center of the IO Resources Management Office.

Charts are available in the form of 2 x 2 (35 mm) color slides and black and white prints from the Data Bank Library of the Managerial Data Center, Rm P-110 (10th floor), Bldg 4200.

Comments or suggestions you may have on any of the enclosed charts should be referred to Mr. Ray Unger, E-D, phone 876-0027.

MANAGERIAL DATA CENTER
EXECUTIVE STAFF, E-D
MARSHALL SPACE FLIGHT CENTER

SCHEDULE FOR PUBLICATION OF MANAGEMENT INFORMATION

<u>Volume No.</u>	<u>Title of Publication</u>	<u>Estimated No. of Charts</u>	<u>1st Publication Date</u>	<u>2nd Publication Date</u>
I	Saturn I and IB	125	1 June 64	1 Oct 64
II	Michoud and Mississippi Test Operations	100	20 June 64	10 Oct 64
III	Huntsville Facilities	100	1 July 64	20 Oct 64
IV	Research Projects, Future Projects, and Apollo Spacecraft	100	10 July 64	1 Nov 64
V	Manpower, Financial, and Organization	125	20 July 64	10 Nov 64
VI	Saturn V	125	1 Aug 64	20 Nov 64
VII	Facilities - Various Locations and Other Centers	125	10 Aug 64	1 Dec 64
VIII	Engines	100	20 Aug 64	10 Dec 64
IX	NASA Space Programs and Schedules	100	1 Sept 64	20 Dec 64
X	R & D Operations	125	10 Sept 64	10 Jan 65
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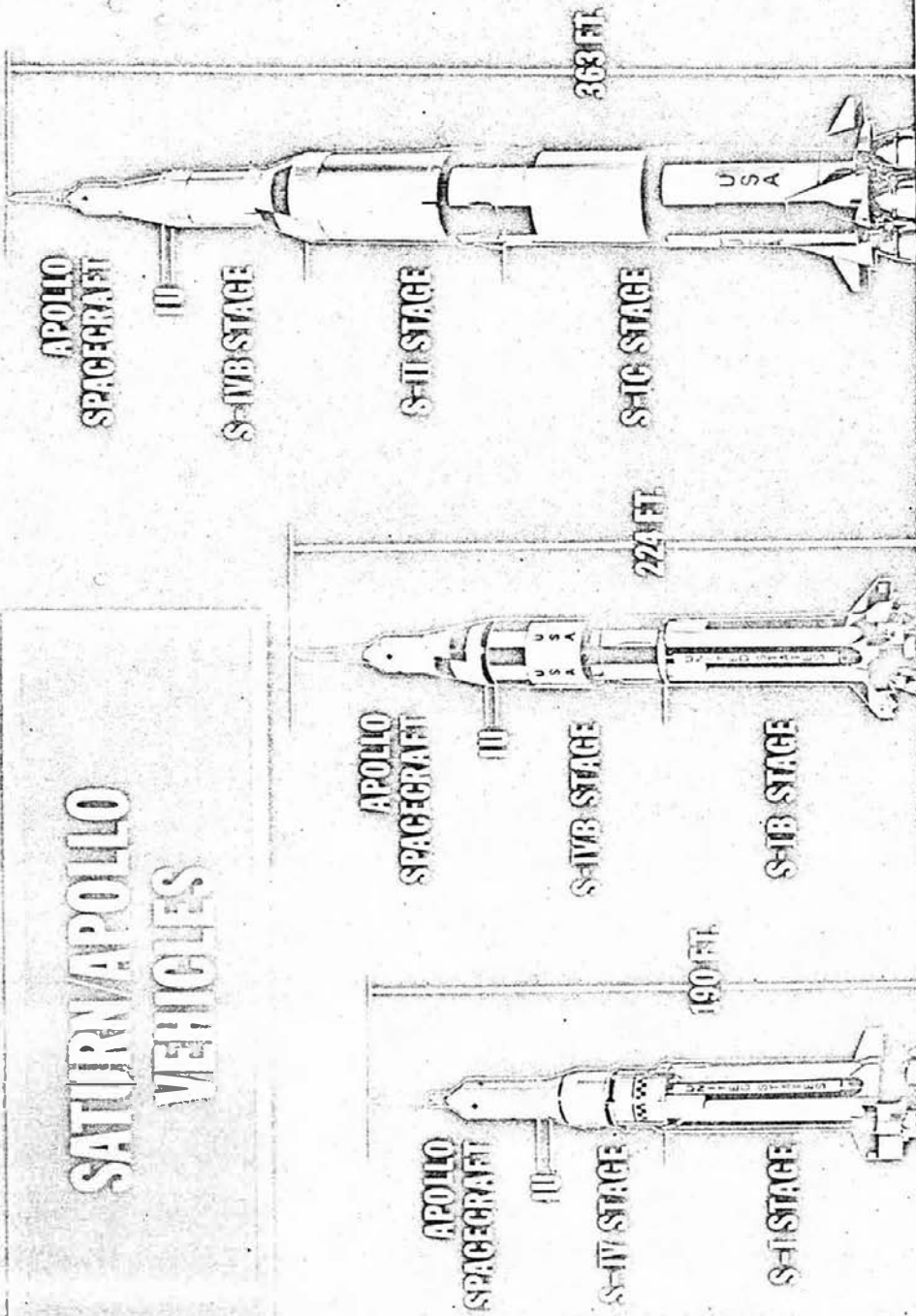
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The "classified" Saturn V charts listed below will be published in Volume XI along with other "classified" management information.

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SATURN V-GENERAL

SATURN/APOLLO VEHICLES



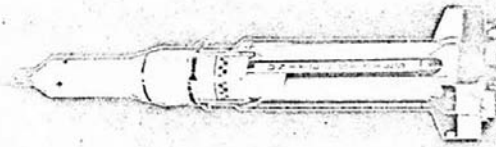
SATURN I

SATURN IB

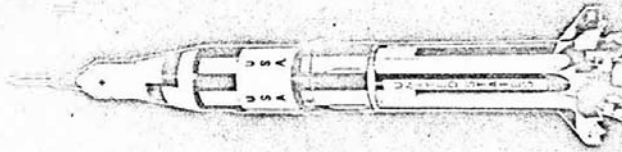
SATURN V

PHOTO 11D2015

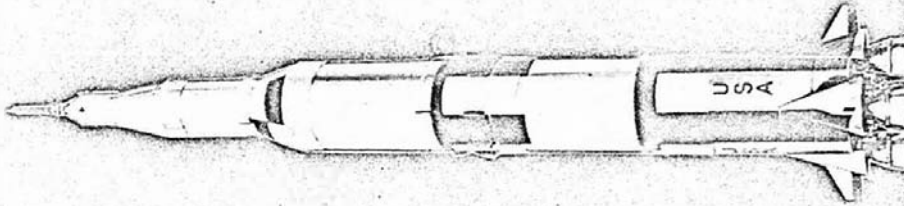
**SATURN
VEHICLE CONFIGURATIONS**



SATURN I.



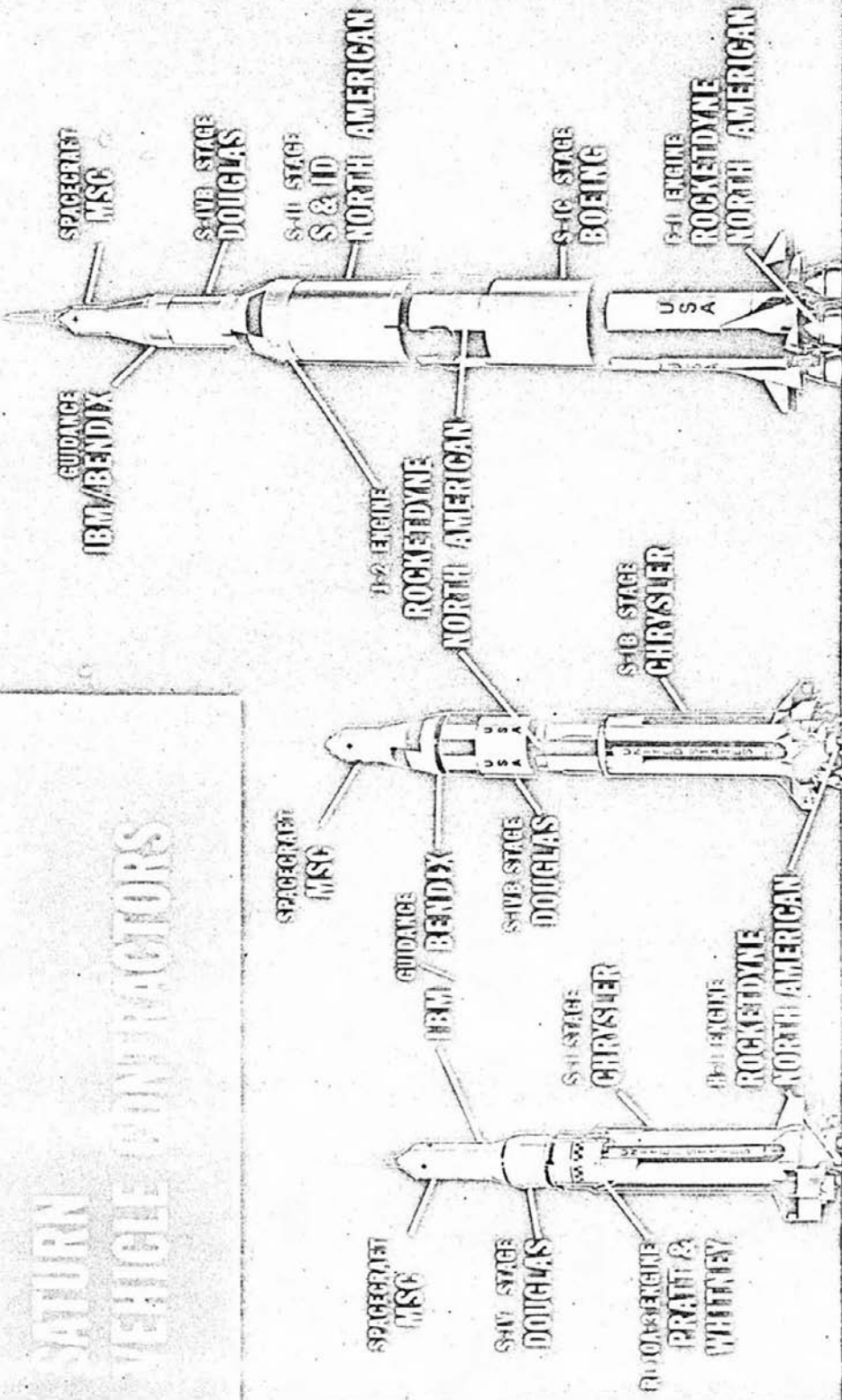
SATURN IB



SATURN V

REF ID: A7D2018

SATURN VEHICLE MANUFACTURERS



SATURN I SATURN IB SATURN V 140170 1102000

**PROPOSED
SATURN V MISSIONS**

CIRCUMLUNAR FLIGHTS

APOLLO MANNED LUNAR LANDING

LUNAR LOGISTICS

90,000 LBS TO LUNAR TRAJECTORY

**LOGISTICS SUPPORT FOR MANNED
LUNAR LANDING**

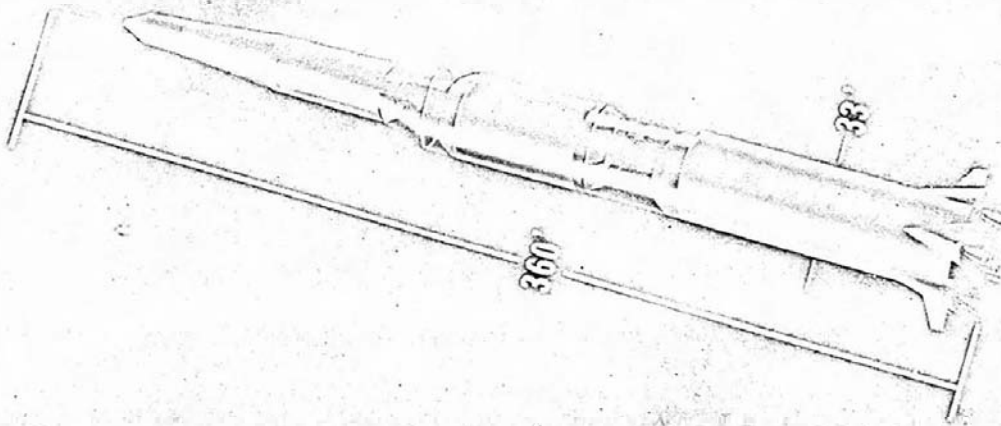
**LUNAR BASE BUILDUP AND
MAINTENANCE**

**LARGE PAYLOADS IN EARTH ORBIT
(240,000 LBS)**

MANNED SPACE STATIONS

UNMANNED SCIENTIFIC SATELLITES

PLANETARY EXPLORATION



MSG 2768 REV E
MAY 1 1964 EFB 1210E

SATURN V CHARACTERISTICS

GUIDANCE: INERTIAL

CONTROL: GIMBALED ENGINES

PAYLOAD: 120 TONS IN 100 MILE ORBIT
OR 45 TONS TO ESCAPE

VEHICLE SIZE:

APPROX. LENGTH 360 FEET

WEIGHT FUELED 3000 TONS

WEIGHT EMPTY 170 TONS

STAGE SIZES: S-IC 396x128'

S-II 396x81'

S-IVB 260x59'

DU SIZE: DIAMETER 260'

HEIGHT 36'

STAGE THRUST: S-IC 7,500,000 LB.

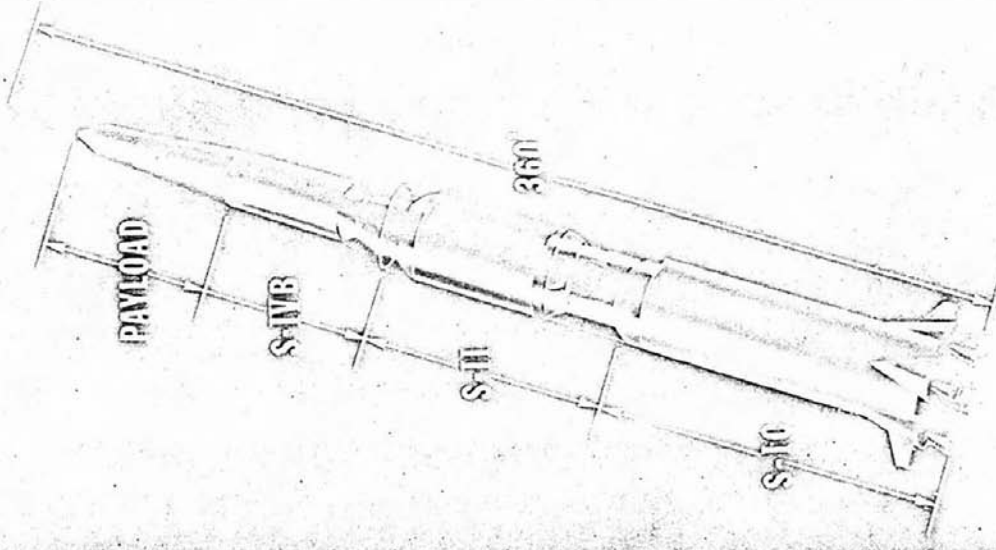
S-II 10X/4RP4 ENGINES

S-IVB 1,000,000 LB.

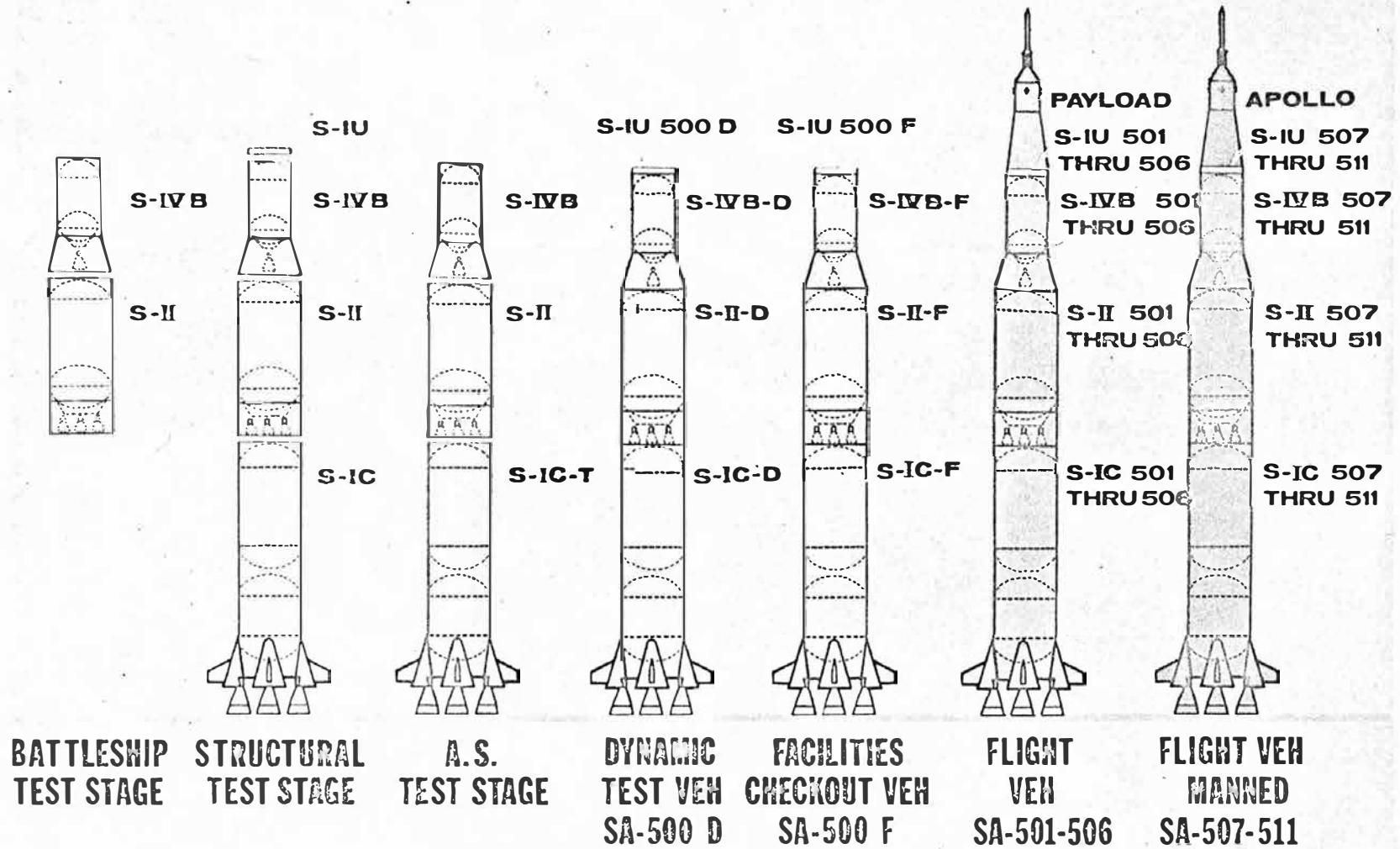
S-IVB 10X/4H₂ ENGINES

S-IVB 200,000 LB.

S-IVB 10X/4H₂ ENGINE



SATURN V VEHICLE CONFIGURATION



I-V-P

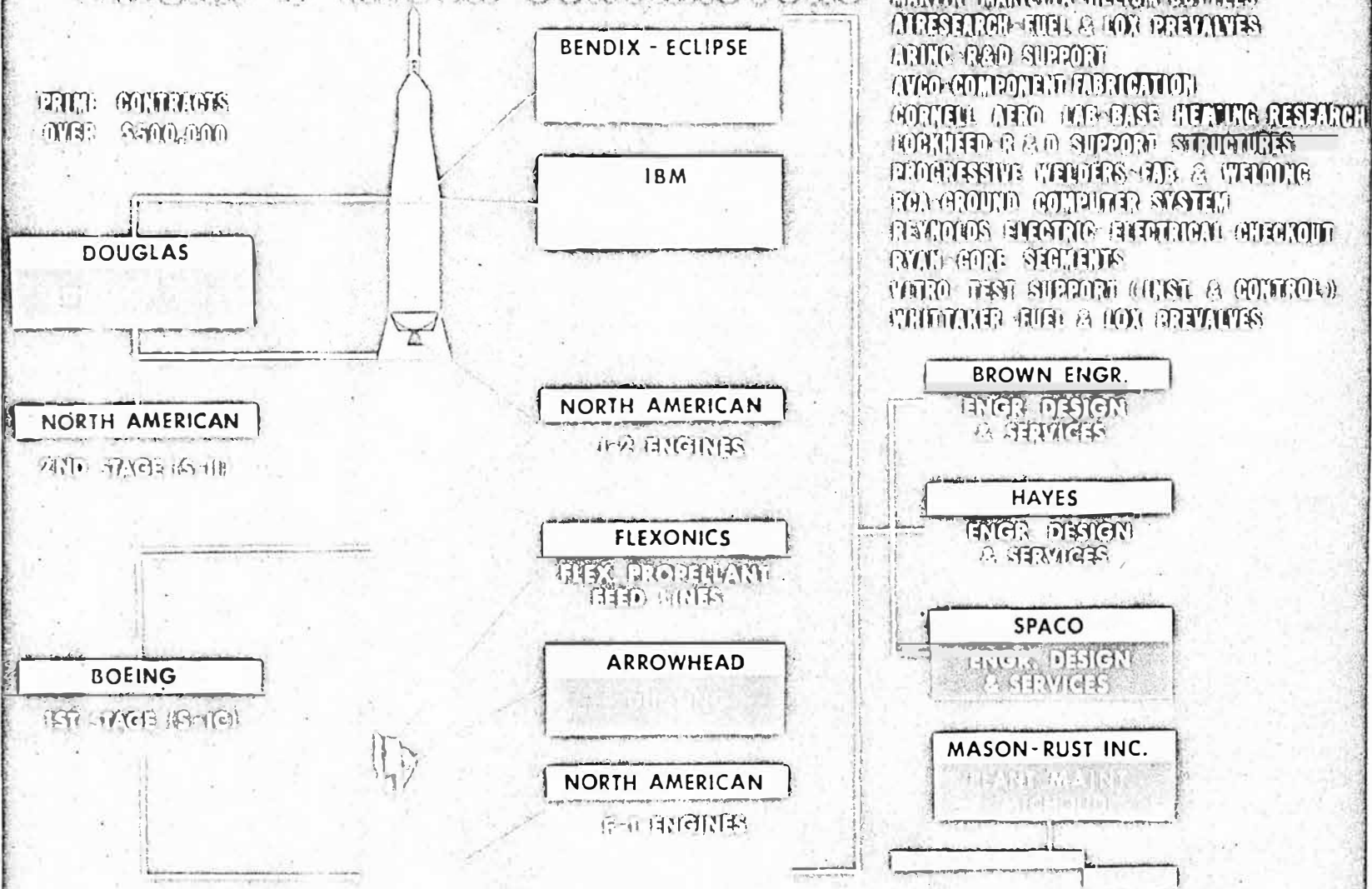
DEC. 18, 1963

EX-D 1232E

REV. D
MS-G-80-63

SATURN V MAJOR CONTRACTORS

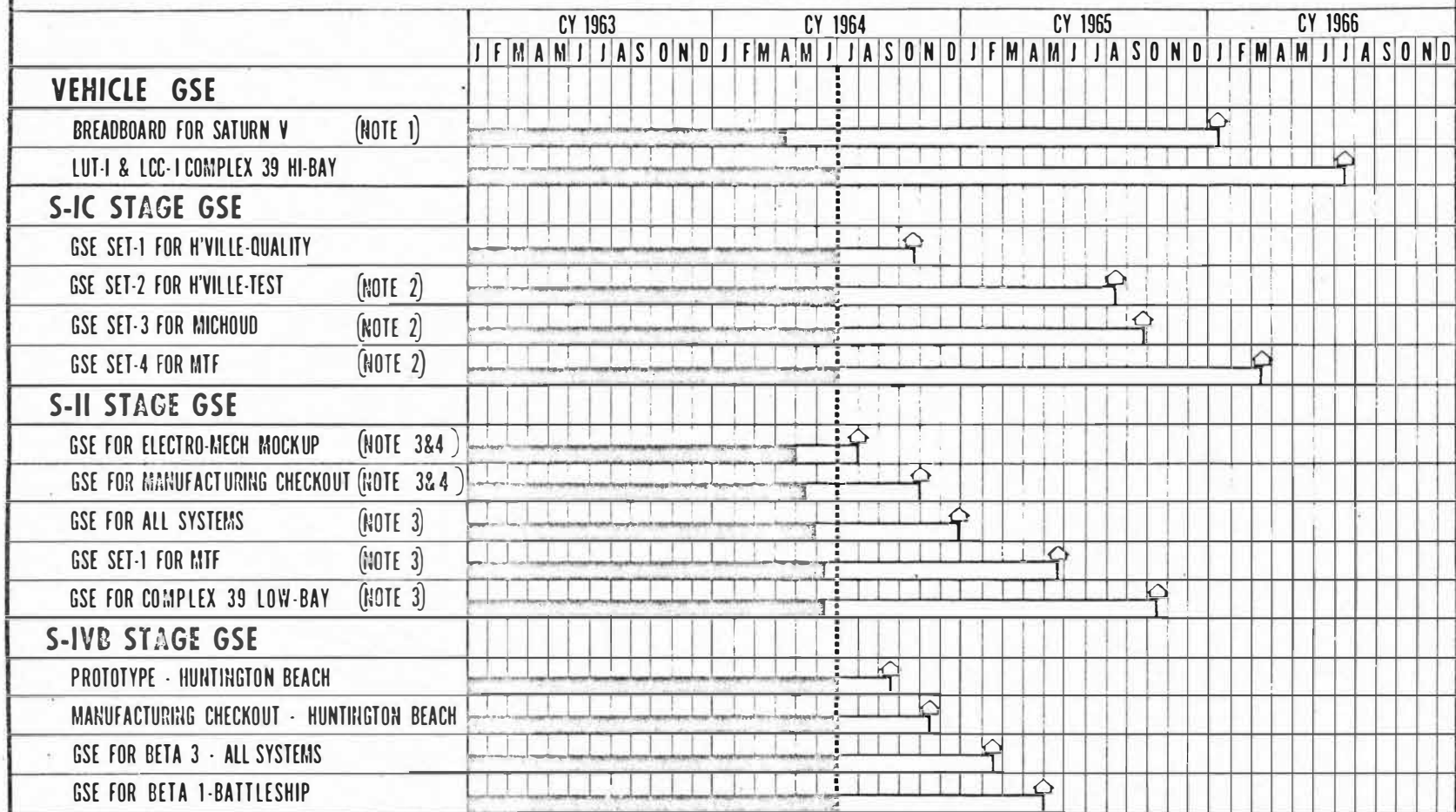
PRIME CONTRACTS
OVER \$500,000



MS-G-9-63 REV 11

HIRSCH LTD. JUNE 22, 1964 E-D A724A

SATURN V GSE SUMMARY SCHEDULE



NOTES: DELIVERY DATES ARE 2 MONTHS PREVIOUS TO FIRST FUNCTIONAL USE FOR STAGE CHECKOUT.

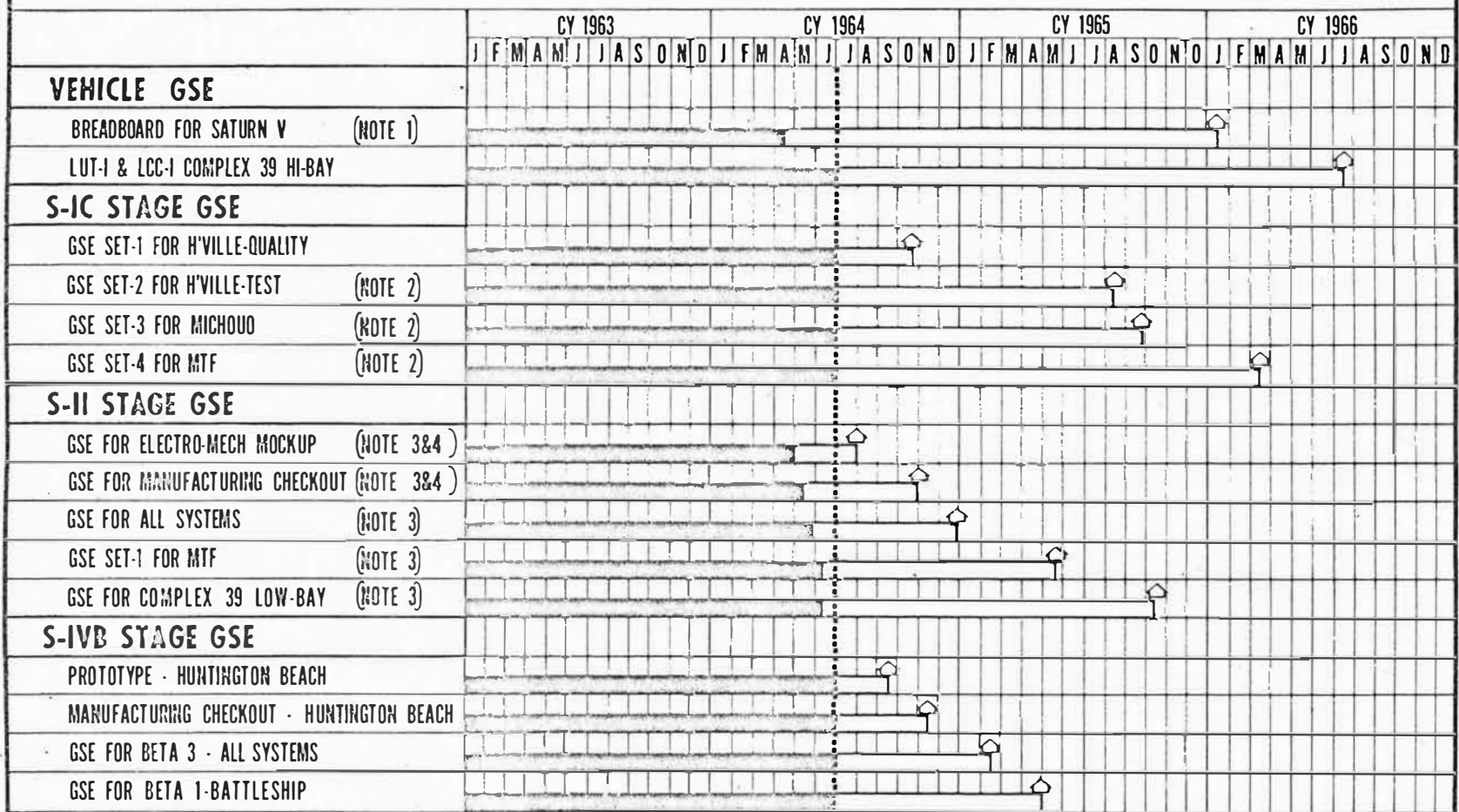
1. DESIGN AND START OF FABRICATION DELAYED BY INCOMPLETE STAGE DESIGN DEFINITION AND INSUFFICIENT LABORATORY MANPOWER TO ACCOMPLISH DESIGN OF ESE.
2. DELIVERY DATES ADJUSTED TO J₁ SCHEDULE.
3. BEHIND SCHEDULE DUE PRIMARILY TO LATE ENGINEERING RELEASES.
4. DELAYS OF 1 1/2-2 MONTHS ANTICIPATED

SCHEDULE
 PROGRESS

CURRENT SCHEDULE
 EVENT ACCOMPLISHED

I-V-G JULY 1, 1964 IND 1216G

SATURN V GSE SUMMARY SCHEDULE



- NOTES:** DELIVERY DATES ARE 2 MONTHS PREVIOUS TO FIRST FUNCTIONAL USE FOR STAGE CHECKOUT.
1. DESIGN AND START OF FABRICATION DELAYED BY INCOMPLETE STAGE DESIGN DEFINITION AND INSUFFICIENT LABORATORY MANPOWER TO ACCOMPLISH DESIGN OF ESE.
 2. DELIVERY DATES ADJUSTED TO J₁ SCHEDULE.
 3. BEHIND SCHEDULE DUE PRIMARILY TO LATE ENGINEERING RELEASES.
 4. DELAYS OF 1 1/2-2 MONTHS ANTICIPATED

SCHEDULE PROGRESS	CURRENT SCHEDULE EVENT ACCOMPLISHED
----------------------	--

I-V-G JULY 1, 1964 IND 1216G

SATURN TEST STANDS - AERIAL VIEW - HUNTSVILLE

[SIC TEST STAND]

[E1 ENG TEST STAND]

[COLD CALIBRATION]

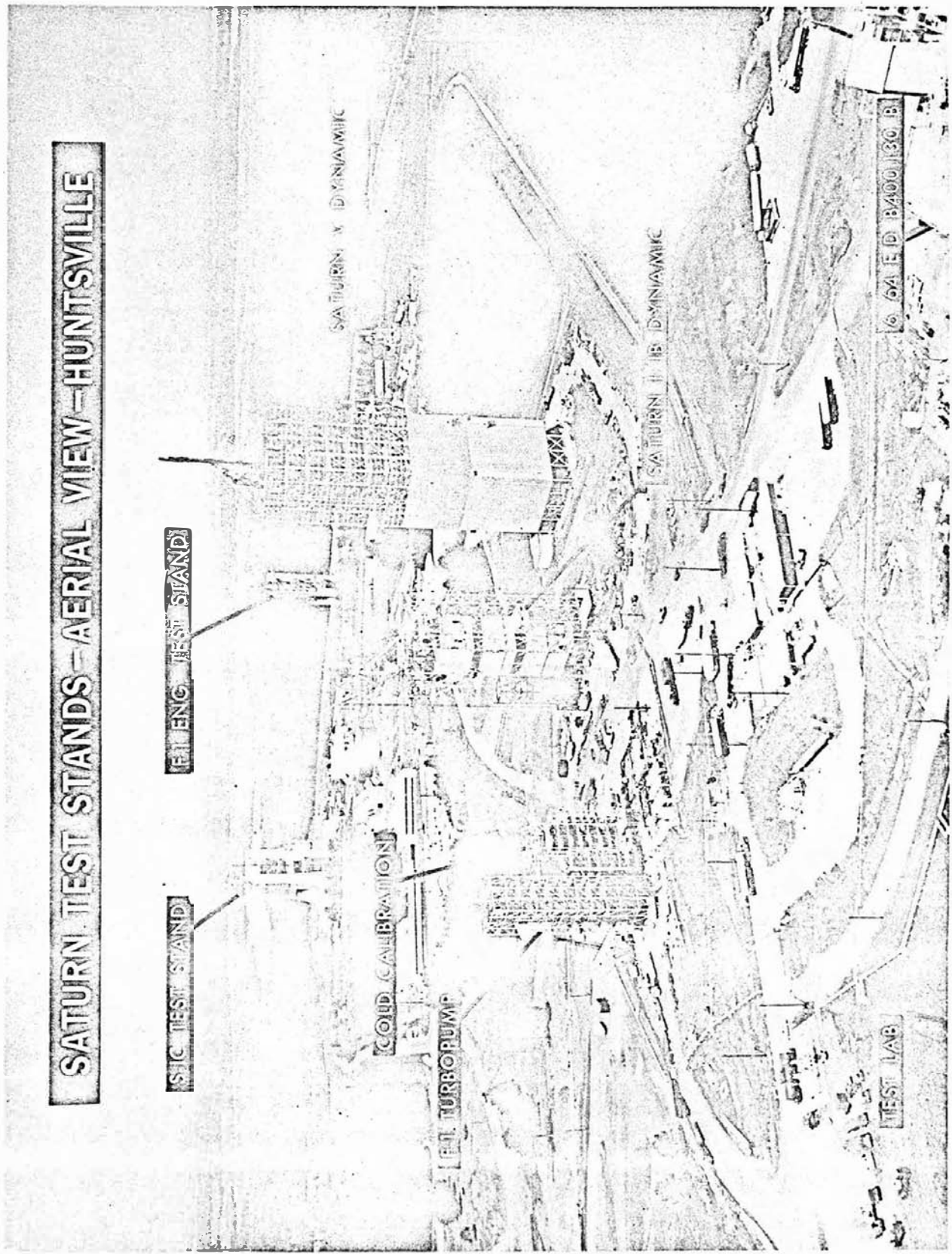
[E1 TURBOPUMP]

SATURN I & DYNAMIC

SATURN II & DYNAMIC

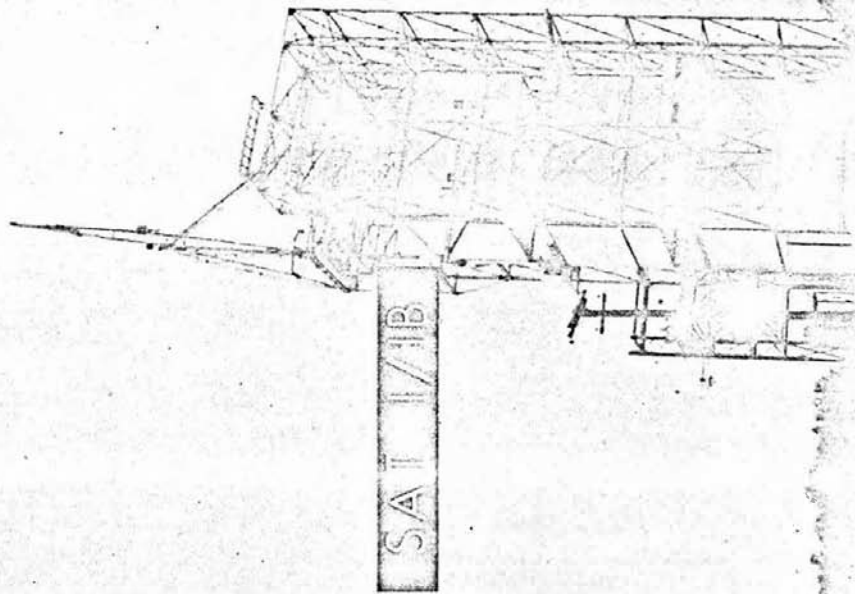
[TEST LAB]

6 GA E D B400 J30 B

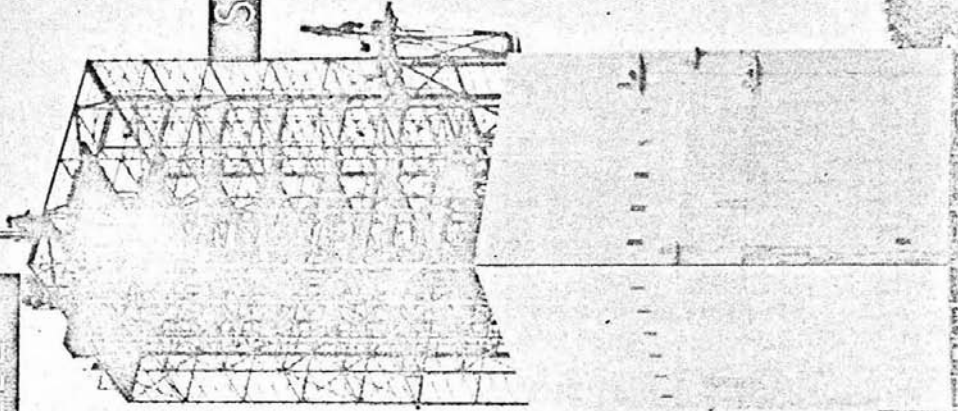


SA TURNI DYNAMIC TEST STANDS

HUNTSVILLE

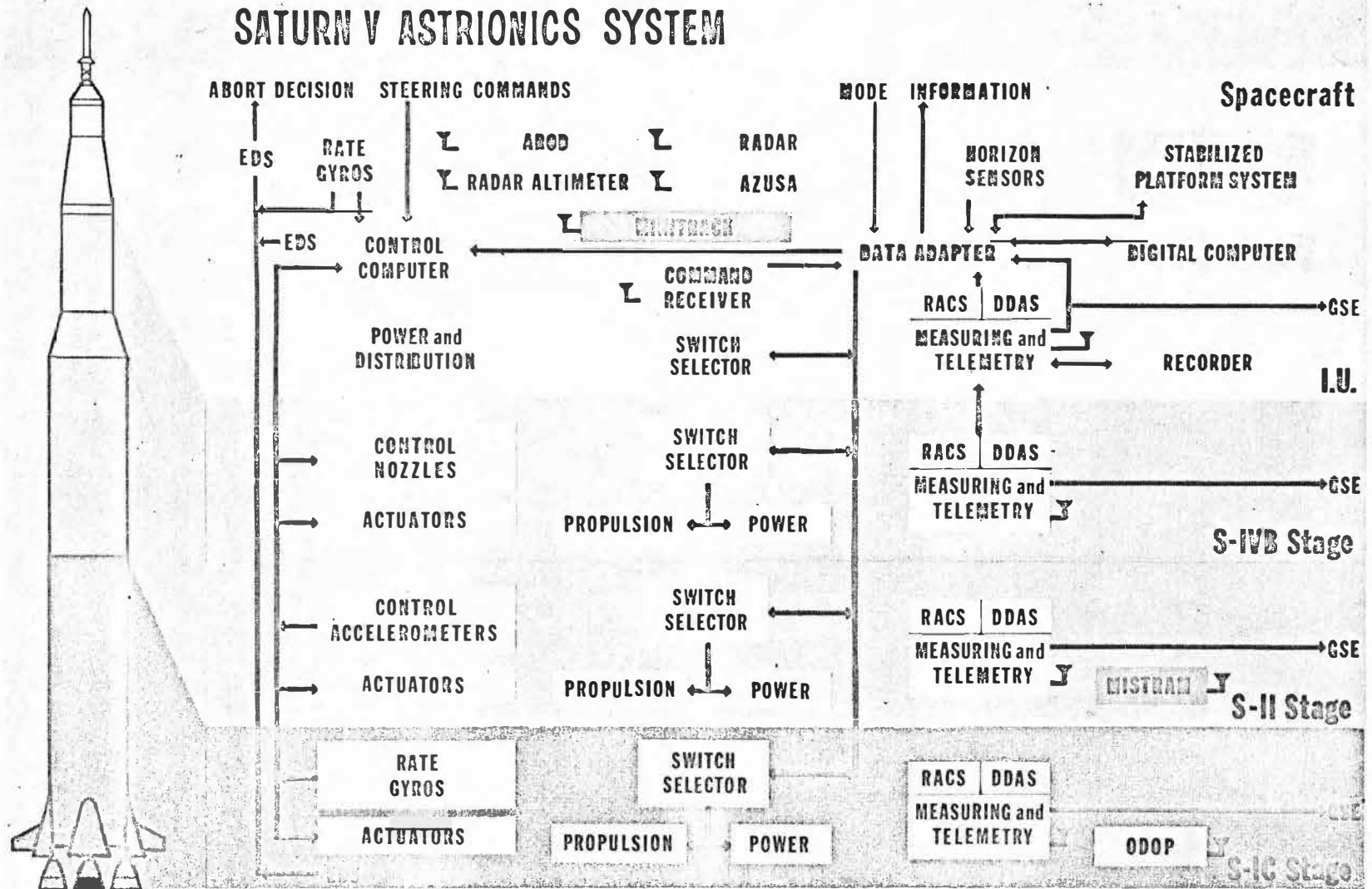


SAT V



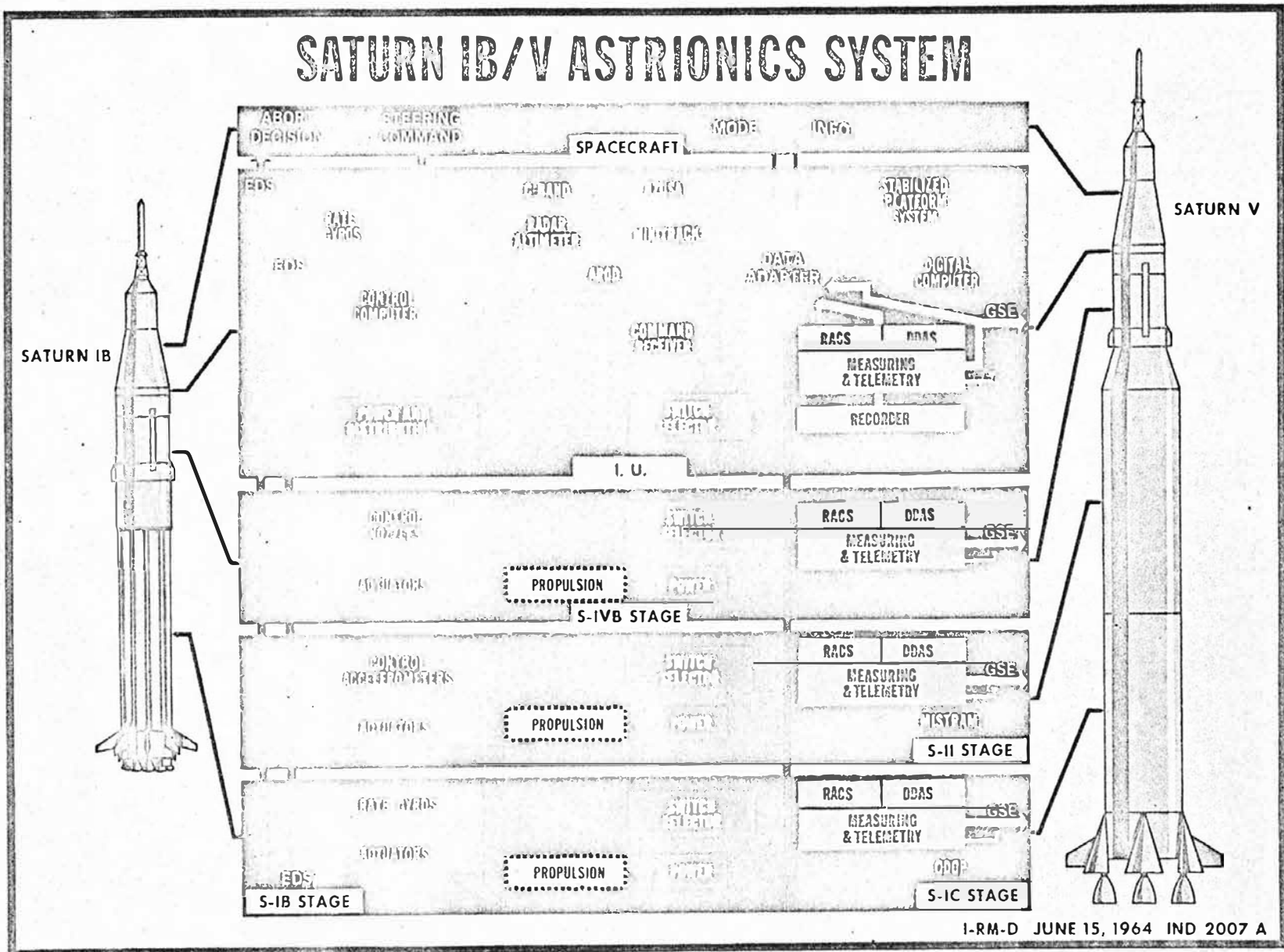
6 6A E D B432 H

SATURN V ASTRIONICS SYSTEM



SELTZER R-ASTR-S NOV.20,1963 EX-D-1240 MS-G-102-63

SATURN IB/V ASTRIONICS SYSTEM

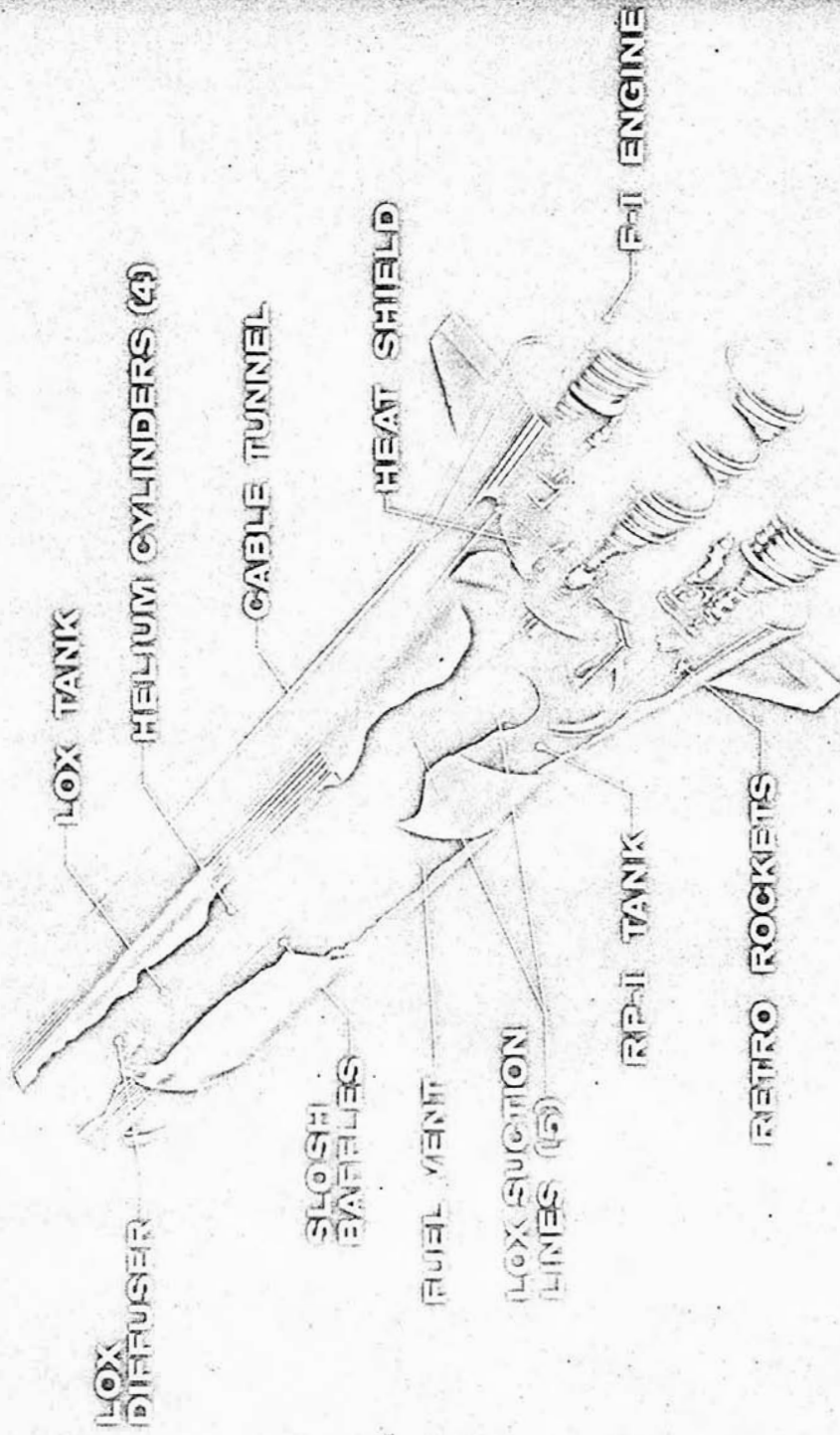


I-RM-D JUNE 15, 1964 IND 2007 A

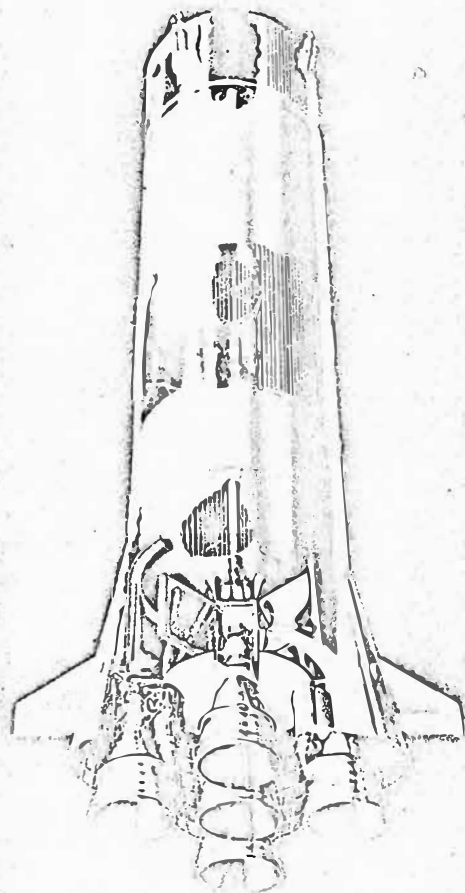
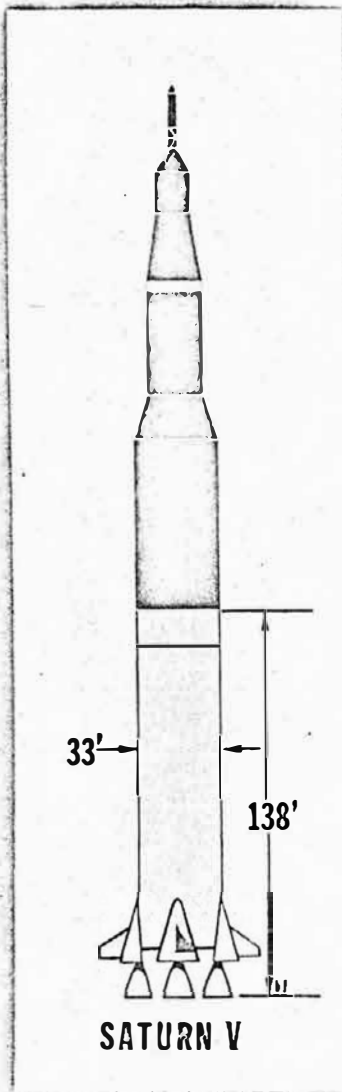
S-IG STAGE

SATURN IV

S-IC STAGE



FORM A
R-10456-106 MCQUINN/UGH1 SEPT 10, 1968 EX-D 1999A MSG-87-5-68



SATURN V 1st STAGE (S-IC)

CONTRACTOR : _____ BOEING

PRODUCTION :

R & D _____ MSFC · MICHoud

OPERATIONAL _____ MICHoud

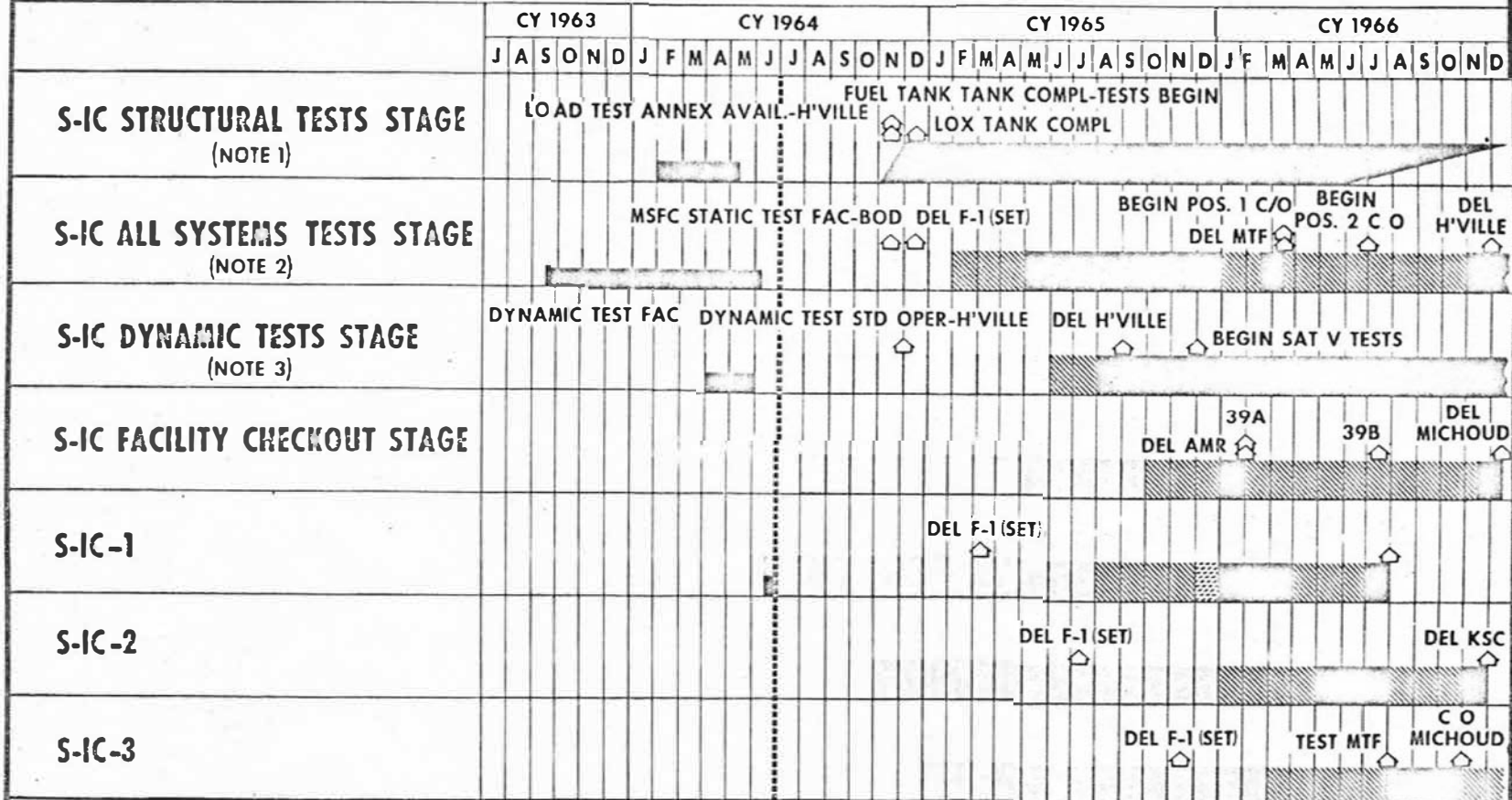
ENGINES : _____ 5 F-1

PROPELLANT : _____ LOX / RP-1

THRUST : _____ 7,500,000 LBS
(SEA LEVEL)

MS-G-83-5-63
E-D D1234A

SATURN-V/S-IC STAGE SUMMARY SCHEDULE



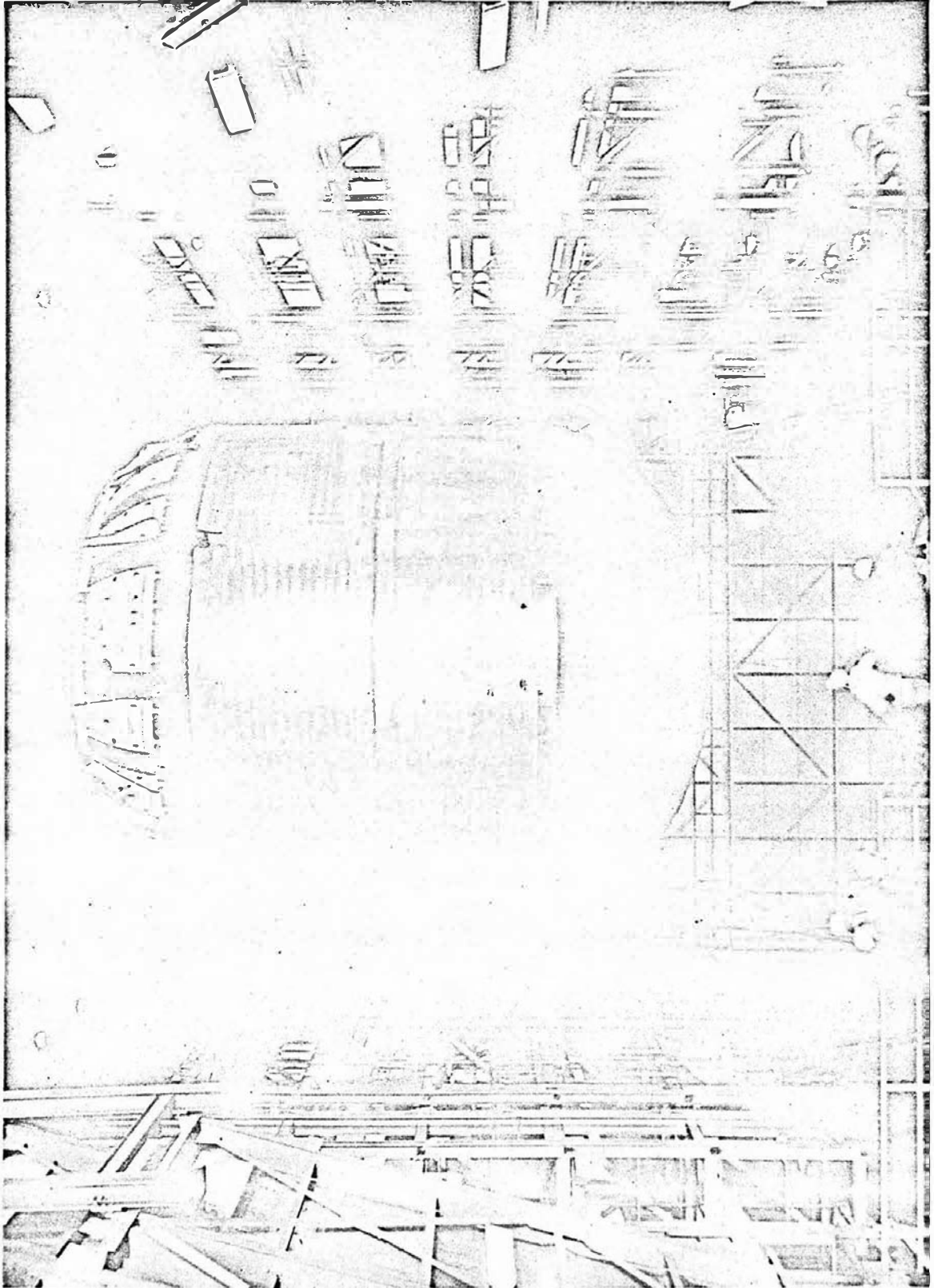
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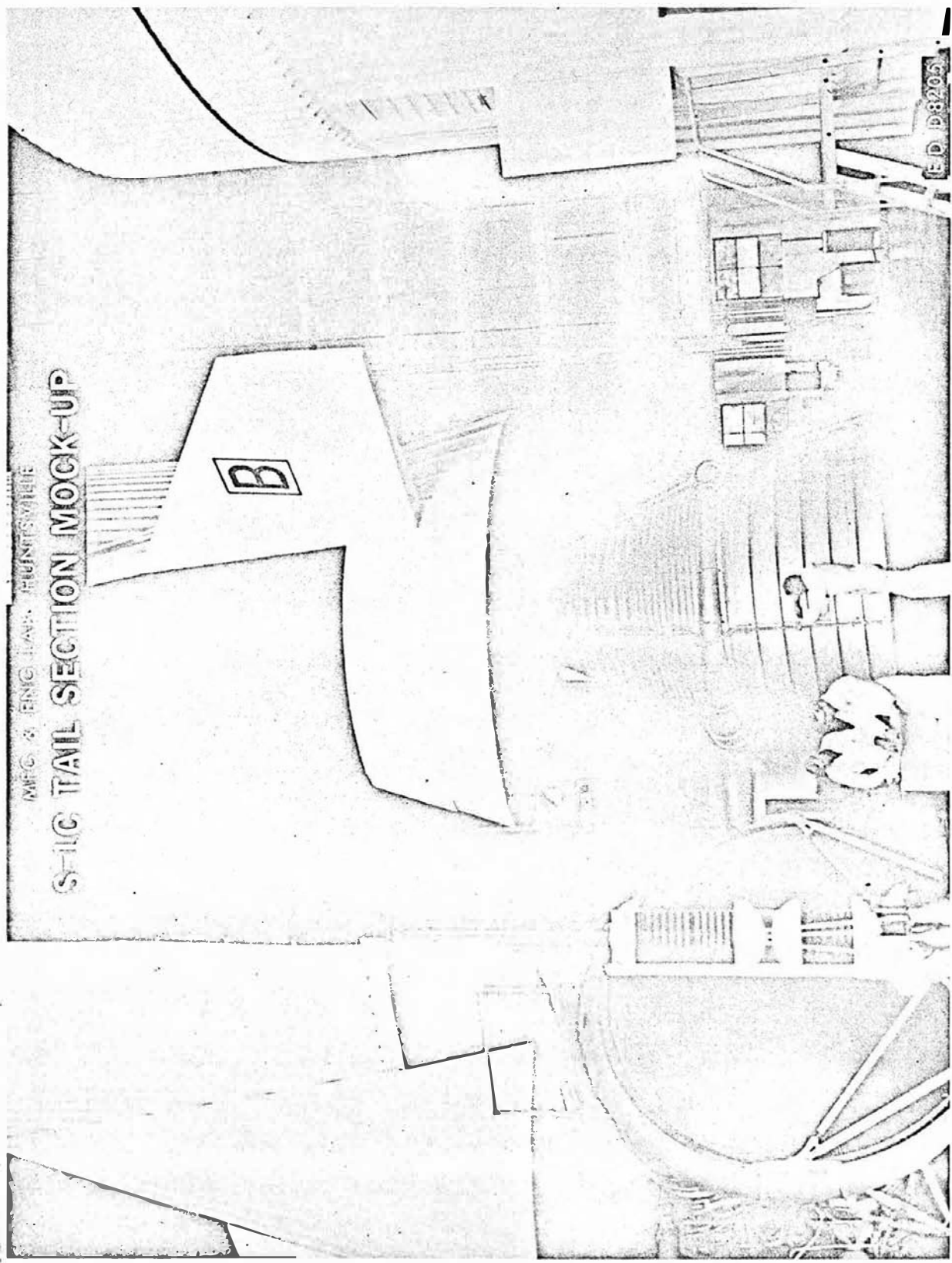
1. DELAY CAUSED BY SHORTAGE OF OF ACCEPTABLE SUCTION FITTINGS.
2. DELAYED BY LATE COMPONENT DELIVERIES & DESIGN CHANGES. DELIVERY TO TEST STAND SCHEDULED FOR FEB. 1, 1965.
3. BEHIND SCHEDULE DUE TO TOOL LOADING.

FAB & ASSEMBLY	STORAGE
CHECKOUT	PROGRESS
PREP/TEST	CURRENT SCHEDULE
MOD/REPAIR	EVENT ACCOMPLISHED
PREP/SHIP	

I-V-S-IC JULY 1, 1964 IND 1205 G

S-IC TEST FUEL TANK - MSFC

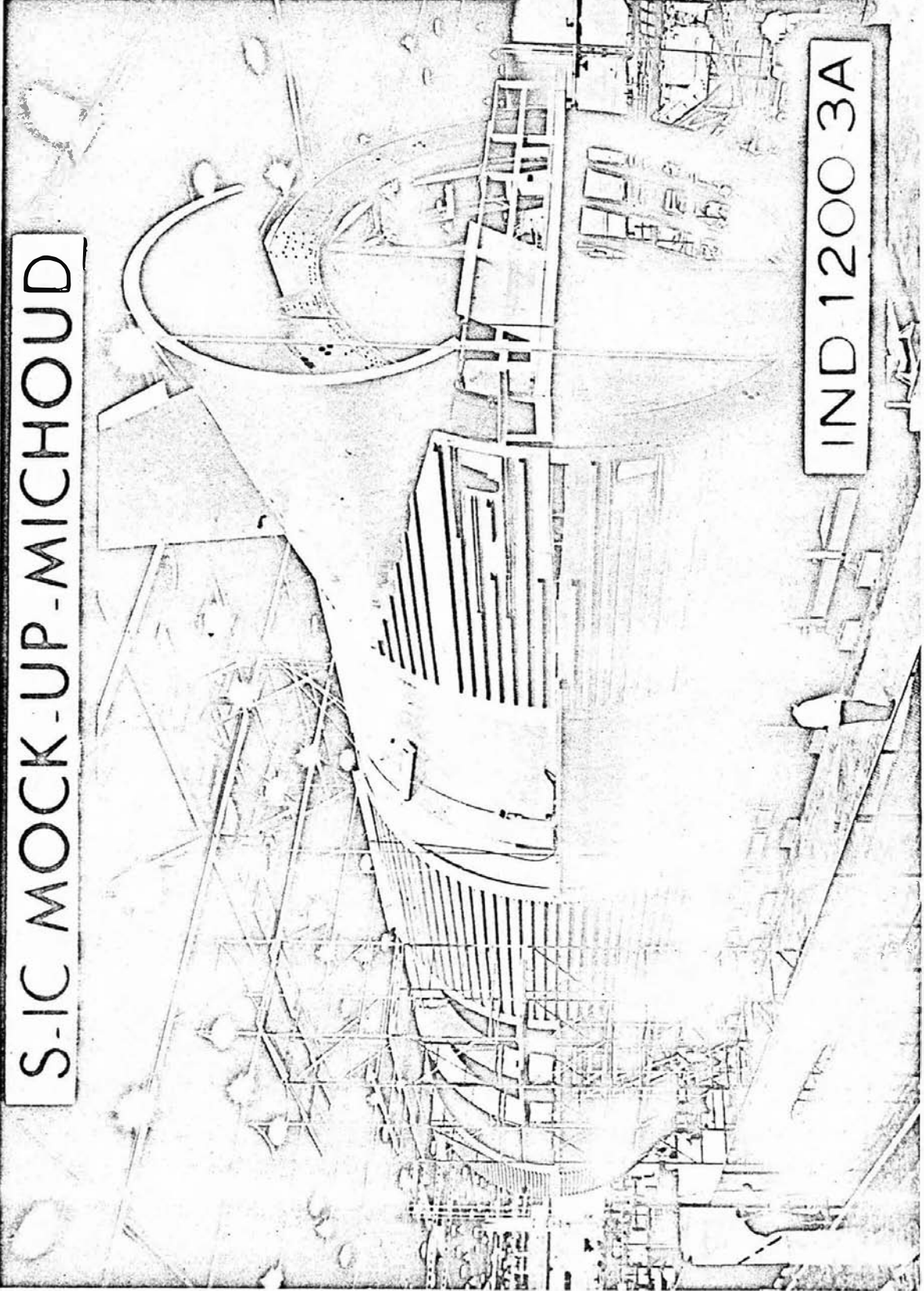




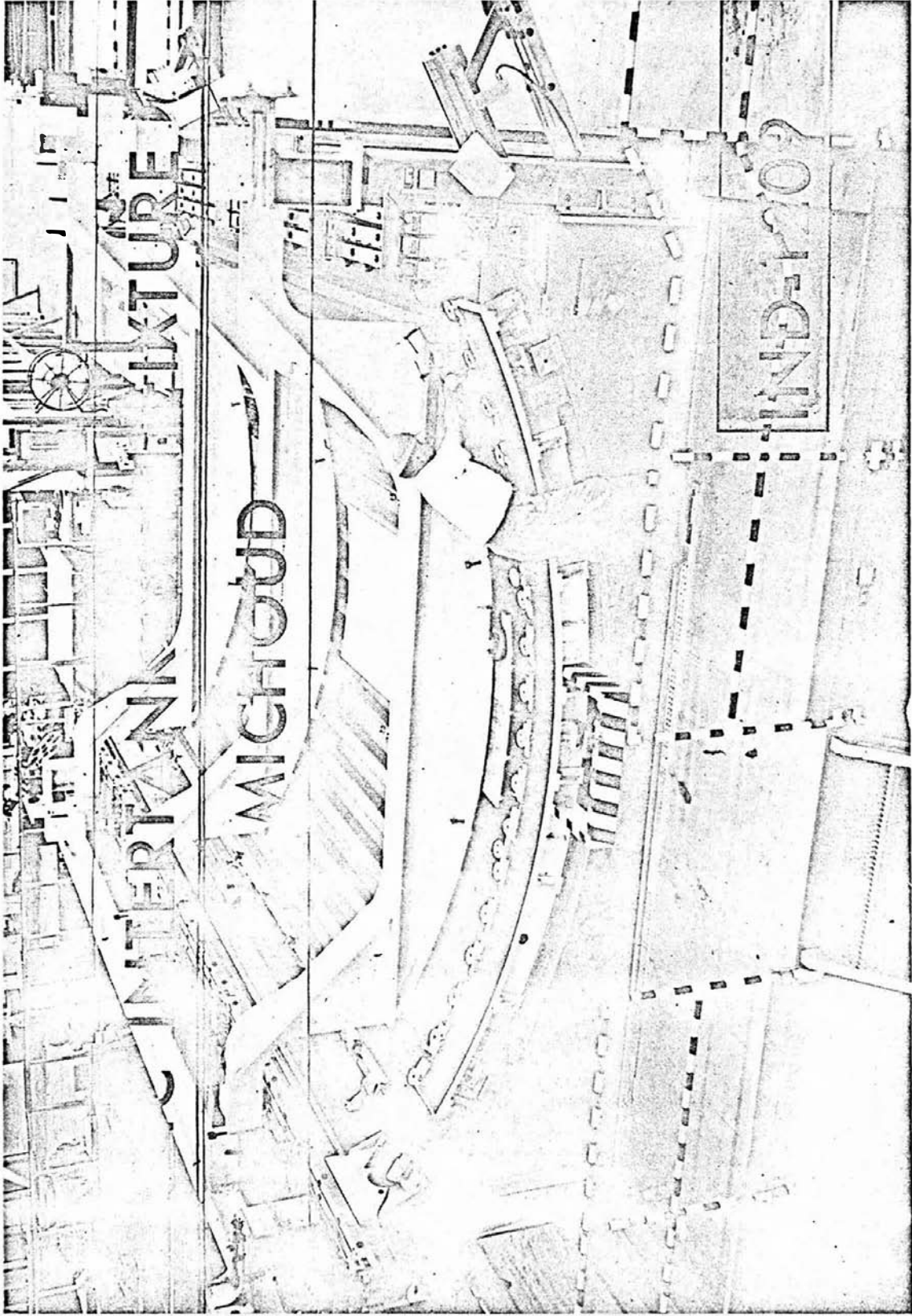
MFG. & ENG. LAB. - BIRMINGHAM
S-11C TAIL SECTION MOCK-UP

ED D8205

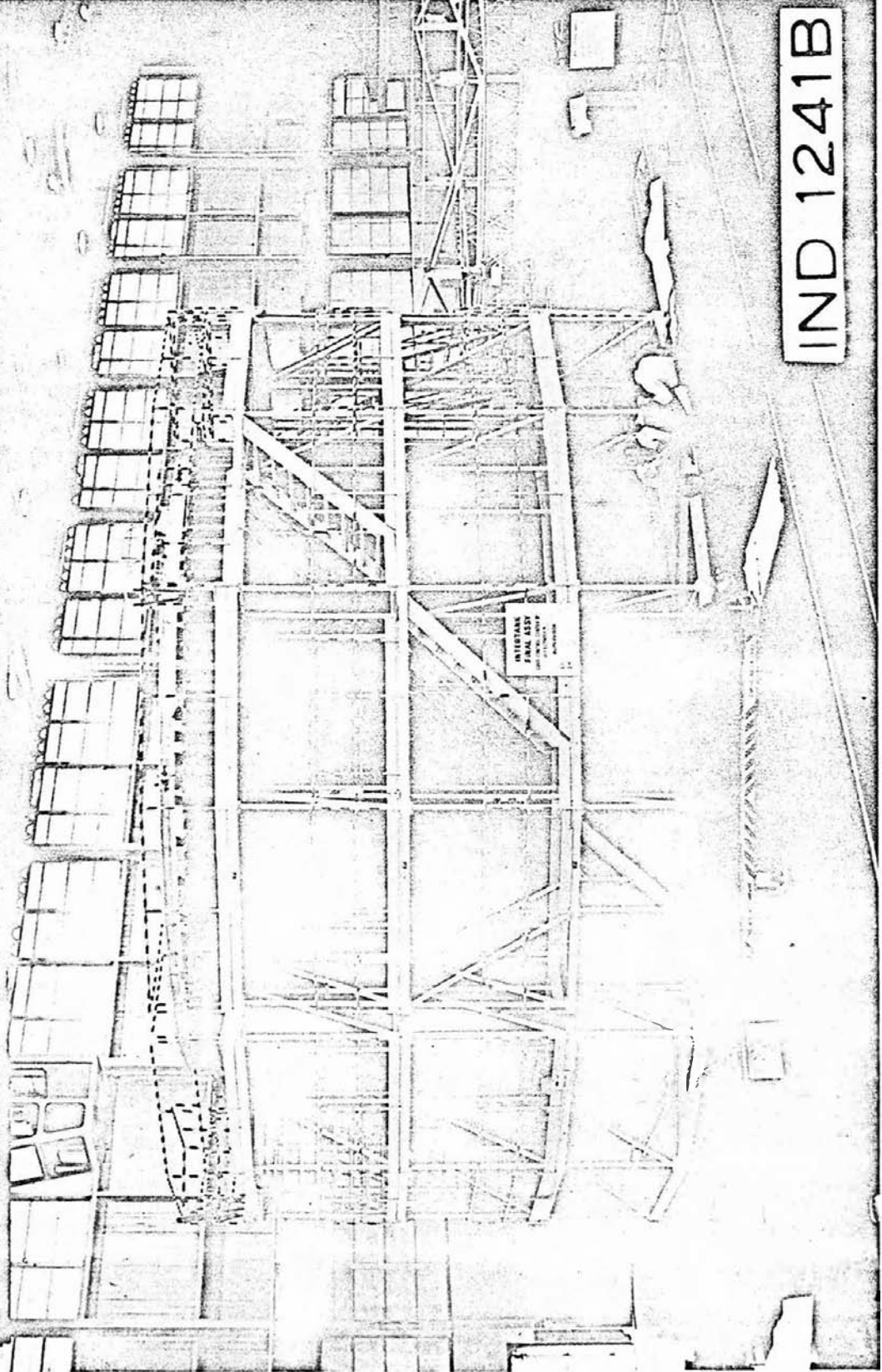
S-IC MOCK-UP - MICHOU



IND 1200 3A

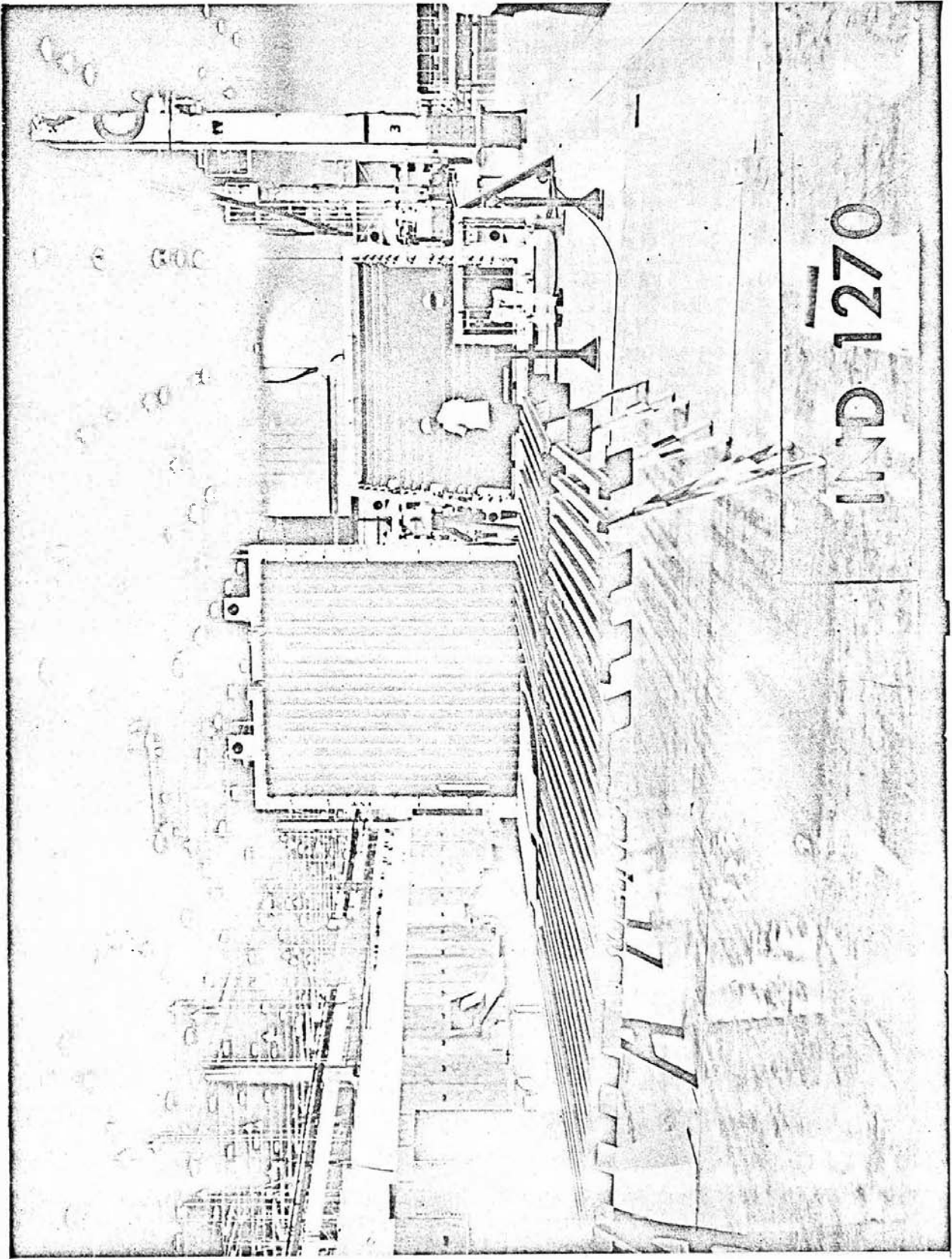


S-IC INTERTANK ASSEMBLY-MICHOUD



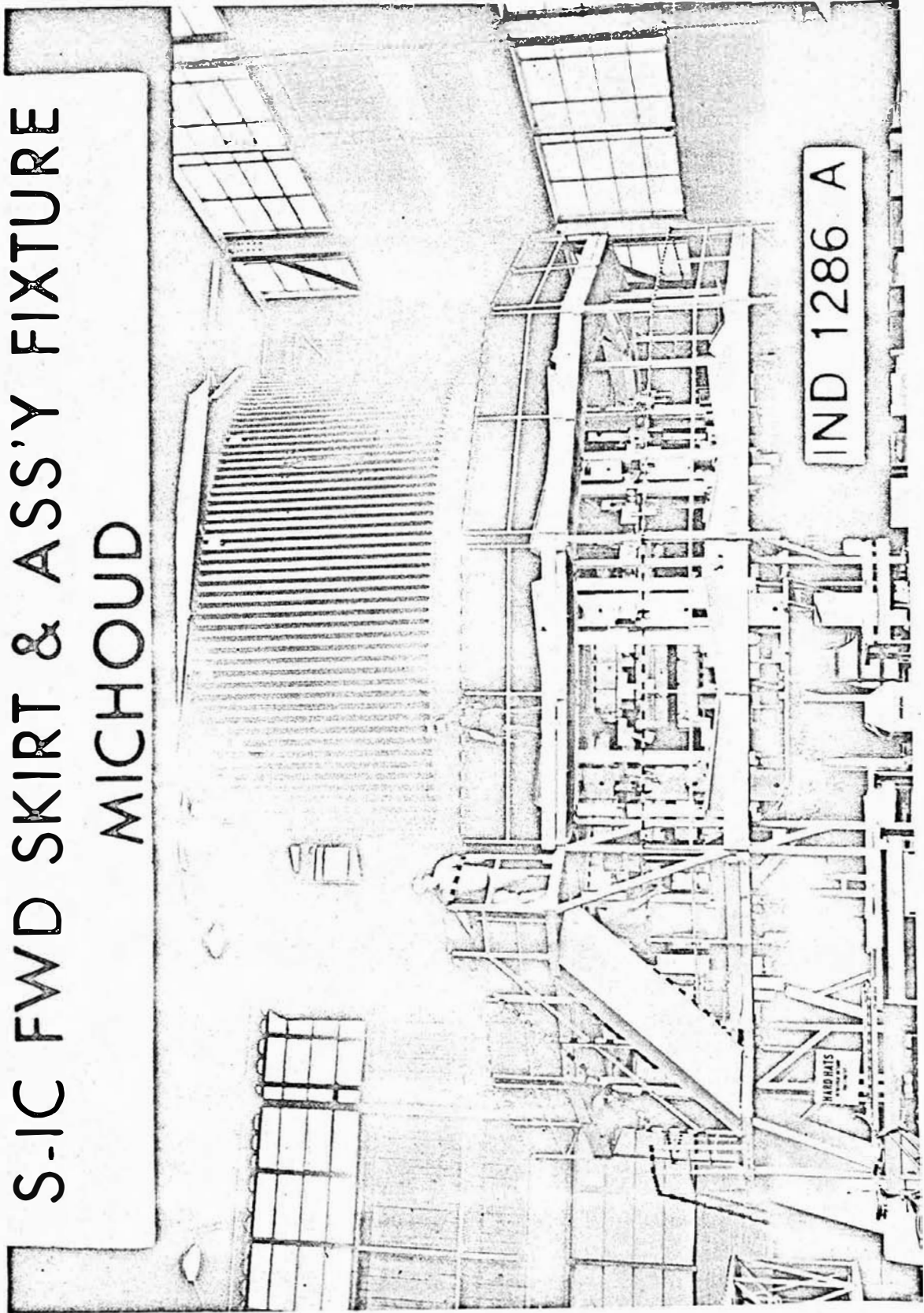
IND 1241B

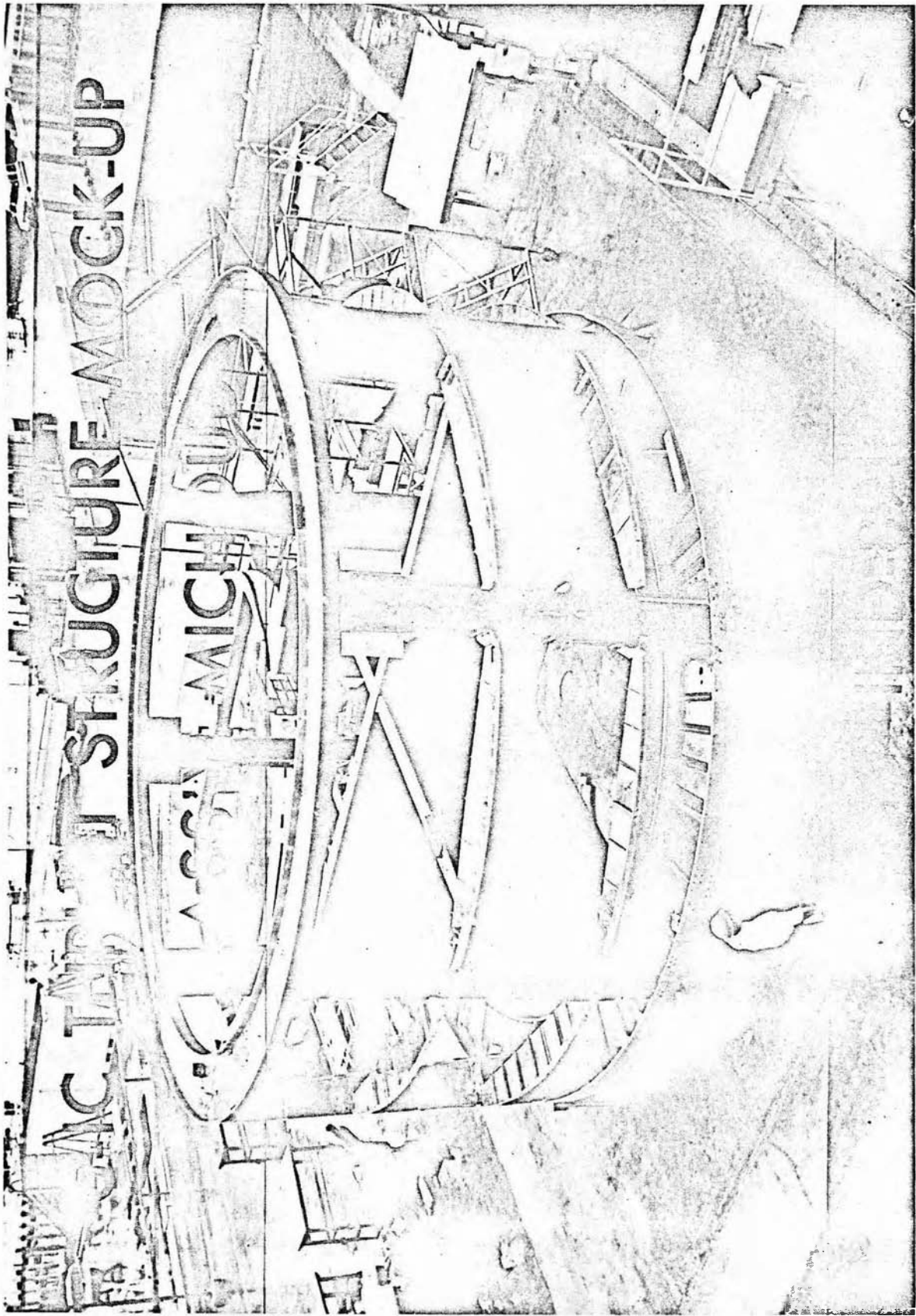
REVISION
FINAL ISSUE
DATE: 10/1/70
BY: [illegible]



IND 1270

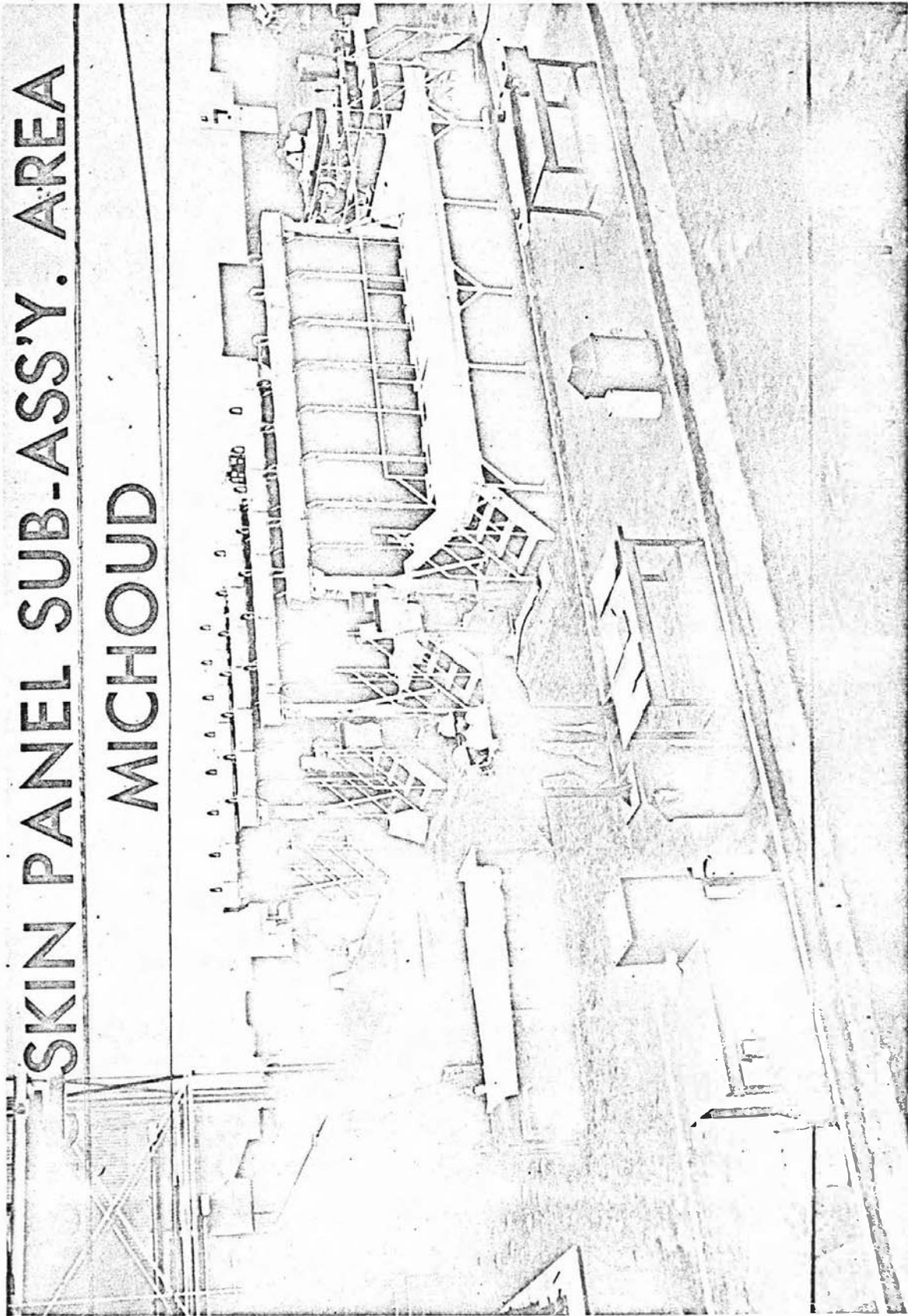
S-IC FWD SKIRT & ASS'Y FIXTURE MICHOU D

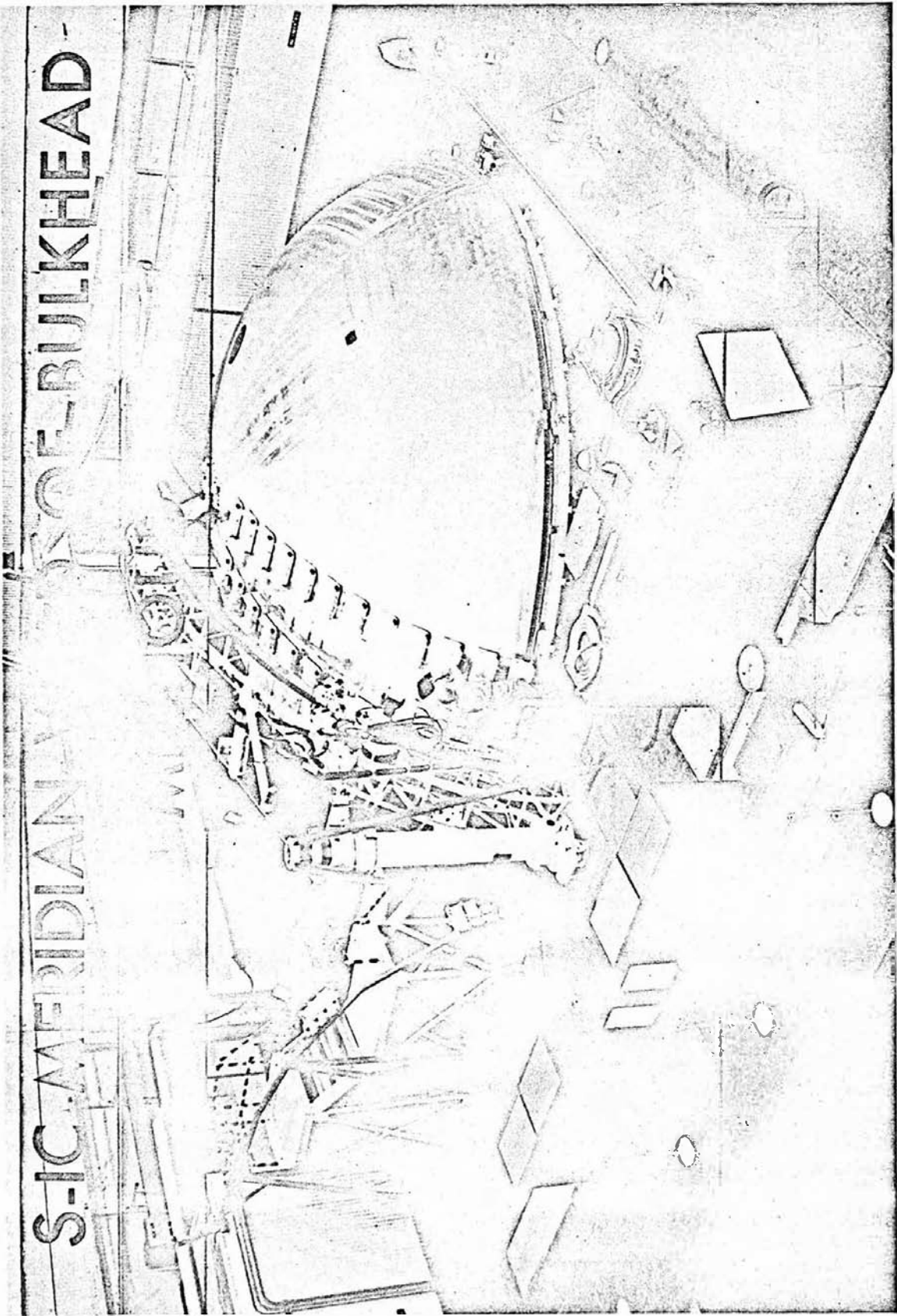




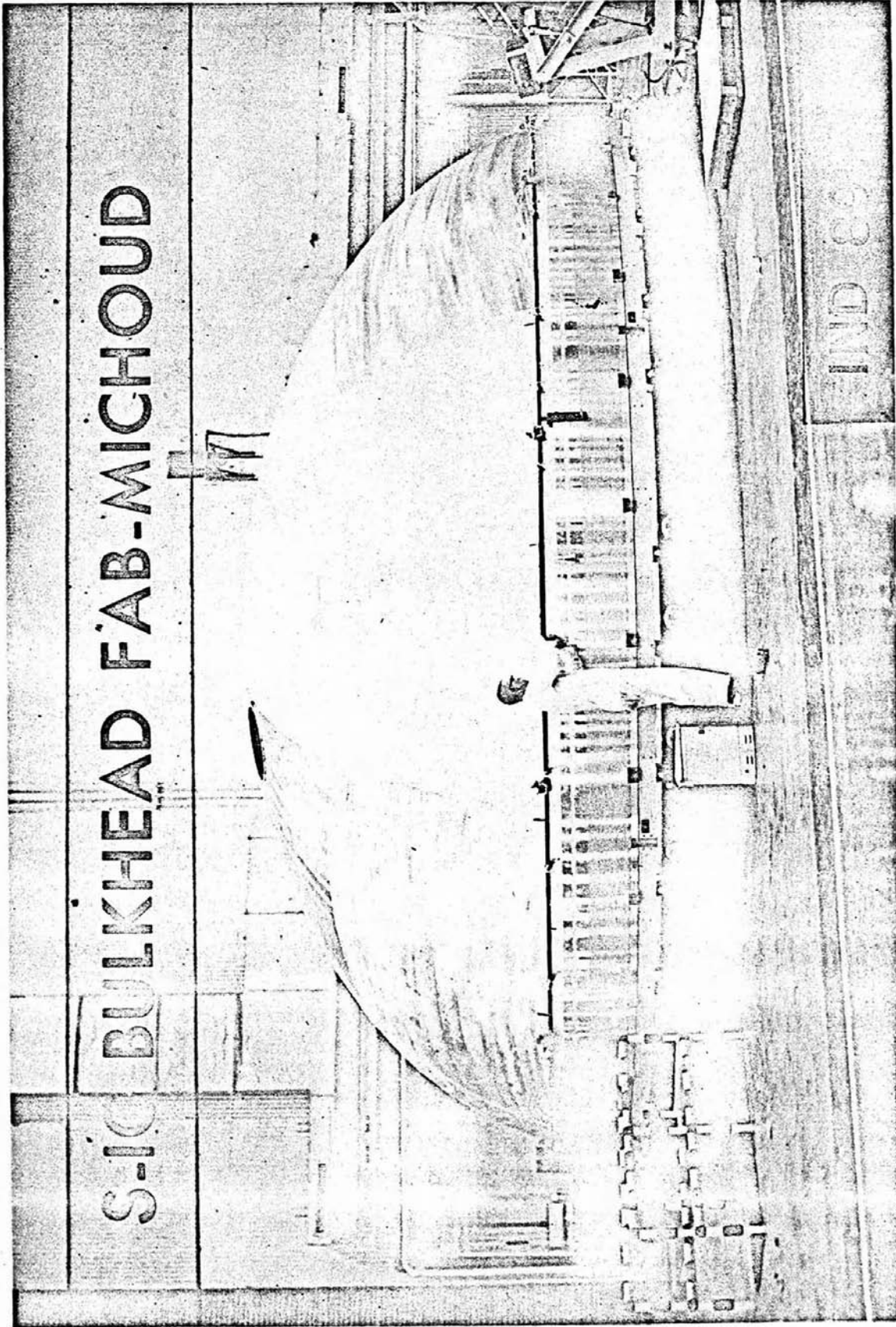
SKIN PANEL SUB-ASS'Y. AREA

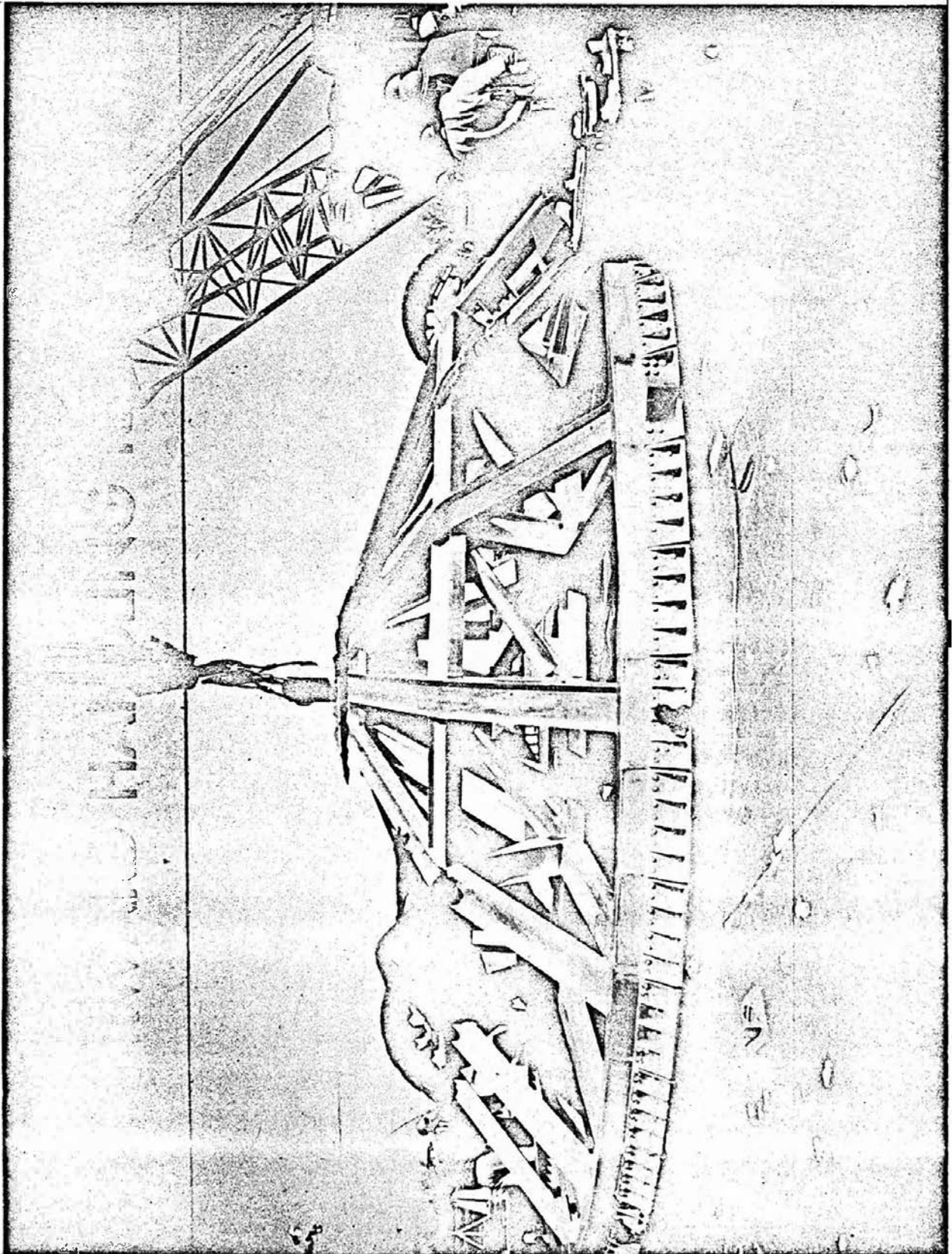
MICHOUD



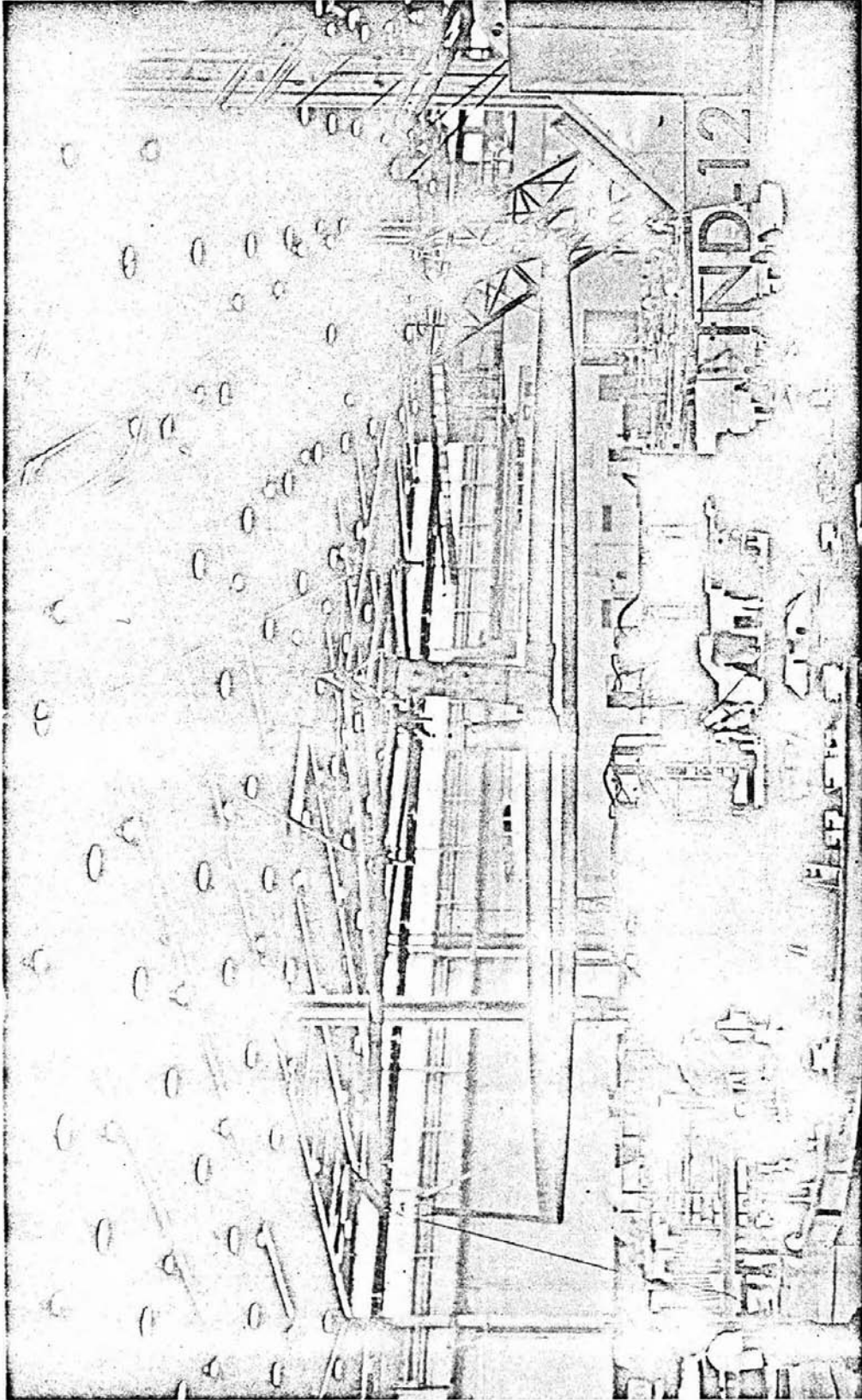


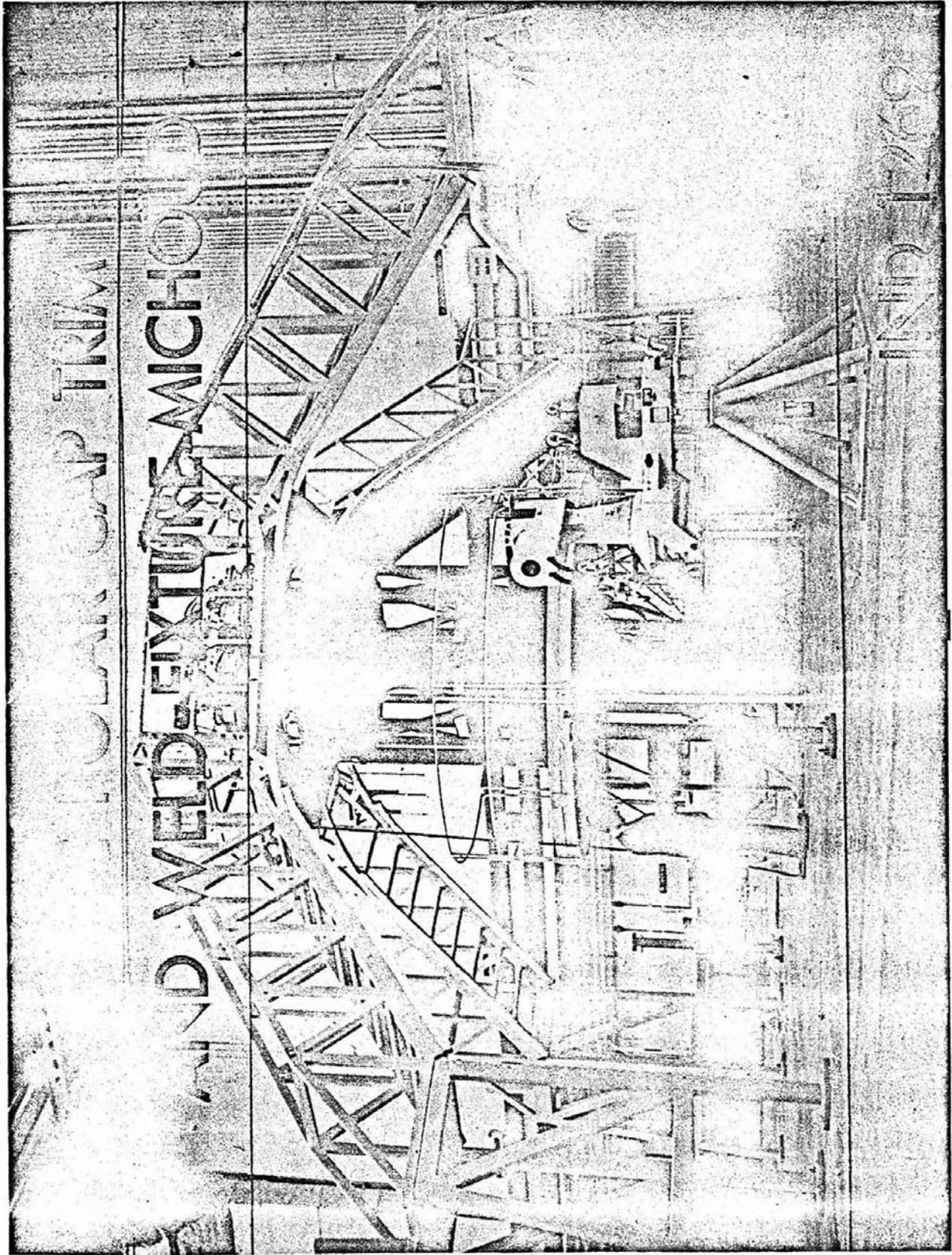
S-IC MERIDIAN OF BULKHEAD

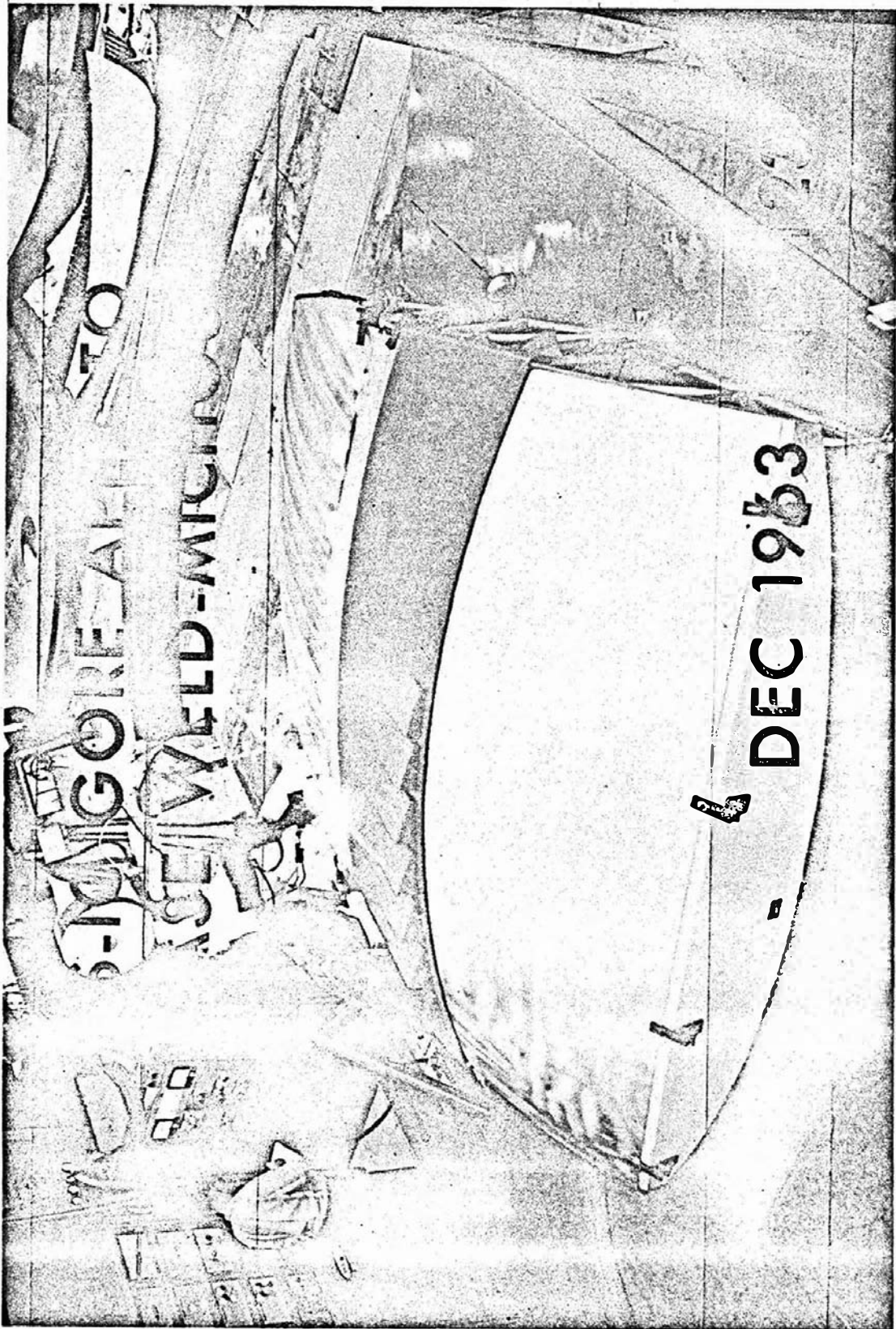




S-IC UPPER THRUST RING - MICHOUD



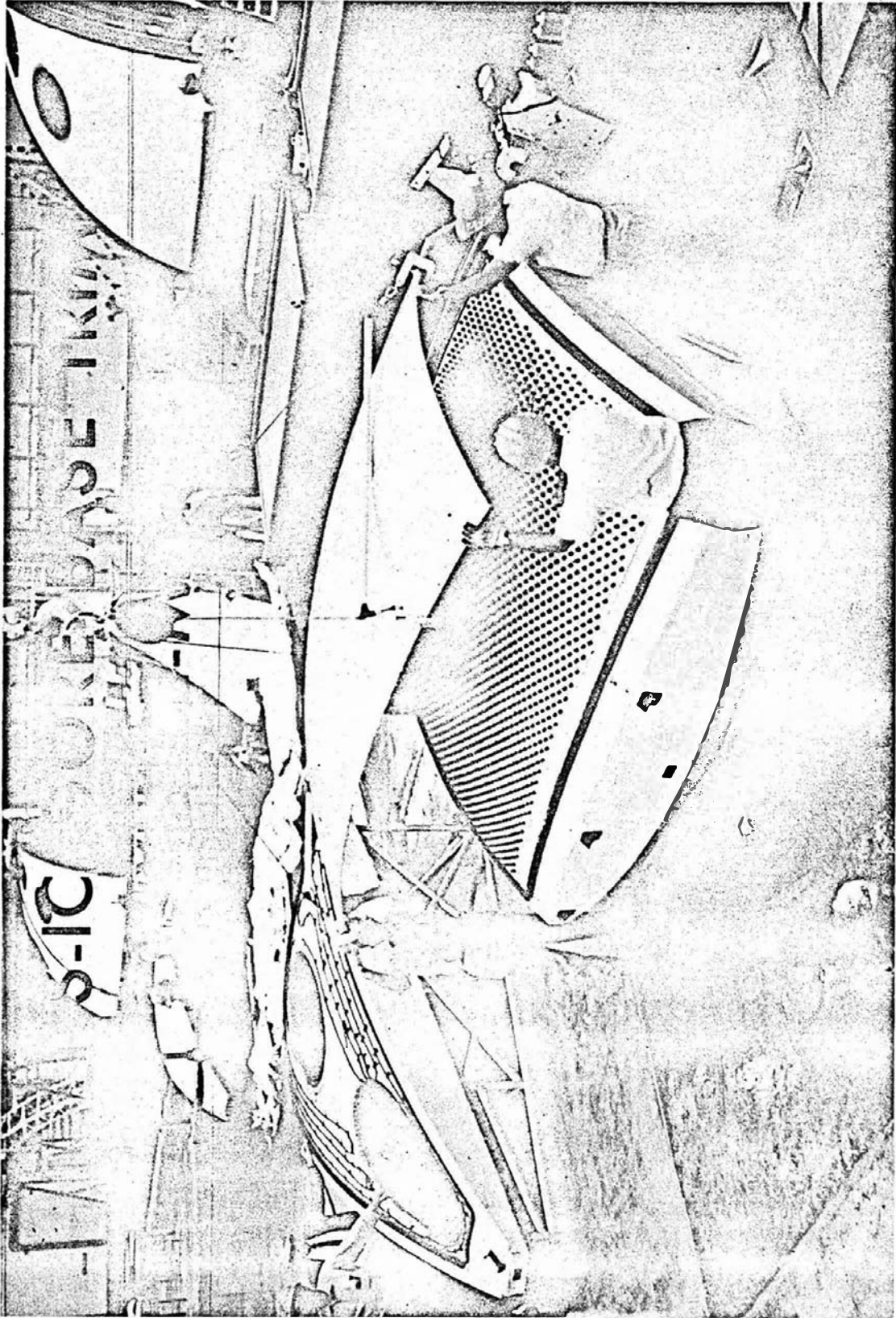


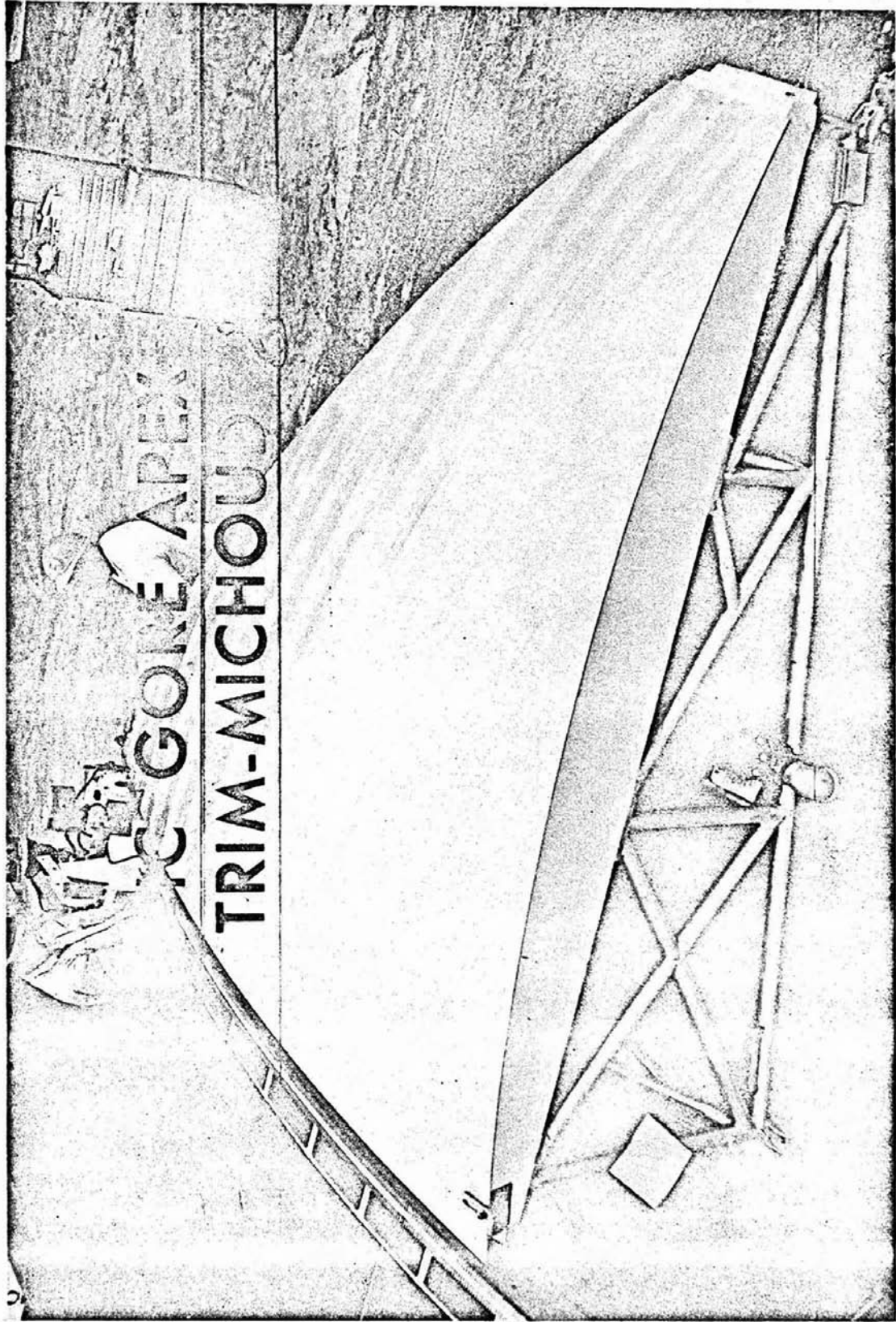


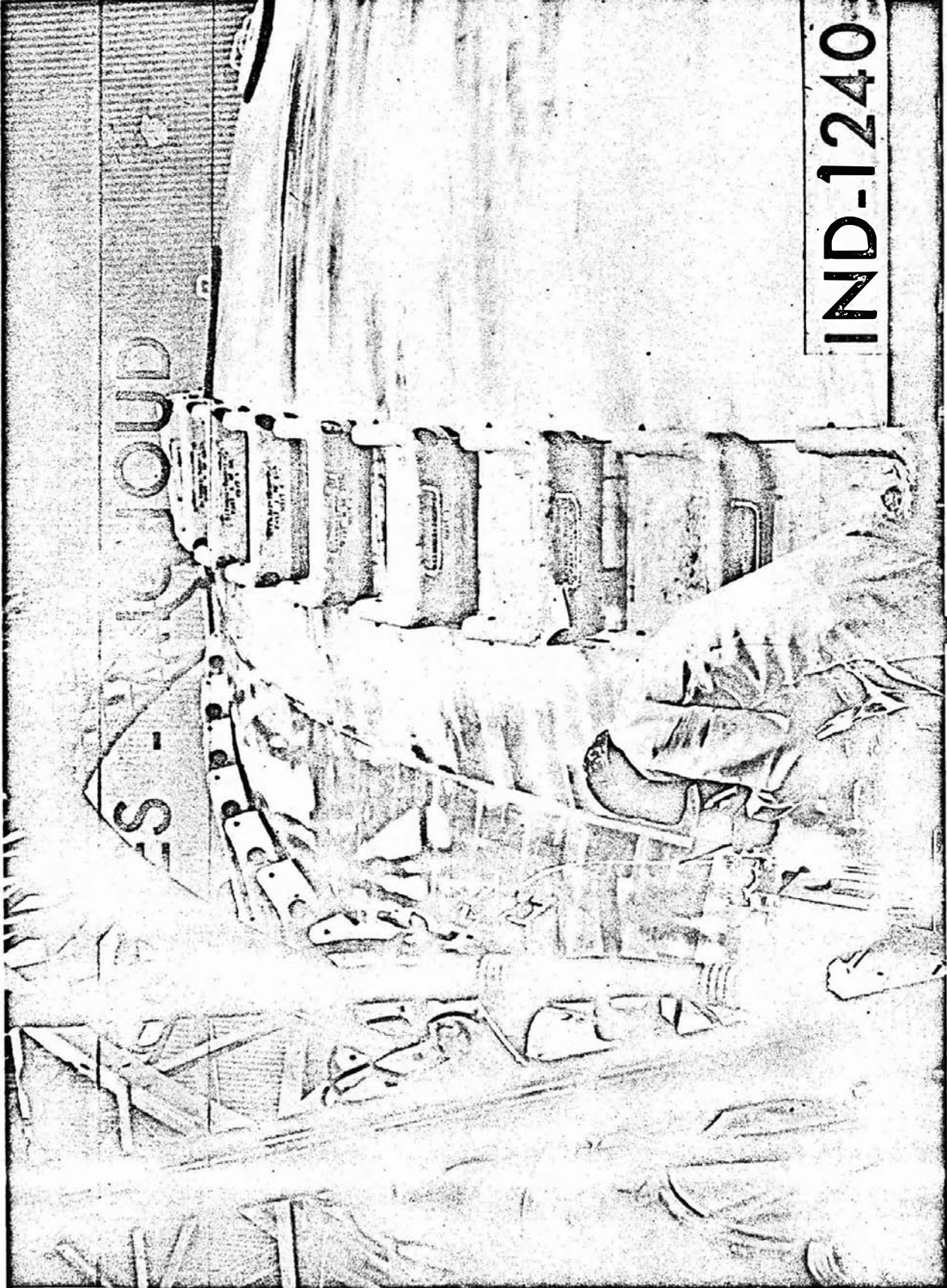
DEC 1963

GORE-ALL TO

WELD-MICR

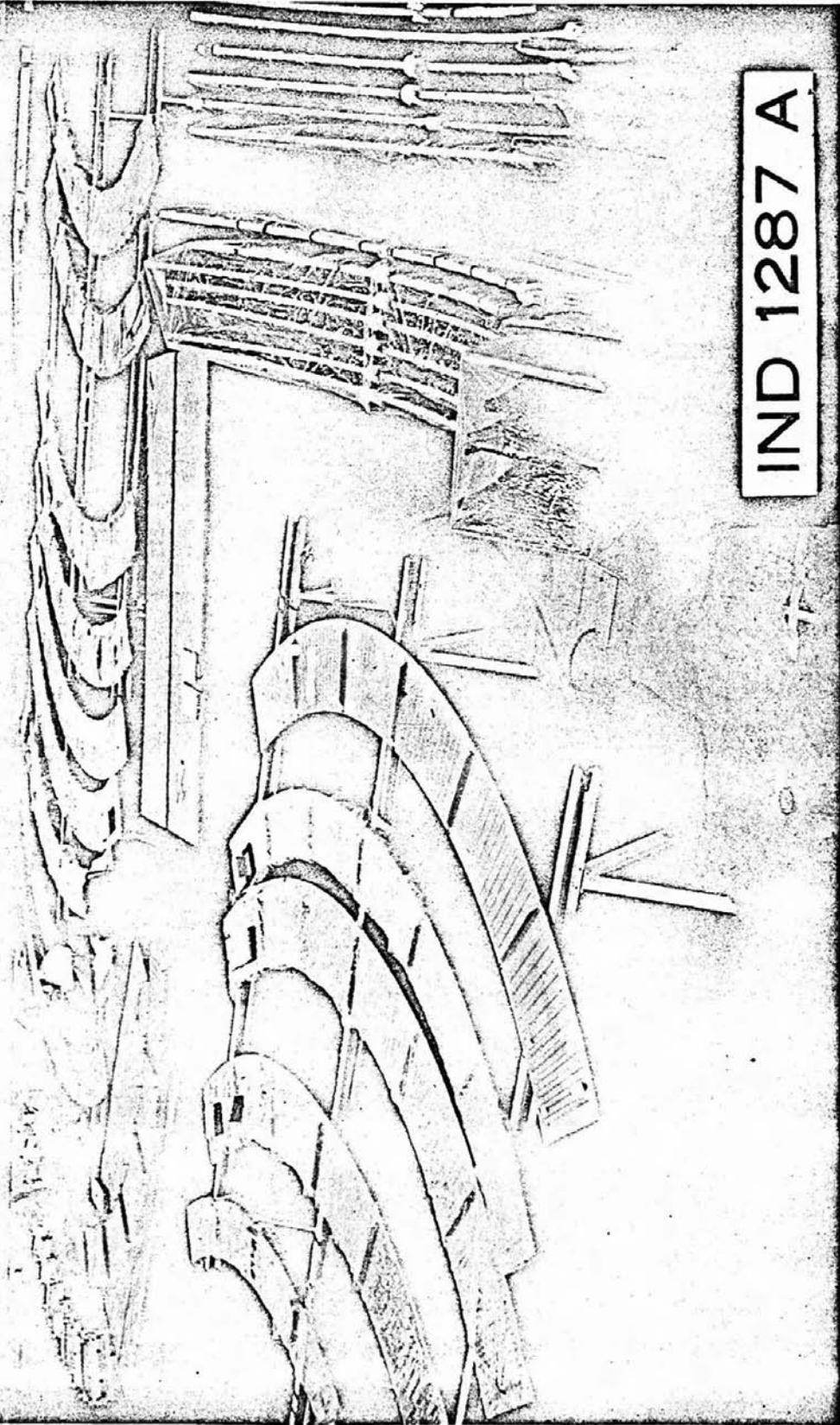






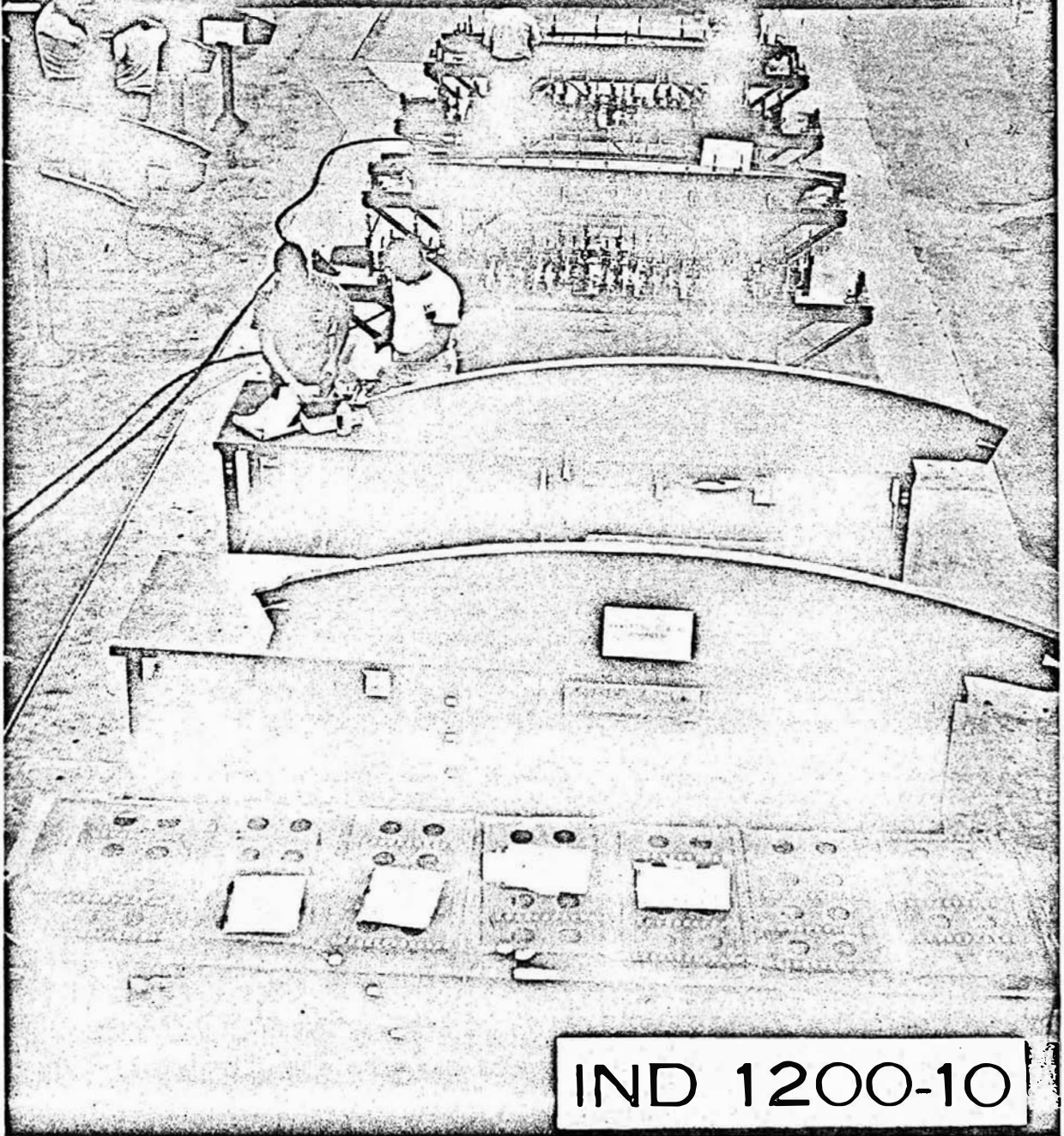
IND-1240

S-IC TANK RING BAFFLES-MICHOUD



IND 1287 A

S-IC INTERMEDIATE RING AREA-MICHOUD



39

IND 1200-10

S-1C STAGE & F-1 ENGINE TEST COMPLEX HUNTSVILLE

S-1C DEVELOPMENT STAND

F-1 ENGINE TEST STAND

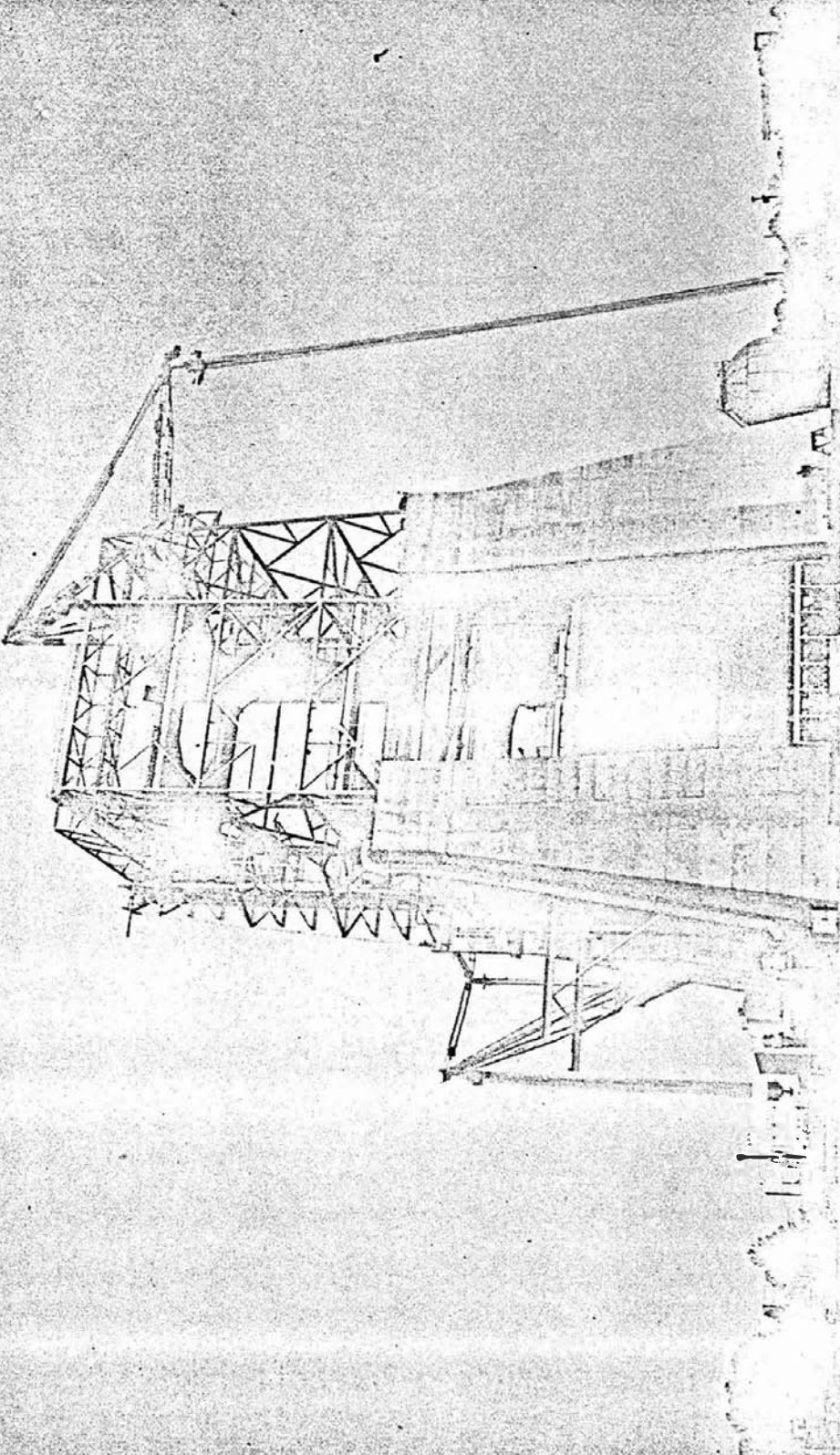
BLOCKHOUSE

HIGH PRESSURE WATER SYSTEM

TEST LAB

ED#B400131A

S-IC DEVELOPMENT TEST STATION
HUNTSVILLE



E-D B400-94 D

F-1 ENGINES

F-1 ENGINE



THRUST- 1,500,000 LB

(SEA LEVEL)

THRUST DURATION- 150 SEC

ENGINE WT- DRY- 16,900 LB

BURN-OUT- 19,000 LB

PROPELLANTS- LOX & RP-1

CONTRACTOR-NAA/ROCKETDYNE

SYSTEM- SATURN V/S-IC

(5 ENGINES)

IND 10413

F-1 ENGINE SUMMARY SCHEDULE

	C Y 1963					C Y 1964					C Y 1965					C Y 1966														
	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J						
KEY ENGINE DELIVERIES											S-IC-ALL SYSTEMS																			
DEVELOPMENT PLAN			1,3								2						4,12													
FRT PLAN								5			6																			
T HR USC HAMBER																														
T UR BUMP																														
GAS GENERATOR																														
CONTROLS																														
INTERCOMINES																														

TOTAL DELIVERIES-CUMULATIVE																											
PLANNED																											
ACTUAL																											

- | | | | |
|---|---|---|---|
| MILEST OES:
1. SIX DEGREE GIMBAL DEMONSTRATION
2. COMPLETE ENGINE FRT
3. DELIVERY 1ST GROUND TEST ENGINE
4. DEL 1ST SET FLIGHT ENGINES | 5. FRT ENG DESIGN FINAL RELEASE
6. DEMO MINIMUM NPSH(FRT)
7. DEMO MINIMUM NPSH (QUALITY)
8. DEMO NOZZLE EXT FULL DURATION
9. DEMO DYNAMICALLY STABLE ENG SYSTEM-FRT | 10. DEMO OF REDESIGNED TURBINE
11. TURBINE REDESIGN FINAL RELEASE
12. QUAL ENG DESIGN RELEASE
13. QUAL GAS GEN DES FINAL RELEASE
14. HYDRAULIC PACKAGE QUAL
15. MAIN OXIDIZER VALVE QUAL | 16. MAIN FUEL VALVE QUAL
17. GAS GEN BALL VALVE QUAL
18. DEMO HEAT EXCHANGER FULL DURATION
19. GIMBAL BEARING QUAL
20. DEMO DYNAMICALLY STABLE ENG (QUAL) |
|---|---|---|---|

NOTES:

□ SCHEDULE

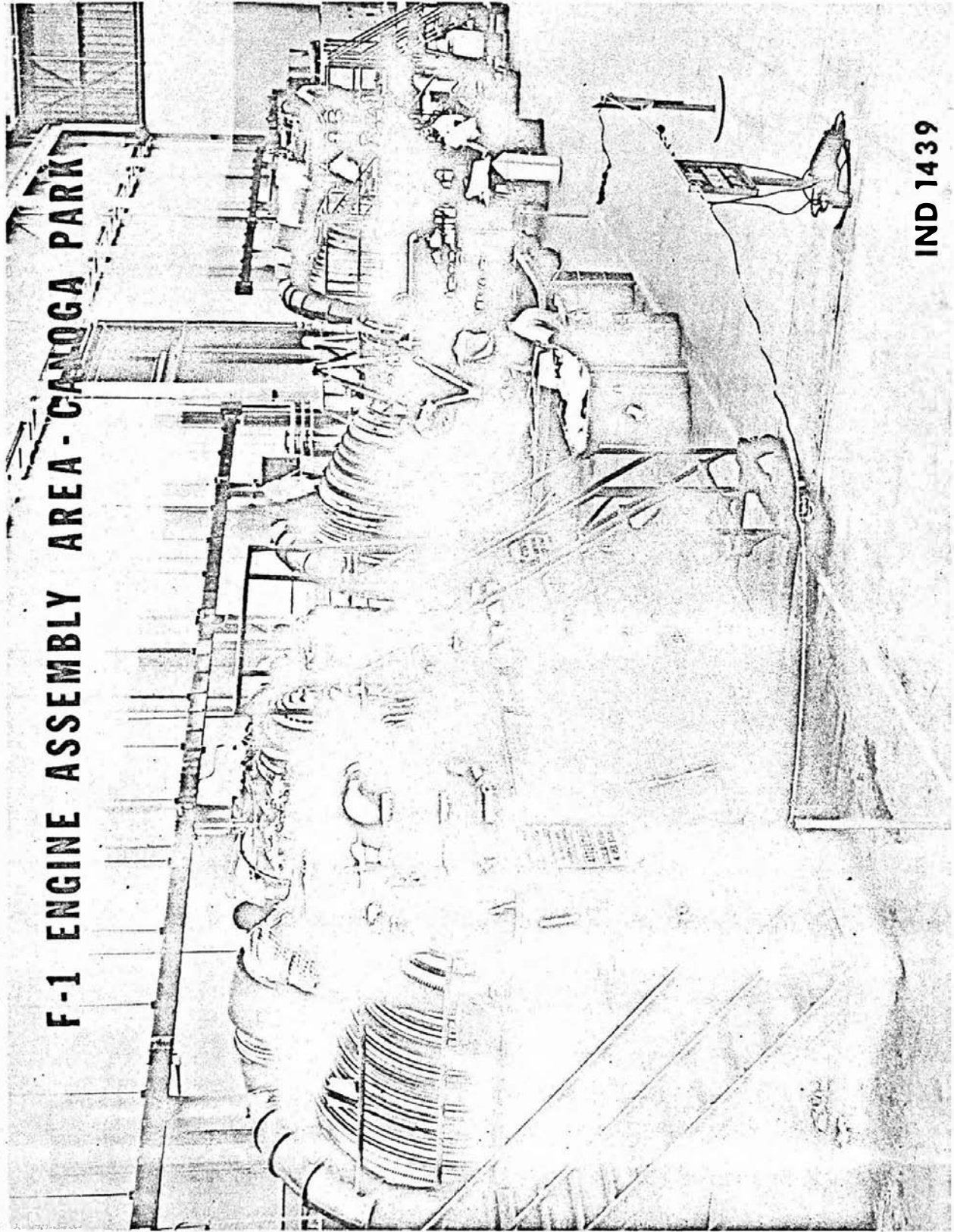
▨ PROGRESS

△ CURRENT SCHEDULE

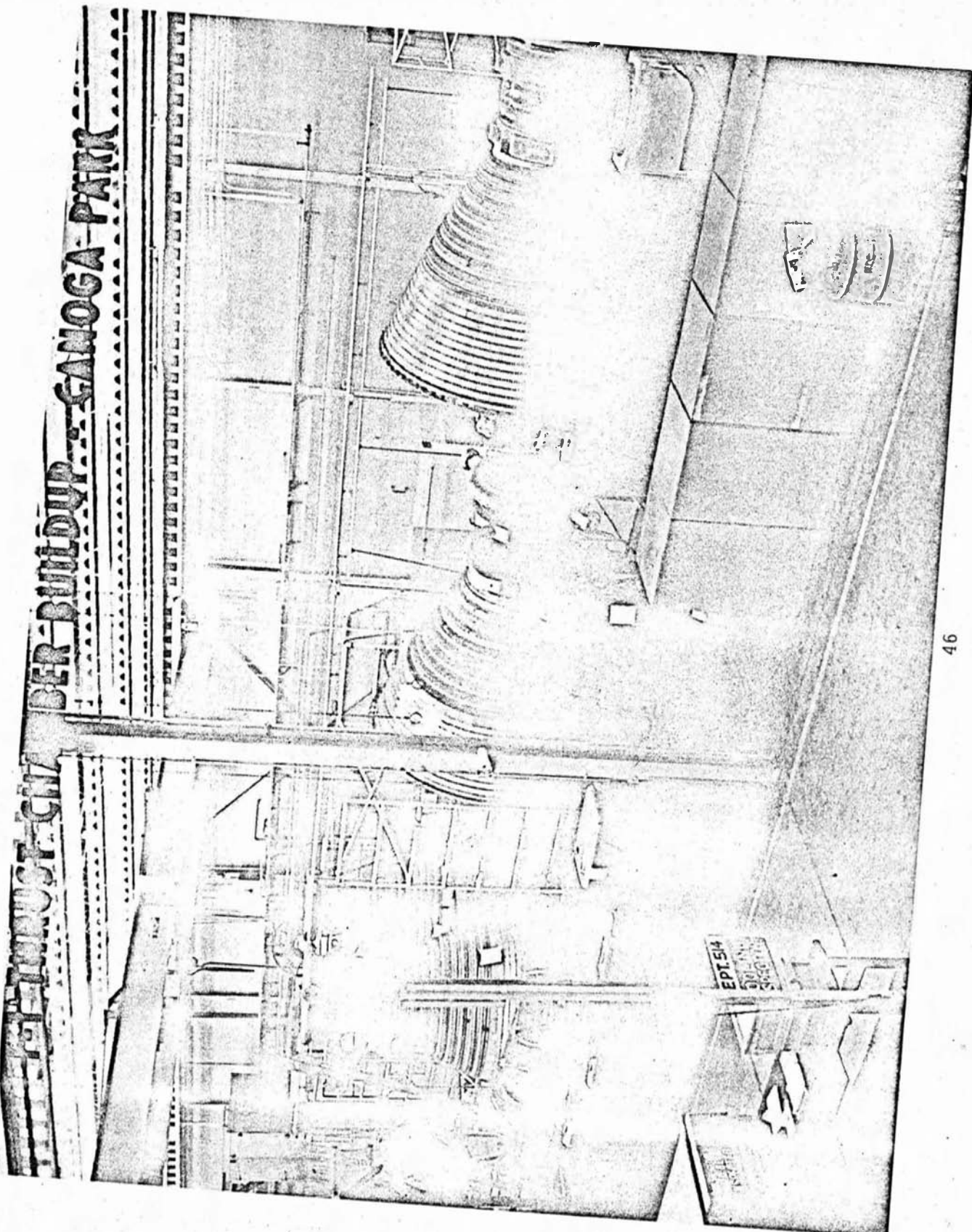
⬆ EVENT ACCOMPLISHED

I-E-F JULY 1, 1964 IND B1403B

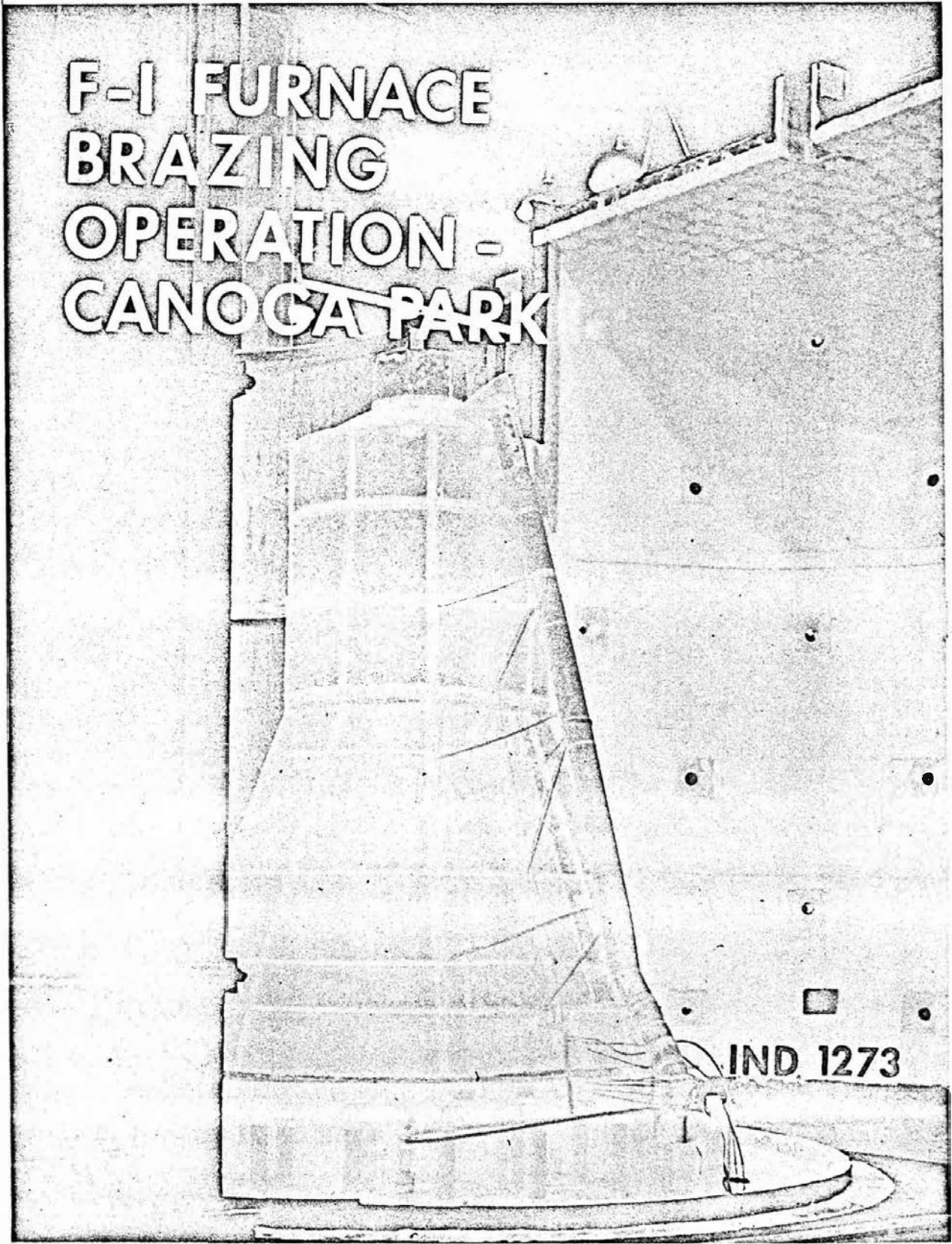
F-1 ENGINE ASSEMBLY AREA - CANOGA PARK



IND 1439



F-I FURNACE BRAZING OPERATION - CANOGA PARK



47

IND 1273

F-1 TEST FACILITIES EDWARDS AFB

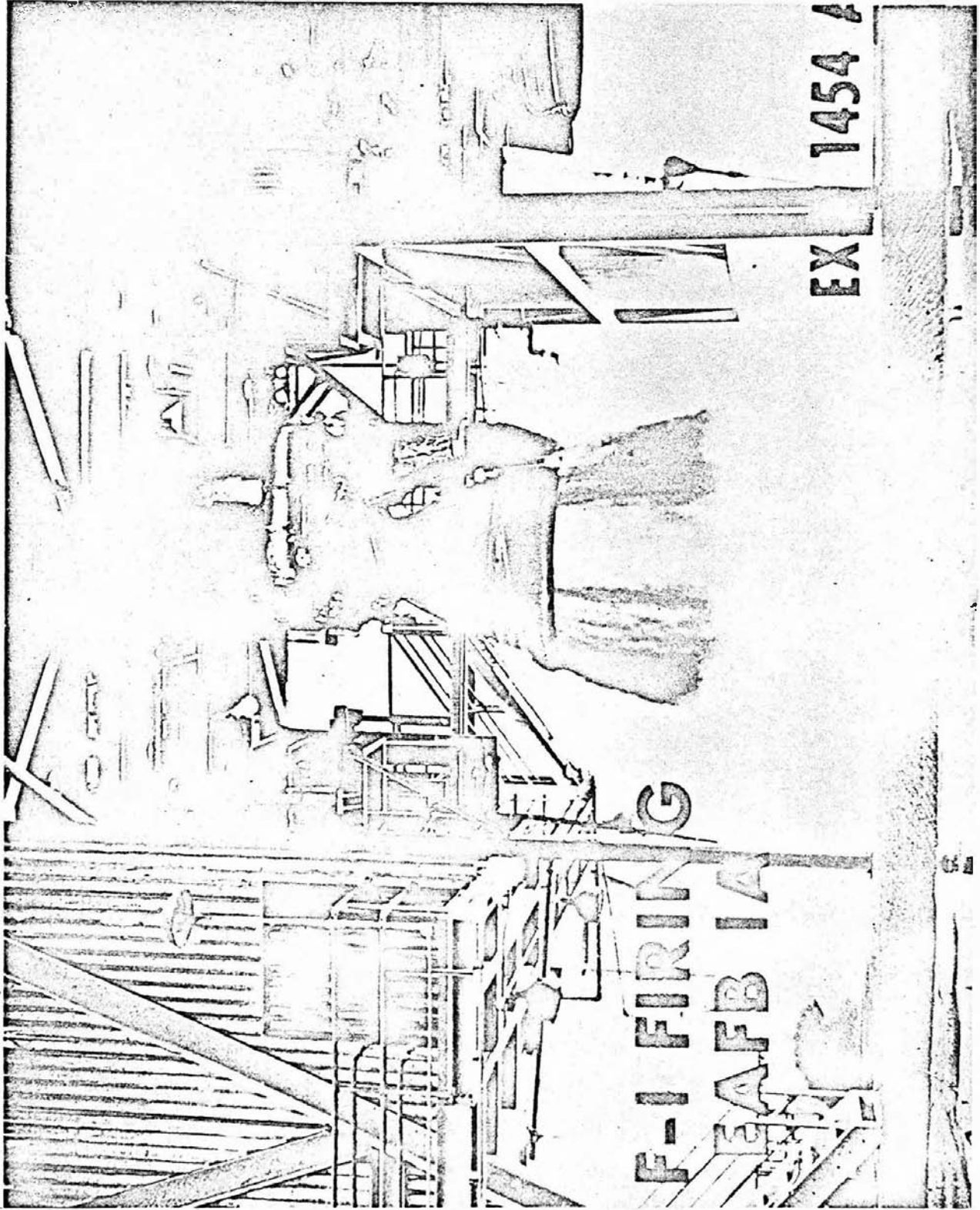


1A

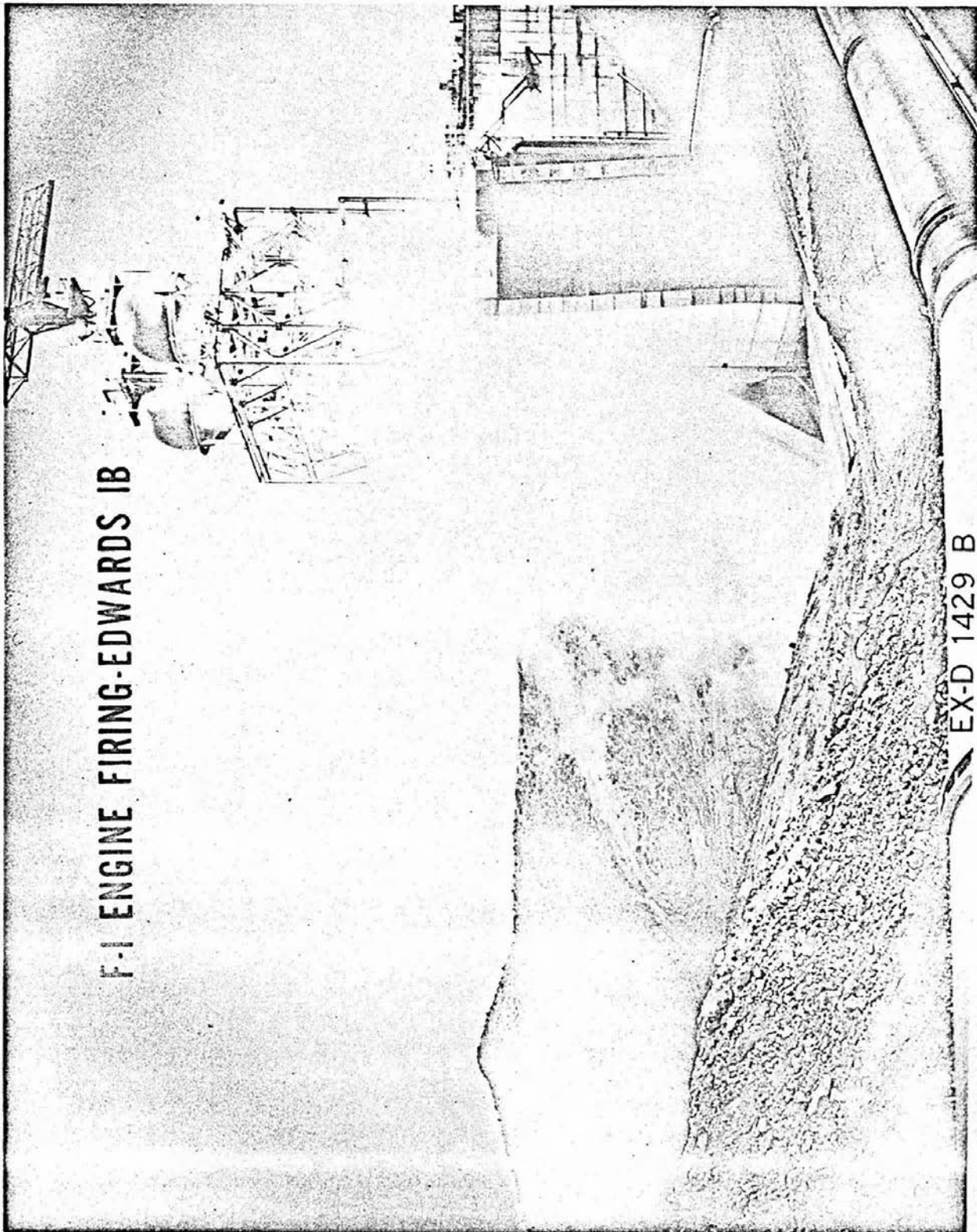
F-1 ENGINE TO BE INSTALLED IN STAND 1A-EAFB



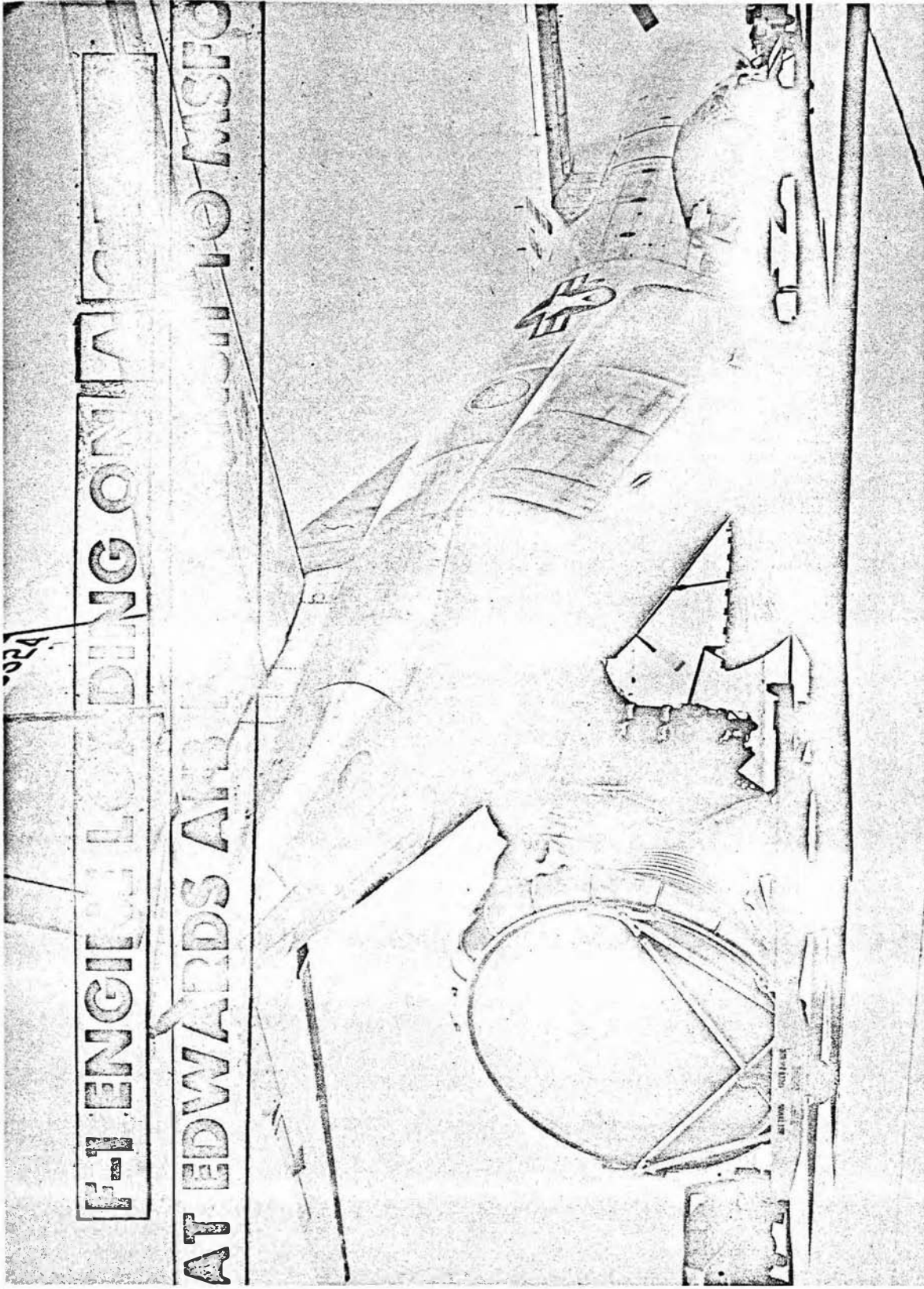
IND-1438



F-1 ENGINE FIRING-EDWARDS IB



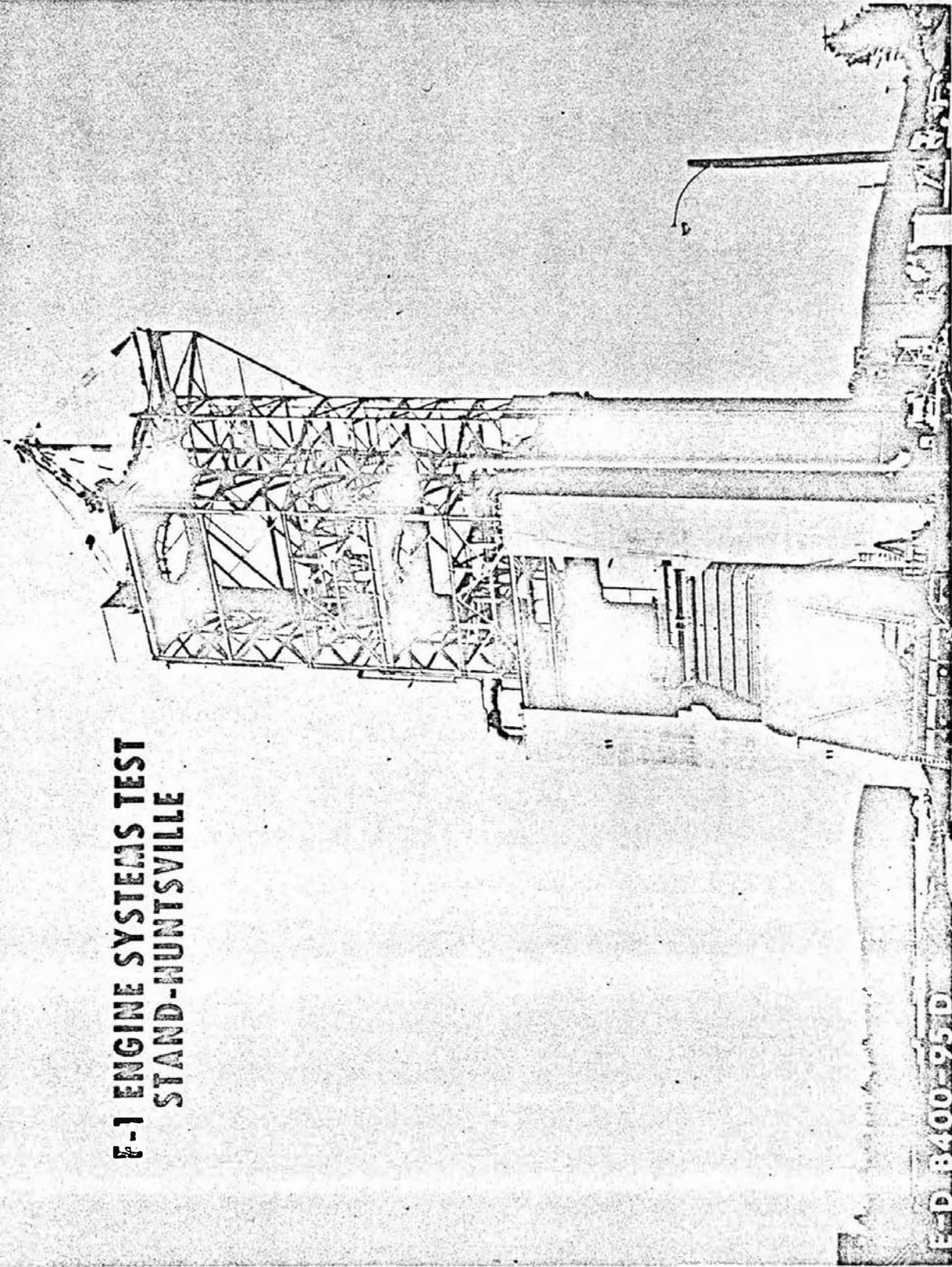
EX-D 1429 B



F-1 ENGINEER LANDING ON 1A
AT EDWARDS AIR FORCE BASE MSFC

M-P&VE-O BELEW AUG 9. 1963 M-CP-D 1451

**F-1 ENGINE SYSTEMS TEST
STAND-HUNTSVILLE**

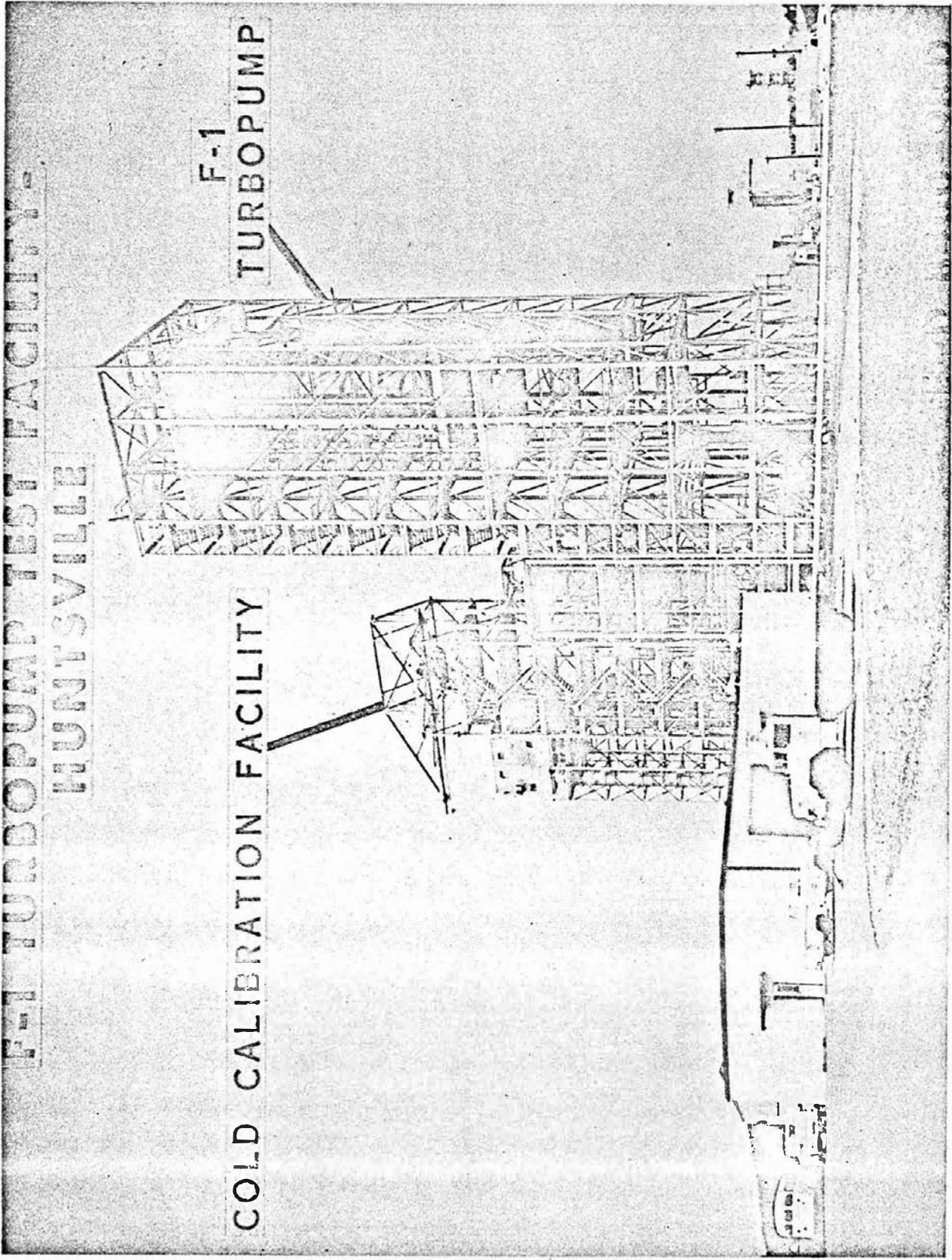


E.D. R400-175-D

F-1 TURBOPUMP TEST FACILITY
HUNTSVILLE

COLD CALIBRATION FACILITY

F-1
TURBOPUMP

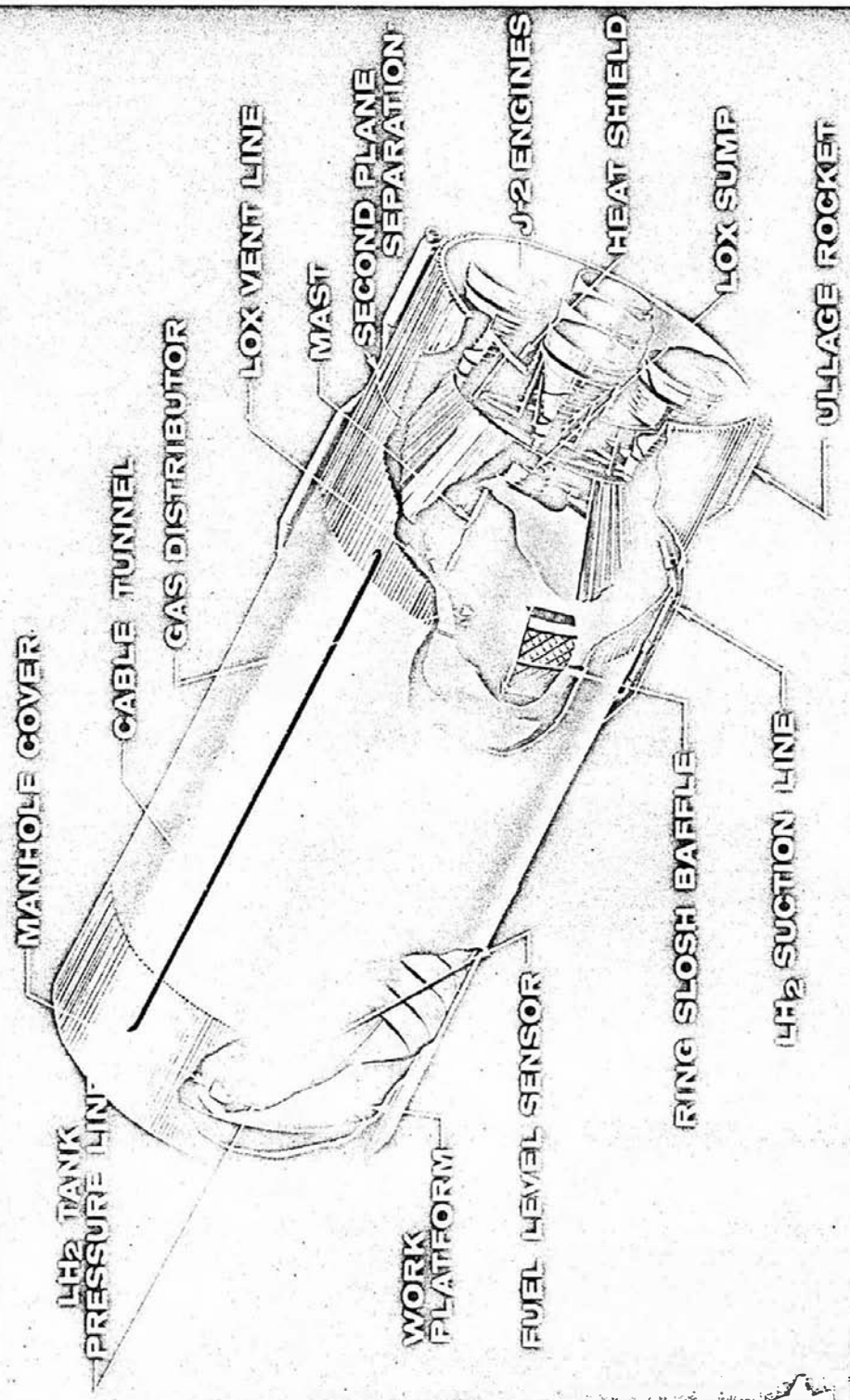


F-1 ENGINE FIRING HUNTSVILLE

DEC 20, 1963 EX-D 1462 A

S-II STAGE

SATURN V S-II STAGE



MS-G-87-6-63
 E-D A1230A
 R-P-C VEATCH-MARSHALL

SATURN V 2nd STAGE (S-II)

CONTRACTOR: NORTH AMERICAN

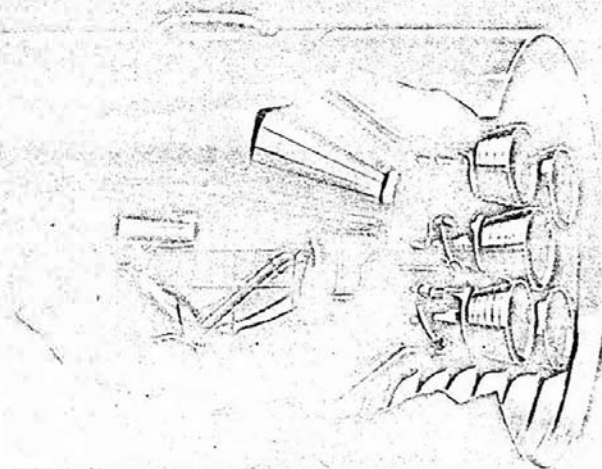
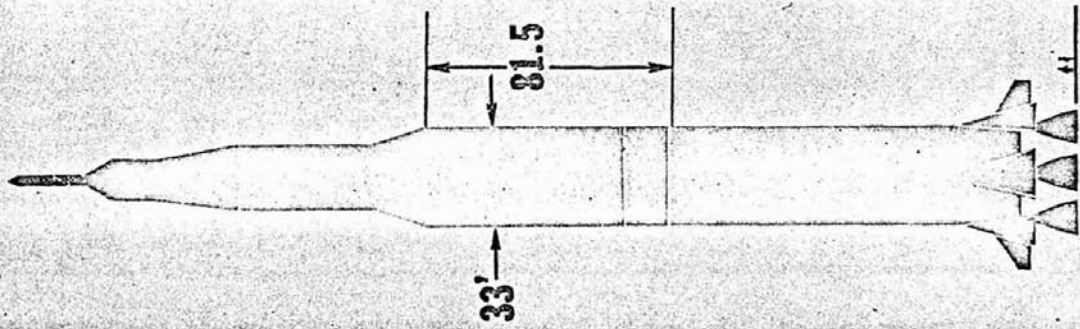
PRODUCTIONS:
R&D: SEAL BEACH
OPERATIONAL: SEAL BEACH

ENGINES: 5 J2

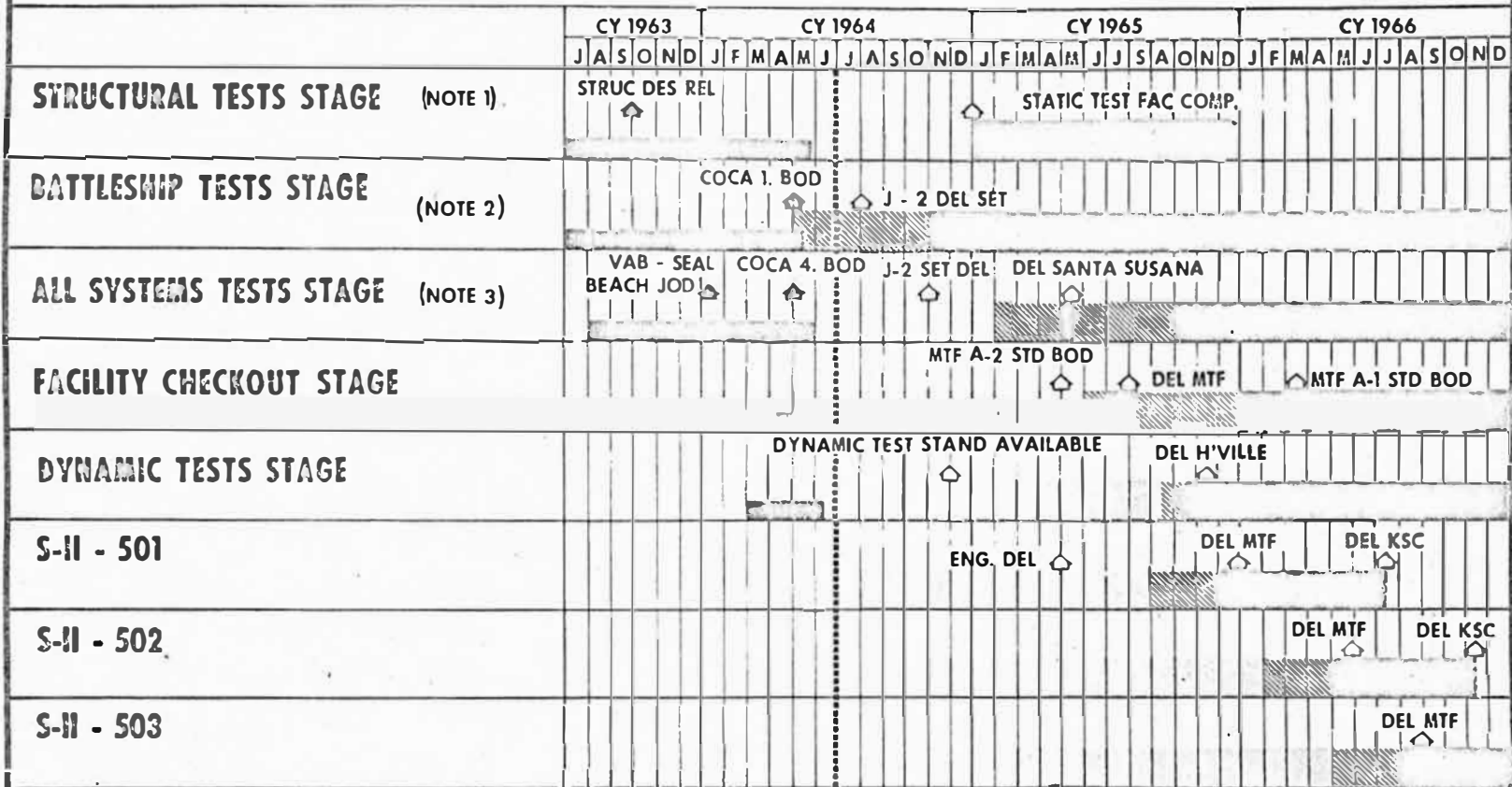
PROPELLANT: LOX/LH₂

THRUST: 1,000,000 LBS
(VACUUM)

M-MS-G-83-6-63
SEPT 24, 1963 M-CP-D 1235



SATURN V/S-II STAGE SUMMARY SCHEDULE



NOTE:

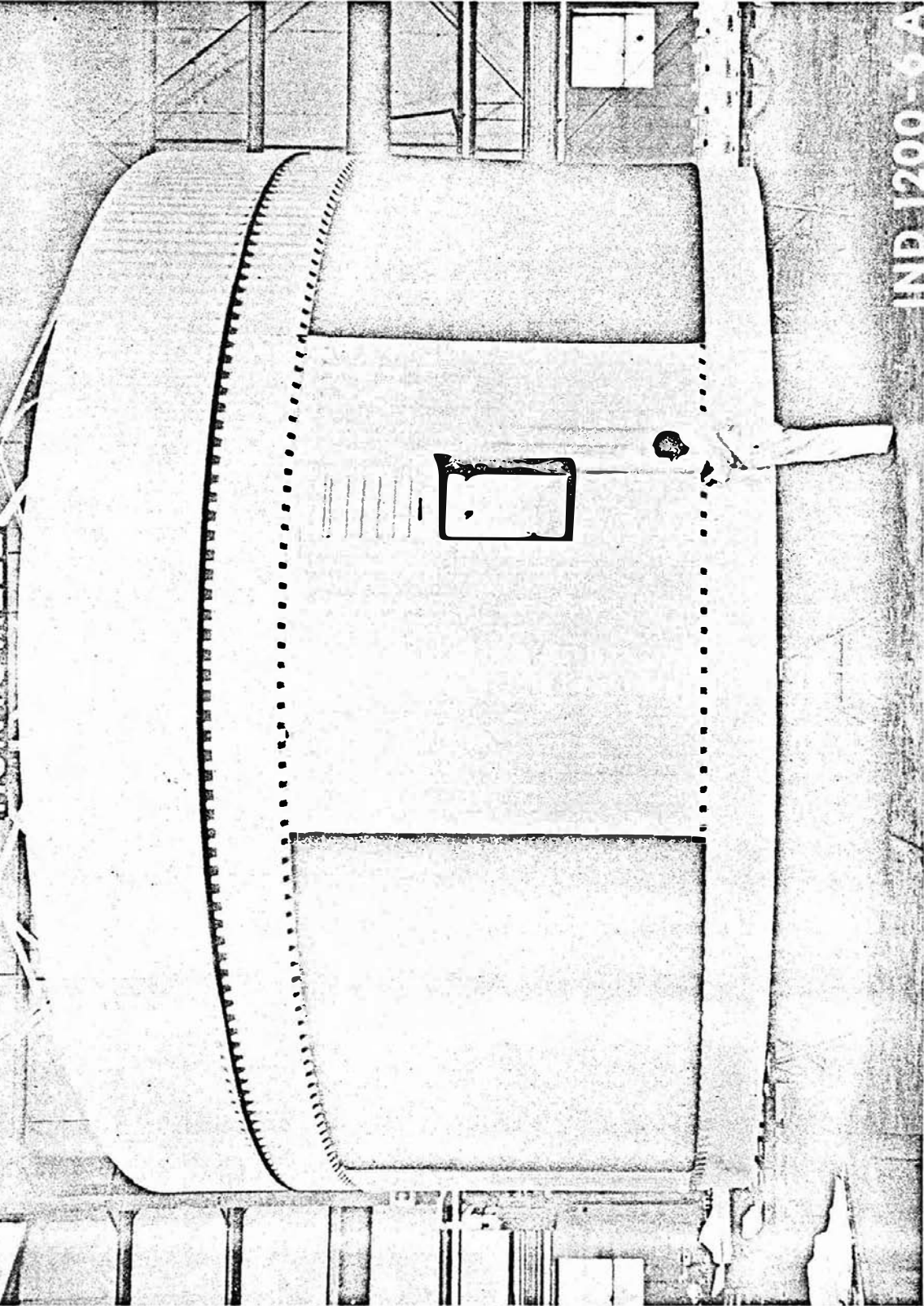
1. COMMON BULKHEAD MFG. APPROX. 9 WKS. BEHIND SCHEDULE DUE TO SLOWER DEVELOPMENT OF MFG. TECHNIQUES THAN ANTICIPATED. STRUCTURAL TESTING EXPECTED TO START 1 WK LATE.
2. APPROX. 6 WKS. BEHIND SCHEDULE DUE TO COMPONENT SHORTAGE WHICH DELAYED INSTALLATION OF INTERNAL TANK HARDWARE.
3. MANUFACTURING SHOP COMPLETION EXPECTED 6 WKS LATE DUE PRIMARILY TO COMMON BULKHEAD PROBLEM. PROGRAM PLANNING IN PROCESS TO ABSORB DELAY DURING ACTIVATION AND INITIAL OPERATION AT SANTA SUSANA.

FAB & ASS'Y	□ STORAGE
▨ CHECKOUT	▨ PROGRESS
▩ PREP/TEST	◇ CURRENT SCHEDULE
▤ MOD/REPAIR	◆ EVENT ACCOMP
▧ PREP/SHIP	

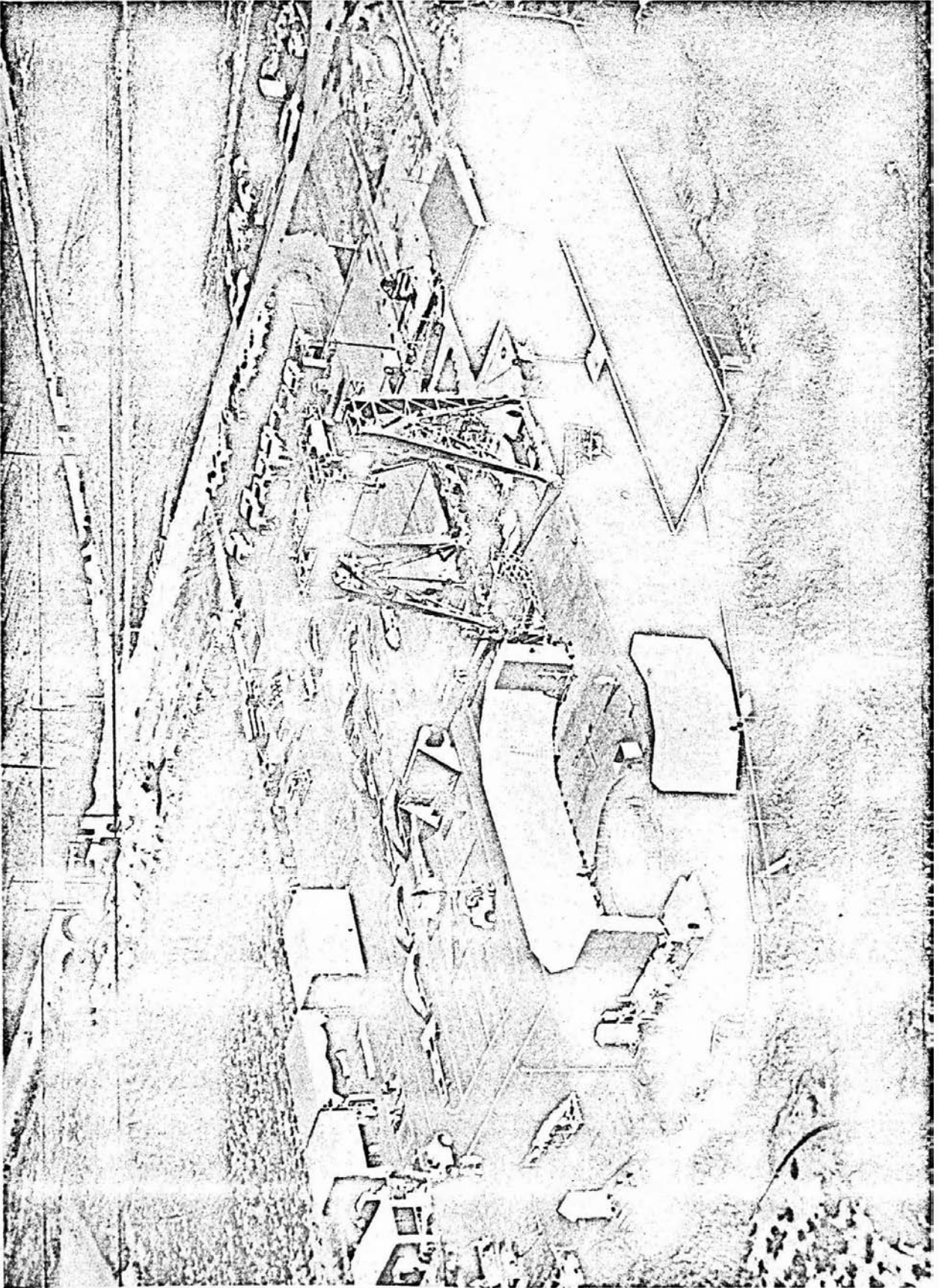
I-V-SII JULY 1, 1964 IND 1200 H

S-II FORWARD & AFT INTERFACE MATING MOCKUPS

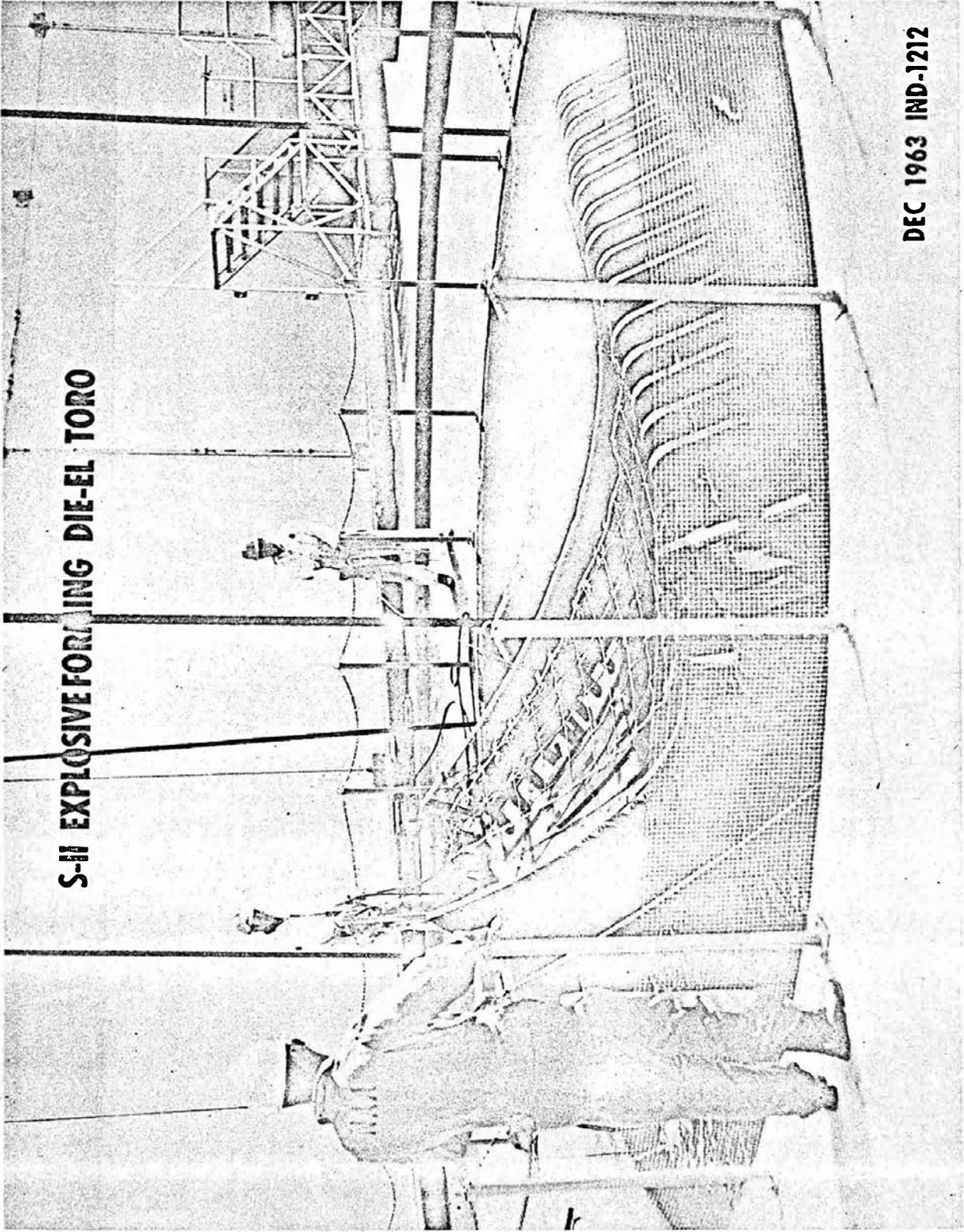
HUNTSVILLE



IND 1200-6A

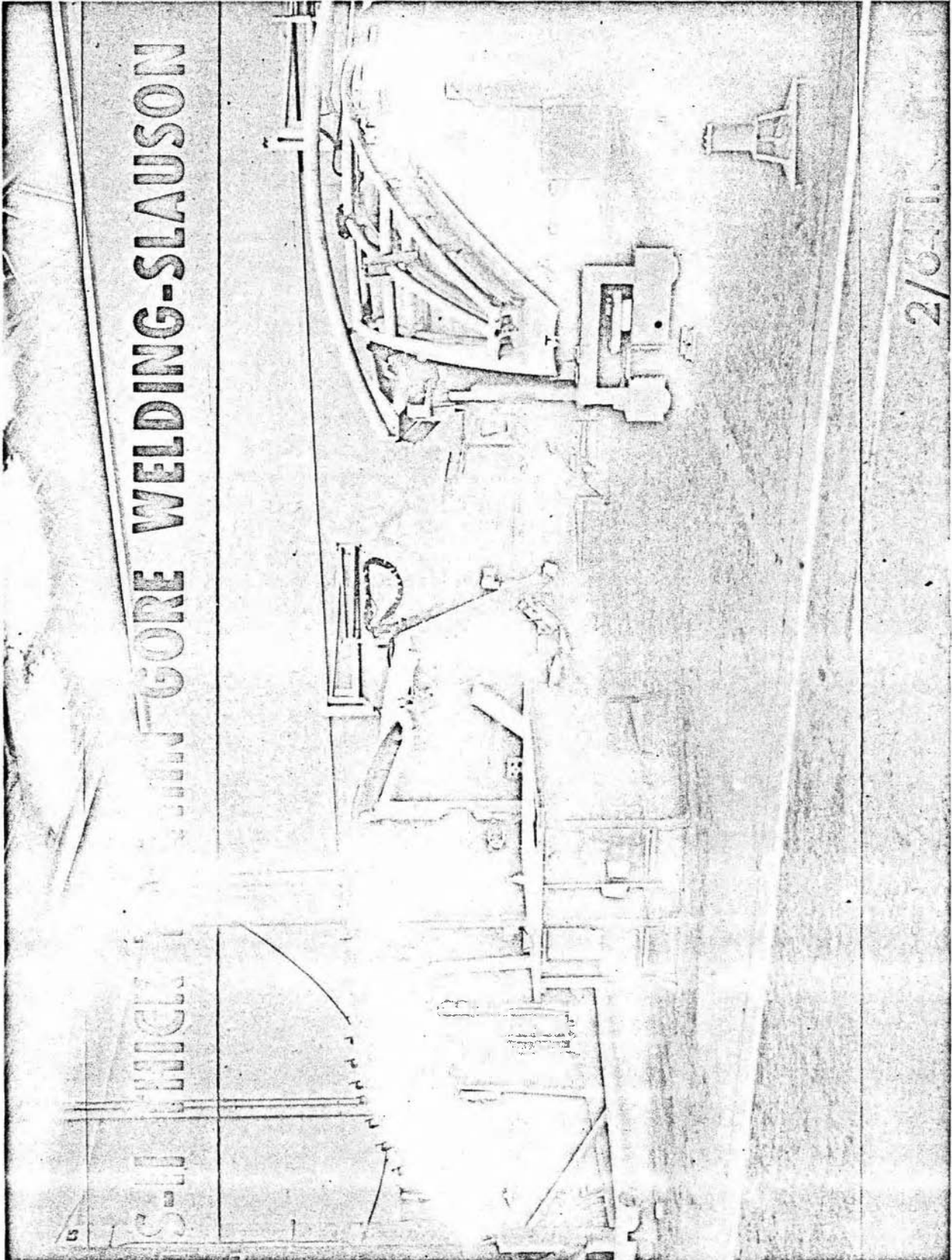


S-II EXPLOSIVE FORMING DIE-EL TORO



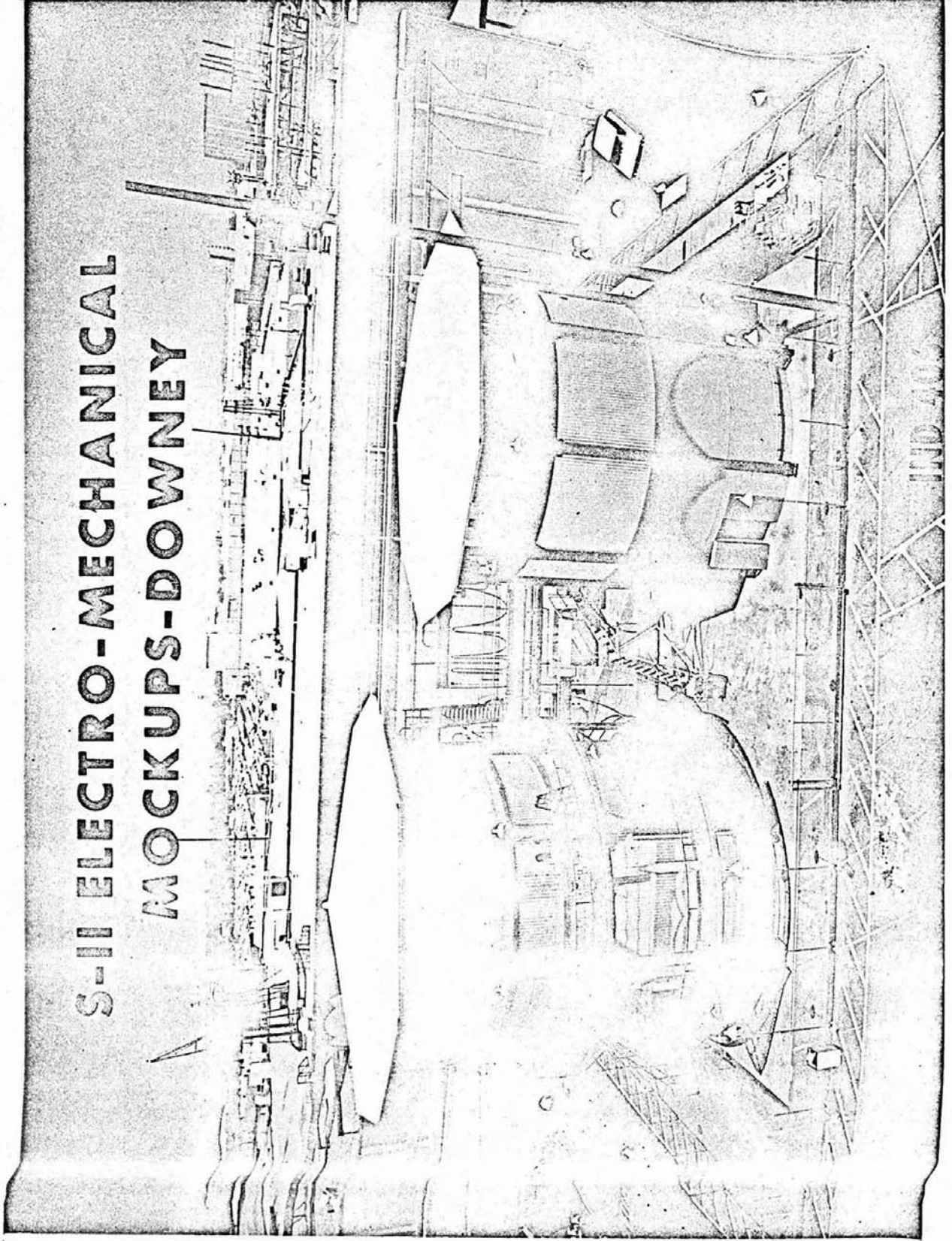
DEC 1963 IND-1212

S-11 THICK PLATE MILL-GORE WELDING-SLAUSON



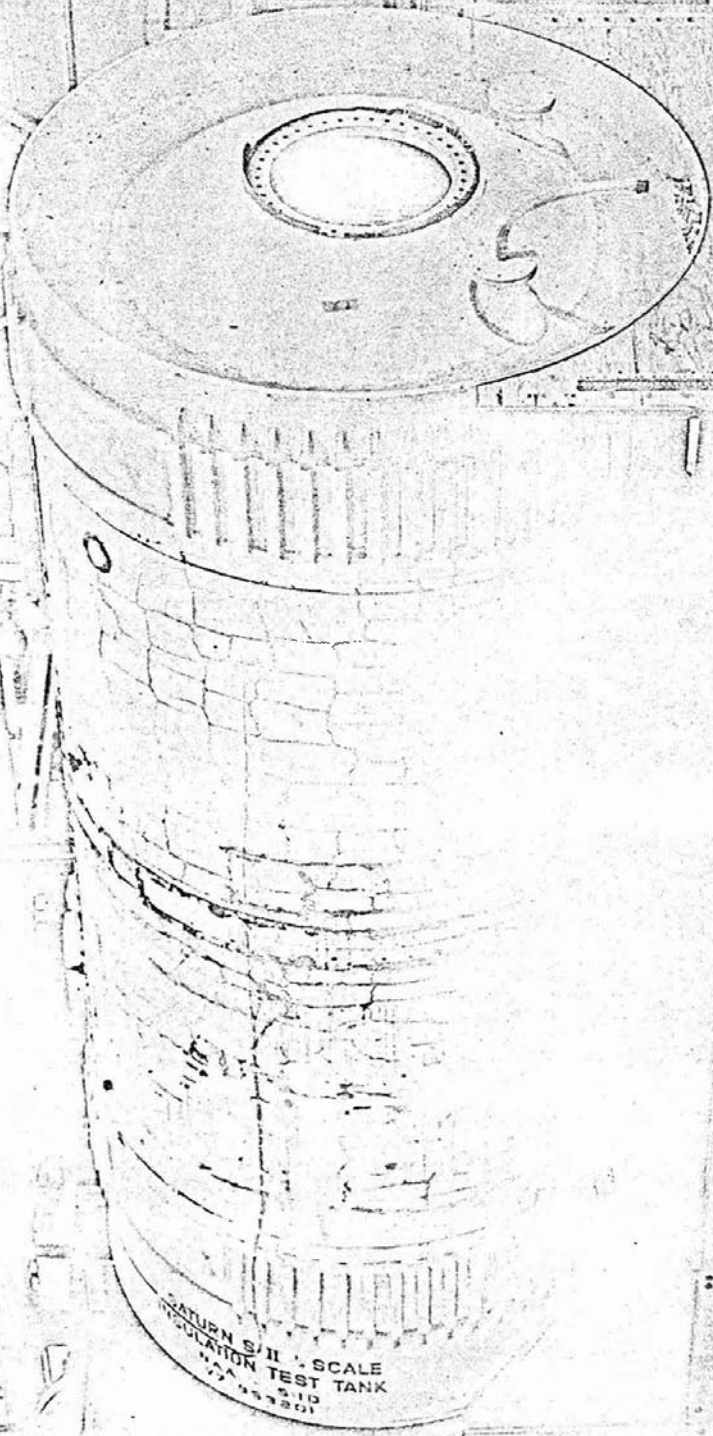
2/6411

S-II ELECTRO-MECHANICAL MOCKUPS-DOWNEY



IND 405

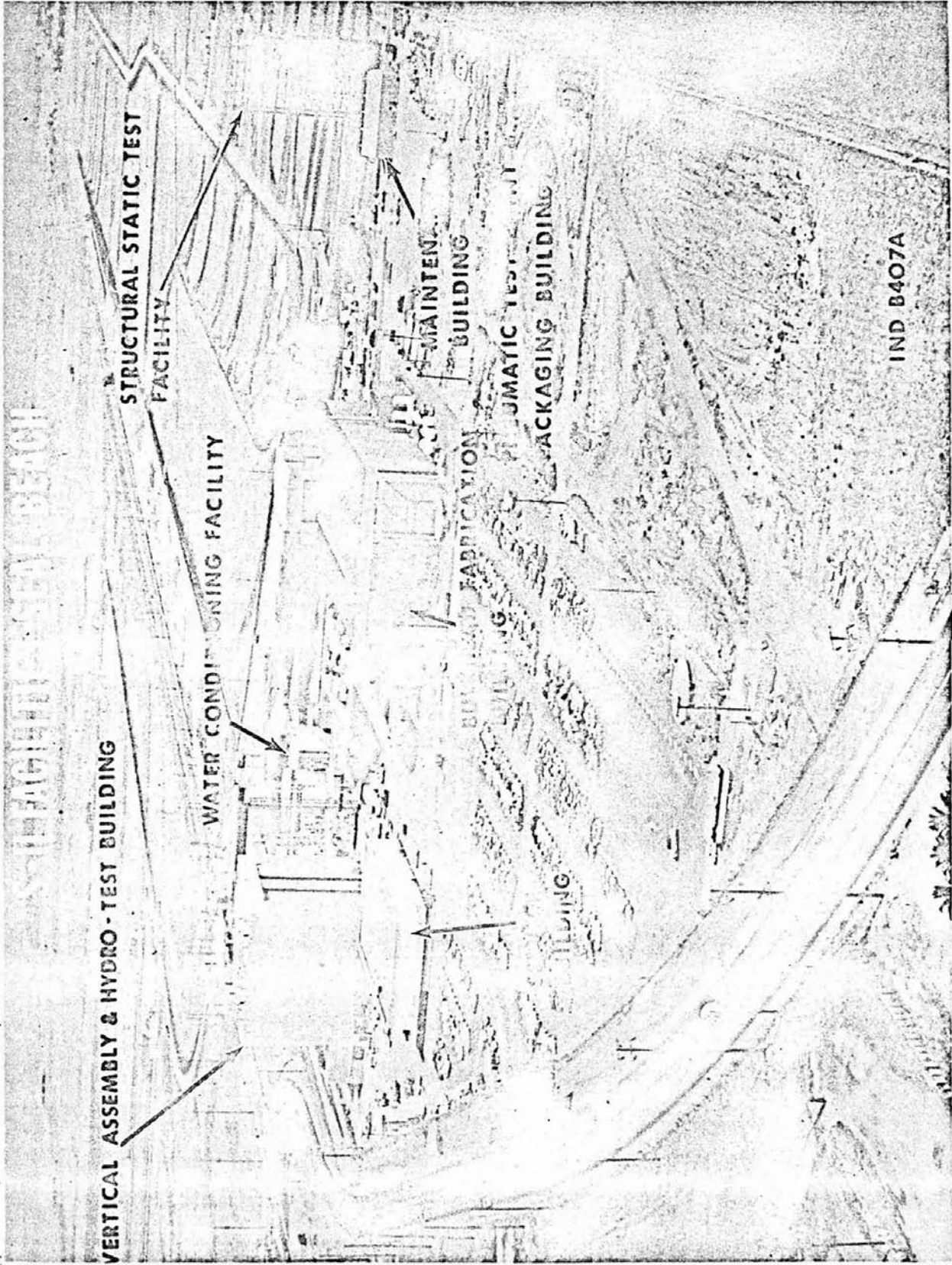
S-II 1/4 SCALE TEST TANK - DOWNEY



IND 1200-11

SATURN S/II SCALE
INSULATION TEST TANK
NAA - 5-10
74-53201

19-4-61 41291-12-9006



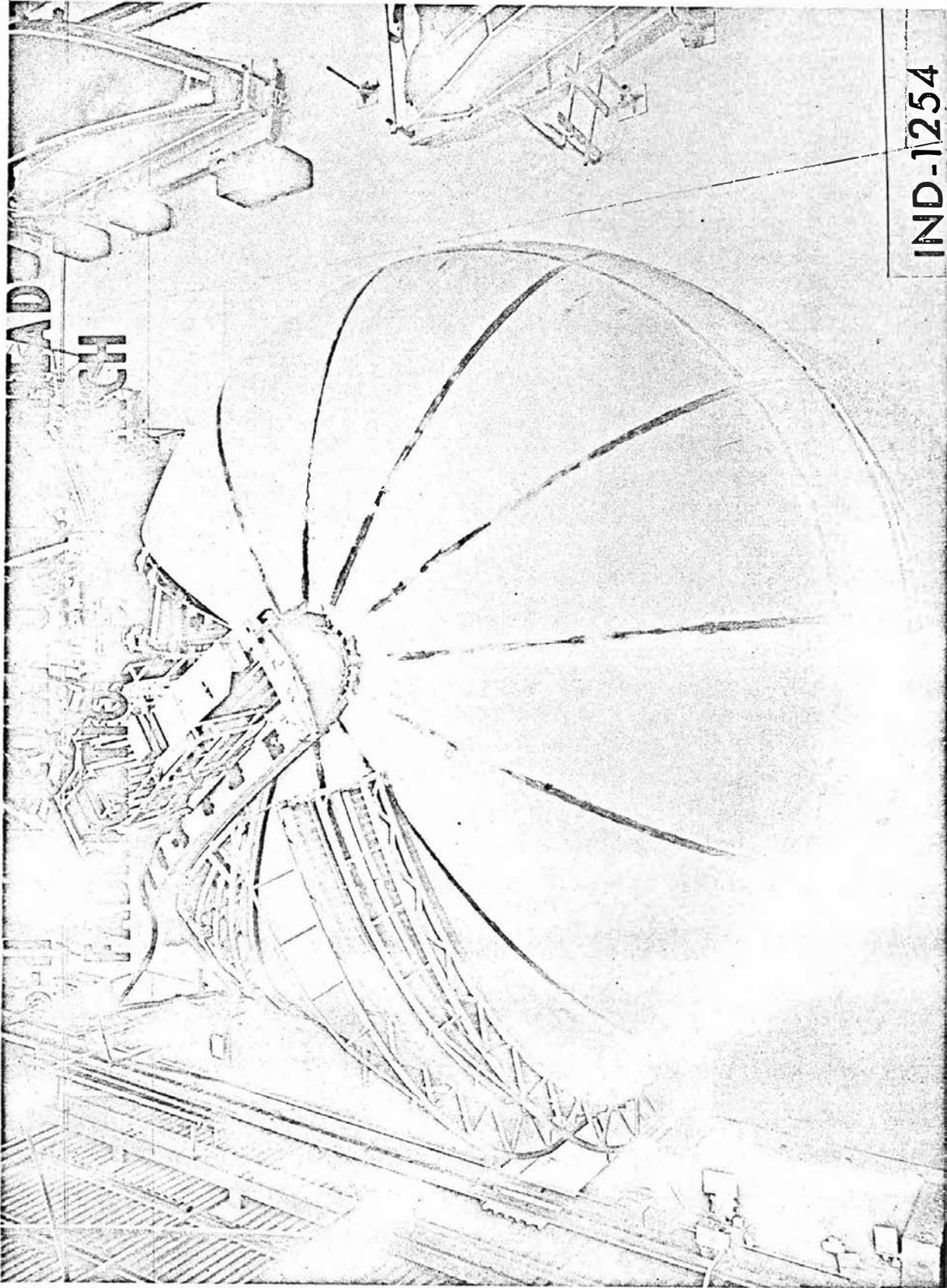
IND B407A



SUBS... STRUG...

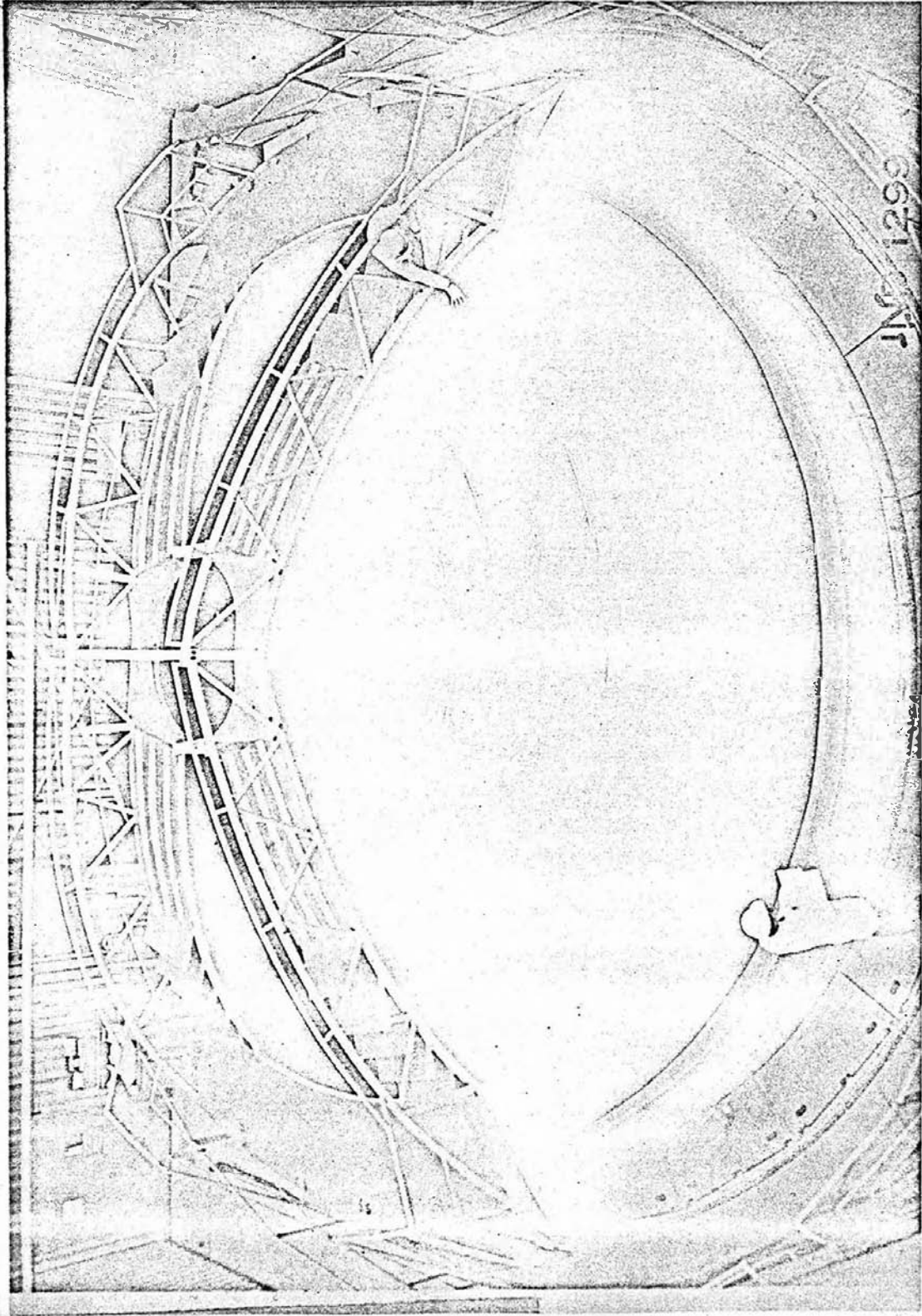
DEC 1963 IND-1242



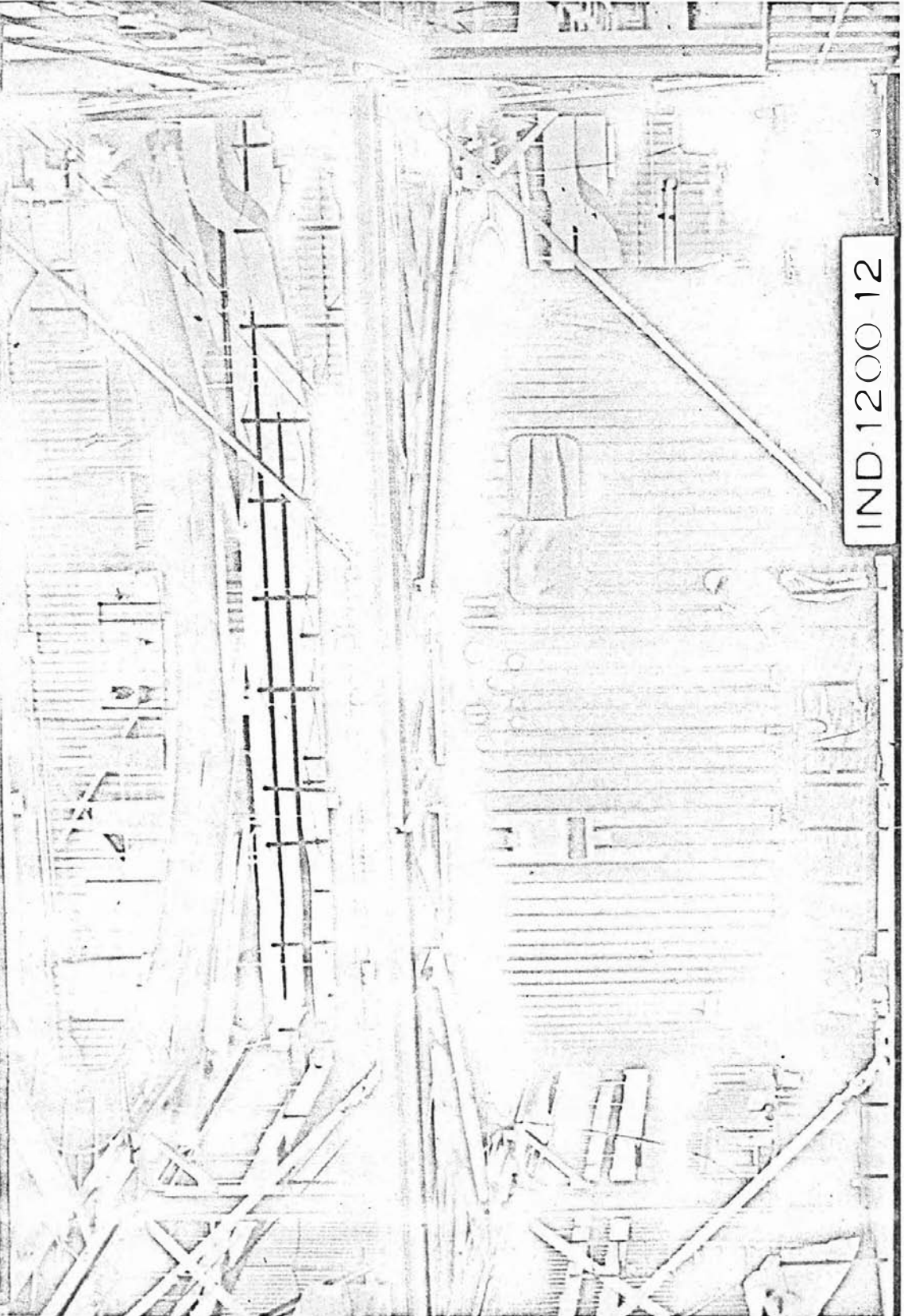


IND-1254

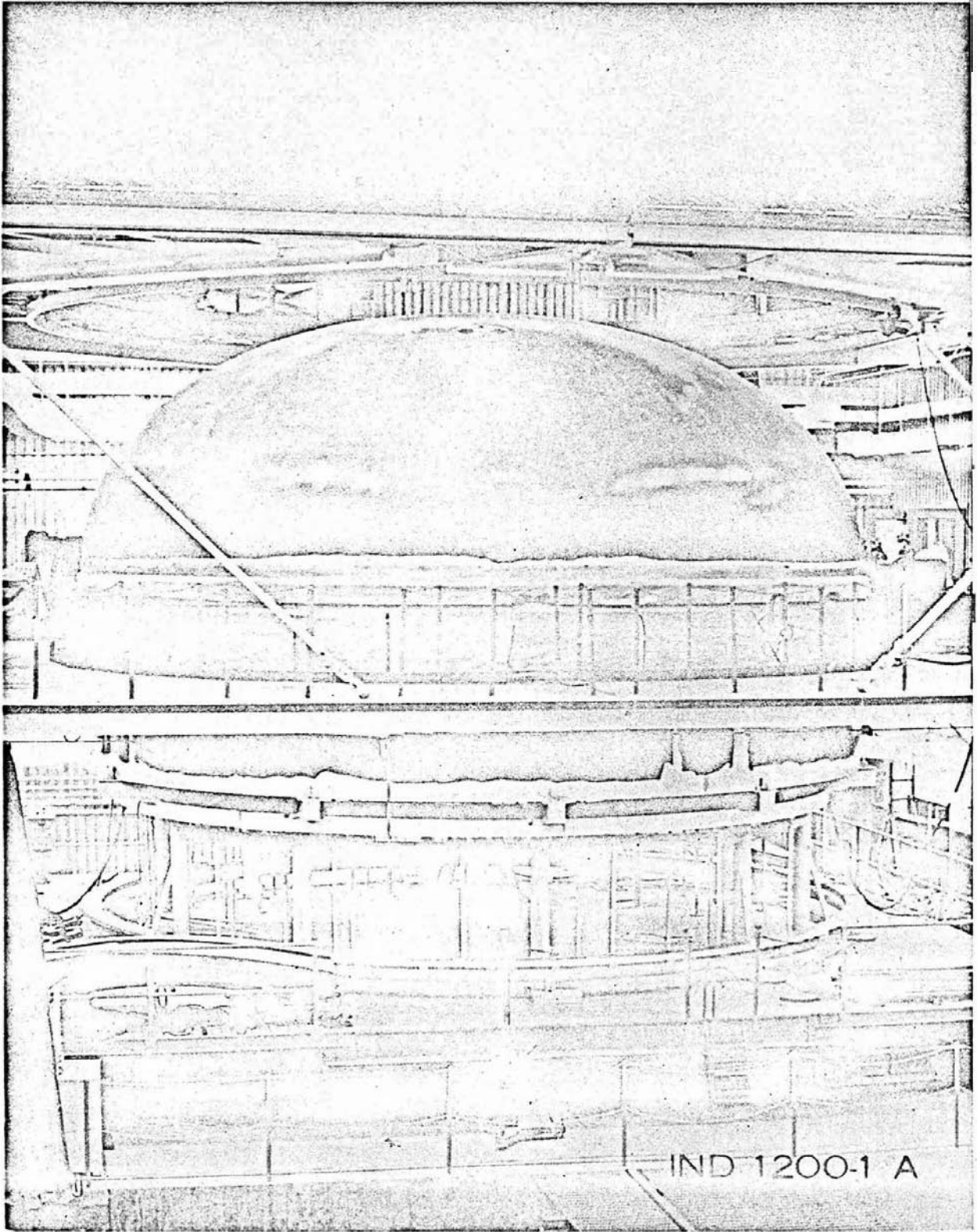
S-II COMMON BULKHEAD INSULATION PROCESS
SEAL BEACH



S-II SKIRT AND LH 2 BULKHEAD-SEAL BEACH



IND 1200 12



74

IND 1200-1 A

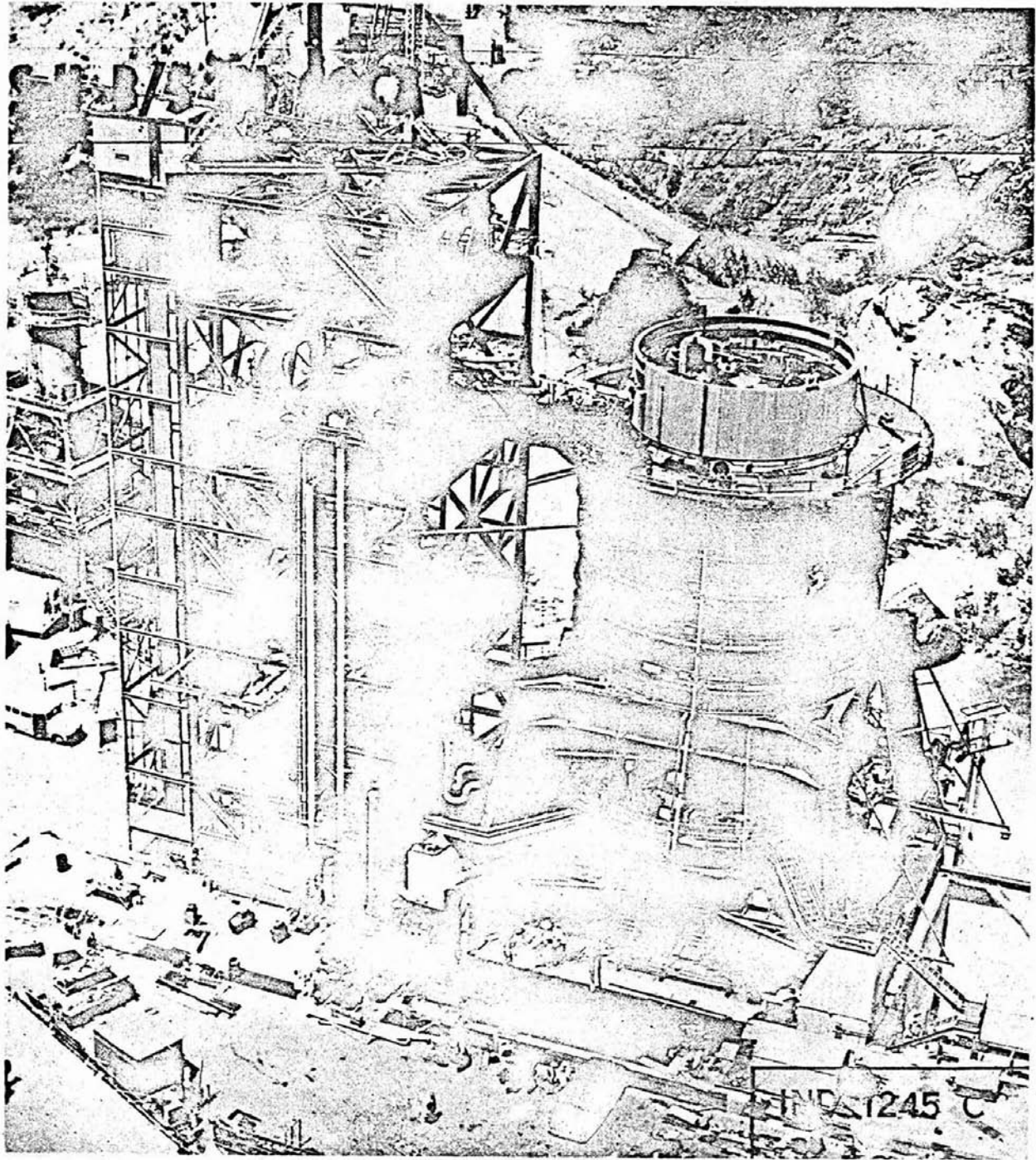
S-1 TEST FACILITY - SANTA SUSANA



COCA 4

COCA 1

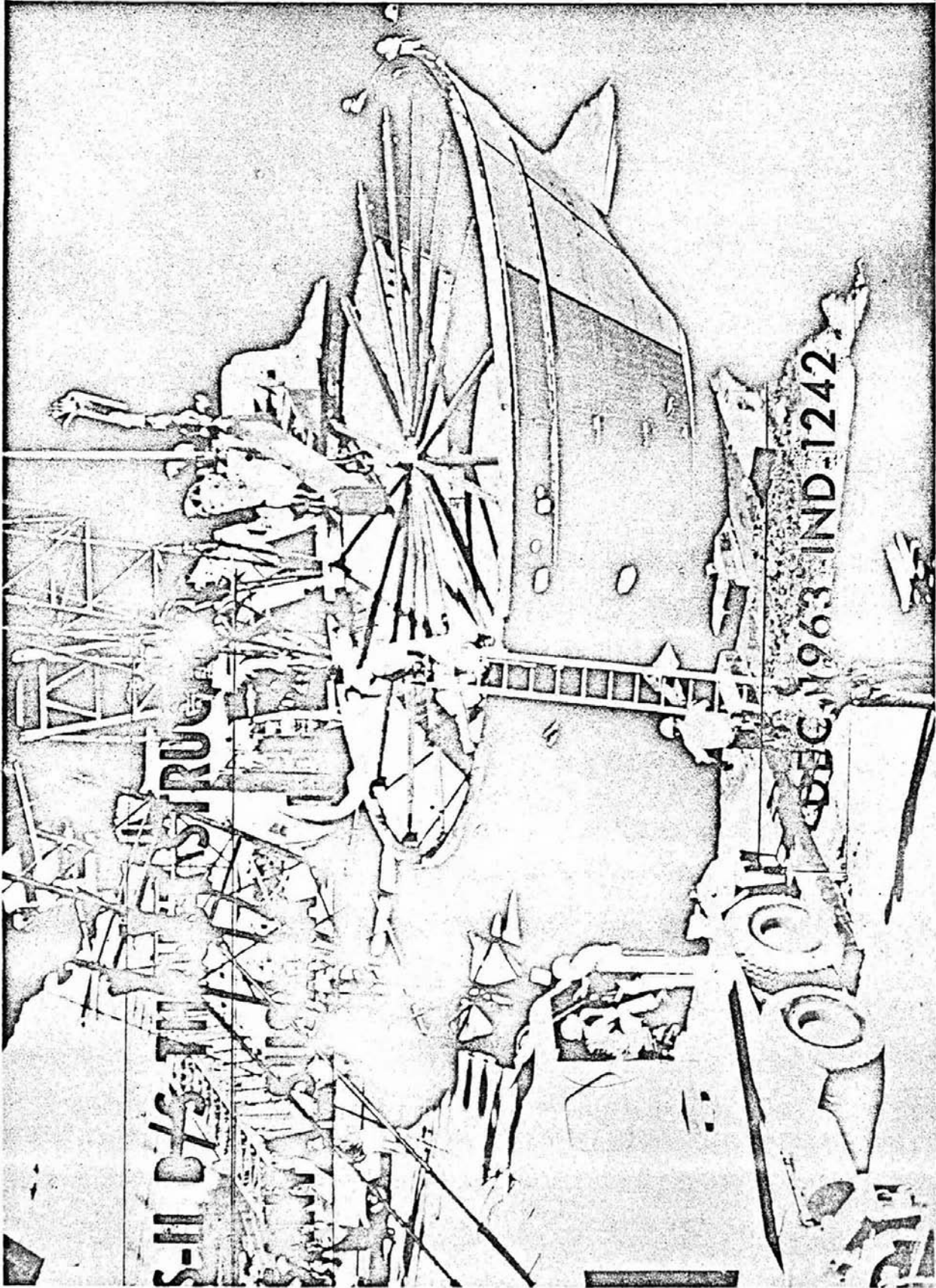
A/6 ANDERSON



S-II COCA 4 STAND-SANTA SUSANA

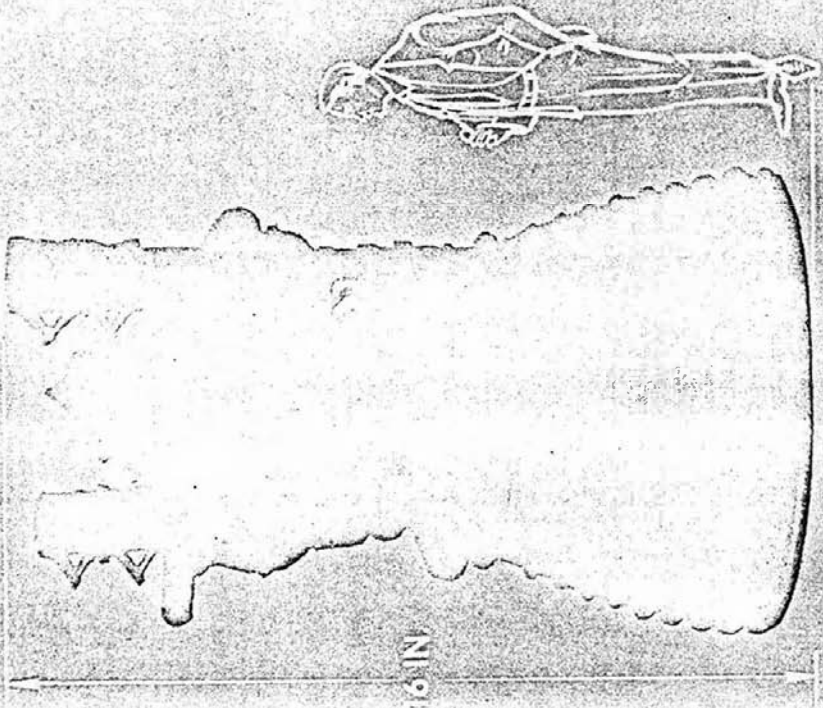


4/64 IND 1244 C



J-2 ENGINES

J-2 ENGINE



THRUST-200,000 LB ALTITUDE
THRUST DURATION-500 SEC
ENGINE WT DRY-3170 LB
BURN-OUT-3299 LB

PROPELLANTS-LOX & LH₂
CONTRACTOR-NAA/ROCKETDYNE
SYSTEM SAT-IB/S-IVB (1 ENGINE)
SAT-V/S-II (5 ENGINES)
SAT-V/S-IVB (1 ENGINE)

PRB-11011

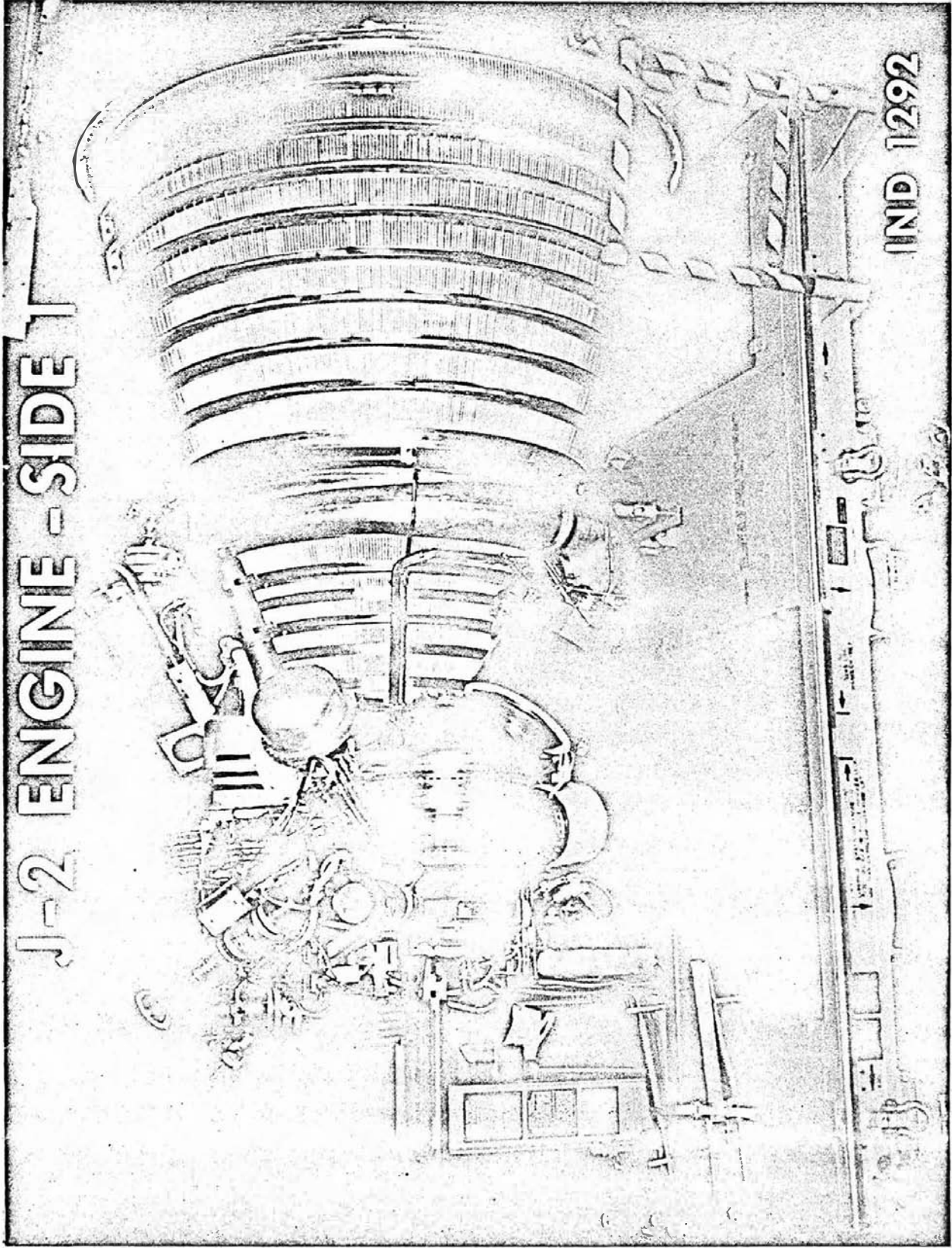
J-2 ENGINE SUMMARY SCHEDULE

		CY 1963					CY 1964					CY 1965					CY 1966																			
		J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J											
KEY ENGINE DELIVERIES	SAT-IB S-IVB NOTE 1											SA-201																								
	SAT-V S-II NOTE 1											BATTLESHIP	SA-501																							
	SAT-V S-IVB NOTE 1	COLD FLOW ENG					BATTLESHIP	ALL SYSTEMS					SA-501																							
DEVELOPMENT PLAN	NOTE 1											3	2	4																						
THRUST CHAMBER												1																								
FUEL TURBO PUMP		8															9																			
LOX TURBO PUMP		10															11																			
GAS GENERATOR		12										14																								
CONTROLS		15					16					17																								
INTERCONNECTS		18					19																													
FLIGHT INSTRUMENTATION												20					21																			
TOTAL DELIVERIES-CUMULATIVE																																				
PLANNED SAT-IB												1	2	3	4	4	5	5	6	7	7	7	8	8	8	9	11	11	13	13	13	14	15			
ACTUAL SAT-IB																																				
PLANNED SAT-V S-II												1	2	5	7	10	13	15	19	21	24	26	27	29	32	34	37	39	42	43	46	48	51	54	57	60
ACTUAL SAT-V S-II												1																								
PLANNED SAT-V S-IVB		1	1	1	1	1	2	2	2	3	3	4	4	4	5	5	5	5	5	6	7	7	7	7	8	8	9	10	10	11	12	12				
ACTUAL SAT-V S-IVB		1	1	1	1	1	2	2	2	3																										
MILESTONES																																				
1. FIRST 500 SEC DURATION TEST												8. DEMO FUEL PUMP NPSH										16. CECV 1.5 IN. BLEEDLINES														
2. COMPLETE PFRT												9. COMP QUAL FUEL PUMP TESTS										17. COMPL CONTROLS QUAL														
3. FIRST ENG RE-START												10. DEMO LOX PUMP NPSH										18. COMPL 4-COIL HEAT EXCHANGER TEST														
4. COMPL FRT												11. COMPL QUAL LOX TP TEST										19. COMPL FLOW METERS QUAL														
5. COMPL QUAL												12. RELEASE FRT-QUAL GAS GEN DESIGN										20. CECV FLT INSTR PACKAGE														
6. COMPL INJ T/C EVAL (PFRT)												13. COMPL GG MAIN STG DURATION TEST										21. COMPL FLT INSTR QUAL														
7. COMPL QUAL T/C DESIGN												14. COMPL GG-QUAL																								
												15. COMPL CECV CONTROLS (PFRT)																								
NOTES																																				
1. ROCKEYDYNE IS PRESENTLY 8 WEEKS BEHIND THE CONTRACTUAL DELIVERY SCHEDULE FOR PRODUCTION ENGINES. RESULTS: SA- 201/S-IVB ENGINE DEL MOVED FROM APR TO OCT. S-II B/S ENGINES FROM AUG TO SEPT. S-IVB A/S ENGINE FROM OCT TO NOV & MILESTONE 2 FROM JULY TO OCT AS BEST POSSIBLE DEL DATES. CONTRACTOR WILL REGAIN SCHEDULE IN EARLY 1965. NO IMPACT ANTICIPATED ON SCHEDULES.																																				

SCHEDULE CURRENT SCHEDULE
 PROGRESS EVENT ACCOMPLISHED

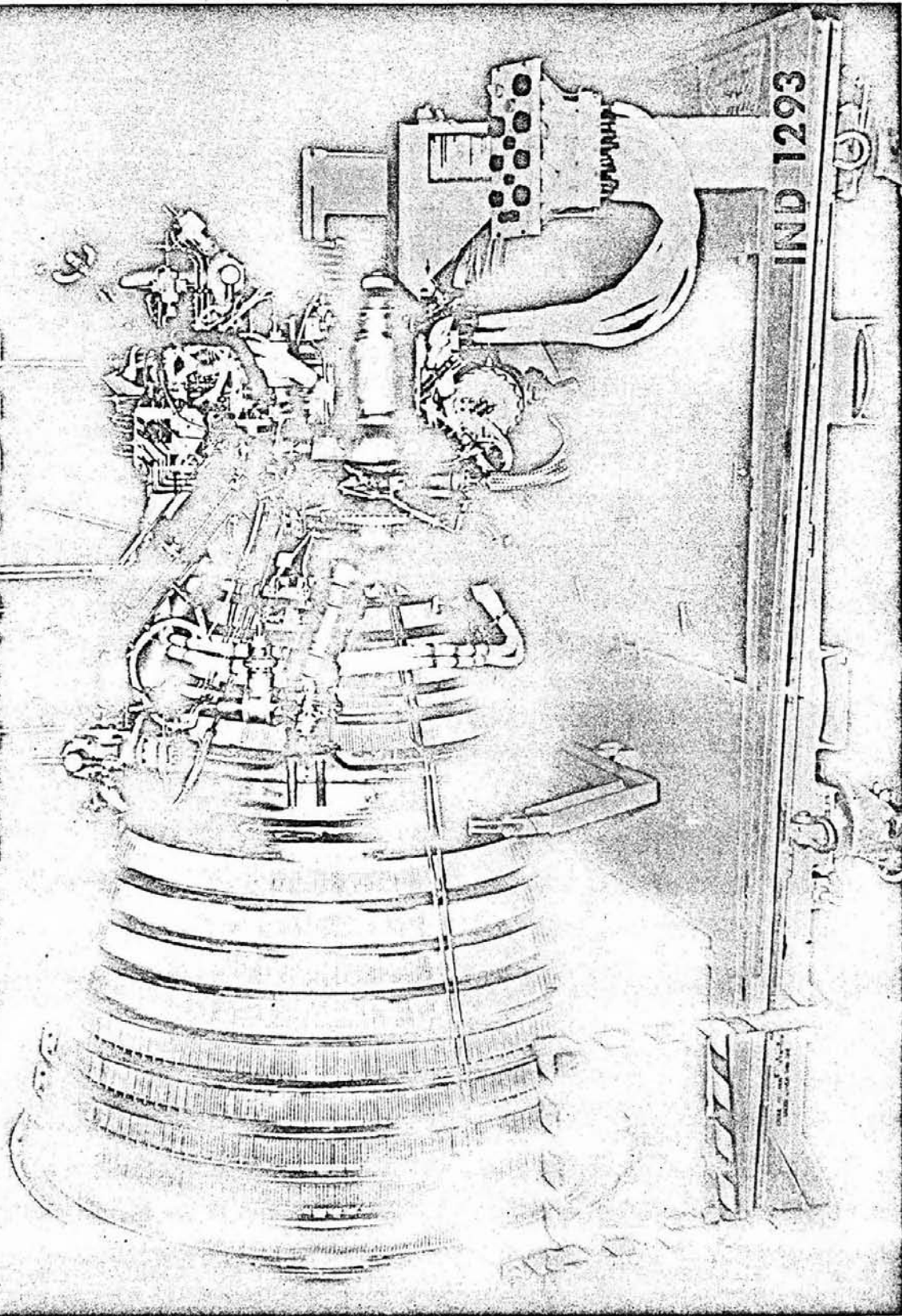
I-E-J JULY 14, 1964 IND B1402A

J-2 ENGINE - SIDE 1



IND 1292

J-2 ENGINE - SIDE 2

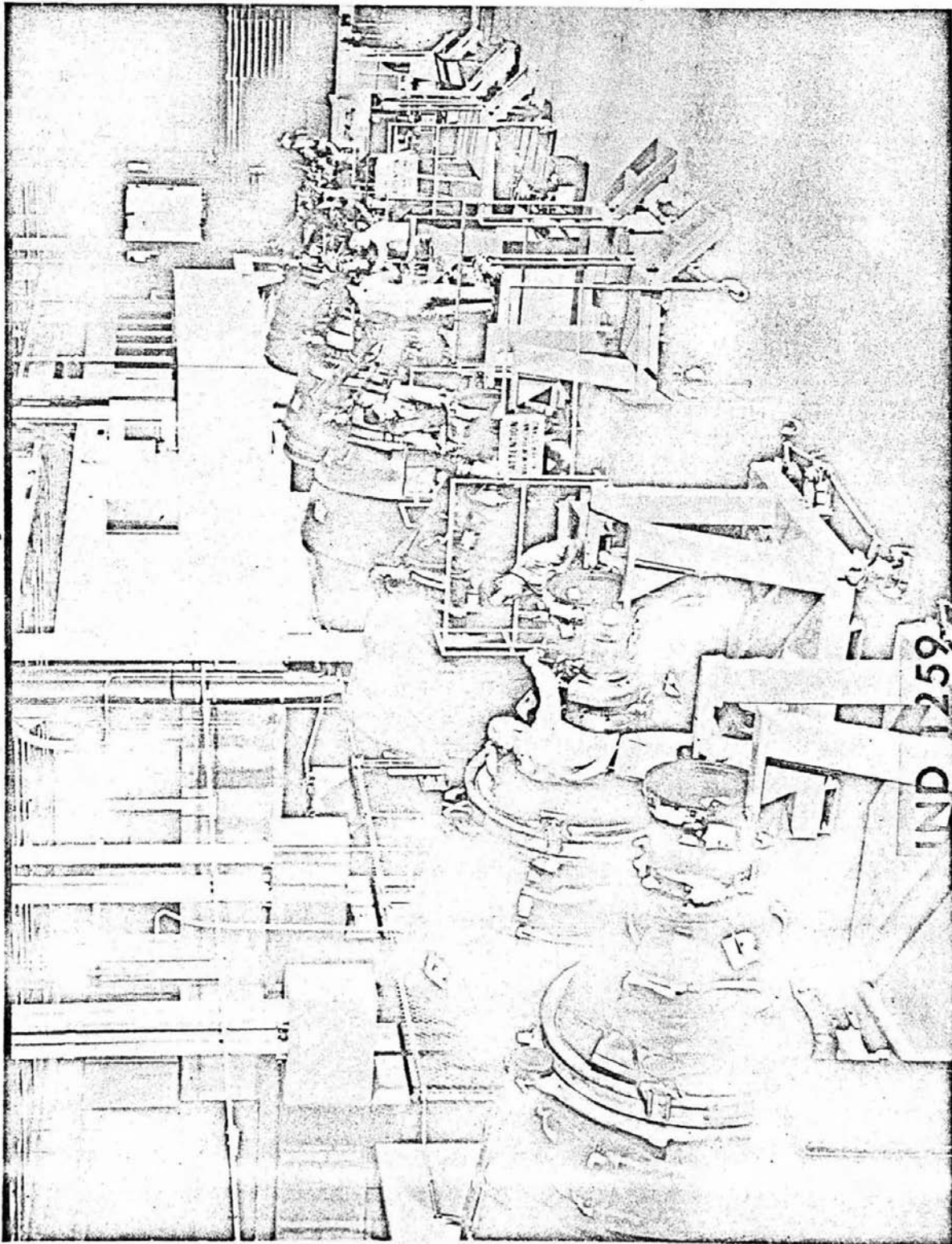


IND 1293

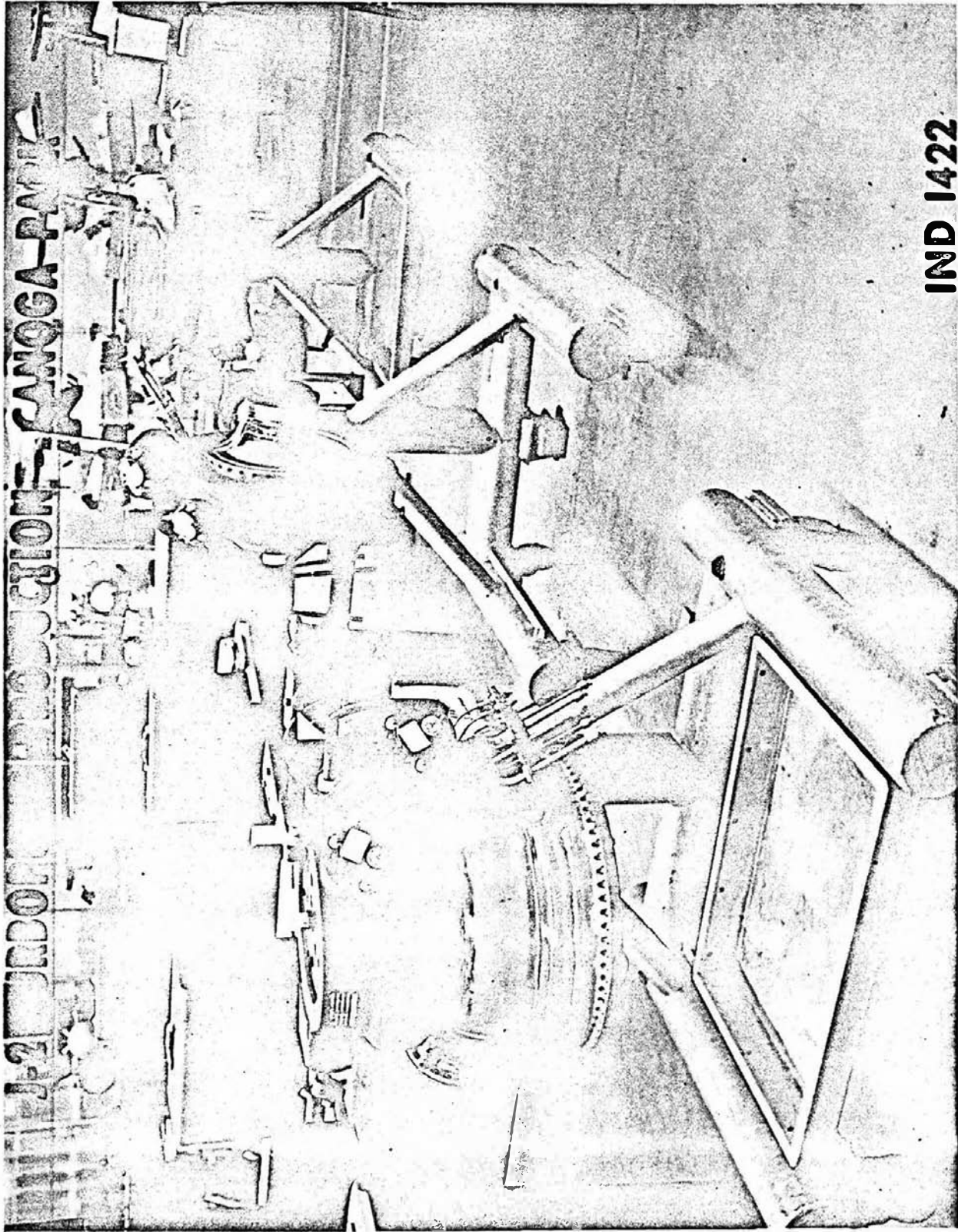
CHECKOUT S-IVB B/S J-2 ENGINE - SACTO



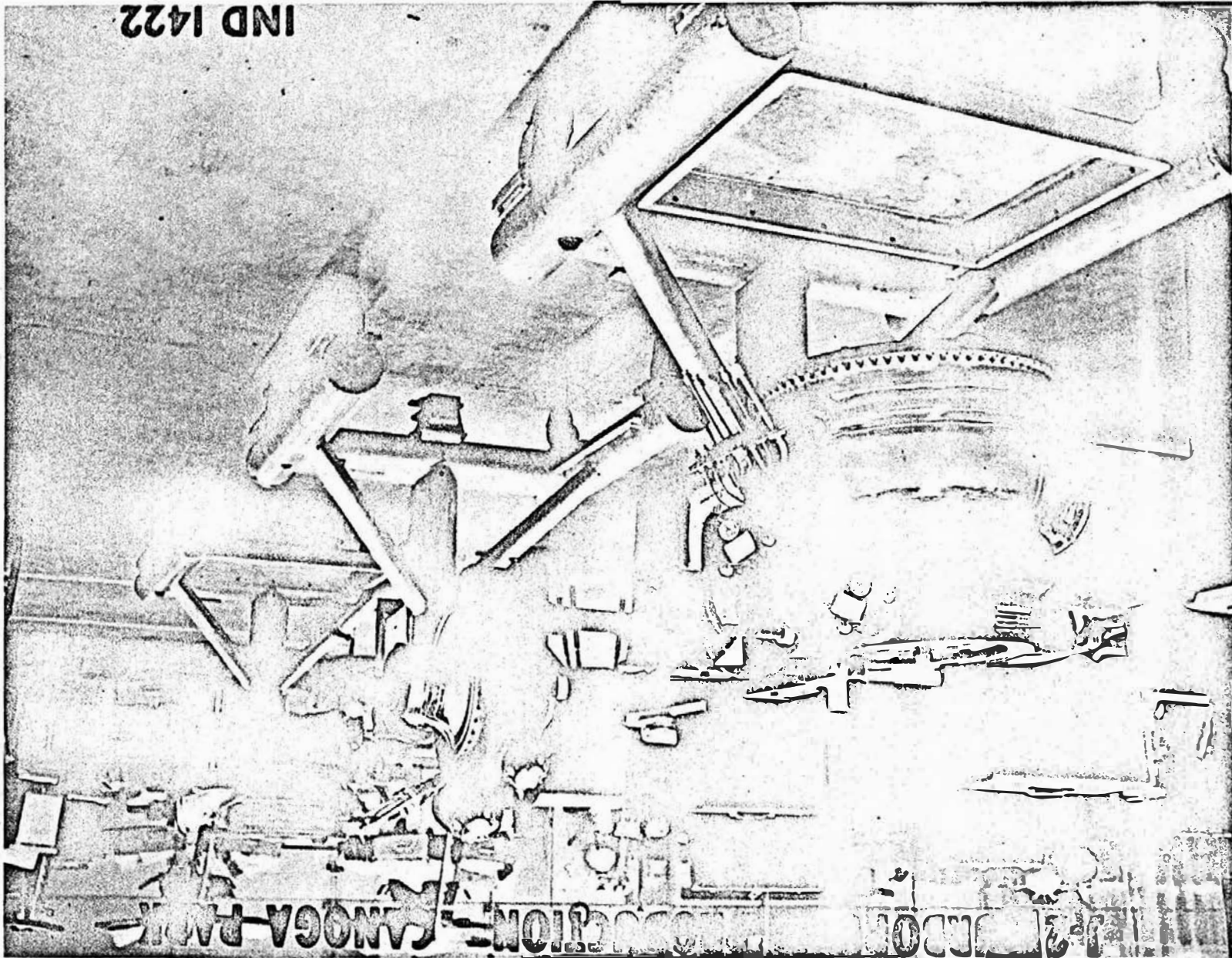
J-2 PRODUCTION LINE, CANOGA PARK

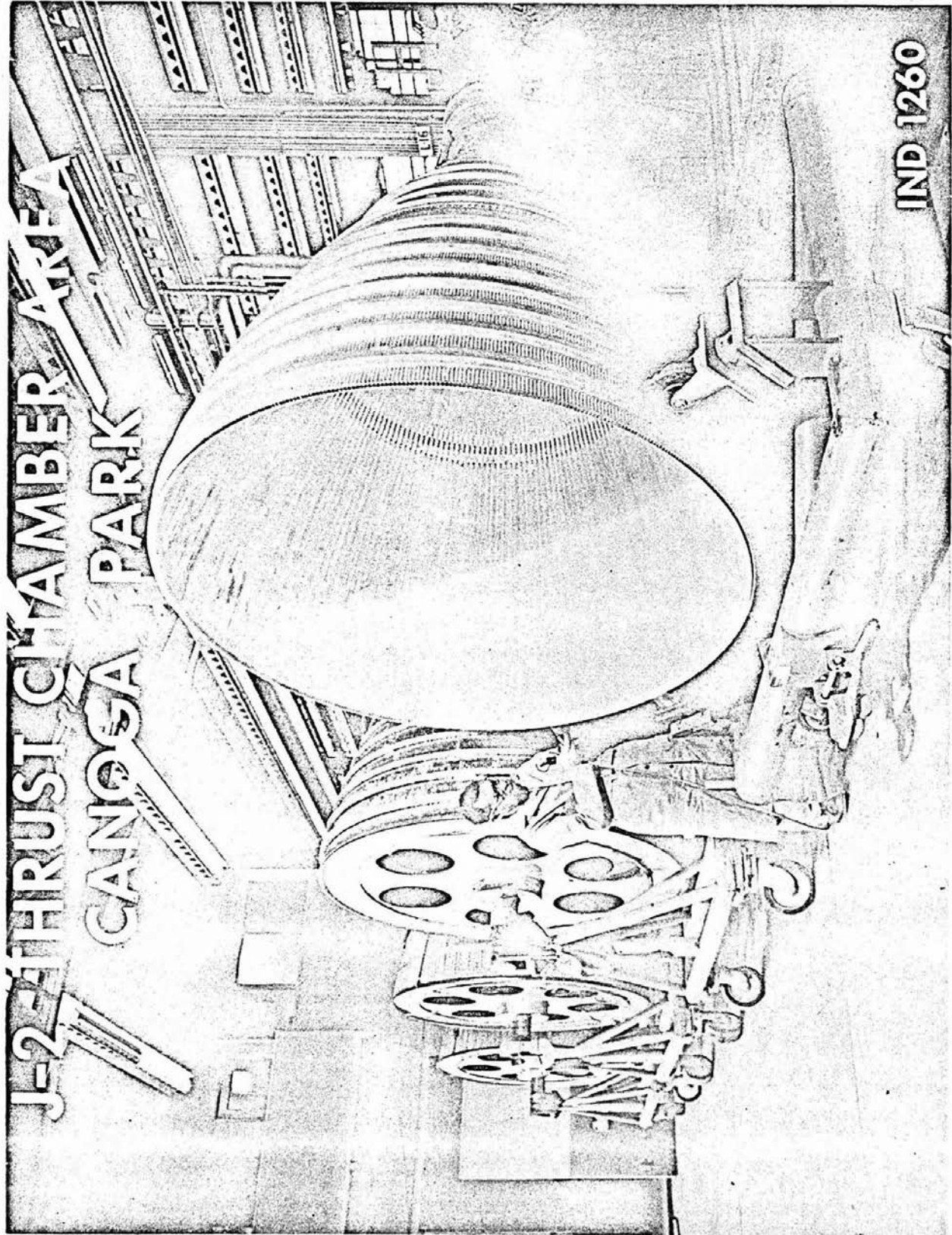


IND 259



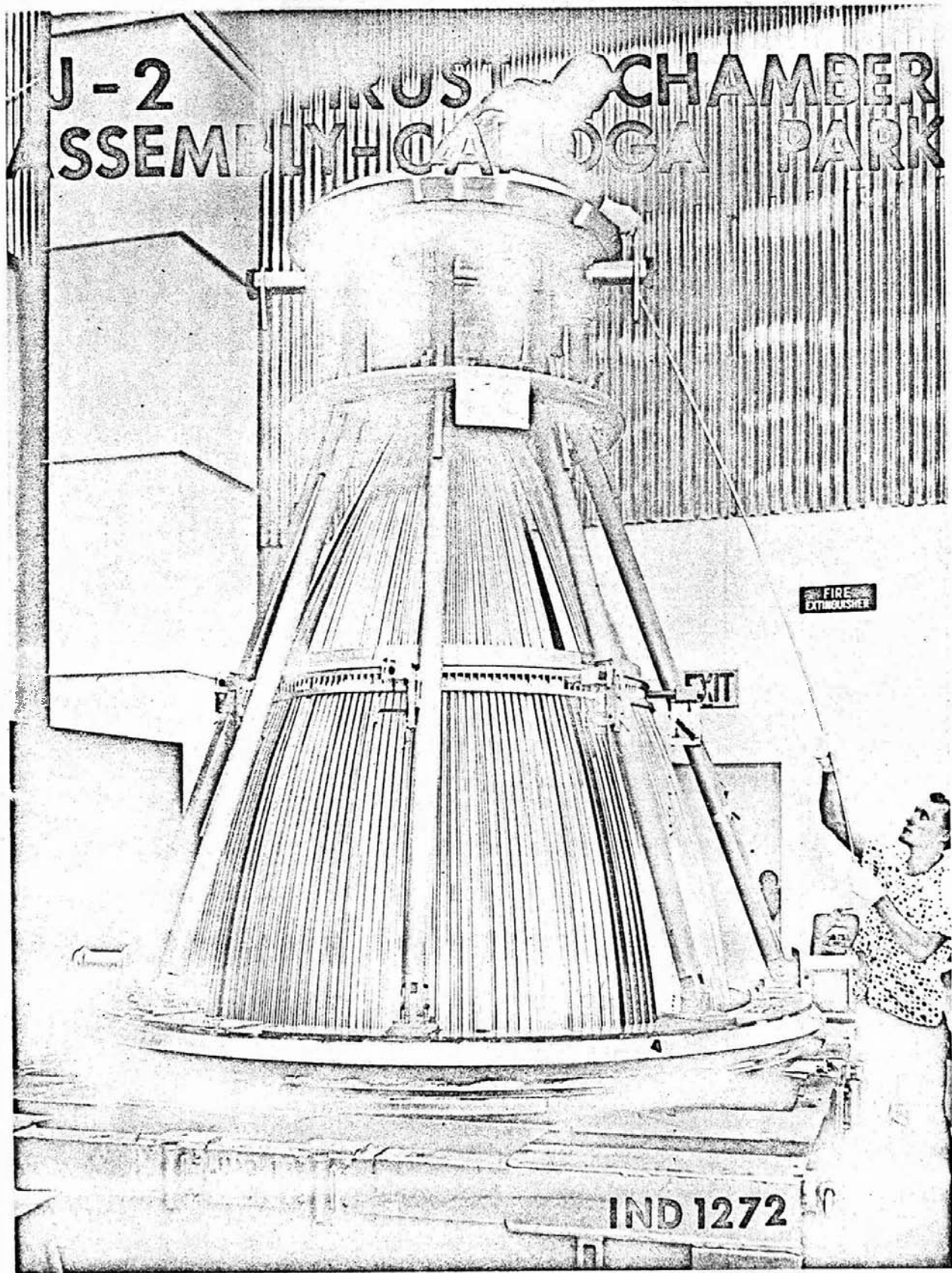
IND 1422



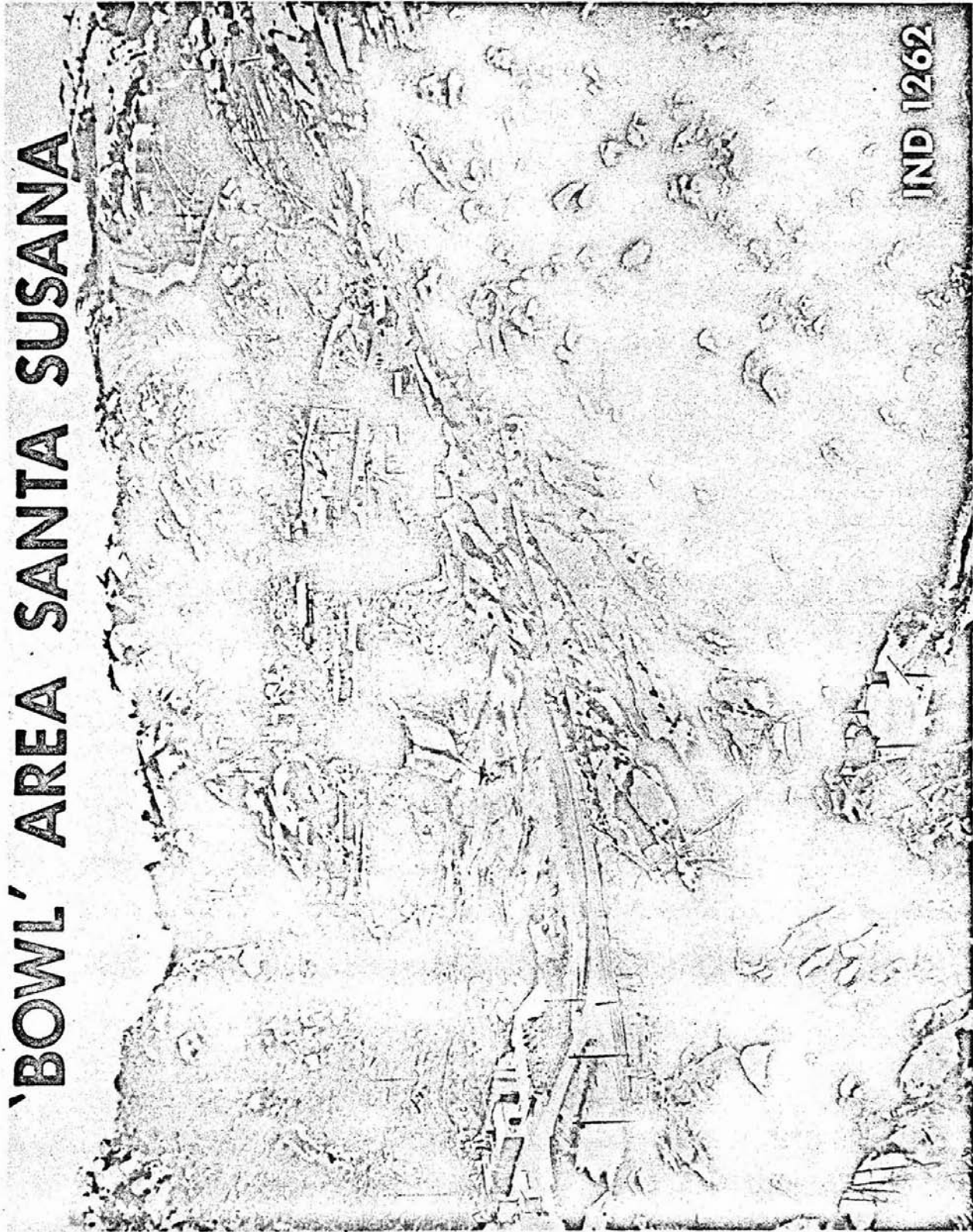


J-2 THRUST CHAMBER AREA
CANGGA PARK

IND 1260

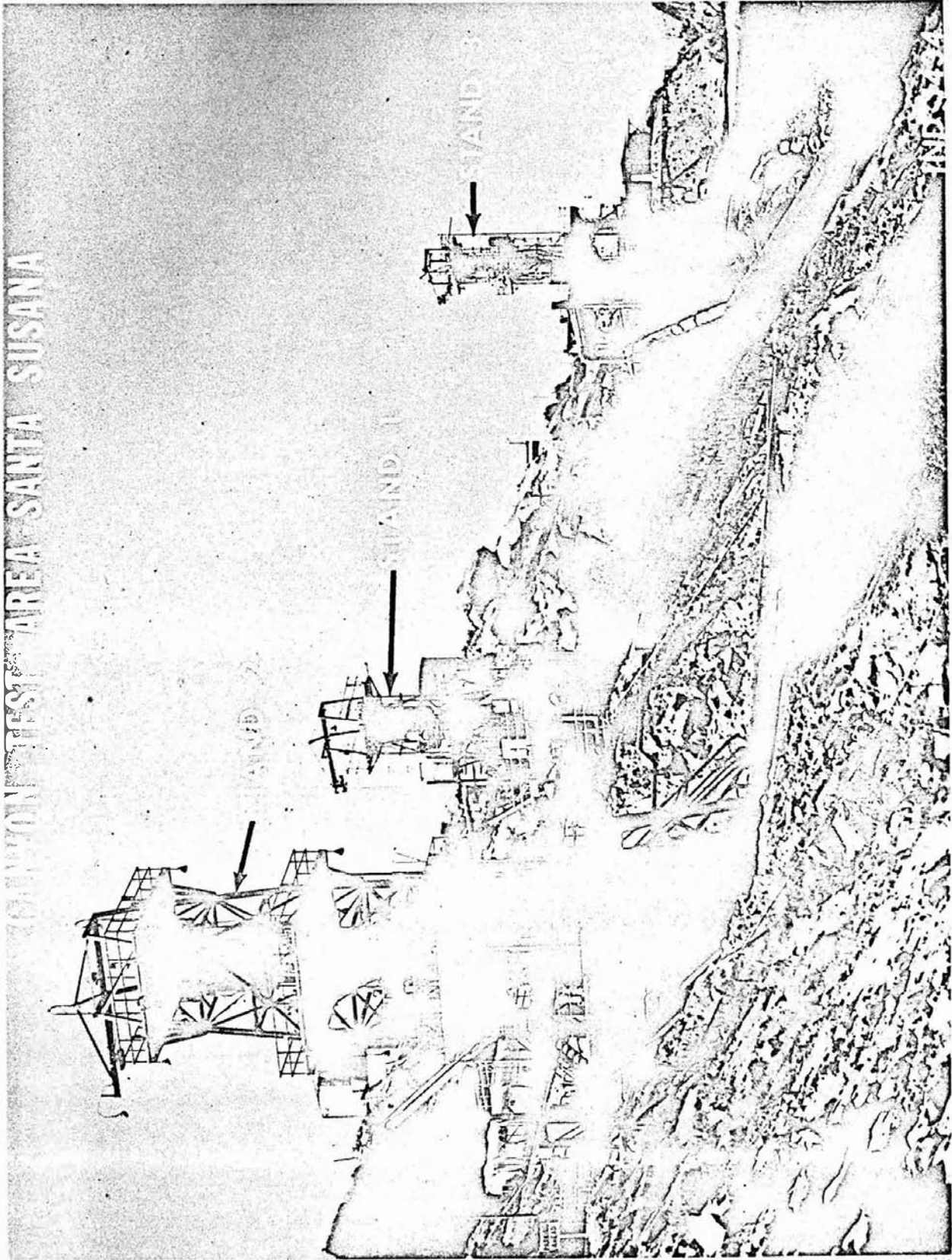


'BOWL' AREA SANTA SUSANA



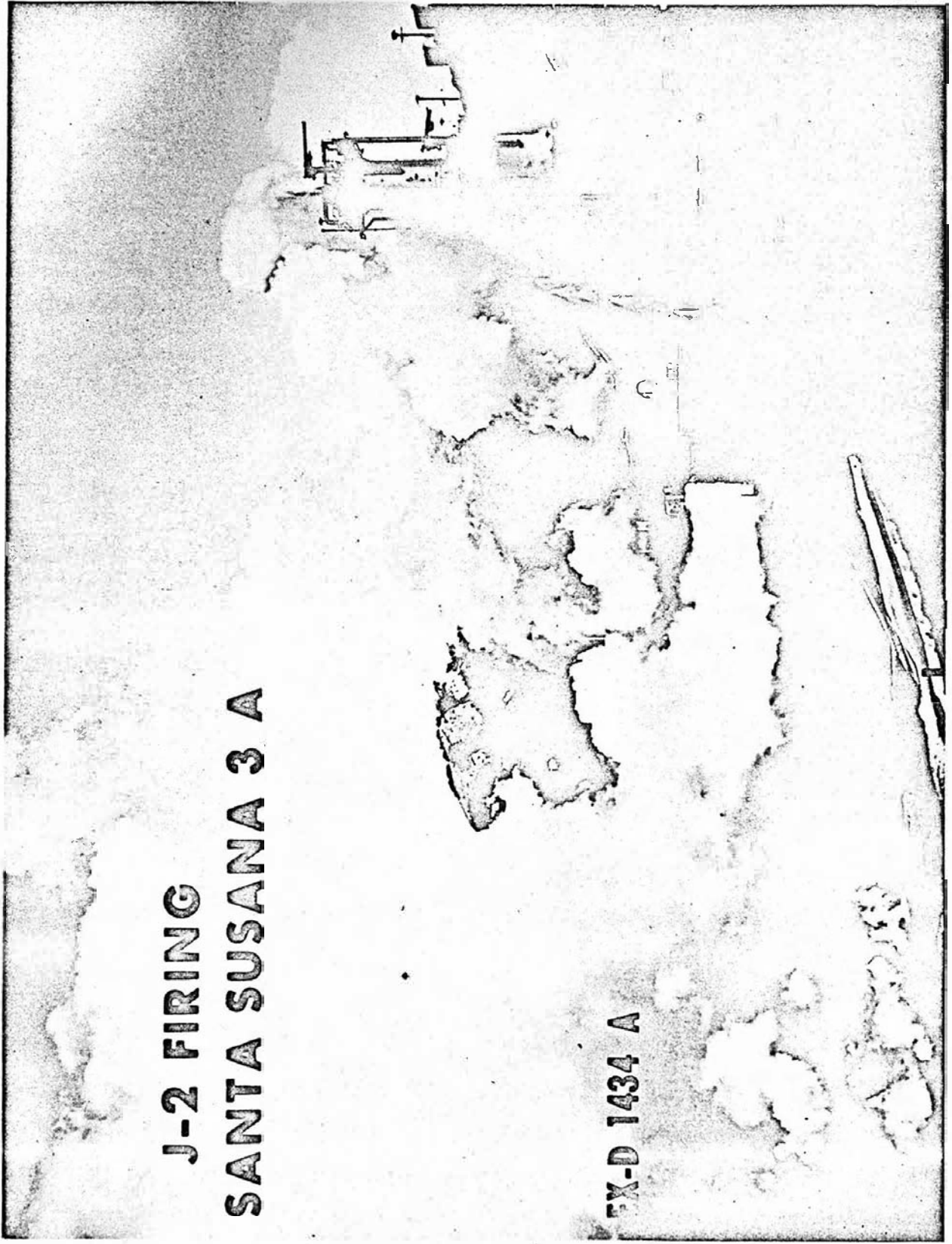
IND 1262

NEWTON TEST AREA SANTA SUSANA



**J-2 FIRING
SANTA SUSANA 3 A**

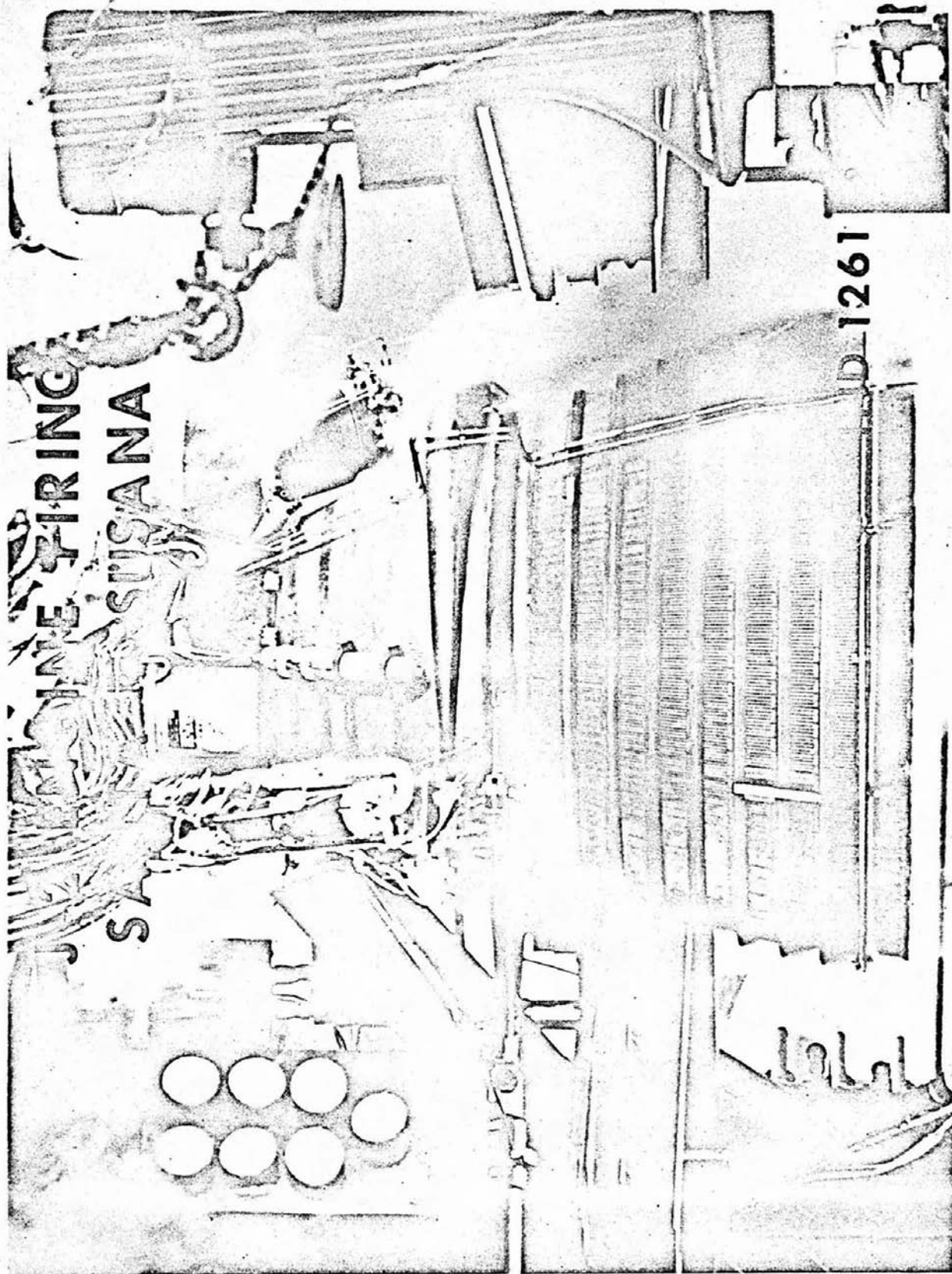
FX-D 1434 A



**J-2 ENGINE 500 SEC. FIRING
DELTA 2 STD. SANTA SUSANA**



IND 1263



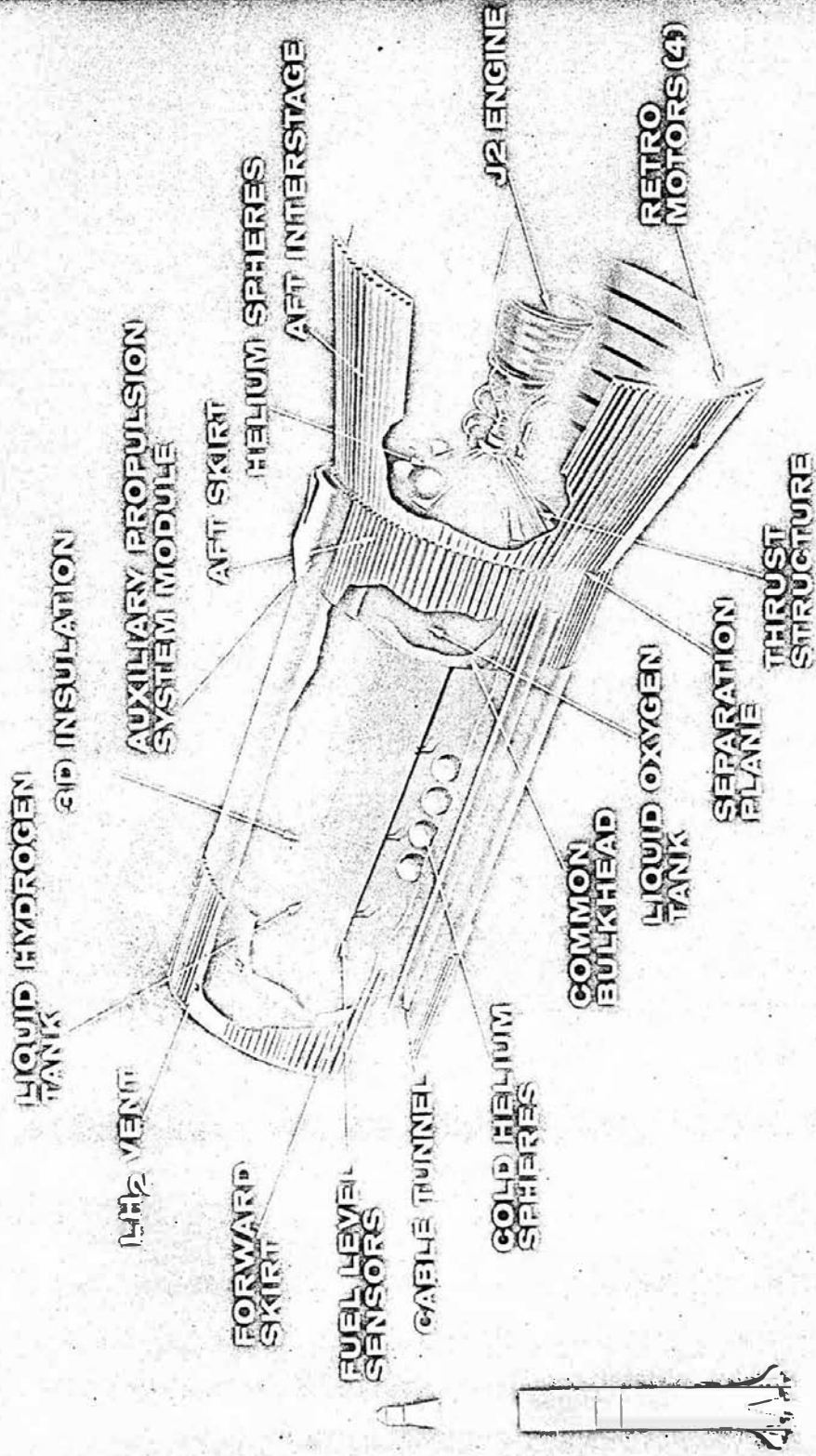
JANE FIRING
SUSANA

D-1261

S-IVB STAGE

SATURN IV

S-IVB STAGE



MS-C-877-63
OCT 1968 EXCD 1231
R-PR-VE-VI GRNER

SATURN V 3rd STAGE (S-IVB)

CONTRACTOR: DOUGLAS

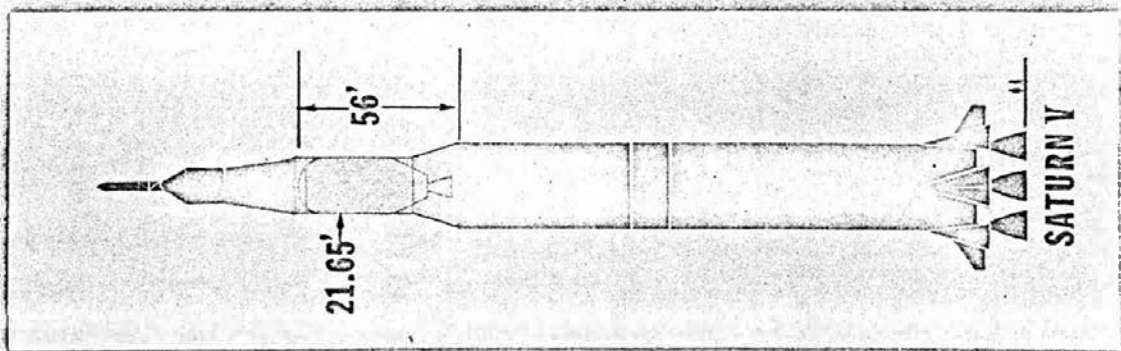
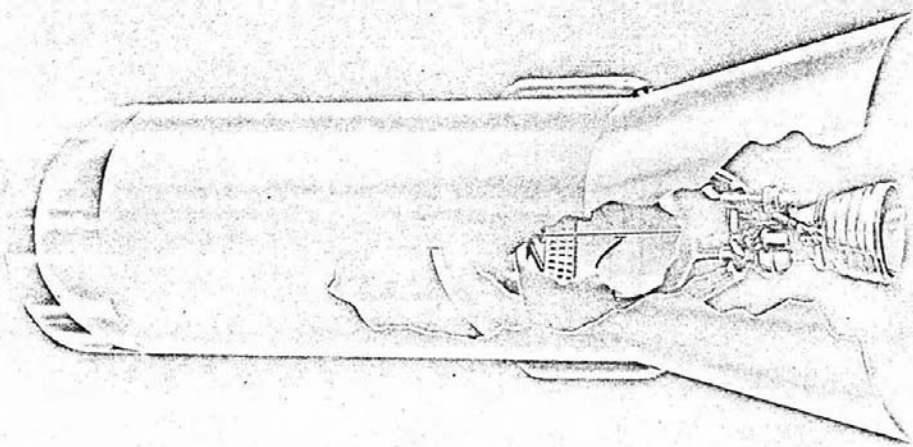
PRODUCTION: HUNTINGTON BEACH
R & D: HUNTINGTON BEACH
OPERATIONAL: 1967

ENGINES: 1-12

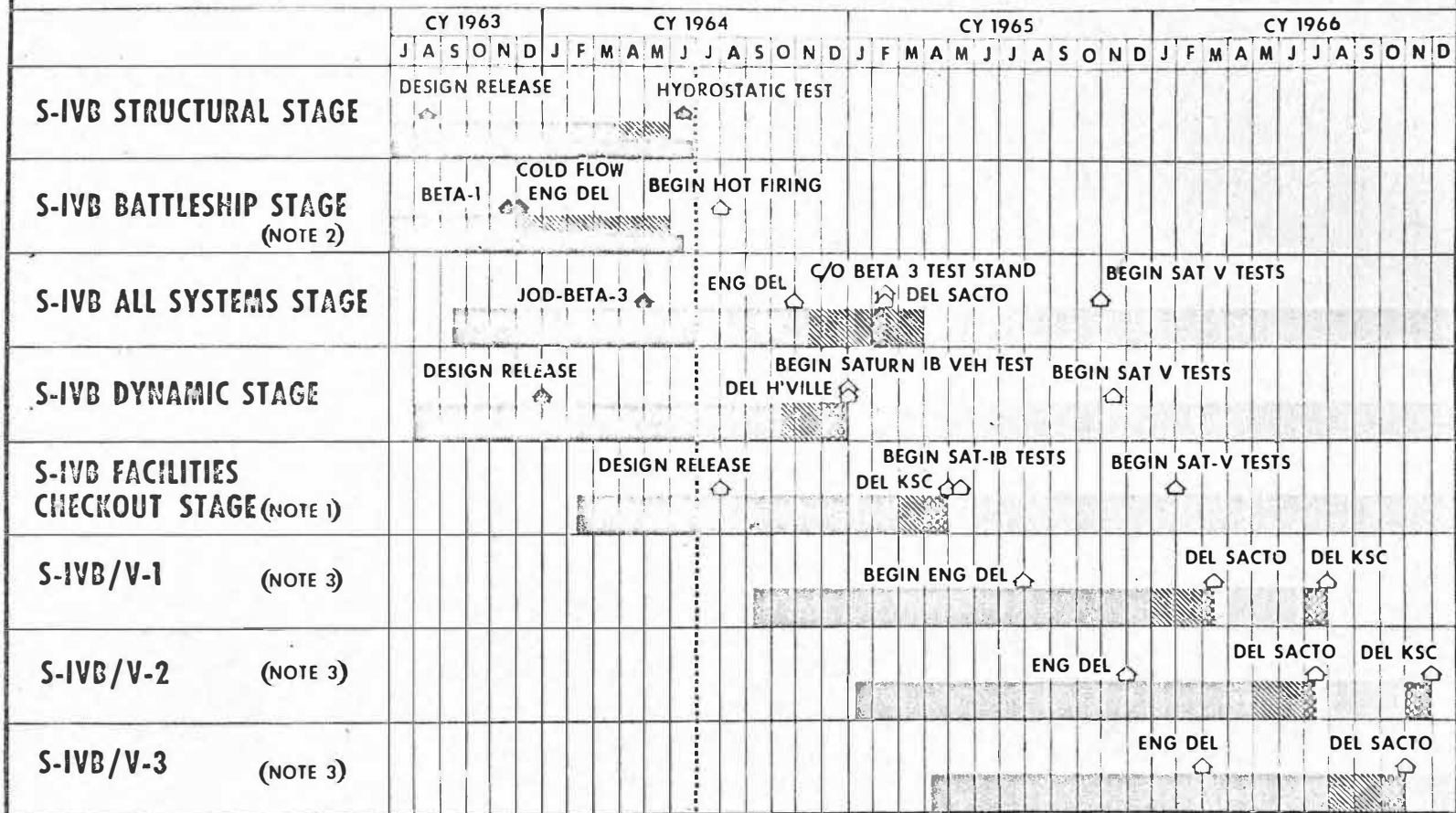
PROPELLANT: LOX/LH₂

THRUST: 200,000 LBS
(VACUUM)

MS-G-88-7-62
E-D 1286A



SATURN V/S-IVB STAGE SUMMARY SCHEDULE



NOTES

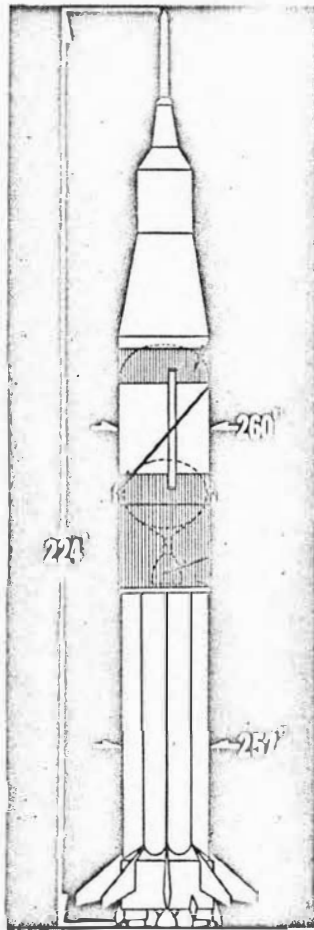
1. INITIAL TESTING FOR COMPLEX 37, FOLLOWED BY TESTING FOR COMPLEX 39
2. LATE DELIVERY OF STAGE SYSTEM COMPONENTS DELAYED BEGINNING HOT FIRING FROM JULY TO AUGUST
3. DESIGN RELEASE CHANGED TO COINCIDE WITH COMPLETION OF STRUCTURAL ASSEMBLY OPERATIONS.

FAB & ASSEMBLY	STORAGE
CHECKOUT	PROGRESS
PREP TEST	CURRENT SCHEDULE
MOD REPAIR	EVENT ACCOMPLISHED
PREP SHIP	

I-V-S IVB JULY 1, 1964, IND 1201G

S-IV B DIFFERENCES

SATURN IB VS SATURN V



SATURN IB

FORWARD SKIRT

SATURN IB LIGHTER 165 LBS - LIGHTER PAYLOAD

AUXILIARY PROPULSION SYSTEM

SATURN IB LIGHTER 384 LBS - ATTITUDE CONTROL, ULLAGE AND VENTING REQUIREMENT LESS ON SATURN IB THAN ON SATURN V.

AFT SKIRT

SATURN IB LIGHTER 670 LBS - LIGHTER PAYLOAD

PROPULSION SYSTEM

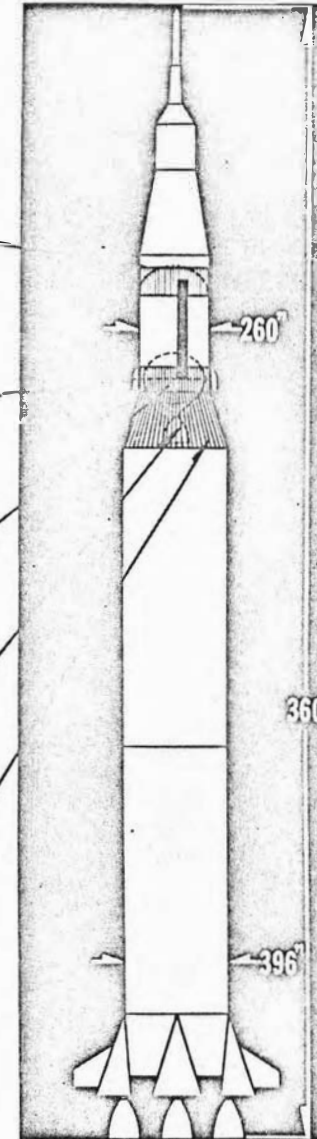
SATURN IB LIGHTER 1430 LBS - LESS HELIUM STORAGE REQUIRED SINCE ENGINE WILL NOT BE RESTARTED IN ORBIT.

INTERSTAGE

SATURN IB LIGHTER 1855 LBS - 260" DIAMETER. SATURN V FLARED FROM 260" DIA. TO 396" DIA.

ELECTRICAL SYSTEM

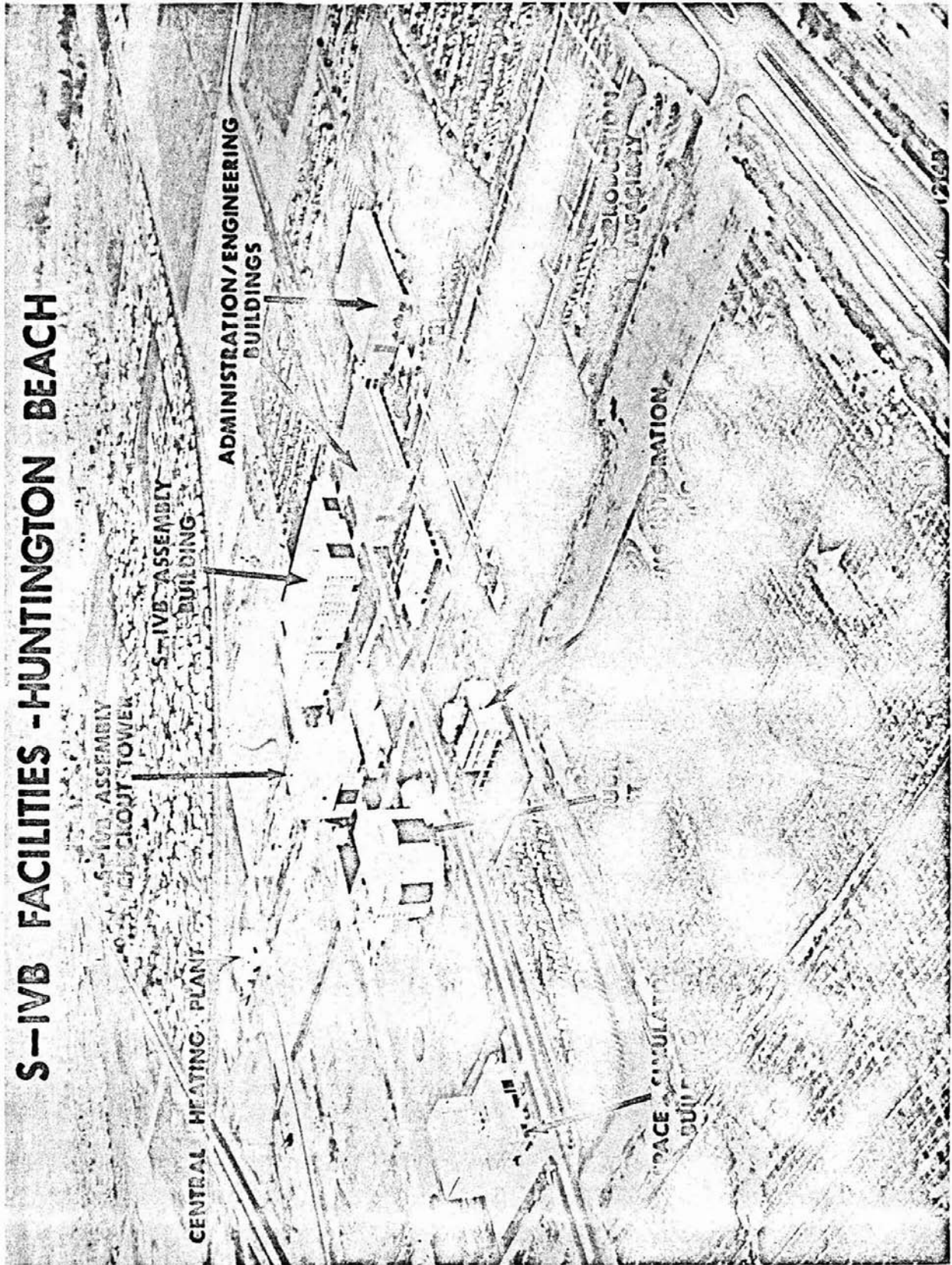
SATURN IB LIGHTER 80 LBS - ORBITAL COAST, VENTING, RESTART ETC. REQUIRES MORE POWER FOR SATURN V.

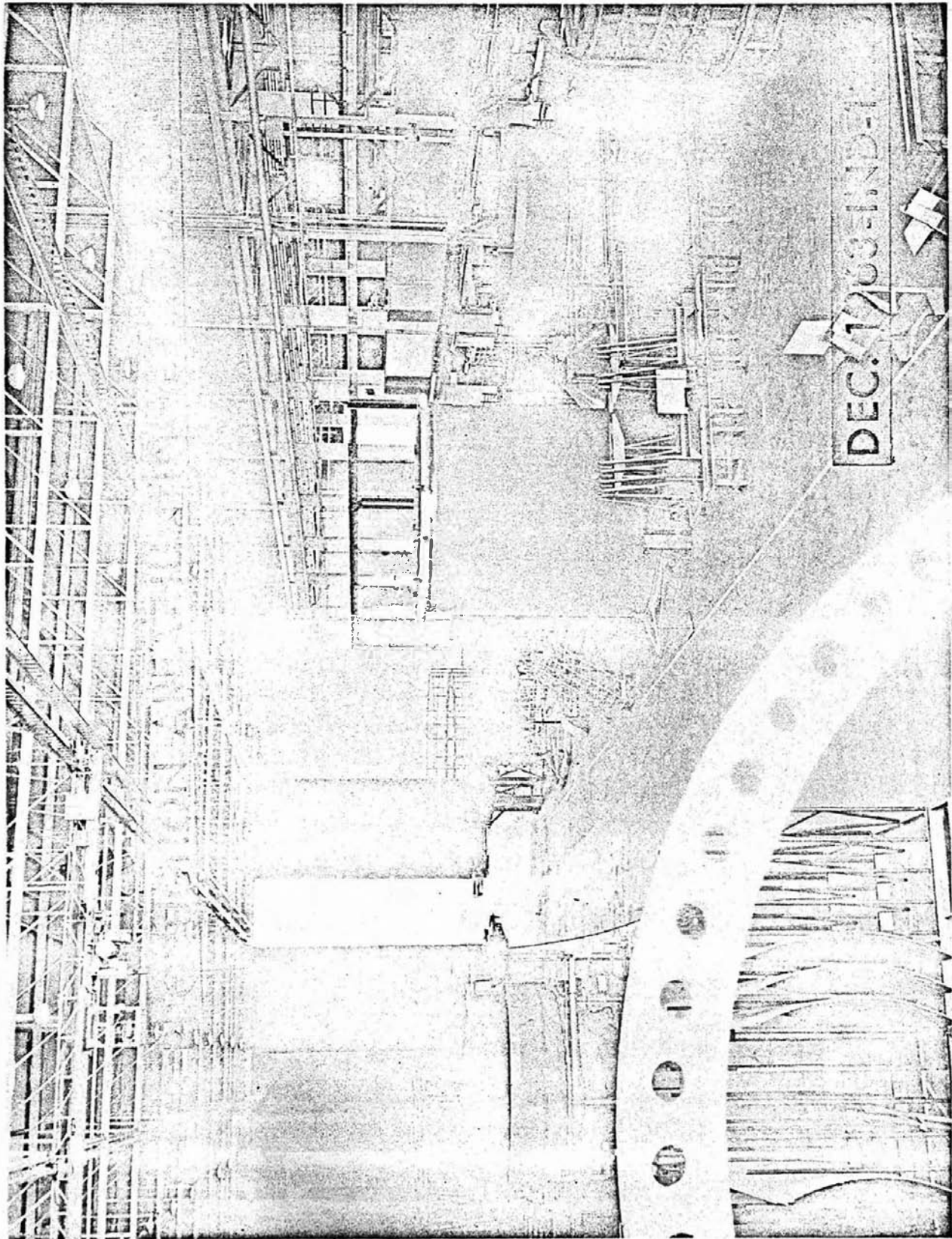


SATURN V

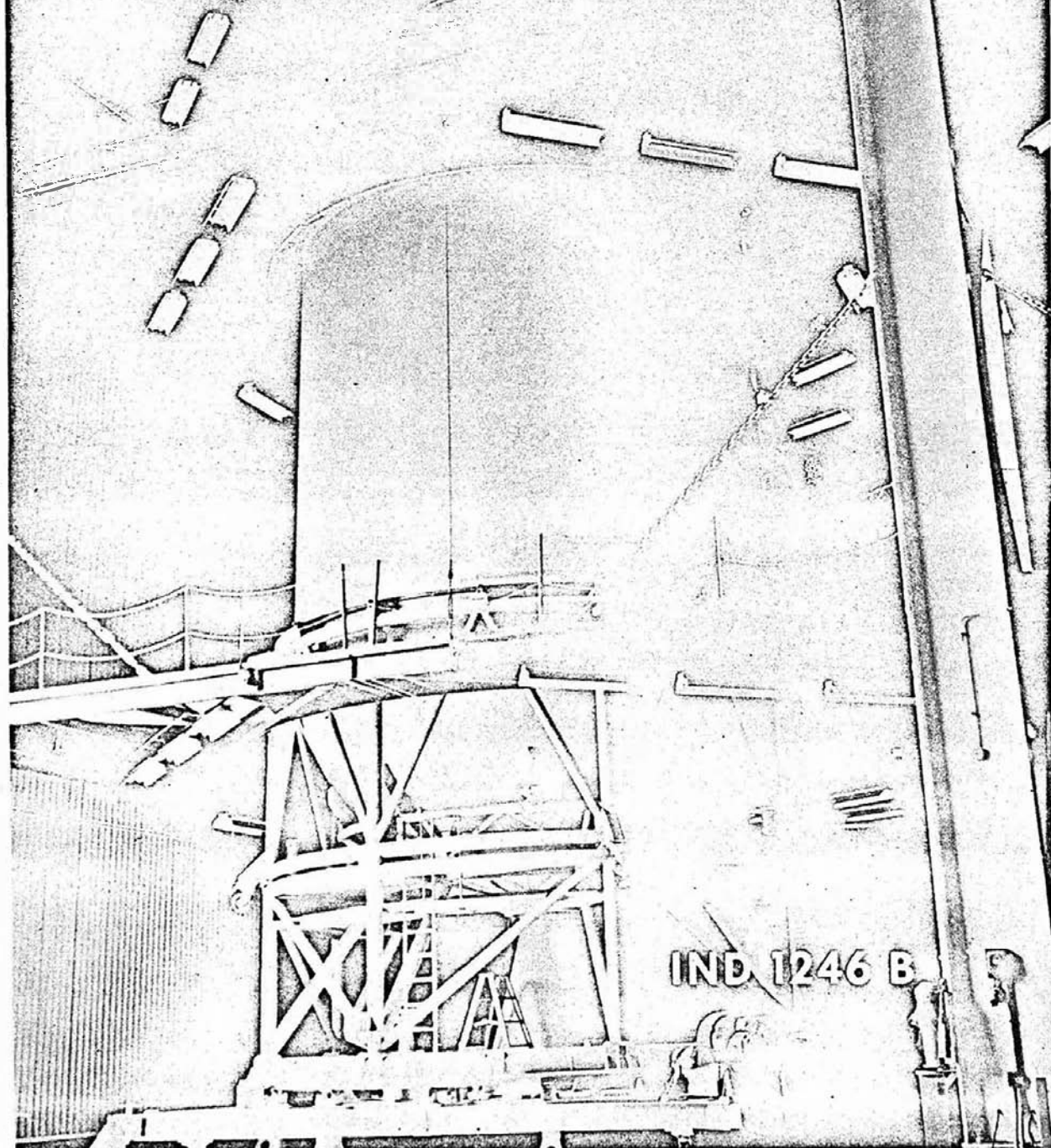
MARCH 23, 1964 IND-1279A

S-IVB FACILITIES - HUNTINGTON BEACH



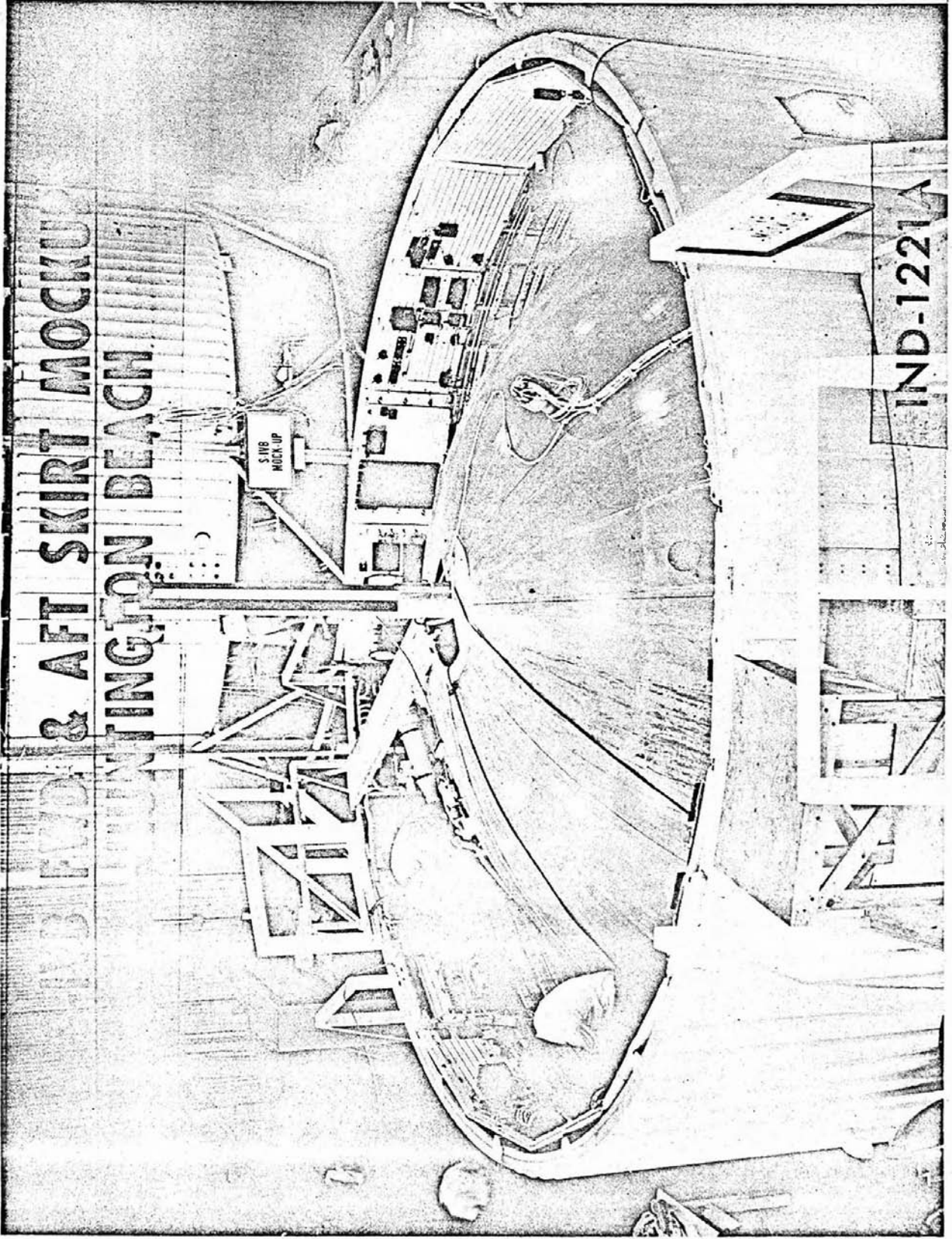


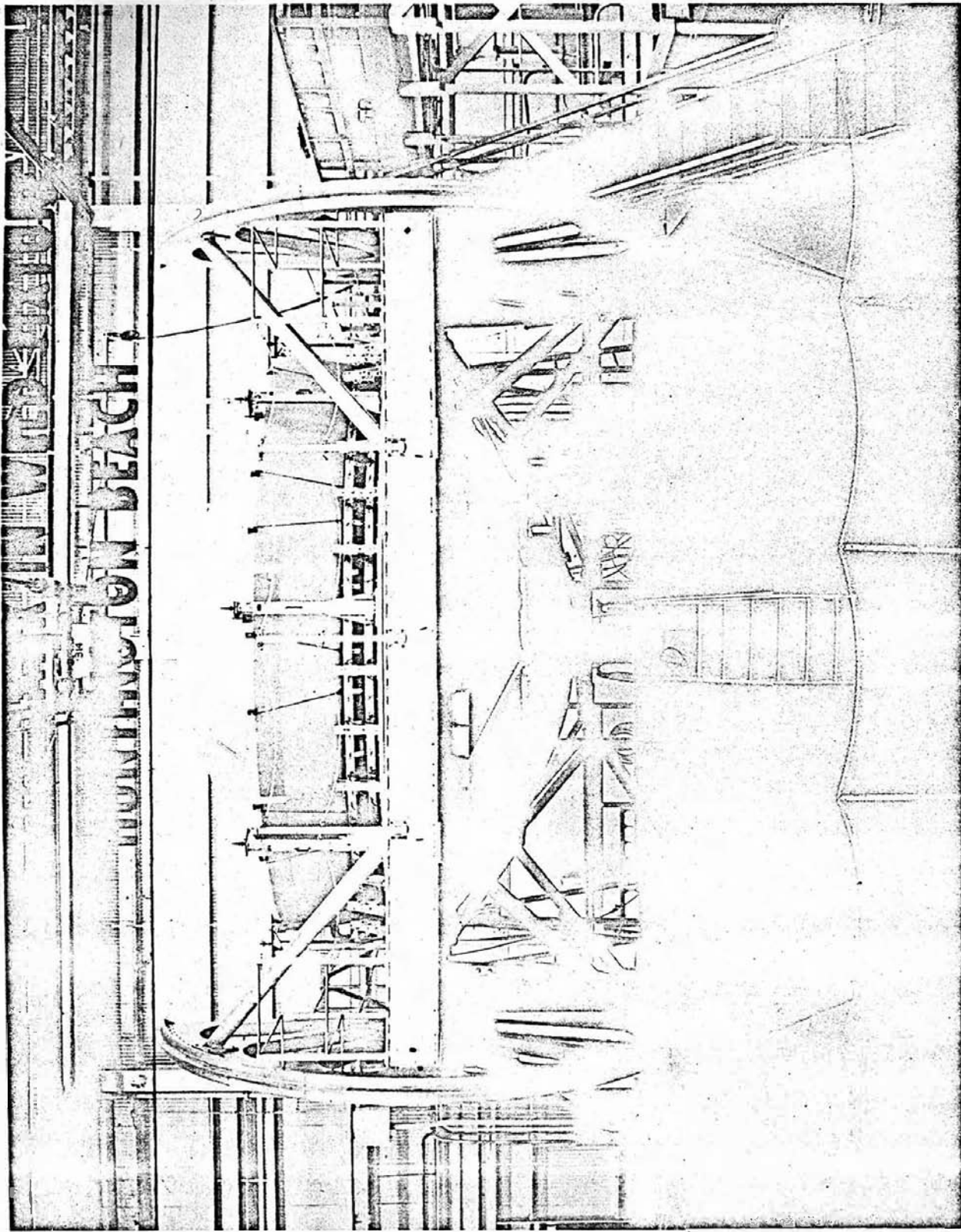
S-IVB-S IN ASSEMBLY TOWER-HUNTINGTON BEACH



101

IND 1246 B

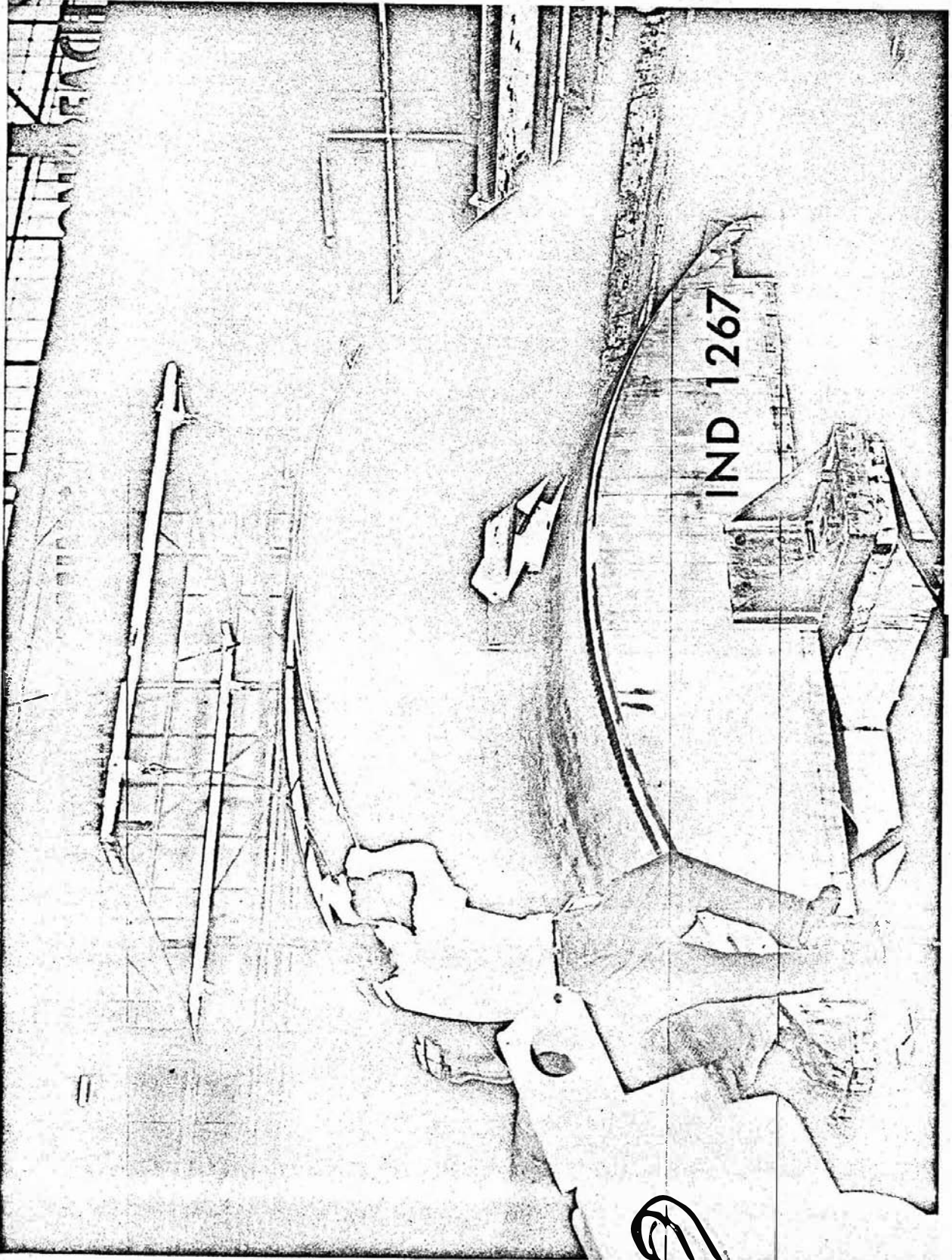




S-IVB A/S COMMON-DOME-HUNTINGTON BEACH

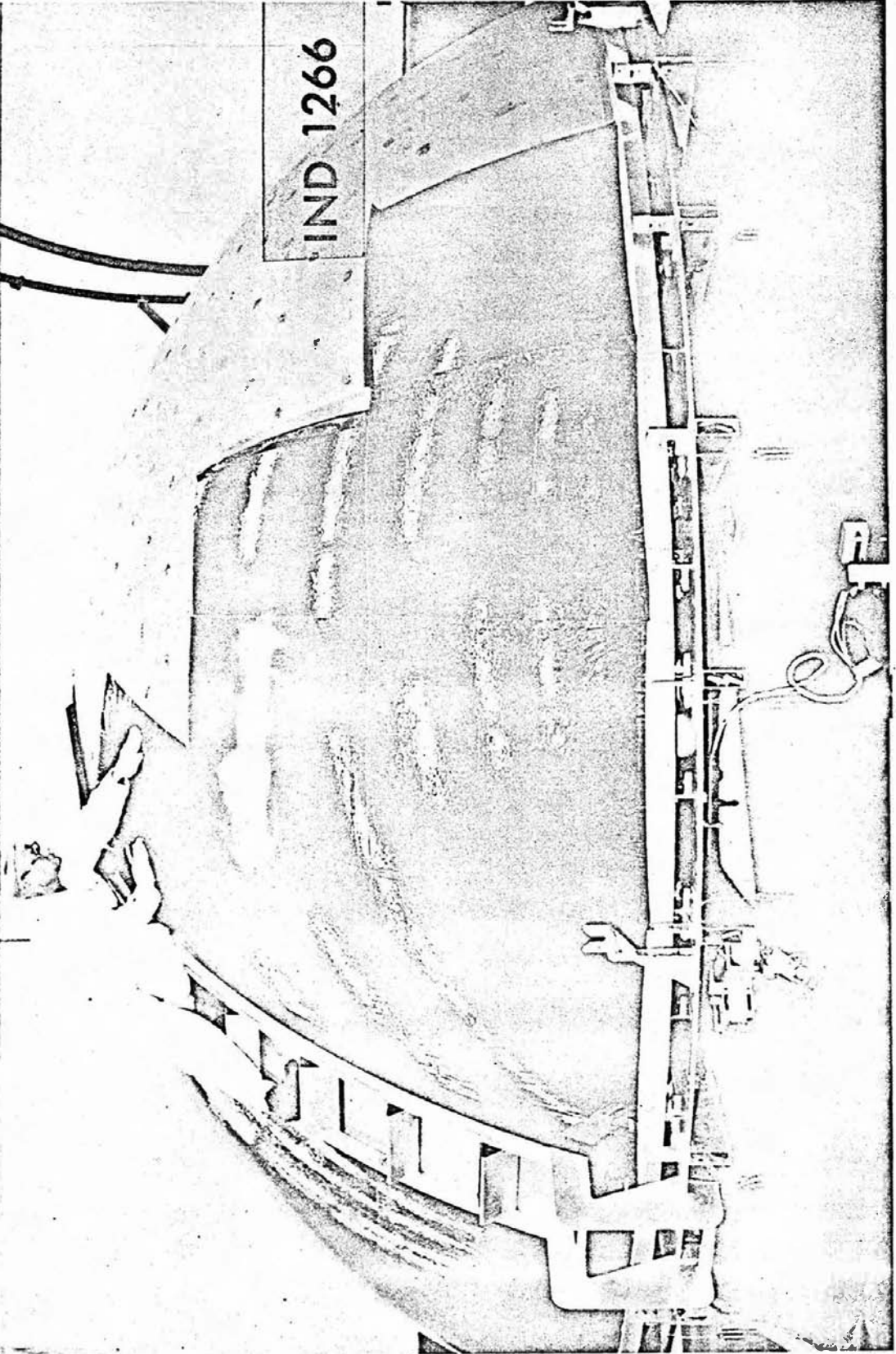


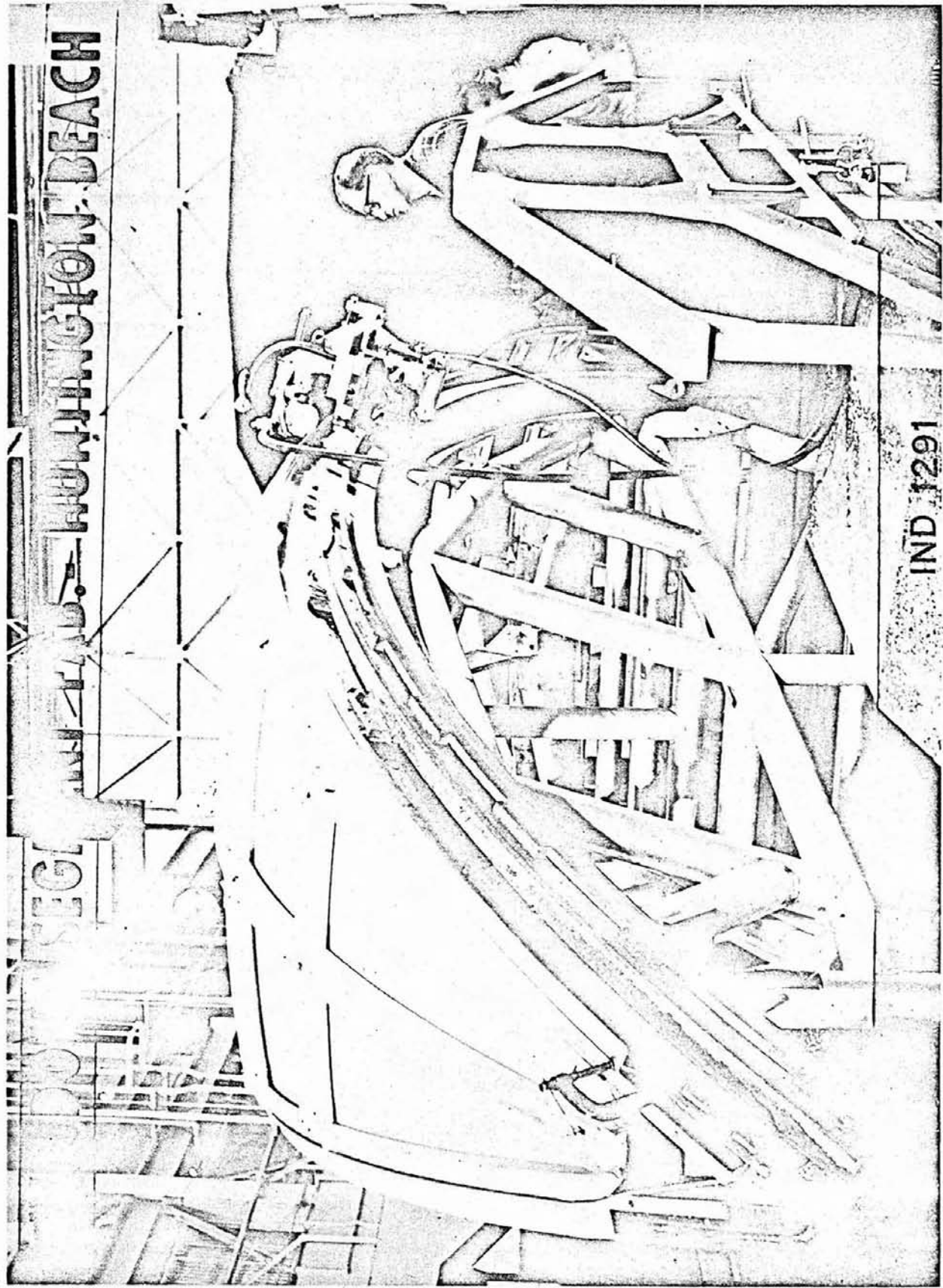
REF ID: A661250



IND 1267

**S-IVB COMMON DOME ADHESIVE APPLICATION-
HUNTINGTON BEACH**



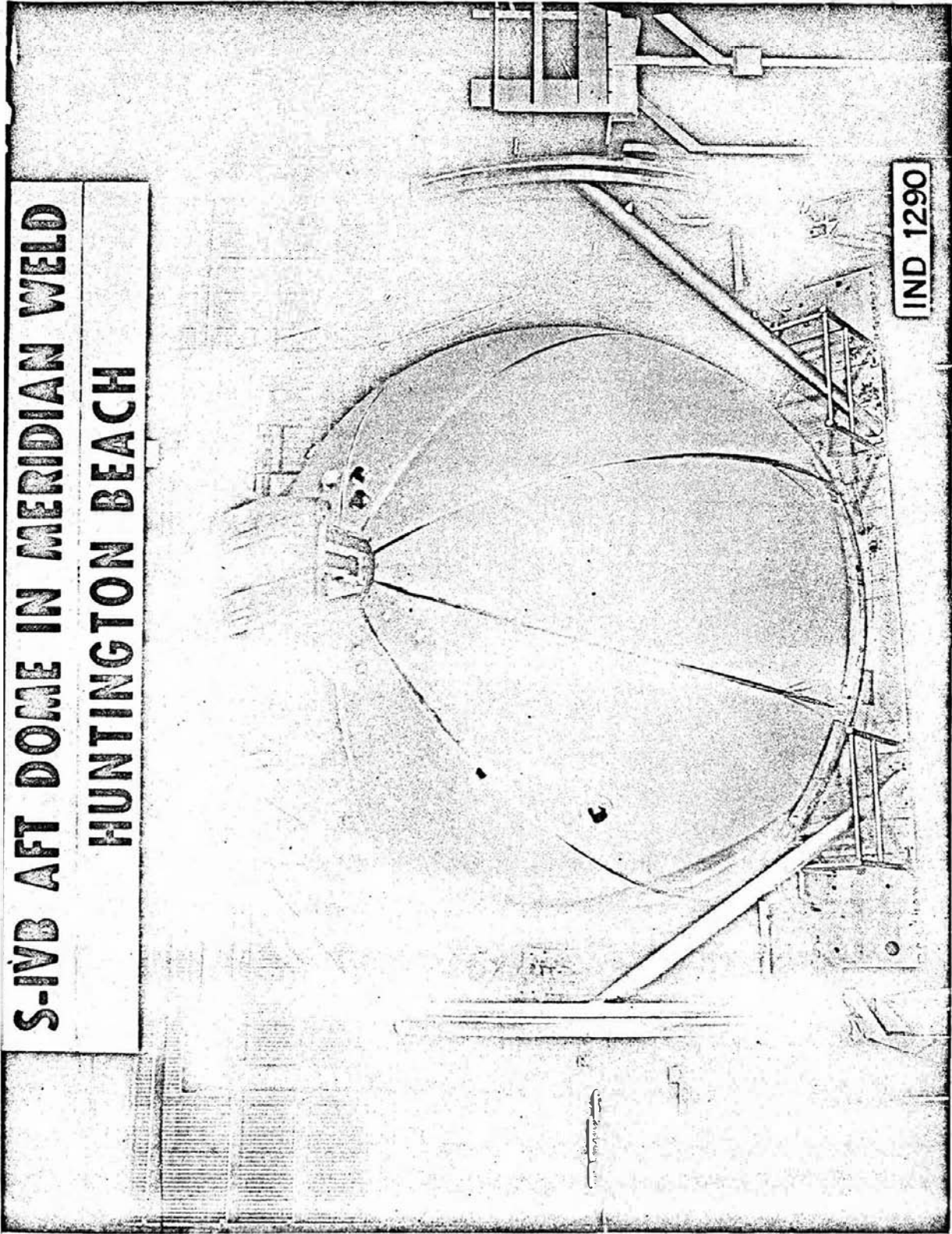


WASH. D.C. HUNTINGTON BEACH

SECT

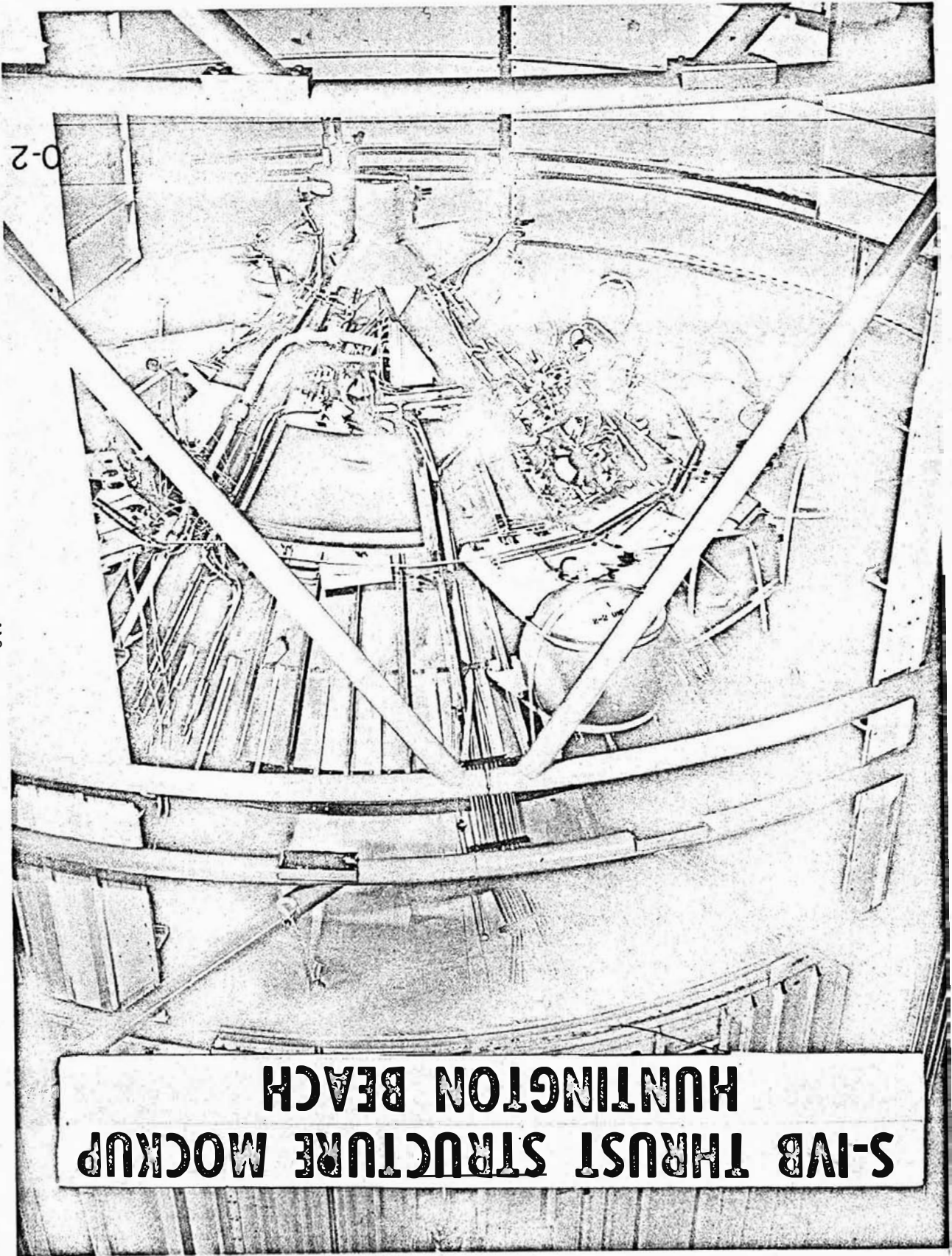
IND 1291

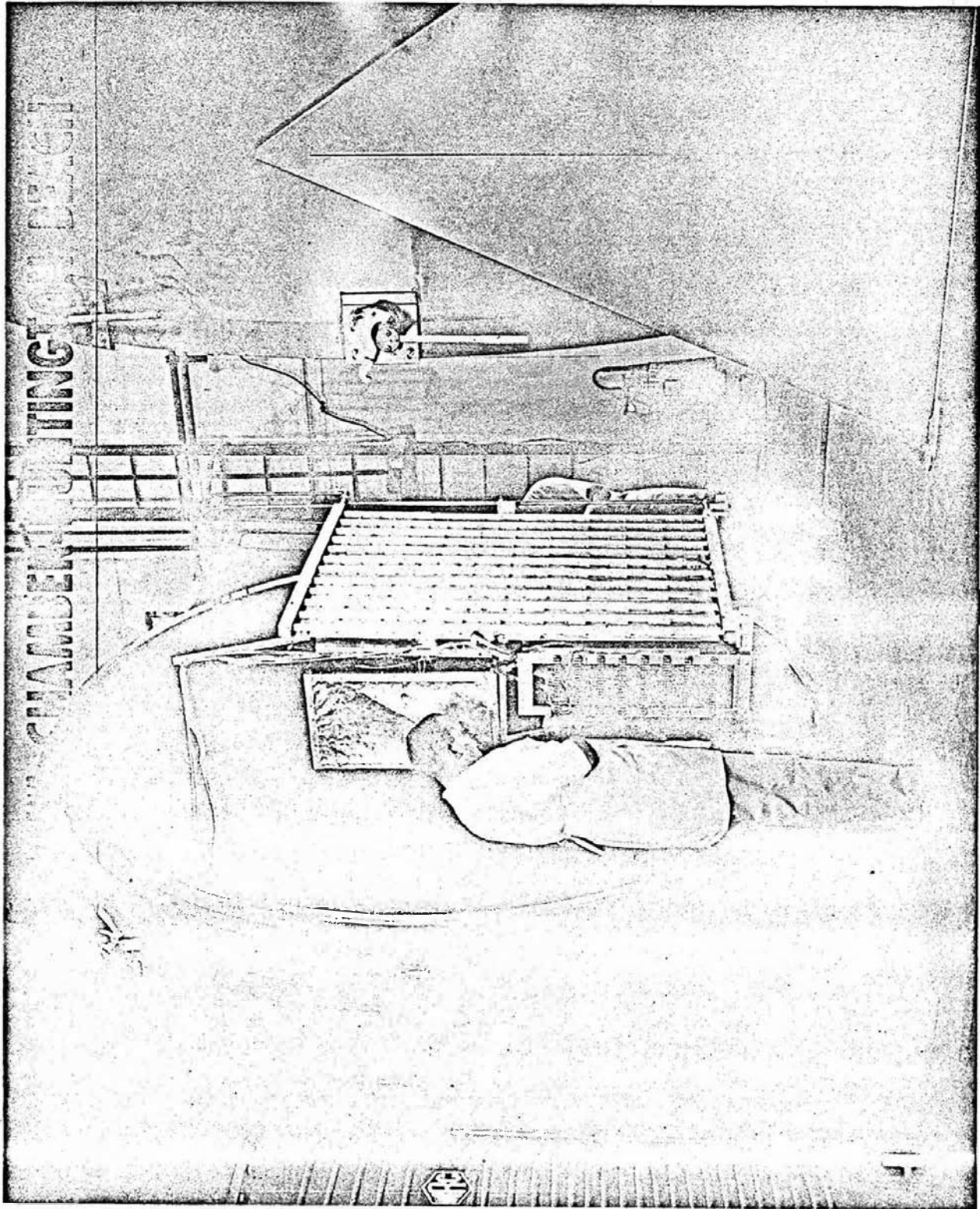
**S-IVB AFT DOME IN MERIDIAN WELD
HUNTINGTON BEACH**



IND 1290

**S-1VB THRUST STRUCTURE MOCKUP
HUNTINGTON BEACH**

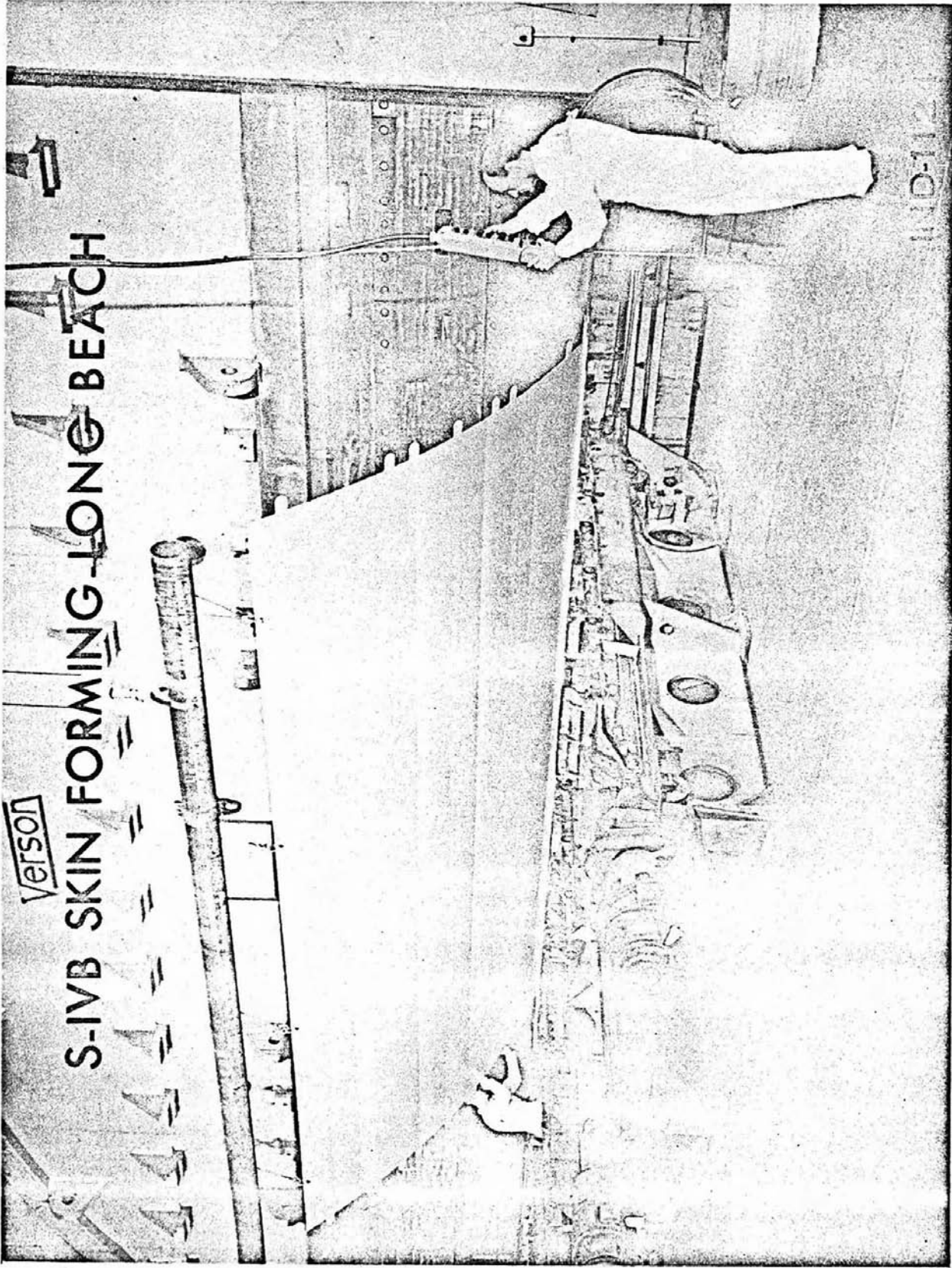




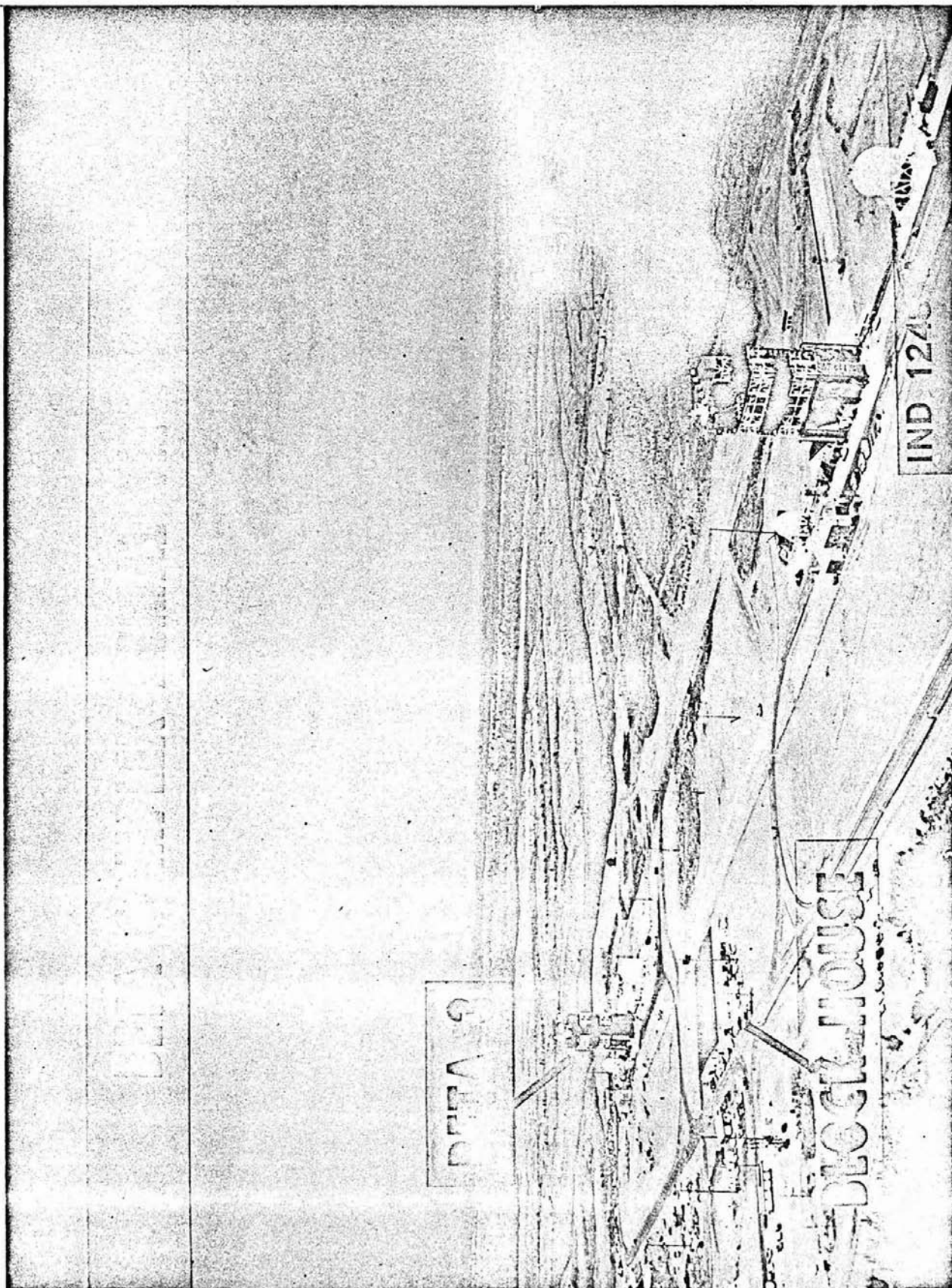
CHANDLER PRINTING DESIGN

Version

S-IVB SKIN FORMING LONG BEACH



W10-112

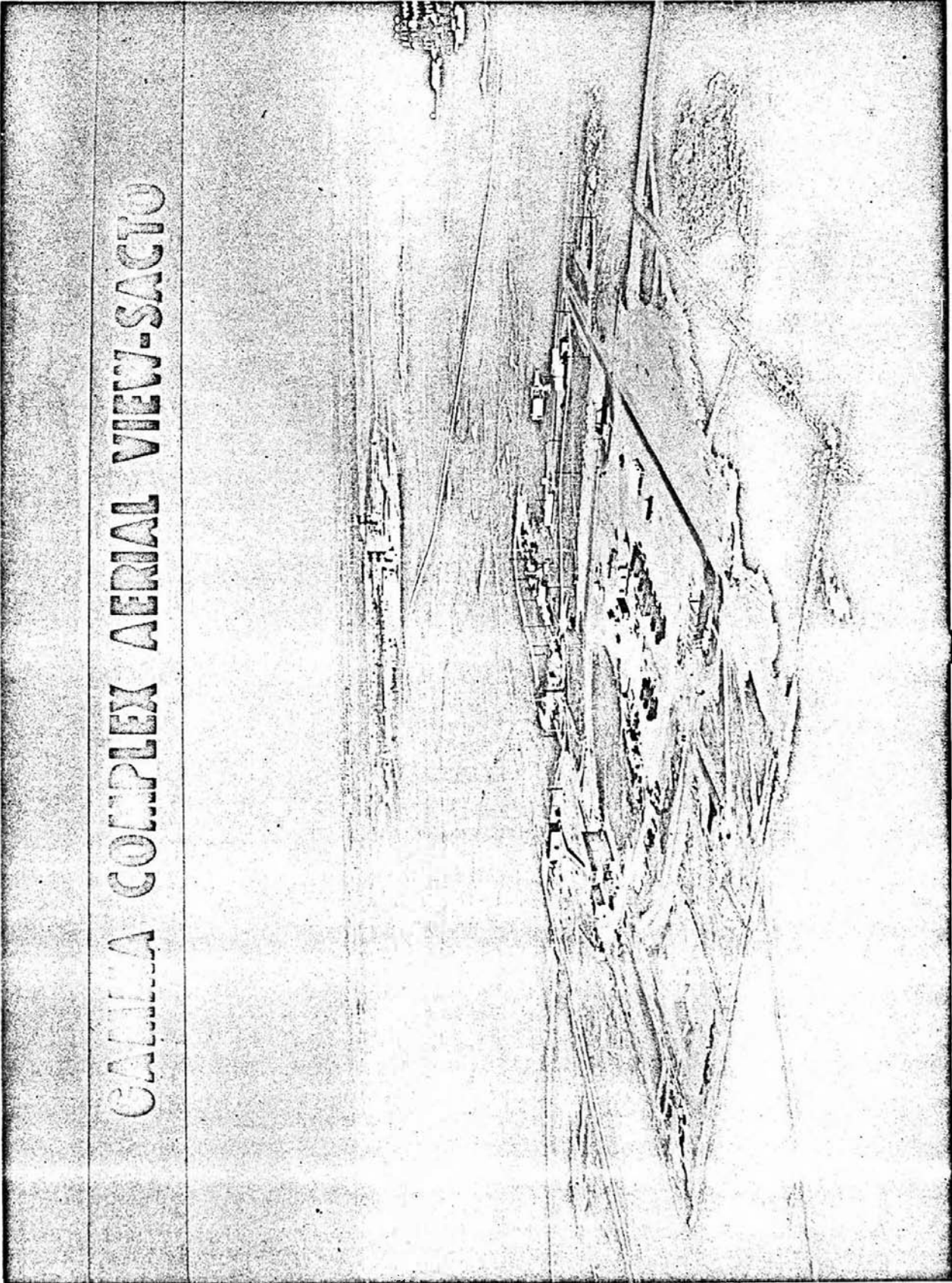


IND 127A

DATA 9

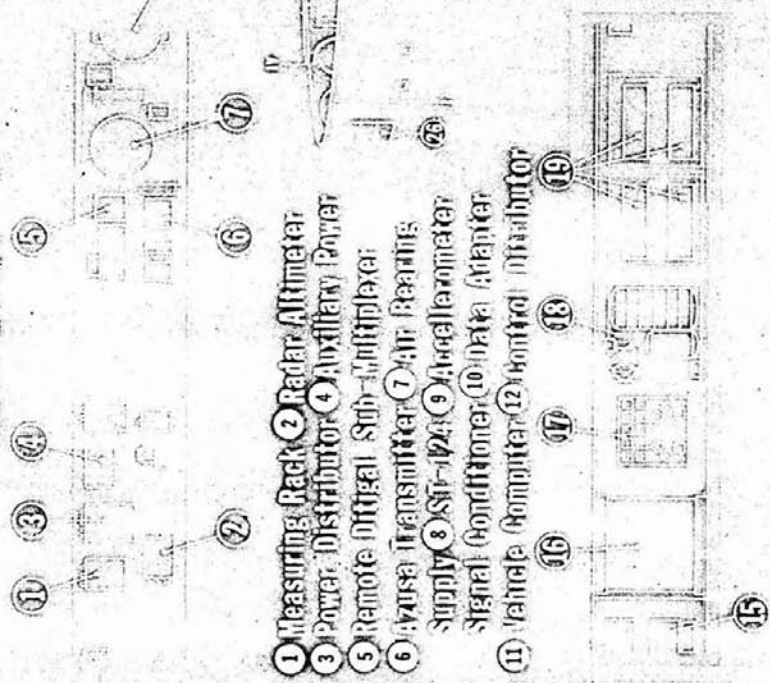
BLOCK HOUSE

CALIMA COMPLEX AERIAL VIEW-SACTO

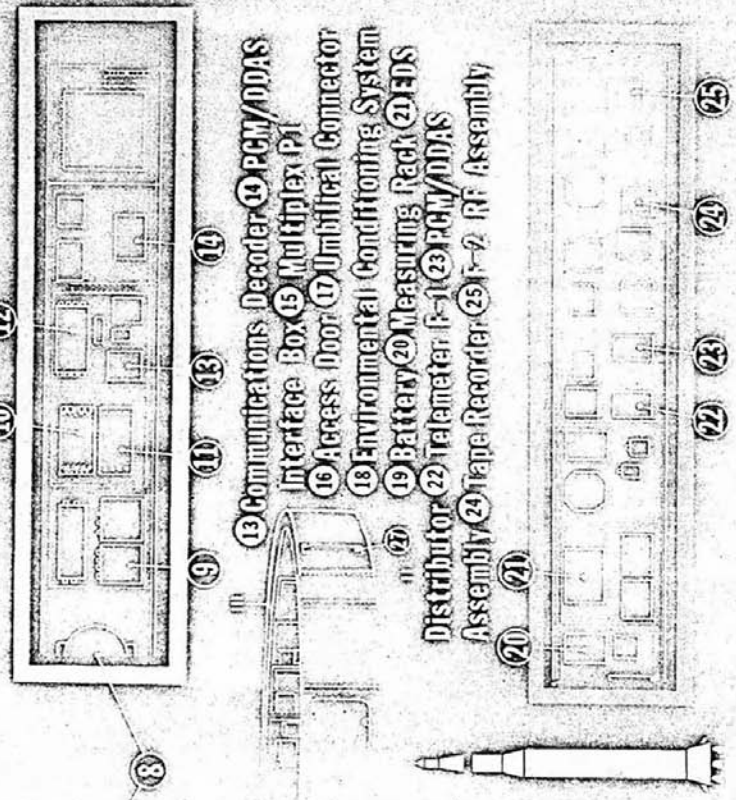


INSTRUMENT UNIT

SATURN V

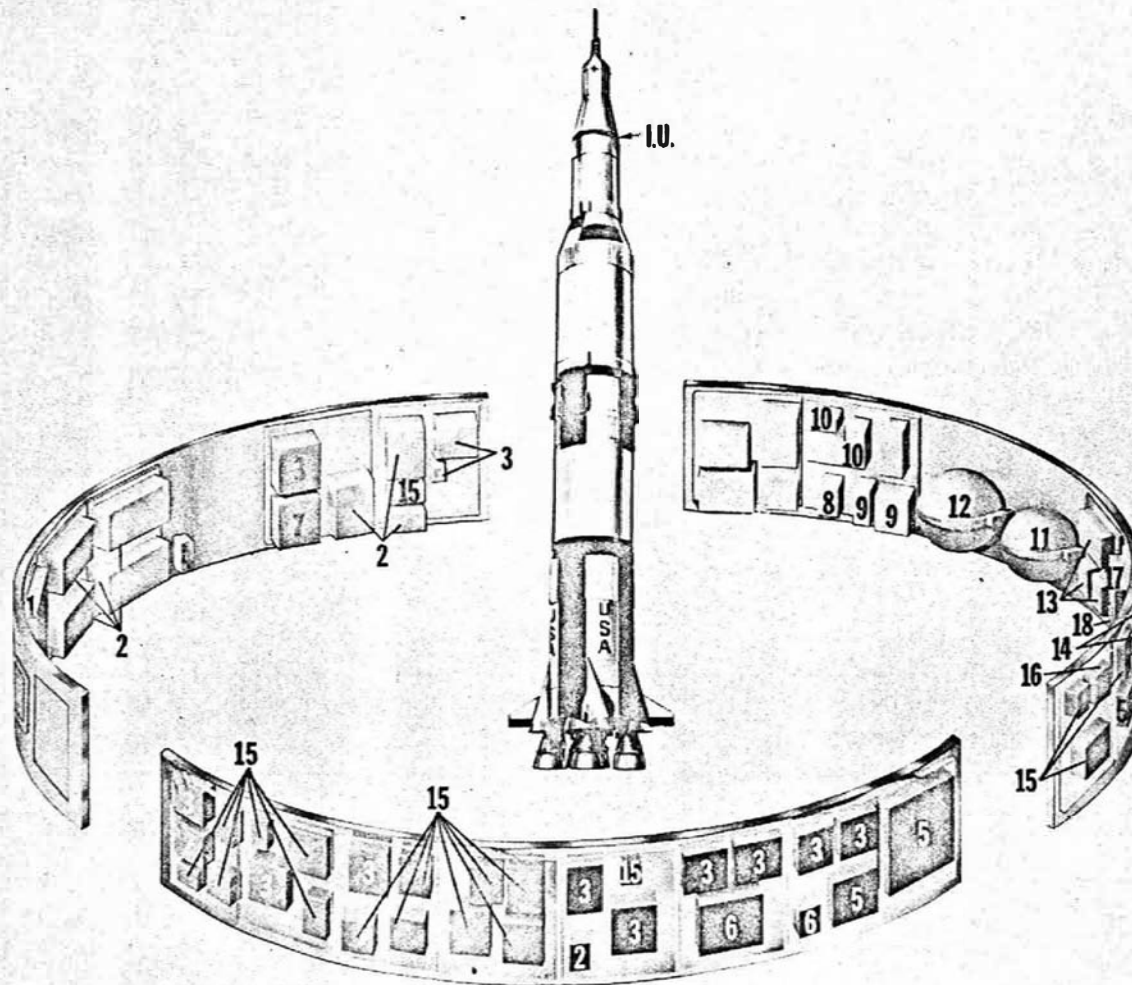


INSTRUMENT UNIT



ITEMS SHOWN MAY BE IDENTIFIED IN NASA
 CR-62-7188

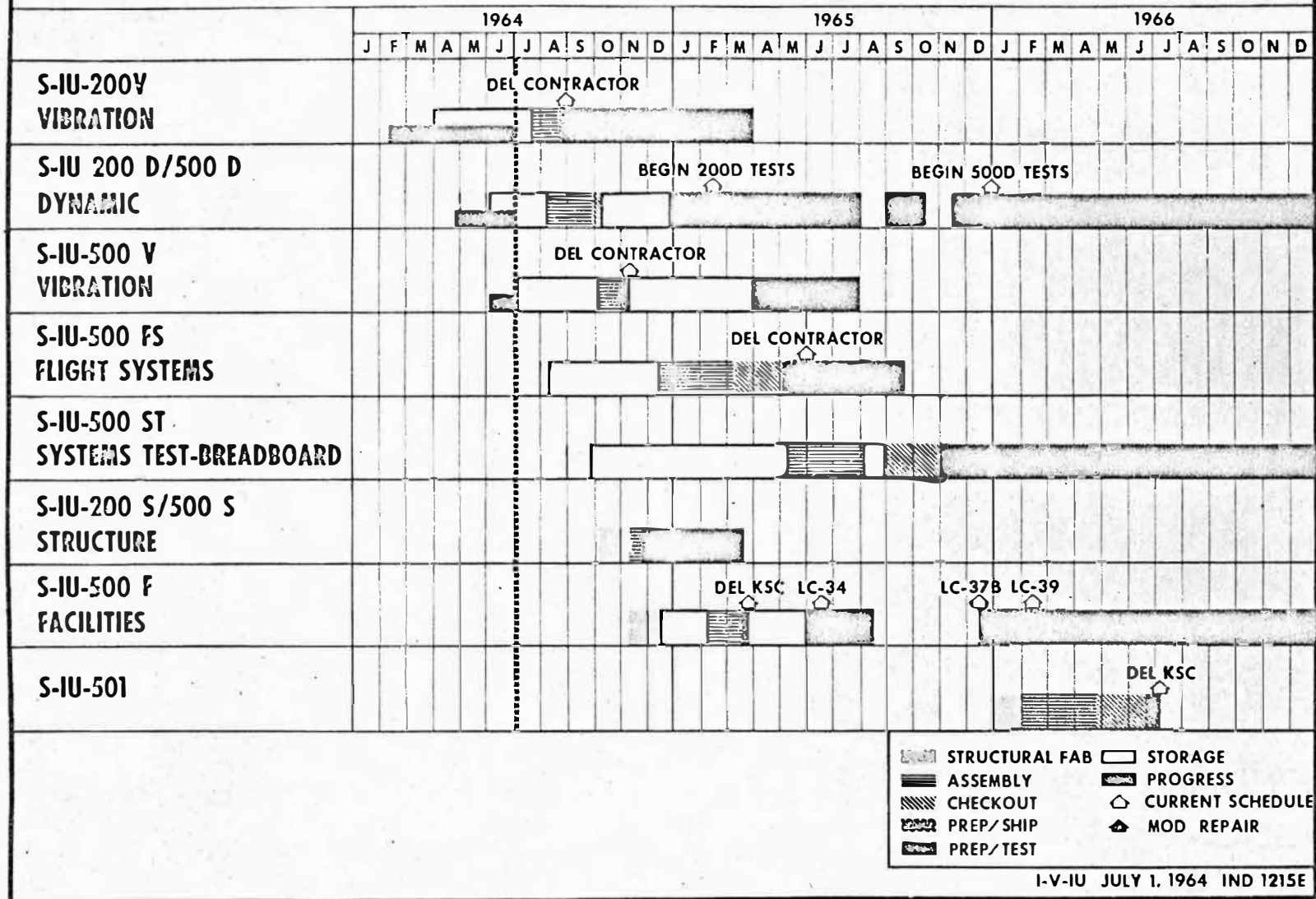
SATURN V INSTRUMENT UNIT

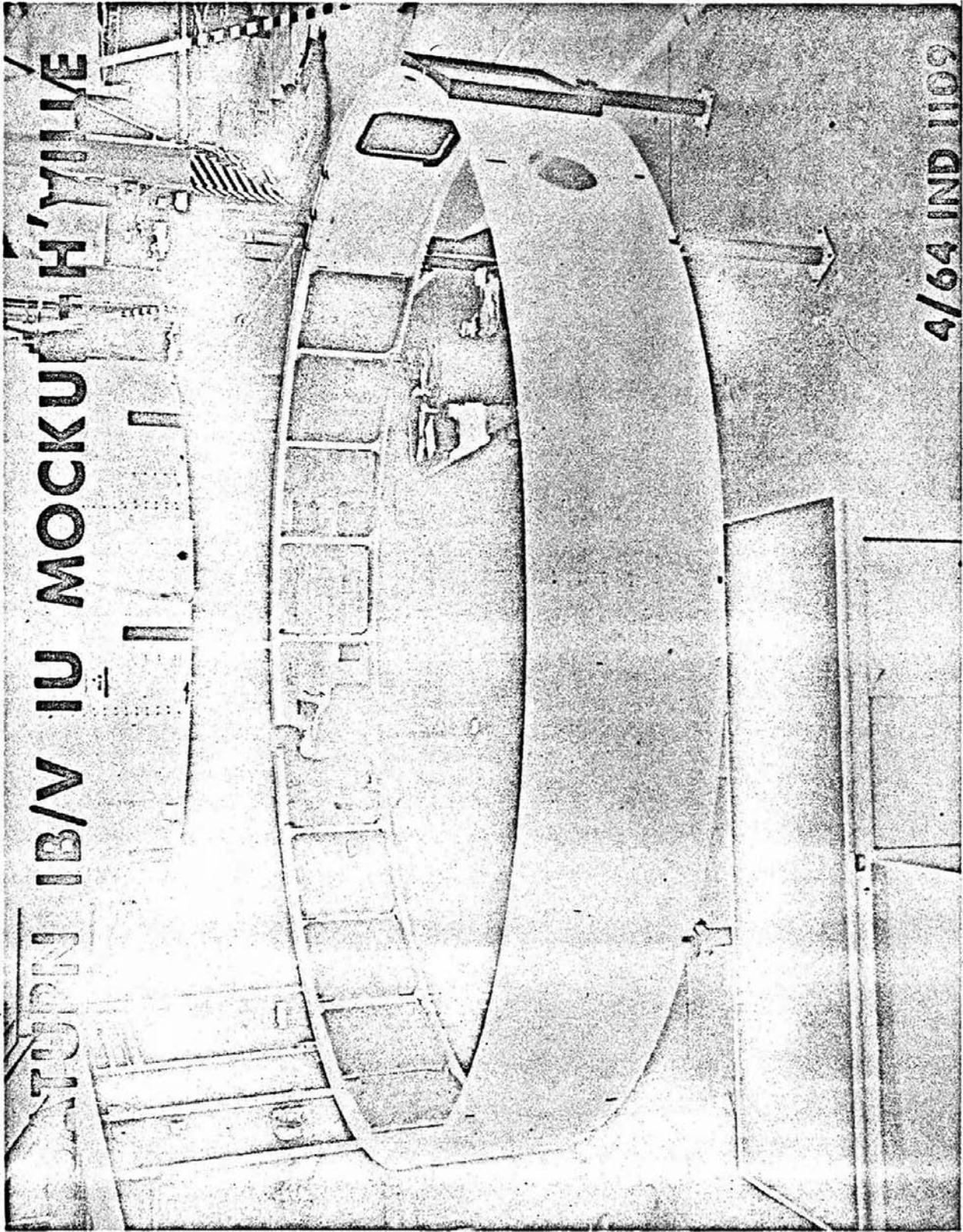


1. ENVIRONMENTAL CONTROL SYS.
2. ELECTRICAL POWER SYS.
3. MEASURING SYS.
4. CONTROL ACCELEROMETERS
5. CONTROL COMPUTER SYS.
6. EDS
7. RADAR ALTIMETER
8. C-BAND RADAR
9. AZUSA SYS.
10. MINITRACK SYS.
11. ST-124-M PLATFORM
12. PLATFORM AIR SUPPLY
13. PLATFORM ELECTRONICS
14. GUIDANCE COMMAND SYS.
15. TELEMETRY SYS.
16. SWITCH SELECTOR
17. GUIDANCE COMPUTER
18. DATA ADAPTER

I-V-IU IND B1200-5

SATURN V INSTRUMENT UNIT SUMMARY SCHEDULE



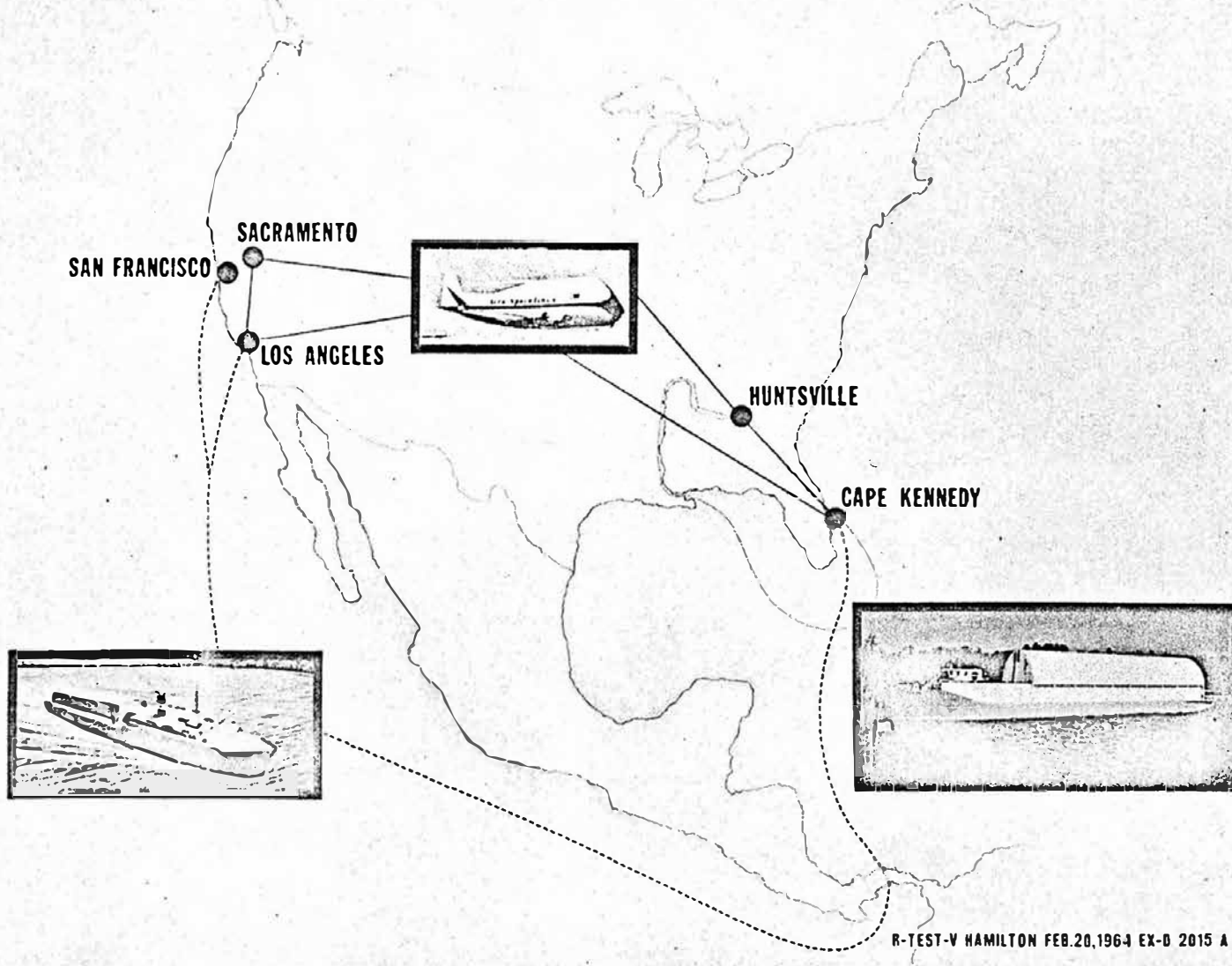


STUPN IB/V IU MOCKU H'YILLE

4/64 IND 1109

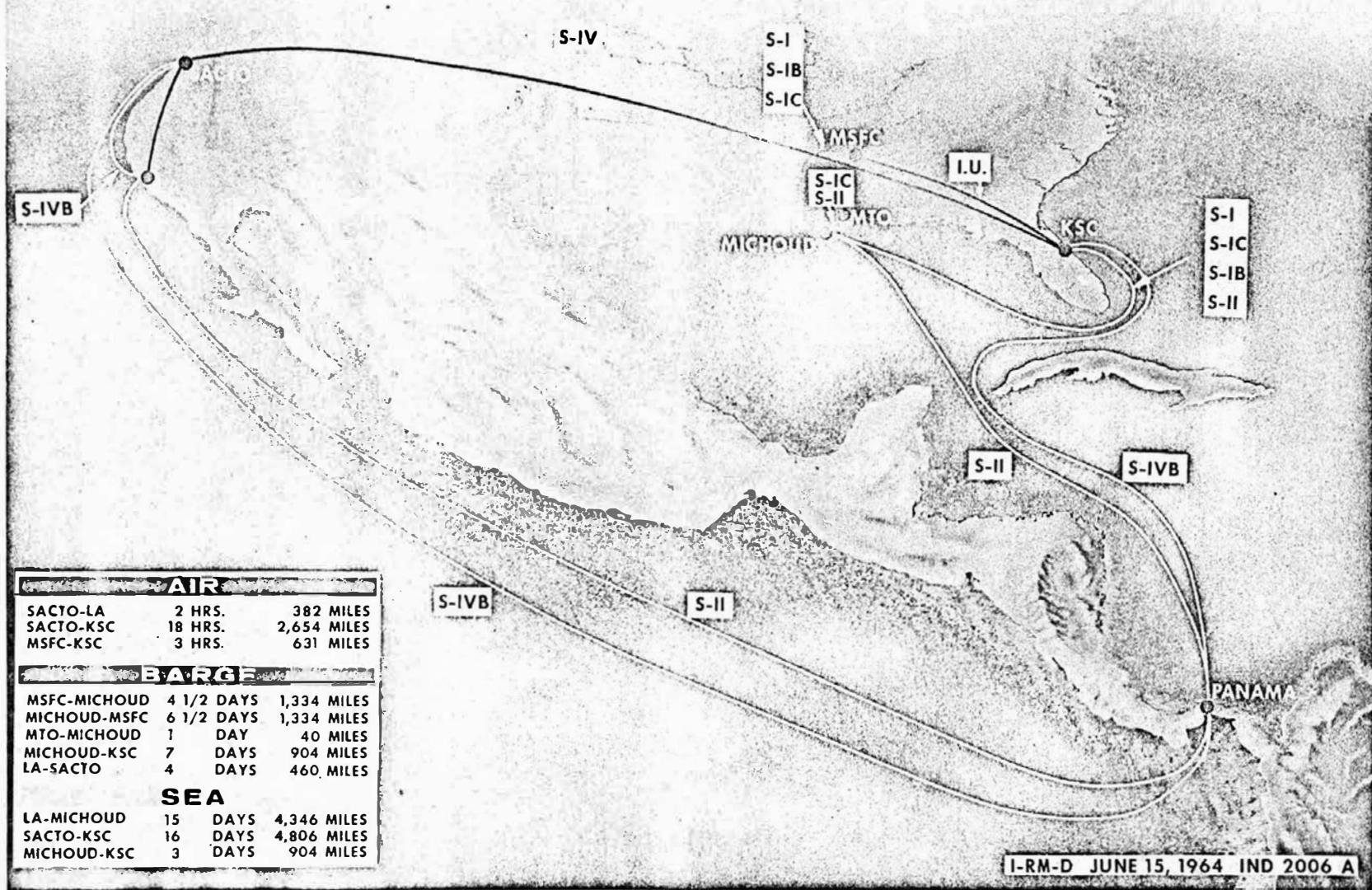
TRANSPORTATION

SATURN TRANSPORTATION



R-TEST-V HAMILTON FEB.20,1964 EX-O 2015 A

SATURN TRANSPORTATION



SATURN V TRANSPORTATION GSE S-IC TRANSPORTER WITH TRACTOR

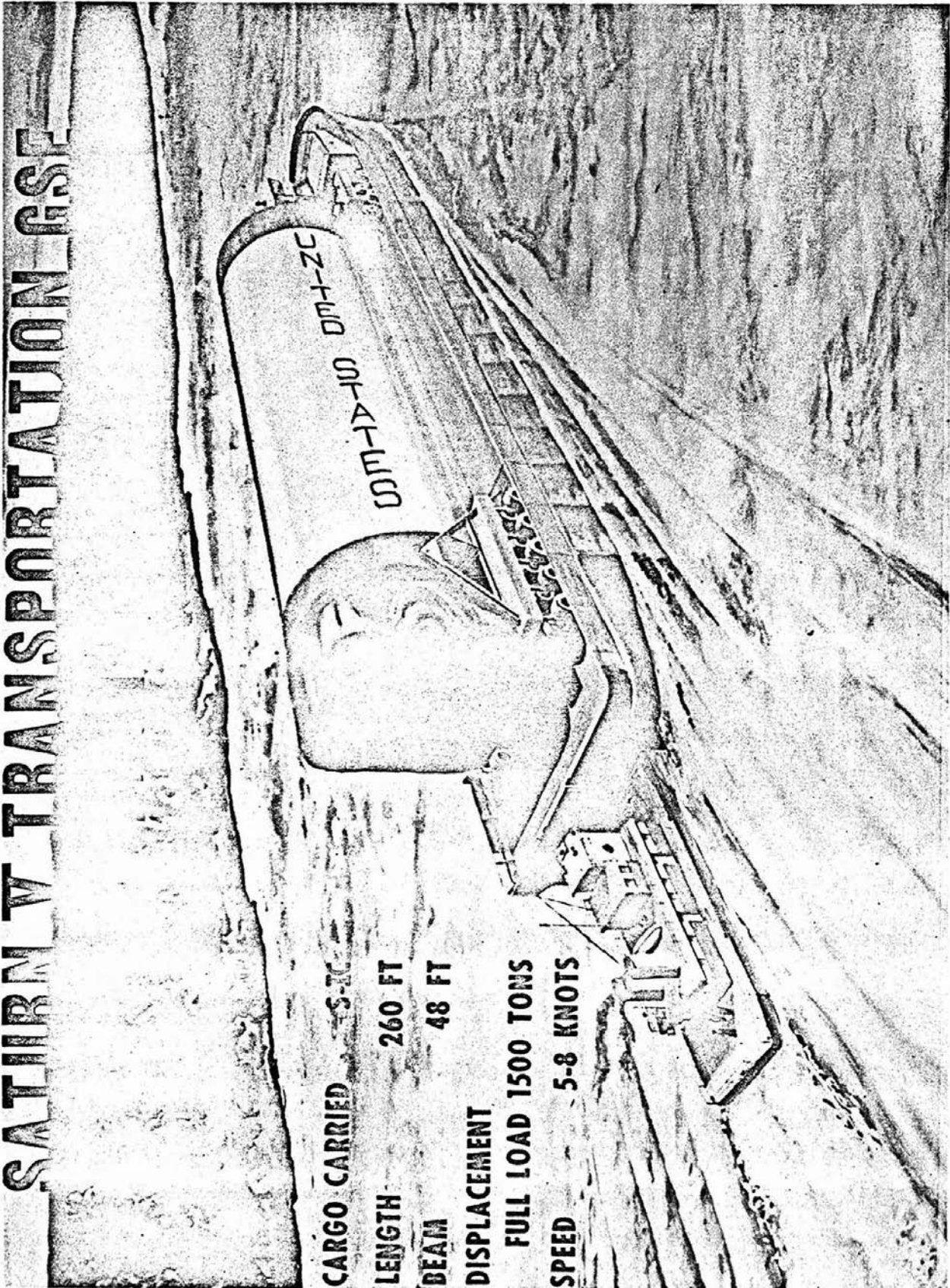
OVERALL LENGTH 197 FT.
WIDTH 38 FT.
HEIGHT (LOADED) 38 FT.

WEIGHT (LOADED) 513,000 LBS
PRIME MOVER M-26

TOWING SPEED 5 MPH
MIN. TURNING RADIUS 88 FT.

R-TEST-V HAMILTON NOV. 21, 1963 EX-D 2014 A

SATIRN V TRANSPORTATION CASE



CARGO CARRIED - S-IC
LENGTH - 260 FT
BEAM - 48 FT
DISPLACEMENT
FULL LOAD 1500 TONS
SPEED - 5-8 KNOTS

SATURN V TRANSPORTATION GSE POINT BARROW-CONVERTED AKD

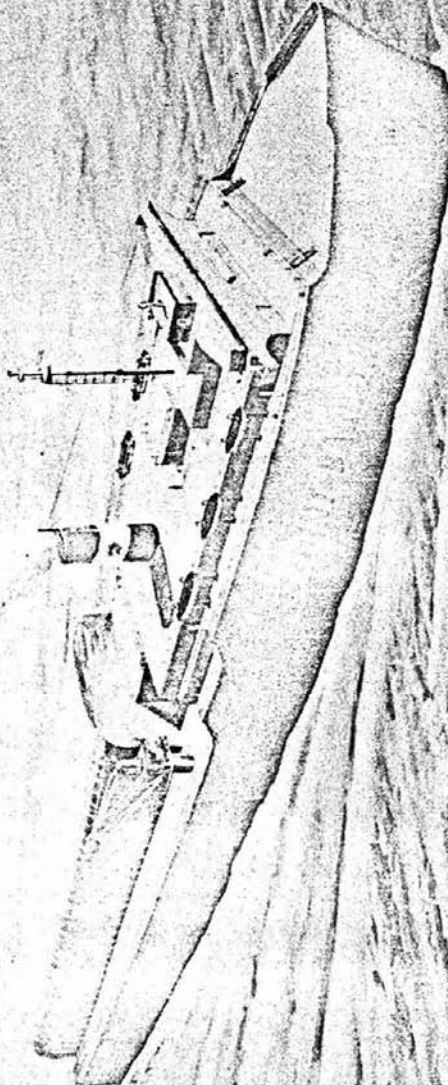
CARGO CARRIED S-IC, SII, SIVB, RIFT

LENGTH 465 FT

DISPLACEMENT

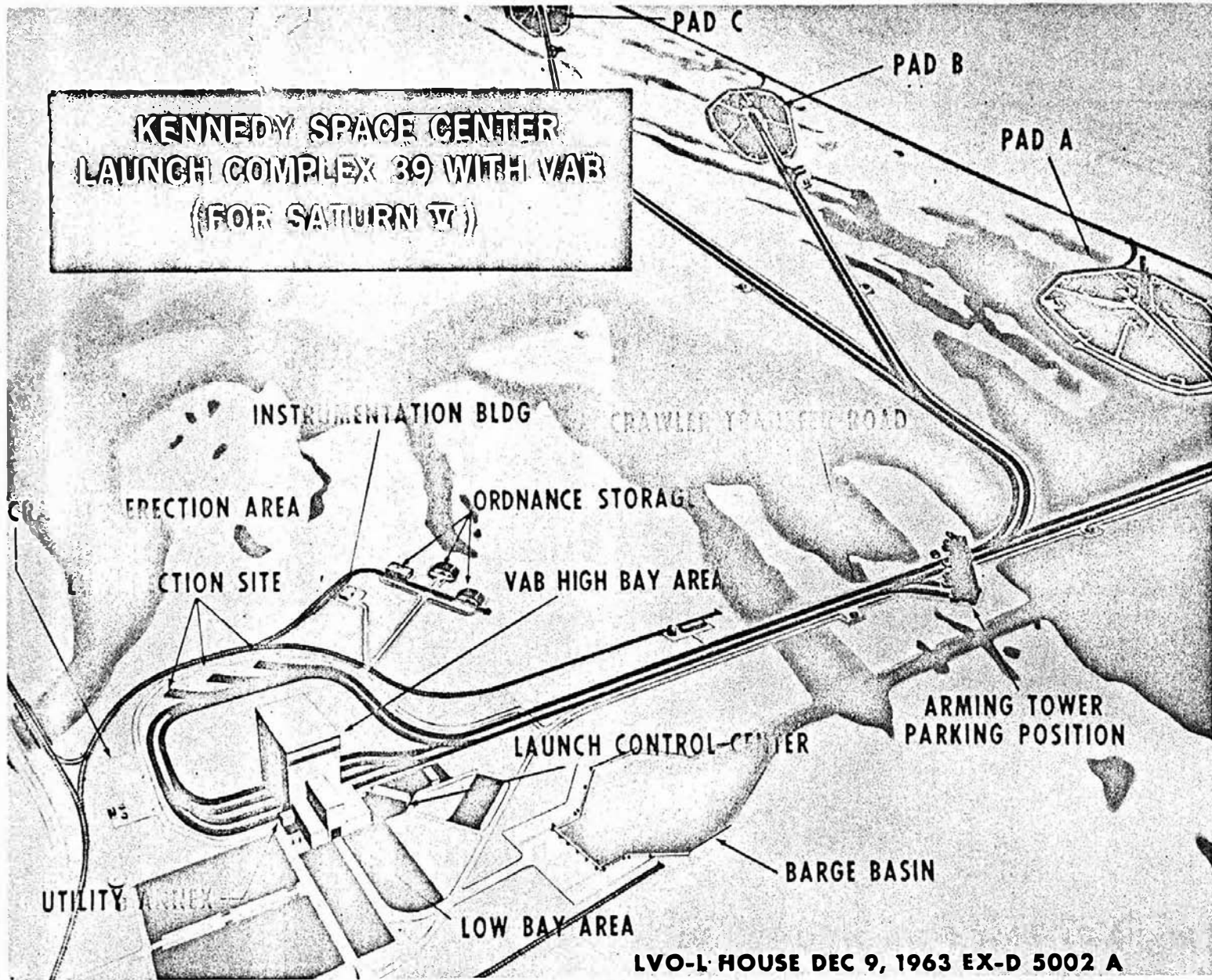
UNLOADED 10,820 TONS

SPEED MAX. 15 KNOTS



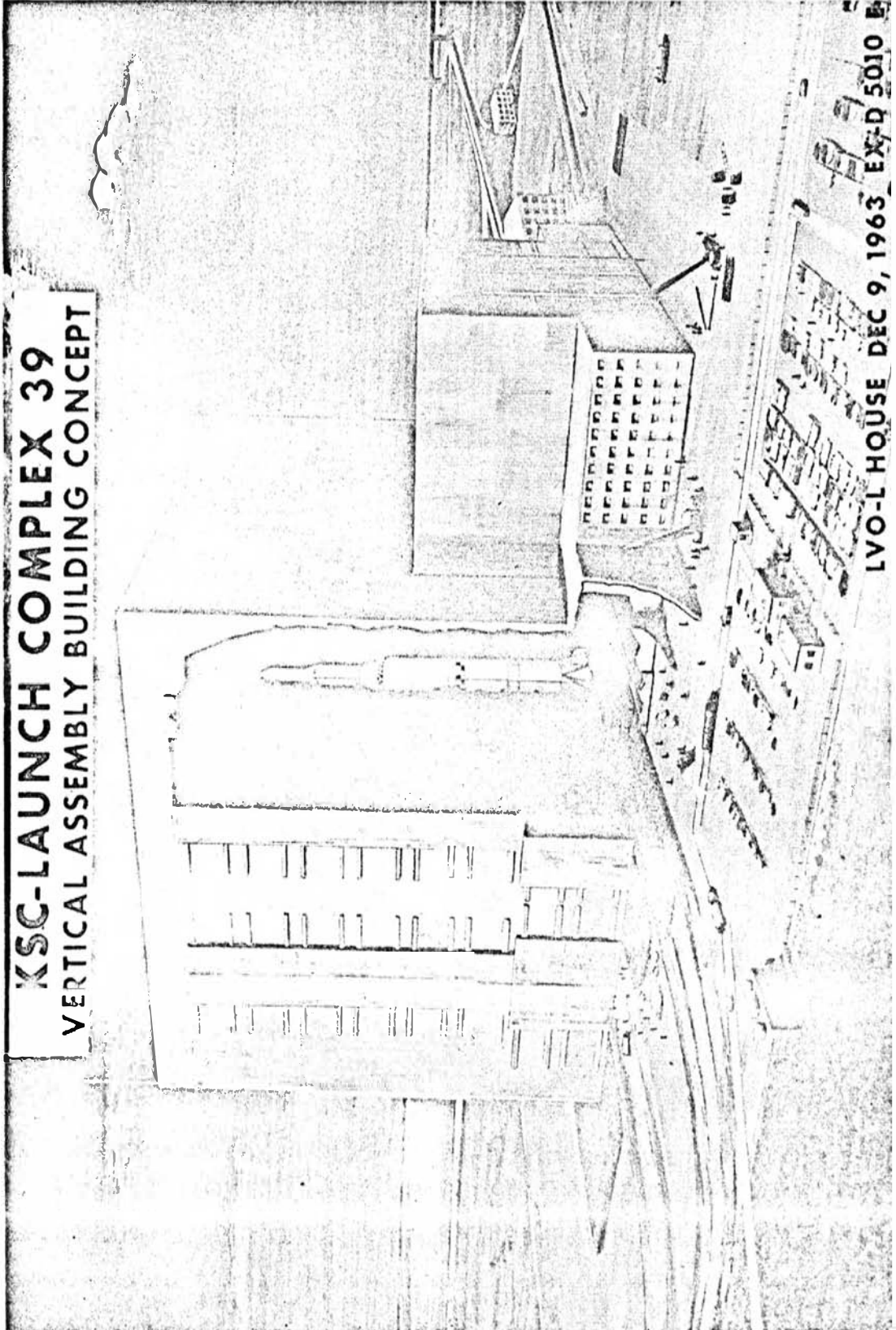
METESIS HAMILTON AUG. 28, 1963 M-CP-D_2009

LAUNCH FACILITIES



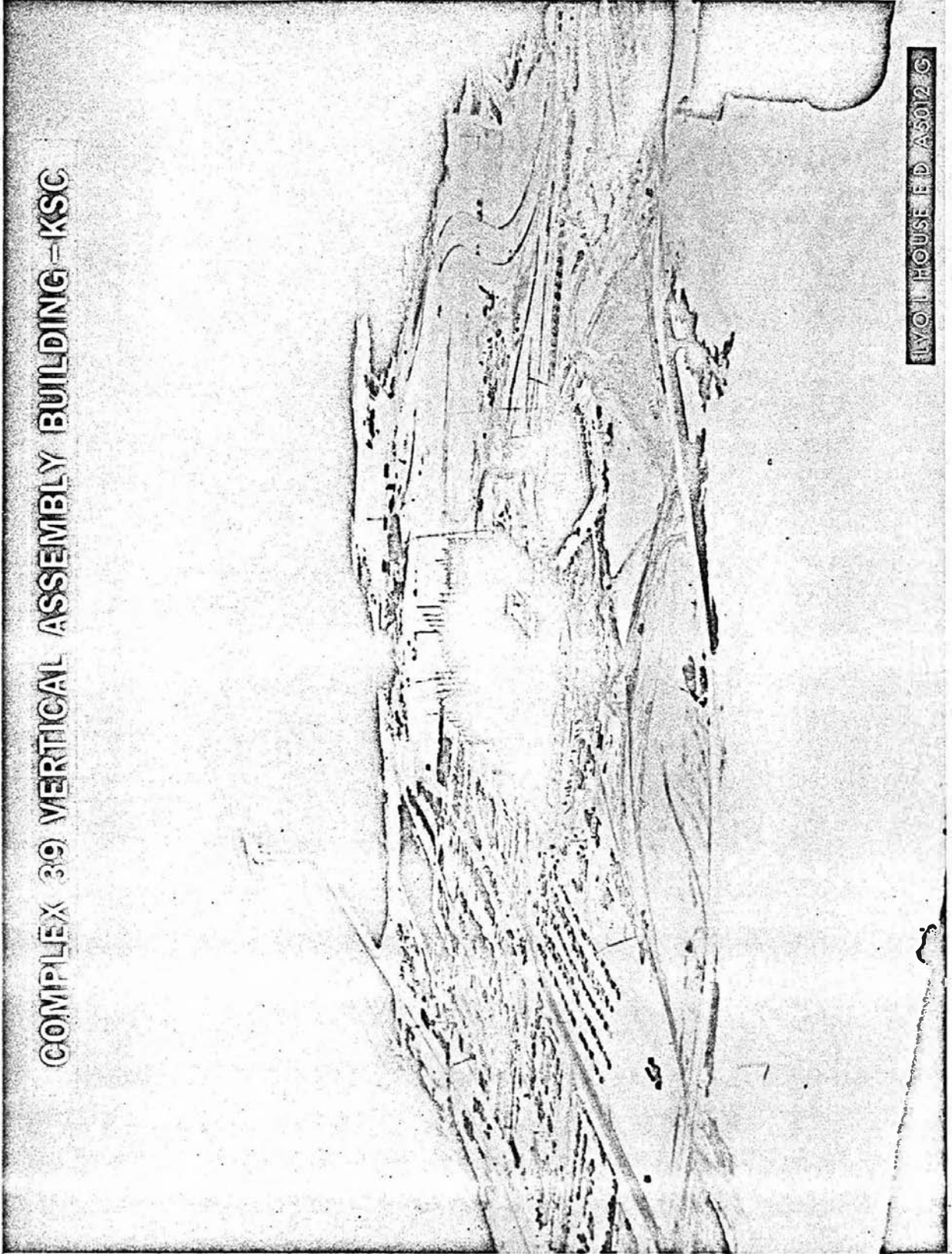
LVO-L HOUSE DEC 9, 1963 EX-D 5002 A

KSC-LAUNCH COMPLEX 39
VERTICAL ASSEMBLY BUILDING CONCEPT



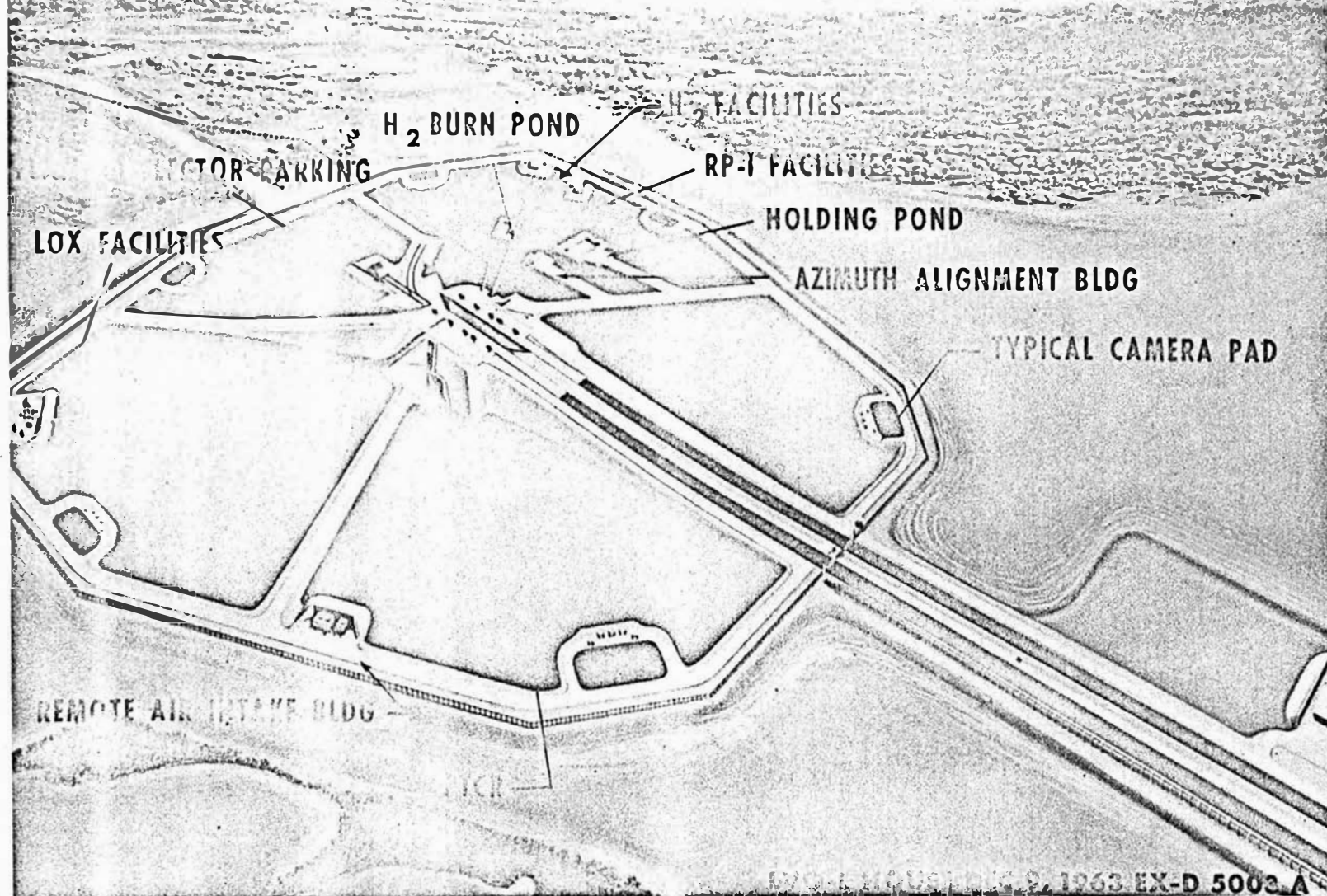
LVO-L HOUSE DEC 9, 1963 EX-D 5010 B

COMPLEX 39 VERTICAL ASSEMBLY BUILDING - KSC



11001 HOUSE ED A5012 G

KENNEDY SPACE CENTER PAD AREA, COMPLEX 39



EX-D 5003 A

PAD A LAUNCH COMPLEX 39-KSC

IVAB

LYOT HOUSE E.P. ASOBIC

