[redacted]

[redacted]

(2)

CLASSIFICATION CHANGE

To UNCLASSIFIED
By authority of GDS- EO 11652 Date 12/31/72
Changed by L. Shirley
Classified Document Master Control Station, NASA
Scientific and Technical Information Facility

13871

1

SID 62-1056

Copy #3

# DATA REPORT FOR SIMULATED JET PLUMES ON THE APOLLO MODEL (FS-1) WIND TUNNEL TEST (SAL 1208) (u)

NAS9-150

20 August 1962

4.5.5.1

Prepared By

Apollo Engineering
Aerodynamics Section

Approved By

D. J. Gilden

[redacted]

This document contains info[redacted]ion affecti[redacted]ational defense of the United States within the me[redacted]nage Laws, Title 18 U.S.C. Section 793 and 794. Its tran[redacted]tion of its contents in any manner to an unauthorized [redacted]

[redacted]

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

FORM M158-D-4 [redacted]GER REV. 2-61

[redacted]

[redacted]

# FOREWORD

The tests described herein were conducted under NASA Apollo Contract NAS9-150, from 4 June to 5 July, 1962.

This report was prepared by C. Beck of the Wind Tunnel Test Group, Space and Information Systems Division, North American Aviation, Inc.



[redacted]

CON[redacted]

## ABSTRACT

Tests were conducted in the North American Aviation Aerophysics Laboratory wind tunnel at Mach numbers of 0.681, 1.88, 2.49, and 3.27 to determine the effect of simulated jet plumes on the aerodynamic characteristics of a 0.02-scale Apollo force model (FS-1). Body axis and stability axis force data were tabulated and plotted for all valid runs.

Basic wind tunnel data are included only to make test results available at the earliest possible date. Analyses and summary of results will be reported in a separate document.



[redacted]

~~CONFIDENTIAL~~

CONTENTS


| Section | | Page |
|---|---|---|
| I | INTRODUCTION | 1 |
| II | MODEL DESCRIPTION | 2 |
| | Straight Plume Model | 2 |
| | Bent Plume Model | 2 |
| | Launch Escape System | 3 |
| III | INSTRUMENTATION | 4 |
| | Force Measurement | 4 |
| | Flow Visualization | 4 |
| IV | OPERATING CONDITIONS | 5 |
| | Model Attitudes | 5 |
| | Flow Condition | 5 |
| V | REFERENCES | 6 |


APPENDIXES


| Appendix | | Page |
|---|---|---|
| A | Tabular Data | A-1 |
| B | Graphic Data | B-1 |




~~CONFIDENTIAL~~

CONF[redacted]

## ILLUSTRATIONS


| Figure | | Page |
|---|---|---|
| 1 | Straight Plume Model Diagram | 7 |
| 2 | Bent Plume Model Diagram | 8 |
| 3 | Escape Tower Structure $T_{11}$ | 9 |
| 4 | Launch Excape Rocket $E_{15}$ | 10 |
| 5 | Launch Escape Rocket $E_{20}$ | 10 |

CONF[redacted]

# I. INTRODUCTION

Apollo Force Model FS-1 was tested in the NAA Supersonic Aerophysics Laboratory (SAL) wind tunnel during 14 June 1962 to 5 July 1962. The test was conducted to determine the aerodynamic effects of simulated jet plumes on the static stability of the Launch Escape System (LES). The static stability of the LES was investigated at four Mach numbers, 0.681, 1.88, 2.49, and 3.27, over an angle-of-attack range of -10 degrees to +10 degrees, at Reynolds numbers of 0.98 to $0.54 \times 10^6$.



~~CONFIDENTIAL~~

## II. MODEL DESCRIPTION

The model tested was a 0.02-scale representation of the LES configuration plus simulated jet plumes. The plume support system was made in such a manner that no part of the plume or support came in contact with the model for all test conditions.

The capability of rolling the tower and plume 45 degrees about the centerline of the model was incorporated.

### STRAIGHT PLUME MODEL

A diagram of the straight plume model is shown in Figure 1. There are three sets (four plumes per set) per model with centerlines coincident with the extension of the four rocket nozzle centerlines. The plume centerlines mutually intersect the centerline of the model at station 279.250. Three sets of plumes were made with diameter ratios of d/D = 0.107, 0.282, 0.408, where d is the diameter of the plume and D is the diameter of the command module. The plume is cylinderical in shape with an ogive nose and tail, each of 1-inch radius for the d/D of 0.107, 4-inch radius for the d/D of 0.282, and 4-inch radius for the d/D of 0.408. The plumes are 6 inches long, and their support is completely behind the model. The plumes are adjustable to cant angles of 28 and 33 degrees. The cant angle is the angle between thrust centerline and plume centerline.

### BENT PLUME MODEL

A diagram of the Bent Plume model is shown in Figure 2. There are two sets of bent plumes (four plumes per set): one has a diameter ratio of d/D = 0.282; the other has a diameter ratio of d/D = 0.107. Each set can be canted to angles of 28 and 33 degrees. The centerline of the plumes are not straight, but follow a curve defined by coordinates given in the following tabulation. The coordinate system originates at the center of the rocket nozzle exit with the X-axis parallel to the symmetrical axis of the model and the y-axis perpendicular to the X-axis. The nose and tail of each plume is an ogive of 4-inch radius. Length of the plume from nose to tail is 6 inches.

## LAUNCH ESCAPE SYSTEM

The components that make up the LES include the launch escape motor and the escape tower. The escape tower structure ($T_{11}$) is shown in Figure 3. Description of the launch escape motor ($E_{15}$) is shown in Figure 4. A second launch escape motor configuration, ($E_{20}$) that was tested is the same as $E_{15}$ except it contains a flow separation ring (Figure 5).

| X (Inches) | Y (Inches) |
|---|---|
| 0 | 0 |
| 10 | 6.4 |
| 20 | 12.5 |
| 30 | 18.4 |
| 40 | 24.2 |
| 50 | 29.8 |
| 60 | 35.2 |
| 70 | 40.5 |
| 80 | 45.6 |
| 90 | 50.5 |
| 100 | 55.3 |
| 110 | 59.9 |
| 120 | 64.4 |
| 130 | 68.8 |
| 140 | 73.1 |
| 150 | 77.3 |
| 160 | 81.4 |
| 170 | 85.4 |
| 180 | 89.4 |
| 190 | 93.3 |
| 200 | 97.1 |

~~CONFIDENTIAL~~

# III. INSTRUMENTATION

## FORCE MEASUREMENT

Six-component force and moment data were measured with the SAL H-875 balance (Reference 2). The H-875 consists of an H-700B balance that measured pitching, yawing, and rolling moment and a 3155 balance that measured chord force and pitching and yawing moment. The H-700B was located partially within the model and was shielded with a 7121-01051-24 sting shield. The 3155 was located in the sector assembly approximately 25 inches aft of the H-700B. A straight sting was used to support the model.

## FLOW VISUALIZATION

Schlieren photographs were taken at every 5 degrees of angle of attack. Typical Schlieren pictures are presented in Appendix B.

CONFI~~DENTIAL~~

# IV. OPERATING CONDITIONS

## MODEL ATTITUDES

The LES was tested through an angle-of-attack range of -10 to +10 degrees. The plume configurations were tested at cant angles of 28 and 33 degrees. In some cases, the plumes were rotated 45 degrees about the centerline of the model.

## FLOW CONDITIONS

The following flow conditions are for tunnel clear operation:

| Mach No. | Reynold No. x $10^{-6}$ Based on Command Module Diameter | Dynamics Pressure ($lb/ft^2$) |
|---|---|---|
| 0.681 | 0.98 | 720 |
| 1.88 | 1.04 | 790 |
| 2.49 | 0.79 | 548 |
| 3.27 | 0.54 | 270 |



~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

## V. REFERENCES

1. "Apollo FS-1 Design Requirements." I.O.L. Aero/62-80, 22 May 1962.

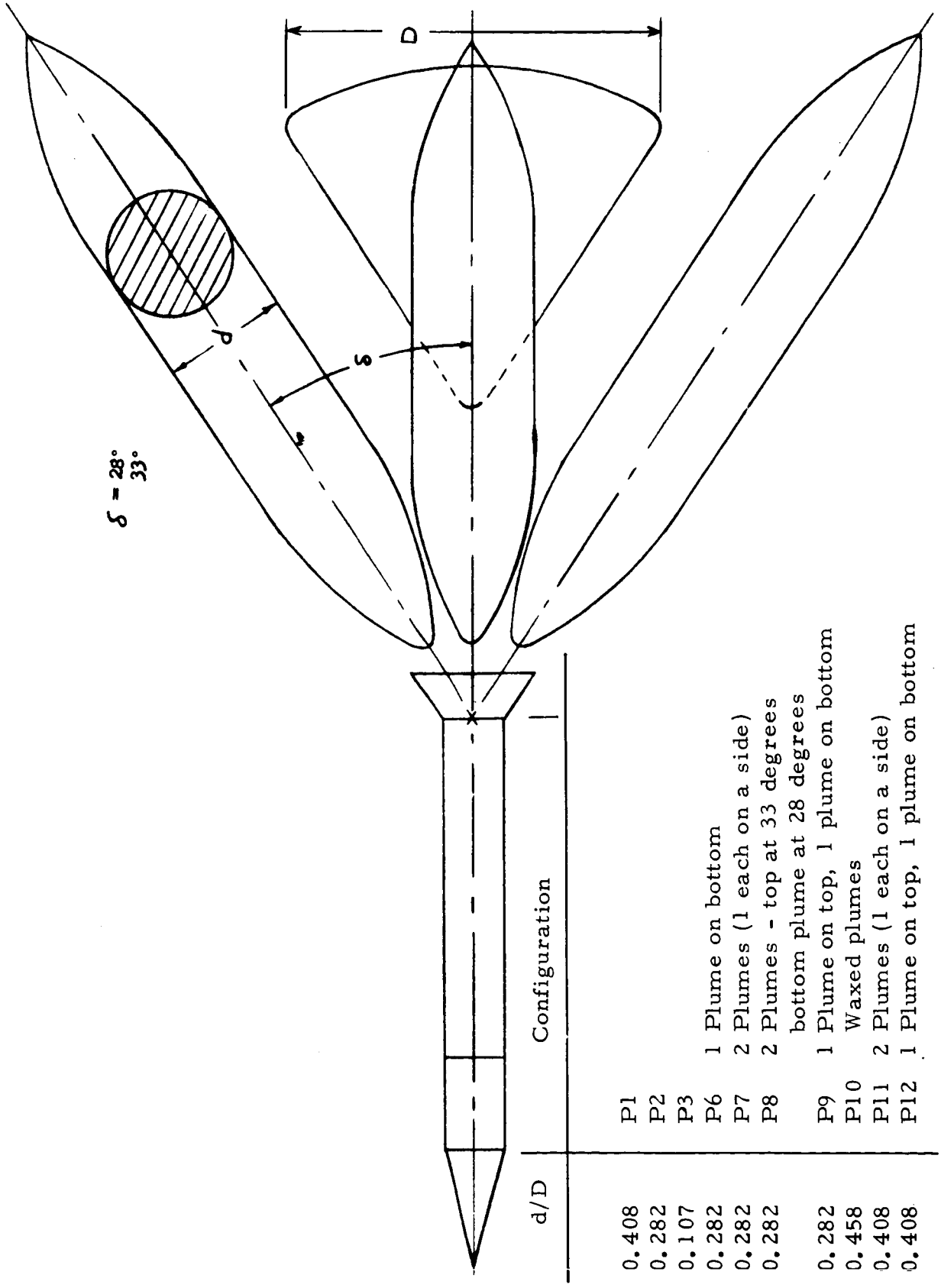
2. Strain Gage Balance. NAA Drawing H-875, 31 January 1962.

3. Cohen, M.H. Test and Model Information for Wind Tunnel Tests of an 0.02 - Scale Force Model (FS-1) of the Apollo in the NAA Supersonic Aerophysics Laboratory. NA 62-82, 25 January 1962.



~~CONFIDENTIAL~~

CONFIDENTIAL




| d/D | | Configuration |
|---|---|---|
| 0.408 | P1 | |
| 0.282 | P2 | |
| 0.107 | P3 | |
| 0.282 | P6 | 1 Plume on bottom |
| 0.282 | P7 | 2 Plumes (1 each on a side) |
| 0.282 | P8 | 2 Plumes - top at 33 degrees bottom plume at 28 degrees |
| 0.282 | P9 | 1 Plume on top, 1 plume on bottom |
| 0.458 | P10 | Waxed plumes |
| 0.408 | P11 | 2 Plumes (1 each on a side) |
| 0.408 | P12 | 1 Plume on top, 1 plume on bottom |

Figure 1. Straight Plume Model Diagram



CONFIDENTIAL

~~CONFIDENTIAL~~

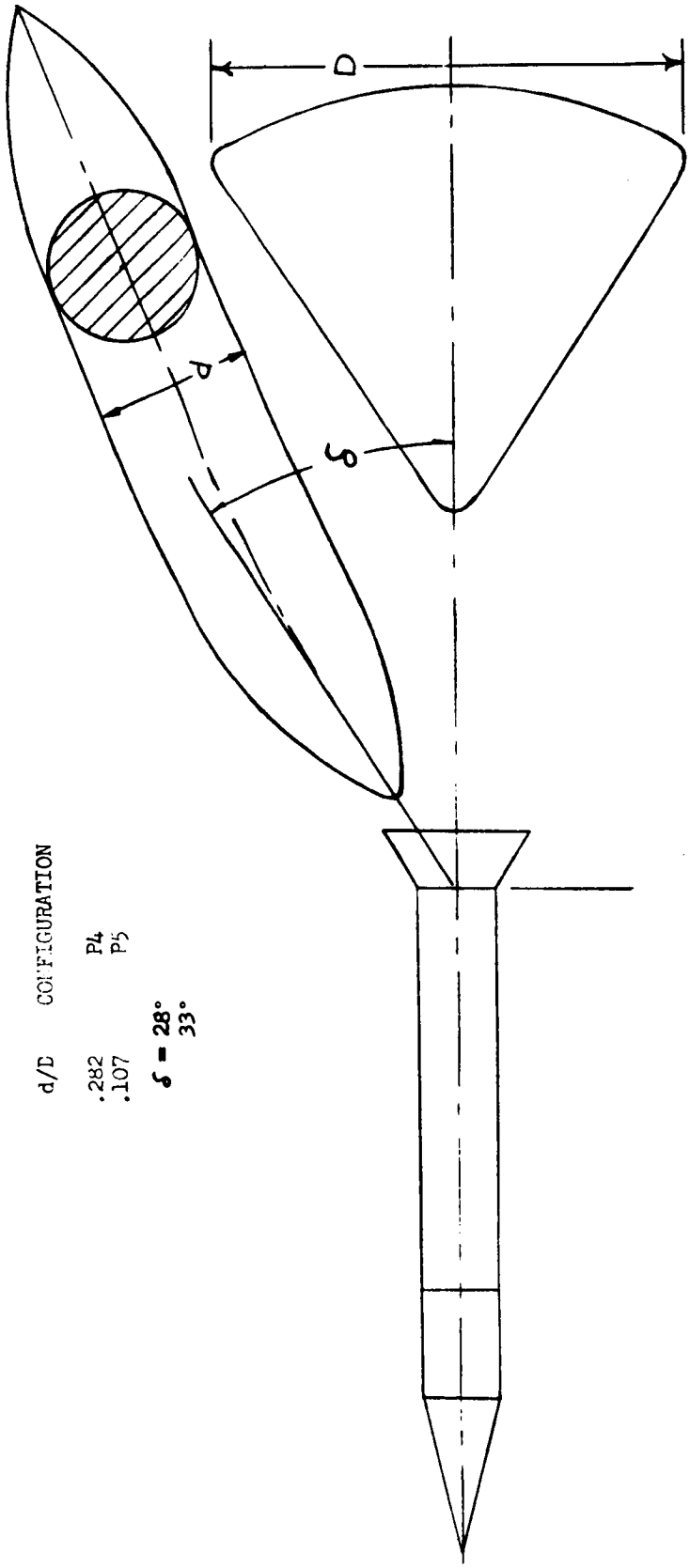



Figure 2. Bent Plume Model Diagram



~~CONFIDENTIAL~~

CONFIDENTIAL

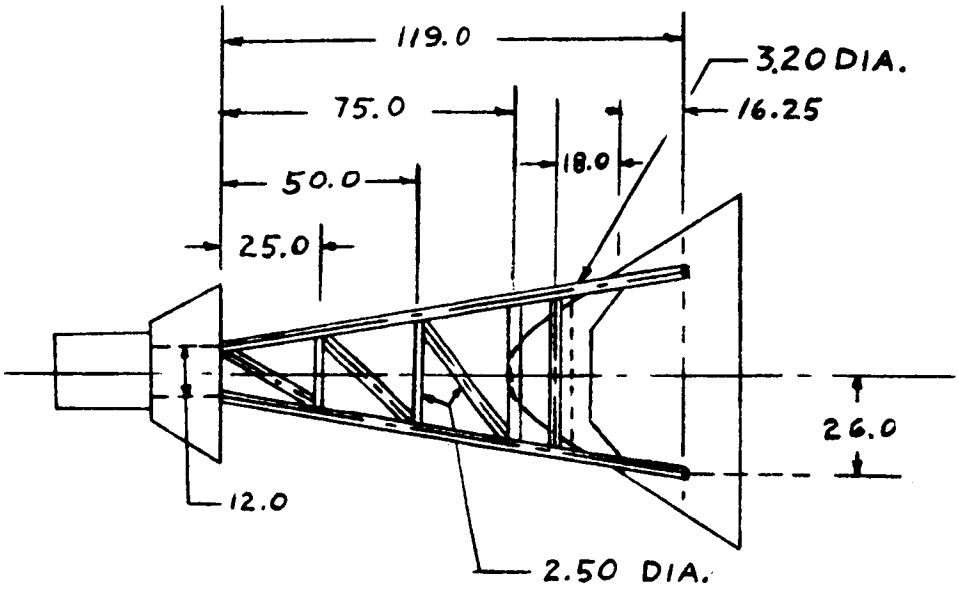



Figure 3. Escape Tower Structure $T_{11}$



CONFIDENTIAL

~~CONFIDENTIAL~~

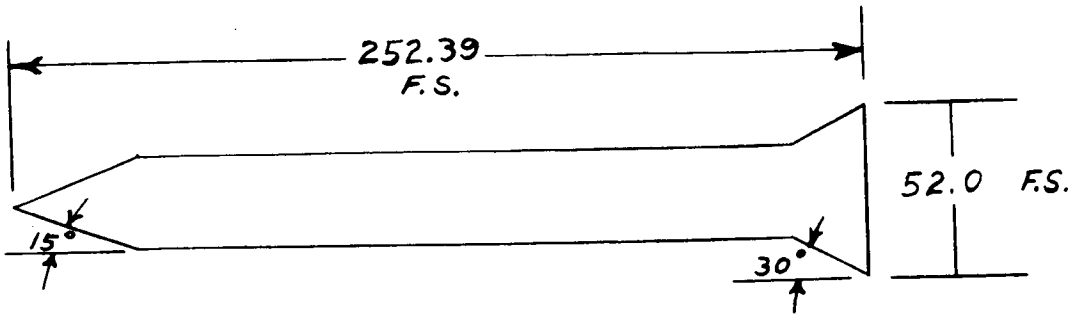



Figure 4. Launch Escape Rocket $E_{15}$

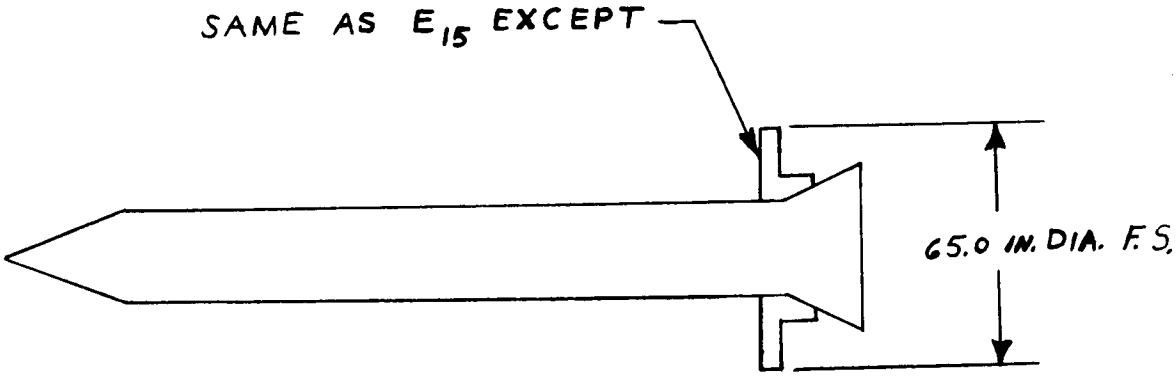



Figure 5. Launch Escape Rocket $E_{20}$



~~CONFIDENTIAL~~

# APPENDIX "A"

# TEST PROCEDURE

## DATA REDUCTION CONSTANTS

Reference Area = 7.4506 $in^2$

Reference Length = 3.0800 in

Reference Center of gravity location:

Command Model Alone

0.7392 inches from the center of the heat shield measured along the axis of symmetry.

0.1817 inches below the axis of symmetry.

Launch Escape System

2.01560 inches from the center of the heat shield, measured along the axis of symmetry.

Located on the axis of symmetry.

## TEST NOMENCLATURE

| | | | |
|---|---|---|---|
| $C_L$ | = | Lift Coefficient | = L/qS |
| $C_N$ | = | Normal Force Coefficient | = N/qS |
| $C_X$ | = | Axial Force Coefficient, Stability Axes | = $C_D$, when $\alpha = 0$ |
| $C_A$ | = | Axial Force Coefficient, Body Axes | = A/qS |
| $C_D$ | = | Drag Coefficient | = D/qS |
| $C_m$ | = | Pitching Moment Coefficient | = m/qSd |
| $C_n$ | = | Yawing Moment Coefficient | = n/qSd |
| $C_l$ | = | Rolling Moment Coefficient | = l/qSd |
| L/D | = | Lift Drag Ratio | = $C_L/C_D$ |
| q | = | Dynamic Pressure, psi | |
| S | = | Reference Area, $in.^2$ | |
| d | = | Reference Length, in. | |

$\bar{x}$ = Distance From The Center of The Heat Shield To The Reference Center of Gravity, Measured Along The Axis of Symmetry.

$\bar{z}$ = Distance From The Axis of Symmetry To The Reference Center of Gravity In The X Plane

$\alpha$ = Angle of Attack, deg.

$\psi$ = Angle of Yaw, deg.

Subscripts

S Refers To The Stability Axis System

B8 Refers To The Body Axis System

# TABULATED DATA NOMENCLATURE

FIRST LINE

| | | |
|---|---|---|
| Alpha C | = | Angle of Attack - deg. |
| CL | = | Lift Coefficient |
| CD | = | Drag Coefficient |
| CPM | = | Pitching Moment Coefficient About C.G. |
| CYM.STAB | = | Yawing Moment Coefficient About STAB. Axis |
| CRM.STAB | = | Rolling Moment Coefficient About STAB. Axis |
| DP/QB | = | Base Pressure |
| L/D | = | Lift Drag Ratio |

SECOND LINE

| | | |
|---|---|---|
| Yaw C | = | Angle of Yaw - deg. |
| CN Body | = | Normal Force Coefficient About Body Axis |
| CA Body | = | Axial Force Coefficient About Body Axis |
| CY Body | = | Side Force Coefficient About Body Axis |
| CYM Body | = | Yawing Moment Coefficient About Body Axis |
| CRM Body | = | Rolling Moment Coefficient About Body Axis |
| CP/QCH | = | Chamber Pressure |
| X CP/D | = | Center Pressure Measured From The Center Of The Heat Shield Along The Axis Of Symmetry |

[redacted]

# TEST PROGRAM
## SUMMARY OF COMPLETED RUNS

$\phi = 0$

| CONFIGURATION | RUN NUMBERS | | | | $\lambda$ | |
|---|---|---|---|---|---|---|
| MACH NO = | 0.681 | 1.88 | 2.490 | 3.270 | | |
| $E_{15}$ $T_{11}$ C | 3 | 16 | 13 | 23 | | |
| $E_{15}$ $T_{11}$ C $P_1$ | 5 | 17 | 12 | 22 | 33 | |
| $E_{15}$ $T_{11}$ C $P_1$ | 40 | | 14 | | | 28 |
| $E_{15}$ $T_{11}$ C $P_2$ | 4 | 18 | 10-15* - 35** | 21-25 | 33 | |
| $E_{15}$ $T_{11}$ C $P_2$ | 39 | | | 27 | | 28 |
| $E_{15}$ $T_{11}$ C $P_3$ | 6 | 19 | 11 | 20 | 33 | |
| $E_{15}$ $T_{11}$ C $P_3$ | 38 | | 28 | | | 28 |
| $E_{15}$ $T_{11}$ C $P_4$ | 7 | | 1 | | 33 | |
| $E_{15}$ $T_{11}$ C $P_5$ | 8 | | 9 | | 33 | |
| $E_{15}$ $T_{11}$ C $P_6$ | | | 33 | | 33 | |
| $E_{15}$ $T_{11}$ C $P_7$ | | | 34 | | 33 | |
| $E_{15}$ $T_{11}$ C $P_8$ | | | 36 | | | 28 |
| $E_{15}$ $T_{11}$ C $P_9$ | | | 37 | | 33 | |
| $E_{15}$ $T_{11}$ C $P_{10}$ | 78 | | | 81 | 33 | |
| $E_{15}$ $T_{11}$ C $P_{11}$ | 79 | | | | 33 | |
| $E_{15}$ $T_{11}$ C $P_{12}$ | 80 | | | | 33 | |
| | | | | | | |
| $E_{20}$ $T_{11}$ C | 2 | | | 24 | | |
| $E_{20}$ $T_{11}$ C $P_2$ | 44 | | | 26 | 33 | |

* GRIT ON PLUMES

** CONNECTING RING OFF

[redacted]

[redacted]

SUMMARY OF COMPLETED RUNS - CON'T

$\phi = 45$

| CONFIGURATION | RUN NUMBERS | | | | $\lambda$ | |
|---|---|---|---|---|---|---|
| MACH NO= | 0.681 | 1.88 | 2.49 | 3.27 | | |
| $E_{15}\ T_{11}\ C\ P_1$ | 43 | | 31 | | 33 | |
| $E_{15}\ T_{11}\ C\ P_2$ | 42 | | 30 | | 33 | |
| $E_{15}\ T_{11}\ C\ P_2$ | | | 32 | | | 28 |
| $E_{15}\ T_{11}\ C\ P_3$ | 41 | | 29 | | 33 | |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P4 LAMBDA= 33 RUN NO. 1

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 1.002 | -.003 | .00263 | .51956 | .01519 | .00452 | .00083 | 0 | .00506 |
| 2490 | 2.000 | -.002 | .00260 | .51956 | -.00198 | .00452 | .00083 | 0 | -.92564 |
| 0 | .003 | -1.021 | -.00432 | .51883 | .00986 | .00473 | .00066 | 0 | -.00832 |
| 0 | 2.000 | -.003 | -.01356 | .51867 | -.00180 | .00472 | .00074 | 0 | .63994 |
| 0 | .004 | -3.045 | -.01119 | .51114 | .00713 | .00587 | .00024 | 0 | -.02189 |
| 0 | 2.000 | -.001 | -.03832 | .50983 | -.00397 | .00585 | .00055 | 0 | .08367 |
| 0 | .005 | -5.073 | -.02532 | .51245 | .00815 | .00868 | -.00060 | 0 | -.04941 |
| 0 | 2.000 | -.007 | -.07052 | .50820 | -.01120 | .00870 | .00017 | 0 | -.11416 |
| 0 | .006 | -7.106 | -.05007 | .51163 | .01312 | .00440 | .00008 | 0 | -.09786 |
| 0 | 2.000 | -.002 | -.11296 | .50151 | -.00455 | .00435 | .00063 | 0 | -.23647 |
| 0 | .007 | -10.166 | -.09283 | .52496 | .01722 | .00425 | -.00010 | 0 | -.17684 |
| 0 | 2.000 | -.001 | -.18402 | .50034 | -.00393 | .00420 | .00065 | 0 | -.28957 |
| 0 | .008 | 1.012 | .00502 | .51992 | .02250 | .00704 | .00040 | 0 | .00966 |
| 0 | 2.000 | -.006 | .01421 | .51975 | -.00920 | .00704 | .00028 | 0 | -.34144 |

[redacted]

[redacted]

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SOL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P4 LAMBDA= 33 RUN NO. 1

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 1.009 | 3.040 | .01799 | .51597 | .02197 | .00577 | .00070 | 0 | .03486 |
| 2490 | 2.000 | -.003 | .04532 | .51429 | -.00622 | .00580 | .00039 | 0 | -.33028 |
| 0 | .010 | 5.069 | .03486 | .50836 | .01997 | .00487 | .00079 | 0 | .06858 |
| 0 | 2.000 | -.001 | .07963 | .50329 | -.00450 | .00492 | .00036 | 0 | -.34300 |
| 0 | .011 | 7.104 | .06117 | .51335 | .01421 | .00395 | .00102 | 0 | .11916 |
| 0 | 2.000 | .004 | .12418 | .50184 | -.00028 | .00405 | .00052 | 0 | -.37905 |
| 0 | .012 | 10.165 | .10429 | .52898 | .00984 | .00500 | .00128 | 0 | .19716 |
| 0 | 2.000 | -0 | .19600 | .50228 | -.00394 | .00514 | .00038 | 0 | -.37818 |
| 0 | .013 | -.005 | .00045 | .51895 | .01553 | .00953 | .00019 | 0 | .00087 |
| 0 | 2.000 | -.009 | .00041 | .51895 | -.01321 | .00953 | .00019 | 0 | -.92564 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E20 T11 C RUN NO. 2

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 2.014 | -.005 | .00061 | .61355 | .01870 | .00986 | -.00039 | -.46710 | .00099 |
| 681 | 2.000 | -.031 | .00055 | .61355 | -.03048 | .00986 | -.00039 | -.39280 | -.92564 |
| 0 | .015 | -10.224 | -.16790 | .86390 | .09093 | .00950 | -.00113 | -.52668 | -.19435 |
| 0 | 2.000 | -.016 | -.31854 | .82039 | -.01936 | .00955 | .00057 | -.39349 | -.48778 |
| 0 | .016 | -10.222 | -.16476 | .86275 | .08994 | .00976 | -.00070 | -.52750 | -.19097 |
| 0 | 2.000 | -.016 | -.31522 | .81983 | -.01942 | .00973 | .00104 | -.39006 | -.48653 |
| 0 | .018 | -7.203 | -.20084 | .79682 | .09511 | .00423 | .00046 | -.51151 | -.25205 |
| 0 | 3.000 | -.006 | -.29915 | .76536 | -.00744 | .00414 | .00099 | -.39090 | -.52100 |
| 0 | .019 | -5.160 | -.17799 | .76043 | .09275 | .00185 | .00148 | -.51515 | -.23406 |
| 0 | 2.000 | .002 | -.24565 | .74134 | .00033 | .00171 | .00165 | -.39173 | -.56044 |
| 0 | .020 | -3.107 | -.12955 | .71441 | .07701 | .00185 | .00105 | -.50897 | -.18133 |
| 0 | 2.000 | .004 | -.16807 | .70634 | .00126 | .00179 | .00115 | -.39257 | -.58894 |
| 0 | .021 | -3.106 | -.12921 | .71441 | .07694 | .00207 | .00111 | -.50980 | -.18086 |
| 0 | 2.000 | .003 | -.16772 | .70636 | .00044 | .00201 | .00122 | -.39340 | -.58908 |

[redacted]

[redacted]

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E20 T11 C RUN NO. 2

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 2.022 | -1.052 | -.07094 | .64786 | .05168 | .00357 | .00098 | -.49661 | -.10950 |
| 681 | 2.000 | -.001 | -.08282 | .64645 | -.00162 | .00355 | .00104 | -.38862 | -.59620 |
| 0 | .023 | -.005 | -.00010 | .61374 | .01906 | .00986 | -.00036 | -.46996 | -.00016 |
| 0 | 2.000 | -.030 | -.00016 | .61374 | -.02969 | .00986 | -.00036 | -.38442 | -.92564 |
| 0 | .024 | 1.052 | .08578 | .65281 | -.01364 | .00749 | .00039 | -.49604 | .13140 |
| 0 | 2.000 | -.019 | .09774 | .65112 | -.01998 | .00749 | .00025 | -.39927 | -.74828 |
| 0 | .025 | 3.107 | .14530 | .72584 | -.03483 | .00546 | .00123 | -.52970 | .20018 |
| 0 | 3.000 | -.007 | .18441 | .71690 | -.00934 | .00552 | .00093 | -.40348 | -.67556 |
| 0 | .026 | 5.157 | .18836 | .77608 | -.04719 | .00529 | .00138 | -.54316 | .24271 |
| 0 | 2.000 | -.003 | .25734 | .75601 | -.00650 | .00539 | .00090 | -.41273 | -.62827 |
| 0 | .027 | 7.198 | .20966 | .81306 | -.04960 | .00457 | .00169 | -.53194 | .25787 |
| 0 | 2.000 | -.001 | .30986 | .78040 | -.00458 | .00475 | .00110 | -.41694 | -.58653 |
| 0 | .028 | 10.217 | .17698 | .87224 | -.04161 | .00343 | .00180 | -.54259 | .20290 |
| 0 | 2.000 | -.001 | .32886 | .82703 | -.00241 | .00370 | .00116 | -.41777 | -.55281 |

[redacted]



S1D62-1056

NAM SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E20 T11 C RUN NO. 2

| TEST NO. | RUN.UOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 2.029 | -.005 | .00055 | .61288 | .01907 | .00986 | -.00036 | -.46489 | .00090 |
| 681 | 2.000 | -.030 | .00050 | .61288 | -.02943 | .00986 | -.00036 | -.37934 | -.92564 |
| 0 | .030 | 10.217 | .17700 | .86786 | -.04091 | .00302 | .00203 | -.54062 | .20395 |
| 0 | 2.000 | -.001 | .32810 | .82271 | -.00206 | .00333 | .00146 | -.41861 | -.55066 |

[redacted]

[redacted]

NAM SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C RUN NO. 3

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 3.031 | -.004 | .00234 | .70694 | .02171 | .00485 | .00048 | -.52258 | .00331 |
| 681 | 2.000 | -.021 | .00228 | .70694 | -.01929 | .00485 | .00048 | -.39772 | -.92564 |
| 0 | .032 | -1.034 | -.03269 | .70818 | .03570 | .00393 | .00050 | -.51921 | -.04616 |
| 0 | 2.000 | -.015 | -.04546 | .70748 | -.01441 | .00392 | .00057 | -.39295 | -.41617 |
| 0 | .033 | -3.087 | -.08628 | .72480 | .05419 | .00363 | .00090 | -.52565 | -.11904 |
| 0 | 2.000 | -.011 | -.12518 | .71910 | -.01089 | .00358 | .00110 | -.39518 | -.49580 |
| 0 | .034 | -5.131 | -.11863 | .74440 | .06187 | .00353 | .00073 | -.52706 | -.15936 |
| 0 | 2.000 | -.007 | -.18471 | .73081 | -.00762 | .00345 | .00104 | -.39238 | -.47653 |
| 0 | .035 | -7.163 | -.12798 | .76117 | .05981 | .00449 | .00043 | -.51246 | -.16813 |
| 0 | 2.000 | -.008 | -.22187 | .73927 | -.00920 | .00440 | .00098 | -.39041 | -.43859 |
| 0 | .036 | -10.192 | -.12142 | .77463 | .05868 | .00864 | -.00123 | -.53013 | -.15674 |
| 0 | 3.000 | -.012 | -.25654 | .74093 | -.01565 | .00872 | .00032 | -.38984 | -.41729 |
| 0 | .037 | 1.030 | .04342 | .71502 | .00706 | .00594 | .00066 | -.52395 | .06073 |
| 0 | 2.000 | -.021 | .05626 | .71412 | -.01983 | .00596 | .00055 | -.40190 | -.74871 |



31062-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAA NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C RUN NO. 3

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 3.038 | 3.081 | .09423 | .72983 | -.01046 | .00424 | .00154 | -.53460 | .12912 |
| 681 | 2.000 | -.002 | .13332 | .72371 | -.00472 | .00432 | .00131 | -.40413 | -.63299 |
| 0 | .039 | 5.126 | .12823 | .75662 | -.01736 | .00376 | .00169 | -.53881 | .16948 |
| 0 | 2.000 | -.002 | .19531 | .74214 | -.00474 | .00389 | .00134 | -.41676 | -.57173 |
| 0 | .040 | 7.156 | .13370 | .78137 | -.01425 | .00287 | .00189 | -.54385 | .17110 |
| 0 | 2.000 | -.002 | .22998 | .75864 | -.00074 | .00308 | .00152 | -.42741 | -.52274 |
| 0 | .041 | 10.191 | .13355 | .78978 | -.01357 | .00291 | .00180 | -.54890 | .16909 |
| 0 | 2.000 | -0 | .27115 | .75370 | -.00248 | .00319 | .00126 | -.41983 | -.48799 |
| 0 | .042 | 12.216 | .13477 | .81099 | -.01438 | .00157 | .00125 | -.57218 | .16619 |
| 0 | 2.000 | .005 | .30330 | .76412 | .00252 | .00180 | .00089 | -.41225 | -.47389 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SOL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2 LAMBDA=33 RUN NO. 4

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 4.043 | 5.063 | .02097 | .74669 | .02003 | .00336 | .00208 | -.60498 | .02809 |
| 681 | 2.000 | .010 | .08677 | .74193 | .00449 | .00353 | .00177 | -.45336 | -.46100 |
| 0 | .044 | 10.132 | .05191 | .72930 | .00979 | .00483 | .00268 | -.62125 | .07118 |
| 0 | 2.000 | .007 | .17937 | .70880 | .00133 | .00523 | .00179 | -.46262 | -.43493 |
| 0 | .045 | .005 | .01529 | .74571 | .02098 | .00300 | .00155 | -.57104 | .02050 |
| 0 | 2.000 | .004 | .01535 | .74571 | .00061 | .00300 | .00155 | -.42509 | -.92564 |
| 0 | .046 | -1.007 | .01458 | .74810 | .02101 | .00017 | .00155 | -.56766 | .01949 |
| 0 | 2.000 | -0 | .00144 | .74824 | -.00024 | .00014 | .00156 | -.42311 | -8.60271 |
| 0 | .047 | -3.031 | .01070 | .73909 | .02100 | .00326 | .00138 | -.56205 | .01447 |
| 0 | 2.000 | -.001 | -.02839 | .73862 | -.00178 | .00318 | .00155 | -.43013 | .08942 |
| 0 | .048 | -5.061 | -.00451 | .72616 | .02376 | .00352 | .00093 | -.56205 | -.00621 |
| 0 | 2.000 | -.002 | -.06855 | .72293 | -.00437 | .00342 | .00124 | -.43855 | -.19823 |
| 0 | .049 | -7.089 | -.01828 | .71327 | .02724 | .00471 | .00008 | -.56288 | -.02563 |
| 0 | 3.000 | -.007 | -.10615 | .70556 | -.00898 | .00466 | .00066 | -.45622 | -.27984 |



31062-1036

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2 LAMBDA= 33 RUN NO. 4

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 4.050 | -10.127 | -.03277 | .70581 | .03084 | .00644 | -.00112 | -.56148 | -.04643 |
| 681 | 2.000 | -.017 | -.15634 | .68906 | -.01722 | .00654 | .00003 | -.46745 | -.31898 |
| 0 | .051 | 1.010 | .00716 | .75192 | .02290 | .00190 | .00189 | -.57634 | .00952 |
| 0 | 2.000 | .010 | .02041 | .75167 | .00592 | .00193 | .00186 | -.44864 | -.81434 |
| 0 | .052 | 3.032 | .00698 | .75057 | .02402 | .00137 | .00197 | -.59121 | .00929 |
| [redacted] | 2.000 | .015 | .04666 | .74915 | .00965 | .00147 | .00190 | -.45930 | -.50737 |
| [redacted] | .053 | 5.065 | .02491 | .73985 | .01915 | .00260 | .00237 | -.60104 | .03367 |
| [redacted] | 2.000 | .012 | .09012 | .73477 | .00644 | .00279 | .00213 | -.46210 | -.46184 |
| [redacted] | .054 | 7.096 | .04300 | .72954 | .01273 | .00290 | .00277 | -.60187 | .05895 |
| 0 | 2.000 | .009 | .13278 | .71864 | .00389 | .00322 | .00239 | -.46995 | -.45793 |
| 0 | .055 | 10.132 | .05367 | .72147 | .00888 | .00434 | .00251 | -.60972 | .07439 |
| 0 | 2.000 | .008 | .17973 | .70078 | .00197 | .00472 | .00171 | -.47780 | -.43779 |
| 0 | .056 | 12.157 | .05594 | .74320 | .00850 | .00665 | .00304 | -.64003 | .07526 |
| 0 | 2.000 | .009 | .21117 | .71476 | .00121 | .00714 | .00158 | -.49548 | -.42432 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P1 LAMBDA= 33 RUN NO. 5

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 5.058 | -.013 | -.01329 | .68560 | .02665 | -.00390 | .00263 | -.62033 | -.01939 |
| 681 | 2.000 | .030 | -.01345 | .68560 | .02547 | -.00390 | .00263 | -.45753 | -.92564 |
| 0 | .059 | -1.020 | -.00849 | .68235 | .02552 | -.00353 | .00261 | -.61415 | -.01245 |
| 0 | 2.000 | .032 | -.02063 | .68209 | .02607 | -.00358 | .00255 | -.45836 | -.09812 |
| 0 | .060 | -3.043 | -.01381 | .68014 | .02628 | -.00520 | .00283 | -.61498 | -.02030 |
| 0 | 2.000 | .033 | -.04989 | .67845 | .02823 | -.00534 | .00255 | -.46060 | -.24407 |
| 0 | .061 | -3.043 | -.01389 | .67928 | .02655 | -.00536 | .00294 | -.61441 | -.02045 |
| 0 | 2.000 | .033 | -.04992 | .67758 | .02852 | -.00551 | .00266 | -.46284 | -.25022 |
| 0 | .062 | -5.079 | -.04295 | .66973 | .03569 | -.00378 | .00274 | -.62071 | -.06413 |
| 0 | 2.000 | .026 | -.10206 | .66330 | .02216 | -.00400 | .00239 | -.51971 | -.37939 |
| 0 | .063 | -7.109 | -.06376 | .65975 | .04178 | -.00291 | .00227 | -.62378 | -.09665 |
| 0 | 2.000 | .020 | -.14491 | .64679 | .01712 | -.00317 | .00189 | -.47649 | -.40754 |
| 0 | .064 | -10.157 | -.09506 | .65191 | .04675 | -.00298 | .00226 | -.62207 | -.14582 |
| 0 | 2.000 | .017 | -.20852 | .62494 | .01514 | -.00333 | .00170 | -.48881 | -.40797 |

~~CONFIDENTIAL~~

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P1 LAMBDA= 33 RUN NO. 5

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 5.065 | .990 | -.02367 | .68937 | .02950 | -.00338 | .00240 | -.62988 | -.03434 |
| 681 | 2.000 | .024 | -.01176 | .68967 | .02057 | -.00334 | .00246 | -.46295 | -.24387 |
| 0 | .066 | 3.014 | -.01682 | .68984 | .02803 | -.00392 | .00208 | -.65679 | -.02438 |
| 0 | 2.000 | .028 | .01948 | .68977 | .02369 | -.00381 | .00229 | -.47724 | -.43454 |
| 0 | .067 | 5.049 | .00555 | .69224 | .02163 | -.00325 | .00233 | -.66911 | .00802 |
| | 2.000 | .034 | .06644 | .68907 | .02756 | -.00304 | .00261 | -.49517 | -.44649 |
| | .068 | 7.091 | .04536 | .68132 | .00797 | -.00143 | .00219 | -.66938 | .06657 |
| | 2.000 | .028 | .12910 | .67051 | .02171 | -.00115 | .00235 | -.50385 | -.48245 |
| | .069 | 10.144 | .08467 | .67147 | -.00234 | .00141 | .00248 | -.67469 | .12609 |
| 0 | 2.000 | .017 | .20159 | .64607 | .01117 | .00182 | .00219 | -.50636 | -.46824 |
| 0 | .070 | 12.174 | .09719 | .67574 | -.00165 | -.00257 | .00203 | -.68561 | .14383 |
| 0 | 2.000 | .024 | .23748 | .64006 | .01943 | -.00209 | .00253 | -.50325 | -.44117 |

[redacted]

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P3 LAMBDA= 33 RUN NO. 6

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 6.072 | -.007 | -.00023 | .80306 | .02473 | .00271 | .00106 | -.58998 | -.00028 |
| 681 | 2.000 | -.007 | -.00033 | .80306 | -.00729 | .00271 | .00106 | -.41748 | -.92564 |
| 0 | .073 | -1.028 | -.01546 | .79111 | .02858 | .00339 | .00117 | -.58278 | -.01955 |
| 0 | 2.000 | -.010 | -.02966 | .79070 | -.00985 | .00337 | .00123 | -.41172 | -.10627 |
| 0 | .074 | -3.070 | -.04574 | .78539 | .03747 | .00368 | .00098 | -.57407 | -.05824 |
| [illegible] | 2.000 | -.011 | -.08772 | .78181 | -.01098 | .00362 | .00118 | -.41142 | -.35061 |
| [illegible] | .075 | -5.107 | -.06791 | .79166 | .04341 | .00431 | .00078 | -.56535 | -.08578 |
| [illegible] | 2.000 | -.014 | -.13810 | .78248 | -.01391 | .00422 | .00116 | -.41252 | -.38066 |
| [illegible] | .076 | -7.129 | -.06805 | .80386 | .04652 | .00494 | .00009 | -.56308 | -.08465 |
| 0 | 2.000 | -.013 | -.16726 | .78921 | -.01343 | .00489 | .00070 | -.42146 | -.38615 |
| 0 | .077 | -10.159 | -.06512 | .81499 | .05064 | .00499 | .00022 | -.56641 | -.07990 |
| 0 | 2.000 | -.013 | -.20783 | .79073 | -.01323 | .00488 | .00109 | -.43321 | -.39189 |
| 0 | .078 | 1.014 | .01518 | .79462 | .01989 | .00111 | .00141 | -.58096 | .01911 |
| 0 | 2.000 | .003 | .02924 | .79423 | .00162 | .00114 | .00139 | -.42673 | -.83046 |

A-18

SID62-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAE NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P3 LAMBDA= 33 RUN NO. 6

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 6.079 | 3.050 | .03753 | .79325 | .01166 | .00223 | .00175 | -.58627 | .04731 |
| 681 | 2.000 | .007 | .07967 | .79013 | .00358 | .00232 | .00163 | -.43204 | -.60564 |
| 0 | .080 | 5.089 | .06244 | .80161 | .00466 | .00257 | .00210 | -.59017 | .07790 |
| 0 | 2.000 | .013 | .13329 | .79291 | .00765 | .00275 | .00187 | -.44575 | -.54244 |
| 0 | .081 | 7.123 | .08070 | .80255 | -.00163 | .00316 | .00216 | -.58846 | .10055 |
| | 2.000 | .007 | .17957 | .78635 | .00231 | .00341 | .00175 | -.45527 | -.51742 |
| | .082 | 10.165 | .09013 | .82221 | -.00525 | .00196 | .00229 | -.59097 | .10962 |
| | 2.000 | .014 | .23379 | .79341 | .00863 | .00234 | .00191 | -.47179 | -.48740 |
| | .083 | 12.184 | .08077 | .85918 | -.00753 | .00026 | .00200 | -.61590 | .09401 |
| 0 | 2.000 | .017 | .26025 | .82279 | .01201 | .00067 | .00190 | -.48691 | -.48367 |

[redacted]

[redacted]

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P4 LAMBDA= 33 RUN NO. 7

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 7.084 | -.014 | -.01227 | .76096 | .02761 | .00984 | .00066 | -.62307 | -.01612 |
| 681 | 2.000 | -.027 | -.01245 | .76095 | -.02778 | .00984 | .00066 | -.43799 | -.92564 |
| 0 | .085 | -1.024 | -.01302 | .75945 | .02948 | .00890 | .00024 | -.62137 | -.01715 |
| 0 | 2.000 | -.024 | -.02660 | .75910 | -.02485 | .00889 | .00040 | -.43629 | -.16828 |
| 0 | .086 | -3.051 | -.02405 | .74656 | .03496 | .00808 | .00010 | -.62387 | -.03222 |
| | 2.000 | -.023 | -.06374 | .74423 | -.02341 | .00807 | .00053 | -.43599 | -.35031 |
| | .087 | -5.084 | -.04773 | .73822 | .04447 | .00834 | -.00060 | -.61796 | -.06465 |
| | 2.000 | -.026 | -.11295 | .73109 | -.02568 | .00836 | .00014 | -.43568 | -.42455 |
| | .088 | -7.119 | -.07115 | .73407 | .05178 | .00724 | -.00060 | -.61261 | -.09692 |
| 0 | 2.000 | -.025 | -.16155 | .71960 | -.02384 | .00726 | .00030 | -.44436 | -.44017 |
| 0 | .089 | -10.163 | -.09062 | .73314 | .05454 | .00833 | -.00169 | -.59746 | -.12360 |
| 0 | 2.000 | -.034 | -.21853 | .70566 | -.03141 | .00849 | -.00019 | -.46285 | -.42313 |
| 0 | .091 | .996 | -.01305 | .75895 | .02725 | .00679 | .00096 | -.61648 | -.01720 |
| 0 | 2.000 | -.014 | .00014 | .75906 | -.01565 | .00681 | .00084 | -.44542 | 1.46129 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P4 LAMBDA= 33 RUN NO. 7

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 7.092 | 3.024 | -.00208 | .76076 | .02237 | -.00039 | .00159 | -.62656 | -.00273 |
| 681 | 3.000 | 0 | .03805 | .75981 | .00060 | -.00031 | .00161 | -.45691 | -.60646 |
| 0 | .093 | 5.064 | .03272 | .74894 | .00827 | .00819 | .00170 | -.63243 | .04369 |
| 0 | 3.000 | -.010 | .09869 | .74313 | -.01367 | .00831 | .00097 | -.46418 | -.56317 |
| [redacted] | .094 | 7.105 | .06746 | .74542 | -.00619 | .00860 | .00234 | -.64335 | .09050 |
| [redacted] | 2.000 | -.009 | .15912 | .73135 | -.01302 | .00883 | .00126 | -.47369 | -.55678 |
| [redacted] | .096 | 10.160 | .10265 | .74586 | -.01403 | .00712 | .00212 | -.63910 | .13763 |
| [redacted] | 2.000 | -.001 | .23259 | .71606 | -.00620 | .00739 | .00083 | -.48067 | -.51141 |
| 0 | .097 | 12.190 | .10888 | .77108 | -.01365 | .00387 | .00202 | -.66123 | .14121 |
| 0 | 2.000 | .010 | .26921 | .73072 | .00395 | .00421 | .00116 | -.53505 | -.48579 |

[redacted]



SID62-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P5 LAMBDA= 33 RUN NO. 8

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 8.098 | -.007 | -.00099 | .78450 | .02503 | .00372 | .00048 | -.55843 | -.00126 |
| 681 | 2.000 | -.016 | -.00109 | .78450 | -.01441 | .00372 | .00048 | -.44491 | -.92564 |
| 0 | .099 | -1.030 | -.01939 | .76761 | .02980 | .00471 | .00029 | -.55024 | -.02526 |
| 0 | 2.000 | -.017 | -.03318 | .76714 | -.01640 | .00470 | .00038 | -.43813 | -.19637 |
| | .100 | -3.072 | -.05169 | .77073 | .03948 | .00396 | .00035 | -.54376 | -.06707 |
| | 2.000 | -.019 | -.09292 | .76685 | -.01694 | .00394 | .00056 | -.43726 | -.37743 |
| | .101 | -5.112 | -.07924 | .77590 | .04659 | .00441 | .00017 | -.53785 | -.10212 |
| | 2.000 | -.022 | -.14805 | .76576 | -.01925 | .00438 | .00056 | -.43835 | -.40276 |
| 0 | .102 | -7.135 | -.07904 | .79365 | .04828 | .00427 | .00012 | -.54175 | -.09959 |
| 0 | 2.000 | -.023 | -.17699 | .77769 | -.02004 | .00423 | .00065 | -.44926 | -.39509 |
| 0 | .103 | -10.167 | -.07671 | .80798 | .05164 | .00439 | -.00005 | -.55489 | -.09494 |
| 0 | 2.000 | -.020 | -.21810 | .78175 | -.01801 | .00433 | .00073 | -.45119 | -.39471 |
| 0 | .104 | 1.018 | .02199 | .77047 | .01776 | .00365 | .00067 | -.56019 | .02854 |
| 0 | 3.000 | -.010 | .03567 | .76995 | -.01048 | .00367 | .00060 | -.44528 | -.76736 |



CONFIDENTIAL

SR62-1036

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SOL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P5 LAMBDA= 33 RUN NO. 8

| TEST NO. / MACH NO. | RUN.LOG / RBIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 8.105 | 3.058 | .05048 | .77809 | .00789 | .00198 | .00141 | -.56466 | .06488 |
| 681 | 2.000 | .006 | .09191 | .77429 | .00305 | .00206 | .00130 | -.43854 | -.60048 |
| 0 | .106 | 5.095 | .07243 | .79184 | .00180 | .00264 | .00168 | -.57277 | .09147 |
| 0 | 2.000 | .008 | .14245 | .78228 | .00417 | .00278 | .00144 | -.44944 | -.54463 |
| 0 | .107 | 7.122 | .07944 | .80115 | -.00152 | .00458 | .00196 | -.57807 | .09916 |
| 0 | 2.000 | .005 | .17814 | .78512 | .00031 | .00479 | .00138 | -.45615 | -.51809 |
| | .108 | 10.153 | .07578 | .81743 | -.00387 | .00349 | .00182 | -.58337 | .09271 |
| | 2.000 | .010 | .21867 | .79127 | .00468 | .00375 | .00117 | -.47266 | -.49257 |
| 0 | .109 | 12.179 | .07705 | .84131 | -.00706 | .00290 | .00158 | -.60409 | .09158 |
| 0 | 2.000 | .007 | .25277 | .80613 | .00264 | .00316 | .00094 | -.48216 | -.48388 |

CONFIDENTIAL

CONFIDENTIAL



SID62-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P5 LAMBDA= 33 RUN NO. 9

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 9.110 | -0 | .00593 | .59314 | .01836 | .00476 | .00048 | -.03634 | .01000 |
| 2490 | 2.000 | -.005 | .00593 | .59314 | -.00693 | .00476 | .00048 | -.04281 | -.92564 |
| 0 | .111 | -1.022 | -.00302 | .58838 | .01236 | .00410 | .00056 | -.03634 | -.00513 |
| 0 | 2.000 | -.003 | -.01351 | .58823 | -.00512 | .00409 | .00064 | -.04281 | .68535 |
| 0 | .112 | -3.058 | -.02737 | .57355 | .01559 | .00342 | .00052 | -.04151 | -.04771 |
| 0 | 2.000 | -.001 | -.05792 | .57127 | -.00293 | .00339 | .00070 | -.04410 | -.15084 |
| 0 | .113 | -5.093 | -.05400 | .56613 | .02302 | .00317 | .00053 | -.04410 | -.09539 |
| 0 | 2.000 | -.001 | -.10404 | .55910 | -.00204 | .00311 | .00081 | -.04539 | -.30046 |
| 0 | .114 | -7.130 | -.08276 | .56317 | .03074 | .00277 | .00034 | -.04281 | -.14695 |
| 0 | 2.000 | -.001 | -.15200 | .54854 | -.00281 | .00271 | .00068 | -.05056 | -.35906 |
| 0 | .115 | -10.194 | -.13206 | .58143 | .04078 | .00165 | .00078 | -.05444 | -.22713 |
| 0 | 2.000 | .002 | -.23286 | .54888 | -.00002 | .00148 | .00106 | -.05703 | -.38703 |
| 0 | .116 | 1.017 | .01059 | .58713 | .02423 | .00460 | .00003 | -.03764 | .01803 |
| 0 | 3.000 | -.005 | .02101 | .58685 | -.00681 | .00460 | -.00005 | -.04281 | -.39140 |

A 24

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P5 LAMBDA= 33 RUN NO. 9

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 9.117 | 3.054 | .03697 | .57238 | .01726 | .00516 | .00046 | -.03634 | .06460 |
| 2490 | 2.000 | -.004 | .06741 | .56960 | -.00681 | .00518 | .00019 | -.04539 | -.43144 |
| 0 | .118 | 5.094 | .06887 | .56390 | .00815 | .00602 | .00076 | -.04281 | .12214 |
| 0 | 2.000 | -.004 | .11866 | .55556 | -.00740 | .00606 | .00022 | -.04410 | -.45292 |
| | .119 | 7.130 | .09501 | .56547 | .00165 | .00456 | .00104 | -.04539 | .16802 |
| | 2.000 | -.004 | .16444 | .54931 | -.00098 | .00465 | .00046 | -.04798 | -.45259 |
| | .120 | 10.196 | .14624 | .58325 | -.00792 | .00459 | .00125 | -.05056 | .25074 |
| | 2.000 | -.002 | .24716 | .54816 | -.00217 | .00474 | .00042 | -.05961 | -.44529 |
| 0 | .121 | 12.248 | .18450 | .60291 | -.01153 | .00374 | .00088 | -.05573 | .30601 |
| 0 | 2.000 | -.001 | .30818 | .55006 | -.00253 | .00384 | .00006 | -.05703 | -.43158 |

[redacted]

[redacted]

NAW SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2 LAMBDA= 33 RUN NO. 10

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 10.122 | -.004 | .00022 | .50877 | .01692 | .00528 | .00091 | -.05443 | .00044 |
| 2490 | 2.000 | -.004 | .00019 | .50877 | -.00150 | .00528 | .00091 | -.04668 | -.92564 |
| 0 | .123 | -1.023 | -.00846 | .50891 | .01213 | .00572 | .00070 | -.05443 | -.01663 |
| 0 | 2.000 | -.003 | -.01755 | .50868 | -.00206 | .00571 | .00080 | -.04797 | .26888 |
| 0 | .124 | -3.051 | -.02193 | .50876 | .01204 | .00451 | .00069 | -.05960 | -.04311 |
| 0 | 2.000 | .007 | -.04898 | .50687 | .00120 | .00447 | .00093 | -.05056 | -.10618 |
| 0 | .125 | -5.080 | -.03680 | .50725 | .01136 | .00542 | .00031 | -.05960 | -.07255 |
| 0 | 2.000 | -.003 | -.08156 | .50200 | -.00217 | .00538 | .00079 | -.05185 | -.18411 |
| 0 | .126 | -7.112 | -.05712 | .50874 | .01343 | .00352 | .00051 | -.06348 | -.11228 |
| 0 | 2.000 | .006 | -.11966 | .49776 | .00150 | .00343 | .00094 | -.05443 | -.24487 |
| 0 | .127 | -10.168 | -.09390 | .51167 | .01233 | .00255 | .00075 | -.06607 | -.18351 |
| 0 | 2.000 | .008 | -.18274 | .48707 | .00366 | .00238 | .00119 | -.06348 | -.26584 |
| 0 | .128 | 1.016 | .00957 | .50834 | .02104 | .00474 | .00079 | -.05185 | .01883 |
| 0 | 2.000 | -.002 | .01858 | .50809 | -.00260 | .00476 | .00070 | -.04668 | -.38658 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2 LAMBDA= 33 RUN NO. 10

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 10.129 | 3.045 | .02713 | .51126 | .01812 | .00527 | .00092 | -.05960 | .05306 |
| 2490 | 2.000 | -0 | .05424 | .50910 | -.00428 | .00531 | .00064 | -.04926 | -.39456 |
| 0 | .130 | 5.076 | .04355 | .50632 | .01895 | .00564 | .00103 | -.06219 | .08602 |
| 0 | 2.000 | -.003 | .08817 | .50048 | -.00205 | .00571 | .00052 | -.05056 | -.35042 |
| 0 | .131 | 7.108 | .06316 | .50765 | .01741 | .00553 | .00115 | -.06607 | .12442 |
| 0 | 2.000 | -.001 | .12548 | .49594 | -.00386 | .00563 | .00045 | -.05573 | -.35083 |
| 0 | .132 | 10.167 | .10439 | .51485 | .01520 | .00390 | .00117 | -.06865 | .20277 |
| 0 | 2.000 | -.001 | .19362 | .48834 | -.00369 | .00404 | .00047 | -.06478 | -.34811 |
| 0 | .133 | 12.213 | .13510 | .51934 | .01854 | .00287 | .00098 | -.07253 | .26014 |
| 0 | 2.000 | -.001 | .24188 | .47902 | -.00190 | .00301 | .00036 | -.06607 | -.32614 |

[redacted]

[redacted]



S1062-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P3 LAMBDA= 33 RUN NO. 11

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 11.134 | -.008 | -.00602 | .60253 | .02236 | .00338 | .00085 | -.03505 | -.00999 |
| 2490 | 2.000 | -0 | -.00611 | .60253 | -.00233 | .00338 | .00085 | -.03764 | -.92564 |
| 0 | .135 | -1.028 | -.01296 | .60356 | .01710 | .00320 | .00090 | -.03893 | -.02147 |
| 0 | 2.000 | -.001 | -.02378 | .60323 | -.00209 | .00318 | .00095 | -.04151 | .08145 |
| 0 | .136 | -3.063 | -.03710 | .59310 | .02249 | .00293 | .00081 | -.04151 | -.06256 |
| 0 | 2.000 | -.001 | -.06874 | .59027 | -.00145 | .00288 | .00096 | -.04281 | -.26494 |
| 0 | .137 | -5.099 | -.06208 | .58355 | .02774 | .00276 | .00081 | -.04281 | -.10639 |
| 0 | 2.000 | -.002 | -.11369 | .57573 | -.00081 | .00267 | .00106 | -.04410 | -.33684 |
| 0 | .138 | -7.135 | -.08929 | .58869 | .03628 | .00007 | .00130 | -.04410 | -.15168 |
| 0 | 2.000 | .004 | -.16171 | .57305 | .00256 | -.00009 | .00129 | -.04668 | -.38404 |
| 0 | .139 | -10.199 | -.13460 | .61008 | .04408 | .00122 | .00119 | -.05573 | -.22062 |
| 0 | 2.000 | .005 | -.24048 | .57662 | .00284 | .00099 | .00138 | -.05444 | -.39342 |
| 0 | .140 | 1.013 | .00451 | .60299 | .02536 | .00632 | .00061 | -.03634 | .00747 |
| 0 | 3.000 | -.009 | .01516 | .60281 | -.01121 | .00633 | .00050 | -.04022 | -.39249 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P3 LAMBDA= 33 RUN NO. 11

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 11.141 | 3.054 | .03607 | .59132 | .01706 | .00312 | .00091 | -.03893 | .06100 |
| 2490 | 2.000 | .003 | .06751 | .58856 | -.00014 | .00317 | .00074 | -.04281 | -.44656 |
| 0 | .142 | 5.092 | .06563 | .58821 | .00791 | .00397 | .00097 | -.04022 | .11158 |
| 0 | 2.000 | -.004 | .11757 | .58007 | -.00059 | .00404 | .00061 | -.04281 | -.46548 |
| 0 | .143 | 7.131 | .09742 | .58999 | -.00214 | .00606 | .00094 | -.04281 | .16513 |
| 0 | 3.000 | -.007 | .16990 | .57334 | -.00935 | .00613 | .00018 | -.04410 | -.47673 |
| 0 | .144 | 10.200 | .14986 | .61315 | -.01232 | .00494 | .00114 | -.05444 | .24441 |
| 0 | 3.000 | -.006 | .25605 | .57693 | -.00783 | .00506 | .00025 | -.05444 | -.46288 |
| 0 | .145 | 12.254 | .18962 | .63347 | -.01552 | .00426 | .00098 | -.05961 | .29934 |
| 0 | 3.000 | -.004 | .31973 | .57881 | -.00608 | .00437 | .00006 | -.05573 | -.44382 |



SID62-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P1 LAMBDA= 33 RUN NO. 12

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 12.146 | -.009 | -.00767 | .46415 | .01797 | -.00023 | .00145 | -.06215 | -.01653 |
| 2490 | 2.000 | .012 | -.00774 | .46415 | .00837 | -.00023 | .00145 | -.04405 | -.92564 |
| 0 | .147 | -1.028 | -.01818 | .46601 | .01442 | -.00065 | .00152 | -.06474 | -.03901 |
| 0 | 2.000 | .014 | -.02654 | .46561 | .00985 | -.00067 | .00151 | -.04405 | -.08707 |
| 0 | .148 | -3.057 | -.03525 | .47035 | .01594 | -.00113 | .00153 | -.06862 | -.07495 |
| 0 | 2.000 | .015 | -.06028 | .46780 | .01103 | -.00121 | .00147 | -.04793 | -.23855 |
| 0 | .149 | -5.089 | -.05716 | .47521 | .01882 | -.00392 | .00192 | -.07508 | -.12027 |
| 0 | 2.000 | .021 | -.09907 | .46827 | .01765 | -.00407 | .00157 | -.05051 | -.29765 |
| 0 | .150 | -7.125 | -.08313 | .48361 | .02179 | -.00543 | .00242 | -.07379 | -.17189 |
| 0 | 2.000 | .025 | -.14246 | .46957 | .02150 | -.00569 | .00172 | -.05181 | -.32354 |
| 0 | .151 | -10.183 | -.11943 | .49265 | .01814 | -.00263 | .00227 | -.06991 | -.24243 |
| 0 | 2.000 | .021 | -.20463 | .46378 | .01637 | -.00299 | .00177 | -.04664 | -.30458 |
| 0 | .152 | 1.012 | .00330 | .46678 | .02250 | -.00037 | .00141 | -.06474 | .00707 |
| 0 | 2.000 | .011 | .01154 | .46665 | .00740 | -.00034 | .00142 | -.04534 | -.14501 |



SID62-1

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P1 LAMBDA= 33 RUN NO. 12

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 12.153 | 3.042 | .02370 | .46648 | .01956 | .00233 | .00111 | -.06732 | .05080 |
| 2490 | 2.000 | .005 | .04842 | .46457 | .00131 | .00239 | .00099 | -.04793 | -.33383 |
| 0 | .154 | 5.078 | .05190 | .46882 | .01447 | .00122 | .00115 | -.06862 | .11070 |
| 0 | 2.000 | .005 | .09319 | .46239 | .00239 | .00131 | .00104 | -.04664 | -.37873 |
| 0 | .155 | 7.115 | .07936 | .47454 | .01034 | .00277 | .00110 | -.07508 | .16724 |
| 0 | 2.000 | .003 | .13751 | .46106 | -.00001 | .00288 | .00075 | -.05956 | -.38794 |
| 0 | .156 | 10.175 | .11937 | .48379 | .01288 | .00474 | .00136 | -.07767 | .24673 |
| 0 | 2.000 | -0 | .20294 | .45511 | -.00366 | .00491 | .00050 | -.05827 | -.35083 |
| 0 | .157 | 12.218 | .14525 | .49323 | .01916 | .00274 | .00111 | -.07767 | .29450 |
| 0 | 2.000 | -.001 | .24633 | .45132 | -.00174 | .00291 | .00050 | -.05310 | -.31849 |

[redacted]

[redacted]

NAW SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C RUN NO. 13

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 13.158 | 0 | .00865 | .56799 | .01491 | .00553 | .00048 | -.01167 | .01523 |
| 2490 | 2.000 | -.002 | .00865 | .56799 | -.00589 | .00553 | .00048 | -.02460 | -.92564 |
| 0 | .159 | -1.027 | -.01574 | .56340 | .01967 | .00501 | .00062 | -.01167 | -.02793 |
| 0 | 2.000 | -.001 | -.02583 | .56303 | -.00442 | .00500 | .00071 | -.02460 | -.11796 |
| 0 | .160 | -3.075 | -.06624 | .56862 | .03981 | .00409 | .00062 | -.01167 | -.11650 |
| 0 | 2.000 | -.001 | -.09664 | .56425 | -.00351 | .00405 | .00084 | -.02589 | -.47072 |
| 0 | .161 | -3.075 | -.06592 | .56862 | .03967 | .00458 | .00047 | -.01167 | -.11594 |
| 0 | 2.000 | -.001 | -.09632 | .56427 | -.00430 | .00455 | .00072 | -.02331 | -.46976 |
| 0 | .162 | -5.122 | -.11182 | .57859 | .05600 | .00411 | .00077 | -.01296 | -.19327 |
| 0 | 2.000 | -0 | -.16302 | .56630 | -.00277 | .00402 | .00113 | -.02201 | -.50631 |
| 0 | .163 | -7.166 | -.14554 | .60236 | .06421 | .00345 | .00062 | -.01425 | -.24161 |
| 0 | 2.000 | -.002 | -.21953 | .57950 | -.00094 | .00335 | .00105 | -.02848 | -.49200 |
| 0 | .164 | -10.232 | -.18057 | .64932 | .06431 | .00295 | .00101 | -.02072 | -.27810 |
| 0 | 2.000 | .005 | -.29303 | .60693 | .00107 | .00272 | .00152 | -.03107 | -.44396 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C RUN NO. 13

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 13.165 | 1.028 | .03319 | .56570 | .01014 | .00554 | .00044 | -.01167 | .05867 |
| 2490 | 2.000 | -.004 | .04333 | .56501 | -.00725 | .00554 | .00034 | -.02331 | -.65546 |
| 0 | .166 | 3.078 | .08518 | .57237 | -.00979 | .00606 | .00064 | -.01296 | .14882 |
| 0 | 2.000 | -.005 | .11578 | .56697 | -.00791 | .00609 | .00031 | -.02589 | -.61569 |
| 0 | .167 | 5.123 | .12769 | .58181 | -.02494 | .00668 | .00090 | -.01425 | .21947 |
| 0 | 2.000 | -.004 | .17912 | .56808 | -.00800 | .00673 | .00030 | -.02460 | -.59442 |
| 0 | .168 | 7.166 | .16065 | .60506 | -.03230 | .00654 | .00104 | -.01425 | .26552 |
| 0 | 2.000 | -.005 | .23487 | .58030 | -.00824 | .00662 | .00022 | -.02719 | -.56189 |
| 0 | .169 | 10.234 | .20105 | .65226 | -.03405 | .00642 | .00130 | -.02072 | .30824 |
| 0 | 2.000 | -.006 | .31372 | .60617 | -.00911 | .00654 | .00014 | -.03107 | -.50920 |
| 0 | .170 | 12.284 | .22636 | .68537 | -.03088 | .00586 | .00120 | -.02331 | .33028 |
| 0 | 3.000 | -.006 | .36697 | .62153 | -.00834 | .00598 | -.00007 | -.03365 | -.47431 |
| 0 | .171 | 7.167 | .16226 | .60527 | -.03323 | .00669 | .00106 | -.01425 | .26808 |
| 0 | 2.000 | -.005 | .23650 | .58031 | -.00827 | .00677 | .00022 | -.02977 | -.56413 |

[redacted]

[redacted]

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P1 LAMBDA= 28 RUN NO. 14

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 14.172 | -.002 | .00271 | .53631 | .01760 | .00420 | .00088 | -.09309 | .00505 |
| 2490 | 2.000 | -.003 | .00269 | .53631 | -.00135 | .00420 | .00088 | -.06591 | -.92564 |
| 0 | .173 | -1.027 | -.01408 | .53567 | .01582 | .00367 | .00089 | -.09309 | -.02629 |
| 0 | 2.000 | .005 | -.02368 | .53533 | .00079 | .00365 | .00096 | -.06462 | .01105 |
| 0 | .174 | -3.062 | -.03910 | .53400 | .01996 | .00363 | .00083 | -.08791 | -.07322 |
| 0 | 2.000 | .004 | -.06756 | .53115 | .00013 | .00358 | .00102 | -.06333 | -.26518 |
| 0 | .175 | -5.100 | -.07005 | .52566 | .02738 | .00372 | .00063 | -.08403 | -.13325 |
| 0 | 2.000 | .006 | -.11649 | .51735 | .00127 | .00365 | .00095 | -.05945 | -.35525 |
| 0 | .176 | -7.137 | -.09851 | .53021 | .03306 | .00219 | .00082 | -.07756 | -.18579 |
| 0 | 2.000 | .009 | -.16361 | .51387 | .00471 | .00207 | .00109 | -.05815 | -.37949 |
| 0 | .177 | -10.198 | -.14293 | .54263 | .03875 | .00352 | .00085 | -.07756 | -.26341 |
| 0 | 2.000 | .009 | -.23673 | .50876 | .00327 | .00332 | .00146 | -.05427 | -.38479 |
| 0 | .178 | -7.139 | -.09972 | .53287 | .03322 | .00451 | .00050 | -.07756 | -.18714 |
| 0 | 2.000 | .004 | -.16516 | .51635 | -.00043 | .00441 | .00106 | -.05686 | -.37923 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P1 LAMBDA= 28 RUN NO. 14

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 14.179 | 1.016 | .01004 | .53913 | .02164 | .00501 | .00071 | -.08920 | .01862 |
| 2490 | 2.000 | -.003 | .01959 | .53887 | -.00600 | .00503 | .00062 | -.06462 | -.42154 |
| 0 | .180 | 3.051 | .03481 | .53461 | .01582 | .00725 | .00056 | -.08791 | .06512 |
| 0 | 2.000 | -.006 | .06321 | .53200 | -.00989 | .00727 | .00018 | -.06074 | -.43568 |
| 0 | .181 | 5.087 | .06167 | .52538 | .01022 | .00588 | .00089 | -.08532 | .11738 |
| 0 | 2.000 | -.004 | .10800 | .51785 | -.00699 | .00593 | .00037 | -.06333 | -.43196 |
| 0 | .182 | 7.127 | .09464 | .52843 | .00255 | .00857 | .00117 | -.08273 | .17910 |
| 0 | 2.000 | -.007 | .15946 | .51261 | -.01103 | .00865 | .00009 | -.06333 | -.44112 |
| 0 | .183 | 10.203 | .15999 | .54846 | -.00822 | .00725 | .00132 | -.07368 | .29171 |
| 0 | 2.000 | -.004 | .25460 | .51145 | -.00858 | .00737 | .00002 | -.08920 | -.43631 |
| 0 | .184 | 12.265 | .20317 | .56702 | -.00196 | .01006 | .00153 | -.09050 | .35831 |
| 0 | 2.000 | -.002 | .31897 | .51093 | -.00631 | .01016 | -.00064 | -.07238 | -.39228 |
| 0 | .185 | 7.127 | .09572 | .52777 | .00189 | .00862 | .00117 | -.08532 | .18137 |
| 0 | 2.000 | -.006 | .16045 | .51182 | -.01104 | .00870 | .00009 | -.06850 | -.44422 |

[redacted]

[redacted]

IA-35

S1062-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2 G1 LAMBDA= 33 RUN NO. 15

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 15.186 | -.003 | .00291 | .49247 | .01434 | .00094 | .00107 | -.06357 | .00591 |
| 2490 | 2.000 | .012 | .00289 | .49247 | .00717 | .00094 | .00108 | -.05452 | -.92564 |
| 0 | .187 | -1.021 | -.00474 | .49178 | .00864 | .00129 | .00090 | -.06486 | -.00964 |
| 0 | 2.000 | .010 | -.01350 | .49162 | .00564 | .00127 | .00093 | -.05711 | .64625 |
| 0 | .188 | -3.051 | -.02151 | .49492 | .00980 | .00285 | .00077 | -.06357 | -.04345 |
| 0 | 2.000 | .008 | -.04781 | .49307 | .00343 | .00280 | .00092 | -.05969 | -.06694 |
| 0 | .189 | -5.081 | -.04061 | .49440 | .01316 | .00165 | .00098 | -.06357 | -.08214 |
| 0 | 2.000 | .011 | -.08422 | .48886 | .00646 | .00156 | .00113 | -.06098 | -.21646 |
| 0 | .190 | -7.114 | -.05658 | .49790 | .00830 | .00043 | .00070 | -.06873 | -.11363 |
| 0 | 2.000 | .012 | -.11779 | .48706 | .00800 | .00034 | .00075 | -.06098 | -.20416 |
| 0 | .191 | -10.166 | -.09027 | .50183 | .00915 | .00025 | .00088 | -.07390 | -.17987 |
| 0 | 2.000 | .012 | -.17740 | .47802 | .00782 | .00009 | .00091 | -.06615 | -.24864 |
| 0 | .192 | -7.112 | -.05780 | .49723 | .01241 | .00015 | .00077 | -.07003 | -.11624 |
| 0 | 2.000 | .013 | -.11890 | .48625 | .00877 | .00006 | .00078 | -.06098 | -.24007 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2 G1 LAMBDA= 33 RUN NO. 15

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 15.193 | -.003 | .00295 | .49408 | .01417 | .00050 | .00078 | -.06227 | .00598 |
| 2490 | 2.000 | .009 | .00293 | .49408 | .00600 | .00050 | .00078 | -.05452 | -.92564 |
| 0 | .194 | 1.015 | .00923 | .49364 | .02056 | .00087 | .00045 | -.06098 | .01871 |
| 0 | 2.000 | .007 | .01798 | .49340 | .00407 | .00088 | .00044 | -.05452 | -.37949 |
| 0 | .195 | 3.046 | .02602 | .49564 | .02077 | .00091 | .00108 | -.06486 | .05250 |
| 0 | 2.000 | .010 | .05231 | .49355 | .00583 | .00097 | .00103 | -.05711 | -.33379 |
| 0 | .196 | 5.075 | .03987 | .49052 | .02242 | .00356 | .00092 | -.06615 | .08129 |
| 0 | 2.000 | .004 | .08310 | .48508 | .00011 | .00363 | .00060 | -.05969 | -.30270 |
| 0 | .197 | 7.106 | .05859 | .48751 | .02176 | .00346 | .00120 | -.07003 | .12017 |
| 0 | 2.000 | .004 | .11843 | .47652 | 0 | .00358 | .00077 | -.06098 | -.30892 |
| 0 | .198 | 10.161 | .09361 | .49477 | .02312 | .00261 | .00121 | -.07519 | .18920 |
| 0 | 2.000 | -.002 | .17941 | .47051 | -.00109 | .00279 | .00073 | -.06744 | -.30214 |
| 0 | .199 | 12.206 | .12359 | .50263 | .02669 | .00062 | .00080 | -.07649 | .24588 |
| 0 | 2.000 | .002 | .22705 | .46515 | .00106 | .00077 | .00065 | -.06744 | -.28824 |

A-37

S1062-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C RUN NO. 16

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 16.201 | -.005 | .00127 | .53647 | .01744 | .01194 | .00027 | -.05479 | .00237 |
| 1880 | 2.000 | -.002 | .00123 | .53647 | -.00997 | .01194 | .00027 | -.04078 | -.92564 |
| 0 | .202 | -1.041 | -.02400 | .53572 | .02690 | .00448 | .00041 | -.05479 | -.04480 |
| 0 | 3.000 | -.010 | -.03372 | .53519 | -.00789 | .00447 | .00049 | -.03991 | -.41491 |
| 0 | .203 | -3.112 | -.08201 | .55728 | .05695 | .00369 | .00014 | -.05216 | -.14716 |
| 0 | 3.000 | -.008 | -.11214 | .55201 | -.00654 | .00368 | .00034 | -.03903 | -.60687 |
| 0 | .204 | -5.180 | -.12612 | .59349 | .07681 | .00537 | -.00071 | -.05304 | -.21250 |
| 0 | 3.000 | -.007 | -.17917 | .57969 | -.00750 | .00541 | -.00022 | -.03640 | -.60196 |
| 0 | .205 | -7.244 | -.15708 | .63055 | .08693 | .00412 | -.00011 | -.05041 | -.24912 |
| 0 | 2.000 | -0 | -.23532 | .60572 | -.00307 | .00410 | .00041 | -.02677 | -.57181 |
| 0 | .206 | -10.336 | -.18150 | .69764 | .08608 | .00231 | .00108 | -.04691 | -.26016 |
| 0 | 2.000 | .006 | -.30370 | .65376 | .00111 | .00208 | .00148 | -.01189 | -.50436 |
| 0 | .207 | -7.244 | -.15857 | .63184 | .08861 | .00474 | -.00042 | -.04954 | -.25097 |
| 0 | 2.000 | -.001 | -.23697 | .60680 | -.00430 | .00475 | .00018 | -.02502 | -.57692 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SWL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C RUN NO. 16

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 16.208 | 1.030 | .02710 | .53243 | .00644 | .00596 | -.00008 | -.05216 | .05090 |
| 1880 | 3.000 | -.018 | .03666 | .53185 | -.01298 | .00596 | -.00019 | -.03991 | -.77825 |
| 0 | .209 | 3.106 | .08848 | .55556 | -.02175 | .00459 | -0 | -.05392 | .15927 |
| 0 | 3.000 | -.012 | .11845 | .54995 | -.00925 | .00458 | -.00025 | -.03816 | -.70357 |
| 0 | .210 | 5.175 | .13356 | .59489 | -.03996 | .00643 | .00037 | -.05392 | .22451 |
| 0 | 2.000 | -.008 | .18666 | .58042 | -.00865 | .00644 | -.00021 | -.03816 | -.66655 |
| 0 | .211 | 7.242 | .16631 | .63475 | -.04804 | .00739 | .00053 | -.05129 | .26201 |
| 0 | 3.000 | -.009 | .24498 | .60873 | -.00966 | .00739 | -.00040 | -.02677 | -.62108 |
| 0 | .212 | 10.335 | .18758 | .70144 | -.03924 | .00615 | .00062 | -.05392 | .26743 |
| 0 | 3.000 | -.006 | .31036 | .65642 | -.00769 | .00617 | -.00049 | -.02677 | -.53514 |
| 0 | .213 | 12.398 | .19251 | .73883 | -.02375 | .00453 | .00065 | -.05917 | .26056 |
| 0 | 3.000 | -.006 | .34662 | .68028 | -.00632 | .00457 | -.00033 | -.02677 | -.47051 |
| 0 | .214 | 7.240 | .16464 | .63669 | -.04804 | .00728 | .00035 | -.05567 | .25859 |
| 0 | 3.000 | -.009 | .24355 | .61087 | -.00948 | .00727 | -.00057 | -.03728 | -.62324 |



S1062-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P1 LAMBDA= 33 RUN NO. 17

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 17.217 | -.015 | -.01053 | .60616 | .02570 | -.00964 | .00205 | -.05019 | -.01738 |
| 1880 | 2.000 | .038 | -.01069 | .60616 | .02497 | -.00964 | .00205 | .07860 | -.92564 |
| 0 | .218 | -1.041 | -.01678 | .60536 | .02258 | -.00651 | .00213 | -.03529 | -.02772 |
| 0 | 2.000 | .046 | -.02777 | .60496 | .02651 | -.00654 | .00201 | .09437 | -.17022 |
| 0 | .219 | -3.078 | -.02355 | .61013 | .02225 | -.00752 | .00242 | -.04493 | -.03860 |
| 0 | 2.000 | .051 | -.05628 | .60799 | .02944 | -.00764 | .00201 | .07773 | -.23561 |
| 0 | .220 | -5.124 | -.03772 | .61306 | .02406 | -.00795 | .00290 | -.06946 | -.06152 |
| 0 | 2.000 | .053 | -.09230 | .60724 | .03060 | -.00818 | .00218 | .05845 | -.28687 |
| 0 | .222 | -10.262 | -.09767 | .59818 | .02835 | -.00687 | .00346 | -.08173 | -.16328 |
| 0 | 2.000 | .043 | -.20265 | .57122 | .02558 | -.00737 | .00218 | -.00113 | -.33152 |
| 0 | .223 | 5.086 | .01034 | .60908 | .02770 | -.00175 | .00086 | -.09575 | .01697 |
| 0 | 2.000 | .016 | .06428 | .60577 | .00855 | -.00166 | .00101 | .06634 | -.29940 |
| 0 | .225 | 10.324 | .12248 | .61652 | .04478 | .00518 | .00023 | -.10801 | .19866 |
| 0 | 2.000 | .017 | .23096 | .58460 | .00391 | .00514 | -.00070 | .00501 | -.23312 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2 LAMBDA= 33 RUN NO. 18

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 18.226 | -.012 | -.00264 | .64039 | .02077 | .00627 | .00028 | -.06146 | -.00412 |
| 1880 | 2.000 | -.005 | -.00276 | .64039 | -.00708 | .00627 | .00028 | .02618 | -.92564 |
| 0 | .227 | -1.032 | -.00196 | .63775 | .01484 | .00495 | .00040 | -.06322 | -.00307 |
| 0 | 2.000 | -.003 | -.01344 | .63761 | -.00511 | .00495 | .00049 | .03144 | .66728 |
| 0 | .228 | -3.072 | -.01112 | .63732 | .01581 | .00487 | -.00004 | -.08075 | -.01744 |
| 0 | 2.000 | -.001 | -.04525 | .63580 | -.00420 | .00487 | .00022 | .02618 | -.04673 |
| 0 | .229 | -5.114 | -.02266 | .62886 | .01721 | .00557 | .00010 | -.07286 | -.03603 |
| 0 | 2.000 | -.001 | -.07861 | .62433 | -.00480 | .00554 | .00059 | .02180 | -.18511 |
| 0 | .230 | -7.159 | -.03340 | .62721 | .01496 | .00413 | .00035 | -.07373 | -.05325 |
| 0 | 2.000 | -.005 | -.11128 | .61817 | -.00096 | .00405 | .00086 | .02004 | -.20565 |
| 0 | .231 | -10.232 | -.05655 | .61440 | .01122 | .00143 | .00093 | -.06409 | -.09204 |
| 0 | 2.000 | .015 | -.16476 | .59459 | .00609 | .00124 | .00117 | .02267 | -.22497 |
| 0 | .232 | -7.161 | -.03563 | .62476 | .01546 | .00373 | .00036 | -.06935 | -.05704 |
| 0 | 2.000 | .005 | -.11322 | .61545 | -.00028 | .00365 | .00082 | .02530 | -.21303 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2 LAMBDA= 33 RUN NO. 18

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 18.233 | 1.012 | -.00021 | .64049 | .02572 | .00387 | .00022 | -.06059 | -.00032 |
| 1880 | 2.000 | -.001 | .01110 | .64040 | -.00332 | .00388 | .00015 | .02881 | -.53689 |
| 0 | .234 | 3.047 | .00304 | .64314 | .02625 | .00220 | .00038 | -.16927 | .00473 |
| 0 | 2.000 | .005 | .03721 | .64207 | .00086 | .00221 | .00026 | .02618 | -.36932 |
| 0 | .235 | 5.094 | .02032 | .63861 | .02130 | .00469 | .00050 | -.07198 | .03181 |
| 0 | 2.000 | -.002 | .07693 | .63429 | -.00466 | .00472 | .00008 | .04634 | -.40152 |
| 0 | .236 | 7.142 | .03273 | .63317 | .02393 | .00391 | .00052 | -.07724 | .05169 |
| 0 | 3.000 | -.001 | .11118 | .62419 | -.00260 | .00394 | .00003 | .04546 | -.34745 |
| 0 | .237 | 10.226 | .06120 | .63079 | .02680 | .00254 | .00050 | -.08250 | .09702 |
| 0 | 3.000 | -.003 | .17219 | .60991 | -.00063 | .00259 | .00004 | .02618 | -.31587 |
| 0 | .238 | 12.287 | .08453 | .62467 | .02959 | .00116 | .00037 | -.08951 | .13532 |
| 0 | 3.000 | -.002 | .21550 | .59238 | -.00181 | .00122 | .00011 | .02881 | -.29930 |
| 0 | .239 | 7.148 | .03624 | .63517 | .02501 | .00129 | .00054 | -.05708 | .05705 |
| 0 | 2.000 | .008 | .11498 | .62573 | .00264 | .00135 | .00037 | .04897 | -.33761 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K1(6+6)26) AB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P3 LAMBDA= 33 RUN NO. 19

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 19.240 | -.015 | -.00609 | .72471 | .02564 | .00682 | .00014 | -.06925 | -.00841 |
| 1880 | 2.000 | -.008 | -.00628 | .72471 | -.00907 | .00682 | .00014 | -.02629 | -.92564 |
| 0 | .241 | -1.041 | -.01081 | .72600 | .02301 | .00694 | .00003 | -.07013 | -.01488 |
| 0 | 2.000 | -.007 | -.02399 | .72568 | -.00854 | .00694 | .00016 | -.02542 | .05607 |
| 0 | .242 | -3.086 | -.02402 | .70991 | .02665 | .00382 | .00030 | -.06750 | -.03384 |
| 0 | 2.000 | -.001 | -.06220 | .70759 | -.00245 | .00380 | .00051 | -.02366 | -.24349 |
| 0 | .243 | -5.137 | -.04587 | .69212 | .03341 | .00364 | .00014 | -.06487 | -.06628 |
| 0 | 2.000 | -.003 | -.10765 | .68523 | -.00128 | .00362 | .00046 | -.01051 | -.34591 |
| 0 | .244 | -7.189 | -.06617 | .68086 | .03702 | .00378 | .00057 | -.06575 | -.09719 |
| 0 | 2.000 | -.004 | -.15084 | .66723 | -.00116 | .00368 | .00104 | -.00701 | -.36647 |
| 0 | .245 | -10.268 | -.09662 | .68642 | .04419 | .00246 | .00093 | -.07013 | -.14076 |
| 0 | 2.000 | .009 | -.21741 | .65821 | .00243 | .00226 | .00135 | -.00788 | -.38567 |
| 0 | .246 | -7.191 | -.06937 | .68450 | .03989 | .00361 | .00057 | -.06048 | -.10134 |
| 0 | 2.000 | .005 | -.15449 | .67043 | -.00021 | .00351 | .00102 | -.00438 | -.38291 |



SID62-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SWL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P3 LAMBDA= 33 RUN NO. 19

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 19.247 | 1.011 | -.00290 | .72593 | .03016 | .00705 | .00007 | -.07101 | -.00400 |
| 1880 | 2.000 | -.008 | .00991 | .72587 | -.00931 | .00705 | -.00005 | -.02805 | -.49512 |
| 0 | .248 | 3.066 | .02033 | .71251 | .02090 | .00331 | .00019 | -.07364 | .02853 |
| 0 | 3.000 | -.005 | .05839 | .71040 | -.00484 | .00331 | .00001 | -.02892 | -.49297 |
| 0 | .249 | 5.126 | .04991 | .69853 | .01057 | .00422 | .00045 | -.07276 | .07145 |
| 0 | 2.000 | -.005 | .11211 | .69128 | -.00560 | .00424 | .00007 | -.02191 | -.49268 |
| 0 | .250 | 7.183 | .07451 | .68951 | .00473 | .00501 | .00109 | -.07188 | .10806 |
| 0 | 2.000 | -0 | .16013 | .67478 | -.00397 | .00510 | .00045 | -.01227 | -.47155 |
| 0 | .251 | 10.264 | .10012 | .69759 | .00274 | .00402 | .00076 | -.08328 | .14352 |
| 0 | 3.000 | -.002 | .22279 | .66860 | -.00243 | .00410 | .00003 | -.01928 | -.43537 |
| 0 | .252 | 12.319 | .11548 | .70044 | .00544 | .00317 | .00063 | -.08942 | .16486 |
| 0 | 3.000 | -.006 | .26224 | .65969 | -.00505 | .00323 | -.00006 | -.02191 | -.40557 |
| 0 | .253 | 7.184 | .07496 | .69443 | .00449 | .00424 | .00101 | -.07188 | .10795 |
| 0 | 2.000 | -.002 | .16121 | .67961 | -.00232 | .00434 | .00047 | -.00788 | -.47327 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P3 LAMBDA= 33 RUN NO. 20

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 20.255 | 0 | .00608 | .51682 | .01628 | .00478 | .00054 | .00292 | .01176 |
| 3270 | 2.000 | -.001 | .00608 | .51682 | -.00261 | .00478 | .00054 | -.01906 | -.92564 |
| 0 | .256 | -1.013 | -.00961 | .51245 | .01095 | .00588 | .00055 | .00537 | -.01876 |
| 0 | 2.000 | -.001 | -.01867 | .51220 | -.00332 | .00587 | .00066 | -.01906 | .30485 |
| 0 | .257 | -3.035 | -.04126 | .50428 | .01259 | .00425 | .00070 | .00292 | -.08183 |
| 0 | 2.000 | -.002 | -.06790 | .50138 | -.00065 | .00421 | .00092 | -.01662 | -.17621 |
| 0 | .258 | -5.055 | -.07631 | .50833 | .02563 | .00417 | .00107 | .00048 | -.15011 |
| 0 | 3.000 | .002 | -.12079 | .49963 | -.00045 | .00406 | .00143 | -.02150 | -.34585 |
| 0 | .259 | -7.078 | -.11805 | .52078 | .04010 | .00255 | .00093 | -.00440 | -.22669 |
| 0 | 2.000 | .004 | -.18131 | .50227 | .00271 | .00241 | .00123 | -.02150 | -.41491 |
| 0 | .260 | -10.115 | -.18191 | .54368 | .05815 | .00108 | .00181 | -.00440 | -.33459 |
| 0 | 2.000 | .004 | -.27455 | .50329 | .00397 | .00074 | .00197 | -.02883 | -.44678 |
| 0 | .261 | -7.077 | -.11605 | .51757 | .03930 | .00345 | .00068 | -.00196 | -.22421 |
| 0 | 2.000 | -.002 | -.17892 | .49934 | -.00063 | .00334 | .00110 | -.02639 | -.41251 |



S1062-105

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/C)=.044 THETA=0 CONFIGURATION..E15 T11 C P3 LAMBDA= 33 RUN NO. 20

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 20.262 | 5.056 | .08962 | .50944 | .00374 | .00697 | .00088 | .00048 | .17593 |
| 3270 | 2.000 | -.003 | .13416 | .49956 | -.00880 | .00702 | .00026 | -.02150 | -.45162 |
| 0 | .263 | 10.116 | .19454 | .55056 | -.02738 | .00798 | .00150 | -.00929 | .35334 |
| 0 | 2.000 | -.003 | .28820 | .50785 | -.00940 | .00812 | .00007 | -.02639 | -.48819 |
| 0 | .264 | 12.145 | .24036 | .58392 | -.03658 | .01304 | .00231 | -.01173 | .41164 |
| 0 | 3.000 | -.003 | .35781 | .52030 | -.01457 | .01323 | -.00049 | -.02395 | -.48186 |
| 0 | .265 | 7.078 | .13059 | .51839 | -.01061 | .00692 | .00095 | -.00685 | .25192 |
| 0 | 2.000 | -.003 | .19347 | .49835 | -.00901 | .00699 | .00009 | -.02639 | -.48383 |
| 0 | .266 | 3.036 | .05398 | .50586 | .01764 | .00685 | -.00004 | -.00196 | .10670 |
| 0 | 4.000 | -.003 | .08069 | .50229 | -.00910 | .00683 | -.00041 | -.02395 | -.37093 |
| 0 | .267 | 1.012 | .01634 | .51444 | .02278 | .00795 | 0 | .00292 | .03177 |
| 0 | 2.000 | -.004 | .02542 | .51407 | -.01096 | .00795 | -.00014 | -.02150 | -.30925 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2 LAMBDA= 33 RUN NO. 21

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 21.268 | -.002 | .00018 | .40646 | .01339 | .01030 | .00028 | -.01647 | .00044 |
| 3270 | 3.000 | -.008 | .00017 | .40646 | -.01792 | .01030 | .00028 | -.03114 | -.92564 |
| 0 | .269 | -1.014 | -.01380 | .41211 | .00837 | .00274 | .00066 | -.02013 | -.03350 |
| 0 | 3.000 | -.002 | -.02109 | .41180 | -.00399 | .00273 | .00071 | -.03065 | .14648 |
| 0 | .270 | -3.032 | -.03462 | .41374 | .00458 | .00503 | .00054 | -.03359 | -.08367 |
| 0 | 2.000 | -.001 | -.05645 | .41133 | -.00521 | .00499 | .00080 | -.02136 | -.07621 |
| 0 | .271 | -5.046 | -.05193 | .41794 | .00702 | .00468 | .00043 | -.02380 | -.12426 |
| 0 | 2.000 | -.001 | -.08848 | .41176 | -.00434 | .00462 | .00084 | -.03603 | -.19023 |
| 0 | .272 | -7.064 | -.08094 | .42401 | .01283 | .00219 | .00061 | -.02796 | -.19090 |
| 0 | 2.000 | .002 | -.13246 | .41084 | .00060 | .00210 | .00088 | -.03799 | -.27599 |
| 0 | .273 | -10.094 | -.12956 | .43673 | .02272 | .00388 | .00015 | -.02796 | -.29665 |
| 0 | 2.000 | -.001 | -.20408 | .40727 | -.00469 | .00379 | .00083 | -.04044 | -.33914 |
| 0 | .274 | -7.063 | -.07961 | .42539 | .01282 | .00305 | .00044 | -.03065 | -.18714 |
| 0 | 2.000 | -.001 | -.13130 | .41238 | -.00092 | .00297 | .00081 | -.03897 | -.27506 |

A-47

S1562-1056

NAM SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2 LAMBDA= 33 RUN NO. 21

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 21.275 | 1.011 | .01368 | .41230 | .02101 | .00115 | .00063 | -.02136 | .03317 |
| 3270 | 3.000 | -.001 | .02095 | .41199 | -.00249 | .00116 | .00061 | -.03310 | -.17810 |
| 0 | .276 | 3.030 | .03935 | .41736 | .02279 | .00505 | .00014 | -.02380 | .09428 |
| 0 | 3.000 | -.003 | .06136 | .41470 | -.00803 | .00505 | -.00013 | -.03603 | -.24152 |
| 0 | .277 | 5.046 | .06112 | .41790 | .01826 | .00370 | .00068 | -.02796 | .14625 |
| 0 | 2.000 | -.001 | .09763 | .41091 | -.00416 | .00374 | .00035 | -.03750 | -.31383 |
| 0 | .278 | 7.063 | .08750 | .42270 | .01373 | .00436 | .00100 | -.02772 | .20700 |
| 0 | 2.000 | -.002 | .13880 | .40874 | -.00562 | .00445 | .00046 | -.04044 | -.34629 |
| 0 | .279 | 10.096 | .13935 | .43731 | .00815 | .00389 | .00133 | -.02943 | .31865 |
| 0 | 2.000 | -.002 | .21384 | .40611 | -.00551 | .00406 | .00063 | -.03774 | -.36111 |
| 0 | .280 | 12.120 | .17634 | .45785 | .00433 | .00378 | .00106 | -.02869 | .38514 |
| 0 | 3.000 | -.003 | .26852 | .41063 | -.00708 | .00392 | .00025 | -.03359 | -.36679 |
| 0 | .281 | 7.063 | .08801 | .42096 | .01362 | .00465 | .00084 | -.03187 | .20907 |
| 0 | 2.000 | -.002 | .13910 | .40694 | -.00610 | .00472 | .00027 | -.04044 | -.34645 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P1 LAMBDA=33 RUN NO. 22

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 22.283 | -.001 | -.00330 | .37323 | .01726 | .00143 | .00104 | -.03597 | -.00885 |
| 3270 | 2.000 | .002 | -.00331 | .37323 | .00170 | .00143 | .00104 | -.03768 | -.92564 |
| 0 | .284 | -1.013 | -.01623 | .37492 | .01167 | .00068 | .00115 | -.03425 | -.04328 |
| 0 | 2.000 | .004 | -.02285 | .37458 | .00477 | .00066 | .00116 | -.03474 | -.10491 |
| 0 | .285 | -3.031 | -.03824 | .38594 | .00666 | .00052 | .00104 | -.03841 | -.09908 |
| 0 | 2.000 | .005 | -.05859 | .38338 | .00653 | .00047 | .00107 | -.03670 | -.14139 |
| 0 | .286 | -5.047 | -.06195 | .39089 | .01113 | .00018 | .00128 | -.04453 | -.15849 |
| 0 | 2.000 | .006 | -.09609 | .38392 | .00792 | .00006 | .00129 | -.03915 | -.25570 |
| 0 | .287 | -7.065 | -.08726 | .39896 | .01359 | -.00004 | .00118 | -.04625 | -.21871 |
| 0 | 2.000 | .007 | -.13566 | .38520 | .00886 | -.00018 | .00116 | -.04282 | -.29086 |
| 0 | .288 | -10.094 | -.12753 | .40598 | .01188 | -.00071 | .00187 | -.04502 | -.31413 |
| 0 | 2.000 | .007 | -.19670 | .37735 | .01020 | -.00103 | .00171 | -.04037 | -.29162 |
| 0 | .289 | -7.064 | -.08699 | .39889 | .01370 | -.00104 | .00138 | -.04674 | -.21807 |
| 0 | 2.000 | .008 | -.13538 | .38517 | .01081 | -.00120 | .00125 | -.04086 | -.29167 |

CONFIDENTIAL



1062-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P1 LAMBDA=33 RUN NO. 22

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 22.290 | 1.011 | .01101 | .37964 | .02265 | .00152 | .00070 | -.03841 | .02901 |
| 3270 | 2.000 | .001 | .01771 | .37938 | .00048 | .00153 | .00067 | -.03793 | .02052 |
| 0 | .291 | 3.030 | .03631 | .38655 | .02496 | .00070 | .00074 | -.03890 | .09393 |
| 0 | 2.000 | .001 | .05669 | .38409 | .00099 | .00074 | .00070 | -.03939 | -.17347 |
| 0 | .292 | 5.046 | .06282 | .38903 | .01997 | .00072 | .00083 | -.04478 | .16147 |
| 0 | 2.000 | .003 | .09679 | .38200 | .00282 | .00079 | .00077 | -.04209 | -.28300 |
| 0 | .293 | 7.064 | .08928 | .39096 | .01669 | .00250 | .00090 | -.04820 | .22837 |
| 0 | 2.000 | -0 | .13668 | .37702 | -.00149 | .00259 | .00058 | -.04209 | -.31494 |
| 0 | .294 | 10.095 | .13387 | .39954 | .01691 | .00386 | .00094 | -.04674 | .33505 |
| 0 | 2.000 | -.002 | .20181 | .36990 | -.00557 | .00397 | .00024 | -.04135 | -.31248 |
| 0 | .295 | 12.117 | .16611 | .42045 | .01642 | .00437 | .00091 | -.04894 | .39508 |
| 0 | 3.000 | -.004 | .25065 | .37623 | -.00854 | .00447 | -.00003 | -.03988 | -.31619 |
| 0 | .296 | 7.064 | .09020 | .39334 | .01639 | .00199 | .00071 | -.04869 | .22932 |
| 0 | 2.000 | -.001 | .13788 | .37926 | -.00055 | .00206 | .00046 | -.04282 | -.31778 |

CONFIDENTIAL

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/C)=.044 THETA=0 CONFIGURATION..E15 T11 C RUN NO. 23

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 23.304 | 1.017 | .02842 | .57795 | .02140 | .00611 | .00051 | .00822 | .04917 |
| 3270 | 2.000 | -.003 | .03867 | .57736 | -.00817 | .00611 | .00040 | -.01138 | -.41925 |
| 0 | .305 | 3.043 | .07175 | .57103 | .01319 | .00730 | .00016 | .01067 | .12564 |
| 0 | 2.000 | -.004 | .10195 | .56642 | -.01080 | .00730 | -.00022 | -.01138 | -.43068 |
| 0 | .306 | 5.067 | .11803 | .56658 | -.00506 | .00751 | .00093 | .00822 | .20833 |
| 0 | 2.000 | -.004 | .16760 | .55394 | -.01057 | .00757 | .00027 | -.01260 | -.49123 |
| 0 | .307 | 7.094 | .17127 | .57232 | -.02423 | .00722 | .00095 | .00945 | .29926 |
| 0 | 3.000 | -.005 | .24063 | .54679 | -.01177 | .00728 | .00005 | -.01505 | -.51632 |
| 0 | .308 | 10.134 | .23635 | .61885 | -.04173 | .00787 | .00149 | -.00035 | .38192 |
| 0 | 2.000 | -.004 | .34153 | .56762 | -.01135 | .00801 | .00008 | -.01750 | -.51096 |
| 0 | .309 | 12.162 | .27473 | .65636 | -.04880 | .00808 | .00168 | -.00280 | .41856 |
| 0 | 2.000 | -.004 | .40681 | .58377 | -.01134 | .00825 | -.00006 | -.01873 | -.49875 |
| 0 | .310 | 7.094 | .17086 | .57379 | -.02467 | .00743 | .00079 | .00822 | .29778 |
| 0 | 3.000 | -.005 | .24040 | .54830 | -.01226 | .00747 | -.00013 | -.01505 | -.51863 |



S1062-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C RUN NO. 23

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 23.297 | .002 | .00893 | .57874 | .01888 | .00752 | .00049 | .00577 | .01543 |
| 3270 | 2.000 | -.003 | .00895 | .57874 | -.00982 | .00752 | .00049 | -.01138 | -.92564 |
| 0 | .298 | -1.015 | -.01687 | .57812 | .01825 | .00643 | .00069 | .00822 | -.02918 |
| 0 | 2.000 | -.001 | -.02711 | .57773 | -.00605 | .00642 | .00081 | -.01383 | -.05119 |
| 0 | .299 | -3.041 | -.05341 | .57579 | .02126 | .00609 | .00069 | .00822 | -.09276 |
| 0 | 2.000 | -0 | -.08387 | .57215 | -.00484 | .00605 | .00102 | -.00893 | -.26897 |
| 0 | .300 | -5.066 | -.10192 | .57023 | .03801 | .00596 | .00048 | .00822 | -.17873 |
| 0 | 2.000 | -0 | -.15186 | .55901 | -.00487 | .00589 | .00100 | -.00893 | -.40396 |
| 0 | .301 | -7.091 | -.15176 | .57194 | .05641 | .00467 | .00068 | .00822 | -.26534 |
| 0 | 2.000 | -.001 | -.22118 | .54884 | -.00248 | .00455 | .00125 | -.00893 | -.46149 |
| 0 | .302 | -10.132 | -.22221 | .61122 | .07715 | .00448 | .00052 | -.00280 | -.36355 |
| 0 | 2.000 | -.001 | -.32625 | .56261 | -.00181 | .00432 | .00130 | -.01383 | -.47623 |
| 0 | .303 | -7.091 | -.15179 | .57194 | .05664 | .00484 | .00049 | .00822 | -.26539 |
| 0 | 2.000 | -.001 | -.22121 | .54883 | -.00251 | .00474 | .00108 | -.00893 | -.46251 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E20 T11 C RUN NO. 24

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 24.311 | .003 | .01579 | .40477 | .00613 | .00179 | .00049 | .00338 | .03901 |
| 3270 | 2.000 | -.001 | .01581 | .40477 | -.00061 | .00179 | .00049 | -.01255 | -.92564 |
| 0 | .312 | -1.019 | -.05944 | .40853 | .05004 | .00338 | .00038 | .00338 | -.14551 |
| 0 | 2.000 | -.001 | -.06670 | .40741 | -.00175 | .00337 | .00044 | -.01132 | -.79718 |
| 0 | .313 | -3.049 | -.13973 | .45120 | .09165 | .00362 | .00062 | .00338 | -.30969 |
| 0 | 2.000 | -.001 | -.16353 | .44313 | -.00188 | .00358 | .00081 | -.01010 | -.75690 |
| 0 | .314 | -5.072 | -.17353 | .51676 | .10133 | .00419 | .00080 | -.00397 | -.33581 |
| 0 | 2.000 | -0 | -.21853 | .49940 | -.00308 | .00410 | .00117 | -.01623 | -.67880 |
| 0 | .315 | -7.093 | -.19692 | .58139 | .10627 | .00420 | .00062 | -.00520 | -.33871 |
| 0 | 2.000 | -.001 | -.26719 | .55262 | -.00154 | .00409 | .00113 | -.01990 | -.62236 |
| 0 | .316 | -10.119 | -.20638 | .66144 | .10467 | .00405 | .00069 | -.00765 | -.31202 |
| 0 | 2.000 | -.001 | -.31937 | .61490 | -.00135 | .00386 | .00139 | -.02113 | -.55865 |
| 0 | .317 | -7.091 | -.19015 | .58133 | .10312 | .00417 | .00079 | -.00152 | -.32709 |
| 0 | 2.000 | -.001 | -.26045 | .55342 | -.00162 | .00404 | .00130 | -.01623 | -.61810 |



S10062-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E20 T11 C RUN NO. 24

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 24.318 | 1.023 | .08210 | .41056 | -.03161 | .00662 | -.00007 | .00338 | .19996 |
| 3270 | 2.000 | -.003 | .08941 | .40903 | -.00889 | .00662 | -.00019 | -.01132 | -.87048 |
| 0 | .319 | 3.051 | .15454 | .45832 | -.06409 | .00842 | .00022 | .00216 | .33719 |
| 0 | 2.000 | -.003 | .17871 | .44944 | -.01086 | .00842 | -.00023 | -.01623 | -.78489 |
| 0 | .320 | 5.075 | .18979 | .52507 | -.07064 | .00834 | .00097 | .00216 | .36145 |
| 0 | 2.000 | -.003 | .23548 | .50623 | -.00964 | .00839 | .00023 | -.01745 | -.71020 |
| 0 | .321 | 7.093 | .20481 | .59206 | -.06987 | .00923 | .00102 | -.00152 | .34593 |
| 0 | 2.000 | -.004 | .27634 | .56224 | -.01202 | .00928 | -.00013 | -.02113 | -.65800 |
| 0 | .322 | 10.121 | .22292 | .67016 | -.06962 | .00847 | .00150 | -.00520 | .33263 |
| 0 | 2.000 | -.004 | .33719 | .62057 | -.01125 | .00860 | -.00002 | -.01990 | -.60308 |
| 0 | .323 | 12.138 | .23485 | .72167 | -.07516 | .00704 | .00164 | -.01132 | .32542 |
| 0 | 2.000 | -.003 | .38132 | .65617 | -.00910 | .00723 | .00012 | -.02235 | -.58847 |
| 0 | .324 | 7.093 | .20478 | .59205 | -.06962 | .00904 | .00100 | -.00152 | .34589 |
| 0 | 2.000 | -.004 | .27631 | .56224 | -.01200 | .00909 | -.00013 | -.01990 | -.65713 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2 LAMBDA= 33 RUN NO. 25

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 25.325 | -.001 | -.00061 | .40708 | .01538 | .00202 | .00053 | -.02354 | -.00150 |
| 3270 | 2.000 | .002 | -.00062 | .40708 | .00045 | .00202 | .00053 | -.02722 | -.92564 |
| 0 | .326 | -1.012 | -.01163 | .40952 | .00834 | .00258 | .00082 | -.02231 | -.02840 |
| 0 | 2.000 | .002 | -.01886 | .40925 | .00060 | .00256 | .00087 | -.02476 | .19658 |
| 0 | .327 | -3.031 | -.03166 | .41587 | .00370 | .00455 | .00055 | -.02476 | -.07612 |
| 0 | 2.000 | -.002 | -.05360 | .41362 | -.00111 | .00451 | .00079 | -.02722 | -.04515 |
| 0 | .328 | -5.046 | -.05310 | .41824 | .00775 | .00518 | .00046 | -.02967 | -.12697 |
| 0 | 2.000 | -.001 | -.08968 | .41195 | -.00212 | .00512 | .00091 | -.03089 | -.19991 |
| 0 | .329 | -7.063 | -.07944 | .42464 | .01270 | .00230 | .00049 | -.03334 | -.18707 |
| 0 | 2.000 | .003 | -.13104 | .41165 | .00239 | .00223 | .00077 | -.03334 | -.27430 |
| 0 | .330 | -10.095 | -.12853 | .43609 | .01654 | .00276 | .00035 | -.03212 | -.29472 |
| 0 | 2.000 | -.001 | -.20296 | .40682 | -.00046 | .00265 | .00083 | -.03457 | -.30893 |
| 0 | .331 | -7.064 | -.08084 | .42558 | .01325 | .00269 | .00059 | -.03457 | -.18996 |
| 0 | 2.000 | .003 | -.13255 | .41241 | .00190 | .00260 | .00092 | -.03334 | -.27874 |



S1062-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/C)=.044 THETA=0 CONFIGURATION..E15 T11 C P2 LAMBDA= 33 RUN NO. 25

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 25.332 | 1.011 | .01246 | .41276 | .02169 | .00183 | .00056 | -.02476 | .03019 |
| 3270 | 2.000 | .001 | .01974 | .41247 | .00019 | .00184 | .00053 | -.02844 | -.13636 |
| 0 | .333 | 3.031 | .03911 | .41695 | .02367 | .00505 | .00057 | -.02844 | .09379 |
| 0 | 2.000 | -.001 | .06109 | .41430 | -.00529 | .00507 | .00030 | -.03212 | -.22662 |
| 0 | .334 | 5.046 | .06133 | .41694 | .01893 | .00461 | .00110 | -.03334 | .14709 |
| 0 | 2.000 | -0 | .09776 | .40994 | -.00381 | .00469 | .00069 | -.03334 | -.30649 |
| 0 | .335 | 7.063 | .08750 | .42264 | .01402 | .00579 | .00097 | -.03580 | .20703 |
| 0 | 2.000 | -.001 | .13880 | .40867 | -.00625 | .00587 | .00025 | -.03702 | -.34421 |
| 0 | .336 | 10.097 | .14069 | .43747 | .00830 | .00464 | .00147 | -.03580 | .32159 |
| 0 | 2.000 | -.001 | .21519 | .40604 | -.00517 | .00483 | .00063 | -.03580 | -.36010 |
| 0 | .337 | 12.120 | .17549 | .45786 | .00448 | .00395 | .00116 | -.03334 | .38328 |
| 0 | 2.000 | -.002 | .26769 | .41082 | -.00527 | .00411 | .00031 | -.03334 | -.36642 |
| 0 | .338 | 7.064 | .08819 | .42192 | .01385 | .00471 | .00058 | -.03702 | .20903 |
| 0 | 2.000 | -.001 | .13940 | .40788 | -.00428 | .00474 | -0 | -.03702 | -.34499 |

NAA SISO FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E20 T11 C P2 LAMBDA=33, RUN NO. 26

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 26.339 | -0 | .00414 | .38897 | .01115 | .00419 | .00028 | -.02991 | .01063 |
| 3270 | 2.000 | -.002 | .00413 | .38897 | -.00522 | .00419 | .00028 | -.03358 | -.92564 |
| 0 | .340 | -1.009 | -.01341 | .38688 | .01902 | .00506 | .00053 | -.02868 | -.03467 |
| 0 | 2.000 | -.001 | -.02022 | .38659 | -.00458 | .00505 | .00062 | -.03113 | -.41512 |
| 0 | .341 | -3.026 | -.04833 | .38722 | .03316 | .00611 | .00039 | -.03113 | -.12482 |
| 0 | 2.000 | -.001 | -.06870 | .38413 | -.00642 | .00608 | .00071 | -.03358 | -.55233 |
| 0 | .342 | -5.042 | -.07520 | .40030 | .04166 | .00493 | .00005 | -.03235 | -.18787 |
| 0 | 2.000 | -0 | -.11009 | .39215 | -.00403 | .00490 | .00048 | -.03602 | -.53735 |
| 0 | .343 | -7.057 | -.09373 | .42471 | .04627 | .00398 | .00011 | -.03480 | -.22070 |
| 0 | 2.000 | -.001 | -.14519 | .40998 | -.00182 | .00394 | .00060 | -.03602 | -.51007 |
| 0 | .344 | -7.057 | -.09432 | .42479 | .04639 | .00425 | .00006 | -.03480 | -.22204 |
| 0 | 2.000 | -.001 | -.14579 | .40999 | -.00230 | .00421 | .00058 | -.03602 | -.51011 |
| 0 | .345 | -10.081 | -.11652 | .46894 | .04701 | .00357 | .00036 | -.03235 | -.24848 |
| 0 | 2.000 | -.001 | -.19680 | .44131 | -.00184 | .00345 | .00098 | -.03480 | -.45583 |



S1062-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E20 T11 C P2 LAMBDA=33, RUN NO. 26

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 26.346 | 1.008 | .01996 | .39028 | .00474 | .00530 | .00011 | -.03113 | .05115 |
| 3270 | 3.000 | -.003 | .02682 | .38987 | -.00745 | .00530 | .00002 | -.03235 | -.77859 |
| 0 | .347 | 3.026 | .05636 | .38762 | -.01019 | .00626 | .00014 | -.03480 | .14540 |
| 0 | 2.000 | -.003 | .07674 | .38411 | -.00808 | .00626 | -.00019 | -.03480 | -.66866 |
| 0 | .348 | 5.042 | .08298 | .40221 | -.01740 | .00682 | .00073 | -.03602 | .20632 |
| 0 | 2.000 | -.003 | .11800 | .39336 | -.00870 | .00686 | .00013 | -.04092 | -.60977 |
| 0 | .349 | 7.057 | .10221 | .42657 | -.02209 | .00538 | .00094 | -.03602 | .23960 |
| 0 | 2.000 | -.001 | .15383 | .41078 | -.00587 | .00545 | .00027 | -.03969 | -.57677 |
| 0 | .350 | 7.057 | .10242 | .42737 | -.02229 | .00614 | .00099 | -.03602 | .23964 |
| 0 | 2.000 | -.002 | .15413 | .41156 | -.00689 | .00621 | .00023 | -.04092 | -.57772 |
| 0 | .351 | 10.081 | .12657 | .46825 | -.02098 | .00486 | .00120 | -.03725 | .27030 |
| 0 | 2.000 | -.001 | .20657 | .43887 | -.00528 | .00500 | .00033 | -.04092 | -.51069 |
| 0 | .352 | 12.098 | .14717 | .50447 | -.02797 | .00457 | .00113 | -.03725 | .29172 |
| 0 | 3.000 | -.003 | .24961 | .46243 | -.00682 | .00470 | .00015 | -.03602 | -.50921 |

NAM SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAE NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2 LAMBDA= 28 RUN NO. 27

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 27.353 | -.012 | -.01380 | .51154 | .02356 | .00191 | .00064 | -.06108 | -.02698 |
| 2490 | 2.000 | .012 | -.01390 | .51154 | .00690 | .00191 | .00064 | -.05395 | -.92564 |
| 0 | .354 | -1.029 | -.01866 | .51427 | .01657 | .00186 | .00080 | -.06237 | -.03629 |
| 0 | 2.000 | .013 | -.02789 | .51385 | .00731 | .00184 | .00083 | -.05395 | -.09898 |
| 0 | .355 | -3.053 | -.02605 | .50891 | .01371 | -.00200 | .00126 | -.06302 | -.05119 |
| 0 | 2.000 | .020 | -.05311 | .50680 | .01519 | -.00206 | .00115 | -.05459 | -.15396 |
| 0 | .356 | -5.080 | -.03934 | .50615 | .01335 | -.00208 | .00158 | -.06432 | -.07773 |
| 0 | 2.000 | .019 | -.08400 | .50067 | .01465 | -.00222 | .00139 | -.05200 | -.21234 |
| 0 | .357 | -7.110 | -.05735 | .50553 | .01546 | -.00156 | .00124 | -.06432 | -.11344 |
| 0 | 2.000 | .017 | -.11947 | .49455 | .01261 | -.00170 | .00104 | -.05265 | -.26288 |
| 0 | .358 | -10.169 | -.10157 | .51945 | .02173 | -.00283 | .00172 | -.07015 | -.19553 |
| 0 | 2.000 | .017 | -.19167 | .49336 | .01411 | -.00309 | .00120 | -.05978 | -.31577 |
| 0 | .359 | -7.111 | -.05887 | .50737 | .01602 | -.00033 | .00098 | -.06432 | -.11603 |
| 0 | 2.000 | .014 | -.12122 | .49618 | .01003 | -.00045 | .00093 | -.05265 | -.26771 |



S1062-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2 LAMBDA= 28 RUN NO. 27

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 27.360 | 1.009 | -.00286 | .50992 | .02745 | -.00237 | .00104 | -.06172 | -.00561 |
| 2490 | 2.000 | .020 | .00612 | .50989 | .01546 | -.00236 | .00108 | -.05395 | .50349 |
| 0 | .361 | 3.036 | .00811 | .51358 | .02972 | -.00269 | .00105 | -.06561 | .01580 |
| 0 | 2.000 | .020 | .03530 | .51243 | .01585 | -.00264 | .00119 | -.05783 | -.11239 |
| 0 | .362 | 5.067 | .02689 | .50685 | .02735 | .00326 | .00075 | -.06885 | .05305 |
| 0 | 2.000 | .008 | .07154 | .50250 | .00261 | .00331 | .00046 | -.05654 | -.24234 |
| 0 | .363 | 7.102 | .05340 | .50268 | .02150 | -.00150 | .00085 | -.06691 | .10623 |
| 0 | 2.000 | .013 | .11513 | .49223 | .01004 | -.00139 | .00103 | -.05978 | -.31703 |
| 0 | .364 | 10.162 | .09879 | .51345 | .01594 | .00167 | .00118 | -.07145 | .19240 |
| 0 | 2.000 | .005 | .18781 | .48797 | .00176 | .00185 | .00087 | -.06561 | -.34510 |
| 0 | .365 | 12.210 | .13230 | .53141 | .01621 | .00066 | .00072 | -.07728 | .24896 |
| 0 | 2.000 | .005 | .24168 | .49141 | .00268 | .00080 | .00056 | -.07145 | -.33804 |
| 0 | .366 | 7.101 | .05234 | .50259 | .02151 | -.00021 | .00081 | -.06691 | .10414 |
| 0 | 2.000 | .010 | .11405 | .49227 | .00722 | -.00010 | .00082 | -.05848 | -.31695 |

A 00

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P3 LAMBDA= 28 RUN NO. 28

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 28.367 | -.005 | -.00184 | .59564 | .02124 | .00463 | .00037 | -.04030 | -.00308 |
| 2490 | 2.000 | -.002 | -.00189 | .59564 | -.00514 | .00463 | .00037 | -.04030 | -.92564 |
| 0 | .368 | -1.025 | -.00967 | .58975 | .01557 | .00351 | .00065 | -.03965 | -.01640 |
| 0 | 2.000 | -.003 | -.02022 | .58948 | -.00065 | .00350 | .00072 | -.03835 | .19709 |
| 0 | .369 | -3.060 | -.03131 | .57619 | .01762 | .00318 | .00059 | -.04354 | -.05435 |
| 0 | 2.000 | .005 | -.06202 | .57369 | .00104 | .00314 | .00076 | -.04095 | -.19267 |
| 0 | .370 | -5.096 | -.05809 | .57014 | .02442 | .00350 | .00055 | -.04743 | -.10189 |
| 0 | 2.000 | -.003 | -.10850 | .56273 | -.00063 | .00344 | .00086 | -.04354 | -.31252 |
| 0 | .371 | -7.129 | -.08069 | .56496 | .02944 | .00350 | .00019 | -.04872 | -.14282 |
| 0 | 2.000 | -.001 | -.15016 | .55058 | -.00197 | .00345 | .00062 | -.04419 | -.35035 |
| 0 | .372 | -10.191 | -.12882 | .58090 | .04039 | .00248 | .00075 | -.05650 | -.22177 |
| 0 | 2.000 | .004 | -.22955 | .54895 | .00083 | .00231 | .00117 | -.05326 | -.38638 |
| 0 | .373 | -7.129 | -.08040 | .56485 | .02948 | .00181 | .00039 | -.04872 | -.14234 |
| 0 | 2.000 | .005 | -.14986 | .55051 | .00215 | .00175 | .00061 | -.04354 | -.35075 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/C)=.044 THETA=0 CONFIGURATION..E15 T11 C P3 LAMBDA= 28 RUN NO. 28

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 28.374 | 1.015 | .00665 | .59301 | .02629 | .00259 | .00065 | -.04095 | .01122 |
| 2490 | 2.000 | .008 | .01716 | .59280 | .00318 | .00260 | .00060 | -.04030 | -.30332 |
| 0 | .375 | 3.050 | .03028 | .58205 | .02006 | .00481 | .00054 | -.04484 | .05203 |
| 0 | 2.000 | -.001 | .06121 | .57961 | -.00458 | .00483 | .00028 | -.04484 | -.40458 |
| 0 | .376 | 5.091 | .06308 | .57457 | .01117 | .00480 | .00071 | -.05002 | .10979 |
| 0 | 2.000 | -.001 | .11381 | .56671 | -.00412 | .00485 | .00028 | -.04743 | -.43663 |
| 0 | .377 | 7.126 | .08962 | .56924 | .00360 | .00438 | .00083 | -.04872 | .15744 |
| 0 | 2.000 | -.003 | .15953 | .55373 | -.00139 | .00445 | .00028 | -.05132 | -.44582 |
| 0 | .378 | 10.192 | .14170 | .58367 | -.00673 | .00395 | .00113 | -.05326 | .24278 |
| 0 | 2.000 | -.001 | .24273 | .54940 | -.00250 | .00409 | .00041 | -.06039 | -.44296 |
| 0 | .379 | 12.244 | .18020 | .60495 | -.01025 | .00539 | .00094 | -.05910 | .29788 |
| 0 | 3.000 | -.005 | .30438 | .55299 | -.00755 | .00546 | -.00022 | -.06299 | -.42926 |
| 0 | .380 | 7.126 | .08949 | .56766 | .00374 | .00526 | .00067 | -.04872 | .15764 |
| 0 | 2.000 | -.001 | .15920 | .55218 | -.00363 | .00530 | .00001 | -.05132 | -.44475 |

CONFIDENTIAL



SID62-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P3,LAMBDA=33,ROLL=45 RUN NO. 29

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 29.381 | -.007 | -.00104 | .61115 | .01923 | .00725 | -.00005 | -.03765 | -.00170 |
| 2490 | 2.000 | -.013 | -.00111 | .61115 | -.01412 | .00725 | -.00005 | -.03830 | -.92564 |
| 0 | .382 | -1.027 | -.00920 | .61363 | .01499 | .00611 | .00017 | -.04283 | -.01499 |
| 0 | 3.000 | -.008 | -.02019 | .61337 | -.01035 | .00611 | .00028 | -.04219 | .27880 |
| 0 | .383 | -3.059 | -.02670 | .60269 | .01616 | .00620 | .00021 | -.04867 | -.04430 |
| 0 | 3.000 | -.008 | -.05882 | .60041 | -.01005 | .00618 | .00054 | -.04672 | -.14124 |
| 0 | .384 | -5.092 | -.04940 | .58807 | .02161 | .00612 | .00041 | -.05191 | -.08400 |
| 0 | 2.000 | -.001 | -.10139 | .58137 | -.00524 | .00606 | .00095 | -.04802 | -.27649 |
| 0 | .385 | -7.128 | -.07419 | .58600 | .02694 | .00417 | .00027 | -.05256 | -.12660 |
| 0 | 2.000 | .004 | -.14632 | .57227 | -.00027 | .00410 | .00079 | -.04867 | -.32769 |
| 0 | .386 | -10.190 | -.11598 | .58731 | .02826 | .00396 | .00028 | -.05256 | -.19748 |
| 0 | 2.000 | .005 | -.21804 | .55754 | .00047 | .00384 | .00098 | -.05062 | -.33274 |
| 0 | .387 | -7.125 | -.06974 | .58546 | .02512 | .00422 | .00016 | -.05321 | -.11912 |
| 0 | 2.000 | -.004 | -.14181 | .57229 | -.00065 | .00417 | .00069 | -.04802 | -.31524 |

[redacted]

[redacted]

A-63

SID62-1056

NAM SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P3,LAMBDA=33,ROLL=45 RUN NO. 29

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 29.388 | 1.012 | .00372 | .61012 | .02529 | .00585 | -.00005 | -.04154 | .00610 |
| 2490 | 4.000 | -.008 | .01449 | .60996 | -.01024 | .00585 | -.00016 | -.04219 | -.42270 |
| 0 | .389 | 3.048 | .02599 | .59837 | .02161 | .00459 | .00051 | -.04932 | .04343 |
| 0 | 2.000 | -.003 | .05776 | .59614 | -.00561 | .00461 | .00027 | -.04802 | -.39569 |
| 0 | .390 | 5.085 | .05278 | .58663 | .01526 | .00506 | .00020 | -.04997 | .08998 |
| 0 | 3.000 | -.005 | .10456 | .57965 | -.00707 | .00506 | -.00025 | -.04867 | -.41364 |
| 0 | .391 | 7.123 | .08072 | .58453 | .00810 | .00729 | .00015 | -.05321 | .13809 |
| 0 | 3.000 | -.010 | .15256 | .57002 | -.01270 | .00726 | -.00076 | -.04932 | -.42696 |
| 0 | .392 | 7.123 | .08083 | .58491 | .00808 | .00590 | .00008 | -.05386 | .13820 |
| 0 | 3.000 | -.009 | .15272 | .57037 | -.01034 | .00587 | -.00066 | -.04932 | -.42707 |
| 0 | .393 | 10.189 | .12691 | .59048 | .00520 | .00407 | .00097 | -.05515 | .21493 |
| 0 | 2.000 | -.003 | .22934 | .55873 | -.00535 | .00418 | .00024 | -.05386 | -.40016 |
| 0 | .394 | 12.237 | .15991 | .59406 | .00722 | .00538 | .00083 | -.05645 | .26917 |
| 0 | 3.000 | -.006 | .28217 | .54668 | -.00800 | .00544 | -.00033 | -.05775 | -.37528 |

CONFIDENTIAL

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2 LAMBDA=33,ROLL=45 RUN NO. 30

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 30.395 | -.008 | -.00205 | .51229 | .01366 | .00223 | .00052 | -.05180 | -.00400 |
| 2490 | 2.000 | .004 | -.00212 | .51229 | .00113 | .00223 | .00052 | -.04271 | -.92564 |
| 0 | .396 | -1.026 | -.01022 | .51326 | .00969 | .00255 | .00064 | -.05115 | -.01992 |
| 0 | 2.000 | .004 | -.01941 | .51300 | .00106 | .00254 | .00069 | -.04336 | .34812 |
| 0 | .397 | -3.055 | -.02615 | .51497 | .01203 | .00362 | .00007 | -.05634 | -.05078 |
| 0 | 2.000 | -.003 | -.05355 | .51285 | -.00067 | .00361 | .00026 | -.04466 | -.11896 |
| 0 | .398 | -5.085 | -.04228 | .51361 | .01114 | .00271 | .00047 | -.06153 | -.08231 |
| 0 | 2.000 | .006 | -.08763 | .50784 | .00189 | .00266 | .00071 | -.04661 | -.18777 |
| 0 | .399 | -7.114 | -.05565 | .50971 | .00890 | .00223 | .00036 | -.06218 | -.10918 |
| 0 | 2.000 | .006 | -.11833 | .49890 | .00238 | .00217 | .00063 | -.04726 | -.20535 |
| 0 | .400 | -10.168 | -.08540 | .50095 | -.00030 | .00587 | -.00049 | -.06542 | -.17047 |
| 0 | 2.000 | -.001 | -.17247 | .47801 | -.00530 | .00587 | .00055 | -.04985 | -.19195 |
| 0 | .401 | -7.114 | -.05536 | .51209 | .00904 | .00210 | .00037 | -.06607 | -.10810 |
| 0 | 2.000 | .005 | -.11834 | .50130 | .00213 | .00204 | .00063 | -.04661 | -.20564 |



SID 62-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2 LAMBDA=33,ROLL=45 RUN NO. 30

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 30.402 | 1.009 | .00302 | .51347 | .02035 | .00560 | .00024 | -.05310 | .00588 |
| 2490 | 2.000 | -.006 | .01206 | .51334 | -.00824 | .00561 | .00014 | -.04336 | -.50087 |
| 0 | .403 | 3.039 | .01855 | .51043 | .02079 | .00638 | .00037 | -.05894 | .03635 |
| 0 | 2.000 | -.005 | .04558 | .50873 | -.00845 | .00639 | .00003 | -.04661 | -.35071 |
| 0 | .404 | 5.070 | .03682 | .50815 | .01984 | .00627 | .00034 | -.06153 | .07245 |
| 0 | 3.000 | -.004 | .08157 | .50291 | -.00785 | .00627 | -.00022 | -.04791 | -.34372 |
| 0 | .405 | 7.102 | .05369 | .50606 | .02064 | .00665 | .00070 | -.06153 | .10608 |
| 0 | 2.000 | -.007 | .11583 | .49555 | -.00996 | .00668 | -.00013 | -.04791 | -.32572 |
| 0 | .406 | 10.156 | .08541 | .49631 | .02647 | .00568 | .00098 | -.06542 | .17208 |
| 0 | 3.000 | -.007 | .17156 | .47348 | -.00914 | .00576 | -.00003 | -.05439 | -.28278 |
| 0 | .407 | 12.199 | .11393 | .49539 | .03125 | .00500 | .00077 | -.06802 | .22997 |
| 0 | 3.000 | -.008 | .21601 | .46014 | -.00900 | .00506 | -.00030 | -.05634 | -.26468 |
| 0 | .408 | 7.101 | .05359 | .50603 | .02027 | .00597 | .00047 | -.06218 | .10590 |
| 0 | 3.000 | -.007 | .11573 | .49553 | -.00914 | .00598 | -.00027 | -.04855 | -.32889 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P1 LAMBDA=33,ROLL=45 RUN NO. 31

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 31.409 | -.013 | -.01622 | .46671 | .02181 | .00492 | .00035 | -.07185 | -.03474 |
| 2490 | 3.000 | -.007 | -.01632 | .46671 | -.00845 | .00492 | .00035 | -.03680 | -.92564 |
| 0 | .410 | -1.035 | -.03001 | .47036 | .01904 | .00442 | .00017 | -.07445 | -.06381 |
| 0 | 2.000 | -.005 | -.03850 | .46975 | -.00644 | .00442 | .00025 | -.03745 | -.27326 |
| 0 | .411 | -3.062 | -.04164 | .47718 | .01707 | .00292 | .00015 | -.07834 | -.08726 |
| 0 | 2.000 | -.002 | -.06706 | .47427 | -.00063 | .00291 | .00031 | -.04394 | -.25906 |
| 0 | .412 | -5.090 | -.05579 | .47735 | .01599 | .00305 | .00040 | -.08224 | -.11687 |
| 0 | 2.000 | .003 | -.09791 | .47052 | -.00021 | .00300 | .00067 | -.04653 | -.26747 |
| 0 | .413 | -7.117 | -.06623 | .47345 | .01023 | .00264 | .00035 | -.08353 | -.13989 |
| 0 | 2.000 | .003 | -.12437 | .46160 | -.00001 | .00258 | .00067 | -.04589 | -.23457 |
| 0 | .414 | -10.164 | -.09166 | .46776 | .00281 | .00516 | -.00034 | -.07315 | -.19595 |
| 0 | 2.000 | -0 | -.17275 | .44425 | -.00375 | .00514 | .00057 | -.03225 | -.21876 |
| 0 | .416 | -7.117 | -.06664 | .47343 | .01093 | .00201 | .00046 | -.07185 | -.14075 |
| 0 | 2.000 | .007 | -.12477 | .46153 | .00324 | .00194 | .00071 | -.04589 | -.24047 |

[redacted]

[redacted]

A-87

S1062-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P1 LAMBDA=33,ROLL=45 RUN NO. 31

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 31.417 | 1.008 | -.00223 | .46807 | .02460 | .00511 | .00023 | -.03810 | -.00476 |
| 2490 | 3.000 | -.008 | .00600 | .46804 | -.00924 | .00512 | .00014 | -.06925 | .35123 |
| 0 | .418 | 3.040 | .01887 | .46867 | .02252 | .00519 | .00036 | -.06990 | .04027 |
| 0 | 3.000 | -.006 | .04370 | .46701 | -.00823 | .00520 | .00009 | -.04199 | -.27061 |
| 0 | .419 | 5.071 | .03808 | .46880 | .02204 | .00484 | .00043 | -.07574 | .08122 |
| 0 | 3.000 | -.006 | .07936 | .46360 | -.00810 | .00486 | 0 | -.04459 | -.29490 |
| 0 | .420 | 7.102 | .05473 | .46652 | .02488 | .00540 | .00094 | -.06990 | .11732 |
| 0 | 2.000 | -.005 | .11199 | .45618 | -.00778 | .00548 | .00026 | -.04394 | -.27268 |
| 0 | .421 | 10.151 | .08039 | .46024 | .03241 | .00442 | .00105 | -.06925 | .17468 |
| 0 | 3.000 | -.006 | .16023 | .43887 | -.00764 | .00454 | .00026 | -.04069 | -.23389 |
| 0 | .422 | 12.188 | .09903 | .46082 | .04188 | .00526 | .00070 | -.07185 | .21489 |
| 0 | 3.000 | -.011 | .19406 | .42953 | -.01124 | .00529 | -.00043 | -.04069 | -.19721 |
| 0 | .423 | 7.103 | .05470 | .46653 | .02517 | .00562 | .00085 | -.06990 | .11724 |
| 0 | 2.000 | -.006 | .11195 | .45619 | -.00829 | .00568 | .00015 | -.04589 | -.27011 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2,LAMBDA=28,ROLL=45 RUN NO. 32

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 32.424 | -.003 | .00251 | .51847 | .01522 | .00178 | .00035 | -.06082 | .00485 |
| 2490 | 2.000 | .004 | .00248 | .51847 | .00110 | .00178 | .00035 | -.05431 | -.92564 |
| 0 | .425 | -1.021 | -.00419 | .52049 | .00976 | .00101 | .00053 | -.06082 | -.00805 |
| 0 | 2.000 | .007 | -.01347 | .52034 | .00383 | .00100 | .00055 | -.05366 | .65946 |
| 0 | .426 | -3.049 | -.01661 | .51826 | .00878 | .00386 | -.00012 | -.06343 | -.03205 |
| 0 | 3.000 | -.004 | -.04415 | .51665 | -.00058 | .00386 | .00009 | -.05496 | .00034 |
| 0 | .427 | -5.082 | -.04129 | .51372 | .01365 | .00469 | .00007 | -.06278 | -.08037 |
| 0 | 2.000 | -.003 | -.08662 | .50804 | -.00134 | .00467 | .00048 | -.05300 | -.21517 |
| 0 | .428 | -7.109 | -.05106 | .50294 | .00786 | .00519 | -.00033 | -.06213 | -.10152 |
| 0 | 2.000 | -.002 | -.11289 | .49275 | -.00532 | .00519 | .00031 | -.04649 | -.19320 |
| 0 | .429 | -10.167 | -.09100 | .50033 | .00647 | .00583 | -.00072 | -.06408 | -.18187 |
| 0 | 2.000 | -.003 | -.17786 | .47642 | -.00671 | .00586 | .00032 | -.04975 | -.23414 |
| 0 | .430 | -7.109 | -.05121 | .50131 | .00744 | .00472 | -.00031 | -.06082 | -.10216 |
| 0 | 2.000 | -.001 | -.11285 | .49112 | -.00403 | .00472 | .00027 | -.04649 | -.19004 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2,LAMBDA=28,ROLL=45 RUN NO. 32

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | RBIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 32.431 | 1.015 | .00864 | .51890 | .02144 | .00472 | .00027 | -.06343 | .01665 |
| 2490 | 2.000 | -.002 | .01783 | .51867 | -.00507 | .00472 | .00018 | -.05431 | -.39333 |
| 0 | .432 | 3.044 | .02442 | .51526 | .02111 | .00493 | .00044 | -.06408 | .04739 |
| 0 | 2.000 | -.002 | .05174 | .51323 | -.00497 | .00495 | .00018 | -.05561 | -.34414 |
| 0 | .433 | 5.074 | .04173 | .51033 | .01855 | .00577 | .00030 | -.06147 | .08178 |
| 0 | 3.000 | -.005 | .08669 | .50465 | -.00787 | .00578 | -.00021 | -.05235 | -.35779 |
| 0 | .434 | 7.108 | .06303 | .50088 | .01878 | .00541 | .00059 | -.06213 | .12583 |
| 0 | 3.000 | -.007 | .12451 | .48923 | -.00866 | .00544 | -.00008 | -.04779 | -.33770 |
| 0 | .435 | 10.163 | .09983 | .50177 | .01863 | .00356 | .00065 | -.06734 | .19895 |
| 0 | 3.000 | -.005 | .18678 | .47629 | -.00615 | .00362 | .00001 | -.05887 | -.32811 |
| 0 | .436 | 12.211 | .13362 | .51238 | .02112 | .00271 | .00044 | -.07060 | .26077 |
| 0 | 3.000 | -.005 | .23894 | .47254 | -.00566 | .00275 | -.00014 | -.06343 | -.31426 |
| 0 | .437 | 7.108 | .06414 | .49816 | .01856 | .00489 | .00060 | -.06213 | .12876 |
| 0 | 2.000 | -.004 | .12528 | .48639 | -.00662 | .00493 | -.00001 | -.04909 | -.33831 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P6,LAMBDA=33,ROLL=0 RUN NO. 33

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 33.438 | -.055 | -.09309 | .58447 | .06314 | .00560 | .00031 | -.03211 | -.15927 |
| 2490 | 2.000 | -.003 | -.09365 | .58438 | -.00612 | .00560 | .00031 | -.03342 | -.92564 |
| 0 | .439 | -1.076 | -.10422 | .58749 | .06099 | .00460 | .00049 | -.03472 | -.17741 |
| 0 | 2.000 | -.001 | -.11524 | .58543 | -.00403 | .00459 | .00058 | -.03472 | -.62141 |
| 0 | .440 | -3.108 | -.12337 | .59719 | .06623 | .00453 | .00064 | -.03733 | -.20658 |
| 0 | 2.000 | -0 | -.15556 | .58963 | -.00310 | .00449 | .00089 | -.03602 | -.57460 |
| 0 | .441 | -5.140 | -.14026 | .61523 | .07042 | .00353 | .00080 | -.03211 | -.22798 |
| 0 | 2.000 | .004 | -.19480 | .60019 | .00012 | .00344 | .00112 | -.03537 | -.54157 |
| 0 | .442 | -7.178 | -.16540 | .63237 | .07564 | .00393 | .00055 | -.03146 | -.26155 |
| 0 | 2.000 | .005 | -.24311 | .60675 | .00034 | .00383 | .00104 | -.03668 | -.51694 |
| 0 | .443 | -10.246 | -.20758 | .66545 | .07947 | .00226 | .00096 | -.03668 | -.31194 |
| 0 | 2.000 | .007 | -.32261 | .61792 | .00313 | .00206 | .00135 | -.03928 | -.47770 |
| 0 | .444 | -7.179 | -.16574 | .63201 | .07553 | .00378 | .00058 | -.03211 | -.26224 |
| 0 | 2.000 | .005 | -.24341 | .60635 | .00062 | .00368 | .00105 | -.03668 | -.51635 |

[redacted]

[redacted]

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P6,LAMBDA=33,ROLL=0 RUN NO. 33

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 33.445 | .964 | -.08381 | .57596 | .06550 | .00573 | .00045 | -.03081 | -.14552 |
| 2490 | 2.000 | -.004 | -.07412 | .57729 | -.00706 | .00574 | .00036 | -.03472 | -.85672 |
| 0 | .446 | 2.994 | -.06379 | .56244 | .05915 | .00462 | .00072 | -.02951 | -.11341 |
| 0 | 2.000 | -0 | -.03433 | .56500 | -.00362 | .00466 | .00048 | -.03211 | -1.31457 |
| 0 | .447 | 5.023 | -.04772 | .54672 | .05541 | .00572 | .00065 | -.03211 | -.08729 |
| 0 | 2.000 | -.004 | .00032 | .54880 | -.00698 | .00576 | .00014 | -.03342 | 5.15512 |
| 0 | .448 | 7.055 | -.02676 | .53608 | .05251 | .00426 | .00089 | -.03146 | -.04992 |
| 0 | 2.000 | -0 | .03928 | .53531 | -.00325 | .00433 | .00036 | -.03798 | .42163 |
| 0 | .449 | 10.100 | -.00917 | .52806 | .06008 | .00378 | .00109 | -.04254 | -.01737 |
| 0 | 2.000 | -.002 | .08356 | .52149 | -.00171 | .00391 | .00041 | -.04515 | .12882 |
| 0 | .450 | 12.141 | .01238 | .52525 | .06823 | .00547 | .00122 | -.03993 | .02357 |
| 0 | 2.000 | -.001 | .12255 | .51090 | -.00352 | .00560 | .00004 | -.04254 | .05771 |
| 0 | .451 | 7.054 | -.02891 | .53502 | .05355 | .00467 | .00061 | -.03146 | -.05403 |
| 0 | 2.000 | -.002 | .03700 | .53452 | -.00498 | .00471 | .00003 | -.03863 | .49597 |



SD62-10

NAR SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAE NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P7,LAMBDA=33,ROLL=0 RUN NO. 34

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 34.452 | -.002 | .00138 | .55806 | .01964 | .00655 | .00027 | -.04385 | .00247 |
| 2490 | 3.000 | -.009 | .00135 | .55806 | -.01102 | .00655 | .00027 | -.04059 | -.92564 |
| 0 | .453 | -1.038 | -.02843 | .55682 | .01839 | .00591 | .00043 | -.04581 | -.05105 |
| 0 | 2.000 | -.006 | -.03851 | .55621 | -.00874 | .00590 | .00053 | -.04190 | -.15771 |
| 0 | .454 | -3.084 | -.07979 | .55927 | .04132 | .00403 | .00060 | -.04972 | -.14266 |
| 0 | 2.000 | -.001 | -.10976 | .55417 | -.00376 | .00399 | .00082 | -.04515 | -.46999 |
| 0 | .455 | -5.135 | -.13093 | .57266 | .05836 | .00476 | .00053 | -.05297 | -.22863 |
| 0 | 2.000 | -.002 | -.18165 | .55865 | -.00502 | .00469 | .00095 | -.04841 | -.50160 |
| 0 | .456 | -7.188 | -.18210 | .59172 | .07477 | .00494 | .00016 | -.05688 | -.30775 |
| 0 | 2.000 | -.002 | -.25470 | .56429 | -.00498 | .00488 | .00078 | -.05037 | -.51171 |
| 0 | .457 | -10.270 | -.25072 | .63496 | .09014 | .00258 | .00104 | -.06210 | -.39486 |
| 0 | 2.000 | .004 | -.35989 | .58010 | .00085 | .00235 | .00148 | -.05819 | -.49518 |
| 0 | .458 | -7.188 | -.18175 | .59286 | .07438 | .00440 | .00020 | -.05754 | -.30657 |
| 0 | 2.000 | -0 | -.25449 | .56547 | -.00345 | .00434 | .00075 | -.05037 | -.51014 |

A- 73

S1062-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P7,LAMBDA=33,ROLL=0 RUN NO. 34

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 34.459 | 1.027 | .02962 | .55810 | .01411 | .00676 | .00033 | -.04515 | .05307 |
| 2490 | 3.000 | -.011 | .03962 | .55748 | -.01247 | .00677 | .00021 | -.04124 | -.57856 |
| 0 | .460 | 3.078 | .08181 | .56416 | -.00430 | .00535 | .00059 | -.05102 | .14501 |
| 0 | 3.000 | -.006 | .11198 | .55895 | -.00799 | .00537 | .00030 | -.04320 | -.57365 |
| 0 | .461 | 5.128 | .13184 | .57501 | -.02061 | .00557 | .00087 | -.05167 | .22929 |
| 0 | 3.000 | -.006 | .18270 | .56092 | -.00861 | .00563 | .00037 | -.04711 | -.56355 |
| 0 | .462 | 7.182 | .18374 | .58890 | -.03604 | .00685 | .00089 | -.05558 | .31201 |
| 0 | 3.000 | -.007 | .25591 | .56131 | -.01034 | .00691 | .00003 | -.05232 | -.55297 |
| 0 | .463 | 10.266 | .25760 | .63150 | -.05273 | .00607 | .00126 | -.05949 | .40792 |
| 0 | 3.000 | -.008 | .36600 | .57549 | -.00993 | .00620 | .00016 | -.05754 | -.52889 |
| 0 | .464 | 12.325 | .30235 | .66660 | -.05748 | .00661 | .00107 | -.06079 | .45357 |
| 0 | 3.000 | -.011 | .43765 | .58671 | -.01239 | .00669 | -.00037 | -.05493 | -.50595 |
| 0 | .465 | 7.181 | .18379 | .58887 | -.03637 | .00604 | .00086 | -.05558 | .31211 |
| 0 | 2.000 | -.006 | .25595 | .56128 | -.00853 | .00610 | .00010 | -.05102 | -.55421 |



S1062-10

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAE NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2, NO RING, LAMBDA=33 RUN NO. 35

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 35.466 | -.005 | -.00305 | .51501 | .01908 | .00677 | .00026 | -.05041 | -.00592 |
| 2490 | 2.000 | -.006 | -.00309 | .51501 | -.00944 | .00677 | .00027 | -.04389 | -.92564 |
| 0 | .467 | -1.021 | -.00567 | .51512 | .01192 | .00701 | .00014 | -.05171 | -.01101 |
| 0 | 2.000 | -.006 | -.01485 | .51494 | -.00932 | .00700 | .00027 | -.04650 | .40745 |
| 0 | .468 | -3.045 | -.01357 | .51469 | .00966 | .00833 | -.00010 | -.05692 | -.02637 |
| 0 | 2.000 | -.008 | -.04089 | .51325 | -.01160 | .00832 | .00034 | -.04845 | .00036 |
| 0 | .469 | -5.074 | -.03076 | .51005 | .01144 | .00551 | .00002 | -.06279 | -.06030 |
| 0 | 2.000 | -.001 | -.07574 | .50533 | -.00516 | .00549 | .00051 | -.05041 | -.17313 |
| 0 | .470 | -7.106 | -.05061 | .51118 | .01275 | .00249 | .00050 | -.06735 | -.09900 |
| 0 | 2.000 | .006 | -.11344 | .50100 | .00229 | .00241 | .00081 | -.05302 | -.23375 |
| 0 | .471 | -10.166 | -.09613 | .51850 | .01825 | .00190 | .00098 | -.07386 | -.18541 |
| 0 | 2.000 | .007 | -.18612 | .49340 | .00377 | .00169 | .00130 | -.05823 | -.29703 |
| 0 | .472 | -7.106 | -.05067 | .50795 | .01237 | .00264 | .00031 | -.06865 | -.09975 |
| 0 | 2.000 | .007 | -.11311 | .49778 | .00254 | .00258 | .00063 | -.05302 | -.23138 |

A-75

S1D62-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2, NO RING, LAMBDA=33 RUN NO. 35

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 35.473 | 1.009 | -.00050 | .51683 | .02530 | .00554 | .00049 | -.05297 | -.00098 |
| 2490 | 2.000 | -.003 | .00860 | .51675 | -.00628 | .00555 | .00040 | -.04450 | -.01809 |
| 0 | .474 | 3.038 | .01616 | .52010 | .02193 | .00474 | .00071 | -.05949 | .03108 |
| 0 | 2.000 | -.002 | .04370 | .51851 | -.00490 | .00477 | .00046 | -.04710 | -.33578 |
| 0 | .475 | 5.072 | .03984 | .51904 | .01824 | .00391 | .00059 | -.06340 | .07676 |
| 0 | 2.000 | -.001 | .08556 | .51348 | -.00354 | .00395 | .00024 | -.04906 | -.36657 |
| 0 | .476 | 7.105 | .05833 | .51560 | .01903 | .00311 | .00113 | -.06796 | .11313 |
| 0 | 2.000 | -.001 | .12164 | .50443 | -.00187 | .00322 | .00074 | -.04971 | -.34165 |
| 0 | .477 | 10.160 | .09248 | .51263 | .02139 | .00300 | .00131 | -.06926 | .18040 |
| 0 | 2.000 | -.002 | .18143 | .48829 | -.00077 | .00318 | .00076 | -.05949 | -.31618 |
| 0 | .478 | 12.207 | .12865 | .51784 | .02055 | .00308 | .00115 | -.07382 | .24843 |
| 0 | 2.000 | -.002 | .23521 | .47894 | -.00086 | .00325 | .00048 | -.05557 | -.31786 |
| 0 | .479 | 7.101 | .05220 | .51159 | .02148 | .00379 | .00107 | -.06665 | .10205 |
| 0 | 2.000 | -0 | .11503 | .50121 | -.00306 | .00389 | .00060 | -.05036 | -.32058 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P8,NO RING,LAMBDA33/28 RUN NO. 36

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 36.481 | -.002 | .00297 | .54389 | .01730 | .00108 | .00097 | -.06140 | .00546 |
| 2490 | 2.000 | .008 | .00295 | .54389 | .00492 | .00108 | .00097 | -.04967 | -.92564 |
| 0 | .482 | -1.016 | .00514 | .54823 | .00710 | .00114 | .00109 | -.06140 | .00938 |
| 0 | 2.000 | .010 | -.00458 | .54823 | .00622 | .00112 | .00111 | -.05097 | 3.40202 |
| 0 | .483 | -3.038 | .00871 | .54454 | -.00427 | .00348 | .00061 | -.06662 | .01599 |
| 0 | 2.000 | .005 | -.02016 | .54423 | .00078 | .00344 | .00080 | -.05293 | 1.08414 |
| 0 | .484 | -5.067 | -.00887 | .53615 | -.00091 | .00530 | .00011 | -.06727 | -.01654 |
| 0 | 2.000 | -.003 | -.05618 | .53327 | -.00193 | .00526 | .00058 | -.05227 | .11816 |
| 0 | .485 | -7.103 | -.04240 | .52891 | .01042 | .00178 | .00073 | -.06727 | -.08016 |
| 0 | 2.000 | .013 | -.10747 | .51961 | .00782 | .00167 | .00095 | -.05293 | -.19982 |
| 0 | .486 | -10.163 | -.08732 | .53087 | .01481 | -.00007 | .00122 | -.07053 | -.16448 |
| 0 | 2.000 | .017 | -.17960 | .50714 | .01193 | -.00029 | .00119 | -.05488 | -.27388 |
| 0 | .487 | -7.105 | -.04460 | .52994 | .01080 | -.00041 | .00113 | -.06596 | -.08417 |
| 0 | 2.000 | .014 | -.10980 | .52035 | .01031 | -.00055 | .00107 | -.05227 | -.20552 |

CONFIDENTIAL

A- 77

SI062-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P8,NO RING,LAMBDA33/28 RUN NO. 36

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 36.488 | 1.014 | .00707 | .53382 | .02278 | .00245 | .00077 | -.06205 | .01324 |
| 2490 | 2.000 | .005 | .01651 | .53361 | .00123 | .00246 | .00072 | -.05097 | -.35825 |
| 0 | .489 | 3.041 | .01937 | .52036 | .02181 | .00413 | .00077 | -.06596 | .03723 |
| 0 | 2.000 | -.001 | .04694 | .51860 | -.00243 | .00417 | .00055 | -.05684 | -.33722 |
| 0 | .490 | 5.072 | .04001 | .50301 | .01920 | .00280 | .00070 | -.06466 | .07955 |
| 0 | 2.000 | .003 | .08432 | .49750 | -.00009 | .00285 | .00044 | -.05358 | -.34749 |
| 0 | .491 | 7.102 | .05716 | .50578 | .01835 | .00205 | .00097 | -.06401 | .11302 |
| 0 | 2.000 | .006 | .11925 | .49483 | .00229 | .00216 | .00071 | -.05293 | -.34435 |
| 0 | .492 | 10.161 | .09609 | .51412 | .01924 | .00098 | .00128 | -.06987 | .18690 |
| 0 | 2.000 | .009 | .18527 | .48911 | .00509 | .00119 | .00108 | -.06140 | -.32797 |
| 0 | .493 | 12.208 | .12859 | .52983 | .01968 | .00393 | .00128 | -.07770 | .24270 |
| 0 | 2.000 | .004 | .23770 | .49067 | -.00006 | .00411 | .00042 | -.06075 | -.32366 |
| 0 | .494 | 7.102 | .05671 | .50490 | .01785 | .00223 | .00100 | -.06596 | .11232 |
| 0 | 2.000 | .006 | .11869 | .49402 | .00253 | .00234 | .00072 | -.05293 | -.34835 |

CONFIDENTIAL

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAE NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P9, NO RING, LAMBDA=33 RUN NO. 37

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 37.495 | -0 | .00403 | .55648 | .01910 | .00297 | .00046 | -.04248 | .00725 |
| 2490 | 2.000 | -.001 | .00403 | .55648 | -.00180 | .00297 | .00046 | -.03922 | -.92564 |
| 0 | .496 | -1.013 | .00673 | .55679 | .01061 | .00337 | .00052 | -.04248 | .01209 |
| 0 | 2.000 | -.003 | -.00311 | .55682 | -.00080 | .00336 | .00058 | -.03988 | 4.14820 |
| 0 | .497 | -3.031 | .00998 | .56217 | .00569 | .00396 | .00033 | -.04183 | .01776 |
| 0 | 2.000 | .005 | -.01975 | .56192 | .00058 | .00394 | .00054 | -.03988 | .64795 |
| 0 | .498 | -5.049 | .01374 | .56205 | .00062 | .00480 | .00020 | -.04183 | .02445 |
| 0 | 2.000 | -.003 | -.03576 | .56107 | -.00182 | .00477 | .00062 | -.03988 | .35735 |
| 0 | .499 | -7.072 | .00985 | .55350 | -.00398 | .00485 | -.00022 | -.04118 | .01780 |
| 0 | 2.000 | -.004 | -.05835 | .55051 | -.00077 | .00484 | .00038 | -.03922 | .16767 |
| 0 | .500 | -10.114 | -.00586 | .54036 | -.01256 | .00266 | .00039 | -.04248 | -.01084 |
| 0 | 2.000 | .010 | -.10064 | .53094 | .00490 | .00255 | .00085 | -.03662 | .04124 |
| 0 | .501 | -7.072 | .00929 | .55313 | -.00354 | .00427 | .00002 | -.04118 | .01679 |
| 0 | 2.000 | .006 | -.05887 | .55007 | .00111 | .00424 | .00054 | -.03988 | .15561 |

[redacted]

[redacted]

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P9, NO RING, LAMBDA=33 RUN NO. 37

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 37.502 | 1.012 | .00345 | .55472 | .02521 | .00403 | .00026 | -.04248 | .00622 |
| 2490 | 2.000 | -.001 | .01325 | .55457 | -.00398 | .00403 | .00019 | -.03857 | -.25459 |
| 0 | .503 | 3.029 | .00021 | .55946 | .02829 | .00474 | .00052 | -.04183 | .00037 |
| 0 | 2.000 | -.001 | .02976 | .55867 | -.00430 | .00476 | .00026 | -.03662 | -.19100 |
| 0 | .504 | 5.046 | -.00500 | .55805 | .03387 | .00564 | .00077 | -.04118 | -.00896 |
| 0 | 2.000 | -.001 | .04409 | .55633 | -.00361 | .00568 | .00027 | -.03727 | -.10260 |
| 0 | .505 | 7.068 | -.00207 | .55071 | .03880 | .00447 | .00110 | -.04509 | -.00375 |
| 0 | 2.000 | -.004 | .06570 | .54678 | -.00102 | .00457 | .00055 | -.03988 | -.09121 |
| 0 | .506 | 10.114 | .01411 | .54054 | .04862 | .00222 | .00106 | -.05031 | .02610 |
| 0 | 2.000 | .009 | .10879 | .52967 | .00429 | .00237 | .00065 | -.04509 | -.08300 |
| 0 | .507 | 12.153 | .03546 | .53454 | .05556 | .00331 | .00104 | -.04509 | .06634 |
| 0 | 2.000 | .005 | .14718 | .51510 | .00086 | .00346 | .00032 | -.04444 | -.09214 |
| 0 | .508 | 7.068 | -.00273 | .54937 | .03924 | .00393 | .00093 | -.04509 | -.00497 |
| 0 | 2.000 | .006 | .06488 | .54553 | .00085 | .00402 | .00044 | -.03988 | -.08083 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P3 LAMBDA=28 RUN NO. 38

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 38.509 | -.006 | .00066 | .78941 | .02510 | .00005 | .00130 | -.65532 | .00083 |
| 681 | 2.000 | -.005 | .00058 | .78941 | -.00370 | .00005 | .00130 | -.42490 | -.92564 |
| 0 | .510 | -1.028 | -.01711 | .78361 | .03051 | .00107 | .00153 | -.64940 | -.02184 |
| 0 | 2.000 | -.005 | -.03117 | .78318 | -.00420 | .00104 | .00155 | -.42322 | -.18888 |
| 0 | .511 | -3.072 | -.05304 | .78214 | .04100 | .00272 | .00119 | -.64233 | -.06781 |
| 0 | 2.000 | -.010 | -.09488 | .77818 | -.00948 | .00265 | .00134 | -.42322 | -.38689 |
| 0 | .512 | -5.111 | -.07915 | .78285 | .04851 | .00278 | .00139 | -.62678 | -.10110 |
| 0 | 2.000 | -.009 | -.14856 | .77269 | -.00908 | .00264 | .00163 | -.42181 | -.41335 |
| 0 | .513 | -7.140 | -.08877 | .78915 | .05001 | .00299 | .00109 | -.61264 | -.11249 |
| 0 | 3.000 | -.005 | -.18615 | .77200 | -.00598 | .00283 | .00145 | -.43029 | -.40184 |
| 0 | .514 | -10.174 | -.08605 | .81468 | .05097 | .00375 | .00049 | -.59652 | -.10563 |
| 0 | 2.000 | -.013 | -.22858 | .78667 | -.01208 | .00360 | .00115 | -.45516 | -.38722 |
| 0 | .515 | 1.018 | .02126 | .78747 | .01869 | .00224 | .00152 | -.64883 | .02700 |
| 0 | 3.000 | -.002 | .03525 | .78697 | -.00327 | .00227 | .00148 | -.43113 | -.76784 |

CONFIDENTIAL

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18

SWL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P3 LAMBDA=28 RUN NO. 38

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 38.516 | 3.056 | .04947 | .78824 | .00763 | .00166 | .00196 | -.66098 | .06276 |
| 681 | 2.000 | .008 | .09142 | .78448 | .00497 | .00176 | .00187 | -.43338 | -.60970 |
| 0 | .517 | 5.093 | .07060 | .79977 | .00234 | .00126 | .00198 | -.67030 | .08828 |
| 0 | 2.000 | .011 | .14131 | .79035 | .00705 | .00143 | .00186 | -.43988 | -.54519 |
| 0 | .518 | 7.124 | .08444 | .80380 | -.00243 | .00161 | .00179 | -.66040 | .10505 |
| 0 | 2.000 | .008 | .18346 | .78712 | .00466 | .00182 | .00158 | -.44553 | -.51765 |
| 0 | .519 | 10.165 | .09401 | .81323 | -.00552 | .00197 | .00160 | -.63213 | .11560 |
| 0 | 2.000 | .010 | .23603 | .78388 | .00589 | .00222 | .00122 | -.45119 | -.48517 |
| 0 | .520 | 12.184 | .08337 | .83511 | -.00298 | .00097 | .00202 | -.64428 | .09983 |
| 0 | 2.000 | .014 | .25772 | .79871 | .00962 | .00138 | .00177 | -.45344 | -.46356 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAE NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2 LAMBDA=28 RUN NO. 39

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 39.521 | -.012 | -.01361 | .38336 | .01504 | -.00005 | .00041 | -.67859 | -.03550 |
| 681 | 2.000 | .004 | -.01369 | .38336 | .00263 | -.00005 | .00041 | -.44659 | -.92564 |
| 0 | .522 | -1.023 | -.02037 | .38071 | .01520 | -.00004 | .00037 | -.67662 | -.05350 |
| 0 | 2.000 | .002 | -.02716 | .38029 | .00149 | -.00005 | .00037 | -.44742 | -.25925 |
| 0 | .523 | -3.046 | -.03711 | .37838 | .01749 | .00135 | -.00034 | -.68646 | -.09807 |
| 0 | 3.000 | -.002 | -.05715 | .37587 | -.00224 | .00136 | -.00027 | -.44883 | -.33229 |
| 0 | .524 | -5.077 | -.06690 | .37488 | .02299 | .00065 | -.00052 | -.68730 | -.17847 |
| 0 | 2.000 | -.006 | -.09981 | .36749 | -.00477 | .00070 | -.00046 | -.44967 | -.38399 |
| 0 | .525 | -7.110 | -.10264 | .37459 | .03193 | -.00034 | -.00026 | -.67688 | -.27402 |
| 0 | 2.000 | -.004 | -.14821 | .35900 | -.00297 | -.00030 | -.00030 | -.45191 | -.42448 |
| 0 | .526 | -10.149 | -.13421 | .38337 | .03602 | .00192 | -.00071 | -.68532 | -.35008 |
| 0 | 2.000 | -.014 | -.19965 | .35373 | -.01183 | .00202 | -.00036 | -.47300 | -.41808 |
| 0 | .527 | -7.111 | -.10462 | .37527 | .03245 | -.00014 | -.00030 | -.68194 | -.27878 |
| 0 | 2.000 | -.005 | -.15026 | .35944 | -.00350 | -.00010 | -.00032 | -.45696 | -.42634 |

CONFIDENTIAL

CONFIDENTIAL

NAM SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2 LAMBDA=28 RUN NO. 39

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 39.528 | .996 | -.00976 | .38501 | .01496 | -.00021 | .00065 | -.69824 | -.02534 |
| 681 | 2.000 | .005 | -.00306 | .38513 | .00383 | -.00020 | .00065 | -.45358 | .33347 |
| 0 | .529 | 3.022 | .01190 | .38471 | .01116 | -.00016 | .00088 | -.72636 | .03094 |
| 0 | 2.000 | .007 | .03217 | .38355 | .00526 | -.00012 | .00089 | -.46202 | -.49320 |
| 0 | .530 | 5.058 | .04907 | .38055 | .00343 | .00001 | .00115 | -.72860 | .12894 |
| 0 | 2.000 | .006 | .08242 | .37474 | .00471 | .00011 | .00114 | -.46566 | -.47413 |
| 0 | .531 | 7.098 | .09462 | .37846 | -.00856 | .00100 | .00130 | -.73282 | .25001 |
| 0 | 2.000 | .002 | .14065 | .36387 | .00084 | .00116 | .00117 | -.46988 | -.49031 |
| 0 | .532 | 10.149 | .14121 | .38640 | -.01438 | -.00018 | .00071 | -.69851 | .36546 |
| 0 | 2.000 | .006 | .20708 | .35548 | .00448 | -.00005 | .00073 | -.47494 | -.46061 |
| 0 | .533 | 12.178 | .16111 | .40508 | -.01371 | -.00171 | .00163 | -.72043 | .39773 |
| 0 | 2.000 | .017 | .24292 | .36198 | .01390 | -.00133 | .00195 | -.48140 | -.43763 |
| 0 | .534 | 7.101 | .09896 | .38027 | -.00934 | .00077 | .00110 | -.71564 | .26025 |
| 0 | 2.000 | .006 | .14521 | .36512 | .00396 | .00090 | .00100 | -.46255 | -.49058 |

NAR SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SBL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P1 LAMBDA=28 RUN NO. 40

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 40.535 | -.022 | -.03003 | .36290 | .02004 | -.00141 | .00109 | -.73821 | -.08276 |
| 681 | 2.000 | .010 | -.03017 | .36289 | .00839 | -.00141 | .00109 | -.45276 | -.92564 |
| 0 | .536 | -1.029 | -.03356 | .36178 | .02072 | -.00117 | .00118 | -.72978 | -.09276 |
| 0 | 2.000 | .010 | -.04005 | .36112 | .00797 | -.00119 | .00116 | -.45135 | -.43622 |
| 0 | .537 | -3.054 | -.05419 | .35350 | .02351 | -.00239 | .00095 | -.73878 | -.15330 |
| 0 | 2.000 | .010 | -.07294 | .35011 | .00911 | -.00244 | .00082 | -.46598 | -.42677 |
| 0 | .538 | -5.090 | -.09300 | .34601 | .03080 | -.00421 | .00152 | -.72050 | -.26878 |
| 0 | 2.000 | .013 | -.12332 | .33639 | .01265 | -.00432 | .00114 | -.46880 | -.44539 |
| 0 | .539 | -7.125 | -.13109 | .34216 | .03659 | -.00368 | .00123 | -.71853 | -.38312 |
| 0 | 2.000 | .007 | -.17251 | .32326 | .00799 | -.00380 | .00076 | -.47807 | -.44531 |
| 0 | .540 | -10.179 | -.18398 | .34352 | .04070 | -.00369 | .00233 | -.70952 | -.53558 |
| 0 | 2.000 | .008 | -.24178 | .30561 | .00921 | -.00404 | .00165 | -.49437 | -.42835 |
| 0 | .541 | -7.125 | -.13038 | .34247 | .03646 | -.00383 | .00161 | -.71879 | -.38069 |
| 0 | 2.000 | .010 | -.17184 | .32366 | .01010 | -.00400 | .00113 | -.47833 | -.44495 |

[redacted]

[redacted]

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAE NO.204 (X/D)=.61 (Z/C)=.044 THETA=0 CONFIGURATION..E15 T11 C P1 LAMBDA=28 RUN NO. 40

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 40.542 | .992 | -.01679 | .36790 | .01744 | -.00234 | .00085 | -.75535 | -.04563 |
| 681 | 2.000 | .012 | -.01041 | .36813 | .01034 | -.00232 | .00089 | -.46849 | -.43519 |
| 0 | .543 | 3.023 | .01521 | .35880 | .00927 | -.00369 | .00118 | -.78994 | .04240 |
| 0 | 2.000 | .014 | .03411 | .35750 | .01322 | -.00362 | .00137 | -.47776 | -.50510 |
| 0 | .544 | 5.069 | .06867 | .35398 | -.00308 | -.00442 | .00098 | -.78796 | .19399 |
| 0 | 2.000 | .017 | .09967 | .34653 | .01578 | -.00432 | .00136 | -.48704 | -.49955 |
| 0 | .545 | 7.115 | .12337 | .35281 | -.01597 | -.00321 | .00123 | -.78036 | .34969 |
| 0 | 2.000 | .015 | .16612 | .33482 | .01310 | -.00304 | .00162 | -.49209 | -.50048 |
| 0 | .546 | 10.174 | .18456 | .35572 | -.02339 | -.00259 | .00047 | -.77135 | .51885 |
| 0 | 2.000 | .012 | .24449 | .31753 | .01040 | -.00246 | .00092 | -.49574 | -.46846 |
| 0 | .547 | 12.214 | .22410 | .36023 | -.02563 | -.00519 | .00062 | -.74266 | .62210 |
| 0 | 2.000 | .020 | .29522 | .30467 | .01861 | -.00494 | .00170 | -.49376 | -.44786 |
| 0 | .548 | 7.117 | .12630 | .35315 | -.01588 | -.00371 | .00117 | -.75110 | .35765 |
| 0 | 2.000 | .018 | .16908 | .33478 | .01576 | -.00354 | .00163 | -.48673 | -.49670 |



51062-1050

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P3 LAMBDA=33,ROLL=45 RUN NO. 41

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 41.550 | -.004 | .00104 | .40221 | .01115 | -.00110 | .00110 | -.61401 | .00259 |
| 681 | 2.000 | -.006 | .00102 | .40221 | -.00335 | -.00110 | .00110 | -.48041 | -.92564 |
| 0 | .551 | -1.025 | -.02072 | .39600 | .01448 | -.00144 | .00125 | -.60781 | -.05232 |
| 0 | 2.000 | -.005 | -.02779 | .39556 | -.00239 | -.00146 | .00122 | -.47844 | -.21031 |
| 0 | .552 | -3.064 | -.06331 | .38920 | .02332 | -.00181 | .00155 | -.60021 | -.16267 |
| 0 | 2.000 | 0 | -.08402 | .38526 | .00155 | -.00189 | .00145 | -.47787 | -.39144 |
| 0 | .553 | -5.099 | -.09648 | .39509 | .02898 | -.00128 | .00159 | -.59402 | -.24419 |
| 0 | 2.000 | .005 | -.13120 | .38496 | .00494 | -.00141 | .00147 | -.48292 | -.40739 |
| 0 | .554 | -7.121 | -.11180 | .40397 | .03271 | -.00122 | .00138 | -.59063 | -.27676 |
| 0 | 2.000 | .003 | -.16101 | .38700 | .00316 | -.00139 | .00122 | -.48657 | -.41305 |
| 0 | .555 | -10.146 | -.12344 | .40576 | .03324 | -.00267 | .00177 | -.57038 | -.30421 |
| 0 | 2.000 | .007 | -.19297 | .37768 | .00722 | -.00294 | .00127 | -.49022 | -.40179 |
| 0 | .556 | -7.121 | -.11217 | .40358 | .03257 | -.00110 | .00156 | -.58949 | -.27794 |
| 0 | 2.000 | .003 | -.16133 | .38657 | .00315 | -.00129 | .00141 | -.48402 | -.41213 |

[redacted]

[redacted]

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P3 LAMBDA=33,ROLL=45 RUN NO. 41

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 41.557 | 1.017 | .02187 | .39766 | .00765 | -.00045 | .00070 | -.61424 | .05500 |
| 681 | 2.000 | -.008 | .02892 | .39721 | -.00582 | -.00043 | .00071 | -.47923 | -.65548 |
| 0 | .558 | 3.056 | .06200 | .39362 | -.00090 | .01379 | .00120 | -.61788 | .15751 |
| 0 | 2.000 | -0 | .08289 | .38976 | -.01022 | .01383 | .00047 | -.47726 | -.53344 |
| 0 | .559 | 5.089 | .09321 | .40027 | -.00689 | .01439 | .00172 | -.62153 | .23286 |
| 0 | 2.000 | -0 | .12833 | .39043 | -.01083 | .01449 | .00044 | -.47950 | -.50322 |
| 0 | .560 | 7.116 | .11520 | .40884 | -.01060 | .00022 | .00049 | -.61674 | .28177 |
| 0 | 2.000 | -.009 | .16495 | .39142 | -.00692 | .00028 | .00046 | -.48455 | -.48434 |
| 0 | .561 | 10.148 | .13526 | .41542 | -.01340 | .00049 | .00073 | -.59930 | .32559 |
| 0 | 2.000 | -.005 | .20632 | .38510 | -.00450 | .00061 | .00063 | -.48117 | -.46274 |
| 0 | .562 | 12.168 | .14663 | .41415 | -.01334 | -.00021 | .00066 | -.57763 | .35405 |
| 0 | 2.000 | -.004 | .23062 | .37395 | -.00278 | -.00007 | .00069 | -.47357 | -.44485 |
| 0 | .563 | 7.117 | .11688 | .41298 | -.01094 | .00135 | .00063 | -.60097 | .28302 |
| 0 | 2.000 | -.008 | .16714 | .39532 | -.00685 | .00142 | .00046 | -.48003 | -.48517 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2,LAMBDA=33,ROLL=45 RUN NO. 42

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 42.564 | -.006 | -.00150 | .37610 | .00996 | -.00157 | .00174 | -.55839 | -.00400 |
| 681 | 2.000 | .016 | -.00154 | .37610 | .01274 | -.00157 | .00174 | -.48946 | -.92564 |
| 0 | .565 | -1.019 | -.01120 | .37367 | .00988 | .00002 | .00182 | -.55641 | -.02997 |
| 0 | 2.000 | .017 | -.01784 | .37342 | .01277 | -.00001 | .00182 | -.48748 | .05164 |
| 0 | .566 | -3.045 | -.03237 | .36704 | .01187 | -.00417 | .00251 | -.56117 | -.08821 |
| 0 | 2.000 | .029 | -.05182 | .36480 | .02481 | -.00430 | .00229 | -.48801 | -.23502 |
| 0 | .567 | -5.069 | -.05382 | .35906 | .01545 | -.00575 | .00281 | -.55356 | -.14990 |
| 0 | 2.000 | .031 | -.08533 | .35290 | .02759 | -.00598 | .00229 | -.48885 | -.31474 |
| 0 | .568 | -7.089 | -.06891 | .35541 | .01814 | -.00498 | .00275 | -.55440 | -.19389 |
| 0 | 2.000 | .026 | -.11224 | .34419 | .02314 | -.00528 | .00211 | -.49250 | -.34236 |
| 0 | .569 | -10.119 | -.08656 | .35707 | .01668 | -.00425 | .00261 | -.54961 | -.24241 |
| 0 | 2.000 | .020 | -.14794 | .33632 | .01827 | -.00465 | .00183 | -.50318 | -.32835 |
| 0 | .570 | -7.098 | -.07948 | .35424 | .01751 | -.00191 | .00202 | -.55467 | -.22436 |
| 0 | 2.000 | .017 | -.12263 | .34171 | .01447 | -.00214 | .00176 | -.49417 | -.33578 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P2,LAMBDA=33,ROLL=45 RUN NO. 42

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 42.571 | 1.006 | .00540 | .37641 | .01044 | .00010 | .00116 | -.55972 | .01434 |
| 681 | 2.000 | .010 | .01200 | .37626 | .00764 | .00012 | .00115 | -.48657 | -.82478 |
| 0 | .572 | 3.031 | .02272 | .37467 | .01164 | .00001 | .00106 | -.56140 | .06064 |
| 0 | 2.000 | .011 | .04250 | .37295 | .00783 | .00007 | .00106 | -.48402 | -.42788 |
| 0 | .573 | 5.060 | .04707 | .36798 | .00850 | -.00104 | .00074 | -.58615 | .12792 |
| 0 | 2.000 | .004 | .07934 | .36240 | .00391 | -.00097 | .00082 | -.48767 | -.40944 |
| 0 | .574 | 7.088 | .07343 | .36614 | .00335 | -.00273 | .00096 | -.58136 | .20055 |
| 0 | 2.000 | .009 | .11804 | .35429 | .00872 | -.00259 | .00129 | -.48710 | -.41934 |
| 0 | .575 | 10.130 | .11009 | .37213 | -.00170 | .00085 | .00085 | -.58079 | .29583 |
| 0 | 3.000 | -.001 | .17381 | .34697 | -.00127 | .00098 | .00069 | -.47950 | -.41326 |
| 0 | .576 | 12.158 | .13171 | .37522 | -.00187 | .00417 | .00126 | -.57459 | .35102 |
| 0 | 2.000 | -.008 | .20777 | .33908 | -.00939 | .00434 | .00035 | -.47048 | -.39647 |
| 0 | .577 | 7.090 | .07736 | .36633 | .00220 | -.00051 | .00150 | -.57908 | .21118 |
| 0 | 2.000 | .004 | .12198 | .35398 | .00340 | -.00032 | .00155 | -.48341 | -.42530 |



S10022-105

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P1,LAMBDA=33,ROLL=45 RUN NO. 43

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 43.578 | -.022 | -.02875 | .34545 | .01795 | .00194 | .00154 | -.60517 | -.08323 |
| 681 | 2.000 | .008 | -.02888 | .34544 | .00416 | .00194 | .00154 | -.52216 | -.92564 |
| 0 | .579 | -1.030 | -.03258 | .34557 | .01742 | .00133 | .00149 | -.60262 | -.09427 |
| 0 | 2.000 | .009 | -.03878 | .34492 | .00567 | .00130 | .00151 | -.52102 | -.37353 |
| 0 | .580 | -3.053 | -.04915 | .34734 | .01792 | -.00037 | .00176 | -.61190 | -.14149 |
| 0 | 2.000 | .015 | -.06757 | .34423 | .01150 | -.00047 | .00174 | -.52607 | -.35675 |
| 0 | .581 | -5.090 | -.08931 | .34476 | .02586 | -.00568 | .00273 | -.61695 | -.25904 |
| 0 | 2.000 | .029 | -.11953 | .33548 | .02598 | -.00589 | .00221 | -.52832 | -.40848 |
| 0 | .582 | -7.126 | -.12846 | .34515 | .03330 | -.00620 | .00324 | -.61498 | -.37218 |
| 0 | 2.000 | .030 | -.17028 | .32655 | .02723 | -.00655 | .00244 | -.53478 | -.42685 |
| 0 | .583 | -10.163 | -.15959 | .34697 | .03611 | -.00673 | .00371 | -.61722 | -.45995 |
| 0 | 2.000 | .027 | -.21829 | .31337 | .02534 | -.00728 | .00246 | -.54406 | -.41790 |
| 0 | .584 | -7.126 | -.12940 | .34447 | .03354 | -.00550 | .00301 | -.62791 | -.37565 |
| 0 | 2.000 | .026 | -.17113 | .32576 | .02347 | -.00583 | .00230 | -.53505 | -.42789 |

[redacted]

[redacted]

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E15 T11 C P1,LAMBDA=33,ROLL=45 RUN NO. 43

| TEST NO. | RUN.LOG | ALPHA C | CL | CD | CPM | CYM.STAB | CRM.STAB | (DP/Q)B | (L/D) |
|---|---|---|---|---|---|---|---|---|---|
| MACH NO. | REIT | YAW C | (CN)BODY | (CA)BODY | (CY)BODY | CYM.BODY | CRM.BODY | (DP/Q)CH | (X CP/D) |
| 1208 | 43.586 | .987 | -.02432 | .34274 | .01790 | .00536 | .00089 | -.61270 | -.07096 |
| 681 | 2.000 | -.005 | -.01841 | .34311 | -.00743 | .00538 | .00080 | -.52406 | -.46788 |
| 0 | .587 | 3.016 | .00166 | .34254 | .01429 | .00475 | .00080 | -.62620 | .00485 |
| 0 | 2.000 | -.004 | .01968 | .34198 | -.00647 | .00478 | .00055 | -.52068 | -.35396 |
| 0 | .588 | 5.054 | .04215 | .34376 | .00712 | .00248 | .00094 | -.63688 | .12260 |
| 0 | 2.000 | -.001 | .07226 | .33871 | -.00231 | .00256 | .00072 | -.52855 | -.42330 |
| 0 | .589 | 7.093 | .08545 | .34700 | -.00158 | .00379 | .00117 | -.64335 | .24625 |
| 0 | 2.000 | -.001 | .12763 | .33379 | -.00230 | .00390 | .00070 | -.52376 | -.44312 |
| 0 | .590 | 10.147 | .14114 | .35206 | -.01142 | .00127 | .00112 | -.64361 | .40090 |
| 0 | 2.000 | -.006 | .20094 | .32169 | -.00565 | .00145 | .00088 | -.52121 | -.44292 |
| 0 | .591 | 12.178 | .16706 | .35910 | -.01127 | -.00074 | .00105 | -.65008 | .46521 |
| 0 | 2.000 | -.004 | .23904 | .31579 | -.00293 | -.00051 | .00118 | -.52205 | -.42090 |
| 0 | .592 | 7.096 | .09016 | .34759 | -.00244 | .00148 | .00167 | -.63966 | .25938 |
| 0 | 2.000 | -.001 | .13240 | .33380 | -.00025 | .00167 | .00147 | -.52429 | -.44502 |

NAM SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E20 T11 C P2,LAMBDA=33,ROLL=0 RUN NO. 44

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 44.593 | -.003 | .00212 | .41124 | .01168 | .00300 | .00082 | -.58154 | .00514 |
| 681 | 3.000 | -.003 | .00210 | .41124 | -.00471 | .00300 | .00082 | -.48020 | -.92564 |
| 0 | .594 | -1.022 | -.02154 | .40547 | .01943 | .00274 | .00098 | -.58097 | -.05311 |
| 0 | 3.000 | -.003 | -.02877 | .40502 | -.00428 | .00272 | .00102 | -.48104 | -.37174 |
| 0 | .595 | -3.064 | -.06892 | .40509 | .03250 | .00187 | .00091 | -.57196 | -.17014 |
| 0 | 2.000 | -.005 | -.09047 | .40083 | -.00475 | .00182 | .00101 | -.48469 | -.47995 |
| 0 | .596 | -5.096 | -.09930 | .40660 | .03829 | -.00184 | .00133 | -.56800 | -.24422 |
| 0 | 2.000 | .001 | -.13501 | .39617 | .00101 | -.00195 | .00116 | -.48918 | -.47011 |
| 0 | .597 | -7.116 | -.11074 | .41118 | .03994 | -.00116 | .00143 | -.57729 | -.26934 |
| 0 | 2.000 | .001 | -.16082 | .39430 | .00177 | -.00132 | .00127 | -.49424 | -.45613 |
| 0 | .599 | -10.111 | -.08201 | .41520 | .03808 | -.00035 | .00129 | -.62259 | -.19753 |
| 0 | 2.000 | 0 | -.15362 | .39436 | .00028 | -.00057 | .00121 | -.50155 | -.45059 |
| 0 | .600 | -7.115 | -.10822 | .41131 | .03857 | -.00125 | .00144 | -.59950 | -.26312 |
| 0 | 2.000 | .001 | -.15832 | .39474 | .00175 | -.00142 | .00128 | -.49535 | -.44955 |



SIN62-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO.204 (X/D)=.61 (Z/D)=.044 THETA=0 CONFIGURATION..E20 T11 C P2,LAMBDA=33,ROLL=0 RUN NO. 44

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 44.601 | 1.018 | .02733 | .40633 | .00320 | .00688 | .00057 | -.62708 | .06725 |
| 681 | 2.000 | -0 | .03454 | .40578 | -.00551 | .00689 | .00045 | -.48774 | -.73978 |
| 0 | .602 | 3.059 | .07323 | .40833 | -.00900 | .00276 | .00099 | -.63918 | .17933 |
| 0 | 2.000 | -.001 | .09491 | .40384 | -.00123 | .00281 | .00084 | -.49280 | -.59767 |
| 0 | .603 | 5.090 | .09968 | .41445 | -.01342 | .00176 | .00136 | -.65409 | .24051 |
| 0 | 2.000 | .006 | .13605 | .40397 | .00317 | .00188 | .00120 | -.49364 | -.54492 |
| 0 | .604 | 7.109 | .10993 | .42095 | -.01554 | .00219 | .00116 | -.64987 | .26116 |
| 0 | 2.000 | .005 | .16118 | .40411 | .00229 | .00232 | .00088 | -.49645 | -.52241 |
| 0 | .605 | 10.091 | .06739 | .41682 | -.01642 | -.00194 | .00123 | -.70419 | .16167 |
| 0 | 2.000 | .018 | .13937 | .39857 | .01468 | -.00169 | .00155 | -.50292 | -.55926 |
| 0 | .607 | 12.114 | .07979 | .43050 | -.01748 | -.00423 | .00146 | -.73824 | .18535 |
| 0 | 2.000 | .029 | .16834 | .40417 | .02431 | -.00383 | .00232 | -.50600 | -.52512 |
| 0 | .608 | 7.110 | .11207 | .42041 | -.01626 | .00408 | .00155 | -.62929 | .26656 |
| 0 | 2.000 | -.004 | .16323 | .40331 | -.00064 | .00424 | .00104 | -.48854 | -.52396 |



SID 62-1

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO. 204 (Z/D)=.044 THETA= 0 CONFIGURATION..E15 T11 C P10 LAMBDA=33 ROLL=0 RUN NO. 78

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 78.809 | -.071 | -.13595 | .38186 | .07654 | -.01196 | .00252 | -.78443 | -.35603 |
| 681 | 2.000 | .032 | -.13643 | .38169 | .03303 | -.01196 | .00250 | -.62015 | -.92564 |
| 0 | .810 | -1.084 | -.14007 | .41168 | .07309 | -.00887 | .00232 | -.78153 | -.34025 |
| 0 | 2.000 | .026 | -.14783 | .40895 | .02604 | -.00891 | .00216 | -.62006 | -.68834 |
| 0 | .811 | -3.104 | -.14719 | .42279 | .06920 | -.00585 | .00220 | -.78263 | -.34813 |
| 0 | 2.000 | .016 | -.16986 | .41420 | .01645 | -.00596 | .00188 | -.62116 | -.61572 |
| 0 | .812 | -5.113 | -.14400 | .42770 | .07004 | -.00927 | .00257 | -.69751 | -.33669 |
| 0 | 2.000 | .020 | -.18154 | .41317 | .02201 | -.00946 | .00174 | -.59922 | -.60133 |
| 0 | .813 | -7.121 | -.13423 | .44713 | .06854 | -.00635 | .00213 | -.72108 | -.30020 |
| 0 | 2.000 | .015 | -.18861 | .42705 | .01639 | -.00657 | .00133 | -.59611 | -.57940 |
| 0 | .814 | -10.147 | -.13049 | .49553 | .06372 | -.00635 | .00242 | -.75307 | -.26333 |
| 0 | 2.000 | .022 | -.21573 | .46480 | .02121 | -.00667 | .00126 | -.61968 | -.51622 |
| 0 | .815 | .954 | -.10407 | .39546 | .06700 | -.00646 | .00207 | -.74855 | -.26316 |
| 0 | 2.000 | .028 | -.09748 | .39713 | .02524 | -.00642 | .00218 | -.60112 | -.82378 |

CONFIDENTIAL

CONFIDENTIAL

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO. 204 (Z/D)=.044 THETA= 0 CONFIGURATION..E15 T11 C P10 LAMBDA=33 ROLL=0 RUN NO. 78

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 78.816 | 2.996 | -.05097 | .38719 | .04882 | -.00666 | .00170 | -.74544 | -.13164 |
| 681 | 2.000 | .023 | -.03067 | .38932 | .02192 | -.00656 | .00205 | -.62048 | -1.34889 |
| 0 | .817 | 5.034 | -.00306 | .38986 | .03038 | -.00284 | .00171 | -.74852 | -.00784 |
| 0 | 2.000 | .007 | .03116 | .38862 | .00708 | -.00267 | .00195 | -.62495 | .11049 |
| 0 | .818 | 7.080 | .04130 | .43190 | .02364 | .00434 | .00217 | -.76844 | .09562 |
| 0 | 2.000 | .010 | .09421 | .42352 | .00417 | .00457 | .00161 | -.63645 | -.26253 |
| 0 | .821 | -.061 | -.11700 | .40579 | .07061 | -.00623 | .00220 | -.76613 | -.28833 |
| 0 | 3.000 | .028 | -.11743 | .40566 | .02539 | -.00624 | .00219 | -.61588 | -.92564 |



S10623

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO. 204 (Z/D)=.044 THETA= 0 CONFIGURATION..E15 T11 C P11 LAMBDA=33 RUN NO. 79

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 79.822 | -.004 | .00282 | .77202 | .02494 | .00034 | .00191 | -.62271 | .00365 |
| 681 | 2.000 | .009 | .00277 | .77202 | .00618 | .00034 | .00191 | -.46260 | -.92564 |
| 0 | .823 | -1.024 | -.01214 | .77005 | .02883 | .00043 | .00182 | -.62297 | -.01576 |
| 0 | 2.000 | .009 | -.02590 | .76971 | .00652 | .00040 | .00182 | -.46286 | -.12106 |
| 0 | .824 | -3.072 | -.04936 | .76771 | .03568 | .00359 | .00123 | -.63671 | -.06429 |
| 0 | 2.000 | -.001 | -.09043 | .76396 | -.00365 | .00352 | .00142 | -.46677 | -.33845 |
| 0 | .825 | -5.126 | -.09639 | .75824 | .04373 | .00672 | .00023 | -.62657 | -.12712 |
| 0 | 2.000 | -.018 | -.16374 | .74660 | -.01841 | .00667 | .00083 | -.46787 | -.38208 |
| 0 | .826 | -7.171 | -.13323 | .74138 | .05064 | .00400 | .00019 | -.61587 | -.17971 |
| 0 | 2.000 | -.012 | -.22471 | .71895 | -.01160 | .00395 | .00068 | -.46559 | -.40024 |
| 0 | .827 | -10.217 | -.15791 | .73644 | .05455 | .00913 | -.00114 | -.60854 | -.21442 |
| 0 | 2.000 | -.017 | -.28601 | .69677 | -.01953 | .00919 | .00050 | -.46388 | -.39916 |
| 0 | .828 | 1.017 | .01691 | .77353 | .02165 | .00078 | .00157 | -.62650 | .02186 |
| 0 | 2.000 | .003 | .03063 | .77311 | .00181 | .00080 | .00156 | -.46358 | -.71940 |

CONFIDENTIAL

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO. 204 (Z/D)=.044 THETA= 0 CONFIGURATION..E15 T11 C P11 LAMBDA=33 RUN NO. 79

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 79.829 | 3.061 | .04915 | .77976 | .01442 | -.00134 | .00169 | -.64445 | .06304 |
| 681 | 3.000 | 0 | .09071 | .77602 | .00131 | -.00125 | .00176 | -.47451 | -.53306 |
| 0 | .830 | 5.108 | .08640 | .78035 | .00572 | .00141 | .00121 | -.66521 | .11071 |
| 0 | 2.000 | -.006 | .15552 | .76956 | -.00582 | .00151 | .00108 | -.48825 | -.49655 |
| 0 | .831 | 7.160 | .12985 | .77353 | -.00299 | .00093 | .00165 | -.66548 | .16787 |
| 0 | 3.000 | -.004 | .22524 | .75132 | -.00380 | .00113 | .00152 | -.49554 | -.47568 |
| 0 | .832 | 10.208 | .14944 | .75670 | -.00184 | -.00086 | .00098 | -.65029 | .19750 |
| 0 | 3.000 | .001 | .28115 | .71824 | .00154 | -.00068 | .00111 | -.49299 | -.43459 |
| 0 | .833 | 12.247 | .17805 | .76938 | -.01140 | -.00357 | .00098 | -.64156 | .23142 |
| 0 | 3.000 | .006 | .33717 | .71411 | .00705 | -.00328 | .00172 | -.47584 | -.44264 |
| 0 | .834 | -.004 | .00129 | .77314 | .02633 | -.00036 | .00235 | -.63704 | .00167 |
| 0 | 2.000 | .021 | .00123 | .77314 | .01555 | -.00036 | .00235 | -.46149 | -.92564 |

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAE NO. 204 (Z/D)=.044 THETA= 0 CONFIGURATION..E15 T11 C P12 LAMBDA=33 RUN NO. 80

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 80.835 | -.023 | -.02276 | .77278 | .02736 | .00255 | .00171 | -.60635 | -.02946 |
| 681 | 2.000 | .008 | -.02308 | .77277 | .00383 | .00255 | .00171 | -.46591 | -.92564 |
| 0 | .836 | -1.022 | -.00647 | .77300 | .02606 | .00135 | .00174 | -.62711 | -.00837 |
| 0 | 2.000 | .008 | -.02025 | .77276 | .00500 | .00132 | .00176 | -.46279 | .07657 |
| 0 | .837 | -3.036 | .00136 | .76455 | .02811 | .00058 | .00182 | -.65349 | .00178 |
| 0 | 2.000 | .011 | -.03912 | .76355 | .00751 | .00048 | .00185 | -.45828 | -.17537 |
| 0 | .838 | -5.048 | .00697 | .75843 | .03428 | -.00044 | .00182 | -.63971 | .00919 |
| 0 | 2.000 | .010 | -.05978 | .75610 | .00792 | -.00059 | .00177 | -.45152 | -.33254 |
| 0 | .839 | -5.040 | .02458 | .75784 | .02500 | .00058 | .00177 | -.64081 | .03243 |
| 0 | 2.000 | .010 | -.04208 | .75707 | .00681 | .00043 | .00182 | -.45824 | -.11805 |
| 0 | .840 | -7.085 | -.01558 | .74971 | .03692 | -.00009 | .00163 | -.60737 | -.02078 |
| 0 | 2.000 | .008 | -.10791 | .74207 | .00644 | -.00029 | .00160 | -.46131 | -.35522 |
| 0 | .841 | -10.127 | -.01417 | .78039 | .02870 | -.00429 | .00188 | -.61409 | -.01815 |
| 0 | 2.000 | -.007 | -.15113 | .76575 | -.00200 | -.00456 | .00110 | -.47646 | -.28261 |

CONFIDENTIAL



S1D62-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SWL NO. 204 (Z/D)=.044 THETA= 0 CONFIGURATION..E15 T11 C P12 LAMBDA=33 RUN NO. 80

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 80.842 | .970 | -.04721 | .77633 | .03074 | .00102 | .00179 | -.64187 | -.06081 |
| 681 | 2.000 | .008 | -.03406 | .77702 | .00490 | .00105 | .00177 | -.46913 | -.21433 |
| 0 | .843 | 2.964 | -.08650 | .77359 | .03672 | .00225 | .00174 | -.68370 | -.11181 |
| 0 | 2.000 | .004 | -.04639 | .77703 | .00117 | .00233 | .00162 | -.47444 | -.37022 |
| 0 | .844 | 4.978 | -.09534 | .75965 | .03574 | .00305 | .00161 | -.68116 | -.12550 |
| 0 | 2.000 | -.002 | -.02908 | .76506 | -.00070 | .00318 | .00134 | -.47892 | -.38701 |
| 0 | .845 | 6.991 | -.10522 | .74534 | .03713 | .00384 | .00150 | -.65557 | -.14117 |
| 0 | 2.000 | -.003 | -.01373 | .75260 | -.00064 | .00399 | .00102 | -.48002 | -.60847 |
| 0 | .846 | 10.039 | -.10606 | .77131 | .05565 | .00437 | .00187 | -.65303 | -.13751 |
| 0 | 2.000 | .027 | .02999 | .77799 | .01614 | .00463 | .00108 | -.49714 | .39854 |
| 0 | .847 | 12.087 | -.06312 | .78531 | .03874 | -.00358 | .00155 | -.67015 | -.08038 |
| 0 | 3.000 | .067 | .10268 | .78112 | .05200 | -.00317 | .00226 | -.49320 | -.27305 |
| 0 | .848 | 6.994 | -.10279 | .74697 | .03722 | .00451 | .00165 | -.64935 | -.13760 |
| 0 | 2.000 | -.003 | -.01109 | .75393 | -.00129 | .00468 | .00109 | -.47801 | -.68021 |

A-100

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO. 204 (Z/D)=.044 THETA= 0 CONFIGURATION..E15 T11 C P10 LAMBDA=33 RUN NO. 81

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 81.850 | -.006 | -.02499 | .18277 | .02266 | .00549 | -.00004 | -.03118 | -.13671 |
| 3270 | 2.000 | -.005 | -.02501 | .18277 | -.01085 | .00549 | -.00004 | -.03363 | -.92564 |
| 0 | .851 | -1.016 | -.03636 | .18862 | .01552 | .00562 | -.00013 | -.03118 | -.19275 |
| 0 | 2.000 | -.005 | -.03969 | .18795 | -.01072 | .00562 | -.00003 | -.03607 | -.49830 |
| 0 | .852 | -3.030 | -.05322 | .20668 | .01011 | .00560 | -.00009 | -.03118 | -.25752 |
| 0 | 2.000 | -.004 | -.06407 | .20358 | -.00917 | .00560 | .00021 | -.03118 | -.33368 |
| 0 | .853 | -5.044 | -.07625 | .22373 | .01167 | .00430 | -.00024 | -.03118 | -.34084 |
| 0 | 3.000 | -.003 | -.09563 | .21616 | -.00736 | .00430 | .00014 | -.03363 | -.33826 |
| 0 | .854 | -7.060 | -.10206 | .24007 | .01178 | .00400 | -.00009 | -.03118 | -.42512 |
| 0 | 2.000 | -.002 | -.13079 | .22571 | -.00516 | .00398 | .00040 | -.03485 | -.32981 |
| 0 | .855 | -10.084 | -.13816 | .25969 | .01146 | .00447 | -.00043 | -.03363 | -.53201 |
| 0 | 2.000 | -.002 | -.18149 | .23149 | -.00648 | .00448 | .00036 | -.03485 | -.32269 |
| 0 | .856 | -7.060 | -.10152 | .24003 | .01205 | .00429 | 0 | -.03118 | -.42294 |
| 0 | 2.000 | -.002 | -.13025 | .22574 | -.00611 | .00426 | .00053 | -.03363 | -.33192 |

[redacted]

[redacted]

A-101

SID62-1056

NAA SISD FS-1J ESCAPE ROCKET SOLID JET INTERFERENCE STUDY.. (USE EDPM PROGRAMS 2K178+626) JOB NO.(3789-18)

SAL NO. 204 (Z/D)=.044 THETA= 0 CONFIGURATION..E15 T11 C P10 LAMBDA=33 RUN NO. 81

| TEST NO. / MACH NO. | RUN.LOG / REIT | ALPHA C / YAW C | CL / (CN)BODY | CD / (CA)BODY | CPM / (CY)BODY | CYM.STAB / CYM.BODY | CRM.STAB / CRM.BODY | (DP/Q)B / (DP/Q)CH | (L/D) / (X CP/D) |
|---|---|---|---|---|---|---|---|---|---|
| 1208 | 81.857 | 1.005 | -.00845 | .19027 | .02771 | .00608 | -.00045 | -.03607 | -.04442 |
| 3270 | 3.000 | -.005 | -.00511 | .19039 | -.01122 | .00607 | -.00055 | -.03607 | -4.09655 |
| 0 | .858 | 3.019 | .01275 | .19751 | .03050 | .00500 | .00006 | -.03363 | .06454 |
| 0 | 2.000 | -.006 | .02313 | .19656 | -.01147 | .00500 | -.00021 | -.03363 | .62890 |
| 0 | .859 | 5.033 | .03760 | .20003 | .02674 | .00509 | .00009 | -.03363 | .18796 |
| 0 | 2.000 | -.006 | .05500 | .19596 | -.01093 | .00508 | -.00036 | -.03485 | .01383 |
| 0 | .860 | 7.048 | .06326 | .21676 | .02662 | .00317 | .00016 | -.03607 | .29184 |
| 0 | 2.000 | -.005 | .08938 | .20737 | -.00845 | .00317 | -.00023 | -.03607 | -.11992 |
| 0 | .861 | 10.072 | .09726 | .22738 | .03124 | .00295 | .00044 | -.03607 | .42773 |
| 0 | 2.000 | -.005 | .13551 | .20687 | -.00897 | .00298 | -.00008 | -.03607 | -.15231 |
| 0 | .862 | 12.090 | .12443 | .23991 | .03304 | .00235 | .00013 | -.03607 | .51867 |
| 0 | 3.000 | -.005 | .17191 | .20854 | -.00797 | .00232 | -.00037 | -.03607 | -.17680 |
| 0 | .863 | 12.090 | .12545 | .23936 | .03287 | .00226 | .00012 | -.03607 | .52412 |
| 0 | 3.000 | -.005 | .17279 | .20778 | -.00751 | .00223 | -.00035 | -.03607 | -.17832 |

# APPENDIX "B"

# INDEX TO FIGURES

## Description


| | Figure |
|---|---|
| A. Configuration Photographs | |
| 1. Launch Escape System with solid plumes d/D = 0.282 $\phi = 0°$ | 1 |
| 2. Launch Escape System with solid plumes d/D = 0.408 $\phi = 45°$ | 2 |
| 3. Launch Escape System with top and bottom solid plumes d/D = 0.282 | 3 |
| 4. Launch Escape System with solid plumes mounted horizontally d/D = 0.282 | 4 |
| 5. Launch Escape System with solid plumes d/D = 0.107 | 5 |
| 6. Launch Escape System with solid bent plumes d/D = 0.107 | 6 |
| B. Schlieren Photographs | |
| 1. Four straight plumes d/D = 0.408 cant angle = 33° | 7 |
| 2. Four straight plumes d/D = 0.408 cant angle = 33° | 8 |
| 3. Four straight plumes d/D = 0.282 cant angle = 33°, $\phi = 45°$ | 9 |
| 4. Four straight plumes d/D = 0.282 cant angle = 33°, $\phi = 45°$ | 10 |
| 5. Four straight plumes d/D = 0.107 cant angle = 33° | 11 |
| 6. Four bent plumes d/D = 0.107 cant angle = 33° | 12 |

INDEX TO FIGURES continued


| | | Figure |
|---|---|---|
| C. Launch Escape System Characteristics $C_N$, $C_A$, $C_{m_{c.g.}}$, $C_L$, $C_D$ vs. | | |
| 1. Configuration ($E_{15}$ $T_{11}$ C) | | |
| M = 0.681 | | 13 a-e |
| M = 1.88 | | 14 a-e |
| M = 2.49 | | 15 a-e |
| M = 3.27 | | 16 a-e |
| 2. Configuration ($E_{15}$ $T_{11}$ $CP_1$) | | |
| M = 0.681 | | 17 a-e |
| M = 0.681 | Cant Angle = 28° | 18 a-e |
| M = 0.681 | $\phi$ = 45° | 19 a-e |
| M = 1.88 | | 20 a-e |
| M = 2.49 | | 21 a-e |
| M = 2.49 | Cant Angle = 28° | 22 a-e |
| M = 2.49 | $\phi$ = 45° | 23 a-e |
| M = 3.27 | | 24 a-e |
| 3. Configuration ($E_{15}$ $T_{11}$ $CP_2$) | | |
| M = 0.681 | | 25 a-e |
| M = 0.681 | Cant Angle = 28° | 26 a-e |
| M = 0.681 | $\phi$ = 45° | 27 a-e |
| M = 1.88 | | 28 a-e |
| M = 2.49 | | 29 a-e |
| M = 2.49 | Repeat Run | 30 a-e |
| M = 2.49 | Grit on $P_2$ | 31 a-e |
| M = 2.49 | Cant Angle = 28° | 32 a-e |
| M = 2.49 | $\phi$ = 45° | 33 a-e |
| M = 2.49 | Cant Angle = 28°, $\phi$ = 45° | 34 a-e |
| M = 3.27 | | 35 a-e |
| M = 3.27 | Repeat Run | 36 a-e |
| 4. Configuration ($E_{15}$ $T_{11}$ $CP_3$) | | |
| M = 0.681 | | 37 a-e |
| M = 0.681 | Cant Angle = 28° | 38 a-e |
| M = 0.681 | $\phi$ = 45° | 39 a-e |
| M = 1.88 | | 40 a-e |
| M = 2.49 | | 41 a-e |
| M = 2.49 | Cant Angle = 28° | 42 a-e |
| M = 2.49 | $\phi$ = 45° | 43 a-e |
| M = 3.27 | | 44 a-e |
| 5. Configuration ($E_{15}$ $T_{11}$ $CP_4$) | | |
| M = 0.681 | | 45 a-e |
| M = 2.49 | | 46 a-e |
| 6. Configuration ($E_{15}$ $T_{11}$ $CP_5$) | | |
| M = 0.681 | | 47 a-e |
| M = 2.49 | | 48 a-e |

INDEX TO FIGURES continued


| | Figure |
|---|---|
| 7. Configuration ($E_{15}$ $T_{11}$ $CP_6$) M = 2.49 | 49 a-e |
| 8. Configuration ($E_{15}$ $T_{11}$ $CP_7$) M = 2.49 | 50 a-e |
| 9. Configuration ($E_{15}$ $T_{11}$ $CP_8$) M = 2.49 | 51 a-e |
| 10. Configuration ($E_{15}$ $T_{11}$ $CP_9$) M = 2.49 | 52 a-e |
| 11. Configuration ($E_{15}$ $T_{11}$ $CP_{10}$) M = 0.681 | 53 a-e |
| M = 3.27 | 54 a-e |
| 12. Configuration ($E_{15}$ $T_{11}$ $CP_{11}$) M = 0.681 | 55 a-e |
| 13. Configuration ($E_{15}$ $T_{11}$ $CP_{12}$) M = 0.681 | 56 a-e |
| 14. Configuration ($C_{20}$ $T_{11}$ C) M = 0.681 | 57 a-e |
| M = 3.27 | 58 a-e |
| 15. Configuration ($C_{20}$ $T_{11}$ $P_2$) M = 0.681 | 59 a-e |
| M = 3.27 | 60 a-e |

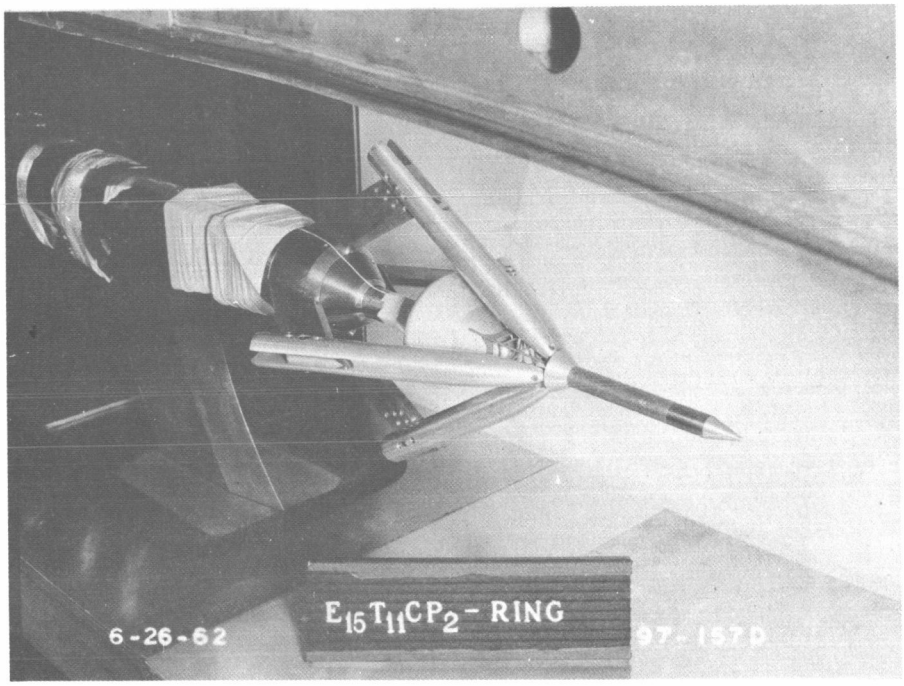



Figure 1. Launch Escape System With Solid Plumes
d/D = 0.282 $\phi = 0°$

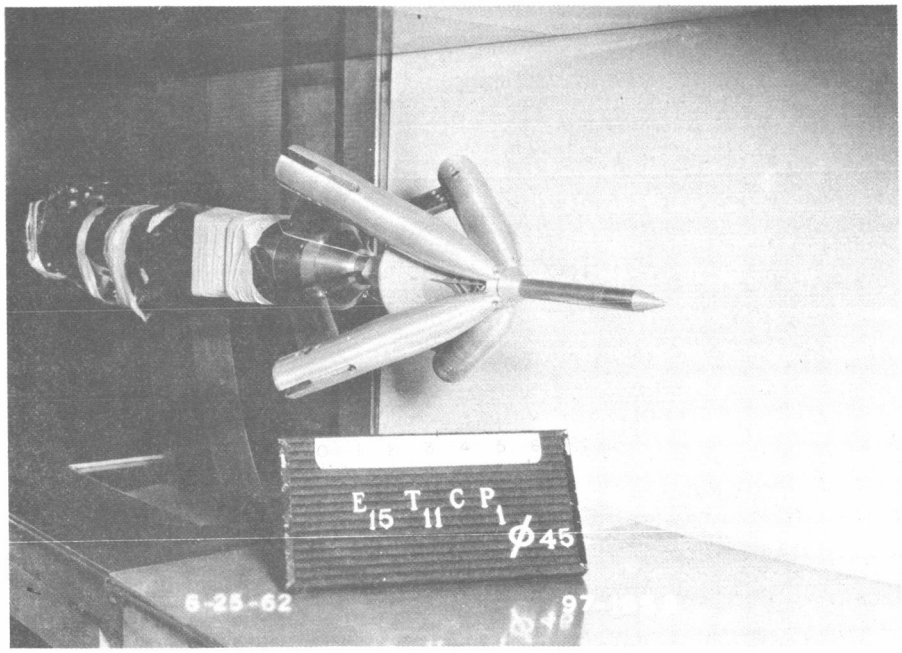



Figure 2. Launch Escape System With Solid Plumes
d/D = 0.408 $\phi = 45°$

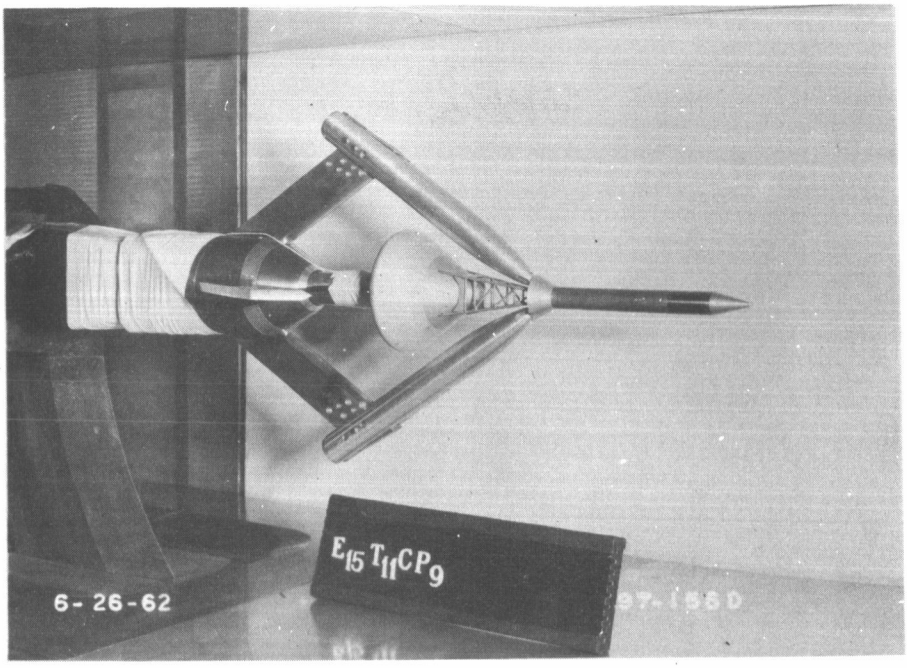



Figure 3. Launch Escape System With Top And Bottom Solid Plumes
d/D = 0.282

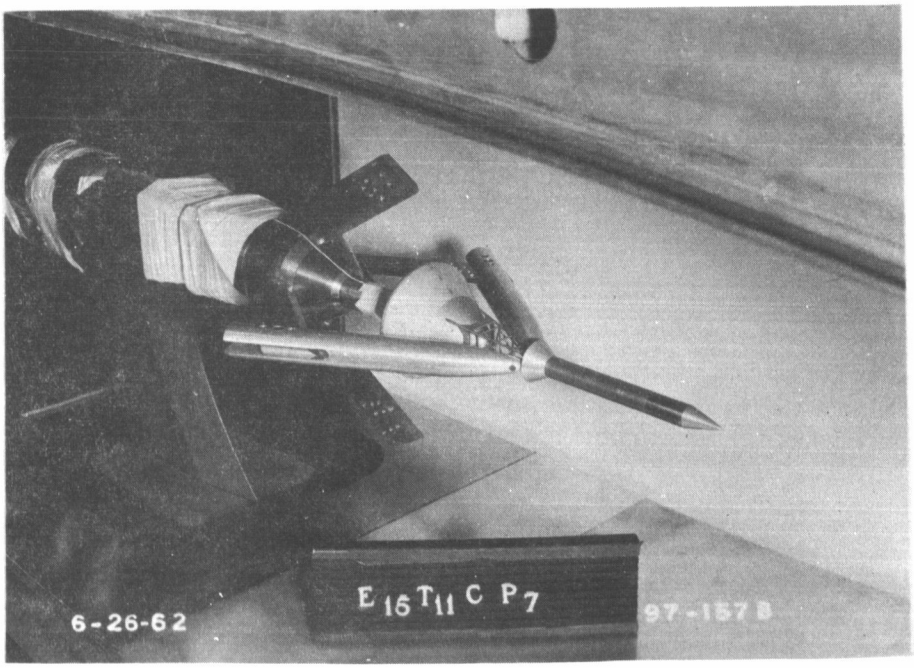



Figure 4. Launch Escape System With Solid Plumes Mounted Horizontally
d/D = 0.282

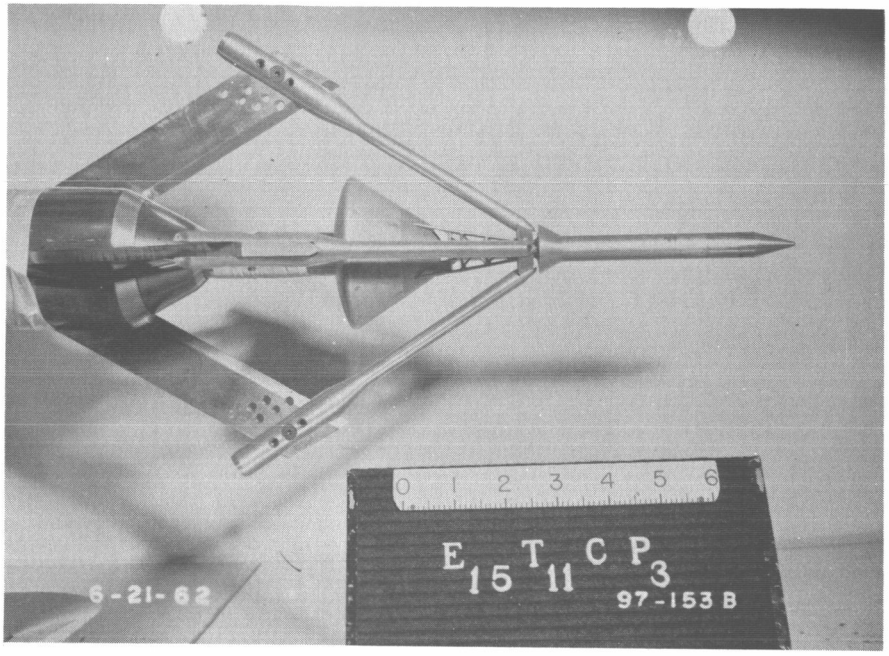



Figure 5. Launch Escape System With Solid Plumes
d/D = 0.107

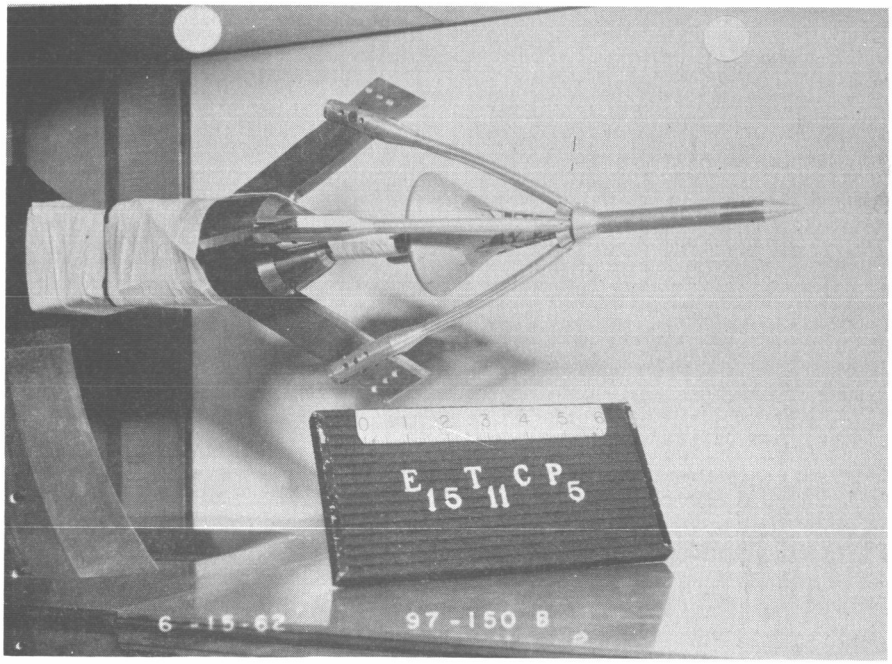



Figure 6. Launch Escape System With Solid Bent Plumes
d/D = 0.107

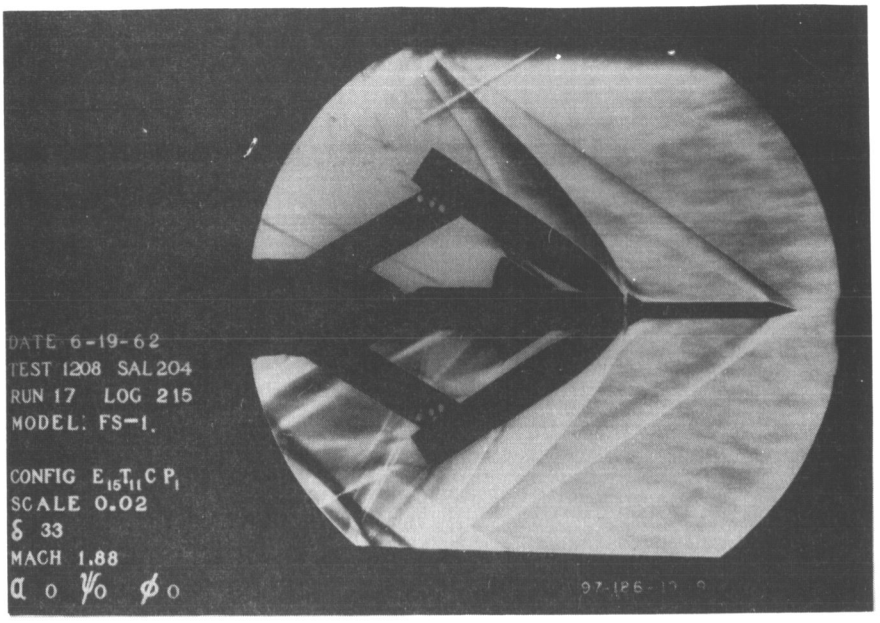



Figure 7. Four Straight Plumes d/D = 0.408 Cant Angle = 33°

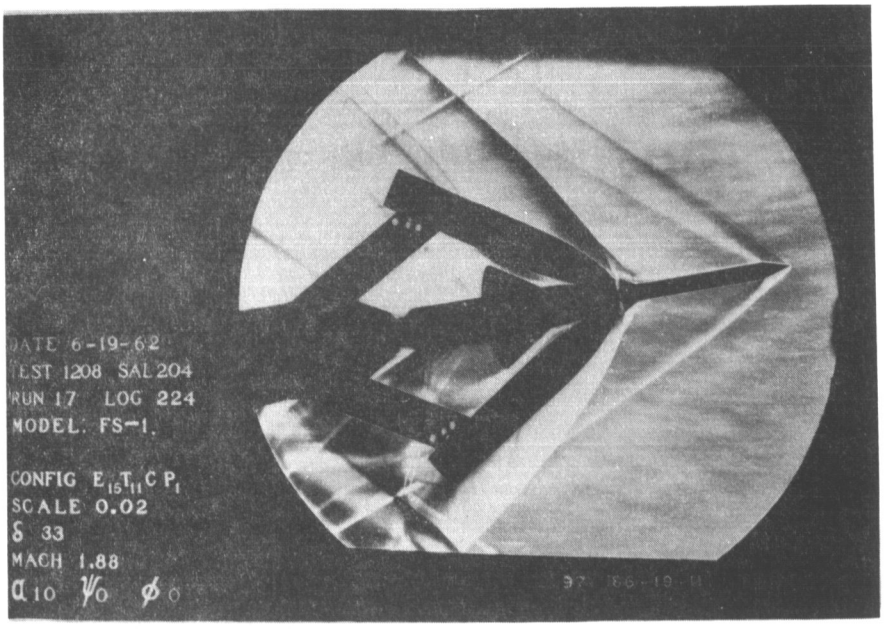



Figure 8. Four Straight Plumes d/D = 0.408 Cant Angle = 33°

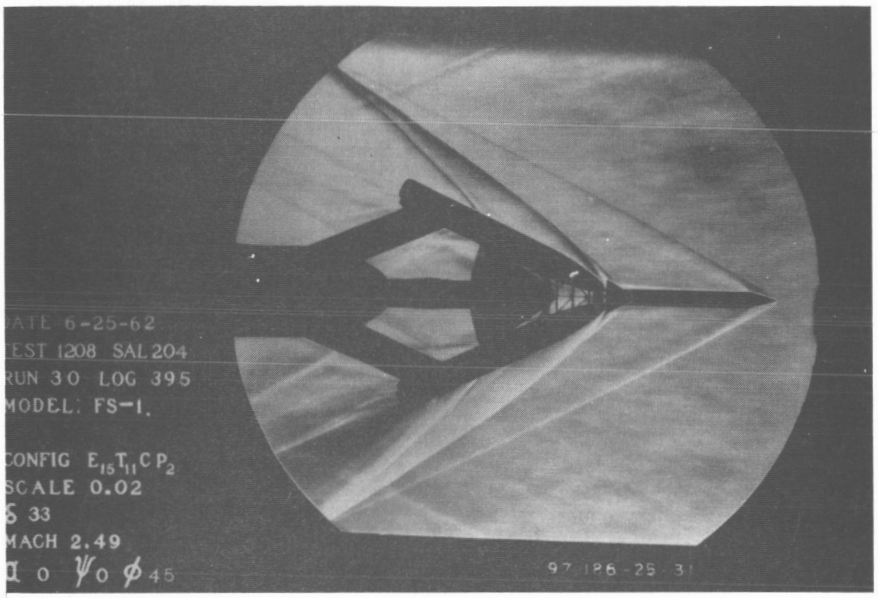



Figure 9. Four Straight Plumes d/D = 0.282 Cant Angle = 33°, $\phi$ = 45°

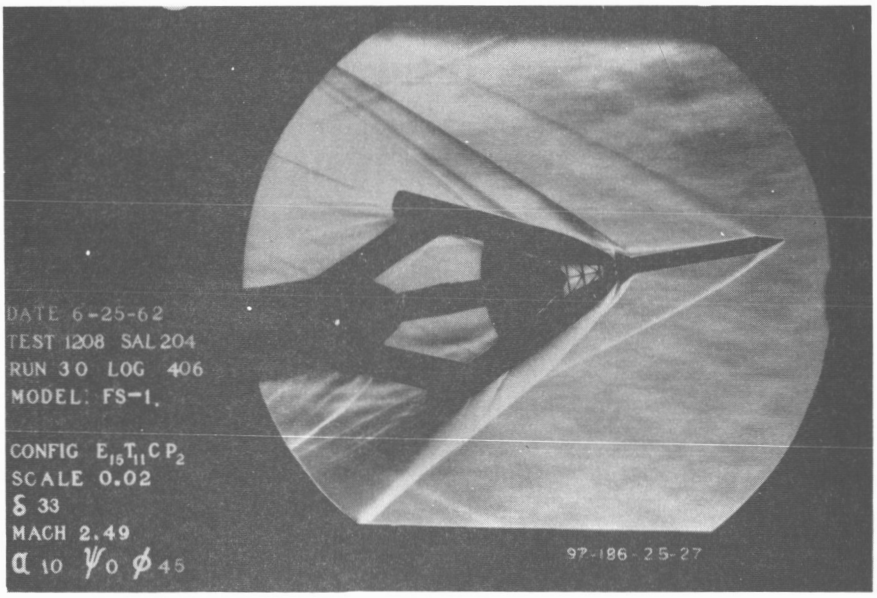



Figure 10. Four Straight Plumes d/D = 0.282 Cant Angle = 33°, $\phi$ = 45°

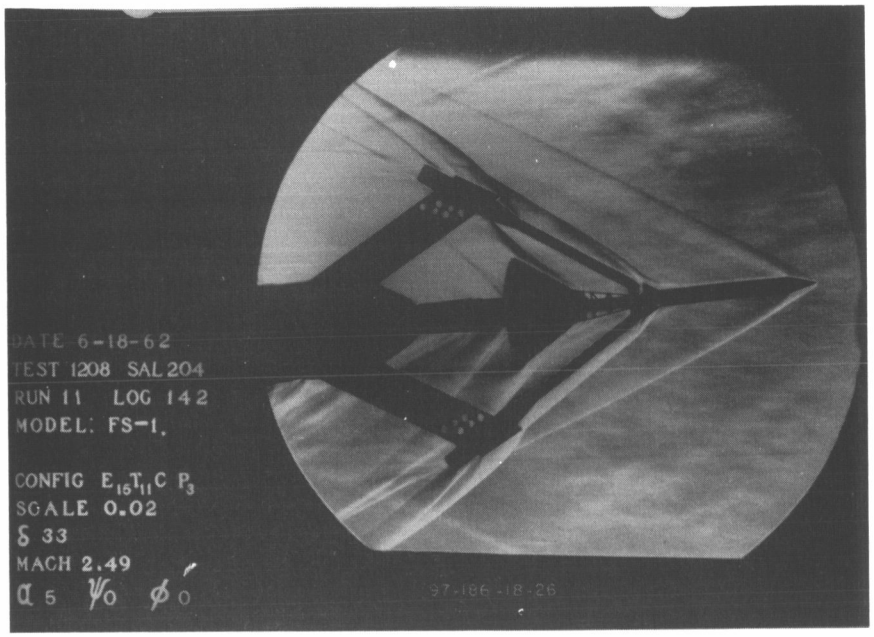



Figure 11. Four Straight Plumes d/D = 0.107 Cant Angle = 33°

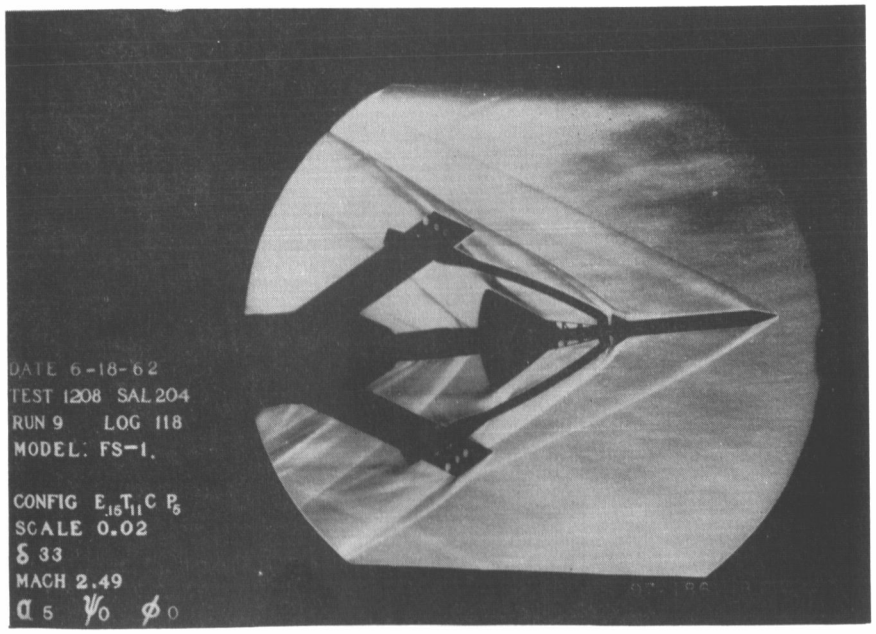



Figure 12. Four Bent Plumes d/D = 0.107 Cant Angle = 33°

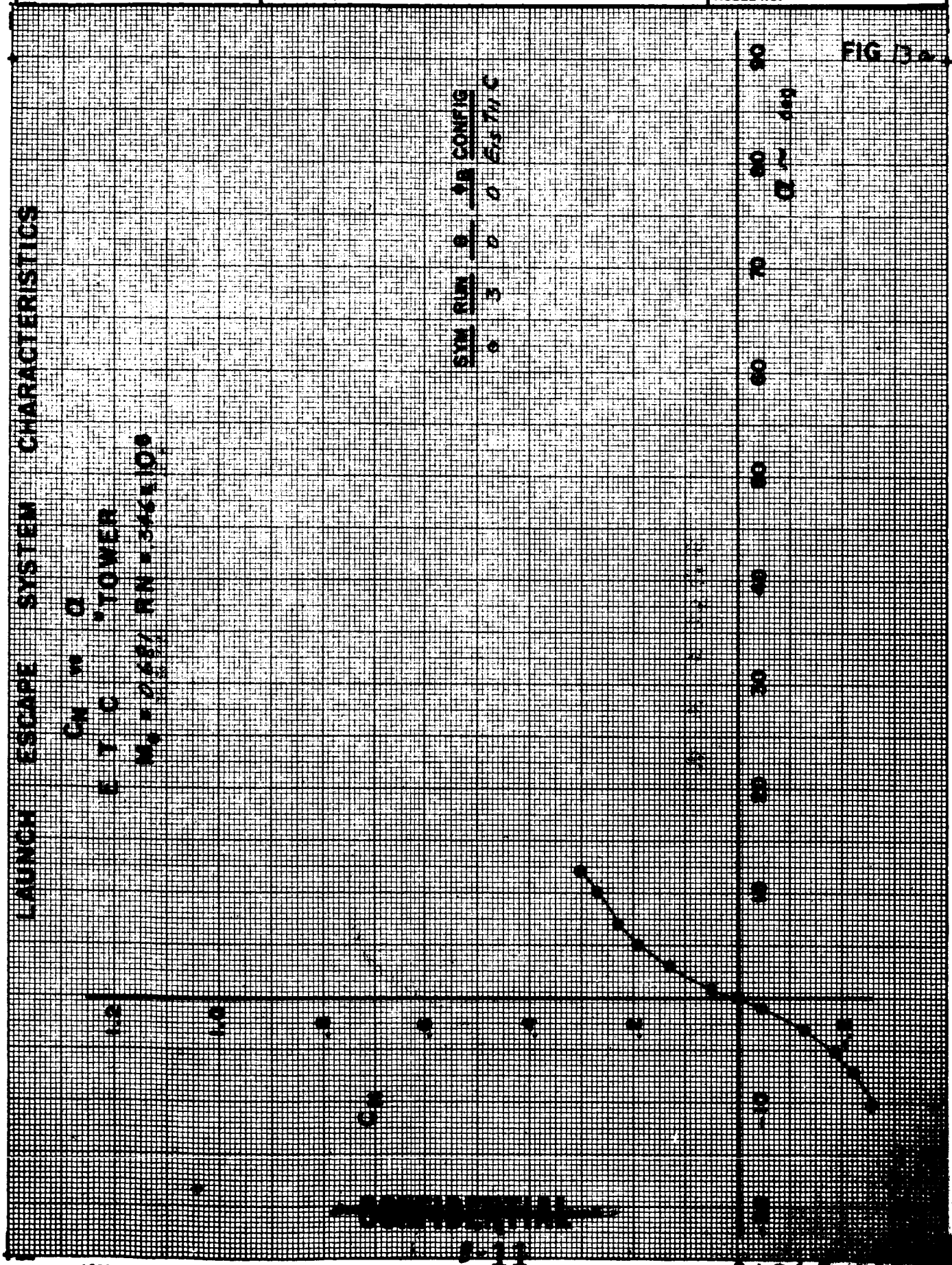
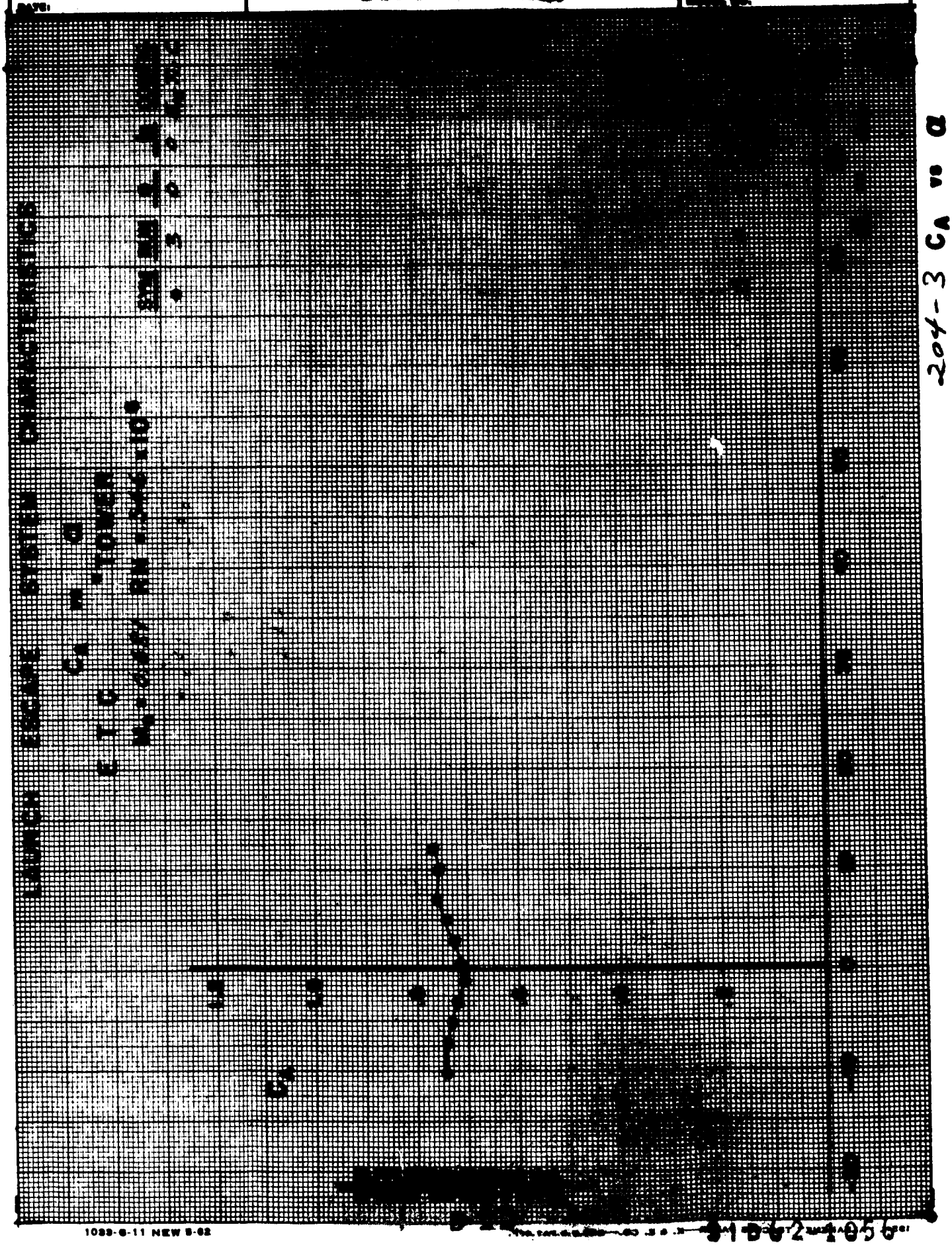



FIG 13a

204-3 $C_N$ vs α

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |




204-3 $C_A$ vs $\alpha$

[redacted]

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

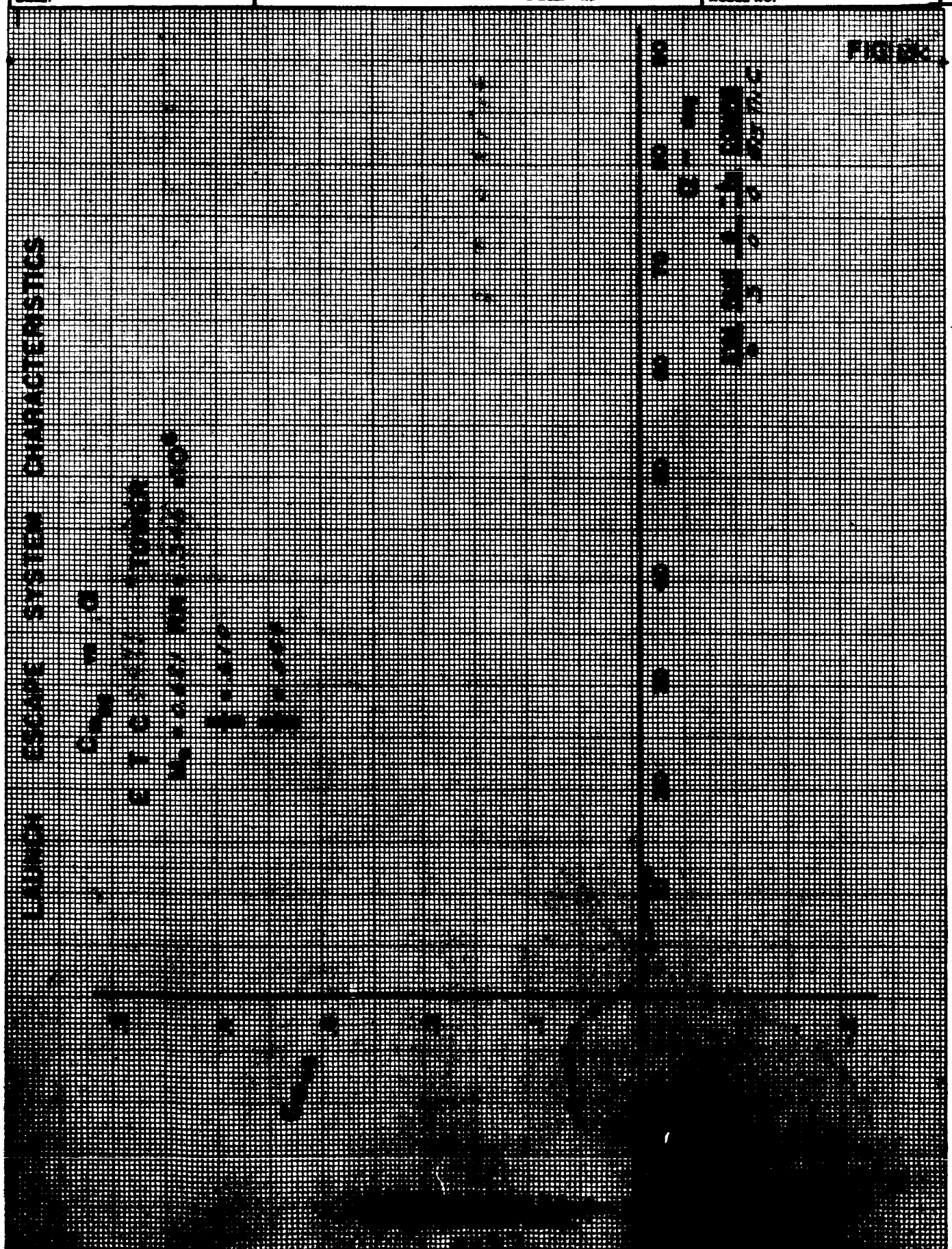
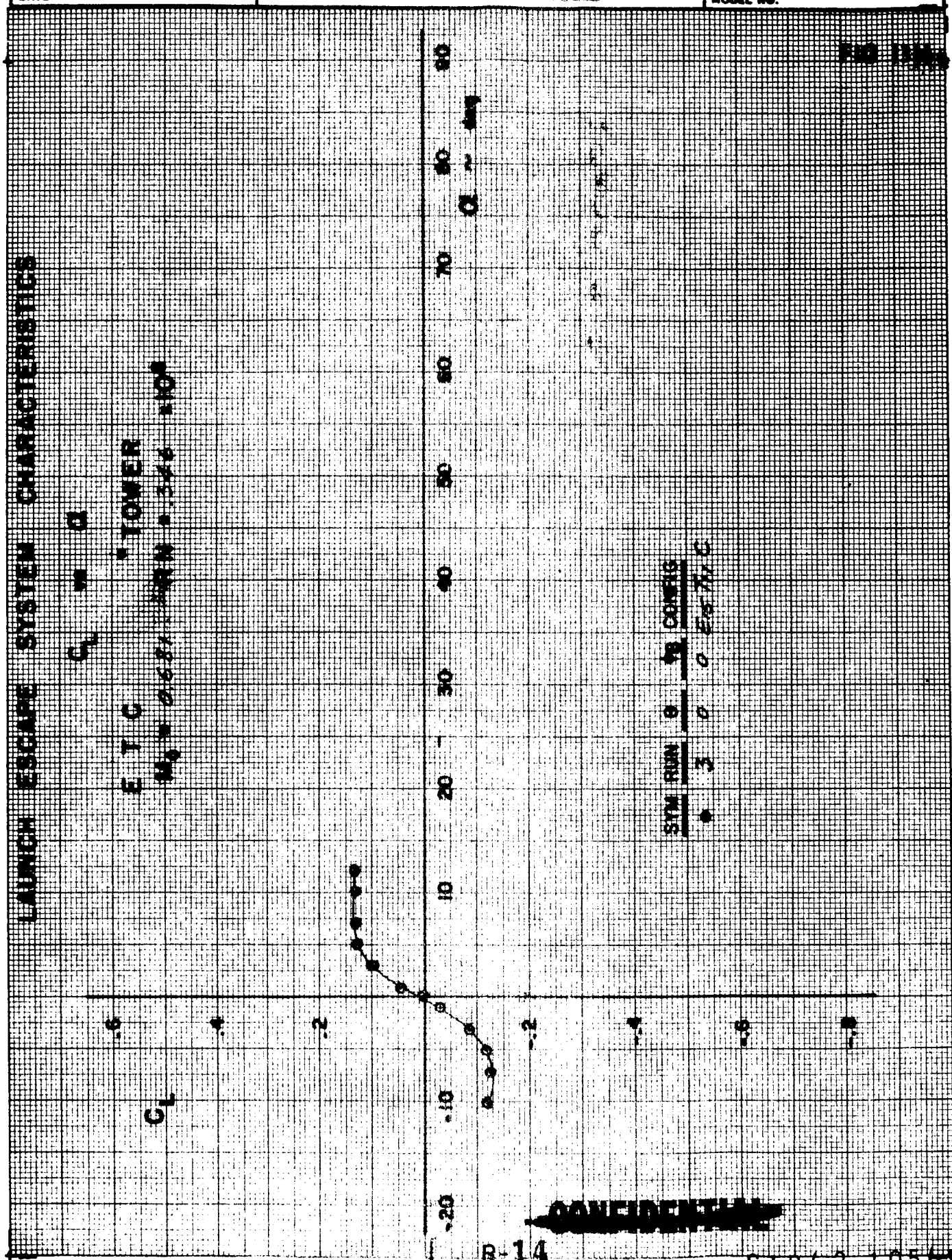



FIG. 8c

204-3 $C_m$ vs $\alpha$

| PREPARED BY: | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |




204-3 $C_L$ vs $\alpha$

CONFIDENTIAL



1033-G-13 NEW 5-62

S1062-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

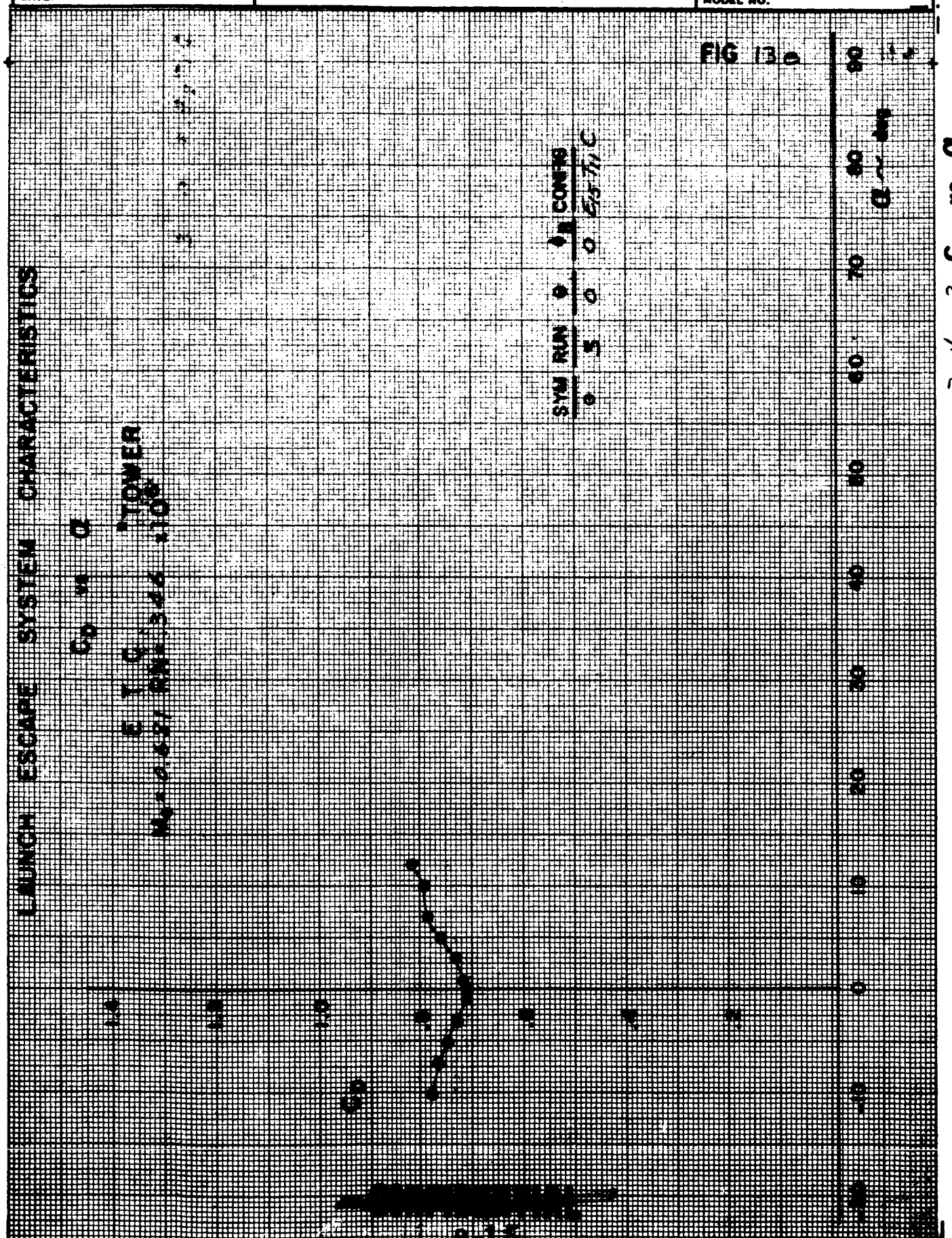
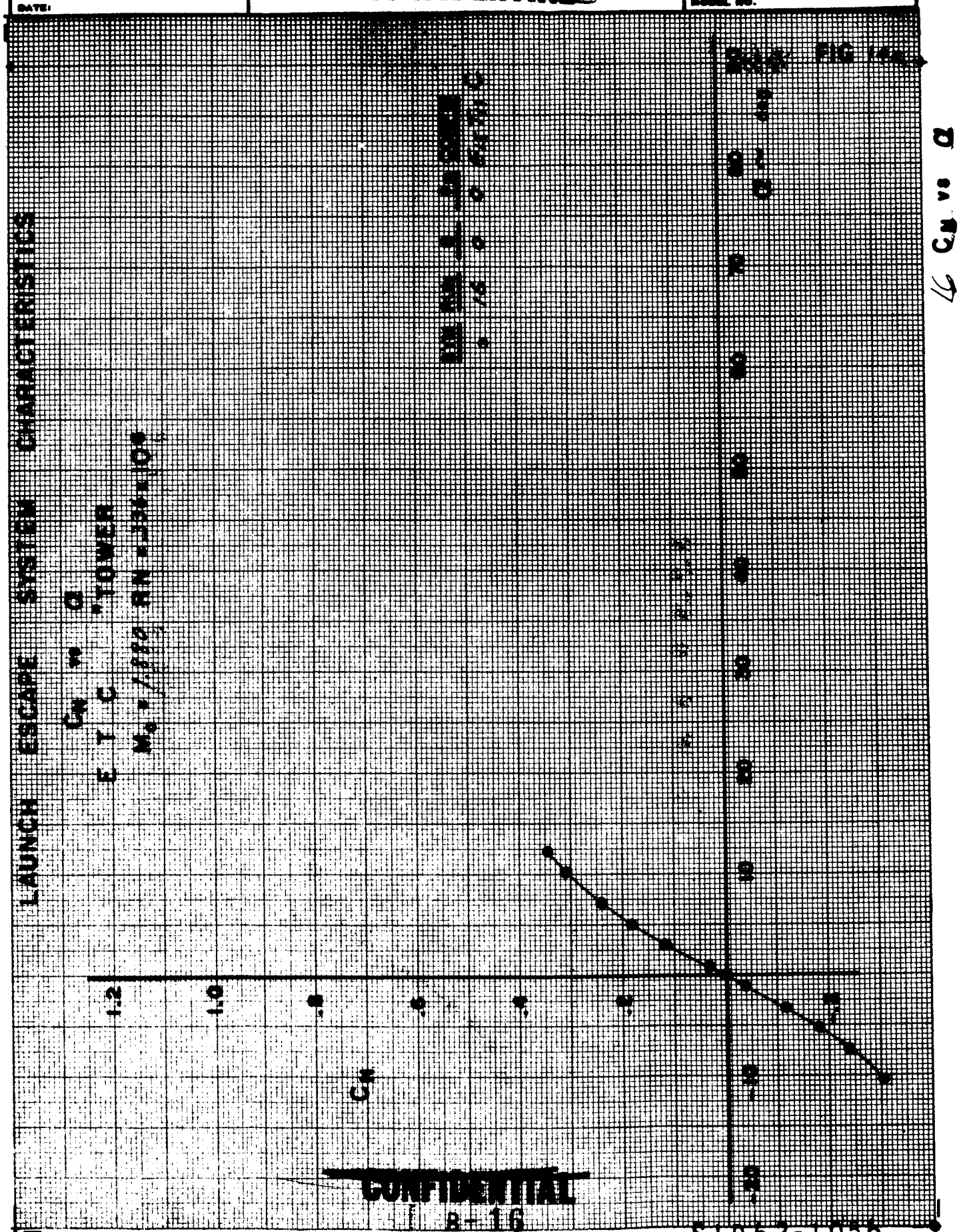



FIG 13e

204-3 $C_D$ vs $\alpha$

[redacted]

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |



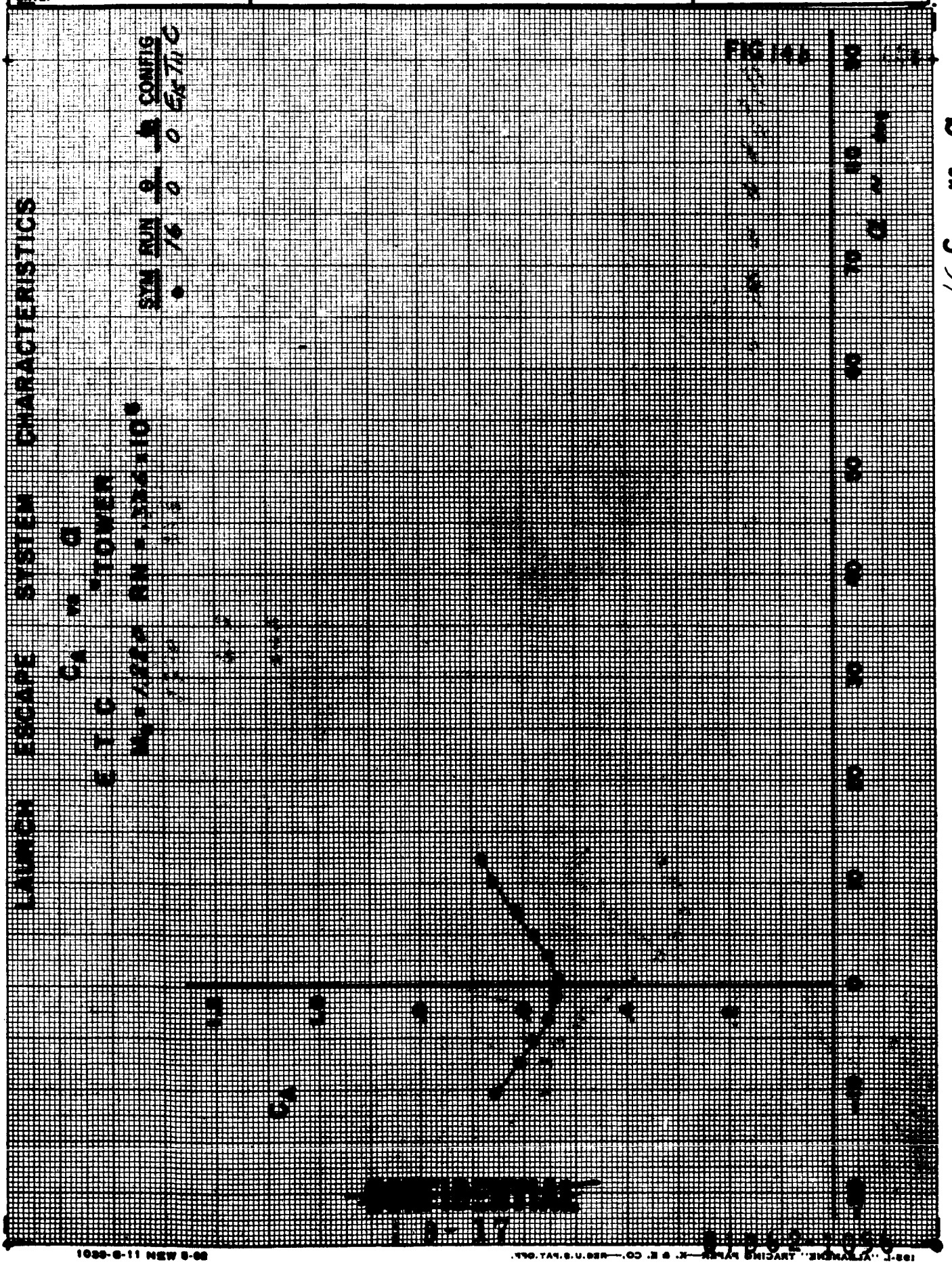

CONFIDENTIAL



S1062-1056

1033-G-10 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~



1039-G-11 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

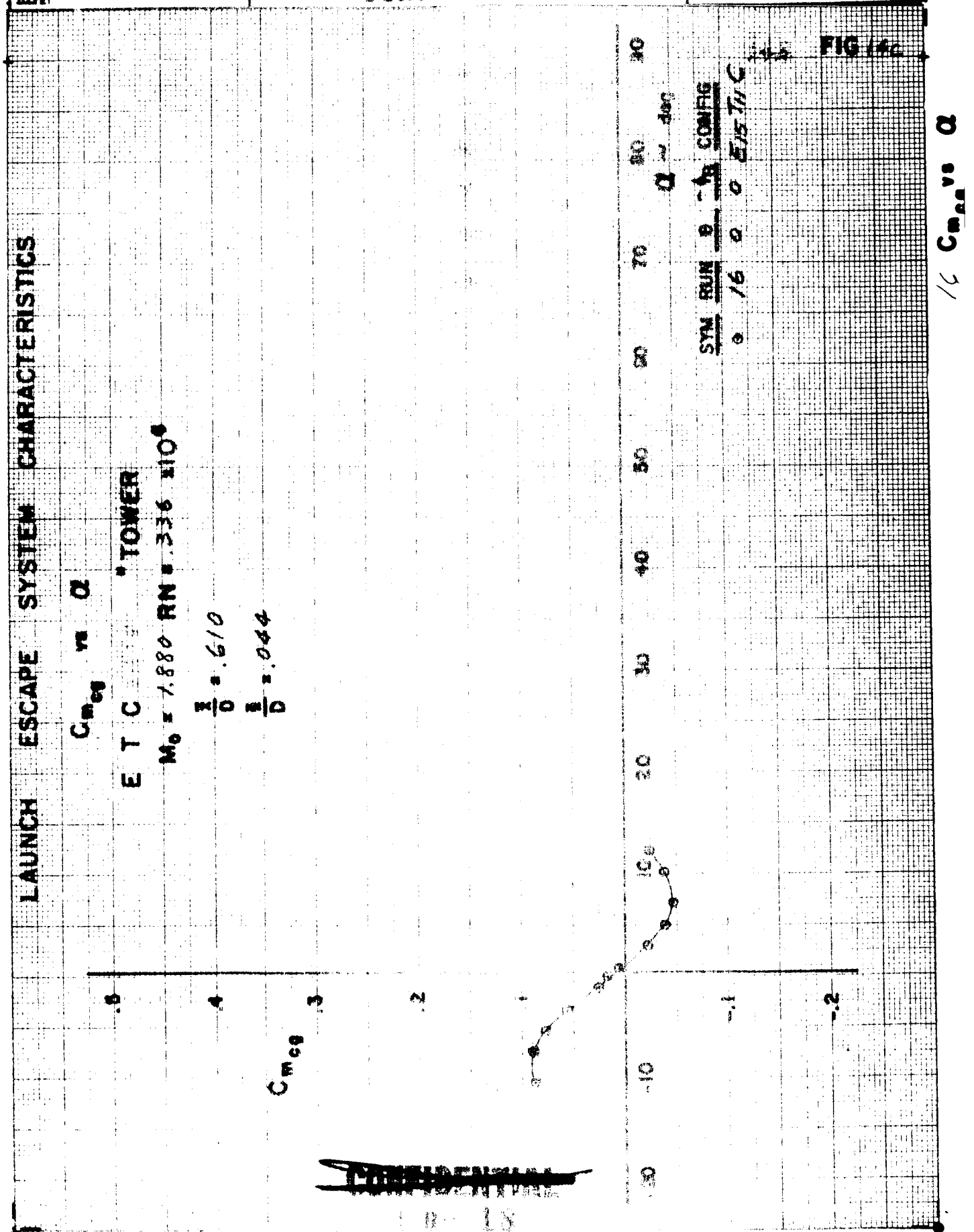



FIG 14c

$C_{m_{cg}}$ vs $\alpha$

~~CONFIDENTIAL~~



1033 G 12 NEW 5 62

91062-1056

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 14b




$C_L$ vs α

~~CONFIDENTIAL~~



1033-6-13 NEW 5-62

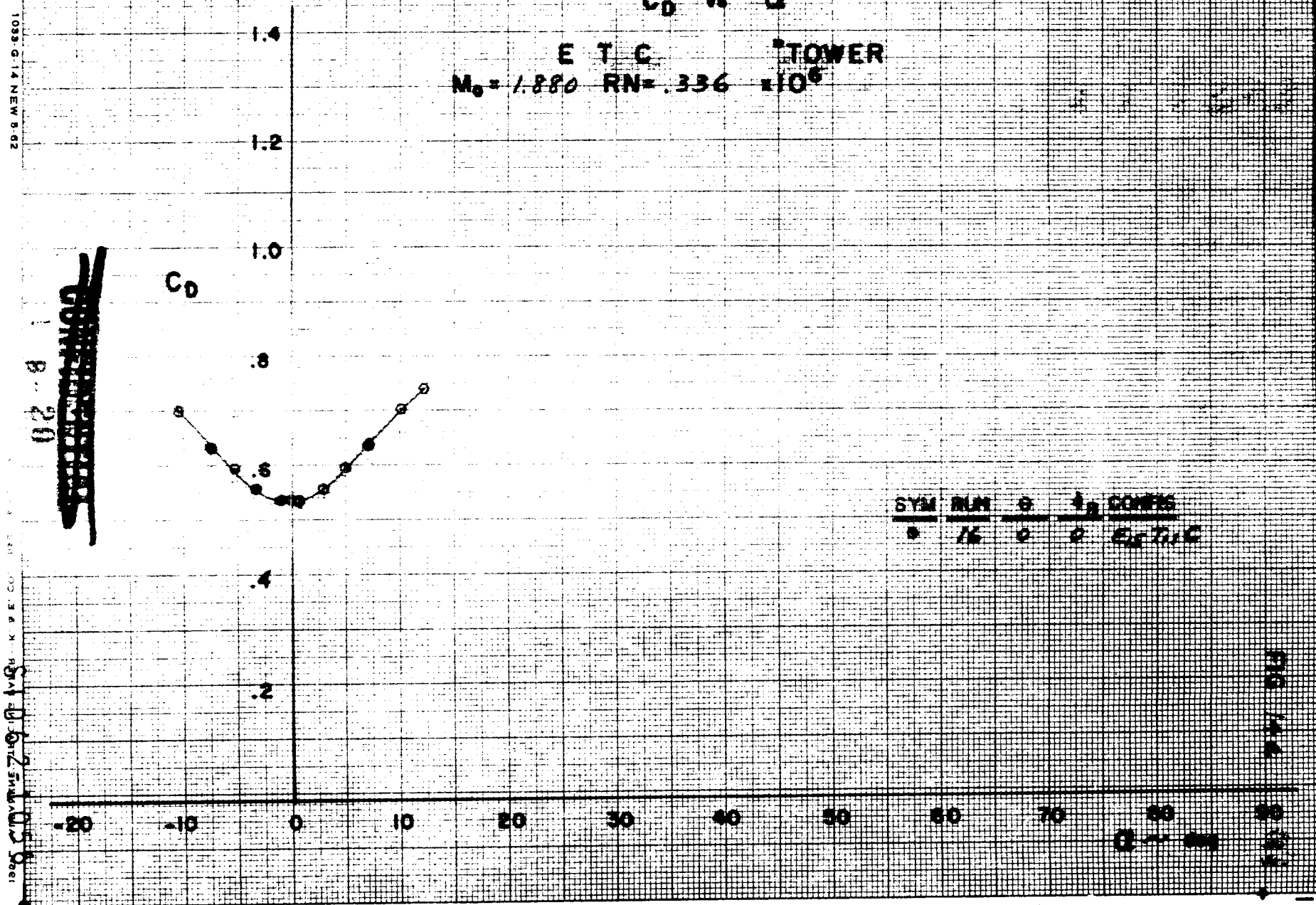
3PD82-1056

# LAUNCH ESCAPE SYSTEM CHARACTERISTICS

$C_D$ vs $\alpha$

E T C TOWER

$M_\infty = 1.880$ RN = .336 $\times 10^6$




16 $C_D$ vs $\alpha$

PREPARED BY: SAL

CHECKED BY:

DATE:

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

MODEL NO.

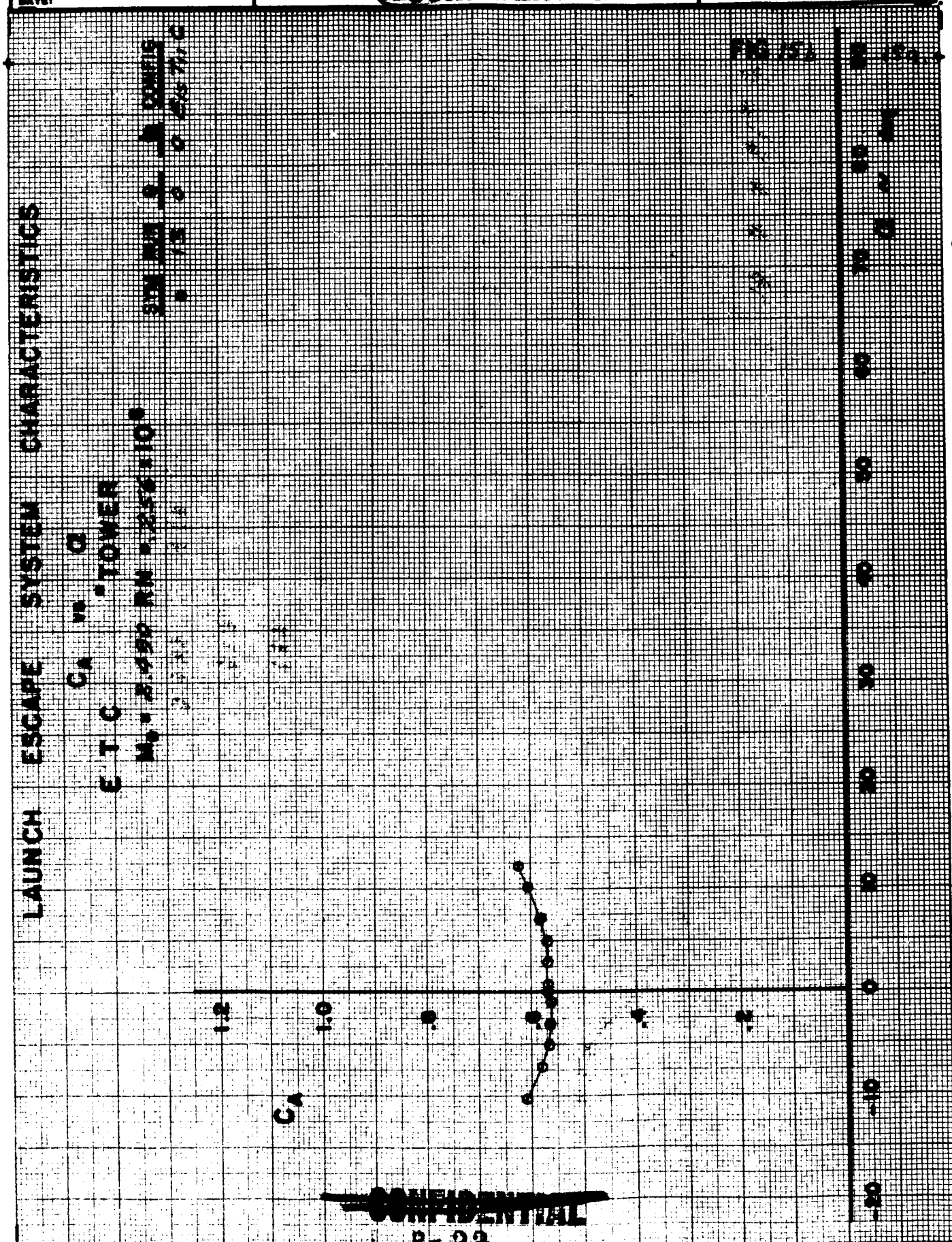
REPORT NO.

PAGE NO. 67

1033-G-14 NEW 8-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

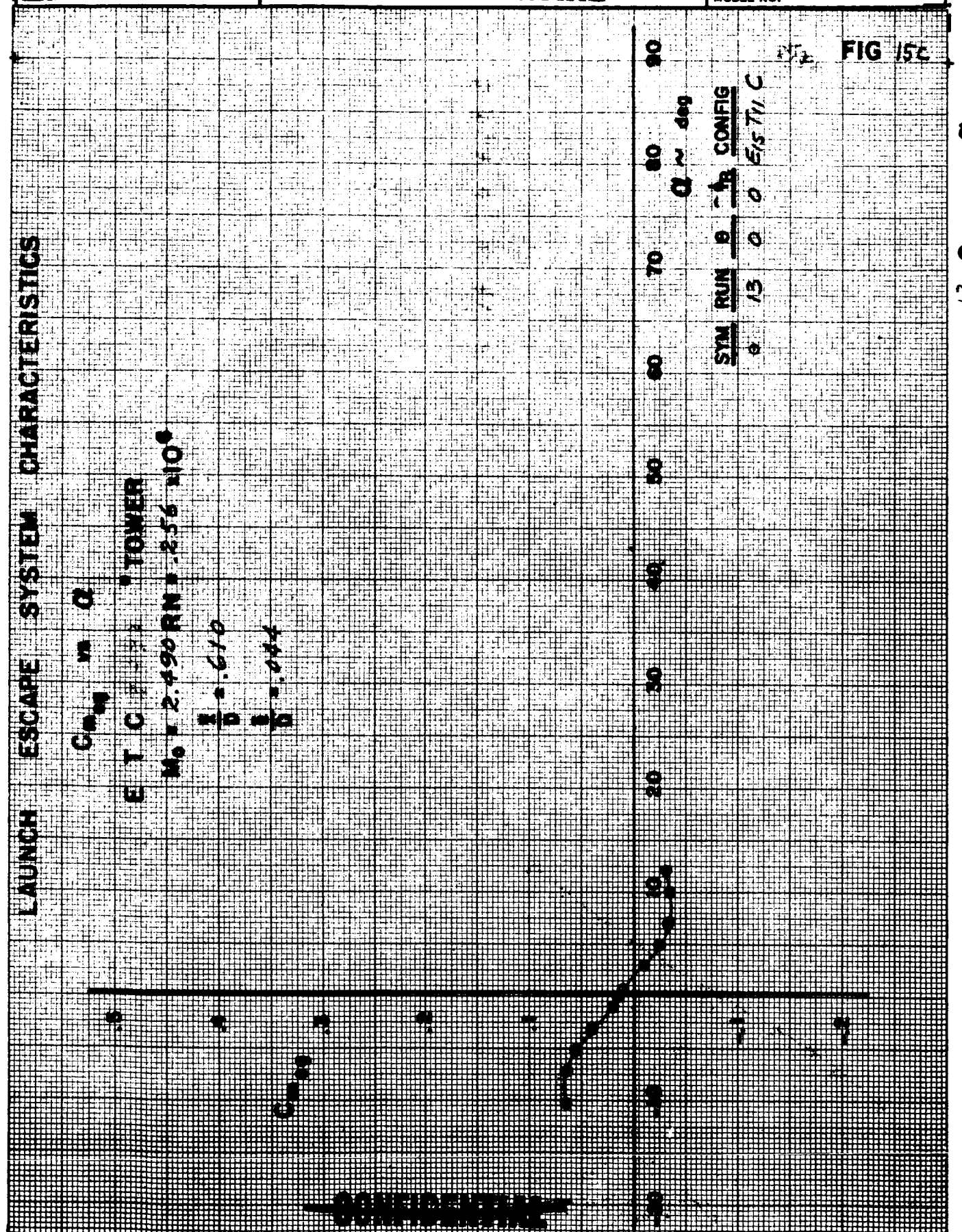
| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. 67 |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




13 $C_A$ vs α

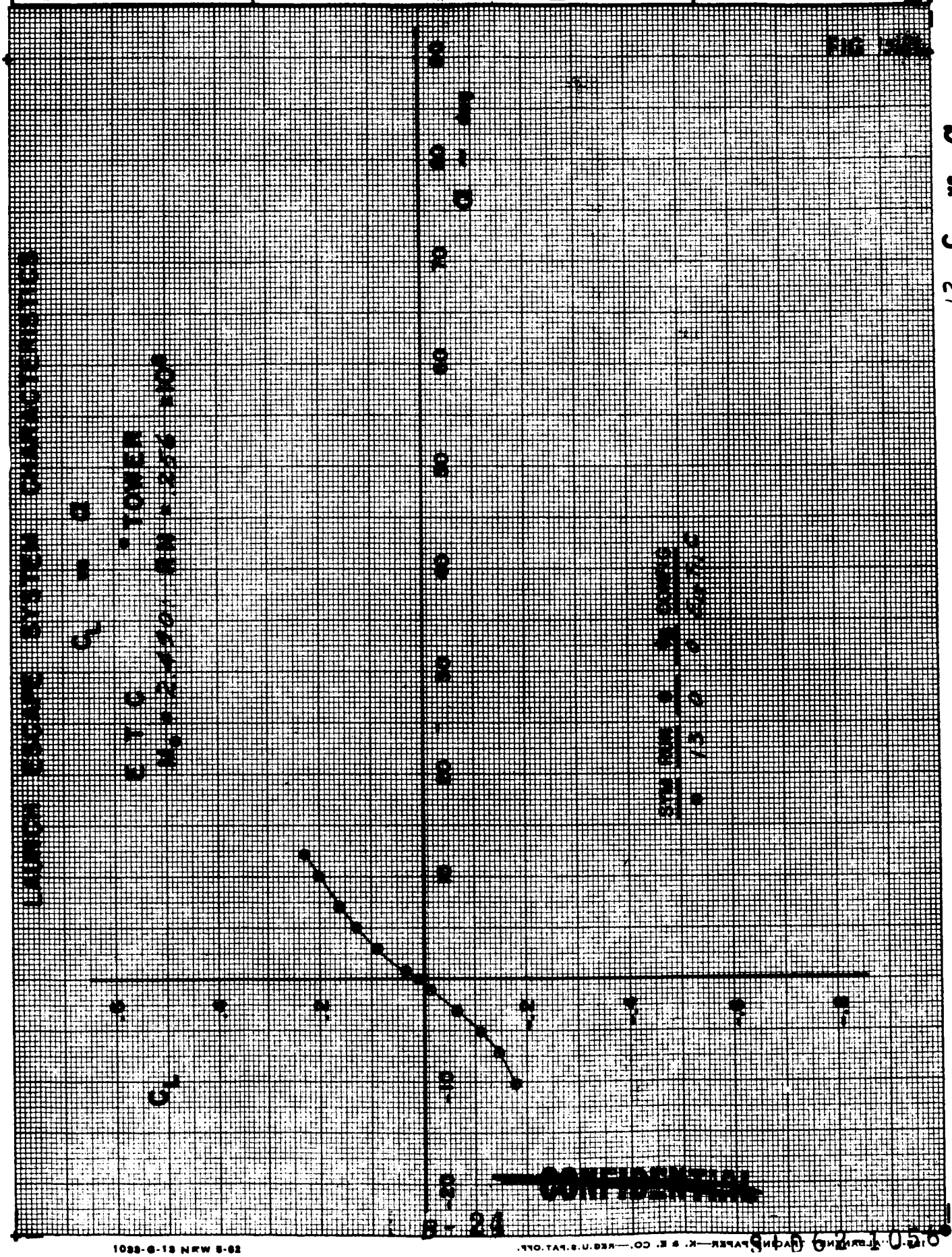
~~CONFIDENTIAL~~

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




13 $C_L$ vs $\alpha$

~~CONFIDENTIAL~~

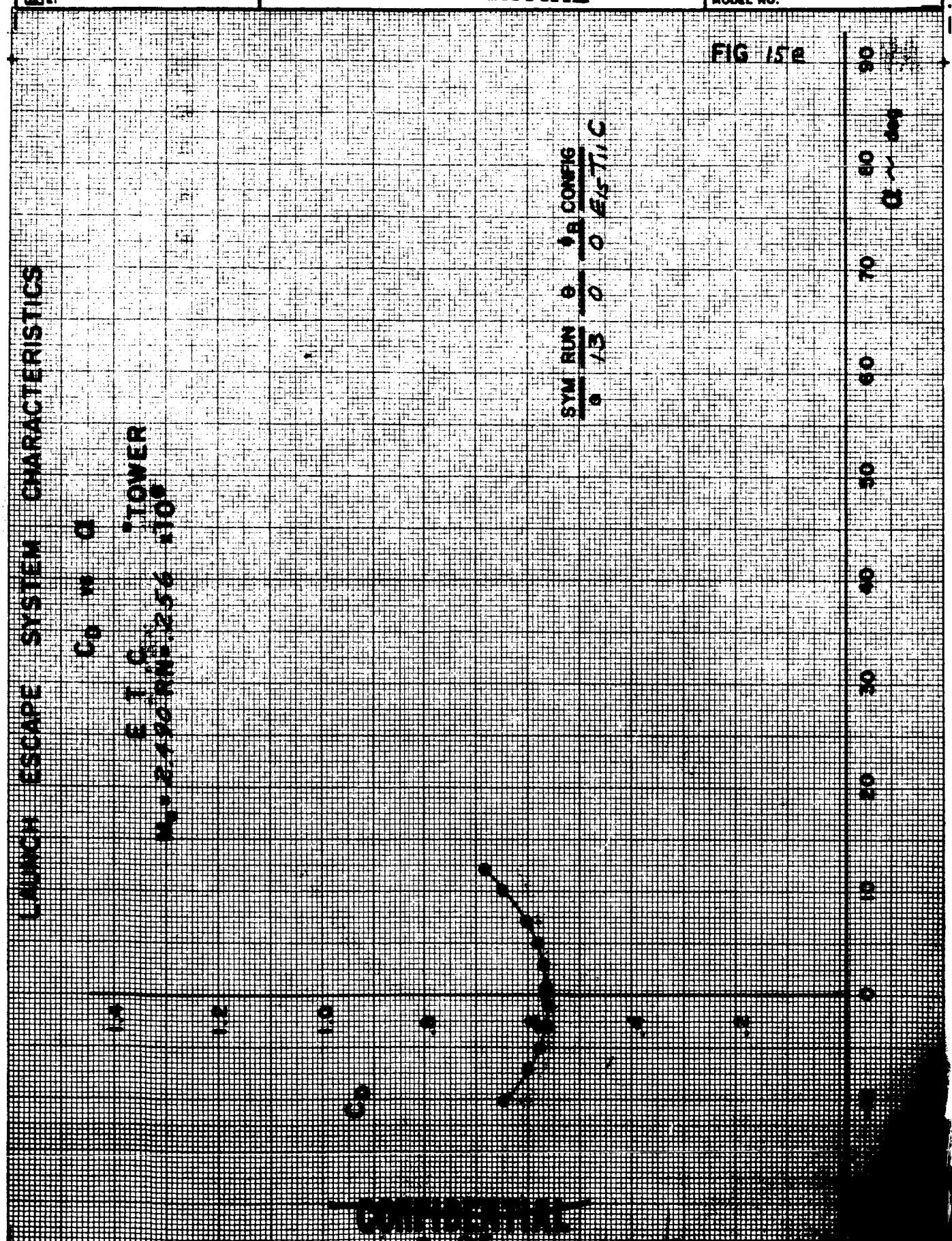


1033-G-13 NEW 5-62

ALBANENE TRACING PAPER—K. & E. CO.—REG. U.S. PAT. OFF.

94062-1056

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |




13 $C_D$ vs $\alpha$

[redacted]

1033-G-14 NEW 5-62

PREPARED BY: SAL

CHECKED BY:

DATE:

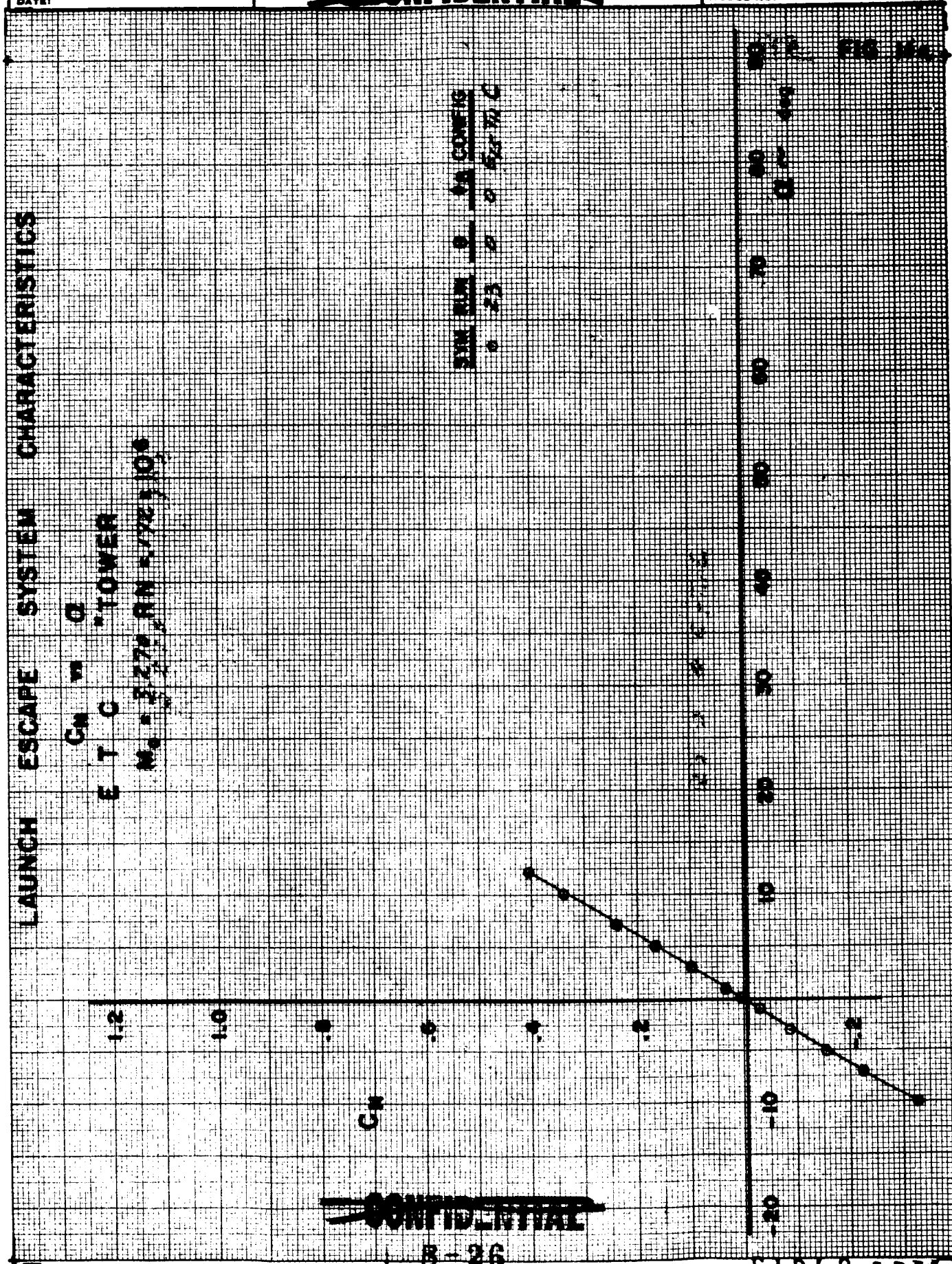
NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

~~CONFIDENTIAL~~

PAGE NO. OF

REPORT NO.

MODEL NO.




~~CONFIDENTIAL~~



1033-G-10 NEW 5-62

23 Cm vs α

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

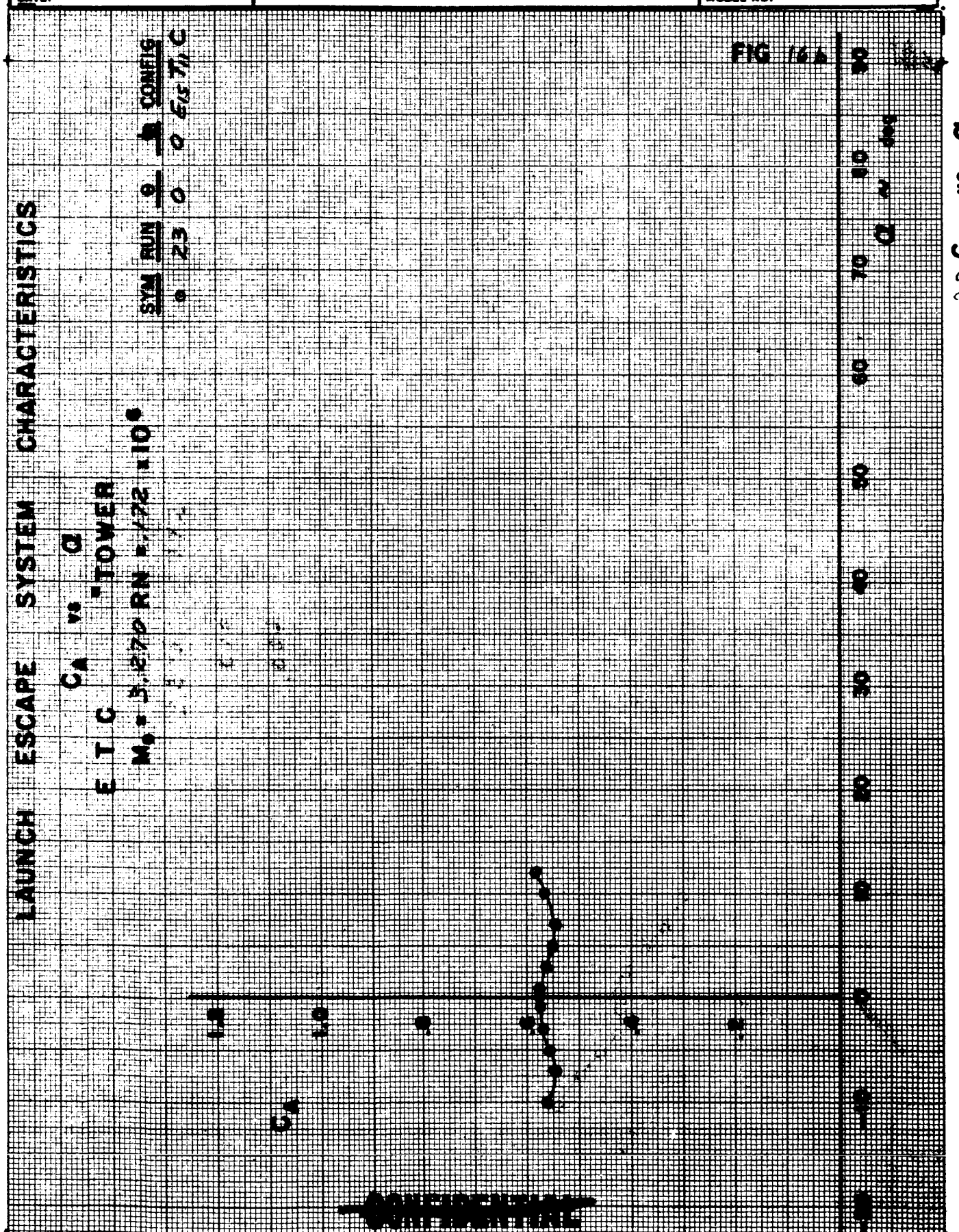



FIG 16b

23 $C_A$ vs $\alpha$

[redacted]

PREPARED BY: SAL

CHECKED BY:

DATE:

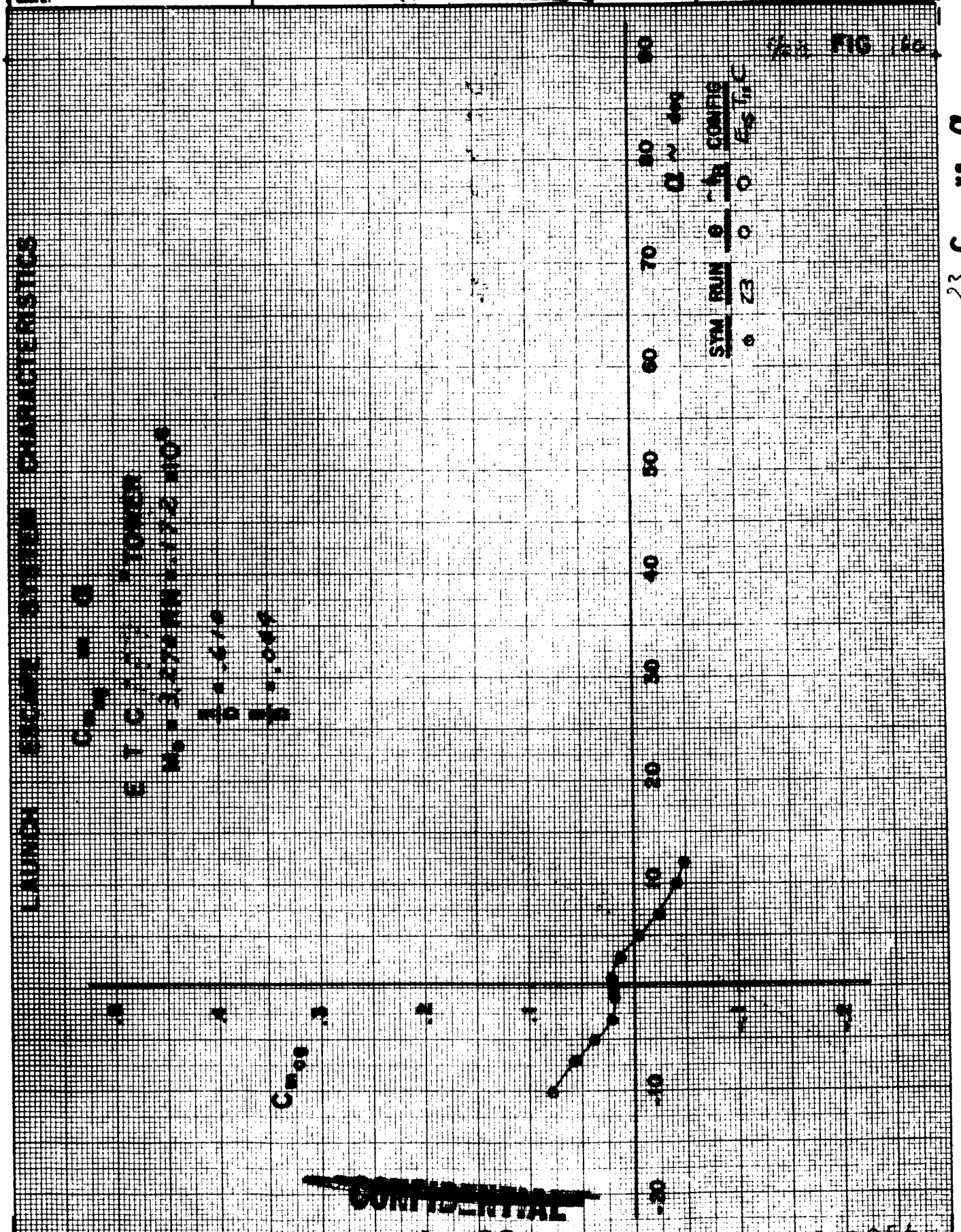
NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

~~CONFIDENTIAL~~

PAGE NO. OF

REPORT NO.

MODEL NO.




~~CONFIDENTIAL~~

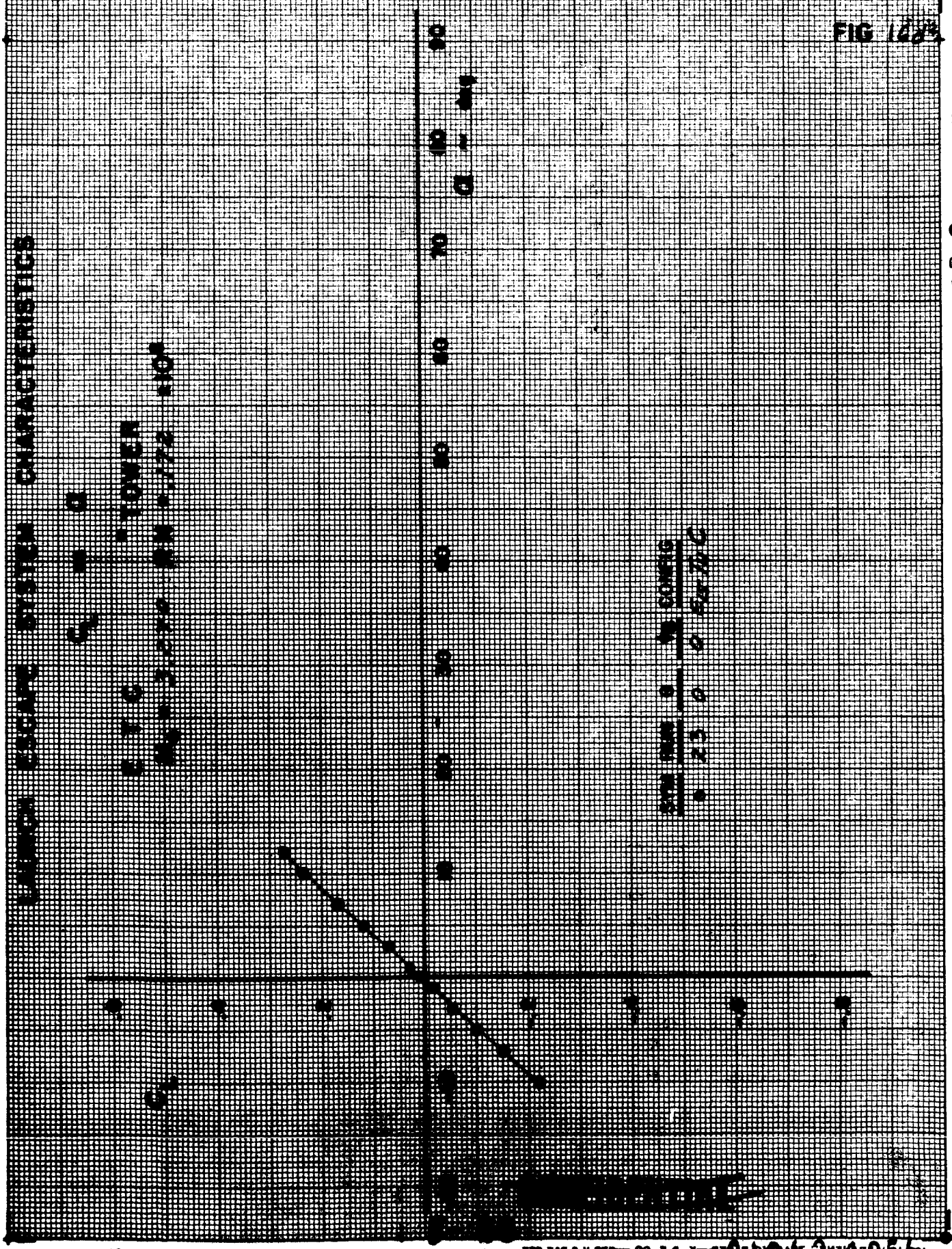


1033-G-12 NEW 5-62

SID 62-1056

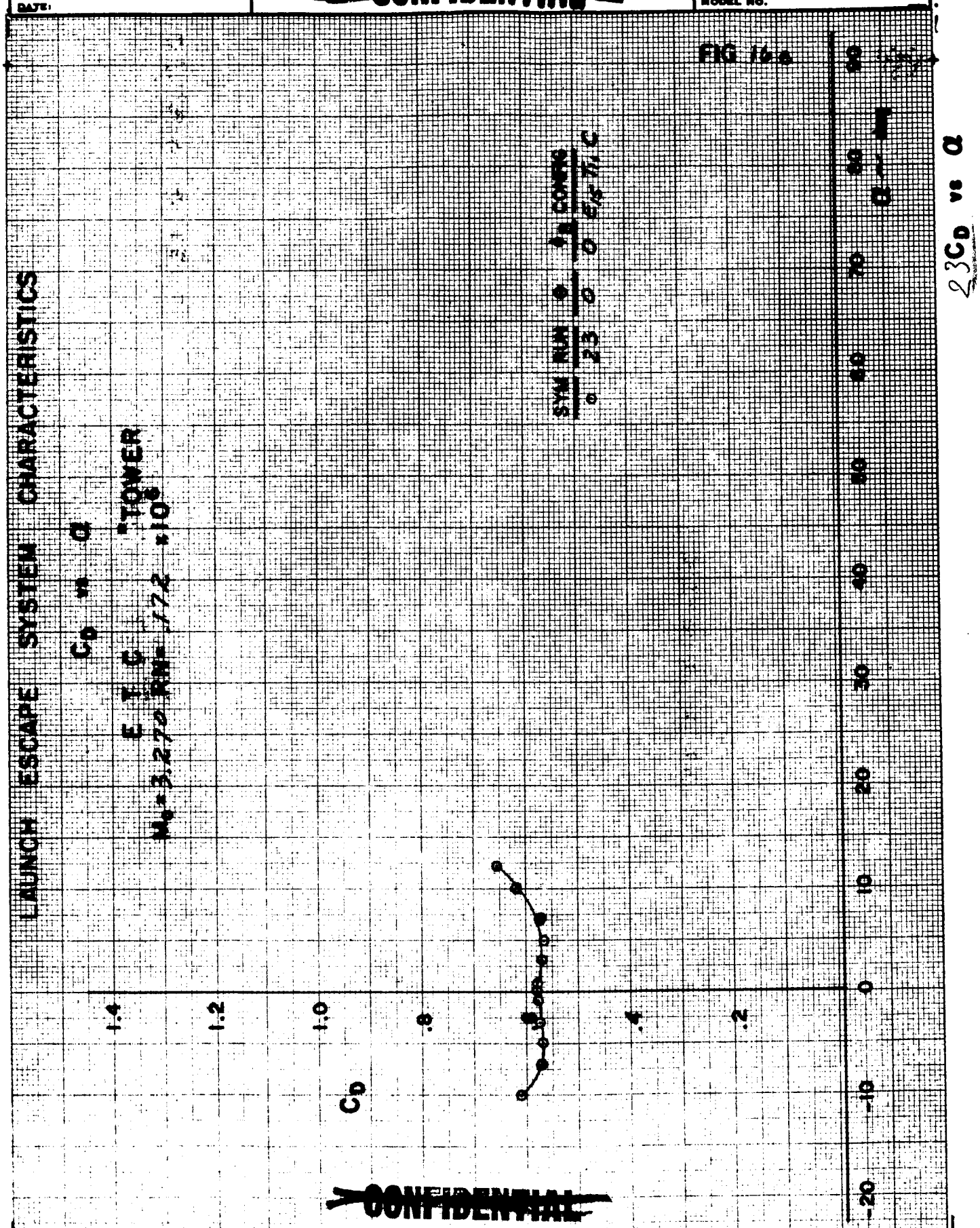
| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 1684




23 $C_L$ vs $\alpha$

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~



1033-G-14 NEW 5-62

S1062-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

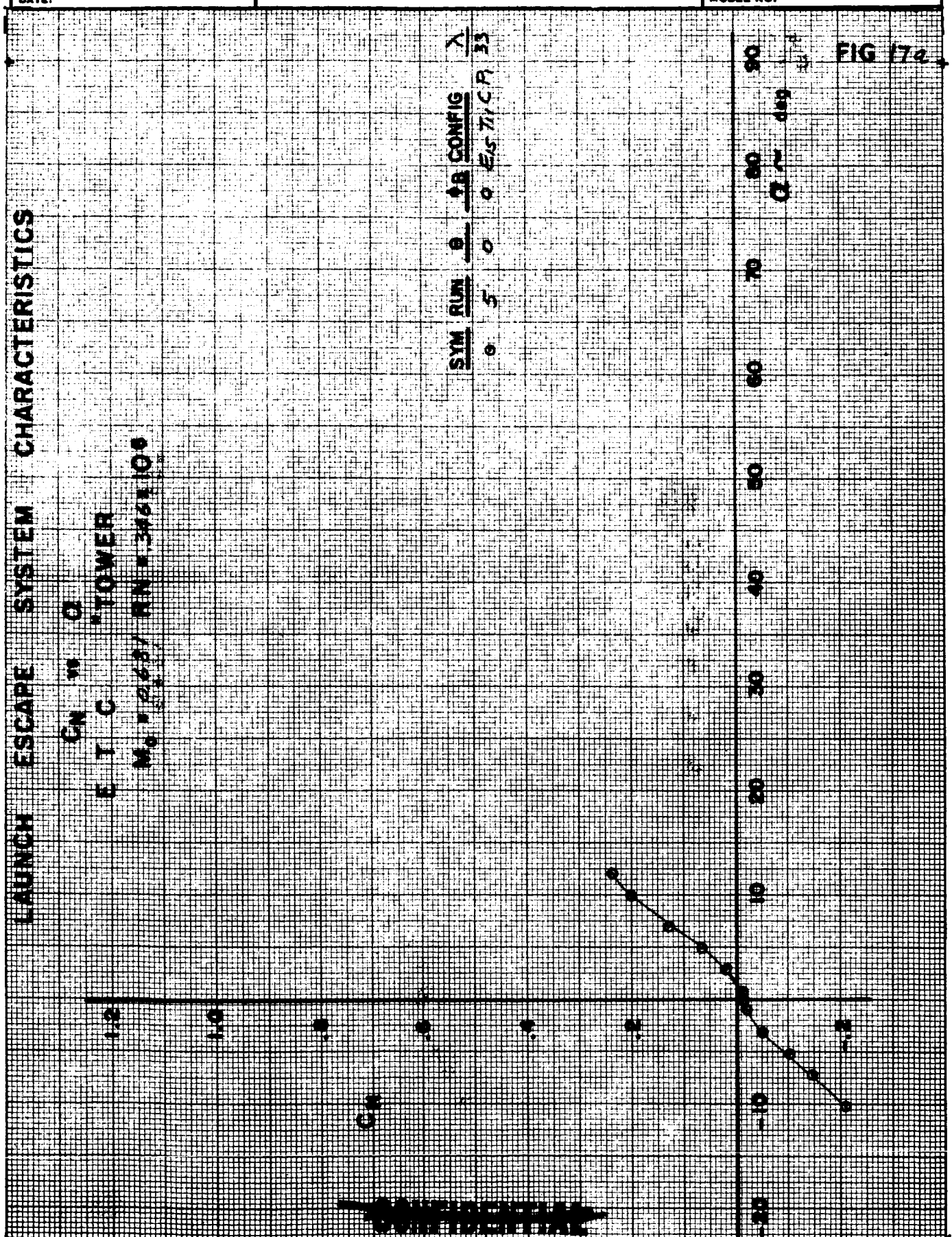



FIG 17a

204-5 $C_N$ vs $\alpha$

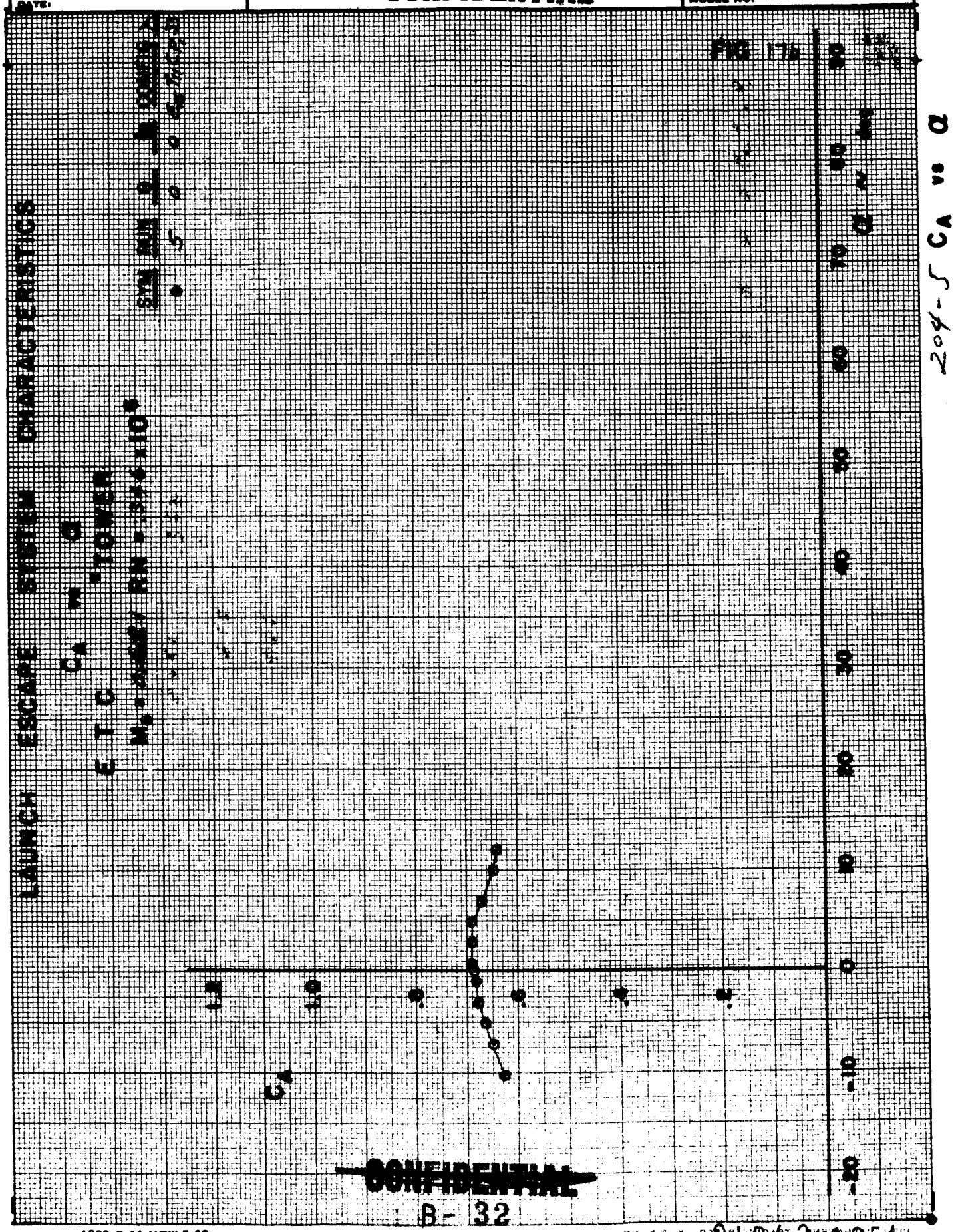
[redacted]



1033-G-10 NEW 5-62

S1062-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |




204-5



1033-G-11 NEW 5-62

S1062-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | [redacted] | REPORT NO. |
| DATE: | | MODEL NO. |




[redacted]



51062-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |

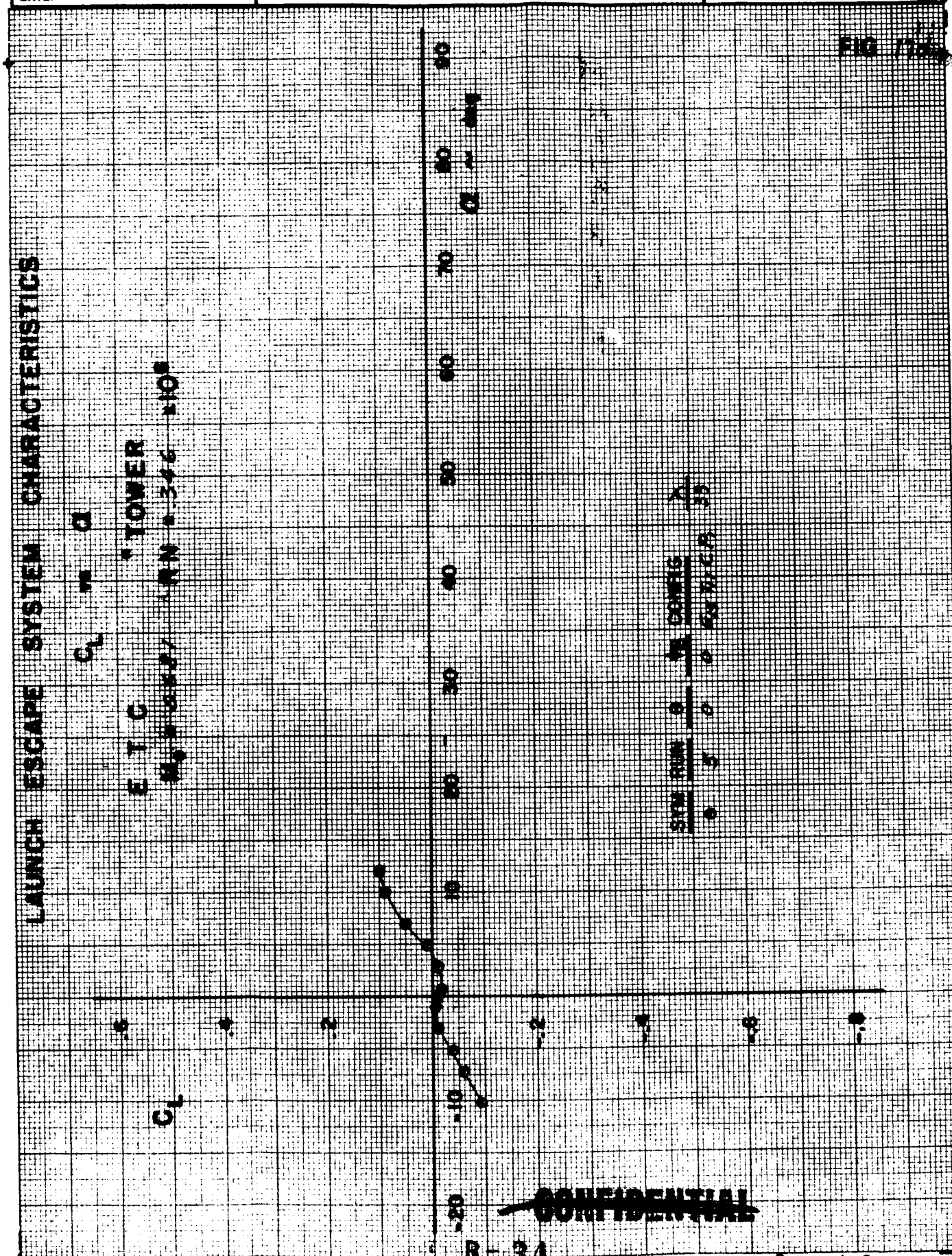



FIG 17a

204-5 $C_L$ vs $\alpha$

CONFIDENTIAL

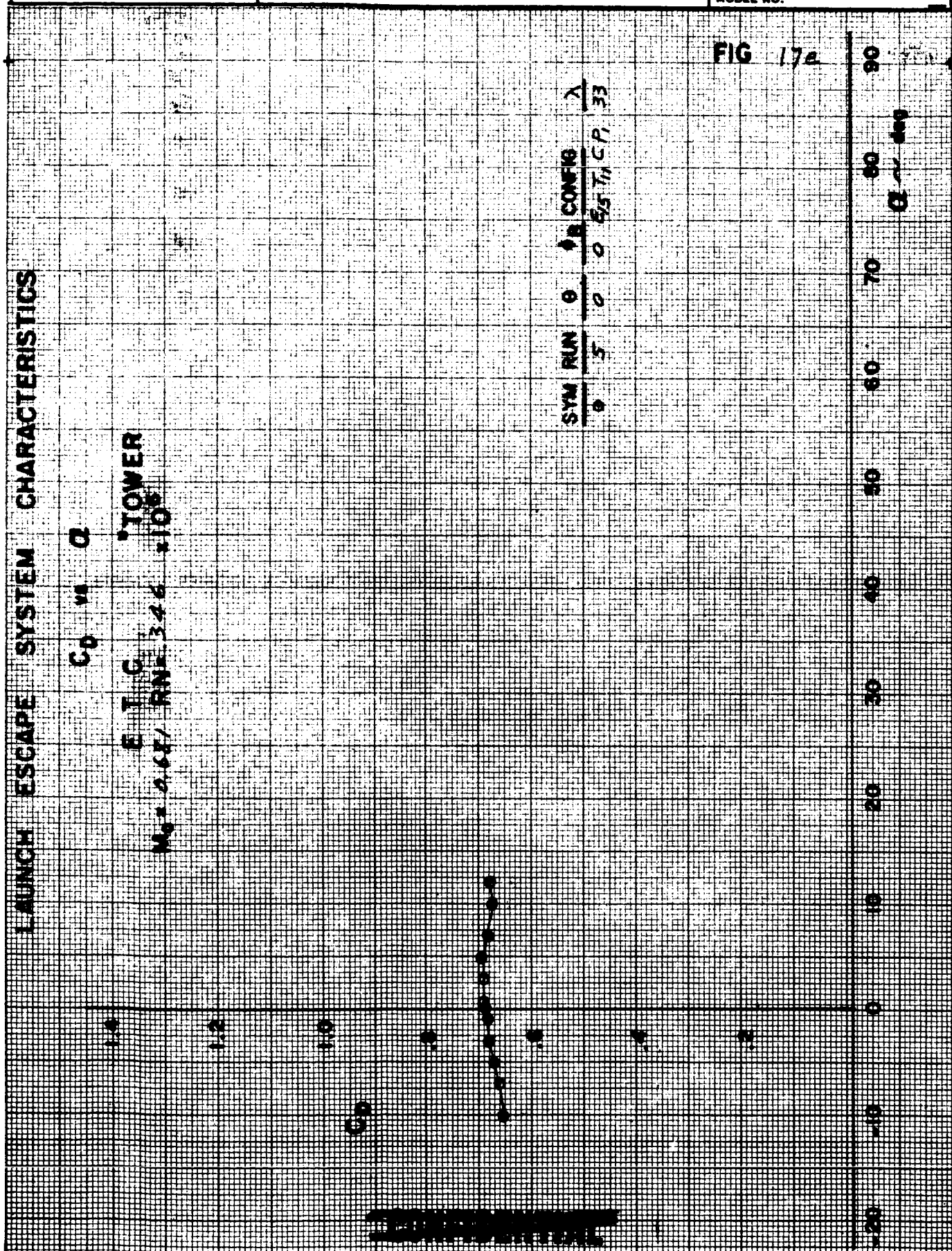


1033-G-13 NEW 5-62

S1062-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 17e




204-5 $C_D$ vs $\alpha$

~~CONFIDENTIAL~~



1033-G-14 NEW 5-62

K. & E. CO.—REG. U.S. PAT. OFF.

31062-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

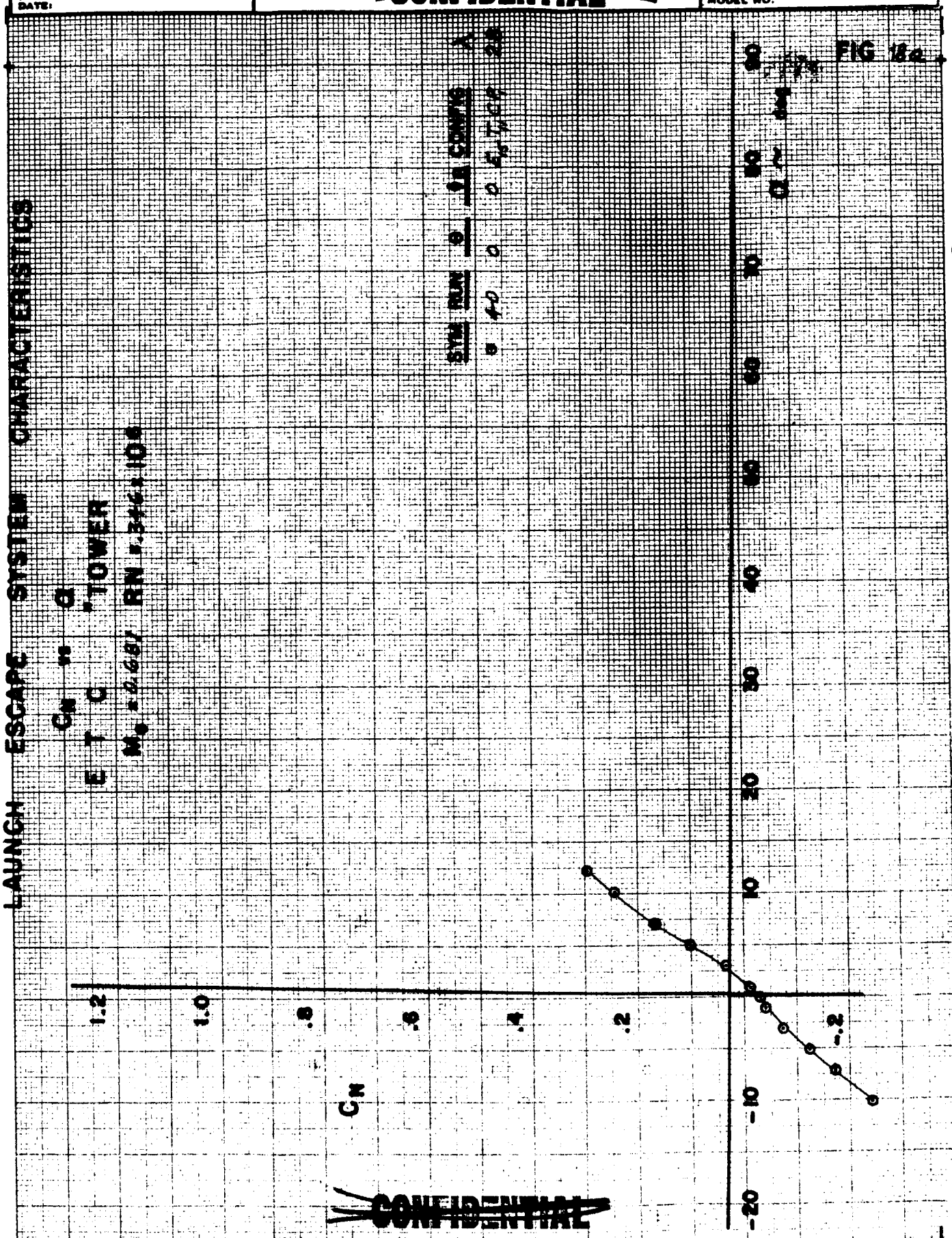



FIG 18a

40 $C_N$ vs $\alpha$

~~CONFIDENTIAL~~



S1062-1056

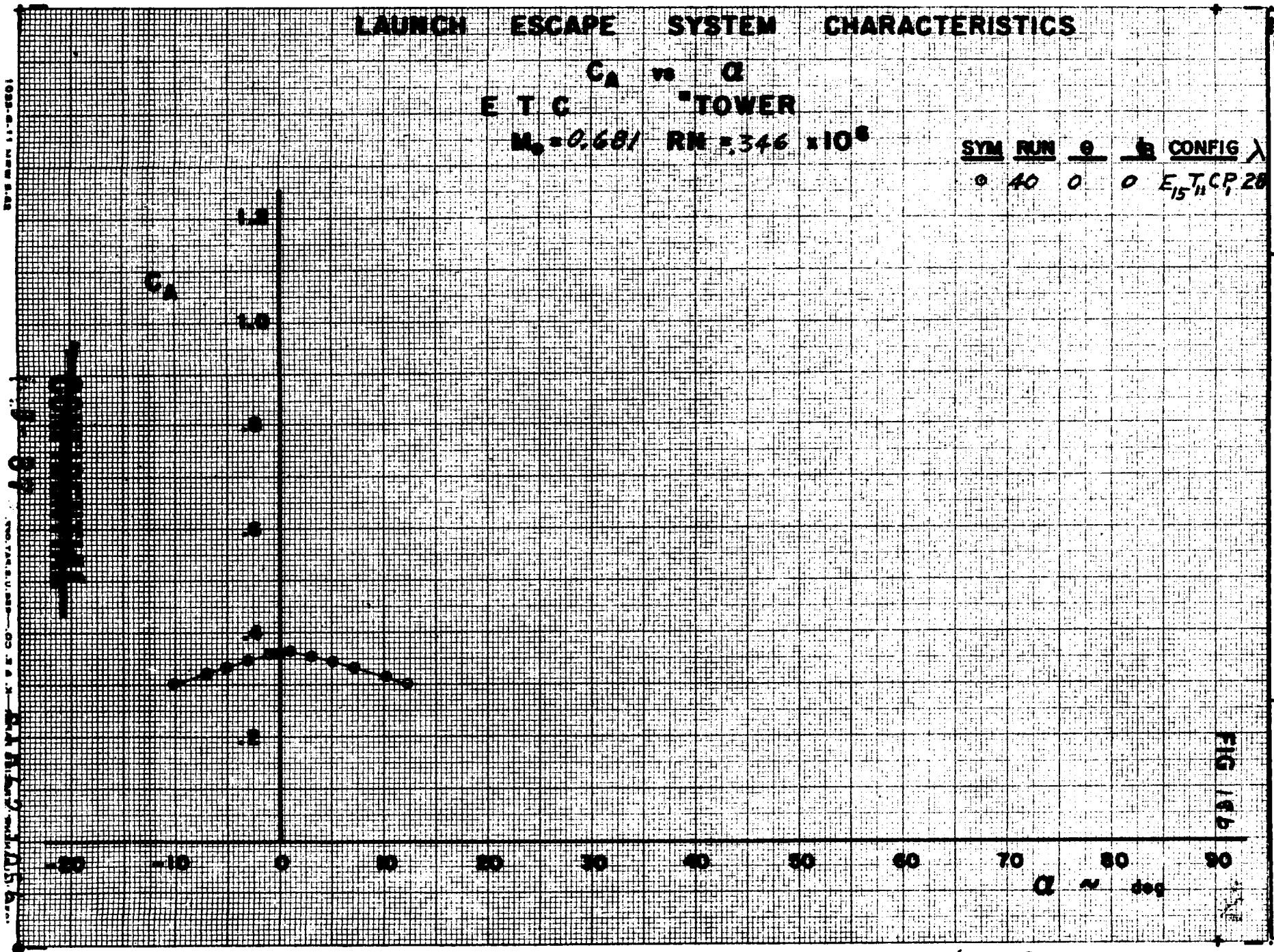



FIG 16b

40 $C_A$ vs $\alpha$

PREPARED BY:
CHECKED BY:
DATE:

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

[redacted]

PAGE NO. OF
REPORT NO.
MODEL NO.

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

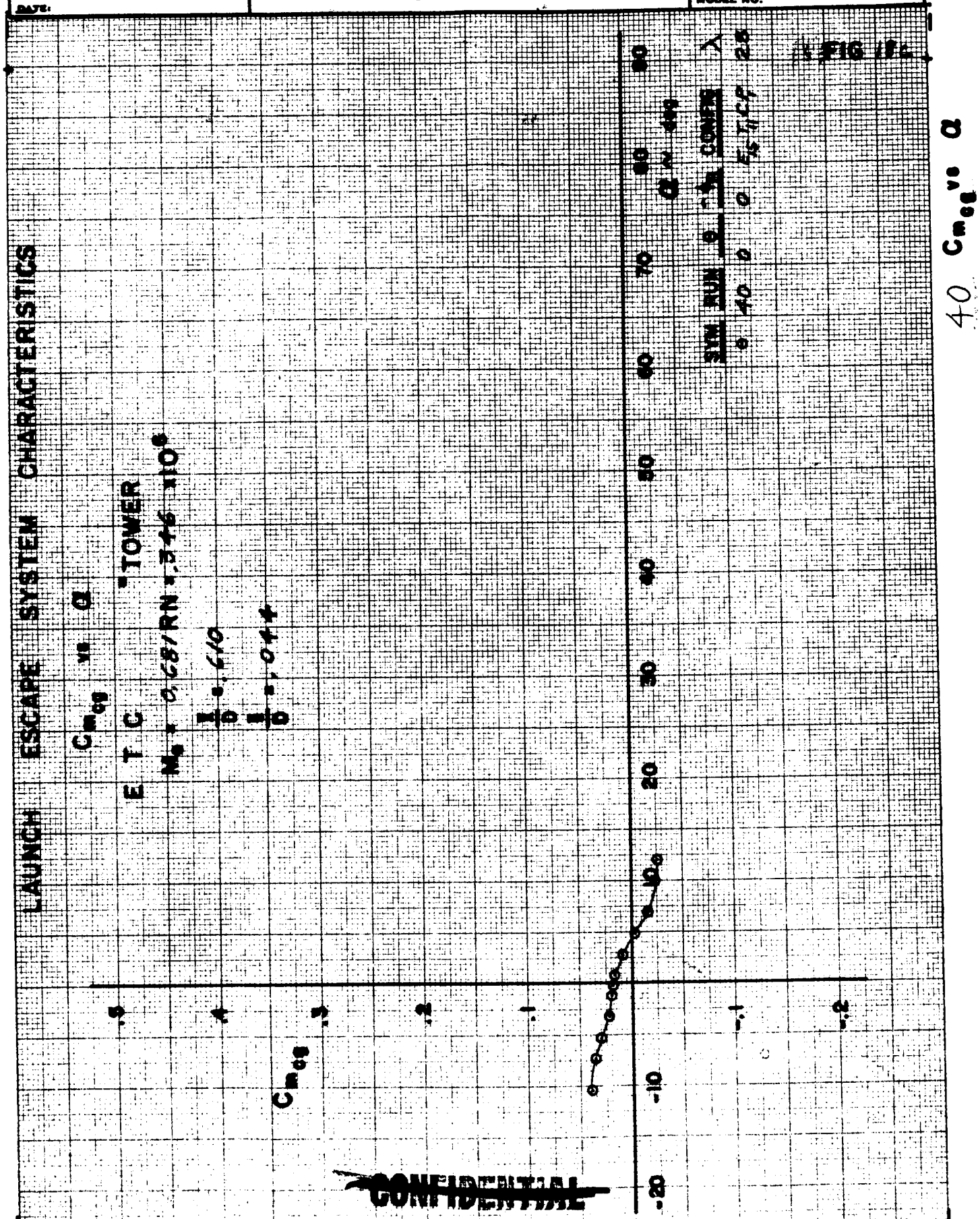



FIG 18c

40 $C_{m_{cg}}$ vs $\alpha$

~~CONFIDENTIAL~~

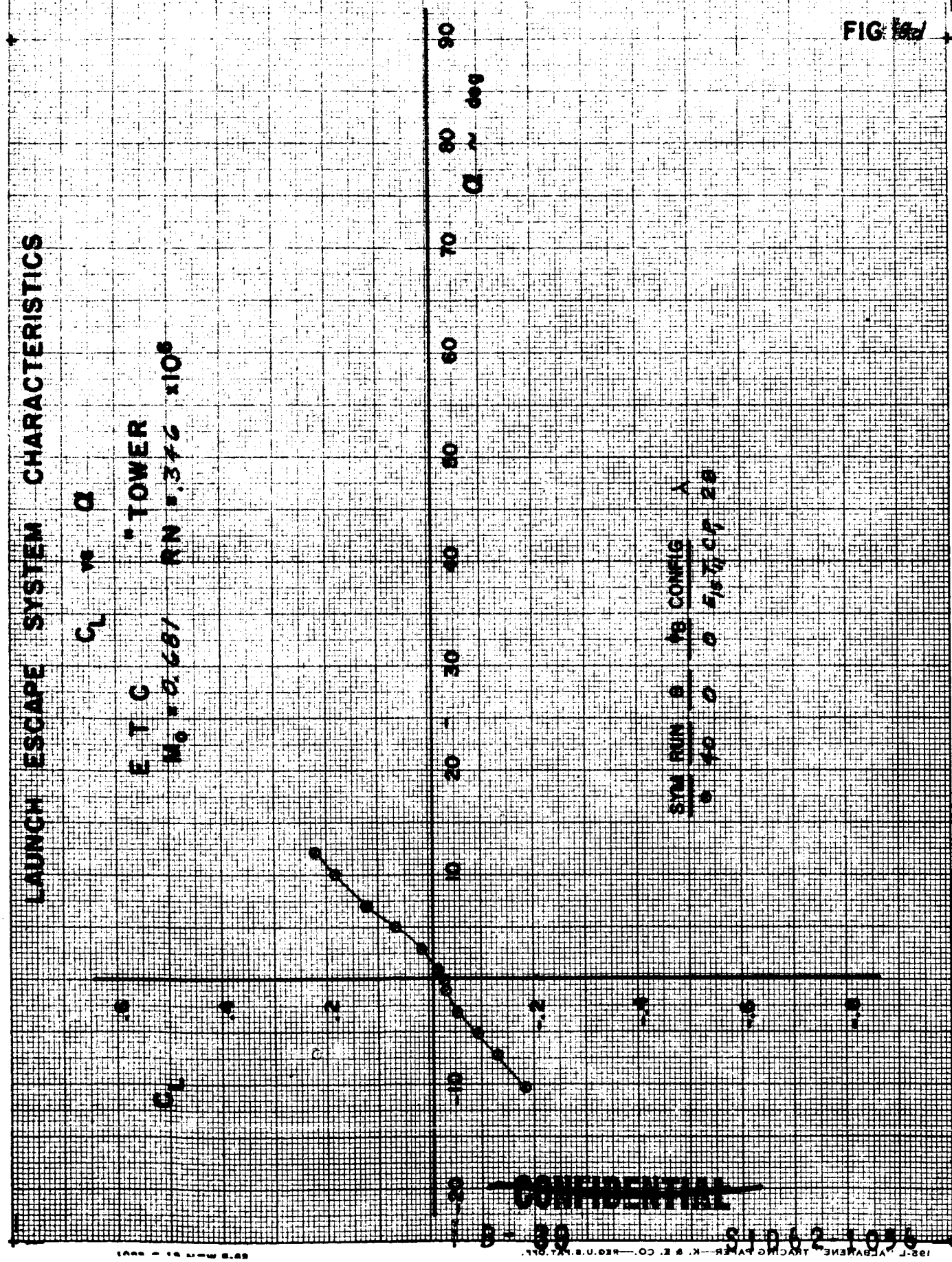


SL062-1056

1033-G-12 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

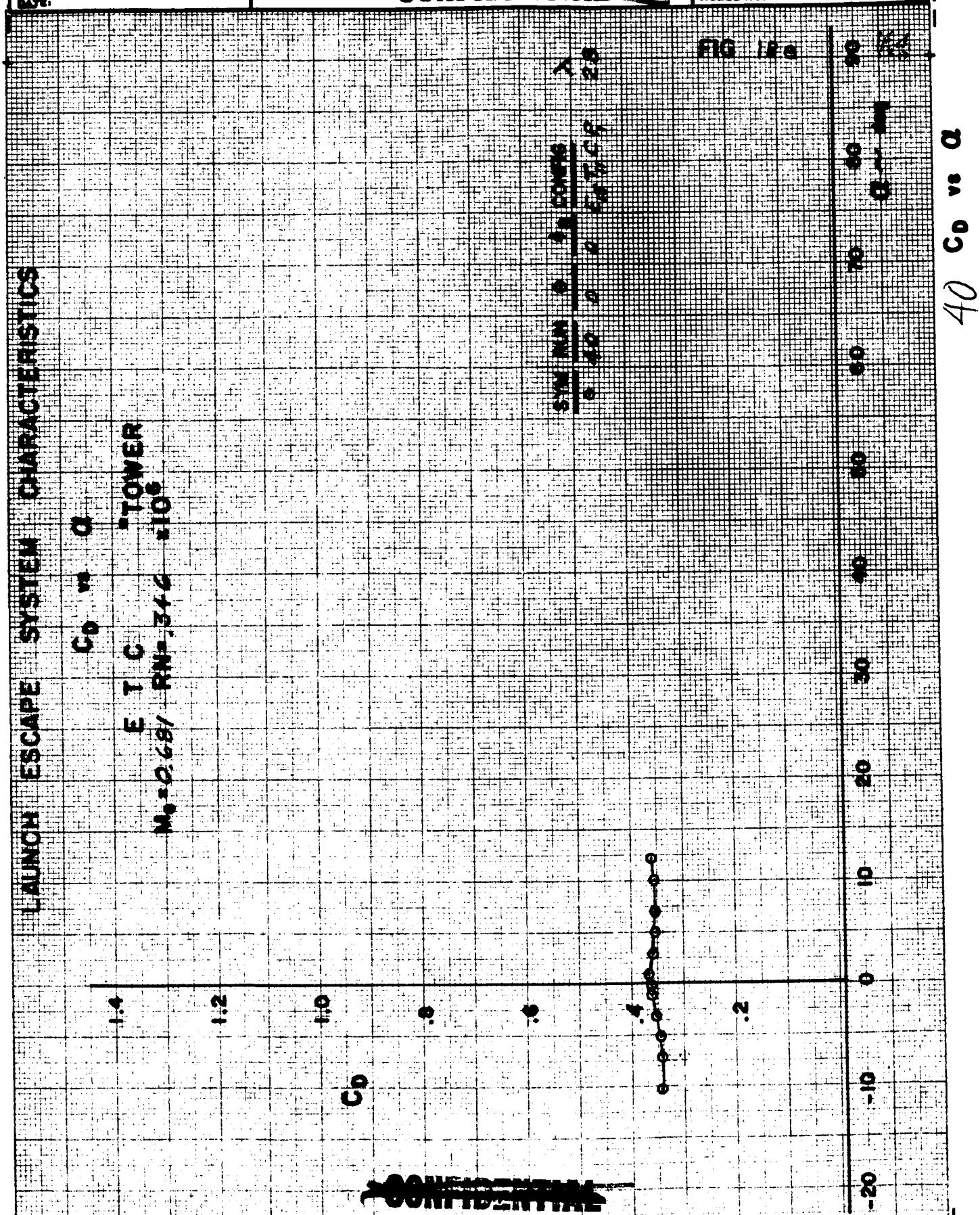
FIG 18d




40 $C_L$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |




CONFIDENTIAL



SID62-1056

1033-G-14 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

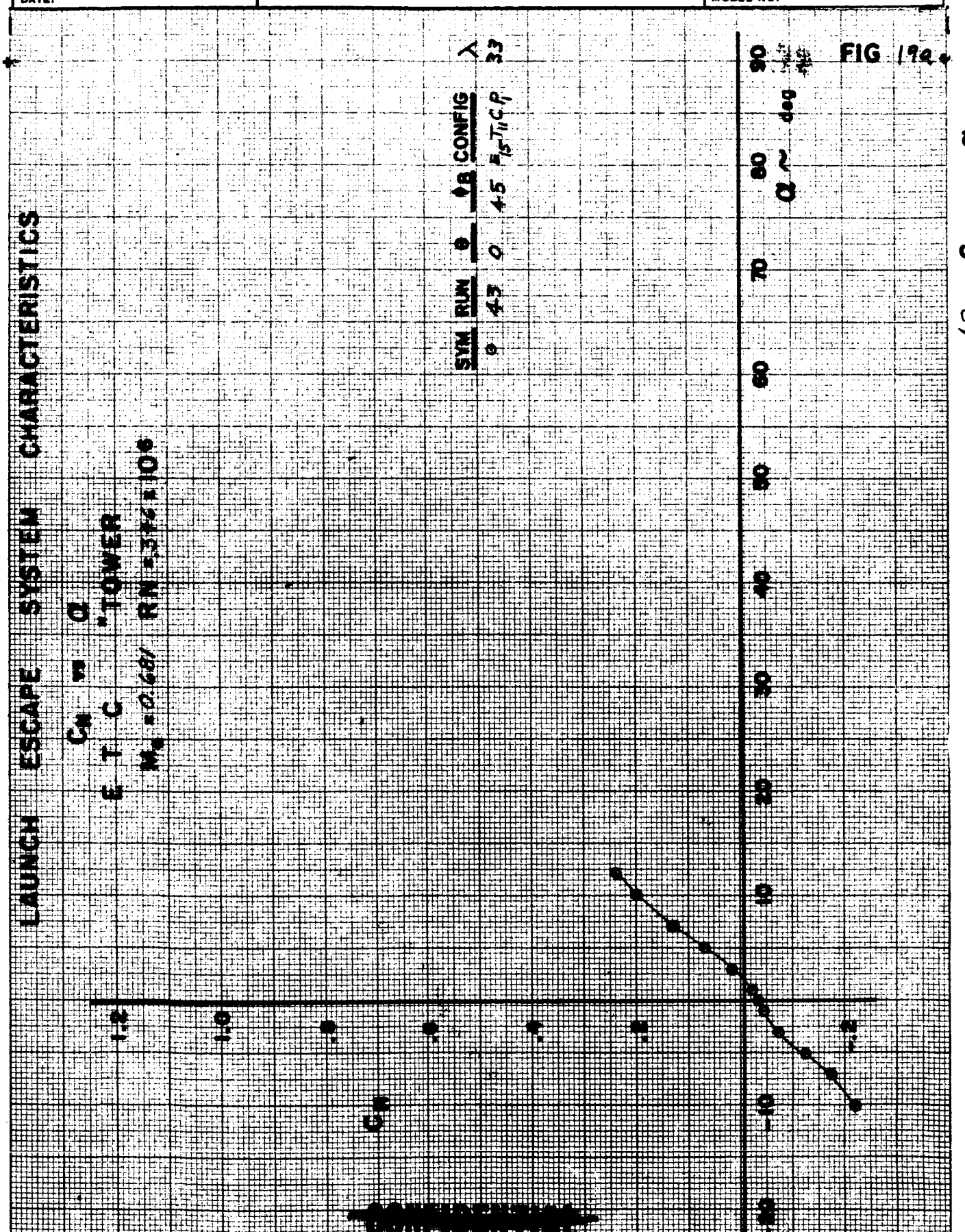



FIG 19a

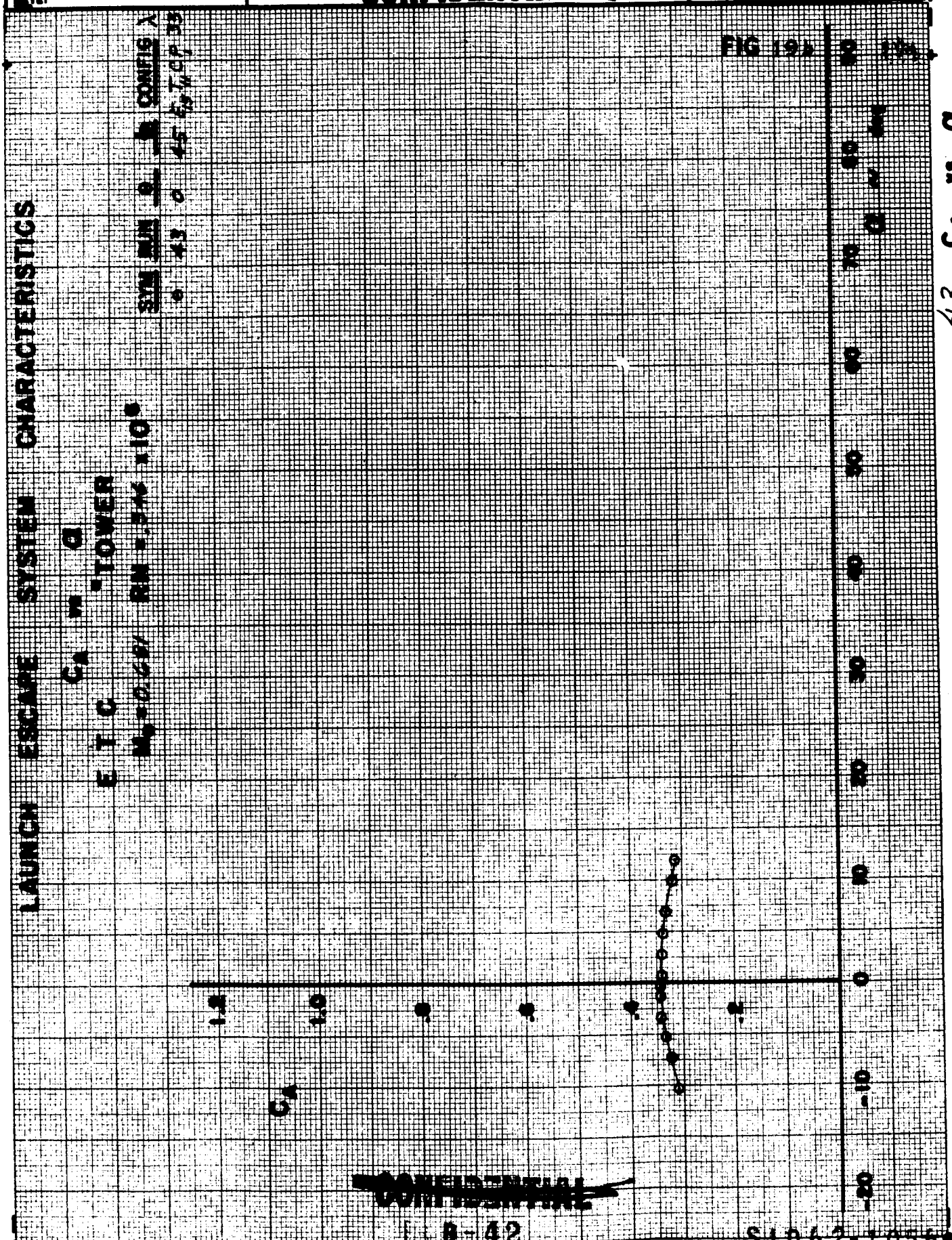
43 $C_N$ vs $\alpha$

~~CONFIDENTIAL~~



S1062-1056

~~CONFIDENTIAL~~




~~CONFIDENTIAL~~



S1062-1035

1033-G-11 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

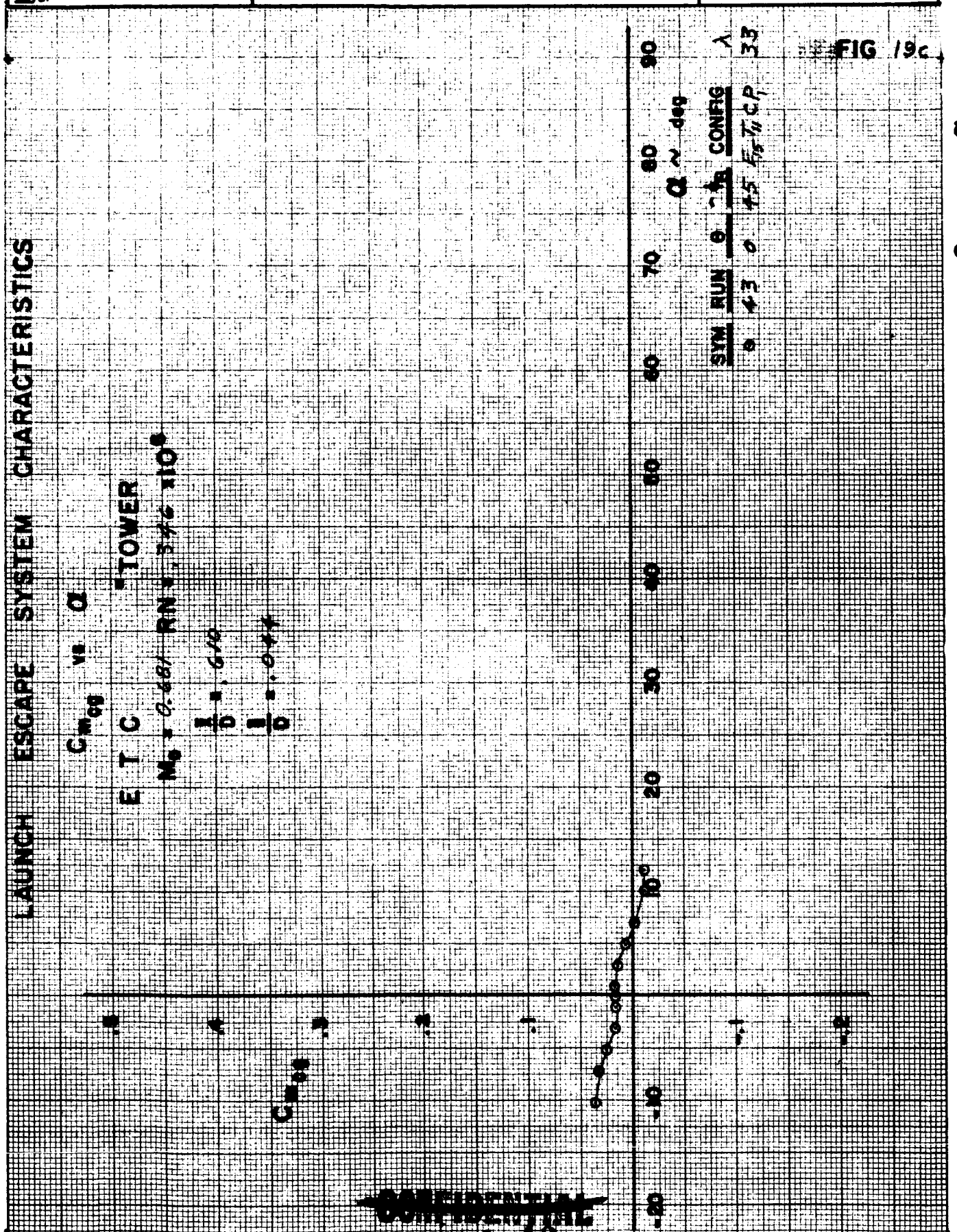



FIG 19c

$C_{m_{cg}}$ vs $\alpha$

43

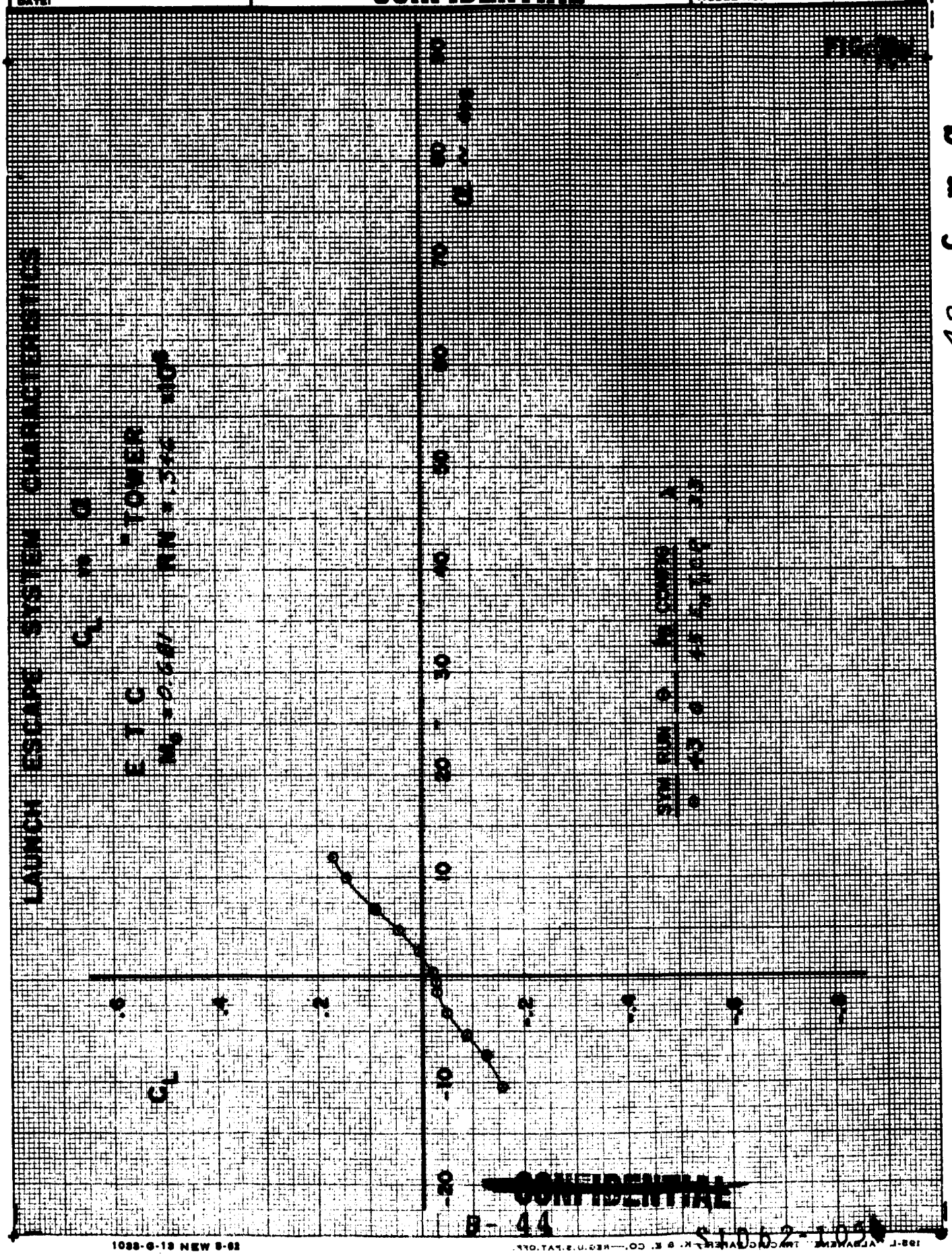
~~CONFIDENTIAL~~



1033-G-12 NEW 5-62

S1062-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




43 $C_L$ vs $\alpha$

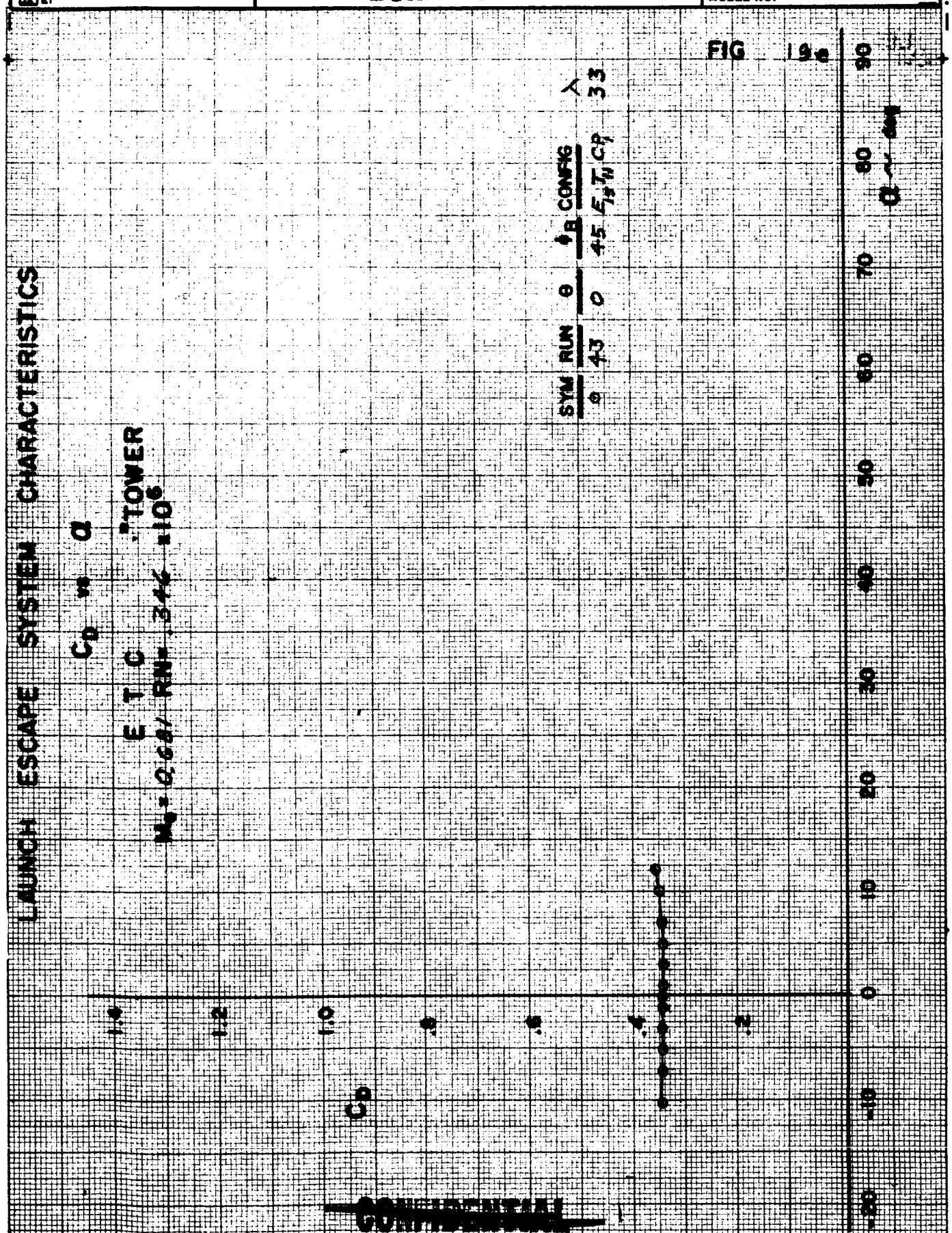
~~CONFIDENTIAL~~



S1062-1050

1033-G-13 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~



1033-G-14 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

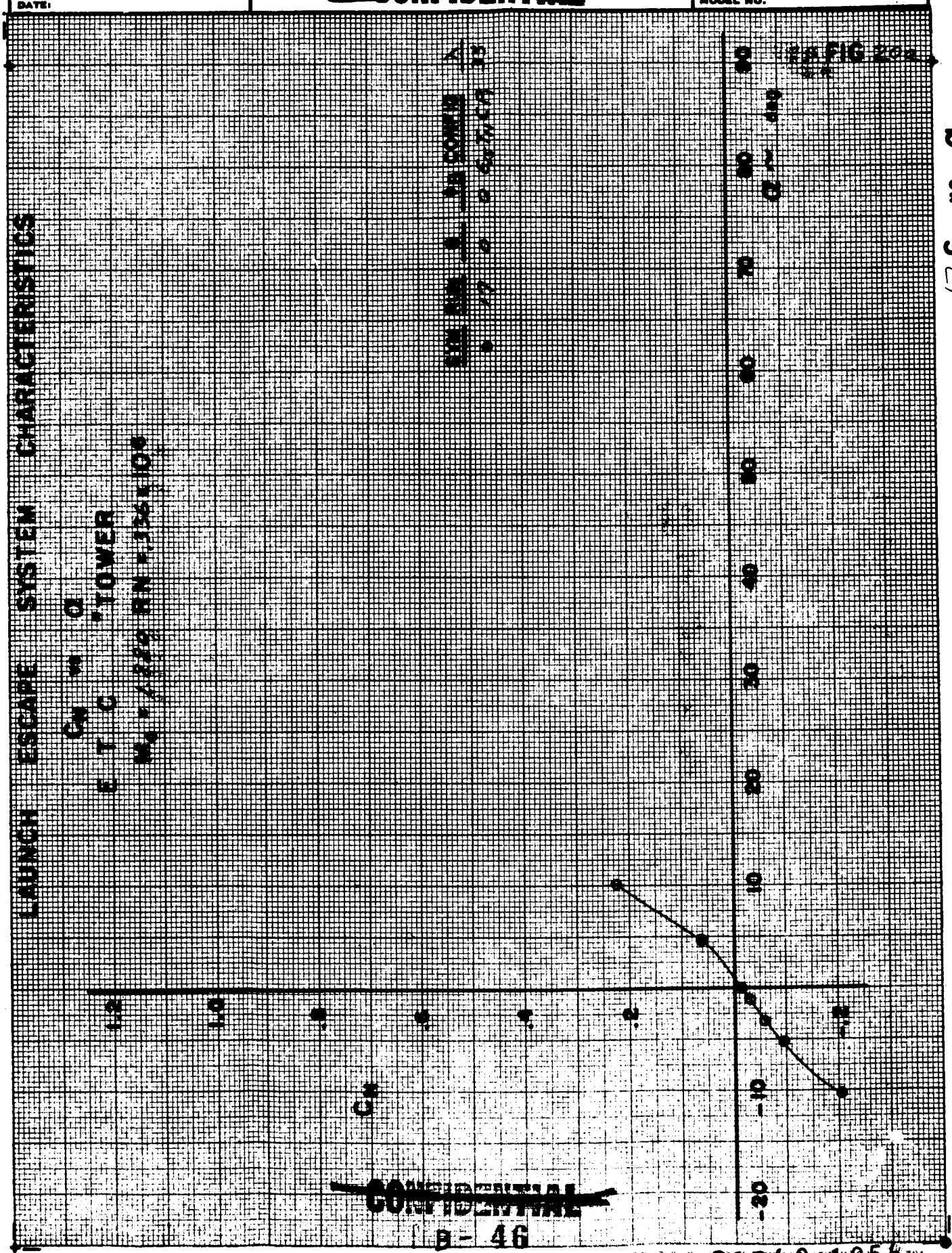



FIG 20a

17 $C_N$ vs $\alpha$

~~CONFIDENTIAL~~



1033-G-10 NEW 5-62

S1D62-1056

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

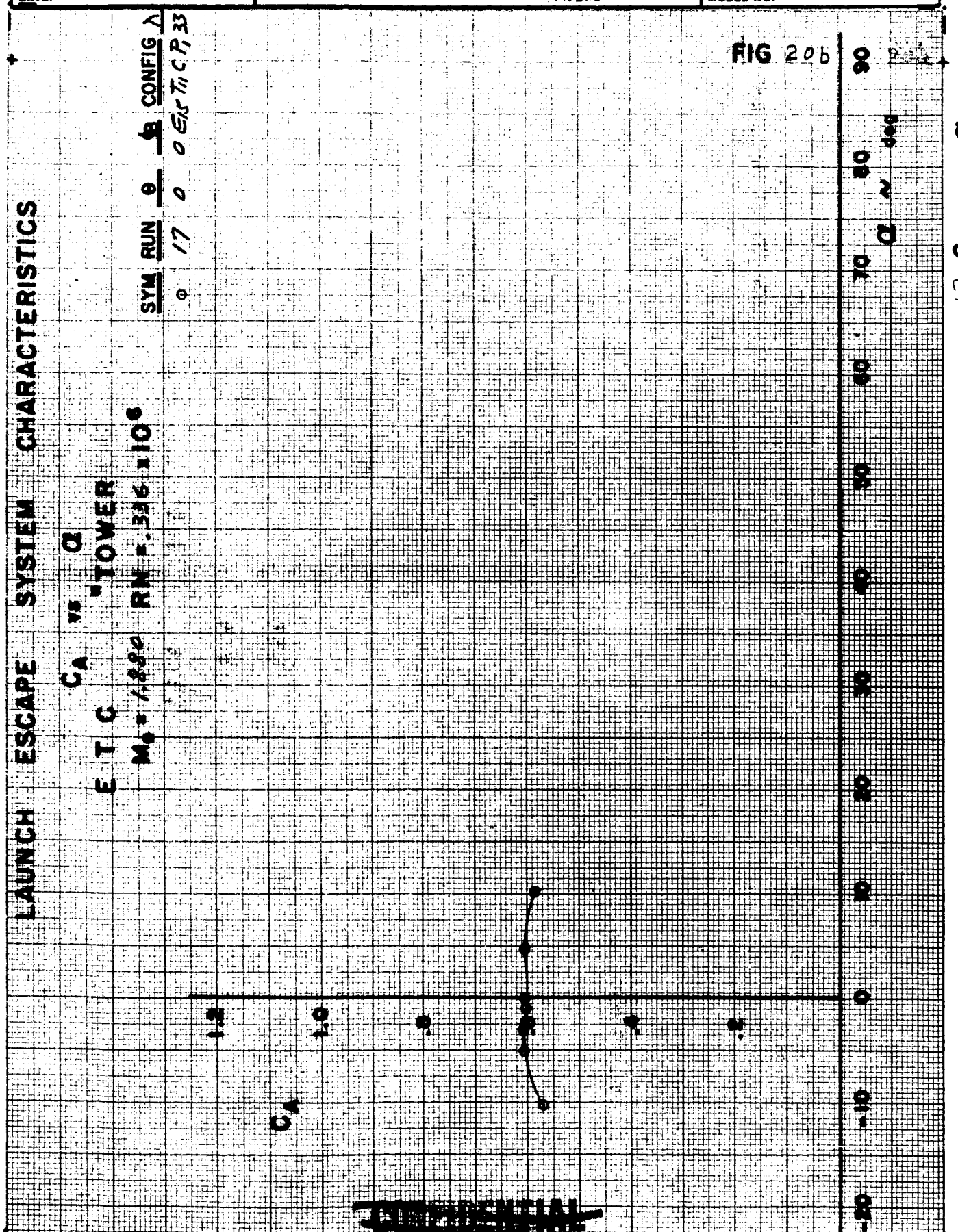



FIG 20b

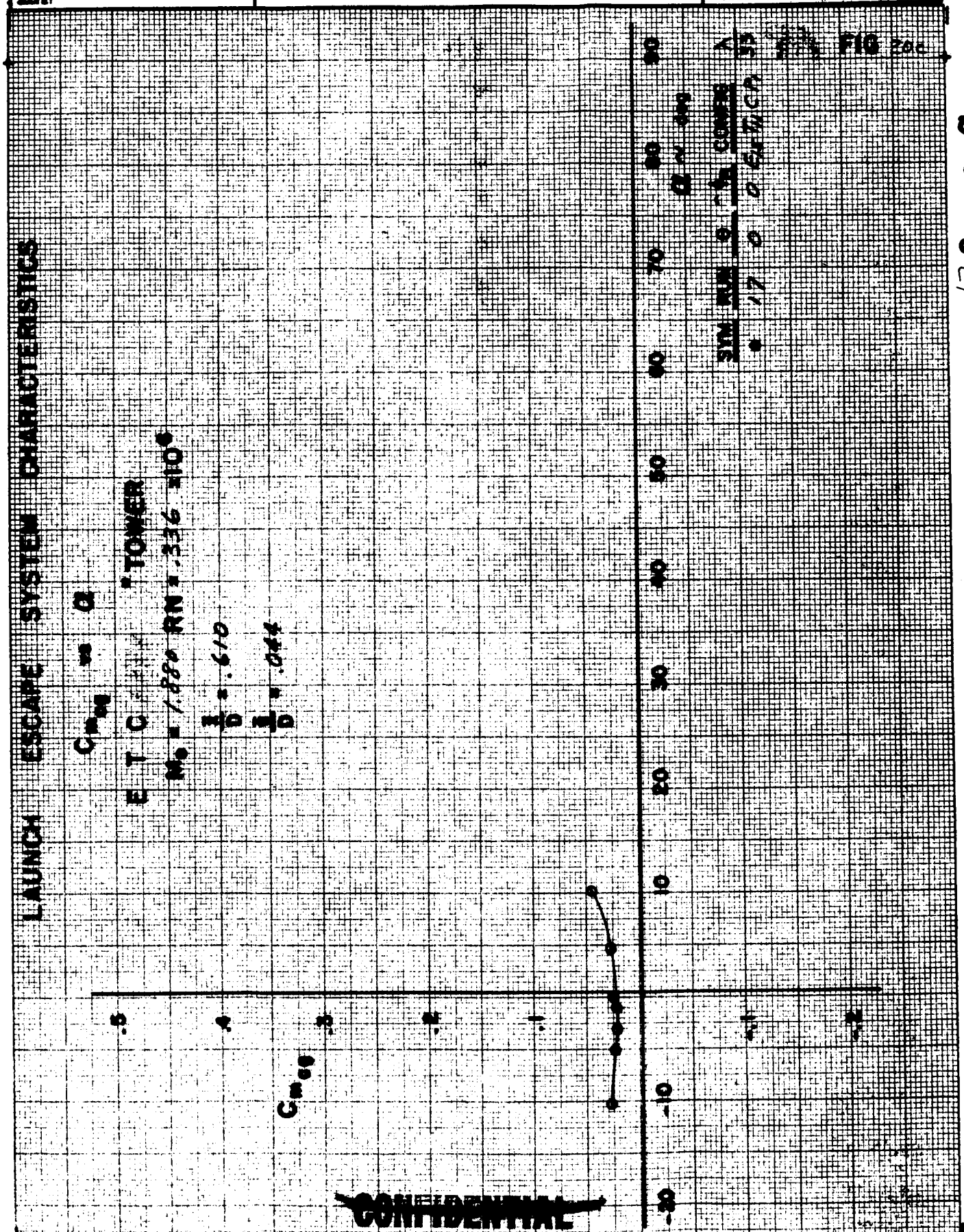
~~CONFIDENTIAL~~



1033-G-11 NEW 5-62

SL062-1056

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~

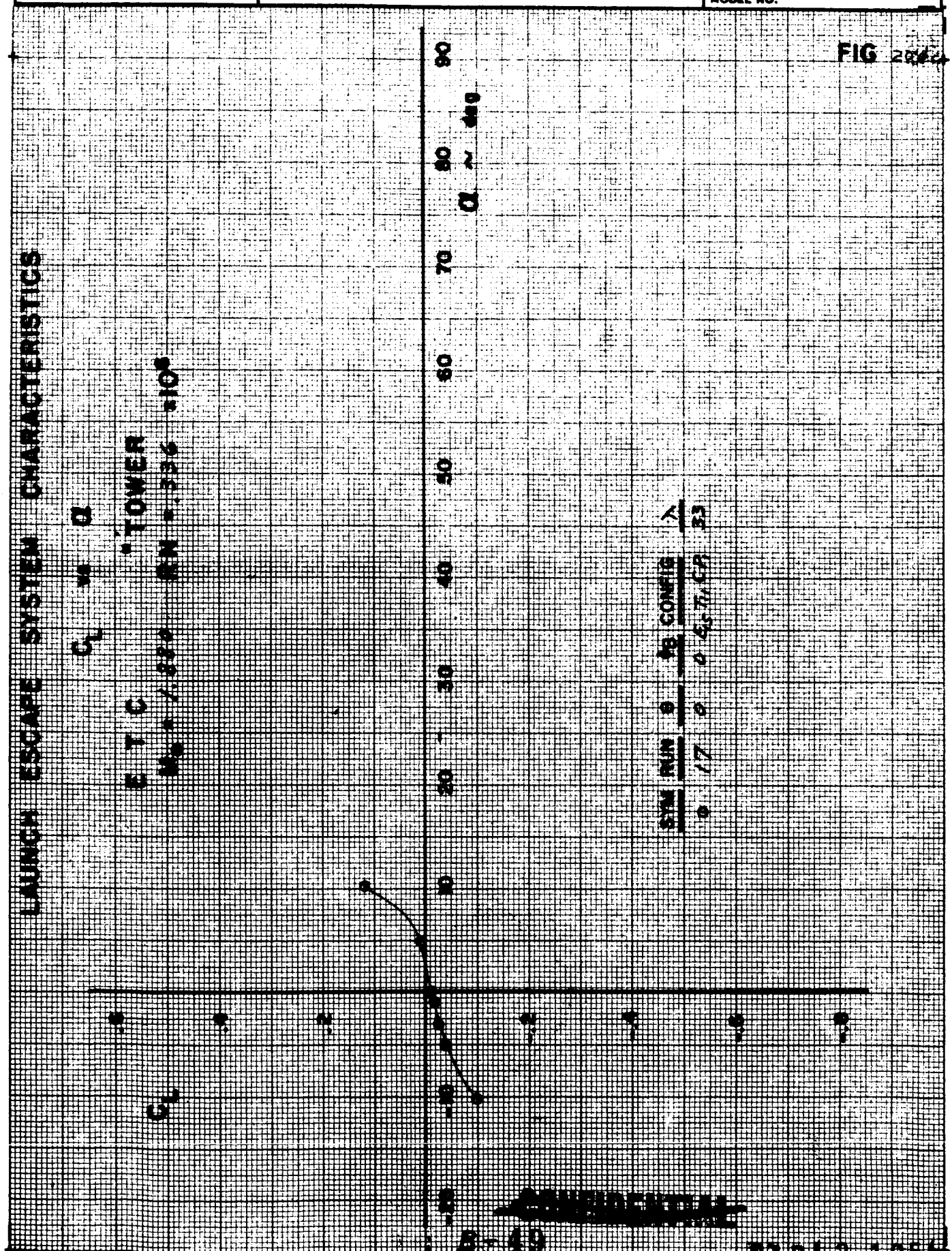


1033-G-12 NEW 5-62

S1062-1056

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

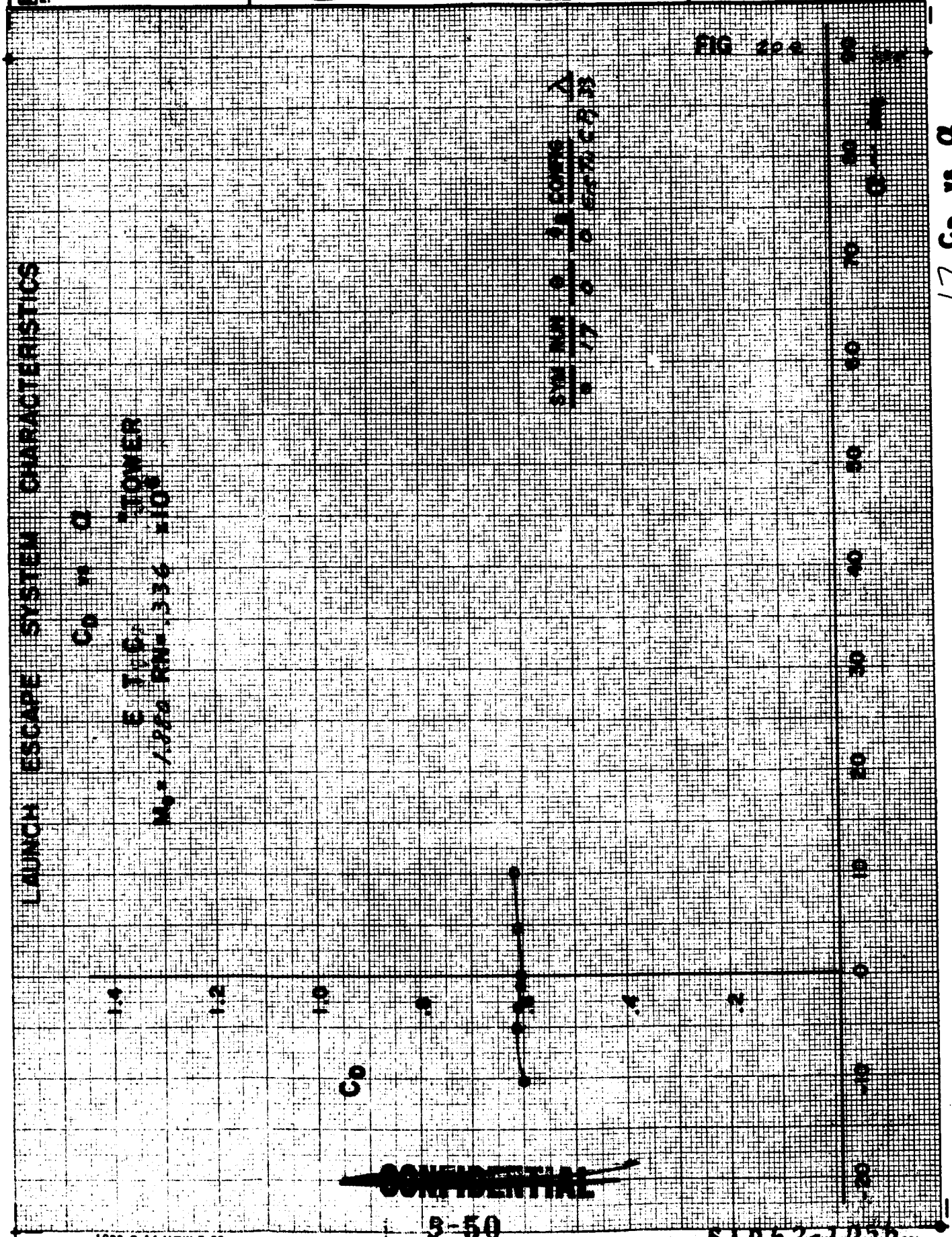
FIG 2064




$C_L$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

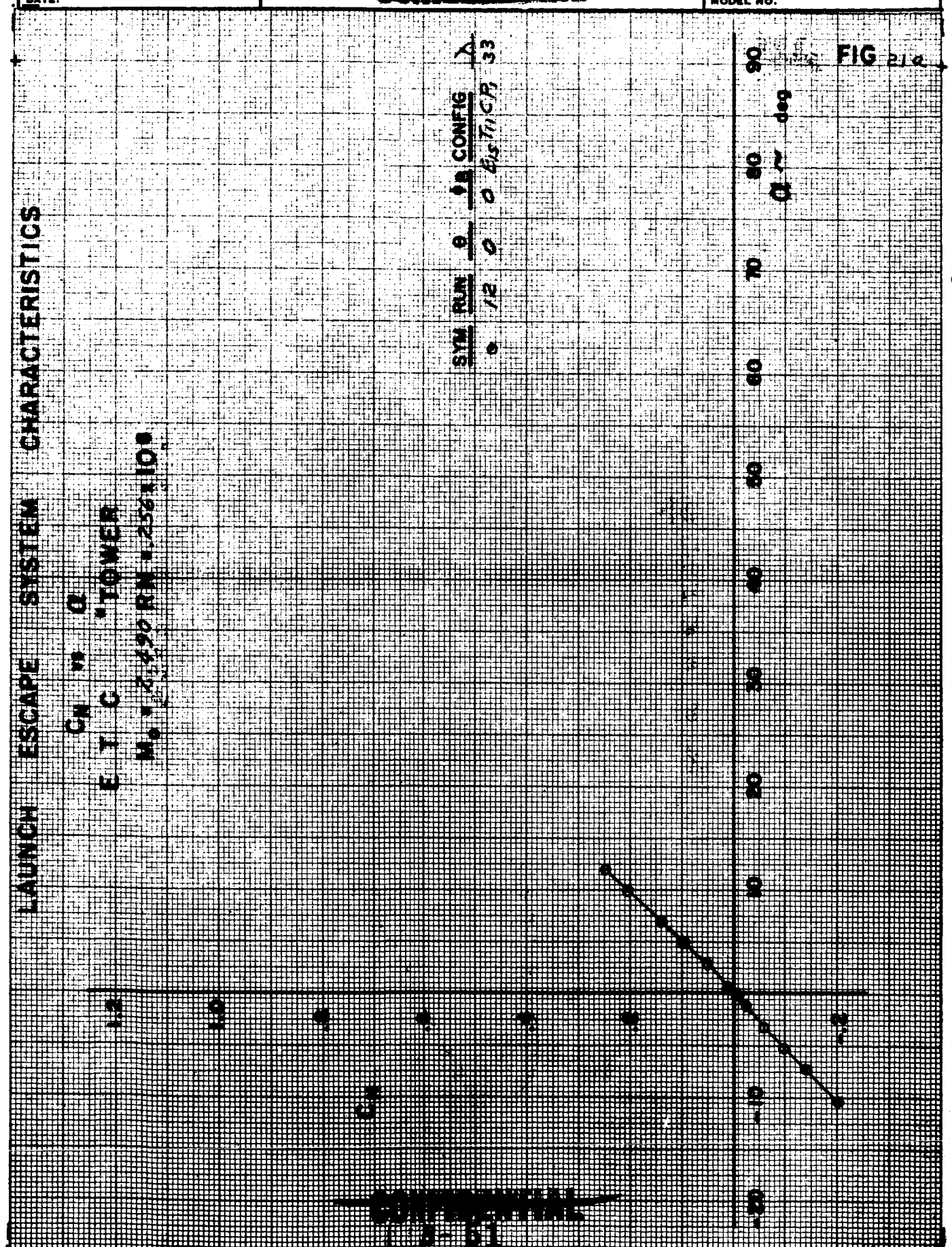
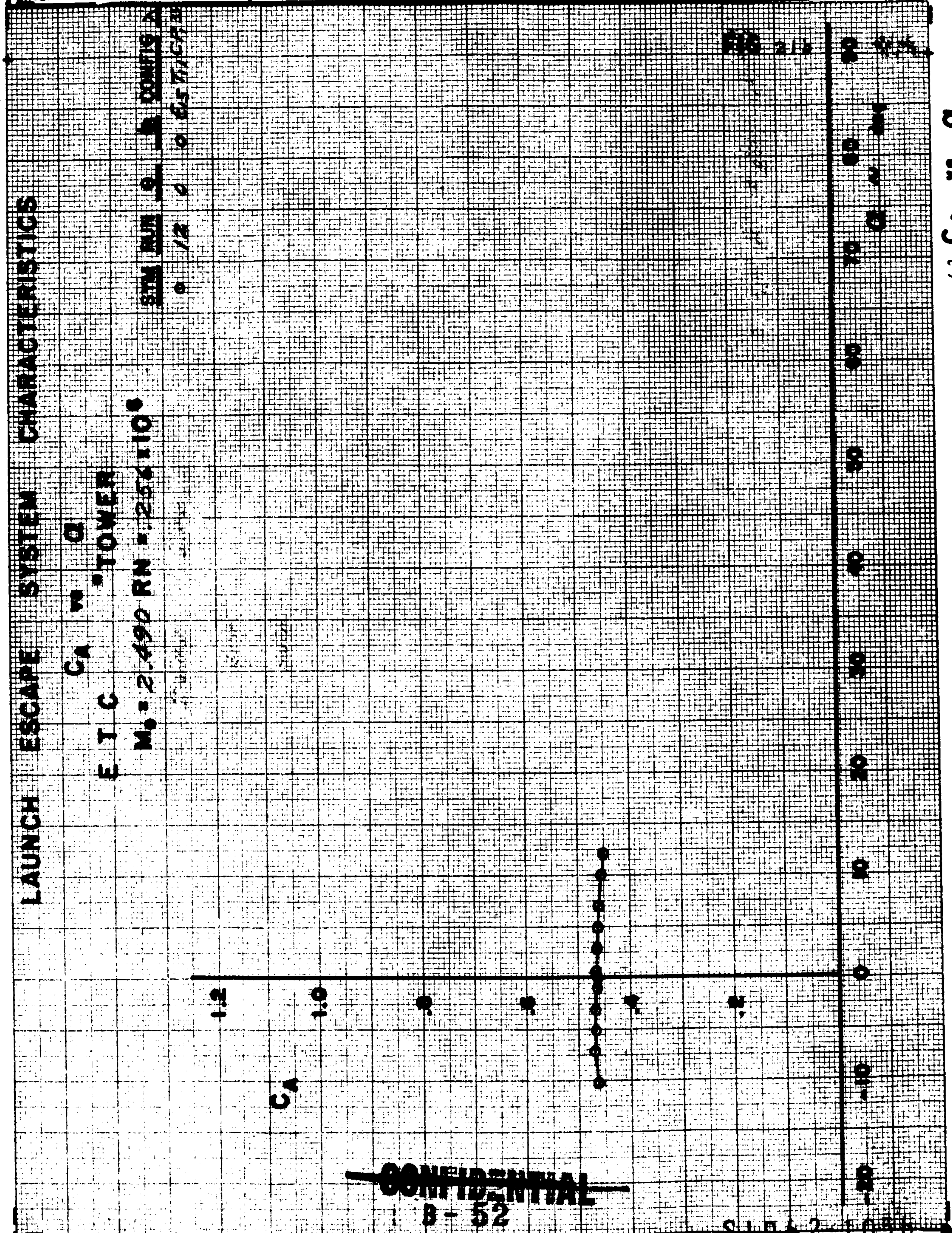



FIG 21a

$12 C_N$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




12 $C_A$ vs α

~~CONFIDENTIAL~~

B-52

SID 62-1086

1033-G-11 NEW 5-62

188-L "ALBANENE" TRACING PAPER—K. & E. CO.—REG.U.S.PAT.OFF.

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

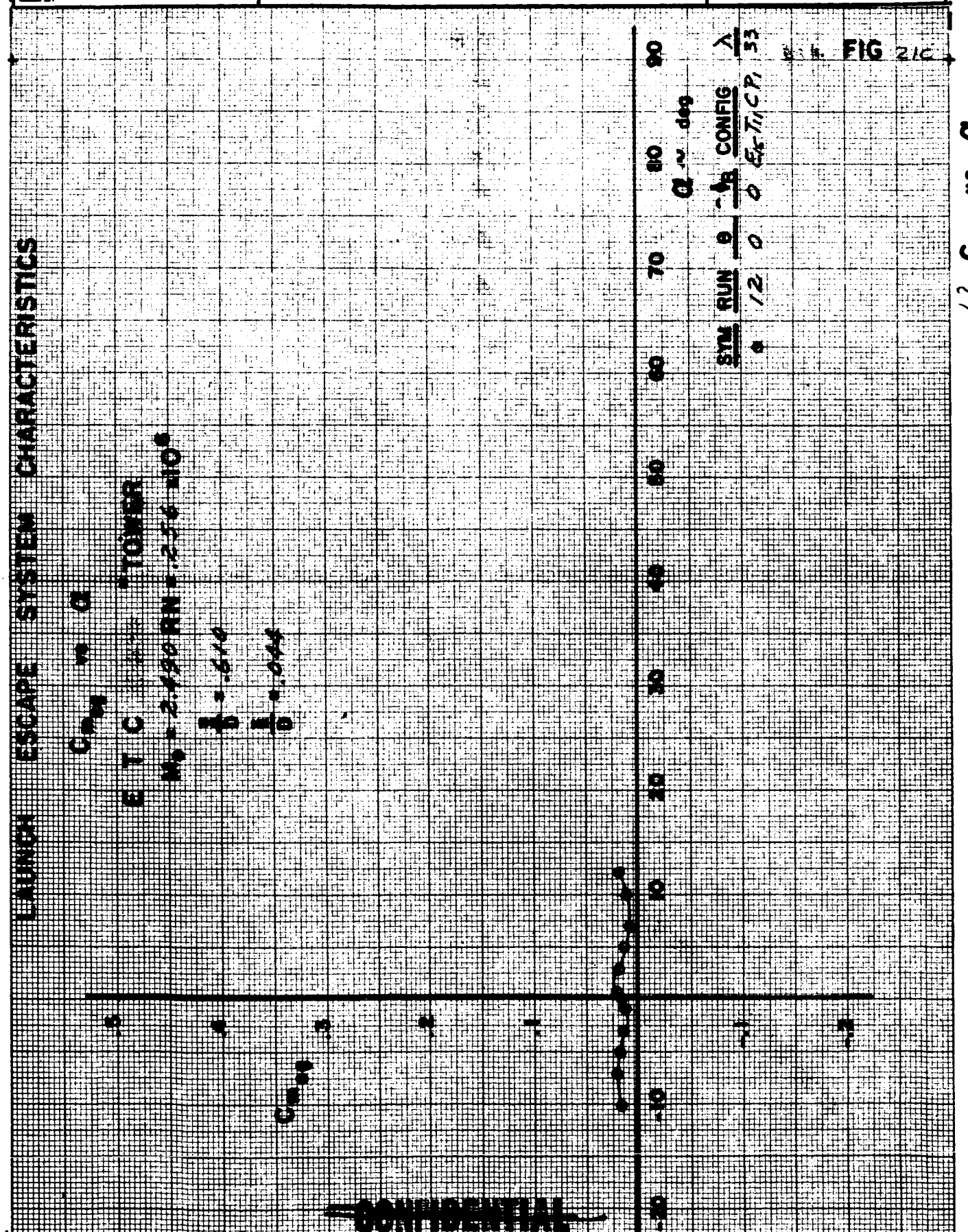



FIG 21C

12 $C_{m_{eq}}$ vs $\alpha$

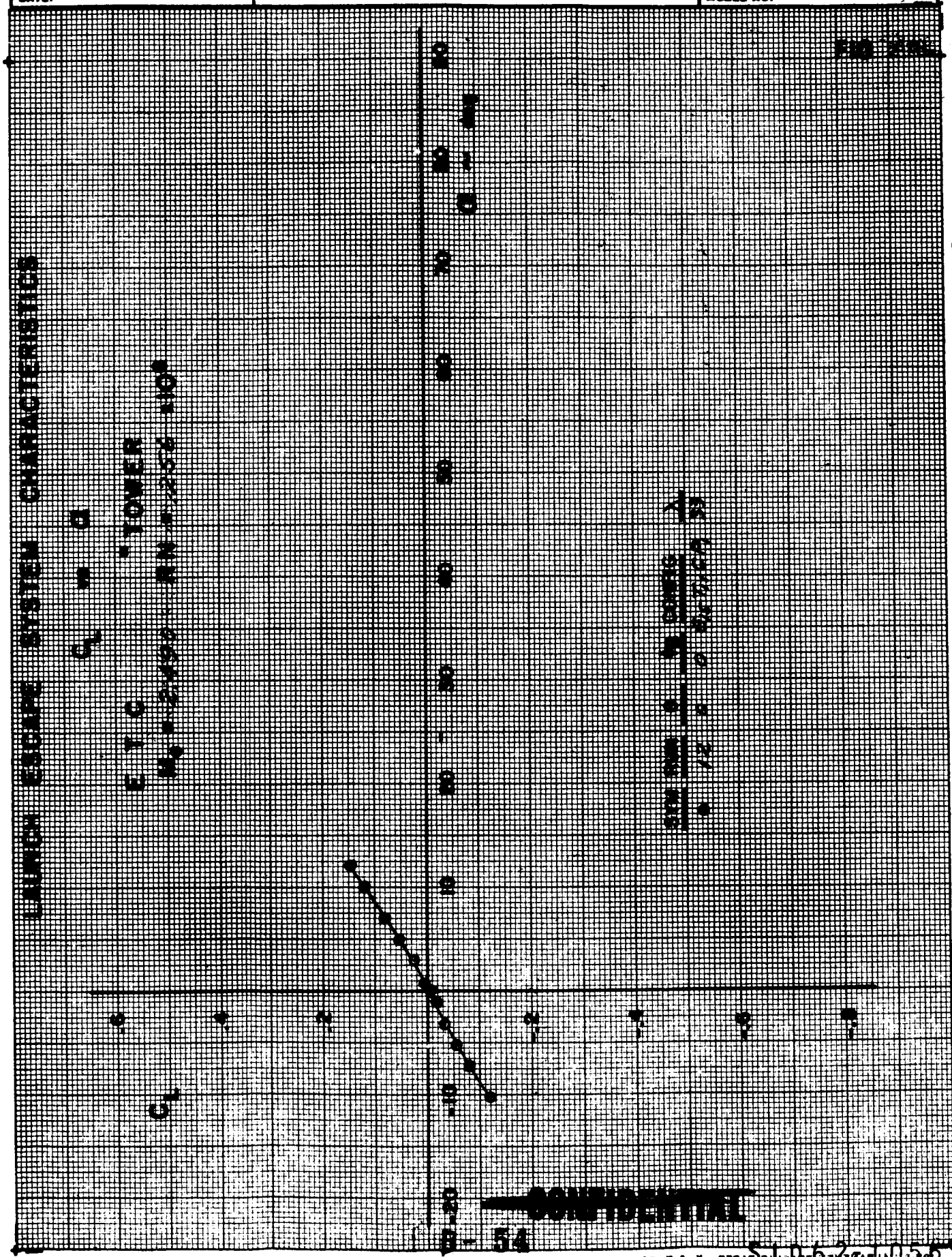
~~CONFIDENTIAL~~



1033-G-12 NEW 5-62

S1062-1056

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |






1033-G-13 NEW 5-62

PREPARED BY: SAL

CHECKED BY:

DATE:

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

[redacted]

PAGE NO. OF

REPORT NO.

MODEL NO.

# LAUNCH ESCAPE SYSTEM CHARACTERISTICS

$C_D$ vs $\alpha$

E T C - TOWER

$M_\infty = 2.490$ $RN = .256 \times 10^6$

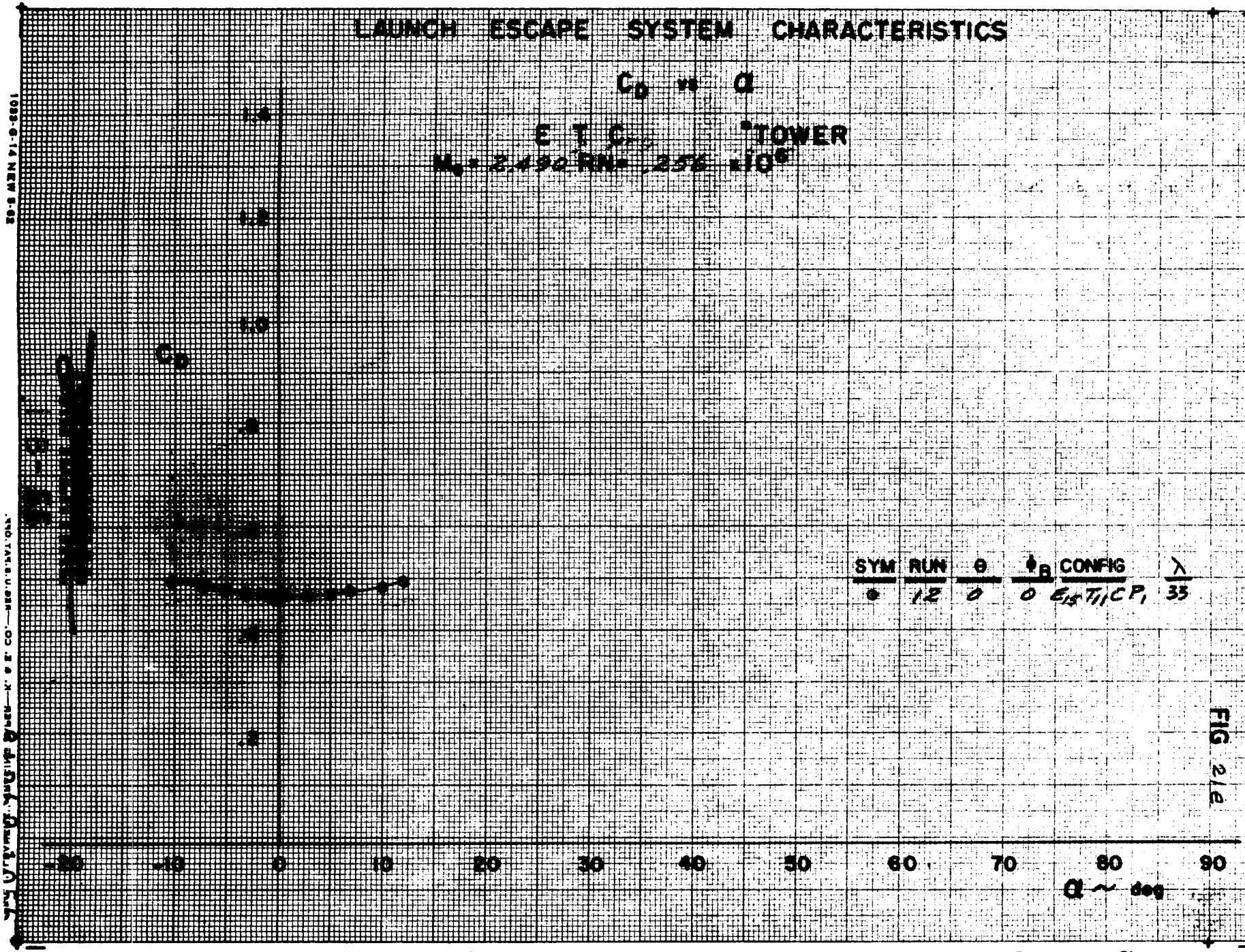



FIG 21e

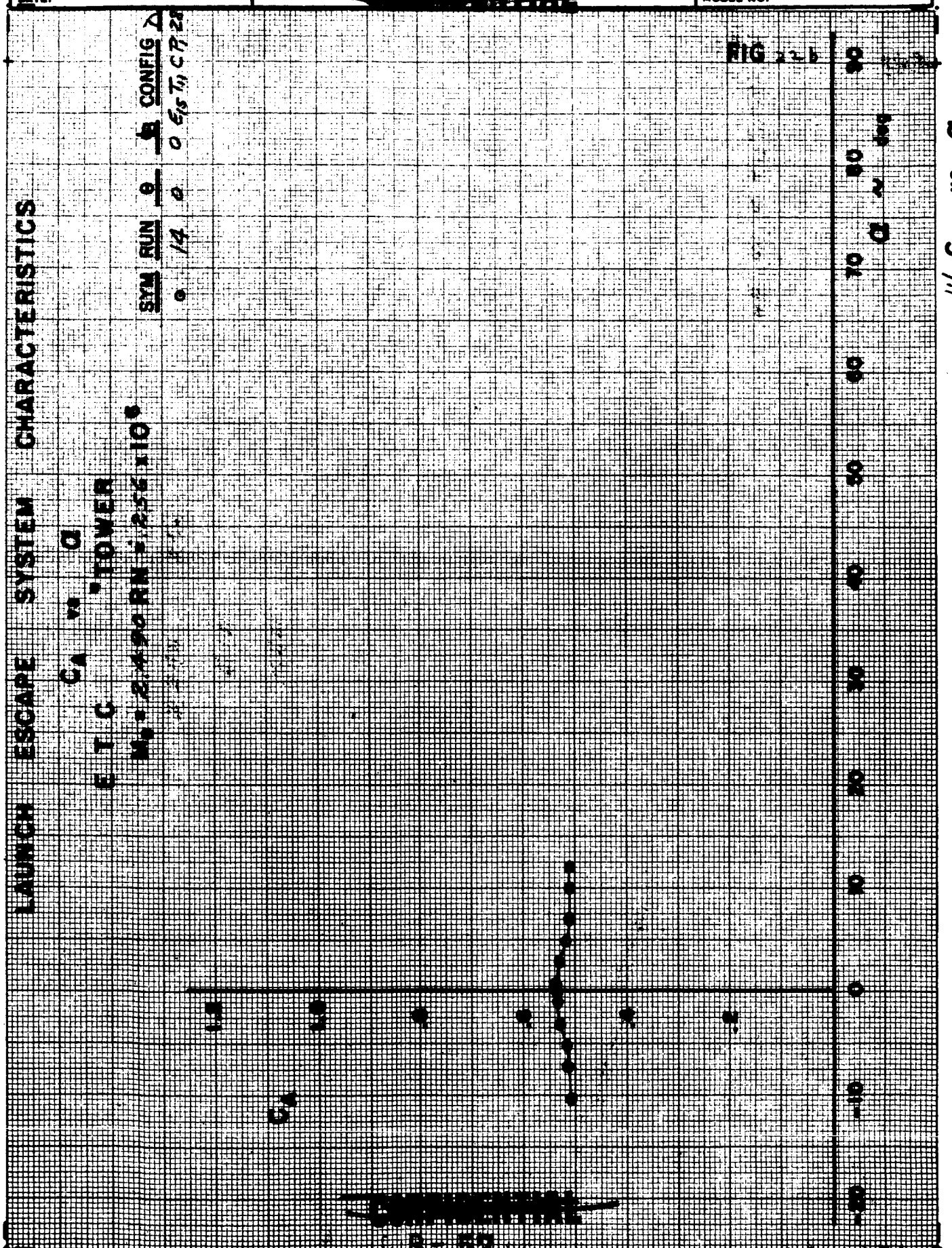
12 $C_D$ vs $\alpha$

1083-G-14 NEW 5-62

FIG 22 A

$C_N$ vs $\alpha$

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |




[redacted]



1032-G-11 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |

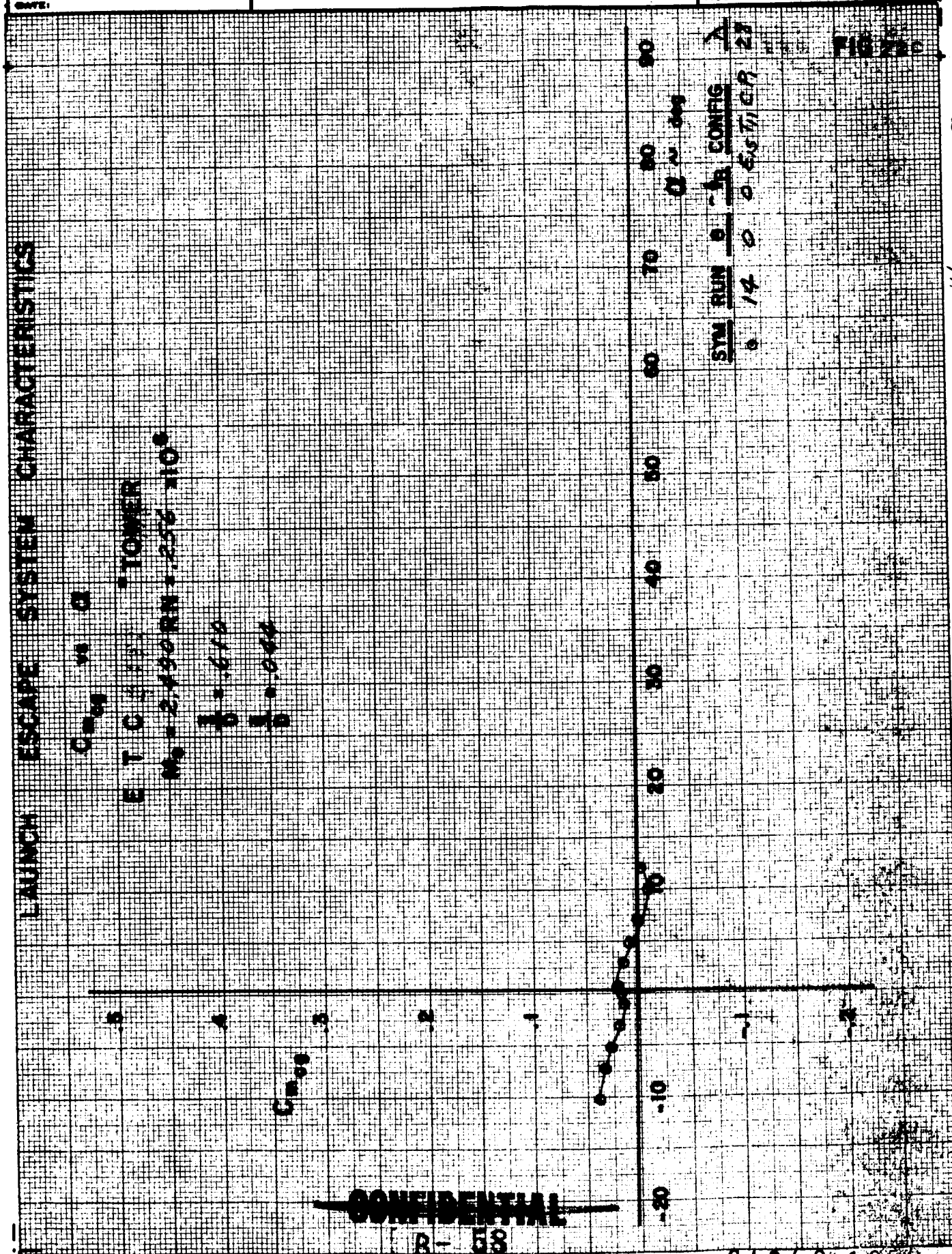



FIG 22c

14 $C_{m_{\alpha g}}$ vs $\alpha$

CONFIDENTIAL



1033-G-12 NEW 5-62

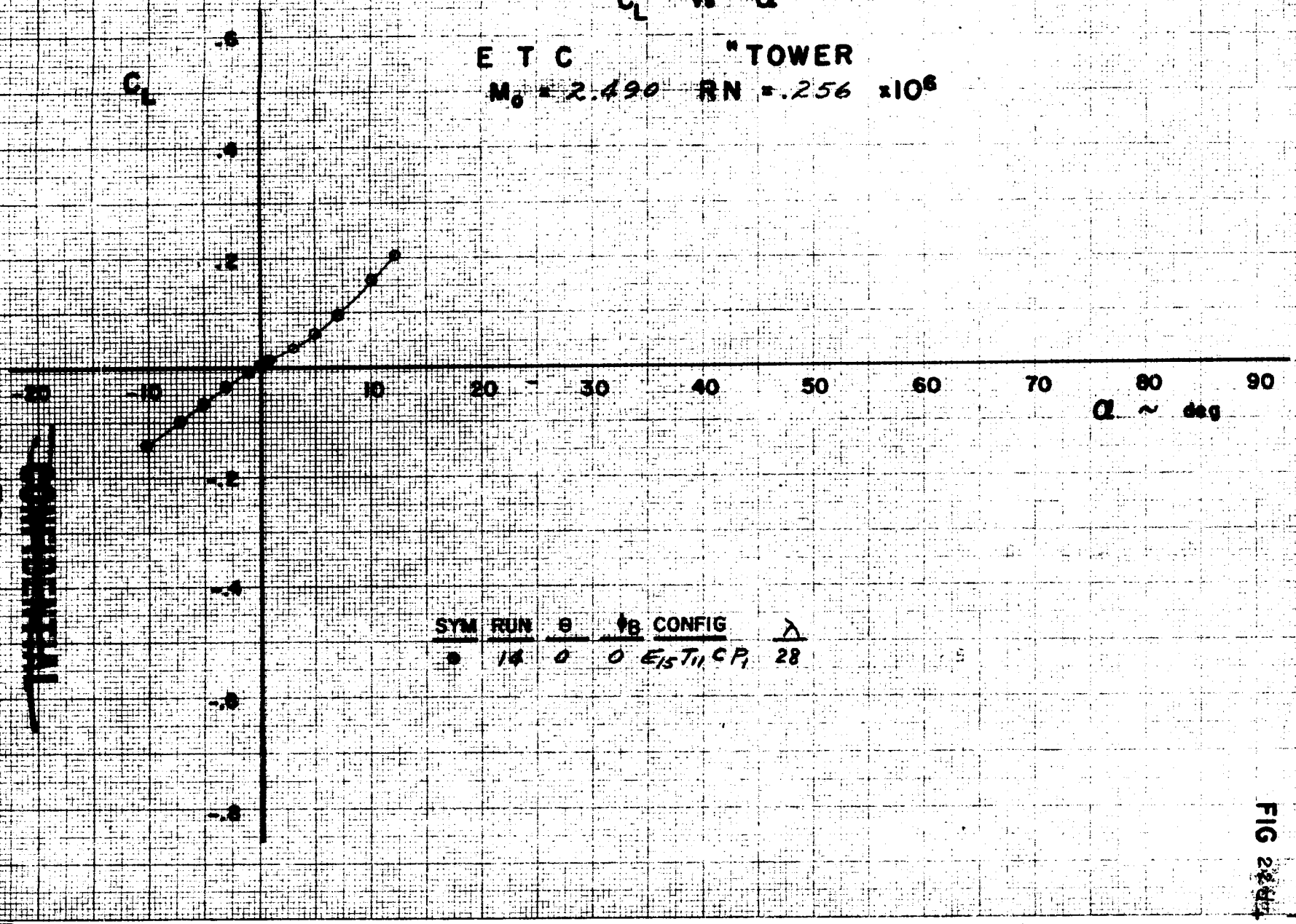
S1D62-1056

# LAUNCH ESCAPE SYSTEM CHARACTERISTICS

$C_L$ vs $\alpha$

E T C "TOWER

$M_0 = 2.490$ RN $= .256 \times 10^6$




| SYM | RUN | θ | $\phi_B$ | CONFIG | λ |
|---|---|---|---|---|---|
| ● | 14 | 0 | 0 | $E_{15} T_{11} C P_1$ | 28 |

FIG 28

14 $C_L$ vs $\alpha$

PREPARED BY: SAL

CHECKED BY:

DATE:

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

[redacted]

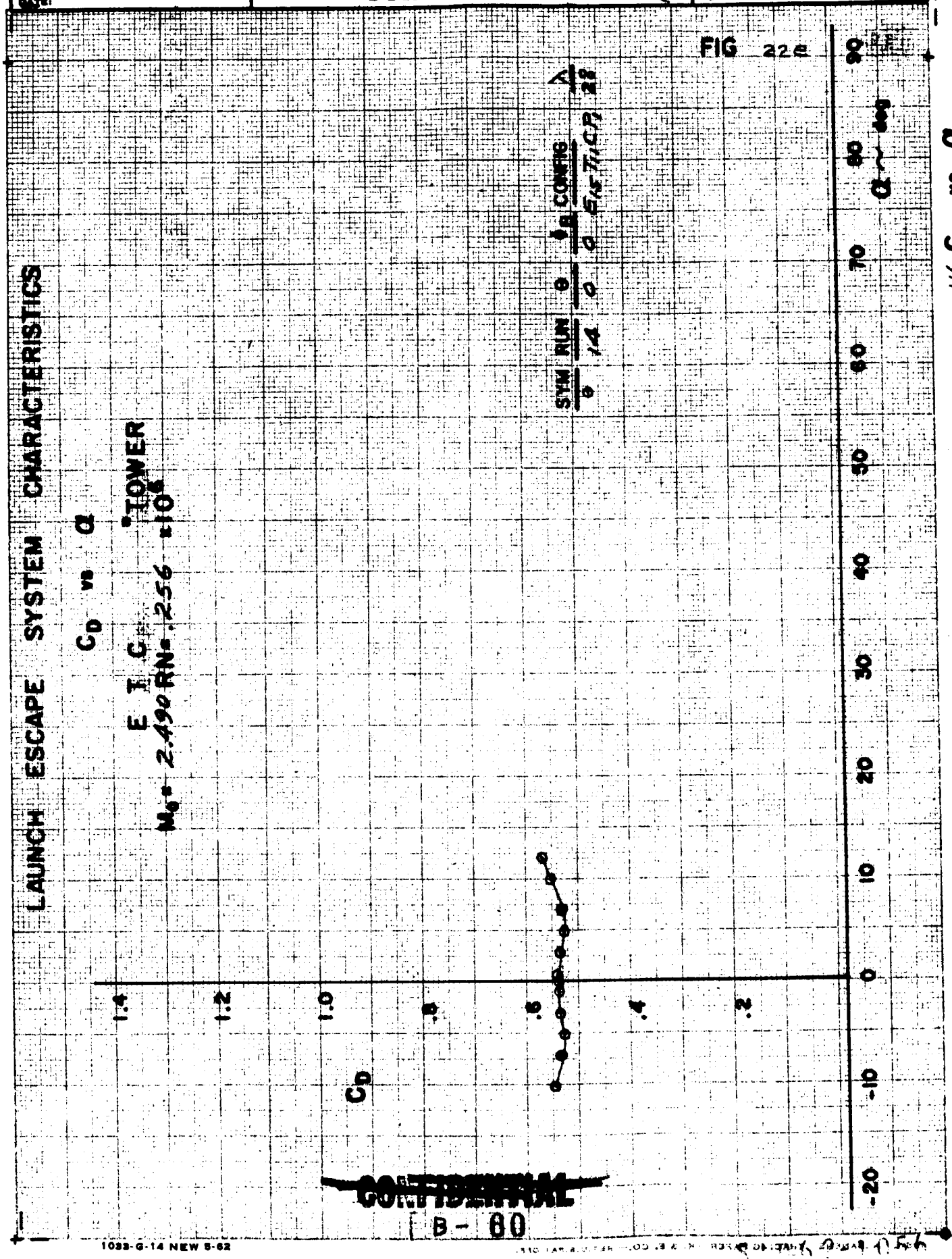
PAGE NO. OF

REPORT NO.

MODEL NO.

~~CONFIDENTIAL~~

FIG 22e




14 $C_D$ vs $\alpha$

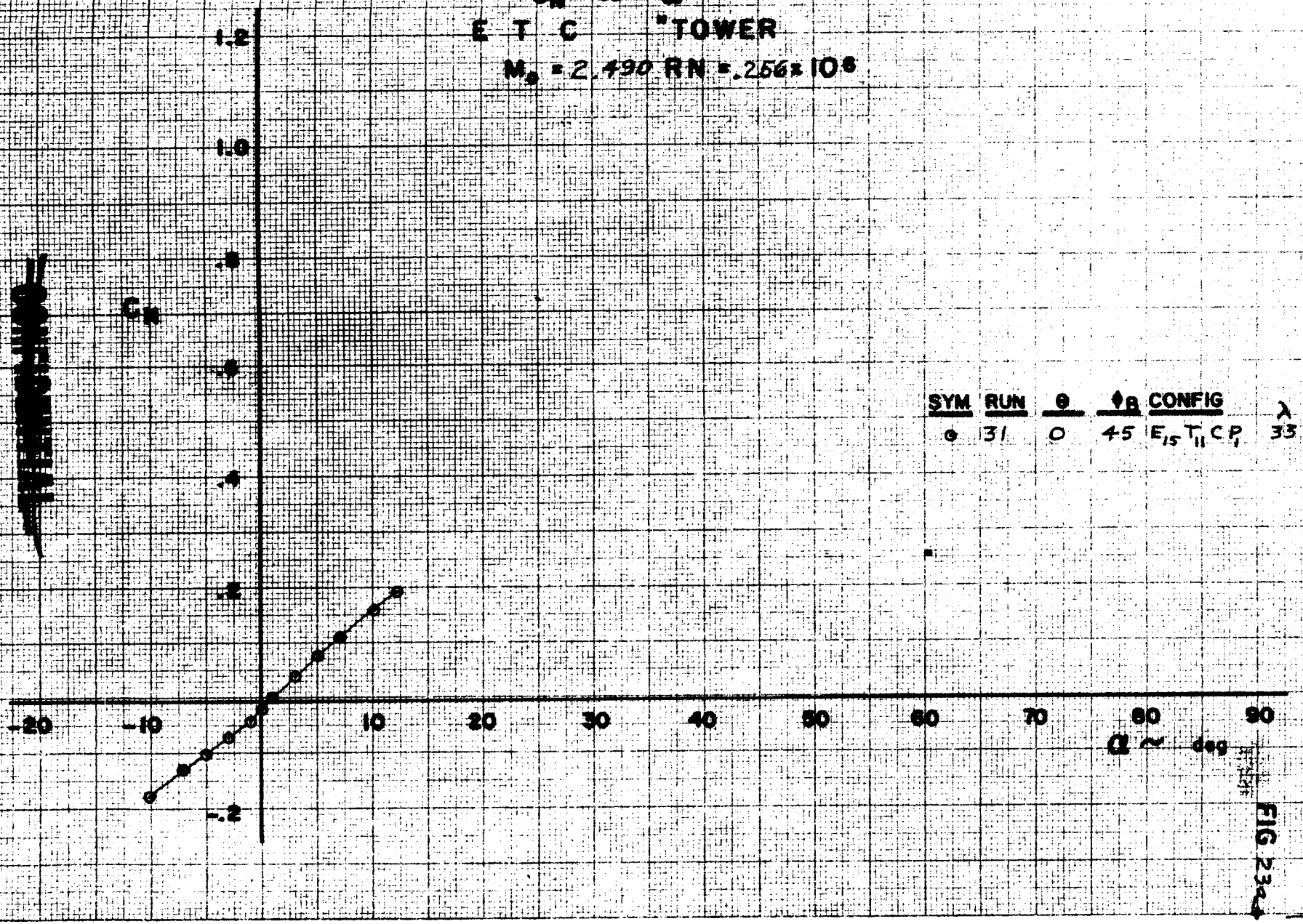
~~CONFIDENTIAL~~

# LAUNCH ESCAPE SYSTEM CHARACTERISTICS

$C_N$ vs $\alpha$

E T C "TOWER

$M_\infty = 2.490$ RN $= .256 \times 10^6$




| SYM | RUN | $\theta$ | $\phi_B$ | CONFIG | $\lambda$ |
|---|---|---|---|---|---|
| ⊕ | 31 | 0 | 45 | $E_{15} T_{11} C P_1$ | 33 |

FIG 23a

31 $C_N$ vs $\alpha$

PREPARED BY:

CHECKED BY:

DATE:

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

[redacted]

PAGE NO. OF

REPORT NO.

MODEL NO.

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

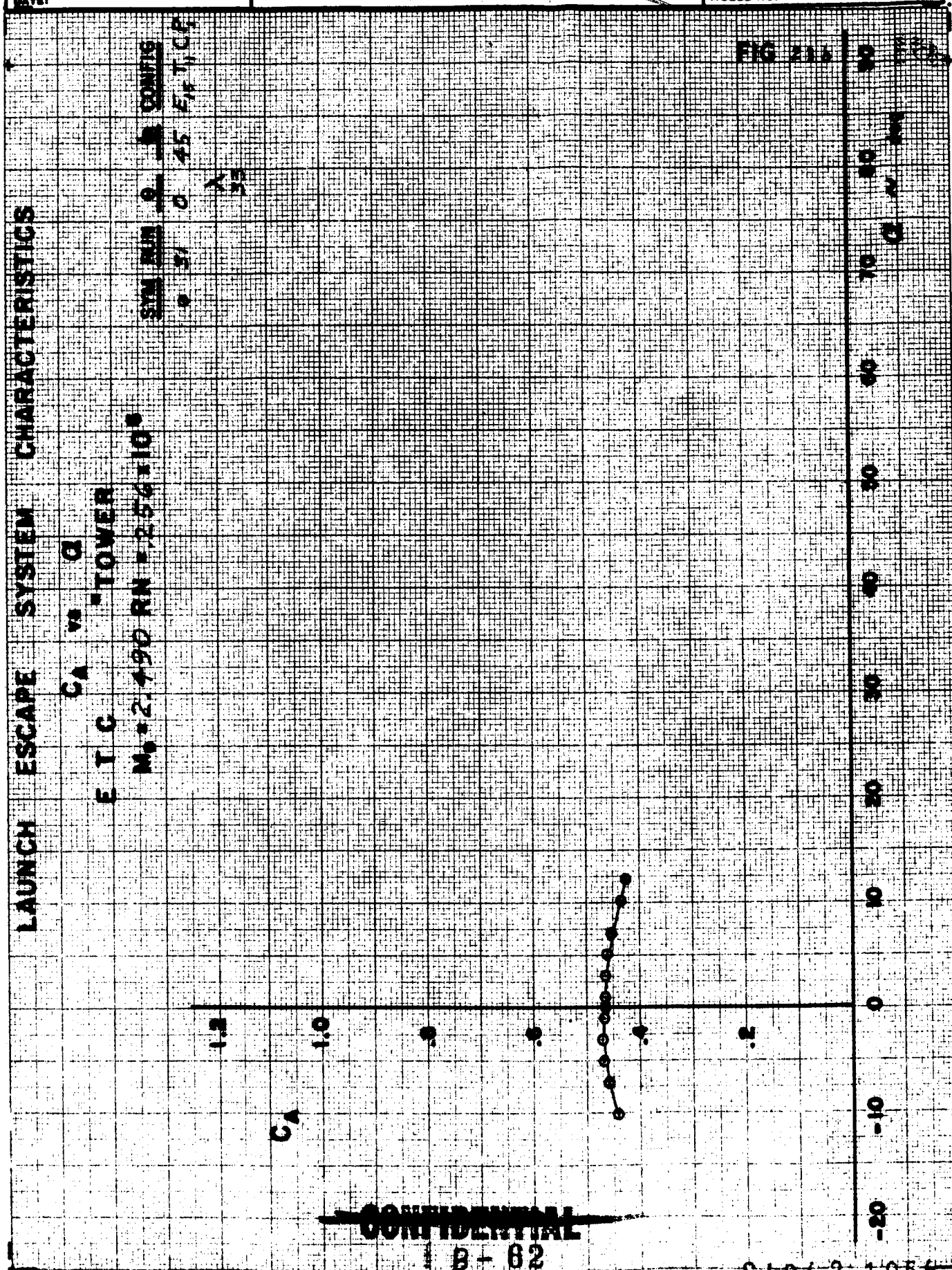



FIG 21b

31 $C_A$ vs $\alpha$

~~CONFIDENTIAL~~



SID62-1056

1033-G-11 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

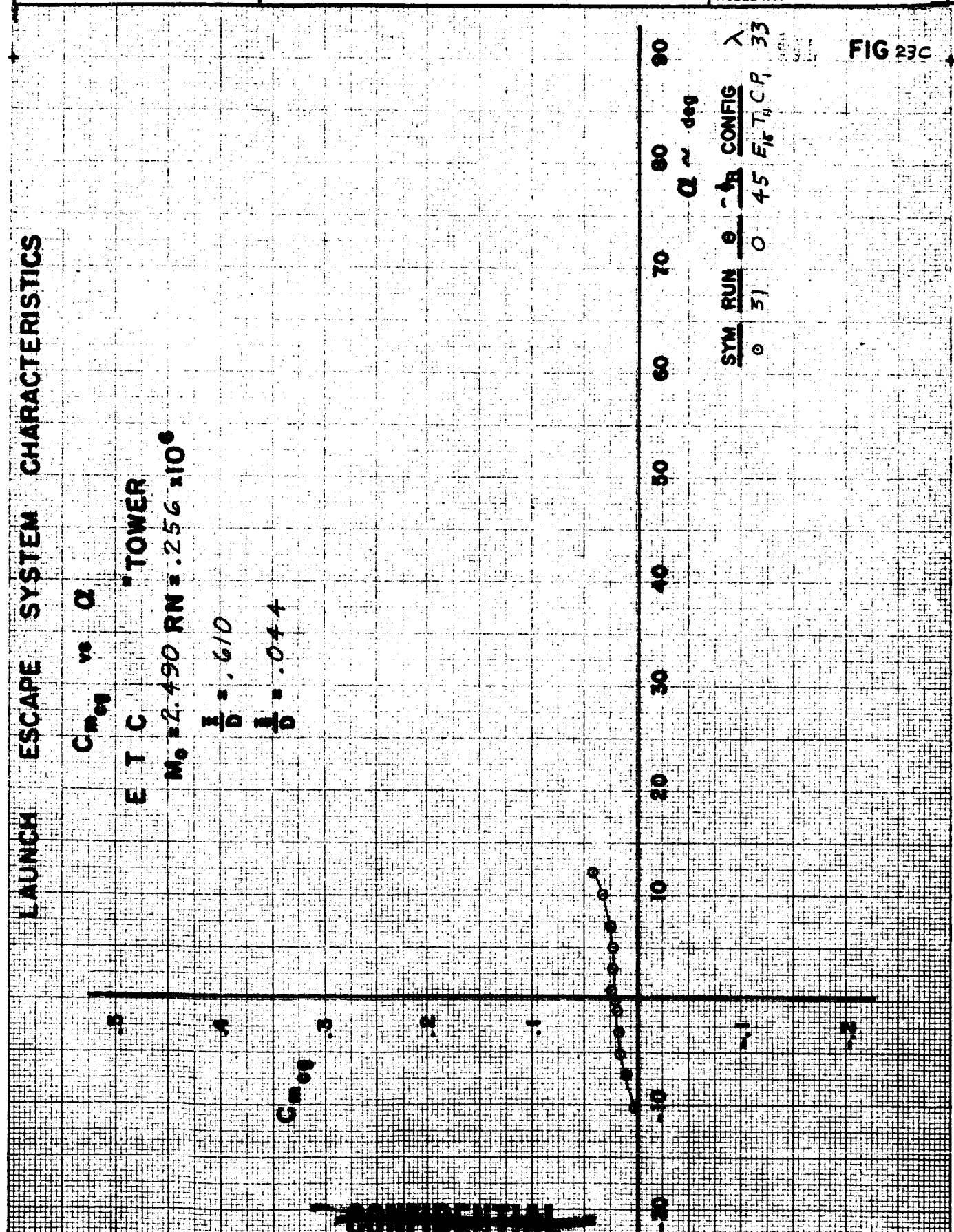



FIG 23C

31 $C_m$ vs $\alpha$

[redacted]

1033-G-12 NEW 5-62

SID62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. — |

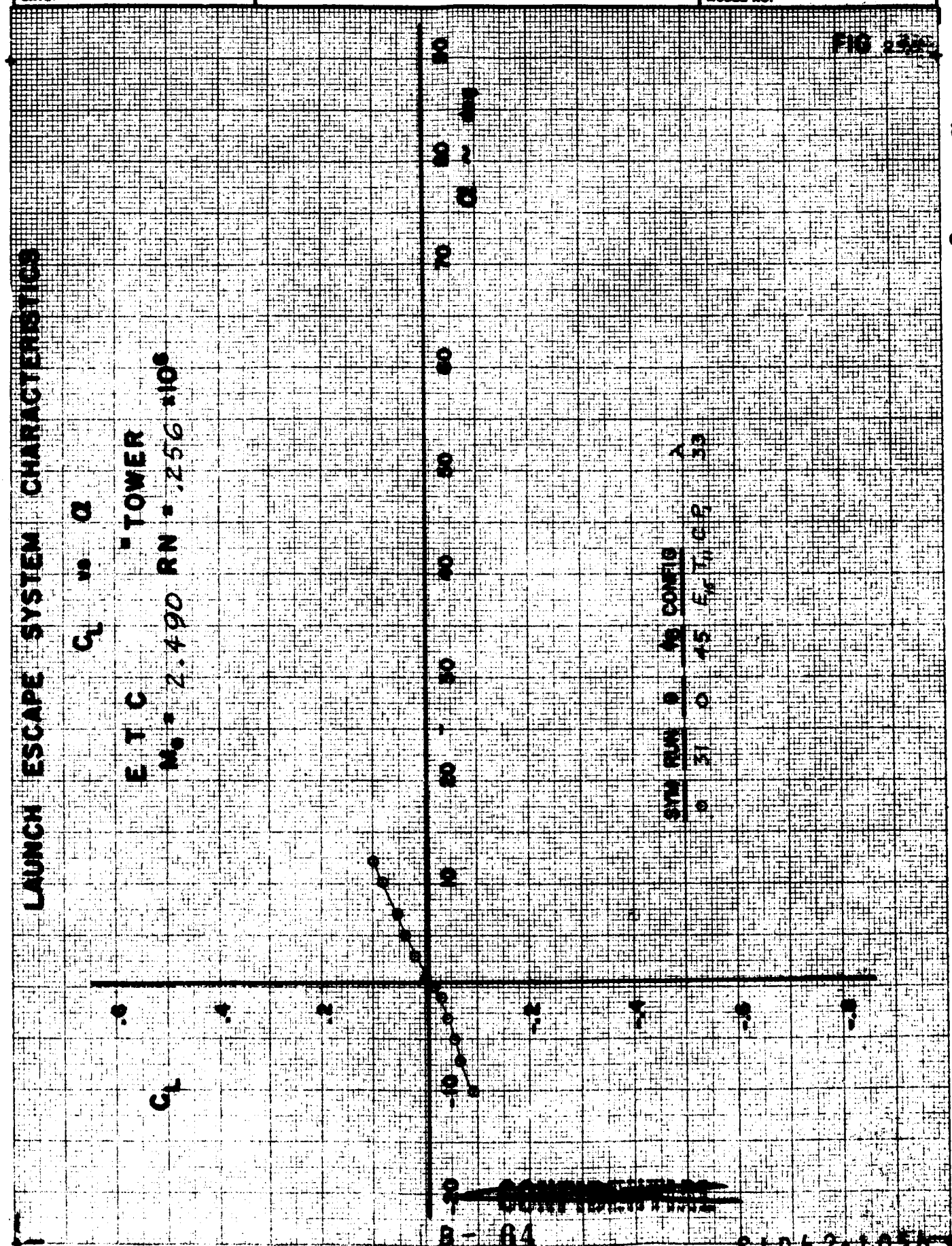



FIG 23

31 $C_L$ vs $\alpha$

~~CONFIDENTIAL~~



SID62-1056

1033-G-13 NEW 5-62

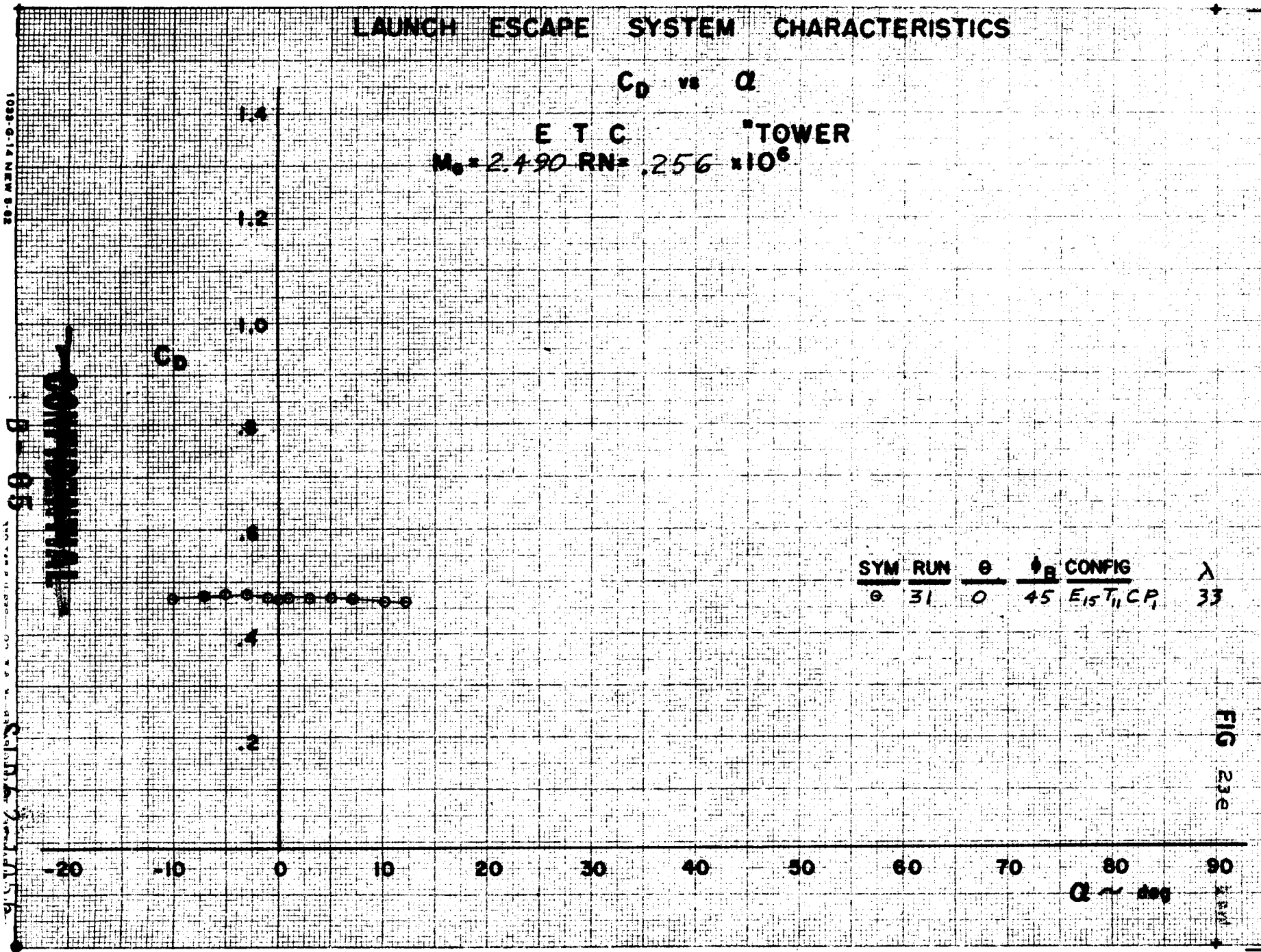



FIG 23e

31 $C_D$ vs $\alpha$

PREPARED BY:
CHECKED BY:
DATE:

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

[redacted]

PAGE NO. OF
REPORT NO.
MODEL NO.

1039-G-14 NEW 9-62

CONFIDENTIAL

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

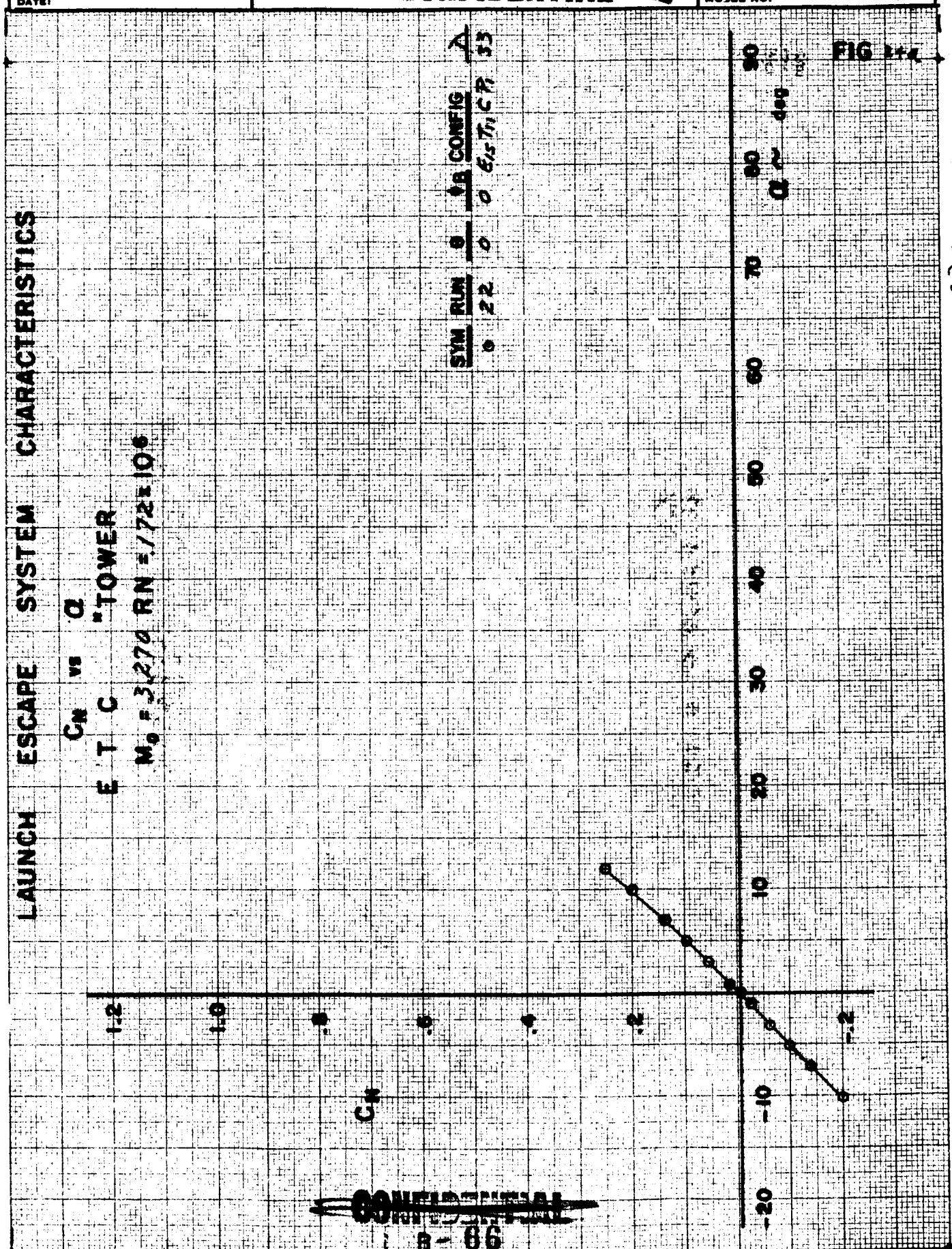



FIG 3-4

22 $C_N$ vs $\alpha$

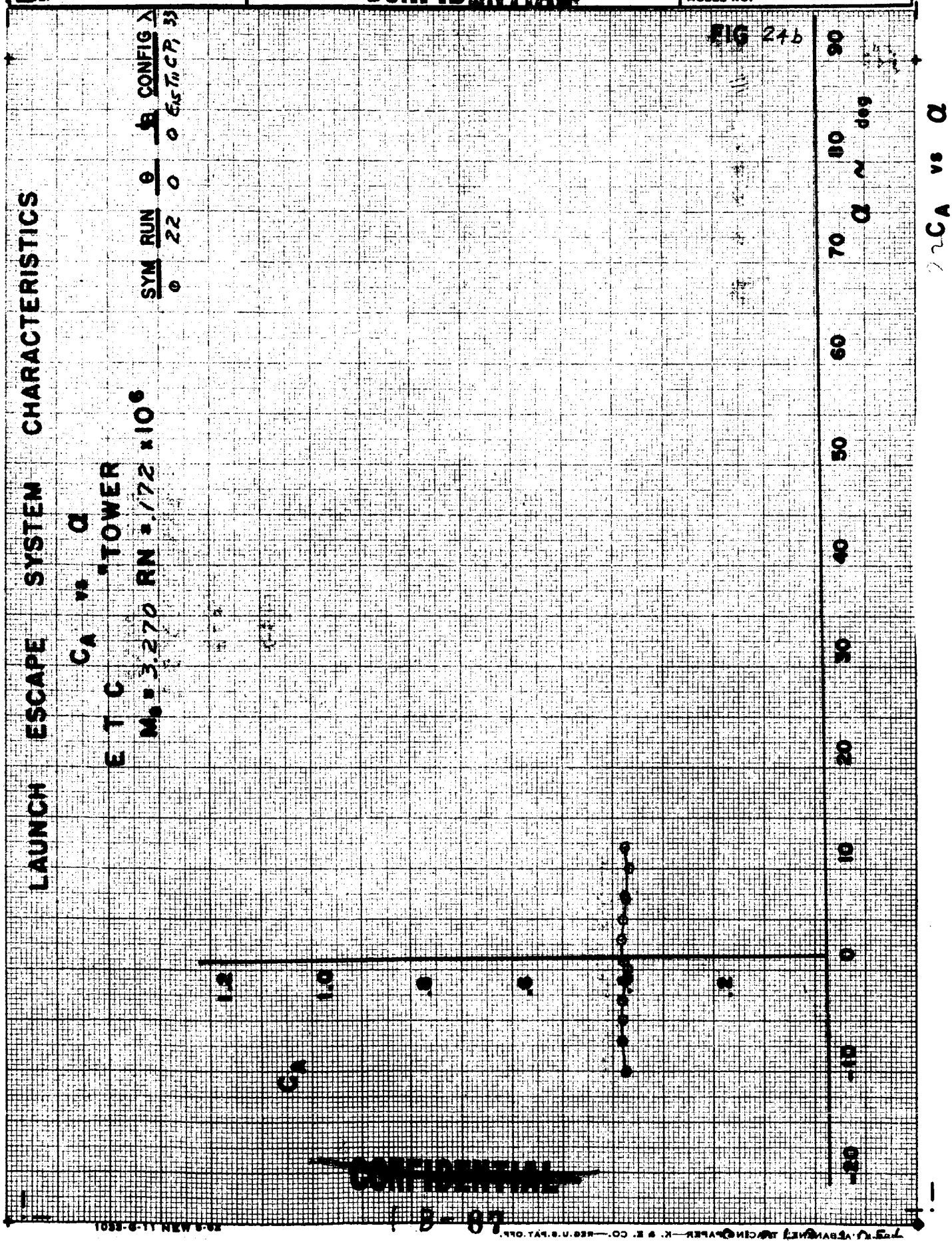
~~CONFIDENTIAL~~



1033-G-10 NEW 5-62

STD62-1056

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

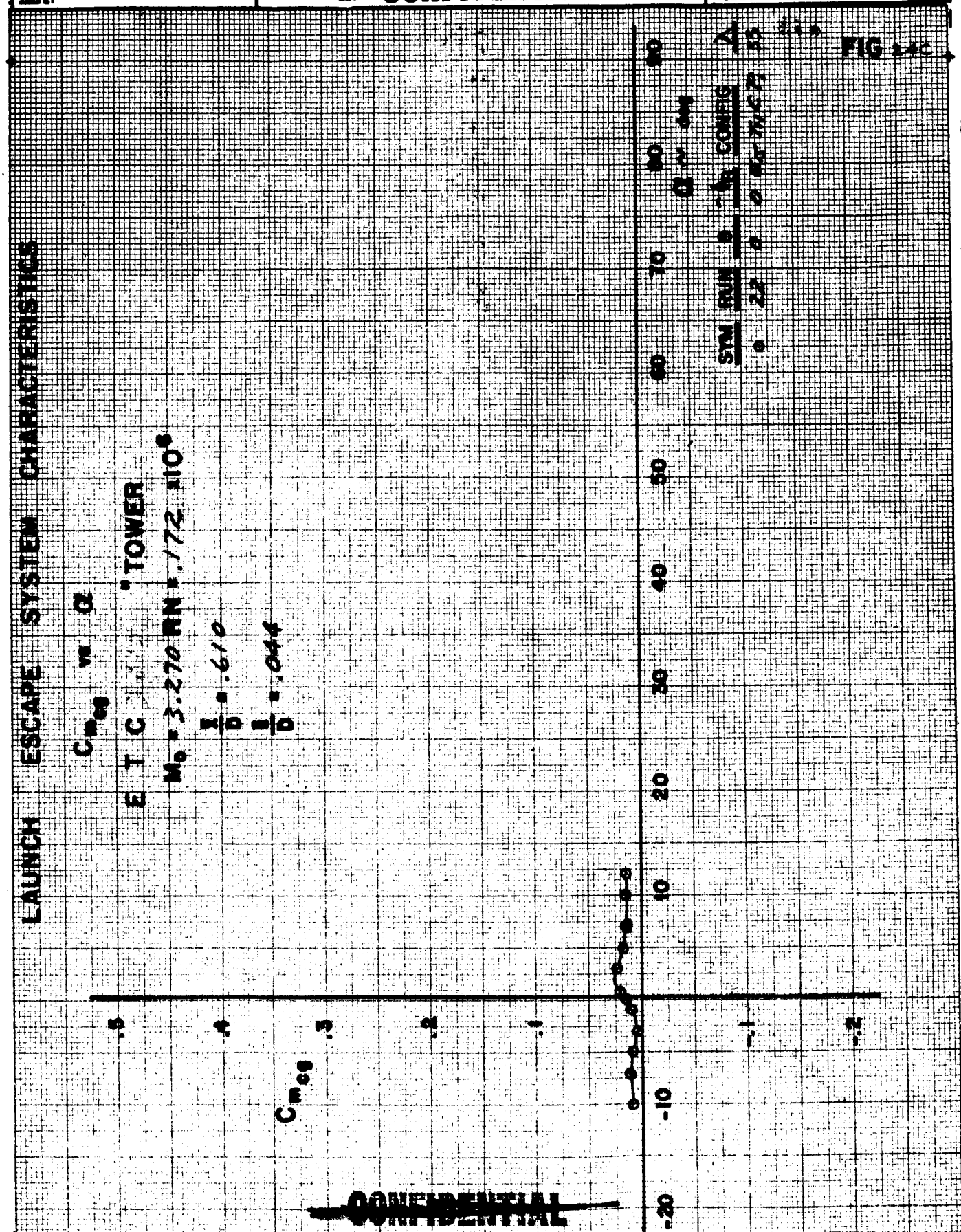



FIG 24C

22 $C_{m_{cg}}$ vs $\alpha$

~~CONFIDENTIAL~~

B-88

1033-G-12 NEW 5-62

SID62-1056

PREPARED BY: SAL

CHECKED BY:

DATE:

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

[redacted]

PAGE NO. OF

REPORT NO.

MODEL NO.

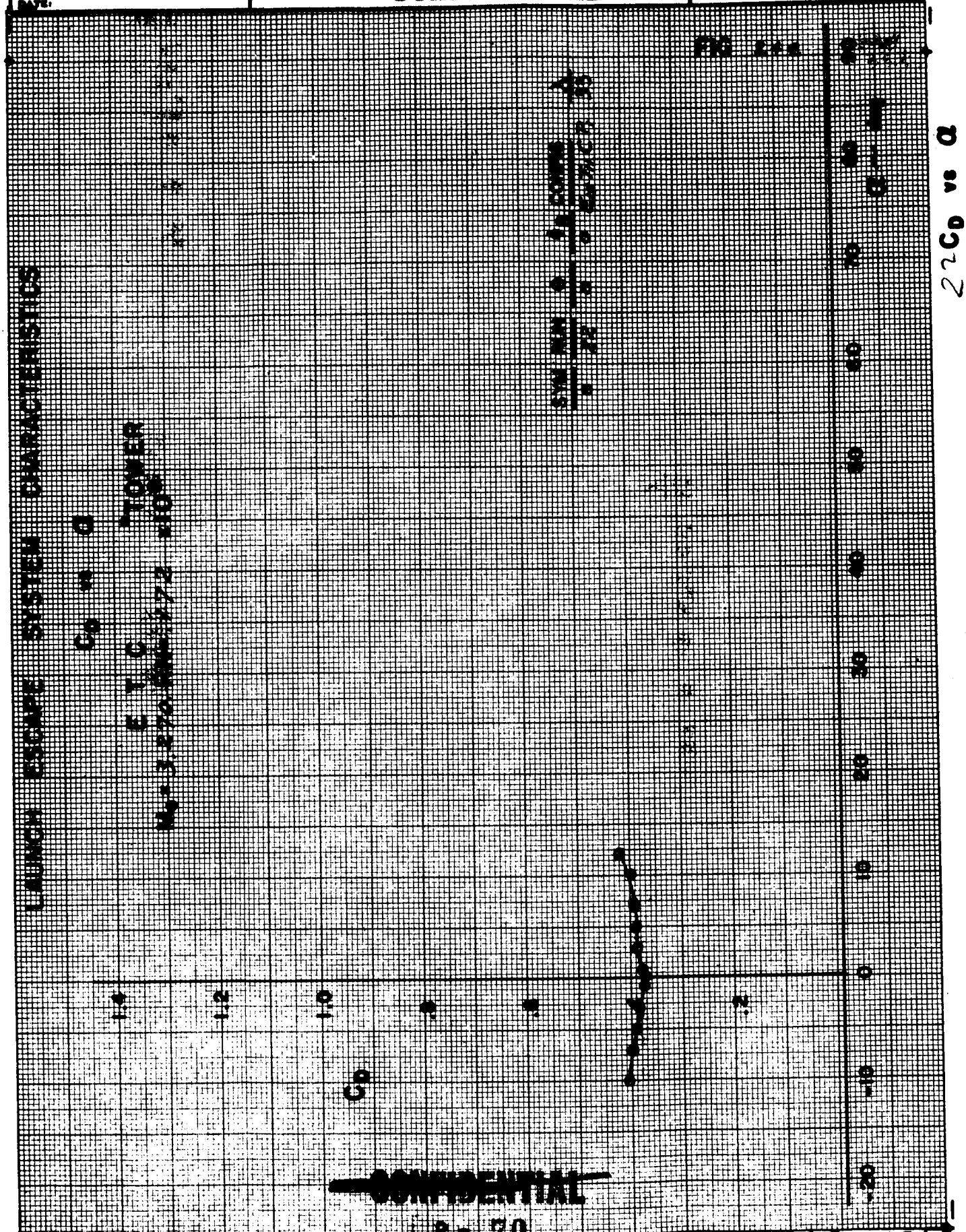
FIG 24d




$C_L$ vs $\alpha$

[redacted]

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |



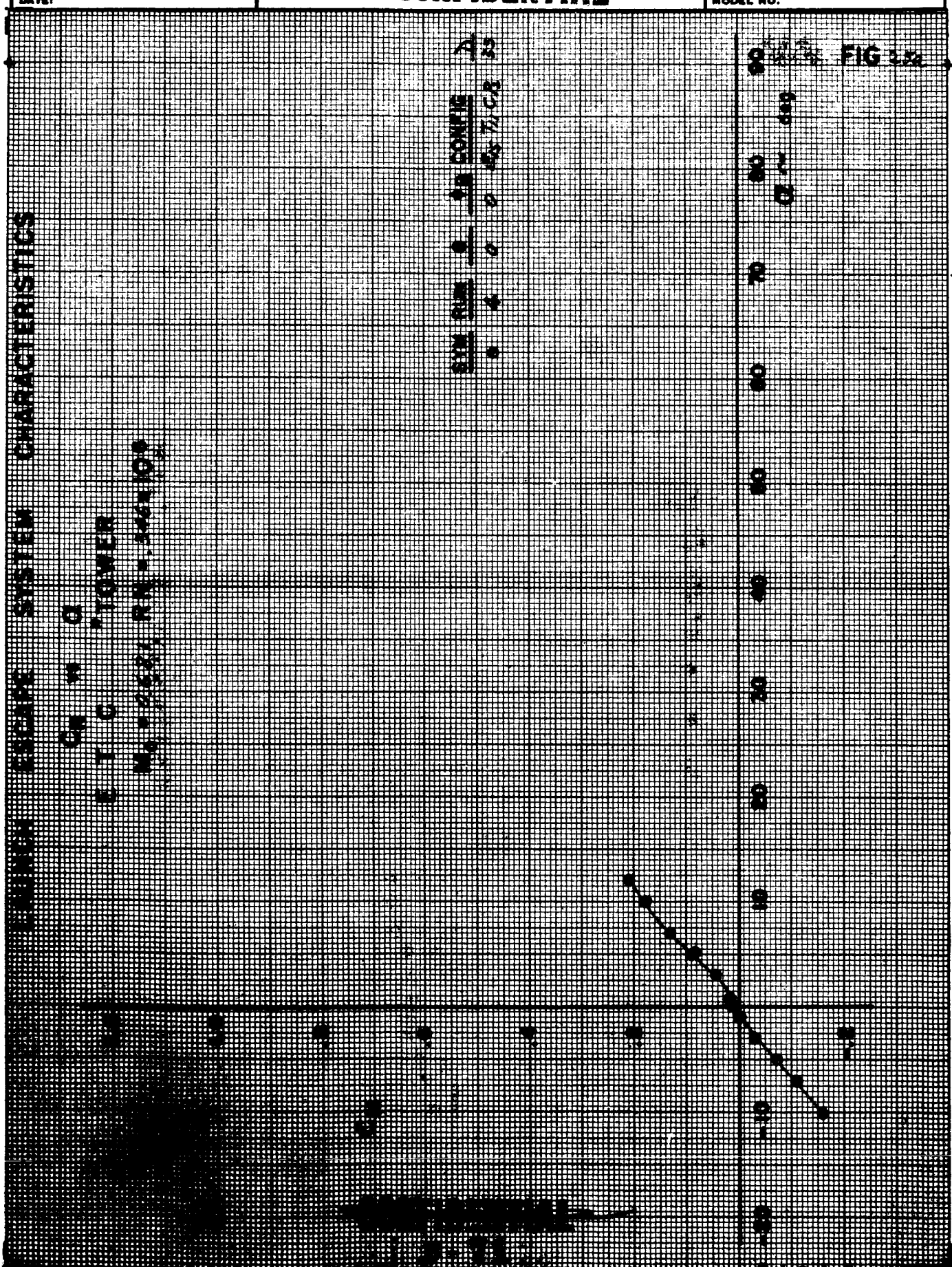

~~CONFIDENTIAL~~



1033-G-14 NEW 5-62

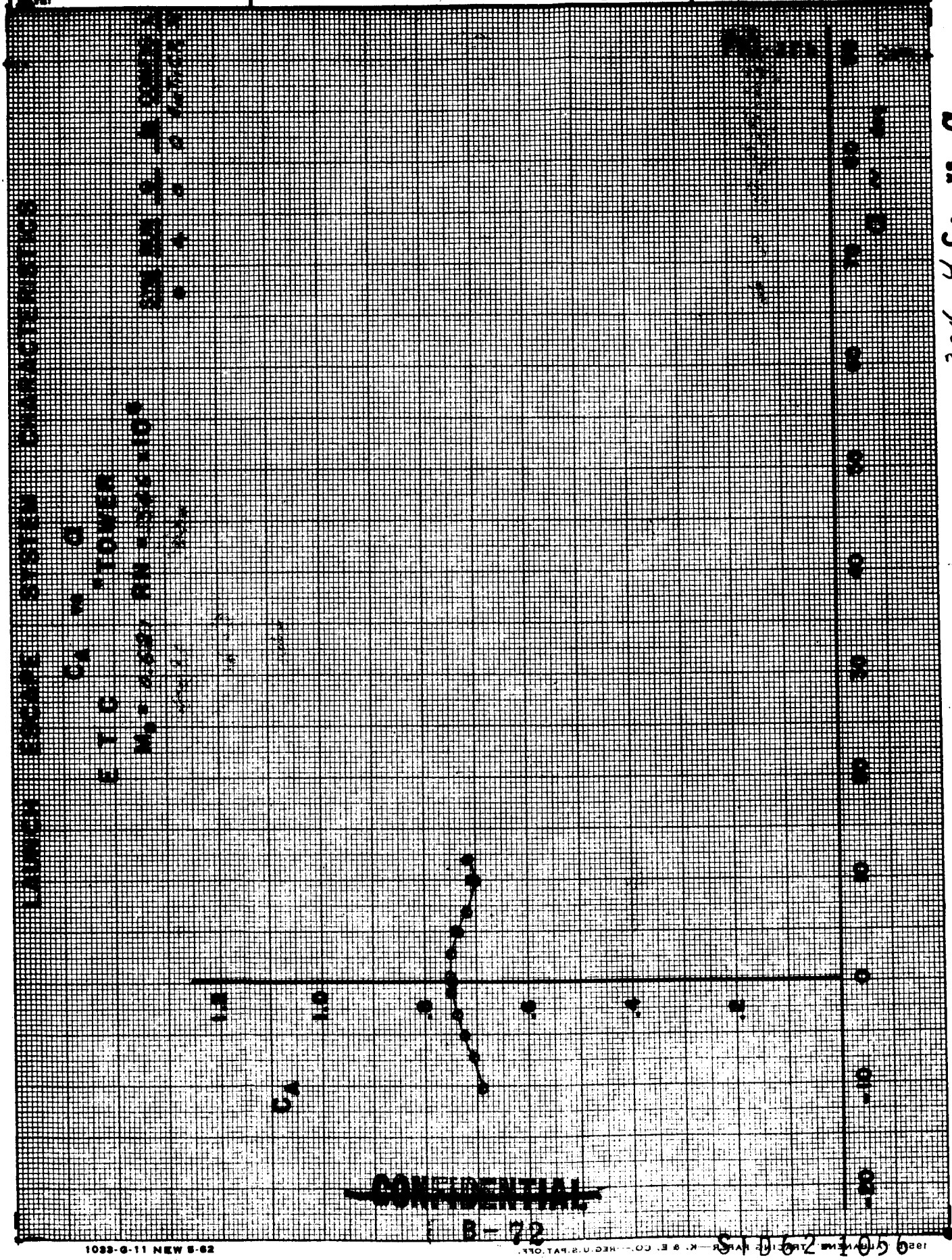
S1D62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |




[redacted]

~~CONFIDENTIAL~~




~~CONFIDENTIAL~~



1033-G-11 NEW 5-62
STD62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

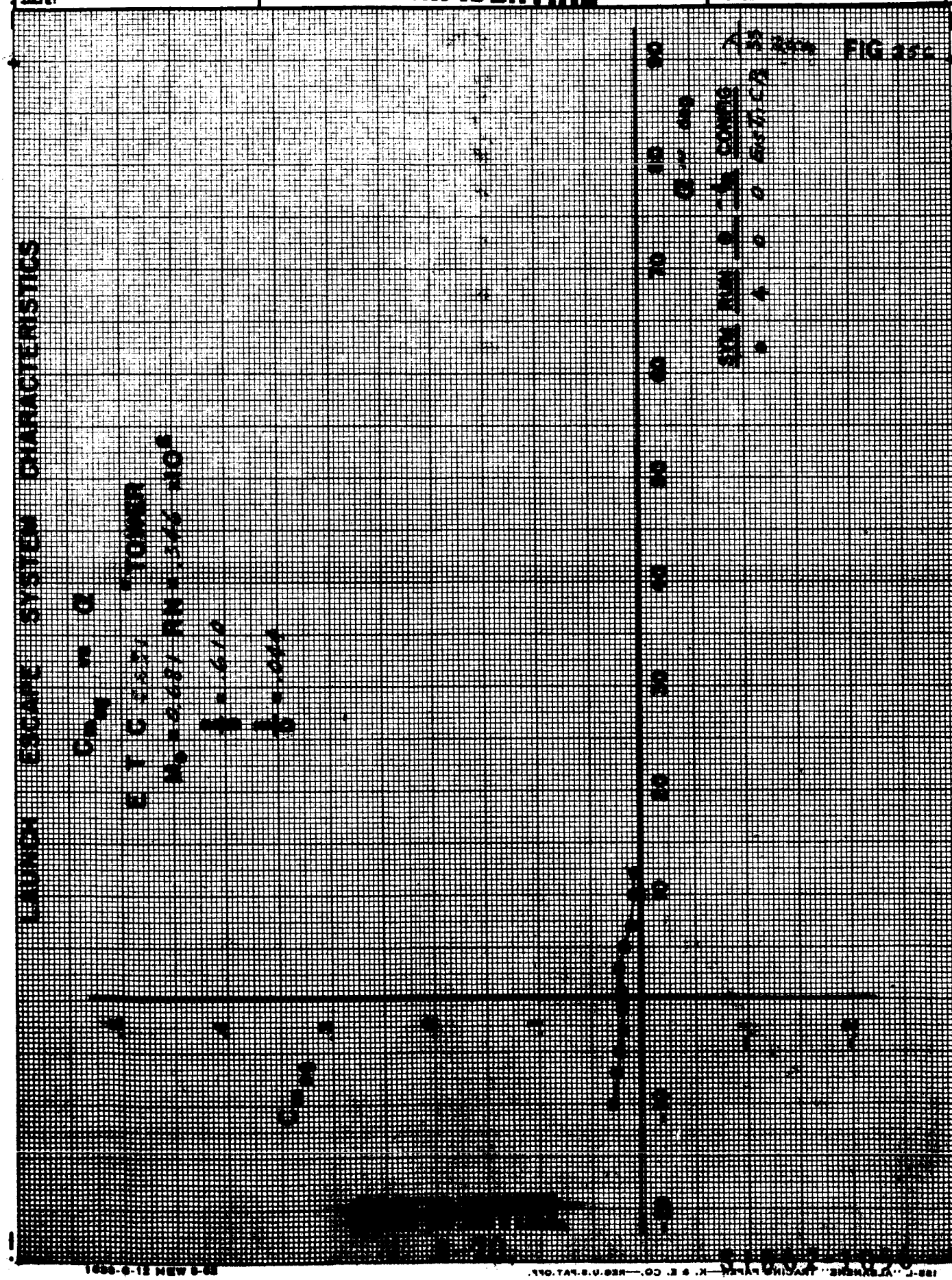



FIG 25c

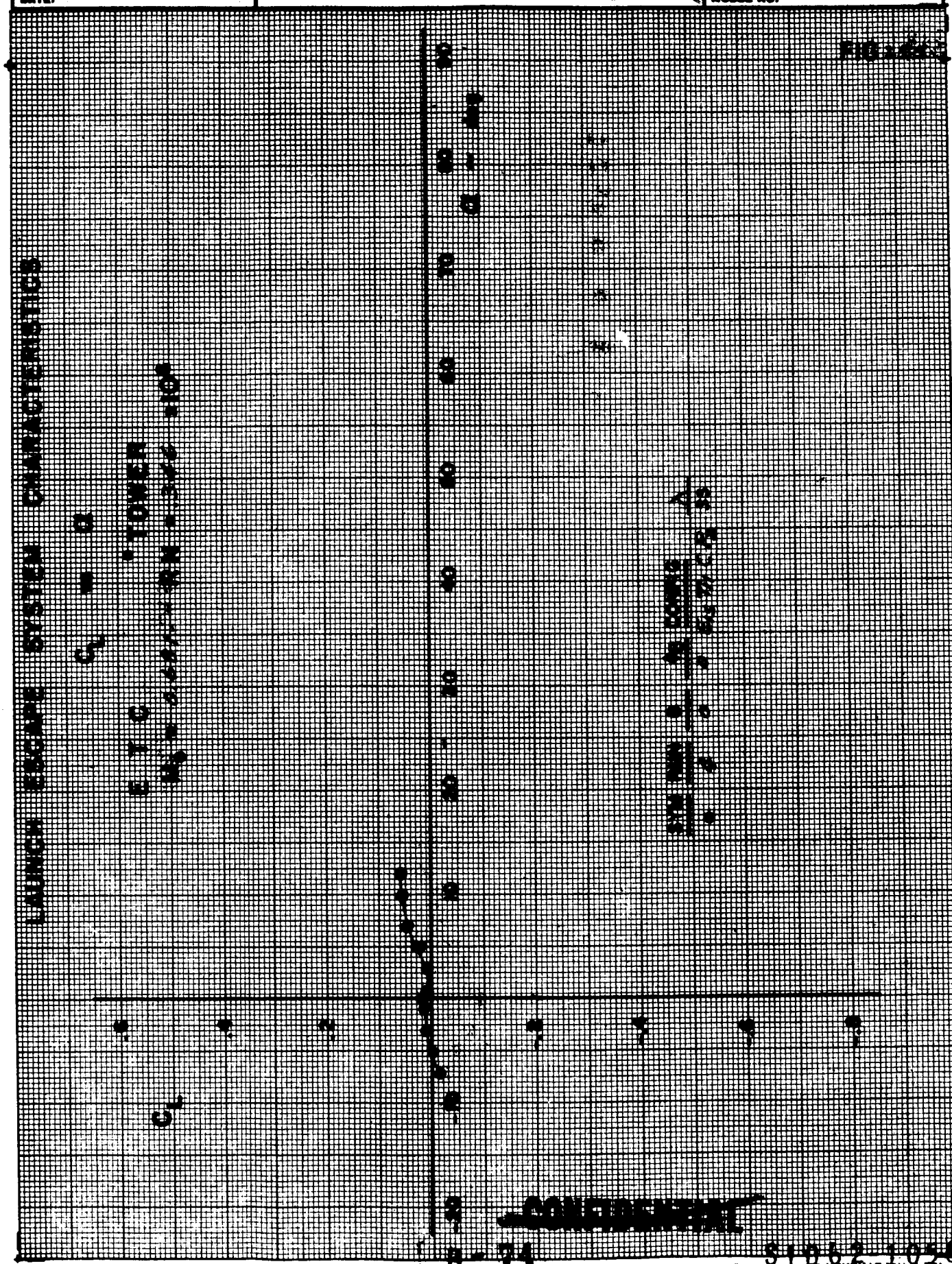
204-4 $C_{m_{\alpha}}$ vs $\alpha$

[redacted]

1000-6-12 NEW 5-62

188-L "ALEXANDRE" TRACING PAPER—K. & E. CO.—REG. U.S. PAT. OFF.

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |




204-4 $C_L$ vs $\alpha$

CONFIDENTIAL



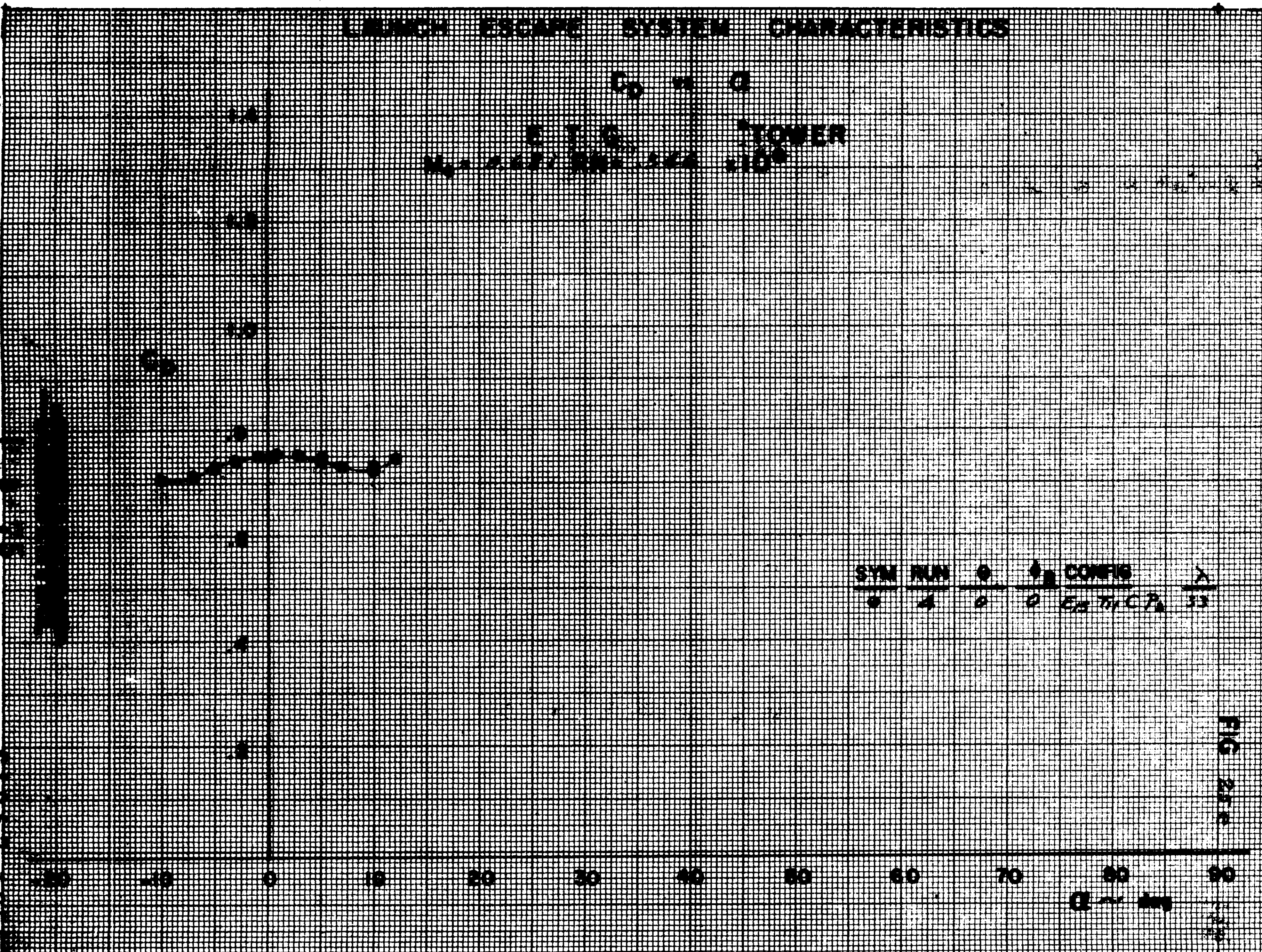
S1062-1056

1033-G-13 NEW 5-62

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

[redacted]

PREPARED BY:
CHECKED BY:
DATE:
PAGE NO. OF
REPORT NO.
MODEL NO.




[redacted]

204-4 $C_D$ vs α

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

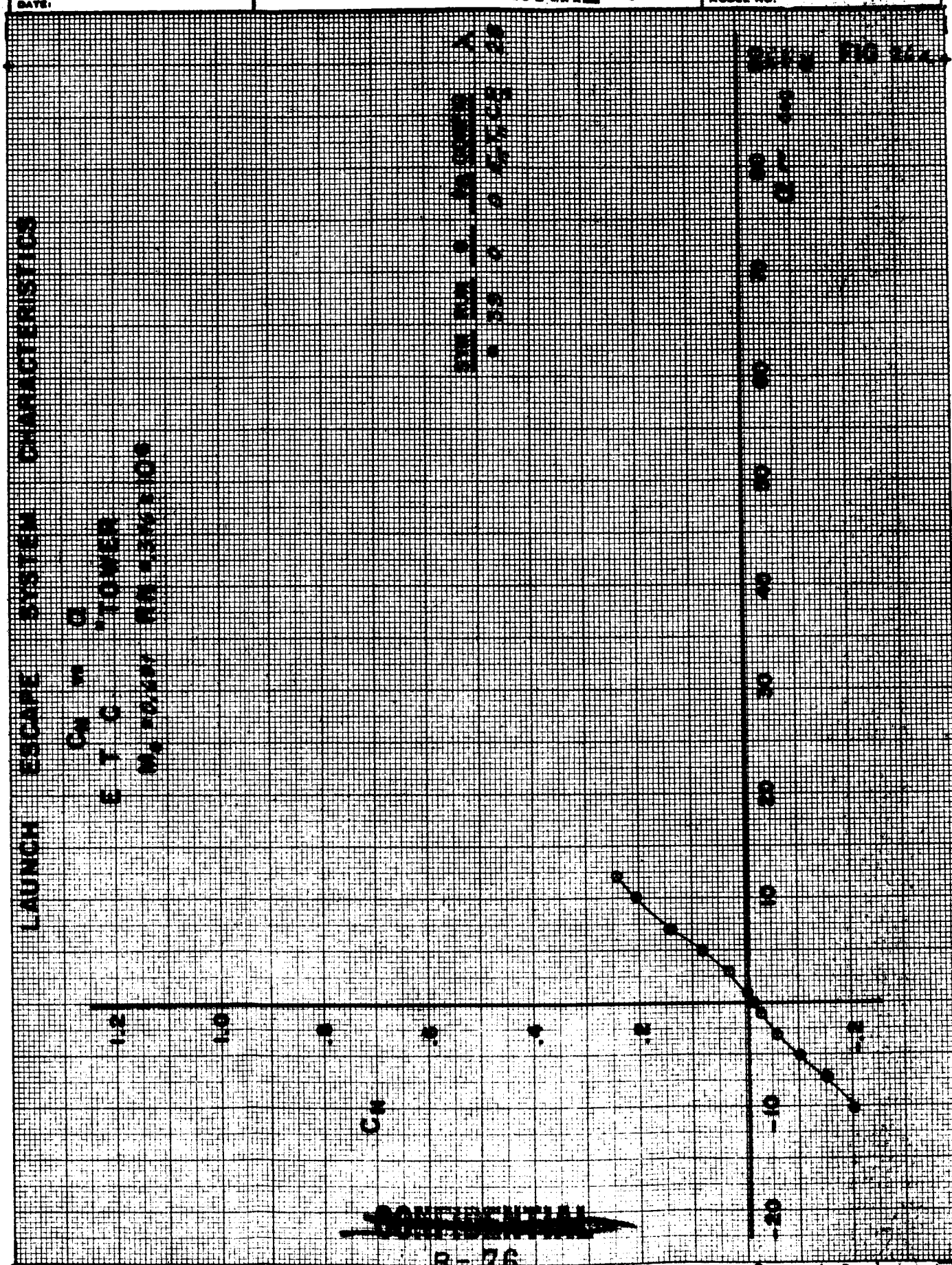



FIG 24a

39 $C_N$ vs $\alpha$

~~CONFIDENTIAL~~



1033-G-10 NEW 5-62

S1D62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

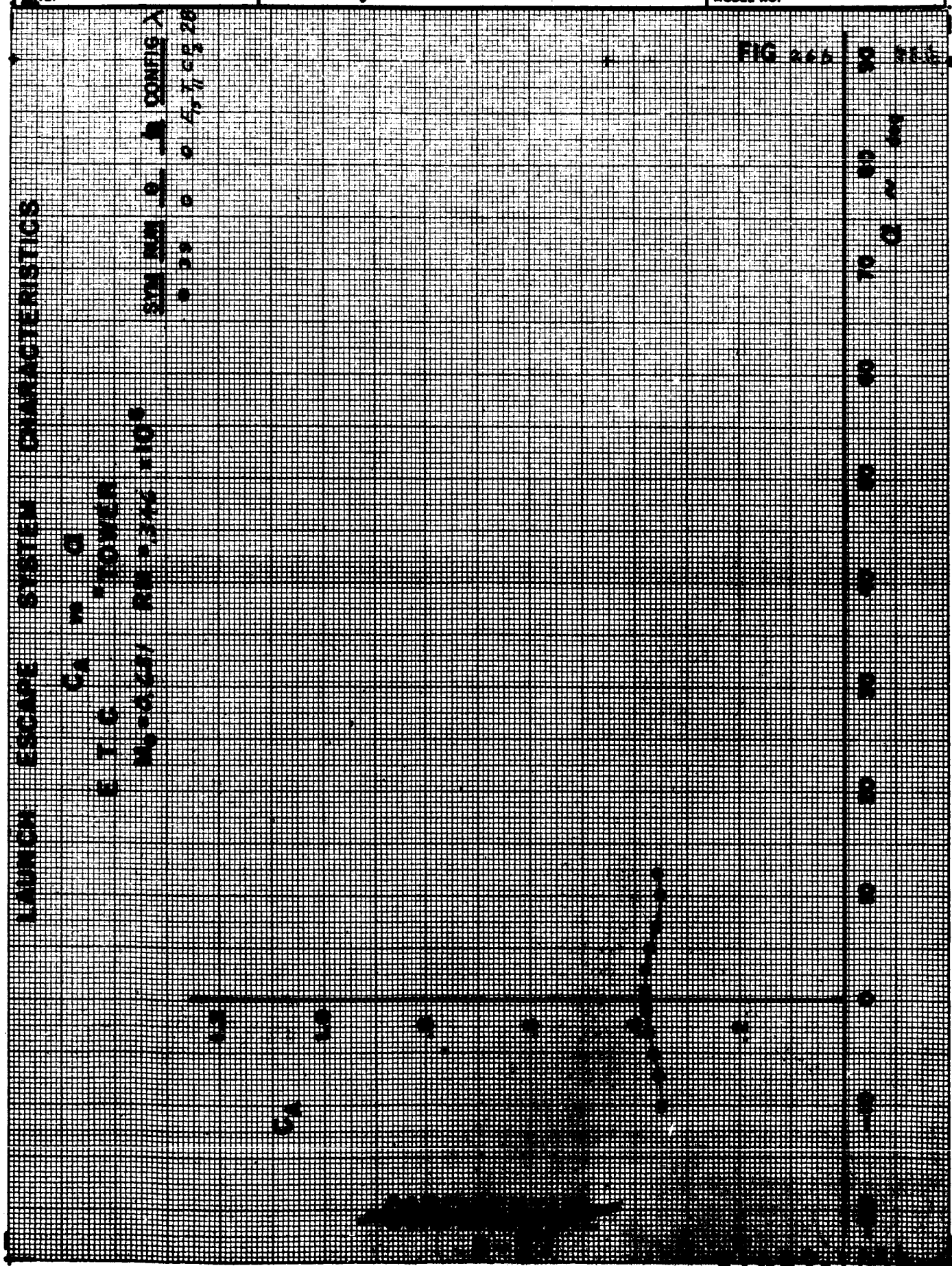



FIG 26b

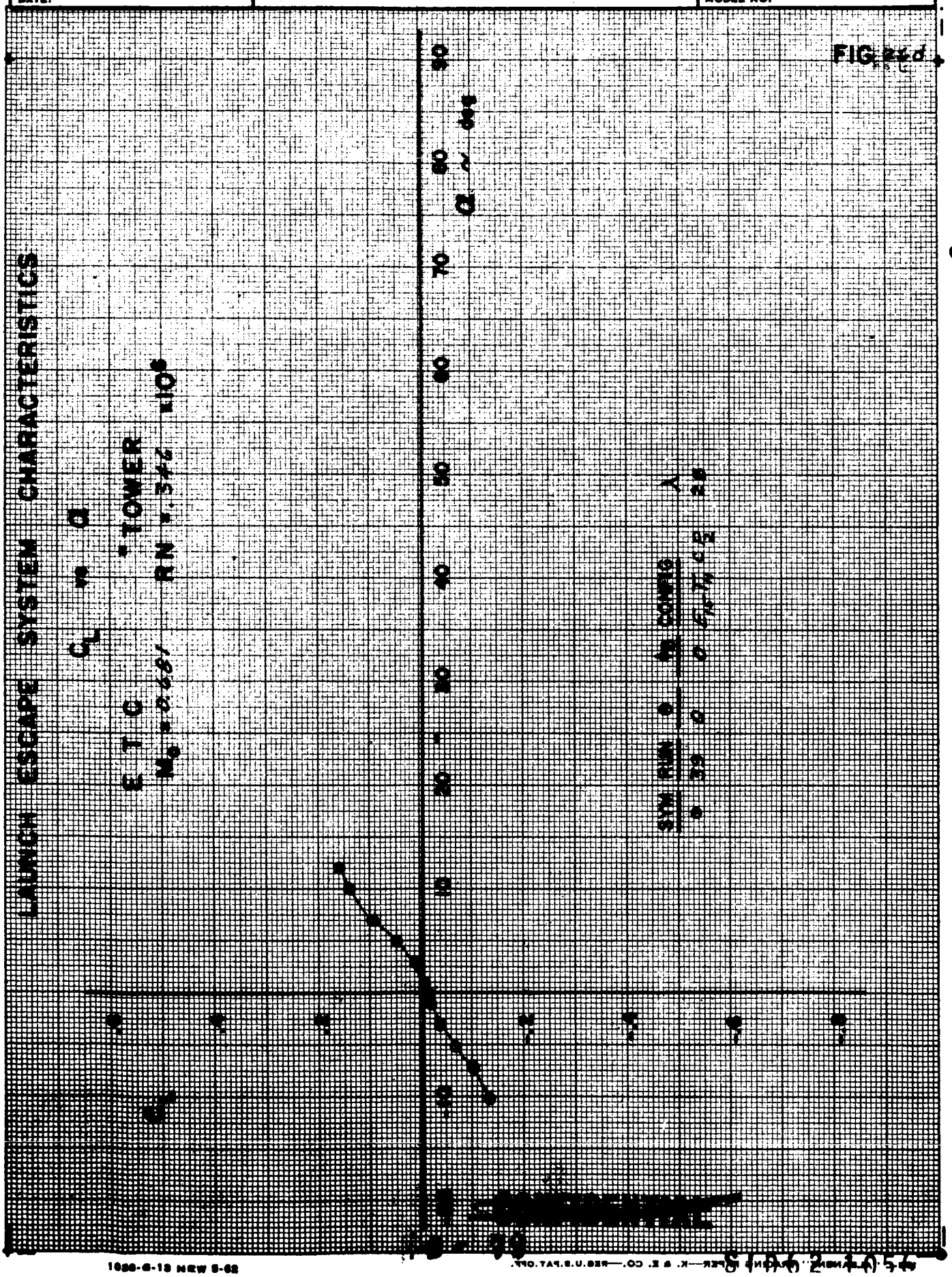
39 $C_A$ vs $\alpha$

[redacted]

37 $C_{m_\alpha}$ vs α

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 26d




39 $C_L$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

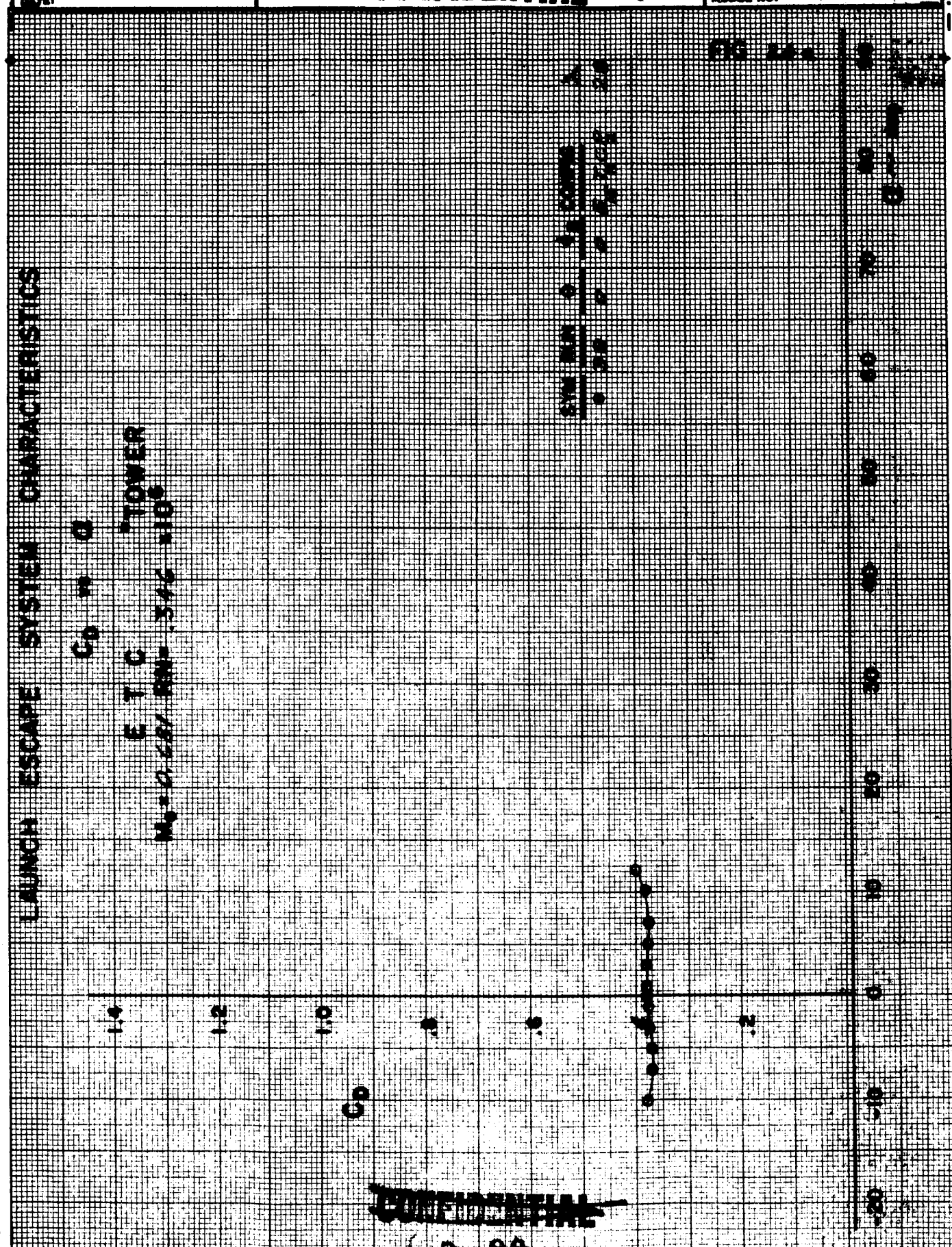



FIG 24a

39 $C_D$ vs $\alpha$

~~CONFIDENTIAL~~



1033-G-14 NEW 5-62

SIR 62-1055

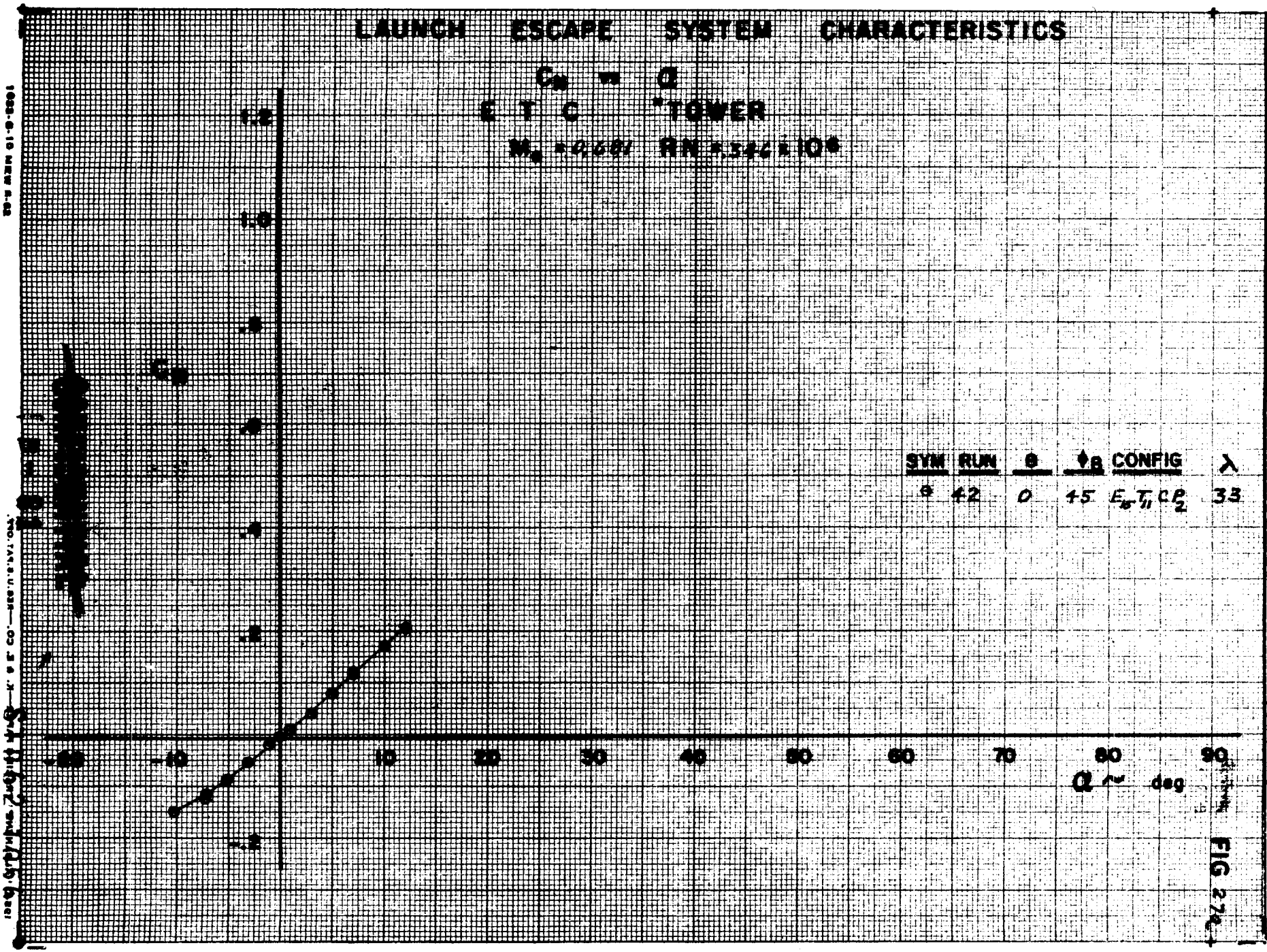



FIG 27c

42 $C_N$ vs $\alpha$

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

PREPARED BY:
CHECKED BY:
DATE:
PAGE NO. OF
REPORT NO.
MODEL NO.

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |

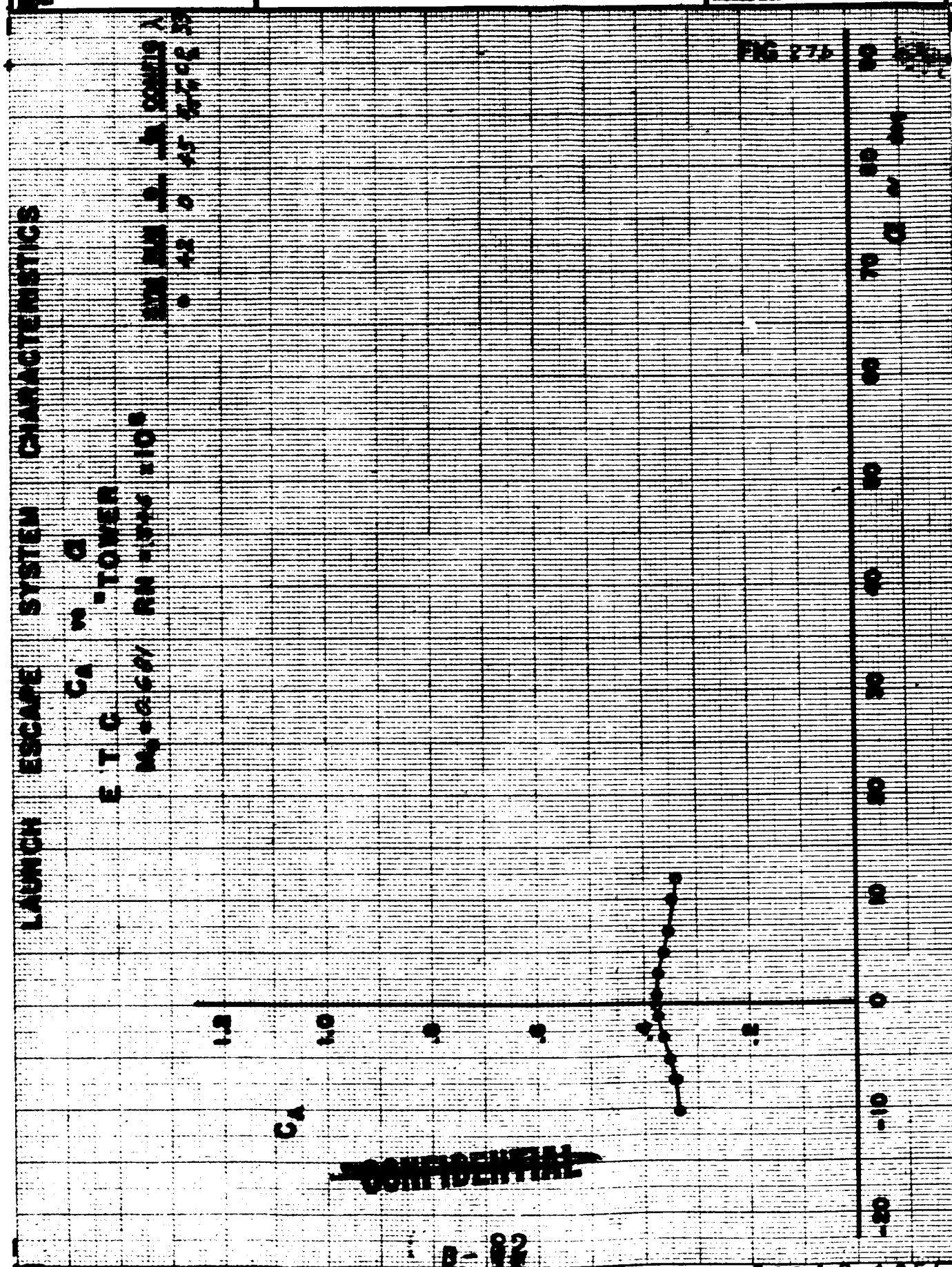



FIG 27b

42 $C_A$ vs $\alpha$

CONFIDENTIAL



1033-G-11 NEW 5-62

S1062-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

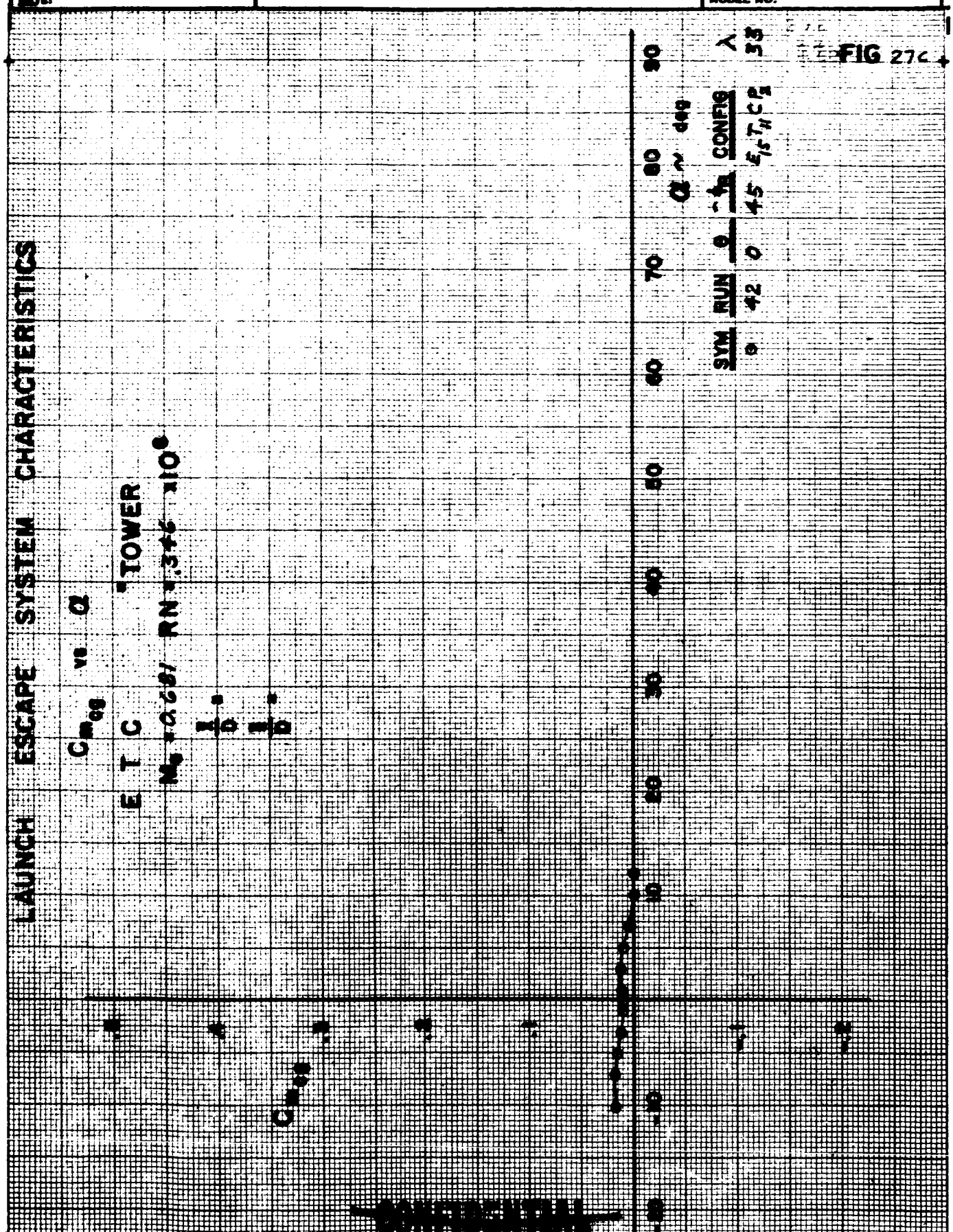



FIG 27c

$C_{m_{cg}}$ vs $\alpha$

42

~~CONFIDENTIAL~~

1033-G-12 NEW 5-62

51062-1056

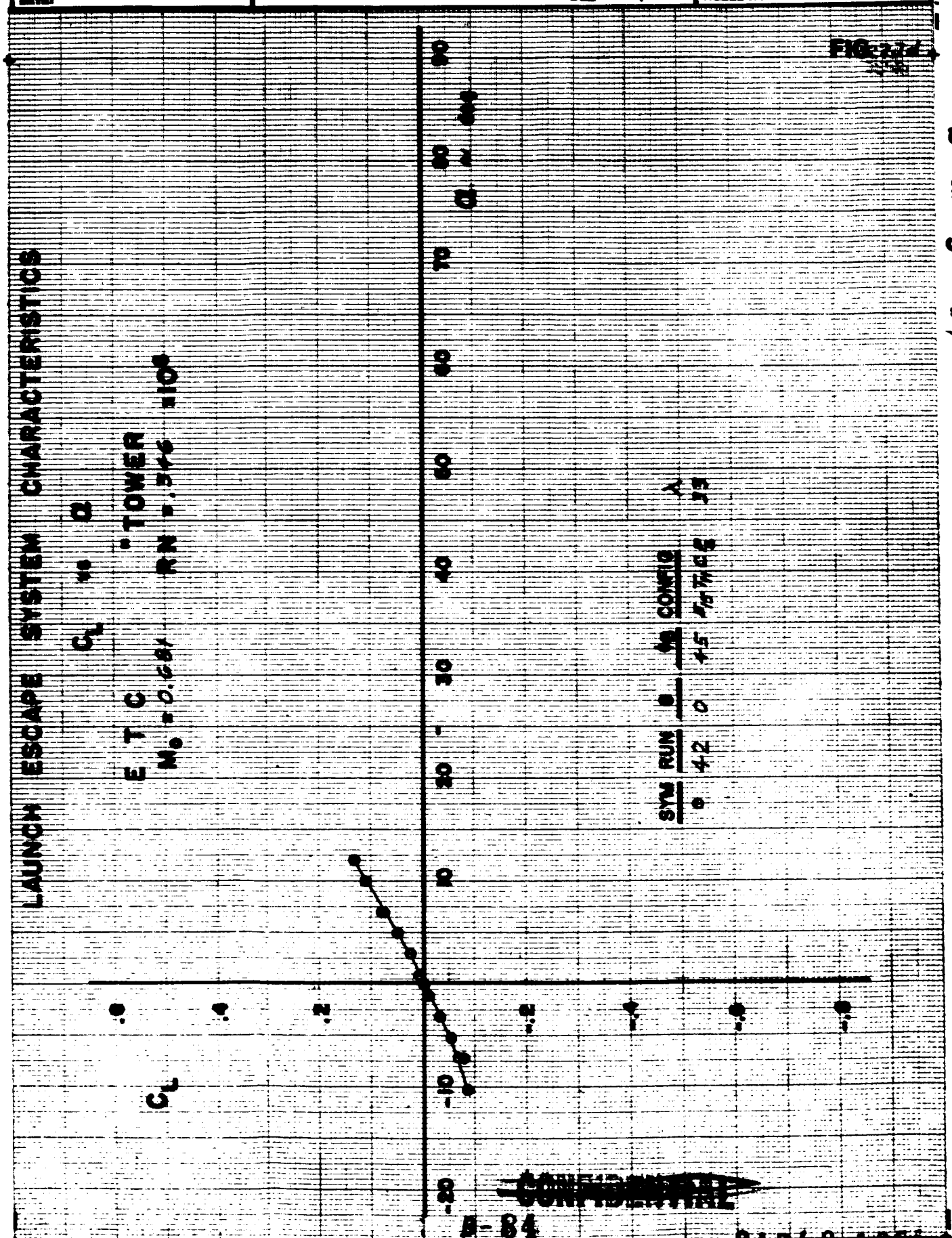
PREPARED BY:
CHECKED BY:
DATE:

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

PAGE NO. OF
REPORT NO.
MODEL NO.

CONFIDENTIAL

FIG. 2.2.4




42 $C_L$ vs $\alpha$

CONFIDENTIAL



S1062-1056

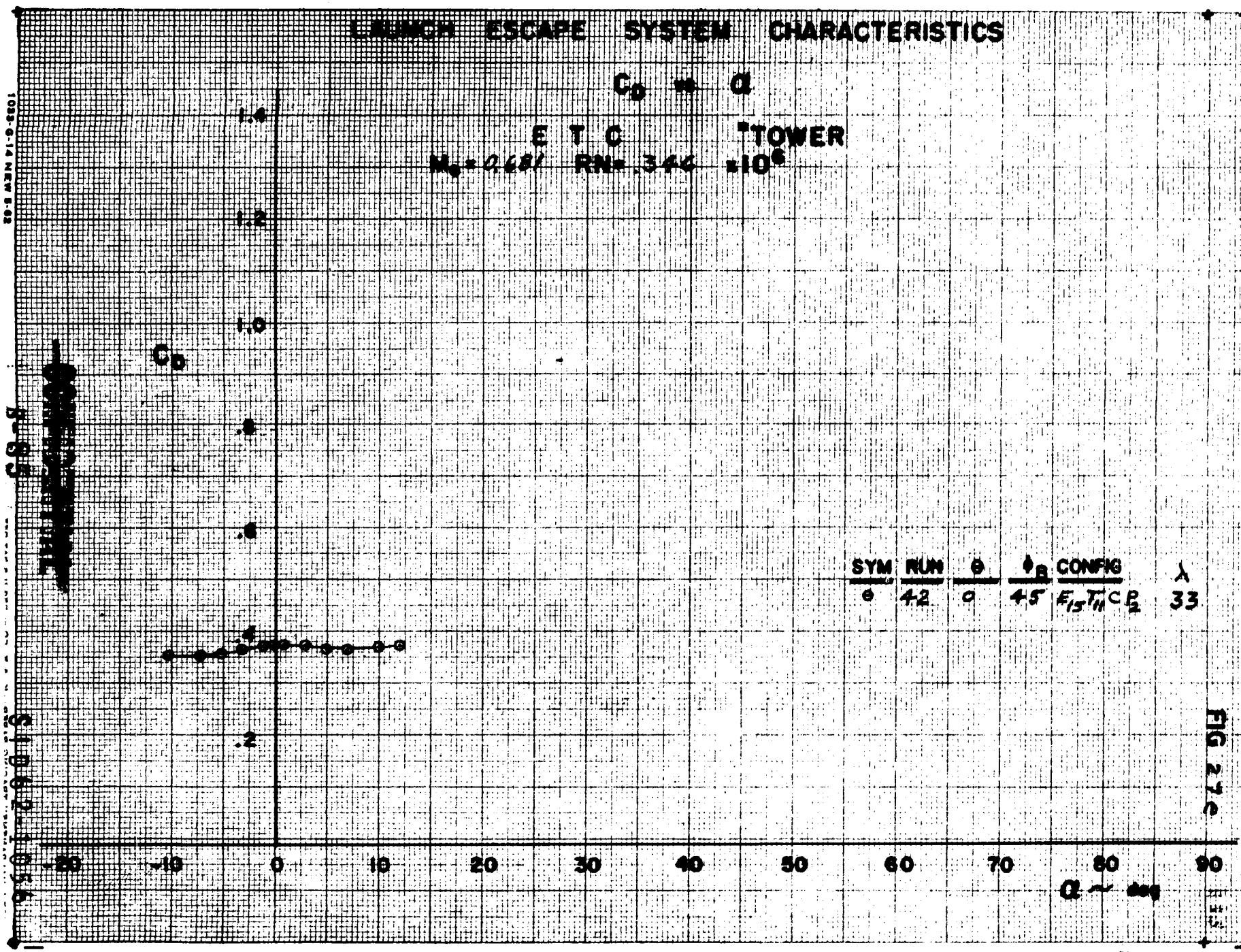



FIG 27e

42 $C_D$ vs $\alpha$

PREPARED BY:
CHECKED BY:
DATE:

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

[redacted]

PAGE NO. OF
REPORT NO.
MODEL NO.

1038-6-14 NEW 8-62

PREPARED BY: SAL

CHECKED BY:

DATE:

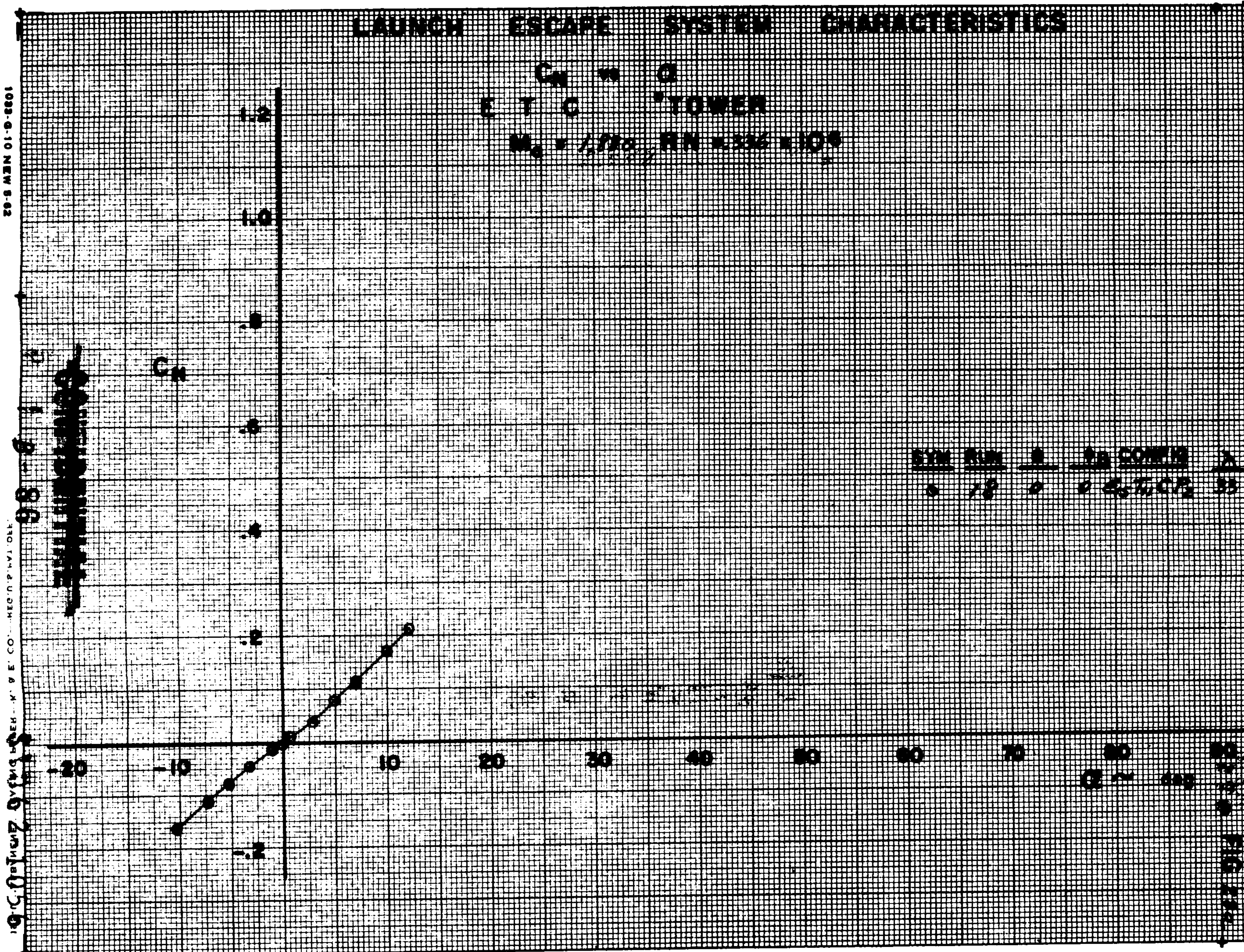
NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

~~CONFIDENTIAL~~

PAGE NO. OF

REPORT NO.

MODEL NO.




/8 CN vs α

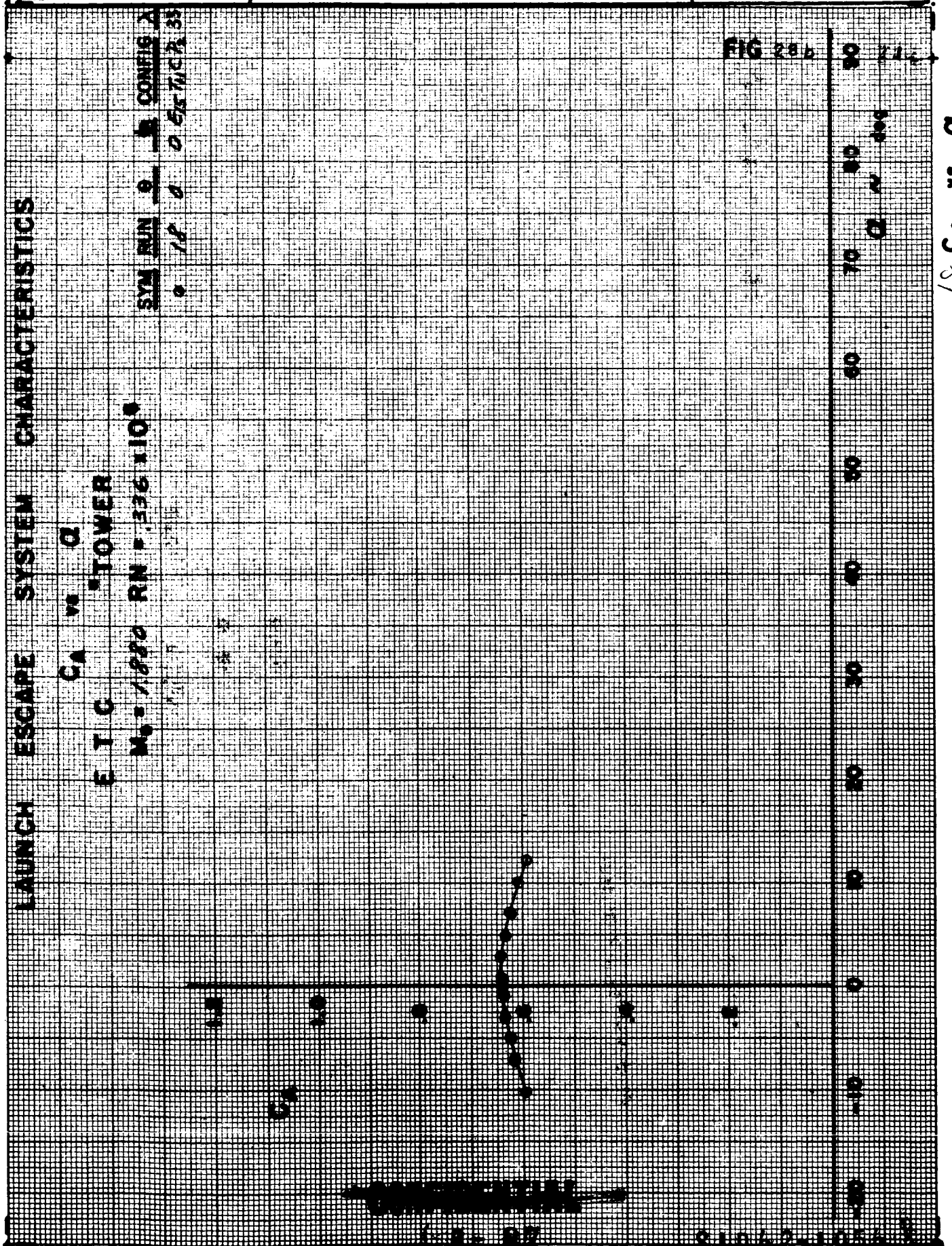
~~CONFIDENTIAL~~

1-8-86

1033-G-10 NEW 5-62

S1-62-1056

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

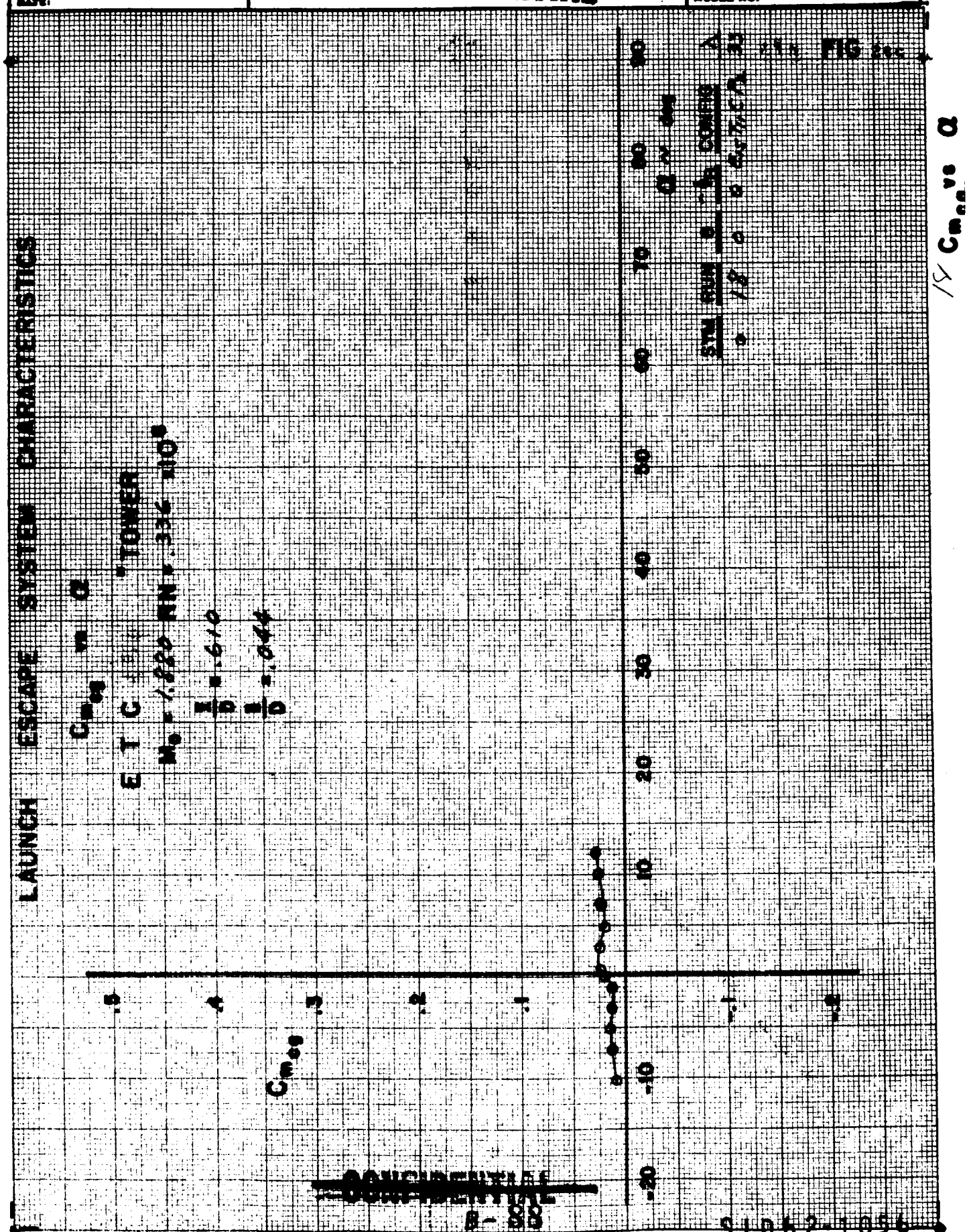



~~CONFIDENTIAL~~



1033-6-11 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~

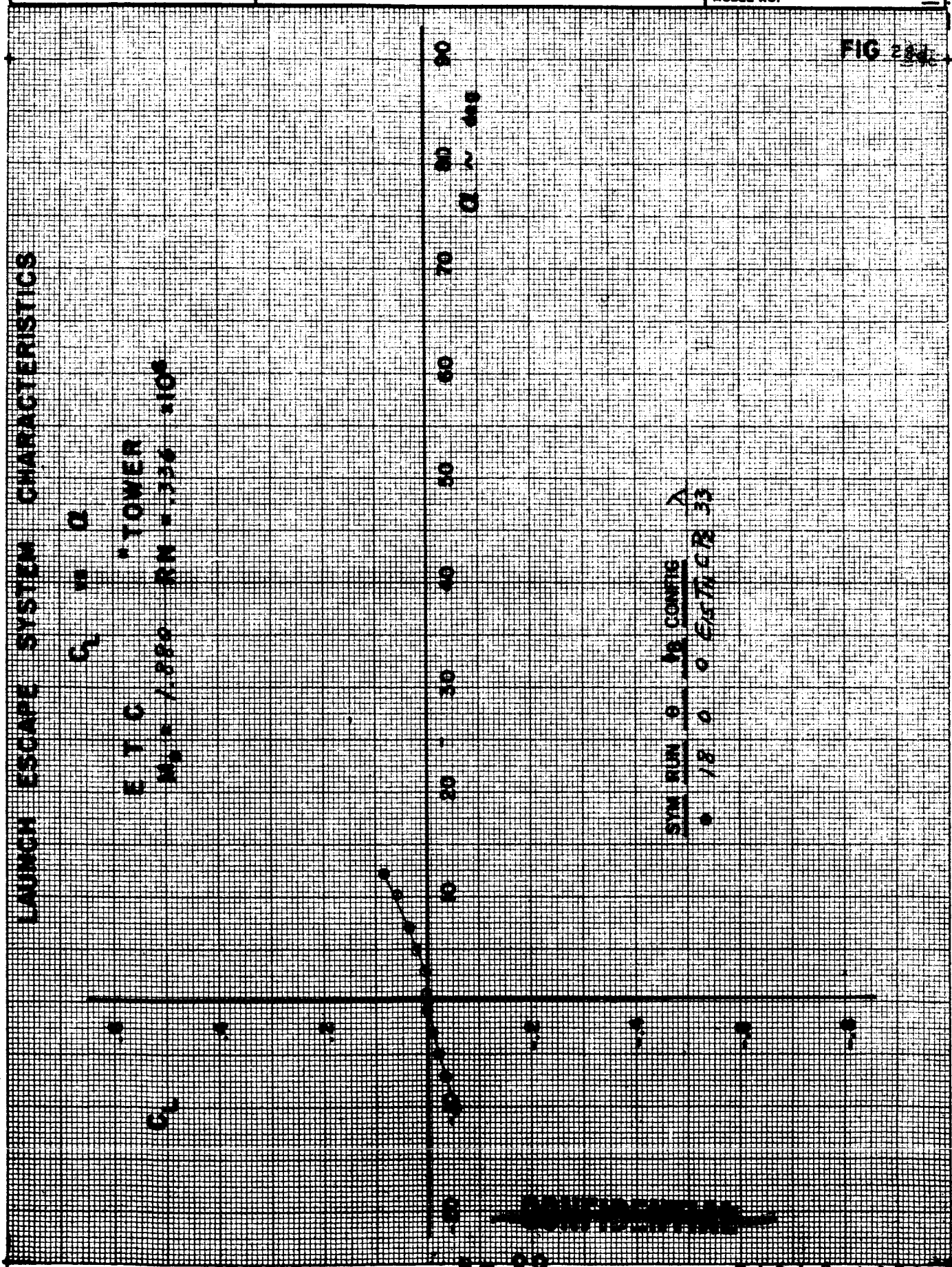




1033-G-12 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 2[illegible]




18 $C_L$ vs $\alpha$

~~CONFIDENTIAL~~



1022-G-13 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

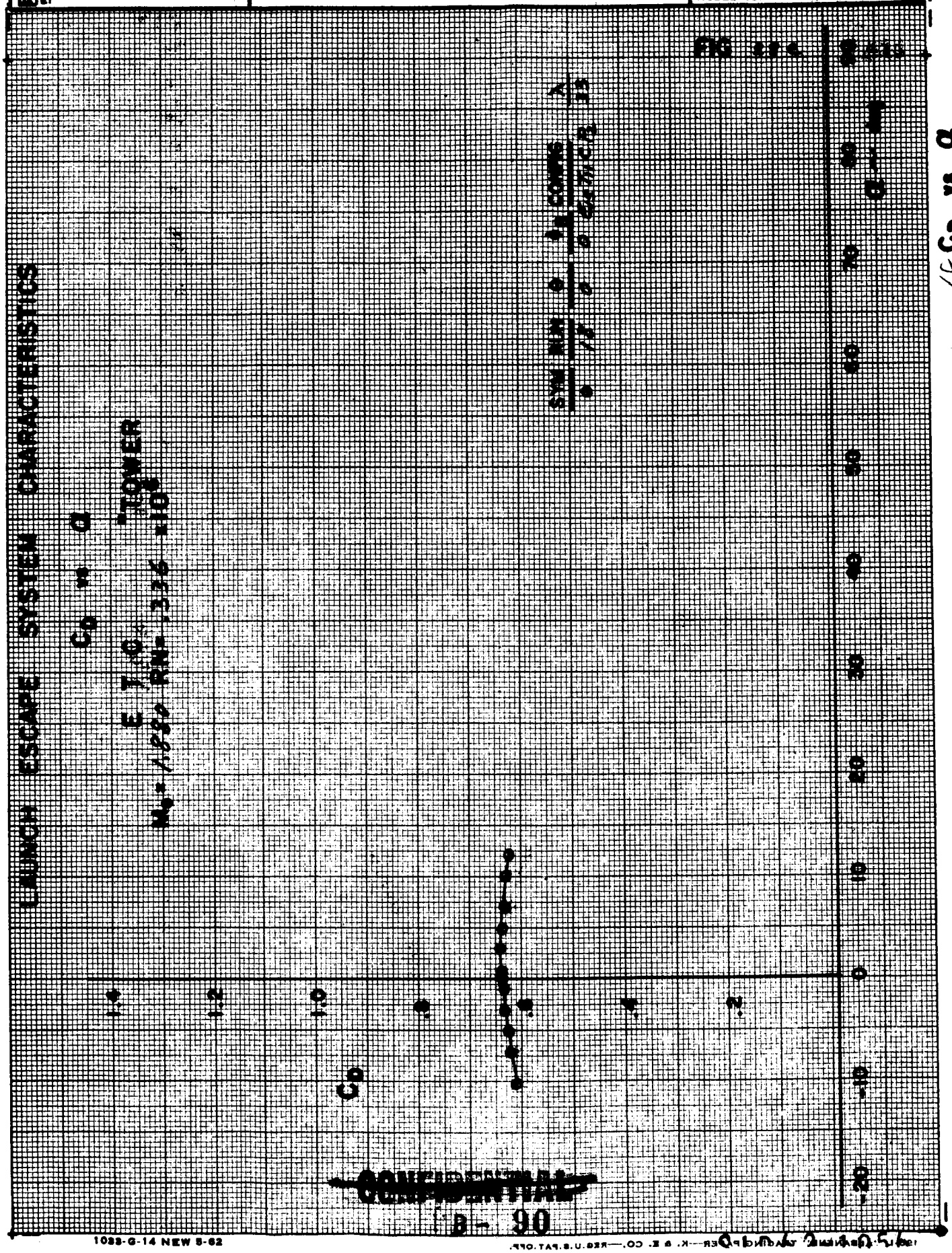



FIG 2.2.4

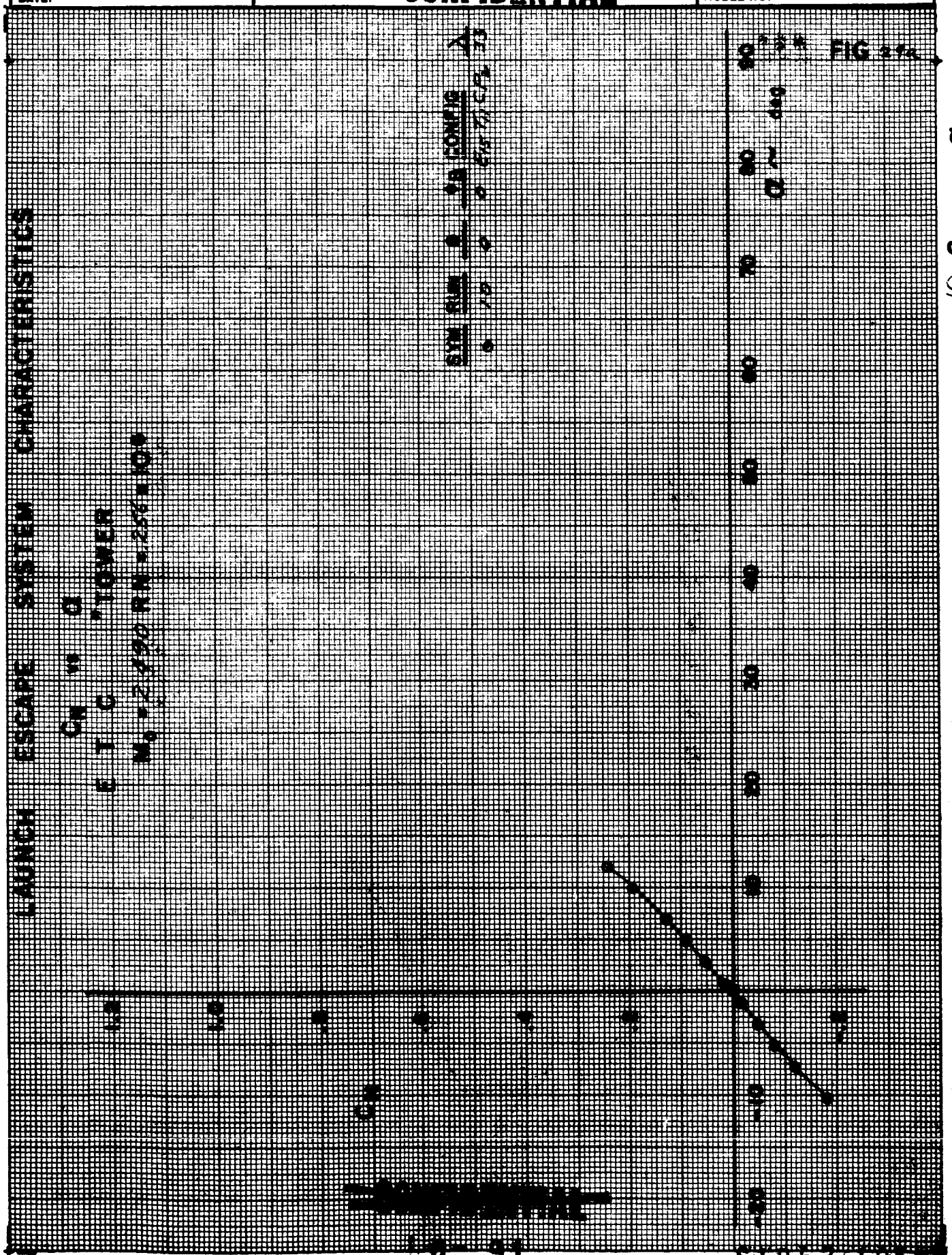
$C_D$ vs $\alpha$

~~CONFIDENTIAL~~



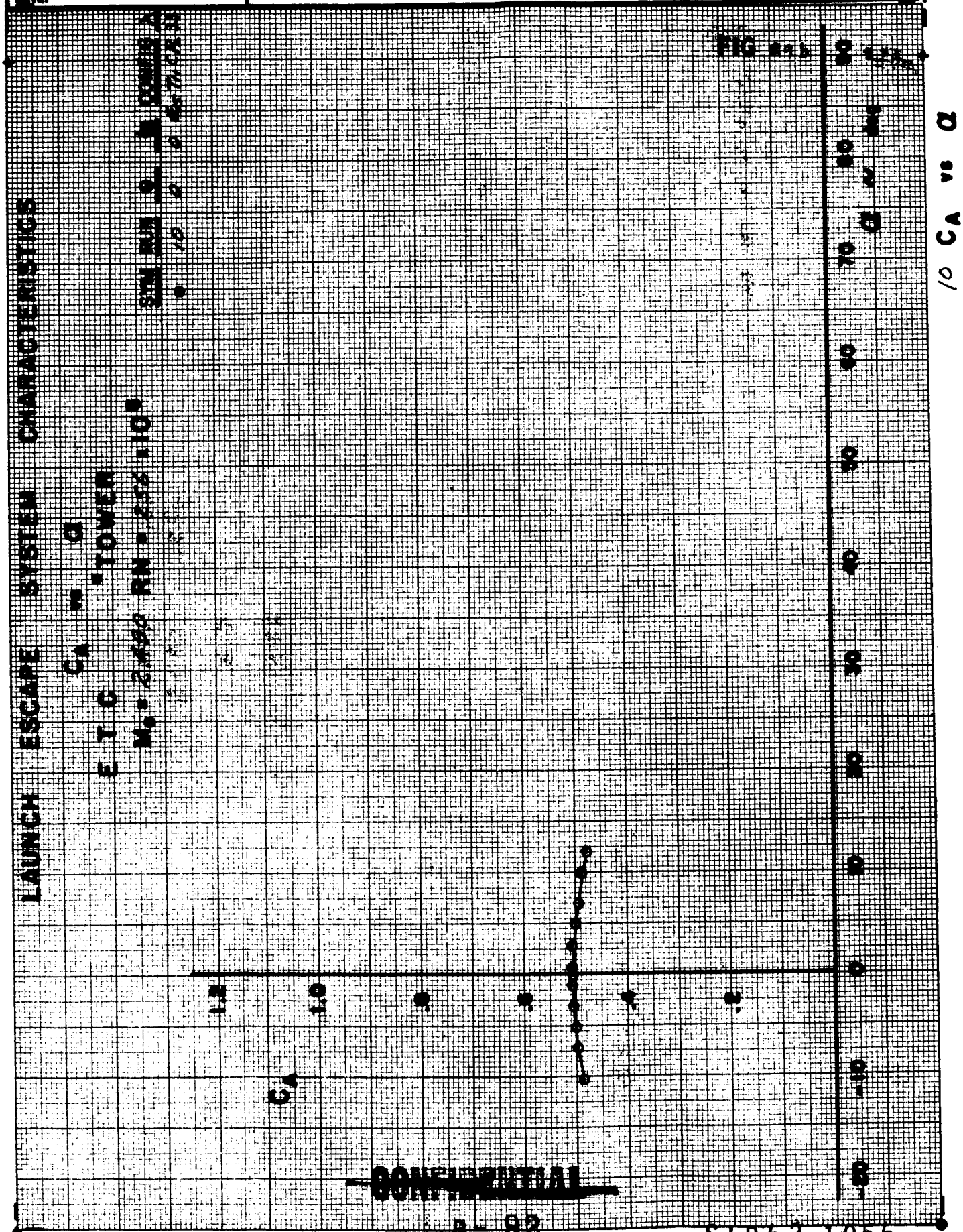
1033-G-14 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~





1033-G-11 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

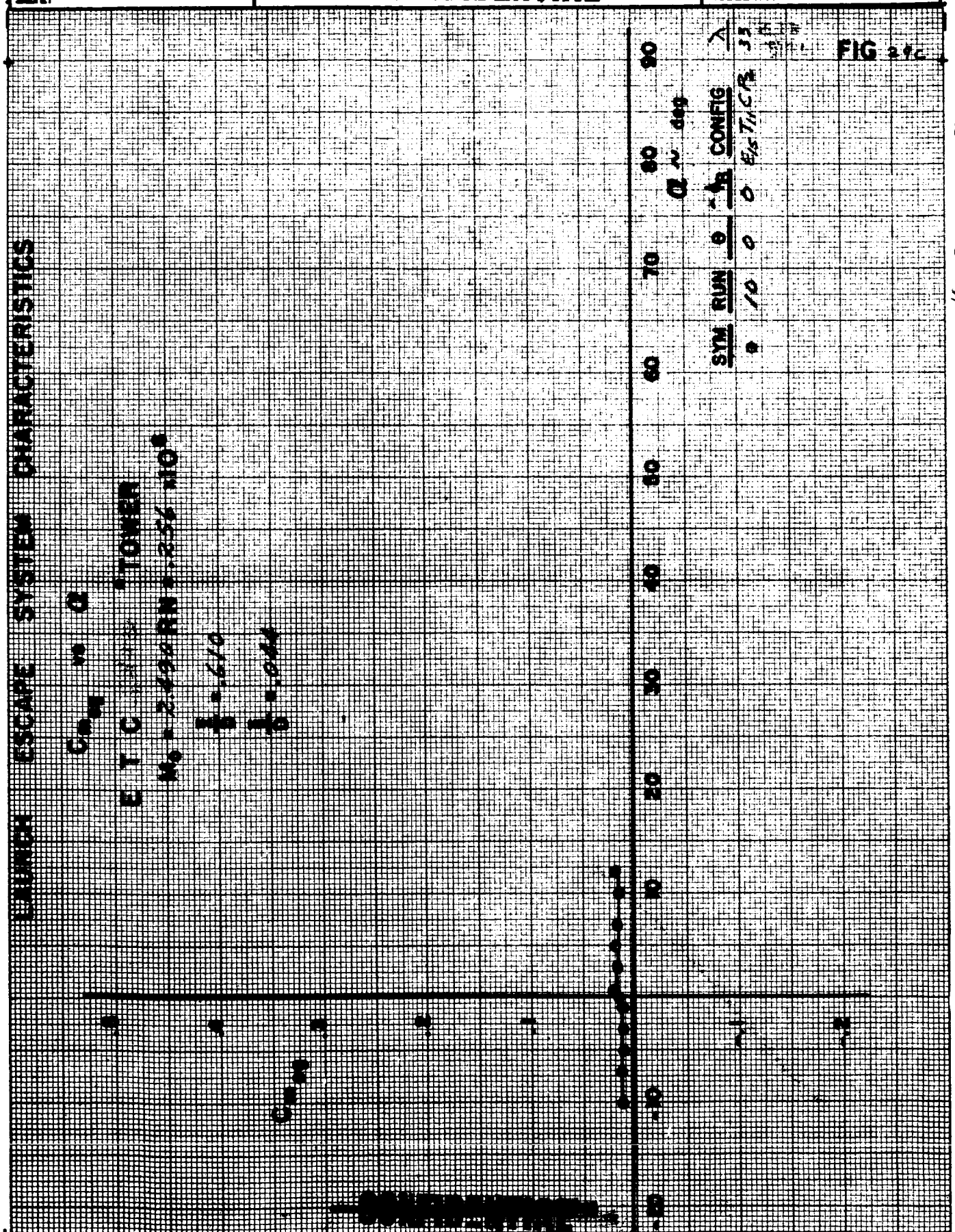
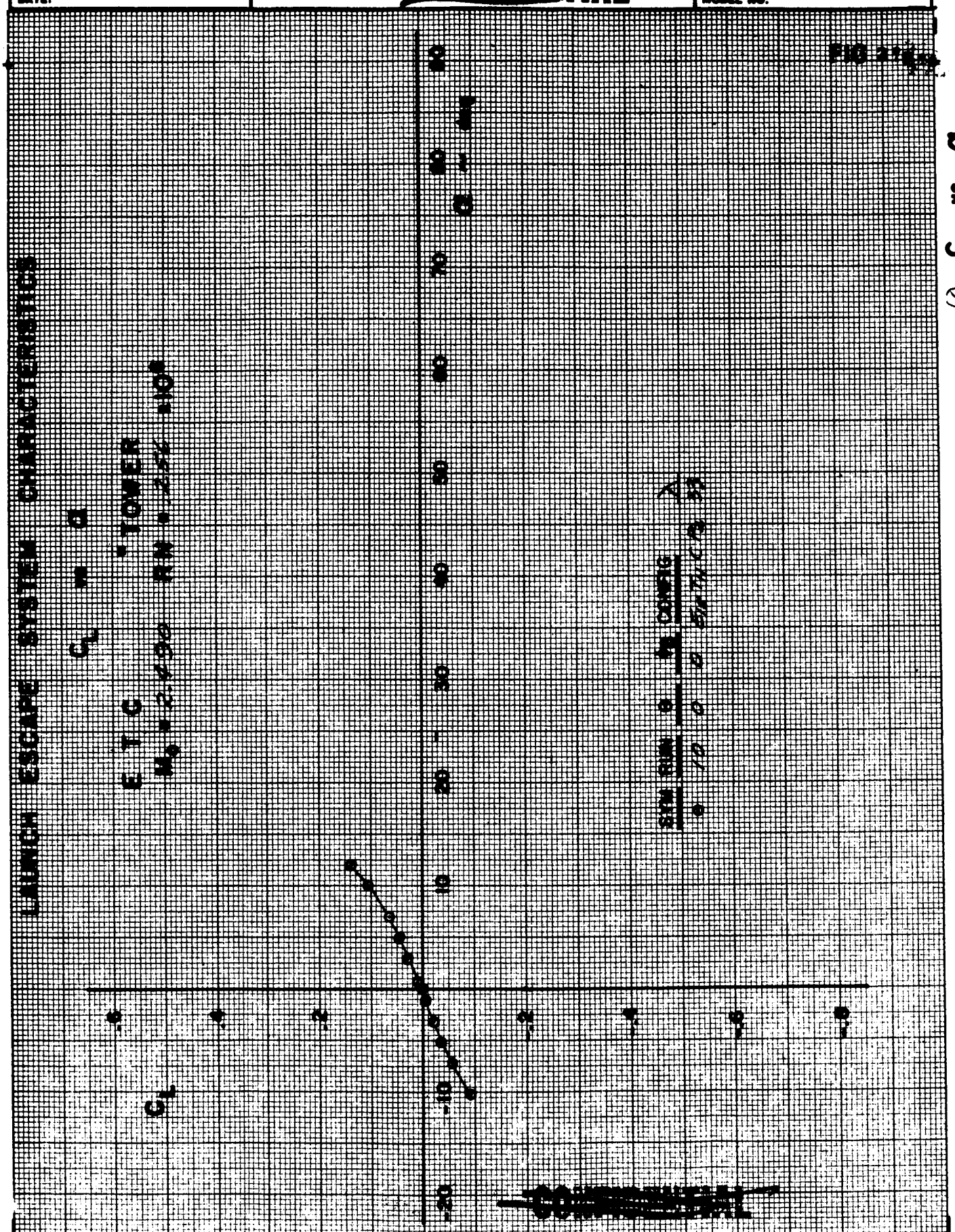


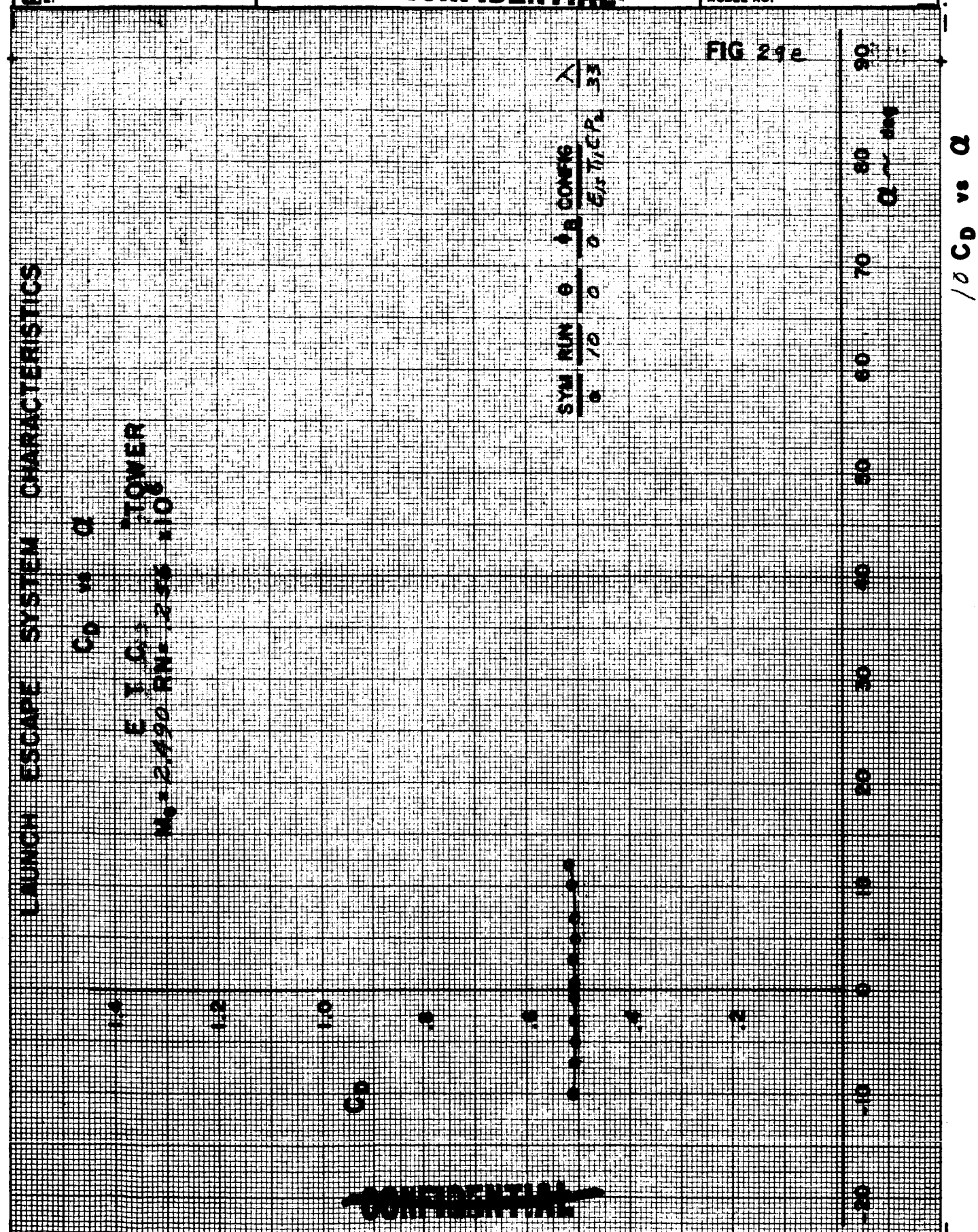

FIG 29c

~~CONFIDENTIAL~~

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |



| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |




FIG 30a

35 $C_N$ vs $\alpha$

[redacted]



1033-G-10 NEW 8-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

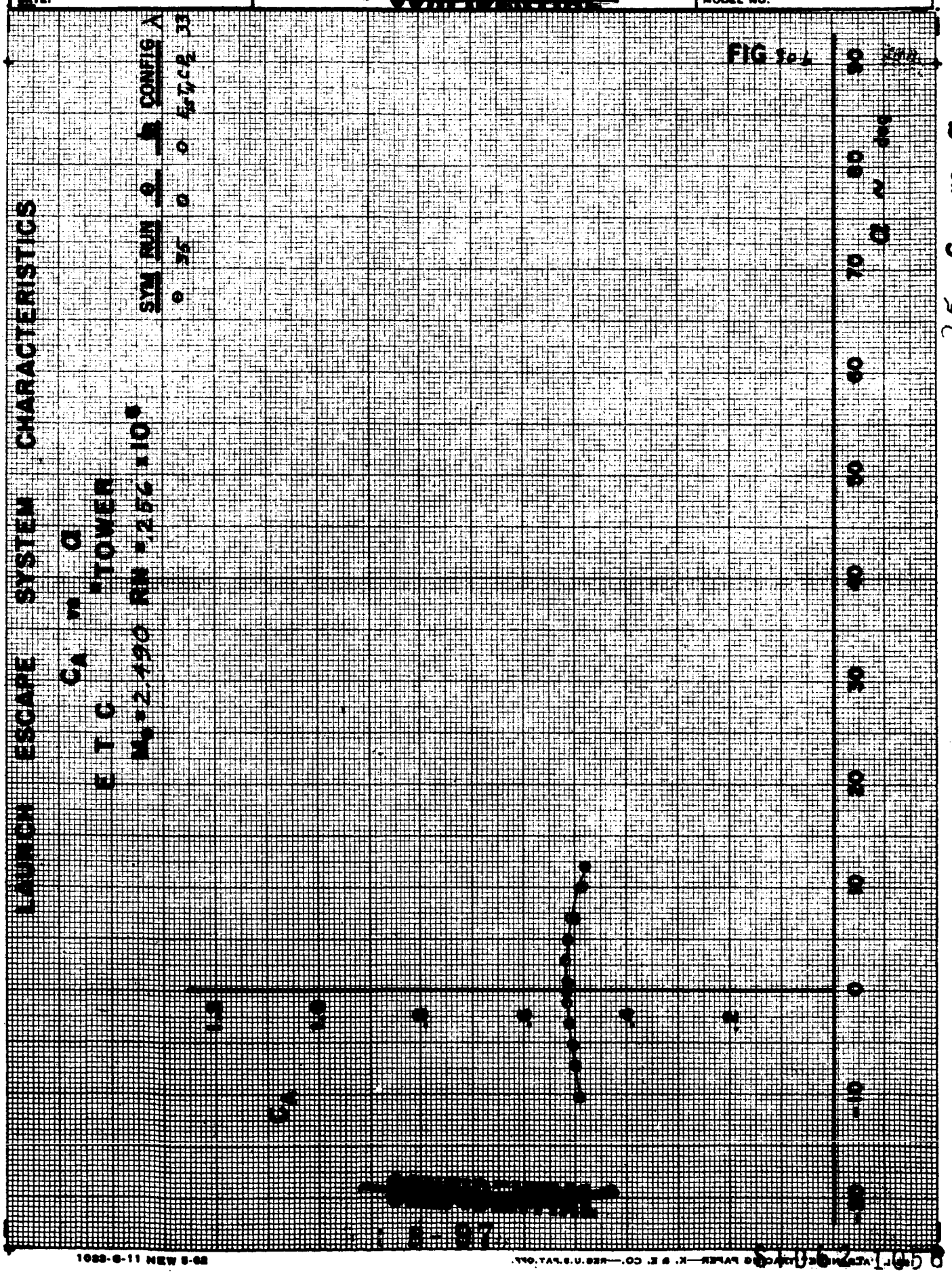



FIG 30b

35 $C_A$ vs $\alpha$

[redacted]

1 8-97

1033-6-11 NEW 5-62

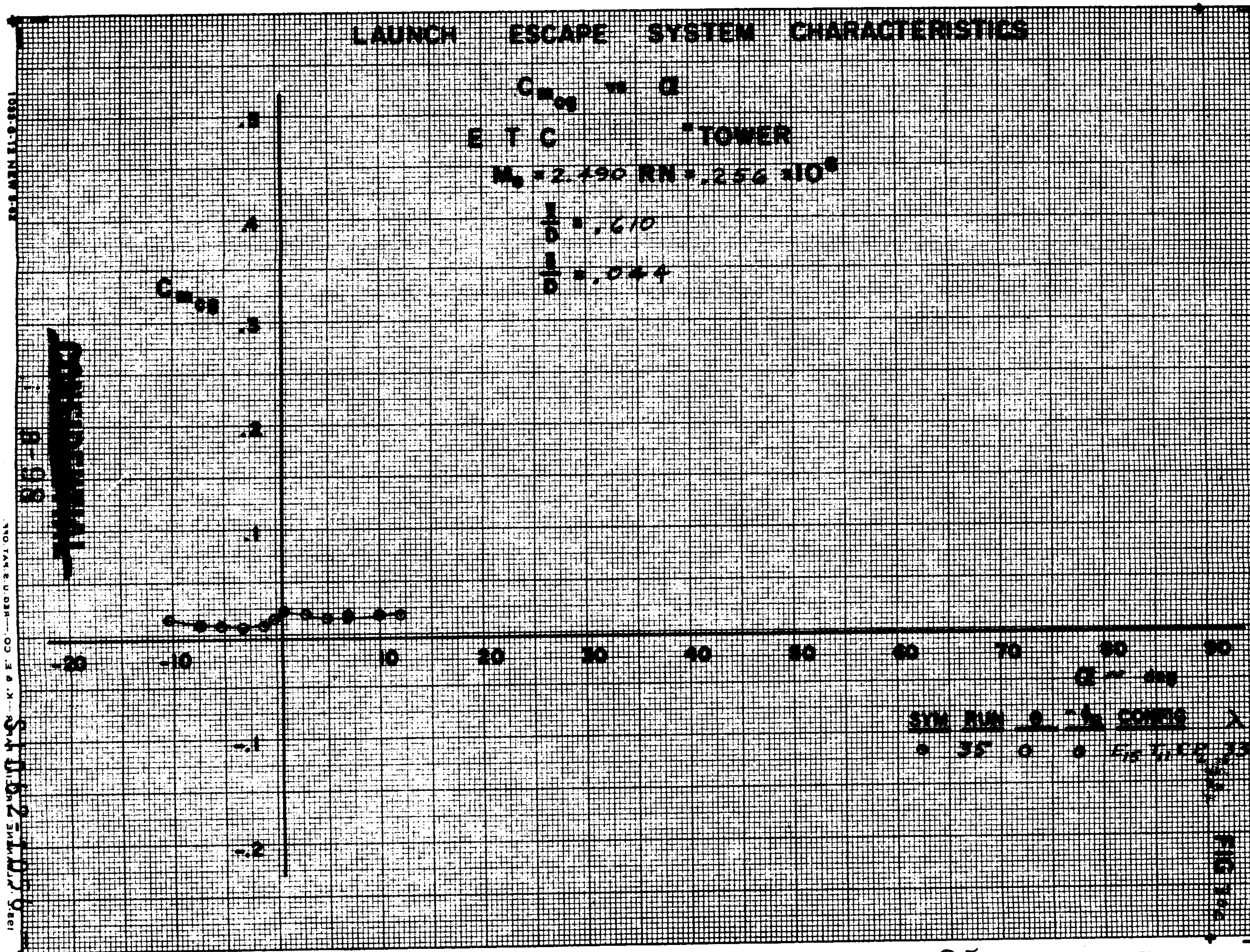
S1062-1056

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

PREPARED BY:
CHECKED BY:
DATE:

PAGE NO. OF
REPORT NO.
MODEL NO.

CONFIDENTIAL




35 $C_m$ vs $\alpha$

CONFIDENTIAL

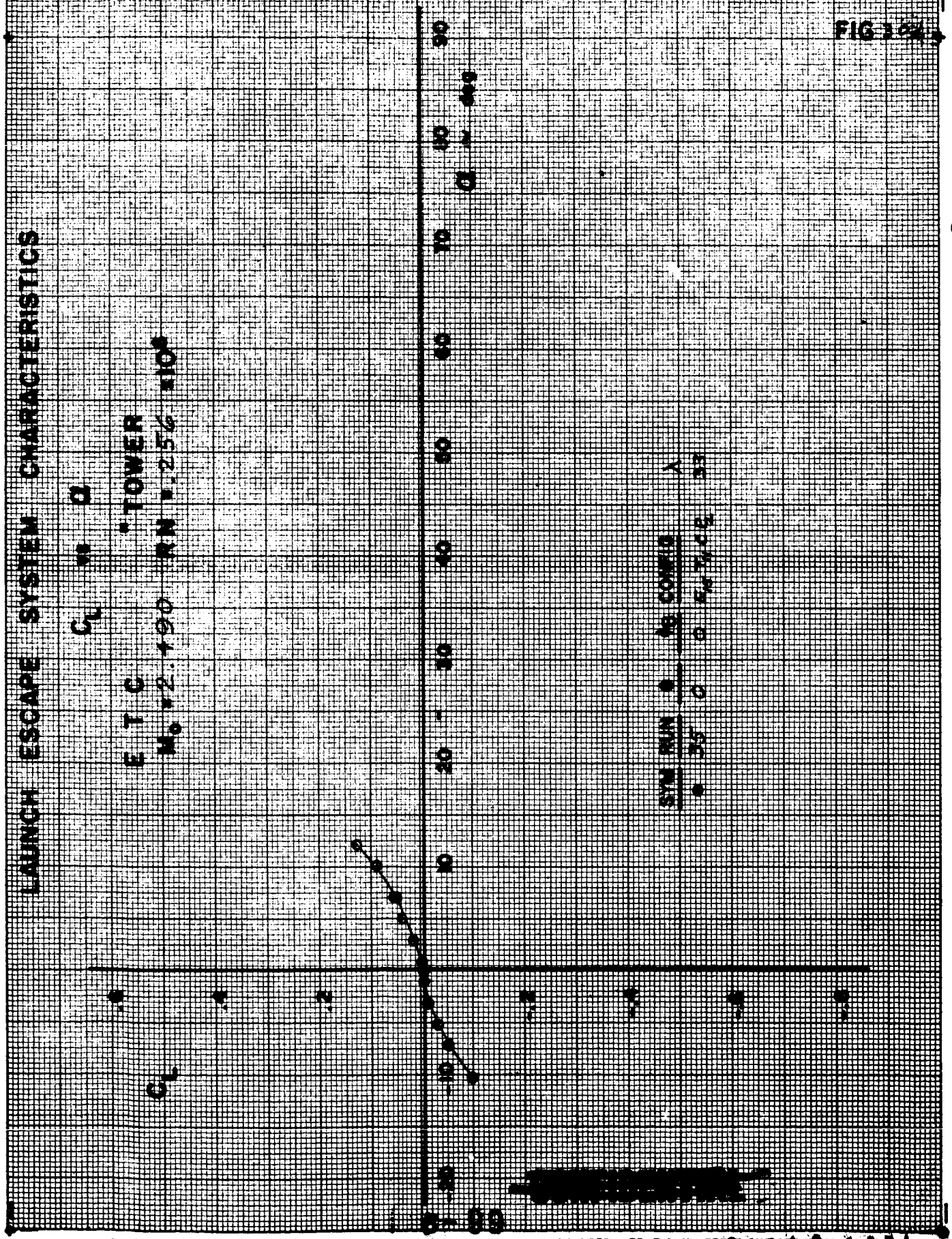


SID62-1056

1033-G-12 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

FIG 3[illegible]




35 $C_L$ vs $\alpha$

[redacted]



K. & E. CO.—REG. U.S. PAT. OFF.

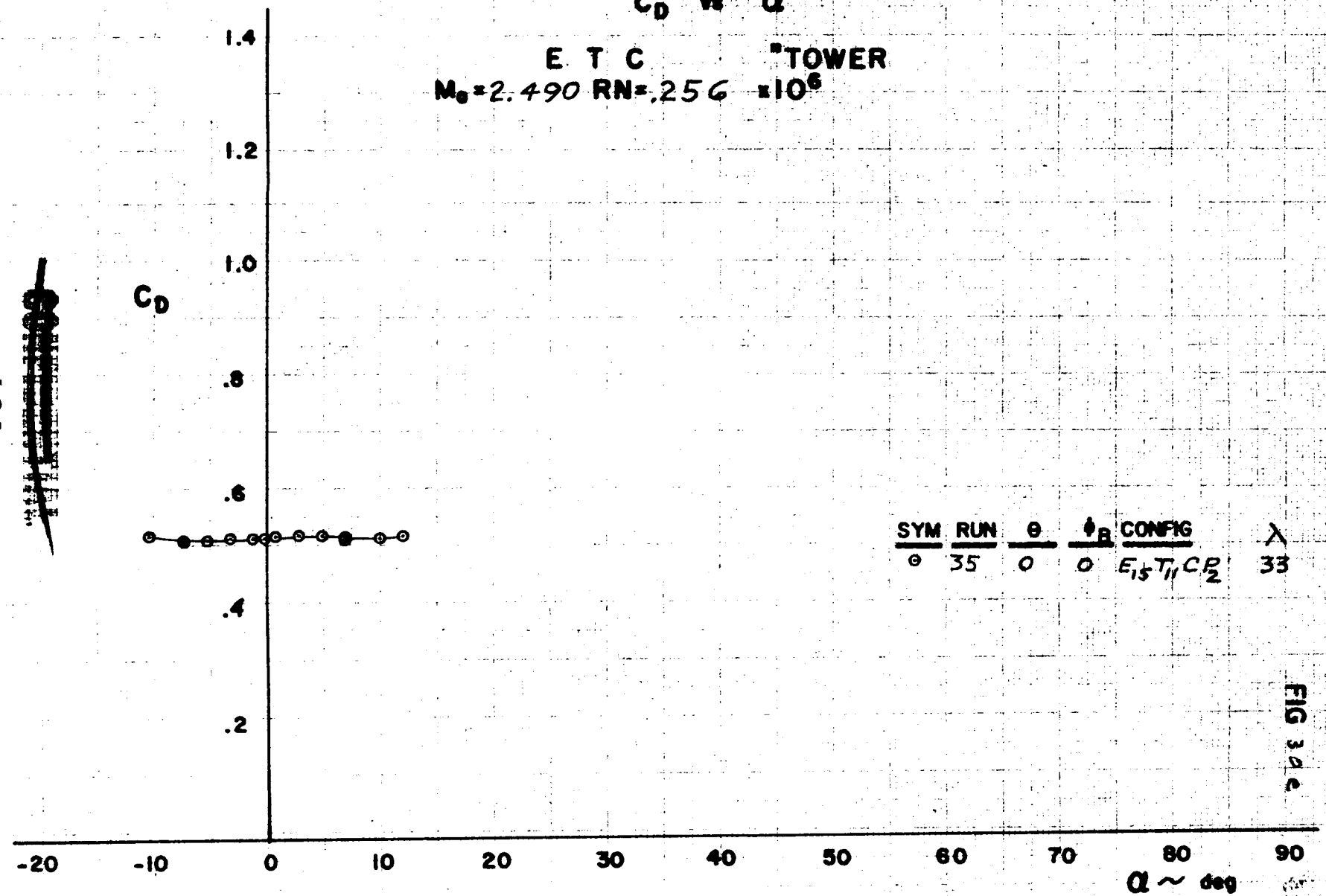
S1D62-1056

# LAUNCH ESCAPE SYSTEM CHARACTERISTICS

$C_D$ vs $\alpha$

E T C "TOWER

$M_\infty = 2.490$ RN = .256 $\times 10^6$




| SYM | RUN | θ | $\phi_B$ | CONFIG | λ |
|---|---|---|---|---|---|
| ⊙ | 35 | 0 | 0 | $E_{15} T_{11} C P_2$ | 33 |

FIG 3 a c

35 $C_D$ vs $\alpha$

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

PREPARED BY:
CHECKED BY:
DATE:
MODEL NO.
REPORT NO.
PAGE NO.
OF

1033-G-14 NEW 5-62

B 100

S10062-1056

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

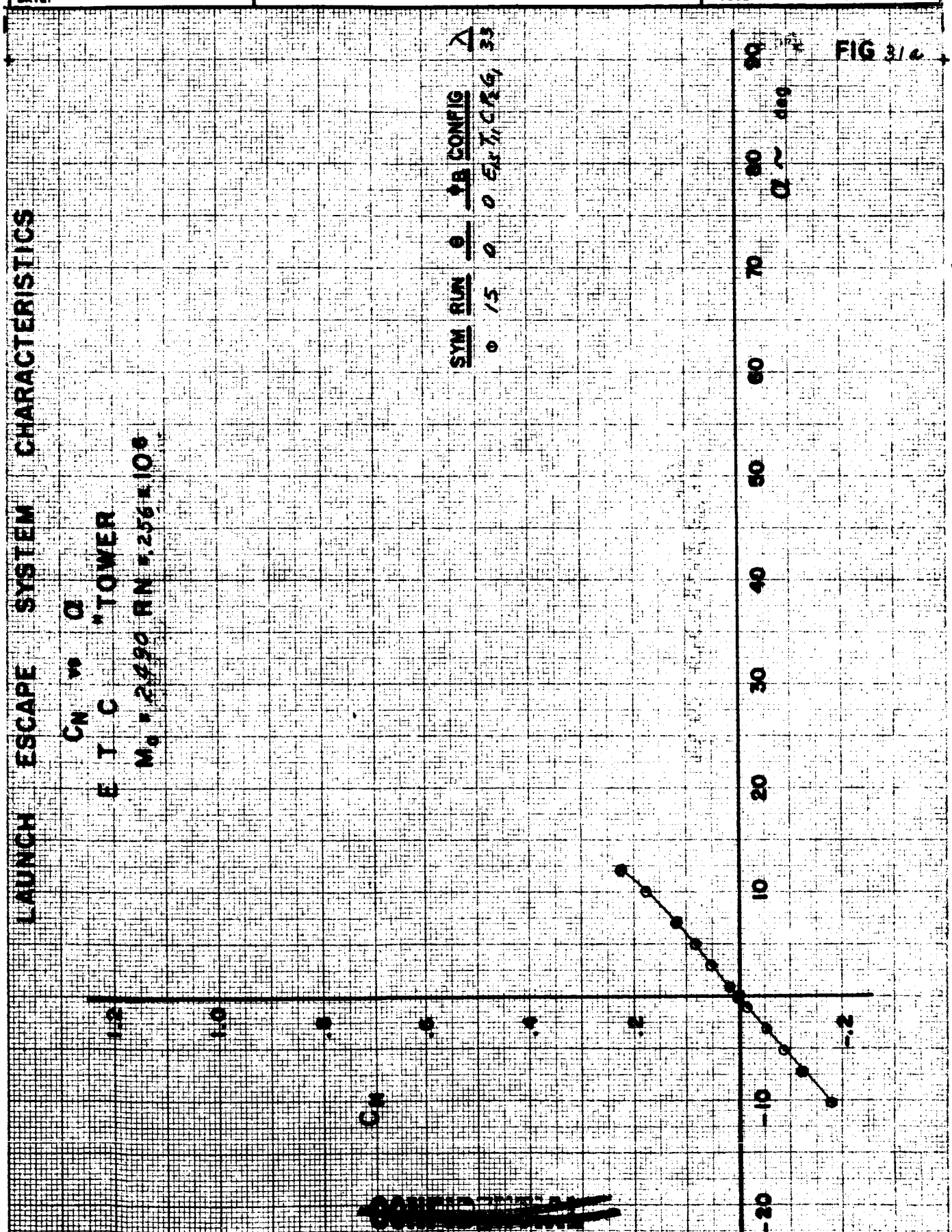



FIG 31a

15 $C_N$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

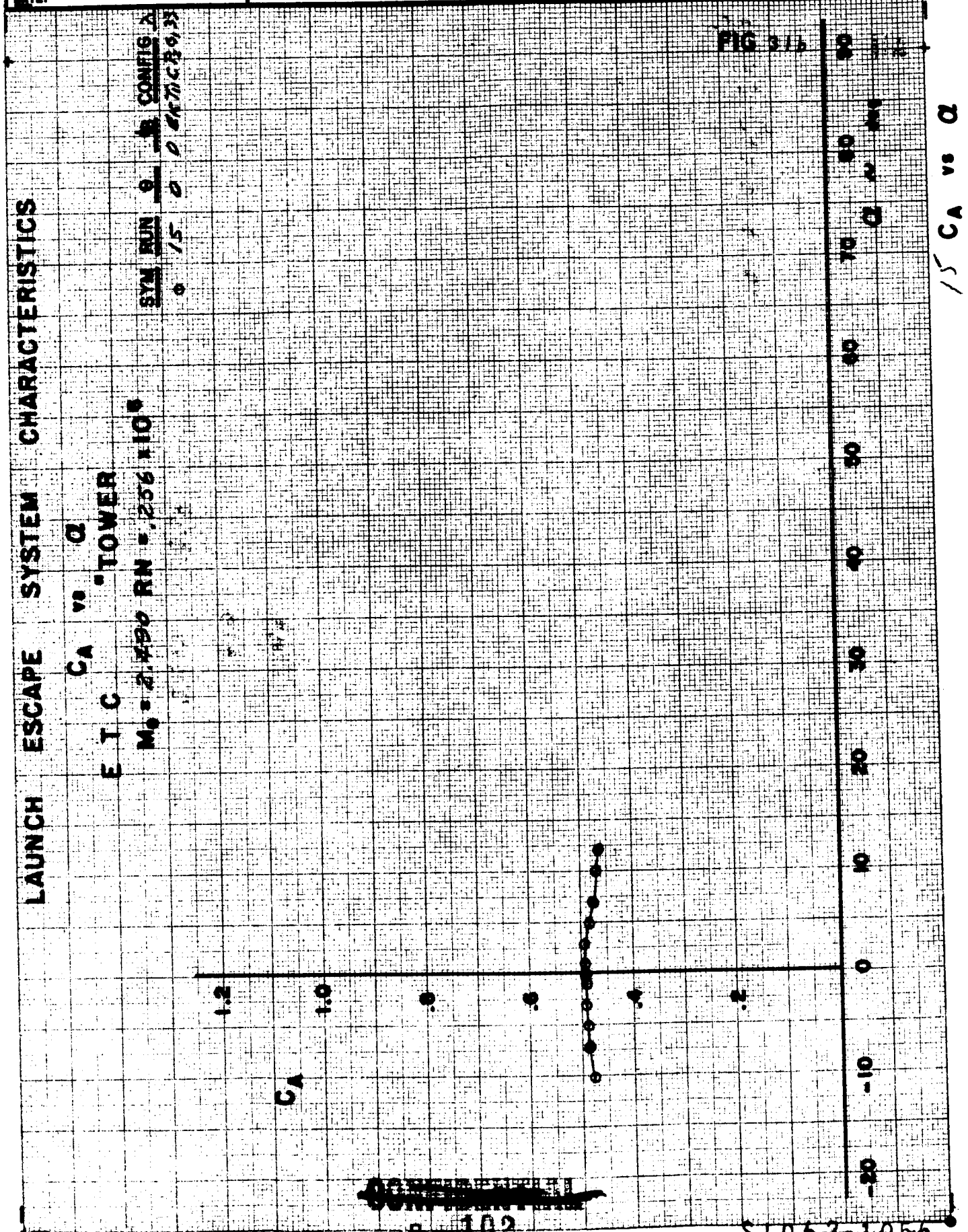



FIG 31b

15 $C_A$ vs $\alpha$

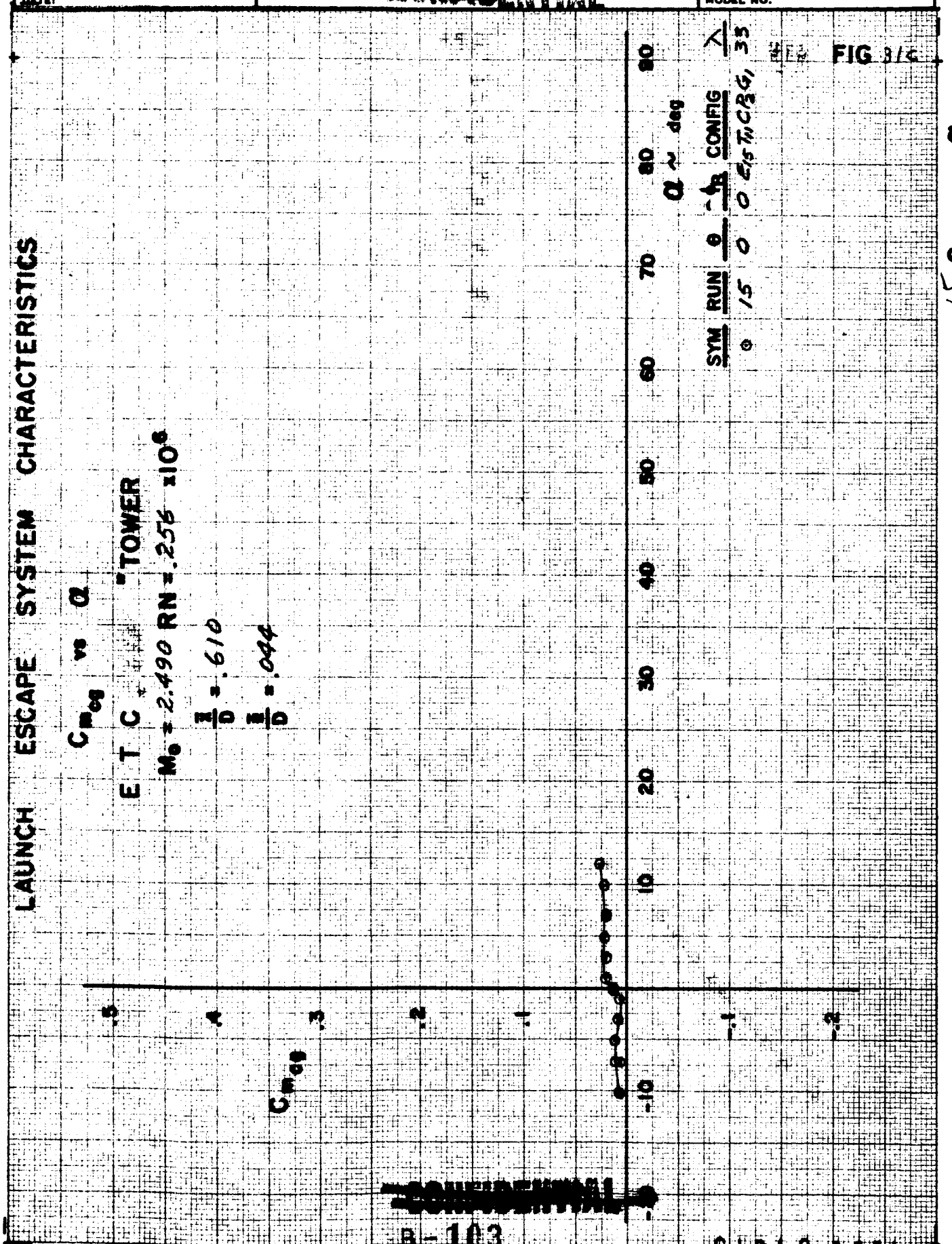
~~CONFIDENTIAL~~



S1062-1056

1033-G-11 NEW 5-62

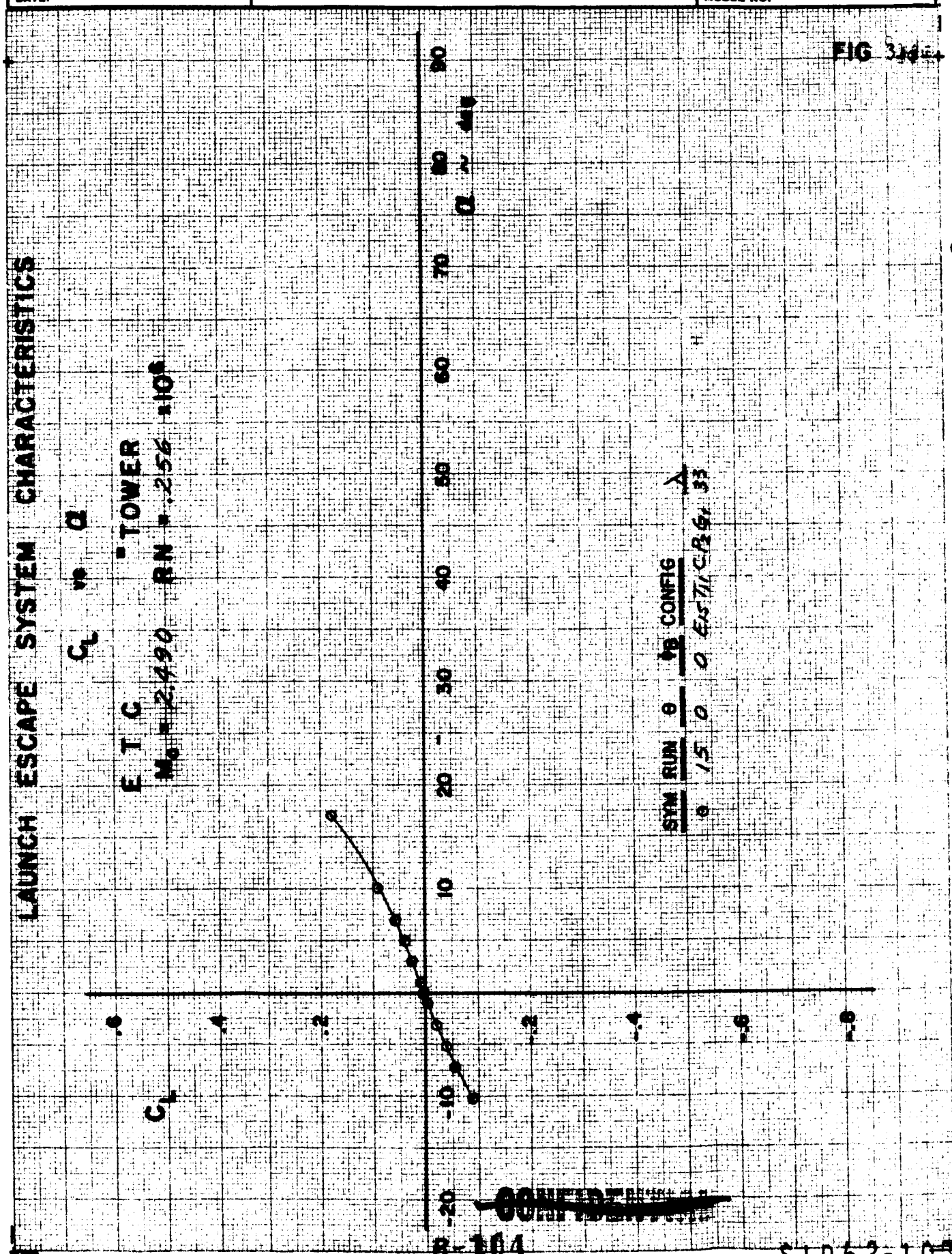
| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |




[redacted]

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 3[illegible]




15 $C_L$ vs $\alpha$

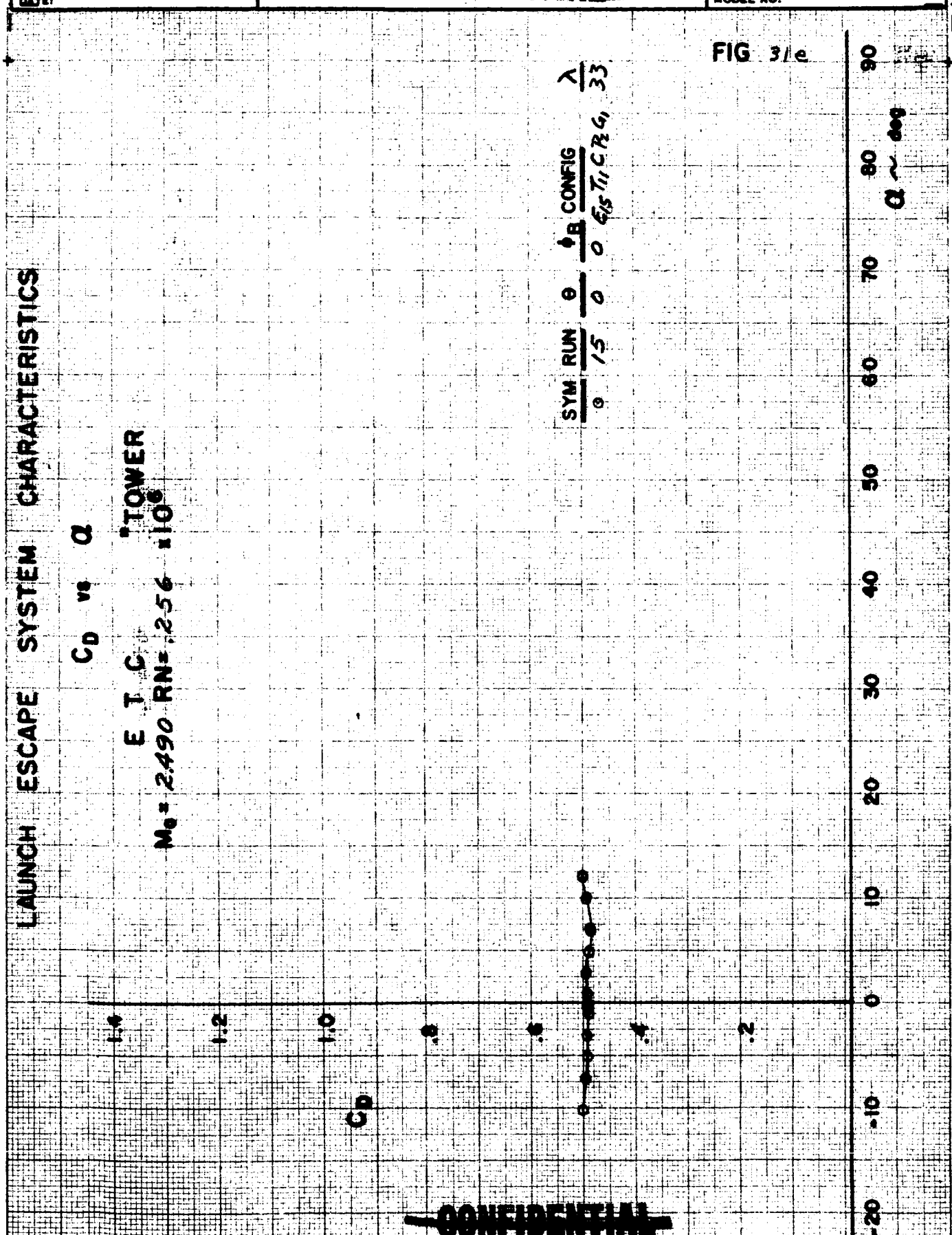
~~CONFIDENTIAL~~



SID62-1056

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

FIG 31e




[redacted]



1033-G-14 NEW 5-62

SID62-1056

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

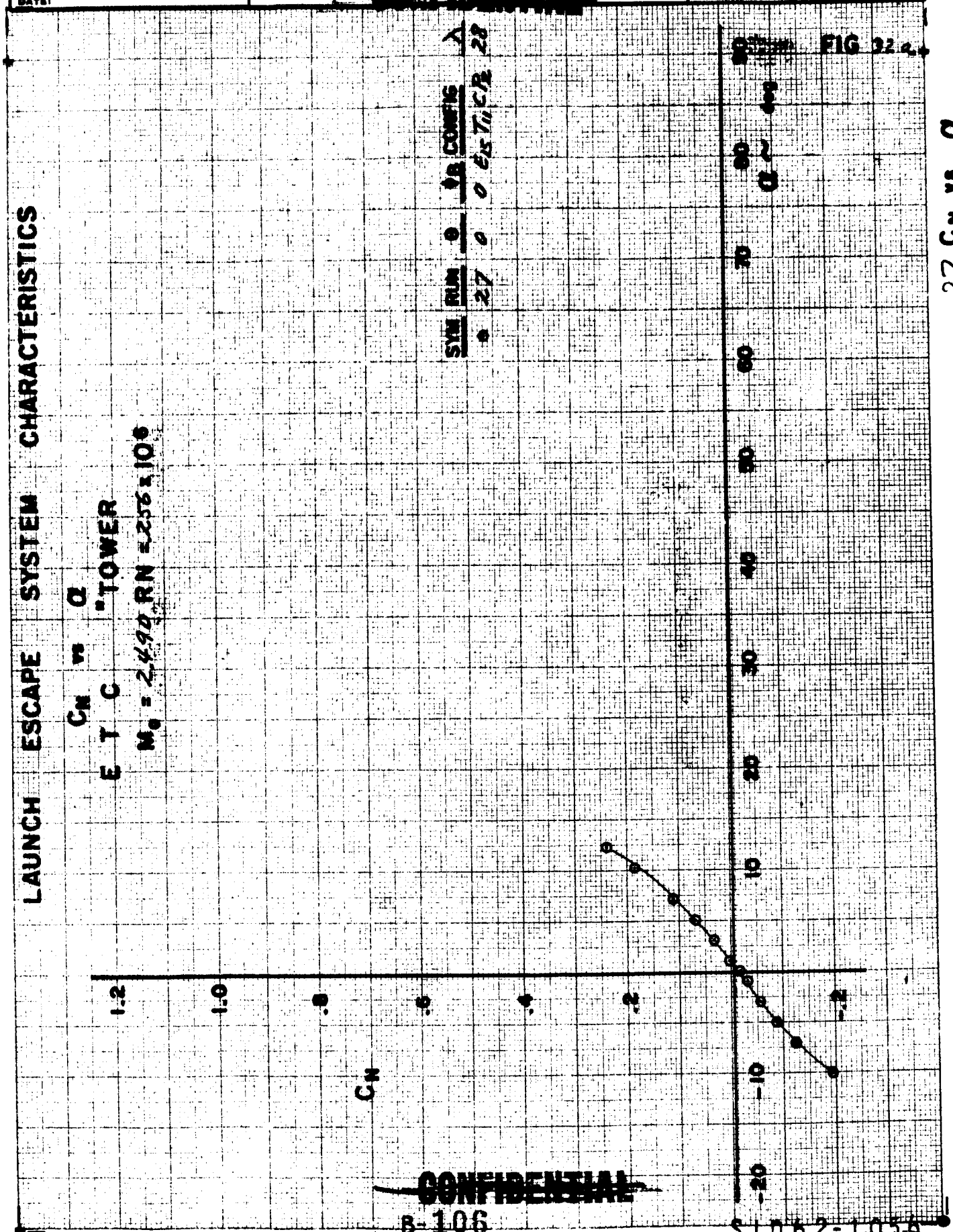



FIG 32a

27 $C_N$ vs $\alpha$

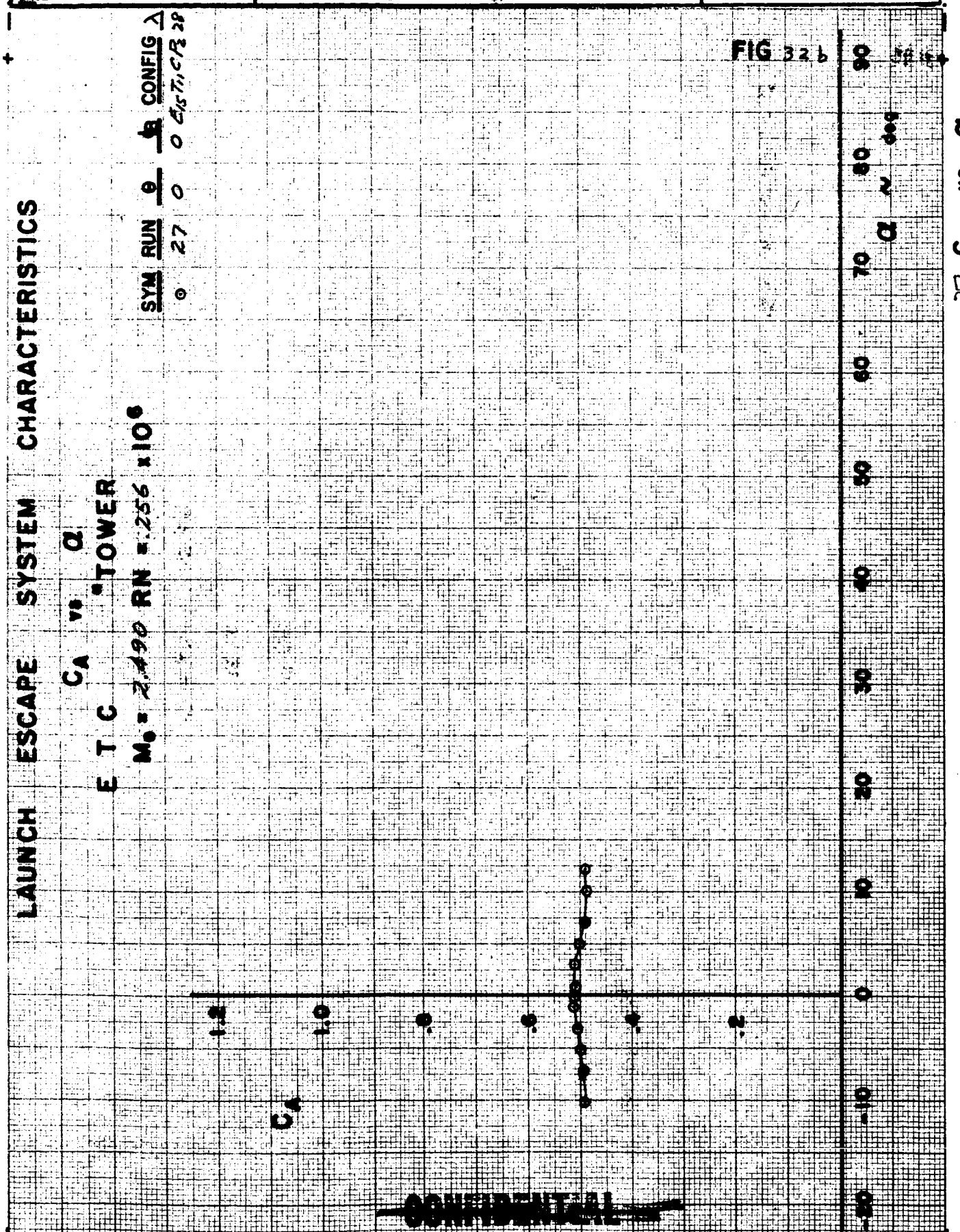
~~CONFIDENTIAL~~



1033-G-10 NEW 5-62

S1062-1056

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~



S1062-1056

1033-G-11 NEW 5-62

PREPARED BY: SAL

CHECKED BY:

DATE:

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

~~CONFIDENTIAL~~

PAGE NO. OF

REPORT NO.

MODEL NO.

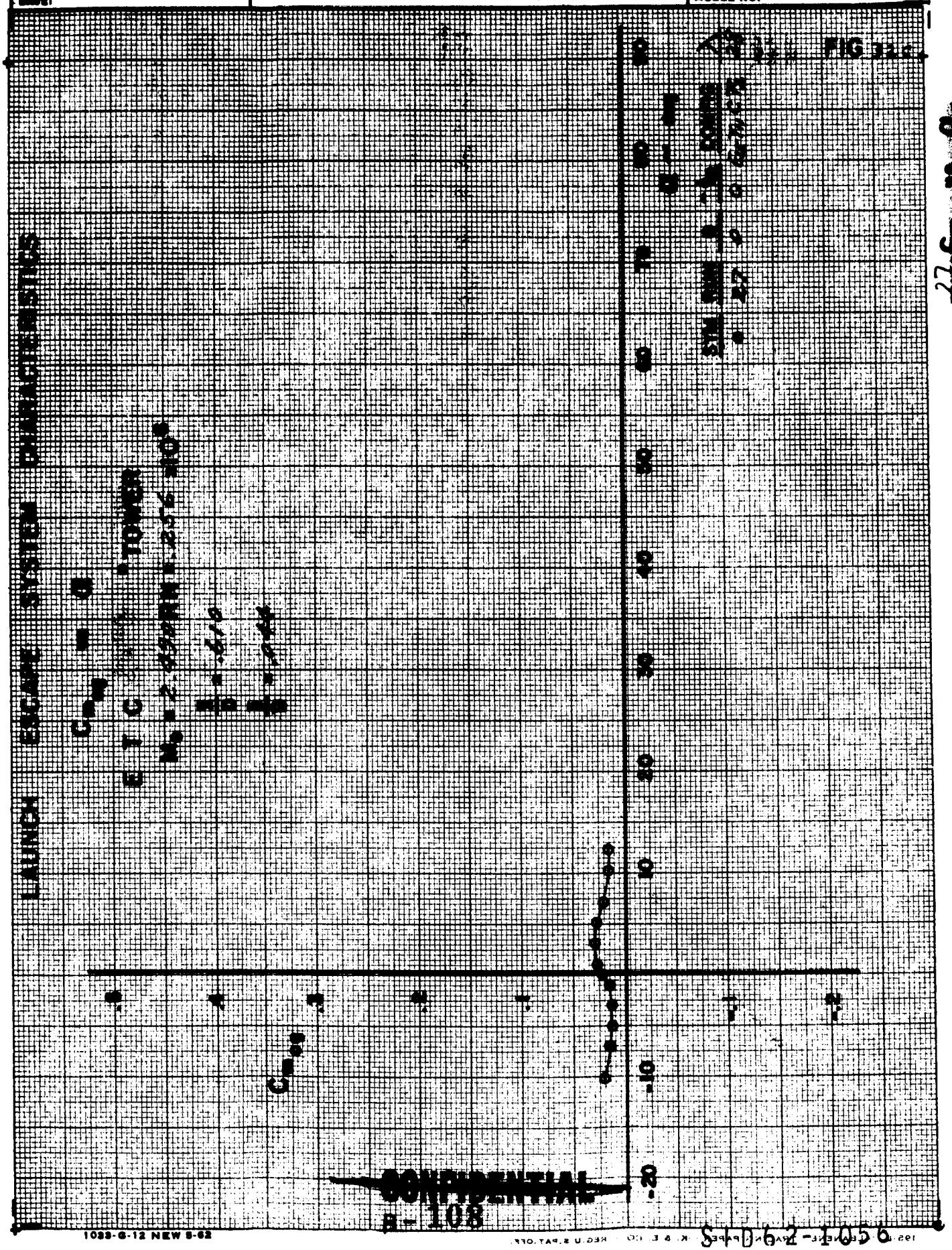



FIG 32c

~~CONFIDENTIAL~~

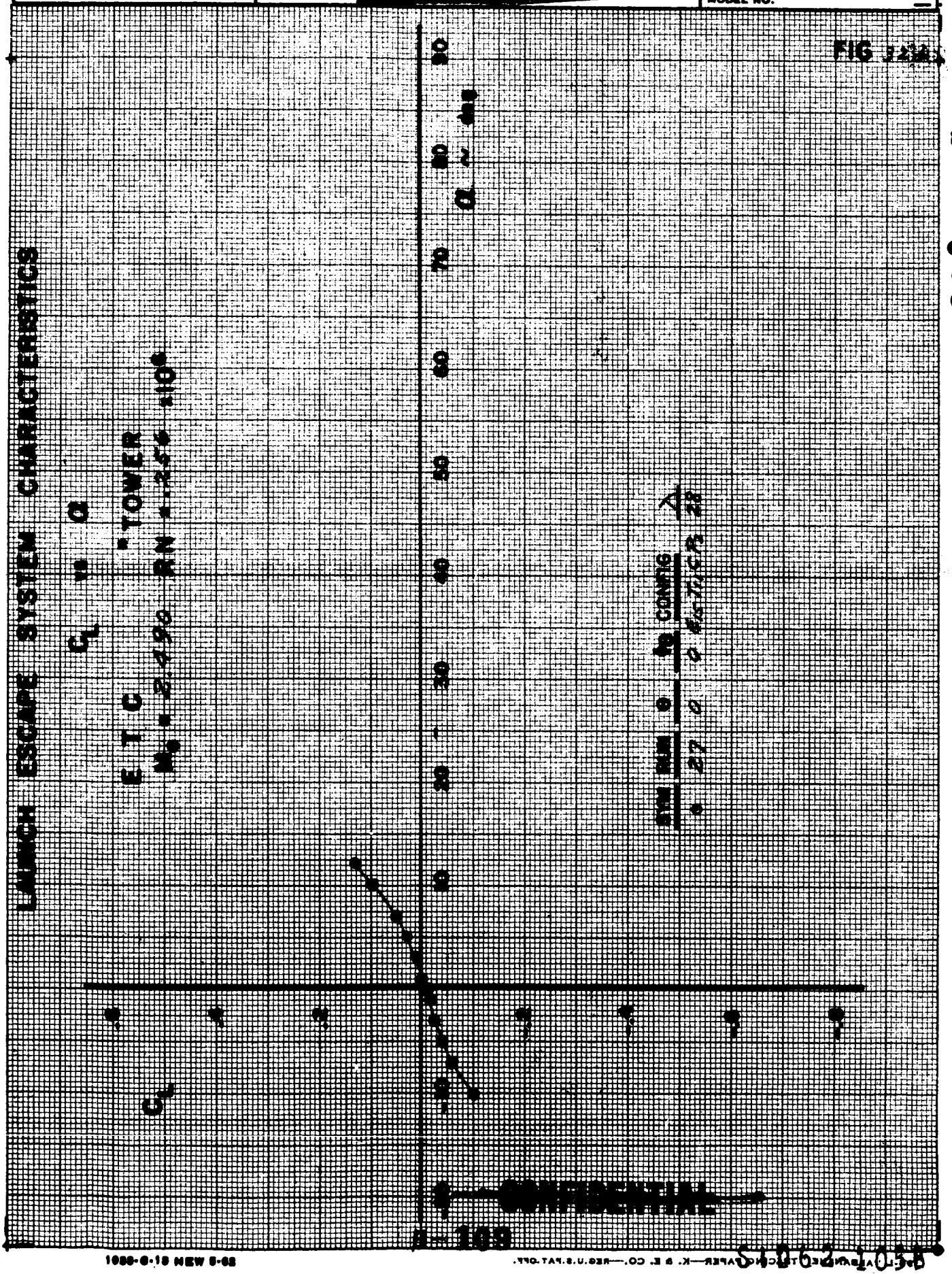


1033-G-12 NEW 5-62

S-D62-1056

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

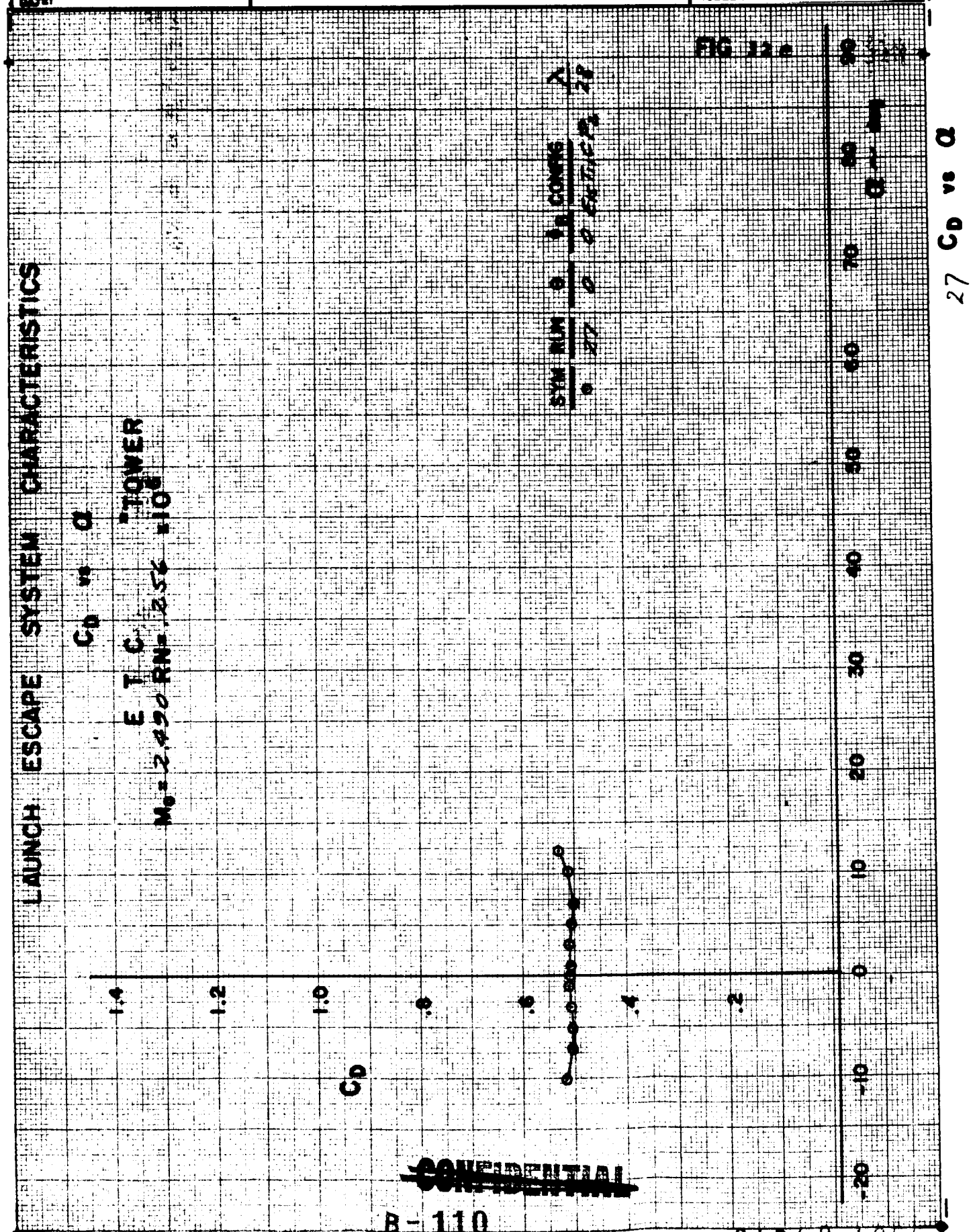
FIG 3234




27 $C_L$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~



1033-G-14 NEW 5-62

SID62-1056

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

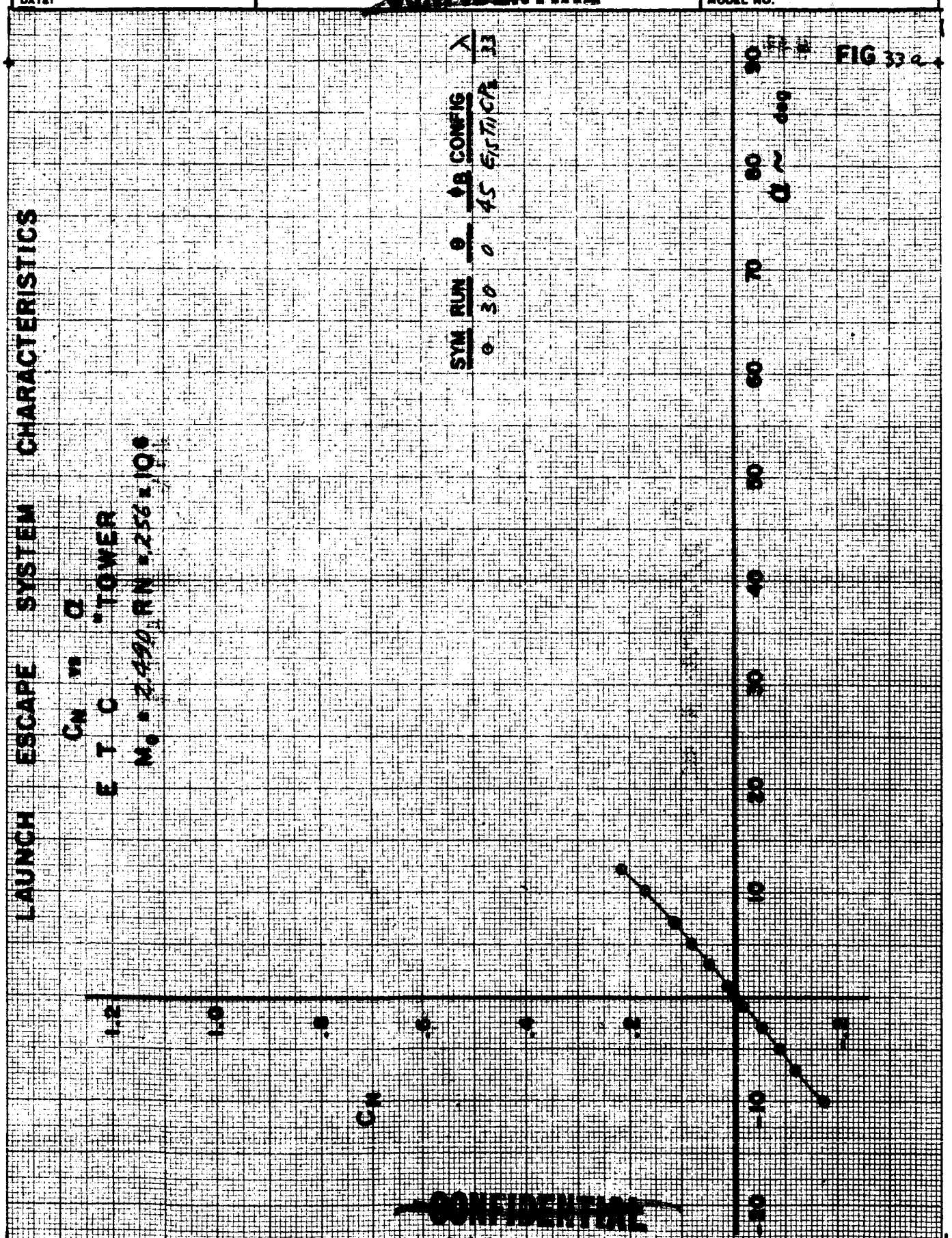



FIG 33a

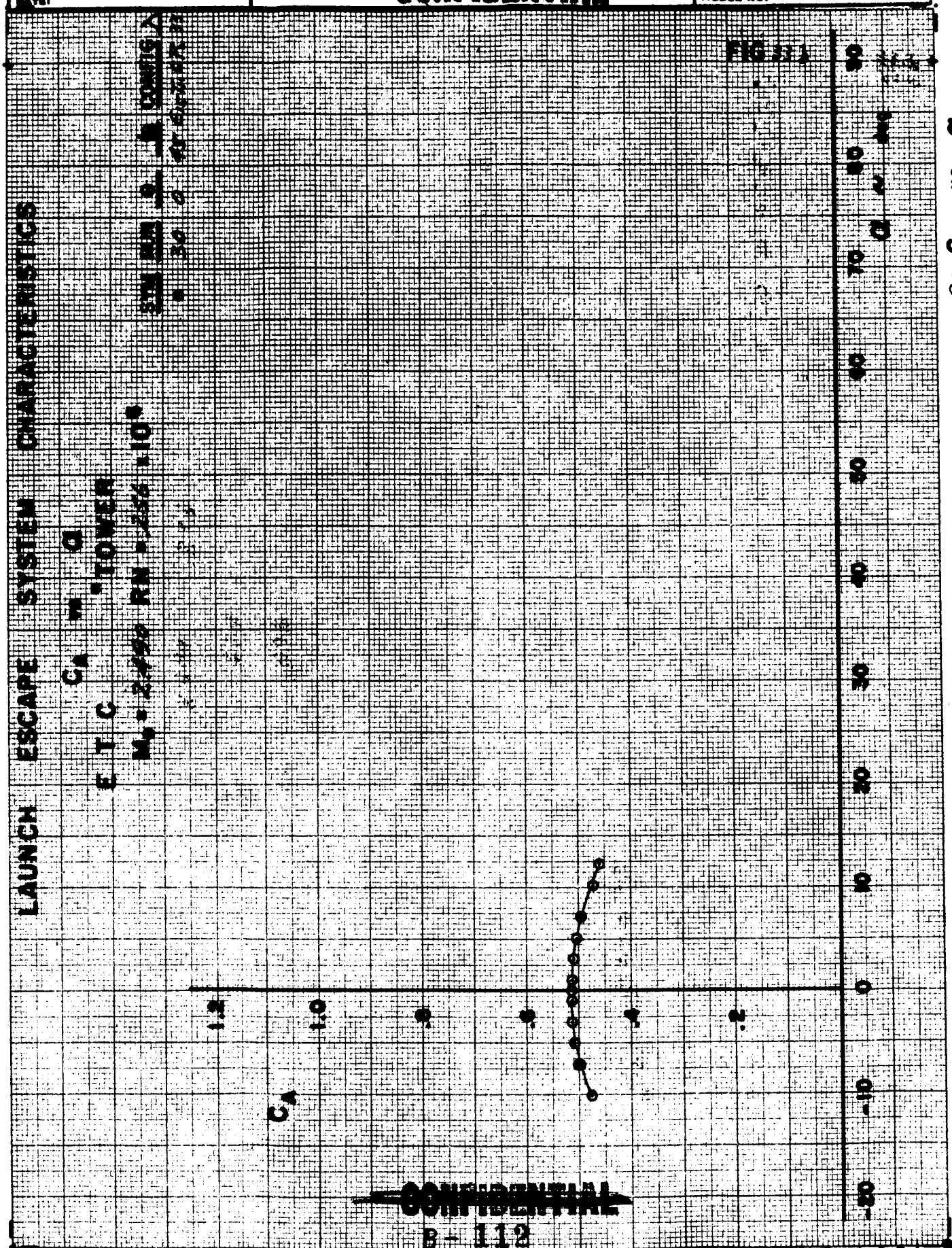
30 $C_N$ vs $\alpha$

~~CONFIDENTIAL~~



1033-G-10 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




30 $C_A$ vs $\alpha$

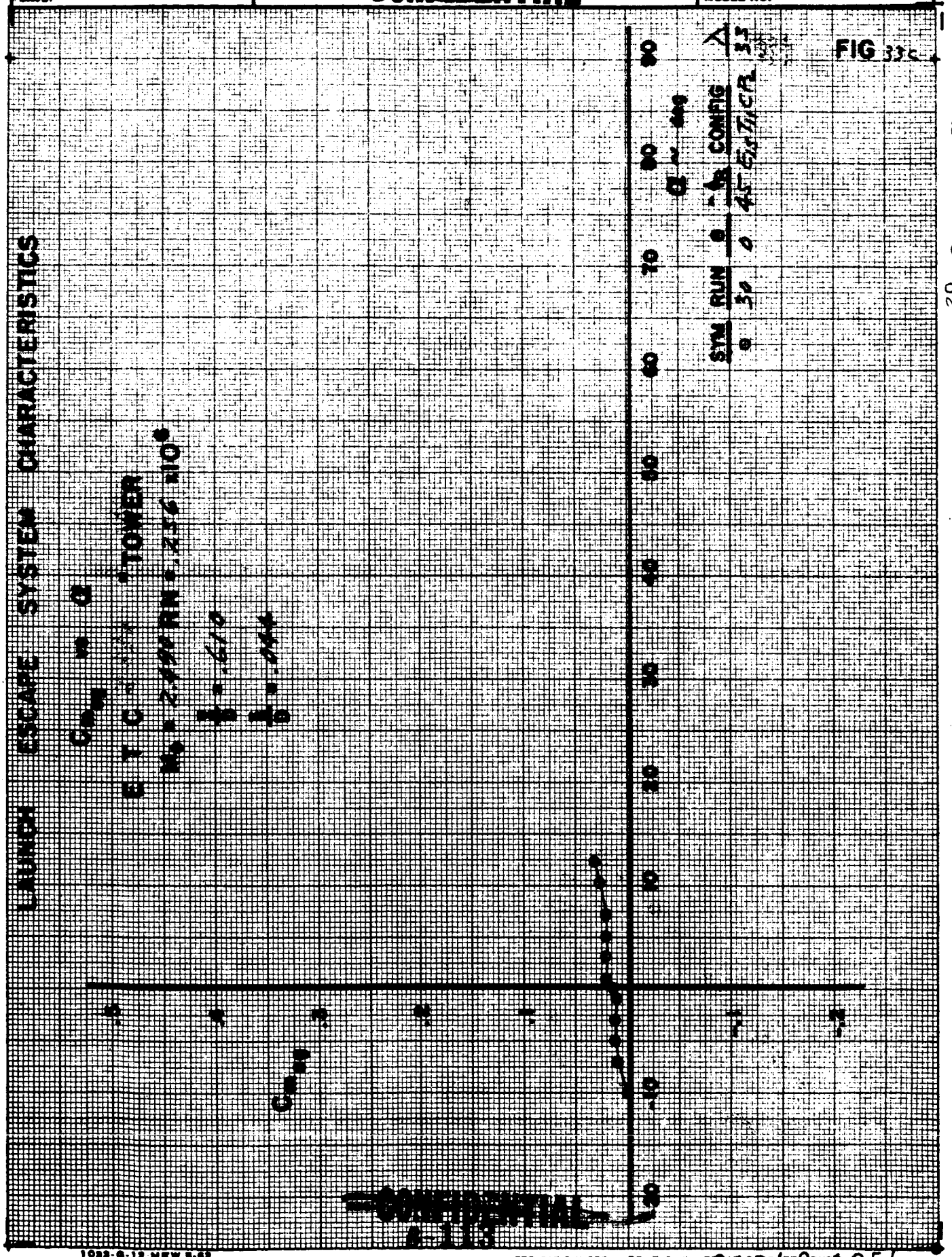
~~CONFIDENTIAL~~



1033-G-11 NEW 5-62

S1062-1056

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

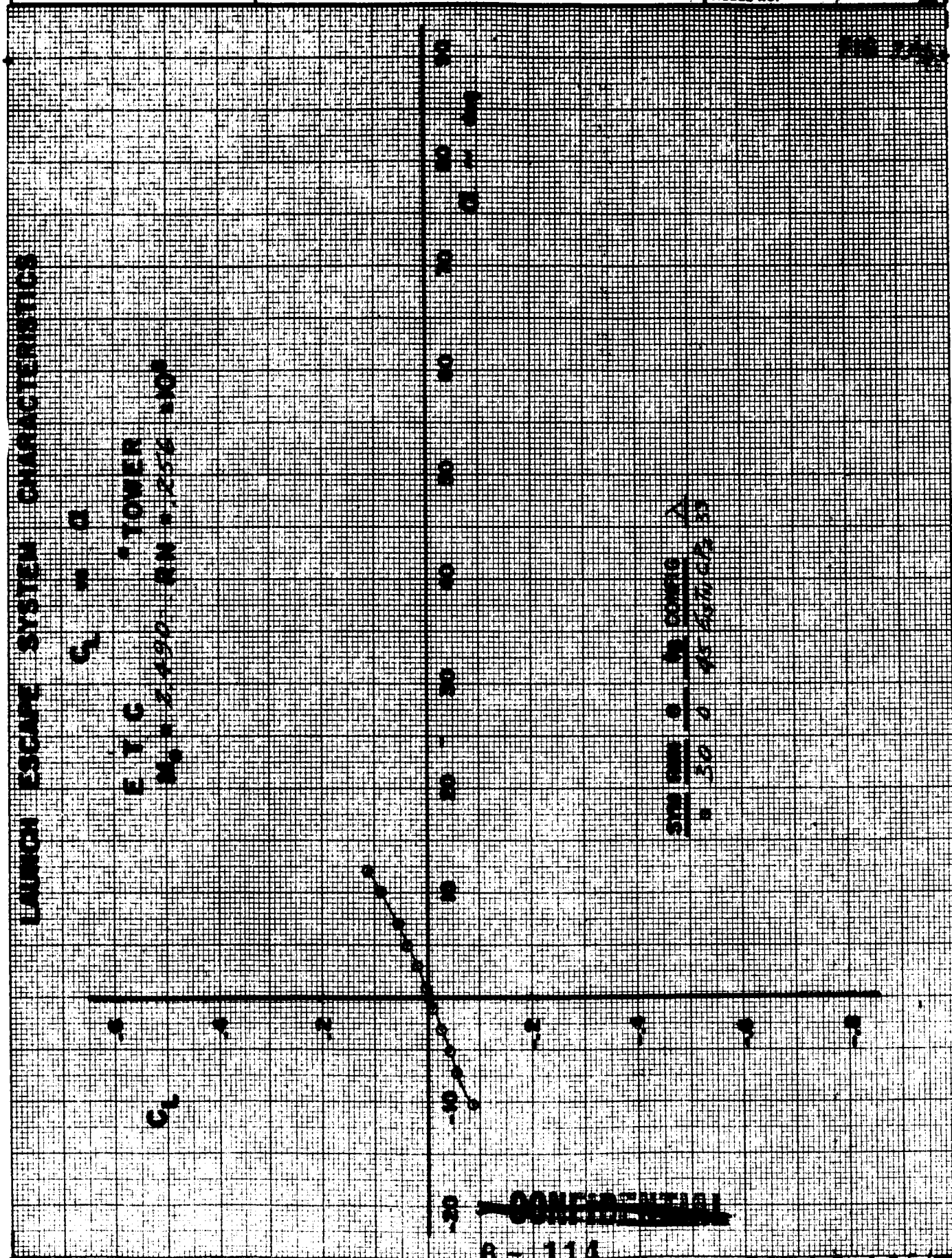



[redacted]



1033-6-12 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~



1033-G-13 NEW 8-62

51062 1056

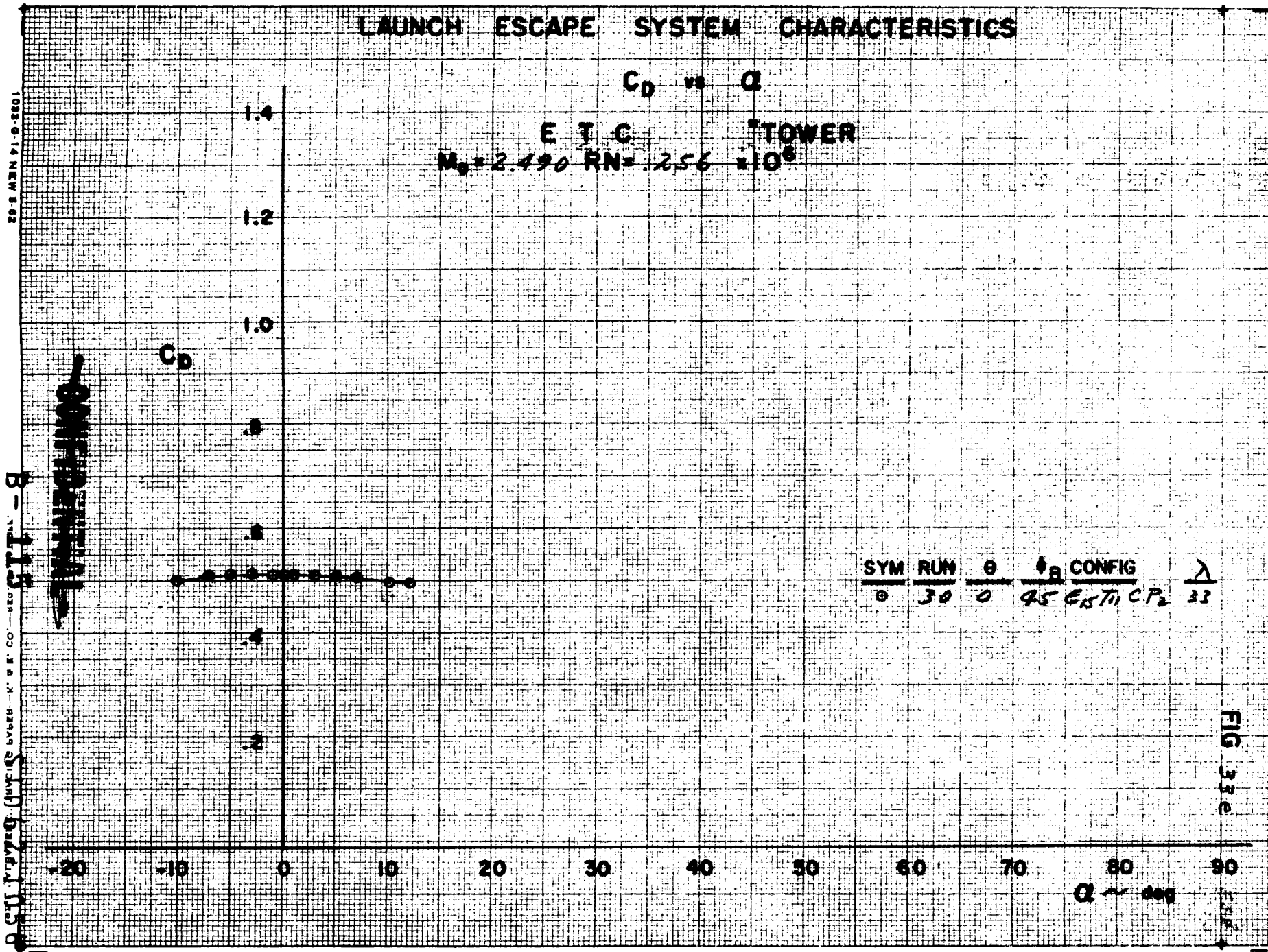



FIG 33e

30 $C_D$ vs $\alpha$

PREPARED BY: SAL
CHECKED BY:
DATE:

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

PAGE NO. OF
REPORT NO.
MODEL NO.

1088-0-14 NEW 8-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

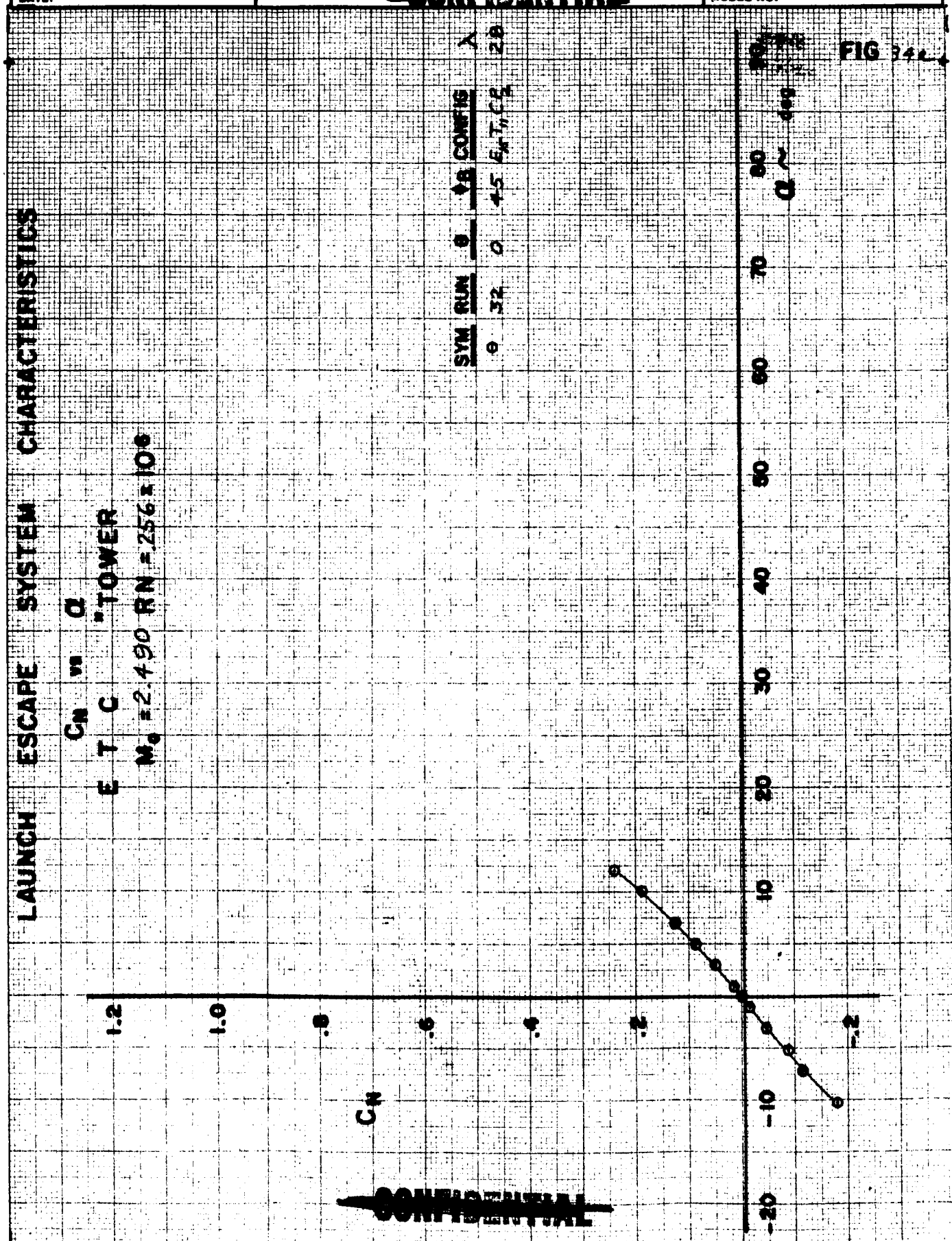



FIG 34e

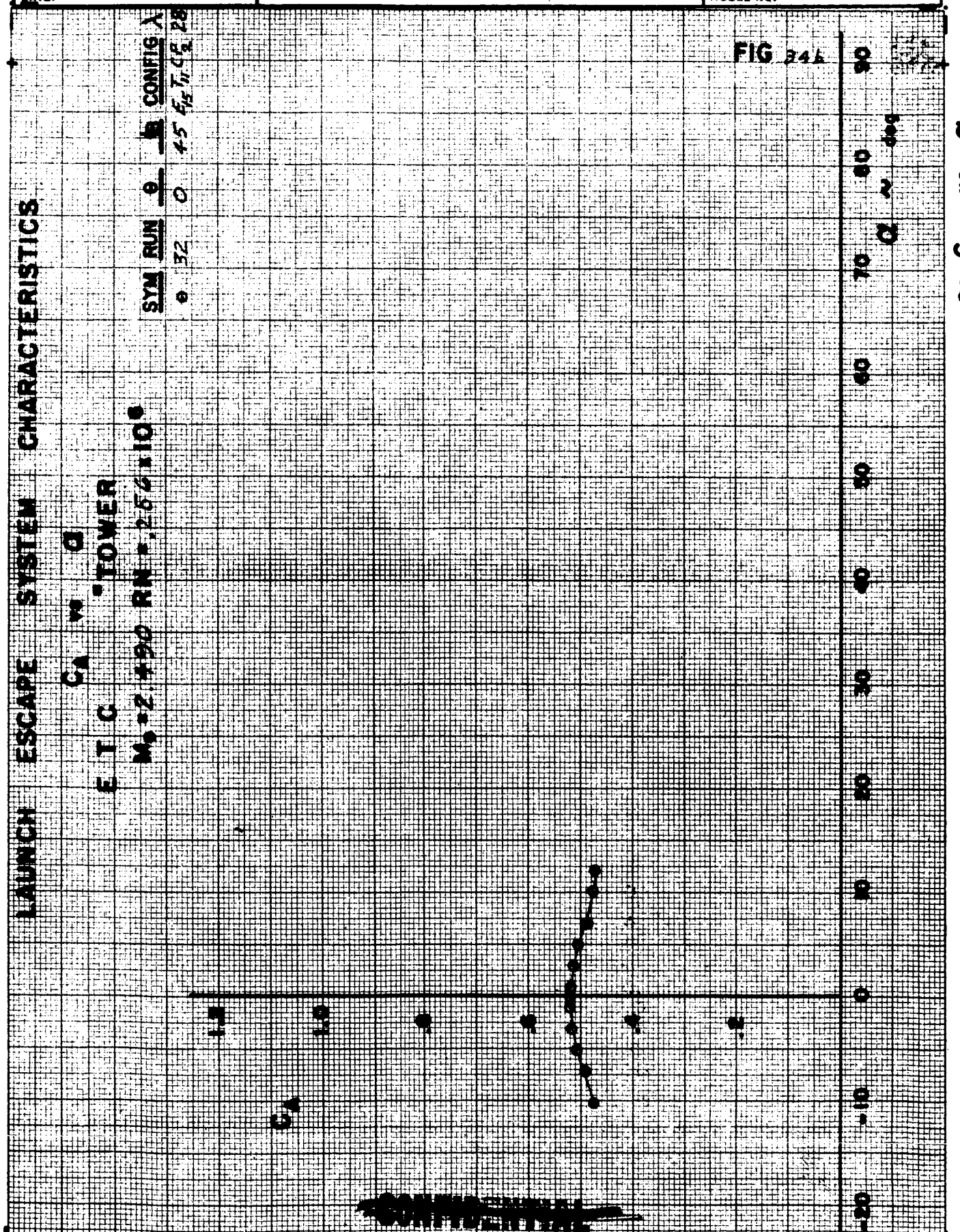
32 $C_N$ vs $\alpha$

~~CONFIDENTIAL~~



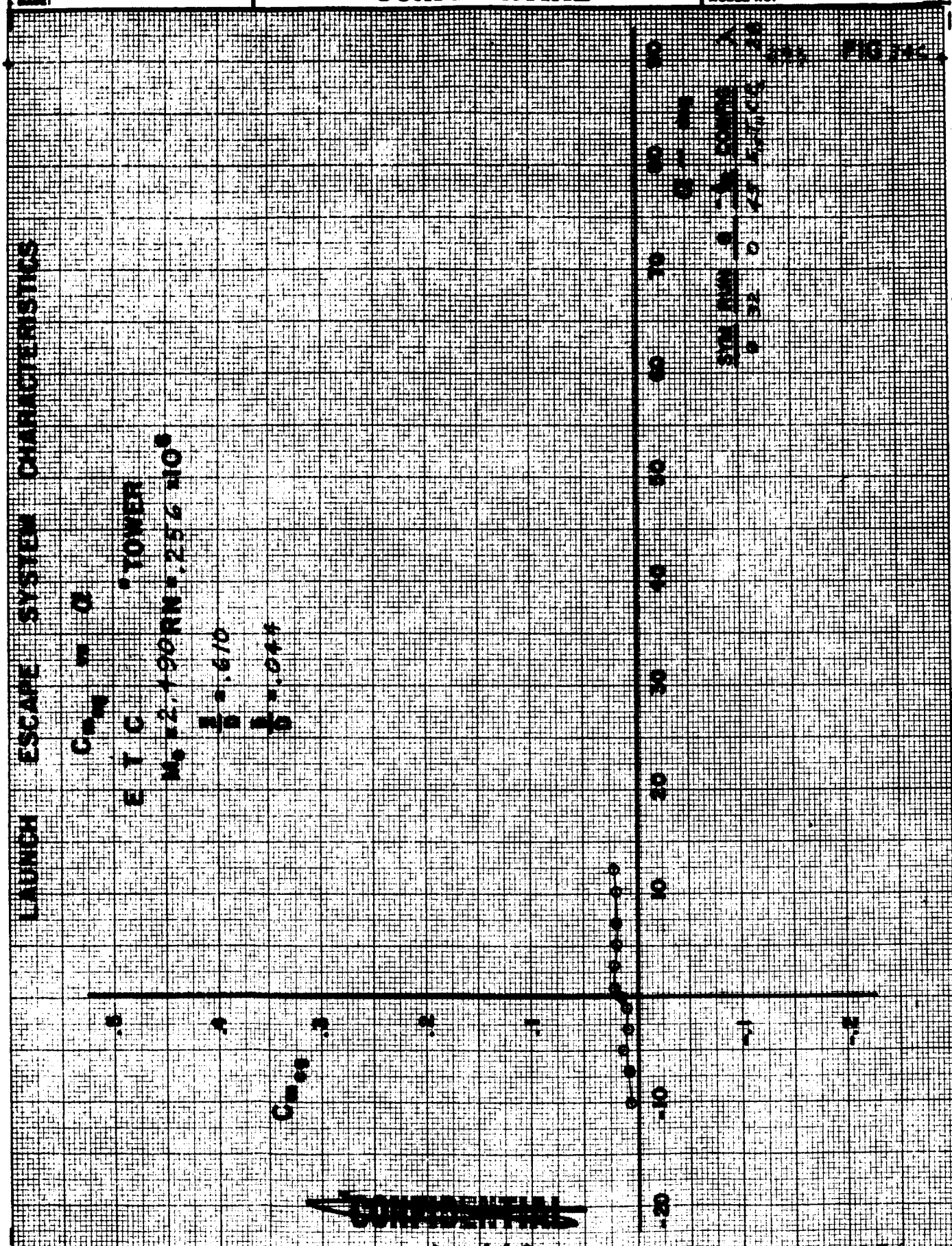
1033-G-10 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

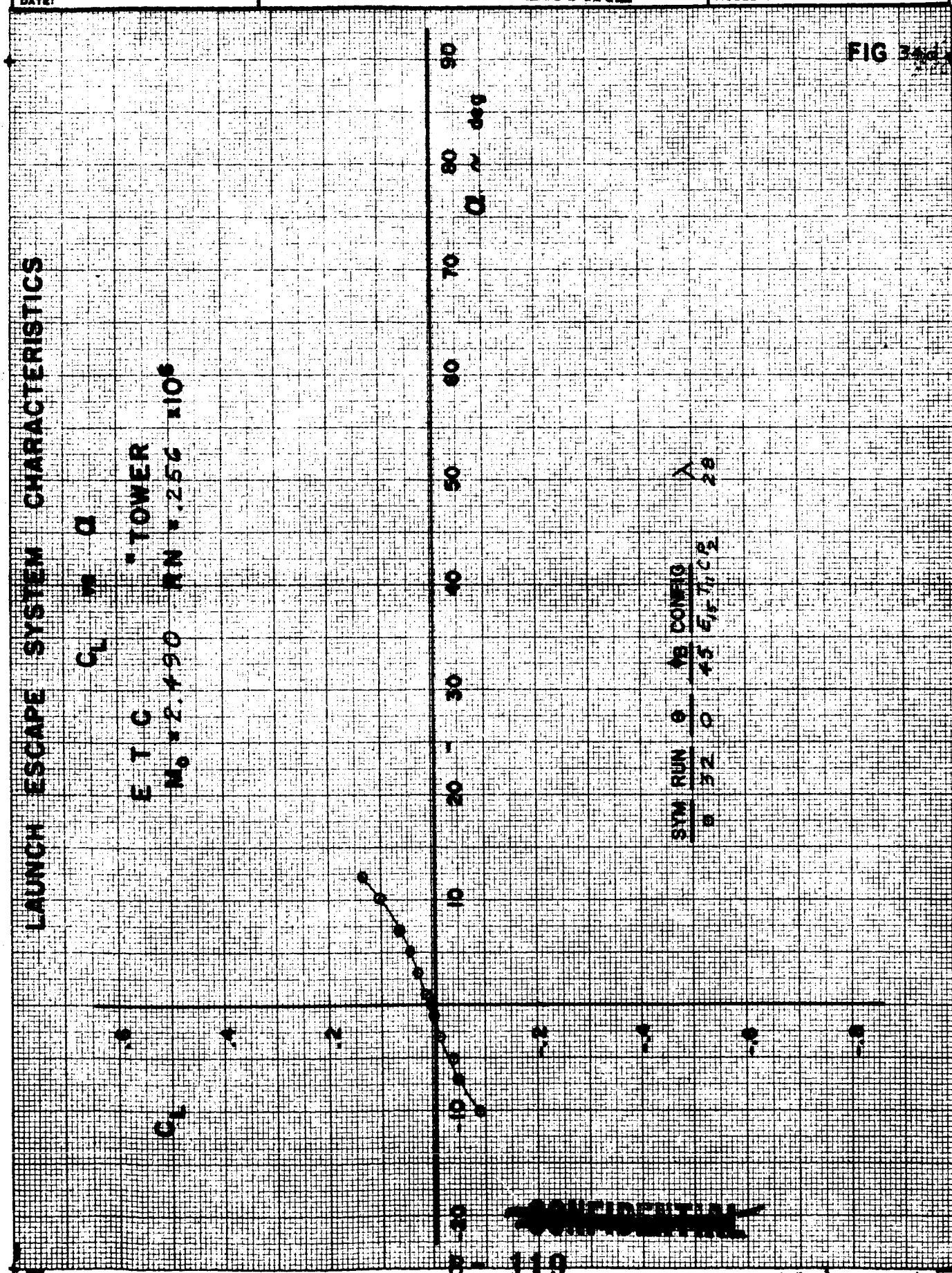



32 $C_m$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 34a




32 $C_L$ vs $\alpha$

~~CONFIDENTIAL~~



1033-G-13 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

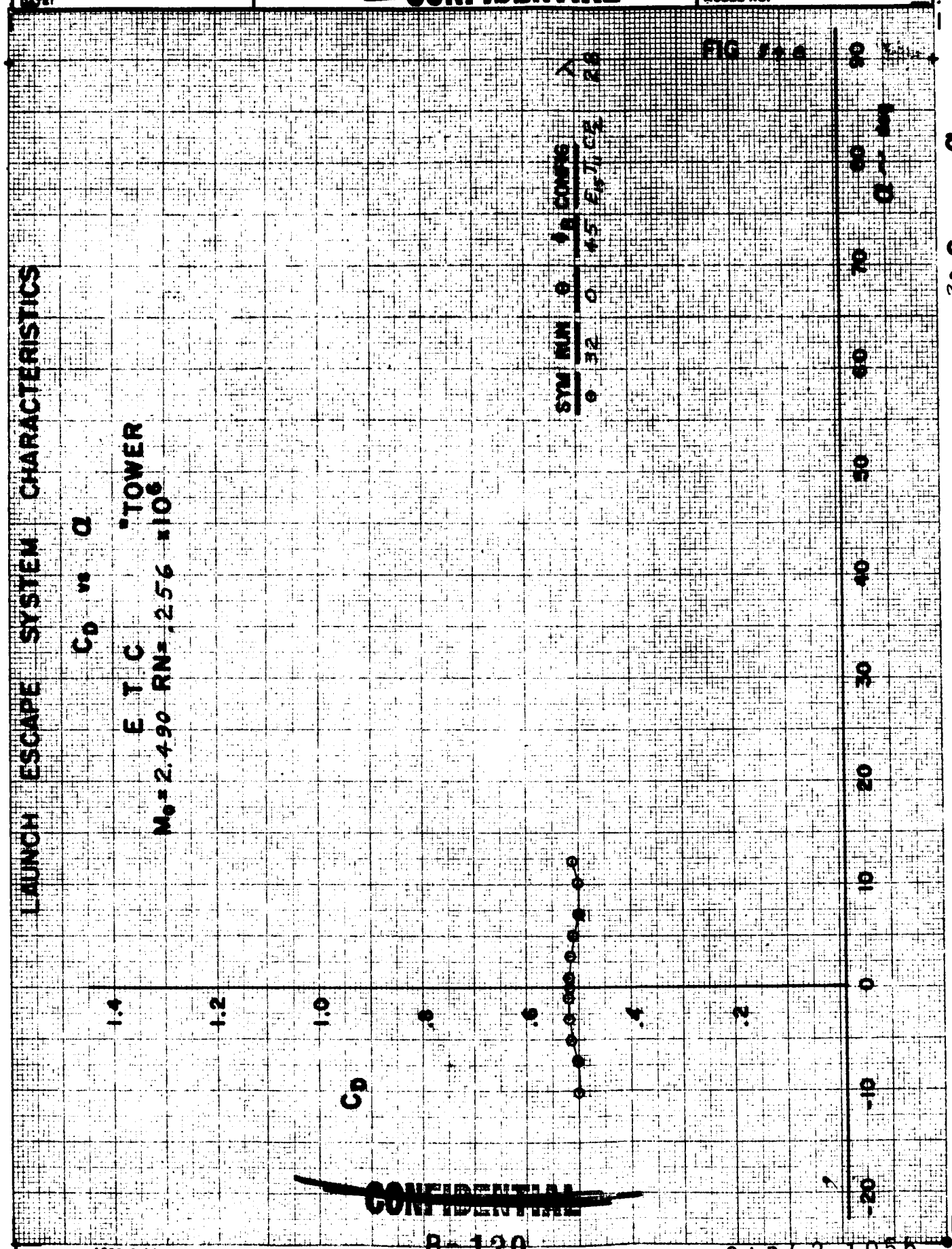



FIG 5-6

32 $C_D$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

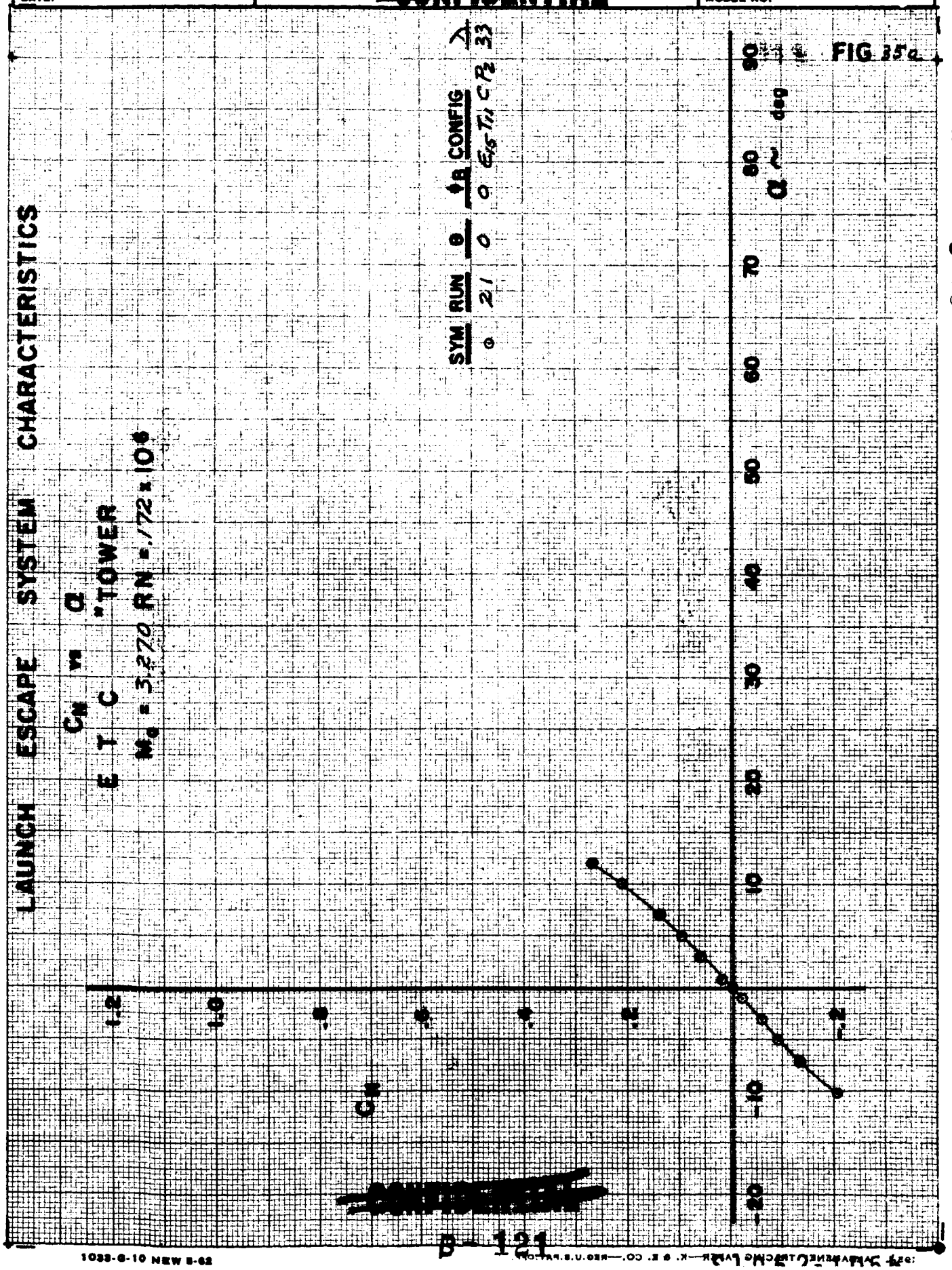



FIG 35a

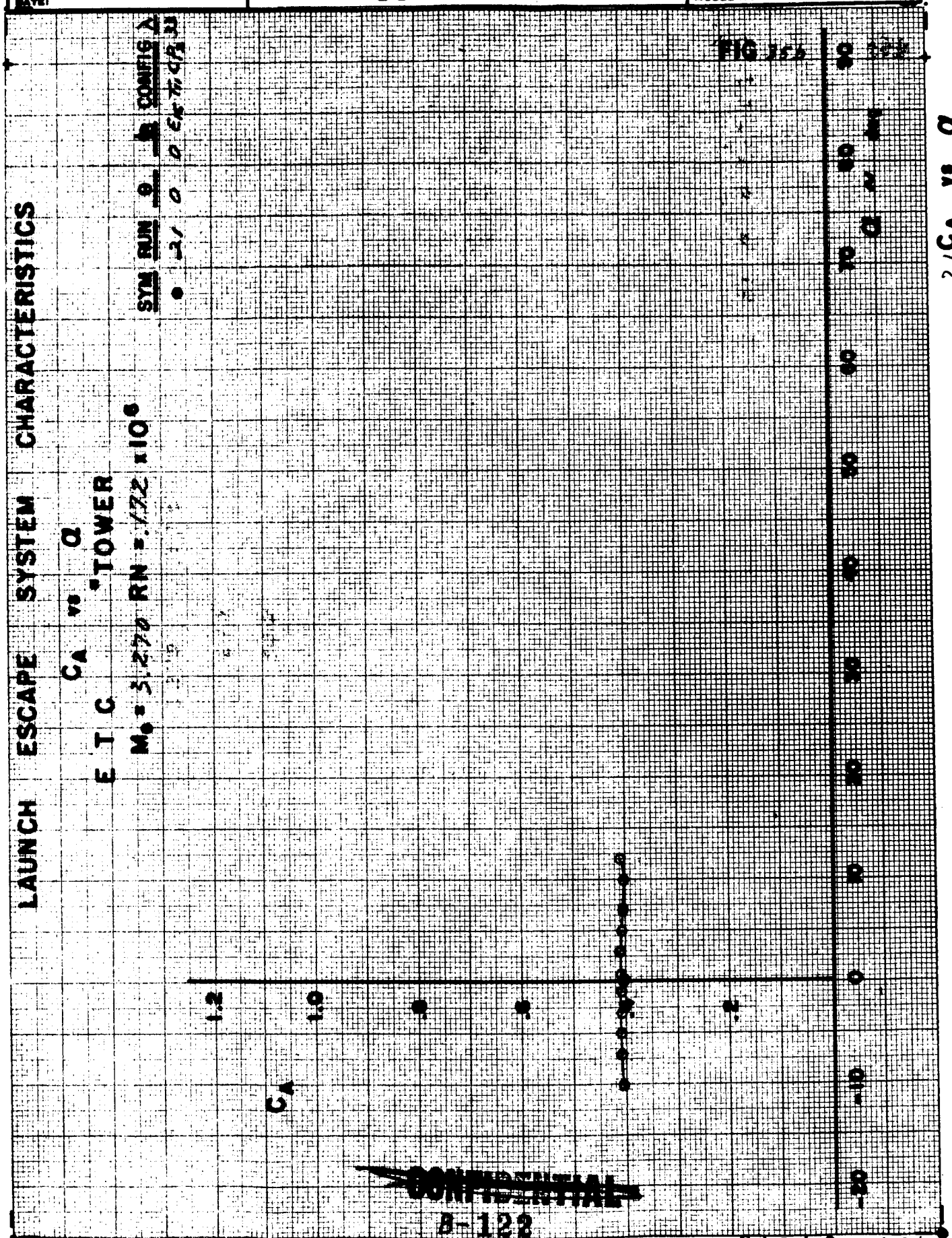
21 $C_N$ vs $\alpha$

[redacted]



1033-6-10 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~



1033-G-11 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

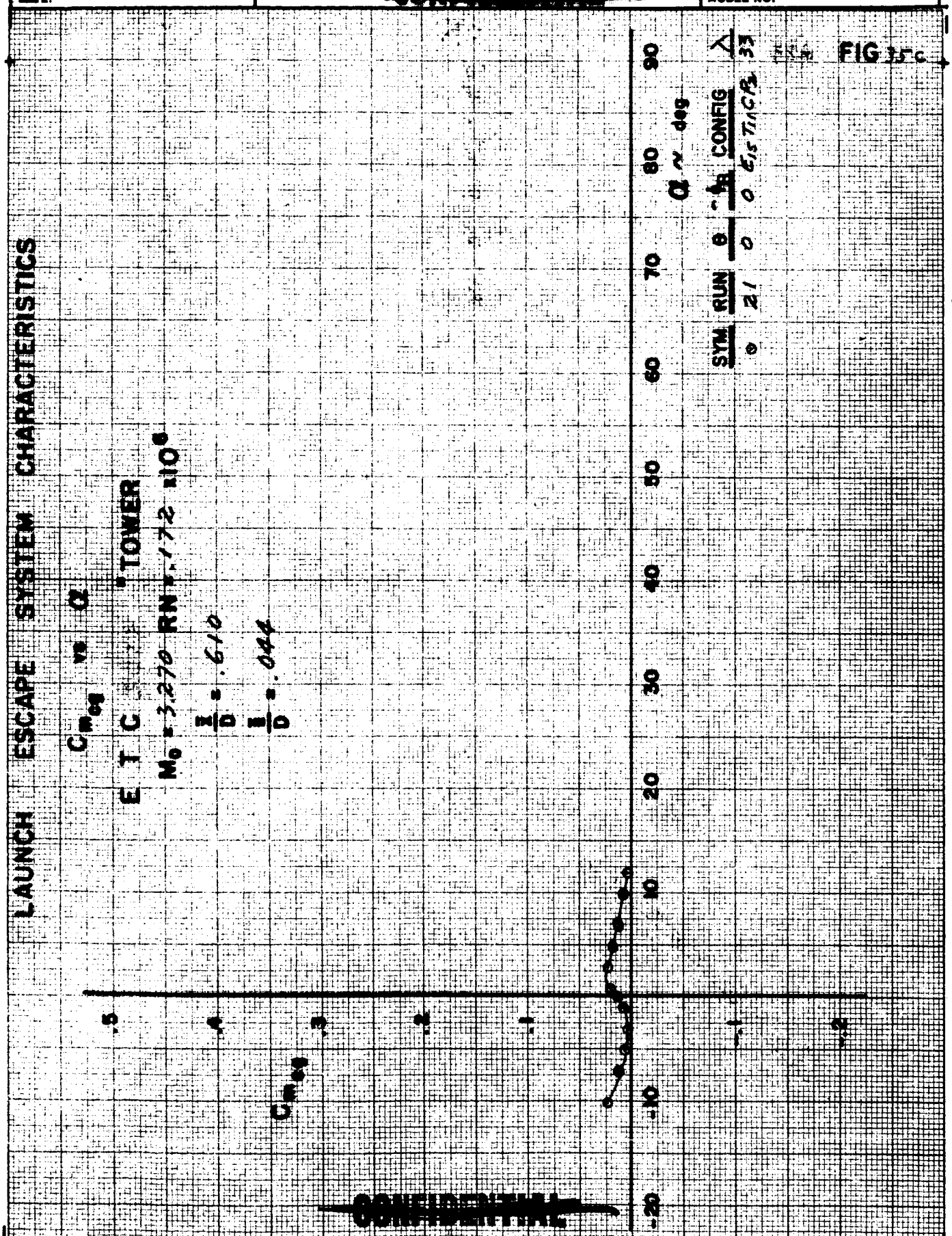


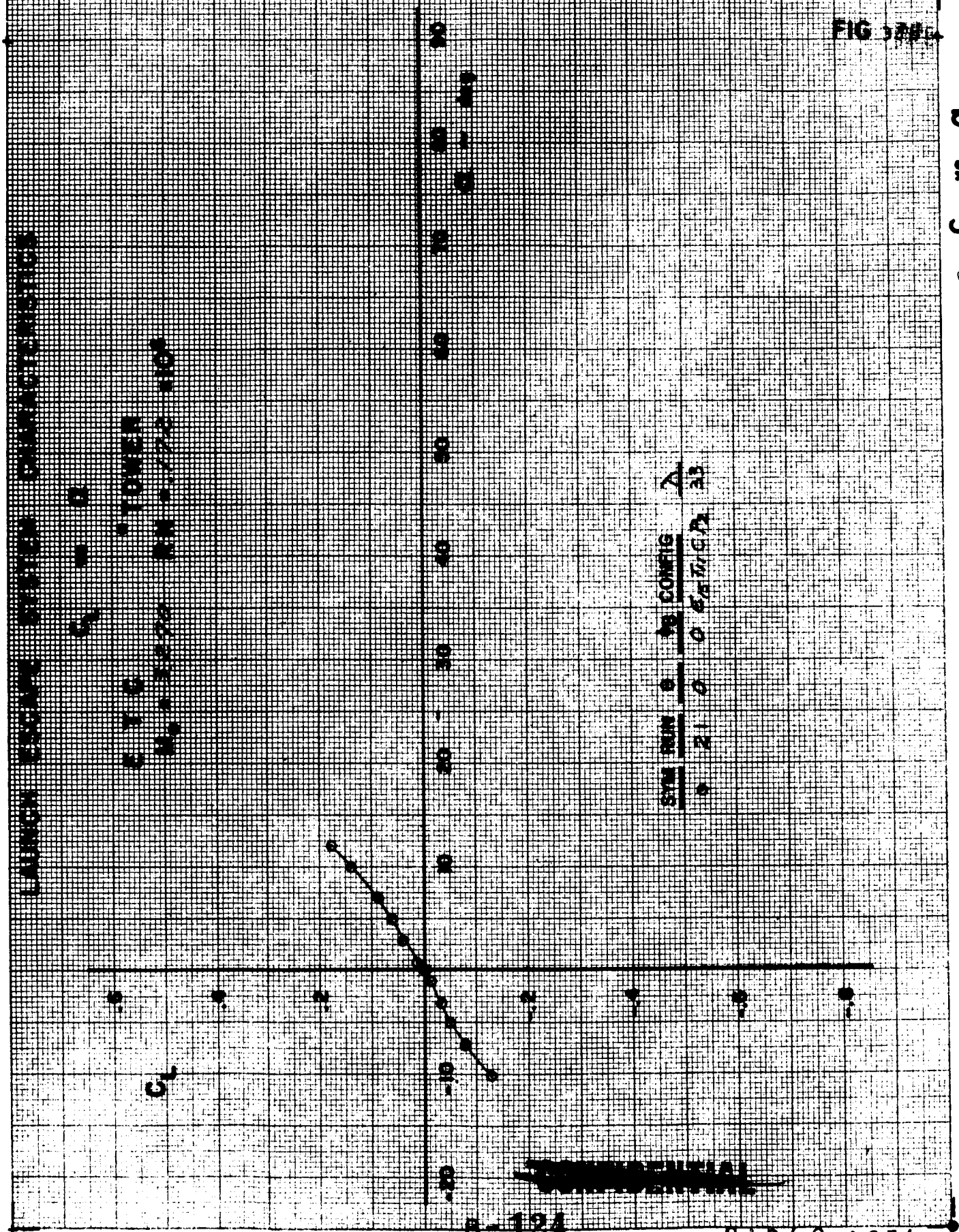

FIG 35c

21 $C_{m_{cg}}$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 3[illegible]




21 $C_L$ vs $\alpha$

~~CONFIDENTIAL~~

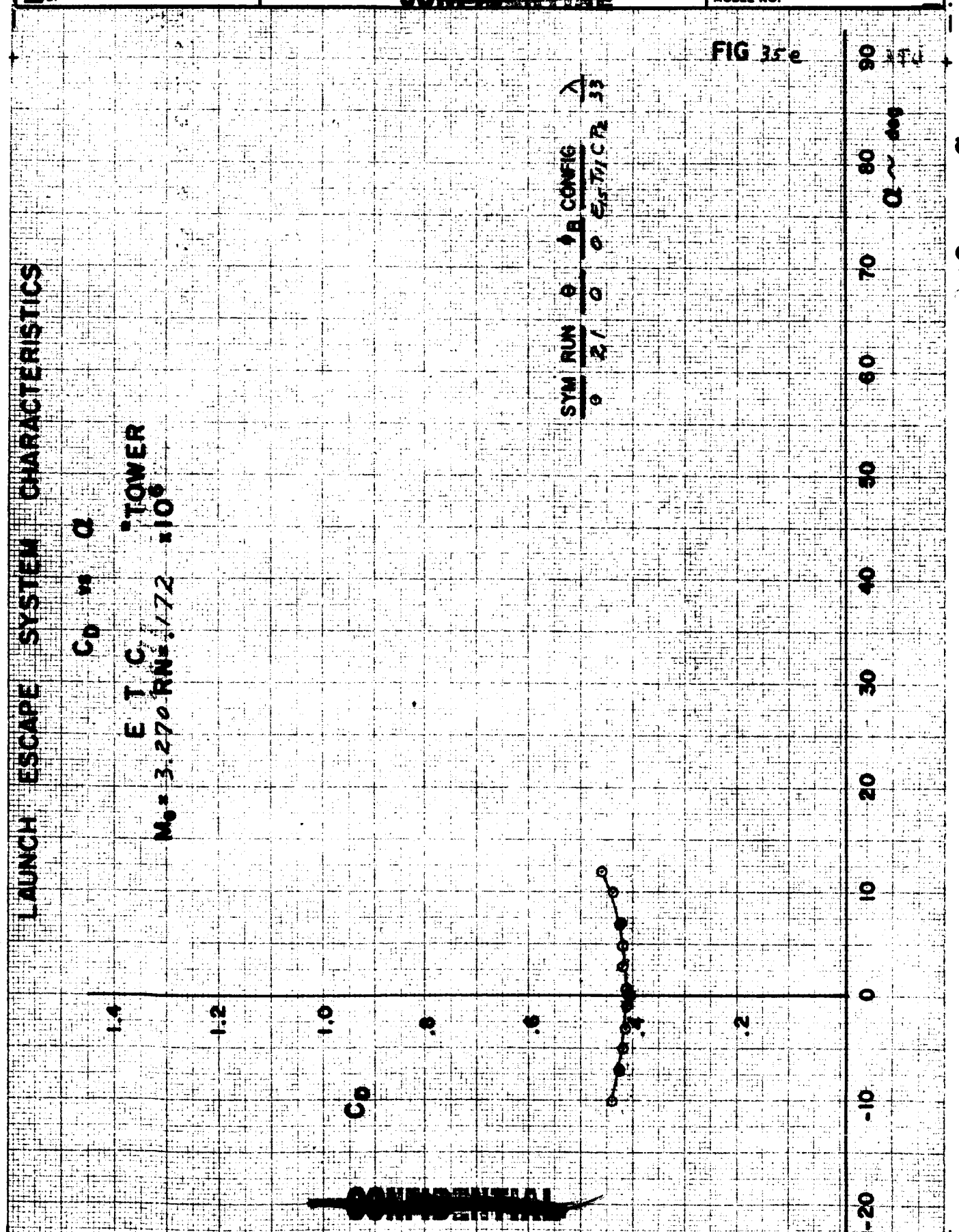


1033-G-13 NEW 5-62

S1062-1056

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

FIG 35e




[redacted]



1033-G-14 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |

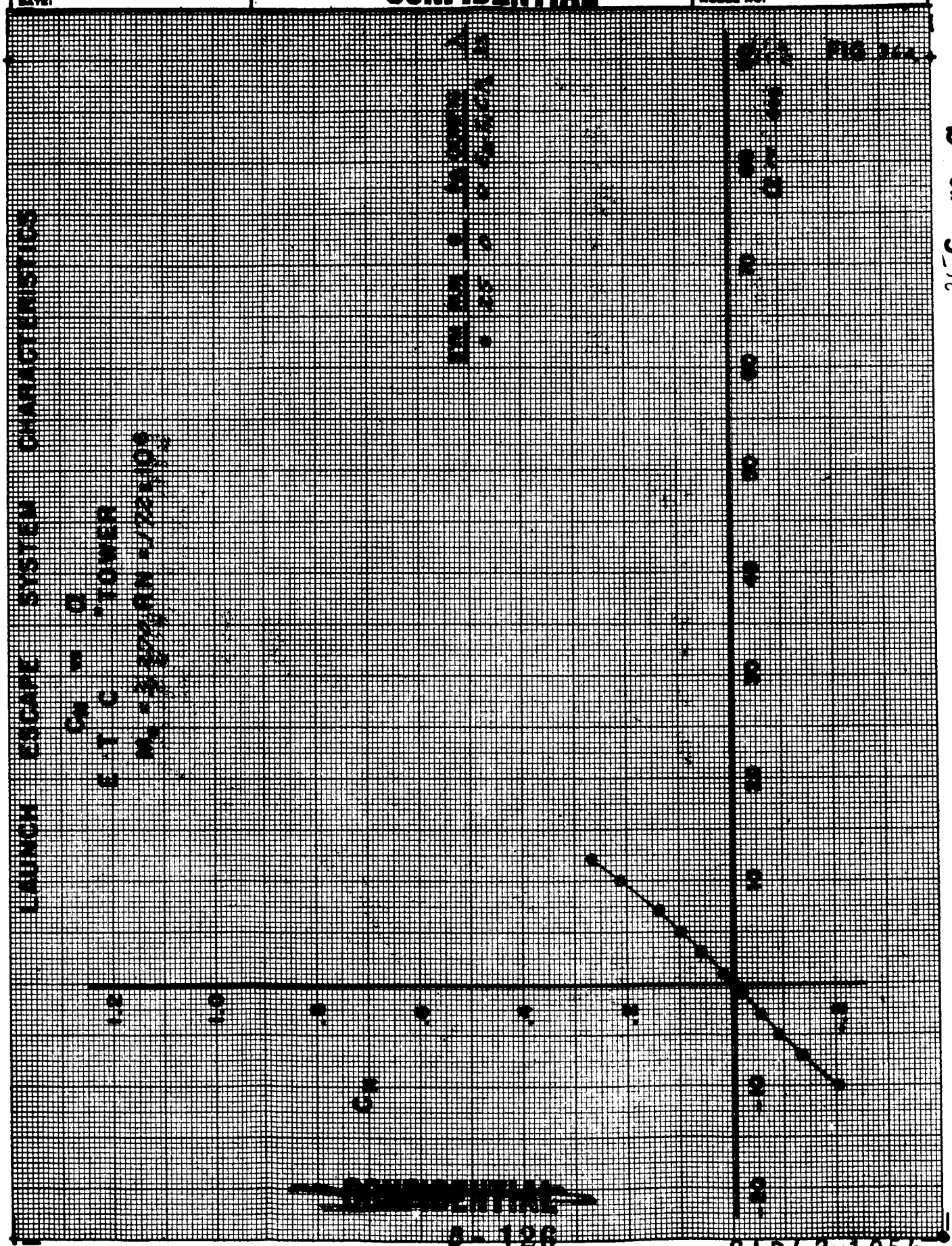



FIG 3.4.

$25^{\circ}$ $C_N$ vs $\alpha$

CONFIDENTIAL



1033-G-10 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

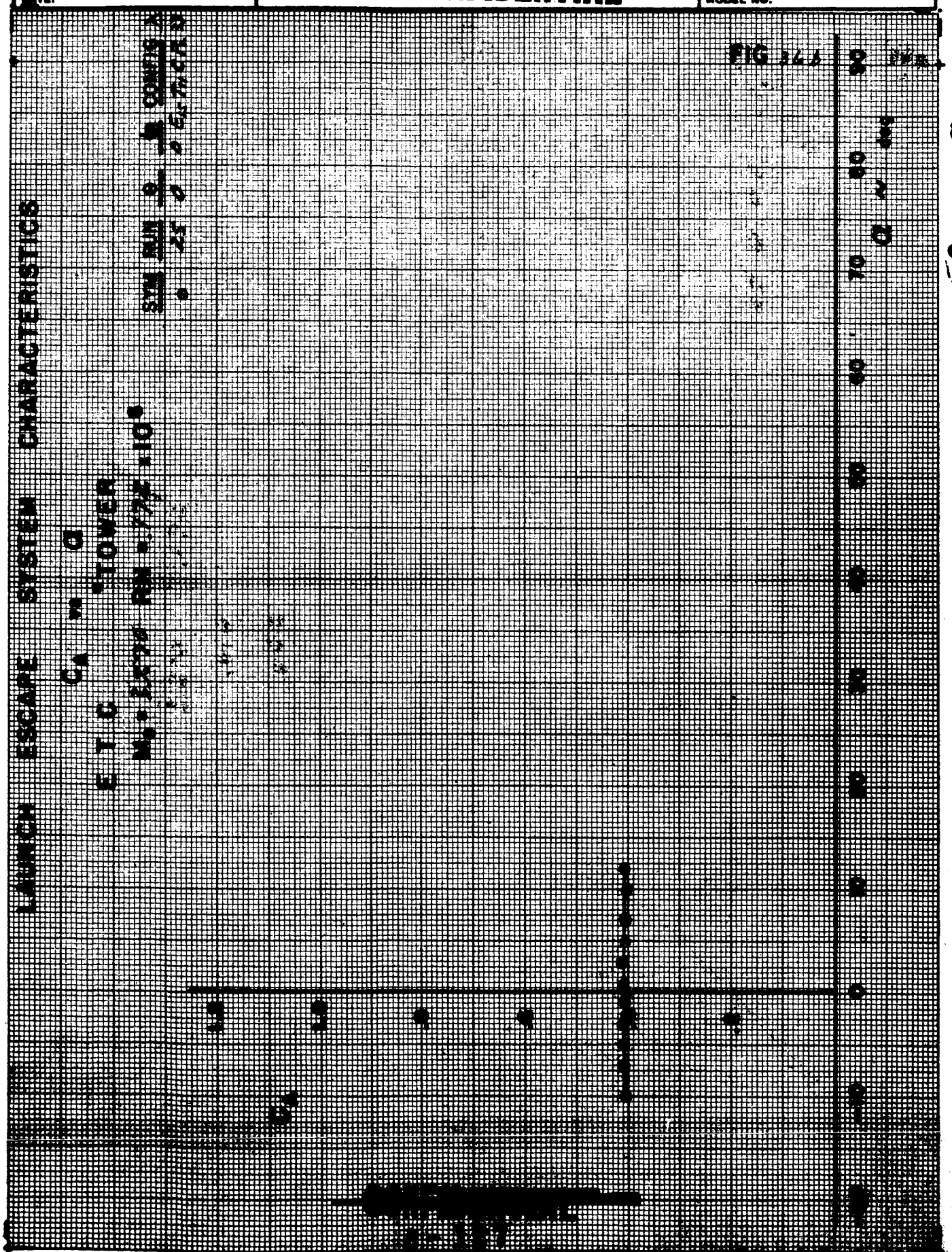
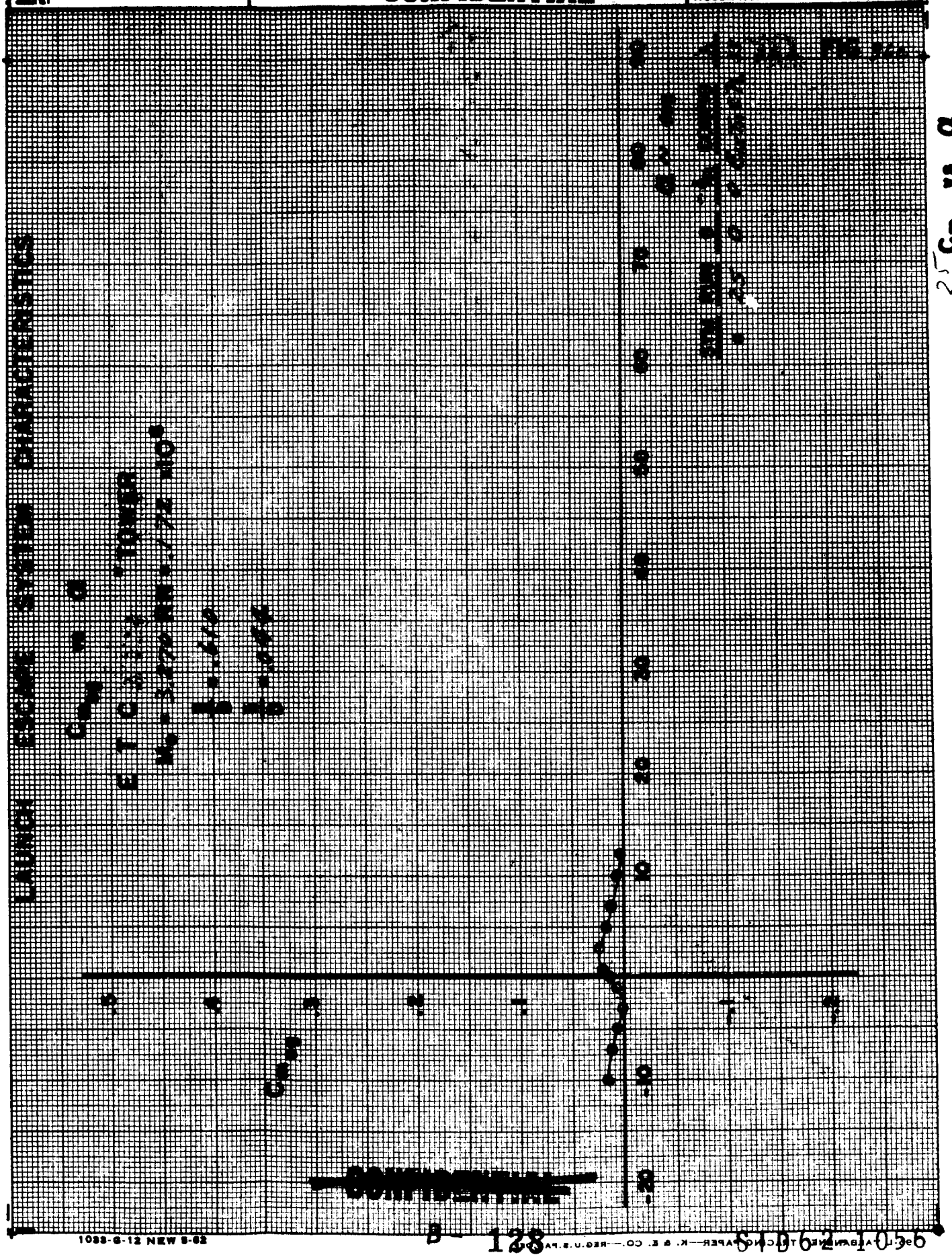



FIG 36b

$25\ C_A$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. 67 |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |

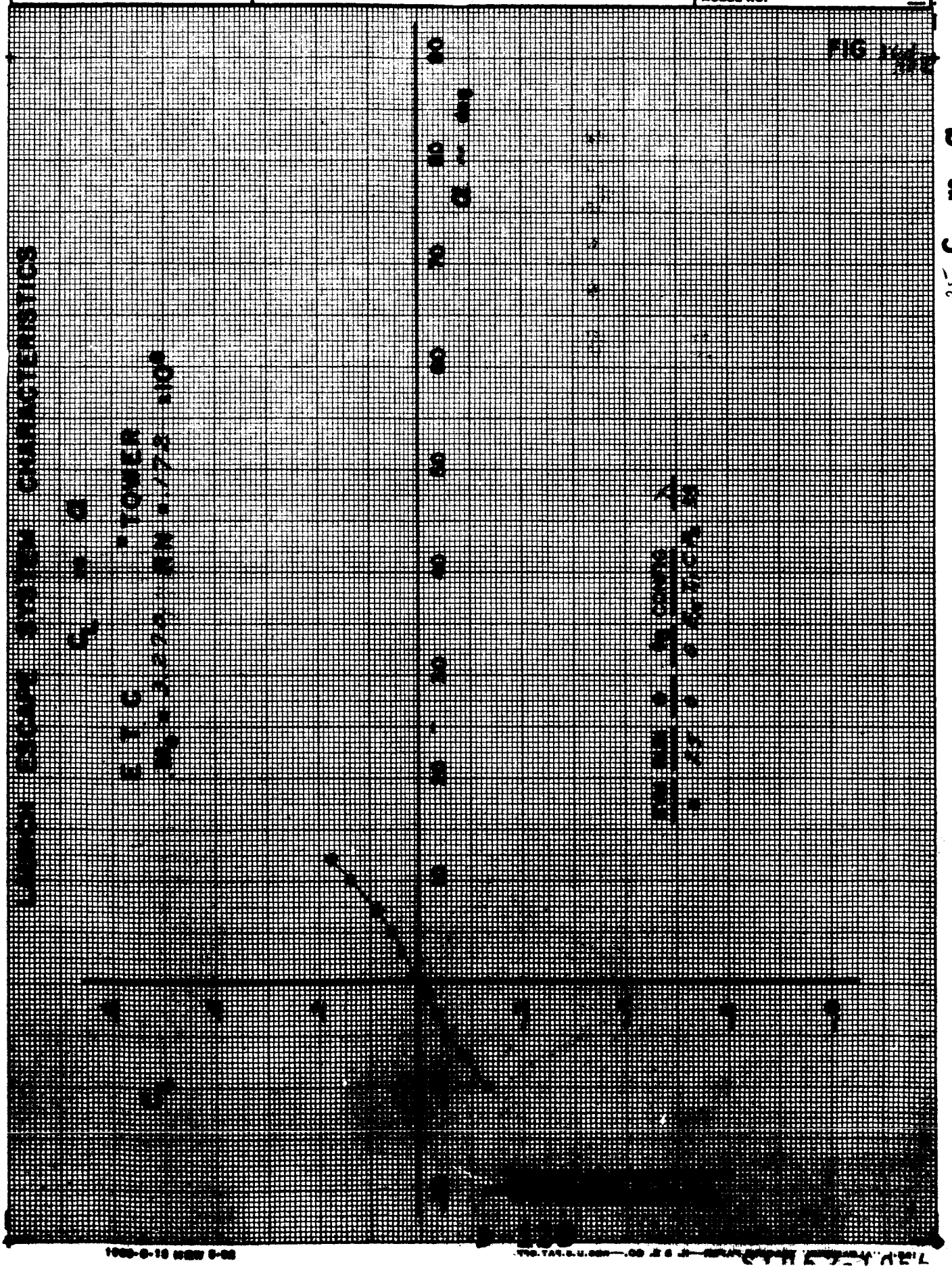



1033-G-12 NEW 5-62



S1862-1056

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |



| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

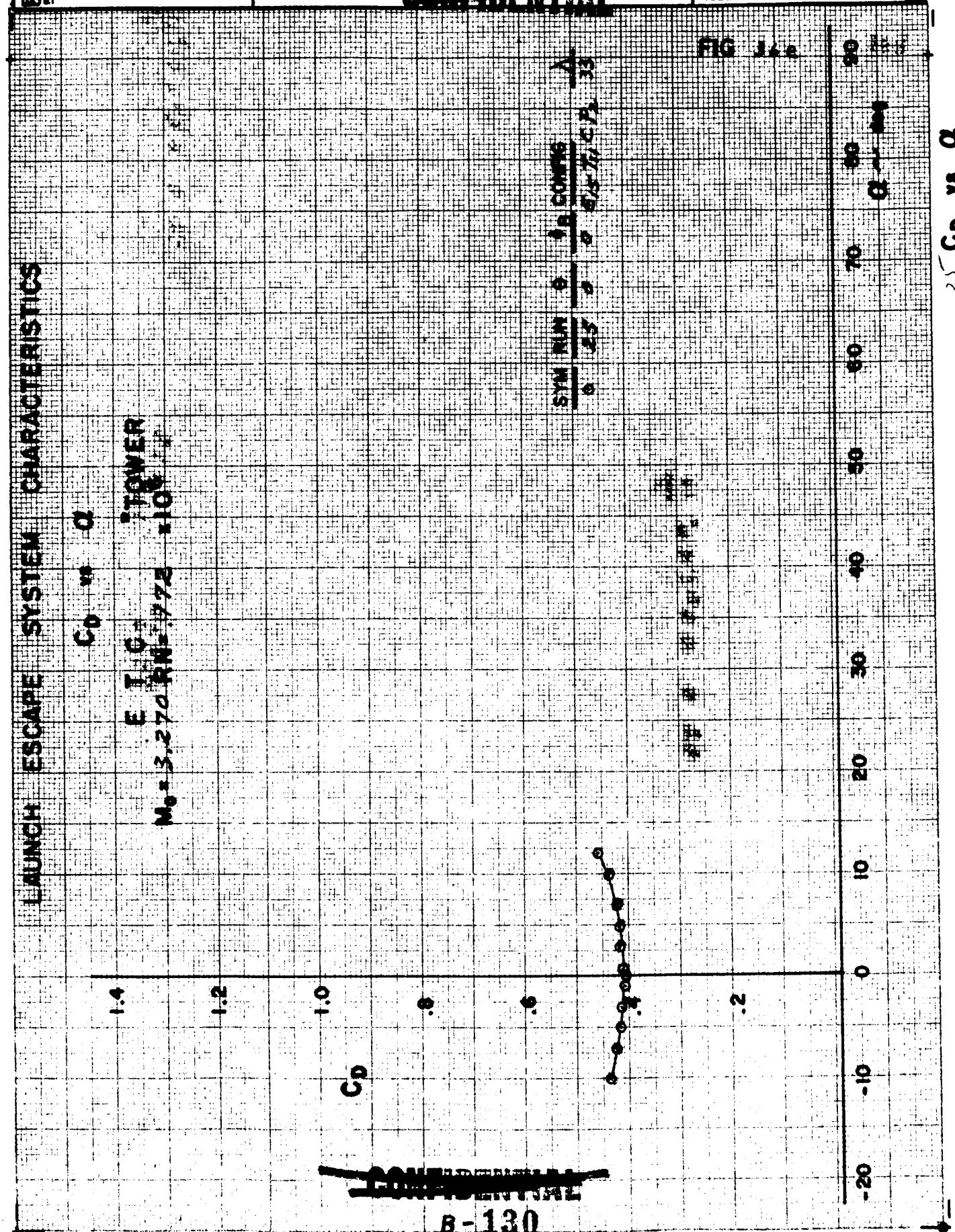



FIG 3.6

~~CONFIDENTIAL~~



1033-G-14 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

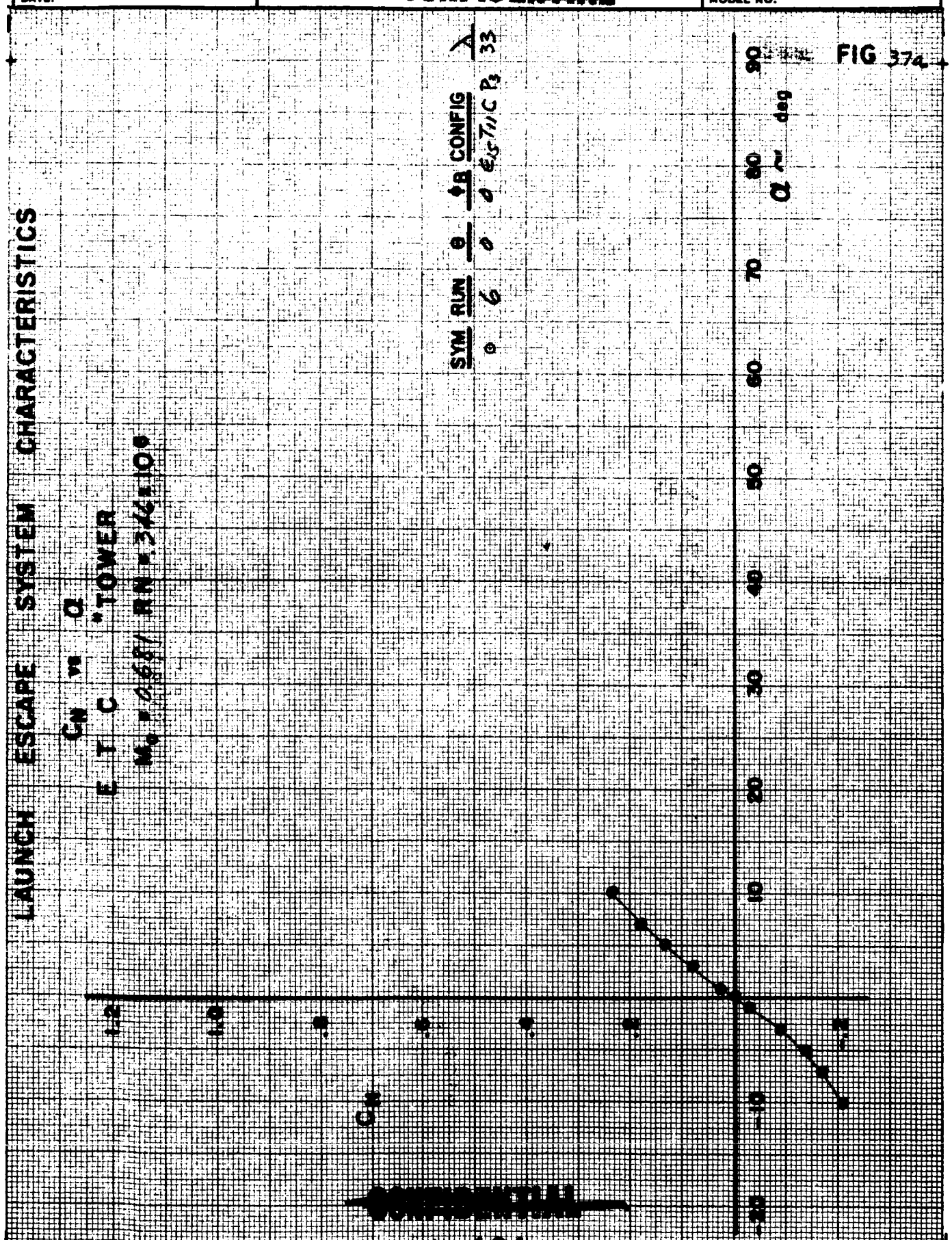



FIG 37a

$C_N$ vs $\alpha$

[redacted]

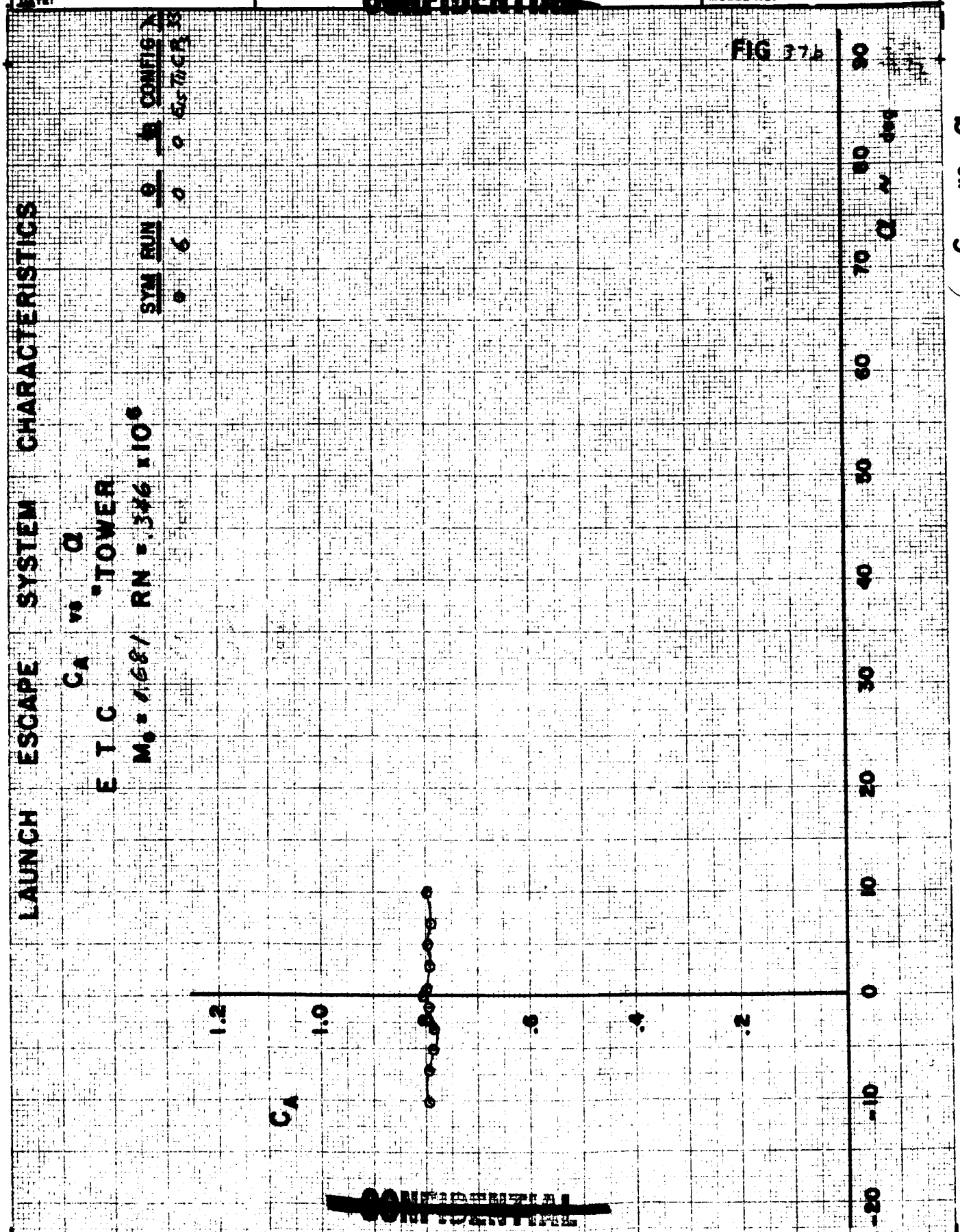


1033-G-10 NEW 5-62

S1062-1056

[redacted]

FIG 37b




$C_A$ vs $\alpha$

[redacted]

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

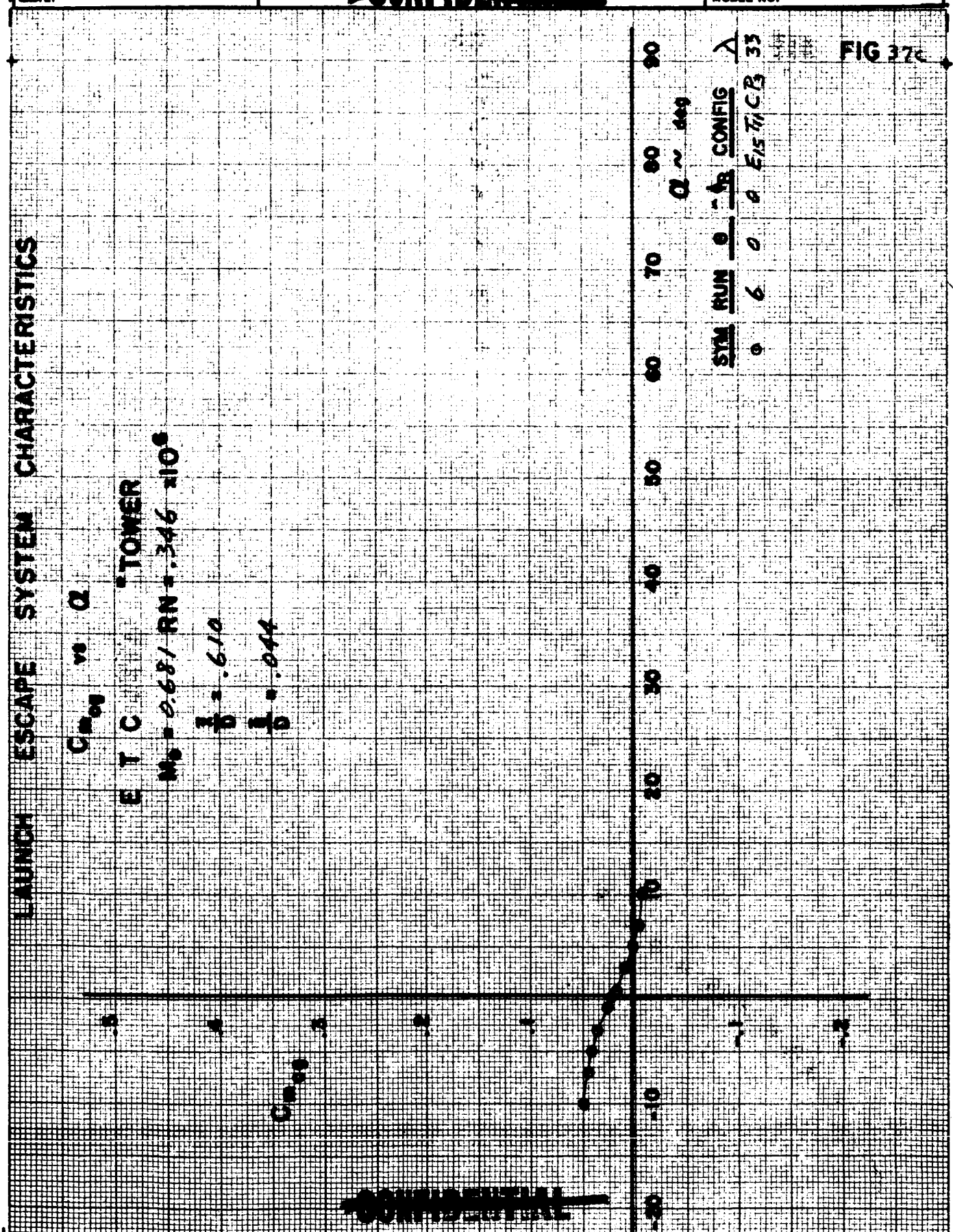



FIG 37c

$C_{m_{cg}}$ vs $\alpha$

~~CONFIDENTIAL~~



1033-6-12 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

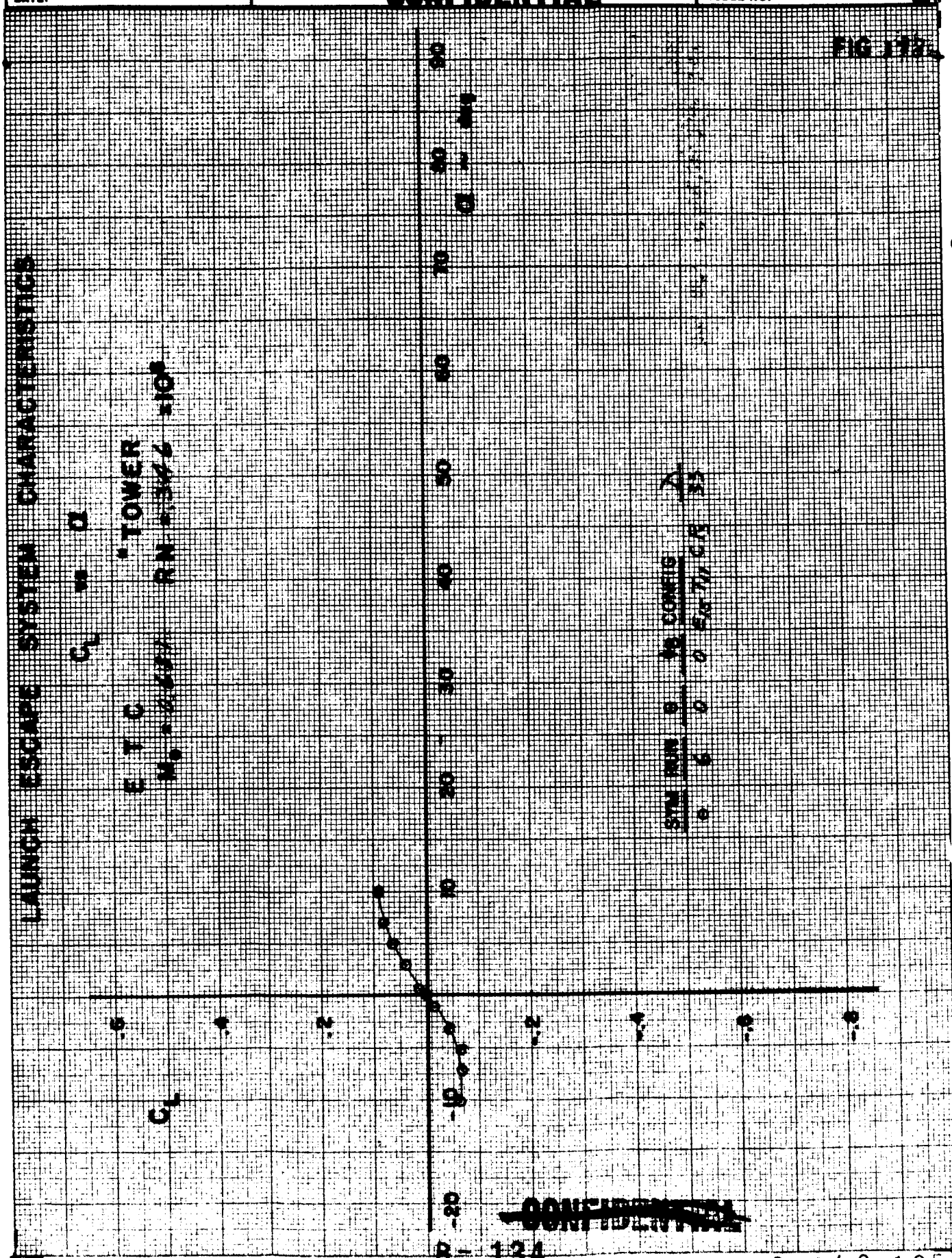



FIG 172

$C_L$ vs $\alpha$

6

~~CONFIDENTIAL~~



1033-G-13 NEW 5-62

S1D62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

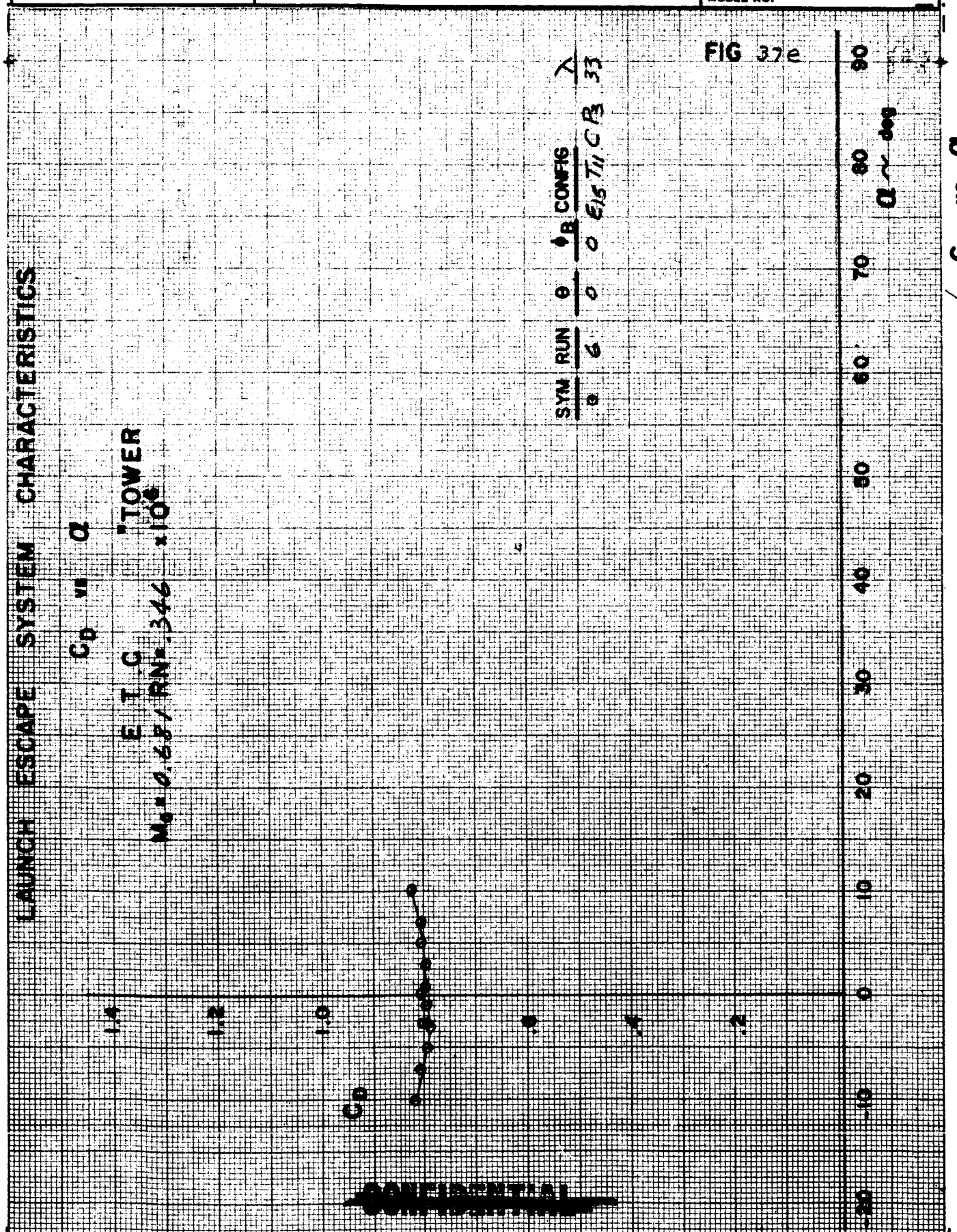



FIG 37e

[redacted]



1033-G-14 NEW 5-62

[redacted]

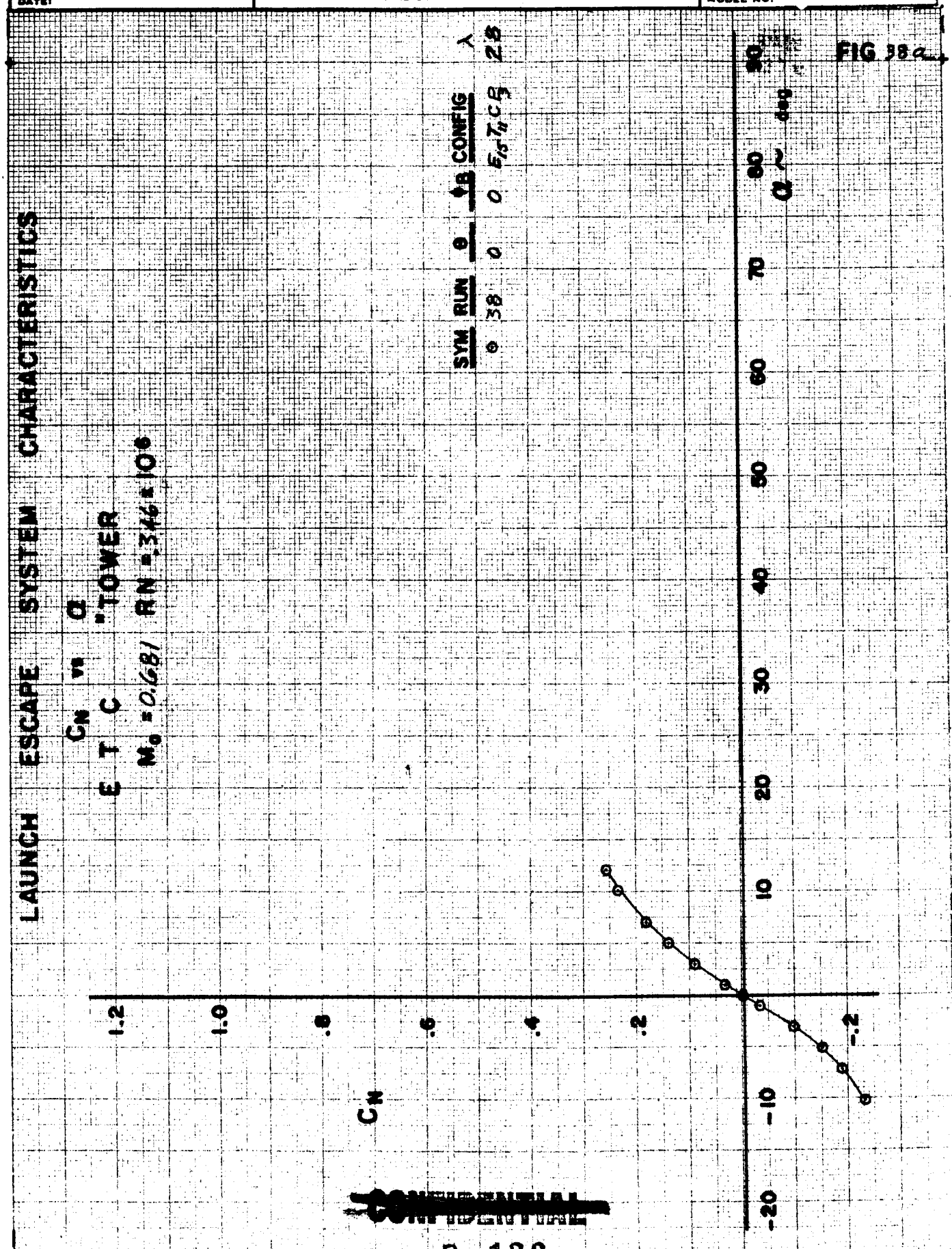



FIG 38a

38 $C_N$ vs $\alpha$

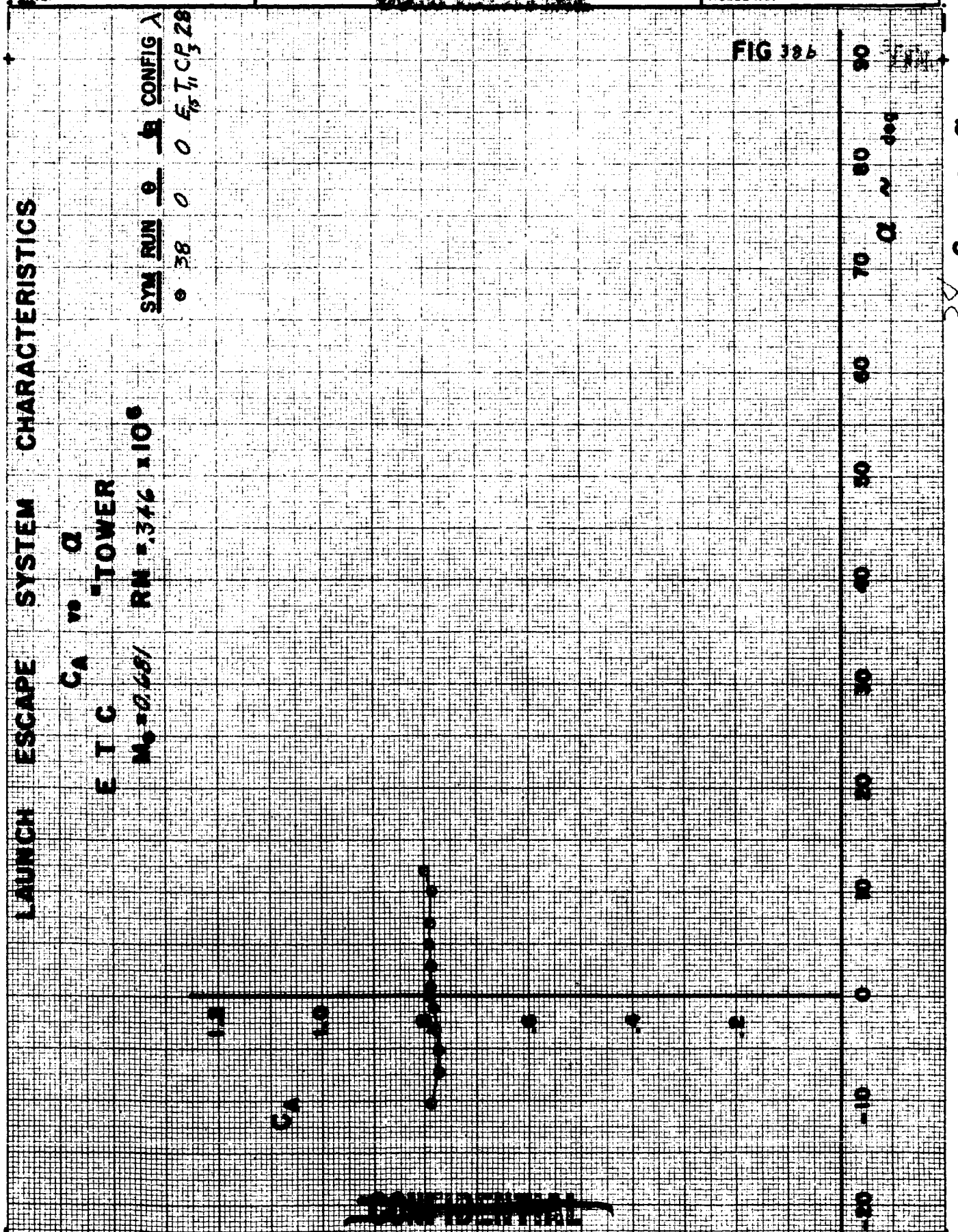
[redacted]



1033-G-10 NEW 5-62

S1062-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

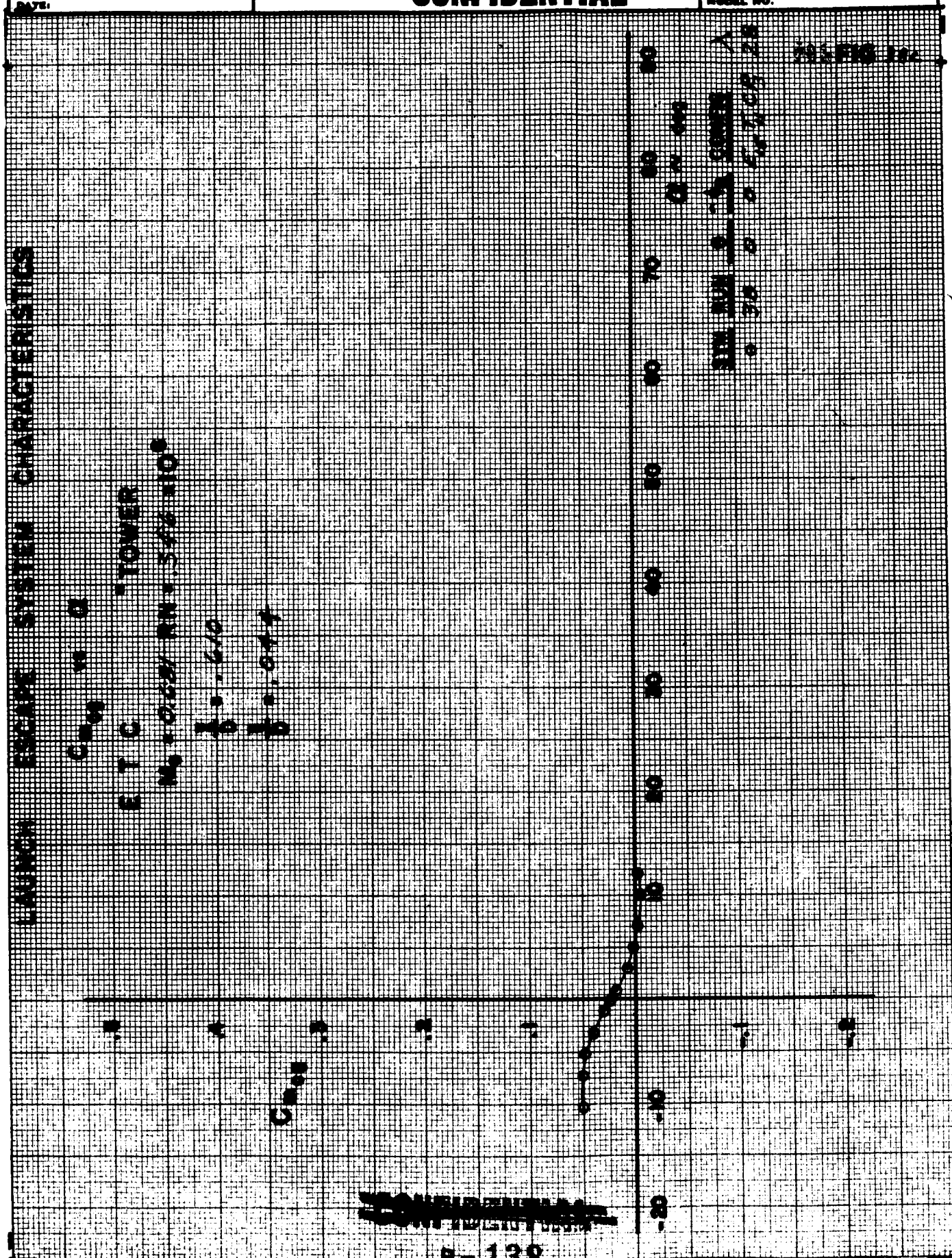



[redacted]



1033-6-11 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




38

~~CONFIDENTIAL~~

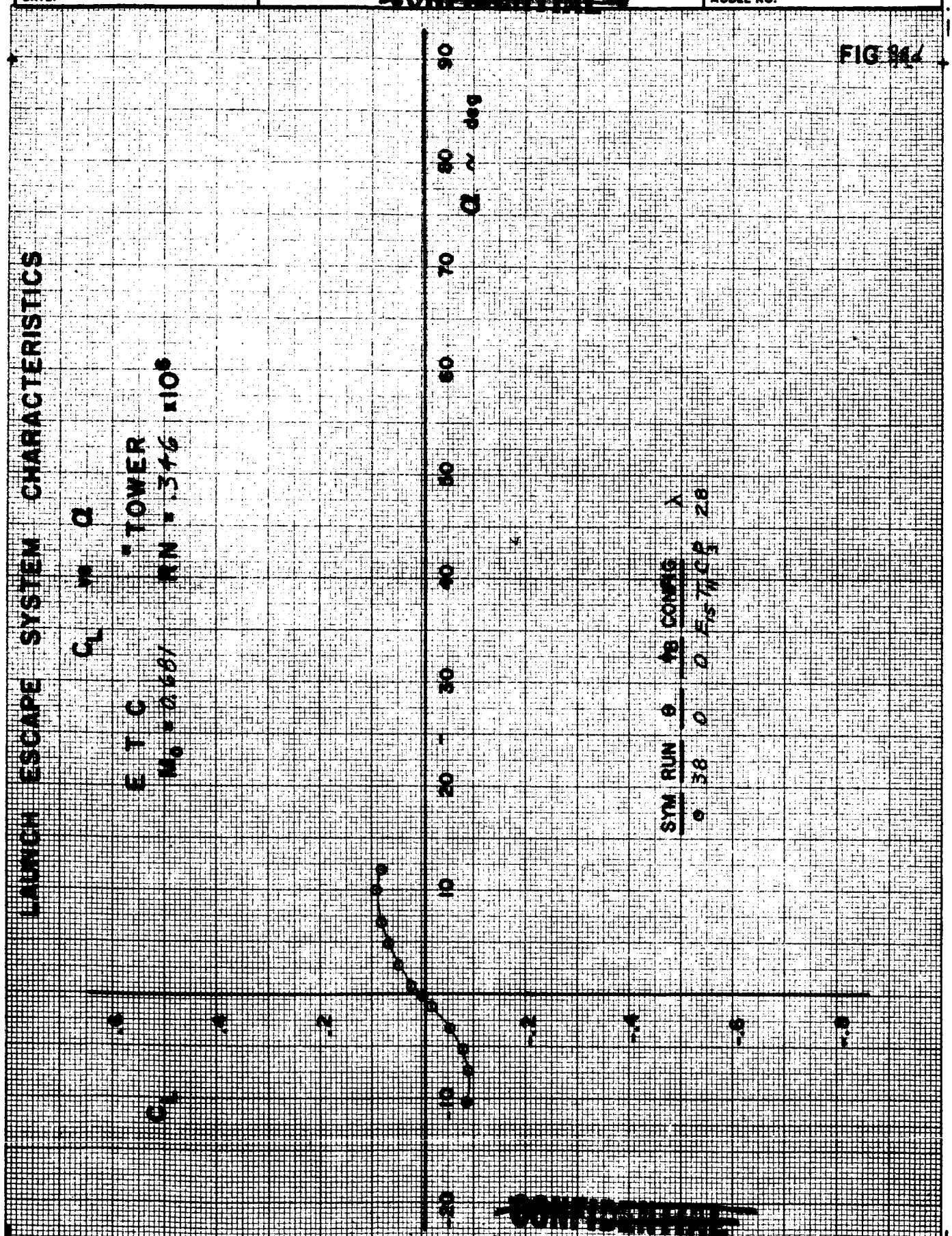


1033-6-12 NEW 5-62

S1062-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

FIG 94




38 $C_L$ vs $\alpha$

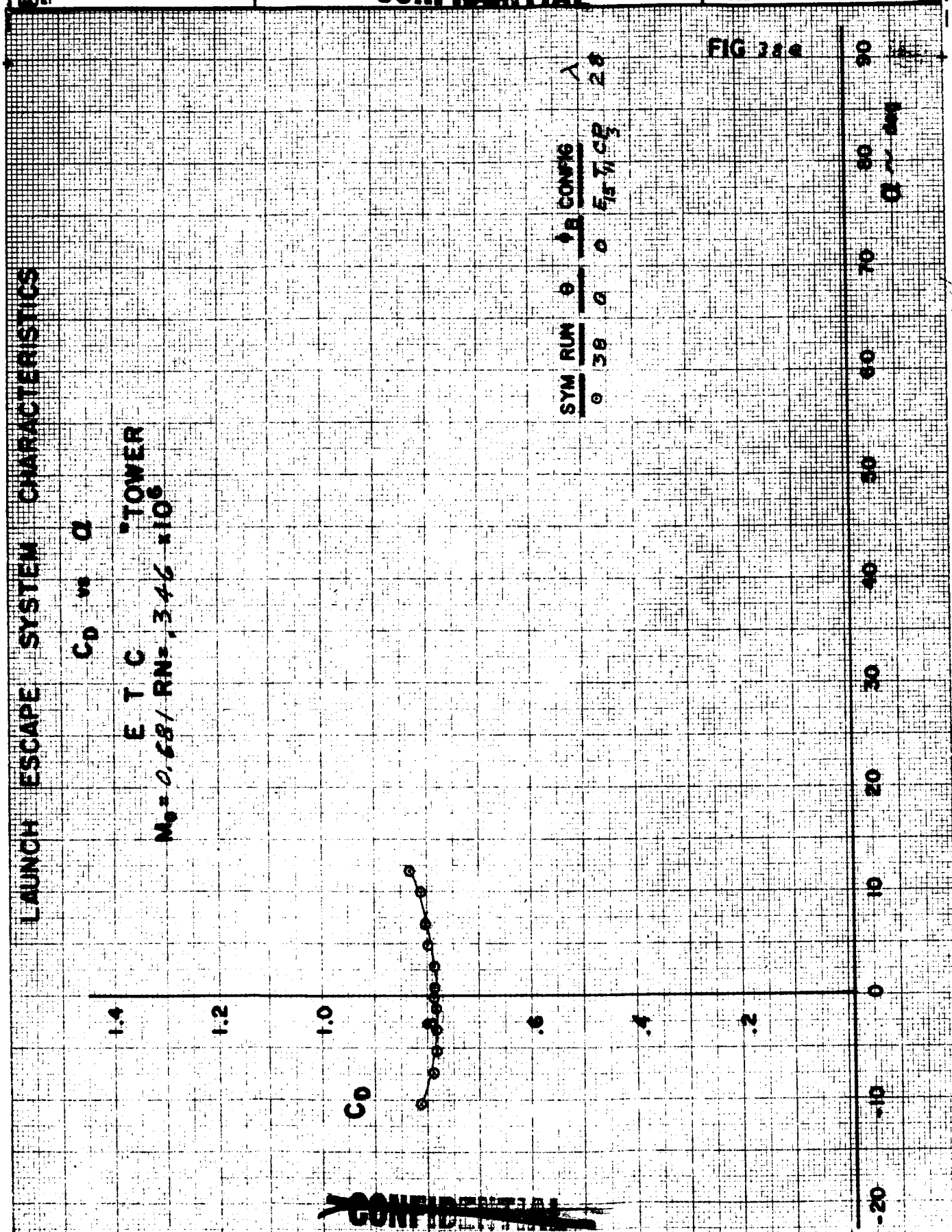
[redacted]



1033-6-13 NEW 5-62

SID 62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




38 $C_D$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

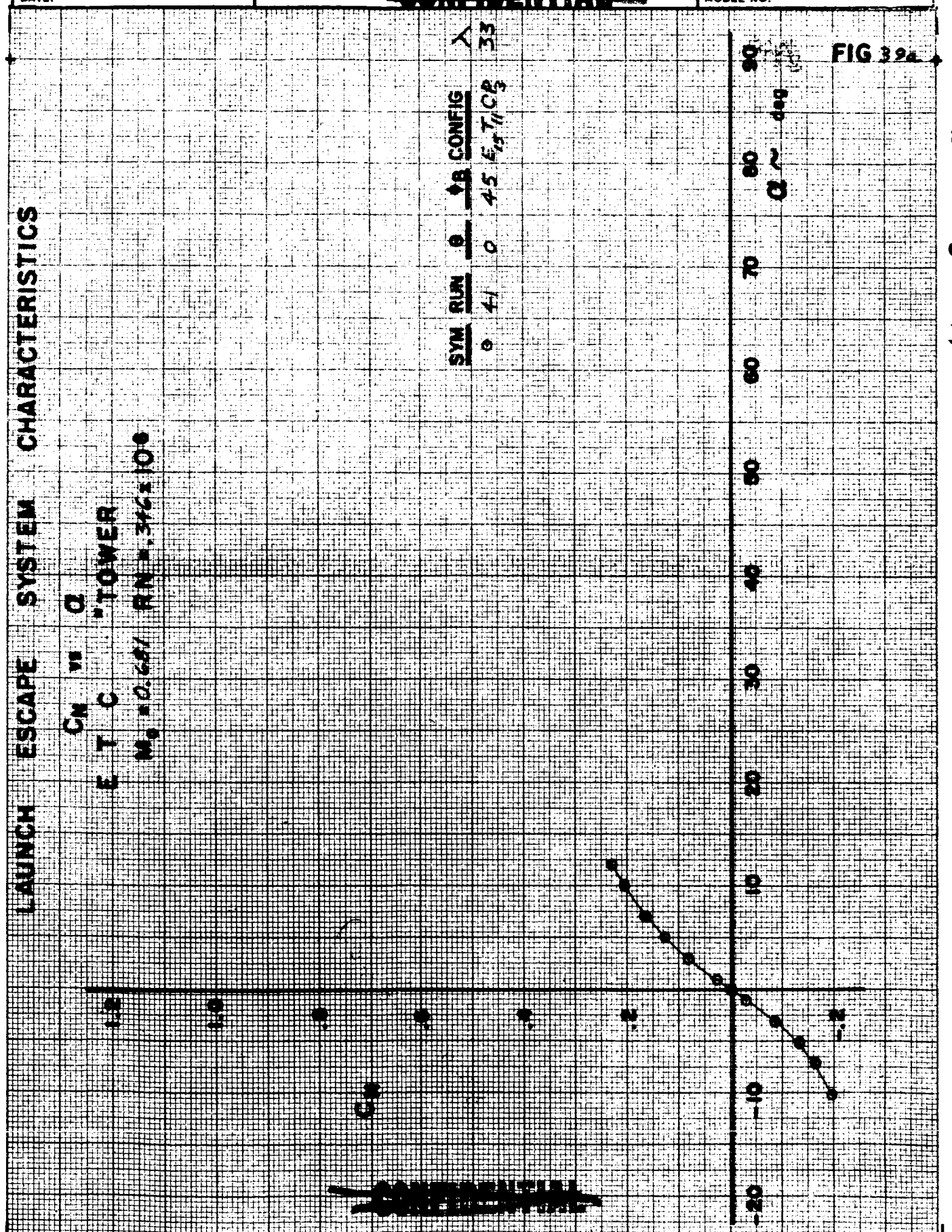



FIG 39a

$C_N$ vs $\alpha$

41

~~CONFIDENTIAL~~

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

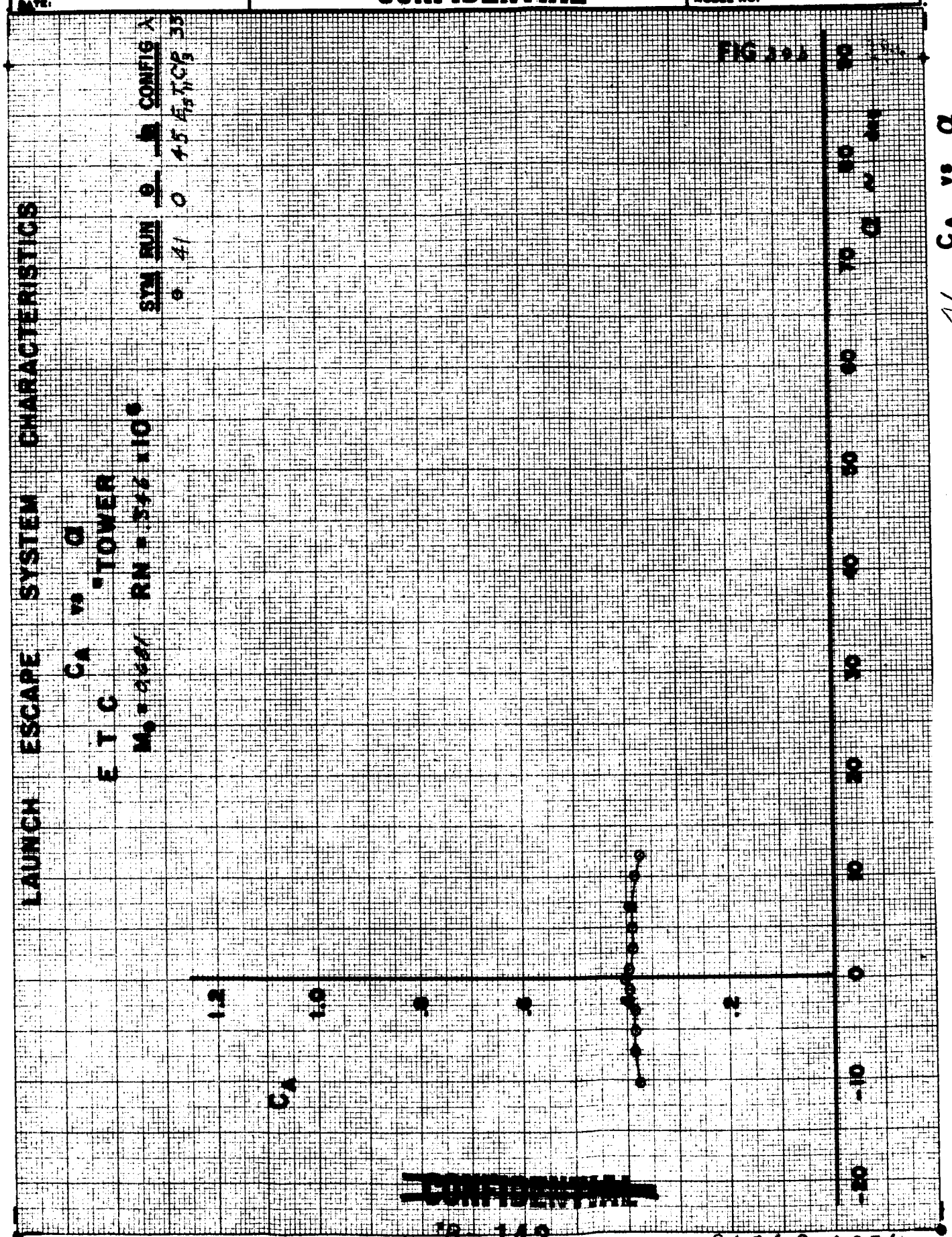



FIG 39b

41 $C_A$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

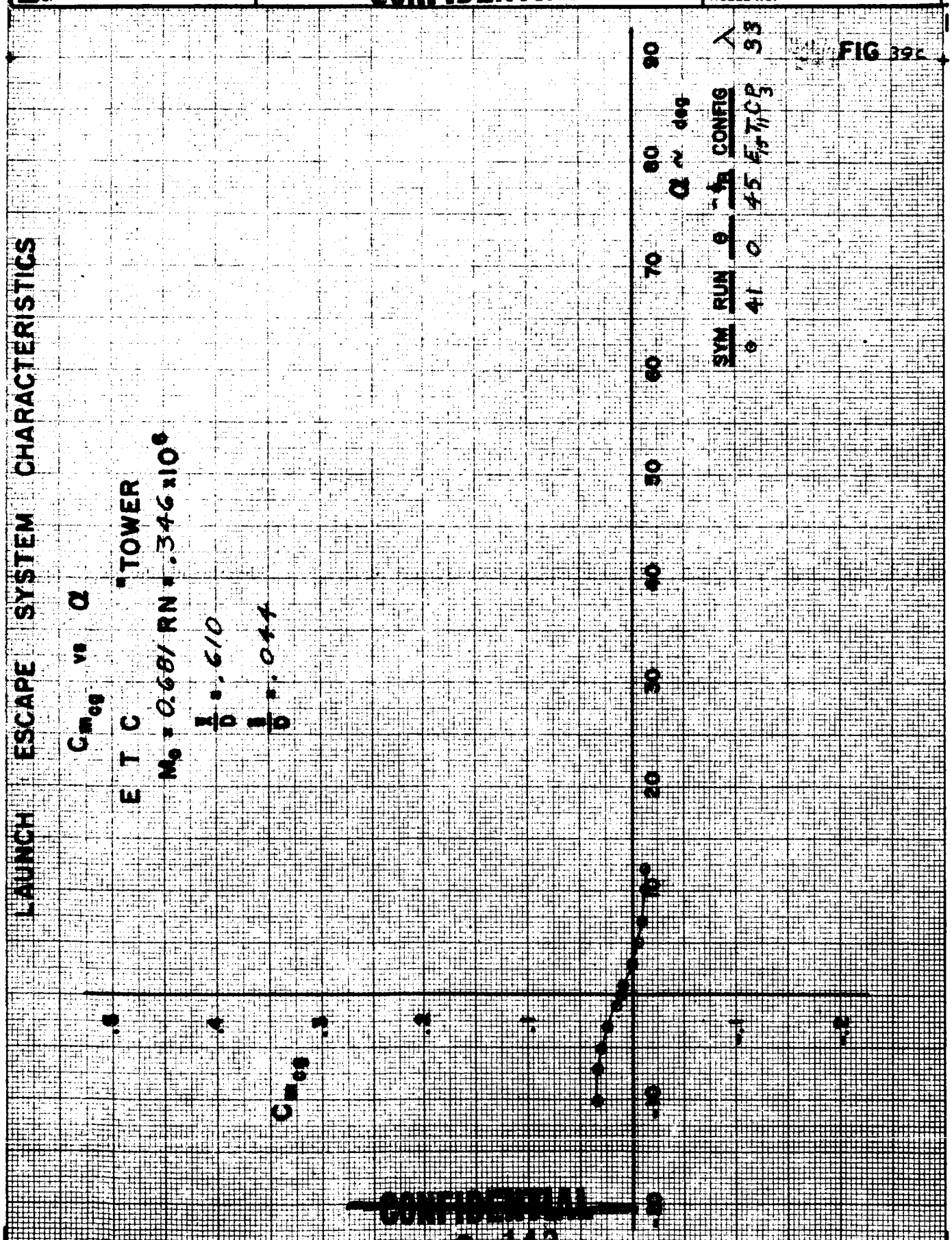



FIG 39c

~~CONFIDENTIAL~~

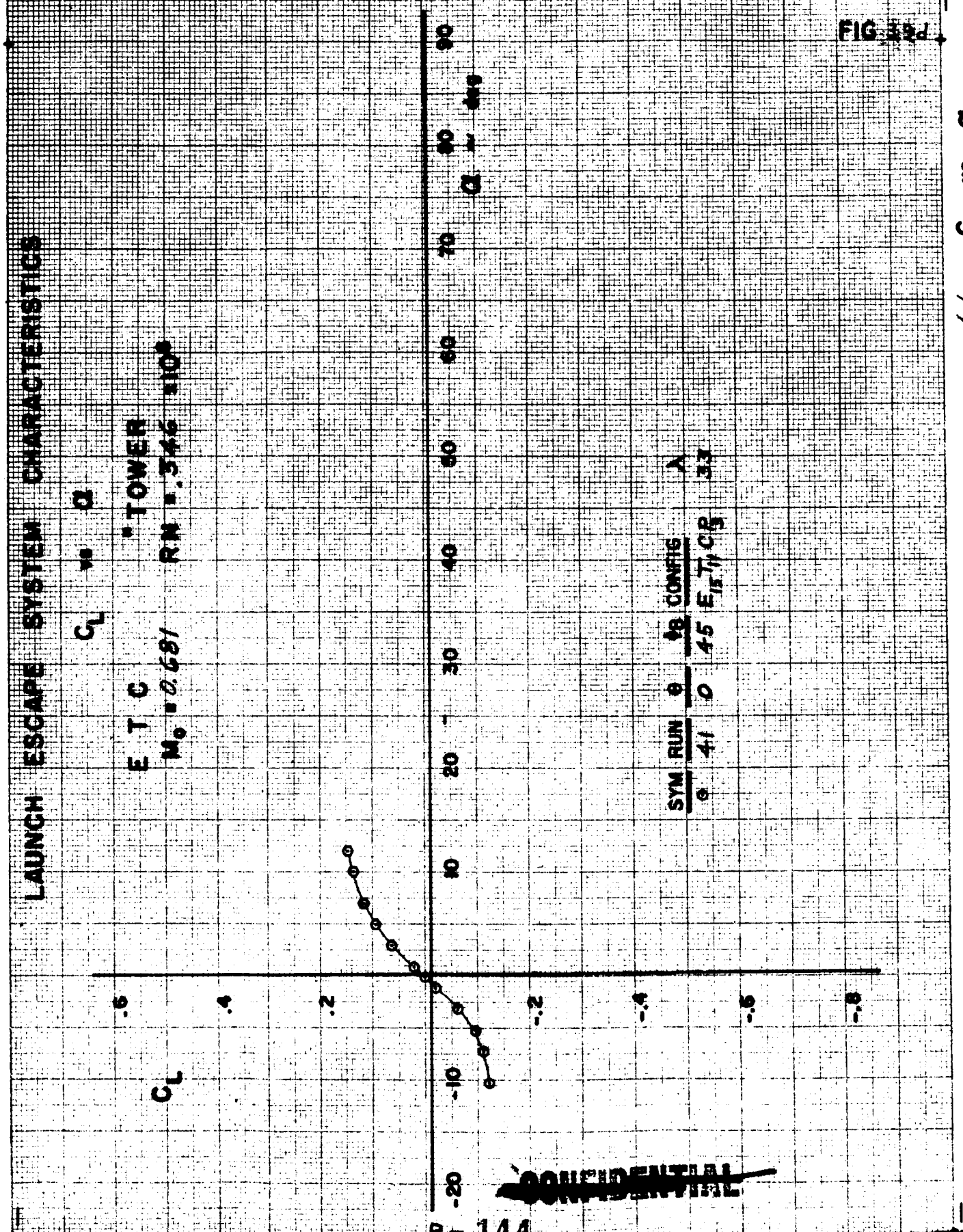


1033-G-12 NEW 5-62

S1062-4056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 39d




41 $C_L$ vs $\alpha$

~~CONFIDENTIAL~~



1033-G-13 NEW 5-62

ST062-1056

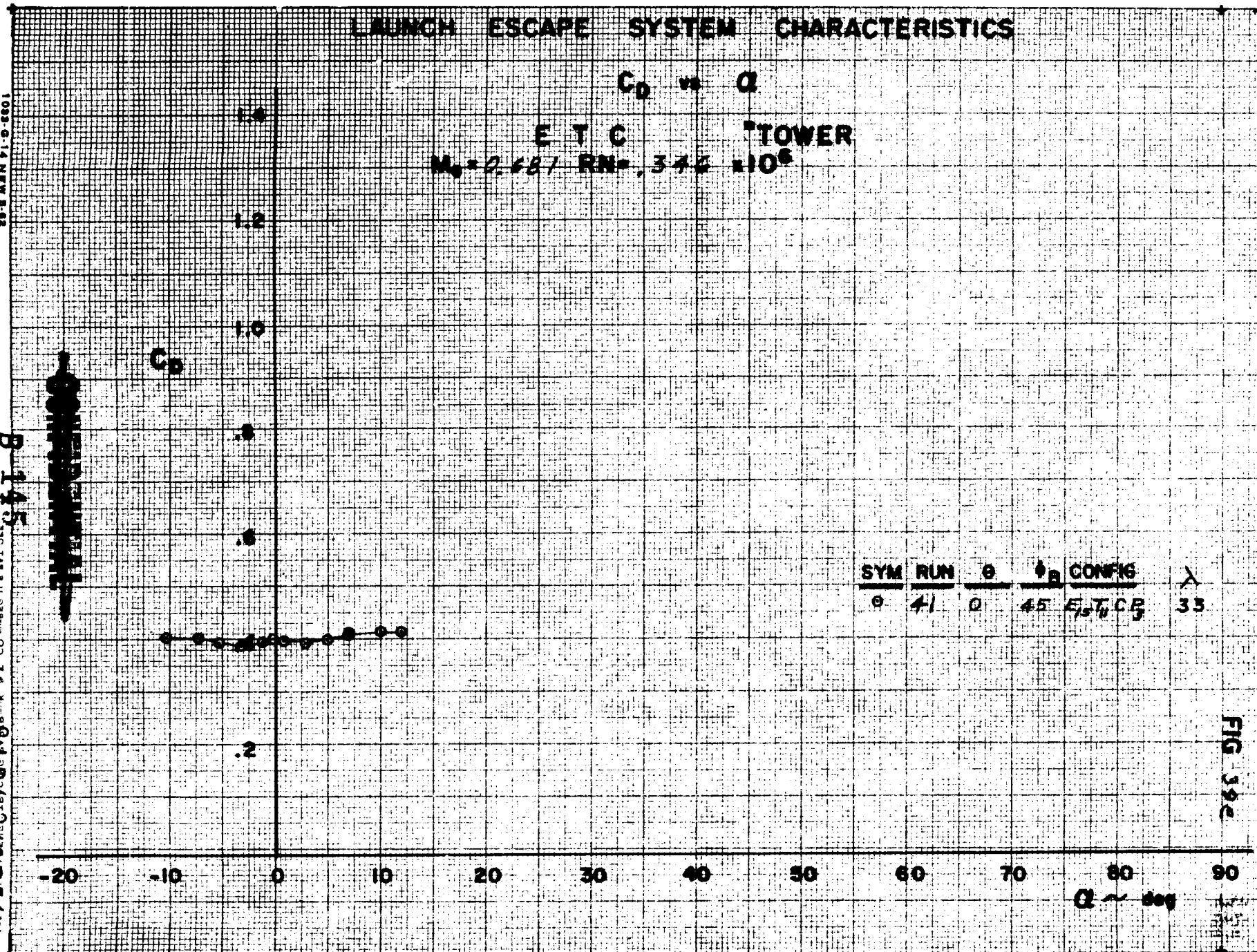



FIG 32e

41 $C_D$ vs $\alpha$

PREPARED BY:
CHECKED BY:
DATE:

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

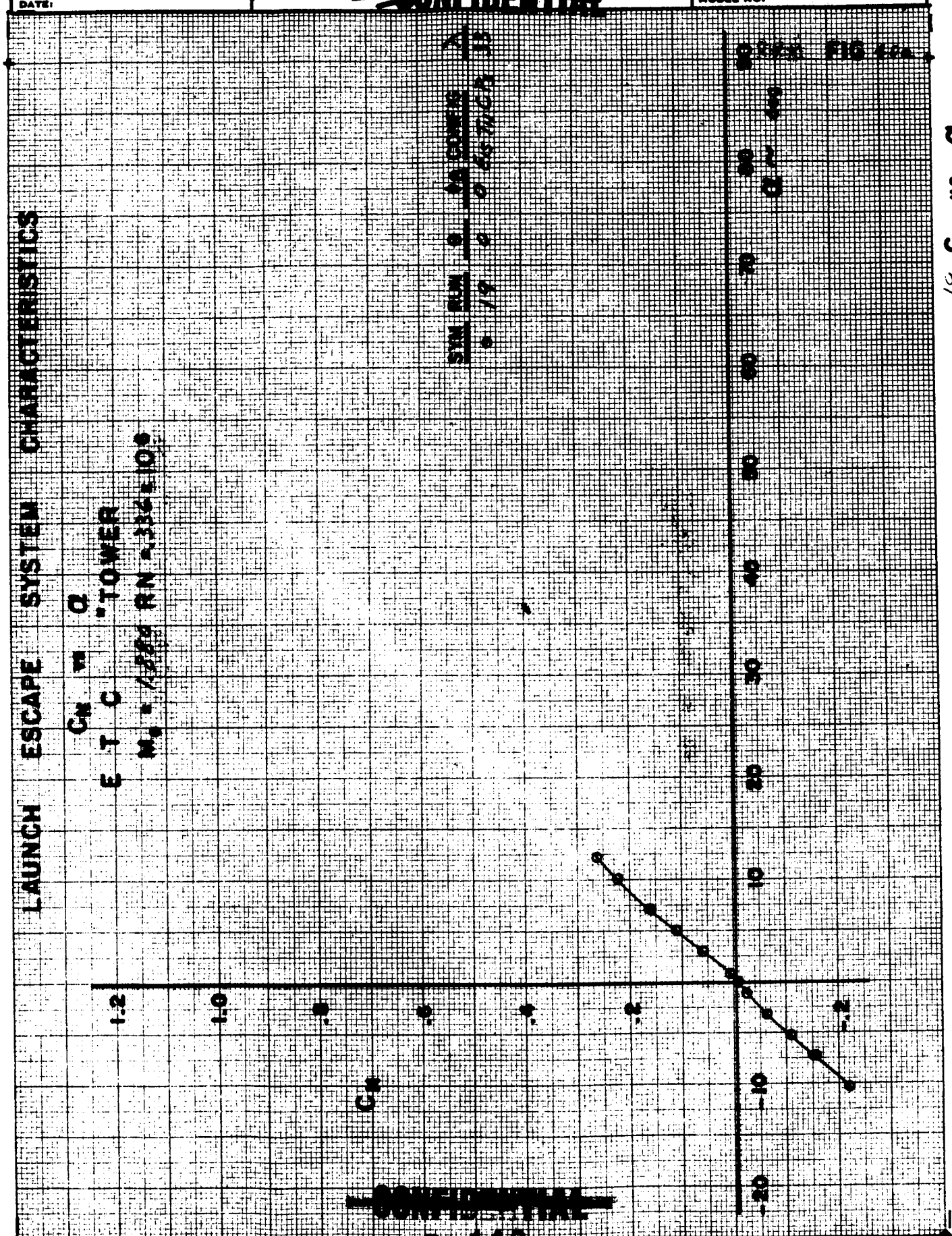
[redacted]

MODEL NO.
REPORT NO.
PAGE NO. OF

1089-G-14 NEW 8-62

B 145

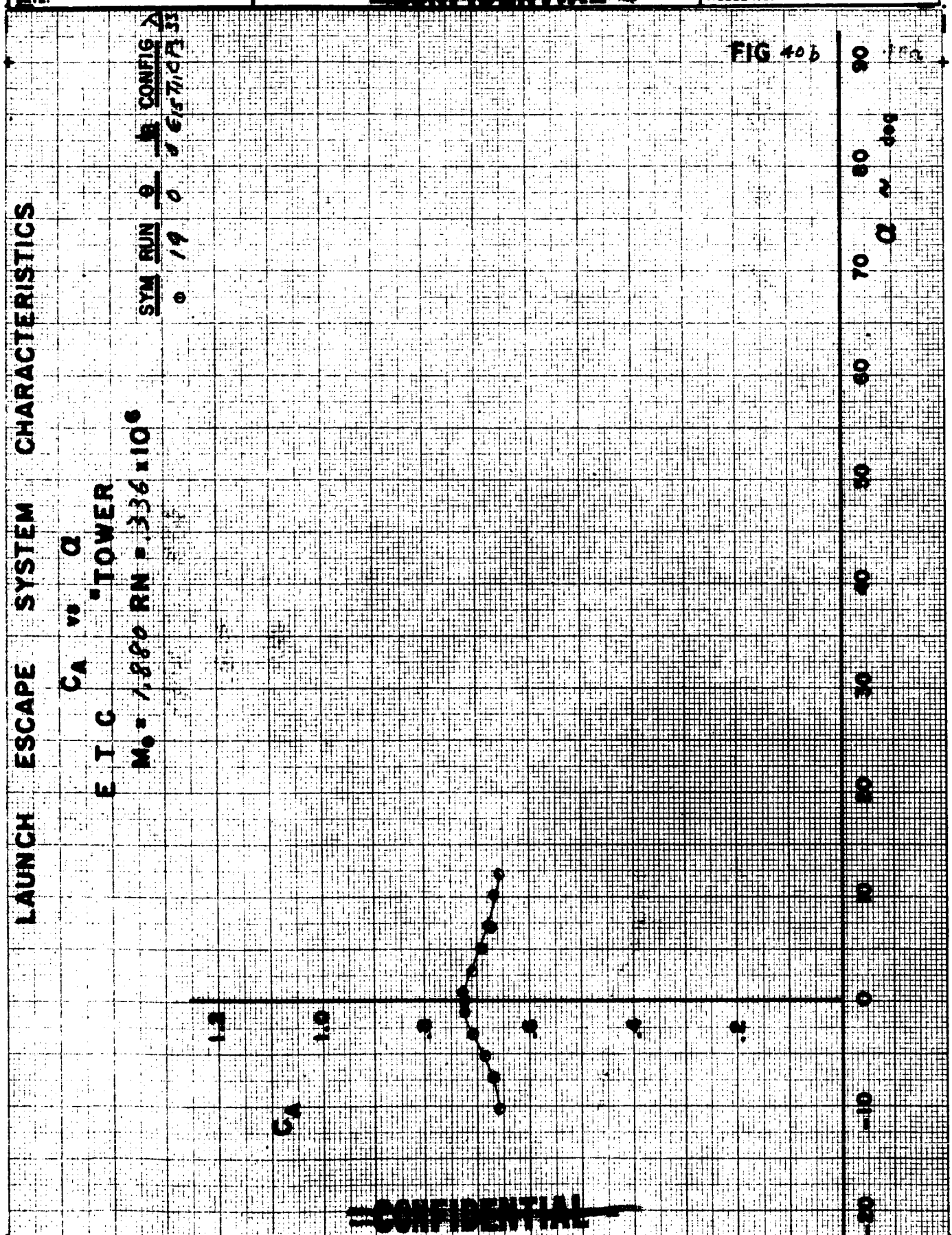
| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




19 $C_N$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

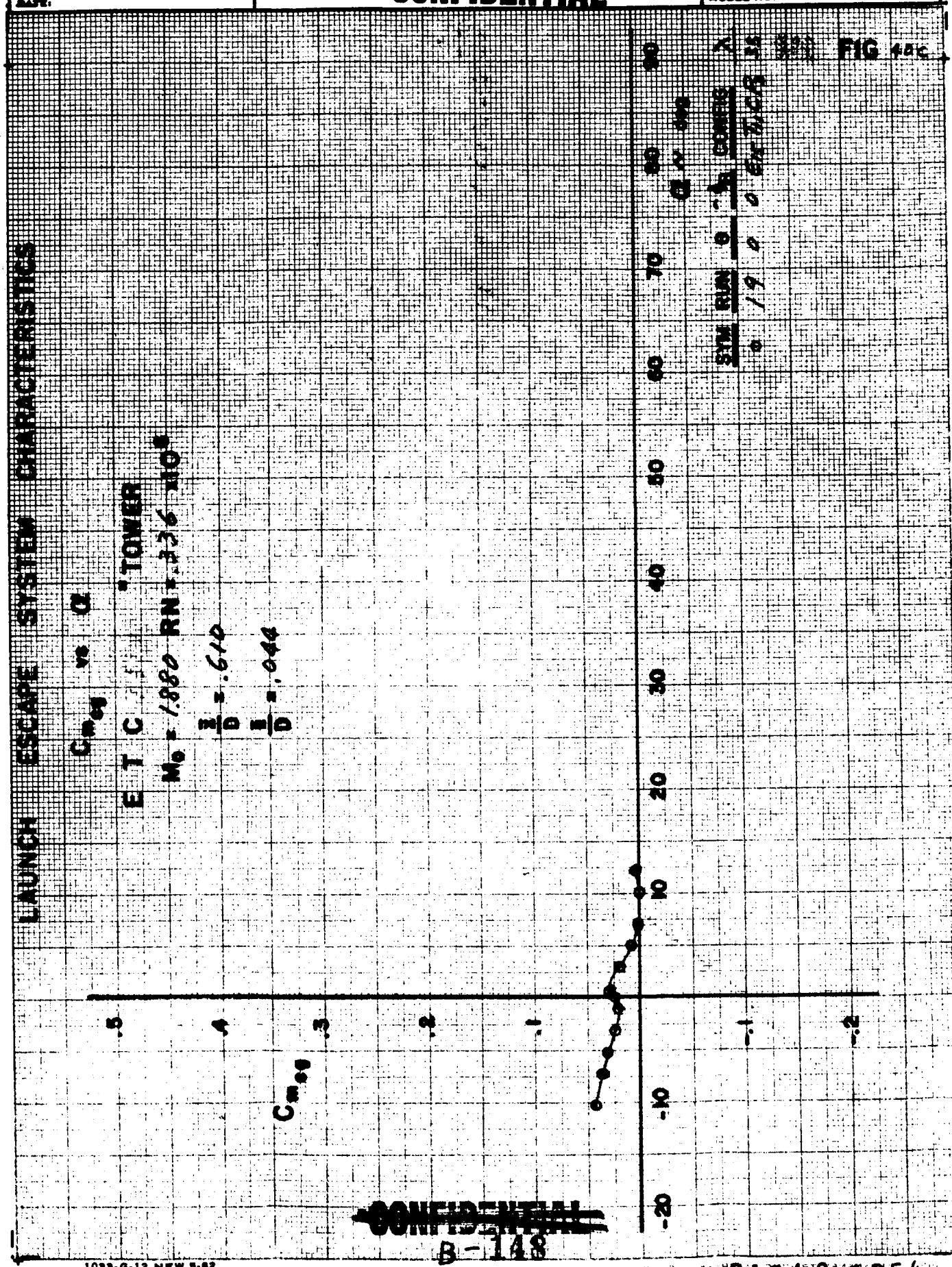



~~CONFIDENTIAL~~



1033-G-11 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




19 $C_m$ vs α

~~CONFIDENTIAL~~



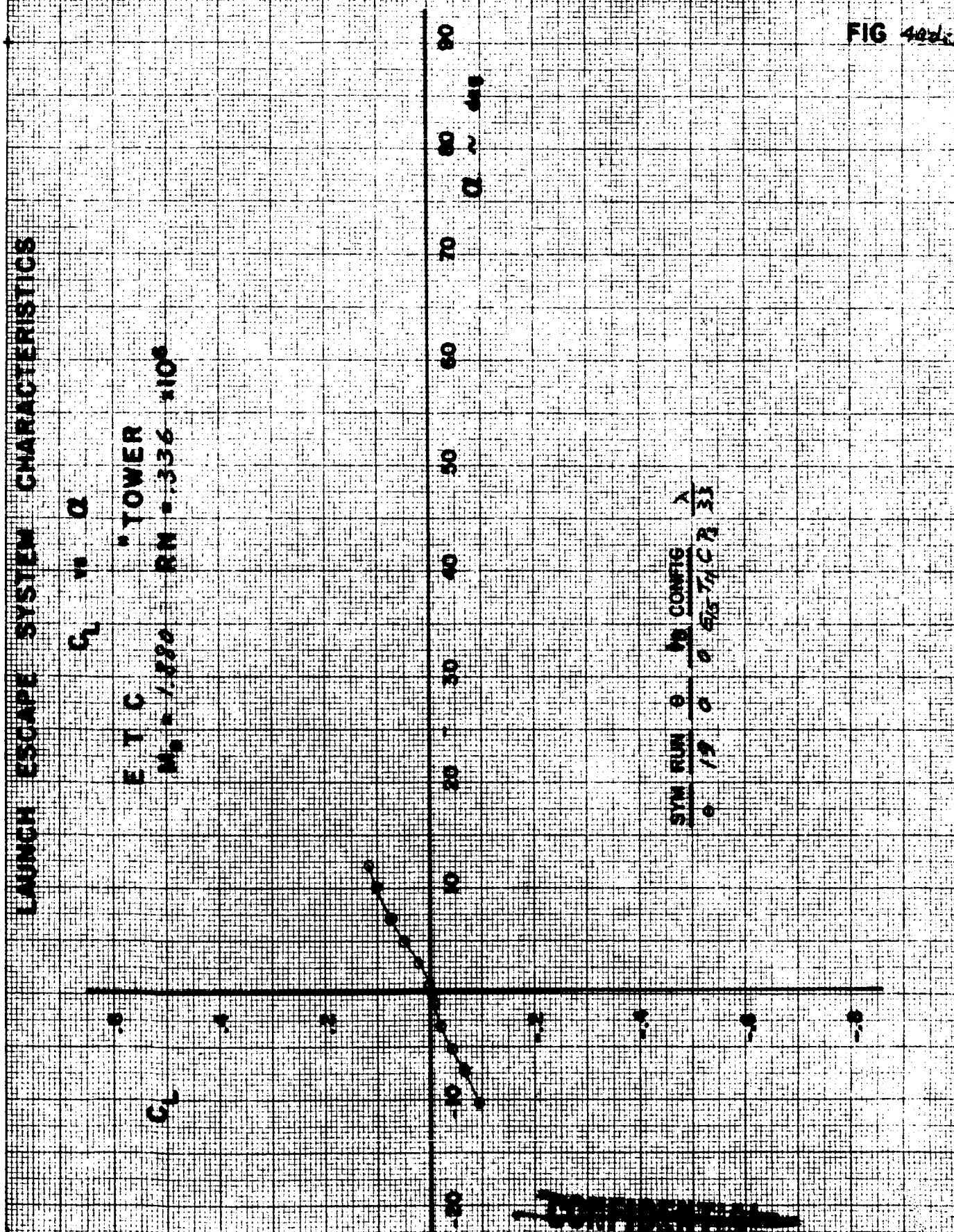
1033-G-12 NEW 5-62

S1062-1056

FORM M-113-N2- (REV. 3-61)

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

FIG 4a

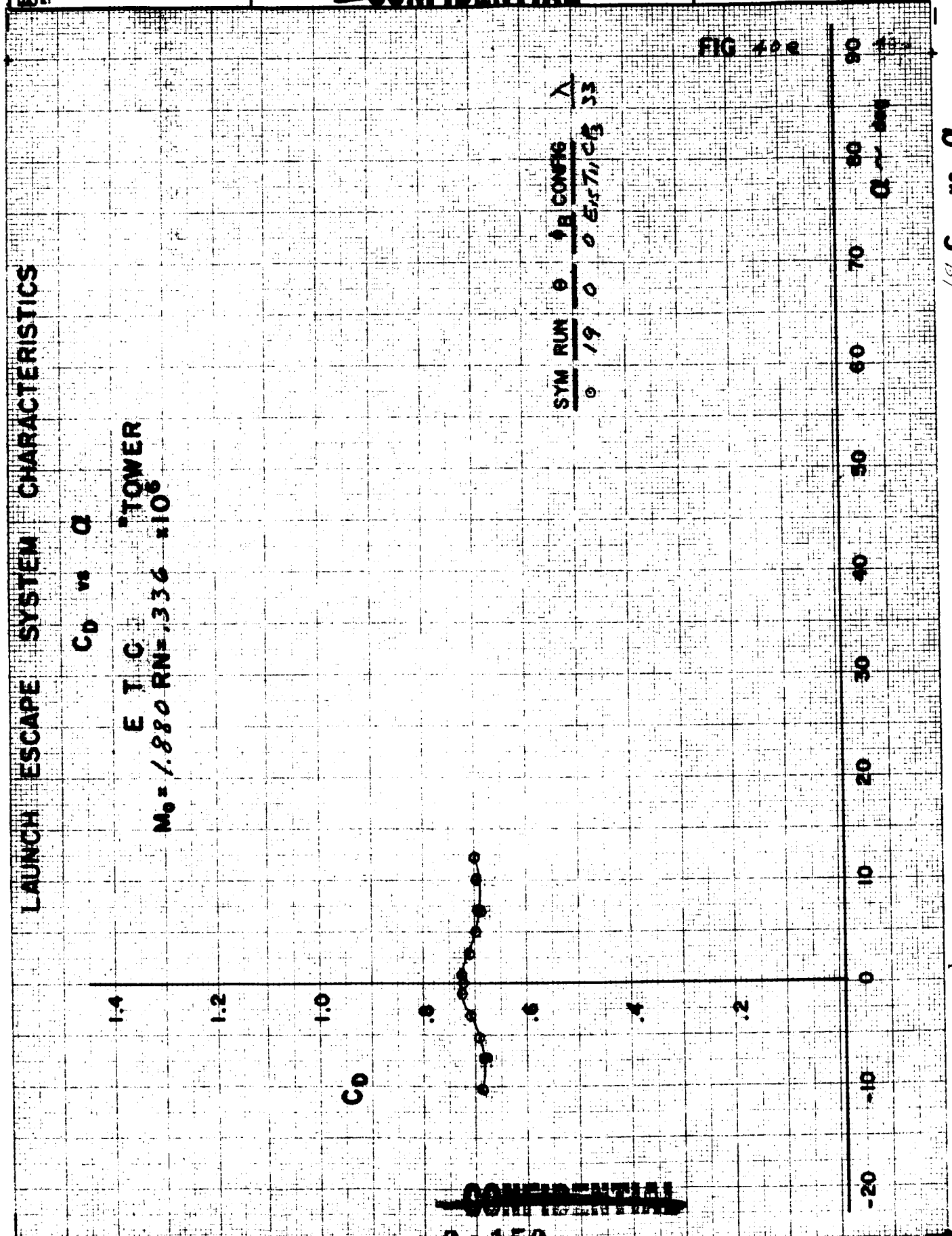



[redacted]



1033-G-13 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~



1033-G-14 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

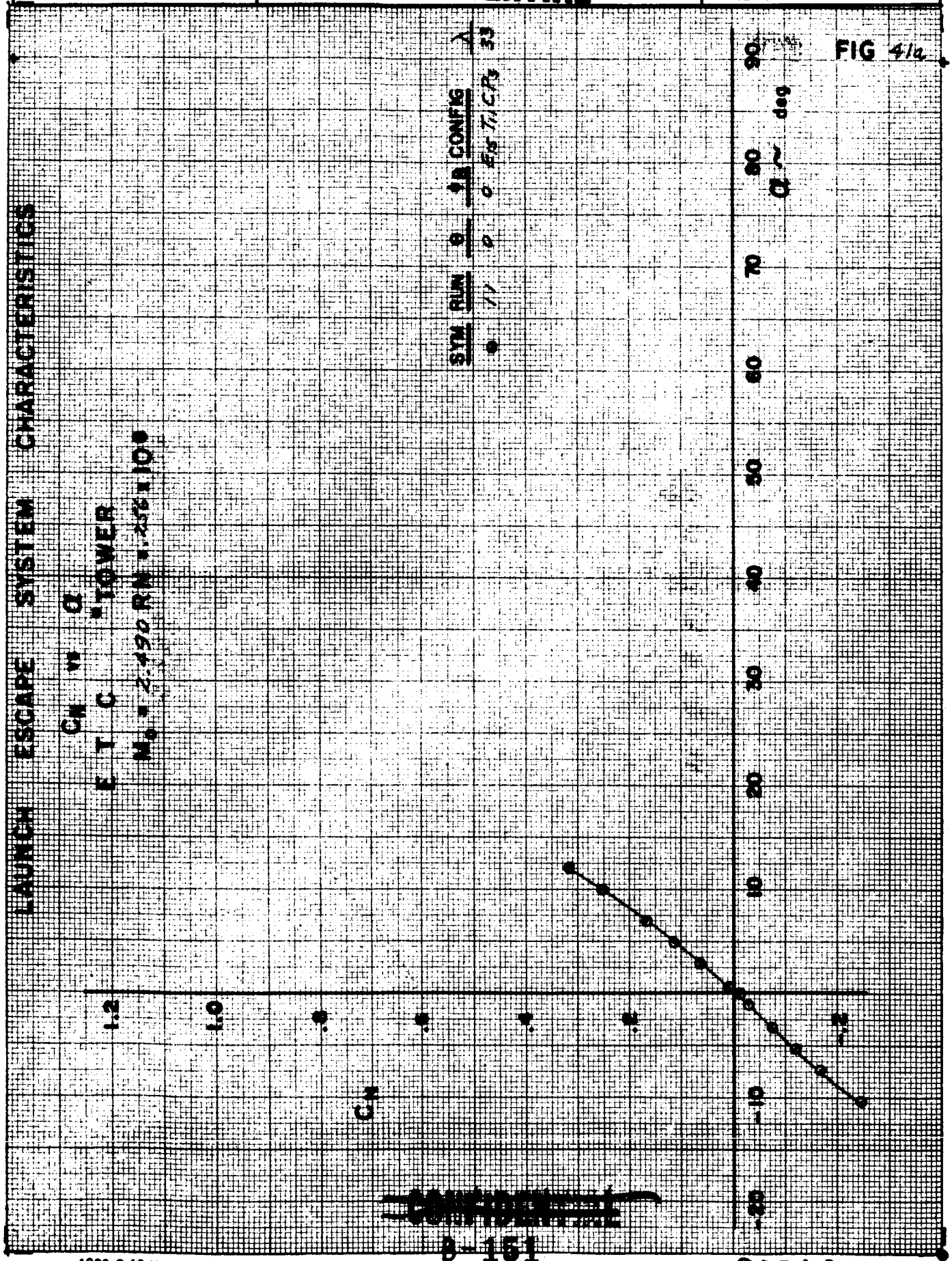



FIG 41a

// $C_N$ vs $\alpha$

~~CONFIDENTIAL~~



1022-G-10 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

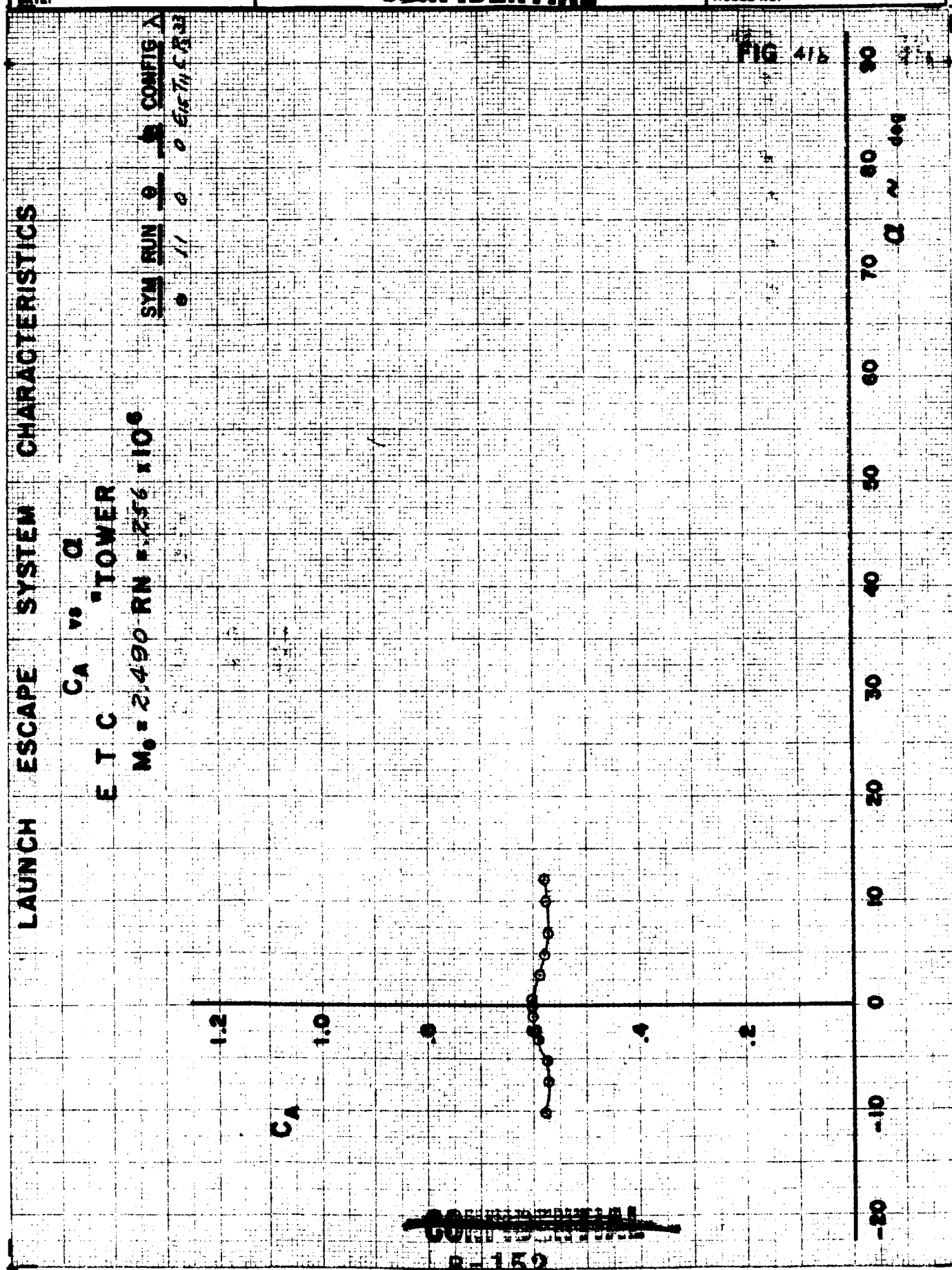



FIG 41b

~~CONFIDENTIAL~~



1033-G-11 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

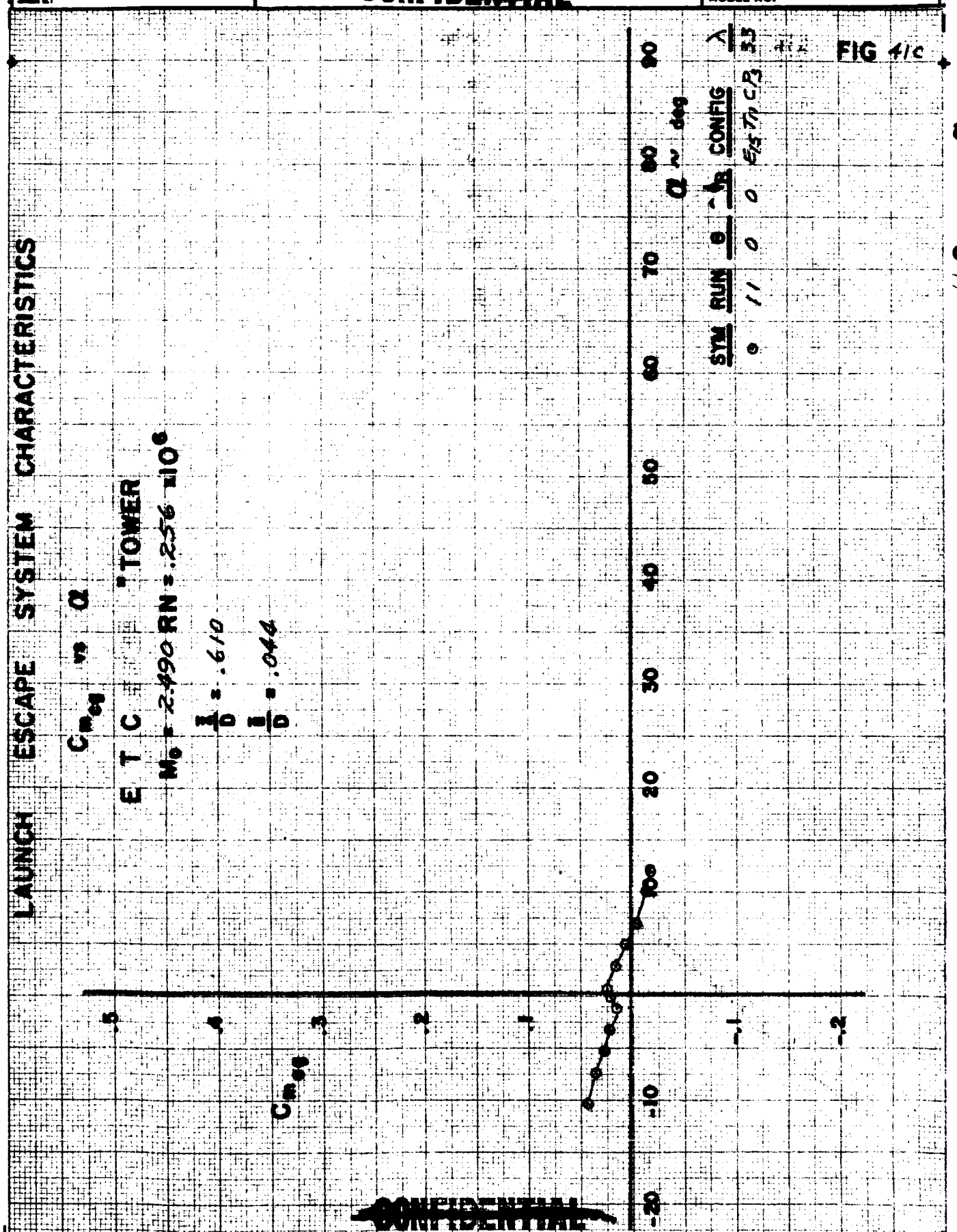



FIG 41c

// $C_{m_{cg}}$ vs $\alpha$

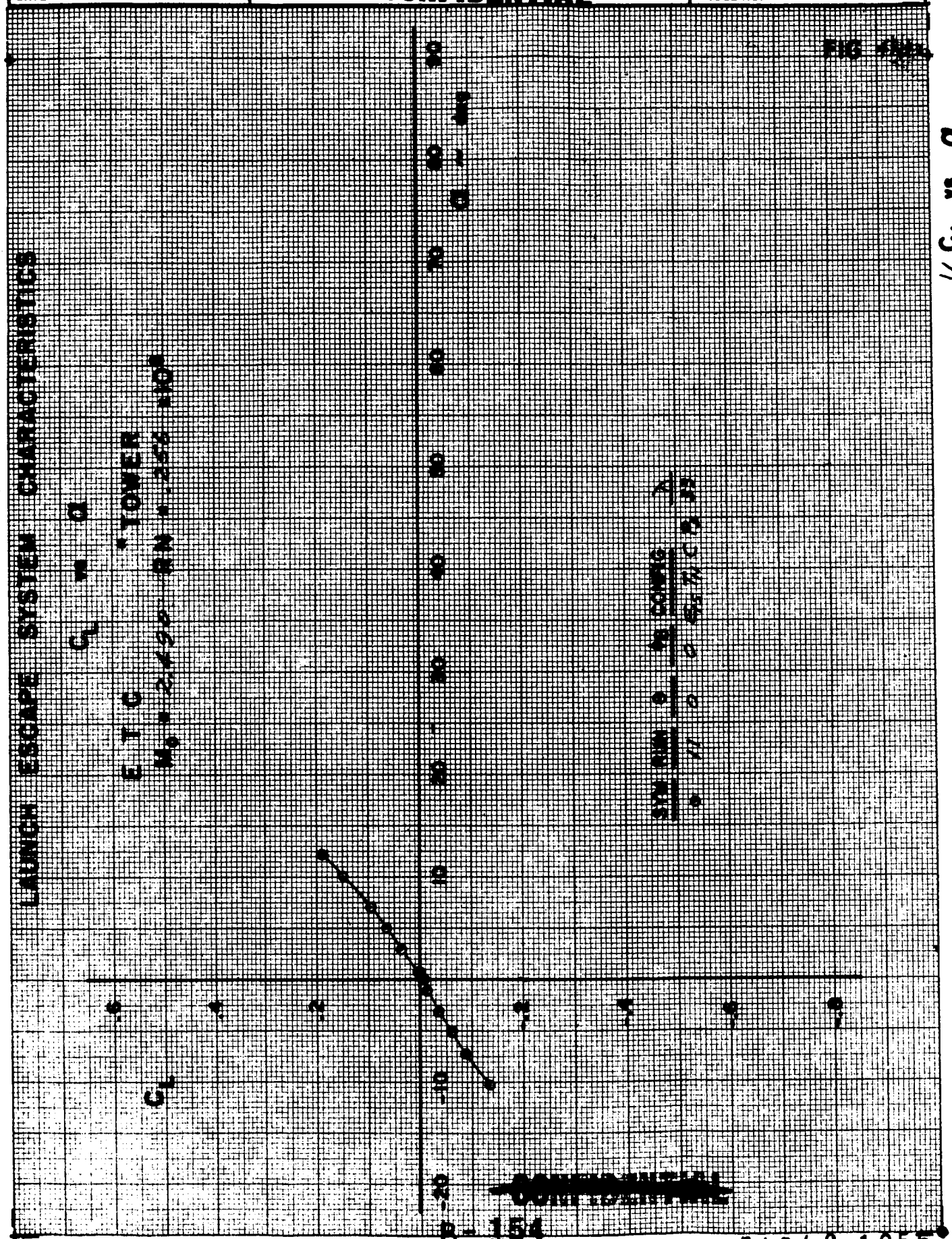
~~CONFIDENTIAL~~



1033-G-12 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 4

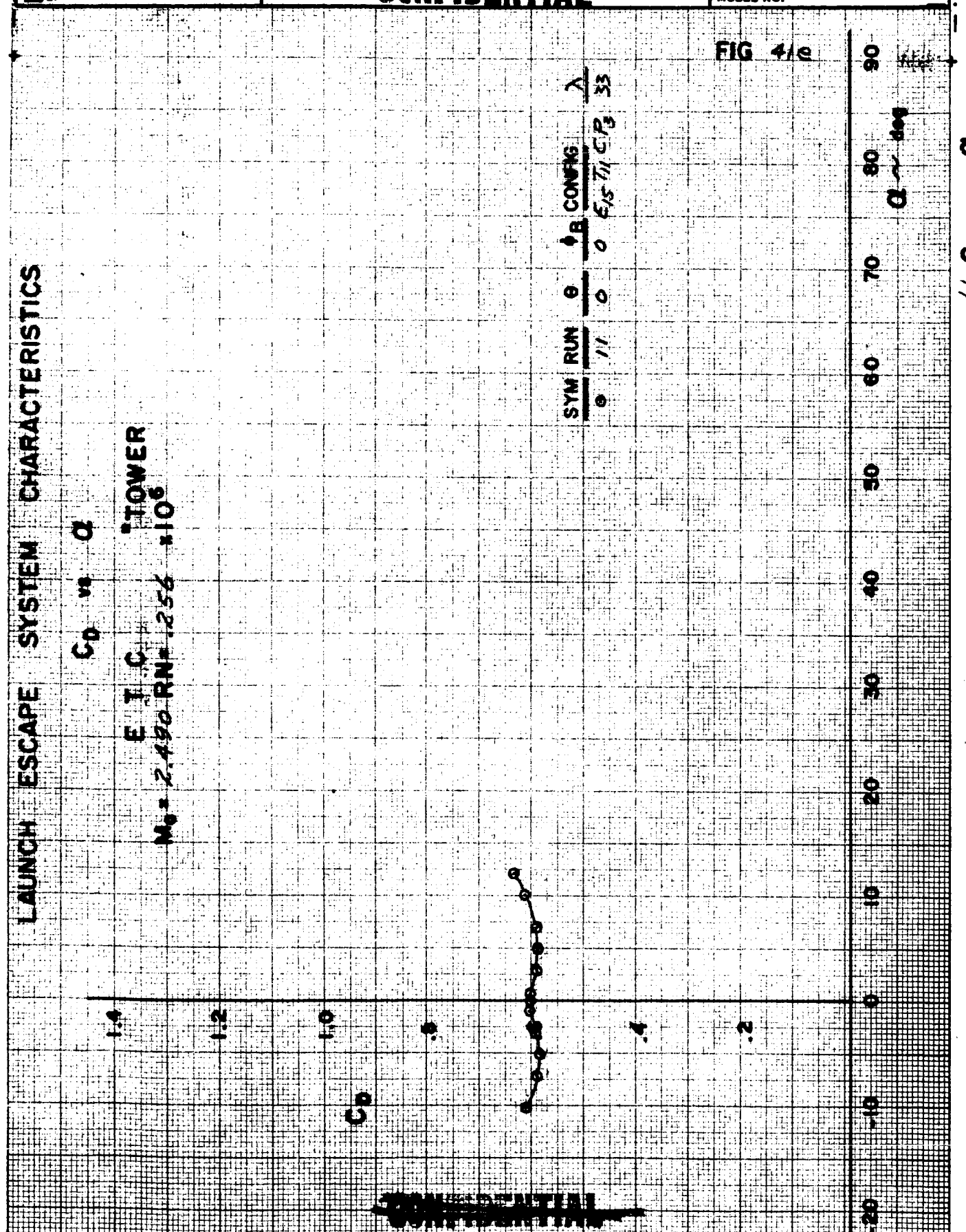



~~CONFIDENTIAL~~



1038-G-13 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~



1033-G-14 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

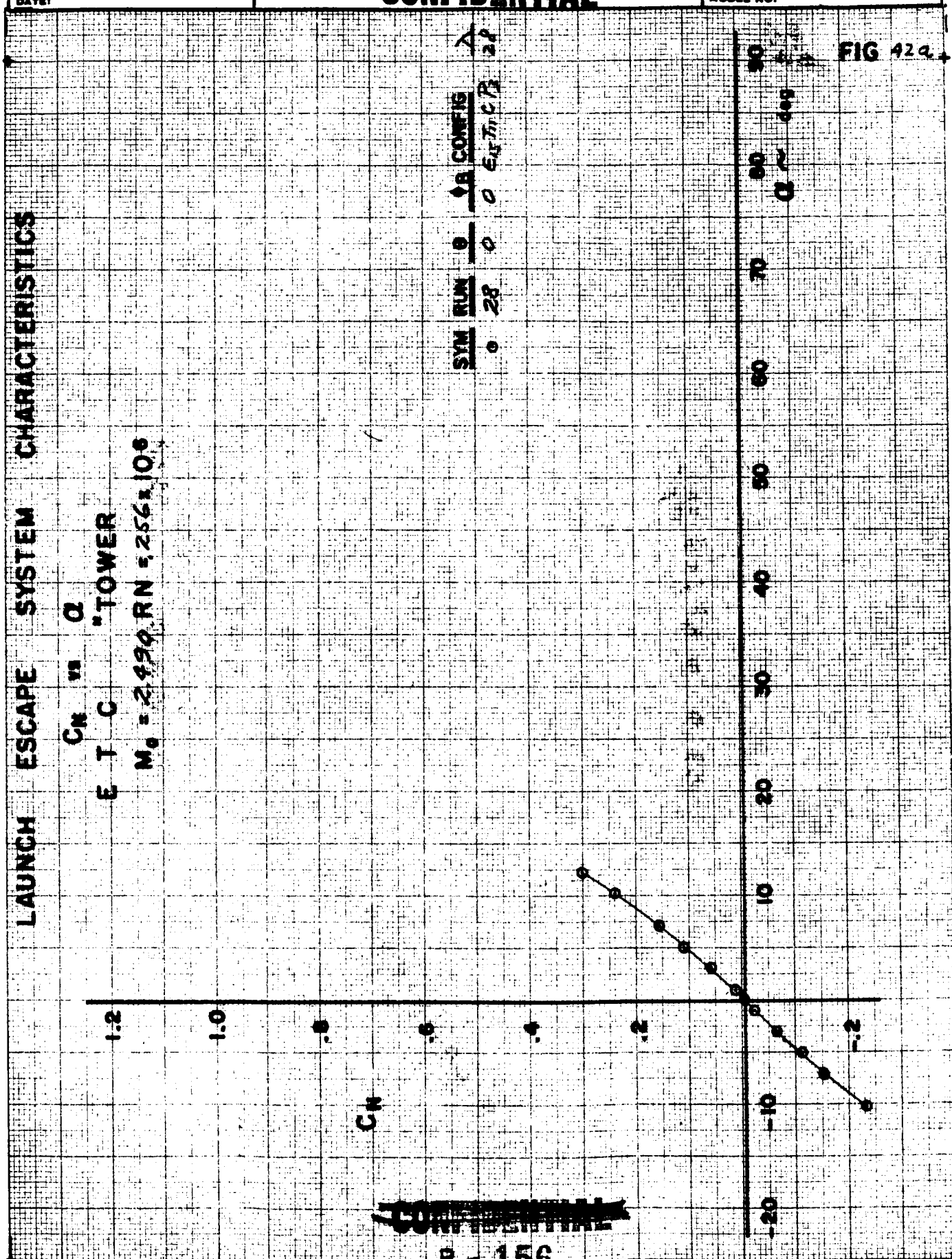


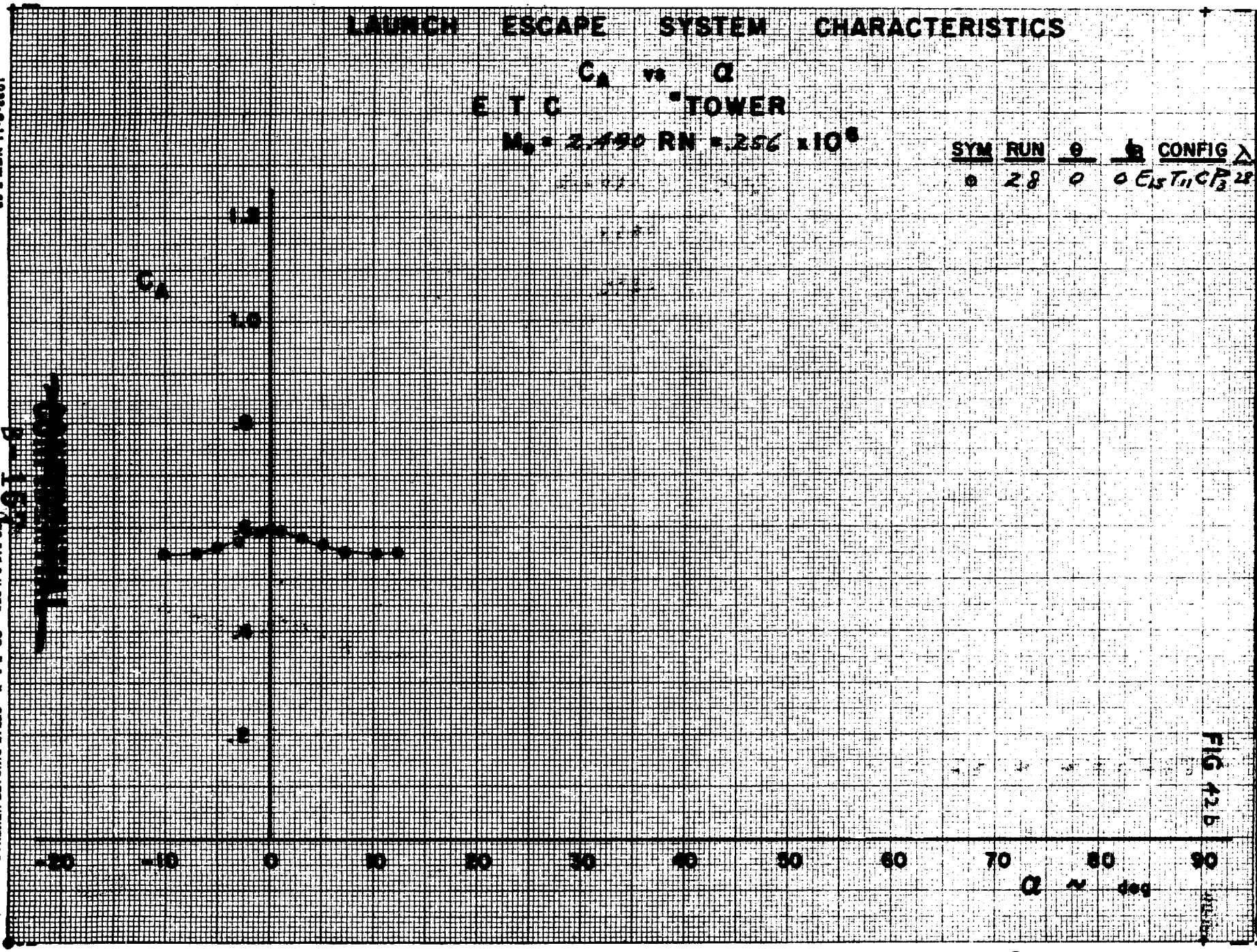

FIG 42a

28 $C_N$ vs $\alpha$

~~CONFIDENTIAL~~



1033-6-10 NEW 5-62




28 $C_A$ vs $\alpha$

FIG 42b

PREPARED BY: SAL

CHECKED BY:

DATE:

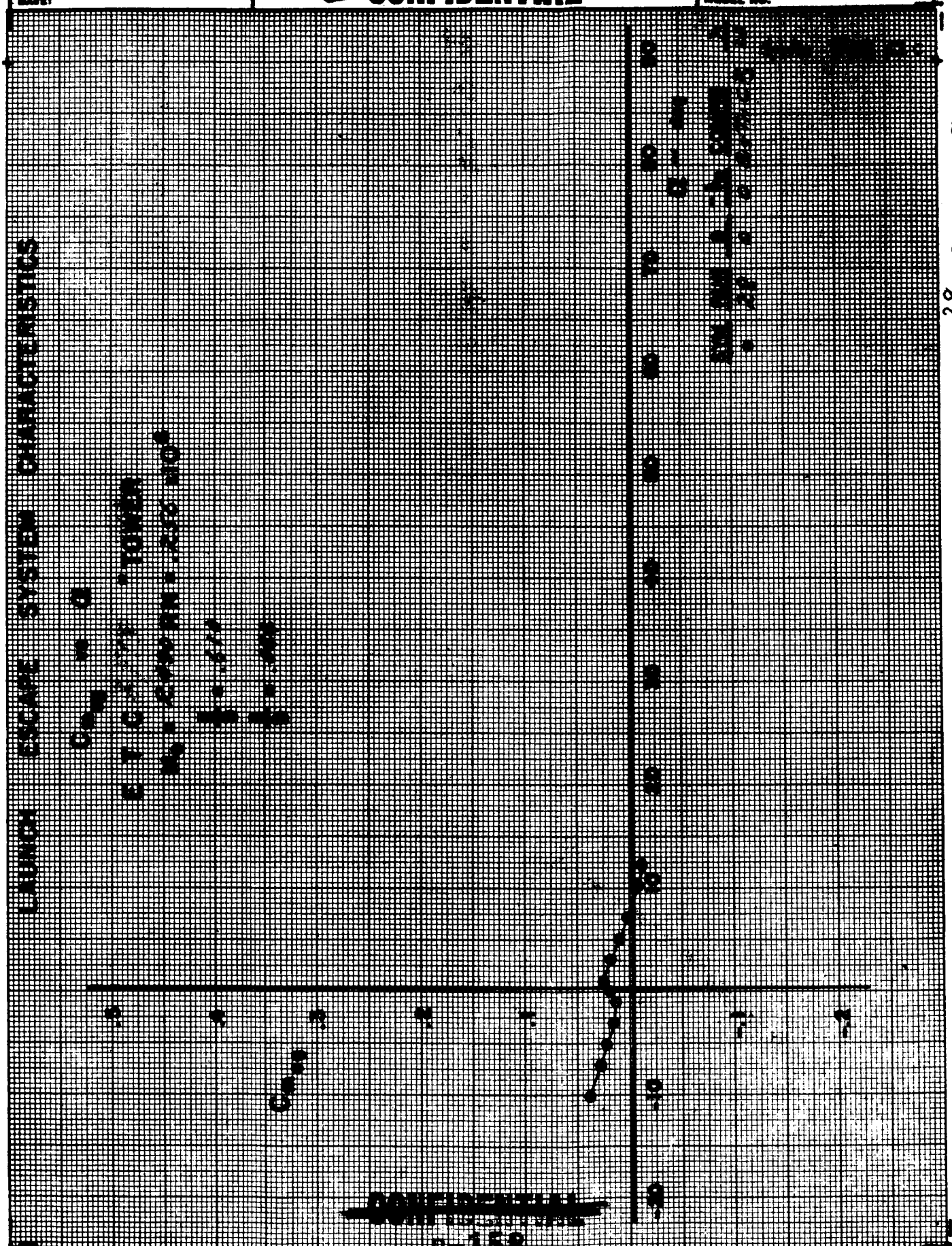
NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

PAGE NO. OF

REPORT NO.

MODEL NO.

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |



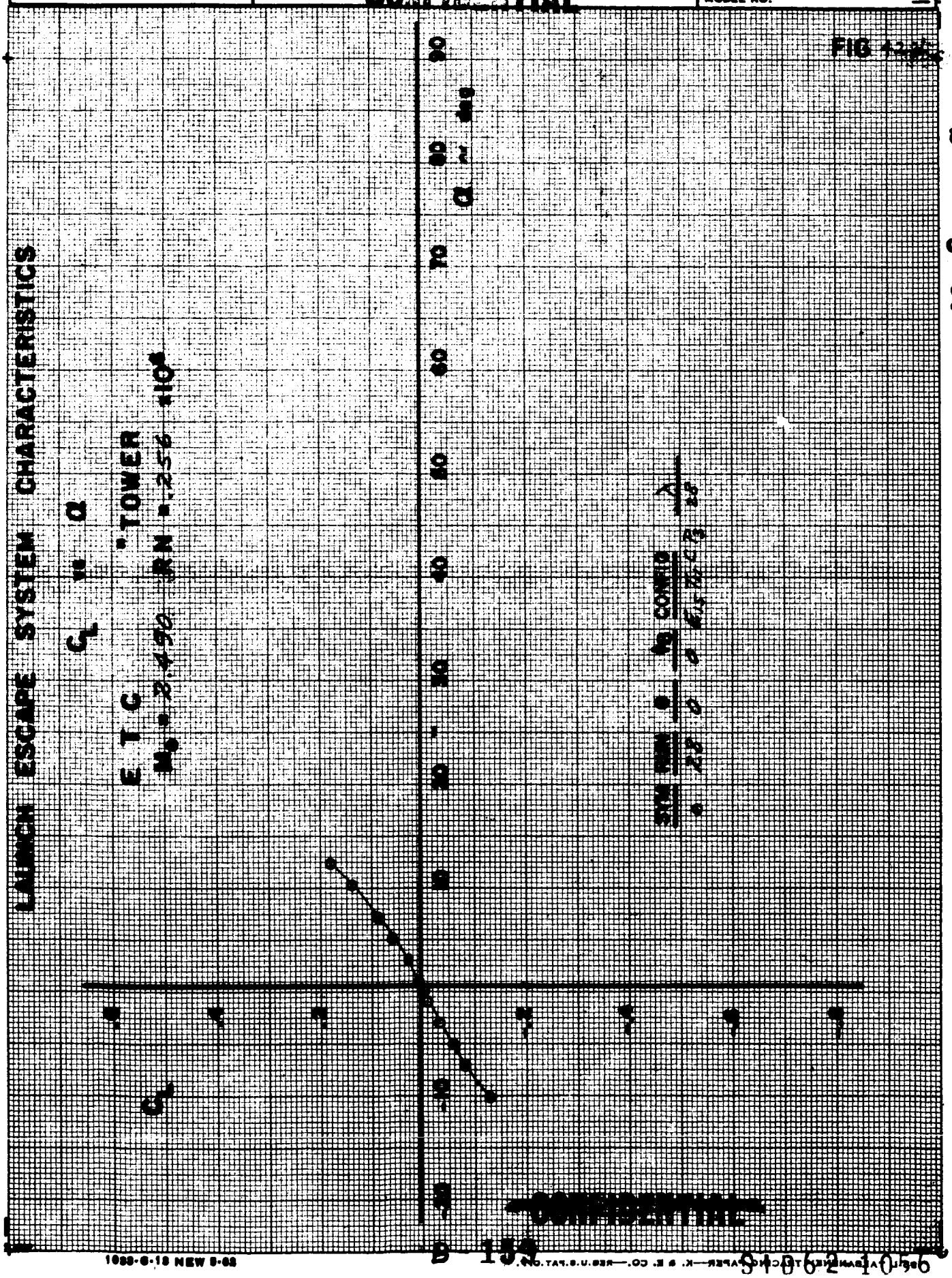

CONFIDENTIAL



1033-6-12 NEW 8-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 42




28 $C_L$ vs $\alpha$

~~CONFIDENTIAL~~



1033-G-13 NEW 5-62

S1062-1056

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

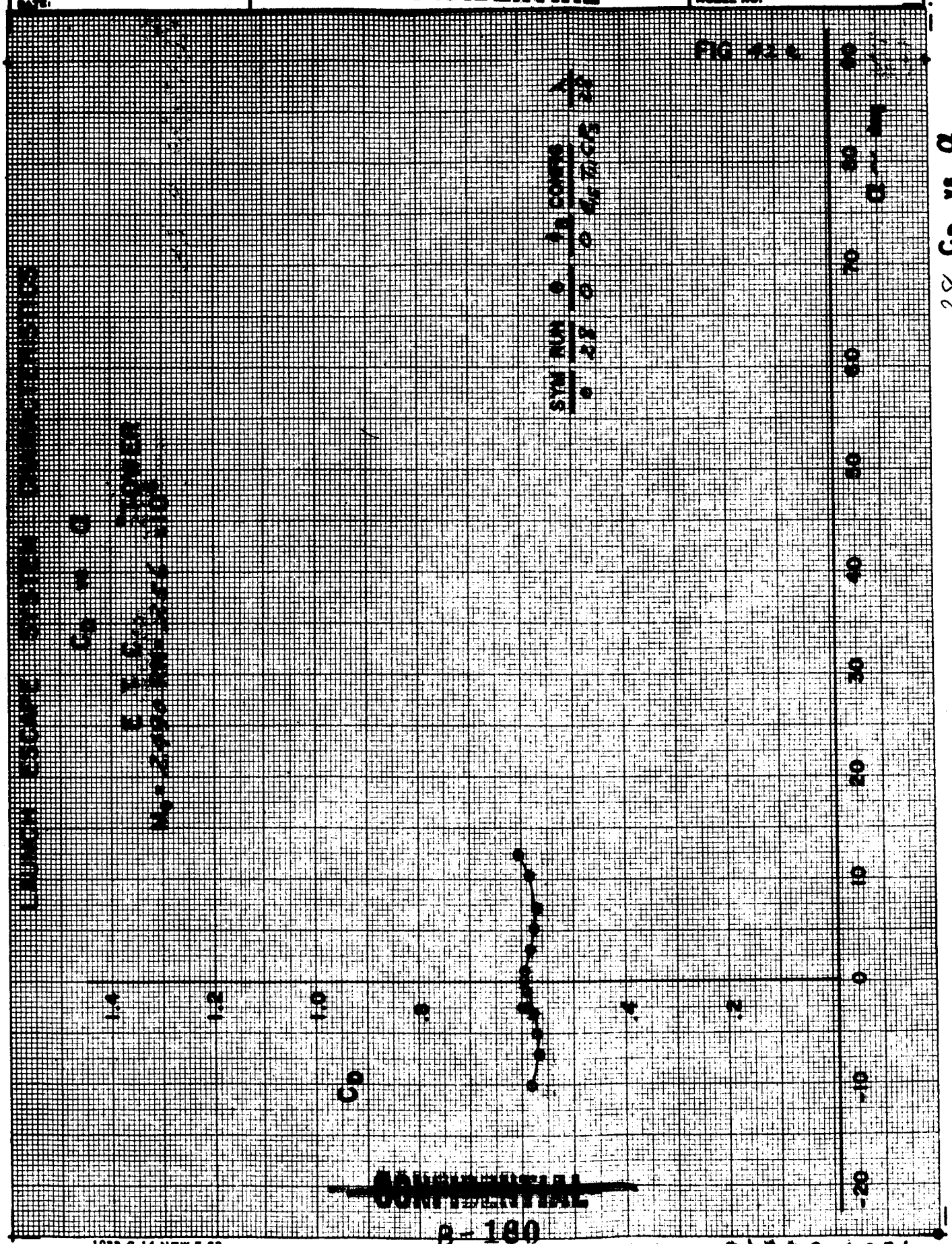



FIG 42 e

28 $C_D$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

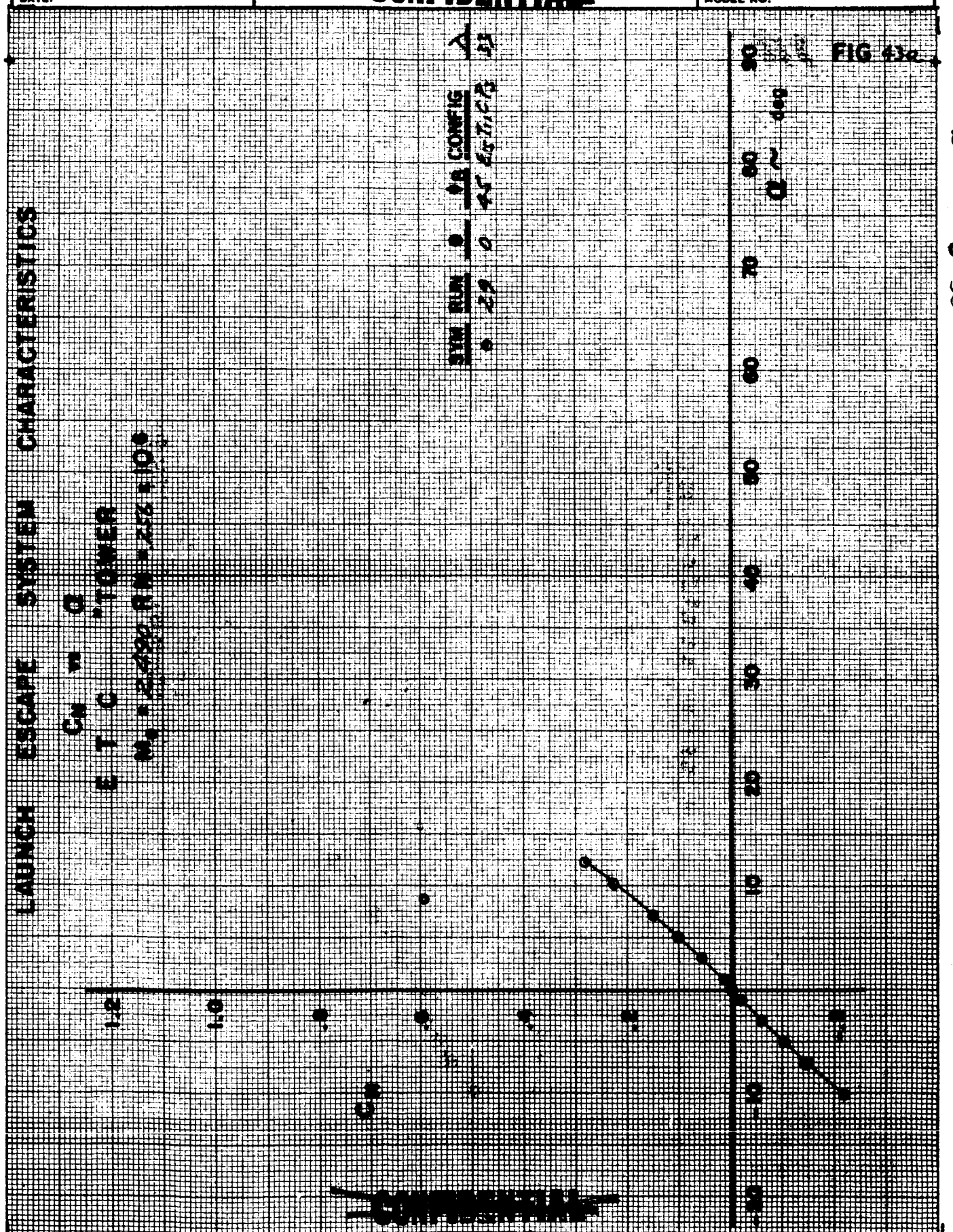



FIG 43a

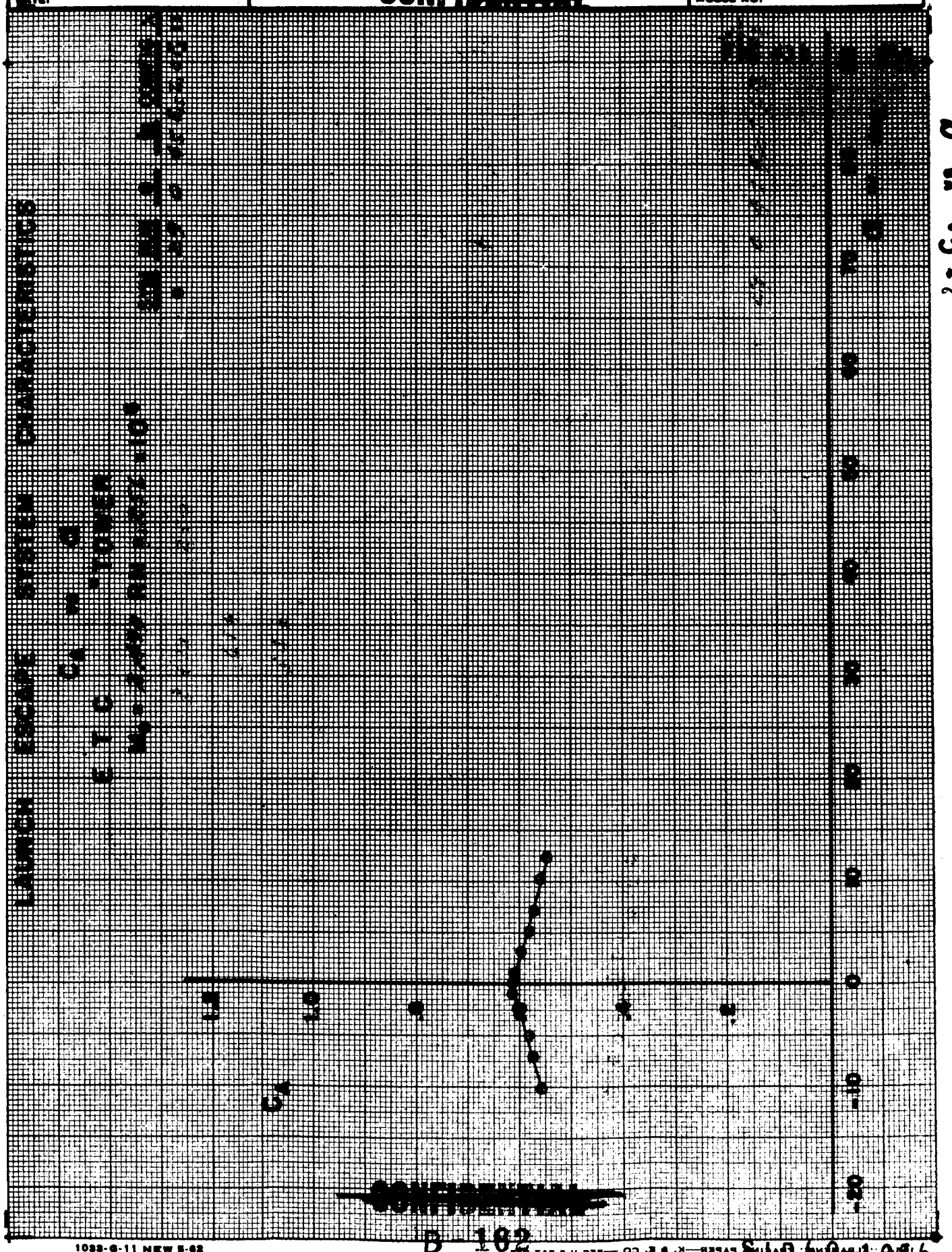
29 $C_N$ vs $\alpha$

~~CONFIDENTIAL~~



1032-6-10 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




$C_A$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

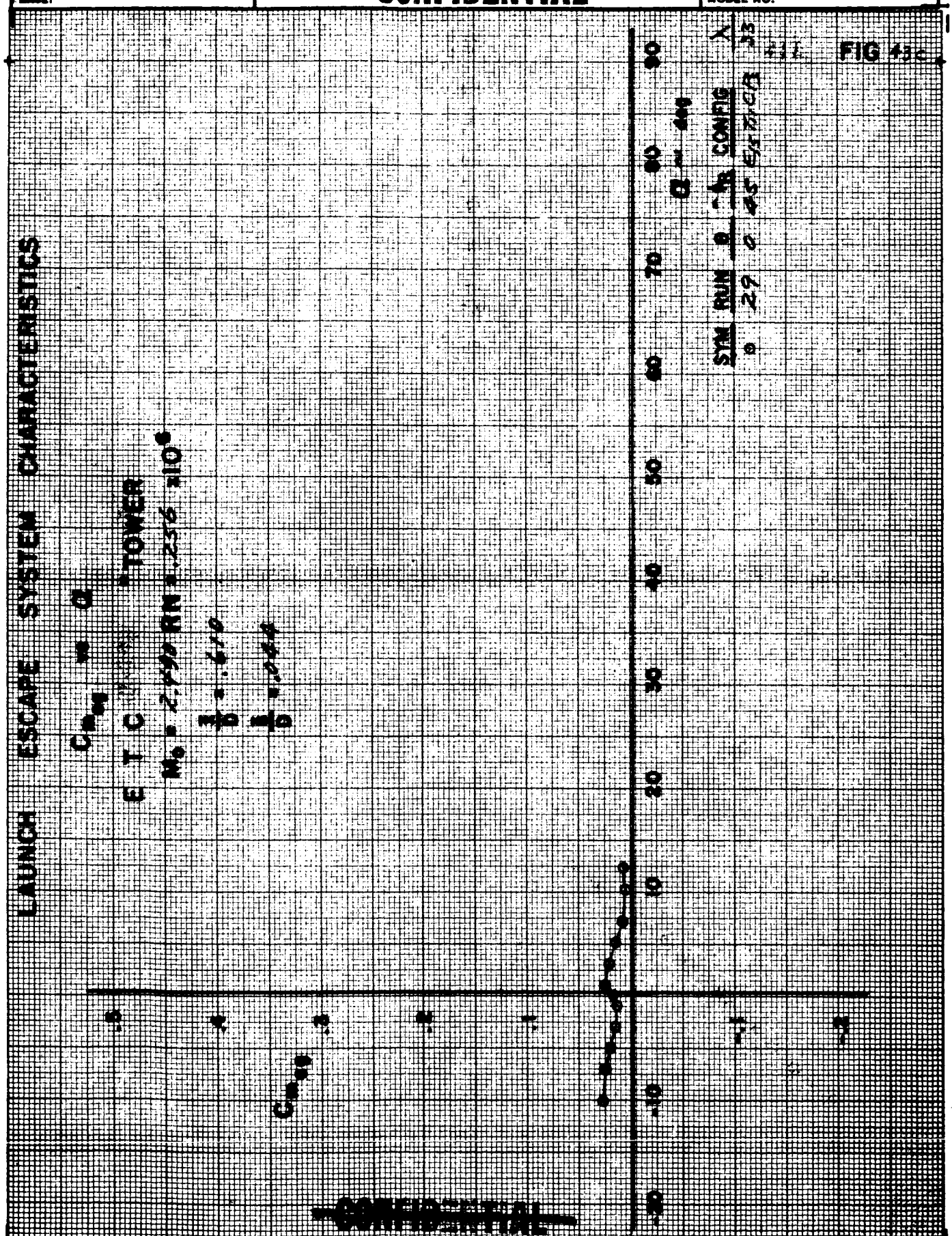


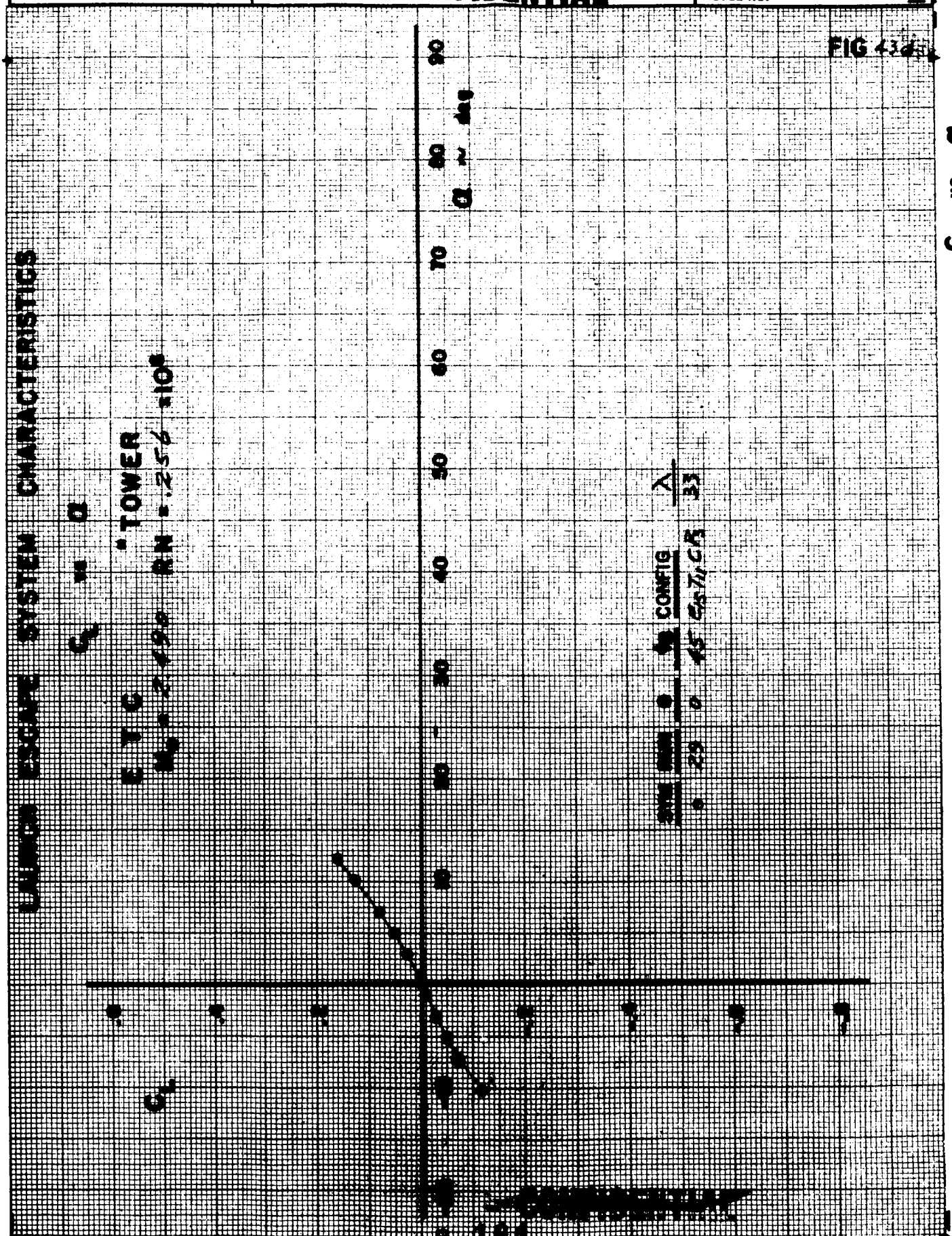

FIG 43c

29 $C_m$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 43d



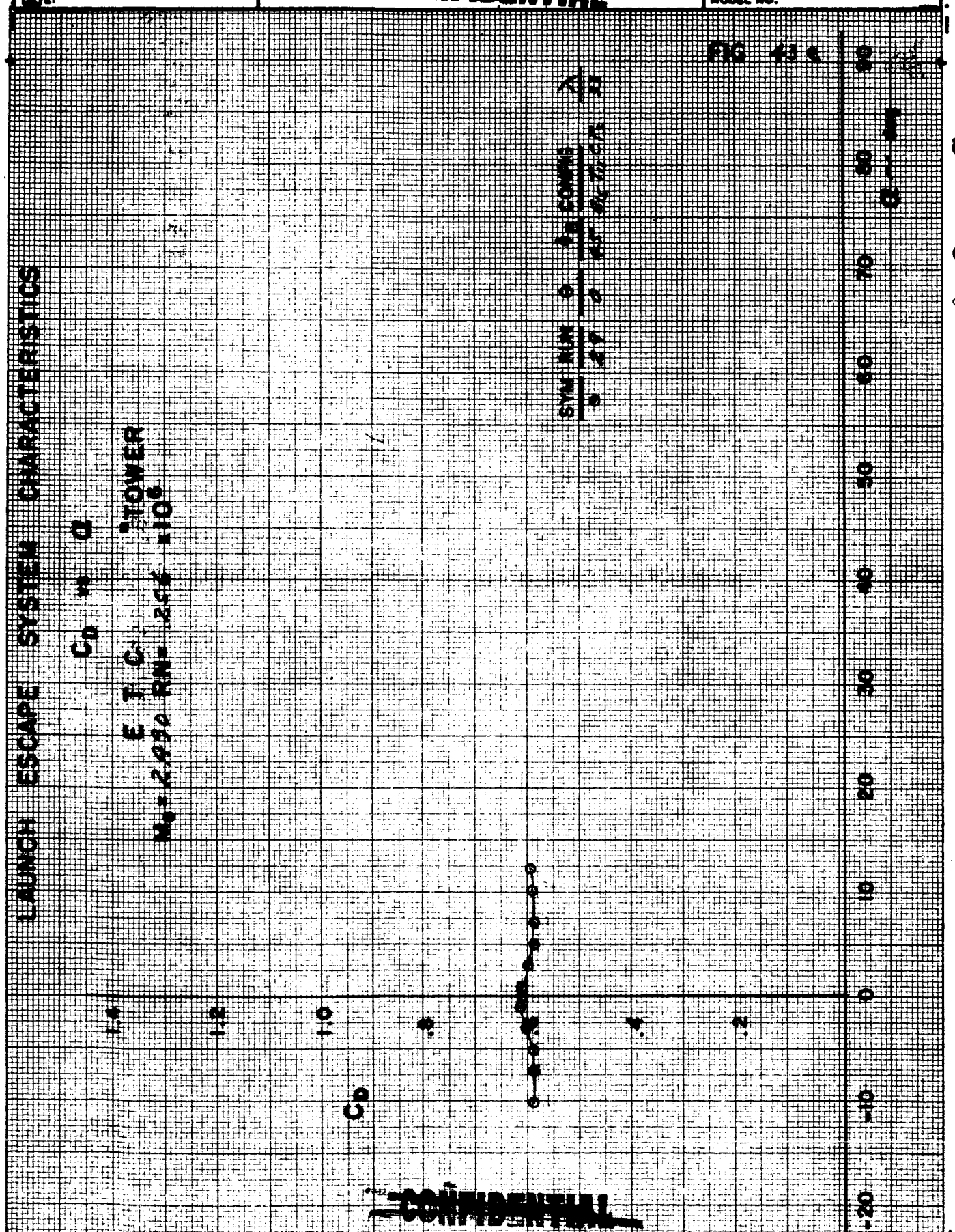

29 $C_L$ vs $\alpha$

~~CONFIDENTIAL~~



1000-G-18 NEW 5-66

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




29 $C_D$ vs $\alpha$

~~CONFIDENTIAL~~



1033-G-14 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

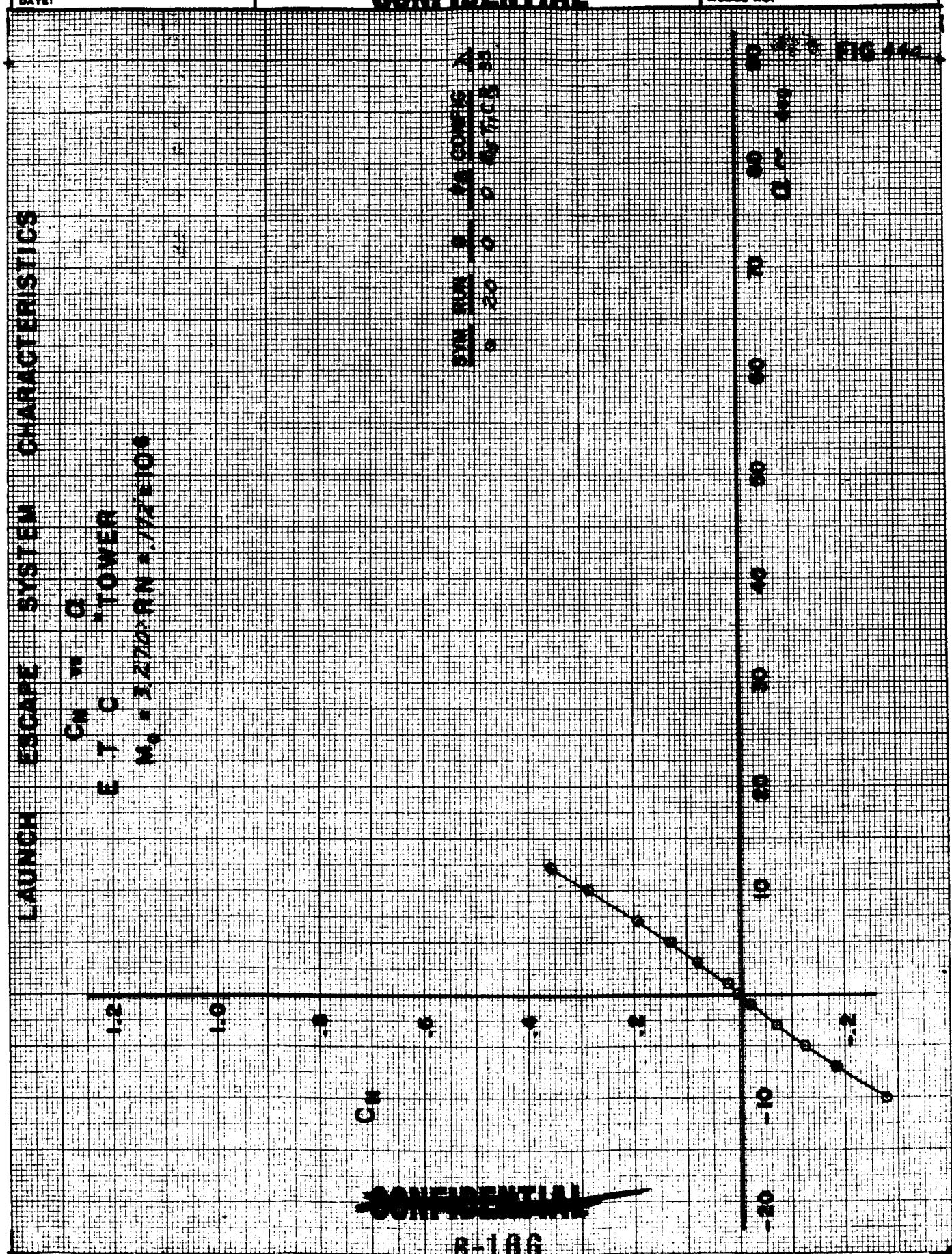



FIG 44a

20 $C_N$ vs $\alpha$

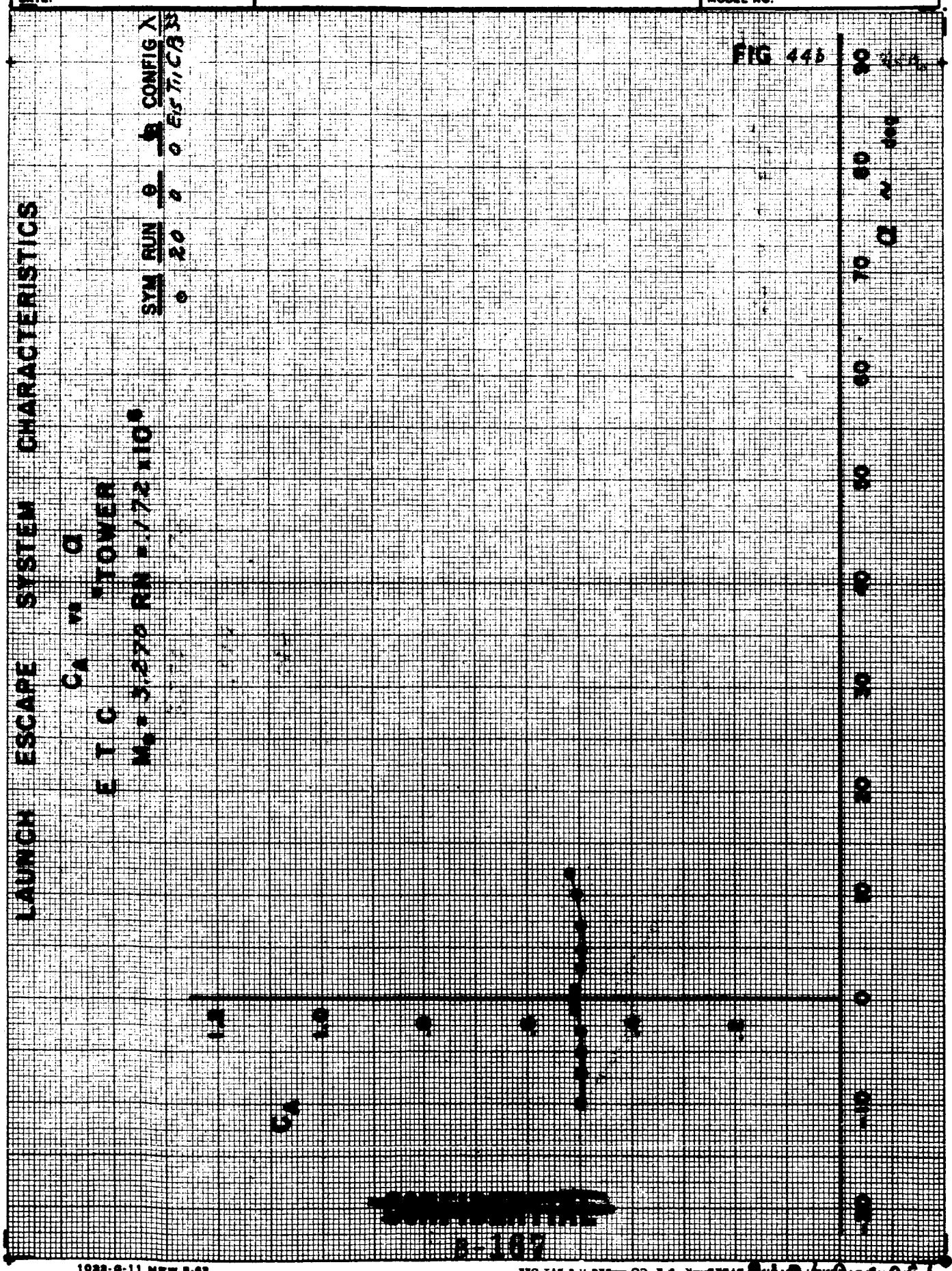
~~CONFIDENTIAL~~



1033-G-10 NEW 5-62

SID 62-1056

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |



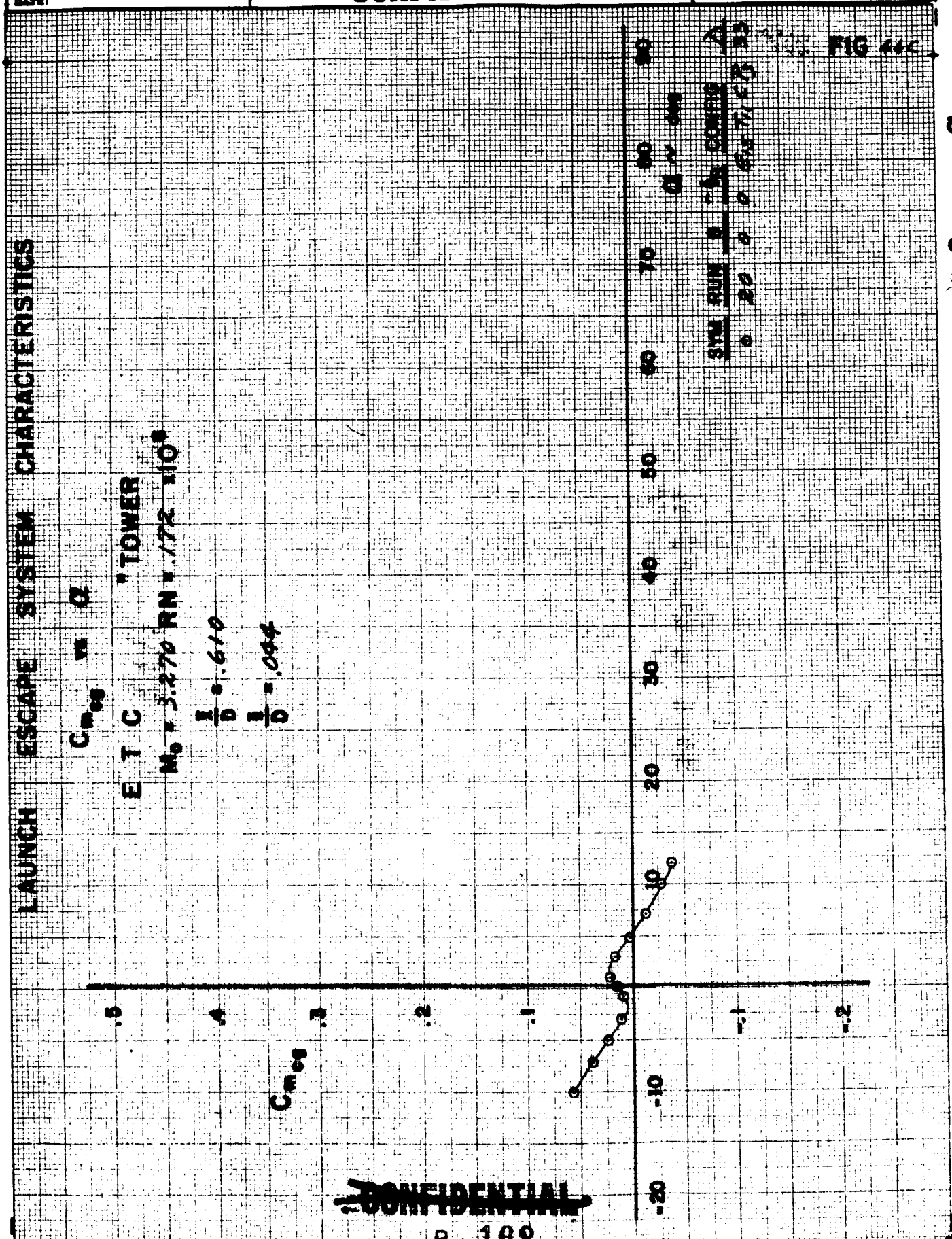

[redacted]



1033-G-11 NEW 5-62

~~CONFIDENTIAL~~

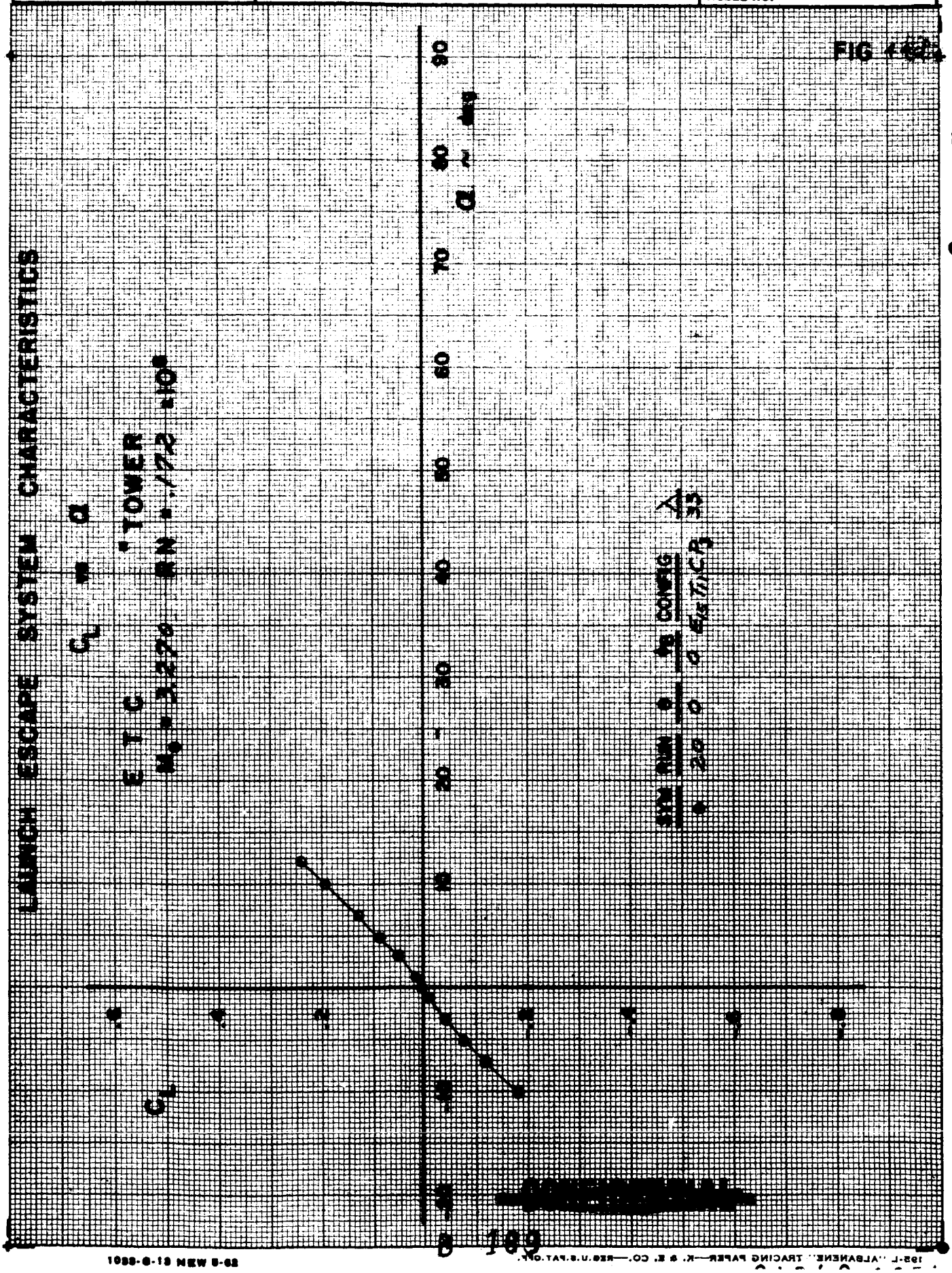
FIG 46C




~~CONFIDENTIAL~~

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

FIG 4[illegible]




$C_L$ vs $\alpha$

20

[redacted]



1033-G-13 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

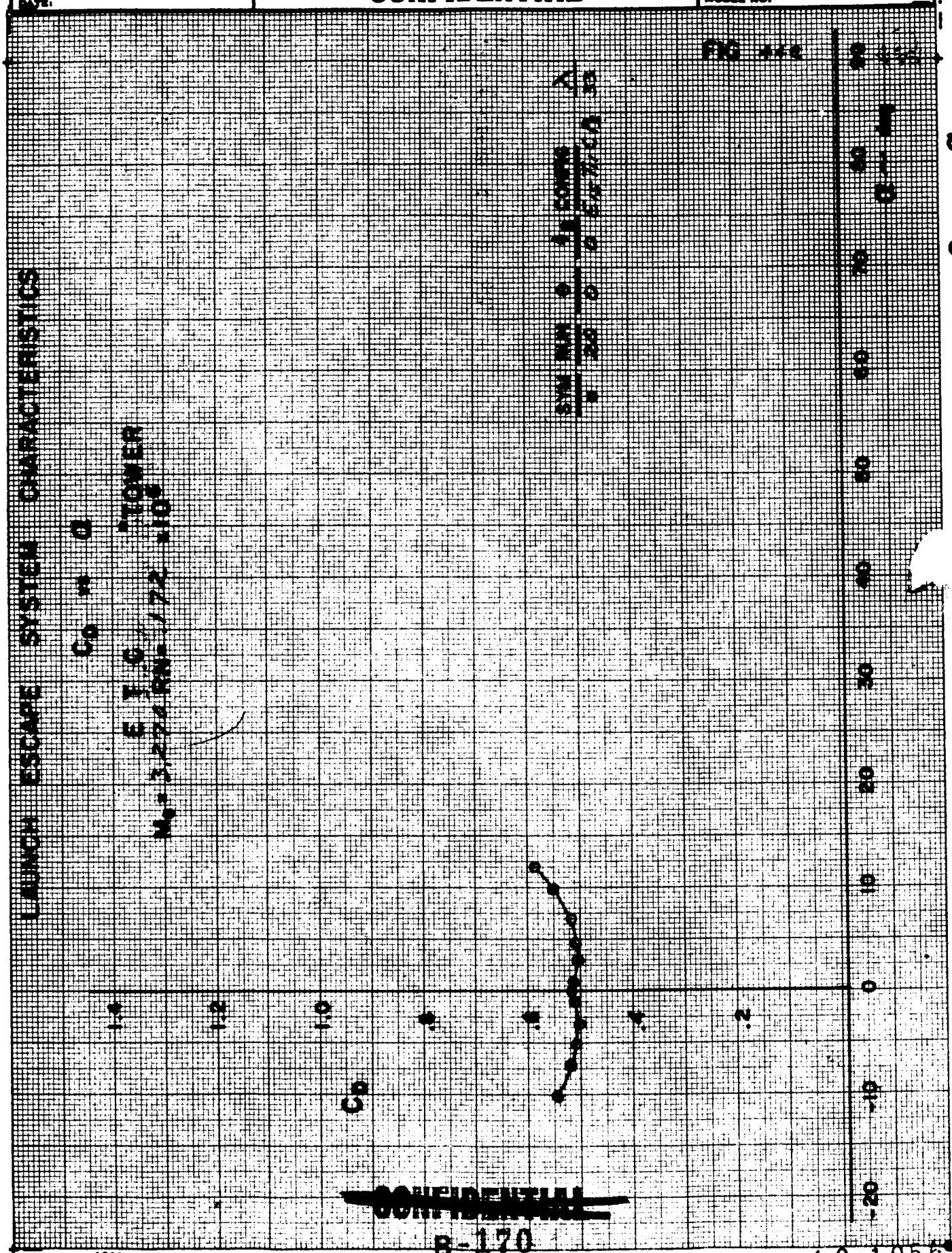



FIG 44c

20 $C_D$ vs $\alpha$

~~CONFIDENTIAL~~



1033-G-14 NEW 5-62

31062-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

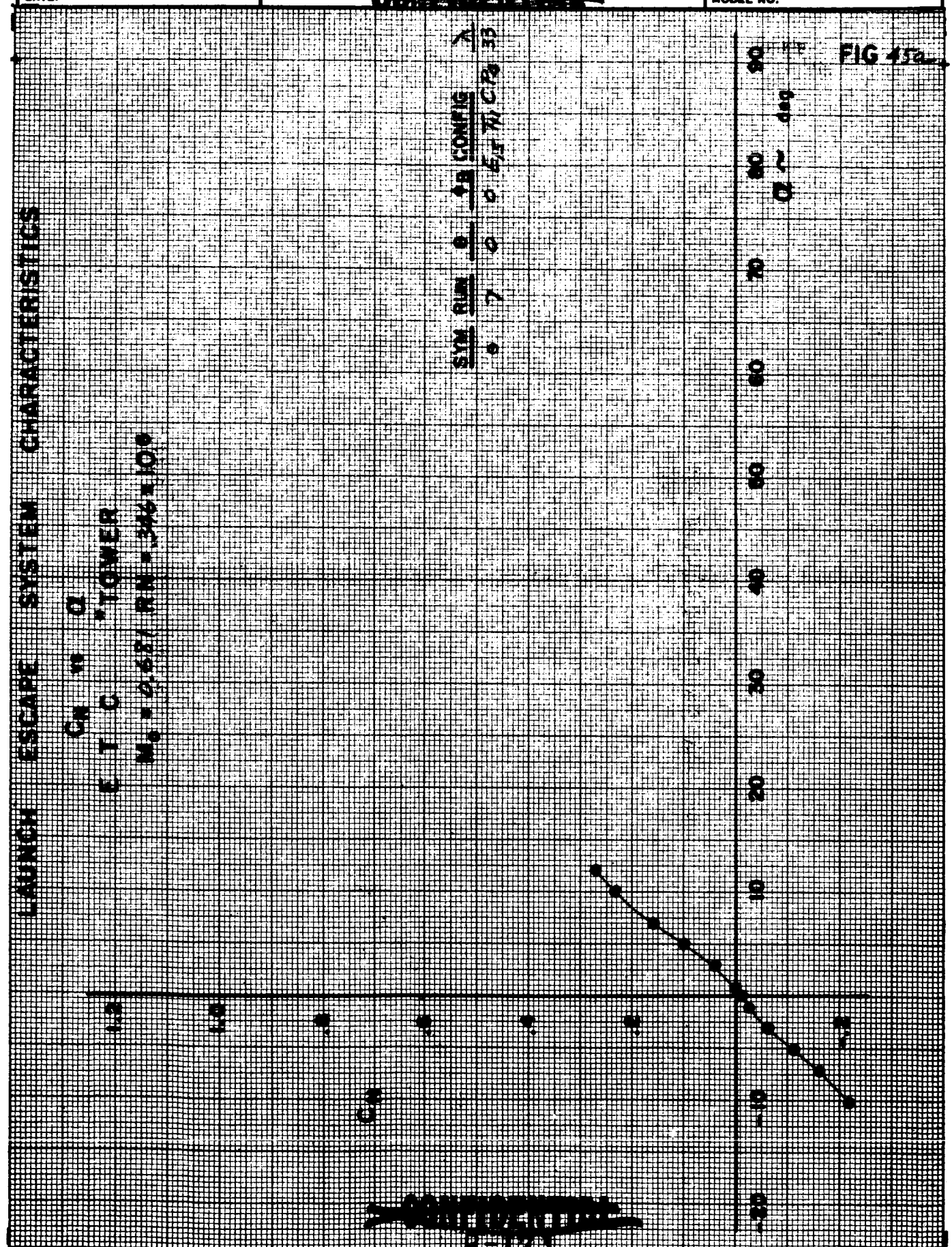



FIG 45a

7 $C_N$ vs $\alpha$

[redacted]



STD62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |

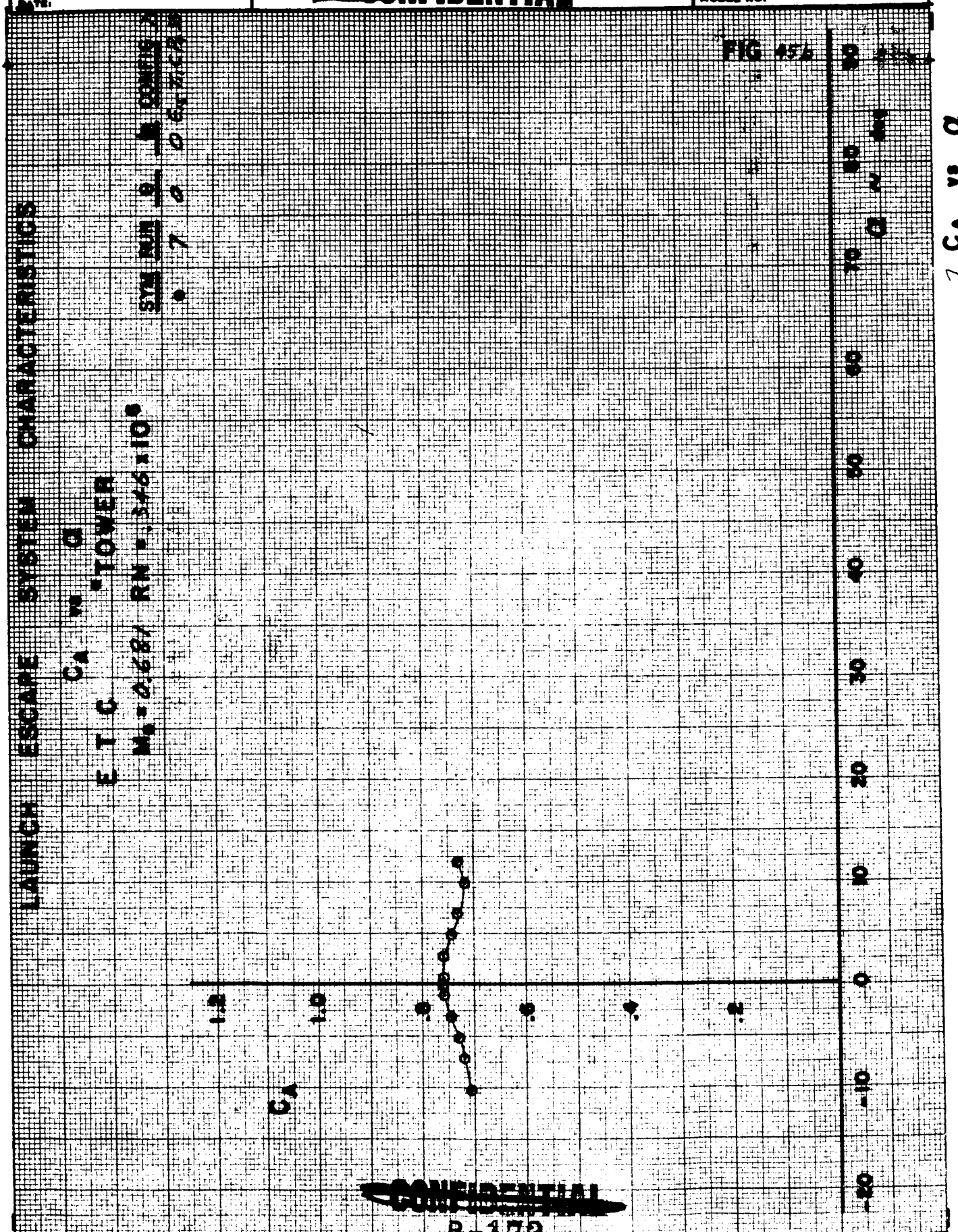



FIG 45b

$C_A$ vs $\alpha$

CONFIDENTIAL



1033-G-11 NEW 5-62

SID62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

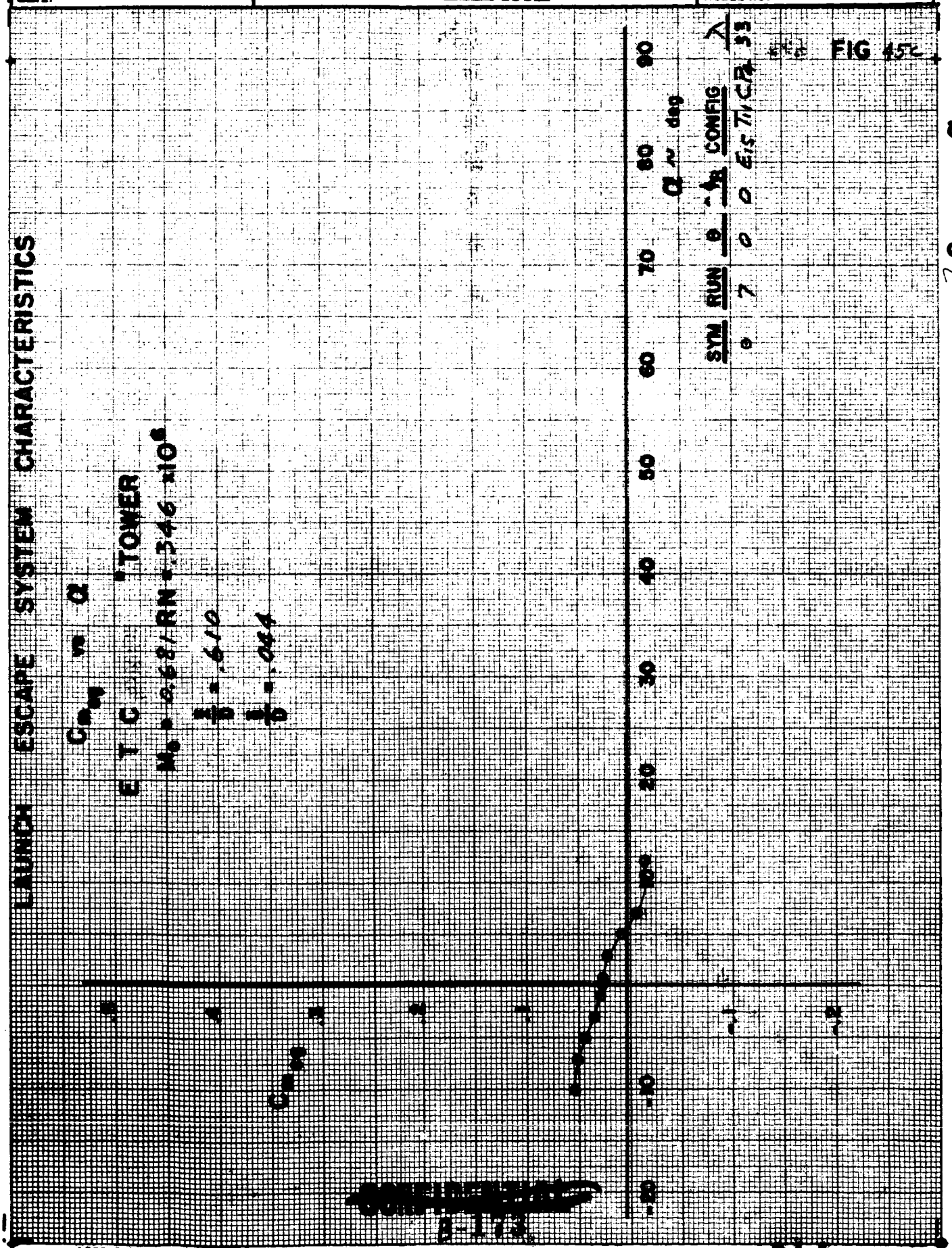



FIG 45c

[redacted]



1033-6-12 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | ~~CONFIDENTIAL~~ | REPORT NO. |
| DATE: | | MODEL NO. |

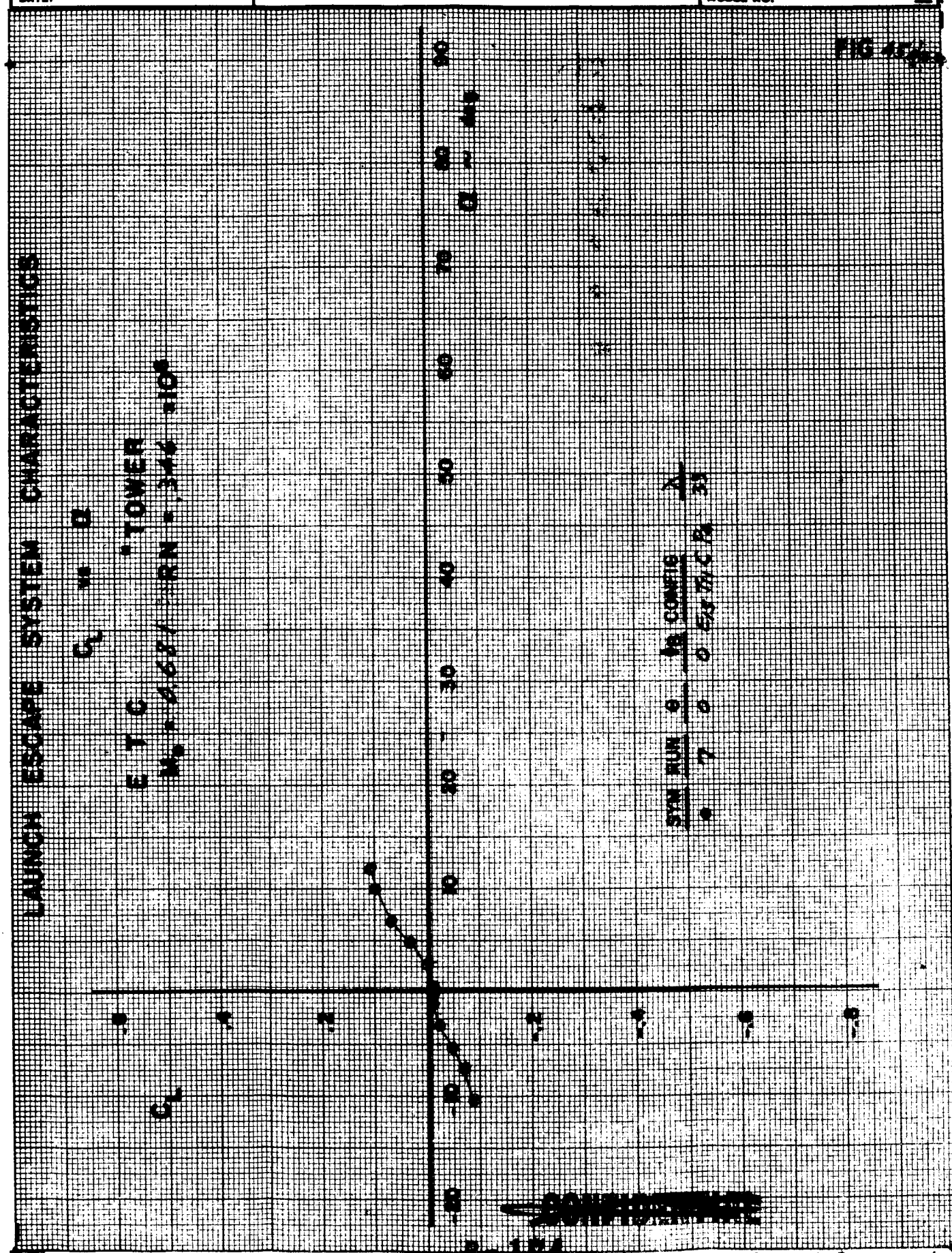



FIG 45

7 $C_L$ vs $\alpha$

~~CONFIDENTIAL~~



1033-G-13 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

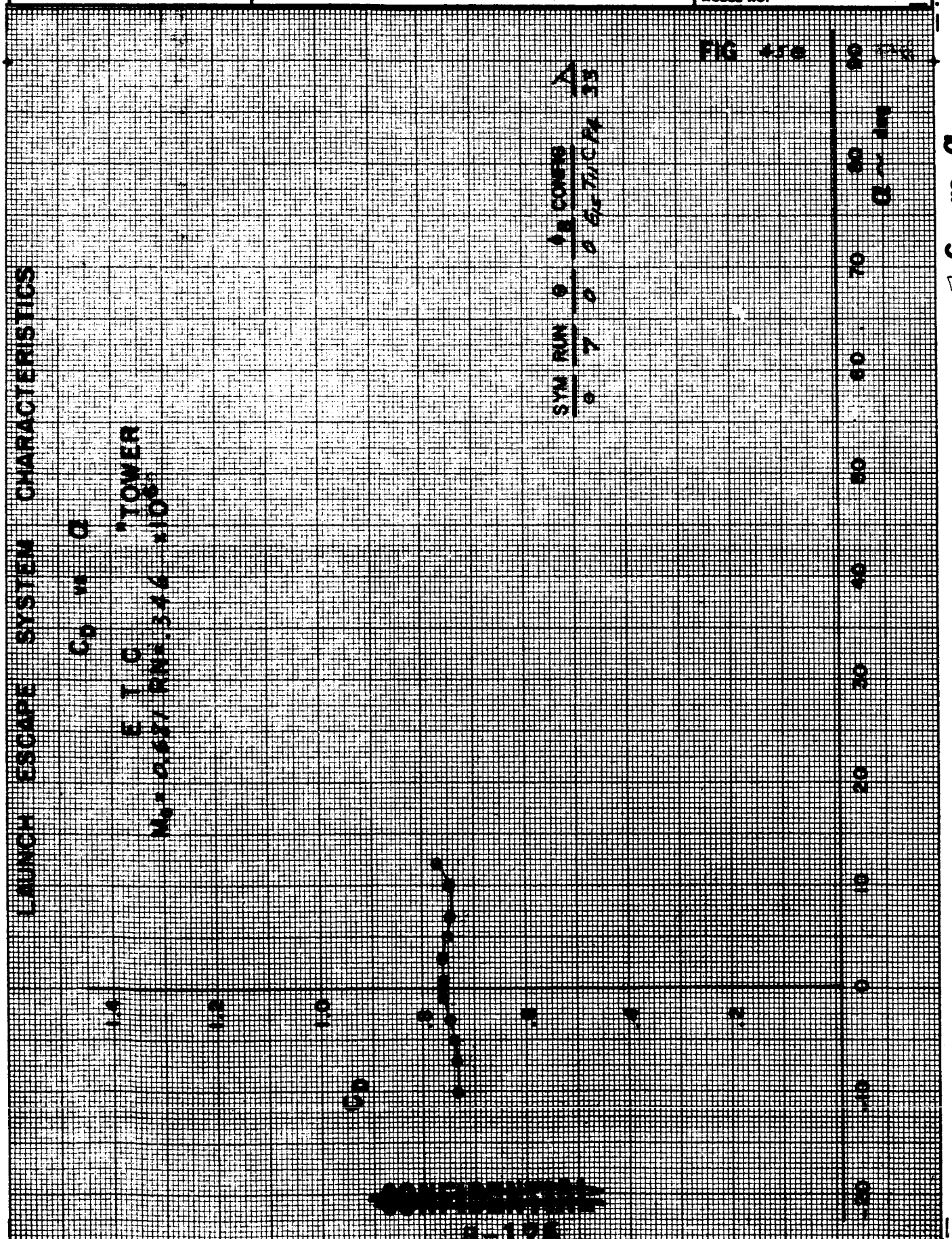



FIG 45e

[redacted]



1033-G-14 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

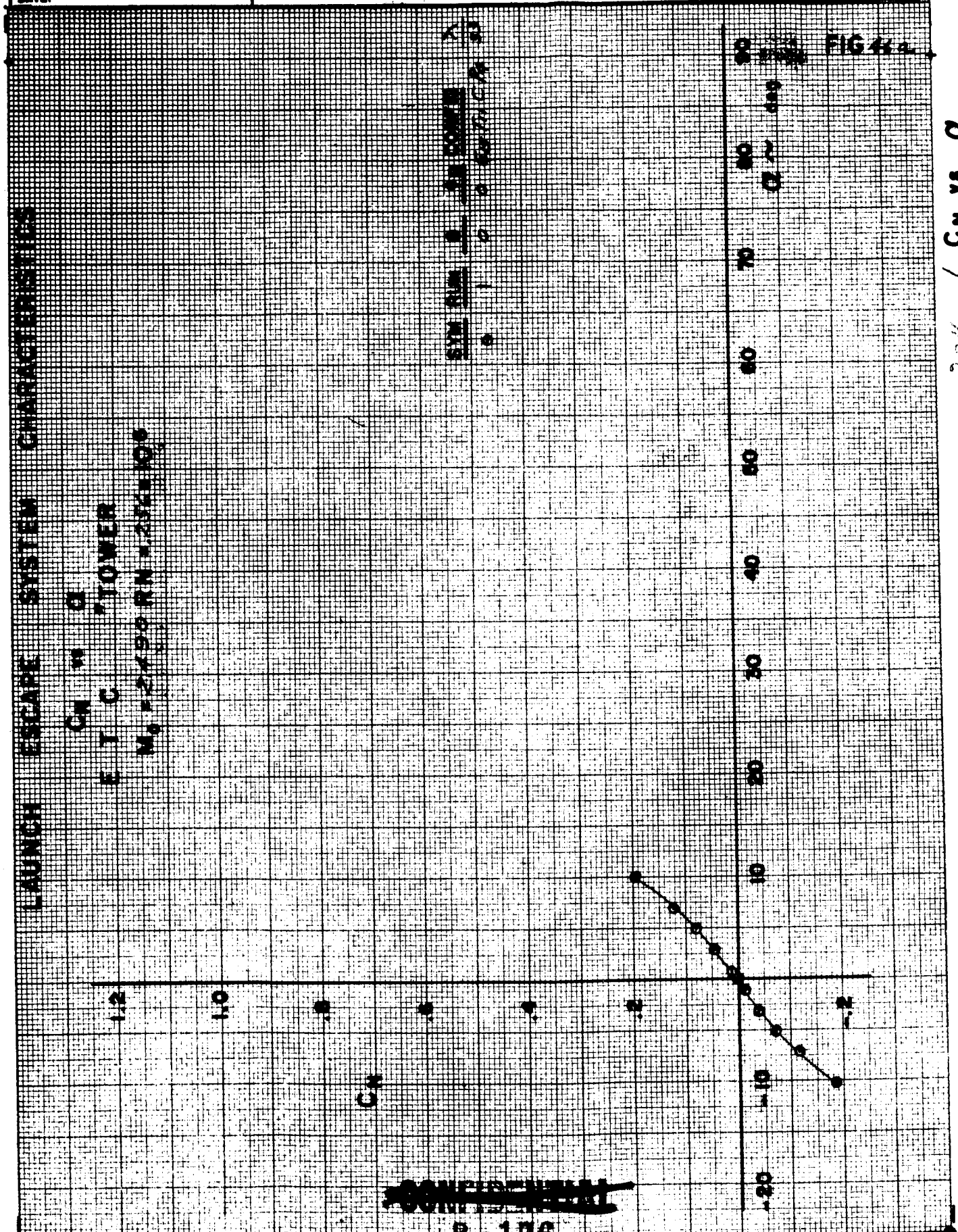



FIG 4a

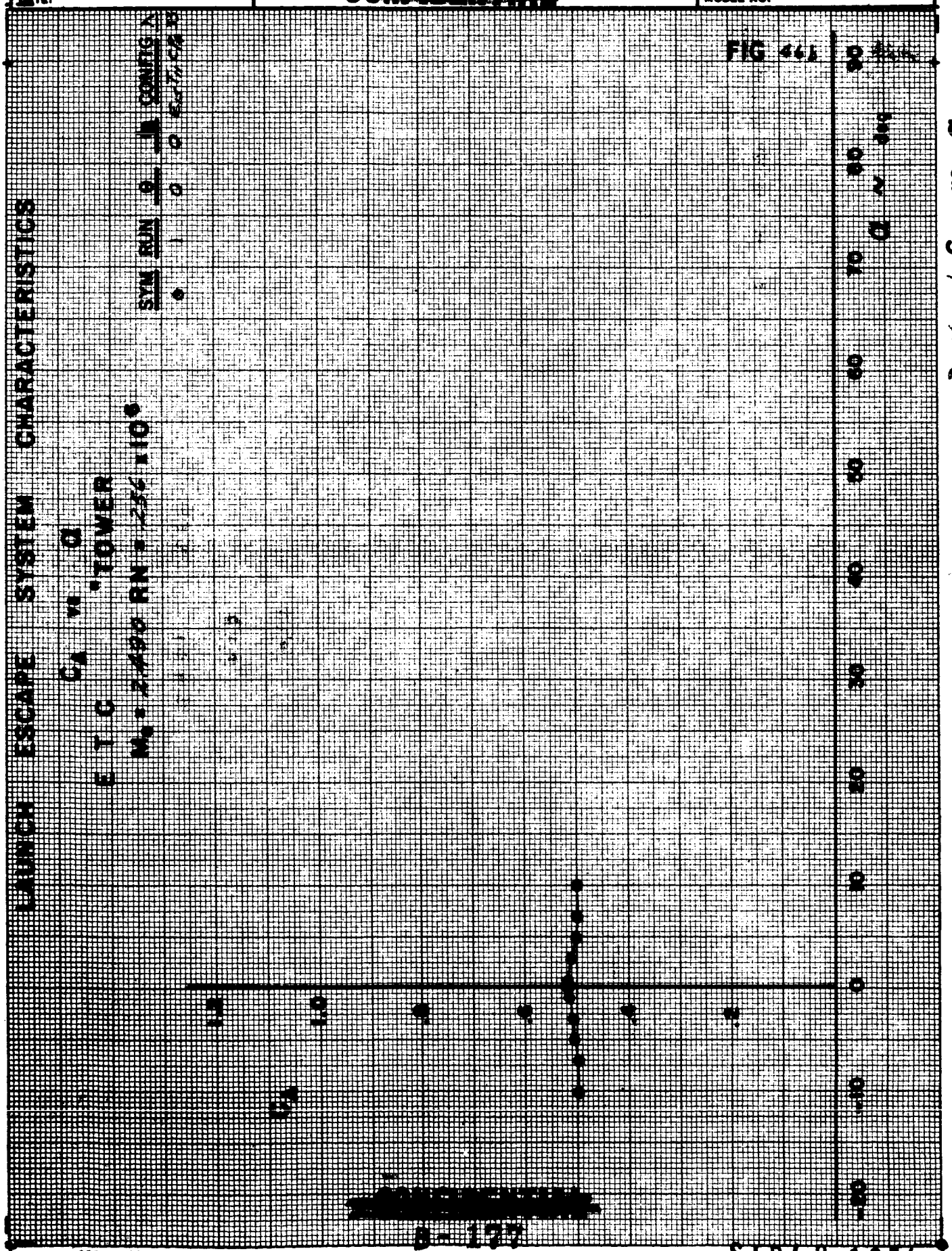
204 - / CN vs α

~~CONFIDENTIAL~~



1033-G-10 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |




[redacted]



1033-6-11 NEW 5-62

SID 62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

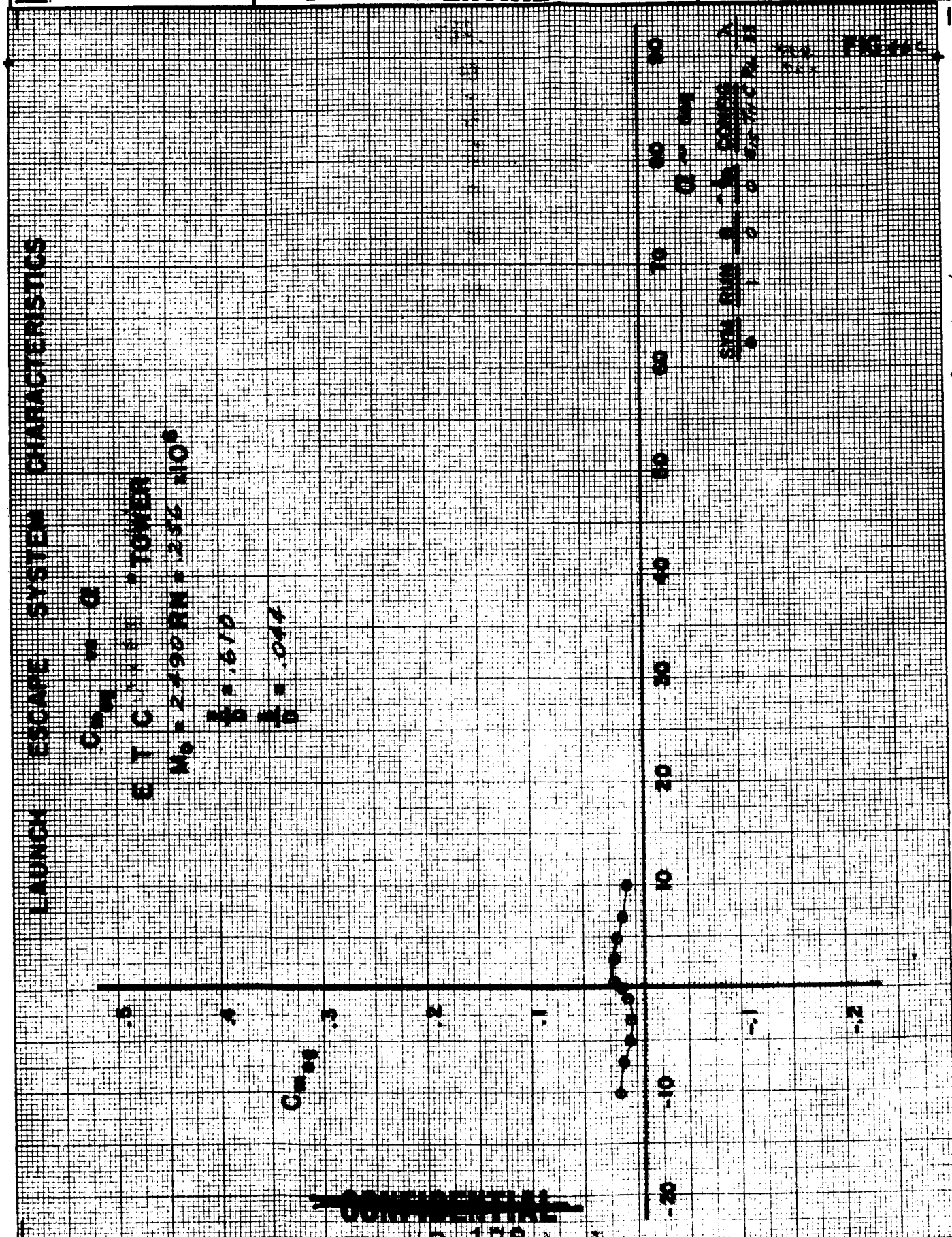



FIG 46C

204-1 $C_m$ vs α

~~CONFIDENTIAL~~

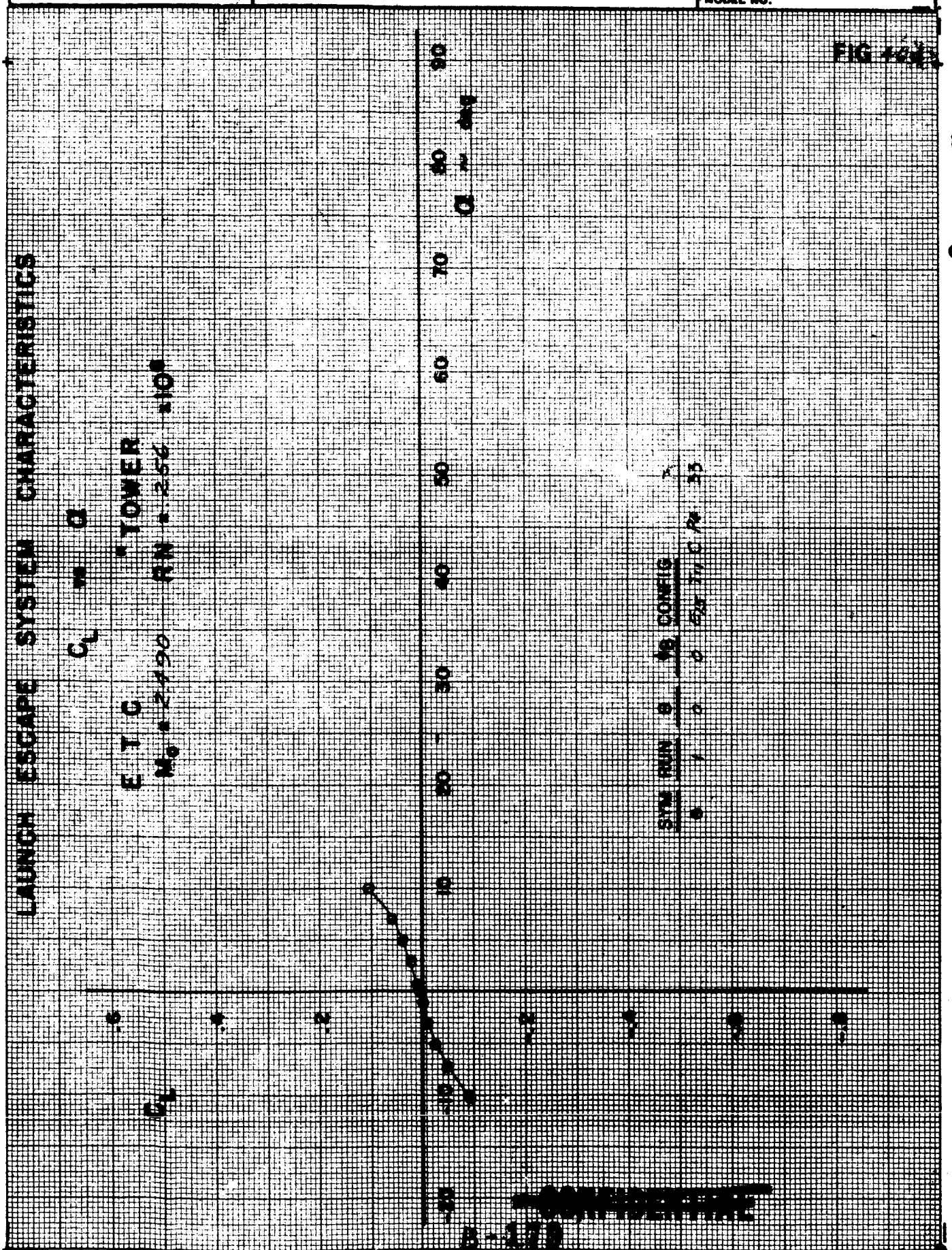


1033-G-12 NEW 5-62

SID62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 404




$C_L$ vs $\alpha$

204-1

~~CONFIDENTIAL~~





PRINTED IN U.S.A. PER—K. & E. CO.—REG. U.S. PAT. OFF.

FIG 4.4.6

204-1 $C_D$ vs $\alpha$

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~



1033-6-10 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

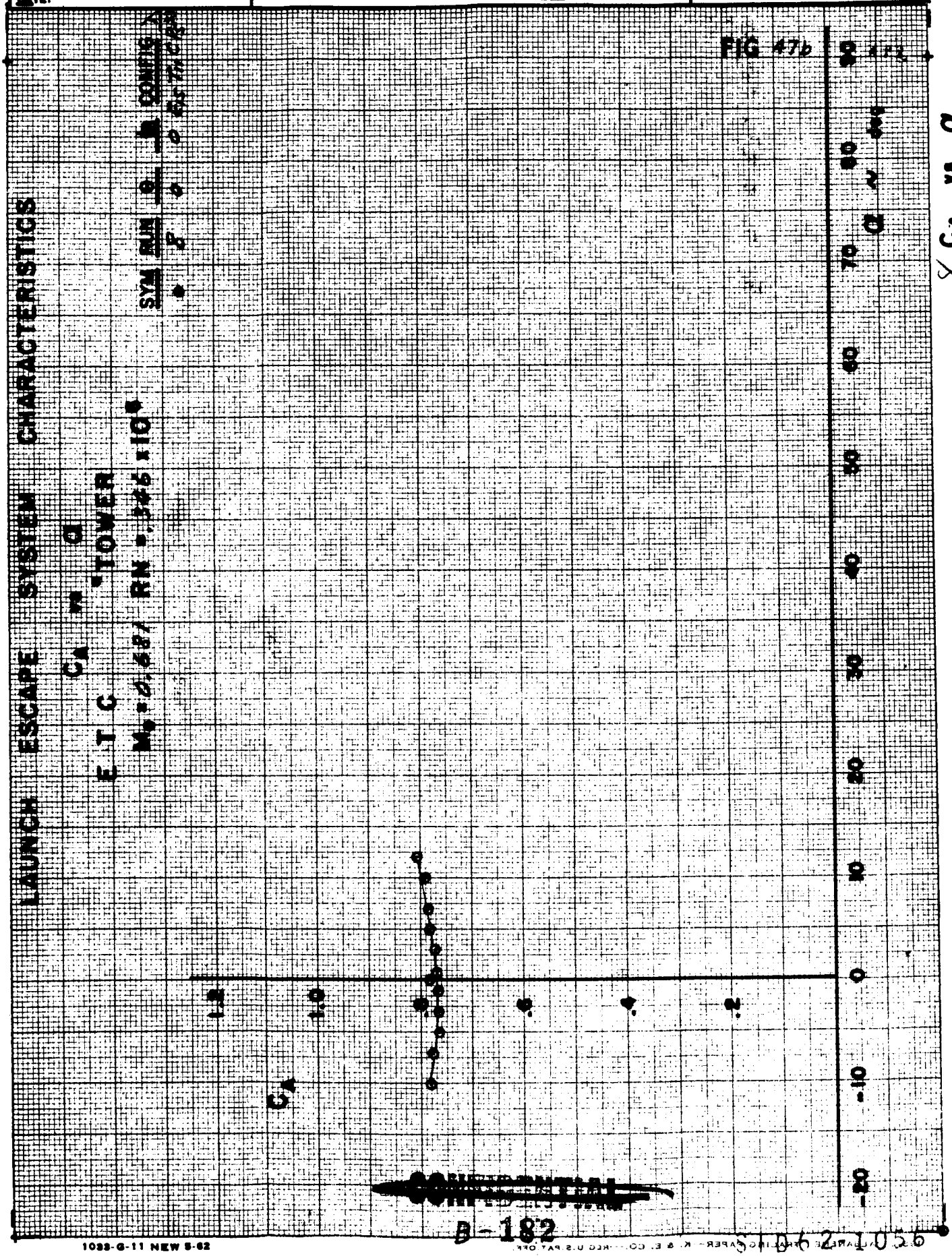



FIG 47b

$\gamma$ $C_A$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

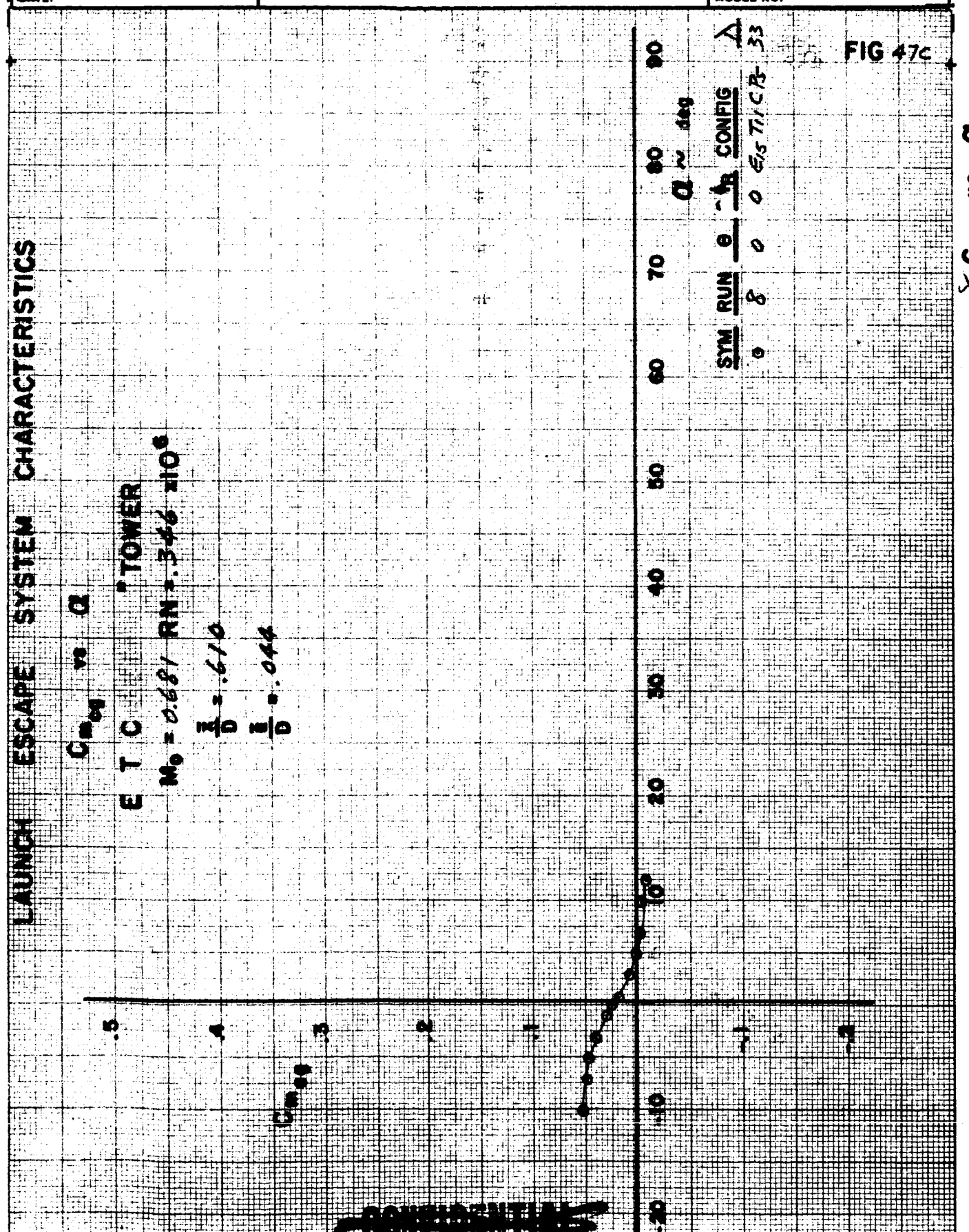



FIG 47c

[redacted]



1033-G-12 NEW 5-62

S1062-1056

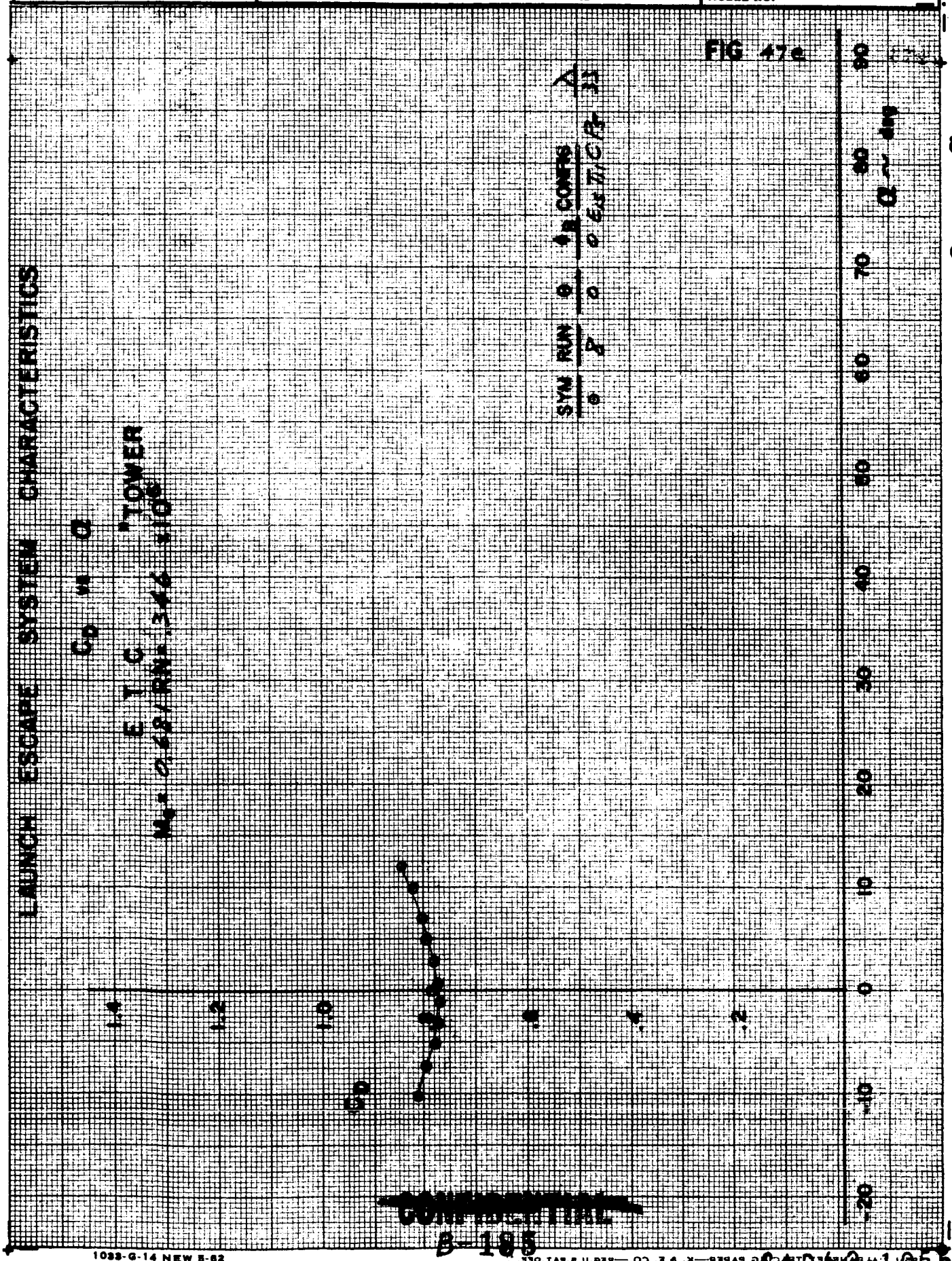
FIG 4-24




$\delta C_L$ vs α

| PREPARED BY: | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 47e




~~CONFIDENTIAL~~



1033-G-14 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

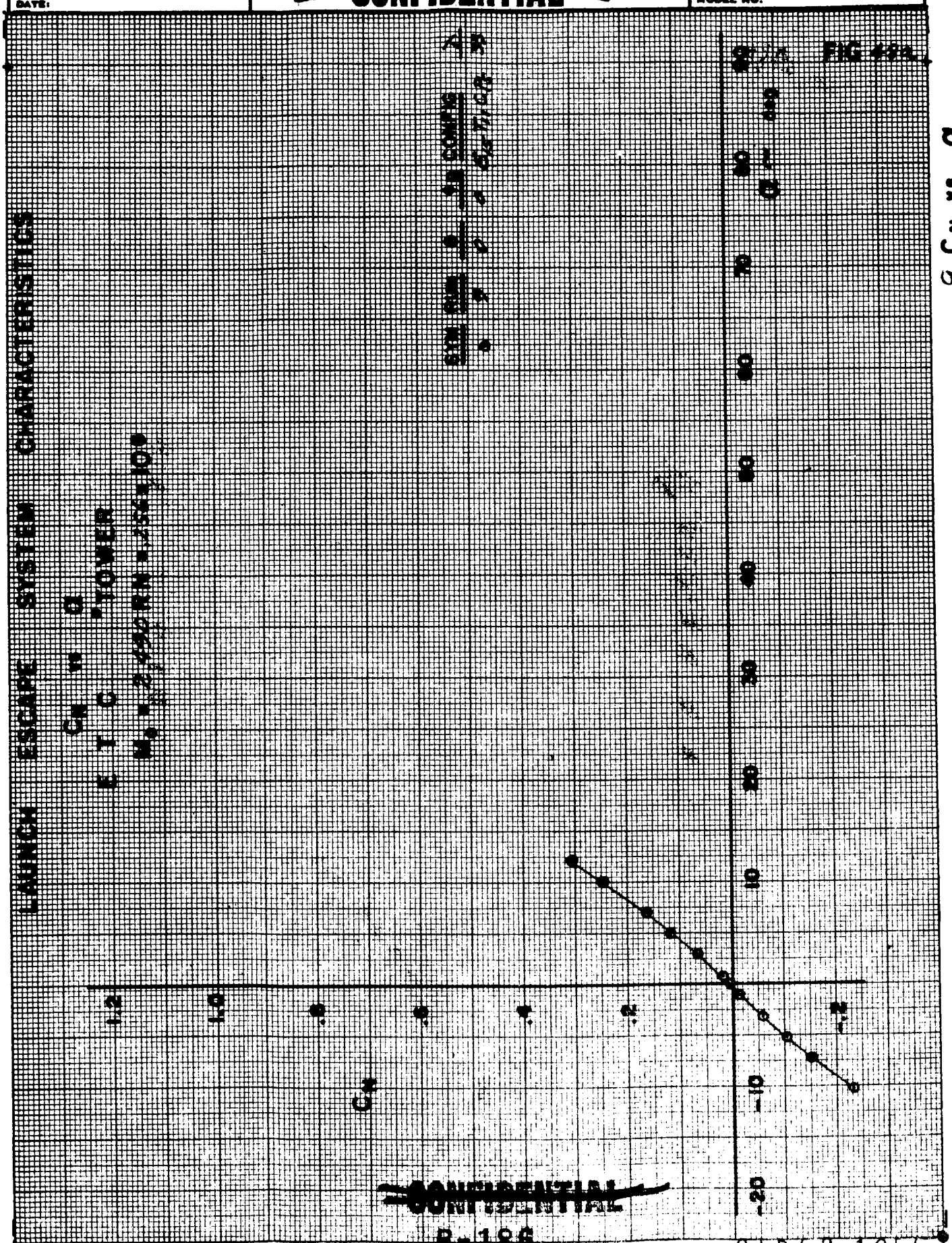



FIG 49a

9 $C_N$ vs $\alpha$

~~CONFIDENTIAL~~



1033-G-10 NEW 5-62

S1062-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

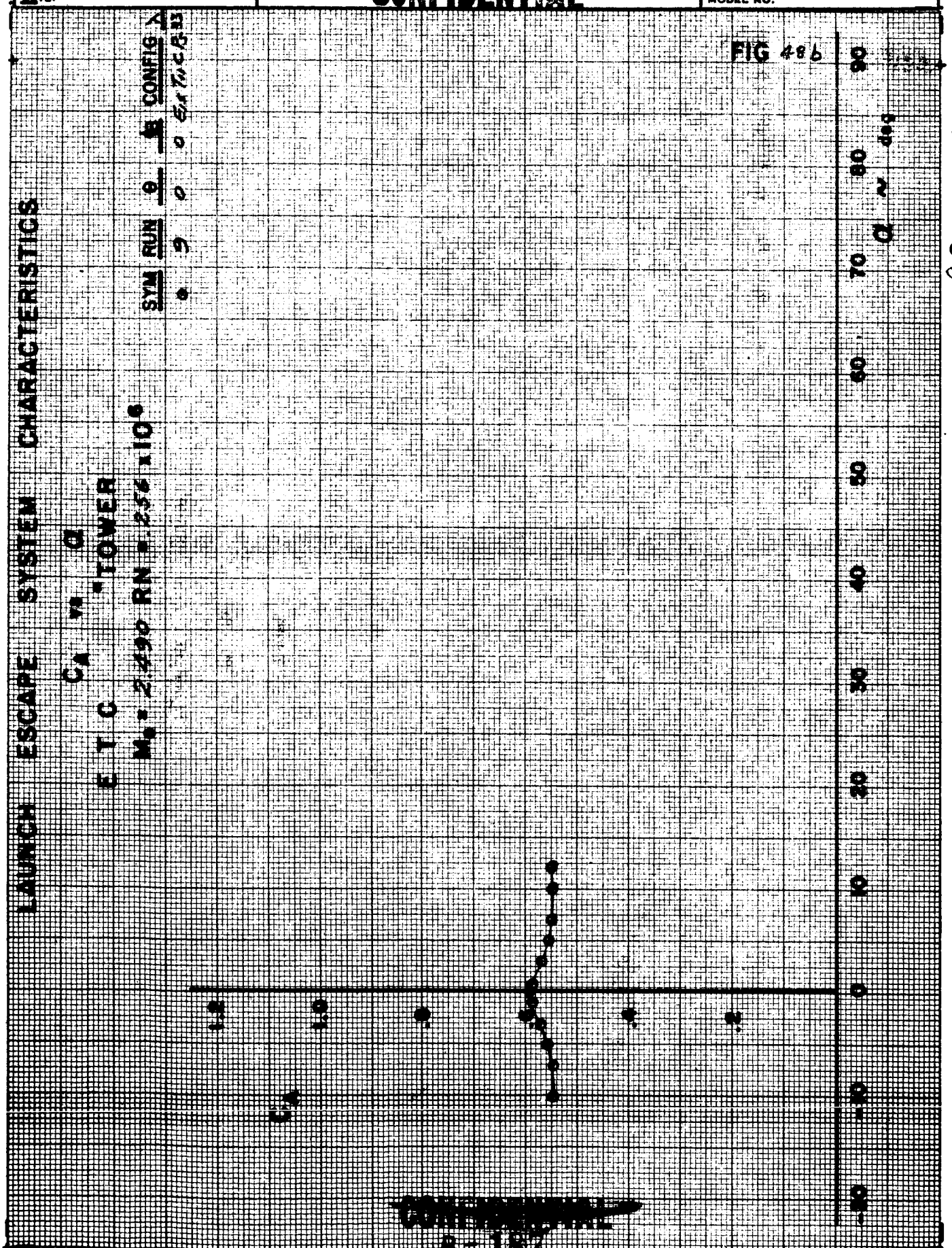



FIG 48b

9 $C_A$ vs $\alpha$

[redacted]



1033-G-11 NEW 5-62

SID 62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

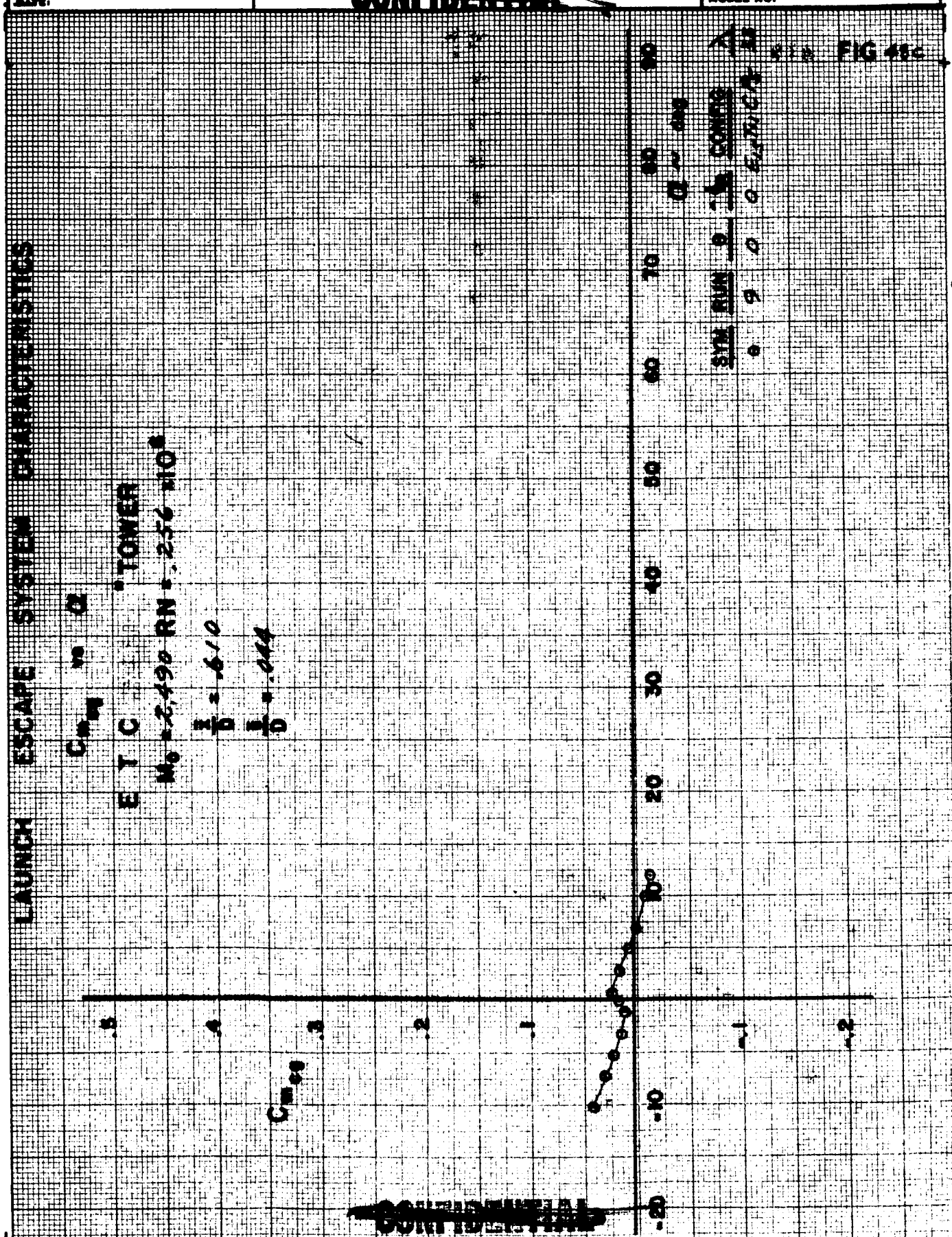



FIG 45c

9 $C_{m_{cg}}$ vs $\alpha$

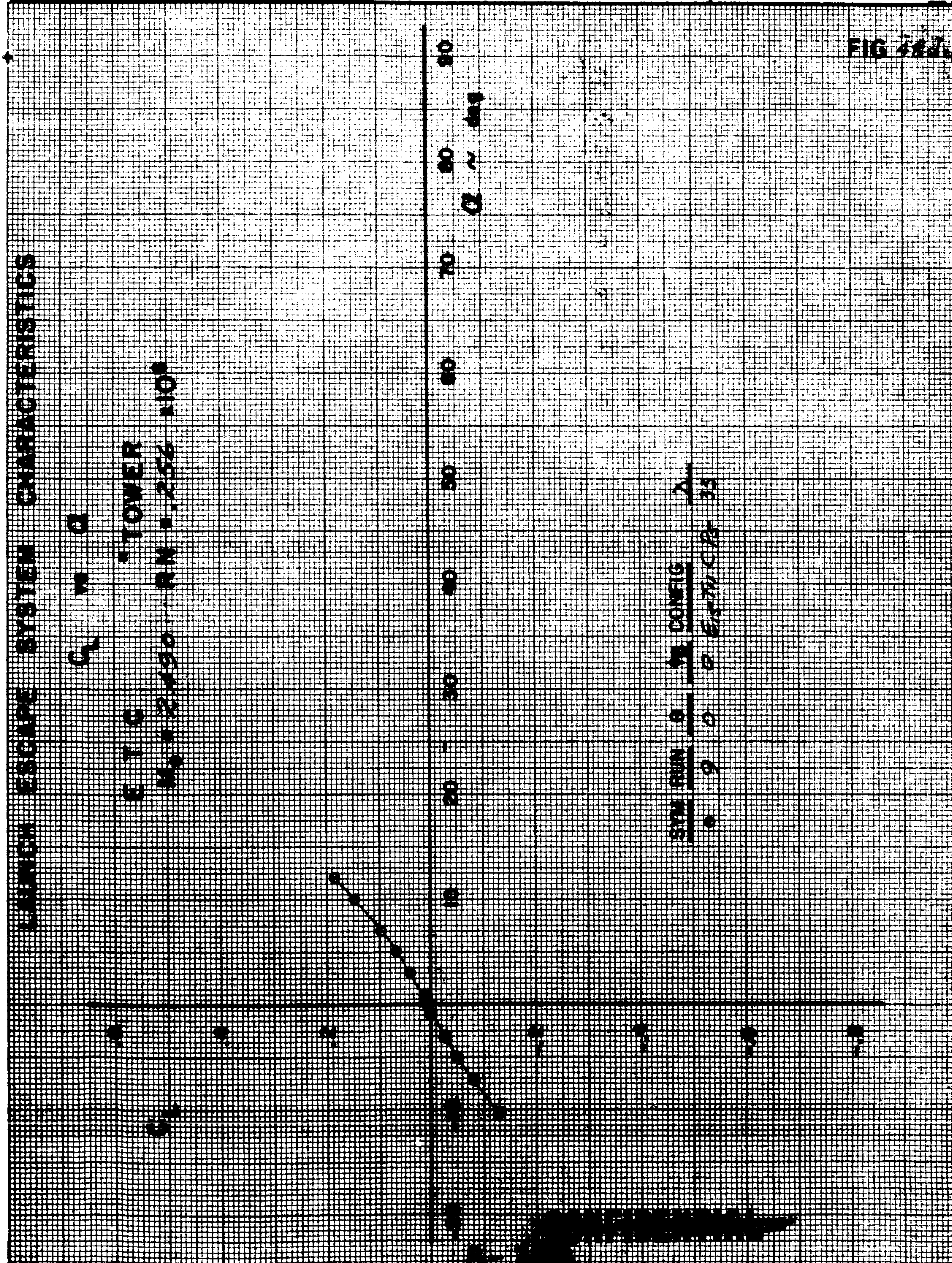
~~CONFIDENTIAL~~



1033-G-12 NEW 5-62

SID62-1056

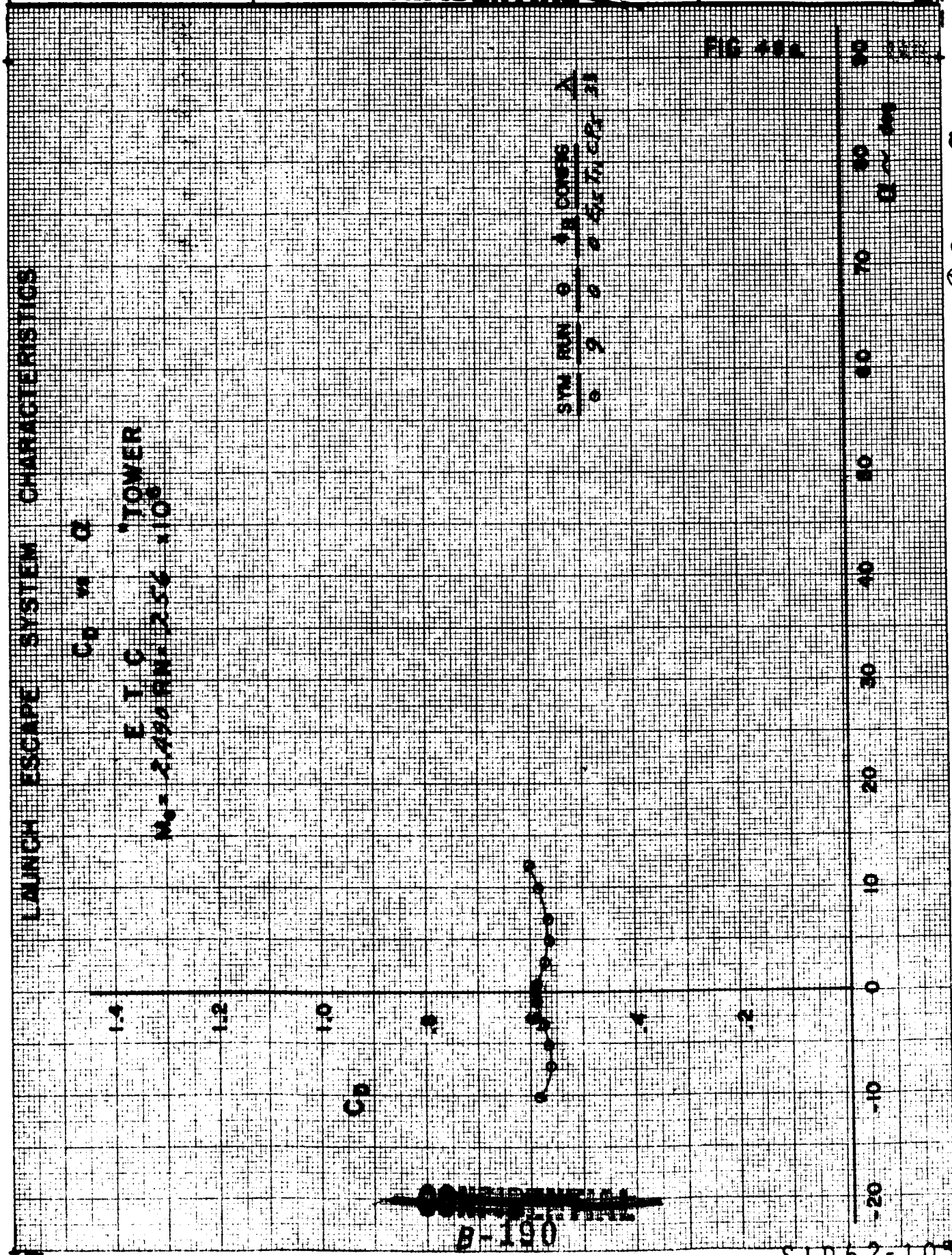
| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |




9 $C_L$ vs α

| PREPARED BY: | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 46c




$C_D$ vs $\alpha$

~~CONFIDENTIAL~~



1033-G-14 NEW 5-62

SID 62-1096

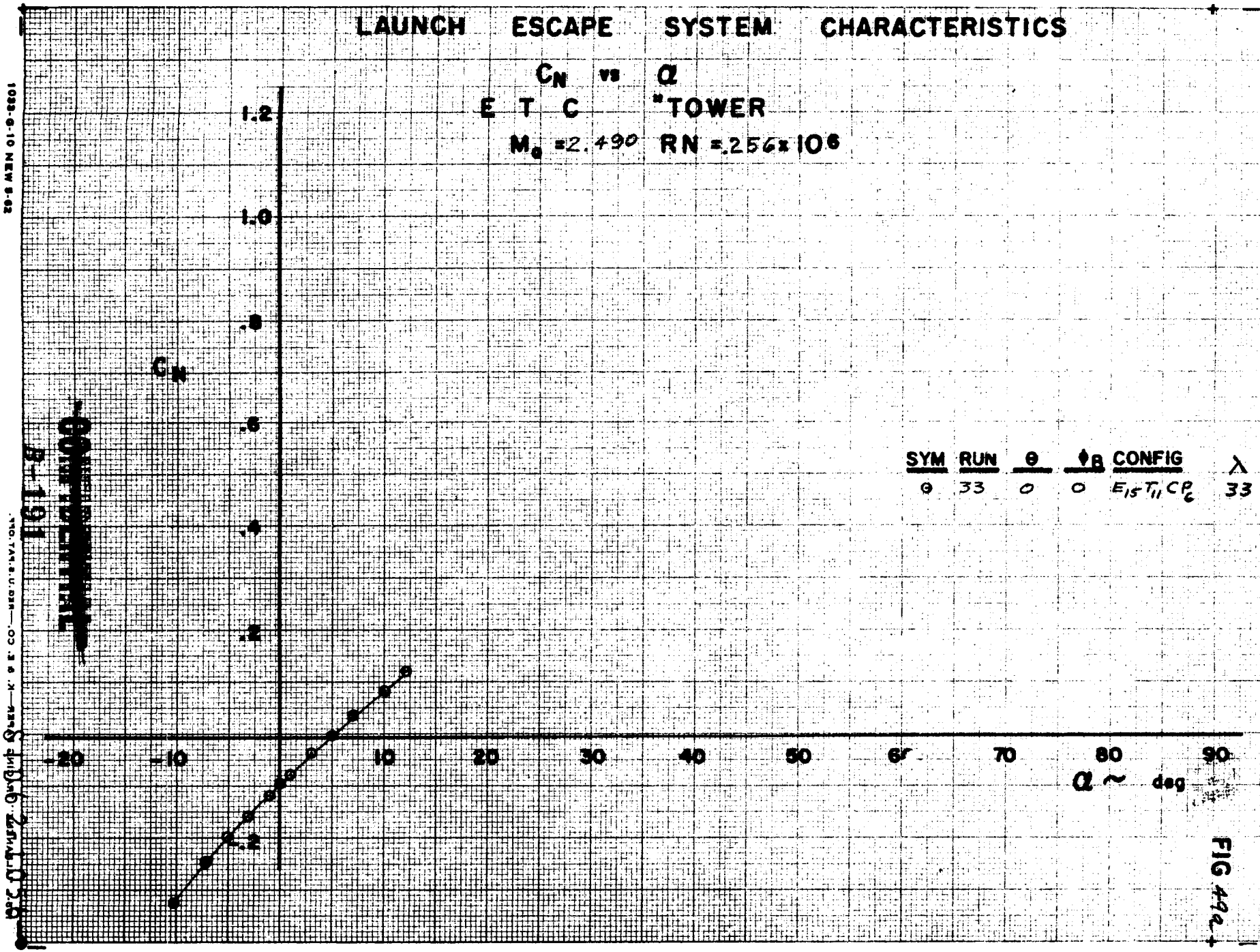



FIG 49a

33 $C_N$ vs $\alpha$

PREPARED BY:

CHECKED BY:

DATE:

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

[redacted]

PAGE NO. OF

REPORT NO.

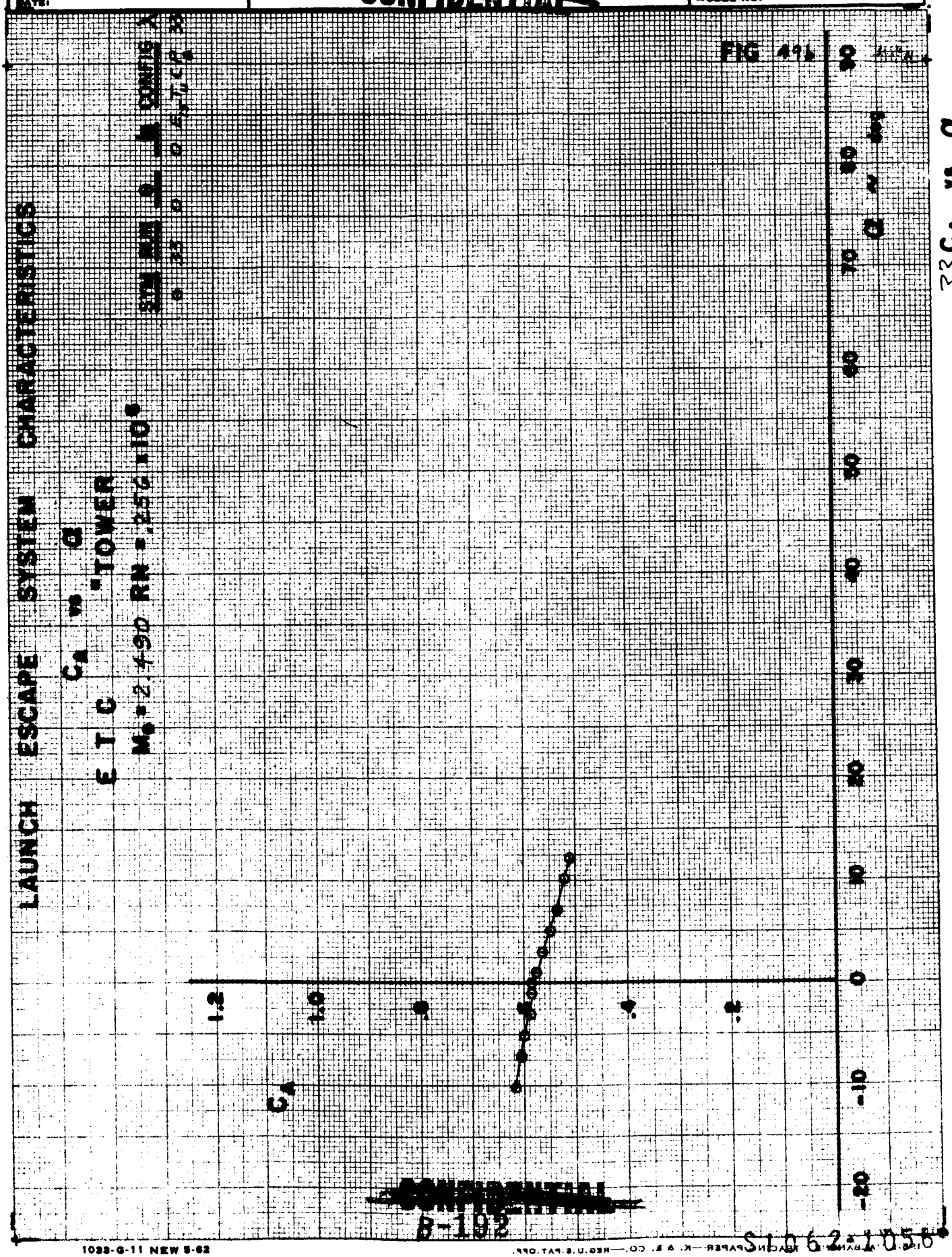
MODEL NO.

B-191

1033-G-10 NEW 8-62

CONFIDENTIAL

FIG 49b




33 $C_A$ vs $\alpha$

CONFIDENTIAL



S1062-1056

1033-G-11 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |



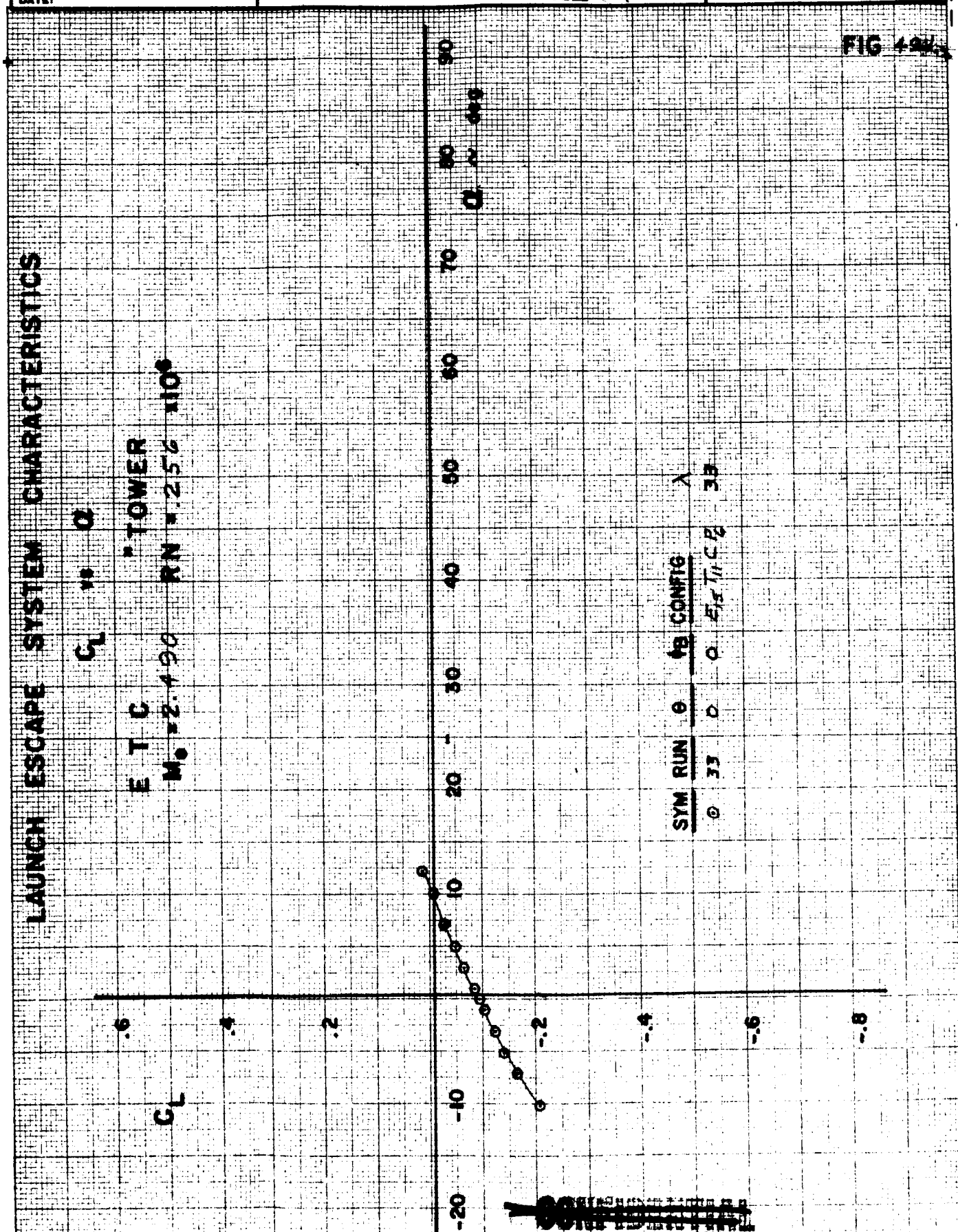

~~CONFIDENTIAL~~



1023-6-12 NEW 5-62
STD-62-105

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 49




33 $C_L$ vs $\alpha$

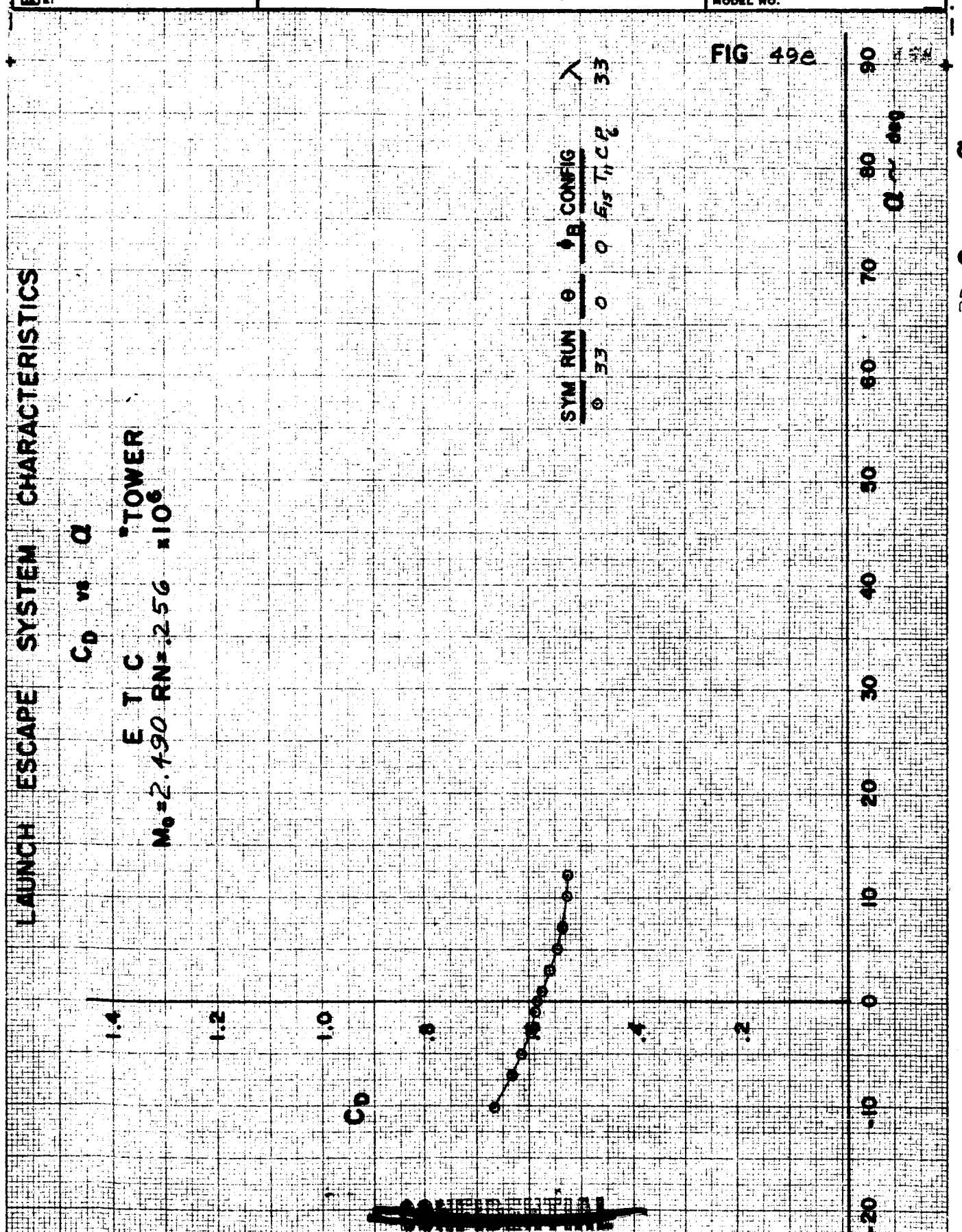
~~CONFIDENTIAL~~



1033-G-13 NEW 5-62

S1062-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |




[redacted]



1033-G-14 NEW 5-62

SID62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

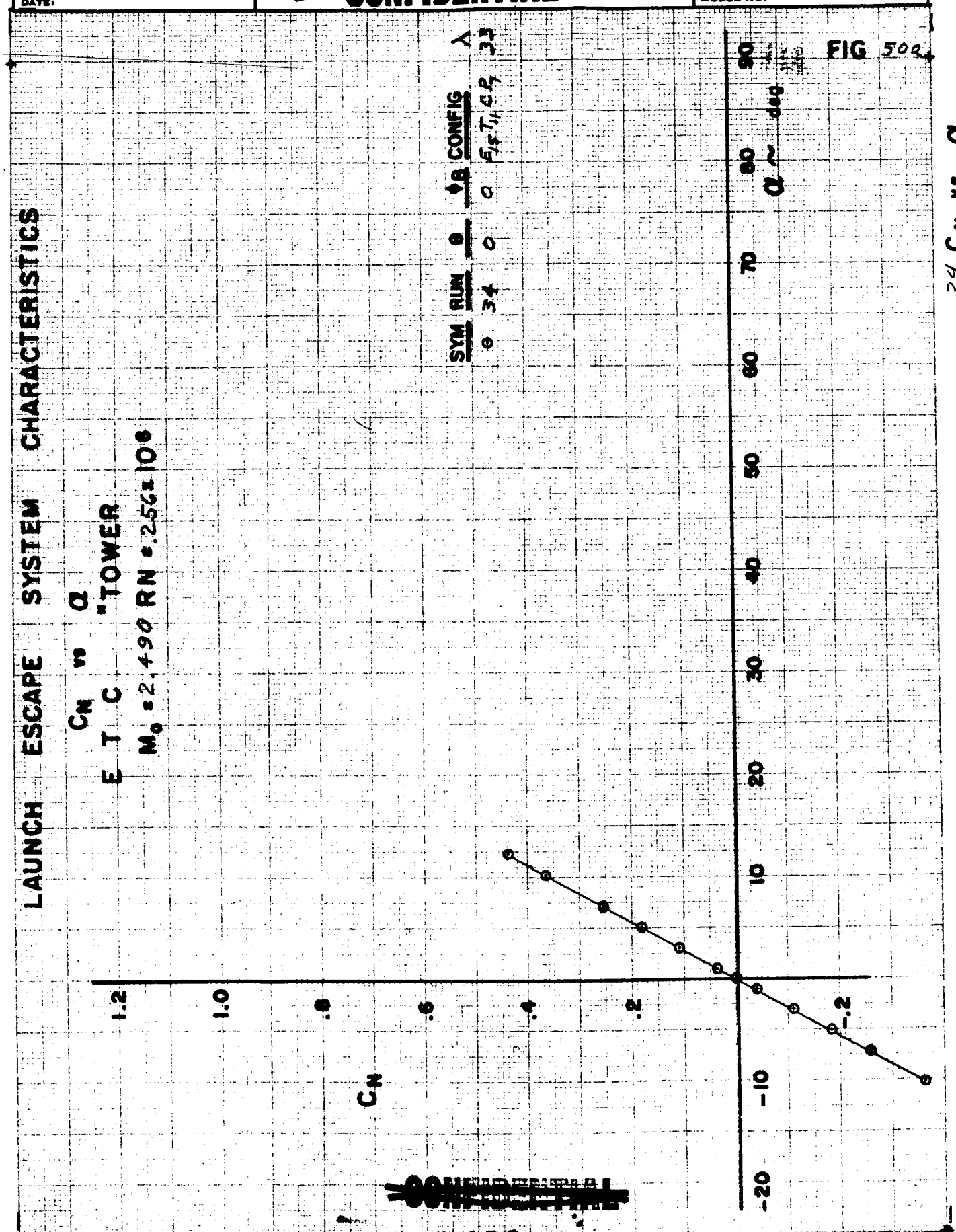


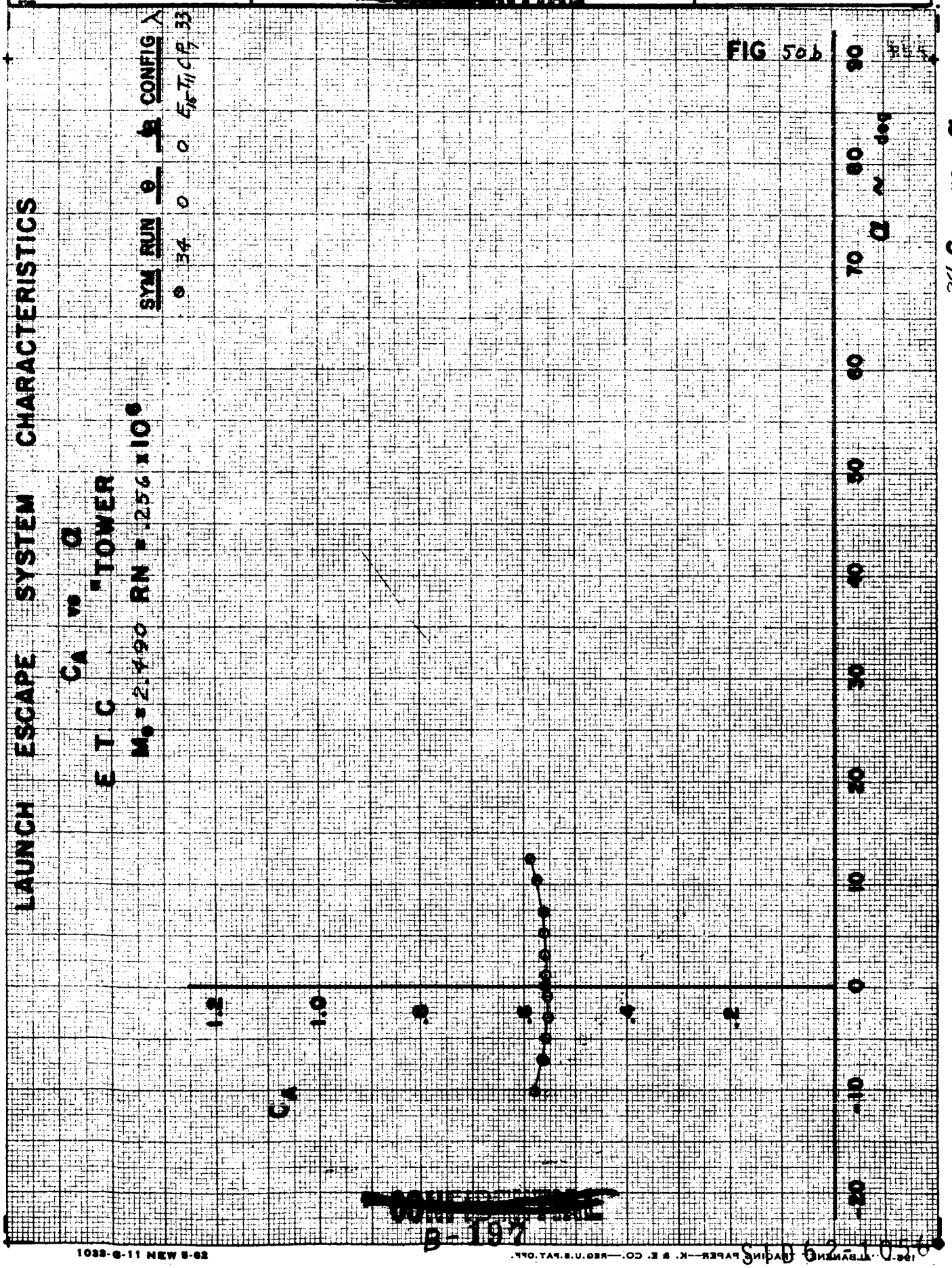

FIG 50a

34 $C_N$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

FIG 50b




[redacted]

B-197

1033-G-11 NEW 5-62

SID 62-1056

PREPARED BY:

CHECKED BY:

DATE:

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

~~CONFIDENTIAL~~

PAGE NO. OF

REPORT NO.

MODEL NO.



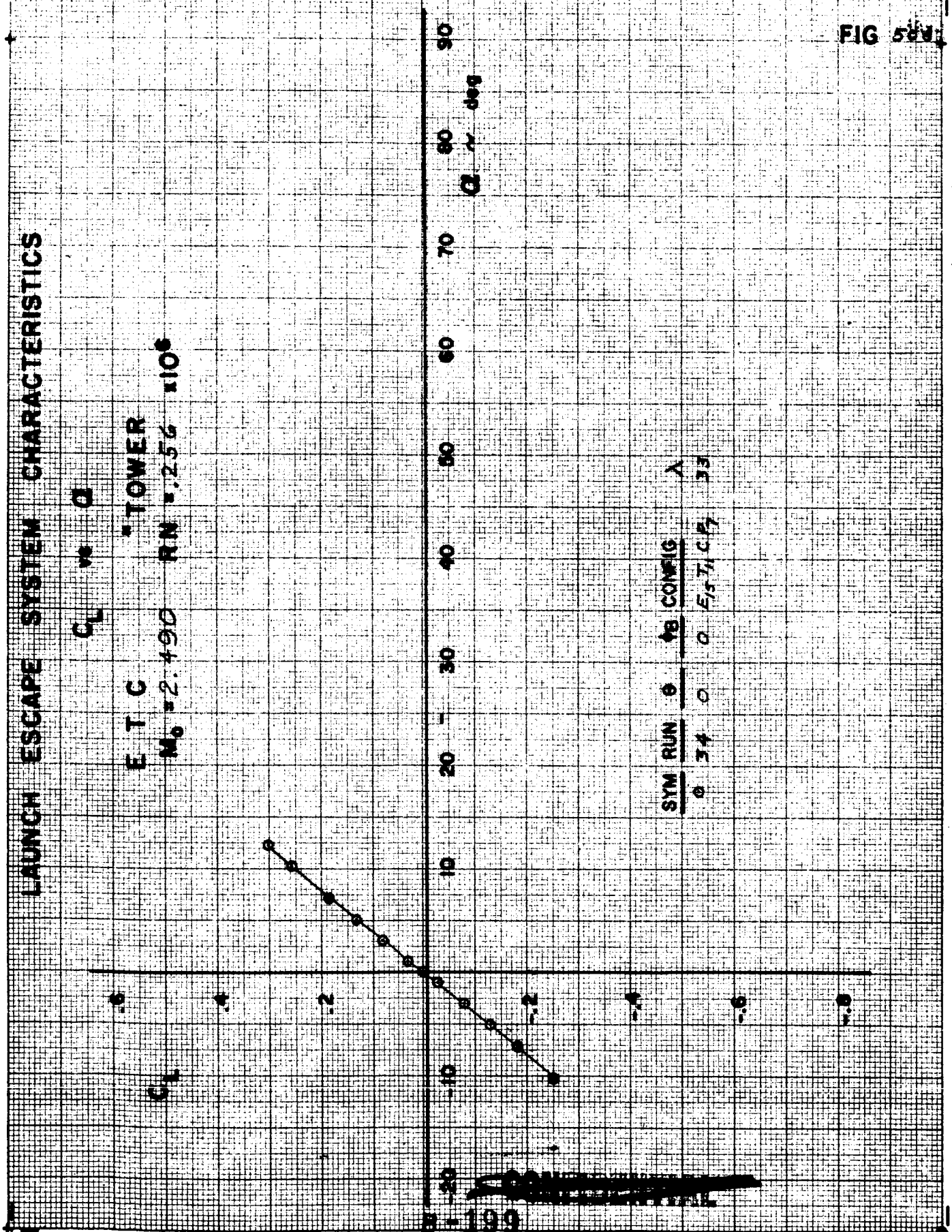

~~CONFIDENTIAL~~



1033-G-12 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

FIG 5[illegible]




34 $C_L$ vs $\alpha$

[redacted]

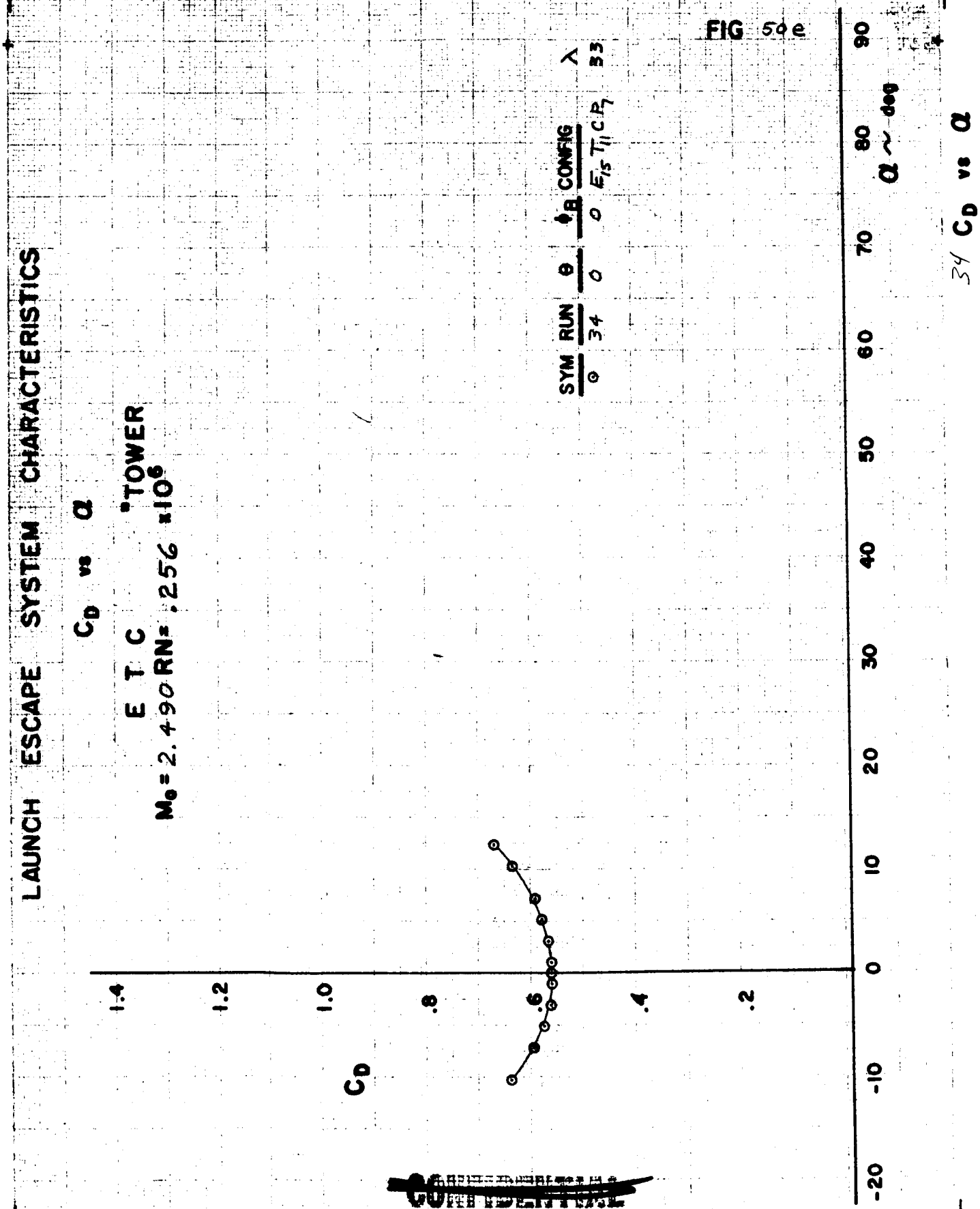


1033-G-13 NEW 5-62

STD62-1056

~~CONFIDENTIAL~~

FIG 50e




~~CONFIDENTIAL~~

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

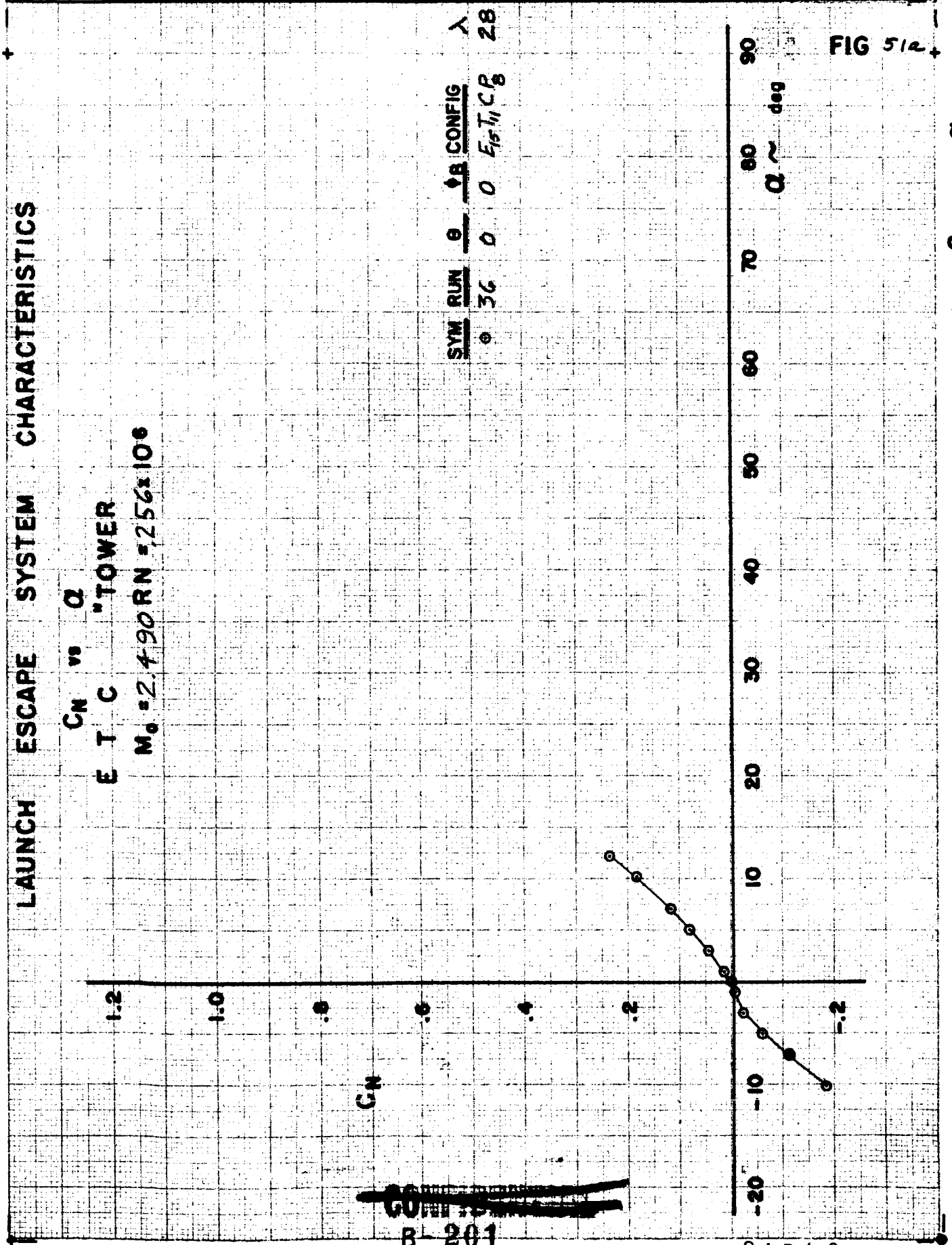



FIG 51a

$C_N$ vs $\alpha$

36

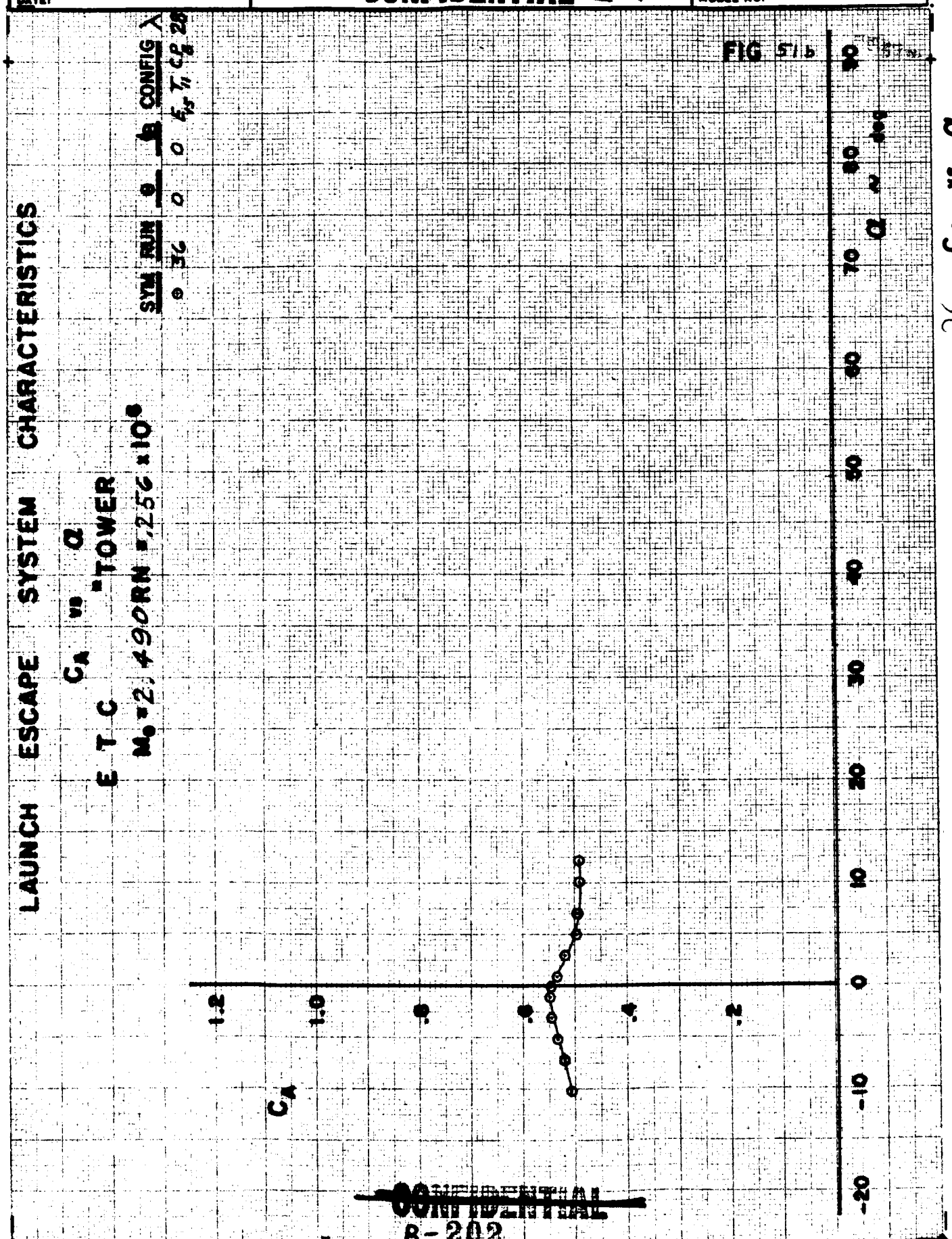
[redacted]

B-201

1032-G-10 NEW 5-62

SID 62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




36 $C_A$ vs $\alpha$

~~CONFIDENTIAL~~



1033-G-11 NEW 5-62

STD62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

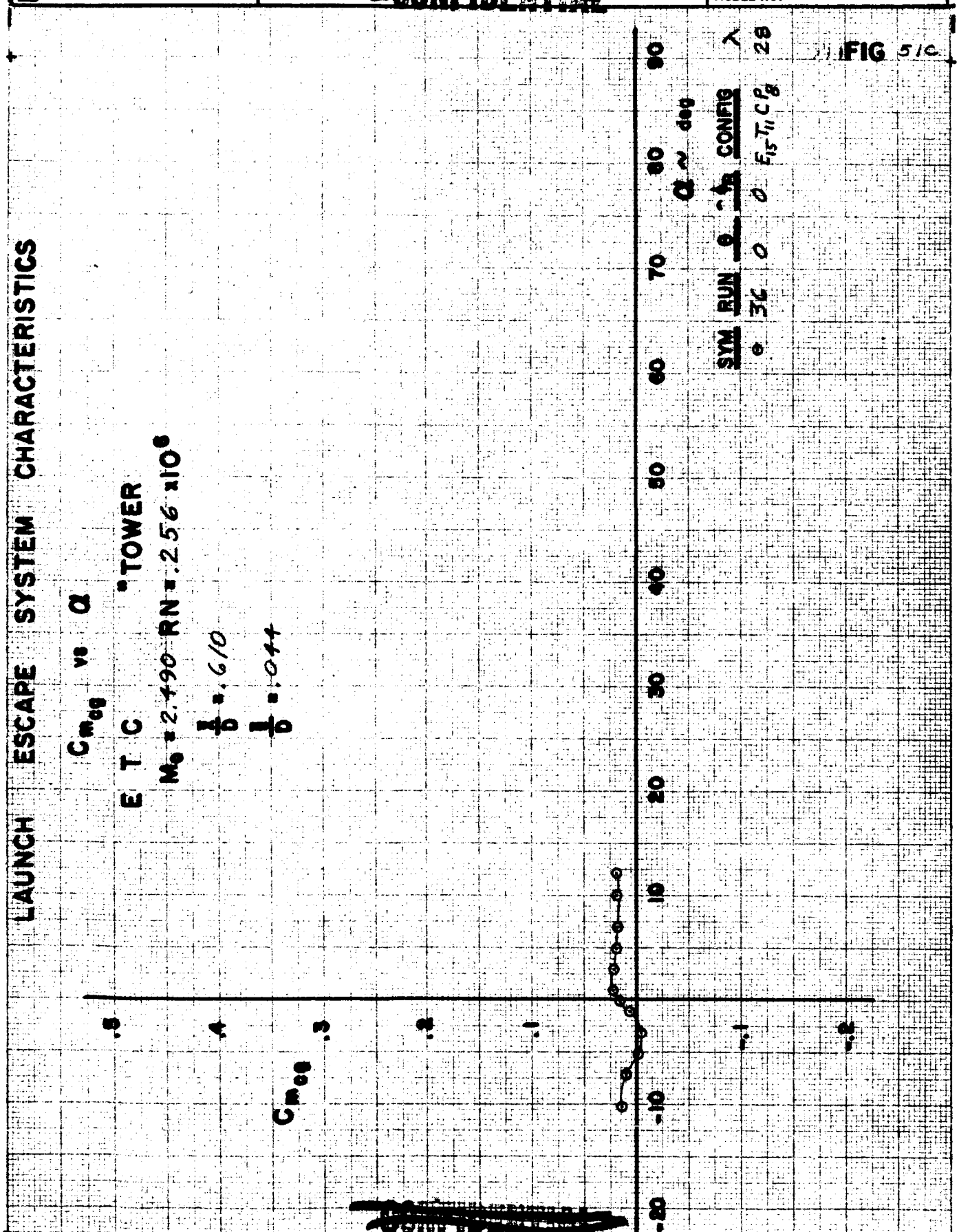



FIG 51C

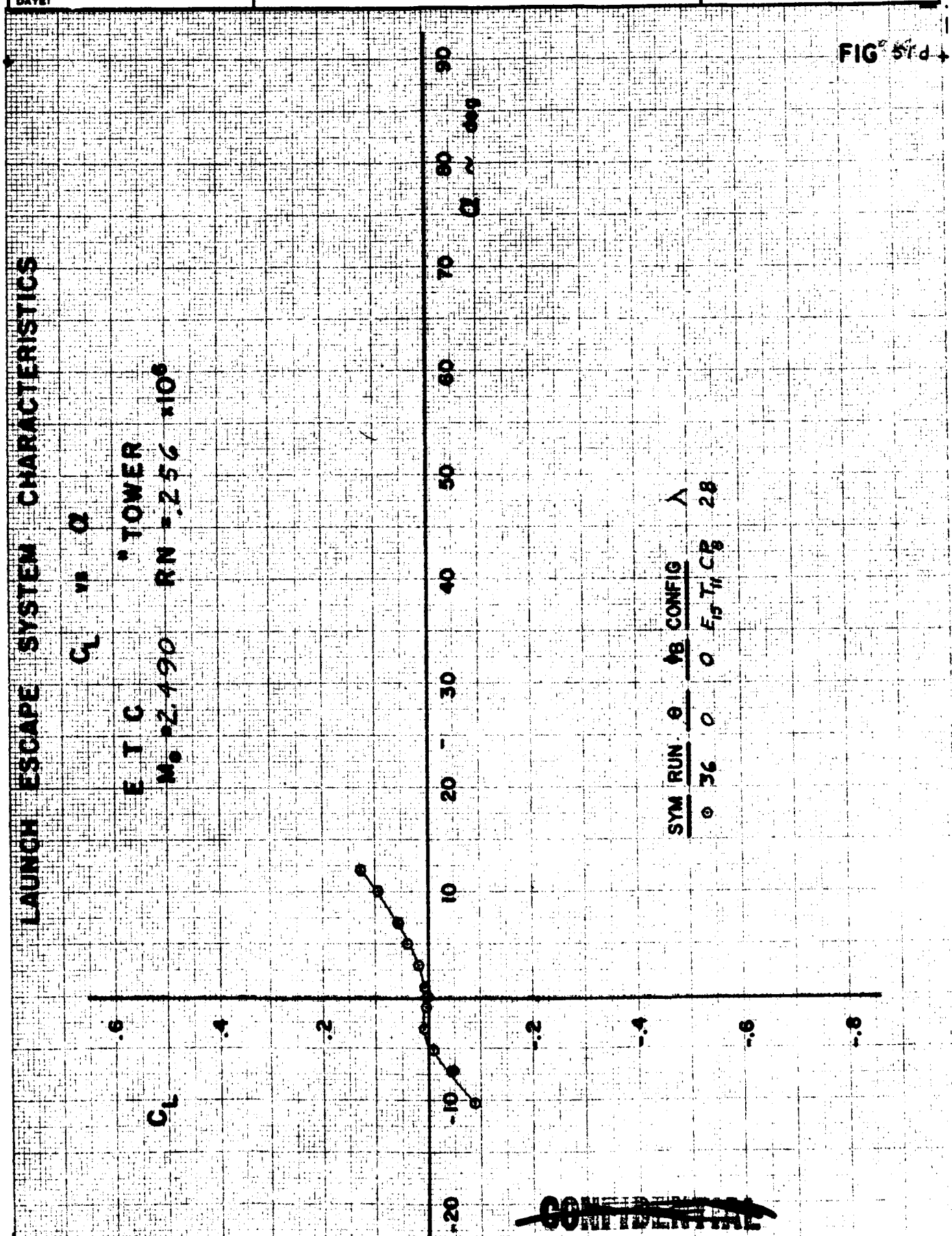
[redacted]



1033-G-12 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 51d




36 $C_L$ vs $\alpha$

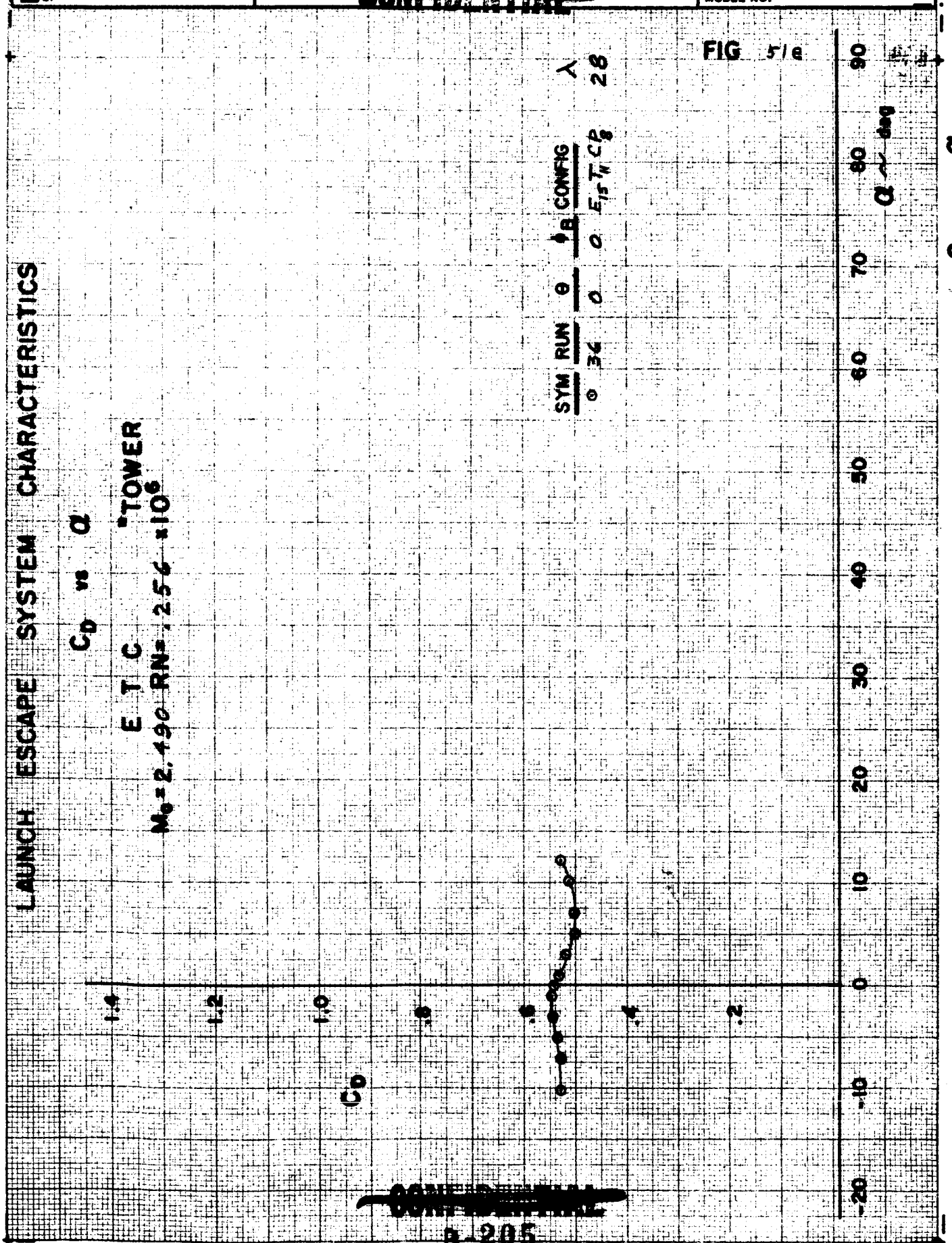
~~CONFIDENTIAL~~



1033-G-13 NEW 5-62

S1D62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~



1033-G-14 NEW 5-62

S1062-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

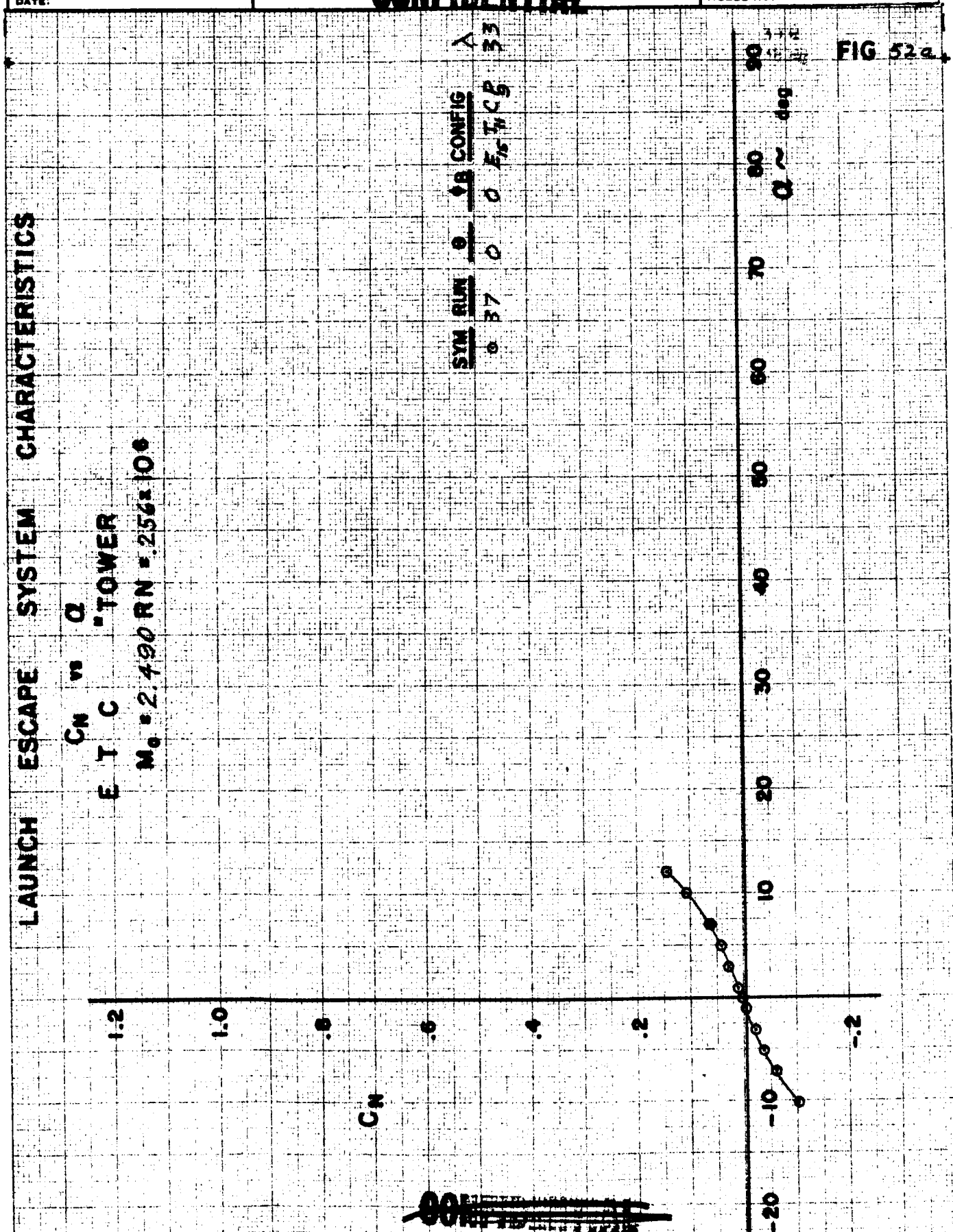



FIG 52a

37 $C_N$ vs $\alpha$

~~CONFIDENTIAL~~



1033-G-10 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

FIG 52b

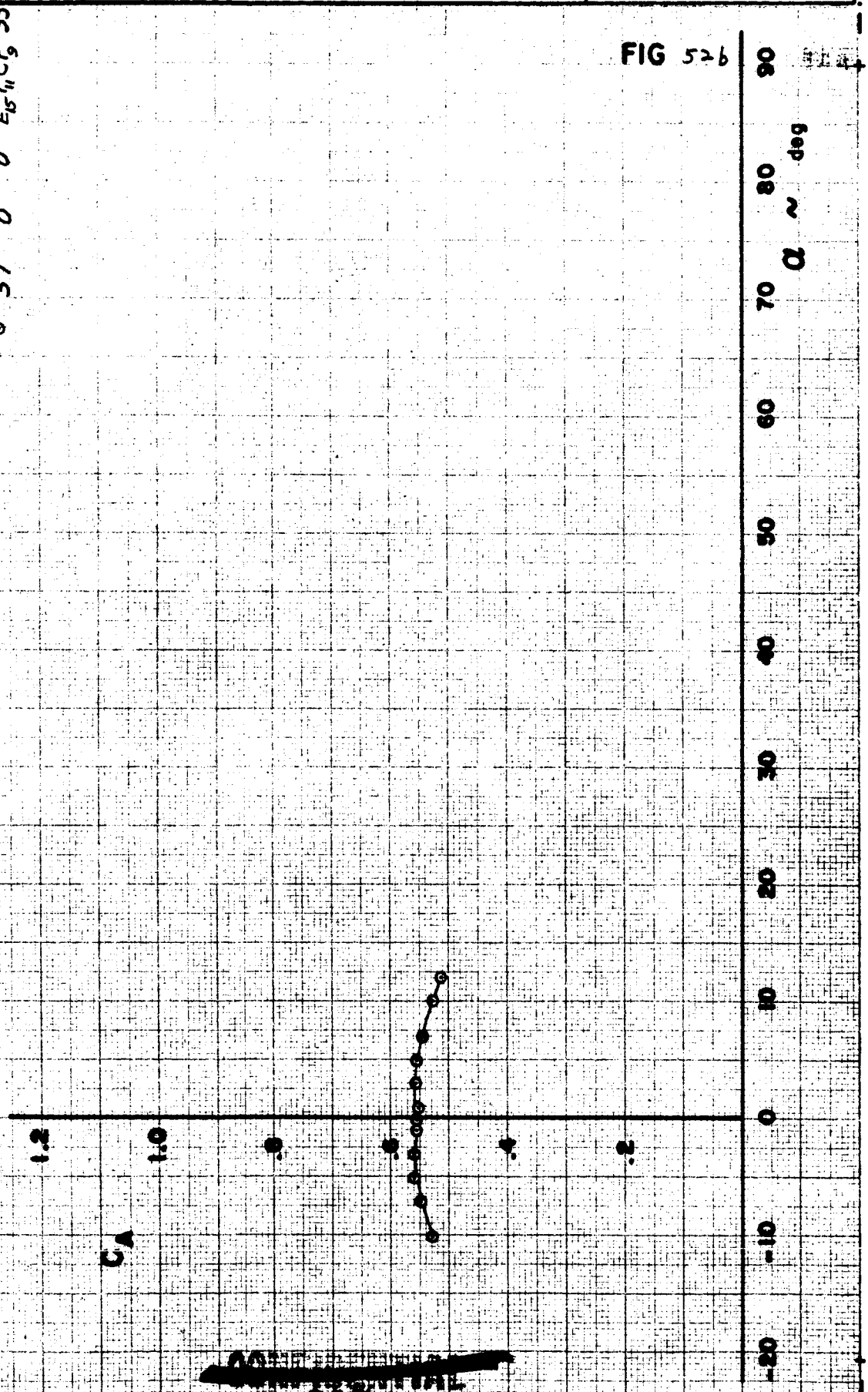
LAUNCH ESCAPE SYSTEM CHARACTERISTICS

$C_A$ vs $\alpha$

ETC "TOWER

$M_\infty = 2.490$ RN $= .256 \times 10^6$

| SYM | RUN | $\theta$ | $\psi$ | CONFIG |
|---|---|---|---|---|
| ⊙ | 37 | 0 | 0 | $E_{15}T_{11}C_9$ 33 |




37 $C_A$ vs $\alpha$

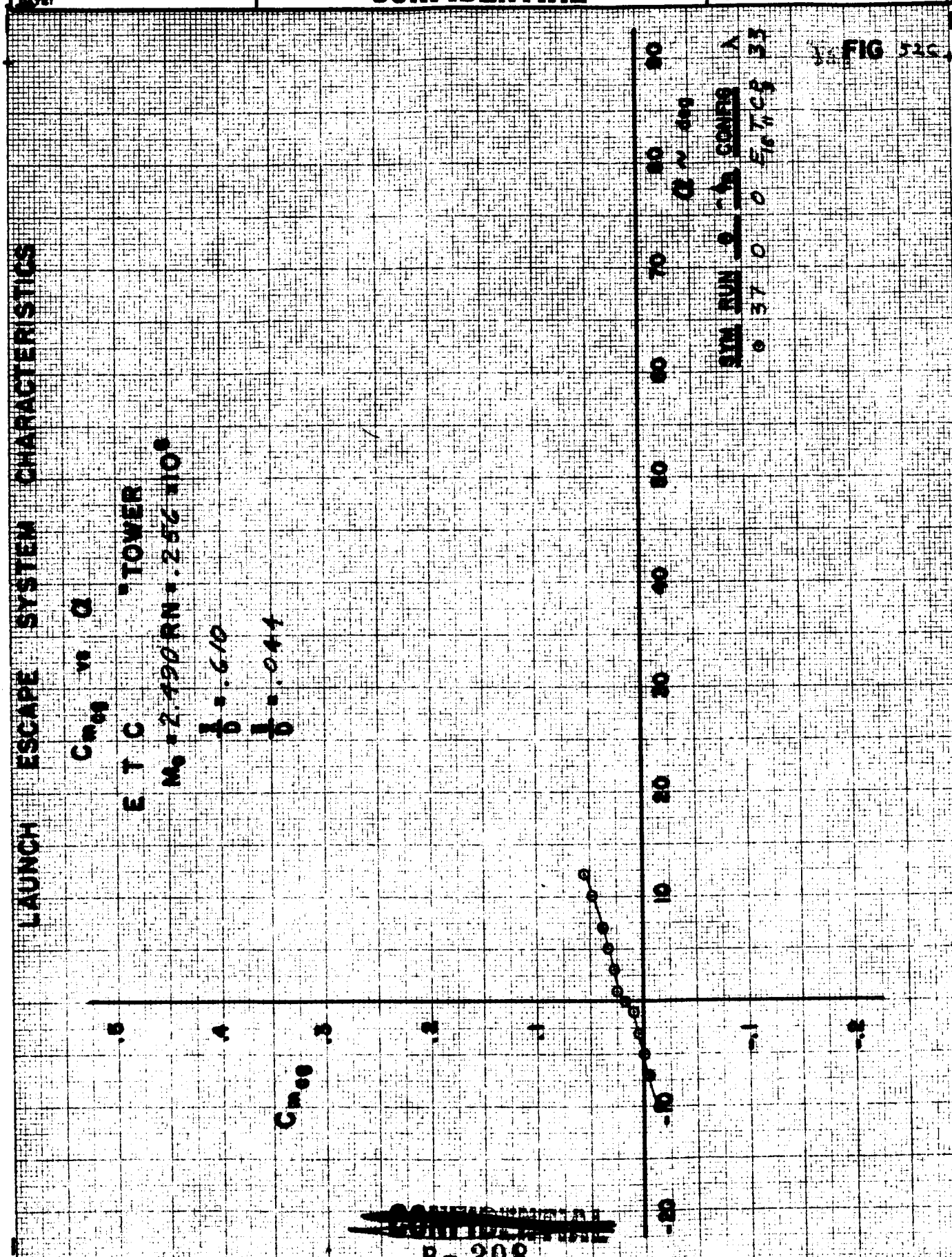
[redacted]

B-207

1032-G-11 NEW 5-62

STD62-1056

FIG 52c

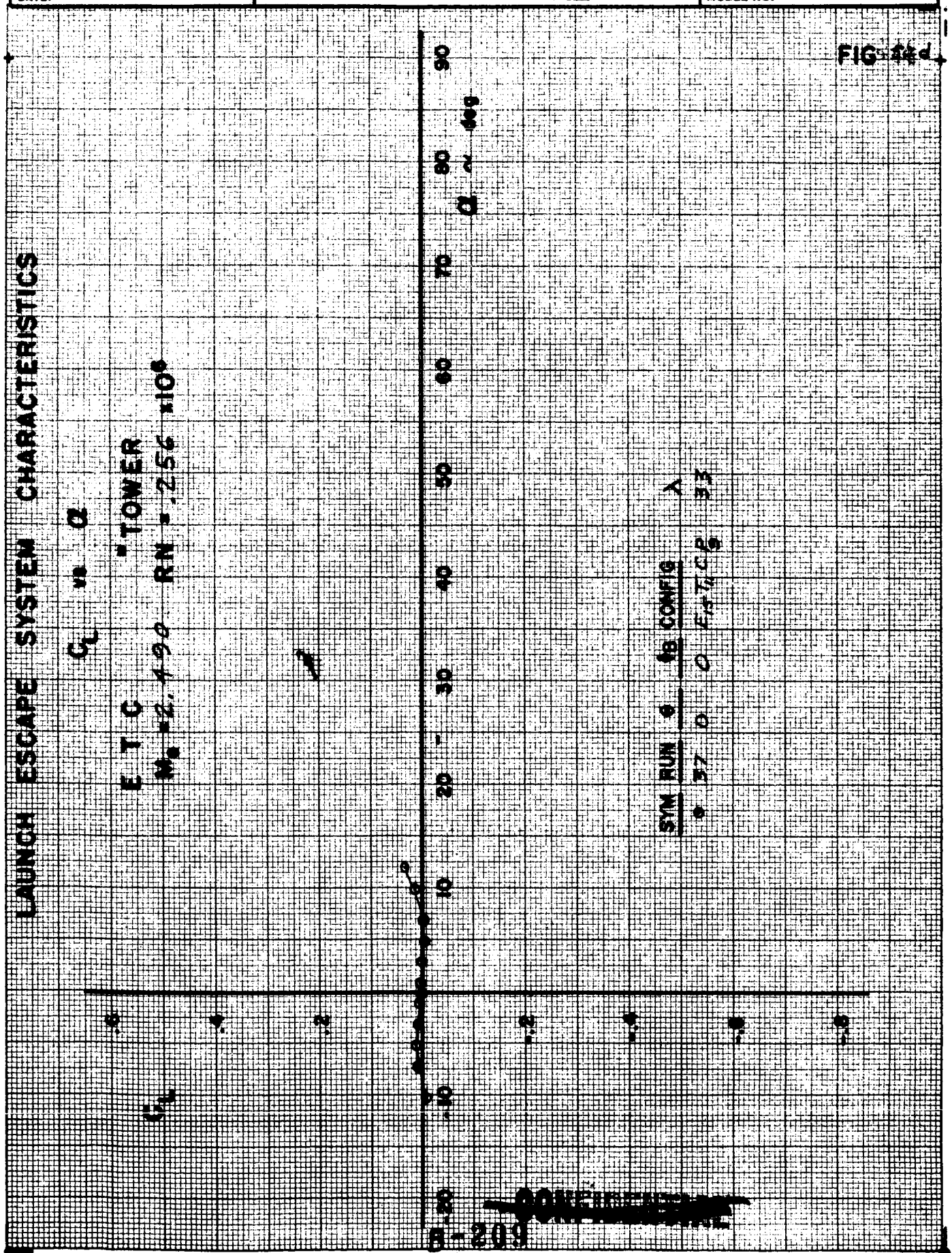



37 $C_{m_\alpha}$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 44d




37 $C_L$ vs $\alpha$

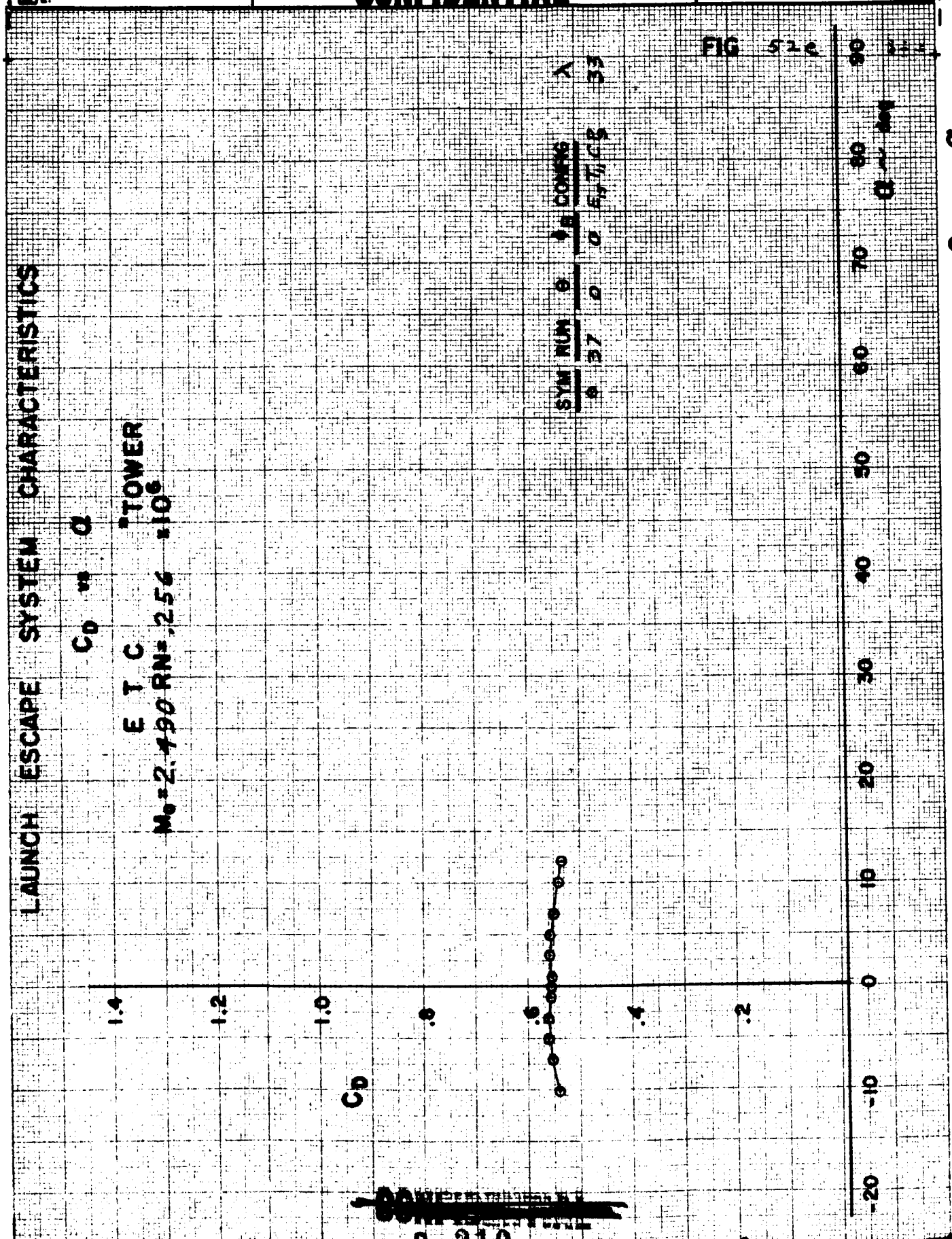
~~CONFIDENTIAL~~



1033-G-13 NEW 5-62

SID62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |




CONFIDENTIAL

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

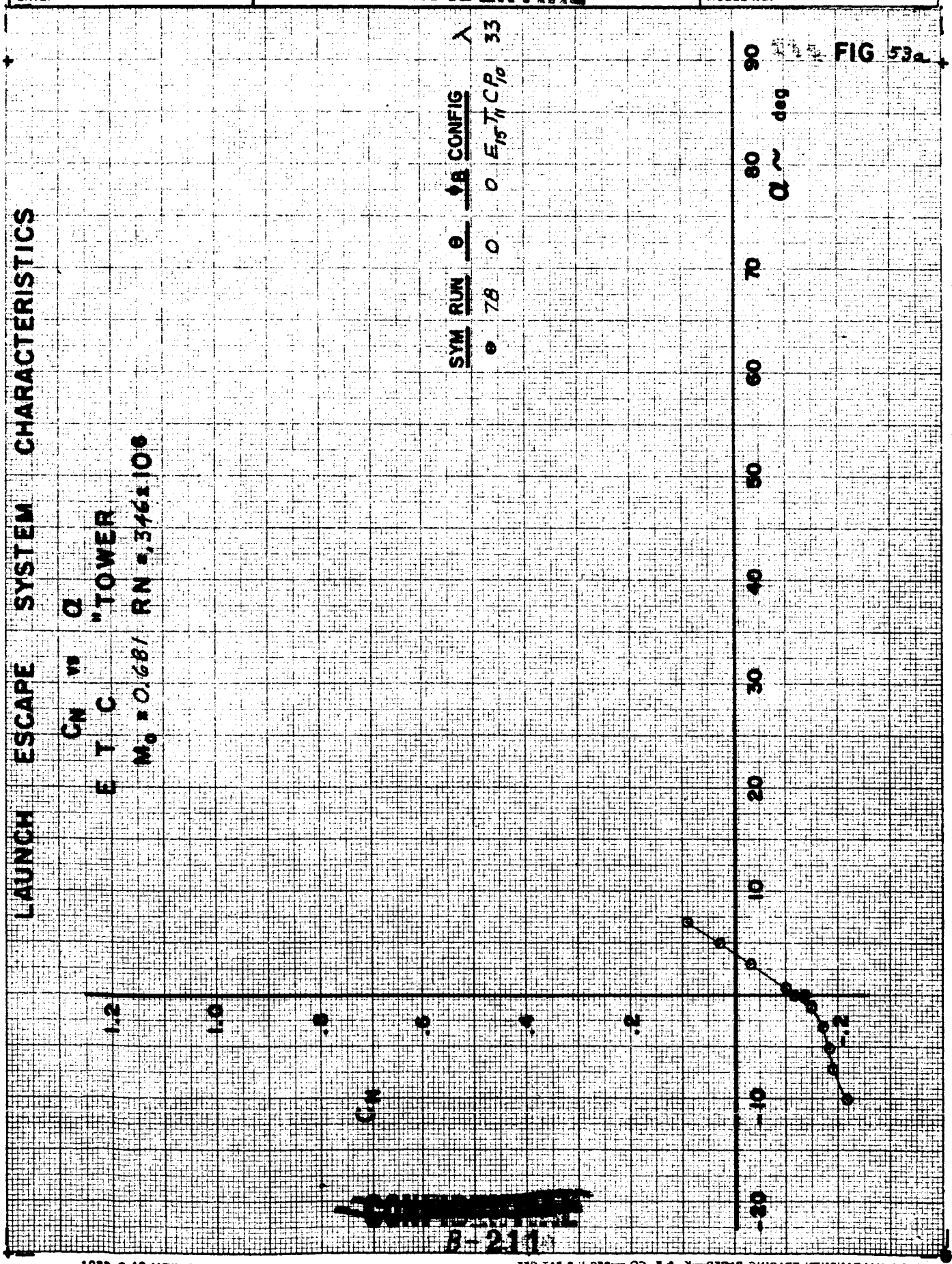



FIG 53a

51 $C_N$ vs $\alpha$

~~CONFIDENTIAL~~



1033-G-10 NEW 5-62

SID62-1056

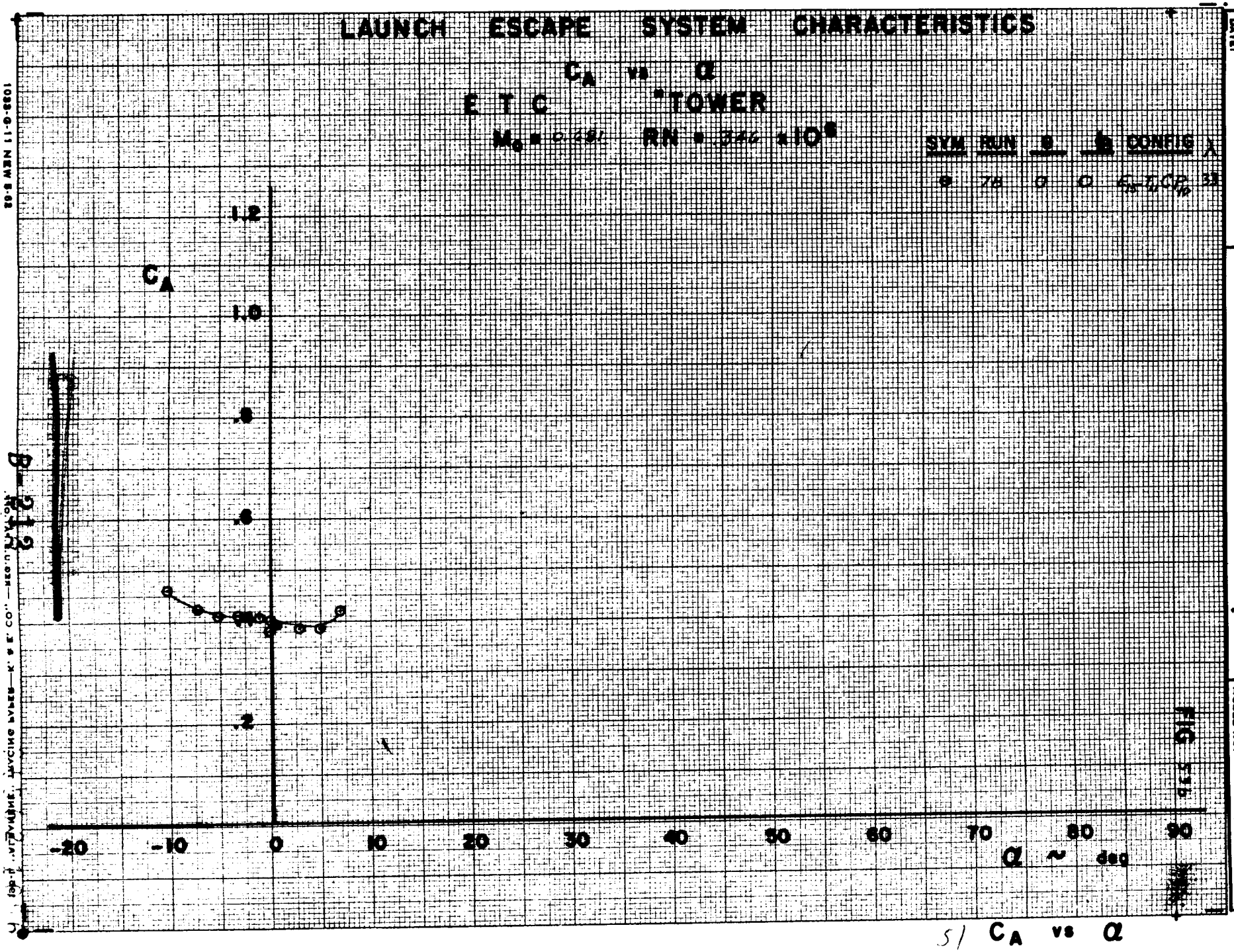



FIG 53b

51 $C_A$ vs $\alpha$

PREPARED BY:
CHECKED BY:
DATE:
NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION
MODEL NO.
REPORT NO.
PAGE NO. OF

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

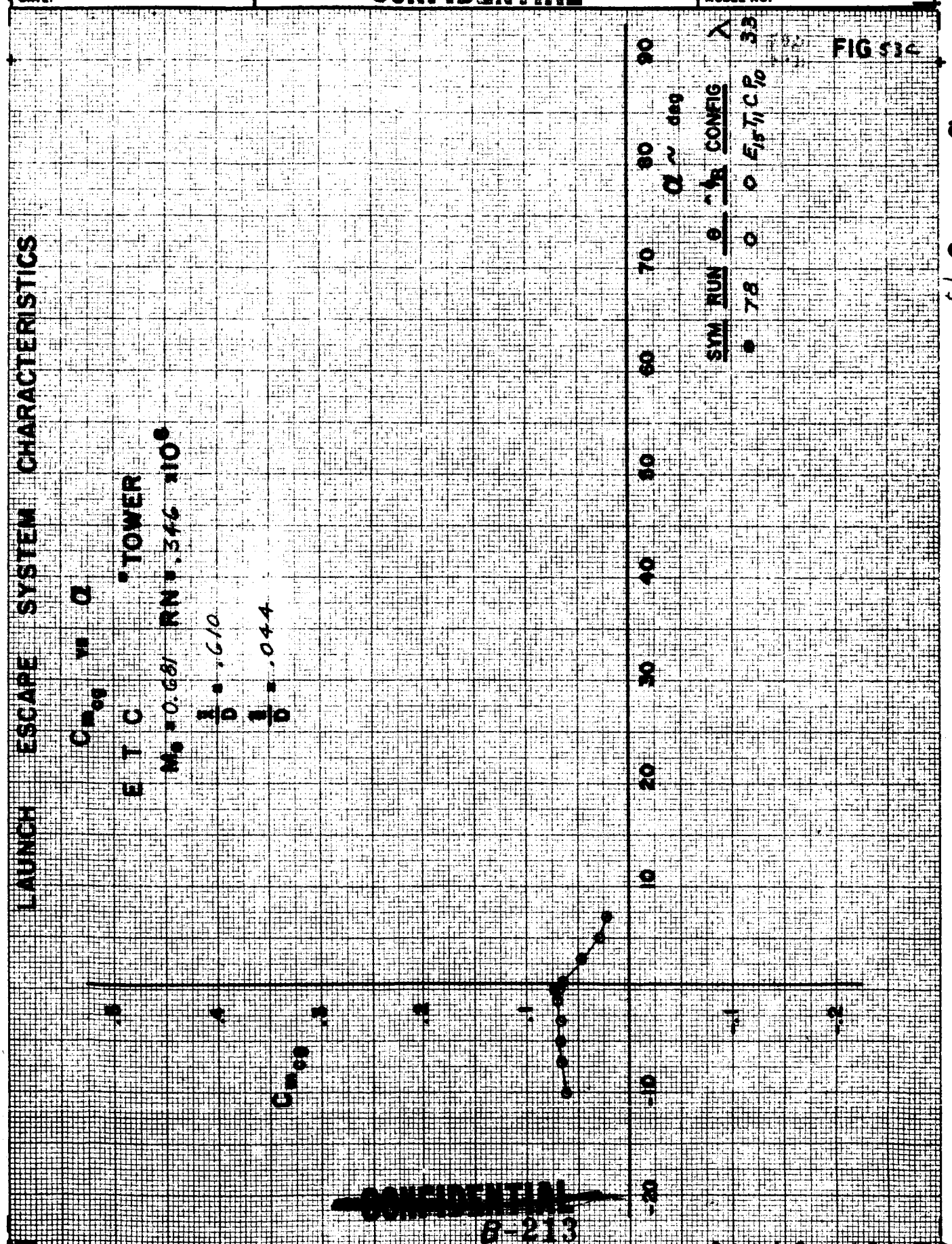



FIG 53c

51 $C_{m_{cg}}$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |

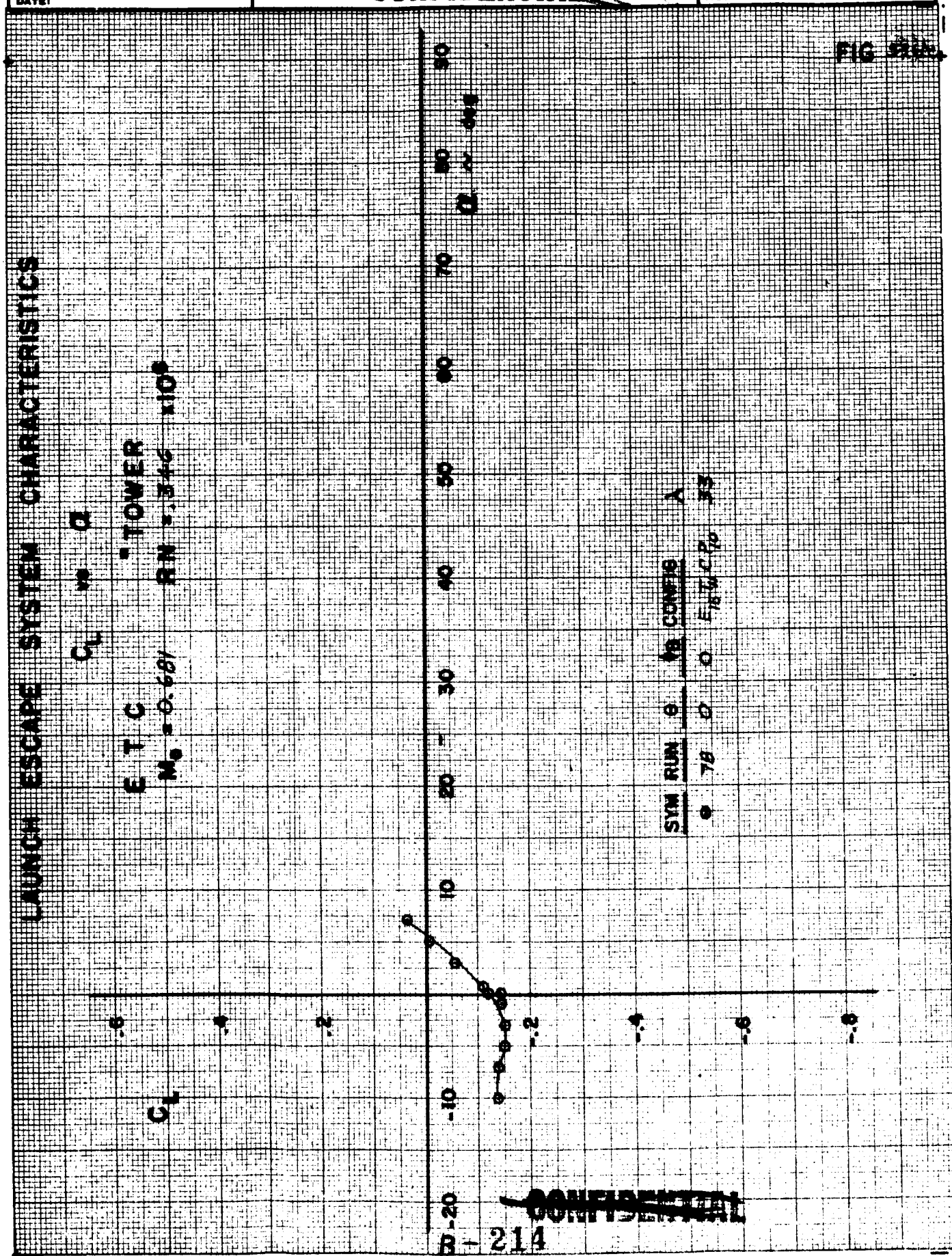



FIG [illegible]

51 $C_L$ vs $\alpha$

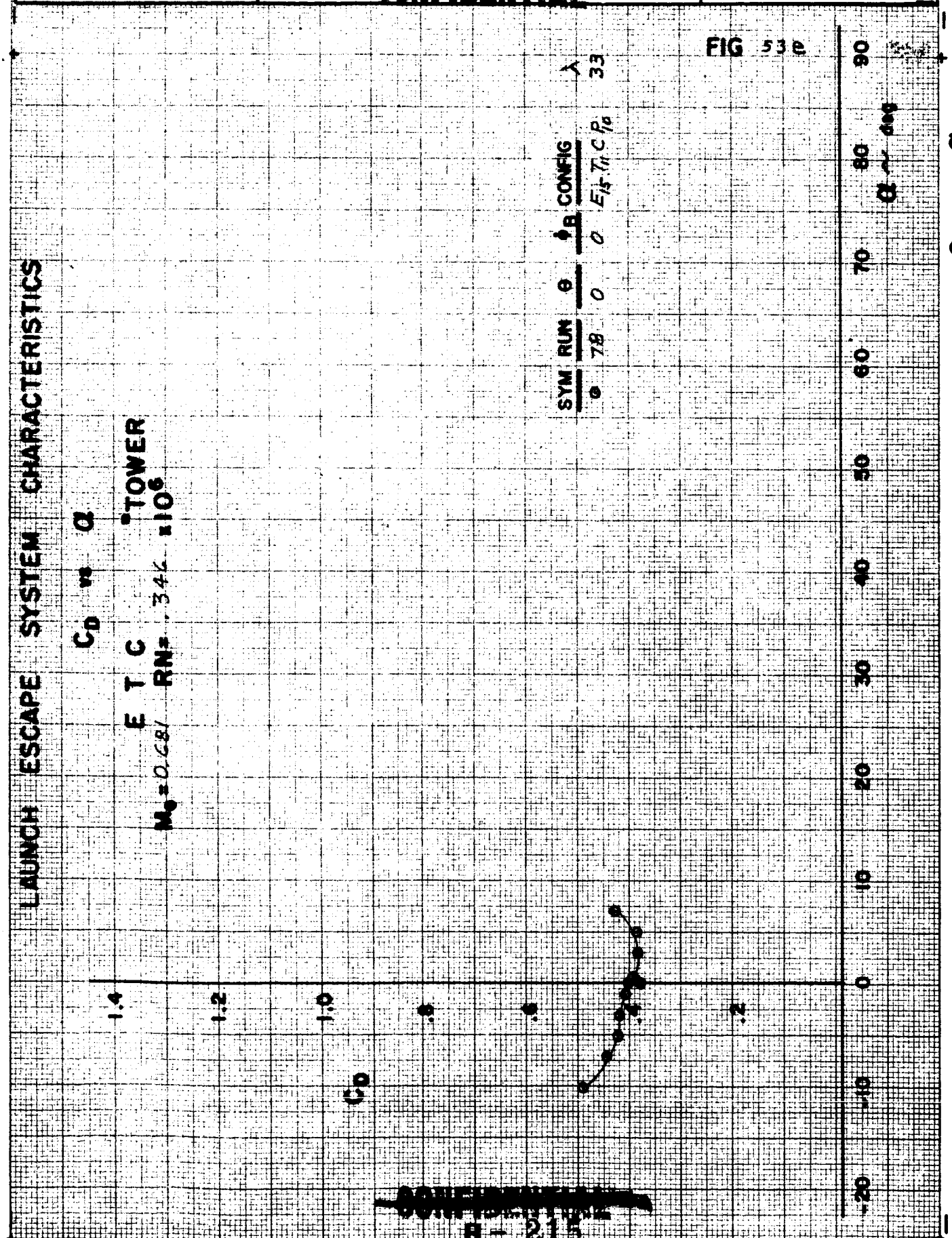
CONFIDENTIAL



1033-G-13 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 53e




~~CONFIDENTIAL~~



1033-G-14 NEW 5-62

S1D62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

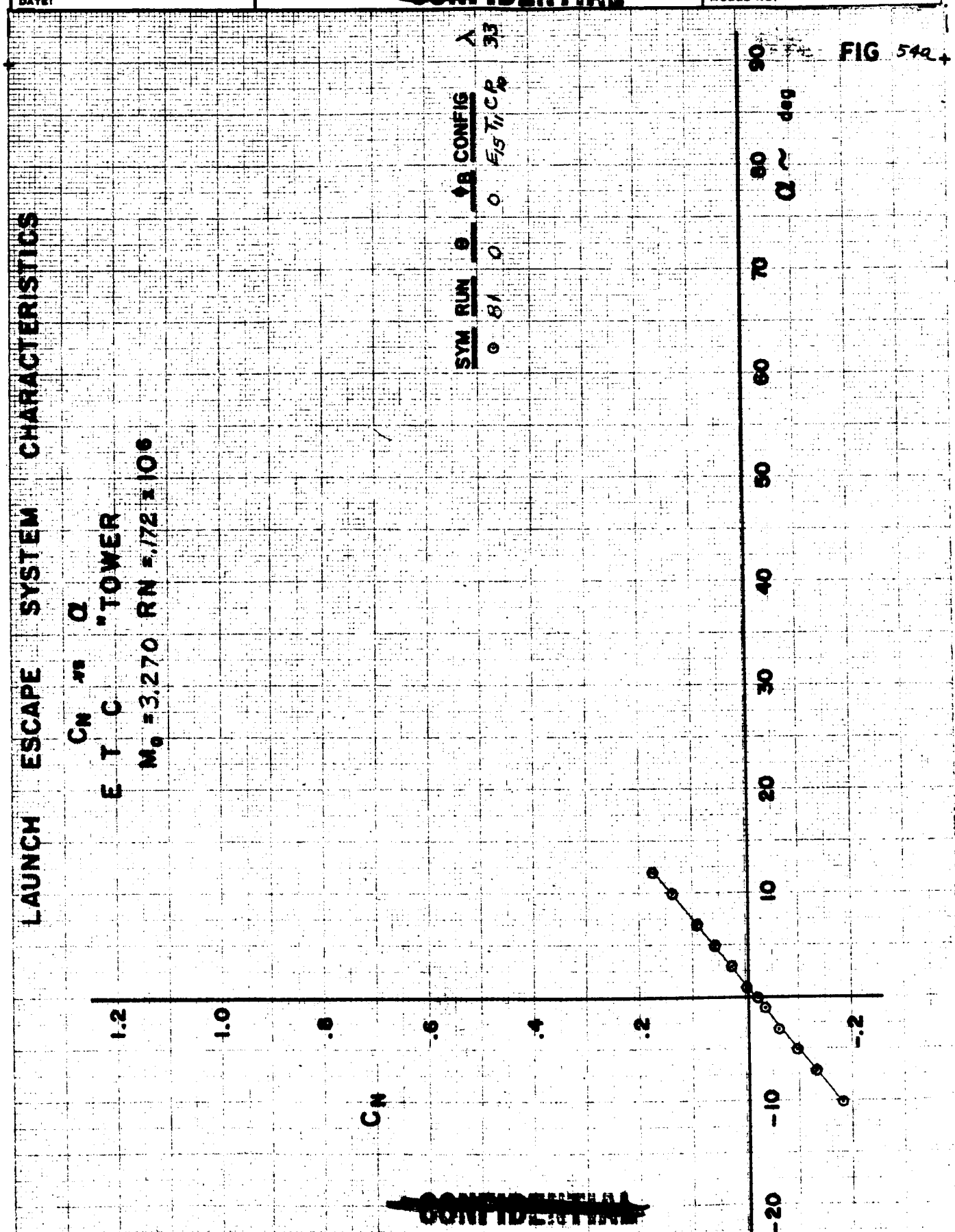



FIG 54a

54 $C_N$ vs $\alpha$

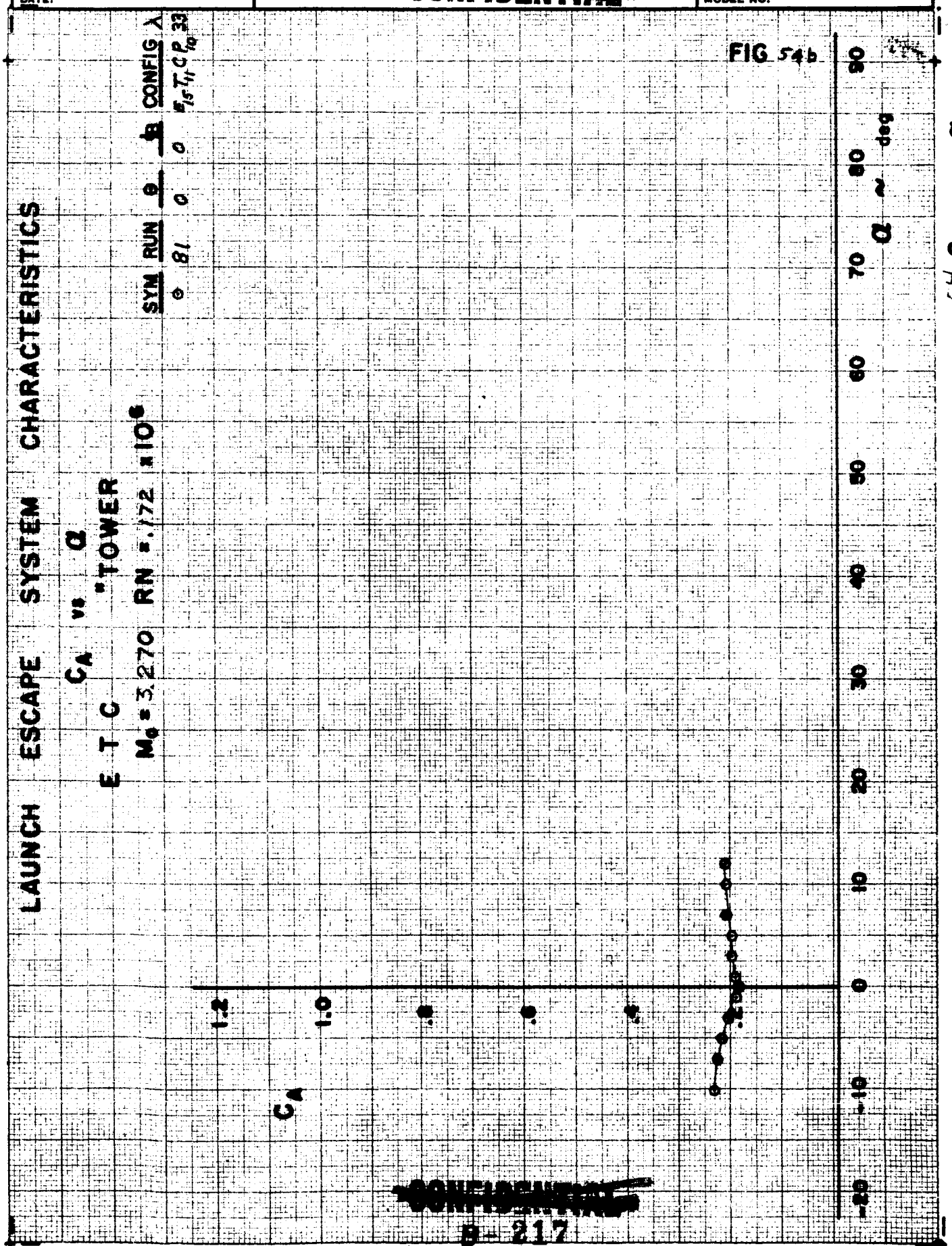
~~CONFIDENTIAL~~



1033-G-10 NEW 5-62

S1062-105

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

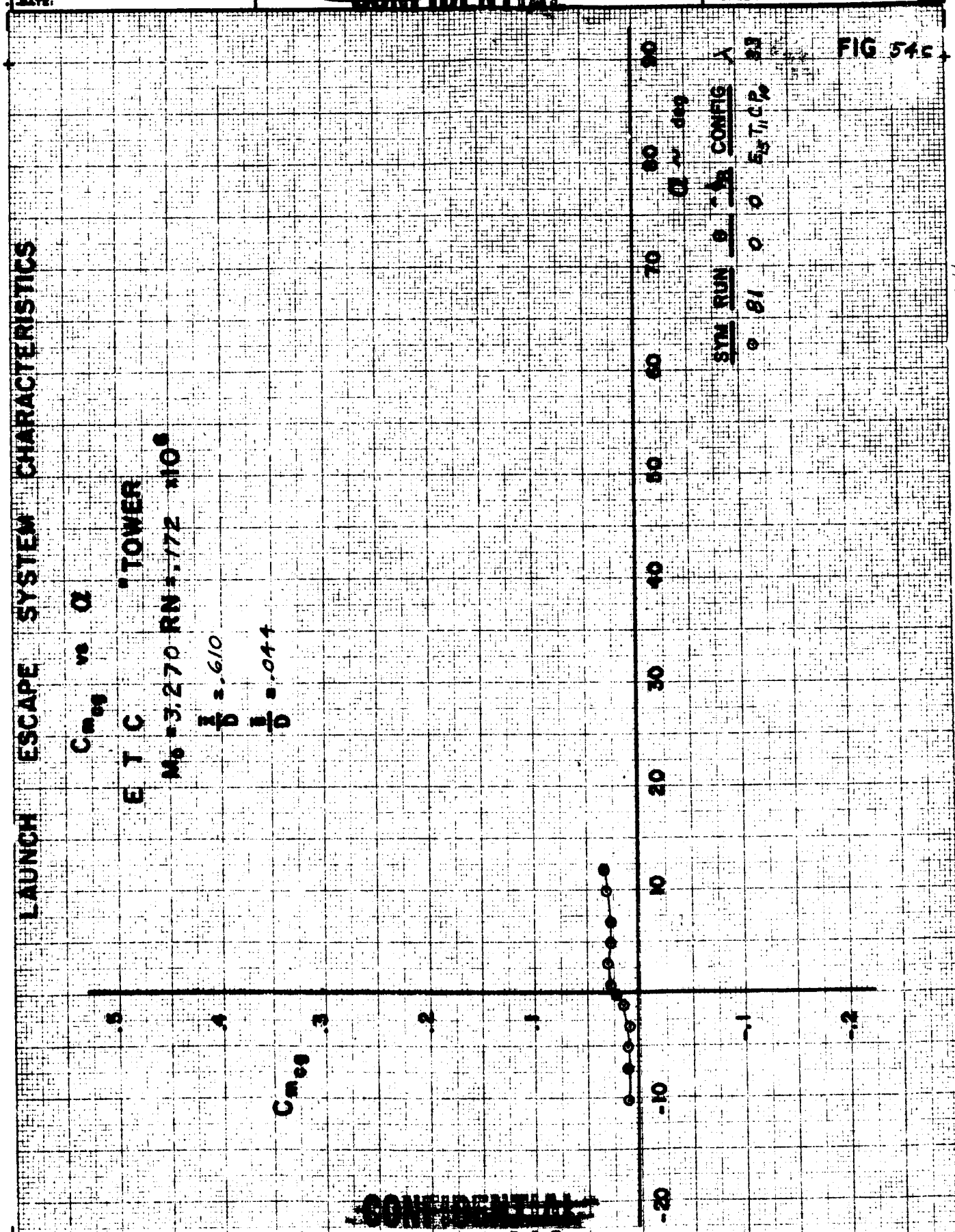



FIG 54c

54 $C_{m_{cg}}$ vs $\alpha$

~~CONFIDENTIAL~~

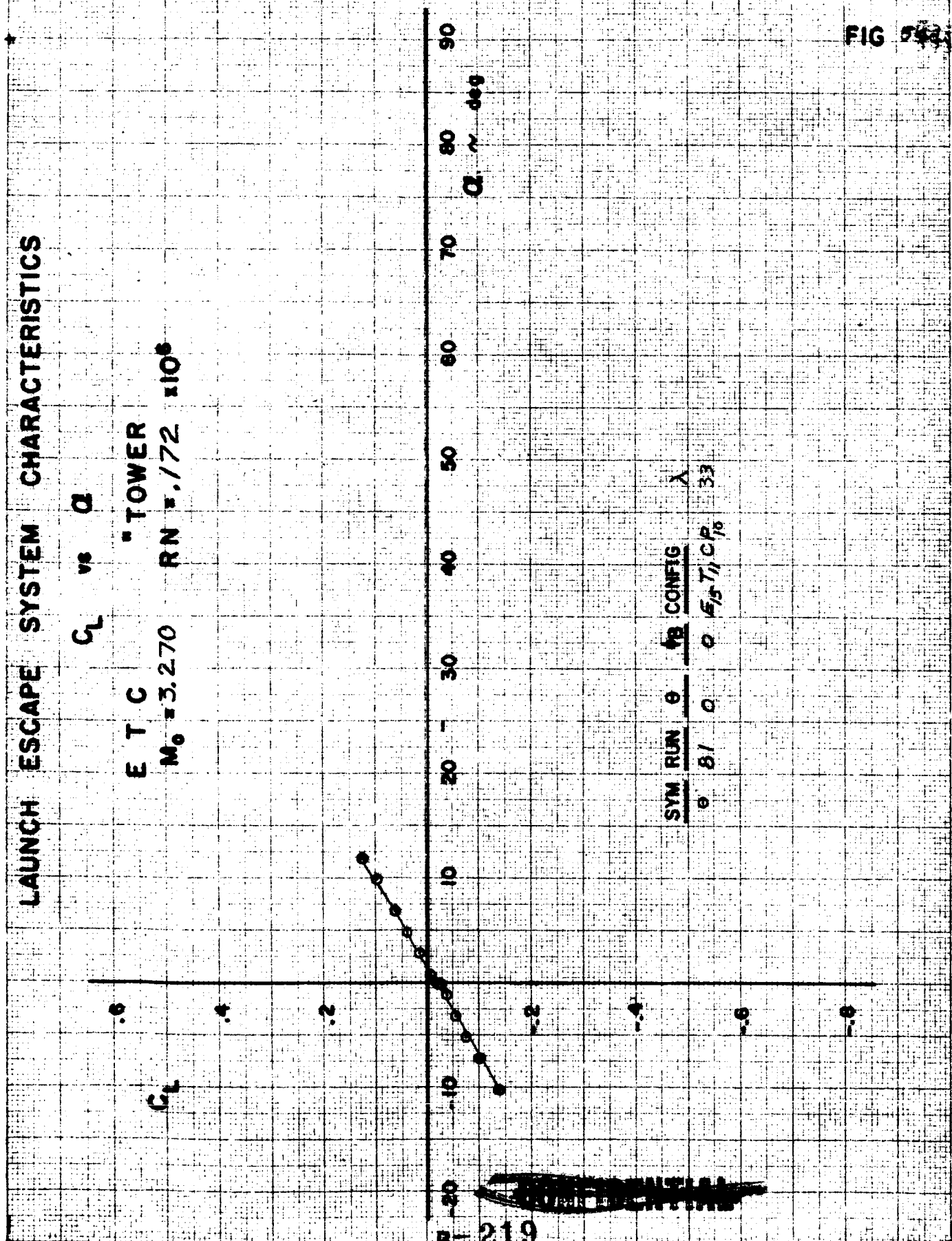


1033-G-12 NEW 5-62

S1062-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

FIG 54




54 $C_L$ vs $\alpha$

[redacted]



1033-G-13 NEW 5-62

SID 62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

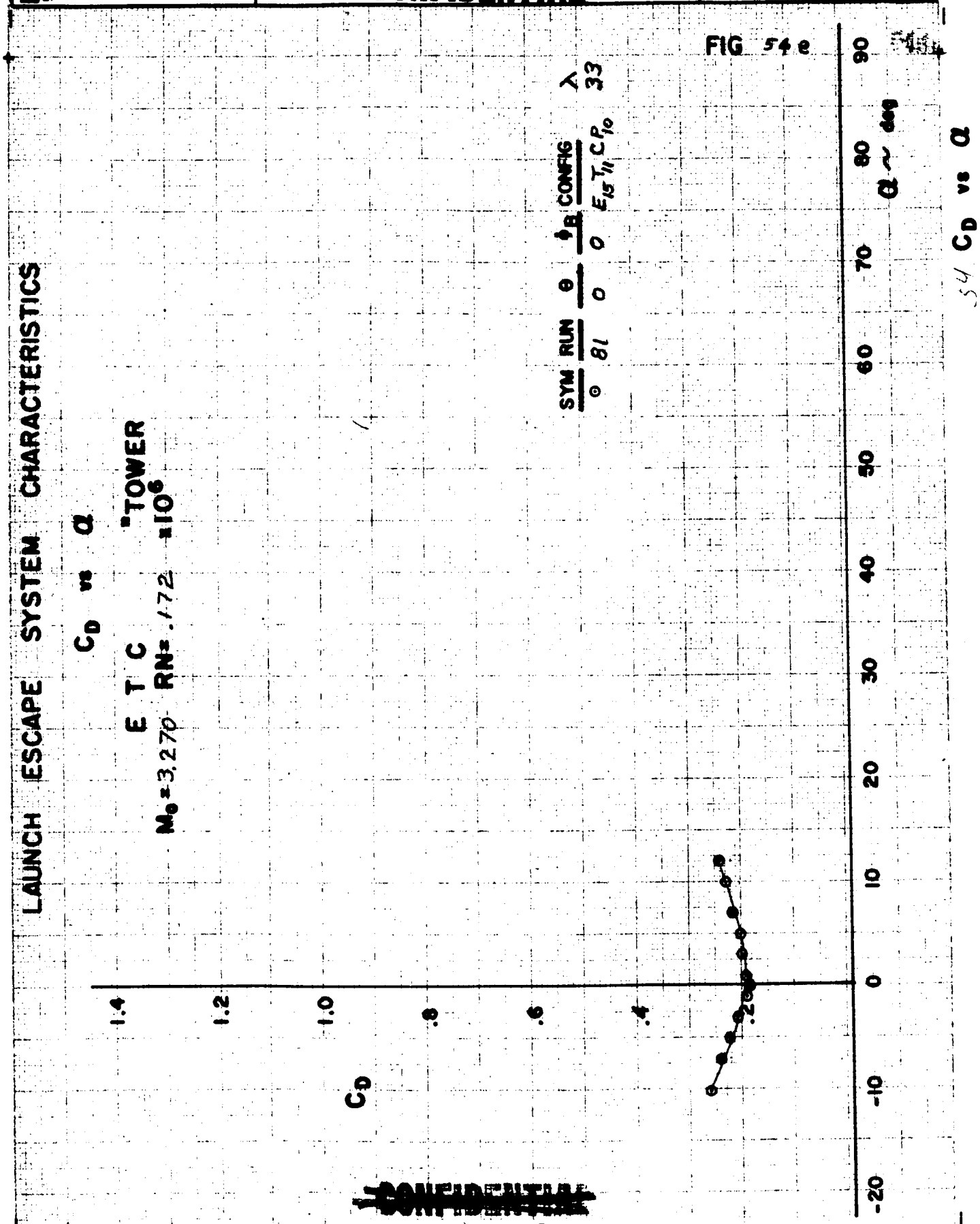



FIG 54e

54 $C_D$ vs $\alpha$

~~CONFIDENTIAL~~



1033-G-14 NEW 5-62

S1062-1056

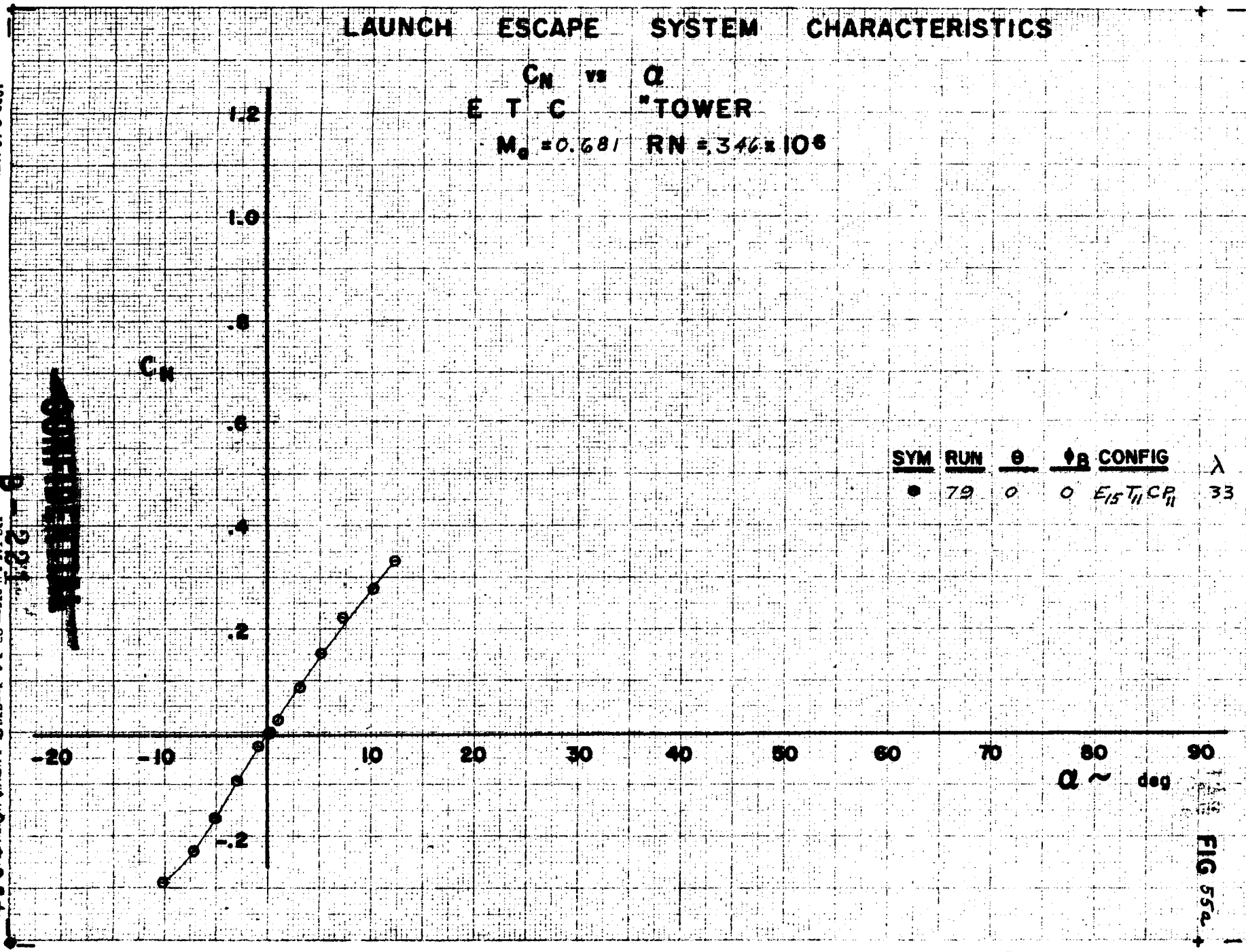



FIG 55a

52 $C_N$ vs $\alpha$

PREPARED BY:
CHECKED BY:
DATE:

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

PAGE NO. OF
REPORT NO.
MODEL NO.

[redacted]

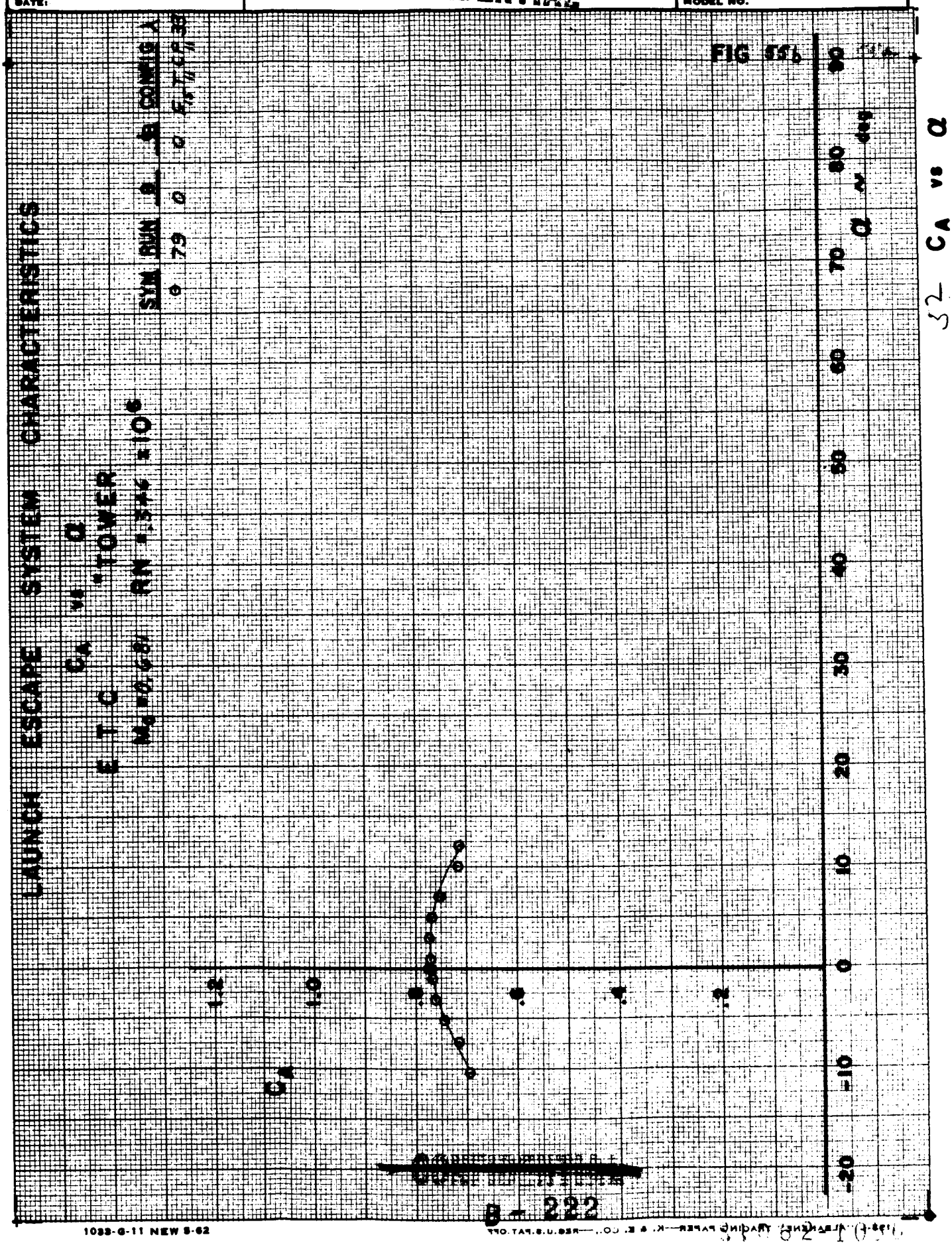
[redacted]

B-221

S1D62 1056

1033-G-10 NEW 5-62

FIG 55b




52 $C_A$ vs α

~~CONFIDENTIAL~~



1033-G-11 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

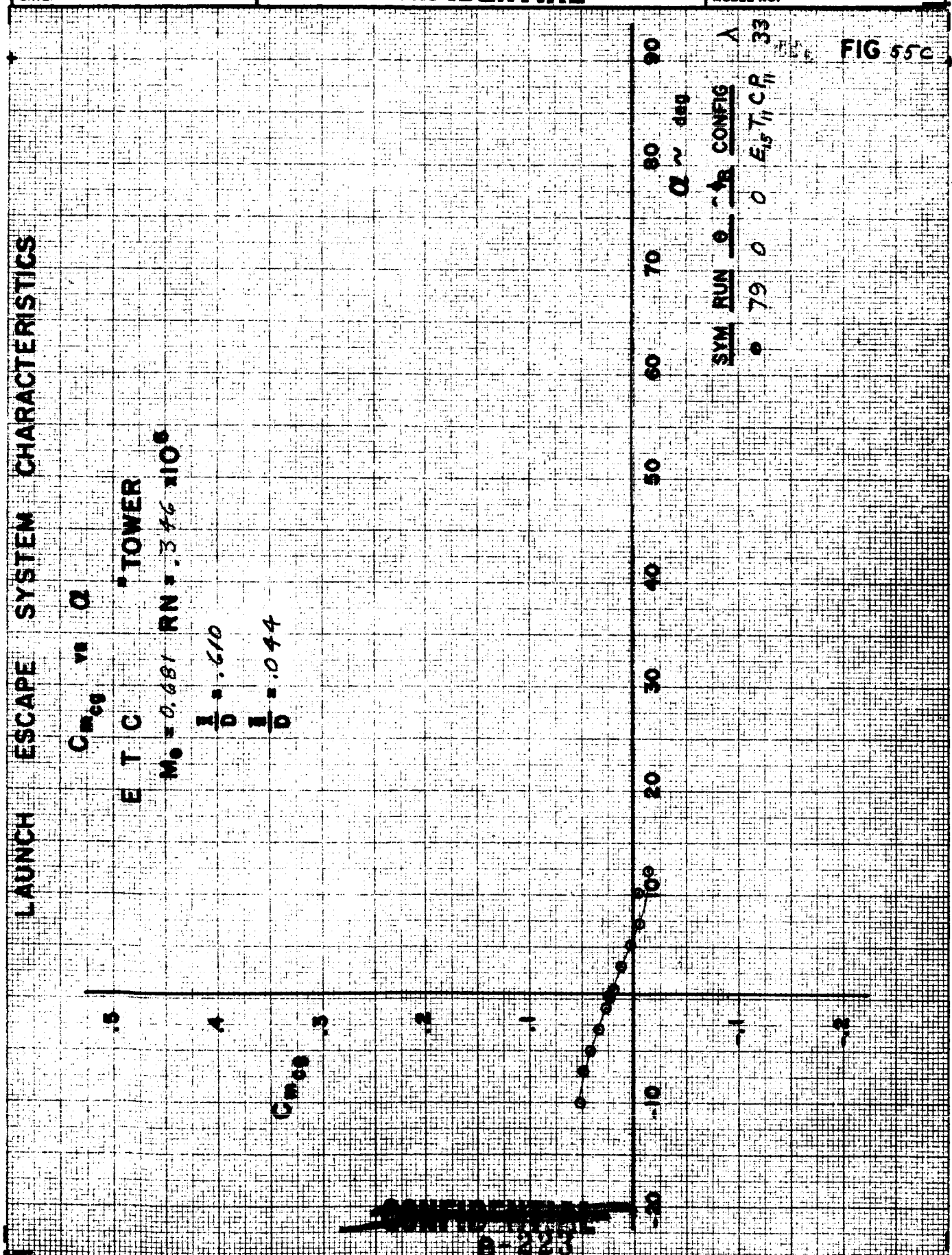



FIG 55c

52

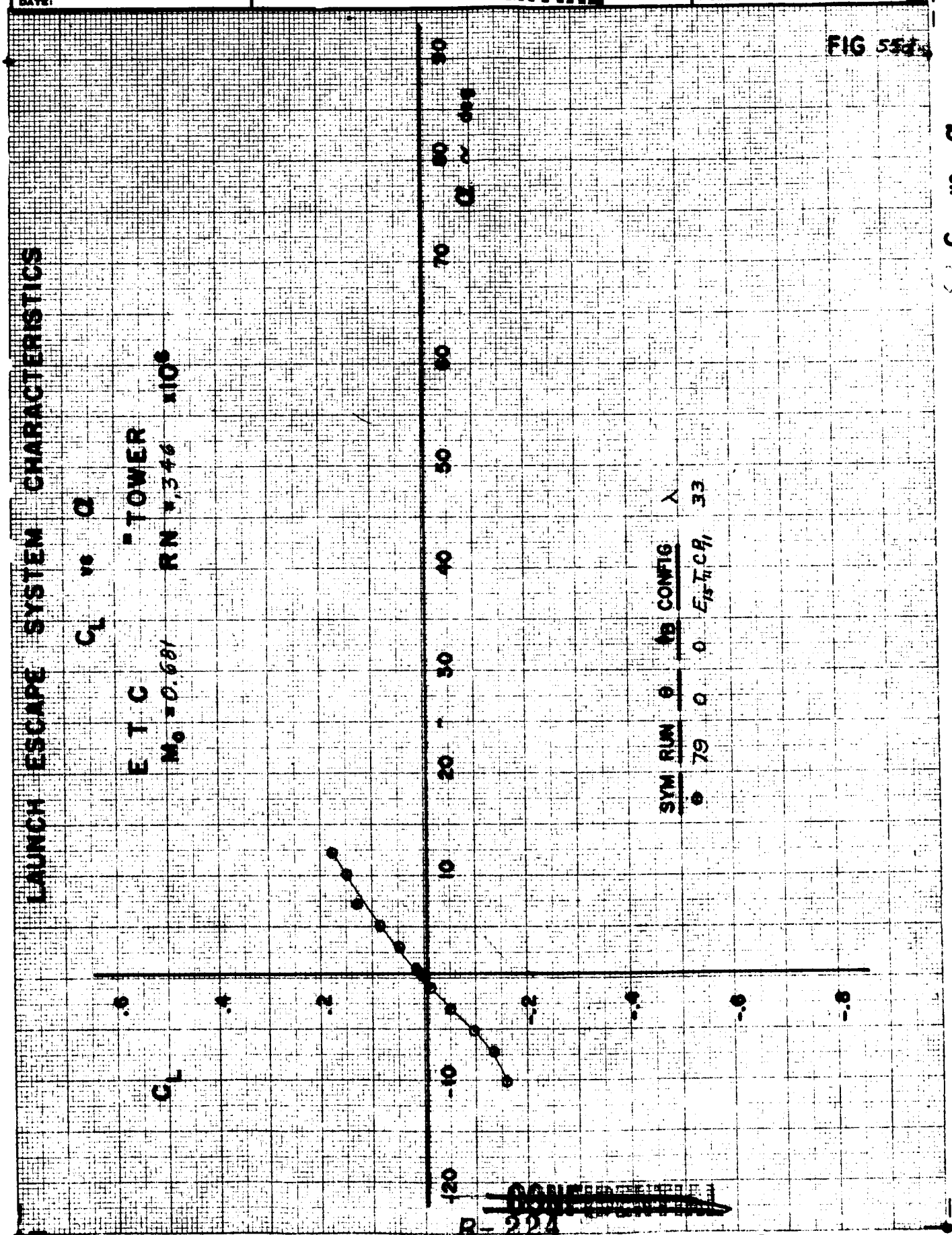
[redacted]


1033-G-12 NEW 5-62

SID62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 55d




52 $C_L$ vs $\alpha$

~~CONFIDENTIAL~~

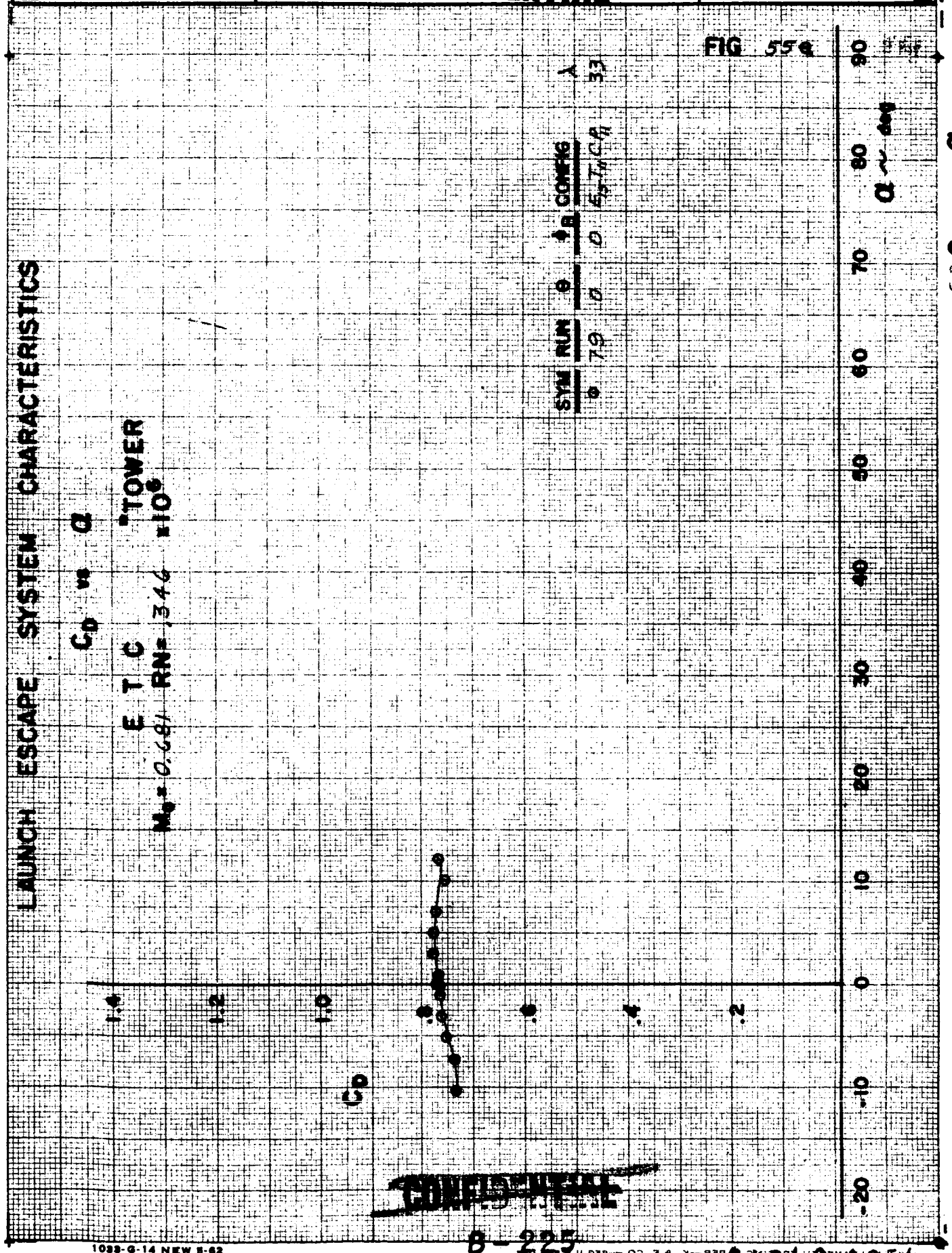


1033-G-13 NEW 5-62

SD62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |

FIG 55




52 $C_D$ vs $\alpha$

CONFIDENTIAL



1033-G-14 NEW 5-62

STD62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

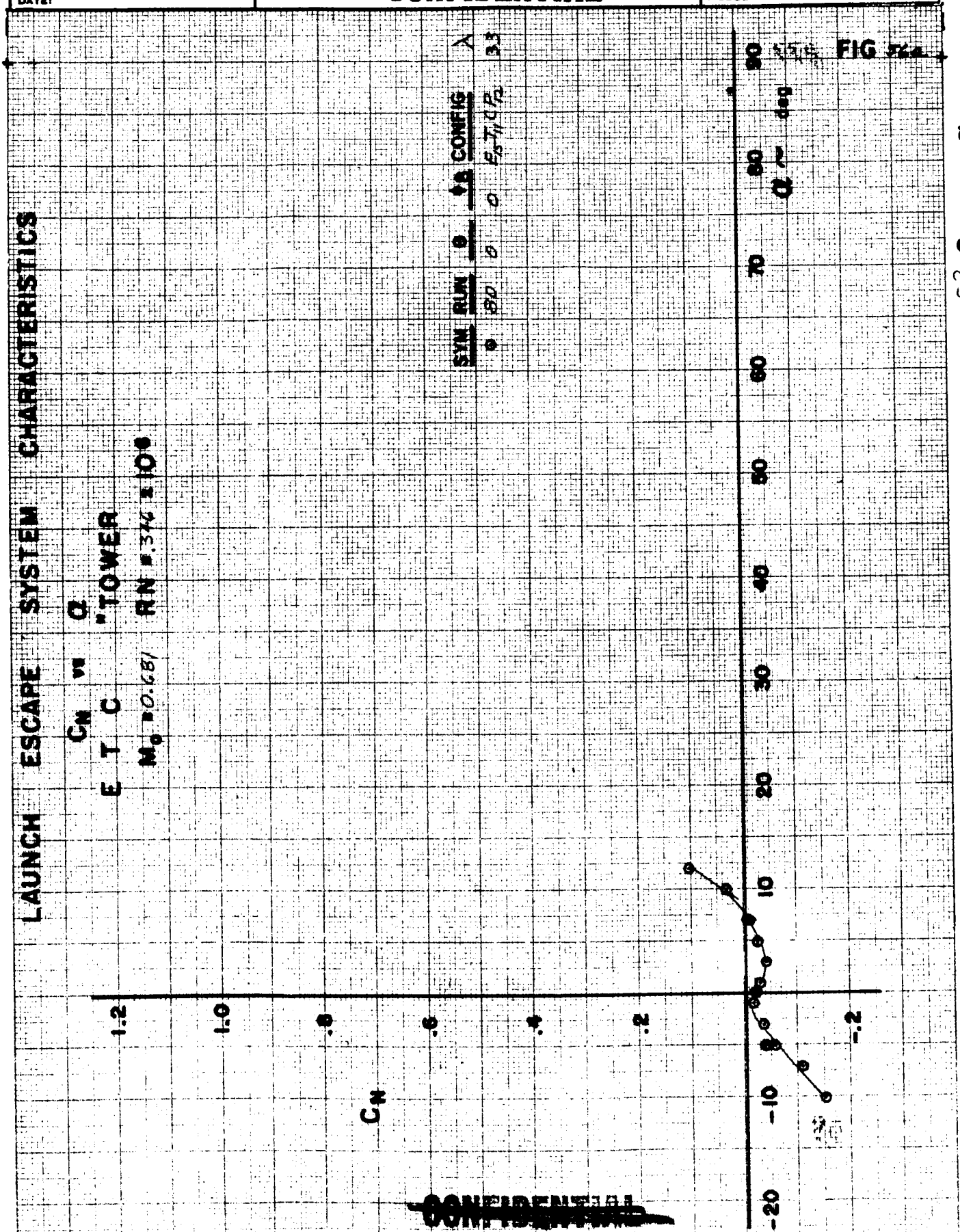



FIG 56a

53 $C_N$ vs $\alpha$

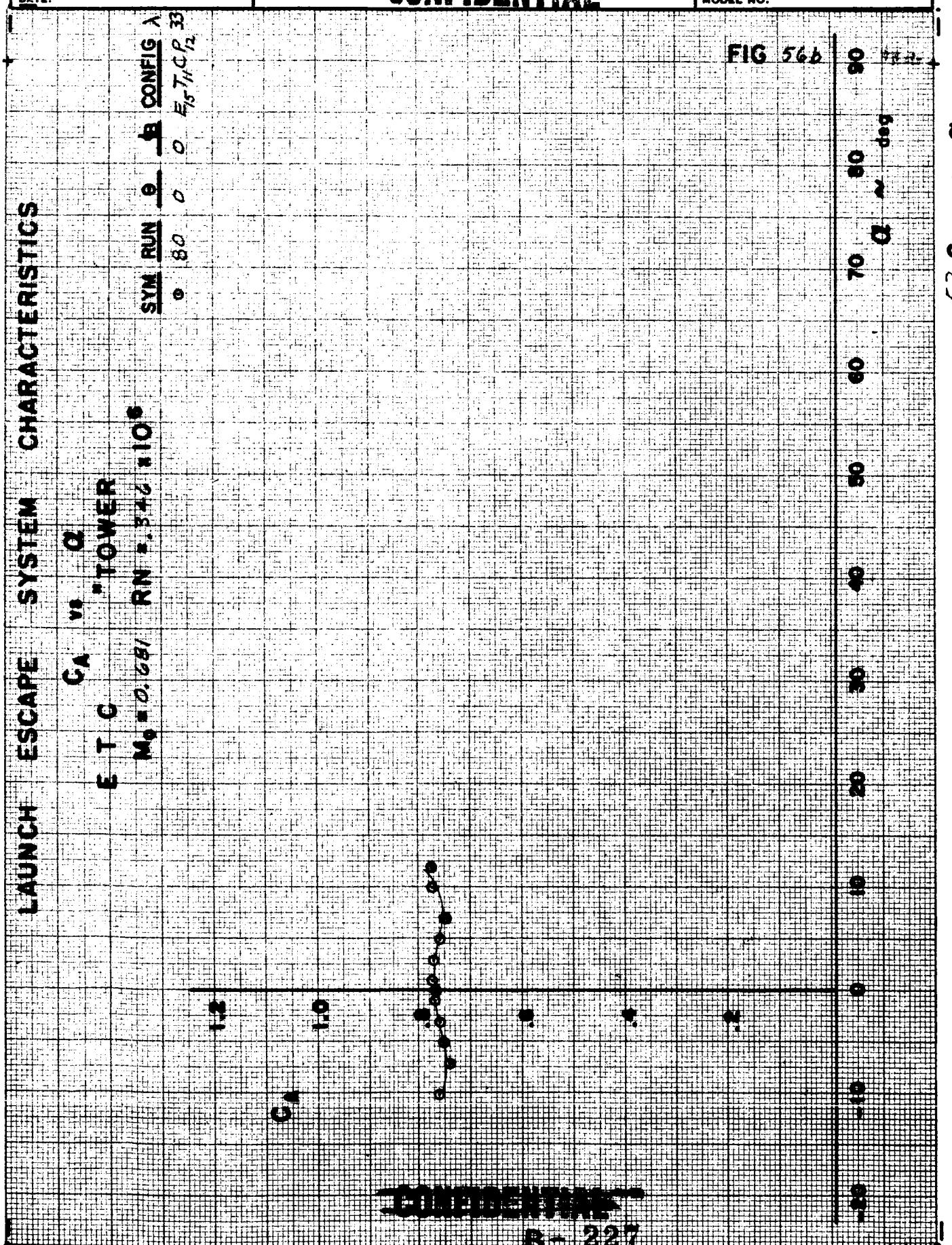
~~CONFIDENTIAL~~



1033-G-10 NEW 5-62

S1062-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~



1033-G-11 NEW 5-62

S1062-1056

# LAUNCH ESCAPE SYSTEM CHARACTERISTICS

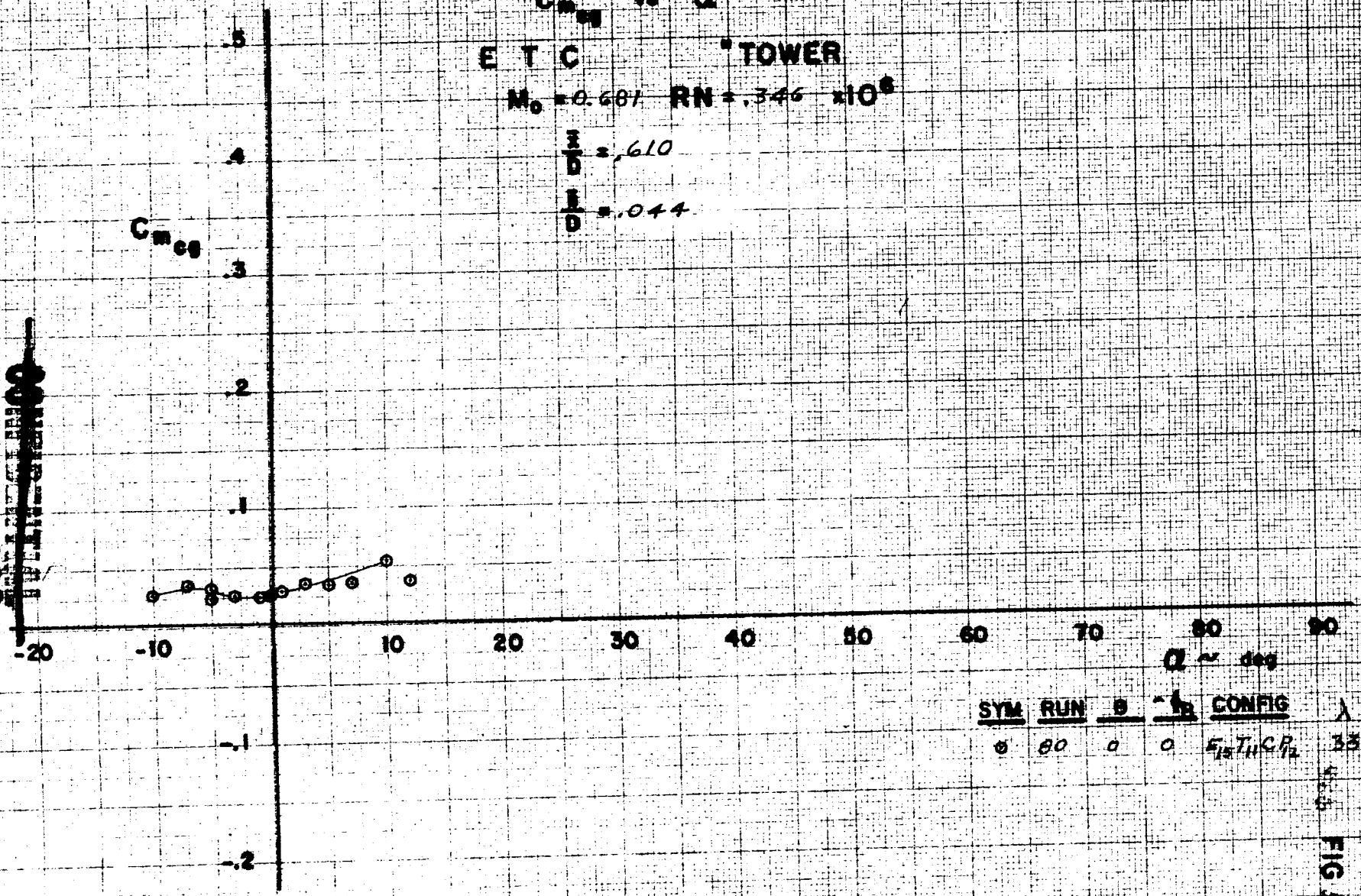
$C_{m_{cg}}$ vs $\alpha$

E T C "TOWER

$M_0 = 0.681$ $RN = .346 \times 10^6$

$\frac{x}{D} = .610$

$\frac{l}{D} = .044$




| SYM | RUN | $\theta$ | $\phi_B$ | CONFIG | $\lambda$ |
|---|---|---|---|---|---|
| ⊙ | 80 | 0 | 0 | $F_{15}T_{11}CP_{12}$ | 33 |

FIG 54c

53 $C_{m_{cg}}$ vs $\alpha$

PREPARED BY:

CHECKED BY:

DATE:

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

~~CONFIDENTIAL~~

MODEL NO.

REPORT NO.

PAGE NO. OF

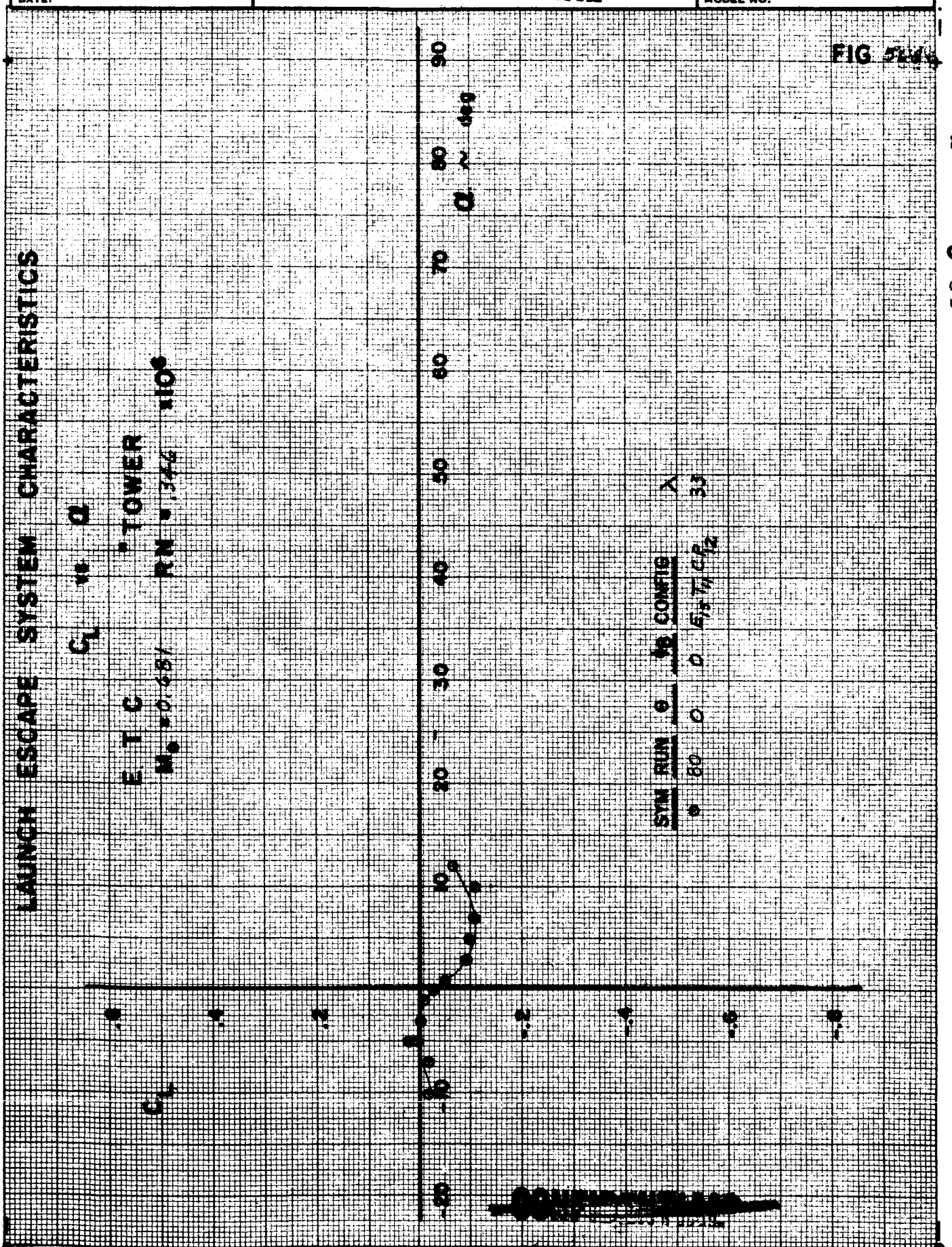
1033-G-12 NEW 8-62

B-228

81062-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 5[illegible]




53 $C_L$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |

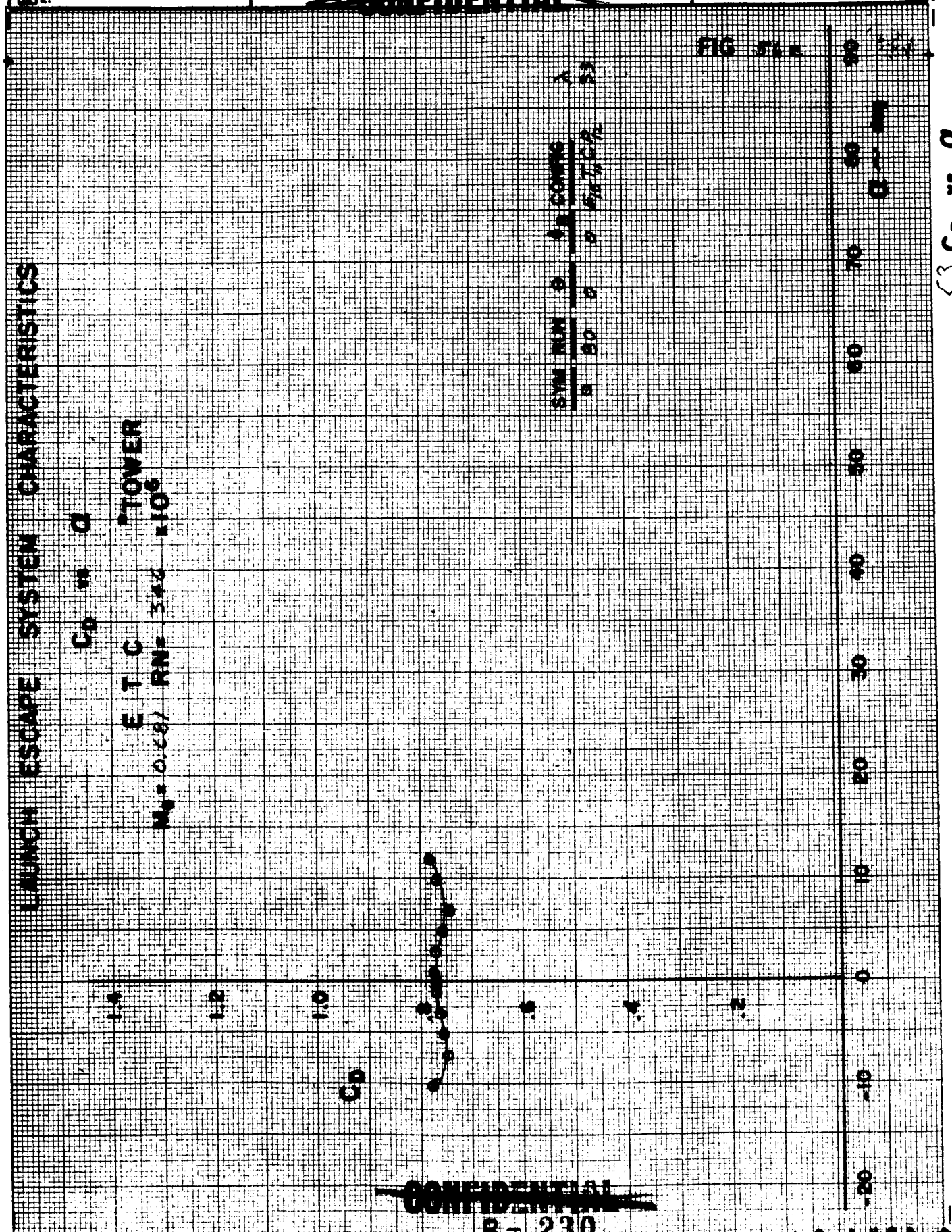



FIG 5[illegible]

53 $C_D$ vs $\alpha$

CONFIDENTIAL



SID 62-1038

1033-G-14 NEW 5-62

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |

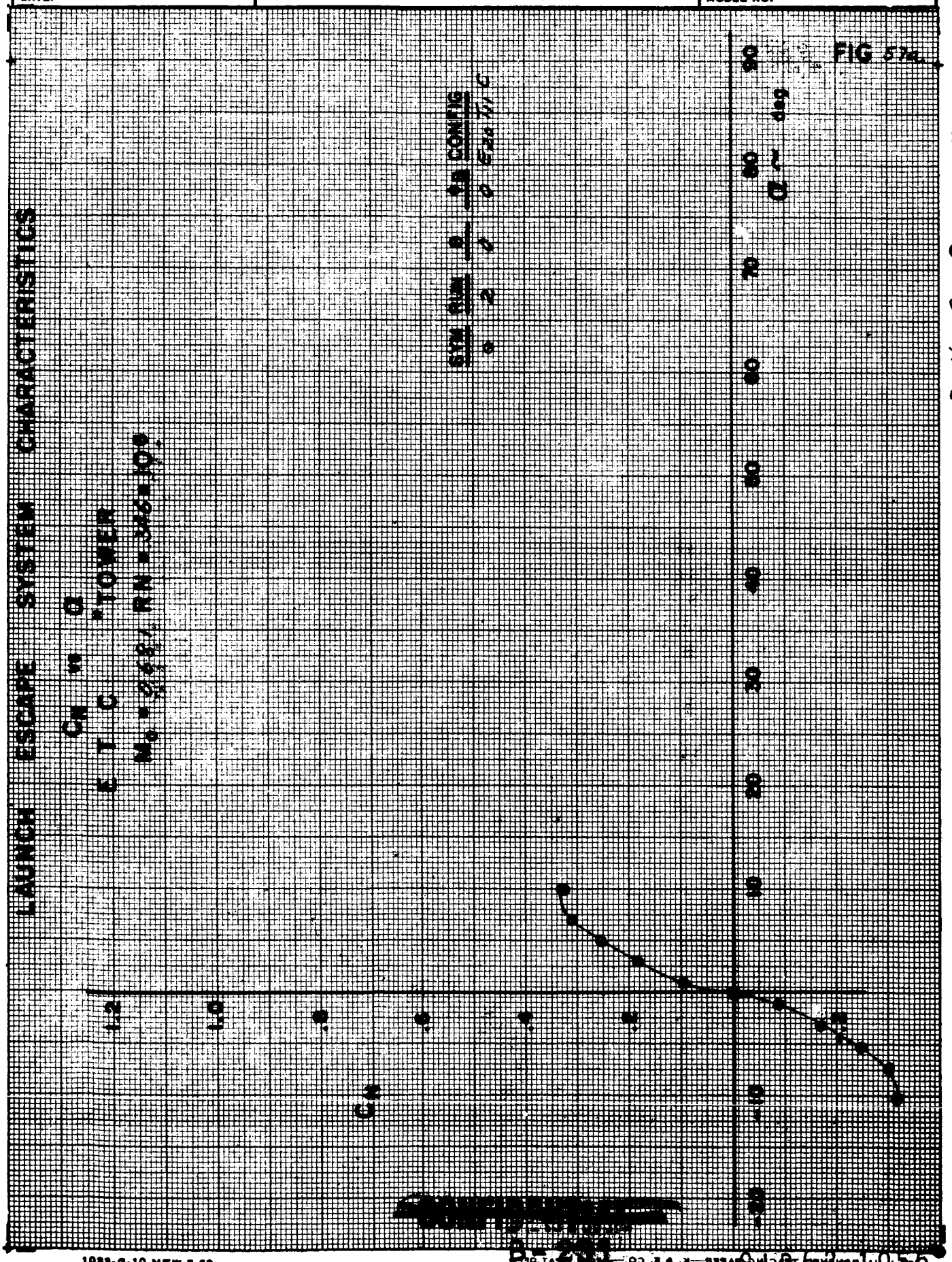



FIG 57a

204-2 $C_N$ vs $\alpha$

CONFIDENTIAL

~~CONFIDENTIAL~~




204-7 CA vs α

~~CONFIDENTIAL~~

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

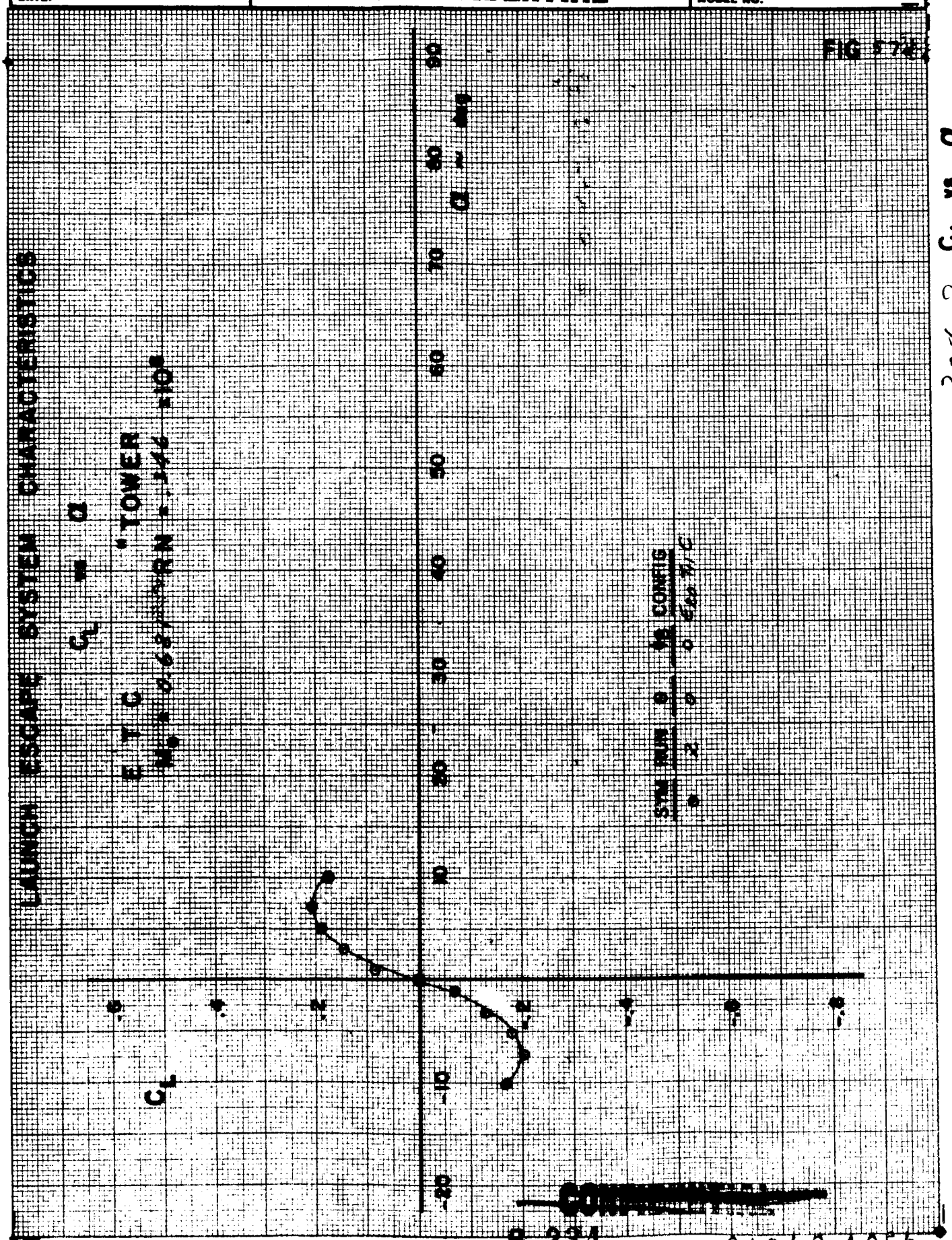





[redacted]

| PREPARED BY: | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |

FIG 5.7




204-2 $C_L$ vs $\alpha$

CONFIDENTIAL

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

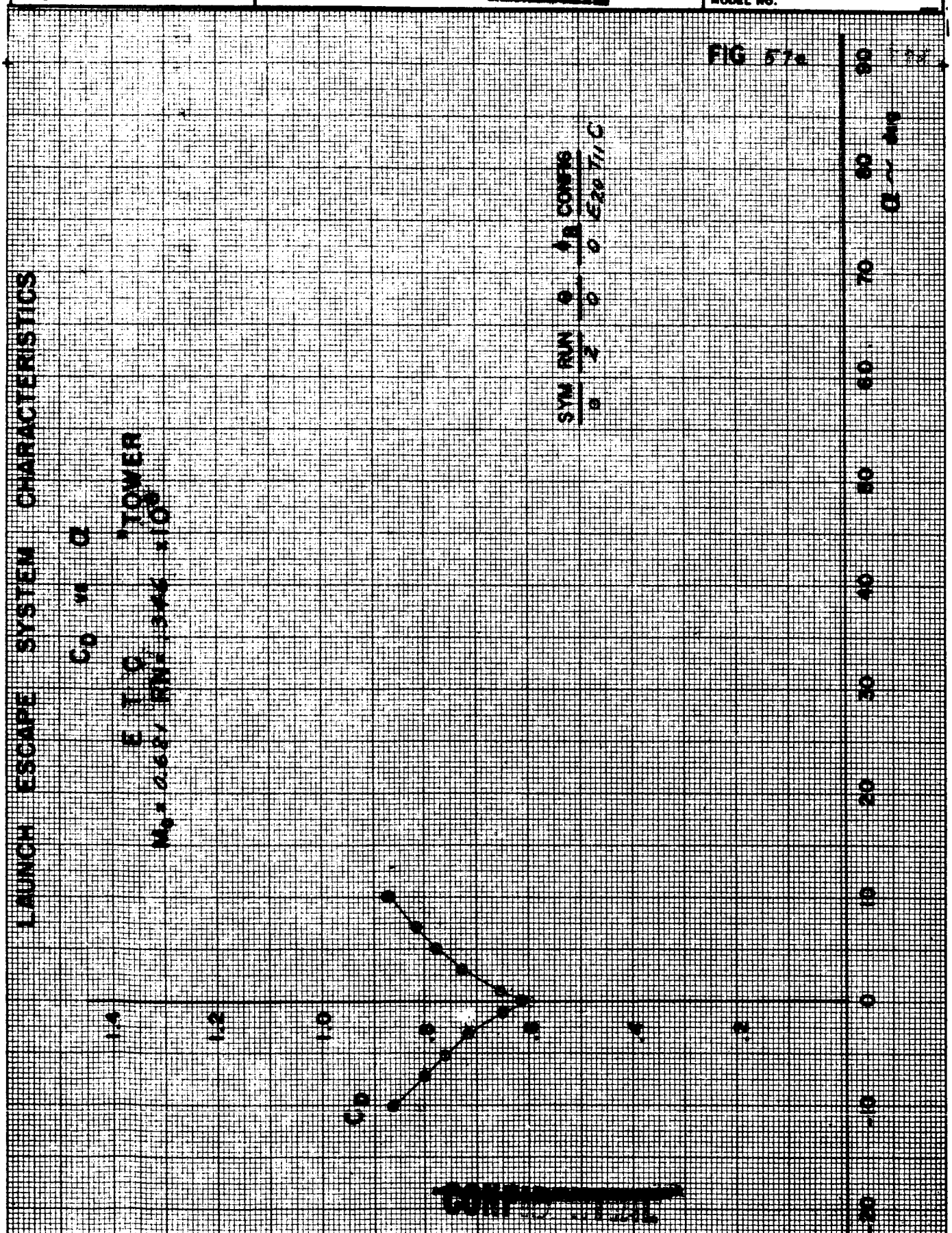



FIG 57a

204-2 $C_D$ vs $\alpha$

[redacted]

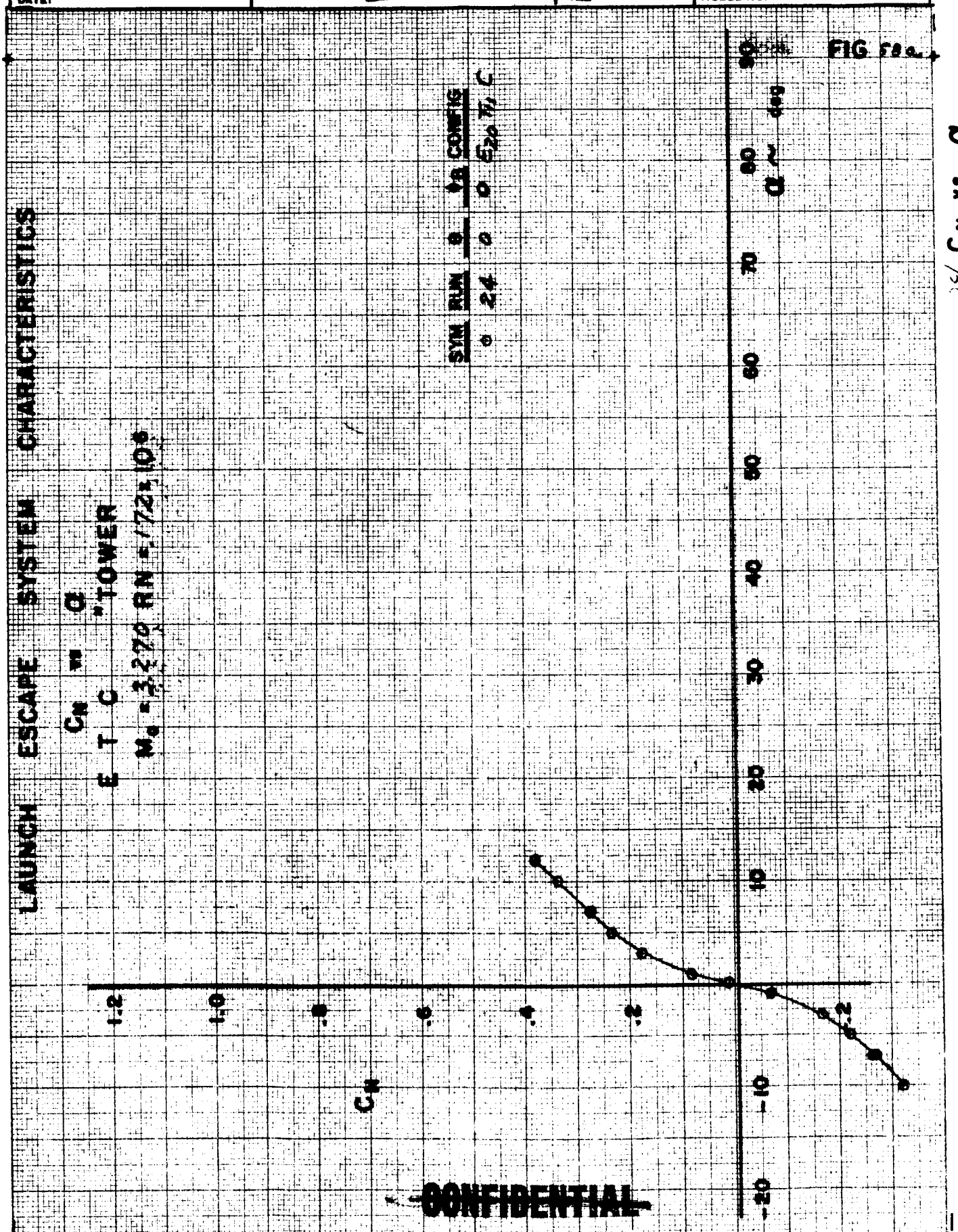


1033-G-14 NEW 5-62

31062-1056

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

FIG 52a




2/ $C_N$ vs $\alpha$

~~CONFIDENTIAL~~



1033-G-10 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

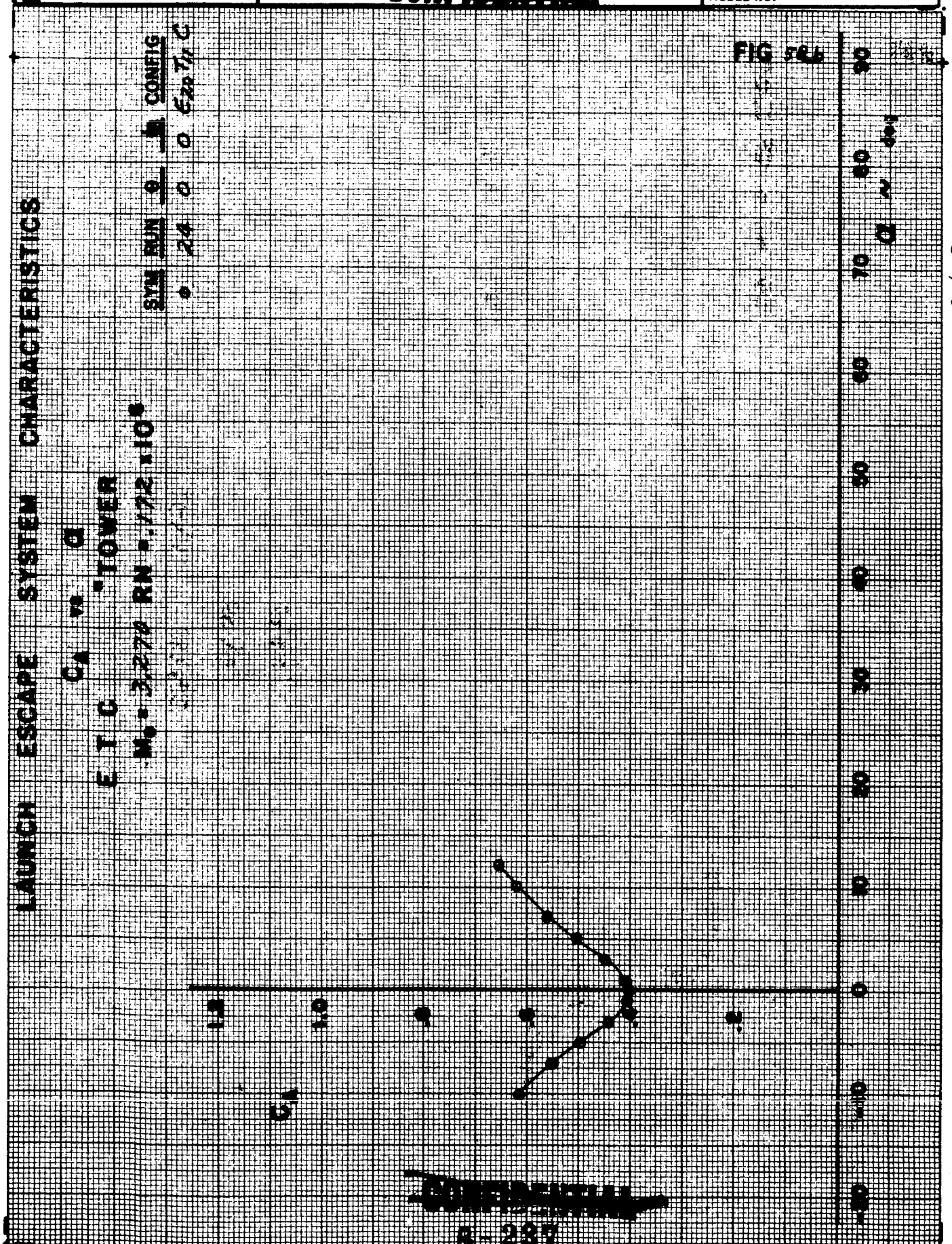



FIG 5Rb

24 $C_A$ vs $\alpha$

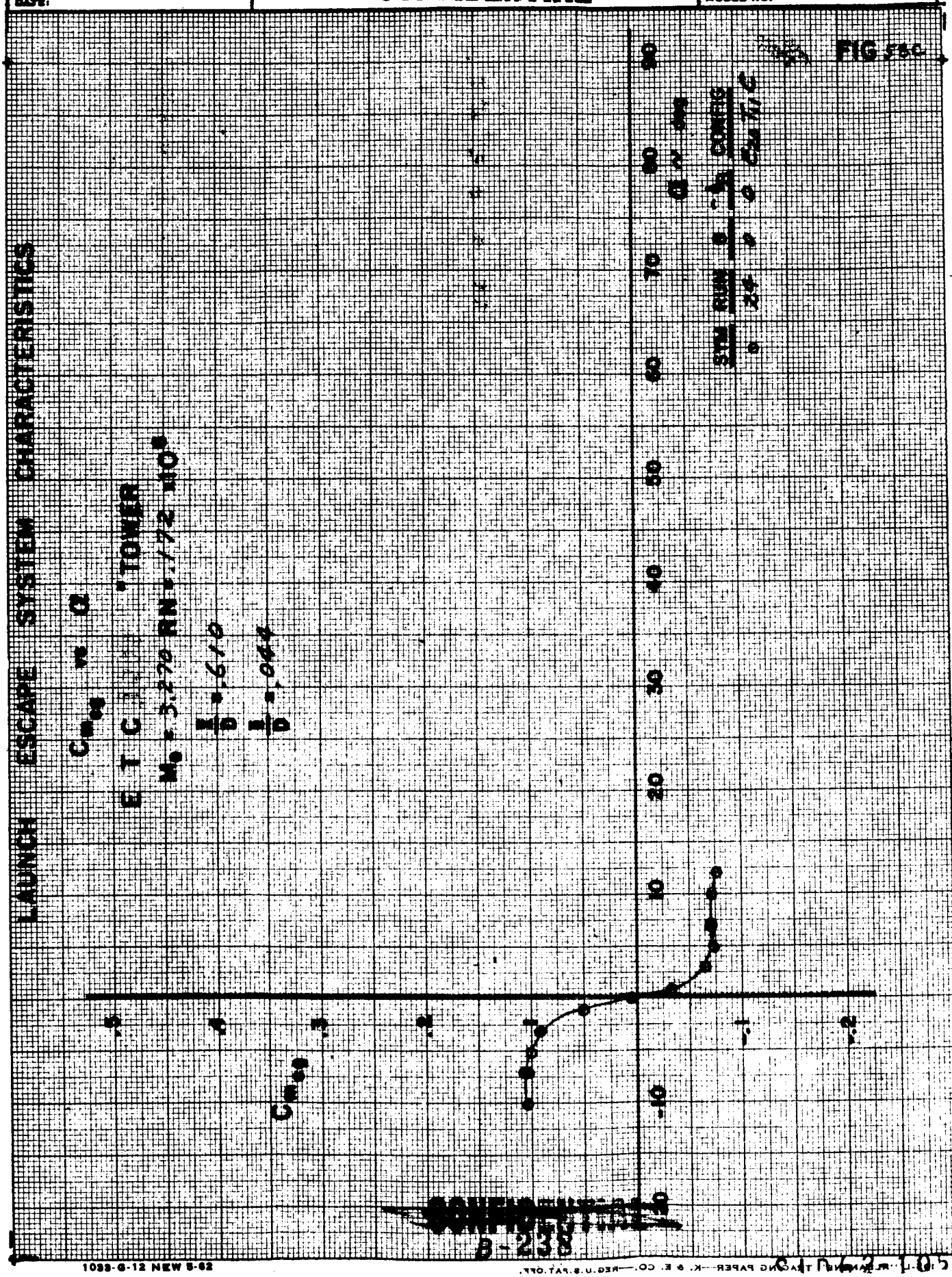
[redacted]



1033-6-11 NEW 5-62

K. & E. CO.—REG. U.S. PAT. OFF.

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |




$C_{m_{cg}}$ vs $\alpha$

CONFIDENTIAL



1033-G-12 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

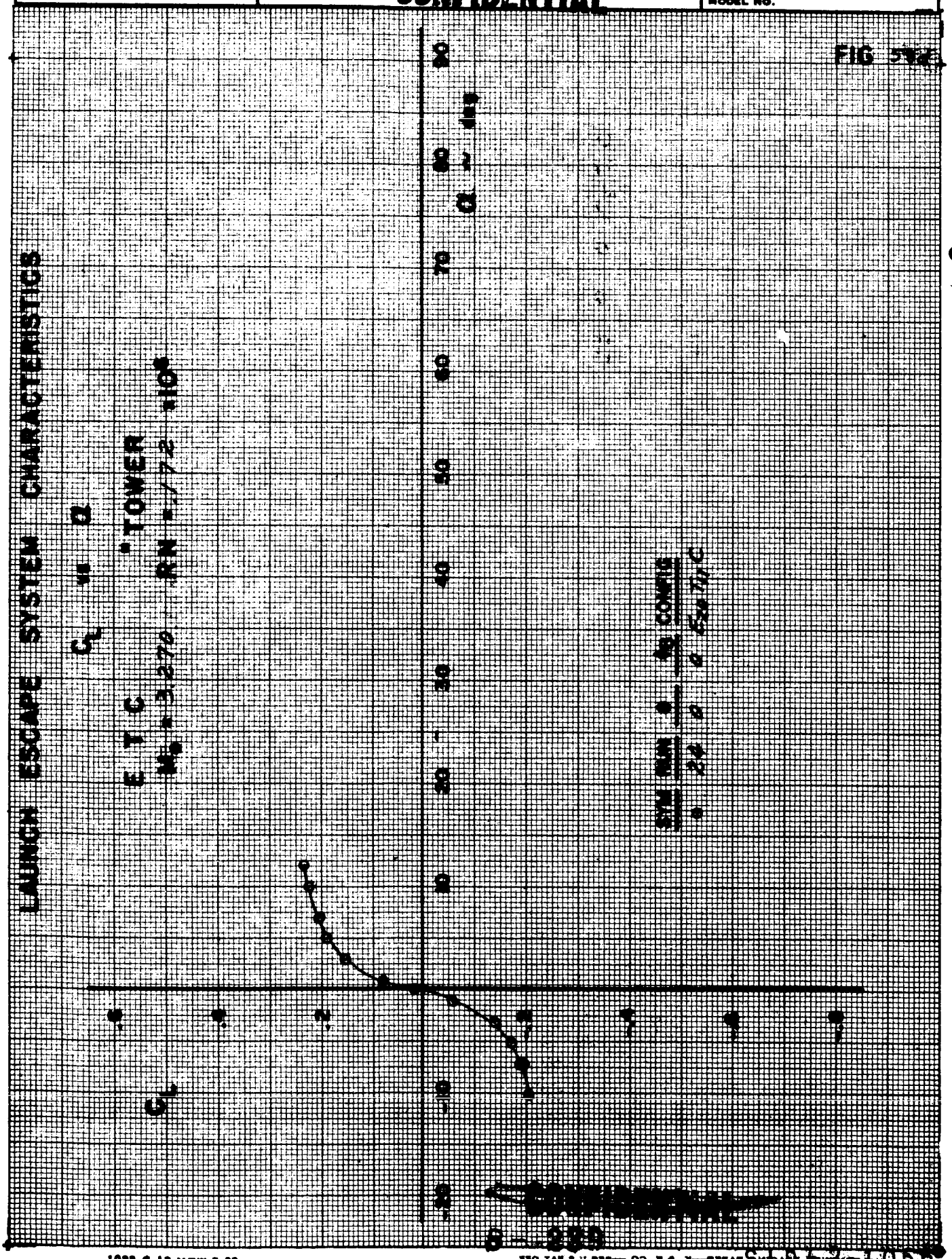



FIG 5[illegible]

$C_L$ vs $\alpha$

~~CONFIDENTIAL~~

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

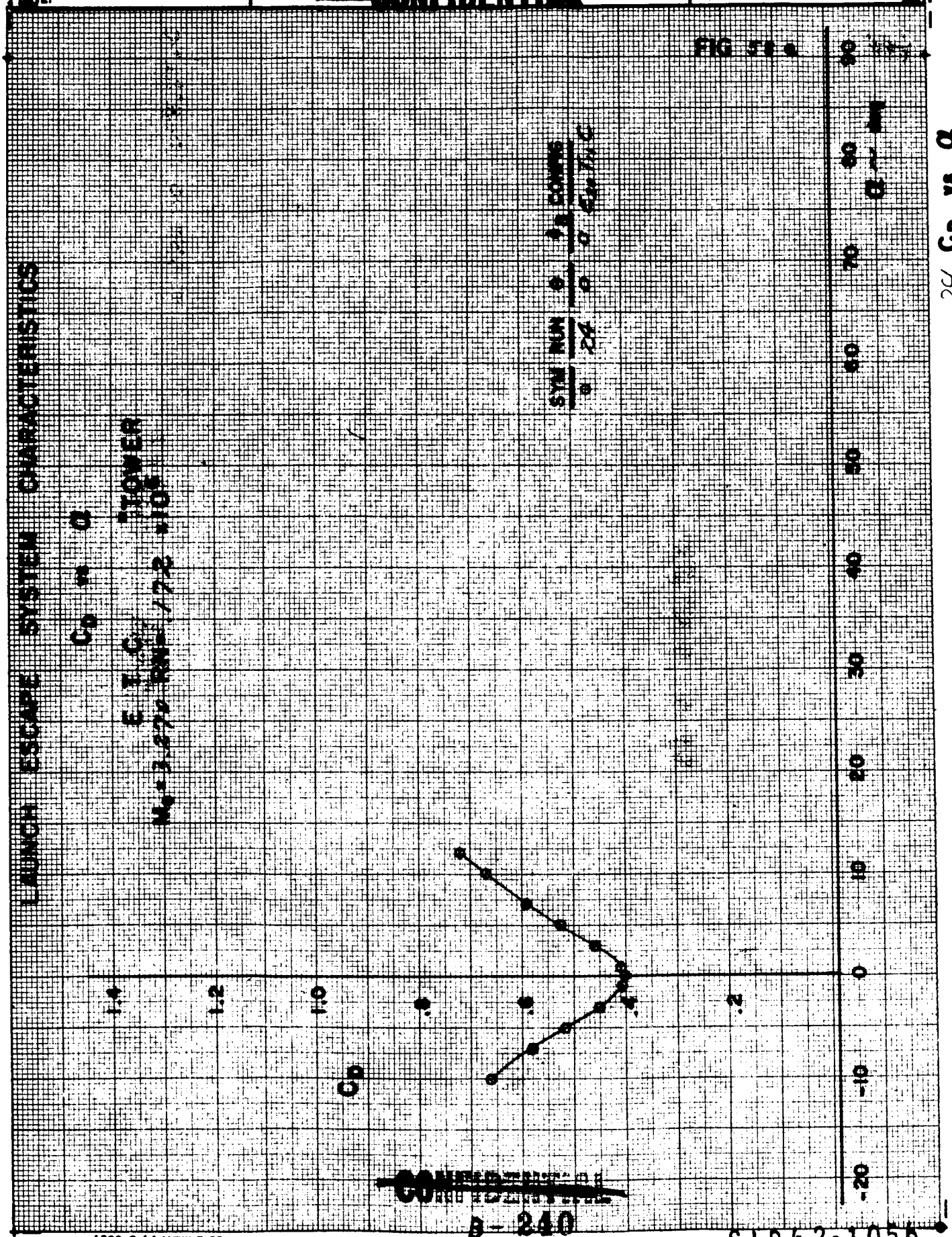



FIG 58 a

24 $C_D$ vs $\alpha$

~~CONFIDENTIAL~~



1033-G-14 NEW 5-62

GEOLOGICAL PRINTING PAPER—K. & E. CO.—REG. U.S. PAT. OFF.

S1062-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | [redacted] | MODEL NO. |

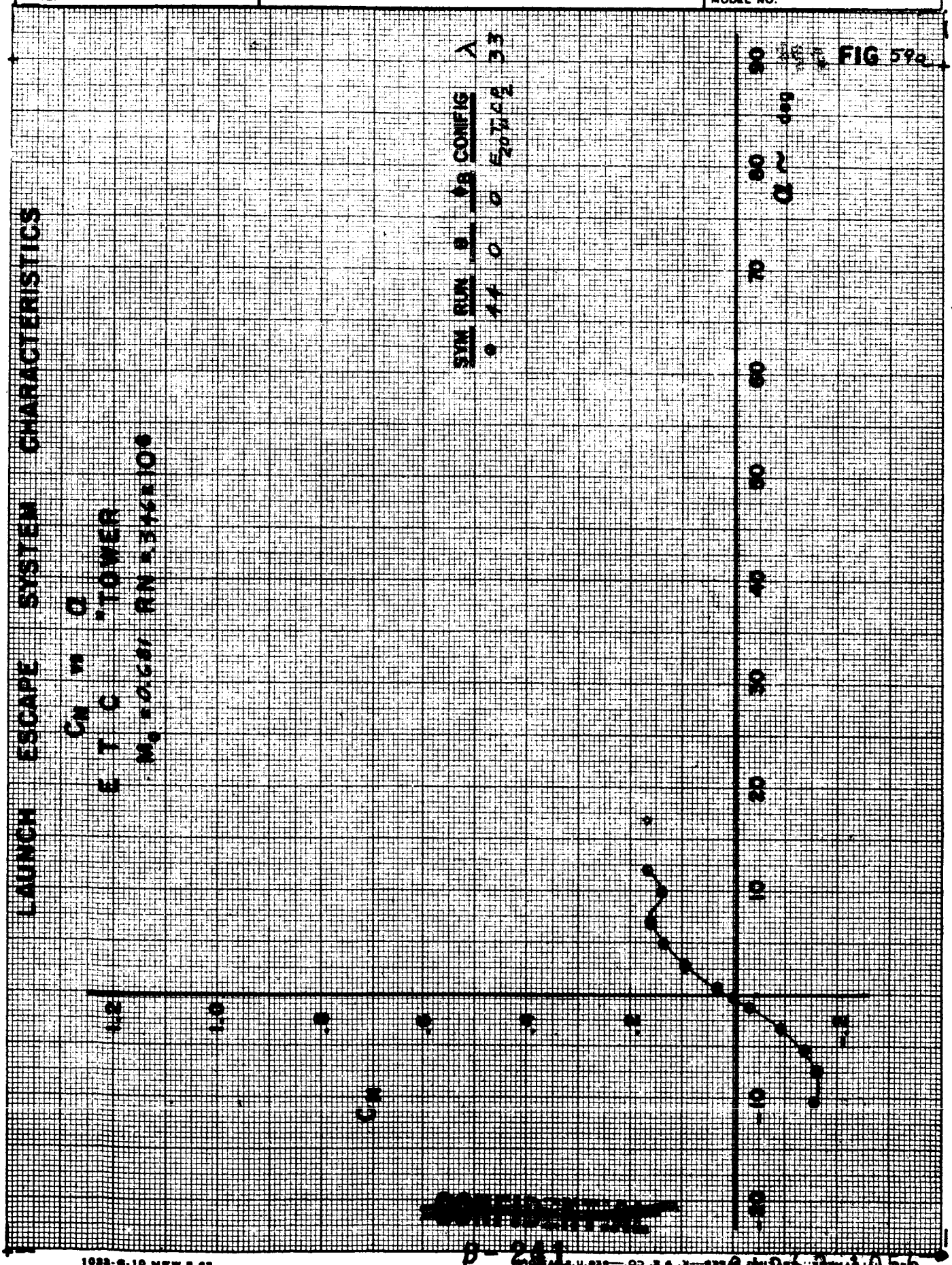
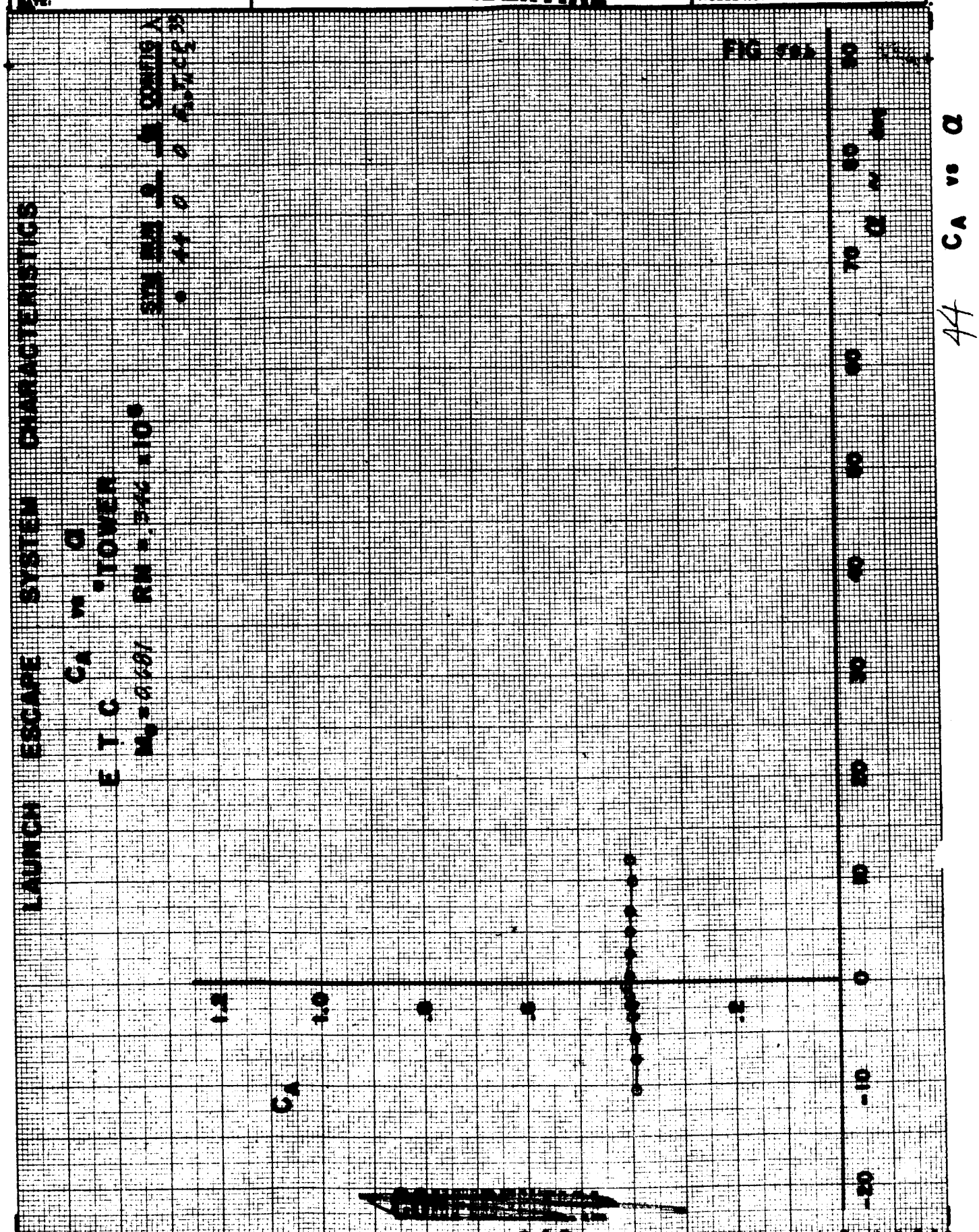



FIG 59a

44 $C_N$ vs $\alpha$

[redacted]

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |




44

CONFIDENTIAL

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

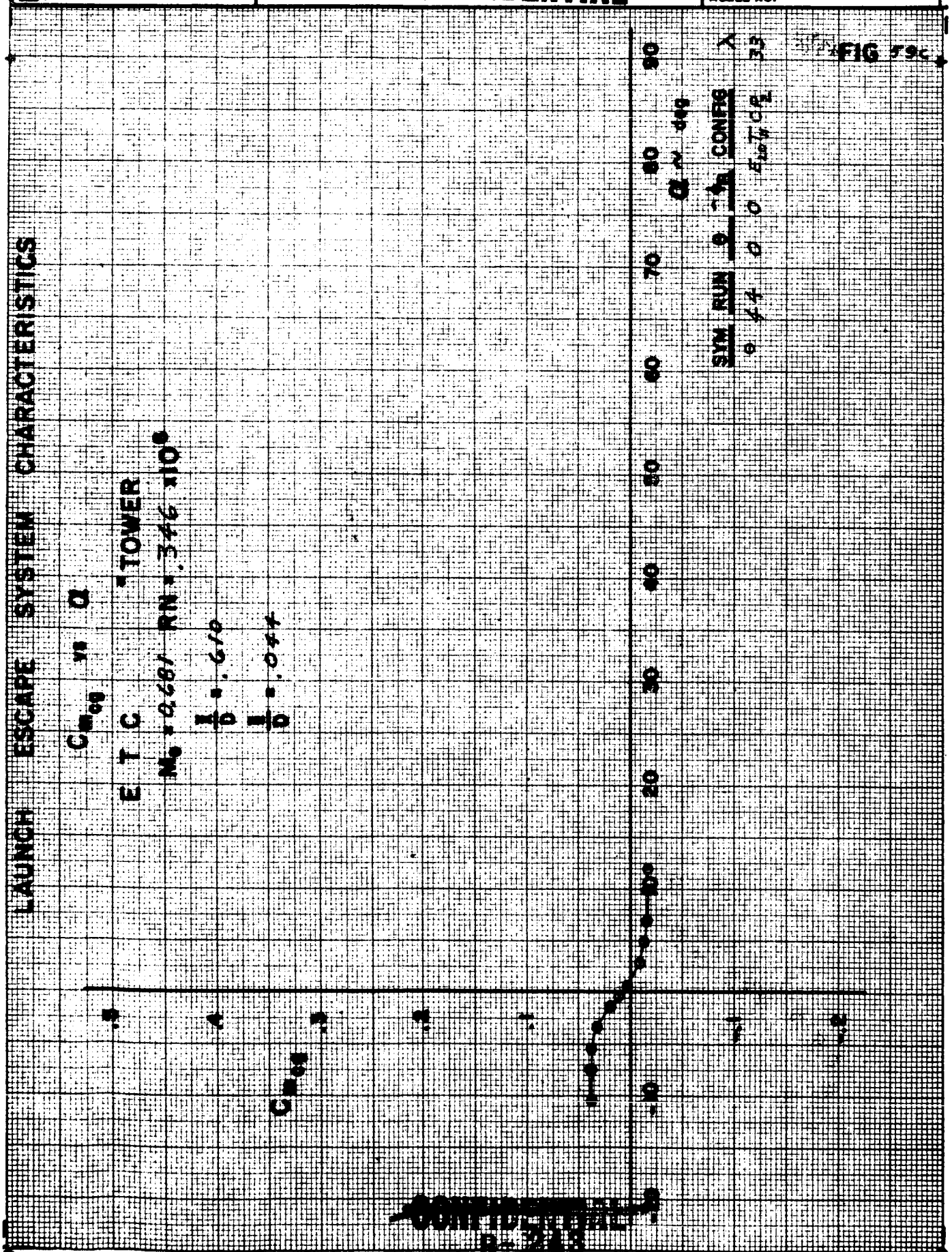



FIG 59c

44 $C_{m_{cg}}$ vs $\alpha$

~~CONFIDENTIAL~~


1033-G-12 NEW 5-62

STD62-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |

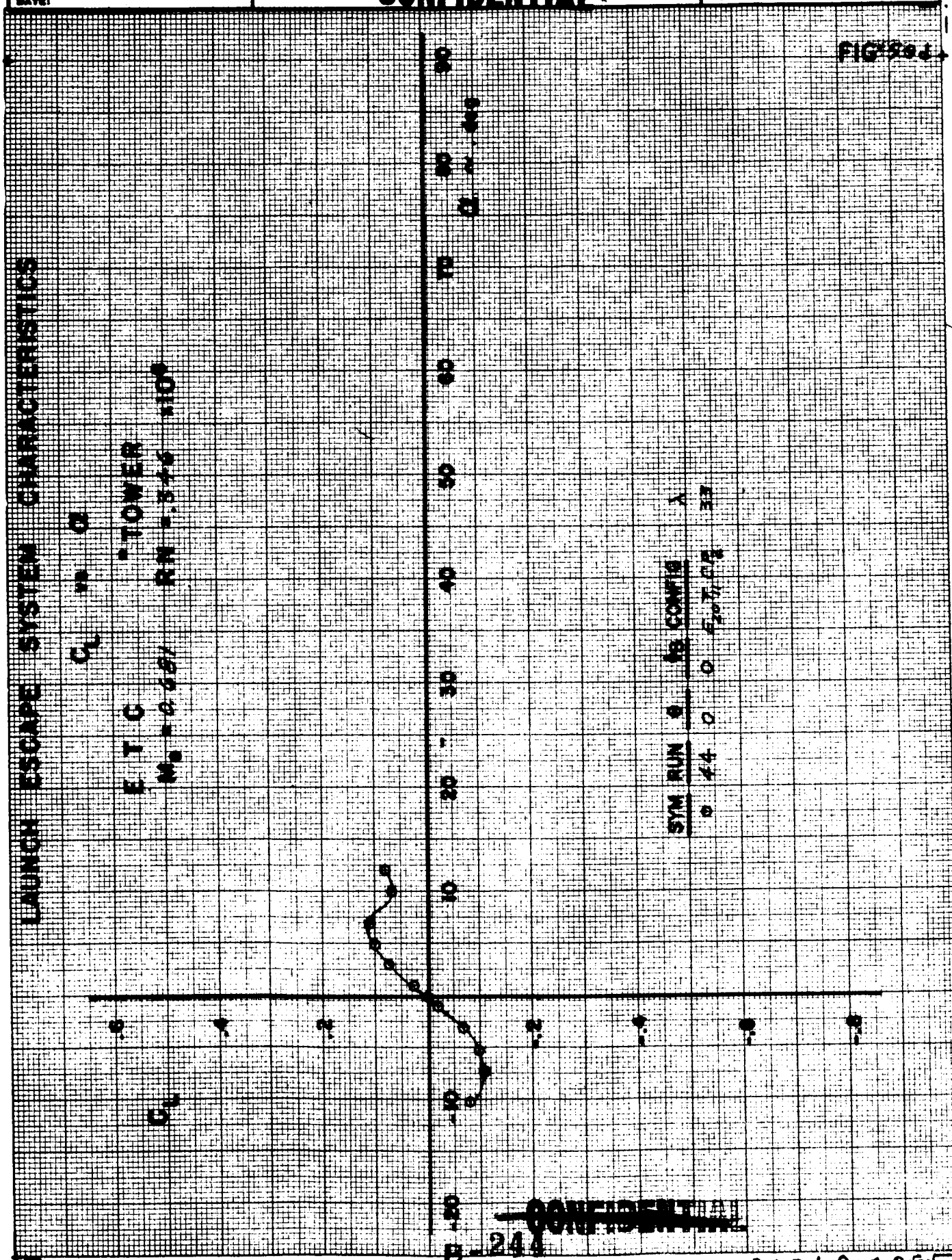



FIG 59d

$C_L$ vs $\alpha$

44

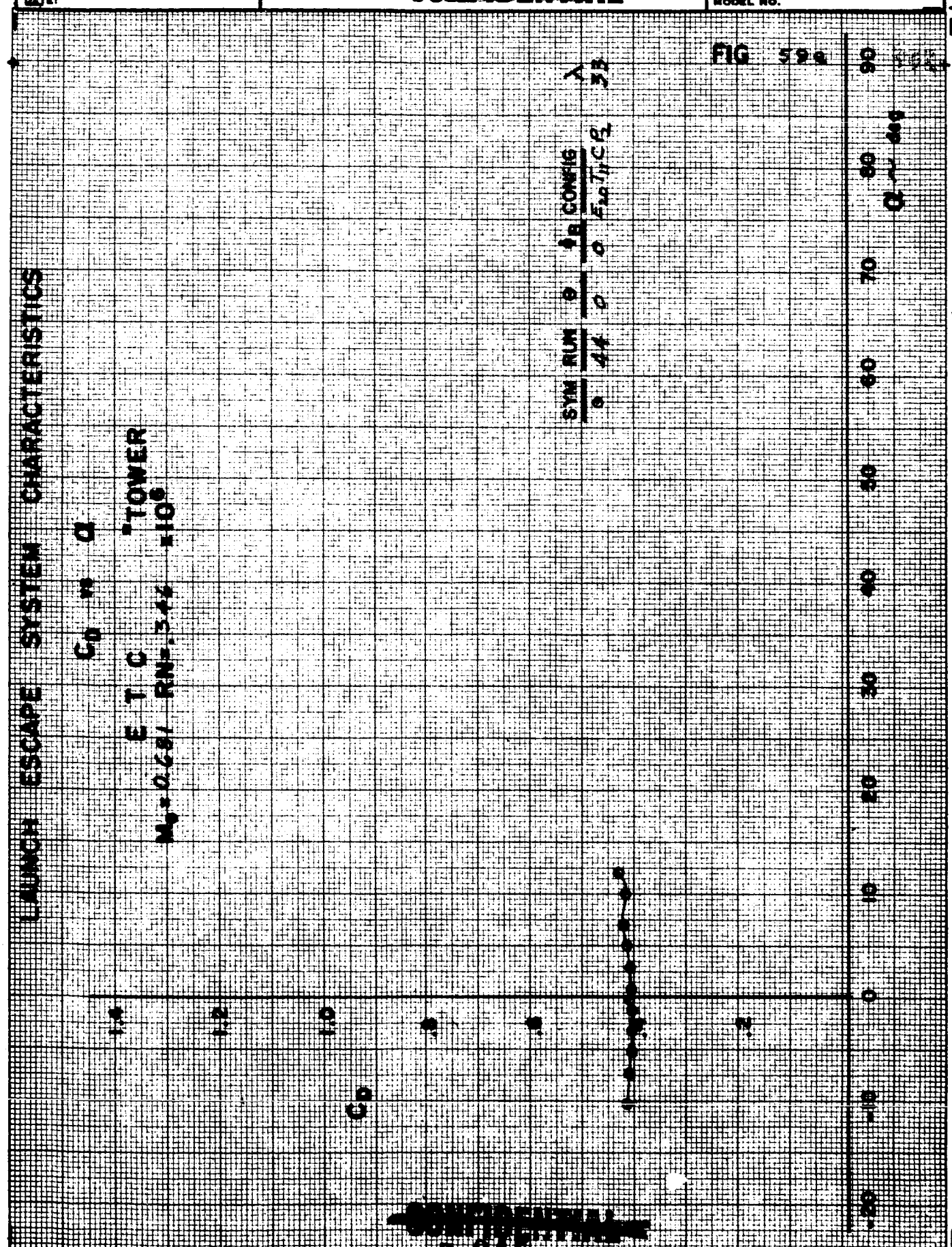
CONFIDENTIAL



1033-G-13 NEW 5-62

S1062-1056

| PREPARED BY: | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

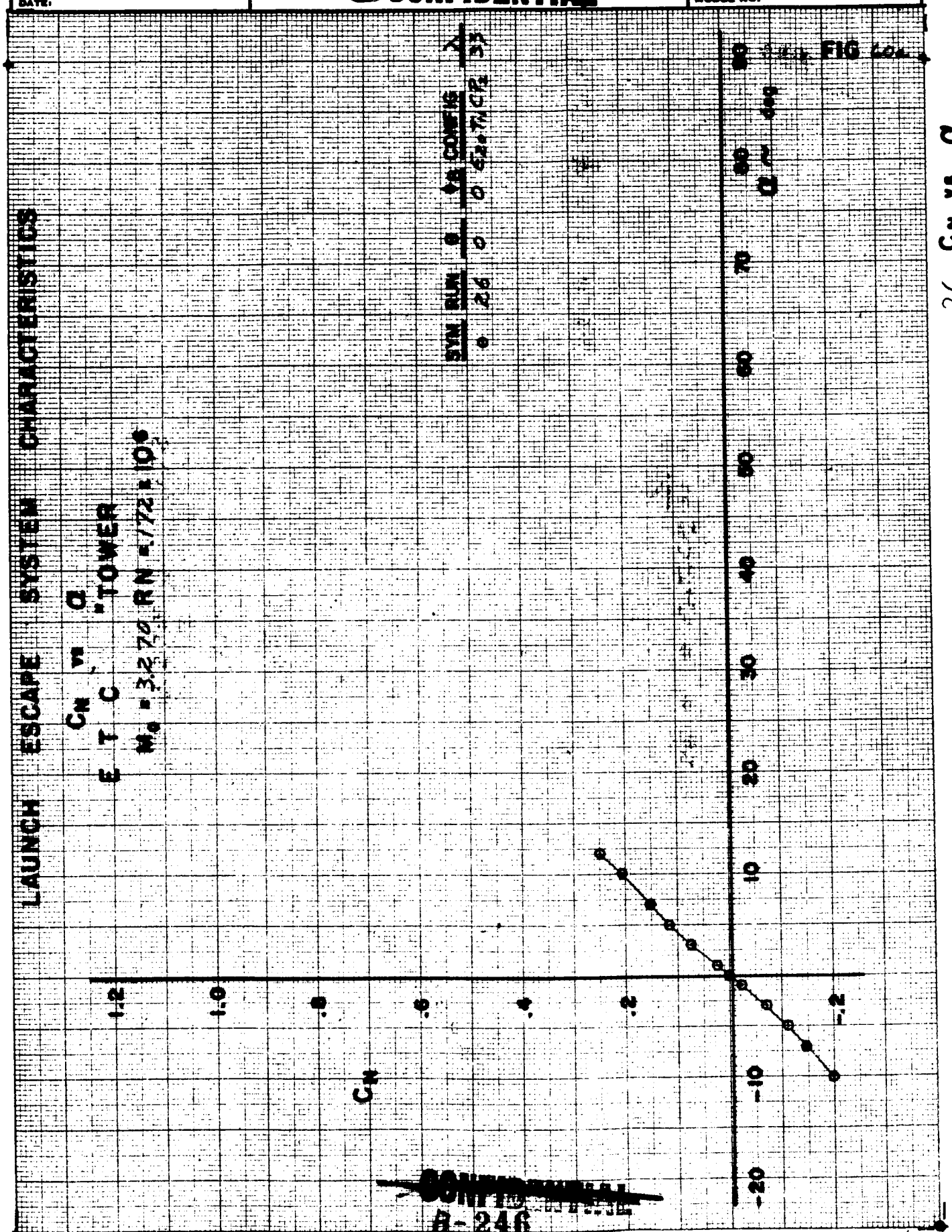



~~CONFIDENTIAL~~



1033-G-14 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |




24 $C_N$ vs $\alpha$

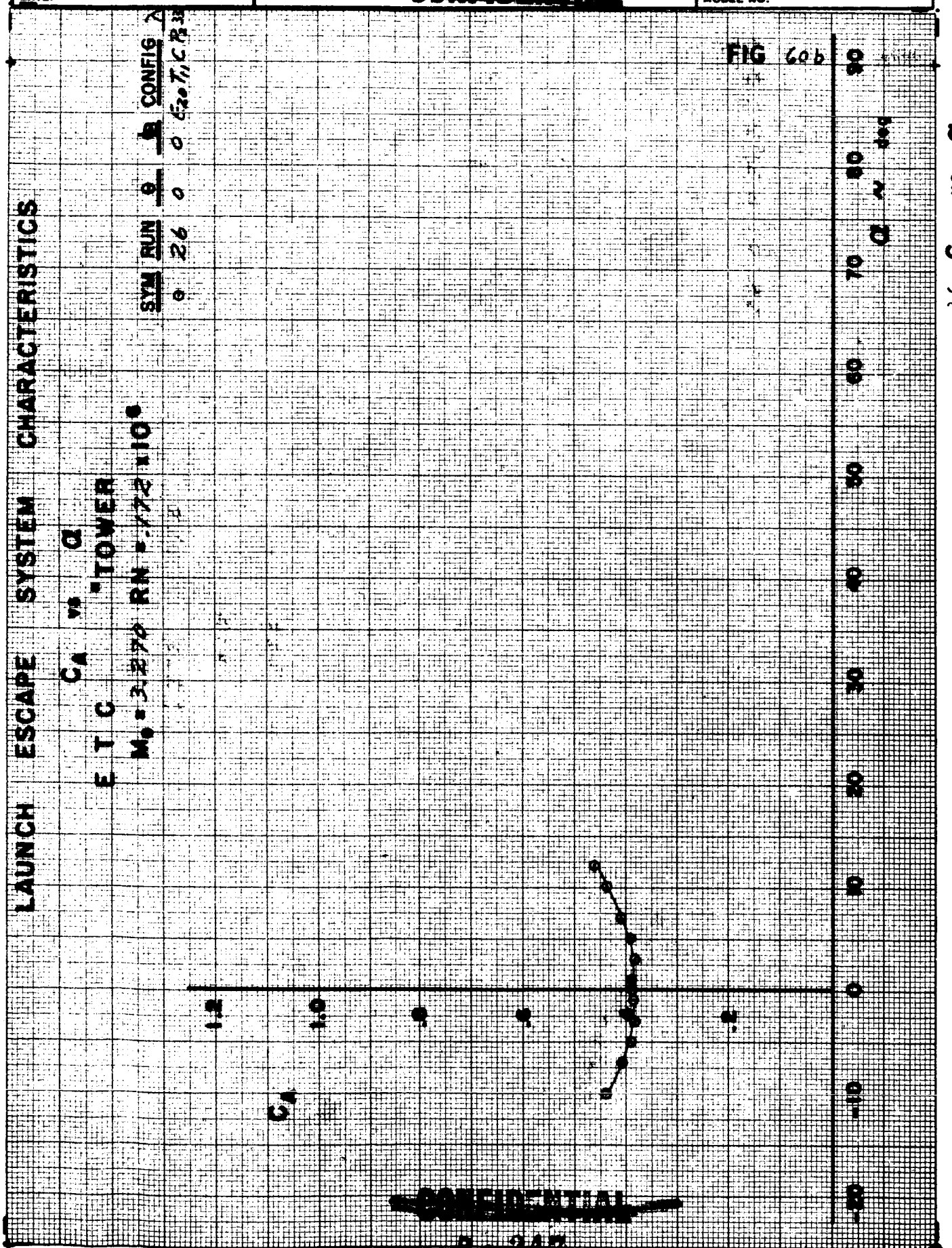
CONFIDENTIAL



1033-G-10 NEW 5-62

S1062-1056

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |




~~CONFIDENTIAL~~



1033-G-11 NEW 5-62

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

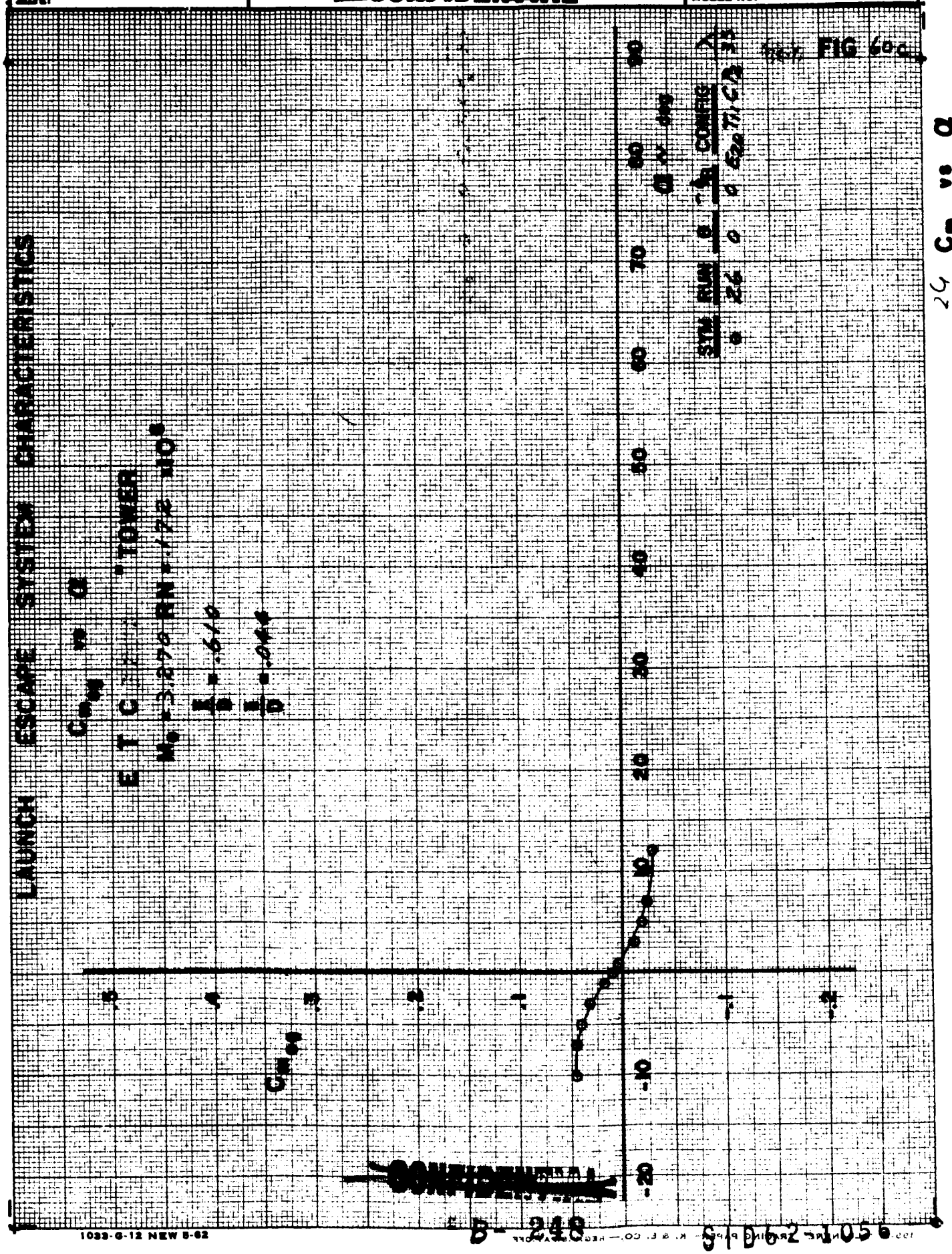


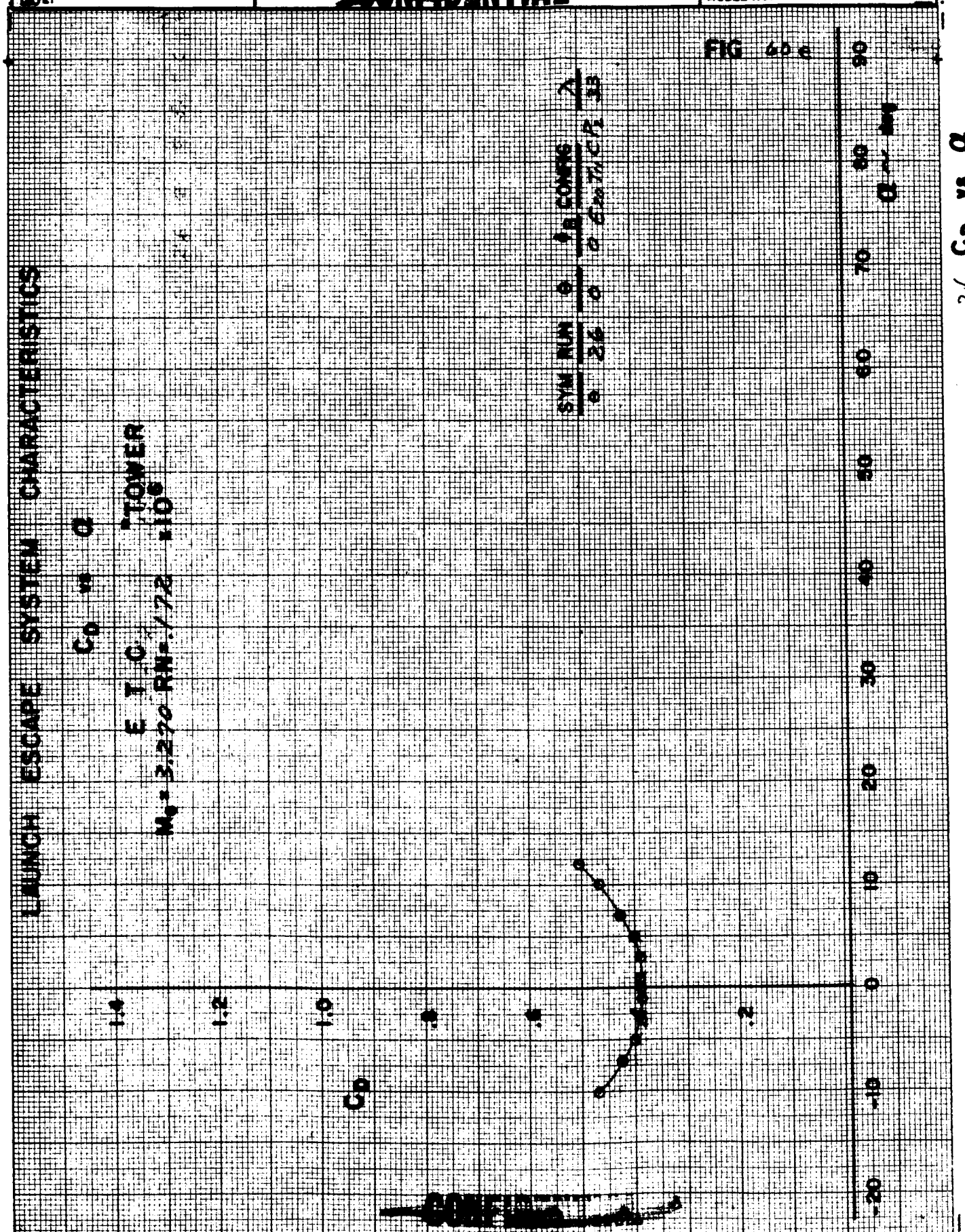

FIG 60c

24 $C_{m_{eq}}$ vs α

~~CONFIDENTIAL~~

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | ~~CONFIDENTIAL~~ | MODEL NO. |

| PREPARED BY: SAL | NORTH AMERICAN AVIATION, INC.<br>SPACE and INFORMATION SYSTEMS DIVISION | PAGE NO. OF |
|---|---|---|
| CHECKED BY: | | REPORT NO. |
| DATE: | CONFIDENTIAL | MODEL NO. |




26 $C_D$ vs $\alpha$

CONFIDENTIAL

1033-G-14 NEW 5-62

B-250

S1062-1056