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AFATL-TR-75-87 VOLUME I

EXTERNAL STORE AIRLOADS PREDICTION TECHNIQUE

VOLUME I - TECHNICAL SUMMARY

VOUGHT SYSTEMS DIVISION
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JULY 1975

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Presented is an empirical method to compute six-component captive store airloads for single and multiple carriage store configurations for an arbitrary aircraft. The method has the capability for computing the basic airload and the incremental airloads due to aircraft yaw and adjacent store interference. The single carriage method was developed for the Mach range 0.5 to 2.0 while the multiple carriage method is valid for the Mach range 0.5 to 1.6. Both single and multiple carriage methods were developed for the angle of attack range -4 to + 12 degrees and the aircraft yaw angle range -8 to +8 degrees. Comparisons between

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predicted and experimental data show generally good agreement. The report is presented in two volumes. Volume I is the technical summary report describing the program and approach used to develop the prediction technique. Volume II is the user's manual consisting of five separate books.

SUMMARY

This is Volume I of the report which presents a method developed by the contractor to predict six-component, captive store airloads for both single and multiple carriage configurations. Volume I describes the experimental and correlation studies and discusses the approach used in developing the empirical method. Volume II of the report provides a detailed manual to guide the user. The prediction method was developed through an empirical correlation of a large experimental data base. The data base was derived from two general sources. The primary source was a test program in the AEDC 4T wind tunnel using parametric variations in store loadings on the .05 scale A-7 and F-4 models as parent vehicles. A secondary and complementary source resulted from an extensive survey of government agencies and private contractors for pertinent captive store airloads data.

The prediction method enables the user to calculate captive store airloads for individual stores and to account for variations in aircraft angle of attack, yaw, and adjacent store interference. The ranges of Mach numbers, angles of attack, and aircraft yaw angles for which the method is applicable are as follows.

	Mach Number	α degrees	ψ degrees
Single Carriage	0.5 - 2.0	-4 to +12	-8 to +8
Multiple Carriage	0.5 - 1.6	-4 to +12	-8 to +8

Limitations which should be imposed on the use of this method were established largely by the data used in its derivation, but the method appears sufficiently versatile to meet most preliminary design requirements.

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PREFACE

This report was prepared under the sponsorship of the Air Force Armament Laboratory, Armament Development and Test Center, Eglin Air Force Base, Florida, under Contract Number F08635-73-C-0070 (Project No. FY7621-72-2G001). The cognizant Air Force technical monitors on the program were Messrs. Robert A. Hume, Jr. and Charlie D. Turner, Jr. The work was performed by Vought Systems Division of LTV Aerospace Corporation, P.O. Box 5907, Dallas, Texas 75222. Principal investigator for this program was R. D. Gallagher. Principal technical personnel were: A. R. Rudnicki, Jr., E. G. Waggoner, Jr., and C. T. Alexander. This effort was conducted during the period from 8 January 1973 to 30 June 1975.

This report consists of two volumes. Volume I, the technical summary, describes the program and approach used to develop the prediction technique. Volume II, the user's manual, consists of five books. This is Volume I.

This technical report has been reviewed and is approved for publication.

FOR THE COMMANDER

WILLIAM F. BROCKMAN, Colonel, USAF
Chief, Munitions Division

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SECTION I

INTRODUCTION

Determination of the aerodynamic forces and moments acting on individual components of an aircraft is a part of the design process to assure that adequate load-carrying structure is provided for all design flight conditions. Accurate information on the aerodynamic loads experienced by external stores carried on high performance aircraft is an important factor. An early prediction of this store airloads is important to the design process of achieving aerodynamic compatibility between the aircraft and stores. The flow environment in which external stores are immersed is generally highly complex and affected by many variables, e.g., flight conditions and physical characteristics of the aircraft, store installation, and adjacent stores. Successful prediction of quantitative data utilizing analytical techniques has proven to be difficult, although some techniques have been used successfully to predict qualitative trends. The strong influence of viscous flow, particularly at transonic speeds with multiple carriage store arrangements, has made current methods inadequate for many applications. The most reliable method by which the engineer can provide store airloads continues to be through wind tunnel testing. This latter process is normally complex and expensive and too often provides airloads data late in the design effort, after many decisions influencing aircraft/store compatibility have already been made.

A study program was conducted by the contractor to develop a generalized technique to predict aerodynamic loads acting on airborne external stores. Considering the relatively low effectiveness and inherent limitations of present analytical methods, an experimental data correlation approach was selected for developing the prediction technique that is rapid and easy to use, versatile in application to various aircraft and store configurations, applicable to maneuvering flight conditions at subsonic, transonic, and low supersonic speeds, and adequately accurate for store/store installation design purposes.

The objectives of this program were accomplished in two phases. The initial phase involved the collection, documentation, and correlation of existing airloads data upon which to initiate the technique development and preparations for wind tunnel testing. The second phase of the program consisted of conducting the wind tunnel test program to complete the required supporting data, performing detailed data correlations, and developing the final prediction technique.

This report describes the work performed and the results obtained during all phases of the study program. The various sections delineate specific tasks which were performed. Descriptions of both the technical information survey and wind tunnel test planning and preparations are included. A discussion of the approach to the prediction technique, including the dominant parameters, is also presented. Finally, an assessment of the capabilities and nominal accuracies that the method offers is discussed.

SECTION II

TECHNICAL INFORMATION SURVEY

An extensive data survey was performed by the contractor to locate and acquire data and related information on captive store and store installation airloads. Acquiring these data was necessary to develop correlations essential to the prediction technique development and to provide guidelines in planning the wind tunnel test program. Although data were known to exist on numerous store types and store installations, problems in acquiring useful airloads data were apparent. These problems included: the inter-industry and inter-service dispersion of data; the diverse origin of airloads data, i.e., wind tunnel, inflight, and analytical; and the assorted approaches used in measuring airloads, i.e., measured on the installed stores, on the carriage rack or pylon, or on the total aircraft-store combinations. The following paragraphs explain the general survey approach, the organizations surveyed, the type of data solicited, and the broad survey results.

2.1 SURVEY PROCEDURE

Early survey planning identified three primary avenues by which the required technical data could be identified. Selection of these avenues, which were chosen to encompass the majority of data acquisition sources, also provided a built-in cross-reference system which minimized the possibility of overlooking pertinent data. Listed below are the primary approach avenues followed:

- Airframe and weapon contractors and government agencies
- Aircraft/weapon system program offices
- Technical literature surveys

A comprehensive stores data bank had been previously compiled by the contractor largely through in-house efforts and as a result of a previous Air Force study contract. Hence, data sought through the survey were largely data which had become available since the previous survey. Although all the data identified through the survey were not obtained, efforts to acquire those data deemed most relevant to the program were highly successful. The following paragraphs outline the approach used in each case.

2.1.1 Approach for Contractor and Government Agency Data

As an initial step in the data survey, an official government letter was prepared jointly by the Air Force technical monitor and contractor personnel. This letter was forwarded to selected industry and government organizations which were thought to possess or have control of useful technical data. This correspondence defined the origin, objectives, and benefits of the program and requested voluntary participation of the recipient organization in the program. Each recipient was also requested to identify available external store-aircraft data by completing and forwarding an enclosed survey questionnaire. The questionnaire, which had been prepared by contractor personnel, listed categories which could be used to generally define the applicable data from any document.

As these completed questionnaires were received by the contractor, all information entered on the questionnaire was reviewed. The described documents were checked against the files of the existing VSD external stores data bank to avoid duplications, and decisions were made as to the specific applicability of the listed data to the study. When priority data were recognized, a follow-up contact was made to the questionnaire respondee to arrange a review of the desired information. In some cases, personal visits were arranged to inspect the data and permit detailed data evaluation. These follow-up visits were essential to the survey as they provided a forum for exchanging ideas, defined the specific data that existed and could be made available, and outlined available avenues for obtaining data release. In those instances where it was practical, follow-up contacts were made by telephone to discuss the available data and arrange for data transferral.

A response was obtained from essentially every Navy and Air Force organization receiving the data questionnaire. Completed questionnaires were also received from most airframe and weapon contractors who were contacted. Subsection 2.2 lists all private and government agencies contacted during the survey that responded with an expressed intent to participate in the data survey.

2.1.2 Approach to Aircraft/Weapon System Program Offices

Personal visits or telephone contacts within select major aircraft/weapon system program offices were made by contractor personnel in conjunction with the survey. These contacts were especially fruitful since numerous technical references and related literature were normally revealed for a particular aircraft/weapon system. The volume of technical data available at a given project office was found to be directly proportional to how recent the aircraft had been in production. While many references were not found on file at a given project office, many were obtainable through other sources such as the DDC or NASA technical libraries or the originating private contractor. In general, a high degree of cooperation was exhibited by the project offices. This cooperation was evident not only in providing data references but also by identifying cognizant individuals within the program offices and/or the industrial facilities through which references might be made available or additional data identified.

2.1.3 Technical Literature Searches

Extensive use was made of the standard Defense Documentation Center (DDC) and National Aeronautics and Space Administration (NASA) technical literature libraries. Specific requests were made for technical bibliographies covering the period since the previous data survey by the contractor. In this manner, literature which had been generated since the last survey could be reviewed with little redundancy in effort. In addition, other technical bibliographies on the subject were acquired and screened and specific reports acquired. Many of the documents which were requested and found to be directly applicable to the program would not have been identified through the various other approaches. Hence, although time-consuming and tedious, this approach proved highly useful in the identification of pertinent documents.

2.2 AGENCIES CONTACTED IN SURVEY

Selection of both industry and government agencies for the technical data survey was based upon past activities of these organizations in the subject technical area. All facilities which received questionnaires and provided useful data are listed below. Degree and temperament of the participation varied widely, and all efforts performed by the participating facilities were on an entirely voluntary basis, i.e., completion of the survey questionnaire, the data coordination activity, and duplication and forwarding of the data.

2.2.1 Air Force Facilities

- Arnold Engineering Development Center
- Edwards Air Force Base
- Eglin Air Force Base
- Wright-Patterson Air Force Base

2.2.2 Navy Facilities

- Naval Air Development Center
- Naval Air Systems Command
- Naval Air Test Center
- Naval Missile Center
- Naval Ordnance Laboratory
- Naval Ship Research and Development Center

- Naval Weapons Center
- Naval Weapons Laboratory

2.2.3 Other Government Facilities

- NASA - Ames Research Center
- NASA - Langley Research Center
- ~~Picatinny Arsenal~~

2.2.4 Industry Facilities

- Aerojet Ordnance and Manufacturing Company
- Beech Aircraft Corporation
- The Boeing Company - Seattle
- The Boeing Company - Wichita
- Calspan Corporation
- Cessna Aircraft Corporation
- EDO Corporation
- Fairchild-Fairchild Republic Division
- Flight Systems Inc.
- FMC Corporation
- General Dynamics - Convair Division
- General Dynamics - Electro Dynamic Division
- Goodyear Aerospace Corporation
- Honeywell, Inc. - Ordnance Division
- Hughes Aircraft Company - Missile Systems Division
- Lockheed - California Company
- Martin Marietta Aerospace - Ordnance Division
- McDonnell Douglas Corporation-McDonnell Aircraft Company
- Nielsen Engineering
- Northrup Corporation - Aircraft Division
- Rockwell International - B-1 Division
- Rockwell International - Missile System Division
- Sanders Associates Inc.
- Sandia Corporation - Sandia Laboratories
- Sargent-Fletcher Company

- Teledyne Ryan Aeronautical Company
- Westinghouse Electric Corporation

2.3 NATURE OF DATA SOLICITED

Aerodynamic data and information, as summarized in this subsection, were requested to support the study. The desired data involved stores and store installations and parent aircraft. This information could generally be classified in three broad categories: experimental data, existing prediction methods and data correlations, and related literature on the subject. A further breakdown of the experimental data includes aerodynamic force and moment data, both wind tunnel and inflight, and flow field information. The aerodynamic force and moment data include those obtained for individual stores, racks, pylons, or aircraft, such that airloads on individual installed stores can be defined. Free-stream store data were also sought to be used as a base in isolating store-aircraft interference effects. Data for all types of store loading arrangements were solicited. These included data for stores mounted singly or on MER or TER racks, single and multiple rail launchers, conformal pallets, etc., on both wing and fuselage stations.

Techniques capable of predicting airload components for stores carried in the flow field of aircraft were also solicited. In general, these prediction techniques were found to be limited in application. However, most techniques present an approach to the treatment of certain parameters which are considered primary independent variables influencing the store airloads. These include such parameters as aircraft attitude and flight condition, store geometry, location and installation, and adjacent interference. Hence, these correlation and prediction techniques were a useful aid in the formulation of the general prediction method.

2.4 SURVEY RESULTS

The data survey resulted in the acquisition of a considerable amount of data pertaining to stores and store installations which were not in the original contractor data bank. Much of the experimental data acquired provides total aircraft airloads due to the combined aircraft-store configuration. While useful in determining general store effects, it is difficult to isolate individual store or store installation airloads from these data. Extensive individual store and store installation airloads data were found to exist on the A-7, F-4, and F-111 aircraft. The majority of data on these aircraft consists of metric store and metric pylon airloads where a balance mounted internal to the store or pylon installation measures the applied aerodynamic forces and moments. Other aircraft for which store airloads have been acquired are the A-4, A-6, F-5, F-86, F-105, F-100 as defined in the bibliography index of Appendix A and various wing-fuselage combinations.

Included in Appendix A is a bibliography of the literature acquired having specific application to this study. All reports originating from both contractors and government agencies obtained during the survey effort are included in the bibliography.

An index to the bibliography is also included in Appendix A, Tables A-2 through A-17. The index enables the reader to rapidly establish the general type and range of data available for a given aircraft-store type. Free-stream store, rack, and/or pylon airload data are also defined in the index. Table A-1 simplifies the use of the index by defining the respective table and page number containing data on a given aircraft and/or store type. In compiling the index, an effort was also made to emphasize data having higher general interest and/or usage, such as airload prediction methods, bibliographies, flow field data, etc.

The following summary observations are made concerning the specific flight condition and geometry variables encompassed by the survey data and the general nature of the data. The significance of these observations is best realized when it is explained that the developed prediction capability for a given variable and the selected conditions/configurations for wind tunnel testing are a direct function of the available data quantity and quality.

2.4.1 Mach Number

Data coverage for the desired subsonic-to-supersonic Mach number range was generally acquired with lesser quantities being available for the supersonic region. The majority of acquired data defines airloads in the subsonic flight regime. In the supersonic flight regime data are generally limited to single store carriage installations; however, substantial multiple store installation data were obtained well into the transonic region. F-4 and F-111 store airloads data comprise the majority of the supersonic data. The available A-7 store airloads data are limited to subsonic and transonic flight although considerable A-7 supersonic data were acquired in wind tunnel tests conducted as part of this study.

2.4.2 Store and Store Installation Type

Store and store installation airloads were acquired for a variety of store types. However, there has not been a great quantity of data acquired for any one store type mounted on various aircraft. These data are necessary to isolate the effects of certain variables, or at least to remove the variance in store geometry as an independent variable. Data were not obtained through the survey effort for many flight conditions, loading arrangements, and geometric parameters. In many cases, only limited data exist. A review of the bibliography index of Appendix A for each aircraft type will provide a more detailed insight into the extent of data available for a given store. Considerable free-stream store aerodynamic data were also obtained which were useful in isolating aircraft/store interference effects.

In regard to store installation type, the bulk of the data acquired consisted of wing pylon singly and multiply carried stores. Limited data are available on fuselage mounted installations, including multiple and singly carried stores, both tangent and pylon mounted.

Sparse data exist for TER, wing tip-mounted, fuselage semi-submerged, wing tangent and semi-submerged, and conformal store installations.

2.4.3 Data Origin

Wind tunnel data comprised most of the acquired data while inflight data were mainly for total aircraft drag. In essentially every case where inflight data were located, the originator(s) voiced concern over the validity of the data due to irregularities stemming from erratic instrumentation readouts and difficulties in controlling the flight conditions.

SECTION III

WIND TUNNEL TEST PROGRAM

Early in the study planning it was recognized that sufficient airloads data did not exist for developing the prediction techniques from empirical correlations. Also, it was impractical to expect that data accumulated from the varied sources would be thorough enough to establish predictable trends for all priority variables whose contributions collectively constitute captive store airloads. The practical solution seemed to be to compile all available airloads data, review these data to identify voids where additional data were needed, and then perform a wind tunnel test program to acquire complementary airloads data through a systematic testing approach. The contractor possessed unique wind tunnel model instrumentation and hardware capable of acquiring extensive store airloads data in a single test run. Much of the model hardware needed to test a wide variation of instrumented store arrangements was already available for high speed testing. It was decided to adapt this hardware to existing F-4 and A-7 wind tunnel models for a test program which would technically and economically satisfy the current study needs. The following subsections describe the test program and include a description of test hardware, test variables encompassed, and related test preparations.

3.1 PROGRAM DESCRIPTION AND TEST CAPABILITIES

The wind tunnel test program consisted of instrumenting both the A-7 and F-4 0.05 scale aircraft models to measure individual store airloads for both single carriage and multiple carriage stores. In addition, the A-7 parent aircraft model was instrumented to obtain six-component aircraft force and moment data simultaneously with the instrumented store data.

Two types of internal strain gage balances were employed during the test program to obtain individual store aerodynamic force and moment data, depending upon whether the stores are mounted on single or multiple carriage racks. The five-component VSB-12 series balances (excludes drag) were used on both F-4 and A-7 test programs to obtain multiple carriage store airloads data. The instrumented MER is designed to carry six of these balances simultaneously, one on each of the six MER stations. Data were obtained at all six MER stations continuously during a run. The M117 (MAU-103A/B fin) and BLU-1C/B (finned and unfinned) firebomb stores were utilized in obtaining multiple carriage rack airloads. Instrumented multiple carriage racks were capable of being tested on all right-hand wing store stations and on fuselage centerline store stations on both the A-7 and F-4 aircraft models. The instrumented MER/store/balance arrangement is illustrated in Figure 1. The six-component VHB-7 series balances were used on both aircraft models to obtain individual store airloads for the single carriage stores. The 300-gallon fuel tank and the Walleye (AGM-62A) store models were used to obtain the single carriage airloads. Instrumented single carriage stores had the capability of being mounted at any wing store station on both the A-7 and F-4 models. Figure 2 illustrates the single/store/balance hardware arrangement while Figure 3 depicts a typical multiple carriage test configuration. Figure 4 provides a summary description of instrumented single and multiple store testing capabilities.

Two [illegible]ded test capabilities which are not obvious from Figure 4 were not originally proposed although they were strongly desired for the program. One of these permits a ±12 inch (full scale) longitudinal shift relative to the pylon, in the instrumented F-4 single carriage store position, for both inboard and outboard wing pylon stations. This capability provided additional parametric-type store airloads data for the 300-gallon tank and Walleye stores by providing captive airloads data at several chordwise positions. These data were highly valuable to the technique development. Development of the longitudinal shift capability was achieved through a minor innovation of hardware originally proposed and reflected no increase in program cost. The second added capability permitted evaluation of the effects of varying store nose shape for the 300-gallon tank single store and the M117 multiple store. Two basic shapes in addition to the standard nose shape for each store were made available to add the capability of varying the nose bluntness of each store. In general, the adapters provided a hemispherical nose shape and an ogive shape different from that of the standard nose shape for each store type. All multiple carriage store airloads data for the wind tunnel test program were obtained using an instrumented MER since no instrumented TER hardware currently exists.

3.2 TEST VARIABLES

Any prediction technique derived through an empirical correlation of data requires an adequate data base to be meaningful. The data base must cover the range of variables that dominate captive store airloads. These dominant parameters include store configuration, store spanwise, chordwise, and vertical position, aircraft configuration (wing sweep angle, high/low wing, etc.), aircraft attitude, and flight conditions.

Many of the variables examined during the wind tunnel test program having to do with aircraft/store configuration effects were included in the discussion of test capabilities above (store nose bluntness, aircraft type, chordwise position, spanwise position, etc.). Remaining variables include the range of flight conditions tested. The Mach number range for single carriage configurations varied from 0.5 to 2.0 with data obtained specifically at M = 0.5, 0.7, 0.9, 1.05, 1.2, 1.6, and 2.0. The Mach number range for multiple carriage configurations varied from 0.5 to 1.6 with data obtained at the same Mach numbers as single carriage excluding Mach 2.0. Difficulties were encountered with model dynamics when testing multiple carriage configurations at Mach 2.0; therefore, this higher Mach number was deleted from the test program. The angle of attack range for all test data varied from -4 to +12 degrees while the yaw angle range varied from -8 to +8 degrees in four degree increments.

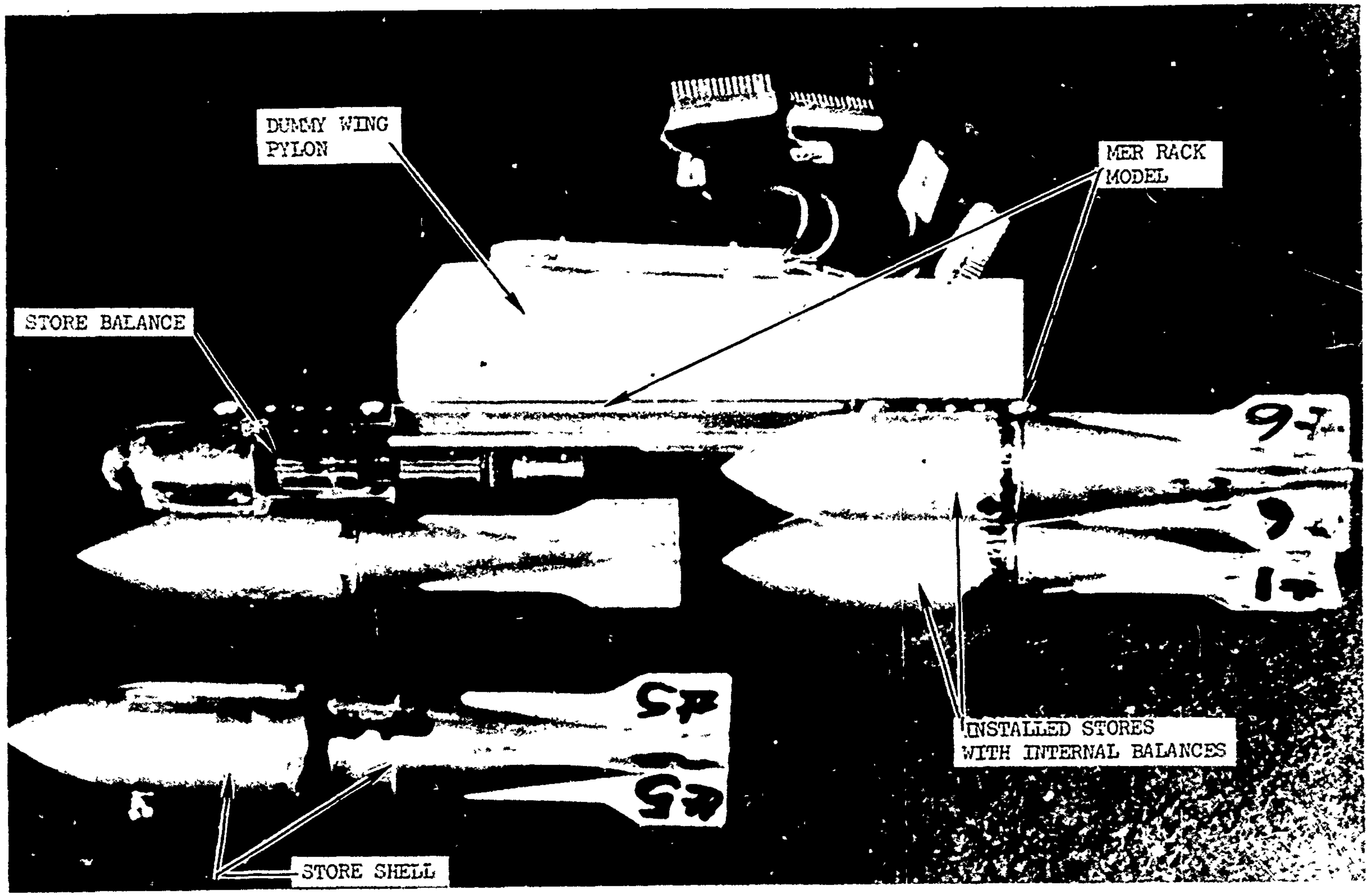


Figure 1. Instrumented Multiple Carriage Store Hardware

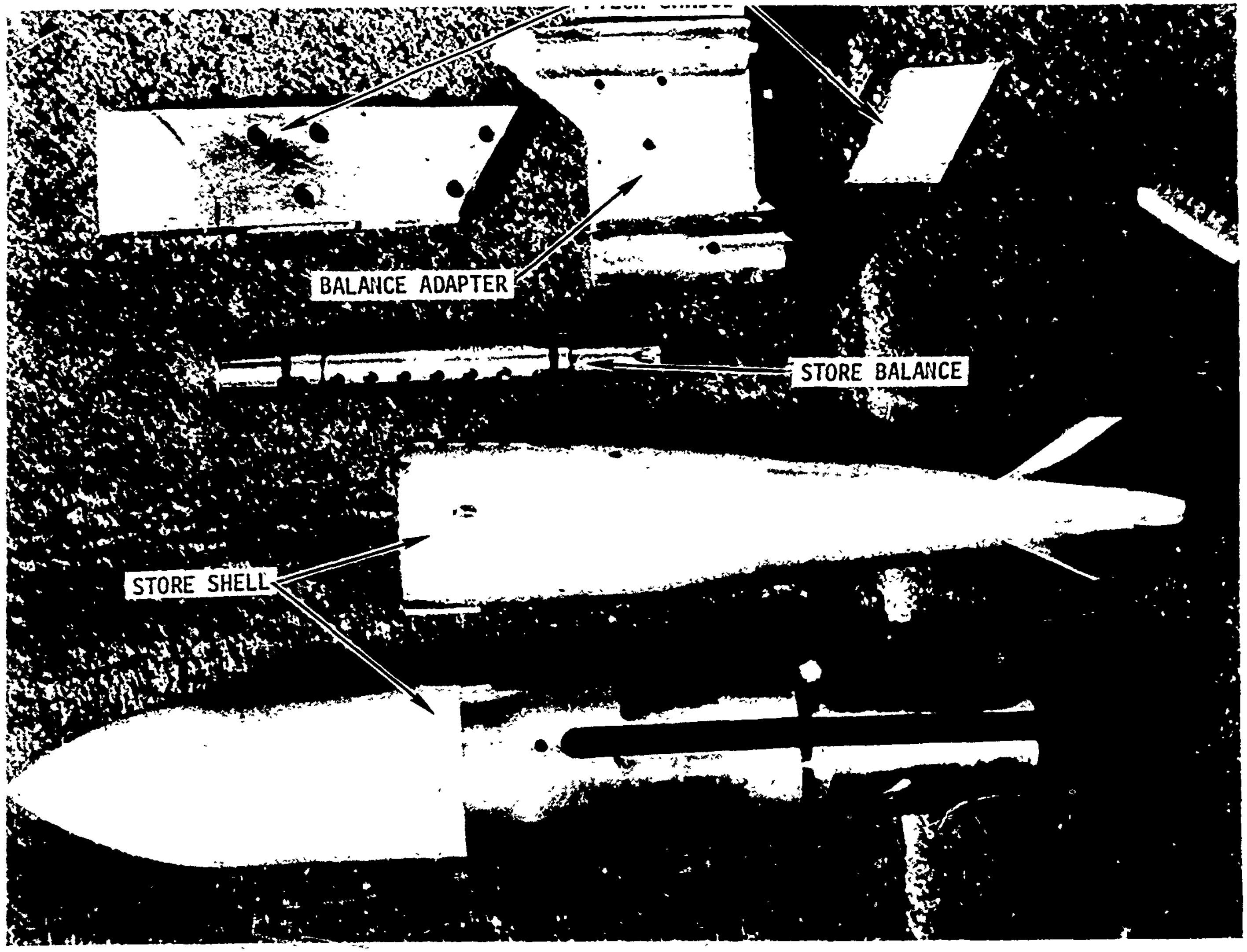


Figure 2. Instrumented Single Carriage Store Hardware

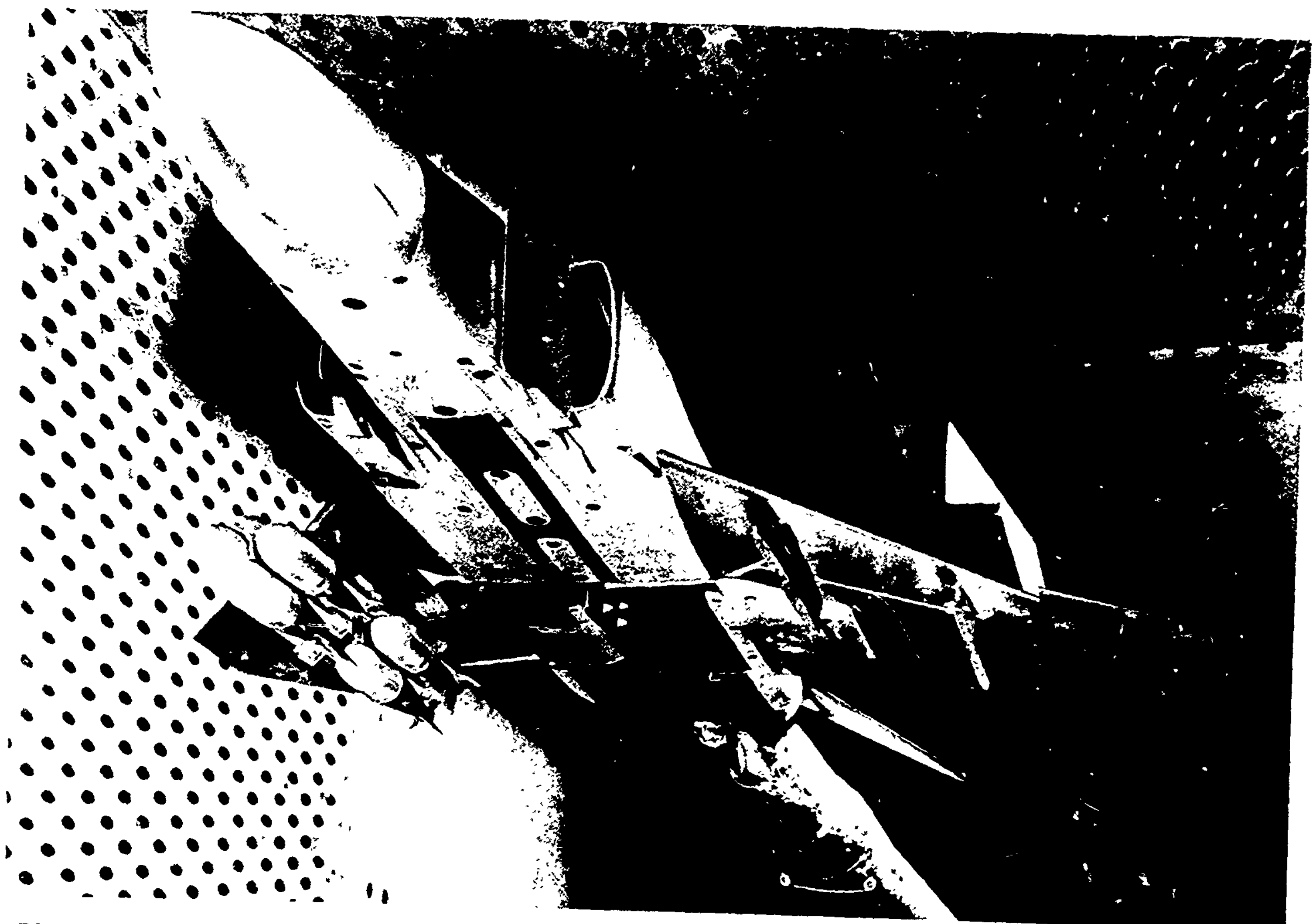
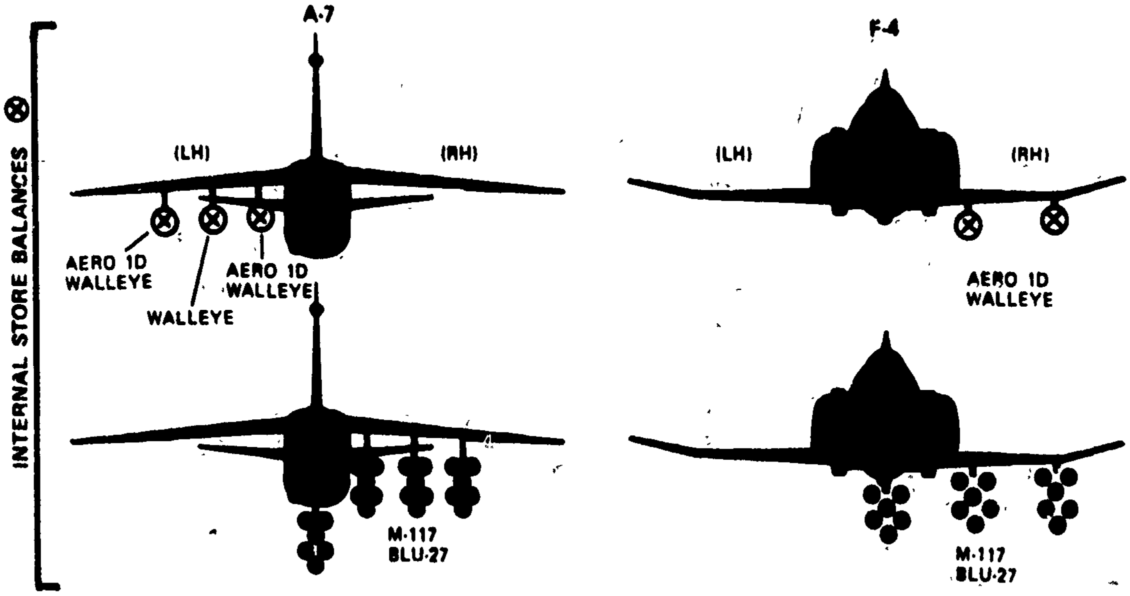


Figure 3. Typical Test Installation Configuration - Six Instrumented M117 Stores on F-4 Inboard Pylon



NOTES: 1. Instrumented MER racks can be carried at each of the pylon stations on the A-7 and F-4 as shown above, but not at more than one station simultaneously.

2. The instrumented single carriage store can be carried at three A-7 or two F-4 pylon stations simultaneously.

Figure 4. A-7 and F-4 Instrumented Store Test Capability

SECTION IV

PREDICTION TECHNIQUE

Development of the prediction technique was approached as an empirical correlation of existing airloads data combined with the parametric-type wind tunnel data obtained from tests conducted as part of this program to complement the existing data.

The question of how to correlate these data into a prediction method that is both simple and accurate was answered by preliminary comparisons of captive and isolated store data. Aerodynamic characteristics of the captive stores were observed to possesses much of the same linear nature as isolated stores. The captive side force characteristics are presented in Figure 6 for the same store whose isolated characteristics are shown in Figure 5. The linear approximation is indicated in each figure by a dashed line and is an adequate representation of the actual quasi-linear data. This linear characteristic found in most of the data greatly simplifies the mathematical expressions needed. Unfortunately the quasi-linear relationship displayed by the captive side force component does not extend to all components for the angle of attack range desired for the prediction technique (-4/12 degrees). The captive yawing moment component for the subject store is presented in Figure 7 along with the linear approximation covering the largest portion of the desired angle of attack range. As shown in the figure, significant errors will result using the linear approximation above approximately 8 degrees angle of attack. Even so, there is a linear region to represent a significant part of the aircraft's flight envelope, and the advantages of using the linear approximation for each component far outweigh the disadvantage of some loss in accuracy in a portion of the desired angle of attack range. The user should be aware that if the isolated aerodynamic characteristics of the store are non-linear in nature, then he should expect this non-linearity to be found in the captive airloads. The advantages of linearizing the data base are (1) a simple representation of the component airload by a $y=mx + b$ type equation; (2) a major variable, aircraft angle of attack, is built into the mathematical component airload representation; and (3) the resulting prediction equations should have a simple linear form. As a result, the data base was linearized so that each airload component could be expressed as a slope (force or moment as a function of angle of attack) and an intercept at zero angle of attack. As a result of the linearized data base, all predictions are accomplished in the form of a predicted slope and intercept for each of the airload components. Because of increasing non-linearity at the larger aircraft angles of attack and yaw angles, significant errors are likely outside the range of applicability stated earlier for these variables. A summary of nominal method accuracy and the angle of attack range for best accuracy for each of the airload components is presented in Section V.

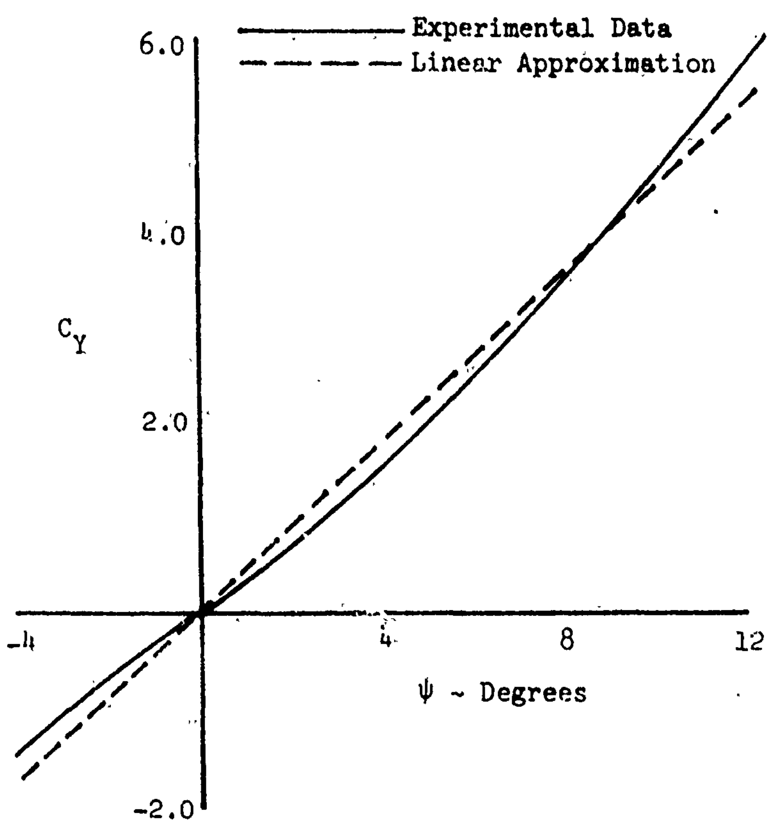


Figure 5. Typical Isolated Store Aerodynamic Characteristics

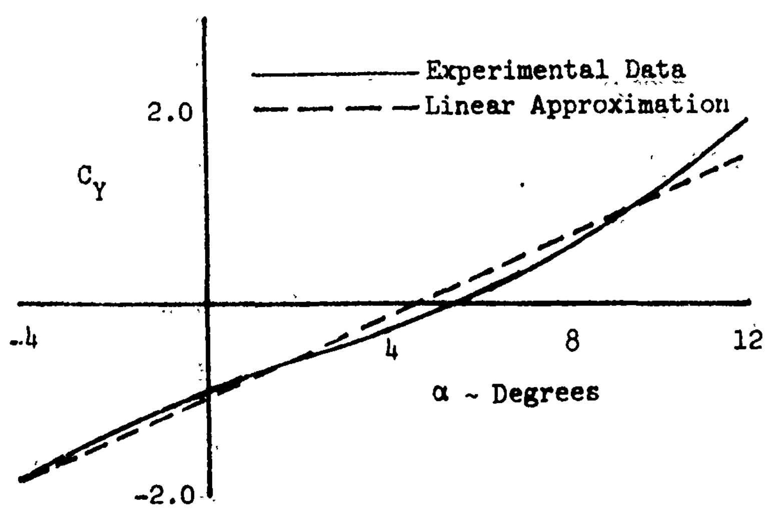


Figure 6. Captive Store Side Force Characteristics

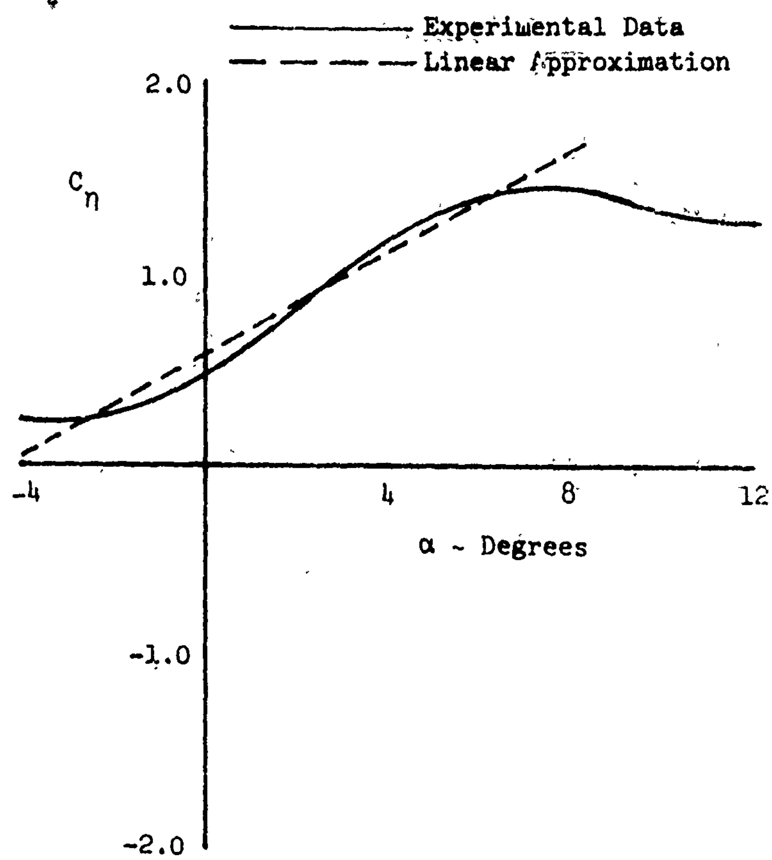


Figure 7. Captive Store Yawing Moment Characteristics

4.1 BASIC APPROACH

A theoretical method must rely on mathematical descriptions of the aircraft components, pylons, racks, and stores to implement potential flow solutions of the store airloads. Any corrections for viscous effects must be handled separately. An empirical method allows much simplification to that approach. The basic approach used in this method applies the concept that captive airloads are the result of a free-stream flow plus the interference effects. In this way, work that has been previously accomplished for free-stream aerodynamic predictions can be used as a base on which to relate captive airloads. This permits the prediction procedure to be a summation process as indicated below.

Captive Store Airloads = Isolated Store Airloads
+ Interference Effects

Applying the summation approach to interference increments depends first on airloads for some base configuration. Corrections can then be added to these initial airloads to account for differences between the base configuration and the desired configuration. Predicting these initial airloads is called the initial prediction. It involves assuming the store is in the flow field of a base wing with 45° sweep and installed at a specific spanwise, chordwise, and vertical location. The next step is to obtain a final prediction by applying empirically derived corrections to the initial prediction to compensate for aircraft configuration differences and to account for the effects of the store being in the desired spanwise, chordwise, and vertical location.

This approach was used in correlating the experimental data to develop the prediction method presented here. Correlations to identify airloads for the base configuration implement the initial prediction procedure and were basic to the entire development process. These correlations were performed with M=0.5 data to avoid the increased complexity of compressible flow corrections and shock-induced effects. This is the lowest Mach number of the test data from the wind tunnel tests of this program. Because compressibility effects are normally small at speeds below M=0.5, the method is considered valid for low subsonic speeds without Mach number corrections.

Correlations of the data to identify corrections needed to account for Mach number and configuration differences were much more difficult than those for the base data. This greater difficulty results from the many factors which contribute to the aerodynamic differences between the various store installation configurations. Some of these factors are the reason rigorous mathematical solutions are not yet practical for prediction purposes on many installations, particularly for multiple carriage racks. Fortunately, experimental data indicate that some of these differences are either small or compensating so that empirical expressions are possible without including terms which evaluate each contributing parameter. A method has been developed by using the available data to establish predictable trends, and these trends are expressed mathematically. The various terms in the prediction equations have been evaluated from the data correlation so that a complete method, with equations and the supporting figures, is presented in Volume II, Book 1 of this report.

To apply the method, the initial prediction of captive airloads is always made first at M=0.5 by assuming the store is inserted into the flow field of the base wing (45° sweep). The initial prediction is made for the basic airload case (i.e., the captive store airload generated by a zero-yaw pitch excursion of the parent aircraft). The incremental captive airloads due to aircraft yaw and the effects of adjacent store interference are predicted as increments to be added to the basic airload. The effects of Mach number are treated as an increment to be added to the prediction at M=0.5. At a particular Mach number the total captive airload experienced by a store can be obtained from the following generalized coefficient expression:

$$C_{x_{TOTAL}} = C_{x_{BASIC}} + \Delta C_{x_\beta} \cdot \beta + \Delta C_{x_{INTF}}$$

where:

x - y, η, N, m, A, ℓ representing side force, yawing moment, normal force, pitching moment, axial force, and rolling moment, respectively.

$C_{x_{BASIC}}$ - Basic captive airload generated by a zero yaw pitch excursion of the parent aircraft.

C_{x_β} - Incremental airload due to aircraft yaw per degree store yaw angle, β.

β - Store yaw angle equal to $\psi_{A/C}$ for a right wing store installation and $-\psi_{A/C}$ for a left wing store installation.

$\Delta C_{x_{INTF}}$ - Incremental airload due to the effects of adjacent store interference.

In summary, the total captive airload experienced by a store can be calculated by incrementing the isolated store aerodynamic characteristics through the initial prediction summation procedure for the base wing (45° sweep), applying empirical corrections to arrive at the final prediction for the subject wing, and using the generalized coefficient expression above to sum the major contributions to the installed airload.

4.2 PREDICTION EQUATIONS

The variables used in deriving the final prediction equations for both single and multiple carriage configurations were essentially the same. These variables accounted for store configuration characteristics (both physical and aerodynamic); store spanwise, chordwise, and vertical location in the aircraft flow-field;

the interference effect of the aircraft fuselage and adjacent stores; parent aircraft attitude (pitch and yaw); and Mach number.

As a result of the similarities in the equation forms, only the single carriage M=0.5 prediction equations are presented and discussed here. The intent is to describe typical procedures used in developing the prediction method, leaving details for user instructions to the handbook presented in Volume II of this report. The single carriage prediction equations (for slope and intercept) are presented in chart form for each of the six airload components in Figure 8. An attempt has been made throughout this report to define nomenclature as it is introduced in the text. However, Figure 8 introduces many symbols not discussed in detail in the text. The definitions of these symbols can be found in the list of symbols in Volume II, Books 2 and 3 of this report.

Consider the side force slope prediction equation from Figure 8a.

$$\left(\frac{SF}{q}\right)_{\alpha_{PRED}} = K_{C_{SF}} \left(\frac{SF}{q}\right)_{\psi_{ISO}} K_{\eta} K_{INTF} K_{\frac{L}{C}} K_{Z} K_{\Lambda_1}$$

The initial term, $K_{C_{SF}} \left(\frac{SF}{q}\right)_{\psi_{ISO}}$, in the above equation is the initial prediction discussed in Subsection 4.1. The remaining factors are empirical corrections to the initial prediction to compensate for the effects of the parameters previously mentioned in this section.

The first empirical correction term, K_{η}, is a factor to compensate for the spanwise position of the subject store. This factor was derived from three independent data sources, all of which were contained in the data base consisting of the survey data and the wind tunnel test data. In order to derive a spanwise correction factor, it is desirable to have captive airloads data for several store types on all wing pylons on as many parent aircraft as possible. Two of the previously mentioned data sources came from the survey data. One source, Reference 2, contained the BULLPUP A missile on F-4 inboard and outboard wing pylons. A second source, Reference 1, came from the test program in which the 300-gallon tank and Walleye stores were tested on all wing pylons of both the A-7 and F-4 aircraft. The third and final data source was a flow-field investigation of a wing-body combination at low subsonic speeds reported in Reference 3. The flow-field investigation reported flow angularities, both in the lateral and vertical planes for semi-span stations η=.25, .50, and .75 for a number of chordwise and vertical locations beneath the test wing. Ratioing the sidewash flow angularities from the flow-field data, assuming the mid-semispan position, η=0.5, as the base, the solid curve in Figure 9 was derived. Through a similar analysis the data points represented by symbols were derived as also shown in Figure 6. Hence, from three independent data sources, essentially the same spanwise trends were obtained for single carriage side force slope. The final curve presented in the handbook (Book 2 of Volume II) for this term is basically the average of the solid curve and the data points shown in Figure 9.

The next empirically derived correction to the initial prediction is the factor K_{INTF}. This term accounts for the interference effect of the fuselage on the captive store side force slope for high-wing aircraft. The presence of the fuselage near the installed store prevents the full development of a sidewash flow field and, therefore, modifies the spanwise trends established earlier.

The term $K_{L/C}$ is an empirical factor based on the length of the store divided by the local aircraft wing chord. In addition to the chordwise location of the captive store, this factor gives an indication of the amount of the store contained in the non-uniform wing flow field.

The next term K_Z, in the side force slope equation is a factor to account for pylon height variation. Sidewash angularity beneath a swept wing is strongest near the wing surface and decays to zero at some distance, on the order of a local wing chord length, beneath the wing. Experimental flow field data indicate that the decay is exponentially shaped. Other investigators (Reference 4) have developed an empirical pylon height correction factor for side force slope which is presented in Figure 10 as a function of vertical distance beneath the wing surface to the store longitudinal axis. Figure 10 presents the pylon height correction factor for side force slope developed from the present study for comparative purposes and is presented as a function of vertical displacement from the wing lower surface to the pylon rack mid-lug point. The exponential variation with pylon height is apparent in both cases.

The final empirical factor, K_{Λ_1}, is a first-order correction for aircraft wing sweep angle. The factor is defined as $\sin \Lambda / \sin \Lambda_{BASE}$ where Λ is the quarter chord sweep of the subject aircraft wing. The base sweep angle, Λ_{BASE}, for this factor is 45° since the initial prediction discussed in Subsection 4.1 was made for a base wing with 45° sweep angle. This factor has been suggested by several investigators including those of Reference 4 and is adequate for wing sweep angles that do not vary significantly from the base wing sweep (45°). For this reason the range of sweep angles for which the technique is recommended is limited to quarter chord sweep angles between 30 and 60 degrees.

The discussion in this section has been limited primarily to those empirical factors pertaining specifically to the single carriage, side force slope prediction for M=0.5. Inspection of the other equations given in Figure 8 shows the large number of other factors that were evaluated to complete the single carriage case at M=0.5. Because of the similarity in approaches used and the results produced for all factors, descriptions of the remaining terms are not discussed here since they are described in detail in the handbook (Volume II of this document).

SIDE FORCE SLOPE: $\left(\frac{SF}{q}\right)_{\alpha_{PRED}} = K_{C_{SF}} \left(\frac{SF}{q}\right)_{\psi_{ISO}} K_{\eta} K_{INTF} K_{\frac{L}{C}} K_{Z} K_{\Lambda_1}$

SIDE FORCE INTERCEPT: $\left(\frac{SF}{q}\right)_{\alpha=0_{PRED}} = [(K_{SLOPE_1} + \Delta K_{SLOPE_{INTF}} + \Delta K_{SLOPE_{\ell_{LE}}}) \cdot (\text{ADJ. FIN SPA}) + K_{INTC_1} + \Delta K_{INTC_{INTF}} + K_{INTC_{\ell_{LE}}}] K_{\Lambda_1} S_{REF}$

YAWING MOMENT SLOPE: $\left(\frac{YM}{q}\right)_{\alpha_{PRED}} = K_{C_{YM}} \left(\frac{SF}{q}\right)_{\psi_{ISO}} K_{\Lambda_1} + [K_{SLOPE_1} (C_{LOCAL} K_{\Lambda_1}) + K_{INTC_1} + \Delta K_{INTC_{INTF}}] K_{\Lambda_1} S_{REF} d$

YAWING MOMENT INTERCEPT: $\left(\frac{YM}{q}\right)_{\alpha=0} = [(K_{SLOPE_1} + \Delta K_{SLOPE_{INTF}}) \ell_{LE} + K_{INTC_1} + \Delta K_{INTC_{INTF}}] K_{\Lambda_1}$

ROLLING MOMENT SLOPE: $\left(\frac{RM}{q}\right)_{\alpha_{PRED}} = (K_{SLOPE_1} + \Delta K_{SLOPE_{INTF}})(\text{FIN AREA}) K_{\Lambda_1}$

ROLLING MOMENT SLOPE: $\left(\frac{RM}{q}\right)_{\alpha=0} = K_{SLOPE_1} (\text{FIN AREA}) K_{\eta}$

Figure 8. Example of Prediction Equations (Single Carriage Stores at M=0.5)

NORMAL FORCE SLOPE: $\left(\frac{NF}{q}\right)_{\alpha_{PRED}} = K_{\Lambda_2} K_{C_{NF}} \left(\frac{NF}{q}\right)_{\alpha_{ISO}} - \left(\frac{NF}{q}\right)_{\alpha_{BUOY}}$

NORMAL FORCE INTERCEPT: $\left(\frac{NF}{q}\right)_{\alpha=0_{PRED}} = (K_{SLOPE_1} \ell_{LE} K_{\Lambda_2} + K_{INTC_1}$

$$+ \frac{\Delta K_{INTC_Z}}{K_{\Lambda_2}} + K_{x/c} \Delta K_{INT_{x/c}}) S_{REF}$$

PITCHING MOMENT SLOPE: $\left(\frac{PM}{q}\right)_{\alpha_{PRED}} = K_{\Lambda_2} K_{C_{PM}} \left(\frac{NF}{q}\right)_{\alpha_{ISO}} + \left(\frac{PM}{q}\right)_{\alpha_{BUOY}}$

PITCHING MOMENT INTERCEPT: $\left(\frac{PM}{q}\right)_{\alpha=0_{PRED}} = (K_{SLOPE_1} \ell_{LE} + K_{INTC_1}) S_{REF}$

AXIAL FORCE SLOPE: $\left(\frac{AF}{q}\right)_{\alpha_{PRED}} = [(\frac{AF}{qS_{REF}})_{\alpha_{INST}} + \Delta(\frac{AF}{qS_{REF}})_{\alpha_{\eta}} + \Delta(\frac{AF}{qS_{REF}})_{\alpha_{INTF}}] S_{REF}$

AXIAL FORCE INTERCEPT: $\left(\frac{AF}{q}\right)_{\alpha=0_{PRED}} = [(\frac{AF}{qS_{REF}})_{\alpha=0_{ISO}} + \Delta(\frac{AF}{qS_{REF}})_{\alpha_{INTF}}]$

$$\cdot (L + K_{\eta} + K_{INTF}) S_{REF}$$

Figure 8. Example of Prediction Equations (Single Carriage Stores at M=0.5) (Concluded)

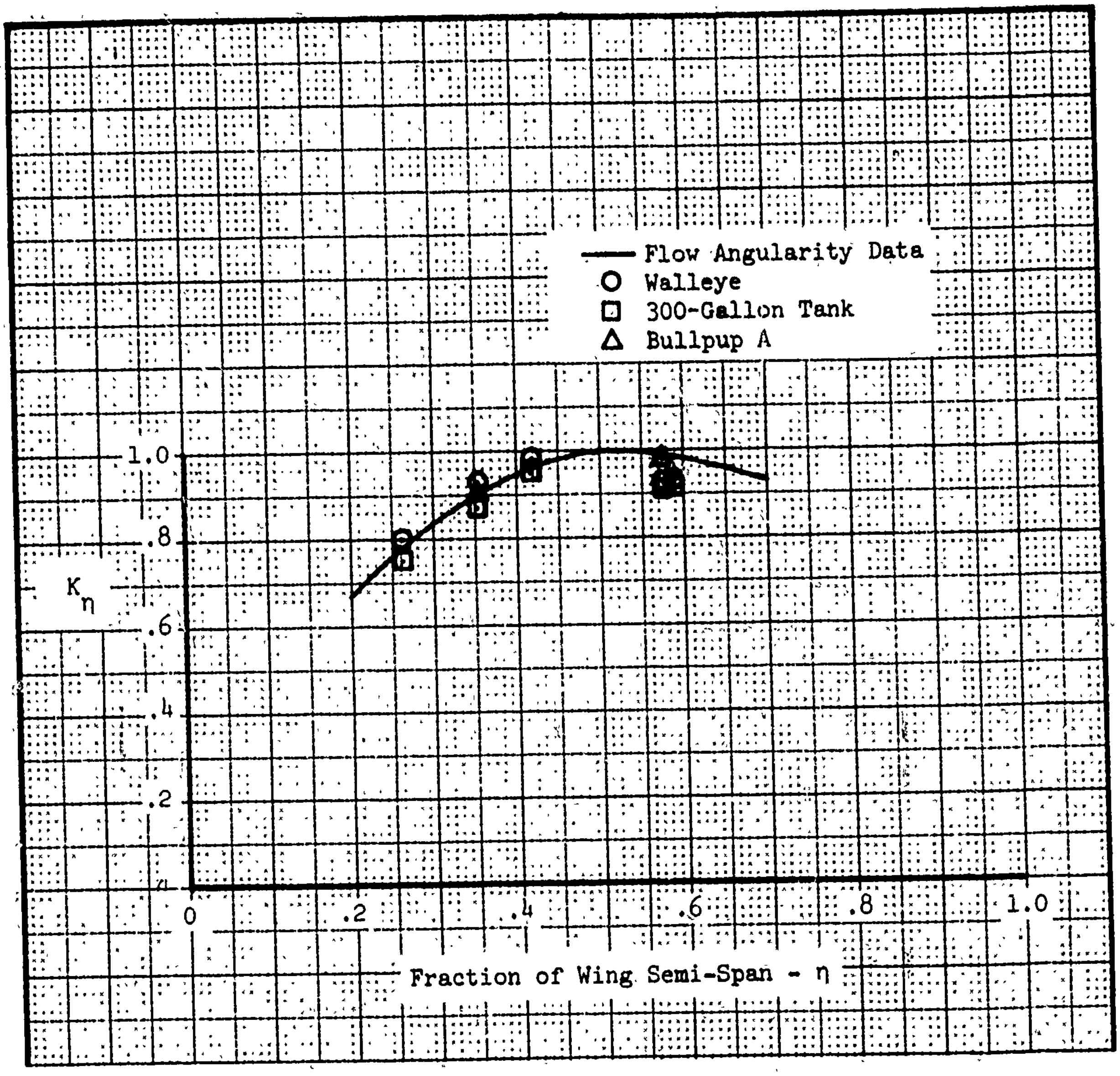


Figure 9. Derivation of Side Force Slope Spanwise Correction

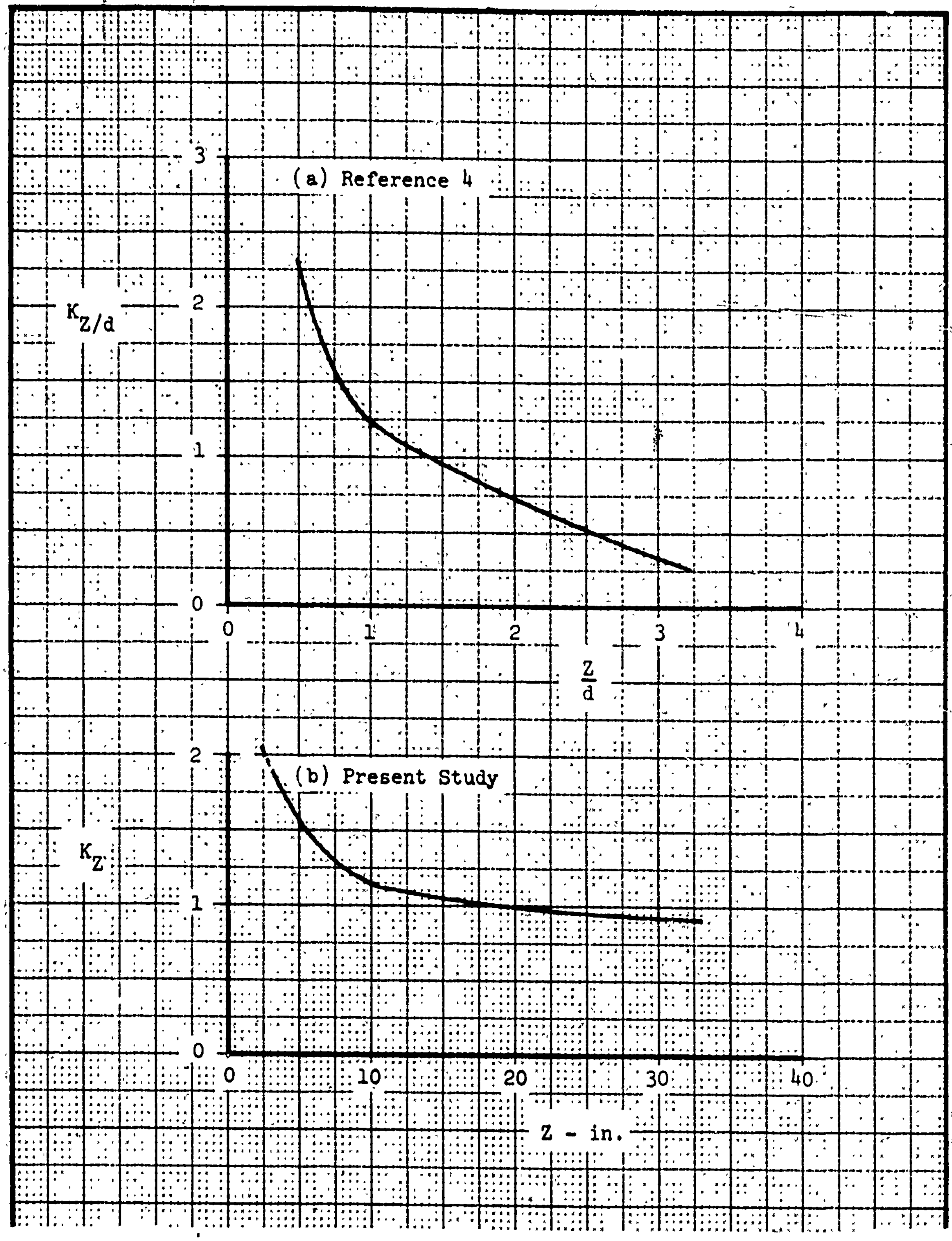


Figure 10. Comparison of Pylon Height Correction Factors

4.3 MACH NUMBER EFFECTS

Extension of the M=0.5 prediction to other Mach numbers is accomplished by predicting the incremental slope and intercept corrections to account for Mach number differences. This concept is illustrated for side force slope by the following expression.

$$\left(\frac{SF}{q}\right)_{\alpha_{M=x}} = \left(\frac{SF}{q}\right)_{\alpha_{PRED}} + \Delta\left(\frac{SF}{q}\right)_{\alpha_{M=x}}$$

where:

$\left(\frac{SF}{q}\right)_{\alpha_{PRED}}$ - Side force slope predicted at M=0.5

$\Delta\left(\frac{SF}{q}\right)_{\alpha_{M=x}}$ - Increment in side force slope at M=x.

There is sufficient similarity in the variation of these corrections with Mach number to use a common approach in accounting for these effects. A generalized curve depicting the side force slope variation with Mach number is given by Figure 11.

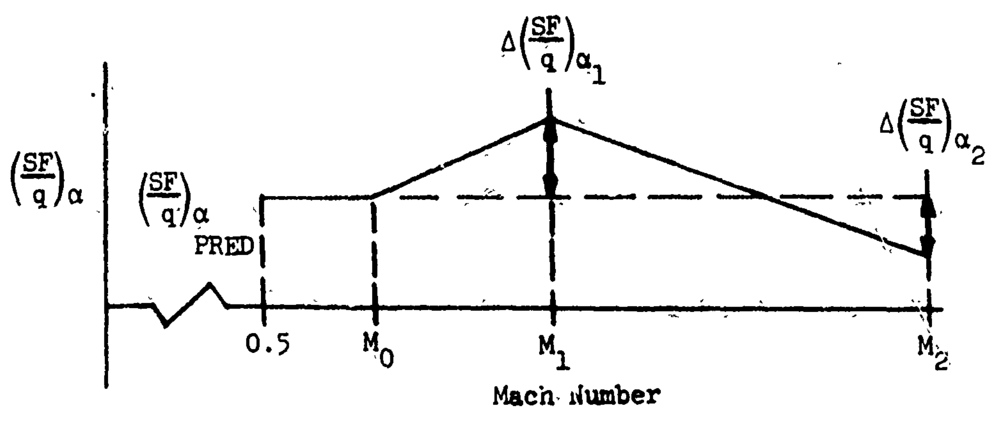


Figure 11. Side Force Slope - Generalized Mach Number Variation

The slope variation with Mach number was approximated by a series of linear segments with break points occurring at Mach numbers defined by M_0, M_1, and M_2. The variation of the Mach break points were correlated as a function of local aircraft wing chord as shown in Figure 12 for the generalized case. M_0, shown in Figure 11, is the Mach number where the slope initially deviated from the slope predicted at M=0.5. Equations were then developed to predict the incremental slope change from that predicted at M=0.5 for each of the remaining Mach break points (M_1, M_2, etc.). These equations were developed by correlating the increment obtained for configurations in the data base using various combinations of parameters. The combinations of parameters that correlated the increments often would vary in different portions of the Mach number range of interest, i.e., the parameters that correlated the increments in the subsonic flow regime often did not work in the transonic or supersonic regions. However, this was not surprising due to the vastly different flow fields experienced by the store in these Mach regimes.

An example of the resulting Mach number variation using linear segments is illustrated for a Walleye carried on the A-7 outboard pylon in Figure 13.

Corrections determined for each Mach break to predict the incremental slope or intercept changes apply only at the specific Mach number break determined from a figure similar to Figure 12. At Mach numbers between these specific break points, linear interpolation is used to calculate the increment at the desired Mach number.

The approach discussed here was used to predict the Mach number trends for most airload components for both single and multiple carriage configurations. However, a few exceptions occurred where this approach failed to correlate the Mach number variations. Where these cases occurred, the airload variation was plotted as a function of aircraft/store geometric parameters for the constant Mach numbers tested in the wind tunnel program; therefore, linear interpolation should be used between the Mach numbers discretely presented.

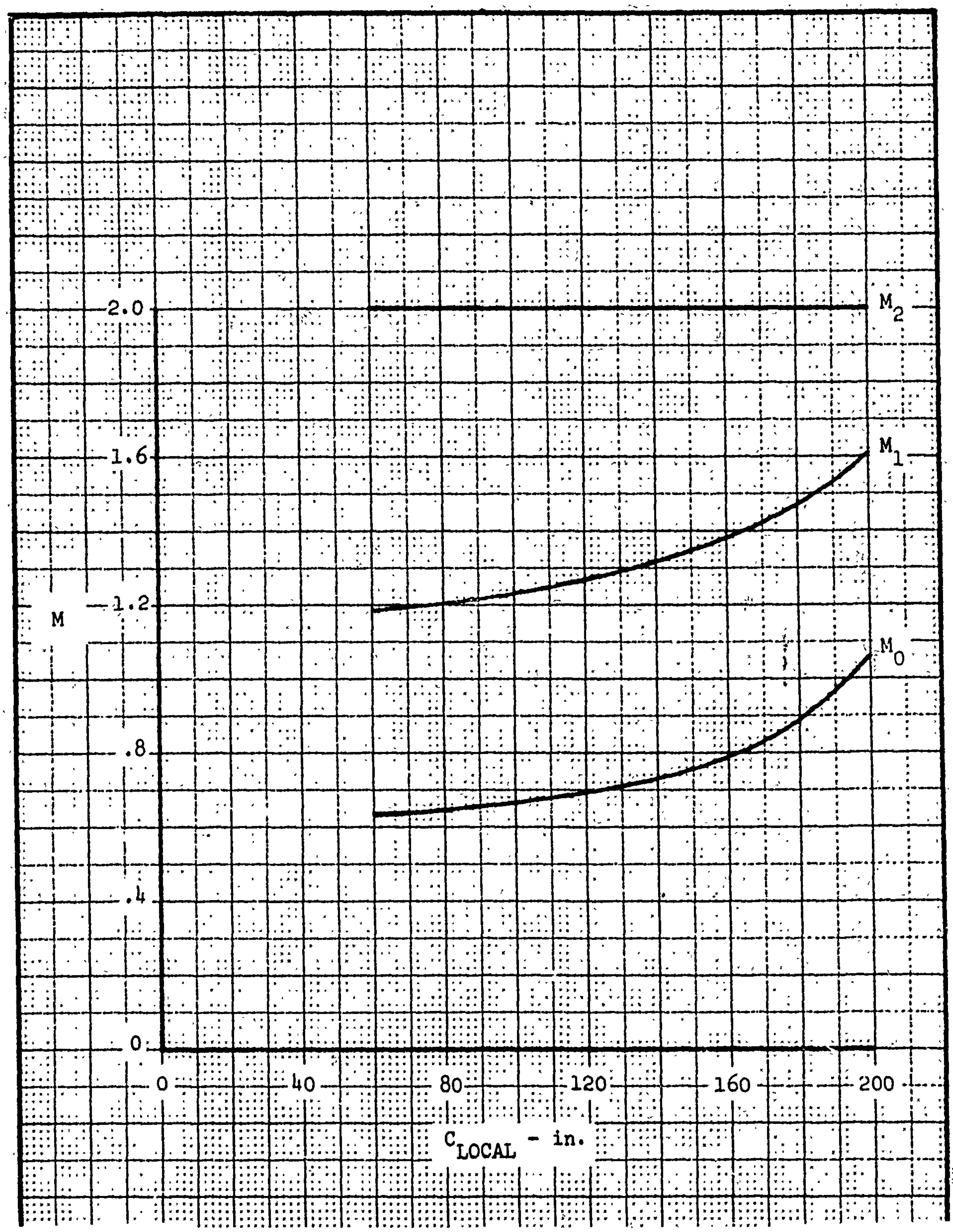


Figure 12. Generalized Mach Number Break Points

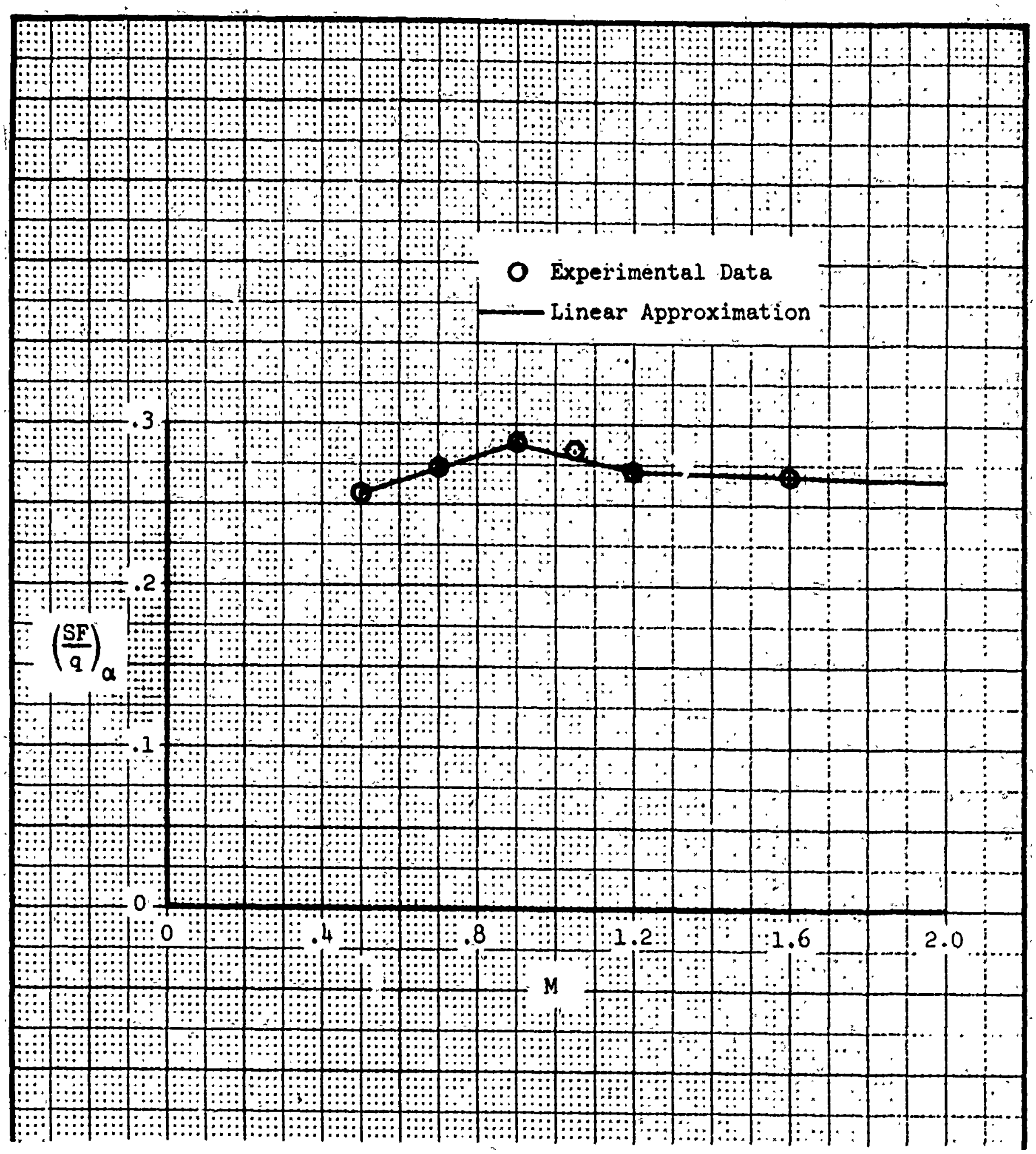


Figure 13. Side Force Slope Mach Number Variation - Walleye on A-7 Outboard Pylon

SECTION V

ASSESSMENT OF APPLICABILITY AND ACCURACY OF THE PREDICTION METHOD

In undertaking this research program, there was some question regarding the degree of success that could be expected from a data correlation approach to developing a store airloads prediction technique. Experience in developing other empirical methods gave reasonable assurance that a method was possible. However, the goal for this program was a method that was easy to use and would provide sufficient accuracies to make the predictions suitable for preliminary design purposes. The results indicate that this goal was achieved. One of the important factors influencing these results was the quantity and quality of data used in the correlation. Because of the limited data obtained in the survey, the wind tunnel data produced as part of the program made possible the versatility which was accomplished.

Simplicity was achieved in the sense that there are no complicated steps required to apply the method. There are many factors to be evaluated, but the process is outlined in a systematic sequence of simple steps. Because there are numerous calculations required for a complete prediction of six component airloads for multiple store installations, computerization of the method for practical applications appears appropriate.

The method has a wide range of applications and capabilities. The method is capable of predicting the captive airloads for single carriage and multiple carriage store configurations for a generalized aircraft including the basic airload (that airload generated by a zero-yaw pitch excursion of the parent aircraft) and the incremental airloads due to aircraft yaw and adjacent store interference. Establishing absolute limits of applicability is difficult since this is often a function of the accuracy that is acceptable. Recommended limits are submitted and sufficient data are presented to implement the method for those limits. Applications beyond the stated limits will normally mean a decay in accuracy.

The single carriage method is valid over the Mach number range from 0.5 to 2.0 while the multiple carriage Mach number range varies from 0.5 to 1.6. Both single and multiple carriage prediction techniques are valid over the angle of attack range of -4 to +12 degrees and the aircraft yaw angle range of -8 to +8 degrees although best accuracy for the increments due to aircraft yaw are for the range -4 to +4 degrees. The aircraft wing sweep angle (quarter chord) range of validity is from 30 to 60 degrees although the method can be applied to a wider sweep angle range (say, 20 to 70 degrees) with decreased accuracy. The method is applicable to all wing/pylon and fuselage centerline carriage configurations. It is not intended for fuselage configurations off the centerline nor to semi-submerged or conformal carriage.

An assessment of the accuracy of the method has been conducted through comparisons with the data base used in the technique development. The first accuracy check, and possibly the most meaningful, was a comparison of predicted values of individual airload components with the linearized representation of the data obtained from the test of that configuration in the wind tunnel. This check is meaningful because accurate linearized representations, like those shown in Figures 5 and 6, are adequate for most engineering applications. Wind tunnel tests for airloads data can often be avoided if this type prediction has sufficient accuracy. The accuracy comparisons with the linearized data base indicate that all components for both single and multiple carriage configurations are nominally within ±10 percent of base value.

Additional comparisons were made to check predicted values with specific data points. This check includes the effects of scatter in the wind tunnel data which is not necessarily a true test of the method. However, it does indicate something of the data non-linearity effects on accuracy. Comparisons with the experimental data base, accounting for these existing nonlinearities, are summarized in Table 1.

TABLE 1. SUMMARY OF NOMINAL METHOD ACCURACIES

	Nominal Accuracy(%)		α Range, Degrees for Best Accuracy	
Airload Component	Single	Multiple	Single	Multiple
Side Force	±15	±15	0/10	-4/8
Yawing Moment	±20	±20	-4/6*	-4/8
Normal Force	±15	±15	0/10	-4/8
Pitching Moment	±20	±20	-4/12	-4/8
Rolling Moment	±15	±10	-4/12	-4/12
Axial Force	±10	±10	-4/12	-4/12

* -4/8 degrees if $L/C \leq .8$, L is store length, and C is the local wing chord.

REFERENCES

1. Hill, D. W. Jr., and Mattasits, G. R., "Aerodynamic Loads on Four External Stores in the Carriage Position on the A-7D and F-4C Aircraft at Mach Numbers from 0.5 to 2.0, "AEDC-TR-74-29, AFATL-TR-74-64, Arnold Engineering Development Center, May 1974.

2. Gregoire, J. E., "Wind Tunnel Tests on the 7.5% F-4C Store Loads Model in the McDonnell Polysonic Wind Tunnel, Series II," Report A879, McDonnell Aircraft Corporation, January 1965.

3. Alford, W. J. Jr., "Theoretical and Experimental Investigation of the Subsonic Flow Fields Beneath Swept and Unswept Wings with Tables of Vortex - Induced Velocities," NACA Report 1327, 1957.

4. Marsden, P. and Haines, A. B., "Aerodynamic Loads on External Stores: A Review of Experimental Data and Method of Prediction," R. & M. No. 3503, November 1962.

APPENDIX A

AIRCRAFT-EXTERNAL STORE DATA INDEX AND BIBLIOGRAPHY

TABLE A-1 GUIDE TO AIRCRAFT-STORE DATA INDEXES

Symbol Notation:

A - Aircraft with Installed Stores

P - Pylon

R - Rack

S - Store

X - Applicable

TABLE A-2. A-4 AIRCRAFT-STORE DATA INDEX

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANDEM	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
A-4 (LW, 41)	MK-81 SELD, LAU-10/A, MK-77, MK-79, 150 and 300 Gal. Tanks		X	X					X		X		X	X		A	A					X			35	Includes A-7 and MIDS III comparison data.
A-4C (LW, 41)	MK-83		X								X		X	X		S	S	S	S	S			X	X	45	Includes theoretical prediction method.
A-4D (LW, 41)	MK-81 and -82 LDGP, 150 and 300-Gal. Tanks, Bullpup A, LAU-10, ARM		X	X					X		X		X	X		A	A	A				X			47	
A-4 (LW, 41)	Walleye		X	X							X		X	X		A	A	A				X			58	Includes A-7A and F-8 comparison data.
A-4 (LW, 41)	MK-82 LDGP		X	X							X		X	X		A						X			60	Includes MIDS III comparison data.
A-4/E,F,C (LW, 41)	MK 7 Dispenser (Rockeye II)		X	X					X	X	X	Aero 20A	X			S	S	S	S	S	S		X		139	
A-4/TA-4 (LW, 41)	All compatible aircraft stores		X	X					X	X	X		X	X		X	X	X	X	X	X	X	X		180	Defines store drag index system.
(A4D-2, -2N) (LW, 41)	Various stores	X	X	X							X		X			PS, S	PS, S	PS, S	PS, S	PS, S				X	187	
(A4D-2) (LW, 41)	Various stores	X	X	X							X		X			S	S	S	S	S		X			188	
A-4M (LW, 41)	Single: MK-81, MK-82, MK-83, 150-, 300-and 400-Gal. Tank, refueling store, Bullpup A, MK-28 TER: MK-81 SE, MK-82 SE, MER: MK-81 SE, MK-82 SE	X	X	X					X	X	X	Aero 5A-1	X	X		A						X	X		190	
TA-4F (LW, 41)	Single: MK-81, MK-82, MK-83, 150-, 300-and 400-Gal. Tank, Refueling Store, Bullpup A, MK-28 TER: MK-81SE, MK-82SE MER: MK-81SE, MK-82SE	X	X	X					X	X	X		X	X		A						X			228	

TABLE A-2. A-4 AIRCRAFT-STORE DATA INDEX (Concluded)

AIRCRAFT (Wing-fuselage position, wing type - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
A-4E (LW, 41)	Walleye	X	X	X							X						(SEE REMARKS)								344	Weapon position drawings for A-4E.
A-4E (LW, 41)	Walleye (MK 1 MOD 0)		X	X							X		X				S	S	S	S	S			X	346	
A-4C	Aircraft-Missile Interf. Effects Vehicle (Missile shape without fins)			X							X		X										X		417	Pressure data
TA-4E (LW,41)	M-81, Bullpup-A		X	X					X		X		X	X		A	A	A	A	A	A	X			485	
A-4F	Two Conformal Carriage Systems, MK-82	X	X	X			X		X				X	X								X			520	
A-4	Rockeye II								X	X		Aero FA Aero 20A						S				X			589	

TABLE A-3. A-6 AIRCRAFT-STORE DATA INDEX

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
A-6A (MW,30)	(See remarks)		X										X									X			33	Flow field data beneath A-6A wing.
EA-6B (MW,30)	TJ pod, 300-gal. tank		X	X							X		X	X	X	A	A	A	A	A	A	X			71	
A2F-1 (EA-6B) (MW,30)	MK-84, YASM-N-7 (Bullpup)	X	X	X							X		X		X	S	S	S	S	S	S	X		X	186	Data are for limit load conditions.
A-6A (HW, 30)	Walleye		X	X							X					(SEE REMARKS)									344	Weapon position drawings for A-6A.
A-6A (HW, 30)	Walleye (MK 1 Mod 0)		X	*X							X		X				S	S	S	S	S			X	346	Includes data comparisons between A-7A, A-6A, A-4E and NASA model.
A2F-1/A-6 (HW, 30)	MK-81, 300-gal. tank, AERO 7D, AERO 10D, AERO 5A, MK-28, MK-91 Bomb	X	X	X							X		X	X			S	S	S	S		X			349	
A-6 (HW, 30)	MK-81 and MK-82 GP/SE Bombs, MK-83, MK-84, 300-gal. tank, LAU-10 A/A, MK-28, Buddy Tank	X	X	X					X		X	A/A-37B	X	X		A						X			350	
A-6A, EA-6B (HW,30)	300-Gal. Tanks		X	X							X		X	X			A	A	A		A				396	

TABLE A-4. A-7 AIRCRAFT-STORE DATA INDEX

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
A-7A (HW, 41)	Sidewinder, MK-81, MK-82, M117, Weteye, Walleye, Aero 1D	X	X	X					X		X	LAU-7A	X	X		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	X			25	
A-7 (HW, 41)	MK-81 and 82 SELD, MK-79, MK-77, LAU-10/A, 150- and 300-Gal. Tanks		X	X					X	X	X		X	X		A	A					X			35	Includes comparison A-4 and MIDS III data.
A-7A (HW, 41)	Walleye		X	X							X		X	X		A						X			57	Effects of boattails.
A-7A (HW, 41)	Walleye		X	X							X		X	X		A	A	A				X			58	Includes A-4 and F-8 comparison data.
A-7D (HW, 41)	MK-81 and MK-82 SE/LD, M117A1		X	X					X	X	X		X	X		A	A	A				X			137	
A-7 (HW, 41)	(See remarks)	X	X	X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	166	Bibliography of A-7 aircraft-store carriage and separation reports.
A-7D (HW, 41)	<u>Single</u>: MK-80 series, Aero 1D, Walleye, Bullpup B, M117, LAU-3/A, LAU-10/A, AIM-9B (Sidewinder), SUU-23/A, Rockeye II, CBU-1A/A <u>Multiple</u>: MK-81, MK-82, M117, LAU-3A/A, LAU-10/A, MK-83, CBU-1A/A, Rockeye II	X	X	X					X	X	X		X	X		A	A	A				X	X	X	167	
A-7E (HW, 41)	<u>Single</u>: 150-, 300-, 400-, and 450-Gal. Tanks, MK-28, MK-81, MK-82, MK-83, MK-84, MK-79, Aero 8A, Mines, AN/ALQ series, Walleye, Bullpup A and B, etc. <u>Multiple</u>: MK-80 series, CBU-1, LAU-3A/A, LAU-10A, LAU-32A/A, MK-117, MK-15, MK-20, etc.		X	X					X	X	X		X	X		A, PS	A, PS	A				X	X	X	169	
A-7D (HW, 41)	M117, AIM-9B (Sidewinder)	X	X	X					X		X	LAU-7A/A (AIM-9B)	X	X			RS	RS	PS, RS	PS, RS	PS, RS	X		X	170	

TABLE A-4. A-7 AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
A-7A (HW, 47)	Most compatible stores	X	X	X					X	X	X					(SEE REMARKS)									337	Describes store installation geometry
A-7 (HW, 47)	Walleye, Large Scale Walleye, Maverick (AGM-65A)		X	X							X		X	X			X	X	X	X	X	X			343	
A-7A (HW, 47)	Walleye		X	X							X					(SEE REMARKS)									345	Weapon position drawings on A-7A.
A-7A (HW, 47)	Walleye (MK 1 Mod 0)		X	X							X		X	X		S	S	S	S	S	S	X			346	Include data comparisons between A-7A, A-6A, A-4E and NASA model.
A-7 (HW, 47)	M117, AFATL Parametric Shapes		X	X					X	X	X		X	X		A	A	A	A	A		X			371	
A-7D (HW, 47)	Maverick (AGM-65A)		X	X								AGM-65A	X	X		PRS S	S	PRS S	PRS S	PRS S	PRS S	X			390	See reference 38 for data.
A-7D (HW, 47)	Maverick (AGM-65A)		X	X								AGM-65A	X	X		PRS S	S	PRS S	PRS S	PRS S	PRS S	X			389	
A-7D (HW, 47)	Maverick (AGM-65A)		X	X								AGM-65A	X	X		PRS S	S	PRS S	PRS S	PRS S	PRS S	X			398	
A-7 (HW, 47)	300-Gal Tank, MK-81, MK-82, M117, MK-84		X	X					X		X		X	X		A	A						X		397	
A-7 (HW, 47)	M117, M118, BLU-1C/B, Sidewinder, Pylons	X	X	X					X	X	X	VER	X	X		A	A	A	A	A	A	X			402	
A-7 (HW, 47)	M117, MK-82, LAU-3/A, CBU-46/A, BLU-1/C, MK-84, M118, 300-Gal Tank, Sidewinder	X	X	X	X				X	X	X		X	X		A	A	A	A	A	A	X			403	
A-7D (HW, 47)	M117, MK-82, 300-Gal Tank, Walleye, BLU-1C/B, LAU-3/A CBU-46/A		X	X					X	X	X	VER	X	X		A	A	A	A	A	A	X			405	
A-7D (HW, 41)	All compatible store types		X	X					X	X	X		X	X		A	A	A				X	X	X	250	

TABLE A-4. A-7 AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
A-7A (HW, 41)	Single: Buddy Tank, MK-28, MK-43, MK-84, 150-, 300-, 400- and 450-Gal. Tanks, LAU-10A, MK-57, MK-4, Bullpup A and B, etc. Multiple: MK-81, MK-82, MK-83		X	X					X	X	X		X	X		A	A	A				X	X	X	171	
A-7B (HW, 41)	Single: 150-, 300-, 400-, and 450-Gal. Tanks, MK-80 series, MK-28, MK-43, MK-57, MK-79, MINES, etc. Multiple: MK-81, MK-82, CBU-1, MK-15, MK-20, M117, LAU-10A, LAU-3A/A, LAU-32A/A, etc.	X	X	X					X	X	X	LAU-7A/A (AIM-9B)	X	X		A	A	A				X	X	X	172	
A-7D (HW, 41)	CBU-46/A, LAU-3/A, BLU-27		X	X						X	X		X				X	X					X		461	
A-7D (HW, 41)	M117, Various Parametric Shapes		X	X					X	X	X			X		X	X	X				X			428	
A-7D (HW, 41)	MK-81SE, LAU-7A	X	X	X					X		X		X	X		X							X		434	

TABLE A-4. A-7 AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing type - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
A-7D (HW,41)	MK-82SE, SUU-13, M117R		X	X					X			VER	X	X								X			480	Separation Data
A-7D (HW,41)	MK-82GP, MK-82SE, CBU-24B/B, M117GP		X	X					X				X	X								X			493	Separation Data
A-7D (HW,41)	BLU-1C/B, M117GP MK-82GP, MK-82SE		X	X					X	X	X		X	X		S	S	S	S	S	S	X			495	
A-7D (HW,41)	Most Compatible Stores	X	X	X					X	X	X					(SEE REMARKS)									497	Describes Store Installation Geometry
A-7D (HW,41)	MK-82GP, MK-82SE, M117, BLU-1/B, SUU-42/A, CBU-24B/B		X	X					X	X	X		X	X											502	Separation Data
A-7D (HW,41)	SUU-25C/A, CBU-52B/B, MK-20, BLU-52A/B, 300-Gal. Tank		X	X					X	X	X		X	X								X			513	Separation Data
A-7D (HW,41)	MK-84LGB, MK-84EOGB, MK-82LGB, BLU-1/B, LAU-68A/A		X	X					X		X		X	X								X			517	Separation Data
A-7A (HW,41)	Two Conformal Carriage Systems, MK-82		X				X			X			X	X		A						X			520	
A-7D (HW,41)	SUU-23/A, CBU-12A/A, CBU-46/A, LAU-3/A, LAU-68A/A, CBU-30/A		X	X						X	X		X									X			538	Separation Data
A-7D (HW,41)	M117R, BLU-1C/B, SUU-42/A		X	X					X	X	X		X	X								X			541	Separation Data

TABLE A-4. A-7 AIRCRAFT-STORE DATA INDEX (Concluded)

AIRCRAFT (Wing-fuselage position, wing type - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH. RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
A-7D (HW,41)	CBU-24B/B, CBU-30/A, CBU-38/A, CBU-42/A, BLU-1C/B, M117R		X	X							X		X	X								X			542	Separation Data
A-7 (HW,41)	MK-82 LDGP		X	X						X			X					X		X		X			560	
A-7 (HW,41)	MK-82		X	X					X	X	X		X	X		A							X		574	Mostly Performance Data
A-7D (HW,41)	MK-82		X	X					X	X	X		X			A							X	X	582	Comparison of Theory & Flight Test Drag Prediction
A-7D	300-Gal. Tank, M117GP and BLU-1C/B Bombs, AGM-62/A Walleye	X	X	X					X		X		X	X	X							X			586	
A-7D	BLU-1C/B, MK-82, 200-Gal. Tank, AGM-62/A Walleye, MK-84, MK-20, M117/131, KMU-353, KMU-351	X	X	X					X	X			X	X	X	A	A	A	A	A	A	X			596	

TABLE A-5. F-4 AIRCRAFT-STORE DATA INDEX

AIRCRAFT (Wing-fuselage position, (wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
F-4C (LW,51)	MIU-108		X	X					X	X		STER, SMER	X	X	X	A	A	A				X			31	
F4H-1(LW,51)	Store (various scales)	X	X	X							X		X	X	X	A								X	50	
F-4B(LW,51)	Conformal (four shapes)	X					X						X	X		A						X			62	
F/RF-4C (LW,51)	BLU-1/B, M117, G.P., SUU-16/A, 370- and 600-Gal. Tanks		X	X					X		X		X			A								X	68	
F-4C(LW,51)	CBU-24 Dispenser		X	X						X			X	X		S						X			72	Includes captive trajectory data.
F-4 (LW,51)	SUU-46/	X	X	X							X	SUU-46/A	X	X	X	A	A	A	A	A	A	X		X	73	
F-4C (LW,51)	Hard Structures Munition		X	X							X		X	X		S	S	S	S	S	S	X			77	Flow field survey with instrumented store beneath F-4C.
F-4C (LW,51)	M117 LDGP		X	X							X		X	X			S	S				X			79	Includes flow field velocity vector plots and captive store airloads.
F-4B (LW,51)	MK-81, -82 and -83 LDGP, LAU-10/A, Sparrow III, 370- and 600-Gal. Tank	X	X	X					X	X	X		X			A							X		95	Qualitative drag index values for 16 assorted loadings.
F-4J (MIN-MOD) (LW,51)	Sparrow, Sidewinder (AIM-9B/D), 370- and 600-Gal. Tanks		X	X							X	Pylons, LAU-7/A	X	X	X	S,A	A					X	X		97	
F-4 (MOD) (LW,51)	Sparrow, Sidewinder (AIM-9B/D), 370- and 600-Gal. Tanks		X	X							X	Pylons, LAU-7/A	X	X	X	S,A	A					X	X		98	
F-4E (LW,51)	Single: Concept A, Concept X, SUU-46, 370- and 600-Gal. Tank, M117, Glove Pod.	X	X	X							X		X	X	X	A	A	A				X			99	
	TER and MER: MK-82 SE		X	X					X	X			X	X	X	A	A	A				X				
F-4C(LW,51)	APS-107, 669A, QRC-249		X	X							X		X	X	X		S	S	S	S	S	X			104	
F-4E (LW,51)	370 Gal. Tank, M117, LAU-3/A, BLU-27/B, Sparrow AIM-4	X	X	X					X	X	X		X	X	X			A					X		140	

TABLE A-5. F-4 AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION: FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	CARRIAGE RACK TYPE: MER	TER	SINGLE	OTHER	MACH RANGE: SUBSONIC	TRANSONIC	SUPERSONIC	STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA: DRAG	LIFT	PITCH	SIDE	YAW	ROLL	AIRLOADS DATA TYPE: WIND TUNNEL	INFLIGHT	THEORETICAL	DATA REFERENCE NUMBER	REMARKS
F-4C, D, E (LW,51)	Most aircraft stores	X	X	X					X	X	X		X	X	X	X	X	X				X	X		149	Aircraft performance data manual. Describes drag and stability index systems.
F-4E (LW,51)	Sparrow, M117, LAU-3/A 370-Gal. Tank, BLU-27B, AIM-4	X	X	X					X	X	X		X	X			A	A					X		152	Includes Stability Index Number Data.
F-4E (LW,51)	MK-82 LDGP, MK-84, LAU-3/A, 370-Gal. Tank, M117,		X	X					X	X	X		X	X	X		X	X					X		153	Defines buffet/stall onset w/wo stores.
F-4E (LW,51)	AIM-7, 370-Gal. Tank, M117, LAU-3/A	X	X	X					X	X	X		X	X		A	A						X		154	
F-4C (LW,51)	Most aircraft stores	X	X	X	X	X			X	X	X	X	X	X	X	A						X	X	X	174	
F-4B (LW,51)	MK-4 Gun pod, Bullpup A, MK-82, MK-83, Aero 7D, Aero 10D, Shrike, ALQ-81, ALQ-88	X	X	X					X		X	Aero 5A-1		X	X	RS S	RS S	RS, S	RS S	RS S	RS S	X	X	X	185	Inflight data are limit load conditions.
F-4E (LW,51)	AIM-7D/E	X			X	X					X		X	X	X	A	A					X			189	
F-4C (LW,51)	M117, BLU-1	X	X	X					X	X	X		X	X			S	S	S	S	S	X			173	Includes captive store trajectory data.
F-4 (LW,51)	Sparrow, MK-84LD, fuel tanks	X	X	X	X	X					X				X	A	A,S	S,A	S,A	S,A	A	X			197	Includes captive launch trajectory data and schlieren photographs.
F-4C (LW,51)	CBU-33/A store	X	X	X					X	X	X		X	X		S	S	S	S	S	S	X			315	Includes captive launch trajectory data.
F-4 (LW,51)	SUU-25B/A flare pod	X	X	X					X		X		X	X		S	S	S	S	S	S	X			316	Includes captive launch trajectory data.
F-4C (LW,51)	SUU-25C/A flare pod	X	X	X					X				X	X		S	S	S	S	S	S	X			317	Includes captive launch trajectory data.
F-4C (LW,51)	M117 bomb		X	X						X			X	X	X		S	S	S	S	S	X			318	Includes captive launch trajectory data.
F-4B/E (LW,51)	BLU-1/B firebomb, SUU-13/A dispenser, 600-gal tank	X	X	X					X	X			X	X			S	S	S	S	S	X			319	Includes captive launch trajectory data.

TABLE A-5. F-4 AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
F-4B (LM, 51)	370-and 600-gal. fuel tank, MK-43, Sparrow III, Sidewinder	X	X	X		X					X	Dual Side-winder	X	X		A							X		341	
F-4 (LM, 51)	Large scale Walleye, Maverick (AGM-65A), AGM-76A (Phoenix)		X	X							X		X	X			S	S	S	S	S	X			343	
F-4D (LM, 51)	AIM-4, LAU-3, M117, 370-gal. tank		X	X					X	X	X	AIM-4D launcher	X	X	X	A	A	A	A	A	A	X			354	
F-4K/M (LM, 51)	LAU-10A, LAU-3A, MK-83, MK-10, MK-21, 18 Tube Launcher Store		X	X						X	X		X	X			S, PS, PRS	S, PS, PRS	S, PS, PRS	S, PS, PRS	S, PS, PRS	X			355	
F-4 (LM, 51)	AIM-4-D, M117, LAU-10/A, MK-57, MAU-12 Pylon		X	X						X	X	AIM-4D launcher	X	X	X		S, PS	S, PS	S, PS	S, PS	S, PS	X			356	
F-4 (LM, 51)	669 A ECM, QRC-249, 669L ECM, APS-107, Gun Pod		X	X					X		X		X	X	X		S, PS	S, PS	S, PS	S, PS	S, PS	X			357	
F-4 (LM, 51)	TFD (SUU-41/A)		X	X					X	X			X	X			S, PRS	S, PRS	S, PRS	S, PRS	S, PRS	X			358	Also includes measured TFD fin airloads
F-4K (LM, 51)	AJ-168 (ARM and TVM), Equipment Pod	X	X	X							X	Launch Rail	X	X	X	A	A	A	A	A	A	X			359	
F-4M (LM, 51)	Reconnaissance Pod	X		X							X		X	X	X		S	S	S	S	S	X			360	
F-4 (LM, 51)	LAU-3/A, MK-83, LAU-10/A, M117 GP	X	X	X								SMER, STER	X	X	X		S, PRS	S, PRS	S, PRS	S, PRS	S, PRS	X			361	Also includes measured outer wing panel bending moments
F-4K/M (LM, 51)	370-and 600-gal. fuel tank 540-and 1000-lb. bombs, 28 lb. Practice Bomb, 36 Tube Launcher, Lepus Flare	X	X	X						X	X		X	X	X	A	A	A	A	A	A	X			362	
F-4 (LM, 51)	M117, TMU-66A AB-45Y-2, MK-20 Rockeye II, BLU-34/B MK-82, MLU, TFDM, SUU-13/A	X	X	X					X	X	X		X	X			S, PRS	S, PRS	S, PRS	S, PRS	S, PRS	X			363	
F-4 (LM, 51)	Red Flame II	X		X							X		X	X	X		S	S	S	S	S	X			364	

TABLE A-5. F-4 AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
F-4C (LW, 51)	AERO 7D, AERO 10D, Bullpup A and B, MLU, MK-82 GP, MK-83 GP, M117, TX-61, MK-28, MK-43, MK-57, Gun Pod		X	X					X	X	X	Grumman Single Rack	X	X	X		S, PRS	S, PRS	S, PRS	S, PRS	S, PRS	X			365	Also includes measured outer wing panel bending moments
F-4D (LW, 51)	AERO 7D, MLU-10B, 370-Gal. Tank, SUU-13/A, MLU-32B/99, MK 12, MK-84, Sparrow								X	X	X		X	X		A	A	A	A	A	A	X			366	
F-4 C/D (LW, 51)	Bullpup A, M117, SUU-13/A, BLU-27/B, BLU-32/B, M117R		X	X					X	X	X		X	X			S, PRS	S, PRS	S, PRS	S, PRS	S, PRS	X			367	
F-4D (LW, 51)	370-Gal. Tank, SUU-13/A, CBU-39/40, TMU-28/B, SUU-42		X	X					X	X	X		X	X		A	A	A	A	A	A	X			368	
F-4B (LW, 51)	Bullpup A, M117, MK-82, MK-83, Aero 7D, Aero 10D	X	X	X					X	X	X	Grumman Single & Multiple Unit Racks	X	X			S, PRS	S, PRS	S, PRS	S, PRS	S, PFS	X			369	
F-4 (LW, 51)	MK-82, M117, 370-Gal. Tank, APATL Parametric Shapes	X	X	X					X	X	X		X	X		A	A	A	A	A		X			371	
F-4D (LW, 51)	AGM-65A (Maverick), 370-Gal. Fuel Tank, Sparrow	X	X	X							X	AGM-65A Launcher	X	X	X	A	A	A	A	A	A	X			383	
F-4 (LW, 51)	AGM-65A (Maverick)		X	X								AGM-65A Launcher	X	X	X		PS, S	PS, S	PS, S	PS, S	PS, S	X			384	Also includes bending moment airloads on "T" launchers and interference effects of adjacent stores.
F-4C (LW, 51)	Sparrow III(6a and 6b), Sidewinder 1A and 1-C, GAM-83A,-83B, A/B 37B1, BLU-1B, CBU-1A & 2A, LAU-3/A, LAU-10/A, LAU-18A, M116A2, M117, M120E1, MC-1, MK-81,-82,-83, MLU-10/B, MK 28 MOD 1(EX and RE), MK43 MOD 0 and MOD 1, MK 57, MN-1A, SUU-16A, QRC-160A-1(T);2(T);8(T)	X	X	X		X			X	X	X	LAU-7A Launcher	X	X	X		PS	PS	PS	PS	PS	X		X	391	

TABLE A-5. F-4 AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing type - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	HER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
F-4D (LW, 51)	Conformal Carriage with MK-82, NSRDC Bluff Weapons	X	X	X			X		X	X				X		X	X	X	X	X	X	X			467	
F-4D (LW, 51)	Conformal Carriage with MK-82	X	X	X			X		X	X					X	X	X	X	X	X	X	X			468	
F-4C/D (LW, 51)	SUU-46/A	X		X							X			X	X	X	X	X	X	X	X		X		466	
F-4E (LW, 51)	M117, MK-82, 370-gal. Tank, Various Parametric Shapes		X	X						X	X			X		X	X	X							418	
F-4D (LW, 51)	370-Gal. Tank, Maverick & Various Missile Configuration		X	X							X	Rail Launch		X		X	X	X							431	
F-4C (LW, 51)	SUU-51B/B		X	X						X			X	X		S	S	S				X			439	
F-4C (LW, 51)	SUU-16/23A, BLU-52/B, M117, MK-82	X	X	X					X	X	X		X	X		S	S	S	S	S		X			442	Data obtained using CTS Test Rig.
F-4C (LW, 51)	SAGMI, HAST	X		X							X		X	X		S	S	S	S	S		X			445	
F-4C (LW, 51)	M117		X	X						X	X		X			S	S	S				X		X	450	
F-4E (LW, 51)	MK-82, 500-lb. Cylindrical Bombs	X	X	X				X	X		X		X	X	X	A	A	A				X			419	

TABLE A-5. F-4 AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
F-4C (LM,51)	BLU-52 bomb	X	X	X					X	X			X	X		S	S	S	S	S	S	X			320	Includes captive launch trajectory data.
F-4 (LM,51)	SUU-16/23A gun pod	X	X	X							X		X	X		S	S	S	S	S	S	X			321	Includes captive launch trajectory data.
F-4C (LM,51)	M117 bomb (mod)		X	X							X		X	X		S	S	S	S	S	S	X			322	Includes captive launch trajectory data.
F-4C (LM,51)	SUU-25B/A flare pod		X	X					X				X	X		S	S	S	S	S	S	X			314	Includes captive launch trajectory data.
F-4C (LM, 51)	BLU-1/B, CBU-1/A and 2/A, LAU-3A, LAU-10A, LAU-18A, M116-A2, M117, M129-E1, MC-1, MK81, -82, -83, MLU-10/B, AGM-12B, -12C, -45A, Sidewinder 1A and 1C Walleye, MK28EX, MK28RE, MK43 MOD 0, MOD 1, MK 57, TX61, MN-1A	X	X	X					X	X	X	LAU-34A Launcher	X	X	X		PS	PS	PS	PS	PS	X		X	292	
F-4B	Aircraft-Missile Interf. Effects Vehicle (Missile shape without fins)			X										X	X								X		417	Pressure data.
F-4C (LM,51)	MK-82SE, SUU-13, M-117R	X	X	X					X			VER	X	X								X			480	Separation Data
F-C (LM,51)	Sandpiper	X		X										X	X	X	X	X	X	X	X	X			481	Separation and Isolated Store Data
F/RF-4B-C	300-and 600-Gal. Tanks, Sparrow, MK-57	X	X	X	X						X		X	X	X	A	A	A	A	A	A	X			482	
F-4C (LM,51)	B-57	X	X	X							X		X	X	X		X	X				X			491	Separation and Isolated Store Data
F-4C (LM,51)	Pave Storm I and II		X	X							X		X	X								X			492	Separation Data

TABLE A-5. F-4 AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing type - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
F-4C (LW,51)	SUU-51/B	X	X	X					X	X			X	X								X			500	Separation Data
F-4C (LW,51)	SUU-51/B, M117		X	X						X			X	X								X			504	Store Pressure Distributions Are Included with Separation Data.
F-4 (LW,51)	BLU-1/B, LAU-3/A		X	X							X		X	X								X			506	Seperation Data
F-4C (LW,51)	AGM-62A		X	X							X		X	X		X						X			507	Separation Data
F-4C (LW,51)	LAU-61/A		X	X					X	X			X	X								X			512	Separation Data
F-4C (LW,51)	SUU-51/B		X	X					X	X			X	X								X			545	Separation Data
F-4C (LW,51)	MK-20		X	X					X	X			X	X			X	X				X			546	Separation Data
F-4J (LW,51)	Two Conformal Carriage Systems, MK-82	X	X	X			X		X	X			X	X		A						X			520	
F-4C, E (LW,51)	LAU-68A/A		X	X						X			X	X								X			523	
F-4C (LW,51)	M117		X	X					X				X	X								X			524	Separation Data
F-4 (LW,51)	M117, MK-81, MK-84		X	X					X	X	X			X								X			526	Separation Data
F-4E (LW,51)	Conformal Pallet, MK-82, 370-Gal. Tank	X	X	X	X		X		X	X	X			X		S	S	S				X			530	Separation Data
F-4C (LW,51)	SUU-51B/B		X	X						X			X	X								X			531	Separation Data

TABLE A-5. F-4 AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing type - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
F-4C (LW,51)	MK-84, Modular Weapon		X	X						X	X				X	S	S	S	S	S	S	X			532	Separation Data
F-4C (LW,51)	SUU-16/23A, BLU-52/B, M117, MK-82		X	X					X	X	X		X	X		S	S	S	S	S	S	X			534	
F-4C LW;51)	Modular Weapon		X	X						X			X	X								X			537	Separation Data
F-4 (LW,51)	LAU-3A, 370-Gal. Tank		X	X						X	X		X	X		A	A	A				X			540	
F-4C (LW,51)	LAU-69A		X	X					X	X			X												544	Separation Data
F-4B/J (LW,51)	Sparrow III	X				X					X		X	X								X			555	Separation Data
F-4 (LW,51)	SUU-51B/B LGPM			X					X				X	X								X			556	Separation Data
F-4 (LW,51)	Sidewinder, Sparrow	X	X	X		X					X		X	X		PS						X	X		558	Mainly F-4 Performance Some Store Drag
F-4 (LW,51)	Conformal Stores MK-82, M117	X												X	X	A		A				X			562	
F-4 (LW,51)	SUU-41	X	X	X					X	X			X	X		S	S	S	S	S		X			565	
F-4 (LW,51)	Black Crow		X	X					X				X	X								X			564	Separation Data
F-4 (LW,51)	SUU-41, M117, BLU-18 LAU3/A, 370-Gal. Tank		X	X				X	X				X	X								X			567	Separation Data

TABLE A-5. F-4 AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing type - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
F-4 (LW,51)	Sidewinder Sparrow	X	X	X		X					X		X	X		PS						X	X		572	F-4 Performance RPT Some Store Drag
F-4 (LW,51)	Conformal Stores MK-82, M117	X												X	X	A		A				X			573	
F-4 (LW,51)	Conformal Stores	X											X	X	X	A	A	A					X		576	
F-4 (LW,51)	Sparrow III	X				X							X	X		(SEE REMARKS)							X		578	Gives Maximum Structural Loads Encounter by Sparrow Wings
F-4 (LW,51)	SUU-51		X	X							X		X	X		S	S					X			579	Separation Data
F-4 (LW,51)	Sparrow III	X				X							X	X											580	Separation Data
F-4C	300-Gal. Tanks, M117GP, BLU-1C/B, AGM-62/A	X	X	X					X		X		X	X	X							X			586	
F-4	R-TER; MK-82 LDGD-TER, Single; MK-81 LDGP-Single									X	X			X		S	S	S	S	S	S	X			588	
F-4 D,E	Sparrow, MK-82 LDGP, MK-84 LDGP, MK-84 LGB, MK-84 LGB (PEP), MK-84E/O, SUU-30H/B, BLU-27A/B, 600-Gal. Tank, AIM-7	X	X	X	X		X		X	X	X		X	X	X	A						X			591	
F-4	SUU-41 (TFD)	X	X	X					X	X						S	S	S	S	S	S	X			593	Separation Data - with or without Parent Aircraft

TABLE A-5. F-4 AIRCRAFT-STORE DATA INDEX (Concluded)

AIRCRAFT (Wing-fuselage position, wing type - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
F-4C	Paveatorm 0, I & II, M118 LGB, MK-84 HOGB, SUU-30H/B, 370-Gal. Tank, SUU-51B/B, M1T2, N2T2, N3T2, Rockeye	X	X	X					X	X	X		X	X		A	A	A	A	A	A	X			594	
F-4C	300-Gal. Tank, MK-82, MK-84, MK-20, M117/131, AGM-62/A Walleye	X		X					X	X	X		X	X	X	A	A	A	A	A	A	X			595	

TABLE A-6. F-5 AIRCRAFT-STORE DATA INDEX

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	CIRCLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
F-5 (LW,27)	50-gal. tank, LAU-3/A, MK-82, BLU-1/B, tow target, M117, SUU-20/A		X	X							X		X			A	A						X		81	
F-5 (LW,27)	50-gal. tip tank, Sidewinder (1A) pylons, 150-gal. tank, Bullpup A, LAU-3/A, LAU-10/A, SUU-25/A, BLU-1/B, M117 LD, MK-81,-82,-83,-84LDGP, TDU-11/B, SUU-20/A, CBU-2A/A, B37K-1, Dart tow target		X	X				X	X		X	MER-13	X	X	X	S,A	A					X	X		142	
F-5A (LW,27)	MK-81, MK-82, M117, BLU-1/B, BLU-27/B, LAU-3/A, 50-gal. tank		X	X							X		X	X			A	A					X		163	
F-5A/B (LMW, 32)	150-and 275-Gal. Tanks, BLU-1/B, MK-81, MK-82, MK-83, MK-84, M117, SUU-20/A, LAU-3/A, AGM-12/B, LAU-10/A	X	X	X					X	X	X	X	X	X	X	A	A S	A S	S	S	S	X	X		394	

TABLE A-7. F-8 AIRCRAFT-STORE DATA INDEX

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
F-8U (HW, 47)	Sparrow	X	X	X	X			X			X		X	X		S						X		X	11,18	
F8U-3 (HW, 47)	Sparrow	X									X			X	X	A	A	A		A	A	X		X	19	
F8U-2N (HW, 47)	Zuni	X		X								LAU-33A/A	X	X	X	A	A, S	A, S	A, S	A, S	A, S	X			26	
F-8 (HW, 47)	150-Gal. Tank, Walleye, MK-83 Bomb		X	X							X		X	X		A	A	A				X			44	
F-8 (HW, 47)	MK-77, MK-79, 150-and 300-Gal. Tanks, MK-81 and -82 SELD, LAU-10/A, MER, TER		X	X					X	X	X		X	X		A	A					X			49	
F8U-3 (HW, 47)	Store (three scales)	X	X	X							X		X	X	X	A								X	50	
F-8 (HW, 47)	Walleye		X	X							X		X	X		A	A	A				X			58	Includes A-7 and F-8 comparison data.
F-8E (HW, 47)	Bullpup A, Bullpup B, MK-84, MK-82, Pylon, Zuni	X	X	X					X		X		X	X		PS, S	S	S	PS, S	PS, S	PS, S	X		X	164	
F-8H, J (HW, 47)	Fuselage: Zuni (2,4 tube), Sidewinder (single and dual) Single (Wing): MK-8C series, MK-79, MK-77, AN-M series, LAU-10/A, etc. Multiple (Wing): MK-80 series, M117, AN-M series bombs, etc.	X	X	X					X	X	X		X	X	X	S	S					X	X	X	165	
F-8 (HW, 47)	Bibliography (See remarks)	X	X	X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	166	Bibliography of F-8 aircraft-store carriage and separation reports
F8U-3 (HW, 47)	Sparrow, missile pack, fuel tank	X		X		X					X				X	A	A	A	A	A	A	X			203	
F8U-2N (HW, 47)	Bullpup A & B, LAU-10/A, MK-84, Zuni (Fus.)	X	X	X						X	X	X	X	X	X	A	A S	A S	S,P	S,P	S,P	X			395	
XF8U-1 (HW, 47)	Sparrow II, Various Faired Shapes	X	X	X	X	X		X			X		X	X	X	A	A	A	A	A	A	X		X	403	

TABLE A-8. F-14 AIRCRAFT-STORE DATA INDEX

AIRCRAFT (Wing-fuselage position, wing type - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
F-14	Sparrow, Phoenix	X	X	X	X						X	Pallet	X	X	X		S	S	S	S		X			416	
F-14	MK-82, M117, SUU-51, 3 Bluff Shapes	X	X	X	X					X			X	X			S	S				X			420	
F-14	Phoenix		X	X							X		X	X	X	A	A					X			498	
F-14A	Sparrow, Phoenix, ZAP Rocket, Pod, MK-83, 267-Gal. Tank, 300-Gal. Tank, MK-84	X	X	X							X		X	X	X	S	S	S	S	S	S	X			508	
F-14D	All Applicable Stores	X	X	X							X		X	X	X	(SEE REMARKS)									509	Describes Store Loadings
F-14A	(See Remarks)																								510	Aircraft Geometry
F-14	Fuel Tank, Phoenix, Sparrow, Sidewinder, MK-82-HD, Rockeye 2, LAU-10, Dispenser	X	X	X			X			X	X	Pallet	X	X	X	A	A	A				X			585	

TABLE A-9. F-86 AIRCRAFT-STORE DATA INDEX

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
F-86F (LM,35)	T-54 (750-lb GP bomb)		X	X							X		X	X								X			13	Summary document for Cornell F-86 (T-54) test series.
F-86F (LM,35)	T-54 (750-lb GP bomb)		X	X							X		X	X									X		14	Description of Cornell series inflight test program and instrumentation.
F-86F (LM,35)	T-54 (750-lb GP bomb)		X	X							X		X			S	S	S	S	S			X		16	Flow field data included.
F-86F (LM,35)	T-54 (750-lb GP bomb)		X	X							X		X											X	17	Theoretical approach to flow field and airloads prediction.
F-86 (LM,35)	245-gal fuel tank		X	X							X		X	X			S	S	P,S	S			X		235	Data includes load distribution on store and pylon
F-86A-1 (LM,35)	External fuel tanks		X	X							X		X	X									X		249	Buffet data with or without stores
F-86F (LM, 35)	T-54 (750-lb GP bomb)		X	X							X		X	X			S	S				X		X	464	

TABLE A-10. F-105 AIRCRAFT-STORE DATA INDEX

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
F-105 (MW, 48)	QRC-160 ECM pod, 450-Gal. Fuel Tank		X	X							X		X			A	A						X		372	
F-105 (MW, 48)	450-Gal. Fuel Tank, AN/ALE-2 Dispenser, LAM-3/A, MK-83	X	X	X							X		X	X		A, PS, S	PS, S	PS, S	PS, S	PS, S	PS, S	X		X	373	Also defines airload distributions and local flow angles.
F-105D (MW, 48)	M117 , 450-Gal. Fuel Tank		X	X							X		X	X					PS, S	PS, S	PS, S		X		374	
F-105D (MW, 48)	BLU-1B, 450-Gal. Fuel Tank		X	X							X		X	X					S	S	PS, S		X		375	
F-105D (MW, 48)	CBU-5B, CBU-7A, M117 Frag.	X	X	X					X		X		X	X		PS	PS	PS			PS		X		376	
F-105B (MW, 48)	SUU-7/A, M-129, GAM 83A (Bullpup A), MLU-10B Mine, 450-Gal. Fuel Tank		X	X							X		X	X		A							X		377	
F-105D (MW, 48)	M117	X		X					X				X	X		A	RS	RS	RS	RS	RS		X		378	
F-105D (MW, 48)	M117		X	X					X				X	X			RS	RS	RS	RS PS	RS				379	
F-105D (MW, 48)	M-43 with various nose shapes, 450-Gal. Fuel Tank	X	X	X					X		X		X	X	X	A	A					X			380	
F-105 (MW, 48)	M117 , 450-Gal Fuel Tank, MER, Pylon, M118 Bomb, 650-Gal. Fuel Tank	X	X	X					X		X		X	X	X	A	A					X			381	
F-105 (MW, 48)	CBU-5B, MK 116 (Weteye), ADO-45-2 (1500 and 3000 lb)	X	X	X					X		X		X	X			RS	RS		RS			X		382	
F-105D (MW, 49)	M117 , MC-1, MK-28	X	X	X					X		X		X	X	X	A						X			399	
F-105F (MW,49)	450-Gal. tank, M117 , Bullpup (XGAM-83)	X	X	X							X		X	X	X	A						X	X		177	
F-105 (MW,49)	CBU-34 Dispenser	X	X	X					X		X		X	X		S	S	S	S	S	S	X			323	Includes captive launch trajectory data.

TABLE A-10. F-105 AIRCRAFT-STORE DATA INDEX (Concluded)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
F-105 (MW,49)	M-43, 450-gal. tanks	X	X	X					X		X		X	X	X	A	A	A	A	A	A	X			116	
F-105D (MW,45)	All aircraft store types	X	X	X					X	X	X	X	X	X		A						X	X		175	Includes store drag index system.
F-105F (MW,49)	650-gal, tank	X		X							X		X	X		A						X	X		176	
F-105 (MW,49)	A/B45Y-4 Tank		X	X							X		X	X											482	Separation Data
F-105 (MW,49)	Tactical Fighter Dispenser		X	X							X		X												482	Separation Data

TABLE A-11. F-111 AIRCRAFT-STORE DATA INDEX

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
F-111 A/D (HW 26, 35, 50, 72.5)	Maverick		X	X							X		X	X	X		S, RS, PS	S, RS PS	S, RS, PS	S, RS PS	S, RS, PS	X			66	
F-111(HW,70)	SUU - 46/A		X	X							X		X	X	X	A	A	A	A	A	A	X			73	Simulated F-111 model.
F-111 A/B (HW, 50, 72.5)	Phoenix, MK-43, TX-61, M-61, Gun Pod, 450-Gal. Tank, MK-43, 600-Gal. Tank		X	X							X				X		PS, S	PS S	PS, S	PS S	PS, S	X			85	Data Index-Volumes II and III contain wing store airloads. Volume IV-bay store airloads.
FB-111 (HW,26,35, 50,72.5)	MK-43, 600-Gal. Tank		X	X							X		X	X	X		PS, S	PS S	PS S	PS S	PS, S	X			86	Basically a test data index. Pressures on wing, hor. stabilizer, and ventral fin included.
FB-111 (HW,26,35, 50,72.5)	SRAM, MK-43, MK-57, MK-61 600-Gal. Tank		X	X							X		X	X	X		PS S	PS S	PS S	PS S	PS, S	X			87	Basically a test data index report.
FB-111 (HW,16,26, 50,60,72)	Single: MK-43, M118, MK-84, SRAM, Dart Tow Target		X	X							X		X	X	X		PS, S	PS S	PS S	PS S	PS, S	X			88	Basically a test data index report.
	MER: MK-82, MK-82R, M117, M117R, CBU-24B/B		X	X					X				X	X	X		PS, RS	PS RS	PS RS	PS RS	PS RS	X				
F-111A (HW, 16,26, 35, 50,72.5	Single: TMU-28/B		X	X							X		X	X	X		PS, S	PS, S	PS, S	PS S	PS, S	X			89	Basically a test data index report.
	TER: M117R, LAU-3/A, BLU-1C/B		X	X						X			X	X	X		PS, RS	PS, [illegible]	PS, RS	PS RS	PS, RS	X				
	MER: M117R		X	X					X				X	X	X		PS, RS	PS, RS	PS, RS	PS RS	PS, RS	X				
F-111D (HW, 26,50, 60,72.5)	AIM-7G (Sparrow)		X	X							X		X	X	X		S	S	S	S	S	X			91	Basically a test data index report.
F-111A (HW, 26,35, 50, 72.5)	Single: M118, B-43, B-61		X	X							X		X	X	X		PS, S	PS, S	PS, S	PS S	PS, S	X			90	Basically a test data index report.
	TER: LAU-3/A		X	X						X			X	X	X		PS, RS	PS, RS	PS, RS	PS RS	PS, RS	X				
	MER: M117R		X	X					X				X	X	X		PS, RS	PS, RS	PS, RS	PS RS	PS, RS	X				

TABLE A-11. F-111 AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position; wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
F-111A (HW,16,26, 50,72.5)	**Single:** M118, B-43,B-61		X	X							X		X	X	X		PS, S	PS, S	PS, S	PS, S	PS, S	X			94	Basically a test data index report.
	TER: BLU-1C/B, LAU-3/A		X	X							X		X	X	X		PS, RS	PS, RS	PS, RS	PS, RS	PS, RS	X				
F-111 (HW,72.5)	Phoenix (modif.)	X	X	X							X				X	A	A	A				X			114	Includes speedbrake effects.
F-111 (HW,65,72.5)	600-Gal. Tank		X	X							X				X	A	A	A				X			115	
F-111 (HW,26,72.5)	Phoenix (modif.)		X	X							X		X	X	X	A	A	A				X			117	
F-111 (HW,26,72.5)	450-Gal. Tank		X	X							X		X	X		A	A	A				X			120	
F-111 (HW,72.5)	Phoenix, Pylon		X	X							X				X	A	A	A	A	A	A	X			121	
F-111B FB-111 (HW,26,65, 72.5)	Phoenix, MK-43, 600-Gal. Tank		X	X							X		X	X		A	A	A				X			122	
F-111 (HW,72.5)	MK-43, TX-61, SRAM		X	X							X				X	A	A	A	A	A	A	X			124	
F-111 (HW,50,72.5)	Maverick(AGM-65A), Pylon		X	X								Triple Launcher			X	A	A	A	A	A	A	X			125	
F-111C (HW,16,26)	MK-82LD/SE, MK-43, 600-Gal. Tank, MK-84, M117, CBU-24 B/B		X	X					X	X	X		X			A	A					X	X		133	
F-111 (HW,16-72.5)	MK-81, MK-82, MK-43, 600-Gal. Tank, M117, Sparrow, etc.	X	X	X	X	X			X	X	X	MER-100	X	X	X	A, S	A	A		A	A	X	X	X	134	
F-111A (HW, 26-72.5)	All compatible F-111 stores		X	X					X	X	X		X	X	X	P, R, S						X	X		135	

TABLE A-11. F-111 AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
F-111A (HW,16,26, 35, 50, 72.5)	450-and 600-gal. tanks, TX-61, MK-43		X	X							X		X	X	X		A	A	A	A		X			325	
F-111A, FB-111 (HW, 26-72.5)	BDU-12/B, BDU-38/B, AGM-65A (Maverick)		X	X							X	AGM-65 Launcher	X	X			S	S	S	S	S	X			340	Captive trajectory test but includes store airloads
F-111B (HW, 26, 35, 50)	Phoenix		X	X							X		X				S	S	S	S	S	X			343	
F-111 (HW, 26, 35, 50, 72.5)	Phoenix, MK-43		X	X							X		X	X	X		S	S	S	S	S	X			348	Excellent summary of effects of MN, OC, sweep, and store position on airloads
FB-111 (HW, 16-72.5)	MK-82 GP/S, MK-84, M117 GP/R, M118, B-43, B-57, B-61, CBU-24B/B, CBU-42/A, SRAM, 600-gal. tank, BRU-3A/A, Pylons		X	X					X	X	X	BRU-3A/A	X	X	X	A	A					X	X	X	351	
F-111D (HW, 16-72.5)	Most compatible stores		X	X					X		X	BRU-3A/A	X	X	X	A	A					X	X	X	352	
F-111D (HW, 26, 50, 72.5)	Maverick (AGM-65A)		X	X								AGM-65A Launcher	X	X	X		S	S	S	S	S	X			386	Identifies store or store interference effects. Five volume set.
F-111 (HW, 50)	Maverick (AGM-65A)		X	X								AGM-65A Launcher	X	X	X	PRS	PRS	PRS	PRS	PRS	PRS	X			387	Preliminary aerodynamic data survey. Store shapes used in wind tunnel tests are closely similar to Maverick missiles.
F-111D(HW, 26,35,50,72.5)	Maverick (AGM-65A)		X	X								AGM-65A Launcher	X	X	X		PRS RS	PRS RS	PRS RS	PRS RS	PRS RS	X			385	Data are included in Vol. 2-13

TABLE A-11. F-111 AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
F-111 (HW,26,50, 72.5)	MK-82, MK-61, MK-43, MK-57, SRAM, MK-84, QRC pods, M117R, MK-83, 600-gal tank, CBU-34, BLU-31/B, M118, M117	X	X	X					X	X	X	MER-100	X	X		S						X			136	
FB-111 (HW,50)	(See Remarks)																								161	Secret report
F-111D (HW,26,50, 72.5)	Maverick		X	X								Rail	X	X	X		RS, S	RS, S	RS, S	RS, S	RS, S	X			194	Basically a test data index report.
F-111 (HW,50,72.5)	Maverick		X	X								Rail			X		PS RS	PS RS	PS RS	PS RS	PS RS	X			195	Basically a test data index report.
F-111 (HW,26,35, 50,72.5)	Single: MK-43, TX-61, M-61, gun pod, Phoenix, 450-gal tank TER: CBU-1/A MER: M117	X	X	X					X	X	X		X	X	X		PS S	PS S	PS S	PS S	PS S	X			196	Basically a test data index report. Also includes bay store airloads.
F-111A (HW,50,72.5)	M117R, M118, B-43, 600-gal tanks		X	X					X				X				PS RS S	PS RS S	PS RS S	PS RS S	PS RS S	X			312	Basically a test data index report.
FB-111 (HW, 72.5, 50)	MK-43, MK-57, M-61, SRAM		X	X							X	Dual			X	X	X	X	X	X	X	X			462	
F-111B (HW, 26, 35, 45, 50, 72.5)	BLU-1C/B, FLU-43, BDU-8, 600-Gal. Tank		X	X						X	X		X	X	X		X	X		X	X		X		435	
F-111A (HW, 26, 35, 50, 72.5)	600-Gal. Tank, BLU-1C/B, TMU-28/B, M117R		X	X					X	X	X		X	X			R, S	RS	R,S			X			447	
FB-111A	600-Gal. Tank, B-43, B-61, AGM-69A, M117, CBU-52		X	X					X		X		X	X	X	A							X		488	

TABLE A-11. F-111 AIRCRAFT-STORE DATA INDEX (Concluded)

AIRCRAFT (Wing-fuselage position, wing type - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
FB-111 (HW,26, 35, 45)	600-Gal. Tank		X	X							X		X	X								X			521	Separation Data
F-111D HW	600-Gal. Tank, MK-84, BDU-38/B, M117R, AIM-9B		X	X							X	BRU-3A/A	X	X		(SEE REMARKS)							X		536	CAT II Flight Test Report
FB-111 HW	Phoenix, 600-Gal. Tank		X	X							X		X	X		A	A	A	A	A	A	X			577	
F-111 HW	Various		X	X							X		X	X		A	A	A	A	A	A	X			584	

TABLE A-12. MISCELLANEOUS AIR FORCE AIRCRAFT-STORE DATA INDEX

AIRCRAFT (Wing-fuselage position, wing sweep-deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
A-37B (LMW, 2)	M117 GP, SUU-30 A/B, LAU-3/A, SUU-25 B/A, AN-M47A4, SUU-20/A		X	X							X		X			A							X		146	Store drag index.
A-37B (LMW, 2)	AN-M47A4, LAU-3/A, SUU-30 A/B, M117 GP, SUU-20/A, LAU-32/A		X	X							X		X			A	A						X		147	Includes store drag index.
A-37A (LMW, 2)	BLU-23, MK-81, SUU-14, BLU-1 C/B, LAU-32/A, SUU-30, MK-82, SUU-7A, SUU-11, M117, 100-Gal. Tank		X	X							X		X			A	A						X		155	Includes store drag index.
F-100A (MW-49)	200-275-Gal. Tanks 2000-lb GP Bomb		X	X							X			X	X	S,A	S,A	S,A	S	S		X			23	
F-100D (MW-49)	Fuel Tanks (6 types)		X	X							X		X	X		A	A						X		39	
F-100 (MW-49)	DAC low drag shapes		X	X							X				X	A	A	A	A	A	A	X			220	
F-100C (MW-49)	NAA external store (255-in.)		X								X		X	X	X		S	S	S	S		X			232	
F-101B (LMW, 35)	450-Gal. Tank		X	X							X		X	X		A	A						X		144	
F-104 (MW-28)	Sidewinder, large finned missile, fuel tank	X	X	X				X			X	Area rule pod	X	X	X	A	A	A	A	A	A	X			221	
F-104 (MW-28)	Sidewinder, Falcon, and fuel tanks	X	X	X				X			X				X	A	A	A				X			226	
F-106A (LMW-60)	360-Gal. Tanks		X	X							X		X	X	X	A	A						X		145	
F-100C (MW, 49)	NAA External Store with or without Fins (33-in. dia. x 255-in. length)		X	X							X		X	X			S	S	S	S		X			373	
F/RF/TF-104G (MW, 28)	Fuel Tanks, AIM-9B		X	X				X			X		X	X		X	X					X	X		393	

TABLE A-12. MISCELLANEOUS AIR FORCE ARICRAFT-STORE DATA INDEX (Concluded)

AIRCRAFT (Wing-fuselage position, wing sweep-deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
F-100D (MW, 49)	BLU-271B, M117, 335-Gal. Tank, MK-82		X	X						X			X			A	A	A	A	A	A		X		321	
F-100 A, C (MW, 49)	200-, 275-, and 563-Gal. Tank With or Without Fins, 1000-lb Ex Bomb E-26 or E-29 Tank, MK-7, MK-12, 1000- and 2000-lb GP Bomb, MA-3 Launcher, Sidewinder (GAR-8), Napalm, Pylon	X	X	X							X		X	X	X		S, A	S, A	S, A	S, A		X			342	
F-100A, C (MW, 49)	200-, 275- and 563-Gal. Tank, E-26 and E-29 Tanks, MK-7, MK-12, Ex-Series Bombs, GP Series Bombs, MA-4, Sidewinder, Napalm Tank	X	X	X							X		X	X	X	A	A	A	A	A		X			330	Also includes additional span load distribution due to stores.
F-101	ECM Pod (Single and Dual)		X	X							X	Dual Rack	X	X	X	PS	PS	PS	PS	PS	PS	X			370	Utilizes a wing mounted, external pylon-store balance
F-104 (MW, 28)	Various Stores	X	X	X				X			X		X	X	X	A							X		332	
F/RF-104G (MW, 28)	M117A, 200-Gal. Tank	X	X	X				X			X		X	X			A				A				333	
F-104G (MW, 28)	AS-37 Missile, Tip Tank AJ-168 Missile		X	X				X			X		X	X	X	A	A	A		A	A	X			334	
F-107A (LMW, 50)	Shape 28 (17 store shapes)		X	X							X		X	X		A	A				A	X			329	
F3A (LW, 2)	MK-55, MK-52, MK-36, MK-50		X	X							X		X			A	A						X		335	
S-3A (HW, 20)	LAU-69, MK-55, Aero 1D		X	X						X	X		X			A	A	A				X			336	
F-101B	HAST	X		X								LAU-96/A	X	X	X	S	S	S	S	S	S	X			458	
F-101B	HAST	X		X								LAU-96/A	X	X	X	S	S	S	S	S	S	X			469	

TABLE A-13. MISCELLANEOUS NAVY AIRCRAFT-STORE DATA INDEX

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE/RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
F2H-5 (MW,0)	Sparrow		X	X							X		X	X	X	S,R	S,R	S,R	S,R	S,R	S,R	X	X	X	3,4	Critical design loads
F2H-2N (MW,0)	Sparrow (XAAM-N-2) 150 gal DAS tank		X	X				X			X		X			A	A	A		A	A				76	Includes above wing store installation
XF3D-1 (MW,6)	Sparrow		X	X							X		X			A	A	A			A	X			9,18	Ref. 9 includes store effects on buffet
F3D (MW,6)	Sparrow II		X	X							X		X										X	X	20	Flow field data
F3H-1 (MW,47)	Sparrow		X	X							X		X	X	X	S,R	S,R	S,R	S,R	S,R	S,R	X	X	X	3,4	Critical design loads
F4D-1 (MW,50)	Sparrow		X	X							X		X	X	X	S,R	S,R	S,R	S,R	S,R	S,R	X	X	X	3,4	Critical design loads
F4D-1 (MW,50)	Sparrow I (XAAM-N-2)		X	X							X		X			S,A	S,A	S,A	S	A	A	X			12	
F4D-1 (MW,50)	Sidewinder (mod.)		X	X							X		X				S	S	S	S	S	X			18	
F5D-1 (MW-50)	Store (three scales)	X	X	X							X		X	X	X	A								X	50	
F7U-3 (MW,38)	Sparrow		X	X							X		X	X	X	S,R	S,R	S,R	S,R	S,R	S,R	X	X	X	3,4	Critical design loads
F7U-3 (MW,38)	Sparrow, rockets, DAS bombs, tanks, others	X	X	X		X					X		X	X	X	S						X	X	X	22	
F7U (MW,38)	Various store shapes w/o fins	X	X	X	X			X			X		X	X		A	A	A	A	A	A	X			301	
F9F-2 (MW,35)	EX-10 low drag bomb AMC low drag bomb		X	X							X		X			A	S,A	S,A	S,A	S,A	A	X			7	Also wing pressure distributions
F9F-8 (MW,35)	Sidewinder (mod.)												X				S	S	S	S	S	X			18	
F10F (MW,15)	Sparrow		X	X							X		X	X	X	S,R	S,R	S,R	S,R	S,R	S,R	X	X	X	3,4	Critical design loads
RA-5C (HMW, 43)	MK-43, MK-28, MK-84, MK-57, 400 Gal Tanks		X	X							X		X	X	X	A						X			400	

TABLE A-13. MISCELLANEOUS NAVY AIRCRAFT-STORE DATA INDEX (Concluded)

AIRCRAFT (Wing-fuselage position, wing type - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION: FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	CARRIAGE RACK TYPE: MER	TER	SINGLE	OTHER	MACH RANGE: SUBSONIC	TRANSONIC	SUPERSONIC	STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA: DRAG	LIFT	PITCH	SIDE	YAW	ROLL	AIRLOADS DATA TYPE: WIND TUNNEL	INFLIGHT	THEORETICAL	DATA REFERENCE NUMBER	REMARKS
S-3A (HW,15)	Aero-1D, MK-55, LAU-69		X	X							X		X	X		A	A	A	A	A	A	X			486	
S-3A (HW,15)	All Compatible Stores												(SEE REMARKS)												487	Stores Geometric Data
S-3A (HW,15)	Aero-1D		X	X									X			A	A	A	A	A	A	X			496	

TABLE A-14. MISCELLANEOUS AIRCRAFT-STORE DATA INDEX

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
AVRO C-105	Sparrow	X									X			X			S	S				X			18	
Swept Wing Bomber	General shape		X	X							X				X	S						X			18	
Delta Wing Aircraft	General shape		X	X							X				X	S	S	S	S	S		X			18	
Straight Wing Aircraft	General shape		X	X							X		X	X		S						X			18	
B-68 (MW)	Streamlined and Bluff Bombs	X	X								X			X	X	S	S	S	S	S		X		X	21	
Generalized Aircraft (MW, 50)	Generalized store		X	X							X		X	X		A	A					X			28	
Generalized Aircraft (MW, 25,50)	Generalized store		X	X							X		X	X		A	A					X			29	
Various	MK-81 and MK-82 SELD	X	X	X	X				X		X		X	X		A	A	A				X			30	
MIDS III (MW, 50)	MK-82 SELD, MK-79, MK-77, 150-and 300-Gal. Tanks		X	X						X	X		X	X		A	A					X			35	Includes A-4 and A-7 comparison data.
Wing-Fuselage (MW, 45)	Large streamlined store (with or without Fins)		X	X							X		X	X	X				S, PS	S, PS		X			41	Includes measured C_y and C_n data comparisons with empirical technique.
Generalized wing-body (LW, 25)	MK-77, MK-79, MK-83, MK-84 150-and 300-Gal. Tanks		X	X							X		X	X		A	A					X			46	
Generalized wing-body (MW, 25)	Generalized Walleye		X	X							X		X	X		A	A					X			48	
MIDS III (MW, 50)	Generalized Walleye		X	X							X		X	X		A	A					X			54	
MIDS III (MW, 50)	MK-82 LDGP		X	X							X		X	X		A						X			60	Includes comparison A-4 data.

TABLE A-14. MISCELLANEOUS AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
Research Aircraft (HW, 50)	Conformal shapes (cubical, rectangular, cylindrical)	X									X	Pallet	X	X		A						X			65	
F-14A (HW, 22, 45, and 68)	Phoenix, Sparrow, Pallet, Clean	X	X	X							X	Pallet		X								X			75	Basically flow field data, Supplement I includes Phoenix and Sparrow captive airloads.
Wing-body Carrier (MW, 20)	(Missile)	X	X	X			X				X		X			A	A	A				X			101	
Arrow Wing-Body (70)	Nacelle		X	X							X				X	A	A	A				X			110	
Multimission Aircraft (HW, 25-108)	750-lb., 2500-lb., GAR-8 stores	X	X	X							X	Dual GAR-8	X	X		A	A	A				X			113	
X-15-2 (MW, 38)	Fuel/Oxidizer Tanks	X									X				X	A	A						X		123	
Delta Wing-Fuselage (MW, 60)	Finned bodies of revolution (L/D = 8,10,12)	X		X							X			X	X	A							X		126	
Swept Wing-Fuselage (MW, 45)	Streamlined body with or without fins (L/D = 8.5)	X	X	X							X		X	X		A, S	A, S	A, S	A, S	A, S	A	X			127	
Wing-Fuselage (F-4) (MW, 51)	Sparrow	X			X	X									X		S	S	S	S		X		X	128	Measured data are incremental interference on the store
Modified Wing-Body (MW, 25)	MK-81 and MK-82 SE	X		X	X	X			X	X	X		X			A	A	A				X			129	
Swept wing-Body (LW, 25)	MK-81 and MK-82 SE	X		X	X	X			X	X	X		X	X		A	A	A				X			130	

TABLE A-14. MISCELLANEOUS AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
Swept Wing-Body (HW, 50)	Rectangular, cubical, and cylindrical conformal store shapes	X					X						X	X		A	A					X			131	
Ryan Q-2 Drone	Camera pods, wing tip pods		X	X				X					X	X		A	A	A	A	A	A	X			138	
Swept Wing-Body (HW, 55)	Nacelles	X	X		X	X					X			X	X	A							X		156	
Swept Wing-Bomber (HW, 40)	DAC streamlined and bluff bomb shapes		X	X	X						X		X	X		A	A	A				X			158	
B-58 (HW, 60 Δ)	Pod and Free-fall Pod	X		X							X				X	A, S	A, S	A, S	A, S	A, S	A, S	X			159	
Lightning	(See Remarks)																								181	Secret report
AMSA (HW - variable)	(See Remarks)												X	X	X							X			182	Secret report
AMSA (HW - variable)	(See Remarks)												(high speed)									X			183	Secret report
Bomber(DAC) (HMW-37.5)	Selected stores and tanks	X	X	X	X	X					X		X	X		A	A	A				X			184	
Generalized Aircraft (HW, 48)	Ogive cylinder shape w/wo fins	X	X	X						X	X		X			S	S	S	S	S		X			193	Includes installed local store flow field data and installed and free-stream forces and pressures on store.
Bomber-Wing Fuselage (HMW, 49)	Generalized store shapes w/wo fins and afterbodies		X	X							X				X	A	A	A	A	A	A	X			198	
D-558-II (HW-39)	150 Gal. DAC shape tank		X	X							X		X	X			P	P	P	P	P		X		199	Includes store fin loads and wing panel loads
Wing-Fuselage (HMW-31)	Generalized store		X								X				X	A,S	A,S	A,S	S	S	S	X			200	Primarily contour plots of store airloads in presence of wing-fuselage. Store mounted on auxiliary sting.

TABLE A-14. MISCELLANEOUS AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH-RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
Generalized Aircraft (MW-56)	Generalized store	X		X							X		X	X	X	A							X		201	Rocket launched model
Wing-Fuselage (MW-48)	Generalized store shapes with or without fins and afterbodies		X	X							X				X	P,S	P,S	P,S	P,S	P,S		X		X	202	Includes Schlieren
Body-of-Revolution	(See Remarks)	X				X					X		X	X	X	A						X			205	Contains semisubmerged store cavities drag
D-558-II (MW-39)	1000-lb. DAC Bomb, 150-Gal. DAC Fuel Tank		X	X							X		X	X			A	A	A	A	A		X		206	
Delta Wing Bomber (MW-60)	Nacelles		X	X							X		X	X	X	A							X		207	Rocket launched models
Wing-Bodies (MW-50)	Generalized store		X	X							X		X	X	X	A	A	A					X		208	
D-558-II (MW-39)	150-Gal. DAC shape tank		X	X							X		X	X		A	A						X		209	
Wing-Fuselage	Generalized stores		X	X							X				X				P,S	S		X		X	210	
Wing-Fuselage Combinations	Sparrow		X								X		X	X			S	S	S	S	S	X			211	Store mounted on sting
Generalized Aircraft (MW-56)	Generalized stores	X				X					X		X	X	X	A							X		212	Rocket launched models
Wing-Fuselage (MW-48)	Generalized bomb shapes	X	X								X				X	A,S	A,S	A,S	S	S	S	X			213	Store mounted on auxiliary sting
Wing-Fuselage (MW-49)	Bullpup A (Mod.)		X								X		X	X			A,S	S	S	S	S	X			214	Store mounted on auxiliary sting
Swept-Wing Aircraft (MW-46)	Experimental missile shape		X	X							X			X	X	A,S							X		215	

TABLE A-14. MISCELLANEOUS AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
Wing-Fuselage (MW-49)	Sparrow		X	X							X		X	X			A,S	S	S	S	S	X			216	Store mounted on auxiliary sting
Wing-Fuselage (HMW-50)	Generalized store without fins	X	X								X				X	S	S	S				X			217	Store mounted on auxiliary sting
Wing-Fuselage (HMW-46)	Generalized bomb shapes with or without fins	X									X				X	A,S	A,S	A,S				X			218	Store mounted on auxiliary sting
Wing-Fuselage Configurations	Sparrow	X	X	X		X					X		X	X		A,S						X			219	
Delta Wing-Body (MW-60)	DAC shape store		X	X							X		X	X	X		A,S	A,S	S	S					223	Store is sting mounted, includes wing bending moment
[illegible] (Mod.) (MW-43)	Fuel tanks		X	X							X		X	X		A	A,S	A,S	A,S	A,S	A	X			224	Includes pressure data on wing, pylon, store, and horizontal tail
Wing-Fuselage (HMW-48)	Various stores with or without afterbody and fins		X								X				X	A,S	A,S	A,S	S	S		X			227	Includes store base drag
Wing-Fuselage (MW-4)	DAC shape store		X	X							X		X	X	X		A,S	A,S	S	S					228	Store is sting mounted, includes wing bending moment
Wing-Fuselage (HMW-49)	Generalized store		X								X				X	A,S	A,S	A,S	S	S		X			229	Store is sting mounted, includes theoretical pressures
Wing-Fuselage (HMW-58)	Generalized store		X								X				X	A,S	A,S	A,S	S	S		X			230	Store is sting mounted, includes store base drag
D-558-II (MW-38)	DAC shaped stores		X	X							X		X	X		A	A	A				X			231	
Wing-Fuselage (MW-46)	DAC shaped store		X	X							X		X	X	X		[illegible]	A,S	S	S		X			[illegible]	Store is sting mounted, includes wing bending moment

TABLE A-14. MISCELLANEOUS AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
Wing-Fuselage (MW-48)	Generalized stores without fins		X								X				X	A,S	A,S	A,S	S	S		X			234	Store is sting mounted, includes store base drag
Fuselage Only	Bomb shape with fins	X		X		X					X				X	A	A	A				X			236	Includes bomb-bay data, C.P., and A.C.
Wing-Fuselage (HMW-48)	Generalized store without fins		X								X				X		A,S	A,S	S	S		X			237	Store is sting mounted, includes wing root bending moment
Various Wing-Bodies	DAC shapes, 400-gal tank		X	X							X		X	X	X				S	S		X			238	
Various Wing-Bodies	Various store shapes		X	X							X				X		S		S			X			239	Store is sting mounted
Generalized Aircraft (MW-48)	Various fuel tank shapes		X	X							X		X	X	X	A,S	A	A	A				X		240	
Wing-Fuselage (MW-48)	Sparrow with or without fins		X								X		X			S	A,S	S	S	S	S	X			241	Missile is sting mounted
D-558-II (MW-38)	1000-lb and 2000-lb bomb, 150-gal tank		X	X							X		X	X		A	A	A				X			242	Includes aircraft base drag
F-84 (MW,43)	Wing fuel tank		X	X							X		X		A	A	A	A	A	A	A	X			243	
Wing-Fuselage (HMW,48)	Generalized store		X								X				X	A,S	A,S					X		X	244	Store is sting mounted. Includes store base drag & area rule calculation
Wing-Fuselage (MW,48)	Bullpup A (mod) with or without fins		X					X			X		X			S	A,S	S	S	S	S	X			245	Store is sting mounted
Fuselage	Sidewinder	X		X							X		X	X	X	A	A		A				X		247	Rocket launched model
Wing-Fuselage (MW,48)	Sparrow		X								X		X			S	A,S	S	S	S	S	X			248	Store is sting mounted

TABLE A-14. MISCELLANEOUS AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
Wing-Fuselage (MW,48)	Sparrow		X								X		X				S	S	S	S		X		X	251	Store is sting mounted, includes local q̄ and flow angularities
Fuselage	DAS, WADC, and large diameter bomb shapes	X		X	X	X					X		X	X	X	A	A		A				X		252	Rocket-launched models. Includes buffet data & cavity pressures
Wing-Fuselage (MW,5)	DAC store shape		X					X			X		X	X	X	A							X		253	Rocket-launched models. Includes buffet data & cavity pressures
D-558-II (MW,36)	DAC and WADC shape stores		X	X							X				X	A	A	A	A	A	A	X			254	
Fuselage	Generalized store	X		X		X					X			X	X	A							X		255	Rocket-launched models, includes pressure data
Two Wing-Bodies (MW-49,8)	Sparrow		X	X							X		X	X		A	A	A				X			256	
Wing-Fuselage (MW,49)	Bomb-type external stores		X	X							X		X	X	X	A	A	A					X		257	Rocket-launched models, includes buffet data
Two Wing-Bodies (MW-49,8)	Generalized stores with or without fins		X	X				X			X		X	X		A,S	A,S	A,S	S	S	S	X			258	
Wing-Fuselage (MW, 47)	Generalized store without fins		X		X			X			X		X	X		A	A	A				X			259	Includes spanwise and chordwise pressures
Fuselage	10,000-lb bomb without fins	X		X	X	X					X		X	X	X		A		A				X		261	Rocket-launched models, includes buffet data
Various Wing-Bodies	Nacelles and stores		X	X				X			X		X	X	X	A						X			262	
Wing-Fuselage (MW,46)	Nacelles	X	X					X			X		X	X	X	A							X		263	Rocket-launched models
Wing-Fuselage (MW,46)	Nacelles		X		X						X		X	X		A	A	A				X			264	Includes wing bending moment

TABLE A-14. MISCELLANEOUS AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
Delta Wing Fuselage (MW,60)	Nacelles		X								X		X			A	A	A	A	A	A	X			265	
Wing-Fuselage (MW,46)	Nacelles	X	X					X			X		X	X	X	A							X		266	Rocket-launched models
Various Wing-Bodies	Various stores		X	X	X			X			X		X	X	X		S	A	S	S		X			267	Includes wing pressure data
Bomber Aircraft (MW,42)	Nacelles		X		X						X		X	X		A	A	A				X			269	
F5D (MW,53)	DAC store and rocket pack		X	X							X		X	X	X	A	A	A					X		270	Rocket-launched model
Three wing-Bodies	DAC store shapes		X	X	X						X				X	A	A	A				X			272	
Wing-Fuselage (MW,47)	DAC store shape		X	X	X			X			X				X	A	A	A				X			273	
Wing Only 47	Nacelles		X		X						X		X	X		A	A	A				X			274	Includes wing bending moment data
Wing-Fuselage (MW,7)	Nacelles		X	X				X			X		X	X		A,S	A,S	A,S	S	S	S	X			276	
Delta Wing-Fuselage (MW,60)	DAC store shapes		X	X							X				X	A	A	A				X			277	
Wing-Fuselage (MW,52)	Nacelles		X	X	X			X			X		X	X		A	A	A				X			278	
Wing-Fuselage (MW,4)	DAC shape store and NACA body		X	X				X			X				X	A	A	A				X			279	

TABLE A-14. MISCELLANEOUS AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
Delta Wing Fuselage (MW,60)	Nacelles		X								X		X			A	A	A				X			280	Includes flow sketches
Wing-Fuselage (MW,52)	Nacelles		X	X							X				X	A	A	A				X			281	
Wing-Fuselage (MW,46)	Nacelles		X		X			X			X		X	X	X	A							X		282	Rocket-launched models
Delta Wing Fuselage (MW,53)	Sparrow and other missiles		X	X*							X		X	X	X	A	A	A				X	*		283	
Wing-Fuselage (MW,46)	Nacelles		X					X			X		X	X	X	A							X		284	Rocket-launched models
Wing-Fuselage (MW,52)	Nacelles		X	X	X						X				X	A	A	A				X			286	
Wing-Fuselage (MW,46)	Nacelles		X					X			X		X	X	X	A							X		287	Rocket-launched models
Wing-Fuselage (MW,46)	Nacelles		X		X						X		X	X		A	A	A				X			288	Includes nacelle pressure data
Wing-Fuselage (MW,46)	Nacelles		X					X			X		X	X	X	A							X		290	Rocket-launched models
Wing-Fuselage (MW,46)	Nacelles		X	X	X						X		X	X	X	A							X		291	Rocket-launched models
Wing-Fuselage (MW,46)	Nacelles		X		X						X		X	X	X	A							X		292	Rocket-launched models
Wing-Fuselage (MW,46)	NACA 0'A-series bodies		X	X							X		X	X		A	A	A							293	

TABLE A-14. MISCELLANEOUS AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
Two wing bodies (MW-60, 10)	External store		X		X						X				X	A	A	A		A	A	X			295	
Wing-fuselage (MW-34)	Wing tanks		X		X			X			X		X	X		A							X		300	Rocket-launched models
Wing-fuselage (MW-34)	Wing tanks		X	X							X		X	X	X	A							X		304	Pocket-launched models
Wing-fuselage (MW-8)	External store		X	X							X		X	X		A						X			305	
F4U-1 (LW-4)	Lockheed tank, universal tank		X	X							X		X			A	A	A				X			306	Includes pressures on wing, pylon and store
Wing-fuselage (LW-38)	5-in. rockets and 193-gal fuel tank		X	X							X	X	X	X		A	A	A				X			307	
X-15 (MW-37)	Wing tip pod		X					X			X				X										308	Includes limit airloads on pod to M = 4.4
Wing-fuselage (MW-49)	Generalized store		X	X						X	X		X			S	S	S	S	S		X			313	Includes flow field characteristics, store pressures and isolated store data
Hypothetical Bomber (HW,45)	T-63, E1A-C, B-4A, R12, T-62, E-11	X	X	X							X		X	X		S,P, A	S	S	S	S		X			6	
Hypothetical Bomber (HW,45)	DAS shape (various)		X	X							X			X		A	A	A				X			8	Subsonic data contained in other references.
Hypothetical Bomber (HW,45)	DAS shape (various), AN-M66, others	X	X	[illegible]		X		X			X		X	X		A	A	A				X			10	

TABLE A-14. MISCELLANEOUS AIRCRAFT-STORE DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing type - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
General	All Types			X							X		X	X	X		X	X						X	418	Dynamic model for separation in pitch plane.
Generalized Wing Body	Various		X	X				X			X		X	X	X	S						X			457	Good summary of NASA data
Wing Body (HW, 45)	Various		X	X						X	X		X			P,S	P,S	P,S				X			446	
Wing Body (HW, 45)	Various		X	X						X	X		X			P,S	P,S	P,S				X			448	
VFAX/FX Model (HW, 45, 72.5)	MK-82SE, Sparrow, Phoenix	X	X	X	X	X					X		X	X		A						X			454	
Beech Model 1089	HAST		X	X				X			X		X			A	A	A	A	A	A	X			470	
B-52 (HW, 37)	BLU-1, MK-82, M117		X	X					X			Pylon Adapter	X	X		A							X		475	
B-52 (HW, 37)	SRAM		X	X								Pylon Adapter	X	X		A	A						X		476	
B-52 (HW, 37)	SRAM		X	X								Pylon Adapter	X	X		A	A	A							477	
B-52 (HW, 37)	SRAM		X	X								Pylon Adapter	X	X		A	A	A							478	
B-52 (HW, 37)	SRAM		X	X								Pylon Adapter	X	X		A	A	A		A	A				479	
B-52 (HW,37)	SRAM		X	X							X	Pylon Adapter	X	X		S	S	S	S	S	S	X			527	Separation Data
B-1 (LW,65)	AGM-69A											Weapon Bay	X	X			S	S	S	S	S	X			543	

TABLE A-14. MISCELLANEOUS AIRCRAFT-STORE DATA INDEX (Concluded)

AIRCRAFT (Wing-fuselage position, wing type - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
BGM-34B (MW,45)	MK-82 Maverick Hobo		X	X							X		X	X		X	X	X	X	X	X	X			559	
P-3A (LW 0)	AGM-12B		X	X							X														563	No Force Data
Interceptor (MW,57.5)	General - Missiles		X	X							X				X	A	A	A	A	A	A	X			569	
Interceptor (MW 58.5, 46.5)	General - Missiles		X	X							X				X	A	A	A	A	A	A	X			570	

TABLE A-15. WING-STORES (WITHOUT FUSELAGE) DATA INDEX

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
Straight wing	DAS shape		X	X							X		X	X		S, P, W	S, P, W	S, P, W				X			1	Includes W, P, and S pressure distributions
Straight wing	DAS shape; AN-M66 GP Bomb		X	X							X		X	X		S, P, W	S, P, W	S, P, W				X			2	Includes W, P, and S pressure distributions
40° Swept wing	RAE Fuel Tank (F.R. = 6.0)		X	X							X		X				S	S	S	S		X			5	
Flat plate	MK-83LDGP, Aero 7D pod	X	X			X					X		X		X	A						X			63	
(See remarks)	Minimum drag shape		X	X							X				X	PS						X		X	103	Two wing types: unswept airfoil and a body of revolution
Straight and 40° wings	100-gal standard tank		X	X							X		X					S		S		X		X	105	Includes empirical method for estimating C_n and C_m on strut tanks. Also, isolated tank data.
47° wing	Nacelles		X		X						X		X	X		A	A	A				X			271	
47° wing	Nacelles		X		X			X			X		X	X		A	A	A				X			275	
54° wing	Wing tip tanks		X					X			X		X	X		A	A	A				X			294	
37° wing	Nacelles		X		X						X		X	X		A	A	A				X			298	Includes pressure distribution.
Straight wing	Wing tip tanks		X					X			X		X	X		A	A	A				X			302	
45° Wing	Various Rocket Launcher Designs		X	X							X		X	X		X						X			444	

TABLE A-16. GENERAL REPORTS-STORE DATA INDEX (BIBLIOGRAPHIES, PREDICTION METHODS, ETC.)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
N/A	L.D. External Store, Bluff Bombay Store	X	X	X							X			X	X							X			15	Summary report on Cornell high speed store test series.
Various	T-54, Sparrow I and II, Tank, Sidewinder, Others	X	X	X	X						X		X	X	X	S,A	S,A	S,A	S,A	S,A	S,A	X	X	X	18	Contains extensive literature bibliography through August 1956.
Various	Sparrow, Rockets, DAS Bombs, Tanks, Others	X	X	X		X					X		X	X	X	S						X	X	X	22	
VFAX	MK-81 and MK-82 SELD, High Density Bombs	X		X	X	X			X	X		MER-100 TER-100	X	X		A						X			32	Includes drag prediction technique for single, tangent fuselage mounted stores.
Various	(See Remarks)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	34	Extensive captive airloads bibliography (Naval Weapons Center)
Various	(See Remarks)		X	X							X		X	X		S								X	37	Single, wing store drag prediction method.
Various	(See Remarks)	X	X	X					X	X	X		X	X	X		A	A	A	A	A	X	X		42	Technical paper on aircraft-store stability and control effects.
Various	Bibliography (See remarks)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	43	NASA literature search on external store drag.
Various	Bibliography (See remarks)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	51	DDC bibliography on external stores (1965 to Present).
Various	Bibliography (See remarks)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	55	DDC bibliography on external store drag.
Various	Bibliography (See remarks)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	56	DDC bibliography on aerodynamic effects of external stores.
Various	Bibliography (See remarks)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	59	NASA bibliography on aerodynamic effects of external stores.
Various	Bibliography (See remarks)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	70	NASA bibliography on aerodynamic effects of external stores.
Various	Streamlined and bluff bodies (See remarks)		X								X		X			S	S	S	S	S		X		X	92	Contains guidelines for estimating single wing store airloads.
Various	(See Remarks)	X	X	X					X	X	X		X	X	X	PS, S	PS, S	PS, S	PS, S	PS, S	PS, S	X		X	100	Bibliography of various store airloads prediction techniques and related literature.

TABLE A-16. GENERAL REPORTS-STORE DATA INDEX (BIBLIOGRAPHIES, PREDICTION METHODS, ETC.) (Continued)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
Various	(See Remarks)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	106	Effects of stores on general aircraft flying qualities. Excellent bibliography.
Various	Bibliography (See remarks)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	111	NASA and NACA bibliography on carriage and release of external stores.
Various	(See Remarks)		X	X							X				X							X		X	112	Numerical method for evaluating Nacelle-wing interference.
Various	(See Remarks)	X	X									Nacelles			X									X	118	Describes current methods for predicting lift-induced drag.
Various	Bibliography (See remarks)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	119	NASA and NACA bibliography on store drag, interference, etc. Includes general conclusions.
Various	Aircraft-Store Symposium technical papers (See remarks)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	141	Extensive compilation of technical papers on store-aircraft interference, airloads, etc.
Various	Bibliography (See remarks)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	148	AFFTC bibliography of technical publications (1951-1964); Addendum (1965-1968).
Various	(See Remarks)		X	X							X			X	X	X						X	X	X	150	General discussion of parameters influencing store aircraft drag. Includes bibliography.
Various	Sparrow, MK-82 SELD	X			X	X					X		X	X	X	A						X			151	Broad discussion of store drag on high speed aircraft.
Various	(See remarks)		X	X							X		X	X	X	S	S	S	PS, A,S	S		X		X	156	Describes various airloads and flow field prediction methods. Includes bibliography (1946 to 1962).
Various	Bibliography (See remarks)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	160	DDC bibliography on "External Stores" (prior to 1965).
Various	(See remarks)		X	X							X		X				S	S	S	S	S	X		X	168	Empirical method for predicting single, wing pylon mounted stores.
Various	(See remarks)		X	X					X		X		X	X					PS	PS				X	191	Empirical method for predicting wing pylon store installation airloads (C_y and C_n)

TABLE A-16. GENERAL REPORTS-STORE DATA INDEX (BIBLIOGRAPHIES, PREDICTION METHODS, ETC.) (Continued)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
Various	Store airloads prediction method summary (see remarks)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	192	Summary of analytical, experimental and empirical techniques for prediction external store installation airloads.
—	(See remarks)										X				X				X					X	225	Prediction method for single store side force
Various	(See remarks)	X	X	X	X		X				X	Multiple	X	X	X									X	260	Results of feasibility study for advanced suspension systems.
Various	(See remarks)	X	X	X	X	X	X	X	X	X	X			X		X	X	X	X					X	406	Describes various theoretical methods for predicting aircraft-store interference (Bibliography)
Various	Incremental neutral point prediction method (Aircraft Store Compatibility Symposium Proceedings (Dec 1971)		X	X					X	X	X		X	X			X	X						X	407	Analytical method for predicting aircraft incremental neutral point effects due to addition of external stores
Various	Incremental side force and yawing moment prediction method		X	X					X	X	X		X						X	X				X	408	Theoretical method for predicting airloads on store installations
Various	Incremental side force prediction method		X	X							X		X	X	X				X			X		X	409	Empirical method for predicting airloads on store/store installation
Various	(See remarks)		X	X									X			X		X				X		X	401	Theoretical method for predicting load distributions on wing-pylon combinations.
Various	(See remarks)		X	X							X		X		X		X	X	X	X	X			X	410	Theoretical method for predicting load distributions and interference airloads due to pylon mounted stores (General Dynamics/NASA).

TABLE A-16. GENERAL REPORTS-STORE DATA INDEX (BIBLIOGRAPHIES, PREDICTION METHODS, ETC.) (Continued)

AIRCRAFT (Wing-fuselage position, wing type - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
Various	(See remarks)		X	X						X	X		X	X	X		X	X	X					X	411	Analytical method for predicting interference effects between adjacent bodies. (Uses cross-flow corrections method - Auburn University).
Various	(See remarks)		X	X						X			X	X	X	X	X	X	X					X	412	Theoretical method for defining mutual interference effects of multiple weapons (Auburn Univ.)
Various	(See remarks)	X	X	X							X		X		X									X	414	Theoretical method for predicting store-aircraft aerodynamic interference loadings (General Dynamics, Part III - Programmers Manual)
Various	(See remarks)		X	X							X		X											X	415	Primarily an early effort for predicting store trajectories using input captive conditions, two-dimensional, X-Z plane only. (G.V.R. Rao & Associates - NSRDC)
Various	(See remarks)		X	X							X		X						P,S	P,S		X		X	452	Theoretical prediction technique for side force and yawing moment on stores and pylon installation.
Various	(See remarks)		X	X							X				X	S	S	S	S	S		X		X	449	Theoretical prediction technique for store interference loadings.
Various	(See remarks)	X	X	X					X	X	X		X	X		S	S	S	S	S	S	X	X		432	Store trajectory prediction technique using captive loads.
Various	(See remarks)		X	X							X		X			S	S	S	S	S		X		X	421	Theoretical prediction technique for store interference effects.
Various	(See remarks)		X	X							X				X	S	S	S	S	S		X		X	456	Theoretical prediction technique for store interference loadings.
Various	(See remarks)	X	X	X					X	X	X	Rail Launcher	X	X	X	S	S	S	S	S					472	Empirical technique to calculate captive loads.

TABLE A-16. GENERAL REPORTS-STORE DATA INDEX (BIBLIOGRAPHIES, PREDICTION METHODS, ETC.) (Concluded)

AIRCRAFT (Wing-fuselage position, wing type - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
Various	(See Remarks)	X	X	X	X	X	X	X	X	X	X		X	X	X									X	489	Survey of Analytical Calculations of Store/Aircraft Interference Flow Fields
Various	(See Remarks)	X	X	X	X	X	X	X	X	X	X		X	X	X							X			514	A Review of Methods to Measure Captive Loads on Stores
F-4C	M117		X	X						X				X								X			518	Uses Flow Angularity Technique to Predict Store Trajectories
Various	(See Remarks)		X	X							X		X											X	550	Uses Captive Loads to Predict Store Trajectory to Determine Separation Criteria
Wing	Various		X	X							X		X	X		X	X	X				X			557	Gives Wing Pressure Distributions for Various Shapes & Locations
---	Body of Revolution with Conical Nose														X	X								X	561	
Various	(See Remarks)		X	X									X											X	581	Gives Separation Trajectory Based on Loads by Use of Laplace Transforms
Various	(See Remarks)															S	S	S	S	S	S	X			587	Prediction Techniques for External Store Airloads - Interim Report

TABLE A-17. ISOLATED STORES, RACKS, AND PYLONS DATA INDEX

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA-REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
--	DAS Shape										X		X	X		S	S	S	S	S	S	X			1	Also includes pressure distributions.
--	DAS Shape, AN-M66 GP Bomb										X		X	X		S						X			2	Also includes pressure distributions.
--	Streamlined and Bluff bombs										X			X	X	S	S	S	S	S	S	X			21	
--	Sidewinder 1C										X		X	X	X	S	S	S				X			24	
--	Bullpup Trainer Missile										X		X	X	X	S	S	S	S	S	S	X			27	
--	AGM-12E Standoff Cluster (Mod. Bullpup B)										X		X	X		S	S	S	S	S	S	X			93	
--	MK-81 and MK-82 SELD										X		X			S						X		X	32	
--	M117 Bomb										X		X	X	X	S	S	S	S	S	S	X			36	
--	Hard Structure Munition										X		X	X		S	S	S	S	S	S	X			38,52, 77	
--	MBR, MER, TER and UMBR with or without MK-81 and MK-82 LD/SE								X	X	X		X			R, RS						X			40	
--	Air-to-Surface Missile										X		X	X		S	S	S			S	X			53	
--	ASM Missile										X		X	X		S	S					X			61	
--	MK-83 LDGP, Aero 7D Pod										X		X		X	S	S	S							63	
--	Cubes (Conformal Shapes)										X		X			S	S	S	S	S	S	X			64	
--	BLU-58/B										X		X	X		S								X	67	
--	Rectangular Bodies (Conformal Shapes)										X		X	X	X	S	S	S				X			69	
--	CBU-24 Dispenser										X		X	X		S	S	S				X			72	
--	MK-82 LDGP										X		X	X	X		S	S				X			74	
--	M117 SE and LD										X		X	X	X	S	S	S				X			78	
--	M117 LDGP										X		X	X			S	S				X			79	
--	MK-82 SELD										X		X	X	X	S						X			80	
--	Sidewinder										X		X	X	X							X	X	X	82	DDC Bibliography

TABLE A-17. ISOLATED STORES, RACKS, AND PYLONS DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION: FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	CARRIAGE RACK TYPE: MER	TER	SINGLE	OTHER	MACH RANGE: SUBSONIC	TRANSONIC	SUPERSONIC	STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA: DRAG	LIFT	PITCH	SIDE	YAW	ROLL	AIRLOADS DATA TYPE: WIND TUNNEL	INFLIGHT	THEORETICAL	DATA REFERENCE NUMBER	REMARKS
--	MER-9, MER-100 and MER-100A with or without MK-82 LD, MK-82 SE, M117, SUU-13A, etc.			X					X			MAU-12/A LODE 30A	X	X	X	P, PR, PS						X			83,84	Full scale wind tunnel data.
--	BLU-58										X		X	X		S							X		96	
--	Pylon + Sparrow			X							X		X	X	X	PS S						X			102	
--	Strut Shapes			X							X		X			P						X		X	107	Flow and drag of various strut shapes.
--	Various bodies of revolution (finned)										X		X	X	X	S						X			108	Collection of C_{D_o} data on various bodies.
--	Cylinders										X		X	X	X	S						X			109	Skin-friction drag data.
--	Finned bodies of revolution (FR = 8, 10 and 12)										X		X	X		S							X		126	
--	Rectangular solid bodies (FR = 1, 2 and 3)										X		X		X	S	S	S				X			132	
--	150-Gal DAS Tank										X		X	X	X	S	S	S				X			143	
--	SRAM (AGM-69A)										X		X	X	X	S	S	S	S	S	S	X			161	
--	M117 bomb with MAU-103A/B and M131A1 (Mod.) fins										X		X	X	X	S	S	S	S	S	S	X			162	
--	Sparrow, wingless missiles										X				X	S	S	S	S	S	S	X		X	204	
--	Assorted bomb shapes										X		X	X		S							X		222	
--	DAC stores, WADC store, NACA 65A series, circular arc series stores										X		X	X	X	S							X		246	
--	Three bomb shapes with or without fins										X				X	S	S	S				X			268	
--	Generalized store shapes										X		X	X	X								X		285	Data is pressure distribution.
--	Round-nosed stores										X		X	X	X	S							X		290	

TABLE A-17. ISOLATED STORES, RACKS, AND PYLONS DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position, wing sweep - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
--	Two bodies with fins										X		X	X	X	S							X		296	
--	Parabolic body with fins										X			X	X	S							X		297	
--	Parabolic body with fins										X				X	S	S	S				X			299	Includes base pressure data.
--	Parabolic body with fins										X		X	X		S							X		303	
--	M117 bomb with 7 fin combinations										X		X	X	X	S	S	S				X			309	
--	Tactical fighter dispenser with 8 fin combinations										X		X	X	X	S	S	S	S	S	S	X			310	
--	BLU-52 bomb with 4 fin combinations										X		X	X			S	S				X			311	
--	MK-76 Practice Bomb										X		X	X	X	X	X	X				X			323	
--	MK-83 Low Drag Bomb										X		X	X		X	X	X	X	X	X	X			324	
--	MK-82 Standard and Extex Snakeye I										X		X	X		X	X	X	X	X	X	X			326	
--	MK 82 SELD										X		X	X		X	X	X			X	X			327	
--	MK 32 LDGP with Modified Stabilizers										X		X	X			X	X				X			328	
--	M823 Store										X		X	X					X	X	X	X			338	
--	Navy Low Drag Bomb										X		X	X	X	X	X	X	X	X	X	X			339	α range = 0° to 70°
--	BDU-12/B, BDU-38B, AGM-65A										X		X	X			X	X	X	X	X	X			340	
--	Walleye, Large Scale Walleye, AGM-76/A										X		X	X			X	X				X			343	
--	Sidewinder 1C										X		X	X	X	X	X	X	X	X	X	X			347	
--	B-58 External Store										X		X	X	X	X	X	X	X	X					353	Also details pod and strut geometry.
--	M117 Bomb									X	X		X	X		X	X	X	X	X		X			413	Freestream and TER mounted Bomb.

TABLE A-17. ISOLATED STORES, RACKS, AND PYLONS DATA INDEX (Continued)

AIRCRAFT (Wing-fuselage position; wing type - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
--	Adv. Sparrow										X				X	X	X	X	X	X	X	X			416	$\alpha = -4 \rightarrow 40°$, $\phi = 0 \rightarrow 45°$ $M = 1.5 \rightarrow 4.6$
--	LD Aircraft Store										X		X	X		X	X	X				X			463	Various forebody shapes
--	M117 with Folding Fins										X		X			X	X	X				X			460	
--	SUU-51/B										X		X	X		X	X	X				X			439	
--	Various Rocket Launcher Designs										X		X	X		X	X	X				X			444	
--	BLU-58/B										X		X	X	X	X							X		425	
--	MK-84 with 14-inch Suspension Adapter										X		X	X	X	X							X		426	
--	MK-82SE										X		X	X	X	X							X		427	
--	CBU-60/A										X		X			X	X	X	X	X	X	X			437	
--	SUU-45A										X		X	X	X	X	X	X	X	X	X	X			438	
--	HAST										X		X	X	X	X	X	X	X	X	X	X			471	
--	HAST										X		X	X	X	X	X	X				X			473	
--	TFD-10 Bay Dispenser													X		X		X	X	X	X	X			592	
--	Four Bomblet Types										X		X	X		X	X	X	X	X	X	X			494	
--	Various Bluff Bodies										X		X	X	X	X	X	X							499	
--	Anti-Tank Missile										X		X	X		X	X	X			X	X			501	
--	Anti-Tank Missile										X				X	X	X	X			X	X			503	
--	ASP Munition										X		X	X		X	X	X				X			511	

TABLE A-17. ISOLATED STORES, RACKS, AND PYLONS DATA INDEX (Concluded)

AIRCRAFT (Wing-fuselage position, wing type - deg.)	STORE IDENTIFICATION	STORE MOUNTING LOCATION							CARRIAGE RACK TYPE				MACH RANGE			STORE, RACK, PYLON and/or AIRCRAFT AIRLOADS DATA						AIRLOADS DATA TYPE			DATA REFERENCE NUMBER	REMARKS
		FUSELAGE	WING	PYLON	TANGENT	SEMI-SUBMERGED	CONFORMAL	WING-TIP	MER	TER	SINGLE	OTHER	SUBSONIC	TRANSONIC	SUPERSONIC	DRAG	LIFT	PITCH	SIDE	YAW	ROLL	WIND TUNNEL	INFLIGHT	THEORETICAL		
--	Various Fins on an Ogive Cyclinder										X		X	X		X	X	X	X	X	X	X			515	
--	Pave Rock Rocket										X		X	X	X	X	X	X				X			516	
--	Various										X		X	X	X	X								X	519	Empirical Technique for Predicting Aerodynamic Coefficients
--	Ram Air Decelerator										X		X	X		X	X	X				X			522	
--	Various Bluff Bodies										X		X	X	X	X	X	X				X			525	
--	BQM-34F Aerial Target										X		X	X	X	X	X	X	X	X	X	X			533	
--	SUU-7A/A										X		X	X		X	X	X				X			535	
--	Various Fins on an Ogive Cylinder										X			X		X	X	X				X			548	
--	Surface Attack Guided Missile (SAGMI)										X			X		X	X	X	X	X	X	X			549	
--	Pave Storm I and II										X		X	X		X	X	X	X	X	X	X			551	
--	MK-20 Laser Guided Dispenser Munition										X		X	X		X	X	X	X	X	X	X			552	
--	SUU-51 Laser Guided Dispenser Munition										X		X	X		X	X	X	X	X	X	X			553	
--	Stubby Hobo Munition										X		X	X		X	X	X	X	X	X	X			554	Also Includes Some Data for Computer and Flight Test Separation Analysis
--	Pave Storm I										X		X	X		X	X	X	X	X	X	X			575	
--	M117									X			X	X		X	X	X	X	X	X	X			583	Interference of M117 and TER
--	Rockeye II												X			X	X	X	X	X	X	X			590	Static Stability Tests

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