

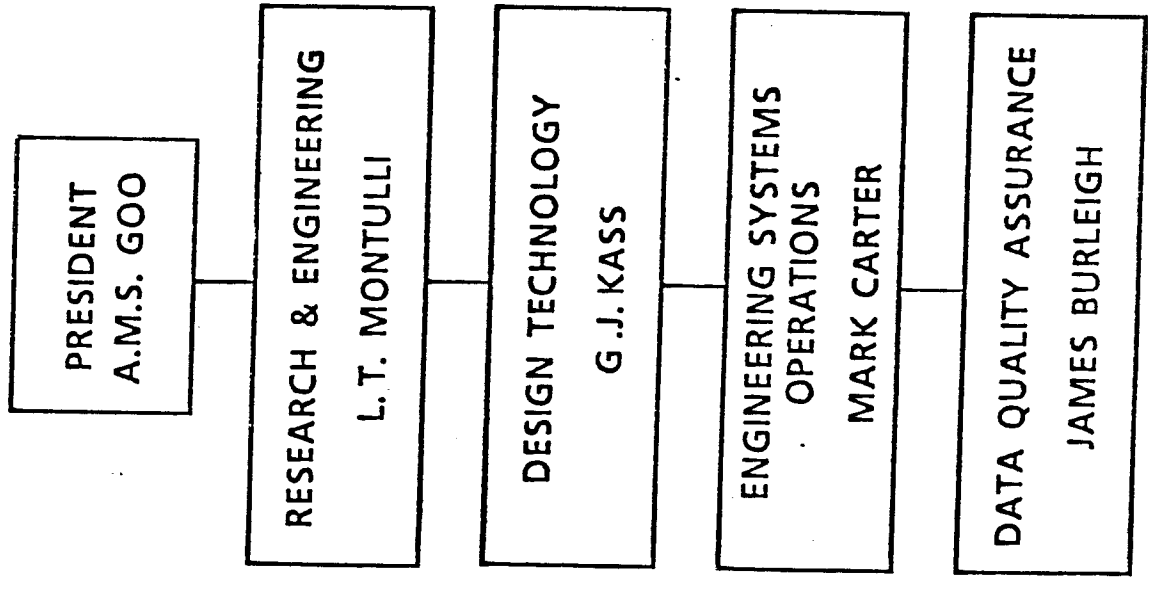
**ENGINEERING
DRAWING PREPARATION**

**Ron Green
526-2986**

ENGINEERING DRAWING PREPARATION

1. CORPORATE POLICY
2. CORPORATE POLICY IMPLEMENTATION
3. BMAC STANDARDS MANAGEMENT
4. USE OF DRAFTING/DATA STANDARDS
5. DOCUMENTATION OF DRAFTING/DATA STANDARDS
6. SIGNATURE RESPONSIBILITY
7. SIGNATURE RESPONSIBILITY
8. SIGNATURE RESPONSIBILITY
9. VOLUMETRIC DATA BASE
10. MODIFICATION INDEX

ORGANIZATION STRUCTURE



DATA QUALITY ASSURANCE
JAMES BURLEIGH

- DRAFTING STANDARDS
- DRAWING QUALITY
- DRAWING MAINTENANCE
- ~~CASTING/FORGING COORDINATOR~~
- VOLUMETRIC DATA BASE
- BMAC PROPRIETARY FOCAL POINT
- BMAC REPRESENTATIVE ON THE CORPORATE DRAFTING STANDARDS
SUBCOMMITTEE

ALL MATERIAL MUST FALL WITHIN GRID AND CROP LINES

ENGINEERING DRAWING PREPARATION

CORPORATE POLICY

DATE: February 5, 1973
NUMBER: 4DI

SUBJECT: ENGINEERING STANDARDIZATION

It is the policy of the Corporation to maintain the most practicable and economical degree of standardization in engineering determinations for, but not limited to, parts, materials and processes, design and drafting, and for engineering methods and practices. The objectives of the engineering standardization programs are:

- To aid in the economic and effective development, production and maintenance of our products;
- To minimize duplicate or special engineering; and
- To facilitate transfer of work and personnel within the Company.

The achievement of our engineering standardization objectives is a cooperative effort requiring extensive coordination within and among our major operating organizations. Differences in products, customers, and existing manufacturing facilities may limit the degree to which Corporate engineering standardization may be advantageously applied.

The Corporation will cooperate with industry and customers in standardization efforts which are mutually advantageous.

T. A. Wilson
T. A. Wilson

ENGINEERING DATA PREPARATION

POLICY IMPLEMENTATION INSTRUCTION

DATE: April 25, 1985

NUMBER: 401-1

SUBJECT: INSTRUCTION RELATING TO POLICY NO. 401,
"ENGINEERING STANDARDIZATION"

I. BASIC PLAN

A Corporate Engineering Standardization system is maintained to define and document part, material, specification support, process, drafting, design and software standards in general use throughout the Corporation and to establish a degree of uniformity in practices for the preparation of drawings, documents and other related data. As a general rule the creation and maintenance of a standard will be the responsibility of the originating company. Each Company shall utilize the standards to the most practicable degree in preference to generating Company, Division, or program documentation.

II. STANDARD MEDIA

Engineering standards are released to the following manuals.

- | | |
|------------------------------------|-----------|
| A. Process Standards | D-18888-1 |
| B. Material Standards | D-18888-3 |
| C. Part Standards | D-590 |
| D. Drafting Standards | D-4900 |
| E. Design Standards | D-5000 |
| F. Specification Support Standards | D-18888-4 |
| G. Engineering Software Standards | D-6000 |

ENGINEERING STANDARDIZATION MANAGEMENT - BMAC

FOCAL POINT FOR GENERAL
 ADMINISTRATION OF STANDARDIZATION
 FOR BOEING MILITARY AIRPLANE COMPANY
 N. BEAN * 526-7271
 M/S K76-67

TECHNICAL COORDINATION RESPONSIBILITY

MATERIALS AND PROCESS
 STANDARDS
 M.F. HARP 526-3413

PARTS AND DESIGN
 STANDARDS
 N. BEAN 526-7271

DRAFTING STANDARDS
 J.V. BURLEIGH ** 526-2254

SOFTWARE STANDARDS
 D. TINKHAM 526-4661

STANDARDS CONTROL BOARD
 N. BEAN - ENGINEERING
 - OPERATIONS

OPERATIONS COORDINATION
 FACTORY OPERATIONS
 PRODUCTION ENGINEERING
 MATERIEL
 QUALITY CONTROL

*MEMBER OF CORPORATE ENGINEERING STANDARDS COMMITTEE (CESC)
 **MEMBER OF CORPORATE DRAFTING STANDARDS SUB-COMMITTEE (CDSS)

ENGINEERING DRAWING PREPARATION

USAGE OF DRAFTING STANDARDS

BOEING MAINTAINS DRAFTING STANDARDS -

TO MEET CONTRACT REQUIREMENTS

TO MEET CORPORATE STANDARDIZATION

TO PROVIDE DATA AS ESTABLISHED BY COORDINATION
WITH BMAC ORGANIZATIONS

TO PROVIDE CONFIGURATION IDENTIFICATION

TO PROVIDE PROCUREMENT, FABRICATION, ASSEMBLY,

INSTALLATION, MAINTENANCE AND OVERHAUL INFORMATION

ENGINEERING DATA PREPARATION

ENGINEERING DRAFTING/DATA STANDARDS

BOEING DRAFTING/DATA STANDARDS D-4900

MILITARY PROGRAMS - BOEING MILITARY AIRPLANE COMPANY (BMAC)
DSM 91N SERIES (BOOKS 1, 2, 3 & 4)

COMMERCIAL PROGRAMS - SUPPORT TO BOEING COMMERCIAL AIRPLANE COMPANY (BCAC)
MODELS 707, 727, 737 & 757

DSM 94B SERIES (BOOKS 1, 2 & 3)
MODELS 747 & 767

DSM 94T SERIES (BOOKS 1, 2, 3 & 4)

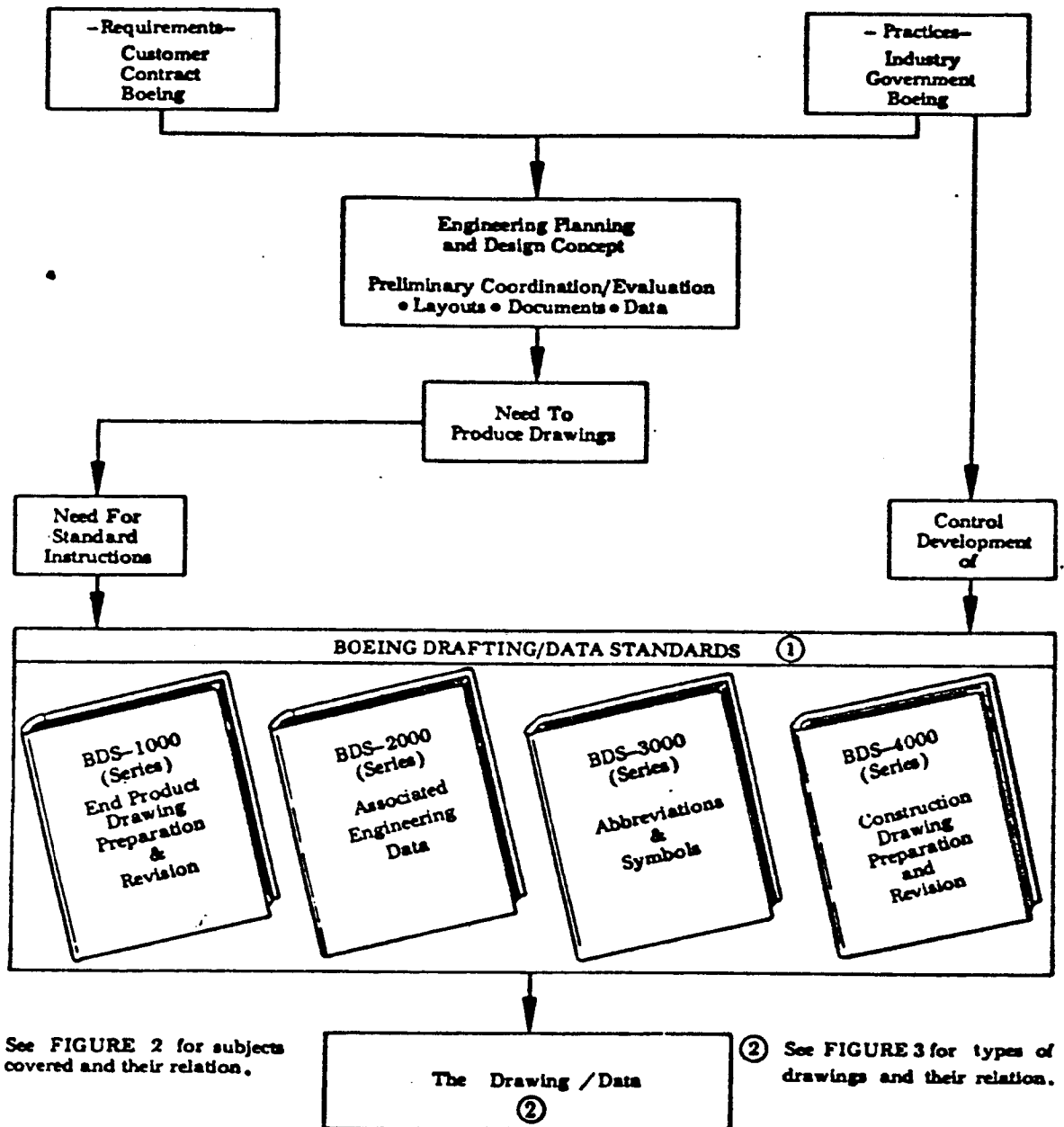
COMMERCIAL/MILITARY PROGRAMS - BOEING VERTOL COMPANY (BVC)
DSM 93L SERIES (BOOKS 1 & 2)

SEE BDS-1000 FOR DETAIL INFORMATION ABOUT SUBJECTS COVERED IN THE DRAFTING
STANDARDS

1 INTRODUCTION

1.1 General - This standard serves as an introduction to the Boeing Drafting Standards Manual (DSM) and outlines the basic fundamentals of the Boeing Engineering Drawing System and associated engineering data. Detailed requirements are

documented in individual Boeing Drafting Standards and Boeing Data Standards. The documentation arrangement provides for division of the system elements into four significant number series according to subject and function as shown in FIGURE 1 and as follows:



① See FIGURE 2 for subjects covered and their relation.

② See FIGURE 3 for types of drawings and their relation.

FIGURE 1

1.1 General (Continued)

- a. **BDS-1000 Series** - Covers the requirements for preparation and revision of end product drawings.
- b. **BDS-2000 Series** - Covers (1) the necessary information and instructions needed by Engineering for the preparation and maintenance of engineering data other than drawings; e.g., documents, test reports, specifications, etc., and (2) methods, procedures and disciplines such as those that apply to release, advance procurement, engineering liaison, special test equipment, etc., and the necessary instructions for the preparation and maintenance of documentation; i.e., forms, etc., related to these subjects.
- c. **BDS-3000 Series** - Covers the requirements for standard abbreviations, symbols, codes, lists, etc., used on engineering drawings and associated data.
- d. **BDS-4000 Series** - Covers the requirements for preparation and revision of construction drawings.

1.2 BDS Subject and Series Relationship - Typical subjects covered in each BDS series are displayed in **FIGURE 2**. See the DSM Table of Contents for the complete listing.

	BDS-1000 SERIES	BDS-2000 SERIES	BDS-3000 SERIES	BDS-4000 SERIES
R ↓ ↑ R	Boeing Drawing System Basic Drafting Practices Numbering System Item Names and Drawing Titles Parts Listing Application Block Dimensioning and Tolerancing Undimensioned Drawings Book Form Drawings Kit Drawings Procurement Drawings Drawing Revisions Advance Drawing Change Notice	Drawing Release Engineering Release Completion Record Engineering Parts Release Engineering Advance Material Release Preparation of Technical, Test, and Scientific Reports Liaison Procedures Production Memos Proprietary Rights Engineering Data Quality Assurance Signature Authority Preparation of Documents	Program Designators Abbreviations ADCN Prefix Codes Control Cable Codes Symbols: Electrical, Electronic, Graphic, Hydraulic, Mathematical, Mechanical, Pneumatic, Quantity, Structural and Unit Standard Notes Material Specs-CASA	Construction Drawings Civil Drawings Architectural Drawings Structural Drawings Mechanical Drawings Electrical Drawings

FIGURE 2

1.3 Source of Requirements - The basic rules and guidelines listed in the Drafting Standards Manual are applicable to all drawings required for deliverable items; i.e., airframes, electronics, support equipment, training devices, etc. The Drafting Standards Manual complies with the customer's requirements on drawings and data. Requirements not controlled by the customer are standard practices preferred by Boeing.

1.4 Application/Compliance - Deviation from the basic rules is permitted only to satisfy individual contract requirements. These deviations are documented on Drafting Standards Departure (DSD) forms that have been approved by the affected division or program and released to the applicable drafting or data standard. All DSDs are listed in the DSM Table of Contents following the affected BDS.

Consult the program or company drafting standards' focal point for interpretations or assistance.

BDS-2021 SIGNATURE AUTHORITY ON DRAWINGS

DRAWN SIGNATURE INDICATES:

- DRAWING IS COMPLETE AND FULFILLS THE INTENDED USE FOR THE TYPE OF DRAWING
- THE DRAWING IS CLEAR AND CANNOT BE MISINTERPRETED
- THE FORM, FIT, AND TABULATION ARE CORRECT FOR USING APPLICATIONS
- THE DRAWING COMPLIES WITH RELEASED PROGRAM COMMAND MEDIA
- THE DRAWING CONTAINS SUFFICIENT VIEWS, DIMENSIONS, AND INFORMATION TO DEFINE THE ITEMS

BDS-2021 - SIGNATURE AUTHORITY ON DRAWINGS

CHECKED SIGNATURE VERIFIES:

- DRAWING HAS BEEN CHECKED TO ASSURE THAT THE DRAFTER'S FUNCTION WAS SATISFACTORILY ACCOMPLISHED

ENGINEER SIGNATURE INDICATES:

- DRAWING FULFILLS DESIGN CONCEPTS IN REGARD TO WEIGHT, STRESS, RELIABILITY, SAFETY, MAINTAINABILITY, HUMAN FACTORS, FINISH, AND ENVIRONMENT.
- REQUIRED TESTS HAVE BEEN SPECIFIED.
- ITEM WILL FUNCTION CORRECTLY IN USING APPLICATION

BASIC 110.59

VOLUMETRIC DATA BASE (OP ~~7100~~-52)

PROVIDES A METHOD OF VOLUME RESERVATION AND CANCELLATION FOR INSTALLATION LOCATIONS IN THE B-52 DATA BASE FOR ALL FUTURE DESIGN CHANGES TO THE B-52G AND H MODELS.

- RETRIEVE INFORMATION ON CURRENT INSTALLATION OCCUPANCY

DATA CAN BE RETRIEVED BY:

- INSTALLATION DRAWING NUMBER

- AUTHORITY FOR THE DRAWING

- NEXT ASSEMBLY DRAWING NUMBER

- CODED VOLUMES OCCUPIED

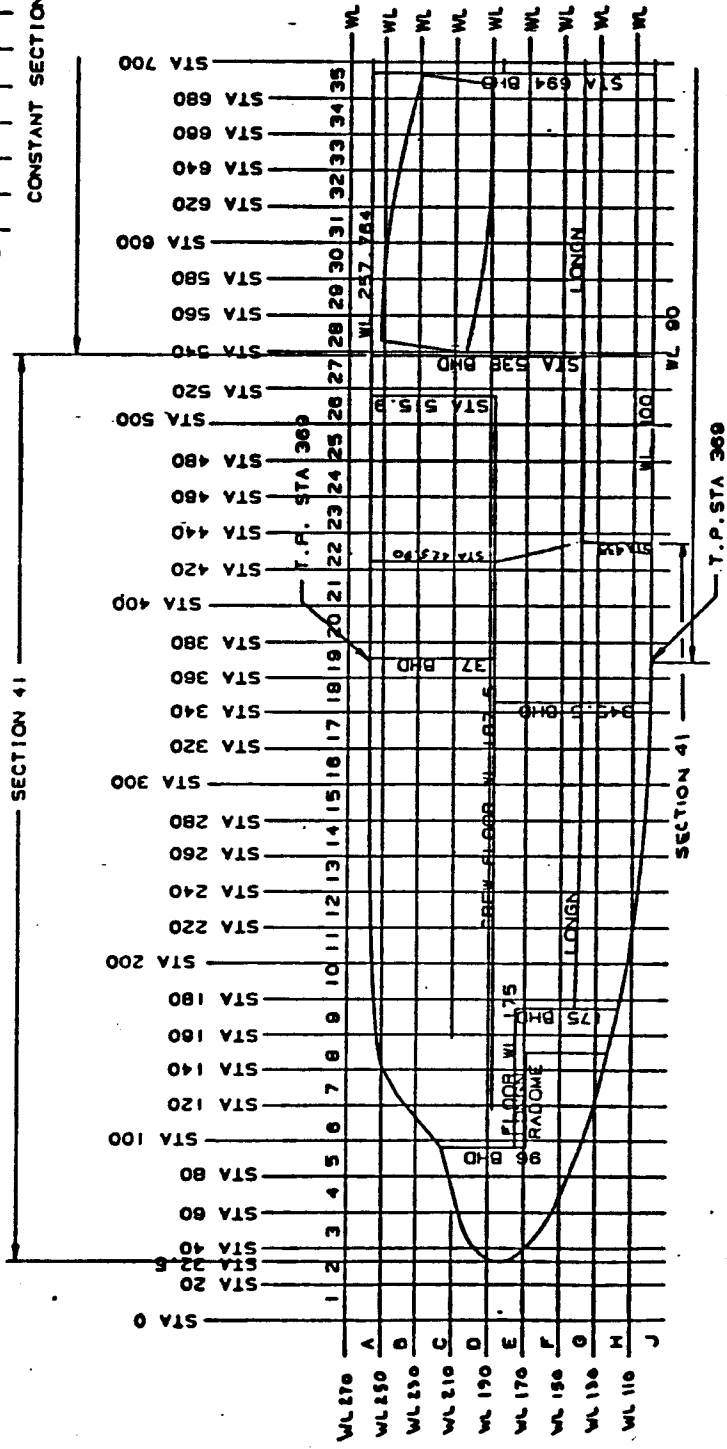
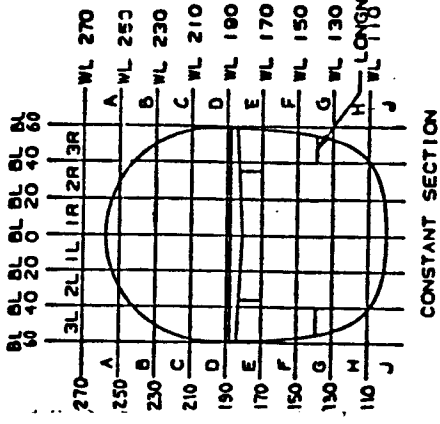
- DRAWING MODIFIED BY THE INSTALLATION DRAWING

- DRAWING TITLE

- FIGURE NUMBERS WHERE INSTALLATION IS SHOWN IN T.O. 1B-52G-4

VOLUMETRIC DATA BASE

TYPICAL CODING GRID FOR B-52 VOLUMETRIC ADDRESS



VOLUMETIC DATA BASE

SAMPLE COMPUTER PRINTOUT

SEARCH - QUERY
00025 M35-13666

35-27396 DOCUMENT= 4 OF 6

DRAWING NUMBER
35-27396
ENGINEERING DATA
REVC

MPC1059-313-1 EEO105901-001 EEO105901-004 ECP1369-1
NA32-1378 NA32-1468
-4FIG447 -4FIG447A

MODIFICATIONS TO
M25-5230 M35-13666 M35-27396

VOLUME LOCATION
11C1L 11C2L 12C1L 12C2L

DRAWING TITLE

CIRCUIT BREAKER INSTL KIT - LH LOAD CENTRAL, AGM-69A, A112
SUITABLE FOR

B-52G 57-6468, 57-6469, 57-6471 THRU 59-2602
B-52H 60-001 THRU 60-061, 61-001 THRU 61-040
EFFECTIVE FOR

B-52G 57-6470
B-52H 60-062
END OF DOCUMENT

MODIFICATION INDEX

B-52G - 25-3707
 B-52H - 35-11600
 KC-135 - 65-18000

SAMPLE PAGE OF 25-3707 INDEX

CHANGE NO.	TCTO NO.	TOP DWG	TITLE	REV SYM
ECP 770-8M (KIT)	1B-52G-547	35-9443	KIT INSTL - FLT SIMULATOR PANEL	BD
ECP 770-12M (KIT)	1B-52G-559	39-11168	KIT - CB BATT INSTL - EMER COLLET ARMT PROV	
ECP 770-17M (KIT)	1B-52-1396	39-17662	KIT - MISSILE A-C POWER REVISION ARMAMENT PROVISIONS	
ECP 770-18M	1B-52-1480	35-19463	KIT INSTL - RADAR ALTIMETER CONFIDENCE CHECK PNL	
ECP 770-21K	1B-52-1646	35-24024	MASTER KIT INSTL - EXTERNAL STORES	