AFCTN Test Report 94-088

AFCTB-ID 94-024

Technical Illustration Transfer Using:

Texas Instruments' Data Supporting:

Naval Air System Command's JSOW Program

(Contract #N0019-91-C-0196)

MIL-D-28003 (CGM)

Quick Short Test Report

06 April 1994

Prepared for:
Electronic Systems Center
Air Force CALS Program Office
Det 2 HQ ESC/AV-2
4027 Colonel Glenn Hwy, Suite 300
Dayton, Ohio 45431-1672

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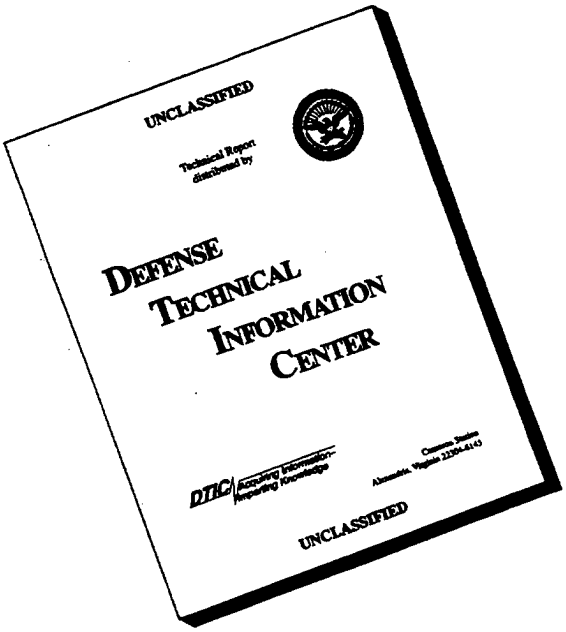

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06 April 1994

Prepared By
Air Force CALS Test Bed
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Air Force CALS Test Bed

Notification of Test Results

06 April 1994

This notice documents the results of an Air Force CALS Test Bed (AFCTB) Quick Short Test Report (QSTR) evaluation of data submitted by:

Texas Instruments

Identified as follows:

Title:	**Technical Illustration Transfer**
Program:	**JSOW**
Program Office:	**Naval Air System Command**
Contract No.:	**N0019-91-C-0196**
QSTR No.:	**AFCTB-ID 94-024**

Received on the following media: **Electronic Transfer via the Internet**

The results of the AFCTB Quick Short Test evaluation are as follows:

MIL-STD-1840A Standard	**Pass**
MIL-STD-1840A Media Format:	**Pass**
MIL-D-28000A IGES:	**N/A**
MIL-M-28001A SGML:	**N/A**
MIL-R-28002A Raster:	**N/A**
MIL-D-28003 CGM:	**Pass**

Formal results with associated disclaimer are documented and available from the AFCTB.

Air Force CALS Test Bed
HQ ESC/AV-2P
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Dayton, OH 45431-1672
Phone: 513-257-3085 FAX: 513-257-5881

Contents

1. Introduction

1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

1.2 Purpose

The purpose of the informal test, reported in this QSTR, was to analyze Texas Instruments' interpretation and use of the CALS standards, in transferring technical publication illustration data. Texas Instruments used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff using an electronic transfer.

2. Test Parameters

Test Plan: AFCTB 94-024

Date of Evaluation: 06 April 1994

Evaluator:
George Elwood
Air Force CALS Test Bed
DET 2 HQ ESC/AV-2P
4027 Colonel Glenn Hwy
Suite 300
Dayton OH 45431-1672

Data Originator:
Michael Hurn
Texas Instruments
M/S 8420
6500 Chase Oaks Blvd
P.O. Box 869305
Plano TX 75086
(214) 575-3368
(214) 575-6807 (Fax)

Data Description: Technical Manual Test
1 Document Declaration file
1 Computer Graphics Metafile (CGM) file

Data Source System:

1840

HARDWARE
IBM Compatible 486DX/33
PC With 8 MB RAM
420 MB Disk Drive
1.4 MB Floppy Drive
15" Color Monitor

SOFTWARE
MS DOS v6.0
MS Windows v3.1

CGM

HARDWARE
IBM Compatible 486DX/33

SOFTWARE
Micrografx Charisma v4.0

Evaluation Tools Used:

MIL-STD-1840A (TAPE)

SUN 3/280
AFCTN *Tapetool v1.2.10 UNIX*

MIL-D-28003 (CGM)

HP 735
InterCAP *X-Change v7.82*
SGI Indigo 2
IGES Data Analysis (IDA) *CALSView*
SUN SparcStation 2
ArborText *cgm2draw*
Carberry *CADLeaf Plus v3.1*
Island Software *IslandDraw v3.0*
Island Software *IslandDraw v4.0*
PC 486/50
Advanced Technology Center (ATC) *MetaCheck R 2.10*
Software Publishing Corporation (SPC) *Harvard Graphics v3.05*
Inset Systems *HiJaak Pro*
Lotus *Freelance v2.01*
Micrografx *Designer v4.0*
Corel *Ventura Publisher*

Standards Tested:

MIL-STD-1840A
MIL-D-28003

3. 1840A Analysis

3.1 External Packaging

The files arrived at the Air Force CALS Test Bed (AFCTB) via an electronic transfer to the internet server. No physical media was exchanges or evaluated.

3.2 Transmission Envelope

The files received by the AFCTB contained MIL-STD-1840A files. The files were named per the standard conventions.

3.2.1 Tape Formats

No tape was submitted for evaluation.

3.2.2 Declaration and Header Fields

No errors were found in the Document Declaration file and data file headers. The file set submitted to the AFCTB meets the requirements defined in MIL-STD-1840A.

4. IGES Analysis

No Initial Graphics Exchange Specification (IGES) files were included in this evaluation.

5. SGML Analysis

No Standard Generalized Markup Language (SGML) files were included in this evaluation.

6. Raster Analysis

No Raster files were included in this evaluation.

7. CGM Analysis

The transfer set contained one CGM file. The file was evaluated using ATC's *MetaCheck* with CALS options. This utility reported no CALS errors.

The CGM file was evaluated using the beta AFCTN *validcgm* utility which reported no CALS errors.

The AFCTB has several tools for viewing CGM files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor and indication of CALS capability. All operations were performed using the default settings.

The CGM file was converted using ArborText's *cgm2draw* utility without a reported error. The resulting files were read into Island Software's *IslandDraw v3.1*. When displayed and printed the box around the image was missing. Some variation was noted in the text between individual letters.

According to Chris Moffett of ArborText, "This (or these) problem(s) may be due {to} the method in which the original file was generated."

The file was read into Carberry's *CADLeaf* software and displayed. Some variation was noted in the text between individual letters.

The file was read into IDA's *CALSView* without a reported error. Some variation was noted in the text between individual letters.

The file was imported into the Micrografx *Designer* without a reported error. The external fuel tanks were displayed with solid lines vs the dashed lines in other applications.

According to Michael Harrison of Micrografx, "The version of Micrografx Designer used with this report has been replaced with Designer version 4.1TE which reads and prints these files successfully."

The file was imported into Lotus' *Freelance* and displayed with no noted problems. The dotted lines indicating the external fuel tanks are very fine.

The file was imported into SPC's *Harvard Graphics v3.05* without a reported error. When displayed on the screen the image appeared to be correct and complete. The initial printing resulted in a large black area with the filled areas white. The image was ungrouped and the white background was removed. This provided a good screen display. The printed output had many missing entities. On the third attempt a color background was inserted. The screen display appeared correct, and the printed output had noted problems. The individual letters which were noted above were highlighted.

The file was read into Inset Systems' *HiJaak Pro* without a reported error. No problems were noted on the screen or output, with the exception of the external fuel tanks being displayed with solid lines.

The file was imported directly into Island Software's *IslandDraw v4.0* without a reported error. Some variation was noted between individual letters in the text.

The file was read into InterCAP's *X-Change* without a reported error. Some variation was noted between individual letters in the text.

The file was imported into Corel's *Ventura Publisher* without a reported error. The box around the image was noted as missing.

The CGM file is reported as meeting the specification defined in MIL-D-28003. The image displayed without any major problems using the applications available in the AFCTB.

8. Conclusions and Recommendations

The electronic submission by Texas instruments is correct. No errors were reported in the CALS Document Declaration file or data file headers. The file set meets the CALS MIL-STD-1840A requirements.

The CGM file had no reported errors. The image displayed with minor variations in individual letters. The CGM file meets the CALS MIL-D-28003 specification.

The electronic submission by Texas Instruments meets the CALS MIL-STD-1840A requirements.

9. Appendix A - Tapetool Report Logs

9.1 Tape Catalog

```
CALS Test Network Catalog Evaluation - Version 1.2; Release 10 (C)

  Standards referenced:
    MIL-STD-1840A (1987) - Automated Interchange of Technical Information
    ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes
                        for Information Interchange
    ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Tue Apr  5 16:47:37 1994

MIL-STD-1840A File Catalog

File Set Directory: /cals/u1210/Set056

                                                                Page: 1

                                                Record
                                                Format/    Block        Selected/
File Name               File Type               Length   Length/Total   Extracted
---------------------------------------------------------------------------- ---
D001                    Document Declaration    D/00256  02048/000000   Extracted
D001C001                CGM                     F/00080  00800/000000   Extracted

Catalog Process terminated normally.
```

9.2 Tape File Set Validation Log

```
CALS Test Network File Set Evaluation - Version 1.2; Release 10 (C)

  Standards referenced:
    MIL-STD-1840A (1987) - Automated Interchange of Technical Information

Tue Apr  5 16:47:37 1994

MIL-STD-1840A File Set Evaluation Log

File Set: Set056

Found file: D001
Extracting Document Declaration Header Records...
Evaluating Document Declaration Header Records...

srcsys: Texas Instruments P.O.Box 869305 Plano, TX 75086  Mail Station 8420
srcdocid: CALS TEST NETWORK CGM TEST USING CHARISMA 4.0
srcrelid: NONE
chglvl: ORIGINAL
dteisu: 19940330
dstsys: AIR FORCE CALS TEST BED 4027 COLONEL GLENN HIGHWAY SUITE 300 DAYTON, OHIO 4543
dstdocid: TEXAS INSTRUMENTS CGM USING CHARISMA 4.0
dstrelid: NONE
dtetrn: 19940330
dlvacc: NONE
filcnt: C1
ttlcls: UNCLASSIFIED
doccls: UNCLASSIFIED
doctyp: Product Data
docttl: NONE

Found file: D001C001
Extracting CGM Header Records...
Evaluating CGM Header Records...

srcdocid: NONE
dstdocid: NONE
txtfilid: NONE
figid: NONE
srcgph: NONE
doccls: UNCLASSIFIED
notes: FILE GENERATED BY CHARISMA VERSION 4.0

Saving CGM Header File: D001C001_HDR
Saving CGM Data File: D001C001_CGM
```

```
Evaluating numbering scheme...
No errors were encountered during numbering scheme evaluation.
Numbering scheme evaluation complete.

Checking file count...
No errors were encountered during file count verification.
File Count verification complete.

No errors were encountered in Document D001.

No errors were encountered in this File Set.

MIL-STD-1840A File Set Evaluation Complete.
```

10. Appendix B - Detailed CGM Analysis

10.1 File D001C001

10.1.1 Parser Log MetaCheck

```
MetaCheck Version 2.05 -- CGM/MIL-D-28003 Conformance Analyzer
Copyright 1988-91 CGM Technology Software
Execution Date: 04/06/94     Time:  11:50:58

Metafile Examined    : i:\94024\c001.cgm

Pictures Examined    : All
Elements Examined    : All
Bytes    Examined    : All

======================== Trace Report ========================

Tracing not selected.

============= CGM Conformance Violation Report ==============

No Errors Detected

========== CALS CGM Profile (MIL-D-28003) Report ============

No profile discrepancies detected.

================ Conformance Summary Report =================

MetaCheck Version 2.05 -- CGM/MIL-D-28003 Conformance Analyzer
Copyright 1988-91 CGM Technology Software
Execution Date: 04/06/94     Time:  11:50:59

Name of CGM under test: i:\94024\c001.cgm
Encoding              : Binary

Pictures Examined    : All
Elements Examined    : All
Bytes    Examined    : All

BEGIN METAFILE string : "Micrografx CGM Translator, version 4.00"
METAFILE DESCRIPTION  : "MIL-D-28003/BASIC-1"

Picture 1 starts at octet offset 116; string contains: "1"
```

Conformance Summary : This file conforms to the CGM specification.
This file meets the CALS CGM Profile (MIL-D-28003).

Summary of Testing Performed and Errors Found:

1 Pictures Tested
283 Elements Tested
40346 Octets Tested

```
==================================
|    No Errors Were Detected     |
==================================
```

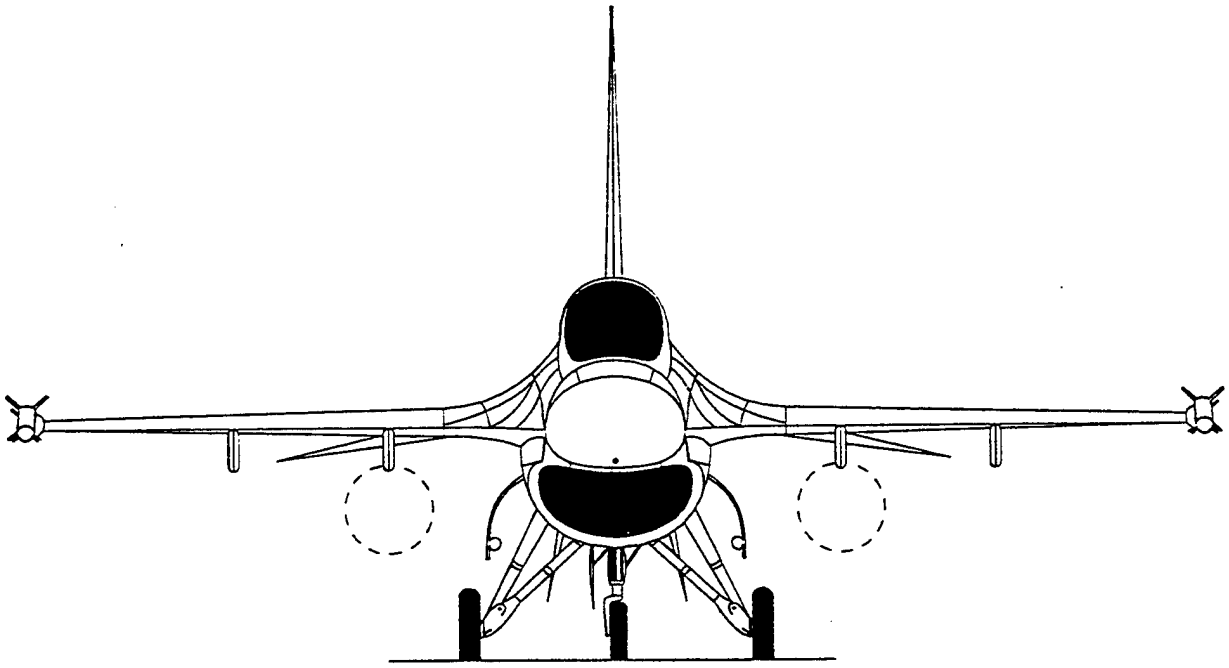
========== End of Conformance Report ==========

10.1.2 validcgm Log

```
Analysis for file c001.cgm using table table
(0, 1) occurred 1 time
(0, 2) occurred 1 time
(0, 3) occurred 1 time
(0, 4) occurred 1 time
(0, 5) occurred 1 time
(1, 1) occurred 1 time
(1, 2) occurred 1 time
(1, 3) occurred 1 time
(1, 4) occurred 1 time
(1, 5) occurred 1 time
(1, 6) occurred 1 time
(1, 7) occurred 1 time
(1, 10) occurred 1 time
(1, 11) occurred 1 time
(2, 1) occurred 1 time
(2, 2) occurred 1 time
(2, 3) occurred 1 time
(2, 5) occurred 1 time
(2, 6) occurred 1 time
(2, 7) occurred 1 time
(3, 1) occurred 1 time
(4, 1) occurred 83 times
(4, 7) occurred 84 times
(4, 11) occurred 8 times
(4, 17) occurred 3 times
(4, 18) occurred 2 times
(5, 2) occurred 7 times
(5, 3) occurred 2 times
(5, 4) occurred 7 times
(5, 14) occurred 1 time
(5, 22) occurred 22 times
(5, 23) occurred 23 times
(5, 27) occurred 1 time
(5, 28) occurred 2 times
(5, 29) occurred 7 times
(5, 30) occurred 10 times
```

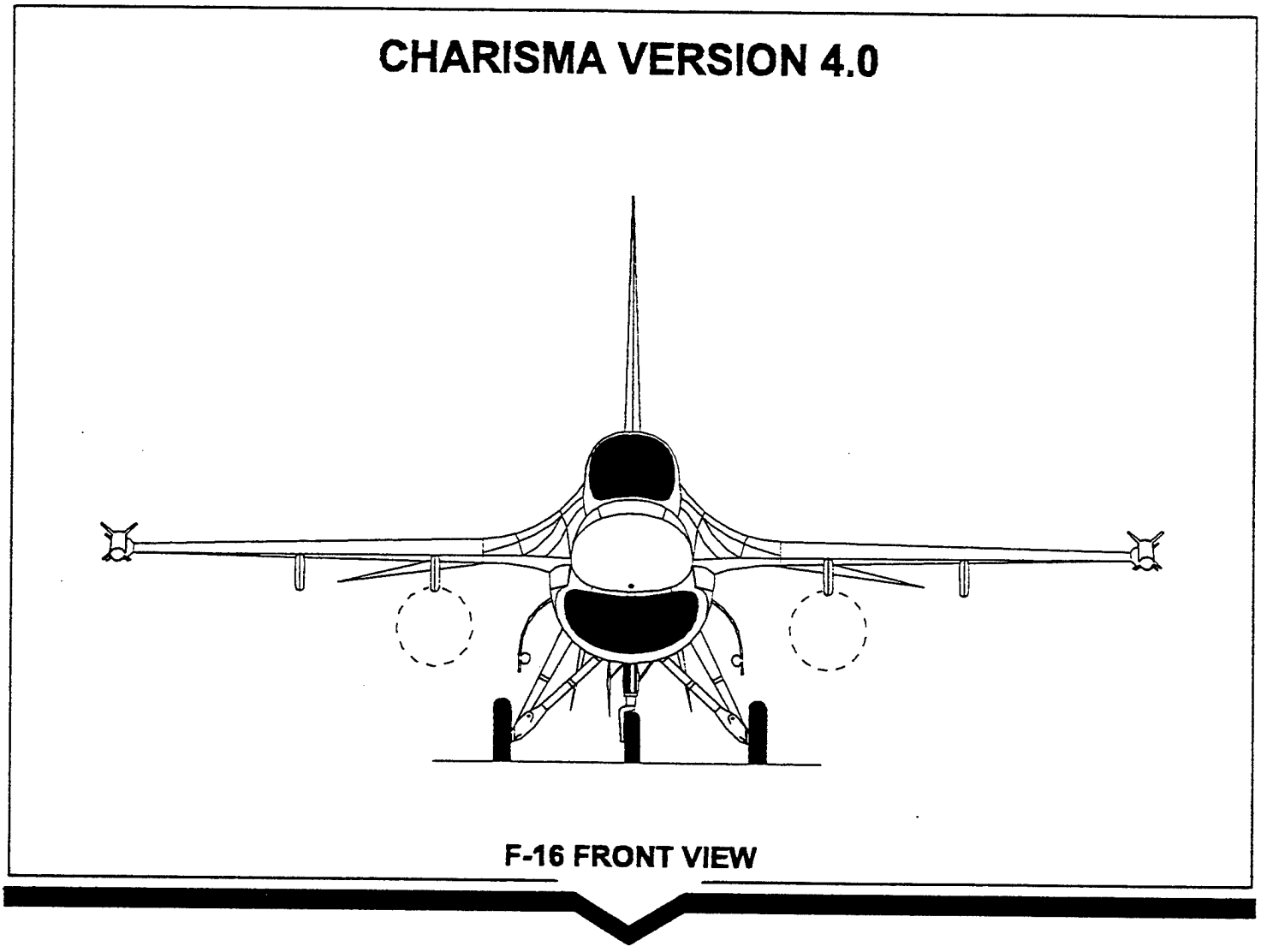
10.1.3 Output CADLeaf

CHARISMA VERSION 4.0



F-16 FRONT VIEW

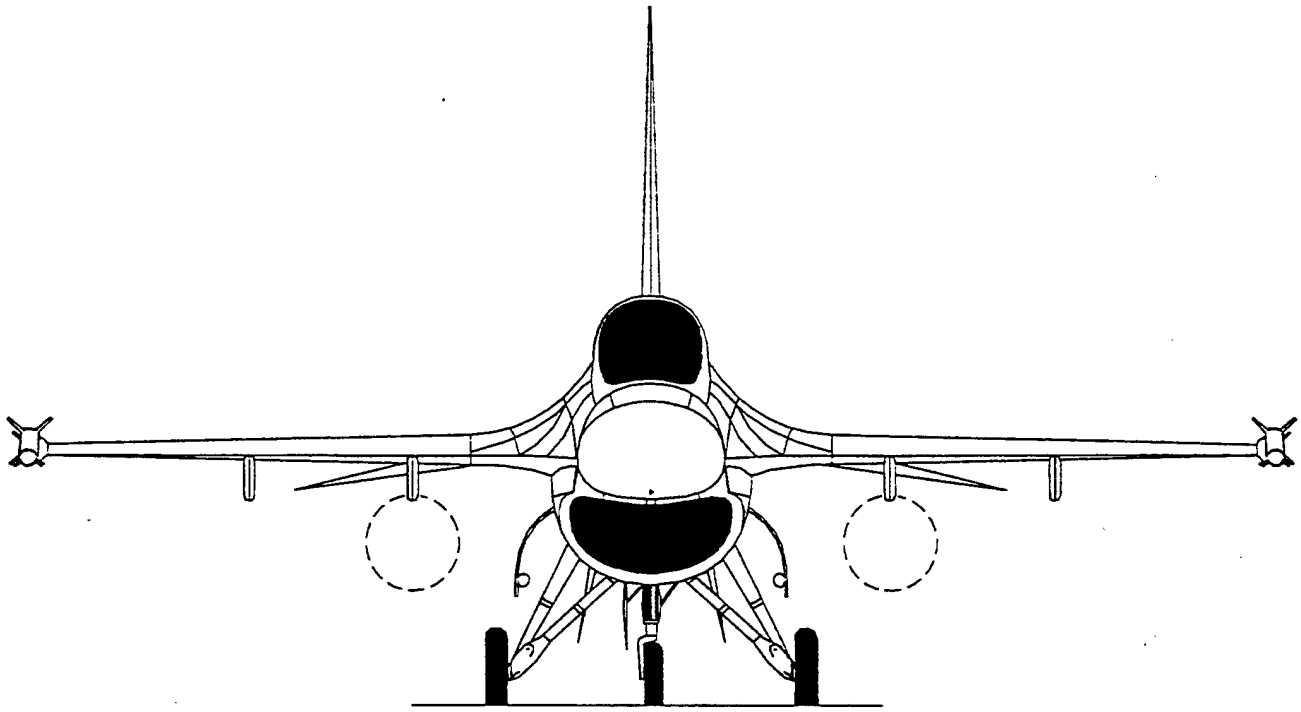
10.1.4 Output CALSView



10.1.5 Output cgm2draw/IslandDraw

C2D/ID

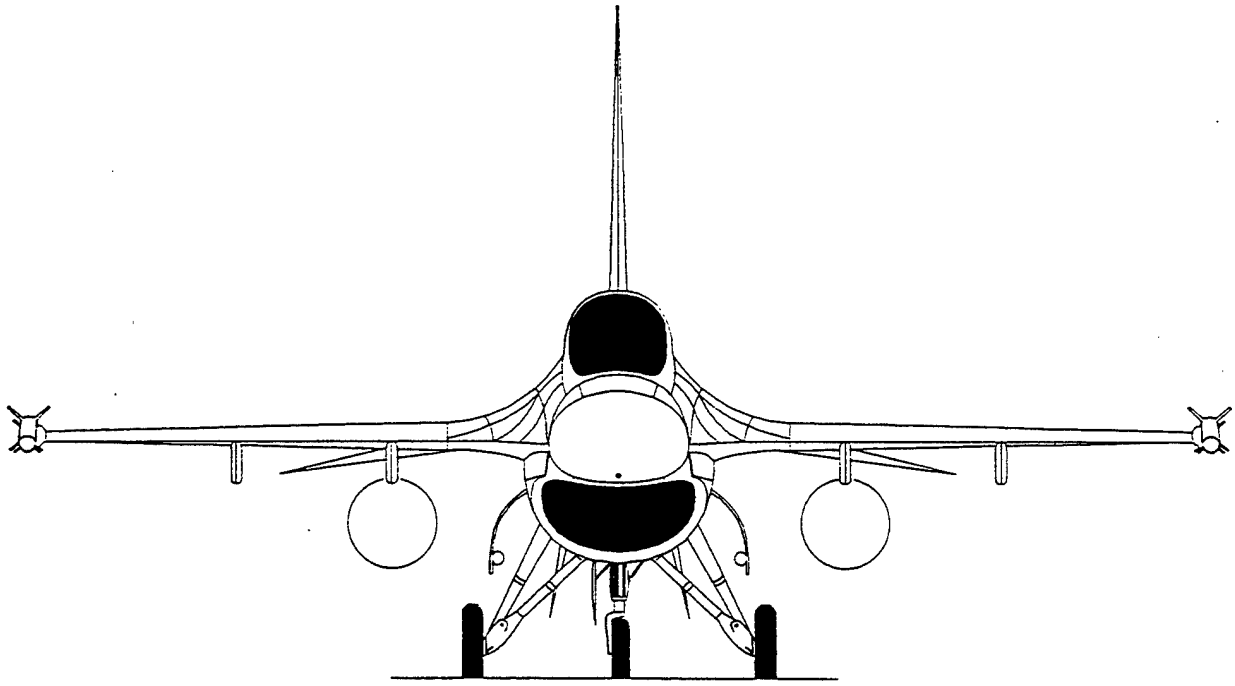
CHARISMA VERSION 4.0



F-16 FRONT VIEW

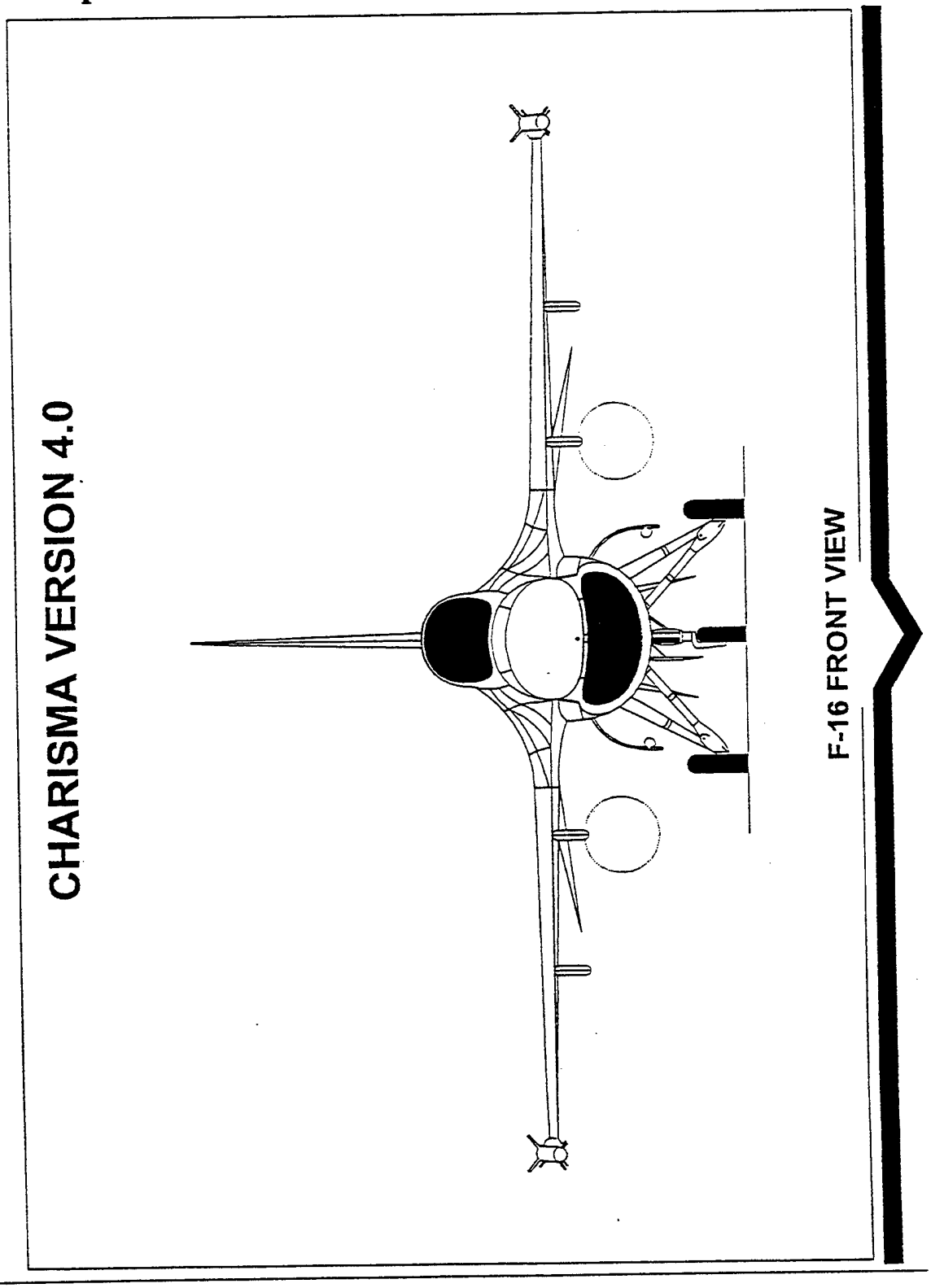
10.1.6 Output Designer

CHARISMA VERSION 4.0

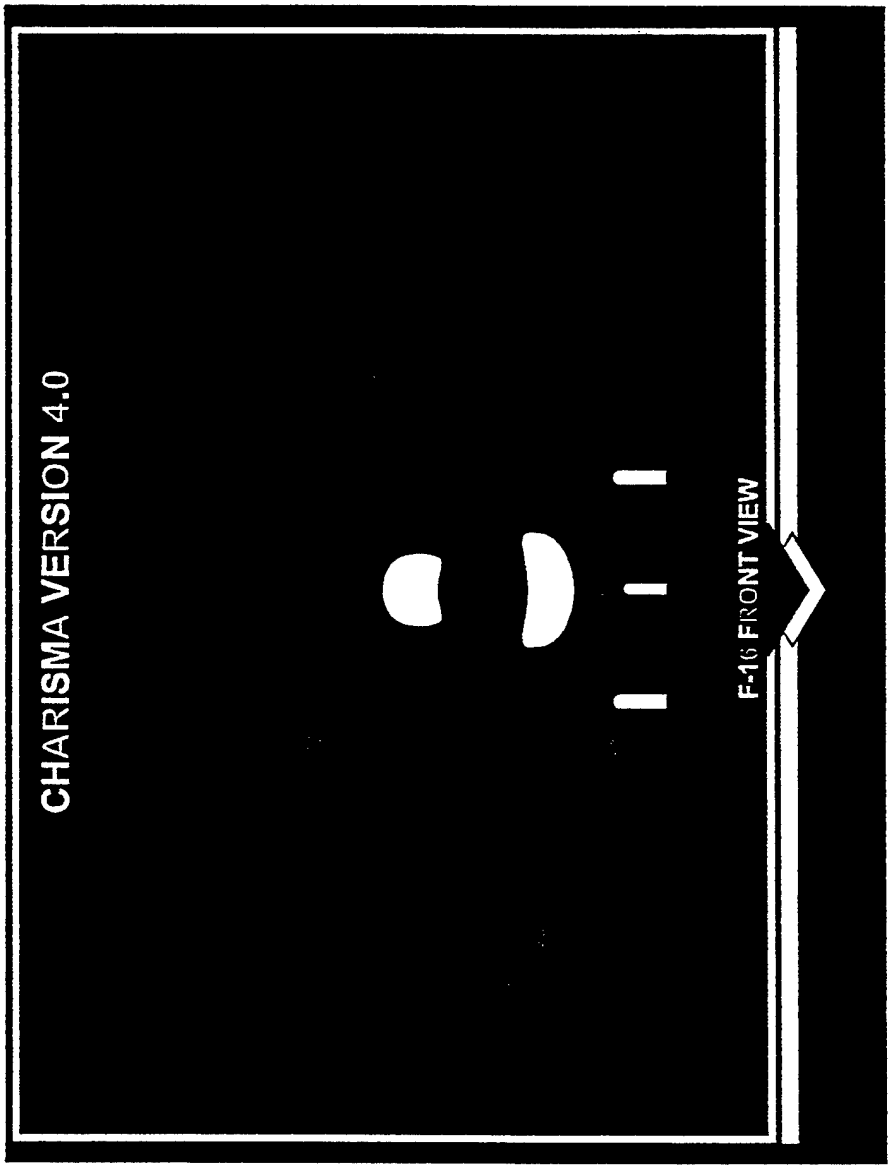


F-16 FRONT VIEW

10.1.7 Output Freelance

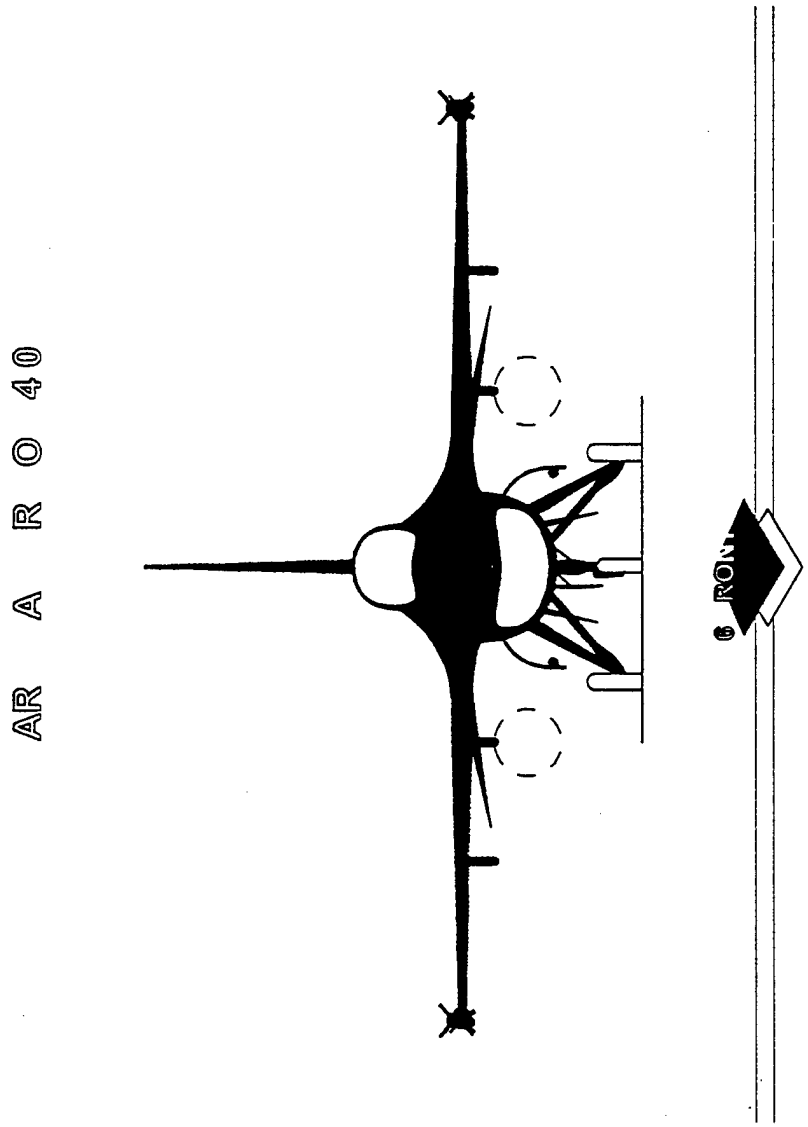


10.1.8 Output Harvard Graphics



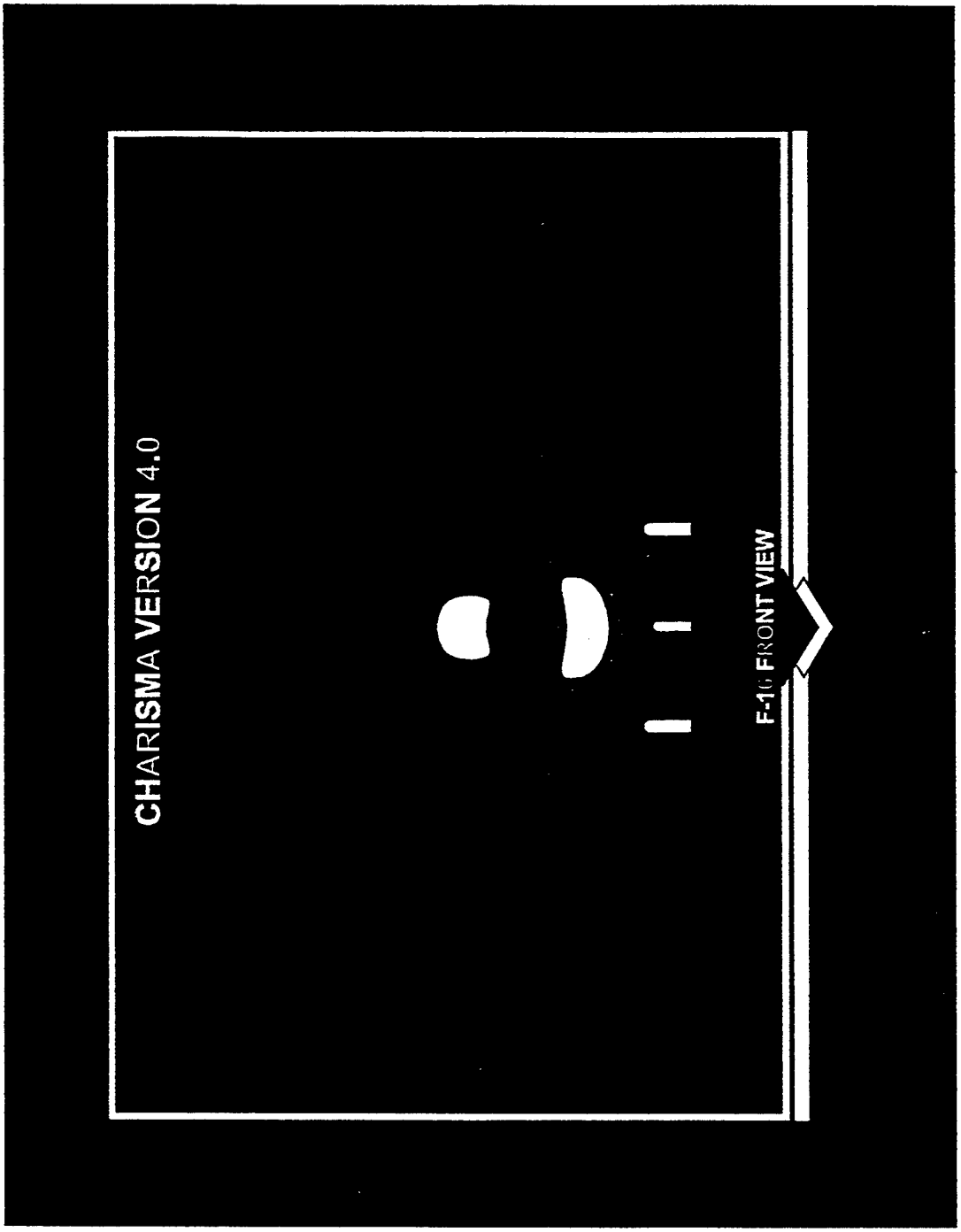
HG3.05

10.1.9 Output Harvard Graphics



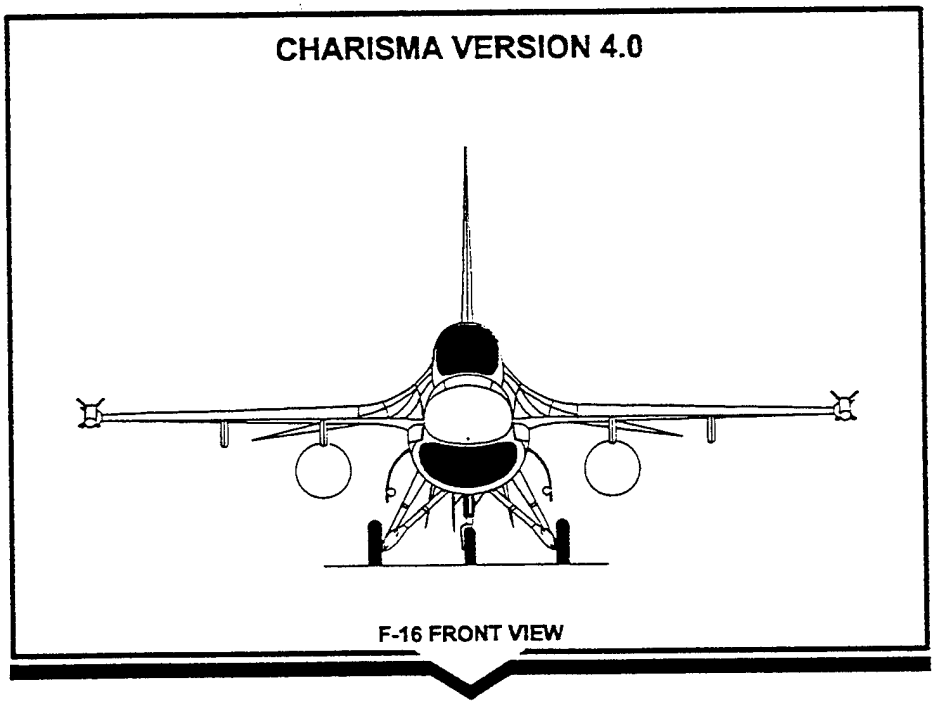
HG3.05

10.1.10 Output Harvard Graphics



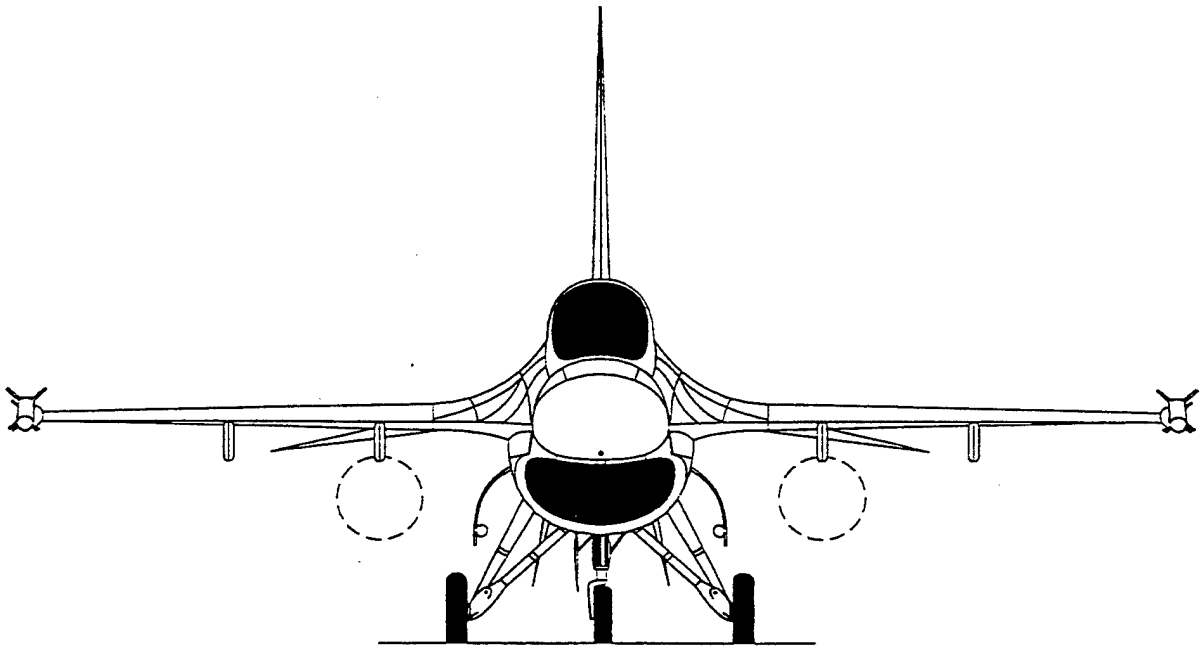
HG3.05

10.1.11 Output HiJaak Pro



10.1.12 Output IslandDraw v4.0

CHARISMA VERSION 4.0

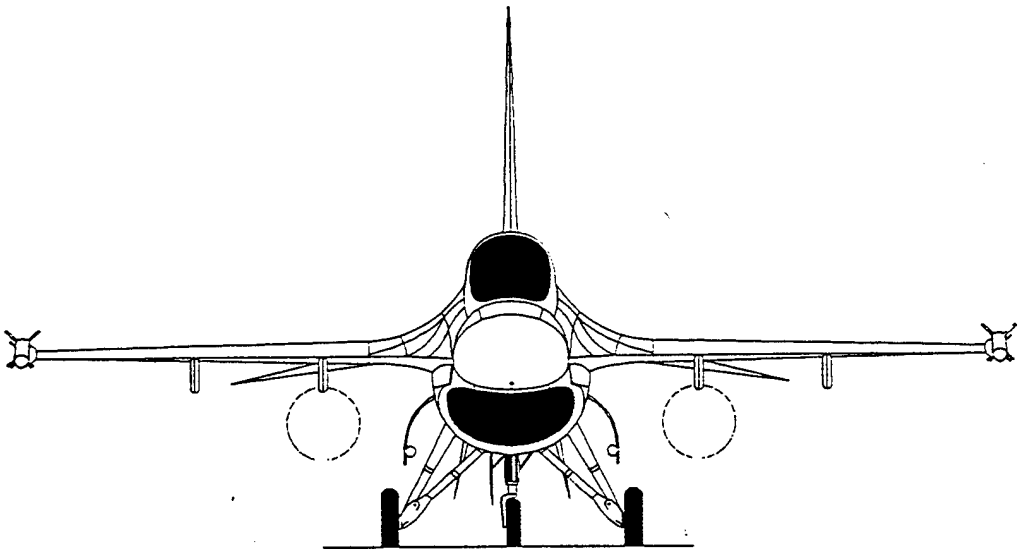


F-16 FRONT VIEW

ID4.0

10.1.13 Output Ventura Publisher

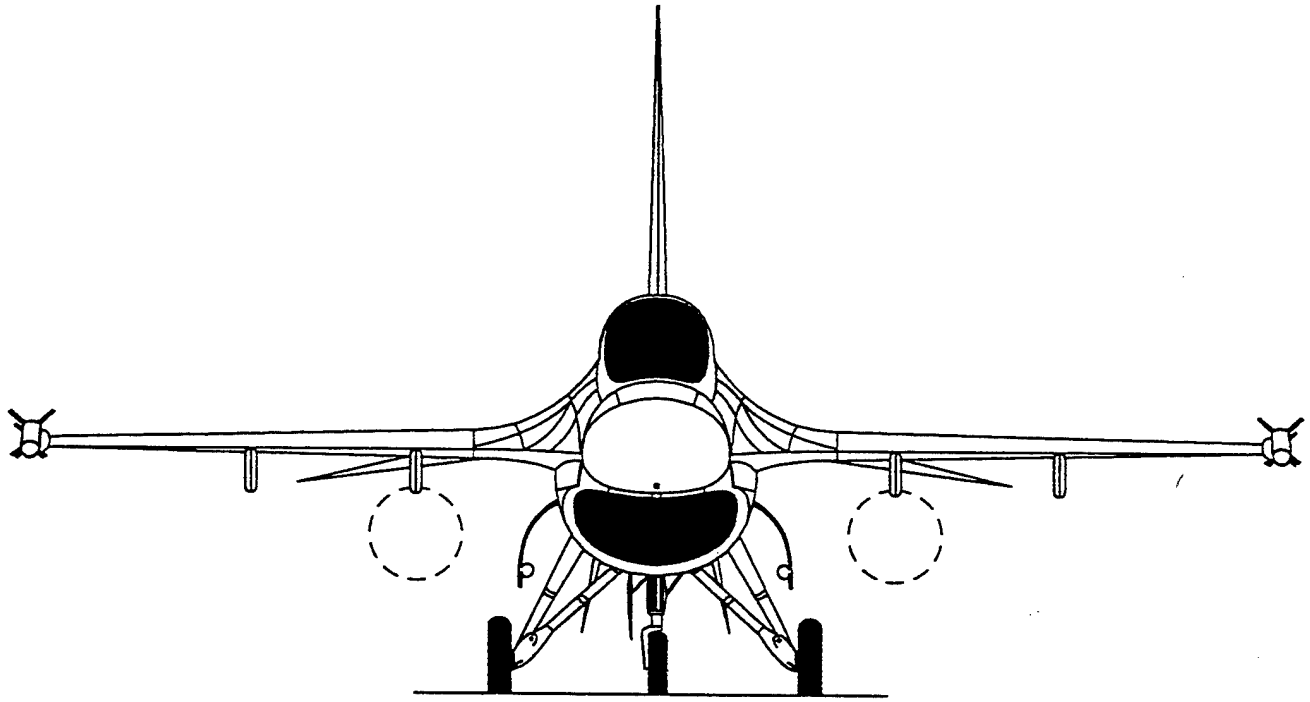
CHARISMA VERSION 4.0



F-16 FRONT VIEW

10.1.14 Output X-Change

CHARISMA VERSION 4.0



F-16 FRONT VIEW