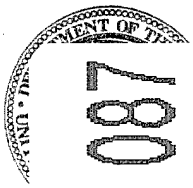
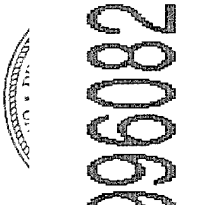
AFCTN Test Report 94-004

AFCTB-ID 93-028





Technical Publication Transfer

Using:

Cubic Defense Systems' Data

MIL-M-28001A (SGML)
MIL-D_28003 (CGM)

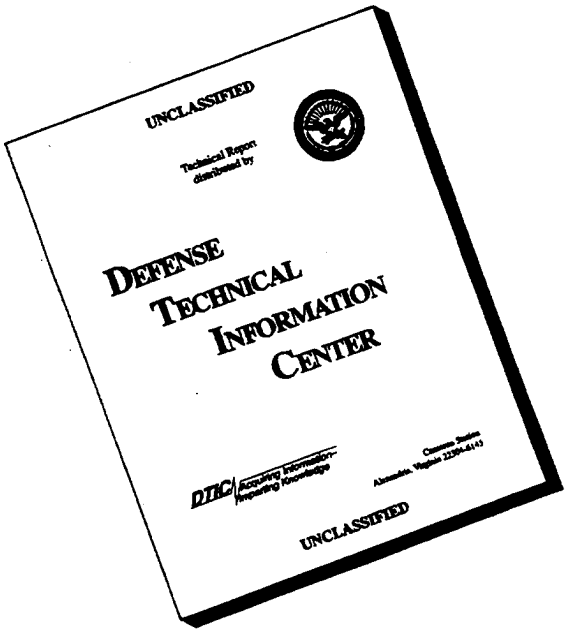
Quick Short Test Report

30 March 1993

Prepared for

Electronic Systems Center

DISCLAIMER NOTICE



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94-004

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Quick Short Test Report

30 March 1993

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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 develope 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 Cubic Defense System's interpretation and use of the CALS standards in transferring technical publication data. Cubic Defense used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff on a 9-track magnetic tape.

2. Test Parameters

Test Plan: AFCTB 93-028

Date of Evaluation: 30 March 1993

Evaluators:
George Elwood
Air Force CALS Test Bed
DET 2 HQ ESC/ENCP
4207 Colonel Glenn Hwy
Suite 300
Dayton OH 45431-1672

Data Originator:
Cathy Kothawala
Cubic Defense Systems Inc
9233 Balboa Avenue
San Diego CA 92123
(619) 277-6780

Data Description: Technical Manual Test
1 Document Declaration file
1 Document Type Definitions (DTD)
1 Text file
15 Computer Graphics Metafile (CGM) files

Data Source System:

Text/Standard Generalized Markup Language (SGML)

HARDWARE
Unknown
SOFTWARE
Unknown

CGM

HARDWARE
Unknown
SOFTWARE
Unknown

Evaluation Tools Used:

MIL-STD-1840A (TAPE)

SUN 3/280

AFCTN *Tapetool v1.2.8 UNIX*
XSoft *CAPS/CALS v40.4*
Texas Instruments (TI) *Tapetool v1.0.1*

MIL-M-28001 (SGML)

Cheetah Gold 486

Datalogics *ParserStation v3.36*
Exoterica *XGMLNormalizer v1.2e3.2*
Exoterica *Validator v2.0 EXL*
Public Domain *sgmls*
McAfee & McAdam *Sema Mark-it v2.3*

MIL-D-28003 (CGM)

SUN SparcStation 2

ArborText *cgm2draw*
AFCTN *validcgm*
Island Graphics *IslandDraw 3.0*

Cheetah Gold 486

Software Publishing Corporation (SPC) *Harvard Graphics 3.05*
Inset Systems *HiJaak V1.0 Windows*
Micrografx *Designer 3.1*
Corel *Ventura Publisher*

Standards Tested:

MIL-STD-1840A
MIL-M-28001A
MIL-D-28003

3. 1840A Analysis

3.1 External Packaging

The tape arrived at the Air Force CALS Test Bed (AFCTB) enclosed in a commercial overnight shipping bag. The exterior of the bag was marked with the magnetic tape warning label, as required by MIL-STD-1840A, para. 5.3.1.3.

The tape was enclosed in an anti-static barrier bag as required by MIL-STD-1840A, para. 5.3.1.2. Inspection of the tape reel showed the label indicating the recording density, as required by MIL-STD-1840A, para. 5.3.1. Enclosed in the box was a packing list showing all files recorded on the tape.

3.2 Transmission Envelope

The 9-track tape received by the AFCTB contained MIL-STD-1840A files. The files were named per the standard conventions.

3.2.1 Tape Formats

The tape was run through the AFCTN *Tapetool v1.2.8* utility. No errors were encountered while evaluating the contents of the tape labels.

The tape was read using TI's version of *Tapetool* without a reported error.

The tape was read without error using XSoft's *CAPS read1840A* utility.

The basic tape construction meets the CALS MIL-STD-1840A requirements.

3.2.2 Declaration and Header Fields

No errors were found in the Document Declaration file or data file headers.

4. IGES Analysis

No Initial Graphics Exchange Specification (IGES) files were included on this tape.

5. SGML Analysis

This tape contained one DTD and one Text file.

The AFCTB has several parsers available for evaluating submitted DTD and Text files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. 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 an indication of CALS capability. All operations were performed using the default settings unless specified in the report. Changes to DTD or Text files required by each system are not documented in the report.

The Text and DTD files from this document were tested using Exoterica's *XGMLNormalizer* parser. The DTD on the tape included capacities and features files. For the first pass through the parser this file set was used. It generated two error references undefined or misdefined values. The next pass through the DTD used the general capacity set in the CALS MIL-M-28001A specification. No errors were generated during this pass. Using the resulting compiled file, the Text file was parsed. The first pass generated one error per graphic call. The graphics had been identified correctly by the CGMCHAR but external reference was not made in the DTD. When this was added the Text file parsed without a reported error. Shown below are the error messages, the DTD reference followed by the Text reference.

```
C:\XGML\XGMLNORM.EXE --
Error on line 104 in file 9328.sgm:
```

An ENTITY declaration referred to an undeclared notation.
For entity 'fig7-9', notation 'CGMCHAR'.

<!ENTITY fig7-9 SYSTEM "D001C021.CGM" NDATA CGMCHAR>

<GRAPHIC BOARDNO="fig7-9" GRAPHSTY="cgmchar" HPLACE="CENTER" VPLACE="MIDDLE">

The Text and DTD files from the tape were evaluated using Datalogics' *ParseStation*. The corrected DTD from the first operation was parsed without a reported error. The Text file also parsed without a reported error. The original DTD was parsed and it did parse without errors but the Text file generated an error per graphic reference.

The Text and DTD files from this document were evaluated using Exoterica's *Validator* parser. Similar errors were reported.

The Text and DTD files from the tape were evaluated using McAfee & McAdam's *Sema Mark-it* parser. With the corrected DTD *Sema Mark-it* gave two additional errors. See the Appendix for the log.

The Text and DTD files from the tape were evaluated using the Public Domain *sgmls* parser. No additional errors were reported.

The DTD and Text files do not meet the CALS MIL-M-28001A specification.

6. Raster Analysis

No Raster files were included on this tape.

7. CGM Analysis

The tape contained 15 CGM files. The files were evaluated using a software available within the AFCTB with CALS options. This utility reported that files C001-C004 and C008 were valid files. The remaining files were listed as having basic CGM errors which kept them from being valid CALS files.

All 15 CGM files had a warning issued about foreground color and no background color.

Bulletin 20027: Element Class/ID: 4/1 Offset: 652 octets Element No. 60
Warning; a foreground color has been defined and referenced by a primitive, while the background color has not been defined.

The files which were reported as not meeting basic CGM standards had many errors reported, referencing an invalid character orientation base vector.

Error 6102: Element Class/ID: 5/16 Offset: 13816 octets Element No. 1085
The Character Orientation Base Vector is invalid; it must have non-zero length.

File C013 also had an invalid string error. The error indicated the use of illegal characters.

Error 6044: Element Class/ID: 4/4 Offset: 17356 octets Element No. 1476
The Text string is invalid; it contains illegal character codes.

The AFCTN beta *validcgm* utility reported no major errors in any of the files.

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.

For the detailed analysis, four files were selected. Files C001, C005, C013, and C015 will be used for the discussions on how commercial software handle the files. All of the files converted and displayed at a minimum. Most of the files were printed.

Because of the black background very little displayed on the screen. All files had reported errors when the software program was terminated. Shown below is the error message generated for the first file.

```
System Error: Error -1018 in function 14.
              cl/id: 4/4, offs: 850, esqn: 82
Error detected in file i:\9328\C001.CGM
```

The files were read into another software available within the AFCTB with no reported errors. When initially displayed, the text overlapped and was not placed correctly. When the image was enlarged, the text was correct for the most part. Note the text overflow on file C015. It was also noted that the output through the HP LaserJet did not reproduce the vertical lines nor show any text, even when enlarged. The Postscript output was acceptable. The output on several files, including C013, placed black shapes on the screen and paper covering the text that was in these shapes.

Inset Systems' *HiJaak for Windows* imported all files without a reported error. The displays appeared to be correct. Some minor text misplacement was noted.

The files were imported into the Micrografx *Designer* without a reported error. The displays appeared to be correct. The hard copies showed some minor text misplacement.

According to Michael Harrison of Micrografx, "The version of Micrografx Designer used with this report has been replaced with Designer version 4.0 which reads and prints these files successfully."

The files were imported into SPC's *Harvard Graphics 3.05* with some reported errors. File C013 reported some unknown symbols while C015 reported clipped objects and adjusted points. Hard copies of the file showed black filled shapes where shape outlines and text appeared in the screen. On file C005 a large number of misplaced text is noted. Some of this text appears to have been rotated 90 degrees. File C013 shows the black shapes.

The files were directly imported into Island Graphics' *IslandDraw*. Files C005 and C013 reported unknown symbols.

File C005 displayed overlaying text on the left side. The remainder of the text appears to be correctly place on the image.

The files were imported using Carberry's *CADLeaf* software with no reported errors. The images appear to be correct. The files not included in the Appendix (C011 and C012) displayed overlapping text. These files were very detailed circuit layouts and there was overlapping of component names and values.

The files were converted using ArborText's *cgm2draw* utility with no reported errors. The resulting files were read into Island Graphics' *IslandDraw.* During this procedure file C013 reported unknown symbols and unencoded characters. The images displayed on the screen were enlarged to show detail. It was noted that text font changed in areas along with the size of the letters causing an overflow condition. On file C013, the circuit component shapes were noted as being very ragged and misshaped.

The files were imported into Corel's *Ventura Publisher* without a reported error. On file C001 five of six circles around the screws were missing. The text size was very small making overflow conditions hard to find. On file C014 the text appears to be shifted to the left slightly.

The CGM files do not meet the CALS MIL-D-28003 specification due to reported basic CGM errors.

8. Conclusions and Recommendations

In summary, the tape from Cubic Defense Systems was correct. The tape could be read properly using the AFCTN *Tapetool* software with no reported errors. The basic tape construction and CALS headers were correct and meet the CALS MIL-STD-1840A requirements.

The DTD file was missing an external reference (CGMCHAR). The included capacity file had three incorrect references. The SGML file does not meet the CALS MIL-M-28001A specification.

The CGM files had basic CGM errors which caused them not to meet the CALS MIL-D-28003 specification.

The tape from Cubic Defense Systems does not meet the CALS MIL-STD-1804A requirements.

9. Appendix A - Tapetool Report Logs

9.1 Tape Catalog

Air Force CALS Test Network Catalog Evaluation - Version 1.2; Release Number 8

Standards referenced:
MIL-STD-1840A (1987) - Automated Interchange of Technical Information
MIL-R-28003 (1988) - Digital Representation For Communication Of Illustration Data; CGM Application Profile
ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes for Information Interchange
ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Mon Mar 29 12:27:27 1993

MIL-STD-1840A File Catalog

File Set Directory: /cals/tapetool8/Set081

Page: 1

File Name	File Type	Record Format/ Length	Block Length/Total	Selected/ Extracted
D001	Document Declaration	D/00260	02048/000001	Extracted
D001C001	CGM	F/00080	00800/000048	Extracted
D001C002	CGM	F/00080	00800/000045	Extracted
D001C003	CGM	F/00080	00800/000128	Extracted

<<<<< *PART OF LOG REMOVED HERE* >>>>>

File Name	File Type	Record Format/ Length	Block Length/Total	Selected/ Extracted
D001C014	CGM	F/00080	00800/000054	Extracted
D001C015	CGM	F/00080	00800/000287	Extracted
D001G016	DTD	D/00260	02048/000025	Extracted
D001T017	Text	D/00260	02048/000066	Extracted

Catalog Process terminated normally.

9.2 Tape Evaluation Log

```
Air Force CALS Test Network Tape Evaluation - Version 1.2; Release Number 8
  Standards referenced:
    ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes
                        for Information Interchange
    ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Mon Mar 29 12:26:27 1993
ANSI Tape Import Log
Allocating tape drive /dev/rmt0...

/dev/rmt0 allocated.

VOL1CALS01                                                              4

  Label Identifier: VOL1
  Volume Identifier: CALS01
  Volume Accessibility:
  Owner Identifier:
  Label Standard Version: 4

HDR1D001             CALS0100010001000000 93085 00000 000000

  Label Identifier: HDR1
  File Identifier: D001
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0001
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date:  93085
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000000
  Implementation Identifier:

HDR2D0204800260                                  00

  Label Identifier: HDR2
  Recording Format: D
  Block Length: 02048
  Record Length: 00260
  Offset Length: 00

********** Tape Mark ***************
```

```
  Actual Block Size Found = 2048 Bytes.
  Number of data blocks read = 1.

************ Tape Mark ***************

EOF1D001            CALS0100010001000000 93085 00000 000001

  Label Identifier: EOF1
  File Identifier: D001
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0001
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date:  93085
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000001
  Implementation Identifier:

EOF2D0204800260                                   00

  Label Identifier: EOF2
  Recording Format: D
  Block Length: 02048
  Record Length: 00260
  Offset Length: 00

                    <<<<< PART OF LOG REMOVED HERE >>>>>

HDR1D001T017        CALS0100010018000000 93085 00000 000000

  Label Identifier: HDR1
  File Identifier: D001T017
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0018
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date:  93085
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000000
  Implementation Identifier:

HDR2D0204800260                                   00
```

```
  Label Identifier: HDR2
  Recording Format: D
  Block Length: 02048
  Record Length: 00260
  Offset Length: 00

************ Tape Mark ***************

  Actual Block Size Found = 2048 Bytes.
  Number of data blocks read = 66.

************ Tape Mark ***************

EOF1D001T017         CALS0100010018000000 93085 00000 000066

  Label Identifier: EOF1
  File Identifier: D001T017
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0018
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date:  93085
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000066
  Implementation Identifier:

EOF2D0204800260                                    00

  Label Identifier: EOF2
  Recording Format: D
  Block Length: 02048
  Record Length: 00260
  Offset Length: 00

************ Tape Mark ***************

************ Tape Mark ***************

############ End of Volume CALS01 ###############
############ End Of Tape File Set ###############

Deallocating /dev/rmt0...

Tape Import Process terminated normally.
```

9.3 Tape File Set Validation Log

```
Air Force CALS Test Network File Set Evaluation - Version 1.2; Release Number 8
  Standards referenced:
    MIL-STD-1840A (1987) - Automated Interchange of Technical Information

Mon Mar 29 12:27:27 1993

MIL-STD-1840A File Set Evaluation Log

File Set: Set081

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

srcsys: CUBIC DEFENSE SYSTEMS INC 9333 BALBOA AVE SAN DIEGO CA 92123  CAGE 94987
srcdocid: 43D17-3-40-1-7S
srcrelid: NONE
chglvl: ORIGINAL
dteisu: 19930326
dstsys: OO-ALC
dstdocid: 43D17-3-40-1-7S
dstrelid: NONE
dtetrn: 19930326
dlvacc: NONE
filcnt: C15,G1,T1
ttlcls: UNCLASSIFIED
doccls: UNCLASSIFIED
doctyp: Technical Publication
docttl: NONE

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

srcdocid: 43D17-3-40-1-7S
dstdocid: 43D17-3-40-1-7S
txtfilid: W
figid: NONE
srcgph: D001C001
doccls: UNCLASSIFIED
notes: NONE

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

<<<<< *PART OF LOG REMOVED HERE* >>>>>

```
Found file: D001G016
Extracting DTD Header Records...
Evaluating DTD Header Records...

srcdocid: 43D17-3-40-1-7S
dstdocid: 43D17-3-40-1-7S
notes: NONE

Saving DTD Header File: D001G016_HDR
Saving DTD Data File: D001G016_DTD

Found file: D001T017
Extracting Text Header Records...
Evaluating Text Header Records...

srcdocid: 43D17-3-40-1-7S
dstdocid: 43D17-3-40-1-7S
txtfilid: W
doccls: UNCLASSIFIED
notes: NONE

Saving Text Header File: D001T017_HDR
Saving Text Data File: D001T017_TXT

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. Appedndix B - Detailed SGML Analysis

10.1 Datalogics Parser Log

10.1.1 DTD Log

```
            SGML Document Type Definition Parser
                        Version 3.36
        Copyright (c) Datalogics 1988, 1989, 1990, 1991
                An SGML System Conforming to
              International Standard ISO 8879
              Standard Generalized Markup Language

Log file: '9328.LOG'
SDO File: 'ctndecl.sdo'
Namecase General is yes.
Namecase Entity is no.
Parsing DTD file: '9328.dtd'

DTD0096: The generic ID SHORTTITLE has not been used in any content
         model, inclusion, or as a doctype element.
This DTD conforms to the ISO 8879 standard

DTO file '9328.DTO' created

closing statistics:
    Capacity points:                  60520
    Bytes of DTO file string space:   12023
    SGML descriptor blocks:           6253

Document Type Definition is compliant and parsed normally.

Program status code: 0.
```

10.1.2 Text File Log

```
IPA0108:        *** SGML Instance Parser Log File ***
Source Document File:  '\xgml\9328.txt'.
Job File:              '9328.jbf'.
DTD File:              ''.
SGML Declaration File: ''.

Reading File '9328.jbf', File Type 'JOB FILE'.

     Concrete Syntax Settings In Effect For This Parse:
         NAMECASE GENERAL: YES.
         NAMECASE ENTITY:  NO.
         NAMELEN:          32.
         SHORTTAG:         YES.
Closed '9328.jbf', File Type 'JOB FILE'.
Reading File '\xgml\9328.txt', File Type 'DIRECT INPUT FILE'.
   --> Scanned Up To Line 100 In \xgml\9328.txt.
   --> Scanned Up To Line 200 In \xgml\9328.txt.
   --> Scanned Up To Line 300 In \xgml\9328.txt.

                              <<<<< PART OF LOG REMOVED HERE >>>>>

   --> Scanned Up To Line 2900 In \xgml\9328.txt.
   --> Scanned Up To Line 3000 In \xgml\9328.txt.
   --> Scanned Up To Line 3100 In \xgml\9328.txt.
Closed '\xgml\9328.txt', File Type 'DIRECT INPUT FILE'.
Document Parsed Successfully, No Errors or Warnings.
```

10.2 Exoterica XGMLNormalizer Log

10.2.1 First Pass - DTD Log

```
C:\XGML\XGMLNORM.EXE --
Error on line 32 in file 9328.sgm:
Error in the SGML Declaration.
The last text seen was "13".
Attempt to use an undefined character for function RE.

C:\XGML\XGMLNORM.EXE --
Error on line 33 in file 9328.sgm:
Error in the SGML Declaration.
The last text seen was "10".
Attempt to use an undefined character for function RS.

C:\XGML\XGMLNORM.EXE --
Error on line 34 in file 9328.sgm:
Error in the SGML Declaration.
The last text seen was "32".
Attempt to use an undefined character for function SPACE.
<!-- The SGML Declaration is in error. -->
```

10.2.2 Text File Log

```
C:\XGML\XGMLNORM.EXE --
Error on line 104 in file 9328.sgm:
An ENTITY declaration referred to an undeclared notation.
For entity 'art', notation 'CGMCHAR'.

C:\XGML\XGMLNORM.EXE --
Error on line 104 in file 9328.sgm:
An ENTITY declaration referred to an undeclared notation.
For entity 'fig7-9', notation 'CGMCHAR'.

C:\XGML\XGMLNORM.EXE --
Error on line 104 in file 9328.sgm:
An ENTITY declaration referred to an undeclared notation.
For entity 'fig7-8', notation 'CGMCHAR'.

                          <<<<< PART OF LOG REMOVED HERE >>>>>

C:\XGML\XGMLNORM.EXE --
Error on line 104 in file 9328.sgm:
An ENTITY declaration referred to an undeclared notation.
For entity 'fig5-1', notation 'CGMCHAR'.

C:\XGML\XGMLNORM.EXE --
Error on line 104 in file 9328.sgm:
An ENTITY declaration referred to an undeclared notation.
For entity 'fig4-1', notation 'CGMCHAR'.
<!-- The document prolog is in error. -->
```

10.3 Exotercia Validator v2.0 EXL

```
<!-- Entity has no name, system id or public id in formal file -->.
<!-- **Warning** in "9328.sgm", line 1264:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "ENTRYTBL".
-->
<!-- **Warning** in "9328.sgm", line 1264:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "SHORTTITLE".
-->
<!-- **Warning** in "9328.sgm", line 4281:
   There is no element with an IDREF or IDREFS attribute value equal to a
   specified ID value.
   The unreferenced ID attribute value is "TAB4".
-->
<!-- 3 warnings reported. -->
```

10.4 Sema Mark-it Log

```
<!--*** file:9328.SGM line:1272 pos:48064
Character code 26 is not a valid SGML character.
UNUSED and shunned characters (SHUNCHAR) are not allowed in documents.-->

<!--*** file:9328.SGM line:1273 pos:48066
Document entity ended illegally
(or illegal end of entity in the main document)-->
```

10.5 Public Domain sgmls Log

10.5.1 DTD Log

```
sgmls: Error at 9328.dtd, line 28 in declaration parameter 5:
       Could not find external general entity "art"
TOTALCAP 122159/200000
  ENTCAP 11520/200000
ENTCHCAP  7328/200000
 ELEMCAP  4768/200000
  GRPCAP 41824/200000
EXGRPCAP   416/200000
 EXNMCAP   832/200000
  ATTCAP 37536/200000
ATTCHCAP   516/200000
AVGRPCAP 17344/200000
  NOTCAP    32/200000
NOTCHCAP    43/200000
```

10.5.2 Text File Log

```
sgmls: Error at \ws\9328.dtd, line 54 in declaration parameter 5:
       Could not find external general entity "art"
TOTALCAP 124251/200000
  ENTCAP 12320/200000
ENTCHCAP  7628/200000
 ELEMCAP  4768/200000
  GRPCAP 41824/200000
EXGRPCAP   416/200000
 EXNMCAP   832/200000
  ATTCAP 37536/200000
ATTCHCAP   516/200000
AVGRPCAP 17344/200000
  NOTCAP    32/200000
NOTCHCAP    43/200000
   IDCAP   992/200000
```

11. Appendix C - Detailed CGM Analysis

11.1 File D001C001

11.1.1 Parser Log

```
CGM/MIL-D-28003 Conformance Analyzer
Copyright 1988-91 CGM Technology Software
Execution Date: 03/29/93     Time:  12:06:47

Metafile Examined    : i:\9328\c001.cgm

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

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

Tracing not selected.

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

Bulletin 20027: Element Class/ID: 4/1   Offset: 652 octets Element No. 60
Warning; a foreground color has been defined and referenced by a primitive,
while the background color has not been defined.

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

No profile discrepancies detected.

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

CGM/MIL-D-28003 Conformance Analyzer
Copyright 1988-91 CGM Technology Software
Execution Date: 03/29/93     Time:  12:06:54

Name of CGM under test: i:\9328\c001.cgm
Encoding              : Binary

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

BEGIN METAFILE string : "HiJaak 2"
```

METAFILE DESCRIPTION : "HiJaak 2 MIL-D-28003/BASIC-1"

Picture 1 starts at octet offset 336; string contains: "Awesome!"

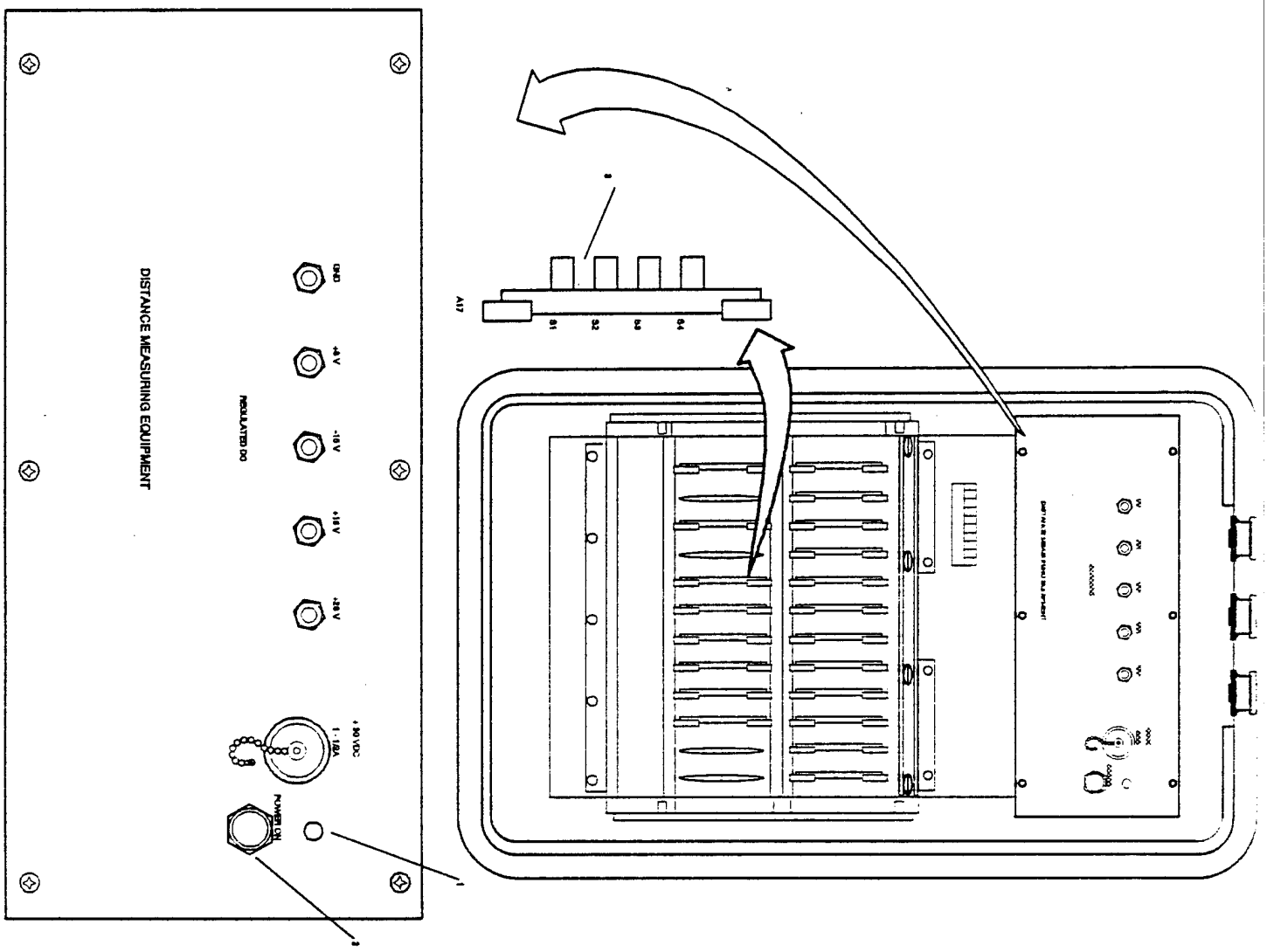
Conformance Summary : This file conforms to the CGM specification.
This file meets the CALS CGM Profile (MIL-D-28003).

Summary of Testing Performed and Errors Found:

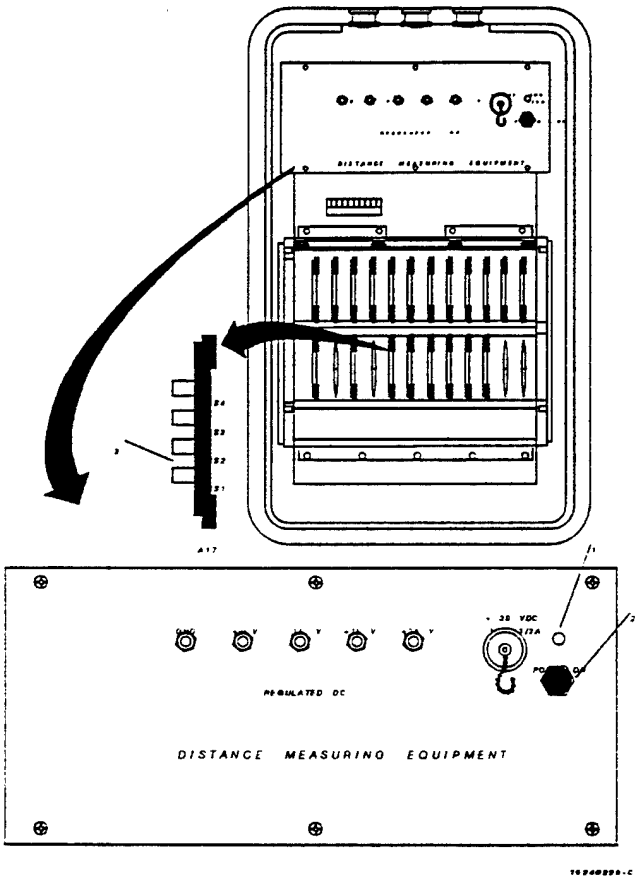
```
    1 Pictures Tested
 1429 Elements Tested
37348 Octets Tested

 0 Illegal CGM Elements                          1000 -  1999
 0 Incorrect CGM Element Lengths                 2000 -  2999
 0 CGM State Errors                              3000 -  3499
 0 Required CGM Elements Missing or Wrong        4000 -  4499
 0 CGM Parameter Values Out of Range             6000 -  6499
 0 CGM Structure Errors                          7000 -  7499
 0     ***     CGM Errors Found (total)      ***

 0 Profile State Errors                          3500 -  3999
 0 Illegal Profile Elements                      4500 -  4999
 0 Profile Parameter Values Out of Range         6500 -  6999
 0 Profile Data Limits Exceeded                  8500 -  8999
 0 Other Profile Constraints Violated            9500 -  9999
 0     *** Profile Violations Found (total) ***

 1 Warnings (Advisory Remarks)                  20000 - 20999

 1 distinct errors and warnings were reported.
```

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

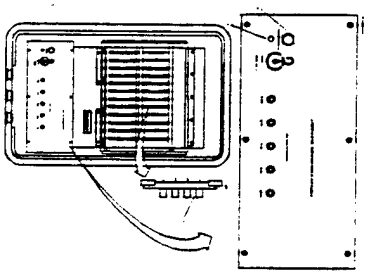
11.1.2 Output Designer



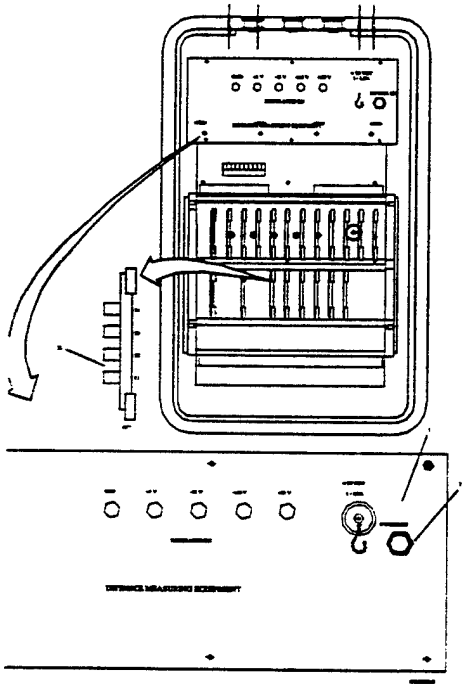
11.1.3 Output Harvard Graphics



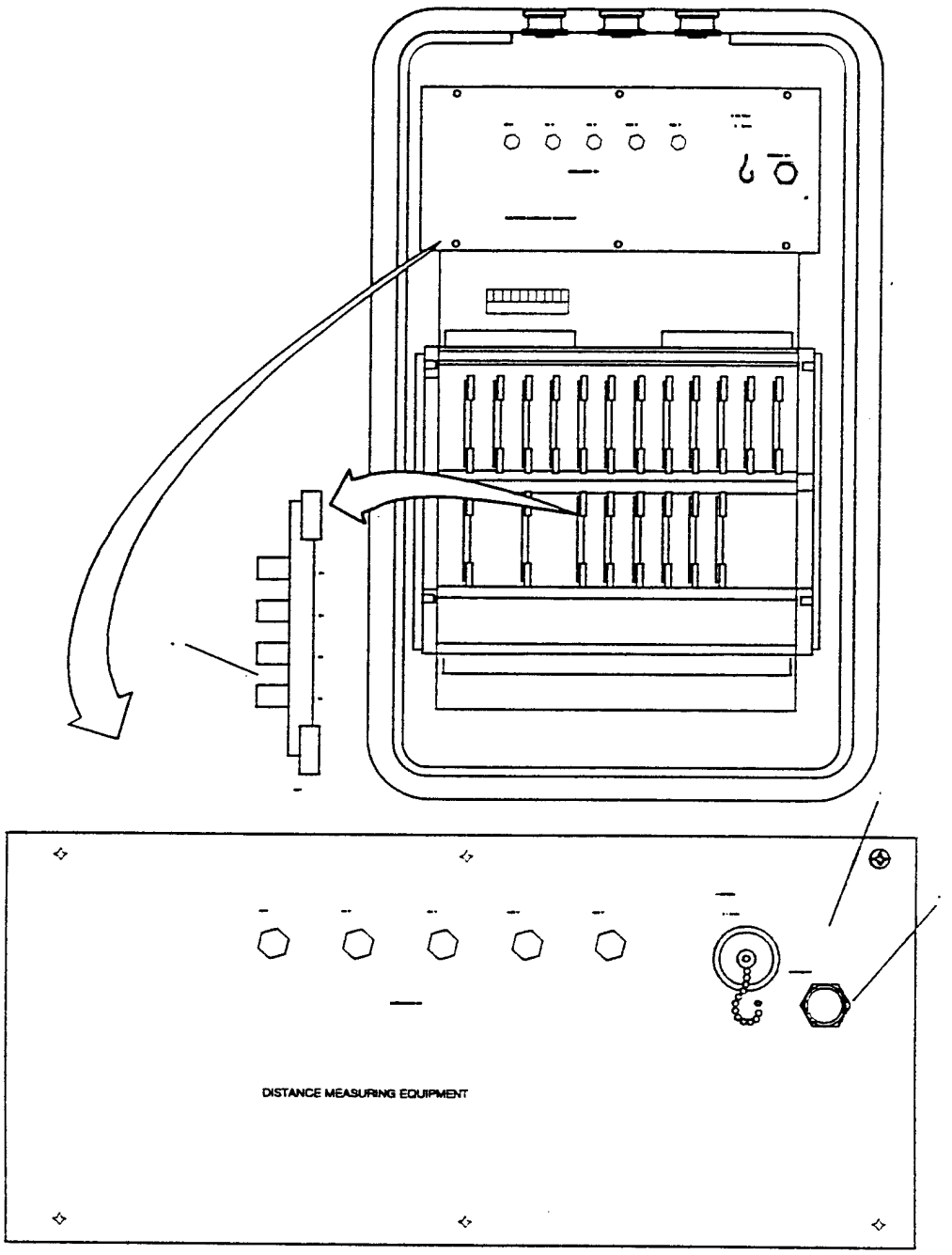
11.1.4 Output HiJaak for Windows



11.1.5 Output cgm2draw/IslandDraw

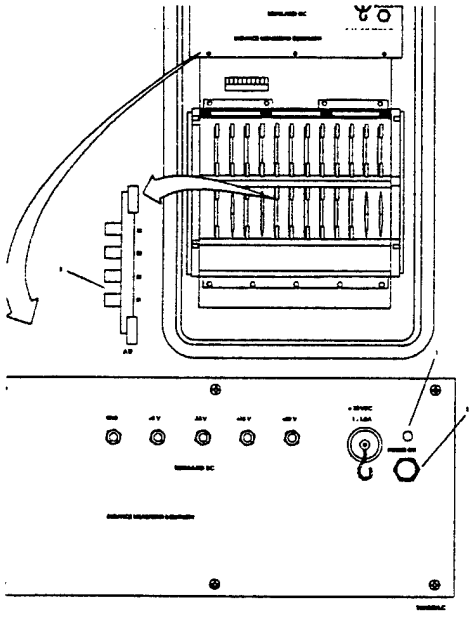


11.1.6 Output Ventura Publisher

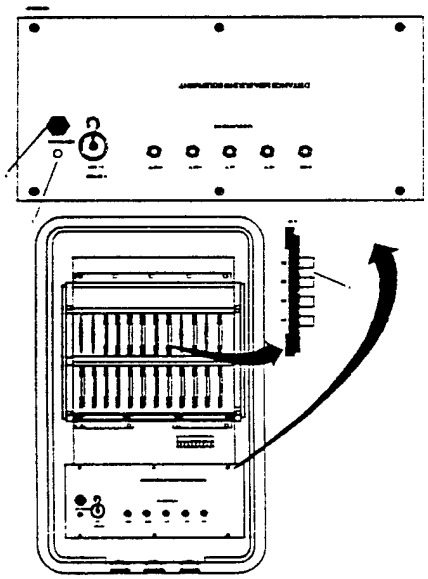


15240228-C

11.1.7 Output IslandDraw



11.1.8 Output



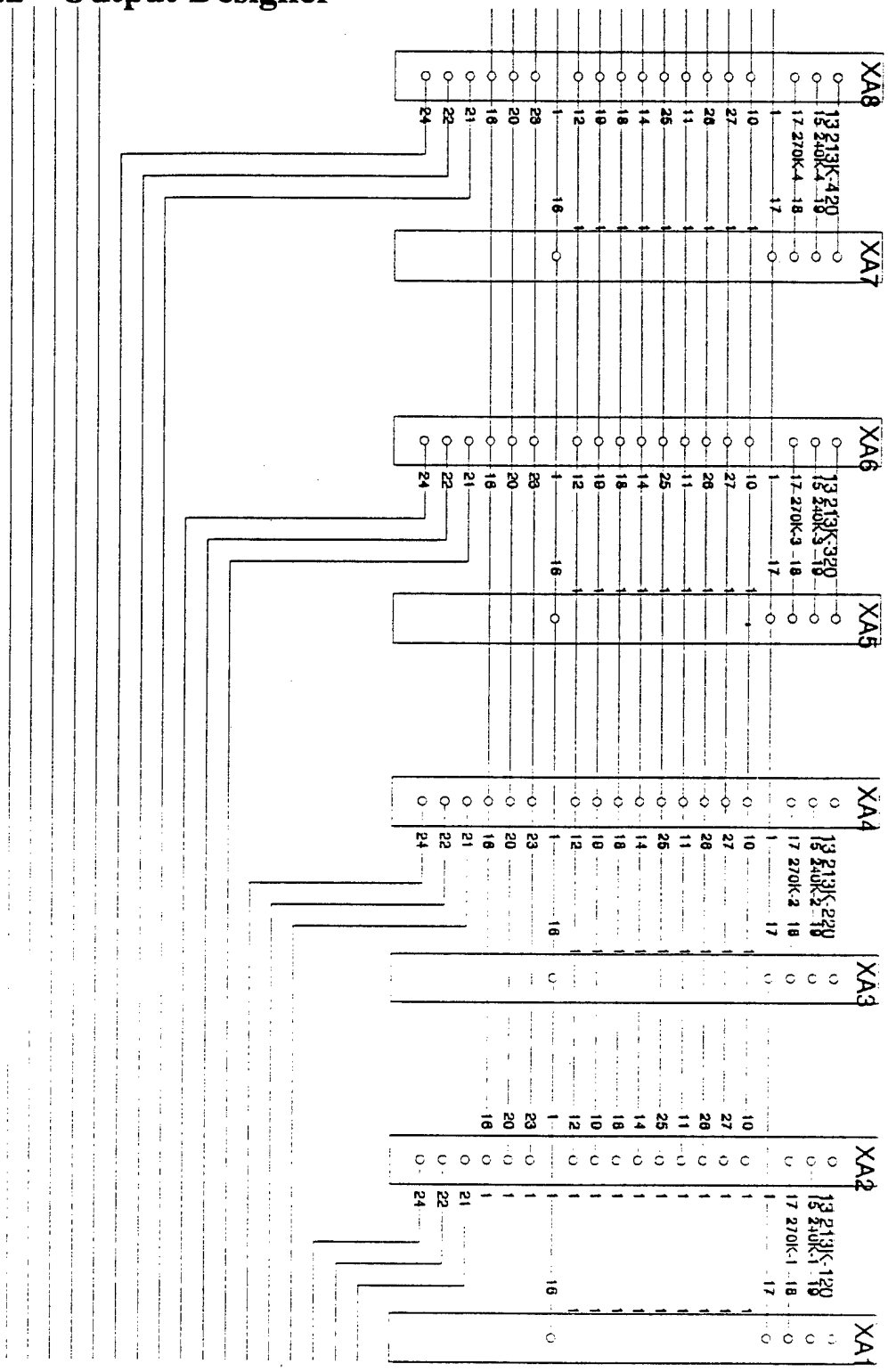
11.2 File D001C005

11.2.1 Parser Log

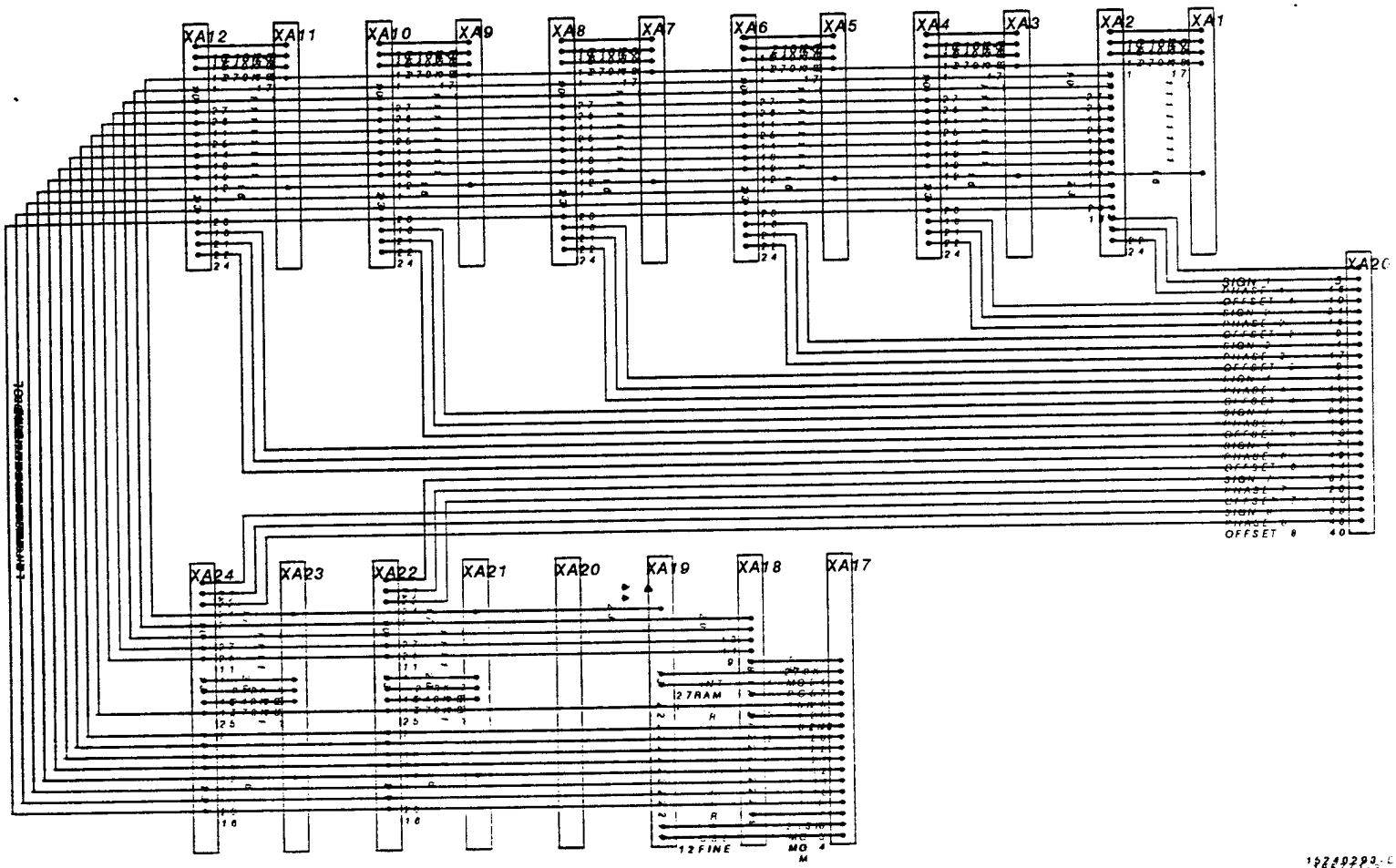
```
CGM/MIL-D-28003 Conformance Analyzer
Copyright 1988-91 CGM Technology Software
Execution Date: 03/29/93     Time:  12:07:40

Metafile Examined    : i:\9328\c005.cgm

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

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

Tracing not selected.

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

Bulletin 20027: Element Class/ID: 4/4   Offset: 496 octets Element No. 35
Warning; a foreground color has been defined and referenced by a primitive,
while the background color has not been defined.

Error 6102: Element Class/ID: 5/16   Offset: 3344 octets Element No. 335
The Character Orientation Base Vector is invalid; it must have
non-zero length.

                    <<<<< PART OF LOG REMOVED HERE >>>>>

Error 6102: Element Class/ID: 5/16   Offset: 58332 octets Element No. 3942
The Character Orientation Base Vector is invalid; it must have
non-zero length.

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

No profile discrepancies detected.

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

CGM/MIL-D-28003 Conformance Analyzer
Copyright 1988-91 CGM Technology Software
Execution Date: 03/29/93     Time:  12:07:53

Name of CGM under test: i:\9328\c005.cgm
```

```
Encoding              : Binary

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

BEGIN METAFILE string : "HiJaak 2"
METAFILE DESCRIPTION  : "HiJaak 2 MIL-D-28003/BASIC-1"

Picture 1 starts at octet offset 336; string contains: "Awesome!"

Conformance Summary   :  This file is not a conforming CGM.

                         Consequently, it does not meet the
                         CALS CGM Profile (MIL-D-28003).

Summary of Testing Performed and Errors Found:

          1 Pictures Tested
       4179 Elements Tested
      61098 Octets Tested

        0 Illegal CGM Elements                          1000 -   1999
        0 Incorrect CGM Element Lengths                 2000 -   2999
        0 CGM State Errors                              3000 -   3499
        0 Required CGM Elements Missing or Wrong        4000 -   4499
      179 CGM Parameter Values Out of Range             6000 -   6499
        0 CGM Structure Errors                          7000 -   7499
      179     ***     CGM Errors Found (total)      ***

        0 Profile State Errors                          3500 -   3999
        0 Illegal Profile Elements                      4500 -   4999
        0 Profile Parameter Values Out of Range         6500 -   6999
        0 Profile Data Limits Exceeded                  8500 -   8999
        0 Other Profile Constraints Violated            9500 -   9999
        0     *** Profile Violations Found (total) ***

        1 Warnings (Advisory Remarks)                  20000 -  20999

        3 distinct errors and warnings were reported.

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

11.2.2 Output Designer

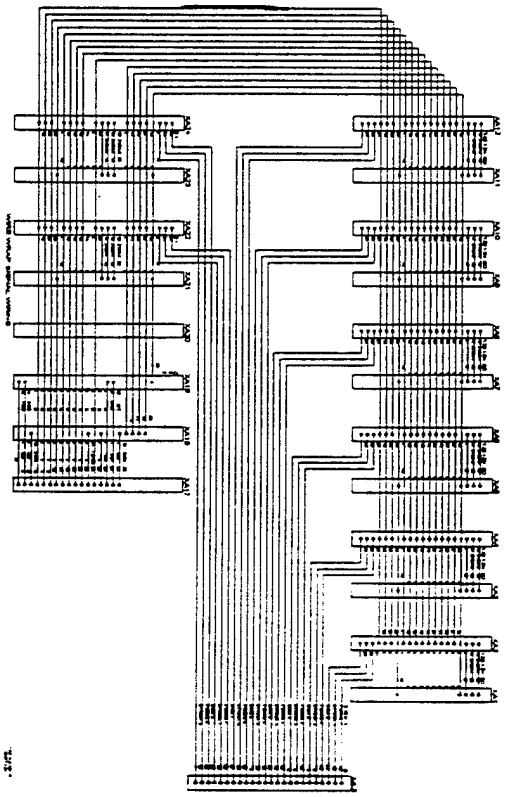


11.2.3 Output Harvard Graphics

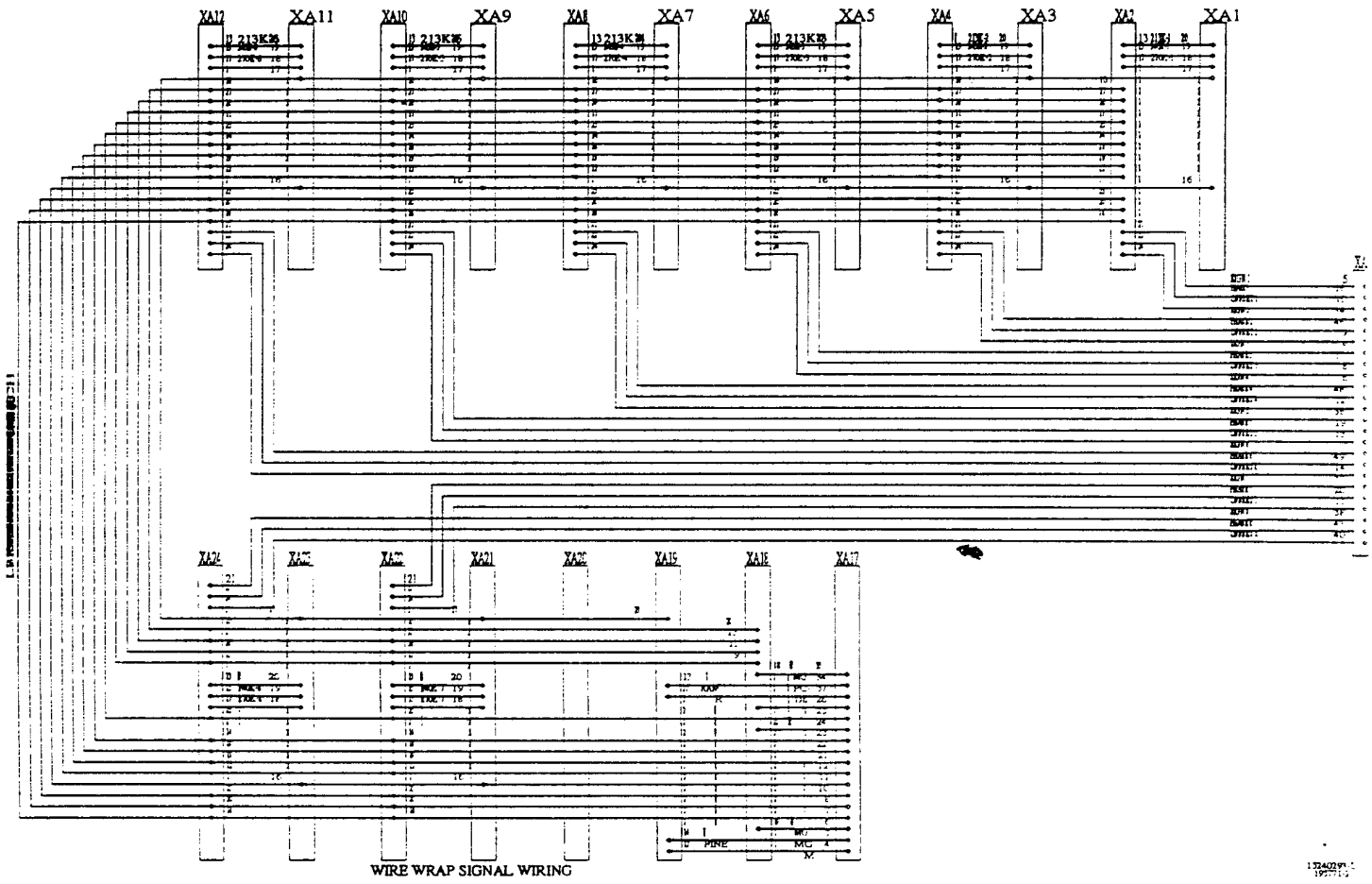


WIRE WRAP SIGNAL WIRING

11.2.4 Output HiJaak for Windows

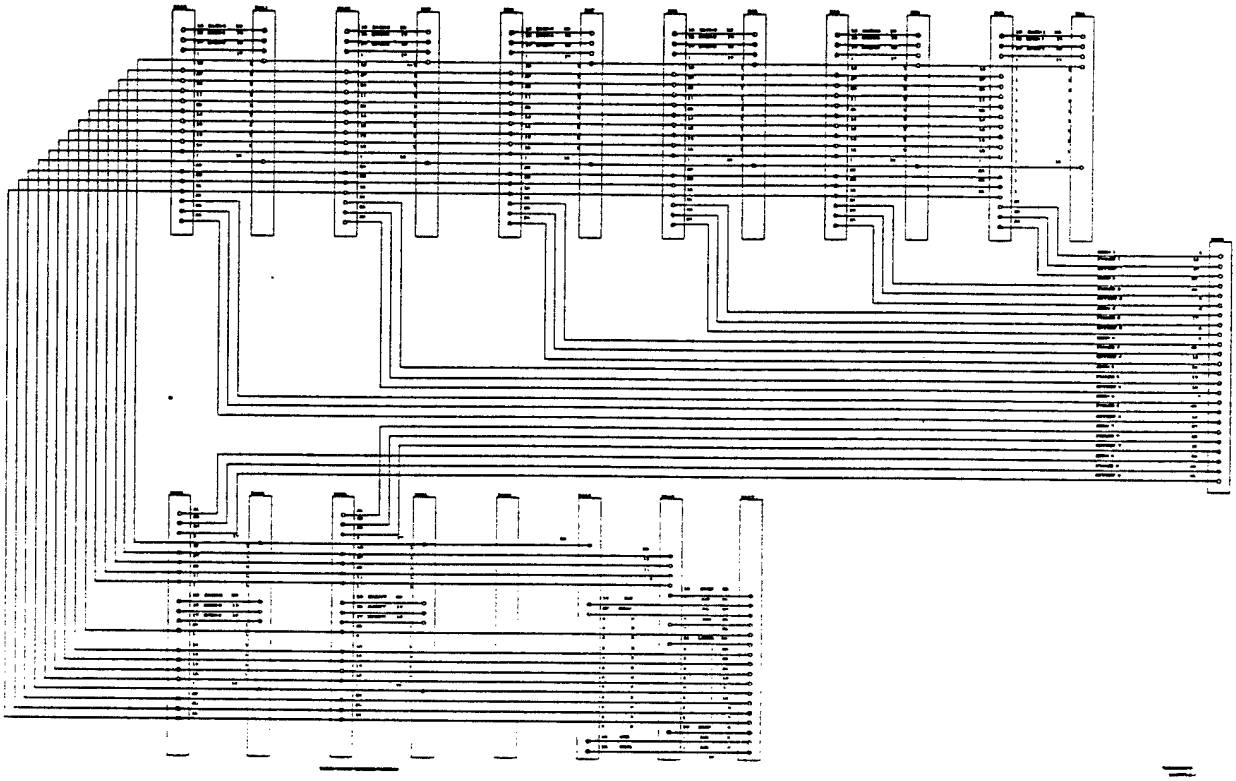


11.2.5 Output cgm2draw/IslandDraw

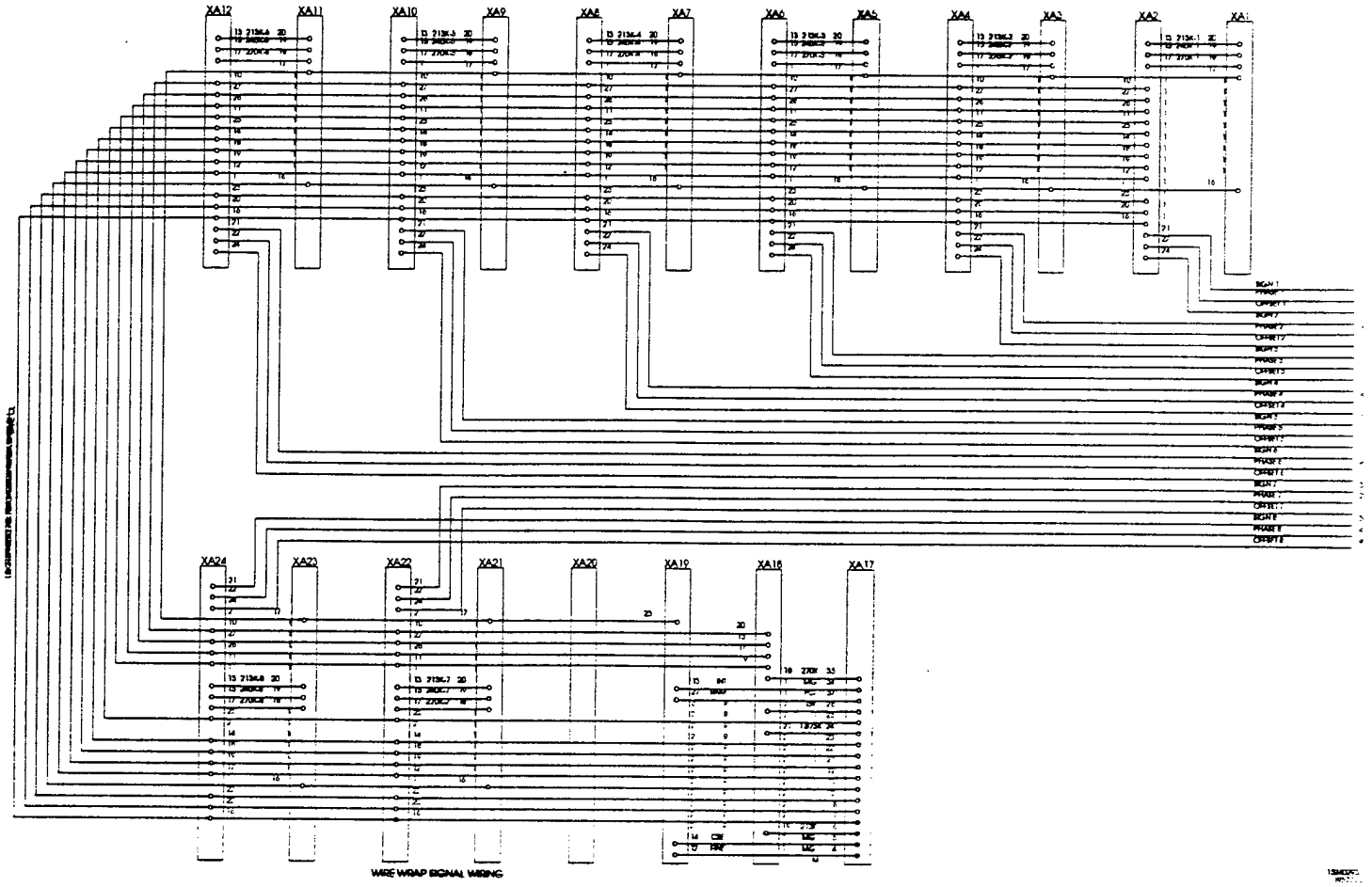


WIRE WRAP SIGNAL WIRING

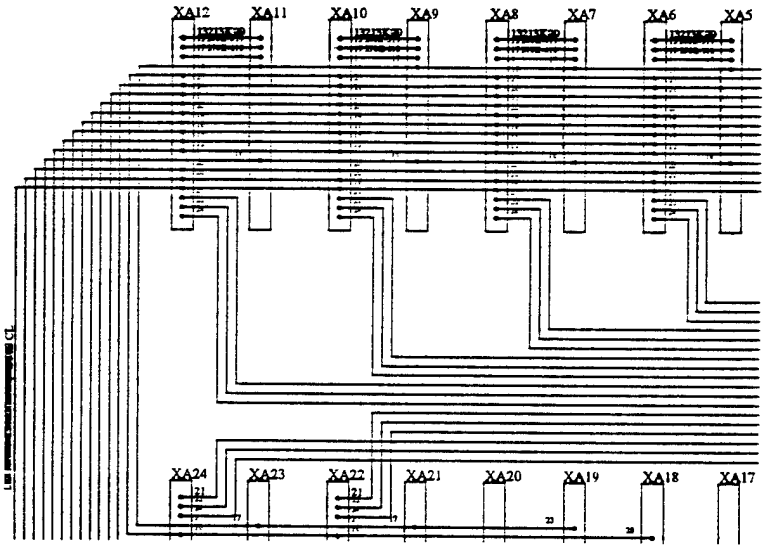
11.2.6 Output Ventura Publisher



11.2.7 Output IslandDraw



11.2.8 Output


XA12
XA11
XA10
XA9
XA8
XA7
XA6
XA5
XA24
XA23
XA22
XA21
XA20
XA19
XA18
XA17

11.3 File D001C013

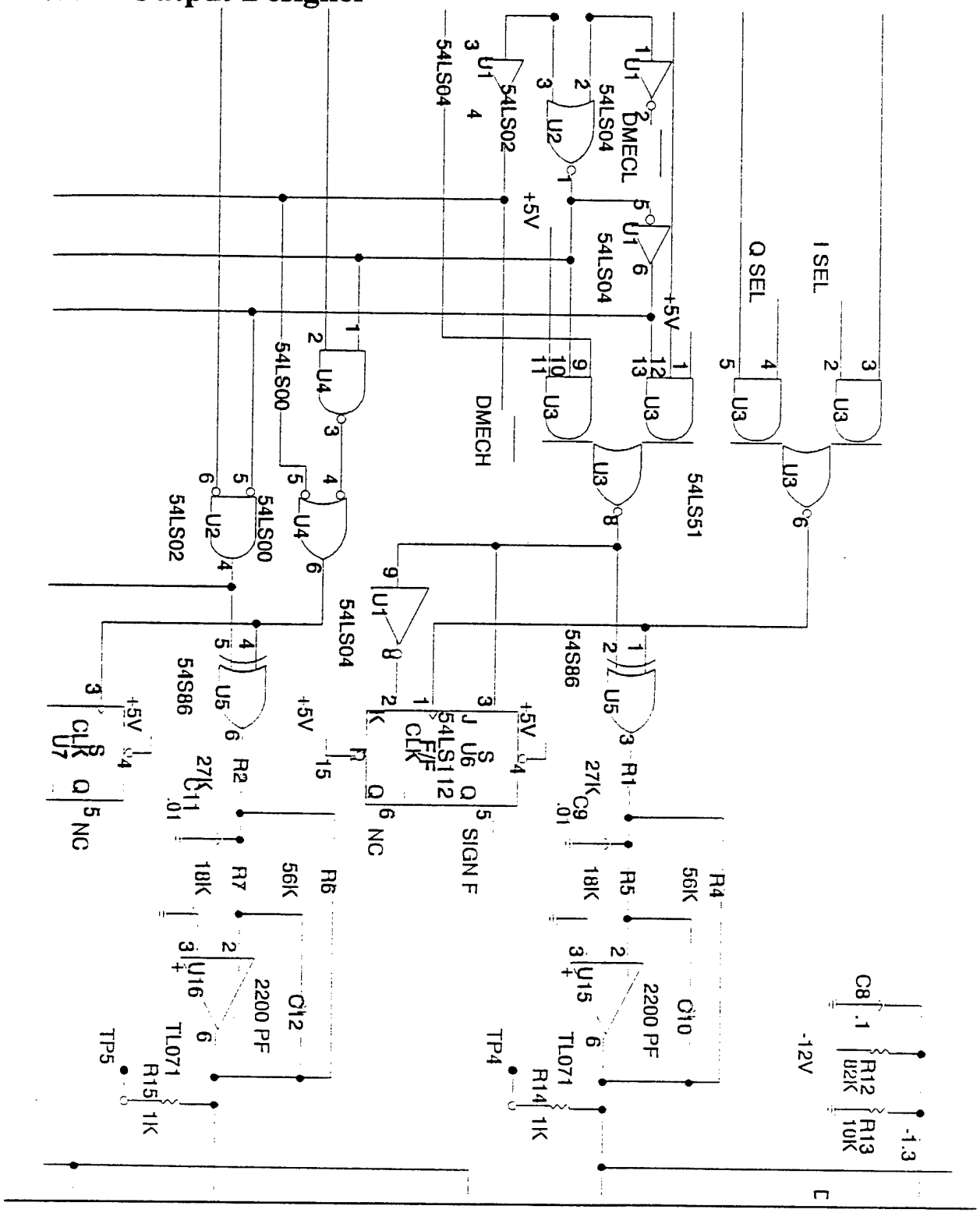
11.3.1 Parser Log

```
CGM/MIL-D-28003 Conformance Analyzer
Copyright 1988-91 CGM Technology Software
Execution Date: 03/29/93     Time:  12:09:10

Metafile Examined    : i:\9328\c013.cgm

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

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

Tracing not selected.

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

Bulletin 20027: Element Class/ID: 4/1   Offset: 490 octets Element No. 34
Warning; a foreground color has been defined and referenced by a primitive,
while the background color has not been defined.

Error 6044: Element Class/ID: 4/4   Offset: 13806 octets Element No. 1084
The Text string is invalid; it contains illegal character codes.

Error 6102: Element Class/ID: 5/16   Offset: 13816 octets Element No. 1085
The Character Orientation Base Vector is invalid; it must have
non-zero length.

Error 6044: Element Class/ID: 4/4   Offset: 14894 octets Element No. 1206
The Text string is invalid; it contains illegal character codes.

Error 6102: Element Class/ID: 5/16   Offset: 14904 octets Element No. 1207
The Character Orientation Base Vector is invalid; it must have
non-zero length.

Error 6044: Element Class/ID: 4/4   Offset: 17356 octets Element No. 1476
The Text string is invalid; it contains illegal character codes.

Error 6102: Element Class/ID: 5/16   Offset: 17366 octets Element No. 1477
The Character Orientation Base Vector is invalid; it must have
non-zero length.
```

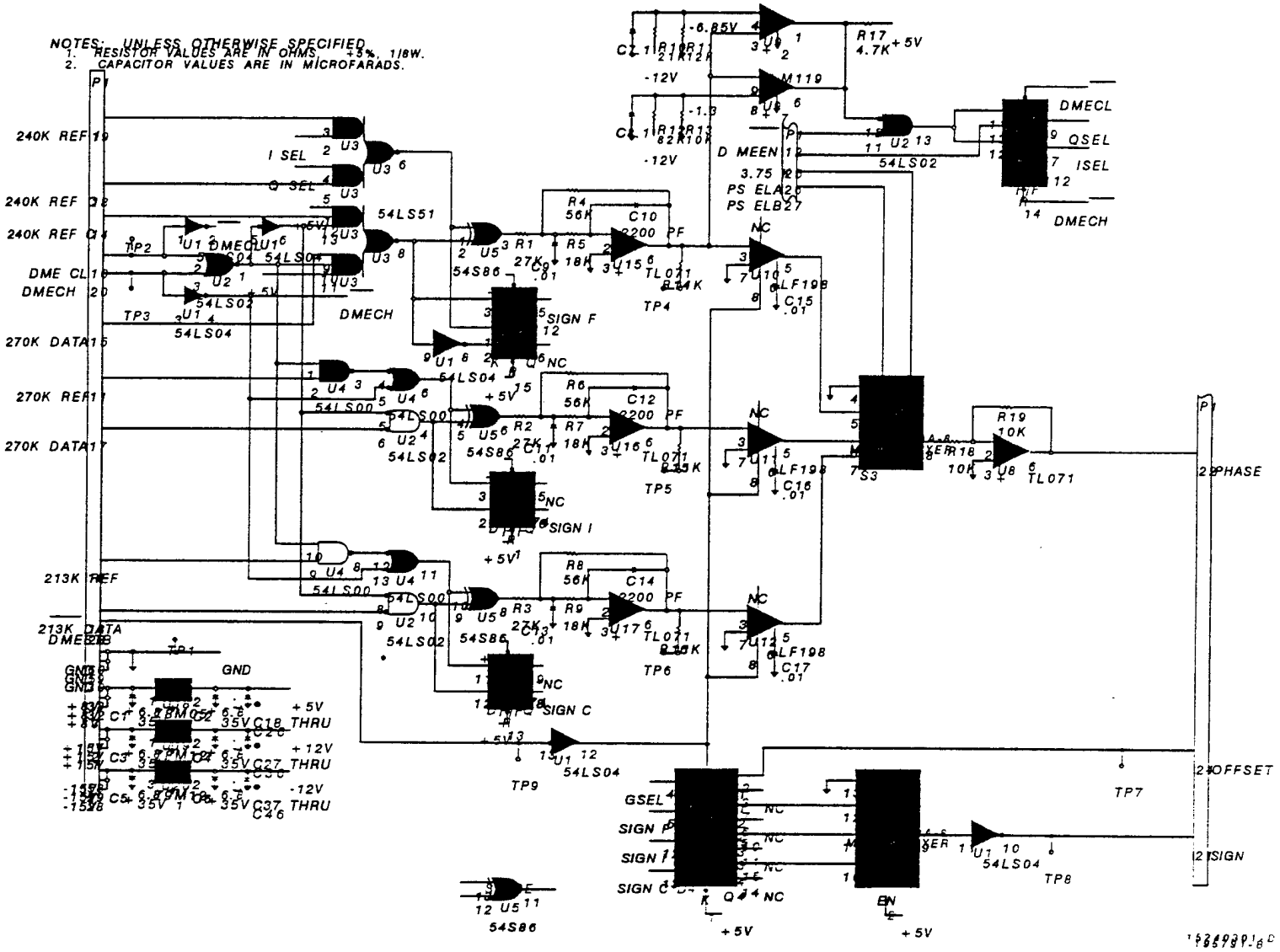
```
========== CALS CGM Profile (MIL-D-28003) Report ============

No profile discrepancies detected.

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

CGM/MIL-D-28003 Conformance Analyzer
Copyright 1988-91 CGM Technology Software
Execution Date: 03/29/93     Time:  12:09:25

Name of CGM under test: i:\9328\c013.cgm
Encoding              : Binary

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

BEGIN METAFILE string : "HiJaak 2"
METAFILE DESCRIPTION  : "HiJaak 2 MIL-D-28003/BASIC-1"

Picture 1 starts at octet offset 336; string contains: "Awesome!"

Conformance Summary   :  This file is not a conforming CGM.

                         Consequently, it does not meet the
                         CALS CGM Profile (MIL-D-28003).

Summary of Testing Performed and Errors Found:

          1 Pictures Tested
       6873 Elements Tested
      93960 Octets Tested

          0 Illegal CGM Elements                        1000 -   1999
          0 Incorrect CGM Element Lengths               2000 -   2999
          0 CGM State Errors                            3000 -   3499
          0 Required CGM Elements Missing or Wrong      4000 -   4499
          6 CGM Parameter Values Out of Range           6000 -   6499
          0 CGM Structure Errors                        7000 -   7499
          6     ***     CGM Errors Found (total)     ***

          0 Profile State Errors                        3500 -   3999
          0 Illegal Profile Elements                    4500 -   4999
          0 Profile Parameter Values Out of Range       6500 -   6999
          0 Profile Data Limits Exceeded                8500 -   8999
          0 Other Profile Constraints Violated          9500 -   9999
          0     *** Profile Violations Found (total) ***
```

```
        1 Warnings (Advisory Remarks)              20000 -  20999

        3 distinct errors and warnings were reported.

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

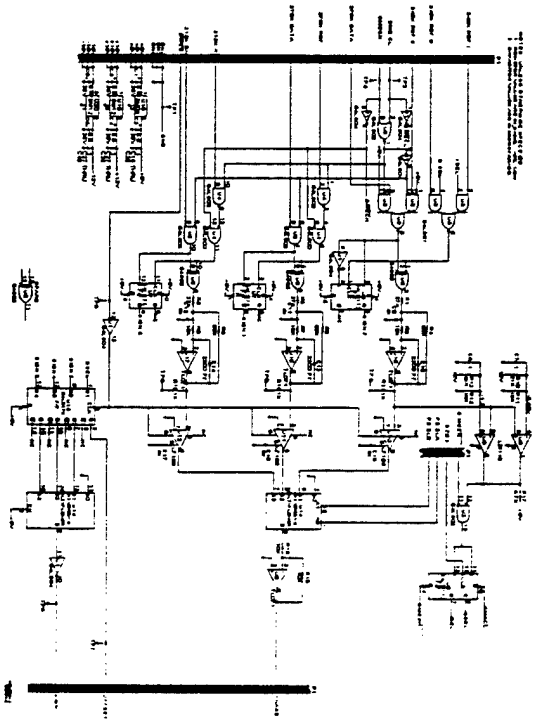
11.3.2 Output Designer



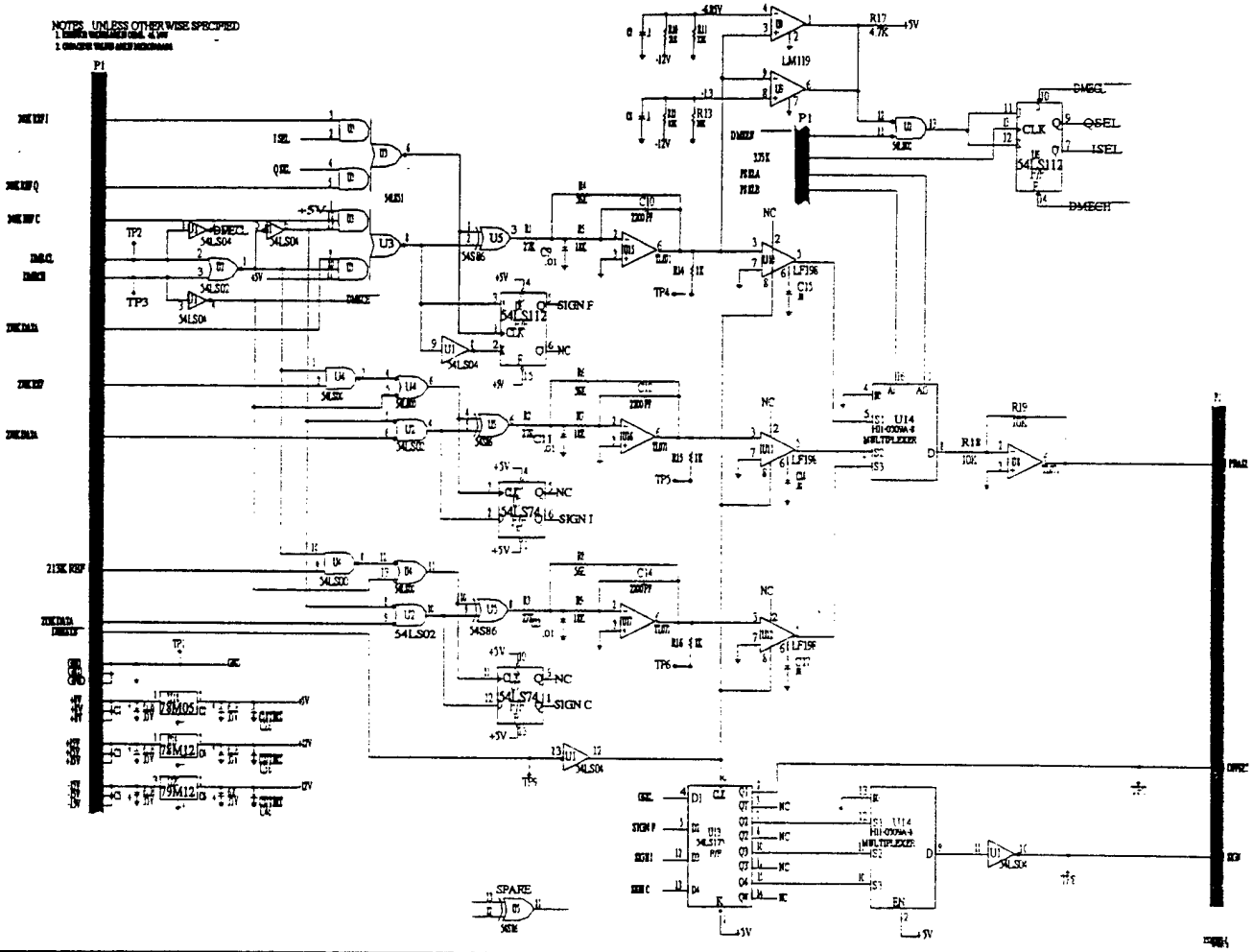
11.3.3 Output Harvard Graphics



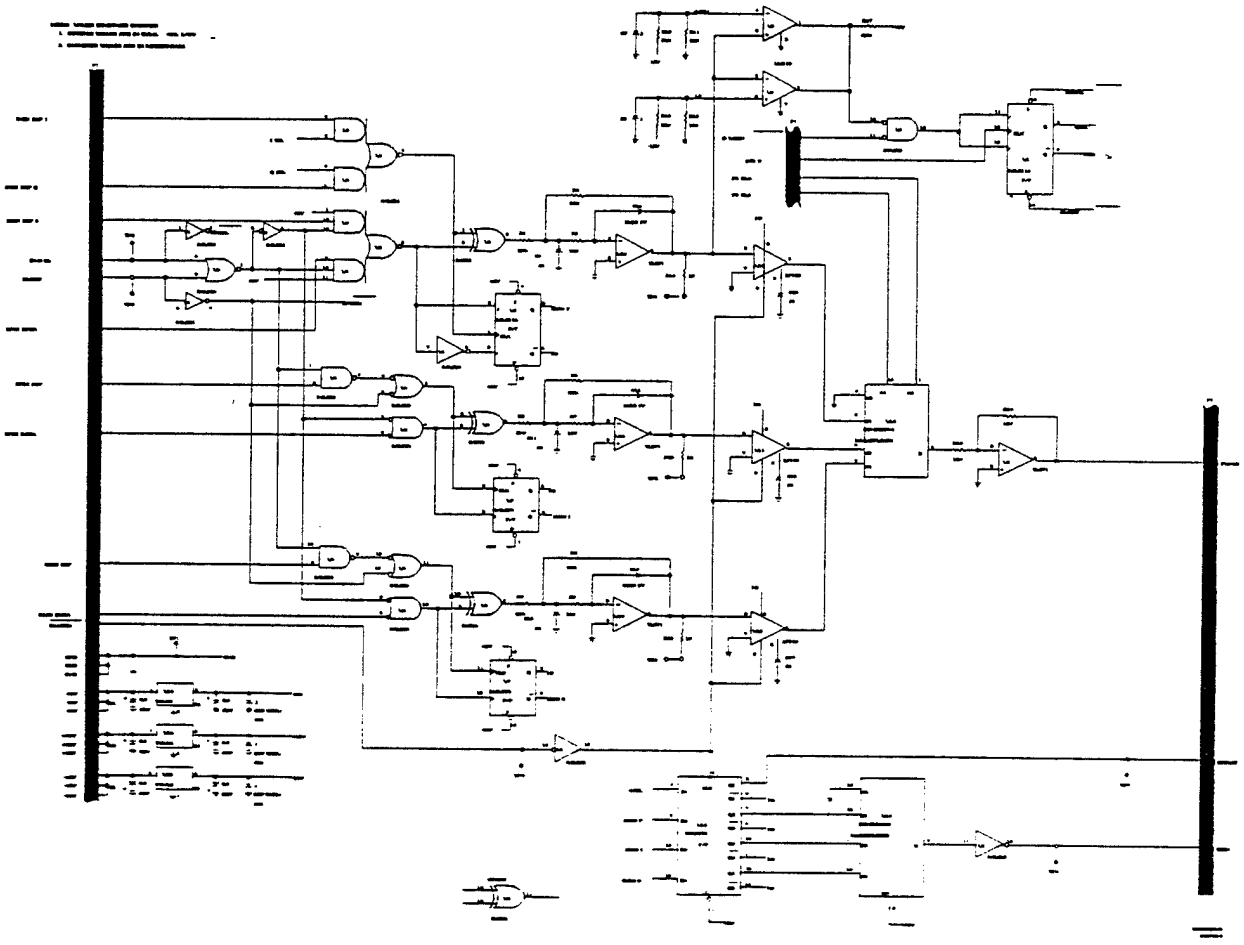
11.3.4 Output HiJaak for Windows



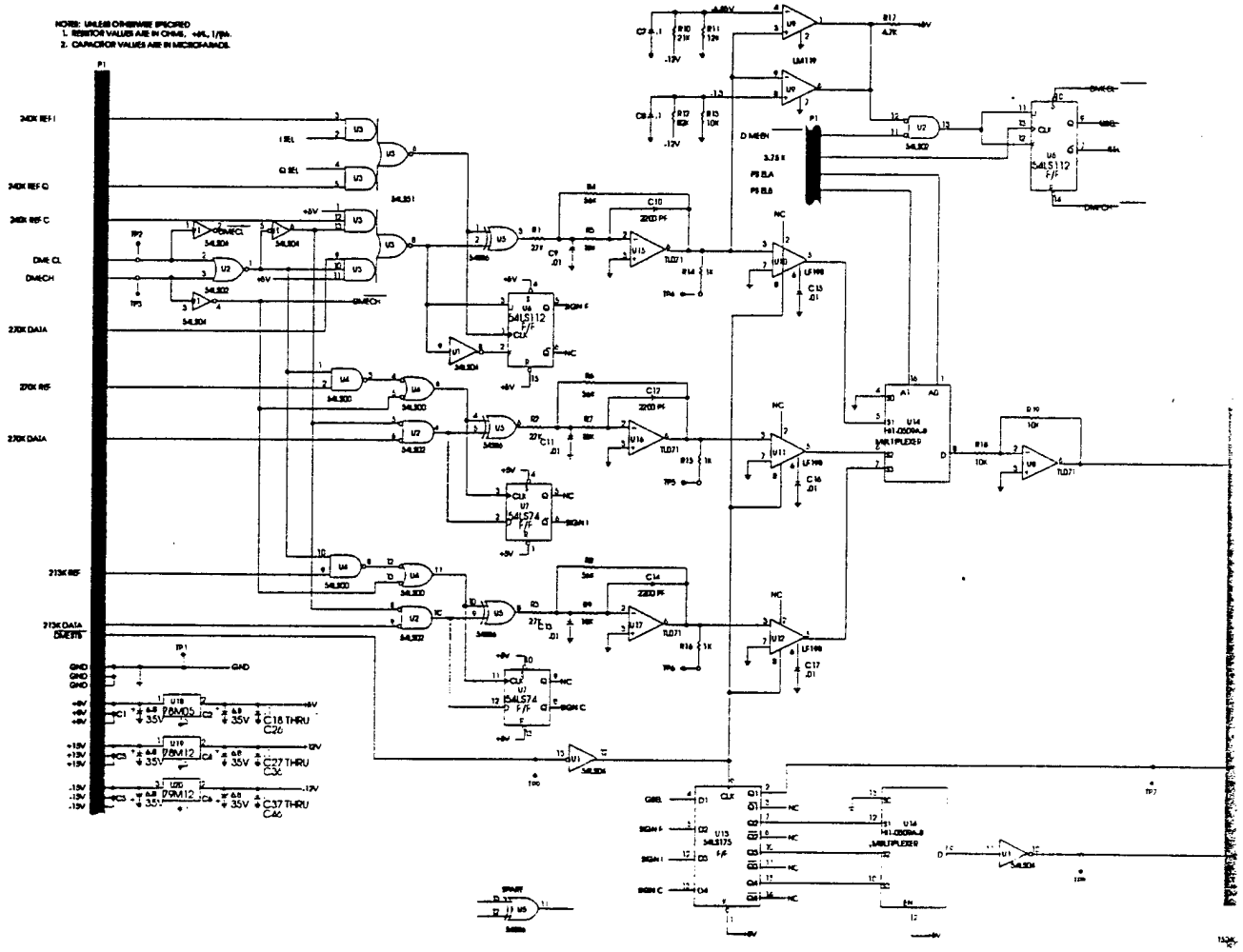
11.3.5 Output cgm2draw/IslandDraw



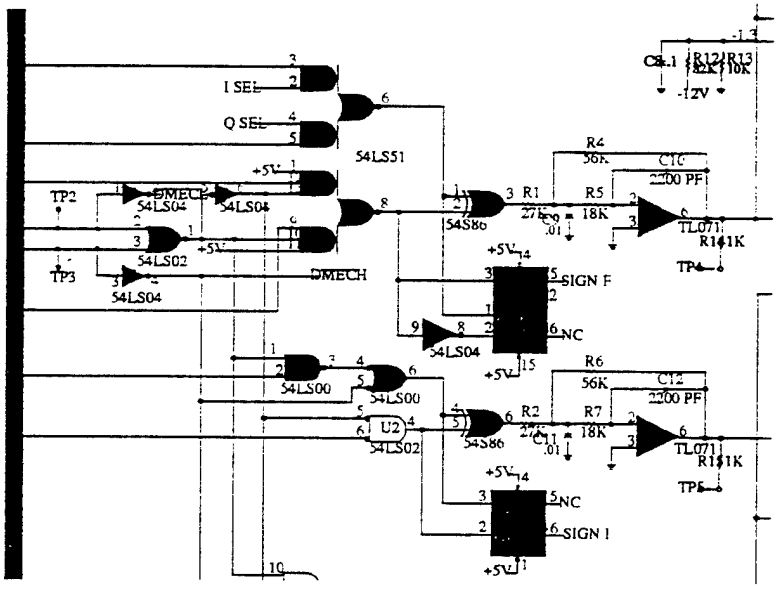
11.3.6 Output Ventura Publisher



11.3.7 Output IslandDraw



11.3.8 Output


I SEL
Q SEL
54LS51
TP2
DMECH
54LS04
54LS04
54LS02
TP3
54LS04
DMECH
54LS00
54LS00
U2
54LS02
54S86
54S86
R1
R2
R4
56K
R5
18K
R6
56K
R7
18K
C10
2200 PF
C12
2200 PF
TL071
TL071
R14 1K
R15 1K
TP4
TP5
+5V
SIGN F
SIGN I
NC
NC
54LS04
R12 82K
R13 10K
-12V

11.4 File D001C015

11.4.1 Parser Log

```
CGM/MIL-D-28003 Conformance Analyzer
Copyright 1988-91 CGM Technology Software
Execution Date: 03/29/93     Time:  12:09:36

Metafile Examined    : i:\9328\c015.cgm

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

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

Tracing not selected.

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

Bulletin 20027: Element Class/ID: 4/7   Offset: 526 octets Element No. 39
Warning; a foreground color has been defined and referenced by a primitive,
while the background color has not been defined.

Error 6102: Element Class/ID: 5/16   Offset: 227902 octets Element No. 19990
The Character Orientation Base Vector is invalid; it must have
non-zero length.

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

No profile discrepancies detected.

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

CGM/MIL-D-28003 Conformance Analyzer Copyright 1988-91 CGM Technology Software Executi
Date: 03/29/93     Time:  12:10:11

Name of CGM under test: i:\9328\c015.cgm
Encoding              : Binary

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

BEGIN METAFILE string : "HiJaak 2"
```

METAFILE DESCRIPTION : "HiJaak 2 MIL-D-28003/BASIC-1"

Picture 1 starts at octet offset 336; string contains: "Awesome!"

Conformance Summary : This file is not a conforming CGM.

Consequently, it does not meet the
CALS CGM Profile (MIL-D-28003).

Summary of Testing Performed and Errors Found:

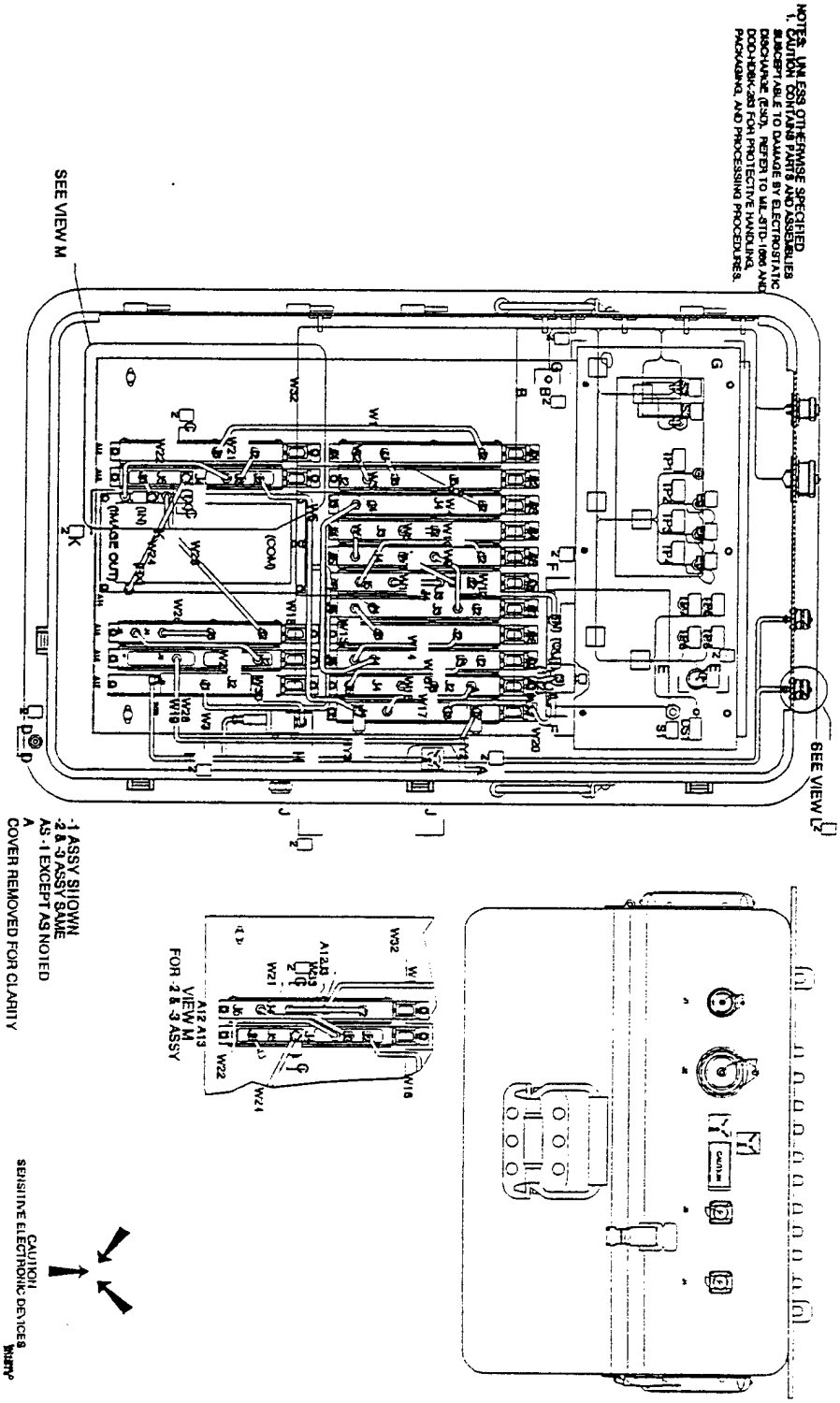
1 Pictures Tested
20054 Elements Tested
228742 Octets Tested

0	Illegal CGM Elements	1000 -	1999
0	Incorrect CGM Element Lengths	2000 -	2999
0	CGM State Errors	3000 -	3499
0	Required CGM Elements Missing or Wrong	4000 -	4499
1	CGM Parameter Values Out of Range	6000 -	6499
0	CGM Structure Errors	7000 -	7499
1	*** CGM Errors Found (total)	***	
0	Profile State Errors	3500 -	3999
0	Illegal Profile Elements	4500 -	4999
0	Profile Parameter Values Out of Range	6500 -	6999
0	Profile Data Limits Exceeded	8500 -	8999
0	Other Profile Constraints Violated	9500 -	9999
0	*** Profile Violations Found (total)	***	
1	Warnings (Advisory Remarks)	20000 -	20999

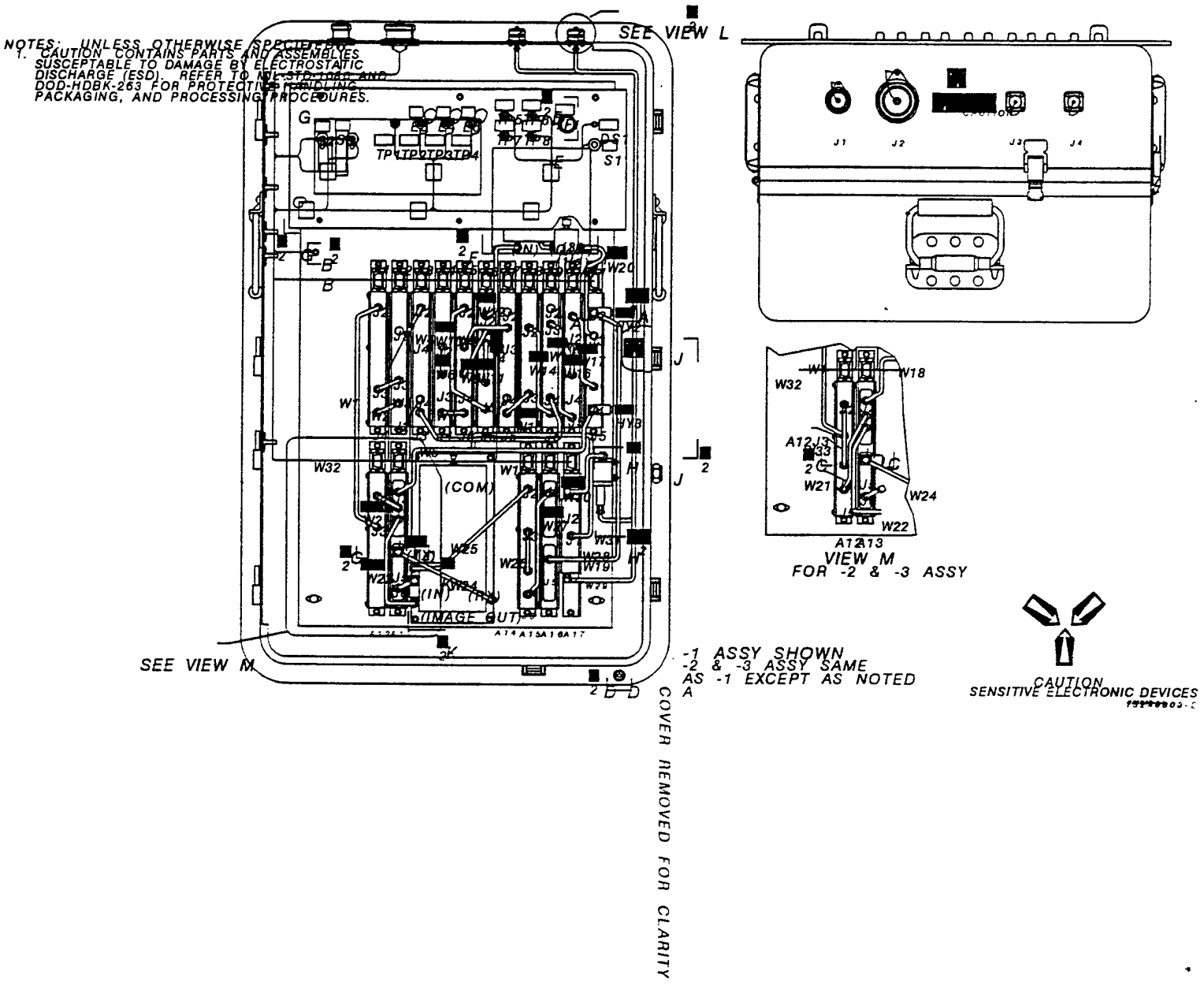
2 distinct errors and warnings were reported.

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

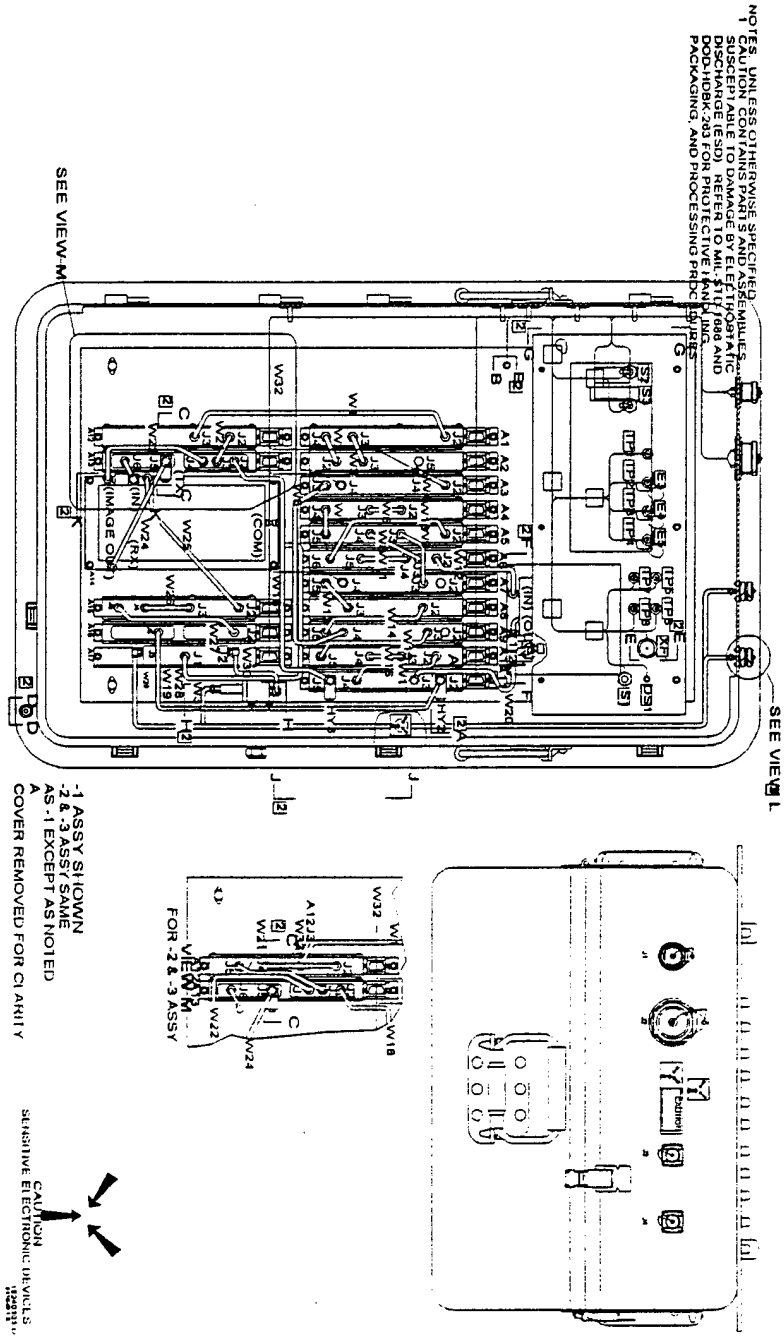
11.4.2 Output Designer



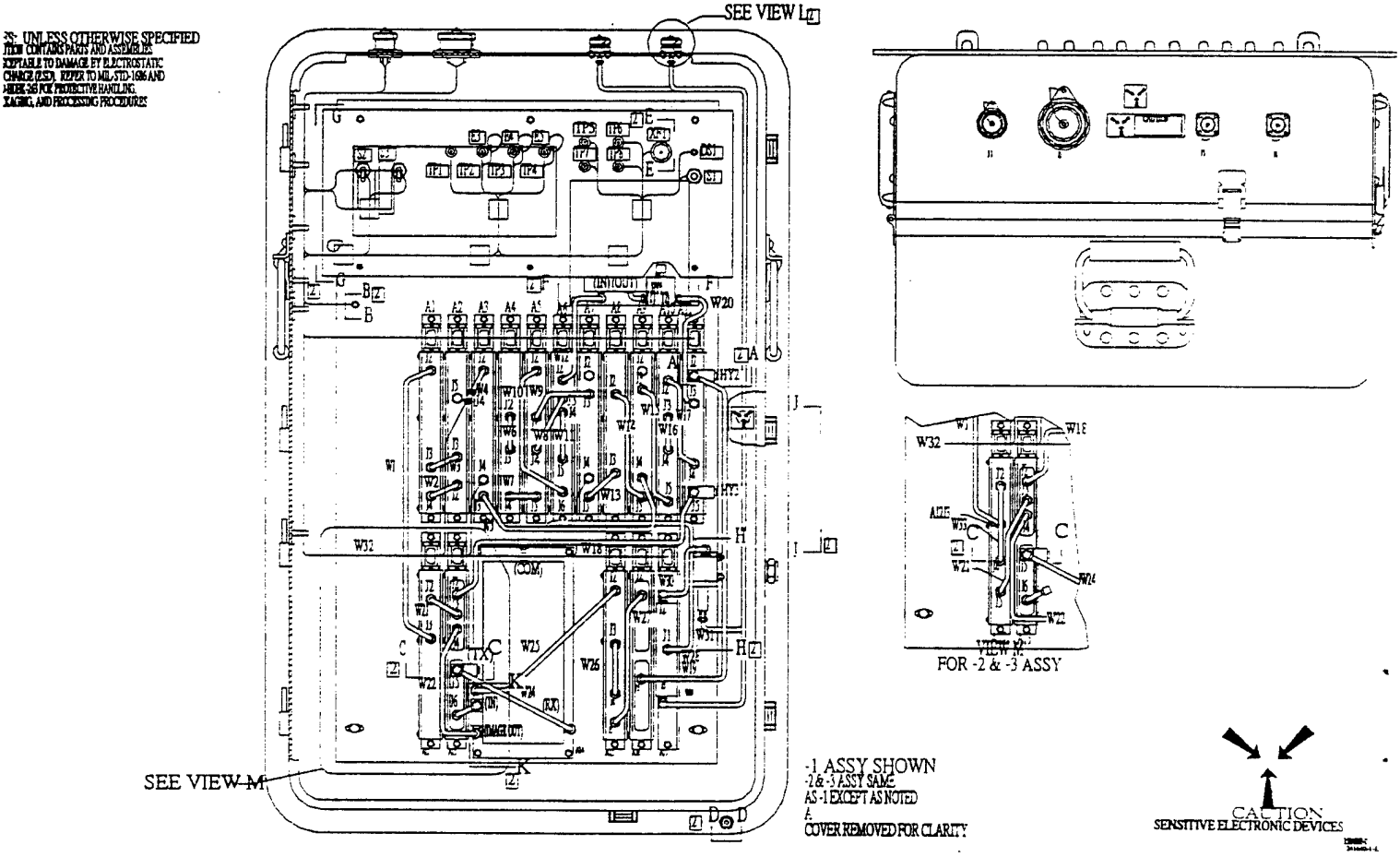
11.4.3 Output Harvard Graphics



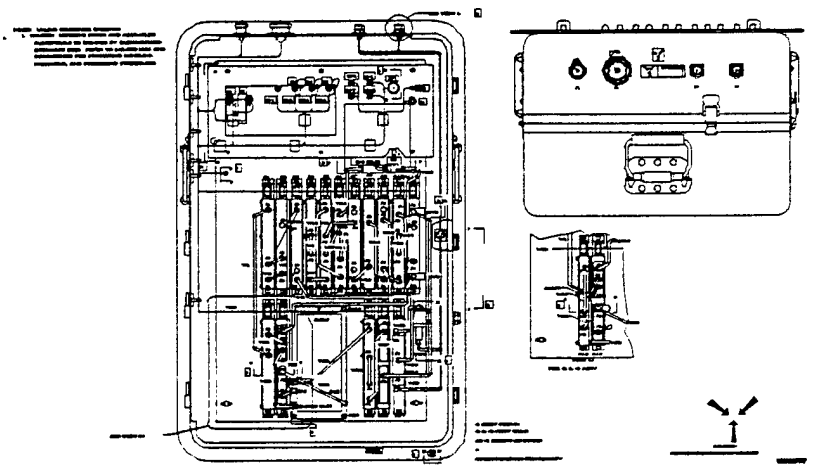
11.4.4 Output HiJaak for Windows



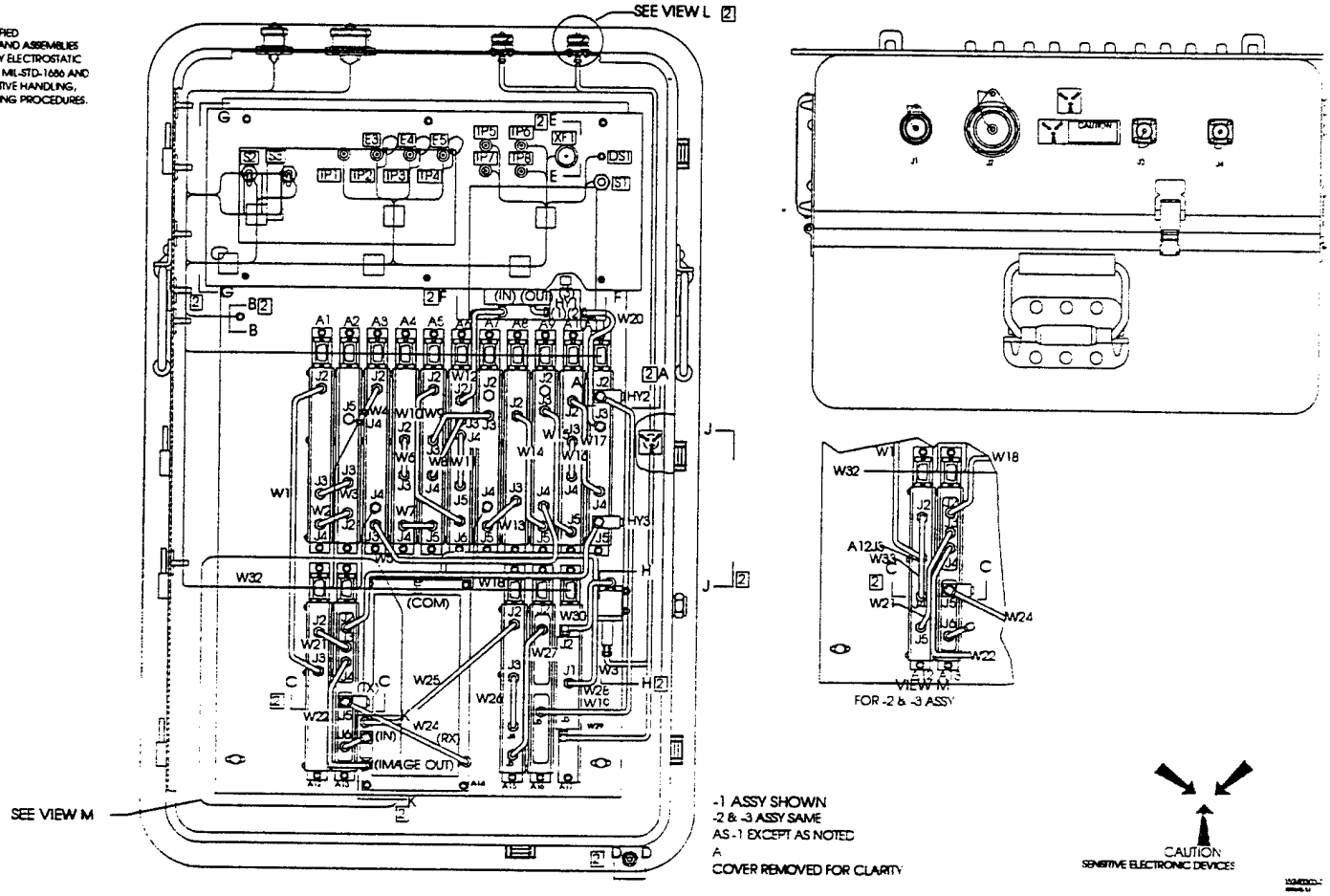
11.4.5 Output cgm2draw/IslandDraw



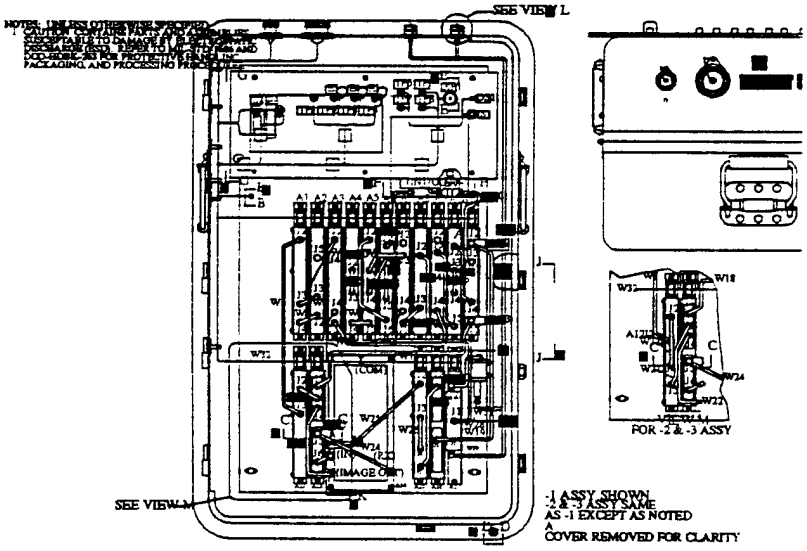
11.4.6 Output Ventura Publisher



11.4.7 Output IslandDraw



11.4.8 Output


SEE VIEW L
SEE VIEW A
FOR -2 & -3 ASSY
-1 ASSY SHOWN
-2 & -3 ASSY SAME
AS -1 EXCEPT AS NOTED
A
COVER REMOVED FOR CLARITY