CALS TEST NETWORK

AFCTN Test Report 93-032

AFCTB-ID 92-050

Raster Transfer Test

using:

Raytheon Company's Data

MIL-R-28002A (Raster)

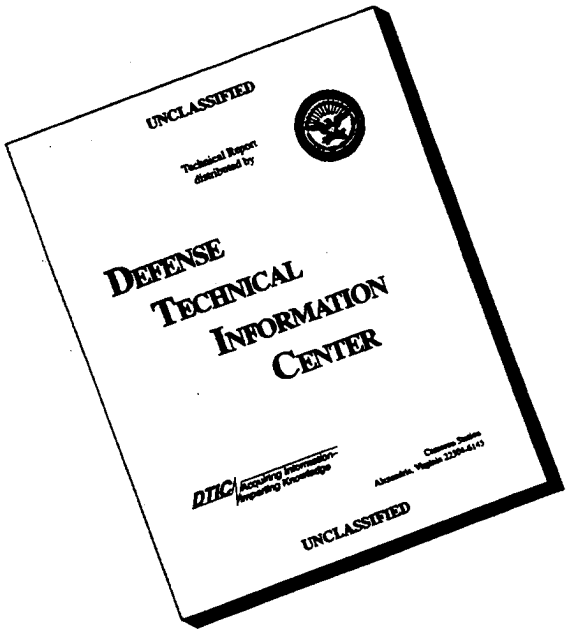
Quick Short Test Report

01 September 1992

Prepared for

Electronic Systems Center

DISCLAIMER NOTICE



THIS DOCUMENT IS BEST QUALITY AVAILABLE. THE COPY FURNISHED TO DTIC CONTAINED A SIGNIFICANT NUMBER OF PAGES WHICH DO NOT REPRODUCE LEGIBLY.

Raster Transfer Test
Using:
Raytheon Company's Data

MIL-R-28002A (Raster)

Quick Short Test Report

1 September 1992

Prepared By
Air Force CALS Test Bed
Wright-Patterson AFB, OH 45433

AFCTB Contact
Gary Lammers
(513) 427-2295

AFCTN Contact
Mel Lammers
(513) 427-2295

DISCLAIMER

This document was prepared as an account of the work sponsored by the Air Force. Neither the United States Government, the Air Force, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, nor represents that its use would not infringe on privately owned rights. Reference herein to any specific commercial products, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or the Air Force. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or the Air Force, and shall not be used for advertising or product endorsement purposes.

Available to the public from the
National Technical Information Service
U.S. Department of Commerce
5285 Port Royal Rd.
Springfield, VA 22161

This report and those involved in its preparation do not endorse any product, process, or company stated herein. Use of these means by anyone does not imply certification by the Air Force CALS Test Network (AFCTN).

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 Raytheon Company's interpretation and use of the CALS standards in transferring technical publication data. Raytheon 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 92-050

Date of Evaluation: 1 September 1992

Evaluator:
George Elwood
Air Force CALS Test Bed
HQ ESC/ENCP
Suite 200
4027 Colonel Glenn Hwy
Dayton OH 45431-1672

Data Originator:
Lynn B. Wiles
Raytheon Company
Missile System Division
350 Lowell Street
Andover MA 01810

Data Description: Technical Manual Test
1 Document Declaration file
52 Raster files

Data Source System:

Raster

HARDWARE
Unknown

SOFTWARE
Unknown

Evaluation Tools Used:

MIL-STD-1840A (TAPE)
SUN 3/280
AFCTN *Tapetool v1.2.8 UNIX*
AGFA Compugraphics *CAPS/CALS v40.4*

MIL-R-28002 (Raster)

SUN SparcStation 2
- ArborText *g42tiff*
- AFCTN *validg4*
- AFCTN *calstb.475*
- Island Graphics *IslandPaint v3.0*
- Rosetta Technologies *Preview*

Cheetah
- Inset Systems *HiJaak v2.02*
- Software Publishing Corporation (SPC) *Harvard Graphics v3.0*
- Xerox *Ventura Publisher*

Standards Tested:

MIL-STD-1840A
MIL-R-28002A

3. 1840A Analysis

3.1 External Packaging

The tape arrived at the Air Force CALS Test Bed (AFCTB) enclosed in a box in accordance with the ASTM D 3951. The exterior of the box was marked with the magnetic tape warning label, as required by MIL-STD-1840A, para. 5.3.1.3.

The tape was enclosed in a 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 1840A 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 also read using AGFA's *CAPS read1840A* tape utility without any reported problems.

3.2.2 Declaration and Header Fields

No errors were reported in the Document Declaration file or data header records.

4. IGES Analysis

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

5. SGML Analysis

No Standard Generalized Markup Language (SGML) files were included on the tape.

6. Raster Analysis

The tape contained 52 Raster images. All 52 images were checked using the AFCTN *validg4* utility. This utility reported all files were valid MIL-R-28002A files. Selected files were imported into the AFCTN *calstb.475* viewing utility without a reported problem. The images were clean with no orphan pixels noted. The images were scanned straight. File D001R046 displayed a slight notable angle.

A selection of files were converted using Rosetta Technologies' *Prepare* with no reported problems. The resulting files were viewed and printed. The hard copies of these files are included in the Appendix of this report.

The same files were converted using ArborText's *g42tiff* with no reported problems. The resulting files were viewed and printed using Island Graphics' *IslandPaint.*

The same files were converted to an IMG format on the PC using Inset Systems' *HiJaak* with no reported problems. They were also converted to a PCX format. The PCX format files were seen through a Viewer with no problems. The IMG files were imported into the Xerox *Ventura Publisher* and a hard copy is included in the Appendix of this report.

The Raster files meet the CALS MIL-R-28002A specification.

7. CGM Analysis

No Computer Graphics Metafile (CGM) files were included on the tape.

8. Conclusions and Recommendations

In summary, the MIL-STD-1840A tape from Raytheon Company was correct. The tape could be read properly using the AFCTN *Tapetool* and AGFA's *read1840A* without any reported errors.

The Raster images on the tape were all valid files. They were converted, viewed, and printed without a problem. The quality of the images was good.

The tape provided by the Raytheon Company meets the CALS MIL-STD-1840A 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
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 Sep 1 07:55:08 1992

MIL-STD-1840A File Catalog

File Set Directory: /cals/tapetool8/Set083

Page: 1

File Name	File Type	Record Format/ Length	Block Length/Total	Selected/ Extracted
D001	Document Declaration	D/00260	02048/000001	Extracted
D001R001	Raster	F/00128	02048/000022	Extracted
D001R002	Raster	F/00128	02048/000020	Extracted
D001R003	Raster	F/00128	02048/000027	Extracted
	<<<<< *PART OF LOG REMOVED HERE* >>>>>			
D001R050	Raster	F/00128	02048/000028	Extracted
D001R051	Raster	F/00128	02048/000030	Extracted
D001R052	Raster	F/00128	02048/000028	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

Tue Sep  1 07:53:57 1992

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 92227 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:  92227
  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 92227 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:  92227
  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

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

HDR1D001R001        CALS0100010002000000 92227 00000 000000

  Label Identifier: HDR1
  File Identifier: D001R001
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0002
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date:  92227
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000000
```

```
  Implementation Identifier:

HDR2F0204800128                                    00

  Label Identifier: HDR2
  Recording Format: F
  Block Length: 02048
  Record Length: 00128
  Offset Length: 00

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

  Actual Block Size Found = 2048 Bytes.

  Number of data blocks read = 22.

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

EOF1D001R001          CALS0100010002000000 92227 00000 000022

  Label Identifier: EOF1
  File Identifier: D001R001
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0002
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date:  92227
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000022
  Implementation Identifier:

EOF2F0204800128                                    00

  Label Identifier: EOF2
  Recording Format: F
  Block Length: 02048
  Record Length: 00128
  Offset Length: 00

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

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

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

```
EOF1D001R052          CALS0100010053000000 92227 00000 000028

  Label Identifier: EOF1
  File Identifier: D001R052
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0053
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date:  92227
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000028
  Implementation Identifier:

EOF2F0204800128                                    00

  Label Identifier: EOF2
  Recording Format: F
  Block Length: 02048
  Record Length: 00128
  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
    MIL-R-28002 (1989) - Raster Graphics Representation In Binary
                         Format, Requirements For

Tue Sep  1 07:55:09 1992

MIL-STD-1840A File Set Evaluation Log

File Set: Set083

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

srcsys: Raytheon MSD, 350 Lowell St.  Andover, MA 01810   R. B. Goodwin, Andover Eng'g
ANF-B16   (508) 470-7425
srcdocid: PDPATRIOT        18876            AX          UDCTN      C
srcrelid: NONE
chglvl: ORIGINAL
dteisu: 19920814
dstsys: DSREDS
dstdocid: NONE
dstrelid: NONE
dtetrn: 19920814
dlvacc: NONE
filcnt: R52
ttlcls: UNCLASSIFIED
doccls: UNCLASSIFIED
doctyp: Product Data
docttl: Patriot Missile System


Found file: D001R001
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: SDSD11444470     18876 F          AX  00010001UDCTN0001 CC
dstdocid: SD11444470
txtfilid: NONE
figid: NONE
srcgph: NONE
doccls: UNCLASSIFIED
```

```
rtype: 1
rorient: 000,270
rpelcnt: 004549,003525
rdensty: 0200
notes: ANTENNA ELEMENT-IFF INTERCONNECTING DIAG.

Saving Raster Header File: D001R001_HDR
Saving Raster Data File: D001R001_GR4

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

Found file: D001R052
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: ED11449203       18876 C          AX  00010001UDCTN0001 CC
dstdocid: 11449203
txtfilid: NONE
figid: NONE
srcgph: NONE
doccls: UNCLASSIFIED
rtype: 1
rorient: 000,270
rpelcnt: 004545,003520
rdensty: 0200
notes: FLANGE, TUBE

Saving Raster Header File: D001R052_HDR
Saving Raster Data File: D001R052_GR4

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.
```

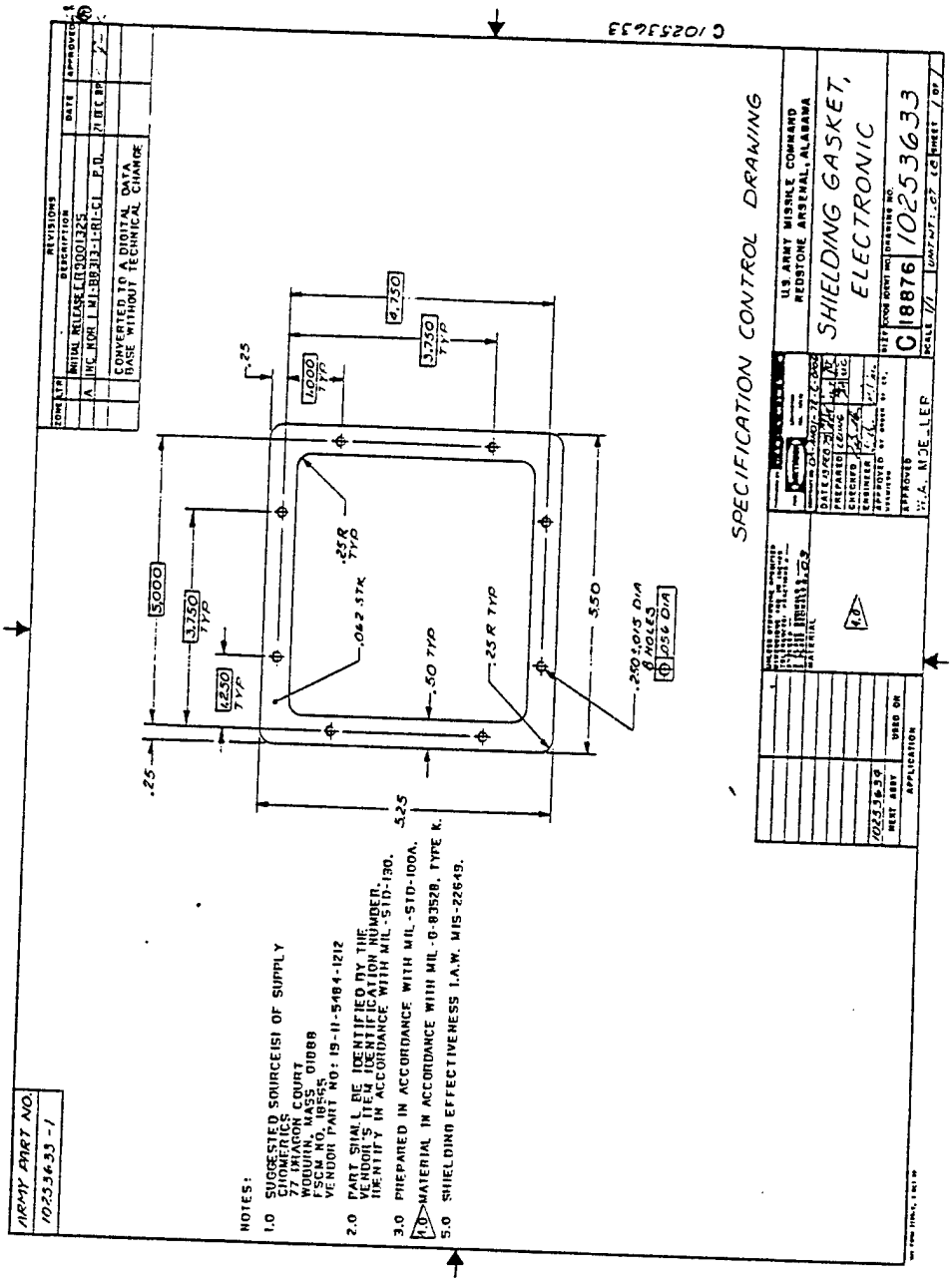
9.4 Other Tape Reading LOGs

No reported errors.

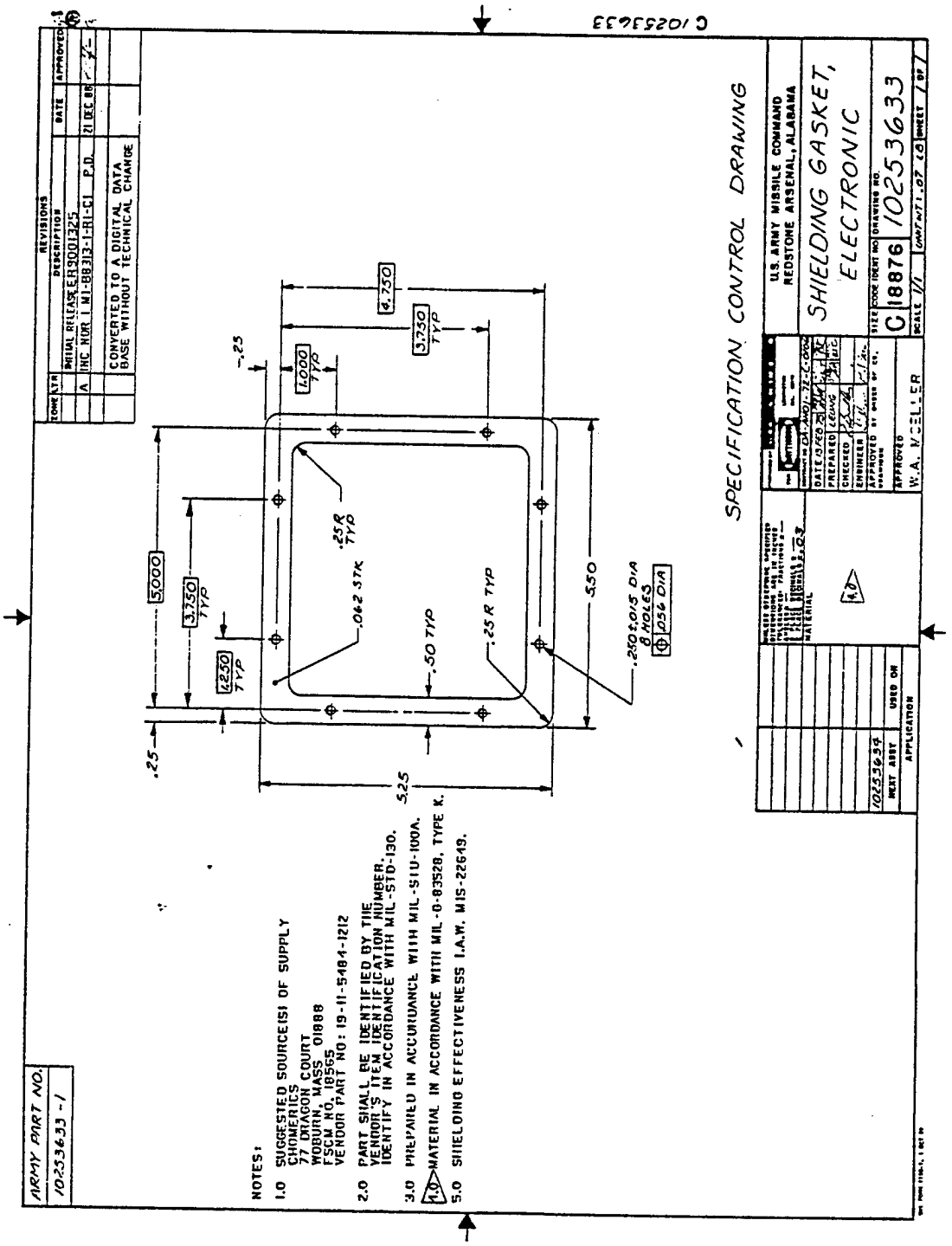
10. Appendix B - Detailed Raster Analysis

10.1 File D001R013

10.1.1 Output IslandPaint

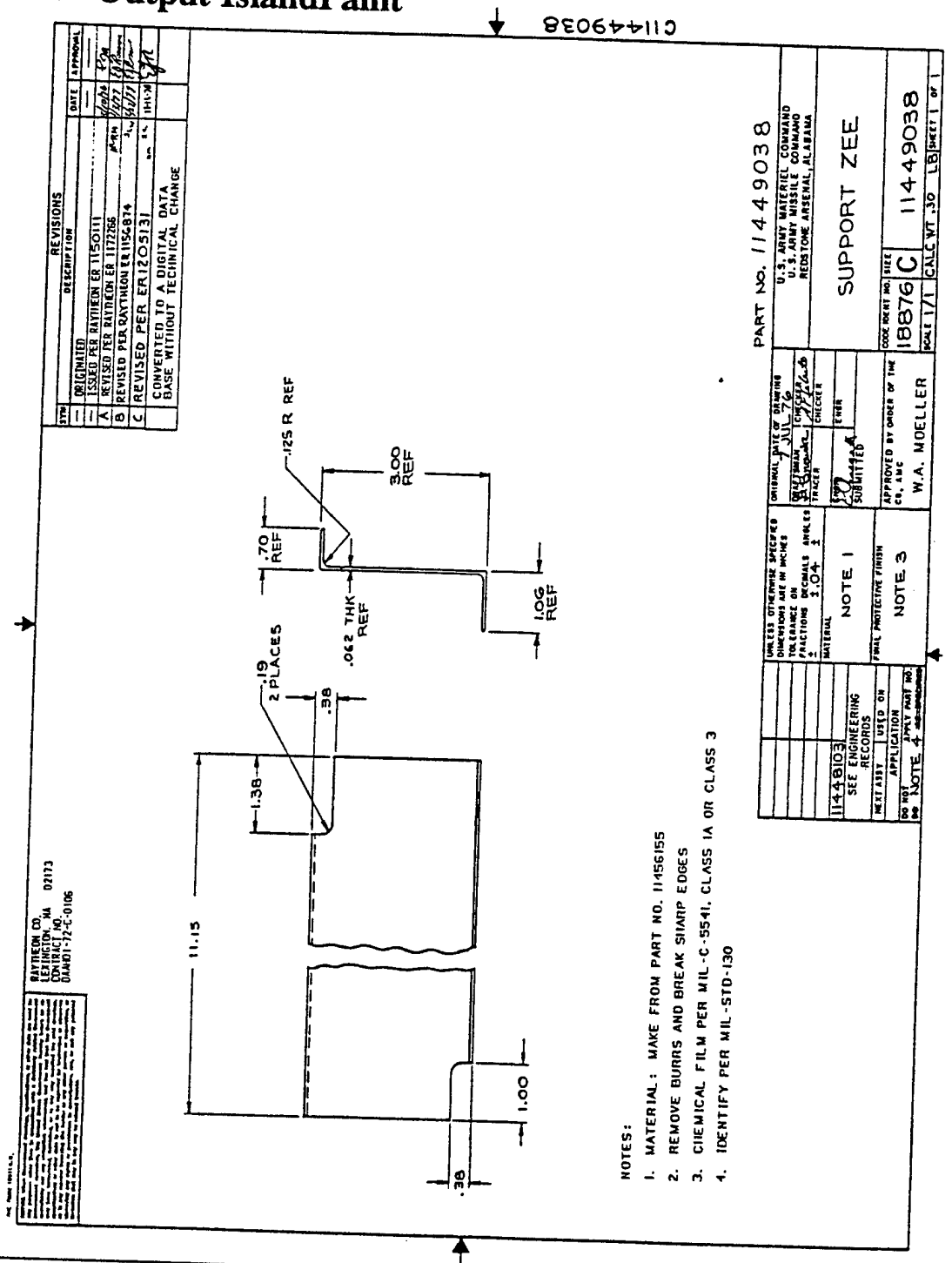


10.1.2 Output Preview

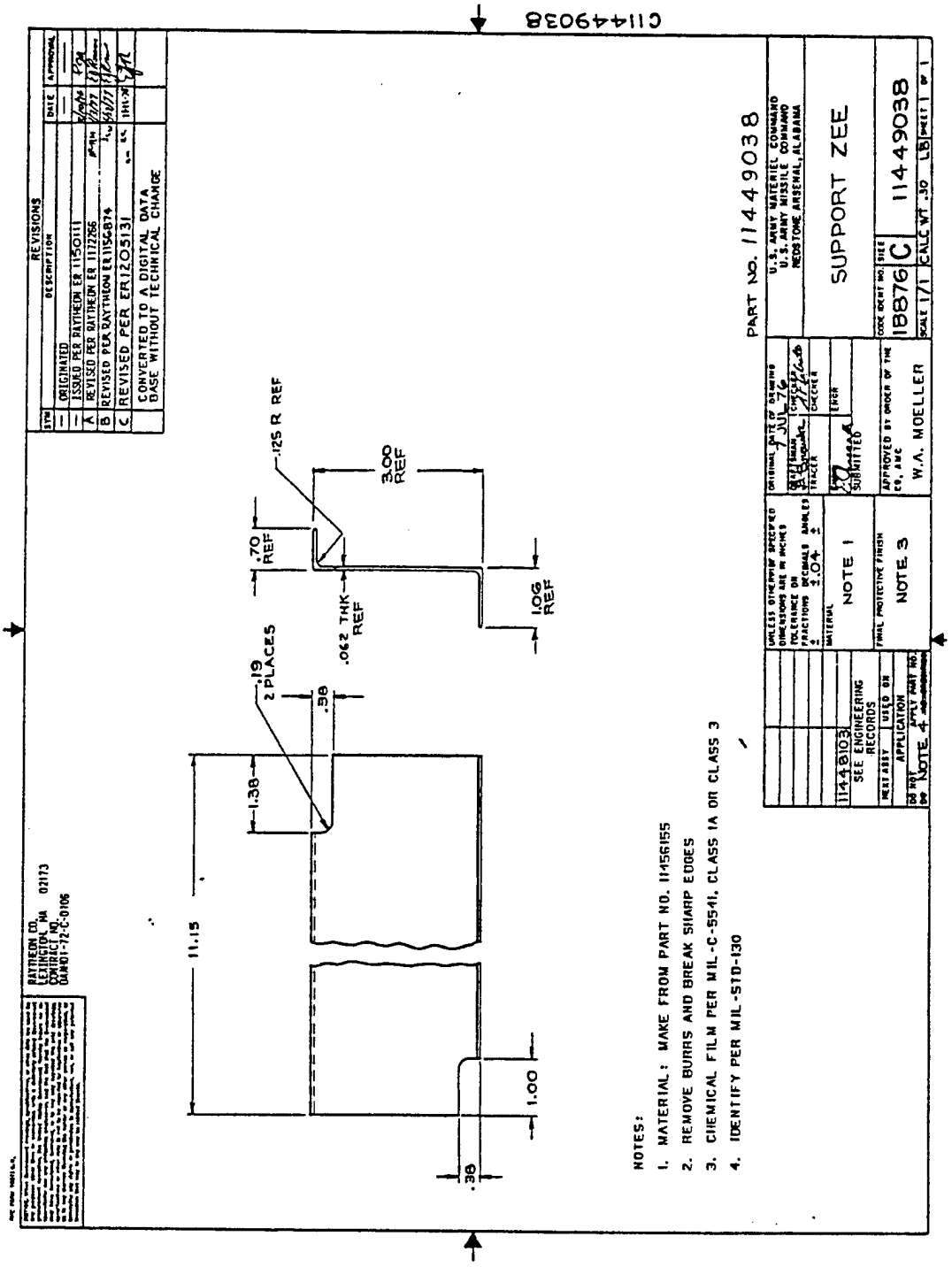


10.2 File D001R029

10.2.1 Output IslandPaint

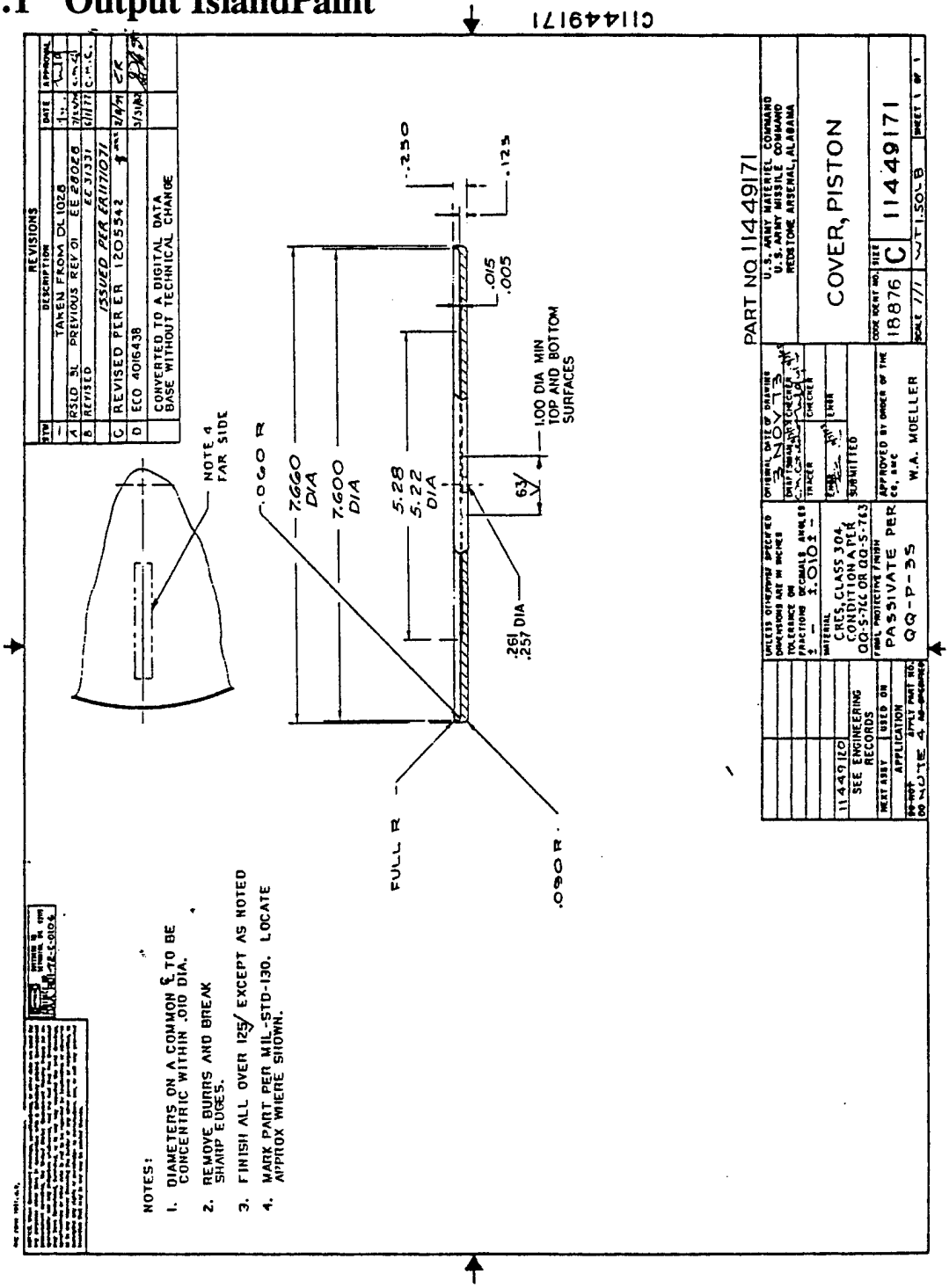


10.2.2 Output Preview

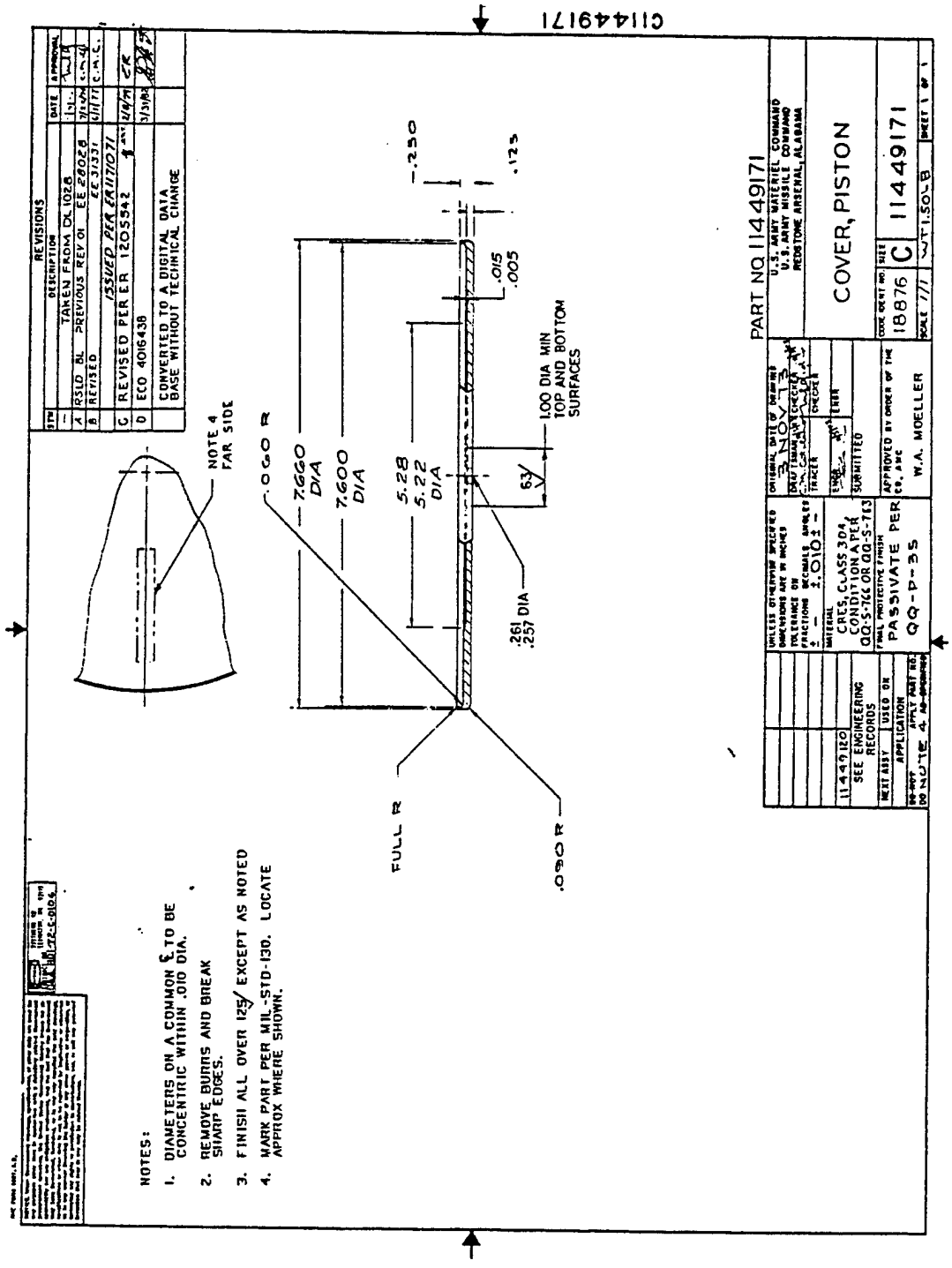


10.3 File D001R046

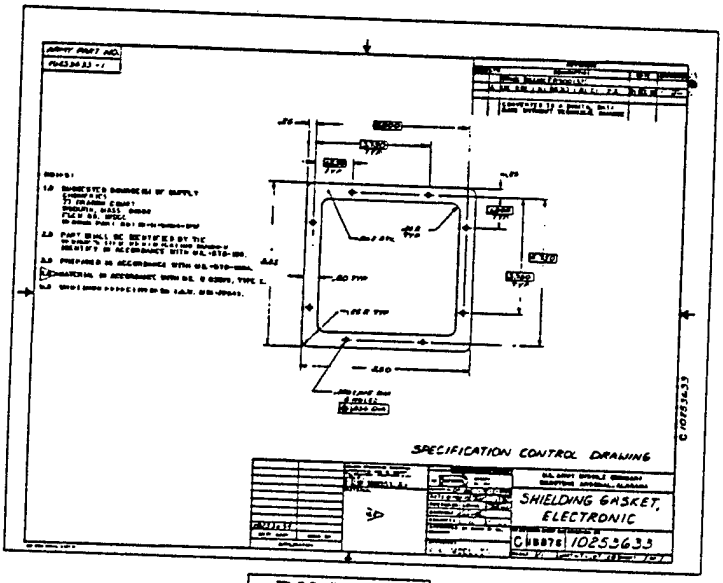
10.3.1 Output IslandPaint



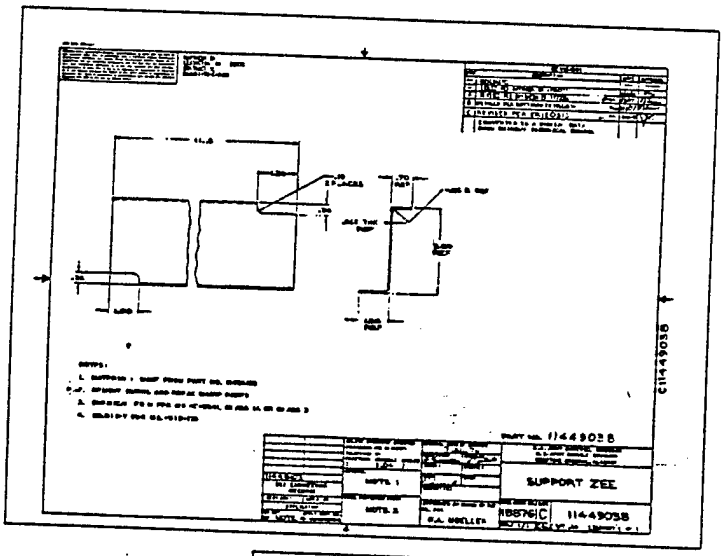
10.3.2 Output Preview



10.3.3 Output Ventura Publisher - D001R013 D001R046

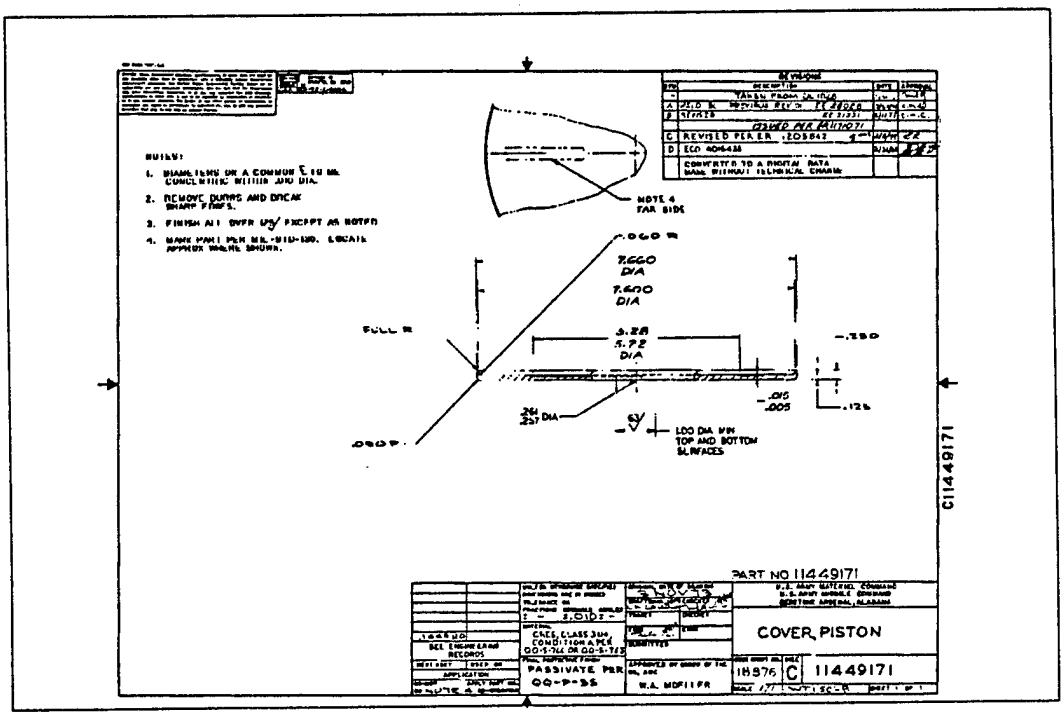


D001R013



D001R029

10.3.4 Output Ventura Publisher - D001R046



D001R046