AFCTN Test Report 94-077

AFCTB-ID 94-028

Technical Publication Transfer Using:

Sikorsky Aircraft's Data Supporting:

Army Blackhawk Program

(Contract #DAAJ09-92-C-0004, P00017)

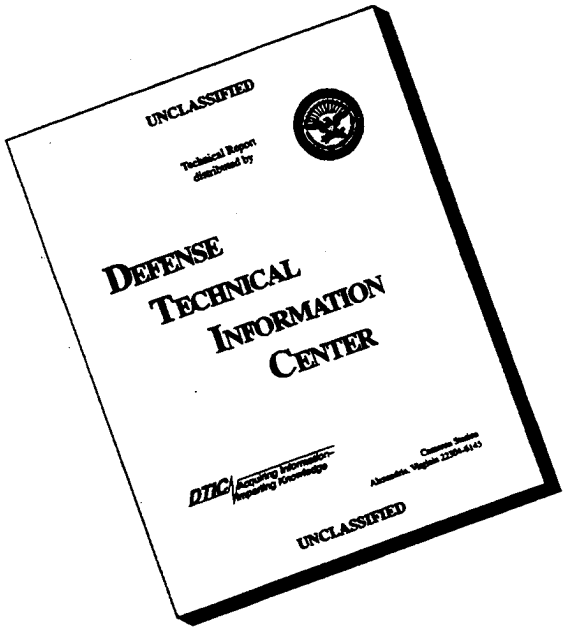
MIL-STD-1840A
MIL-M-28001A (SGML)
MIl-D-28003 (CGM)

Quick Short Test Report

07 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

DISCLAIMER NOTICE



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Quick Short Test Report

07 April 1994

Prepared By
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Air Force CALS Test Bed

Notification of Test Results

07 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:

Sikorsky Aircraft

Identified as follows:

Title:	**Technical Publication Transfer**
Program:	**Blackhawk**
Program Office:	**U. S. Army**
Contract No.:	**DAAJ09-92-C-0004,P00017**
QSTR No.:	**AFCTB-ID 94-028**

Received on the following media: **9-Track Tape**

The results of the QSTR evaluation are as follows:

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

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

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4027 Colonel Glenn Highway, Suite 300
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 Sikorsky Aircraft's interpretation and use of the CALS standards, in transferring technical publication data. Sikorsky 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 94-028

Date of Evaluation: 07 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:
Frank Krasnicki
Sikorsky Aircraft
6900 Main Street
M/S B205A
P. O. Box 9729
Stratford CT 06497-9129
(203) 384-7068

Data Description:
Technical Manual Test
1 Document Declaration file
1 Document Type Definition (DTD)
3 Text/Standard Generalized Markup Language (SGML) files
42 Computer Graphics Metafile (CGM) files

Data Source System:
1840

HARDWARE
DEC 5000 Ultrix RISC Workstations

SOFTWARE
ArborText Adept 1840A Tape Utility and Graphics Conversion Filters

Text/SGML

HARDWARE

DEC 5000 Ultrix RISC Workstations
DEC 5500 Server

SOFTWARE

ArborText Adept SGML Editor v5.0
Parlance Document Manager v1.3
Interbase Relational Database v3.2
Xyvision Parlance Publisher

CGM

HARDWARE

Auto-trol Apollo DN3550 Graphics Workstations
Auto-trol Apollo DSP 4500 Servers

SOFTWARE

Auto-trol Tech Illustrator Plus v8.2.6
Auto-trol S5K/IGES Processor v6.0
Auto-trol S5K/CGM Converter v1.4
Auto-trol S5K/DXF AutoCad Converter v3.0

Evaluation Tools Used:

MIL-STD-1840A (TAPE)

SUN 3/280

AFCTN *Tapetool v1.2.10 UNIX*
XSoft *CAPS/CALS v40.4*

MIL-M-28001 (SGML)

HP 735
SUN SparcStation 2

ArborText *ADEPT v4.2.1*

PC 486/50

Exoterica *XGMLNormalizer v1.2e3.2*
Exoterica *Validator v2.0 exl*
McAfee & McAdam *Sema Mark-it v2.3*
Public Domain *sgmls*

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 Tecynology 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-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 box in accordance with ASTM D 3951. The exterior of the box was marked with a magnetic tape warning label, as required by MIL-STD-1840A, para. 5.3.1.3.

The tape was enclosed in barrier sheet material 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 1.2.10* utility. No errors were encountered while evaluating the contents of the tape labels. Portions of the *Tapetool* report logs are provided in Appendix A, Section 9.

The tape was read using XSoft's *CAPS read1840A* utility without any reported errors.

The physical structure of the tape, submitted by Sikorsky Aircraft, meets the requirements defined in CALS MIL-STD-1840A and ANSI 3.27.

3.2.2 Declaration and Header Fields

No errors were reported in the Document Declaration file and data file headers. This portion of the tape meets the requirements defined in CALS MIL-STD-1840A for CALS headers.

4. IGES Analysis

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

5. SGML Analysis

The tape contained three SGML files; a tagged instance text file, a DTD file and a Format Output Specification Instance (FOSI) file. The AFCTB has several parsers available for evaluating SGML 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.

The text and DTD files from this document were tested using the Exoterica *XGMLNormalizer* parser. During the initial parse of the DTD, the error shown below was reported.

```
C:\XGML\XGMLNORM.EXE --
Error on line 198 in file 9428.dtd:
Invalid file specification (external identifier).
For the entity 'specchar':
The system id is "".
The public id is "-//SIKORSKY//ENTITIES SPEC ...".
```

This error relates to two external references that were not included on the tape, as follows:

```
<![ %edit; [ <!ENTITY % specchar PUBLIC "- //SIKORSKY//ENTITIES SPECIAL
          CHARACTERS   900927//EN//ArborText"   >   %specchar;   ]]>

<![ %publish; [ <!ENTITY % specchar PUBLIC "- //SIKORSKY//ENTITIES
         SPECIAL CHARACTERS 900927//EN//XYVISION" > %specchar; ]]>
```

Because these were in marked sections, the "INCLUDE" was changed to "IGNORE." With this change the DTD parsed without a reported error or warning.

Using the modified DTD, the text file parsed without any reported errors or warnings after the ArborText statements were commented out.

The text and DTD files from the tape were evaluated using a parser available in the AFCTB. The two external references noted above were changed to IGNORE. The parser then reported an error with seven duplicate declarations for graphic files as follows:

Attempt to declare general entity name 'aa3150' more than once denied.

An additional error was reported in another marked section near the end of the DTD:

```
<![IGNORE TEMP[ using the attlist above this from the Navy dtd
 <!ATTLIST xref xrefid   IDREF                #REQUIRED
```

The parser did not like IGNORE TEMP. This statement was commented out.

This parser also reported (as comments) many generic IDs that were not included in any content model. An example follows:

DTD0096: The generic ID DOCTYPE has not been used in any content model, inclusion, or as a doctype element.

The resulting compiled DTD was then used to parse the text file. Twenty-three errors and one warning were reported during this process. The errors were invalid or missing

tags. Most of these errors were reported against the <TABLE> tag:

IPA0020: Invalid Or Missing Tag. Last Tag Encountered: '<NOTICE>'.

The error logs from these operations are included in Appendix B, Section 10 of this report.

The text and DTD files were evaluated using the Exoterica *Validator exl* parser. During the first parsing attempt, five errors and 58 warnings were issued. The warnings were duplicate definitions of graphics, elements not included in content models, the two unknown external reference files, and the added ArborText unique statements at the start of the text file. When the DTD and text files were modified, as noted above, 57 warnings were issued for the duplicate definitions in the graphics and the elements not included in a content model.

The text and DTD files were evaluated using McAfee & McAdam's *Sema Mark-it v2.3* parser. The modified DTD and text files parsed without any reported errors or warnings.

The text and DTD files were evaluated using the Public Domain *sgmls* parser. Using version 1.0 of this parser and the modified files defined above, no errors or warnings were issued.

The FOSI DTD was not evaluated due to tool limitations within the AFCTB.

The text file was imported into ArborText's *Adept* software without a reported error. The commented areas at the top of the text file were removed before the import. Limited computer memory prevented the publishing to be completed.

According to Chris Moffett of ArborText, Inc., "This (or These) warning(s) may be due to a syntax error in the DTD."

In summary, the DTD and text files required external references, which were not included. These marked sections had to be removed in order to successfully parse the DTD. The DTD had six duplicate definitions for graphics entities. The text file had application specific information at the

start which had to be commented out in order to successfully parse the text file. The files do not meet the CALS MIL-M-28001A specification, due to the above noted problems.

6. Raster Analysis

No Raster files were included in this evaluation.

7. CGM Analysis

The tape contained 42 CGM files. The files were evaluated using ATC's *MetaCheck* with CALS options. This utility reported that all files meet the specification defined in MIL-D-28003. Some basic CGM entity warnings were reported in files C004, C009, C022, C024, C026, C029, C031-C035, C038, C039 and C043. The warnings were all the same, relating to a polyline with only one vertex.

```
Bulletin 20009: Element Class/ID: 4/1   Offset: 5190 octets Element No. 511
Warning; POLYLINE with only one distinct vertex.
```

The CGM files were evaluated using the beta AFCTN *validcgm* utility. This utility reported no 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.

Because of the number of files submitted, only files C009, C018 and C029 were selected for a detailed evaluation. All 42 files were viewed by at least two different software applications available within the AFCTB.

The CGM files were converted using ArborText's *cgm2draw* utility without a reported error. The resulting files were read into Island Software's *IslandDraw v3.1*, displayed and printed. No visual errors were noted in file C009 although

multiple line text did touch. File C018 displayed a large amount of text overrun. The sample label in the upper center of the image had text running outside the defined area. In file C029 the two columns of text near the bottom overlapped.

All files were read into Carberry's *CADLeaf* software and displayed. Text overrun was noted in several files. See Appendix C, Section 11 for examples from files C018 and C029.

All files were read into IDA's *CALSView.* Text overrun was noted in several files. See Appendix C, Section 11 for examples from C018 and C029.

The files were imported into the Micrografx *Designer* with a reported error. The error was unrecognized data in the data stream. File C009 had noted missing graphics entities. Arcs were also noted as missing. In file C018 the text did not overflow the defined areas, however, arcs were noted as missing. In file C029 the text did not overlap, yet errors were noted in the arcs.

According to Michael Harrison of Micrografx, Inc., "Micrografx is aware of the problems associated with reading these files and is working on a solution to be implemented in a future release of our product."

The files were imported into Lotus' *Freelance* and displayed. File C009 appeared to be complete. Files C018 and C029 displayed text overlap.

The files were imported into SPC's *Harvard Graphics v3.05* without a reported error. File C018 and C029 displayed text overlap, and errors with some arcs.

The files were read into Inset Systems' *HiJaak Pro* without a reported error. The images displayed correctly on the screen in color. When printed, many entities were noted as missing. File C018 and C029 also displayed the text overlap.

The files were imported directly into Island Software's *IslandDraw v4.0* without a reported error. When displayed and printed, many entities were noted as missing. Some arcs were noted as missing or misshaped. No text was displayed until color changes were made.

All files were read into InterCAP's *X-Change* without a reported error. Several files displayed text overlap. See Appendix C, Section 11, for examples from file C018 and C029.

The files were imported into Corel's *Ventura Publisher* without a reported error. File C009 was noted as missing arcs and lines that were misplaced. File C018 and C029 did not display the text overflow problem. However, both files displayed noticeable errors with arcs.

While the CGM files meet the CALS MIL-D-28003 specification, all software applications available in the AFCTB had problems displaying the images. Text overlap and overflow were the most common problems. Several applications had problems with arcs.

8. Conclusions and Recommendations

The tape from Sikorsky Aircraft had no reported errors in the physical structure or CALS headers and meets the requirements defined in ANSI 3.27 and CALS MIL-STD-1840A.

The SGML files do not meet the CALS MIL-M-28001A specification, due to the following problems. Both the DTD and text files had to be modified in order to successfully parse. The DTD called two external reference files which were not included on the tape. Six graphic files were redefined in the DTD.

The CGM files meet the CALS MIL-D-28003 specification. All applications in the AFCTB had various problems with the files. Most of these problems relate to text font and text overlap.

The tape does not meet the CALS MIL-STD-1840A requirements, due to the problems in the SGML set.

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

Thu Apr  7 07:08:49 1994

MIL-STD-1840A File Catalog

File Set Directory: /cals/u1210/Set058

                                                                    Page: 1

                                                Record
                                                Format/     Block       Selected/
File Name                 File Type             Length  Length/Total  Extracted
------------------------------------------------------------------------------ ---
D001                      Document Declaration  D/00260 02048/000001  Extracted
D001C004                  CGM                   F/00080 00800/000045  Extracted
D001C005                  CGM                   F/00080 00800/000011  Extracted
D001C006                  CGM                   F/00080 00800/000005  Extracted

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

D001C043                  CGM                   F/00080 00800/000029  Extracted
D001C044                  CGM                   F/00080 00800/000015  Extracted
D001C045                  CGM                   F/00080 00800/000025  Extracted
D001G002                  DTD                   D/00260 02048/000017  Extracted
D001H003                  Output Specification  D/00260 02048/000002  Extracted
D001T001                  Text                  D/00260 02048/000312  Extracted

Catalog Process terminated normally.
```

9.2 Tape Evaluation Log

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

Thu Apr  7 07:07:37 1994

ANSI Tape Import Log

Allocating tape drive /dev/rmt0...

/dev/rmt0 allocated.

VOL1CALS01                              KRASNICK                                4

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

HDR1D001                    00010001000100 94094 99364 000000UNIX4.2-PRODS

  Label Identifier: HDR1
  File Identifier: D001
  File Set Identifier:
  File Section Number: 0001
  File Sequence Number: 0001
  Generation Number: 0001
  Generation Version Number: 00
  Creation Date:  94094
  Expiration Date:  99364
  File Accessibility:
  Block Count: 000000
  Implementation Identifier: UNIX4.2-PRODS

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

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

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

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

Thu Apr  7 07:08:49 1994

MIL-STD-1840A File Set Evaluation Log

File Set: Set058

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

srcsys: Sikorsky Aircraft 6900 Main St.Stratford,Ct.06497-1385007
srcdocid: TM 1-1650-384
srcrelid: NONE
chglvl: ORIGINAL
dteisu: 19940405
dstsys: U.S.Army ATCOM
dstdocid: TM 1-1650-384
dstrelid: NONE
dtetrn: 19940405
dlvacc: NONE
filcnt: T1,G1,H1,C42
ttlcls: UNCLASSIFIED
doccls: UNCLASSIFIED
doctyp: Technical Order
docttl: Tail Rotor Servo Assembly

Found file: D001C004
Extracting CGM Header Records...
Evaluating CGM Header Records...

srcdocid: TM 1-1650-384
dstdocid: TM 1-1650-384
txtfilid: W
figid: 4-6
srcgph: aa3149
doccls: UNCLASSIFIED
notes: NONE

Saving CGM Header File: D001C004_HDR
Saving CGM Data File: D001C004_CGM
```

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

```
Found file: D001C045
Extracting CGM Header Records...
Evaluating CGM Header Records...

srcdocid: TM 1-1650-384
dstdocid: TM 1-1650-384
txtfilid: W
figid: 4-5
srcgph: aa3148
doccls: UNCLASSIFIED
notes: NONE

Saving CGM Header File: D001C045_HDR
Saving CGM Data File: D001C045_CGM

Found file: D001G002
Extracting DTD Header Records...
Evaluating DTD Header Records...

srcdocid: TM 1-1650-384
dstdocid: TM 1-1650-384
notes: DTD

Saving DTD Header File: D001G002_HDR
Saving DTD Data File: D001G002_DTD

Found file: D001H003
Extracting Output Specification Header Records...
Evaluating Output Specification Header Records...

srcdocid: TM 1-1650-384
dstdocid: TM 1-1650-384
notes: FOSI

Saving Output Specification Header File: D001H003_HDR
Saving Output Specification Data File: D001H003_OS

Found file: D001T001
Extracting Text Header Records...
Evaluating Text Header Records...

srcdocid: TM 1-1650-384
dstdocid: TM 1-1650-384
txtfilid: W
doccls: UNCLASSIFIED
notes: SGML
```

```
Saving Text Header File: D001T001_HDR
Saving Text Data File: D001T001_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.
```

9.4 Other Tape Reading Logs

```
/cals/caps/Bin/read1840A: --- Read declaration file 'D001     ' ---
/cals/caps/Bin/read1840A: writing data file '9426/TM1-1650-384/aa3149.C.cgm'.
/cals/caps/Bin/read1840A: writing data file '9426/TM1-1650-384/aa3126.C.cgm'.
/cals/caps/Bin/read1840A: writing data file '9426/TM1-1650-384/aa3127.C.cgm'.

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

/cals/caps/Bin/read1840A: writing data file '9426/TM1-1650-384/aa3147.C.cgm'.
/cals/caps/Bin/read1840A: writing data file '9426/TM1-1650-384/aa3148.C.cgm'.
/cals/caps/Bin/read1840A: writing data file '9426/TM1-1650-384/TM11650384.G.dtd'.
/cals/caps/Bin/read1840A: writing data file '9426/TM1-1650-384/TM11650384.H.out'.
/cals/caps/Bin/read1840A: writing data file '9426/TM1-1650-384/W.T.sgm'.
-- declaration file indicates 1 files of type T
-- declaration file indicates 1 files of type G
-- declaration file indicates 1 files of type H
-- declaration file indicates 0 files of type Q
-- declaration file indicates 0 files of type R
-- declaration file indicates 42 files of type C
-- declaration file indicates 0 files of type X
-- declaration file indicates 0 files of type P
-- declaration file indicates 0 files of type Z
```

10. Appendix B - Detailed SGML Analysis

10.1 Parser Log

10.1.1 DTD Log File - 1

```
            SGML Document Type Definition Parser
                An SGML System Conforming to
              International Standard ISO 8879

Log file: '9428.LOG'
SDO File: 'ctndecl.sdo'
Namecase General is yes.
Namecase Entity is no.
Parsing DTD file: '9428.dtd'
Parsing DOCTYPE DMWR

DTD0143: Attempt to declare general entity name 'aa3150'
         more than once denied.
         In declaration: '<!ENTITY'.
         In declaration: '<!['.
         In declaration: '<!DOCTYPE'.
         in entity 'math'
         in line 105 in file '9428.dtd'
DTD0143: Attempt to declare general entity name 'aa3151'
         more than once denied.
         In declaration: '<!ENTITY'.
         In declaration: '<!['.
         In declaration: '<!DOCTYPE'.
         in entity 'math'
         in line 106 in file '9428.dtd'
DTD0143: Attempt to declare general entity name 'aa3152'
         more than once denied.
         In declaration: '<!ENTITY'.
         In declaration: '<!['.
         In declaration: '<!DOCTYPE'.
         in entity 'math'
         in line 107 in file '9428.dtd'
DTD0143: Attempt to declare general entity name 'aa3153'
         more than once denied.
         In declaration: '<!ENTITY'.
         In declaration: '<!['.
         In declaration: '<!DOCTYPE'.
         in entity 'math'
         in line 108 in file '9428.dtd'
```

```
DTD0143: Attempt to declare general entity name 'aa3154'
         more than once denied.
         In declaration: '<!ENTITY'.
         In declaration: '<![' .
         In declaration: '<!DOCTYPE'.
         in entity 'math'
         in line 109 in file '9428.dtd'
DTD0143: Attempt to declare general entity name 'aa3155'
         more than once denied.
         In declaration: '<!ENTITY'.
         In declaration: '<![' .
         In declaration: '<!DOCTYPE'.
         in entity 'math'
         in line 110 in file '9428.dtd'
DTD0143: Attempt to declare general entity name 'aa3156'
         more than once denied.
         In declaration: '<!ENTITY'.
         In declaration: '<![' .
         In declaration: '<!DOCTYPE'.
         in entity 'math'
         in line 111 in file '9428.dtd'
DTD0157: External entity file '\SYSTEM.ENT' cannot be opened. Reference ignored.
         In declaration: '<![' .
         In declaration: '<![' .
         In declaration: '<!DOCTYPE'.
         in entity 'edit'
         in line 124 in file '9428.dtd'
DTD0153: Unknown parameter entity: 'specchar'.  Reference ignored.
         In declaration: '<![' .
         In declaration: '<![' .
         In declaration: '<!DOCTYPE'.
         in entity 'edit'
         in line 124 in file '9428.dtd'
DTD0137: Incorrect token '%.'.  Parser Ignoring Input Up To Next MDO.
         In declaration: '<![' .
         In declaration: '<![' .
         In declaration: '<!DOCTYPE'.
         in entity 'edit'
         in line 125 in file '9428.dtd'
DTD0221: An unknown keyword was used in a marked section declaration.  Only
         TEMP, IGNORE, and INCLUDE are allowed in a Document Type Definition.
         CDATA and RCDATA are allowed in a document instance.
         In declaration: '<![' .
         In declaration: '<![' .
         In declaration: '<![' .
         In declaration: '<!DOCTYPE'.
         in entity 'publish'
         in line 130 in file '9428.dtd'
```

```
DTD0137: Incorrect token 'TEMP'.  Parser Ignoring Input Up To Next MDO.
         In declaration: '<![['.
         In declaration: '<![['.
         In declaration: '<![['.
         In declaration: '<![['.
         In declaration: '<!DOCTYPE'.
         in entity 'text'
         in line 647 in file '9428.dtd'
DTD0221: An unknown keyword was used in a marked section declaration.  Only
         TEMP, IGNORE, and INCLUDE are allowed in a Document Type Definition.
         CDATA and RCDATA are allowed in a document instance.
         In declaration: '<![['.
         In declaration: '<![['.
         In declaration: '<![['.
         In declaration: '<![['.
         In declaration: '<!DOCTYPE'.
         in entity 'text'
         in line 651 in file '9428.dtd'
DTD0096: The generic ID DOCTYPE has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID PRTITLE has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID HOWTOUSE has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID BODY has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID SECTINDEX has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID PERSONNEL has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID MATERIALINDEX has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID REFINDEX has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID EQUIPCON has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID ENVIRONMENT has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID APPLICABIL has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID TOOLS has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID SPECIALINST has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID GENSAFINST has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID PARTNAME has not been used in any content
         model, inclusion, or as a doctype element.
```

```
DTD0096: The generic ID APPMAC has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID APPINVENT has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID EXPENDINTRO has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID SUBFIG has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID PARAINDEX has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID SECT has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID INSPECTOR has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID DATE has not been used in any content
         model, inclusion, or as a doctype element.

DTD does not conform to ISO 8879 standard due to these errors:
    Syntax error count: 2
    Entity error count: 2
    Uncorrectable syntax error count: 2
.DTO file not created due to parsing errors.

Program status code: 5.
```

10.1.2 DTD Log File - 2

```
            SGML Document Type Definition Parser
                An SGML System Conforming to
              International Standard ISO 8879
            Standard Generalized Markup Language

Log file: '9428.LOG'
SDO File: 'ctndecl.sdo'
Namecase General is yes.
Namecase Entity is no.
Parsing DTD file: '9428.dtd'
Parsing DOCTYPE DMWR

DTD0143: Attempt to declare general entity name 'aa3150'
         more than once denied.
         In declaration: '<!ENTITY'.
         In declaration: '<!['.
         In declaration: '<!DOCTYPE'.
         in entity 'math'
         in line 105 in file '9428.dtd'
DTD0143: Attempt to declare general entity name 'aa3151'
         more than once denied.
         In declaration: '<!ENTITY'.
         In declaration: '<!['.
         In declaration: '<!DOCTYPE'.
         in entity 'math'
         in line 106 in file '9428.dtd'
DTD0143: Attempt to declare general entity name 'aa3152'
         more than once denied.
         In declaration: '<!ENTITY'.
         In declaration: '<!['.
         In declaration: '<!DOCTYPE'.
         in entity 'math'
         in line 107 in file '9428.dtd'
DTD0143: Attempt to declare general entity name 'aa3153'
         more than once denied.
         In declaration: '<!ENTITY'.
         In declaration: '<!['.
         In declaration: '<!DOCTYPE'.
         in entity 'math'
         in line 108 in file '9428.dtd'
DTD0143: Attempt to declare general entity name 'aa3154'
         more than once denied.
         In declaration: '<!ENTITY'.
         In declaration: '<!['.
         In declaration: '<!DOCTYPE'.
```

```
         in entity 'math'
         in line 109 in file '9428.dtd'
DTD0143: Attempt to declare general entity name 'aa3155'
         more than once denied.
         In declaration: '<!ENTITY'.
         In declaration: '<!['.
         In declaration: '<!DOCTYPE'.
         in entity 'math'
         in line 110 in file '9428.dtd'
DTD0143: Attempt to declare general entity name 'aa3156'
         more than once denied.
         In declaration: '<!ENTITY'.
         In declaration: '<!['.
         In declaration: '<!DOCTYPE'.
         in entity 'math'
         in line 111 in file '9428.dtd'
DTD0096: The generic ID DOCTYPE has not been used in any content
         model, inclusion, or as a doctype element.

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

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

DTO file '9428.DTO' created

closing statistics:
    Capacity points:                 32584
    Bytes of DTO file string space:  10061
    SGML descriptor blocks:          3639

Document Type Definition is compliant and parsed normally.

Program status code: 0.
```

10.1.3 Text Log File

```
IPA0108:        *** SGML Instance Parser Log File ***
Source Document File:  'i:\94028\t001.txt'.
Job File:              '9428.jbf'.
DTD File:              ''.
SGML Declaration File: ''.

Reading File '9428.jbf', File Type 'JOB FILE'.

     Concrete Syntax Settings In Effect For This Parse:
         NAMECASE GENERAL: YES.
         NAMECASE ENTITY:  NO.
         NAMELEN:          32.
         SHORTTAG:         YES.
Closed '9428.jbf', File Type 'JOB FILE'.
Reading File 'i:\94028\t001.txt', File Type 'DIRECT INPUT FILE'.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '<NOTICE>'.
    Error On Line   12.
    State: 'DMWR.PARTIALDOC.MODULE.FRONT.IDINFO'.
   --> Scanned Up To Line 100 In i:\94028\t001.txt.
   --> Scanned Up To Line 200 In i:\94028\t001.txt.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</TABLE>'.
    Error On Line  240.
    State: 'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.SUBPARA1.PARA.TABLE'.
   --> Scanned Up To Line 300 In i:\94028\t001.txt.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</TABLE>'.
    Error On Line  352.
    State: 'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.TABLE'.
   --> Scanned Up To Line 400 In i:\94028\t001.txt.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</TABLE>'.
    Error On Line  411.
    State: 'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.TABLE'.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</TABLE>'.
    Error On Line  481.
    State: 'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.TABLE'.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</TABLE>'.
    Error On Line  497.
    State: 'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.TABLE'.
   --> Scanned Up To Line 500 In i:\94028\t001.txt.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</TABCOL>'.
    Error On Line  515.
    State: 'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.TABCOL'.
   --> Scanned Up To Line 600 In i:\94028\t001.txt.
```

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

```
   --> Scanned Up To Line 1100 In i:\94028\t001.txt.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</IPBFIG>'.
    Error On Line 1104.
    State: 'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.SUBPARA1.IPBFIG'.
   --> Scanned Up To Line 1200 In i:\94028\t001.txt.

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

   --> Scanned Up To Line 2800 In i:\94028\t001.txt.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</TABCOL>'.
    Error On Line 2899.
    State: 'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.STEP1.STEP2.PARA.TABCOL'.
   --> Scanned Up To Line 2900 In i:\94028\t001.txt.
   --> Scanned Up To Line 3000 In i:\94028\t001.txt.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</TABLE>'.
    Error On Line 3029.
    State: 'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.STEP1.PARA.TABLE'.
   --> Scanned Up To Line 3100 In i:\94028\t001.txt.
   --> Scanned Up To Line 3200 In i:\94028\t001.txt.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</TABLE>'.
    Error On Line 3286.
    State: 'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.SUBPARA1.PARA.TABLE'.
   --> Scanned Up To Line 3300 In i:\94028\t001.txt.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</TABLE>'.
    Error On Line 3398.
    State: 'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.TABLE'.
   --> Scanned Up To Line 3400 In i:\94028\t001.txt.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</TABLE>'.
    Error On Line 3457.
    State: 'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.TABLE'.
   --> Scanned Up To Line 3500 In i:\94028\t001.txt.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</TABLE>'.
    Error On Line 3527.
    State: 'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.TABLE'.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</TABLE>'.
    Error On Line 3543.
    State: 'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.TABLE'.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</TABCOL>'.
    Error On Line 3561.
    State: 'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.TABCOL'.
   --> Scanned Up To Line 3600 In i:\94028\t001.txt.

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

   --> Scanned Up To Line 4100 In i:\94028\t001.txt.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</IPBFIG>'.
    Error On Line 4150.
    State: 'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.SUBPARA1.IPBFIG'.
```

```
   --> Scanned Up To Line 4200 In i:\94028\t001.txt.

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

   --> Scanned Up To Line 5900 In i:\94028\t001.txt.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</TABCOL>'.
    Error On Line 5945.
    State: 'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.STEP1.STEP2.PARA.TABCOL'.
   --> Scanned Up To Line 6000 In i:\94028\t001.txt.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</TABLE>'.
    Error On Line 6075.
    State: 'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.STEP1.PARA.TABLE'.
   --> Scanned Up To Line 6100 In i:\94028\t001.txt.

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

   --> Scanned Up To Line 6700 In i:\94028\t001.txt.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</TABCOL>'.
    Error On Line 6782.
    State:

    'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.SUBPARA1.STEP1.PARA.TABCOL' .
   --> Scanned Up To Line 6800 In i:\94028\t001.txt.
   --> Scanned Up To Line 6900 In i:\94028\t001.txt.
   --> Scanned Up To Line 7000 In i:\94028\t001.txt.
   --> Scanned Up To Line 7100 In i:\94028\t001.txt.
   --> Scanned Up To Line 7200 In i:\94028\t001.txt.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</TABCOL>'.
    Error On Line 7279.
    State:

    'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.SUBPARA1.STEP1.STEP2.PARA.T ABCOL'.
   --> Scanned Up To Line 7300 In i:\94028\t001.txt.
   --> Scanned Up To Line 7400 In i:\94028\t001.txt.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</TABLE>'.
    Error On Line 7421.
    State: 'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.SUBPARA1.STEP1.PARA.TABLE'.
   --> Scanned Up To Line 7500 In i:\94028\t001.txt.
IPA0020: Invalid Or Missing Tag.  Last Tag Encountered: '</TABLE>'.
    Error On Line 7596.
    State: 'DMWR.PARTIALDOC.MODULE.CHAPTER.SECTION.PARA0.TABLE'.
   --> Scanned Up To Line 7600 In i:\94028\t001.txt.
   --> Scanned Up To Line 7700 In i:\94028\t001.txt.
IPA0027: Additional Text Follows Logical End Of Source Document.
    Error On Line 7757.
    State: ''.
Document Parsed With 23 Error(s) And 1 Warning(s).
```

10.2 Exoterica XGMLNormalizer Parser

```
C:\XGML\XGMLNORM.EXE --
Error on line 198 in file 9428.dtd:
Invalid file specification (external identifier).
For the entity 'specchar':
The system id is "".
The public id is "-//SIKORSKY//ENTITIES SPEC ...".
```

10.3 Sema Mark-it Log

No reported errors.

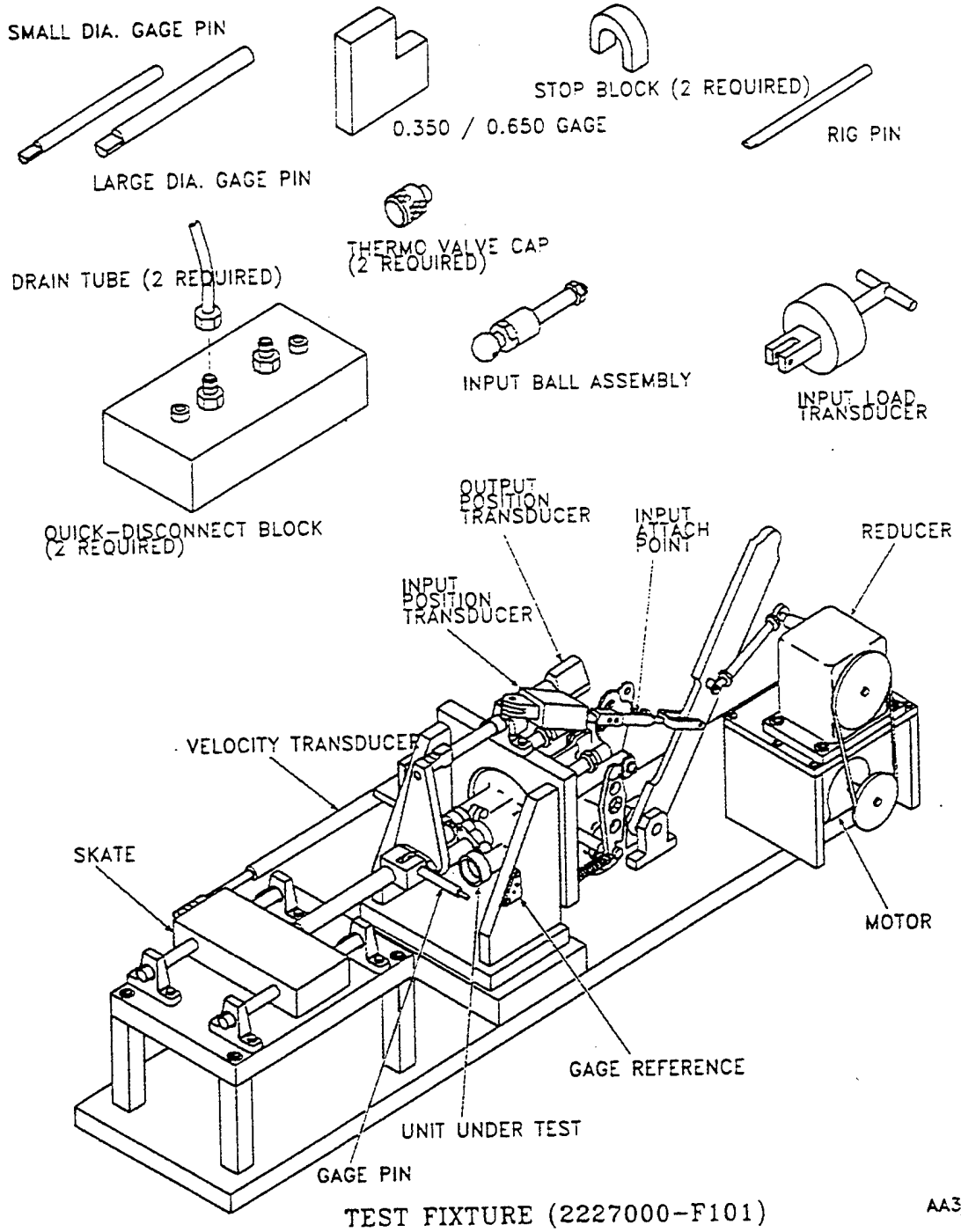
10.4 Public Domain sgmls Log

No reported errors.

11. Appendix C - Detailed CGM Analysis

11.1 File D001C009

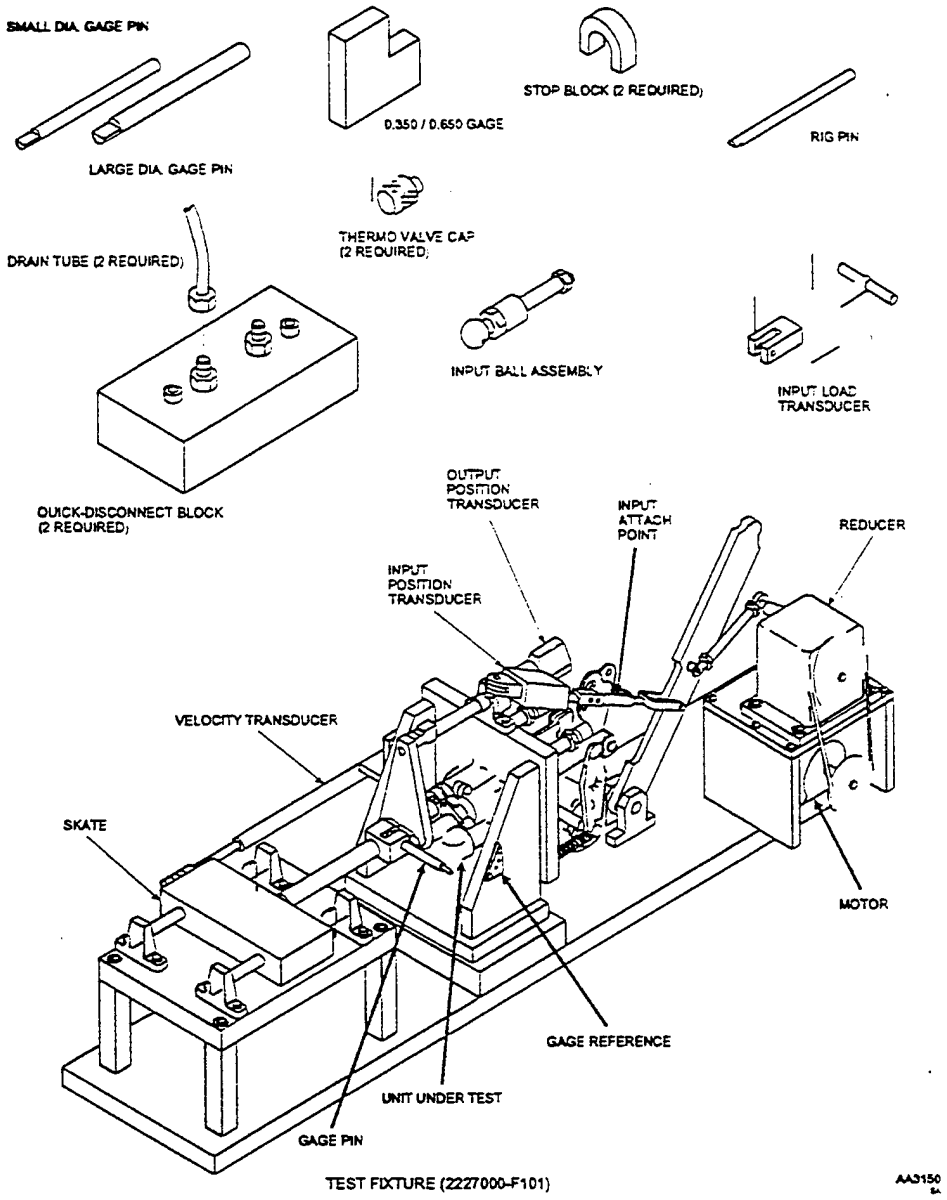
11.1.1 Output cgm2draw/IslandDraw



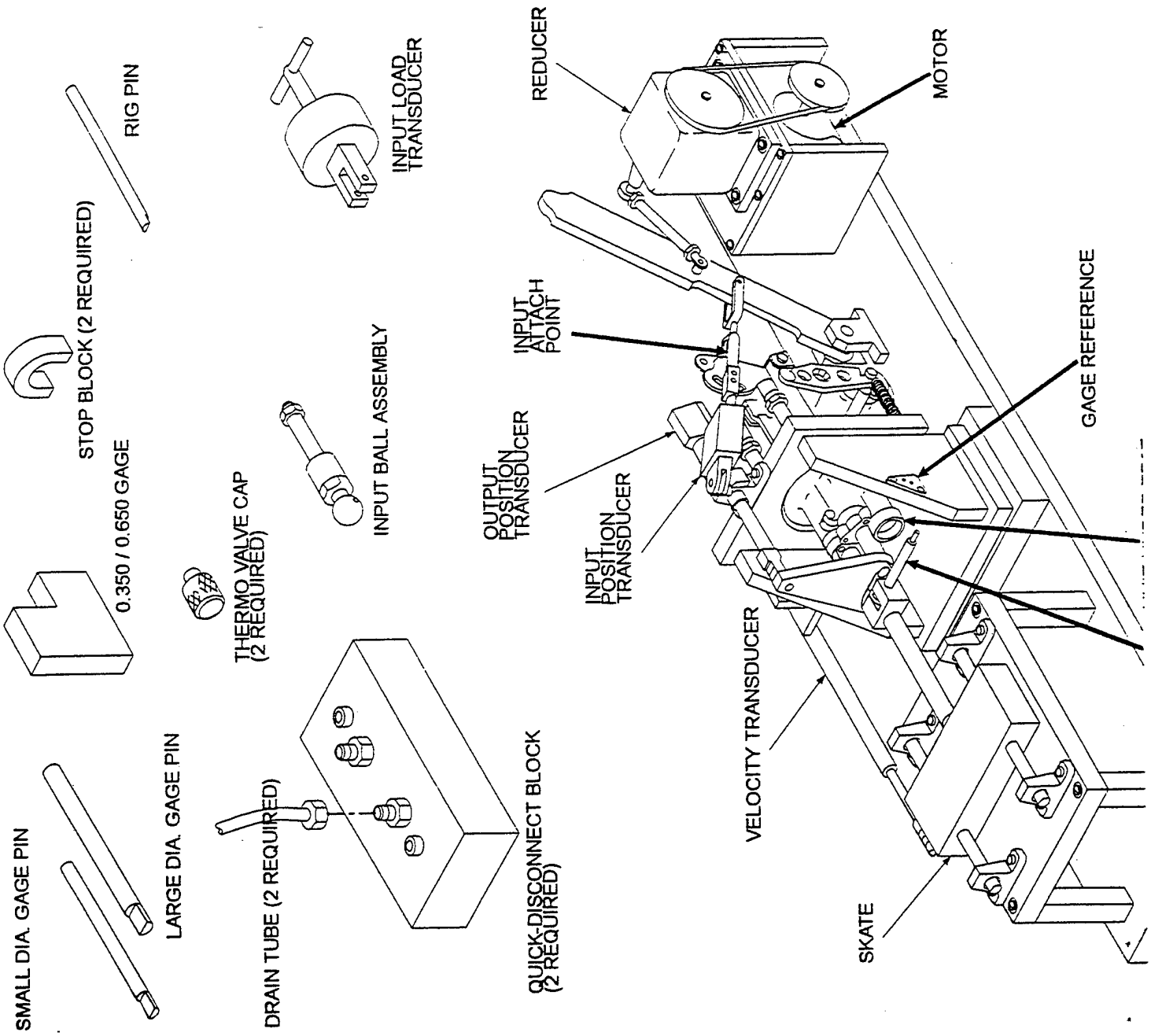
TEST FIXTURE (2227000-F101)

AA3150

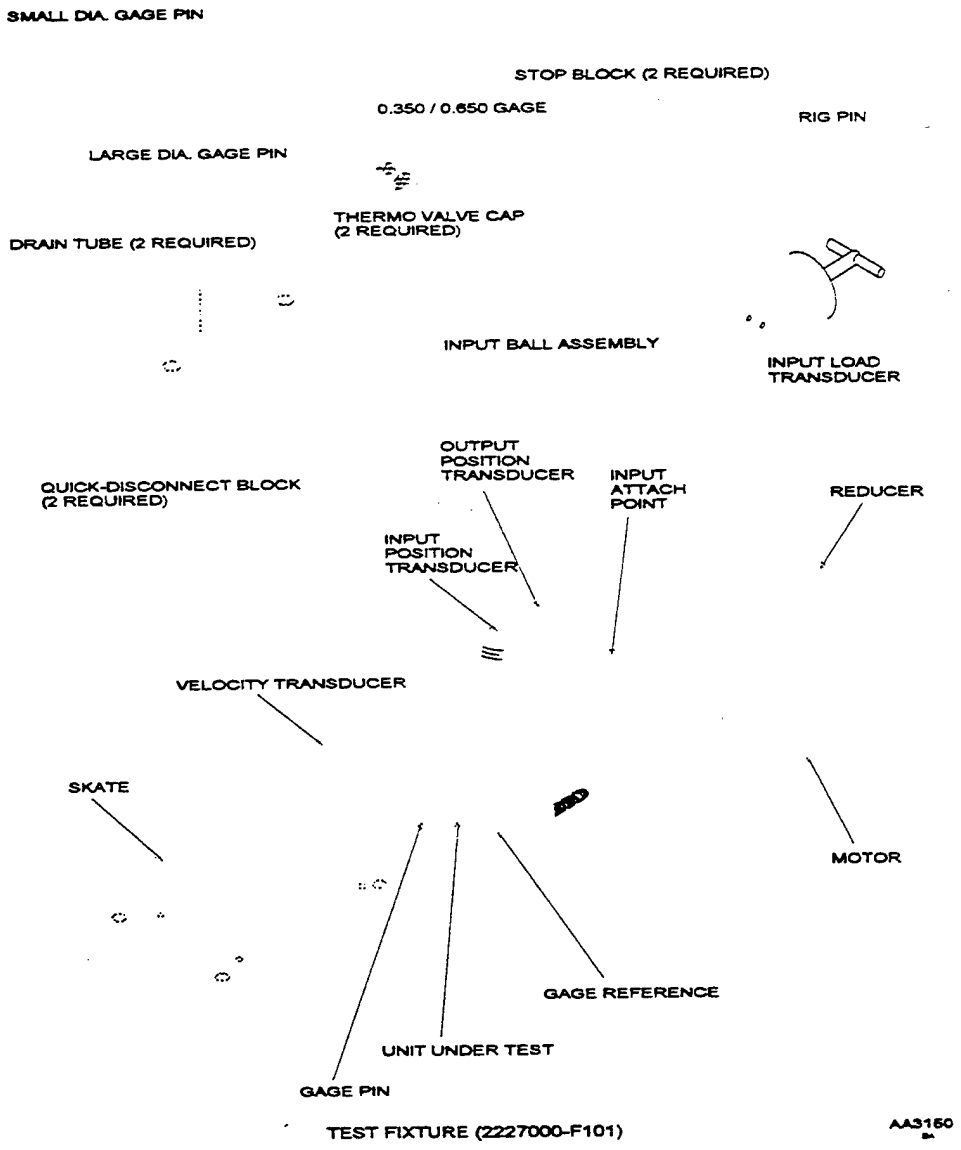
11.1.2 Output Designer



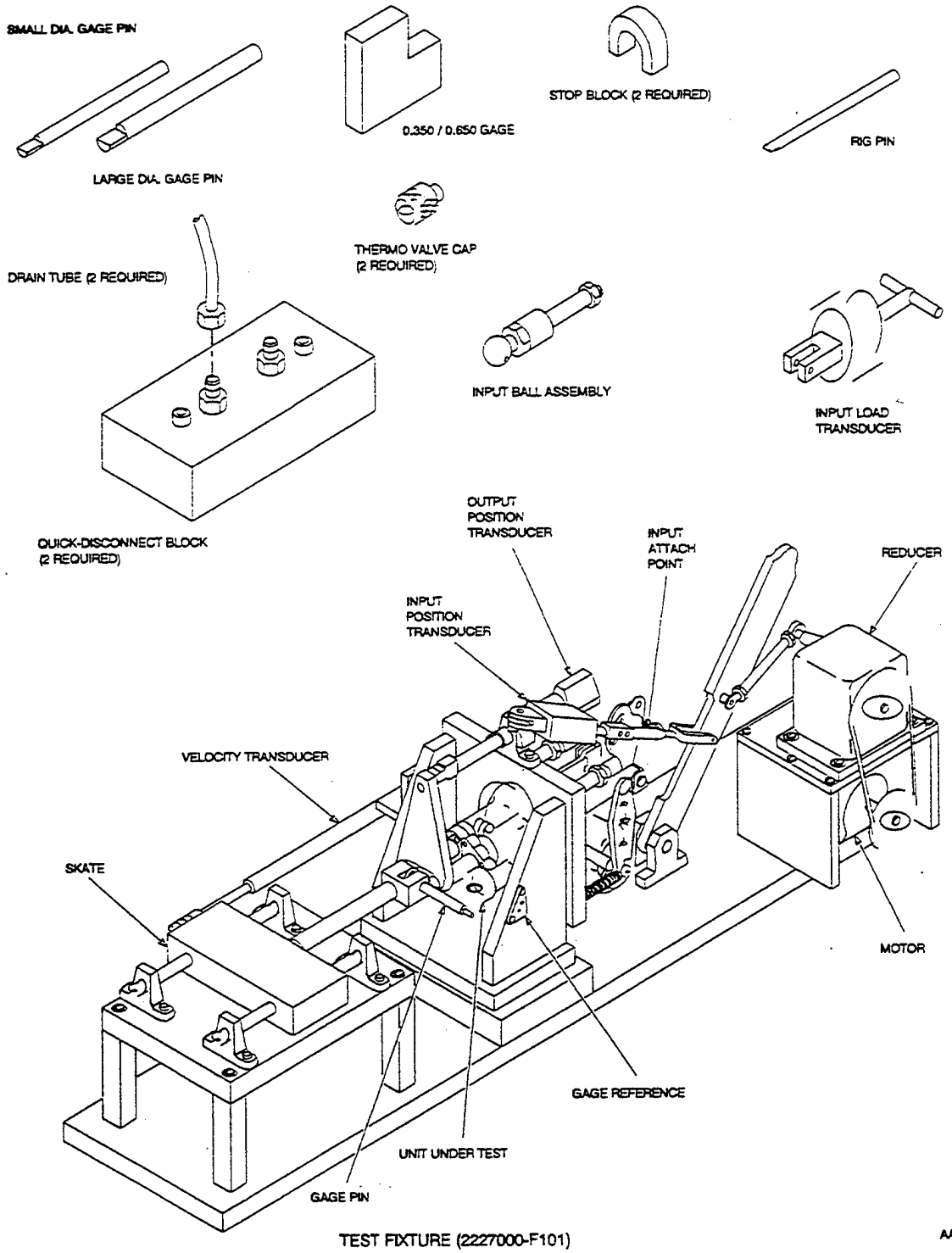
11.1.3 Output Freelance



11.1.4 Output HiJaak Pro



11.1.5 Output Ventura Publisher



TEST FIXTURE (2227000-F101)

AA3156SA

11.2 File D001C018

11.2.1 Parser Log MetaCheck

```
MetaCheck Version 2.05 -- CGM/MIL-D-28003 Conformance Analyzer
Copyright 1988-91 CGM Technology Software
Execution Date: 04/07/94     Time:  10:06:39

Metafile Examined    : i:\94028\c018.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: 04/07/94     Time:  10:06:41

Name of CGM under test: i:\94028\c018.cgm
Encoding              : Binary

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

BEGIN METAFILE string : "aa3079"
METAFILE DESCRIPTION  : "AUTO-TROL/REL-1.0 MIL-D-28003/BASIC-1"

Picture 1 starts at octet offset 154; string contains: "aa3079"

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

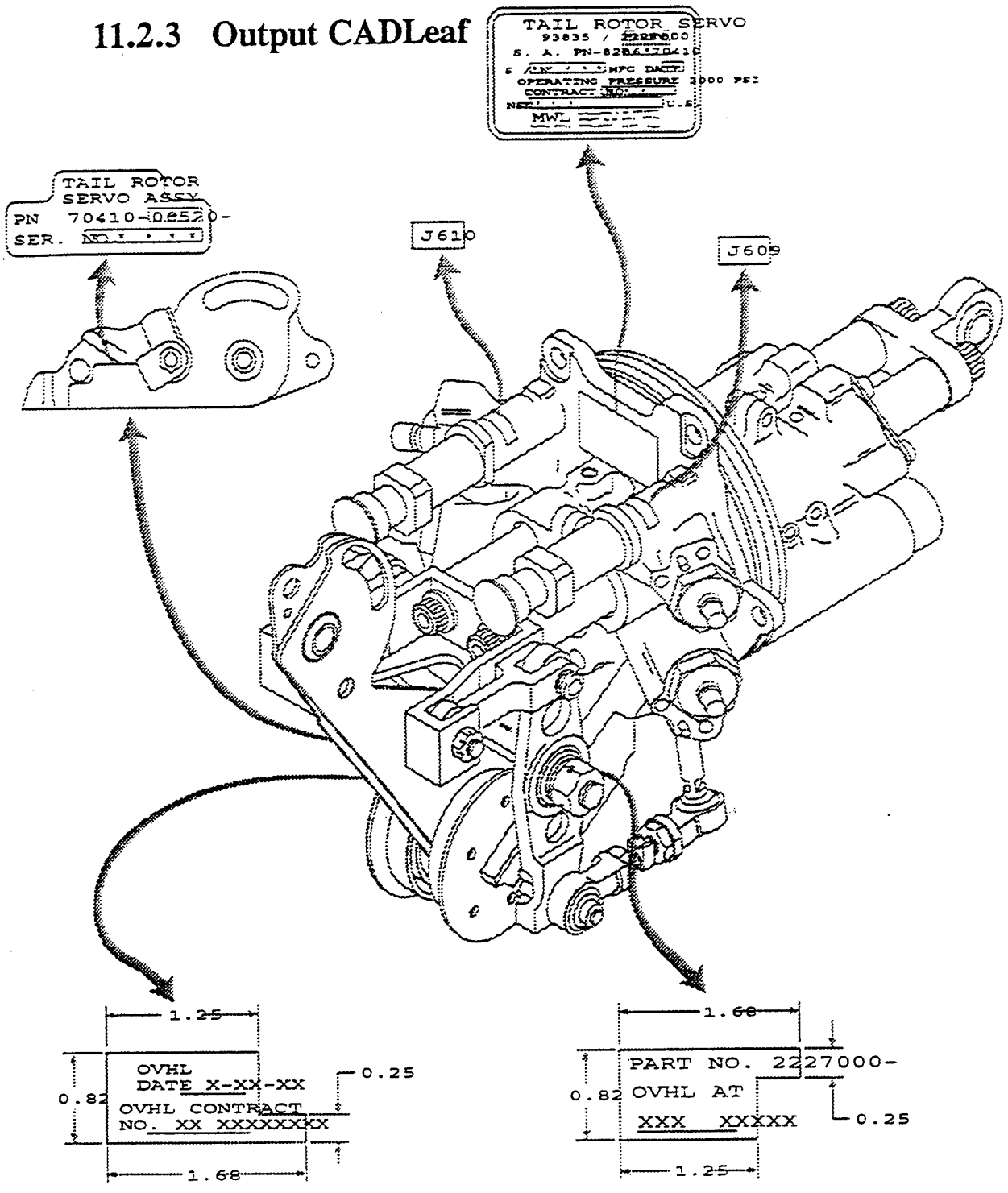
Summary of Testing Performed and Errors Found:

```
          1 Pictures Tested
       1720 Elements Tested
      52802 Octets Tested

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

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

11.2.2 validcgm Log

```
Analysis for file c018.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, 5) occurred 1 time
(1, 7) occurred 1 time
(1, 8) occurred 1 time
(1, 9) occurred 1 time
(1, 11) occurred 1 time
(1, 13) occurred 1 time
(2, 1) occurred 1 time
(2, 3) occurred 1 time
(2, 4) occurred 1 time
(2, 5) occurred 1 time
(2, 6) occurred 1 time
(2, 7) occurred 1 time
(4, 1) occurred 1328 times
(4, 4) occurred 36 times
(4, 7) occurred 60 times
(4, 15) occurred 4 times
(4, 17) occurred 7 times
(4, 18) occurred 16 times
(5, 3) occurred 25 times
(5, 4) occurred 17 times
(5, 10) occurred 3 times
(5, 13) occurred 2 times
(5, 15) occurred 11 times
(5, 16) occurred 1 time
(5, 18) occurred 1 time
(5, 22) occurred 6 times
(5, 23) occurred 11 times
(5, 28) occurred 6 times
(5, 29) occurred 11 times
(5, 30) occurred 121 times
(5, 34) occurred 35 times
```

11.2.3 Output CADLeaf

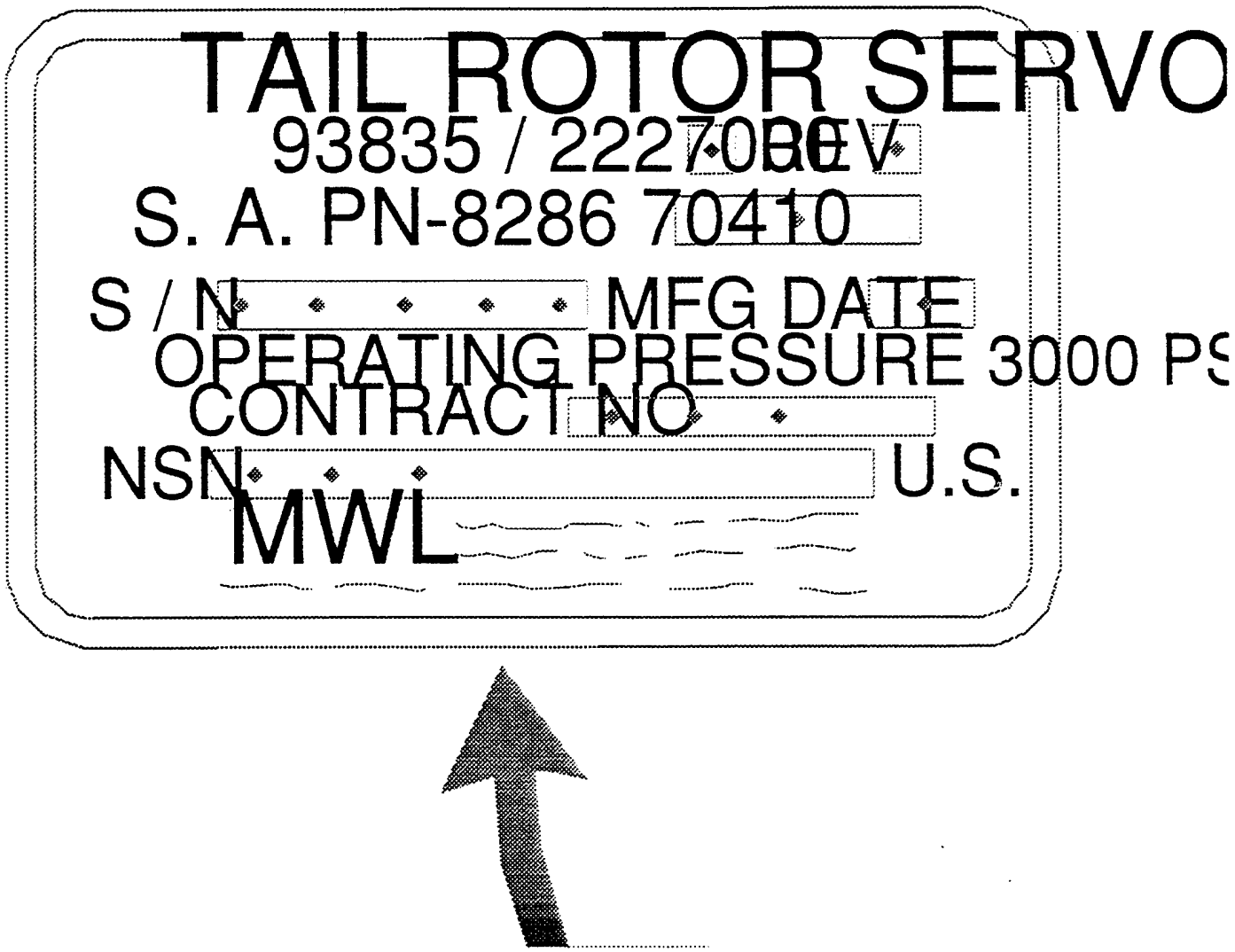


NOTE

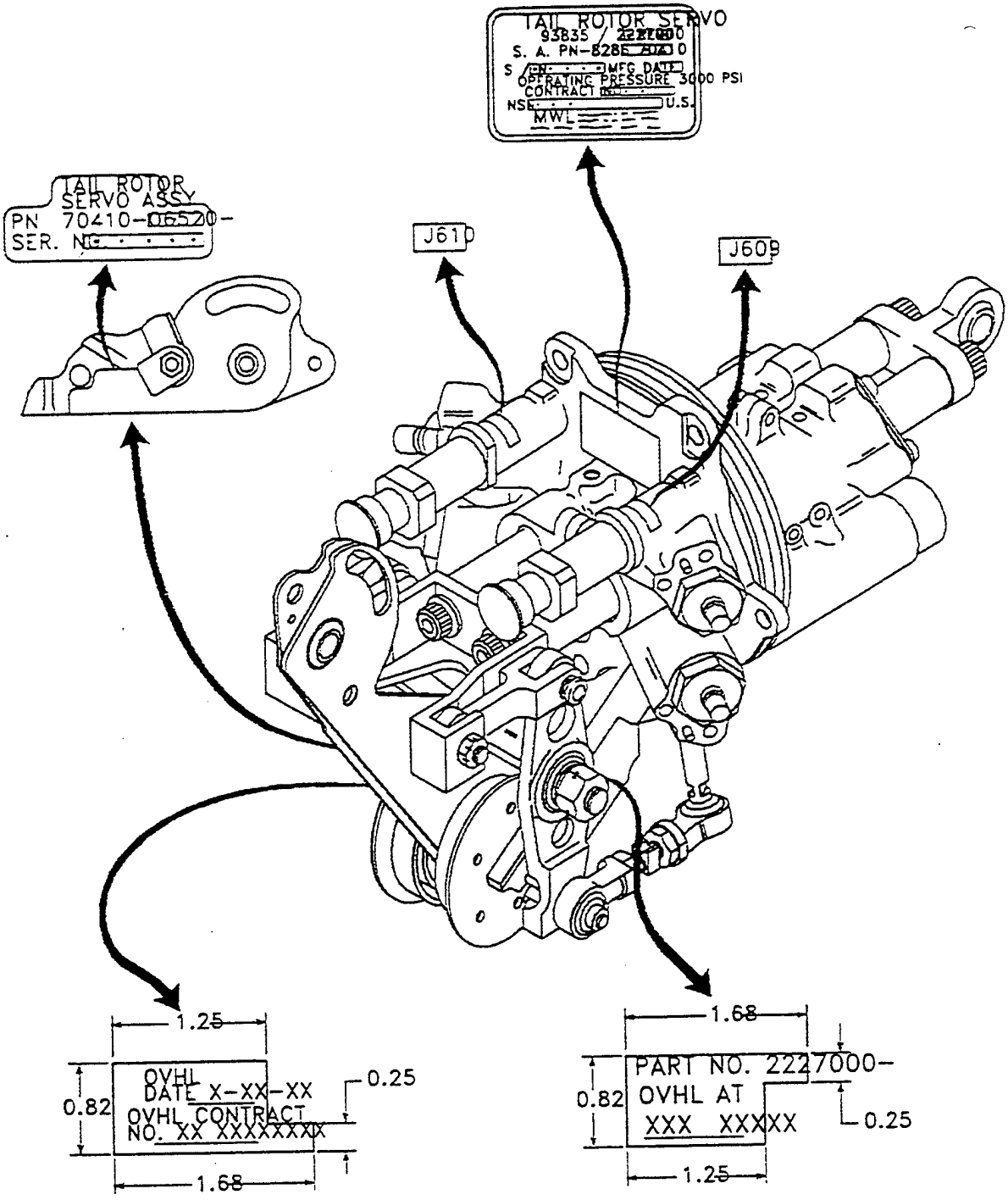
ALL DIMENSIONS ARE IN INCHES.

AA30

11.2.4 Output CALSView



11.2.5 Output cgm2draw/IslandDraw

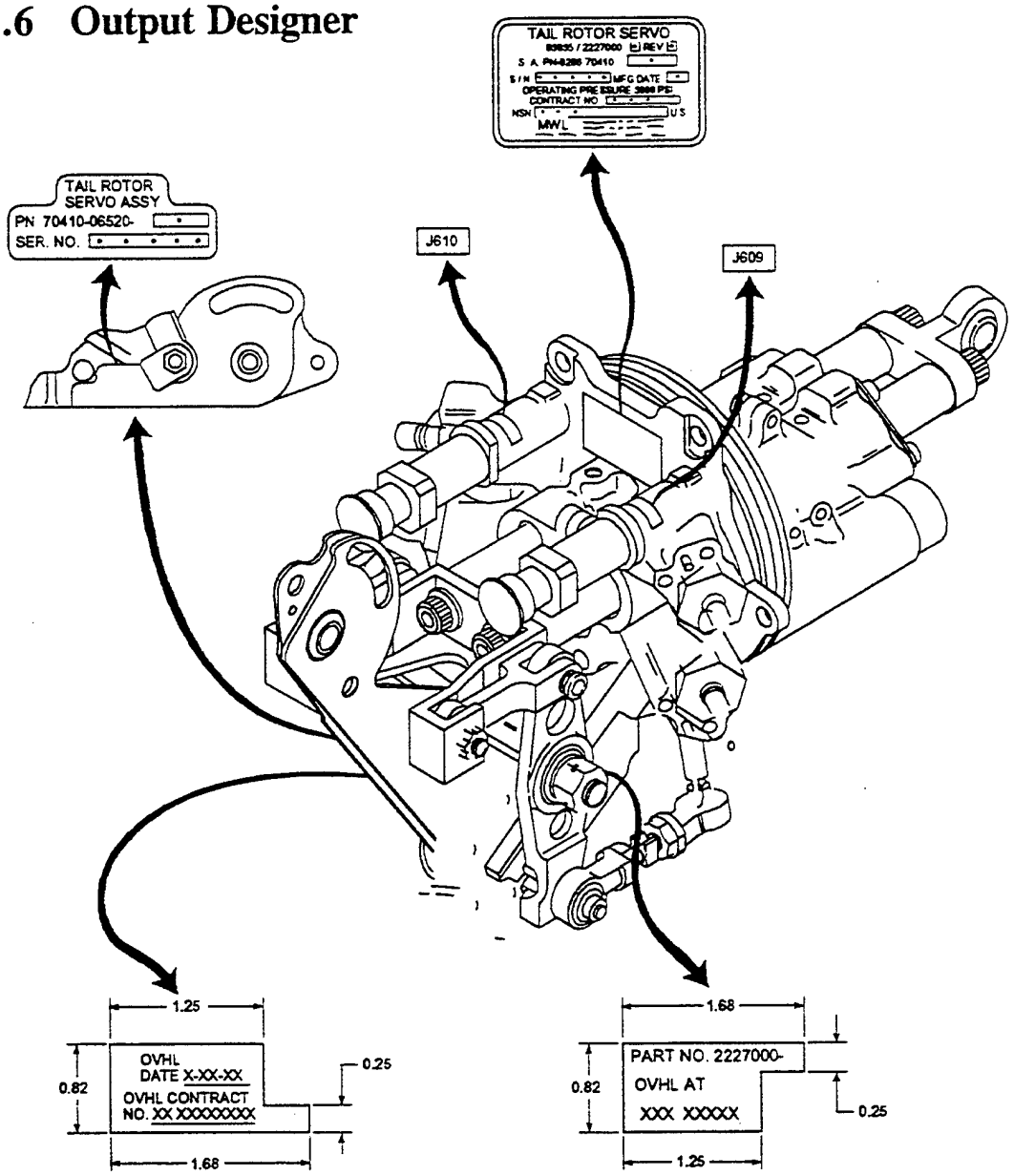


NOTE

ALL DIMENSIONS ARE IN INCHES.

AA3079

11.2.6 Output Designer

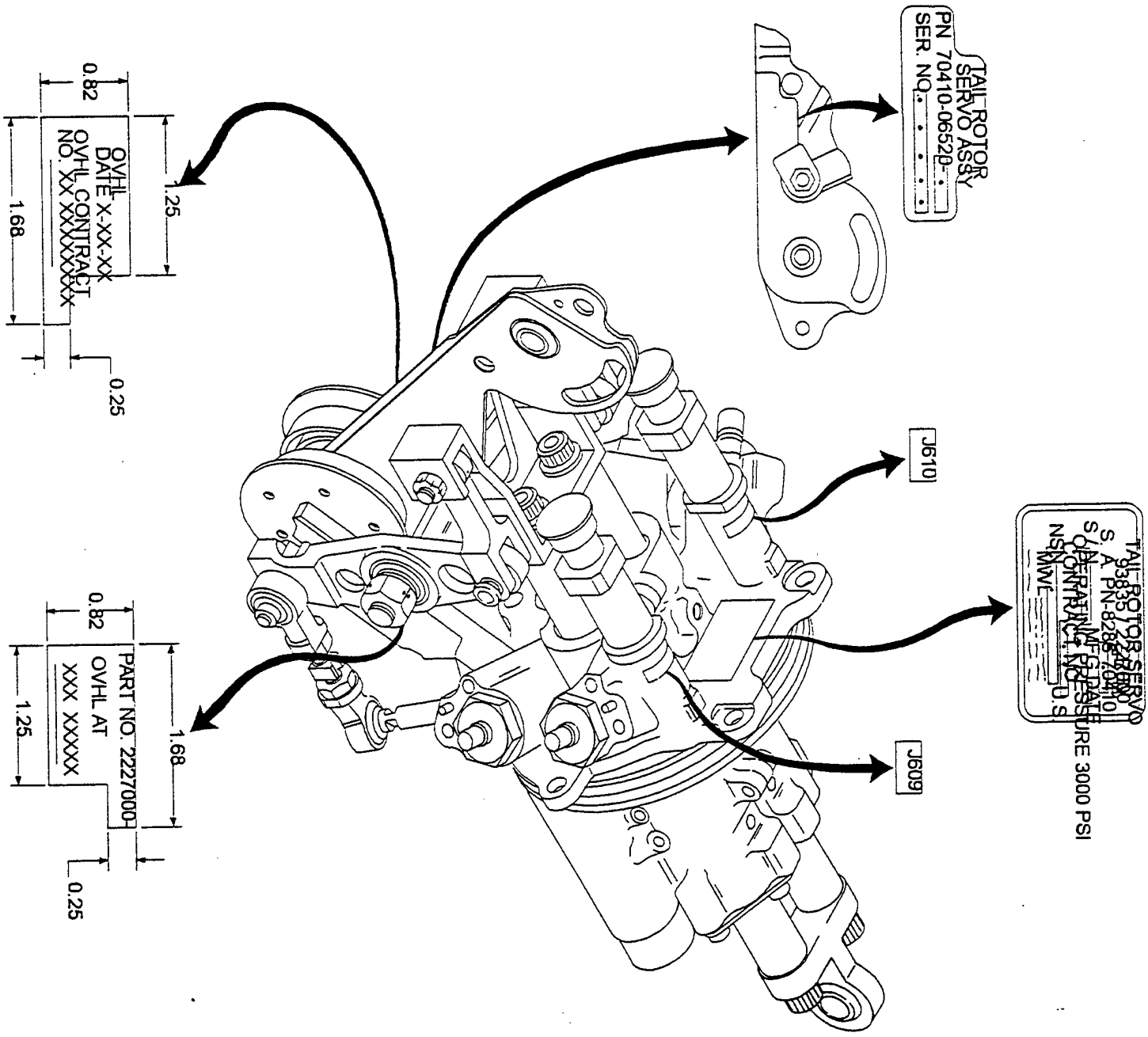


NOTE

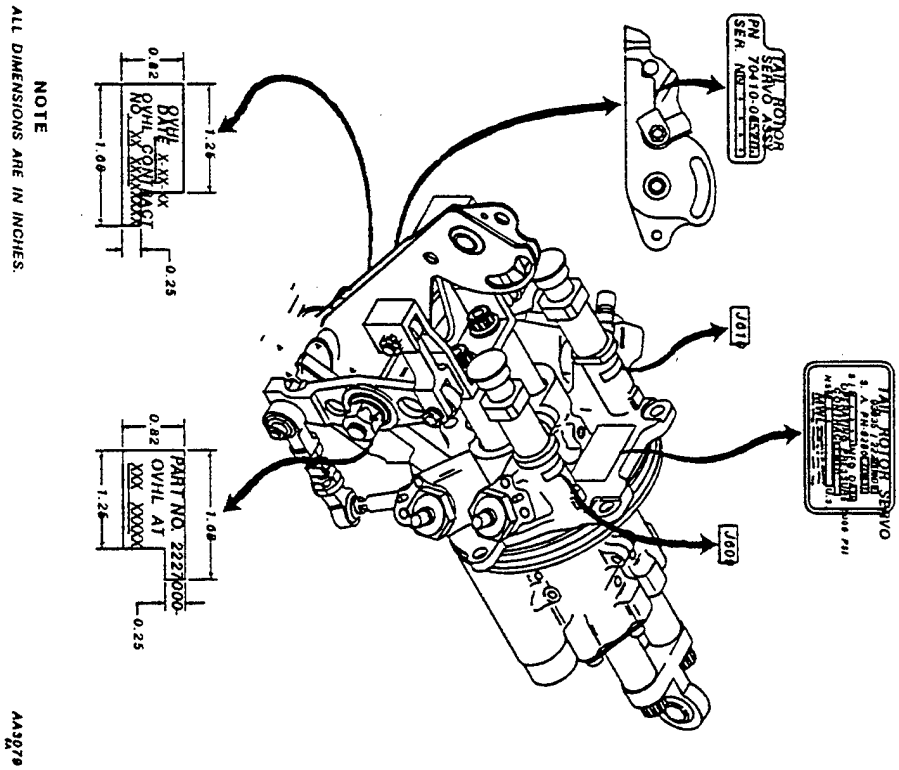
ALL DIMENSIONS ARE IN INCHES.

AA3079

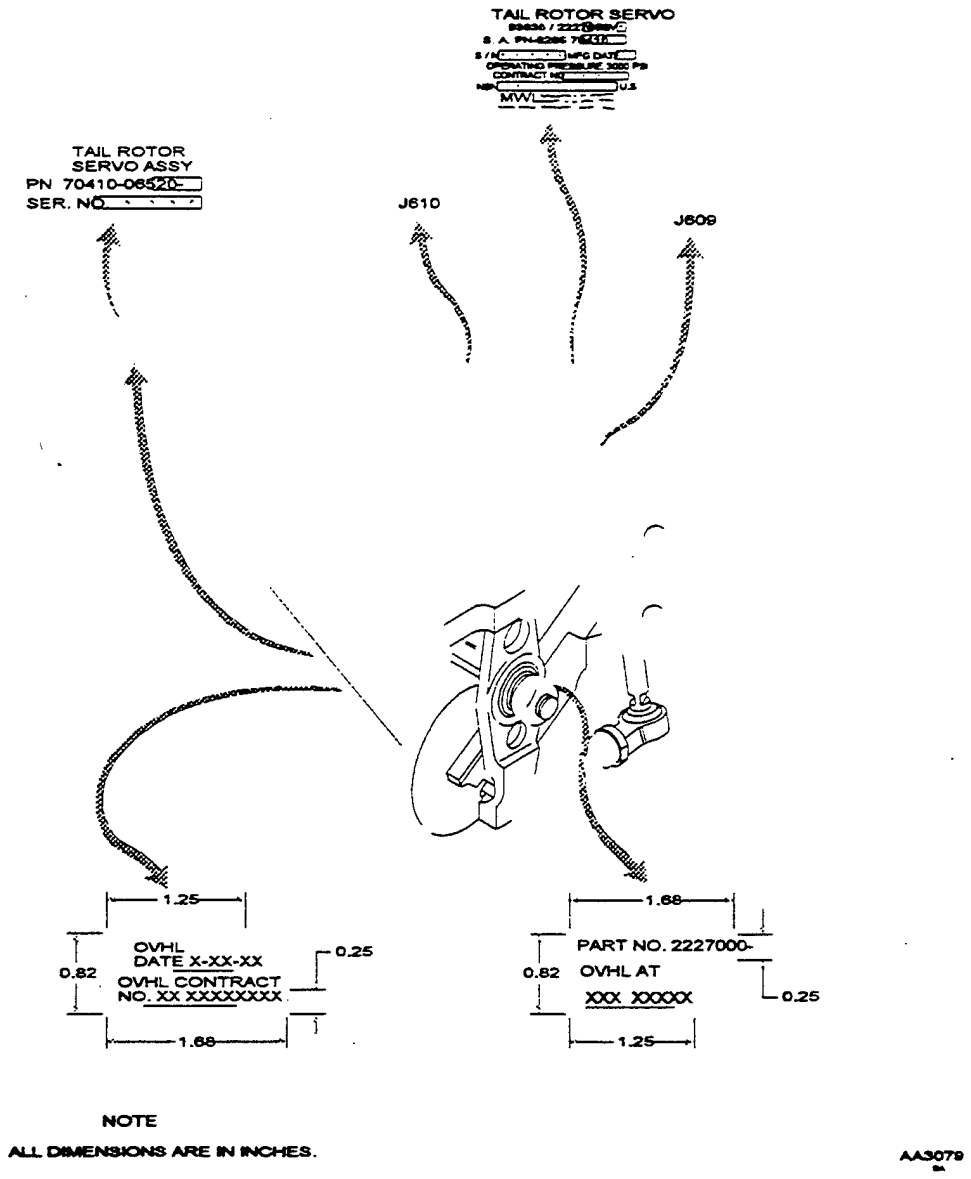
11.2.7 Output Freelance



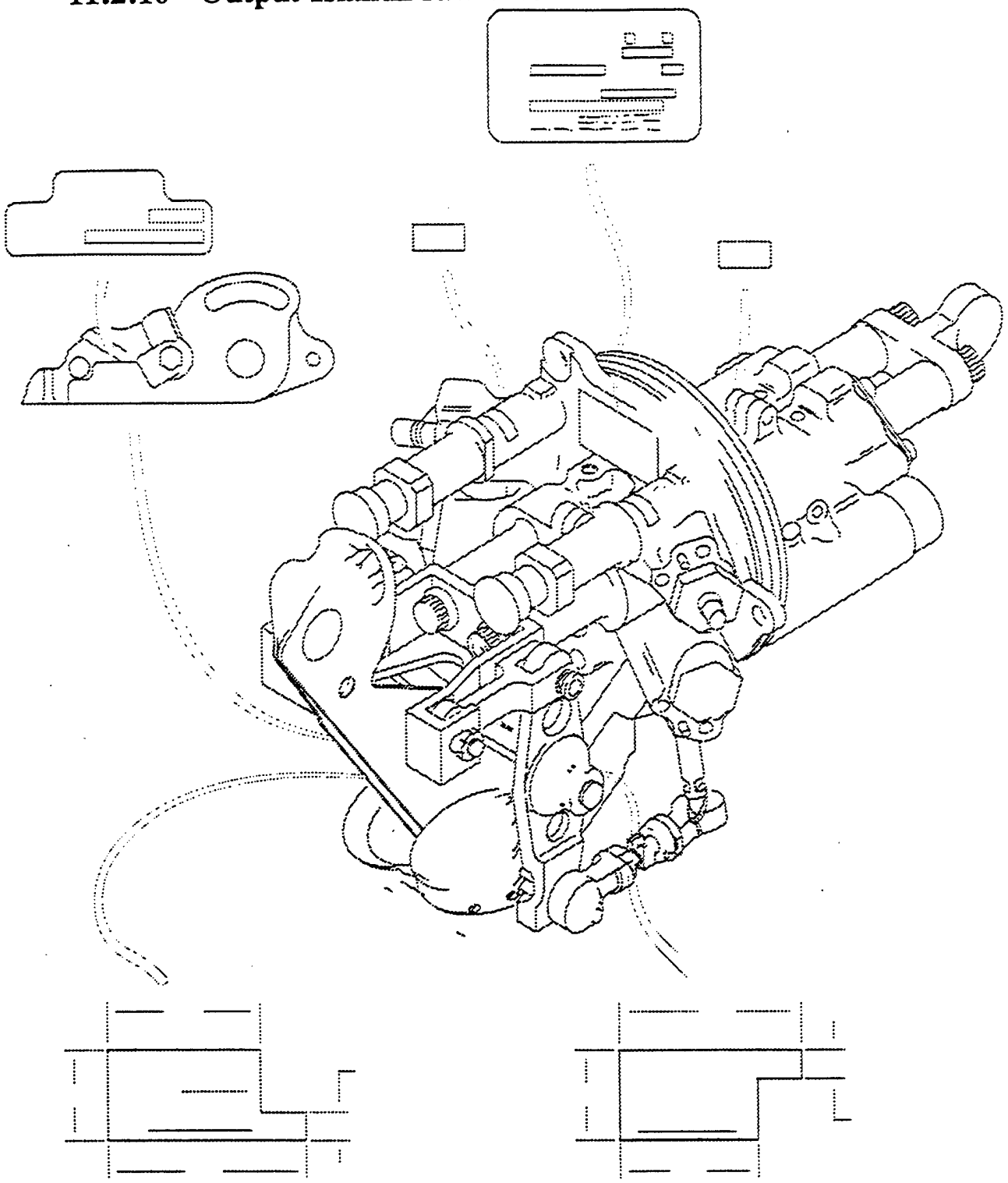
11.2.8 Output Harvard Graphics



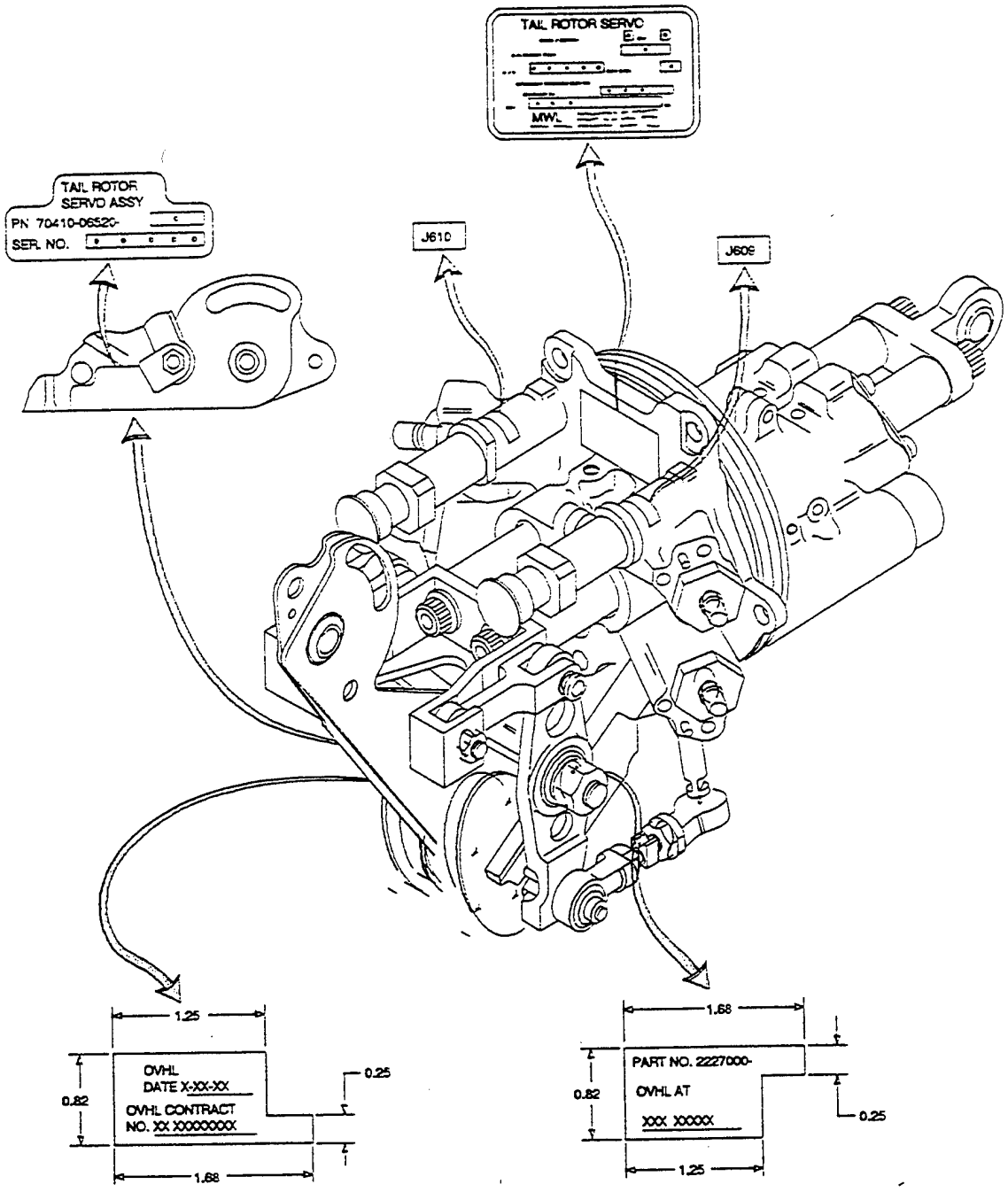
11.2.9 Output HiJaak Pro



11.2.10 Output IslandDraw v4.0



11.2.11 Output Ventura Publisher

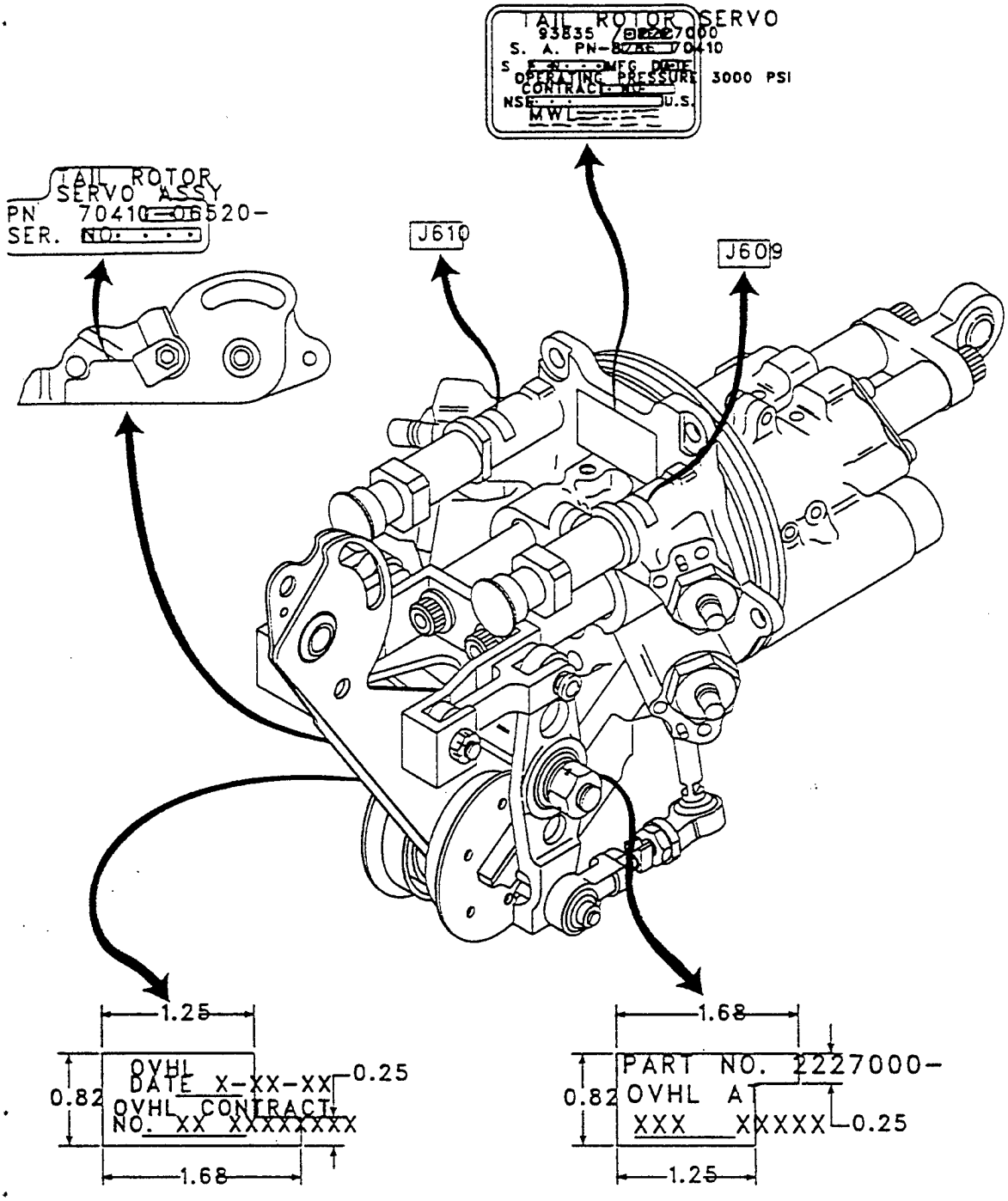


NOTE

ALL DIMENSIONS ARE IN INCHES.

AA3078

11.2.12 Output XChange



NOTE

LL DIMENSIONS ARE IN INCHES.

AA307
SA

11.3 File D001C018

11.3.1 Parser Log MetaCheck

```
MetaCheck Version 2.05 -- CGM/MIL-D-28003 Conformance Analyzer
Copyright 1988-91 CGM Technology Software
Execution Date: 04/07/94     Time:  10:06:49

Metafile Examined    : i:\94028\c029.cgm

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

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

Tracing not selected.

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

Bulletin 20009: Element Class/ID: 4/1   Offset: 5190 octets Element No. 511
Warning; POLYLINE with only one distinct vertex.

Bulletin 20009: Element Class/ID: 4/1   Offset: 7240 octets Element No. 722
Warning; POLYLINE with only one distinct vertex.

Bulletin 20009: Element Class/ID: 4/1   Offset: 7260 octets Element No. 724
Warning; POLYLINE with only one distinct vertex.

Bulletin 20009: Element Class/ID: 4/1   Offset: 7660 octets Element No. 764
Warning; POLYLINE with only one distinct vertex.

Bulletin 20009: Element Class/ID: 4/1   Offset: 7680 octets Element No. 766
Warning; POLYLINE with only one distinct vertex.

Bulletin 20009: Element Class/ID: 4/1   Offset: 7700 octets Element No. 768
Warning; POLYLINE with only one distinct vertex.

Bulletin 20009: Element Class/ID: 4/1   Offset: 7720 octets Element No. 770
Warning; POLYLINE with only one distinct vertex.

Bulletin 20009: Element Class/ID: 4/1   Offset: 7740 octets Element No. 772
Warning; POLYLINE with only one distinct vertex.

========== 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: 04/07/94 Time: 10:06:50

Name of CGM under test: i:\94028\c029.cgm
Encoding : Binary

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

BEGIN METAFILE string : "aa3139"
METAFILE DESCRIPTION : "AUTO-TROL/REL-1.0 MIL-D-28003/BASIC-1"

Picture 1 starts at octet offset 154; string contains: "aa3139"

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
1446 Elements Tested
16512 Octets Tested

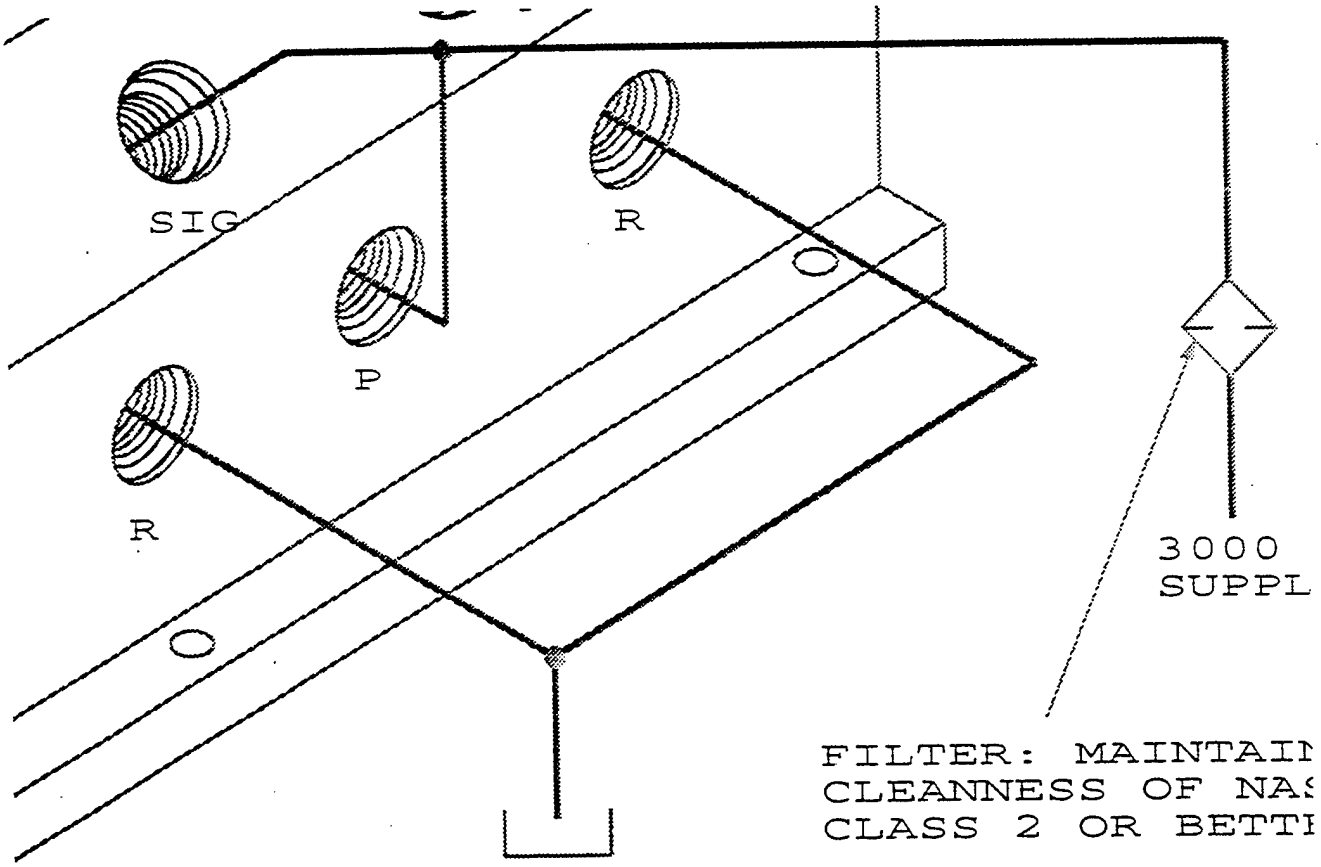
0	Illegal CGM Elements	1000 - 1999
0	Incorrect CGM Element Lengths	2000 - 2999
0	CGM State Errors	3000 - 3499
0	Required CGM Elements Missing or Wrong	4000 - 4499
0	CGM Parameter Values Out of Range	6000 - 6499
0	CGM Structure Errors	7000 - 7499
0	*** CGM Errors Found (total)	***
0	Profile State Errors	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)	***
8	Warnings (Advisory Remarks)	20000 - 20999

1 distinct errors and warnings were reported.

11.3.2 validcgm Log

```
Analysis for file c029.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, 5) occurred 1 time
(1, 7) occurred 1 time
(1, 8) occurred 1 time
(1, 9) occurred 1 time
(1, 11) occurred 1 time
(1, 13) occurred 1 time
(2, 1) occurred 1 time
(2, 3) occurred 1 time
(2, 4) occurred 1 time
(2, 5) occurred 1 time
(2, 6) occurred 1 time
(2, 7) occurred 1 time
(4, 1) occurred 1016 times
(4, 4) occurred 54 times
(4, 7) occurred 43 times
(4, 12) occurred 7 times
(4, 15) occurred 10 times
(4, 17) occurred 14 times
(4, 18) occurred 21 times
(5, 3) occurred 32 times
(5, 4) occurred 34 times
(5, 10) occurred 5 times
(5, 13) occurred 4 times
(5, 15) occurred 9 times
(5, 16) occurred 1 time
(5, 18) occurred 1 time
(5, 22) occurred 12 times
(5, 23) occurred 18 times
(5, 28) occurred 12 times
(5, 29) occurred 12 times
(5, 30) occurred 87 times
(5, 34) occurred 35 times
```

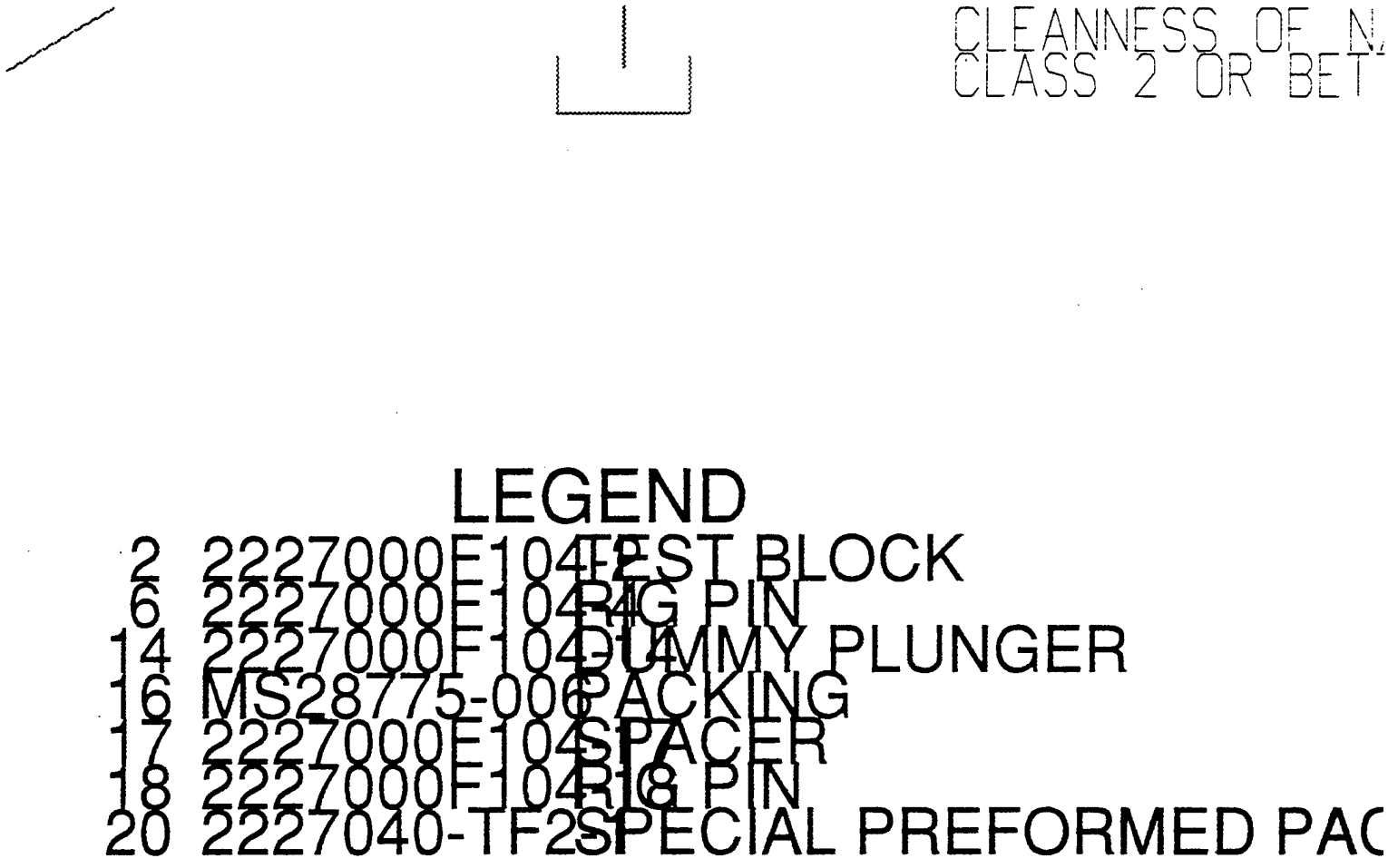
11.3.3 Output CADLeaf



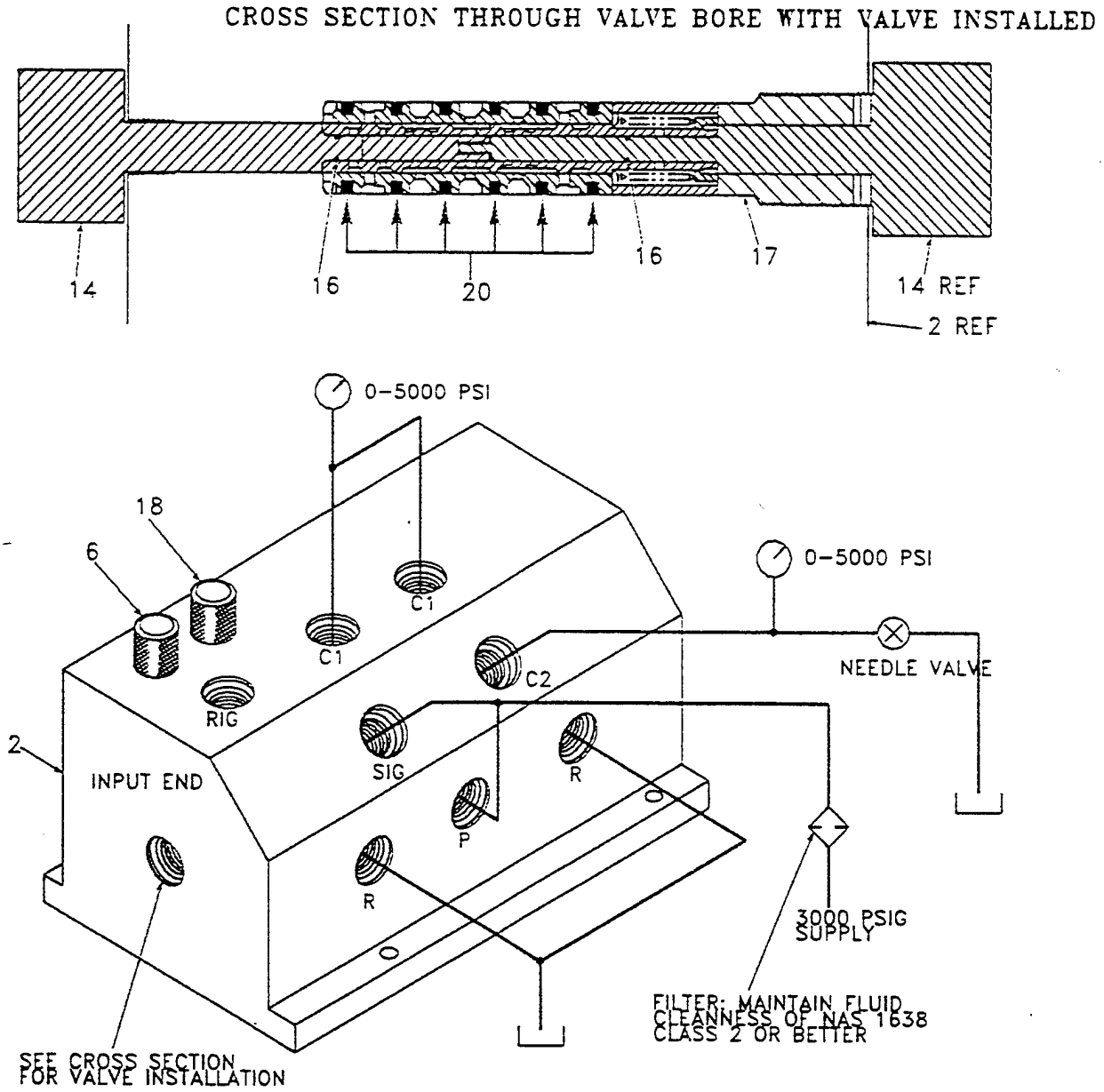
LEGEND

2 2227000F1 TEST BLOCK
6 2227000F1 R4G4 PIN
14 2227000F1 DUMMY PLUNGER
16 MS28775-0 PACKING
17 2227000F1 SPACER
18 2227000F1 R4G18 PIN
20 2227040-T SPECIAL PREFORMED PACKING

11.3.4 Output CALSView



11.3.5 Output cgm2draw/IslandDraw

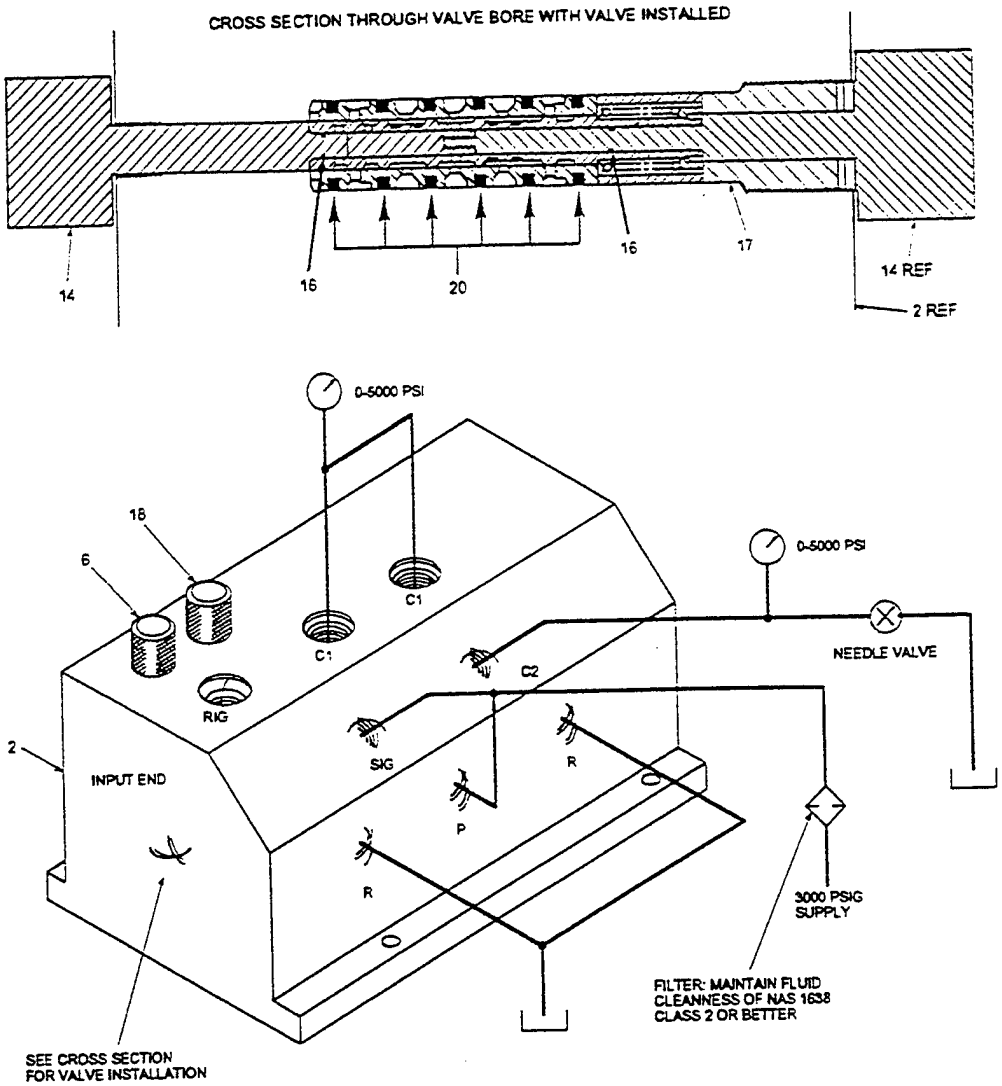


LEGEND

2 2227000F1[illegible] BLOCK
6 2227000F1[illegible] PIN
14 2227000F1[illegible] PLUNGER
16 MS28775-0[illegible]
17 2227000F1[illegible]
18 2227000F1[illegible]
20 2227040-1 SPECIAL PREFORMED PACKING

AA3139

11.3.6 Output Designer

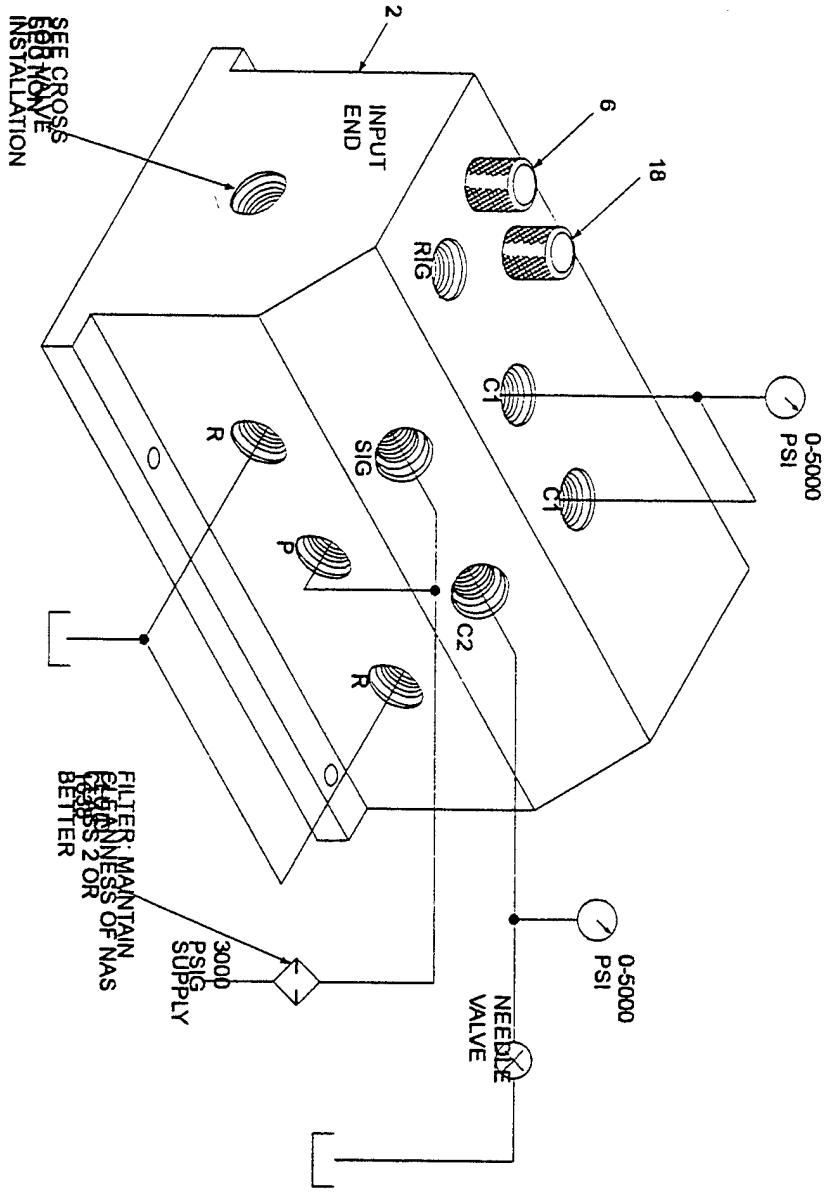


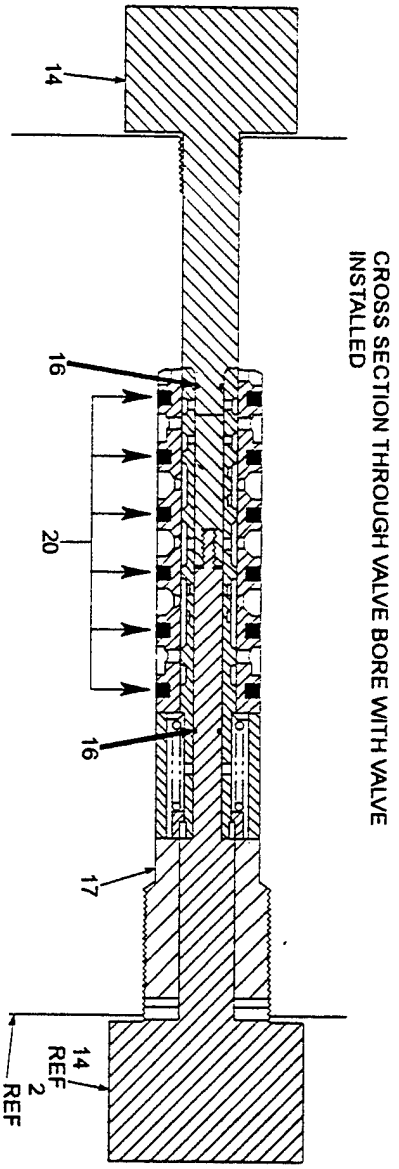
LEGEND

2	2227000F104-2	TEST BLOCK
6	2227000F104-4	RIG PIN
14	2227000F104-14	DUMMY PLUNGER
16	MS28775-006	PACKING
17	2227000F104-17	SPACER
18	2227000F104-18	RIG PIN
20	2227040-TF2-1	SPECIAL PREFORMED PACKING

AA3139
8A

11.3.7 Output Freelance





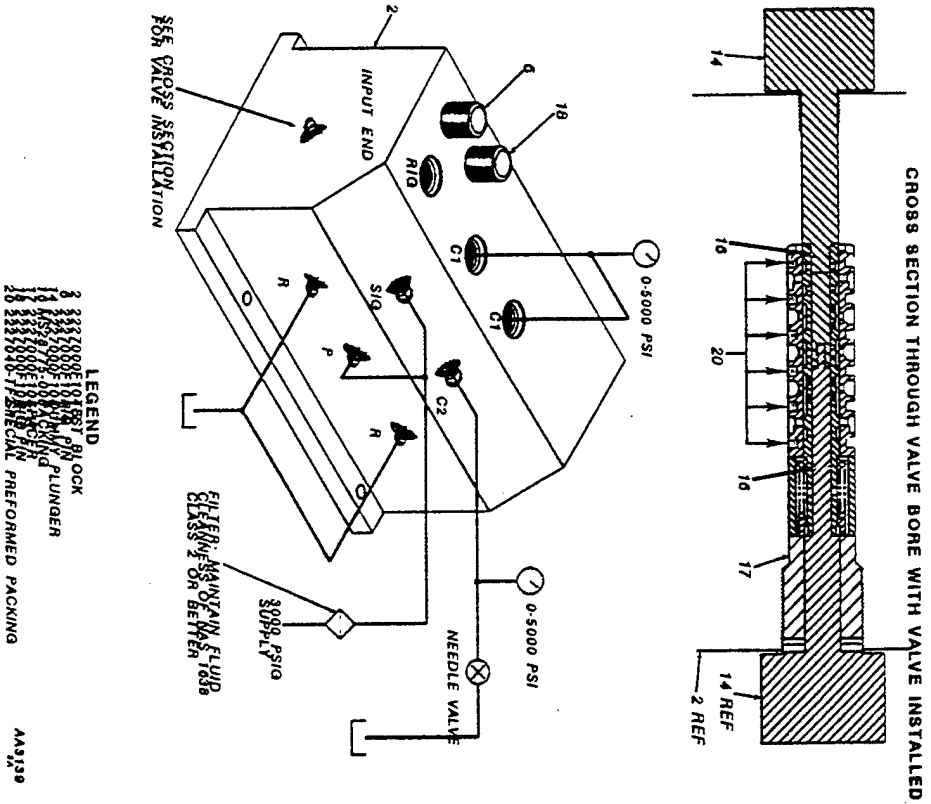
CROSS SECTION THROUGH VALVE BORE WITH VALVE INSTALLED

LEGEND

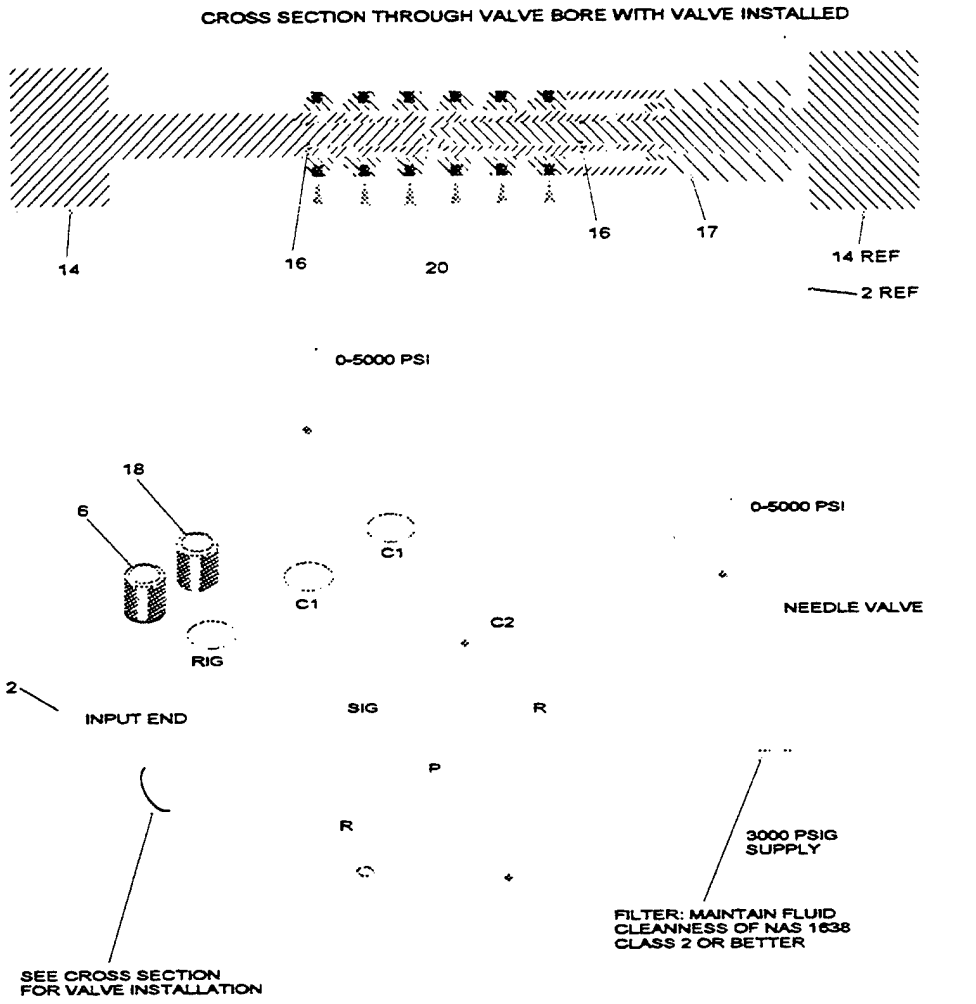
2	2227000F104-2 BODY
6	2227000F104-6 PLUNGER
14	MS28775-006 PACKING
16	2227000F104-16 BACKUP RING
17	2227000F104-17 RETAINER
18	2227000F104-18 SPRING
20	2227040-TF2-1 PACKING

AA31139

11.3.8 Output Harvard Graphics



11.3.9 Output HiJaak Pro

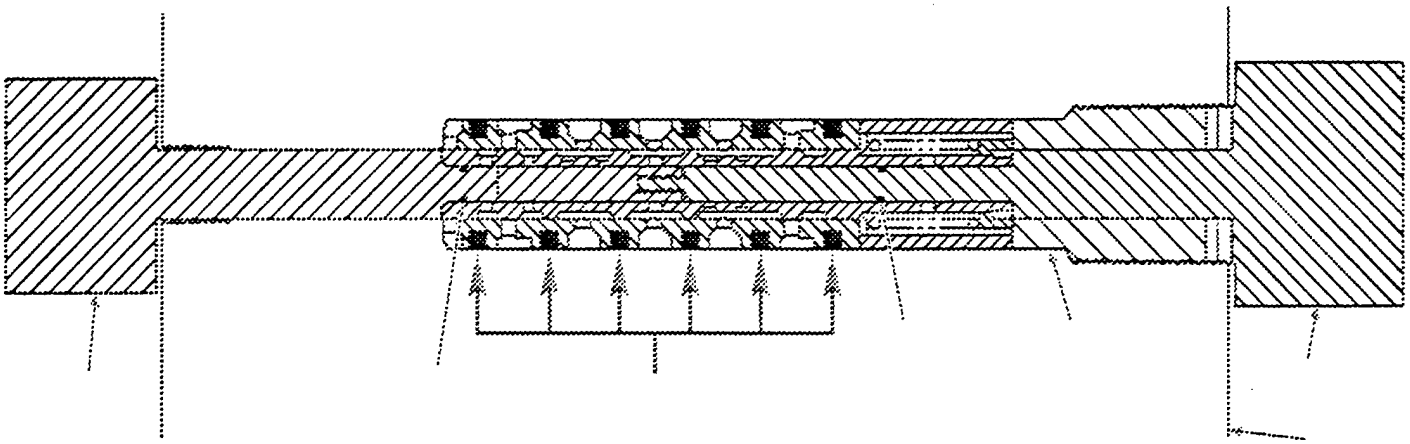


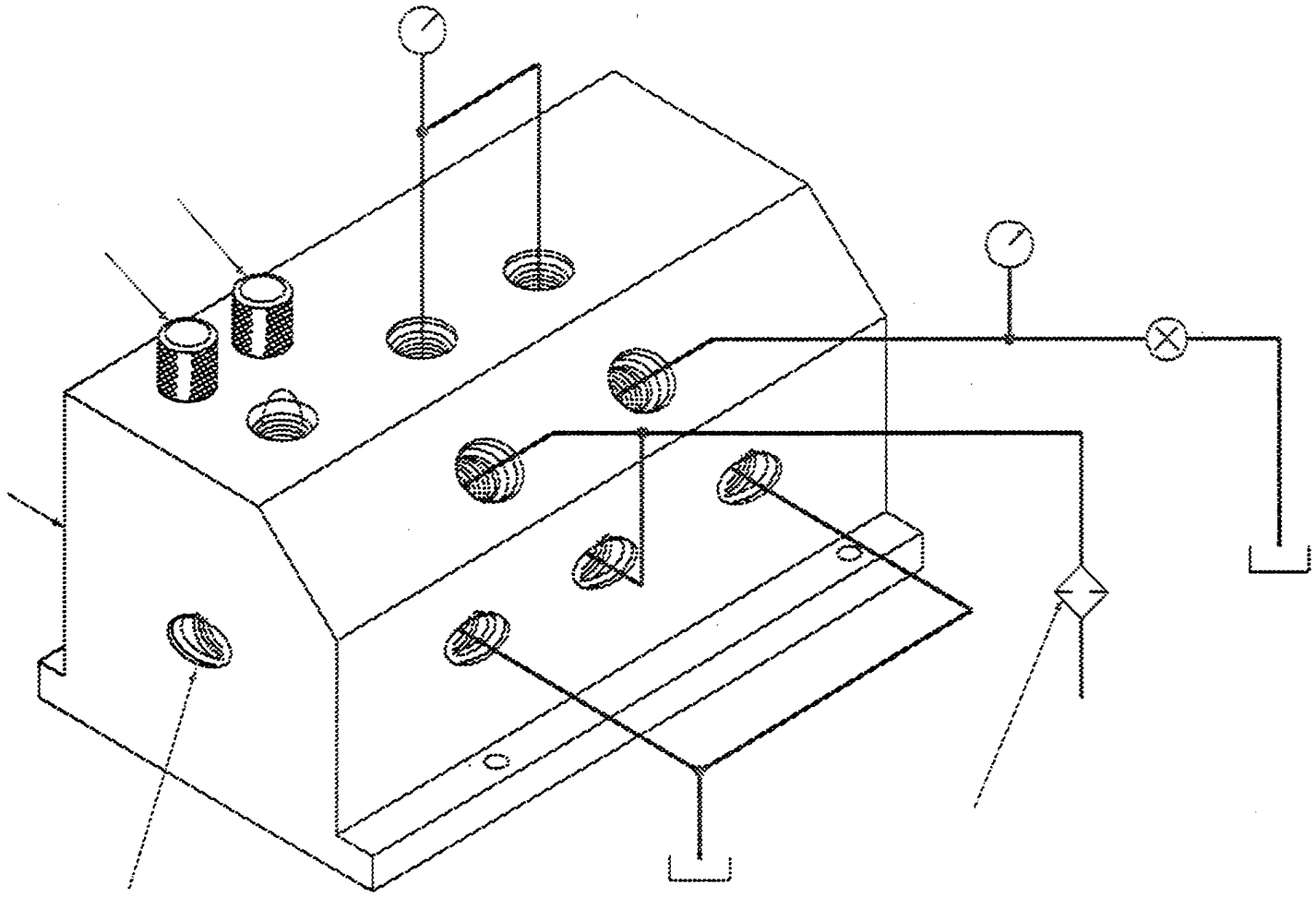
LEGEND

2	2227000F104 TEST BLOCK
6	2227000F104 RIG PIN
14	2227000F104 DUMMY PLUNGER
16	MS28775-005 PACKING
17	2227000F104 SPACER
18	2227000F104 RIG PIN
20	2227040-TF2 SPECIAL PREFORMED PACKING

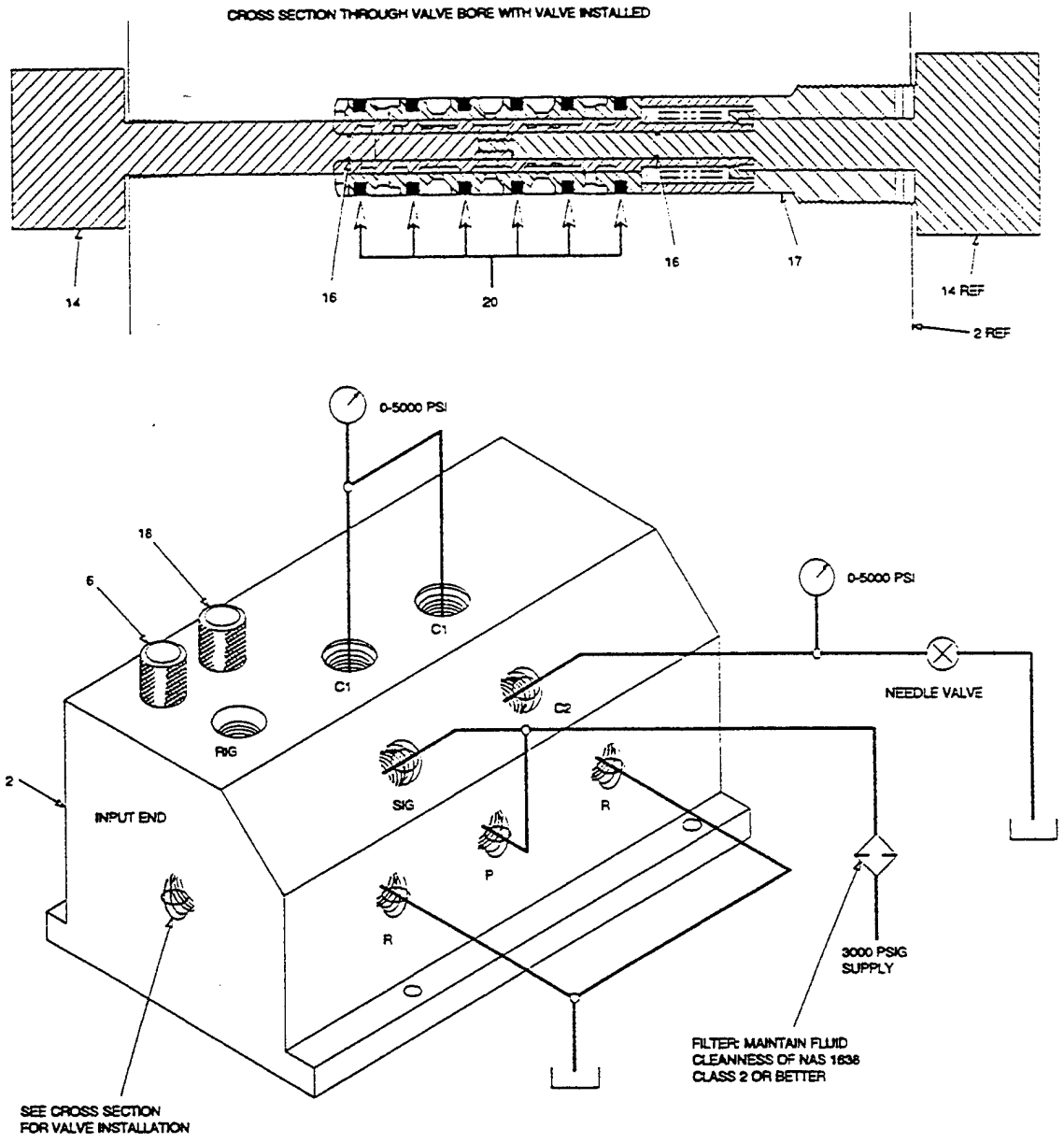
AA3139

11.3.10 Output IslandDraw v4.0





11.3.11 Output Ventura Publisher

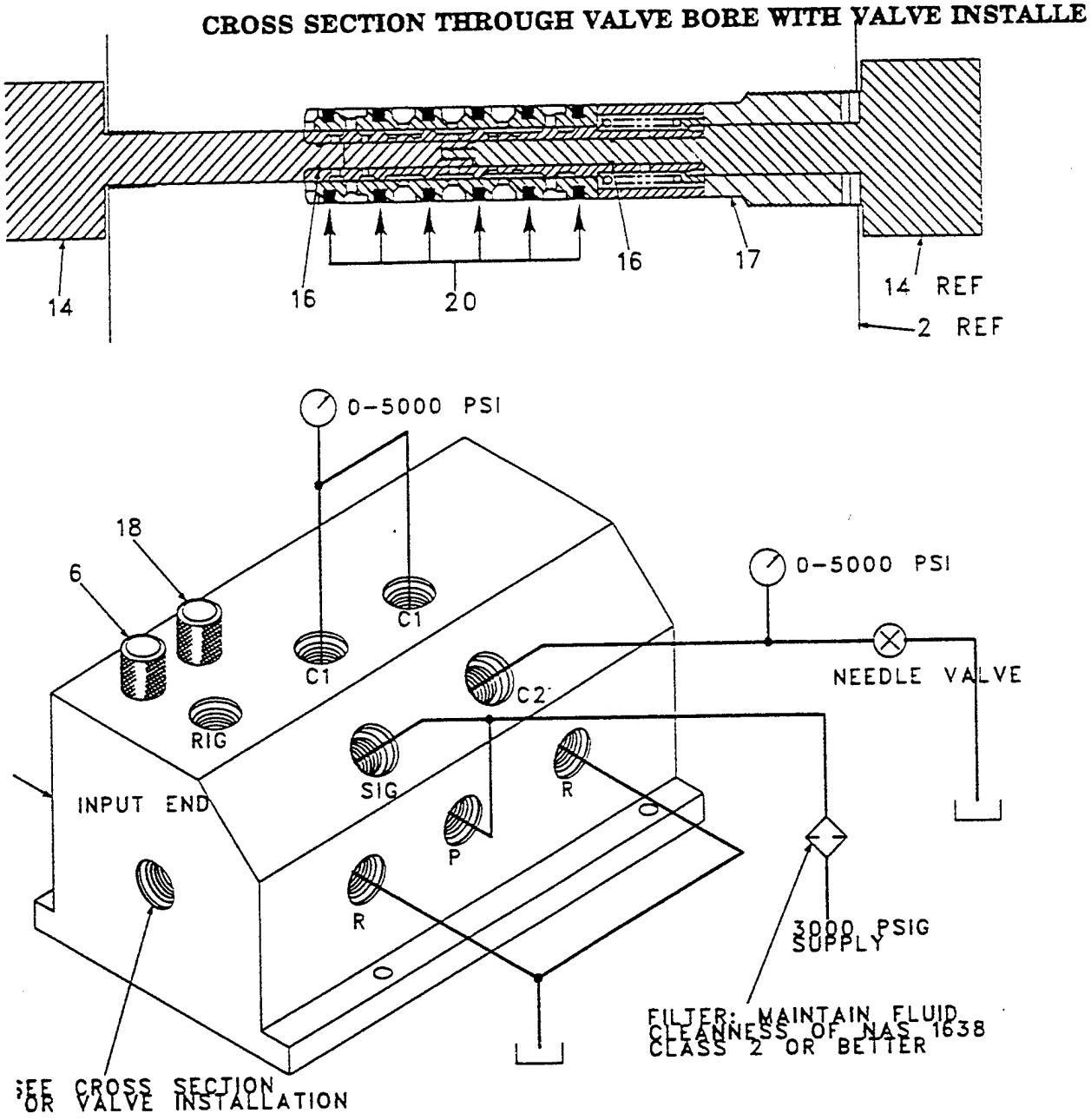


LEGEND

2	2227000F104-2	TEST BLOCK
6	2227000F104-4	RIG PIN
14	2227000F104-14	DUMMY PLUNGER
16	MS28775-006	PACKING
17	2227000F104-17	SPACER
18	2227000F104-18	RIG PIN
20	2227040-TF2-1	SPECIAL PREFORMED PACKING

AA3139

11.3.12 Output X-Change



LEGEND

2 2227000F[illegible] BLOCK
6 2227000F[illegible]
14 2227000F[illegible] PLUNGER
16 MS28775-[illegible]
17 2227000F[illegible]
18 2227000F[illegible]
20 2227040-SPECIAL PREFORMED PACKING

AA3139 SA