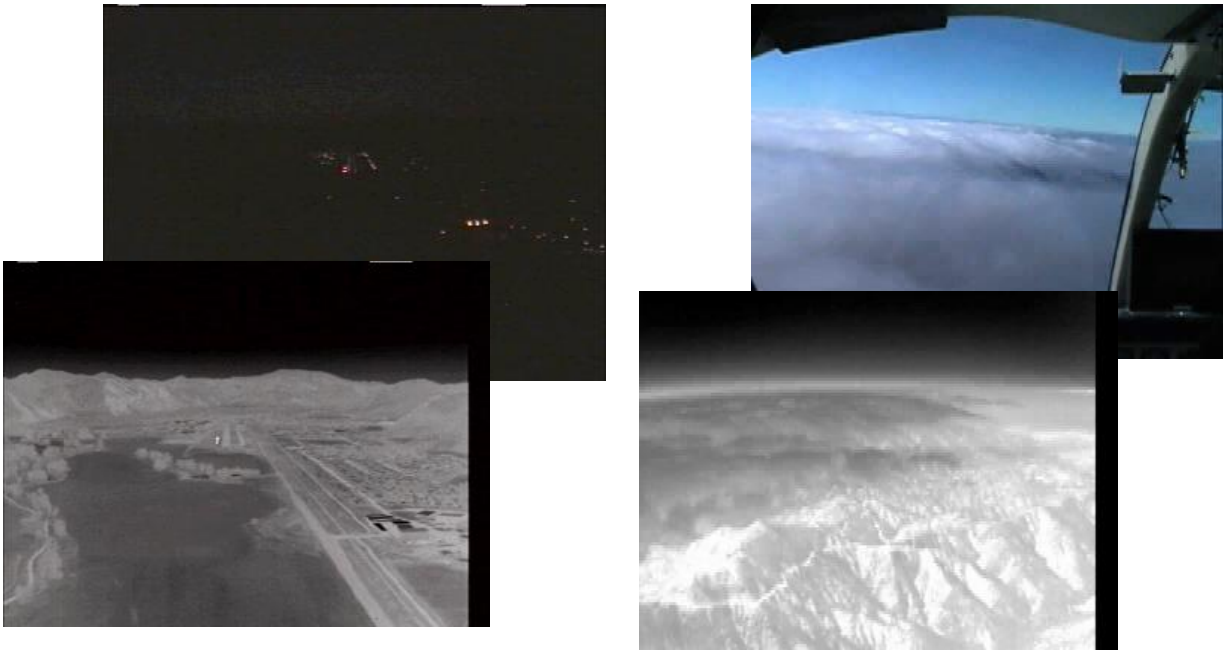
MAX VIZ®

See Clearly, Fly Safely®

Information Manual

EVS-1500

See What You'll Be Missing



Max-Viz, Inc.
15940 S.W. 72nd Avenue
Portland, OR 97224

Revision History

Revision	Date	Change Description
-	2/16/07	Initial Release
A	2/26/07	Fixed header and footer to standardize with other documents, added text concerning two video outputs to section 3.1.4, and added Cable Assy – Sensor I/F to Appendix A
B	9/25/07	Updated Max Power specification, changed the name of Power Supply/Processor to Power Supply, updated Interface connections to remove Digital Video between Sensor and Power Supply, removed Video # 2 output from Power Supply, updated connector backshell part numbers, updated description of video outputs in section 3.1.4 to reflect a single video output, updated power-up sequence in section 4. Operation. Updated Interface Drawing 952500015 and Cable Assy- EVS 1500 Sensor Interconnect 955000016, in Appendix A.
C	2/21/08	Update the weight of the Power Supply LRU to < 2.65 lbs.
D	4/16/08	Updated the Export Control section 2.4 from ITAR controlled to Commerce Controlled and changed the NUC period from 5 to 4 minutes
E	8/14/08	Updated the Interface Drawing and Sensor Interconnect Drawing in Appendix A
F	5/1/09	Removed mention of black hot polarity from page 11, clarified heater control in 6.4 Halo Images, all mentions of NUC interval are now 4 minutes and fixed several typos.

G	12/08/2010	Updated the Max-Viz logo on page 1, Updated the address on this manual, Updated Warranty Form and Customer Service form to latest revisions.
H	06/06/2011	Updated to Add Patent language on page 2, Updated logo in the header, Added email address to Section 7, Updated Warranty Form and Customer Service Form to latest revisions.

Table of Contents

1. INTRODUCTION

This document provides guidance on the installation, operation, and maintenance of the Max-Viz, Inc. Enhanced Vision System (EVS) Model 1500 product.

The EVS-1500 is designed to provide the flight crew with enhanced visual awareness of terrain and potential obstacles in the aircraft's forward field of view.

2. EVS-1500 DESCRIPTION

The EVS-1500 is comprised of two Line Replaceable Units (LRUs):

- Sensor LRU
- Power Supply LRU

The Sensor LRU is a long-wave infrared (IR) camera assembly that processes a digital video signal with advanced Automatic Gain Control (AGC) algorithms, and sends it to the Power Supply as an RS-170 signal via coax cable. The normal horizontal field of view is 53 degrees. When the ZOOM_IN discrete input signal is activated, the field of view is switched to 30 degrees.

The Power Supply LRU provides the Sensor with power and all electrical interfaces. The Power Supply receives and buffers the RS-170 video signal and sends it to a video display. An interface control drawing showing the top-level system is available in Appendix A.

The video display represents a thermal scene of the area in front of the aircraft and provides the flight crew with enhanced vision capability in low visibility conditions.

2.1. Equipment Identification

The EVS-1500 system components are identified below.

Name	Part Number
Sensor	756500041
Power Supply	756500042

2.2. Electrical Characteristics

The electrical characteristics of the EVS-1500 are listed below.

Characteristic	Specification
Voltage	28 VDC from aircraft power
Max Power	5.0 A at 28 VDC (140 Watts, heaters activated)

The EVS-1500 does not require any supplemental heating or cooling from the aircraft.

2.3. Physical Characteristics

The physical characteristics of the two EVS-1500 LRUs are listed below.

Characteristic	Specification
Sensor	
Sensor Unit Diameter:	2.770 inch Diameter (70,3 mm)
Depth:	6.179 in. (156,9 mm)
Overall length:	6.828 in. (173,4 mm)
Weight:	< 2.5 lbs (1,13 kg)
Power Supply	
Height:	2.250 in. (57,1 mm)
Width (Enclosure):	3.750 in. (95,2 mm)
Width (Overall):	5.330 in. (135,4 mm)
Depth (Enclosure):	5.00 in. (127,0 mm)
Weight:	< 2.65 lbs (1,20 kg)

2.4. Export Control

Export of the EVS-1500 Sensor is governed by the Commerce Department, Bureau of Industry and Security. The sensor has export classification control numbers of 6A003(b)(4).

EVS-1500 commodities, technology, or software shall be exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to U.S. law is prohibited.

3. INSTALLATION PLANNING

All installations in certified aircraft should be performed per FAA-approved installation instructions, such as an STC or service bulletin. This information is provided to assist in the design of a certified installation. It is also provided to assist in non-certified aircraft installations.

The +28 Vdc supply to the Power Supply should be routed through a suitably labeled circuit breaker.

Particular attention must be taken in routing the RS-170 video coax cable through the aircraft structure to avoid potential RFI from noise items and to minimize the cable bend radii.

3.1. Interface Connections

3.1.1. Interconnect Pin-outs between Sensor LRU and Power Supply LRU

The cable harness between the Sensor and the Power Supply can be fabricated from standard 22 AWG aircraft wire (e.g., M27500 twisted shielded pair). A typical installation length is 14 to 24 inches depending on the actual locations of the two LRUs.

Notes:

- Maximum recommended LRU separation is 100 feet.
- If the harness between the Sensor and Power Supply is longer than 12 feet, a larger AWG size is recommended (video coax excluded).
- Pin numbers are the same at each connector between the Sensor and Power Supply.
- An overall metal cable shield tied to both ends into the connector backshells is recommended.
- TP = Twisted Pair.
- If additional bulkhead connectors are connected in-line, each contact must be rated for 5 Amps or more.
- Under no circumstance may signals from multiple pins be spliced and carried in a single wire.

Sensor Connector Pin No.	Description	Recommended Wire	Power Supply Connector Pin No.
1	+ 28 VDC Heater	22 AWG TP1	1
2	28 VDC RTN Heater	22 AWG TP1	2
3	+ 28 VDC Heater	22 AWG TP2	3
4	28 VDC RTN Heater	22 AWG TP2	4
5	28 VDC RTN Switched	22 AWG TP3	5
6	28 VDC RTN Switched	22 AWG TP3	6
7	+ 15 VDC	22 AWG TP4	7
8	15 VDC RTN	22 AWG TP4	8
9	+ 15 VDC	22 AWG TP5	9
10	15 VDC RTN	22 AWG TP5	10
11	RTD +	22 AWG TP6	11
12	RTD --	22 AWG TP6	12
13	RS 232 +	22 AWG TP7	13
14	RS 232 RTN	22 AWG TP7	14
15	RS 232 --	22 AWG TP8	15
16	RS 232 RTN	22 AWG TP8	16
17			17
18	Chassis/Shields	22 AWG	18
19			19

Sensor Connector Pin No.	Description	Recommended Wire	Power Supply Connector Pin No.
20			20
21	RS 170 Video	RG-179 (Pic Wire & Cable P/N V75268)	21
22	RS 170 Video RTN	Coax shield/Braid	22

3.1.2. Interconnect Pin-outs From Power Supply and Aircraft

The cable harness from the Power Supply to the aircraft can be fabricated from standard 22 AWG aircraft wire (e.g., M27500 twisted shielded pair). If the harness to the Power Supply is longer than 12 feet, a larger AWG size is recommended (video coax excluded).

Pin Number	Description	Recommended Wire
1 & 3	+ 28 VDC	22 AWG
2 & 4	28 VDC RTN	22 AWG
5	Chassis/Shield	22 AWG
6		
7		
8		
9	ZOOM_IN	22 AWG
10	NUC_IN	22 AWG
11		
12	RS 170 Video	RG 179 (Pic Wire & Cable P/N V75268)
13	RS 170 Video RTN	Coax shield/braid

Notes:

1. A discrete input (ZOOM_IN) is provided to control the field of view (FOV) switching function as follows:
    a. Left open or grounded to 0 volts (< 2 volts), the wide angle, 53°, FOV is selected.
    b. Held at 28 volts (> 7 volts), the narrow angle, 30°, FOV is selected.
2. The 28 V discrete input is provided to control the Non-Uniform Correction (NUC) function as follows:
    a. Left open or grounded to 0 volts (< 2 volts), NUC automatically occurs at programmed intervals.
    b. On transition from 0 to 28 volts (> 7 volts), one NUC cycle occurs and then further NUC cycles are inhibited until the input goes back to 0 (< 2 volts).

c. On transition from 28 to 0 volts (< 2 volts), one NUC cycle occurs and then further NUC cycles automatically occur at programmed intervals.

3.1.3. Interface Connectors

The connectors required to fabricate a harness between the Sensor and the Power Supply (each end terminated) are the same at each end and are:

- Connectors, qty 2, P/N D38999/26WC35SN with
- Backshells, qty 2, P/N M85049/1913W06 or Glenair 380HS005M1310M4 or equivalent.

The connector required to fabricate a harness from a terminated end at the Power Supply to the aircraft is:

- Connector, qty 1, P/N N D38999/26WB35SN with
- Backshells, qty 1, P/N M85049/1911W03 or Glenair 380HS001M1104A3 or equivalent.

If either of the harnesses will run through a bulkhead, ensure that the connectors have the appropriate number of pins (i.e. 22 or 13) and no wires are spliced together.

3.1.4. Interconnection Losses

The maximum video coaxial cable loss from the Power Supply to the display should not exceed 1dB.[1] There should be no cable loss limitations for RG-179 if less than 100 feet.

If multiple displays are to be connected, the video signal from the EVS-1500 should go directly to a multiple output amplified video buffer with as short of a run as feasible prior to going to the displays in order to avoid signal termination losses

It is highly recommended to avoid routing the video coax in close proximity to electrical noise sources such as motors, generators, transmitters, etc. Do not lace the video coax cable together (in parallel) with high current conductors, particularly AC power type wires such as 115 Vac 400 Hz or 60Hz.

3.1.5. Electrical Bonding Recommendation

If the Sensor or Power Supply units are not bonded electrically via their mounting holes directly to a metal aircraft structure, then electrically bond them to the metal aircraft

[1] Note: this is a generic figure to cover all AES types and equipment configurations. If this cannot easily be achieved in any particular installation, then Max-Viz, Inc. should be contacted to determine whether a more relaxed insertion loss can be considered without decreasing system performance or raising certification issues.

structure with a heavy bonding wire (or grounding braid) from an unused mounting hole.

3.2. Recommended Installation Procedure

Do not connect the 28 Vdc power connector to the Power Supply.

Switch "ON" the circuit breaker and the "ON/OFF" switch to the EVS-1500 system. Verify and measure the +28 VDC between pins 1 and 2 and pins 3 and 4 of the Power Supply connector. Ensure voltage within +/- 2 VDC from normal. Switch "OFF" the circuit breaker and the "ON/OFF" switch to the EVS-1500 system.

Connect the RS 170 coax video cable to the display. Connect the Power Supply connector. Switch the input power circuit breaker and "ON/OFF" switch to "ON". Observe the "OK" message on the display.

After the "OK" message on the display is extinguished, observe that the infrared video image appears on the display with no distracting RFI noise pick-up.

At four-minute intervals the system will perform a self calibration (non-uniformity correction - NUC) and the video will momentarily go blank. This is normal. If an appropriate switch is installed, the NUC function can be manually controlled.

3.3. Installation Assistance

If you require installation assistance, and it is a certified installation, contact the type design holder. If it is a non-certified installation, contact Max-Viz, Inc. for technical support.

4. OPERATION

Operationally, the EVS-1500 is used as a supplemental display to enhance the view of the outside world. It uses an infrared (IR) sensor to provide an additional visual perspective. The EVS-1500 is particularly effective at night, in smoke, haze, and in smog. It is also effective in some conditions of rain, snow, and fog.

EVS improves the pilot's ability to see:

- ground vehicles and other ground-based equipment/obstacles
- aircraft on taxi-ways and runways
- other traffic during takeoff, approach, and landing
- the runway and terrain features during climb, descent, and low altitude maneuvering

The EVS system is also valuable as an aid in ground navigation, and can be used, at the pilot's option, throughout the full mission profile.

EVS use is straightforward and does not increase the pilot's workload. The system is normally turned on by use of the "ON/OFF" switch located in the cockpit or by the "ON/OFF" switch on the display.

Upon power-up the Sensor requires approximately 20 seconds to produce a useable image. During this time period a video test pattern is displayed for approximately 5 seconds followed by the message "OK". After approximately 20 seconds the display will blank momentarily for a NUC cycle and a useable image then appears. The image generated is a monochrome (i.e., black and white) image. Normally the hotter an object is the whiter it appears on the display. This is known as "white hot" polarity.

The display should be adjusted for optimum brightness and contrast, and readjusted only during relatively benign phases of flight or periods of low workload. The image then should be cross checked in a manner similar to other cockpit displays, using short dwell times and appropriate cockpit priorities.

To optimize the IR image the EVS system periodically recalibrates itself. The recalibration process is known as "Non-Uniformity Correction" (NUC). NUC can be observed on the display as a momentary image interruption with "CAL" displayed. The shutter closes for approximately one second during the NUC process, which happens every four minutes or when manually activated, if an appropriate switch is installed in the cockpit.

5. MAINTENANCE

Both the Sensor and Power Supply may be viewed as sealed "black boxes" where no field maintenance, repair, or upgrade is performed. All such activities are conducted at Max-Viz, Inc.

To ensure your system will be covered under warranty, fill out and submit Max-Viz Warranty Registration Form 3204-00042 at the time of system installation.

If you have difficulties operating the system, first contact your authorized Max-Viz dealer for technical support. They will contact the type certificate holder, if it is a certified installation. The type certificate holder will contact Max-Viz as necessary. If it is not a certified installation, the dealer will contact Max-Viz.

If it is determined the EVS-1500 must be returned for service or maintenance, Max-Viz will issue a Return Material Authorization (RMA). Fill out Max-Viz Customer Service Request Form 3204-00043, and submit it to receive a RMA. After receipt of the RMA, return the system to the address in Section 7.

A copy of the Customer Service Request Form and Warranty Registration Form are included at the end of this manual, but are also available at www.max-viz.com.

6. WARNINGS, CAUTIONS, AND GUIDANCE

6.1. Electromagnetic Interference

The EVS-1500 system is qualified (RTCA/DO-160) to operate in normal aircraft EMI environments. ***When installing the system, be sure that the Sensor lens is not installed in close proximity to high power EMI transmitters, such as transponders.*** High energy transmitters mounted directly in front of the germanium lens may cause video disturbance.

Particular attention must be taken in routing the RS-170 video coax cable through the aircraft structure to avoid potential RFI from noise items. It is highly recommended to avoid routing the video coax in close proximity to electrical noise sources such as motors, generators, transmitters, etc. Do not lace the video coax cable together (in parallel) with high current conductors, particularly AC power type wires such as 115 Vac 400 Hz or 60Hz.

6.2. Germanium Lens Breakage

The Sensor lens is made of Germanium. If this lens is ever broken, use extreme caution when handling broken germanium shards or dust. ***Always use gloves and masks when handling broken germanium lens material.***

6.3. Germanium Lens Cleaning

In contrast to visible light energy, infrared energy typically passes through dirt or bug-debris build-up on the lens. As such, the Sensor lens requires only occasional cleaning with mild liquid soap and water or isopropyl alcohol, and a soft cloth.

Do not use abrasive cleansers or cleaning pads on the germanium lens. Abrasive cleaning can damage the lens coating. ***Do not use any cleansers with ammonia.*** Ammonia will remove the window coating.

6.4. Halo Images

Under certain circumstances, it is possible a "halo" will be seen around the image. The following sequence of events will occur:

- The Sensor has automatically temperature controlled heaters. When the heaters first turn on, they will begin to heat the window from the outside-in.

- As the window is heated, the infrared detector will not be able to compensate for the signal coming from the window, as compared to the outside view, and thus a white (hot) area will appear around the outside of the image, working its way in.
- The image will re-stabilize after a Non-Uniformity Correction cycle (NUC), described in Section 4. Operation and Section 6.8 below.
- This process will continue, with the halo encompassing more and more of the image between NUC cycles until the window reaches a constant temperature across the surface.
- After approximately 20 minutes (depending upon the temperature of the camera when the heater was turned on and the ambient operating temperature), there will be a NUC cycle that creates a clean image and the halo will no longer form.
- To best prevent a halo from occuring during flight, turn the system on during preflight or run-up to stabilize the window and body heaters prior to flight and allow thermal stabilization.

6.5. Ice Effects and Body Heaters

During in-flight use, the Sensor uses heaters to keep ice from building up over the lens. If the heaters fail and ice builds up, infrared energy will be unable to pass through the ice, and the image will begin to fade. (In this situation, ice build up may first occur around the outside of the image, and eventually close up as a circle of ice closes in over the circular lens). If the heaters fail, EVS use should be discontinued and the Sensor should be returned to the factory for service. (If the Sensor is iced over on a cold winter morning before start-up, it may take a few minutes before the ice melts off and an image appears). ***Please use caution when handling the Sensor during cold weather operation. Note: the Sensor could be warm to the touch (25 degrees Celsius).***

6.6. Image Quality and Interpretation

Independent of the operation of the Sensor, image quality is a function of target size, target temperature, background temperature, and atmospheric attenuation from particles or moisture in the air. ***As such, it is important to know that the quality of the image will appear different as these variables change.*** If the video image appears clear in the cool morning and a little "washed out" on a hot/humid summer afternoon, the difference is probably caused by changes in the infrared environment, and not from changes in the operation of the system.

6.7. Nitrogen Added to Sensor

The Sensor is sealed at the factory and filled with nitrogen to eliminate moisture. If the Sensor is opened, the nitrogen will be lost. ***Do not open the Sensor during system installation or maintenance.***

6.8. Non-Uniformity Correction (NUC)

The Sensor hosts a 320 x 240 pixel sensor array. At four-minute intervals the system automatically performs a Non-Uniformity Correction (NUC), where an internal shutter assembly closes, to give the array a standard temperature target for array correction and re-calibration. ***During the NUC cycle, the video image is interrupted for approximately one second.***

6.9. Video Signal Interruption/ Improper Display Settings

If the video signal is ever completely interrupted, the display may appear as a solid field (e.g., gray, white, or blue, etc.) and the message "no video" may appear, depending on the display, to indicate a video failure. Please also note; if the brightness and contrast settings on the video display are not set properly, the image will be degraded, or possibly even displayed as solid black or solid white. ***Following initial power-up of the system, always adjust brightness and contrast settings to obtain the best image.***

7. MAX-VIZ, INC. CONTACT INFORMATION

Max-Viz, Inc.
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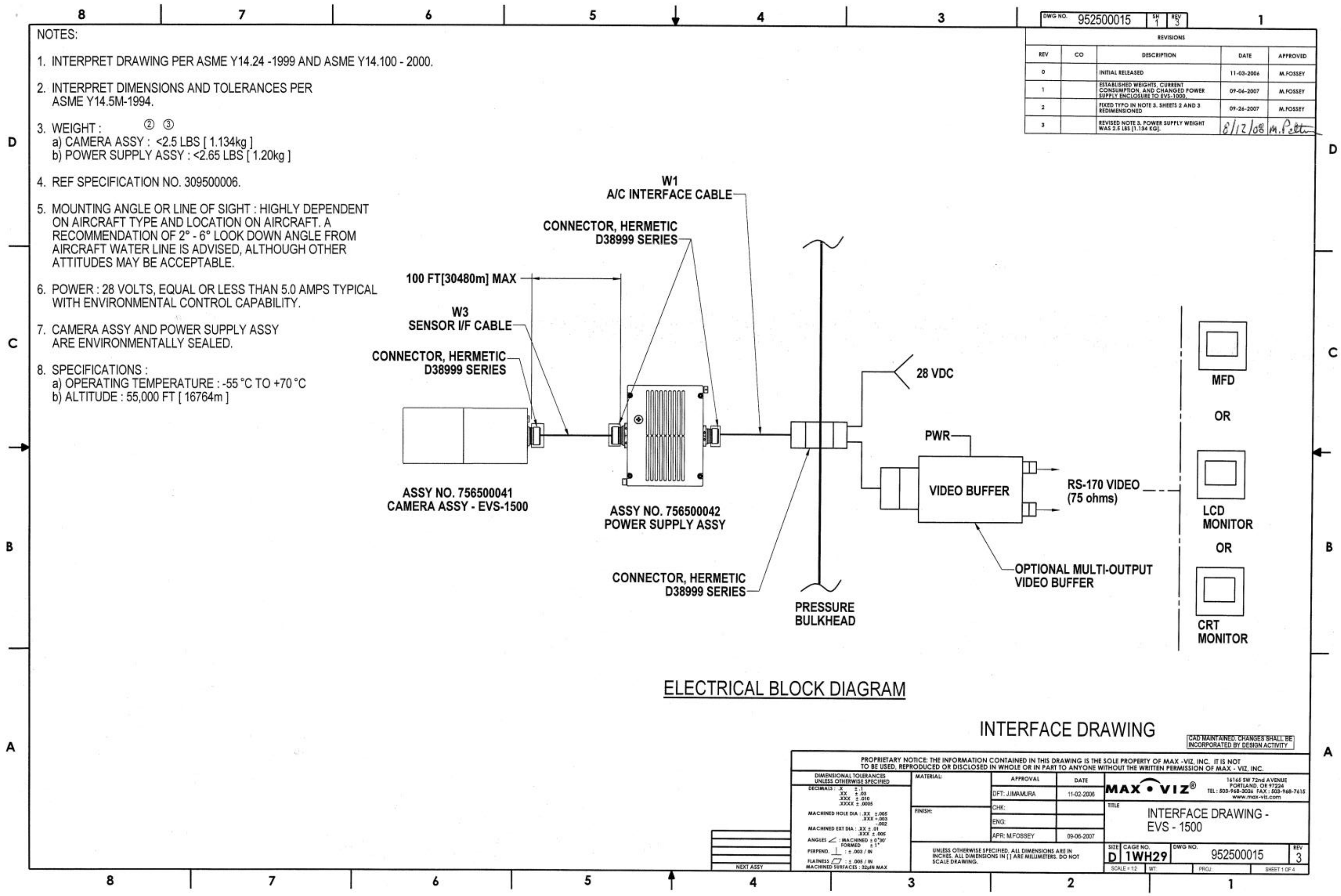
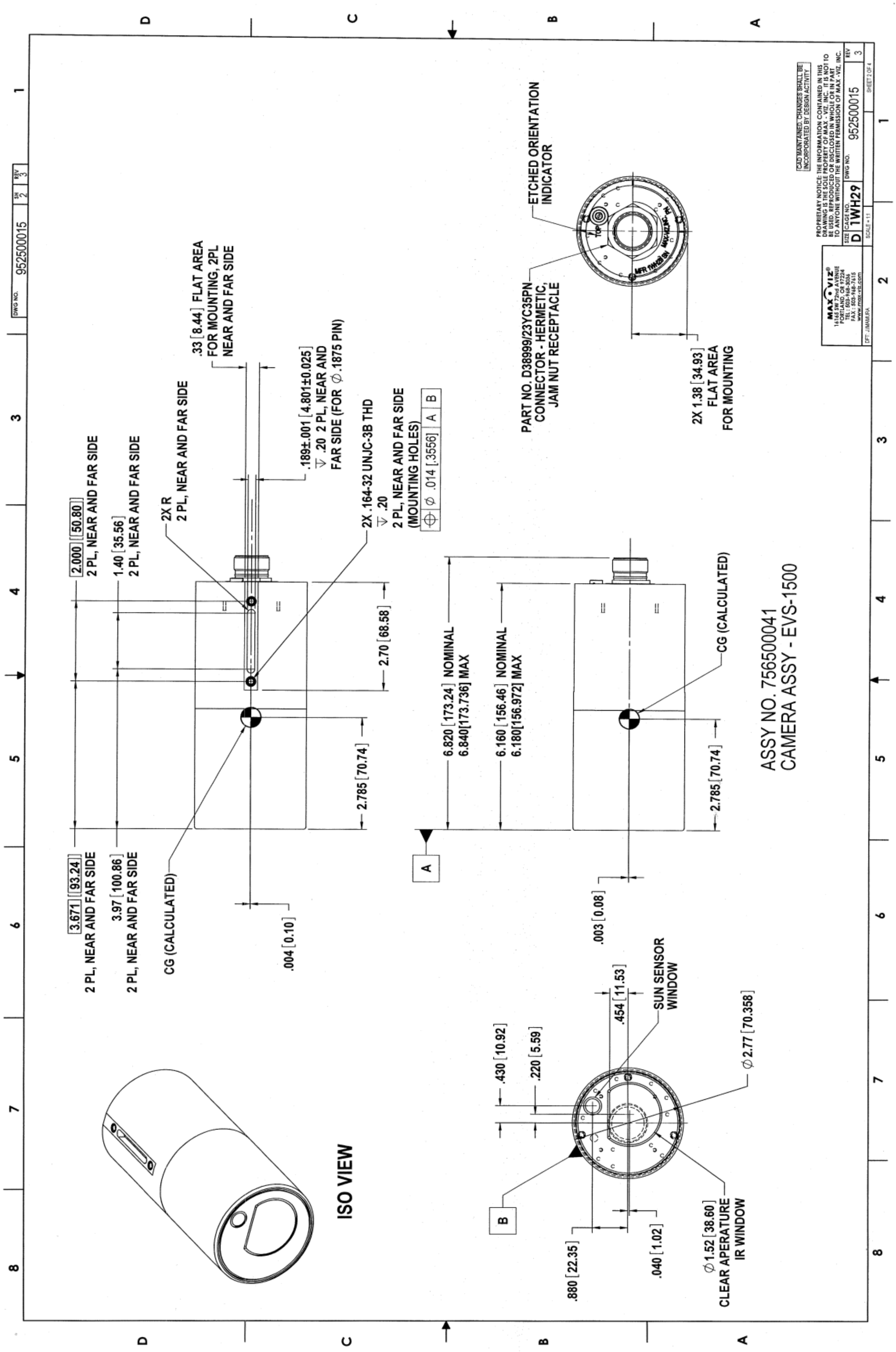
USA
Office: (503) 968-3036
Fax: (503) 968-7615
Email: customer.service@max-viz.com
www.max-viz.com

Appendix A

1. "Interface Drawing – EVS – 1500": 952500015 Rev. 3
2. "Cable Assy – EVS - 1500 Sensor Interconnect": 955000016 Rev. 1
3. Form 3204-00042, "Warranty Registration Form"
4. Form 3204-00043, "Customer Service Request"


DWG NO. 952500015 SH 1 REV 3
REVISIONS
REV | CO | DESCRIPTION | DATE | APPROVED
0 | INITIAL RELEASED | 11-03-2006 | M.FOSSEY
1 | ESTABLISHED WEIGHTS, CURRENT CONSUMPTION, AND CHANGED POWER SUPPLY ENCLOSURE TO EVS-1000. | 09-06-2007 | M.FOSSEY
2 | FIXED TYPO IN NOTE 3. SHEETS 2 AND 3 REDIMENSIONED | 09-26-2007 | M.FOSSEY
3 | REVISED NOTE 3. POWER SUPPLY WEIGHT WAS 2.5 LBS [1.134 KG]. | 8/12/08
NOTES:
1. INTERPRET DRAWING PER ASME Y14.24 -1999 AND ASME Y14.100 - 2000.
2. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994.
3. WEIGHT : ② ③
a) CAMERA ASSY : <2.5 LBS [1.134kg]
b) POWER SUPPLY ASSY : <2.65 LBS [1.20kg]
4. REF SPECIFICATION NO. 309500006.
5. MOUNTING ANGLE OR LINE OF SIGHT : HIGHLY DEPENDENT ON AIRCRAFT TYPE AND LOCATION ON AIRCRAFT. A RECOMMENDATION OF 2° - 6° LOOK DOWN ANGLE FROM AIRCRAFT WATER LINE IS ADVISED, ALTHOUGH OTHER ATTITUDES MAY BE ACCEPTABLE.
6. POWER : 28 VOLTS, EQUAL OR LESS THAN 5.0 AMPS TYPICAL WITH ENVIRONMENTAL CONTROL CAPABILITY.
7. CAMERA ASSY AND POWER SUPPLY ASSY ARE ENVIRONMENTALLY SEALED.
8. SPECIFICATIONS :
a) OPERATING TEMPERATURE : -55 °C TO +70 °C
b) ALTITUDE : 55,000 FT [16764m]
W1
A/C INTERFACE CABLE
CONNECTOR, HERMETIC
D38999 SERIES
100 FT[30480m] MAX
W3
SENSOR I/F CABLE
CONNECTOR, HERMETIC
D38999 SERIES
ASSY NO. 756500041
CAMERA ASSY - EVS-1500
ASSY NO. 756500042
POWER SUPPLY ASSY
CONNECTOR, HERMETIC
D38999 SERIES
PRESSURE
BULKHEAD
28 VDC
PWR
VIDEO BUFFER
RS-170 VIDEO
(75 ohms)
OPTIONAL MULTI-OUTPUT
VIDEO BUFFER
MFD
OR
LCD
MONITOR
OR
CRT
MONITOR
ELECTRICAL BLOCK DIAGRAM
INTERFACE DRAWING
CAD MAINTAINED. CHANGES SHALL BE INCORPORATED BY DESIGN ACTIVITY
PROPRIETARY NOTICE: THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MAX - VIZ, INC. IT IS NOT TO BE USED, REPRODUCED OR DISCLOSED IN WHOLE OR IN PART TO ANYONE WITHOUT THE WRITTEN PERMISSION OF MAX - VIZ, INC.
DFT: J.IMAMURA 11-02-2006
APR: M.FOSSEY 09-06-2007
MAX • VIZ®
INTERFACE DRAWING -
EVS - 1500
SIZE D CAGE NO. 1WH29 DWG NO. 952500015 REV 3
SHEET 1 OF 4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CAMERA ASSY - EVS-1500
ISO VIEW
CG (CALCULATED)
ETCHED ORIENTATION INDICATOR
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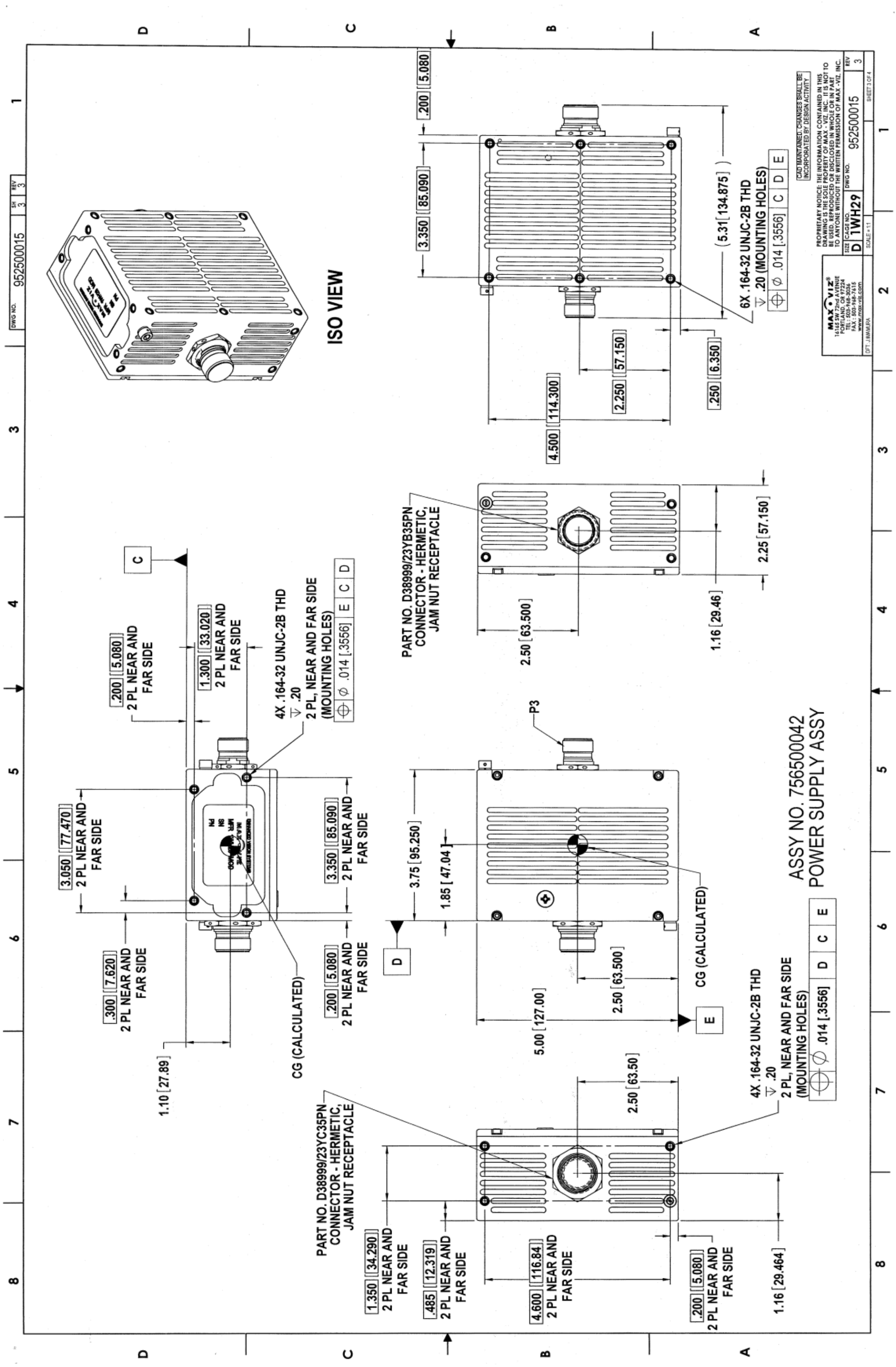
2X 1.38 [34.93] FLAT AREA FOR MOUNTING
.33 [8.44] FLAT AREA FOR MOUNTING, 2PL NEAR AND FAR SIDE
2X .164-32 UNJC-3B THD
SUN SENSOR WINDOW
Ø1.52 [38.60] CLEAR APERATURE IR WINDOW
Ø2.77 [70.358]
952500015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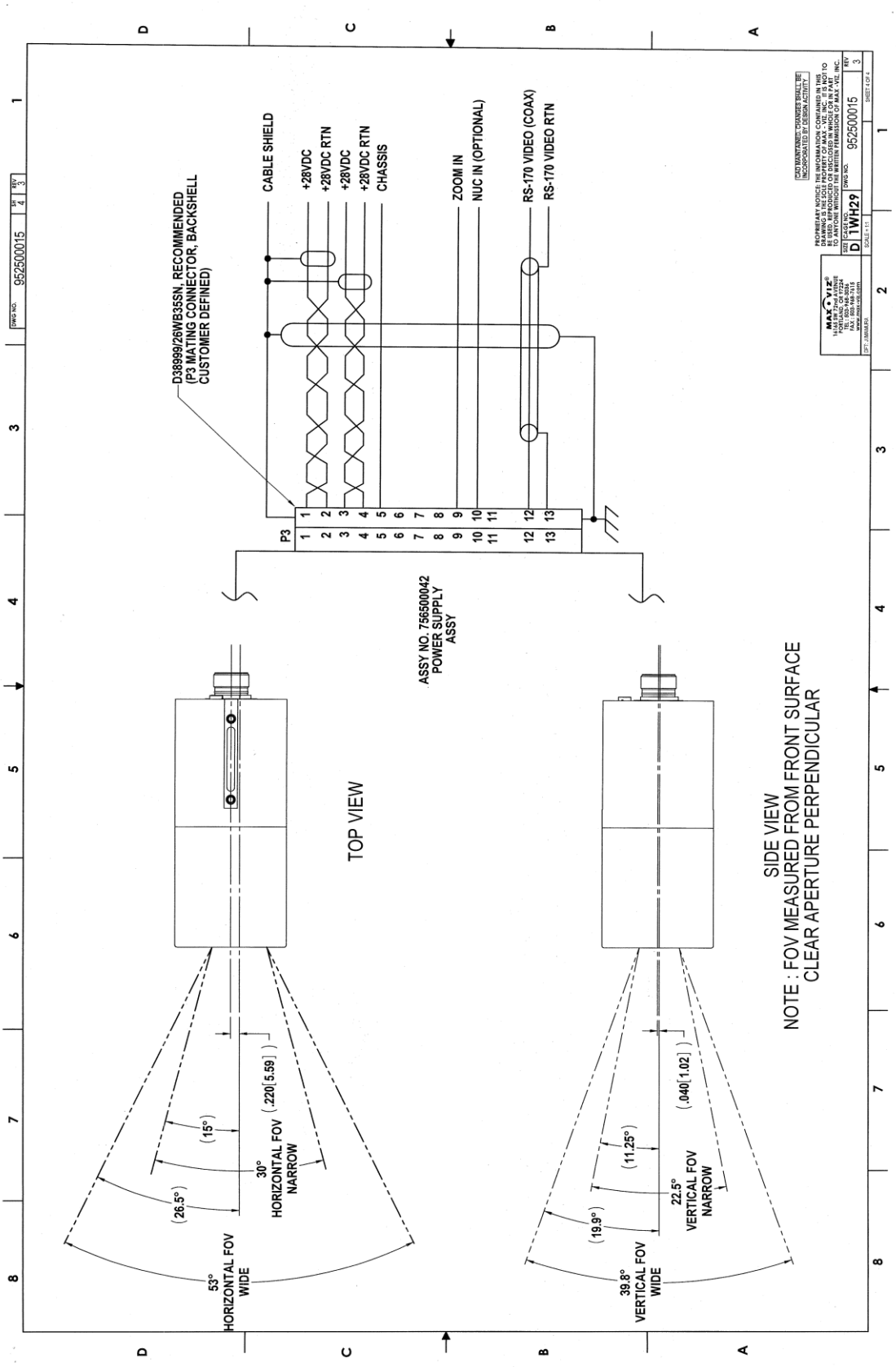
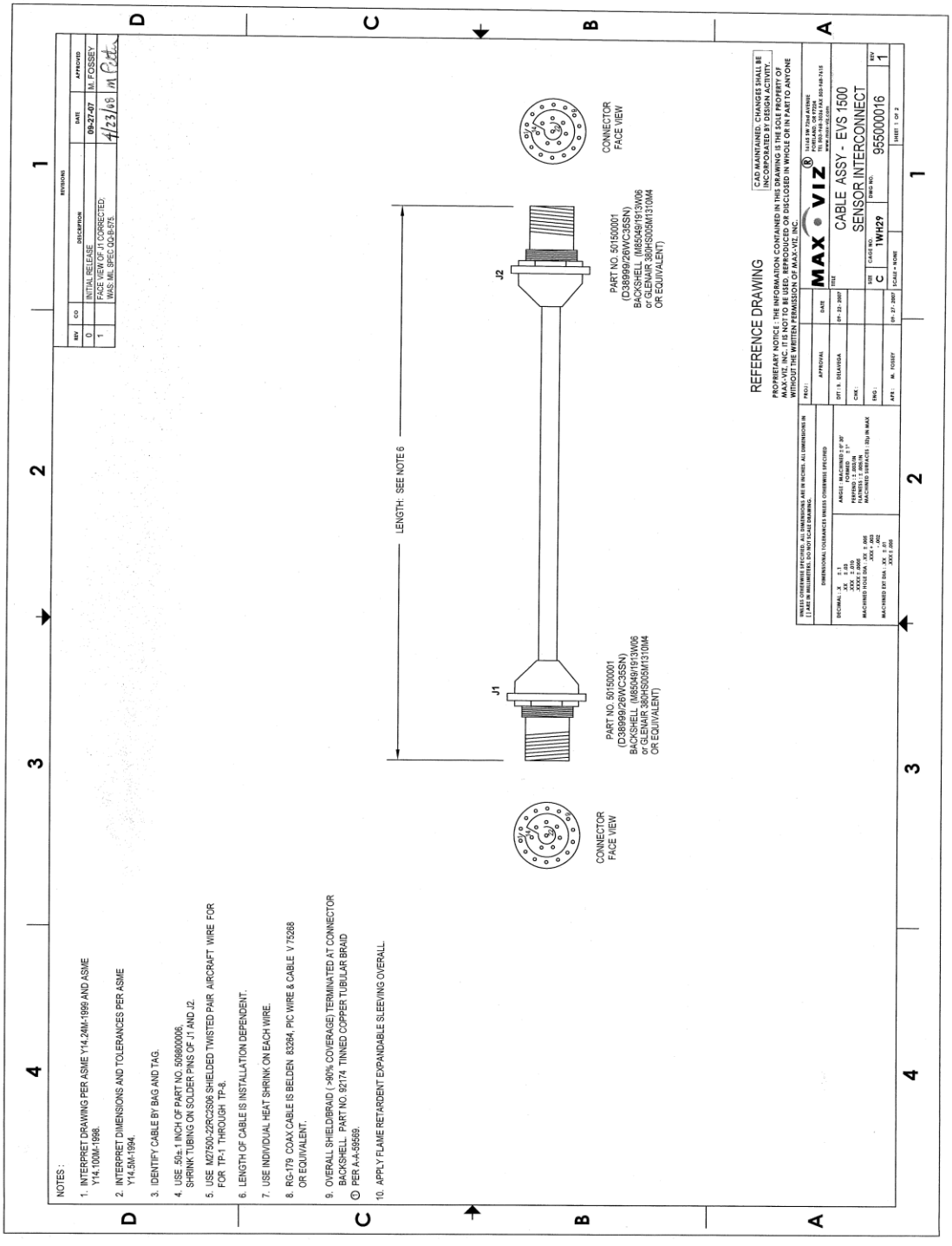
JAM NUT RECEPTACLE
PART NO. D38999/23YC35PN
CONNECTOR - HERMETIC,
JAM NUT RECEPTACLE
6X .164-32 UNJC-2B THD
.20 (MOUNTING HOLES)
4X .164-32 UNJC-2B THD
2 PL NEAR AND FAR SIDE
(MOUNTING HOLES)
P3


D38999/26WB35SN, RECOMMENDED
(P3 MATING CONNECTOR, BACKSHELL
CUSTOMER DEFINED)
CABLE SHIELD
+28VDC
+28VDC RTN
+28VDC
+28VDC RTN
CHASSIS
ZOOM IN
NUC IN (OPTIONAL)
RS-170 VIDEO (COAX)
RS-170 VIDEO RTN
P3
ASSY NO. 756500042
POWER SUPPLY
ASSY
TOP VIEW
SIDE VIEW
NOTE : FOV MEASURED FROM FRONT SURFACE
CLEAR APERTURE PERPENDICULAR
53°
HORIZONTAL FOV
WIDE
(26.5°)
30°
HORIZONTAL FOV
NARROW
(15°)
(.220[5.59])
39.8°
VERTICAL FOV
WIDE
(19.9°)
22.5°
VERTICAL FOV
NARROW
(11.25°)
(.040[1.02])
DWG NO. 952500015
REV 3
SHEET 4 OF 4
SCALE: 1.1
DWG NO. 952500015
D1WH29


NOTES :
1. INTERPRET DRAWING PER ASME Y14.24M-1999 AND ASME Y14.100M-1998.
2. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994.
3. IDENTIFY CABLE BY BAG AND TAG.
4. USE .50± 1 INCH OF PART NO. 609600006, SHRINK TUBING ON SOLDER PINS OF J1 AND J2.
5. USE M27500-22RC2S06 SHIELDED TWISTED PAIR AIRCRAFT WIRE FOR FOR TP-1 THROUGH TP-8.
6. LENGTH OF CABLE IS INSTALLATION DEPENDENT.
7. USE INDIVIDUAL HEAT SHRINK ON EACH WIRE.
8. RG-179 COAX CABLE IS BELDEN 83264, PIC WIRE & CABLE V75288 OR EQUIVALENT.
9. OVERALL SHIELD/BRAID (>80% COVERAGE) TERMINATED AT CONNECTOR BACKSHELL. PART NO. 92174 TINNED COPPER TUBULAR BRAID
10. APPLY FLAME RETARDENT EXPANDABLE SLEEVING OVERALL.
REVISIONS
REV
CO
DESCRIPTION
DATE
APPROVED
0
INITIAL RELEASE
09-27-07
M. FOSSEY
1
FACE VIEW OF J1 CORRECTED; WAS: MIL SPEC QQ-B-575
4/23/08
LENGTH: SEE NOTE 6
J1
J2
CONNECTOR FACE VIEW
PART NO. 501500001 (D38999/26WC35SN) BACKSHELL (M85049/1913W06 or GLENAIR 380HS005M1310M4 OR EQUIVALENT)
REFERENCE DRAWING
CAD MAINTAINED. CHANGES SHALL BE INCORPORATED BY DESIGN ACTIVITY.
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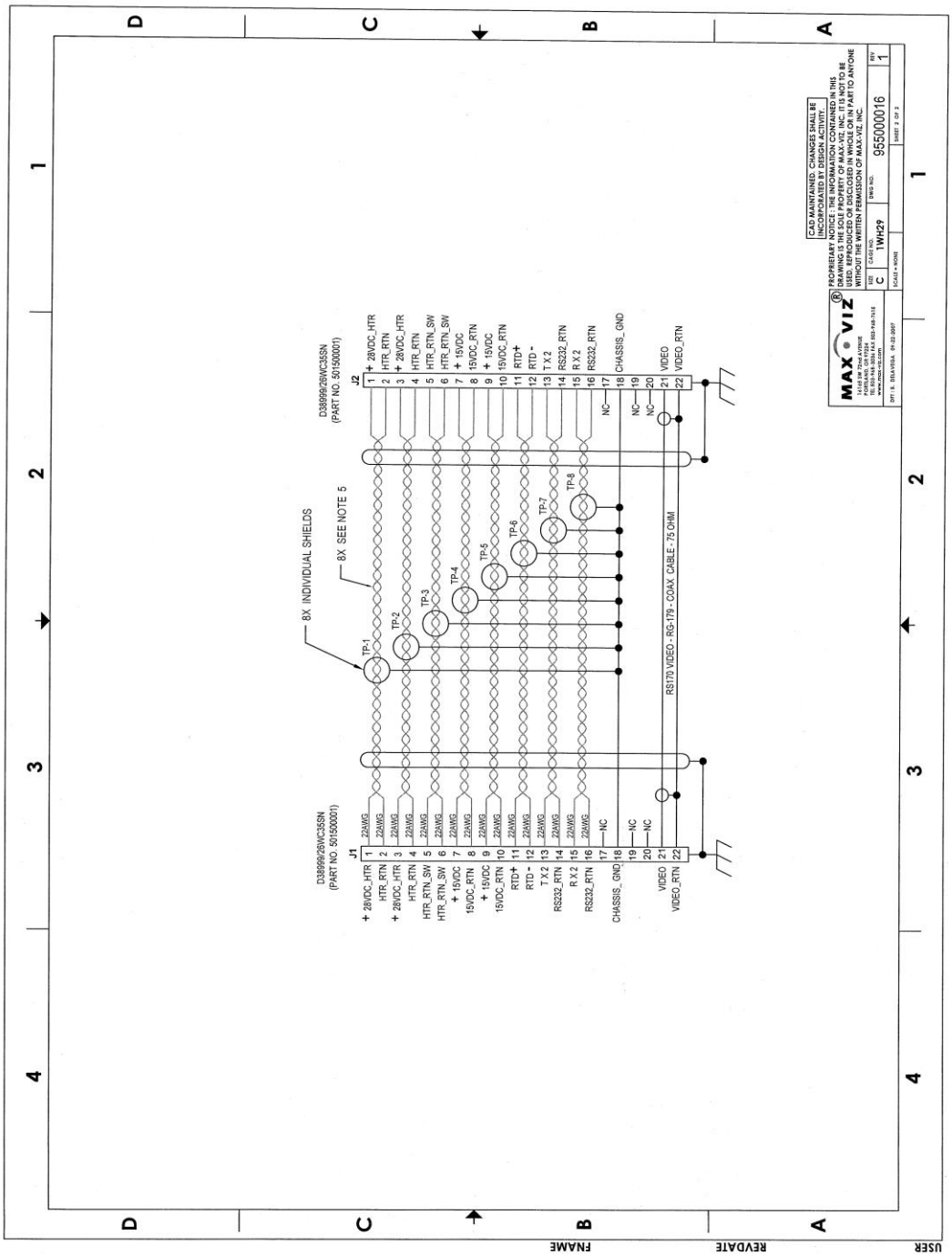
MAX • VIZ
CABLE ASSY - EVS 1500 SENSOR INTERCONNECT
SIZE C
CAGE NO. 1WH29
PART NO. 955000016
REV 1
SHEET 1 OF 2


D38999/26WC35SN
(PART NO. 501500001)
J1
J2
8X INDIVIDUAL SHIELDS
8X SEE NOTE 5
TP-1
TP-2
TP-3
TP-4
TP-5
TP-6
TP-7
TP-8
+ 28VDC_HTR
HTR_RTN
+ 28VDC_HTR
HTR_RTN
HTR_RTN_SW
HTR_RTN_SW
+ 15VDC
15VDC_RTN
+ 15VDC
15VDC_RTN
RTD+
RTD -
T X 2
RS232_RTN
R X 2
RS232_RTN
CHASSIS_ GND
NC
NC
VIDEO
VIDEO_RTN
22AWG
23AWG
RS170 VIDEO - RG-179 - COAX CABLE - 75 OHM
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MAX • VIZ
See Clearly, Fly Safely
SIZE
C
SCALE = NONE
11WH29
DWG NO.
955000016
REV
1
SHEET 2 OF 3
USER
REVDATE
FNAME

MAX • VIZ®

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Warranty Registration Form

Please complete this form and return to:

Max-Viz, Inc.
Attn: Customer Service
15940 SW 72nd Avenue, Portland, Oregon 97224 USA
Phone: 503-968-3036 Fax: 503-968-7615
Email: **customer.service@max-viz.com**
www.max-viz.com

Registered Owner Information		***Installing Agent***	
Name:		Name:	
Address:		Address:	
Country:		Work Order:	
Phone:		Phone:	
Fax:		Fax:	
Contact Name:		Contact Name:	
Email:		Email:	
Operator (if other than owner):			
Aircraft Information			
Manufacturer:		Reg. No:	
Model No.:		Serial No:	
Warranty Start Date: (mm/dd/yy)		**Aircraft Hours:**	
Installation Date: (mm/dd/yy)		**Aircraft Hours:**	
Max-Viz Product Information			
Model No:		Serial No:	
Model No:		Serial No:	
Model No:		Serial No:	

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Customer Service Request Form / Return Material Authorization

Please complete this form and return to:

Max-Viz, Inc.

Attn: Customer Service

15940 SW 72nd Avenue, Portland, Oregon 97224 USA

Phone: 503-968-3036 Fax: 503-968-7615

Email: **customer.service@max-viz.com**

www.max-viz.com

RMA#		PO#	

Registered Owner Information		**Completion Center**	
Name		Name	
Address		Address	
Country		Work Order	
Contact Name		Contact Name	
Phone or Fax		Phone or Fax	
E-mail		E-mail	

Operator (if other than owner):	

Aircraft Information			
Manufacturer		Reg. No.	
Model No.		Serial No.	
		Aircraft Hours	

Description of Service		
EVS Model No.	Serial No.	Date:

Description of Service Requested or Problem to be Fixed: