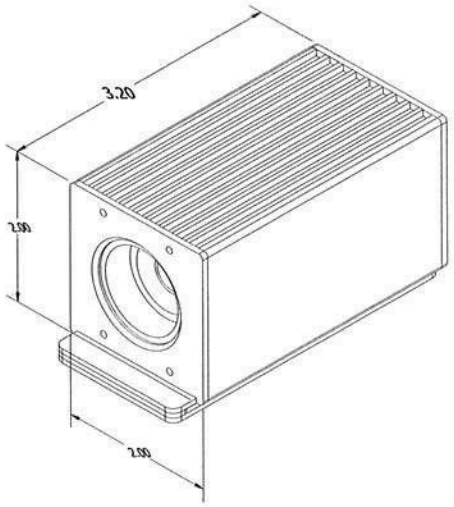
AERIAL VIEW SYSTEMS®

AVS800-HD GLARESHIELD CAMERA
AIRBORNE VIDEO CAMERA SYSTEM



COMPONENT MAINTENANCE MANUAL

NOVEMBER 1, 2011

15467 Chemical Lane • Huntington Beach, CA 92649 • Office 714/890-8200 • Fax 714/890-8209
www.aerialviewsystems.com • Office 888/695-0230

AERIAL VIEW SYSTEMS®

AVS800-HD GLARESHIELD CAMERA

RECORD OF REVISIONS

REV NO.	TITLE	ISSUE DATE	PAGE	DATE INSERTED	BY
-	INITIAL ISSUE	NOV 1/11	N/A	N/A	Joseph D. Dumont, Jr.

44-20-800

AVS
AERIAL VIEW SYSTEMS®

AVS800-HD GLARESHIELD CAMERA

RECORD OF TEMPORARY REVISIONS

REV NO.	TITLE	ISSUE DATE	PAGE	DATE INSERTED	BY

44-20-800

AERIAL VIEW SYSTEMS®

AVS800-HD GLARESHIELD CAMERA

SERVICE BULLETIN LIST

SERVICE BULLETIN NUMBER	MODIFICATION	INSERTION	
		DATE	BY

AERIAL VIEW SYSTEMS®

AVS800-HD GLARESHIELD CAMERA

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AERIAL VIEW SYSTEMS®

AVS800-HD GLARESHIELD CAMERA

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AERIAL VIEW SYSTEMS®
Airborne Camera Innovators

HIGH DEFINITION

AVS800-HD

SPECIFICATIONS

AUTO-ZOOM Glareshield Camera

SEP/1/2011

Image Sensor	1/3 inch, CMOS
Effective Number of Pixels	2 Megapixel
Horizontal Resolution	> **800**TV Lines Standard
Vertical Resolution	> **800**TV Lines Standard
Aspect Ratio	HD 16:9
	SD 4:3/16:9
Lens	10x optical zoom, f=5.1 mm (wide) to 51.0 mm (tele), F1.8 to F2.1
Digital Zoom	12x (120x with optical zoom)
Horizontal Angle of View	50° (wide) to 5.4° (tele)
Vertical Angle of View	38°
Minimum Object Distance	10 mm (wide) to 800 mm (tele)
Scanning System	2:1 interface
Scan Frequency	[59.94 Hz setting] Horizontal : 33.716 kHz, Vertical : 59.94 Hz
	[60 Hz setting] Horizontal : 33.75 kHz, Vertical : 60 Hz
Sync System	Internal
Sensitivity	F6.8 Standard (200 lx, 3000K)
Minimum Illumination	12 lx (F1.8, 50 IRE)
AUTO-B&W	1 lx (F1.8, 50 IRE)
SN Ratio	56 dB Standard (gain 0 dB, DNR OFF)
White Balance	ATW (Automatic Tracing balance), AWB (Automatic White Balance)
Gain	AUTO (Automatic Gain Control)
Backlight compensation	On/Off
Signal System	HD 1080/59.94i, 1080/50i, 720/59.94p, 720/50p,Y/Pb/Pr
	SD **NTSC** (Crop/Squeeze), **PAL** (Crop/Squeeze)
Video Outputs	Digital output: **HD-SDI** (SMPTE **292M) :** 0.8 V (p-p) standard 75 Ω unbalanced
	or Analog output: **Y/Pb/Pr or NTSC or S-VHS**
Interface	Serial Data Interface (RS-232C control)
CH Dimension	2" x 2" x 3.2" (2" x 2" x 3.7" with Fischer Connectors)
CH Weight	12 oz
CCU Dimension	None
CCU Weight	0
Camera Cable Lengths	None
Power Requirement	Regulated **28 VDC /** .25 amp
DO160F	Appropriately Tested, EMI & Environmental

44-20-800

15467 Chemical Lane Huntington Beach, CA 92649 ~ Office (714) 890-8200 ~ Fax (714) 890-8209
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AVS
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AVS800-HD GLARESHIELD CAMERA

INSTALLATION NOTES

INTRODUCTION

Designed primarily to provide passengers with an exciting "Pilot's eye view" from the cockpit glareshield.

The AVS 800-HD is a High Definition 1080i/720p color video camera system consisting of a small CAMERA HEAD ENCLOSURE (CH), 2.0"x2.0"x3.2". Unique features include 10x Optical Zoom plus 4x Digital Zoom (40x Zoom) and 1.0 lux AUTO Black & White all with more than 800 lines of resolution.

At any time the passengers may Zoom the camera In or Out. Upon landing, a PRESET position may automatically adjust the ZOOM to wide angle for taxi, however the Zoom may still be adjusted thereafter.

AERIAL VIEW SYSTEMS®

AVS800-HD GLARESHIELD CAMERA

INSTALLATION NOTES

INSTALLATION

The Camera Head (CH) is normally recessed into the cockpit glareshield and mounted approximately 5 degrees nose down to provide the camera with an approach to landing view of the runway. With the CH installed at the correct nose down angle, the runway will remain in the center of the video presentation (monitor) throughout the approach. Too steep of an angle will cause the illusion of landing SHORT and too shallow an angle will appear as if the aircraft is landing LONG.

A CH Tinnerman Shoe & Base Plate are provided for mounting the CH on to the glareshield. This Tinnerman Shoe will facilitate easy removal of the CH from the glareshield if needed for maintenance. A 10-16 pound pull up on the CH will release the Tinnerman and then the CH need only be slid aft to release it from the shoe.

A .5" longer verson of the CH is available with Fischer Connectors.

AERIAL VIEW SYSTEMS®

AVS800-HD GLARESHIELD CAMERA

INSTALLATION NOTES (continued)

NOTE: **The AVS800 will operate on either 28 or 12 vdc. Max amperage is 220 mA and 490 mA, respectively. An internal current limiting device limits max amperage to 550 mA.**

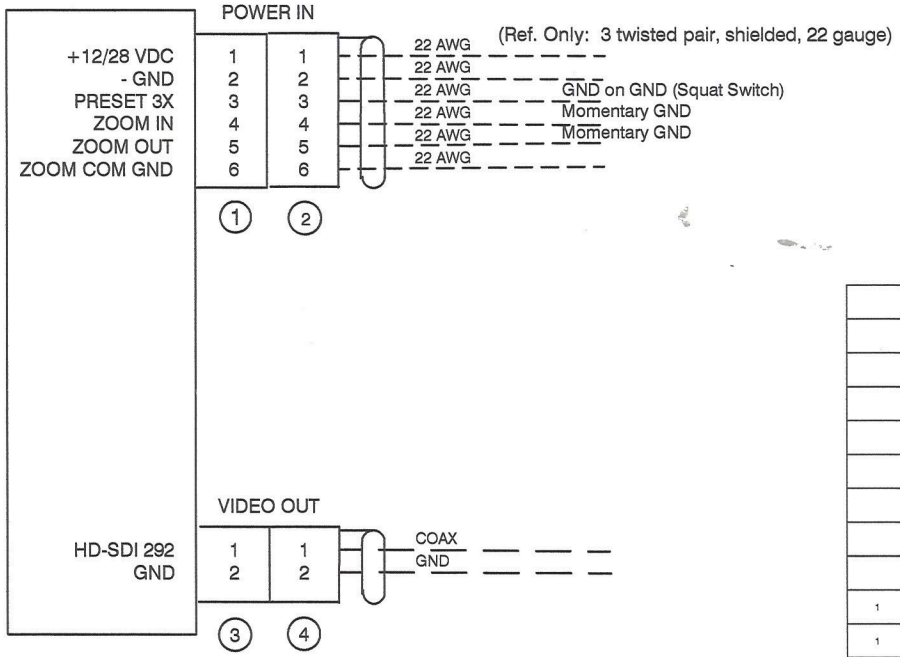
NOTE: **Zoom is controlled via DISCRETE momentary GNDs or RS232 VISCA.**

NOTE: **Only one video output is available at a time and must be programmed by AVS prior to shipment. These video outputs include:**

DIGITAL SDI-292	**SD:NTSC**
1080/59.94i/50i	**PAL**
720/59.94p/50p	**S-VHS**

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	-	INITIAL RELEASE	1SEP11	J. BRUNNER

CAMERA HEAD



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SCHEM
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COMPONENTS AVS800-HD CAMERA SYSTEM

800-X-28XXX	CAMERA HEAD

QTY REQ'D	MFR/CAGE CODE	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION	ZONE	FIND NO.
						13
						12
						11
						10
						9
						8
						7
						6
						5
1	EMERSON	133-8433-001 (DIGI-KEY J545-ND)	MCX CABLE PLUG STR CRIMP RG179	GOLD PLATED BRASS		4
1	EMERSON	133-8701-211 (DIGI-KEY J550-ND)	MCX JACK RECEPTACLE STR .110"	"		3
1	HIROSE	HR10A-7P-6S	CABLE PLUG	NICKEL PLATED BRASS		2
1	HIROSE	HR10A-7R-6P 73	PANEL RECEPTACLE	"		1

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES (MM). TOLERANCES ARE:
FRACTIONS ± .015 DECIMALS .X ± .1 .XX ± .05 ANGLES ± 1°
MATERIAL SEE NOTES
FINISH SEE NOTES
DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS		DATE
DRAWN	J. BRUNNER	1SEP11
CHECKED		
ENGR	J. BRUNNER	1SEP11
DESIGN ACTIVITY		

AERIAL VIEW SYSTEMS
15467 CHEMICAL LANE
HUNTINGTON BEACH, CA 92649 (714) 890-8200

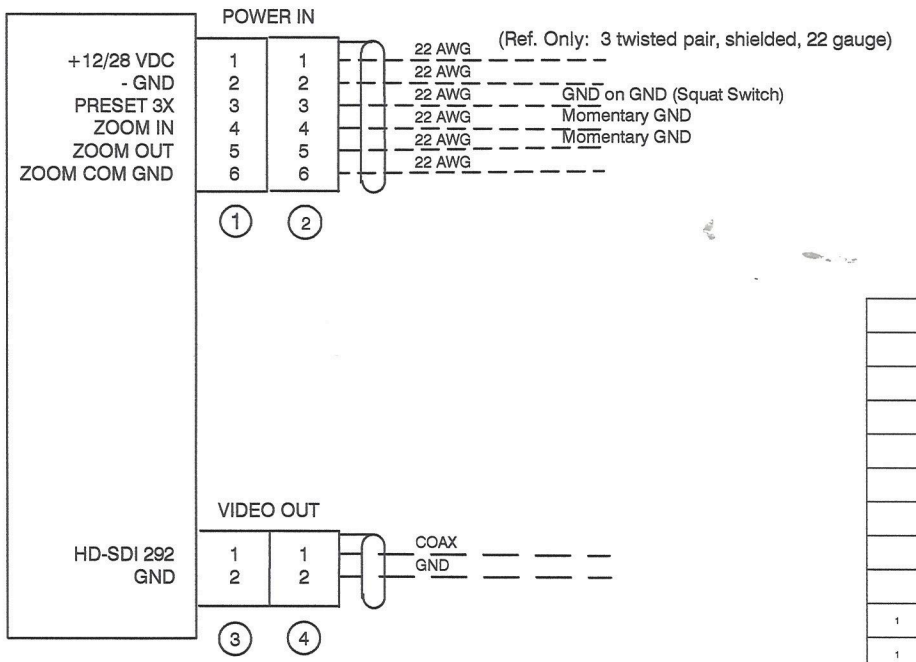
TITLE AVS800 WIRING SCHEMATIC

SIZE D | CAGE CODE | DWG. NO. DWG800 SCHEMATIC | REV -

SCALE: NONE | SHEET 1 OF 1

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	-	INITIAL RELEASE	1SEP11	J. BRUNNER

CAMERA HEAD



44-20-800

SCHEM
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COMPONENTS AVS800-SD CAMERA SYSTEM

800-X-28XXX	CAMERA HEAD

QTY REQ'D	MFR/CAGE CODE	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION	ZONE	FIND NO.
						13
						12
						11
						10
						9
						8
						7
						6
						5
1	FISCHER	SE 103 A002 05.7	COAX CABLE PLUG	NICKLE PLATE BRASS, CHROME		4
1	FISCHER	D 103 A002	COAX PANEL RECEPTACLE	"		3
1	FISCHER	SE 103 A056-130+	POWER CABLE PLUG	NICKEL PLATED BRASS, CHROME		2
1	FISCHER	D 103 A056-130	POWER PANEL RECEPTACLE	"		1

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES (MM). TOLERANCES ARE:
FRACTIONS ± .015 DECIMALS .XX± .1 .XXX± .05 ANGLES ± 1°

MATERIAL: SEE NOTES
FINISH: SEE NOTES
DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS		DATE
DRAWN	J. BRUNNER	1SEP11
CHECKED		
ENGR	J. BRUNNER	1SEP11
DESIGN ACTIVITY		

AERIAL VIEW SYSTEMS
15467 CHEMICAL LANE
HUNTINGTON BEACH, CA 92649 (714) 890-6200

TITLE: AVS800 WIRING SCHEMATIC FISCH (Fischer Connectors)

SIZE D | CAGE CODE | DWG. NO. DWG800 SCHEMATIC FISCH - | REV
SCALE: NONE | WT: | SHEET 1 OF 1

REVISIONS				
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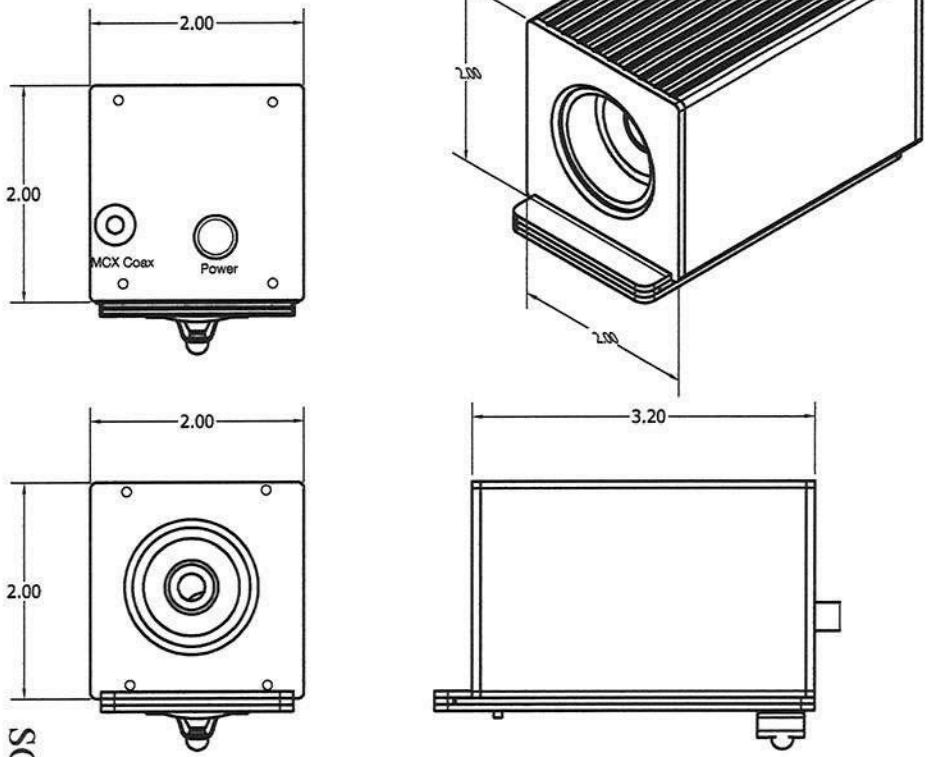
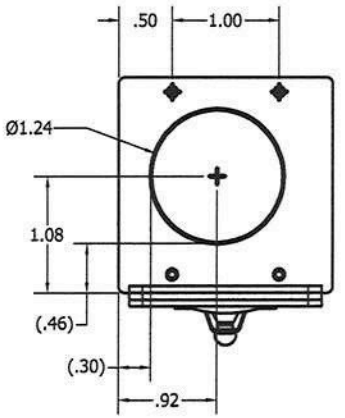
	-	INITIAL RELEASE	1SEP11	J. BRUNNER





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SCHEM
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Nov 1/11

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES (MM). TOLERANCES ARE: FRACTIONS ± .015 DECIMALS .X± .1 .XX± .05 ANGLES ± 1°	CONTRACT NO.	AERIAL VIEW SYSTEMS 15467 CHEMICAL LANE HUNTINGTON BEACH, CA 92649 (714) 890-8200	
	APPROVALS / DATE	TITLE	
MATERIAL SEE NOTES	DRAWN J. BRUNNER 1SEP11	AVS800-CH GLARESHIELD	
FINISH SEE NOTES	CHECKED		
DO NOT SCALE DRAWING	ENGR J. BRUNNER 1SEP11	SIZE D / CAGE CODE / DWG. NO. DWG800-CH GS / REV —	
	DESIGN ACTIVITY	SCALE: NONE	SHEET 1 OF 1

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
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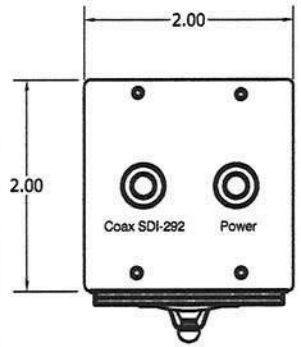
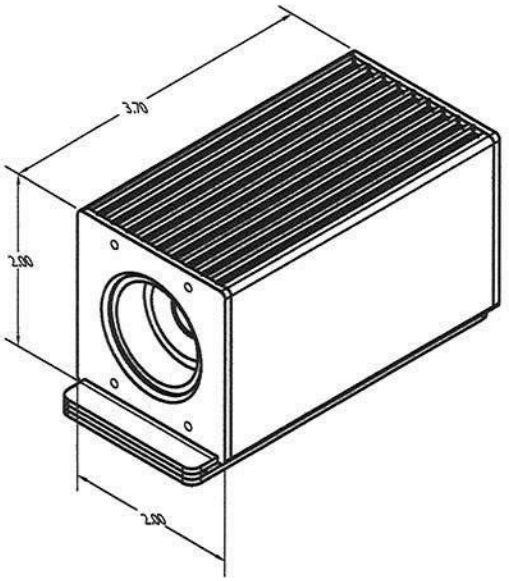
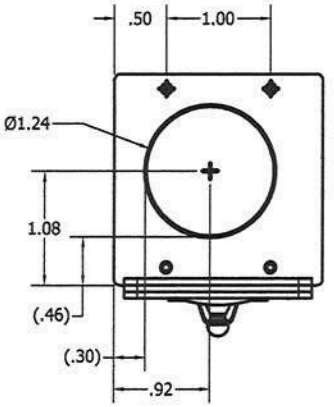
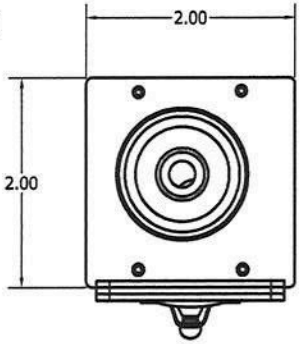
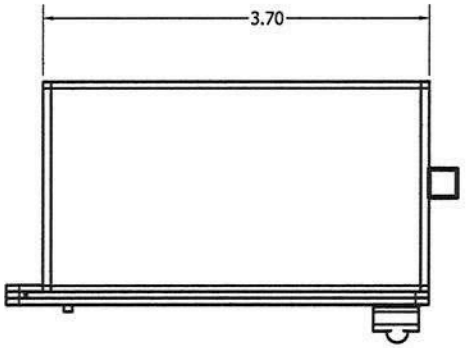
2C	1	DETAIL FACEPLATE	22NOV11	J. BRUNNER











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CH

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Nov 1/11

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FRACTIONS ± .015 DECIMALS .X± .1 .XX± .05 ANGLES ± 1°

MATERIAL: SEE NOTES

FINISH: SEE NOTES

DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS		DATE
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ENGR	J. BRUNNER	1SEP11
DESIGN ACTIVITY		

AERIAL VIEW SYSTEMS
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HUNTINGTON BEACH, CA 92649 (714) 890-8200

TITLE: AVS800-CH GLARESHIELD
(Fischer Connectors)

SIZE	CAGE CODE	DWG. NO.	REV
D		DWG800-CH GS	1

SCALE: NONE WGT. WT. SHEET 1 OF 1

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
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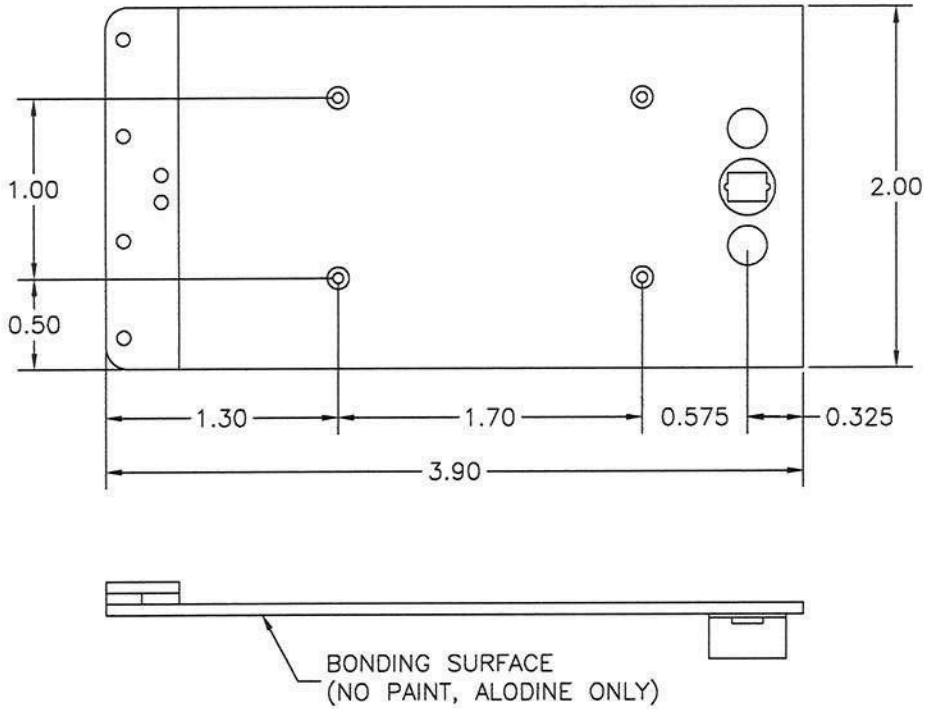
5A	1	CHTS BONDING SURFACE	22NOV11	J. BRUNNER



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CH

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4. ATTACHMENT SCREWS (4) 4–40 SS.
3. PULL–OUT TENSION: 10–16 LBS.
2. MATERIAL: 0.063 2024–T3 ALUMINUM, BLACK POWDERCOATED.
1. TOTAL WEIGHT: 3 OUNCES

NOTES UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES (MM). TOLERANCES ARE:
FRACTIONS ± .015 DECIMALS .X± .1 .XX± .05 ANGLES ± 1°

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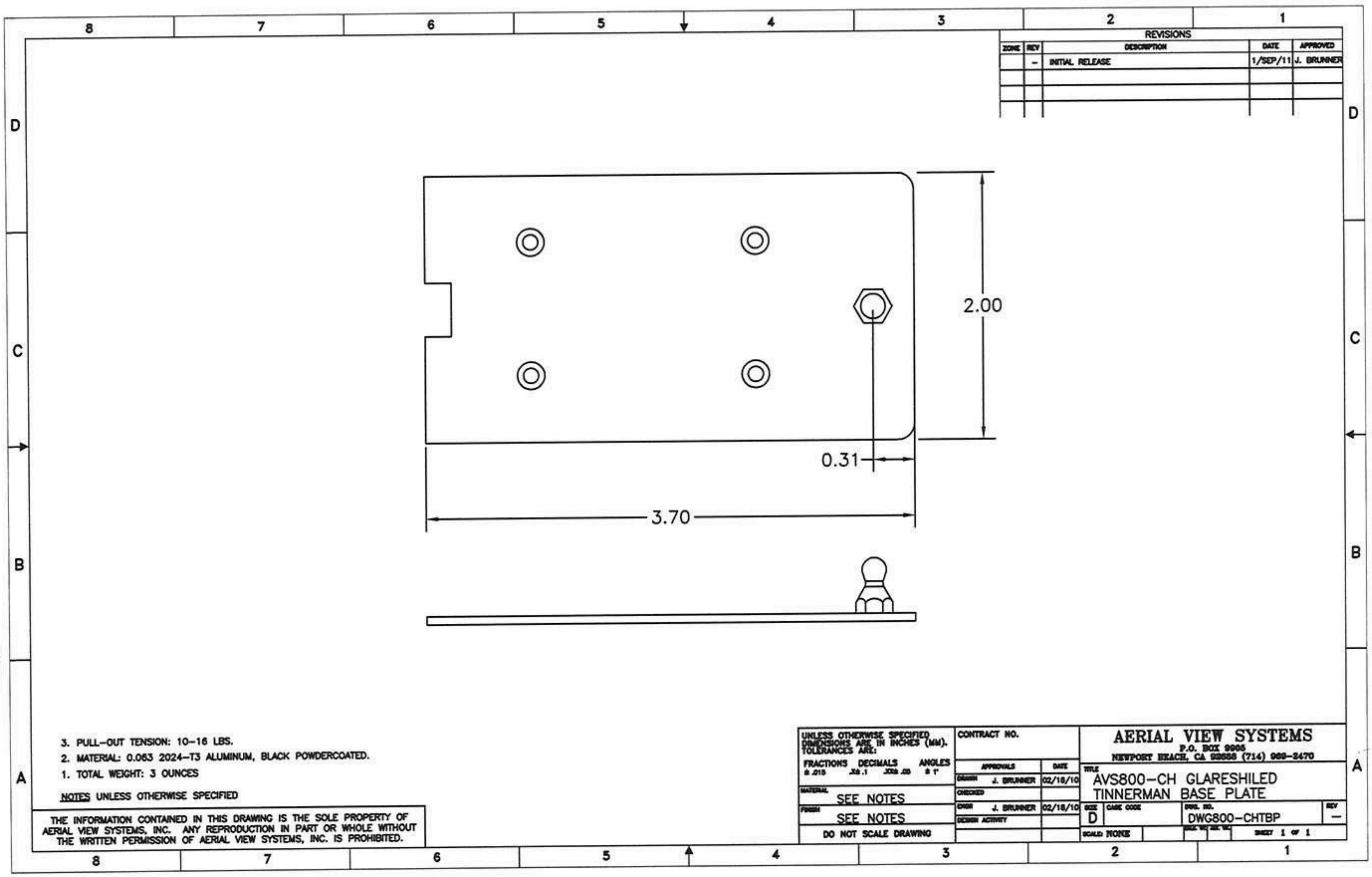
APPROVALS		DATE
DRAWN	J. BRUNNER	23NOV10
CHECKED		
ENGR	J. BRUNNER	23NOV10
DESIGN ACTIVITY		

AERIAL VIEW SYSTEMS
P.O. BOX 9905
NEWPORT BEACH, CA 92658 (714) 969–2470

TITLE: GLARESHIELD CH
TINNERMAN SHOE

SIZE	CAGE CODE	DWG. NO.	REV
D		DWG800–CHTS	1

SCALE: NONE SHEET 1 OF 1


REVISIONS
ZONE
REV
DESCRIPTION
DATE
APPROVED
-
INITIAL RELEASE
1/SEP/11
J. BRUNNER
2.00
0.31
3.70
3. PULL-OUT TENSION: 10-16 LBS.
2. MATERIAL: 0.063 2024-T3 ALUMINUM, BLACK POWDERCOATED.
1. TOTAL WEIGHT: 3 OUNCES
NOTES UNLESS OTHERWISE SPECIFIED
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J. BRUNNER 02/18/10
AERIAL VIEW SYSTEMS
P.O. BOX 9905
NEWPORT BEACH, CA 92658 (714) 969-2470
AVS800-CH GLARESHILED
TINNERMAN BASE PLATE
D
DWG800-CHTBP
-
SCALE NONE
SHEET 1 OF 1

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AERIAL VIEW SYSTEMS®

AVS800-HD GLARESHIELD CAMERA CONFIGURATIONS

PART NUMBER (example)

800-4-28-D12

PART NUMBERING IS AS FOLLOWS

AAA-B-CC-XXX

WHERE

AAA = BASE PART # **800**

B = ZOOM
(O=Optical 10 x Zoom)
(1=2.5 x Zoom)
(2=20 x Zoom)
(3=30 x Zoom)
(4=40 x Zoom)
(9=120 x Zoom)

CC = VOLTAGE
(12=12 VDC)
(13=12-28 VDC)
(28=28 VDC)
(15=115 VAC)

XXX = COMMUNICATION / VIDEO FORMAT / LENGTH-CONNECTORS

X_ _= COMMUNICATION

(D=DISCRETE)
(2=RS-232 VISCA TTL)

(4=RS-485)

_ X _= VIDEO FORMAT

(1=DIGITAL SDI-292 1080/59i)
(B=DIGITAL SDI-292 1080i/50i)

(C= DIGITAL SDI-292 720/59p)
(D= DIGITAL SDI-292 720/50p)
(E= HD $Y/P_b/P_r$)
(F= SD $Y/P_b/P_r$)
(G= SD NTSC)
(H= S-VHS)
(I= PAL)
(J= ETHERNET)

_ _ X= CONNECTORS

(1=MCX/HIR10A)
(2=FISCH D103)
(3=BNC/HR10A)

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AVS800-HD GLARESHIELD CAMERA MODIFICATIONS

MOD NO.	DESCRIPTION	DATE	AFFECTED UNITS	
			P/N	S/N

AERIAL VIEW SYSTEMS®

AVS800-HD GLARESHIELD CAMERA
PERIODIC MAINTENANCE

MAINTENANCE

THERE IS NO CAMERA HEAD FIELD MAINTENANCE.

Periodically, the Camera Assembly is to be returned to Aerial View Systems for inspection and servicing. Recommended servicing interval is 5 years or 2,500 flight hours, whichever occurs later.

Exchange Camera Assembly units will be available to facilitate uninterrupted feature usage.

CLEANING

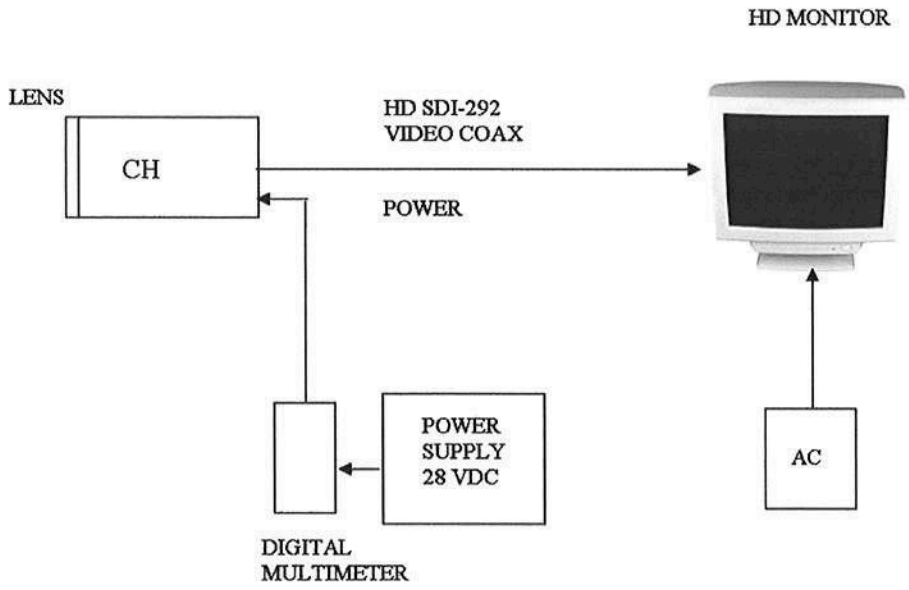
Outside of Camera Head, the lens may be cleaned with a cotton swab & alcohol.

AERIAL VIEW SYSTEMS®

AVS800-HD GLARESHIELD CAMERA
TEST PROCEDURE
(Final Test Production Procedures)

COMPONENTS	P.N. (example)
Camera Head (CH)	**800-4-28-D12**
Power Cable with Connector	Hirose HR10A-7P-6S, or Fischer WSO or S103 A056-130+
Video Cable with Coaxial Connector	SMA, or Fischer WSO or SE 103 A002+
HD Video Monitor	
28 VDC Power Supply, >1 amp	
Digital Multimeter	

SET UP:



AERIAL VIEW SYSTEMS®

AVS800-HD GLARESHIELD CAMERA
TEST PROCEDURE
(Final Test Production Procedures)

TEST PROCEDURE (continued):

1. Turn-ON Power Supply
2. Turn-ON Monitor
3. Apply 28 VDC to Camera Head via Power Harness
4. Check ampres:
   210mA +/-.020
   220mA +/-.020 when Zooming
5. Check HD video quality:
   Color
   Contrast
   Brightness
   Noise
   Interference
   Rolling lines
   Distortion
   Artifacts
6. Ground Pin 4 to Pin 6 for Zoom IN
7. Ground Pin 5 to Pin 6 for Zoom OUT
8. Ground Pin 3 to Pin 6 for PRESET Zoom

AERIAL VIEW SYSTEMS®

AVS800-HD GLARESHIELD CAMERA TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	REMEDY
No Video Picture	28 VDC not present	CHECK: 1) Aircraft camera 1 amp circuit breaker 2) VERIFY: 28 VDC present at pin #1 & Ground at pin #2 of power connector HIROSE HR10A-7P-6S or FISCHER SE 103 A056-130+
No Video Picture	Video Ground SHORTED	CHECK: 1) Verify that video Ground has no continuity with aircraft Ground. Especially at panel-mount connectors.
Noisy Distorted Video Picture	Poor video signal continuity at connectors	CHECK: 1) Disconnect CH connectors and clean with contact cleaner then reconnect. 2) Test video directly with alternative video monitor bypassing aircraft video cable routing, switches, DVR and amplifiers to determine noise source.