

HAZMAT RF WEATHER SYSTEM OPERATION MANUAL P/N 102648



Main Office:
140 Wilbur Place
Bohemia, NY 11716
631-567-7300 (P)
631-567-7585 (F)
www.climatronics.com

West Coast Service:
1600 NW Washington Blvd.
Grants Pass, OR 97526
541-471-7111 (P)
542-471-7716 (F)

Central Regional Service:
3206 Main St. Suite 106
Rowlett, TX 75088
972-412-4715 (P)
972-412-4716 (F)

Technical Support

Thank you for choosing a Climatronics product and we sincerely appreciate your interest and expectation in using it. Should you require support during initial setup and operation, please consult this printed documentation to resolve your problem. If you are still experiencing difficulty, you may contact a Technical Service representative during normal business hours – 7:30 a.m. to 4:00 p.m. Eastern Time, Monday through Friday.

Voice: (631) 567-7300
Fax: (631) 567-7585

E-Mail: service@climatronics.com

Mail: Technical Services Department
Climatronics Corp.
140 Wilbur Place
Bohemia, NY 11716

Safety Notice

The contents of this manual have been checked against the hardware and software described herein. Since deviations cannot be prevented entirely, we cannot guarantee full agreement. However, the data in this manual is reviewed regularly and any necessary corrections are included in subsequent editions.

Faultless and safe operation of the product presupposes proper transportation, storage, and installation as well as careful operation and maintenance. The seller of this equipment cannot foresee all possible modes of operation in which the user may attempt to utilize this instrumentation. The user assumes all liability associated with the use of this instrumentation. The seller further disclaims any responsibility for consequential damages.

Electrical & Safety Conformity

The manufacturer certifies that this product operates in compliance with the following standards and regulations:

FDA/CDRH This product is tested and complies with 21 CFR, Subchapter J, of the Health and Safety Act of 1968

US 21 CFR 1040.10

Warranty

All instruments are warranted against defects in parts or workmanship for a period of two (2) years from the date of shipment. Should any instrument or part prove to be defective within the warranty period, upon written notice and return of the unit (freight prepaid), Climatronics Corporation will, at its option, repair or replace the defective unit, and return it, transportation prepaid via UPS.

Equipment abused, modified, or altered may cause cancellation of this warranty.

The above warranty applies only to items manufactured by Climatronics Corporation. Items not manufactured by Climatronics Corporation are warranted only to the extent and in the manner warranted by the manufacturer of such items. Should emergency warranty repair be required at a customer's facility, Climatronics will provide such repairs and charge only the portal-to-portal Field Service rates and actual expenses in accordance with our published rates then in effect. Expendable supplies and wear items, such as bearings and lightning-related damages, are not covered under this warranty.

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1.0 Safety

1.1 Safety

This manual may include a **CAUTION** and a **WARNING** indication. Familiarize yourself with the following definitions for the meanings of these indicators.

A **CAUTION** indicates a hazard and calls attention to a procedure that if not correctly followed could result in damage to the instrument. Do not proceed beyond a caution indicator without understanding the hazard.

A **WARNING** indicates a hazard to you and calls attention to a procedure that if not correctly followed could result in injury or even death. Do not proceed beyond a warning without understanding the hazard.

2.0 INTRODUCTION – HAZMAT RF WEATHER SYSTEM

The HAZMAT Weather Station, P/N 102648, is a portable Weather Station designed to be quickly deployed and operated in emergency response applications. It provides all the electronics necessary to transmit Wind Speed, Wind Direction, Temperature, Relative Humidity and Barometric Pressure over a spread spectrum radio system up to 20 miles (with the optional antenna configurations of our 102643 system). The system outputs the data required for a CAMEO/ALOHA SAM station and is used with NOAA's CAMEO/ALOHA (including MARPLOT) Emergency Response software. The weather station is equipped with a flux gate compass for automatic alignment to magnetic north. Software is included in the Radio Interface to allow the user to enter a declination angle to output true north, as required by the CAMEO/ALOHA software.

2.1 Specifications

POWER REQUIREMENTS:

Input Power: 6 - 15 Vdc; 100 mA draw @ 12 Vdc
(provided by battery/charger from the transit case)

ENVIRONMENTAL CHARACTERISTICS:

Operating Temp: -20° to 60°C (-4° to 140°F)

Storage Temp: -50° to 70°C (-58° to 158°F)

Humidity: 0 to 95% (non condensing)

Shock and Vibration: Withstands normal shipping and handling.

3.0 INSTALLATION

Please refer to Figures 2, 3 and 4 for detailed installation procedures for the Spread Spectrum base station and remote sensor. For USB/Serial Adapter use, install the drivers on the CD provided. Refer to accompanying manual for instructions.

4.0 INPUT/OUTPUT CONNECTIONS

Remote Station:

Two connectors are provided on the remote transit case. One connector (5 pin) provides power to the sensor and receives the RS232 test data that is available inside the transit case through P/N 102607 Sensor mount on the top of the tripod. The second connector (3 pin) is for the battery charger provided with the system. Whenever AC power is available, the charger should be plugged into the system to maintain battery life. The case is equipped with a battery test meter. With power off and charger disconnected, press the button to view the battery charge level. If the battery is below 10 Vdc, charge it with the battery charger provided in the case.

Base Station:

Refer to Figures 2 and 3 for set up information. Install the antenna provided before applying power to the radio. Securely attach the DC power connector before plugging into wall outlet. A red LED glows when power is applied and a green LED flashes when data is received by the radio. The RS232 output is connected from the WVIEW and CAMEO connectors on the Radio Interface to the PC's running WeatherView and/or CAMEO respectively through the 9 pin serial cable provided. (Fig 2) For USB port connection, connect the serial cable to the USB/RS232 adapter and connect the cable on the adapter to the USB port on its respective computer. (Fig 3) WeatherView data is transmitted at 9600 baud. The CAMEO/ALOHA data is transmitted at 1200 baud to comply with the CAMEO/ALOHA standard.

5.0 THEORY OF OPERATION

P/N 102770 AIO weather sensor provided with the system samples the meteorological parameters once per second. The sensor transmits data to P/N 102687 Radio Interface where a microprocessor stores these values and derives the 30-second running averages required by the CAMEO/ALOHA software. The Radio Interface also provides an output to WeatherView that can be run in conjunction with CAMEO. Please refer to Figure 5 for details on the SAM output and Figure 6 for details on the WeatherView output. The system provides an instantaneous auxiliary RS232 output on the test connector in the transit case. This data is in the same format as the WeatherView data. This output can be connected to any Laptop PC or PDA using HyperTerminal or Climatronics HAZVIEW Display Software to check proper operation of the system. A null modem adaptor is required for the PDA, and provided in the base station radio kit.

6.0 DECLINATION SETTING

6.1 Overview

The CAMEO/ALOHA software requires Wind Direction input relative to TRUE north. The flux compass in the AIO Weather sensor provides Wind Direction to MAGNETIC north. Software in the Interface allows the setting of a declination angle to correct the Wind Direction output to TRUE north. It is recommended that this procedure be done in the lab, but can be done in the field as well. Once the declination angle is set in the sensor, it is stored in non-volatile memory, and does not have to be reset each time the sensor is fielded. The declination angle must be reset only if the system is used in a different geographical location separated by many miles from the location where the declination was originally set.

It is suggested that the magnetic declination be determined before performing this calibration. Visit the following web site for help in determining the correct declination for your site:

www.ngdc.noaa.gov/seg/geomag/declination.shtml

Enter your zip code and click "Get Location". On the next page, click "Compute!" At the bottom of the page, Field "D" is declination in degrees and minutes. Divide minutes value by 60 to get decimal remainder of degrees (I.E. 50 minutes = 0.8 degrees). If the declination needs to be adjusted, please follow the steps in Section 5.2.

6.2 Procedure

6.2.1 Equipment Required:

Desktop PC or Laptop with MS HyperTerminal software.

Serial RS232 cable, 9 pin Male to 9 pin Female (provided in the base radio kit). **Note: The magnetic declination may only be set on the WVIEW RS232 port.**

6.2.2 Set up the base station per Section 3, but do not plug the power supply in.

6.2.3 Start HyperTerminal on the PC or Laptop and configure it for the COM port connected to the base station radio, 1200 baud, N, 8, 1. To find HyperTerminal click Start, Programs, Accessories, Communications, HyperTerminal.

6.2.4 Turn on the power to the remote station and observe the screen on the PC. The declination software tells you the current setting for the declination, and gives you 10 seconds to type CTRL-C (hold the CTRL key down then hit the C key). Follow the instructions on the screen, refer to Figure 1 for an example. When the procedure is complete, the program will restart and run per normal operation. The remote sensor must be powered to transmit data, but it does not have to be on to set the magnetic declination.

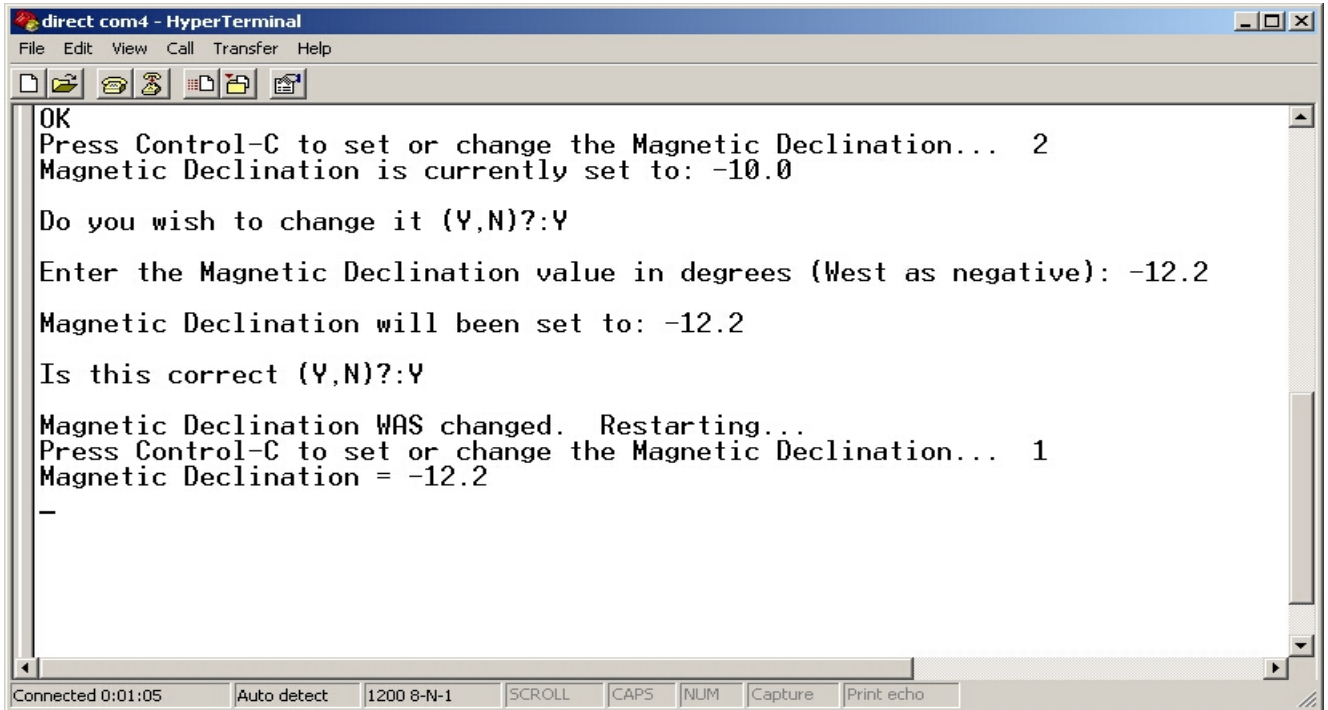


Figure 1

RS232 SET UP

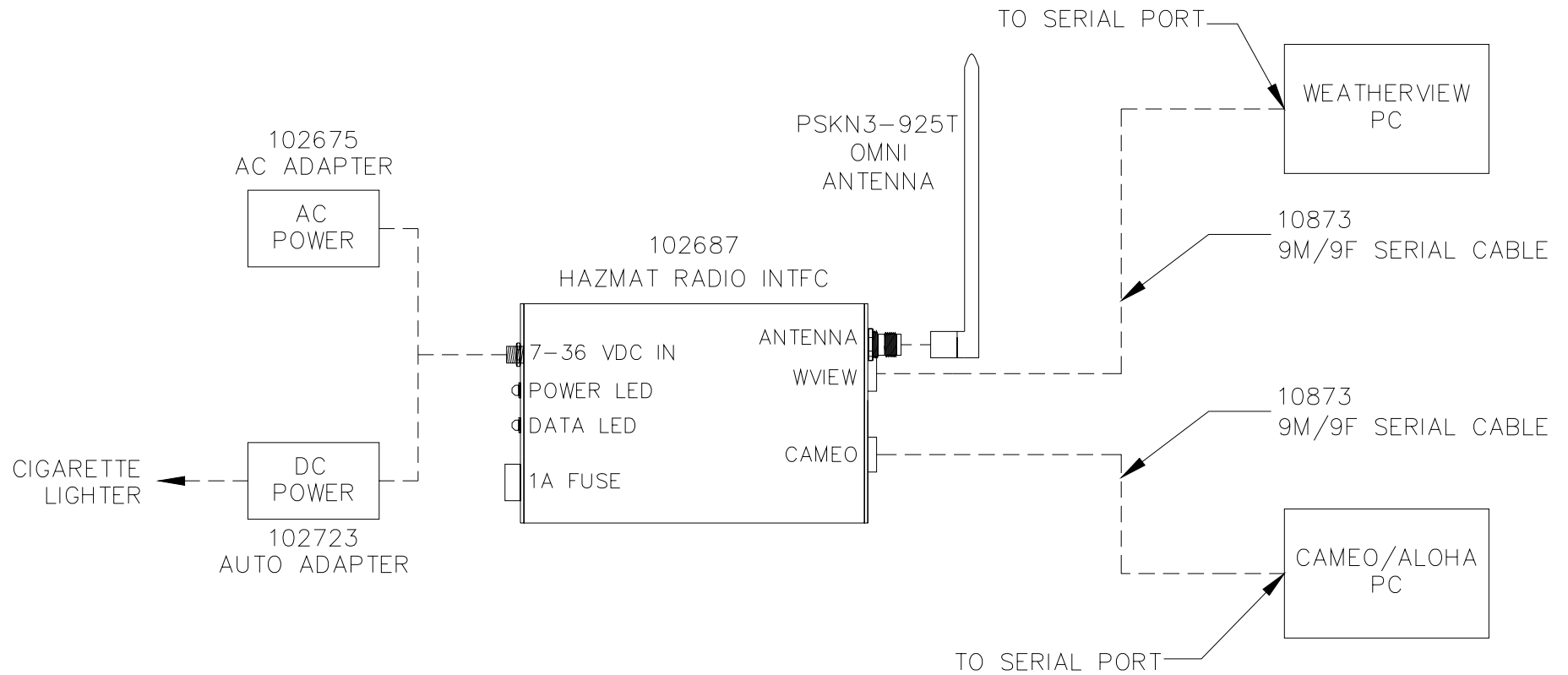


Figure 2

USB SET UP

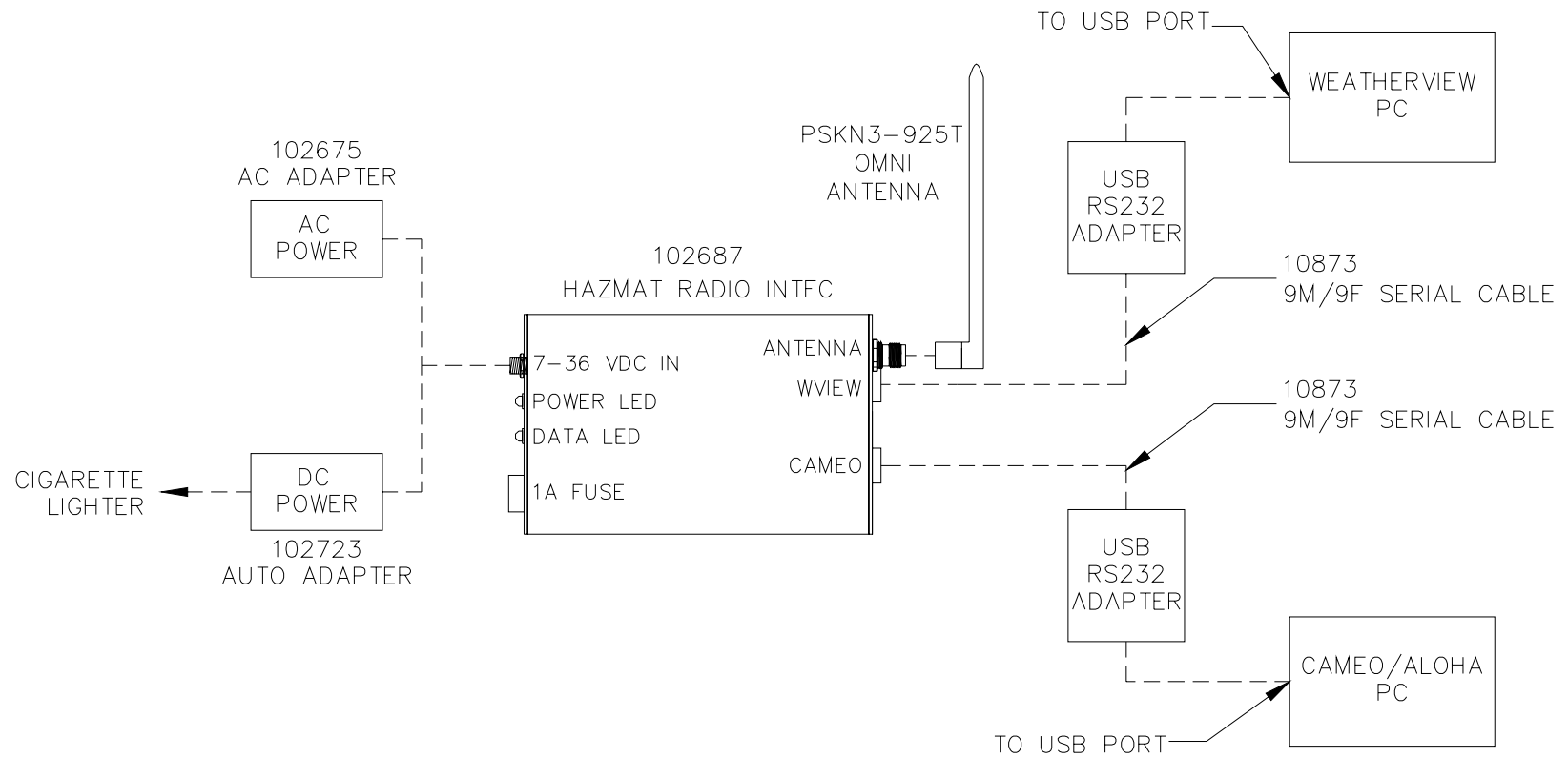


Figure 3

Figure 4

Be sure to mount the sensor in a clear, open area to minimize any turbulent effects caused by local obstructions (e.g., trees, buildings, etc.).

Remove the Tripod from the case. Remove the three Leg Pins, unfold Legs and replace Leg Pins to lock into place.

OMNI antenna installation:

Connect the OMNI antenna to the connector on the base of the AIO and install the sensor on the Quick Mount.

Sensor installation:

Align the keyway on the AIO base connector with the keyway on the connector in the Quick Mount. Align the latches on the Quick Mount with the clips on the sensor. Rotate the Sensor slightly until connector key and pins are aligned and lock into place with latches. If sensor does not align and latch on, check keyway alignment and rotate AIO 180° if necessary.

For added stability in high wind locations, place a sandbag or cinderblock on each foot.

Plug Sensor Cable into 5-Pin connector on Transit Case.

Turn Power Switch inside Transit Case to "On" position. Close and lock Transit Case and place near base of Tripod.

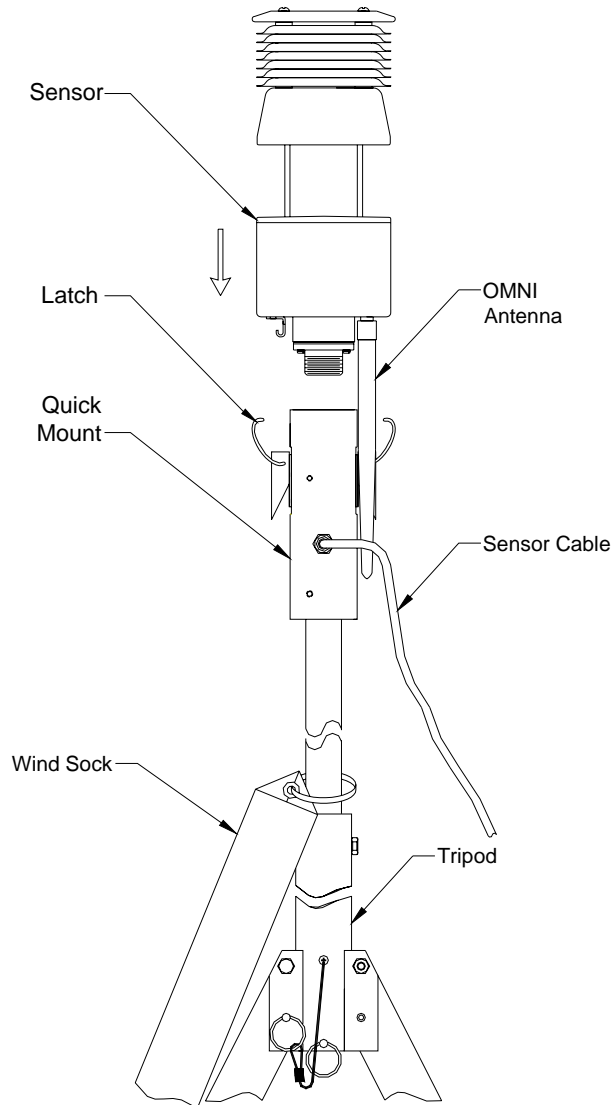
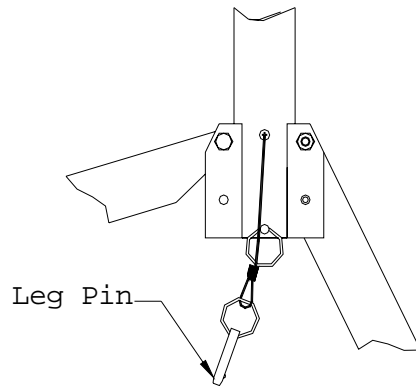


Figure 5

CAMEO/ALOHA SAM station output:

The SAM data format for ALOHA is formatted as follows:

<cr><lf>ID,VS,WD,SD,TA,SP,DI,TI,B,CHK, where

<cr> = a carriage return (ASCII character code 13),

<lf> = a line feed (ASCII character code 10),

ID = the station identification number,

VS = the vector mean wind speed, averaged over 5 minutes (in meters per second),

WD = the vector mean wind direction, averaged over 5 minutes (in degrees true),

SD = the standard deviation of the wind direction (in degrees),

TA = the mean air temperature, averaged over 5 minutes (in °C),

SP = the instantaneous wind speed (in meters per second),

DI = the instantaneous wind direction (in degrees true),

TI = the instantaneous air temperature (in °C),

B = instantaneous SAM battery voltage (in volts),

CHK = a checksum, computed by summing the ASCII values of all preceding characters in the data line, including the carriage return and line feed characters.

Note:

During the first 5 minutes of powering on the SAM station, not enough data samples are available for a valid 5 minute average. During that time the VS=SP, WD=DI, SD= -1, and TA=TI. Data is transmitted every 30 seconds @ 1200 Baud, No start bit, Eight data bits, One stop bit. Data Examples are shown below:

```
308,008.4,183.3,-01.0,009.8,006.7,189.5,009.8,11.37,2585  
121,007.1,174.7,018.1,010.2,006.8,177.3,010.1,11.37,2557
```

Figure 6

WeatherView output and Diagnostic Port in the HAZMAT Transit Case:

The data format for the Diagnostic port is formatted as follows:

01+ID 02+SP 03+DI 04+TI 05+RH 06+BP 07+BV<cr><lf>

<cr> = a carriage return (ASCII character code 13),

<lf> = a line feed (ASCII character code 10),

ID = the station identification number (sensor serial number),

SP = the instantaneous wind speed (in meters per second),

DI = the instantaneous wind direction (in degrees true),

TI = the instantaneous air temperature (in °C),

RH = the instantaneous relative humidity (in %),

BP = the instantaneous barometric pressure (in mB, optional parameter),

BV = instantaneous SAM battery voltage (in volts),

Data is transmitted every second @ 9600 Baud, No start bit, Eight data bits, One stop bit.

A data example is shown below:

```
01+10957 02+000.2 03+136.0 04+023.1 05+051.4 06+0996.4 07+11.07
```

Appendix A

102770 AIO Compact Weather Station

Introduction & Overview – 102770 AIO Compact Weather Station

The HAZMAT RF AIO Compact Weather Station (AIO), P/N 102770, is a weather instrument that provides measurement of temperature, relative humidity, wind speed, wind direction, and barometric pressure in a single, compact, rugged unit.

The AIO integrates a folded-path, low-power sonic anemometer with a multi-element temperature sensor, fast-response capacitive relative humidity sensor, state-of-the-art barometric pressure sensor and an internal flux-gate compass for automatic alignment of wind direction to magnetic north.

The small footprint and power efficiency of the AIO make it ideal for remote regions, urban environments, air quality networks, construction/remediation sites, and other network applications. The unit can be used in permanent (cooperative weather networks, schools, public information dissemination) or temporary (emergency response, audit, research program support) installations.

Designed for maximum portability and utility, the AIO is well suited for rapid deployment and use by one person under all conditions. The unit may be mounted on a tower, tripod or vehicle mast.

Data output is a serial, digital message that can be interfaced to most data logging systems.



Specifications

PERFORMANCE

Wind Speed

Range	0 to 50 m/s (0 to 112 mph)
Accuracy	± 0.5 m/s or 5% of reading ¹
Resolution	0.1 m/s

Wind Direction

Range	0 to 360°
Accuracy	$\pm 5^\circ$ @ wind speed > 2.2 m/s
Resolution	1.0°

Temperature

Range	-50 to +50 °C (-58 to +122 °F)
Accuracy	± 0.2 °C ²
Resolution	0.1 °C

Relative Humidity

Range	0 to 100%
Accuracy	$\pm 3\%$
Resolution	1.0%

Pressure

Range	600 to 1100 hPa
Accuracy	± 0.35 hPa ³
Resolution	0.1 hPa

Compass

Accuracy	$\pm 2^\circ$
Resolution	1°

ELECTRICAL

Measurement Rate Output:	1 Hz
Signal Output	RS-232 over 900MHz Spread Spectrum Radio
Power Requirements	8 to 36 VDC @ 100 mA nominal, option dependent

ENVIRONMENTAL

Temperature	-50 °C to +70 °C (-58 to +158 °F)
Humidity	0 to 100%

Notes:

1. Whichever is greater
2. Sensor element
3. At constant temperature (25 °C)

Input/Output Connections

The sensors' pin designations are as follows:

PIN	WIRE	FUNCTION
A	BRN	Power Ground
B	RED	8 - 36 Vdc
C		Not Used
D		Not Used
E		Not Used
F	GRY	Aux RS-232 Out *
G	GRN	RS-232 RXD *
H	BLU	RS-232 TXD *
I		Not Used
J		Not Used

* **Warning:** Do not short any of these wires to ground or to each other.

Calibration

The sensor requires a wind tunnel for calibration. Climatronics can provide NIST traceable calibration in our wind tunnel.

We also offer a Cone of Silence Block of Acoustic Foam for field health checks as well as a portable wind tunnel in a transit case for more rigorous field audit or health checks.



Maintenance

Because the sensor has no moving parts to wear out, periodic maintenance is not required. It is recommended that the data be checked every 6 -12 months to be sure there has been no failure of any of the electrical components. This can be done using Climatronics Zero Wind Test Fixture P/N 501708 and any co-located temperature, relative humidity device such as Climatronics Fan Aspirated Psychrometer P/N C22010 and collocated pressure sensor such as Climatronics P/N 102263 (requires laptop) or Handheld Digital Barometer P/N M200-AI0900. In extremely corrosive environments, the condition of the connector used to mount the sensor should be checked. The only user repairable part is the Temperature/Relative Humidity Sensor Module located inside the removable multi-plate shield.



The Temperature/Relative Humidity Sensor Module (T/RH Module) is a single plug in module with a keyed connector that assures correct electrical connection when the new unit is installed.

Replacement is accomplished easily with a philips head screwdriver:

1. Remove the two screws from the top of the shield assembly.
2. Slide the top shield assembly off the support posts.
3. Unplug the existing T/RH Module.
4. Plug in the new or replacement T/RH Module noting that the connector will seat easily once the key is aligned.
5. Line up the shield assembly on the two support posts and slide it back into place.
6. Replace the two screws to secure the shield assembly.

The replacement is now complete.

Appendix B 102770 AIO Theory of Operation

Wind

Climatronics' sonic anemometer operates on the principal that the speed of the wind affects the time it takes for sound to travel from one point to a second point. If the sound is traveling in the direction of the wind then the transit time is decreased. If the sound is traveling in a direction opposite the wind then the transit time is increased.

Temperature/Humidity

The temperature sensor in the AIO uses a precision triple-element Thermistor. This provides highly accurate and stable temperature readings. This allows the AIO to directly interface with the temperature sensor without additional electronics. Sensor compensation is handled through software.

The relative humidity sensor is a capacitive element sensor. It has a linear voltage output, which allows it to be connected directly to the AIO microprocessor. The humidity sensor elements' construction provides excellent resistance to wetting, dust, dirt, oils, and common environmental chemicals. A heavy contaminant layer of dirt will slow down the sensor's response time because it will take longer for water vapor to equilibrate in the sensor.

Pressure sensor

The barometric pressure sensor is a stable transducer using nano-technology, yielding a linear and repeatable sensor with low hysteresis.

This piezoresistive pressure sensor module is mounted on a small electronic circuit board. A microcontroller controls the operation of the sensor and the data interface.

The microcontroller polls the pressure sensor module once per second for the barometric pressure and the ambient temperature. The raw readings are temperature corrected by the microcontroller.

Fluxgate Compass

The internal compass module is low power and compact. It employs a pair of magneto-inductive sensors, which change inductance with varying magnetic field strengths, to sense the Earth's magnetic field.

The AIO microprocessor measures the output of the internal compass and then corrects the wind direction data for the orientation of the sensor. The output of the AIO wind direction is relative to magnetic North.

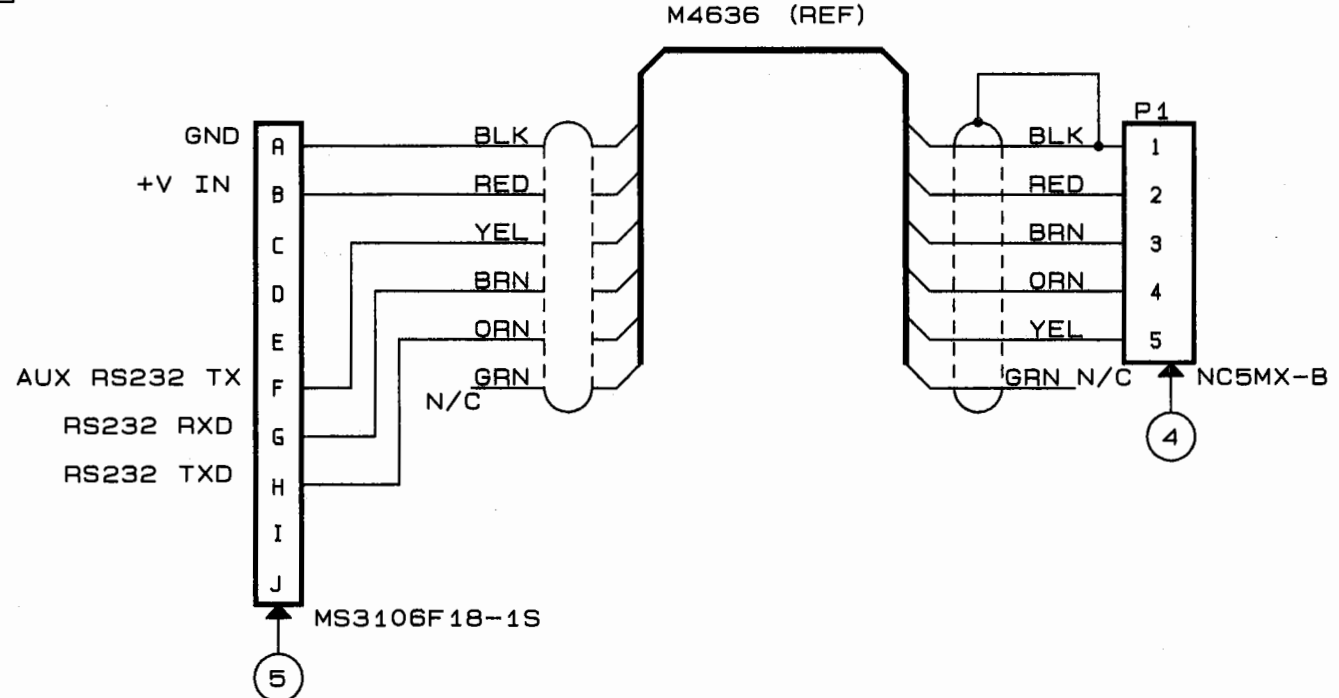
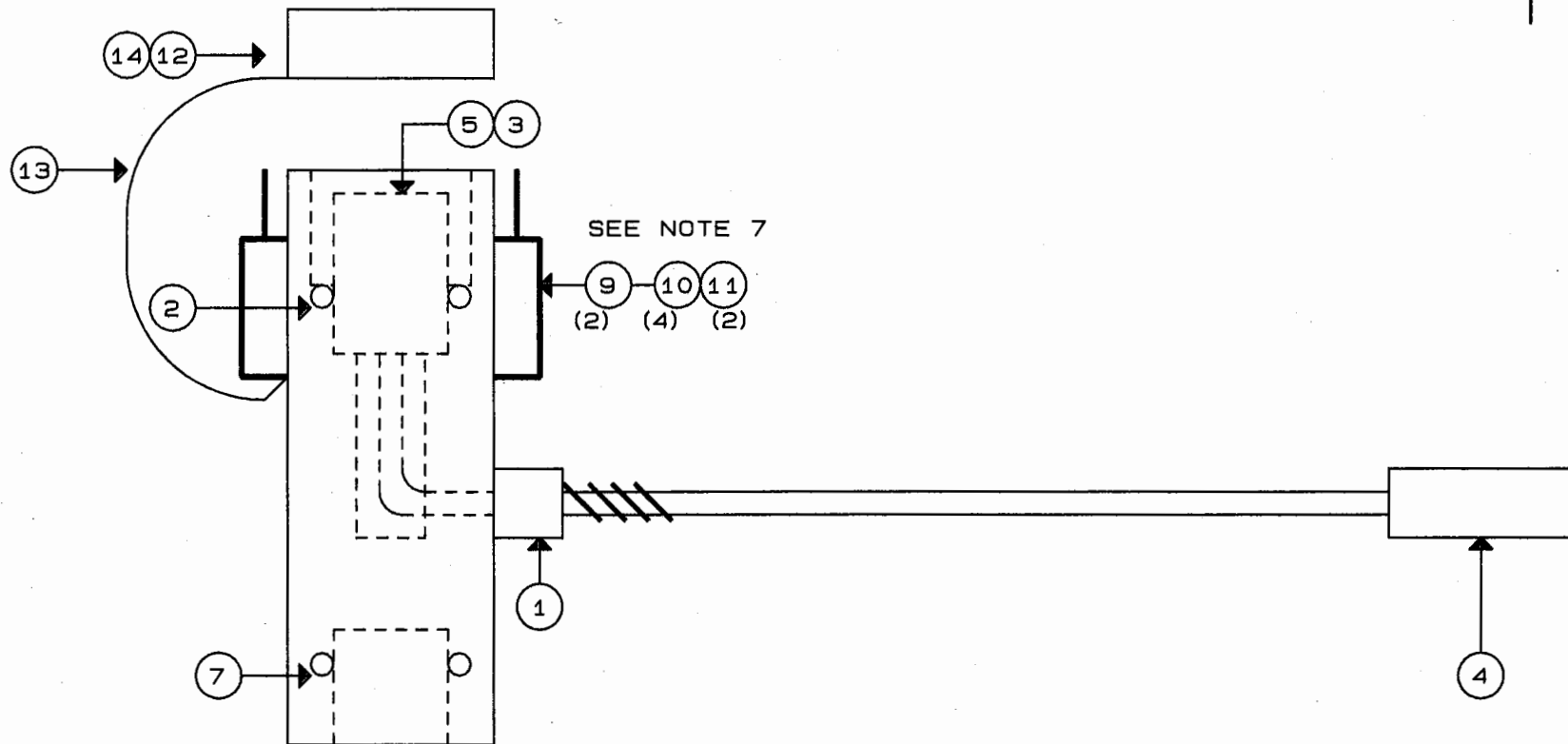
Climatronics Corporation
140 Wilbur Place Bohemia, NY 11716 (631) 567-7300
www.climatronics.com

Revision	Description	Date	Approved
-	Released to Production	9/12/06	D.A.
A	See ECN 5713	2/26/08	D.A.

CAMEO/ALOHA WEATHER SYS(RADIO)
P/N 102648 Rev A
PARTS LIST
Sheet 1 of 1

ITEM	SYM. NO	QTY	PART NO.	DESCRIPTION
1		1.0	102770	ASSEMBLY, AIO, HAZMAT, RADIO
2		1.0	102607-G2-15	MOUNT, TACMET, QUICK RELEASE
3		1.0	102687	HAZMAT RADIO INTERFACE ASSY.
4		1.0	102603	TRANSIT CASE, HAZMAT, RF
5		1.0	102606	CHARGER, HAZMAT CASE (102603
6		1.0	102652	TRIPOD/SOFTCASE, HAZMAT
7		1.0	AD-N05	DB9 MALE/MALE NULL MODEM ADA

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	ECN 5262	11-12-03	
B	ECN 5282	02-16-04	
C	ECN 5410	03-14-05	
D	ECN 5429	04-14-05	
E	ECN 5455	07-06-05	
F	ECN 5516	11-09-05	
G	ECN 5548	3-01-06	
H	ECN 5564	5-22-06	
J	ECN 5596	9-18-06	



NOTE:

- 102607-G0 IS PAINTED CARC GREEN 383
- 102607-G1 IS PAINTED CARC TAN 686A
- 102607-G2 IS CLEAR ANOZIDE COATING
- 102607-G3 IS BLACK ANOZIDE COATING
- M4636 IS SHOWN FOR REFERENCE. SEE CONFIGURED PART FOR CORRECT LENGTH.
- 2 ea. 501598 INSTALLED ON TACMET OR SONIC SENSOR.
- ONLY PUT LOCKWASHERS UNDER SCREWS ON BOTTOM OF LATCH. USE LOCTITE ON ITEM 10.
- INSTALL LANYARD ON SIDE OF CAP WITH RIVET FROM THE OUTSIDE (INSIDE MUST BE FLAT). ATTACH LANYARD TO BOTTOM SCREW ON LATCH. RIVET MUST BE TIGHT!

102607J.ASY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO.			
FRACTIONS ±	DECIMALS .XX ± .XXX ±	ANGLES ±			
MATERIAL NOT APPLICABLE		APPROVALS	DATE	QUICK MOUNT, TACMET HAZMAT CASE	
FINISH NOT APPLICABLE		DRAWN D. ADAMS	11/03		
NEXT ASSY 102603 USED ON		CHECKED C. HAPP	11/03		
APPLICATION		ISSUED TJS	11/03	SIZE B	FSCM NO. 52332
DO NOT SCALE DRAWING				DWG. NO. 102607	REV. J
				SHEET 1 of 2	

MOUNT, TACHET, QUICK RELEASE
P/N 102607 Rev J
PARTS LIST
Sheet 2 of 2

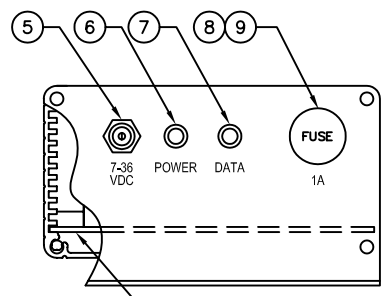
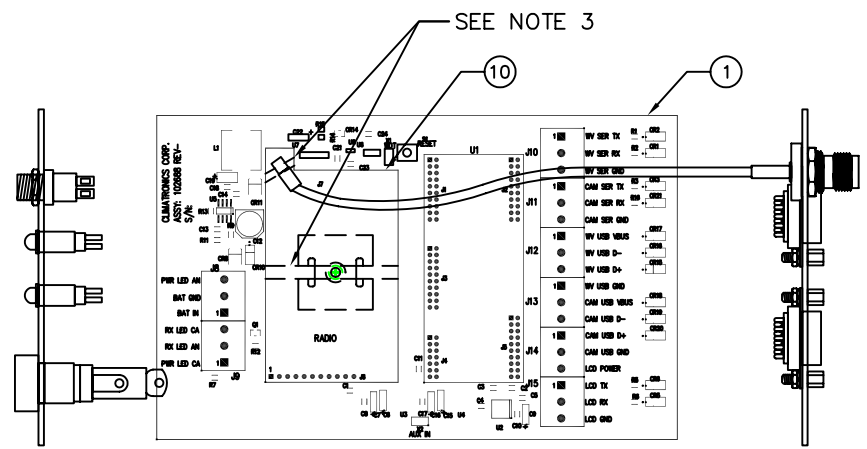
ITEM	SYM.NO	QTY	PART NO.	DESCRIPTION
------	--------	-----	----------	-------------

Notes: 102607-60 IS 501597-1 MOUNT, PAINTED CARC GREEN 383
102607-61 IS 501597-2 MOUNT, PAINTED CARC TAN 686A
102607-62 IS 501597-3 MOUNT, CLEAR ANODIZE
102607-63 IS 501597-4 MOUNT, BLACK ANODIZE

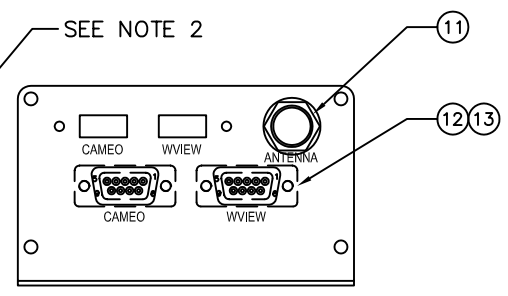
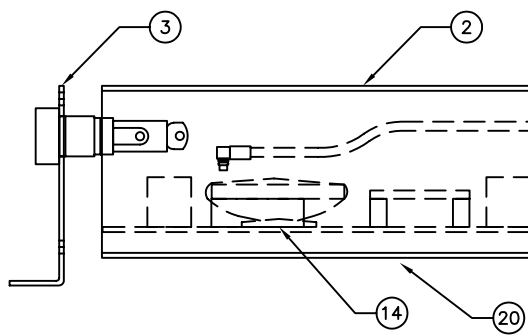
M4636 CABLE IS SHOWN FOR REFERENCE.
SEE CONFIGURED PART FOR CORRECT CABLE LENGTH.

1		1.0	3240	CONNECTOR/LIQUID TYPE W/STRAIN
2		2.0	MS51023-51	SET SCREW 10-32 x 3/8
3		1.0	304-0145-000	FERRULE, #18
4		1.0	NC5MX-B	CONNECTOR, 5 PIN, M, CABLE MT
5		1.0	MS3106F18-1S	CONNECTOR, STRAIGHT PLUG
7		2.0	91745A539	THUMB SCREW 1/4-20 X 5/8 SS
8		2.0	501598	MODIFICATION, STRIKE PLATE
9		2.0	7882-7-SS	LATCH
10		4.0	MS51957-42	SCREW 8-32 x 5/16
11		2.0	MS35338-137	WASHER LOCK SPLIT #8
12		1.0	PQC-101	1-1/2 PIPE CAP
13		1.0	LL2-8	LANYARD
14		1.0	2014157	RIVET, 3/16 DIA X 1/8

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	SEE ECN 5607	10/5/06	DA




INSTALL PCB IN
BOTTOM SLOT



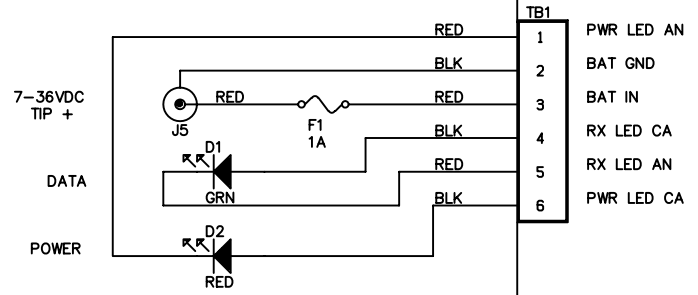
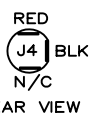
SEE NOTE 2

- NOTES:
- 1) SEE SHEET 2 FOR WIRING DETAILS.
 - 2) INSTALL AS SHOWN, DO NOT USE FLATWASHERS.
 - 3) USE LACING CORD 2 PLACES AS SHOWN.

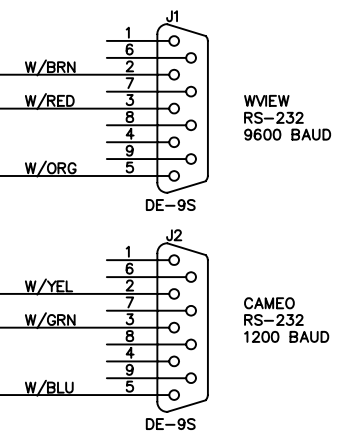
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES ± 1/64 .XX ± .010 ± 1° .XXX ± .005		CONTRACT NO.		 140 Wilbur Place Airport International Plaza Bohemia, NY 11716 USA FAX (631)567-7585 Phone (631)567-7300	
N/A		APPROVALS	DATE	ASSEMBLY, HAZMAT RADIO INTERFACE	
MATERIAL NOT APPLICABLE		DRAWN C.HAPP	08/06		
FINISH NOT APPLICABLE		CHECKED D.ADAMS	08/06		
NEXT ASSY	USED ON	ISSUED D.ADAMS	9/12/06	SIZE B	FSCM NO. 52332
APPLICATION		DO NOT SCALE DRAWING	SCALE: NONE	P: \Drawings\Assembly\102687S1A.dwg	DWG. NO. 102687
					REV. A
					SHEET 1 OF 3

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	SEE ECN 5607	10/5/06	D.A.

J5 CONNECTOR WIRING DETAIL



TB2	Signal	Wire Color	Destination
1	WV SER TX	W/BRN	J1 Pin 1
2	WV SER RX	W/RED	J1 Pin 2
3	WV SER GND	W/ORG	J1 Pin 3
4	CAM SER TX	W/YEL	J1 Pin 4
5	CAM SER RX	W/GRN	J1 Pin 5
6	CAM SER GND	W/BLU	J1 Pin 6
7	WV USB VBUS	W/YEL	J2 Pin 1
8	WV USB D-	W/GRN	J2 Pin 2
9	WV USB D+	W/GRN	J2 Pin 3
10	WV USB GND	W/BLU	J2 Pin 4
11	CAM USB VBUS	W/BLU	J2 Pin 5
12	CAM USB D-		
13	CAM USB D+		
14	CAM USB GND		
15	LCD POWER		
16	LCD TX		
17	LCD RX		
18	LCD GND		



NOTES:
1) ALL WIRES 22 AWG.
2) USE SHRINK SLEEVING AS REQUIRED.

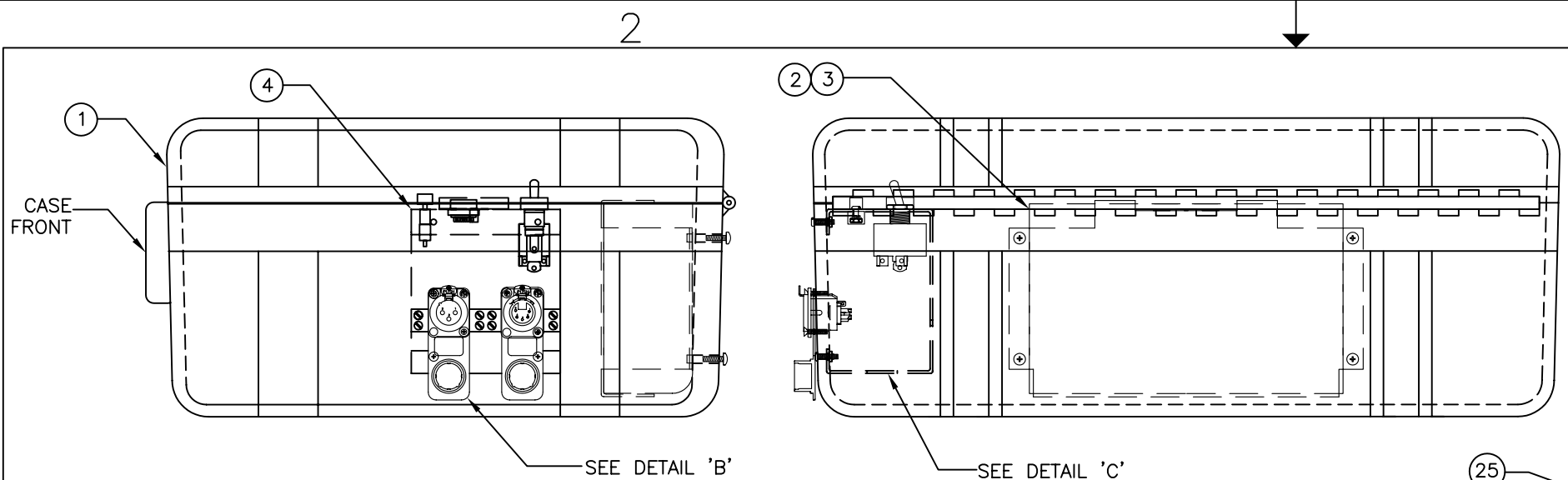
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140 Wilbur Place
Airport International Plaza
Bohemia, NY 11716
USA
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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO.		APPROVALS		DATE	
FRACTIONS	DECIMALS	ANGLES		DRAWN	C.HAPP	08/06	
± 1/64	.XX ± .010	± 1°		CHECKED	D.ADAMS	08/06	
	.XXX ± .005			ISSUED	D.ADAMS	9/12/06	
MATERIAL	NOT APPLICABLE	FINISH	NOT APPLICABLE	SCALE:	NONE	P:	\\Drawings\Assembly\102687S2A.dwg
NEXT ASSY	USED ON	APPLICATION	DO NOT SCALE DRAWING	SCALE:	NONE	P:	\\Drawings\Assembly\102687S2A.dwg

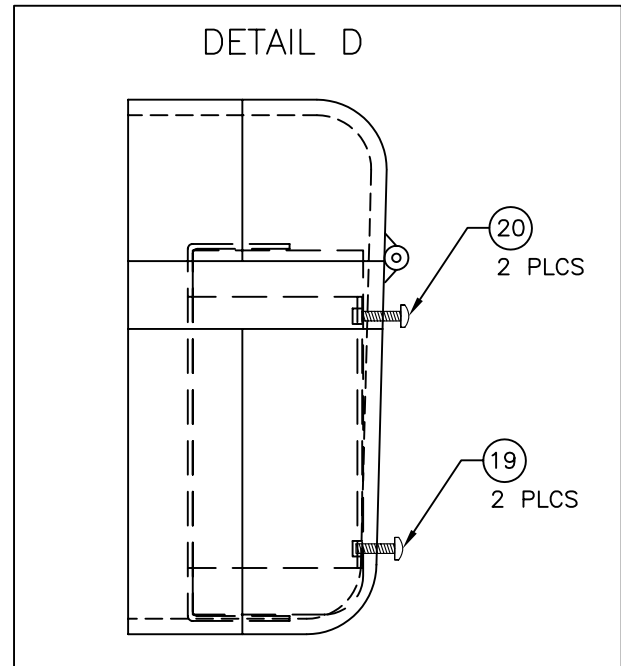
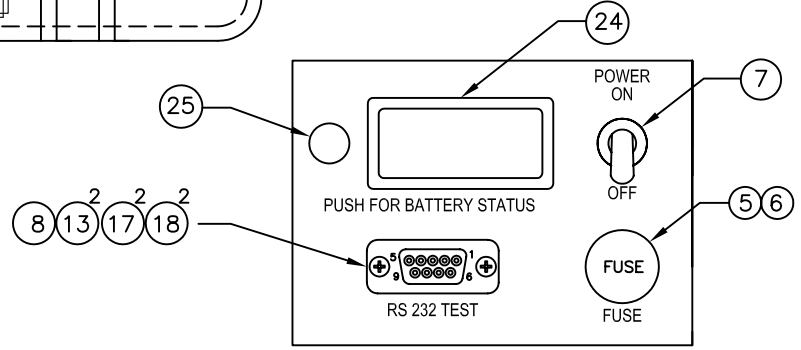
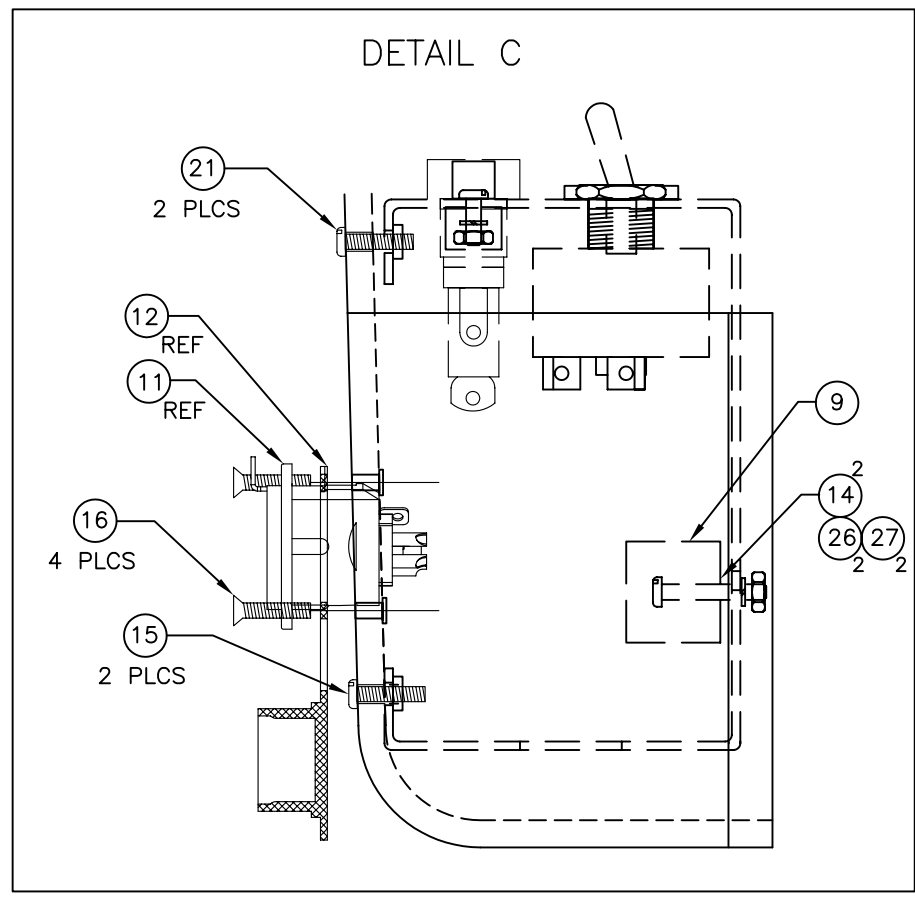
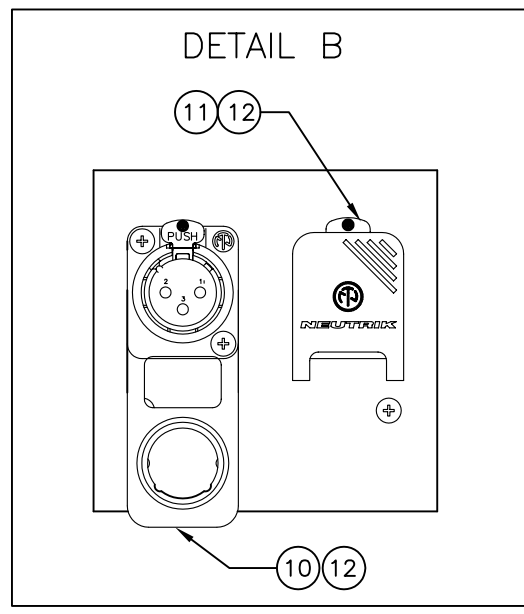
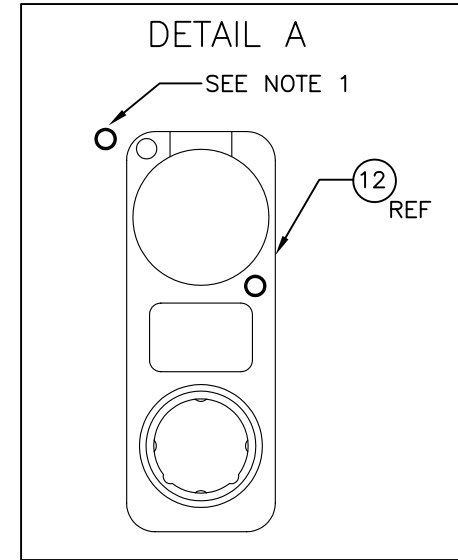
ASSEMBLY, HAZMAT RADIO INTERFACE			
SIZE	FSCM NO.	DWG. NO.	REV.
B	52332	102687	A
SHEET 2 OF 3			

HAZMAT RADIO INTERFACE ASSY.
P/N 102687 Rev A
PARTS LIST
Sheet 3 of 3

ITEM	SYM.NO	QTY	PART NO.	DESCRIPTION
1		1.0	102688	HAZMAT RADIO INTERFACE PCB
2		1.0	1455N1601BK	ENCLOSURE, EXTRUDED ALUMINUM
3		1.0	501671	HAZMAT RADIO INTFC PWR PNL MOD
4		1.0	501672	HAZMAT RADIO INTFC PANEL, MOD
5		1.0	L712A	DC POWER JACK, 2.5MM, PM, LONG
6		1.0	559-0101-003	LED INDICATOR RED
7		1.0	559-0201-003	LED INDICATOR GREEN
8		1.0	HKP	FUSEHOLDER, 30 AMP 250V
9		1.0	AGC-1	FUSE, 1 AMP
10		1.0	X09-009NMI-I010	SPREAD SPECTRUM RADIO, 900 MHz
11		1.0	102560	CABLE ASSY, MMCX-M TO TNC-F
12		2.0	DE-9S	CONNECTOR, 9 PIN FEMALE
13		2.0	D20418-2	SCREW LOCK ASSEMBLY FEMALE
14		1.0	ABMM-A	CLAMP - STICK ON
15		1.0	102723	AUTO ADAPTER W/LOCKING PLUG
16		1.0	102675	HAZMAT POWER ADAPTER
17		1.0	PSKN3-925T	ANTENNA, 870-960 MHZ W/TNC
18		2.0	10873	COMPUTER SERIAL CABLE
19		2.0	BELKIN-USB/RS232	USB TO RS232 ADAPTOR
20		1.0	501593	LABEL, WARNING, FCC PART 15



REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	SEE ECN 5292	03/26/04	
B	SEE ECN 5324	8/24/04	
C	SEE ECN 5393	2/15/05	
D	SEE ECN 5436	4/19/05	
E	SEE ECN 5647	3/13/07	



ASSEMBLY INSTRUCTIONS:

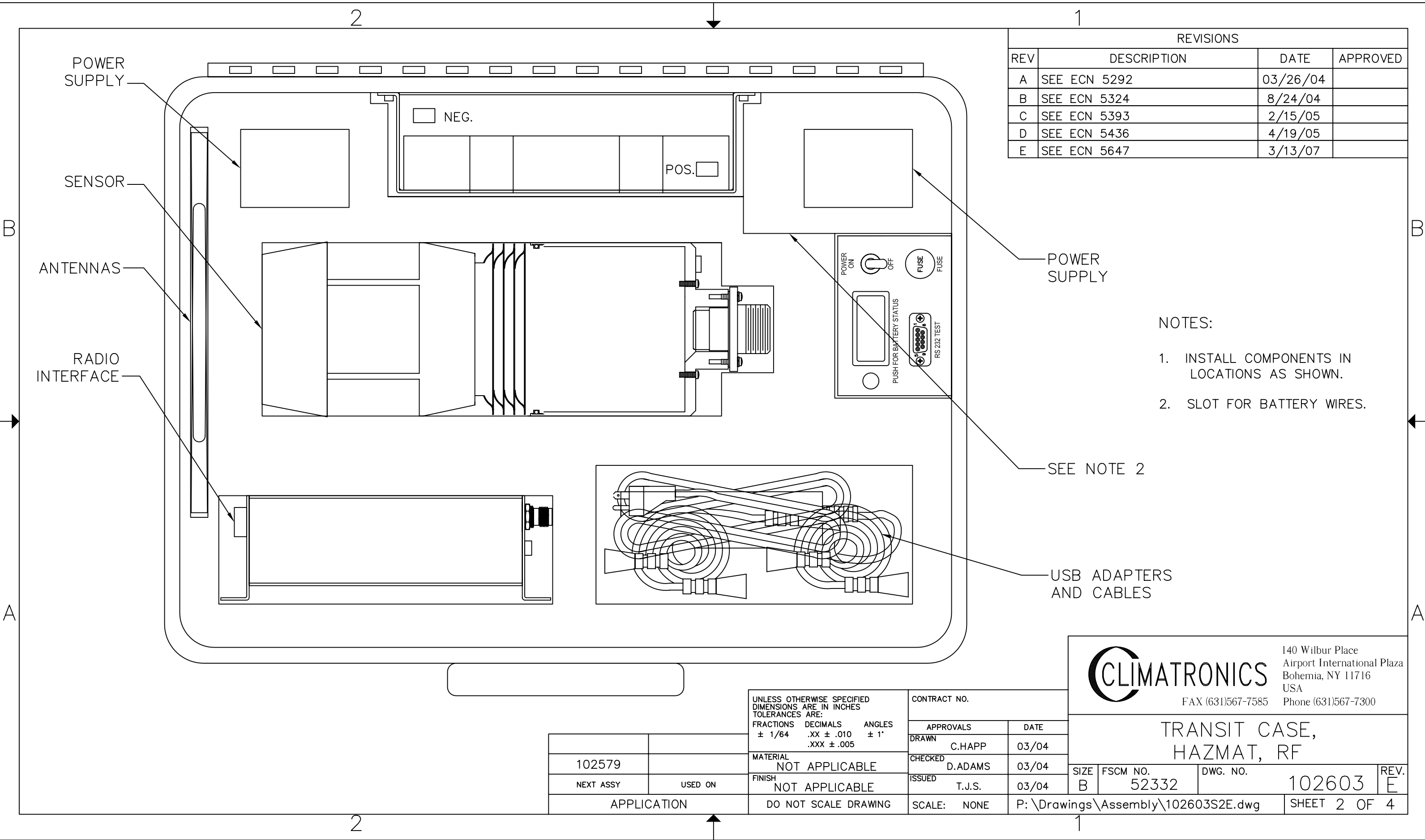
- 1) ASSEMBLE SWITCH BRACKET AS SHOWN, REFER TO 401476 FOR WIRING DETAILS.
- 2) INSERT BRASS RINGS INTO TWO MOUNTING HOLES OF RUBBER DUST COVER, DETAIL A.
- 3) WIRE CONNECTORS AND INSTALL WITH DUST COVERS INTO CASE AS SHOWN, DETAIL B & C. EACH CONNECTOR MOUNTED WITH TWO #4-40 FLAT HEAD SCREWS.
- 4) INSTALL ASSEMBLED SWITCH BRACKET ONTO INTERNAL RIGHT SIDE OF CASE AS SHOWN IN DETAIL C USING 5/8" AND 1/2" #4-40 SEAL SCREWS.
- 5) INSTALL BATTERY AND BRACKET ONTO REAR SIDE OF CASE (DETAIL D) WITH 5/8" AND 1/2" #6-32 SEAL SCREWS.

102579	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO.	
FRACTIONS	DECIMALS	ANGLES	
± 1/64	.XX ± .010	± 1'	
	.XXX ± .005		
MATERIAL	NOT APPLICABLE	APPROVALS	DATE
FINISH	NOT APPLICABLE	DRAWN C.HAPP	11/03
		CHECKED D.ADAMS	11/03
		ISSUED T.J.S.	11/19/03
DO NOT SCALE DRAWING		SCALE: NONE	P:\Drawings\Assembly\102603S1E.dwg

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 USA
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TRANSIT CASE, HAZMAT, RF			
SIZE B	FSCM NO. 52332	DWG. NO. 102603	REV. E
SHEET 1 OF 4			



TRANSIT CASE, HAZMAT, RF
P/N 102603 Rev E
PARTS LIST
Sheet 3 of 4

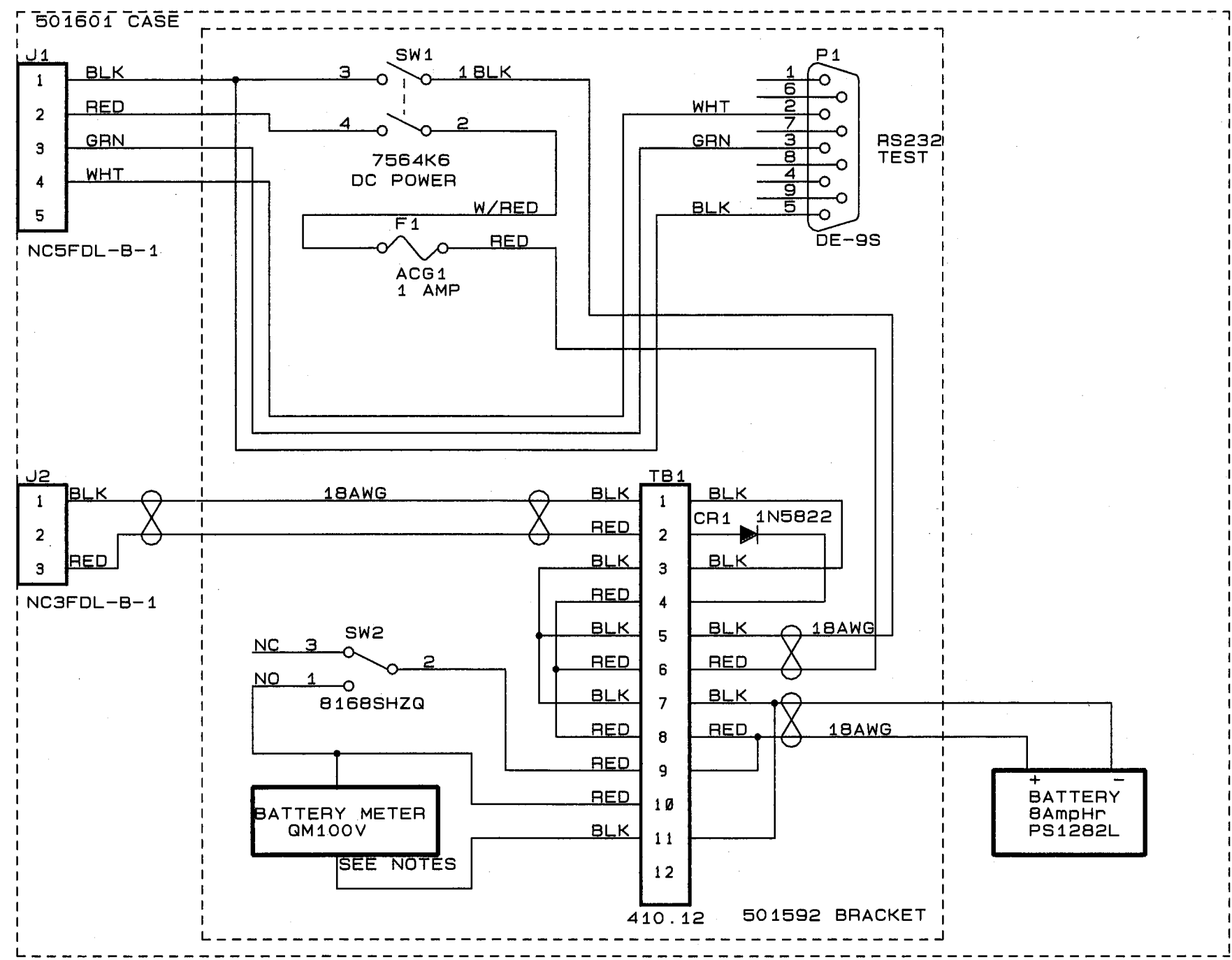
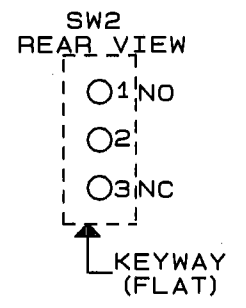
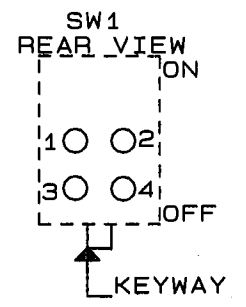
ITEM	SYM. NO	QTY	PART NO.	DESCRIPTION
1		1.0	501601	TRANS CASE, CAMEO/ALOHA W. SYS.
2		1.0	500853	BATTERY BRACKET
3		1.0	PS1282L	BATTERY, POWER SONIC 8 AMP HR
4		1.0	501592	BRACKET, TRANSIT CASE
5		1.0	HKP	FUSEHOLDER, 30 AMP 250V
6		1.0	AGC-1	FUSE, 1 AMP
7		1.0	7564K6	SWITCH, TOGGLE, DPDT
8		1.0	DE-9S	CONNECTOR, 9 PIN FEMALE
9		1.0	40.112	TERMINAL BLOCK
10		1.0	NC3FDL-B-1	CONNECTOR, 3 PIN, F, PANEL MT
11		1.0	NC5FDL-B-1	CONNECTOR, 5 PIN, F, PANEL MT
12		2.0	SCDF	COVER, CONNECTOR
13		2.0	MS51957-13	SCREW 4-40 x 1/4 PH
14		2.0	MS51957-4	SCREW 2-56 x 5/16
15		2.0	MS3212-5	SCREW SEAL 4-40 x 1/2
16		4.0	MS51959-17	SCREW 4-40 x 1/2 FH
17		2.0	MS35338-135	WASHER, LOCK SPLIT #4
18		2.0	MS35649-244	NUT HEX 4-40
19		2.0	MS3212-15	SCREW SEAL 6-32 x 1/2
20		2.0	MS3212-17	SCREW SEAL 6-32 x 5/8
21		2.0	MS3212-7	SCREW SEAL 4-40 x 5/8
22		2.0	DNF14-250FIB	TERMINAL LUG FEMALE DISCONNECT
23		1.0	1N5822	RECTIFIER 40V 3 AMP
24		1.0	QM100V	PANEL METER, LCD, 4-25 VDC
25		1.0	8168SHZQ	SWITCH, PUSHBUTTON, MOMENTARY

TRANSIT CASE, HAZMAT, RF
P/N 102603 Rev E
PARTS LIST
Sheet 4 of 4

ITEM	SYM. NO	QTY	PART NO.	DESCRIPTION
26		2.0	MS35338-134	WASHER LOCK SPLIT #2
27		2.0	MS35649-224	NUT HEX 2-56
		0.0	401476	WIRING DIAGRAM, HAZMAT CASE

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	ECN 5393	2-15-05	
B	ECN 5409	3-14-05	

SWITCH DETAIL



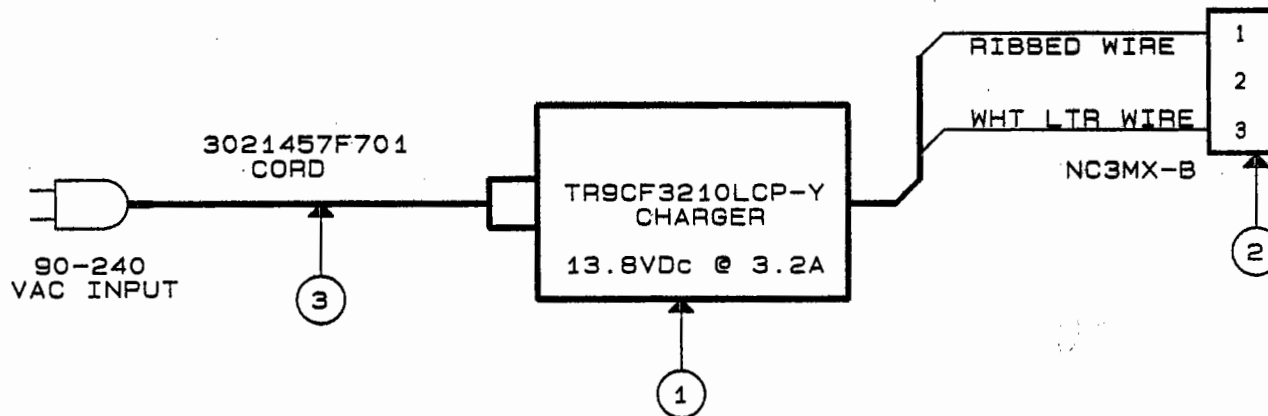
NOTE:

WHEN INSTALLING BATTERY METER:
 FOR PROPER ORIENTATION, BEND BACK GASKET TO REVEAL TEXT, TEXT WILL BE UPRIGHT WHEN CORRECTLY INSTALLED.
 DO NOT USE ADHESIVE ON GASKET, LEAVE PAPER BACKING ON.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES ± .XX ± .XXX ±		CONTRACT NO.			
MATERIAL NOT APPLICABLE		APPROVALS	DATE		
FINISH NOT APPLICABLE		DRAWN D. ADAMS	10/03	WIRING DIAGRAM HAZMAT CASE	
NEXT ASSY USED ON		CHECKED C. HAPP	10/03		
APPLICATION		ISSUED TJS	10/03	SIZE B	FSCM NO. 52332
DO NOT SCALE DRAWING				DWG. NO. 401476	REV. B
				SCALE	SHEET 1 of 1

102606A.ASY

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	ECN 5314	8-9-04	



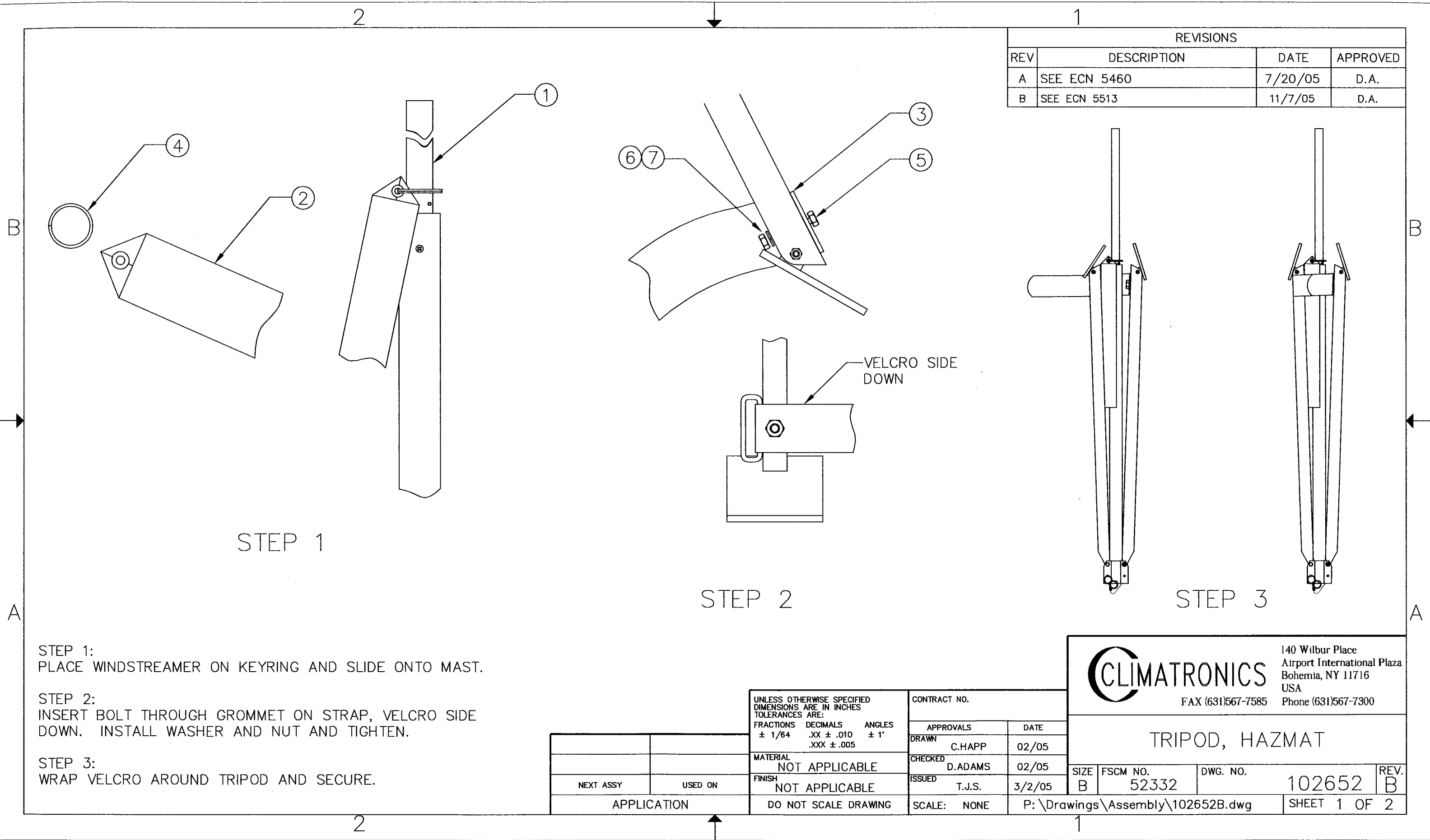
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO.			
FRACTIONS ±	DECIMALS .XX ± .XXX ±	ANGLES ±	APPROVALS		
MATERIAL	N/A	FINISH	DRAWN	D. ADAMS	10/03
NEXT ASSY	USED ON	FINISH	CHECKED	C. HAPP	10/03
APPLICATION		DO NOT SCALE DRAWING	ISSUED	SIZE	A
			SCALE	N/A	CAGE CODE
				52332	DWG. NO.
				102606A.asy	102606
				SHEET	1 OF 2
				REV.	A

CHARGER,
HAZMAT CASE



CHARGER, HAZMAT CASE (102603)
P/N 102606 Rev A
PARTS LIST
Sheet 2 of 2

ITEM	SYM.NO	QTY	PART NO.	DESCRIPTION
1		1.0	TR9CF3210LCP-Y	BATTERY CHARGER
2		1.0	NC3MX-B	CONNECTOR, 3 PIN, F, CABLE M
3		1.0	3021457F701	POWER CORD, NORTH AMERICAN



REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	SEE ECN 5460	7/20/05	D.A.
B	SEE ECN 5513	11/7/05	D.A.

STEP 1

STEP 2

STEP 3

STEP 1:
PLACE WINDSTREAMER ON KEYRING AND SLIDE ONTO MAST.

STEP 2:
INSERT BOLT THROUGH GROMMET ON STRAP, VELCRO SIDE DOWN. INSTALL WASHER AND NUT AND TIGHTEN.

STEP 3:
WRAP VELCRO AROUND TRIPOD AND SECURE.

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:			CONTRACT NO.	
FRACTIONS ± 1/64	DECIMALS .XX ± .010 .XXX ± .005	ANGLES ± 1°	APPROVALS	DATE
MATERIAL NOT APPLICABLE			DRAWN C.HAPP	02/05
FINISH NOT APPLICABLE			CHECKED D.ADAMS	02/05
DO NOT SCALE DRAWING			ISSUED T.J.S.	3/2/05
SCALE: NONE			P: \Drawings\Assembly\102652B.dwg	

		140 Wilbur Place Airport International Plaza Bohemia, NY 11716 USA	
		FAX (631)567-7585 Phone (631)567-7300	
TRIPOD, HAZMAT			
SIZE B	FSCM NO. 52332	DWG. NO. 102652	REV. B
SHEET 1 OF 2			

TRIPOD/SOFTCASE, HAZMAT
F/N 102652 Rev B
PARTS LIST
Sheet 2 of 2

ITEM	SYM.NO	QTY	PART NO.	DESCRIPTION
1		1.0	T-1200C	TRIPOD, HAZMAT
2		1.0	501629	WIND STREAMER, HAZMAT, 2 x 20
3		1.0	2X18KVSG	VELCRO STRAP W/GROMMET 2 X 18
4		1.0	90109	KEYRING, HAZMAT
5		1.0	MS35307-306	BOLT 1/4-20 x 3/4
6		1.0	MS35338-139	WASHER LOCK SPLIT 1/4
7		1.0	MS35649-2254	NUT HEX 1/4-20
8		1.0	RC6069	SOFTCASE, T-1100C/T-1200C TRIPD