

HAZMAT RF WEATHER SYSTEM OPERATION MANUAL P/N 102643



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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.

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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

The HAZMAT Weather Station, P/N 102643, 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. 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 sensor 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/solar panel 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 and 3 for detailed installation procedures for the Spread Spectrum base station and remote sensor.

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 solar panel/battery charger provided with the system. For remote use, remove the solar panel from behind the foam in the lid and attach it to the top of the enclosure with the Velcro strips that are on the case and the solar panel. Plug the solar panel into the 3 pin connector to charge the battery.

Whenever AC power is available, the charger should be plugged into the system to maintain battery life. The solar panel or AC charger will charge the battery with the power switch in either the off or on position. The case is equipped with a battery test meter. With power switch off and solar panel/AC charger disconnected, press the button to view the battery charge level. If the battery is below 10 volts, charge it with the AC battery charger provided in the case.

Base Station:

There are basically 3 connections to be made on the spread spectrum radio base. Please refer to Figure 2. Always make sure the antenna is connected and the power switch is off when connecting power to the radio. The RS232 output is connected from the base station to the PC running the CAMEO/ALOHA software through the 9 Pin cable provided. The RS232 data rate on the radio has been factory preset to 1200 baud, to comply with the CAMEO/ALOHA standard.

NOTE: The receiver on the radio is very sensitive to lightning. Never operate the radio without the lightning protector installed and insure that the protector is always connected to a solid earth ground.

5.0 THEORY OF OPERATION

P/N 102770 AIO weather sensor provided with the system samples the meteorological parameters once per second. The microprocessor in the sensor stores these values and derives the 30-second running averages required by the CAMEO/ALOHA software. Please refer to Figure 4 for details on the SAM output. In addition to the SAM output, the sensor also provides an instantaneous RS232 output on the test connector in the transit case. 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. Please refer to Figure 5 for details.

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 resident in the sensor 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 sensor 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). Your sensor has been factory preset to the declination for the zip code provided in the shipping address of your order. 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).

6.2.2 Set up the remote and base station as noted in Figures 2 and 3. Do not turn on the power to the remote station.

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) Please refer to Figure 1. This is a screen capture of the declination setting procedure. Once the procedure is completed, the Weather Station will start to output the SAM station data. The declination calibration is complete and the station may be set up in the field. Be sure to turn the power off in the remote station before moving the station to the field or storing it in the transit case.

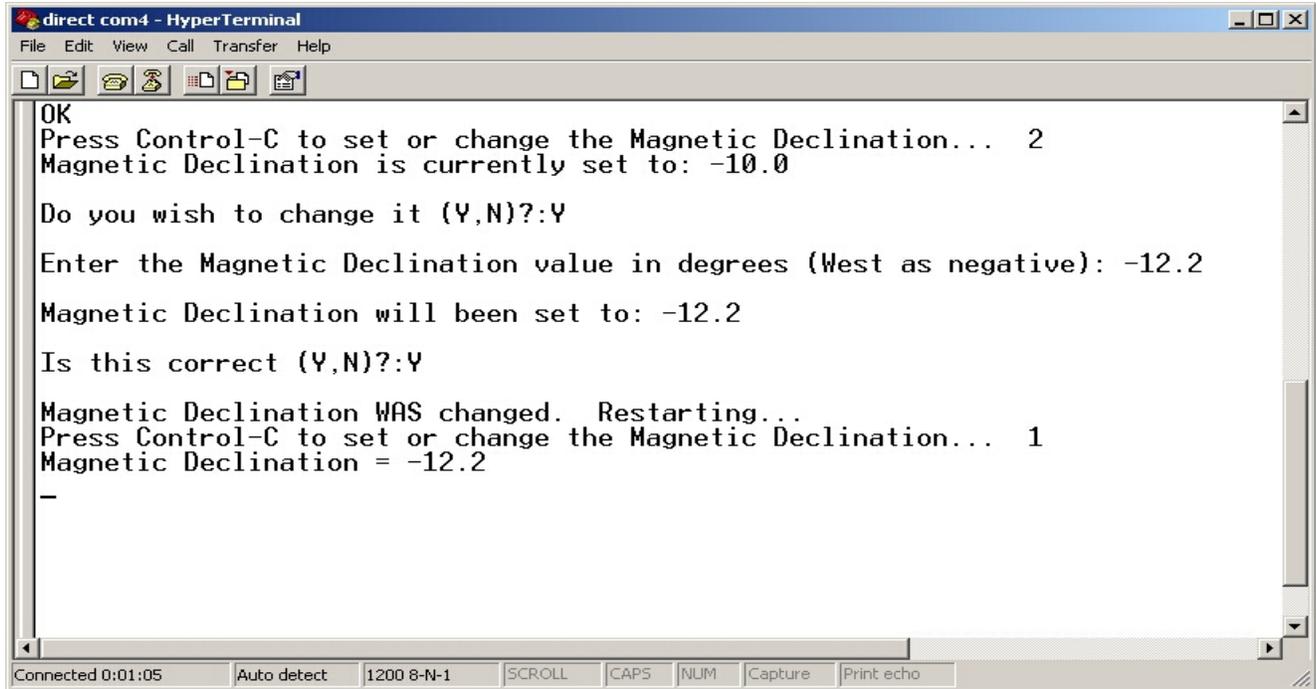


Figure 1

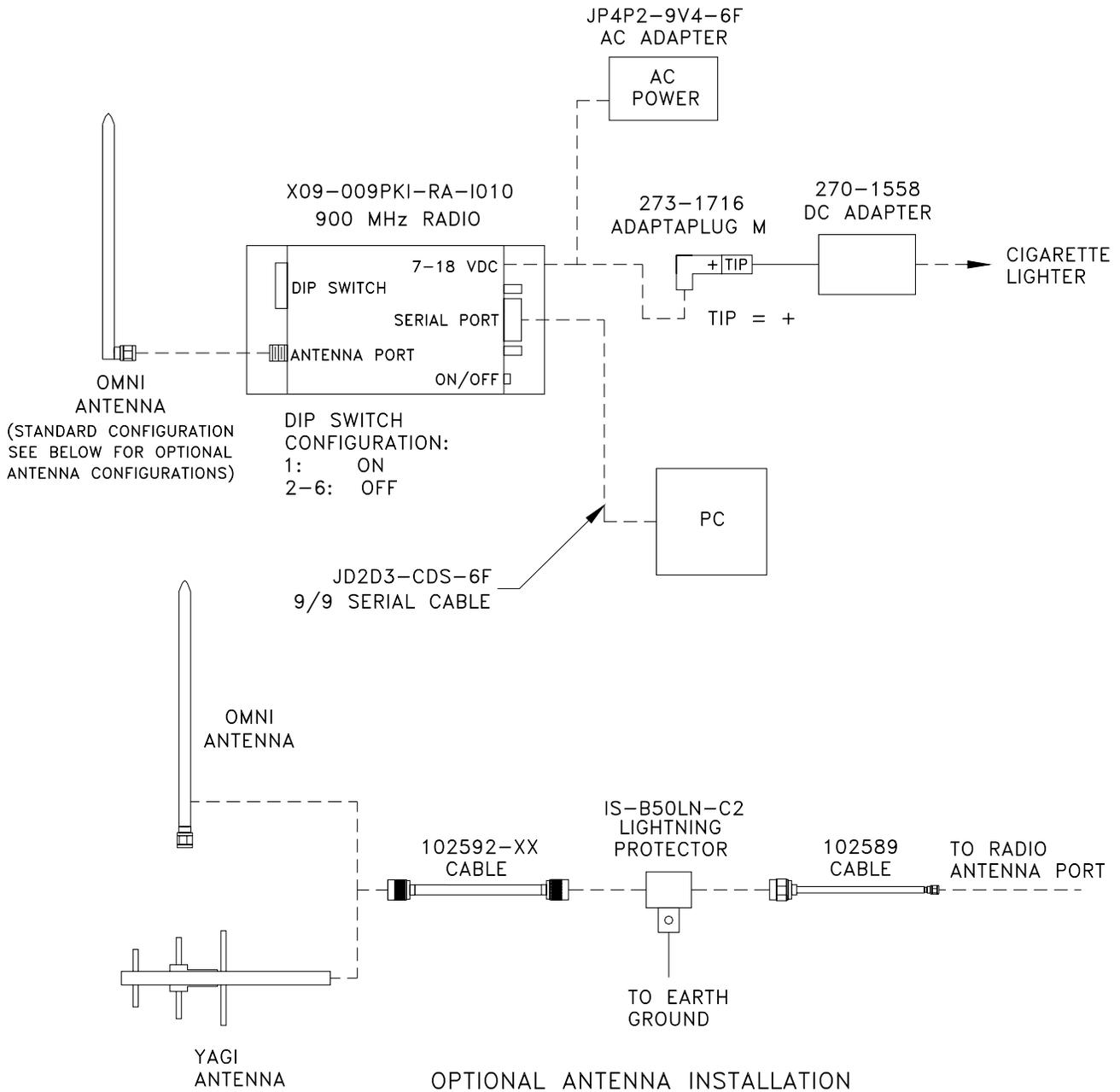


Figure 2

Figure 3

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

YAGI antenna installation:

Install antenna onto Tripod Mast as shown. Remove U-Bolt being careful not to lose the spacers. Tighten nuts to secure the antenna just below Quick Mount.

Connect one end of the Antenna Cable to connector on Sensor and other end to YAGI Antenna Connector (remove red plug cap from Antenna). Install Sensor.

Sensor installation:

Remove Sensor from the Transit Case and place on 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, rotate it 180°.

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.

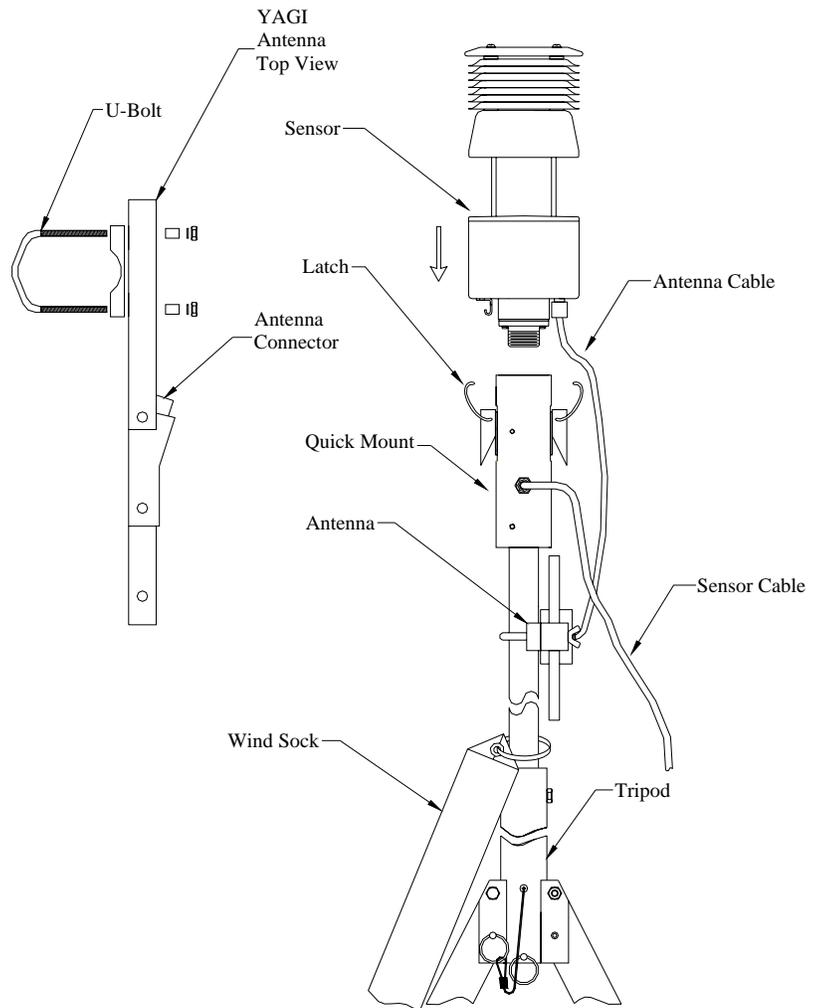
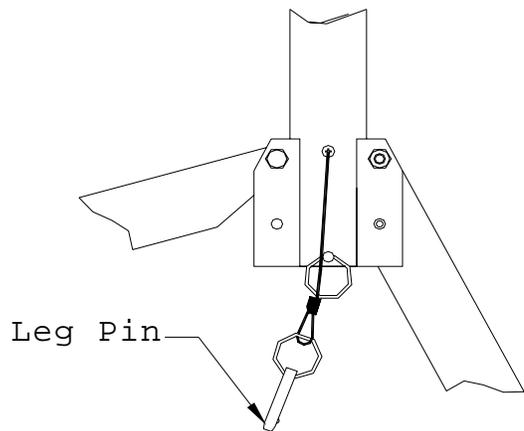


Figure 4

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 ID = 308 and VS=SP, WD=DI, SD= -1, and TA=TI. A change of ID to 121 indicates valid averages are being transmitted. 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 5

Diagnostic Port in the HAZMAT enclosure:

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.

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Revision	Description	Date	Approved
-	Released to Production	4/12/05	D.A.
A	See ECN 5450	5/24/05	D.A.
B	See ECN 5467	8/01/05	D.A.
C	See ECN 5484	9/02/05	D.A.
D	See ECN 5713	2/26/08	D.A.

HAZMAT EXT RANGE & POWER OPT.
P/N 102643 Rev B
PARTS LIST
Sheet 1 of 1

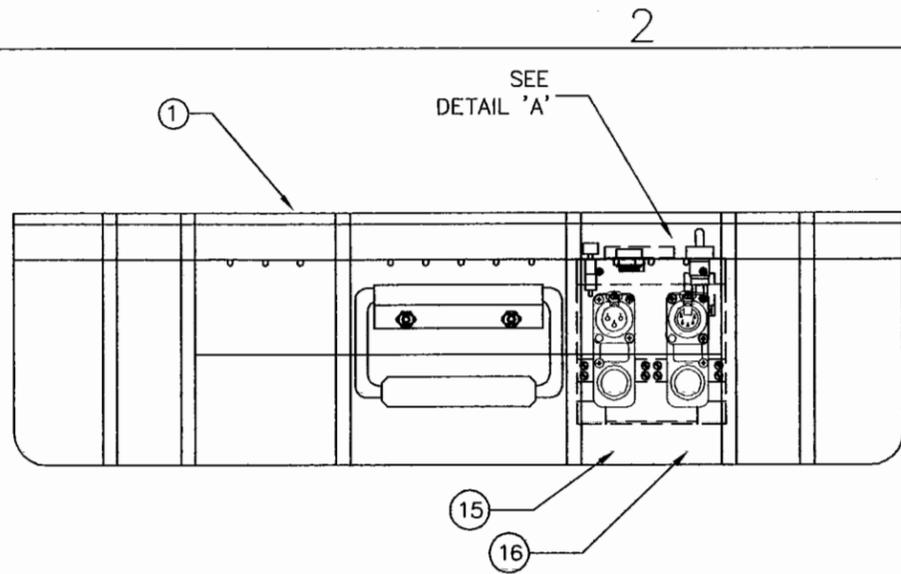
ITEM	SYM. NO	QTY	PART NO.	DESCRIPTION
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Notes: Items to be provided that are included with MaxStream Radio:

- 1 ea. A09-HASM-675 Antenna
- 1 ea. JD2D3-CDS-6F 9 Pin RS232 Cable
- 1 ea. JD2D2-CDN-A Male to Male Null Modem Adaptor
- 1 ea. JD2D3-CDL-A Male/Male Loop-back Adaptor
- 1 ea. JP4P2-9V4-6F 9VDC 400mA Power Supply (Center Positive)
- 1 ea. JP2P3-C2C-4I 9V Battery clip to Power Adaptor Cable
- 1 ea. JE1D2-CDA-A RJ45 female to DB9 Male Adapter
- 1 ea. JE1D3-CDA-A RJ45 female to DB9 Female Adaptor
- 1 ea. Quick Start Guide
- 1 ea. XStream Wireless Product Documentation and Software CD

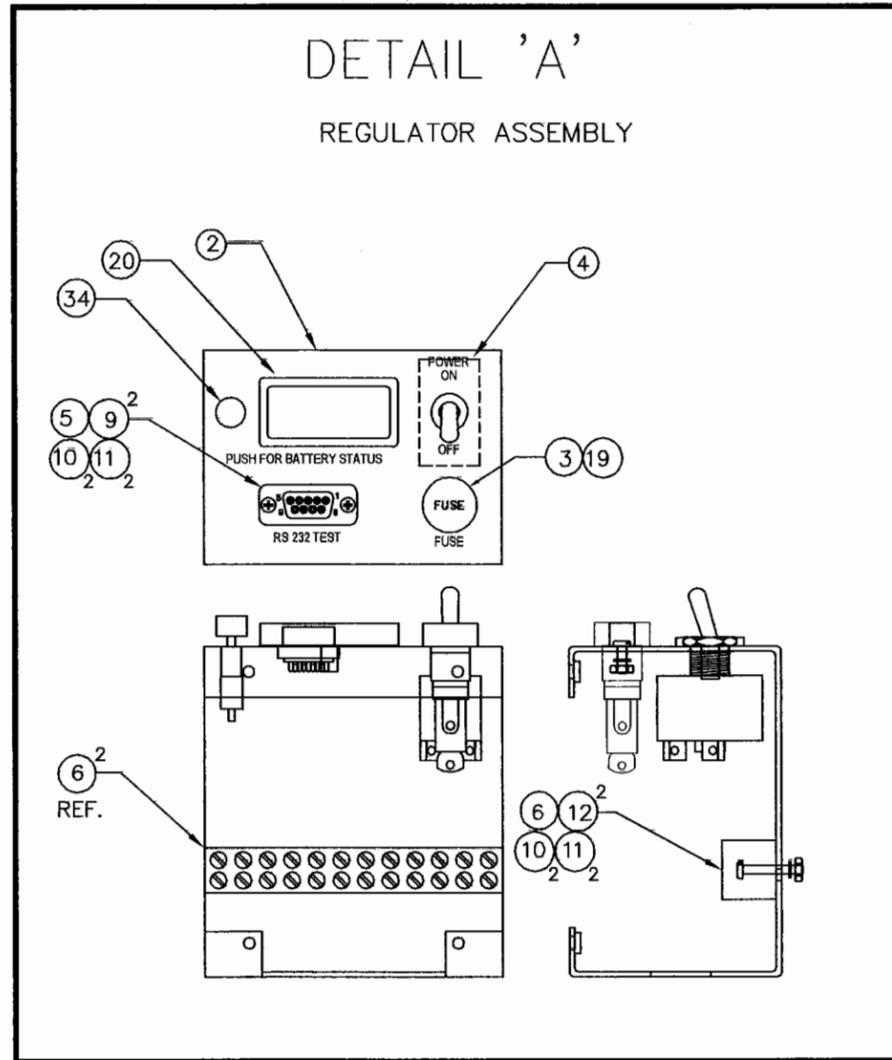
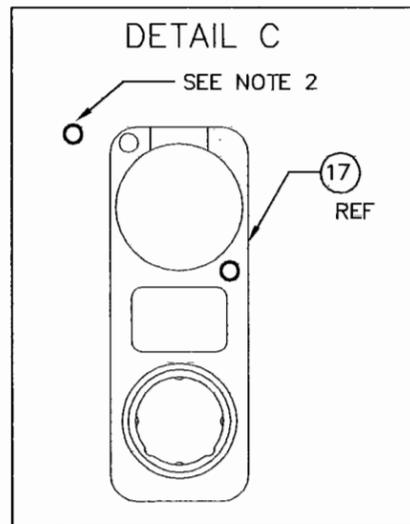
M3228 CABLE FOR 102607 MOUNT IS CALLED OUT ON INDIVIDUAL JOB ORDERS. SEE JOB ORDER FOR CORRECT CABLE LENGTH.

1		1.0	102559-10	CABLE ASSY, SS ANT. TO TACMET
2		1.0	102593	TRANSIT CASE, HAZMAT
3		1.0	102606	CHARGER, HAZMAT CASE (102603)
4		1.0	102644	FOLDABLE SOLAR PANEL (102593)
5		1.0	A09-YBNF	900 MHz YAGI ANTENNA, 8 DB
6		1.0	102770	ASSEMBLY, AIO, HAZMAT, RADIO
7		1.0	102607-G2-10	MOUNT, TACMET, QUICK RELEASE
8		1.0	X09-009PKI-RA-IO10	SPREAD SPECTRUM RADIO, 900 MHz
9		1.0	270-1558	DC POWER ADAPTER, 5A
10		1.0	273-1716	ADAPTAPLUG M
11		1.0	26-117	RS232 SERIAL CABLE, 6 FT.
12		1.0	102652	TRIPOD/SOFTCASE, HAZMAT

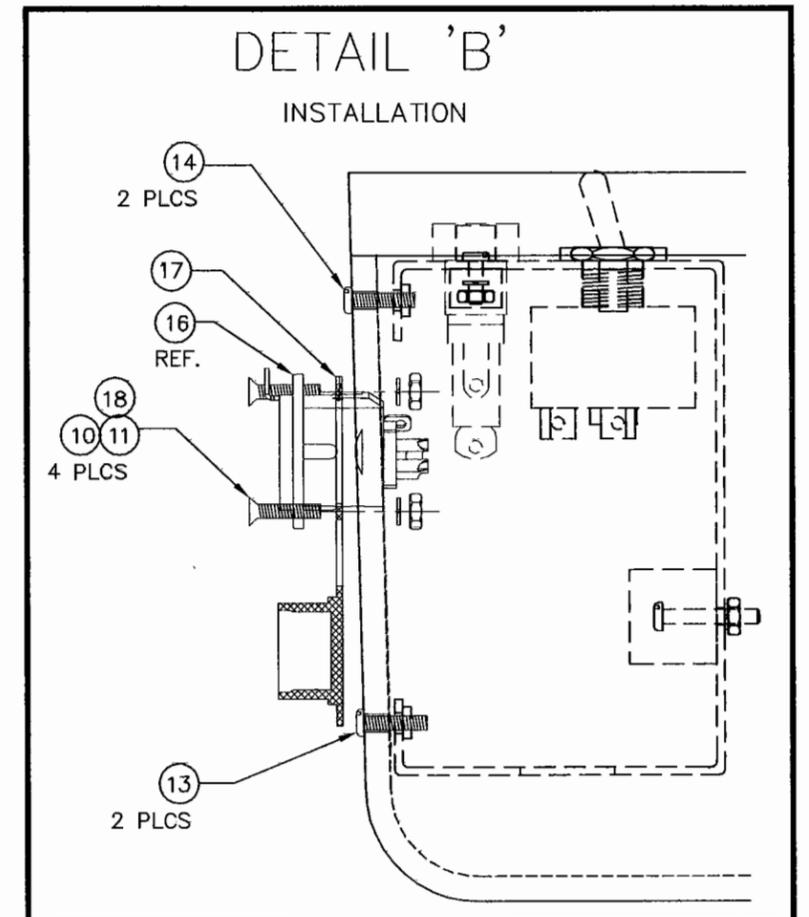


REGULATOR ASSEMBLY INSTALLATION

- 1) REFER TO 401494 FOR WIRING DETAILS.
- 2) INSERT BRASS RINGS INTO TWO MOUNTING HOLES OF RUBBER DUST COVER, DETAIL C.
- 3) INSTALL DUST COVERS BETWEEN CASE AND CONNECTORS AS SHOWN IN DETAIL B.
- 4) INSTALL ASSEMBLY AGAINST INSIDE EDGE OF CASE. SCREWS MOUNTED FROM OUTSIDE OF CASE, DETAIL B.
- 5) INSTALL FOAM P/N 501595S2 BEFORE INSTALLING BATTERY BRACKET (SHEET 2).



REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	SEE ECN 5354	10/28/04	
B	SEE ECN 5395	2/21/05	
C	SEE ECN 5441	4/28/05	
D	SEE ECN 5444	5/13/05	
E	SEE ECN 5541	2/10/06	D.A.



102643		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES ± 1/64 .XX ± .010 ± 1'		CONTRACT NO.		140 Wilbur Place Airport International Plaza Bohemia, NY 11716 USA FAX (631)567-7585 Phone (631)567-7300	
NEXT ASSY		USED ON		APPROVALS		DATE	
APPLICATION		DO NOT SCALE DRAWING		DRAWN C.HAPP		10/03	
				CHECKED D.ADAMS		10/03	
				ISSUED T.J.S		10/24/03	
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				REV.		E	
				SHEET		1 OF 4	

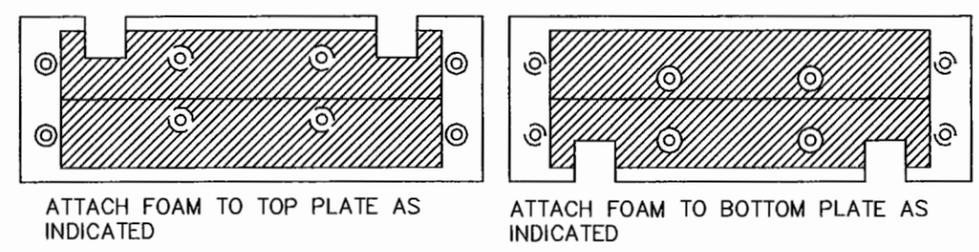
CLIMATRONICS
140 Wilbur Place
Airport International Plaza
Bohemia, NY 11716
USA
FAX (631)567-7585 Phone (631)567-7300

TRANSIT CASE,
HAZMAT

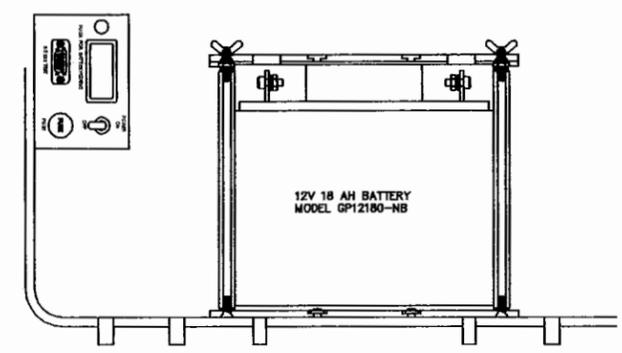
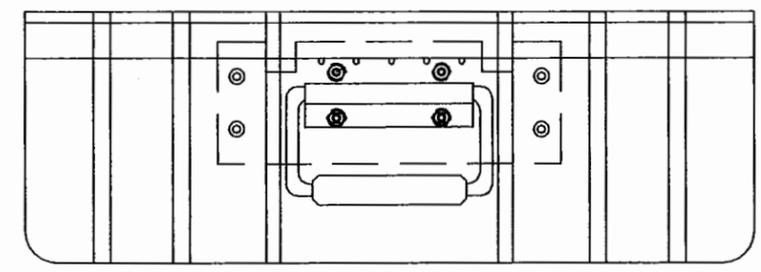
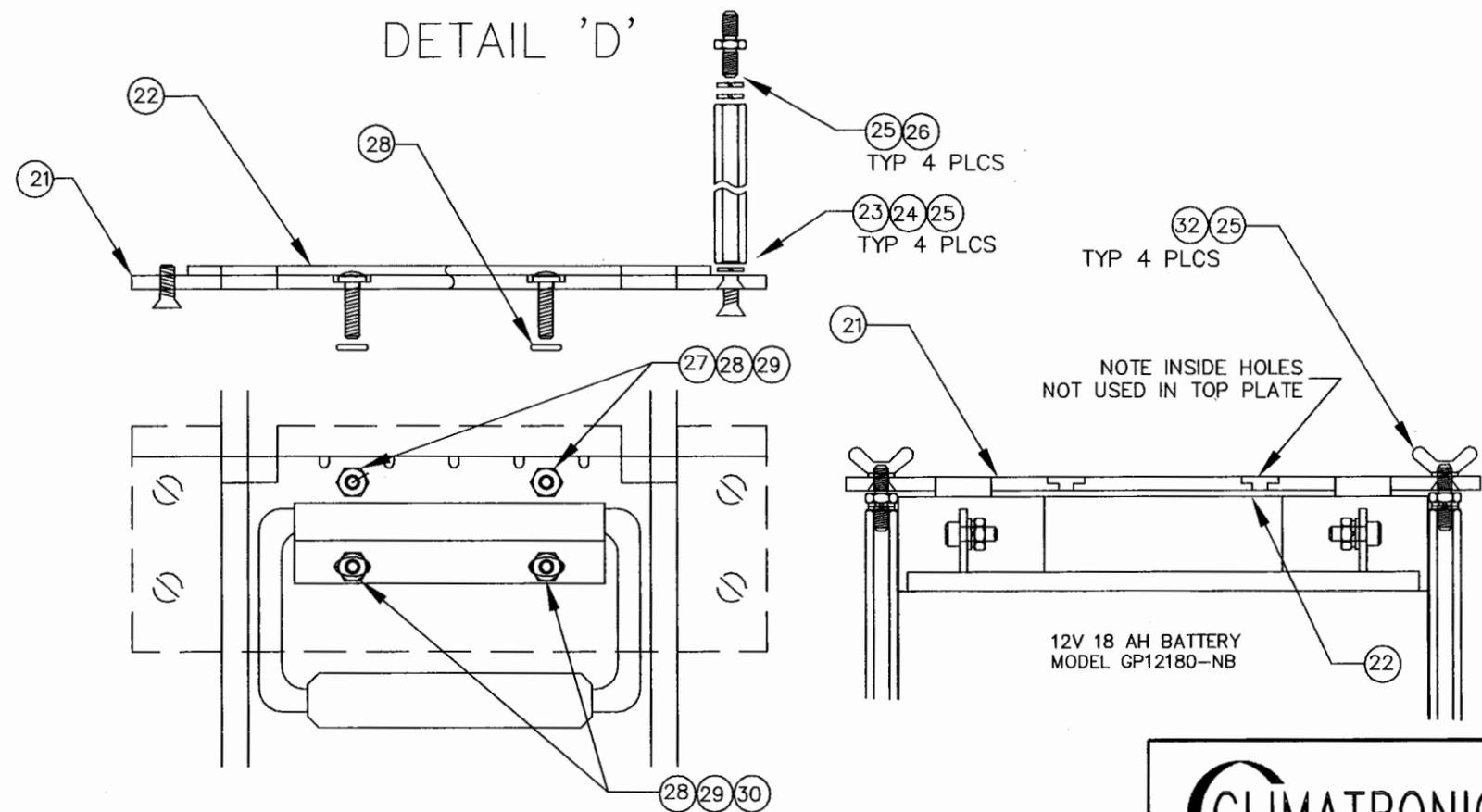
SIZE B FSCM NO. 52332 DWG. NO. 102593 REV. E
SHEET 1 OF 4

REVISIONS			
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B	SEE ECN 5395	2/21/05	
C	SEE ECN 5441	4/28/05	
D	SEE ECN 5444	05/13/05	
E	SEE ECN 5541	02/10/06	D.A.

DETAIL 'C'



DETAIL 'D'



BATTERY INSTALLATION

- 1) REMOVE HANDLE FROM BOTTOM OF CASE
- 2) COVER PLATES WITH FOAM AS SHOWN IN DETAIL 'C'. INSTALL FOAM SIDE TOWARDS BATTERY.
- 3) INSTALL 6" STANDOFFS IN FOUR COUNTERSUNK HOLES IN PLATE. SEE DETAIL 'D'.
- 4) REFER TO DETAIL 'D'. SECURE BOTTOM PLATE TO CASE AS SHOWN, REPLACING HANDLE. PLACE O-RING BETWEEN PLATE AND CASE.
- 5) INSTALL BATTERY AND TOP PLATE AS SHOWN.

102643		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	
NEXT ASSY		MATERIAL NOT APPLICABLE		APPROVALS		TRANSIT CASE, HAZMAT	
USED ON		FINISH NOT APPLICABLE		DRAWN C.HAPP		DATE 10/03	
APPLICATION		DO NOT SCALE DRAWING		CHECKED D.ADAMS		10/03	
				ISSUED T.J.S.		10/24/03	
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				SIZE B		FSCM NO. 52332	
				DWG. NO. 102593		REV. E	
				SHEET 2 OF 4			

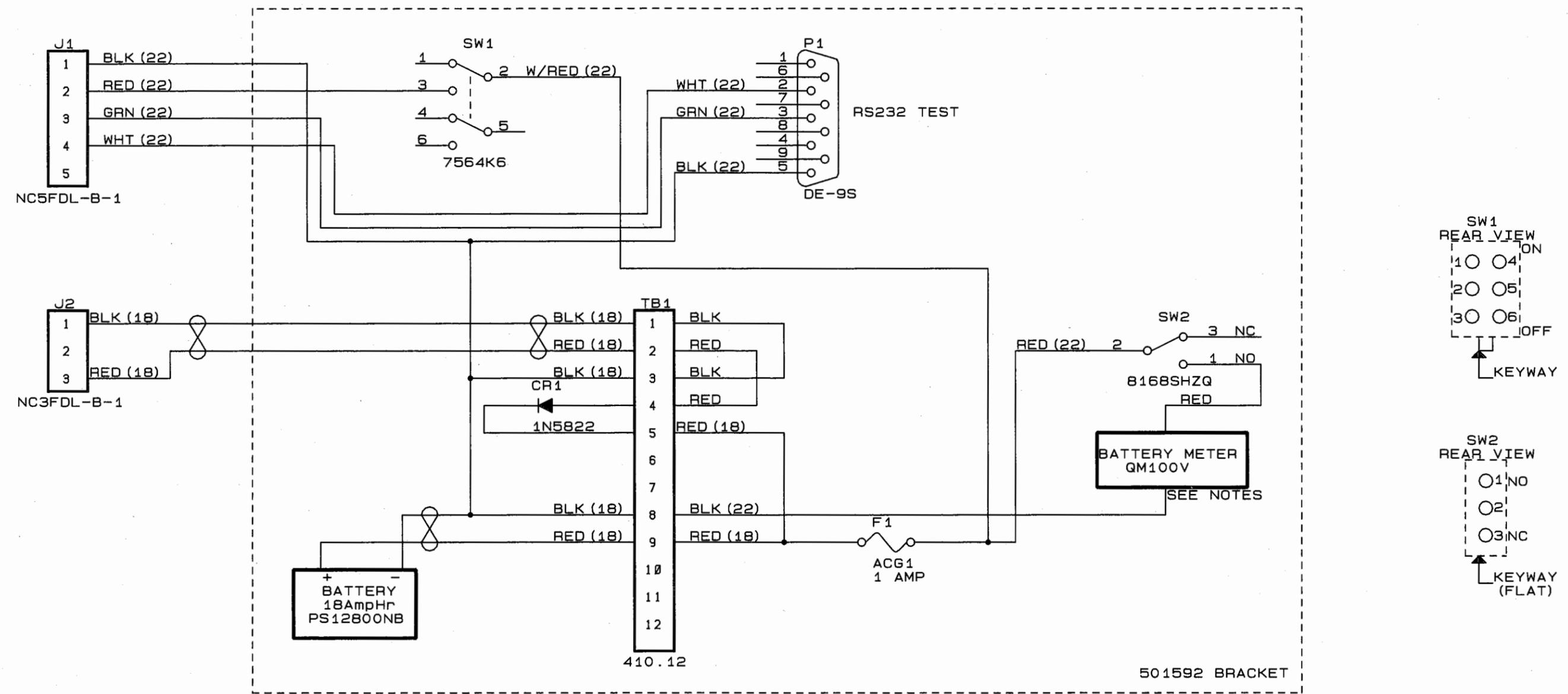
TRANSIT CASE, HAZMAT
P/N 102593 Rev E
PARTS LIST
Sheet 3 of 4

ITEM	SYM.NO	QTY	PART NO.	DESCRIPTION
Notes: ITEM 22 (50F4822) IS TO BE SUPPLIED IN 4 EA. 7.75 INCH LENGTHS ITEMS 7, 8, AND 33 NOT USED				
1		1.0	501594	TRANSIT CASE, MODIFIED
2		1.0	501592	BRACKET, TRANSIT CASE
3		1.0	HKP	FUSEHOLDER, 30 AMP 250V
4		1.0	7564K6	SWITCH, TOGGLE, DPDT
5		1.0	DE-9S	CONNECTOR, 9 PIN FEMALE
6		1.0	40.112	TERMINAL BLOCK
9		2.0	MS51957-15	SCREW 4-40 x 3/8 FH
10		8.0	MS35338-135	WASHER, LOCK SPLIT #4
11		8.0	MS35649-244	NUT HEX 4-40
12		2.0	MS51957-19	SCREW 4-40 x 3/4
13		2.0	MS3212-5	SCREW SEAL 4-40 x 1/2
14		2.0	MS3212-7	SCREW SEAL 4-40 x 5/8
15		1.0	NC3FDL-B-1	CONNECTOR, 3 PIN, F, PANEL MT
16		1.0	NC5FDL-B-1	CONNECTOR, 5 PIN, F, PANEL MT
17		2.0	SCDF	COVER, CONNECTOR
18		4.0	MS51959-18	SCREW 4-40 x 5/8 FH
19		1.0	AGC-1	FUSE, 1 AMP
20		1.0	QM100V	PANEL METER, LCD, 4-25 VDC
21		2.0	501591	BRACKET, BATTERY MOUNT
22		0.0	50F4822	FOAM ADHESIVE, 1/8 X 1
23		4.0	8611-SS-1032	STANDOFF, FEMALE 3/8 X 6.5
24		4.0	MS51960-64	SCREW 10-32 x 5/8 FH
25		16.0	MS35338-138	WASHER LOCK SPLIT #10

TRANSIT CASE, HAZMAT
P/N 102593 Rev E
PARTS LIST
Sheet 4 of 4

ITEM	SYM.NO	QTY	PART NO.	DESCRIPTION
26		4.0	8307	SPACER, MALE ADAPTER
27		2.0	MS51958-64	SCREW 10-32 x 5/8 PH
28		4.0	.208X.070X60BN	O-RING
29		4.0	1038-1032-02-00	NUT, 10-32, NYLON LOCKING NUT
30		2.0	MS51958-65	SCREW 10-32 x 3/4 PH
31		1.0	FS12180NB	BATTERY, 12V 18 A/HR
32		4.0	1026-1032-02-00	WING NUT 10-32
34		1.0	8168SHZ0	SWITCH, PUSHBUTTON, MOMENTARY
		0.0	401494	WIRING DIAGRAM, HAZMAT CASE

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	ECN 5395	2-21-05	
B	ECN 5411	3-14-05	
C	ECN 5448	5-20-05	
D	ECN 5541	2-10-06	



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.

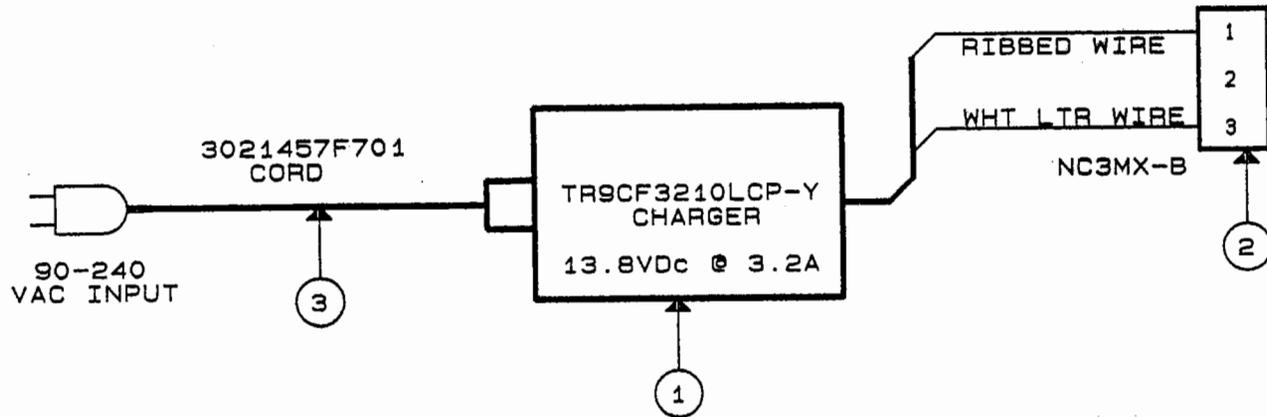
401494D.WIR

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	11/04	WIRING DIAGRAM HAZMAT CASE (102593)	
NEXT ASSY	USED ON	CHECKED C. HAPP	11/04		
APPLICATION		ISSUED T. J. S.	11/04	SIZE B	FSCM NO. 52332
DO NOT SCALE DRAWING				DWG. NO. 401494	REV. D
				SCALE	SHEET 1 of 1

106103

102606A.ASY

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

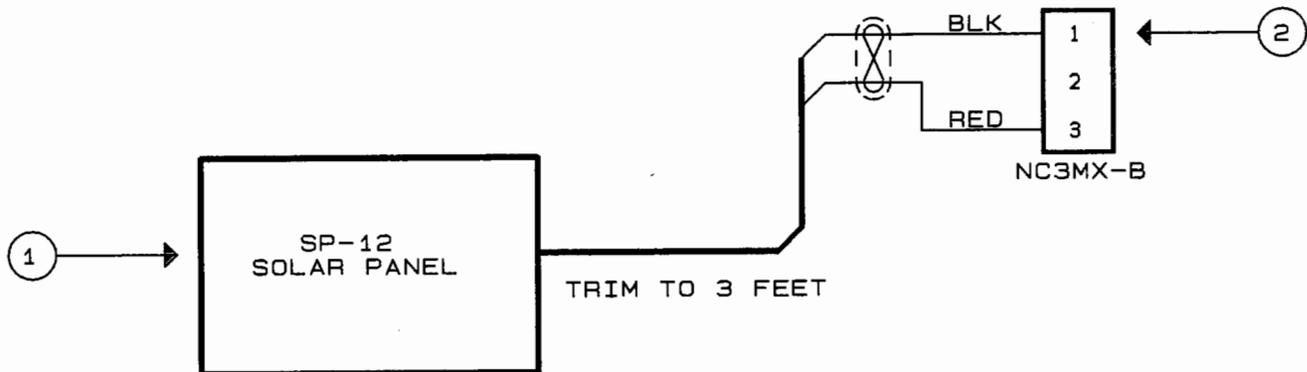


		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO.							
		FRACTIONS ±	DECIMALS .XX ± .XXX ±	ANGLES ±	APPROVALS		DATE		CHARGER, HAZMAT CASE		REV. A
		MATERIAL N/A			DRAWN D ADAMS		10/03				
		FINISH N/A			CHECKED C HAPP		10/03				
NEXT ASSY		USED ON			ISSUED						
APPLICATION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

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 5541	2-10-06	DA



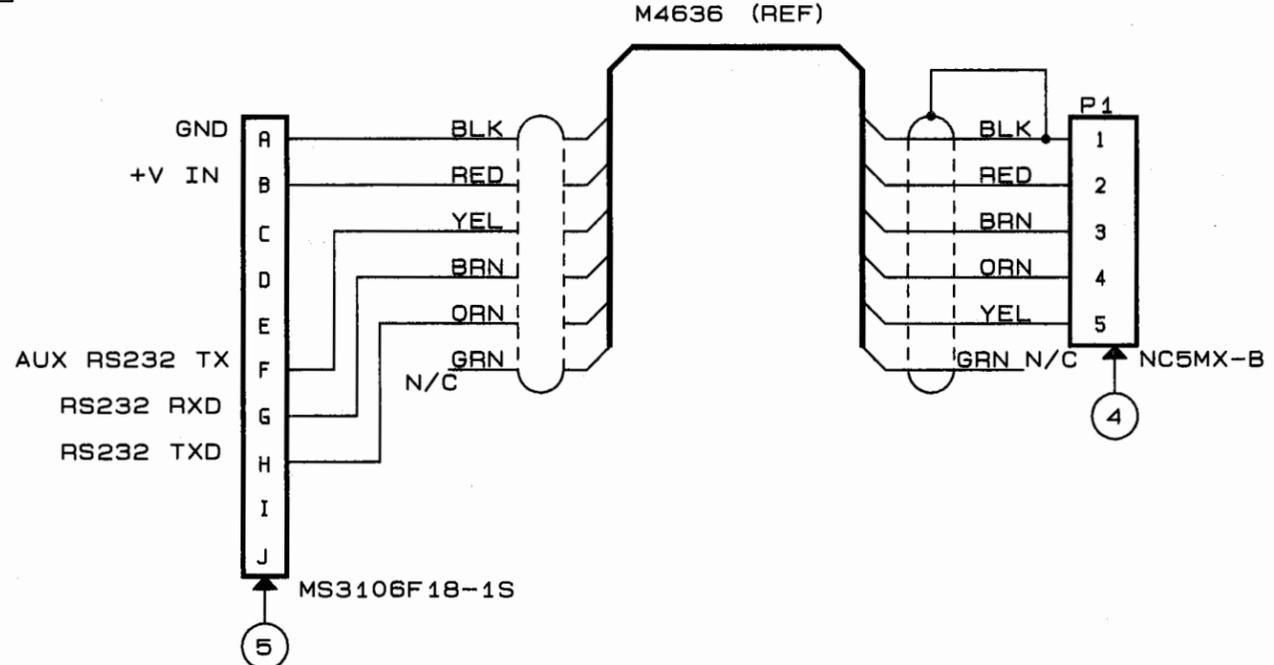
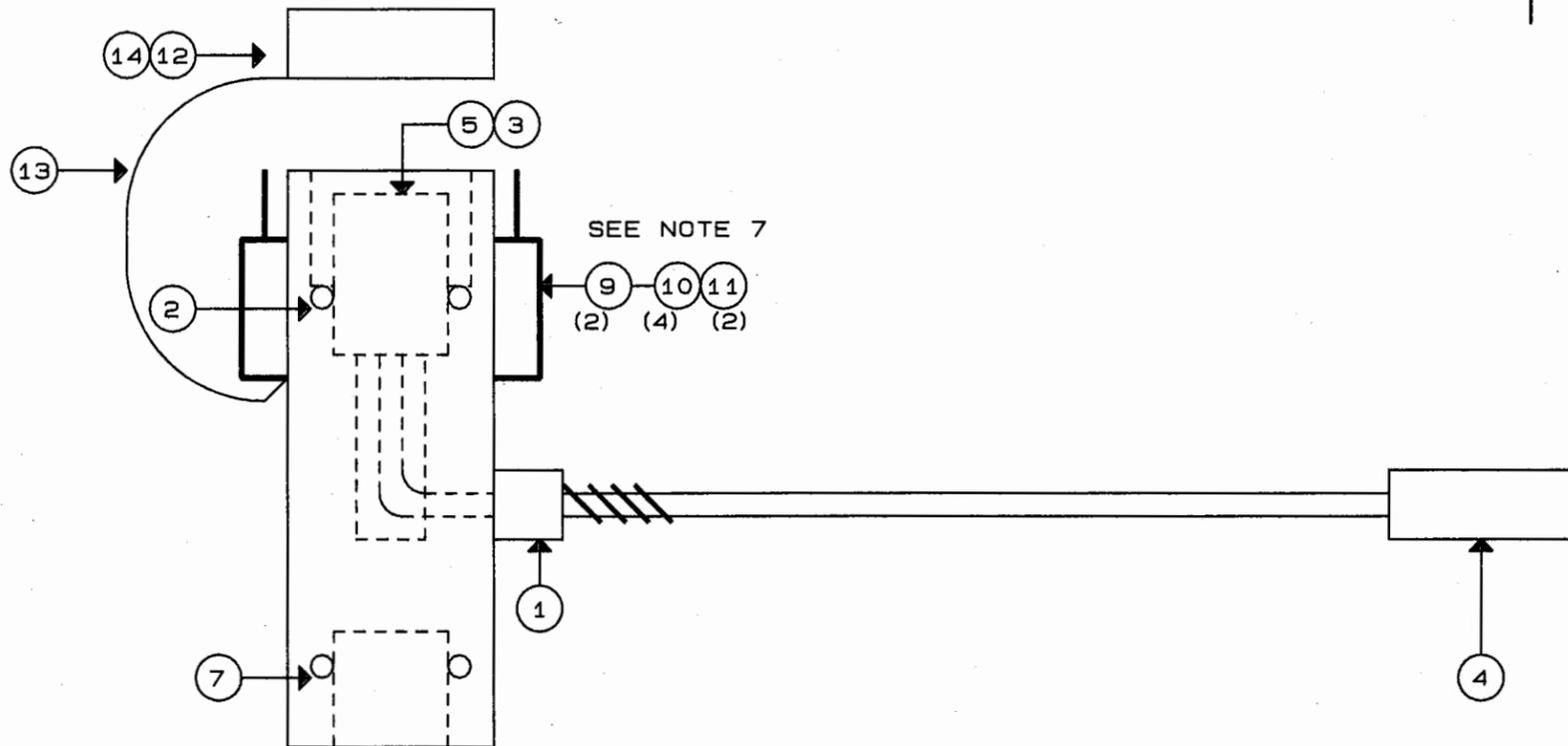
102644A.ASY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO.					
FRACTIONS ±	DECIMALS .XX ± .XXX ±	ANGLES ±	APPROVALS				DATE
MATERIAL			DRAWN	C.HAPP	11/04	FOLDABLE SOLAR PANEL ASSEMBLY	
FINISH			CHECKED	D. ADAMS	11/04		
NEXT ASSY			ISSUED				SIZE A CAGE CODE 52332 DWG. NO. 102644 REV. A
USED ON							SCALE N/A 102644A.ASY SHEET 1 OF 2
APPLICATION			DO NOT SCALE DRAWING				

FOLDABLE SOLAR PANEL (102593)
P/N 102644 Rev A
PARTS LIST
Sheet 2 of 2

ITEM	SYM.NO	QTY	PART NO.	DESCRIPTION
1		1.0	SP-12	SOLAR PANEL, PORTABLE, 12W
2		1.0	NC3MX-B	CONNECTOR, 3 PIN, M, CABLE MT

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 SIZE B FSCM NO. 52332 DWG. NO. 102607 REV. J	
FINISH NOT APPLICABLE		DRAWN D. ADAMS	11/03		
NEXT ASSY 102603 USED ON		CHECKED C. HAPP	11/03		
APPLICATION		ISSUED TJS	11/03	SCALE	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
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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

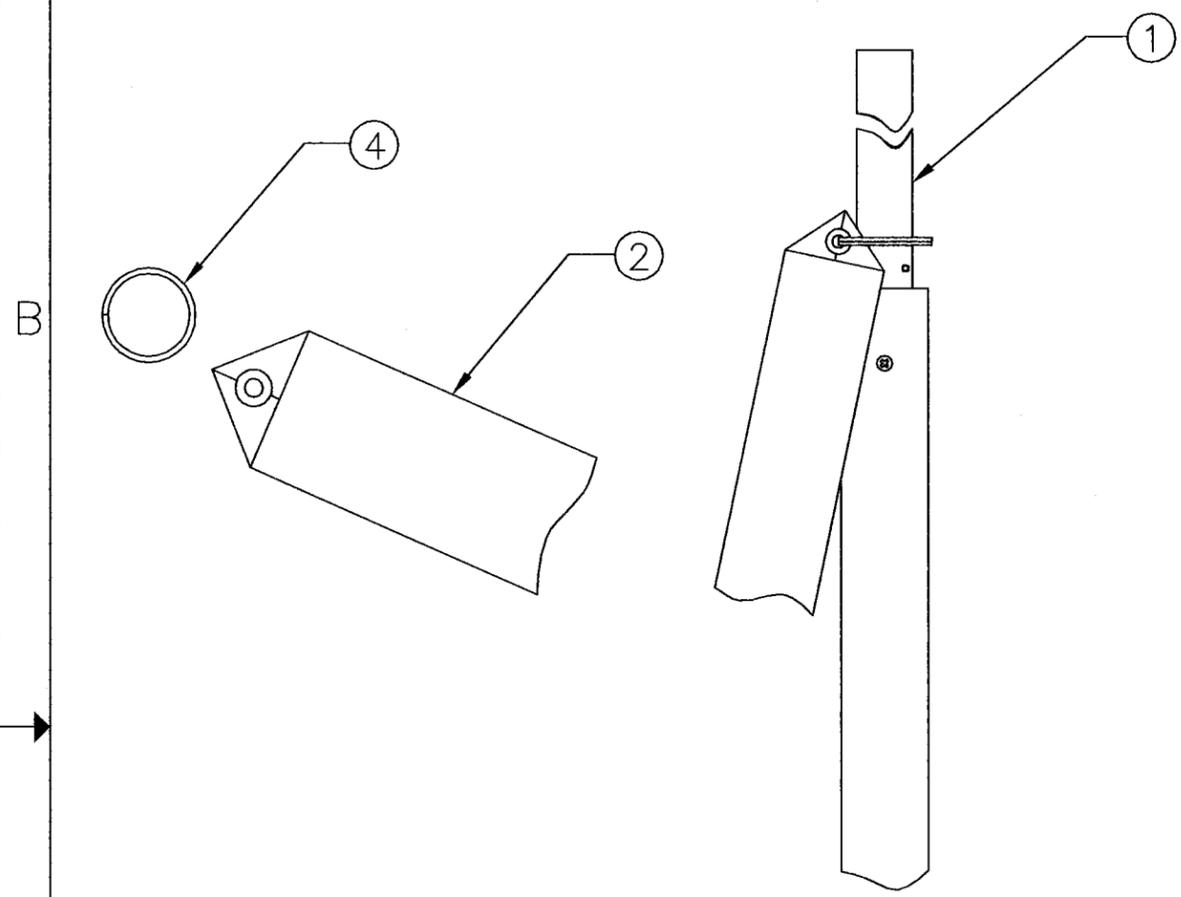
M4636 CABLE IS SHOWN FOR REFERENCE.
SEE CONFIGURED PART FOR CORRECT CABLE LENGTH.

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

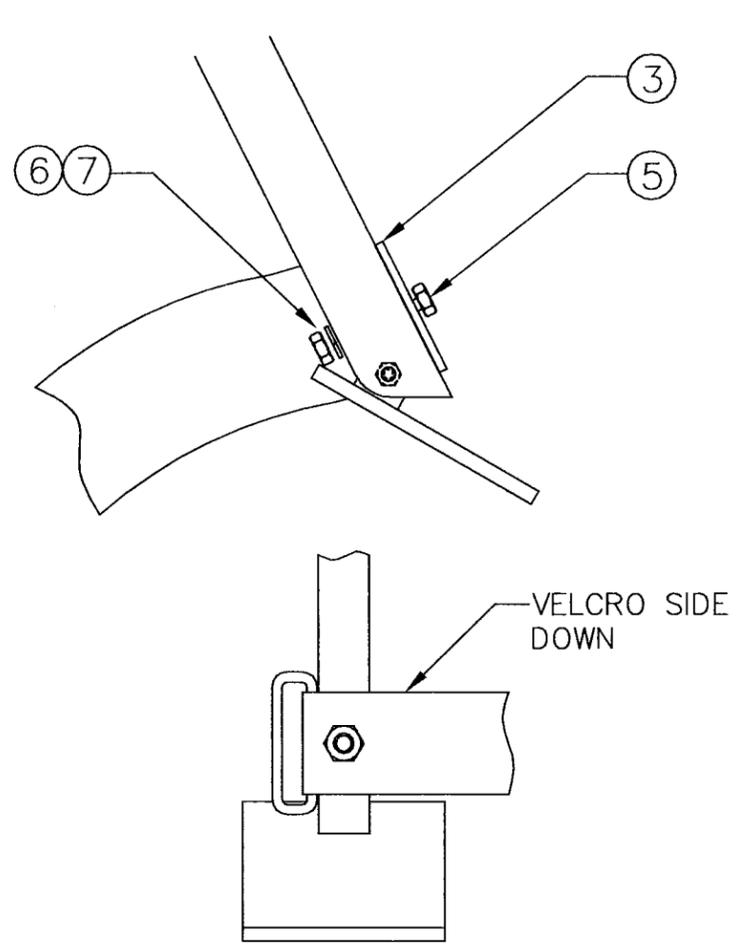
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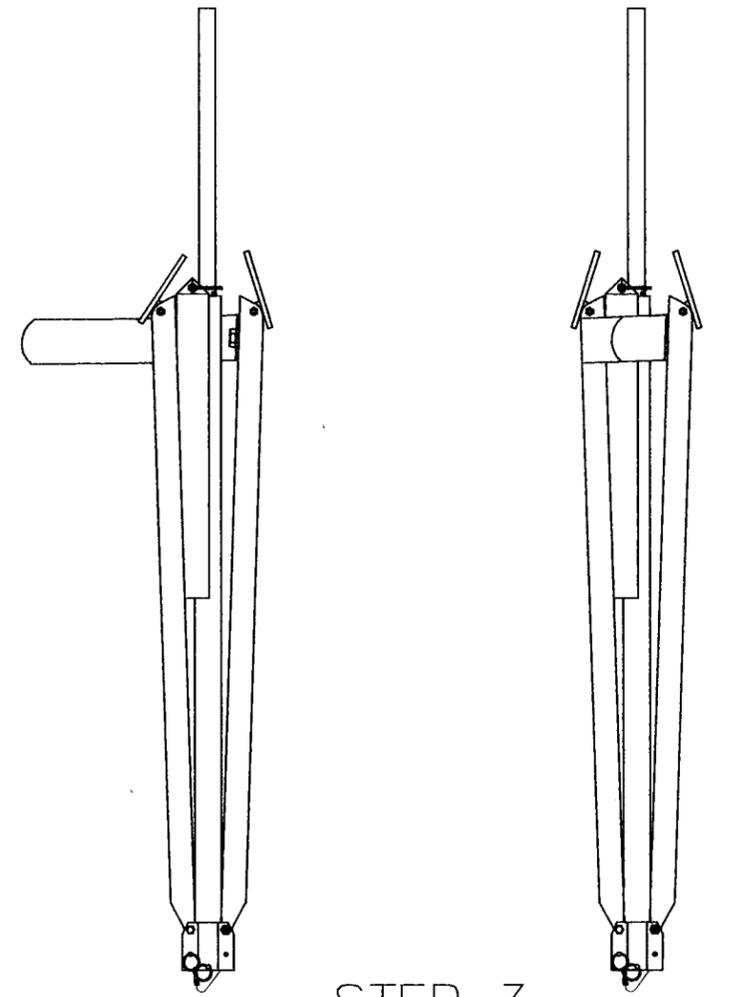
REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	SEE ECN 5460	7/20/05	D.A.
B	SEE ECN 5513	11/7/05	D.A.



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:		
FRACTIONS	DECIMALS	ANGLES
± 1/64	.XX ± .010	± 1°
	.XXX ± .005	
MATERIAL		
NOT APPLICABLE		
FINISH		
NOT APPLICABLE		
DO NOT SCALE DRAWING		

CONTRACT NO.	
APPROVALS	DATE
DRAWN C.HAPP	02/05
CHECKED D.ADAMS	02/05
ISSUED T.J.S.	3/2/05
SCALE: NONE	P: \Drawings\Assembly\102652B.dwg

CLIMATRONICS

140 Wilbur Place
Airport International Plaza
Bohemia, NY 11716
USA
FAX (631)567-7585 Phone (631)567-7300

TRIPOD, HAZMAT

SIZE	FSCM NO.	DWG. NO.	REV.
B	52332	102652	B

SHEET 1 OF 2

2

1

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